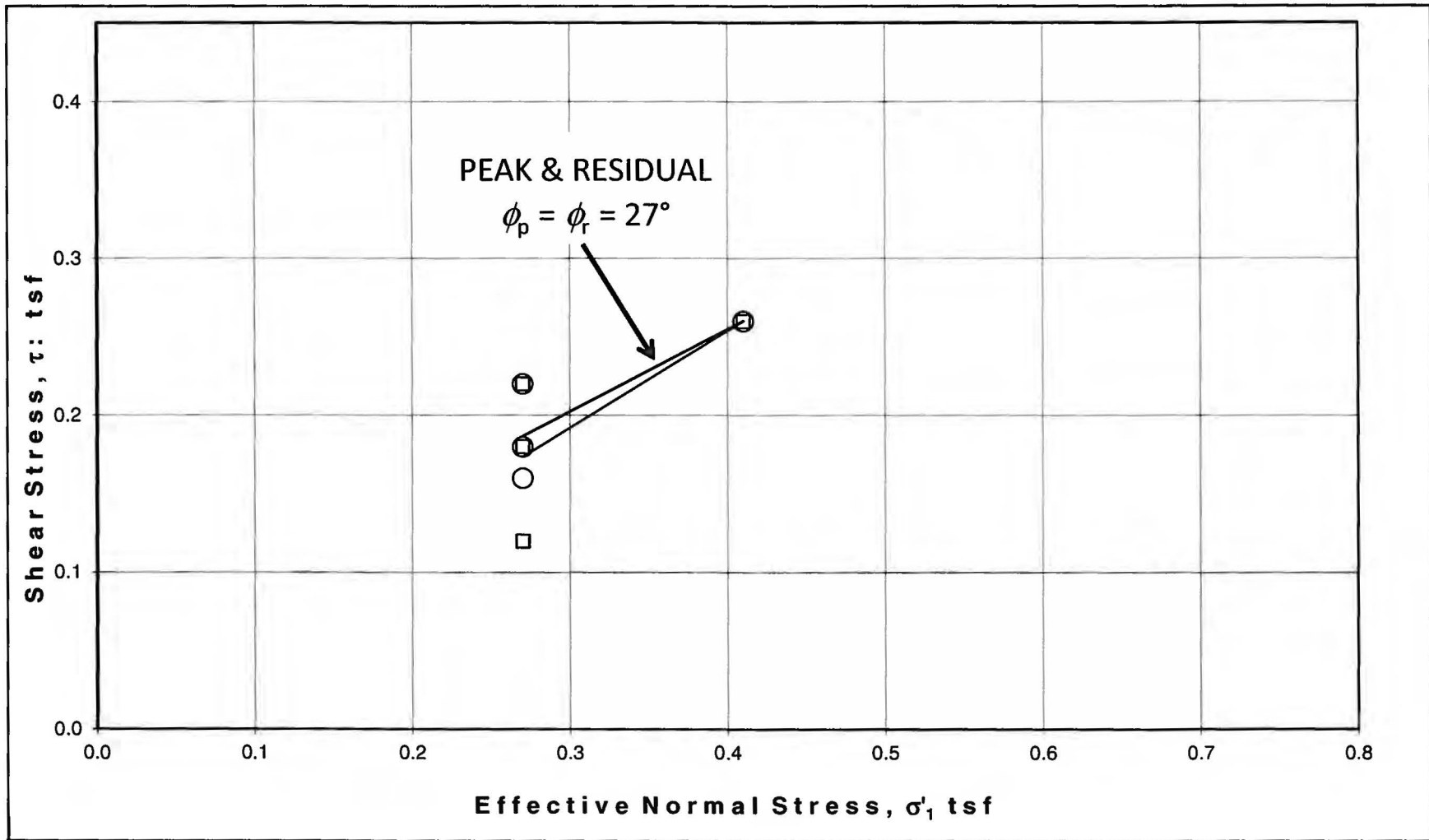
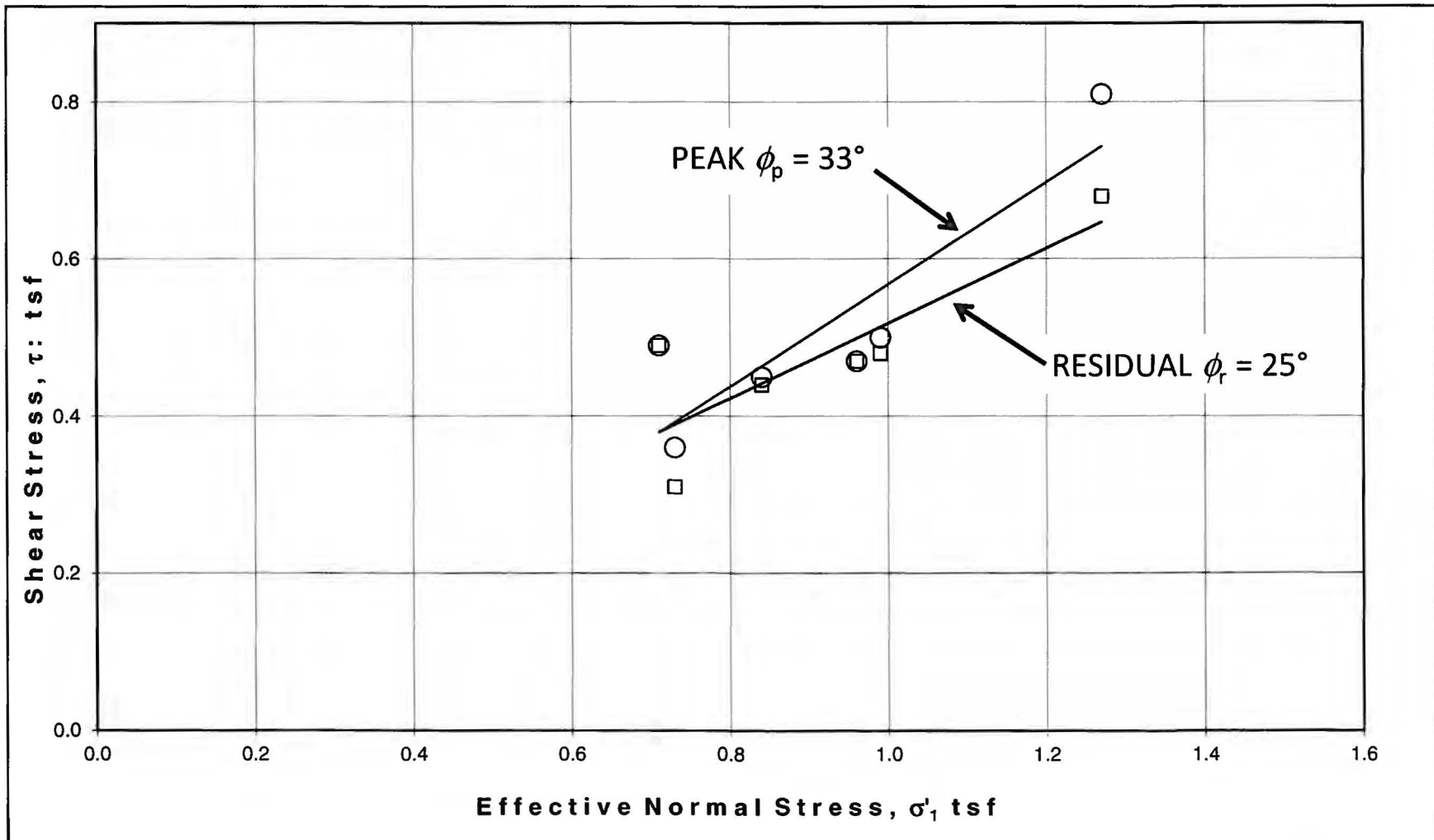


