

### Geotechnical Engineering Services, P.C.

November 26, 2019

Mr. Brian Tierney 10 Baldwin Yonkers AMS LLC 595 Madison Avenue, Suite 1101 New York, NY 10022

Re: Supplemental Geotechnical Letter Report – Rock Investigation North Broadway Assemblage Yonkers, New York

#### Dear Brian:

In accordance with your request and our October 15, 2019 proposal, this letter report presents the results of our supplemental investigation conducted along and near North Broadway in Yonkers, New York. As stated in our proposal, and in order to supplement the rock data collected during our April 2019 preliminary geotechnical investigation, the purpose for our supplemental investigation was to provide additional rock type, quality, and top of rock elevation across in various locations across the proposed North Broadway Assemblage in Yonkers, New York.

Based on recent discussions between you and Mr. Ziad H. Maad, P.E., D. GE. of Geotechnical Engineering Services, P.C. (GES), we understand the project site occupies several lots spanning the western ends of Baldwin Place, Overlook Terrace, extending down a steep tree-covered slope, through select lots to North Broadway in the City of Yonkers, New York. We understand the lots/addresses proposed to be part of the new development include the following addresses. Our preliminary geotechnical investigation was performed at the addresses noted in *italics* below, while our supplemental investigation was performed where noted in **bold** below. The outline of the proposed site is shown on the attached Site Location Plan:

- 2 Baldwin Place Open lot covered by trees and debris
- 10 Baldwin Place Two-story house and surrounding yard and trees
- 23 Overlook Terrace Five-story building and trees
- 14 Overlook Terrace Tree-covered open lot
- <u>30-32 North Broadway</u> Two-story (plus cellar) building and rear yard.
- 28 North Broadway Two-story building plus rear yard
- <u>20-24 North Broadway</u> Four-story building (24 North Broadway) and three-story building (plus cellar) (20-22 North Broadway)
- <u>18 North Broadway</u> Two-story building

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Based on the architectural renderings provided to us, we understand the proposed development includes the construction of several new buildings of varying height across the combined footprint of the above-mentioned lots, which adds up to over 50,000-square-feet in footprint area. In the area of 10 Baldwin Place, a 10-story residential building will be constructed with one level of parking beginning approximately 55 feet above North Broadway. In the area of 23 Overlook Terrace, a 9-story residential building will be constructed beginning approximately 55 feet above the elevation of North Broadway, with an additional 2 levels of underground parking.

GES did not perform any surveying and solely relied on our information as measured in the field from fixed locations, as well as an August 29, 2019 plan of existing ground elevations by Empire State Layout, Inc. of the proposed site. All elevations noted in this survey and in our letter, report refer to the North American Vertical Datum of 1988 (NAVD 88).

#### **METHODOLOGY**

Borings were performed at a total of seven (7) locations, referred to as B-3 through B-9. Several attempts were made to reach top of rock in Borings B-6 and B-9, which have been noted in this report as B-6A, B-6B, B-6C, and B-9A, B-9B, B-9C, and B-9D. Multiple attempts at each borehole became necessary as rock was not encountered prior to the borehole collapsing. Therefore, a total of twelve (12) borings were performed at the locations shown in updated Boring Location Plan attached to this letter report. This plan also includes the borings performed during our preliminary geotechnical investigation in April 2019. Borings B-3 through B-5 are geotechnical borings drilled by Big Apple Testing of Ozone Park, New York utilizing an Acker Soil Scout Track Drill Rig from November 5 to 7, 2019. Borings B-6 through B-9 are open-hole borings were drilled by Siteworks, Inc. of New York, New York, utilizing a Furukawa Rock Drill from November 12 to 13, 2019. All borings were inspected on a full-time basis by Messrs. Daniel George, P.E. and Michael Torino, P.E. of GES.

As stated by our proposal, our general methodology was to not perform any SPT split-spoon soil sampling for this investigation, as top of rock and rock quality were the focus of our supplemental investigation. Upon encountering top of rock in Borings B-3, B-4, and B-5, rock core drilling was performed using an NX-size core barrel with a diamond bit. The length of recovery and Rock Quality Designation (RQD) were measured and calculated for each rock core run, and denoted as a percent recovery and percent RQD, respectively. RQD refers to the sum of the lengths of rock core pieces four inches or longer, neglecting mechanical breaks, expressed as a percentage of the total length of the core run. Percentage recovery and RQD, and rock sample descriptions are included on the boring logs, attached as Appendix A.

In Borings B-6 through B-9, an air hammer was used to open-hole drill through the soil to the underlying bedrock, using air as the main flushing medium. If bedrock was encountered, the air hammer continued into the bedrock, in order to open a hole large enough to perform a video inspection. Following completion of the rock socket drilling, An HD down-the-hole camera was lowered into the borehole, and the surface of the rock socket was inspected, under the continuous inspection of Mr. Michael Torino, P.E., a NYS-licensed Professional Engineer. The camera was operated by Mr. Aflaaz Saleem of GES.

