NASIRUDDIN
ENGINEERING
LIMITED

Geotechnical Investigation
NEL Report No. NEL-19-AAI-001

Proposed Place of Worship
900 Eglinton Avenue East
Mississauga, Ontario

Prepared for:

Antrix Architects Inc.
1109 Britannia Road East
Mississauga, Ontario
L4W 3X1

By:

Nasiruddin Engineering Limited

December 2, 2019

NASIRUDDIN ENGINEERING LIMITED

EXECUTIVE SUMMARY

This document reports the findings of a Geotechnical Investigation conducted by Nasiruddin Engineering Limited (NEL) in support of a proposed Place of Worship development at 900 Eglinton Avenue East located in Mississauga, Ontario.

Thirteen boreholes were advanced through existing asphalt averaging approximately 250mm thick. Beneath the asphalt, there were layers of gravely silty sand with some clay and clayey sand with some silt and trace of gravel. Standard penetration tests carried out within the gravely silty sand deposits gave 'N' values ranging from 38 blows per 0.3m to about 100 blows per 0.3m, indicating a dense to very dense consistency. Standard penetration tests carried out within the clayey sandy silt deposits gave 'N' values ranging from average 19 blows per 0.3m to about 75 blows per 0.3m, indicating a compact to very dense consistency.

Moisture content of samples ranged from moist to very wet with the wet samples obtained primarily from below the encountered water table.

Underground water was encountered in nine boreholes ranging in depth from 0.50m to 3.66m from surface level. Four boreholes were terminated in dry condition (Borehole no. 7, 10, 12 and 13 at the parking lot area). Two representative piezometers (monitoring wells) were installed in Boreholes No. 4 and 11 to monitor underground water and measure stabilized water level. Water level measurements are summarized in the report.

Taking into account soil type, 'N' value and water table, the bearing capacity at anticipated/assumed founding levels is estimated to range from 100 kPa to 250 kPa. Further details are given in the report.

Four representative soil samples taken at different depths were selected and submitted for chemical analysis. There were a few parameters which exceeded guideline limits but in light of the forthcoming proposed property use, there were no significant environmental concerns in our opinion. Further details are discussed in the report. The Contractor awarded the project for construction may need to carry out further chemical testing to confirm that the material intended for transport and disposal satisfies the acceptability criteria of their specific receiving site.

Construction-related recommendations are discussed in the report including dewatering, footings, settlement, frost protection, excavation and backfilling, shoring/trenching and pavement design. Also, soil parameters relevant to the design and construction of these works are discussed.

NASIRUDDIN
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LIMITED

December 2, 2019

Antrix Architects Inc.
1109 Britannia Road East
Mississauga, Ontario
L4W 3X1

Attention: Nilesh Luhar - B.Arch. OAA

Re: Geotechnical Investigation
Report No.: NEL-19-AAI-001
Proposed Place of Worship at 900 Eglinton Avenue East, Mississauga ON

Dear Sir,

Please find enclosed herewith our Geotechnical Investigation report for the site location cited above. The borehole drilling at thirteen locations on site was carried out on October 24th and 25th of 2019 and the retrieved soil samples were brought to our laboratory in Mississauga for further analysis including tactile and visual examination and moisture content testing. Selected representative samples were also tested for grain size distribution analysis to confirm soil descriptions. Groundwater was encountered in nine of the thirteen boreholes with piezometers installed in two representative locations to measure/observe the stabilized water levels. Four soil samples taken to represent both shallow depth and deeper depth were selected and submitted for chemical analysis. There were a few parameters which exceeded guideline limits but in light of the forthcoming proposed property use, there were no significant environmental concerns (further details are in the report). The report presents relevant soil characteristics encountered, moisture content observations and concludes with construction recommendations. If you have questions, concerns or require further input to help facilitate design, please do not hesitate to contact the undersigned.

Sincerely,

Nasiruddin Engineering Limited

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TABLE OF CONTENTS

NASIRUDDIN ENGINEERING LIMITED

TABLE OF CONTENTS (cont'd)

APPENDICES

1.0 INTRODUCTION

Nasiruddin Engineering Limited (NEL) was retained by Antrix Architects Inc. to carry out a geotechnical investigation in support of a proposed Place of Worship site re-development located at 900 Eglinton Avenue East in Mississauga, Ontario. It is understood that the work is to include a new two-storey building and a new paved parking lot.

This geotechnical report is intended to provide sufficient recommendations to establish background design data for the proposed project development.

The investigation was to include advancement of boreholes at the proposed site for performing in-situ testing (Standard Penetration Test), verification of groundwater level if encountered and obtaining soil samples for laboratory testing (soil classification, moisture content, grain-size distribution analysis and chemical testing). Then a report presenting NEL's observations, findings and recommendations was to be prepared and submitted to Antrix Architects Inc.

The following sections contain the interpretation of the collected data and the evaluation of the anticipated behaviour of the soil deposits during various construction works. It should be noted that the opinions expressed in this report should not be considered as recommendations with respect to construction works methodology. Instead, the purpose of the opinions expressed is to provide the designer with information to evaluate construction feasibility and to emphasize items for consideration when preparing the construction specifications.

Contractors planning to submit tenders for construction works should make their own evaluation and interpretation of the factual data presented and summarized in this report and select the most suitable and economical construction methods based on their knowledge and previous experience under similar subsurface conditions. Further limitations are outlined in the concluding section titled Statement of Limitations.

2.0 SITE DESCRIPTION

The site is located in the city of Mississauga, Ontario at the municipal address of 900 Eglinton Avenue East. The closest major intersections are Eglinton Avenue East and Highway 403 to the west of the subject site and Eglinton Avenue East and Tomken Road to the east of the subject site. The site currently has an existing single-storey brick structure on the premises which is surrounded by paved areas used for parking. Utilities including hydro lines which are readily visible upon visiting the site are present.

The site terrain is lower in elevation relative to Eglinton Avenue East. The front part of the parking lot is approximately at the same level of the street but it slopes towards away from the Eglinton Avenue East street grade to reach about 1.3m lower level at the south end of the parking area. The proposed building area is also at a lower level than Eglinton Avenue East with about 1.15m difference. It is understood that cut and fill will be required for site grading.

The site is adjacent to a primarily commercial plaza area which lies to the east and south. There are some community schools and commercial use developments in the larger surrounding area

but none that would be anticipated to affect or influence geotechnical or geo-environmental characteristics of the subject site. The field neighboring the subject property to the west remains undeveloped as of at the time of this investigation.

ON 1 Call was contacted and we were informed of 5 utility service members to be contacted and get their approval for boreholes location before drilling. All required utility locates approvals were obtained from relevant authorities in addition to a private utility locator (OnSite Locates) before the start of work and the representative boreholes locations were selected/confirmed accordingly.

Review of Ontario Geological Survey geological maps available through the Ministry of Northern Development and Mines (http://www.mndm.gov.on.ca) including Bedrock Geology, Quaternary Geology, Bedrock Topography and Overburden Thickness, and Surficial Geology reveals that the subject area lies at the intersection of two geological deposits. So, the overburden soil in the subject area may be expected to consist of soil types from either of the two deposits including fine-textured glaciolacustrine soils made of silt and clay with minor sand and gravel components, interbedded silt and clay, gritty, pebbly flow till and rainout deposits or clay to silt-textured till (derived from glaciolacustrine deposits or shale). The overburden is expected to be underlain by bedrock which may consist of shale, limestone, dolostone or siltstone of the Georgian Bay Formation, Blue Mountain Formation, Billings Formation, Collingwood Member or Eastview Member.

3.0 FIELD INVESTIGATION AND LABORATORY WORK

Field investigation works were carried out over the course of two working days. A total of thirteen boreholes were advanced. Five boreholes drilled to 6.1m (20 feet) depth below original ground surface were completed on October 24, 2019. Seven boreholes drilled to 2.29m (7.5 feet) depth and one borehole drilled to 6.1m (20 feet) depth were drilled on the second day, i.e. October 25, 2019.

Boreholes representing paved areas, underground piping works or potential slab-on-grade construction were advanced to 2.29m (7.5ft) depth. Boreholes within the proposed building footprint potentially having underground basements were advanced to 6.1m (20ft) depth. One representative deeper (20 feet) borehole was also done in the proposed paved area.

Borehole drilling was carried out under the supervision of a senior geotechnical engineer from our staff. Soil samples were obtained via split spoon sampling following Standard Penetration Test (SPT) procedures starting from the ground surface. Accompanying 'N' values were recorded in blows per 0.3m and are presented on the borehole logs attached (Appendix A).

Drilling equipment was supplied and operated by Kodiak Drilling. The equipment used was a Geoprobe Rig travelling on a rubber track (crawler) system with a continuous 4 1/4-inch diameter helical flight solid stem auger and 63.5 kg (140 lb) drop hammer advancing the boreholes.

Retrieved soil samples were collected in the field by sealing in moisture free and non-absorbent plastic bags and sent to NEL's laboratory for further examination. Samples potentially for chemical testing were kept in a cooler box with ice.

At the NEL laboratory in Mississauga, visual and tactile examination and moisture content testing was carried out on all samples. Findings are presented on the attached borehole logs.

Borehole locations are shown on the Borehole Location Diagram in Appendix B. Coordinates for the boreholes are summarized in the following table.

Borehole Number	Northing UTM	Easting UTM
1	4831110	610365
2	4831107	610377
3	4831111	610365
4	4831121	610365
5	4831113	610356
6	4831142	610389
7	4831160	610385
8	4831157	610383
9	4831160	610384
10	4831138	610406
11	4831156	6103399
12	4831124	610387
13	4831129	610398

Approximate Borehole Coordinates

All soil samples after laboratory examination and testing will be saved for a period of one month from the date of issue of this report and then discarded unless otherwise requested by the client in writing.

3.1 Grain Size Distribution Analysis

The sieve and hydrometer test results for two representative samples selected from Borehole No. 3 and 11 shows soil component percentages approximately as follows:

Component	Percentage BH#3 Sample #4	Percentage BH#11 Sample #4
Clay	12.8 %	23.7 %
Silt	28.7 %	40.3 %
Sand	32.2 %	27.1 %
Gravel	26.3 %	8.9 %

Soil Sample Components

These results correspond with and confirm the soil descriptions shown on the borehole logs. Lab reports for the above results are attached in Appendix C.

3.2 Laboratory Determination of Water (Moisture) Content

Laboratory testing of soil samples for all boreholes showed moisture content ranging from 9% (moist) to 29% (wet). In general, most samples were in very moist to wet condition. No sample was in dry condition. This is likely related to the groundwater level which is discussed in further detail in Section 4.3

3.3 Chemical Testing

Four select samples were chosen from boreholes across the site to represent the subject area. Two samples were taken from 5.0 feet depth, i.e. near the surface, anticipating that these areas would be subject to at least shallow depth excavation for site grading, paving or slab-on-grade construction. Another sample was selected from 7.5 feet as a medium depth sample and one more sample was taken from 20.0 feet to represent and give an idea of what kind of chemical composition is present at the deeper soil layer where concrete building foundations will likely be

founded. The following table summarizes the soil samples that were submitted to an accredited laboratory for chemical testing:

Borehole Number	Sample Number	Depth (below original surface)
BH 2	3	7.5 feet
BH 3	6	20.0 feet
BH 8	2	5.0 feet
BH 11	2	5.0 feet

Selected samples submitted for chemical testing

Standard procedures for sampling of material and MOECC protocols for transport and delivery were followed including obtaining the samples of the subject material using a clean nitrile gloved hand and gathering the material into clean, un-used, lab-supplied bottles and vials. The samples were logged noting the type of material as well as any observations of potential impact, such as odours, stains or foreign materials. Note that the samples did not exhibit at the time of sampling any obvious visual or olfactory environmental impacts such as odours, staining or presence of deleterious material. The samples collected for chemical testing were promptly placed in a cooler box with ice and submitted to an accredited laboratory. As authorized by the client, the samples were tested for Metals (including available boron and hexavalent chromium) and Inorganics, Anions, PHCs F1-F4, VOCs, PAHs, PCBs, TCLP Metals and Inorganics, and TCLP VOCs with the results compared to O.Reg. 153/04 Table 1, Table 2, Table 3 and O.Reg. 347/558 TCLP parameters. The Certificate of Analysis for all analytes tested is enclosed in Appendix D. In summary, the results reveal the following:

O.Reg. 153 Table 1 (Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use)

BH#2, S#3, 7.5 feet	no limits exceeded
BH#3, S#6 20.0 feet	no limits exceeded
BH#8, S#2 5.0 feet	Hydrocarbons – F4 PHCs (C34-C50) limit exceeded
BH#11, S#2 5.0 feet	Hydrocarbons – F4 PHCs (C34-C50) and F4G PHCs (gravimetric) limits exceeded

O.Reg. 153 Table 2 (Residential/Parkland/Institutional (RPI) Property Use)

BH#2, S#3, 7.5 feet	no limits exceeded
BH#3, S#6 20.0 feet	no limits exceeded
BH#8, S#2 5.0 feet	no limits exceeded
BH#11, S#2 5.0 feet	no limits exceeded

O.Reg. 153 Table 2 (Industrial/Commercial/Community (ICC) Property Use)

BH#2, S#3, 7.5 feet	no limits exceeded
BH#3, S#6 20.0 feet	no limits exceeded
BH#8, S#2 5.0 feet	no limits exceeded
BH#11, S#2 5.0 feet	no limits exceeded

O.Reg. 153 Table 3 (Residential/Parkland/Institutional (RPI) Property Use)

BH#2, S#3, 7.5 feet	no limits exceeded
BH#3, S#6 20.0 feet	no limits exceeded
BH#8, S#2 5.0 feet	no limits exceeded
BH#11, S#2 5.0 feet	no limits exceeded

O.Reg. 153 Table 3 (Industrial/Commercial/Community (ICC) Property Use)

BH#2, S#3, 7.5 feet	no limits exceeded
BH#3, S#6 20.0 feet	no limits exceeded
BH#8, S#2 5.0 feet	no limits exceeded
BH#11, S#2 5.0 feet	no limits exceeded

O.Reg. 347/558 TCLP

BH#2, S#3, 7.5 feet	no limits exceeded
BH#3, S#6 20.0 feet	no limits exceeded
BH#8, S#2 5.0 feet	no limits exceeded
BH#11, S#2 5.0 feet	no limits exceeded

All four samples satisfy the limits of O.Reg. 347/558 TCLP parameters. Hence, the material represented by these samples may be classified as non-hazardous waste and no further specific measures are recommended in this regard.

Also, the samples satisfy the requirements of O.Reg. 153/04 for Table 2 RPI/ICC & Table 3 RPI/ICC. Thus, the soil material on site is acceptable for re-use or disposal at sites where regulation Tables 2 and 3 are the acceptance criteria. Regarding the exceedance of hydrocarbons under Table 1 for samples BH#8, S#2 and BH#11, S#2, since both these samples were closer to the surface, it is likely that cars parked on the paved surface is the source of origin. However, it should be kept in mind that Table 1 is the most stringent and likely does not apply to the subject site. The significance of this finding is that if the material is taken to a site where Table 1 is the acceptance criteria, the material would be considered hydrocarbon contaminated for that site.

