

NYC DEPARTMENT OF ENVIRONMENTAL PROTECTION

BUREAU OF ENVIRONMENTAL PLANNING AND ANALYSIS

GREEN INFRASTRUCTURE

PROCEDURE GOVERNING

LIMITED GEOTECHNICAL INVESTIGATION

FOR

RIGHT-OF-WAY GREEN INFRASTRUCTURE PRACTICES

May 2022

Table of Contents

1	General		_
2	Geotech	nical Investigation	_
	2.1 Pre-	Investigation and Planning1	-
	2.1.1	Boring Plan 1	-
	2.1.2	Historical Borings 1	-
	2.1.3	Pre-Drilling Site Checklist 2	/
2	2.2 Geo	technical Investigation Locations 2	/
	2.2.1	Identifying Boring Locations in the Field 2	/
	2.2.2	Field Measurements 3	;
2	2.3 Geo	technical Investigation Methodology3	;
	2.3.1	Drilling Procedure and Equipment	;
	2.3.1.	1 Standard Penetration Test 4	ŀ
	2.3.1.	2 Soil Sampling 4	ŀ
	2.3.2	Permeability Test Procedure and Equipment4	ŀ
	2.3.3	Temperature Measurement 5)
	2.3.4	Geotechnical Investigation Depths 6	;
	2.3.5	Termination and Cancellation of Soil Borings and Permeability Tests	1
	2.3.5.	1 Termination of Permeability Tests after the Saturation Period7	1
	2.3.5.	2 Modification of Soil Borings and/or Permeability Test Depths	3
	2.4 Clea	anup8	3
	2.5 Geo	technical Laboratory Testing9)
3	Geotech	nical Report9)
3	3.1 Geo	technical Investigation Data9)
	3.1.1	Boring Plan Maps and Shapefiles9)
	3.1.2	Boring Logs)
	3.1.3	Permeability Test Logs 10)
	3.1.4	Laboratory Test Results 11	_
	3.1.5	Geotechnical Report Summary Table 11	_
2	3.2 Inte	rim Geotechnical Report Submission 11	_
3	3.3 Geo	technical Report Submission12	/
	3.3.1	Geotechnical Report – Electronic Copy 12	/
	3.3.2	Geospatial Data Requirement 12	/
	3.3.3	Geotechnical Report – Electronic and Physical Copy 13	5

Appendix:

Relevant Documents Prior to Geotechnical Investigations Sample for Geotechnical Report Cover Page Samples and Templates for Geotechnical Report Attachments

1 General

Limited Geotechnical Investigation is required prior to the design of these Right-of-way Green Infrastructure (GI) practices to determine soil characteristics, soil permeability rates, and depths to groundwater table and bedrock when encountered.

A Geotechnical Report including the above information, stamped and signed by a NYS Licensed Professional Engineer (P.E.), shall be submitted to BEPA-GI. The following sections provide details of the geotechnical investigation and reporting procedure.

2 Geotechnical Investigation

The Limited Geotechnical Investigation consists primarily of:

- a) Soil borings to determine the soil characteristics (field observation and laboratory testing) as well as the depths to groundwater table and bedrock where encountered.
- b) Falling-head in-situ permeability tests (PTs) to determine soil permeability rates.

In general, Geotechnical Investigations consist of one soil boring and one PT (collectively referred to as B/PT). All Preliminary ROW GI practices considered for design shall have B/PT data, either from geotechnical investigations performed at the location or inferred from existing or proposed B/PTs in the vicinity of the ROW GI practice location.

For ROW Permeable Pavement, B/PTs are required at every street segment near the downstream end. Additional B/PTs may be proposed for longer streets. For areas with permeable pavement planned for both sides of a street, the B/PTs shall be staggered on alternate sides of the street.

The following sections provide more detail on the soil borings and PTs.

2.1 Pre-Investigation and Planning

2.1.1 Boring Plan

Soil boring and PT locations shall be proposed in a Boring Plan and submitted to BEPA-GI for approval. At a minimum, the Boring Plan shall be comprised of the following: Boring Plan Map and Boring Plan Table with all pertinent information, including but not limited to all GI practices with correct GI IDs and GI Types where applicable (see attachments A); all soil boring and PT locations, existing historical data (see attachments B); and a summary of proposed borings and PTs.

2.1.2 Historical Borings

Historical soil borings and PT data in proximity of proposed GI practices may be obtained from DEP or from the Department of Design and Construction (DDC). Boring Log, Laboratory Test

Results and Permeability Tests Logs inferred from different contract areas are to be submitted in this section.

Soil data for Preliminary GI practices may be represented by historical soil boring(s), provided that the available information is sufficient. For example, if the boring log for such a historical boring location shows the soil characteristics up to 20 ft below ground surface (bgs) as well as depths to the groundwater table and bedrock (if encountered), then only PTs will be necessary for that location.

All historical boring data in the vicinity of the GI practice(s) along with distance from GI practice shall be included in the Boring Plan Table. The actual historical boring data in its entirety shall be submitted with the Boring Plan and as a part of the Geotechnical Report.

2.1.3 Pre-Drilling Site Checklist

Prior to any drilling work, the on-site Professional Engineer (P.E.) or representative of the P.E. (Rep.) must complete and sign BEPA-GI's latest Pre-Drilling Site Checklist (Checklist). The Checklist covers all required utility mark-outs, investigation tasks, Health and Safety Plan (HASP), and necessary documentation for each soil boring and/or PT location.

The Checklist must be kept on-site at all times during drilling operations, along with all associated documentation, and available to DEP personnel upon request. If, upon a site inspection, the Checklist is not found on-site, drilling operations shall cease immediately and permission to resume must be requested from and granted by BEPA-GI before any drilling operation resumes.

The P.E. or Rep. shall be on-site to observe subsurface preliminary investigation with ground penetrating radar (GPR), the geotechnical investigation and is responsible for ensuring all geotechnical sub-consultants, drilling contractors, and other field representatives are following BEPA-GI standard procedures and protocol when performing geotechnical work.

The P.E. or Rep. shall document any pre-existing conditions at the site. The P.E. is responsible for any damages and injuries that occurs in the field. In the event of such incidents, BEPA-GI must be notified promptly.

2.2 Geotechnical Investigation Locations

2.2.1 Identifying Boring Locations in the Field

Soil borings and permeability tests shall be conducted in separate boreholes no closer than 5 ft apart. If a boulder or other obstruction is encountered during drilling for any GI practice, another attempt shall be made within 5 ft - 10 ft of the original borehole. Each borehole should be given a name corresponding to the GI ID and the test (B/PT) and an accurate x,y coordinate of each borehole should be recorded.

For all Right-of-way GI practices excluding Permeable Pavement, soil borings and PTs must be performed within the footprint of the GI practice. In the event that drilling cannot be conducted within the footprint area, drilling should be done no more than 10 ft beyond the footprint of the Preliminary GI practice. If the prior two options are not possible, the B/PTs may be relocated.

Please contact BEPA-GI with a recommended action (e.g. provide alternative drilling options, recommend rejection of the GI practice, etc.).

The following list provides general guidance on possible scenarios encountered in field during subsurface preliminary investigations with GPR:

- All siting criteria and utility criteria are met no changes necessary
- Siting criteria and/or utility criteria require the asset to be shifted check that geotech is still possible and surrounding assets are still within range to infer geotech. If necessary, additional geotech may be recommended. Asset coordinates should be updated.
- Siting criteria and/or utility criteria are met but there is not enough clearance to safely drill – An offset location should be recommended for drilling and surrounding assets should be checked that they are still within range to infer geotech. If necessary additional geotech may be recommended
- Siting criteria and/or utility criteria are not met and cannot be met by reducing the size or the asset or shifting the asset site should be rejected, and if possible alternative sites should be recommended for geotech

For permeable pavement, the B/PTs must be conducted within 20 ft of the proposed drilling location according to the approved Boring Map, and if possible, within the permeable pavement footprint.

No drilling is permitted in a location which blocks a driveway.

If drilling cannot be conducted at the planned location and no relocation options are feasible, or an alternate location is far enough away that a proposed inference is no longer feasible the consultant shall submit a recommended action (e.g. provide alternative drilling options, recommend rejection of the GI practice, etc.) pending BEPA-GI approval.

2.2.2 Field Measurements

All GI practices, soil borings, and PT locations represented on the Boring Plan Map shall be accurately laid, and obscuring of crucial elements must be avoided.

The Boring Plan Map shall be updated in a timely manner to reflect any deviations noted between the Boring Plan Map and actual field measurements.

2.3 Geotechnical Investigation Methodology

2.3.1 Drilling Procedure and Equipment

Upon approval by the P.E., geotechnical investigations are to be conducted using the following drilling methods:

- Direct Push Method with a 4-inch inner diameter casing
- Hollow-stem auger (HSA) with a 4-inch inner diameter hollow-stem
- Rotary Tri-cone Roller Bit cased by 4-inch inner diameter casing

Only water from a hydrant or any clean potable water source shall be used as drilling fluid. It is not acceptable to recycle the drilling fluid or to use drilling mud. Proper sediment control must be used at all times to control both coarse and fine particles in runoffs.

The P.E. should approve the drilling method that will minimize disturbance to the soil tested.

The P.E. or Rep. shall be on-site to observe the boring operation and keep a continuous and accurate Boring Log for each location recording all pertinent data. Refer to **Section 3.1.2** for details on the Boring Log.

In the event that no water or sewer records were obtainable for drilling, the P.E. or Rep. may direct drillers to excavate via air vacuum or hand auger up to the depth of the first soil sample or PT (see **Section 2.3.4**. for soil sampling and PT depths). The reason for conducting this procedure must be properly documented and reported to BEPA-GI.

2.3.1.1 Standard Penetration Test

In each soil boring location, a Standard Penetration Test (SPT) shall be conducted continuously in accordance with **ASTM D1586** (i.e. a 24-inch long, 2-inch outside diameter split-barrel- sampler driven by blows from a 140-pound hammer falling freely from a height of 30 inches) to the depth detailed in **Section 2.3.4**.

The number of blows required to drive the 24-inch split-barrel sampler every 6-inch increment will be recorded. The Standard Penetration Resistance (N-value) shall be determined as the sum of the blows required to drive the sampler to the second and third 6-inch increments.

2.3.1.2 Soil Sampling

The P.E. or Rep. shall make visual observations for the soil at <u>all</u> depths at the time of the SPT, and record all pertinent observations as soil descriptions in the Boring Logs.

Soil samples that are representative of the actual recovered soil core shall be collected at specific depth intervals for laboratory analysis. Collected samples shall be stored in labeled jars, to be delivered to an approved AASHTO-certified laboratory for subsequent examination and testing. Within a soil sampling depth if different soil stratums are encountered, a sample should be recovered for each stratum, labeled and stored separately. Samples shall be taken and tested as outlined in **Section 2.5**.

2.3.2 Permeability Test Procedure and Equipment

Please see 2.3.1 for allowable drilling equipment.

Prior to conducting the permeability test, the following conditions should be checked:

- If a soil boring was conducted within 20 ft. of a planned PT location, the borehole from the soil boring must be completely backfilled before the PT is commenced.
- Clean water must be used in conducting PTs. PTs conducted using "dirty water" creates faulty results, which shall be rejected, and retest will be required.
- Proper sediment control shall be deployed to protect the catch basin and cleanliness of the street.

• Permeability tests shall not be performed when the ambient temperature is below 0°C.

The permeability test procedure is as follows:

- The 4-inch inner diameter casing shall be driven to the required test depth (refer to soil boring procedure for allowable equipment). The space (annulus) between the casing and borehole must be kept at a minimum.
 - If the casing cannot be driven and a larger hole is first bored to allow for the casing, the annulus must be backfilled and packed with drill cuttings before any water is introduced for testing into the casing.
- Measure the depth to the bottom of the hole to the nearest inch.
- Ensure that the depth to the bottom of the hole is within 1 inch of the depth to the bottom of the casing.
- Place approximately 6 8 inches of coarse sand (4.75mm 2mm) at the bottom of the casing.
- Wash out casing using a continuous flow of clean water at low water pressure (the water shall not disturb the coarse sand layer at the bottom of the casing) until the water exiting the casing runs clear with no discoloration.
- Saturate the soil beneath the bottom of the casing for at least thirty (30) minutes using clean water.
- Fill casing to the top with clean water and record the temperature of the water at the bottom of the casing at the start of the test (see **Section 2.3.3** for details on temperature measurement).
- Record the time at the beginning of the test.
- Record the falling water level in the casing at 1, 2, 3, 4, 5, 10, and 15 minutes after the beginning of the test or until the water level in the casing has stopped falling.
- At the conclusion of the test, fill the casing to the top with clean water and maintain the water at this level for five (5) minutes.
- Repeat the test once for each PT depth using the same procedure.

The P.E. or Rep. must maintain continuous data of PTs and report them accurately in Permeability Test Logs (PT Logs). Refer to **Section 3.1.3** for details on the PT Log.

2.3.3 Temperature Measurement

Temperatures shall be measured in °C using equipment meeting the specifications as shown in Table 1 and calibrated against a National Institute of Standards and Technology (NIST) Standard or with certified calibration traceable to NIST.

Equipment	Specifications
-----------	----------------

Liquid-in-glass thermometer (nonmercury)	 Temperature range, at least -5 to +45°C 0.5°C gradations or smaller Calibrated accuracy within 1 percent of full scale or 0.5°C, whichever is less
Thermistor	 Calibrated accuracy within 0.1 to 0.2°C Digital readout to at least 0.1°C

2.3.4 Geotechnical Investigation Depths

The depth at which all Geotechnical Investigation procedures are to be conducted shall be determined by the depth of the undisturbed soil below the base of the Preliminary GI practice.

Table 2 shows the total soil boring (and SPT) depths, soil sampling (for laboratory testing) depths, and PT depths for various types of GI practices.

Group	Type of GI Practice	Total Soil Boring Depth	Lab Sample Depths ¹	PT Depths ²
A	ROWB, ROWSGS with tree and/or typical stone reservoir depth, ROWGS, ROWIB	20 ft bgs	5-7 ft bgs 7-9 ft bgs 11-13 ft bgs 18-20 ft bgs	5 ft bgs 10 ft bgs
В	ROWRG, ROWSGS with shallow stone reservoir and no tree	9 ft bgs	3-5 ft bgs 5-7 ft bgs	3 ft bgs 6 ft bgs
С	ROWSB	20 ft bgs	5-7 ft bgs 9-11 ft bgs 11-13 ft bgs 13-15 ft bgs 15-17 ft bgs	5 ft bgs 10 ft bgs 15 ft bgs
D	ROW Permeable Pavement	9 ft bgs	1-3 ft bgs 3-5 ft bgs	3 ft bgs 6 ft bgs

Table 2 – Depth of Soil Boring and PT for Various GI Practices

¹Acceptable deviations from the sampling depth, without prior approval by BEPA-GI:

- Two samples may be taken from an interval if there is a significant change in soil layer (e.g. differences in consistency, color or major component). The sampling depths should be labeled and the samples stored separately.
- If a sample cannot be retrieved or the recovery length is extremely low (less than 2 in) and additional soil cannot be obtained, soil from the immediately following interval shall be collected.

² If the bottom of the casing cannot be properly sealed due to soil conditions or obstructions, the casing may be drilled up to an additional foot below ground surface.

2.3.5 Termination and Cancellation of Soil Borings and Permeability Tests

Various conditions at the drilling site may prevent completion of the geotechnical investigation. Soil borings and/or PTs are referred to as "terminated" if the drilling was commenced but could not be completed to the intended depth. "Cancellation" refers to situations where drilling for the soil boring and/or PT did not commence. In general, soil borings and PTs shall not be cancelled without prior approval by BEPA-GI.

The following list provides general guidance on when drilling may be terminated without prior approval by BEPA-GI:

- a) If soil and/or groundwater contamination is suspected during the investigation, drilling shall be terminated immediately. The borehole shall be filled and the proposed location shall be abandoned. Indications of suspected contamination during geotechnical investigations must be reported to BEPA-GI.
- b) If an obstruction (e.g. boulder, abandoned utility, large debris, etc.) is encountered at or less than 15 ft bgs, another drilling location shall be identified according to Section 2.2.1. If the obstruction is confirmed at the reattempted location, the soil boring or PT shall be terminated. If the obstruction is encountered at a depth greater than 15 ft bgs, drilling may be terminated without a reattempt.
- c) If an obstruction (e.g. boulder, abandoned utility, large debris, etc.) is encountered at or less than 5 ft bgs, another drilling location shall be identified according to Section 2.2.1. If the obstruction is confirmed at the reattempted location, at or less than 5 ft bgs, the soil boring or PT shall be terminated and the remaining test, if not yet performed, shall be canceled. The location shall be rejected.
- d) If bedrock is encountered, drilling shall be terminated and the depth to bedrock and rock classification (based on visual observation) recorded. Where possible, drilling shall proceed through weathered or decomposed bedrock.

