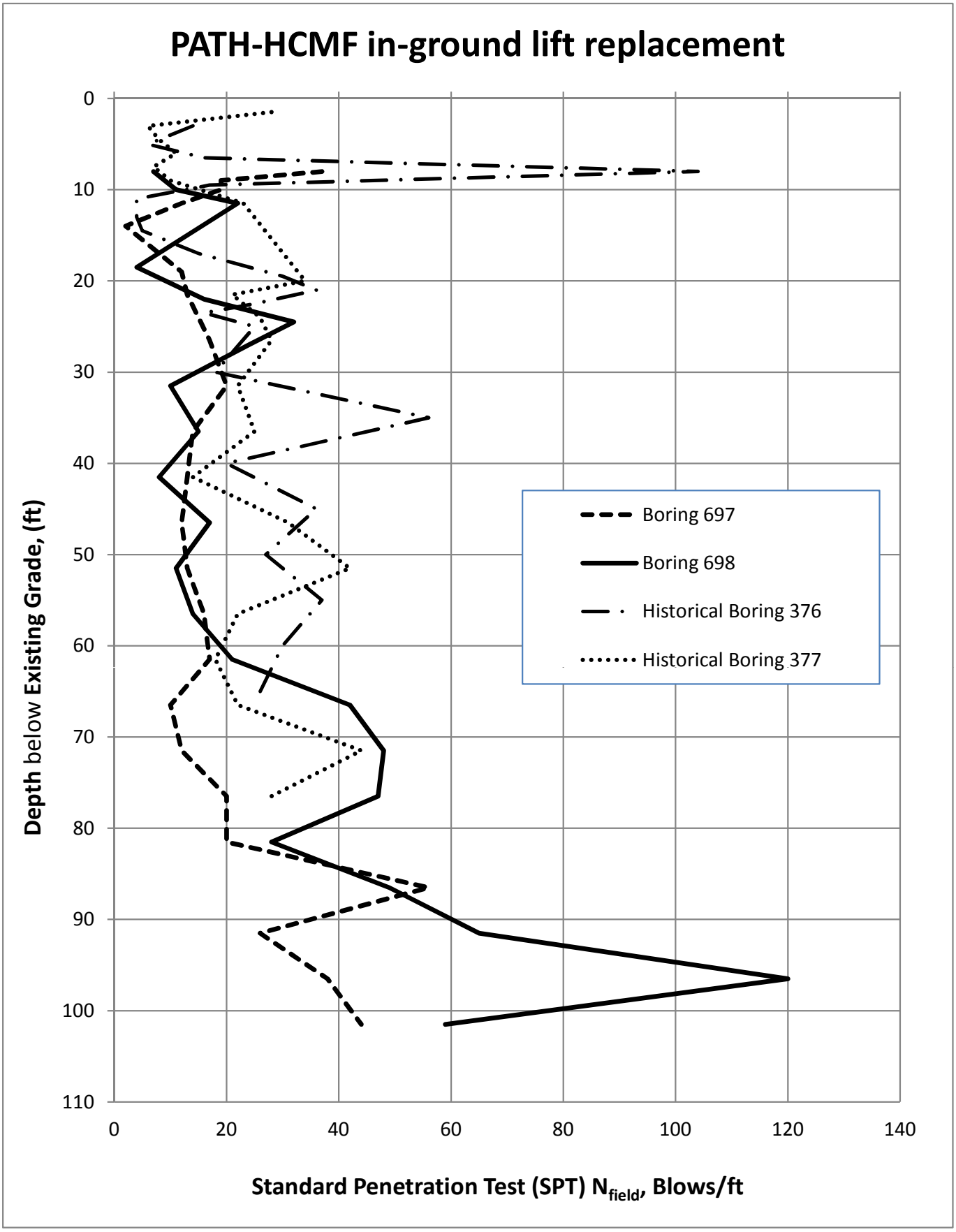
Bid #42356

Geotechnical Report and Borings


PATH-HCMF in-ground lift replacement
Depth below Existing Grade, (ft)
0
10
20
30
40
50
60
70
80
90
100
110
0
20
40
60
80
100
120
140
Standard Penetration Test (SPT) N$_{field}$, Blows/ft
Boring 697
Boring 698
Historical Boring 376
Historical Boring 377

GEOTECHNICAL

4.2 Existing Condition

Each in-ground pit is supported on eight (8) timber piles. The timber piles were driven to 45 feet below existing grade, and each has a design capacity of 35 tons, as indicated on the contract drawings. Based on the in-house archived soil boring information, subsurface conditions in the area consist of fill extending 10 to 15 feet below the ground surface. Underlying the fill layer is 5 to 10 feet of organic clay and peat, which is, in turn underlain by alternating layers of sandy silt and clayey silt. Bedrock was encountered in the existing borings within 80 to 100 feet below ground. Groundwater is approximately 5 to 10 feet below existing ground level.

In order to provide foundation recommendations to support the proposed in-ground pits, three (3) borings were planned to obtain soil information. The borings were drilled near the existing in-ground pits from existing grade to top of rock.

The subsurface information for two (2) finished borings, numbered 697 and 698, were presented on Soil Log drawings PATH-SL-212 and 213. However, Boring Number 696, located at Track 13, was abandoned, because a steel plate was hit at 9” below grade at four (4) different attempted boring locations.

6.2 Design Criteria

a) Drilled minipiles:

- Diameter: 10.75 inches O.D. with PP10x3/8 permanent steel casing to elevation -10.00 and minimum tip elevation -55.00.
- Minimum pile spacing = 2.5 feet
- Allowable capacities: Compression = 60 kips, Uplift = 10 kips and Lateral = 2 kips

b) Equivalent Fluid Pressures for temporary sheeting:

The temporary sheeting shall be designed to retain an equivalent fluid pressure of 40 pcf and 80 pcf, respectively, above and below ground water level. A uniform surcharge lateral pressure of 200 psf shall be considered for the construction equipments.

8.2 Evaluation

The soil information obtained from the two (2) new borings, indicates that the site is overlain by 10 to 15 feet of miscellaneous fill. Below the fill is a 5 to 7 feet thick layer of compressible organic clay and peat with water contents ranging from 130% - 180%. Beneath the organic clay and peat layer are alternating layers of sandy silt and clayey silt with average Standard Penetration Test (SPT) N_{field} value of 14 blows/ft. The ground water level was encountered approximately 9 feet below grade in both borings. The subsurface stratigraphic layers are similar to those encountered in the previous borings performed in the area.

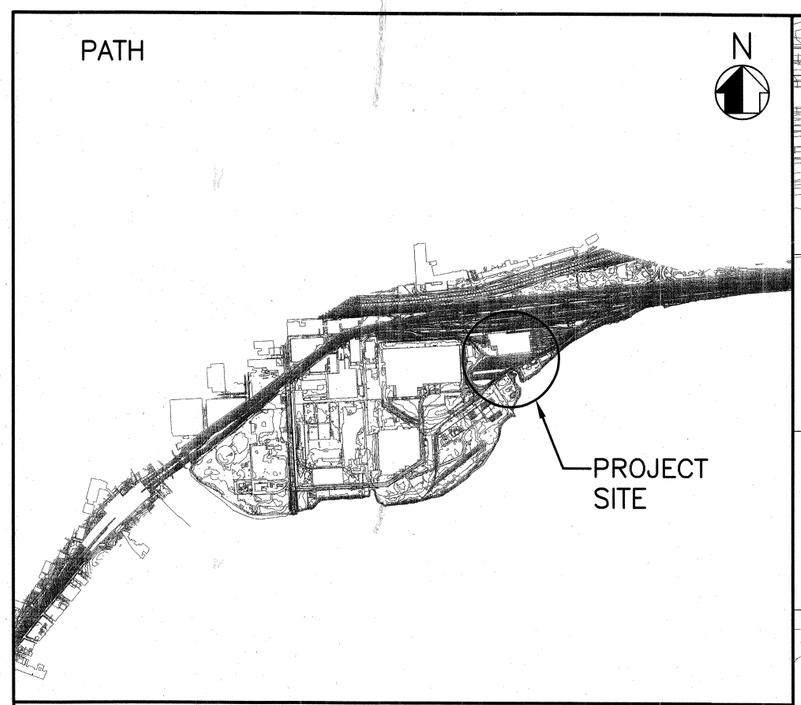
However, when comparing the N_{field} values obtained from the new borings to the historical borings, as illustrated in Fig GEOT-1, the new N_{field} values are approximately 70% less than the historical N_{field} values. The inconsistency is likely due to the use of different types of hammers and techniques to obtain the N_{field} values. Before the early 90's, donut type hammers were used to obtain the N_{field} values. These types of hammers typically produce low N_{field} values due to the low efficiency in transferring the impact energy from the hammer as compared to the automated hammer. The transferred energy from the donut hammer is about 60% lower than that of the auto-hammer. The N_{field} values obtained with the auto-hammer are generally recommended for use in seismic evaluations. Consequently, auto-hammers are required to obtain the N_{field} values for the borings and it is these values that are used for design.

