MUESER RUTLEDGE CONSULTING ENGINEERS

BORING LOG

BORING NO. B-5A
SHEET 1 OF 2
FILE NO. 12047
SURFACE ELEV. 6.5
RES. ENGR. PATRICK DONALDSON

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

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
11:45				Hand auger to 6'.			DRILLED	Offset from B-5.
10-14-13				For descriptions from 0' to 6', see boring B-5.			AHEAD	
Monday							4"	
Sunny								
65°F						5		
					F			
	1D	6.0	3-4	Brown gravelly fine to medium sand, trace				
		8.0	5-5	silt, coarse sand (SP)				
	2D	8.0	3-8	Tan, orange & light brown fine to medium sand,				
		10.0	4-3	trace silt, gravel (SP-SM)		10		
	3D	10.0	1-2	Top 9": Tan f-m sand, some silt (SM)		10.8		
		12.0	2-2	Bot 9": Gray org clayey si, sm f sand seams (OL)				3D Bot: WC=35
	4UD	12.0	PUSH=24"	Gray fine to medium sand, trace silt (SP-SM)				Unsuccessful fixed
		14.0	REC=3"					piston tube; jarred
	5D	14.0	1-1	Top 8": Gray f-m sand, sm org silt, tr c sand (SM)		15		recovery.
		16.0	2-6	Bot 8": Gray organic silty clay, tr fine sand (OH)	O/S			5D Bot: WC=43
	6D	16.0	3-4	Top 5": Tan f-m sand, trace silt (SP-SM)				
		18.0	4-5	Bot 11": Gray org silty clay, tr fine sand (OH)				6D Bot: WC=57
	7D	18.0	1-2	Top 3": Do 6D, Bottom (OH)				7D Top: WC=50
		20.0	3-4	Bot 5": Blk org silty clay, sm f sand, tr peat (OH)		20		7D Bot: WC=73
	8D	20.0	15-59	Brown fine to coarse sand, some gravel, trace				
		21.3	50/4"	silt (SP)				
	9D	22.0	20-33	Brown fine to medium sand, trace gravel, silt,				
		24.0	38-28	coarse sand (SP-SM)				
	10D	24.0	6-11	Gray fine to medium sand, trace silt, gravel		25		
		26.0	12-14	(SP-SM)				
	11D	26.0	8-8	Gray fine to medium sand, trace silt, coarse				
		28.0	14-18	sand (SP)				
	12D	28.0	10-36	Gray fine to medium sand, trace gravel, silt,				
		30.0	31-33	coarse sand (SP-SM)		30		
	13D	30.0	13-18	Gray & tan fine sand, some silt, trace medium				
		32.0	20-23	sand (SM)				
	14D	32.0	7-20	Tan fine to medium sand, trace silt, gravel				
15:30		34.0	32-36	(SP-SM)				
08:30	15D	34.0	12-17	Tan fine to coarse sand, trace gravel, silt	S	35		
10-15-13		36.0	18-25	(SP-SM)				
Tuesday	16D	36.0	10-20	Tan fine to medium sand, trace silt (SP-SM)				
Sunny		38.0	24-29					
65°F	17D	38.0	9-19	Do 16D (SP-SM)				
		40.0	27-53			40		
	18D	40.0	23-60	Tan fine to medium sand, trace silt, coarse				
		41.3	50/3"	sand, gravel (SP-SM)				
	19D	42.0	11-61	Do 18D (SP-SM)				
		43.3	50/4"					
	20D	44.0	6-8	Light brown fine to medium sand, trace silt		45		
		46.0	9-9	(SP-SM)				WC=Water Content
	21D	46.0	19-29	Light brown fine to medium sand, trace silt,				in percent of dry
		47.6	49-50/1"	coarse sand (SP-SM)				weight.
	22D	48.0	39-50	Do 21D (SP-SM)				
11:15		49.6	69-50/1"			49.6		End of Boring at 49.6'.

MUESER RUTLEDGE CONSULTING ENGINEERS

		BORING NO.	B-5A
		SHEET	2 **OF** 2
PROJECT	BAY PARK STP - PERIMETER FLOOD PROTECTION	**FILE NO.**	12047
LOCATION	BAY PARK, NEW YORK	**SURFACE ELEV.**	6.5
BORING LOCATION	SEE BORING LOCATION PLAN	**DATUM**	NAVD 88

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

		TYPE OF FEED DURING CORING		CASING USED					
TYPE OF BORING RIG					X YES		NO		
TRUCK	MOBILE B-58	MECHANICAL		DIA., IN.	4	DEPTH, FT. FROM	0	TO	19
SKID		HYDRAULIC		DIA., IN.		DEPTH, FT. FROM		TO	
BARGE		OTHER		DIA., IN.		DEPTH, FT. FROM		TO	
OTHER									

TYPE AND SIZE OF:		DRILLING MUD USED	X YES		NO
D-SAMPLER	2" O. D. SPLIT SPOON	DIAMETER OF ROTARY BIT, IN.		3-7/8, 2-15/16	
U-SAMPLER		TYPE OF DRILLING MUD		EZ-MUD	
S-SAMPLER					
CORE BARREL		AUGER USED	X YES		NO
CORE BIT		TYPE AND DIAMETER, IN.		HAND AUGER	
DRILL RODS	NWJ				

*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.	4	NO. OF 3" SHELBY TUBE SAMPLES	
3.5" DIA. CONTINUOUS SAMPLE BORING	LIN. FT.	39.6	NO. OF 3" UNDISTURBED SAMPLES	
CORE DRILLING IN ROCK	LIN. FT.		OTHER: HAND AUGER	

BORING CONTRACTOR		WARREN GEORGE, INC.	
DRILLER	CAESAR MOREIRA	HELPERS	LAWRENCE MILLER
REMARKS	BOREHOLE TREMIE GROUTED UPON COMPLETION.		
RESIDENT ENGINEER	PATRICK DONALDSON	DATE	10-15-13
CLASSIFICATION CHECK:	CHERYL J. MOSS	TYPING CHECK:	CHERYL J. MOSS