UNIFIED SOILS CLASSIFICATION		CLAY OR SILT			SAND			GRAVEL		COBBLES			
					FINE	MEDIUM	COARSE	FINE	COARSE				
PLATE NO. G-23	SYMBOL	BORING	SAMPLE	STRATUM	---% OVERSIZED	DESCRIPTION OF SAMPLE					BAY PARK STP BAY PARK NEW YORK MUESER RUTLEDGE CONSULTING ENGINEERS 225 WEST 34TH STREET, NEW YORK, N.Y. 10122		
	○	B-17	1HA	F	22.8	Brown gravelly fine to coarse sand, some silt, trace vegetation (SM)							MADE BY: CJM
	□	B-17	3HA	S		Tan brown fine to coarse sand, trace gravel, silt (SP)					CHKD BY: RTW	DATE: 12-20-13	12047
	△	B-17	6D	S		Light brown fine to coarse sand, trace gravel, silt (SP)					GRADATION CURVES BORING NO. B-17		PLATE NO.
	◇	B-17	7D	S		Gray brown fine to medium sand, trace silt (SP)							G-23
	▽	B-17	8D	S		Orange brown fine to medium sand, trace silt, coarse sand (SP)							
	▷	B-17	9D TOP	S	4.6	Orange brown fine to coarse sand, trace gravel, silt, silty clay seams (SP-SM)							
	◁	B-17	9D BOT	S		Gray clayey fine to medium sand (SC)							
×	B-17	12D	S		Orange brown fine to medium sand, trace silt, gravel, coarse sand (SP-SM)								



Symbol	Strength	Boring No.	Sample No.	Sample Depth, ft	Stratum	Normal Stress, tsf	WC Initial, %	WC Final, %	Dry Unit Weight, pcf	BAY PARK STP - PERIMETER FLOOD PROTECTION		
												BAY PARK
○	Peak	B-2P	3HA	4-6	F	0.27	10.7	20.0	93.6	MUESER RUTLEDGE CONSULTING ENGINEERS 225 WEST 34TH STREET, NEW YORK, N.Y. 10122		
□	Residual	B-3U	3HA	4-6	F	0.27	43.8	41.0	73.9			
		B-5A	2D	8-10	F	0.41	17.2	24.3	94.0			
		B-15	3HA	4-6	F	0.27	25.0	29.2	87.7			
PLATE NO. D-1										MADE BY CJM	DATE 12-24-13	FILE NO.
										CH'KD BY RTW	DATE 12-24-13	12047
DIRECT SHEAR TEST SUMMARY STRATUM F										PLATE NO.		
										D-1		



