



Preliminary Hydrogeological Assessment – Proposed Mixed-use Residential/Commercial Development

23, 25, 27, 29 and 31 Helene Street North, 53 Queen Street East and Part
of 70 Park Street East, Mississauga, Ontario

Prepared for:

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January 20, 2023

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TABLE OF CONTENTS

1.0	INTRODUCTION AND BACKGROUND	1
1.1	Purpose	1
1.2	Proposed Development Parameters	2
1.3	Previous and Current Investigations.....	2
2.0	METHODOLOGY	3
3.0	SITE DESCRIPTION AND GEOLOGICAL SETTING	4
3.1	Surface Water and Topography	4
3.2	MECP Water Well Records	4
4.0	SUBSURFACE CONDITIONS	5
4.1	Soil Stratigraphy	5
4.1.1	Surficial Layers	5
4.1.2	Earth Fill.....	5
4.1.3	Sand and Silt/Sandy Silt	5
4.1.4	Glacial Till	6
4.2	Water Level Elevations and Groundwater Flow Regime	7
4.3	Hydraulic Conductivity Estimates	7
5.0	DEWATERING ASSESSMENT	7
5.1	Short-Term Construction Dewatering Estimates	8
5.2	Long-Term Dewatering Estimate - Operations	10
6.0	GROUNDWATER QUALITY	11
7.0	CONCLUSIONS	12
8.0	RECOMMENDATIONS	13
9.0	REFERENCES.....	13
10.0	TERMS AND LIMITATIONS	13



TABLES

TABLE 1	Monitoring Well Construction Details
TABLE 2	Groundwater Elevation Data

FIGURES

FIGURE 1	Key Map
FIGURE 2	Borehole and Monitoring Well Location Plan
FIGURE 3	Ontario Water Well Records – 500 m radius
FIGURE 4A	Cross-Section A-A' Detail
FIGURE 4B	Cross-Section B-B' Detail
FIGURE 5	Groundwater Elevations and Inferred Flow Direction

APPENDICES

APPENDIX I	DEVELOPMENT SITE PLANS
APPENDIX II	BOREHOLE LOGS
APPENDIX III	HYDRAULIC CONDUCTIVITY TEST CURVES
APPENDIX IV	LABORATORY CERTIFICATES OF ANALYSIS



1.0 INTRODUCTION AND BACKGROUND

Pinchin Ltd. (Pinchin) was retained by MPCT DIF 70 Park Street East LP (Client) to complete a preliminary hydrogeological assessment of the property at 23, 25, 27, 29 and 31 Helene Street North, 53 Queen Street East and Part of 70 Park Street East (collectively referred to as the Site), Mississauga, Ontario with regards to a proposed mixed-use residential/commercial re-development.

The Site is located on the southeast side of Queen Street East and the northeast side of Helene Street North, in the City of Mississauga, Ontario. The approximate site location is shown on Figure 1.

The Site is part of a parcel of land identified with parcel #13054900 on Mississauga Interactive Maps, and has a total area of 4,527 m² for the proposed re-development. The Site has been developed with a parking garage with commercial uses at grade fronting onto Helene Street North (Site Building). The parking garage serves the adjacent multi-tenant residential building located at 70 Park Street East.

It is Pinchin's understanding that the proposed re-development will consist of a 38-storey mixed-use building and 8 levels of underground structures used as parking garage. The current apartment building located at 70 Park Street East, which is beyond the Site, will remain in place.

The preliminary hydrogeological assessment was conducted at the Site to support the Development Application process for the proposed re-development. This letter report provides a summary of soil/bedrock and groundwater conditions at the Site and a conservative estimate of the volume of water that may require management during the construction and operations phases of the redevelopment of the Site. An evaluation of the quality of groundwater that could theoretically be discharged as part of the potential Site dewatering is also provided.

1.1 Purpose

The purpose of this hydrogeological assessment was to characterize the soil/bedrock and groundwater conditions at the Site, evaluate the dewatering requirements for the proposed construction and operations phases of the development, evaluate the groundwater quality of potential discharge water, assess any potential impacts on the surrounding environment due to the proposed development, and provide recommendations concerning mitigative measures, if required.



It is noted that at the time of Pinchin's proposal for this work there were fewer underground levels being considered, and Pinchin had anticipated that the lowest underground level would be at about 18 m below exterior grades. Since the boreholes for the current investigation were scoped based on the previous understanding of the redevelopment, the boreholes did not extend to the depth of the proposed lowest level of underground parking. As such, the results of this investigation should be considered preliminary; and, additional investigation with deeper boreholes/monitoring wells will be needed to support final design of the redevelopment. Additional shallow monitoring wells will be required to evaluate the presence/extent of perched water across the Site.

1.2 Proposed Development Parameters

The pertinent design drawings, dated January 4, 2023 and prepared by IBI Group, are provided in Appendix I.

The proposed development parameters and site condition data and assumptions include the following:

- The Site has a total area of 4,527 m² and will be designed with a 38-storey building and 8 levels of underground structures;
- The proposed development will have a total gross construction area of 67,395 m², and will provide a gross floor area of 34,610 m² for residential use with 530 units, 1,411 m² for indoor amenity, 401 m² for daycare use and 463 m² for retail use, and a total of 592 underground vehicle parking spaces with 4 drop-off parking spaces at ground floor;
- The established grade is at 82.151 masl, and the P1 Level is at 78.151 masl. The P7 Lower Level is at 59.951 masl and the P8 Level is at 58.551 masl; and
- The footprint of the underground structures P1 Level is 3,570 m², P2 to P7 is 3,503 m² and P8 Level is 1,907 m².

1.3 Previous and Current Investigations

It was not known if any previous investigations were conducted at the Site, because no existing investigation reports were provided for review.

This preliminary hydrogeological assessment was conducted by Pinchin concurrently with a geotechnical investigation based on the available conceptual development plans. In addition, an environmental site assessment was also conducted at the Site. During the investigations, boreholes were advanced at seven locations (BH1 to BH7), either drilled or cored to depths ranging from approximately 2 m below ground surface (mbgs) to 20.1 mbgs.



A total of nine monitoring wells were completed at the Site, identified as BH1-S/I/D, BH2-S/I/D, and BH5 to BH7, with monitoring nests comprised of three wells at different depths installed at the BH1 and BH2 locations. The approximate borehole and monitoring well locations are shown on Figure 2. The borehole logs are provided in Appendix II.

The monitoring wells were used for groundwater monitoring, sampling and testing. The pertinent data obtained from the boreholes and monitoring wells was incorporated in this hydrogeological assessment report.

2.0 METHODOLOGY

As mentioned, this preliminary hydrogeological assessment was conducted at the Site concurrently with geotechnical and environmental investigations, in which a total of nine monitoring wells (BH1-S/I/D, BH2-S/I/D, BH5 to BH7) were completed across the Site. The approximate borehole and monitoring well locations are shown on Figure 2 and the monitoring well construction details are presented in Table 1.

The scope of work completed for the hydrogeological assessment consisted of the following tasks:

- A desktop water well inventory survey using data from the MECP Water Well Information System (WWIS) database within 500 m of the Site property boundaries;
- A review and summary of the regional geology and hydrogeology, and its linkage to the site-specific geology and hydrogeology;
- Groundwater monitoring to obtain static groundwater levels;
- Rising head hydraulic conductivity testing of selected monitoring wells;
- Preparation of local scale geologic cross-sections, groundwater elevation contours and flow directions;
- Background groundwater quality analysis for Peel Region Sewer Use By-law parameters;
- A review of the conceptual/architectural design of the proposed re-development, and completion of a dewatering assessment for the construction and operations phases of the proposed re-development;
- A potential impact assessment with mitigative measures, if required; and
- Preparation of a hydrogeological assessment report summarizing the findings of the investigation.



3.0 SITE DESCRIPTION AND GEOLOGICAL SETTING

Based on data from the Ontario Geological Survey, the Site is located in the Iroquois Plain physiographic region, in an area described as a Sand Plains landform, covered by coarse-textured glaciolacustrine deposits or foreshore and basinal deposits composed of sand, gravel, minor silt and clay. The Site is underlain by the Georgian Bay Formation consisting of shale, siltstone, minor limestone and sandstone.

3.1 Surface Water and Topography

The Site is located within the Norval to Credit Subwatershed of The Credit River Watershed, which is within the jurisdiction of Credit River Conservation (CVC). No open water body is present on or adjacent to the Site. The Credit River is located approximately 550 m south of the Site, which drains into Lake Ontario, at a location approximately 1 km southeast of the Site.

As shown on Figure 3, the Credit River is located beyond 500 m from the Site. The topographic elevation of the Site ranges between 80 mbgs and 85 mbgs, and the Site generally slopes towards the south.

3.2 MECP Water Well Records

Water well records from within a 500 m radius of the Site were accessed from the MECP Water Well Information System (WWIS).

Based on a review of the water well database, a total of 127 water well records were found within a radius of 500 m from the Site. None of the water well records are related to water supply wells, 102 records are related to test holes/monitoring wells, and the remaining 25 records are either abandoned wells or wells with no details. The approximate MECP water well locations are presented on Figure 3. There were no water wells that plot on the Site. A summary of three water supply wells located adjacent to the Site is presented below.

Well #	Well Use	Soil Encountered	Well Screen	Groundwater Condition
7321813	Monitoring well	0-1.5 m: Sand 1.5-6 m: Clay 6-9.1 m: Silt 9.1-15.2 m: Limestone	6.4 cm outside diameter 12.1 m to 15.2 m	No information
7341861	Monitoring Well	0-27': Till	2.5" outside diameter 17' to 27'	No information
7341887	Monitoring Well	0-27': Till 27-87': Shale	2.5" outside diameter 82' to 87'	No information



Based on the water well records, bedrock (shale or limestone) was encountered at depths ranging from 8.2 to 9.1 mbgs. The overburden deposits generally were found to consist of sand, silt, clay or till.

4.0 SUBSURFACE CONDITIONS

A total of nine boreholes and monitoring wells were completed at the Site as part of the concurrent geotechnical, hydrogeological and environmental investigations. All the monitoring wells were utilized for groundwater level monitoring, and selected monitoring wells were used for groundwater quality sampling and hydraulic conductivity testing during this hydrogeological assessment.

The approximate borehole/monitoring well locations are shown on Figure 2. The borehole logs for the boreholes and monitoring wells are provided in Appendix II.

4.1 Soil Stratigraphy

The soil stratigraphy inferred at the Site generally consists of surficial layers and earth fill materials, underlain by native soils composed of sand and silt to sandy silt, and glacial till deposits of clayey silt till, and underlain by shale bedrock.

4.1.1 Surficial Layers

A topsoil layer with thickness approximately 130 mm was encountered at the ground surface in Boreholes BH1 to BH4 and BH7.

A concrete slab ranging in thickness from approximately 100 to 130 mm was encountered at the ground surface in Boreholes BH5 and BH6.

4.1.2 Earth Fill

Earth fill materials, consisting of silty sand to sandy silt, with trace amounts of clay, organics, gravels, rootlets and Styrofoam were encountered beneath the topsoil or concrete slab in each borehole, except for Borehole B7, and extended to depths ranging from approximately 0.75 to 1.5 mbgs.

The cohesionless earth fill zone has a loose to compact relative density based on SPT 'N' values of 8 to 14 blows per 300 mm penetration of a split spoon sampler. The fill was moist to wet based on moisture content results of 5 to 19%.

4.1.3 Sand and Silt/Sandy Silt

Native sand and silt to sandy silt, with trace amounts of clay and gravel was encountered beneath the earth fill zone in Borehole BH1, BH2, BH5 and BH7 and extended to a depth ranging from approximately 2.3 to 3.1 mbgs.



The native sand and silt to sandy silt has a variable loose to very dense relative density based on SPT 'N' values of 7 to more than 50 blows per 300 mm penetration of a split spoon sampler. The in-situ moisture contents of the sand and silt sample was ranged from 13.1 to 25.9 percent by mass, indicating very moist to wet conditions.

4.1.4 Glacial Till

Clayey silt till, with trace to some amounts of sand, trace gravel and stone fragments was encountered beneath the earth fill zone and sand in each Borehole extended to a depth ranging from approximately 6.5 to 8.0 mbgs, where a lower limit was encountered.

The cohesive glacial till deposit has a firm to hard (typically very stiff to hard) consistency based on SPT 'N' values of 8 to more than 50 blows per 300 mm penetration of a split spoon sampler. The in-situ moisture contents of the cohesive glacial till samples ranged from 7.4 to 27.9 percent by mass. This deposit was described in the field as being at About the Plastic Limit (APL).

4.1.5 Bedrock

Bedrock was encountered in boreholes BH1, BH2 and BH7 at depths ranging from approximately 6.5 to 8.0 mbgs (elevations ranging from approximately 75.2 to 75.0 masl). 'HQ' size rock coring was completed on the shale bedrock in Boreholes BH1, BH2 and BH7 and confirmed Georgian Bay formation shale bedrock with limestone interbeds up to 200 mm in thickness. The depth and elevation of the bedrock at the borehole locations is summarized in the following table.

Borehole	Depth to Bedrock (mbgs)	Approximate Elevation of Bedrock (masl)
BH1	7.1	75.2
BH2	8.0	75.0
BH7	6.5	75.1

The Rock Quality Designation (RQD) ranged from 20 to 100 percent, indicating very poor to excellent quality bedrock, with quality increasing with depth. It is noted that all RQD results below Elevation 69 masl indicated good to excellent quality.

Details of the soil descriptions and stratigraphy are presented in the Borehole Logs provided in Appendix II. Cross-sections showing the stratigraphy across the Site are provided on Figures 4A and 4B of this report.



4.2 Water Level Elevations and Groundwater Flow Regime

Groundwater levels were measured in the monitoring wells installed at the Site from on October 17, 18, 24 and 28, December 5 and 19, 2022 and January 5, 2023. The groundwater level data is presented in Table 2 of this report.

The measured groundwater levels ranged from 1.81 m below slab floor surface (mbfs) (Elevation: 79.28 masl) at BH5 (January 5, 2022) to 17.62 mbgs (Elevation: 64.67 masl) at BH1-D (October 24, 2022). BH1-S, BH1-I, BH2S and BH2I were found to be dry at all the water level measurement events. BH6 was dry in October 2022 but was found with water in December 2022 and January 2023.

Based on the groundwater elevations obtained in bedrock on December 19, 2022, the groundwater flow was inferred to be generally to the northwest (Figure 5).

It should be noted that the monitoring wells at BH5 and BH6 were completed in overburden deposits. Based on the water levels at BH1 S/I/D and BH2 S/I/D, it is possible that the groundwater at the BH5 and BH6 locations is locally perched.

4.3 Hydraulic Conductivity Estimates

Rising head hydraulic conductivity (K-) tests were conducted in the two monitoring wells (BH5 to BH7) on October 18, 2022. The results of the K-tests and data processing are provided in Appendix III. The estimated hydraulic conductivities (K-values) for the tested/screened intervals at the two monitoring wells are as follows:

Monitoring Well	Screen Interval	Screened Soil	K-Estimate (cm/sec)
BH5	1.8 – 4.9 (mbfs)	Sandy Silt; Clayey Silt Till	6.0×10^{-6}
BH7	15.6 – 18.6 (mbgs)	Shale	$< 4.5 \times 10^{-7}$

The hydraulic conductivities (K-values) that were estimated for the soils and shale bedrock ranged from less than 4.5×10^{-7} cm/sec (BH7) to 6.0×10^{-6} cm/sec (BH/MW1). The results are indicative of a very low permeability formation that will not be releasing a lot of water.

5.0 DEWATERING ASSESSMENT

As stated above in Section 1.2, the proposed development consists of a 38-storey building sitting on eight levels of underground parking structures. It is understood that the P8 Level is at an elevation of 58.551 masl and the P7 Lower Level is at 59.951 masl (See Appendix I).



Assuming that the excavation for foundation construction will be 1 m below the slab floor, the maximum excavation will be advanced to the approximate elevations of 57.551 masl (Level P8) and 58.951 masl (Level P7 Lower).

Based on the groundwater monitoring, the measured groundwater levels ranged from 64.67 masl to 79.28 masl, which are above the anticipated excavation bottom and P1 to P8 levels. Therefore, dewatering from groundwater will be required during the construction stage, as well as during the building operations. The dewatering estimates are provided below.

5.1 Short-Term Construction Dewatering Estimates

5.1.1 Groundwater Inflow

Based on the architectural design drawings provided to Pinchin, a conservative groundwater dewatering scenario during construction was undertaken that employed the following parameters and assumptions.

- The excavation or dewatering area for P1 to P7 Lower Level is assumed to be 3,570 m², and the dewatering area for P8 Level is 1,907 m²;
- The initial groundwater level is assumed to be 79.5 masl (the highest water level measured at 79.28 masl);
- The target water level will be at approximately 57.05 masl for P8 Level and 58.45 masl for P7 Lower Level (assuming 0.5 m below the excavation bottom); and
- The hydraulic conductivity is 6.0×10^{-6} cm/sec (the higher hydraulic conductivity estimated at the Site).

