HYDROGEOLOGICAL INVESTIGATION

26-38 Hounslow Avenue,
Toronto, Ontario, M2N 2A8

Client

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Project Number

BIGC-GEO-154K

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Revision History

Version	Revision Date
Original	May 30, 2017
Revision 1	November 13, 2019
Revision 2	November 10, 2020
Revision 3	April 16, 2021
Revision 4	September 21, 2023

1 Introduction

1.1 Project Description

B.I.G. Consulting Inc. (BIG) was retained by Hounslow Holdings Inc. to update the previous Hydrogeological Investigation, conducted by BIG to support the proposed development of the site located at 26-38 Hounslow Avenue, Toronto, Ontario, M2N 2A8 (Site). A previous report titled, "Hydrogeological Investigation Update, 26-36 Hounslow Avenue, North York, Ontario", was prepared by BIG on April 16, 2021. It is BIG's understanding that the proposed building design has been revised and consists of a twenty six (26)-storey residential building with two (2) levels of underground parking according to drawing A6.00 Section A, prepared by Studio JCI (JCI), dated March 25, 2024. This report was prepared to address the revised building design.

The Site is located north of Hounslow Avenue and east of Beecroft Road, in Toronto, Ontario, as shown on Figure 1. The Site measures approximately 2,380 m² in size. The Site is currently occupied by four (4) residential buildings. The areas surrounding the residential buildings are covered with asphalt and landscaping. A Site Location Plan is provided in Figure 1.

The following investigations completed for the Site were reviewed by BIG:

- Preliminary Geotechnical Investigation Report, Proposed Residential Development, 26, 28 and 36 Hounslow Avenue, Toronto, Ontario, dated July 25, 2016, prepared by Shad & Associates Inc. (Shad); and,
- Preliminary Geotechnical Investigation, 26-38 Hounslow Avenue, Toronto, Ontario, dated October 22, 2019, prepared by BIG.

This report addresses the hydrogeological aspects of the proposed project. Reports for the Geotechnical Investigation will be issued under separate cover. The field investigation for the geotechnical, and hydrogeological investigations was carried out concurrently.

1.2 Project Objectives

The main objectives of the Hydrogeological Investigation were to:

a) Establish the subsurface geological and hydrogeological conditions at the expected foundation elevation;
b) Re-assess any potential construction dewatering flow rates;
c) Re-assess foundation sub-drain discharge volumes, if applicable; and,
d) Prepare an Updated Hydrogeological Investigation Report.

1.3 Scope of Work

To achieve the investigation objectives, BIG proposed and initiated the following scope of work:

a) Background desktop review of pertinent geological and hydrogeological resources;
b) Review of the Ministry of Environment, Conservation and Parks (MECP) Water Well Records;
c) Drill two (2) boreholes (BH401 and BH402) to maximum depth of 25.0 m below ground surface (bgs) and instrument with one (1) monitoring well (BH/MW402);
d) Utilizing the monitoring wells (BH/MW101 to BH/MW107, BHMW201 to BH/MW203) drilled at the Site by BIG to investigate the subsurface groundwater conditions;
e) Perform slug tests at the newly installed monitoring well to assess the hydraulic characteristics of the saturated soils at the Site;
f) Conduct one (1) round of groundwater level measurement at all available monitoring wells;

g) Evaluate the information collected during the field investigation program, including borehole geological information, groundwater level measurements and groundwater water quality;
h) Collection of one (1) groundwater sample for laboratory testing and compare it against the City of Toronto Storm and Combined/Sanitary Sewer Use By-Law parameters;
i) Preparation of site plan, cross section, geological mapping, and groundwater contour mapping for the Site;
j) Re-assessment of construction dewatering flow rates;
k) Re-assessment of long-term foundation sub-drain flow rates; and,
l) The preparation of an Updated Hydrogeological Investigation Report.

1.4 Previous Reports

1.4.1 Shad Preliminary Geotechnical Investigation Report

Shad completed a Preliminary Geotechnical Investigation report, dated July 25, 2016 that consisted of advancement of three (3) boreholes (BH1 to BH3).

1.4.2 BIG Preliminary Geotechnical Investigation

BIG completed a Preliminary Geotechnical Investigation, dated October 22, 2019. The investigation consisted of the advancement of three (3) boreholes (BH201 to BH203), installation of three (3) monitoring wells (MW201 to MW203) and submitted soil samples for grain size analysis.

2 Regional Setting

2.1 Regional Physiography

The Site is located in the Peel Plain physiographic region of Southern Ontario known as the bevelled till plain (Chapman & Putnam, 2007). Figure 2 shows the physiographic regions of southern Ontario around the Site.

The topography of the area is generally described as gradual downward slope towards Lake Ontario. Surficial overburden deposits in this physiographic region is primarily composed of a clay silt till.

2.2 Regional Geology

The surficial geology of the immediate area around the Site described as till consisting of stone-poor, sandy silt to silty sand-textured till on Paleozoic terrain. The surficial geology for the Site and surrounding areas is shown on Figure 3.

Bedrock of the region corresponds to the Georgian Bay Formation, Blue Mountain Formation, Billings Formation, Collingwood Member and Eastview Member consisting of shale, limestone, dolostone, and siltstone. The bedrock is expected at depths of approximately 70 m bgs at the Site.

2.3 Regional Hydrogeology

Groundwater movement through the subsurface is controlled by hydraulic gradients, the physical characteristics of the sediments, and the interconnectedness of lithological formations. Fine grained sediments restrict lateral movement of groundwater and induce vertical infiltration, while coarse grained sediments allow vertical flow with increased transmissivity.

The regional shallow groundwater flow is expected to follow the local topography and discharge to local area creeks and streams. Local deviation from the regional groundwater flow directions may occur in response to changes in topography and/or soil stratigraphy, as well as the presence of surface water features and/or existing subsurface infrastructure.

No local aquifers were identified that could negatively impact the subject Site.

3 Site Setting

3.1 Site Topography and Drainage

The Site is rectangular in shape and has an area of approximately 2,380 m². The Site is currently occupied by four (4) residential buildings. The Site gently slopes from north to southwest, with an elevation range between 184.77 m and 183.3 m above sea level (asl) based on the geodetic survey conducted by BIG. Precipitation falling within the Site is inferred to be directed to the nearby City of Toronto catch basins.

3.2 Local Surface Water Features

There are no surface water bodies on or immediately adjacent to the Site. The closest surface water body to the Site is the Newtonbrook Creek, which is situated approximately 1.7 km northeast of the Site, Don River West Branch is situated approximately 2.6 km west of the Site and Lake Ontario is situated approximately 16 km south of the Site. The Site is situated within the Lake Ontario watershed and is not within a Toronto and Region Conservation Authority (TRCA) regulated area.

3.3 MECP Water Well Review

Well Records from the MECP Water Well Record Database (WWR) were reviewed to determine the number of water wells and those locations present within a 500 m radius of the Site boundaries.

The MECP WWR database indicated that there were 74 well records within a 500 m radius of the Site. All identified well records are marked on Figure 4. A summary of the Water Well Records is included in Appendix B. A review of the records indicate that the majority of the wells were classified as observation wells, monitoring and test holes for 500 m radius of the Site. No supply water well was identified within 500 m of the Site.

3.4 Existing Permit to Take Water and Environmental Activity and Sector Registry Search

The MECP maintains a database of all active and expired Permit to Take Water (PTTW) and Sector Registry (EASR) items related to Construction Dewatering. There are six (6) active EASR registrations within 1 km of the Site and they are summarized in Table B-2, Appendix B. The location for the registrations is shown on Figure 5.

4 Field Program

4.1 Borehole and Monitoring Well Details

BIG advanced two (2) boreholes (BH401, and BH402) to a maximum depth of 25.0 m bgs on August 14 and 15, 2023, and instrumented with one (1) monitoring well (BH/MW402). The boreholes were advanced by using truck mounted hollow stem continuous flight auger equipment under the direction and supervision of BIG field personnel. Soil samples were retrieved at regular intervals with a 50 mm outside diameter split barrel sampler drive and accordance with the Standard Penetration Test Procedure (ASTM D1586). The samples were logged in the field and returned to the BIG laboratory for detailed visual examination. The borehole records and monitoring well construction details are included in Appendix A.

The following monitoring wells were previously installed by BIG at the Site:

a) Seven (7) monitoring wells (BH/MW101 to BH/MW107) installed by BIG to maximum depth of 9.8 m bgs in 2017.
b) Three (3) monitoring wells (BH/MW201 to BH/MW203) installed by BIG to maximum depth of 13.1 m bgs in 2019.

The borehole records and monitoring well construction details are included in Appendix A. Figure 6 is a detailed Borehole/Monitoring Well Location Map of the Site.

4.2 Site Specific Overburden Geology

The borehole locations are shown on Figure 6 and detailed subsurface conditions are presented on the borehole logs in Appendix A. The following table is provided in addition to the borehole descriptions to provide a general summary of the soil conditions. The soil descriptions are predominately based on BIG's investigation, however, where applicable soil conditions encountered during previous investigation by others are included. The soil boundaries indicated on the borehole logs and discussed herein are inferred from the visual observations and auger resistance and should not be regarded as exact planes of geological change.

Layer	Description
Topsoil	Approximately 230 mm thick topsoil was encountered at borehole location. Topsoil, in general, consisted of high contents of organics and rootlets. It should be noted that topsoil thickness may vary significantly due to some on-site activities.
Fill	Below topsoil, earth fill predominantly containing clayey silt was encountered that extended to the depth of 0.9 m bgs. The fill also consisted of trace, trace gravel, and trace gravel.
Clayey Silt/Silty Clay Till	Below fill, native glacial clayey silt/silty clay till deposit was encountered that extended to the depth of 16.5 m bgs. Till deposit also contained trace to some sand and trace gravel.
Sand/Silty Sand/Sandy Silt Till	Below clayey silt/silty clay till glacial deposit, deposit of sand was encountered that extended to the borehole termination depths of about 17.4 to 25.0 m bgs.

The soil conditions encountered at the borehole locations are summarized below. A stratigraphic cross-section across the property as aligned on Figure 6 is included as Figure 7.

4.3 Water Level Monitoring

Water levels at each of the borehole and monitoring well locations were recorded both during the initial drilling and after installation. A summary of all water level observations is included below in Table 4-1. Groundwater was observed in all monitoring wells except BH/MW105, BH/MW106, and BH/MW107 on August 17, 2023. The shallow wells, BH/MW101 to BH/MW104 had recorded water elevations between 180.80 m to 179.34 m asl. The intermediate well, BH/MW203 had recorded water elevation of 171.72 m asl. The deep well, BH/MW402 had recorded water elevation of 163.17 m asl. BH/MW201 and BH/MW202 were dry during the monitoring event.

The three (3)-month water level monitoring was completed and included below in Table 4.1. The monitoring data indicated that there was marginal groundwater fluctuation.

An interpreted shallow groundwater contour map for the monitoring well water level measurements recorded on August 17, 2023, are included as Figure 8. Based on the water level measurements obtained, the inferred direction of shallow groundwater flow across the Site is interpreted to be in the southeast direction.

Seasonal variability can produce significant changes to the static water level. It has been observed that groundwater can rise and lower in response to changing weather and climate. It is also likely that some wells may take prolonged periods of time to equilibrate and provide true representative groundwater levels.

Table 4-1: Monitoring Well Details and Water Level Elevations

Borehole/ Well ID	Ground Elevation (m asl)	Coordinates (NAD27-76 Adj. MTM10)		Well Depth (m)	October 9, 2019		October 24, 2019		November 8, 2019		November 22, 2019		December 6, 2019		December 19, 2019		October 23, 2020		August 17, 2023	
		Easting	Northing		Water Level (m bgs)	Elevation (m asl)	Water Level (m bgs)	Elevation (m asl)	Water Level (m bgs)	Elevation (m asl)	Water Level (m bgs)	Elevation (m asl)	Water Level (m bgs)	Elevation (m asl)	Water Level (m bgs)	Elevation (m asl)	Water Level (m bgs)	Elevation (m asl)	Water Level (m bgs)	Elevation (m asl)
BH/MW101	183.31	627449.7	4848138.0	6.1	4.21	179.1	4.81	178.50	4.34	178.97	4.35	178.96	4.24	179.07	4.0	179.31	4.89	178.42	3.53	179.78
BH/MW102	184.60	627458.8	4848140.2	9.1	4.76	179.84	5.50	179.10	5.18	179.42	4.91	179.69	4.69	179.91	4.59	180.01	4.9	179.70	4.25	180.35
BH/MW103	183.59	627478.0	4848149.4	6.7	5.55	178.04	5.26	178.33	5.03	178.56	4.88	178.71	4.97	178.62	4.72	178.87	4.48	179.11	4.25	179.34
BH/MW104	183.41	627470.5	4848146.9	6.7	3.02	180.39	3.22	180.19	2.65	180.76	2.47	180.94	2.76	180.65	2.37	181.04	2.63	180.78	2.61	180.80
BH/MW105	184.34	627470.4	4848179.5	7.6	5.96	178.38	6.59	177.75	6.83	177.51	7.02	177.32	7.18	177.16	7.31	177.03	N/A	N/A	N/A	N/A
BH/MW106	184.50	627461.5	4848180.4	7.6	5.06	179.44	5.28	179.22	5.41	179.09	5.60	178.90	5.76	178.74	5.92	178.58	5.32	179.18	N/A	N/A
BH/MW107	184.77	627448.0	4848165.8	7.6	N/A	N/A	4.83	179.94	5.08	179.69	5.11	179.66	5.23	179.54	5.28	179.49	N/A	N/A	N/A	N/A
BH/MW201	183.31	627448.3	4848137.5	13.1	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	N/A	N/A	Dry	Dry
BH/MW202	183.30	627443.7	4848138.0	10.7	Dry	Dry	Dry	Dry	10.38	172.92	9.11	174.19	10.01	173.29	10.18	173.12	10.72	172.58	Dry	Dry
BH/MW203	183.59	627478.7	4848147.9	12.8	11.62	171.97	11.55	172.04	11.39	172.20	11.12	172.47	11.23	172.36	11.26	172.33	11.97	171.62	11.87	171.72
BH/MW402	183.30	627445.2	4848138.1	21.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20.13	163.17

Notes:
N/A: Inaccessible

4.4 Hydraulic Conductivity Testing

The hydraulic conductivity test was completed to estimate the saturated hydraulic conductivity (K) of the soil at the well screen depth. Single Well Response Test (SWRT) analyses were conducted at newly installed monitoring wells.

Given that slug tests provided adequate aquifer properties, a pump test was not required.

During the SWRT, a slug of water was instantaneously removed from the well and the response to the water level was recorded. The hydraulic conductivity values for each of the tested wells were calculated from the SWRT data using Aqtesolv Software and the Bouwer-Rice solution for unconfined conditions. The semi-log plots for normalized drawdown versus time are included in Appendix C.

The summary of the hydraulic conductivity (K) values estimated from the SWRTs are provided below in Table 4-2:

Table 4-2: Summary of Hydraulic Conductivity (K) Testing Results

Monitoring Well	Well Depth (m bgs)	Formation Screened	Estimated Hydraulic conductivity (m/s)
BH/MW101	6.1	Clay silt till	1.01×10^{-7}
BH/MW102	9.1	Clay silt till	1.25×10^{-7}
BH/MW103	6.7	Clay silt till	4.13×10^{-8}
BH/MW104	7.6	Clay silt till	1.88×10^{-8}
BH/MW107	7.6	Clay silt till	2.23×10^{-8}
BH/MW201	13.1	Sandy silt till	5.57×10^{-7}
BH/MW203	12.8	Sandy silt till	2.33×10^{-8}
BH/MW402	21.3	Silty Sand	4.01×10^{-7}

Given the foundation excavation will be conducted within the clayey silt till, hydraulic conductivity values applicable for this water table are utilized in this project.

The SWRT provides estimate of K for the geological formation in the immediate media zone surrounding the well screen and may not be representative of bulk formation hydraulic conductivities. The hydraulic conductivity results for BH/MW201, BH/MW203 and BH/MW402 are characteristic of the sandy silt till and silty sand formation at that location and is not representative of the material encountered at basement level which at 7.5 m.

4.5 Groundwater Sampling

To assess the suitability for discharge of pumped groundwater to the City of Toronto Sanitary or Storm Sewer during dewatering activities, a groundwater sample was collected from BH/MW103 on October 10, 2019, October 23, 2020, and August 18, 2023. Prior to collection of the samples, approximately three (3) standing well volumes of groundwater were purged from the well.

The sample was collected and placed into pre-cleaned laboratory-supplied vials and/or bottles provided with analytical test group specific preservatives, as required. The sample was not field filtered. Dedicated nitrile gloves were used during sample handling. The groundwater sample was submitted to an independent laboratory, Bureau Veritas Laboratories, of Mississauga, Ontario, for analysis.

For the assessment purposes, the analytical results were compared to Table 1 – Limits for Sanitary and Combined Sewer Discharge (amended 2002-10-31 by By-Law No. 855-2002; 2010-07-08 by By-Law No.868-2010; 2016-02-4 by By-Law No.100-2016); and Table 2 – Limits for Storm Sewer Discharge

(amended 2010-07-08 by By-Law No 868-2010; 2016-02-4 by By-Law No.100-2016) of Toronto Municipal Code (Toronto Municipal Code Chapter 681, 2016).

The laboratory Certificate of Analysis (COA) and chain of custody are enclosed in Appendix D.

The laboratory analyses of groundwater collected from BH/MW103 identified no exceedances of Table 1 - Limits for Sanitary and Combined Sewer Discharge.

When compared against the Table 2 – Limits for Storm Sewer Discharge, the sample collected on October 10, 2019 indicated exceedances for total suspended solids (TSS) and total manganese; the sample collected on October 23, 2020 indicated exceedances for total manganese and Phenols; the sample collected on August 18, 2023 indicated no exceedances. A summary of the exceedances is provided in Table 4-3.

Table 4-3: Summary of Analytical Results

Parameter	Limits for Sanitary and Combined Sewer Discharge (Table 1) (mg/L)	Limits for Storm Sewer Discharge (Table 2) (mg/L)	Concentration for BH/MW103 (October 10, 2019) (mg/L)	Concentration for BH/MW103 (October 23, 2020) (mg/L)	Concentration for BH/MW103 (August 18, 2023) (mg/L)
Total Suspended Solids	350	15	**120**	11	<10
Total Manganese	5	0.05	**0.330**	**1.16**	0.025
Phenols	1.0	0.008	<0.0010	**0.013**	<0.0010

Notes:
***Bold** indicates concentration exceeds the Storm Sewer Discharge Limit.*

If the groundwater encountered during excavation activities is discharged to the City of Toronto storm sewer or sanitary and combined sewer, pre-treatment prior to discharge will not be required based on the groundwater results of sample collected on August 18, 2023.

It is noted that an agreement to discharge to the City of Toronto will be required prior to discharging dewatering effluent, which includes both storm and groundwater.

5 Temporary Construction Dewatering

5.1 Construction Dewatering Requirements

The proposed development involves the construction of a twenty-six (26)-storey residential building with two (2) levels of underground parking according to proposed design drawings, prepared by JCI, dated March 25, 2024. Based on the drawing A6.00 Section A, prepared by JCI, dated March 25, 2024, the lowest basement finished floor elevation (FFE) is 175.30 m asl. The footing elevation is assumed approximately 2 m below FFE. For conservative purposes, the construction dewatering calculation is based on an open cut excavation at the present time. To excavate under dry conditions, the water level is anticipated to be lowered approximately 1.0 m below the excavation depth.

Once the design is finalized, BIG needs to review and re-evaluate the dewatering estimates. If the footing or foundation elevation is deeper than the assumptions in this report, additional investigation will be required.

The biweekly groundwater level monitoring program was completed, based on the available monitoring data, the highest water level for the Site is 181.04 m asl measured on December 19, 2019. The highest water level including fluctuation allowance was utilized for dewatering calculations.

Additional dewatering capacity may be required to maintain dry conditions within the excavation during and following significant precipitation events. It should be noted that the dewatering estimates provided in this report are based on the conceptual building information available at this time. If design details are changed (including any changes to excavation depth), the dewatering estimates must be revised to include the final layout of the development.

5.2 Construction Dewatering Flow Rate Assumptions

The assumptions used to the calculation of the dewatering rate for the proposed excavation for the residential building is presented in Table 5-1.

Table 5-1: Dewatering Rate Assumptions

Input Parameter	Site	Notes
Proposed surface Elevation	183.875 m asl	Based on drawing A6.00 Section A, prepared by JCI, dated March 25, 2024
Lowest P2 FFE	175.30 m asl	P2 FFE is 175.3 m asl based on drawing A6.00, Section A, prepared by JCI, dated March 25, 2024
P2 Footing Elevation	173.30 m asl	Assumed 2 m below FFE
Groundwater Elevation	183.44 m asl	Highest water level (December 19, 2019) plus fluctuation
Dewatered Elevation Target	172.30 m asl	Assumed 1.0 m below the basement floor level
Estimated Excavation Area	54 m x 39 m	Based on drawing A3.00 Parking Level 2, prepared by JCI, dated March 25, 2024
Hydraulic Conductivity (K) of Overburden	1.25×10^{-7} m/s	Highest K value in clayey silt till

5.3 Dewatering Flow Rate Equation

The Dupuit equation for steady flow from a radial source of an excavation through an unconfined aquifer resting on a horizontal impervious surface was used to obtain a flow rate estimate, and is expressed as follows:

$$Q_w = \frac{\pi K(H^2 - h^2)}{\ln(\frac{R_o}{r_e})}$$

Where:

Q_w = Rate of pumping (m^3/sec)

K = Hydraulic conductivity (m/s)

H = Head beyond the influence of pumping (static groundwater elevation) (m)

h = Head above base of aquifer at the excavation (m)

R_o = Radius of influence (m)

r_e = Effective radius (m)

It is expected that the initial dewatering rate will be higher in order 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 locally from storage resulting in lower seepage rates into the excavation. Additionally, the use of a continuous caisson shoring system will further reduce groundwater migration into the excavation reducing the ongoing seepage rate.

5.4 Radius of Influence

The Radius of Influence (ROI) for the construction dewatering is based on the empirical Sichardt equation. This equation is used to predict the distance at which the drawdown resulting from pumping is negligible. This equation is empirical and was developed to provide representative flow rates using the steady state flow dewatering equations, as discussed below.

It is noted that in steady state conditions, the radius of influence of pumping will extend until boundary flow conditions are reached and provide sufficient water inputs to the aquifer, such as recharge and surface water bodies.

The ROI of pumping (dewatering) for radial flow is calculated based on the Sichardt equation, which is described as follows:

$$R_o = 3000\ (H - h)\sqrt{K}$$

Where:

K = Hydraulic conductivity (m/s)

H = Static Saturated Head (m)

h = Dynamic Saturated Head (m)

Based on the Sichardt equation, the ROI while dewatering may extend up to approximately 37.7 m from the centre of the excavation for Radial Flow (Lo=Ro/2). The ROI calculation is provided in Appendix E.

5.5 Rainfall

The dewatering rates at the Site should also include removing direct input of rainwater into excavation.

A 20 mm rain event was utilized for the estimate. Given that the total area of the excavation is approximately 54 m x 39 m, the estimated volume of direct rainwater to be collected in the excavation is 42,000 L for 20 mm rainfall event. The calculation for the rainfall input estimate is included in Table E-1, in Appendix E. This rate should be considered contingency volume subject to the timing and season of the construction.

5.6 Results of Construction Dewatering Flow Rate Estimates

Based on the assumptions provided in this report, the results of the dewatering rate estimate are as follows:

Table 5-2 Summary of Construction Dewatering Flow Rate Estimate

Location	Construction Dewatering Flow Rate Without Safety Factor (L/day)	Construction Dewatering Flow Rate Including Safety Factor of 3 (L/day)	Total Construction Dewatering Flow Rate including Rainfall (L/day)
Approximate excavation area	15,000	45,000	87,000

Construction dewatering flow rate estimates are provided in Table E-2, in Appendix E.

The total construction dewatering flow rate includes rainfall and a factor of safety of three (3) to account for seasonal fluctuations in the groundwater table, flow from beddings of existing sewers, and variation in hydrogeological properties beyond those encountered during the course of this study. This total dewatering flow rate also provides additional capacity for the dewatering contractors. Given that the predicted dewatering volumes does exceed the 50,000 L/day limit, an EASR for construction dewatering is required.

Given the low hydraulic conductivity value, a simplified sump pump dewatering method may be sufficient for groundwater control at the Site, the actual method of dewatering should be discussed with a qualified dewatering contractor.

At the detailed design stage of the project and subject to the geotechnical consideration and the shoring system configuration, the dewatering quantities suggested above can be re-evaluated to verify if reduction in discharge volume can be achieved.

Please note that it is the responsibility of the contractor to ensure dry conditions are maintained within the excavation at all times. The dewatering contractor should ensure that silt removal or replacement from subsoil be eliminated and monitored during construction dewatering at all times.

Additional pumping capacity may be required to maintain dry conditions within the excavation during and following significant precipitation events.

The maximum flow calculation is intended to provide a conservative estimate to account for unforeseeable conditions that may arise during construction. It should be noted that the dewatering estimate provided in this report are based on the proposed development information available at this time. If changes to the design are implemented (increase to planned excavation depths, widening of excavations, etc.), the dewatering estimates must be revised to include and reflect future changes.

6 Long Term Discharge Estimate

6.1 Long-Term Dewatering Assumptions

Given that the groundwater level is above foundation depths for the development, a permanent foundation sub-drain is recommended. At this time, final design details for below grade structures are not available. For the purposes of this assessment of the temporary construction dewatering, it is assumed that the underground parking level will feature a perimeter drain and sub-drain system installed at approximately 0.5 m below the lowest basement floor elevation. Table 6-1 presents the assumptions used to calculate the long-term drainage rate estimates.

Table 6-1 Dewatering Estimate Assumptions

Input Parameter	Site	Notes
Proposed surface Elevation	183.875 m asl	Based on drawing A6.00 Section A, prepared JCI, dated March 25, 2024
Lowest P2 FFE	175.30 m asl	P2 FFE is 175.3 m asl based on drawing A6.00 Section A, prepared by JCI, dated March 25, 2024
Groundwater Elevation	183.44 m asl	Highest water level (December 19, 2019) plus fluctuation
Foundation Elevation / Sub-drain Elevation Target	174.80 m asl	Assumed 0.5 m below the basement floor level
Estimated Drainage Area	54 m x 39 m	Based on drawing A3.00 Parking Level 2, prepared by JCI, dated March 25, 2024
Hydraulic Conductivity (K) of Overburden	1.25×10^{-7} m/s	Highest K value in clayey silt till

6.2 Radius of Influence

The ROI calculation is a conservative methodology and is calculated based on the assumption of active pumping during long-term dewatering. It should be noted that there will be no active pumping during long-term dewatering. The foundation drains will be constructed below the floor slab and/or near the foundation and the groundwater would passively drain into these sub drains and discharged directly to sumps. The water collected in the sump will be discharged to the sanitary sewer. Due to the nature of overburden material, the groundwater will flow through the natural gradient that exists on the Site and passively flow into the foundation sub-drains and will not be actively pumped. Although, the ROI which was conservatively predicted was at 35.0 m from the centre of the sub-drain, over a period of time, the drawdown curve will be very close to the foundation walls and thus resulting in negligible ROI.