10.1 Recommendations

According to the description in Structural Section 8.3 above, the new lift pit area is larger than the existing pit. Existing walls for the pits will need to be demolished or modified to accommodate the new lift system., Depending on the structural configuration for the new lift system, the existing 8 timber piles inside the pit may be able to provide support the proposed loads. However, because the pit configuration is changed, the timber piles may be overloaded due to the eccentric distribution of loading, and additional piles, integrated with the existing timber piles, may be required. Driving piles inside the building is not feasible due to the height restrictions. Pile driving would likely also cause unacceptable vibrations to the existing structures. Therefore, drilled minipiles installed to the proposed depth by a track or truck mounted drill rig are recommended. If an entirely new foundation system is used, and the existing timber piles are not used, the timber piles should be cut at least one (1) foot below the proposed bottom of pile caps and abandoned in place.

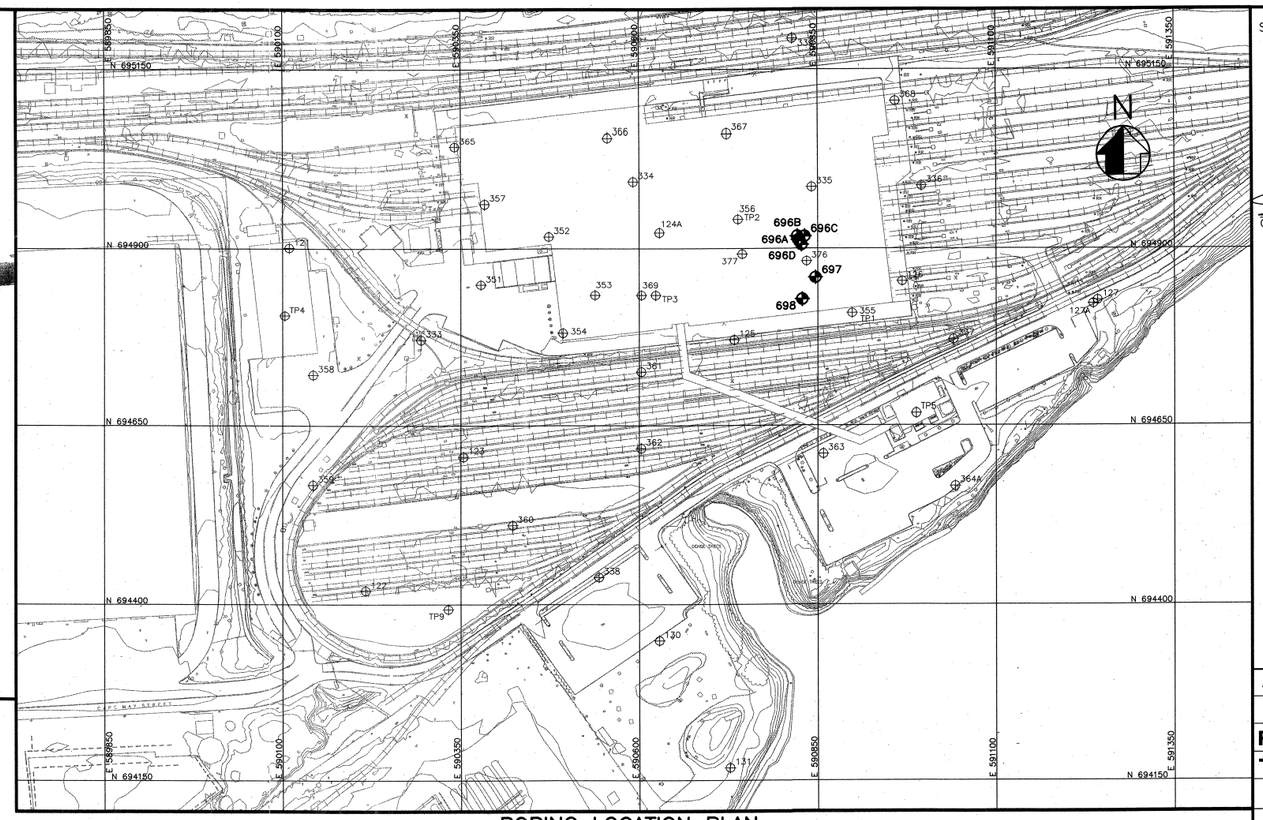
A temporary safe slope excavation for construction of the pits cannot be used due to the limited available space around the pit locations. Vertical cuts, which are approximately 15 feet in depth, shall be retained by temporary braced sheeting. Temporary sheeting shall be installed without interfering with existing in-ground structures, such as grade beams and pile caps etc. The temporary interlocked sheeting should be driven at least 5 feet below the bottom of excavation in order to prevent ground loss, which might cause settlement to the adjacent slabs and structures. The temporary sheeting also provides a cut-off of ground water infiltration in order to reduce the required dewatering and to prevent heaving of the base of excavation. Prior to installing the interlocked sheeting, the location of existing utilities should be identified and the utilities relocated, if necessary. If the utilities interfering with sheeting installation cannot be relocated, other methods of earth support such as grouting, use of soil nails, etc may be required to provide vertical and lateral support. This issue should be studied more thoroughly in the next phase of design.

Temporary braced sheeting should be designed for the equivalent fluid pressures given in Section 6.2. In addition to the earth and hydrostatic pressures, appropriate surface surcharge pressures should be considered for the permanent walls for the pits.



PROJECT SITE MAP

0 1000 2000
SCALE IN FEET



BORING LOCATION PLAN

0 125 250
SCALE IN FEET

SOILS CLASSIFICATION TERMINOLOGY

COMPONENT PROPORTIONS	
AND	35% TO 50%
SOME	20% TO 35%
LITTLE	10% TO 20%
TRACE	1% TO 10%

FINE GRAINED SOILS

TERM	PLASTICITY INDEX
SILT	NON PLASTIC
CLAYEY SILT	1 TO 5
SILT & CLAY	5 TO 10
CLAY & SILT	10 TO 20
SILTY CLAY	20 TO 40
CLAY	40 PLUS

ABBREVIATIONS AND SYMBOLS

A	AUGER
AL	ATTERBERG LIMITS
BLK	BLACK
BR	BROWN
C	COARSE
CBR	CBR TEST
CD	CONSOLIDATED DRAINED TRIAXIAL SHEAR TEST
CM	LABORATORY COMPACTION TEST
CO	CONSOLIDATION TEST
CU	CONSOLIDATED UNDRAINED TRIAXIAL SHEAR TEST
DK	DARK
DS	DIRECT SHEAR TEST
F	FINE
GR	GRAY
GS	GRAIN SIZE TEST
GVL	GRAVEL
LL	LIQUID LIMIT
LT	LIGHT, LITTLE
LV	LABORATORY VANE TEST
M	MEDIUM
NE	NOT ENCOUNTERED/RECORDED
OER	OPEN END ROD
PI	PLASTICITY INDEX
PL	PLASTIC LIMIT
REC	RECOVERY
RQD	ROCK QUALITY DESIGNATION
T	TRAP USED
TR	TRACE
U	UNDISTURBED SAMPLE
UC	UNCONFINED COMPRESSION TEST
UU	UNCONSOLIDATED UNDRAINED TRIAXIAL SHEAR TEST
V	FIELD VANE TEST
WOH	WEIGHT OF HAMMER
WOR	WEIGHT OF ROD

PATH

HORIZONTAL CONTROL

COORDINATES ARE BASED ON THE STATE PLANE NAD 83 NEW JERSEY.

VERTICAL CONTROL

ELEVATIONS REFER TO NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88), ELEVATION 0.00' IS EQUAL TO NGVD88.

LEGEND:

697 BORING NUMBER

AS-DRILLED BORING LOCATION

358 HISTORICAL BORING LOCATION

LEGEND
(FOR PRESENTATION OF BORINGS ONLY)

CONCRETE

MISCELLANEOUS AND MANMADE FILL

GRAVEL OR CRUSHED STONE

SAND

CLAY

ORGANIC SILTS AND CLAYS

PEAT

AS-DRILLED BORING LOCATIONS

BORING NO.	NORTHERLY	EASTERLY	SURFACE ELEV.
696A*	694912.9	590822.8	10.1
696B*	694918.2	590821.3	10.1
696C*	694918.0	590831.4	10.1
696D*	694905.6	590827.1	10.1
697	694858.1	590846.8	10.1
698	694826.4	590828.3	10.1