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A general discussion of the findings from each boring is shown below. All depths noted are from surrounding ground surface:

- Boring B-3 was drilled within the open yard of 10 Baldwin Place, just north of the residential building at 25 Overlook Terrace to a depth of 16.7 feet (about el. +98.3), from about el. +115. Top of competent rock was encountered at a depth of 6.7 feet (about el. +108.3). Top of weathered rock was encountered at about el. +109.
- Boring B-4 was drilled within the wooded sloped area of 2 Baldwin Place, just south of the northern property line, to a depth of about 16 feet (about el. +78), from about el. +94. Top of competent rock was encountered at a depth of 14 feet (about el. +80).
- Boring B-5 was drilled within the wooded sloped area of 2 Baldwin Place just east of the west property line, to a depth of about 16.5 feet (about el. +75.5), from about el. +90. No bedrock was encountered.
- Boring B-6A, B-6B, and B-6C were drilled within the walkway, just west of the building at 23 Overlook Terrace, from about el. +100. All three (3) borings were drilled to a depth of 24 feet (about el. +76), without encountering bedrock.
- Boring B-7 was drilled within the wooded sloped area of 14 Overlook Terrace just south of Overlook Terrace from about el. +104 to a depth of 22 feet (about el. +82). Possible top of rock was encountered at 11 feet (about el. +93), but not be seen during video inspection.
- Boring B-8 was drilled within the wooded sloped area of 14 Overlook Terrace, about 34 feet south of Boring B-7, from about el. +94 to a depth of 21 feet (el. +73). Top of competent bedrock was encountered at 8.5 feet (about el. +85.5). Top of weathered rock was encountered at 6.8 feet, or about el. +87.2.
- Boring B-9A, B-9B, B-9C, and B-9D were drilled within the wooded sloped area of 14 Overlook Terrace from about el. +93 to +94. Borings B-9A, B-9B, and B-9D were drilled to 24 feet (about el. +69), and Boring B-9C was drilled to 15 feet (about el. +78) without encountering competent bedrock. Possible weathered bedrock was encountered at a depth of 16 feet (about el. +78) in Boring B-9D. However, the borehole could not be video-inspected, as it had collapsed.

For Borings B-3, B-4, and B-5, rock core samples were arranged and organized in wooden five-foot-long core boxes, labeled with project name and number, boring number, sample number, depth of sample, and core recovery and RQD percentages. All core samples were transported to Big Apple Testing's Office for storage.

#### SUBSURFACE CONDITIONS

The boring logs are attached to this letter report. As stated above, the purpose for this investigation was to determine the top of rock, and perform rock core video inspection to observe and document the rock quality at the boreholes. Soil sampling was not part of our investigation. As such, the soil encountered has not been discussed below in our assessment of subsurface conditions. Also, our preliminary investigation labeled the bedrock as Stratum 3. The stratum descriptions below

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delineate Stratum 3 into Stratum 3a and 3b. As noted above, Borings B-5, B-6A, B-6B, B-6C, B-9A, B-9B, and B-9C did not encounter rock, and are not discussed below. All depths noted below are from top of surrounding grades. The following general descriptions of the subsurface strata are based on our interpretations of the results of the field investigation:

Stratum 3a – Weathered/Decomposed Bedrock: Stratum 3a is generally regarded as highly fractured and weathered gray mica schist bedrock. Stratum 3a was encountered in Boring B-3 from about el. +109 to +108.3 (0.7-feet-thick), in Boring B-8 from about el. +87.2 to +85.5 (2.3-feet-thick), and in Boring B-9D from about el. +78 to +70. Boring B-9D was terminated in Stratum 3a after extending about 8 feet into the weathered/decomposed bedrock. However, this could not be confirmed, as the borehole collapsed following drilling. No rock core or split-spoon sampling was performed within this layer and thicknesses were presumed based on drill cuttings encountered at the surface, other observations during drilling, or by use of the HD down-the-hole camera following drilling completion (of Borings B-6A through B-9D).

<u>Stratum 3b – Bedrock</u>: This stratum was encountered in Borings B-3, B-4, B-7, and B-8, and can be classified as medium hard to hard, slightly weathered, gray mica schist, jointed with weathered and iron-stained joints. Stratum 3b was cored from about el. +108.3 to +98.3 in Boring B-3 and from about el. +80 to +78 in Boring B-4, where these borings were terminated after confirming rock quality. Rock core recoveries ranged from 93 to 100 percent, while RQD ranged from 75 to 79 percent. The bottom five (5) feet of the rock core run in Boring B-3 could not be retrieved from the borehole, as the core barrel jammed, though is presumed to be the same based on observations during drilling.

