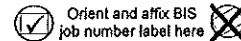


22420A



AI1: Additional Information Must be typewritten.

121324717



Page number 1 of 1

BIS Document No. _____

1 Location and Job Information Required for all applications.

House No(s) 21

Street Name West End Avenue

Borough Manhattan

Block 1171

Lot 164

BIN 1088870

CB No. 107

2 Revisions to Plans/Drawings Required whenever updating plans. All revisions for each page must be clearly described in section 3.

Submission is part of a Post Approval Amendment (PAA)? ☐ Yes PW1 required ☐ No Indicate all actions for this submission:

Action	Original/New/ Omit Page ID	Superseding Page ID	Action	Original/New/ Omit Page ID	Superseding Page ID	Action	Original/New/ Omit Page ID	Superseding Page ID	Action	Original/New/ Omit Page ID	Superseding Page ID

For "Action" use "N" for new page, "S" for superseding page, "O" for omitting page.

Is this section continued on additional AI1 forms? ☐ Yes ☐ No

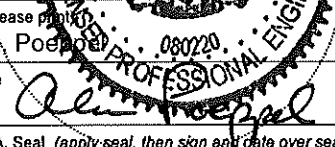
3 Additional Information Required for all applications.

We have included and relied upon additional borings performed by others at the project site. The borings were performed by Mueser Rutledge Consulting Engineers. To our knowledge, the borings were performed in general accordance with ASTM D1586 - Standard Test Method for Standard Penetration Test, and other Building Code requirements. The boring logs are reproduced and attached for reference.

Falsification of any statement is a misdemeanor and is punishable by a fine or imprisonment, or both. It is unlawful to give to a city employee, or for a city employee to accept, any benefit, monetary or otherwise, either as a gratuity for properly performing the job or in exchange for special consideration. Violation is punishable by imprisonment or fine or both. I understand that if I am found after hearing to have knowingly or negligently made a false statement or to have knowingly or negligently falsified or allowed to be falsified any certificate, form, signed statement, application, report or certification of the correction of a violation required under the provisions of this code or of a rule of any agency, I may be barred from filing further applications or documents with the Department.

Name (please print)
Alan R. Poëppel

Signature



Date

9/27/12

P.E. / R.A. Seal (apply seal, then sign and date over seal)

ENGINEERING CONSULTANTS

LOG

PROJECT: RIVER CENTER BUILDING 2
LOCATION: NEW YORK, NEW YORK

ENGINE NO: RC-1
SHEET NO: 3
LENO: 10164C
SPECIAL ELEMENT: 13
ENGINEER: DANIEL GEORGE

DAILY PROGRESS	SAMPLE			SPECIAL DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
	NO.	DEPTH	BLOWS/6"					
12:45 06-06-11 Monday Partly Cloudy 75°F	1D	0.3	8-6	Black fine to coarse sand, some gravel, silt (Fill) (SM) Black fine to coarse sand, some silt, gravel (Fill) (SM) Brown fine to coarse sand, some brick, gravel silt (Fill) (SM) Black silty fine to coarse sand, some gravel, trace brick (Fill) (SM) Brown fine to coarse sand, some silt, gravel (Fill) (SM) Top 6": Light brown silty fine sand, some gravel (SM) Bot 7": Green-brown silty fine sand (SM) Brown fine to medium sand, some silt, gravel, trace coarse sand (SM) Light brown medium to fine sand, some rock fgmts, trace silt (Decomposed Rock) (SP-SM) Weathered moderately weathered to highly weathered gray gneissic schist, jointed to broken, weathered & clay joints & iron stained joints Intermediate to weathered, moderately weathered to highly weathered gray gneissic schist, jointed to broken, weathered & FeJts W SIW to HiW gray gneissic schist, closely jointed to broken, weathered joints & FeJts W SIW to MdW gray gneissic schist, jointed, weathered joints & iron stained joints Int to W SIW to HiW gray gneissic schist, closely jointed to Bkn weathered & CIJts & FeJts Intermediate to Weathered SIW to HiW gray gneissic schist, jointed to broken, WJts Weathered moderately weathered to highly weathered gray gneissic schist, broken, weathered joints		DRILLED	**Asphalt from 0' to 0.3'	
		2.3	7-4			AHEAD	Asphalt at grade.	
	2D	2.3	2-7			4"		
		4.3	14-18					
	3D	5.0	6-13					
		7.0	11-5					
	4D	7.0	6-6				Hard drilling at 8'.	
		8.5	6					
	5D	10.0	8-4				REC=5"	
		12.0	6-7					
14:15 07:00 06-06-11 Tuesday Clear 70°F	6D	15.0	11-5					
		17.0	2-2					
	7D	20.0	7-12					
		22.0	10-14					
	8D	25.0	100/3"					Losing water from 27' to 31'.
		25.3						
	1C	27.0	REC=69%			8.75*	*Coring time in minutes per foot.	
		32.0	RQD=16%			8*		
						2.25*		
						2.25*		
	2C	32.0	REC=63%			4*		
		36.0	RQD=0%			5.5*		
						3.25*		
						3*		Barrel blocked up at 36', 37.6' & 40.8'.
	3C	36.0	REC=100%			6.75*		
		37.6	RQD=0%			3*		
	4C	37.6	REC=100%			5*		Run 4C catch in core barrel beat, lost most of run during drilling.
		38.0	RQD=0%			2.75*		
	5C	38.0	REC=57%			2.25*		
		41.0	RQD=27%			7.5*		
	6C	41.0	REC=67%			4.5*		
		44.0	RQD=27%			4.5*		
	7C	44.0	REC=100%			2.5*		4" Casing dropped 2' after Run 6C completed & 5' after Run 7C.
		44.7	RQD=0%			3*		End of Boring at 44.7'.

ENGINE NO: RC-1

**MUESER RUTLEDGE CONSULTING ENGINEERS
ROCK CORE SKETCH**

BORING NO. RC-1
SHEET 2 OF 3
FILE NO. 10164C
SURFACE ELEV. 13
RES. ENGR. D. GEORGE

PROJECT RIVER CENTER BUILDING 2

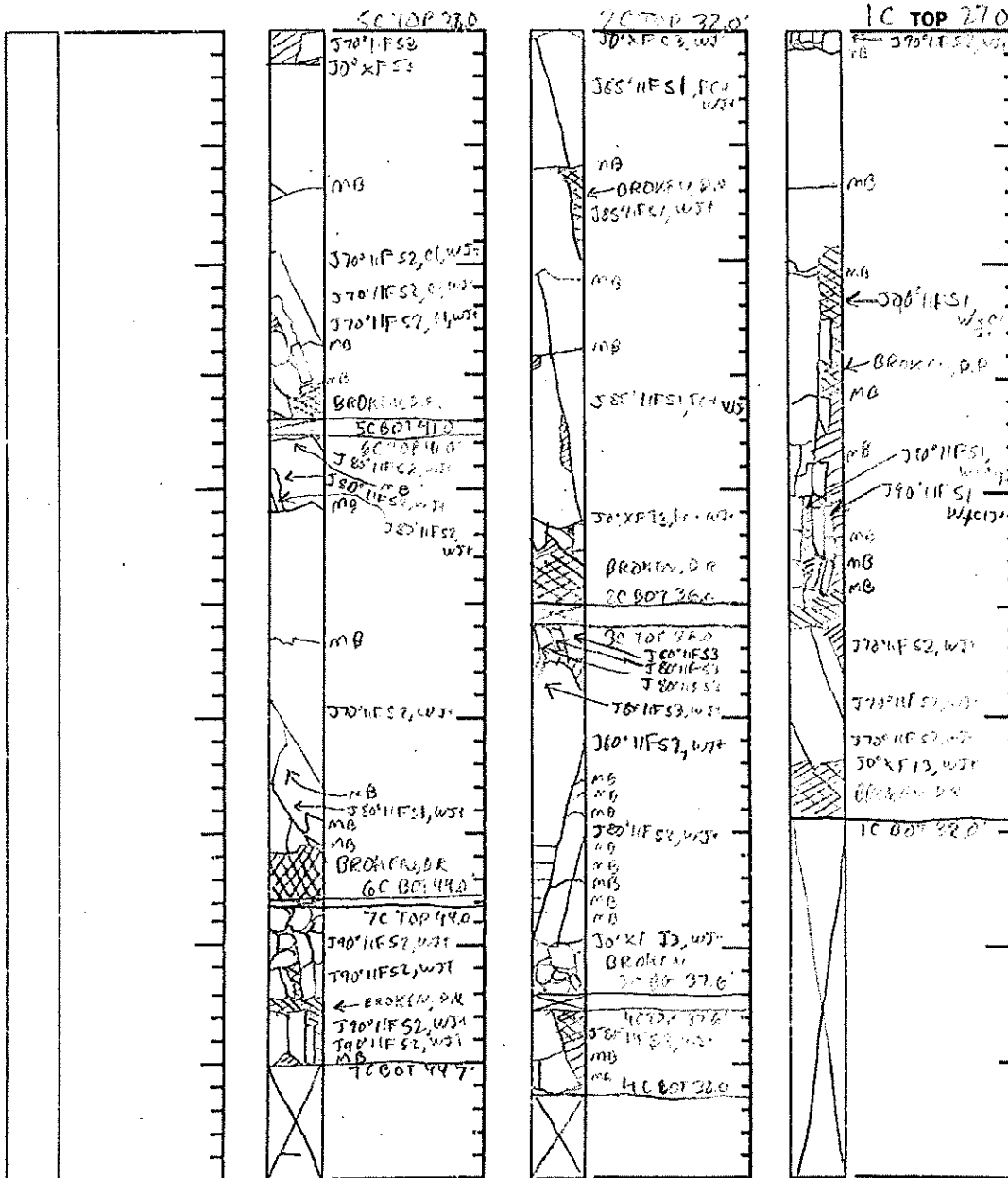
LOCATION NEW YORK, NY

Run No.	REC / RQD

Run No.	REC / RQD
5C	57/27
6C	67/27
7C	100/0

Run No.	REC / RQD
2C	63/0
3C	100/0
4C	100/0

Run No.	REC / RQD
1C	69/16



ROCK CORE SKETCH LEGEND

JOINTING
J - Joint
MB - Mechanical Break
X - Angle w/ Horizontal
// - Parallel
X - Crossing
F - Foliation
S - Stratification
U - Unfoliated or Unstratified

SURFACE
C - Curved
I - Irregular
S - Straight

CONDITION
1 - Silty
2 - Smooth
3 - Rough

SKETCH SYMBOLS

- Joint
- Healed Joint
- Broken
- Part of Core Not Recovered
- Cavities or Vugs in Core
- Clay
- Sand
- Empty Space

SCALE: 1 division = 0.1 feet

NOTES _____

PROPOSED SETTLEMENT CONSULTING ENGINEER'S

PROJECT RIVER CENTER BUILDING 2
 LOCATION NEW YORK, NEW YORK
 BORING LOCATION SEE BORING LOCATION PLAN
 BORING NO. RC-1
 SHEET 3 OF 3
 FILE NO. 10164C
 SCHEDULE NO. 13
 DATE BOROUGH PRESIDENT OF MANHATTAN

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG TYPE OF FEED DURING CORING CASING USED ☒ YES ☐ NO
 TRUCK JACKER SOIL MAX MECHANICAL DIA., IN. 4 DEPTH, FT. FROM 0 TO 21.2
 SKID HYDRAULIC X DIA., IN. DEPTH, FT. FROM TO
 BARGE OTHER DIA., IN. DEPTH, FT. FROM TO
 OTHER

TYPE AND SIZE OF: DRILLING MUD USED ☐ YES ☒ NO
 D-SAMPLER 2" O. D. SPLIT SPOON DIAMETER OF ROTARY BIT, IN. 4-3/4, 3-3/4
 U-SAMPLER TYPE OF DRILLING MUD
 S-SAMPLER
 CORE BARREL NX DOUBLE TUBE AUGER USED ☐ YES ☒ NO
 CORE BIT NX DIAMOND BIT TYPE AND DIAMETER, IN.
 DRILL RODS NWJ
 *CASING HAMMER, LBS. 300 AVERAGE FALL, IN. 30
 *SAMPLER HAMMER, LBS. 140 AVERAGE FALL, IN. 30
 *USED DONUT HAMMER.

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE	DEPTH OF CASING	DEPTH TO WATER	CONDITIONS OF OBSERVATION
06-07-11	07:00	25.3	13.8	10.3	OVERNIGHT MUD LEVEL.
06-07-11	14:05	44.7	21.2	10.2	READING TAKEN AT END OF BORING.

PIEZOMETER INSTALLED ☐ YES ☒ NO SKETCH SHOWN ON

STANDPIPE: TYPE ID, IN. LENGTH, FT. TOP ELEV.
 INTAKE ELEMENT: TYPE OD, IN. LENGTH, FT. TIP ELEV.
 FILTER: MATERIAL OD, IN. LENGTH, FT. BOT. ELEV.

PAY QUANTITIES

3.5" DIA. DRY SAMPLE BORING LIN. FT. 27 NO. OF 3" SHELBY TUBE SAMPLES
 3.5" DIA. U-SAMPLE BORING LIN. FT. NO. OF 3" UNDISTURBED SAMPLES
 CORE DRILLING IN ROCK LIN. FT. 17.7 OTHER:

BORING CONTRACTOR WARREN GEORGE, INC.
 DRILLER MICHAEL MCERLEAN HELPERS WALTER MALINOWSKI
 REMARKS BOREHOLE BACKFILLED WITH SOIL CUTTINGS & PATCHED WITH CONCRETE UPON COMPLETION.
 RESIDENT ENGINEER DANIEL GEORGE DATE 06-07-11
 CLASSIFICATION CHECK: CHERYL J. MOSS TYPING CHECK: A. KLAETSCH

BOOKING LOG

ENGINE NO	RC-2P
SHEET NO	4
LE NO	10164C
E ELE	13.4
ES ENG	DANIEL GEORGE

000NGNO RC-2P

BORING NO. RC-2P
SHEET 2 OF 4
FILE NO. 10164C
SURFACE ELEV. 13.4
RES. ENGR. D. GEORGE

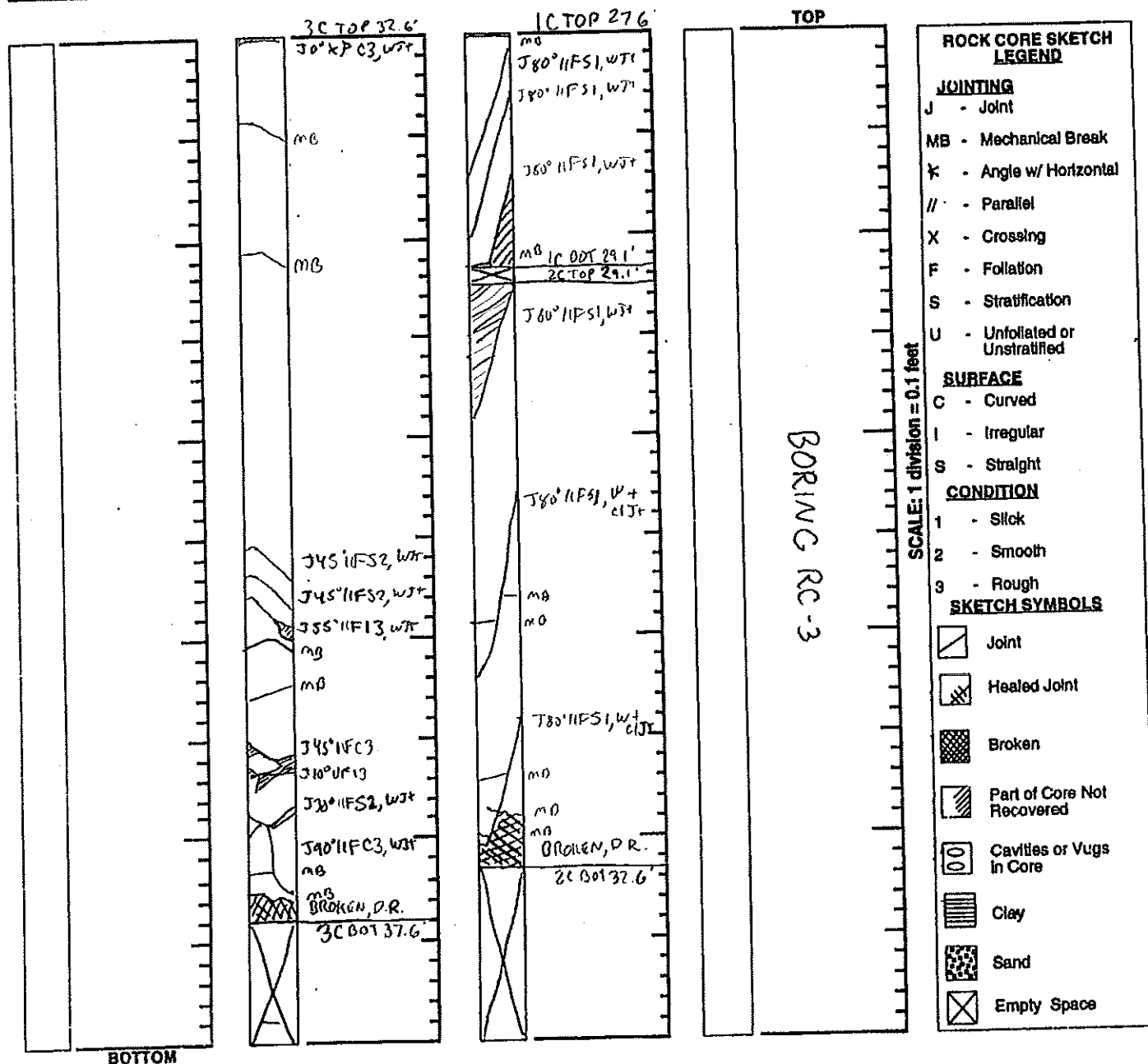
LOCATION NEW YORK, NY

Run No.	REC / RQD

Run No.	REC / RQD
3C	88/59

Run No.	REC / RQD
1C	77/50
2C	83/57

Run No.	REC / RQD



NOTES

PROJECT RIVER CENTER BUILDING 2 PIEZOMETER NO. RC-2P
LOCATION NEW YORK, NY
PIEZOMETER LOCATION SEE BORING LOCATION PLAN DATE OF INSTALLATION 6/6/11
☐ SEE SKETCH ON BACK RES. ENG. D. GEORGE

elevation of rim, ft = _____
 diameter, in = 2, ft = 0.167 = 2r

PIEZOMETER NO. RC-2P

MRCE FORM BS-1

PROJECT	RIVER CENTER BUILDING 2	BOILING NO.	RC-2P
LOCATION	NEW YORK, NEW YORK	SHEET	4 OF 4
BOILING LOCATION	SEE BORING LOCATION PLAN	FILE NO.	10164C
		STATION ELEV.	13.4
		DEPTH	BOROUGH PRESIDENT OF MANHATTAN

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG	TYPE OF FEED DURING CORING	CASING USED	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
TRUCK	ACKER SOIL MAX MECHANICAL	DIA., IN. 4	DEPTH, FT. FROM 0 TO 23.5
SKID	HYDRAULIC X	DIA., IN.	DEPTH, FT. FROM TO
BARGE	OTHER	DIA., IN.	DEPTH, FT. FROM TO
OTHER			

TYPE AND SIZE OF:	DRILLING MUD USED <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
D-SAMPLER 2" O. D. SPLIT SPOON	DIAMETER OF ROTARY BIT, IN. 4-3/4, 3-3/4
U-SAMPLER	TYPE OF DRILLING MUD
S-SAMPLER	
CORE BARREL NX DOUBLE TUBE	AUGER USED <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
CORE BIT NX DIAMOND BIT	TYPE AND DIAMETER, IN.
DRILL RODS NWJ	
	*CASING HAMMER, LBS. 300 AVERAGE FALL, IN. 30
	*SAMPLER HAMMER, LBS. 140 AVERAGE FALL, IN. 30
	*USED DONUT HAMMER.

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE	DEPTH OF CASING	DEPTH TO WATER	CONDITIONS OF OBSERVATION
06-06-11	07:00	10	9	0.4	MORNING WATER READING RODS LEFT IN HOLE.
06-06-11	10:30	37.6	23.5	8.5	READING TAKEN AT END OF BORING.