* STEEL PLATE ENCOUNTERED BELOW GROUND. BORING CANCELLED

GENERAL NOTES

1. OVERBURDEN MATERIALS ARE CLASSIFIED IN ACCORDANCE WITH P.A. SOILS CLASSIFICATION SYSTEM (SF-92). SYMBOLS INDICATE MAJOR MATERIAL COMPONENTS ONLY (I.E., GENERALLY MORE THAN 35%).
2. THE DESCRIPTIVE TERM "SAME" REFERS TO THE SAMPLE DESCRIPTION LISTED IMMEDIATELY ABOVE (I.E., THE NUMERICALLY PRECEDING SAMPLE NUMBER). EXCEPTIONS TO THIS DESCRIPTION, IF ANY, ARE NOTED FOLLOWING A COMMA.
3. W.L. – INDICATES THE LEVEL OF FREE WATER SURFACE IN THE GROUND AT THE TIME BORING WAS MADE AND WAS DETERMINED BY OBSERVATION IN THE BORING HOLE OR IN A WELLPOINT. SEE BORING REPORT FOR METHOD OF OBSERVATION AND ADDITIONAL INFORMATION. THE INDICATED WATER LEVELS MAY OR MAY NOT HAVE STABILIZED AT THE TIME OF THE REPORTED OBSERVATIONS AND ALSO MAY NOT REFLECT SEASONAL CHANGES, TIDAL INFLUENCES OR THE EFFECTS OF INTENSE RAINFALL OR RUNOFF. THE OBSERVED DATA MAY NOT REFLECT PERCHED OR ARTESIAN WATER LEVELS THAT MAY BE PRESENT IN THE VARIOUS STRATA ENCOUNTERED.
4. THE BORINGS SHOWN ON THE PRESENTATION OF BORINGS DRAWINGS WERE MADE BY A DRILLING CONTRACTOR AND WERE INSPECTED BY PERSONNEL (INSPECTORS) OF THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY. CERTAIN INFORMATION ON THESE DRAWINGS WAS OBTAINED FROM OBSERVATIONS BY THE INSPECTOR THAT ARE RECORDED ON FORMS ENTITLED BORING REPORT, DRILLING REPORT AND UNDISTURBED SAMPLES. SAMPLES HAVE ALSO BEEN EXAMINED AND CLASSIFIED IN THE LABORATORY. THE DESCRIPTIONS SHOWN ON THE PRESENTATION OF BORINGS DRAWINGS MAY NOT AGREE WITH THE DESCRIPTIONS SHOWN ON THE FORMS PREPARED BY THE INSPECTOR. THESE FORMS SHOULD BE CONSULTED FOR ADDITIONAL DETAILS REGARDING BORING OPERATIONS AND THE NATURE OF THE MATERIALS ENCOUNTERED. THESE FORMS AND A DESCRIPTION OF THE P.A. SOILS CLASSIFICATION SYSTEM (SF-92) ARE AVAILABLE FOR REFERENCE AND EXAMINATION IN THE DESIGN DIVISION OFFICES OF THE ENGINEERING DEPARTMENT.
5. THE SURFACE DATA REPORTED ON THE PRESENTATION OF BORINGS DRAWINGS AND THE FORMS ENTITLED BORING REPORT, DRILLING REPORT AND UNDISTURBED SAMPLES SHOW CONDITIONS ENCOUNTERED AND OBSERVED ONLY AT THE PARTICULAR POINTS FROM WHICH SOIL SAMPLES, ROCK CORE AND SUBSURFACE DATA WERE OBTAINED AT THE TIME THE TEST BORING WAS MADE.
6. SAMPLE NUMBERS DESIGNATED AS 'UA' AND 'UB' REPRESENT SHELBY TUBE TOP (UTOP) AND SHELBY TUBE BOTTOM (UBOT) RESPECTIVELY.
7. STANDARD PENETRATION TESTS WERE PERFORMED WITH AN AUTOMATIC HAMMER.

NOTE: FOR PRESENTATION OF BORINGS, SEE DRAWING PATH-SL-213.

PREPARED BY LANGAN ENGINEERING AND ENVIRONMENTAL SERVICES, INC.

Sheet 1 of 2

THE PORT AUTHORITY
OF NY & NJ

Stephen Lau for
CHIEF GEOTECHNICAL ENGINEER

No.	Date	Revision	Approved

ENGINEERING DEPARTMENT

PORT AUTHORITY TRANS-HUDSON

GEOTECHNICAL

Title

HARRISON CAR MAINTENANCE FACILITY

PROJECT SITE MAP, BORING LOCATION PLAN, GENERAL NOTES, LEGEND, ABBREVIATIONS & SYMBOLS, SOIL CLASSIFICATIONS

This drawing subject to conditions in contract. All inventions, ideas, designs and methods herein are reserved to Port Authority and may not be used without its written consent.
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It is a violation of law for any person to alter a document in any way, unless acting under the direction of a licensed professional engineer or registered architect. If this document bearing the seal of an engineer/architect is altered, the altering engineer/architect shall affix to the document their seal and the notation "altered by" followed by their signature and the date of such alteration, and a specific description of the alteration.

C. TSAO	A. COFRANCESCO	S. LAW
Designed by	Drawn by	Checked by

Date **DECEMBER 5, 2012**

Contract Number

Drawing Number **PATH-SL-212**

PID#

BORING NO.	DATE	PROJECT
697	10-06-12	HARRISON CAR MAINTENANCE FACILITY

LOCATION: N 694858.1 E 590846.8
SURFACE ELEVATION: 10.1 | WL ELEVATION: 1.1 | BY: K.L. CHECKED BY: S.L.
BLOWS PER 6 IN. 1 3/8"ID SPOON 140 LB. HAMMER 30" FALL / ROCK CORE REPORT

DEPTH (FEET)	DEPTH (METERS)	ELEVATION (FEET)	WATER CONTENT (%)	BLOWS PER 6 IN. / ROCK CORE REPORT	SAMPLE NUMBER	SAMPLE CLASSIFICATION	LABORATORY TESTING
		10.1 / 9.2				0.0'-0.9' CONCRETE	
			6	HAND AUGER	01	FILL-BROWN C-F SAND, LITTLE GRAVEL, TRACE BRICK, SILT	
1			5	HAND AUGER	02	FILL-BROWN C-F SAND, SOME GRAVEL, TRACE BRICK, SILT	
		1.1	8	HAND AUGER	03	FILL-BROWN C-F SAND, LITTLE GRAVEL, TRACE SILT	
2		-0.1	7	15-17-20	04	FILL-BROWN C-F SAND, SOME GRAVEL, LITTLE CONCRETE, TRACE SILT	
			11	WL 14-11-14-5	05A	FILL-BROWN C-F SAND, LITTLE GRAVEL, TRACE CLAYEY SILT	
10 3			61		05B	GRAY ORGANIC CLAY, TRACE PEAT	
		-1.9		7-7-5	06	ROCK FRAGMENT (GNEISSIC SCHIST)	
4			161	5-1-1	07	GRAY PEAT	
		-5.9	32		08UA	BROWN PEAT	
5			24	PRESSED	08UB	GRAY C-F SAND, LITTLE SILT	UU,TV
			19	2-7-5-7	09	BROWN C-F SAND, SOME GRAVEL, LITTLE SILT	
20 6			16	3-5-8	10	BROWN C-F SAND, TRACE SILT	
7			14	7-8-7	11	GRAY C-F SAND, LITTLE SILT, GRAVEL	
8			19	5-8-9	12	BROWN C-F SAND, TRACE SILT	
30 9			12	6-6-14	13	RED C-F SAND, LITTLE GRAVEL, TRACE SILT	
10							
11			18	8-7-7	14	GRAY BROWN C-F SAND, TRACE SILT	
40 12							
13			27	5-6-7	15	SAME	
14			21	6-5-7	16	BROWN M-F SAND, TRACE SILT	
50 15							
16			26	5-6-7	17	SAME	
17			21	6-8-8	18	BROWN C-F SAND, TRACE SILT	
60 18							
19			15	10-8-9	19	RED C-F SAND, SOME GRAVEL, LITTLE SILT	
20			16	5-5-5	20	RED C-F SAND, TRACE GRAVEL, SILT	
70 21							
22		-62.9	23	5-5-7	21	RED BROWN C-F SAND	
23			15	5-9-11	22	RED SILT, SOME FINE SAND	
24			15	PRESSED	23U	SAME	UU,TV
80			15	3-8-12	24	RED SILT, SOME FINE SAND, TRACE GRAVEL	
25		-72.9					
26			11	17-26-30	25	GRAVEL AND RED C-F SAND, LITTLE SILT	
27							
90 28			26	14-14-12	26	GRAVEL, SOME RED C-F SAND, LITTLE SILT	
29		-86.9	18	16-25-13	27	SAME	
30							
100		-91.4	11	22-16-28	28	RED C-F SAND, SOME GRAVEL, LITTLE SILT	

BORING NO.	DATE	PROJECT
698	10-06-12	HARRISON CAR MAINTENANCE FACILITY

LOCATION: N 694826.4 E 590828.3
SURFACE ELEVATION: 10.1 | WL ELEVATION: 2.1 | BY: B.P. CHECKED BY: S.L.
BLOWS PER 6 IN. 1 3/8"ID SPOON 140 LB. HAMMER 30" FALL / ROCK CORE REPORT

