ATTACHMENT A SOIL BORING LOGS

MARYLAND SCIENCE CENTER PERVIOUS CONCRETE PILOT PROJECT



					BOILING					
FOR: PROJE	CT:	Man	yland Scienc	e Cent	er king Lot Reconstruction				HOLE NO:	MDSC-1
1 11000	.01.	WILD	ociciice ociii	01 1 41	king Lot Neconstituction	_			SHT NO.:	
· ·					W.O. #: 31981	1-000	START DATE	7/17/2014	COMPLTED:	7/17/2014
-	-	GROU	JND WATER	OBSE	RVATIONS		DRILLING BY	Geomatrix		
ENCOL	JNTËRËD:	2110	FT; @ COM		FT; @ HRS.	FT _v	DRILLER:	Paul Sult		
CAVE-			FT; @ COM		FT; @ HRS.		IINSPECTOR			
			-				WR&A REP.:	Kevin T. R	oberts	
НАММ	ER TYPE:		Automatic		SAMPLER T	YPE: SS		ROD SIZE:		
	G METHOD:		HSA		BOREHOLE		•6	ROCK COF	RE SIZE:	
							2			
DEPTH	WELL CONSTRUCT	пои	BLOW COUNT	CLASS	DESC	RIPTION		SAMPLE SUBMITTED	RECOV.	Notes
					8" Concrete, 7" sand/grav	vel base (ret	oar 4" BGS)			
4.01			7 40 40 44	-	D 50 -: 15		. 6		10"	
1-3'			7,12,13,11	Fill	Brown FG silty sand, dry,	, some brick	Cirags	X	10	
3-5'			12,20,13,22	Fill	Dark brown/black, M-CG	sand, dry		X	12"	
									1	
					Boring terminated at 5' B	CS				
<u> </u>					Borning terminated at 5 B	00				
	1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0									
-										
	133533 133533									
										100
Boring I					Sampler Type:		TEOT, DONANG	II O D C4440'	- P	Abbreviations:
HSA:	HOLLOW STEM AUG HAND AUGER & TRIF						TEST: DRIVING 2 FALLING 30" BLC			NA: Not Applicable SAA: Same as above
DC:	DRIVEN CASING	00			AS: AUGER SAMP		, ALLING SU BLC	00014101		F-CG; fine to coarse
MD:	MUD DRILLING				RC: ROCK CORE					grained
DP:	DIRECT PUSH				SS: SPLIT SPOON					BGS: below ground
AR:	AIR ROTARY/AIR HA	MMER			@ST: SHELBY TUBE	6" INTERVA	LS. (SPLIT SPOOI	٧)		surface



					BORING LOG				
FOR: PROJE	CT·		yland Scienc		er king Lot Reconstruction	10		HOLE NO: ELEV:	MDSC-2
1 11002	.01.		00101100		mig act ricochol actor.			SHT NO.:	
					W.O. #: 31981-000	START DATE			7/17/2014
		GROL	JND WATER	OBSE	RVATIONS	DRILLING BY	Geomatrix		
ENCOL	JNTERED:		FT; @ COM		FT; @ HRS FT.	DRILLER:	Paul Suit		
CAVE-	IN:		FT; @ COM	> ;	FT; @ HRS FT.	IINSPECTOR			
						WR&A REP.:			
HAMMI	ER TYPE:	- 3	Automatic		SAMPLER TYPE: SS	_	ROD SIZE:		
BORIN	G METHOD:		HSA		BOREHOLE DIA:	-	ROCK COF	RE SIZE:	
DEPTH	WELL CONSTRUC	CTION BLOW COUNT CLASS			DESCRIPTION		SAMPLE SUBMITTED	RECOV.	Notes
					8" Concrete, 9" sand/gravel base (re	ebar 4" BGS)			
1-3'			8,11,50/1"	Fill	Dark brown M-CG sand, moist		l x	10"	
1-0			0,11,00/1		Dark brown Wilde Saind, Moles				
3-5'			12,20,13,22	Fill	SAA		X	12"	
					Boring terminated at 5' BGS				
					Borning terminated at 5 BCC				
-									
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-									
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					1				
		_							Abbandallara
Boring					Sampler Type: SPT: STANDARD PENETRATION	ATERT DRIVING	O"OD CAMPI	ED	Abbreviations: NA: Not Applicable
HSA:	HOLLOW STEM AU				SPT: STANDARD PENETRATION 1.0 FT W/ 140 LB HAMMER				SAA: Same as above
DC:	HAND AUGER & TR DRIVEN CASING	ILOD.			AS: AUGER SAMPLE	TALLING OU BL	5.7 556H16T		F-CG: fine to coarse
MD:	MUD DRILLING				RC: ROCK CORE				grained
DP:	DIRECT PUSH				SS: SPLIT SPOON				BGS: below ground
AR:	AIR ROTARY/AIR HA	AMMER	ł		@ST: SHELBY TUBE 6" INTERVA	ALS. (SPLIT SPOC	N)		surface