The bedrock was video-inspected using the HD down-the-hole camera in Borings B-7 and B-8, which indicated the medium hard to hard gray mica schist. Stratum 3b was encountered at these borings from about el. +93 to +82, and from +85.5 to +73, respectively.

#### **GROUNDWATER OBSERVATIONS**

No groundwater monitoring wells were installed as part of this investigation, as this was not the purpose for the investigation. We will perform groundwater level monitoring at the site by installation of piezometers, and the performance of the remaining geotechnical borings, as part of our final geotechnical investigation, once the site has been cleared of buildings and trees and is free and open to access anywhere on-site.

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If you have any questions or would like to discuss the contents of this letter, please don't hesitate to call me in the office at 914-592-4616 or on my mobile at 973-727-7329.

Very truly yours,

Geotechnical Engineering Services, P.C.

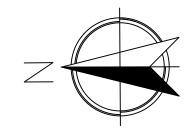
Ziad H. Maad, P.E., D. GE.

Ziad H. Maad, P.C.

### **Attachments:**

- Drawing No. B-101.01 Boring Location Plan
- Geotechnical Boring Logs





# **LEGEND**

B-1



2019 GES Boring

-				
١				
	1	ADDED B-3 THROUGH B-9D	11-18-19	DJG
	No.	DESCRIPTION	DATE	BY

## **GES GEOTECHNICAL ENGINEERING** SERVICES, P.C.

6 BAYBERRY ROAD ELMSFORD, NEW YORK 10523 PHONE: 914-592-4616 FAX: 914-592-0416

> **NORTH BROADWAY ASSEMBLAGE** YONKERS, NY

BLOCK:

ZONE:

**BORING LOCATION PLAN** 

UNAUTHORIZED ALTERATION OR ADDITION TO THIS PLAN IS A VIOLATION OF SECTION 7209 OF THE NYS EDUCATION LAW. COPIES OF THIS PLAN NOT BEARING THE PROFESSIONAL ENGINEER'S INKED SEAL OR EMBOSSED SEAL SHALL NOT BE CONSIDERED TO BE A VALID TRUE COPY.

	PROJECT #:	2019038
	SCALE:	NTS
	DATE:	4/22/2019
	DRAWING NO:	B-101.01
PROFESSIONAL ENGINEER	SHEET NO:	1 05 1

1 OF 1

roject: North Broadway Assemblage	Pro	ject	Nu	mb	er: 2019038
ocation: 10 Baldwin Place, Yonkers, NY	-				
te(s) 11/5/19 - 11/5/19 Inspector Daniel George, P.E.	Coord	linate	es I	Norti East	h: :
illing ency Big Apple Testing, Inc Foreman Rob	Appro Eleva	xima tion	ate S (feet	urfa	ce <b>± 115</b>
illing Acker Soil Scout Track Drilling Method Mud Rotary	Comp			16.7	T
sing 4" Steel Size/Type of Bit 3-7/8" Roller Bit	Samp Type(:	ler s)		N/	4
oundwater Level NA Hammer NA Casing Hammer Wt/Drop NA Wt/Drop 140/30" (Safety)	Size/T Core I	Type Barre	of el	2"	NX (Double Tube)
ring Location See Boring Location Plan (Figure 1)	No. o	f Sa <b>st.: (</b>	mple )	es Uno	dist.: 0 Core (ft):1
Soil Samples Rock Coring			(%)		
Number Recov. (ft) Run Number Number Rabist. (blows/6 in) Rabic Log Graphic Log	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS
FILL: Advanced Roller Bit to 3.1 ft without Sampling.					Fill at grade
Presumed Fill.	-				Drove Casing to 3 ft
C-1 62 0 Gray Cobble	. <b>_</b> -				Hard drilling at 3 ft, losing water Cored through cobble from 3 to 4 ft
Advanced Roller bit to 6.7 ft without sampling	· <del>-</del> - - ·				Possible Decompose
Medium Hard to Hard, slightly weathered Gray Mica Schist, Jointed with weathered and iron-stained joints	- - -				Rock, Hard drilling at ft Losing water through coring Casing advanced to 7
<b>0</b> -	- - -				Tan wash while coring C-2 and C-3
Presumed Same as Above.	- - -				
Boring Completed to 16.7 ft below ground. As of	-				Core barrel jammed in hole after boring completion.
Boring Completed to 16.7 ft below ground. As of November 13, 2019 Big Apple has not removed casing and core barrel from boring.	- -				
GES D C					