DEPTH (FEET)	DEPTH (METERS)	ELEVATION (FEET)	WATER CONTENT (%)	BLOWS PER 6 IN. / ROCK CORE REPORT	SAMPLE NUMBER	SAMPLE CLASSIFICATION	LABORATORY TESTING
		10.1 / 9.1				0.0'-1.0' CONCRETE	
			7	HAND AUGER	01	FILL-BROWN C-F SAND, LITTLE GRAVEL, COBBLES, TRACE SILT	
1			6	HAND AUGER	02	SAME	
			8	HAND AUGER	03	SAME	
2			13	WL 4-4-4-3	04	MISC-FILL-BROWN C-F SAND, SOME WOOD, LITTLE SILTY CLAY	
10 3			22	7-13-8-3	05	FILL-BROWN C-F SAND, SOME CRUSHED ROCK, TRACE SILT	
			11	8-13-9	06	FILL-GRAY-BROWN C-F SAND, SOME CRUSHED ROCK, TRACE SILT	
4		-3.4	19		07A	FILL-BROWN C-F SAND, SOME CRUSHED ROCK, TRACE SILT	
		-4.9	162	4-7-4	07B	GRAY ORGANIC CLAY, TRACE PEAT	
5			178	PRESSED 24"	08U	BROWN PEAT	
		-8.4	134	1-3-1	09	SAME	
20 6			31	PRESSED 24"	10UA	BROWN C-F SAND, LITTLE SILT, TRACE PEAT	
			38		10UB	SAME	
7			14	5-7-9	11	BROWN C-F SAND, LITTLE SILT	
8			17	7-13-19	12	SAME	
30 9			19	8-11-13	13	BROWN M-F SAND, SOME GRAVEL, TRACE SILT	
10							
11			27	7-5-5	14	SAME	
40 12							
13			24	8-7-8	15	SAME	
14			25	3-3-5	16	BROWN GRAY FINE SAND AND SILT	
50 15							
16			20	6-7-10	17	SAME	
17			19	5-5-6	18	RED BROWN C-F SAND, LITTLE SILT, TRACE GRAVEL	
60 18							
19			24	6-7-7	19	RED BROWN M-F SAND, LITTLE SILT	
20			23	6-9-12	20	SAME	
70 21							
22			14	12-24-18	21	RED BROWN C-F SAND, SOME GRAVEL, LITTLE SILT	
23			16	20-22-26	22	RED BROWN C-F SAND, LITTLE GRAY BROKEN ROCK, GRAVEL	
24		-69.9	16	31-26-21	23	SAME	
80			16	16-16-12	24	GRAVEL AND RED C-F SAND, LITTLE SILT	
25							
26			18	14-26-23	25	SAME	
27							
90 28			16	31-27-38	26	SAME	
29			6	42-48-72	27	SAME	
30							
100		-91.4	21	29-32-27	28	SAME	

NOTE: FOR PROJECT SITE MAP, BORING LOCATION PLAN, LEGEND, GENERAL NOTES, ABBREVIATIONS, AND SOIL CLASSIFICATIONS, SEE DRAWING PATH-SL-212.

PREPARED BY LANGAN ENGINEERING AND ENVIRONMENTAL SERVICES, INC.

Sheet 2 of 2

THE PORT AUTHORITY OF NY & NJ

Stephen Lamb for
CHIEF GEOTECHNICAL ENGINEER

No.	Date	Revision	Approved

ENGINEERING DEPARTMENT

PORT AUTHORITY TRANS-HUDSON

GEOTECHNICAL

Title
HARRISON CAR MAINTENANCE FACILITY

PRESENTATION OF BORINGS

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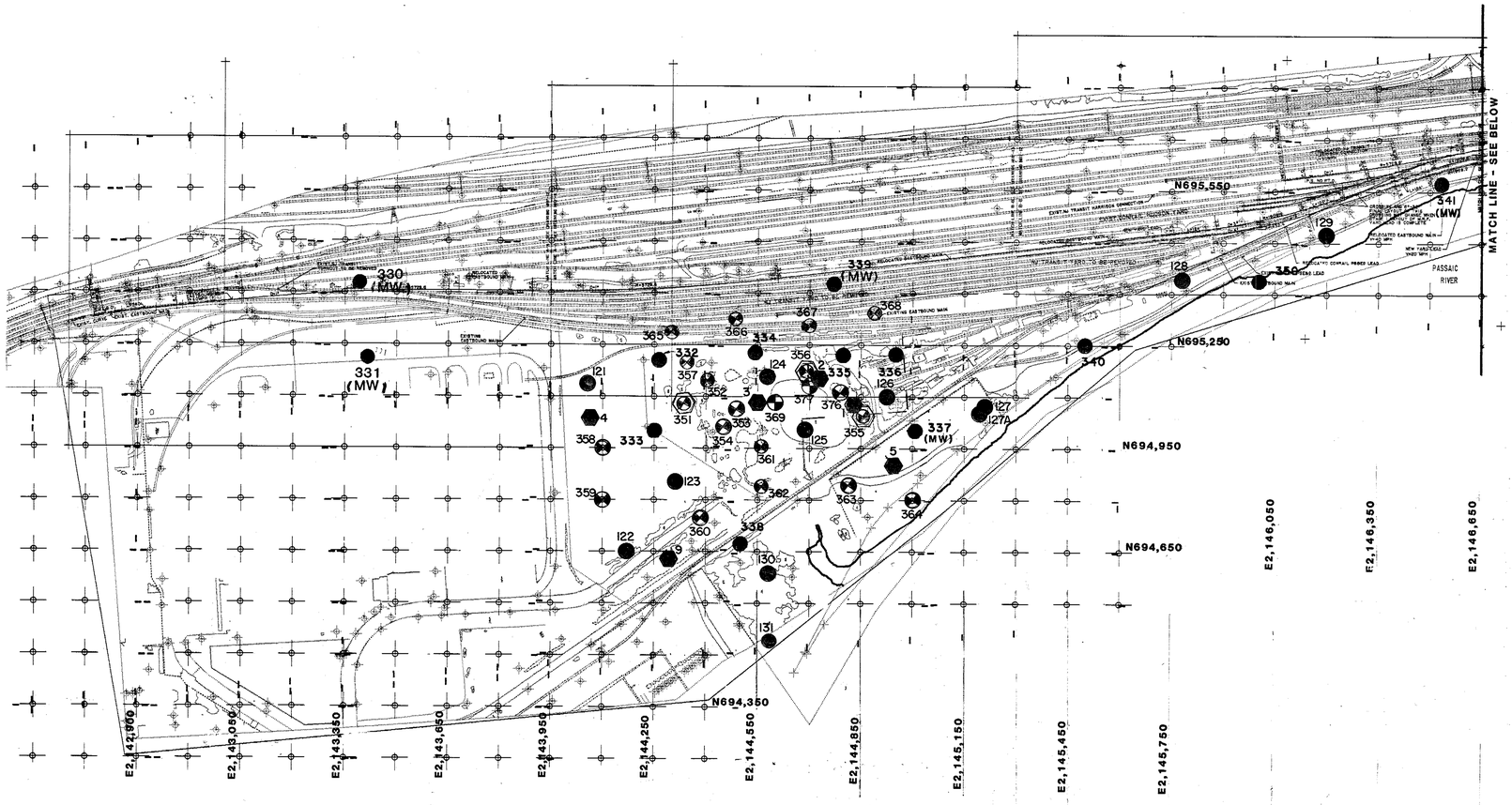
C. TSAO	A. COFRANCESCO	S. LAW
Designed by	Drawn by	Checked by

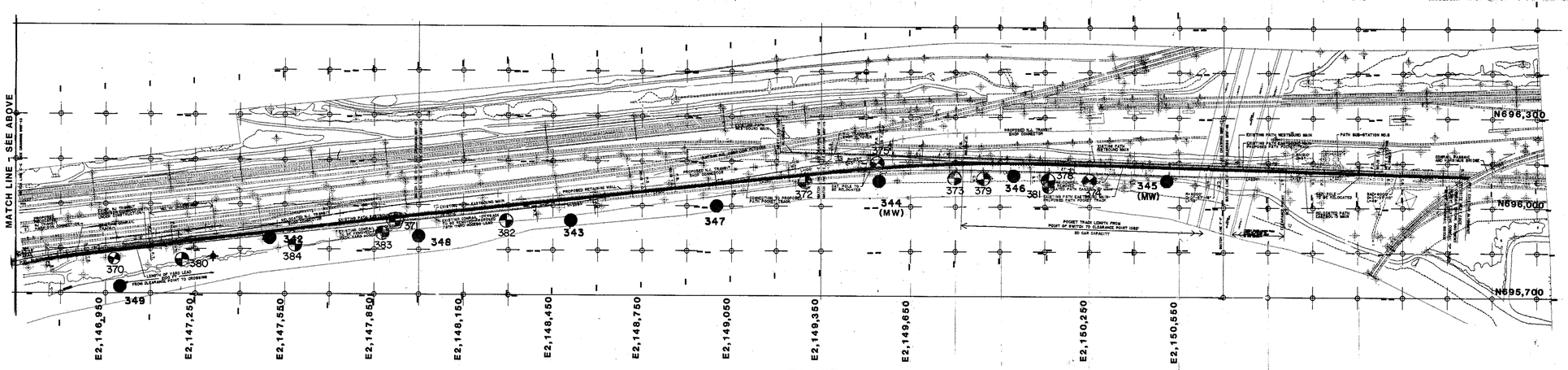
Date **DECEMBER 5, 2012**

Contract Number

Drawing Number **PATH-SL-213**

PID#





PLAN

SCALE 1" 200'

GENERAL NOTES

1. MATERIALS CLASSIFIED IN ACCORDANCE WITH P.A. SOILS CLASSIFICATION SYSTEM (SF-781), SYMBOLS INDICATE MAJOR MATERIAL COMPONENTS ONLY (I.E., GENERALLY MORE THAN 35%).

2. THE DESCRIPTIVE TERM "SAME" REFERS TO THE SAMPLE DESCRIPTION LISTED IMMEDIATELY ABOVE (I.E., THE NUMERICALLY PRECEDING SAMPLE NUMBER). EXCEPTIONS TO THIS DESCRIPTION, IF ANY, ARE NOTED FOLLOWING A COMMA.