Based on the above assumptions, the short-term construction dewatering rate and zone of influence were estimated and are presented below.

Excavation /Dewatering Area (m²)	Initial Water Level (masl)	Target Water Level (masl)	K- Estimate (cm/sec)	Estimated Zone of Influence (m from Edge of Excavation)	Dewatering Rate (without Safety Factor) (L/day)	Dewatering Rate Estimate with Safety Factor of 2 or 100% (L/day)
3,570 (P1 to P7 Lower Level)	79.5	58.45	6.0×10^{-6}	15	20,010	40,020
1,907 (P8 Level)	58.45	57.05	6.0×10^{-6}	1	1,337	2,674
Total Groundwater Inflow				16	21,347	42,694



It should be noted that the application of a Safety Factor provides a more conservative assessment for planning purposes to account for potential variabilities in the hydraulic conductivities in the soil across the Site. In addition, during the initial stages of the construction dewatering, the dewatering volumes would be greater than those under a steady state condition, because the water stored in the soils is also being removed. Furthermore, this estimate assumes the “perched condition” exists across the entire Site, which is not the condition observed at the BH1 and BH2 locations (Figure 5).

The above total volume estimate, assuming that one bulk excavation will be undertaken for the underground structure, and including a Safety Factor of 2, or 100%, is below the threshold for an Environmental Activity Sector Registration (EASR) requirement for construction dewatering of more than 50,000 L/day (50 m³/day) and below the threshold limit of 400,000 L/day (400 m³/day) for a Permit-to-Take-Water (PTTW) requirement. Therefore, an EASR registration or a PTTW will not be required for the construction of the proposed building.

5.1.2 Stormwater Inflow

A significant amount of the dewatering demand from any construction project is the volume of water that is derived from stormwater that is generated during and after precipitation events. In the case of the proposed development, it will be necessary to handle stormwater that will accumulate within the excavation footprint.

For planning purposes, dewatering estimates are developed assuming the potential occurrence of extreme storm events, which are based upon events that have an observed “return period” or period of recurrence.

Based on the Canadian Climatic Normals 1981-2010 Station Data for Toronto Pearson International Airport Station, the days which had a precipitation rate between 10 mm/day and 25 mm/day vary from 0.77 to 2.6 days per year, with an average of 1.9 days per year, and the days which had a precipitation rate greater than 25 mm/day vary from 0.07 to 0.9 days per year, with an average of 0.4 days per year.

The volume of water that can be generated at the full excavation extent of 3,570 m² was estimated for a 30 mm/day high-precipitation storm event. The estimated stormwater inflow is summarized below:

Excavation Area (m ²)	Precipitation Rate (mm/day)	Stormwater Volume (L/day)
3,570	30	107,100



The dewatering requirement from a high-precipitation storm with a rate of 30 mm/day is estimated to be 104,460 L/day. It should be noted that the above estimate does not take into account any infiltration or evaporation in the excavation area. However, it should also be noted that, for infrequent extreme storm events, the great majority of the generated stormwater becomes run-off or accumulates in the excavation area, due to the fixed assimilative capacity of the soils and the minimal evaporation until the cessation of the event.

5.1.3 Summary of Construction Dewatering Estimates

Based on the short-term construction dewatering calculations discussed above, the estimated construction phase dewatering rates are summarized below.

Construction Dewatering	Total Volume without Safety Factor for Groundwater (L/day)	Total Volume with Safety Factor of 2 for Groundwater (L/day)
Discharge of Groundwater	21,347	42,694
Discharge of Stormwater	107,100	107,100
Discharge of Groundwater and Stormwater	128,447	149,794

5.2 Long-Term Dewatering Estimate - Operations

The same calculation methodology for the short-term dewatering estimate was used for the long-term dewatering/sub-drainage discharge estimate, except for employing a different target groundwater level lowering, which is 0.2 m below the average of P8 and P7 Lower slab elevations. The average elevation of P8 level and P7 Lower Level is 59.251 masl. The following parameters were employed:

- Building Underground Area: 3,570 m²; and
- Target Water Level: 59.05 masl (0.2 m below P8 and P7 Lower concrete slabs).



The estimated long-term dewatering rate and zone of influence are presented below.

Underground Area (m ²)	Initial Water Level (masl)	Target Water Level (masl)	K- Estimate (cm/sec)	Estimated Zone of Influence (m from edge of Excavation)	Dewatering Rate (without safety factor) (L/day)	Dewatering Rate Estimate with safety factor of 2 or 100% (L/day)
3,570	79.5	59.05	6.0×10^{-8}	15	18,469	36,938

The total dewatering volume estimated for long-term building operations, including a Safety Factor of 2, is below the threshold for long-term dewatering of 50,000 L/day (50 m³/day) that triggers a PTTW requirement from the MECP. A PTTW will not be required for the proposed building operations.

6.0 GROUNDWATER QUALITY

One unfiltered groundwater sample was obtained on October 28, 2022 from BH7 to evaluate the water quality with reference to the Peel Region Sewer Use By-Law (53-2010) and City of Mississauga Storm Water Use bylaw (259-05) parameter criteria for sanitary and storm sewer discharge.

The groundwater samples were submitted to and analyzed by Bureau Veritas Laboratories (BV). BV has been accredited by the Canadian Association For Laboratory Accreditation Inc.(CALA). The Certificate of Analysis is presented in Appendix IV.

The analytical results were compared with the Peel Region Sewer Use Bylaw – Sanitary Sewer Discharge Limits and City of Mississauga Bylaw 0046-2022 - A by-law to Regulate the Discharge of Stormwater into the Municipal Storm Sewers and Private Storm Sewers within the City of Mississauga. Exceedance of the Peel Region Sanitary Sewer Discharge Limits was not detected for the analyzed parameters. However, a single exceedance of the Storm Sewer Discharge limits was detected for total suspended solids (TSS), which is detailed below.

Monitoring Well	Parameter	Unit	Mississauga Storm Water Guideline Value	Peel Region Sanitary Sewer Guideline Value	Measured Concentration
BH/MW3	TSS	mg/L	<u>15</u>	350	16

It is considered that the TSS exceedance of the sewer use discharge limits is attributed to the sediment contained within the sample. Therefore, the water generated from the Site cannot be discharged directly into the local sewer systems without appropriate treatment or filtration.



7.0 CONCLUSIONS

Pinchin provides the following conclusions arising out of the preliminary hydrogeological assessment completed up to date:

- The Site is located within the Norval to Credit Subwatershed of The Credit River Watershed, which is within the jurisdiction of Credit River Conservation (CVC). No open water body is present on the Site, and the Credit River is located approximately 550 m south of the Site;
- The Site is located on the Iroquois Plain physiographic region, in an area described as a Sand Plains landform, covered by coarse-textured glaciolacustrine deposits or foreshore and basinal deposits composed of sand, gravel, minor silt and clay, and underlain by Georgian Bay Formation bedrock;
- The soil stratigraphy inferred at the Site generally consists of surficial layers and earth fill materials, underlain by native soils composed of sand and silt to sandy silt, and glacial till deposits of clayey silt till, and underlain by shale bedrock encountered at the depths ranging from approximately 6.5 to 8.0 mbgs;
- The groundwater levels measured between October 2022 and January 2023 ranged from 1.81 m below slab floor surface (mbfs) to 17.62 mbgs, and elevations ranged from 64.67 to 79.28 masl). The groundwater flow direction was inferred to be generally to the northwest;
- The K-values were estimated to be 6.0×10^{-7} cm/sec for the overburden deposits (sandy silt, clayey silt till) and less than 4.5×10^{-7} cm/sec for shale bedrock;
- The completed dewatering assessments indicated that the maximum short-term construction dewatering from groundwater is anticipated to be 42,694 L/day, including a Safety Factor of 2. An EASR registration or a PTTW will not be required for the short-term construction dewatering activities;
- The estimated long-term dewatering from sub-drainage system is anticipated to be 36,938 L/day, with a safety factor of 2 considered. No PTTW will be required for the long-term discharge during building operations; and
- A groundwater quality assessment compared as per the City Sewer Use Bylaw indicated the presence of TSS exceedance in the tested water sample. The water generated at the Site cannot be discharged directly into the local sewer system without appropriate treatment to remove the sediment in the water.



8.0 RECOMMENDATIONS

This preliminary hydrogeological assessment was initiated according to the original conceptual design and the dewatering calculations were completed based on the soil and groundwater conditions observed between October 2022 and January 2023 as well as based on assumed parameters.

It should be noted that the boreholes and monitoring wells were completed to the maximum depths of approximately 20.1 mbgs. However, the designed P8 Level is at the depth of 23.6 m below the established grade. Therefore, the existing investigated depth is not deep enough to identify or confirm the bedrock properties and groundwater conditions. As such, additional boreholes and monitoring wells are recommended to be added to supplement the data in support of the detailed design. The presence/extent of “perched groundwater” should also be addressed.

A sewer use sample reflecting the revised parameters in the new Mississauga Storm Sewer Use By-law (aluminum, polycyclic aromatic hydrocarbons (PAHs), hexavalent chromium, and chloride) should be obtained for analysis between the ZBA and SPA stages of the development application.

9.0 REFERENCES

Ontario Geological Survey online database (<https://www.geologyontario.mndm.gov.on.ca/ogsearch.html>).

MECP online database – Map: Well Records (<https://www.ontario.ca/page/map-well-records>).

City of Mississauga Interactive Maps – (<http://www6.mississauga.ca/missmaps/#map=12/-8864609.44/5404848.32/0>).

CVC. 2002. Credit Valley Conservation Watershed Map.

10.0 TERMS AND LIMITATIONS

This Preliminary Hydrogeological Assessment was performed for the exclusive use of MPCT DIF 70 Park Street East LP (Client), the City of Mississauga (City), and Credit Valley Conservation (CVC) in order to evaluate the subsurface conditions at 23, 25, 27, 29 and 31 Helene Street North, 53 Queen Street East and Part of 70 Park Street East, Mississauga, Ontario. Within the limitations of scope, schedule and budget, our services have been executed in accordance with generally accepted practises in the field of hydrogeology for the Site. Classification and identification of soil and geologic units have been based upon commonly accepted methods employed in professional geotechnical and geological engineering practice. No warranty or other conditions, expressed or implied, should be understood. Conclusions derived are specific to the immediate area of study and cannot be extrapolated extensively away from sample locations.



Performance of this Hydrogeological Assessment to the standards established by Pinchin is intended to reduce, but not eliminate, uncertainty regarding the subgrade soil and groundwater conditions at the Site and recognizes reasonable limits on time and cost.

Regardless of how exhaustive a geological/hydrogeological investigation is performed, the investigation cannot identify all of the subsurface conditions. In addition, this report is intended to be supplemented and updated with future, more extensive, investigations at the detailed design stage(s) of the Project. Therefore, no warranty is expressed or implied that the entire Site is representative of the subsurface information obtained at the specific locations of our investigation and previous investigations done by others. If, during construction, subsurface conditions differ from then what was encountered within our test locations and the additional subsurface information provided to us, Pinchin should be contacted to review our recommendations. This report does not alleviate the contractor, owner, or any other parties of their respective responsibilities.

This report has been prepared for the exclusive use of the Client, the City, and Client's authorized agents. Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of the third parties. If additional parties require reliance on this report, written authorization from Pinchin will be required. Pinchin disclaims responsibility of consequential financial effects on transactions or property values, or requirements for follow-up actions and costs. No other warranties are implied or expressed. Furthermore, this report should not be construed as legal advice.

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Pinchin makes no other representations whatsoever, including those concerning the legal significance of its findings, or as to other legal matters touched on in this report, including, but not limited to, ownership of any property, or the application of any law to the facts set forth herein. With respect to regulatory compliance issues, regulatory statutes are subject to interpretation and these interpretations may change over time.



Specific limitations related to the legal and financial and limitations to the scope of the current work are outlined in our proposal and any subsequent Change Order documentation, the attached Methodology and the Authorization to Proceed, Limitation of Liability and Terms of Engagement which accompanied the proposal.

Information provided by Pinchin is intended for Client, the City, and Client's authorized agents' use only. Pinchin will not provide results or information to any party unless disclosure by Pinchin is required by law. Any use by a third party of reports or documents authored by Pinchin or any reliance by a third party on or decisions made by a third party based on the findings described in said documents, is the sole responsibility of such third parties. Pinchin accepts no responsibility for damages suffered by any third party as a result of decisions made or actions conducted. No other warranties are implied or expressed.

314281.003 Final HydroGeo 70 Park Street Mississauga ON Jan 20 2023.docx

Template: Master Geotechnical Investigation Report – Ontario, GEO, April 18, 2019

Tables

TABLE 1 MONITORING WELL CONSTRUCTION DETAILS

MPCT DIF 70 Park Street East LP

Block of Queen Street East and Helene Street North

<i>Well Number</i>	<i>Surveyed Ground Elevation (masl)</i>	<i>Top of Casing Elevation (masl)</i>	<i>Height of Stickup (m)</i>	<i>Well Size (cm)</i>	<i>Bedrock Depth (mbgs)</i>	<i>Screen Interval (mbgs/mbfs)</i>	<i>Stratigraphy</i>
BH1-D	82.29	82.19	-0.10	5.1	7.1	16 - 19.1	Shale
BH1-I	82.29	82.24	-0.05	5.1	7.1	5.2 - 8.2	Clayey Silt Till; Shale
BH1-S	82.29	82.18	-0.11	5.1	-	1.5 - 4.6	Sand and Silt; Clayey Silt Till
BH2-D	83.00	82.89	-0.11	5.1	8.0	16 - 19.1	Shale
BH2-I	83.04	82.96	-0.08	5.1	8.0	5.9 - 9	Clayey Silt Till; Shale
BH2-S	83.04	82.93	-0.11	5.1	-	3 - 6.1	Clayey Silt Till
BH5*	81.09	81.04	-0.05	3.2	-	1.8 - 4.9	Sand; Clayey Silt Till
BH6*	81.12	81.05	-0.07	3.2	-	1 - 4	Clayey Silt Till
BH7	81.66	81.55	-0.11	5.1	6.4	15.6 - 18.6	Shale

Notes:

- m - Metres
- TOC - Top of Casing
- masl - Metres Above Sea Level
- mbfs - Metres Below Floor Surface
- mbgs - Metres Below Ground Surface

TABLE 2 GROUNDWATER ELEVATION DATA
MPCT DIF 70 Park Street East LP
Block of Queen Street East and Helene Street North

					October 17, 2022			October 18, 2022			October 24, 2022		
Well Number	Surveyed Ground Elevation (masl)	Top of Casing Elevation (masl)	Height of Stickup (m)	Screen Interval	Water Level from Top Of Casing (mbTOC)	Water Level from Ground Surface (mbgs/mbfs)	Water Level Elevation (masl)	Water Level from Top Of Casing (mbTOC)	Water Level from Ground Surface (mbgs/mbfs)	Water Level Elevation (masl)	Water Level from Top Of Casing (mbTOC)	Water Level from Ground Surface (mbgs/mbfs)	Water Level Elevation (masl)
BH1-D	82.29	82.19	-0.10	16 - 19.1	8.54	8.64	73.65	17.45	17.55	64.74	17.52	17.62	64.67
BH1-I	82.29	82.24	-0.05	5.2 - 8.2	-	-	-	-	-	-	-	-	-
BH1-S	82.29	82.18	-0.11	1.5 - 4.6	Dry	Dry	Dry at 77.69	Dry	Dry	Dry at 77.69	Dry	Dry	Dry at 77.69
BH2-D	83.00	82.89	-0.11	16 - 19.1	12.98	13.09	69.91	17.36	17.47	65.53	16.87	16.98	66.02
BH2-I	83.04	82.96	-0.08	5.9 - 9	-	-	-	-	-	-	-	-	-
BH2-S	83.04	82.93	-0.11	3 - 6.1	Dry	Dry	Dry at 76.94	Dry	Dry	Dry at 76.94	Dry	Dry	Dry at 76.94
BH5*	81.09	81.04	-0.05	1.8 - 4.9	1.80	1.85	79.24	1.84	1.89	79.20	1.81	1.86	79.23
BH6*	81.12	81.05	-0.07	1 - 4	Dry	Dry	Dry at 77.12	Dry	Dry	Dry at 77.12	Dry	Dry	Dry at 77.12
BH7	81.66	81.55	-0.11	15.6 - 18.6	-	-	-	6.57	6.68	74.98	11.11	11.22	70.44

Notes:

- m - Metres
- TOC - Top of Casing
- masl - Metres Above Sea Level
- mbfs - Metres Below Floor Surface
- mbgs - Metres Below Ground Surface

TABLE 2 GROUNDWATER ELEVATION DATA
MPCT DIF 70 Park Street East LP
Block of Queen Street East and Helene Street North