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Agency Drilling	ý		Apple					Foreman Rob	Elev	ation	ı (fe	et)		± 94
Equipn Casing	nent		er Soi	I Scou	ıt Trac	ck		Drilling Mud Rotary  Size/Type 3.7/8" Poller Bit	Com Dept Sam		eet)		5.0	Rock Depth (feet) 14.0
Size/T	ype		Steel NA	<b>.</b>				of Bit 3-770 Koller Bit	Size. Core		e of			Split Spoon  NX (Double Tube)
and Da			NA e Bori		cation	Dlan	/Figur	Hammer Wt/Drop 140/30" (Safety) Casing Hammer Wt/Drop 140/30" (Safety)	No.	of Sa	amı	ples	 S	
Domig		Sam		Ě	k Co		(i igui	9 1)	$\frac{\Box}{\Box}$	ist.:	1	L	Jnd	ist.: 0 Core (ft):
Depth, feet	Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Run Number	Recov. (%)	RQD (%)	Graphic Log	DESCRIPTION	timi   Pinioi	Plastic I imit	Motor Cost (0)	water Cont.(%)	% Fines	REMARKS
O - - -	<u> </u>	I.C.	T)	K 2	L.C.			FILL: Advanced roller bit to 4.6 ft without sampling. Presumed Fill.	+		-   -	> (	_	Fill at grade
5-			8					FILL:	- - -					Drove casing to 3 f Tan wash while dril  Hard drilling at 4.5
-	S-1	0.1	7				7.0	Black Silty medium to fine Sand, trace metal fragments  Advanced roller bit to 7 ft without sampling  Gray cobbles and boulders						Advanced casing to Losing water while drilling from 4 to 7 ft
10-				C-1	37	0		Gray cobbles and boulders	- - -				- 1	Hard drilling at 7 ft Losing water through coring C-1, C-2, C-3
-				C-2	50	0		Gray cobbles and boulders						
15-				C-3	100	79		Medium Hard, slightly weathered Gray Mica Schist.  Moderately weathered at joints	_					Barrel clogged at 14 Removed barrel and then resumed coring from 14 to 16 ft.
- - -								Boring Completed to 16 ft below ground and backfilled with soil cuttings	-					
20														

Project: North Broadway Assemblage	)	Proj	ect	Nu	mb	er: 2019038
Location: 60 North Broadway, Yonkers, N	I					
Data(a)		Coord	inate	es E	North East:	1:
Drilling	reman <b>Rob</b>	Appro: Elevat	xima	te S	urfac	e <b>± 90</b>
	ling Mud Rotary	Compl			16.5	Rock Depth (feet)
Casing 4" Steel Size/Type of E	e/Type 2 7/9" Ballor Bit	Sampl Type(s	ler		NA	
		Size/T Core E	ype Barre	of el	2"	NX (Double Tube)
Boring Location See Boring Location Plan (Figure 1)		No. of <b>Dis</b>	f Sai st.: (	mple	es Und	list.:0 Core (ft):1
Soil Samples Rock Coring			Ţ	(%):		
Type, Number Recov. (ft) Recov. (ft) Run Number Recov. (%) RQD (%) Graphic Log	DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS
O A F	Advanced roller bit to 6.5 ft without sampling. Presumed fill from 0 to 3 ft	-				Fill at grade
		_				Tan return from 3 to 6 ft  Drove casing to 4 ft
5- - -	Gray cobbles and boulders	- - -				Hard drilling at 6.5 ft Cored 6.5 to 11.5.
C-1 40 0		-				Losing water througho
10-	Gray cobbles and boulders	- - - -				Cored 11.5 to 16.5. Losing water througho
C-2 20 0		- -				coring
15- - - - - - - - - - - - - - - - - - -	sig Apple refused to core a third run in this location due o water loss. Boring completed to 16.5 ft and backfilled					
	with soil cuttings	- -				
20						

Loca Date(s	ect:	14011	יום וו	Jauv	vay r	7335										
		25 C	verlo	ok T									,000			er: 2019038
				11/12/		, 10	JIINGI	Inspector	Michael Torino	o, P.E. / Aflaaz		Coord	linate	es !	lorth	n:
Drilling	a		works					Foreman	Saleem Hector			Appro	xima	ate S	urfac	e e
Agenč Drillino					, Dia							Eleva Comp Depth			24.0	# 100  Rock Depth (feet)
Drilling Equipr Casing	q	NA	ıkawa	Track	KRIG			Drilling Method Size/Type	Air Hammer 3-7/8" Rock Ha	mmor		Samp	ler	t) <b>-</b>	NA	
Size/T Groun	ype dwater	Level	NA					of Bit		Casing Hammer		Γypë( Size/↑ Core		of	NA	
and Da	ate Mea	asured			nation	Dlan		Hammer NA Wt/Drop	•	Wt/Drop NA		Core No. o				·
Donnig	_						(Figur	e 1)				Di	st.: (	)	Ůnc	list.: 0 Core (ft)
	5011	Sam		Roc	k Co	ring	1					 ≓	Ħ	Cont.(%)		
Depin, feet	Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Run Number	Recov. (%)	RQD (%)	Graphic Log		DESC	CRIPTION		Liquid Limit	Plastic Limit	Water Col	% Fines	REMARKS
0-									with air hamme ill from 0 to 7 ft	r directly to top of bedroo	ck.	-				Fill at grade. Dark brown return
_								_				_				Soil classifications noted based on was from top of borehold
<b>5</b> —								Tan Silty f	ine Sand			-				Tan return
-								(SM)				_				Gray return and rig
10-								Tan Silty f				-				chatter from 9 to 10
15-											,	-				
_												_				Hole collapsing at 1 3" PVC added to to boulder and attemp to continue drilling.