3. W.L. - INDICATES LEVEL OF FREE WATER SURFACE IN THE BORING HOLE APPROXIMATELY 24 HOURS AFTER THE BORING WAS COMPLETED. THE INDICATED WATER LEVELS MAY OR MAY NOT HAVE BEEN STABILIZED FOLLOWING COMPLETION OF THE BORING AND ALSO DO NOT REFLECT SEASONAL CHANGES, TIDAL INFLUENCE OR THE EFFECTS OF INTENSE RAINFALL OR RUNOFF. THE OBSERVED DATA MAY NOT REFLECT PERCHED OR ARTESIAN WATER LEVELS THAT MAY BE PRESENT IN THE VARIOUS STRATA ENCOUNTERED.

4. THE BORINGS AND TEST PITS WERE INSPECTED BY PORT AUTHORITY OF NEW YORK AND NEW JERSEY ENGINEERING DEPARTMENT INSPECTORS. INFORMATION ON THE PRESENTATION AND BORINGS AND TEST PITS DRAWINGS WAS OBTAINED FROM THE INSPECTORS OBSERVATIONS THAT ARE SHOWN ON FORMS ENTITLED BORING REPORT, DRILLING REPORT, TEST PIT REPORT AND UNDISTURBED SAMPLES. SAMPLES HAVE ALSO BEEN EXAMINED AND CLASSIFIED IN THE LABORATORY. THE DESCRIPTIONS SHOWN ON THE PRESENTATION OF BORING TEST PITS DRAWINGS MAY NOT AGREE WITH THE DESCRIPTIONS SHOWN ON THE FORMS PREPARED BY THE INSPECTOR. THESE FORMS SHOULD BE CONSULTED FOR ADDITIONAL DETAILS REGARDING BORING OPERATIONS, TEST PIT EXCAVATIONS, AND THE NATURE OF MATERIALS ENCOUNTERED.

5. FOR PRESENTATION OF BORINGS AND TEST PITS SEE DRAWING NOS. PATH-SL-087 THROUGH PATH-SL-093.

6. FOR PREVIOUS BORINGS SEE DRAWINGS NO.:

PATH-SL-050	PATH-SL-072
PATH-SL-051	PATH-SL-073
PATH-SL-052	PATH-SL-074
PATH-SL-071	PATH-SL-075

7. HORIZONTAL CONTROL: COORDINATES ARE BASED ON THE TRANSVERSE MERCATOR PROJECTION FOR THE STATE OF NEW JERSEY. THE ORIGIN OF THE NORTH COORDINATE IS LATITUDE 30°-50° NORTH AND IS EQUAL TO 0.000 NORTH. THE ORIGIN OF THE EAST WEST COORDINATES IS A LINE DRAW THROUGH LONGITUDE 74°-40° WEST AND IS EQUAL TO 2,000,000 EAST.

8. VERTICAL CONTROL: ELEVATION 300.00 IS MEAN HIGH WATER AT THE BATTERY WHICH IS 2.653 FEET ABOVE MEAN SEA LEVEL AT SANDY HOOK AS ESTABLSHED BY THE UNITED STATES COAST AND GEODETIC SURVEY.

9. COORDINATES AND SURFACE ELEVATIONS FOR BORINGS AND TEST PITS WERE PROVIDED BY THE PORT AUTHORITY. SEE DRAWING PATH-SL-086 FOR LISTING OF COORDINATES AND ELEVATIONS FOR BORINGS AND TEST PITS.

LEGEND

361	PHASE II BORING
353	PHASE II BORING & OBSERVATION WELL
125	PHASE I BORINGS
4	TEST PIT

THIS DRAWING SUBJECT TO CONDITIONS IN CONTRACT. ALL INVENTIONS, IDEAS, DESIGNS AND METHODS HEREIN ARE RESERVED TO PORT AUTHORITY AND MAY NOT BE USED WITHOUT ITS WRITTEN CONSENT.

KRO DESIGNED
CC/BM DRAWN
KRO CHECKED
EK IN CHARGE

REVISIONS

NO.	DATE	APPD.	DESCRIPTION	NO.	DATE	APPD.	DESCRIPTION

Edward Kawayanjian, Jr. 9/10/87
PREPARED BY DATE

Parsons Brinckerhoff
Engineers · Architects · Planners

THE PORT AUTHORITY OF NY & NJ

MAIN REPAIR FACILITY AND YARD AT HARRISON AND KEARNY

LOCATION PLAN

SCALE: AS SHOWN

DRAWING NO PATH-SL-085

N11105

BORING NO. 372 | **SL-DWG. NO.** SL-090 | **PROJECT** MAIN REPAIR FACILITY AND YARD AT HARRISON AND KEARNY

LOCATION "N" 696,080 "E" 2,149,275 | SURFACE ELEVATION 305.1 | WL ELEVATION 299.1* | DATE 03/05/87 | BY ZB

Blows per 6 in.: 1 3/8" ID spoon, 140# hammer, 30" fall / Rock core report

Elevation (feet)	Water Content (%)	Blows per 6 in.	Sample Number	Sample Classification	Laboratory Testing
305.1					
	9.8	2-3-5	1	Fill: Gravel, some C-F gy. Sand, tr. Silt	
	11.4	6-5-3	2	Misc. Fill: Gravel, Sand, Cinder, Silt & Clay	
	14.1	2-4-5	3	Same: Silt & Clay, Sand, Cinder, Gravel	
	16.2	2-2-3	4	Fill: Bn-red Clay & Silt, little C-F Sand, little Gravel	
	—	3-15-19	5	Misc. Fill: Brick Fragments, Cinder, Gravel	
	100.4	4-3-4	6	Fill: Bn. Organic Clay & Silt and Gravel, little C-F Sand	
	75.0	8-10-4	7	Fill: Bk. Org. Silt & Clay and Gravel, tr. M-F Sand	
	40.7	5-5-14	8	Fill: Gravel, some Org. Clay, tr. C-F Sand	
	42.3	5-5-4	9	Misc. Fill: Gravel, Org. Clay, Wood	
	—	3-6-3	10	: Wood, tr. Org. Silt, tr. Gravel	
	—	100+6**	11	: Wood	
	—	W.O.R. -3	12	: Wood	
	—	1-3-3	13	: Wood, tr. Org. Clay	
	—	50/0"+5-1-4**	14	: Wood	
	—	6-12-23	15	: Wood, tr. Org. Clay, tr. C-F Sand	
	—	11-12-17	16	: Wood, tr. M-F Sand	
	22.9	10-11-11**	17	Misc. Fill: Sand, Silt, Wood, Gravel	
275.1					
	21.8	5-9-11	18	Varved bn. SILT & CLAY, tr. F Sand Seams	
	29.9	5-9-10	19	Varved bn-red SILT & CLAY, little F Sand Seams	
265.1	30.9	3-3-9	20	Varved bn-red SILT & CLAY, tr. F Sand Seams	

* Water level taken at completion of borehole
** - 300# hammer used

BORING NO. 373 | **SL-DWG. NO.** SL-091 | **PROJECT** MAIN REPAIR FACILITY AND YARD AT HARRISON AND KEARNY

LOCATION "N" 695,095 "E" 2,149,800 | SURFACE ELEVATION 303.1 | WL ELEVATION 293.8* | DATE 03/04/87 | BY ZB

Blows per 6 in.: 1 3/8" ID spoon, 140# hammer, 30" fall / Rock core report

Elevation (feet)	Water Content (%)	Blows per 6 in.	Sample Number	Sample Classification	Laboratory Testing
303.1					
	—	4-9-10	1	Misc. Fill: Cinder	
	12.3	8-8-8	2	Same: Sand, Gravel, Cinder, Silt	
	15.1	8-7-7	3	Fill: Bn. Clayey Silt and Gravel, some C-F Sand	
	24.0	11-8-7	4	Misc. Fill: Sand, Gravel, Silt, Cinder	
	26.2	4-4-8	5	Same: Gravel, Sand, Cinder, Silt	
	27.3	4-4-8	6	Same: Ashes, Cinder, Sand, Coal	
	32.2	3-4-3	7	Same: Ashes, Coal, Sand	
	24.8	3-2-3	8	Same: Cinder, Ashes, Coal, Gravel, Sand	
	32.3	3-4-14	9	Same: Same	
	23.9	5-8-4	10	Same: Same	
	18.7	14-20-4	11	Same: Gravel, Sand, Silt, Cinder	
285.1	30.5	6-21-23	12	Same: Sand, Cinder, Gravel, Org. Clay	
	18.7	6-10-10	13	C-F bn. SAND, some Gravel, tr. Org. Silt & Clay	
	27.5	5-7-19	14	M-F bn. SAND, little Silt, tr. Gravel, tr. Cinder	
	23.8	6-8-13	15	M-F bn. SAND, little Silt, little Gravel	
	16.6	9-9-12	16	GRAVEL and C-F bn. Sand, little Clayey Silt	
276.1	23.8	8-13-12	17	M-F bn. SAND, little Silt, tr. Gravel	
271.6	29.0	8-9-11	18	VARVED bn. SILT & CLAY	

* Water level reading taken inside augers at completion of borehole.