PIEZOMETER INSTALLED <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO		SKETCH SHOWN ON SEE SHEET NO. 3	
STANDPIPE:	TYPE	PVC PIPE	ID, IN. 2 LENGTH, FT. 7 TOP ELEV. 13.4
INTAKE ELEMENT:	TYPE	PVC SLOTTED PIPE	OD, IN. 2-1/2 LENGTH, FT. 30 TIP ELEV. 9.1
FILTER:	MATERIAL	SAND	OD, IN. 4 LENGTH, FT. 33.3 BOT. ELEV. -24.2

PAY QUANTITIES

3.5" DIA. DRY SAMPLE BORING	LIN. FT. 27.6	NO. OF 3" SHELBY TUBE SAMPLES
3.5" DIA. U-SAMPLE BORING	LIN. FT.	NO. OF 3" UNDISTURBED SAMPLES
CORE DRILLING IN ROCK	LIN. FT. 10	OTHER:

BORING CONTRACTOR	WARREN GEORGE, INC.
DRILLER	MICHAEL MCERLEAN HELPERS WALTER MALINOWSKI
REMARKS	PIEZOMETER INSTALLED.
RESIDENT ENGINEER	DANIEL GEORGE DATE 06-06-11
CLASSIFICATION CHECK:	CHERYL J. MOSS TYPING CHECK: A. KLAETSCH

DOING LOG

PROJECT: RIVER CENTER BUILDING 2
LOCATION: NEW YORK, NEW YORK

000NGNO	RC-3
SLEET00	4
0LENO	10164C
0000EELE	19.4
0ES0ENG0	DANIEL GEORGE

[illegible]

00INGNO0 RC-3

**MUESER RUTLEDGE CONSULTING ENGINEERS
ROCK CORE SKETCH**

BORING NO. RC-3
SHEET 2 OF 4
FILE NO. 10164C
SURFACE ELEV. 19.4
RES. ENGR. D. GEORGE

PROJECT RIVER CENTER BUILDING 2

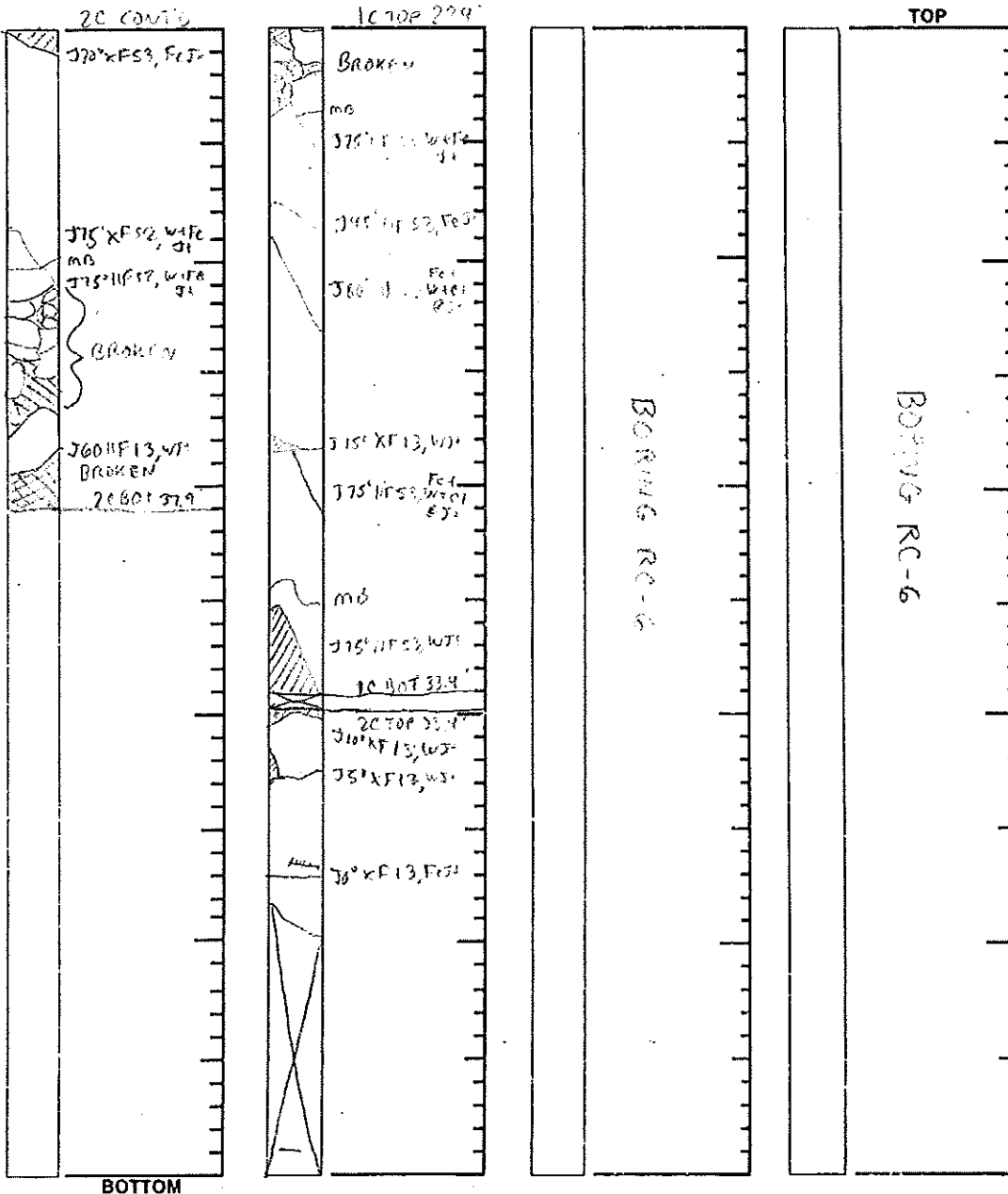
LOCATION NEW YORK, NY

Run No.	REC / RQD
2C	CONT'D

Run No.	REC / RQD
1C	73/20
2C	88/24

Run No.	REC / RQD

Run No.	REC / RQD



ROCK CORE SKETCH LEGEND

JOINTING

- J - Joint
- MB - Mechanical Break
- X - Angle w/ Horizontal
- // - Parallel
- X - Crossing
- F - Foliation
- S - Stratification
- U - Unfoliated or Unstratified

SURFACE

- C - Curved
- I - Irregular
- S - Straight

CONDITION

- 1 - Slick
- 2 - Smooth
- 3 - Rough

SKETCH SYMBOLS

- Joint
- Healed Joint
- Broken
- Part of Core Not Recovered
- Cavities or Vugs in Core
- Clay
- Sand
- Empty Space

NOTES _____

BORING NO. RC-3
SHEET 3 OF 4
FILE NO. 10164C
RFACE ELEV. 19.4
RES. ENGR. D GEORGE

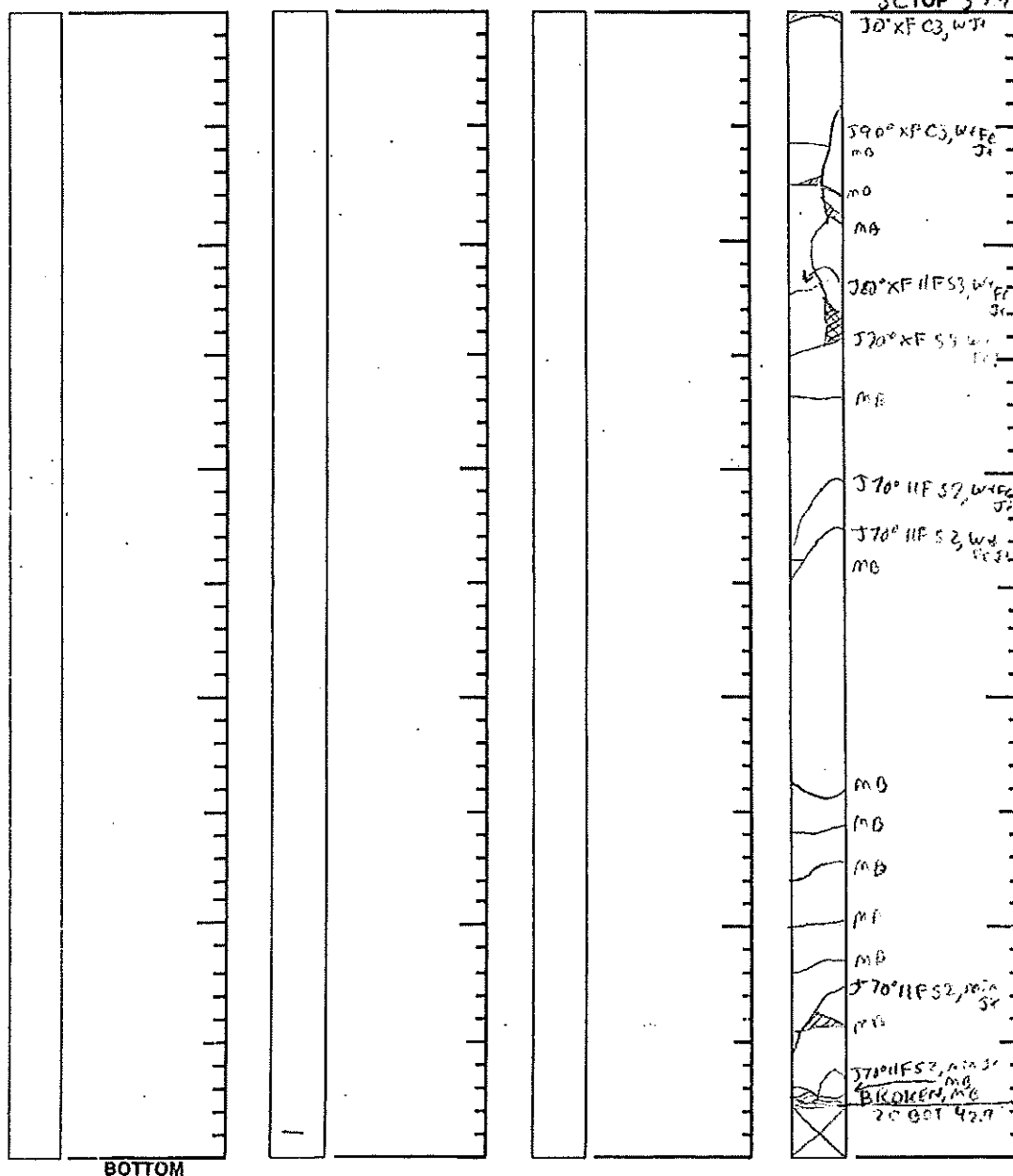
LOCATION NEW YORK, NY

Run No.	REC / RQD

Run No.	REC / RQD

Run No.	REC / RQD

Run No.	REC / RQD
3c	95/52



BOTTOM

NOTES

MRCE Form BS-1

PROJECT RIVER CENTER BUILDING 2
 LOCATION NEW YORK, NEW YORK
 BORING LOCATION SEE BORING LOCATION PLAN
 BORING NO. RC-3
 SHEET 4 OF 4
 FILE NO. 10164C
 SURFACE ELEV. 19.4
 DISTRICT BOROUGH PRESIDENT OF MANHATTAN

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG TYPE OF FEED DURING CORING CASING USED ☒ YES ☐ NO
 TRUCK JACKER SOIL MAX MECHANICAL DIA., IN. 4 DEPTH, FT. FROM 0 TO 24
 SKID HYDRAULIC X DIA., IN. DEPTH, FT. FROM TO
 BARGE OTHER DIA., IN. DEPTH, FT. FROM TO
 OTHER

TYPE AND SIZE OF: DRILLING MUD USED ☐ YES ☒ NO
 D-SAMPLER 2" O. D. SPLIT SPOON DIAMETER OF ROTARY BIT, IN. 4-3/4, 3-3/4
 U-SAMPLER TYPE OF DRILLING MUD
 S-SAMPLER
 CORE BARREL NX DOUBLE TUBE AUGER USED ☐ YES ☒ NO
 CORE BIT NX DIAMOND BIT TYPE AND DIAMETER, IN.
 DRILL RODS NWJ
 *CASING HAMMER, LBS. 300 AVERAGE FALL, IN. 30
 *SAMPLER HAMMER, LBS. 140 AVERAGE FALL, IN. 30
 *USED DONUT HAMMER.

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE	DEPTH OF CASING	DEPTH TO WATER	CONDITIONS OF OBSERVATION
06-03-11	11:05	42.9	19	5.2	READING TAKEN AT END OF BORING, 5' CASING PULLED 1ST.

PIEZOMETER INSTALLED ☐ YES ☒ NO SKETCH SHOWN ON

STANDPIPE: TYPE ID, IN. LENGTH, FT. TOP ELEV.
 INTAKE ELEMENT: TYPE OD, IN. LENGTH, FT. TIP ELEV.
 FILTER: MATERIAL OD, IN. LENGTH, FT. BOT. ELEV.

PAY QUANTITIES

3.5" DIA. DRY SAMPLE BORING LIN. FT. 29.4 NO. OF 3" SHELBY TUBE SAMPLES
 3.5" DIA. U-SAMPLE BORING LIN. FT. NO. OF 3" UNDISTURBED SAMPLES
 CORE DRILLING IN ROCK LIN. FT. 13.5 OTHER:

BORING CONTRACTOR WARREN GEORGE, INC.
 DRILLER MICHAEL MCERLEAN HELPERS WALTER MALINOWSKI
 REMARKS BOREHOLE BACKFILLED WITH SOIL CUTTINGS & PATCHED WITH CONCRETE UPON COMPLETION.
 RESIDENT ENGINEER DANIEL GEORGE DATE 06-03-11
 CLASSIFICATION CHECK: CHERYL J. MOSS TYPING CHECK: A. KLAETSCH

ESE TLEDGEONS LTNGENGINEES

OING LOG

PROJECT: RIVER CENTER BUILDING 2
 LOCATION: NEW YORK, NEW YORK

OING NO RC-4
 SEET NO 5
 LE NO 10164C
 S E ELE 15.5
 ES ENG DANIEL GEORGE

DAILY PROGRESS	SAMPLE			SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
12:15	1D	0.3	5-8	Top 6": Brn & blk f-m sand, sm silt (Fill) (SM)	S	0.3	DRILLED	**Asphalt from 0' to 0.3'.
06-08-11		2.3	11-8	Bot 12": Brn silty f-c sand, tr gravel (Fill) (SM)		2.3	AHEAD	Asphalt at grade.
Wednesday	2D	2.3	7-7	Brown silty fine sand, trace gravel (Fill) (SM)		2.3	4" 3"	
Clear		4.3	10-19			4.3		
90°F	3D	5.0	6-4	Brown fine to coarse sand, some silt, trace gravel (Fill) (SM)		5.0		
		7.0	4-3	Gray fine to coarse sand, some silt, gravel (Fill) (SM)		7.0		
	4D	7.0	3-6	Gray fine to coarse sand, some silt, gravel (Fill) (SM)		7.0		
		9.0	11-9			9.0		
	5D	10.0	2-1	Gray fine to coarse sand, sm silt, trace gravel, brick (Fill) (SM)		10.0		Spun casing at 10'.
		12.0	2-2			12.0		4" Casing pushed to 12'; driven there after.
	6D	15.0	2-WH/12" 1	Gray fine to medium sand, some silt, trace gravel (SM)	S	15.0		
		17.0				17.0		
	7D	20.0	9-12	Top 17": Do 6D (SM)		20.0		
		22.0	13-12	Bot 1": Red brown fine sand, some silt, trace gravel (SM)		22.0		
	8D	25.0	7-6	Top 2": Brn fine to medium sand, some silt (SM)		25.0		
		27.0	12-12	Bot 18": Brown clayey silt, trace coarse sand, gravel (ML)		27.0		8D Bot: WC=22
	9D	30.0	20-32	Red brown fine to coarse sand, some silt, trace gravel (SM)		30.0		
		32.0	36-39			32.0		
13:45								Rig chatter from 33' to 35'.
06:15	10D	35.0	35-100/4"	Red brown fine to coarse sand, some rock fgmts, silt (SM)	D	35.0		
06-09-11		35.8				35.8		
Thursday	11NR	39.3	100/2"	No recovery		39.3	7*	REC=0"
Clear		39.5				39.5	4.75*	*Coring time in minutes per foot.
80°F	1C	39.5	REC=66%	Int to W SIW to MdW gray mica schist, jointed to broken, weathered & clay joints & FeJts		39.5	12*	
		43.5	RQD=8%			43.5	12*	
	2C	43.5	REC=100%	Weathered slightly weathered gray mica schist, closely jointed to bkn, weathered & clay joints		43.5	9*	Core barrel blocked at 43.5'.
		44.6	RQD=0%			44.6	10*	
	3C	44.6	REC=62%	Weathered slightly weathered gray mica schist, jointed, weathered joints		44.6	10.75*	
		46.7	RQD=0%			46.7	2.75*	
	4C	46.7	REC=99%	Weathered to intermediate slightly weathered to moderately weathered gray schist, trace pegmatite, jointed to broken, weathered & mineral coated & clay joints		46.7	2.25*	Lost all water at 48'.
		51.7	RQD=10%			51.7	3.5*	Spun 3" casing.
							5.75*	

OING NO RC-4

ONGOING LOG

00NGNO	RC-4
S0ET00	5
0LENO	10164C
0000ELE0	15.5
0ES0ENG00	DANIEL GEORGE

PROJECT: RIVER CENTER BUILDING 2
LOCATION: NEW YORK, NEW YORK

[illegible]

BORING NO. RC-4
SHEET 3 **OF** 5
FILE NO. 10164C
RFACE ELEV. 15.5
RES. ENGR. D. GEORGE

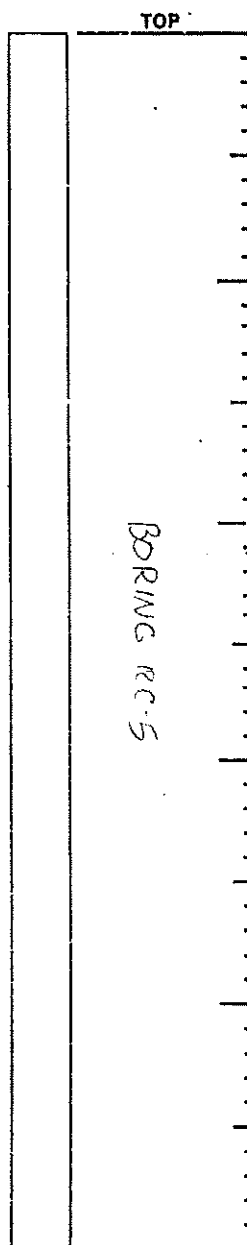
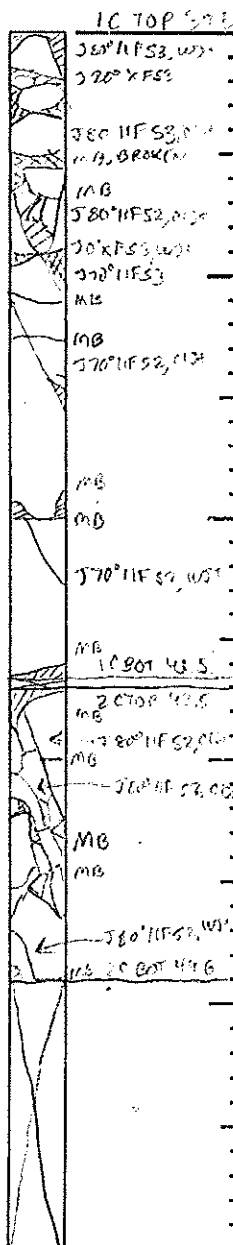
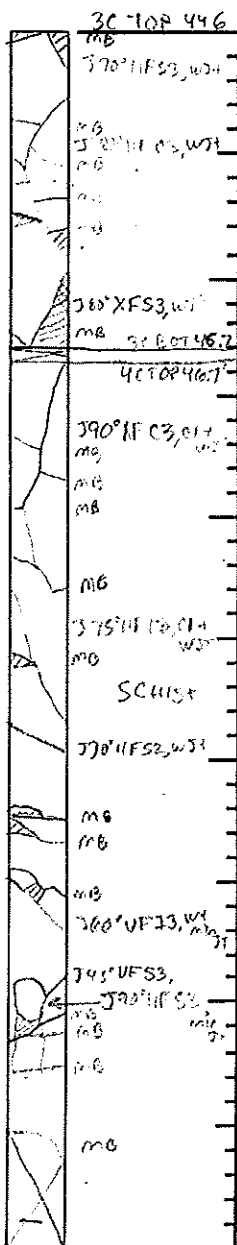
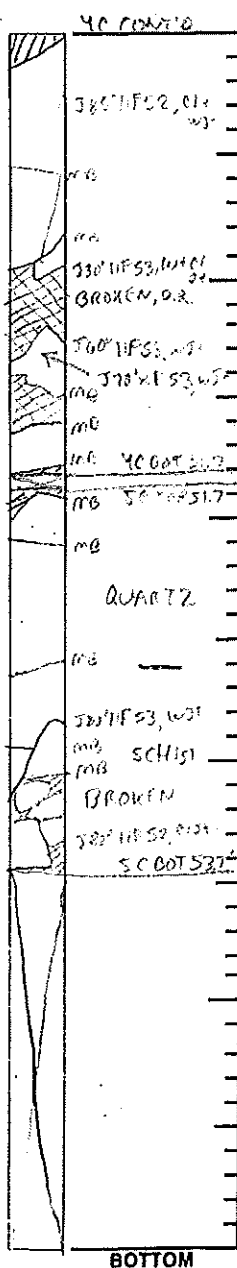
LOCATION NEW YORK NY









Run No.	REC / RQD
4C	COMED
5C	80/43

Run No.	REC / RQD
3C	62/0
4C	99/10

Run No.	REC / RQD
1C	66/8
2C	100/0

Run No.	REC / RQD



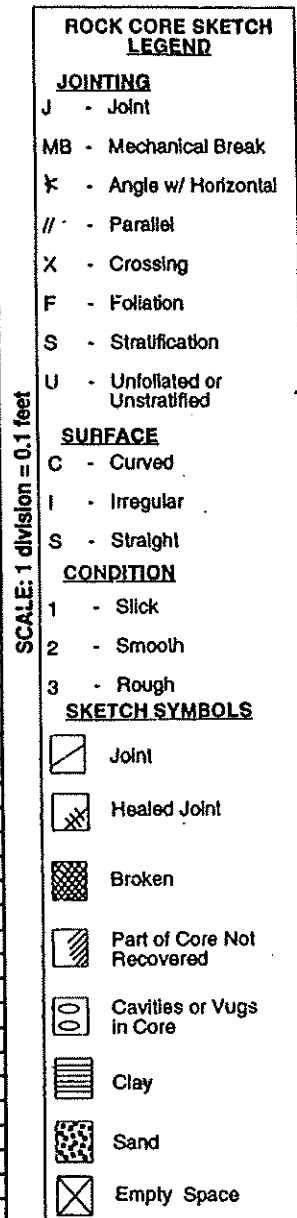
ROCK CORE SKETCH LEGEND	
<u>JOINTING</u>	
J	- Joint
MB	- Mechanical Break
∠	- Angle w/ Horizontal
//	- Parallel
X	- Crossing
F	- Foliation
S	- Stratification
U	- Unfoliated or Unstratified
<u>SURFACE</u>	
C	- Curved
I	- Irregular
S	- Straight
<u>CONDITION</u>	
1	- Slick
2	- Smooth
3	- Rough
<u>SKETCH SYMBOLS</u>	
	Joint
	Healed Joint
	Broken
	Part of Core Not Recovered
	Cavities or Vugs in Core
	Clay
	Sand
	Empty Space

NOTES _____

BORING NO. RC-4
SHEET 4 OF 5
FILE NO. 10164C
SURFACE ELEV. 15.5
RES. ENGR. D. GEORGE

LOCATION NEW YORK

Run No.	REC / RQD
6C	36/0
7C	68/43



NOTES

PROPOSED SETTLEMENT MONITORING ENGINEERING

PROJECT LOCATION: RIVER CENTER BUILDING 2
NEW YORK, NEW YORK
BORING LOCATION: SEE BORING LOCATION PLAN

DATE: 09-09-11
SHEET: 5 OF 5
PROJECT NO.: 10164C
SHEET NO.: 15.5
DISTRICT: BOROUGH PRESIDENT OF MANHATTAN

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG	TYPE OF FEED	CASING USED	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO
TRUCK	ACKER SOIL MAX MECHANICAL	DIA., IN.	4	DEPTH, FT. FROM 0 TO 18.6
SKID	HYDRAULIC	DIA., IN.	3	DEPTH, FT. FROM 0 TO 45.6
BARGE	OTHER	DIA., IN.		DEPTH, FT. FROM TO
OTHER				

TYPE AND SIZE OF:	DRILLING MUD USED	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO
D-SAMPLER	2" O. D. SPLIT SPOON	DIAMETER OF ROTARY BIT, IN.	4-3/4, 3-3/4
U-SAMPLER		TYPE OF DRILLING MUD	E-Z MUD
S-SAMPLER		AUGER USED	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
CORE BARREL	NX DOUBLE TUBE	TYPE AND DIAMETER, IN.	
CORE BIT	NX DIAMOND BIT		
DRILL RODS	NWJ		

*CASING HAMMER, LBS. 300 AVERAGE FALL, IN. 30
*SAMPLER HAMMER, LBS. 140 AVERAGE FALL, IN. 30
*USED DONUT HAMMER.

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE	DEPTH OF CASING	DEPTH TO WATER	CONDITIONS OF OBSERVATION
06-09-11	12:40	67	45.6	19.7	READING TAKEN AT END OF BORING (TAPED 65.9').

