



Geotechnical
Foundations
Land Planning
Geo-Structural
Environmental
Water Resources

Principals:

September 18, 2019

via email: kmcmanus@icappelli.com

Steven P. Byszewski, PE, PP
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Mr. Kevin McManus
Huguenot Partners, LLC
c/o The Cappelli Organization
7 Renaissance Square, 4th Floor
White Plains, NY 10601

**RE: Geotechnical Investigation and Report
Proposed Centre Avenue Development
339 & 329 Huguenot Street & 33-35 Centre Avenue
New Rochelle, New York
SESI Project No. 10785**

Dear Mr. McManus:

In accordance with our Professional Services Agreement dated June 4, 2019, we have completed our geotechnical investigation for the above referenced project. This report contains a description of our investigation, an evaluation of the subsurface soil and groundwater characteristics, and presents recommendations for general site preparation procedures and foundation design criteria for the planned construction.

If you have any questions, please call.

Sincerely,

SESI CONSULTING ENGINEERS D.P.C.

Michael St. Pierre, P.E.
Principal

Encl: Geotechnical Investigation Report dated September 18, 2019

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GEOTECHNICAL INVESTIGATION REPORT

FOR

**Proposed Centre Avenue Development
339 & 329 Huguenot Street & 33-35 Centre Avenue
New Rochelle, Westchester County, New York**

Prepared For:

**Huguenot Partners, LLC
c/o The Cappelli Organization
7 Renaissance Square, 4th Floor
White Plains, NY 10601**

Prepared By:

**SESI CONSULTING ENGINEERS D.P.C.
12A Maple Avenue
Pine Brook, NJ 07058**

Project No.: 10785

DATE:

September 18, 2019

A handwritten signature in black ink, appearing to read "Michael Felicetta".

Michael A. Felicetta

A handwritten signature in blue ink, appearing to read "Michael St. Pierre".

**Michael St. Pierre, P.E.
N.Y. Lic. No. 80271**

INTRODUCTION AND PROPOSED CONSTRUCTION

SESI has completed a geotechnical investigation for the two proposed 28-story buildings to be constructed at 339 & 329 Huguenot Street & 33-35 Centre Avenue in New Rochelle, New York. The proposed southern tower site is bounded by Relyea Place to the west, Centre Avenue to the North, Huguenot Street to the east, and existing brick buildings to the south. It should be noted that the site is currently an existing public parking lot with a one-story masonry building, to be removed, on the western half of the lot. The proposed northern tower site is bounded by a three-story masonry building to the West, an asphalt driveway to the north, Huguenot Street to the east, and Centre Avenue to the south. The northern lot is currently an existing public parking lot.

Topography shown on the *Existing Conditions & Demolition Plan* prepared by Nelson & Pope, dated May 2, 2019, indicates existing grades vary in the southern lot from EL 96 to EL 97± and in the northern lot from EL 95 to EL 98±.

We understand the proposed southern tower construction will consist of an approximately 19,355 square foot, 28-story mixed-use building with a basement extending two stories below grade and the proposed northern tower construction will consist of an approximately 20,000 square foot, 28-story mixed-use building with a basement extending two stories below grade. Based on the architectural plans prepared by Lessard Design Inc. P.C., dated May 6, 2019, we understand the proposed basement floor elevation will be EL 70± and the proposed first floor elevation will be EL 96±, which will require cuts up to 28± feet below site grades in order to achieve the basement elevation. We have not been provided with the proposed column and/or foundation loads at the time of this writing, but have assumed relatively heavy column loads.

FIELD INVESTIGATION

Our engineering study consisted of a site reconnaissance, a review of existing soils and geologic data, a review of previous borings performed by Geotechnical Engineering Services, PC (GES) and a field investigation consisting of the drilling of 10 soil borings and 10 geoprobe explorations. Four (4) soil borings were performed by GES in June of 2018. The GES borings were performed to depths between about five (5) and 21 feet below the existing ground surface. The SESI soil borings were completed to depths ranging from approximately 23 to 27± feet below the existing ground surface with a truck-mounted drill rig at accessible locations within the footprint of the proposed building. Soil borings SB-1, 3, 5 and 6 were started and relocated several times due to obstructions in the upper fill materials.

The Geoprobe explorations were completed to depths ranging from of about seven (7) to 12± feet below the existing grade using a track mounted Geoprobe drill rig to advance the probe. Each of the boring and probe locations were continuously screened using a photo-ionization detector (PID).

Ground surface elevations were estimated in the field based on the existing site condition and topographic information that was shown on the *Existing Conditions & Demolition Plan*. It should be noted that boring elevations were estimated and not surveyed, therefore, the actual depths and elevations provided on the boring logs and within this report may vary slightly from the actual elevations.

The locations of the soil borings and probes are shown on the *Exploration Location Plan*, which is included as *Figure 1*. Individual soil boring logs, which describe the materials encountered, are presented as *Figures 2 through 11*. Geoprobe exploration logs are included as *Figures 12 to 21*. A key to soil terminology is included as *Figure 22*. The GES Borings are included in Appendix A.

Soil samples suitable for identification purposes were extracted from the borings in accordance with the Standard Penetration Test. For this test, a standard split-spoon sampler (2 inches outside diameter, one and three-eighths inches inside diameter) is driven into the soil by a 140 pound weight falling 30 inches. After discounting the initial six inches of penetration due to possible disturbance of the material resulting from the drilling operation, the number of blows required to advance the sampler a distance of 12 inches are recorded and designated as the standard penetration resistance or "N" value. The "N" value is an indication of the relative compactness of the soil in-situ. Upon reaching the anticipated top of rock in each boring, five (5) to 15± feet of rock coring was performed to collect rock cores for classification purposes.

All fieldwork was performed under the full-time technical observation of an engineer from SESI Consulting Engineers D.P.C. Our representative located the borings in the field, maintained boring logs of the explorations as work proceeded, and coordinated the soil sampling operations in order to develop the required subsurface information. All soil and rock core samples were taken to our geotechnical laboratory for further classification and evaluation.

SUBSURFACE CONDITIONS

Geologically, according to the Department of the Interior United States Geologic Survey, the site soils are mapped as Quaternary till overlying bedrock further classified as a geologic ground moraine. The bedrock is part of the Hartland formation defined as mica schist and mica gneiss, medium to coarsely crystalline.

The following subsurface conditions were encountered in order of increasing depth:

Surface Materials: Surface materials typically consisted of 3 to 5 inches of asphalt underlain by fill materials. A six-inch thick sidewalk was cored at the surface of boring SB-10.

Uncontrolled Fill: Uncontrolled fill was encountered below the surface material in the majority of the borings and probes, generally consisting of red-brown/brown coarse to fine sand and/or coarse to fine gravel with varying amounts of silt, brick,

concrete and asphalt millings. Portions of the fill layer were also characterized as being composed of brick fragments or concrete. An approximately 12 to 21 inch thick concrete slab was encountered in borings SB-1, SB-2, and SB-5 at depths between three (3) feet and eight (8) feet below grade. Hard drilling was noted at various depths within the uncontrolled fill layer. The uncontrolled fill ranges in depth from about five (5) to 11± feet below the ground surface. In general, the upper portion of the fill layer was augered without sampling due to the materials present. Based on the SPT N-values obtained from several of the borings, the fill soils can be classified as loose to very dense which is typical for an uncontrolled fill.

Decomposed Rock: Beneath the uncontrolled fill and concrete slab, (where encountered) are the natural soil deposits consisting primarily of decomposed rock. This stratum, encountered at approximate depths of five (5) to 11± feet, extends to depths ranging from approximately 10 to 22± feet below the ground surface. Based on the blow counts obtained from the borings, the decomposed rock can be classified as dense to very dense.

Bedrock: Bedrock was encountered at depths ranging between 10± and 22± feet below the ground surface which correlates to elevations of EL 80± and EL 71±. Bedrock depths were generally consistent on the north and south sites with the exception of boring SB-4 which initially encountered rock at 22 feet below the existing grade. Approximately five (5) to 15 feet of rock coring was performed in each of the soil borings. The rock consisted of dark gray, weathered, hard, slightly to intensely fractured Gneiss; overlying dark gray, slightly weathered, hard, slightly fractured to moderately fractured Schist, with high angle foliations/banding. Rock core recovery ranged from about 33 percent to 100 percent, with an average recovery of about 93 percent. Rock quality designation (RQD) was also recorded for each of the rock cores and ranged from 0 percent to 100 percent with an average RQD of 75 percent.

See the Table below for the relationship between RQD and Rock Quality.

RELATIONSHIP OF RQD AND ROCK QUALITY:	
<u>ROCK QUALITY DESIGNATION (RQD)⁽¹⁾</u>	<u>DESCRIPTION OF ROCK QUALITY</u>
0 – 25	VERY POOR
25 – 50	POOR
50 – 75	FAIR
75 – 90	GOOD
90 – 100	EXCELLENT

(1) “**Rock Quality Designation**” is defined as a modified core recovery ratio that considers only pieces of the core that are at least 4 inches long. Obvious fractures caused by drilling are ignored in this system.

Groundwater: Groundwater was encountered in SESI borings SB-2, SB-3 and SB-4 at depths of about 10 feet, 11 feet, and 10 feet, respectively, during the short period of time that the holes were left open. Groundwater was also encountered in GES boring B-4AW at a depth of 10.3 feet below the existing ground surface. Mud rotary drilling techniques used in the majority of the soil borings which makes the identification of the groundwater table difficult. Three groundwater monitor wells are present on the site, one installed in boring SB-3, and two installed by others in Boring B-4W and a sidewalk installation with shallow (MW-S) and deep (MW-D) wells, shown on the Exploration Location Plan (Figure 1). Readings from the wells collected during the subsurface exploration program indicating groundwater depths of 9.4 feet (SB-3), 9.7 feet (B-4W), 6.4 feet (MW-S) and 13.5 feet (MW-D). Perched/trapped groundwater may also be encountered in the uncontrolled fill and/or at the bedrock surface based on the time of year and amount of recent precipitation. Based on the observed groundwater depths, groundwater will be encountered during construction and a permanent dewatering system or water tight bathtub will be required.

EVALUATION AND RECOMMENDATIONS

From a soils and foundation support standpoint, this site can be considered very good with respect to providing satisfactory support of the proposed buildings. The underlying decomposed bedrock and bedrock will provide suitable support for conventional shallow foundations with high allowable bearing capacities. The primary negative aspects of the project site are the relatively high groundwater level encountered in the borings and wells, and the amount of rock removal that will be required to achieve the proposed basement floor elevation of EL 70± and foundation grades approximately two (2) to three (3) feet below the basement floor elevation (approximately EL 67 to 68). Based on the boring information and the proposed grades, it is anticipated that rock will be encountered between 10 and 22 feet below existing grades (EL 80± to EL 76±), indicating the need to remove more than 12 to 21 feet of rock to achieve foundation bearing grades. All building foundations should bear on flat, level bedrock. If any areas will not have a basement, we recommend extending the footings to bedrock and constructing piers with grade beams.

Rock cuts will be required to reach the proposed building and footing subgrade elevations. Based on our investigation, we believe the top of the rock, at our boring locations, ranged from EL 80± to EL 71±, but may vary across the site. Mechanical removal of rock on shallow vertical faces may be possible due to the high angle vertical foliations and banding observed in the Schist; however, controlled blasting and/or hammering should be anticipated, especially with increasing depth, to remove the rock in the proposed building areas or utility excavations, as required.

An evaluation of the foundations for adjacent buildings will also need to be conducted to determine if the structures were constructed on conventional shallow spread footings or mat foundations bearing in the upper soil strata or decomposed

rock. Foundations bearing in the upper strata may need to be underpinned prior to excavating the north and south building foundations.

SITE PREPARATION PROCEDURES

Demolition

At the time of our investigation, the existing one-story masonry building, located west of the south building, had not been demolished. Therefore, site preparation should begin by removing the existing building and removing all existing site improvements from within and at least five feet (if possible) beyond the limits of the proposed buildings. All foundations, subsurface walls, concrete slabs, asphalt and subsurface utilities that will be abandoned should be completely removed from within and at least five feet beyond the limits of the proposed building areas (if possible) or as required to achieve the required excavation. Any excavations created by the removal of the existing building elements and utilities should be backfilled with controlled compacted fill if required to achieve final site grades. The controlled compacted fill should be placed in accordance with the recommendations of this report under the observation of a geotechnical engineer.

Specific Building Area Procedures

In general, the building area preparation procedures should consist of the installation of the temporary excavation support system, (to be discussed later in the report) and then mass excavating the uncontrolled fill and old building foundations (if present) from within the proposed building limits to the top of bedrock. The excavation for the basement and building footings should extend to the sound bedrock and be evaluated by a qualified geotechnical engineer.

Rock Excavation

Bedrock excavation will rely greatly on the type and condition of the rock, the rockface orientation and the presence of the high angle foliations observed in the Schist. The Gneiss will likely be difficult to excavate without the aid of a hoe-ram hammer, chipper or the use of blasting. The vertical foliations, observed in the Schist, may aid with the removal of the upper Schist layers oriented in a vertical rock face; however, deeper, more competent rock and horizontal excavation of the Schist will likely be difficult, requiring blasting, hammering or other mechanical means to remove the rock to achieve the proposed basement foundation grade. Proper selection of blasting materials and spacing, if required, should be selected by an experienced blasting professional to minimize ground vibration, fly rock, air blast, and fragmentation.