6.3 Long-Term Perimeter Drain Flow Rate Estimate

Based on the assumptions provided in this report (outlined in Section 6.1), the results of the long-term discharge volume estimate are summarized below:

Table 6-2 Summary of Long-Term Discharge Flow Rate

Flow Rate (Flow into Sub-drain after initial dewatering stages)	Long-Term Peak Flow Rate (L/day)	Notes
Flow into sub-drain after initial dewatering stages	39,000	Long term sub-drain flow value rounded based on Dupuit's equation including flow from centre of the Site. Safety factor of 3 was used.

The results for the estimate are available in Appendix F, Table F-1. The maximum flow rate estimates represent short term events and are not indicative of long-term continuous contributions to the drainage system. Intermittent cycling of sump pumps and seasonal fluctuation in groundwater regimes should be considered for pump specifications. Given the estimated peak long-term flow rate does not exceed 50,000 L/day, a PTTW is not required.

It should be noted that the dewatering estimates provided in this report are based on the proposed building information available at this time.

If the groundwater encountered during excavation activities is discharged to the City of Toronto storm sewer or sanitary and combined sewer, pre-treatment prior to discharge will not be required based on the groundwater results of sample collected on August 18, 2023.

It should be noted that the City of Toronto has implemented a policy for preserving sewer capacity for conveyance of sanitary sewage and sustain future growth by managing foundation drainage on-site rather than discharge to the City's sewers. The policy states that the long-term discharge of foundation drainage to the City's sanitary sewer system will not be permitted for any new Official Plan Amendment, Zoning By-Law Amendment, Plan of Subdivision or Site Plan application submitted after January 1, 2022. If there are technical infeasibilities for on-Site long-term groundwater management, an exemption application and approval from City of Toronto will be required.

7 Potential Groundwater Impacts

7.1 Impacts to Nearby Groundwater Users

The Site lies within a heavily urbanized area of Toronto, which features 100 % municipal water supply. There are no expected impacts to nearby groundwater users due to active dewatering.

7.2 Impacts to Nearby Structures

The ROI calculation is a conservative methodology and is calculated based on the assumption of active pumping during long-term dewatering. It should be noted that there will be no active pumping during long-term dewatering. The foundation drains will be constructed below the floor slab and/or near the foundation and the groundwater would passively drain into these sub drains and discharged directly to sumps. The water collected in the sump will be discharged to the sanitary sewer. Due to the nature of overburden material, the groundwater will flow through the natural gradient that exists on the Site and passively flow into the foundation sub-drains and will not be actively pumped. Although, the ROI which was conservatively predicted was at 35.0 m from the centre of the sub-drain, over a period of time, the drawdown curve will be very close to the foundation walls and thus resulting in negligible ROI.

8 Water Taking and Discharge Permits

8.1 EASR

During the active construction dewatering phase, the volume of water expected to be pumped exceeds the daily limit on groundwater taking under the Ontario Water Resources Act (50,000 L/day). Therefore, it is necessary to register the construction dewatering under the EASR guidelines, the total construction discharge rate for the Site is 87,000 L/day. The limit for water taking under an EASR is 400,000 L/day.

8.2 City of Toronto Sewer Discharge Agreement

The City of Toronto describes any water source not supplied by the City as private water. This includes groundwater and storm water that accumulates on a property. If private water is to be discharged into a City of Toronto sanitary or storm sewer, a permit under the City of Toronto Municipal Code, Chapter 681 must be granted. The discharge agreement features two types of approvals:

- Short Term Private Water Discharge Approval which covers temporary arrangements for activities such as construction dewatering, road work, etc.; and,
- Long Term Private Water Discharge Approval which is intended to cover long term discharges from building foundation drains and other applications.

Given the current consideration for short-term and long-term discharges, a Private Water Discharge Approval (PWDS) with the City of Toronto will be required.

9 Conclusions

Based on the findings of the Hydrogeological Investigation, the following summary of conclusions are provided:

a) It is BIG's understanding that the proposed development will consist of a twenty-six (26) storey residential building with two (2) levels of underground parking according to the drawing A6.00 Section A, prepared by JCI, dated March 25, 2024;
b) The Site is located within a physiographic region of Peel Plain known as the bevelled till plain;
c) The surficial geology around the Site is described as till consisting of stone-poor, sandy silt to silty sand-textured till on Paleozoic terrain;
d) The MECP Water Well Records indicate that there are 74 well records registered with the database within 500 m of the Site, and majority of the wells are for observation, monitoring and test purposes;
e) Groundwater was observed in all monitoring wells except BH/MW105, BH/MW106, and BH/MW107 on August 17, 2023. The shallow wells, BH/MW101 to BH/MW104 had recorded water elevations between 180.80 m to 179.34 m asl. The intermediate well, BH/MW203 had recorded water elevation of 171.72 m asl. The deep well, BH/MW402 had recorded water elevation of 163.17 m asl. BH/MW201 and BH/MW202 were dry during the monitoring event;
f) Based on the water level measurements obtained, the inferred direction of groundwater flow within the shallow overburden formation across the Site is towards the southeast;
g) The estimated hydraulic conductivity for the overburden formation within the proposed excavation ranges between 5.57×10^{-7} m/s and 1.88×10^{-8} m/s;
h) Based on the assumptions outlined in this report, the estimated total construction dewatering flow rate including rainfall for the proposed construction activities is approximately 87,000 L/day. Given the low hydraulic conductivity value, a simplified sump pump dewatering method may be sufficient for groundwater control at the Site, the actual method of dewatering should be discussed with a qualified dewatering contractor;
i) Given that the predicted dewatering volumes does exceed the 50,000 L/day limit, an EASR for construction dewatering is required;
j) The long-term peak flow rate of the foundation sub-drain is estimated to be approximately 39,000 L/day;
k) The laboratory COA shows that no exceedance under Table 1 – Limits for Sanitary and Combined Sewer Discharge;
l) When compared against the most stringent Table 2 – Limits for Storm Sewer Discharge, the sample collected on October 10, 2019 indicated exceedances for total suspended solids (TSS) and total manganese; the sample collected on October 23, 2020 indicated exceedances for total manganese and Phenols; the sample collected on August 18, 2023 indicated no exceedances; and,
m) If the groundwater encountered during excavation activities is discharged to the City of Toronto storm sewer or sanitary and combined sewer, pre-treatment prior to discharge will not be required based on the groundwater results of sample collected on August 18, 2023.

It should be noted that the comments and recommendations in this report are based on the assumption that the present design concept described throughout the report will proceed to construction. Any changes to the design concept may result in a modification to the recommendations provided in this report. It is noted that these conclusions and recommendations should be read in conjunction with the entirety of the report.

10 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 conclusion and recommendations presented within this report reflect Site conditions existing at the time of the assessment. BIG must be contacted immediately if any unforeseen Site conditions are experienced during the dewatering activities. This will allow BIG to review the new findings and provide appropriate recommendations to allow the construction to proceed in a timely and cost-effective manner.

Our undertaking at BIG, therefore, is to perform our work within limits prescribed by our clients, with the usual thoroughness and competence of the geoscience profession. No other warranty or presentation, either expressed or implied, is included or intended in this report.

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.

Yours truly,

B.I.G. Consulting Inc.

Eileen Liu, M.Env.Sc., P.Geo.
Manager, Hydrogeology Services

Prem Manicks, P.Geo.
Partner

11 References

Brownfield Investment Group Inc. (2017). Hydrogeological Investigation, 26 to 36 Hounslow Avenue, North York, Ontario, dated May 30, 2017.

Cashman, P. M. (2013). Groundwater Lowering in Construction: A Practical Guide to Dewatering (Second Ed.).

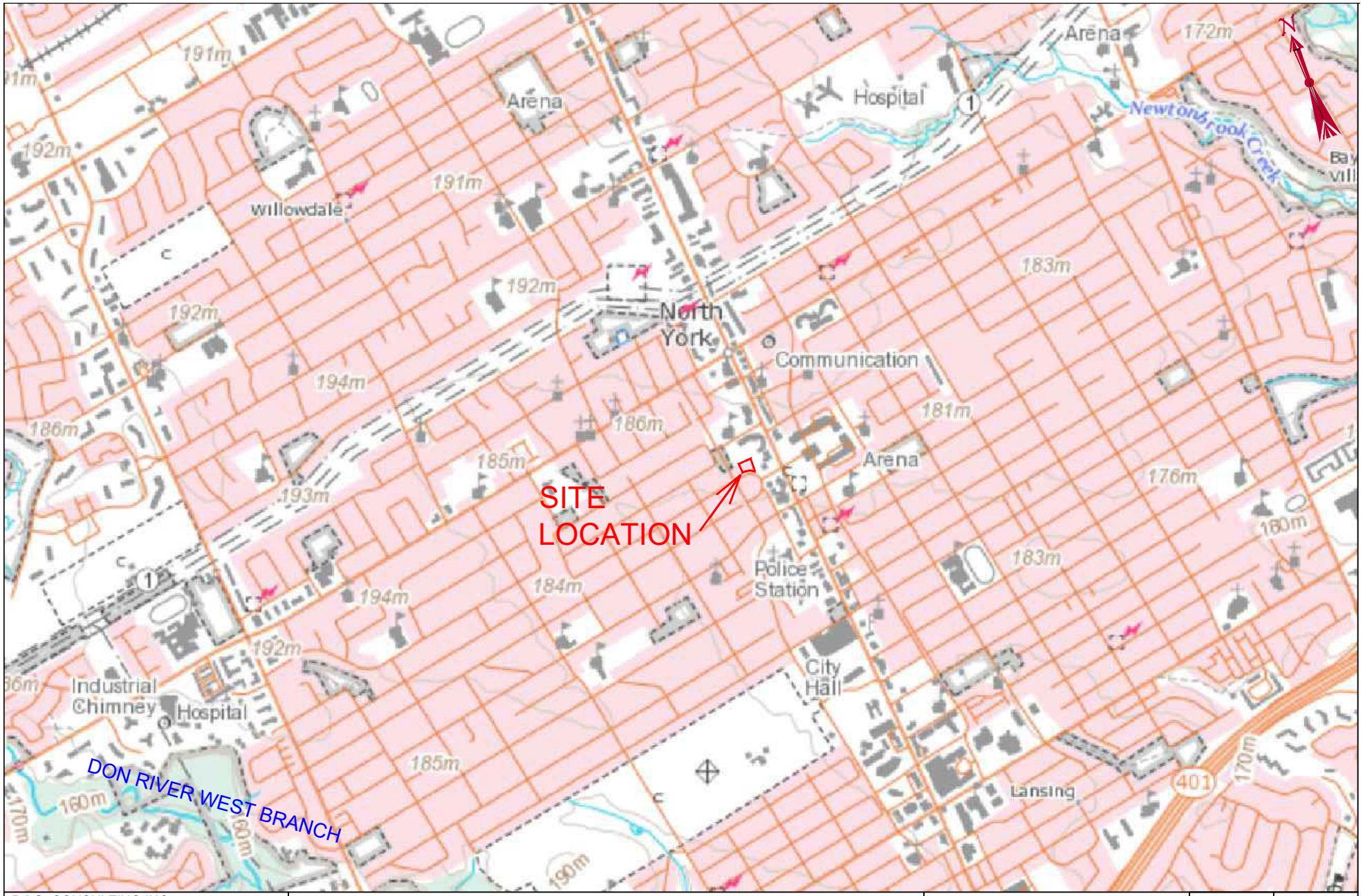
Chapman, L., & Putnam, D. (2007). Physiography of Southern Ontario. Miscellaneous Release, Data 228 ISBN 978-1-4249-5158-1. Ontario Geological Survey.

City of Toronto. (2016). Chapter 681 – Sewer Use Bylaw.

Ministry of the Environment, Conservation and Parks. (2017). Ontario Water Resources Act.

Ontario Water Resources Act, Ontario Regulation 387/04, as amended. (2016). *Water Taking and Transfer*.

FIGURES



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LEGEND

SITE BOUNDARY

250m SCALE 500m

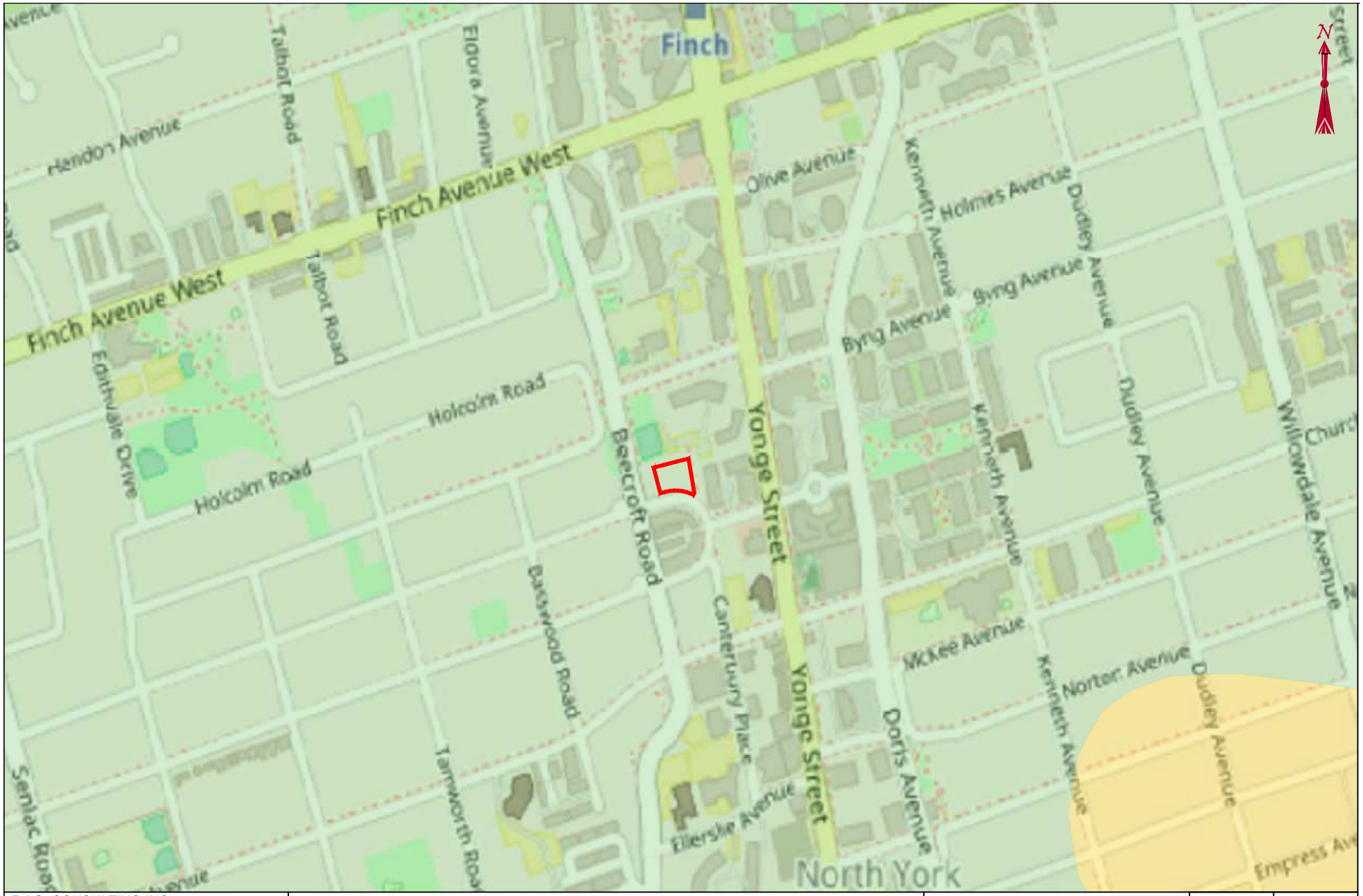
0m

IMAGERY SOURCED FROM TOPORAMA, NATURAL RESOURCES CANADA, 2017

TITLE AND LOCATION

SITE LOCATION MAP
HYDROGEOLOGICAL
INVESTIGATION UPDATE
26-38 HOUNSLOW AVENUE,
TORONTO, ONTARIO

PROJECT NO.	DWN.
BIGC-GEO-154H	E.P.
SCALE	CK.
AS NOTED	C.D.
DATE	FIG NO.
AUGUST 2023	1



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LEGEND

- SITE BOUNDARY
- PEEL PLAIN
- SOUTH SLOPE

100m SCALE 200m
0m

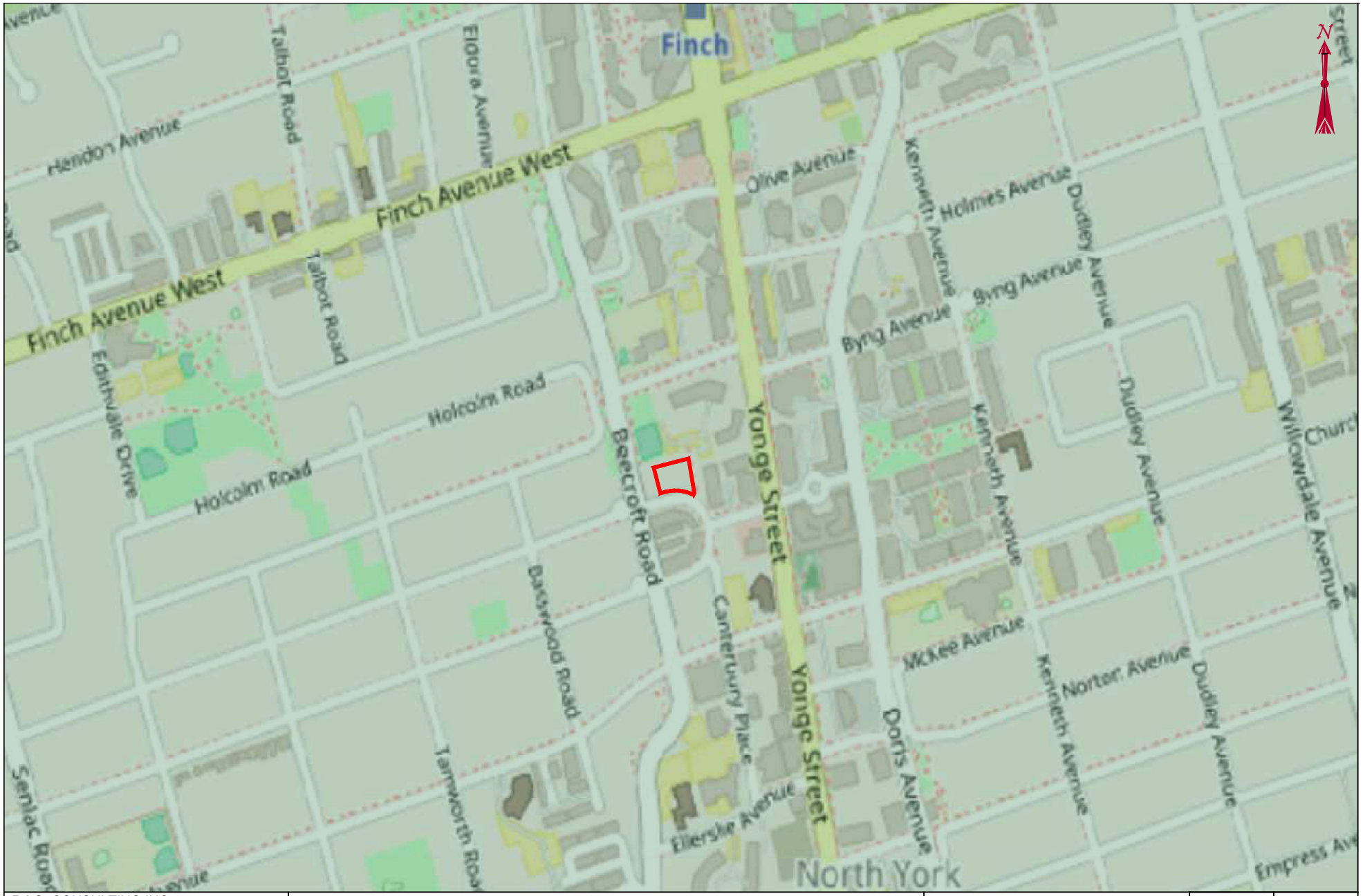
NOTES:
1. PHYSIOGRAPHIC REGIONS PRODUCED BY MINISTRY OF NORTHERN DEVELOPMENT AND MINES, 2012
2. IMAGERY OBTAINED FROM OPENSTREETMAP, 2016

TITLE AND LOCATION

PHYSIOGRAPHIC REGIONS OF SOUTHERN ONTARIO

HYDROGEOLOGICAL INVESTIGATION UPDATE
26-38 HOUNSLOW AVENUE,
TORONTO, ONTARIO

PROJECT NO.	DWN.
BIGC-GEO-154H	E.P.
SCALE	CK.
AS NOTED	C.D.
DATE	FIG NO.
AUGUST 2023	2



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LEGEND

SITE BOUNDARY

TILL

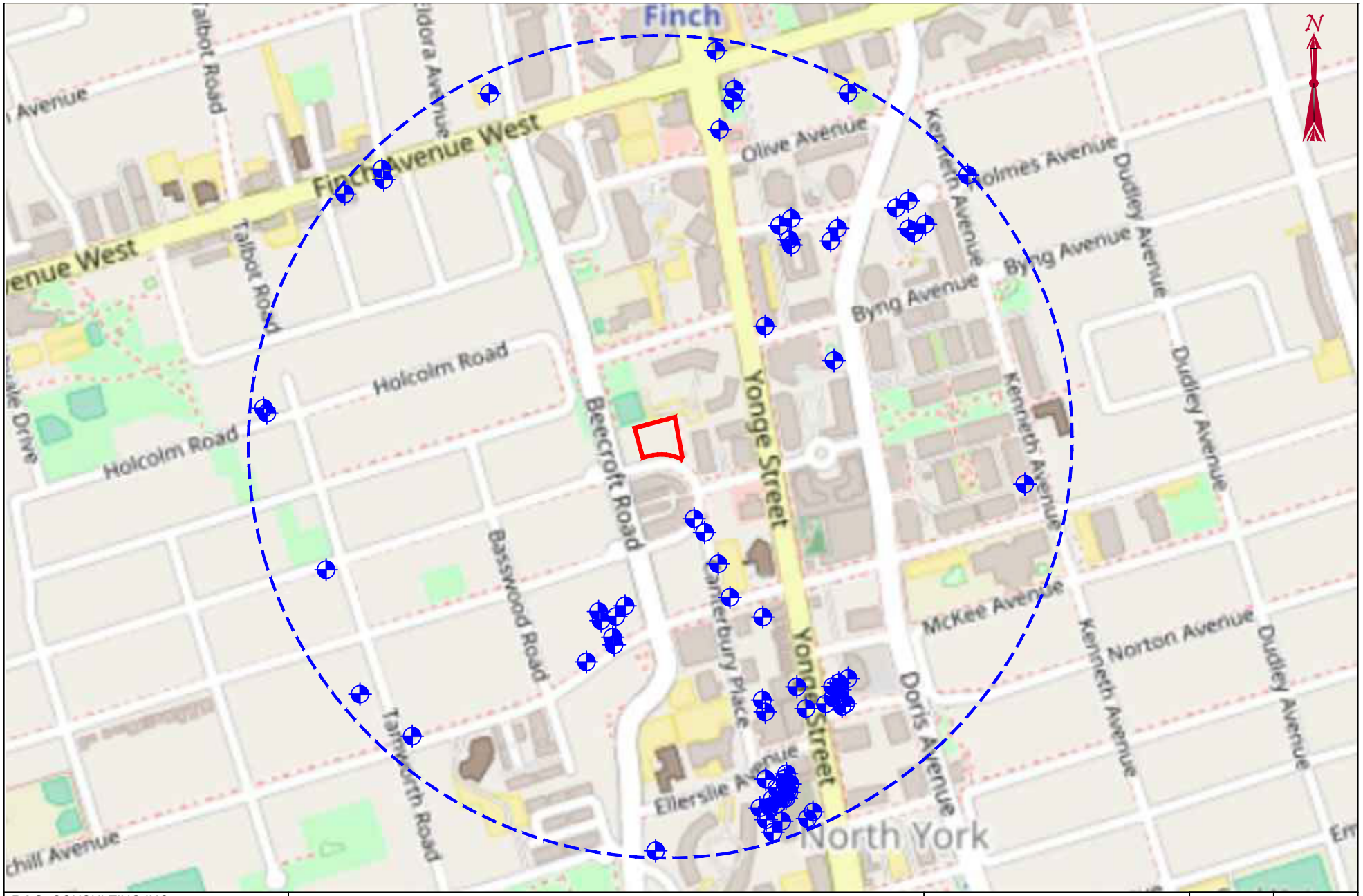
NOTES:
1. SURFICIAL GEOLOGY PRODUCED BY MINISTRY OF NORTHERN DEVELOPMENT AND MINES, 2012
2. IMAGERY OBTAINED FROM OPENSTREETMAP, 2016

100m SCALE 200m
0m

TITLE AND LOCATION

SURFICIAL GEOLOGY OF SOUTHERN ONTARIO
HYDROGEOLOGICAL INVESTIGATION UPDATE
26-38 HOUNSLOW AVENUE, TORONTO, ONTARIO

PROJECT NO.	DWN.
BIGC-GEO-154H	E.P.
SCALE	CK.
AS NOTED	C.D.
DATE	FIG NO.
AUGUST 2023	3



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LEGEND

SITE BOUNDARY

MOECC WATER WELL RECORD (2023)