					October 28, 2022			December 5, 2022			December 19, 2022			January 5, 2023		
Well Number	Surveyed Ground Elevation (masl)	Top of Casing Elevation (masl)	Height of Stickup (m)	Screen Interval	Water Level from Top Of Casing (mbTOC)	Water Level from Ground Surface (mbgs/mbfs)	Water Level Elevation (masl)	Water Level from Top Of Casing (mbTOC)	Water Level from Ground Surface (mbgs)	Water Level Elevation (masl)	Water Level from Top Of Casing (mbTOC)	Water Level from Ground Surface (mbgs)	Water Level Elevation (masl)	Water Level from Top Of Casing (mbTOC)	Water Level from Ground Surface (mbgs)	Water Level Elevation (masl)
BH1-D	82.29	82.19	-0.10	16 - 19.1	17.18	17.28	65.01	14.81	14.91	67.38	14.61	14.71	67.58	14.37	14.47	67.82
BH1-I	82.29	82.24	-0.05	5.2 - 8.2	-	-	-	-	-	-	Dry	Dry	Dry at 74.09	Dry	Dry	Dry at 74.09
BH1-S	82.29	82.18	-0.11	1.5 - 4.6	Dry	Dry	Dry at 77.69	Dry	Dry	Dry at 77.69	Dry	Dry	Dry at 77.69	Dry	Dry	Dry at 77.69
BH2-D	83.00	82.89	-0.11	16 - 19.1	16.92	17.03	65.97	16.87	16.98	66.02	16.79	16.90	66.10	16.93	17.04	65.96
BH2-I	83.04	82.96	-0.08	5.9 - 9	-	-	-	-	-	-	Dry	Dry	Dry at 74.04	Dry	Dry	Dry at 74.04
BH2-S	83.04	82.93	-0.11	3 - 6.1	Dry	Dry	Dry at 76.94	Dry	Dry	Dry at 76.94	Dry	Dry	Dry at 76.94	Dry	Dry	Dry at 76.94
BH5*	81.09	81.04	-0.05	1.8 - 4.9	1.80	1.85	79.24	1.79	1.84	79.25	1.83	1.88	79.21	1.76	1.81	79.28
BH6*	81.12	81.05	-0.07	1 - 4	Dry	Dry	Dry at 77.12	3.47	3.54	77.58	3.35	3.42	77.70	3.18	3.25	77.87
BH7	81.66	81.55	-0.11	15.6 - 18.6	9.53	9.64	72.02	9.23	9.34	72.32	9.25	9.36	72.30	9.23	9.34	72.32

Notes:

- m - Metres
- TOC - Top of Casing
- masl - Metres Above Sea Level
- mbfs - Metres Below Floor Surface
- mbgs - Metres Below Ground Surface

Figures



PROJECT NAME:		HYDROGEOLOGICAL ASSESSMENT		
CLIENT NAME:		MPCT DIF 70 PARK STREET EAST LP		
PROJECT LOCATION:		23, 25, 27, 29 AND 31 HELENE STREET NORTH, 53 QUEEN STREET EAST AND PART OF 70 PARK STREET EAST, MISSISSAUGA, ONTARIO		
FIGURE NAME:		KEY MAP		FIGURE NUMBER
PROJECT NUMBER:	SCALE:	DRAWN BY:	REVIEWED BY:	DATE:
314281.003	1:18,000	KP	BG	JANUARY 2023
				1



LEGEND

- SITE BOUNDARY
- SITE BUILDING
- RAILWAY LINE
- MTR MULTI-TENANT RESIDENTIAL
- COM COMMERCIAL
- RES RESIDENTIAL
- ASSUMED EXTENT OF NEW PARKING GARAGE
- BOREHOLE
- BOREHOLE/MONITORING WELL
- LINE OF CROSS-SECTION

LEGEND IS COLOUR DEPENDENT.
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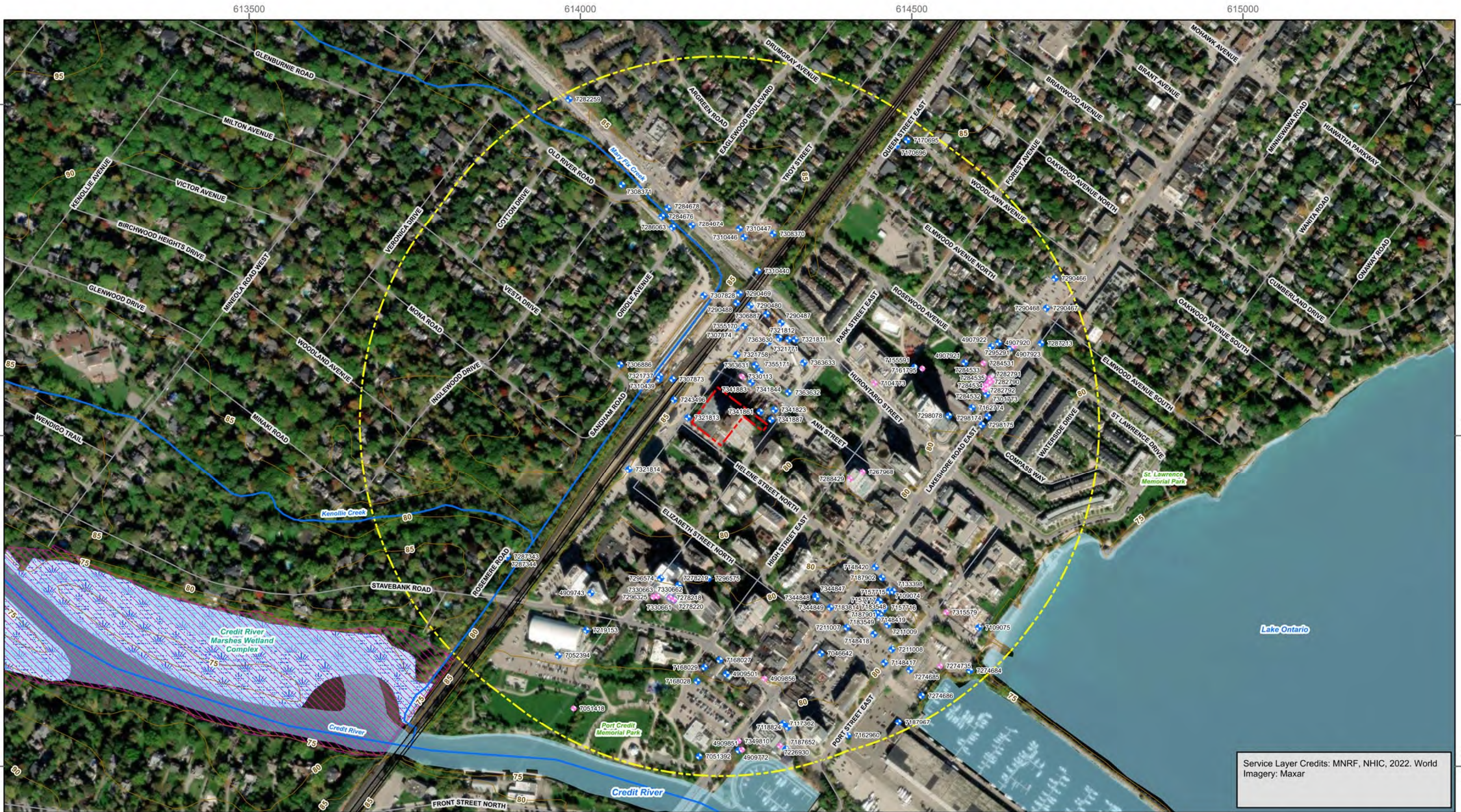
PROJECT NAME:
HYDROGEOLOGICAL
ASSESSMENT

CLIENT NAME:
MPCT DIF 70 PARK
STREET EAST LP

PROJECT LOCATION:
23, 25, 27, 29 AND 31 HELENE STREET NORTH
53 QUEEN STREET EAST AND PART OF 70
PARK STREET EAST, MISSISSAUGA, ONTARIO

FIGURE NAME:
BOREHOLE AND MONITORING
WELL LOCATION PLAN

PROJECT NUMBER: 314281.003	SCALE: AS SHOWN
DRAWN BY: KP	REVIEWED BY: BG
DATE: JANUARY 2023	FIGURE NUMBER: 2



Service Layer Credits: MNR, NHIC, 2022. World Imagery: Maxar

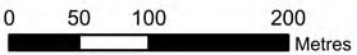


PROJECT NAME: Hydrogeological Assessment
CLIENT NAME: MPCT DF 70 Park Street East LP
PROJECT LOCATION: 23, 25, 27, 29 and 31 Helene Street North. 53 Queen Street East and Part of 70 Park Street East, Mississauga, Ontario
FIGURE NAME: Ontario Water Well Records (500 m Radius)

PROJECT NO. 314281.003
DATE: January 2023
SCALE: 1:5,400
FIGURE NO. 3

LEGEND
[Red dashed line] Site Boundary
[Yellow dashed line] 500 m Radius
[Blue line] Waterbody
[Blue hatched area] Wetland (Evaluated)
[Pink hatched area] ANSI, Regional (Credit River Coastal Marsh)
[Black line] Railway Line
[Brown line] Topography Contours (5 m)
[Blue line] Watercourse
[Grey line] Roadway
Ontario Water Well Records
[Blue dot] Monitoring/Observation Well, Test Hole
[Pink dot] Abandoned Well or Well with no details

NOTES
1. All features and measurements are approximate and subject to field verification. This map is for planning purposes only.
2. Use dimensions as shown, do not scale drawing.
3. This map is not to be used for legal purposes.



Coordinate System: NAD 1983 CSRS UTM Zone 17N
Projection: Transverse Mercator
Datum: North American 1983 CSRS

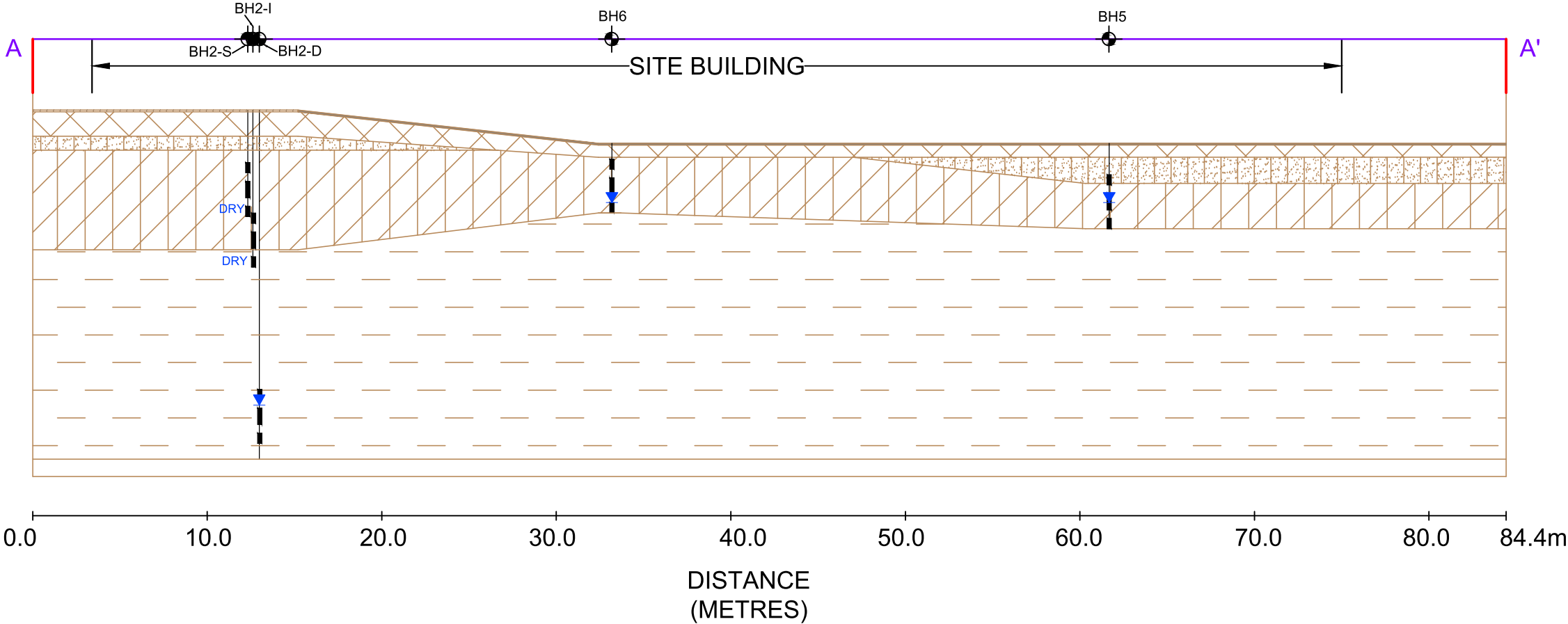
DRAWN BY: MH REVIEWED BY: BG REVISION: 2

GROUND
ELEVATION
(masl)

84.0
83.0
82.0
81.0
80.0
79.0
78.0
77.0
76.0
75.0
74.0
73.0
72.0
71.0
70.0
69.0
68.0
67.0
66.0
65.0
64.0
63.0
62.0

NORTH

SOUTH



LEGEND

- SITE BOUNDARY
- LINE OF CROSS-SECTION
- BOREHOLE
- BOREHOLE/MONITORING WELL
- WELL CASING/
BENTONITE
- MEASURED GROUNDWATER
ELEVATION (DEC. 19, 2022)
- WELL SCREEN
- TOPSOIL
- CONCRETE
- FILL
- SAND AND SILT/SANDY SILT
- CLAYEY SILT TILL
- SHALE

LEGEND IS COLOUR DEPENDENT.
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INTERPRETATION.



PROJECT NAME:
HYDROGEOLOGICAL
ASSESSMENT

CLIENT NAME:
MPCT DIF 70 PARK
STREET EAST LP

PROJECT LOCATION:
23, 25, 27, 29 AND 31 HELENE STREET NORTH
53 QUEEN STREET EAST AND PART OF 70
PARK STREET EAST, MISSISSAUGA, ONTARIO

FIGURE NAME:
CROSS-SECTION A-A'

PROJECT NUMBER:
314281.003

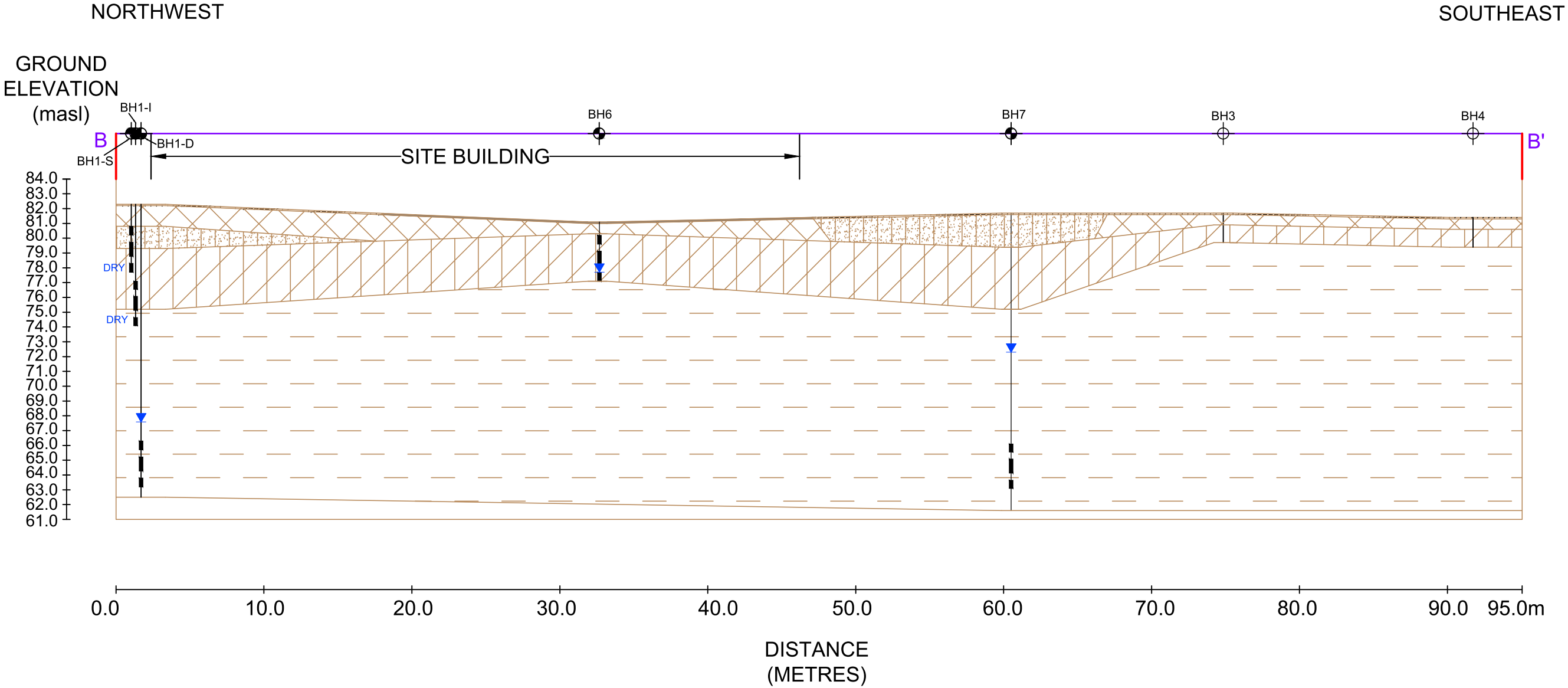
SCALE:
AS SHOWN

DRAWN BY:
KP

REVIEWED BY:
BG

DATE:
JANUARY 2023

FIGURE NUMBER:
4A



- LEGEND
- SITE BOUNDARY
 - LINE OF CROSS-SECTION
 - BOREHOLE
 - BOREHOLE/MONITORING WELL
 - WELL CASING/ BENTONITE
 - MEASURED GROUNDWATER ELEVATION (DEC. 19, 2022)
 - WELL SCREEN
 - TOPSOIL
 - CONCRETE
 - FILL
 - SAND AND SILT/SANDY SILT
 - CLAYEY SILT TILL
 - SHALE

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NON-COLOUR COPIES MAY ALTER
INTERPRETATION.