Due to the close proximity of several structures to the proposed excavations, overbreak of the rock should be avoided to limit the possible undermining of the adjacent buildings. Line drilling with hole spacing at about six (6) to 12 inches should be used to limit overbreak of the rock. The orientation and potential movement of rock due to the noted fractures may also cause the loss of rock at the face and possible undermining of the adjacent buildings. An excavation support system will be required in order to excavate to the required basement grade and potentially footing elevations.

Permanent Walls

Permanent below-grade walls should be designed to resist lateral loadings from static earth pressure, water pressure (if present), and vertical surcharges. Backfill should not be placed against below-grade walls until the concrete has reached its 28-day compressive strength and after adequate lateral bracing has been provided to prevent rotation of the wall. We recommend the following design parameters:

- For braced walls (no rotation) a triangular earth pressure distribution with an equivalent fluid pressure of 60 pounds per square foot per foot of depth for unsaturated soil.
- For cantilevered walls a triangular earth pressure distribution with an equivalent fluid pressure of 42 pounds per square foot per foot of depth for unsaturated soil.
- Lateral pressures due to surface surcharges should have a uniform distribution based on a pressure equal to 0.5 times the vertical pressure for the entire depth of the wall. We recommend using a minimum surcharge load of 250 pounds per square foot to account for fire truck loading scenarios.

All retaining walls should be provided with positive drainage behind the wall to preclude hydrostatic pressures from developing.

Utility Lines

The site soils will provide suitable support for the proposed utility lines. Cobbles greater than 4 inches in diameter should be removed from the utility line subgrade or a minimum 4-inch thick sand layer placed beneath the utility lines. If utility lines fall within soft soils, the excavation should be extended an additional 12 inches and replaced with $\frac{3}{4}$ -inch clean crushed stone or clean sand and gravel. In any areas where the utility lines are excavated into rock, a minimum of 6 inches of $\frac{3}{4}$ -inch clean crushed stone or sand layer should be placed beneath the pipe.

Backfill material placed around utility lines to 6 inches above the utility line should have a maximum particle size of 1.5 inches. Backfill of utility trenches that fall within load-bearing areas should be placed in maximum 6-inch thick lifts and compacted to the same density requirements as in the building/parking areas. Trench backfill in non-load bearing areas should be compacted to 90 percent of Modified Proctor density (ASTM D1557).

Control of Groundwater

Due to the presence of groundwater at depths ranging from approximately six (6) to 13 feet below the existing ground surface and the proposed foundations depths the project will require either a watertight, "bathtub" foundation or a permanent dewatering system.

The bathtub foundation would consist of the construction of a watertight foundation perimeter wall and foundation slab system to prevent groundwater from entering the structure. The watertight system would likely include the use of a membrane

such as the Preprufe/Bituthene waterproofing system by W. R. Grace and Co. and the use of water-stops at joints where foundation wall sections and slab come together. The bathtub foundation would also need to accommodate the forces associated with the applied lateral and bouyant hydrostatic pressures of the groundwater. The bathtub foundation would need to be designed to meet the site conditions by a qualified structural engineer and waterproofing expert.

The foundation can also be designed with a permanent dewatering system consisting of a minimum 12-inch thickness of $\frac{3}{4}$ " clean stone placed below the slab with a network of 4" perforated ADS piping drained to a sump pit or chamber with dual alternating pumps and a back-up power supply. The lowest floor slab should be waterproofed.

Groundwater seepage will be encountered during construction trapped throughout the overburden soils, especially during periods of wet weather and at the soil/rock interface and from rock fractures. During construction, gravel filled sumps with pumps should be installed below the subgrade elevation to allow for temporary dewatering of the excavation. Dewatering should be done in accordance with the environmental engineers requirements for treatment and disposal.

FOUNDATION DESIGN CRITERIA

The building foundation may be designed as conventional foundation with spread footings or a mat foundation designed to accommodate the design building loads.

After the site preparation procedures described above have been successfully completed, the proposed footings may be placed on sound rock with a conventional slab-on-grade floor system. The rock surface should be relatively flat or a leveling mat of concrete (mud-mat) placed to create a level working surface. The footings may be designed for a maximum net allowable bearing pressure of 15 tsf (30,000 psf) within fractured bedrock and 20 tsf (40,000 psf) within sound bedrock. Regardless of the loads, the minimum plan dimension of isolated footings should be 36 inches and the minimum width of continuous footings should be 24 inches.

The floor slab should be designed using a subgrade modulus of 250 pci, assuming that a 12-inch thick layer of clean stone will be present beneath the slab.

As an alternative, a mat foundation may be constructed, especially in the case of a waterproof bathtub foundation, to resist the buoyancy forces. The mat would also need to be designed to accommodate the structural column loads associated with the building.

A summary of recommended design parameters is included in Table 1.

Seismic Design

The site soils have been classified as Site Class B for seismic design purposes in accordance with 2015 International Building Code, New York Addition. Site class B assumes that the proposed footings will be founded within 10 feet of bedrock.

This should be confirmed by the structural engineer once the final grading plans are prepared.

Based on a structural occupancy/risk category of I/II/III and information provided by the USGS: U.S. Seismic Design Maps, the following seismic design criteria should be used for this project:

Mapped Spectral Response Acceleration for Short Periods	SS = 0.275g
Mapped Spectral Response Acceleration for 1-Second Period	S1 = 0.072g
Site Coefficient	Fa = 1.000
Site Coefficient	Fv = 1.000
Spectral Response for short periods	SMS = 0.275g
Spectral Response for 1 second period	SM1 = 0.072g
Design Spectral Response Acceleration for Short Periods	SDS = 0.184g
Design Spectral Response Accelerations for 1-Second Period	SD1 = 0.048g

ADDITIONAL CONSTRUCTION RECOMMENDATIONS

Our recommendations for temporary excavation support, subgrade preparation, construction quality assurance and protection and monitoring of adjacent structures, are provided below.

Excavation Support

OSHA requires that all excavations in excess of 4 feet be shored, braced or adequately benched/sloped in order to provide protection from sidewall collapses. For the open cut excavation, both the upper fill materials and decomposed rock will need to be supported.

For shallow excavations (i.e., utility trenches) it may be possible for the sidewalls to be sloped back or be appropriately sheeted and braced in accordance with all applicable codes. Other options would include temporary shoring or the use of trench boxes. The proposed method and excavations should be evaluated by a qualified Geotechnical Engineer.

Stabilizing the upper portion of the foundation excavation would initially require stabilization of the soil overburden and likely a portion of the decomposed rock above the rock excavation.

Soldier Pile and Steel Sheet Piling

Due to the limited access and environmental conditions encountered at the site, soldier piles with steel sheet pile panels are recommended to support the cut areas adjacent to the roadway and existing structures. H-Pile sections (aka King Piles) would be installed by drilling through the overburden soils and decomposed rock; into the existing rock, casing the holes as necessary, to a minimum embedment depth below the bottom of foundation wall elevation. The H-piles would then be installed to the specified depth, dewatered as necessary and filled with cementitious grout or concrete from the top of the hole. Soldier piles may be set prior to or after concrete placement.

Steel sheet pile panels would then be installed between the soldier piles, guided by angled steel or steel channels attached to the inside of the soldier pile flanges. The steel plates should have a minimum thickness of $\frac{3}{4}$ inches or as designed to accommodate lateral forces, soldier pile spacing and environmental conditions (i.e. corrosivity). H-piles within 20 feet of adjacent structures cannot be installed with vibratory or drop hammers.

During construction, the soldier pile wall should be supported, as needed, using a raker system attached to the piles by a steel H-beam waler. In areas where the the raker and waler system are not appropriate, the wall can be supported by installing tieback rods, drilled into the rock behind the wall and grouting the rods in-place. Design of the soldier pile retaining wall should limit the deflection at the top of the wall to less than one (1) inch when in service.

Once the steel sheet pile sections attain the top of the rock, an open cut within the rock would begin. Any stabilization of the rock face would be accomplished using rock bolts and shotcrete as necessary.

Secant Pile Walls

As an alternate, a secant pile wall can be installed. Secant pile walls are interlocking cast-in-place concrete piles. The wall is constructed by first installing a guide wall to assure proper spacing of the piles and to assist with maintaining tight vertical tolerances. The guide wall creates a concrete form with a scalloped interior edge. Piles can be installed using continuous flight augers, cased or uncased methods to advance the holes to the proper depth. The secant pile wall is constructed of piles with two different types of concrete. The preliminary piles are installed through the wall in an alternating pattern and filled concrete that is soft enough for secondary piles to be drilled into the primary piles, but that will continue to strengthen as the wall continues to cure. Secondary piles are then drilled between and into (secanted into) the preliminary piles as they are installed to the design depth. Reinforcing in the form of a steel cage or an H-pile is installed in the secondary pile, but can be installed in both the preliminary and secondary pile. The secondary pile is filled with a standard concrete mix.

When the wall is cured, and the excavation is initiated the secant wall can be supported using tieback anchors or a system of walers and struts. Secant walls are capable of supporting soil behind the wall as well as preventing groundwater from infiltrating into the excavation.

Preconstruction Survey and Monitoring Program of Adjacent Structures:

On August 15, 2019 SESI performed a pre-construction survey of the existing buildings located at 347 Huguenot Street (interior/exterior), 32 Relyea Place (interior/exterior), and exterior only at 342 Huguenot Street, 27 Center Avenue, 38 Center Avenue, and 54 Centre Avenue, New Rochelle, New York. Two of the buildings 347 Huguenot Street (Designated Building 2) and 32 Relyea Place (Designated Building 3) were found to have foundations consisting of older rubble wall granite construction. This type of foundation can amplify the vibrations associated with construction.

Based on the noted conditions, SESI would recommend construction monitoring consisting of a Baseline Dynamic Signature and Dynamic Performance Monitoring (DPM). The Baseline Dynamic Signature is performed in advance of construction and results in the identification of anomalies and weaknesses specific to the structure being monitored. This establishes a risk level for the structure that allows for the measurement of changes to that risk.

A preconstruction survey (pre-con) of neighboring buildings, sidewalks and utilities also provides the Owner and the foundation contractor with documentation of existing conditions in the event of a future damage claim. A pre-con survey performed by a qualified Professional Engineer experienced in such documentation work also includes; photographs and dimensioned sketches, crack reference lines and settlement reference points, established on existing features, for monitoring during construction. The pre-con survey would serve as a pictorial and quantitative reference document to assess conditions prior to, during, and after construction.

On the basis of this documentation, a construction monitoring program should be designed for monitoring the responses of adjacent structures and evaluating construction procedures. Considering the information noted for Building 2 and Building 3 noted above, the program should include Dynamic Performance Monitoring in addition to monitoring horizontal and vertical movements by optical surveying. DPM provides continuous monitoring of the building's response to construction activity. If the behavior of the structure changes from the established baseline, DPM can identify what caused the movements and quantify the changes to the response in real time.

We recommend that a monitoring plan and specifications be completed for the project including establishing a Baseline Dynamic Signature, and providing Dynamic Performance Monitoring.

INSPECTION

The recommendations presented in the previous sections of this report are based on the assumption that the site preparation procedures will be done under engineering inspection by a representative of SESI Consulting Engineers D.P.C. We should inspect the installation of the excavation support system, proofrolling operations, over-excavation, and the bottom of the footing excavations prior to the placement of concrete and/or stone. Visual observations and in-place density testing should be done throughout fill construction to determine that the work is done in accordance with our recommendations.

LIMITATIONS

The subsurface investigation performed identifies the subsurface conditions only at the locations of the explorations and at the depths where the samples were taken. SESI Consulting Engineers D.P.C. reviews the published geologic data and the field and laboratory data and uses their professional judgment and experience to render an opinion on the subsurface conditions throughout the site.

Because the actual subsurface conditions may differ, we recommend that SESI be retained to provide construction inspection in order to minimize the risks associated with unanticipated conditions.

This report should not be used:

1. When the nature of the proposed building is changed;
2. When the size or configuration of the proposed building is altered;
3. When the location or orientation of the proposed building is modified;
4. When there is a change in ownership; or
5. For application to an adjacent or any other site.

SESI shall not accept any responsibility for problems, which may occur if SESI is not consulted when there are changes to the factors considered in this report's development. The soil logs should not be separated from the Engineering Report in order to minimize the possibility of soil log misinterpretation.

DISCLAIMER

This Report was prepared by SESI for the sole and exclusive use of Huguenot Partners, LLC. Nothing under the Professional Services Agreement between SESI and its client, Huguenot Partners, LLC, shall be construed to give any rights or benefits to anyone other than Client and SESI, and all duties and responsibilities undertaken pursuant to the Agreement will be for the sole and exclusive benefit of Client and SESI and not for the benefit of any other party. This Report has been prepared and issued subject to the express condition that same is not to be disseminated to anyone other than Client, without the advance written consent of SESI (which SESI, in its sole discretion, is free to grant or withhold). Use of the Report by any other person is unauthorized and such use is at the sole risk of the user.