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING LOG

BORING NO. B-6U
SHEET 1 OF 2
FILE NO. 12047
SURFACE ELEV. 6.8
RES. ENGR. PATRICK DONALDSON

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

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
12:00	1HA	0.0	HAND	Brown fine to medium sand, some gravel, trace			DRILLED	
10-07-13		2.0	AUGER	silt (SP-SM)			AHEAD	
Monday	2HA	2.0	HAND	Brown fine to coarse sand, some gravel, silt			4"	
Partly Cloudy		4.0	AUGER	(SM)	F		↓	
70°F	3HA	4.0	HAND	Tan brown fine to medium sand, some gravel,		5		
12:25		6.0	AUGER	trace silt (SP-SM)			↓	
08:00	4D	6.0	5-4	Brown fine to medium sand, some gravel, trace				
10-14-13		8.0	3-3	silt, coarse sand (SW-SM)		8		
Monday	5D	8.0	1-1	Brown organic silty clay, some peat, fine to				WC=117
Sunny		10.0	1-2	coarse sand (OH&Pt)		10		
60°F	6U	10.0	PUSH=24"	Medium gray organic silty clay, trace fine sand,				WC=58, pp=0.5, 0.75,
		12.0	REC=23"	shells (OH)				TV=0.25, 0.35
	7D	12.0	WH-1	Gray organic silty clay, some fine to medium				WC=48
		14.0	1-1	sand, trace shells (OH)	O			
						15		
	8D	15.0	WR-WH/18"	Do 7D (OH)				WC=79
		17.0						
						18.5		
						20		
	9D	20.0	5-7	Brown fine to coarse sand, trace gravel, silt				
		22.0	10-10	(SP-SM)				
						25		
	10D	25.0	12-16	Light brown fine to medium sand, trace silt,				
		27.0	21-28	gravel (SP-SM)				
						30		
	11D	30.0	12-14	Light brown fine to medium sand, some silt				
		32.0	18-24	(SM)				
						33.5		
						35		
	12D	35.0	29-47	Light brown fine to medium sand, trace silt				
		36.3	50/4"	(SP-SM)				
						40		WC=Water Content
	13D	40.0	19-37	Light brown & tan fine to medium sand, trace				in percent of dry
		41.8	52-50/4"	silt, coarse sand, gravel (SP-SM)				weight.
					S			
								pp=Pocket
						45		Penetrometer
	14D	45.0	13-36	Tan fine to medium sand, trace silt, gravel				Unconfined Compres-
		46.8	49-50/4"	(SP-SM)				sive Strength in tsf.
								TV=Torvane Shear
						50		Strength in tsf.
	15D	50.0	25-38	Do 14D (SP-SM)				
12:15		51.4	50/5"			51.4		End of Boring at 51.4'.

MRCE Form BL-1

BORING NO. B-6U

MUESER RUTLEDGE CONSULTING ENGINEERS

		BORING NO.	B-6U
		SHEET	2 **OF** 2
PROJECT	BAY PARK STP - PERIMETER FLOOD PROTECTION	**FILE NO.**	12047
LOCATION	BAY PARK, NEW YORK	**SURFACE ELEV.**	6.8
BORING LOCATION	SEE BORING LOCATION PLAN	**DATUM**	NAVD 88

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG		TYPE OF FEED DURING CORING		CASING USED						
TRUCK	DIETRICH 120	MECHANICAL		DIA., IN.	4	[X] YES	[ ] NO	DEPTH, FT. FROM	0	TO 6
SKID		HYDRAULIC		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	DRILLING MUD USED	[X] YES	[ ] NO	
U-SAMPLER		DIAMETER OF ROTARY BIT, IN.	3-7/8		
S-SAMPLER		TYPE OF DRILLING MUD	EZ-MUD		
CORE BARREL		AUGER USED	[X] YES	[ ] NO	
CORE BIT		TYPE AND DIAMETER, IN.	HAND AUGER/VACUUM		
DRILL RODS	NWJ				

*CASING HAMMER, LBS.	140	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
					NO WATER LEVEL OBSERVATIONS MADE.

PIEZOMETER INSTALLED [ ] YES [X] 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.	43.4	NO. OF 3" SHELBY TUBE SAMPLES	
3.5" DIA. CONTINUOUS SAMPLE BORING	LIN. FT.	2	NO. OF 3" UNDISTURBED SAMPLES	1
CORE DRILLING IN ROCK	LIN. FT.		OTHER: HAND AUGER	6

BORING CONTRACTOR		WARREN GEORGE, INC.	
DRILLER	DAVE OSUCH	HELPERS	JR GRANT
REMARKS	BOREHOLE TREMIE GROUTED UPON COMPLETION.		
RESIDENT ENGINEER	PATRICK DONALDSON	DATE	10-14-13
CLASSIFICATION CHECK:	CHERYL J. MOSS	TYPING CHECK:	CHERYL J. MOSS