BORING NO. 374 | **SL-DWG. NO.** SL-091 | **PROJECT** MAIN REPAIR FACILITY AND YARD AT HARRISON AND KEARNY

LOCATION "N" 696,105 "E" 2,150,240 | SURFACE ELEVATION 303.6 | WL ELEVATION 294.1* | DATE 03/03/87 | BY ZB

Blows per 6 in.: 1 3/8" ID spoon, 140# hammer, 30" fall / Rock core report

Elevation (feet)	Water Content (%)	Blows per 6 in.	Sample Number	Sample Classification	Laboratory Testing
303.6					
	—	9-21-8	1	Misc. Fill: Cinder, Gravel	
	17.3	4-5-4	2	Same: Cinder, Clayey Silt, Sand	
	14.9	4-4-3	3	Fill: C-F bn. Sand, some Clayey Silt, some Gravel	
	16.9	3-3-4	4	Fill: Bn. Silt & Clay and Gravel, tr. C-F Sand	
	16.7	3-2-2	5	Fill: C-F bn. Sand and Clayey Silt, some Gravel	
	19.1	4-5-5	6	Fill: Bn. Clayey Silt and C-F Sand, some Gravel	
	14.1	4-4-4	7	Fill: Gravel, some bk. Clayey Silt, some C-F Sand	
	15.2	1-3-4	8	Fill: Same	
	16.3	4-3-2	9	Fill: Bn. Clayey Silt and C-F Sand, little Gravel	
288.6	15.8	W.O.H.-1-3	10	Fill: C-F bn. Sand and Clayey Silt, some Gravel	
	36.0	W-O-H	11	Bk. ORG. CLAY, tr. M-F Sand, tr. bn. Silt & Clay, tr. Gravel	
	53.1	PRESSED	12U	Bk. ORG. CLAY, little bn. Clay & Silt, tr. M-F Sand Seams	
282.6	61.2	PRESSED	13U	Same	
	33.9	1-2-4	14	M-F bn. SAND, some Org. Clay Seams, little Gravel	
	22.6	2-9-13	15	C-F bn. SAND, little Gravel, tr. Org. Clay Seams	
	16.5	8-13-12	16	C-F bn. SAND, little Gravel, tr. Org. Silt	
273.6					
	25.1	8-8-10	17	Bn. CLAY & SILT	
	23.7	4-4-9	18	Bn. SILT & CLAY, tr. F Sand partings	
262.1	22.	4-3-3	19	Bn. CLAYEY SILT and F Sand	

* WATER LEVEL TAKEN AT COMPLETION OF BOREHOLE

BORING NO. 375 | **SL-DWG. NO.** SL-091 | **PROJECT** MAIN REPAIR FACILITY AND YARD AT HARRISON AND KEARNY

LOCATION "N" 696,150 "E" 2,149,533 | SURFACE ELEVATION 303.7 | WL ELEVATION 299.2* | DATE 03/16/87 | BY ZB

Blows per 6 in.: 1 3/8" ID spoon, 140# hammer, 30" fall / Rock core report

Elevation (feet)	Water Content (%)	Blows per 6 in.	Sample Number	Sample Classification	Laboratory Testing
303.7					
	5.1	6-7-6	1	Misc. Fill: Gravel, Sand, Brick Fragments, Silt	
	8.9	5-5-4	2	Same: Gravel, Sand, Cinder, Silt	
	5.3	6-3-3	3	Same: Gravel, Brick Fragments, Sand, Silt	
	18.9	4-3-2	4	Fill: Gravel, little C-F bn. Sand, little Silt	
	15.3	4-7-9	5	Fill: Same	
	26.6	3-1-1	6	Fill: Bn-red Clay & Silt, tr. C-F Sand, tr. Gravel	
	17.4	2-2-1	7	Fill: Bn-red Silt & Clay and C-F Sand, little Gravel	
	17.4	1-1-4	8	Fill: Same	
290.7	17.7	6-4-3	9A	Fill: Bn-red Silt & Clay and C-F Sand, some Gravel	
	59.9		9B	Gy. Org. Silty Clay	
290.2	22.3	1-2-10	10	C-F bn-gy SAND, some Silt, tr. Gravel, tr. Fibers	
	18.7	8-15-15	11	C-F bn. SAND, some Silt, little Gravel	
	17.5	10-8-15	12	C-F bn. SAND, some Clayey Silt, some Gravel	
	20.1	12-14-22	13	C-F bn. SAND, some Silt Seams, little Gravel	
	22.4	6-8-8	14	C-F bn. SAND, little Silt	
	22.1	12-16-15	15	Same	
	21.7	5-8-7	16	Same	
	22.7	4-7-8	17	Same	
272.2	20.1	5-5-4	18	Same	

* WATER LEVEL TAKEN INSIDE AUGERS WHILE ADVANCING BOREHOLE

BORING NO. 376 | **SL-DWG. NO.** SL-091 | **PROJECT** MAIN REPAIR FACILITY AND YARD AT HARRISON AND KEARNY

LOCATION "N" 695,115 "E" 2,144,791 | SURFACE ELEVATION 304.7 | WL ELEVATION 300.2* | DATE 04/13/87 | BY ZB

Blows per 6 in.: 1 3/8" ID spoon, 140# hammer, 30" fall / Rock core report

Elevation (feet)	Water Content (%)	Blows per 6 in.	Sample Number	Sample Classification	Laboratory Testing
304.7					
	12.1	14-13-16	1	Misc. Fill: Silt & Clay, Sand, Gravel, Cinder, Wood, Fabric	
	11.6	17-32-29	2	Fill: C-F bn Sand, some bn-red Silt & Clay, little Gravel	
	33.3	4-7-7	3	Misc. Fill: Organic Silty Clay, Sand, Gravel, Cinder	
	22.5	1-2-4	4	Fill: C-F bn Sand, some Org. Silt & Clay, little Gravel	
	25.8	3-8-8	5	Fill: Gy. Org. Silty Clay, some Gravel-size Mica Schist, little C-F Sand	
	16.6	6-66-38	6	Fill: Gravel-size Mica Schist, little Clayey Silt, little C-F Sand	
	15.9	3-9-8	7	Fill: Gravel-size Mica Schist and Clayey Silt, some C-F Sand	
292.7	21.5	2-2-2	8	Fill: C-F bn Sand and Gravel, some Silt	
	200.8	2-2-2	9	Bk. PEAT, tr. Wood, tr. Gravel	
289.2	103.3	2-2-3	10	Bk. PEAT, little M-F Sand Seams	
	236.5	PRESSED	11A	Top: Bk. bn. PEAT	
	28.6		11B	Bott: C-F bn SAND, little Org. Fibers, tr. Silt, tr. Gravel	
	23.4	3-7-8	12	C-F bn. SAND, little Org. Fibers, tr. Silt, tr. Gravel	
	17.4	5-13-17	13	C-F bn. SAND, little Silt, little Gravel	
	15.8	16-17-19	14	Same	
	20.7	7-11-14	15	C-F bn. SAND, some Silt, little Gravel	
	14.6	8-8-8	16	C-F bn. SAND, some Clayey Silt Seams, little Gravel	
	13.4	9-12-13	17	C-F bn-gy. SAND and GRAVEL, some Clayey Silt	
	22.2	4-7-11	18	F bn SAND, tr. Silt, tr. Gravel	
	19.0	23-25-31	19	C-F bn SAND, tr. Silt, tr. Gravel	
	20.1	4-7-13	20	M-F bn SAND, tr. Silt	
	17.5	6-13-23	21	C-F bn. SAND, tr. Silt	
	21.9	6-10-17	22	F bn. SAND, little Clayey Silt Seams	
	20.6	8-17-20	23	C-F bn-red SAND, little Silt, tr. Gravel	
240.7	17.6	11-12-18	24	M-F bn. SAND, some Silt, little Gravel	
	15.0	17-15-11	25	GRAVEL, little C-F bn-red Sand, little Silt	
	10.8	50/0"	26	GRAVEL, tr. C-F bn-red Sand, tr. Silt	
230.7 / 229.8	20.0	20/0"	27	M-F bn. SAND, little Silt	

* WATER LEVEL TAKEN INSIDE AUGERS WHILE ADVANCING BOREHOLE

NOTES:

1. FOR GENERAL NOTES, TABULATIONS, SOIL CLASSIFICATION TERMINOLOGY, LOCATION PLAN AND LEGEND, SEE DRAWING NOS. PATH-SL-085 AND PATH-SL-086

THIS DRAWING SUBJECT TO CONDITIONS IN CONTRACT. ALL INVENTIONS, IDEAS, DESIGNS AND METHODS HEREIN ARE RESERVED TO PORT AUTHORITY AND MAY NOT BE USED WITHOUT ITS WRITTEN CONSENT.