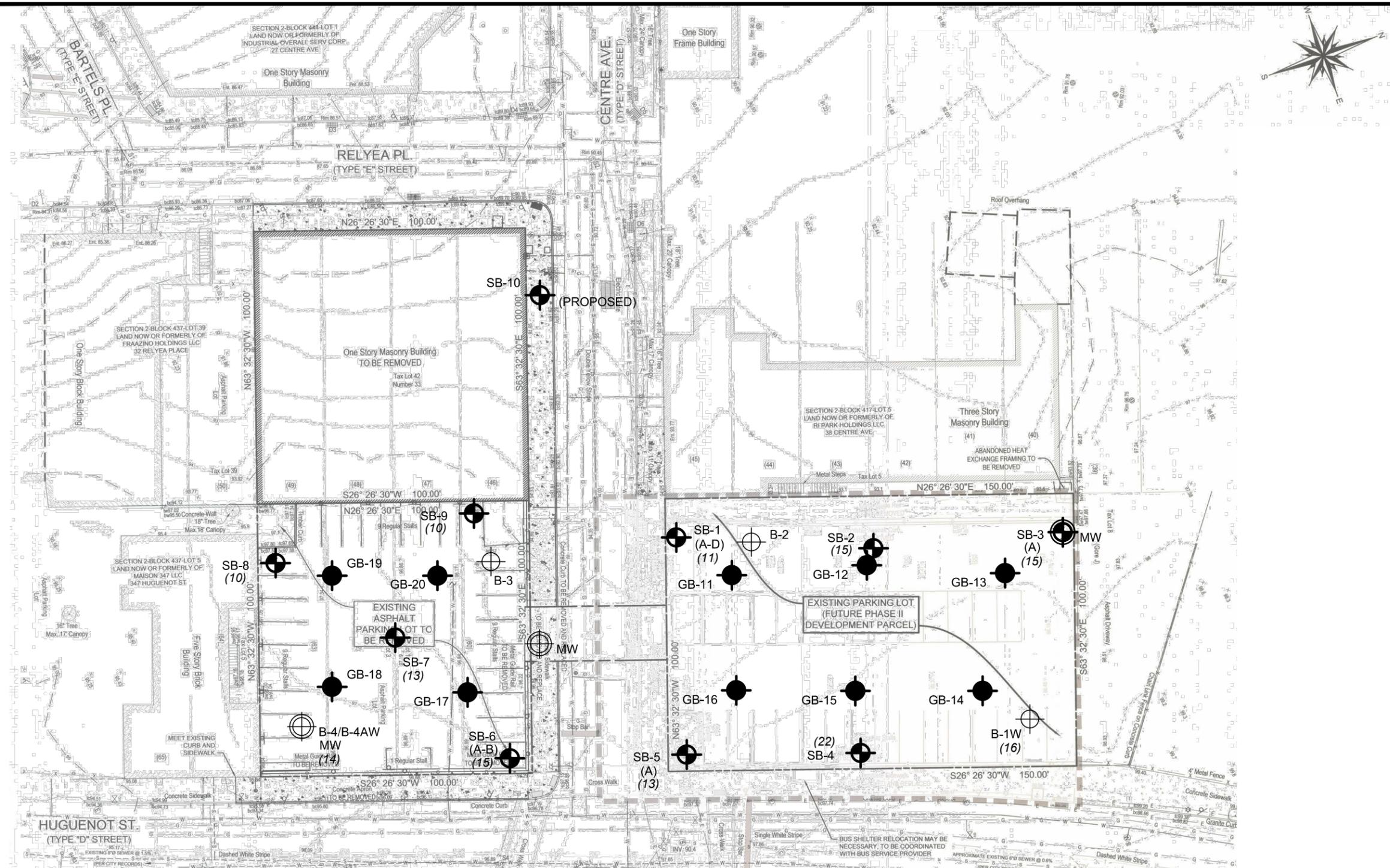
TABLE I
SUMMARY OF SOIL DESIGN PARAMETERS

PARAMETER	VALUE
1. Allowable Bearing Capacity (net): Fractured Rock Sound Rock	30,000psf 40,000psf
2. Total Unit Weight Soil	130 pcf
3. Angle of Internal Friction - Backfill against Structures	32 degrees
4. Earth Pressure Coefficient (See Note 1) Active Earth Pressure (Ka) Earth Pressure @ Rest (Ko) Passive Earth Pressure (Kp)	0.31 0.47 3.25
5. Coefficient of Sliding (concrete over soil)	0.35
6. Subgrade Modulus for Floor Slab Design Granular Fill	250 pci
7. Slopes (above groundwater) Maximum Cut Slope in Soil Maximum Fill Slope in Soil	2H:1V 2H:1V
8. Seismic Design Criteria- Site Class	B

Notes:

- 1.) A drainage medium should be installed along all retaining walls to avoid hydrostatic pressures from developing.
- 2.) Compaction equipment used within 5± feet of permanent walls should not weigh more than 5,000 pounds.
- 3.) Recommended slopes in #7 above do not consider surcharge loading above. Any slopes greater than 15 feet high and/or have surcharge loading should be further evaluated by a geotechnical engineer.

N:\ACAD\10785\10785 EXPLORATION LOCATION PLAN.DWG 07/12/19 09:25:07AM, cad, LAYOUT:FIG-1



NYS Education Law
 Unauthorized alterations or additions to this plan are a violation of section 7209 (2) of the New York State Education Law. Copies of this map not having the seal of the engineer shall not be valid.

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NOTE:
 THIS PLAN IS FOR LOCATING SAMPLES ONLY. OTHER SITE WORK SHOWN HERE IS NOT INTENDED FOR CONSTRUCTION.

REFERENCE
 SITE INFORMATION TAKEN FROM "EXISTING CONDITIONS & DEMOLITION PLAN" PREPARED BY NELSON & POPE ENGINEERS & SURVEYORS. DATED 5-02-19.

- LEGEND:**
- SB-1 - SOIL BORING NUMBER & APPROX. LOCATION
 - B-1 - SOIL BORING NUMBER & APPROX. LOCATION BY OTHERS
 - GB-11 - GEOPROBE BORING NUMBER & APPROX. LOCATION
 - MW - MONITORING WELL
 - (A-D) - BORING OFFSETS
 - (11) - APPROXIMATE ROCK DEPTH (FEET)

PROPOSED CENTRE AVENUE DEVELOPMENT
 327, 332, & 339 CENTRE AVENUE
 NEW ROCHELLE, NEW YORK

EXPLORATION LOCATION PLAN

job no: 10785
 drawing no:

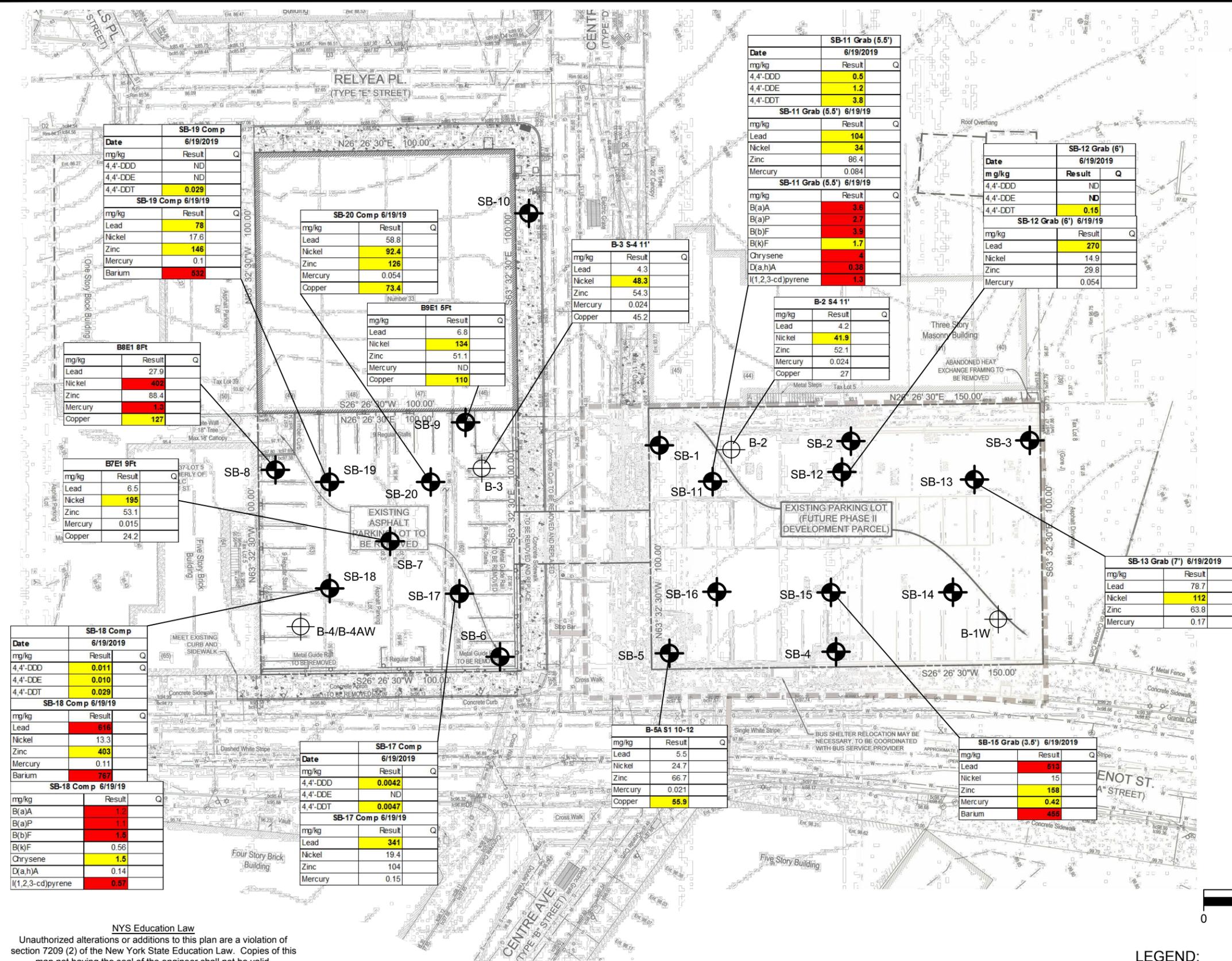
FIG-1

SESI
 CONSULTING ENGINEERS D.P.C.
 SOILS / FOUNDATIONS
 SITE DESIGN
 ENVIRONMENTAL

12A MAPLE AVE. PINE BROOK, N.J. 07058 PH: 973-808-9050

dwg by: yy
 chk by: MF
 scale: 1" = 40'
 date: 07/09/19

N:\ACAD\10785\BORING DATA.DWG 07/17/19 11:45:38AM, Jenny, LAYOUT: FIG-1



	UnRestricted	Restricted Residential
4,4'-DDD	0.0033	13
4,4'-DDE	0.0033	8.9
4,4'-DDT	0.0033	7.9

	UnRestricted	Restricted Residential
Lead	63	400
Nickel	30	310
Zinc	109	10,000
Mercury	0.18	0.81
Barium	350	400

	UnRestricted	Restricted Residential
B(a)A	1	1
B(a)P	1	1
B(b)F	1	1
B(k)F	0.8	3.9
Chrysene	1	3.9
D(a,h)A	0.33	0.33
I(1,2,3-cd)pyrene	0.5	0.5

dwg by: yy
chk by: MF
scale: 1" = 40'
date: 7/16/19

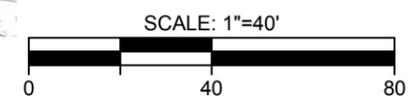
SOILS / FOUNDATIONS
SITE DESIGN
ENVIRONMENTAL

SESI
CONSULTING ENGINEERS D.P.C.

12A MAPLE AVE. PINE BROOK, N.J. 07058 PH: 973-808-9050

PROPOSED CENTRE AVENUE DEVELOPMENT
327, 332, & 339 CENTRE AVENUE
NEW ROCHELLE, NEW YORK

BORING DATA PLAN



- LEGEND:**
- SB-1 - PROPOSED SOIL BORING NUMBER & APPROX. LOCATION
 - B-1 - SOIL BORING NUMBER & APPROX. LOCATION BY OTHERS

NYS Education Law
Unauthorized alterations or additions to this plan are a violation of section 7209 (2) of the New York State Education Law. Copies of this map not having the seal of the engineer shall not be valid.

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REFERENCE
SITE INFORMATION TAKEN FROM "EXISTING CONDITIONS & DEMOLITION PLAN" PREPARED BY NELSON & POPE ENGINEERS & SURVEYORS. DATED 5-02-19.