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING LOG

BORING NO. B-7UP
SHEET 1 OF 4
FILE NO. 12047
SURFACE ELEV. 5.4
RES. ENGR. PATRICK DONALDSON

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

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
12:45	1HA	0.0	HAND	Brown fine to medium sand, some gravel, trace			DRILLED	
10-04-13		2.0	AUGER	silt (SP-SM)			AHEAD	
Friday	2HA	2.0	HAND	Tan fine to coarse sand, some gravel, trace			4"	
		4.0	AUGER	silt (SP)				
	3HA	4.0	HAND	Black organic silty fine sand, trace gravel (SM)	F	5		
13:05		6.0	AUGER					
14:00	4D	6.0	4-3	Black fine to medium sand, some wood, trace				
10-14-13		8.0	3-5	organic silty clay (SP-SC)				
Mon., Sun.	5D	8.0	4-3	Top 5": Blk f sandy organic silty clay, tr peat (OL)		8.4		5D: Top: WC=86
65°F, 15:00		10.0	3-2	Bot 16": Gray org si cl, tr f-c sa, gvl, pt, sls (OH)		10		5D: Bot: WC=54
08:15	6D	10.0	WH-1	Gray organic silty clay, some fine to coarse				WC=48
10-15-13		12.0	WH/12"	sand, trace gravel, wood, shells (OH)				
Tuesday	7U	12.0	PUSH=24"	Medium gray organic silty clay, trace fine sand,				WC=46, pp=0.5, 0.75,
Sunny		14.0	REC=24"	shells (OH)				TV=0.25, 0.3
65°F	8D	14.0	WH/18"	Gray organic silty clay, trace shells (OH)		15		WC=48
		16.0	1		O			
	9D	16.0	1-1	Gray organic silty clay, trace peat (OH)				WC=81
		18.0	3-4					
	10D	18.0	WH-2	Gray organic silty clay, trace shells (OH)				WC=56
		20.0	2-4			20		
	11D	20.0	1-1	Gray organic silty clay, trace peat (OH)				WC=97
		22.0	2-3					
	12D	22.0	19-20	Top 2": Do 10D (OH)		22.2		12D Top: WC=129
		24.0	20-18	Bot 18": Gray f-c sand, sm gravel, tr silt (SP-SM)				
	13D	24.0	8-8	Brown gravelly coarse to fine sand, trace silt		25		
		26.0	12-17	(SP)				
	14D	26.0	22-20	Gray fine to medium sand, trace gravel, coarse				
		28.0	26-35	sand, silt (SP-SM)				
	15D	28.0	17-21	Gray fine to medium sand, trace silt (SP-SM)				
		30.0	23-18			30		
	16D	30.0	10-14	Gray fine to medium sand, trace silt, silty clay				WC=Water Content
		32.0	20-30	seams (SP-SM)	S			in percent of dry
	17D	32.0	24-25	Gray fine to medium sand, trace silt (SP-SM)				weight.
		34.0	16-24					
	18D	34.0	15-28	Do 17D (SP-SM)		35		pp=Pocket
		36.0	35-47					Penetrometer
	19D	36.0	27-39	Do 17D (SP-SM)				Unconfined Compres-
		38.0	40-50					sive Strength in tsf.
	20D	38.0	31-29	Do 17D (SP-SM)				
		40.0	36-61			40		TV=Torvane Shear
	21D	40.0	37-49	Do 17D, trace coarse sand (SP-SM)				Strength in tsf.
15:15		41.2	50/2"			41.2		End of Boring at 41.2'.
						45		
						50		

BORING NO. B-7UP

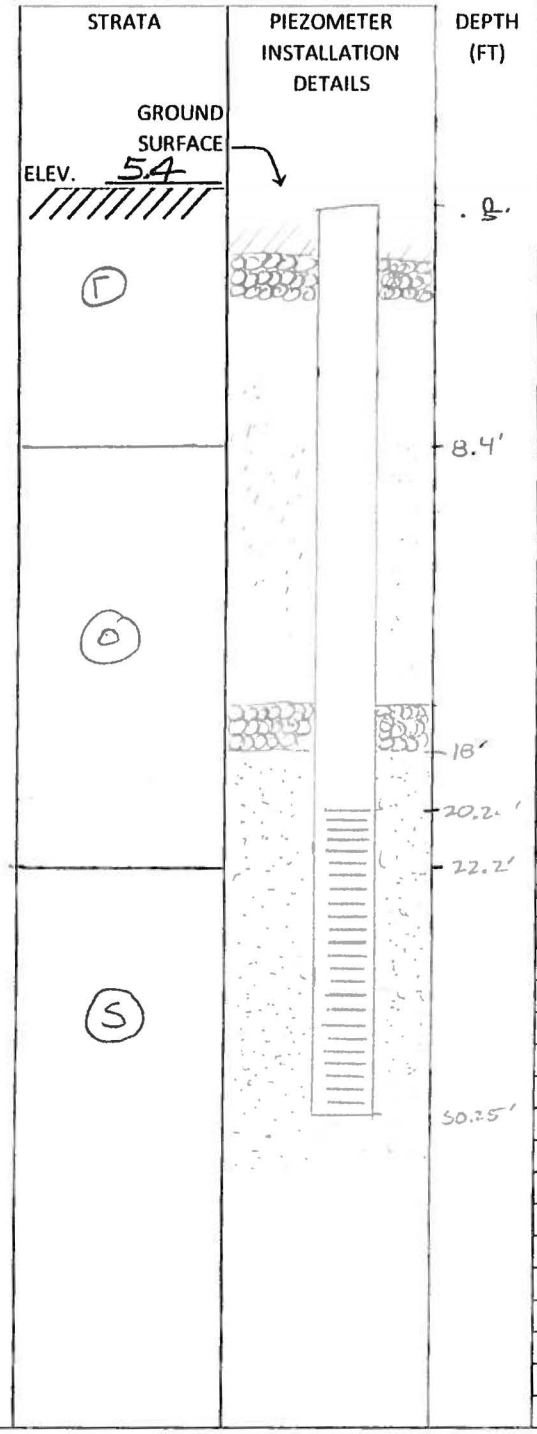
Mueser Rutledge Consulting Engineers
14 Penn Plaza - 225 West 34th Street
New York, NY 10122
T: 917 339-9300 F: 917 339-9400
www.mrce.com

PIEZOMETER RECORD

PIEZOMETER OR BORING NO. B-7UP
SHEET 2 OF 4
FILE NO. 12047
INSTALLATION DATE 10/15/13
RES ENGR. PED

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

☐ SEE SKETCH ON BACK



PIEZOMETER TYPE Screened PVC

INTAKE POINT
depth to bottom, ft = 30.25'
depth to top, ft = 20.25
length, ft = 10 = L
diameter, in = 2 , ft = 0.17 = 2R