Given the forthcoming proposed property use, in our opinion, O.Reg. 153 Table 3 (Industrial/Commercial/Community) would govern on the subject site. As the limits of this guideline are satisfied, no further action would be necessary and the material could be re-used on the subject site or transported to a receiving site with the same acceptance criteria without any environmental concern. In general, the materials should be handled and/or disposed of in accordance with appropriate MOECC guidelines. Also, the contractor may need to carry out

additional chemical testing to confirm that the material intended for transport and disposal satisfies the acceptability criteria of their specific receiving site.

Further analysis regarding the results for the below parameters is given in order to provide comment on the potential for attack on concrete from the soil. As mentioned above, the chemical testing report is attached in Appendix D. For easy reference, the results related specifically to soil attack on concrete are summarized in the table below.

Parameter	Sample from BH No. 2, S3 (7.5 feet)	Sample from BH No. 3, S6 (20.0 feet)	Sample from BH No. 8, S2 (5.0 feet)	Sample from BH No. 11, S2 (5.0 feet)
Sodium Adsorption Ratio (SAR)	1.86	0.47	0.34	0.42
Electrical Conductivity (EC)	0.438 mS/cm	0.331 mS/cm	0.246 mS/cm	0.254 mS/cm
pH	7.57	7.68	7.49	7.48
Resistivity	2280 Ohm.cm	3020 Ohm.cm	4070 Ohm.cm	3930 Ohm.cm
Chlorides	149 ug/g	66 ug/g	29 ug/g	26 ug/g
Sulphates	102 ug/g	124 ug/g	45 ug/g	84 ug/g
Sulphates (reported as % for comparison to CSA A23.1 Table 3)	0.0102%	0.0124%	0.0045%	0.0084%

Chemical testing results related to soil attack on concrete

The SAR and EC results for all samples are well within the limits of O.Reg. 153/04 Table 1 (SAR limit: 2.4 (unitless ratio), EC limit: 0.570 mS/cm). So, an overly salty soil condition that would attack the concrete is not anticipated based on these testing results.

Extremely acid soils (below pH 4.5) and very strongly alkaline soils (above pH 9.1) have significantly high corrosion rates when compared to other soils (Source: A.B. Chance Company, 2003). The subject samples had pH values all ranging just more than 7 which is basically a neutral pH. Therefore, attack on the foundation concrete due to the soil being too acidic or alkaline is not anticipated.

The relation of resistivity to corrosion potential is summarized in the following table (Source: A.B. Chance Company, 2003):

Resistance Classification	Soil Resistivity (Ohm-cm)	Attack Potential
Low	0 - 2,000	Severe
Medium	2000 - 10,000	Moderate
High	10,000 - 30,000	Mild
Very High	Above 30,000	Unlikely

Resistivity Result Interpretation

The resistivity results for the subject samples puts the attack potential at a moderate level based on soil resistivity.

The threshold of chloride and sulphate concentration for mildly corrosive soil is given as per the table below (Source: A.B. Chance Company, 2003):

Property	Criteria
Chloride Concentration	100 ppm (ug/g)
Sulphate Concentration	200 ppm (ug/g)

Chloride and Sulphate Result Interpretation

The results of chlorides and sulphates testing in the soil for the subject samples are well below the thresholds shown in the table above except for the sample from BH No. 2, S3 (7.5 feet) which had a result of 149 ug/g which is 49 ug/g higher than the 100 ug/g threshold. This amount of chloride aggression would be expected to be addressed by usual measures for concrete such as specifying a lower water/cement ratio, having air entrainment or including supplementary cementing materials. Also, adequate cover to reinforcing steel bars would be specified in the construction drawings. Hence, further special measures for chloride or sulphate attack are not anticipated.

Further regarding sulphates, CSA A23.1 Table 3 essentially indicates that if sulphate concentrations in the soil are less than 0.1%, then a "Class of Exposure" for sulphate attack is not assignable/applicable, i.e. the sulphate level is considered to be non-threatening. The sulphate concentration expressed as a percentage for the subject samples are all much less than 0.1%. Hence, sulphate aggression is not expected.

In short, these chemical testing results show that the soil overall on the subject site is not considered aggressive and various forms of significant chemical attack on the concrete is not anticipated. Hence, special measures to protect foundation concrete from attack such as using special class concrete will not be necessary in our opinion.

4.0 SUBSURFACE CONDITIONS

In general, boreholes were drilled from the asphalt covered surface of the site and initially advanced through the pavement layer. Details of existing subsurface soil conditions encountered during the field drilling work and subsequent laboratory examination are given on the attached individual borehole logs.

All boreholes were backfilled upon completion in accordance with Ontario Regulation 903 (as amended).

General categorical discussions of the overall findings and highlights are discussed below.

4.1 Surface (All Boreholes)

Asphalt was at the surface of all boreholes. Thickness of asphalt ranged from 200mm to 300mm, mostly averaging approximately 250mm thick. Hence, 250mm is shown on the borehole logs. Below the asphalt was a granular-like layer seeming to be somewhat intermixed with asphalt cement from above imparting it with a black colour but not cemented together as asphalt would be. Hence, this material is described as gravely sand on the borehole logs. In other areas, the granular-like material was either very thin or not present. The asphalt is therefore shown on the borehole logs as resting directly on the underlying soil layer.

4.2 Intermediary Strata

Gravely silty sand some clay

Deposits of gravely silty sand were encountered in the boreholes at the proposed building area (The property's west side) 2.29m (7.5 feet) below the surface and extended to depths of the borehole 6.1m (20 feet) below the existing ground surface. Standard penetration tests carried out within the gravely silty sand deposits gave 'N' values ranging from 38 blows per 0.3m to about 100 blows per 0.3m, indicating a dense to very dense consistency. The natural water content of the samples ranged from 9% to 25%. So the material was moist to very wet.

Clayey sand some silt trace of gravel

Deposits of clayey sandy silt were encountered in the boreholes at the proposed parking lot area (The property's east side) 0.75m below the surface and extended to depths of 2.29m (7.5 feet) below the existing ground surface. Standard penetration tests carried out within the clayey sandy silt deposits gave 'N' values ranging from average 19 blows per 0.3m to about 75 blows per 0.3m, indicating a compact to very dense consistency. The natural water content of the samples ranged from 11% to 25%. So the material was moist to very wet.

4.3 Groundwater Conditions

Groundwater conditions were observed in open boreholes during and immediately following the drilling operations. Underground water was encountered in nine boreholes ranging in depth from 0.50m to 3.66m from surface level. Four boreholes were terminated in dry condition (Borehole no. 7, 10, 12 and 13 at the parking lot area). Two representative piezometers (monitoring wells) were installed in Boreholes No. 4 and 11 to monitor underground water and measure stabilized water level. The monitoring wells consist of 50mm diameter PVC pipes with slotted screen sealed within a sand filter pack at a selected depth within the borehole.

The preceding observations are limited-term observations which may not be indicative of the long-term groundwater level. It is important to consider the effect of rain fall and surface runoff as capillary forces will cause water seeping down to raise the groundwater table. Over the long term, groundwater conditions may fluctuate as per seasonal variations and precipitation. Groundwater conditions experienced during construction may vary from the conditions encountered during this investigation.

Variations in colour noted in boreholes usually indicates variations in the degree of oxidation in the soil and therefore suggests the likelihood of a fluctuating groundwater level. However, for this investigation only grey samples were noted with the exception of a few samples near the surface which were green or black. This suggests that the soil remains mostly in a moist or semi-saturated condition. For samples within the water table, the grey samples indicate that they are mostly saturated. It is possible that oxidation giving a brown colour to the soil was not noted because the sub-surface soil is so well consolidated that anaerobic conditions exist and the soil was observed to be grey only.

Depending on the depth of excavation for foundations, trench excavation for sewers, etc., the contractor will likely need to contend with groundwater infiltration at the time of construction and project designs will need to address groundwater (e.g. include weeping tiles, protection of basement walls, etc.)

Water seepage is expected to be slower through the clayey soils and more significant through sandy layers (which is most of the site at deeper levels). Dewatering may be achieved by filtered sumps and removed by pumping.

5.0 DISCUSSION AND RECOMMENDATIONS

5.1 Allowable Soil Bearing Capacity

As indicated in the boreholes logs, the 'N' values vary in various soil layers. Hence, the soil bearing capacity will also exhibit variation. The 'N' values for depths from surface level to 1.5m (5ft) may not represent the actual soil strength due to the effect of freezing conditions and is therefore ignored for structural engineering purposes (freezing depth = depth to which the groundwater in soil is expected to freeze).

Standard penetration tests carried out at the proposed building area within the gravely silty sand deposits from depth 2.29m (7.5 feet) to 6.1m (20 feet) from surface level gave 'N' values ranging from 50+ blows to 93 blows per 0.3m, indicating very dense soil consistency but with high water content (submerged within water table) which can cause significant changes in shear strength consequently reducing bearing capacity. Hence, the estimated maximum allowable bearing capacity is **250 kPa** based on conditions observed at the time of this investigation.

Standard penetration tests carried out at the parking lot area from 1.5m (5 feet) to 2.29m (7.5 feet) below surface level gave 'N' values ranging from 19 blows to 75 blows per 0.3m indicating compact to very dense soil. However, the water table appears to be a factor here as well. Hence, the estimated maximum allowable bearing capacity is **100 kPa** based on conditions observed at the time of this investigation.

Qu (Ultimate bearing capacity) can be obtained using formula equation and various capacity factors affected by loads, depth and dimensions of footings.

Qa = Qu / F.S.

Where:

Qa = Allowable bearing capacity

F.S.= Factor of Safety

Bearing capacity should be verified in the field by our office during construction. If conditions exist which further reduce the bearing capacity, soft spot repair including possible use of geotextiles to strengthen the soil may be necessary.

5.2 Structural Footings

Footings for the proposed structure should be founded on adequately prepared subgrade or undisturbed native soil, providing the following items are complied with:

- Exposed subgrade must be stripped of any topsoil, vegetation, loose, wet and deleterious material

- Weak spots encountered on the exposed subgrade must be excavated, removed and backfilled with compacted granular compacted to a minimum of 98% Standard Proctor maximum dry density.

- Exposed surface of the subgrade must be proof rolled or inspected by a Geotechnical Engineer from our office prior to paving asphalt and compacted to a minimum of 98% Standard Proctor maximum dry density.

For design elements such as loads and type of foundation, reference should be made to the applicable design codes. However, in general we would comment that straightforward strip/spread footings would likely suffice for this site given the high 'N' values recorded at expected founding elevation.

Bearing capacities recommended in the previous section notwithstanding, for footing construction, we recommend compacting the bottom of the excavated area then backfilling using approved Granular 'A' to create a level base/pad upon which the bottom of footing(s) will rest.

Backfilling material should be placed in loose lifts of no more than 200 mm each and compacted to 98% Standard Proctor maximum dry density with a moisture content within 2% of its optimum moisture content. If acceptable compaction is demonstrated to be achievable in the field, maximum lift thickness may be increased from 200mm to 300mm upon approval by the Geotechnical Engineer.

Basement walls should be protected with appropriate waterproofing materials keeping in mind the groundwater encountered on this site. Many proprietary products are available in the industry and can be considered by the designer. Also, for basement foundations, a network of connected weeping tile/subdrain should be provided with a sump pump system to address/mitigate groundwater. The subdrain should be surrounded by clear stone and wrapped in geotextile to protect against silt present in the soil.

5.3 Foundation Settlement

The total and differential settlements of the foundation designed with the recommended serviceability limit states bearing capacity (SLS) is appropriate for footings founded on the native sandy soils with anticipated total settlement of 25 mm and differential settlement of 19mm.

The foundation must meet the requirements specified in the Ontario Building Codes and the structure should be designed to resist an earthquake force as appropriate for the Site

Classification D (conservatively estimated as per Canadian Foundation Engineering Manual Table 6.1A).

5.4 Frost Protection

Any footings exposed to weathering and in unheated areas should be covered with a minimum of 1.2 metres of overburden soil or equivalent insulation below the exterior finished grade in order to provide protection from frost.

5.5 Excavation and Backfilling

For safety, all excavations should be made to conform to the regulations for construction projects as set out in the Occupational Health and Safety Act. The soil in which an excavation is made is to be classified as the type that the soil most closely resembles. If an excavation contains more than one type of soil, the soil shall be classified as the type with the highest number.

For this site, given how dense the soil layers are found to be with high 'N' values, the soil could be considered Type 1. However, since groundwater is a prominent issue over most of the site, in our opinion to be on the safe side the soil should be treated as Type 3 as defined by the "Green Book" (Regulations for construction projects under Occupational Health and Safety Act). Sloping of any excavation should be in accordance with the same. If the required slopes cannot be satisfied, a shoring system designed by a professional engineer should be adopted which meets all applicable standards and governing guidelines to support any excavation. Accordingly, a bank slope of 1H:1V is recommended for excavations in Type 3 soil, in accordance with the Ontario Health and Safety Regulations. Near the ground surface, occasional 3H:1V slopes may be required if there is loose/soft/disturbed surficial soils.

Stockpiles of excavated materials should be kept at least 3.0m from the edge of the excavation to avoid slope instability, subject to confirmation by the Geotechnical Engineer. Care should also be taken to avoid overloading of any underground services/structures by stockpiles.

The soil on this site is rather dense so the contractor should account for this when assessing productivity rates and selection of job-appropriate equipment. Also, allowance should be made for cobbles/boulders that can occur in the deposits.

The bottom of excavation should be monitored for rectifying of soft spots where the expected bearing capacity would be particularly low. Engineering a greater bearing capacity with sub-excavation and backfill or considering use of products like geotextile may become useful during construction. It is recommended that a programme of geotechnical material inspection and testing be carried out during the construction phase of the project to confirm that the conditions exposed in the excavations are consistent with those encountered in the boreholes and the design assumptions, and to confirm that the various project specifications and materials requirements are being met.

Bedding and backfilling for trenches related to underground piping works should be in compliance with City of Mississauga site development standards. The material excavated on site will be suitable for re-use as backfill for trenches, underneath concrete slabs and structural backfill provided that at the time of placement it has a moisture content that is within ± 2% of its Standard Proctor Optimum Moisture Content. Also this material should not be used within the top 1.22m from final grade due to the silt content imparting greater frost susceptibility to the material. If needed, the material can be used shallower than 1.22m in non-critical areas that are not sensitive and can tolerate some heave.

5.6 Shoring/Trenching

If excavation limits are deep and approach adjacent neighbours' existing structures, a shoring system should be designed to protect adjacent structures, parking lots, roads and services. The fourth edition of the Canadian Foundation Engineering Manual should be referred to for the design of the shoring system. It should be noted that groundwater and boulders may be encountered during soldier pile construction, and the contractor must be prepared to deal with boulders and water seepage without undue delays. It will be difficult to prevent groundwater from penetrating into the excavation through gaps in timber lagging. For the geotechnical parameters which are considered to be applicable for the design, please refer to the appropriate coefficients tables in the foundation manual. Any surcharge loads must be included in the lateral pressure calculations.