NOTE:
THIS PLAN IS FOR LOCATING BORINGS ONLY. OTHER SITE WORK SHOWN HERE IS NOT INTENDED FOR CONSTRUCTION.

job no: 10785
drawing no:
FIG-1
1 of 1

			PROJECT NAME:		Prop Centre Ave Development				BORING NO.		SB-1		
			LOCATION:		New Rochelle, NY				JOB NO.		10785		
			METHOD:		Hollow Stem Auger				GROUND ELEVATION:		96±		
BORING BY:			ETD		DATE STARTED:		6/27/2019		GROUNDWATER TABLE DEPTH				
INSPECTOR:			JM		DATE COMPLETED:		6/27/2019		0 Hr.	NE	Date 6/27/2019	24 Hr.	Date
DEPTH (ft)	SAMPLE No.	REC (in)	DEPTH		Blows on Spoon				N (bl/ft)	SOIL DESCRIPTION AND STRATIFICATION	Symbol		
			FROM (ft)	TO (ft)	0/6	6/12	12/18	18/24				USCS	
0													
5										Fill: ± 3" Asphalt; Gray coarse to fine SAND, some coarse to fine Gravel, little Silt, Auger to 6'			
										Fill: Red-brown/Light-brown coarse to fine GRAVEL, some coarse to fine Sand, trace Silt, with brick, concrete, and wood fragments			
10										BORING COMPLETED AT 6± FEET DUE TO AUGER REFUSAL ON OBSTRUCTION BORING OFFSET TO BORING SB-1A			
15													
20													
25													
30													
35													
40													

Nominal I.D. of Hole	in
Nominal I.D. of Split Barrel Sampler	1 3/8 in
Weight/type of Hammer on Drive Pipe	300 lb
Weight/type of Hammer on Split Barrel	140 lb
Drop of Hammer on Drive Pipe	in
Core Size	in

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Pp: Pocket Penetrometer; WOH: Weight of Hammer; WOR: Weight of Rod

Approximate Change in Strata: _____ Inferred Change in Strata: _____

Soil descriptions represent a field identification after D. M. Burmister unless otherwise noted.

FIGURE 2

			PROJECT NAME:		Prop Centre Ave Development				BORING NO.		SB-1A		
			LOCATION:		New Rochelle, NY				JOB NO.		10785		
			METHOD:		Hollow Stem Auger				GROUND ELEVATION:		96±		
BORING BY:			ETD		DATE STARTED:		6/27/2019		GROUNDWATER TABLE DEPTH				
INSPECTOR:			JM		DATE COMPLETED:		6/27/2019		0 Hr.	NE	Date 6/27/2019	24 Hr.	Date
DEPTH (ft)	SAMPLE No.	REC (in)	DEPTH		Blows on Spoon				N (bl/ft)	SOIL DESCRIPTION AND STRATIFICATION	Symbol		
			FROM (ft)	TO (ft)	0/6	6/12	12/18	18/24				USCS	
0													
5										Fill: ± 3" Asphalt; Gray coarse to fine SAND, some coarse to fine Gravel, little Silt, Auger to 6'			
										Fill: Red-brown/Light-brown coarse to fine GRAVEL, some coarse to fine Sand, trace Silt, with brick, concrete, and wood fragments			
10										BORING COMPLETED AT 6± FEET DUE TO AUGER REFUSAL ON OBSTRUCTION BORING OFFSET TO BORING SB-1B			
15													
20													
25													
30													
35													
40													

Nominal I.D. of Hole	in
Nominal I.D. of Split Barrel Sampler	1 3/8 in
Weight/type of Hammer on Drive Pipe	300 lb
Weight/type of Hammer on Split Barrel	140 lb
Drop of Hammer on Drive Pipe	in
Core Size	in

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Pp: Pocket Penetrometer; WOH: Weight of Hammer; WOR: Weight of Rod

Approximate Change in Strata: _____ Inferred Change in Strata: _____

Soil descriptions represent a field identification after D. M. Burmister unless otherwise noted.

			PROJECT NAME:		Prop Centre Ave Development				BORING NO.		SB-1B		
			LOCATION:		New Rochelle, NY				JOB NO.		10785		
			METHOD:		Hollow Stem Auger				GROUND ELEVATION:		96±		
BORING BY:			ETD		DATE STARTED:		6/27/2019		GROUNDWATER TABLE DEPTH				
INSPECTOR:			JM		DATE COMPLETED:		6/27/2019		0 Hr.	NE	Date 6/27/2019	24 Hr.	Date
DEPTH (ft)	SAMPLE No.	REC (in)	DEPTH		Blows on Spoon				N (bl/ft)	SOIL DESCRIPTION AND STRATIFICATION	Symbol		
			FROM (ft)	TO (ft)	0/6	6/12	12/18	18/24				USCS	
0													
5										Fill: ± 3" Asphalt; Gray coarse to fine SAND, some coarse to fine Gravel, little Silt, Auger to 6'			
										Fill: Red-brown/Light-brown coarse to fine GRAVEL, some coarse to fine Sand, trace Silt, with brick, concrete, and wood fragments			
10	S-1	0	7	7.8	30	75/3"				Fill: Light-brown coarse to fine SAND, some Silt, with wood, brick and concrete fragments			
										Fill: Brown coarse to fine SAND, some Silt, little coarse to fine Gravel			
15										BORING COMPLETED AT 7.8± FEET AUGER REFUSAL AT 7± FEET SPLIT SPOON REFUSAL AT 7.8± FEET BORING OFFSET TO BORING SB-1C			
20													
25													
30													
35													
40													

Nominal I.D. of Hole	in
Nominal I.D. of Split Barrel Sampler	1 3/8 in
Weight/type of Hammer on Drive Pipe	300 lb
Weight/type of Hammer on Split Barrel	140 lb
Drop of Hammer on Drive Pipe	in
Core Size	in

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Pp: Pocket Penetrometer; WOH: Weight of Hammer; WOR: Weight of Rod

Approximate Change in Strata: _____ Inferred Change in Strata: _____

Soil descriptions represent a field identification after D. M. Burmister unless otherwise noted.

			PROJECT NAME:		Prop Centre Ave Development				BORING NO.		SB-1C		
			LOCATION:		New Rochelle, NY				JOB NO.		10785		
			METHOD:		Hollow Stem Auger				GROUND ELEVATION:		96±		
BORING BY:			ETD		DATE STARTED:		6/27/2019		GROUNDWATER TABLE DEPTH				
INSPECTOR:			JM		DATE COMPLETED:		6/27/2019		0 Hr.	NE	Date 6/27/2019	24 Hr.	Date
DEPTH (ft)	SAMPLE No.	REC (in)	DEPTH		Blows on Spoon				N (bl/ft)	SOIL DESCRIPTION AND STRATIFICATION	Symbol		
			FROM (ft)	TO (ft)	0/6	6/12	12/18	18/24				USCS	
0													
5										Fill: ± 3" Asphalt; Gray coarse to fine SAND, some coarse to fine Gravel, little Silt, Auger to 6'			
										Fill: Red-brown/Light-brown coarse to fine GRAVEL, some coarse to fine Sand, trace Silt, with brick, concrete, and wood fragments			
10										DUE TO AUGER REFUSAL ON OBSTRUCTION BORING OFFSET TO BORING SB-1D			
15													
20													
25													
30													
35													
40													

Nominal I.D. of Hole	in
Nominal I.D. of Split Barrel Sampler	1 3/8 in
Weight/type of Hammer on Drive Pipe	300 lb
Weight/type of Hammer on Split Barrel	140 lb
Drop of Hammer on Drive Pipe	in
Core Size	in

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Pp: Pocket Penetrometer; WOH: Weight of Hammer; WOR: Weight of Rod

Approximate Change in Strata: _____ Inferred Change in Strata: _____

Soil descriptions represent a field identification after D. M. Burmister unless otherwise noted.

			PROJECT NAME:		Prop Centre Ave Development				BORING NO.		SB-1D							
			LOCATION:		New Rochelle, NY				JOB NO.		10785							
			METHOD:		Mud Rotary				GROUND ELEVATION:									
BORING BY:			ETD		DATE STARTED:		7/1/2019		GROUNDWATER TABLE DEPTH									
INSPECTOR:			PR		DATE COMPLETED:		7/1/2019		0 Hr.		NE		Date 7/1/2019		24 Hr.		Date	
DEPTH (ft)	SAMPLE No.	REC (in)	DEPTH		Blows on Spoon				N (bl/ft)	SOIL DESCRIPTION AND STRATIFICATION	Symbol							
			FROM (ft)	TO (ft)	0/6	6/12	12/18	18/24				USCS						
0																		
5										Fill: ± 3" Asphalt; Gray coarse to fine SAND, some coarse to fine Gravel, little Silt, Auger to 6'								
										Fill: Red-brown/Light-brown coarse to fine GRAVEL, some coarse to fine Sand, trace Silt, with brick, concrete, and wood fragments								
10										(Loose)								
										Concrete Slab								
15	C1	48	11		REC=	48"/48"	=100%			Core Run C-1: 11'-15'								
					RQD=	48"/48"	=100%			Light gray/blue slightly weathered Pegmatite, hard, moderately fractured								
20	C2	60	15		REC=	60"/60"	=100%			Core Run C-2: 15'-20'								
					RQD=	60"/60"	=100%			Dark gray moderately weathered Schist, moderately soft, intense to moderately fractured with decomposed seams grading to dark gray moderate to slightly weathered Garnetiferous Schist, moderately hard, slightly fractured								
25	C3	43	20		REC=	60"/60"	=100%			Core Run C-3: 20'-25'								
					RQD=	60"/60"	=100%			Same as above								
30																		
35																		
40																		

Nominal I.D. of Hole	in
Nominal I.D. of Split Barrel Sampler	1 3/8 in
Weight/type of Hammer on Drive Pipe	300 lb
Weight/type of Hammer on Split Barrel	140 lb
Drop of Hammer on Drive Pipe	in
Core Size	in

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Pp: Pocket Penetrometer; WOH: Weight of Hammer; WOR: Weight of Rod

Approximate Change in Strata: _____ Inferred Change in Strata: _____

Soil descriptions represent a field identification after D. M. Burmister unless otherwise noted.

			PROJECT NAME:		Prop Centre Ave Development				BORING NO.		SB-2		
			LOCATION:		New Rochelle, NY				JOB NO.		10785		
			METHOD:		Hollow Stem Auger/Mud Rotary				GROUND ELEVATION:		97±		
BORING BY:			ETD		DATE STARTED:		6/27/2019		GROUNDWATER TABLE DEPTH				
INSPECTOR:			JM		DATE COMPLETED:		6/28/2019		0 Hr.	10±	Date 6/27/2019	24 Hr.	Date
DEPTH (ft)	SAMPLE No.	REC (in)	DEPTH		Blows on Spoon				N (bl/ft)	SOIL DESCRIPTION AND STRATIFICATION	Symbol		
			FROM (ft)	TO (ft)	0/6	6/12	12/18	18/24				USCS	
0													
5										Fill: ± 3" Asphalt; Red-brown/light-brown coarse to fine GRAVEL, some coarse to fine Sand, little Silt, with brick, wood, and concrete fragments, Auger refusal at 5'			
10	S-1	12	5		63	25			42	Concrete			
				7			17	12		Red-brown coarse to fine SAND, little Silt			
	S-2	16	7		20	19			44	Brown Decomposed Rock			
	S-3	16	9		26	21		25	70	... Same			
15				11				18	30	... Same			
	S-4	14	11		24	50/5				... Same			
				13						Mud Rotary to 17'			
20													
	C-1	58	17						3.5min	Core Run C-1: 17'-22'			
					REC=	58"/60"	=97%		4min	Dark gray Gneiss, hard, moderately fractured becoming intensely fractured over Dark gray Schist, hard, slightly fractured			
					RQD=	42"/60"	=70%		5min				
25									4.5min				
				22					5.5min				
	C-2	16	22		REC=	20"/60"	=33%		3.5min	Core Run C-2: 22'-26'			
					RQD=	0"/60"	=0%		4min	Dark gray Schist, moderately hard, intensely fractured, numerous vertical Joints/ decomposed seams			
30				26					4min				
									4.5min				
										BORING COMPLETED AT 26± FEET			
35													
40													

Nominal I.D. of Hole	in
Nominal I.D. of Split Barrel Sampler	1 3/8 in
Weight/type of Hammer on Drive Pipe	300 lb
Weight/type of Hammer on Split Barrel	140 lb
Drop of Hammer on Drive Pipe	in
Core Size	in

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Pp: Pocket Penetrometer; WOH: Weight of Hammer; WOR: Weight of Rod

Approximate Change in Strata: _____ Inferred Change in Strata: _____

Soil descriptions represent a field identification after D. M. Burmister unless otherwise noted.

FIGURE 3

			PROJECT NAME:		Prop Centre Ave Development				BORING NO.		SB-3		
			LOCATION:		New Rochelle, NY				JOB NO.		10785		
			METHOD:		Hallow Stem Auger/Mud Rotary				GROUND ELEVATION:		98±		
BORING BY:			ETD		DATE STARTED:		7/1/2019		GROUNDWATER TABLE DEPTH				
INSPECTOR:			JM		DATE COMPLETED:		7/1/2019		0 Hr.	11±	Date 7/1/2019	24 Hr.	Date
DEPTH (ft)	SAMPLE No.	REC (in)	DEPTH		Blows on Spoon				N (bl/ft)	SOIL DESCRIPTION AND STRATIFICATION	Symbol		
			FROM (ft)	TO (ft)	0/6	6/12	12/18	18/24					
0											USCS		
5										Fill: ± 3" Asphalt; Light-brown coarse to fine SAND, some coarse to fine Gravel, little Silt, with brick, asphalt, and concrete fragments Auger to 5'			
										Concrete Slab			
10	S-1	12	5		30	40			53	Light brown coarse to fine SAND, little fine Gravel, trace Silt			
				7			13	25		-----			
	S-2	12	7		35	25			57	Red brown coarse to fine SAND, little medium to fine Gravel, trace Silt			
15	S-3	22	9		30	20			40	Red/brown decomposed rock			
				11			20	15					
15	S-4	8	11	11.7	30	50/2"				BORING COMPLETED AT 11.7± FEET DUE TO SPLIT SPOON REFUSAL BORING OFFSET TO BORING SB-3A			
20													
25													
30													
35													
40													

Nominal I.D. of Hole	in
Nominal I.D. of Split Barrel Sampler	1 3/8 in
Weight/type of Hammer on Drive Pipe	300 lb
Weight/type of Hammer on Split Barrel	140 lb
Drop of Hammer on Drive Pipe	in
Core Size	in

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Pp: Pocket Penetrometer; WOH: Weight of Hammer; WOR: Weight of Rod

Approximate Change in Strata: _____ Inferred Change in Strata: _____

Soil descriptions represent a field identification after D. M. Burmister unless otherwise noted.