WATER WELL RECORD STUDY AREA BOUNDARY

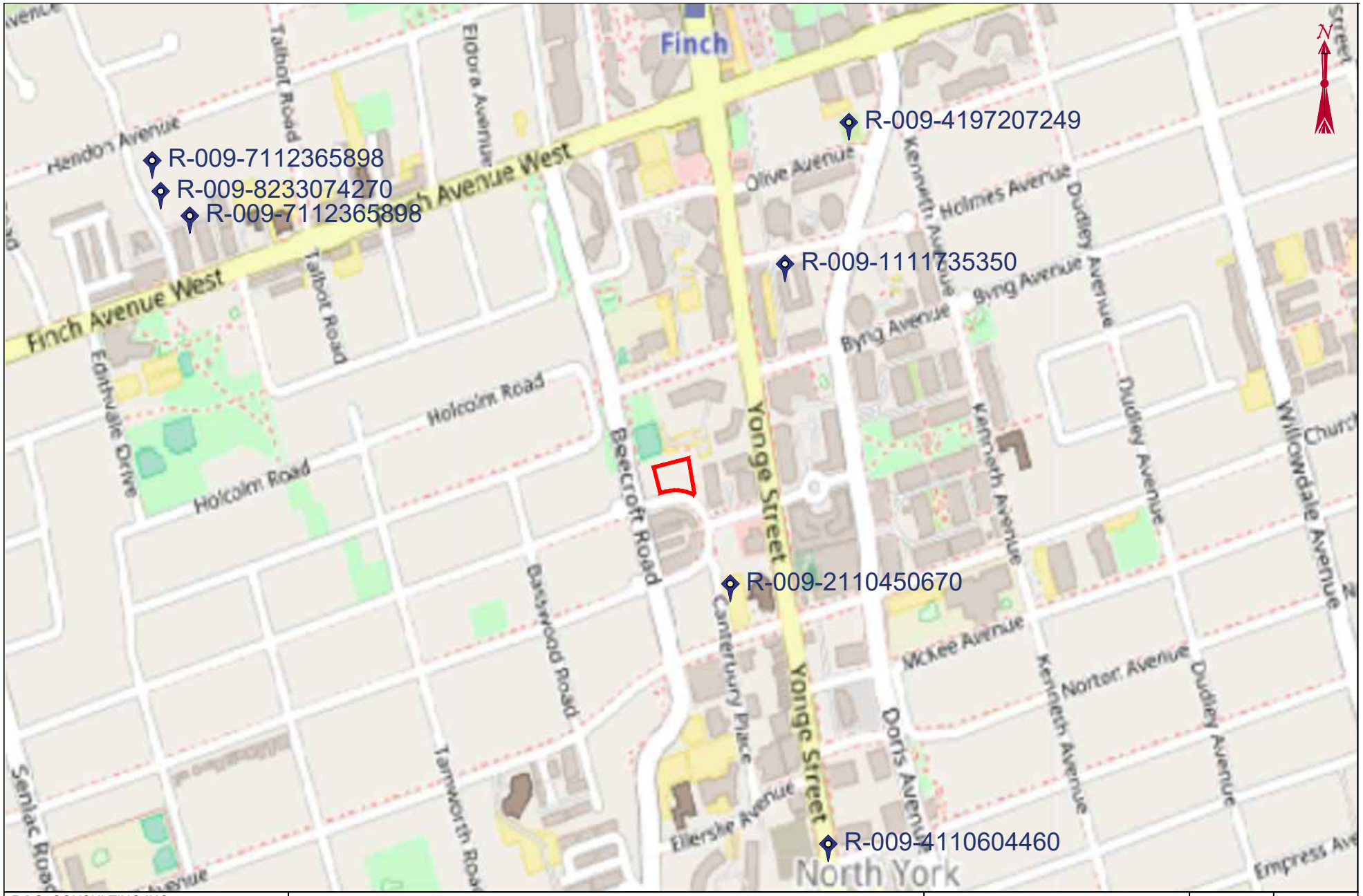
SCALE

100m 0m 200m

TITLE AND LOCATION

MECP WATER WELL RECORD LOCATION PLAN
HYDROGEOLOGICAL INVESTIGATION UPDATE
26-38 HOUNSLOW AVENUE, TORONTO, ONTARIO

PROJECT NO.	DWN.
BIGC-GEO-154H	E.P.
SCALE	CK.
AS NOTED	C.D.
DATE	FIG NO.
AUGUST 2023	4



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LEGEND

SITE BOUNDARY

LOCATION OF EASR RECORD

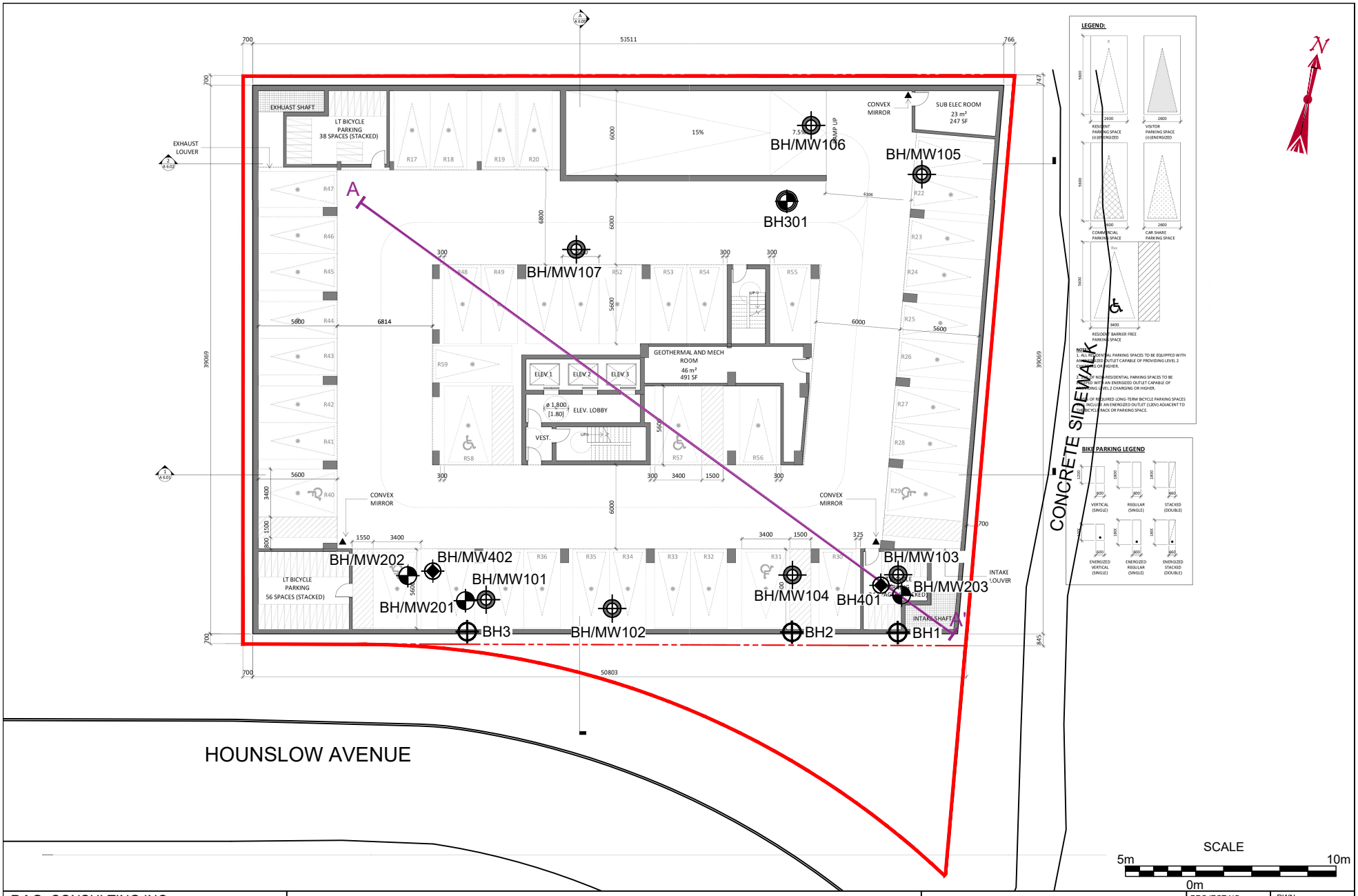
SCALE

100m 0m 200m

TITLE AND LOCATION

EASR RECORD
LOCATION PLAN
HYDROGEOLOGICAL
INVESTIGATION UPDATE
26-38 HOUNSLOW AVENUE,
TORONTO, ONTARIO

PROJECT NO.	DWN.
BIGC-GEO-154H	E.P.
SCALE	CK.
AS NOTED	C.D.
DATE	FIG NO.
AUGUST 2023	5



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LEGEND

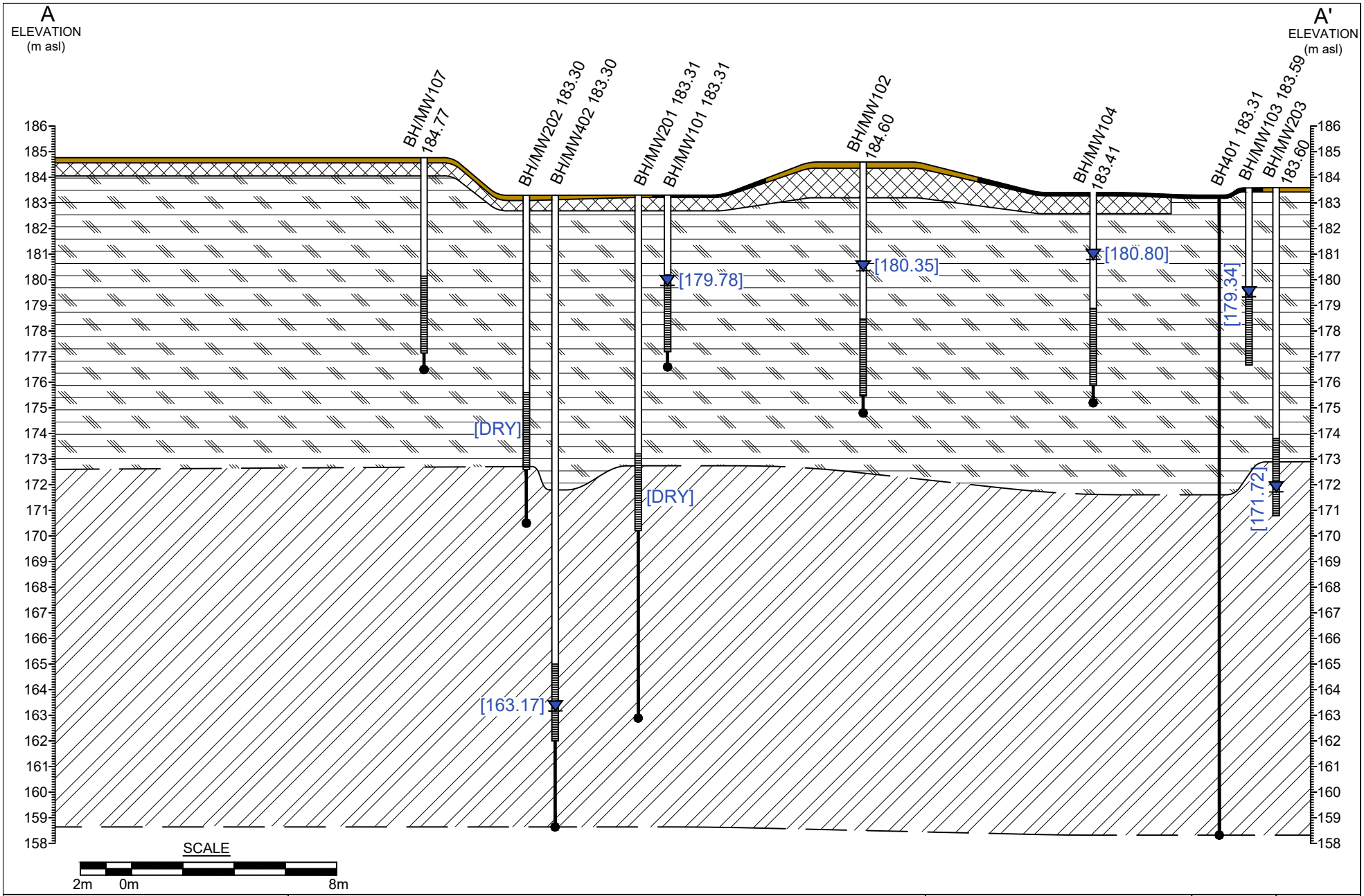
- SITE BOUNDARY
- BOREHOLE/MONITORING WELL LOCATION (BIG, 2023)
- BOREHOLE LOCATION (BIG, 2020)
- PREVIOUS BOREHOLE LOCATION (SHAD, 2016)
- BOREHOLE/MONITORING WELL LOCATION (BIG, 2017)
- BOREHOLE/MONITORING WELL LOCATION (BIG, 2019)
- A — A' STRATIGRAPHIC CROSS SECTION

NOTE: PARKING LEVEL 2, DRAWING NUMBER A 3.00, PREPARED BY STUDIO JCI, DATED MARCH 25, 2024

TITLE AND LOCATION

BOREHOLE/MONITORING WELL LOCATION PLAN
HYDROGEOLOGICAL INVESTIGATION UPDATE
26-38 HOUNSLOW AVENUE, TORONTO, ONTARIO

PROJECT NO.	DWN.
BIGC-GEO-154K	E.P.
SCALE	CK.
AS NOTED	W.G.
DATE	FIG NO.
MARCH 2024	6



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LEGEND

- PAVING STONES / GRANULAR
- TOP SOIL
- FILL
- CLAYEY SILT TILL / SILTY CLAY TILL
- SANDY SILT TILL / SILTY SAND TILL / SAND / SILTY SAND
- GROUNDWATER ELEVATION
- [xx.xx] WATER LEVEL MEASUREMENT (AUGUST 17, 2023)

TITLE AND LOCATION

GEOLOGICAL CROSS SECTION A-A'
HYDROGEOLOGICAL INVESTIGATION UPDATE
26-38 HOUNSLOW AVENUE,
TORONTO, ONTARIO

PROJECT NO.	DWN.
BIGC-GEO-154H	T.S.
SCALE	CK.
AS NOTED	E.L.
DATE	FIG NO.
SEPTEMBER 2023	7

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LEGEND

- SITE BOUNDARY
- BOREHOLE/MONITORING WELL LOCATION (BIG, 2023)
- BOREHOLE LOCATION (BIG, 2020)
- PREVIOUS BOREHOLE LOCATION (SHAD, 2016)
- BOREHOLE/MONITORING WELL LOCATION (BIG, 2017)
- BOREHOLE/MONITORING WELL LOCATION (BIG, 2019)
- [XX.XX] WATER LEVEL MEASURMENT (AUGUST 17, 2023) (m asl)
- INTERPRETED DIRECTION OF GROUNDWATER FLOW
- GROUNDWATER CONTOUR

NOTE: PARKING LEVEL 2, DRAWING NUMBER A 3.00, PREPARED BY STUDIO JCI, DATED MARCH 25, 2024

TITLE AND LOCATION

INTERPRETED SHALLOW GROUNDWATER CONTOUR MAP
HYDROGEOLOGICAL INVESTIGATION UPDATE
26-38 HOUNSLOW AVENUE, TORONTO, ONTARIO

PROJECT NO.	DWN.
BIGC-GEO-154K	E.P.
SCALE	CK.
AS NOTED	W.G.
DATE	FIG NO.
MARCH 2024	8

APPENDIX A: BOREHOLE LOGS

BROWNFIELD INVESTMENT GROUP INC.
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BOREHOLE LOG

BH/MW 101

Client: Mattamy Homes

Datum: Geodetic

Project #: BIG-ENV-154

Project Name: Hydrogeological Investigation

Drilling Date: 29/03/17

Site Address: 26-36 Hounslow Avenue, North York, Ontario

DEPTH BELOW GRADE (m)	ELEVATION (m)	STRATIGRAPHY	STRATIGRAPHY DESCRIPTION	SAMPLE ID	TOV (ppm)	N VALUES	RECOVERY (%)	LAB ANALYSIS	MONITORING WELL DETAILS
0	183.31								
	~183.3		**Paving Stones**: 60 mm						
			FILL: silty sand to clayey silt, some to trace gravel, brown, moist	SS1		5	83		
	~182.7		**CLAYEY SILT TILL**: trace gravel, brown, moist, stiff to very stiff						
1				SS2		14	100		
			-----Oxidized fissures						
2				SS3		12	100		
				SS4		24	100		~180.7
3			-----Grey with increasing plasticity below 2.9 m						
				SS5		25	100		
4			-----Wet seam						
				SS6		14	100		
5									
6				SS7		19	5		
	~176.6		**BH Terminated 6.7 m.** Open to 6.1 m Dry upon completion Water level at 2.62 m on 09/05/17 Water level at 2.63 m on 17/05/17						

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BOREHOLE LOG

BH/MW 102

Datum: Geodetic

Client: Mattamy Homes

Project #: BIG-ENV-154

Project Name: Hydrogeological Investigation

Drilling Date: 29/03/17

Site Address: 26-36 Hounslow Avenue, North York, Ontario

DEPTH BELOW GRADE (m)	ELEVATION (m)	STRATIGRAPHY	STRATIGRAPHY DESCRIPTION	SAMPLE ID	TOV (ppm)	N VALUES	RECOVERY (%)	LAB ANALYSIS	MONITORING WELL DETAILS
0	184.60								
	~184.3		**Topsoil**: 250 mm						
			FILL: clayey silt, trace gravel, organics, organic staining, brown, moist, stiff to very stiff	SS1		2	70		
1				SS2		5	92		
	~183.2		**CLAYEY SILT TILL**: trace gravel, trace organics/organic staining in upper levels, oxidized fissures, brown, moist, stiff to very stiff.	SS3		8	100		
2				SS4		25	100		
3				SS5		21	100		
			-----Grey, increasing plasticity below 3.7 m						
4				SS6		16	100		
5									
6				SS7		16	100		~178.1
7									
			-----becoming stiff below 7.6 m -----Wet seam at 7.9 m	SS8		13	100		
8									
9			-----hard below 9.1 m	SS9		28	100		
	~174.8		**BH Terminated 9.8 m.** Open to 9.1 m Dry upon completion Water level at 6.74 m on 09/05/17 Water level at 6.48 m on 17/05/17						

BIG_ENVIRONMENTAL BIG-ENV-154.GPJ 30/5/17

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BOREHOLE LOG

BH/MW 103

Datum: Geodetic

Client: Mattamy Homes

Project #: BIG-ENV-154

Project Name: Hydrogeological Investigation

Drilling Date: 29/03/17

Site Address: 26-36 Hounslow Avenue, North York, Ontario

DEPTH BELOW GRADE (m)	ELEVATION (m)	STRATIGRAPHY	STRATIGRAPHY DESCRIPTION	SAMPLE ID	TOV (ppm)	N VALUES	RECOVERY (%)	LAB ANALYSIS	MONITORING WELL DETAILS
0	183.59								
	~183.5		**Paving Stones**: 60 mm						
	~183.4		**Granular FILL**: 100 mm	SS1		4	70		
			CLAYEY SILT TILL: trace gravel, brown, moist, stiff to very stiff						
1			------ Oxidized Fissures.	SS2		11	100		
				SS3		16	100		
2				SS4		21	100		
3			------ Grey, very stiff to stiff below 3.0 m	SS5		18	100		
4									~179.3
				SS6		11	100		
5									
6				SS7		13	100		
			-------Wet seam at 6.4 m.						
	~176.9		**BH Terminated 6.7 m.**						
			Open to 6.7 m						
			Dry upon completion						
			Water level at 4.22 m on 09/05/17						
			Water level at 4.34 m on 17/05/17						

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BOREHOLE LOG

BH/MW 104

Datum: Geodetic

Client: Mattamy Homes

Project #: BIG-ENV-154

Project Name: Hydrogeological Investigation

Drilling Date: 01/05/17

Site Address: 26-36 Hounslow Avenue, North York, Ontario

DEPTH BELOW GRADE (m)	ELEVATION (m)	STRATIGRAPHY	STRATIGRAPHY DESCRIPTION	SAMPLE ID	TOV (ppm)	N VALUES	RECOVERY (%)	LAB ANALYSIS	MONITORING WELL DETAILS
0	183.41								
	~183.3		**Paving Stone:** 60 mm						
	~183.2		**Granular:** 170 mm	SS1		7	50		
			POSSIBLE FILL: clayey silt, trace gravel, brown, moist, firm						
	~182.6		**CLAYEY SILT TILL:** trace gravel, brown, damp, stiff to very stiff	SS2		15	50		
1									
			-----oxidized fissures below 1.5 m to 4.6 m	SS3		17	100		
2									
				SS4		29	100		~180.8
3									
				SS5		18	100		
			-----grey below 3.7 m						
4									
			-----moist, stiff below 4.6 m	SS6		10	100		
5			-----wet seam at 5.2 m						
6				SS7		13	83		
7			-----very stiff below 7.6 m						
				SS8		20	100		
8	~175.2		**BH Terminated 8.2 m** Open to 7.6 m Dry upon completion Water level at 2.92 m on 09/05/17 Water level at 2.60 m on 17/05/17						

BIG_ENVIRONMENTAL BIG-ENV-154.GPJ 30/5/17

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BOREHOLE LOG

BH/MW 105

Datum: Geodetic

Client: Mattamy Homes

Project #: BIG-ENV-154

Project Name: Hydrogeological Investigation

Drilling Date: 01/05/17

Site Address: 26-36 Hounslow Avenue, North York, Ontario

DEPTH BELOW GRADE (m)	ELEVATION (m)	STRATIGRAPHY	STRATIGRAPHY DESCRIPTION	SAMPLE ID	TOV (ppm)	N VALUES	RECOVERY (%)	LAB ANALYSIS	MONITORING WELL DETAILS
0	184.34								
	~184.2		**Topsoil:** 150 mm						
			POSSIBLE FILL: clayey silt, trace gravel, organics, trace of asphalt, oxidized, brown, moist, soft to stiff	SS1		3	50		
1				SS2		7	100		
				SS3		10	100		
2	~182.0								
			CLAYEY SILT TILL: trace gravel, oxidized fissures, brown, moist, very stiff	SS4		22	100		
3				SS5		26	100		
4									
			-----grey, stiff below 4.6 m	SS6		13	100		
5									
6				SS7		14	100		
7									~177.1
			-----very stiff below 7.6 m	SS8		16	100		
8	~176.1								
			BH Terminated 8.2 m Open to 7.6 m Dry upon completion Water level at 7.34 m on 09/05/17 Water level at 7.25 m on 17/05/17						

BIG_ENVIRONMENTAL BIG-ENV-154.GPJ 30/5/17

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Email: info@brownfieldigi.com
Web: www.brownfieldigi.com

BOREHOLE LOG

BH/MW 106

Datum: Geodetic

Client: Mattamy Homes

Project #: BIG-ENV-154

Project Name: Hydrogeological Investigation

Drilling Date: 01/05/17

Site Address: 26-36 Hounslow Avenue, North York, Ontario

DEPTH BELOW GRADE (m)	ELEVATION (m)	STRATIGRAPHY	STRATIGRAPHY DESCRIPTION	SAMPLE ID	TOV (ppm)	N VALUES	RECOVERY (%)	LAB ANALYSIS	MONITORING WELL DETAILS
0	184.50								
	~184.4		**Topsoil:** 100 mm						
			POSSIBLE FILL: clayey silt, trace gravel, organics, rootlets, brown, moist, firm to stiff	SS1		5	40		
1				SS2		13	100		
	~183.0		**CLAYEY SILT TILL:** trace gravel, oxidized, mottled brown, moist, very stiff	SS3		19	100		
2				SS4		17	100		
3				SS5		18	100		
4									
			-----grey below 4.6 m	SS6		16	100		
5									
6			-----stiff below 6.1 m	SS7		11	100		~178.1
7									
			-----very stiff below 7.6 m	SS8		16	100		
8	~176.3		**BH Terminated 8.2 m**						
			Open to 7.6 m Dry upon completion Water level at 6.93 m on 09/05/17 Water level at 6.43 m on 17/05/17						

BIG_ENVIRONMENTAL BIG-ENV-154.GPJ 30/5/17

BROWNFIELD INVESTMENT GROUP INC.
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BOREHOLE LOG

BH/MW 107

Datum: Geodetic

Client: Mattamy Homes

Project #: BIG-ENV-154

Project Name: Hydrogeological Investigation

Drilling Date: 01/05/17

Site Address: 26-36 Hounslow Avenue, North York, Ontario

DEPTH BELOW GRADE (m)	ELEVATION (m)	STRATIGRAPHY	STRATIGRAPHY DESCRIPTION	SAMPLE ID	TOV (ppm)	N VALUES	RECOVERY (%)	LAB ANALYSIS	MONITORING WELL DETAILS
0	184.77								
	~184.6		**Topsoil: 150 mm**						
			POSSIBLE FILL: clayey silt, trace gravel, organics, brown, moist, soft	SS1		3	90		
	~184.0								
1			**CLAYEY SILT TILL:** trace gravel, mottled brown, damp, stiff	SS2		13	90		
			-----oxidized below 1.5 m to 4.6 m, hard	SS3		36	100		
2									
			-----very stiff to hard below 2.3 m	SS4		30	100		~182.1
3									
			-----very stiff below 3.1 m	SS5		23	100		
4									
			-----grey below 4.6 m	SS6		16	100		
5									
6			-----stiff below 6.1 m	SS7		13	100		
7									
				SS8		14	100		
8	~176.5		**BH terminated 8.2 m** Open to 7.6 m Dry upon completion Water level at 4.80 m on 09/05/17 Water level at 2.70 m on 17/05/17						

BIG_ENVIRONMENTAL BIG-ENV-154.GPJ 30/5/17

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RECORD OF BOREHOLE No. BH/MW201

METRIC 1 OF 1

PROJ. NO. BIGC-ENV-154E | LOCATION 26-38 Hounslow Avenue, Toronto | ORIGINATED BY S.M.

DATUM GEODETIC | BOREHOLE TYPE Continous flight, 8 inches, Hollow Stem Auger | COMPILED BY

PROJ. NAME Preliminary Geotechnical Investigation | DATE 2019.10.02 - 2019.10.02 | CHECKED BY

ELEV / DEPTH	DESCRIPTION	STRAT PLOT	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES "N" VALUES	GROUND WATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100) / SHEAR STRENGTH kPa (○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE × LAB VANE) (20 40 60 80 100)	PLASTIC LIMIT w_P / NATURAL MOISTURE CONTENT w / LIQUID LIMIT w_L — WATER CONTENT (%) (20 40 60)	UNIT WEIGHT γ kN/m³	REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
183.31											
0.0	**DIRECT DRILL TO 6.1m**										
177.2											
6.1	**CLAYEY SILT TILL:** grey, moist, stiff - trace gravel between 6.1m to 6.71m		1	SS1	10				○		
			2	SS2	14				○		
			3	SS3	10				○		
172.6											
10.7	**SANDY SILT TILL:** trace clay. grey, moist, dense		4	SS4	40				○		
	- silt layers from 12.2m to 12.8m -very dense below 12.2m		5	SS5	100				○		
			6	SS6	36				○		
	- trace gravel between 15.2m to 16.8m		7	SS7	27				○		
	-clayey silt layers		8	SS8	56				○		
165.0											
18.3	**SAND:** brown, damp to moist, very dense		9	SS9	63				○		
162.9			10	SS10	35				○		
20.4	**Borehole terminated at 20.42 m** Notes: 1. Well dry upon completion of drilling 2. Open to 13.3 upon completion of drilling										

$+^3$, $\times^3$: Numbers refer to Sensitivity ○ 3% STRAIN AT FAILURE

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RECORD OF BOREHOLE No. BH/MW202

METRIC 1 OF 1

PROJ. NO. BIGC-ENV-154E | LOCATION 26-38 Hounslow Avenue, Toronto | ORIGINATED BY S.M.