KRO	DESIGNED
CC/BM	DRAWN
KRO	CHECKED
EK	IN CHARGE

REVISIONS

NO.	DATE	APPD.	DESCRIPTION	NO.	DATE	APPD.	DESCRIPTION

Edward Kavazanjian Jr. — PREPARED BY — 9/10/87 DATE

Parsons Brinckerhoff
Engineers - Architects - Planners

THE PORT AUTHORITY OF NY & NJ

MAIN REPAIR FACILITY AND YARD AT HARRISON AND KEARNY

PRESENTATION OF BORINGS

SCALE: AS SHOWN

DRAWING NO PATH-SL-091

N11825

BORING NO. 377 — SL-DWG. NO. SL-092

PROJECT: MAIN REPAIR FACILITY AND YARD AT HARRISON AND KEARNY
LOCATION: "N" 695,125 "E" 2,144,701
SURFACE ELEVATION 303.8 | WL ELEVATION 299.8 * | DATE 04/30/87 | BY ZB

Elevation (Feet)	Water Content (%)	Blows per 6 in. (1 3/8" ID Spoon, 140# Hammer, 30" Fall) / Rock Core Report	Sample Number	Sample Classification
303.8				ASPHALT
		10-11-17	1	Rubble: Concrete Fragments, Wood
	28.4	1-2-4	2	Misc. Fill: Sand, Cinder, Org. Silty Clay, Gravel, Wood
	20.8	4-4-4	3	Fill: C-F bn Sand, little Gravel, tr. Org. Silt
	22.1	3-8-5	4	Fill: C-F bn Sand and bk. Org. Clay layer (2-3"), tr. Gravel
	32.9	5-5-2	5	Fill: C-F gy. Sand and Gravel, little Org. Silt
	20.6	4-5-5	6	Fill: C-F dk. gy. Sand and Org. Silt & Clay, some Gravel
292.3	18.7	6-16-17	7	Same
	145.8	6-7-10	8	Bk-bn PEAT, tr. F Sand Seams
	227.1	3-4-6	9	Dk. bn. PEAT
287.8		PRESSED	10U	Top: Dk. bn. PEAT
	18.8			Bott: C-F bn. SAND, some Gravel, little Silt
	21.8	14-18-18	11	M-F bn. SAND, little Silt, little Gravel
	21.1	11-15-19	12	M-F bn. SAND, little Org. Silt, tr. Gravel
	17.9	6-9-12	13	C-F bn. SAND, little Silt, tr. Gravel
	20.6	5-11-15	14	Same
	17.6	6-10-16	15	Same
	19.7	6-10-18	16	C-F bn. SAND, tr. Silt, tr. Gravel
	16.6	7-7-15	17	C-F bn-red SAND and Gravel, little Silt
	24.3	11-10-15	18	C-F bn-red SAND, some Silt, little Gravel
	18.2	3-6-8	19	C-F bn-red SAND, some Silt, some Gravel
	14.4	17-14-19	20	Same
	16.7	13-22-20	21	C-F bn-red SAND, little Silt, little Gravel
	16.0	16-11-11	22	C-F bn-red SAND, some Silt, some Gravel
	23.0	5-7-11	23	M-F bn-red SAND, tr. Silt
	23.8	6-9-13	24	C-F bn-red SAND, tr. Silt
234.8				
	12.3	18-20-24	25	GRAVEL, some C-F bn-red Sand, little Silt
	11.5	26-22-15	26	GRAVEL and C-F bn-red Sand, some Silt
	8.9	15-19-9	27	GRAVEL, tr. C-M Sand
222.3	12.3	16-30-35	28	GRAVEL, some C-F bn-red Sand, little Silt

*WATER LEVEL READING TAKEN INSIDE AUGERS WHILE ADVANCING BOREHOLE

BORING NO. 380 — SL-DWG. NO. SL-092

PROJECT: MAIN REPAIR FACILITY AND YARD AT HARRISON AND KEARNY
LOCATION: "N" 695,817 "E" 2,147,200
SURFACE ELEVATION 305.2 | WL ELEVATION 299.2 | DATE 05/27/87 | BY ZB

Elevation (Feet)	Water Content (%)	Blows per 6 in.	Sample Number	Sample Classification
305.2	--	2-4-5	1	Fill: Cinder
	9.5	3-3-3	2	Fill: C-F bn. Sand, some Gravel, little Clayey Silt, tr. Cinder
	11.3	4-4-6	3	Misc. Fill: Sand, Cinder, Gravel
	18.9	4-2-2	4	Same: Same
	19.4	2-3-13	5	Fill: Gravel and C-F bn. Sand, little Silt, tr. Cinder
296.2	29.4	15-21-19	6	Fill: Gravel and C-F bn. Sand, little Clayey Silt

BORING NO. 382 — SL-DWG. NO. SL-092

PROJECT: MAIN REPAIR FACILITY AND YARD AT HARRISON AND KEARNY
LOCATION: "N" 695,949 "E" 2,148,293
SURFACE ELEVATION 300.8 | WL ELEVATION 295.8* | DATE 06/25/87 | BY ZB

Elevation (Feet)	Water Content (%)	Blows per 6 in.	Sample Number	Sample Classification
300.8				
		5-9-25-27	1	Misc Fill: Gravel, Cinders, Sand, Silt
		8-22-14-7	2	Fill: Gravel, little C-F Gy Sand, tr. Silt
		3-1-0-0	—	No recovery
281.8	47.4	1-0-0-1	3	Fill: Bk. ORG. SILT and CLAY and M-F Gy SAND, little Gravel
280.8	22.0	5-8-14-16	4A	M-F Bn SAND, little Gravel, tr. Silt
279.8	14.7		4B	Gravel, some C-F Rd-Bn & Gy SAND, tr. Clayey Silt
	16.9	18-9-12-10	5	C-F Rd-Bn SAND, little Clayey Silt, little Gravel
	27.7	5-12-13-13	6	F Rd-Bn SAND, little Clay & Silt Seams
	20.2	5-6-17-47	7	F Rd-Bn SAND and SILT
	19.5	31-27-46-40	8	Same; tr. Gravel
269.8	23.1	12-23-36-56	9	F Rd-bn SAND, tr. Silt, tr. Gravel
267.8	28.2	18-12-18-32	10	Br CLAY & SILT, little F sand Seams
265.8	22.3	15-15-18-20	11	Rd-Bn F SAND, some Clay & Silt layers

*WATER LEVEL READING TAKEN INSIDE CASING WHILE ADVANCING THE BOREHOLE.

BORING NO. 378 — SL-DWG. NO. SL-092

PROJECT: MAIN REPAIR FACILITY AND YARD AT HARRISON AND KEARNY
LOCATION: "N" 696,103 "E" 2,150,120
SURFACE ELEVATION 302.9 | WL ELEVATION 296.9* | DATE 06/02/87 | BY ZB

Elevation (Feet)	Water Content (%)	Blows per 6 in.	Sample Number	Sample Classification
302.9	13.9	6-8-13	1	Misc. Fill: Cinder, Sand, Gravel
	14.3	10-11-9	2	Same: Cinder, bn-red Clay & Silt, Sand, Gravel
	18.1	9-11-6	3	Same: Cinder, Sand, Clayey Silt
	12.2	4-4-2	4	Fill: Bn-red Silt & Clay and C-F Sand, little Gravel
	16.7	3-3-5	5	Fill: Same
	15.9	4-3-1	6	Fill: Same
	14.6	1-2-5	7	Fill: Gravel, some C-F bn-red Sand, some Clayey Silt
	21.5	15-12-8	8	Fill: C-F bn. Sand, little Silt, little Gravel
	--	6-6-11	9	Fill: Gravel
	17.3	2-3-9	10	Fill: Gravel, some C-F bn. Sand, little Silt
	21.9	16-7-29	11	Fill: C-F bn-red Sand, little bk. Org. Silt, little Gravel
	19.2	7-3-4	12	Fill: C-F bn-red Sand, some Clayey Silt, some Gravel, tr. Org. Clay
	17.2	3-3-4	13	Fill: C-F bn-red Sand, some Silt & Clay, some Gravel
282.4	12.7	4-3-2	14A	Fill: Same
	36.7		14B	**
281.9	17.6	6-11-13	15	GRAVEL, little bk. Org. Clay Seams, little C-F bn. Sand
	17.1	7-9-12	16	C-F bn. SAND, some Clayey Silt Seams, little Gravel, tr. bk. Org. Clayey Silt Seams
	23.4	8-11-23	17	F bn. SAND, little Silt
272.9				
271.4	27.2	7-6-6	18	VARVED dk. bn. SILT & CLAY

* WATER LEVEL TAKEN INSIDE AUGERS WHILE ADVANCING BOREHOLE

** Bk. Org. Clay, little M-F Sand Seams

BORING NO. 380A — SL-DWG. NO. SL-092

PROJECT: MAIN REPAIR FACILITY AND YARD AT HARRISON AND KEARNY
LOCATION: "N" 695,817 "E" 2,147,185
SURFACE ELEVATION 305.2 | WL ELEVATION * | DATE 05/28/87 | BY ZB

Elevation (Feet)	Water Content (%)	Blows per 6 in.	Sample Number	Sample Classification
305.2				NO SAMPLES. USED AUGERS FROM 0' TO 3'.
302.3				WIRE LINE CORE BARREL USED TO CORE THROUGH BOULDERS FROM 3' TO 15.7' **
				ROCK FILL
				SUSPECT BOULDERS FROM 13' TO 15.7'
289.2				
287.7	65.5	2-2-2	1	Dk. gy. Org. SILTY CLAY, tr. F Sand
	18.1	6-8-10	2	C-F bn. SAND, tr. Silt
	22.2	3-4-4	3	C-F bn. SAND, tr. Silt, tr. Gravel
	20.0	20-18-16	4	Same
	13.9	18-24-19	5	C-F bn. SAND, tr. Silt, some Gravel
	15.1	10-13-17	6	C-F bn. SAND, tr. Silt, little Gravel
	22.1	19-5-10	7	M-F bn. SAND, tr. Silt
273.7	20.5	10-6-7	8	C-F bn. SAND, tr. Silt, little Gravel

*WATER LEVEL READING NOT APPLICABLE.
DRILLING FLUID USED TO ADVANCE THE BOREHOLE.