STANDPIPE/RISER
elevation of rim, ft = 5.2
diameter, in = 2 , ft = 0.17 = 2r

READING TIME		DEPTH – RIM TO WATER	ELEVATION OF WATER	REMARKS
DATE	CLOCK			
10/15	1710	2.5'	+2.7	
10/16	1630	4.05'	+1.2	Well needs to be developed
10/17	0725	4.0'	+1.2	
10/17	1525	5.5'	-0.3	
10/18	0715	4.65'	+0.6	
10/18	1830	5.45'	-0.3	
10/21	0730	5.5'	-0.3	
10/21	1550	5.45'	-0.3	
10/22	0720	5.6'	-0.4	
10/22	1430	4.8'	+0.4	
10/23	0710	5.6'	-0.4	
10/23	1320	4.25'	+1.0	BEFORE FHT
11/9	0950	6.0'	-0.8	
11/16	1050	5.95	-0.8	
11/22	1338	5.6	-0.4	
11/22	1428	5.85	-0.7	
11/26	1730	6.3	-1.1	
12/1	1015	5.3	-0.1	
12/7	1010	5.55	-0.4	

SAND
GRAVEL
BENTONITE
GROUT

GROUND SURFACE ELEV. 5.4

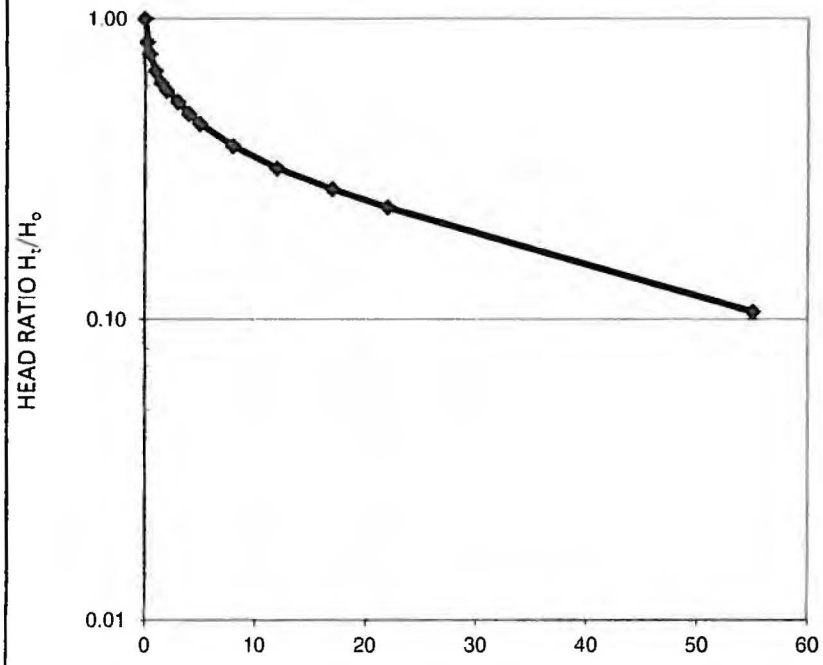
PIEZOMETER NO. B-7UP

Mueser Rutledge Consulting Engineers
14 Penn Plaza - West 34th Street
New York, NY 10122

VARIABLE HEAD PERMEABILITY TEST

FILE NO. 12047
PIEZOMETER NO. B-7UP
TEST NO. 1

PROJECT: Bay Park STP Flood Protection
LOCATION: East Rockaway, NY
PIEZOMETER LOCATION: SEE BLP
RES. ENG.: Patrick Donaldson
CALC. BY: PED DATE: 10/24/13
CH'KD BY: DATE:



INTAKE POINT	
DEPTH TO BOTTOM, FT=	30.3
DEPTH TO TOP, FT=	20.3
LENGTH, FT=	10
DIAMETER, IN=	2
RADIUS, FT=	0.083

STANDPIPE / RISER	
DIAMETER, IN=	2
RADIUS, FT=	0.083
DEPTH TOP OF CASING, FT=	0.25

BOREHOLE	
DEPTH OF BOREHOLE, FT=	41.2
DIAMETER, IN=	4
RADIUS, FT=	0.167

Average Permeability: 2.27E-04 ft/min
1.15E-04 cm/sec

READING TIME			TEST DEPTH RIM TO WATER ft.	DEPTH RIM TO TIDE OR GWL, ft.	UNBALANCED HEAD, H ft.	HEAD RATIO H_t/H_o	PERMEABILITY	
DATE	CLOCK	Δt MIN.					ft/min	cm/sec
10/23/2013	13:21		4.25	4.25	0.00		STATIC WATER LEVEL	
	TIMER	0	0.00	4.25	4.25	1.00		
		0.25	0.70	4.25	3.55	0.84	1.02E-03	5.20E-04
		0.5	1.00	4.25	3.25	0.76	5.02E-04	2.55E-04
		1	1.40	4.25	2.85	0.67	3.73E-04	1.90E-04
		1.5	1.65	4.25	2.60	0.61	2.61E-04	1.33E-04
		2	1.80	4.25	2.45	0.58	1.69E-04	8.58E-05
		3	2.00	4.25	2.25	0.53	1.21E-04	6.15E-05
		4	2.20	4.25	2.05	0.48	1.32E-04	6.72E-05
		5	2.35	4.25	1.90	0.45	1.08E-04	5.49E-05
		8	2.65	4.25	1.60	0.38	8.14E-05	4.14E-05
		12	2.90	4.25	1.35	0.32	6.04E-05	3.07E-05
		17	3.10	4.25	1.15	0.27	4.56E-05	2.32E-05
		22	3.25	4.25	1.00	0.24	3.97E-05	2.02E-05
10/23/2013	↓	55	3.80	4.25	0.45	0.11	3.44E-05	1.75E-05

REMARKS

PIEZOMETER NO. B-7UP

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING NO. B-7UP
SHEET 4 **OF** 4