DATUM GEODETIC | BOREHOLE TYPE Continous flight, 8 inches, Hollow Stem Auger | COMPILED BY

PROJ. NAME Preliminary Geotechnical Investigation | DATE 2019.10.02 - 2019.10.02 | CHECKED BY

ELEV / DEPTH	DESCRIPTION	STRAT PLOT	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES "N" VALUES	GROUND WATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT / SHEAR STRENGTH kPa (○ UNCONFINED, ● QUICK TRIAXIAL, + FIELD VANE, × LAB VANE)	PLASTIC LIMIT w_P / NATURAL MOISTURE CONTENT w / LIQUID LIMIT w_L / WATER CONTENT (%)	UNIT WEIGHT γ kN/m³	REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
183.30											
183.0	**ASPHALT:** 25mm		1	SS1	8						
182.2	**GRANULAR:** 150mm										
	FILL: clayey silt, trace gravel, trace brick, brown, moist		2	SS2	18						
181.8											
1.5	**CLAYEY SILT TILL:** trace gravel, oxidized fissures, brown, moist, very stiff		3	SS3	17						
			4	SS4	22						
			5	SS5	27						
	- grey between 4.9m to 5.0m		6	SS6	41						
	- grey, stiff below 6.1m		7	SS7	10						
	- very moist between 7.6m to 9.1m - some stones between 7.6m to 10.7		8	SS8	11						
			9	SS9	11						
172.6											
10.7	**SANDY SILT TILL:** grey, moist, very dense		10	SS10	100						
			11	SS11	100						
170.5											
12.8	**Borehole terminated at 12.8 m** Notes: 1. Well dry upon completion of drilling 2. Open to 10.7m upon completion of drilling										

$+^3, \times^3$: Numbers refer to Sensitivity ○ 3% STRAIN AT FAILURE

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RECORD OF BOREHOLE No. BH/MW203

METRIC 1 OF 1

PROJ. NO. BIGC-ENV-154E | LOCATION 26-38 Hounslow Avenue, Toronto | ORIGINATED BY S.M.

DATUM GEODETIC | BOREHOLE TYPE Continous flight, 8 inches, Hollow Stem Auger | COMPILED BY

PROJ. NAME Preliminary Geotechnical Investigation | DATE 2019.10.02 - 2019.10.02 | CHECKED BY

ELEV / DEPTH	DESCRIPTION	STRAT PLOT	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: "N" VALUES	GROUND WATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT / SHEAR STRENGTH kPa (○ UNCONFINED, ● QUICK TRIAXIAL, + FIELD VANE, × LAB VANE)	PLASTIC LIMIT w_P / NATURAL MOISTURE CONTENT w / LIQUID LIMIT w_L / WATER CONTENT (%)	UNIT WEIGHT γ kN/m³	REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
183.59											
0.0	**DIRECT DRILL TO 6.1m**										
177.5											
6.1	**CLAYEY SILT TILL:** trace gravel, moist, stiff		1	SS1	13				○		
	- moist to very moist between 7.6m to 9.1m		2	SS2	8				○		
			3	SS3	14				○		
172.9											
10.7	**SANDY SILT TILL:** grey, moist, very dense - some gravel between 10.7m to 12.2m		4	SS4	56				○		
170.8			5	SS5	100				○		
12.8	**Borehole terminated at 12.8 m** Notes: 1. Well dry upon completion of drilling 2. Open to 12.39m upon completion of drilling										

$+^3, \times^3$: Numbers refer to Sensitivity ○ 3% STRAIN AT FAILURE

RECORD OF BOREHOLE No. BH301

Project Number:	BIGC-ENV-154F	Drilling Location:	See Borehole Location Plan	Logged by:	SKS
Project Client:	Mattamy Homes	Drilling Method:	200 mm Hollow Stem Augering	Compiled by:	SS
Project Name:	Geotechnical Investigation	Drilling Machine:	CME 75 Track Mounted	Reviewed by:	
Project Location:	26-38 Hounslow Avenue, Toronto	Date Started:	20 Oct 20	Date Completed: 20 Oct 20	Revision No.: 0, 22/10/20

Geodetic Ground Surface Elevation: 184.50 m

DESCRIPTION	Sample Type	Sample Number	Recovery (%)	SPT 'N' Value	DEPTH (m)	ELEVATION (m)
TOPSOIL: 230 mm (184.27)						
FILL: clayey silt, trace sand, trace gravel, trace organics, dark brown, very moist, stiff (0.2 / 183.60)	SS	1	46	9		
CLAYEY SILT/SILTY CLAY TILL: trace to some sand, trace gravel, brown, moist, stiff to hard (0.9)	SS	2	41	17	1	183
	SS	3	67	36	2	182
	SS	4	84	24	3	181
	SS	5	100	27	4	180
------- grey	SS	6	100	12	5	179
------- medium plasticity	SS	7	100	21	6	178
					7	177
------- high plasticity	SS	8	100	14	8	176
	SS	9	100	10	9	175
					10	174
	SS	10	92	43	11	173
	SS	11	67	100	12	172
					13	171
	SS	12	50	100	14	170
					15	

FIELD TESTING: Penetration Testing (○ SPT ● DCPT); MTO Vane* (△ Intact ▲ Remould); Nilcon Vane* (◇ Intact ◆ Remould); * Undrained Shear Strength (kPa) 20 40 60 80

LAB TESTING: ★ Rinse pH Values 2 4 6 8 10 12; Soil Vapour Reading △ parts per million (ppm) 100 200 300 400; ▲ Lower Explosive Limit (LEL); W_P W W_L; Plastic 20 40 60 80 Liquid

INSTRUMENTATION INSTALLATION

COMMENTS

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Groundwater depth on completion of drilling: Dry m.

Scale: 1 : 79

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RECORD OF BOREHOLE No. BH301

Project Number: **BIGC-ENV-154F** Drilling Location: **See Borehole Location Plan** Logged by: **SKS**

LITHOLOGY PROFILE		SOIL SAMPLING						FIELD TESTING	LAB TESTING		
Lithology Plot	DESCRIPTION	Sample Type	Sample Number	Recovery (%)	SPT 'N' Value	DEPTH (m)	ELEVATION (m)	Penetration Testing: ○ SPT ● DCPT; MTO Vane* △ Intact ▲ Remould; Nilcon Vane* ◇ Intact ◆ Remould; * Undrained Shear Strength (kPa) 20 40 60 80	★ Rinse pH Values 2 4 6 8 10 12; Soil Vapour Reading △ parts per million (ppm) 100 200 300 400; ▲ Lower Explosive Limit (LEL) W_P W W_L Plastic Liquid 20 40 60 80	INSTRUMENTATION INSTALLATION	COMMENTS
	CLAYEY SILT/SILTY CLAY TILL: trace to some sand, trace gravel, brown, moist, stiff to hard	SS	13	67	95		169	○	8		
	168.00					16					
	SAND: fine grained, trace silt, brown, damp, very dense 16.5						168				
	167.13	SS	14	92	82	17		○	2		
	End of Borehole 17.4										

Notes:
1. Borehole open and dry upon completion of drilling.

Scale: 1 : 79

RECORD OF BOREHOLE No. BH401

Project Number:	BIGC-GEO-154H	Drilling Location:	See borehole location plan	Logged by:	CE
Project Client:	26 28 36 & 38 Hounslow Avenue, Toronto, ON	Drilling Method:	115 mm Mud Rotary Drilling	Compiled by:	VB
Project Name:	Geotechnical and Hydrogeological Investigations	Drilling Machine:	Track Mounted Drill	Reviewed by:	RM
Project Location:	26 28 36 & 38 Hounslow Avenue, Toronto, ON	Date Started:	Aug 14, 23	Date Completed: Aug 14, 23	Revision No.: 0, 8/31/23

LITHOLOGY PROFILE		SOIL SAMPLING						FIELD TESTING	LAB TESTING		
Lithology Plot	DESCRIPTION Geodetic Ground Surface Elevation: 183.31 m	Sample Type	Sample Number	Recovery (%)	SPT 'N' Value/RQD%	DEPTH (m)	ELEVATION (m)	Penetration Testing: ○ SPT ● DCPT; MTO Vane* △ Intact ▲ Remould; Nilcon Vane* ◇ Intact ◆ Remould; * Undrained Shear Strength (kPa) 20 40 60 80	★ Rinse pH Values 2 4 6 8 10 12; Soil Vapour Reading △ parts per million (ppm) 100 200 300 400; ▲ Lower Explosive Limit (LEL) W_P W W_L Plastic Liquid 20 40 60 80	INSTRUMENTATION INSTALLATION	COMMENTS
	CONTINUOUS AUGER DRILLING TO 6.10 m bgs					0	183				
	177.21					1	182				
	SILTY CLAY TILL: trace sand, trace gravel, grey, moist, very stiff to hard 6.1	SS	1	100	22	2	181	○	○ 11		
						3	180				
		SS	2	100	20	4	179	○	○ 12		
						5	178				
		SS	3	92	19	6	177	○	○ 13		Gr: 0%, Sa: 29%, Si: 51%, Cl: 20% LL: 20%, PI: 8%
						7	176				
		SS	4	95	59	8	175	○	○ 10		
	171.61					9	174				
	SILTY SAND TILL: trace clay, trace gravel, grey, moist, very dense 11.7	SS	5	100	97/28 cm	10	173	○ 97/28 cm	○ 8		
						11	172				
						12	171				
						13					

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▽ No freestanding groundwater measured in open borehole on completion of drilling.

Scale: 1 : 68

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RECORD OF BOREHOLE No. BH401

Project Number: **BIGC-GEO-154H** Drilling Location: **See borehole location plan** Logged by: **CE**

Lithology Plot	DESCRIPTION	Sample Type	Sample Number	Recovery (%)	SPT 'N' Value/RQD%	DEPTH (m)	ELEVATION (m)	FIELD TESTING: Penetration Testing (SPT / DCPT), MTO Vane* (Intact / Remould), Nilcon Vane* (Intact / Remould), * Undrained Shear Strength (kPa)	LAB TESTING: Rinse pH Values, Soil Vapour Reading (parts per million (ppm)), Lower Explosive Limit (LEL), W_P W W_L, Plastic Liquid	INSTRUMENTATION INSTALLATION	COMMENTS
	SILTY SAND TILL: trace clay, trace gravel, grey, moist, very dense	SS	6	100	50/10 cm	14	170	50 / 10 cm	13		
	168.81						169				
	SILTY CLAY TILL: trace sand, trace gravel, grey, moist, hard 14.5					15					
		SS	7	100	89		168		11		
	167.11					16					
	SILTY SAND: grey, moist, very dense 16.2	SS	8	100	59	17	167		24 / 15		
		SS	9	100	96/28 cm	18	166	96 / 28 cm	10		Gr: 0%, Sa: 67%, Si: 30%, Cl: 3%
		SS	10	100	89/25 cm	19	165	89 / 25 cm	10		
		SS	11	100	84/28 cm	20	164	84 / 28 cm	14		
	161.11					21	163				
	SILTY SAND TILL: trace gravel, trace clay, grey, moist, very dense 22.2	SS	12	66	96/28 cm	22	162	96 / 28 cm	17		
	------- grey	SS	13	87	57	23	161		18 / 8		
	158.32					24	160				
	End of Borehole 25.0						159				

Notes:
1. Borehole open upon completion of drilling.
1. Ground water level could not be measured due to mud rotary drilling.

Scale: 1 : 68

RECORD OF BOREHOLE No. BH/MW402

Project Number:	BIGC-GEO-154H	Drilling Location:	See borehole location plan	Logged by:	CE
Project Client:	26 28 36 & 38 Hounslow Avenue, Toronto, ON	Drilling Method:	115 mm Mud Rotary Drilling	Compiled by:	VB
Project Name:	Geotechnical and Hydrogeological Investigations	Drilling Machine:	Track Mounted Drill	Reviewed by:	RM
Project Location:	26 28 36 & 38 Hounslow Avenue, Toronto, ON	Date Started:	Aug 15, 23	Date Completed: Aug 15, 23	Revision No.: 0, 8/31/23

Geodetic Ground Surface Elevation: 183.30 m

CONTINUOUS AUGER DRILLING TO 6.10 m bgs

177.20

CLAYEY SILT TILL: trace sand, trace gravel, grey, moist, stiff to hard — 6.1

high plasticity

171.80

SILTY SAND TILL: trace clay, trace gravel, grey, moist, very dense — 11.5

Sample Type	Sample Number	Recovery (%)	SPT 'N' Value/RQD%
SS	1	95	13
SS	2	100	18
SS	3	100	19
SS	4	95	55
SS	5	100	50/13 cm

Penetration Testing: ○ SPT ● DCPT; MTO Vane* △ Intact ▲ Remould; Nilcon Vane* ◇ Intact ◆ Remould; * Undrained Shear Strength (kPa) 20 40 60 80

★ Rinse pH Values 2 4 6 8 10 12

Soil Vapour Reading △ parts per million (ppm) 100 200 300 400

▲ Lower Explosive Limit (LEL) W_P W W_L

Plastic Liquid 20 40 60 80

○ 12 ○ 12 ○ 13 ○ 10 ○ 14

50 13 cm

Gr: 1%, Sa: 28%, Si: 52%, Cl: 19%
LL: 19%, Pl: 6%

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▽ No freestanding groundwater measured in open borehole on completion of drilling.

Scale: 1 : 68

Continued on Next Page

RECORD OF BOREHOLE No. BH/MW402

Project Number: **BIGC-GEO-154H** Drilling Location: **See borehole location plan** Logged by: **CE**

DESCRIPTION	Sample Type	Sample Number	Recovery (%)	SPT 'N' Value/RQD%	DEPTH (m)	ELEVATION (m)	FIELD TESTING	LAB TESTING	INSTRUMENTATION INSTALLATION	COMMENTS
SILTY SAND TILL: trace clay, trace gravel, grey, moist, very dense										
	SS	6	88	88/28 cm	14	169	88 / 28 cm	7		Gr: 1%, Sa: 42%, Si: 46%, Cl: 11%
	SS	7	100	50/10 cm	15	168	50 / 10 cm	7		
clayey silt/silty clay layer, 300 mm thick, grey, moist, hard	SS	8	95	70	17	166		11, 13		
165.40 **SILTY SAND:** brown, moist, very dense 17.9	SS	9	57	93/23 cm	18	165	93 / 23 cm	17		
	SS	10	95	97/28 cm	20	163	97 / 28 cm	17		
	SS	11	81	91	22	161		14		Gr: 0%, Sa: 83%, Si: 14%, Cl: 3%
silt layer, 300 mm thick, brown, moist	SS	12	66	100/23 cm	23	160	100 / 23 cm	16, 3		
158.64	SS	13	100	98/28 cm	24	159	98 / 28 cm	14		
End of Borehole 24.7										

Notes:
1. Borehole open upon completion of drilling.
1. Ground water level could not be measured due to mud rotary drilling.

Scale: 1 : 68

APPENDIX B: MECP WATER WELL SUMMARY AND CONSTRUCTION DEWATERING RECORD

Table B-1: MECP WWR Summary Table

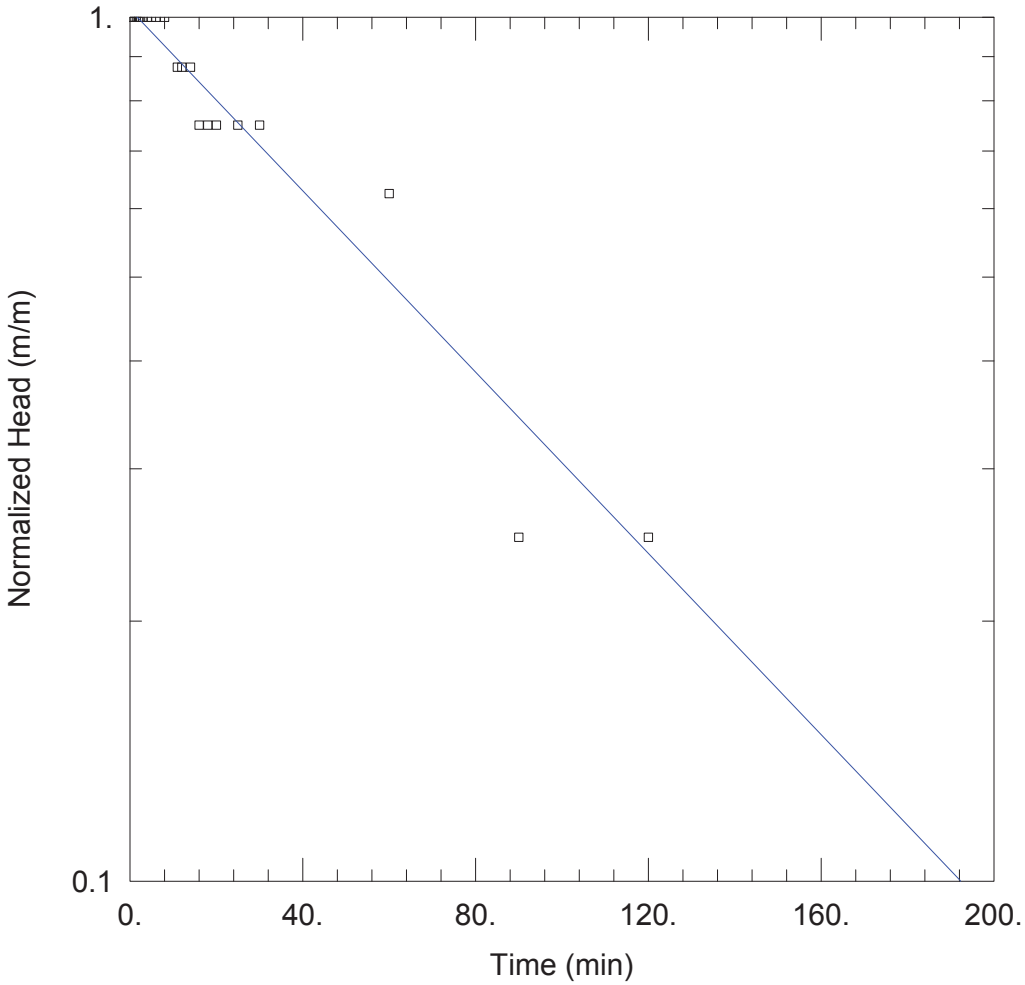
Count	Well ID	Date Constructed	Total Depth (m bgs)	Reported Water Depth (m bgs)	Status of Well
1.	6928218	07/20/2004	15.5	12	Test Hole
2.	6928309	10/07/2004	22.5	19	Test Hole
3.	6929766	11/30/2005	4.6	N/A	Abandoned-Other
4.	6930062	03/02/2006	12.1	7.6	Test Hole
5.	7044673	05/22/2007	N/A	N/A	Abandoned-Other
6.	7100720	11/13/2007	N/A	N/A	Observation Well
7.	7100720	11/13/2007	N/A	N/A	Observation Well
8.	7100720	11/13/2007	9.1	N/A	Observation Well
9.	7103425	02/05/2008	9.1	N/A	Test Hole
10.	7103425	02/05/2008	N/A	N/A	Test Hole
11.	7103425	02/05/2008	N/A	N/A	Test Hole
12.	7111503	01/28/2008	11.0	8.8	Test Hole
13.	7111503	01/28/2008	N/A	8.6	Test Hole
14.	7111503	01/28/2008	N/A	8.6	Test Hole
15.	7111503	01/29/2008	N/A	8.6	Test Hole
16.	7111503	01/29/2008	N/A	8.6	Test Hole
17.	7111503	01/29/2008	N/A	8.6	Test Hole
18.	7148344	05/18/2010	3.3	N/A	Observation Well
19.	7150736	10/12/2010	N/A	N/A	Abandoned-Other
20.	7162514	02/25/2011	6.1	N/A	Observation Well
21.	7166634	07/14/2011	9.1	N/A	Test Hole
22.	7166635	07/14/2011	6.1	N/A	Test Hole
23.	7166636	07/14/2011	10.2	N/A	Test Hole
24.	7185196	01/24/2012	N/A	N/A	Abandoned-Other
25.	7226902	07/09/2014	10.1	N/A	Observation Well
26.	7226903	07/10/2014	7.6	N/A	Observation Well
27.	7226904	07/11/2014	9.1	N/A	Observation Well
28.	7236208	07/16/2014	N/A	N/A	Not Used
29.	7259449	06/26/2015	19.8	N/A	Observation Well
30.	7260569	02/04/2016	25.9	N/A	Test hole
31.	7260570	01/30/2016	21.6	N/A	Not Used
32.	7273700	06/24/2016	N/A	N/A	N/A
33.	7275502	09/29/2016	16.5	N/A	Test hole
34.	7275505	09/30/2016	15.5	N/A	Observation well
35.	7277184	10/31/2016	7.6	N/A	Observation well
36.	7277185	10/31/2016	7.6	N/A	Observation well
37.	7277186	10/31/2016	9.1	N/A	Observation well
38.	7277187	10/31/2016	7.6	N/A	Observation well
39.	7279503	N/A	N/A	N/A	N/A
40.	7284027	10/17/2016	N/A	N/A	N/A
41.	7293941	07/11/2017	29.6	N/A	Monitoring and test hole
42.	7293942	07/13/2017	29.6	N/A	Monitoring and test hole
43.	7293943	07/17/2017	29.6	N/A	N/A
44.	7294366	05/19/2017	5.1	4.97	Test hole

Count	Well ID	Date Constructed	Total Depth (m bgs)	Reported Water Depth (m bgs)	Status of Well
45.	7296570	06/08/2017	6.7	N/A	Monitoring and test hole
46.	7301751	N/A	21.3	18.3	Monitoring and test hole
47.	7305155	11/22/2017	19.8	N/A	Observation well
48.	7305156	11/22/2017	19.8	N/A	Observation well
49.	7305157	11/22/2017	10.1	N/A	Observation well
50.	7309142	11/20/2017	12.0	11.6	Monitoring and test hole
51.	7309143	04/16/2017	42.7	N/A	Observation well
52.	7321373	09/30/2018	9.1	N/A	Observation well
53.	7321374	9/30/2018	10.7	N/A	Observation well
54.	7329088	N/A	N/A	N/A	N/A
55.	7337569	05/22/2019	6.1	N/A	Monitoring and test hole
56.	7337570	05/22/2019	6.1	N/A	Monitoring and test hole
57.	7337571	05/23/2019	6.1	N/A	Monitoring and test hole
58.	7337573	05/22/2019	6.1	N/A	Monitoring and test hole
59.	7337574	05/23/2019	6.1	N/A	Monitoring and test hole
60.	7338832	07/02/2019	6.1	N/A	Monitoring and test hole
61.	7341909	08/29/2019	12.2	9.1	Observation well
62.	7341910	08/29/2019	11.3	9.1	Observation well
63.	7341911	08/29/2019	12.2	9.1	Observation well
64.	7356116	N/A	N/A	N/A	N/A
65.	7373042	10/13/2020	6.1	N/A	Observation well
66.	7375677	10/17/2020	12.2	N/A	Observation well
67.	7375678	10/17/2020	12.2	N/A	Observation well
68.	7382293	02/10/2021	6.1	N/A	Observation well
69.	7382307	02/10/2021	9.1	N/A	Observation well
70.	7388562	04/26/2021	9.1	N/A	Observation well
71.	7388563	04/26/2021	7.6	N/A	Observation well
72.	7394427	N/A	N/A	N/A	N/A
73.	7408717	01/14/2022	7.3	3.1	Observation well
74.	7413178	N/A	N/A	N/A	N/A

Table B-2: MECP EASR Registration

Permit Number	Purpose	Address	Water Source	Maximum L/Day	Active
R-009-2110450670	Construction Dewatering	75 Canterbury Place	Groundwater	50,000 to 400,000	Yes
R-009-1111735350	Construction Dewatering	15 Holmes Avenue	Groundwater	50,000 to 400,000	Yes
R-009-4110604460	Construction Dewatering	5220-5254 Yonge Street	Groundwater	50,000 to 400,000	Yes
R-009-4197207249	Construction Dewatering	36 Olive Avenue East	Groundwater	50,000 to 400,000	Yes
R-009-8233074270	Construction Dewatering	13 Altamont Road	Groundwater	66,200	Yes
R-009-7112365898	Construction Dewatering	15 & 19 Altamont Road	Groundwater	50,000 to 400,000	Yes

APPENDIX C: SWRT PROCUDURES AND RESULTS



WELL TEST ANALYSIS

Data Set: C:\...\MW201.aqt
Date: 10/18/19 Time: 13:45:05

PROJECT INFORMATION

Company: B.I.G. Consulting Inc.
Project: BIGC-ENV-154E
Location: 26-38 Hounslow Avenue, Toronto
Test Date: October 17, 2019

AQUIFER DATA

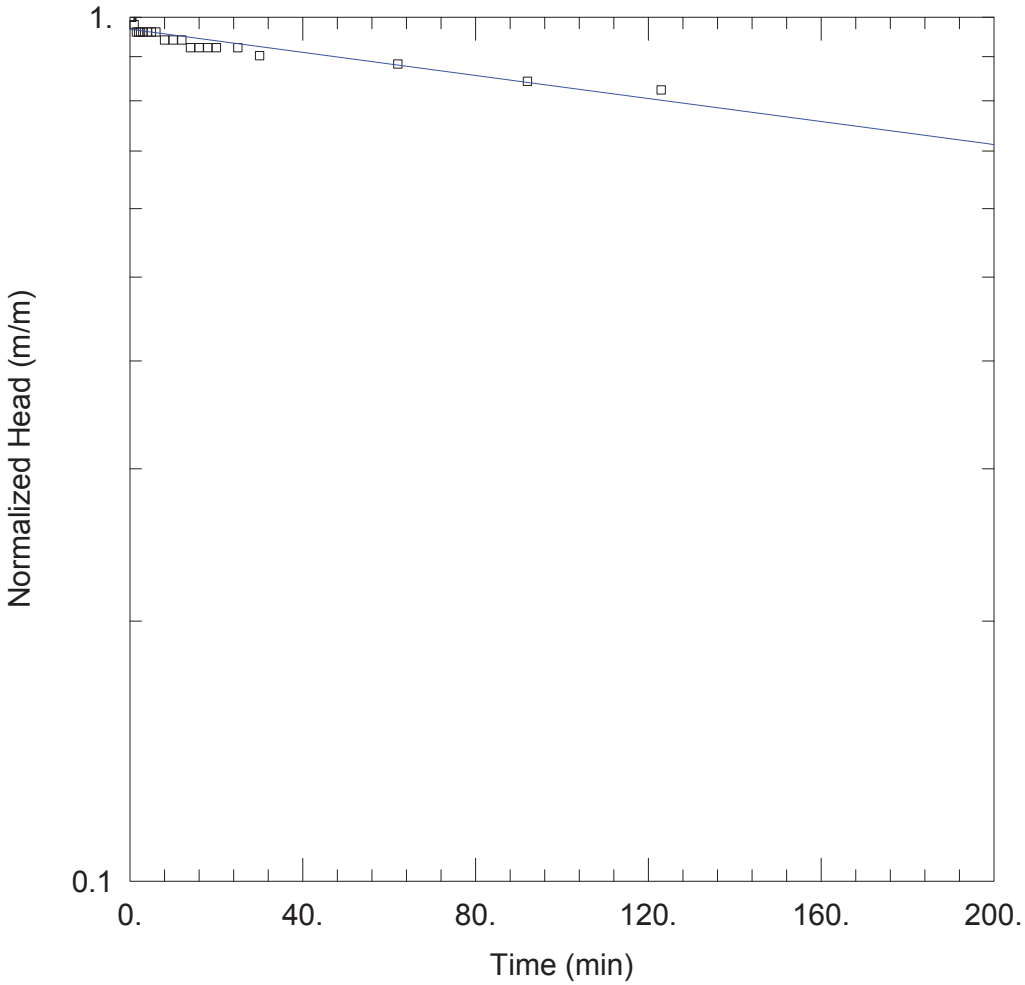
Saturated Thickness: 0.14 m Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (BH/MW201)

Initial Displacement: 0.08 m
Total Well Penetration Depth: 0.14 m
Casing Radius: 0.025 m
Static Water Column Height: 0.14 m
Screen Length: 0.14 m
Well Radius: 0.025 m

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 5.572E-7 m/sec
y0 = 0.08164 m



WELL TEST ANALYSIS

Data Set: C:\...\MW203.aqt
Date: 10/18/19 Time: 13:44:50

PROJECT INFORMATION

Company: B.I.G. Consulting Inc.
Project: BIGC-ENV-154E
Location: 26-38 Hounslow Avenue, Toronto
Test Date: October 17, 2019

AQUIFER DATA

Saturated Thickness: 0.95 m Anisotropy Ratio (Kz/Kr): 1.