If obstructions and/or bedrock are encountered at less than 9 ft bgs at three or more sites within a 100-ft radius, drilling operations shall cease and BEPA-GI must be contacted to obtain approval to proceed with subsequent drillings within the 100-ft radius.

If a water table is encountered, the depth to the water table shall be recorded and the boring shall proceed to the intended depth. The water table shall be identified as either perched water or the groundwater table.

For questions on other scenarios, please contact DEP Project Manager.

2.3.5.1 Termination of Permeability Tests after the Saturation Period

PTs may be terminated after the 30-minute saturation period and reported accordingly for the following conditions:

• If the casing is completely filled during the saturation period and there is no visible drop in water level after 30 minutes, the PT shall be reattempted for the same depth at another location between 5 ft to 10 ft away. If there is no visible drop in water level after 30

minutes at the reattempted location, the PT shall be terminated for that depth only and the permeability coefficient reported as "0.000 in/hr".

- If the casing cannot be filled due to rapid infiltration (RI) during the saturation period and no water is retained in the casing after 30 minutes, the PT shall be reattempted for the same depth at another location between 5 ft to 10 ft away. If rapid infiltration is observed during the saturation period for the reattempt, the PT shall be terminated for that depth only and the permeability coefficient reported as "RI".
- For PT at 10ft, if groundwater is observed between 9 ft 10 ft and there is no visible drop in water level during the saturation period, the PT need not be reattempted for the 10 ft depth. The PT shall be terminated and the permeability coefficient reported as "0.000 in/hr" for that depth only.

2.3.5.2 Modification of Soil Borings and/or Permeability Test Depths

For Preliminary GI practices in Group A (refer to Table 2), if the groundwater table and/or bedrock is confirmed between 7-9 ft bgs during drilling for either the soil boring or PT, drilling shall be terminated. New offset locations shall be identified according to **Section 2.2.1**, to conduct soil sampling and PTs at the depths specified for Group B practices instead. Soil samples at 3'-5' and 5'-7' must be collected for group B practices.

For example, if bedrock is encountered at 8 ft bgs during drilling for the 10-ft PT at a Preliminary ROWB site, the 10-ft PT shall be cancelled and a new borehole shall be identified to conduct PTs at 3 ft and 6 ft. Additionally, the 20-ft soil boring will also be cancelled (if it had not been conducted yet), and a 9-ft soil boring with the corresponding soil sampling depths shall be conducted instead.

2.4 Cleanup

The P.E. or Rep. on site shall ensure drillers maintain proper housekeeping at all times, and clean up any remaining debris and sediment post drilling operation.

Upon termination or completion of any soil boring or PT, all boreholes are to be backfilled with soil cuttings to the ground surface level and sealed with an asphalt or concrete patch to restore the surface to its original condition. All other holes, depressions, cracks, surface inconsistencies, and other hazards resulting from the work must be properly mitigated. The contractor will return to the site two weeks following the work, one month following the work, and as necessary to make repairs to backfilled holes.

Photographs shall be taken documenting the condition in which the drilling locations are abandoned.

If any damage results due to drilling operations, the PE or Rep. must properly document, inform BEPA-GI and direct the driller to repair.

2.5 Geotechnical Laboratory Testing

Laboratory tests shall be conducted by an AASHTO-certified laboratory to determine the distribution of particle sizes of the soil – particularly the fines (silts and clays) content – in accordance with ASTM D422.

3 Geotechnical Report

3.1 Geotechnical Investigation Data

3.1.1 Boring Plan Maps and Shapefiles

Field-measured locations of all GI practices and geotechnical investigations must be accurately recorded. This location data shall be submitted as a finalized Boring Plan Map and shapefile (**Section 3.3.2** contains additional details on shapefile requirements).

3.1.2 Boring Logs

Boring Logs must be submitted for all soil borings, including those which were terminated. At a minimum, Boring Logs must include the following:

- Identification number (ID No.) and location of the soil boring (nearest building address or cross streets)
- Number of blows per 6-inch intervals of continuous penetration
- Length of sample recovery (inches) for each 2-ft interval
- Thickness of each soil stratum encountered (including pavement, fill or topsoil layers).
- Characteristics of the soil (based on field observations) for all depths, including:
 - 1. Soil description per Modified Burmister
 - 2. Soil classification per Unified Soil Classification System (USCS), in parentheses
 - 3. Color
 - 4. Soil moisture (dry, moist, or wet)
 - 5. Soil compaction: Loose, moderately compacted, or very compacted
 - 6. If present:
 - a. Debris (brick, concrete, wood, glass, etc.)
 - b. Cobbles, boulders, etc.
 - c. Odor (organic, chemical, etc.)
 - d. Notable soil formations which may affect permeability (e.g. "bull's liver", glacial till, etc.)
 - e. Indication of possible contamination (ash, petroleum, slag, etc.)
 - f. Decomposed vegetation
- Notes of subsurface conditions encountered during drilling (e.g. utilities, structures, etc.)
- Additional notes (e.g. interaction with community, etc.)

3.1.3 Permeability Test Logs

Permeability Test Logs (PT Logs) must be submitted for all PTs, including those that were terminated. At a minimum, PT Logs must include PT ID number, ambient temperature, test location, test depth, depth to groundwater table and/or bedrock (if encountered), water temperature at the start of the test, and all water depth readings, results, and calculations.

Average permeability values shall be calculated based on a modification of ASTM D6391 using the following formula. The PT Log template with the formula and associated calculation methods is included in the Appendix. In general, no permeability calculations are necessary at the time of drilling since permeability values (and other variables used to calculate permeability values) are automatically calculated in the PT Log once all the data recorded during the PT (see Section 2.3.2) are inputted into the template.

$$K_m = \pi \cdot R_t \cdot \frac{D \cdot \left(\ln \frac{h_1}{h_2}\right)}{11 \cdot (t_2 - t_1)}$$
$$R_t = \frac{2.2902(0.9842^{\mathrm{T}})}{\mathrm{T}^{0.1702}}$$

Where:

- = Mean permeability [in/hr], and $K_m = \sqrt{k_h \cdot k_v}$ Km
 - = Horizontal permeability [in/hr] kh
 - k_v = Vertical permeability [in/hr]
 - D = Inner diameter of casing [in]
 - h = Height of water above bottom of casing at time t [in]
 - t = Time [hr]
 - Rt = Ratio of viscosity of water at test temperature to the viscosity of water at 20 °C
 - Т = temperature [°C]
- Early termination of PTs (see Section 2.3.5.1) shall be noted in the "Inspectors Remarks" section of the PT Logs and in Geotech Report Summary Table as general geotech notes. No field data shall be reported as "Depth (in)", and no permeability values shall be calculated for terminated PTs.
- PT Logs (and Geotechnical Report Summary Tables) must accurately reflect the actual depths the PTs were performed.
- The PT Log template contains default time values of 1, 2, 3, 4, 5, 10, and 15 minutes after the start of the test. If the water level drops below the casing before the 15-minute measurement period, these default values must be modified to the actual time values for which water depth measurements were recorded.
- If the PT cannot be calculated (for example, due to RI), the PT Log shall clearly indicate that PT calculations are not valid.

3.1.4 Laboratory Test Results

Laboratory testing and reporting must include a sieve analysis of soil samples and plotting of gradation curves, as well as soil classification based on the USCS.

The following USCS-classified sieve sizes are to be included with data points for all sampled depths overlaid on the same gradation curve:

4" 3" 1-1/2" 3/4" 3/8" #4 #10 #20 #40 #60 #100 #200

The sample for Laboratory Test Results showing sieve analyses and gradation curves is included in the Appendix.

3.1.5 Geotechnical Report Summary Table

Pertinent data from the soil borings (including data available from historical boring logs), PTs, laboratory test results, and any other information acquired during the Geotechnical Investigation shall be summarized in all Geotechnical Report Summary Table submittals.

3.2 Interim Geotechnical Report Submission

Interim Geotechnical Reports for subsets of the contract area shall be submitted prior to the completion and subsequent submittal of the Geotechnical Report.

The Interim Geotechnical Reports must include the following attachments:

- Attachment A₁ Proposed Boring Plan Map
- Attachment B Historical Boring Logs
- Attachment C₁ Interim Geotechnical Report Summary Table
- Attachment D Soil Boring Logs
- Attachment E Laboratory Test Results
- Attachment F Permeability Test Logs

Interim Geotechnical Summary Tables shall be submitted as Excel worksheets following the sample provided by BEPA-GI (see the Appendix for sample). Each submission shall also include all previously submitted Interim Geotechnical Summary Table worksheets for the contract area as part of the same workbook.

Although optional, it is highly recommended that updated Boring Plan Maps (and Boring Plan Tables, if applicable) be submitted accordingly with the Interim Geotechnical Report containing the geotechnical data for the affected GI practices. The Final Geotechnical Report submission must include a Boring Map which reflects the most up-to-date location data for all GI practices, soil borings, and PTs.

3.3 Geotechnical Report Submission

3.3.1 Geotechnical Report – Electronic Copy

The Geotechnical Report must include the following as a minimum:

- Project Description
- Site Conditions (Topographic, Geological, Hydrogeological Setting)
- Geotechnical Investigation Results
- Summary and Conclusion
- Attachments (samples and templates in Appendix)
 - Attachment A₂ Performed Boring Plan Map
 - Attachment B Historical Boring Logs
 - Attachment C₂ Geotechnical Report Summary Table
 - Attachment D Soil Boring Logs
 - Attachment E Laboratory Test Results
 - Attachment F Permeability Test Logs

Geotechnical Report shall be submitted electronically in pdf format, along with the Excel versions of Attachment C₂, and the Green Infrastructure Asset, Boring, and Permeability Test Location Shapefiles. Please refer to Geotechnical Investigation Reporting Procedure for additional details.

3.3.2 Geospatial Data Requirement

Geospatial data of all GI practices and geotechnical investigation locations in shapefile format, conforming to the following BEPA-GI GIS requirements:

- Coordinate System: NAD_1983_StatePlane_New_York_Long_Island_FIPS_3104_Feet
- Projection: Lambert_Conformal_Conic
- Coordinates for ROWB, ROWRG, ROWIB, ROWGS, and ROWSGS shall be the upstream curb-side corner of the practice
- Coordinates for ROWSB shall be the center of the ROWSB.
- Coordinates for ROWPP shall be the upstream curb-side corner of the practice and they should be represented as polygons of the proposed footprint of the practices
- Points/Polygons representing all asset, soil boring and PT locations shall have the following attribute fields: 'Contract_No', 'Phase_No', and 'GI_ID', 'B_ID' or 'PT_ID'

Information in the shapefiles should be updated to show assets, boring, and PTs using the most accurate data available. All pertinent data submitted in the Geotechnical Report must be transferred to the Project Tracking Spreadsheet and submitted with the Geotechnical Report.

3.3.3 Geotechnical Report – Electronic and Physical Copy

Refer to 3.3.1 Geotechnical Report for minimum requirements. An updated Geotechnical Report Summary Table shall be submitted according to any final changes and comments from design.

Electronic and printed copy of complete Geotechnical Report, stamped and signed by a Professional Engineer, must be submitted upon DEP request.

Appendix:

Relevant Documents Prior to Geotechnical Investigations:

- Boring Plan Table (Sample) for:
 - ROW GI Practices Excluding Permeable Pavement
 - Permeable Pavement
- Pre-Drilling Site Checklist

Sample for Geotechnical Report Cover Page

Samples and Templates for Geotechnical Report Attachments:

- Attachment A₁ Proposed Boring Plan Map (Sample)
- Attachment A₂ Performed Boring Plan Map (Sample)
- Attachment C₁ Interim Geotechnical Report Summary Table (Sample)
- Attachment C₂ Geotechnical Report Summary Table (Sample)
- Attachment D Soil Boring Logs (Templates) for:
 - 20-ft Boring
 - 9-ft Boring
 - 20-ft Boring for ROWSB
 - 9-ft Boring for ROWPP
- Attachment E Laboratory Test Results (Sample)
- Attachment F Permeability Test Log (Templates)

DEP Contract ID: [Contract] DEP Project: [Project Description] Prepared By:

NYC Department of Environmental Protection Bureau of Environmental Planning and Analysis - Green Infrastructure



Borough of X, New York Boring Plan Table for ROW GI Practices (Excluding Permeable Pavement)

					Consultant Re	commendation [da	te]		C	DEP Review [date]			G	PR Field Actio	ns ****	
GI ID No.	GI Length/ Diameter	GI Width	Available Upstream Distance - Sited* (ft)	Status (Preliminary/ Reserved)	Geotech Status**	Inferred Location (data origin)	Notes (Historical Borings***, etc.)	Status (Preliminary/ Reserved)	Geotech Status	Inferred Location (data origin)	Comment		Action (Asset Shifted, Geotech Relocated, Asset Rejected)	Geotech Status	Inferred Location (data origin)	Notes (include date)
IB9001a	14	5.0	41	Preliminary	B&PT							1				
9002a	15	5.0	84	Preliminary	B&PT							I				
IB9002b	17	5.0	150	Preliminary	PT only	9008c						T				
IB9002c	16	5.0	50	Preliminary	B&PT							T				
IB9002d	19	5.0	208	Preliminary	PT only	IB9002c						I				
9002-1b	10	5.0	105	Preliminary	B&PT							I				
IB9004a	10	4.0	250	Preliminary	B&PT							I				
IB9004b	12	5.0	138	Preliminary	B&PT							I				
9006a	20	4.0	283	Preliminary	B&PT							I				
9006b	14	4.0	186	Preliminary	B&PT							I				
IB9006d	12	4.0	153	Preliminary	B&PT							I				
9007a	12	5.0	48	Preliminary	B&PT							I				
GS9008a	10	3.0	169	Rejected	N/A		Conflict with 12" LCP WM					1				
IB9008b	14	5.0	18	Preliminary	Infer	9008c						1				
9008c	10	5.0	28	Preliminary	B&PT							1				
9008d	10	5.0	138	Preliminary	Infer	9008c						1				
IB9009a	20	5.0	215	Preliminary	PT only	6083b						1				
9010a	20	4.5	40	Preliminary	PT only	HB 2348-1	HB 2348-1 is approximately 40ft away, PT Only									
9011a	15	5.0	26	Preliminary	B&PT							1				
9011b	10	5.0	83	Preliminary	Infer	9011a						1				
9011c	20	5.0	213	Preliminary	B&PT							1				
9011d	18	5.0	70	Preliminary	PT only	9014a						1				
IB9012a	17	5.0	55	Preliminary	B&PT							1				
9012b	15	5.0	56	Preliminary	PT only	IB9012a						1				
9012c	18	5.0	67	Preliminary	Infer	9006b						1				
9012d	20	5.0	133	Preliminary	PT only	9006b						1				
IB9012e	11	5.0	94	Preliminary	Infer	1B9006d						1				
IB9012h	10	5.0	25	Preliminary	B&PT							T				
9012i	20	5.0	30	Preliminary	Infer	IB9012h						T				
9014a	20	5.0	98	Preliminary	B&PT							T				
9016a	18	5.0	24	Preliminary	B&PT		Hydraulically connected to 9016b									
9016b	17	5.0	87	Preliminary	Infer	9016a	Hydraulically connected to 9016a									
9016d	14	5.0	42	Preliminary	Infer	IB9016e										
IB9016e	20	5.0	182	Preliminary	PT only	IB9019d										
9016f	10	4.0	148	Preliminary	B&PT											
IB9016-1a	14	5.0	206	Preliminary	B&PT											
IB9019a	11	4.0	54	Preliminary	B&PT							1				
IB9019b	20	4.0	32	Preliminary	Infer	9016a						1				
IB9019c	20	4.0	97	Preliminary	Infer	9016a						1				
IB9019d	19	4.0	29	Preliminary	B&PT							1				
IB9019e	20	4.0	61	Preliminary	Infer	IB9019d						1				
IB9019g	20	4.0	32	Preliminary	Infer	IB9019h						1				
IB9019h	16	4.0	139	Preliminary	B&PT							1				
9019i	10	4.0	96	Preliminary	B&PT							1				

May 2022

Total submitted	Summary of planned geo	Summary of planned geotechnical investigation:									
44	Preliminary	43	B&PT Locations	23							
	Rejected	1	PT only locations	8							
			Inferred Locations	12							
	Total	44	Total Preliminary	43							

Notes: *The distance between the inlet of the GI practice and either the inlet of an upstream GI practice or the top of the tributary area

**All Preliminary sites shall have both a soil boring and PTs, unless the pertinent soil data can be inferred from a nearby site or historical boring. If "site A" infers boring data from "Site B", and "site B" is a PT only site, please use Boring data from the site that "site B" infers from for "site A".