					BORING LOG				
FOR: PROJE	CT:		yland Science		er king Lot Reconstruction		HOLE NO: ELEV:		MDSC-3
LKOJE	:01:	IVID	science cent	er Par	king Lot Reconstruction	SHT NO.			
					W.O. #: 31981-000	START DATE			7/17/2014
		GROL	JND WATER	OBSE		DRILLING BY			
	JNTERED:		FT; @ COMP	?:	FT; @ HRS FT.	DRILLER:	Paul Suit		
CAVE-I	IN:		FT; @ COM	? :	FT; @ HRS. FT,	IINSPECTOR WR&A REP.:		oherte	
	ER TYPE: G METHOD:		Automatic HSA		SAMPLER TYPE: SS BOREHOLE DIA:	_	ROD SIZE: ROCK COP		
BURIN	G METHOD:		пом		BOREHOLE DIA.	**	TOOK OOI	VE OIZE.	
							SAMPLE		
DEPTH	WELL CONSTRUC	TION	BLOW COUNT	CLASS	DESCRIPTION		SUBMITTED	RECOV.	Notes
					8.5" Concrete, (rebar 4.5" BGS)				
1-3'			8,17,12,11	Fill	Brown CG sand, brick frags		x	10"	
			5,11,12,11						
	1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -								
3-5'			17,15,20,18	Fill	SAA		×	11"	
0-0			. 7 , 10,20,10	' '''					
					Boring terminated at 5' BGS				
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	1								
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					1				
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					1		-		
					1				
					1				
	-								
Boring	Method	-			Sampler Type:				Abbreviations:
HSA:	HOLLOW STEM AU				SPT: STANDARD PENETRATIO				NA: Not Applicable SAA: Same as above
HA\TR: DC:	HAND AUGER & TR DRIVEN CASING	POD			1.0 FT W/ 140 LB HAMMEI AS: AUGER SAMPLE	K FALLING 30" BLC	NA COOKIS L	YEOONDED	F-CG: fine to coarse
MD:	MUD DRILLING				RC: ROCK CORE				grained
DP;	DIRECTPUSH				SS: SPLIT SPOON				BGS: below ground
AR:	AIR ROTARY/AIR HA	AMMER	₹		@ST: SHELBY TUBE 6" INTERV	ALS. (SPLIT SPOO	N)		surface