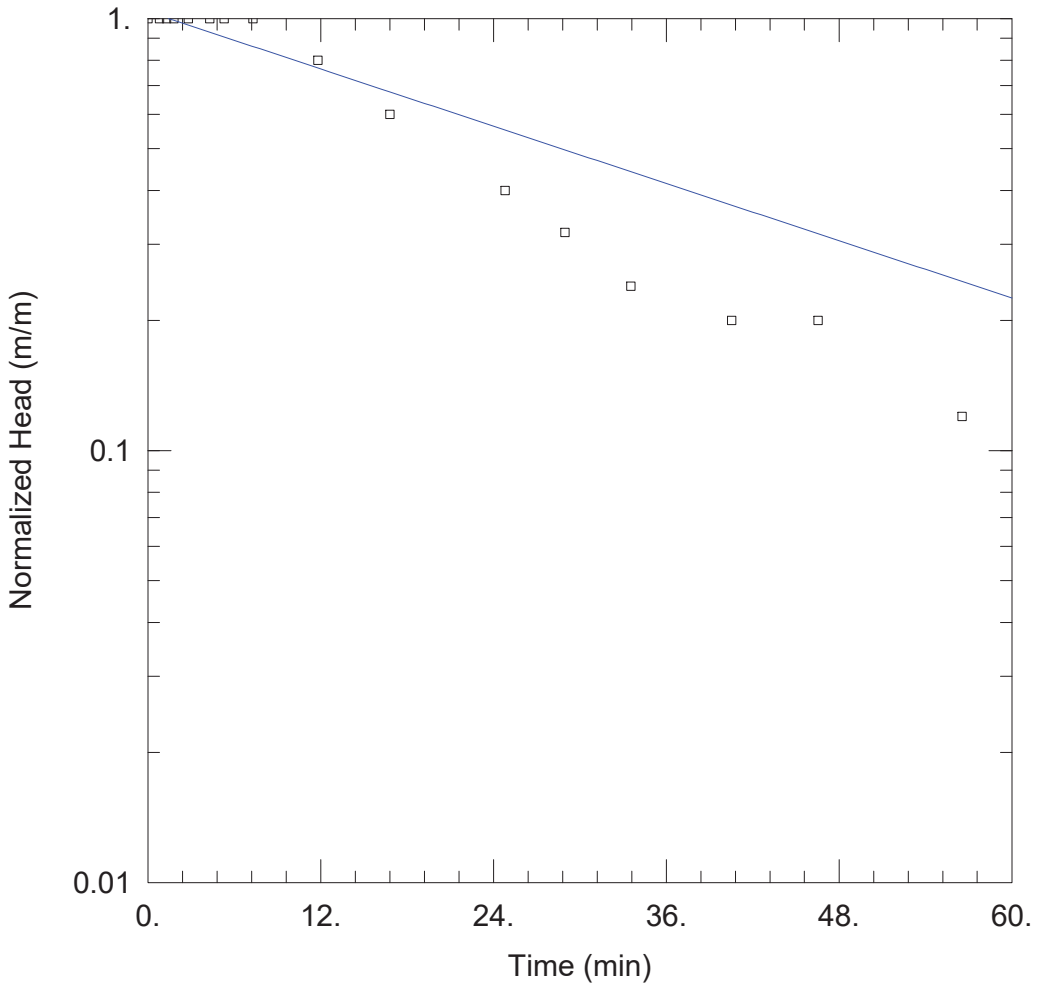
WELL DATA (BH/MW203)

Initial Displacement: 0.51 m
Total Well Penetration Depth: 0.95 m
Casing Radius: 0.025 m
Static Water Column Height: 0.95 m
Screen Length: 0.95 m
Well Radius: 0.025 m

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 2.334E-8 m/sec y0 = 0.4937 m



WELL TEST ANALYSIS

Data Set: C:\...\BHMW402-EL.aqt
Date: 09/08/23 Time: 12:34:27

PROJECT INFORMATION

Company: B.I.G. Consulting Inc.
Client: Hounslow Holdings Inc.
Project: BIGC-GEO-154H
Location: 26-38 Hounslow Avenue, Toronto
Test Well: BH/MW402
Test Date: August 17, 2023

AQUIFER DATA

Saturated Thickness: 0.935 m Anisotropy Ratio (Kz/Kr): 1.

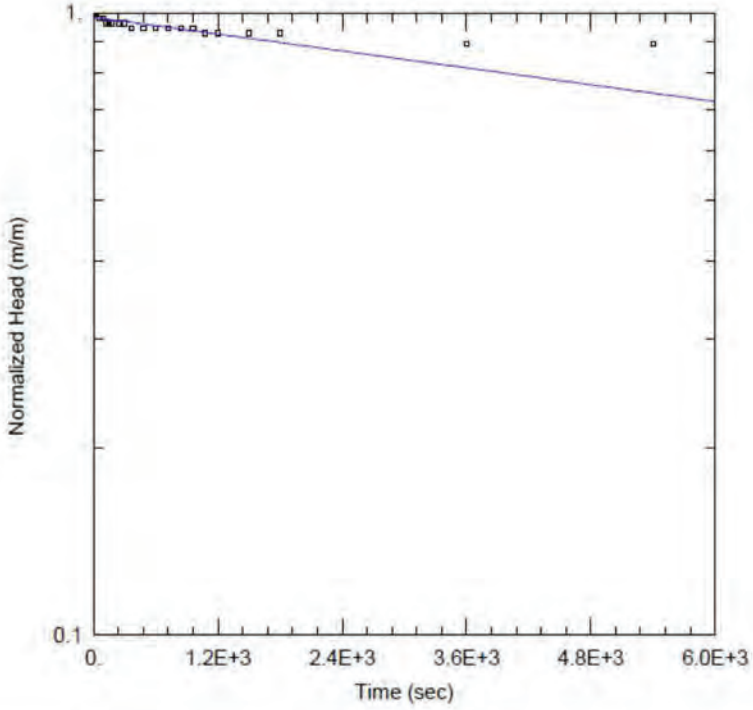
WELL DATA (BH/MW402)

Initial Displacement: 0.025 m
Total Well Penetration Depth: 0.935 m
Casing Radius: 0.0254 m
Static Water Column Height: 0.935 m
Screen Length: 0.935 m
Well Radius: 0.0254 m

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 4.012E-7 m/sec y0 = 0.02593 m



WELL TEST ANALYSIS

Data Set: D:\MW101.aqt
Date: 05/17/17 Time: 06:59:39

PROJECT INFORMATION

Company: Brownfield Investment Group Inc. Client: Mattamy Homes
Project: BIG-ENV-154
Location: 26-36 Hounslow Ave., North York, Toronto
Test Date: April 4, 2017

AQUIFER DATA

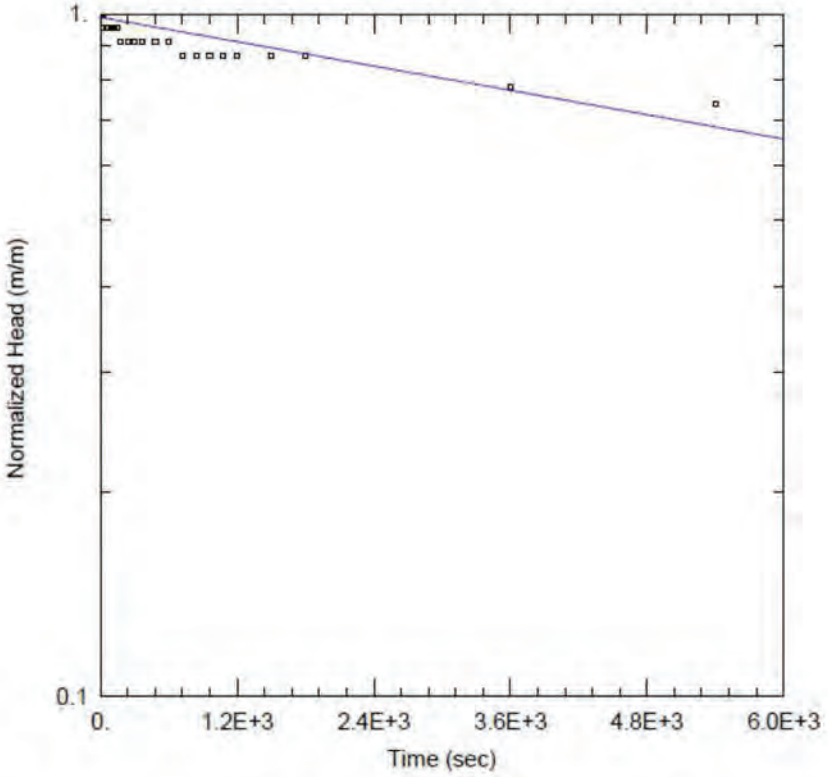
Saturated Thickness: 0.28 m Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW101)

Initial Displacement: 0.28 m
Total Well Penetration Depth: 0.28 m
Casing Radius: 0.025 m
Static Water Column Height: 0.28 m
Screen Length: 0.28 m
Well Radius: 0.025 m
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
K = 1.01E-7 m/sec y0 = 0.2759 m



WELL TEST ANALYSIS

Data Set: D:\MW102.aqt
Date: 05/18/17 Time: 10:35:33

PROJECT INFORMATION

Company: Brownfield Investment Group Inc. Client: Mattamy Homes
Project: BIG-ENV-154
Location: 26-36 Hounslow Ave., North York, Toronto
Test Date: April 4, 2017

AQUIFER DATA

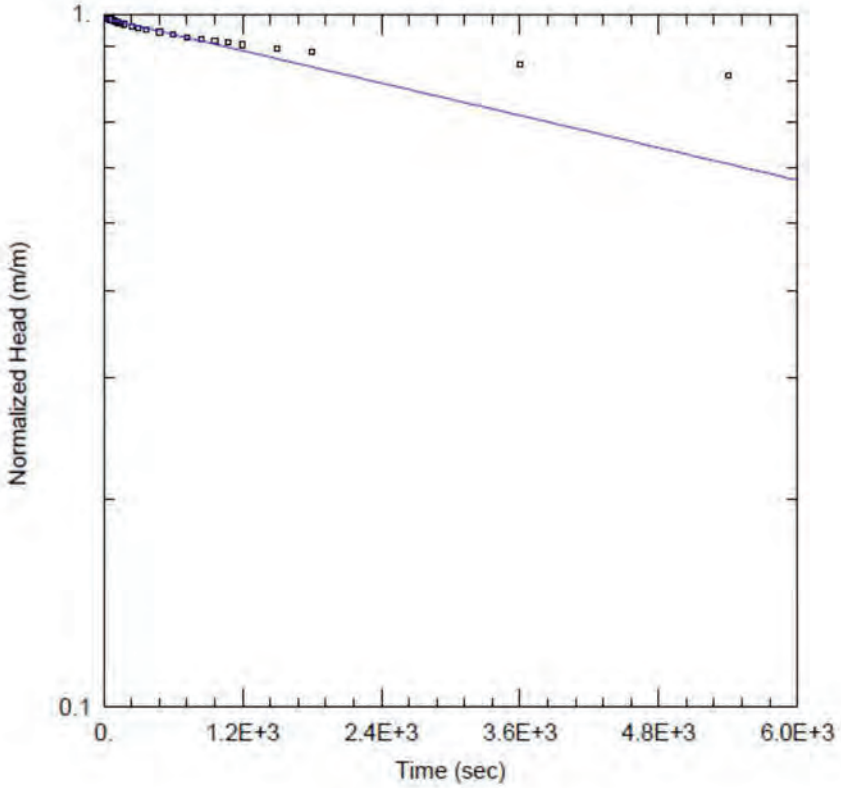
Saturated Thickness: 0.31 m Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW102)

Initial Displacement: 0.115 m
Total Well Penetration Depth: 0.31 m
Casing Radius: 0.025 m
Static Water Column Height: 0.31 m
Screen Length: 0.31 m
Well Radius: 0.025 m
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
K = 1.253E-7 m/sec y0 = 0.1139 m



WELL TEST ANALYSIS

Data Set: D:\MW103.aqt
Date: 05/18/17 Time: 10:43:41

PROJECT INFORMATION

Company: Brownfield Investment Group Inc.
Client: Mattamy Homes
Project: BIG-ENV-154
Location: 26-36 Hounslow Ave., North York, Toronto
Test Date: April 4, 2017

AQUIFER DATA

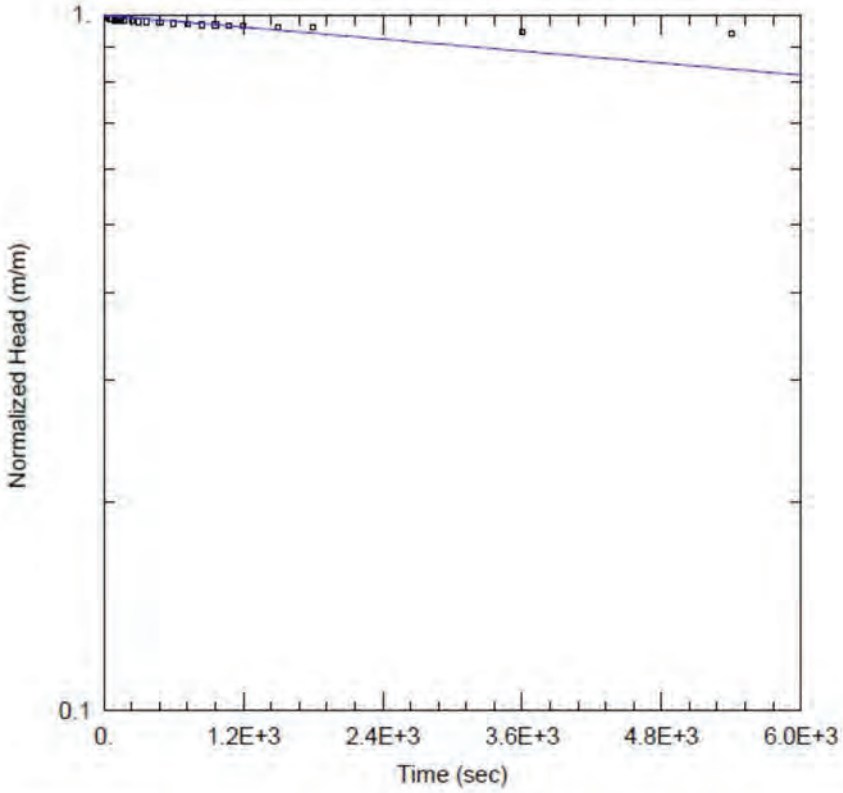
Saturated Thickness: 2.37 m Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW103)

Initial Displacement: 1.9 m
Total Well Penetration Depth: 2.37 m
Casing Radius: 0.025 m
Static Water Column Height: 2.37 m
Screen Length: 2.37 m
Well Radius: 0.025 m
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 4.134E-8 m/sec
y0 = 1.876 m



WELL TEST ANALYSIS

Data Set: D:\MW104.aqt
Date: 05/18/17 Time: 10:52:46

PROJECT INFORMATION

Company: Brownfield Investment Group Inc.
Client: Mattamy Homes
Project: BIG-ENV-154
Location: 26-36 Hounslow Ave., North York, Toronto
Test Date: April 4, 2017

AQUIFER DATA

Saturated Thickness: 4.8 m Anisotropy Ratio (Kz/Kr): 1.

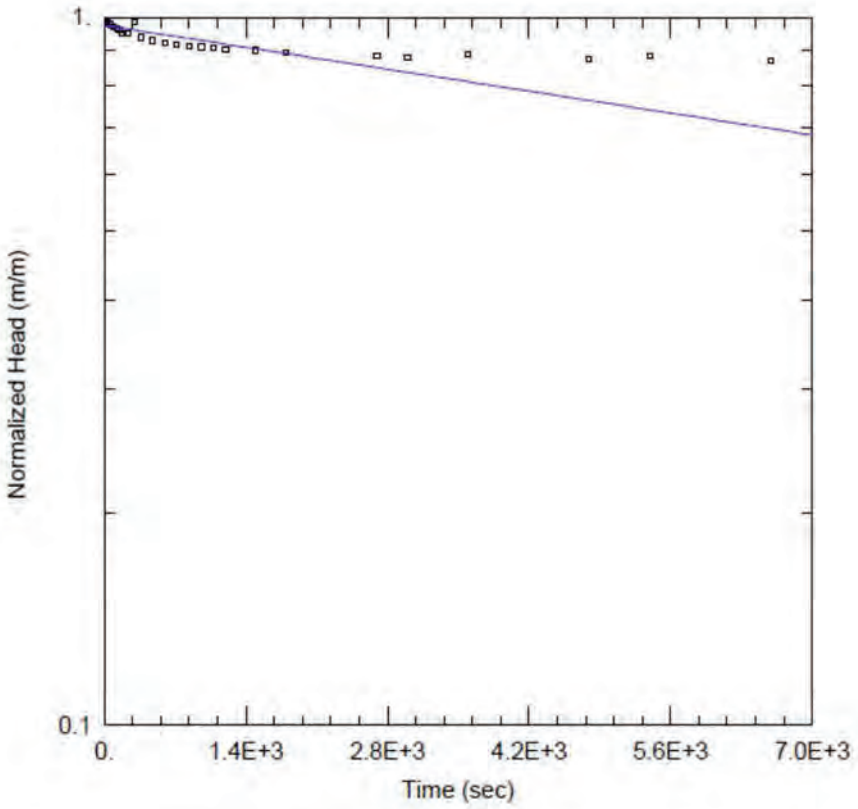
WELL DATA (MW104)

Initial Displacement: 2.29 m
Total Well Penetration Depth: 4.8 m
Casing Radius: 0.025 m
Static Water Column Height: 4.8 m
Screen Length: 3. m
Well Radius: 0.025 m

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev

K = 1.882E-8 m/sec y0 = 2.29 m



WELL TEST ANALYSIS

Data Set: D:\MW107.aqt
Date: 05/18/17 Time: 11:25:26

PROJECT INFORMATION

Company: Brownfield Investment Group Inc.
Client: Mattamy Homes
Project: BIG-ENV-154
Location: 26-36 Hounslow Ave., North York, Toronto
Test Date: April 4, 2017

AQUIFER DATA

Saturated Thickness: 2.82 m
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW107)

Initial Displacement: 1.6 m
Total Well Penetration Depth: 4.62 m
Casing Radius: 0.025 m
Static Water Column Height: 2.82 m
Screen Length: 2.82 m
Well Radius: 0.025 m
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 2.23E-8 m/sec
y0 = 1.561 m

APPENDIX D: WATER QUALITY LABORATORY CERTIFICATE OF ANALYSIS AND CHAIN OF CUSTODY

AGAT Laboratories

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

CLIENT NAME: **B.I.G. CONSULTING**
804-505 CONSUMERS ROAD
TORONTO, ON M2J 4V8

ATTENTION TO: **Eileen Liu**

PROJECT: **BIGC-ENV-154F**

AGAT WORK ORDER: **20T668358**

MICROBIOLOGY ANALYSIS REVIEWED BY: **Nivine Basily, Inorganics Report Writer**

TRACE ORGANICS REVIEWED BY: **Pinkal Patel, Report Reviewer**

ULTRA TRACE REVIEWED BY: **Philippe Morneau, chimiste**

WATER ANALYSIS REVIEWED BY: **Jacky Zhu, Spectroscopy Technician**

DATE REPORTED: **Nov 10, 2020**

PAGES (INCLUDING COVER): **14**

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 following analysis, unless expressly agreed otherwise in writing. Please contact your Client Project Manager if you require additional sample storage time.*
- *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.*
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Certificate of Analysis

AGAT WORK ORDER: 20T668358

PROJECT: BIGC-ENV-154F

CLIENT NAME: B.I.G. CONSULTING

ATTENTION TO: Eileen Liu

SAMPLING SITE:2630 Hounslow Ave

SAMPLED BY:SL

E. Coli (Using MI Agar)

DATE RECEIVED: 2020-10-23

DATE REPORTED: 2020-11-10

				SAMPLE DESCRIPTION:	MW103
				SAMPLE TYPE:	Water
				DATE SAMPLED:	2020-10-23 16:00
Parameter	**Unit**	**G / S**	**RDL**	**1595472**	
Escherichia coli	CFU/100mL	200	1	ND	

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.

1595472 ND - Not Detected.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:

AGAT Laboratories

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Certificate of Analysis

AGAT WORK ORDER: 20T668358

PROJECT: BIGC-ENV-154F

CLIENT NAME: B.I.G. CONSULTING

ATTENTION TO: Eileen Liu

SAMPLING SITE:2630 Hounslow Ave

SAMPLED BY:SL

Toronto Sanitary and Combined Sewer Use By-law - Organic

DATE RECEIVED: 2020-10-23

DATE REPORTED: 2020-11-10

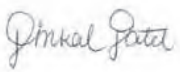
					SAMPLE DESCRIPTION:	MW103
					SAMPLE TYPE:	Water
					DATE SAMPLED:	2020-10-23 16:00
Parameter	**Unit**	**G / S: A**	**G / S: B**	**RDL**		**1595472**
Oil and Grease (animal/vegetable) in water	mg/L	150		0.5		<0.5[<A]
Oil and Grease (mineral) in water	mg/L	15		0.5		<0.5[<A]
Methylene Chloride	mg/L	2	0.0052	0.0003		<0.0003[<B]
trans-1,3-Dichloropropylene	mg/L	0.14	0.0056	0.0003		<0.0003[<B]
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]
Tetrachloroethylene	mg/L	1	0.0044	0.0001		<0.0001[<B]
Toluene	mg/L	0.016	0.002	0.0002		<0.0002[<B]
Trichloroethlyene	mg/L	0.4	0.0076	0.0002		<0.0002[<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]
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]
Xylenes (Total)	mg/L	1.4	0.0044	0.0002		<0.0002[<B]
PCBs	mg/L	0.001	0.0004	0.0002		<0.0002[<B]
Pentachlorophenol	mg/L	0.005	0.002	0.0001		<0.0001[<B]
Di-n-butyl phthalate	mg/L	0.08	0.015	0.0005		<0.0005[<B]
3,3'-Dichlorobenzidine	mg/L	0.002	0.0008	0.0005		<0.0005[<B]
Bis(2-Ethylhexyl)phthalate	mg/L	0.012	0.0088	0.0005		<0.0005[<B]
Total PAHs	mg/L	0.005	0.002	0.0003		<0.0003[<B]

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: A Refers to City of Toronto Sanitary and Combined Sewers Discharge, B 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.

1595472 Oil and Grease animal/vegetable is a calculated parameter. The calculated value is the difference between Total O&G and Mineral O&G.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:



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FAX (905)712-5122
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Certificate of Analysis

AGAT WORK ORDER: 20T668358

PROJECT: BIGC-ENV-154F

CLIENT NAME: B.I.G. CONSULTING

ATTENTION TO: Eileen Liu

SAMPLING SITE:2630 Hounslow Ave

SAMPLED BY:SL

Nonylphenol and Nonylphenol Ethoxylates (Ontario, mg/L)

DATE RECEIVED: 2020-10-23

DATE REPORTED: 2020-11-10

					SAMPLE DESCRIPTION:	MW103
					SAMPLE TYPE:	Water
					DATE SAMPLED:	2020-10-23 16:00
Parameter	**Unit**	**G / S: A**	**G / S: B**	**RDL**		**1595472**
Total Nonylphenol	mg/L	0.02	0.001	0.001		<0.001[<B]
NP1EO	mg/L			0.001		<0.001
NP2EO	mg/L			0.0003		<0.0003
Total Nonylphenol Ethoxylates	mg/L	0.2	0.01	0.001		<0.001[<B]

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: A Refers to City of Toronto Sanitary and Combined Sewers Discharge, B 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.