Symbol	Strength	Boring No.	Sample No.	Sample Depth, ft	Stratum	Normal Stress, tsf	WC Initial, %	WC Final, %	Dry Unit Weight, pcf	BAY PARK STP - PERIMETER FLOOD PROTECTION	
										BAY PARK	NEW YORK
○	Peak	B-2P	11D	20-22	S	0.71	28.5	29.2	82.6	MUESER RUTLEDGE CONSULTING ENGINEERS 225 WEST 34TH STREET, NEW YORK, N.Y. 10122 MADE BY CJM DATE 12-24-13 FILE NO. CHKD BY RTW DATE 12-24-13 12047 DIRECT SHEAR TEST SUMMARY PLATE NO. STRATUM S D-2	
□	Residual	B-4A	10D	30-32	S	0.96	20.1	19.6	103.3		
		B-5A	14D	32-34	S	0.99	22.8	27.4	91.0		
		B-15	9D	25-27	S	0.84	18.10	19.0	99.5		
		B-16	11D	20-22	S	0.73	22.20	23.9	95.0		
		B-16	21D	40-41	S	1.27	12.40	15.7	106.7		

PLATE NO. D-2

APPENDIX A

MRCE BORING LOGS

MUESER RUTLEDGE CONSULTING ENGINEERS

PROJECT	<u>BAY PARK STP - PERIMETER FLOOD PROTECTION</u>	BORING NO.	<u>B-1</u>
LOCATION	<u>BAY PARK, NEW YORK</u>	SHEET	<u>2 OF 2</u>
BORING LOCATION	<u>SEE BORING LOCATION PLAN</u>	FILE NO.	<u>12047</u>
		SURFACE ELEV.	<u>6.7</u>
		DATUM	<u>NAVD 88</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>MOBILE B-58</u>	DURING CORING	DIA., IN.	<u>4</u>	DEPTH, FT. FROM
SKID		MECHANICAL			<u>0</u> TO <u>4</u>
BARGE		HYDRAULIC	DIA., IN.		DEPTH, FT. FROM
OTHER		OTHER	DIA., IN.		TO

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

*CASING HAMMER, LBS. 140 AVERAGE FALL, IN. 30
 *SAMPLER HAMMER, LBS. 140 AVERAGE FALL, IN. 30
 *USED SAFETY (SAMPLER) & AUTOMATIC (CASING) HAMMERS.

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE	DEPTH OF CASING	DEPTH TO WATER	CONDITIONS OF OBSERVATION
					NO WATER LEVEL 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>46</u>	NO. OF 3" SHELBY TUBE SAMPLES	_____
3.5" DIA. CONTINUOUS SAMPLE BORING	LIN. FT.	_____	NO. OF 3" UNDISTURBED SAMPLES	_____
CORE DRILLING IN ROCK	LIN. FT.	_____	OTHER: HAND AUGER	<u>6</u>

BORING CONTRACTOR WARREN GEORGE, INC.
DRILLER CAESAR MOREIRA **HELPERS** LAWRENCE MILLER

REMARKS BOREHOLE TREMIE GROUTED UPON COMPLETION.