PROJECT NAME:
HYDROGEOLOGICAL
ASSESSMENT

CLIENT NAME:
MPCT DIF 70 PARK
STREET EAST LP

PROJECT LOCATION:
23, 25, 27, 29 AND 31 HELENE STREET NORTH
53 QUEEN STREET EAST AND PART OF 70
PARK STREET EAST, MISSISSAUGA, ONTARIO

FIGURE NAME:
CROSS-SECTION B-B'

PROJECT NUMBER:
314281.003

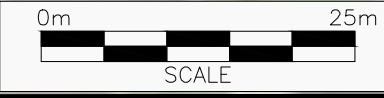
SCALE:
AS SHOWN

DRAWN BY:
KP

REVIEWED BY:
BG

DATE:
JANUARY 2023

FIGURE NUMBER:
4B



LEGEND

- SITE BOUNDARY
- SITE BUILDING
- RAILWAY LINE
- MTR MULTI-TENANT RESIDENTIAL
- COM COMMERCIAL
- RES RESIDENTIAL
- ASSUMED EXTENT OF NEW PARKING GARAGE
- BOREHOLE
- BOREHOLE/MONITORING WELL
- GROUNDWATER ELEVATION (masl)
- GROUNDWATER CONTOUR ELEVATION (masl)
- GROUNDWATER FLOW DIRECTION
- MASL METRES ABOVE SEA LEVEL

LEGEND IS COLOUR DEPENDENT.
NON-COLOUR COPIES MAY ALTER
INTERPRETATION.

PROJECT NAME:
HYDROGEOLOGICAL
ASSESSMENT

CLIENT NAME:
MPCT DIF 70 PARK
STREET EAST LP

PROJECT LOCATION:
23, 25, 27, 29 AND 31 HELENE STREET NORTH
53 QUEEN STREET EAST AND PART OF 70
PARK STREET EAST, MISSISSAUGA, ONTARIO

FIGURE NAME:
GROUNDWATER ELEVATIONS
AND INFERRED FLOW
DIRECTION (DEC. 19, 2022)

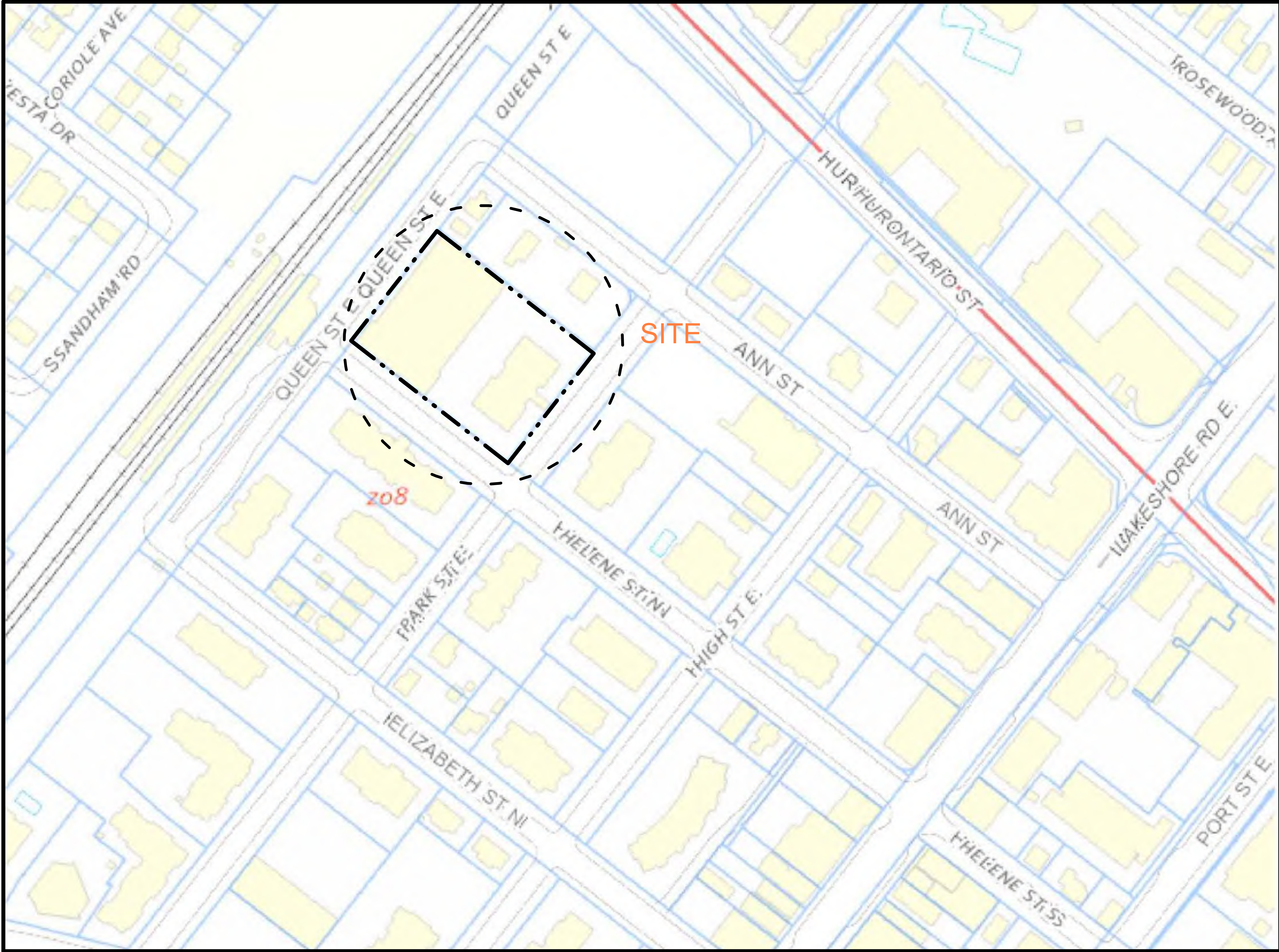
PROJECT NUMBER: 314281.003	SCALE: AS SHOWN
DRAWN BY: KP	REVIEWED BY: BG
DATE: JANUARY 2023	FIGURE NUMBER: 5

APPENDIX I
Development Site Plans

70 Park street, Mississauga, ON, CA (0174-2017)

LEVEL	TOTAL GCA		DEDUCTION	RESIDENTIAL GFA		RESIDENTIAL NSA		AMENITY				DAYCARE GFA				RETAIL GFA		UNIT COUNT
	GCA (m²)	GCA (SF)		GFA(m²)	GFA (SF)	NSA(m²)	NSA (SF)	Indoor Area(m²)	Indoor Area(SF)	Outdoor Area(m²)	Outdoor Area (SF)	Indoor GFA(m²)	Indoor GFA (SF)	Outdoor GFA(m²)	Outdoor GFA (SF)	GFA(m²)	GFA (SF)	
MPH	382	4,112		0	0	0	0											0
LEVEL 38	780	8,392	75	705	7,585	598	6,437											12
LEVEL 37	780	8,392	75	705	7,585	598	6,437											12
LEVEL 36	780	8,392	75	705	7,585	598	6,437											12
LEVEL 35	780	8,392	75	705	7,585	598	6,437											12
LEVEL 34	780	8,392	75	705	7,585	598	6,437											12
LEVEL 33	780	8,392	75	705	7,585	598	6,437											12
LEVEL 32	780	8,392	75	705	7,585	598	6,437											12
LEVEL 31	780	8,392	75	705	7,585	598	6,437											12
LEVEL 30	780	8,392	75	705	7,585	598	6,437											12
LEVEL 29	780	8,392	75	705	7,585	598	6,437											12
LEVEL 28	780	8,392	75	705	7,585	598	6,437											12
LEVEL 27	780	8,392	75	705	7,585	598	6,437											12
LEVEL 26	780	8,392	75	705	7,585	598	6,437											12
LEVEL 25	780	8,392	75	705	7,585	598	6,437											12
LEVEL 24	780	8,392	75	705	7,585	598	6,437											12
LEVEL 23	780	8,392	75	705	7,585	598	6,437											12
LEVEL 22	780	8,392	75	705	7,585	598	6,437											12
LEVEL 21	780	8,392	75	705	7,585	598	6,437											12
LEVEL 20	780	8,392	75	705	7,585	598	6,437											12
LEVEL 19	780	8,392	75	705	7,585	598	6,437											12
LEVEL 18	780	8,392	75	705	7,585	598	6,437											12
LEVEL 17	780	8,392	75	705	7,585	598	6,437											12
LEVEL 16	780	8,392	75	705	7,585	598	6,437											12
LEVEL 15	780	8,392	75	705	7,585	598	6,437											12
LEVEL 14	780	8,392	75	705	7,585	598	6,437											12
LEVEL 13	780	8,392	75	705	7,585	598	6,437											12
LEVEL 12	780	8,392	75	705	7,585	598	6,437											12
LEVEL 11	780	8,392	75	705	7,585	598	6,437											12
LEVEL 10	780	8,392	75	705	7,585	598	6,437											12
LEVEL 09	645	6,943	0	36	386	0	0	532	5,730	1,410	15,177							0
LEVEL 08	1,948	20,969	97	1,851	19,924	1,533	16,501											26
LEVEL 07	1,948	20,969	97	1,851	19,924	1,533	16,501											26
LEVEL 06	1,948	20,969	97	1,851	19,924	1,533	16,501											26
LEVEL 05	1,948	20,969	97	1,851	19,924	1,533	16,501											26
LEVEL 04	1,948	20,969	97	1,851	19,924	1,533	16,501											26
LEVEL 03	1,948	20,969	97	1,851	19,924	1,533	16,501											26
LEVEL 02	1,948	20,969	97	1,851	19,924	1,533	16,501											26
MEZZ	1,468	15,802	1,295	173	1,859	0	0	879	9,456									0
GF	2,160	23,250	864	432	4,654	0	0					401	4,313	198	2,127	463	4,988	0
P1	3,570	38,427		72	774													75
P2	3,503	37,706		72	774													85
P3	3,503	37,706		72	774													86
P4	3,503	37,706		72	774													86
P5	3,503	37,706		72	774													86
P6	3,503	37,706		72	774													86
P7	3,503	37,706		72	774													86
P8	1,907	20,527		72	774													88
Total Area:	67,395	725,441	5,011	34,610	372,541	28,073	302,178	1,411	15,186	1,410	15,177	401	4,313			463	4,988	530
Total Parking Spaces	592 Parking Spaces with 4 drop off at GF																	
Existing Premises Stats	210 Units (210*.80 Spaces per unit) = 168 Parking Spaces Required																	

Parking Spaces



PROJECT STATISTICS

Municipal Address	
70 Park street, Mississauga, ON	
Area Summary (m²)	
GCA (Including Below Grade)	67,395
GCA (Excluding Below Grade)	40,900
Landscape Area (Grade)	1,755 28%
GFA (Mississauga Bylaw 0174-2017) (m²)	
Proposed 38 storied Tower	1,411
Residential GFA	34,610
Office GFA	401
Retail GFA	463
Total GFA	35,474
Existing retained Tower GFA	23,907
Total GFA (proposed + existing Retained)	59,281

FSI	SITE AREA	FSI
Site Area (excluding Existing tower)	4,527	7.8
Site Area (including Existing retained tower)	6,276	9.4

Unit Mix	Provided	Percentage	Percentage
Studio	86	18%	60%
One Bedroom	230	45%	
Two Bedroom	114	22%	22%
Two Bedroom + Den	100	19%	19%
Total	530	100	

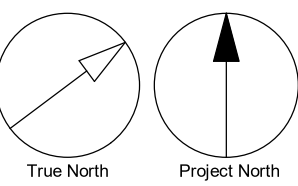
Amenity Area (m²)	PROPOSED TOWER	EXISTING TOWER	TOTAL
	Provided	Required (Zon/unit)	Provided
Indoor Amenity (2 m² per unit)	532		Proposed + Existing
Level 09	679		Provided
Mozzanine	1,411	1,060	1,599.8
Outdoor Amenity (2 m² per unit)	Provided	Required	
Level 09	1,410		
Total	1,410	1,060	1,480.0
Total Indoor +Outdoor Amenity	2,821	2,120	3,079.8

BICYCLE PARKING	Provided	Required	Rate
Long-Term	320	318	
Mezz	320	318	0.6 bike/unit
Total	320	318	
Short-Term	Provided	Required	
Mezz	30	27	
Total	30	27	0.05 bike/unit

Parking Provided	Regular	Visitor/Non residential	Resident
Ground Floor (Pick-up / Drop-off (Short-term))	4	4	0
P1 (Visitor)	70	41	40
P2 (41 Visitor & 40 Residential)	82		82
P3 (Residential)	82		82
P4 (Residential)	82		82
P5 (Residential)	82		82
P6 (Residential)	82		82
P7 (Residential)	82		82
P8 (Residential) partial	45		45
provided per unit	0.60	0.15	0.65
Total Provided	610	111	495

BUILDING HEIGHT (m)	Proposed
Number of Storeys	38
Building Height	126.30
Established Grade	82.15
Building Height measured from Established Grade:	208.5

IBI GROUP ARCHITECTS



CLIENT
MPCT DIF 70 Park Street East LP

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30 Adelaide Street East, Toronto, ON

ISSUES	DESCRIPTION	DATE
No. 1	ISSUED FOR REZONING	2023-01-04

CONSULTANTS

SEAL



PROJECT
70 PARK STREET EAST

PROJECT NO:
Project Number
DRAWN BY:
JK
PROJECT MGR:
JK

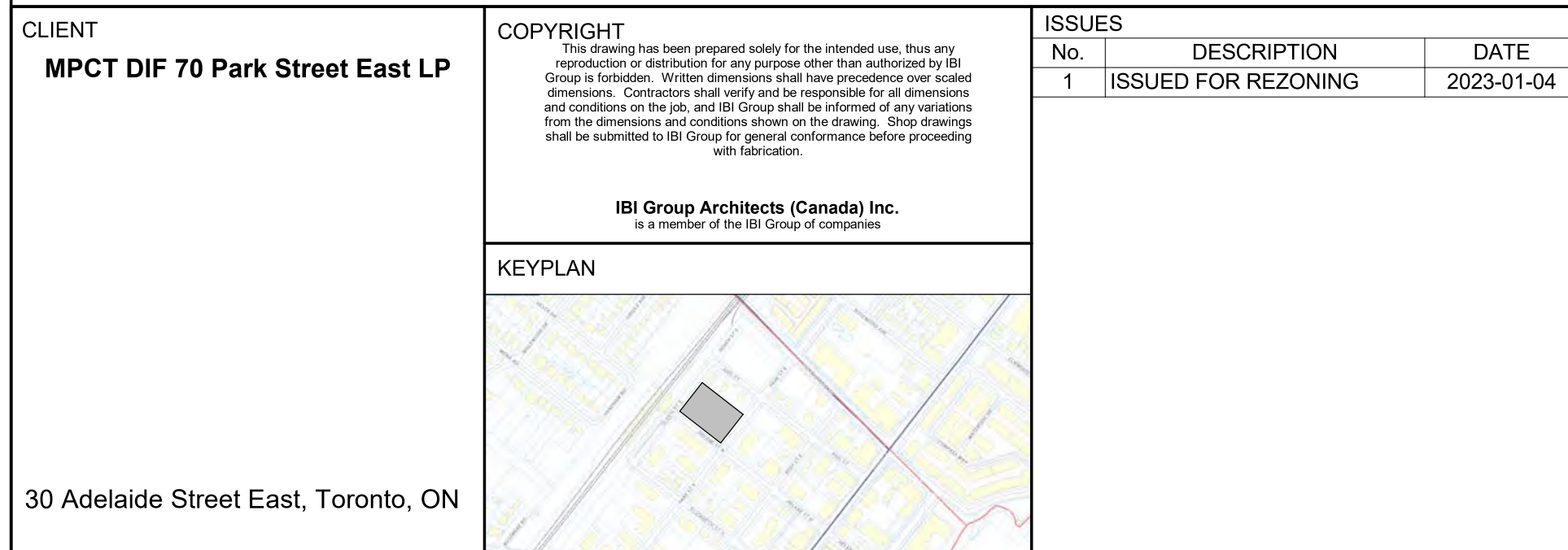
SCALE:
CHECKED BY:
MV
APPROVED BY:
MS

PRIME CONSULTANT
ARCADIS IBI GROUP
55 St. Clair Avenue West, 7th Floor,
Toronto, ON M4V 2Y7, Canada
tel 416 596 1820 fax 416 596 0644
ibigroup.com