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Certificate of Analysis

AGAT WORK ORDER: 20T668358

PROJECT: BIGC-ENV-154F

CLIENT NAME: B.I.G. CONSULTING

ATTENTION TO: Eileen Liu

SAMPLING SITE:2630 Hounslow Ave

SAMPLED BY:SL

BOD5

DATE RECEIVED: 2020-10-23

DATE REPORTED: 2020-11-10

				SAMPLE DESCRIPTION:	**MW103**
				SAMPLE TYPE:	**Water**
				DATE SAMPLED:	**2020-10-23 16:00**
Parameter	**Unit**	**G / S: A**	**G / S: B**	**RDL**	**1595472**
Biochemical Oxygen Demand, Total	mg/L	300	15	2	<2[<B]

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: A Refers to City of Toronto Sanitary and Combined Sewers Discharge, B 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 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: 20T668358

PROJECT: BIGC-ENV-154F

CLIENT NAME: B.I.G. CONSULTING

ATTENTION TO: Eileen Liu

SAMPLING SITE:2630 Hounslow Ave

SAMPLED BY:SL

Toronto Sanitary and Combined Sewer Use By-law - Inorganics

DATE RECEIVED: 2020-10-23

DATE REPORTED: 2020-11-10

				SAMPLE DESCRIPTION:	MW103
				SAMPLE TYPE:	Water
				DATE SAMPLED:	2020-10-23 16:00
Parameter	Unit	G / S: A	G / S: B	RDL	1595472
pH	pH Units	6.0-11.5	6.0-9.5	NA	7.82
Fluoride	mg/L	10		0.05	0.25[<A]
Total Kjeldahl Nitrogen	mg/L	100		0.10	0.16[<A]
Total Phosphorus	mg/L	10	0.4	0.04	0.07[<B]
Total Cyanide	mg/L	2	0.02	0.002	<0.002[<B]
Phenols	mg/L	1.0	0.008	0.001	0.013[B-A]
Total Suspended Solids	mg/L	350	15	10	11[<B]
Total Aluminum	mg/L	50		0.10	7.80[<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	0.005	<0.005[<B]
Total Chromium	mg/L	4	0.08	0.020	<0.020[<B]
Chromium VI	mg/L	2	0.04	0.005	<0.005[<B]
Total Cobalt	mg/L	5		0.010	<0.010[<A]
Total Copper	mg/L	2	0.04	0.020	<0.020[<B]
Total Lead	mg/L	1	0.12	0.020	<0.020[<B]
Total Manganese	mg/L	5	0.05	0.020	1.16[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	2	0.08	0.030	<0.030[<B]
Total Selenium	mg/L	1	0.02	0.020	<0.020[<B]
Total Silver	mg/L	5	0.12	0.020	<0.020[<B]
Total Tin	mg/L	5		0.020	<0.020[<A]
Total Titanium	mg/L	5		0.020	0.147[<A]
Total Zinc	mg/L	2	0.04	0.020	<0.020[<B]

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: A Refers to City of Toronto Sanitary and Combined Sewers Discharge, B 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 Toronto (unless marked by *)

Certified By:

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

Exceedance Summary

AGAT WORK ORDER: 20T668358

PROJECT: BIGC-ENV-154F

CLIENT NAME: B.I.G. CONSULTING

ATTENTION TO: Eileen Liu

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
1595472	MW103	ON Toronto SM	Toronto Sanitary and Combined Sewer Use By-law - Inorganics	Phenols	mg/L	0.008	0.013
1595472	MW103	ON Toronto SM	Toronto Sanitary and Combined Sewer Use By-law - Inorganics	Total Manganese	mg/L	0.05	1.16

AGAT Laboratories

5835 COOPERS AVENUE
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CANADA L4Z 1Y2
TEL (905)712-5100
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Quality Assurance

CLIENT NAME: B.I.G. CONSULTING

AGAT WORK ORDER: 20T668358

PROJECT: BIGC-ENV-154F

ATTENTION TO: Eileen Liu

SAMPLING SITE:2630 Hounslow Ave

SAMPLED BY:SL

Microbiology Analysis

RPT Date: Nov 10, 2020			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
E. Coli (Using MI Agar)															
Escherichia coli	1594189		5	4	NA	< 1									

Comments: NA - % RPD Not Reportable based on the number of colonies count acceptable for RPD calculation

Certified By:

AGAT Laboratories

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AGAT WORK ORDER: 20T668358

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SAMPLING SITE:2630 Hounslow Ave

SAMPLED BY:SL

Trace Organics Analysis

RPT Date: Nov 10, 2020			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
Toronto Sanitary and Combined Sewer Use By-law - Organic															
Oil and Grease (animal/vegetable) in water	1623943		< 0.5	< 0.5	NA	< 0.5	108%	70%	130%	101%	70%	130%	106%	70%	130%
Oil and Grease (mineral) in water	1623943		< 0.5	< 0.5	NA	< 0.5	72%	70%	130%	81%	70%	130%	75%	70%	130%
Methylene Chloride	1610435		<0.0003	<0.0003	NA	< 0.0003	103%	50%	140%	108%	60%	130%	102%	50%	140%
trans-1,3-Dichloropropylene	1610435		<0.0003	<0.0003	NA	< 0.0003	94%	50%	140%	77%	60%	130%	95%	50%	140%
cis- 1,2-Dichloroethylene	1610435		0.0004	0.0004	NA	< 0.0002	98%	60%	130%	85%	60%	130%	94%	60%	130%
Chloroform	1610435		0.0098	0.011	12.0%	< 0.0002	103%	50%	140%	88%	60%	130%	105%	50%	140%
Benzene	1610435		<0.0002	<0.0002	NA	< 0.0002	105%	50%	140%	84%	60%	130%	93%	50%	140%
Tetrachloroethylene	1610435		0.0003	0.0003	NA	< 0.0001	97%	50%	140%	79%	60%	130%	96%	50%	140%
Toluene	1610435		<0.0002	<0.0002	NA	< 0.0002	89%	50%	140%	93%	60%	130%	91%	50%	140%
Trichloroethlyene	1610435		0.0013	0.0014	8.2%	< 0.0002	84%	50%	140%	94%	60%	130%	75%	50%	140%
Ethylbenzene	1610435		<0.0001	<0.0001	NA	< 0.0001	82%	50%	140%	109%	60%	130%	100%	50%	140%
1,1,2,2-Tetrachloroethane	1610435		<0.0001	<0.0001	NA	< 0.0001	108%	50%	140%	95%	60%	130%	92%	50%	140%
1,2-Dichlorobenzene	1610435		<0.0001	<0.0001	NA	< 0.0001	113%	50%	140%	91%	60%	130%	99%	50%	140%
1,4-Dichlorobenzene	1610435		<0.0001	<0.0001	NA	< 0.0001	99%	50%	140%	84%	60%	130%	104%	50%	140%
PCBs	1603694		< 0.0002	< 0.0002	NA	< 0.0002	106%	60%	130%	105%	60%	130%	90%	60%	130%
Pentachlorophenol	1594412		< 0.0001	< 0.0001	NA	< 0.0001	115%	50%	140%	102%	50%	140%	102%	50%	140%
Di-n-butyl phthalate	1594412		< 0.0005	< 0.0005	NA	< 0.0005	112%	50%	140%	105%	50%	140%	115%	50%	140%
3,3'-Dichlorobenzidine	1594412		< 0.0005	< 0.0005	NA	< 0.0005	118%	30%	130%	85%	30%	130%	74%	30%	130%
Bis(2-Ethylhexyl)phthalate	1594412		< 0.0005	< 0.0005	NA	< 0.0005	100%	50%	140%	74%	50%	140%	96%	50%	140%
Total PAHs	1594412		< 0.0003	< 0.0003	NA	< 0.0003	100%	60%	130%	96%	60%	130%	85%	60%	130%

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:

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Quality Assurance

CLIENT NAME: B.I.G. CONSULTING

AGAT WORK ORDER: 20T668358

PROJECT: BIGC-ENV-154F

ATTENTION TO: Eileen Liu

SAMPLING SITE:2630 Hounslow Ave

SAMPLED BY:SL

Ultra Trace Analysis

RPT Date: Nov 10, 2020			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	1603524	0.001	< 0.001	NA	< 0.001	92%	60%	140%	NA	60%	140%	NA	60%	140%
NP1EO	1	1603524	< 0.001	< 0.001	0.0%	< 0.001	96%	60%	140%	NA	60%	140%	NA	60%	140%
NP2EO	1	1603524	< 0.0003	< 0.0003	0.0%	< 0.0003	104%	60%	140%	NA	60%	140%	NA	60%	140%

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Quality Assurance

CLIENT NAME: B.I.G. CONSULTING

AGAT WORK ORDER: 20T668358

PROJECT: BIGC-ENV-154F

ATTENTION TO: Eileen Liu

SAMPLING SITE:2630 Hounslow Ave

SAMPLED BY:SL

Water Analysis

RPT Date: Nov 10, 2020			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
Toronto Sanitary and Combined Sewer Use By-law - Inorganics															
pH	1596765		5.58	5.62	0.7%	NA	100%	90%	110%						
Fluoride	1593404		<0.05	<0.05	NA	< 0.05	101%	90%	110%	105%	90%	110%	104%	85%	115%
Total Kjeldahl Nitrogen	1595472	1595472	0.16	0.18	NA	< 0.10	101%	70%	130%	99%	80%	120%	100%	70%	130%
Total Phosphorus	1595472	1595472	0.07	0.07	NA	< 0.02	100%	70%	130%	100%	80%	120%	100%	70%	130%
Total Cyanide	1620604		0.043	0.041	4.8%	< 0.002	106%	70%	130%	89%	80%	120%	NA	70%	130%
Phenols	1615097		<0.001	<0.001	NA	< 0.001	98%	90%	110%	102%	90%	110%	96%	80%	120%
Total Suspended Solids	1619629		<10	<10	NA	< 10	106%	80%	120%						
Total Aluminum	1613485		0.032	0.032	NA	< 0.010	101%	70%	130%	111%	80%	120%	109%	70%	130%
Total Antimony	1613485		<0.020	<0.020	NA	< 0.020	99%	70%	130%	111%	80%	120%	105%	70%	130%
Total Arsenic	1613485		<0.015	<0.015	NA	< 0.015	100%	70%	130%	110%	80%	120%	108%	70%	130%
Total Cadmium	1613485		<0.005	<0.005	NA	< 0.005	101%	70%	130%	111%	80%	120%	110%	70%	130%
Total Chromium	1613485		<0.020	<0.020	NA	< 0.020	100%	70%	130%	106%	80%	120%	106%	70%	130%
Chromium VI	1605115		<0.005	<0.005	NA	< 0.005	101%	70%	130%	101%	80%	120%	104%	70%	130%
Total Cobalt	1613485		<0.010	<0.010	NA	< 0.010	100%	70%	130%	109%	80%	120%	105%	70%	130%
Total Copper	1613485		<0.020	<0.020	NA	< 0.020	100%	70%	130%	108%	80%	120%	102%	70%	130%
Total Lead	1613485		<0.020	<0.020	NA	< 0.020	102%	70%	130%	112%	80%	120%	109%	70%	130%
Total Manganese	1613485		0.283	0.275	2.9%	< 0.020	99%	70%	130%	106%	80%	120%	110%	70%	130%
Total Mercury	1594859		<0.0002	<0.0002	NA	< 0.0002	102%	70%	130%	99%	80%	120%	99%	70%	130%
Total Molybdenum	1613485		<0.020	<0.020	NA	< 0.020	100%	70%	130%	111%	80%	120%	109%	70%	130%
Total Nickel	1613485		<0.030	<0.030	NA	< 0.030	98%	70%	130%	108%	80%	120%	102%	70%	130%
Total Selenium	1613485		<0.020	<0.020	NA	< 0.020	95%	70%	130%	115%	80%	120%	102%	70%	130%
Total Silver	1613485		<0.020	<0.020	NA	< 0.020	102%	70%	130%	108%	80%	120%	94%	70%	130%
Total Tin	1613485		<0.020	<0.020	NA	< 0.020	102%	70%	130%	111%	80%	120%	105%	70%	130%
Total Titanium	1613485		<0.020	<0.020	NA	< 0.020	96%	70%	130%	114%	80%	120%	114%	70%	130%
Total Zinc	1613485		<0.020	<0.020	NA	< 0.020	101%	70%	130%	113%	80%	120%	100%	70%	130%
BOD5															
Biochemical Oxygen Demand, Total	1606592		43	49	13.0%	< 2	108%	70%	130%						

Comments: NA Signifies Not Applicable.
Duplicate NA: results are under 5X the RDL and will not be calculated.
Matrix spike: Spike level < native concentration. Matrix spike acceptance limits do not apply.

Certified By:

AGAT Laboratories

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Method Summary

CLIENT NAME: B.I.G. CONSULTING

AGAT WORK ORDER: 20T668358

PROJECT: BIGC-ENV-154F

ATTENTION TO: Eileen Liu

SAMPLING SITE:2630 Hounslow Ave

SAMPLED BY:SL

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Microbiology Analysis			
Escherichia coli	MIC-93-7010	EPA 1604	Membrane Filtration
Trace Organics Analysis			
Oil and Grease (animal/vegetable) in water	VOL-91-5011	EPA SW-846 1664A & SM 5520	BALANCE
Oil and Grease (mineral) in water	VOL-91-5011	EPA SW-846 1664A & SM 5520	BALANCE
Methylene Chloride	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
trans-1,3-Dichloropropylene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
cis- 1,2-Dichloroethylene	VOL-91-5001	EPA SW-846 5030B & 8260B	(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
Tetrachloroethylene	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
Trichloroethlyene	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
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
Xylenes (Total)	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
PCBs	ORG-91-5112	EPA SW-846 3510C & 8082A	GC/ECD
Pentachlorophenol	ORG-91-5114	EPA SW-846 3510C & 8270E	GC/MS
Di-n-butyl phthalate	ORG-91-5114	EPA SW-846 3510C & 8270E	GC/MS
3,3'-Dichlorobenzidine	ORG-91-5114	EPA SW-846 3510C & 8270E	GC/MS
Bis(2-Ethylhexyl)phthalate	ORG-91-5114	EPA SW-846 3510C & 8270E	GC/MS
Total PAHs	ORG-91-5114	EPA SW-846 3510C & 8270E	GC/MS
Ultra Trace Analysis			
Total Nonylphenol	NA	ASTM D7065-6	LC/MS/MS
NP1EO	NA	ASTM D7065-6	LC/MS/MS
NP2EO	NA	ASTM D7065-6	LC/MS/MS
Total Nonylphenol Ethoxylates	NA	ASTM D7065-6	LC/MS/MS

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Method Summary

CLIENT NAME: B.I.G. CONSULTING

AGAT WORK ORDER: 20T668358

PROJECT: BIGC-ENV-154F

ATTENTION TO: Eileen Liu

SAMPLING SITE:2630 Hounslow Ave

SAMPLED BY:SL

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Water Analysis			
Biochemical Oxygen Demand, Total	INOR-121-6023	SM 5210 B	INCUBATOR
pH	INOR-93-6000	modified from SM 4500-H+ B	PC TITRATE
Fluoride	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPHY
Total Kjeldahl Nitrogen	INOR-93-6048	modified from EPA 351.2 and SM 4500-NORG D	LACHAT FIA
Total Phosphorus	INOR-93-6022	modified from SM 4500-P B and SM 4500-P E	SPECTROPHOTOMETER
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 Suspended Solids	INOR-93-6028	modified from EPA 1684,ON MOECC E3139,SM 2540C,D	BALANCE
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
Chromium VI	INOR-93-6034	modified from SM 3500-CR B	SPECTROPHOTOMETER
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

1 Lg BIK
M1B1

5835 Coopers Avenue
Mississauga, Ontario L4Z 1Y2
Ph: 905.712.5100 Fax: 905 712.5122
webearth agatlabs.com

Chain of Custody Record

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

Laboratory Use Only

Work Order #: 20T668358

Cooler Quantity:

Arrival Temperatures: 12.6 | 12.7 | 13.3

Custody Seal Intact: ☐ Yes ☐ No ☐ N/A

Notes: Onice

Report Information:

Company: BIG Consulting Inc
Contact: Eileen Lin
Address: 84-505 Consumers Rd
Toronto ON M2J 4V8
Phone: 416 2494880 Ext Fax:
Reports to be sent to:
1. Email: elin@bramfieldgi.com
2. 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 — Toronto (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

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

Project Information:

Project: BIGC-ENV-154F
Site Location: 26 Hounslow Ave SC
Sampled By:
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: Send Marine Dispensary
Contact:
Address: Send
Email: ldougherty@bramfieldgi.com

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	O. Reg 153: 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	Toronto Storm & Sani Package	Potentially Hazardous or High Concentration (Y/N)
MW103	20/10/23	1600 AM/PM	17	GW		N													
		AM/PM																	
		AM/PM																	
		AM/PM																	
		AM/PM																	
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20 OCT 23 6:51PM

Samples Relinquished By (Print Name and Sign):	Date	Time	Samples Received By (Print Name and Sign):	Date	Time
Shirley Li	20/10/23	19:00	SIMRAN		
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

Page 1 of 1

N°: 110625

Document ID: DW-75-1511 018

Pink Copy - Client | Yellow Copy - AGAT | White Copy- AGAT

Date Issued: August 24, 2020

Your Project #: BIGC-ENV-154E
Site Location: 26-38 Hounslow Avenue
Your C.O.C. #: 741264-01-01

Attention: Eileen Liu

B.I.G Consulting Inc.
12-5500 Tomken Road
Mississauga, ON
CANADA L4W 2Z4

Report Date: 2019/10/18
Report #: R5926959
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: B9S5804
Received: 2019/10/10, 14:39

Sample Matrix: Water
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Sewer Use By-Law Semivolatile Organics	1	2019/10/11	2019/10/15	CAM SOP 00301	EPA 8270 m
Biochemical Oxygen Demand (BOD)	1	2019/10/12	2019/10/17	CAM SOP-00427	SM 23 5210B m
Chromium (VI) in Water	1	N/A	2019/10/15	CAM SOP-00436	EPA 7199 m
Total Cyanide	1	2019/10/11	2019/10/11	CAM SOP-00457	OMOE E3015 5 m
Fluoride	1	2019/10/11	2019/10/16	CAM SOP-00449	SM 23 4500-F C m
Mercury in Water by CVAA	1	2019/10/15	2019/10/15	CAM SOP-00453	EPA 7470A m
Total Metals Analysis by ICPMS	1	N/A	2019/10/16	CAM SOP-00447	EPA 6020B m
E.coli, (CFU/100mL)	1	N/A	2019/10/10	CAM SOP-00552	MOE LSB E3371
Total Nonylphenol in Liquids by HPLC	1	2019/10/15	2019/10/16	CAM SOP-00313	In-house Method
Nonylphenol Ethoxylates in Liquids: HPLC	1	2019/10/15	2019/10/16	CAM SOP-00313	In-house Method
Animal and Vegetable Oil and Grease	1	N/A	2019/10/17	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	1	2019/10/17	2019/10/17	CAM SOP-00326	EPA1664B m,SM5520A m
Polychlorinated Biphenyl in Water	1	2019/10/11	2019/10/15	CAM SOP-00309	EPA 8082A m
pH	1	2019/10/11	2019/10/16	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2019/10/15	CAM SOP-00444	OMOE E3179 m
Total Kjeldahl Nitrogen in Water	1	2019/10/15	2019/10/17	CAM SOP-00938	OMOE E3516 m
Total PAHs (1)	1	N/A	2019/10/16	CAM SOP - 00301	
Mineral/Synthetic O & G (TPH Heavy Oil) (2)	1	2019/10/17	2019/10/17	CAM SOP-00326	EPA1664B m,SM5520F m
Total Suspended Solids	1	2019/10/11	2019/10/15	CAM SOP-00428	SM 23 2540D m
Volatile Organic Compounds in Water	1	N/A	2019/10/15	CAM SOP-00226	EPA 8260C m

Remarks:

Bureau Veritas Laboratories are accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by BV Labs are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in BV Labs profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and BV Labs in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

BV Labs liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied.

Your Project #: BIGC-ENV-154E
Site Location: 26-38 Hounslow Avenue
Your C.O.C. #: 741264-01-01

Attention: Eileen Liu

B.I.G Consulting Inc.
12-5500 Tomken Road
Mississauga, ON
CANADA L4W 2Z4

Report Date: 2019/10/18
Report #: R5926959
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: B9S5804
Received: 2019/10/10, 14:39

BV Labs has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by BV Labs, unless otherwise agreed in writing. BV Labs is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by BV Labs, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Total PAHs include only those PAHs specified in the sewer use by-by-law.
(2) Note: TPH (Heavy Oil) is equivalent to Mineral / Synthetic Oil & Grease

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Christine Gripton, Senior Project Manager
Email: Christine.Gripton@bvlabs.com
Phone# (519)652-9444

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This report has been generated and distributed using a secure automated process.
BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

BV Labs Job #: B9S5804
Report Date: 2019/10/18

B.I.G Consulting Inc.
Client Project #: BIGC-ENV-154E
Site Location: 26-38 Hounslow Avenue
Sampler Initials: EL

TORONTO SANITARY & STORM SEWER PACKAGE (WATER)

BV Labs ID				KZZ844		
Sampling Date				2019/10/10 10:05		
COC Number				741264-01-01		
	UNITS	Criteria	Criteria-2	BH/MW103	RDL	QC Batch
Calculated Parameters						
Total Animal/Vegetable Oil and Grease	mg/L	-	150	ND	0.50	6381877
Inorganics						
Total BOD	mg/L	15	300	ND	2	6384926
Fluoride (F-)	mg/L	-	10	0.11	0.10	6382996
Total Kjeldahl Nitrogen (TKN)	mg/L	-	100	0.14	0.10	6387441
pH	pH	6.0:9.5	6.0:11.5	7.70		6382997
Phenols-4AAP	mg/L	0.008	1.0	ND	0.0010	6386210
Total Suspended Solids	mg/L	15	350	**120**	10	6383395
Total Cyanide (CN)	mg/L	0.02	2	ND	0.0050	6383368
Petroleum Hydrocarbons						
Total Oil & Grease	mg/L	-	-	ND	0.50	6391469
Total Oil & Grease Mineral/Synthetic	mg/L	-	15	ND	0.50	6391471
Miscellaneous Parameters						
Nonylphenol Ethoxylate (Total)	mg/L	0.01	0.2	ND	0.005	6387086
Nonylphenol (Total)	mg/L	0.001	0.02	ND	0.001	6386840
Metals						
Chromium (VI)	ug/L	40	2000	ND	0.50	6379367
Mercury (Hg)	mg/L	0.0004	0.01	ND	0.0001	6386104
Total Aluminum (Al)	ug/L	-	50000	1800	5.0	6386092
Total Antimony (Sb)	ug/L	-	5000	ND	0.50	6386092
Total Arsenic (As)	ug/L	20	1000	4.4	1.0	6386092
Total Cadmium (Cd)	ug/L	8	700	ND	0.10	6386092
Total Chromium (Cr)	ug/L	80	4000	ND	5.0	6386092
Total Cobalt (Co)	ug/L	-	5000	1.4	0.50	6386092
Total Copper (Cu)	ug/L	40	2000	2.6	1.0	6386092
Total Lead (Pb)	ug/L	120	1000	2.0	0.50	6386092
Total Manganese (Mn)	ug/L	50	5000	**330**	2.0	6386092

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: Toronto Storm Sewer Discharge Use By-Law
Criteria-2: Toronto Sanitary and Combined Sewers Discharge Guidelines. Referenced to the Chapter 681.
ND = Not detected

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B.I.G Consulting Inc.
Client Project #: BIGC-ENV-154E
Site Location: 26-38 Hounslow Avenue
Sampler Initials: EL

TORONTO SANITARY & STORM SEWER PACKAGE (WATER)

BV Labs ID				KZZ844		
Sampling Date				2019/10/10 10:05		
COC Number				741264-01-01		
	UNITS	Criteria	Criteria-2	BH/MW103	RDL	QC Batch
Total Molybdenum (Mo)	ug/L	-	5000	2.0	0.50	6386092
Total Nickel (Ni)	ug/L	80	2000	2.7	1.0	6386092
Total Phosphorus (P)	ug/L	400	10000	140	100	6386092
Total Selenium (Se)	ug/L	20	1000	ND	2.0	6386092
Total Silver (Ag)	ug/L	120	5000	ND	0.10	6386092
Total Tin (Sn)	ug/L	-	5000	ND	1.0	6386092
Total Titanium (Ti)	ug/L	-	5000	47	5.0	6386092
Total Zinc (Zn)	ug/L	40	2000	8.8	5.0	6386092
Semivolatile Organics						
Di-N-butyl phthalate	ug/L	15	80	ND	2	6382240
Bis(2-ethylhexyl)phthalate	ug/L	8.8	12	ND	2	6382240
3,3'-Dichlorobenzidine	ug/L	0.8	2	ND	0.8	6382240
Pentachlorophenol	ug/L	2	5	ND	1	6382240
Phenanthrene	ug/L	-	-	ND	0.2	6382240
Anthracene	ug/L	-	-	ND	0.2	6382240
Fluoranthene	ug/L	-	-	ND	0.2	6382240
Pyrene	ug/L	-	-	ND	0.2	6382240
Benzo(a)anthracene	ug/L	-	-	ND	0.2	6382240
Chrysene	ug/L	-	-	ND	0.2	6382240
Benzo(b/j)fluoranthene	ug/L	-	-	ND	0.2	6382240
Benzo(k)fluoranthene	ug/L	-	-	ND	0.2	6382240
Benzo(a)pyrene	ug/L	-	-	ND	0.2	6382240
Indeno(1,2,3-cd)pyrene	ug/L	-	-	ND	0.2	6382240
Dibenz(a,h)anthracene	ug/L	-	-	ND	0.2	6382240
Benzo(g,h,i)perylene	ug/L	-	-	ND	0.2	6382240
Dibenzo(a,i)pyrene	ug/L	-	-	ND	0.2	6382240
Benzo(e)pyrene	ug/L	-	-	ND	0.2	6382240
Perylene	ug/L	-	-	ND	0.2	6382240

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit
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Criteria: Toronto Storm Sewer Discharge Use By-Law
Criteria-2: Toronto Sanitary and Combined Sewers Discharge Guidelines. Referenced to the Chapter 681.
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B.I.G Consulting Inc.
Client Project #: BIGC-ENV-154E
Site Location: 26-38 Hounslow Avenue
Sampler Initials: EL

TORONTO SANITARY & STORM SEWER PACKAGE (WATER)

BV Labs ID				KZZ844		
Sampling Date				2019/10/10 10:05		
COC Number				741264-01-01		
	UNITS	Criteria	Criteria-2	BH/MW103	RDL	QC Batch
Dibenzo(a,j) acridine	ug/L	-	-	ND	0.4	6382240
7H-Dibenzo(c,g) Carbazole	ug/L	-	-	ND	0.4	6382240
1,6-Dinitropyrene	ug/L	-	-	ND	0.4	6382240
1,3-Dinitropyrene	ug/L	-	-	ND	0.4	6382240
1,8-Dinitropyrene	ug/L	-	-	ND	0.4	6382240
Calculated Parameters						
Total PAHs (18 PAHs)	ug/L	2	5	ND	1	6381109
Volatile Organics						
Benzene	ug/L	2	10	ND	1.0	6383407
Chloroform	ug/L	2	40	ND	1.0	6383407
1,2-Dichlorobenzene	ug/L	5.6	50	ND	2.0	6383407
1,4-Dichlorobenzene	ug/L	6.8	80	ND	2.0	6383407
cis-1,2-Dichloroethylene	ug/L	5.6	4000	ND	1.0	6383407
trans-1,3-Dichloropropene	ug/L	5.6	140	ND	2.0	6383407
Ethylbenzene	ug/L	2	160	ND	1.0	6383407
Methylene Chloride(Dichloromethane)	ug/L	5.2	2000	ND	5.0	6383407
1,1,2,2-Tetrachloroethane	ug/L	17	1400	ND	2.0	6383407
Tetrachloroethylene	ug/L	4.4	1000	ND	1.0	6383407
Toluene	ug/L	2	16	ND	2.0	6383407
Trichloroethylene	ug/L	7.6	400	ND	1.0	6383407
p+m-Xylene	ug/L	-	-	ND	1.0	6383407
o-Xylene	ug/L	-	-	ND	1.0	6383407
Total Xylenes	ug/L	4.4	1400	ND	1.0	6383407
PCBs						
Total PCB	ug/L	0.4	1	ND	0.05	6384182
Microbiological						
Escherichia coli	CFU/100mL	200	-	<10	10	6382048

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

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BV Labs Job #: B9S5804
Report Date: 2019/10/18

B.I.G Consulting Inc.
Client Project #: BIGC-ENV-154E
Site Location: 26-38 Hounslow Avenue
Sampler Initials: EL

TORONTO SANITARY & STORM SEWER PACKAGE (WATER)

BV Labs ID				KZZ844		
Sampling Date				2019/10/10 10:05		
COC Number				741264-01-01		
	UNITS	Criteria	Criteria-2	BH/MW103	RDL	QC Batch
Surrogate Recovery (%)						
2,4,6-Tribromophenol	%	-	-	74		6382240
2-Fluorobiphenyl	%	-	-	63		6382240
D14-Terphenyl (FS)	%	-	-	82		6382240
D5-Nitrobenzene	%	-	-	71		6382240
D8-Acenaphthylene	%	-	-	75		6382240
Decachlorobiphenyl	%	-	-	76		6384182
4-Bromofluorobenzene	%	-	-	102		6383407
D4-1,2-Dichloroethane	%	-	-	100		6383407
D8-Toluene	%	-	-	99		6383407

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: Toronto Storm Sewer Discharge Use By-Law
Criteria-2: Toronto Sanitary and Combined Sewers Discharge Guidelines. Referenced to the Chapter 681.