RESIDENT ENGINEER PATRICK DONALDSON **DATE** 10-22-13

CLASSIFICATION CHECK: CHERYL J. MOSS **TYPING CHECK:** CHERYL J. MOSS

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING LOG

PROJECT: BAY PARK STP - PERIMETER FLOOD PROTECTION
 LOCATION: BAY PARK, NEW YORK

BORING NO. B-2P
 SHEET 1 OF 4
 FILE NO. 12047
 SURFACE ELEV. 7.2
 RES. ENGR. PATRICK DONALDSON

DAILY PROGRESS	SAMPLE			SAMPLE DESCRIPTION	STRATA	DEPTH	CASING	REMARKS
	NO.	DEPTH	BLOWS/6"				BLOWS	
10:15	1HA	0.0	HAND	Brown fine to medium sand, some silt, trace coarse sand, gravel, vegetation (SM)	F		DRILLED	
10-04-13		2.0	AUGER				AHEAD	
Friday	2HA	2.0	HAND	Tan & light brown fine to coarse sand, some gravel, trace silt (SP)	F	5	4"	
Sunny		4.0	AUGER					
45°F	3HA	4.0	HAND	Tan fine to medium sand, trace coarse sand, silt, gravel (SP-SM)	O	6.6	↓	
10:45		6.0	AUGER					
13:55	4D	6.0	16-9	Top 7": Brn f-c sand, sm gvl, tr silt (SP-SM)	O	8		
10-09-13		8.0	4-4	Bot 1": Brn organic silty clay & peat (OH&Pt)				
Wed., Overcast	5D	8.0	2-2	Brown fine to medium sand, trace gravel, silt, coarse sand (SP)	S	10		
60°F, 15:00		10.0	3-2					
07:35	6D	10.0	WH/24"	Brown peat, some organic silty clay (Pt&OH)	O			WC=235
10-10-13		12.0						
Thursday	7D	12.0	2-4	Brown peat & organic silty clay (Pt&OH)	O	14		WC=249
Light Rain		14.0	3-3					
60°F	8D	14.0	1-2	Green brown medium to fine sand, trace silt, coarse sand, gravel, peat (SP-SM)		15		
		16.0	2-3					
	9D	16.0	4-5	Green brown fine to coarse sand, trace gravel, silt (SP)				
		18.0	6-8					
	10D	18.0	4-5	Green brown fine to medium sand, trace silt, gravel, coarse sand (SP-SM)		20		
		20.0	13-15					
	11D	20.0	11-11	Orange brown fine to medium sand, trace silt (SP-SM)				
		22.0	12-13					
	12D	22.0	9-12	Do 11D (SP-SM)				
		24.0	14-16					
	13D	24.0	4-8	Orange brown fine sand, trace silt, medium sand (SP)		25		
		26.0	12-12					
	14D	26.0	7-12	Light brown fine to coarse sand, trace silt, gravel (SP-SM)				
		28.0	15-20					
	15D	28.0	10-15	Light brown fine to medium sand, trace silt (SP-SM)		30		
		30.0	15-15					
	16D	30.0	5-15	Do 15D (SP)	S			
		32.0	20-19					
	17D	32.0	9-16	Light brown fine to medium sand, trace silt, gravel (SP-SM)				
		34.0	14-17					
	18D	34.0	7-14	Tan fine to coarse sand, some gravel, trace silt (SP)		35		
		36.0	15-17					
	19D	36.0	12-23	Tan fine to medium sand, trace silt (SP-SM)				
		38.0	28-32					
	20D	38.0	10-15	Do 19D (SP-SM)		40		
		40.0	19-23					
	21D	40.0	17-29	Tan fine to medium sand, trace gravel, silt (SP-SM)				
		42.0	38-44					
	22D	42.0	24-42	Do 21D (SP-SM)				
		43.3	50/4"					
	23D	44.0	23-40	Do 21D (SP-SM)		45		WC=Water Content in percent of dry weight.
		46.0	55-59					
	24D	46.0	23-30	Tan fine to medium sand, trace silt (SP-SM)				
		47.8	45-50/4"					
13:00	25D	48.0	31-54	Tan fine to medium sand, trace silt, coarse sand, gravel (SP-SM)		49.4		REC=5" End of Boring at 49.4'
		49.4	50/5"					