PIEZOMETER INSTALLED ☐ YES ☒ NO SKETCH SHOWN ON

STANDPIPE:	TYPE	ID, IN.	LENGTH, FT.	TOP ELEV.
INTAKE ELEMENT:	TYPE	OD, IN.	LENGTH, FT.	TIP ELEV.
FILTER:	MATERIAL	OD, IN.	LENGTH, FT.	BOT. ELEV.

PAY QUANTITIES

3.5" DIA. DRY SAMPLE BORING	LIN. FT.	39.5	NO. OF 3" SHELBY TUBE SAMPLES
3.5" DIA. U-SAMPLE BORING	LIN. FT.		NO. OF 3" UNDISTURBED SAMPLES
CORE DRILLING IN ROCK	LIN. FT.	27.5	OTHER:

BORING CONTRACTOR: WARREN GEORGE, INC.
DRILLER: MICHAEL MCERLEAN HELPERS: WALTER MALINOWSKI
REMARKS: BOREHOLE BACKFILLED WITH SOIL CUTTINGS & PATCHED WITH CONCRETE UPON COMPLETION.
RESIDENT ENGINEER: DANIEL GEORGE DATE: 06-09-11
CLASSIFICATION CHECK: CHERYL J. MOSS TYPING CHECK: A. KLAETSCH

BOOKING LOG

ROOMING NO	RC-5
SHEET NO	4
FILE NO	10164C
EE ELE	13.2
ES ENG	DANIEL GEORGE

[illegible]

ENGINE RC-5

MUESER RUTLEDGE CONSULTING ENGINEERS
ROCK CORE SKETCH

BORING NO. RC-5
SHEET 2 OF 4
FILE NO. 101640
SURFACE ELEV. 13.2
RES. ENGR. D. GEORGE

PROJECT RIVER CENTER BUILDING 2

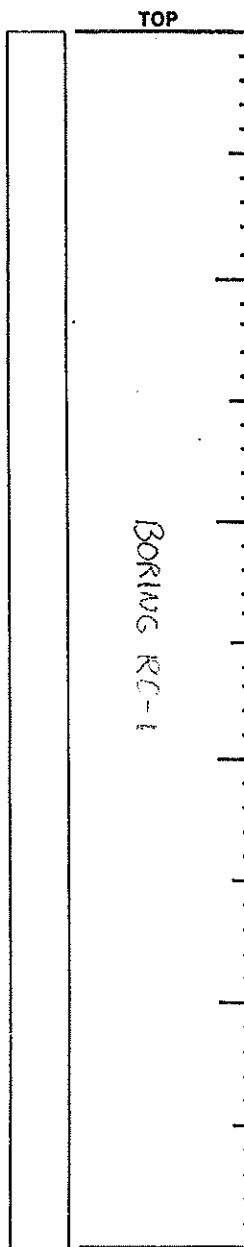
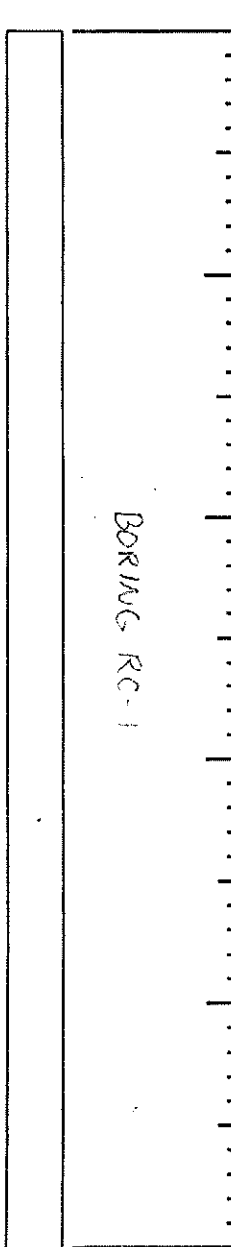
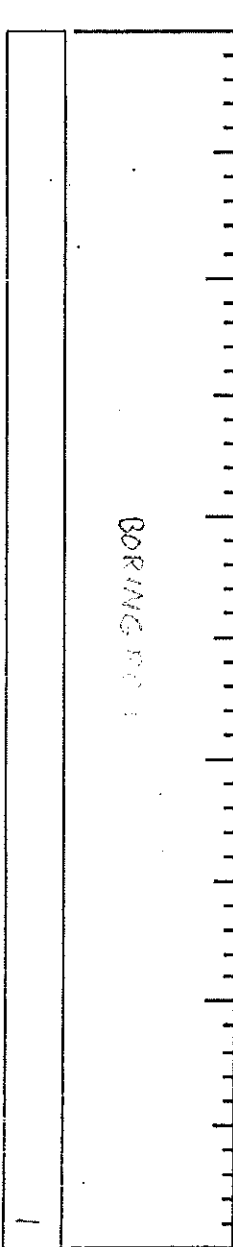
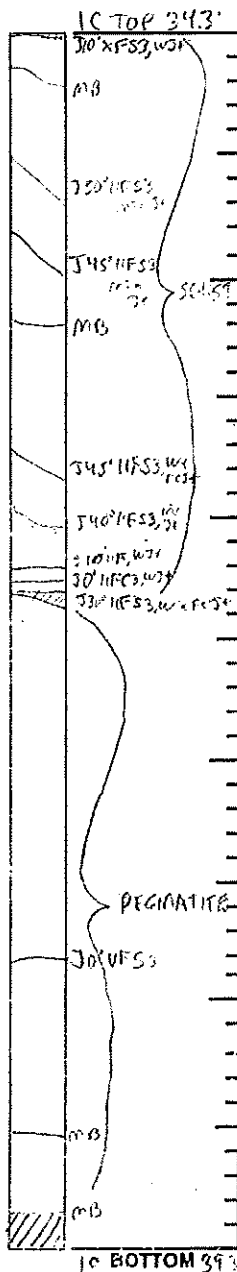
LOCATION NEW YORK, NY

Run No.	REC / RQD
1C	97/73

Run No.	REC / RQD

Run No.	REC / RQD

Run No.	REC / RQD



ROCK CORE SKETCH LEGEND	
<u>JOINTING</u>	
J	- Joint
MB	- Mechanical Break
K	- Angle w/ Horizontal
//	- Parallel
X	- Crossing
F	- Foliation
S	- Stratification
U	- Unfoliated or Unstratified
<u>SURFACE</u>	
C	- Curved
I	- Irregular
S	- Straight
<u>CONDITION</u>	
1	- Slick
2	- Smooth
3	- Rough
<u>SKETCH SYMBOLS</u>	
	Joint
	Healed Joint
	Broken
	Part of Core Not Recovered
	Cavities or Vugs In Core
	Clay
	Sand
	Empty Space

SCALE: 1 division = 0.1 feet

NOTES

**MUESER RUTLEDGE CONSULTING ENGINEERS
ROCK CORE SKETCH**

BORING NO. RC-5
SHEET 3 **OF** 4
FILE NO. 10164C
SURFACE ELEV. 13.2
RES. ENGR. D. GEORGE

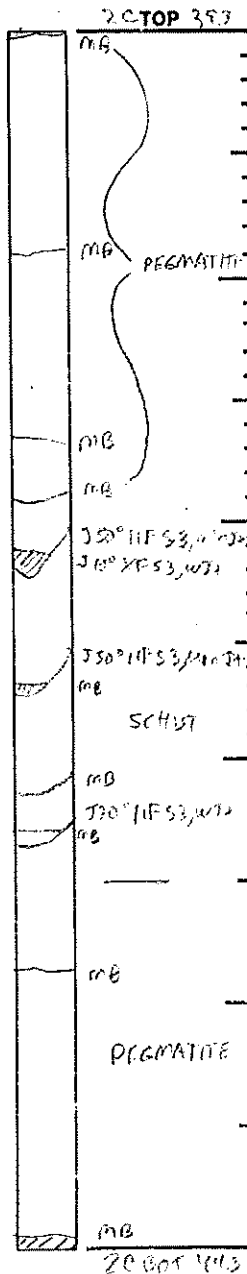
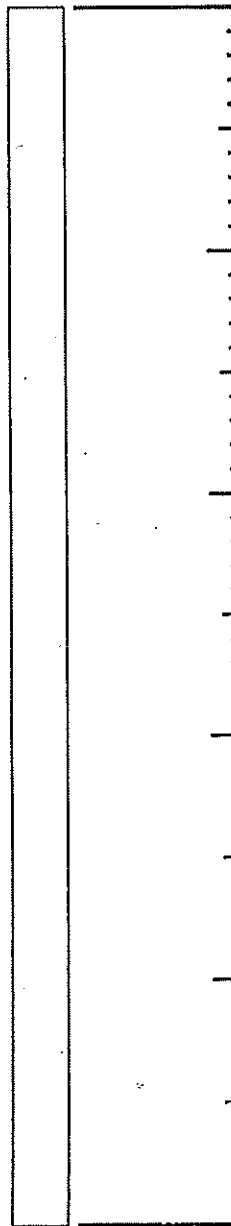
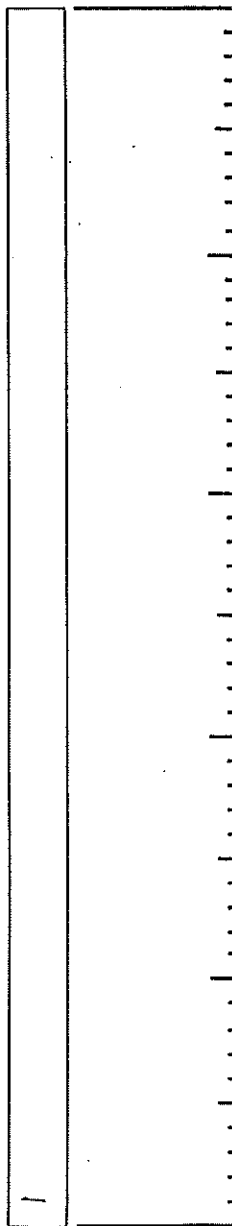
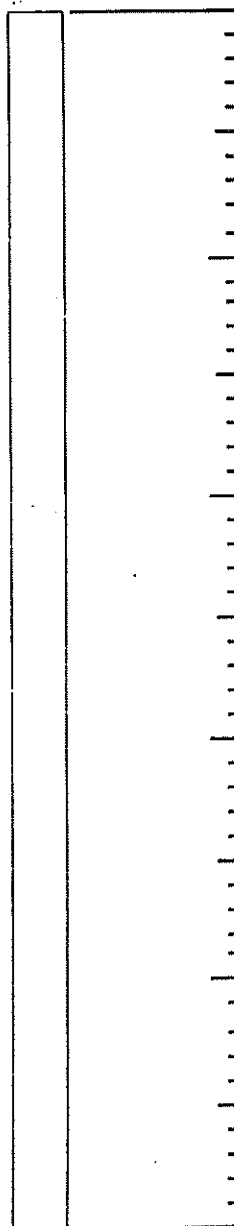
PROJECT RIVER CENTER BUILDING 2.
LOCATION NEW YORK, NY

Run No.	REC / RQD

Run No.	REC / RQD

Run No.	REC / RQD

Run No.	REC / RQD
2C	99/73



**ROCK CORE SKETCH
LEGEND**

JOINTING

- J - Joint
- MB - Mechanical Break
- K - Angle w/ Horizontal
- // - Parallel
- X - Crossing
- F - Foliation
- S - Stratification
- U - Unfoliated or Unstratified

SURFACE

- C - Curved
- I - Irregular
- S - Straight

CONDITION

- 1 - Slick
- 2 - Smooth
- 3 - Rough

SKETCH SYMBOLS

- Joint
- Healed Joint
- Broken
- Part of Core Not Recovered
- Cavities or Vugs in Core
- Clay
- Sand
- Empty Space

SCALE: 1 division = 0.1 feet

NOTES

SEATTLE GEOTECHNICAL ENGINEERS

PROJECT	RIVER CENTER BUILDING 2	DRAWING NO.	RC-5	SHEET	4 OF 4
LOCATION	NEW YORK, NEW YORK	FILE NO.	10164C		
DRAWING LOCATION	SEE BORING LOCATION PLAN	SPECIAL ELEV.	13.2		
		DIST.	BOROUGH PRESIDENT OF MANHATTAN		

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG	TYPE OF FEED	CASING USED	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO	
TRUCK	ACKER SOIL MAX	MECHANICAL			
SKID		HYDRAULIC	<input checked="" type="checkbox"/>		
BARGE		OTHER			
OTHER					

TYPE AND SIZE OF:	DRILLING MUD USED	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO	
D-SAMPLER	2" O. D. SPLIT SPOON			
U-SAMPLER				
S-SAMPLER				
CORE BARREL	NX DOUBLE TUBE			
CORE BIT	NX DIAMOND BIT			
DRILL RODS	NWJ			

DIAMETER OF ROTARY BIT, IN.	3-3/4, 4-3/4	
TYPE OF DRILLING MUD	EZ-MUD	

AUGER USED	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO	
TYPE AND DIAMETER, IN.			

*CASING HAMMER, LBS.	300	AVERAGE FALL, IN.	30
*SAMPLER HAMMER, LBS.	140	AVERAGE FALL, IN.	30
*USED DONUT HAMMER.			

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE	DEPTH OF CASING	DEPTH TO WATER	CONDITIONS OF OBSERVATION
06-08-11	11:15	44.3	14.3	7	READING TAKEN AT END OF BORING.

PIEZOMETER INSTALLED ☐ YES ☒ NO SKETCH SHOWN ON _____

STANDPIPE:	TYPE	ID, IN.	LENGTH, FT.	TOP ELEV.
INTAKE ELEMENT:	TYPE	OD, IN.	LENGTH, FT.	TIP ELEV.
FILTER:	MATERIAL	OD, IN.	LENGTH, FT.	BOT. ELEV.

PAY QUANTITIES

3.5" DIA. DRY SAMPLE BORING	LIN. FT.	34.3	NO. OF 3" SHELBY TUBE SAMPLES	
3.5" DIA. U-SAMPLE BORING	LIN. FT.		NO. OF 3" UNDISTURBED SAMPLES	
CORE DRILLING IN ROCK	LIN. FT.	10	OTHER:	

BORING CONTRACTOR	WARREN GEORGE, INC.
DRILLER	MICHAEL MCERLEAN
HELPERS	WALTER MALINOWSKI
REMARKS	BOREHOLE BACKFILLED WITH SOIL CUTTINGS & PATCHED WITH CONCRETE UPON COMPLETION.
RESIDENT ENGINEER	DANIEL GEORGE
DATE	06-08-11
CLASSIFICATION CHECK:	CHERYL J. MOSS
TYPING CHECK:	A. KLAETSCH

ENGINEERING LOG

ENGINEERING LOG

ENGINEERING NO. RC-6
 SHEET NO. 4
 FILE NO. 10164C
 SURFACE ELEVATION 21.2
 ENGINEER DANIEL GEORGE

PROJECT: RIVER CENTER BUILDING 2
 LOCATION: NEW YORK, NEW YORK

DAILY	SAMPLE			SOIL DESCRIPTION	STRATA	CASING		REMARKS
PROGRESS	NO.	DEPTH	BLOWS/6"			DEPTH	BLOWS	
07:45								
06-02-11	1D	1.0	9-10	Top 6": Black f-c sand, sm gravel, silt (Fill) (SM)				**Asphalt from 0' to 0.3'
Thursday		3.0	8-10	Bot 10": Light brn si fine sand, tr gravel (Fill) (SM)				
Clear	2D	3.0	5-6	Black fine to coarse sand, some gravel, silt,				
75°F		5.0	18-19	trace coal (Fill) (SM)				
	3D	5.0	8-7	Top 6": Brn gravelly f-m sand, sm silt (SM)				
		7.0	9-17	Bot 1": Blk f-c sand, some silt, tr gravel (SM)				
	4D	7.0	46-37	Top 10": Brn f-c sand, some silt, tr gvl, mica (SM)				Casing pushed to 7';
		8.4	100/5"	Bot 5": Blk rock fgmts, sm m-f sand, tr si (GP-GM)				driven thereafter.
	5D	9.0	77-16	Blk rock fragments, some fine to medium				
		11.0	11-8	sand, trace silt (GP-GM)				REC=1"
								Losing water from 9'
								to 15'.
	6D	15.0	2-8	Brown coarse to fine sand, some				
		17.0	6-4	rock fragments, trace silt (SP-SM)				REC=5"
	7D	20.0	5-8	Gray rock fragments, some medium to fine				
		22.0	11-7	sand, trace silt (GP-GM)				REC=5"
								Gray silt in wash from
								22' to 25'.
	8D	25.0	7-6	Top 10": Gray silty fine sand, tr gravel, clay (SM)				
		27.0	10-10	Mid 1": Brown fine to medium sand, some silt				
				(SM)				
				Bot 4": Brown silty fine sand (SM)				
	9D	30.0	4-5	Top 13": Stiff brown clayey silt varved with trace				
		32.0	9-8	gray silty clay (ML)				9D Top: WC=29,
				Bot 6": Red brown fine sand, some silt (SM)				pp=1.8, 2.0
	10D	35.0	17-28	Top 3": Brown fine sand, some silt (SM)				
		37.0	57-68	Bot 9": Brown fine to coarse sandy gravel,				Drilling with Revert
				some silt (GM)				at 37'.
								Rig chatter from 35' to
								37'.
	11D	40.0	22-33	Brown gravelly fine to coarse sand, trace silt				
		42.0	20-23	(SP-SM)				Hard drilling at 43'.
	1C	44.5	REC=29%	Weathered moderately weathered pegmatite,			6.5*	*Coring time in
		47.0	RQD=0%	closely jointed to broken, weathered joints &			12.25*	
				clay-filled joints			12*	
	2C	47.2	REC=82%	Medium hard slightly weathered to moderately			5*	
		51.7	RQD=52%	weathered gray pegmatite, moderately jointed			10*	
				to broken, weathered & iron stained joints			2.25*	Run 1C was cleaned
							2.25*	out.

ENGINEERING NO. RC-6

BOOKING LOG

PROJECT: RIVER CENTER BUILDING 2
LOCATION: NEW YORK, NEW YORK

MRCE Form BL-1

00NGNO RC-6

**MUESER RUTLEDGE CONSULTING ENGINEERS
ROCK CORE SKETCH**

BORING NO. RC-6

SHEET 3 OF 4

FILE NO. 10164C

SURFACE ELEV. 21.2

RES. ENGR. D. GEORGE

PROJECT RIVER CENTER BUILDING 2

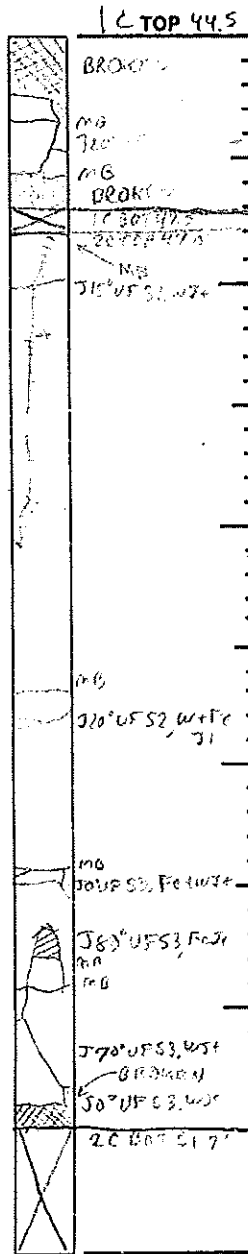
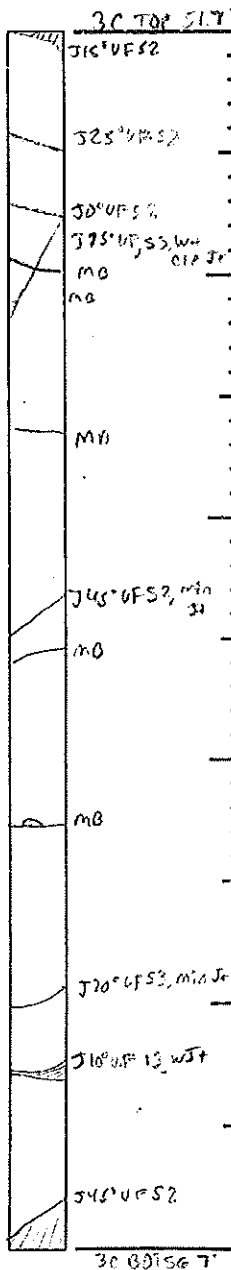
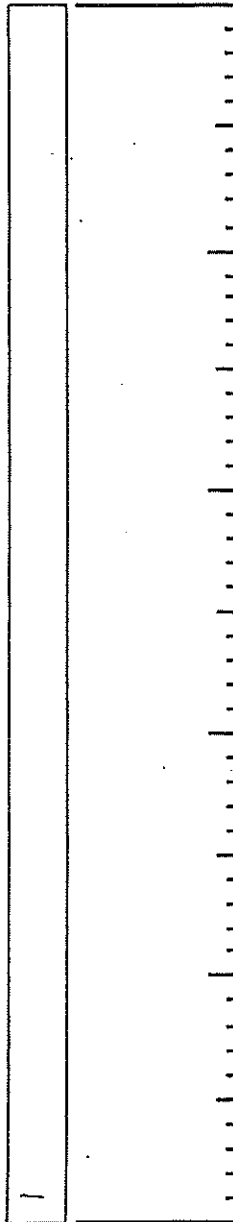
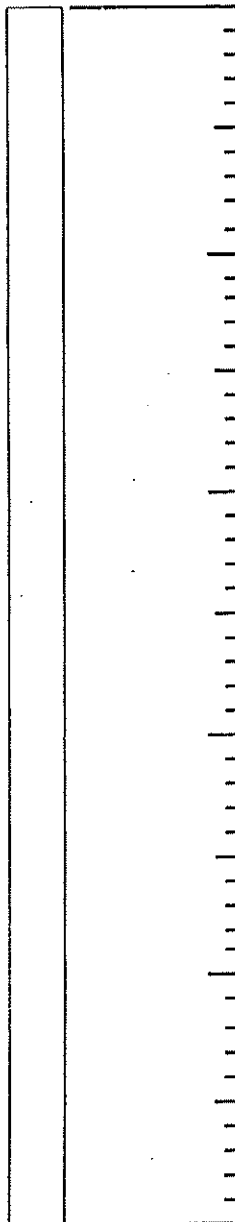
LOCATION NEW YORK, NY

Run No.	REC / RQD

Run No.	REC / RQD

Run No.	REC / RQD
3C	99/72

Run No.	REC / RQD
1C	29/0
2C	82/52



**ROCK CORE SKETCH
LEGEND**

JOINTING

- J - Joint
- MB - Mechanical Break
- K - Angle w/ Horizontal
- // - Parallel
- X - Crossing
- F - Foliation
- S - Stratification
- U - Unfoliated or Unstratified

SURFACE

- C - Curved
- I - Irregular
- S - Straight

CONDITION

- 1 - Slick
- 2 - Smooth
- 3 - Rough

SKETCH SYMBOLS

- Joint
- Healed Joint
- Broken
- Part of Core Not Recovered
- Cavities or Vugs in Core
- Clay
- Sand
- Empty Space

SCALE: 1 division = 0.1 feet

NOTES

CASE REPORT LEDGE MONITORING ENGINEER'S

PROJECT: RIVER CENTER BUILDING 2
 LOCATION: NEW YORK, NEW YORK
 BORING LOCATION: SEE BORING LOCATION PLAN
 BORING NO: RC-6
 SHEET: 4 OF 4
 FILE NO: 10164C
 SURFACE ELEV: 21.2
 DIST: BOROUGH PRESIDENT OF MANHATTAN

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG	TYPE OF FEED	CASING USED	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO
TRUCK	ACKER SOIL MAX	DIA., IN.	<u>4</u>	DEPTH, FT. FROM <u>0</u> TO <u>29</u>
SKID	MECHANICAL	DIA., IN.	<u>X</u>	DEPTH, FT. FROM <u> </u> TO <u> </u>
BARGE	HYDRAULIC	DIA., IN.	<u> </u>	DEPTH, FT. FROM <u> </u> TO <u> </u>
OTHER	OTHER	DIA., IN.	<u> </u>	DEPTH, FT. FROM <u> </u> TO <u> </u>

TYPE AND SIZE OF:	DRILLING MUD USED	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO
D-SAMPLER	DIAMETER OF ROTARY BIT, IN.	<u>4-3/4, 3-3/4</u>	
U-SAMPLER	TYPE OF DRILLING MUD	<u>REVERT</u>	
S-SAMPLER	AUGER USED	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO
CORE BARREL	TYPE AND DIAMETER, IN.	<u> </u>	
CORE BIT			
DRILL RODS			

*CASING HAMMER, LBS. 140/300 AVERAGE FALL, IN. 30
 *SAMPLER HAMMER, LBS. 140 AVERAGE FALL, IN. 30
 *USED DONUT HAMMER.