The expected movements of the shoring wall (horizontal and vertical movements) should be monitored during construction to ensure a satisfactory performance of the shoring system or trench box. Subsurface conditions may vary beyond the site's confines, so, it is imperative that a stability analysis of the entire support system is undertaken prior to commencement of the shoring construction. The shoring system and surrounding structures must be monitored for horizontal and vertical movements, prior to, during and after the excavation. In addition, a pre-construction survey of adjacent structures/roads may be carried out prior to the shoring/design/construction stage. Any potential adverse effect on adjacent structures should be assessed and suitable preventive/remedial measures implemented.

5.7 Soil Parameters

The following estimated geotechnical parameters may be taken into consideration for design of elements discussed above such as foundations, shoring, trenching, sloping (soil below 2.25m from surface level, i.e. approximate anticipated foundation level) at the proposed building area.

Unit weight (γ)	14 KN/m3
Friction Angle (φ)	36°
Ko	0.41
Ka	0.26
Kp	3.85

5.8 Pavement

Based on the subgrade characteristics, prevailing moisture conditions and normal anticipated traffic loading, the pavement structures noted below are recommended:

Material	Light Duty	Heavy Duty
HL3 Surface Course Asphalt	40 mm	40 mm
HL8 Binder Course Asphalt	50 mm	100 mm
Granular Base course Granular 'A' compliant with OPSS 1010 or City of Mississauga equivalent	200 mm	200 mm
Granular Subbase Granular 'B' Type I compliant with OPSS 1010 or City of Mississauga equivalent. Remove any cobbles or boulders protruding out from the prepared surface or which are obstructing and preventing proper compaction	300 mm	450 mm

Recommended Pavement Structures

Note that Heavy Duty pavement would apply to delivery truck and/or Fire Emergency internally designated routes.

The final subgrade should be shaped and crowned to allow drainage to adequately spaced catch basins installed with subdrains leading to a positive outlet.

To prevent saturation of the pavement mantle/base, we emphasize the need for adequate drainage. Catchbasins should contain provisions for drainage infiltration from the granular base course into these drainage structures.

Subdrains should be installed along the driveway areas, curbed perimeters of the development plus be installed to extend between catch basins or at least a run of subdrain installed radially in each direction for each catchbasin.

The asphalt components should be placed and compacted to 93% of the Maximum Relative Marshall Density as measured by Nuclear Densometers.

Surface of finished pavement should be free of depressions and should be sloped to provide effective surface drainage towards the catch basins and not to allow surface water to pond adjacent to the outside edges of the pavement areas. Subdrains shall be installed to intercept

excess subsurface moisture and prevent the subgrade from softening especially at the heavy duty pavement areas (if any heavy duty areas are provided).

Due to frost action a differential movement can take place between pavement and manholes or catch basins. So, it is recommended to compact around manholes and catch basins using hand controlled light compaction equipment to avoid damaging them.

6.0 STATEMENT OF LIMITATIONS

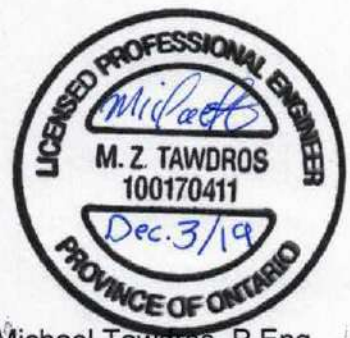
The information contained in this report is intended only as guidance for design engineers or architects and are subject to field verification during construction. As more specific subsurface information, with respect to conditions between boreholes, becomes available during excavations on the subject site, this report should be updated if needed. Contractors bidding on or undertaking the work should decide on their own investigations, as well as their own interpretations of the factual borehole results. This concern specifically applies to the classification of the subsurface soil and the potential re-use of these soils on/off site. It is not to be relied upon by constructors nor is this report intended for constructors. However, potential constructors may have copies of the geotechnical information made available to them with the strict understanding that the information supplied is valid only at the borehole locations and that any extrapolation or interpolation of the information is done so at their own risk and liability.

Recommendations and inferences in this report are based on a limited number of boreholes. Subsurface conditions may vary in between and beyond the borehole locations. The borehole locations were selected in consultation with the client representative. Should any footprint locations change from those anticipated at the time of this investigation, NEL should be contacted to review those changes and modify our recommendation accordingly if required.

Report Limitations are an integral part of this report.

Respectfully submitted,

Nasiruddin Engineering Limited



Michael Tawdros, P.Eng.
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APPENDIX A

Borehole Logs

LIST OF ABBREVIATIONS AND LEGEND

NASIRUDDIN ENGINEERING LIMITED

PENETRATION RESISTANCE

Standard Penetration Test (SPT) Resistance N: - The number of blows required to advance a standard split spoon sampler 0.3 m into the subsoil. Driven by a mass of 63.5 kg hammer falling freely a distance of 0.76m.

Dynamic Penetration Resistance: - The number of blows required to advance a 51mm, 60 degree cone, filtered to the end of the drill rods, 0.3 m into the subsoil. The driving energy being 475 J per blow.

DESCRIPTION OF SOIL

The consistency of cohesive soils and the relative density or denseness of cohesionless soils are described in the following terms:

CONSISTENCY	N (blows/0.3 m)	c(kPa)	DENSENESS	N (blows/0.3 m)
Very Soft	0 - 2	0 - 12	Very Loose	0 - 4
Soft	2 - 4	12 - 25	Loose	4 - 10
Firm	4 - 8	25 - 50	Compact	10 - 30
Stiff	8 - 15	50 - 100	Dense	30 - 50
Very Stiff	15 - 30	100 - 200	Very Dense	> 50
Hard	> 30	> 200		

TYPE OF SAMPLE

SS	Split Spoon	TW	Thinwall Open
WS	Washed Sample	TP	Thinwall Piston
SB	Scraper Bucket Sample	OS	Oesterberg Sample
AU	Auger Sample	FS	Foil Sample
CS	Chunk Sample	RC	Rock Core
ST	Slotted Tube Sample	CT	Chemical Testing Sample
PH	Sample Advanced Hydraulically		
PM	Sample Advanced Manually		

ROCK STATE OF WEATHERING

Fresh:	no visible weathering
Faintly Weathered:	weathering at surface of major discontinuities
Slightly Weathered:	penetrative weathering on open discontinuity surfaces
Moderately Weathered:	weathering extends throughout rock mass but rock is not friable
Highly Weathered:	weathering extends throughout rock mass, rock is partly friable
Completely Weathered:	rock wholly decomposed but original structure is preserved

ROCK FRACTURE INDEX

A count of the number of discontinuities in the rock core including both natural fractures, joints, etc. and breaks caused by drilling. Calculated and expressed as a value per foot (0.3 m).

ROCK CORE CONDITION (RECOVERY)

Total Core Recovery: The percentage of solid core recovered regardless of quality or length. Measured relative to the length of the total coring run.

Solid Core Recovery: The percentage of solid core recovered at full diameter regardless of length. Measured relative to the length of the total coring run.

ROCK QUALITY DESIGNATION (RQD)

Indirect measure of the number of fractures and thereby the soundness of the rock mass. It is calculated by the following expression:

$$\text{RQD \%} = \frac{\Sigma \text{ Length of core pieces} > 100\text{mm}}{\text{Total length of core run}} \times 100$$

DIP with respect to (w.r.t.) CORE AXIS

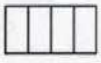
The angle of discontinuity relative to the rock core's length-wise (vertical) axis. In a vertical corehole 90 degrees is horizontal.

ROCK DISCONTINUITY SPACING

DESCRIPTION	SPACING
Very Widely Fractured (VW)	> 2 m
Widely Fractured (WF)	60 cm to 2 m
Medium Fractured (MF)	20 cm to 60 cm
Closely Fractured (CF)	6 cm to 20 cm
Broken	< 6 cm

ROCK STRENGTH

DESCRIPTION	UNIAXIAL COMPRESSIVE STRENGTH (MPa)
Extremely Strong, Grade R6	> 250
Very Strong, Grade R5	100 - 250
Strong, Grade R4	50 - 100
Medium Strong, Grade R3	25 - 50
Weak, Grade R2	5 - 25
Very Weak, Grade R1	1 - 5
Extremely Weak, Grade R0	0.25 - 1


FILL

SILT

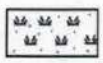
SAND

GRAVEL
Ground Water Level


CLAY

TILL

SHALE

ASPHALT

PEAT / TOPSOIL

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BORING NUMBER 1

CLIENT Antrix Architects Inc.
PROJECT NAME BAB-UL-ILM (Place of Worship)
PROJECT NUMBER NEL - 19 - AAI - 001
PROJECT LOCATION 900 Eglinton Ave East, Mississauga, Ontario
DATE STARTED 19-10-24 **COMPLETED** 19-10-24
GROUND ELEVATION 97.67 m **HOLE SIZE** 0.11 m
DRILLING CONTRACTOR Kodiak Drilling
GROUND WATER LEVELS:
DRILLING METHOD Solid Stem Auger
AT TIME OF DRILLING ---
LOGGED BY M. Tawdros **CHECKED BY** A. Qamar
AT END OF DRILLING 1.50 m / Elev 96.17 m
NOTES Weather sunny 10°C
AFTER DRILLING ---

DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (kPa)	DRY UNIT WT. (Mg/m^3)
		250 mm of asphalt					
		Black, compact, gravely sand some asphalt, moist	SS 1		2-11-2 (13)		
1		grey, dense, silty sand, some clay and gravel , very moist	SS 2		7-16-21 (37)		
		grey, very dense, silty sand, some clay and gravel, very moist					
2			SS 3		49-49-50 (99)		
		grey, very dense, gravely silty sand, some clay, moist	SS 4		33-49-50 (99)		
3		grey, very dense, gravely silty sand, some clay, very moist					
4			SS 5		48-49-50 (99)		
		grey, very dense, gravely silty sand, some clay, moist					
5			SS 6		21-26-40 (66)		
6							

▲ SPT N VALUE ▲
20 40 60 80
PL MC LL
20 40 60 80
☐ FINES CONTENT (%) ☐
20 40 60 80

Bottom of hole at 6.10 m.

GEOTECH BH PLOTS 900 EGLINTON AVE MISSISSAUGA.GPJ GINT STD CANADA.GDT 19-11-29

NASIRUDDIN ENGINEERING LIMITED
Nasiruddin Engineering Ltd.
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BORING NUMBER 2

CLIENT Antrix Architects Inc.
PROJECT NAME BAB-UL-ILM (Place of Worship)
PROJECT NUMBER NEL - 19 - AAI - 001
PROJECT LOCATION 900 Eglinton Ave East, Mississauga, Ontario
DATE STARTED 19-10-24 **COMPLETED** 19-10-24
GROUND ELEVATION 144.92 m **HOLE SIZE** 0.11 m
DRILLING CONTRACTOR Kodiak Drilling
GROUND WATER LEVELS:
DRILLING METHOD Solid Stem Auger
AT TIME OF DRILLING ---
LOGGED BY M. Tawdros **CHECKED BY** A. Qamar
AT END OF DRILLING 1.50 m / Elev 143.42 m
NOTES Weather sunny 10°C
AFTER DRILLING ---

DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (kPa)	DRY UNIT WT. (Mg/m³)
		250 mm of asphalt					
		Black, compact, gravely sand some asphalt, moist	SS 1		5-5-5 (10)		
1		grey, compact, silty sand, some clay and gravel , moist	SS 2		5-10-18 (28)		
		grey, dense, silty sand, some clay and gravel, very moist					
2			SS 3		10-18-16 (34)		
		grey, very dense, gravely silty sand, some clay, moist	SS 4		32-49-50 (99)		
3		grey, very dense, gravely silty sand, some clay, moist					
4			SS 5		48-49-50 (99)		
		grey, very dense, gravely silty sand, some clay, moist					
5			SS 6		40-49-50 (99)		
6							

▲ SPT N VALUE ▲
20 40 60 80
PL MC LL
20 40 60 80
☐ FINES CONTENT (%) ☐
20 40 60 80

Bottom of hole at 6.10 m.

GEOTECH BH PLOTS 900 EGLINTON AVE MISSISSAUGA.GPJ GINT STD CANADA.GDT 19-11-29

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BORING NUMBER 3

CLIENT Antrix Architects Inc.
PROJECT NAME BAB-UL-ILM (Place of Worship)
PROJECT NUMBER NEL - 19 - AAI - 001
PROJECT LOCATION 900 Eglinton Ave East, Mississauga, Ontario
DATE STARTED 19-10-24 **COMPLETED** 19-10-24
GROUND ELEVATION 144.83 m **HOLE SIZE** 0.11 m
DRILLING CONTRACTOR Kodiak Drilling
GROUND WATER LEVELS:
DRILLING METHOD Solid Stem Auger
AT TIME OF DRILLING ---
LOGGED BY M. Tawdros **CHECKED BY** A. Qamar
AT END OF DRILLING 3.00 m / Elev 141.83 m
NOTES Weather sunny 10°C
AFTER DRILLING ---

DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (kPa)	DRY UNIT WT. (Mg/m^3)
		250 mm of asphalt					
		Black, compact, gravely sand some asphalt, moist	SS 1		12-12-5 (17)		
1		grey, very dense, silty sand, some clay and gravel , moist	SS 2		18-33-38 (71)		
		grey, dense, silty sand, some clay and gravel, moist	SS 3		11-24-24 (48)		
2							
		grey, very dense, gravely silty sand, some clay, very moist	SS 4		15-49-50 (99)		
3		▼					
		grey, very dense, gravely silty sand, some clay, moist					
4			SS 5		48-49-50 (99)		
		grey, very dense, gravely silty sand, some clay, moist					
5			SS 6		25-49-50 (99)		
6							

▲ SPT N VALUE ▲
20 40 60 80
PL MC LL
20 40 60 80
☐ FINES CONTENT (%) ☐
20 40 60 80

Bottom of hole at 6.10 m.