Mueser Rutledge Consulting Engineers

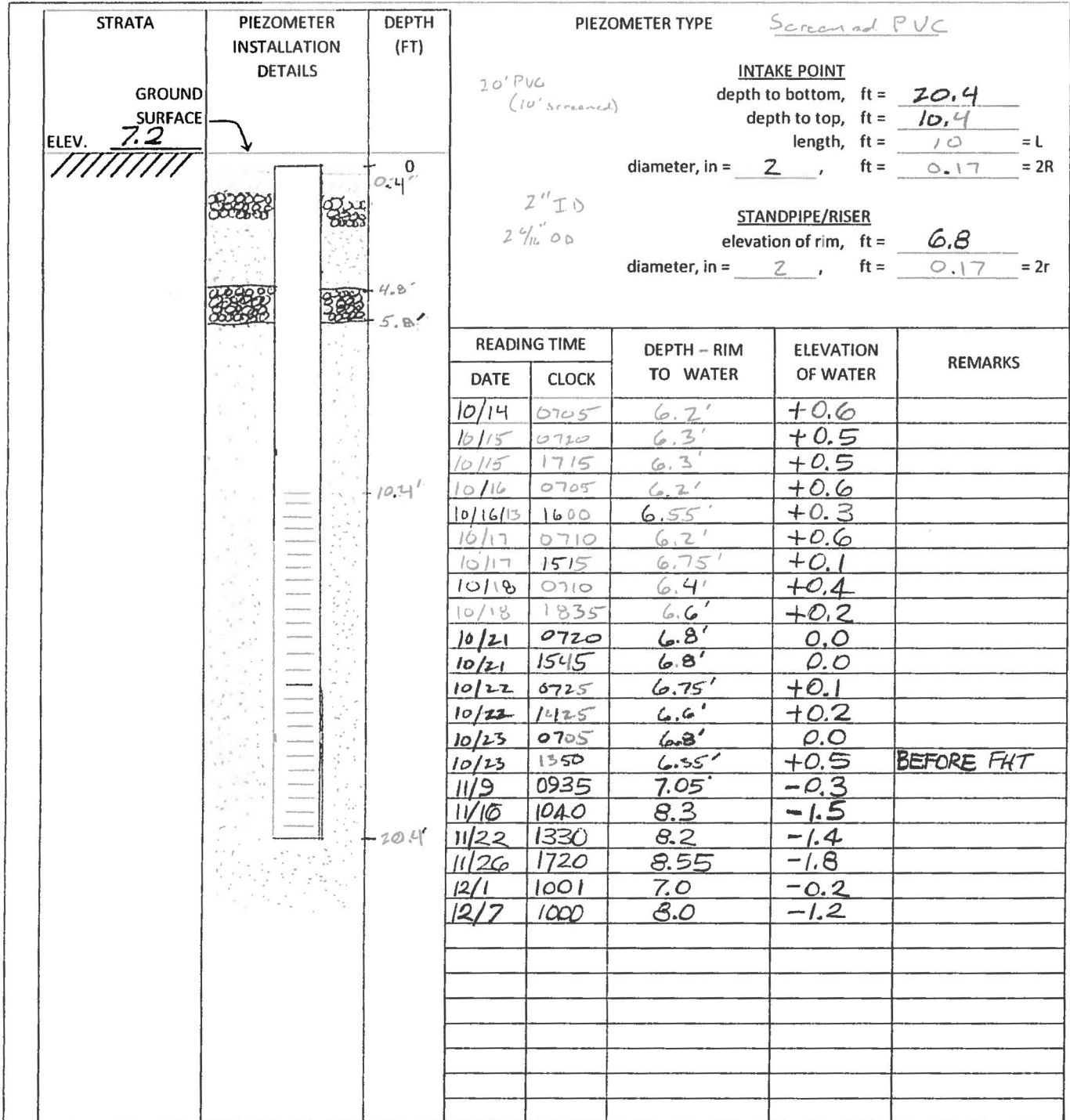
14 Penn Plaza - 225 West 34th Street
New York, NY 10122
T: 917 339-9300 F: 917 339-9400
www.mrce.com

PIEZOMETER RECORD

PIEZOMETER OR BORING NO. B-2P
SHEET 2 OF 4
FILE NO. 12047
INSTALLATION DATE 10/10/13
RES ENGR. PED

PROJECT: Bay Park STP
LOCATION: East Rockaway, NY
PIEZOMETER LOCATION: _____

SEE SKETCH ON BACK



SAND
 GRAVEL

BENTONITE
 GROUT

GROUND SURFACE ELEV. 7.2

PIEZOMETER NO. B-2P

MUESER RUTLEDGE CONSULTING ENGINEERS

PROJECT	<u>BAY PARK STP - PERIMETER FLOOD PROTECTION</u>	BORING NO.	<u>B-2P</u>
LOCATION	<u>BAY PARK, NEW YORK</u>	SHEET	<u>4 OF 4</u>
BORING LOCATION	<u>SEE BORING LOCATION PLAN</u>	FILE NO.	<u>12047</u>
		SURFACE ELEV.	<u>7.2</u>
		DATUM	<u>NAVD 88</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>DIETRICH 120</u>	DURING CORING	DIA., IN. <u>4</u>	DEPTH, FT. FROM <u>0</u>	TO <u>7</u>
SKID _____	MECHANICAL _____	DIA., IN. _____	DEPTH, FT. FROM _____	TO _____
BARGE _____	HYDRAULIC _____	DIA., IN. _____	DEPTH, FT. FROM _____	TO _____
OTHER _____	OTHER _____	DIA., IN. _____	DEPTH, FT. FROM _____	TO _____

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

WATER LEVEL OBSERVATIONS IN BOREHOLE

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

PIEZOMETER INSTALLED YES NO **SKETCH SHOWN ON** SEE SHEET NO. 2

STANDPIPE:	TYPE <u>PVC</u>	ID, IN. <u>2</u>	LENGTH, FT. <u>10</u>	TOP ELEV. <u>+6.8</u>
INTAKE ELEMENT:	TYPE <u>SCREENED PVC</u>	OD, IN. <u>2-3/8</u>	LENGTH, FT. <u>10</u>	TIP ELEV. <u>-13.6</u>
FILTER:	MATERIAL <u>CLEAN SAND</u>	OD, IN. <u>4</u>	LENGTH, FT. <u>15</u>	BOT. ELEV. <u>-13.6</u>

PAY QUANTITIES

3.5" DIA. DRY SAMPLE BORING	LIN. FT. <u>4</u>	NO. OF 3" SHELBY TUBE SAMPLES	_____
3.5" DIA. CONTINUOUS SAMPLE BORING	LIN. FT. <u>39.4</u>	NO. OF 3" UNDISTURBED SAMPLES	_____
CORE DRILLING IN ROCK	LIN. FT. _____	OTHER: HAND AUGER	<u>6</u>

BORING CONTRACTOR WARREN GEORGE, INC.
DRILLER DAVE OSUCH **HELPERS** JR GRANT

REMARKS 20', 2" I. D. PVC WELL INSTALLED.