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE	DEPTH OF CASING	DEPTH TO WATER	CONDITIONS OF OBSERVATION
06-02-11	13:45	57.2	28	29	READING TAKEN AT END OF BORING.

PIEZOMETER INSTALLED ☐ YES ☒ NO SKETCH SHOWN ON

STANDPIPE:	TYPE	ID, IN.	LENGTH, FT.	TOP ELEV.
INTAKE ELEMENT:	TYPE	OD, IN.	LENGTH, FT.	TIP ELEV.
FILTER:	MATERIAL	OD, IN.	LENGTH, FT.	BOT. ELEV.

PAY QUANTITIES

3.5" DIA. DRY SAMPLE BORING	LIN. FT.	<u>44.5</u>	NO. OF 3" SHELBY TUBE SAMPLES	<u> </u>
3.5" DIA. U-SAMPLE BORING	LIN. FT.	<u> </u>	NO. OF 3" UNDISTURBED SAMPLES	<u> </u>
CORE DRILLING IN ROCK	LIN. FT.	<u>12.2</u>	OTHER:	<u> </u>

BORING CONTRACTOR: WARREN GEORGE, INC.
 DRILLER: MICHAEL MCERLEAN HELPERS: WALTER MALINOWSKI
 REMARKS: BOREHOLE BACKFILLED WITH SOIL CUTTINGS & PATCHED WITH CONCRETE UPON COMPLETION.
 RESIDENT ENGINEER: DANIEL GEORGE DATE: 06-02-11
 CLASSIFICATION CHECK: CHERYL J. MOSS TYPING CHECK: A. KLAETSCH

ESE TLEDGEONS LTNG ENGINEES

OING LOG

PROJECT: RIVER CENTER BUILDING 2
 LOCATION: NEW YORK, NEW YORK

OING NO RC-7
 SHEET NO 5
 LE NO 10164C
 S E ELE 16.8
 EST ENG DANIEL GEORGE

DAILY	SAMPLE			S L E D E S I O N	STRATA	DEPTH	CASING	E S
PROGRESS	NO.	DEPTH	BLOWS/6"				BLOWS	
06:30	1D	0.5	3-2	Top 1": Lt brown fine sand, tr silt (Fill) (SP-SM)			DRILLED	**Concrete from 0' to
06-10-11		2.5	2-4	Bot 1": Brn f-c sand, sm gvl, tr silt (Fill) (SP-SM)			AHEAD	0.3'.
Friday	2D	2.5	5-14	Top 6": Brn f-m sand, trace silt (SP-SM)			4"	Concrete at grade.
Partly Cloudy		4.5	8-11	Mid 3": Black coal fragments (Fill) (GP)				
70°F				Bot 6": Brown gvly f-c sand, tr silt (Fill) (SP-SM)				
	3D	5.0	8-9	Top 7": Blk gvl, sm f-c sand, tr silt (Fill) (GP-GM)				
		7.0	25-42	Bot 9": Brn f-c sand, sm gravel, silt (Fill) (SM)				
	4D	7.0	20-45	Top 8": Do 3D, Bottom (Fill) (SM)				
		8.9	90-100/5"	Bot 5": Dark brn fine to coarse sand, some coal fragments, silt, trace gravel, silt (Fill) (SM)				
				No recovery				
	5NR	10.0	4-5					REC=0"
		12.0	4-4					
	6D	15.0	1-1	Gray fine to medium sand, some silt, gravel (SM)				Rig chatter at 14'.
		17.0	4-8					REC=6"
								4" Casing pushed to 14'; driven thereafter.
								Loss of mud at 20'.
	7D	20.0	1-6	Gray fine to medium sand, some silt, trace gravel, wood (SM)				
		22.0	2-3					
	8D	25.0	6-9	Top 5": Blue gray clayey silt, some fine to medium sand (ML)				
		27.0	7-8	Mid 10": Brn f-c sand, some gravel, silt (SM)				
				Bot 5": Brown clayey silt (ML)				WC=24
	9D	30.0	6-30	Top 5": Brown medium to fine sand, some silt (SM)				9D Top: Possible wash sample.
		32.0	34-25	Mid 5": Gray clayey silt (ML)				9D Mid: pp=1.0
				Bot 5": Brown fine to coarse sand, trace gravel, silt (SP-SM)				
				Red brown fine to coarse sandy, gravel, some silt (GM)				
	10D	35.0	20-15					
		36.8	34-100/5"	Gray boulder			5.5*	Hard driving of spoon at 36.9'.
	1C	36.8	REC=9%				2*	Hard drilling from 36.8' to 44.7'.
		41.8	RQD=NA				1*	
							0.25*	
							1.5*	
	11D	41.8	100/1"	Gray rock fragments, some fine to coarse sand, trace silt (DR) (GP-GM)				Sampler tip, REC=1"
		41.9						
	2C	44.7	REC=80%	Medium hard to intermediate slightly weathered gray mica schist, some pegmatite, jointed to closely jointed, weathered & clay-filled & iron stained joints			6.25*	*Coring time in minutes per foot.
		49.7	RQD=35%				4.25*	
							5.25*	
							5*	
							8.25*	
	3C	49.7	REC=100%	Hard unweathered to slightly weathered gray pegmatite, some mica schist, moderately jointed to broken, weathered & iron stained joints			6.25*	
		54.7	RQD=91%				4*	
							4*	

OING NO RC-7

BOOKING LOG

PROJECT: RIVER CENTER BUILDING 2
LOCATION: NEW YORK, NEW YORK

MRCE Form 8L-1

☐ O ☐ NG ☐ NO ☐ RC-7

**MUESER RUTLEDGE CONSULTING ENGINEERS
ROCK CORE SKETCH**

BORING NO. RC-7
SHEET 3 OF 5
FILE NO. 101640
SURFACE ELEV. 16.8
RES. ENGR. D. GEORGE

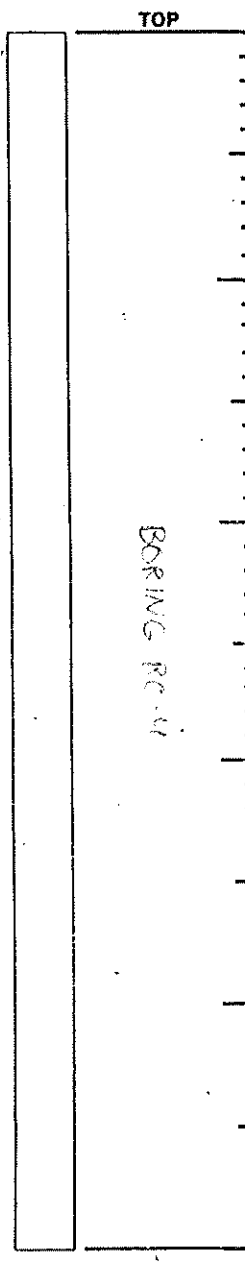
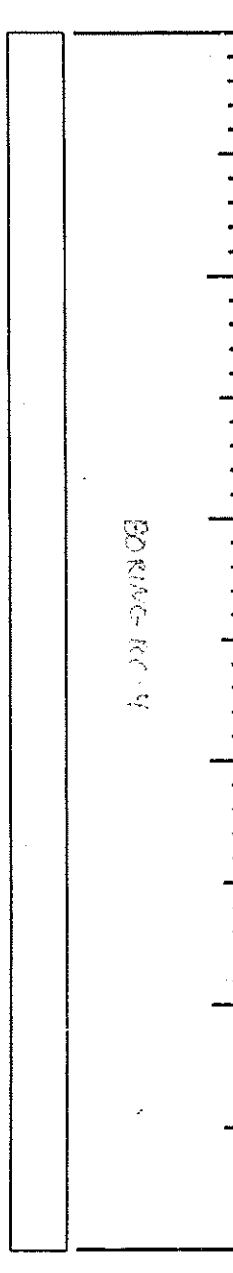
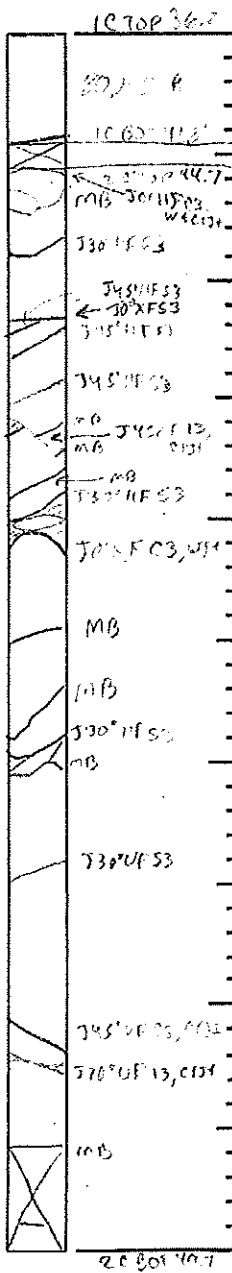
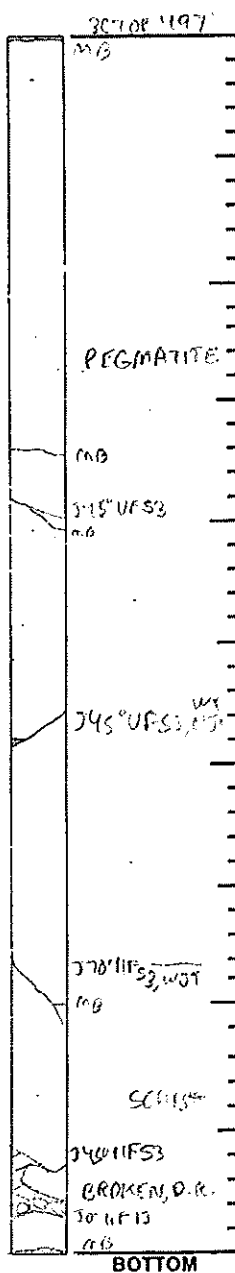
PROJECT RIVER CENTER DAMPING 2
LOCATION NEW YORK, NY

Run No.	REC / RQD
3C	100/41

Run No.	REC / RQD
1C	9/9
7C	80/35

Run No.	REC / RQD

Run No.	REC / RQD



ROCK CORE SKETCH LEGEND

JOINTING

- J - Joint
- MB - Mechanical Break
- X - Angle w/ Horizontal
- // - Parallel
- X - Crossing
- F - Foliation
- S - Stratification
- U - Unfoliated or Unstratified

SURFACE

- C - Curved
- I - Irregular
- S - Straight

CONDITION

- 1 - Slick
- 2 - Smooth
- 3 - Rough

SKETCH SYMBOLS

- Joint
- Healed Joint
- Broken
- Part of Core Not Recovered
- Cavities or Vugs in Core
- Clay
- Sand
- Empty Space

NOTES

MUESER RUTLEDGE CONSULTING ENGINEERS
ROCK CORE SKETCH

BORING NO. RC-7
SHEET 4 **OF** 5
FILE NO. 10164C
SURFACE ELEV. 16.8
RES. ENGR. D. GEORGE

PROJECT RIVER CENTER BUILDING 2

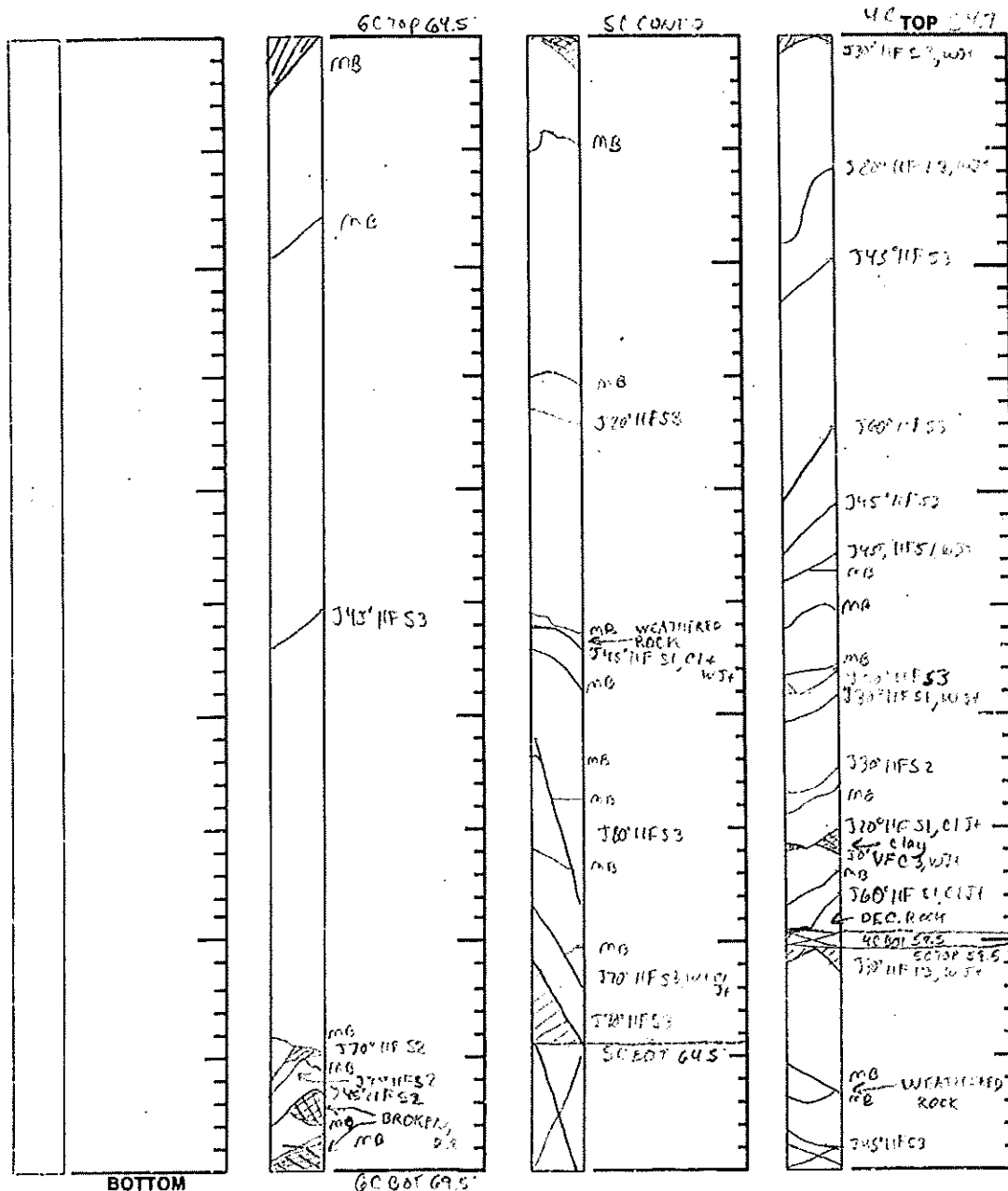
LOCATION NEW YORK, NY

Run No.	REC / RQD

Run No.	REC / RQD
6C	100/88

Run No.	REC / RQD
5C	CONTD

Run No.	REC / RQD
4C	83/30
5C	100/72



ROCK CORE SKETCH LEGEND

JOINTING

- J - Joint
- MB - Mechanical Break
- K - Angle w/ Horizontal
- // - Parallel
- X - Crossing
- F - Foliation
- S - Stratification
- U - Unfoliated or Unstratified

SURFACE

- C - Curved
- I - Irregular
- S - Straight

CONDITION

- 1 - Slick
- 2 - Smooth
- 3 - Rough

SKETCH SYMBOLS

- Joint
- Healed Joint
- Broken
- Part of Core Not Recovered
- Cavities or Vugs in Core
- Clay
- Sand
- Empty Space

SCALE: 1 division = 0.1 feet

NOTES

MRCE Form BS-1

PROJECT LOCATION		RIVER CENTER BUILDING 2 NEW YORK, NEW YORK		BORING NO. RC-7	
SEE BORING LOCATION PLAN		SHEET 5 OF 5		FILE NO. 10164C	
		SAMPLER ELEV. 16.8		DATE BOROUGH PRESIDENT OF MANHATTAN	

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG		TYPE OF FEED DURING CORING		CASING USED		<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	
TRUCK	ACKER SOIL MAX	MECHANICAL		DIA., IN.	4	DEPTH, FT. FROM	0 TO 34.3
SKID		HYDRAULIC	X	DIA., IN.		DEPTH, FT. FROM	TO
BARGE		OTHER		DIA., IN.		DEPTH, FT. FROM	TO
OTHER							

TYPE AND SIZE OF:		DRILLING MUD USED		<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	
D-SAMPLER	2" O. D. SPLIT SPOON	DIAMETER OF ROTARY BIT, IN.		4-3/4, 3-3/4	
U-SAMPLER		TYPE OF DRILLING MUD		E-Z MUD	
S-SAMPLER					
CORE BARREL	NX DOUBLE TUBE	AUGER USED		<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	
CORE BIT	NX DIAMOND BIT	TYPE AND DIAMETER, IN.			
DRILL RODS	NWJ				
		*CASING HAMMER, LBS.		300 AVERAGE FALL, IN. 30	
		*SAMPLER HAMMER, LBS.		140 AVERAGE FALL, IN. 30	
		*USED DONUT HAMMER.			

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE	DEPTH OF CASING	DEPTH TO WATER	CONDITIONS OF OBSERVATION
06-13-11	06:10	69.5	34.3	16.6	MORNING MUD LEVEL READING.

PIEZOMETER INSTALLED ☐ YES ☒ NO SKETCH SHOWN ON _____

STANDPIPE:	TYPE	ID, IN.	LENGTH, FT.	TOP ELEV.
INTAKE ELEMENT:	TYPE	OD, IN.	LENGTH, FT.	TIP ELEV.
FILTER:	MATERIAL	OD, IN.	LENGTH, FT.	BOT. ELEV.

PAY QUANTITIES

3.5" DIA. DRY SAMPLE BORING	LIN. FT.	39.7	NO. OF 3" SHELBY TUBE SAMPLES	
3.5" DIA. U-SAMPLE BORING	LIN. FT.		NO. OF 3" UNDISTURBED SAMPLES	
CORE DRILLING IN ROCK	LIN. FT.	29.8	OTHER:	

BORING CONTRACTOR		WARREN GEORGE, INC.	
DRILLER	MICHAEL MCERLEAN	HELPERS	WALTER MALINOWSKI
REMARKS BOREHOLE BACKFILLED WITH SOIL CUTTINGS ON 06-13-11 & PATCHED WITH CONCRETE UPON COMPLETION.			
RESIDENT ENGINEER	DANIEL GEORGE	DATE	06-10-11
CLASSIFICATION CHECK:	CHERYL J. MOSS	TYPING CHECK:	A. KLAETSCH

ONGOING LOG

COINGNO	RC-8
SHEETNO	4
FILENO	10164C
ELE	16.8
ESING	DANIEL GEORGE

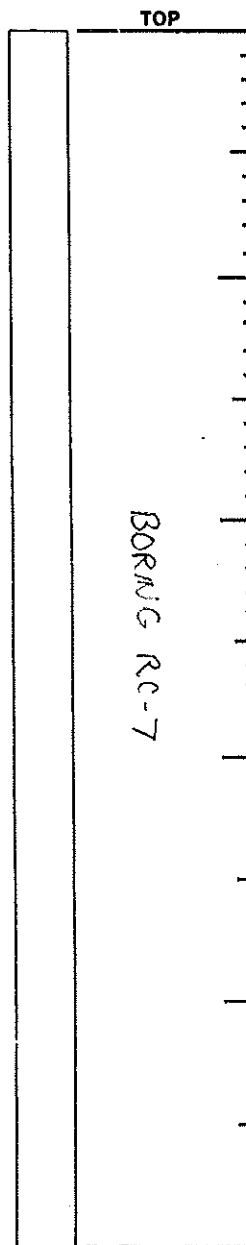
DAILY PROGRESS	SAMPLE			SOIL DESCRIPTION	STRATA	CASING		REMARKS		
	NO.	DEPTH	BLOWS/6"			DEPTH	BLOWS			
07:30	1D	0.5	4-6	Brown fine to medium sand, trace silt (Fill) (SP-SM)	[]	[]	DRILLED	**Concrete from 0' to		
06-13-11		2.5	33-9			[]	AHEAD	0.3'.		
Monday	2D	2.5	13-22				4"	Concrete at grade.		
Overcast		4.5	15-25							
65°F						[]		Metal in wash at 5'.		
	3D	5.0	13-12	Black gravelly fine to coarse sand, trace silt, brick (Fill) (SP-SM)				Petroleum odor.		
		7.0	39-34							
	4D	7.0	38-32							
		9.0	35-47							
				Top 2": Gray f-m sand, sm silt, tr gvl (Fill) (SM)						
				Mid 6": Brn f-m sand, tr gvl, si, c sa (Fill) (SP-SM)						
				Bot 1": Brn f-c gvlly sand, sm silt (Fill) (SM)		[]		4D Bot: From sampler tip.		
	5D	10.0	27-21	Brown fine to medium sand, some rock fragments, silt, trace gravel, mica (Fill) (SM)	[]					
		12.0	19-20							
								4" Casing pushed to 13'; driven thereafter.		
						[]				
	6NR	15.0	3/18"	No recovery				Hard drilling from 16' to 19'. REC=0"		
		17.0	6							
	7NR	19.6	100/1"	No recovery		[]	4.75*	Loss of water from 15' to 19'.		
		19.7					6*			
	1C	19.7	REC=90%			Medium hard to intermediate slightly weathered white pegmatite, jointed to broken & weathered & iron stained & clay joints			2.25*	Change in wash at 22'. *Coring time in minutes per foot.
		24.7	RQD=40%						2.5*	
					2.5*					
	2C	24.7	REC=100%		2.75*					
		29.7	RQD=58%	Medium hard slightly weathered to moderately weathered gray pegmatite, jointed to broken, weathered, iron stained, and clay joints			2*			
							1.75*			
							3.75*			
							2.25*			
	3C	29.7	REC=74%	Intermediate to weathered slightly weathered to decomposed gray pegmatite, some gneissic schist, closely jointed to broken, weathered, iron stained & clay-filled joints	[]		2.25*			
		34.7	RQD=23%				1.5*			
							2.25*			
							2.25*			
	4C	34.7	REC=100%	Medium hard slightly weathered gray pegmatite, trace mica schist, moderately jointed to jointed, slightly weathered joints	[]		2.5*			
		39.7	RQD=79%				2.75*			
							2.75*			
							2.5*			
							3*			
	5C	39.7	REC=99%	Hard slightly weathered gray pegmatite, moderately jointed to jointed, weathered joints & iron stained joints	[]		2.5*			
		44.7	RQD=92%				2.5*			
							2.5*			
							2.5*			
11:15						[]	3.5*	End of Boring at 44.7'.		

