F.A. Project: U.S. 301, Maryland State Line to I-95 **Contract:** 25-113-01

Boring Location: Sta. 258+03.55, 91' Lt. C.L.

Bo

Boring	No.:	BR2-9-0
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Boring Surface Ele	V.: 59.43		Reference:					
Wt. of Casing Hammer: Wt. of Sample Hammer: Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:		Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2 3	N. N. N. N.			
Casing Size: Hollow Ste	3 1/4 m Auger:	Inches	From Depth of: From Depth of:	0.0' To: 0.0'	24.0'			
Water Level Readings Date 2/14/08 2/15/08 2/18/08	Time	Depth of Hole 75.0' 26.0' 26.0'	Depth of Casing	Depth of Water 22.4' 20.0' 18.0'	Elev. of Water 37.0 39.4 41.4 59.4			
Pay Quantities: 2 1/2 in. Dia. Dry		: 75.0	Ft.; ³	Dia. U-Sample Boring				
No. of 2 in. Dia. 3 2 1/2 in. Dia. Con		ring:	;	U-Samples: ng in Rock:	Ft.			

Boring Contractor: Walton Corporation Driller: Dan Taylor Helpers: J. Hillebrand

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description Class./G.I. Remar	ks
		1	1.0' 2.0'	5 6	Moist loose light brown silty fine sand w/ some coarse sand, trace of gravel. 12" RECOVERY	boils
2.49		2	2.0'	6 3 12 18	Moist stiff light brown fine to coarse sandy A-4(0)	
			4.0'		silt, trace of gravel.	
	-	3	4.0'	6 7 9 6	Moist medium dense light brown silty fine to A-2-4(0) coarse sand.	
4.98			6.0'	6	24" RECOVERY 2015	
		4	6.0'	6 8 6 8	Moist medium dense light brown fine to A-2-4(0) coarse sand w/ some silt, trace of gravel.	
7.47			8.0'	8	20" RECOVERY	
		5	8.0'	4 7 5 5	Moist medium dense light brown silty fine to coarse sand w/ some gravel.	
9.96			10.0'		16" RECOVERY	
		6	10.0'	7 6 7 8	Moist medium dense light brown coarse to fine sand w/ some gravel and silt.	
		7	12.0' 12.0'	5	20" RECOVERY Moist loose light brown coarse to fine sand w/ A-1-b	
12.45				5 4 5 5	some silt, trace of gravel.	
		8	14.0' 14.0'	3 7	18" RECOVERY Moist medium dense light brown coarse sand A-1-b	
				7 12 11	and gravel w/ some fine sand and silt.	

Remarks: Mud Rotary @ 24.0'

F.A. Project: U.S. 301, Maryland State Line to I-95 Contract: 25-113-01

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"		Sample Description	Class./G.I.	Remarks
		9	16.0' 16.0'	8		18" RECOVERY Wet medium dense reddish-brown silty fine	A-2-4(0)	
				8 11 12 14		to coarse sand.		
17.43			10.01					
		U-1	18.0' 18.0'			24" RECOVERY Saturated orange yellow brown fine to coarse	A-2-4(0)	Press Sample - Shelby Tube
						sand with some clay.		
19.92			20.0'			21" RECOVERY		
		10	20.0'	10 10 15 16		Wet medium dense brown silty fine to coarse sand.	A-2-4(0)	
22.41			22.0'			21" RECOVERY		
						UKAFI		
		11	24.0'	4 6 10	10000000000000000000000000000000000000	Saturated medium dense brown fine to coarse	A-3	
24.9			Ο.	11		sand, trace of silt.		JG
			26.0'		4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	20" RECOVERY		NG
					1:6193:66 1:6193:66 1:6193:66 1:6193:66 1:6193:66			
27.39						GUST 20	15	
					1999, 199 1999, 199 1999, 1999, 1999 1999, 1999, 1999, 1999 1999, 1999, 1999, 1999, 1999, 1999, 1999, 1999, 1999, 1999, 1999, 1999, 1999, 1999, 1999			
		12	29.0'	7	1:033.1:07 h:0133.1:07 1:0333.1:07		A 2 4(0)	
29.88		12	29.0	7 8 8 20		Saturated medium dense reddish-brown fine to coarse sand w/ some silt.	A-2-4(0)	
			31.0'			18" RECOVERY		
32.37								
32.31								
		13	34.0'	7 8 8 9		Saturated medium dense light brown fine to	A-2-4(0)	
34.86				8 9	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			
			36.0'		1899,1997 1999,999 1999,999,60 2097,996,60 2097,996,60 2097,996,60 2097,996,60	18" RECOVERY		
					1999, 1997 1997 (1997) 1997 (1997) 1997 (1997) 1997 (1997)			
37.35								
					1. (1 J 9) ((1 C 1 J 1 J) ((1 C 1 J 1 J) () 1 C 1 J 1 J) () 1 C 1 J 1 J) () 1 C 1 J 1 J) ()			
				l		el		1