FIGURE 4

			PROJECT NAME:		Prop Centre Ave Development				BORING NO.		SB-3A			
			LOCATION:		New Rochelle, NY				JOB NO.		10785			
			METHOD:		Mud Rotary				GROUND ELEVATION:					
BORING BY:			ETD		DATE STARTED:		7/1/2019		GROUNDWATER TABLE DEPTH					
INSPECTOR:			PR		DATE COMPLETED:		7/1/2019		0 Hr.	11±	Date	7/1/2019	24 Hr.	Date
DEPTH (ft)	SAMPLE No.	REC (in)	DEPTH		Blows on Spoon				N (bl/ft)	SOIL DESCRIPTION AND STRATIFICATION	Symbol			
			FROM (ft)	TO (ft)	0/6	6/12	12/18	18/24				USCS		
0														
5										3" Asphalt				
										Fill: Red brick and cinders				
										24-inch thick Concrete slab				
10										Light brown coarse to fine SAND, little fine Gravel, trace Silt				
										Hard Drilling				
										Red brown coarse to fine SAND, little medium to fine Gravel, trace Silt				
15										(Very Hard Drilling)				
										Roller bit refusal at 15'				
20	C1	51	15							Core Run C-1: 15'-20'				
										REC= 51"/60" =85%				
										RCD= 43"/60" =72%				
25										Gray slightly weathered Gneiss, hard, moderately to slightly fractured				
	C2	43	20							Core Run C-2: 20'-25'				
										REC= 43"/60" =72%				
30										RCD= 24"/60" =40%				
										Same as above				
35														
40														

Nominal I.D. of Hole	in
Nominal I.D. of Split Barrel Sampler	1 3/8 in
Weight/type of Hammer on Drive Pipe	300 lb
Weight/type of Hammer on Split Barrel	140 lb
Drop of Hammer on Drive Pipe	in
Core Size	in

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Pp: Pocket Penetrometer; WOH: Weight of Hammer; WOR: Weight of Rod

Approximate Change in Strata: _____ Inferred Change in Strata: _____

Soil descriptions represent a field identification after D. M. Burmister unless otherwise noted.

			PROJECT NAME:		Prop Centre Ave Development				BORING NO.		SB-4		
			LOCATION:		New Rochelle, NY				JOB NO.		10785		
			METHOD:		Hollow Stem Auger/Mud Rotary				GROUND ELEVATION:		98±		
BORING BY:			ETD		DATE STARTED:		6/27/2019		GROUNDWATER TABLE DEPTH				
INSPECTOR:			BU/JM		DATE COMPLETED:		6/28/2019		0 Hr.	10±	Date 6/27/2019	24 Hr.	Date
DEPTH (ft)	SAMPLE No.	REC (in)	DEPTH		Blows on Spoon				N (bl/ft)	SOIL DESCRIPTION AND STRATIFICATION	Symbol		
			FROM (ft)	TO (ft)	0/6	6/12	12/18	18/24				USCS	
0													
5										Fill: ± 3" Asphalt; Crushed brick with Light-brown coarse to fine SAND, some coarse to fine Gravel, little Silt, with concrete fragments Auger to 5'			
10	S-1	18	5		30	12			29	Fill: Red brick fragments			
				7				17	18				
	S-2	20	7							Fill: Red-brown coarse to fine SAND, little Silt, with concrete fragments			
15	S-3	12		9	15	17		11	15	Fill: ...Same			
			10		17	17			32	Red-brown Decomposed Rock			
20				12				15	13	Mud Rotary to 20'			
25	S-4	6	20	21.1	15	15				Gray Decomposed Rock			
								50/1"		Mud Rotary Refusal at 22'			
	C-1	50	22						4min	Core Run C-1: 22'-27'			
30									4min	Dark gray slightly weathered Gneiss, hard, moderately fractured			
									3.5min				
				27					4min				
35													
40													

Nominal I.D. of Hole	in
Nominal I.D. of Split Barrel Sampler	1 3/8 in
Weight/type of Hammer on Drive Pipe	300 lb
Weight/type of Hammer on Split Barrel	140 lb
Drop of Hammer on Drive Pipe	in
Core Size	in

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Pp: Pocket Penetrometer; WOH: Weight of Hammer; WOR: Weight of Rod

Approximate Change in Strata: _____ Inferred Change in Strata: _____

Soil descriptions represent a field identification after D. M. Burmister unless otherwise noted.

FIGURE 5

			PROJECT NAME:		Prop Centre Ave Development				BORING NO.		SB-5		
			LOCATION:		New Rochelle, NY				JOB NO.		10785		
			METHOD:		Hollow Stem Auger/Mud Rotary				GROUND ELEVATION:		97±		
BORING BY:			ETD		DATE STARTED:		6/26/2019		GROUNDWATER TABLE DEPTH				
INSPECTOR:			JM		DATE COMPLETED:		6/27/2019		0 Hr.	NE	Date 6/26/2019	24 Hr.	Date
DEPTH (ft)	SAMPLE No.	REC (in)	DEPTH		Blows on Spoon				N (bl/ft)	SOIL DESCRIPTION AND STRATIFICATION	Symbol		
			FROM (ft)	TO (ft)	0/6	6/12	12/18	18/24				USCS	
0													
5										Fill: ± 3" Asphalt; Crushed brick and Concrete with Light-brown/Brown/Red-brown Coarse to fine SAND, some coarse to fine Gravel, little Silt, Auger to 8'			
10													
	S-1	3	8	8.3	60/3"					Fill: Brown coarse to fine GRAVEL, with building debris			
15										BORING COMPLETED AT 8.3± FEET DUE TO AUGER REFUSAL ON OBSTRUCTION BORING OFFSET TO BORING SB-5A			
20													
25													
30													
35													
40													

Nominal I.D. of Hole	in
Nominal I.D. of Split Barrel Sampler	1 3/8 in
Weight/type of Hammer on Drive Pipe	300 lb
Weight/type of Hammer on Split Barrel	140 lb
Drop of Hammer on Drive Pipe	in
Core Size	in

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Pp: Pocket Penetrometer; WOH: Weight of Hammer; WOR: Weight of Rod

Approximate Change in Strata: _____ Inferred Change in Strata: _____

Soil descriptions represent a field identification after D. M. Burmister unless otherwise noted.

FIGURE 6

			PROJECT NAME:		Prop Centre Ave Development				BORING NO.		SB-5A		
			LOCATION:		New Rochelle, NY				JOB NO.		10785		
			METHOD:		Hollow Stem Auger/Mud Rotary				GROUND ELEVATION:		97'±		
BORING BY:			ETD		DATE STARTED:		6/27/2019		GROUNDWATER TABLE DEPTH				
INSPECTOR:			JM		DATE COMPLETED:		6/28/2019		0 Hr.	10'±	Date 6/27/2019	24 Hr.	Date
DEPTH (ft)	SAMPLE No.	REC (in)	DEPTH		Blows on Spoon				N (bl/ft)	SOIL DESCRIPTION AND STRATIFICATION	Symbol		
			FROM (ft)	TO (ft)	0/6	6/12	12/18	18/24					
0											USCS		
5										Fill: ± 3" Asphalt; Crushed brick and Concrete with Light-brown/Brown/Red-brown Coarse to fine SAND, some coarse to fine Gravel, little Silt, Auger to 10'			
10										Fill: Red-brown medium to fine GRAVEL, some coarse to fine Sand, little Silt Fill: Brick, Asphalt, Gravel			
15	S-1	14	10		30	50				Red-brown Decomposed Rock			
				11.4			60/5"			SS refusal at 11.4', Roller bit refusal at 13'			
20	C-1	58	13					4.5min		Core Run C-1 13'-18'			
					REC= 58"/60" =97%			2.5min		Dark gray moderately weathered Schist, moderately hard, slightly fractured to moderately fractured (High angle foliation)			
					RQD= 44"/60" =73%		3.5min						
25	C-2	60	18					3.3min		Core Run C-2 18'-23'			
					REC= 60"/60" =100%			3min			Dark gray slightly weathered Schist, moderately hard to hard, slightly fractured (High angle foliation)		
					RQD= 44"/60" =73%			3.8min					
30								3min					
								3.5min					
35								3.8min					
				23									
40										BORING COMPLETED AT 23± FEET			

Nominal I.D. of Hole	in
Nominal I.D. of Split Barrel Sampler	1 3/8 in
Weight/type of Hammer on Drive Pipe	300 lb
Weight/type of Hammer on Split Barrel	140 lb
Drop of Hammer on Drive Pipe	in
Core Size	in

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Pp: Pocket Penetrometer; WOH: Weight of Hammer; WOR: Weight of Rod

Approximate Change in Strata: _____ Inferred Change in Strata: _____

Soil descriptions represent a field identification after D. M. Burmister unless otherwise noted.

			PROJECT NAME:		Prop Centre Ave Development				BORING NO.		SB-6		
			LOCATION:		New Rochelle, NY				JOB NO.		10785		
			METHOD:		Hollow Stem Auger				GROUND ELEVATION:		97±		
BORING BY:			ETD		DATE STARTED:		6/20/2019		GROUNDWATER TABLE DEPTH				
INSPECTOR:			BU		DATE COMPLETED:		6/20/2019		0 Hr.	NE	Date 6/20/2019	24 Hr.	Date
DEPTH (ft)	SAMPLE No.	REC (in)	DEPTH		Blows on Spoon				N (bl/ft)	SOIL DESCRIPTION AND STRATIFICATION	Symbol		
			FROM (ft)	TO (ft)	0/6	6/12	12/18	18/24					
0	S-1	0	0.5		14	10				4"± Asphalt over 2"± Gravel Subbase	USCS		
5				1.5						BORING COMPLETED AT 1.5± FEET DUE TO REFUSAL ON OBSTRUCTION OFFSET TO BORING SB-6A			
10													
15													
20													
25													
30													
35													
40													

Nominal I.D. of Hole	in
Nominal I.D. of Split Barrel Sampler	1 3/8 in
Weight/type of Hammer on Drive Pipe	300 lb
Weight/type of Hammer on Split Barrel	140 lb
Drop of Hammer on Drive Pipe	in
Core Size	in

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Pp: Pocket Penetrometer; WOH: Weight of Hammer; WOR: Weight of Rod

Approximate Change in Strata: _____ Inferred Change in Strata: _____

Soil descriptions represent a field identification after D. M. Burmister unless otherwise noted.

FIGURE 7

			PROJECT NAME:		Prop Centre Ave Development				BORING NO.		SB-6A		
			LOCATION:		New Rochelle, NY				JOB NO.		10785		
			METHOD:		Hollow Stem Auger				GROUND ELEVATION:		97±		
BORING BY:			ETD		DATE STARTED:		6/20/2019		GROUNDWATER TABLE DEPTH				
INSPECTOR:			BU		DATE COMPLETED:		6/20/2019		0 Hr.	NE	Date 6/20/2019	24 Hr.	Date
DEPTH (ft)	SAMPLE No.	REC (in)	DEPTH		Blows on Spoon				N (bl/ft)	SOIL DESCRIPTION AND STRATIFICATION	Symbol		
			FROM (ft)	TO (ft)	0/6	6/12	12/18	18/24					
0											USCS		
5										4"± Asphalt over 2"± Gravel Subbase			
	S-1	16	0.5		3	3			6	Fill: Gray-brown coarse to fine Sand, little Silt, with brick fragments			
				2.5			3						
10	S-2	8	2.5		2	2			7	Fill: Brick fragments			
				4.5			5	6					
	S-3	12	5		6	6			27	Fill: Brick fragments			
				7			21	28					
15	S-4	4	9	9.3	50/4"					Decomposed rock			
BORING COMPLETED AT 9.5± FEET SPLIT SPOON REFUSAL OFFSET TO BORING SB-6B													
20													
25													
30													
35													
40													

Nominal I.D. of Hole	in	The subsurface information shown hereon was obtained for the design and estimating purposes for our client. It is made available to authorized users only that they may have access to the same information available to our client. It is presented in good faith, but it is not intended as a substitute for investigations, interpretations or judgment of such authorized users. Information on the logs should not be relied upon without the geotechnical engineers recommendations contained in the report from which these logs were extracted.
Nominal I.D. of Split Barrel Sampler	1 3/8 in	
Weight/type of Hammer on Drive Pipe	300 lb	
Weight/type of Hammer on Split Barrel	140 lb	
Drop of Hammer on Drive Pipe	in	
Core Size	in	

Pp: Pocket Penetrometer; WOH: Weight of Hammer; WOR: Weight of Rod

Approximate Change in Strata: _____ Inferred Change in Strata: _____

Soil descriptions represent a field identification after D. M. Burmister unless otherwise noted.