***References in bisorical boring data must include the boring ID and the page number in the historical boring log attachment. Indicate if PT only is appropriate for location.
****For use during geotechnical investigations after Boring Plan is approved to drill

NYC Department of Environmental Protection

Bureau of Environmental Planning and Analysis - Green Infrastructure

Borough of X, New York

DEP Contract ID: DEP Project: Prepared By:

[Contract] [Project Description] [Consultant/Sub Name]

ROW Permeable Pavement Boring Plan Table

	CUDNI	Laboratory Testing Data/ Historical Boring Soil Description						Permeability Analysis							Consultant Rec	ommendation [date]
Location	(PP ID)	New Boring ID No.	Nearest Existing/Historical Boring ID No.	Depth (ft)	USCS Symbol	% Passing No. 200	New Permeability Test ID No.	Nearest Historical PT ID No.	Permeability Test Depth (ft)	Avg. Permeability Coef. (in/hr)	Table Depth (ft) Bedrock Depth (ft)	Bedrock Depth (ft)	General Geotechnical Notes	Soil Boring (Yes/No)	Permeability Test (Yes/No)	Additional Notes
		B-PP1265.1a					P-PP1265.1a							YES	YES	
Wilson Ave in	PP1265.1															
between Himrod St																
and Harman St		B-PP1371.1a					P-PP1371.1a							YES	YES	
	PP13/1.1															
Greene Ave in between Wilson Ave			B-GS1268-1a	5-7	SM	27.4%		P-GS1268-1a	5	0.00						
				7-9	NR	NR			10	0.01						
				11-13	ML	50.0%										
				18-20	SM	17.5%										
	PP1270-1.1															
and Central Ave																
														VEC	VEC	
		D DD1070 1 1a					D DD1070 1 1a							YES	YES	
		D=FF1270=1.1d					F=FF1270=1.1d									
														VES	VES	
		B-PP1270 1a					P-PP1270 1a							1125	125	
Wilson Ave in		5111270120					1 11 127 0120									
between Greene	PP1270.1		B-SGS1365a	5-7	SM	26.3%		P-SGS1365a	5	0.13						
Ave and Bleecker St				7-9	SM	28.3%			10	0.02						
				11-13	SP	30.0%										
				18-20	SM	14.2%										
														NO	YES	
		B-PP1271.1a					P-PP1271.1a		Υ I							
Bleecker St in																
between Wilson Ave	PP1271.1		B-1273c	5-7	SP-SM	18.7%		P-1273c	5	0.90						
and Central Ave				7-9	SP-SM	8.9%			10	0.19						
				11-13	SW-SM	5.0%										
				18-20	SP-SM	8.2%										

See 'Notes' for specific instructions on using template

Submission 1





Limited Geotechnical Investigation Pre-Drilling Site Checklist

GI Contract No:	Consultant:
Managing Agency:	Site Supervisor:
Project Location:	Drilling Contractor:

The following investigation activities must be completed prior to commencement of drilling:

- □ One-Call utility mark-out
- □ Water and sewer mark-out based on available maps, tap cards, and service connection information
- Subsurface preliminary investigation with Ground Penetrating Radar (GPR) or other subsurface utility detection equipment
- □ Manual investigation of underground structures
- Manual investigation of overhead utilities
- □ Mark-out cleared drilling location
- Take photos of sidewalk, making note of any existing cracks or damages. Capture extents of mark-outs
- □ Ensure that sediment controls are deployed appropriately.
- Ensure that construction materials, equipment, debris, etc. are not blocking driveways

The following utility criteria for the asset footprint (excluding ROWPP) must be completed prior to

commencement of drilling:

- One or less gas crossing
- No parallel gas lines
- □ If any, less than 4 utility crossings
- □ Minimum of 3'-6" clearance to edge of water or sewer mains
- □ No valves within footprint of the asset unless asset is a ROWIB Concrete Top and valve is a gas valve

The following documentation must be obtained and kept <u>on-site</u> during all drilling activities:

- □ Water maps and service line information
- Sewer maps
- □ Health and Safety Plan (HASP)
- One-Call Ticket stating utilities cleared and/or marked
 Confirmation No.______ Expiration Date: ______
- Other agency permits (DOT, DPR, and other permits as required)
- □ Approval from MTA, LIRR, bridges, tunnels, AMTRAK, PATH, etc. (as required)
- □ Hydrant permit for clean water to conduct Permeability Tests (unless using water truck)
- DEP-reviewed Boring Location Plan

I, _____, (P.E. or Representative) attest that all the above have been completed and that this checklist along with the pertinent documentation mentioned above will be maintained on-site.

Date

Signature of On-site P.E. or Representative

NOTES:

- 1. This checklist must be kept on-site with <u>all mentioned documentation</u> and produced upon request for DEP Reference and Review.
- 2. <u>The on-site P.E. or Representative is responsible for observing the geotechnical investigation, confirming the drilling locations, and ensuring that the locations of soil borings and permeability tests do not interfere with DEP infrastructure.</u>
- 3. Drilling activities shall not interfere with or impact utilities (e.g. water mains, sewers, property service lines, etc.).



City of New York Department of Environmental Protection BEDC-Green Infrastructure

Right of Way Green Infrastructure [CSO], [WATER BODY] [BOROUGH], NY

CONTRACT [#] PHASE [#] STAGE [#]



Final/Draft Geotechnical Report

[Lead Agency Name and Address]

[Name]
P.E #

[Consultant Name and Logo]

[Address]

[Date]





[CSO, Tributary Area] \ Proposed Boring Plan Map GXXXX-XX Phase [#] Sub-Area [#]

LEGEND N Preliminary B&PT \bigcirc PT only Reserved **TDA Boundary Catch Basins** Non-Existent Catch Basins Historical Boring Flow_Arrow Matchline **Contract Area Boundary** Sub-Area Boundary Limit Key Map Sub-Area Sub-Area RIGHT OF WAY GREEN INFRASTRUCTURE GXXXX-XX PHASE [#] , [TRIBUTARY AREA] [BOROUGH], NY MANAGING/PARTNER AGENCY

CONSULTANT ENGINEER:

BEPA - GI PROJECT ENGINEER:

CONTRACT NO:

GXXXX-XX

SCALE 25 50

DATE

Page # of #

150

100

SHEET



[CSO, Tributary Area] Performed Boring Plan Map

GXXXX-XX Phase [#] Sub-Area [#]





RIGHT OF WAY GREEN INFRASTRUCTURE GXXXX-XX PHASE #, [TRIBUTARY AREA] [BOROUGH] NY											
MANAGING/PARTNER AGENCY:											
CONSULTANT ENGINEER:											
BEPA - GI I	BEPA - GI PROJECT ENGINEER:										
CONTRAC	T NO:										
SCALE	0	40	80		160	240 Feet					
DATE				SHEET	Page 1	of 4					

DEP Project: Prepared By:

DEP Contract

[Project Description] [Consultant/Sub Name]

[Contract] [Project Description]

e]

NYC Department of Environmental Protection

Bureau of Environmental Planning and Analysis -- Green Infrastructure

Borough of X, New York

terim Geotechnical Report Summary Table for ROW GI Practices (Excluding Permeable Pavemen

Submission # 2.01

	Soil Data (Labora	tory Results or	Historical Boring	g Soil Description)	Pe	ermeability Analysis	;						Siting Analysi	s			Consultant Recomme	endation [Date]
GI ID No.	Nearest Boring ID No.	Depth (ft)	USCS Symbol	% Passing No 200 Sieve	Nearest Permeability Test ID No.	Permeability Test Depth (ft)	Average Permeability Coef. (in/hr)	Groundwater Table Depth (ft)	Bedrock Depth (ft)	General Geotechnical Notes	ROWGI Length (ft)	ROWGI Width(ft)	Calculated Stormwater Mgmt Capacity (CF)	Available Upstream Distance - Sited* (ft)	Minimum Required Upstream Distance** (ft)	Recommendation for Survey	Stone Column Depth (ft) , if applicable	Additional Notes
2017a	0921-31	0-0.5	Cor	ncrete	PT-2017a (1)	5	0.00											
			F-M Brown s	sand, trace silt,												Preliminary (For		
		0.5-24	trace g	ravel (SP)		10	0.26	31.4	NE		13	5	825.54	16	173	Survey)		
						_												
		24-51.5	Fine brown sa	nd, trace silt (SP)	PT-2017a (2)	5	6.01											
20222	P 2022a	E 7	SD SM	E E 9/	DT 20225	E	0.22											
2022a	B-2022d	5-7	38-2101	5.5%	P1-2022d	5	0.23									Preliminary (For		Hydraulically Connected to
		7-9	SP-SM	6.4%		10	0.09	NE	NE		13	5	190.27	18	72	Survey)	-	2022b
		11-13	SP	2.7%														
		18-20	SP	4.2%														
2022b	B-2022a	5-7	SP-SM	5.5%	PT-2022a	5	0.23											
		7.0	65 61 A	C 40(12	_	400.07	225	72	Preliminary (For		Hydraulically Connected to
		7-9	SP-SM	6.4%		10	0.09	NE	NE		13	5	190.27	225	/2	Survey)	-	2022a
		11-13	SP	2.7%														
20226	P-2022c	5-7	SP SD	4.2%	PT-2022c	5	0.07											
20220	D-2022C	7-9	SP	1.9%	F1-2022C	10	2 32	NE	NE	Organic clay was encountered at 9'	13	Д	116 58	150	ДД	Rejected	-	
		11-13	SP	1.3%		10	2.52		NL.	organic city was choodificited at 5	15	-	110.50	150		nejecteu		
		18-20	SP	1.7%														
2199b	B-2199b	3-5	SP	3.5%	PT-2199b	3	1.29											
										Shallow GWT was encountered at 8ft and shallow Geotechnical procedure						Preliminary (For		ROWRG Recommended
		5-7	SP	1.3%		6	2.61	8	NE	was followed	13	5	311.09	30	109	Survey		
		7-9	SP	2.9%														
2100	D 2100h	2.5	50	2.5%	DT 2100h	2	1.20											
21990	5-21990	3-5	Jr	5.570	F1-21330	5	1.25									Preliminary (For		
		5-7	SP	1.3%		6	2.61	8	NE		13	5	311.09	170	109	Survey)		ROWRG Recommended
		7-9	SP	2.9%														
		_																
IB2221a	B-IB2221a(1)	5-7	SP	1.5%	PT-IB2221a	5	0.28			Refusal at 9' in horing. Moved to offect						Droliminon / Far		
		7-9	SP	1.7%		10	1.47	NF	NF	location.	13	4	142.83	330	62	Survey)	_	Clearance to building = 8 ft
	B-IB2221a(2)	11-13	SP	1.8%									2 12:00	000	01	Survey		Vault survey will be conducted
		18-20	SP	1.9%														HDPE recommended
2210a	B-2210a	5-7	SC	28.0%	PT-2210a	5	4.23											
																Preliminary (For		
		7-9	SP	1.9%		10	0.43	NE	NE		10	5	558.22	70	203	Survey)	13	
		11-13	SP	3.3%														
22104	D 22104	18-20	SP	2.2%	DT 21105(1)	-	0.00											
22100	B-2210D	5-7	SC	10.0%	P1-21100(1)	5	0.00									Preliminary		
																(Interim		
		7-9	SP	15.0%		10	2.82	NE	NE		11	5	110.61	100	40	Rejection)		
		11-13	SP	3.1%	PT-2110b(2)	5	0.05											
		18-20	SP	2.5%														



2222a	B-2222a	5-7	SP	3.4%	PT-2222a	5	1.10											
																Preliminary (For		
		7-9	SP	5.0%		10	0.18	NE	NE		10	5	219.13	120	96	Survey)	-	Clearance to building >10 ft
		11-13	SP	2.3%														Vault survey not necessary
		18-20	SP	1.0%														
2177a	B-2177a	5-7	SP	5.0%	PT-2177a(1)	5	RI											
												_				Preliminary (For		
		7-9	SP	1.2%		10	1.46	NE	NE		20	5	1212.13	25	472	Survey)		
		11-13	SP	1.1%	PT-2177a(2)	5	5.40											
		18-20	SP	1.2%														
2177b	B-2177a	5-7	SP	5.0%	PT-2177a(1)	5	RI											
		7-9	SP	1.2%		10	1.46	NE	NE		20	5	1212.13	65	472	Reserved		
		11-13	SP	1.1%	PT-2177a(2)	5	5.40											
		18-20	SP	1.2%														
GS2216a	B-GS2216a	5-7	SM	21.8%	PT-GS2216a (1)	5	NP											
																Preliminary		
		7.0	C D	1 40/		10	2.04	NE	NE	Refusal at 5° PT test both at original	42	2		40		(Interim		
		7-9	SP	1.4%		10	3.91	INE	INE	and onset location	13	3		40		Rejection		
		11-13	SP	3.9%	PT-GS2216a (2)	5	NP											
		18-20	SP	3.5%														
GS2216b	B-GS2216a	5-7	SM	21.8%														Recommendation is to make
																		GS2216b Preliminary infer
																Preliminary		boring from GS2216a and PT
		7-9	SP	1.4%							13	3		140				Only
		11-13	SP	3.9%														
		18-20	SP	3.5%														

See 'Notes' for specific instructions on using template

*The distance between the inlet of the GI practice and either the inlet of an upstream GI practice or the top of the tributary area

**Minimum required length of upstream distance, D, determined by the following formula: D = (12*[Calculated Stormwater Mgmt Capacity])/(1.1*[TDA width])

of sites submitted:

14

Proceed	9	
Do not proceed/reject	3	
Pending	0	
Reserved	1	
Preliminary	1	
	14	

DEP Contract ID: DEP Project: Prepared By:	[[Contract] [Project Description] [Consultant/Sub Name	 e]		Interim Geotechnie	cal Report Summary	Table for Permea	Bure ble Pavement	NYC Departm eau of Environmental Bo	nent of Environmental Protection Planning and Analysis – Green Infrastructure orough of X, New York Sub Area 2					Environment Protection	al														
Location	Soil Data	a (Laboratory Results or Depth (ft)	Historical Boring Soil De	escription) % Passing No 200 Sieve	e Nearby Permeability Test ID No.	Permeability Analysis Permeability Test Depth (ft)	Average Permeability Coef. (in/hr)	Groundwater Table Depth (ft)	Bedrock Depth (ft)	General Geotechnical Notes	PP ID No.	Recommenda tion for Survey	Approxin Reference ID/Point	Distance Distance Downstream of Reference (ft)	Consultant Recor with Storage Distance Upstream of Reference (ft)	nmendation (Date Relevant Boring ID(s) from Nearby Locations	e] Relevant Permeability Test ID(s) from Nearby	Stone Column Depth (ft), if applicable	Additional Notes	Approximate Street Slope (%)	Recommendation for Survey	(Storage & Infiltration/Stora ge Only)	Approximate Reference ID/Point	ROWPP Length wit Distance Downstream of Reference (ft)	DEP Reco h Storage Distance Upstream of Reference (ft)	mmendation [Date] levant Boring ID(s) from Nearby Locations	Relevant Permeability Test ID(s) from Nearby Locations	Stone Column Depth (ft), if applicable	Additional Notes	PP panel width (ft)
					PT-GS2001A(1) PT-GS2001A(2)	5 10 10	3.5609 NP NP	NE	NE	PT-GS2001A(1) Refusal at 5.5' bgs PT-GS2001A(2) Refusal at 6' bgs																				
					PT-GS2001B(1) PT-GS2001B(2)	5 10 10	0.6331 NP NP	NE	NE	PT-GS2001B(1) Refusal at 6.5' bgs PT-GS2001B(2) Refusal at 6' bgs	PP2001	Rejected									Rejected							w	ater Main Conflict	
					PT-IB2001-1B	5 10	0.0111 0.0051	NE	NE																					
	B-IB2001-1C	5'-7' 7'-9' 11'-13' 15'-17'	CL-ML GM SM SM	61.6% 21.1% 37.9% 31.4%	PT-IB2001-1C PT-IB2001-1D	5 10 5 10	0.0151 0.0051 0.0740 0.1008	NE	NE	B-IB2001-1C refusal at 17' bgs Sample 4 taken from 15'-17' Poor permeability at 5' and 10' High fines throughout	PP2001-1	Rejected									Rejected							w	ater Main Conflict	
	B-IB2001-1E	5'-7' 7'-9' 11'-13'	CL CL SW-SM	92.91% 88.73% 8.93%	PT-IB2001-1E	5 10	0.0273 0.0279	NE	NE	High fines 5'-9'																				
64th Street between 15th Avenue and 16th Avenue	B-2002B	18'-20' 5'-7' 7'-9' 11'-13'	SM SP-SM GM SM	15.50% 10.38% 12.51% 15.82%	PT-2002B	5 10	0.5077 0.0864	NE	NE	B-2002B refusal at 17' bgs Sample 4 not taken Poor permeability at 10'											Preliminary (For Survey)	Storage & Infiltration	2002B	90	190					
											PP2002	Preliminary (For Survey)	2002B	245	70	B-2002B	PT-2002B			-0.10%	Preliminary (For Survey)	Storage	N/A	5	0					4
					PT-GS2002-1B	5 10	0.0158 0.6825	NE	NE	Poor permeability at 5'																				
					PT-2002-1D	5 10	0.0125 0.0108	NE	NE	Poor permeability at 5' and 10'		Preliminary																		
					PT-IB2002-1E	5 10	0.0691 0.0057	NE	NE	Poor permeability at 5' and 10'	PP2002-1	(Interim Rejection)									Preliminary (For Survey)	Storage	N/A	40	00					4
	B-IB2002-1F	5'-7' 7'-9' 11'-13' 15'-17'	ML GM SM GM	76.20% 23.66% 28.80% 20.65%	PT-IB2002-1F	5 10	0.1347 0.0056	NE	NE	Poor permeability at 10' B-IB2002-1F refusal at 17' bgs Sample 4 taken from 15'-17' High fines 5'-7'																				
	B-IB2003A	5'-7' 7'-9' 11'-13' 18'-20'	SM SP-SM SM	21.66% 8.40% 13.85% 17.30%	PT-1B2003A	5 10	0.0214 0.0185	NE	NE	Poor permeability at 5' and 10'											Preliminary (For	Storage &								
		10 20		1,150,0	PT-IB2003B	5 10	0.2333 0.9571	NE	NE		PP2003	Rejected									Survey)	Infiltration	IB2003A	50	180					2
15th Avenue between 64th Street and 65th Street					PT-IB2004B	5 10	2.3771 0.1128	NE	NE	Poor permeability at 10'																				
	B-IB2004C	5'-7' 7'-9' 11'-13'	SP-SM SW-SM GW-GM	7.51% 8.12% 9.14%	PT-IB2004C	5 10	5.9115 0.1068	NE	NE	8-IB2004C refusal at 15.5' bgs Sample 4 not taken Poor permeability at 10'	PP2004	Preliminary (For Survey)	IB2004C	170	45	B-1B2004C	PT-IB2004C			-0.89%	Preliminary (For Survey)	Storage & Infiltration	IB2003A	50	180					4
					PT-IB2004D	5 10	0.2778 0.0294	NE	NE																					
	B-2005A	5'-7' 7'-9' 11'-13' 18'-18.5'	SM SM GP-GM SW-SM	16.62% 14.10% 9.52% 10.29%	PT-2005A	5 10	0.7199 0.0805	NE	NE	B-2005A refusal at 18.5' bgs Sample 4 taken from 18'-18.5' Poor permeability at 10'												Storage & Infiltration	2005A	35	60					
					PT-2005D	5 10	0.2295	NE	NE		PP2005	Rejected									Preliminary (For Survey)	Storage	N/A	13	15					2
15th Avenue between 65th Street and 66th					PT-IB20054	10	0.2291	NE	NE																					
Street					PT-IB2006B	10 5	0.1045	NE	P	T-IB2006A refusal at 6', not reattempted due to inspector error	parooc	Preliminary	20055	175	70	B-2005C	DT 20055			,n 70×	Preliminary (For	Storage & Infiltration	2005A	35	60					A
	B-2006C	5'-7' 9'-11' 11'-13'	CL-ML SM SW-SM	70.70% 13.33% 10.07%	PT-2006C	5 10	0.3965 12.4876	NE	NE	Sample 2 taken from 9'-11' High fines 5'-7'	1 72000	(For Survey)	2000	133	70	B-2006C				-0.7576	Survey)	Storage	N/A	13	15					**

DEP Contract ID: DEP Project: Prepared By:	[0	[Contract] [Project Description] Consultant/Sub Name]					Bure	NYC Departm au of Environmental F Bo	ent of Environmental Protection Planning and Analysis – Green Infrastructure wough of X, New York					Environmen	C														
	Soil Data	(Laboratory Results or H	listorical Boring Soil De	escription)	Interim Geotechnic	cal Report Summar Permeability Analysis	ry Table for Permea	ble Pavement		Sub Area 2					Protection Consultant Reco	mmendation (Dat	tel								DEP Recon	mmendation [Date]				
Location	Nearby Boring ID No.	Depth (ft)	USCS Symbol	% Passing No 200 Sieve	Nearby Permeability Test ID No.	Permeability Test Depth (ft)	Average Permeability Coef. (in/hr)	Groundwater Table Depth (ft)	Bedrock Depth (ft)	General Geotechnical Notes	PP ID No.	Recommenda tion for Survey	Approxima Reference ID/Point	ate ROWPP Lengt Distance Downstream of Reference (ft)	th with Storage Distance Upstream of Reference (ft)	Relevant Boring ID(s) from Nearby Locations	Relevant Permeability Test ID(s) from Nearby	Stone Column Depth (ft), if applicable	Additional Notes	Approximate Street Slope (%)	Recommendation for Survey	(Storage & Infiltration/Stora ge Only)	Approximate Reference ID/Point	ROWPP Length wit Distance Downstream of Reference (ft)	h Storage Distance Upstream of Reference (ft)	evant Boring ID(s) from Nearby Locations	Relevant Permeability Test ID(s) from Nearby Locations	Stone Column Depth (ft), if applicable	Additional Notes	PP panel width (ft)
15th Avenue between 66th Street and 67th											PP2010										Rejected								Sewer Main Conflict	
Street						-					PP2011										Rejected								Subway Route Conflict	
	8-20128	7'-9' 11'-13' 18'-20'	SM SP-SM SW-SM SW-SM	33.50% 5.41% 11.88% 11.74%	P1-2012B	10	0.0097	NE	NE	Poor permeability at 5																				
					PT-2012D	10	0.8842	NE	NE	Door pormability at 10'	PP2012	Rejected									Preliminary (Interim Rejection)								Surrouding area mostly has Low PT at 5' or Clay	
					P1-IB2012E	10	0.0574		NE	Poor permeability at 10																				
66th Street between 15th Avenue and Duryea Court	B-IB2013A	5'-7'	SW-SM	8.96%	PT-IB2013A	5	0.0125	NF	NF	Poor permeability at 5'	PP2012-1										Preliminary (Interim Rejection)								Surrouding area mostly has Low PT at 5' or Clay	
		7'-9' 11'-13' 13'-15'	SP-SM SP-SM SM	6.13% 7.99% 12.56%	PT-2013-1A	10	0.1337	NE	NE	B-IB2013A refusal at 15' bgs Sample 4 taken from 13'-15'	PP2013	Preliminary (For Survey)	IB2013A	100	105	B-IB2013A	PT-IB2013A			-0.12%	Preliminary (Interim Rejection)								Surrouding area mostly has Low PT at 5' or Clay	
	B-2013-1C	5'-7'	SC-SM	46.94%	PT-2013-1C	10	0.0064	NE	NE	Poor permeability at 10' Poor permeability at 10'	PP2013-1	Preliminary (For Survey)	2013-1C	50	115	B-2013-1C	PT-2030-1C			-0.13%	Preliminary (Interim								Surrouding area mostly has Low PT at	
		7'-9' 11'-13' 18'-20'	SP-SM SM GP-GM	6.03% 16.88% 10.21%	PT-IB2027A	10	0.1022	NE	NE	High fines 5'-7' Infer boring data from 20288											Rejection)								5 of Clay	
	B-2028B	5'-7'	SM	18.64%	PT-2028B	10	0.2830	NE	NE	B-2028B refusal at 18.5' bgs Sample 4 from 18'-18.5' B-2028B refusal at 18.5' bgs	PP2027	Rejected									Rejected								Water Main Conflict	
66th Street between Duryea Court and 16th		7'-9' 11'-13' 18'-18.5'	SM SM SM	15.90% 16.26% 13.88%	PT-2028D	10	0.1360	NE	NE	Sample 4 from 18'-18.5'											Preliminary								Surrouding area	
Avenue	B-2028E	5'-7'	CL-ML	81.26%	PT-2028E	10	0.0271	NE	NE	Poor permeability at 5' and 10' B-2028E refusal at 19' bgs	PP2028	Preliminary (For Survey)	2028B	215	55	B-2028B	PT-2028B			0.65%	(Interim Rejection)								mostly has Low PT at 5' or Clay	
	B-IB2014A	7'-9' 11'-13' 18'-19' 5'-7'	SC-SM SC-SM SM SM	42.78% 41.60% 35.75% 22.48%	PT-IB2014A	10	0.0585	NE	NE	Sample 4 taken from 18'-19' Poor permeability at 5' High fines throughout Poor permeability at 5'											Preliminary									
Duryea Court between 66th Street and 67th Street	B-IB2015A	7'-9' 11'-13' 18'-20' 5'-7'	SW-SM SM SM SM	9.76% 12.72% 14.64% 14.78%	PT-IB2015A	10 5	0.2739	NE	NE	B-IB2015A refusal at 16' bgs	PP2014	Rejected									(Interim Rejection) Preliminary								Silt and Clay above 5' and Low PT	
		7'-9' 11'-13' 15'-16'	SM SM SP-SM	12.97% 16.09% 8.61%	PT-IB2048A	10 5	0.3265	NE	NE	Sample 4 taken from 15'-16' Low permeability at 10'	PP2015	(For Survey)	IB2015A	220	110	B-IB2015A	PT-IB2015A			0.75%	(Interim Rejection)								Silt and Clay above 5' and Low PT	
	B-2048C	5'-7'	SW-SM	9.08%	PT-2048C	10 5 10	0.0729	NE	NE	Low permeability at 10'	- PP2048	Rejected									Rejected								Water Main Conflict	
67th St between New	B-GS2016A	11'-13' 18'-20' 5'-7' 7'-9'	SW-SM SW-SM ML SM	11.10% 8.02% 56.13% 29.28%	PT-GS2016A	5	0.0058	NE	NE	B-GS2016A refusal at 18' bgs Samole 4 taken from 17'-18'	-																			
Utrecht Avenue and 16th Avenue	B-IB2016C	11'-13' 17'-18' 5'-7' 7'-9' 11'-13'	SM SM SM ML SM	30.86% 20.29% 27.39% 56.24% 27.79%	PT-IB2016C	5 10	2.0675 0.0131	NE	NE	Poor permeability at 5' and 10' High fines 5'-7' Poor permeability at 10' High fines 7'-9'	PP2016	Rejected									Preliminary (Interim Rejection)								Surrounding area mostly has silt and clay above 7' and Low PT at 5'	
	B-GS2017B	18'-20' 5'-7' 7'-9' 11'-13'	SM CL-ML GM SM	24.14% 82.20% 18.44% 17.45%	PT-GS2017B	5 10	0.2760	NE	NE	B-GS2017B refusal at 18' bgs Sample 4 taken from 17'-18' Poor permeability at 10'	PP2017	Preliminary (Interim Rejection)									Preliminary (Interim Rejection)								Surrounding area mostly has silt and clay above 7' and	
	B-1095C	1/'-18' 5'-7' 7'-9' 11'-13'	SM SC-SM SM SM	17.08% 18.4% 20.1% 12.2%	PT-1095C	5 10	2.0586 0.0453	NE	NE	nigh filnes 5 - 7' Poor permeability at 10'	PP1095	Rejected												<u> </u>					LOW P1 at 5'	
15th Avenue between	B-2019A	18'-20' 5'-7' 7'-9' 11'-13'	SP-SM SC-SM SM SM	5.9% 14.06% 15.45% 13.06%	PT-2019A	5 10	2.2835 0.1085	NE	NE	Poor permeability at 10'														<u> </u>						
67th Street and Ovington Avenue	B-2019B	18-20' 5'-7' 7'-9' 11'-13' 15'-17'	SM CL-ML SP SM	24.02% 53.21% 2.05% 12.15% 18.41%	PT-2019B	5 10	1.7836 0.2011	NE	NE	B-2019B refusal at 17' bgs Sample 4 taken from 15'-17' High fines 5'-7'	PP2019	Preliminary (For Survey)	2019B	150	65	B-2019A	PT-2019B			0.54%	Preliminary (Interim Rejection)								B-2019A and B- 2019B have silt above 5'	
		13-1/	3191	10.4170	PT-2019D	5 10	3.0804 0.0295	NE	NE	Poor permeability at 10'																				