F.A. Project: U.S. 301, Maryland State Line to I-95 Contract: 25-113-01

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description Cla	iss./G.I.	Remarks
<u>39.84</u> 		14	39.0' 41.0'	8 10 11 12		2-4(0)	
44.82		15	44.0'	13	sand, trace of silt.	A-3	
47.31			46.0'		24" RECOVERY		
49.8		16	49.0'	8 8 10 13	Saturated medium dense greenish-brown fine A- sand w/ some coarse sand and silt, trace of gravel.	2-4(0)	IG
52.29			51.0'	U	19" RECOVERY	5	
54.78		17	54.0'	6 10 12 10	Saturated medium dense greenish-brown fine sand w/ some coarse sand, trace of silt.	A-3	
57.27		18	56.0' 56.0'	8 11 10 12	19" RECOVERY Visual description: saturated medium dense greenish-brown fine sand w/ some coarse sand, trace of silt.		Sample brought to GTA lab for pH testing.
		19	58.0' 59.0'	12	18" RECOVERY	2-4(0)	
<u>59.76</u>			61.0'	12 13 14 15	sand w/ some silt and coarse sand. 24" RECOVERY	(0)	

F.A. Project: U.S. 301, Maryland State Line to I-95 Contract: 25-113-01

Depth	Daily	No.	Sample	Blows/6"	Sampla Description	Class./G.I.	Remarks
(ft.) 62.25	Progress	INO.	Sample Depth		Sample Description	Ulass./G.I.	Remarks
02.20							
		20	64.0'	10 11 11 12	Saturated medium dense greenish-brown fine	A-2-4(0)	
64.74				11	sand w/ some silt, trace of coarse sand.		
			66.0'		15" RECOVERY		
67.23							
		21	69.0'	10 11 11 12	Saturated medium dense greenish-brown fine	A-2-4(0)	
69.72				11 12	sand w/ some silt, trace of coarse sand.		
			71.0'		14" RECOVERY		
72.21					() $($ $($ $($ $($ $($ $($ $($ $($ $)))$ $($ $($ $($ $($ $)))$ $($ $($ $($ $))$ $($ $($ $))$ $($ $($ $)$ $($ $($ $))$ $($ $($ $)$		
		22	73.0'	10			
		22	73.0	10 12 12 17	Saturated medium dense dark green and gray fine sand w/ some silt and coarse sand, trace	A-2-4(0)	
			Λ	'	of organic matter and clay.	15	
74.7			7 <mark>5</mark> .0'		24" RECOVERY	U	
			_		Boring terminated at 75.0 feet.		
77.19							
79.68							
82.17							
84.66							

KEY TO SYMBOLS

Symbol Description

Strata symbols



Silty sand

Poorly graded sand with silt

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

- 1. Exploratory borings were drilled on 2/12/2008 using a 3 1/4-inch diameter continuous flight power auger. Rig is a Truck CME 55.
- Groundwater levels recorded at time of drilling and rechecked the following day.
- 3. Surveyed boring locations and elevations were provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recommendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All SPT blow counts are uncorrected.

Boring No.: BR2-9-02

Boring Location: Sta. 257+32.0	7, 122' Rt. C.L.						
Boring Surface Elev.: 53.16		Reference:					
Wt. of Casing Hammer: Wt. of Sample Hammer: 140 Type of: D-Sampler: Split Bar S-Sampler: U-Sampler: Ball San Core Bit:	O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2 3	IN. IN. IN. IN. IN.			
Casing Size: 3 1/4 Hollow Stem Auger:	Inches	From Depth of: From Depth of:	0.0' To: To:	26.0'			
Water Level Readings Time Date Time 2/14/08 2/15/08 2/18/08 2/18/08	Depth of Hole 85.4' 19.0' 19.0'	Depth of Casing	Depth of Water 11.5' 11.0' 10.0'	Elev. of Water 41.7 42.2 43.2 53.2			
Pay Quantities: 2 1/2 in. Dia. Dry Sample B No. of 2 in. Dia. Shelby Tul 2 1/2 in. Dia. Contin. Samp	bes:	Ft.; 3 ; No. of: Ft.; Core Drillin	Dia. U-Sample Borin U-Samples ng in Rock:				