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BV Labs Job #: B9S5804
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B.I.G Consulting Inc.
Client Project #: BIGC-ENV-154E
Site Location: 26-38 Hounslow Avenue
Sampler Initials: EL

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	11.3°C

Sample KZZ844 [BH/MW103] : VOC Analysis: Due to the sample matrix, sample required dilution. Detection limits were adjusted accordingly.

Results relate only to the items tested.

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BV Labs Job #: B9S5804
Report Date: 2019/10/18

QUALITY ASSURANCE REPORT

B.I.G Consulting Inc.
Client Project #: BIGC-ENV-154E
Site Location: 26-38 Hounslow Avenue
Sampler Initials: EL

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
6382240	2,4,6-Tribromophenol	2019/10/15	26	10 - 130	63	10 - 130	63	%				
6382240	2-Fluorobiphenyl	2019/10/15	79	30 - 130	76	30 - 130	62	%				
6382240	D14-Terphenyl (FS)	2019/10/15	77	30 - 130	75	30 - 130	75	%				
6382240	D5-Nitrobenzene	2019/10/15	84	30 - 130	77	30 - 130	69	%				
6382240	D8-Acenaphthylene	2019/10/15	82	30 - 130	79	30 - 130	69	%				
6383407	4-Bromofluorobenzene	2019/10/15	102	70 - 130	104	70 - 130	100	%				
6383407	D4-1,2-Dichloroethane	2019/10/15	97	70 - 130	102	70 - 130	98	%				
6383407	D8-Toluene	2019/10/15	101	70 - 130	99	70 - 130	99	%				
6384182	Decachlorobiphenyl	2019/10/15	79	60 - 130	88	60 - 130	87	%				
6379367	Chromium (VI)	2019/10/15	106	80 - 120	105	80 - 120	ND, RDL=0.50	ug/L	NC	20		
6382240	1,3-Dinitropyrene	2019/10/15	58	30 - 130	53	30 - 130	ND, RDL=0.4	ug/L	NC	40		
6382240	1,6-Dinitropyrene	2019/10/15	56	30 - 130	53	30 - 130	ND, RDL=0.4	ug/L	NC	40		
6382240	1,8-Dinitropyrene	2019/10/15	67	30 - 130	65	30 - 130	ND, RDL=0.4	ug/L	NC	40		
6382240	3,3'-Dichlorobenzidine	2019/10/15	0.070 (1)	30 - 130	27 (1)	30 - 130	ND, RDL=0.8	ug/L	NC	40		
6382240	7H-Dibenzo(c,g) Carbazole	2019/10/15	53	30 - 130	88	30 - 130	ND, RDL=0.4	ug/L	NC	40		
6382240	Anthracene	2019/10/15	79	30 - 130	80	30 - 130	ND, RDL=0.2	ug/L	NC	40		
6382240	Benzo(a)anthracene	2019/10/15	86	30 - 130	86	30 - 130	ND, RDL=0.2	ug/L	NC	40		
6382240	Benzo(a)pyrene	2019/10/15	88	30 - 130	94	30 - 130	ND, RDL=0.2	ug/L	NC	40		
6382240	Benzo(b/j)fluoranthene	2019/10/15	96	30 - 130	101	30 - 130	ND, RDL=0.2	ug/L	NC	40		
6382240	Benzo(e)pyrene	2019/10/15	101	30 - 130	102	30 - 130	ND, RDL=0.2	ug/L	NC	40		
6382240	Benzo(g,h,i)perylene	2019/10/15	100	30 - 130	105	30 - 130	ND, RDL=0.2	ug/L	NC	40		
6382240	Benzo(k)fluoranthene	2019/10/15	92	30 - 130	103	30 - 130	ND, RDL=0.2	ug/L	NC	40		
6382240	Bis(2-ethylhexyl)phthalate	2019/10/15	94	30 - 130	91	30 - 130	ND,RDL=2	ug/L	NC	40		
6382240	Chrysene	2019/10/15	98	30 - 130	97	30 - 130	ND, RDL=0.2	ug/L	NC	40		
6382240	Dibenz(a,h)anthracene	2019/10/15	105	30 - 130	108	30 - 130	ND, RDL=0.2	ug/L	NC	40		
6382240	Dibenzo(a,i)pyrene	2019/10/15	78	30 - 130	91	30 - 130	ND, RDL=0.2	ug/L	NC	40		
6382240	Dibenzo(a,j) acridine	2019/10/15	109	30 - 130	100	30 - 130	ND, RDL=0.4	ug/L	NC	40		
6382240	Di-N-butyl phthalate	2019/10/15	103	30 - 130	106	30 - 130	ND,RDL=2	ug/L	NC	40		
6382240	Fluoranthene	2019/10/15	94	30 - 130	95	30 - 130	ND, RDL=0.2	ug/L	NC	40		
6382240	Indeno(1,2,3-cd)pyrene	2019/10/15	108	30 - 130	111	30 - 130	ND, RDL=0.2	ug/L	NC	40		
6382240	Pentachlorophenol	2019/10/15	58	30 - 130	58	30 - 130	ND,RDL=1	ug/L	NC	40		

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QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
6382240	Perylene	2019/10/15	100	30 - 130	102	30 - 130	ND, RDL=0.2	ug/L	NC	40		
6382240	Phenanthrene	2019/10/15	91	30 - 130	92	30 - 130	ND, RDL=0.2	ug/L	NC	40		
6382240	Pyrene	2019/10/15	91	30 - 130	90	30 - 130	ND, RDL=0.2	ug/L	NC	40		
6382996	Fluoride (F-)	2019/10/16	100	80 - 120	103	80 - 120	ND, RDL=0.10	mg/L	NC	20		
6382997	pH	2019/10/16			102	98 - 103			0.59	N/A		
6383368	Total Cyanide (CN)	2019/10/11	107	80 - 120	105	80 - 120	ND, RDL=0.0050	mg/L	NC	20		
6383395	Total Suspended Solids	2019/10/15					ND, RDL=10	mg/L	NC	25	97	85 - 115
6383407	1,1,2,2-Tetrachloroethane	2019/10/15	91	70 - 130	102	70 - 130	ND, RDL=0.20	ug/L	NC	30		
6383407	1,2-Dichlorobenzene	2019/10/15	94	70 - 130	98	70 - 130	ND, RDL=0.20	ug/L	NC	30		
6383407	1,4-Dichlorobenzene	2019/10/15	95	70 - 130	97	70 - 130	ND, RDL=0.20	ug/L	NC	30		
6383407	Benzene	2019/10/15	95	70 - 130	95	70 - 130	ND, RDL=0.10	ug/L	NC	30		
6383407	Chloroform	2019/10/15	96	70 - 130	98	70 - 130	ND, RDL=0.10	ug/L	NC	30		
6383407	cis-1,2-Dichloroethylene	2019/10/15	96	70 - 130	97	70 - 130	ND, RDL=0.10	ug/L	NC	30		
6383407	Ethylbenzene	2019/10/15	96	70 - 130	93	70 - 130	ND, RDL=0.10	ug/L	NC	30		
6383407	Methylene Chloride(Dichloromethane)	2019/10/15	90	70 - 130	95	70 - 130	ND, RDL=0.50	ug/L	NC	30		
6383407	o-Xylene	2019/10/15	94	70 - 130	94	70 - 130	ND, RDL=0.10	ug/L	NC	30		
6383407	p+m-Xylene	2019/10/15	98	70 - 130	95	70 - 130	ND, RDL=0.10	ug/L	NC	30		
6383407	Tetrachloroethylene	2019/10/15	102	70 - 130	98	70 - 130	ND, RDL=0.10	ug/L	NC	30		
6383407	Toluene	2019/10/15	97	70 - 130	94	70 - 130	ND, RDL=0.20	ug/L	NC	30		
6383407	Total Xylenes	2019/10/15					ND, RDL=0.10	ug/L	NC	30		
6383407	trans-1,3-Dichloropropene	2019/10/15	94	70 - 130	97	70 - 130	ND, RDL=0.20	ug/L	NC	30		
6383407	Trichloroethylene	2019/10/15	99	70 - 130	98	70 - 130	ND, RDL=0.10	ug/L	NC	30		
6384182	Total PCB	2019/10/15	80	60 - 130	94	60 - 130	ND, RDL=0.05	ug/L	NC	40		
6384926	Total BOD	2019/10/17					ND,RDL=2	mg/L	0	30	94	80 - 120
6386092	Total Aluminum (Al)	2019/10/16	NC (2)	80 - 120	103	80 - 120	ND, RDL=5.0	ug/L	NC	20		
6386092	Total Antimony (Sb)	2019/10/16	NC (2)	80 - 120	101	80 - 120	ND, RDL=0.50	ug/L	2.0	20		
6386092	Total Arsenic (As)	2019/10/16	NC (2)	80 - 120	103	80 - 120	ND, RDL=1.0	ug/L	1.5	20		
6386092	Total Cadmium (Cd)	2019/10/16	NC (2)	80 - 120	100	80 - 120	ND, RDL=0.10	ug/L	NC	20		
6386092	Total Chromium (Cr)	2019/10/16	NC (2)	80 - 120	97	80 - 120	ND, RDL=5.0	ug/L	NC	20		
6386092	Total Cobalt (Co)	2019/10/16	NC (2)	80 - 120	98	80 - 120	ND, RDL=0.50	ug/L	1.7	20		

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QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
6386092	Total Copper (Cu)	2019/10/16	NC (2)	80 - 120	103	80 - 120	ND, RDL=1.0	ug/L	3.2	20		
6386092	Total Lead (Pb)	2019/10/16	NC (2)	80 - 120	98	80 - 120	ND, RDL=0.50	ug/L	1.7	20		
6386092	Total Manganese (Mn)	2019/10/16	NC (2)	80 - 120	100	80 - 120	ND, RDL=2.0	ug/L	3.2	20		
6386092	Total Molybdenum (Mo)	2019/10/16	NC (2)	80 - 120	96	80 - 120	ND, RDL=0.50	ug/L	1.9	20		
6386092	Total Nickel (Ni)	2019/10/16	NC (2)	80 - 120	97	80 - 120	ND, RDL=1.0	ug/L	3.4	20		
6386092	Total Phosphorus (P)	2019/10/16	NC (2)	80 - 120	111	80 - 120	ND, RDL=100	ug/L	3.6	20		
6386092	Total Selenium (Se)	2019/10/16	NC (2)	80 - 120	102	80 - 120	ND, RDL=2.0	ug/L	0.38	20		
6386092	Total Silver (Ag)	2019/10/16	NC (2)	80 - 120	97	80 - 120	ND, RDL=0.10	ug/L	NC	20		
6386092	Total Tin (Sn)	2019/10/16	NC (2)	80 - 120	99	80 - 120	ND, RDL=1.0	ug/L	NC	20		
6386092	Total Titanium (Ti)	2019/10/16	NC (2)	80 - 120	97	80 - 120	ND, RDL=5.0	ug/L	NC	20		
6386092	Total Zinc (Zn)	2019/10/16	NC (2)	80 - 120	104	80 - 120	ND, RDL=5.0	ug/L	0.15	20		
6386104	Mercury (Hg)	2019/10/15	94	75 - 125	95	80 - 120	ND, RDL=0.0001	mg/L	NC	20		
6386210	Phenols-4AAP	2019/10/15	99	80 - 120	97	80 - 120	ND, RDL=0.0010	mg/L	6.3	20		
6386840	Nonylphenol (Total)	2019/10/16	105	50 - 130	103	50 - 130	ND, RDL=0.001	mg/L	NC	40		
6387086	Nonylphenol Ethoxylate (Total)	2019/10/16	98	50 - 130	96	50 - 130	ND, RDL=0.005	mg/L	NC	40		
6387441	Total Kjeldahl Nitrogen (TKN)	2019/10/18	97	80 - 120	97	80 - 120	ND, RDL=0.10	mg/L	NC	20	93	80 - 120
6391469	Total Oil & Grease	2019/10/17			97	85 - 115	ND, RDL=0.50	mg/L	1.3	25		

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QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
6391471	Total Oil & Grease Mineral/Synthetic	2019/10/17			94	85 - 115	ND, RDL=0.50	mg/L	2.1	25		

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) The recovery was below the lower control limit. This may represent a low bias in some results for this specific analyte.

(2) Matrix Spike not calculated. Original sample and matrix spike sample were analyzed at a dilution, due to high target analytes, or sample matrix interference.

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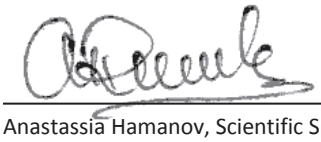
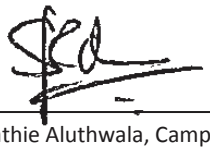
VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



Anastassia Hamanov, Scientific Specialist



Sirimathie Aluthwala, Campobello Micro

BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

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Exceedence Summary Table – Toronto Storm Sewer

Result Exceedences

Sample ID	BV Labs ID	Parameter	Criteria	Result	DL	Units
BH/MW103	KZZ844-08	Total Manganese (Mn)	50	330	2.0	ug/L
BH/MW103	KZZ844-05	Total Suspended Solids	15	120	10	mg/L

The exceedence summary table is for information purposes only and should not be considered a comprehensive listing or statement of conformance to applicable regulatory guidelines.

Exceedence Summary Table – Toronto Sanitary Sewer

Result Exceedences

Sample ID	BV Labs ID	Parameter	Criteria	Result	DL	Units
No Exceedences						

The exceedence summary table is for information purposes only and should not be considered a comprehensive listing or statement of conformance to applicable regulatory guidelines.

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CHAIN OF CUSTODY RECORD

INVOICE TO:		REPORT TO:		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name:	#31796 B.I.G Consulting Inc.	Company Name:	B.I.G. Consulting Inc.	Quotation #:	B64476	BV Labs Job #:	Bottle Order #: 741264
Attention:	Accounts Payable	Attention:	Eileen Liu	P.O. #:			
Address:	12-5500 Tomken Road Mississauga ON L4W 2Z4	Address:	Same	Project:	BIGC-ENV-154E		
Tel:	(416) 214-4880 Fax:	Tel:	Fax:	Project Name:		COC #:	Project Manager:
Email:	ldougherty@brownfieldigi.com; admin@brownfieldigi.co	Email:	eliu@brownfieldigi.com	Site #:	26-38 Hounslow Avenue	C#741264-01-01	Christine Gripton
				Sampled By:	E.L		

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE BV LABS DRINKING WATER CHAIN OF CUSTODY

Regulation 153 (2011)
- ☐ Table 1 ☐ Res/Park ☐ Medium/Fine
- ☐ Table 2 ☐ Ind/Comm ☐ Coarse
- ☐ Table 3 ☐ Agri/Other ☐ For RSC
- ☐ Table ___

Other Regulations
- ☐ CCME ☑ Sanitary Sewer Bylaw
- ☐ Reg 558 ☑ Storm Sewer Bylaw
- ☐ MISA Municipality Toronto
- ☐ PWQO
- ☐ Other

Special Instructions

Include Criteria on Certificate of Analysis (Y/N)? Y

Turnaround Time (TAT) Required:
Please provide advance notice for rush projects

Regular (Standard) TAT: ☒
(will be applied if Rush TAT is not specified):
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission)
Date Required: _____ Time Required: _____ ☐
Rush Confirmation Number: _____ *(call lab for #)*

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Field Filtered (please circle): Metals / Hg / Cr VI	Toronto Sanitary & Storm Sewer Package									# of Bottles	Comments
1		BH/MW103	Oct 10, 2019	10:05	GW	N	X									19	
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

10-Oct-19 14:39
Christine Gripton
B9S5804
JCC ENV-1124

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted
Eileen Liu Eileen Liu	2019/10/10	11:00	Jund - Coiene Curitad	2019/10/10	14:39	

Laboratory Use Only

Time Sensitive	Temperature (°C) on Recei	Custody Seal	Yes	No
	11/11/12 ice	Present	✓	
		Intact		

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BV LABS' STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVLABS.COM/TERMS-AND-CONDITIONS.

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

** SAMPLE CONTAINER, PRESERVATION, HOLD TIME AND PACKAGE INFORMATION CAN BE VIEWED AT WWW.BVLABS.COM/RESOURCES/CHAIN-OF-CUSTODY-FORMS.

SAMPLES MUST BE KEPT COOL (< 10° C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BV LABS

White: BV Labs Yellow: Client

Your Project #: BIGC-GEO-154H
Site Location: 26-38 HOUNSLOW AVE
Your C.O.C. #: 941232-01-01

Attention: Eileen Liu

B.I.G Consulting Inc.
12-5500 Tomken Road
Mississauga, ON
CANADA L4W 2Z4

Report Date: 2023/08/30
Report #: R7788659
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3P1201
Received: 2023/08/18, 12:49

Sample Matrix: Water
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Sewer Use By-Law Semivolatile Organics	1	2023/08/22	2023/08/23	CAM SOP 00301	EPA 8270 m
Biochemical Oxygen Demand (BOD)	1	2023/08/19	2023/08/24	CAM SOP-00427	SM 23 5210B m
Chromium (VI) in Water	1	N/A	2023/08/21	CAM SOP-00436	EPA 7199 m
Total Cyanide	1	2023/08/21	2023/08/21	CAM SOP-00457	OMOE E3015 5 m
Fluoride	1	2023/08/19	2023/08/21	CAM SOP-00449	SM 23 4500-F C m
Mercury in Water by CVAA	1	2023/08/21	2023/08/21	CAM SOP-00453	EPA 7470A m
Total Metals Analysis by ICPMS	1	2023/08/23	2023/08/24	CAM SOP-00447	EPA 6020B m
E.coli, (CFU/100mL)	1	N/A	2023/08/18	CAM SOP-00552	MECP E3371
Total Nonylphenol in Liquids by HPLC	1	2023/08/21	2023/08/22	CAM SOP-00313	In-house Method
Nonylphenol Ethoxylates in Liquids: HPLC	1	2023/08/21	2023/08/22	CAM SOP-00313	In-house Method
Animal and Vegetable Oil and Grease	1	N/A	2023/08/29	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	1	2023/08/29	2023/08/29	CAM SOP-00326	EPA1664B m,SM5520B m
Polychlorinated Biphenyl in Water	1	2023/08/22	2023/08/23	CAM SOP-00309	EPA 8082A m
pH	1	2023/08/19	2023/08/21	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2023/08/21	CAM SOP-00444	OMOE E3179 m
Total Kjeldahl Nitrogen in Water	1	2023/08/23	2023/08/23	CAM SOP-00938	OMOE E3516 m
Total PAHs (1)	1	N/A	2023/08/23	CAM SOP - 00301	
Mineral/Synthetic O & G (TPH Heavy Oil) (2)	1	2023/08/29	2023/08/29	CAM SOP-00326	EPA1664B m,SM5520F m
Total Suspended Solids	1	2023/08/22	2023/08/23	CAM SOP-00428	SM 23 2540D m
Volatile Organic Compounds in Water	1	N/A	2023/08/21	CAM SOP-00228	EPA 8260D

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCCFP, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or

Your Project #: BIGC-GEO-154H
Site Location: 26-38 HOUNSLOW AVE
Your C.O.C. #: 941232-01-01

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12-5500 Tomken Road
Mississauga, ON
CANADA L4W 2Z4

Report Date: 2023/08/30
Report #: R7788659
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3P1201
Received: 2023/08/18, 12:49

implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Total PAHs include only those PAHs specified in the sewer use by-by-law.
(2) Note: TPH (Heavy Oil) is equivalent to Mineral / Synthetic Oil & Grease

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Deepthi Shaji, Project Manager
Email: Deepthi.Shaji@bureauveritas.com
Phone# (905)817-5700 Ext:7065843

==========

This report has been generated and distributed using a secure automated process.
Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

Bureau Veritas Job #: C3P1201
Report Date: 2023/08/30

B.I.G Consulting Inc.
Client Project #: BIGC-GEO-154H
Site Location: 26-38 HOUNSLOW AVE
Sampler Initials: CW

TORONTO SANITARY&STORM SEWER (100-2016)

Bureau Veritas ID				WSQ631			WSQ631		
Sampling Date				2023/08/18 10:45			2023/08/18 10:45		
COC Number				941232-01-01			941232-01-01		
	UNITS	Criteria	Criteria-2	MW103	RDL	QC Batch	MW103 Lab-Dup	RDL	QC Batch
Calculated Parameters									
Total Animal/Vegetable Oil and Grease	mg/L	-	150	ND	0.50	8861864			
Inorganics									
Total BOD	mg/L	15	300	ND	2	8863898			
Fluoride (F-)	mg/L	-	10	0.15	0.10	8864606			
Total Kjeldahl Nitrogen (TKN)	mg/L	-	100	0.33	0.10	8871276			
pH	pH	6.0:9.5	6.0:11.5	7.83		8864617			
Phenols-4AAP	mg/L	0.008	1.0	ND	0.0010	8866732			
Total Suspended Solids	mg/L	15	350	ND	10	8868009	ND	10	8868009
Total Cyanide (CN)	mg/L	0.02	2	ND	0.0050	8865729			
Petroleum Hydrocarbons									
Total Oil & Grease	mg/L	-	-	ND	0.50	8883903			
Total Oil & Grease Mineral/Synthetic	mg/L	-	15	ND	0.50	8883909			
Miscellaneous Parameters									
Nonylphenol Ethoxylate (Total)	mg/L	0.01	0.2	ND	0.005	8866852			
Nonylphenol (Total)	mg/L	0.001	0.02	ND	0.001	8866796			
Metals									
Chromium (VI)	ug/L	40	2000	ND	0.50	8865394			
Mercury (Hg)	mg/L	0.0004	0.01	ND	0.00010	8865906			
Total Aluminum (Al)	ug/L	-	50000	80	4.9	8870636			
Total Antimony (Sb)	ug/L	-	5000	ND	0.50	8870636			
Total Arsenic (As)	ug/L	20	1000	ND	1.0	8870636			
Total Cadmium (Cd)	ug/L	8	700	ND	0.090	8870636			
Total Chromium (Cr)	ug/L	80	4000	ND	5.0	8870636			
Total Cobalt (Co)	ug/L	-	5000	ND	0.50	8870636			
Total Copper (Cu)	ug/L	40	2000	ND	0.90	8870636			
Total Lead (Pb)	ug/L	120	1000	ND	0.50	8870636			
Total Manganese (Mn)	ug/L	50	5000	25	2.0	8870636			

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
Criteria: Toronto Storm Sewer Discharge Use By-Law
Criteria-2: Toronto Sanitary and Combined Sewers Discharge Guidelines. Referenced to the Chapter 681.
ND = Not Detected at a concentration equal or greater than the indicated Detection Limit.