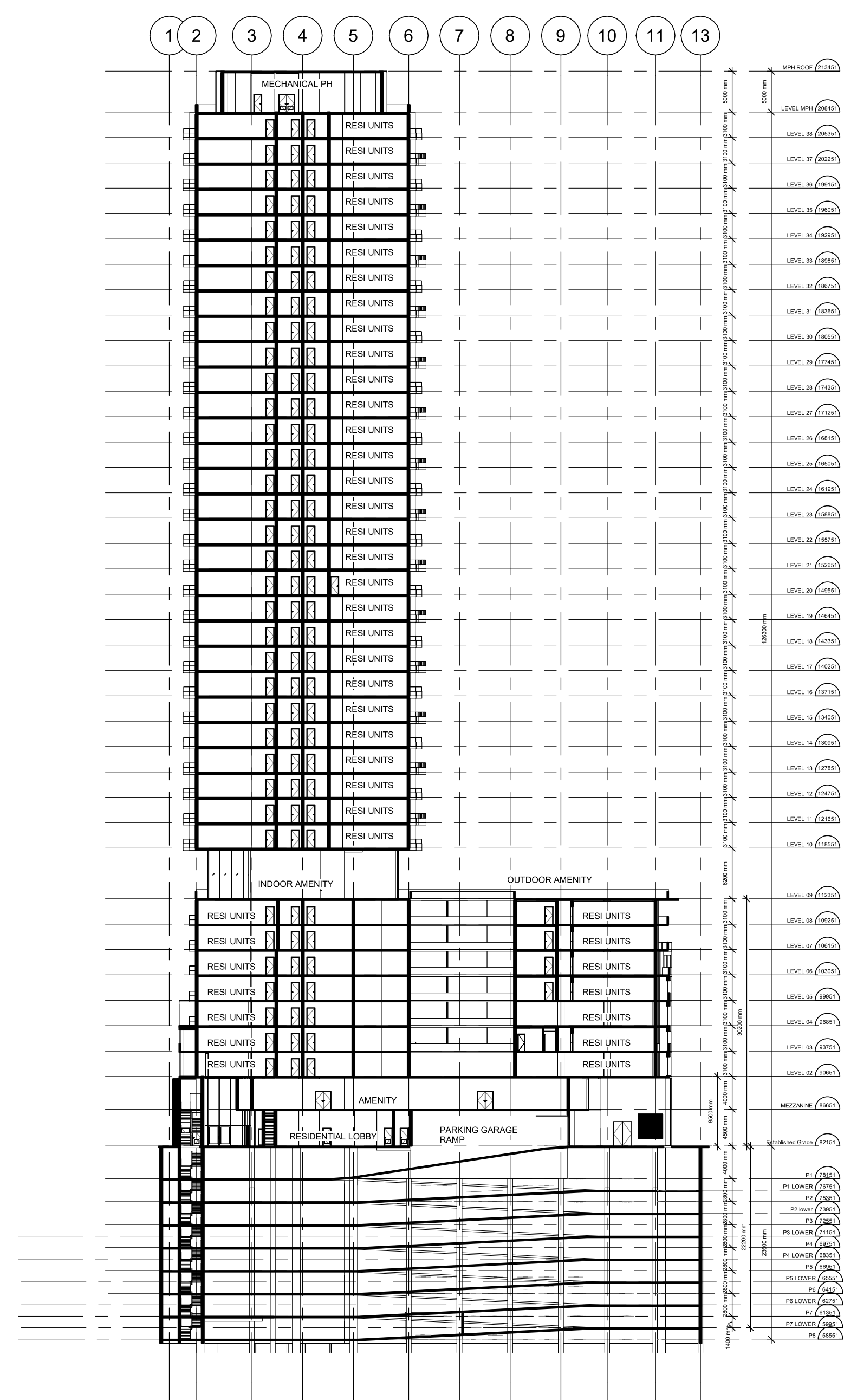
SHEET TITLE
CONTEXT PLAN

SHEET NUMBER
A001
ISSUE
1

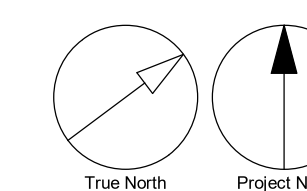
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1 of 1



SCALE CHECK		C:\Users\jorisan.kharoum\Documents\Res\2022\2022-12-06-14-1178-JRI-MP-BK-SU-Central-Gradient	jorisan.kharoum@ECBAV.nl
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1 EAST WEST SECTION
A014 Scale: 1 : 500



CLIENT MPCT DIF 70 Park Street East LP

APPENDIX II
Borehole Logs



Log of Borehole: BH1(MW)

Project #: 314281.002

Logged By: SL

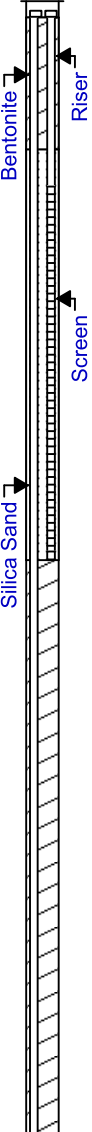
Project: Geotechnical Investigation Proposed Development

Client: MPCT DIF 70 Park Street East LP

Location: Queen Street East and Helene Street North, Mississauga

Drill Date: October 11, 2022

Project Manager: MYB

SUBSURFACE PROFILE					SAMPLE												
Depth (m)	Symbol	Description	Elevation (m)	Monitoring Well Details	Sample Type	Sampler #	Recovery (%)	SPT N-Value	Standard Penetration N-Value □ 20 40 60 □			Shear Strength Δ kPa Δ 100 200		Water Content (%)	Sample ID	Soil Vapour Concentration (ppm)	Laboratory Analysis
0		Ground Surface	82.30														
		Topsoil Approximately 130 mm	0.00		SS	1	65	8					5.8	BH1 SS1	0/1		
1		Fill Brown sandy silt, trace clay, trace gravel, trace rootlets, loose, moist	80.78		SS	2	85	8					18.4	BH1 SS2	0/3		
2		Sand Brown sand and silt, compact to dense, moist	1.52		SS	3	90	29					15.7	BH1 SS3	0/7		
3			79.25		SS	4	90	43					13.2	BH1 SS4	0/9		
4		Silt Till Grey clayey silt till, trace to some sand, trace gravel, trace stone fragments, very stiff to hard, APL	3.05		SS	5	45	17					10.0	BH1 SS5	0/0		
5						SS	6	90	28				9.6	BH1 SS6	0/125		
6																	
7			75.16		SS	7	100	>50				10.3	BH1 SS7	0/225			
8			74.25		HQ	R1	100										
9			8.05		HQ	R2	100										

Contractor: TEC Geological Drilling Inc.

Grade Elevation: 82.3 masl

Drilling Method: Split Spoon / Solid Stem Auger, HQ-Rock Coring

Top of Casing Elevation: 82.3 masl

Well Casing Size: 51 mm

Sheet: 1 of 3

Log of Borehole: BH1(MW)

Project #: 314281.002

Logged By: SL

Project: Geotechnical Investigation Proposed Development

Client: MPCT DIF 70 Park Street East LP

Location: Queen Street East and Helene Street North, Mississauga

Drill Date: October 11, 2022

Project Manager: MYB

[illegible]

Contractor: TEC Geological Drilling Inc.

Grade Elevation: 82.3 masl

Drilling Method: Split Spoon / Solid Stem Auger, HQ-Rock Coring

Top of Casing Elevation: 82.3 masl

Well Casing Size: 51 mm

Sheet: 2 of 3



Log of Borehole: BH1(MW)

Project #: 314281.002

Logged By: SL

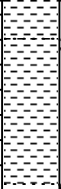

Project: Geotechnical Investigation Proposed Development

Client: MPCT DIF 70 Park Street East LP

Location: Queen Street East and Helene Street North, Mississauga

Drill Date: October 11, 2022

Project Manager: MYB

SUBSURFACE PROFILE					SAMPLE												
Depth (m)	Symbol	Description	Elevation (m)	Monitoring Well Details	Sample Type	Sampler #	Recovery (%)	SPT N-Value	Standard Penetration N-Value			Shear Strength		Water Content (%)	Sample ID	Soil Vapour Concentration (ppm)	Laboratory Analysis
									□ 20	40	60 □	△ kPa	△ 100 200				
19		Total Core Recovery: 100% Solid Core Recovery: 82% Rock Quality Designation: 80%	63.71 18.59	 Screen													
		~1% Limestone			HQ	R9	96										
20		Total Core Recovery: 96% Solid Core Recovery: 100% Rock Quality Designation: 96%	62.55 19.75														
		~1% Limestone															
		End of Borehole															
21		Borehole terminated at approximately 19.8 mbgs. Borehole contained drill water upon completion of drilling. Unstabilized groundwater level and cave were not measured due to the presence of drill fluid.															
22																	
23																	
24																	
25																	
26																	
27																	

Contractor: TEC Geological Drilling Inc.

Grade Elevation: 82.3 masl

Drilling Method: Split Spoon / Solid Stem Auger, HQ-Rock Coring

Top of Casing Elevation: 82.3 masl

Well Casing Size: 51 mm

Sheet: 3 of 3



Log of Borehole: BH1-I(MW)

Project #: 314281.002

Logged By: JA

Project: Geotechnical Investigation Proposed Development

Client: MPCT DIF 70 Park Street East LP

Location: Queen Street East and Helene Street North, Mississauga

Drill Date: December 15, 2022

Project Manager: MYB

SUBSURFACE PROFILE					SAMPLE												
Depth (m)	Symbol	Description	Elevation (m)	Monitoring Well Details	Sample Type	Sampler #	Recovery (%)	SPT N-Value	Standard Penetration N-Value			Shear Strength		Water Content (%)	Sample ID	Soil Vapour Concentration (ppm)	Laboratory Analysis
									<div>□</div> 20	<div>40</div>	<div>60</div> <div>□</div>	<div>Δ</div> kPa	<div>Δ</div>				
									100			200					
0		Ground Surface	82.30														
		See Borehole BH1(MW) for Soil Stratigraphy	0.00														
1																	
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9		End of Borehole	73.46														
			8.84														

Contractor: Strata Drilling Group

Grade Elevation: 82.3 masl

Drilling Method: Solid Stem Auger

Top of Casing Elevation: 82.3 masl

Well Casing Size: 51 mm

Sheet: 1 of 1



Log of Borehole: BH2(MW)

Project #: 314281.002

Logged By: SL

Project: Geotechnical Investigation Proposed Development

Client: MPCT DIF 70 Park Street East LP

Location: Queen Street East and Helene Street North, Mississauga

Drill Date: October 11, 2022

Project Manager: MYB

SUBSURFACE PROFILE					SAMPLE												
Depth (m)	Symbol	Description	Elevation (m)	Monitoring Well Details	Sample Type	Sampler #	Recovery (%)	SPT N-Value	Standard Penetration N-Value □ 20 40 60 □			Shear Strength Δ kPa Δ 100 200		Water Content (%)	Sample ID	Soil Vapour Concentration (ppm)	Laboratory Analysis
0		Ground Surface	83.00														
		Topsoil Approximately 130 mm	0.00		SS	1	75	14						6.6	BH2 SS1	0/0	
1		Fill Brown sandy silt, trace clay, trace gravel, trace organics, compact, moist	81.47		SS	2	65	12						14.7	BH2 SS2	0/20	
2		Sand Brown sand and silt, trace clay, trace gravel, loose, moist	80.71		SS	3	90	7						21.3	BH2 SS3	0/25	
3		Silt Till Brown clayey silt till, some sand to sandy, trace gravel, stiff to hard, APL	80.71		SS	4	100	12						24.8	BH2 SS4	0/23	
4		grey below	79.19		SS	5	70	13						12.1	BH2 SS5	0/85	
5			3.81		SS	6	80	35						9.7	BH2 SS6	0/77	
6					SS	7	100	33						8.6	BH2 SS7	0/115	
7					SS	8	60	32						9.9	BH2 SS8	0/169	
8			75.00		SS	9	100	>50						12.2	BH2 SS9	0/115	
9			8.00		HQ	R1	100										

Contractor: TEC Geological Drilling Inc.

Grade Elevation: 83.0 masl

Drilling Method: Split Spoon / Solid Stem Auger, HQ-Rock Coring

Top of Casing Elevation: 83.0 masl

Well Casing Size: 51 mm

Sheet: 1 of 3



Log of Borehole: BH2(MW)

Project #: 314281.002

Logged By: SL

Project: Geotechnical Investigation Proposed Development

Client: MPCT DIF 70 Park Street East LP

Location: Queen Street East and Helene Street North, Mississauga

Drill Date: October 11, 2022

Project Manager: MYB

SUBSURFACE PROFILE					SAMPLE											
Depth (m)	Symbol	Description	Elevation (m)	Monitoring Well Details	Sample Type	Sampler #	Recovery (%)	SPT N-Value	Standard Penetration N-Value			Shear Strength	Water Content (%)	Sample ID	Soil Vapour Concentration (ppm)	Laboratory Analysis
									20	40	60	100	200			
10		Georgian Bay Formation Grey shale, very thinly bedded to thinly bedded, weak, joints are horizontal, closed, planar; interbedded with limestone, light grey, strong	73.49		HQ	R2	100									
		9.51														
11		Total Core Recovery: 100% Solid Core Recovery: 58% Rock Quality Designation: 61%	71.96	Bentonite	HQ	R3	100									
		11.03														
12		~1% Limestone Total Core Recovery: 100% Solid Core Recovery: 88% Rock Quality Designation: 78%														
		70.47														
13		~3% Limestone Total Core Recovery: 100% Solid Core Recovery: 71% Rock Quality Designation: 36%	12.53	Riser	HQ	R4	100									
14		~2% Limestone Total Core Recovery: 100% Solid Core Recovery: 100% Rock Quality Designation: 97%	68.95													
		14.05														
15		~1% Limestone Total Core Recovery: 100% Solid Core Recovery: 82% Rock Quality Designation: 82%			HQ	R5	100									
		67.42														
16		~3% Limestone Total Core Recovery: 98% Solid Core Recovery: 100% Rock Quality Designation: 92%	15.58	Silica Sand	HQ	R6	98									
17		~4% Limestone Total Core Recovery: 100% Solid Core Recovery: 86% Rock Quality Designation: 88%	65.93													
		17.07														
18		~3% Limestone			HQ	R7	100									

Contractor: TEC Geological Drilling Inc.

Grade Elevation: 83.0 masl

Drilling Method: Split Spoon / Solid Stem Auger, HQ-Rock Coring

Top of Casing Elevation: 83.0 masl

Well Casing Size: 51 mm

Sheet: 2 of 3



Log of Borehole: BH2(MW)

Project #: 314281.002

Logged By: SL

Project: Geotechnical Investigation Proposed Development

Client: MPCT DIF 70 Park Street East LP

Location: Queen Street East and Helene Street North, Mississauga

Drill Date: October 11, 2022

Project Manager: MYB

SUBSURFACE PROFILE					SAMPLE												
Depth (m)	Symbol	Description	Elevation (m)	Monitoring Well Details	Sample Type	Sampler #	Recovery (%)	SPT N-Value	Standard Penetration N-Value			Shear Strength		Water Content (%)	Sample ID	Soil Vapour Concentration (ppm)	Laboratory Analysis
									20	40	60	kPa					
19		Total Core Recovery: 100% Solid Core Recovery: 77% Rock Quality Designation: 91%	64.43	<div>Screen</div>													
		~1% Limestone	18.56		HQ	R8	100										
20	End of Borehole	62.97															
		20.03															
21																	
22		Borehole terminated at approximately 20.0 mbgs. Borehole contained drill water upon completion of drilling. Unstabilized groundwater level and cave were not measured due to the presence of drill fluid.															
23		Water Level Readings Date Water Depth (mgs) D / S Oct 18, 2022 17.5 / Dry Oct 24, 2022 17.0 / Dry Oct 28, 2022 17.0 / Dry															
24																	
25																	
26																	
27																	

Contractor: TEC Geological Drilling Inc.