						KING LOG				
FOR:			land Scienc						HOLE NO:	MDSC-4
PROJE	CT:	MD :	Science Cen	ter Par	king Lot Reconstri	uction			ELEV: SHT NO.:	
		_			W.O. #:	31981-000	START DATE			7/17/2014
		2001	IND MATER	0005	-	01001 000			00.000	
ENCOL	ي JNTERED:	GRUL	JND WATER FT; @ COM			HRS. FT.	DRILLING BY DRILLER:	Paul Suit		
CAVE-			FT; @ COM			HRS. FT.	IINSPECTOR			
			, @				WR&A REP.:		oberts	
HAMM	ER TYPE:		Automatic		SAMP	LER TYPE: SS	1	ROD SIZE:		
	G METHOD:		HSA			HOLE DIA:	-	ROCK COR		
				•						
DEPTH	WELL CONSTRUCT	CTION BLOW COUNT		CLASS	DESCRIPTION			SAMPLE SUBMITTED	RECOV.	Notes
	1888				8" Concrete, no ret	har				
					o concroto, no roi	<i>bu</i> i				
1-3'			12,20,22,29	Fill	Brown/black CG sa	and, some quartz	gravel and	_ x	9"	
					brick frags					
3-5'			17,15,20,18	Fill	No recovery				0"	
3-3	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5		17,10,20,10	''''	No recovery					
					Boring terminated a	at 5' BGS				
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-										
-										
										Tu u sociulo di co
Boring !		XVIII X Ge			Sampler Type:		. TOT DOWN!	W O D C		Abbreviations:
HSA:	HOLLOW STEM AUG				100 00	ARD PENETRATION W/ 140 LB HAMMER				NA: Not Applicable SAA: Same as above
HA\TR:	HAND AUGER & TRIF DRIVEN CASING	-00				W/ 140 LB HAMMER R SAMPLE	LALLING 30. BLC	W COUNTS R	POOUDED	F-CG; fine to coarse
MD:	MUD DRILLING				RC: ROCK					grained
DP:	DIRECT PUSH				SS: SPLITS					BGS: below ground
AR:	AIR ROTARY/AIR HAI	MMER			@ST: SHELB	Y TUBE 6" INTERVA	LS. (SPLIT SPOO	N)		surface



					BOKING LOG				
FOR:		Mar	yland Scienc	e Cent	er			HOLE NO:	MDSC-5
PROJE	CT:	MD	Science Cent	ter Par	king Lot Reconstruction			ELEV:	
		_			NI O II 04004 000	OTABT BATE		SHT NO.:	7/47/0044
					W.O. #: 31981-000	START DATE	7/17/2014	COMPLIED:	7/17/2014
		GROL	JND WATER			DRILLING BY			
	JNTERED:		FT; @ COM			DRILLER:	Paul Suit		
CAVE-	IN:	_	FT; @ COMI	٠:	FT; @ HRS, FT,	IINSPECTOR WR&A REP.:		ohorte	
						WROA REF.			
	ER TYPE:		Automatic		SAMPLER TYPE: SS		ROD SIZE:		
BORIN	G METHOD:		HSA		BOREHOLE DIA:	-	ROCK COF	RE SIZE:	
DEPTH	WELL CONSTRUC	TION	BLOW COUNT	CLASS	DESCRIPTION		SAMPLE SUBMITTED	RECOV.	Notes
					8.25" Concrete, no rebar				
1-3'			55,35,51/4"	Fill	Brown/black CG sand, some quartz	gravel and	×	4"	
					brick frags				
3-5'					Refusal @ 2' BGS			0"	
3-3								ı ı	
					Boring terminated at 2' BGS				
								1	
							*		
								1	
Desire					Complex Type:		L		Abbreviations:
Boring I	<u>Method</u> HOLLOW STEM AUC	SED			Sampler Type: SPT: STANDARD PENETRATION	TEST: DRIVING 3	"OD SAMPI	ER	NA: Not Applicable
HSA: HA\TR:	HAND AUGER & TRI				1.0 FT W/ 140 LB HAMMER				SAA: Same as above
DC:	DRIVEN CASING				AS: AUGER SAMPLE				F-CG: fine to coarse
MD:	MUD DRILLING				RC: ROCK CORE				grained
DP:	DIRECT PUSH				SS: SPLIT SPOON				BGS: below ground
AR:	AIR ROTARY/AIR HA	MMER			@ST: SHELBY TUBE 6" INTERVA	LS. (SPLIT SPOO	٧)		surface