☐ O ☐ NG ☐ NO ☐ RC-8

BORING NO. RC-8
SHEET 2 **OF** 4
FILE NO. 10164C
SURFACE ELEV. 16.8
RES. ENGR. D. GEORGE

LOCATION NEW YORK, NY

Run No.	REC / RQD



SCALE-1 division - 0.1 feet

	Joint
	Healed Joint
	Broken
	Part of Core Not Recovered
	Cavities or Vugs In Core
	Clay
	Sand
	Empty Space

NOTES

MUESER RUTLEDGE CONSULTING ENGINEERS
ROCK CORE SKETCH

BORING NO. RC-8
SHEET 3 OF 4
FILE NO. 10164C
SURFACE ELEV. 16.8
RES. ENGR. D. GEORGE

PROJECT RIVER CENTER BUILDING-2

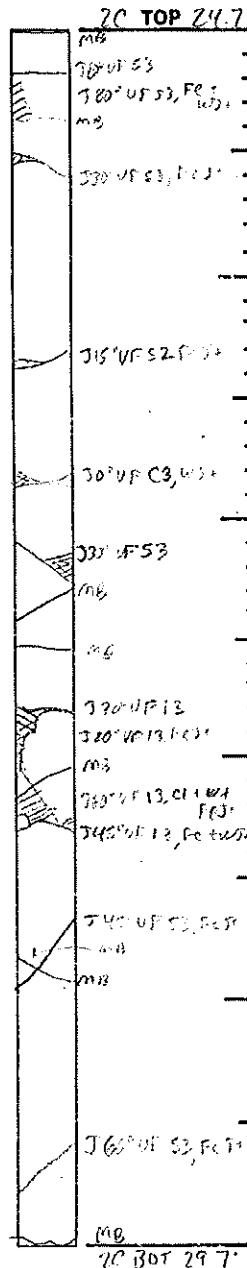
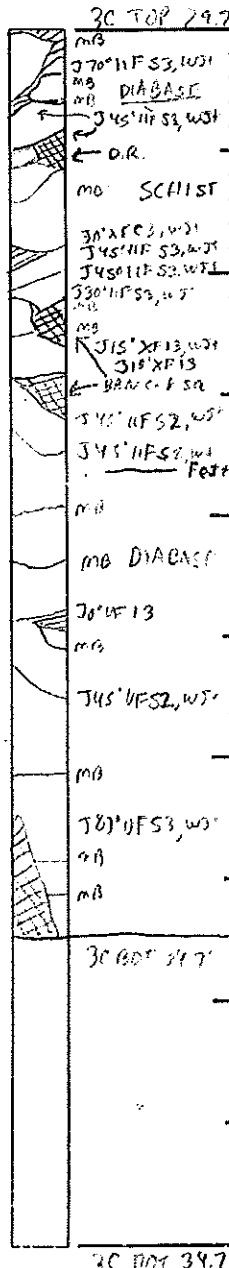
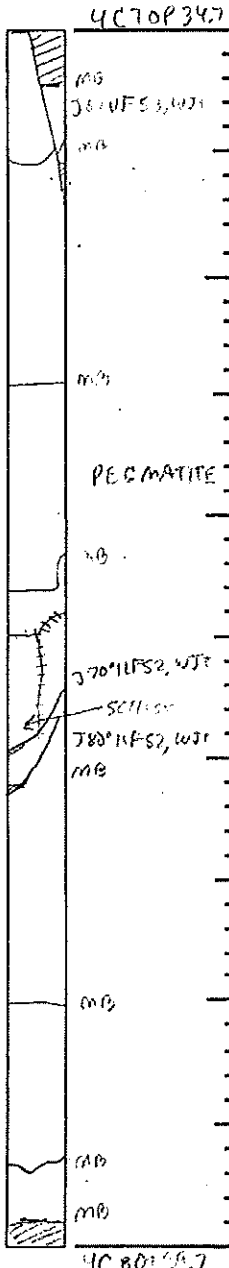
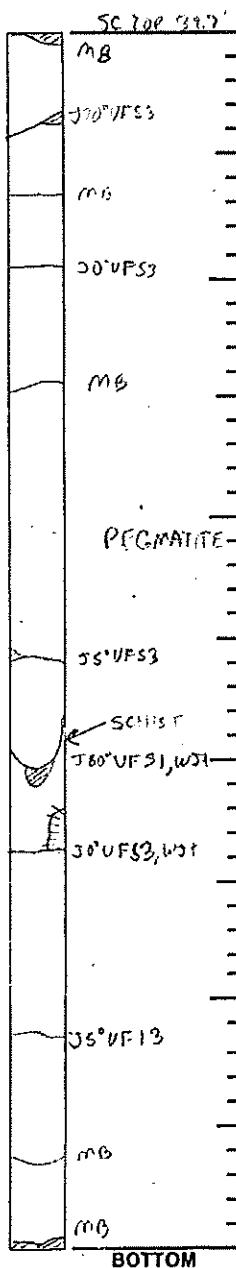
LOCATION NEW YORK, NY

Run No.	REC / RQD
5C	99/92

Run No.	REC / RQD
4C	100/79

Run No.	REC / RQD
3C	74/23

Run No.	REC / RQD
2C	100/58



ROCK CORE SKETCH LEGEND	
JOINTING	
J	- Joint
MB	- Mechanical Break
K	- Angle w/ Horizontal
//	- Parallel
X	- Crossing
F	- Foliation
S	- Stratification
U	- Unfoliated or Unstratified
SURFACE	
C	- Curved
I	- Irregular
S	- Straight
CONDITION	
1	- Slick
2	- Smooth
3	- Rough
SKETCH SYMBOLS	
	Joint
	Healed Joint
	Broken
	Part of Core Not Recovered
	Cavities or Vugs in Core
	Clay
	Sand
	Empty Space

SCALE: 1 division = 0.1 feet

NOTES LAST 0.1' OF RUN 4C BROKEN TO FIT INTO BOX

MRCE Form BS-1

PROJECT LOCATION: RIVER CENTER BUILDING 2
 NEW YORK, NEW YORK
 BORING LOCATION: SEE BORING LOCATION PLAN
 BORING NO: RC-8
 SHEET: 4 OF 4
 FILE NO: 10164C
 SHELBY ELE: 16.8
 DISTRICT: BOROUGH PRESIDENT OF MANHATTAN

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG: TRUCK
 TYPE OF FEED: MECHANICAL
 DURING CORING: HYDRAULIC
 OTHER: OTHER
 CASING USED: 4
 DEPTH, FT. FROM: 0 TO 18
 DEPTH, FT. FROM: TO
 DEPTH, FT. FROM: TO

TYPE AND SIZE OF: D-SAMPLER 2" O. D. SPLIT SPOON
 U-SAMPLER
 S-SAMPLER
 CORE BARREL NX DOUBLE TUBE
 CORE BIT NX DIAMOND BIT
 DRILL RODS NWJ
 DRILLING MUD USED: YES
 DIAMETER OF ROTARY BIT, IN. 4-3/4, 3-3/4
 TYPE OF DRILLING MUD: E-Z MUD
 AUGER USED: YES
 TYPE AND DIAMETER, IN.

*CASING HAMMER, LBS. 300 AVERAGE FALL, IN. 30
 *SAMPLER HAMMER, LBS. 140 AVERAGE FALL, IN. 30
 *USED DONUT HAMMER.

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE	DEPTH OF CASING	DEPTH TO WATER	CONDITIONS OF OBSERVATION
06-13-11	11:30	44.7	18	9.1	READING TAKEN AT END OF BORING.

PIEZOMETER INSTALLED: YES NO SKETCH SHOWN ON

STANDPIPE: TYPE ID, IN. LENGTH, FT. TOP ELEV.
 INTAKE ELEMENT: TYPE OD, IN. LENGTH, FT. TIP ELEV.
 FILTER: MATERIAL OD, IN. LENGTH, FT. BOT. ELEV.

PAY QUANTITIES

3.5" DIA. DRY SAMPLE BORING LIN. FT. 19.7 NO. OF 3" SHELBY TUBE SAMPLES
 3.5" DIA. U-SAMPLE BORING LIN. FT. NO. OF 3" UNDISTURBED SAMPLES
 CORE DRILLING IN ROCK LIN. FT. 25 OTHER:

BORING CONTRACTOR: WARREN GEORGE, INC.
 DRILLER: MICHAEL MCERLEAN HELPERS: WALTER MALINOWSKI
 REMARKS: BOREHOLE BACKFILLED WITH SOIL CUTTINGS & PATCHED WITH CONCRETE UPON COMPLETION.
 RESIDENT ENGINEER: DANIEL GEORGE DATE: 06-13-11
 CLASSIFICATION CHECK: CHERYL J. MOSS TYPING CHECK: A. KLAETSCH

ENGINEERING CONSULTANTS

LOG

PROJECT: RIVER CENTER BUILDING 2
LOCATION: NEW YORK, NEW YORK

ENGINEERING NO. RC-9P
SHEET NO. 4
LENO. 10164C
SPECIAL ELEMENTS 23
ENGINEER SHRINIDHI K. SHETTY

DAILY PROGRESS	SAMPLE			SAMPLE DESCRIPTION	STRATA	CASING		REMARKS
	NO.	DEPTH	BLOWS/6"			DEPTH	BLOWS	
7:00	1D	0.0	8-9	Brown fine to medium sand, some silt, trace gravel, brick, concrete (Fill) (SM)			DRILLED	
06-15-11		2.0	10-8				AHEAD	
Wednesday	2D	2.0	6-7	Do 1D (Fill) (SM)			4" 3"	
Clear		4.0	6-6					
80°F	3D	4.0	11-10	Brown fine to medium sand, some silt, trace gravel, coarse sand (Fill) (SM)				
		6.0	10-12					
	4D	6.0	13-11	Do 3D (Fill) (SM)				
		8.0	10-10					
	5D	8.0	3-3	Gray fine to coarse sand, some silt, trace plaster, brick, coarse sand (Fill) (SM)				
		10.0	2-3					
	6D	10.0	6-4	Do 5D (Fill) (SM)	T			Slight hard drilling at 16'.
		12.0	5-4					
	7D	15.0	11-9	Gray brown rock fragments, some fine to medium sand, trace silt (GP-GM)				
		17.0	8-15					
	8D	20.0	4-6	Brown fine to medium sand, some gravel, silt (SM)				
		22.0	14-22		D			Sand & rock fragments in wash from 30' to 34'. *Coring time in minutes per foot.
	9D	25.0	100/3"	Gray rock fragments, some fine to coarse sand, trace silt, mica (GP-GM)				
		25.3						
	1C	29.0	REC=24%	Weathered, highly weathered to moderately weathered gray gneissic schist, broken, iron stained & weathered joints			9*	
		34.0	RQD=0%				4*	
							1*	Loss of wash from 34' to 36'.
							1*	
	2C	34.0	REC=66%	Do 1C			1*	
		39.0	RQD=12%				4*	
							3*	
							3*	
							2*	
							2*	
	3C	39.0	REC=80%	Medium hard slightly weathered to moderately weathered gray gneissic schist, jointed to broken, weathered & iron stained joints			3*	
		44.0	RQD=54%				4*	
							3*	End of Boring at 49'.
							3*	
							2*	
							2*	
	4C	44.0	REC=100%	Medium hard slightly weathered gray gneissic schist, jointed, weathered & iron stained joints			4*	
		49.0	RQD=84%				4*	
							4*	
							4*	
							3*	
15:00								

ENGINEERING NO. RC-9P

**MUESER RUTLEDGE CONSULTING ENGINEERS
ROCK CORE SKETCH**

BORING NO. RC-9P

SHEET 2 OF 4

FILE NO. 10164C

SURFACE ELEV. 23

RES. ENGR. SKSKETTY

PROJECT RIVER CIRCLE BUILDING

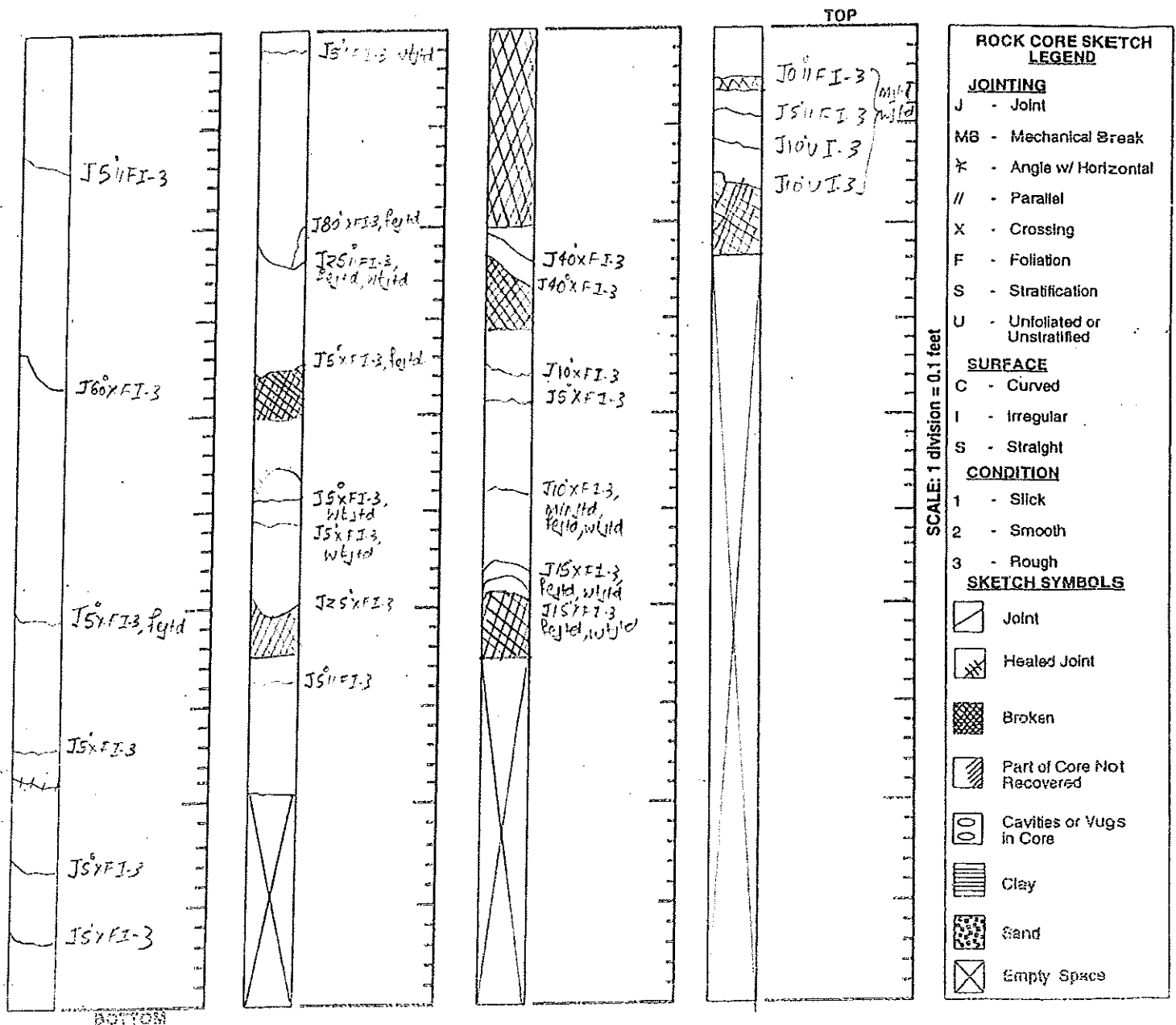
LOCATION MANHATTAN, NYC, NY

Run No.	REC / RQD
4C	
44	100%
49	84%

Run No.	REC / RQD
3C	
39	80%
44	54%

Run No.	REC / RQD
2C	
34	66%
39	12%

Run No.	REC / RQD
1C	
29	24%
34	0%



NOTES

PROJECT RIVER CIRCLE BUILDING PIEZOMETER NO. RC-9P
LOCATION MANHATTAN, NYC, NY
PIEZOMETER LOCATION SEE BLP DATE OF INSTALLATION 6/15/11
☐ SEE SKETCH ON BACK RES. ENG. SKSKETTY

 Sand
  Bentonite
 Gravel
  Grout

GROUND SURFACE ELEV. 23PIEZOMETER NO. Rc-9P

CASEWORK TLEDGE CONSULTING ENGINEERS

CLIENT <u>RIVER CENTER BUILDING 2</u> LOCATION <u>NEW YORK, NEW YORK</u> BORING LOCATION <u>SEE BORING LOCATION PLAN</u>	BORING NO. <u>RC-9P</u> SHEET <u>4</u> OF <u>4</u> FILE NO. <u>10164C</u> SAMPLE ELEVATION <u>23</u> DISTRICT <u>BOROUGH PRESIDENT OF MANHATTAN</u>
---	--

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG	TYPE OF FEED	CASING USED	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO	
TRUCK	ACKER SOIL MAX	MECHANICAL			
SKID		HYDRAULIC			
BARGE		OTHER			
OTHER					

TYPE AND SIZE OF:	DRILLING MUD USED
D-SAMPLER <u>2" O. D. SPLIT SPOON</u>	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
U-SAMPLER _____	DIAMETER OF ROTARY BIT, IN. <u>2-7/8, 3-7/8</u>
S-SAMPLER _____	TYPE OF DRILLING MUD <u>REVERT</u>
CORE BARREL <u>NX DOUBLE TUBE</u>	
CORE BIT <u>NX DIAMOND BIT</u>	AUGER USED <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
DRILL RODS <u>NWJ</u>	TYPE AND DIAMETER, IN. _____

*CASING HAMMER, LBS. 300 AVERAGE FALL, IN. 24
 *SAMPLER HAMMER, LBS. 140 AVERAGE FALL, IN. 30
 *USED DONUT HAMMER.

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE	DEPTH OF CASING	DEPTH TO WATER	CONDITIONS OF OBSERVATION
06-15-11	13:15	49	35	16	WATER LEVEL OBSERVED AFTER COMPLETION OF DRILLING.

PIEZOMETER INSTALLED ☒ YES ☐ NO **SKETCH SHOWN ON** SEE SHEET 3

STANDPIPE:	TYPE	PVC	ID, IN.	2	LENGTH, FT.	20	TOP ELEV.	23
INTAKE ELEMENT:	TYPE	PVC	OD, IN.	2.25	LENGTH, FT.	10	TIP ELEV.	7
FILTER:	MATERIAL	SAND	OD, IN.	4	LENGTH, FT.	33	BOT. ELEV.	-26

PAY QUANTITIES

3.5" DIA. DRY SAMPLE BORING	LIN. FT.	29	NO. OF 3" SHELBY TUBE SAMPLES	
3.5" DIA. U-SAMPLE BORING	LIN. FT.		NO. OF 3" UNDISTURBED SAMPLES	
CORE DRILLING IN ROCK	LIN. FT.	20	OTHER:	

BORING CONTRACTOR	WARREN GEORGE, INC.
DRILLER	MICHAEL MCERLEAN
REMARKS	HELPERS WALTER MALINOWSKI
RESIDENT ENGINEER	PIEZOMETER INSTALLED.
CLASSIFICATION CHECK:	SHRINIDHI K. SHETTY
	DATE 06-15-11
	A.KLAETSCH