DEP Contract ID: DEP Project: Prepared By:	[[Contract] [Project Description] [Consultant/Sub Name	2]				- 11 / -	Bure	NYC Depa eau of Environmen	rtment of Environmental Protection tal Planning and Analysis – Green Infrastructure Borough of X, New York					Environmenta Protection	-														
	Soil Data	a (Laboratory Results or	Historical Boring Soil De	scription)	Interim Geotechni	Permeability Analysis	y lable for Permea	bie Pavement		Sub Area 2					Consultant Recon	mendation [Date	e]								DEP Rec	commendation [Date]				
Location	Nearby Boring ID No.	Depth (ft)	USCS Symbol	% Passing No 200 Sieve	Nearby Permeability Test ID No.	Permeability Test Depth (ft)	Average Permeability Coef. (in/hr)	Groundwater Table Depth (ft)	Bedrock Depth (ft)	General Geotechnical Notes	PP ID No.	Recommenda tion for Survey	Approxim Reference ID/Point	Distance Downstream of Reference (ft)	h with Storage Distance Upstream of Reference (ft)	Relevant Boring ID(s) from Nearby Locations	Relevant Permeability Test ID(s) from Nearby	Stone Column Depth (ft), if applicable	Additional Notes	Approximate Street Slope (%)	Recommendation for Survey	(Storage & Infiltration/Stora ge Only)	Approximate F	ROWPP Length wit Distance Downstream of Reference (ft)	h Storage Distance Upstream of Reference (ft)	Relevant Boring ID(s) from Nearby Locations	Relevant Permeability Test ID(s) from Nearby Locations	Stone Column Depth (ft), if applicable	Additional Notes PP p	anel width (ft)
											PP2021										Rejected								Subway Route Conflict	
New Utrecht Avenue between 68th Street and Ovington Avenue											PP2018										Rejected								Subway Route Conflict	
						-	0.021				PP2020.2										Rejected								Subway Route Conflict	
Ovington Avenue between 15th Avenue	B-3045B	3'-5' 5'-7'	SM SW-SM	16.00%	P1-30458	6	0.591	NE	NE	Low permeability at 3'	PP3045		3045B	68	50	B-3045B	PT-3045B			-16.83%										
Avenue	B-3048A	2'-5'	SW/-SM	10.20%	PT-IB2020A(1) PT-IB2020A(2)	10 10	0.252 0.000 0.082	NE	NE	Poor permeability at 10'	PP2020.1										Preliminary (Interim Rejection)								Low PT at 3ft	
	B-GS3048C	5'-7' 3'-5'	SW-SM SW-SM	4.50%	PT-GS3048C	6	0.063	NE	NE	cow permeasing at o	PP3048		GS3048C	70	420	B-GS3048C	PT-GS3048C			5.55%										
Ovington avenue	B-GS2022A	5'-7'	SP-SM SM	7.80%	PT-GS2022A	6	0.679	NE	NE	B-GS2022A refusal at 18' bgs																				
between New Utrecht avenue and 16th Avenue		7'-9' 11'-13' 17'-18'	SP-SM SP-SM SM	8.97% 9.65% 19.17%	PT-IB2022B	10	2.629	NE	NE	Sample 4 taken from 17'-18'																				
					PT-GS2022C	10 5	0.081	NE	NE	Poor permeability at 10'	PP2022										Rejected								Due to Water Main Conflict	
						10	1.210														Preliminary								Surrounding area has	
16th Avenue and 67th Street and 68th Street											PP2023										(Interim Rejection) Preliminary					B-G52017B	PT-GS2017B		silt and clay above 7' Surrounding area has	
											PP2024										(Interim Rejection)					B-1B2047B	P1-1B2047B		silt and clay above 7'	
16th Avenue between 66th Street and 67th	B-2026A	5'-7' 7'-9'	SP-SM SM	9.37% 15.84%	PT-2026A	5 10	0.5234 0.3650	NE	NE		112025										hejecteu	Storage	N/A	11	10					
Street		11'-13' 18'-20'	SW-SM GW-GM	6.60% 8.89%							PP2026	Preliminary (For Survey)	2026A	76	245	B-2026A	PT-2026A			0.75%	Preliminary (For Survey)	Storage &	2026A	150	90					4
	B-2030-1A	5'-7' 7'-9' 11'-13'	GM GP-GM SM	17.15% 11.28% 26.01%	PT-2030-1A	5 10	0.0458 NP	NE	NE	PT-2030-1A refusal at 6.5', not reattempted Poor permeability at 5'												mitration								
	B-IB2030-1B	18'-20' 5'-7' 7'-9' 11'-13'	SM GM GM GM	14.02% 38.67% 14.75% 18.06%	PT-IB2030-1B	5 10	0.0176 0.1502	NE	NE	Poor permeability at 5' B-IB2030-1B no recovery at 9'-11' Sample 3 taken from 11'-13'	PP2030-1 GKOH15-04	Rejected									Rejected								Truck Route	
	B-2030-1C	18'-20' 5'-7' 7'-9' 11'-13'	GM CL-ML SM GM	13.20% 55.68% 30.02% 14.00%	PT-2030-1C	5 10	0.0239 0.3557	NE	NE	B-2030-1C refusal at 16' bgs Sample 4 taken from 15'-16' High fines 5'-7'																				
		15'-16'	SM	17.07%	PT-3105A(1) PT-3105A(1) PT-3105A(2)	5 10	0.0000 0.0690	NE	NE	5' PT attempt had no infiltration; offset																				
65th Street between	B-3105B(1)	5'-7'	SM/SC	30.27%	PT-3105A(2) PT-3105B(1)	10 5	NP 0.1444	NE	NE	completedi																				
16th Avenue and 17th Avenue		7'-9' 11'-13' 18'-20'	SM/SC SP-SM/SC SW-SM/SC	42.93% 10.04% 7.76%	PT-3105B(1) PT-3105C(1)	10 5	0.7363	NE	NE																					
	B-3105E(1)	5'-7'	SM/SC	17.21%	PT-3105C(1) PT-3105E(1) PT-3105E(1)	10 5	0.0424	NE	NE		PP3105 GKOH15-03																			
	B-3105G(1)	11'-13' 18'-20' 5'-7' 7'-9'	SM/SC SP-SM/SC SM/SC GP-GM/GC	15.65% 10.49% 15.27% 11.11%	PT-3105G(1) PT-3105G(1)	5	0.0000	NE	NE	SB terminated at 15' due to refusal																				
		11'-13'	SM/SC	14.33%	PT-3105G(2)	5	0.0721			First 5' PT attempt had no infiltration; offset completed.																				
	B-3105H(1)	5'-7' 7'-9' 11'-13' 18'-20'	GM/GC SW-SM/SC SM/SC SM/SC	16.40% 9.84% 14.61% 18.33%	PT-3105G(2) PT-3105H(1) PT-3105H(1)	10 5 10	0.2488 0.0264	NE	NE																					

DEP Contract ID: DEP Project: Prepared By:		[Contract] [Project Description] [Consultant/Sub Nam	i] ne]					Bure	NYC Depa au of Environmen	Irtment of Environmental Protection Ital Planning and Analysis – Green Infrastructure Borough of X, New York					Environmen Protection	C al													
	Soil Data	ta (Laboratory Results or	or Historical Boring Soil D	escription)	Interim Geotechnie	Permeability Analysis	ry Table for Permea	ble Pavement		Sub Area 2					Consultant Recor	nmendation [Date]								DEP Recommenda	tion [Date]			
Location	Nearby Boring ID No.	Depth (ft)	USCS Symbol	% Passing No 200 Sieve	Nearby Permeability Test ID No.	Permeability Test Depth (ft)	Average Permeability Coef. (in/hr)	Groundwater Table Depth (ft)	Bedrock Depth (ft)	General Geotechnical Notes	PP ID No.	Recommenda tion for Survey	Approxin Reference ID/Point	Distance Distance Downstream of Reference (ft)	Distance Upstream of Reference (ft)	Relevant Boring ID(s) from Nearby Locations	Relevant Permeability Test ID(s) from Nearby	Stone Column Depth (ft), if applicable	Additional Notes	Approximate Street Slope (%)	Recommendation for Survey	(Storage & Infiltration/Stora ge Only)	Approximate ROW Reference ID/Point Dov Ref	/PP Length with Distance wnstream of eference (ft)	Storage Distance Upstream of Reference (ft)	earby ions	Relevant ermeability Test (s) from Nearby Locations	Additional Notes	PP panel width (ft)
	B-IB2032A	5'-7' 7'-9' 11'-13'	SM GP-GM GP	12.44% 8.42% 0.00%	PT-IB2032A	5 10	3.5434 3.8867	NE	NE	B-IB2032A refusal at 16' bgs Sample 4 not taken	PP2032	Rejected									Rejected							Water Main Conflict	
17th Avenue between 65th Street and 66th Street	B-2055AA	5'-7' 7'-9' 11'-13' 13'-15'	SM GM SM CL-ML	34.16% 24.30% 39.31% 53.34%	PT-2055AA	5 10	1.3559 0.1463	NE	NE	B-2055AA refusal at 15' bgs Sample 4 taken from 13'-15' High fines at 13'-15'	PP2055	Reiected									Rejected							Sewer Main Conflict	
					PT-2055A	5 10	0.0503	NE	NE	Low permeability at 5'		,																	
	B-2033-2A	5'-7' 7'-9' 11'-13'	GP-GM SM	25.20% 10.81% 20.25%	PT-2033-2A	5 10	0.0210 0.0477	NE	NE	Poor permeability at 5' and 10' B-2033-2A refusal at 15' bgs	PP2033-2	Preliminary (Interim									Rejected							Water Main Conflict	
66th Street between Wallaston Court and 17th Avenue		7'-9' 11'-13' 15'-16.5'	GP-GM GW-GM GP-GM	6.62% 7.78% 10.49%	PT-2033-2E(2) PT-2038B	10 5 10 5	NP 0.1678 0.1165 0.7520			B-2033-2E refusal at 16.5' bgs Sample 4 taken from 15'-16.5' PT-2033-2E(1) refusal at 4' bgs		Rejection)									Desliminer								
	B-2033-1A	5'-7'	SM	33.22%	PT-2033-1A	10	0.0347	NE	NE	Poor permeability at 10'	PP2038										(Interim Rejection)				B-IB2	/41A P	PT-IB2041A	clay above 5' and mostly Low PT	
66th Street between Cameron Court and Wallacton Court		7'-9' 11'-13' 15'-17'	SM SM SM	18.59% 27.05% 12.27%		10	0.0592			B-2033-1A refusal at 17' bgs	PP2033-1	Rejected									Rejected							Water Main Conflict	
Wallaston Court											PP2037										Preliminary (For Survey)	Storage & Infiltration	2033-1A	120	55				4
66 Street between			-		PT-IB2036A	5	0.6743	NE	NE		PP2033										Rejected							Water Main Conflict	
Ovington Ct and Cameron Ct	B-2036B	5'-7' 7'-9'	SW-SM SW-SM	7.27%	PT-2036B	10 5 10	0.2042	NE	NE		PP2036	Preliminary (For Survey)	2036B	120	20	B-2036B	PT-2036A PT-2036B			1.94%	Preliminary (For Survey)	Storage & Infiltration	2036B	100	75				4
	B-2034B	11'-13' 18'-20' 5'-7'	GP-GM SP-SM GP-GM	10.45% 7.43% 10.06%	PT-2034B	5	0.5818	NE	NE	B-2034B Refusal at 15.5' due to dense gravelly sand																—			
66 Street between 16th avenue and Ovington Ct		7'-9' 11'-13'	SM	16.48% 14.43%		10	NP			Only three samples are taken PT-2034B refusal at 6.5' bgs, not reattempted	PP2034										Rejected							Water Main Conflict	
					PT-2035A	5 10	0.7289 0.1525	NE	NE		PP2035	Preliminary (For Survey)	2034B	40	120	B-2034B	PT-2035A			1.63%	Preliminary (Interim Rejection)							High plasticity clay in B-2034B above 5'	
	B-1B2039B	5'-7' 7'-9' 11'-13'	SP-SM SM SM	10.18% 12.41% 14.45%	PT-IB2039B	5	0.2782	NE	NE	B-IB2039B refusal at 16' bgs, sample 4 taken from 15'-16' Low permeability at 10'	PP2039	Rejected									Rejected							Sewer Main Conflict	
17th Avenue between 66th Street and 67th Street		15 10		13.7370	PT-2058A	5 10	0.0000	NE	NE	Low permeability at 5' and 10'																			
					PT-2058B	5 10	0.0000 0.0034	NE	NE	Low permeability at 5' and 10'	PP2058										Rejected							Sewer Main Conflict	
	B-IB2041A	5'-7' 7'-9' 11'-13' 18'-20'	CL-ML SM GM CL-ML	65.42% 17.78% 17.22% 53.99%	PT- IB2041A(1) PT- IB2041A(2)	5 10 5 10	0.0000 0.0000 0.0000 0.0000	NE	NE	High fines from 5'-7' and 18'-20' Low permeability at 5' and 10'	PP2041	Preliminary (For Survey)	IB2042B	110	190	B-1B2042B	PT-IB2042B PT-IB2042C			-1.65%	Prelminary (For Survey)	Storage	N/A	70					4
Wallacton Ct botwoon					PT-IB2042A	5	0.7753	NE	NE	Low permeability at 10'												Storage & Infiltration	IB2042B	50	200				
66th Street and 67th Street	B-1B2042B	5'-7'	SM	14.62%	PT-IB2042B	10	0.0062 2.2018	NE	NE	Low permeability at 10'																			
	B-1B2042C	7'-9' 11'-13' 18'-20' 5'-7'	SW-SM SW-SM SM SW-SM	8.55% 7.93% 12.24% 9.03%	PT-1B2042C	10 5	2.1572	NE	NE	Low permeability at 10'	PP2042.1										Rejected							Water Main Conflict	
		11'-13' 18'-20'	SW-SM SP-SM SM	5.93% 13.40%		10	0.0231																						

DEP Contract ID: DEP Project: Prepared By:	[0	[Contract] [Project Descriptior Consultant/Sub Nam] e]					Bure	NYC Depa eau of Environmen	rtment of Environmental Protection Ital Planning and Analysis – Green Infrastructure Borough of X, New York					Environmer	C tal														
	Soil Data	(Laboratory Results o	Historical Boring Soil	Description)	Interim Geotechn	ical Report Summa Permeability Analysis	ry Table for Permea	ble Pavement		Sub Area 2					Consultant Reco	mmendation [Da	itel								DEP	Recommendation (Dat	el			
													Approxi	mate ROWPP Lengt	h with Storage	Relevant	Relevant			+			Approximat	te ROWPP Length v	vith Storage		Relevant			
Location	Nearby Boring ID No.	Depth (ft)	USCS Symbol	% Passing No 200 Siev	e Nearby Permeability Test ID No.	Permeability Test Depth (ft)	Average Permeability Coef. (in/hr)	Groundwater Table Depth (ft)	² Bedrock Depth (ft)	General Geotechnical Notes	PP ID No.	tion for Survey	Reference ID/Point	Distance Downstream of Reference (ft)	Distance Upstream of Reference (ft)	Boring ID(s) from Nearby Locations	Permeability Test ID(s) from Nearby	Depth (ft), if applicable	Additional Notes	Street Slope (%)	Recommendation for Survey	n (Storage & Infiltration/Stora ge Only)	Reference ID/Point	Distance t Downstream o Reference (ft)	Distance f Upstream of Reference (ft)	Relevant Boring ID(from Nearby Locations	i) Permeability Test ID(s) from Nearby Locations	Stone Column Depth (ft), if applicable	Additional Notes	PP panel width (ft)
	B-IB2044A	5'-7'	GM	16.49%	PT-IB2044A	5	0.7213	NE	NE	Low permeability at 10'																				
		7'-9'	SW-SM	9.97%		10	0.0144															Storage &	IB2044A	30	150					
		18'-20'	SW-SM	10.91%								Preliminary		25	250		PT-IB2044A			0.019/	Prelminary (Fo	r								
											PP2045	(For Survey)	IB2044A	25	250	B-162044A	PT-IB2044B			-0.51%	Survey)				•					4
																						Storage	N/A		150					
Cameron Ct between																														
Street					PT-IB2044B	5	0.0922	NE	NE	Low permeability at 5'																				
						10	0.3487															Storage &	IB2044A	30	150					
																					Prelminary (Fo	r								2
											PP2044										Survey)									2
																						Storage	N/A	:	150					
	B-IB2045B	5'-7'	SM	15.34%	PT-IB2045B	5	0.7722	NE	NE	18'-20' sample contains small fragments of plastic																				
		7'-9'	SM	12.40%		10	0.9709															Storage &	IB2045B	60	150					
		11'-13'	GP-GM	11.02%								Preliminary					PT-IR2045R				Prelminary (Fo	Infiltration								
Ovington (t hotwoon		18'-20'	SW-SM	8.37%							PP2045	(For Survey)	IB2045B	50	250	B-IB2045B	PT-IB2046A			-0.06%	Survey)							-		4
66th Street and 67th																														
Street																						Storage	N/A		120					
					PT-IB2046A	5	0.6404	NE	NF						-		-	-						-	1					
						10	0.5609				PP2046										Rejected								Vater Main Conflict	
											112040										nejecteu								vater want connec	
	B-IB2047B	5'-7'	CL	75.60%	PT-IB2047B	5	0.3628	NE	NE	High fines from 5'-7'																				
		7'-9'	SM	31.73%		10	0.0063			Low permeability at 10'	PP2047	Rejected									Rejected							,	Vater Main Conflict	
		11'-13' 18'-20'	GM SP-SM	17.81%																										
											PP2044-1										Rejected							,	Vater Main Conflict	
											PP2044										Rejected							· ·	Vater Main Conflict	
67th St between 17th																														
Avenue and 16th Avenue											PP2040										Rejected								Vater Main Conflict	
											PP2042.2										Rejected								Vater Main Conflict	
											112042.2										nejected									
							-			-								1			Broliminany									
											PP2049										(Interim								Low plasticity silt	
																					Rejection)								bove / in iB204/B	
											PP2049-1										Rejected								Conflict with siting	
																													enterio	
											PP2050										Rejected								ewer Main Conflict	
17th Avenue between																														
ь/ Street and 68 Street																														
											PP2062										Rejected								ewer Main Conflict	