					BORING LOG				
FOR:	OR: Maryland Science Center Parl							HOLE NO: ELEV:	MDSC-6
PROJE	:01:	IVID .	science Cen	er Par	King Lot Reconstruction			SHT NO.:	
		-			W.O. #: 31981-000	START DATE			7/17/2014
	9	GROL	JND WATER			DRILLING BY			
	JNTERED:		FT; @ COM		FT; @ HRS FT,		Paul Suit		
CAVE-	IN:	_	FT; @ COM	?:	FT; @ HRS. FT.	IINSPECTOR		abanta	
						WR&A REP.:			
	ER TYPE:		Automatic		SAMPLER TYPE: SS	-	ROD SIZE:		
BORIN	G METHOD:		HSA		BOREHOLE DIA:		ROCK COF	RE SIZE:	
DEPTH	WELL CONSTRUC	TION	BLOW COUNT	CLASS	DESCRIPTION		SAMPLE SUBMITTED	RECOV.	Notes
					8" Concrete, no rebar				
1-3'			18,18,17,21	Fill	Grey/brown clayey sand, moist		x	14"	
1.0			10,10,11,21						
								400	
3-5'			8,10,10,10	Fill	Brown/tan M-CG sand, moist		×	10"	
					Boring terminated at 5' BGS				
_					borning terminated at 3 boo				
-)
								- 1	
								- 1	
Boring I	Method	-			Sampler Type:				Abbreviations:
HSA:	HOLLOW STEM AUG	SER			SPT: STANDARD PENETRATION	I TEST: DRIVING 2	" O.D. SAMPLI	ER	NA: Not Applicable
HA\TR:	HAND AUGER & TRI	POD			1.0 FT W/ 140 LB HAMMER	FALLING 30" BLC	W COUNTS R	ECORDED	SAA: Same as above
DC:	DRIVEN CASING				AS: AUGER SAMPLE				F-CG: fine to coarse
MD:	MUD DRILLING				RC: ROCK CORE				grained
DP:	DIRECT PUSH				SS: SPLIT SPOON @ST: SHELBY TUBE 6" INTERVA	I S /SDI IT SDOO	w.		BGS: below ground surface
AR:	AIR ROTARY/AIR HA	ıvııvı⊏K			@ST: SHELBY TUBE 6" INTERVA	LO. (OF LIT OF OO)	· · ·		00000



					BORING LOG					
FOR: PROJE	CT:	Mary	yland Scienc	e Cent	ter rking Lot Reconstruction	T			HOLE NO: ELEV:	MDSC-7
PROJECT.		MD Science Center Parkir			rking Lot Reconstruction	ing Lot Reconstruction			SHT NO.:	
					W.O. #: 31981-000		START DATE			7/17/2014
	GROUND WATER OBSE			RVATIONS	7	DRILLING BY				
ENCOL	INTERED;		FT; @ COM				DRILLER:	Paul Suit		
CAVE-I	N:		FT; @ COM	P:	FT; @HRSF		INSPECTOR:		a banta	
							WR&A REP.:			
	ER TYPE:		Automatic		SAMPLER TYPE: S			ROD SIZE:	_	
BORIN	G METHOD:		HSA		BOREHOLE DIA:	_		ROCK COP	RE SIZE:	
DEPTH	WELL CONSTRUC	TION	BLOW COUNT	CLASS	DESCRIPTION			SAMPLE SUBMITTED	RECOV.	Notes
					8" Concrete, no rebar					
1-3'			100/5"		No recovery, concrete blocked SS	shc	oe e	x	0"	
3-5'			9,51,15,11	 Fill	Brown/tan M-CG sand, moist			x	5"	
3-3			8,51,15,11	' '''	Blown, tan M-66 sand, moist			, i		
					Boring terminated at 5' BGS					
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Boring !		eser.			Sampler Type;	DOM:	TERT DRIVING	OD SAMPI	ED	Abbreviations: NA: Not Applicable
HSA:	HOLLOW STEM AUGER & TR				SPT: STANDARD PENETRATI 1.0 FT W/ 140 LB HAMM					SAA: Same as above
DC;	HAND AUGER & TR DRIVEN CASING				AS: AUGER SAMPLE		,,	55511191		F-CG: fine to coarse
MD:	MUD DRILLING				RC: ROCK CORE					grained
DP:	DIRECT PUSH				SS: SPLIT SPOON					BGS: below ground
AR:	AIR ROTARY/AIR HA	MMER	t i		@ST: SHELBY TUBE 6" INTER	RVAL	S. (SPLIT SPOOR	N)		surface