ENGINEERING LOG

LOG

BOREHOLE NO. RC-10
 SHEET NO. 3
 HOLE NO. 10164C
 SOUNDED DEPTH 23
 LOGGING ENGINEER DANIEL GEORGE

PROJECT: RIVER CENTER BUILDING 2
 LOCATION: NEW YORK, NEW YORK

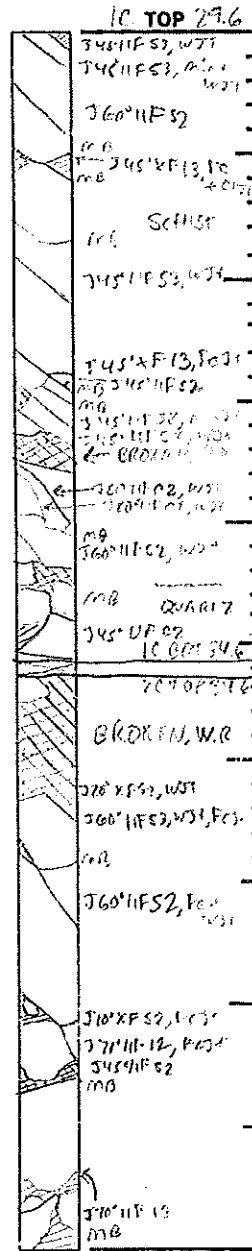
DAILY PROGRESS	SAMPLE			SAMPLE DESCRIPTION		STRATA	DEPTH	CASING BLOWS	REMARKS
12:50 06-13-11 Monday Partly Cloudy 70°F	1D	0.0	17-35	Top 14": Brn gvl, m-f sa, tr si, brk, veg(Fill)(SP-SM)				DRILLED	Fill at grade.
		2.0	19-15	Bot 8": Blk f-m sa, sm si, tr gvl, pvc (Fill) (SM)				AHEAD	Change in wash at 2'.
	2D	2.0	15-28	Top 18": Blk f-m sand, sm silt, gvl (Fill) (SM)				4"	Rig chatter from 0' to 2'.
		4.0	40-55	Bot 3": Brn f-m sand, sm silt, tr gravel (Fill) (SM)					
				Top 4": Brn f-m sa, sm silt, tr gravel (Fill) (SM)					
	3D	5.0	8-8	Mid 4": Brn silty f sand, trace gravel (Fill) (SM)					
		7.0	11-7	Bot 3": Gray silty fine sand (Fill) (SM)					4" Casing pushed to 8'; driven thereafter.
	4D	7.0	8-19	Top & Bot 9": Brown fine sand, some silt, trace gravel, ash (Fill) (SM)					Hard drilling from 9' to 10.5'.
		9.0	24-32	Mid 7": Gray silty fine sand (Fill) (SM)					
13:45 07:15 06-14-11 Tuesday Clear 65°F	5D	10.0	100/3"	Rock fragments, some fine to medium sand, trace mica, silt (Fill) (GP-GM)					
		10.3							
	6D	15.0	5-5	Brown fine to medium sand, some silt, trace mica (SM)					
		17.0	6-6						
	7D	20.0	10-12	Top 9": Gray fine to medium sand, some silt (SM)					
		22.0	13-13	Bot 9": Brown silty fine to medium sand, trace gravel, coarse sand (SM)					
	8NR	24.5	100/3"	No recovery					
		24.8							
	9NR	29.6	100/0"	No recovery					
		29.6							
	1C	29.6	REC=51%	Intermediate to weathered slightly weathered to highly weathered gray gneissic schist, CIJtd to broken, W & min coated & clay & FeJts					
		34.6	RQD=7%						
	2C	34.6	REC=95%	Intermediate to weathered slightly weathered to moderately weathered gray gneissic schist, closely jointed to broken, weathered & FeJts					
		37.1	RQD=14%	Intermediate to weathered slightly weathered to moderately weathered gray gneissic schist, closely jointed to broken, W & Fe & CIJts					
	3C	37.1	REC=62%	Intermediate to weathered slightly weathered to moderately weathered gray gneissic schist, closely jointed to broken, W & Fe & CIJts					
		40.5	RQD=15%						
	4C	40.5	REC=58%	Intermediate to weathered slightly weathered to moderately weathered gray schistose gneiss, tr pegmatite, closely jointed to brkn, weathered, clay-filled, and iron stained joints					
		44.5	RQD=24%						
	5C	44.5	REC=85%	Medium hard slightly weathered to moderately weathered gray gneissic schist, trace pegmatite, jointed to broken, weathered joints & iron stained joints					
		48.0	RQD=55%						
	6C	48.8	REC=72%	Medium hard to weathered slightly weathered to moderately weathered, gray gneissic schist, closely jointed to broken, weathered, clay-filled & iron stained joints					
		51.8	RQD=33%						
12:45									

BOREHOLE NO. RC-10









BORING NO. RC-10
SHEET 2 OF 3
FILE NO. 10164C
RFACE ELEV. 23
RES. ENGR. D. GEORGE

LOCATION NEW YORK NY

Run No.	REC / RQD
1C	51/7
2C	93/14



2.0 Cor 37.1

	Joint
	Healed Joint
	Broken
	Part of Core Not Recovered
	Cavities or Vugs in Core
	Clay
	Sand
	Empty Space

SCALE - 1 division - 0.1 feet

NOTES

MRCE FORM BS-1

PROJECT LOCATION: RIVER CENTER BUILDING 2
NEW YORK, NEW YORK
BORING LOCATION: SEE BORING LOCATION PLAN

BOHNG NO: RC-10
SHEET: 3 OF 3
FILE NO: 10164C
SUBSIDIARY: 23
DISTRICT: BOROUGH PRESIDENT OF MANHATTAN

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG: TRUCK, SKID, BARGE, OTHER

TYPE OF FEED: MECHANICAL, HYDRAULIC, OTHER

CASING USED: ☒ YES, ☐ NO

DEPTH, FT. FROM: 0 TO 14.3

TYPE AND SIZE OF: D-SAMPLER, U-SAMPLER, S-SAMPLER, CORE BARREL, CORE BIT, DRILL RODS

DRILLING MUD USED: ☐ YES, ☒ NO

DIAMETER OF ROTARY BIT, IN.: 3-3/4

TYPE OF DRILLING MUD: E-Z MUD

AUGER USED: ☐ YES, ☒ NO

TYPE AND DIAMETER, IN.:

*CASING HAMMER, LBS.: 300 AVERAGE FALL, IN.: 30

*SAMPLER HAMMER, LBS.: 140 AVERAGE FALL, IN.: 30

*USED DONUT HAMMER.

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE	DEPTH OF CASING	DEPTH TO WATER	CONDITIONS OF OBSERVATION
06-14-11	07:15	10.3	9.3		MORNING MUD LEVEL READING (NONE OBSERVED).
06-14-11	12:45	51.8	14.3	11.6	READING TAKEN AT END OF BORING,

PIEZOMETER INSTALLED: ☐ YES, ☒ NO

SKETCH SHOWN ON:

STANDPIPE: TYPE, ID, IN., LENGTH, FT., TOP ELEV.

INTAKE ELEMENT: TYPE, OD, IN., LENGTH, FT., TIP ELEV.

FILTER: MATERIAL, OD, IN., LENGTH, FT., BOT. ELEV.

PAY QUANTITIES

3.5" DIA. DRY SAMPLE BORING: LIN. FT. 29.6 NO. OF 3" SHELBY TUBE SAMPLES

3.5" DIA. U-SAMPLE BORING: LIN. FT. NO. OF 3" UNDISTURBED SAMPLES

CORE DRILLING IN ROCK: LIN. FT. 22.2 OTHER:

BORING CONTRACTOR: WARREN GEORGE, INC.

DRILLER: MICHAEL MCERLEAN HELPERS: WALTER MALINOWSKI

REMARKS: BOREHOLE BACKFILLED WITH SOIL CUTTINGS UPON COMPLETION.

RESIDENT ENGINEER: DANIEL GEORGE DATE: 06-14-11

CLASSIFICATION CHECK: CHERYL J. MOSS TYPING CHECK: A. KLAETSCH

APPENDIX B

MUESER RUTLEDGE CONSULTING ENGINEERS
BORING LOG

PROJECT: RIVERSIDE SOUTH
LOCATION: NEW YORK, NEW YORK

BORING NO. M61-2
SHEET 1 OF 4
FILE NO. 10164
SURFACE ELEV. 20.0±
RES. ENGR. KATHLEEN SCHULZE

DAILY PROGRESS	SAMPLE			SAMPLE DESCRIPTION	STRATA	DEPTH	CASING		REMARKS	
	NO.	DEPTH	BLOWS/6"				BLOWS			
11:30 09-09-05 Friday Cloudy 78°F							4"	3"	Drilled ahead (Top 10' to 12' new fill for construction road.)	
					NF					
	1D	5.0	1-10	Gray fine to coarse sand, some gravel, silt (Fill) (SM)			5		Lost a lot of water in new fill (NF)	
		7.0	14-20							
									</	

BORING NO.	M61-2
SHEET 2 OF	4
FILE NO.	10164
SURFACE ELEV.	20.0±
RES. ENGR.	KATHLEEN SCHULZE

BORING NO.	M61-2
SHEET 2 OF	4
FILE NO.	10164
SURFACE ELEV.	20.0±
RES. ENGR.	KATHLEEN SCHULZE

[illegible]

MUESER RUTLEDGE CONSULTING ENGINEERS ROCK CORE SKETCH

BORING NO. M61-2
SHEET 3 OF 4
FILE NO. 10164
SURFACE ELEV. 12.0
RES. ENGR. K. SCHULZE

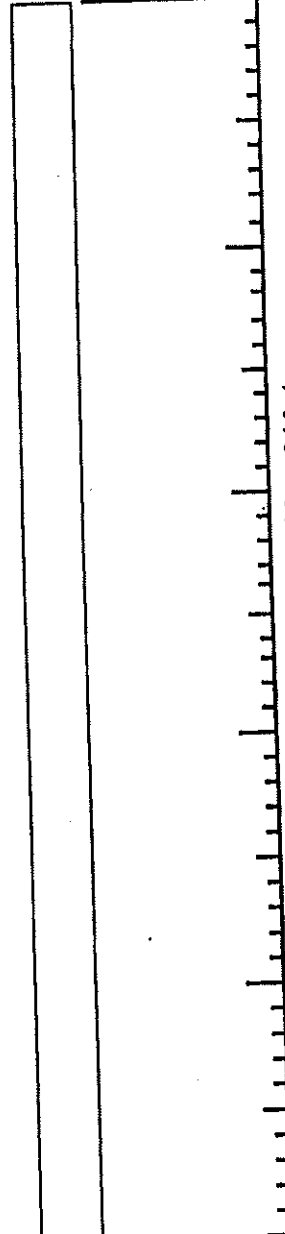
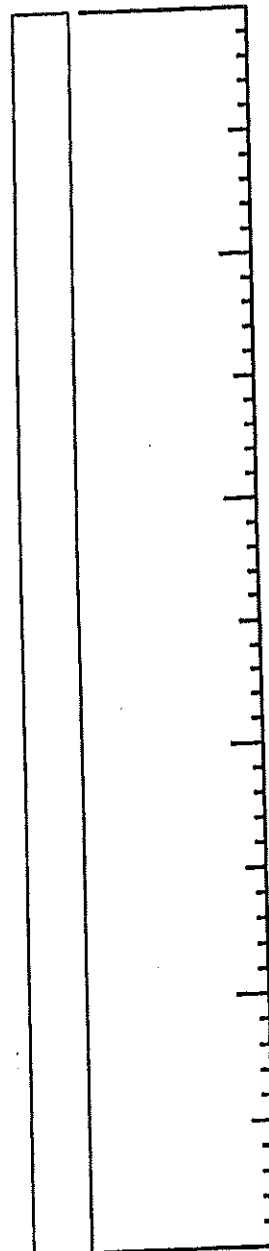
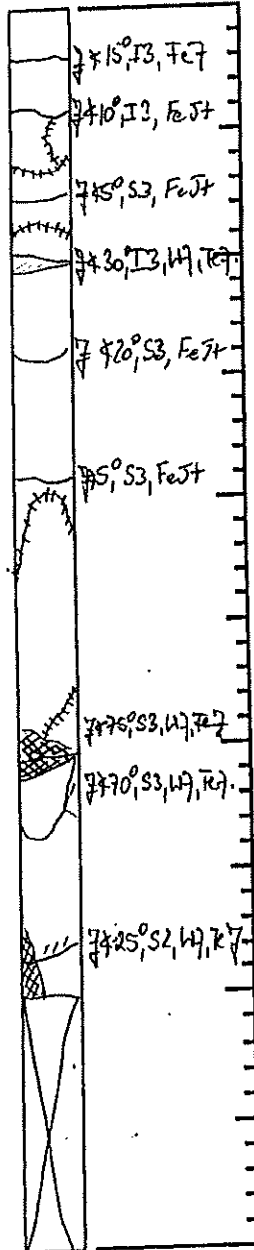
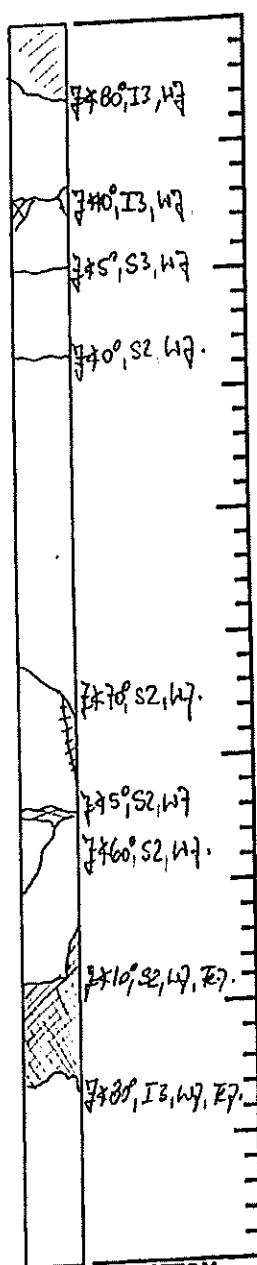
PROJECT RIVERSIDE SOUTH
LOCATION NEW YORK, NY

Run No.	REC / RQD
2C	100 / 75

Run No.	REC / RQD
1C	82 / 58

Run No.	REC / RQD

Run No.	REC / RQD



TOP

SCALE: 1 division = 0.1 feet

BOTTOM

ROCK CORE SKETCH LEGEND

JOINTING

- J - Joint
- MB - Mechanical Break
- ° - Angle w/ Horizontal
- // - Parallel
- X - Crossing
- F - Foliation
- S - Stratification
- U - Unfoliated or Unstratified

SURFACE

- C - Curved
- I - Irregular
- S - Straight

CONDITION

- 1 - Slick
- 2 - Smooth
- 3 - Rough

SKETCH SYMBOLS

- Joint
- Healed Joint
- Broken
- Part of Core Not Recovered
- Cavities or Vugs in Core
- Clay
- Sand
- Empty Space

MUESER RUTLEDGE CONSULTING ENGINEERS

PROJECT	<u>RIVERSIDE SOUTH</u>	BORING NO.	<u>M81-2</u>
LOCATION	<u>NEW YORK, NEW YORK</u>	SHEET	<u>4</u> OF <u>4</u>
BORING LOCATION	<u>SEE BORING LOCATION PLAN</u>	FILE NO.	<u>10164</u>
		SURFACE ELEV.	<u>20.0±</u>
		DATUM	<u>BOROUGH PRESIDENT OF MANHATTAN</u>

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG	TYPE OF FEED	CASING USED	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
TRUCK <u>B-61</u>	DURING CORING <u>MECHANICAL</u>	DIA., IN. <u>4</u>	DEPTH, FT. FROM <u>0</u> TO <u>10</u>
SKID <u></u>	<u>HYDRAULIC</u>	DIA., IN. <u>3</u>	DEPTH, FT. FROM <u>0</u> TO <u>45</u>
BARGE <u></u>	<u>OTHER</u>	DIA., IN. <u></u>	DEPTH, FT. FROM <u></u> TO <u></u>
OTHER <u></u>			

TYPE AND SIZE OF:	DRILLING MUD USED
D-SAMPLER <u>2" O.D. SPLIT SPOON</u>	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
U-SAMPLER <u></u>	DIAMETER OF ROTARY BIT, IN. <u>4-3/4, 3-7/8, 2-15/16</u>
S-SAMPLER <u></u>	TYPE OF DRILLING MUD <u></u>
CORE BARREL <u>NX DOUBLE TUBE</u>	AUGER USED
CORE BIT <u>NX DIAMOND</u>	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
DRILL RODS <u>NWJ</u>	TYPE AND DIAMETER, IN. <u></u>

CASING HAMMER, LBS. <u>140*</u>	AVERAGE FALL, IN. <u>30</u>
SAMPLER HAMMER, LBS. <u>140*</u>	AVERAGE FALL, IN. <u>30</u>
*MANUAL HAMMER	

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE	DEPTH OF CASING	DEPTH TO WATER	CONDITIONS OF OBSERVATION
09-14-05	10:00	62	45	12.2	UPON COMPLETION OF HOLE.

PIEZOMETER INSTALLED ☐ YES ☒ NO **SKETCH SHOWN ON**

STANDPIPE:	TYPE	ID, IN.	LENGTH, FT.	TOP ELEV.
INTAKE ELEMENT:	TYPE	OD, IN.	LENGTH, FT.	TIP ELEV.
FILTER:	MATERIAL	OD, IN.	LENGTH, FT.	BOT. ELEV.

PAY QUANTITIES

3.5" DIA. DRY SAMPLE BORING	LIN. FT.	<u>52</u>	NO. OF 3" SHELBY TUBE SAMPLES	<u></u>
3.5" DIA. U-SAMPLE BORING	LIN. FT.	<u></u>	NO. OF 3" UNDISTURBED SAMPLES	<u></u>
CORE DRILLING IN ROCK	LIN. FT.	<u>10</u>	OTHER:	<u></u>

BORING CONTRACTOR	TESTWELL LABS, INC.
DRILLER	CEMMIE HARTLEY
REMARKS	HELPERS ROBERT FULLER/ROBERT SHANE
BACKFILLED UPON COMPLETION.	
RESIDENT ENGINEER	KATHLEEN SCHULZE
DATE	08-14-05
CLASSIFICATION CHECK:	CHERYL MOSS
TYPING CHECK:	<u></u>

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING LOG

PROJECT:
LOCATION:

RIVERSIDE SOUTH
NEW YORK, NEW YORK

BORING NO. M61-1P
SHEET 1 OF 7
FILE NO. 10164
SURFACE ELEV. 13.1
RES. ENGR. K. SCHULZE

DAILY PROGRESS	SAMPLE			SAMPLE DESCRIPTION	STRATA	CASING		REMARKS
	NO.	DEPTH	BLOWS/6"			DEPTH	BLOWS	
07:00					ASPHALT		4" 3"	Drilled.
10-03-05	1D	1.0	11-11	Gray fine to coarse sand, some silt, gravel,	F			
Monday		3.0	12-22	trace wood, mica, layer tan silty fine sand (SM)				
Overcast	2D	3.0	12-18	Fine sand, some gravel, trace silt, shells				
70°F		5.0	18-19	(SP-SM)		5		
	3D	5.0	14-15	Fine to coarse sand, some gravel, silt, trace				
		7.0	22-14	red brick (SM)				
	4D	7.0	14-16	Fine to coarse sand, some silt, trace gravel				
		9.0	16-12	(SM)		10		
	5D	10.0	11-17	Coarse sand, trace gravel (SP)				
		12.0	15-15					
						15		Driller had already advanced with roller bit when spoon was opened. WC=58 WC=44 WC=Water Content in percent of dry weight.
	6NR	15.0	6-2	No recovery	O			
		17.0	2-2					
						20		
	7D	20.0	WH/24"	Soft gray organic silty clay, trace shell (OH)				
		22.0						
						25		
	8D	25.0	WH/24"	Soft gray organic silty clay, trace shell, fine to				
		27.0		medium sand (OH)				
						29		Probable wash. Refusal Possible boulder. Roller bit through many smaller boulder.
						30		
	9D	30.0	3-4	Brown fine to coarse sand, some silt, trace	G			
		32.0	3-4	gravel, clay (SM)				
	10D	35.0	23-25	Red gravel and coarse sand (GP)				
		37.0	25-23					
						40		
	11D	40.0	50/4"	Gravel, rock fragment (GP)				
		40.3						
					BLDRS /G	42.5		
						45		
						47.5		
					G	50		
						51		
02:35								

MUESER RUTLEDGE CONSULTING ENGINEERS
BORING LOG

PROJECT: RIVERSIDE SOUTH
LOCATION: NEW YORK, NEW YORK

BORING NO. M61-1P
SHEET 2 OF 7
FILE NO. 10164
SURFACE ELEV. 13.1
RES. ENGR. K. SCHULZE

DAILY PROGRESS	SAMPLE			SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
	NO.	DEPTH	BLOWS/6"					
07:30				Weathered gray mica schist, broken, weathered joints	G	51	3"	
10-04-05	1C	51.0	REC=46%		WR			
Tuesday		56.0	RQD=0%					
Overcast				Medium hard slightly weathered gray gneissic schist, jointed, Iron stained joints	R	53.5		
65°F						55		
	2C	56.0	REC=97%					
		61.0	RQD=90%					
						60		
						61		
12:00								
								End of boring at 61'.
								3rd run for RQD was cancelled due to broken core barrel.
						65		
						70		
						75		
						80		
						85		
						90		
						95		
						100		

MUESER RUTLEDGE CONSULTING ENGINEERS
ROCK CORE SKETCH

BORING NO. M61-1P
 SHEET 3 OF 7
 FILE NO. 10160
 SURFACE ELEV. 13.1
 RES. ENGR. K. Schultze

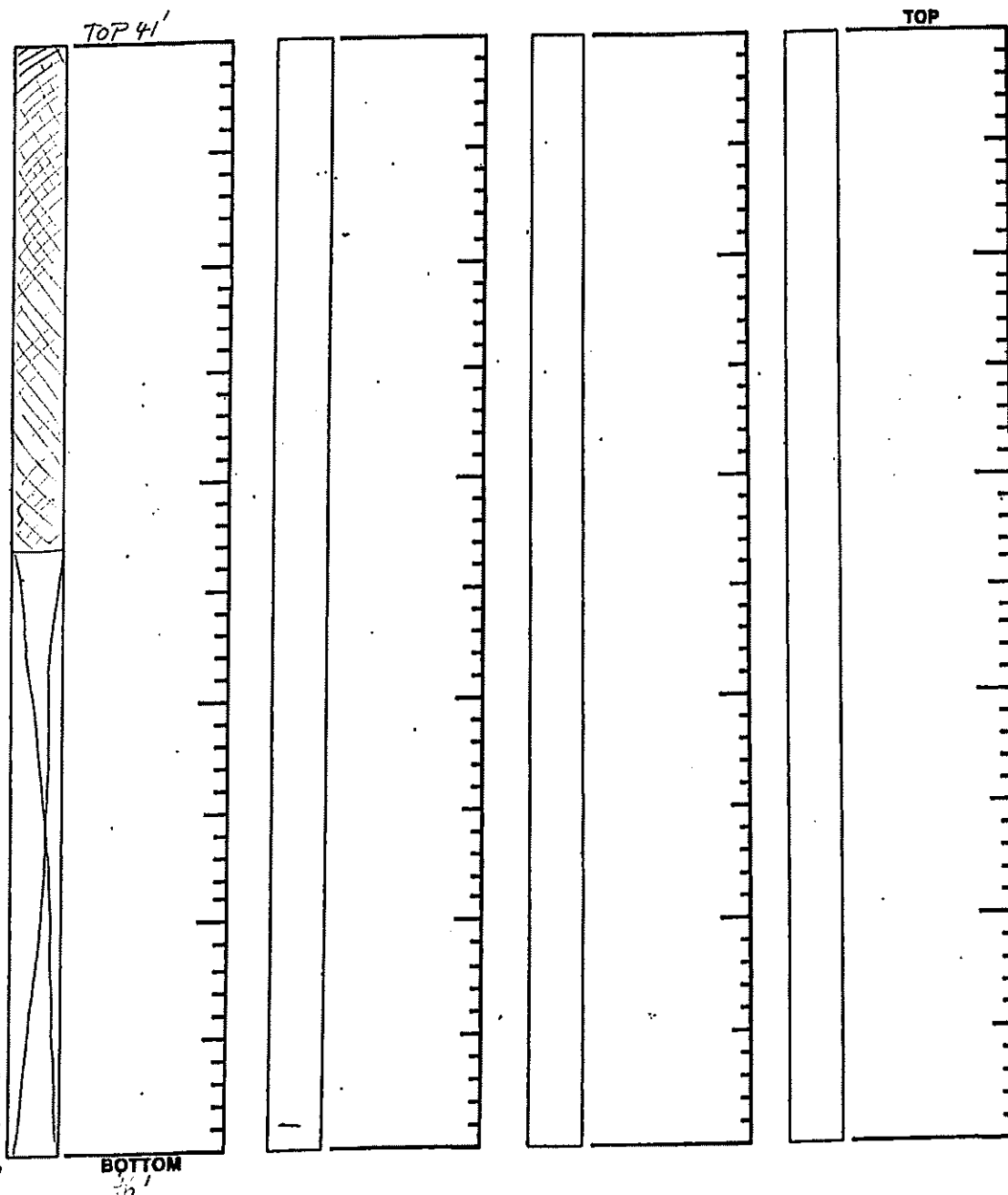
PROJECT RIVERSIDE SOUTH
 LOCATION NEW YORK, NY