GEOTECH BH PLOTS 900 EGLINTON AVE MISSISSAUGA.GPJ GINT STD CANADA.GDT 19-12-2

NASIRUDDIN ENGINEERING LIMITED
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BORING NUMBER 4

CLIENT Antrix Architects Inc.
PROJECT NAME BAB-UL-ILM (Place of Worship)
PROJECT NUMBER NEL - 19 - AAI - 001
PROJECT LOCATION 900 Eglinton Ave East, Mississauga, Ontario
DATE STARTED 19-10-24 COMPLETED 19-10-24
GROUND ELEVATION 145.12 m HOLE SIZE 0.11 m
DRILLING CONTRACTOR Kodiak Drilling
GROUND WATER LEVELS:
DRILLING METHOD Solid Stem Auger
AT TIME OF DRILLING ---
LOGGED BY M. Tawdros CHECKED BY A. Qamar
AT END OF DRILLING 0.92 m / Elev 144.20 m
NOTES Weather sunny 10°C
AFTER DRILLING 0.10 m / Elev 145.02 m

DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (kPa)	DRY UNIT WT. (Mg/m³)
		250 mm of asphalt					
		Black, compact, gravely sand some asphalt, very moist	SS 1		2-4-8 (12)		
1		grey, dense, silty sand, some clay and gravel , very moist	SS 2		12-15-24 (39)		
		grey, very dense, silty sand, some clay and gravel, moist	SS 3		15-23-49 (72)		
2							
		grey, very dense, gravely silty sand, some clay, very moist	SS 4		16-31-45 (76)		
3							
		grey, very dense, gravely silty sand, some clay, moist	SS 5		17-21-50 (71)		
4							
		grey, dense, gravely silty sand, some clay, very moist	SS 6		12-14-24 (38)		
5							
6							

▲ SPT N VALUE ▲
20 40 60 80
PL MC LL
20 40 60 80
☐ FINES CONTENT (%) ☐
20 40 60 80

Bottom of hole at 6.10 m.

GEOTECH BH PLOTS 900 EGLINTON AVE MISSISSAUGA.GPJ GINT STD CANADA.GDT 19-12-2

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BORING NUMBER 5

CLIENT Antrix Architects Inc.
PROJECT NAME BAB-UL-ILM (Place of Worship)
PROJECT NUMBER NEL - 19 - AAI - 001
PROJECT LOCATION 900 Eglinton Ave East, Mississauga, Ontario
DATE STARTED 19-10-24 **COMPLETED** 19-10-24
GROUND ELEVATION 145.54 m **HOLE SIZE** 0.11 m
DRILLING CONTRACTOR Kodiack Drilling
GROUND WATER LEVELS:
DRILLING METHOD Solid Stem Auger
AT TIME OF DRILLING ---
LOGGED BY M. Tawdros **CHECKED BY** A. Qamar
AT END OF DRILLING 0.50 m / Elev 145.04 m
NOTES Weather sunny 10°C
AFTER DRILLING ---

DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (kPa)	DRY UNIT WT. (Mg/m^3)
		250 mm of asphalt					
		Black, compact, gravely sand some asphalt, moist	SS 1		1-2-15 (17)		
1		grey, dense, silty sand, some clay and gravel , very moist	SS 2		3-12-16 (28)		
2		grey, very dense, silty sand, some clay and gravel, very moist	SS 3		18-24-22 (46)		
3		grey, very dense, gravely silty sand, some clay, moist	SS 4		15-17-36 (53)		
4		grey, very dense, gravely silty sand, some clay, moist	SS 5		34-49-50 (99)		
5		grey, very dense, gravely silty sand, some clay, moist	SS 6		36-45-48 (93)		
6							

▲ SPT N VALUE ▲
20 40 60 80
PL MC LL
20 40 60 80
☐ FINES CONTENT (%) ☐
20 40 60 80

Bottom of hole at 6.10 m.

GEOTECH BH PLOTS 900 EGLINTON AVE MISSISSAUGA.GPJ GINT STD CANADA.GDT 19-12-2

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BORING NUMBER 6

CLIENT Antrix Architects Inc.
PROJECT NAME BAB-UL-ILM (Place of Worship)
PROJECT NUMBER NEL - 19 - AAI - 001
PROJECT LOCATION 900 Eglinton Ave East, Mississauga, Ontario
DATE STARTED 19-10-25 **COMPLETED** 19-10-25
GROUND ELEVATION 145.42 m **HOLE SIZE** 0.11 m
DRILLING CONTRACTOR Kodiack Drilling
GROUND WATER LEVELS:
DRILLING METHOD Solid Stem Augar
AT TIME OF DRILLING ---
LOGGED BY M. Tawdros **CHECKED BY** A. Qamar
AT END OF DRILLING 0.92 m / Elev 144.50 m
NOTES Weather sunny 12°C
AFTER DRILLING ---

DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (kPa)	DRY UNIT WT. (Mg/m³)
		250 mm of asphalt					
		Green to grey, dense, sandy silt some clay, moist					
0.5			SS 1		10-13-22 (35)		
		Grey very dense, Clayey sand some silt, trace gravel, moist					
1.0			SS 2		17-28-44 (72)		
1.5		Grey very dense, Clayey sand some silt, trace gravel, moist					
2.0			SS 3		14-35-33 (68)		

▲ SPT N VALUE ▲
20 40 60 80
PL MC LL
20 40 60 80
☐ FINES CONTENT (%) ☐
20 40 60 80

Bottom of hole at 2.28 m.

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BORING NUMBER 7

CLIENT Antrix Architects Inc.
PROJECT NAME BAB-UL-ILM (Place of Worship)
PROJECT NUMBER NEL - 19 - AAI - 001
PROJECT LOCATION 900 Eglinton Ave East, Mississauga, Ontario
DATE STARTED 19-10-25 **COMPLETED** 19-10-25
GROUND ELEVATION 147.68 m **HOLE SIZE** 0.11 m
DRILLING CONTRACTOR Kodiack Drilling
GROUND WATER LEVELS:
DRILLING METHOD Solid Stem Auger
AT TIME OF DRILLING ---
LOGGED BY M. Tawdros **CHECKED BY** A. Qamar
AT END OF DRILLING ---
NOTES Weather sunny 12°C
AFTER DRILLING ---

DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (kPa)	DRY UNIT WT. (Mg/m^3)
		250 mm of asphalt					
		Green to grey, dense, sandy silt some clay, moist	SS 1		5-9-18 (27)		
0.5							
		Grey very dense, Clayey sand some silt, trace gravel, moist	SS 2		10-16-20 (36)		
1.0							
1.5		Grey very dense, Clayey sand some silt, trace gravel, moist	SS 3		13-30-45 (75)		
2.0							

▲ SPT N VALUE ▲
20 40 60 80
PL MC LL
20 40 60 80
☐ FINES CONTENT (%) ☐
20 40 60 80

Bottom of hole at 2.28 m.

BORING NUMBER 8

NASIRUDDIN ENGINEERING LIMITED
Nasiruddin Engineering Ltd.
6033 Shawson Drive, Mississauga, L5T 1H8
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CLIENT Antrix Architects Inc.
PROJECT NAME BAB-UL-ILM (Place of Worship)
PROJECT NUMBER NEL - 19 - AAI - 001
PROJECT LOCATION 900 Eglinton Ave East, Mississauga, Ontario
DATE STARTED 19-10-25 **COMPLETED** 19-10-25
GROUND ELEVATION 147.36 m **HOLE SIZE** 0.11 m
DRILLING CONTRACTOR Kodiak Drilling
GROUND WATER LEVELS:
DRILLING METHOD Solid Stem Augar
AT TIME OF DRILLING ---
LOGGED BY M. Tawdros **CHECKED BY** A. Qamar
AT END OF DRILLING 2.25 m / Elev 145.11 m
NOTES Weather sunny 12°C
AFTER DRILLING ---

DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (kPa)	DRY UNIT WT. (Mg/m³)
		250 mm of asphalt					
		Green to grey, dense, sandy silt some clay, moist	SS 1		6-6-17 (23)		
0.5							
		Grey very dense, Clayey sand some silt, trace gravel, moist	SS 2		6-6-6 (12)		
1.0							
1.5		Grey very dense, Clayey sand some silt, trace gravel, moist	SS 3		7-19-25 (44)		
2.0							

▲ SPT N VALUE ▲
20 40 60 80
PL MC LL
20 40 60 80
☐ FINES CONTENT (%) ☐
20 40 60 80

Bottom of hole at 2.28 m.

NASIRUDDIN ENGINEERING LIMITED
Nasiruddin Engineering Ltd.
6033 Shawson Drive, Mississauga, L5T 1H8
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BORING NUMBER 9

CLIENT Antrix Architects Inc.
PROJECT NAME BAB-UL-ILM (Place of Worship)
PROJECT NUMBER NEL - 19 - AAI - 001
PROJECT LOCATION 900 Eglinton Ave East, Mississauga, Ontario
DATE STARTED 19-10-25 **COMPLETED** 19-10-25
GROUND ELEVATION 147.35 m **HOLE SIZE** 0.11 m
DRILLING CONTRACTOR Kodiak Drilling
GROUND WATER LEVELS:
DRILLING METHOD Solid Stem Augar
AT TIME OF DRILLING ---
LOGGED BY M. Tawdros **CHECKED BY** A. Qamar
AT END OF DRILLING 2.25 m / Elev 145.10 m
NOTES Weather sunny 12°C
AFTER DRILLING ---

DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (kPa)	DRY UNIT WT. (Mg/m^3)
		250 mm of asphalt					
		Green to grey, dense, sandy silt some clay, moist	SS 1		1-1-2 (3)		
0.5							
		Grey very dense, Clayey sand some silt, trace gravel, moist	SS 2		4-4-4 (8)		
1.0							
1.5		Grey very dense, Clayey sand some silt, trace gravel, moist	SS 3		3-9-10 (19)		
2.0							

▲ SPT N VALUE ▲
20 40 60 80
PL MC LL
20 40 60 80
☐ FINES CONTENT (%) ☐
20 40 60 80

Bottom of hole at 2.28 m.

NASIRUDDIN ENGINEERING LIMITED
Nasiruddin Engineering Ltd.
6033 Shawson Drive, Mississauga, L5T 1H8
Ph:905-565-9595 Fax:905-565-9578

BORING NUMBER 10

CLIENT Antrix Architects Inc.
PROJECT NAME BAB-UL-ILM (Place of Worship)
PROJECT NUMBER NEL - 19 - AAI - 001
PROJECT LOCATION 900 Eglinton Ave East, Mississauga, Ontario
DATE STARTED 19-10-25 **COMPLETED** 19-10-25
GROUND ELEVATION 146.07 m **HOLE SIZE** 0.11 m
DRILLING CONTRACTOR Kodiak Drilling
GROUND WATER LEVELS:
DRILLING METHOD Solid Stem Augar
AT TIME OF DRILLING ---
LOGGED BY M. Tawdros **CHECKED BY** A. Qamar
AT END OF DRILLING ---
NOTES Weather sunny 12°C
AFTER DRILLING ---

DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (kPa)	DRY UNIT WT. (Mg/m^3)
		250 mm of asphalt					
		Green to grey, dense, sandy silt some clay, moist					
0.5			SS 1		3-5-8 (13)		
		Grey very dense, Clayey sand some silt, trace gravel, moist					
1.0			SS 2		2-3-5 (8)		
1.5		Grey very dense, Clayey sand some silt, trace gravel, moist					
2.0			SS 3		9-20-44 (64)		

▲ SPT N VALUE ▲
20 40 60 80
PL MC LL
20 40 60 80
☐ FINES CONTENT (%) ☐
20 40 60 80

Bottom of hole at 2.28 m.

NASIRUDDIN ENGINEERING LIMITED
Nasiruddin Engineering Ltd.
6033 Shawson Drive, Mississauga, L5T 1H8
Ph:905-565-9595 Fax:905-565-9578

BORING NUMBER 11

CLIENT Antrix Architects Inc.
PROJECT NAME BAB-UL-ILM (Place of Worship)
PROJECT NUMBER NEL - 19 - AAI - 001
PROJECT LOCATION 900 Eglinton Ave East, Mississauga, Ontario
DATE STARTED 19-10-25 **COMPLETED** 19-10-25
GROUND ELEVATION 146.52 m **HOLE SIZE** 0.11 m
DRILLING CONTRACTOR Kodiak Drilling
GROUND WATER LEVELS:
DRILLING METHOD Solid Stem Augar
AT TIME OF DRILLING ---
LOGGED BY M. Tawdros **CHECKED BY** A. Qamar
AT END OF DRILLING 3.66 m / Elev 142.86 m
NOTES Weather sunny 12°C
AFTER DRILLING 1.57 m / Elev 144.95 m

DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (kPa)	DRY UNIT WT. (Mg/m³)
		250 mm of asphalt					
		Green to grey, loose, sandy silt some clay, very moist	SS 1		5-3-6 (9)		
1		Grey compact, Clayey sand some silt, trace gravel, very moist	SS 2		5-11-12 (23)		
		Grey very dense, Clayey sand some silt, trace gravel, moist	SS 3		48-49-50 (99)		
2		grey, very dense, gravely silty sand, some clay, moist	SS 4		12-41-40 (81)		
3		grey, dense, gravely silty sand, some clay, moist	SS 5		23-23-20 (43)		
4		grey, very dense, gravely silty sand, some clay, wet	SS 6		35-49-50 (99)		
5							
6							

▲ SPT N VALUE ▲
20 40 60 80
PL MC LL
20 40 60 80
☐ FINES CONTENT (%) ☐
20 40 60 80

Bottom of hole at 6.10 m.

NASIRUDDIN ENGINEERING LIMITED
Nasiruddin Engineering Ltd.
6033 Shawson Drive, Mississauga, L5T 1H8
Ph:905-565-9595 Fax:905-565-9578

BORING NUMBER 12

CLIENT Antrix Architects Inc.
PROJECT NAME BAB-UL-ILM (Place of Worship)
PROJECT NUMBER NEL - 19 - AAI - 001
PROJECT LOCATION 900 Eglinton Ave East, Mississauga, Ontario
DATE STARTED 19-10-25 **COMPLETED** 19-10-25
GROUND ELEVATION 146.09 m **HOLE SIZE** 0.11 m
DRILLING CONTRACTOR Kodiak Drilling
GROUND WATER LEVELS:
DRILLING METHOD Solid Stem Augar
AT TIME OF DRILLING ---
LOGGED BY M. Tawdros **CHECKED BY** A. Qamar
AT END OF DRILLING ---
NOTES Weather sunny 12°C
AFTER DRILLING ---

DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (kPa)	DRY UNIT WT. (Mg/m^3)
		250 mm of asphalt					
		Green to grey, loose, sandy silt some clay, very moist					
0.5			SS 1		1-1-3 (4)		
		Grey compact, Clayey sand some silt, trace gravel, very moist					
1.0			SS 2		4-5-7 (12)		
1.5		Grey very dense, Clayey sand some silt, trace gravel, wet					
2.0			SS 3		15-3-31 (34)		

▲ SPT N VALUE ▲
20 40 60 80
PL MC LL
20 40 60 80
□ FINES CONTENT (%) □
20 40 60 80

Bottom of hole at 2.28 m.