					ORING LO	G				
FOR: PROJE	ECT:	Maryland Scien	ce Cen	ter rking Lot Recons	truction	= /.			HOLE NO: ELEV:	MDSC-8
				ining mor recomm	and activocalistication				SHT NO.:	
			W.O. #:	31981-0	00	START DATE			7/17/2014	
		GROUND WATER	ROBSE	RVATIONS			DRILLING BY	Geomatrix		
ENCO	UNTERED:	FT; @ CON		FT; @	HRS.	FT	DRILLER:	Paul Suit		
CAVE-	IN:	FT; @ CON	IP:	FT; @	HRS.		IINSPECTOR			
							WR&A REP.:	Kevin T. R	oberts	
HAMM	ER TYPE:	Automatic		SAN	IPLER TYP	E: SS		ROD SIZE:		
BORIN	G METHOD:	HSA			REHOLE DI		-	ROCK COP	74	
-						_				
		170						SAMPLE		
DEPTH	WELL CONSTRUC	TON BLOW COUN	TCLASS		DESCRIPT	TION		SUBMITTED	RECOV.	Notes
				8" Concrete, no	rebar					
1-3'		100/3"		No recovery, con	arata blacka	4664	200		0"	
1-3		100/3		ING recovery, con	Crete blocks	:u 33 SI	ioe		U	
3-5'		100/1"		Spoon is bouncing	g on concre	ete			0"	
									1	
			1 (1		
							1			
Boring N	Method			Sampler Type	ν.					Abbreviations:
100000000000000000000000000000000000000	HOLLOW STEM AUG	ER		-11-1-11-11-11-11-11-11-11-11-11-11-11-		TRATION	TEST: DRIVING 2	O.D. SAMPLE	R I	NA: Not Applicable
	HAND AUGER & TRIF						FALLING 30" BLO			SAA: Same as above
DC:	DRIVEN CASING			9004020	ER SAMPLE					F-CG: fine to coarse
MD:	MUD DRILLING			RC: ROCI	K CORE					grained
DP:	DIRECT PUSH			3 THE .	TSPOON		002000000000000000000000000000000000000			BGS: below ground
AR:	AIR ROTARY/AIR HAM	MER		@ST: SHEL	BY TUBE 6" I	NTERVA	LS. (SPLIT SPOON)		surface



			VV/11 / 191/	4/4, IXE	QUARDI AND ASSOCIATES, LLP				(103) 283-8111
					BORING LOG				
FOR: PROJE	CT:		yland Scienc Science Cen		er king Lot Reconstruction			HOLE NO: ELEV: SHT NO.:	MDSC-9
		-			W.O. #: 31981-000	START DATE	7/17/2014	COMPLTED:	7/17/2014
GROUND WATER OBSERVA					FT; @HRSFTE	DRILLING BY DRILLER:	Paul Suit		
CAVE-	IIN:		_FT; @ COM	Ρ:		IINSPECTOR: WR&A REP.:		oberts	
	ER TYPE: G METHOD:		Automatic HSA		SAMPLER TYPE: SS BOREHOLE DIA:		ROD SIZE: ROCK COF		
DEPTH	WELL CONSTRUC	TION	BLOW COUNT	CLASS	DESCRIPTION		SAMPLE SUBMITTED	RECOV.	Notes
					8" Concrete, 3" sand/gravel base, no	rebar			
1-2'			100/3"		No recovery, concrete blocked SS sho	je		0"	
2-3'		100/1" Spoon is bouncing on concrete, can feel flat/ concrete slab at approximately 2' BGS						0"	
Boring N					Sampler Type:				Abbreviations:
ME (F) (ME) :	HOLLOW STEM AUG HAND AUGER & TRI				SPT: STANDARD PENETRATION TO 1.0 FT W/ 140 LB HAMMER FA				NA: Not Applicable SAA: Same as above

AUGER SAMPLE

SHELBY TUBE 6" INTERVALS. (SPLIT SPOON)

ROCK CORE

SPLIT SPOON

AS:

RC:

SS:

@ST:

F-CG: fine to coarse

BGS: below ground

grained

surface

DC:

MD:

DP:

AR:

DRIVEN CASING

MUD DRILLING

DIRECT PUSH

AIR ROTARY/AIR HAMMER