DEP Contract ID:		[Contract]							NYC Depar	tment of Environmental Protection																			
DEP Project:		[Project Description]						Bur	reau of Environment	al Planning and Analysis Green Infrastructure																			
Prepared By:		Consultant/Sub Name	2]							Borough of X, New York																			
			-												Environmen	al													
					Interim Geotechni	cal Report Summa	ry Table for Perme	able Pavement		Sub Area 2					Protection														
	Soil Data	(Laboratory Results or	Historical Boring Soil De	scription)		Permeability Analysis	s								Consultant Reco	nmendation (Dat	el								DEP Recommen	ation [Date]			
			-					-					Approxin	ate ROWPP Length	with Storage	Relevant	Relevant	1	1	+		1	Approximate	ROWPP Length wit	th Storage			Г Т	
Location					Noorby Permoshility	Romoshility Tost	Average Permeability	Groundwater Table	e Bedrock Depth (ft)	General Geotechnical Notes	PP ID No.	Recommenda		Distance	Distance	Boring ID(s)	Permeability	Stone Column	Additional	Approximate	Perommondation	(Storage &			Relevant	Boring ID(s) Relevant	Stone Column		DD nonol width
	Nearby Boring ID No.	Depth (ft)	USCS Symbol	% Passing No 200 Siev	e Test ID No.	Depth (ft)	Coef, (in/hr)	Depth (ft)				tion for	Reference	Downstroom of	Unstroom of	from Nearby	Test ID(s) from	Depth (ft), if	Notes	Street Slope (%)	for Survey	Infiltration/Stora	Reference ID / Point	Distance Downstroom of	Distance from	Nearby ID(s) from Near	Depth (ft), if	Additional Notes	(ft)
												Survey	ID/Point	Reference (ft)	Reference (ft)	Locations	Nearby	applicable				ge Only)		Reference (ft)	Reference (ft)	Locations	applicable		
	P 2051A(1)			-	DT 20E1A	-	2 710	NE	NE	Low portposition at 10	-	-		Reference (It)	Reference (it)	Locations	nearby	-											
	B-2051A(1)	11.21	CIAL CAA	11 9/19/	PT-2031A	10	2.710	INC	INC	Low permeability at 10																			
	B-2051A(2)	1-5	SVV-SIVI	10.104/0		10	0.008																						
		3-5	SIVI	18.10%																									
						-					_																		
	B-2051C(1)				P1-2051C	5	0.509	NE	NE																				
	B-2051C(2)	1'-3'	SM	37.10%		10	0.132				PP2051										Rejected							Water Main Conflict	
		3'-5'	GM	16.53%																									
					PT-2051G	5	0.13	NE	NE																				
						10	1.125																						
					PT-2051-1A	5	0.292	NE	NE	Low permeability at 10'																			
						10	0.017																						
					PT-2051-1D	5	0.411	NE	NE																				
						10	0.309																						
68th St between 16th																													
and 17th Avenue	B-IB2051-1F	5'-7'	SM	12.95%	PT-IB2051-1F	5	0.53	NE	NE																				
		7'-9'	SM	14.03%		10	0.912				0000004.4										Particular d								
		11'-13'	SM	15.79%							PP2051-1										Rejected							water Main Conflict	
		18'-20'	SM	16.14%																									
					PT-IB2051-1G	5	0.629	NE	NE																				
						10	0.422																						
1																													
					PT-2051-1H	5	2,886	NF	NF	I ow permeability at 10'	-																		
						10	0.025			,																			
1																													
					-			-																					
											PP3100																		
1																													
1												1						+	1			1	·'		<u> </u>				
1											PP3101																		
1																													
												1	1		1	1		1	1	1	1	1	1	1	1 1	1	1	1	

[Contract] [Project Description] [Consultant/Sub Name] NYC Department of Environmental Protection

Bureau of Environmental Planning and Analysis -- Green Infrastructure Borough of X, New York



Geotechnical Report Summary Table for ROW GI Practices (Excluding Permeable Pavement)

					Geotechnical R	Report Summary Table for RO	W GI Practices (Excluding Pe	ermeable Pavement)		Package 2	
	Soil Data (La	aboratory Res	ults or Historical B	oring Soil Description)		Permeability Analysi	s				
GI ID No.	Nearest Boring	Depth (ft)	USCS Symbol	% Passing No 200 Sieve	Nearest Permeability	Permeability Test Depth (ft)	Average Permeability Coef.	Groundwater Table Depth (ft)	Bedrock Depth (ft)	General Geotechnical Notes	Additional Notes
	ID No.				Test ID No.		(in/hr)				
2017a	0921-31	0-0.5		Concrete	PT-2017a (1)	5	0.00				
		0 5-24	F-M Brown sa	nd, trace silt, trace gravel		10	0.26	21 /	NE		
		24-51.5	Fine brow	n sand. trace silt (SP)	PT-2017a (2)	5	6.01	51.4	NL		
2022a	B-2022a	5-7	SP-SM	5.5%	PT-2022a	5	0.23				
		7-9	SP-SM	6.4%		10	0.09	NE	NE		
		11-13	SP	2.7%							
20226	P 2022a	18-20	SP SD SM	4.2%	DT 2022a	r	0.22				
20220	B-2022a	5-7 7-9	SP-SIVI	5.5%	P1-2022d	5	0.23	NE	NE		
		11-13	SP	2.7%		10	0.05				
		18-20	SP	4.2%							
2022c	B-2022c	5-7	SP	4.5%	PT-2022c	5	0.07				
		7-9	SP	1.9%		10	2.32	NE	NE	Organic clay was encountered at 9'	
		11-13	SP	1.3%							
2100h	D 2100h	18-20	SP	1.7%	DT 2100h	2	1.20				
21990	B-21990	3-5	SP	3.5%	P1-21990	3	1.29			Shallow GWT was encountered at 8ft and shallow Geotechnical	
		5-7	SP	1.3%		6	2.61	8	NE	procedure was followed	
		7-9	SP	2.9%							
						-					
2199c	B-2199b	3-5	SP	3.5%	PT-2199b	3	1.29	0	NE		
		5-7 7-9	SP SP	2.9%		D	2.01	ŏ	INE		
		75	51	2.570							
IB2221a	B-IB2221a(1)	5-7	SP	1.5%	PT-IB2221a	5	0.28				
		7-9	SP	1.7%		10	1.47	NE	NE	Refusal at 9' in boring. Moved to offset location.	
	B-IB2221a(2)	11-13	SP	1.8%							
		18-20	SP	1.9%		_					
2210a	B-2210a	5-7	SC SD	28.0%	PT-2210a	5	4.23	NE	NE		
		11-13	SP	3.3%		10	0.45	INE	INC		
		18-20	SP	2.2%							
2210b	B-2210b	5-7	SC	10.0%	PT-2110b(1)	5	0.00				
		7-9	SP	15.0%		10	2.82	NE	NE		
		11-13	SP	3.1%	PT-2110b(2)	5	0.05				
		18-20	SP	2.5%							
2222a	Reserved		-	-	-	-	-	-	-		
		-	-	-	-	-	-	-	-		Due to new construction asset was not drilled
			-	-	-	-	-	-	-		
2177a	B-2177a	5-7	SP	5.0%	PT-2177a(1)	5	RI				
		7-9	SP	1.2%	. /	10	1.46	NE	NE		
		11-13	SP	1.1%	PT-2177a(2)	5	5.40				
		18-20	SP	1.2%							

2177b	Rejected		-	-	-	-	-	-	-	
		-	-	-	-	-	-	-	-	
			-	-	-	-	-	-	-	
			-	-	-	-	-	-	-	
GS2216a	B-GS2216a	5-7	SM	21.8%	PT-GS2216a (1)	5	NP			
		7-9	SP	1.4%		10	3.91	NE	NE	Refusal at 5' PT test both at original and offset location
		11-13	SP	3.9%	PT-GS2216a (2)	5	NP			
		18-20	SP	3.5%						
GS2216b	B-GS2216a	5-7	SM	21.8%	PT-GS2216b	5	0.07			
		7-9	SP	1.4%		10	1.23	NE	NE	
		11-13	SP	3.9%						
		18-20	SP	3.5%						

See 'Notes' for specific instructions on using template

of sites submitted:

14

Due to utility conflict asset was rejected without geotech investigation

[Contract] [Project Description] [Consultant/Sub Name]

NYC Department of Environmental Protection

Bureau of Environmental Planning and Analysis -- Green Infrastructure

					Geotechnical	Report Summary Ta	ble for Permeable P	avement		Sub Area 2	
	Soil Data	(Laboratory Results or	r Historical Boring Soil De	escription)		Permeability Analysis					
Location	Nearby Boring ID No.	Depth (ft)	USCS Symbol	% Passing No 200 Sieve	Nearby Permeability Test ID No.	Permeability Test Depth (ft)	Average Permeability Coef. (in/hr)	Groundwater Table Depth (ft)	Bedrock Depth (ft)	General Geotechnical Notes	PP ID No.
					PT-GS2001A(1)	5	3.5609	NE	NE	PT-GS2001A(1) Refusal at 5.5' bgs	
						10	NP			PT-GS2001A(2) Refusal at 6' bgs	
					PT-GS2001A(2)	10	NP				
											PP2001
					PT-GS2001B(1)	5	0.6331	NE	NE	PT-GS2001B(1) Refusal at 6.5' bgs	
						10	NP			PT-GS2001B(2) Refusal at 6' bgs	
					PT-GS2001B(2)	10	NP				
					PT-IB2001-1B	5	0.0111	NE	NE		
						10	0.0051				
	B-IB2001-1C	5'-7'	CL-ML	61.6%	PT-IB2001-1C	5	0.0151	NE	NE	B-IB2001-1C refusal at 17' bgs	1
		7'-9'	GM	21.1%		10	0.0051			Sample 4 taken from 15'-17'	
		11'-13'	SM	37.9%						Poor permeability at 5' and 10'	
		15'-17'	SM	31.4%						High fines throughout	PP2001-1
					PT-IB2001-1D	5	0.0740	NE	NE		
						10	0.1008				
	B-IB2001-1E	5'-7'	CL	92.91%	PT-IB2001-1E	5	0.0273	NE	NE	High fines 5'-9'	1
		7'-9'	CL	88.73%		10	0.0279				
C 4th Streat baturaan		11'-13'	SW-SM	8.93%							
15th Avonuo and 16th		18'-20'	SM	15.50%							
	B-2002B	5'-7'	SP-SM	10.38%	PT-2002B	5	0.5077	NE	NE	B-2002B refusal at 17' bgs	
/ Wellide		7'-9'	GM	12.51%		10	0.0864			Sample 4 not taken	
		11'-13'	SM	15.82%						Poor permeability at 10'	
											PP2002
			-		PT-G\$2002-1B	5	0.0158	NE	NE	Poor permeability at 5'	
					F1-032002-1B	10	0.6825	NL.	NL.	Poor permeability at 5	
						10	0.0025				
					PT-2002-1D	5	0.0125	NE	NE	Poor permeability at 5' and 10'	1
						10	0.0108				
											00000 1
					PT-IB2002-1E	5	0.0691	NE	NE	Poor permeability at 5' and 10'	PP2002-1
						10	0.0057				
	B-IB2002-1F	5'-7'	ML	76.20%	PT-IB2002-1F	5	0.1347	NE	NE	Poor permeability at 10'	1
		7'-9'	GM	23.66%		10	0.0056			B-IB2002-1F refusal at 17' bgs	
		11'-13'	SM	28.80%						Sample 4 taken from 15'-17'	
		15'-17'	GM	20.65%						High fines 5'-7'	

[Contract] [Project Description] [Consultant/Sub Name]

NYC Department of Environmental Protection

Bureau of Environmental Planning and Analysis -- Green Infrastructure

					Geotechnical	Report Summary Ta	ble for Permeable Pa	avement		Sub Area 2	
	Soil Data	(Laboratory Results or	Historical Boring Soil De	escription)		Permeability Analysis					
Location	Nearby Boring ID No.	Depth (ft)	USCS Symbol	% Passing No 200 Sieve	Nearby Permeability Test ID No.	Permeability Test Depth (ft)	Average Permeability Coef. (in/hr)	Groundwater Table Depth (ft)	Bedrock Depth (ft)	General Geotechnical Notes	PP ID No.
	B-IB2003A	5'-7'	SM	21.66%	PT-IB2003A	5	0.0214	NE	NE	Poor permeability at 5' and 10'	
		7'-9'	SP-SM	8.40%		10	0.0185				
		11'-13'	SM	13.85%							
		18'-20'	GM	17.30%							200200
					PT-IB2003B	5	0.2333	NE	NE		PP2005
						10	0.9571				
15th Avenue between					PT-IB2004B	5	2.3771	NE	NE	Poor permeability at 10'	
64th Street and 65th						10	0.1128				
Street											
	B-IB2004C	5'-7'	SP-SM	7.51%	PT-IB2004C	5	5.9115	NE	NE	B-IB2004C refusal at 15.5' bgs	
		7'-9'	SW-SM	8.12%		10	0.1068			Sample 4 not taken	PP2004
		11'-13'	GW-GM	9.14%						Poor permeability at 10'	
					PT-IB2004D	5	0.2778	NE	NE		
						10	0.0294				
	D 2005 A		614	46.629/	DT 20054	-	0.7100	NE	NE		
	B-2005A	5-7	SIVI	16.62%	P1-2005A	5	0.7199	INE	INE	B-2005A refusal at 18.5 bgs	
		7-9	SIVI	14.10%		10	0.0805			Sample 4 taken from 18-18.5	
		11-13	GP-GIVI	9.52%						Poor permeability at 10	
		18-18.5	5VV-SIVI	10.29%	DT 2005 P	E	4.0020	NE	NE		
					P1-2003B	10	4.9920	INE	INE		
						10	1.1955				PP2005
					PT-2005D	5	0.2295	NE	NE		
					F1-2003D	10	1 3//6	INL	INL.		
						10	1.5440				
15th Avenue between											
65th Street and 66th					PT-IB2006A	5	0.2291	NF	NF		
Street						10	NP				
										PT-IB2006A refusal at 6', not reattempted due to	
										inspector error	
					PT-IB2006B	5	0.1045	NE	NE		
						10	0.8634			Poor permeability at 5'	PP2006
	B-2006C	5'-7'	CL-ML	70.70%	PT-2006C	5	0.3965	NE	NE	Sample 2 taken from 9'-11'	
		9'-11'	SM	13.33%		10	12.4876			High fines 5'-7'	
		11'-13'	SW-SM	10.07%							
		18'-20'	SM	12.14%							

[Contract] [Project Description] [Consultant/Sub Name]

NYC Department of Environmental Protection

Bureau of Environmental Planning and Analysis -- Green Infrastructure

					Geotechnical	Report Summary Ta	ble for Permeable Pa	avement		Sub Area 2	
	Soil Data	(Laboratory Results or	Historical Boring Soil De	scription)		Permeability Analysis					
Location	Nearby Boring ID No.	Depth (ft)	USCS Symbol	% Passing No 200 Sieve	Nearby Permeability Test ID No.	Permeability Test Depth (ft)	Average Permeability Coef. (in/hr)	Groundwater Table Depth (ft)	Bedrock Depth (ft)	General Geotechnical Notes	PP ID No.
											PP2010
15th Avenue between											
Street											
											PP2011
	B-2012B	5'-7'	SM	33.50%	PT-2012B	5	0.0097	NE	NE	Poor permeability at 5'	
		7'-9' 11'-13'	SP-SM SW-SM	5.41%		10	0.9818				
		18'-20'	SW-SM	11.74%							
					PT-2012D	5	0.8842	NE	NE		
						10	1.7160				PP2012
					PT-IB2012E	5	0.2610	NE	NE	Poor permeability at 10'	
						10	0.0574				
66th Street between											
15th Avenue and Duryea											PP2012-1
Court											
	B-IB2013A	5'-7'	SW-SM	8.96%	PT-IB2013A	5	0.0125	NE	NE	Poor permeability at 5'	
		7'-9'	SP-SM	6.13%		10	0.1337			B-IB2013A refusal at 15' bgs	PP2013
		11'-13'	SP-SM SM	7.99%						Sample 4 taken from 13'-15'	
		13 13	5141	12.3070	PT-2013-1A	5	0.1607	NE	NE		
						10	0.0064			Poor permeability at 10'	
	B-2013-1C	5'-7'	SC-SM	46.94%	PT-2013-1C	5	0.6096	NE	NE	Poor permeability at 10'	PP2013-1
		7'-9'	SP-SM	6.03%		10	0.1022			High fines 5'-7'	
		11'-13'	SM	16.88%							
		18'-20'	GP-GM	10.21%							

[Contract] [Project Description] [Consultant/Sub Name]