	Soil Samples Rock Corin				(9)				mit	imit	ont.(%)		
Lebili, Leet 20–	Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Run Number	Recov. (%)	RQD (%)	Graphic Log	DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS
- - -									-				
<b>25</b>								Boring collapsing at 24 feet. Bedrock not encountered. Backfilled with soil cuttings upon completion					
30-									_				
- 35													
40-									_				

Proj	ect:	Nort	h Br	oadv	vay A	\sse	mbla	ige .	F	roj	ect	Nu	mb	er: 2019038
Loca	tion:	25 C	verlo	ook T	errac	e, Yo	onker	s, NY						
Date(s Drilled	s)	11/1	2/19 -	11/12	/19			Inspector Michael Torino, P.E. / Aflaaz Saleem	Co	ord	inate	es I	Norti East:	<b>1</b> :
Orilling Agenc	7	Site	works	, Inc				Foreman <b>Hector</b>	A E	pro eva	xima tion (	te S	urfac	t 100
Drilling Equipr	ו	Fur	ukawa	Track	Rig			Drilling Method Air Hammer	Co	mp epth	letio (fee	n t)	24.0	Rock Depth (feet) NA
Casing Size/T	g ype	NA						Size/Type of Bit 3-7/8" Rock Hammer	Sa	mp pe(:	ler		NA	
Ground	dwater ate Mea	Level	NA NA					Hammer Wt/Drop NA Casing Hammer Wt/Drop NA	Si	ze/T ore I	ype Barre	of el	NA	1
Boring	Location	on <b>Se</b>	e Bori	ng Lo	cation	Plan	(Figur	·	N	D. 0	f Sa <b>st.: (</b>	mple	es Unc	list.:0 Core (ft):
	Soil	Sam		Roc	k Co	ring						(%)		
Deptn, feet	Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Run Number	Recov. (%)	RQD (%)	Graphic Log	DESCRIPTION		Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS
0-								Advanced with air hammer directly to top of bedrock. Possible Fill from 0 to 6.5 ft	-	_				Fill at grade. Dark brown return  Soil classifications noted based on was from top of borehole
5—								Gray Cobble Tan Silty medium to fine Sand	- - - 					Gray return and rig
- 10-								Tan Silty medium to fine Sand (SM)	-					Tan return
- 15—									- - -					
20-									_					

	Soil Samples Rock Coring	<u> </u>											
feet	Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Run Number	Recov. (%)	RQD (%)	Graphic Log	DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS
20-													
<b>25</b> —								Boring collapsing at 24 feet. Bedrock not encountered. Backfilled with soil cuttings upon completion					
30-									_				
35— - -									_				
40-									-				

Project	Nort	h Br	oadv	vay A	Asse	mbla	age					Pro	ojec	t N	umk	per: 2019038
Location	n: 25 C	verlo	ook T	errac	e, Yo	onke	rs, NY									
Date(s) Drilled			11/12				Inspector	Michael Saleem		, P.E. / Aflaaz		Coor	dina	ites	Nor	th:
Drilling	Site	works	. Inc				Foreman	Hector				Appr	oxin	nate	Surfa	ace
Agency Drilling			Track	Ria			Drilling Method	Air Ham	mer			Com	pleti	on	24.0	t 100  Rock Depth NA
Equipment Casing Size/Type	NA NA			9			Size/Type of Bit	3-7/8" R		mmer		Sam	pler	et)	N.	•
Groundwat	er Level	NA					Hammer N/			Casing Hammer		Size/ Core		e of	N.	
and Date M Boring Loc				cation	Plan	(Figu				Wt/Drop NA		No.	of S	rei amp		dist.: 0 Core (ft): 0
	il Sam			k Coı			<u> </u>					<u> </u>	IST.:	0   	Un	dist.: 0 Core (π): 0
Depth, feet Type,		sist. in)	Run Number	Recov. (%)	RQD (%)	Graphic Log			DESC	CRIPTION		imi   binoi	Plactic Limit	Water Cont (%)	% Fines	REMARKS
5-							Advanced Possible	d with air h		directly to top of be	edrock.	-				Fill at grade. Dark brown return  Soil classifications noted based on wash from top of borehole  Tan return
10-							-					-				
15 -							Gray Cob Tan Silty (SM)	oble fine Sand	 			- - - - -				Gray return and chattering from 16 to ft Tan return
20							-									