NASIRUDDIN ENGINEERING LIMITED
Nasiruddin Engineering Ltd.
6033 Shawson Drive, Mississauga, L5T 1H8
Ph:905-565-9595 Fax:905-565-9578

BORING NUMBER 13

CLIENT Antrix Architects Inc.
PROJECT NAME BAB-UL-ILM (Place of Worship)
PROJECT NUMBER NEL - 19 - AAI - 001
PROJECT LOCATION 900 Eglinton Ave East, Mississauga, Ontario
DATE STARTED 19-10-25 COMPLETED 19-10-25
GROUND ELEVATION 146.08 m HOLE SIZE 0.11 m
DRILLING CONTRACTOR Kodiak Drilling
GROUND WATER LEVELS:
DRILLING METHOD Solid Stem Augar
AT TIME OF DRILLING ---
LOGGED BY M. Tawdros CHECKED BY A. Qamar
AT END OF DRILLING ---
NOTES Weather sunny 12°C
AFTER DRILLING ---

DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (kPa)	DRY UNIT WT. (Mg/m³)
		250 mm of asphalt					
		Green to grey, compact, sandy silt some clay, moist	SS 1		2-5-8 (13)		
0.5							
		Grey loose, Clayey sand some silt, trace gravel, very moist	SS 2		5-5-5 (10)		
1.0							
1.5		Grey compact, Clayey sand some silt, trace gravel, very moist	SS 3		2-12-8 (20)		
2.0							

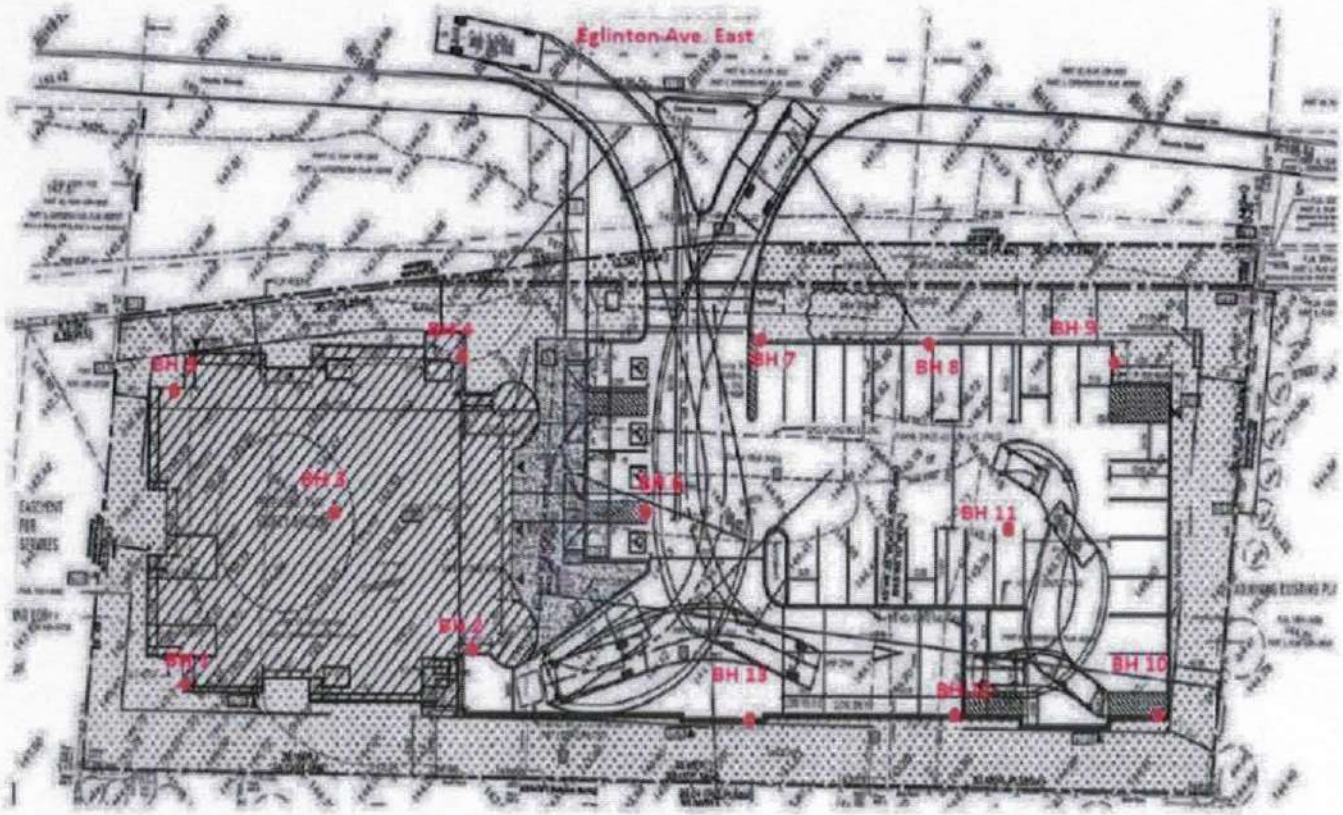
▲ SPT N VALUE ▲
20 40 60 80
PL MC LL
20 40 60 80
☐ FINES CONTENT (%) ☐
20 40 60 80

Bottom of hole at 2.28 m.

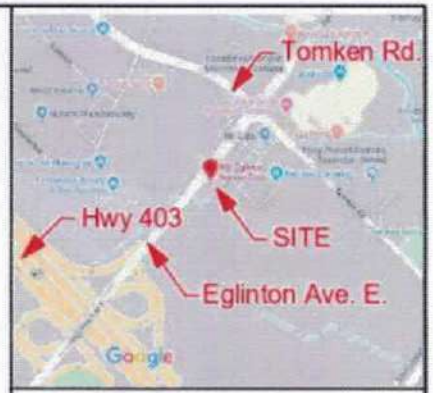
APPENDIX B

Borehole Location Diagram

APPROX.



Drawing source: "Proposed Site Plan & Context Plan" Drawing No. A100
provided by Antrix Architecture Inc.



KEY MAP (N.T.S.)
Reference: Google Maps

Note: Locations shown are approximate.

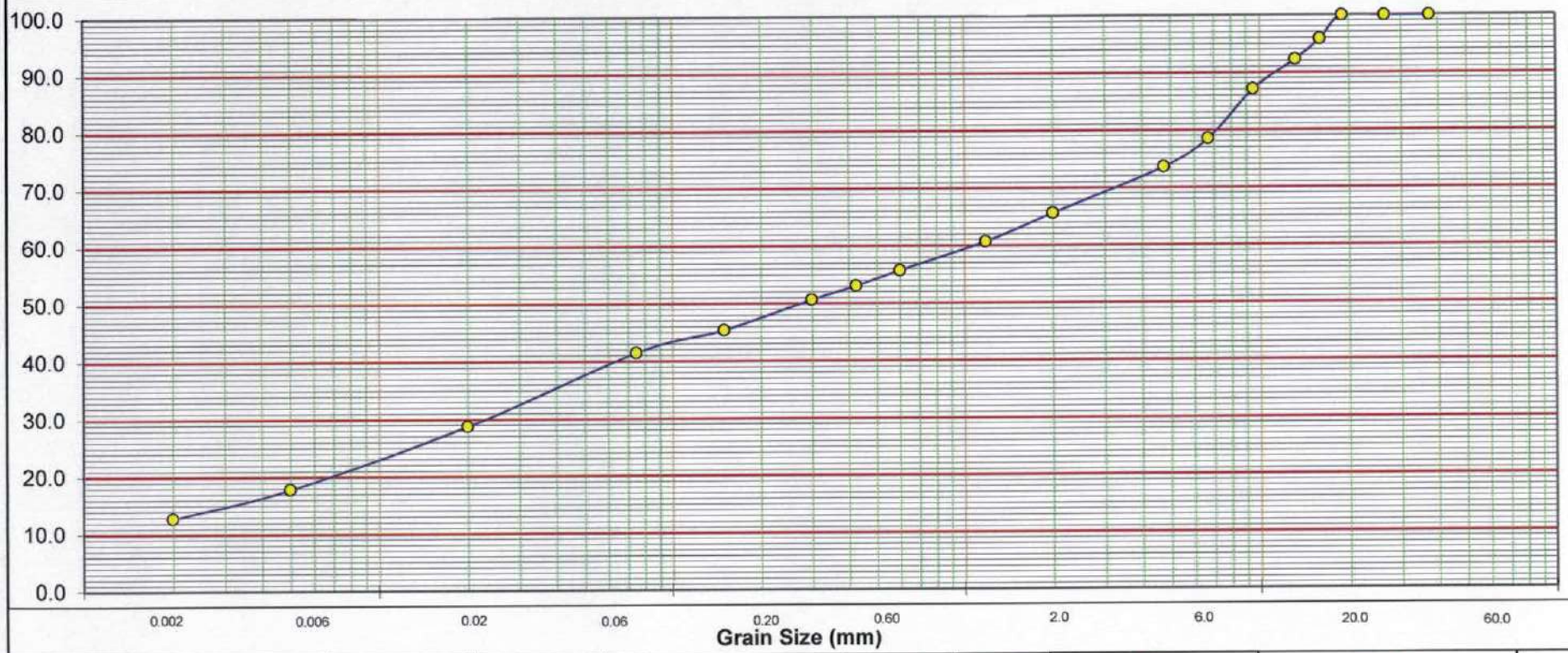
NASIRUDDIN ENGINEERING LIMITED
6033 Shawson Drive
Unit 1, 2, 3, 5 and 6
Mississauga, Ontario
L5T 1H8
Canada

DRAWING: Borehole Location Diagram		
PROJECT: 900 Eglinton Ave. East, Mississauga ON		
SCALE: N.T.S.	DATE: December 2, 2019	
PROJECT NUMBER	DRAWING NUMBER	ISSUE/REVISION
NEL-19-AAI-001	NEL-01	0

APPENDIX C

Grain Size Distribution Analysis

GRAIN SIZE DISTRIBUTION ANALYSIS



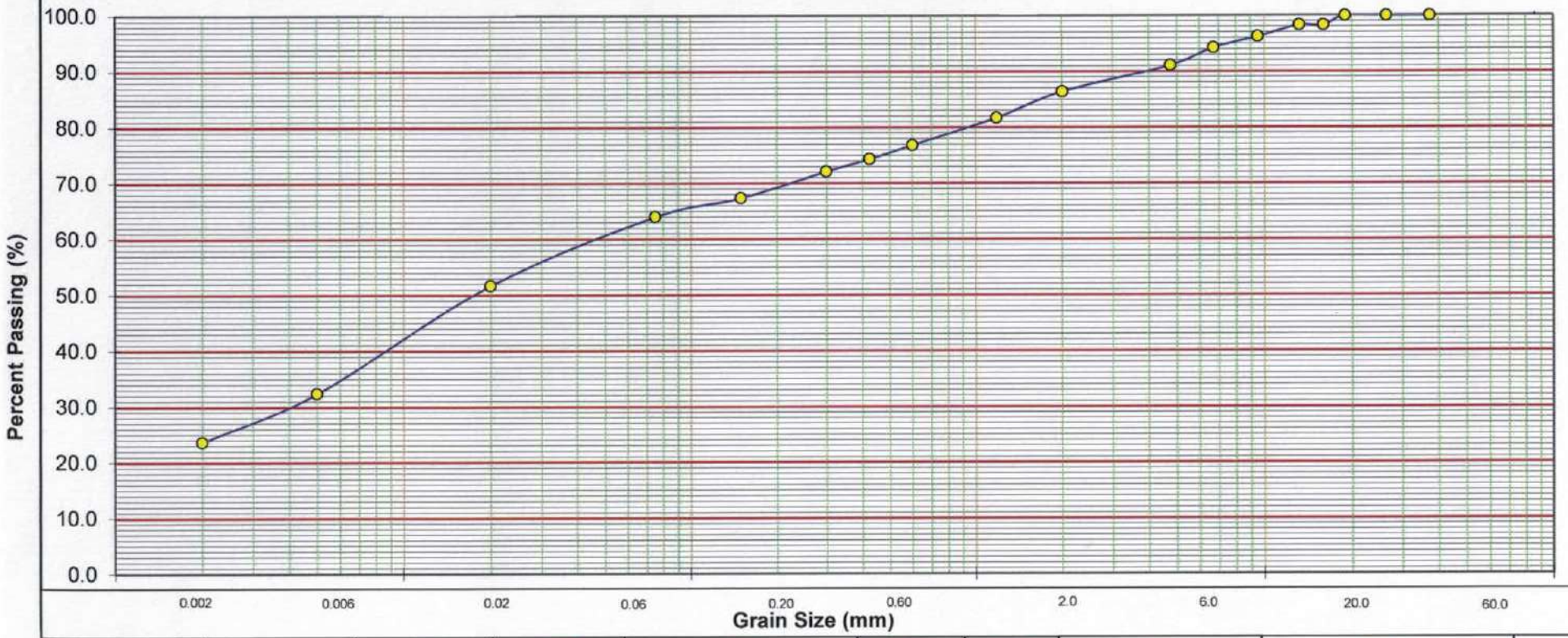
CLAY (12.8 %)	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	FINE	COARSE
	SILT (28.7 %)			SAND (32.2 %)			GRAVEL (26.3 %)	

NASIRUDDIN ENGINEERING LIMITED

Client: Antrix Architects Inc.
Project: NEL-19-AAI-001
Location: 900 Eglinton Avenue East

Date: November 6, 2019
Lab No.: NEL-HYD-19-19
Sample Source: BH # 3, Sample # 4

GRAIN SIZE DISTRIBUTION ANALYSIS



CLAY (23.7 %)	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	FINE	COARSE
	SILT (40.3 %)			SAND (27.1 %)			GRAVEL (8.9 %)	

NASIRUDDIN ENGINEERING LIMITED

Client: Antrix Architects Inc.
Project: NEL-19-AAI-001
Location: 900 Eglinton Avenue East

Date: November 6, 2019
Lab No.: NEL-HYD-19-20
Sample Source: BH # 11, Sample # 4

APPENDIX D

Chemical Testing Results

PARACEL LABORATORIES LTD.

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1-800-749-1947
www.paracellabs.com

Certificate of Analysis

Nasiruddin Engineering Ltd.