Run No.	REC / RQD
1C	46 / 0

Run No.	REC / RQD

Run No.	REC / RQD

Run No.	REC / RQD



ROCK CORE SKETCH LEGEND	
JOINTING	
J	- Joint
MB	- Mechanical Break
∠	- Angle w/ Horizontal
//	- Parallel
X	- Crossing
F	- Foliation
S	- Stratification
U	- Unfolded or Unstratified
SURFACE	
C	- Curved
I	- Irregular
S	- Straight
CONDITION	
1	- Slick
2	- Smooth
3	- Rough
SKETCH SYMBOLS	
	Joint
	Healed Joint
	Broken
	Part of Core Not Recovered
	Cavities or Vugs in Core
	Clay
	Sand
	Empty Space

NOTES _____

MUESER RUTLEDGE CONSULTING ENGINEERS
ROCK CORE SKETCH

BORING NO. M61-1P
 SHEET 4 OF 7
 FILE NO. 10164
 SURFACE ELEV. 13.1
 RES. ENGR. K. Schmitt

PROJECT RIVERSIDE SOUTH

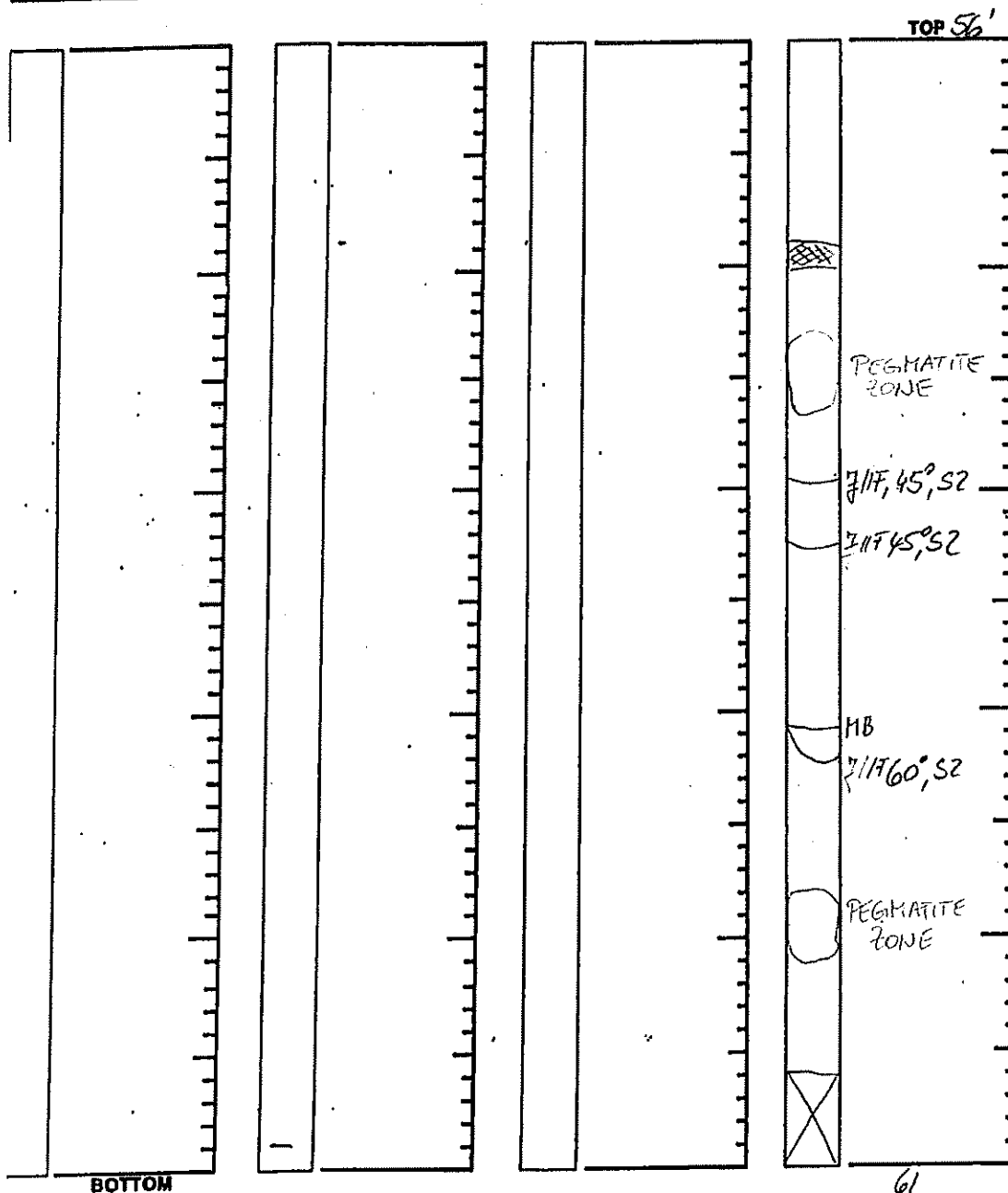
LOCATION NEW YORK, NY

Run No.	REC / RQD

Run No.	REC / RQD

Run No.	REC / RQD

Run No.	REC / RQD
2C	92/90





ROCK CORE SKETCH LEGEND	
JOINTING	
J	Joint
MB	Mechanical Break
K	Angle w/ Horizontal
//	Parallel
X	Crossing
F	Foliation
S	Stratification
U	Unfoliated or Unstratified
SURFACE	
C	Curved
I	Irregular
S	Straight
CONDITION	
1	Slick
2	Smooth
3	Rough
SKETCH SYMBOLS	
	Joint
	Healed Joint
	Broken
	Part of Core Not Recovered
	Cavities or Vugs in Core
	Clay
	Sand
	Empty Space



NOTES _____

PROJECT RIVERSIDE SOUTH PIEZOMETER NO. M61-1P
LOCATION NEW YORK, NY
PIEZOMETER LOCATION SEE BORING LOG. PLAN DATE OF INSTALLATION 10/04/
☐ SEE SKETCH ON BACK RES. ENG. K. SCHULZE

GROUND SURFACE ELEV. 13.1'

PIEZOMETER NO. M61-1P

 Sand
  Bentonite

 Gravel
  Grout

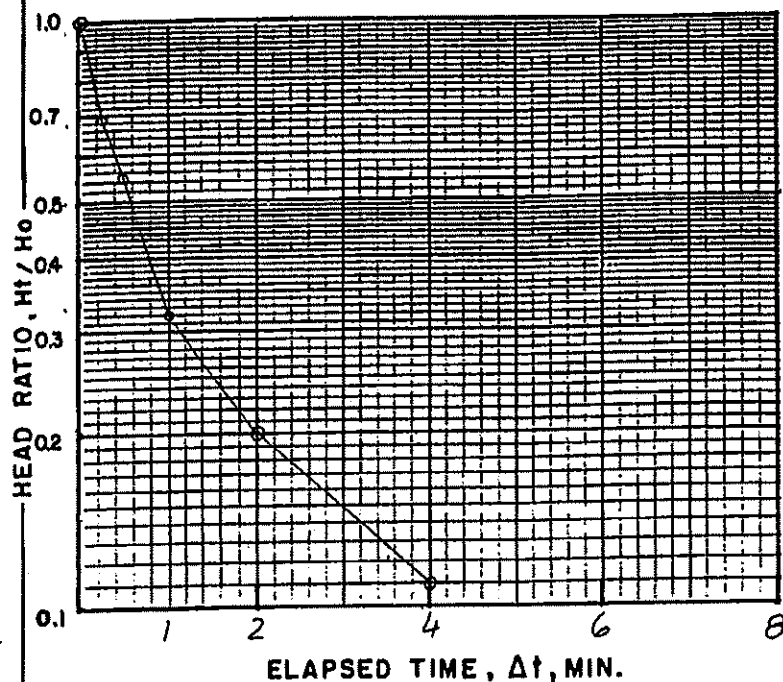
☒ BOREHOLE OR ☐ PIEZOMETER NO. M61-1P

TEST NO. 1

RES. ENG. K. SCHULZE

CALC.BY KS DATE 10/07/05

CH'KD BY _____ DATE _____



depth to bottom, ft = 17.5
 depth to top, ft = 7.5
 length, ft = 10 = L
 diameter, in = 2, ft = 0.17 = 2R

diameter, in = 2 , ft = 0.17 = 2r

depth of casing, ft = 53

depth to which stand-
pipe was bailed, ft = = Z

[illegible]

PIEZOMETER NO. M61-1P

MUESER RUTLEDGE CONSULTING ENGINEERS

PROJECT <u>RIVERSIDE SOUTH</u> LOCATION <u>NEW YORK, NEW YORK</u> BORING LOCATION <u>SEE BORING LOCATION PLAN</u>	BORING NO. <u>M61-1P</u> SHEET <u>7</u> OF <u>7</u> FILE NO. <u>10164</u> SURFACE ELEV. <u>13.1</u> DATUM <u>BOROUGH PRESIDENT OF MANHATTAN</u>
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BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG	TYPE OF FEED DURING CORING	CASING USED	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO	
TRUCK <u>D-50</u>	MECHANICAL	DIA., IN. <u>4</u>	DEPTH, FT. FROM <u>0</u>	TO <u>40</u>	
SKID	HYDRAULIC <u>X</u>	DIA., IN. <u>3</u>	DEPTH, FT. FROM <u>0</u>	TO <u>53</u>	
BARGE	OTHER	DIA., IN.	DEPTH, FT. FROM	TO	
OTHER					

TYPE AND SIZE OF:	DRILLING MUD USED <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
D-SAMPLER <u>2" O.D. SPLIT SPOON</u>	DIAMETER OF ROTARY BIT, IN. <u>4-3/4, 3-7/8, 2-1/2</u>
U-SAMPLER	TYPE OF DRILLING MUD
S-SAMPLER	
CORE BARREL <u>NX DOUBLE TUBE</u>	AUGER USED <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
CORE BIT <u>DIAMOND</u>	TYPE AND DIAMETER, IN.
DRILL RODS <u>NWJ</u>	
	CASING HAMMER, LBS. <u>140*/300*</u> AVERAGE FALL, IN. <u>30</u>
	SAMPLER HAMMER, LBS. <u>140*</u> AVERAGE FALL, IN. <u>30</u>
	*MANUAL

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE	DEPTH OF CASING	DEPTH TO WATER	CONDITIONS OF OBSERVATION
					NO OBSERVATIONS MADE.

PIEZOMETER INSTALLED ☒ YES ☐ NO **SKETCH SHOWN ON** _____

STANDPIPE:	TYPE _____	ID, IN. _____	LENGTH, FT. _____	TOP ELEV. _____
INTAKE ELEMENT:	TYPE _____	OD, IN. _____	LENGTH, FT. _____	TIP ELEV. _____
FILTER:	MATERIAL _____	OD, IN. _____	LENGTH, FT. _____	BOT. ELEV. _____

PAY QUANTITIES

3.5" DIA. DRY SAMPLE BORING	LIN. FT. <u>51</u>	NO. OF 3" SHELBY TUBE SAMPLES _____
3.5" DIA. U-SAMPLE BORING	LIN. FT. _____	NO. OF 3" UNDISTURBED SAMPLES _____
CORE DRILLING IN ROCK	LIN. FT. <u>10</u>	OTHER: _____

BORING CONTRACTOR <u>TESTWELL LABORATORIES, INC.</u>	
DRILLER <u>GARY SMITH, RICHARD RUGER</u>	HELPERS <u>RICHARD RUGER, CARLOS RODRIQUEZ</u>
REMARKS _____	PIEZOMETER SET. _____
RESIDENT ENGINEER <u>KATHLEEN SCHULZE</u>	DATE <u>10-04-05</u>
CLASSIFICATION CHECK: <u>CHERYL MOSS</u>	TYPING CHECK: _____

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING LOG

PROJECT: RIVERSIDE SOUTH - WEST 61ST STREET BRIDGE
LOCATION: NEW YORK, NEW YORK

BORING NO. B-11
SHEET 1 OF 3
FILE NO. 10164
SURFACE ELEV. 4.4
RES. ENGR. T.C. MICHAEL LAW

DAILY PROGRESS	SAMPLE			SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
	NO.	DEPTH	BLOWS/6"				DRILLED AHEAD	
12:00 03-19-04 Friday Mixed Snow & Sun 30°F	1D	3.0	100/4"	Gray green micaceous fine to medium sand, some silt, rock fragments (SM)	F	3	4"	Hand auger to 3'. REC=4"
15:00	2D	5.0	24-34	Gray green micaceous fine to medium sand, some silt, rock fragments, trace clay (SM)	DR	5		
07:00 03-22-04 Monday Sunny 20°F	1C	7.0	52-100/3" REC=88% RQD=30%	Medium hard slightly weathered gray weakly foliated granite, closely jointed, iron stained joints		7		
		12.0				10	8* 7* 6* 5* 5* 4*	*Coring time in minutes per foot.
	2C	12.0	REC=96% RQD=44%	Medium hard slightly weathered gray gneissic schist, closely jointed, iron stained joints	R	15	3*	
10:00		17.0				17	3*	End of boring at 17'.
						20		
						25		
						30		
						35		
						40		
						45		
						50		

**MUESER RUTLEDGE CONSULTING ENGINEERS
ROCK CORE SKETCH**

BORING NO. B-11

SHEET 2 OF 3

FILE NO. 10164

SURFACE ELEV. 4.4

RES. ENGR. T.C. MICHAEL LAW

PROJECT RIVERSIDE SOUTH - West 61st Street Bridge

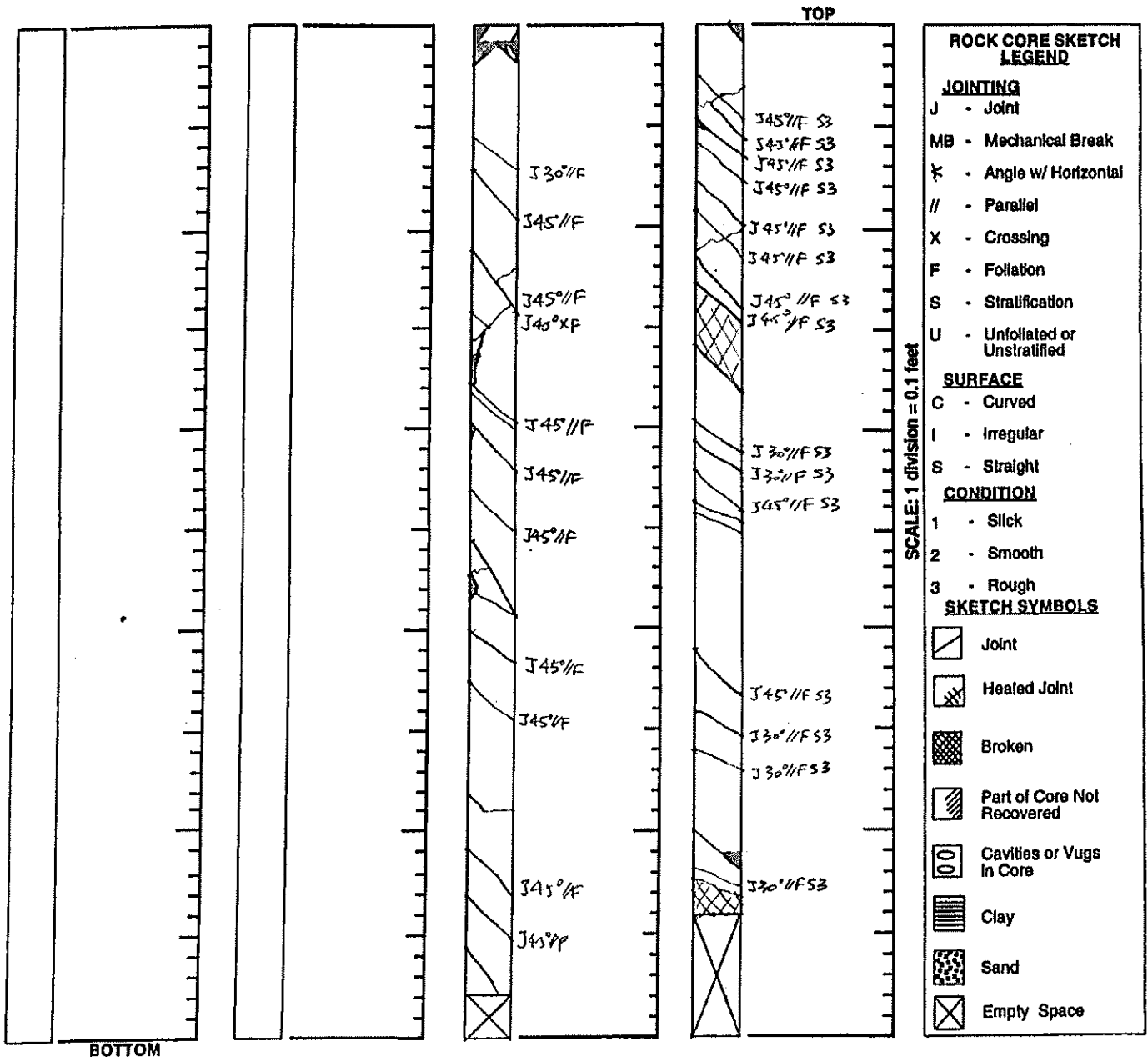
LOCATION NEW YORK, NY

Run No.	REC / RQD

Run No.	REC / RQD

Run No.	REC / RQD
2C	96%
12'-17'	44%

Run No.	REC / RQD
1C	88%
7'-12'	30%



NOTES _____

MUESER RUTLEDGE CONSULTING ENGINEERS

PROJECT RIVERSIDE SOUTH - WEST 61ST STREET BRIDGE LOCATION NEW YORK, NEW YORK BORING LOCATION SEE BORING LOCATION PLAN	BORING NO. B-11 SHEET 3 OF 3 FILE NO. 10164 SURFACE ELEV. 4.4 DATUM BOROUGH PRESIDENT OF MANHATTAN
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BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG	TYPE OF FEED	CASING USED	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO	
TRUCK	DURING CORING	DIA., IN.	4	DEPTH, FT. FROM	0 TO 4
SKID	MECHANICAL	DIA., IN.		DEPTH, FT. FROM	TO
BARGE	HYDRAULIC	DIA., IN.	X	DEPTH, FT. FROM	TO
OTHER	OTHER				

TYPE AND SIZE OF:	DRILLING MUD USED
D-SAMPLER 2" O.D. SPLIT SPOON	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
U-SAMPLER	DIAMETER OF ROTARY BIT, IN. 3-7/8
S-SAMPLER	TYPE OF DRILLING MUD
CORE BARREL NX-DOUBLE TUBE	AUGER USED
CORE BIT NX-DIAMOND	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
DRILL RODS NWJ	TYPE AND DIAMETER, IN.
	CASING HAMMER, LBS. 300 AVERAGE FALL, IN. 24
	SAMPLER HAMMER, LBS. 140 AVERAGE FALL, IN. 30

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE	DEPTH OF CASING	DEPTH TO WATER	CONDITIONS OF OBSERVATION
03-22-04	07:00	7	4	1	OVERNIGHT.

PIEZOMETER INSTALLED		<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO	SKETCH SHOWN ON	
STANDPIPE:	TYPE	ID, IN.	LENGTH, FT.	TOP ELEV.	
INTAKE ELEMENT:	TYPE	OD, IN.	LENGTH, FT.	TIP ELEV.	
FILTER:	MATERIAL	OD, IN.	LENGTH, FT.	BOT. ELEV.	