# Log of Boring B-6c

Project: North Broadway Assemblage Project Number: 2019038

	Soil	Soil Samples Rock Corin									(%)		
Leet Callin	Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Run Number	Recov. (%)	RQD (%)	Graphic Log	DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS
-								-	-				
25-								Boring collapsing at 24 feet. Bedrock not encountered. Backfilled with soil cuttings upon completion	-				
-								-	-				
30-								- - -					
-								-					
35-								-					
40-								-					
-								-	=				

Proj	ect:	Nort	h Br	oadv	vay A	Asse	mbla	age				Pro	ect	Nu	mb	er: 2019038
Loca	ation:	16 C	verlo	ook T	errac	e, Yo	onkei	rs, NY								
Date(s	s) d	11/1	2/19 -	11/13	/19			Inspector	Michael Torin Saleem	o, P.E. / Aflaaz		Coord	inate	es E	Norti East	<b>1</b> :
Drillino Agend	a	Site	works	, Inc				Foreman	Hector			Appro	xima	te S	urfac	ce ± 104
Drillino Equipi	a	Fur	ukawa	Track	k Rig			Drilling Method	Air Hammer			Comp			22.0	Rock Depth (feet) 11.0
Casino Size/T	g vpe	NA						Size/Type of Bit	3-7/8" Rock H	ammer		Samp Type(	ler	,	NA	
Groun	dwater ate Mea	Level	NA NA					Hammer NA Wt/Drop	<b>L</b>	Casing Hammer Wt/Drop NA		Size/7 Core		of el	NA	1
	J Locati				cation	Plan	(Figur			The INCA		No. o		mple	es Una	list.:0 Core (ft):
	Soil	Sam	ples	Roc	k Co	ring										ilotii g Goro (ity)
Deptin, feet	Type, Number	Recov. (ft)	ist. in)	Run Number	Recov. (%)	RQD (%)	Graphic Log		DES	CRIPTION		Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS
0-	· -								with air hamm	er directly to top of	bedrock.	╫		_		Dark brown return
- - 5- -																Soil classifications noted based on was from top of borehole
10-								Possible (to video bunable to	Gray Mica Schi orehole with HI see	st from 11 to 22 ft. / ) down-the-hole ca	Attempted mera, but	- - - - -				Gray return and Hard drilling from 11 to 22 3" PVC added to bor to hold open
												-				

	Soil Samples Rock Co			ring					(%)				
Depth, feet	Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Run Number	Recov. (%)	RQD (%)	Graphic Log	DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS
20-								_					
- -								Boring Completed to 22 ft below ground and backfilled with Soil cuttings.					
25-								<u> </u>					
-													
-								_	_				
30-									_				
-								-					
- -								<u>-</u> -					
35-									   				
-									-				
-								_					
40-													
-								-	-				
								—— GES P.C. ———					

Proje												Pro	ject	Nu	mb	er: 2019038
		16 C	verlo	ook T	errac	ce, Yo	onke	rs, NY		DE / **						
Date(s) Drilled		11/1	3/19 -	11/13	/19			Inspector	Michael Torin Saleem	o, P.E. / Aflaaz		Coord		" E	Norti East	1
Drilling Agency	,	Site	works	, Inc				Foreman	Hector			Appro Eleva	xima tion (	te S	urfad )	± 94
Drilling Equipm	ent	Fur	ıkawa	Track	Rig			Drilling Method	Air Hammer			Comp Depth	letio (fee	n t) 2	21.0	Rock Depth (feet) 6.8
Casing Size/Ty		NA						Size/Type of Bit	3-7/8" Rock H	ammer		Samp Type(	ler s)		NA	
Ground and Dat	water	Level	NA NA					Hammer NA Wt/Drop	1	Casing Hammer Wt/Drop <b>NA</b>		Size/ Core	ype Barre	of el	NA	
Boring l	Locati	on <b>Se</b>	e Bori	ng Lo	cation	Plan	(Figu			, , ,		No. o	f Sa	mple	es Una	dist.:0 Core (ft):0
	Soil	Sam		Roc	k Co	ring						T		(%		
Depth, feet	Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Run Number	Recov. (%)	RQD (%)	Graphic Log		DES	CRIPTION		Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS
0								Advanced Dark brow (SP)	l with air hamm <sub>V</sub> n Sand	er directly to top of be	edrock.	-				Dark brown return  Soil classifications noted based on wash from top of borehole
5-								(SM)	ble medium to fine actured Gray M			- - -				Tan return from 5 to 8
-								Gray Mica	a Schist, few fra	ictures		- - -				Gray return and Hard drilling from 8 to 21 ft
10-												-				Used HD Down the h camera to video borir to a depth of 13.5 ft. Heavily fractured mics schist was seen from 6.8 to 8.5 ft and competent mica schis from 8.5 to 13.5 ft
15-												_				Groundwater observe on video at 13.5 ft. Unable to see below water.
20												-				

-GES P.C.