NYC Department of Environmental Protection

Bureau of Environmental Planning and Analysis -- Green Infrastructure

					Geotechnical Report Summary Table for Permeable Pavement					Sub Area 2	
	Soil Data (Laboratory Results or	Historical Boring Soil De	scription)		Permeability Analysis					
Location	Nearby Boring ID No.	Depth (ft)	USCS Symbol	% Passing No 200 Sieve	Nearby Permeability Test ID No.	Permeability Test Depth (ft)	Average Permeability Coef. (in/hr)	Groundwater Table Depth (ft)	Bedrock Depth (ft)	General Geotechnical Notes	PP ID No.
					PT-IB2027A	5	2.1237	NE	NE	Infer boring data from 2028B	
						10	0.2830			B-2028B refusal at 18.5' bgs	DD2027
										Sample 4 from 18'-18.5'	FF2027
	B-2028B	5'-7'	SM	18.64%	PT-2028B	5	0.8702	NE	NE	B-2028B refusal at 18.5' bgs	
		7'-9'	SM	15.90%		10	0.1360			Sample 4 from 18'-18.5'	
66th Street between		11'-13'	SM	16.26%							
Durves Court and 16th		18'-18.5'	SM	13.88%							
					PT-2028D	5	0.0128	NE	NE		
Avenue						10	0.0271			Poor permeability at 5' and 10'	DD2028
											FF2020
	B-2028E	5'-7'	CL-ML	81.26%	PT-2028E	5	0.0161	NE	NE	B-2028E refusal at 19' bgs	
		7'-9'	SC-SM	42.78%		10	1.5549			Sample 4 taken from 18'-19'	
		11'-13'	SC-SM	41.60%						Poor permeability at 5'	
		18'-19'	SM	35.75%						High fines throughout	
	B-IB2014A	5'-7'	SM	22.48%	PT-IB2014A	5	0.0585	NE	NE	Poor permeability at 5'	
		7'-9'	SW-SM	9.76%		10	0.2739				DD2014
Durnes Court between		11'-13'	SM	12.72%							PP2014
Costh Streat and C7th		18'-20'	SM	14.64%							
Stroot	B-IB2015A	5'-7'	SM	14.78%	PT-IB2015A	5	1.8835	NE	NE	B-IB2015A refusal at 16' bgs	
Street		7'-9'	SM	12.97%		10	0.3265			Sample 4 taken from 15'-16'	DD2015
		11'-13'	SM	16.09%							PP2015
		15'-16'	SP-SM	8.61%							
					PT-IB2048A	5	0.1632	NE	NE	Low permeability at 10'	
						10	0.0729				
											PP2048
	B-2048C	5'-7'	SW-SM	9.08%	PT-2048C	5	0.3919	NE	NE	Low permeability at 10'	112040
		7'-9'	SM	13.19%		10	0.0476				
		11'-13'	SW-SM	11.10%							
		18'-20'	SW-SM	8.02%							
67th St hetween New	B-GS2016A	5'-7'	ML	56.13%	PT-GS2016A	5	0.0058	NE	NE	B-GS2016A refusal at 18' bgs	
Utrecht Avenue and		7'-9'	SM	29.28%		10	0.0224			Sample 4 taken from 17'-18'	
16th Avenue		11'-13'	SM	30.86%						Poor permeability at 5' and 10'	
Toti Avenue		17'-18'	SM	20.29%						High fines 5'-7'	PP2016
	B-IB2016C	5'-7'	SM	27.39%	PT-IB2016C	5	2.0675	NE	NE	Poor permeability at 10'	
		7'-9'	ML	56.24%		10	0.0131			High fines 7'-9'	
		11'-13'	SM	27.79%							
		18'-20'	SM	24.14%							
	B-GS2017B	5'-7'	CL-ML	82.20%	PT-GS2017B	5	0.2760	NE	NE	B-GS2017B refusal at 18' bgs	
		7'-9'	GM	18.44%		10	0.0000			Sample 4 taken from 17'-18'	PP2017
		11'-13'	SM	17.45%						Poor permeability at 10'	PP2017
		17'-18'	SM	17.08%						High fines 5'-7'	

[Contract] [Project Description] [Consultant/Sub Name]

NYC Department of Environmental Protection

Bureau of Environmental Planning and Analysis -- Green Infrastructure

					Geotechnical I	Report Summary Ta	ble for Permeable Pa	avement		Sub Area 2	
	Soil Data	(Laboratory Results or	Historical Boring Soil De	scription)		Permeability Analysis					
Location	Nearby Boring ID No.	Depth (ft)	USCS Symbol	% Passing No 200 Sieve	Nearby Permeability Test ID No.	Permeability Test Depth (ft)	Average Permeability Coef. (in/hr)	Groundwater Table Depth (ft)	Bedrock Depth (ft)	General Geotechnical Notes	PP ID No.
	B-1095C	5'-7'	SC-SM	18.4%	PT-1095C	5	2.0586	NE	NE	Poor permeability at 10'	
		7'-9'	SM	20.1%		10	0.0453				DD1005
		11'-13'	SM	12.2%							FF 1055
		18'-20'	SP-SM	5.9%							
	B-2019A	5'-7'	SC-SM	14.06%	PT-2019A	5	2.2835	NE	NE	Poor permeability at 10'	
		7'-9'	SM	15.45%		10	0.1085				
15th Avenue between		11'-13'	SM	13.06%							
67th Street and		18'-20'	SM	24.02%							
	B-2019B	5'-7'	CL-ML	53.21%	PT-2019B	5	1.7836	NE	NE	B-2019B refusal at 17' bgs	
Ovington Avenue		7'-9'	SP	2.05%		10	0.2011			Sample 4 taken from 15'-17'	DD2010
		11'-13'	SM	12.15%						High fines 5'-7'	FF2019
		15'-17'	SM	18.41%							
					PT-2019D	5	3.0804	NE	NE		
						10	0.0295				
										Poor permeability at 10'	
											PP2021
New Utrecht Avenue											
between 68th Street and	4										PP2018
Ovington Avenue	^										
e tillgeen til en de											
											PP2020.2
	B-3045B	3'-5'	SM	16.00%	PT-3045B	3	0.021	NE	NE	Low permeability at 3'	
		5'-7'	SW-SM	11.90%		6	0.591				PP3045
Ovington Avenue											
between 15th Avenue											
and New Utrecht					PT-IB2020A(1)	5	0.252	NE	NE		
Avenue						10	0.000			Poor permeability at 10'	PP2020.1
					PT-IB2020A(2)	10	0.082				

[Contract] [Project Description] [Consultant/Sub Name]

NYC Department of Environmental Protection

Bureau of Environmental Planning and Analysis -- Green Infrastructure

					Geotechnical	Report Summary Ta	ble for Permeable Pa	avement		Sub Area 2	
	Soil Data	(Laboratory Results or	Historical Boring Soil De	scription)		Permeability Analysis					
Location	Nearby Boring ID No.	Depth (ft)	USCS Symbol	% Passing No 200 Sieve	Nearby Permeability Test ID No.	Permeability Test Depth (ft)	Average Permeability Coef. (in/hr)	Groundwater Table Depth (ft)	Bedrock Depth (ft)	General Geotechnical Notes	PP ID No.
	B-3048A	3'-5'	SW-SM	10.20%	PT-3048A	3	6.839	NE	NE	Low permeability at 6'	
		5'-7'	SW-SM	7.10%		6	0.063				
											002049
	B-GS3048C	3'-5'	SP	4.50%	PT-GS3048C	3	3.432	NE	NE		PP5046
		5'-7'	SP-SM	7.80%		6	0.679				
Ovington avenue	B-GS2022A	5'-7'	SM	18.02%	PT-GS2022A	5	0.671	NE	NE	B-GS2022A refusal at 18' bgs	
hetween New Litrecht		7'-9'	SP-SM	8.97%		10	0.398			Sample 4 taken from 17'-18'	
avenue and 16th Avenue		11'-13'	SP-SM	9.65%							
		17'-18'	SM	19.17%							
					PT-IB2022B	5	2.629	NE	NE		
						10	0.081			Poor permeability at 10'	PP2022
											-
						_					
					PT-GS2022C	5	0.619	NE	NE		
						10	1.216				
											PP2023
16th Avenue and 67th											
Street and 68th Street											
											PP2024
											PP2025
	B-2026A	5'-7'	SP-SM	9.37%	PT-2026A	5	0.5234	NE	NE		
16th Avenue between		7'-9'	SM	15.84%		10	0.3650				
66th Street and 67th		11'-13'	SW-SM	6.60%							
Street		18'-20'	GW-GM	8.89%							002026
											PP2020

[Contract] [Project Description] [Consultant/Sub Name]

NYC Department of Environmental Protection

Bureau of Environmental Planning and Analysis -- Green Infrastructure

						Report Summary Ta	ble for Permeable Pa	avement	Sub Area 2		
	Soil Data (I	Laboratory Results or	Historical Boring Soil De	escription)		Permeability Analysis		Commente Table			
Location	Nearby Boring ID No.	Depth (ft)	USCS Symbol	% Passing No 200 Sieve	Nearby Permeability Test ID No.	Permeability Test Depth (ft)	Average Permeability Coef. (in/hr)	Depth (ft)	Bedrock Depth (ft)	General Geotechnical Notes	PP ID No.
	B-2030-1A	5'-7'	GM	17.15%	PT-2030-1A	5	0.0458	NE	NE	PT-2030-1A refusal at 6.5', not reattempted	
		7'-9'	GP-GM	11.28%		10	NP			Poor permeability at 5'	
		11'-13'	SM	26.01%							
		18'-20'	SM	14.02%							1
	B-IB2030-1B	5'-7'	GM	38.67%	PT-IB2030-1B	5	0.0176	NE	NE	Poor permeability at 5'	
		7'-9'	GM	14.75%		10	0.1502			B-IB2030-1B no recovery at 9'-11'	PP2030-1
		11'-13'	GM	18.06%						Sample 3 taken from 11'-13'	GKOH15-04
		18'-20'	GM	13.20%							4
	B-2030-1C	5'-7'	CL-ML	55.68%	PT-2030-1C	5	0.0239	NE	NE	B-2030-1C refusal at 16' bgs	
		7'-9'	SM	30.02%		10	0.3557			Sample 4 taken from 15'-16'	
		11'-13'	GM	14.00%						High fines 5'-7'	
		15'-16'	SIM	17.07%	DT 2105 A(1)	-	0.0000	NE	NE	Poor permeability at 5	
					PT-3105A(1)	5	0.0000	NE	NE		
					P1-3105A(1)	10	0.0690			C! DT attempt had no infiltration, offert	
					DT 210EA(2)	F	2 5 2 9 4			5 PT attempt had no inititration; onset	
					PT-S105A(2)	10	2.5564			completed.	
	B-3105B(1)	5'-7'	SM/SC	30.27%	PT-3105R(1)	5	0 1///	NE	NE		1
65th Street between	D-5103D(1)	7'-9'	SM/SC	42 93%	PT-3105B(1)	10	0.7363	INL	INL		
16th Avenue and 17th		11'-13'	SP-SM/SC	10.04%	11 31030(1)	10	0.7505				
Avenue		18'-20'	SW-SM/SC	7 76%							
		10 20	511 511,50	7.7070	PT-3105C(1)	5	0.4405	NE	NE		1
					PT-3105C(1)	10	1.0507				
					()	-					
											PP3105
	B-3105E(1)	5'-7'	SM/SC	17.21%	PT-3105E(1)	5	0.0424	NE	NE		GKOH15-03
		7'-9'	SW-SM/SC	9.96%	PT-3105E(1)	10	0.6456				
		11'-13'	SM/SC	15.65%							
		18'-20'	SP-SM/SC	10.49%							
	B-3105G(1)	5'-7'	SM/SC	15.27%	PT-3105G(1)	5	0.0000	NE	NE	SB terminated at 15' due to refusal	1
		7'-9'	GP-GM/GC	11.11%	PT-3105G(1)	10	0.1092				
										First 5' PT attempt had no infiltration; offset	
		11'-13'	SM/SC	14.33%	PT-3105G(2)	5	0.0721			completed.	
					PT-3105G(2)	10	NP				4
	B-3105H(1)	5'-7'	GM/GC	16.40%	PT-3105H(1)	5	0.2488	NE	NE		
		7'-9'	SW-SM/SC	9.84%	PT-3105H(1)	10	0.0264				
		11'-13'	SM/SC	14.61%							
		18'-20'	SM/SC	18.33%		_					
	B-IB2032A	5'-7'	SM	12.44%	PT-IB2032A	5	3.5434	NE	NE	B-IB2032A refusal at 16' bgs	
		7-9	GP-GM	8.42%		10	3.8867			Sample 4 not taken	PP2032
		11-13	GP	0.00%							
		E! 7!	C M A	24 160/		E	1 2550	NE	NE	P 2055 AA refusal at 15' bee	
17th Avenue between	D-2055AA	ים_יד ים_יד	GM	24.10%	F1-2053AA	10	0.1462	INE	INE	Sample 1 taken from 12' 15'	
65th Street and 66th		11'-12'	SM	24.30%		10	0.1405			High fines at 12'-15'	
Street		13'-15'	CL-MI	53 34%							
		10 10		00.0470	PT-2055A	5	0.0503	NF	NF	Low permeability at 5'	PP2055
						10	0.1515				

[Contract] [Project Description] [Consultant/Sub Name]

NYC Department of Environmental Protection

Bureau of Environmental Planning and Analysis -- Green Infrastructure

						Report Summary Ta	ble for Permeable Pa	avement	Sub Area 2			
	Soil Data	(Laboratory Results o	r Historical Boring Soil De	scription)		Permeability Analysis						
Location	Nearby Boring ID No.	Depth (ft)	USCS Symbol	% Passing No 200 Sieve	Nearby Permeability Test ID No.	Permeability Test Depth (ft)	Average Permeability Coef. (in/hr)	Groundwater Table Depth (ft)	Bedrock Depth (ft)	General Geotechnical Notes	PP ID No.	
	B-2033-2A	5'-7'	SM	25.20%	PT-2033-2A	5	0.0210	NE	NE	Poor permeability at 5' and 10'		
		7'-9'	GP-GM	10.81%		10	0.0477			B-2033-2A refusal at 15' bgs		
		11'-13'	SM	20.25%								
											PP2033-2	
66th Street hetween	B-2033-2E	5'-7'	GW-GM	8.70%	PT-2033-2E(1)	5	NP	NE	NE	Poor permeability at 10'	1120332	
Wallaston Court and		7'-9'	GP-GM	6.62%		10	NP			B-2033-2E refusal at 16.5' bgs		
17th Avenue		11'-13'	GW-GM	7.78%	PT-2033-2E(2)	5	0.1678			Sample 4 taken from 15'-16.5'		
17 di / Wende		15'-16.5'	GP-GM	10.49%		10	0.1165			PT-2033-2E(1) refusal at 4' bgs		
					PT-2038B	5	0.7520					
						10	0.0347				PP2038	
	D 2022 44	cl 71		22.220/		-	0.1052	NE				
	B-2033-1A	5'-7'	SM	33.22%	PT-2033-1A	5	0.1962	NE	NE	Poor permeability at 10°		
		7-9	SM	18.59%		10	0.0592			B-2033-1A refusal at 17 bgs	PP2033-1	
66th Street between		11-13	SM	27.05%								
Cameron Court and		15-17	SIVI	12.27%								
Wallaston Court												
											PP2037	
											PP2033	
CC Street between					PT-IB2036A	5	0.6743	NE	NE			
Ovington Ct and						10	0.2042					
Cameron Ct												
cameron ct											PP2036	
	B-2036B	5'-7'	SW-SM	7.27%	PT-2036B	5	0.8406	NE	NE		112050	
		7'-9'	SW-SM	7.14%		10	0.2653					
		11'-13'	GP-GM	10.45%								
		18'-20'	SP-SM	7.43%								
				10.06%	PT-2034B	5	0.5818			B-2034B Refusal at 15.5' due to dense gravelly		
	B-2034B	5'-7'	GP-GM	4.5.400/		10	ND	NE	NE	sand		
		7-9	SIM	16.48%		10	NP			Only three samples are taken	PP2034	
GG Street hotween 10th		11 12	C 1 4	14.43%						PT-2034B refusal at 6.5' bgs, not reattempted		
op street between 16th		11-13	SIVI									
avenue and Ovington Ct					DT_2025A	E	0 7290	NE	NE			
					F1-2055A	10	0.7269	INE	INE			
						10	0.1325				PP2035	

[Contract] [Project Description] [Consultant/Sub Name]