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Bureau Veritas Job #: C3P1201
Report Date: 2023/08/30

B.I.G Consulting Inc.
Client Project #: BIGC-GEO-154H
Site Location: 26-38 HOUNSLOW AVE
Sampler Initials: CW

TORONTO SANITARY&STORM SEWER (100-2016)

Bureau Veritas ID				WSQ631			WSQ631		
Sampling Date				2023/08/18 10:45			2023/08/18 10:45		
COC Number				941232-01-01			941232-01-01		
	UNITS	Criteria	Criteria-2	MW103	RDL	QC Batch	MW103 Lab-Dup	RDL	QC Batch
Total Molybdenum (Mo)	ug/L	-	5000	1.6	0.50	8870636			
Total Nickel (Ni)	ug/L	80	2000	ND	1.0	8870636			
Total Phosphorus (P)	ug/L	400	10000	ND	100	8870636			
Total Selenium (Se)	ug/L	20	1000	ND	2.0	8870636			
Total Silver (Ag)	ug/L	120	5000	ND	0.090	8870636			
Total Tin (Sn)	ug/L	-	5000	ND	1.0	8870636			
Total Titanium (Ti)	ug/L	-	5000	ND	5.0	8870636			
Total Zinc (Zn)	ug/L	40	2000	ND	5.0	8870636			
Semivolatile Organics									
Di-N-butyl phthalate	ug/L	15	80	ND	2	8869636			
Bis(2-ethylhexyl)phthalate	ug/L	8.8	12	ND	2	8869636			
3,3'-Dichlorobenzidine	ug/L	0.8	2	ND	0.8	8869636			
Pentachlorophenol	ug/L	2	5	ND	1	8869636			
Phenanthrene	ug/L	-	-	ND	0.2	8869636			
Anthracene	ug/L	-	-	ND	0.2	8869636			
Fluoranthene	ug/L	-	-	ND	0.2	8869636			
Pyrene	ug/L	-	-	ND	0.2	8869636			
Benzo(a)anthracene	ug/L	-	-	ND	0.2	8869636			
Chrysene	ug/L	-	-	ND	0.2	8869636			
Benzo(b/j)fluoranthene	ug/L	-	-	ND	0.2	8869636			
Benzo(k)fluoranthene	ug/L	-	-	ND	0.2	8869636			
Benzo(a)pyrene	ug/L	-	-	ND	0.2	8869636			
Indeno(1,2,3-cd)pyrene	ug/L	-	-	ND	0.2	8869636			
Dibenzo(a,h)anthracene	ug/L	-	-	ND	0.2	8869636			
Benzo(g,h,i)perylene	ug/L	-	-	ND	0.2	8869636			
Dibenzo(a,i)pyrene	ug/L	-	-	ND	0.2	8869636			
Benzo(e)pyrene	ug/L	-	-	ND	0.2	8869636			
Perylene	ug/L	-	-	ND	0.2	8869636			

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit
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Bureau Veritas Job #: C3P1201
Report Date: 2023/08/30

B.I.G Consulting Inc.
Client Project #: BIGC-GEO-154H
Site Location: 26-38 HOUNSLOW AVE
Sampler Initials: CW

TORONTO SANITARY&STORM SEWER (100-2016)

Bureau Veritas ID				WSQ631			WSQ631		
Sampling Date				2023/08/18 10:45			2023/08/18 10:45		
COC Number				941232-01-01			941232-01-01		
	UNITS	Criteria	Criteria-2	MW103	RDL	QC Batch	MW103 Lab-Dup	RDL	QC Batch
Dibenzo(a,j) acridine	ug/L	-	-	ND	0.4	8869636			
7H-Dibenzo(c,g) Carbazole	ug/L	-	-	ND	0.4	8869636			
1,6-Dinitropyrene	ug/L	-	-	ND	0.4	8869636			
1,3-Dinitropyrene	ug/L	-	-	ND	0.4	8869636			
1,8-Dinitropyrene	ug/L	-	-	ND	0.4	8869636			
Calculated Parameters									
Total PAHs (18 PAHs)	ug/L	2	5	ND	1	8862957			
Volatile Organics									
Benzene	ug/L	2	10	ND	0.20	8864513			
Chloroform	ug/L	2	40	ND	0.20	8864513			
1,2-Dichlorobenzene	ug/L	5.6	50	ND	0.40	8864513			
1,4-Dichlorobenzene	ug/L	6.8	80	ND	0.40	8864513			
cis-1,2-Dichloroethylene	ug/L	5.6	4000	ND	0.50	8864513			
trans-1,3-Dichloropropene	ug/L	5.6	140	ND	0.40	8864513			
Ethylbenzene	ug/L	2	160	ND	0.20	8864513			
Methylene Chloride(Dichloromethane)	ug/L	5.2	2000	ND	2.0	8864513			
1,1,2,2-Tetrachloroethane	ug/L	17	1400	ND	0.40	8864513			
Tetrachloroethylene	ug/L	4.4	1000	ND	0.20	8864513			
Toluene	ug/L	2	16	ND	0.20	8864513			
Trichloroethylene	ug/L	7.6	400	ND	0.20	8864513			
p+m-Xylene	ug/L	-	-	ND	0.20	8864513			
o-Xylene	ug/L	-	-	ND	0.20	8864513			
Total Xylenes	ug/L	4.4	1400	ND	0.20	8864513			
PCBs									
Total PCB	ug/L	0.4	1	ND	0.05	8867699			
Microbiological									
Escherichia coli	CFU/100mL	200	-	<10	10	8863739			

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
Criteria: Toronto Storm Sewer Discharge Use By-Law
Criteria-2: Toronto Sanitary and Combined Sewers Discharge Guidelines. Referenced to the Chapter 681.
ND = Not Detected at a concentration equal or greater than the indicated Detection Limit.

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Bureau Veritas Job #: C3P1201
Report Date: 2023/08/30

B.I.G Consulting Inc.
Client Project #: BIGC-GEO-154H
Site Location: 26-38 HOUNSLOW AVE
Sampler Initials: CW

TORONTO SANITARY&STORM SEWER (100-2016)

Bureau Veritas ID				WSQ631			WSQ631		
Sampling Date				2023/08/18 10:45			2023/08/18 10:45		
COC Number				941232-01-01			941232-01-01		
	UNITS	Criteria	Criteria-2	MW103	RDL	QC Batch	MW103 Lab-Dup	RDL	QC Batch
Surrogate Recovery (%)									
2,4,6-Tribromophenol	%	-	-	83		8869636			
2-Fluorobiphenyl	%	-	-	64		8869636			
D14-Terphenyl (FS)	%	-	-	105		8869636			
D5-Nitrobenzene	%	-	-	71		8869636			
D8-Acenaphthylene	%	-	-	72		8869636			
Decachlorobiphenyl	%	-	-	81		8867699			
4-Bromofluorobenzene	%	-	-	99		8864513			
D4-1,2-Dichloroethane	%	-	-	105		8864513			
D8-Toluene	%	-	-	95		8864513			

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
Criteria: Toronto Storm Sewer Discharge Use By-Law
Criteria-2: Toronto Sanitary and Combined Sewers Discharge Guidelines. Referenced to the Chapter 681.

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GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	14.3°C

Results relate only to the items tested.

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Bureau Veritas Job #: C3P1201
Report Date: 2023/08/30

QUALITY ASSURANCE REPORT

B.I.G Consulting Inc.
Client Project #: BIGC-GEO-154H
Site Location: 26-38 HOUNSLOW AVE
Sampler Initials: CW

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
8864513	4-Bromofluorobenzene	2023/08/21	99	70 - 130	99	70 - 130	101	%				
8864513	D4-1,2-Dichloroethane	2023/08/21	103	70 - 130	102	70 - 130	106	%				
8864513	D8-Toluene	2023/08/21	103	70 - 130	103	70 - 130	94	%				
8867699	Decachlorobiphenyl	2023/08/23	88	60 - 130	98	60 - 130	101	%				
8869636	2,4,6-Tribromophenol	2023/08/23	106	10 - 130	95	10 - 130	89	%				
8869636	2-Fluorobiphenyl	2023/08/23	74	30 - 130	70	30 - 130	78	%				
8869636	D14-Terphenyl (FS)	2023/08/23	106	30 - 130	105	30 - 130	104	%				
8869636	D5-Nitrobenzene	2023/08/23	84	30 - 130	74	30 - 130	74	%				
8869636	D8-Acenaphthylene	2023/08/23	79	30 - 130	70	30 - 130	73	%				
8863898	Total BOD	2023/08/24					ND,RDL=2	mg/L	NC	30	95	80 - 120
8864513	1,1,2,2-Tetrachloroethane	2023/08/21	104	70 - 130	101	70 - 130	ND, RDL=0.40	ug/L	NC	30		
8864513	1,2-Dichlorobenzene	2023/08/21	100	70 - 130	98	70 - 130	ND, RDL=0.40	ug/L	NC	30		
8864513	1,4-Dichlorobenzene	2023/08/21	98	70 - 130	97	70 - 130	ND, RDL=0.40	ug/L	NC	30		
8864513	Benzene	2023/08/21	98	70 - 130	94	70 - 130	ND, RDL=0.20	ug/L	NC	30		
8864513	Chloroform	2023/08/21	98	70 - 130	94	70 - 130	ND, RDL=0.20	ug/L	NC	30		
8864513	cis-1,2-Dichloroethylene	2023/08/21	102	70 - 130	98	70 - 130	ND, RDL=0.50	ug/L	NC	30		
8864513	Ethylbenzene	2023/08/21	98	70 - 130	95	70 - 130	ND, RDL=0.20	ug/L	NC	30		
8864513	Methylene Chloride(Dichloromethane)	2023/08/21	99	70 - 130	95	70 - 130	ND, RDL=2.0	ug/L	NC	30		
8864513	o-Xylene	2023/08/21	97	70 - 130	96	70 - 130	ND, RDL=0.20	ug/L	NC	30		
8864513	p+m-Xylene	2023/08/21	99	70 - 130	97	70 - 130	ND, RDL=0.20	ug/L	NC	30		
8864513	Tetrachloroethylene	2023/08/21	98	70 - 130	96	70 - 130	ND, RDL=0.20	ug/L	NC	30		
8864513	Toluene	2023/08/21	100	70 - 130	96	70 - 130	ND, RDL=0.20	ug/L	NC	30		
8864513	Total Xylenes	2023/08/21					ND, RDL=0.20	ug/L	NC	30		
8864513	trans-1,3-Dichloropropene	2023/08/21	102	70 - 130	105	70 - 130	ND, RDL=0.40	ug/L	NC	30		
8864513	Trichloroethylene	2023/08/21	97	70 - 130	94	70 - 130	ND, RDL=0.20	ug/L	NC	30		
8864606	Fluoride (F-)	2023/08/21	93	80 - 120	97	80 - 120	ND, RDL=0.10	mg/L	4.6	20		
8864617	pH	2023/08/21			102	98 - 103			0.25	N/A		
8865394	Chromium (VI)	2023/08/21	105	80 - 120	103	80 - 120	ND, RDL=0.50	ug/L	NC	20		
8865729	Total Cyanide (CN)	2023/08/21	91	80 - 120	93	80 - 120	ND, RDL=0.0050	mg/L	NC	20		

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QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
8865906	Mercury (Hg)	2023/08/21	98	75 - 125	98	80 - 120	ND, RDL=0.00010	mg/L	NC	20		
8866732	Phenols-4AAP	2023/08/21	100	80 - 120	100	80 - 120	ND, RDL=0.0010	mg/L	NC	20		
8866796	Nonylphenol (Total)	2023/08/23	117	50 - 130	108	50 - 130	ND, RDL=0.001	mg/L	NC	40		
8866852	Nonylphenol Ethoxylate (Total)	2023/08/23	95	50 - 130	95	50 - 130	ND, RDL=0.005	mg/L	NC	40		
8867699	Total PCB	2023/08/23	90	60 - 130	82	60 - 130	ND, RDL=0.05	ug/L	NC	40		
8868009	Total Suspended Solids	2023/08/23			99	85 - 115	ND, RDL=10	mg/L	NC	20		
8869636	1,3-Dinitropyrene	2023/08/23	46	30 - 130	92	30 - 130	ND, RDL=0.4	ug/L	NC	40		
8869636	1,6-Dinitropyrene	2023/08/23	49	30 - 130	83	30 - 130	ND, RDL=0.4	ug/L	NC	40		
8869636	1,8-Dinitropyrene	2023/08/23	42	30 - 130	81	30 - 130	ND, RDL=0.4	ug/L	NC	40		
8869636	3,3'-Dichlorobenzidine	2023/08/23	5.3 (1)	30 - 130	115	30 - 130	ND, RDL=0.8	ug/L	NC	40		
8869636	7H-Dibenzo(c,g) Carbazole	2023/08/23	96	30 - 130	107	30 - 130	ND, RDL=0.4	ug/L	NC	40		
8869636	Anthracene	2023/08/23	86	30 - 130	88	30 - 130	ND, RDL=0.2	ug/L	NC	40		
8869636	Benzo(a)anthracene	2023/08/23	110	30 - 130	110	30 - 130	ND, RDL=0.2	ug/L	NC	40		
8869636	Benzo(a)pyrene	2023/08/23	114	30 - 130	120	30 - 130	ND, RDL=0.2	ug/L	NC	40		
8869636	Benzo(b/j)fluoranthene	2023/08/23	112	30 - 130	116	30 - 130	ND, RDL=0.2	ug/L	NC	40		
8869636	Benzo(e)pyrene	2023/08/23	109	30 - 130	112	30 - 130	ND, RDL=0.2	ug/L	NC	40		
8869636	Benzo(g,h,i)perylene	2023/08/23	115	30 - 130	124	30 - 130	ND, RDL=0.2	ug/L	NC	40		
8869636	Benzo(k)fluoranthene	2023/08/23	107	30 - 130	107	30 - 130	ND, RDL=0.2	ug/L	NC	40		
8869636	Bis(2-ethylhexyl)phthalate	2023/08/23	123	30 - 130	122	30 - 130	ND,RDL=2	ug/L	NC	40		
8869636	Chrysene	2023/08/23	100	30 - 130	101	30 - 130	ND, RDL=0.2	ug/L	NC	40		
8869636	Dibenzo(a,h)anthracene	2023/08/23	104	30 - 130	108	30 - 130	ND, RDL=0.2	ug/L	NC	40		
8869636	Dibenzo(a,i)pyrene	2023/08/23	76	30 - 130	91	30 - 130	ND, RDL=0.2	ug/L	NC	40		
8869636	Dibenzo(a,j) acridine	2023/08/23	101	30 - 130	104	30 - 130	ND, RDL=0.4	ug/L	NC	40		
8869636	Di-N-butyl phthalate	2023/08/23	101	30 - 130	100	30 - 130	ND,RDL=2	ug/L	15	40		
8869636	Fluoranthene	2023/08/23	103	30 - 130	103	30 - 130	ND, RDL=0.2	ug/L	NC	40		
8869636	Indeno(1,2,3-cd)pyrene	2023/08/23	123	30 - 130	130	30 - 130	ND, RDL=0.2	ug/L	NC	40		
8869636	Pentachlorophenol	2023/08/23	88	30 - 130	49	30 - 130	ND,RDL=1	ug/L	NC	40		

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QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
8869636	Perylene	2023/08/23	102	30 - 130	103	30 - 130	ND, RDL=0.2	ug/L	NC	40		
8869636	Phenanthrene	2023/08/23	89	30 - 130	88	30 - 130	ND, RDL=0.2	ug/L	NC	40		
8869636	Pyrene	2023/08/23	104	30 - 130	103	30 - 130	ND, RDL=0.2	ug/L	NC	40		
8870636	Total Aluminum (Al)	2023/08/24	NC	80 - 120	100	80 - 120	ND, RDL=4.9	ug/L	8.5	20		
8870636	Total Antimony (Sb)	2023/08/24	105	80 - 120	104	80 - 120	ND, RDL=0.50	ug/L	NC	20		
8870636	Total Arsenic (As)	2023/08/24	103	80 - 120	102	80 - 120	ND, RDL=1.0	ug/L	4.6	20		
8870636	Total Cadmium (Cd)	2023/08/24	98	80 - 120	99	80 - 120	ND, RDL=0.090	ug/L	NC	20		
8870636	Total Chromium (Cr)	2023/08/24	98	80 - 120	95	80 - 120	ND, RDL=5.0	ug/L	NC	20		
8870636	Total Cobalt (Co)	2023/08/24	101	80 - 120	100	80 - 120	ND, RDL=0.50	ug/L	7.2	20		
8870636	Total Copper (Cu)	2023/08/24	99	80 - 120	100	80 - 120	ND, RDL=0.90	ug/L	8.2	20		
8870636	Total Lead (Pb)	2023/08/24	98	80 - 120	98	80 - 120	ND, RDL=0.50	ug/L	NC	20		
8870636	Total Manganese (Mn)	2023/08/24	101	80 - 120	98	80 - 120	ND, RDL=2.0	ug/L	5.5	20		
8870636	Total Molybdenum (Mo)	2023/08/24	101	80 - 120	100	80 - 120	ND, RDL=0.50	ug/L	8.8	20		
8870636	Total Nickel (Ni)	2023/08/24	98	80 - 120	97	80 - 120	ND, RDL=1.0	ug/L	6.9	20		
8870636	Total Phosphorus (P)	2023/08/24	105	80 - 120	96	80 - 120	ND, RDL=100	ug/L				
8870636	Total Selenium (Se)	2023/08/24	105	80 - 120	105	80 - 120	ND, RDL=2.0	ug/L	NC	20		
8870636	Total Silver (Ag)	2023/08/24	94	80 - 120	96	80 - 120	ND, RDL=0.090	ug/L	NC	20		
8870636	Total Tin (Sn)	2023/08/24	103	80 - 120	102	80 - 120	ND, RDL=1.0	ug/L	NC	20		
8870636	Total Titanium (Ti)	2023/08/24	105	80 - 120	99	80 - 120	ND, RDL=5.0	ug/L	15	20		
8870636	Total Zinc (Zn)	2023/08/24	102	80 - 120	100	80 - 120	ND, RDL=5.0	ug/L	0.42	20		
8871276	Total Kjeldahl Nitrogen (TKN)	2023/08/23	103	80 - 120	103	80 - 120	ND, RDL=0.10	mg/L	6.6	20	105	80 - 120
8883903	Total Oil & Grease	2023/08/29			99	85 - 115	ND, RDL=0.50	mg/L	0.76	25		

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QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
8883909	Total Oil & Grease Mineral/Synthetic	2023/08/29			96	85 - 115	ND, RDL=0.50	mg/L	1.0	25		

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

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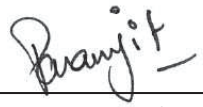
VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Brad Newman, B.Sc., C.Chem., Scientific Service Specialist



Paramjit Paramjit, Analyst I

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by {0}, {1} responsible for {2} {3} laboratory operations.

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Bureau Veritas Job #: C3P1201
Report Date: 2023/08/30

B.I.G Consulting Inc.
Client Project #: BIGC-GEO-154H
Site Location: 26-38 HOUNSLOW AVE
Sampler Initials: CW

Exceedance Summary Table – Toronto Storm Sewer

Result Exceedances

Sample ID	Bureau Veritas ID	Parameter	Criteria	Result	DL	UNITS
No Exceedances						

The exceedance summary table is for information purposes only and should not be considered a comprehensive listing or statement of conformance to applicable regulatory guidelines.

Exceedance Summary Table – Toronto Sanitary Sewer

Result Exceedances

Sample ID	Bureau Veritas ID	Parameter	Criteria	Result	DL	UNITS
No Exceedances						

The exceedance summary table is for information purposes only and should not be considered a comprehensive listing or statement of conformance to applicable regulatory guidelines.

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Page 1 of 1

INVOICE TO:

Company Name: #31796 B.I.G Consulting Inc.
Attention: Accounts Payable
Address: 12-5500 Tomken Road, Mississauga ON L4W 2Z4
Tel: (416) 214-4880 Fax:
Email: AP_BIG@brownfieldigi.com

REPORT TO:

Company Name:
Attention: Eileen Liu
Address:
Tel: Fax:
Email: eliu@brownfieldigi.com

PROJECT INFORMATION:

Quotation #: C25341
P.O. #:
Project: ~~BIGC-ENV-2023-01~~ BIGC-GEO-154-H
Project Name: 26-38 Hounslow Ave
Site #:
Sampled By: GW

ONT-08-289

Only:
Bottle Order #: 941232
COC #: C#941232-01-01
Project Manager: Deepthi Shaji

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE BUREAU VERITAS DRINKING WATER CHAIN OF CUSTODY

Regulation 153 (2011)
☐ Table 1 ☐ Res/Park ☐ Medium/Fine
☐ Table 2 ☐ Ind/Comm ☐ Coarse
☐ Table 3 ☐ Agri/Other ☐ For RSC
☐ Table ___

Other Regulations
☐ CCME ☒ Sanitary Sewer Bylaw
☐ Reg 558 ☒ Storm Sewer Bylaw
☐ MISA Municipality Toronto
☐ PWQO ☐ Reg 406 Table
☐ Other

Special Instructions

Include Criteria on Certificate of Analysis (Y/N)? Y

ANALYSIS REQUESTED (PLEASE BE SPECIFIC):

Field Filtered (please circle)
Metals / Hg / Cr VI
Toronto Sanitary and Storm Sewer (MU-2016)

Turnaround Time (TAT) Required:
Please provide advance notice for rush projects

Regular (Standard) TAT: ☒
(will be applied if Rush TAT is not specified)
Standard TAT = 5-7 Working days for most tests
Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission)
Date Required: Time Required: ☐
Rush Confirmation Number: (call lab for #)

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Field Filtered	Metals / Hg / Cr VI	Toronto Sanitary and Storm Sewer (MU-2016)	# of Bottles	Comments
1		MW103	Aug 18, 2023	10:45AM	GW	NO	X		18	
2										
3										
4										
5										
6										
7										
8										
9										
10										

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted
Worthy / Cassandra Worthy	23/08/18	12:46PM	[illegible]	23/08/18	12:49	

Laboratory Use Only
Time Sensitive
Temperature (°C) on Recei: 14/15/14
Custody Seal Present: Yes ✓ / No
Intact: ✓

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BUREAU VERITAS'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVNA.COM/ENVIRONMENTAL-LABORATORIES/RESOURCES/COC-TERMS-AND-CONDITIONS.

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

** SAMPLE CONTAINER, PRESERVATION, HOLD TIME AND PACKAGE INFORMATION CAN BE VIEWED AT WWW.BVNA.COM/ENVIRONMENTAL-LABORATORIES/RESOURCES/CHAIN-CUSTODY-FORMS-COCS.

SAMPLES MUST BE KEPT COOL (< 10° C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS

White: Bureau Veritas Yellow: Client
Dm, CC

Bureau Veritas Canada (2019) Inc.

APPENDIX E: CONSTRUCTION DEWATERING ESTIMATE RATE CALCULATIONS

Construction Dewatering Rate Estimate

26-38 Hounslow Avenue, Toronto, Ontario
2 levels of basement, Unconfined Aquifer, Groundwater seepage to rectangular excavation (Radial source)

Table E-1: Precipitation Estimate

Location	Assumed Precipitation Event (mm)	Length of Excavation (m)	Width of Excavation (m)	Rainwater Collection (L)
Aerial Extent of the Site	20	54	39	42,000

Table E-2: Construction Dewatering Rate Estimates

Description	Symbol	Values	Unit	Explanation
Input Data				
Proposed Ground Elevation		183.875	m asl	Based on drawing A6.00 Section A, prepared JCI, dated March 25, 2024
Highest Groundwater Elevation		183.44	m asl	Highest water level (December 19, 2019) plus fluctuation
P2 Footing Elevation		173.30	m asl	Assumed 2 m below P2 slab, P2 FFE is 175.3 m asl based on drawing A6.00 Section A, prepared by JCI, dated March 25, 2024
Aquifer Bottom		170.30	m asl	Assume 3 m below basement slab
Hydraulic Conductivity	K	1.25E-07	m/s	Highest K in clayey silt
Length of Excavation	x	54.0	m	Based on drawing A3.00 Parking Level P2, prepared by JCI, dated March 25, 2024
Width of Excavation	a	39.0	m	Based on drawing A3.00 Parking Level P2, prepared by JCI, dated March 25, 2024
Output				
Top of Aquifer		183.44	m asl	Water table for unconfined aquifer
Target Water Level		172.30	m asl	Assumed 1 m below basement floor level
Water Level above aquifer bottom before dewatering	H	13.1	m	
Target water level above aquifer bottom	h	2.0	m	
Effective radius	Re	25.89	m	Equal area
Radius of Influence	L (R_0)	37.71	m	Sichardt's Formula C=3000
Construction Dewatering Flow Rate - Steady State	Q	15.22	m^3/day	Construction Dewatering Flow - Dupuit Equation

Description	**Symbol**	**Values**	**Unit**	**Explanation**
Maximum Construction Flow Rate (safety factor of 3)	3Q	45.67	m^3/day	During the initial period and after rains
Construction Dewatering Flow Rate - Steady State	Q	15,000	L/day	
Construction Flow Rate (safety factor of 3)	3Q	45,000	L/day	
Rainfall collection of a 20 mm precipitation event		42,000	L	
Total Approximate Construction Dewatering Rate		**87,000**	**L/day**	

APPENDIX F: LONG TERM DRAINAGE FLOW RATE ESTIMATE CALCULATION

Long Term Drainage Flow Rate Estimate

26-38 Hounslow Avenue, Toronto, Ontario
2 levels of basement, Unconfined Aquifer, Groundwater seepage to rectangular excavation (Radial source)

Table F-1: Foundation Drain Flow Rate Estimates

Description	Symbol	Values	Unit	Explanation
Input Data				
Lowest Ground Elevation		183.875	m asl	Based on drawing A6.00 Section A, prepared JCI, dated March 25, 2024
Highest Groundwater Elevation		183.44	m asl	Highest water level (December 19, 2019) plus fluctuation
Basement Elevation		175.30	m asl	P2 FFE is 175.3 m asl based on drawing A6.00 Section A, prepared by JCI, dated March 25, 2024
Aquifer Bottom		172.30	m asl	Assume 3 m below basement slab
Hydraulic Conductivity	K	1.25E-07	m/s	Highest K in clayey silt
Length of Excavation	x	54.0	m	Based on drawing A3.00 Parking Level P2, prepared by JCI, dated March 25, 2024
Width of Excavation	a	39.0	m	Based on drawing A3.00 Parking Level P2, prepared by JCI, dated March 25, 2024
Output				
Top of Aquifer		183.44	m asl	Water table for unconfined aquifer
Target Water Level		174.80	m asl	Assumed 0.5 m below basement floor level
Water Level above aquifer bottom before dewatering	H	11.1	m	
Target water level above aquifer bottom	h	2.5	m	
Effective radius	Re	25.89	m	Equal area
Radius of Influence	L (R_0)	35.0	m	Weber's Equation - R_0 after 170 days (from centre of the Site)
Long-Term Flow Rate - Steady State	Q	13.22	m^3/day	Long-term flow rate - Dupuit Equation
Maximum Foundation Drain Flow Rate (safety factor of 3)	3Q	39.65	m^3/day	During the initial period and after rains
Estimated Long-term Foundation Drain Flow Rate	Q	**13,000**	L/day	
Estimated Maximum Foundation Drain Flow Rate	3Q	**39,000**	L/day	