** RUN NO.	FROM	TO	RECOVERY	% RECOVERY
1	3'	6'	0.4'	13
2	6'	9'	1.2'	40
3	9'	11'	1.6'	80
4	11'	13'	0.9'	45
5	13'	15.7'	0	0

BORING NO. 383 — SL-DWG. NO. SL-092

PROJECT: MAIN REPAIR FACILITY AND YARD AT HARRISON AND KEARNY
LOCATION: "N" 695,903 "E" 2,147,880
SURFACE ELEVATION 300.3 | WL ELEVATION 294.4 * | DATE 06/23/87 | BY ZB

Elevation (Feet)	Water Content (%)	Blows per 6 in.	Sample Number	Sample Classification
300.3				BOULDERS FROM 3' TO 4'
295.3				
	14.6	12-12-1-3	1	Fill: Gravel and C-F Sand, tr. Silt
	29.9	33-17-14-11	2A	Fill: C-F Gy. Sand, tr. Silt, tr. Gravel
	33.5		2B	Fill: Gravel, little C-F Dk. Gy. Sand, tr. Org. Clay
	35.5	5-3-7-8	3	Fill: C-F Gy Sand, tr. Silt, tr. Gravel, tr. Wood
	18.6	12-14-19-19	4A	Fill: C-F Gy. Sand, tr. Silt, little Gravel, tr. Wood
281.3	15.5		4B	Fill: Gravel and C-F Sand, some Silt & Clay, tr. Wood
	16.2	13-14-13-13	5	Gravel and C-F Bn. SAND, some Silt & Clay
277.3	17.8	7-10-17-20	6	GRAVEL, some C-F Bn.Gy Sand, little Clayey Silt
	18.2	12-12-18-30	7	F Bn. SAND and SILT, tr. Gravel
	17.9	22-22-20-31	8	M-F Bn. SAND, some Clayey Silt Seams
	18.7	9-14-14-17	9	M-F Bn. SAND, little Clayey Silt Seams
	21.3	16-25-31-30	10	M-F Bn. SAND, some Clayey Silt Seams
	19.8	10-15-14-18	11	Same
	16.6	9-12-16-18	12	M-F Bn. SAND, some Silt
263.3	20.5	12-10-9-11	13	M-F Bn. SAND, little Silt

*WATER LEVEL READING TAKEN INSIDE CASING UPON COMPLETION OF BOREHOLE

BORING NO. 379 — SL-DWG. NO. SL-092

PROJECT: MAIN REPAIR FACILITY AND YARD AT HARRISON AND KEARNY
LOCATION: "N" 696,096 "E" 2,149,895
SURFACE ELEVATION 303.4 | WL ELEVATION 295.9* | DATE 06/02/87 | BY ZB

Elevation (Feet)	Water Content (%)	Blows per 6 in.	Sample Number	Sample Classification
303.4	--	11-8-6	1	Misc. Fill: Cinder
	--	6-7-5	2	Misc. Fill: Cinder, Gravel
	21.7	3-5-6	3	Misc. Fill: Bn-red Clay & Silt, Cinder
	13.7	5-5-5	4	Fill: Bn-red Silt & Clay, little C-F Sand, little Gravel
	16.3	1-3-2	5	Fill: C-F bn-red Sand, some Clayey Silt, little Gravel
	17.5	3-4-7	6	Fill: Bn-red Silt & Clay and Gravel, some C-F Sand
293.4	16.0	17-100+50/0" **	7	Fill: C-F bn. Sand, tr. Silt, some Gravel
291.4				BOULDERS
	—	3-4-4	8	Gravel
287.9	17.2	1-5-6	9	GRAVEL, tr. C-F bn-gy Sand, tr. Silt
	--	4-5-1	10	Bk. ORG. CLAY, tr. F Sand, tr. Gravel
	69.7	14-25-12	11	Bk. ORG. CLAY, some Gravel, tr. C-F sand
	32.2	2-1-1	12	Bk. ORG. CLAY, some M-F bn. Sand Seam, tr. Gravel
281.9	33.6	2-5-10	13	Same
	23.3	12-15-20	14	F bn. SAND, some Silt
	21.2	20-20-18	15	F bn. SAND, some Silt, tr. Gravel
	23.8	10-19-30	16	F bn. SAND and SILT
273.4				
271.9	23.7	2-5-5	17	Bn. SILTY CLAY

**300# Hammer used

* WATER LEVEL TAKEN INSIDE CASING WHILE ADVANCING BOREHOLE

BORING NO. 381 — SL-DWG. NO. SL-092

PROJECT: MAIN REPAIR FACILITY AND YARD AT HARRISON AND KEARNY
LOCATION: "N" 696,075 "E" 2,150,120
SURFACE ELEVATION 295.0 | WL ELEVATION Water Boring | DATE 06/29/87 | BY ZB

Elevation (Feet)	Water Content (%)	Blows per 6 in.	Sample Number	Sample Classification
295.0				WATER
293.0				
	59.4	W.O.R.	1	Bk. ORG. CLAY and Gravel, tr. C-F Sand
	80.3	W.O.R.	2	Same
	68.7 / 94.6	W.O.R.	3	Same
	110.2	W.O.R.	4	Bk. ORG. CLAY, tr. F Sand
	69.2	PRESSED	5U	Bk. ORG. CLAY, little M-F Sand Seams
280.0	53.1 / 33.5	W.O.H.	6	Bk. ORG. CLAY, some M-F Sand Seams
	29.3	10-11-11-15	7	M-F Bn-Gy SAND, some Clayey Silt Seams, little Gravel
275.0	24.9	10-10-10-10	8	M-F Bn SAND, tr. Silt, tr. Gravel
	29.4	5-6-6-6	9	Bn-Gy SILT and CLAY, tr. F. Sand Partings
	19.9	3-3-4-6	10A	Same
	21.4		10B	Bn CLAY and Silt, tr. F Sand Seams
268.0	32.9	4-4-3-4	11	Bn CLAY and SILT, little F Sand Seams

BORING NO. 384 — SL-DWG. NO. SL-092

PROJECT: MAIN REPAIR FACILITY AND YARD AT HARRISON AND KEARNY
LOCATION: "N" 695,864 "E" 2,147,614
SURFACE ELEVATION 300.8 | WL ELEVATION * | DATE 06/17/87 | BY ZB

Elevation (Feet)	Water Content (%)	Blows per 6 in.	Sample Number	Sample Classification
300.8				
	—	3-2-6	1	Misc. Fill: Gravel, Sand, Brick Fragments, Wood
	—	9-7-7	2	Fill: Gravel (red Shale) tr. C-F bn. red Sand, tr. Silt
	16.2	7-9-23	3	Fill: Gravel (mica Schist)
	17.5	14-50-56	4	Fill: Gravel (mica Schist)
	19.6	8-12-21	5	Fill: Same
	13.8	14-9-3	6	Fill: Same
	35.7	6-4-2	7	Fill: Gy. Org. Silty Clay and Gravel (mica Schist), little C-F Sand
	24.6	4-2-3	8	Fill: Gy. Org. Silty Clay and C-F Sand, some Gravel
275.8	38.1	5-6-4	9	Misc. Fill: Sand, Wood, Gravel, Clayey Silt
	15.1	12-14-17	10	Fill: Bn. Clayey Silt and C-F Sand, some Gravel, tr. Wood
	15.4	8-9-14	11	Fill: C-F bn. Sand, some Clayey Silt, little Gravel
	20.9	5-8-10	12	Fill: Same, tr. Wood
	17.8	8-10	13	Fill: Same, tr. Wood
	14.3	7-9-13	14	Fill: C-F bn. Sand, little Clayey Silt, little Gravel
266.8	16.3	9-11-19	15	Fill: C-F bn. Sand, some Clayey Silt, tr. Gravel, tr. Wood

*WATER LEVEL READING NOT APPLICABLE.
DRILLING FLUID USED TO ADVANCE THE BOREHOLE.

NOTES:

1. FOR GENERAL NOTES, TABULATIONS, SOIL CLASSIFICATION TERMINOLOGY, LOCATION PLAN AND LEGEND, SEE DRAWING NOS. PATH-SL-085 AND PATH-SL-086

THIS DRAWING SUBJECT TO CONDITIONS IN CONTRACT. ALL INVENTIONS, IDEAS, DESIGNS AND METHODS HEREIN ARE RESERVED TO PORT AUTHORITY AND MAY NOT BE USED WITHOUT ITS WRITTEN CONSENT.

KRO DESIGNED | CC/BM DRAWN | KRO CHECKED | EK IN CHARGE

REVISIONS

NO.	DATE	APPD.	DESCRIPTION	NO.	DATE	APPD.	DESCRIPTION

Edward Kavazanjian, Jr. 9/10/87
PREPARED BY — DATE
Parsons Brinckerhoff — Engineers · Architects · Planners

THE PORT AUTHORITY OF NY & NJ

MAIN REPAIR FACILITY AND YARD AT HARRISON AND KEARNY

PRESENTATION OF BORINGS

SCALE: AS SHOWN — DRAWING NO PATH-SL-092

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