FIGURE 7A

				PROJECT NAME:		Prop Centre Ave Development		BORING NO.		SB-6B				
				LOCATION:		New Rochelle, NY		JOB NO.		10785				
				METHOD:		Hollow Stem Auger / Mud Rotary		GROUND ELEVATION:		97±				
BORING BY:			ETD		DATE STARTED:		7/1/2019		GROUNDWATER TABLE DEPTH					
INSPECTOR:			BU		DATE COMPLETED:		7/1/2019		0 Hr.	NE	Date	7/1/2019	24 Hr.	Date
DEPTH (ft)	SAMPLE No.	REC (in)	DEPTH		Blows on Spoon				N (bl/ft)	SOIL DESCRIPTION AND STRATIFICATION	Symbol			
			FROM (ft)	TO (ft)	0/6	6/12	12/18	18/24				USCS		
0														
5										4"± Asphalt over 2"± Gravel Subbase				
										Fill: Yellow-brown/Light-brown/Brown coarse to fine SAND, some coarse to fine Gravel, little Silt, with concrete and brick fragments				
										Auger to 8'				
10	S-1	2	8											
				10										
15										Mud Rotary to 15'				
20	C-1	59	15						5.5min	Core Run C-1: 15'-20'				
									2.5min	Dark gray slightly weathered Gneiss, hard, slightly				
									3min	fractured grading to moderately fractured (High angle foliation)				
									3min					
				20					6min					
25	C-2	60	20						5.5min	Core Run C-2: 20'-25'				
									3.5min	...Same, moderately fractured (High angle foliation)				
									3min					
									3.5min					
				25					3.5min					
30										BORING COMPLETED AT 25± FEET				
35														
40														

Nominal I.D. of Hole	in
Nominal I.D. of Split Barrel Sampler	1 3/8 in
Weight/type of Hammer on Drive Pipe	300 lb
Weight/type of Hammer on Split Barrel	140 lb
Drop of Hammer on Drive Pipe	in
Core Size	in

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Pp: Pocket Penetrometer; WOH: Weight of Hammer; WOR: Weight of Rod

Approximate Change in Strata: _____ Inferred Change in Strata: _____

Soil descriptions represent a field identification after D. M. Burmister unless otherwise noted.

			PROJECT NAME:		Prop Centre Ave Development				BORING NO.		SB-7		
			LOCATION:		New Rochelle, NY				JOB NO.		10785		
			METHOD:		Hollow Stem Auger/Mud Rotary				GROUND ELEVATION:		97±		
BORING BY:			ETD		DATE STARTED:		6/24/2019		GROUNDWATER TABLE DEPTH				
INSPECTOR:			BU/JM		DATE COMPLETED:		6/26/2019		0 Hr.	NE	Date 6/24/2019	24 Hr.	Date
DEPTH (ft)	SAMPLE No.	REC (in)	DEPTH		Blows on Spoon				N (bl/ft)	SOIL DESCRIPTION AND STRATIFICATION	Symbol		
			FROM (ft)	TO (ft)	0/6	6/12	12/18	18/24					
0										4"± Asphalt	USCS		
5													
10	S-1	12	5		21	28			37	Fill: Red Brick fragments			
	S-2	10	7		6	44			66	Decomposed Rock			
15				9				22	38				
	C-1	59	13						5min	Core Run C-1: 13'-18'			
20					REC=	59"/60"	=97%		3.5min	Dark gray slightly weathered Schist , hard, moderately fractured to slightly fractured			
					RQD=	39"/60"	=65%		3.5min				
				18					3min				
	C-2	60	18						3.5min	Core Run C-2: 18'-23'			
25					REC=	60"/60"	=100%		3.5min	Dark gray slightly weathered Schist, hard, moderately fractured grading to slightly weathered (High angle foliation)			
					RQD=	35"/60"	=58%		4min				
				23					2.5min				
										BORING COMPLETED AT 23± FEET			
30													
35													
40													

Nominal I.D. of Hole	in
Nominal I.D. of Split Barrel Sampler	1 3/8 in
Weight/type of Hammer on Drive Pipe	300 lb
Weight/type of Hammer on Split Barrel	140 lb
Drop of Hammer on Drive Pipe	in
Core Size	in

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Pp: Pocket Penetrometer; WOH: Weight of Hammer; WOR: Weight of Rod

Approximate Change in Strata: _____ Inferred Change in Strata: _____

Soil descriptions represent a field identification after D. M. Burmister unless otherwise noted.

FIGURE 8

			PROJECT NAME:		Prop Centre Ave Development				BORING NO.		SB-8			
			LOCATION:		New Rochelle, NY				JOB NO.		10785			
			METHOD:		Hollow Stem Auger/Mud Rotary				GROUND ELEVATION:		97±			
BORING BY:			ETD		DATE STARTED:		6/21/2019		GROUNDWATER TABLE DEPTH					
INSPECTOR:			BU		DATE COMPLETED:		6/21/2019		0 Hr.	NE	Date	6/21/2019	24 Hr.	Date
DEPTH (ft)	SAMPLE No.	REC (in)	DEPTH		Blows on Spoon				N (bl/ft)	SOIL DESCRIPTION AND STRATIFICATION	Symbol			
			FROM (ft)	TO (ft)	0/6	6/12	12/18	18/24						
0											USCS			
5										Auger to 5'				
10	S1	6	5		29	15			23min	Fill: Gray coarse to fine SAND, little Silt, with asphalt millings and brick fragments				
				7			8	5		Decomposed Rock				
	S2			7	10	15								
				8.4			50/5"							
15	C-1	58	10						2.5min	Core Run C-1: 10'-15'				
					REC=	58"/60"	=97%		3.5min	Dark gray slightly weathered Gneiss, hard, moderately fractured (High angle foliation)				
					RQD=	38"/60"	=63%		3.5min					
									4min					
				15					3min					
20	C-2	60	15						4.5min	Core Run C-2 15'-20'				
					REC=	60"/60"	=100%		5min	Same with thick Pegmatite bands				
					RQD=	58"/60"	=97%		3.5min					
									4.5min					
				20					3min					
25	C-3	60	20						3min	Core Run C-3: 20'-25'				
					REC=	60"/60"	=100%		5min	Gray slightly weathered Gneiss, hard, moderately fractured				
					RQD=	51"/60"	=85%		5min	(Nested high angle fractures, High angle foliation)				
									6.5min					
				25					8min					
30										BORING COMPLETED AT 25± FEET				
35														
40														

Nominal I.D. of Hole	in	The subsurface information shown hereon was obtained for the design and estimating purposes for our client. It is made available to authorized users only that they may have access to the same information available to our client. It is presented in good faith, but it is not intended as a substitute for investigations, interpretations or judgment of such authorized users. Information on the logs should not be relied upon without the geotechnical engineers recommendations contained in the report from which these logs were extracted.
Nominal I.D. of Split Barrel Sampler	1 3/8 in	
Weight/type of Hammer on Drive Pipe	300 lb	
Weight/type of Hammer on Split Barrel	140 lb	
Drop of Hammer on Drive Pipe	in	
Core Size	in	

Pp: Pocket Penetrometer; WOH: Weight of Hammer; WOR: Weight of Rod
 Approximate Change in Strata: _____ Inferred Change in Strata: _____

Soil descriptions represent a field identification after D. M. Burmister unless otherwise noted.

FIGURE 9

				PROJECT NAME:		Prop Centre Ave Development		BORING NO.		SB-9			
				LOCATION:		New Rochelle, NY		JOB NO.		10785			
				METHOD:		Hollow Stem Auger/Mud Rotary		GROUND ELEVATION:		95.5±			
BORING BY:			ETD		DATE STARTED:		6/24/2019		GROUNDWATER TABLE DEPTH				
INSPECTOR:			BU		DATE COMPLETED:		6/24/2019		0 Hr.	NE	Date 6/24/2019	24 Hr.	Date
DEPTH (ft)	SAMPLE No.	REC (in)	DEPTH		Blows on Spoon				N (bl/ft)	SOIL DESCRIPTION AND STRATIFICATION	Symbol		
			FROM (ft)	TO (ft)	0/6	6/12	12/18	18/24					
0			0.5		11	50/4"				4"± Asphalt over 2"± Gravel Subbase	USCS		
5	S-1	0		1.4						Fill: Light-brown coarse to fine SAND, some coarse to fine Gravel, little Silt, with brick and concrete fragments			
10	S-2	8	5		24	50/3"				Decomposed Rock			
				7									
15	C-1	54	10						3min	Core Run C-1: 10'-15'			
					REC=	54"/60"	=90%		3.5min	Gray slightly weathered Gneiss, hard, moderately fractured			
					RQD=	44"/60"	=73%		4.5min	(High angle foliation/banding)			
				15					3.5min				
20	C-2	60	15						4min	Core Run C-2 15'-20'			
					REC=	60"/60"	=100%		4.5min	Same			
					RQC=	43"/60"	=72%		4.5min				
				20					5min				
25	C-3	60	20						5min	Core Run C-3: 20'-25'			
					REC=	60"/60"	=100%		4.5min	Same, becoming very slightly fractured			
					RQC=	50"/60"	=84%		3min	Rec =100%			
				25					4min	RQD = 84%			
30									4.5min	BORING COMPLETED AT 25± FEET			
35													
40													

Nominal I.D. of Hole	in	The subsurface information shown hereon was obtained for the design and estimating purposes for our client. It is made available to authorized users only that they may have access to the same information available to our client. It is presented in good faith, but it is not intended as a substitute for investigations, interpretations or judgment of such authorized users. Information on the logs should not be relied upon without the geotechnical engineers recommendations contained in the report from which these logs were extracted.
Nominal I.D. of Split Barrel Sampler	1 3/8 in	
Weight/type of Hammer on Drive Pipe	300 lb	
Weight/type of Hammer on Split Barrel	140 lb	
Drop of Hammer on Drive Pipe	in	
Core Size	in	

Pp: Pocket Penetrometer; WOH: Weight of Hammer; WOR: Weight of Rod
 Approximate Change in Strata: _____ Inferred Change in Strata: _____

Soil descriptions represent a field identification after D. M. Burmister unless otherwise noted.

			PROJECT NAME: Prop. Centre Ave Dev.		GEOPROBE NO. GB - 11			
			LOCATION: New Rochelle, NY		JOB NO. 10785			
			METHOD: Direct Push		GROUNDWATER TABLE DEPTH:			
GEOPROBE BY: GBI			DATE STARTED: 6/19/2019		GROUNDWATER TABLE DEPTH:			
INSPECTOR: RAR			DATE COMPLETED: 6/19/2019		0 Hr. NE 6/19/2019 24 Hr. e			
DEPTH (ft)	RECOVERY (in)	SAMPLE TUBE No.	DEPTH		SOIL SAMPLE NAME	SOIL DESCRIPTION AND STRATIFICATION	PID	
			FROM (ft)	TO (ft)				
0	16	1	0			Fill: ± 3" Asphalt; Gray coarse to fine SAND, some coarse to fine Gravel, little Silt	0	
		1					0	
		1						0
		1		4			Fill: Red-brown/Light-brown coarse to fine GRAVEL, some coarse to fine Sand, trace Silt, with brick, concrete, and wood fragments	0
5	24	2	4				0	
		2			SB-11 Grab (5.5')	Fill: Light-brown coarse to fine SAND, some Silt, with wood, brick and concrete fragments	0	
		2		8		Fill: <u>Brown coarse to fine SAND, some Silt, little coarse to fine Gravel</u>	0	
10						End of Boring at ±8' Below Grade		
15								
20								
25								
30								
35								
40								

Nominal I.D. of Hole	in.
Nominal I.D. of Barrel Sampler	1 1/2 in.

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Pp: Pocket Penetrometer; DP: Direct Push

Approximate Change in Strata: _____ Inferred Change in Strata: _____

Soil descriptions represent a field identification after D. M. Burmister unless otherwise noted.

				PROJECT NAME: Prop. Centre Ave Dev.		GEOPROBE NO. GB - 12	
				LOCATION: New Rochelle, NY		JOB NO. 10785	
				METHOD: Direct Push		GROUND ELEVATION:	
GEOPROBE BY: GBI				DATE STARTED: 6/19/2019		GROUNDWATER TABLE DEPTH:	
INSPECTOR: RAR				DATE COMPLETED: 6/19/2019		0 Hr. NE	6/19/2019
						24 Hr.	Date
DEPTH (ft)	RECOVERY (in)	SAMPLE TUBE No.	DEPTH		SOIL SAMPLE NAME	SOIL DESCRIPTION AND STRATIFICATION	PID
			FROM (ft)	TO (ft)			
0							
5	16	1	0		Fill: ± 3" Asphalt; Red-brown/Light-brown coarse to fine GRAVEL, some coarse to fine Sand, little Silt, with brick, wood, and concrete fragments	0	
		1				0	
		1				0	
		1		4		0	
	40	2	4			0	
10		2			SB-12 Grab (6')	0	
		2			Fill: Light-brown coarse to fine SAND, some coarse to fine Gravel, little Silt, with asphalt and concrete fragments	0	
		2		8	Fill: Brown coarse to fine SAND, some Silt, little coarse to fine Gravel	0	
	8	3	8	9			
----- End of Boring at ±9' Below Grade							
15							
20							
25							
30							
35							
40							

Nominal I.D. of Hole	in.
Nominal I.D. of Barrel Sampler	1 3/8 in.