Grade Elevation: 83.0 masl

Drilling Method: Split Spoon / Solid Stem Auger, HQ-Rock Coring

Top of Casing Elevation: 83.0 masl

Well Casing Size: 51 mm

Sheet: 3 of 3



Log of Borehole: BH2-I(MW)

Project #: 314281.002

Logged By: JA

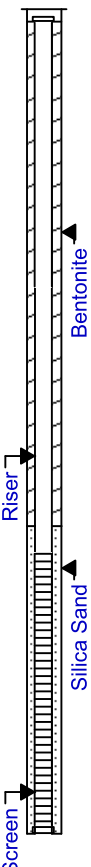
Project: Geotechnical Investigation Proposed Development

Client: MPCT DIF 70 Park Street East LP

Location: Queen Street East and Helene Street North, Mississauga

Drill Date: December 15, 2022

Project Manager: MYB

SUBSURFACE PROFILE					SAMPLE												
Depth (m)	Symbol	Description	Elevation (m)	Monitoring Well Details	Sample Type	Sampler #	Recovery (%)	SPT N-Value	Standard Penetration N-Value			Shear Strength		Water Content (%)	Sample ID	Soil Vapour Concentration (ppm)	Laboratory Analysis
									<div>□ 20 40 60 □</div>			<div>△ kPa △</div>	100200				
0		Ground Surface	83.00														
		See Borehole BH2(MW) for Soil Stratigraphy	0.00														
1																	
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10		End of Borehole	73.24														
			9.75														
11																	
12																	

Contractor: Strata Drilling Group

Grade Elevation: 83.0 masl

Drilling Method: Solid Stem Auger

Top of Casing Elevation: 83.0 masl

Well Casing Size: 51 mm

Sheet: 1 of 1



Log of Borehole: BH3

Project #: 314281.002

Logged By: SL

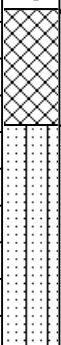
Project: Geotechnical Investigation Proposed Development

Client: MPCT DIF 70 Park Street East LP

Location: Queen Street East and Helene Street North, Mississauga

Drill Date: October 13, 2022

Project Manager: MYB

SUBSURFACE PROFILE					SAMPLE												
Depth (m)	Symbol	Description	Elevation (m)	Monitoring Well Details	Sample Type	Sampler #	Recovery (%)	SPT N-Value	Standard Penetration N-Value □ 20 40 60 □			Shear Strength △ kPa △ 100 200		Water Content (%)	Sample ID	Soil Vapour Concentration (ppm)	Laboratory Analysis
0		Ground Surface	81.69	↑ No Monitoring Well Installed ↓													
		Topsoil Approximately 130 mm	0.00		GS	1							N/A				
		Fill Brown silty sand, trace clay, trace gravel, trace rootlets, loose, moist	80.92		SS	2	75	9				5.8					
1		Silt Till Brown clayey silt till, trace to some sand, trace gravel, stiff to very stiff, APL	0.76		SS	3	100	13				13.2					
2		End of Borehole	79.71		SS	4	55	22			10.2						
		Borehole terminated at approximately 2.0 mbgs. Borehole was open and dry upon completion of drilling.	1.98														
3																	
4																	
5																	
6																	

Contractor: TEC Geological Drilling Inc.

Grade Elevation: 81.7 masl

Drilling Method: Split Spoon / Solid Stem Auger

Top of Casing Elevation: N/A

Well Casing Size: N/A

Sheet: 1 of 1



Log of Borehole: BH4

Project #: 314281.002

Logged By: SL

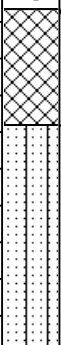
Project: Geotechnical Investigation Proposed Development

Client: MPCT DIF 70 Park Street East LP

Location: Queen Street East and Helene Street North, Mississauga

Drill Date: October 13, 2022

Project Manager: MYB

SUBSURFACE PROFILE					SAMPLE												
Depth (m)	Symbol	Description	Elevation (m)	Monitoring Well Details	Sample Type	Sampler #	Recovery (%)	SPT N-Value	Standard Penetration N-Value			Shear Strength		Water Content (%)	Sample ID	Soil Vapour Concentration (ppm)	Laboratory Analysis
									□	20	40	60	△ kPa	△			
													100	200			
0		Ground Surface	81.38	↑ No Monitoring Well Installed ↓													
		Topsoil Approximately 130 mm	0.00		GS	1								N/A			
		Fill Brown silty sand, trace clay, trace gravel, trace rootlets, loose, moist	80.62		SS	2	100	8						8.7			
			0.76														
1		Silt Till Brown clayey silt till, trace to some sand, trace gravel, firm to very stiff, APL			SS	3	100	8						15.5			
2		End of Borehole	79.40		SS	4	100	24					14.4				
		Borehole terminated at approximately 2.0 mbgs. Borehole was open and dry upon completion of drilling.	1.98														
3																	
4																	
5																	
6																	

Contractor: TEC Geological Drilling Inc.

Grade Elevation: 81.4 masl

Drilling Method: Split Spoon / Solid Stem Auger

Top of Casing Elevation: N/A

Well Casing Size: N/A

Sheet: 1 of 1



Log of Borehole: BH5(MW)

Project #: 314281.002

Logged By: SL

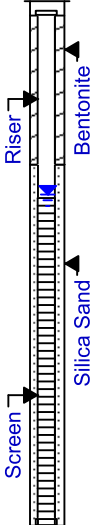




Project: Geotechnical Investigation Proposed Development

Client: MPCT DIF 70 Park Street East LP

Location: Queen Street East and Helene Street North, Mississauga

Drill Date: October 13, 2022

Project Manager: MYB

SUBSURFACE PROFILE					SAMPLE												
Depth (m)	Symbol	Description	Elevation (m)	Monitoring Well Details	Sample Type	Sampler #	Recovery (%)	SPT N-Value	Standard Penetration N-Value □ 20 40 60 □			Shear Strength △ kPa △ 100 200		Water Content (%)	Sample ID	Soil Vapour Concentration (ppm)	Laboratory Analysis
0		Ground Surface	81.08														
		Concrete Slab Approximately 130 mm	0.00		SS	1	85	9					15.9	BH5 SS1	0/2		
1		Fill Brown sandy silt, trace clay, trace gravel, trace styrofoam, loose, moist	80.31 0.76		SS	2	80	12					20.8	BH5 SS2	0/2		
2		Sand Brown sandy silt, trace clay, trace gravel, compact to very dense, moist	78.79 2.29		SS	3	100	65					13.5	BH5 SS3	0/0		
3		Silt Till Brown clayey silt till, some sand to sandy, trace gravel, hard, APL grey below	78.03 3.05		SS	4	75	46					10.6	BH5 SS4	0/1		
					SS	5	80	60					7.4	BH5 SS5	0/0		
4					SS	6	60	57					9.5	BH5 SS6	0/4		
5		End of Borehole	76.20 4.88		SS	7	100	>50					11.6	BH5 SS7	0/11		
6																	
7		Borehole terminated at approximately 4.9 mbfs. Borehole was open and dry upon completion of drilling.															
8		Water Level Readings Date Water Depth (mbfs)															
9		Oct 18, 2022 1.9															
		Oct 24, 2022 1.9															
		Oct 28, 2022 1.8															
10																	

Contractor: Strata Drilling Group

Grade Elevation: 81.1 masl

Drilling Method: Split Spoon, Direct Push / Solid Stem Auger

Top of Casing Elevation: 81.1 masl

Well Casing Size: 32 mm

Sheet: 1 of 1



Log of Borehole: BH6(MW)

Project #: 314281.002

Logged By: SL

Project: Geotechnical Investigation Proposed Development

Client: MPCT DIF 70 Park Street East LP

Location: Queen Street East and Helene Street North, Mississauga

Drill Date: October 14, 2022

Project Manager: MYB

SUBSURFACE PROFILE					SAMPLE												
Depth (m)	Symbol	Description	Elevation (m)	Monitoring Well Details	Sample Type	Sampler #	Recovery (%)	SPT N-Value	Standard Penetration N-Value			Shear Strength		Water Content (%)	Sample ID	Soil Vapour Concentration (ppm)	Laboratory Analysis
									20	40	60	Δ kPa	Δ				
												100	200				
0		Ground Surface	81.11														
		Concrete Slab Approximately 100 mm	0.00		SS	1	50							19.0			
		Fill Brown sandy silt, trace clay, trace gravel, trace styrofoam, moist	80.35		SS	2	100							22.5			
1		Silt Till Grey clayey silt till, some sand to sandy, trace gravel, APL	0.76		SS	3	100							19.4			
2					SS	4	100							10.5			
3					AS	5	N/A							27.7			
					AS	6	N/A							27.9			
4		End of Borehole	77.14		AS	7	N/A							27.7			
3.96																	
5																	
6		Borehole terminated at approximately 4.0 mbfs.															
7		Water Level Readings Date Water Depth (mbfs) Oct 18, 2022 Dry Oct 24, 2022 Dry Oct 28, 2022 Dry															
8																	
9																	
10																	

Contractor: Strata Drilling Group

Grade Elevation: 81.1 masl

Drilling Method: Direct Push / Solid Stem Auger

Top of Casing Elevation: 81.1 masl

Well Casing Size: 51 mm

Sheet: 1 of 1



Log of Borehole: BH7(MW)

Project #: 314281.002

Logged By: SL

Project: Geotechnical Investigation Proposed Development

Client: MPCT DIF 70 Park Street East LP

Location: Queen Street East and Helene Street North, Mississauga

Drill Date: October 17, 2022

Project Manager: MYB

SUBSURFACE PROFILE					SAMPLE													
Depth (m)	Symbol	Description	Elevation (m)	Monitoring Well Details	Sample Type	Sampler #	Recovery (%)	SPT N-Value	Standard Penetration N-Value □ 20 40 60 □			Shear Strength Δ kPa Δ 100 200		Water Content (%)	Sample ID	Soil Vapour Concentration (ppm)	Laboratory Analysis	
0		Ground Surface	81.70															
		Topsoil Approximately 130 mm	0.00		GS	1								N/A				
1		Sand Brown sand and silt, trace gravel, loose to compact, moist			SS	2	80	7					13.1					
					SS	3	100	14					25.9					
2																		
		Silt Till Grey clayey silt till, trace to some sand, trace gravel, trace stone fragments, very stiff to hard, APL			79.42	SS	4	80	18					9.7				
3					2.29													
						SS	5	100	44					8.0				
4																		
5							SS	6	90	36					9.7			
6																		
	Georgian Bay Formation Grey shale, very thinly bedded to thinly bedded, weak, joints are horizontal, closed, planar; interbedded with limestone, light, grey, strong		75.18	SS	7	100	>50					8.2						
7			6.52	HQ	R1	100												
8			73.78															
	Total Core Recovery: 100% Solid Core Recovery: 45% Rock Quality Designation: 58% ~1% Limestone		7.92	HQ	R2	90												
9																		

Contractor: TEC Geological Drilling Inc.

Grade Elevation: 81.7 masl

Drilling Method: Split Spoon / Solid Stem Auger, HQ-Rock Coring

Top of Casing Elevation: 81.7 masl

Well Casing Size: 51 mm

Sheet: 1 of 3



Log of Borehole: BH7(MW)

Project #: 314281.002

Logged By: SL

Project: Geotechnical Investigation Proposed Development

Client: MPCT DIF 70 Park Street East LP

Location: Queen Street East and Helene Street North, Mississauga

Drill Date: October 17, 2022

Project Manager: MYB

SUBSURFACE PROFILE					SAMPLE												
Depth (m)	Symbol	Description	Elevation (m)	Monitoring Well Details	Sample Type	Sampler #	Recovery (%)	SPT N-Value	Standard Penetration N-Value			Shear Strength		Water Content (%)	Sample ID	Soil Vapour Concentration (ppm)	Laboratory Analysis
									20	40	60	kPa					
									100	200							
10		Total Core Recovery: 90% Solid Core Recovery: 45% Rock Quality Designation: 35% ~3% Limestone	72.25 9.45		HQ	R3	100										
11		Total Core Recovery: 100% Solid Core Recovery: 30% Rock Quality Designation: 20% ~5% Limestone	70.73 10.97		HQ	R4	98										
12		Total Core Recovery: 98% Solid Core Recovery: 70% Rock Quality Designation: 84% ~2% Limestone	69.27 12.44		HQ	R5	100										
13		Total Core Recovery: 100% Solid Core Recovery: 97% Rock Quality Designation: 97% ~3% Limestone	67.68 14.02		HQ	R6	100										
14		Total Core Recovery: 100% Solid Core Recovery: 100% Rock Quality Designation: 100% ~3% Limestone	66.22 15.48		HQ	R7	100										
15		Total Core Recovery: 100% Solid Core Recovery: 73% Rock Quality Designation: 75% ~4% Limestone	64.69 17.01		HQ	R8	100										
16		Total Core Recovery: 100% Solid Core Recovery: 92% Rock Quality Designation: 76% ~2% Limestone															
17																	
18																	

Contractor: TEC Geological Drilling Inc.

Grade Elevation: 81.7 masl

Drilling Method: Split Spoon / Solid Stem Auger, HQ-Rock Coring

Top of Casing Elevation: 81.7 masl

Well Casing Size: 51 mm

Sheet: 2 of 3



Log of Borehole: BH7(MW)

Project #: 314281.002

Logged By: SL



Project: Geotechnical Investigation Proposed Development

Client: MPCT DIF 70 Park Street East LP

Location: Queen Street East and Helene Street North, Mississauga

Drill Date: October 17, 2022

Project Manager: MYB

SUBSURFACE PROFILE					SAMPLE												
Depth (m)	Symbol	Description	Elevation (m)	Monitoring Well Details	Sample Type	Sampler #	Recovery (%)	SPT N-Value	Standard Penetration N-Value			Shear Strength		Water Content (%)	Sample ID	Soil Vapour Concentration (ppm)	Laboratory Analysis
									□ 20 □ 40 □ 60 □	△ kPa △ 100 200							
19		Total Core Recovery: 100% Solid Core Recovery: 95% Rock Quality Designation: 90% ~3% Limestone	63.20 18.50	<div>Screen</div> 													
20		End of Borehole	61.65 20.06		HQ	R9	100										
21																	
22																	
23																	
24																	
25		Borehole terminated at approximately 20.1 mbgs. Borehole contained drill water upon completion of drilling. Unstabilized groundwater level and cave were not measured due to the presence of drill fluid.															
26		Water Level Readings Date Water Depth (mbgs) Oct 18, 2022 6.7 Oct 24, 2022 11.2 Oct 28, 2022 9.6															
27																	

Contractor: TEC Geological Drilling Inc.