PROJECT BAY PARK STP - PERIMETER FLOOD PROTECTION
FILE NO. 12047
LOCATION BAY PARK, NEW YORK
SURFACE ELEV. 5.4
BORING LOCATION SEE BORING LOCATION PLAN
DATUM NAVD 88

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

		TYPE OF FEED DURING CORING		CASING USED					
TYPE OF BORING RIG					X YES		NO		
TRUCK	DIETRICH 120	MECHANICAL		DIA., IN.	4	DEPTH, FT. FROM	0	TO	7
SKID		HYDRAULIC		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	
CORE BIT	
DRILL RODS	NWJ

DRILLING MUD USED X YES NO
DIAMETER OF ROTARY BIT, IN. 3-7/8, 2-15/16
TYPE OF DRILLING MUD EZ-MUD

AUGER USED X YES NO
TYPE AND DIAMETER, IN. HAND AUGER

*CASING HAMMER, LBS. 140 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
					NO WATER LEVEL OBSERVATIONS MADE.

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

STANDPIPE:	TYPE	PVC	ID, IN.	2	LENGTH, FT.	20	TOP ELEV.	+5.2
INTAKE ELEMENT:	TYPE	SCREENED PVC	OD, IN.	2-3/8	LENGTH, FT.	10	TIP ELEV.	-25.1
FILTER:	MATERIAL	CLEAN SAND	OD, IN.	4	LENGTH, FT.	12	BOT. ELEV.	-25.1

PAY QUANTITIES

3.5" DIA. CONTINUOUS SAMPLE BORING	LIN. FT.	33.2	NO. OF 3" SHELBY TUBE SAMPLES	
3.5" DIA. U-SAMPLE BORING	LIN. FT.	2	NO. OF 3" UNDISTURBED SAMPLES	1
CORE DRILLING IN ROCK	LIN. FT.		OTHER: HAND AUGER	6

BORING CONTRACTOR WARREN GEORGE, INC.
DRILLER DAVE OSUCH HELPERS JR GRANT
REMARKS 30', 2" I. D. PVC WELL INSTALLED. WELL COVER GROUTED IN PLACE.
RESIDENT ENGINEER PATRICK DONALDSON DATE 10-16-13
CLASSIFICATION CHECK. CHERYL J. MOSS TYPING CHECK: CHERYL J. MOSS

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING LOG

BORING NO. B-8U
SHEET 1 OF 2
FILE NO. 12047
SURFACE ELEV. 5.8
RES. ENGR. PATRICK DONALDSON

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

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
13:15	1HA	0.0	HAND	Brown fine to coarse sand, some gravel, silt,			DRILLED	
10-04-13		2.0	AUGER	trace vegetation (SM)			AHEAD	
Friday	2HA	2.0	HAND	Brown & tan brown medium to fine sand, trace	F		4"	Black organic silty clay
Sunny		4.0	AUGER	silt & black organic silty clay (SP-SM&OH)				at 4'.
75°F	3HA	4.0	HAND	Gray silty fine sand, trace gravel (SM)		5		Obstruction in hand
14:45		6.0	AUGER			6		auger at 5.3'; drove bar
12:10	4D	6.0	3-2	Black fine to coarse sand, some gravel, organic				to 6'.
10-15-13		8.0	10-8	silt, trace peat (SM)				4D: REC=3"
Tuesday	5D	8.0	2-3	Top 3": Do 4D, trace gravel (OL)				5D Top: WC=94
Sunny		10.0	7-6	Bot 12": Gray organic silty clay, trace peat (OH)		10		5D Bot: WC=120
65°F	6D	10.0	1-2	Gray organic silty clay, trace fine to medium				WC=70
		12.0	2-2	sand, shells (OH)				
	7U	12.0	PUSH=24"	Medium gray organic clayey silt, trace fine sand,				WC=51, pp=0.75,
		14.0	REC=23"	shells (OL)	O			TV=0.3
	8D	14.0	2-2	Do 6D (OL)		15		WC=46
		16.0	3-3					
	9U	17.0	PUSH=24"	Top: Soft gray org si cl, tr gvl, f-m sand (OH)				9U Top: WC=67,
		19.0	REC=23"	Bot: Brown peat, trace organic silty clay (Pt)				pp=0.1, TV=0.05
	10D	19.0	3-3	Gray & brown organic silty clay, some peat		20		9U Bot: WC=240,
		21.0	6-7	(OH&Pt)		21		pp=1.5, TV=0.65
	11D	21.0	9-22	Brown gravelly coarse to fine sand, trace silt				10D: WC=190
		23.0	42-21	(SP)				10D: REC=5"
						25		
	12D	25.0	9-17	Green brown fine to medium sand, some				
		27.0	23-26	gravel, trace silt (SP-SM)				
						30		
	13D	30.0	11-26	Gray fine to medium sand, some gravel, trace				
		32.0	40-33	silt (SP-SM)				
						35		
	14D	35.0	11-9	Gray fine to medium sand, trace silt, coarse	S			
		37.0	32-46	sand, gravel (SP-SM)				
						40		WC=Water Content
	15D	40.0	29-65	Do 14D (SP-SM)				in percent of dry
		41.3	50/4"					weight.
								pp=Pocket
						45		Penetrometer
	16D	45.0	8-28	Gray fine to medium sand, some gravel, trace				Unconfined Compres-
		46.7	55-50/3"	silt, coarse sand (SP)				sive Strength in tsf.
								TV=Torvane Shear
						50		Strength in tsf.
15:30								
	17D	50.0	27-50/5"	Green brown fine to medium sand, trace		50.9		End of Boring at 50.9'.
		50.9		gravel, silt (SP-SM)				

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING NO. B-8U
SHEET 2 **OF** 2