	Soil	Sam	ples	Roc	k Co	ring			<u></u>	it	ıt.(%)		
Lebru, feet – <b>20</b>	Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Run Number	Recov. (%)	RQD (%)	Graphic Log	DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS
-								Boring completed to 21 ft below ground, and backfilled with Soil cuttings.					
- <b>25</b>								- - - -					
30-													
35-								- - - -					
<b>40</b> —													

Proie	ect.	Nort	h Br	oadv	vav A	) SSE	mbla		or Bornig	<u>,                                     </u>		Pro	iect	· Nu	mb	er: 2019038
								rs, NY					,			
Date(s Drilled				11/13/		, i (	, ivel	Inspector	Michael Torino	o, P.E. / Aflaaz		Coord	linate	es !	Norti	h:
Drillina	1							Foreman	Saleem Hector			Appro	xima	ate S	East: urfac	ce
Agency	y		works		- D:							Eleva Comp Deptr	tion	(feet)	) 24.0	± 93
Drilling Equipn Casing	1	NA	ıkawa	Track	KRIG			Drilling Method Size/Type of Bit	Air Hammer 3-7/8" Rock Ha			Samp	ler	et) <b>*</b>	NA	(leet)
Size/Ty	ype dwater ate Mea		NA					of Bit Hammer Wt/Drop		Casing Hammer		Type( Size/ Core		of	NA	
				ng Loc	cation	Dlan			1	Wt/Drop NA		No. o	f Sa	mple	es	
boning		Sam			k Co		(i igui					Di	st.: (	<u> </u>	Und	dist.: 0 Core (ft):
	3011			Noc								#	ı <u>i</u>	Cont.(%)		
feet (	Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Run Number	Recov. (%)	RQD (%)	Graphic Log			CRIPTION		Liquid Limit	Plastic Limit	Water Co	% Fines	REMARKS
-								Advanced Dark brow (SP)	with air hamme n Sand	r directly to top of bed	Irock.	-				Dark brown return  Soil classifications noted based on was from top of borehole
5-								Gray bould	ders and cobble	s						Gray return and rig chatter from 5 to 12
10-												_				
15—								Tan Silty r (SM)	nedium to fine S	Sand						Tan return
20												-				

	Soil	Sam	ples	Roc	k Co	ring					8		
Depun, feet	Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Run Number	Recov. (%)	RQD (%)	Graphic Log	DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS
- - -									-				
<b>25</b> —								Boring collapsing at 24 feet. Bedrock not encountered. Backfilled with soil cuttings upon completion	-				
30-									_				
35— -									_				
40-									_				

Project:	North Br	oadway	Asse	mbla	age		Proj	ject	Nu	mb	er: 2019038
Location:	16 Overlo	ook Terr	ace, Y	onkei	rs, NY	•					
Date(s) Drilled	11/13/19 -	11/13/19			Inspector Michael Torino, P.E. / Aflaaz Saleem	С	oord	linate	es E	lorth	n:
Drilling Agency	Siteworks	s, Inc			Foreman <b>Hector</b>	A	ppro	xima tion (	te S feet)	urfac	t <b>93</b>
Drilling Equipment	Furukawa	a Track Rig	g		Drilling Method Air Hammer	C	omp epth	letio (fee	n t) <b>2</b>	24.0	Rock Depth (feet) NA
Casing Size/Type	NA				Size/Type of Bit 3-7/8" Rock Hammer	S	amp ype(	ler s)		NA	1
Groundwater and Date Mea	Level <b>NA</b> asured <b>NA</b>				Hammer Wt/Drop NA Casing Hammer Wt/Drop NA	S	ize/1	ype Barre	of el	NA	1
Boring Locati	on <b>See Bori</b>	ng Location	on Plan	(Figur	re 1)	N	lo. o <b>Di</b>	f Sai <b>st.: (</b>	mple	es Unc	dist.: 0 Core (ft):
Soil	Samples	Rock C	oring						(%)		
Depth, feet Type, Number	Recov. (ft) Pen. Resist. (blows/6 in)	Run Number Recov. (%)	RQD (%)	Graphic Log			Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS
					Advanced with air hammer directly to top of bedrock Dark brown Sand (SP)	- - -					Dark brown return  Soil classifications noted based on wasl from top of borehole
5-					Gray boulders and cobbles	 - -	-				Gray return and rig chatter from 5 to 12
10-					Tan Silty medium to fine Sand	- - - 	-				Tan return
- 15-					(SM)	-					
20					GES P.C						

	Soil Samples Rock Co										(%		
Deptin, leet   <b>20</b>	Type, Number	Recov. (ft)	n)	Run Number	(9)	RQD (%)	Graphic Log	DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS
-									-				
<b>25</b> —								Boring collapsing at 24 feet. Bedrock not encountered. Backfilled with Soil cuttings upon completion.	_				
30-									_				
35-									_				
<b>40</b> —								-	_				