RESIDENT ENGINEER PATRICK DONALDSON **DATE** 10-10-13

CLASSIFICATION CHECK: CHERYL J. MOSS **TYPING CHECK:** CHERYL J. MOSS

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING LOG

PROJECT: BAY PARK STP - PERIMETER FLOOD PROTECTION
 LOCATION: BAY PARK, NEW YORK

BORING NO. B-3U
 SHEET 1 OF 2
 FILE NO. 12047
 SURFACE ELEV. 6.0
 RES. ENGR. PATRICK DONALDSON

DAILY PROGRESS	SAMPLE			SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS	
	NO.	DEPTH	BLOWS/6"						
09:25	1HA	0.0	HAND	Brown fine to medium sand, some silt, trace gravel (SM)	F		DRILLED		
10-08-13		2.0	AUGER				AHEAD		
Tuesday	2HA	2.0	HAND	Brown gravelly fine to coarse sand, trace silt (SP)			4"		
Clear		4.0	AUGER						
60°F	3HA	4.0	HAND	Brown fine to medium sand, some silt & black organic silty clay (SM&OH)		5			
09:40		6.0	AUGER						
08:30	4D	6.0	3-5	Tan brown fine to coarse sand, trace gravel, silt (SP)					Brown wash at 9.5'.
10-23-13		8.0	7-6						
Wednesday	5D	8.0	4-6	Brown fine to medium sand, trace gravel, coarse sand, silt (SP)		9.5			WC=136 REC=3" WC=186, pp=0.75, 1.25 TV=0.35, 0.45 8D Top: WC=267
Overcast		10.0	5-4						
50°F	6D	10.0	1-1	Brown organic silty clay & peat, trace fine sand (OH&Pt)	O				
		12.0	2-2						
	7U	12.0	PUSH=24"	Gray brown peat, trace organic silty clay (Pt)		14.9			
		14.0	REC=23"						
	8D	14.0	2-2	Top 11": Brown peat (Pt)	S				
		16.0	6-5	Bot 11": Brown f-m sand, sm silt, tr veg (SM)					
	9D	16.0	3-6	Brown fine to coarse sand, trace silt, gravel (SW-SM)		18		REC=5" End of Boring at 18'.	
10:45		18.0	7-8						
						20	WC=Water Content in percent of dry weight.		
						25	pp=Pocket Penetrometer Unconfined Compressive Strength in tsf.		
						30	TV=Torvane Shear Strength in tsf.		
						35			
						40			
						45			
						50			

MUESER RUTLEDGE CONSULTING ENGINEERS

	BORING NO.	B-3U
PROJECT	SHEET	2 OF 2
LOCATION	FILE NO.	12047
BORING LOCATION	SURFACE ELEV.	6.0
	DATUM	NAVD 88

PROJECT BAY PARK STP - PERIMETER FLOOD PROTECTION
LOCATION BAY PARK, NEW YORK
BORING LOCATION SEE BORING LOCATION PLAN

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

	TYPE OF FEED				
TYPE OF BORING RIG	DURING CORING	CASING USED	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO	
TRUCK <u>MOBILE B-58</u>	MECHANICAL	DIA., IN. <u>4</u>	DEPTH, FT. FROM <u>0</u>	TO <u>9</u>	
SKID	HYDRAULIC	DIA., IN.	DEPTH, FT. FROM	TO	
BARGE	OTHER	DIA., IN.	DEPTH, FT. FROM	TO	
OTHER					

TYPE AND SIZE OF:	DRILLING MUD USED
D-SAMPLER <u>2" O. D. SPLIT SPOON</u>	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
U-SAMPLER	DIAMETER OF ROTARY BIT, IN. <u>3-7/8</u>
S-SAMPLER	TYPE OF DRILLING MUD
CORE BARREL	
CORE BIT	AUGER USED
DRILL RODS <u>NWJ</u>	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
	TYPE AND DIAMETER, IN. <u>HAND AUGER</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>
	*USED SAFETY (SAMPLER) & AUTOMATIC (CASING) HAMMERS.

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE	DEPTH OF CASING	DEPTH TO WATER	CONDITIONS OF OBSERVATION
					NO WATER LEVEL 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>10</u>	NO. OF 3" SHELBY TUBE SAMPLES _____	
3.5" DIA. CONTINUOUS SAMPLE BORING	LIN. FT. <u>2</u>	NO. OF 3" UNDISTURBED SAMPLES <u>1</u>	
CORE DRILLING IN ROCK	LIN. FT. _____	OTHER: HAND AUGER <u>6</u>	

BORING CONTRACTOR WARREN GEORGE, INC.
DRILLER CAESAR MOREIRA **HELPERS** LAWRENCE MILLER

REMARKS BOREHOLE GROUTED UPON COMPLETION.