PROJECT BAY PARK STP - PERIMETER FLOOD PROTECTION
FILE NO. 12047
LOCATION BAY PARK, NEW YORK
SURFACE ELEV. 5.8
BORING LOCATION SEE BORING LOCATION PLAN
DATUM NAVD 88

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG		TYPE OF FEED DURING CORING		CASING USED		X YES		NO		
TRUCK	MOBILE B-58	MECHANICAL		DIA., IN.	4	DEPTH, FT. FROM	0	TO	19	
SKID		HYDRAULIC		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	
CORE BIT	
DRILL RODS	NWJ

DRILLING MUD USED X YES NO
DIAMETER OF ROTARY BIT, IN. 3-7/8, 2-15/16
TYPE OF DRILLING MUD EZ-MUD

AUGER USED X YES NO
TYPE AND DIAMETER, IN. HAND AUGER

*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 X 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.	44.9	NO. OF 3" SHELBY TUBE SAMPLES	
3.5" DIA. CONTINUOUS SAMPLE BORING	LIN. FT.		NO. OF 3" UNDISTURBED SAMPLES	2
CORE DRILLING IN ROCK	LIN. FT.		OTHER: HAND AUGER	6

BORING CONTRACTOR WARREN GEORGE, INC.
DRILLER CAESAR MOREIRA HELPERS LAWRENCE MILLER
REMARKS ALL CASING REMOVED & BOREHOLE GROUTED UPON COMPLETION.
RESIDENT ENGINEER PATRICK DONALDSON DATE 10-16-13
CLASSIFICATION CHECK: CHERYL J. MOSS TYPING CHECK: CHERYL J. MOSS

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING LOG

BORING NO. B-9
SHEET 1 OF 2
FILE NO. 12047
SURFACE ELEV. 7.4
RES. ENGR. PATRICK DONALDSON

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

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
08:30	1HA	0.0	HAND	Brown fine to medium sand, some silt, trace	**	0.46	DRILLED	**Asphalt slab from
10-07-13		2.0	AUGER	gravel, coarse sand, asphalt (SM)			AHEAD	0' to 0.46' at surface.
Monday	2HA	2.0	HAND	Tan brown fine to coarse sand, some gravel,			4"	
Sunny		4.0	AUGER	trace silt (SP)				
70°F	3HA	4.0	HAND	Black organic clayey silt, some fine to medium	F	5		
09:45		6.0	AUGER	sand, trace gravel (OL)				
08:45	4D	6.0	6-14	Brown silty fine to medium sand, some gravel,				REC=6"
10-16-13		8.0	11-8	trace coarse sand (SM)				
Wednesday	5D	8.0	4-8	Top 10": Brn f-m sand, sm gvl, tr silt, c sand (SP)		8.8		
Overcast,		10.0	18-18	Bot 14": Gray organic silty clay, sm f-c sand (OH)		10		5D Bot: WC=82
Light Rain	6D	10.0	2-7	Tan fine to medium sand, trace silt, gravel,				
60°F		12.0	6-6	coarse sand, peat (SP)	O			
	7D	12.0	4-4	Top 6": Tan f-m sand, sm gvl, tr silt (SP-SM)				
		14.0	6-7	Bot 12": Gray & brn org si clay, sm peat (OH&Pt)		14		7D Bot: WC=106
	8D	14.0	4-13	Brown medium to fine sand, trace organic silt,		15		
		16.0	9-11	coarse sand, gravel, vegetation (SP-SM)				
	9D	16.0	7-9	Brown medium to fine sand, trace organic silt,				
		18.0	10-9	coarse sand, gravel, vegetation (SP-SM)				
	10D	18.0	4-10	Green brown fine to medium sand, trace silt,				
		20.0	10-18	gravel, coarse sand (SP)		20		
	11D	20.0	19-16	Green brown fine to medium sand, trace silt				
		22.0	18-19	(SP-SM)				
	12D	22.0	9-16	Do 11D (SP-SM)				
		24.0	18-19					
	13D	24.0	9-16	Gray fine to medium sand, trace silt (SP-SM)		25		
		26.0	17-18					
	14D	26.0	11-25	Gray fine sand, trace silt, medium sand (SP-SM)				
		28.0	28-30					
	15D	28.0	8-12	Gray & light brown fine to medium sand, trace				
		30.0	15-21	silt, clayey silt seams (SP-SM)		30		
	16D	30.0	8-22	Light brown fine to medium sand, trace silt				
		32.0	28-29	(SP-SM)	S			
	17D	32.0	9-18	Gray fine to medium sand, trace silt (SP-SM)				
		34.0	23-23					
	18D	34.0	10-23	Gray fine to medium sand, some silt (SM)		35		
		36.0	33-36					
	19D	36.0	4-13	Tan fine to medium sand, trace silt (SP-SM)				
		38.0	21-23					
	20D	38.0	4-19	Do 19D (SP-SM)				
		40.0	33-37			40		
	21D	40.0	15-30	Light brown & gray fine to medium sand, trace				
		42.0	39-38	silt (SP-SM)				
	22D	42.0	11-26	Light brown fine to medium sand, trace silt,				
		43.9	38-50/5"	coarse sand (SP-SM)				
	23D	44.0	44-69	Do 22D (SP-SM)		45		WC=Water Content
		46.0	79-81					in percent of dry
	24D	46.0	41-64	Light brown fine to medium sand, trace silt,				weight.
		47.4	50/5"	gravel (SP-SM)				
13:30	25D	48.0	30-50/4"	Do 24D (SP-SM)		48.8		End of Boring at 48.8'.
		48.8				50		

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING NO. B-9
SHEET 2 **OF** 2

PROJECT BAY PARK STP - PERIMETER FLOOD PROTECTION
FILE NO. 12047
LOCATION BAY PARK, NEW YORK
SURFACE ELEV. 7.4
BORING LOCATION SEE BORING LOCATION PLAN
DATUM NAVD 88