Boring Contractor: Walton Corporation Driller: Gary Truver Helpers: D. Zmijewski

F.A. Project: U.S. 301, Maryland State Line to I-95

Contract: 25-113-01

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description C	Class./G.I.	Remarks
	1.109.000	1	0.0'	2 3 4 5		A-4(1)	10" Cultivated Soils
				4 5	some coarse sand, trace of gravel.		
			2.0'		16" RECOVERY		
2.49		2	2.0' 2.5'	5		A-4(0)	
		2A	2.5'	5 6 8	trace of coarse sand and gravel.	A-4(0)	
				-	Wet stiff orange fine sandy silt w/ some		
			4.0'	2	coarse sand.		
		3	4.0'	3 7 7 7 7	Wet medium dense orange fine sand w/ some	A-3	
4.98				7	coarse sand, trace of silt.		
		4	6.0' 6.0'	7	19" RECOVERY	A Q 4(0)	
		4	0.0	7 7 7 9	Wet medium dense light brown fine sand w/Asome silt and coarse sand, trace of gravel.	A-2-4(0)	
				9	some sin and coarse sand, trace of gravel.		
7.47							
		5	8.0' 8.0'	7	18" RECOVERY	A D A (D)	
		5	0.0	7 10 13 15	Wet medium dense brown coarse to fine sand A w/ some silt, trace of gravel.	A-2-4(0)	
				15	w some sit, there of graves.		
9.96		6	10.0' 10.0'	16	18" RECOVERY Saturated dense brown fine to coarse sand w/ A	A-2-4(0)	
			10.0	16 17 15 17	some silt, trace of gravel.	A-2-4(0)	
<u> </u>							
12.45		7	12.0' 12.0'	7	22" RECOVERY Saturated medium dense brown fine to coarse A	A-2-4(0)	
12.45			_	7 15 13 18	sand w/ some silt, trace of gravel.	1 <i>2</i> 7(0)	
<u> </u>	rke: Mud	<u> </u>					

Remarks: Mud Rotary @ 26.0'

F.A. Project: U.S. 301, Maryland State Line to I-95 Contract: 25-113-01

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"		Sample Description	Class./G.I.	Remarks
()	3. 000	8	14.0' /	7		20" RECOVERY	A-2-4(0)	
14.94		Ū	14.0'	7 15 17 25		Saturated dense brown fine to coarse sand w/ some silt, trace of gravel.	A-2-4(0)	
			16.0'			22" RECOVERY		
17.43		9	16.0'	3 9 9 14	1219994 22179777 22179777 22179777 22179777 22179777 22179777 22179777 22179777 22179777 22179777 22179777 22179777 22179777 22179777 22179777 221797777777777	Saturated medium dense brown fine to coarse sand w/ some silt, trace of gravel.	A-2-4(0)	
17.43			10.0		11(33,3)07. 12(33,3)07. 12(33,3)07. 12(33,3)07.			
		10	18.0' 18.0'	10 13 19 20		23" RECOVERY Saturated dense brown fine to coarse sand w/ some silt.	A-2-4(0)	
19.92			20.0'			20" RECOVERY		
22.41						DRAFT		
	N	11	24.0'	8		Saturated medium dense brown fine to coarse	A-3	
24.9			24.0	8 13 13 14		sand, trace of silt and gravel.	A-3	NG
			26.0'			BUS ³ RECOVERY 20	15	
27.39					1993 8 3999 9 1993 8 399 9 2003 9 30 9 1993 8 30 9 1994 8 30 9 100 9 100 9 100 9 100 9 100 9 100 9 100 9 100 9 100			
29.88		12	29.0'	9 14 18 20	<u></u>	Saturated dense brown fine to coarse sand w/ some silt, trace of gravel.	A-2-4(0)	
			31.0'			20" RECOVERY		
32.37								
34.86		13	34.0'	7 14 17 18		Saturated dense brown fine to coarse sand w/ some silt.	A-2-4(0)	
37.35			36.0'			20" RECOVERY		