6033 Shawson Drive, Units 1,2,&3
Mississauga, ON L5T 1H8
Attn: Archit Talwar

Client PO:
Project: 900 Eglinton Ave. East, Mississauga
Custody:

Report Date: 12-Nov-2019
Order Date: 6-Nov-2019

Order #: 1945387

This Certificate of Analysis contains analytical data applicable to the following samples as submitted:

Paracel ID	Client ID
1945387-01	BH#2, S#3, 7.5 feet
1945387-02	BH#3, S#6 20.0 feet
1945387-03	BH#8, S#2 5.0 feet
1945387-04	BH#11, S#2 5.0 feet

Approved By: Mark Foto

Mark Foto, M.Sc.
Lab Supervisor

Certificate of Analysis
Client: Nasiruddin Engineering Ltd.
Client PO:

Report Date: 12-Nov-2019
Order Date: 6-Nov-2019
Project Description: 900 Eglinton Ave. East, Mississauga

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
Anions	EPA 300.1 - IC, water extraction	11-Nov-19	11-Nov-19
Boron, available	MOE (HWE), EPA 200.7 - ICP-OES	8-Nov-19	8-Nov-19
Chromium, hexavalent - soil	MOE E3056 - Extraction, colourimetric	7-Nov-19	8-Nov-19
Conductivity	MOE E3138 - probe @25 °C, water ext	12-Nov-19	12-Nov-19
Cyanide, free	MOE E3015 - Auto Colour, water extraction	7-Nov-19	11-Nov-19
Mercury by CVAA	EPA 7471B - CVAA, digestion	8-Nov-19	8-Nov-19
Metals, ICP-MS	TCLP EPA 6020 - Digestion - ICP-MS	8-Nov-19	8-Nov-19
PCBs, total	SW846 8082A - GC-ECD	6-Nov-19	8-Nov-19
pH, soil	EPA 150.1 - pH probe @ 25 °C, CaCl buffered ext.	9-Nov-19	9-Nov-19
PHC F1	CWS Tier 1 - P&T GC-FID	6-Nov-19	7-Nov-19
PHC F4G (gravimetric)	CWS Tier 1 - Extraction Gravimetric	12-Nov-19	12-Nov-19
PHCs F2 to F4	CWS Tier 1 - GC-FID, extraction	6-Nov-19	8-Nov-19
REG 153: Metals by ICP/MS, soil	EPA 6020 - Digestion - ICP-MS	8-Nov-19	8-Nov-19
REG 153: PAHs by GC-MS	EPA 8270 - GC-MS, extraction	7-Nov-19	10-Nov-19
REG 153: VOCs by P&T GC/MS	EPA 8260 - P&T GC-MS	6-Nov-19	7-Nov-19
REG 558 - Cyanide	MOE E3015- Auto Colour	8-Nov-19	8-Nov-19
REG 558 - Fluoride	EPA 340.2 - ISE	8-Nov-19	8-Nov-19
REG 558 - Mercury by CVAA	EPA 7470A - Cold Vapour AA	8-Nov-19	8-Nov-19
REG 558 - NO3/NO2	EPA 300.1 - IC	8-Nov-19	8-Nov-19
REG 558 - VOCs	EPA 624 - P&T GC-MS	8-Nov-19	11-Nov-19
Resistivity	EPA 120.1 - probe, water extraction	12-Nov-19	12-Nov-19
SAR	Calculated	11-Nov-19	11-Nov-19
Solids, %	Gravimetric, calculation	7-Nov-19	7-Nov-19

PARACEL LABORATORIES LTD.

Order #: 1945387

Certificate of Analysis
Client: Nasiruddin Engineering Ltd.
Client PO:

Report Date: 12-Nov-2019
Order Date: 6-Nov-2019
Project Description: 900 Eglinton Ave. East, Mississauga

	Client ID:	BH#2, S#3, 7.5 feet	BH#3, S#6 20.0 feet	BH#8, S#2 5.0 feet	BH#11, S#2 5.0 feet
	Sample Date:	24-Oct-19 11:00	24-Oct-19 12:00	25-Oct-19 10:30	25-Oct-19 16:30
	Sample ID:	1945387-01	1945387-02	1945387-03	1945387-04
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	89.3	89.8	87.4	86.5
EPA 1311 - TCLP Leachate Inorganics					
Fluoride	0.05 mg/L	0.25	0.24	0.28	0.36
Nitrate as N	1 mg/L	<1	<1	<1	<1
Nitrite as N	1 mg/L	<1	<1	<1	<1
Cyanide, free	0.02 mg/L	<0.02	<0.02	<0.02	<0.02
EPA 1311 - TCLP Leachate Metals					
Arsenic	0.05 mg/L	<0.05	<0.05	<0.05	<0.05
Barium	0.05 mg/L	0.58	0.59	0.55	0.73
Boron	0.05 mg/L	<0.05	<0.05	<0.05	0.09
Cadmium	0.01 mg/L	<0.01	<0.01	<0.01	<0.01
Chromium	0.05 mg/L	<0.05	<0.05	<0.05	<0.05
Lead	0.05 mg/L	<0.05	<0.05	<0.05	<0.05
Mercury	0.005 mg/L	<0.005	<0.005	<0.005	<0.005
Selenium	0.05 mg/L	<0.05	<0.05	<0.05	<0.05
Silver	0.05 mg/L	<0.05	<0.05	<0.05	<0.05
Uranium	0.05 mg/L	<0.05	<0.05	<0.05	<0.05
EPA 1311 - TCLP Leachate Volatiles					
Benzene	0.005 mg/L	<0.005	<0.005	<0.005	<0.005
Carbon Tetrachloride	0.005 mg/L	<0.005	<0.005	<0.005	<0.005
Chlorobenzene	0.004 mg/L	<0.004	<0.004	<0.004	<0.004
Chloroform	0.006 mg/L	<0.006	<0.006	<0.006	<0.006
1,2-Dichlorobenzene	0.004 mg/L	<0.004	<0.004	<0.004	<0.004
1,4-Dichlorobenzene	0.004 mg/L	<0.004	<0.004	<0.004	<0.004
1,2-Dichloroethane	0.005 mg/L	<0.005	<0.005	<0.005	<0.005
1,1-Dichloroethylene	0.006 mg/L	<0.006	<0.006	<0.006	<0.006
Methyl Ethyl Ketone (2-Butanone)	0.30 mg/L	<0.30	<0.30	<0.30	<0.30
Methylene Chloride	0.04 mg/L	<0.04	<0.04	<0.04	<0.04
Tetrachloroethylene	0.005 mg/L	<0.005	<0.005	<0.005	<0.005
Trichloroethylene	0.004 mg/L	<0.004	<0.004	<0.004	<0.004
Vinyl chloride	0.005 mg/L	<0.005	<0.005	<0.005	<0.005
4-Bromofluorobenzene	Surrogate	117%	116%	118%	114%
Dibromofluoromethane	Surrogate	98.6%	95.0%	88.4%	91.7%
Toluene-d8	Surrogate	102%	97.5%	95.1%	95.8%
General Inorganics					
SAR	0.01 N/A	1.86	0.47	0.34	0.42

PARACEL LABORATORIES LTD.

Order #: 1945387

Certificate of Analysis
Client: Nasiruddin Engineering Ltd.
Client PO:

Report Date: 12-Nov-2019
Order Date: 6-Nov-2019
Project Description: 900 Eglinton Ave. East, Mississauga

	Client ID:	BH#2, S#3, 7.5 feet	BH#3, S#6 20.0 feet	BH#8, S#2 5.0 feet	BH#11, S#2 5.0 feet
	Sample Date:	24-Oct-19 11:00	24-Oct-19 12:00	25-Oct-19 10:30	25-Oct-19 16:30
	Sample ID:	1945387-01	1945387-02	1945387-03	1945387-04
	MDL/Units	Soil	Soil	Soil	Soil
Conductivity	5 uS/cm	438	331	246	254
Cyanide, free	0.03 ug/g dry	-	-	<0.03	<0.03
pH	0.05 pH Units	7.57	7.68	7.49	7.48
Resistivity	0.10 Ohm.m	22.8	30.2	40.7	39.3
Anions					
Chloride	5 ug/g dry	149	66	29	26
Sulphate	5 ug/g dry	102	124	45	84
Metals					
Antimony	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Arsenic	1.0 ug/g dry	5.4	6.3	5.7	4.5
Barium	1.0 ug/g dry	49.5	45.7	78.4	80.3
Beryllium	0.5 ug/g dry	0.8	0.7	0.9	0.8
Boron	5.0 ug/g dry	11.8	12.3	10.2	12.3
Boron, available	0.5 ug/g dry	<0.5	0.5	<0.5	<0.5
Cadmium	0.5 ug/g dry	<0.5	<0.5	<0.5	<0.5
Chromium	5.0 ug/g dry	23.4	25.5	25.5	25.8
Chromium (VI)	0.2 ug/g dry	<0.2	<0.2	<0.2	<0.2
Cobalt	1.0 ug/g dry	11.7	11.1	13.4	11.5
Copper	5.0 ug/g dry	28.9	30.0	44.3	27.7
Lead	1.0 ug/g dry	5.9	9.8	18.5	14.3
Mercury	0.1 ug/g dry	<0.1	<0.1	<0.1	<0.1
Molybdenum	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Nickel	5.0 ug/g dry	25.0	24.2	29.9	25.7
Selenium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Silver	0.3 ug/g dry	<0.3	<0.3	<0.3	<0.3
Thallium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Uranium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Vanadium	10.0 ug/g dry	29.6	28.0	31.4	33.5
Zinc	20.0 ug/g dry	55.8	58.1	82.3	69.8
Volatiles					
Acetone	0.50 ug/g dry	<0.50	<0.50	<0.50	<0.50
Benzene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Bromodichloromethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Bromoform	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Bromomethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Carbon Tetrachloride	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05

Certificate of Analysis
Client: Nasiruddin Engineering Ltd.
Client PO:

Report Date: 12-Nov-2019
Order Date: 6-Nov-2019
Project Description: 900 Eglinton Ave. East, Mississauga

	Client ID:	BH#2, S#3, 7.5 feet	BH#3, S#6 20.0 feet	BH#8, S#2 5.0 feet	BH#11, S#2 5.0 feet
	Sample Date:	24-Oct-19 11:00	24-Oct-19 12:00	25-Oct-19 10:30	25-Oct-19 16:30
	Sample ID:	1945387-01	1945387-02	1945387-03	1945387-04
	MDL/Units	Soil	Soil	Soil	Soil
Chlorobenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Chloroform	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Dibromochloromethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Dichlorodifluoromethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,2-Dichlorobenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,3-Dichlorobenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,4-Dichlorobenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,1-Dichloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,2-Dichloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,1-Dichloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
cis-1,2-Dichloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
trans-1,2-Dichloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,2-Dichloropropane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
cis-1,3-Dichloropropylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
trans-1,3-Dichloropropylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,3-Dichloropropene, total	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Ethylbenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Ethylene dibromide (dibromoethar	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Hexane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Methyl Ethyl Ketone (2-Butanone)	0.50 ug/g dry	<0.50	<0.50	<0.50	<0.50
Methyl Isobutyl Ketone	0.50 ug/g dry	<0.50	<0.50	<0.50	<0.50
Methyl tert-butyl ether	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Methylene Chloride	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Styrene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,1,1,2-Tetrachloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,1,2,2-Tetrachloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Tetrachloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Toluene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,1,1-Trichloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,1,2-Trichloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Trichloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Trichlorofluoromethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Vinyl chloride	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
m,p-Xylenes	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
o-Xylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05

Certificate of Analysis
Client: Nasiruddin Engineering Ltd.
Client PO:

Report Date: 12-Nov-2019
Order Date: 6-Nov-2019
Project Description: 900 Eglinton Ave. East, Mississauga

	Client ID:	BH#2, S#3, 7.5 feet	BH#3, S#6 20.0 feet	BH#8, S#2 5.0 feet	BH#11, S#2 5.0 feet
	Sample Date:	24-Oct-19 11:00	24-Oct-19 12:00	25-Oct-19 10:30	25-Oct-19 16:30
	Sample ID:	1945387-01	1945387-02	1945387-03	1945387-04
	MDL/Units	Soil	Soil	Soil	Soil
Xylenes, total	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
4-Bromofluorobenzene	Surrogate	99.3%	98.4%	98.6%	100%
Dibromofluoromethane	Surrogate	116%	116%	116%	116%
Toluene-d8	Surrogate	97.8%	97.7%	98.0%	98.2%
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	<7	<7	<7	<7
F2 PHCs (C10-C16)	4 ug/g dry	<4	<4	<4	<4
F3 PHCs (C16-C34)	8 ug/g dry	22	<8	71	149
F4 PHCs (C34-C50)	6 ug/g dry	39	<6	125	250 [1]
F4G PHCs (gravimetric)	50 ug/g dry	-	-	-	428
Semi-Volatiles					
Acenaphthene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Acenaphthylene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Anthracene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Benzo [a] anthracene	0.02 ug/g dry	<0.02	<0.02	0.02	<0.02
Benzo [a] pyrene	0.02 ug/g dry	<0.02	<0.02	0.02	<0.02
Benzo [b] fluoranthene	0.02 ug/g dry	<0.02	<0.02	0.05	<0.02
Benzo [g,h,i] perylene	0.02 ug/g dry	<0.02	<0.02	0.04	<0.02
Benzo [k] fluoranthene	0.02 ug/g dry	<0.02	<0.02	0.02	<0.02
Chrysene	0.02 ug/g dry	<0.02	<0.02	0.03	<0.02
Dibenzo [a,h] anthracene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Fluoranthene	0.02 ug/g dry	<0.02	<0.02	0.03	<0.02
Fluorene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Indeno [1,2,3-cd] pyrene	0.02 ug/g dry	<0.02	<0.02	0.02	<0.02
1-Methylnaphthalene	0.02 ug/g dry	<0.02	<0.02	0.02	<0.02
2-Methylnaphthalene	0.02 ug/g dry	<0.02	<0.02	0.03	<0.02
Methylnaphthalene (1&2)	0.04 ug/g dry	<0.04	<0.04	0.05	<0.04
Naphthalene	0.01 ug/g dry	<0.01	<0.01	0.02	<0.01
Phenanthrene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Pyrene	0.02 ug/g dry	<0.02	<0.02	0.03	<0.02
2-Fluorobiphenyl	Surrogate	75.8%	79.2%	83.9%	72.6%
Terphenyl-d14	Surrogate	84.0%	86.4%	80.7%	70.7%
PCBs					
PCBs, total	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Decachlorobiphenyl	Surrogate	104%	109%	106%	115%

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Anions									
Chloride	ND	5	ug/g						
Sulphate	ND	5	ug/g						
EPA 1311 - TCLP Leachate Inorganics									
Fluoride	ND	0.05	mg/L						
Nitrate as N	ND	1	mg/L						
Nitrite as N	ND	1	mg/L						
Cyanide, free	ND	0.02	mg/L						
EPA 1311 - TCLP Leachate Metals									
Arsenic	ND	0.05	mg/L						
Barium	ND	0.05	mg/L						
Boron	ND	0.05	mg/L						
Cadmium	ND	0.01	mg/L						
Chromium	ND	0.05	mg/L						
Lead	ND	0.05	mg/L						
Mercury	ND	0.005	mg/L						
Selenium	ND	0.05	mg/L						
Silver	ND	0.05	mg/L						
Uranium	ND	0.05	mg/L						
EPA 1311 - TCLP Leachate Volatiles									
Benzene	ND	0.005	mg/L						
Carbon Tetrachloride	ND	0.005	mg/L						
Chlorobenzene	ND	0.004	mg/L						
Chloroform	ND	0.006	mg/L						
1,2-Dichlorobenzene	ND	0.004	mg/L						
1,4-Dichlorobenzene	ND	0.004	mg/L						
1,2-Dichloroethane	ND	0.005	mg/L						
1,1-Dichloroethylene	ND	0.006	mg/L						
Methyl Ethyl Ketone (2-Butanone)	ND	0.30	mg/L						
Methylene Chloride	ND	0.04	mg/L						
Tetrachloroethylene	ND	0.005	mg/L						
Trichloroethylene	ND	0.004	mg/L						
Vinyl chloride	ND	0.005	mg/L						
Surrogate: 4-Bromofluorobenzene	*0.768*		*mg/L*		*112*	*83-134*			
Surrogate: Dibromofluoromethane	*0.630*		*mg/L*		*91.6*	*78-124*			
Surrogate: Toluene-d8	*0.673*		*mg/L*		*97.8*	*76-118*			
General Inorganics									
Conductivity	ND	5	uS/cm						
Cyanide, free	ND	0.03	ug/g						
Resistivity	ND	0.10	Ohm.m						
Hydrocarbons									
F1 PHCs (C6-C10)	ND	7	ug/g						
F2 PHCs (C10-C16)	ND	4	ug/g						
F3 PHCs (C16-C34)	ND	8	ug/g						
F4 PHCs (C34-C50)	ND	6	ug/g						
F4G PHCs (gravimetric)	ND	50	ug/g						
Metals									
Antimony	ND	1.0	ug/g						
Arsenic	ND	1.0	ug/g						
Barium	ND	1.0	ug/g						
Beryllium	ND	0.5	ug/g						
Boron, available	ND	0.5	ug/g						
Boron	ND	5.0	ug/g						
Cadmium	ND	0.5	ug/g						
Chromium (VI)	ND	0.2	ug/g						
Chromium	ND	5.0	ug/g						
Cobalt	ND	1.0	ug/g						