Proj	ect:	Nort	h Br	oadv	vay A	Asse	mbla	age				Proj	ect	Nu	mb	er: 2019038
Loca	tion:	16 C	verlo	ook T	errac	ce, Yo	onkei	rs, NY								
Date(s Drilled	s)	11/1	3/19 -	11/13	/19			Inspector Michae Saleer		, P.E. / Aflaaz		Coord	inate	es E	Norti East:	n: :
Drilling Agenc	.y	Site	works	s, Inc				Foreman <b>Hector</b>	r			Appro Eleva	xima tion (	te S	urfad	ce ± 93
Orilling Equipr	g ment	Fur	ukawa	Track	k Rig			Drilling Method Air Ha	mmer			Comp Depth	letio (fee	n t)	15.0	Rock Depth (feet) NA
Casing Size/T	g ype	NA						O: /T	Rock Ha	mmer		Samp Type(	ler s)		NA	1
Groun	dwater ate Mea	Level asured	NA NA					Hammer Wt/Drop <b>NA</b>		Casing Hammer Wt/Drop <b>NA</b>		Size/T Core I	ype Barre	of el	NA	1
Boring	Locati	on <b>Se</b>	e Bori	ng Lo	cation	Plan	(Figur	re 1)				No. o <b>Di</b> :	f Sa <b>st.: (</b>	mple )	es Uno	dist.: 0 Core (ft)
	Soil	Sam		Roc	k Co	ring								(%)		
Deptn, feet	Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Run Number	Recov. (%)	RQD (%)	Graphic Log		DESC	CRIPTION		Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS
<b>0</b>								Advanced with air Dark brown Sand (SP)	r hamme	r directly to top of	bedrock.	-				Dark brown return  Soil classifications noted based on was from top of borehold
<b>5</b> —								Gray boulders and	d cobbles							Gray return and rig chatter from 5 to 10
- 10-							000	Tan Silty medium (SM)	to fine S	and		_				Tan return
15-								Boring collapsing Backfilled with so	at 15 fee il cuttings	et. Bedrock not en s upon completion	countered.	-				
20-								-				-				

Proje	ect:	Nort	h Br	oadv	vay A	Asse	mbla	age			Pro	ject	Nu	mb	er: 2019038
Loca	tion:	16 C	Overlo	ook T	errac	e, Yo	onkei	s, NY				_			
Date(s Drilled	s)	11/1	3/19 -	11/13	/19				Michael Torino, P.E. / Aflaaz Saleem		Coord	linate	es I	Norti East	h: :
Drilling Agenc	1	Site	works	s, Inc				Foreman I	Hector		Appro Eleva	xima tion (	ate S (feet	Surfa )	t <b>94</b>
Drilling Equipn	ו	Fur	ukawa	Track	k Rig			Drilling Method	Air Hammer		Comp Depth			24.0	
Casing Size/T	ype	NA						O: /T	3-7/8" Rock Hammer		Samp Type(	ler		N/	1
Ground	dwater ate Mea	Level	NA NA					Hammer Wt/Drop <b>NA</b>	Casing Hammer Wt/Drop <b>NA</b>		Size/	Гуре	of el	N/	1
	Location				cation	Plan	(Figur		. 101		No. o	f Sa <b>st.: ເ</b>	mple	es Una	dist.: 0 Core (ft)
	Soil	Sam		Roc	k Co	ring				•			(%)		(19)
Deptn, feet	Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Run Number	Recov. (%)	RQD (%)	Graphic Log		DESCRIPTION		Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS
0 - - -								Advanced v Dark brown (SP)	with air hammer directly to top of bedro Sand	ock.	-				Dark brown return  Soil classifications noted based on was from top of borehold
<b>5</b> —								Tan Silty m	edium to fine Sand		_ _ _ _				Tan return
10-								_			- - -				
- 15- - -								Possible de	ecomposed bedrock		- - - -				Gray return from 24
20									CES D.C						

	Soil	Sam	ples	Roc	k Co	ring			T.		t.(%)		
Depth,   feet 	Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Run Number	Recov. (%)	RQD (%)	Graphic Log	DESCRIPTION	l iquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS
-								-	-				
-								_	-				
_													
25-								Boring Completed to 24 ft. Unable to video due to hole collapse to 13.3 ft. Backfilled with soil cuttings upon completion					Hole collapsing while drilling at 24 ft
-								-	-				
_								-					
-								-	-				
30-								<u></u>	-				
-								-					
-								-	-				
_								_	-				
35-									_				
-								-	-				
-								_	-				
40-								<u> </u>					
-								- -	-				
35								-					
 			<u> </u>			l		—— GES P.C. ———					