F.A. Project: U.S. 301, Maryland State Line to I-95 Contract: 25-113-01

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"		Sample Description	Class./G.I.	Remarks
39.84		14	39.0'	25	1993,1997, 1993,1997 1993,1997 1993,1997 1993,1997 1993,1997 1993,1997 1993,1997 1993,1997 1993,1997 1993,1997 1993,1997 1993,1997 1993,1997 1993,1997 1993,1997 1993,1997 1994,1997 1997 1997 1997 1997 1997 1997 1997	Saturated dense brown fine sand w/ some coarse sand, trace of silt and gravel.	A-3	
			41.0'			20" RECOVERY		
			41.0					
42.33					2011120 2011120 2011120 2011120 2011120 2011120 2011120 2011120			
					1993.999 2097.9909 2097.9969 2097.9969 2097.9969 2097.9969			
		15	44.0'	10 15 18 20	1999.1997. 1997 - Jane - Constantino (m. 1997) 1997 - Jane - Constantino (m. 1997) 1997 - Constantino (Saturated dense brown fine sand w/ some	A-2-4(0)	
44.82				18 20		coarse sand and silt.		
			46.0'			19" RECOVERY		
47.31		_						
								IG
49.8		16	49.0'	9 14 16 18		Saturated medium dense brown fine sand w/ some coarse sand, trace of silt.	A-3	
			51.0'	\U			I J	
		PH-1	51.0'					pH Testing.
52.29				14				
			53.0'		1993,1997, 1993,1997, 1993,1994,1994,1994,1994,1994,1994,1994,	19" RECOVERY		
		17	54.0'	6 10 14 18	1993.1997. 1993.1997 1993.1997 1993.1997 1993.1997	Saturated medium dense green fine sand w/	A-2-4(0)	
54.78				14 18		some silt and coarse sand.		
			56.0'			22" RECOVERY		
57.27		U-1	56.5'			Saturated green brown fine sand w/ some silt.	A-2-4(0)	Press Sample - Shelby Tube
01.21								
			58.5'			22" RECOVERY		
59.76		18	59.0'	6 8 10 11		Saturated medium dense dark green fine sand w/ some silt, trace of coarse sand and organic	A-2-4(0)	
						matter.		
								1

F.A. Project: U.S. 301, Maryland State Line to I-95 Contract: 25-113-01

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
(11.)	09.000		<u>61.0'</u>		18" RECOVERY		
62.25		19	64.0'		No Sample		
64.74			66.0'		0" RECOVERY		
67.23			00.0				
69.72		20	69.0'	8 12 19 20	Saturated dense dark green fine sand w/ some silt and coarse sand, trace of organic matter and gravel.	A-2-4(0)	
72.21			71.0'	T	OR BDI		IG
74.7		21	74.0'	11 20 30 44	Saturated dense dark green silty fine sand w/ some coarse sand and organic matter, trace of	15 A-2-4(0)	
			76.0'	44	gravel. 20" RECOVERY		
77.19							
79.68		22	79.0' 81.0'	21 30 49 50	Saturated very dense dark green silty fine to coarse sand w/ some organic matter, trace of gravel. 22" RECOVERY	A-2-4(0)	
82.17				15			
		23	84.0'	15 42	Saturated very dense dark green silty fine to	A-2-4(0)	

F.A. Project: U.S. 301, Maryland State Line to I-95 Contract: 25-113-01

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
84.66			2 0 0 111	50/5"	coarse sand w/ some organic matter, trace of		
			85.5'		gravel. 17" RECOVERY		
					Boring terminated at 85.4 feet.		
87.15					C		
89.64							
92.13							
92.13					DRAFT		
94.62				T	FOR BIDI		
							U U
97.11			Λ		GUST 20	15	
97.11					1003 I 20	IJ	
99.6							
102.09							
102.09							
104.58							
107.07							

KEY TO SYMBOLS

Symbol Description

Strata symbols



Silty low plasticity clay



Silty sand



Poorly graded sand with silt

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

- 1. Exploratory borings were drilled on 2/14/2008 using a 3 1/4-inch diameter continuous flight power auger. Rig is a Truck CME 55.
- Groundwater levels recorded at time of drilling and rechecked the following day.
- 3. Surveyed boring locations and elevations were provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recommendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All SPT blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to I-95 Contract: 25-113-01

Boring Location: Sta. 257+31.58, 111' Rt. C.L.