RESIDENT ENGINEER PATRICK DONALDSON **DATE** 10-23-13

CLASSIFICATION CHECK: CHERYL J. MOSS **TYPING CHECK:** CHERYL J. MOSS

MUESER RUTLEDGE CONSULTING ENGINEERS
BORING LOG

PROJECT: BAY PARK STP - PERIMETER FLOOD PROTECTION
 LOCATION: BAY PARK, NEW YORK

BORING NO. B-4
 SHEET 1 OF 2
 FILE NO. 12047
 SURFACE ELEV. 5.7
 RES. ENGR. PATRICK DONALDSON

DAILY PROGRESS	SAMPLE			SAMPLE DESCRIPTION	STRATA	CASING		REMARKS
	NO.	DEPTH	BLOWS/6"			DEPTH	BLOWS	
10:55	1HA	0.0	HAND	Brown fine to medium sand, some silt, gravel, trace coarse sand, vegetation (SM)	F			Concrete obstruction at 2', moved hole. Relocated North 16' & East 3'. End of Boring at 2'.
10-04-13 Fri., Sun., 75°F, 11:05		2.0	AUGER			2		
						5		
						10		
						15		
						20		
						25		
						30		
						35		
						40		
						45		
						50		

MUESER RUTLEDGE CONSULTING ENGINEERS

	BORING NO. <u>B-4</u>
	SHEET <u>2</u> OF <u>2</u>
PROJECT <u>BAY PARK STP - PERIMETER FLOOD PROTECTION</u>	FILE NO. <u>12047</u>
LOCATION <u>BAY PARK, NEW YORK</u>	SURFACE ELEV. <u>5.7</u>
BORING LOCATION <u>SEE BORING LOCATION PLAN</u>	DATUM <u>NAVD 88</u>

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

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

TYPE AND SIZE OF:	DRILLING MUD USED
D-SAMPLER <u>2" O. D. SPLIT SPOON</u>	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
U-SAMPLER _____	DIAMETER OF ROTARY BIT, IN. _____
S-SAMPLER _____	TYPE OF DRILLING MUD _____
CORE BARREL _____	AUGER USED
CORE BIT _____	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
DRILL RODS <u>NWJ</u>	TYPE AND DIAMETER, IN. _____
	HAND AUGER _____
	CASING HAMMER, LBS. _____
	AVERAGE FALL, IN. _____
	SAMPLER HAMMER, LBS. _____
	AVERAGE FALL, IN. _____

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE	DEPTH OF CASING	DEPTH TO WATER	CONDITIONS OF OBSERVATION
					NO WATER LEVEL 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. _____	NO. OF 3" SHELBY TUBE SAMPLES _____
3.5" DIA. CONTINUOUS SAMPLE BORING	LIN. FT. _____	NO. OF 3" UNDISTURBED SAMPLES _____
CORE DRILLING IN ROCK	LIN. FT. _____	OTHER: HAND AUGER <u>2</u>

BORING CONTRACTOR WARREN GEORGE, INC.
 DRILLER GILBERT CANELO HELPERS _____

REMARKS OBSTRUCTION AT 2'; BORING BACKFILLED. MOVED TO BORING B-4A.

RESIDENT ENGINEER PATRICK DONALDSON DATE 10-04-13

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

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING LOG

PROJECT: BAY PARK STP - PERIMETER FLOOD PROTECTION
 LOCATION: BAY PARK, NEW YORK

BORING NO. B-4A
 SHEET 2 OF 3
 FILE NO. 12047
 SURFACE ELEV. 5.8
 RES. ENGR. PATRICK DONALDSON

DAILY PROGRESS	SAMPLE			SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
	NO.	DEPTH	BLOWS/6"					
Cont'd 12.40	14D	50.0	18-17	Top 4": Tan f-c sand, tr gravel, silt (SP-SM) Mid 7": Tan fine sandy silt (ML) Bot 8": Tan fine to coarse sand, some gravel, trace silt (SP-SM)	S			14D Mid: WC=29 End of Boring at 52'. WC=Water Content in percent of dry weight.
		52.0	31-35			52		
						55		
						60		
						65		
						70		
						75		
						80		
						85		
						90		
						95		
						100		

MUESER RUTLEDGE CONSULTING ENGINEERS

PROJECT	<u>BAY PARK STP - PERIMETER FLOOD PROTECTION</u>	BORING NO.	<u>B-4A</u>
LOCATION	<u>BAY PARK, NEW YORK</u>	SHEET	<u>3 OF 3</u>
BORING LOCATION	<u>SEE BORING LOCATION PLAN</u>	FILE NO.	<u>12047</u>
		SURFACE ELEV.	<u>5.8</u>
		DATUM	<u>NAVD 88</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>DIETRICH 120</u>	DURING CORING	DIA., IN. <u>4</u>	DEPTH, FT. FROM	<u>0</u> TO <u>6</u>
SKID		MECHANICAL	DIA., IN. _____	DEPTH, FT. FROM	_____ TO _____
BARGE		HYDRAULIC	DIA., IN. _____	DEPTH, FT. FROM	_____ TO _____
OTHER		OTHER	DIA., IN. _____	DEPTH, FT. FROM	_____ TO _____