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG		TYPE OF FEED DURING CORING		CASING USED		X YES		NO		
TRUCK	MOBILE B-58	MECHANICAL		DIA., IN.	4	DEPTH, FT. FROM	0	TO	14
SKID		HYDRAULIC		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	
CORE BIT	
DRILL RODS	NWJ

DRILLING MUD USED X YES NO
DIAMETER OF ROTARY BIT, IN. 3-7/8
TYPE OF DRILLING MUD EZ-MUD

AUGER USED X YES NO
TYPE AND DIAMETER, IN. HAND AUGER

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.	4	NO. OF 3" SHELBY TUBE SAMPLES	
3.5" DIA. CONTINUOUS SAMPLE BORING	LIN. FT.	38.8	NO. OF 3" UNDISTURBED SAMPLES	
CORE DRILLING IN ROCK	LIN. FT.		OTHER: HAND AUGER	6

BORING CONTRACTOR WARREN GEORGE, INC.
DRILLER CAESAR MOREIRA HELPERS LAWRENCE MILLER
REMARKS BOREHOLE TREMIE GROUTED UPON COMPLETION.
RESIDENT ENGINEER PATRICK DONALDSON DATE 10-16-13
CLASSIFICATION CHECK: CHERYL J. MOSS TYPING CHECK: CHERYL J. MOSS

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING LOG

BORING NO. B-10
SHEET 1 OF 2
FILE NO. 12047
SURFACE ELEV. 6.2
RES. ENGR. PATRICK DONALDSON

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

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
08:00	1HA	0.0	HAND	Brown fine to coarse sand, some gravel, silt			DRILLED	
10-08-13		2.0	AUGER	(SM)			AHEAD	
Tuesday	2HA	2.0	HAND	Brown gravelly fine to medium sand, trace silt	F		4"	
Clear		4.0	AUGER	(SP-SM)				
60°F	3HA	4.0	HAND	Brown fine to medium sand, some silt, trace		5		Rig chatter from 5' to
		6.0	AUGER	gravel (SM)		6		6'.
	4D	6.0	8-6	Dark gray fine sandy organic silt (OL)				REC=3"
		8.0	4-2					
	5D	8.0	3-3	Gray & black f-c sandy organic clay & peat,	O			WC=153
		10.0	3-4	trace fine sand seams (OH&Pt)		10		
	6D	10.0	1-2	Top 7": Do 5D (OH&Pt)		10.6		6D Top: WC=230
		12.0	2-2	Bot 22": Dk gray f-m sa, sm silt, tr gvl, c sa (SM)				
	7D	12.0	4-3	Gray fine to coarse sand, some silt, gravel				
		14.0	6-10	(SM)				
14:50	8D	14.0	9-9	Green brown fine to medium sand, trace silt,		15		
07:30		16.0	10-13	gravel, coarse sand (SP)				
10-09-13	9D	16.0	11-14	Do 8D (SP)				
Wednesday		18.0	14-18					
Overcast	10D	18.0	10-16	Green brown fine to medium sand, trace silt				
60°F		20.0	17-18	(SP)		20		
	11D	20.0	11-12	Do 10D (SP-SM)				
		22.0	15-18					
	12D	22.0	11-17	Do 10D (SP-SM)				
		24.0	19-20					
	13D	24.0	7-11	Gray brown fine sand, trace medium sand,		25		
		26.0	15-16	silt (SP)				
	14D	26.0	13-16	Do 10D (SP)				
		28.0	14-13					
	15D	28.0	9-15	Green brown fine to medium sand, trace coarse				
		30.0	22-22	sand, silt (SP-SM)	S	30		
	16D	30.0	9-11	Green brown fine sand, trace medium sand,				
		32.0	17-15	silt (SP)				
	17D	32.0	17-18	Do 16D (SP)				
		34.0	18-19					
	18D	34.0	14-18	Light brown fine to medium sand, trace gravel,		35		
		36.0	21-21	coarse sand, silt (SP-SM)				
	19D	36.0	22-31	Do 18D (SP-SM)				
		38.0	36-48					
	20D	38.0	15-25	Light brown fine to medium sand, trace silt,				
		39.8	44-50/4"	coarse sand (SP)		40		
	21D	40.0	21-51	Light brown fine to coarse sand, trace silt,				
		41.3	50/4"	gravel (SP-SM)				
	22D	42.0	46-51	Light brown fine to medium sand, trace coarse				
		43.3	50/4"	sand, silt (SP-SM)				
	23D	44.0	33-50/4"	Light brown fine to medium sand, trace silt,		45		WC=Water Content
		44.8		gravel (SP-SM)				in percent of dry
	24D	46.0	59-50/3"	Tan fine to medium sand, trace gravel, coarse				weight.
		46.7		sand, silt (SP-SM)				
12:30	25D	48.0	37-50/3"	Do 24D (SP-SM)		48.7		End of Boring at 48.7'.
		48.7				50		

MUESER RUTLEDGE CONSULTING ENGINEERS

		BORING NO.	B-10
		SHEET	2 **OF** 2
PROJECT	BAY PARK STP - PERIMETER FLOOD PROTECTION	**FILE NO.**	12047
LOCATION	BAY PARK, NEW YORK	**SURFACE ELEV.**	6.2
BORING LOCATION	SEE BORING LOCATION PLAN	**DATUM**	NAVD 88

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG		TYPE OF FEED DURING CORING		CASING USED						
TRUCK	DIETRICH 120	MECHANICAL		DIA., IN.	4	DEPTH, FT. FROM	0	TO	9	
SKID		HYDRAULIC		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	DRILLING MUD USED	X YES		NO
U-SAMPLER		DIAMETER OF ROTARY BIT, IN.		3-7/8	
S-SAMPLER		TYPE OF DRILLING MUD		EZ-MUD	
CORE BARREL		AUGER USED	X YES		NO
CORE BIT		TYPE AND DIAMETER, IN.		HAND AUGER	
DRILL RODS	NWJ				

*CASING HAMMER, LBS.	140	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
					NO WATER LEVEL OBSERVATIONS MADE.