PAY QUANTITIES

3.5" DIA. DRY SAMPLE BORING	LIN. FT.	7	NO. OF 3" SHELBY TUBE SAMPLES
3.5" DIA. U-SAMPLE BORING	LIN. FT.		NO. OF 3" UNDISTURBED SAMPLES
CORE DRILLING IN ROCK	LIN. FT.	10	OTHER:

BORING CONTRACTOR	TEST WELL LABORATORIES
DRILLER	HELPERS
REMARKS	EDDIE CARDONA/BRENTON ROUSEY
RESIDENT ENGINEER	T.C. MICHAEL LAW
	DATE 03-19-04/03-22-04
	BORING NO. B-11

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING LOG

PROJECT: RIVERSIDE SOUTH - WEST 61ST STREET BRIDGE
LOCATION: NEW YORK, NEW YORK

BORING NO. B-12
SHEET 1 OF 3
FILE NO. 10164
SURFACE ELEV. 3.3
RES. ENGR. T.C. MICHAEL LAW

DAILY PROGRESS	SAMPLE			SAMPLE DESCRIPTION	STRATA	DEPTH	CASING	REMARKS
	NO.	DEPTH	BLOWS/6"				BLOWS	
08:00							DRILLED	Hand auger to 3'.
02-24-04					F		AHEAD	
Tuesday						3	4*	
Snow					DR	5	↓	Driller reported
20°F						6		decomposed rock
	1D	5.0	27-100/5"	Gray rock fragments, some medium to fine			4*	from 3'. Roller bit to
		5.9		sand, trace silt (GP-GM)			3*	5'.
	1C	6.0	REC=83%	Top 3': Medium hard slightly weathered gray			3*	Driller had to stop
		10.5	RQD=40%	gneissic schist, clj, iron stained joints			1*	after 4.5', no water.
				Bot 1.5': Intermediate moderately weathered	R	10	3*	
	2C	10.5	REC=100%	gray mica schist, broken			3*	
		15.5	RQD=62%	Medium hard slightly weathered gray gneissic			3*	
				schist, jointed to closely jointed, iron stained			3*	
				joints			3*	
12:30						15	2*	*Coring time in
						15.5	2*	minutes per foot.
								End of boring at 15.5'.
						20		
						25		
						30		
						35		
						40		
						45		
						50		

MUESER RUTLEDGE CONSULTING ENGINEERS
ROCK CORE SKETCH

BORING NO. B-12

SHEET 2 OF 3

FILE NO. 10164

SURFACE ELEV. 3.3

RES. ENGR. T.C. MICHAEL LAM

PROJECT RIVERSIDE SOUTH - West 61st Street Bridge

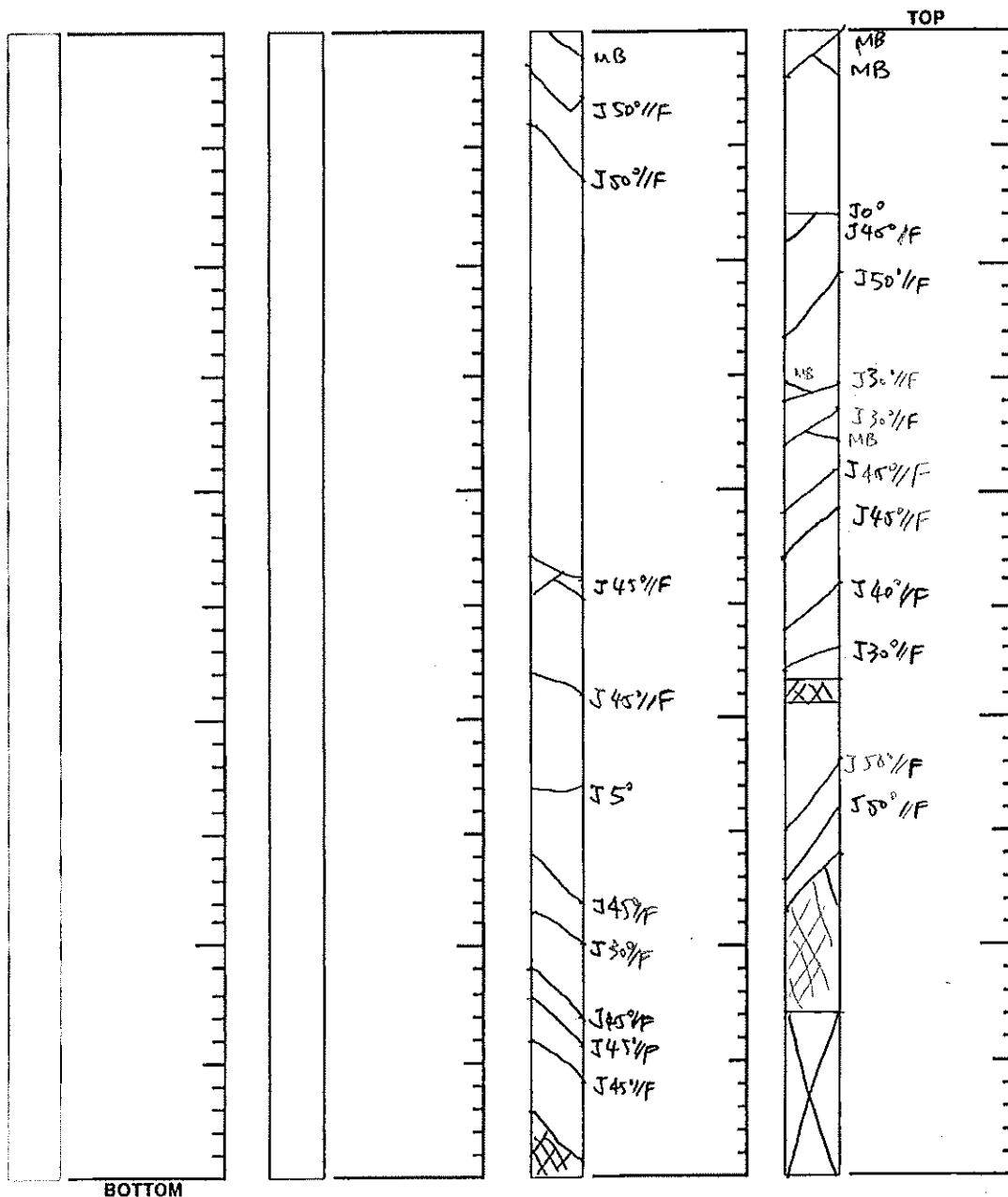
LOCATION NEW YORK, NY

Run No.	REC / RQD

Run No.	REC / RQD

Run No.	REC / RQD
2c	100%
10.5'	62%
15.5'	

Run No.	REC / RQD
1c	93%
6'-10.5'	40%



- ROCK CORE SKETCH LEGEND**
- JOINTING**
- J - Joint
 - MB - Mechanical Break
 - ° - Angle w/ Horizontal
 - // - Parallel
 - X - Crossing
 - F - Foliation
 - S - Stratification
 - U - Unfoliated or Unstratified
- SURFACE**
- C - Curved
 - I - Irregular
 - S - Straight
- CONDITION**
- 1 - Slick
 - 2 - Smooth
 - 3 - Rough
- SKETCH SYMBOLS**
- Joint
 - Healed Joint
 - Broken
 - Part of Core Not Recovered
 - Cavities or Vugs in Core
 - Clay
 - Sand
 - Empty Space

NOTES

MUESER RUTLEDGE CONSULTING ENGINEERS

PROJECT RIVERSIDE SOUTH - WEST 61ST STREET BRIDGE	BORING NO. B-12
LOCATION NEW YORK, NEW YORK	SHEET 3 OF 3
BORING LOCATION SEE BORING LOCATION PLAN	FILE NO. 10164
	SURFACE ELEV. 3.3
	DATUM BOROUGH PRESIDENT OF MANHATTAN

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG	TYPE OF FEED	CASING USED	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO
TRUCK MOBILE B-58	DURING CORING	DIA., IN. 4	DEPTH, FT. FROM 0	TO 4
SKID	MECHANICAL	DIA., IN.	DEPTH, FT. FROM	TO
BARGE	HYDRAULIC <input checked="" type="checkbox"/>	DIA., IN.	DEPTH, FT. FROM	TO
OTHER	OTHER	DIA., IN.	DEPTH, FT. FROM	TO

TYPE AND SIZE OF:

D-SAMPLER 2" O.D. SPLIT SPOON
 U-SAMPLER
 S-SAMPLER
 CORE BARREL NX-DOUBLE TUBE
 CORE BIT NX-DIAMOND
 DRILL RODS NWJ

DRILLING MUD USED ☐ YES ☒ NO
DIAMETER OF ROTARY BIT, IN. 4-3/4, 3-7/8
TYPE OF DRILLING MUD

AUGER USED ☐ YES ☒ NO
TYPE AND DIAMETER, IN.

*CASING HAMMER, LBS. 140 AVERAGE FALL, IN. 30
 *SAMPLER HAMMER, LBS. 140 AVERAGE FALL, IN. 30
 *AUTOMATIC HAMMER

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE	DEPTH OF CASING	DEPTH TO WATER	CONDITIONS OF OBSERVATION
02-24-04	11:30	15.5	4	3	AFTER HOLE COMPLETION.

PIEZOMETER INSTALLED ☐ YES ☒ NO **SKETCH SHOWN ON**

STANDPIPE:	TYPE	ID, IN.	LENGTH, FT.	TOP ELEV.
INTAKE ELEMENT:	TYPE	OD, IN.	LENGTH, FT.	TIP ELEV.
FILTER:	MATERIAL	OD, IN.	LENGTH, FT.	BOT. ELEV.

PAY QUANTITIES

3.5" DIA. DRY SAMPLE BORING	LIN. FT.	6	NO. OF 3" SHELBY TUBE SAMPLES
3.5" DIA. U-SAMPLE BORING	LIN. FT.		NO. OF 3" UNDISTURBED SAMPLES
CORE DRILLING IN ROCK	LIN. FT.	9.5	OTHER:

BORING CONTRACTOR

DRILLER ROB WARE

TEST WELL LABORATORIES

HELPERS BRENTON ROUSEY

REMARKS AUTOMATIC HAMMER

RESIDENT ENGINEER T.C. MICHAEL LAW

DATE 02-24-04

BORING LOG

BORING NO. B-13
SHEET 1 OF 3
FILE NO. 10164
SURFACE ELEV. 2.6
RES. ENGR. T.C. MICHAEL LAW

DAILY PROGRESS	NO.	DEPTH	SAMPLE		SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
10:00 03-22-04 Monday Sunny 20°F 15:30	1D	2.0 2.4	100/5"		Gray green micaceous fine to medium sand, some silt, trace rock fragments (SM)	F DR	2 3	ORILLED AHEAD 4" ↓	Hand auger to 2'. Hard drilling from 3' to 5'.
07:00 03-23-04 Tuesday Sunny 30°F	1C	5.0 10.0	REC=80% RQD=20%		Intermediate slightly to moderately weathered gray gneissic schist, closely jointed to broken, iron stained joints			5* 5* 6* 4* 4*	Start coring at 5' due to not enough clearance for the skid rig.
	2C	10.0 15.0	REC=62% RQD=10%		Intermediate slightly to moderately weathered gray gneissic schist, trace pegmatite, closely jointed, iron stained joints	R	10	4* 5* 4* 3* 4*	
	3C	15.0 20.0	REC=52% RQD=20%		Intermediate slightly weathered gray gneissic schist, closely jointed to broken, iron stained joints		15	4* 4* 4* 5* 4*	*Coring time in minutes per foot.
14:30							20	4*	End of boring at 20'.
							25		
							30		
							35		
							40		
							45		
							50		

MUESER RUTLEDGE CONSULTING ENGINEERS
ROCK CORE SKETCH

BORING NO. B-13
 SHEET 2 OF 3
 FILE NO. 10164
 SURFACE ELEV. 2.6
 RES. ENGR. T.C. MICHAEL LAW

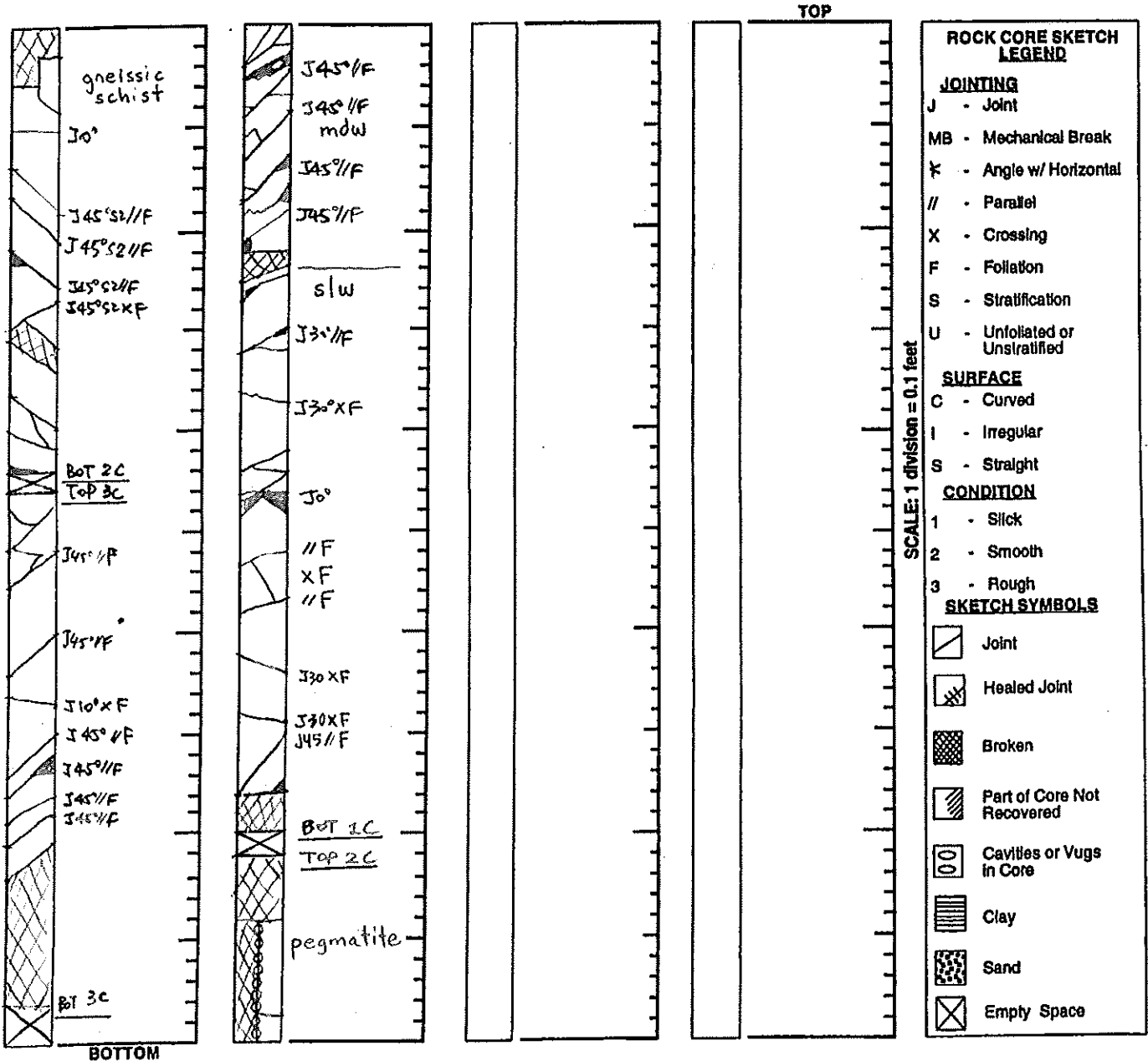
PROJECT RIVERSIDE SOUTH - West 61st Street Bridge
 LOCATION NEW YORK, NY

Run No.	REC / RQD
2C CONT'D	
3C 15'-20'	52% 20%

Run No.	REC / RQD
1C 5'-10'	80% 20%
2C 10'-15'	62% 10%

Run No.	REC / RQD

Run No.	REC / RQD



NOTES _____

MUESER RUTLEDGE CONSULTING ENGINEERS

PROJECT	RIVERSIDE SOUTH - WEST 61ST STREET BRIDGE	BORING NO.	B-13
LOCATION	NEW YORK, NEW YORK	SHEET	3 OF 3
BORING LOCATION	SEE BORING LOCATION PLAN	FILE NO.	10164
		SURFACE ELEV.	2.6
		DATUM	BOROUGH PRESIDENT OF MANHATTAN

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG	TYPE OF FEED	CASING USED	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	
TRUCK	DURING CORING	DIA., IN.	4	DEPTH, FT. FROM 0 TO 4
SKID	MECHANICAL	DIA., IN.		DEPTH, FT. FROM TO
BARGE	HYDRAULIC <input checked="" type="checkbox"/>	DIA., IN.		DEPTH, FT. FROM TO
OTHER	OTHER			

TYPE AND SIZE OF:	DRILLING MUD USED <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
D-SAMPLER 2" O.D. SPLIT SPOON	DIAMETER OF ROTARY BIT, IN. 3-7/8
U-SAMPLER	TYPE OF DRILLING MUD
S-SAMPLER	
CORE BARREL NX-DOUBLE TUBE	AUGER USED <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
CORE BIT NX-DIAMOND	TYPE AND DIAMETER, IN.
DRILL RODS NWJ	
	CASING HAMMER, LBS. 300 AVERAGE FALL, IN. 24
	SAMPLER HAMMER, LBS. 140 AVERAGE FALL, IN. 30

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE	DEPTH OF CASING	DEPTH TO WATER	CONDITIONS OF OBSERVATION AFTER HOLE COMPLETION.
03-23-04	14:30	20	4	1	

PIEZOMETER INSTALLED ☐ YES ☒ NO **SKETCH SHOWN ON**

STANDPIPE:	TYPE	ID, IN.	LENGTH, FT.	TOP ELEV.
INTAKE ELEMENT:	TYPE	OD, IN.	LENGTH, FT.	TIP ELEV.
FILTER:	MATERIAL	OD, IN.	LENGTH, FT.	BOT. ELEV.

PAY QUANTITIES

3.5" DIA. DRY SAMPLE BORING	LIN. FT.	5	NO. OF 3" SHELBY TUBE SAMPLES
3.5" DIA. U-SAMPLE BORING	LIN. FT.		NO. OF 3" UNDISTURBED SAMPLES
CORE DRILLING IN ROCK	LIN. FT.	15	OTHER:

BORING CONTRACTOR	TEST WELL LABORATORIES
DRILLER EDDIE CARDONA	HELPERS GEORGE TIRADO, BRENTON ROUSEY
REMARKS	
RESIDENT ENGINEER T.C. MICHAEL LAW	DATE 03-22-04/03-23-04

BORING LOG

BORING NO. B-14
SHEET 1 OF 3
FILE NO. 10164
SURFACE ELEV. 2.9
RES. ENGR. T.C. MICHAEL LAW

MRCE Form BL-1

BORING NO. **B-14**

**MUESER RUTLEDGE CONSULTING ENGINEERS
ROCK CORE SKETCH**

BORING NO. B-14

SHEET 2 OF 3

FILE NO. 10164

SURFACE ELEV. 2.9

RES. ENGR. T. C. MICHAEL LAM

PROJECT RIVERSIDE SOUTH - West 61st Street Bridge

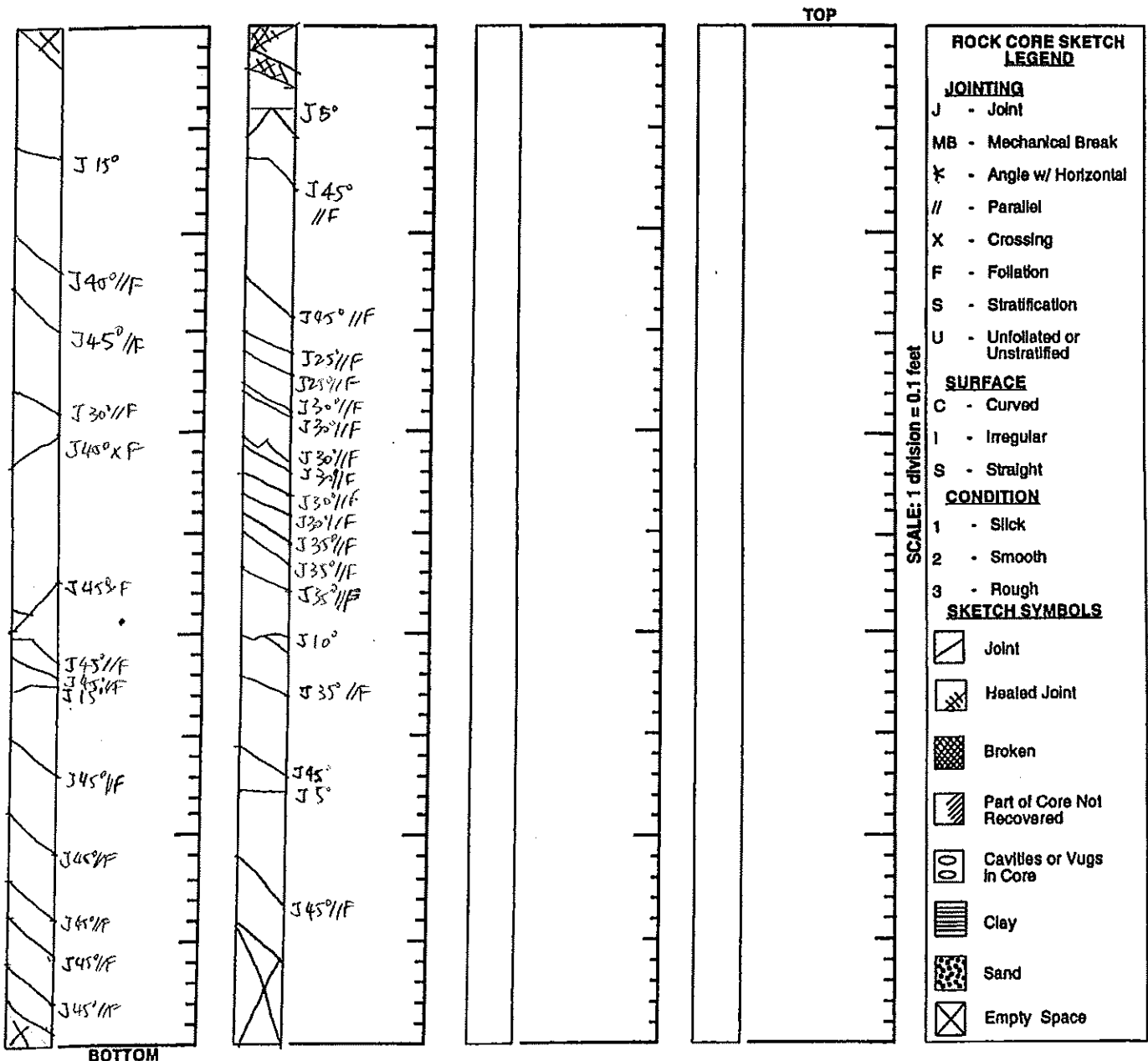
LOCATION NEW YORK, NY

Run No.	REC / RQD
2 C 9.5' - 14.5'	96% / 70%

Run No.	REC / RQD
1 C 4.3' - 9.5'	92% / 20%

Run No.	REC / RQD

Run No.	REC / RQD



NOTES

MUESER RUTLEDGE CONSULTING ENGINEERS

PROJECT RIVERSIDE SOUTH - WEST 61ST STREET BRIDGE	BORING NO. B-14
LOCATION NEW YORK, NEW YORK	SHEET 3 OF 3
BORING LOCATION SEE BORING LOCATION PLAN	FILE NO. 10164
	SURFACE ELEV. 2.9
	DATUM BOROUGH PRESIDENT OF MANHATTAN

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG	TYPE OF FEED	CASING USED	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO	
TRUCK MOBILE B-58	DURING CORING MECHANICAL	DIA., IN. 4			DEPTH, FT. FROM 0 TO 4
SKID	HYDRAULIC X	DIA., IN.			DEPTH, FT. FROM TO
BARGE	OTHER	DIA., IN.			DEPTH, FT. FROM TO
OTHER					

TYPE AND SIZE OF:

D-SAMPLER 2" O.D. SPLIT SPOON
 U-SAMPLER
 S-SAMPLER
 CORE BARREL NX-DOUBLE TUBE
 CORE BIT NX-DIAMOND
 DRILL RODS NWJ

DRILLING MUD USED ☐ YES ☒ NO
 DIAMETER OF ROTARY BIT, IN. 4-3/4, 3-7/8
 TYPE OF DRILLING MUD

AUGER USED ☐ YES ☒ NO
 TYPE AND DIAMETER, IN.

*CASING HAMMER, LBS. 140 AVERAGE FALL, IN. 30
 *SAMPLER HAMMER, LBS. 140 AVERAGE FALL, IN. 30
 *AUTOMATIC HAMMER

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE	DEPTH OF CASING	DEPTH TO WATER	CONDITIONS OF OBSERVATION
					NO OBSERVATIONS MADE.

PIEZOMETER INSTALLED ☐ YES ☒ NO **SKETCH SHOWN ON**

STANDPIPE:	TYPE	ID, IN.	LENGTH, FT.	TOP ELEV.
INTAKE ELEMENT:	TYPE	OD, IN.	LENGTH, FT.	TIP ELEV.
FILTER:	MATERIAL	OD, IN.	LENGTH, FT.	BOT. ELEV.

PAY QUANTITIES

3.5" DIA. DRY SAMPLE BORING	LIN. FT.	4.5	NO. OF 3" SHELBY TUBE SAMPLES
3.5" DIA. U-SAMPLE BORING	LIN. FT.		NO. OF 3" UNDISTURBED SAMPLES
CORE DRILLING IN ROCK	LIN. FT.	10	OTHER:

BORING CONTRACTOR

DRILLER ROB WARE

TEST WELL LABORATORIES

HELPERS BRENTON ROUSEY

REMARKS AUTOMATIC HAMMER.

RESIDENT ENGINEER

T.C. MICHAEL LAW

DATE 02-24-04