NYC Department of Environmental Protection

Bureau of Environmental Planning and Analysis -- Green Infrastructure

					Geotechnical Report Summary Table for Permeable Pavement				Sub Area 2		
	Soil Data (Laboratory Results o	r Historical Boring Soil De	escription)		Permeability Analysis					
Location	Nearby Boring ID No.	Depth (ft)	USCS Symbol	% Passing No 200 Sieve	Nearby Permeability Test ID No.	Permeability Test Depth (ft)	Average Permeability Coef. (in/hr)	Groundwater Table Depth (ft)	Bedrock Depth (ft)	General Geotechnical Notes	PP ID No.
	B-IB2039B	5'-7'	SP-SM	10.18%	PT-IB2039B	5	0.2782	NE	NE	B-IB2039B refusal at 16' bgs, sample 4 taken from 15'-16'	
		7'-9'	SM	12.41%		10	0.0168			Low permeability at 10'	PP2039
		11'-13'	SM	14.45%							
		15'-16'	SM	13.79%							
17th Avenue between					PT-2058A	5	0.0000	NE	NE	Low permeability at 5' and 10'	
66th Street and 67th Street						10	0.0000				
					PT-2058B	5	0.0000	NE	NE	Low permeability at 5' and 10'	PP2058
					F1-2030D	10	0.0000	INL.	INL.	Low permeability at 5 and 10	
						10	0.0034				
	B-IB2041A	5'-7'	CL-ML	65.42%	PT- IB2041A(1)	5	0.0000	NE	NE	High fines from 5'-7' and 18'-20'	
		7'-9'	SM	17.78%		10	0.0000			Low permeability at 5' and 10'	
		11'-13'	GM	17.22%	PT- IB2041A(2)	5	0.0000				
		18'-20'	CL-ML	53.99%		10	0.0000				PP2041
Wallastan Cthatwar					PT-IB2042A	5	0.7753	NE	NE	Low permeability at 10'	
Wallaston Ct between						10	0.0062				
66th Street and 67th											
Street											
	B-IB2042B	5'-7'	SM	14.62%	PT-IB2042B	5	2.2018	NE	NE	Low permeability at 10'	
		7'-9'	SW-SM	8.55%		10	0.0380				002042 1
		11'-13'	SW-SM	7.93%							FF2042.1
		18'-20'	SM	12.24%							
	B-IB2042C	5'-7'	SW-SM	9.03%	PT-IB2042C	5	2.1572	NE	NE	Low permeability at 10'	
		7'-9'	SW-SM	10.68%		10	0.0231				
		11'-13'	SP-SM	5.93%							
		18'-20'	SM	13.40%							
	B-IB2044A	5'-7'	GM	16.49%	PT-IB2044A	5	0.7213	NE	NE	Low permeability at 10'	
		7'-9'	SW-SM	9.97%		10	0.0144				
		11'-13'	SM	13.93%							
		18'-20'	SW-SM	10.91%							PP2043
Cameron Ct between											
Street					PT-IB2044B	5	0.0922	NE	NE	Low permeability at 5'	
Jucci						10	0.3487				
											PP2044

[Contract] [Project Description] [Consultant/Sub Name]

NYC Department of Environmental Protection

Bureau of Environmental Planning and Analysis -- Green Infrastructure

				Geotechnical Report Summary Table for Permeable Pavement				Sub Area 2			
	Soil Data	(Laboratory Results or	Historical Boring Soil De	scription)		Permeability Analysis					
Location	Nearby Boring ID No.	Depth (ft)	USCS Symbol	% Passing No 200 Sieve	Nearby Permeability Test ID No.	Permeability Test Depth (ft)	Average Permeability Coef. (in/hr)	Groundwater Table Depth (ft)	Bedrock Depth (ft)	General Geotechnical Notes	PP ID No.
	B-IB2045B	5'-7'	SM	15.34%	PT-IB2045B	5	0.7722	NE	NE	18'-20' sample contains small fragments of plastic	
		7'-9'	SM	12.40%		10	0.9709				
		11'-13'	GP-GM	11.02%							
		18'-20'	SW-SM	8.37%							PP2045
Ovington Ct between 66th Street and 67th Street											
					PT-IB2046A	5	0.6404	NE	NE		
						10	0.5609				PP2046
	D 1020470	r! 7!	CL	75.00%		r.	0.2629	NE	NE	Lick fings from C1.7	
	B-IB2047B	5-7 7'0'	CL SM	75.60%	P1-IB2047B	5	0.3628	NE	INE	High fines from 5 -7	
		11'-13'	GM	17 81%		10	0.0003			Low permeability at 10	PP2047
		18'-20'	SP-SM	10.64%							
											002044-1
											PP2044-1
											PP2044
67th St between 17th											
Avenue and 16th											PP2040
Avenue											
									-		
											PP2042.2
											PP2049
											DD2040 1
											FF2049-1
											PP2050
17th Avenue between											
67 Street and 68 Street											
											PP2062

[Contract] [Project Description] [Consultant/Sub Name]

NYC Department of Environmental Protection

Bureau of Environmental Planning and Analysis -- Green Infrastructure

Borough of X, New York

					Geotechnical Report Summary Table for Permeable Pavement					
	Soil Data	(Laboratory Results or	Historical Boring Soil D	escription)		Permeability Analysis	-	Constant Table		
Location	Nearby Boring ID No.	Depth (ft)	USCS Symbol	% Passing No 200 Sieve	Nearby Permeability Test ID No.	Permeability Test Depth (ft)	Average Permeability Coef. (in/hr)	Depth (ft)	Bedrock Depth (ft)	
	B-2051A(1)				PT-2051A	5	2.710	NE	NE	
	B-2051A(2)	1'-3'	SW-SM	11.84%		10	0.008			
		3'-5'	SM	18.16%						
	B-2051C(1)				PT-2051C	5	0.509	NE	NE	
	B-2051C(2)	1'-3'	SM	37.10%		10	0.132			
		3'-5'	GM	16.53%						
					PT-2051G	5	0.13	NE	NE	
						10	1.125			
					PT-2051-1A	5	0.292	NE	NE	
						10	0.017			
					PT-2051-1D	5	0.411	NE	NE	
						10	0.309			
68th St between 16th										
and 17th Avenue	B-IB2051-1F	5'-7'	SM	12.95%	PT-IB2051-1F	5	0.53	NE	NE	
		7'-9'	SM	14.03%		10	0.912			
		11'-13'	SM	15.79%						
		18'-20'	SM	16.14%						
					PT-IB2051-1G	5	0.629	NE	NE	
						10	0.422			
					PT-2051-1H	5	2.886	NE	NE	
						10	0.025			

Sub Area 2	
General Geotechnical Notes	PP ID No.
Low permeability at 10'	PP2051
Low permeability at 10'	PP2051-1
	PP3100
	PP3101

		COMPANY NAME/LOGO				Boring ID	No. B- XXXX
Prepared for:		AGENCY NAME / LOGO	E	nvironmental rotection	PROJECT: LOCATION / BO	<contract ROUGH :</contract 	area or project description> <borough></borough>
INSPECTOR: CONTRACTOR: P.E./REP.:	<name> <name> <name></name></name></name>	DRILLER: HELPER:	<name></name>		Start Date: Start Time:	<date> <time></time></date>	Weather: <weather></weather>
Total Boring Depth: Rig Type:	<##> f <type></type>	t Drill Bit Type: Casing Inner Diameter: Depth of Casing:	<1	type> 4 in ft	Weight of Hami Weight of Hami Type of Hamme	mer for casing: mer for spoon: er:	<##> lbs <##> lbs <type></type>
Depth to Groundwate Depth to Bedrock (bg	er Table (bgs): s):	<##> ft <##> ft			Drop: Split Spoon Dia	meter:	30 in 2 in
			B- XXXX	K BOF	RING LOG		
Depth Below Ground Surface (ft)	Soi (Field	l Description Observations)	SPT Blows per 6"	N Value	Recovery Length (inches)		Remarks
0	Г						
	Bulk Sample 3 Sample 2 Sample 1 (S3) (S2) (S1)						
15 20 Latitude: Inspector's Rem	<latitude></latitude>	Longitude: <longitud< td=""><td>e></td><td></td><td></td><td>Boring terminated a unless ot</td><td>t 20 feet below ground surface herwise instructed.</td></longitud<>	e>			Boring terminated a unless ot	t 20 feet below ground surface herwise instructed.

		COMPANY NAME/LOGO				Boring	ID No. B- XXXX
Prepared for:		AGENCY NAME / LOG	0	Environmental Protection	PROJECT: LOCATION / BO	<contra ROUGH :</contra 	act area or project description> <borough></borough>
INSPECTOR: CONTRACTOR: P.E./REP.:	<name> <name> <name></name></name></name>	DRILLER: HELPER:	<name> <name></name></name>		Start Date: Start Time:	<date> <time></time></date>	Weather: <weather></weather>
Total Boring Depth: Rig Type: Depth to Groundwater	<type> ft <type></type></type>	Casing Inner Diame Depth of Casing <##> ft	<	type> 4 in ft	Weight of Ham Weight of Ham Type of Hamme Drop:	mer for casing: mer for spoon: er:	<##> Ibs <##> Ibs <type> 30 in</type>
Depth to Bedrock (bgs):	<##> 1t	B- XXX	X BOF		meter:	2 in
Depth Below Ground Surface (ft)	Soi (Field	l Description l Observations)	SPT Blows per 6"	N Value	Recovery Length (inches)		Remarks
0	[
3	Jee J						
	Bulk Sam (S1)						
6	Bulk Sample 2 (S2)						
9							
Latitude:	<latitude></latitude>	Longitude: <longit< td=""><td>ude></td><td></td><td></td><td>Boring terminate unless</td><td>ed at 9 feet below ground surface s otherwise instructed.</td></longit<>	ude>			Boring terminate unless	ed at 9 feet below ground surface s otherwise instructed.
Inspector's Rem	arks:						

			Boring ID No. B- XXXX							
Prepared for:		AGENCY NAME / LOGO	PROJECT: LOCATION / BO	<pre><contract area="" description="" or="" project=""> N / BOROUGH : </contract></pre>						
INSPECTOR: CONTRACTOR: P.E./REP.:	<name> <name> <name></name></name></name>	DRILLER: HELPER:	<name> <name></name></name>		Start Date: Start Time:	<date> <time></time></date>	Weather: <weather></weather>			
Total Boring Depth: Rig Type:	<##> *	ft Drill Bit Type: Casing Inner Diameter Depth of Casing:	<type> Weight of Ham : 4 in Weight of Ham ft Type of Hamm</type>			nmer for casing: <##> lbs nmer for spoon: <##> lbs ner: <type></type>				
Depth to Groundwate Depth to Bedrock (bg	er Table (bgs): gs):	<##> ft			Drop: Split Spoon Dia	iameter: 2 in				
B- XXXX BORING LOG										
Depth Below Ground Surface (ft)	So (Field	il Description d Observations)	SPT Blows per 6"	N Recove Value (inche			Remarks			
0	[
	BulkBulkBulkBulkBulkSample 4Sample 2Sample 2Sample 1(S5)(S4)(S3)(S2)(S1)									
20										
Latitude:	<latitude></latitude>	Longitude: <longitud< td=""><td>le></td><td></td><td></td><td>Boring terminated a unless ot</td><td>t 20 feet below ground surface herwise instructed.</td></longitud<>	le>			Boring terminated a unless ot	t 20 feet below ground surface herwise instructed.			
Inspector's Ren	narks:									

		Boring ID No. B- XXXX								
Prepared for:		AGENCY NAME / LOGO	E	Environmental Protection	PROJECT: LOCATION / BO	<contract area="" description="" or="" project=""> ROUGH : </contract>				
INSPECTOR: CONTRACTOR: P.E./REP.:	<name> <name> <name></name></name></name>	DRILLER: HELPER:	<name> <name></name></name>		Start Date: Start Time:	<date> <time></time></date>	Weather:	<weather></weather>		
Total Boring Depth: Rig Type: Depth to Groundwater	<##> ft <type></type>	Drill Bit Type: Casing Inner Diamete Depth of Casing: <##> ft	<r:< td=""><td>type> 4 in ft</td><td>Weight of Ham Weight of Ham Type of Hamme Drop:</td><td>mer for casing: mer for spoon: er:</td><td><##> <##> <type> 30</type></td><td>lbs lbs</td></r:<>	type> 4 in ft	Weight of Ham Weight of Ham Type of Hamme Drop:	mer for casing: mer for spoon: er:	<##> <##> <type> 30</type>	lbs lbs		
Depth to Bedrock (bgs):	<##> ft			Split Spoon Dia	meter:	2	in		
B- XXXX BORING LOG										
Depth Below Ground Surface (ft)	Soil (Field	Description Observations)	SPT Recovery Blows Value (inches)							
0	Í ľ									
3	2 Bulk Sample 1 (51)									
	Bulk Sample (S2)									
6										
Latitude:	<latitude></latitude>	Longitude: <longitu< td=""><td>de></td><td></td><td></td><td>Boring terminate unles</td><td>ed at 9 feet below grour s otherwise instructed.</td><td>d surface</td></longitu<>	de>			Boring terminate unles	ed at 9 feet below grour s otherwise instructed.	d surface		
Inspector's Rem	arks:									

COBBLES	COARS	GRAVEL SAND COARSE FINE COARSE MEDIUM FINE		-	SILT OR CLAY		Boring ID No.							
	•					•		Symbol				0	•	
	- -	1			-	_		Depth	5-7	7-9	11-13	18-20	-	
<u> </u>		/8/,8	⁴	20	60 100	200		% Gravel	46.67	16.00	32.73	30.77	-	
100 🕻			<u>* *</u>	* * *		*		% Sand	40.00	64.00	58.18	46.15	-	
		▶						% Fines	13.33	20.00	9.09	23.08	-	
90 -	<u> </u>							% -2μ	-	-	-	-	-	
	$ \rangle$		1 FRL					Cc	-	-	0.36	-	-	
80 -				<u> </u>				Cu	-	-	41.54	-	-	
								D ₁₀₀ (mm)	75.00	75.00	37.50	75.00	-	
70 -								D ₆₀ (mm)	7.13	0.25	3.38	2.00	-	
HE								D ₃₀ (mm)	0.64	0.11	0.32	0.11	-	
								D ₁₀ (mm)	-	-	0.08	-	-	
BY I			II NY					USCS	SP-SM	SM	SP	SM-ML	-	
9 ₅₀			R I 🔺		; ; \ ;			w (%)	-	-	-	-	-	
ASSI								Particle			Dorcont Find			
T P								Size	Percent Finer					
U 40 -					4			(Sieve #)	•			0	•	
DER DER								4"	100.0	100.0	100.0	100.0	-	
- 30								3"	100.0	100.0	100.0	100.0	-	
								1 1/2"	83.3	96.0	100.0	89.2	-	
20 -								3/4"	76.7	92.0	92.7	81.5	-	
								3/8"	66.7	88.0	89.1	76.9	-	
10 -								4	53.3	84.0	67.3	69.2	-	
								10	40.0	80.0 76.0	52.7 45 5	60.0 EC 0	-	
o 4		<u> </u>	<u>, , , ,</u>					20	26.7	70.0	45.5	50.9	-	
10	00	10		1	0.1		0.01 0.001	40 60	20.7	60.0	27.3	44.6	_	
				PARTI	CLE SIZE -mm			100	20.0	40.0	20.0	38.5	-	
								200	13.3	20.0	9.1	23.1	-	
Depth (ft bgs)	Symbol	DESCRIPTION AND R	DESCRIPTION AND REMARKS						DA			201		
5-7		sandy silt							PARTICLE SIZE DISTRIBUTION					
		Color/Odor/Impurities: brown						Consultant Name						
7-9		silt and sand												
		Color/Odor/Impurities: dark brown - brown					Prepared for:	Age	ncy Name /	Logo	Environ	mental		
11-13		poorly graded sand, little silt										Protecti	on	
		Color/Odor/Impuriti	es: light br	own					0	a at Auro / D	alact D	ation.		
18-20	0	silt and clay, some sand							Contr	act Area / Pi	oject Descr	hriou		
		Color/Odor/Impurities: brown/gray								Borc	ough			
-	•	-						Laboratory Name						
											1.1011			
Comm	onte:													
Comm	ients:													



 $\rm R_t$ = Ratio of viscosity of water at test temperature to the viscositye of water at 20°C