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Copper	ND	5.0	ug/g						
Lead	ND	1.0	ug/g						
Mercury	ND	0.1	ug/g						
Molybdenum	ND	1.0	ug/g						
Nickel	ND	5.0	ug/g						
Selenium	ND	1.0	ug/g						
Silver	ND	0.3	ug/g						
Thallium	ND	1.0	ug/g						
Uranium	ND	1.0	ug/g						
Vanadium	ND	10.0	ug/g						
Zinc	ND	20.0	ug/g						
PCBs									
PCBs, total	ND	0.05	ug/g						
Surrogate: Decachlorobiphenyl	*0.112*		*ug/g*		*112*	*60-140*			
Semi-Volatiles									
Acenaphthene	ND	0.02	ug/g						
Acenaphthylene	ND	0.02	ug/g						
Anthracene	ND	0.02	ug/g						
Benzo [a] anthracene	ND	0.02	ug/g						
Benzo [a] pyrene	ND	0.02	ug/g						
Benzo [b] fluoranthene	ND	0.02	ug/g						
Benzo [g,h,i] perylene	ND	0.02	ug/g						
Benzo [k] fluoranthene	ND	0.02	ug/g						
Chrysene	ND	0.02	ug/g						
Dibenzo [a,h] anthracene	ND	0.02	ug/g						
Fluoranthene	ND	0.02	ug/g						
Fluorene	ND	0.02	ug/g						
Indeno [1,2,3-cd] pyrene	ND	0.02	ug/g						
1-Methylnaphthalene	ND	0.02	ug/g						
2-Methylnaphthalene	ND	0.02	ug/g						
Methylnaphthalene (1&2)	ND	0.04	ug/g						
Naphthalene	ND	0.01	ug/g						
Phenanthrene	ND	0.02	ug/g						
Pyrene	ND	0.02	ug/g						
Surrogate: 2-Fluorobiphenyl	*1.38*		*ug/g*		*103*	*50-140*			
Surrogate: Terphenyl-d14	*1.54*		*ug/g*		*115*	*50-140*			
Volatiles									
Acetone	ND	0.50	ug/g						
Benzene	ND	0.02	ug/g						
Bromodichloromethane	ND	0.05	ug/g						
Bromoform	ND	0.05	ug/g						
Bromomethane	ND	0.05	ug/g						
Carbon Tetrachloride	ND	0.05	ug/g						
Chlorobenzene	ND	0.05	ug/g						
Chloroform	ND	0.05	ug/g						
Dibromochloromethane	ND	0.05	ug/g						
Dichlorodifluoromethane	ND	0.05	ug/g						
1,2-Dichlorobenzene	ND	0.05	ug/g						
1,3-Dichlorobenzene	ND	0.05	ug/g						
1,4-Dichlorobenzene	ND	0.05	ug/g						
1,1-Dichloroethane	ND	0.05	ug/g						
1,2-Dichloroethane	ND	0.05	ug/g						
1,1-Dichloroethylene	ND	0.05	ug/g						
cis-1,2-Dichloroethylene	ND	0.05	ug/g						
trans-1,2-Dichloroethylene	ND	0.05	ug/g						
1,2-Dichloropropane	ND	0.05	ug/g						
cis-1,3-Dichloropropylene	ND	0.05	ug/g						
trans-1,3-Dichloropropylene	ND	0.05	ug/g						
1,3-Dichloropropene, total	ND	0.05	ug/g						

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Ethylbenzene	ND	0.05	ug/g						
Ethylene dibromide (dibromoethane	ND	0.05	ug/g						
Hexane	ND	0.05	ug/g						
Methyl Ethyl Ketone (2-Butanone)	ND	0.50	ug/g						
Methyl Isobutyl Ketone	ND	0.50	ug/g						
Methyl tert-butyl ether	ND	0.05	ug/g						
Methylene Chloride	ND	0.05	ug/g						
Styrene	ND	0.05	ug/g						
1,1,1,2-Tetrachloroethane	ND	0.05	ug/g						
1,1,2,2-Tetrachloroethane	ND	0.05	ug/g						
Tetrachloroethylene	ND	0.05	ug/g						
Toluene	ND	0.05	ug/g						
1,1,1-Trichloroethane	ND	0.05	ug/g						
1,1,2-Trichloroethane	ND	0.05	ug/g						
Trichloroethylene	ND	0.05	ug/g						
Trichlorofluoromethane	ND	0.05	ug/g						
Vinyl chloride	ND	0.02	ug/g						
m,p-Xylenes	ND	0.05	ug/g						
o-Xylene	ND	0.05	ug/g						
Xylenes, total	ND	0.05	ug/g						
Surrogate: 4-Bromofluorobenzene	*9.17*		*ug/g*		*115*	*50-140*			
Surrogate: Dibromofluoromethane	*8.95*		*ug/g*		*112*	*50-140*			
Surrogate: Toluene-d8	*7.82*		*ug/g*		*97.7*	*50-140*			

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Anions									
Chloride	152	5	ug/g dry	149			2.0	20	
Sulphate	104	5	ug/g dry	102			2.1	20	
EPA 1311 - TCLP Leachate Inorganics									
Fluoride	0.08	0.05	mg/L	0.07			7.5	20	
Nitrate as N	ND	1	mg/L	ND				20	
Nitrite as N	ND	1	mg/L	ND				20	
Cyanide, free	ND	0.02	mg/L	ND				20	
EPA 1311 - TCLP Leachate Metals									
Arsenic	ND	0.05	mg/L	ND			0.0	29	
Barium	0.284	0.05	mg/L	0.274			3.8	34	
Boron	0.073	0.05	mg/L	0.067			8.3	33	
Cadmium	ND	0.01	mg/L	ND			0.0	33	
Chromium	ND	0.05	mg/L	ND			0.0	32	
Lead	ND	0.05	mg/L	ND			0.0	32	
Mercury	ND	0.005	mg/L	ND			0.0	30	
Selenium	ND	0.05	mg/L	ND			0.0	28	
Silver	ND	0.05	mg/L	ND			0.0	28	
Uranium	ND	0.05	mg/L	ND			0.0	27	
EPA 1311 - TCLP Leachate Volatiles									
Benzene	ND	0.005	mg/L	ND				25	
Carbon Tetrachloride	ND	0.005	mg/L	ND				25	
Chlorobenzene	ND	0.004	mg/L	ND				25	
Chloroform	ND	0.006	mg/L	ND				25	
1,2-Dichlorobenzene	ND	0.004	mg/L	ND				25	
1,4-Dichlorobenzene	ND	0.004	mg/L	ND				25	
1,2-Dichloroethane	ND	0.005	mg/L	ND				25	
1,1-Dichloroethylene	ND	0.006	mg/L	ND				25	
Methyl Ethyl Ketone (2-Butanone)	ND	0.30	mg/L	ND				25	
Methylene Chloride	ND	0.04	mg/L	ND				25	
Tetrachloroethylene	ND	0.005	mg/L	ND				25	
Trichloroethylene	ND	0.004	mg/L	ND				25	
Vinyl chloride	ND	0.005	mg/L	ND				25	
Surrogate: 4-Bromofluorobenzene	*0.800*		*mg/L*		*116*	*83-134*			
Surrogate: Dibromofluoromethane	*0.658*		*mg/L*		*95.6*	*78-124*			
Surrogate: Toluene-d8	*0.669*		*mg/L*		*97.3*	*76-118*			
General Inorganics									
SAR	1.19	0.01	N/A	1.86			43.9	200	
Conductivity	170	5	uS/cm	171			0.6	5	
Cyanide, free	ND	0.03	ug/g dry	ND				35	
pH	6.69	0.05	pH Units	6.65			0.6	2.3	
Resistivity	59.0	0.10	Ohm.m	58.6			0.6	20	
Hydrocarbons									
F1 PHCs (C6-C10)	ND	7	ug/g dry	ND				40	
F2 PHCs (C10-C16)	593	4	ug/g dry	389			41.4	30	QR-04
F3 PHCs (C16-C34)	73	8	ug/g dry	38			64.0	30	QR-04
F4 PHCs (C34-C50)	ND	6	ug/g dry	ND				30	
F4G PHCs (gravimetric)	894	50	ug/g dry	599			39.4	30	QR-04
Metals									
Antimony	1.5	1.0	ug/g dry	ND			0.0	30	
Arsenic	1.5	1.0	ug/g dry	1.4			7.9	30	
Barium	27.7	1.0	ug/g dry	29.1			4.9	30	
Beryllium	ND	0.5	ug/g dry	ND			0.0	30	
Boron, available	ND	0.5	ug/g dry	ND			0.0	35	
Boron	ND	5.0	ug/g dry	ND			0.0	30	
Cadmium	ND	0.5	ug/g dry	ND			0.0	30	

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Chromium (VI)	ND	0.2	ug/g dry	ND				35	
Chromium	20.4	5.0	ug/g dry	19.5			4.2	30	
Cobalt	3.8	1.0	ug/g dry	3.8			0.0	30	
Copper	5.8	5.0	ug/g dry	5.9			1.6	30	
Lead	2.1	1.0	ug/g dry	2.1			1.8	30	
Mercury	ND	0.1	ug/g dry	ND			0.0	30	
Molybdenum	ND	1.0	ug/g dry	ND			0.0	30	
Nickel	8.9	5.0	ug/g dry	8.8			1.0	30	
Selenium	ND	1.0	ug/g dry	ND			0.0	30	
Silver	ND	0.3	ug/g dry	ND			0.0	30	
Thallium	ND	1.0	ug/g dry	ND			0.0	30	
Uranium	ND	1.0	ug/g dry	ND			0.0	30	
Vanadium	27.1	10.0	ug/g dry	26.2			3.4	30	
Zinc	ND	20.0	ug/g dry	ND			0.0	30	
PCBs									
PCBs, total	ND	0.05	ug/g dry	ND				40	
Surrogate: Decachlorobiphenyl	*0.135*		*ug/g dry*		*119*	*60-140*			
Physical Characteristics									
% Solids	69.4	0.1	% by Wt.	71.3			2.7	25	
Semi-Volatiles									
Acenaphthene	ND	0.02	ug/g dry	ND				40	
Acenaphthylene	ND	0.02	ug/g dry	ND				40	
Anthracene	ND	0.02	ug/g dry	ND			0.0	40	
Benzo [a] anthracene	ND	0.02	ug/g dry	ND			0.0	40	
Benzo [a] pyrene	ND	0.02	ug/g dry	ND			0.0	40	
Benzo [b] fluoranthene	ND	0.02	ug/g dry	ND			0.0	40	
Benzo [g,h,i] perylene	ND	0.02	ug/g dry	ND			0.0	40	
Benzo [k] fluoranthene	ND	0.02	ug/g dry	ND			0.0	40	
Chrysene	ND	0.02	ug/g dry	ND			0.0	40	
Dibenzo [a,h] anthracene	ND	0.02	ug/g dry	ND				40	
Fluoranthene	ND	0.02	ug/g dry	ND				40	
Fluorene	ND	0.02	ug/g dry	ND				40	
Indeno [1,2,3-cd] pyrene	ND	0.02	ug/g dry	ND			0.0	40	
1-Methylnaphthalene	ND	0.02	ug/g dry	ND			0.0	40	
2-Methylnaphthalene	ND	0.02	ug/g dry	ND			0.0	40	
Naphthalene	ND	0.01	ug/g dry	ND			0.0	40	
Phenanthrene	ND	0.02	ug/g dry	ND			0.0	40	
Pyrene	ND	0.02	ug/g dry	ND			0.0	40	
Surrogate: 2-Fluorobiphenyl	*1.11*		*ug/g dry*		*74.5*	*50-140*			
Surrogate: Terphenyl-d14	*1.32*		*ug/g dry*		*88.6*	*50-140*			
Volatiles									
Acetone	ND	0.50	ug/g dry	ND				50	
Benzene	ND	0.02	ug/g dry	ND				50	
Bromodichloromethane	ND	0.05	ug/g dry	ND				50	
Bromoform	ND	0.05	ug/g dry	ND				50	
Bromomethane	ND	0.05	ug/g dry	ND				50	
Carbon Tetrachloride	ND	0.05	ug/g dry	ND				50	
Chlorobenzene	ND	0.05	ug/g dry	ND				50	
Chloroform	ND	0.05	ug/g dry	ND				50	
Dibromochloromethane	ND	0.05	ug/g dry	ND				50	
Dichlorodifluoromethane	ND	0.05	ug/g dry	ND				50	
1,2-Dichlorobenzene	ND	0.05	ug/g dry	ND				50	
1,3-Dichlorobenzene	ND	0.05	ug/g dry	ND				50	
1,4-Dichlorobenzene	ND	0.05	ug/g dry	ND				50	
1,1-Dichloroethane	ND	0.05	ug/g dry	ND				50	
1,2-Dichloroethane	ND	0.05	ug/g dry	ND				50	
1,1-Dichloroethylene	ND	0.05	ug/g dry	ND				50	