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Pp: Pocket Penetrometer; DP: Direct Push

Approximate Change in Strata: _____ Inferred Change in Strata: -----

Soil descriptions represent a field identification after D. M. Burmister unless otherwise noted.

FIGURE 13

				PROJECT NAME: Prop. Centre Ave Dev.		GEOPROBE NO. GB - 14			
				LOCATION: New Rochelle, NY		JOB NO. 10785			
				METHOD: Direct Push		GROUND ELEVATION:			
GEOPROBE BY: GBI				DATE STARTED: 6/19/2019		GROUNDWATER TABLE DEPTH:			
INSPECTOR: RAR				DATE COMPLETED: 6/19/2019		0 Hr. NE	6/19/2019	24 Hr.	Date
DEPTH (ft)	RECOVERY (in)	SAMPLE TUBE No.	DEPTH		SOIL SAMPLE NAME	SOIL DESCRIPTION AND STRATIFICATION	PID		
			FROM (ft)	TO (ft)					
0									
5	7	1	0		Fill: ± 5" Asphalt; Red-brown/Brown coarse to fine GRAVEL, some coarse to fine Sand, little Silt with brick and concrete fragments	0			
		1				0			
		1				0			
		1		4		0			
	37	2	4			0			
10		2			Fill: Light-brown/Brown coarse to fine SAND, some coarse to fine Gravel, little Silt	0			
		2				0			
		2		8		SB-14 Grab (8')	0		
	8	3	8	9		Highly Weathered Rock: Yellow-brown coarse to fine SAND, little Silt			
					End of Boring at ±9' Below Grade				
15									
20									
25									
30									
35									
40									

Nominal I.D. of Hole	in.
Nominal I.D. of Barrel Sampler	1 3/8 in.

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Pp: Pocket Penetrometer; DP: Direct Push

Approximate Change in Strata: _____ Inferred Change in Strata: _____

Soil descriptions represent a field identification after D. M. Burmister unless otherwise noted.

FIGURE 15

				PROJECT NAME:		Prop. Centre Ave Dev.		GEOPROBE NO.		GB - 15			
				LOCATION:		New Rochelle, NY		JOB NO.		10785			
				METHOD:		Direct Push		GROUND ELEVATION:					
GEOPROBE BY:				GBI		DATE STARTED:		6/19/2019		GROUNDWATER TABLE DEPTH:			
INSPECTOR:				RAR		DATE COMPLETED:		6/19/2019		0 Hr. NE 6/19/2019 24 Hr. Date			
DEPTH (ft)	RECOVERY (in)	SAMPLE TUBE No.	DEPTH		SOIL SAMPLE NAME	SOIL DESCRIPTION AND STRATIFICATION	PID						
			FROM (ft)	TO (ft)									
0	24	1	0			Fill: ± 4" Asphalt; Crushed brick with Light-brown coarse to fine SAND, some coarse to fine Gravel, little Silt, with concrete fragments	0						
		1					0						
		1					0						
		1		4	SB-15 Grab (3.5')		0						
		16	2	4			0						
5		2				Fill: Gray coarse to fine GRAVEL, some coarse to fine Sand, little Silt, with concrete fragments Possible Fill: <u>Brown coarse to fine SAND, some coarse to fine Gravel, little Silt</u> End of Boring at ±8' Below Grade	0						
		2					0						
		2		8			0						
10													
15													
20													
25													
30													
35													
40													

Nominal I.D. of Hole	in.
Nominal I.D. of Barrel Sampler	1 3/8 in.

The subsurface information shown hereon was obtained for the design and estimating purposes for our client. It is made available to authorized users only that they may have access to the same information available to our client. It is presented in good faith, but it is not intended as a substitute for investigations, interpretations or judgment of such authorized users. Information on the logs should not be relied upon without the geotechnical engineers recommendations contained in the report from which these logs were extracted.

Pp: Pocket Penetrometer; DP: Direct Push

Approximate Change in Strata: _____ Inferred Change in Strata: _____

Soil descriptions represent a field identification after D. M. Burmister unless otherwise noted.

				PROJECT NAME: Prop. Centre Ave Dev.		GEOPROBE NO. GB - 16		
				LOCATION: New Rochelle, NY		JOB NO. 10785		
				METHOD: Direct Push		GROUND ELEVATION:		
GEOPROBE BY: GBI				DATE STARTED: 6/19/2019		GROUNDWATER TABLE DEPTH:		
INSPECTOR: RAR				DATE COMPLETED: 6/19/2019		0 Hr. NE	6/19/2019	
DEPTH (ft)		RECOVERY (in)	SAMPLE TUBE No.	DEPTH (ft)		SOIL SAMPLE NAME	SOIL DESCRIPTION AND STRATIFICATION	PID
0				FROM	TO			
				(ft)	(ft)			
5		24	1	0			Fill: ± 3" Asphalt; Crushed brick and Concrete with Light-brown/ Brown/Red-brown Coarse to fine SAND, some coarse to fine Gravel, little Silt	0
			1					0
			1					0
			1		4			0
		24	2	4				0
			2					0
			2			SB-16 Grab (7')		0
			2		8			0
10		16	3	8		Fill: Brown coarse to fine SAND, some Silt, little medium to fine Gravel, with asphalt, brick, and concrete fragments		0
			3					0
			3		10	Highly Weathered Rock: Yellow-brown/Gray coarse to fine SAND, little Silt	0	
15						End of Boring at ±10' Below Grade		
20								
25								
30								
35								
40								

Nominal I.D. of Hole	in.
Nominal I.D. of Barrel Sampler	1 3/8 in.

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Pp: Pocket Penetrometer; DP: Direct Push

Approximate Change in Strata: _____ Inferred Change in Strata: _____

Soil descriptions represent a field identification after D. M. Burmister unless otherwise noted.

				PROJECT NAME:		Prop. Centre Ave Dev.		GEOPROBE NO.		GB - 17			
				LOCATION:		New Rochelle, NY		JOB NO.		10785			
				METHOD:		Direct Push		GROUND ELEVATION:					
GEOPROBE BY:				GBI		DATE STARTED:		6/19/2019		GROUNDWATER TABLE DEPTH:			
INSPECTOR:				RAR		DATE COMPLETED:		6/19/2019		0 Hr. NE 6/19/2019 24 Hr. Date			
DEPTH (ft)	RECOVERY (in)	SAMPLE TUBE No.	DEPTH		SOIL SAMPLE NAME	SOIL DESCRIPTION AND STRATIFICATION	PID						
			FROM (ft)	TO (ft)									
0	28	1	0		SB-17 VOC (3')	Fill: ± 3" Asphalt; Yellow-brown/Light-brown/Brown coarse to fine SAND, some coarse to fine Gravel, little Silt, with concrete and brick fragments	0						
		1					0						
		1					0						
		1		4			0						
		33	2	4			0						
5		2					0						
		2					0						
		2		8			0						
		12	3	8			9	0					
10						Highly Weathered Rock: Yellow-brown/Gray coarse to fine SAND, little coarse to fine Gravel, little Silt	0						
							0						
15						End of Boring at ±9' Below Grade							
20													
25													
30													
35													
40													

Nominal I.D. of Hole	in.
Nominal I.D. of Barrel Sampler	1 3/8 in.

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Pp: Pocket Penetrometer; DP: Direct Push

Approximate Change in Strata: _____ Inferred Change in Strata: _____

				PROJECT NAME: Prop. Centre Ave Dev.		GEOPROBE NO. GB - 18			
				LOCATION: New Rochelle, NY		JOB NO. 10785			
				METHOD: Direct Push		GROUND ELEVATION:			
GEOPROBE BY: GBI				DATE STARTED: 6/19/2019		GROUNDWATER TABLE DEPTH:			
INSPECTOR: RAR				DATE COMPLETED: 6/19/2019		0 Hr. NE	6/19/2019	24 Hr.	Date
DEPTH (ft)	RECOVERY (in)	SAMPLE TUBE No.	DEPTH		SOIL SAMPLE NAME	SOIL DESCRIPTION AND STRATIFICATION	PID		
			FROM (ft)	TO (ft)					
0	28	1	0			Fill: ± 4" Asphalt; Brown coarse to fine SAND, little coarse to fine Gravel, little Silt	0		
		1					0		
		1					0		
		1		4			0		
5	33	2	4		SB-18 VOC (6')	Fill: Brown/Light-brown/Red-brown coarse to fine SAND, some coarse to fine Gravel, little Silt, with brick, concrete and glass fragments	0		
							0		
10		2				Possible Fill: Brown coarse to fine Sand, some coarse to fine Gravel, some Silt	0		
		2			0				
		2		8	0				
		12	3	8	9		0		
15						End of Boring at ±9' Below Grade	0		
							0		
							0		
							0		
20						End of Boring at ±9' Below Grade	0		
							0		
							0		
							0		
25						End of Boring at ±9' Below Grade	0		
							0		
							0		
							0		
30						End of Boring at ±9' Below Grade	0		
							0		
							0		
							0		
35						End of Boring at ±9' Below Grade	0		
							0		
							0		
							0		
40						End of Boring at ±9' Below Grade	0		
							0		
							0		
							0		

Nominal I.D. of Hole	in.
Nominal I.D. of Barrel Sampler	1 3/8 in.

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Pp: Pocket Penetrometer; DP: Direct Push

Approximate Change in Strata: _____ Inferred Change in Strata: _____

Soil descriptions represent a field identification after D. M. Burmister unless otherwise noted.

				PROJECT NAME: Prop. Centre Ave Dev.		GEOPROBE NO. GB - 19	
				LOCATION: New Rochelle, NY		JOB NO. 10785	
				METHOD: Direct Push		GROUND ELEVATION:	
GEOPROBE BY: GBI				DATE STARTED: 6/19/2019		GROUNDWATER TABLE DEPTH:	
INSPECTOR: RAR				DATE COMPLETED: 6/19/2019		0 Hr. NE	6/19/2019 24 Hr. Date
DEPTH (ft)	RECOVERY (in)	SAMPLE TUBE No.	DEPTH		SOIL SAMPLE NAME	SOIL DESCRIPTION AND STRATIFICATION	PID
			FROM (ft)	TO (ft)			
0	28	1	0			Fill: ± 4" Asphalt; Brown coarse to fine GRAVEL, little Silt	0
		1					0
		1			SB-19 VOC (3.5')	Fill: Light-brown coarse to fine SAND, some coarse to fine Gravel, little Silt, with brick and concrete fragments	0
		1	4				0
5	22	2	4				0
		2					0
		2				Possible Fill: Brown coarse to fine SAND, little medium to fine Gravel, little Silt	0
		2	7.5			End of Boring at ±7.5' Below Grade	0
10							0
							0
							0
15							0
							0
							0
20							0
							0
							0
25							0
							0
							0
30							0
							0
							0
35							0
							0
							0
40							0

Nominal I.D. of Hole	in.
Nominal I.D. of Barrel Sampler	1 3/8 in.

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Pp: Pocket Penetrometer; DP: Direct Push
 Approximate Change in Strata: _____ Inferred Change in Strata: _____

				PROJECT NAME: Prop. Centre Ave Dev.		GEOPROBE NO. GB - 20	
				LOCATION: New Rochelle, NY		JOB NO. 10785	
				METHOD: Direct Push		GROUND ELEVATION:	
GEOPROBE BY: GBI				DATE STARTED: 6/19/2019		GROUNDWATER TABLE DEPTH:	
INSPECTOR: RAR				DATE COMPLETED: 6/19/2019		NE	6/19/2019
						24 Hr.	Date
DEPTH (ft)	RECOVERY (in)	SAMPLE TUBE No.	DEPTH		SOIL SAMPLE NAME	SOIL DESCRIPTION AND STRATIFICATION	PID
			FROM (ft)	TO (ft)			
0	21	1	0			Fill: ± 4" Asphalt; Brown coarse to fine SAND, little coarse to fine Gravel, little Silt	0
		1					0
		1				Fill: Light-brown coarse to fine SAND, some coarse to fine Gravel, little Silt, with brick and concrete fragments	0
		1		4			0
5	16	2	4				0
		2			SB-20 VOC (6')		0
		2				Possible Fill: Brown coarse to fine SAND, some Silt, little coarse to fine Gravel	0
		2		7.5		End of Boring at ±7' Below Grade	
10							
15							
20							
25							
30							
35							
40							

Nominal I.D. of Hole	in.
Nominal I.D. of Barrel Sampler	1 3/8 in.

The subsurface information shown hereon was obtained for the design and estimating purposes for our client. It is made available to authorized users only that they may have access to the same information available to our client. It is presented in good faith, but it is not intended as a substitute for investigations, interpretations or judgment of such authorized users. Information on the logs should not be relied upon without the geotechnical engineers recommendations contained in the report from which these logs were extracted.