PIEZOMETER INSTALLED [ ] YES [X] 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	NO. OF 3" SHELBY TUBE SAMPLES	
3.5" DIA. CONTINUOUS SAMPLE BORING	LIN. FT.	38.7	NO. OF 3" UNDISTURBED SAMPLES	
CORE DRILLING IN ROCK	LIN. FT.		OTHER: HAND AUGER	6

BORING CONTRACTOR		WARREN GEORGE, INC.	
DRILLER	DAVE OSUCH	HELPERS	JR GRANT
REMARKS	BOREHOLE GROUTED UPON COMPLETION.		
RESIDENT ENGINEER	PATRICK DONALDSON	DATE	10-09-13
CLASSIFICATION CHECK:	CHERYL J. MOSS	TYPING CHECK:	CHERYL J. MOSS

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING LOG

BORING NO. B-11
SHEET 1 OF 2
FILE NO. 12047
SURFACE ELEV. 7.9
RES. ENGR. PATRICK DONALDSON

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

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
10:05	1HA	0.0	HAND	Brown fine to coarse sand, some gravel, trace			DRILLED	
10-07-13		2.0	AUGER	silt, glass (SP-SM)			AHEAD	
Monday	2HA	2.0	HAND	Brown fine to coarse sand, some gravel, trace			4"	
Overcast		4.0	AUGER	silt (SP-SM)				
70°F	3HA	4.0	HAND	Brown fine to medium sand, some silt (SM)	F	5		
10:35		6.0	HAND					
08:45	4D	6.0	10-3	Brown & black fine to coarse sand, some				REC=6"
10-16-13		8.0	3-12	gravel, trace organic silty clay (SP-SC)				
Wednesday	5D	8.0	21-12	Gray fine to medium sand, some silt, trace				
Overcast		10.0	11-8	gravel (SM)		10		
60°F	6D	10.0	1-1	Brown peat & organic silty clay, trace fine				WC=199
		12.0	1-2	sand (Pt&OH)				
	7D	12.0	2-3	Top 3": Brn f sandy organic silt, sm peat (OL&Pt)	O			7D Top: WC=102
		14.0	3-2	Bot 18": Gray fine to medium sand, some				
				organic clay, trace coarse sand (SC)		15		
	8D	15.0	1-3	Top 6": Gray m-f sand, sm clay, tr c sa, gvl (SC)		15.5		
		17.0	4-3	Bot 7": Brown fine to coarse sand, some gravel,				
				trace silt (SP-SM)				
						20		
	9D	20.0	5-6	Gray clayey medium to fine sand (SC)				
12:45		22.0	7-6					
08:30								
10-17-13								
Thursday						25		
Light Rain,	10D	25.0	5-7	Brown fine to medium sand, trace silt (SP)				
Overcast		27.0	8-10		S			
						30		
	11D	30.0	6-12	Brown fine to medium sand, trace coarse				
		32.0	14-17	sand, silt, gravel (SM)				
						35		
	12D	35.0	12-15	Brown fine to coarse sand, trace gravel, silt				
		37.0	11-14	(SP)				
						38.5		
						40		
	13D	40.0	18-25	Brown fine to medium sand, trace gravel, silt				
		42.0	21-27	(SP-SM)				
						45		
	14D	45.0	31-54	Do 13D (SP-SM)				
		46.3	50/4"					WC=Water Content
								in percent of dry
								weight.
						50		
	15D	50.0	100/6"	Tan fine to coarse sand, some gravel, trace		50.5		End of Boring at 50.5'.
		50.5		silt (SP-SM)				

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING NO. B-11
SHEET 2 **OF** 2

PROJECT BAY PARK STP - PERIMETER FLOOD PROTECTION
FILE NO. 12047
LOCATION BAY PARK, NEW YORK
SURFACE ELEV. 7.9
BORING LOCATION SEE BORING LOCATION PLAN
DATUM NAVD 88

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG		TYPE OF FEED DURING CORING		CASING USED		X YES		NO		
TRUCK	DIETRICH 120	MECHANICAL		DIA., IN.	4	DEPTH, FT. FROM	0	TO	9
SKID		HYDRAULIC		DIA., IN.		DEPTH, FT. FROM		TO	
BARGE		OTHER		DIA., IN.		DEPTH, FT. FROM		TO	
OTHER									

TYPE AND SIZE OF:		DRILLING MUD USED	X YES	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		AUGER USED	X YES	NO
CORE BIT		TYPE AND DIAMETER, IN.		HAND AUGER
DRILL RODS	NWJ			

*CASING HAMMER, LBS. 140 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
					NO WATER LEVEL OBSERVATIONS MADE.

PIEZOMETER INSTALLED [ ] YES [X] 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. 44.5	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	6

BORING CONTRACTOR WARREN GEORGE, INC.
DRILLER DAVE OSUCH HELPERS JR GRANT
REMARKS BOREHOLE TREMIE GROUTED UPON COMPLETION.
RESIDENT ENGINEER PATRICK DONALDSON DATE 10-17-13
CLASSIFICATION CHECK: CHERYL J. MOSS TYPING CHECK: CHERYL J. MOSS

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING LOG

BORING NO. B-12
SHEET 1 OF 2
FILE NO. 12047
SURFACE ELEV. 8.2
RES. ENGR. PATRICK DONALDSON

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

DAILY PROGRESS	SAMPLE NO	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
11:00	1HA	0.0	HAND	Brown fine to medium sand, some silt, trace				
10-07-13		2.0	AUGER	gravel, vegetation (SM)				
Monday	2HA	2.0	HAND	Brown fine to medium sand, some gravel,	F			
Overcast		4.0	AUGER	trace silt, coarse sand (SP-SM)				
70°F, 11:25						5		
								Obstruction at 5'.
								End of Boring at 5'.
						10		
						15		
						20		
						25		
						30		
						35		
						40		
						45		
						50		