TYPE AND SIZE OF:	DRILLING MUD USED	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO
D-SAMPLER <u>2" O. D. SPLIT SPOON</u>	DIAMETER OF ROTARY BIT, IN.	<u>3-7/8</u>	
U-SAMPLER _____	TYPE OF DRILLING MUD	<u>EZ-MUD (ACCU-VIS)</u>	
S-SAMPLER _____	AUGER USED	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO
CORE BARREL _____	TYPE AND DIAMETER, IN.	<u>HAND AUGER</u>	
CORE BIT _____			
DRILL RODS <u>NWJ</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>
	*USED DONUT HAMMER.		

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE	DEPTH OF CASING	DEPTH TO WATER	CONDITIONS OF OBSERVATION
					NO WATER LEVEL 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>46</u>	NO. OF 3" SHELBY TUBE SAMPLES	_____
3.5" DIA. CONTINUOUS SAMPLE BORING	LIN. FT. _____	NO. OF 3" UNDISTURBED SAMPLES	_____
CORE DRILLING IN ROCK	LIN. FT. _____	OTHER: HAND AUGER	<u>4</u>

BORING CONTRACTOR WARREN GEORGE, INC.
 DRILLER DAVE OSUCH HELPERS JR GRANT

REMARKS BOREHOLE TREMIE GROUTED UPON COMPLETION.

RESIDENT ENGINEER PATRICK DONALDSON DATE 10-11-13

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

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING LOG

PROJECT: BAY PARK STP - PERIMETER FLOOD PROTECTION
 LOCATION: BAY PARK, NEW YORK

BORING NO. B-5
 SHEET 1 OF 2
 FILE NO. 12047
 SURFACE ELEV. 6.6
 RES. ENGR. PATRICK DONALDSON

DAILY PROGRESS	SAMPLE			SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
	NO.	DEPTH	BLOWS/6"					
11 55	1HA	0.0	HAND	Brown fine to medium sand, trace silt, coarse sand, gravel (SP-SM)	F			End of Boring at 6'.
10 04-13		2.0	AUGER					
Friday	2HA	2.0	HAND	Tan fine to medium sand, trace silt, gravel (SP-SM)				
Sunny		4.0	AUGER					
75 F	3HA	4.0	HAND	Tan fine to medium sand, trace silt, gray silty clay pockets (SP-SM)		5		
12 15		6.0	AUGER			6		
						10		
						15		
						20		
						25		
						30		
						35		
						40		
						45		
						50		

MUESER RUTLEDGE CONSULTING ENGINEERS

PROJECT	<u>BAY PARK STP - PERIMETER FLOOD PROTECTION</u>	BORING NO.	<u>B-5</u>
LOCATION	<u>BAY PARK, NEW YORK</u>	SHEET	<u>2 OF 2</u>
BORING LOCATION	<u>SEE BORING LOCATION PLAN</u>	FILE NO.	<u>12047</u>
		SURFACE ELEV.	<u>6.6</u>
		DATUM	<u>NAVD 88</u>

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG	TYPE OF FEED	CASING USED	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO
TRUCK <u>VACUUM</u>	DURING CORING	DIA., IN. _____	DEPTH, FT. FROM _____	TO _____
SKID _____	MECHANICAL _____	DIA., IN. _____	DEPTH, FT. FROM _____	TO _____
BARGE _____	HYDRAULIC _____	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 _____	DIAMETER OF ROTARY BIT, IN. _____		
U-SAMPLER _____	TYPE OF DRILLING MUD _____		
S-SAMPLER _____			
CORE BARREL _____	AUGER USED	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO
CORE BIT _____	TYPE AND DIAMETER, IN. _____		HAND AUGER _____
DRILL RODS _____			
	CASING HAMMER, LBS. _____	AVERAGE FALL, IN. _____	
	SAMPLER HAMMER, LBS. _____	AVERAGE FALL, IN. _____	

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE	DEPTH OF CASING	DEPTH TO WATER	CONDITIONS OF OBSERVATION
					NO WATER LEVEL 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.	_____	NO. OF 3" SHELBY TUBE SAMPLES	_____
3.5" DIA. CONTINUOUS SAMPLE BORING	LIN. FT.	_____	NO. OF 3" UNDISTURBED SAMPLES	_____
CORE DRILLING IN ROCK	LIN. FT.	_____	OTHER: HAND AUGER	<u>6</u>

BORING CONTRACTOR WARREN GEORGE, INC.
DRILLER GILBERT CANELO **HELPERS** _____

REMARKS BOREHOLE BACKFILLED UPON COMPLETION OF CLEARING TOP 6' OF SOIL.

RESIDENT ENGINEER PATRICK DONALDSON **DATE** 10-04-13

CLASSIFICATION CHECK: CHERYL J. MOSS **TYPING CHECK:** CHERYL J. MOSS