Pp: Pocket Penetrometer; DP: Direct Push
 Approximate Change in Strata: _____ Inferred Change in Strata: _____

Definitions of Identification Terms for Granular Soils

Our experience has shown that the following field identification system, which is patterned somewhat after the Burmister System, permits a more detailed breakdown of the components within a soil sample than other identification systems allow. It also compels the supervising technician to examine a sample quite closely in order to accurately describe the components within the sample.

Principal Component (All Capitalized)

- GRAVEL More than 50% of the sample by weight is Gravel
- SAND More than 50% of the sample by weight is Sand
- SILT More than 50% of the sample by weight is Silt

Minor Component (Proper Case)

- Gravel Less than 50% of the sample by weight is Gravel
- Sand Less than 50% of the sample by weight is Sand
- Silt Less than 50% of the sample by weight is Silt

Proportion Terms

- and Component ranges from 35% to 50% of the sample by weight
- some Component ranges from 20% to 35% of the sample by weight
- little Component ranges from 10% to 20% of the sample by weight
- trace Component ranges from 0% to 10% of the sample by weight

Size of Soil Components

- Gravel
 - Coarse gravel ranges from 3 inches to 1 inch
 - Medium gravel ranges from 1 inch to 3/8 inch
 - Fine gravel ranges from 3/8 inch to No. 10 sieve
- Sand
 - Coarse sand ranges from No. 10 sieve to No. 30 sieve
 - Medium sand ranges from No. 30 sieve to No. 60 sieve
 - Fine sand ranges from No. 60 sieve to No. 200 sieve
- Silt
 - Material which passes the No. 200 sieve
- Clay
 - Material which passes the No. 200 sieve
 - Exhibits varying degrees of plasticity

Gradation Designations

- Coarse to fine (c-f) All fractions greater than 10% of the component
- Coarse to medium (c-m) Less than 10% of the component is fine
- Medium to fine (m-f) Less than 10% of the component is coarse
- Coarse (c) Less than 10% of the component is medium and fine
- Medium (m) Less than 10% of the component is coarse and fine
- Fine (f) Less than 10% of the component is coarse and medium

APPENDIX A

BORINGS BY GES P.C.

Log of Boring B-1W

Project: 327 - 339 Huguenot Street			Project Number: 2018058		
Location: NW Corner of Huguenot Street and Center Avenue, New Rochelle NY					
Date(s) Drilled	6/29/18 - 6/29/18	Inspector	Daniel George P.E. / Afaaz Saleem		Coordinates North: East:
Drilling Agency	DK Drilling of NY	Foreman	Herbert Mohlzahn		Approximate Surface Elevation (feet) 98.50
Drilling Equipment	CME Truck Rig	Drilling Method	Mud Rotary		Completion Depth (feet) 21.0 Rock Depth (feet) 6.0
Casing Size/Type	4" Steel	Size/Type of Bit	3-7/8" Roller Bit		Sampler Type(s) 2" Split Spoon
Groundwater Level and Date Measured	9.4 7/6/18	Hammer Wt/Drop	140/30" (Automatic)	Casing Hammer Wt/Drop	140/30" (Automatic) Size/Type of Core Barrel 2" NX
Boring Location See Boring Location Plan					No. of Samples Dist.: 6 Undist.: 0 Core (ft): 5

Depth, feet	Soil Samples			Rock Coring			Graphic Log	DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont. (%)	% Fines	REMARKS
	Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Run Number	Recov. (%)	RQD (%)							
0							~2" Asphalt						Cased to 9'. Advanced roller bit after sampling. Sample S-1: Dry
	S-1	0.6	13 11 8 5				FILL: Reddish brown Brick fragments, some Concrete fragments (GP)						
	S-2	0.6	4 8 4 7				FILL: Same as Above (GP)						Sample S-2: Dry
5	S-3	0.6	4 11 8 8				FILL: Same as Above (GP)						Sample S-3: Dry
	S-4	1.6	26 63 38 29				NATURAL: Decomposed Granite fragments and Silt (GM)						Sample S-4: Dry
	S-5	2.0	39 24 27 26				Same as Above (GM)						Sample S-5: Dry
10	S-6	0.2	100/6"				Rock fragments (GP)						Sample S-6: Dry
							Presumed same as Above						Advanced roller bit through decomposed rock to 16'
15													
				C-1	100	48	Hard to Intermediate, Slightly Weathered Gray Granite, broken to moderately jointed with weathered joints						
20													

Template: GENERAL GES LOGO Proj ID: NEW ROCHELLE.GPJ

Log of Boring B-1W

Project: 327 - 339 Huguenot Street	Project Number: 2018058
Location: NW Corner of Huguenot Street and Center Avenue, New Rochelle NY	

Depth, feet	Soil Samples			Rock Coring			Graphic Log	DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont. (%)	% Fines	REMARKS	
	Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Run Number	Recov. (%)	RQD (%)								
20														
25								Boring Completed to 21' Below Ground 21' PVC Well installed						
30														
35														
40														

Template: GENERAL_GES LOGO Proj ID: NEW ROCHELLE.GPJ

Log of Boring B-2

Project: 327 - 339 Huguenot Street			Project Number: 2018058		
Location: NW Corner of Huguenot Street and Center Avenue, New Rochelle NY					
Date(s) Drilled	6/29/18 - 6/29/18	Inspector	Daniel George P.E. / Aflaaz Saleem		Coordinates North: East:
Drilling Agency	DK Drilling of NY	Foreman	Herbert Mohlzahn		Approximate Surface Elevation (feet)
Drilling Equipment	CME Truck Rig	Drilling Method	Mud Rotary		Completion Depth (feet) 5.1 Rock Depth (feet) 0.5
Casing Size/Type	4" Steel	Size/Type of Bit	3-7/8" Roller Bit		Sampler Type(s) 2" Split Spoon
Groundwater Level and Date Measured	NA	Hammer Wt/Drop	140/30" (Automatic)	Casing Hammer Wt/Drop	NA
Boring Location See Boring Location Plan					No. of Samples Dist.: 3 Undist.: 0 Core (ft): 0

Depth, feet	Soil Samples			Rock Coring			Graphic Log	DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont. (%)	% Fines	REMARKS		
	Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Run Number	Recov. (%)	RQD (%)									
0			15					-2" Asphalt						Sample S-1: Dry	
	S-1	0.8	18					FILL: Brown coarse to fine Sand, some Concrete and Brick fragments, Gravel (SP-GP)							
	S-2	0.6	14					FILL: Reddish brown Brick fragments, some Concrete fragments (GP)							Sample S-2: Dry
	S-3a	0.5	9					FILL: Reddish brown Brick fragments (GP)							Sample S-3: Dry
5	S-3b	0.2	12					NATURAL: Decomposed Rock fragments (GP)						Decomposed rock jammed in sampler tip	
								Boring Completed to 5.1' Below Ground. Boring Backfilled with cuttings							
10															
15															
20															

Template: GENERAL GES LOGO Proj ID: NEW ROCHELLE.GPJ

Log of Boring B-3

Sheet 1 of 1

Project: 327 - 339 Huguenot Street				Project Number: 2018058			
Location: NW Corner of Huguenot Street and Center Avenue, New Rochelle NY							
Date(s) Drilled 6/28/18 - 6/28/18		Inspector Daniel George P.E.			Coordinates North: East:		
Drilling Agency DK Drilling of NY		Foreman Herbert Mohlzahn			Approximate Surface Elevation (feet) 95.50		
Drilling Equipment CME Truck Rig		Drilling Method Mud Rotary			Completion Depth (feet) 6.8		Rock Depth (feet) 5.0
Casing Size/Type 4" Steel		Size/Type of Bit 3-7/8" Roller Bit			Sampler Type(s) 2" Split Spoon		
Groundwater Level and Date Measured NA NA		Hammer 140/30" W/Drop (Automatic)		Casing Hammer W/Drop NA		Size/Type of Core Barrel NA	
Boring Location See Boring Location Plan					No. of Samples Dist.: 4 Undist.: 0 Core (ft): 0		

Depth, feet	Soil Samples			Rock Coring			Graphic Log	DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont. (%)	% Fines	REMARKS
	Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Run Number	Recov. (%)	RQD (%)							
0								~2" Asphalt Slab					
	S-1	0.2	7 6 8 3				X	FILL: Black Asphalt Fragments (GP)					Sample S-1: Moist
	S-2	0.2	4 1 1 5				X	FILL: Black Asphalt fragments and reddish brown Brick fragments, some coarse to fine Sand (GP)					Sample S-2: Moist
	S-3a	0.3	4 6				X	FILL: Brown coarse to fine Sand, some Concrete and reddish brown Brick fragments, Rock fragments, trace Silt (GP)					Sample S-3: Wet. Overdrove S-3 40/2". Spoon Wet at 5'
5	S-3b	0.2	23 33					NATURAL: Schist and Granite decomposed Rock fragments (GP)					
	S-4	0.7	80 117 1/4"					Same as Above (GP)					Sample S-4: Moist
								Boring Completed to 6.8' and backfilled with soil cuttings					
10													
15													
20													

Template: GENERAL GES LOGO Proj ID: NEW ROCHELLE.GPJ

Log of Boring B-4

Sheet 1 of 1

Project: 327 - 339 Huguenot Street				Project Number: 2018058			
Location: NW Corner of Huguenot Street and Center Avenue, New Rochelle NY							
Date(s) Drilled: 6/28/18 - 6/28/18		Inspector: Daniel George P.E.		Coordinates		North: East:	
Drilling Agency: DK Drilling of NY		Foreman: Herbert Mohlzahn		Approximate Surface Elevation (feet): 96.50			
Drilling Equipment: CME Truck Rig		Drilling Method: Mud Rotary		Completion Depth (feet): 9.1		Rock Depth (feet): 9.0	
Casing Size/Type: 4" Steel		Size/Type of Bit: 3-7/8" Roller Bit		Sampler Type(s): 2" Split Spoon			
Groundwater Level and Date Measured: NA		Hammer 140/30" Wt/Drop (Automatic)		Casing Hammer Wt/Drop 140/30" (Automatic)		Size/Type of Core Barrel: NA	
Boring Location See Boring Location Plan						No. of Samples Dist.: 4 Undist.: 0 Core (ft): 0	

Depth, feet	Soil Samples			Rock Coring			Graphic Log	DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont. (%)	% Fines	REMARKS
	Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Run Number	Recov. (%)	RQD (%)							
0							~4" Asphalt Slab						
	S-1	0.3	12 13 10 12				FILL: Reddish brown Brick fragments and gray Gravel, some brown coarse to fine Sand (GP)						Sample S-1: Dry
	S-2	0.5	15 16 23 12				FILL: Reddish brown Brick fragments (GP)						Sample S-2: Dry
5	S-3	0.2	7 6 4 6				FILL: Reddish brown Brick fragments and gray Concrete fragments, some coarse to fine Sand (GP)						Sample S-3: Dry
	S-4a	0.1	8 4 7 11				FILL: White Gravel (GP)						Gravel Stuck in Sampler Tip. Readvanced Spoon and encountered Decomposed Rock in tip of spoon.
	S-4b	0.1					NATURAL: Decomposed Rock fragments (GP)						Tried to advance 4" casing, no advancement and could not overream hole. Hole abandoned and offset 2' North
10								Boring Completed to 9.1' Below Ground					
15													
20													

Template: GENERAL GES LOGO Proj ID: NEW ROCHELLE.GPJ

Log of Boring B-4AW

Project: 327 - 339 Huguenot Street				Project Number: 2018058			
Location: NW Corner of Huguenot Street and Center Avenue, New Rochelle NY							
Date(s) Drilled 6/28/18 - 6/28/18		Inspector Daniel George P.E.			Coordinates North: East:		
Drilling Agency DK Drilling of NY		Foreman Herbert Mohlzahn			Approximate Surface Elevation (feet) 96.50		
Drilling Equipment CME Truck Rig		Drilling Method Mud Rotary			Completion Depth (feet) 19.3		Rock Depth (feet) 9.0
Casing Size/Type 4" Steel		Size/Type of Bit 3-7/8" Roller Bit			Sampler Type(s) 2" Split Spoon		
Groundwater Level and Date Measured 10.3 7/6/18		Hammer 140/30" Wt/Drop (Automatic)		Casing Hammer 140/30" Wt/Drop (Automatic)		Size/Type of Core Barrel 2" NX	
Boring Location See Boring Location Plan					No. of Samples Dist.: 0 Undist.: 0 Core (ft): 5		

Depth, feet	Soil Samples			Rock Coring			Graphic Log	DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont. (%)	% Fines	REMARKS
	Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Run Number	Recov. (%)	RQD (%)							
0							~4" Asphalt Slab	Advanced without Sampling to 9'. Please refer to Log for B-4 for soil information					Advanced 4" Casing to 9'
5													
10													Weathered Rock in wash from 9' to 14.3'. Soft when cut through with roller bit
15	19.3			C-1	100	56		Hard to Intermediate, slightly to moderately Weathered, Gray and brown Granite and Schist broken to jointed, iron-stained joints [1b]					
20								Boring Completed to 19.3' Below Ground. 19' PVC Well Installed					

Template: GENERAL GES LOGO Proj ID: NEW ROCHELLE.GPJ