Grade Elevation: 81.7 masl

Drilling Method: Split Spoon / Solid Stem Auger, HQ-Rock Coring

Top of Casing Elevation: 81.7 masl

Well Casing Size: 51 mm

Sheet: 3 of 3

APPENDIX III
Hydraulic Conductivity Test Curves

Slug Test: BH5**Project No.: 314281****Project Location: Helene Street & Queen Street, Mississauga, Ontario**

Data Source: based on Manual Measurements as per Rising Head Method dated October 18, 2022

Conducted by: Michaela Smith

Interpreted by: Bujing Guan

H = Initial Water Head prior to test

Processing Date: 10/25/2022

Ho = Water Head at time = 0

Screen Depth (mbfs): 1.8 - 4.9

h = Water Head/Level at time t

Screened Soil: Sandy Silt; Clayey Silt Till

Well Diameter: 2"

L = 305 cm

Static Water Level (mbgs): 1.89

R (6' auger) = 7.62 cm

Initial Reading (mTOP) 1.84

r = 2.54 cm

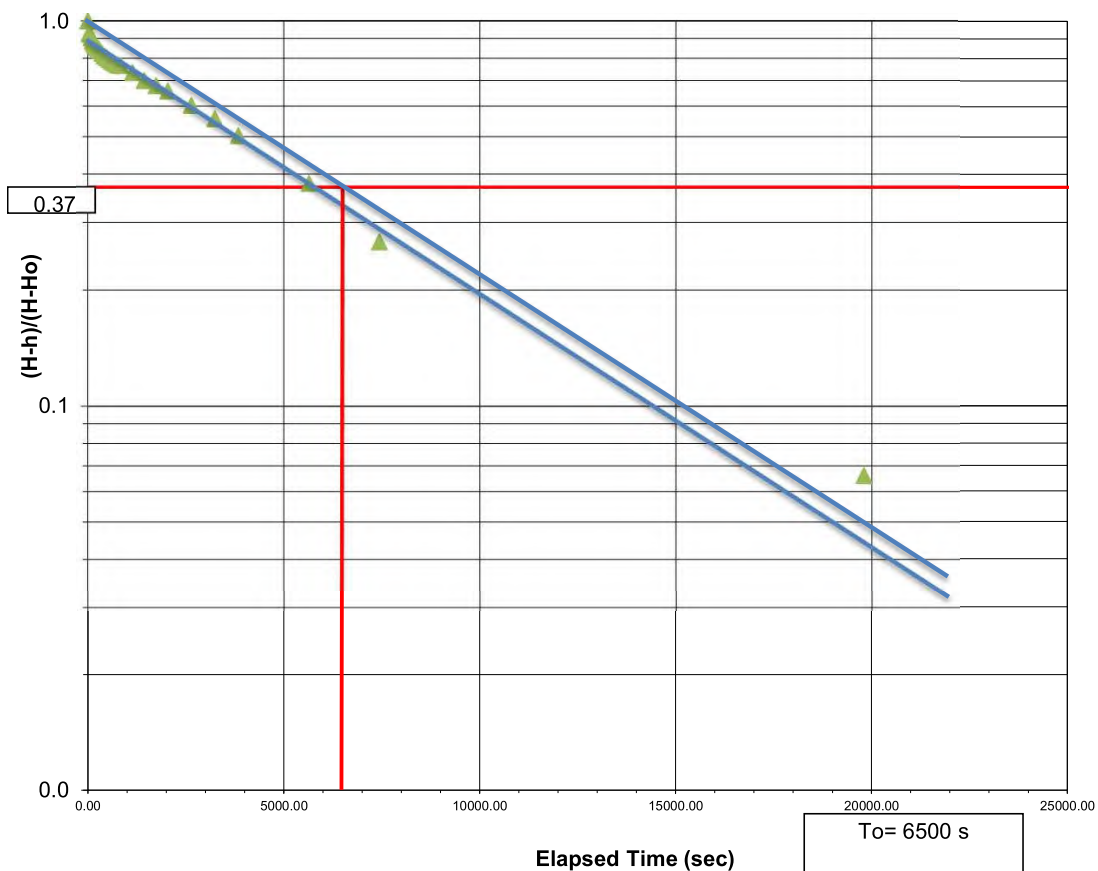
Test Start Reading (H0) (mTOP) 4.431

To = 6500 sec

Test End Reading (mTOP) 2.011

 $K = r^2 \ln(L/R) / (2LTo) = 6.0E-06$ cm/s

Slug Test Result (Hvorslev Method) - BH5
Based on Manual Measurements/Rising Head Method



Slug Test: BH7**Project No.: 314281****Project Location: Helene Street & Queen Street, Mississauga, Ontario**

Data Source: based on Manual Measurements as per Rising Head Method dated October 18, 2022

Conducted by: Michaela Smith

Interpreted by: Bujing Guan

H = Initial Water Head prior to test

Processing Date: 10/25/2022

Ho = Water Head at time = 0

Screen Depth (mbgs): 15.6 - 18.6

h = Water Head/Level at time t

Screened Soil: shale

Well Diameter: 2"

L = 305 cm

Static Water Level (mbgs): 6.68

R (HQ coring) = 4.45 cm

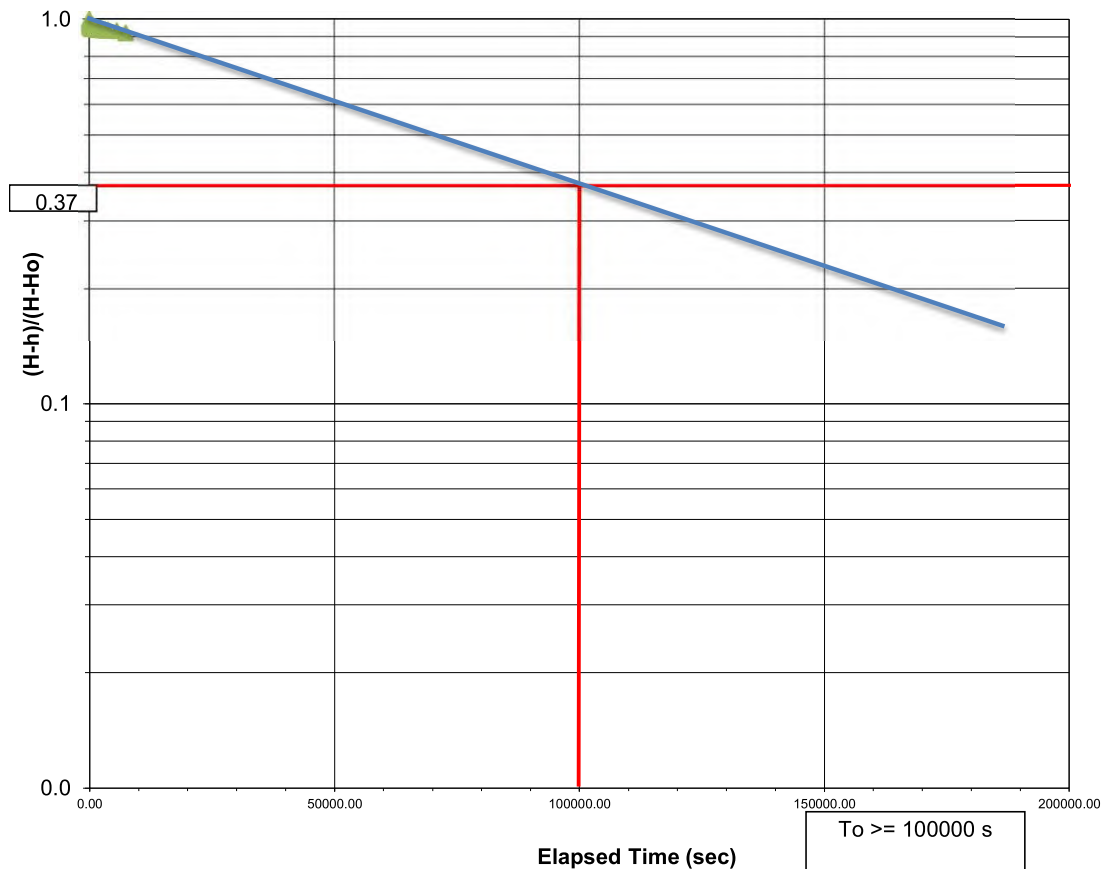
Initial Reading (mTOP) 6.57

r = 2.54 cm

Test Start Reading (H0) (mTOP) 10.231

To >= 100000 sec

Test End Reading (mTOP) 9.941

 $K = r^2 \ln(L/R) / (2LTo) = /< \boxed{4.5E-07} \text{ cm/s}$ **Slug Test Result (Hvorslev Method) - BH7**
Based on Manual Measurements/Rising Head Method

APPENDIX IV
Laboratory Certificates of Analysis



Your Project #: 314281.003
Site#: Peel Sanitary and Storm
Your C.O.C. #: 902491-03-01

Attention: Craig Kelly

Pinchin Ltd
2360 Meadowpine Blvd
Unit # 2
Mississauga, ON
CANADA L5N 6S2

Report Date: 2022/11/08

Report #: R7379549

Version: 2 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2V5420

Received: 2022/10/28, 11:35

Sample Matrix: Water
Samples Received: 1

Analyses	Quantity	Date	Date	Laboratory Method	Analytical Method
		Extracted	Analyzed		
ABN Compounds in Water by GC/MS	1	2022/11/07	2022/11/08	CAM SOP-00301	EPA 8270 m
Carbonaceous BOD	1	2022/10/29	2022/11/03	CAM SOP-00427	SM 23 5210B m
Total Cyanide	1	2022/10/31	2022/10/31	CAM SOP-00457	OMOE E3015 5 m
Fluoride	1	2022/11/01	2022/11/03	CAM SOP-00449	SM 23 4500-F C m
Mercury in Water by CVAA	1	2022/10/31	2022/10/31	CAM SOP-00453	EPA 7470A m
Total Metals Analysis by ICPMS	1	N/A	2022/11/02	CAM SOP-00447	EPA 6020B m
E.coli, (CFU/100mL)	1	N/A	2022/10/28	CAM SOP-00552	
Total Nonylphenol in Liquids by HPLC	1	2022/11/01	2022/11/02	CAM SOP-00313	In-house Method
Nonylphenol Ethoxylates in Liquids: HPLC	1	2022/11/01	2022/11/02	CAM SOP-00313	Bureau Veritas
Animal and Vegetable Oil and Grease	1	N/A	2022/11/07	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	1	2022/11/05	2022/11/05	CAM SOP-00326	EPA1664B m,SM5520B m
Polychlorinated Biphenyl in Water	1	2022/11/01	2022/11/02	CAM SOP-00309	EPA 8082A m
pH	1	2022/11/01	2022/11/03	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2022/11/04	CAM SOP-00444	OMOE E3179 m
Sulphate by Automated Colourimetry	1	N/A	2022/11/02	CAM SOP-00464	EPA 375.4 m
Total Kjeldahl Nitrogen in Water	1	2022/11/02	2022/11/04	CAM SOP-00938	OMOE E3516 m
Mineral/Synthetic O & G (TPH Heavy Oil) (1)	1	2022/11/05	2022/11/07	CAM SOP-00326	EPA1664B m,SM5520F m
Total Suspended Solids	1	2022/11/01	2022/11/02	CAM SOP-00428	SM 23 2540D m
Volatile Organic Compounds in Water	1	N/A	2022/11/05	CAM SOP-00228	EPA 8260C m

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, MELCC, 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 #: 314281.003
Site#: Peel Sanitary and Storm
Your C.O.C. #: 902491-03-01

Attention: Craig Kelly

Pinchin Ltd
2360 Meadowpine Blvd
Unit # 2
Mississauga, ON
CANADA L5N 6S2

Report Date: 2022/11/08

Report #: R7379549

Version: 2 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2V5420

Received: 2022/10/28, 11:35

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.

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) Note: TPH (Heavy Oil) is equivalent to Mineral / Synthetic Oil & Grease

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:

Antonella Brasil, Senior Project Manager

Email: Antonella.Brasil@bureauveritas.com

Phone# (905)817-5817

=====

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
VERITASBureau Veritas Job #: C2V5420
Report Date: 2022/11/08Pinchin Ltd
Client Project #: 314281.003
Sampler Initials: MS**PEEL SANITARY & STORM SEWER (53-2010)**

Bureau Veritas ID				UDI292			
Sampling Date				2022/10/28 10:41			
COC Number				902491-03-01			
	UNITS	Criteria	Criteria-2	BH 7	RDL	MDL	QC Batch
Calculated Parameters							
Total Animal/Vegetable Oil and Grease	mg/L	-	150	<0.50	0.50	0.10	8311791
Inorganics							
Total Carbonaceous BOD	mg/L	15	300	<2	2	0.2	8314279
Fluoride (F-)	mg/L	-	10	0.67	0.10	0.020	8319221
Total Kjeldahl Nitrogen (TKN)	mg/L	1	100	6.8	0.50	0.30	8321552
pH	pH	6.0:9.0	5.5:10.0	7.57			8319232
Phenols-4AAP	mg/L	0.008	1	<0.0010	0.0010	0.00030	8326699
Total Suspended Solids	mg/L	15	350	16	10	2.0	8317389
Dissolved Sulphate (SO4)	mg/L	-	1500	130	1.0	0.10	8320412
Total Cyanide (CN)	mg/L	0.02	2	<0.0050	0.0050	0.00010	8315904
Petroleum Hydrocarbons							
Total Oil & Grease	mg/L	-	-	<0.50	0.50	0.10	8328568
TPH - Heavy Oils	mg/L	-	15	<0.50	0.50	0.10	8328569
Miscellaneous Parameters							
Nonylphenol Ethoxylate (Total)	mg/L	-	0.2	<0.025	0.025	0.005	8318084
Nonylphenol (Total)	mg/L	-	0.02	<0.001	0.001	0.0002	8318078
Metals							
Mercury (Hg)	mg/L	0.0004	0.01	<0.00010	0.00010	0.000050	8315995
Total Aluminum (Al)	ug/L	-	50000	300	4.9	2.0	8320766
Total Antimony (Sb)	ug/L	-	5000	2.2	0.50	0.30	8320766
Total Arsenic (As)	ug/L	20	1000	3.8	1.0	0.50	8320766
Total Cadmium (Cd)	ug/L	8	700	0.17	0.090	0.090	8320766
Total Chromium (Cr)	ug/L	80	5000	<5.0	5.0	5.0	8320766
Total Cobalt (Co)	ug/L	-	5000	2.7	0.50	0.10	8320766
Total Copper (Cu)	ug/L	50	3000	4.8	0.90	0.50	8320766
Total Lead (Pb)	ug/L	120	3000	1.2	0.50	0.10	8320766
Total Manganese (Mn)	ug/L	50	5000	160	2.0	0.50	8320766
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: The Regional Municipality of Peel Storm Sewer Discharge.							
By-Law Number 53-2010.							
Criteria-2: The Regional Municipality of Peel Sanitary Sewer Discharge.							
By-Law Number 53-2010.							



PEEL SANITARY & STORM SEWER (53-2010)

Bureau Veritas ID				UDI292			
Sampling Date				2022/10/28 10:41			
COC Number				902491-03-01			
	UNITS	Criteria	Criteria-2	BH 7	RDL	MDL	QC Batch
Total Molybdenum (Mo)	ug/L	-	5000	24	0.50	0.20	8320766
Total Nickel (Ni)	ug/L	80	3000	3.8	1.0	0.50	8320766
Total Phosphorus (P)	ug/L	-	10000	110	100	30	8320766
Total Selenium (Se)	ug/L	20	1000	<2.0	2.0	0.50	8320766
Total Silver (Ag)	ug/L	120	5000	<0.090	0.090	0.070	8320766
Total Tin (Sn)	ug/L	-	5000	2.3	1.0	0.50	8320766
Total Titanium (Ti)	ug/L	-	5000	7.7	5.0	4.0	8320766
Total Zinc (Zn)	ug/L	40	3000	6.6	5.0	3.0	8320766
Semivolatile Organics							
Bis(2-ethylhexyl)phthalate	ug/L	8.8	12	<2.0	2.0	0.10	8331422
Di-N-butyl phthalate	ug/L	15	80	<2.0	2.0	0.10	8331422
Volatile Organics							
Benzene	ug/L	2	10	<0.40	0.40	0.040	8316663
Chloroform	ug/L	2	40	1.2	0.40	0.10	8316663
1,2-Dichlorobenzene	ug/L	5.6	50	<0.80	0.80	0.10	8316663
1,4-Dichlorobenzene	ug/L	6.8	80	<0.80	0.80	0.10	8316663
cis-1,2-Dichloroethylene	ug/L	5.6	4000	<1.0	1.0	0.10	8316663
trans-1,3-Dichloropropene	ug/L	5.6	140	<0.80	0.80	0.10	8316663
Ethylbenzene	ug/L	2	160	<0.40	0.40	0.020	8316663
Methylene Chloride(Dichloromethane)	ug/L	5.2	2000	<4.0	4.0	0.20	8316663
Methyl Ethyl Ketone (2-Butanone)	ug/L	-	8000	<20	20	1.0	8316663
Styrene	ug/L	-	200	<0.80	0.80	0.10	8316663
1,1,1,2-Tetrachloroethane	ug/L	17	1400	<0.80	0.80	0.10	8316663
Tetrachloroethylene	ug/L	4.4	1000	<0.40	0.40	0.10	8316663
Toluene	ug/L	2	270	<0.40	0.40	0.020	8316663
Trichloroethylene	ug/L	8	400	<0.40	0.40	0.10	8316663
p+m-Xylene	ug/L	-	-	<0.40	0.40	0.020	8316663
o-Xylene	ug/L	-	-	<0.40	0.40	0.020	8316663
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: The Regional Municipality of Peel Storm Sewer Discharge.							
By-Law Number 53-2010.							
Criteria-2: The Regional Municipality of Peel Sanitary Sewer Discharge.							
By-Law Number 53-2010.							

BUREAU
VERITAS

Bureau Veritas Job #: C2V5420

Report Date: 2022/11/08

Pinchin Ltd

Client Project #: 314281.003

Sampler Initials: MS

PEEL SANITARY & STORM SEWER (53-2010)

Bureau Veritas ID				UDI292			
Sampling Date				2022/10/28 10:41			
COC Number				902491-03-01			
	UNITS	Criteria	Criteria-2	BH 7	RDL	MDL	QC Batch
Total Xylenes	ug/L	4.4	1400	<0.40	0.40	0.020	8316663
PCBs							
Total PCB	ug/L	0.4	1	<0.05	0.05	0.01	8318695
Microbiological							
Escherichia coli	CFU/100mL	200	-	<10	10	N/A	8313131
Surrogate Recovery (%)							
2,4,6-Tribromophenol	%	-	-	18			8331422
2-Fluorobiphenyl	%	-	-	50			8331422
2-Fluorophenol	%	-	-	4.9 (1)			8331422
D14-Terphenyl	%	-	-	86			8331422
D5-Nitrobenzene	%	-	-	58			8331422
D5-Phenol	%	-	-	12			8331422
Decachlorobiphenyl	%	-	-	72			8318695
4-Bromofluorobenzene	%	-	-	89			8316663
D4-1,2-Dichloroethane	%	-	-	121			8316663
D8-Toluene	%	-	-	92			8316663
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: The Regional Municipality of Peel Storm Sewer Discharge.							
By-Law Number 53-2010.							
Criteria-2: The Regional Municipality of Peel Sanitary Sewer Discharge.							
By-Law Number 53-2010.							
N/A = Not Applicable							
(1) Surrogate recovery was below our acceptance limit. Since the surrogate standard is not relevant to the analysis of the required phthalate esters, it has been evaluated as having no significant effect on the data reported.							