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
cis-1,2-Dichloroethylene	ND	0.05	ug/g dry	ND				50	
trans-1,2-Dichloroethylene	ND	0.05	ug/g dry	ND				50	
1,2-Dichloropropane	ND	0.05	ug/g dry	ND				50	
cis-1,3-Dichloropropylene	ND	0.05	ug/g dry	ND				50	
trans-1,3-Dichloropropylene	ND	0.05	ug/g dry	ND				50	
Ethylbenzene	ND	0.05	ug/g dry	ND				50	
Ethylene dibromide (dibromoethane	ND	0.05	ug/g dry	ND				50	
Hexane	ND	0.05	ug/g dry	ND				50	
Methyl Ethyl Ketone (2-Butanone)	ND	0.50	ug/g dry	ND				50	
Methyl Isobutyl Ketone	ND	0.50	ug/g dry	ND				50	
Methyl tert-butyl ether	ND	0.05	ug/g dry	ND				50	
Methylene Chloride	ND	0.05	ug/g dry	ND				50	
Styrene	ND	0.05	ug/g dry	ND				50	
1,1,1,2-Tetrachloroethane	ND	0.05	ug/g dry	ND				50	
1,1,2,2-Tetrachloroethane	ND	0.05	ug/g dry	ND				50	
Tetrachloroethylene	ND	0.05	ug/g dry	ND				50	
Toluene	ND	0.05	ug/g dry	ND				50	
1,1,1-Trichloroethane	ND	0.05	ug/g dry	ND				50	
1,1,2-Trichloroethane	ND	0.05	ug/g dry	ND				50	
Trichloroethylene	ND	0.05	ug/g dry	ND				50	
Trichlorofluoromethane	ND	0.05	ug/g dry	ND				50	
Vinyl chloride	ND	0.02	ug/g dry	ND				50	
m,p-Xylenes	ND	0.05	ug/g dry	ND				50	
o-Xylene	ND	0.05	ug/g dry	ND				50	
Surrogate: 4-Bromofluorobenzene	*8.65*		*ug/g dry*		*101*	*50-140*			
Surrogate: Dibromofluoromethane	*9.35*		*ug/g dry*		*109*	*50-140*			
Surrogate: Toluene-d8	*8.68*		*ug/g dry*		*101*	*50-140*			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Anions									
Chloride	251	5	ug/g	149	102	82-118			
Sulphate	207	5	ug/g	102	105	80-120			
EPA 1311 - TCLP Leachate Inorganics									
Fluoride	0.60	0.05	mg/L	0.07	106	70-130			
Nitrate as N	11	1	mg/L	ND	110	81-112			
Nitrite as N	9	1	mg/L	ND	90.5	76-107			
Cyanide, free	0.047	0.02	mg/L	ND	94.8	60-136			
EPA 1311 - TCLP Leachate Metals									
Arsenic	48.1		ug/L	0.110	96.0	83-119			
Barium	74.8		ug/L	27.4	94.9	83-116			
Boron	50.6		ug/L	6.70	87.7	71-128			
Cadmium	43.7		ug/L	0.115	87.1	78-119			
Chromium	53.2		ug/L	0.162	106	80-124			
Lead	39.9		ug/L	0.892	77.9	77-126			
Mercury	0.0325	0.005	mg/L	ND	108	70-130			
Selenium	43.5		ug/L	0.148	86.7	81-125			
Silver	43.1		ug/L	ND	86.2	70-128			
Uranium	44.9		ug/L	ND	89.8	70-131			
EPA 1311 - TCLP Leachate Volatiles									
Benzene	0.037	0.005	mg/L		91.8	55-141			
Carbon Tetrachloride	0.027	0.005	mg/L		67.7	49-149			
Chlorobenzene	0.033	0.004	mg/L		83.0	64-137			
Chloroform	0.029	0.006	mg/L		73.5	58-138			
1,2-Dichlorobenzene	0.033	0.004	mg/L		82.8	60-150			
1,4-Dichlorobenzene	0.034	0.004	mg/L		84.1	63-132			
1,2-Dichloroethane	0.027	0.005	mg/L		66.9	50-140			
1,1-Dichloroethylene	0.036	0.006	mg/L		89.1	43-153			
Methyl Ethyl Ketone (2-Butanone)	0.069	0.30	mg/L		69.0	26-153			
Methylene Chloride	0.031	0.04	mg/L		77.8	58-149			
Tetrachloroethylene	0.036	0.005	mg/L		89.1	51-145			
Trichloroethylene	0.031	0.004	mg/L		78.6	52-135			
Vinyl chloride	0.025	0.005	mg/L		61.9	31-159			
Surrogate: 4-Bromofluorobenzene	*0.0867*		*mg/L*		*108*	*83-134*			
General Inorganics									
Cyanide, free	0.215	0.03	ug/g	ND	62.6	70-130			QM-05
Hydrocarbons									
F1 PHCs (C6-C10)	168	7	ug/g		83.9	80-120			
F2 PHCs (C10-C16)	604	4	ug/g	389	241	60-140			QM-06
F3 PHCs (C16-C34)	313	8	ug/g	38	126	60-140			
F4 PHCs (C34-C50)	184	6	ug/g	ND	133	60-140			
F4G PHCs (gravimetric)	970	50	ug/g		97.0	80-120			
Metals									
Antimony	38.2		ug/L	ND	76.3	70-130			
Arsenic	44.4		ug/L	ND	87.7	70-130			
Barium	58.7		ug/L	11.6	94.2	70-130			
Beryllium	49.9		ug/L	ND	99.5	70-130			
Boron, available	5.06	0.5	ug/g	ND	101	70-122			
Boron	45.7		ug/L	ND	90.1	70-130			
Cadmium	47.3		ug/L	ND	94.6	70-130			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Chromium (VI)	3.0	0.2	ug/g	ND	53.5	70-130			QM-05
Chromium	56.3		ug/L	7.8	97.0	70-130			
Cobalt	47.0		ug/L	1.5	90.8	70-130			
Copper	49.9		ug/L	ND	95.0	70-130			
Lead	42.2		ug/L	ND	82.8	70-130			
Mercury	1.71	0.1	ug/g	ND	114	70-130			
Molybdenum	45.3		ug/L	ND	90.5	70-130			
Nickel	50.5		ug/L	ND	94.0	70-130			
Selenium	49.2		ug/L	ND	98.4	70-130			
Silver	45.0		ug/L	ND	90.0	70-130			
Thallium	45.8		ug/L	ND	91.5	70-130			
Uranium	47.6		ug/L	ND	94.7	70-130			
Vanadium	56.9		ug/L	10.5	92.9	70-130			
Zinc	52.8		ug/L	ND	94.7	70-130			
PCBs									
PCBs, total	0.450	0.05	ug/g	ND	98.5	60-140			
Semi-Volatiles									
Acenaphthene	0.185	0.02	ug/g	ND	99.2	50-140			
Acenaphthylene	0.154	0.02	ug/g	ND	82.3	50-140			
Anthracene	0.154	0.02	ug/g	ND	82.4	50-140			
Benzo [a] anthracene	0.168	0.02	ug/g	ND	89.9	50-140			
Benzo [a] pyrene	0.135	0.02	ug/g	ND	72.2	50-140			
Benzo [b] fluoranthene	0.220	0.02	ug/g	ND	118	50-140			
Benzo [g,h,i] perylene	0.152	0.02	ug/g	ND	81.6	50-140			
Benzo [k] fluoranthene	0.206	0.02	ug/g	ND	110	50-140			
Chrysene	0.206	0.02	ug/g	ND	110	50-140			
Dibenzo [a,h] anthracene	0.149	0.02	ug/g	ND	80.0	50-140			
Fluoranthene	0.163	0.02	ug/g	ND	87.1	50-140			
Fluorene	0.170	0.02	ug/g	ND	91.2	50-140			
Indeno [1,2,3-cd] pyrene	0.129	0.02	ug/g	ND	68.9	50-140			
1-Methylnaphthalene	0.164	0.02	ug/g	ND	87.6	50-140			
2-Methylnaphthalene	0.192	0.02	ug/g	ND	103	50-140			
Naphthalene	0.162	0.01	ug/g	ND	86.8	50-140			
Phenanthrene	0.170	0.02	ug/g	ND	90.9	50-140			
Pyrene	0.169	0.02	ug/g	ND	90.7	50-140			
Volatiles									
Acetone	8.76	0.50	ug/g		87.6	50-140			
Benzene	3.70	0.02	ug/g		92.5	60-130			
Bromodichloromethane	3.98	0.05	ug/g		99.6	60-130			
Bromoform	3.94	0.05	ug/g		98.5	60-130			
Bromomethane	4.43	0.05	ug/g		111	50-140			
Carbon Tetrachloride	3.95	0.05	ug/g		98.6	60-130			
Chlorobenzene	4.05	0.05	ug/g		101	60-130			
Chloroform	3.97	0.05	ug/g		99.3	60-130			
Dibromochloromethane	4.47	0.05	ug/g		112	60-130			
Dichlorodifluoromethane	4.45	0.05	ug/g		111	50-140			
1,2-Dichlorobenzene	3.75	0.05	ug/g		93.9	60-130			
1,3-Dichlorobenzene	4.01	0.05	ug/g		100	60-130			
1,4-Dichlorobenzene	3.93	0.05	ug/g		98.3	60-130			
1,1-Dichloroethane	4.25	0.05	ug/g		106	60-130			
1,2-Dichloroethane	3.89	0.05	ug/g		97.3	60-130			

Certificate of Analysis
Client: Nasiruddin Engineering Ltd.
Client PO:

Report Date: 12-Nov-2019
Order Date: 6-Nov-2019
Project Description: 900 Eglinton Ave. East, Mississauga

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
1,1-Dichloroethylene	3.76	0.05	ug/g		93.9	60-130			
cis-1,2-Dichloroethylene	3.86	0.05	ug/g		96.6	60-130			
trans-1,2-Dichloroethylene	3.78	0.05	ug/g		94.4	60-130			
1,2-Dichloropropane	4.10	0.05	ug/g		102	60-130			
cis-1,3-Dichloropropylene	3.76	0.05	ug/g		94.1	60-130			
trans-1,3-Dichloropropylene	3.14	0.05	ug/g		78.4	60-130			
Ethylbenzene	4.21	0.05	ug/g		105	60-130			
Ethylene dibromide (dibromoethane	3.72	0.05	ug/g		92.9	60-130			
Hexane	4.79	0.05	ug/g		120	60-130			
Methyl Ethyl Ketone (2-Butanone)	7.18	0.50	ug/g		71.8	50-140			
Methyl Isobutyl Ketone	7.08	0.50	ug/g		70.8	50-140			
Methyl tert-butyl ether	7.97	0.05	ug/g		79.7	50-140			
Methylene Chloride	2.95	0.05	ug/g		73.6	60-130			
Styrene	3.99	0.05	ug/g		99.8	60-130			
1,1,1,2-Tetrachloroethane	4.37	0.05	ug/g		109	60-130			
1,1,2,2-Tetrachloroethane	3.54	0.05	ug/g		88.6	60-130			
Tetrachloroethylene	3.81	0.05	ug/g		95.2	60-130			
Toluene	3.90	0.05	ug/g		97.6	60-130			
1,1,1-Trichloroethane	3.59	0.05	ug/g		89.6	60-130			
1,1,2-Trichloroethane	3.47	0.05	ug/g		86.7	60-130			
Trichloroethylene	3.42	0.05	ug/g		85.6	60-130			
Trichlorofluoromethane	3.95	0.05	ug/g		98.9	50-140			
Vinyl chloride	4.90	0.02	ug/g		122	50-140			
m,p-Xylenes	8.02	0.05	ug/g		100	60-130			
o-Xylene	4.21	0.05	ug/g		105	60-130			

Qualifier Notes:

Sample Qualifiers :

1 : GC-FID signal did not return to baseline by C50

QC Qualifiers :

QM-05 : The spike recovery was outside acceptance limits for the matrix spike due to matrix interference.

QM-06 : Due to noted non-homogeneity of the QC sample matrix, the spike recoveries were out side the accepted range. Batch data accepted based on other QC.

QR-04 : Duplicate results exceeds RPD limits due to non-homogeneous matrix.

Sample Data Revisions

None

Work Order Revisions / Comments:

Other Report Notes:

n/a: not applicable
ND: Not Detected
MDL: Method Detection Limit
Source Result: Data used as source for matrix and duplicate samples
%REC: Percent recovery.
RPD: Relative percent difference.

Soil results are reported on a dry weight basis when the units are denoted with 'dry'.
Where %Solids is reported, moisture loss includes the loss of volatile hydrocarbons.

CCME PHC additional information:

- The method for the analysis of PHCs complies with the Reference Method for the CWS PHC and is validated for use in the laboratory. All prescribed quality criteria identified in the method has been met.
- F1 range corrected for BTEX.
- F2 to F3 ranges corrected for appropriate PAHs where available.
- The gravimetric heavy hydrocarbons (F4G) are not to be added to C6 to C50 hydrocarbons.
- In the case where F4 and F4G are both reported, the greater of the two results is to be used for comparison to CWS PHC criteria.
- When reported, data for F4G has been processed using a silica gel cleanup.

PARACEL LABORATORIES LTD.

Paracel ID: 1945387

Paracel Order Number (Lab Use Only)	Chain Of Custody (Lab Use Only)
1945387	№ 124352

Client Name: Nasiruddin Engineering Limited	Project Ref: 900 Eglinton Ave. East, Mississauga	Page __ of __
Contact Name: Archit Talwar	Quote #:	Turnaround Time
Address: 6033 Shawson Drive, Unit 01, 02-06, Mississauga Ontario. L5T 1H8	PO #:	☐ 1 day ☐ 3 day ☐ 2 day ☑ Regular
Telephone: 905-565-9595	E-mail: archit@nasiruddineng.com shakeel@nasiruddineng.com	Date Required:

Regulation 153/04: ☐ Table 1 ☐ Res/Park ☐ Med/Fine ☐ Table 2 ☐ Ind/Comm ☐ Coarse ☐ Table 3 ☐ Agri/Other ☐ Table ___ For RSC: ☐ Yes ☐ No

Other Regulation: ☐ REG 558 ☐ PWQO ☐ CCME ☐ MISA ☐ SU - Sani ☐ SU - Storm Mun: ☐ Other:

Matrix Type: S (Soil/Sed.) GW (Ground Water) SW (Surface Water) SS (Storm/Sanitary Sewer) P (Paint) A (Air) O (Other)

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken: Date	Sample Taken: Time	PHCs F1-F4+BTEX	VOCs	PAHs	Metals by ICP	Hg	CrVI	B (HWS)	Required Analysis	
1	BH #2, S#3, 7.5 feet	S	-	3	Oct 24, 2019	11:00 Am									2x125ml+1unpl
2	BH #3, S#6, 20.0 feet	S	-	3	"	12:00 PM									1
3	BH #8, S#2, 5.0 feet	S	-	3	Oct 25, 2019	10:30 AM									1x250ml+1unpl
4	BH #11, S#2, 5.0 feet	S	-	3	"	04:30 PM									2x250ml+1unpl
5															
6															
7															
8															
9	Cyanide on samples #1, 2 expired, cancelled as per Shakeel														
10															

Comments: O.Reg 153 & O.Reg 558 TCLP Plus Corrosion Package include ~~Sp~~ Sulphate

Method of Delivery:

Relinquished By (Sign):	Received By Driver/Depot:	Received at Lab:	Verified By:
Relinquished By (Print): Faheed	Date/Time: Nov. 6/2019 11:11	Date/Time: Nov 7, 2019 10:38	Date/Time: Nov 8/19 15
Date/Time:	Temperature: 17.3 °C	Temperature: 4.9 °C	pH Verified: ☐ By:

Chain of Custody (Env.) xlsx

Revision 3.0

APPENDIX E

Site Photographs

NASIRUDDIN
ENGINEERING
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The Building Area

The Parking Area

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The Parking Area

The drilling equipment

NASIRUDDIN
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Underground water in building area, coming out from hole

Underground water level in building area

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PVC Piezometer

Installed Piezometer Location