BUREAU
VERITAS

Bureau Veritas Job #: C2V5420
Report Date: 2022/11/08

Pinchin Ltd
Client Project #: 314281.003
Sampler Initials: MS

PEEL SANITARY & STORM SEWER (53-2010)

Bureau Veritas ID				UDI292			
Sampling Date				2022/10/28 10:41			
COC Number				902491-03-01			
	UNITS	Criteria	Criteria-2	BH 7 Lab-Dup	RDL	MDL	QC Batch
Inorganics							
Total Suspended Solids	mg/L	15	350	18	10	2.0	8317389
Miscellaneous Parameters							
Nonylphenol Ethoxylate (Total)	mg/L	-	0.2	<0.025	0.025	0.005	8318084
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: The Regional Municipality of Peel Storm Sewer Discharge.							
By-Law Number 53-2010.							
Criteria-2: The Regional Municipality of Peel Sanitary Sewer Discharge.							
By-Law Number 53-2010.							



Bureau Veritas Job #: C2V5420
Report Date: 2022/11/08

Pinchin Ltd
Client Project #: 314281.003
Sampler Initials: MS

TEST SUMMARY

Bureau Veritas ID: UDI292
Sample ID: BH 7
Matrix: Water

Collected: 2022/10/28
Shipped:
Received: 2022/10/28

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
ABN Compounds in Water by GC/MS	GC/MS	8331422	2022/11/07	2022/11/08	Anh Lieu
Carbonaceous BOD	DO	8314279	2022/10/29	2022/11/03	Gurjot Kaur
Total Cyanide	SKAL/CN	8315904	2022/10/31	2022/10/31	Prgya Panchal
Fluoride	ISE	8319221	2022/11/01	2022/11/03	Kien Tran
Mercury in Water by CVAA	CV/AA	8315995	2022/10/31	2022/10/31	Japneet Gill
Total Metals Analysis by ICPMS	ICP/MS	8320766	N/A	2022/11/02	Arefa Dabhad
E.coli, (CFU/100mL)	PL	8313131	N/A	2022/10/28	Soham Patel
Total Nonylphenol in Liquids by HPLC	LC/FLU	8318078	2022/11/01	2022/11/02	Furneesh Kumar
Nonylphenol Ethoxylates in Liquids: HPLC	LC/FLU	8318084	2022/11/01	2022/11/02	Furneesh Kumar
Animal and Vegetable Oil and Grease	BAL	8311791	N/A	2022/11/07	Automated Statchk
Total Oil and Grease	BAL	8328568	2022/11/05	2022/11/05	Navjot Kaur
Polychlorinated Biphenyl in Water	GC/ECD	8318695	2022/11/01	2022/11/02	Li Peng
pH	AT	8319232	2022/11/01	2022/11/03	Kien Tran
Phenols (4AAP)	TECH/PHEN	8326699	N/A	2022/11/04	Mandeep Kaur
Sulphate by Automated Colourimetry	KONE	8320412	N/A	2022/11/02	Samuel Law
Total Kjeldahl Nitrogen in Water	SKAL	8321552	2022/11/02	2022/11/04	Rajni Tyagi
Mineral/Synthetic O & G (TPH Heavy Oil)	BAL	8328569	2022/11/05	2022/11/07	Navjot Kaur
Total Suspended Solids	BAL	8317389	2022/11/01	2022/11/02	Masood Siddiqui
Volatile Organic Compounds in Water	GC/MS	8316663	N/A	2022/11/05	Mariana Cojocar

Bureau Veritas ID: UDI292 Dup
Sample ID: BH 7
Matrix: Water

Collected: 2022/10/28
Shipped:
Received: 2022/10/28

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Nonylphenol Ethoxylates in Liquids: HPLC	LC/FLU	8318084	2022/11/01	2022/11/02	Furneesh Kumar
Total Suspended Solids	BAL	8317389	2022/11/01	2022/11/02	Masood Siddiqui



BUREAU
VERITAS

Bureau Veritas Job #: C2V5420
Report Date: 2022/11/08

Pinchin Ltd
Client Project #: 314281.003
Sampler Initials: MS

GENERAL COMMENTS

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

Package 1	8.3°C
-----------	-------

Sample UDI292 [BH 7] : VOC Analysis: Due to the sample matrix, sample required dilution. Detection limits were adjusted accordingly.

Results relate only to the items tested.



Bureau Veritas Job #: C2V5420
Report Date: 2022/11/08

QUALITY ASSURANCE REPORT

Pinchin Ltd
Client Project #: 314281.003
Sampler Initials: MS

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
8316663	4-Bromofluorobenzene	2022/11/05	101	70 - 130	102	70 - 130	97	%				
8316663	D4-1,2-Dichloroethane	2022/11/05	103	70 - 130	100	70 - 130	111	%				
8316663	D8-Toluene	2022/11/05	108	70 - 130	107	70 - 130	90	%				
8318695	Decachlorobiphenyl	2022/11/02	72	60 - 130	81	60 - 130	72	%				
8331422	2,4,6-Tribromophenol	2022/11/08	87	10 - 130	82	10 - 130	54	%				
8331422	2-Fluorobiphenyl	2022/11/08	75	30 - 130	50	30 - 130	68	%				
8331422	2-Fluorophenol	2022/11/08	55	10 - 130	40	10 - 130	44	%				
8331422	D14-Terphenyl	2022/11/08	94	30 - 130	97	30 - 130	94	%				
8331422	D5-Nitrobenzene	2022/11/08	95	30 - 130	72	30 - 130	95	%				
8331422	D5-Phenol	2022/11/08	40	10 - 130	32	10 - 130	35	%				
8314279	Total Carbonaceous BOD	2022/11/03					<2	mg/L	3.8	30	90	85 - 115
8315904	Total Cyanide (CN)	2022/10/31	97	80 - 120	99	80 - 120	<0.0050	mg/L	NC	20		
8315995	Mercury (Hg)	2022/10/31	96	75 - 125	98	80 - 120	<0.00010	mg/L	NC	20		
8316663	1,1,2,2-Tetrachloroethane	2022/11/05	100	70 - 130	90	70 - 130	<0.40	ug/L	NC	30		
8316663	1,2-Dichlorobenzene	2022/11/05	99	70 - 130	93	70 - 130	<0.40	ug/L	NC	30		
8316663	1,4-Dichlorobenzene	2022/11/05	112	70 - 130	109	70 - 130	<0.40	ug/L	NC	30		
8316663	Benzene	2022/11/05	95	70 - 130	91	70 - 130	<0.20	ug/L	NC	30		
8316663	Chloroform	2022/11/05	99	70 - 130	95	70 - 130	<0.20	ug/L	NC	30		
8316663	cis-1,2-Dichloroethylene	2022/11/05	102	70 - 130	93	70 - 130	<0.50	ug/L	NC	30		
8316663	Ethylbenzene	2022/11/05	96	70 - 130	93	70 - 130	<0.20	ug/L	NC	30		
8316663	Methyl Ethyl Ketone (2-Butanone)	2022/11/05	110	60 - 140	103	60 - 140	<10	ug/L	NC	30		
8316663	Methylene Chloride(Dichloromethane)	2022/11/05	91	70 - 130	95	70 - 130	<2.0	ug/L	NC	30		
8316663	o-Xylene	2022/11/05	95	70 - 130	97	70 - 130	<0.20	ug/L	NC	30		
8316663	p+m-Xylene	2022/11/05	103	70 - 130	101	70 - 130	<0.20	ug/L	NC	30		
8316663	Styrene	2022/11/05	111	70 - 130	111	70 - 130	<0.40	ug/L	NC	30		
8316663	Tetrachloroethylene	2022/11/05	90	70 - 130	88	70 - 130	<0.20	ug/L	5.8	30		
8316663	Toluene	2022/11/05	101	70 - 130	97	70 - 130	<0.20	ug/L	NC	30		
8316663	Total Xylenes	2022/11/05					<0.20	ug/L	NC	30		
8316663	trans-1,3-Dichloropropene	2022/11/05	115	70 - 130	103	70 - 130	<0.40	ug/L	NC	30		
8316663	Trichloroethylene	2022/11/05	97	70 - 130	99	70 - 130	<0.20	ug/L	11	30		
8317389	Total Suspended Solids	2022/11/02					<10	mg/L	12	25	99	N/A



Bureau Veritas Job #: C2V5420
Report Date: 2022/11/08

QUALITY ASSURANCE REPORT(CONT'D)

Pinchin Ltd
Client Project #: 314281.003
Sampler Initials: MS

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
8318078	Nonylphenol (Total)	2022/11/02	97	50 - 130	79	50 - 130	<0.001	mg/L	NC	40		
8318084	Nonylphenol Ethoxylate (Total)	2022/11/02	112	50 - 130	98	50 - 130	<0.025	mg/L	NC	40		
8318695	Total PCB	2022/11/02	67	60 - 130	82	60 - 130	<0.05	ug/L	NC	40		
8319221	Fluoride (F-)	2022/11/03	99	80 - 120	102	80 - 120	<0.10	mg/L	5.7	20		
8319232	pH	2022/11/03			102	98 - 103			0.21	N/A		
8320412	Dissolved Sulphate (SO4)	2022/11/02	NC	75 - 125	105	80 - 120	<1.0	mg/L	14	20		
8320766	Total Aluminum (Al)	2022/11/02	95	80 - 120	98	80 - 120	<4.9	ug/L	13	20		
8320766	Total Antimony (Sb)	2022/11/02	103	80 - 120	103	80 - 120	<0.50	ug/L				
8320766	Total Arsenic (As)	2022/11/02	100	80 - 120	100	80 - 120	<1.0	ug/L				
8320766	Total Cadmium (Cd)	2022/11/02	99	80 - 120	100	80 - 120	<0.090	ug/L				
8320766	Total Chromium (Cr)	2022/11/02	95	80 - 120	96	80 - 120	<5.0	ug/L	NC	20		
8320766	Total Cobalt (Co)	2022/11/02	95	80 - 120	100	80 - 120	<0.50	ug/L				
8320766	Total Copper (Cu)	2022/11/02	94	80 - 120	98	80 - 120	<0.90	ug/L	3.1	20		
8320766	Total Lead (Pb)	2022/11/02	96	80 - 120	97	80 - 120	<0.50	ug/L				
8320766	Total Manganese (Mn)	2022/11/02	95	80 - 120	97	80 - 120	<2.0	ug/L				
8320766	Total Molybdenum (Mo)	2022/11/02	96	80 - 120	95	80 - 120	<0.50	ug/L				
8320766	Total Nickel (Ni)	2022/11/02	95	80 - 120	99	80 - 120	<1.0	ug/L				
8320766	Total Phosphorus (P)	2022/11/02	NC	80 - 120	116	80 - 120	<100	ug/L				
8320766	Total Selenium (Se)	2022/11/02	101	80 - 120	102	80 - 120	<2.0	ug/L				
8320766	Total Silver (Ag)	2022/11/02	96	80 - 120	95	80 - 120	<0.090	ug/L	18	20		
8320766	Total Tin (Sn)	2022/11/02	101	80 - 120	100	80 - 120	<1.0	ug/L				
8320766	Total Titanium (Ti)	2022/11/02	94	80 - 120	98	80 - 120	<5.0	ug/L				
8320766	Total Zinc (Zn)	2022/11/02	98	80 - 120	102	80 - 120	<5.0	ug/L	0.16	20		
8321552	Total Kjeldahl Nitrogen (TKN)	2022/11/03	93	80 - 120	97	80 - 120	<0.10	mg/L	14	20	96	80 - 120
8326699	Phenols-4AAP	2022/11/04	102	80 - 120	100	80 - 120	<0.0010	mg/L	11	20		
8328568	Total Oil & Grease	2022/11/05			99	85 - 115	<0.50	mg/L	0.76	25		
8328569	TPH - Heavy Oils	2022/11/07			97	85 - 115	<0.50	mg/L	1.0	25		
8331422	Bis(2-ethylhexyl)phthalate	2022/11/08	97	30 - 130	98	30 - 130	<2.0	ug/L				



Bureau Veritas Job #: C2V5420
Report Date: 2022/11/08

QUALITY ASSURANCE REPORT(CONT'D)

Pinchin Ltd
Client Project #: 314281.003
Sampler Initials: MS

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
8331422	Di-N-butyl phthalate	2022/11/08	102	30 - 130	107	30 - 130	<2.0	ug/L				
<p>N/A = Not Applicable</p> <p>Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.</p> <p>Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.</p> <p>QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.</p> <p>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.</p> <p>Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.</p> <p>Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.</p> <p>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)</p> <p>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 $\leq 2 \times \text{RDL}$).</p>												



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Bureau Veritas Job #: C2V5420
Report Date: 2022/11/08

Pinchin Ltd
Client Project #: 314281.003
Sampler Initials: MS

VALIDATION SIGNATURE PAGE

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

Anastassia Hamanov, Scientific Specialist

Ewa Pranjic, M.Sc., C.Chem, Scientific Specialist

Soham Patel, Senior Analyst

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.



Bureau Veritas
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CHAIN

28-Oct-22 11:35

Antonella Brasil



C2V5420

der #:



31

Project Manager:

Antonella Brasil

AN4 ENV-972

COC #:



C#902491-03-01

INVOICE TO:
Company Name: #3103 Pinchin Ltd
Attention: Accounts Payable
Address: 2360 Meadowpine Blvd Unit # 2
Mississauga ON L5N 6S2
Tel: (905) 363-0678 Fax: (905) 363-0681
Email: ap@pinchin.com

REPORT TO:
Company Name:
Attention: Craig Kelly / Beijing Guan
Address:
Tel: (905) 363-1352 Fax:
Email: cckelly@pinchin.com / bguan@pinchin.com

PROJECT INFORMATION:
Quotation #: C20345
P.O. #:
Project: 314281.003
Project Name: Peel Sanitary and Storm
Site #: MS
Sampled By:

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)	Other Regulations	Special Instructions
<input type="checkbox"/> Table 1 <input type="checkbox"/> Table 2 <input type="checkbox"/> Table 3 <input type="checkbox"/> Table	<input type="checkbox"/> CCME <input type="checkbox"/> Reg 558 <input type="checkbox"/> MISA <input type="checkbox"/> PWQO <input type="checkbox"/> Other	<input checked="" type="checkbox"/> Sanitary Sewer Bylaw <input checked="" type="checkbox"/> Storm Sewer Bylaw <input type="checkbox"/> Municipality <input type="checkbox"/> Reg 406 Table

Please show standards on certificate of analysis

Include Criteria on Certificate of Analysis (M)? Yes

Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Field Filtered (please circle): Metals / Hg / Cr VI	Peel Sanitary & Storm Sewer (53-2010)	ANALYSIS REQUESTED (PLEASE BE SPECIFIC)
1	BH7	22/10/28	10:41	GW	X		
2							
3							
4							
5							
6							
7							
8							
9							
10							

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 #)

of Bottles: 17
Comments:

*RELINQUISHED BY: (Signature/Print) Michael Smith / Michael Smith	Date: (YY/MM/DD) 22/10/28	Time 11:37	RECEIVED BY: (Signature/Print) 2-1-1 TRIAD	Date: (YY/MM/DD) 2022/10/28	Time 11:38	# jars used and not submitted	Laboratory Use Only			
						Time Sensitive	Temperature (°C) on Reel 8/8/9	Custody Seal Present Intact	Yes /	No

* 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/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/RESOURCES/CHAIN-OF-CUSTODY-FORMS.

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

White: Bureau Veritas Yellow: Client



BUREAU
VERITAS

Bureau Veritas Job #: C2V5420

Report Date: 2022/11/08

Pinchin Ltd

Client Project #: 314281.003

Sampler Initials: MS

Exceedance Summary Table – Peel Region Storm 2010

Result Exceedances

Sample ID	Bureau Veritas ID	Parameter	Criteria	Result	DL	UNITS
BH 7	UDI292-07	Total Kjeldahl Nitrogen (TKN)	1	6.8	0.50	mg/L
BH 7	UDI292-08	Total Manganese (Mn)	50	160	2.0	ug/L
BH 7	UDI292-05	Total Suspended Solids	15	16	10	mg/L
BH 7	UDI292-05-Lab Dup	Total Suspended Solids	15	18	10	mg/L

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 – Peel Region Sanitary 2010

Result Exceedances

Sample ID	Bureau Veritas ID	Parameter	Criteria	Result	DL	UNITS
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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.