Boring Surface Elev.: 55.62		Re	ference:	
Wt. of Casing Hammer: Wt. of Sample Hammer: 140 Type of: D-Sampler: Split Barrel S-Sampler: U-Sampler: Ball Sampler Core Bit:	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 IN 2 IN 3 IN	۱. ۱. ۱.
Casing Size: 3 1/4 Hollow Stem Auger:	Inches	From Depth of: From Depth of:	0.0' To: To:	80.3
Water Level Readings Time Date Time 2/14/08 2/15/08 2/18/08 2/18/08	Depth of Hole 80.3 3.8' 3.8'	Depth of Casing	Depth of Water 16.4 Dry Dry	Elev. of Water 39.2 55.6
Pay Quantities: 2 1/2 in. Dia. Dry Sample Boring No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Bo		Ft.; 3 ; No. of: Ft.; Core Drillin	Dia. U-Sample Boring U-Samples: ng in Rock:	

Boring Contractor: Walton Corporation Driller: John Foley Helpers: D. Zmijewski

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"		Sample Description	Class./G.I.	Remarks
		1	1.0' 2.0'	2 3		Moist soft brown fine sandy silt w/ some coarse sand, trace of clay and gravel. 12" RECOVERY	A-4(0)	8" Cultivated Soils
2.49		2	2.0'	3 5 5 5		Moist loose brown and orange silty fine sand w/ some coarse sand.	A-2-4(0)	_
			4.0'	Γ		I C RECOVERY		JG
4.98	_	3	4.0'	2 3 7 8		Moist loose orange coarse to fine sand and gravel w/ some silt.	A-1-b	
			6.0'			15" RECOVERY	15	
		4	6.0'	6 8 8 8	121712121 66112106 1212210 1212210 1212210 1212210 1212210	Moist medium dense orange coarse to fine sand and gravel w/ some silt.	A-1-b	
7.47			8.0'		4.6494996 1.699.197. 1.699.199.66 1.699.199.66 1.699.199.67 1.699.199.67 1.699.199.67	20" RECOVERY		
		5	8.0' 9.0'	4 3		Moist loose brown coarse to fine sand w/ some gravel and silt.	A-1-b	
9.96		5A	9.0' 10.0'	3 3		Wet loose light brown silty fine sand, trace of coarse sand and gravel.	A-2-4(0)	
		U-1	10.0'		12 19 10 10 10 12 10 10 10 12 10 10 12 10 10 12 10 10 12 10 10 10 10 10 10 10 10 10 10	8 [°] RECOVERY Wet orange brown gravelly fine to coarse sand, trace of silt.	A-1-b	
12.45		7	12.0' 12.0'	7 9 13 13	uze 1936 (1974 (1976 (22" RECOVERY Wet medium dense brown fine to coarse sand w/ some silt, trace of gravel.	A-2-4(0)	Press Sample - Shelby Tube.
		8	14.0' 14.0'	6 10		17" RECOVERY Wet medium dense brown fine to coarse sand	A-2-4(0)	
Rema				12 13		w/ some silt.		

Remarks:

F.A. Project: U.S. 301, Maryland State Line to I-95 Contract: 25-113-01

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description Cla	ass./G.I.	Remarks
		9	16.0' 16.0'	12	18" RECOVERY Saturated dense brown silty fine to coarse A-	-2-4(0)	
				12 20 25 29	sand, trace of gravel.		
17.43			18.0'		22" RECOVERY		
		10	18.0'	10 12 14 16	Saturated medium dense brown fine to coarse A-	-2-4(0)	
				16	sand w/ some silt, trace of gravel.		
19.92			20.0'		18" RECOVERY		
22.41							
24.9		11	24.0'	5 7 14 18	Saturated medium dense brown fine to coarse A- sand w/ some silt, trace of gravel.	-2-4(0)	
					$(\mathbf{R} \mathbf{R} \mathbf{R} \mathbf{R} \mathbf{R})$		J(j
			26.0'		21" RECOVERY		
27.39					GUST 201	5	
_							
		12	29.0'	4 8		-2-4(0)	
29.88				12 12	sand w/ some silt, trace of gravel.		
			31.0'		18" RECOVERY		
32.37					C (2) 3 (C) (2) 3 (C) (2) 3 (C) (2) 3 (C) (2) 3 (C) (2) (2) (C) (2) (2) (C) (2) (2) (C) (2) (2) (C) (2) (2) (C) (2) (C)		
					Cara Sanch (2) 3, 1767, mm / Jack (2) 3 9560 (2) 19 19 10		
				40			
34.86		13	34.0'	12 17 19 19	Saturated dense brown fine to coarse sand w/ A- some silt, trace of gravel.	-2-4(0)	
			36.0'		18" RECOVERY		
27.05							
37.35							

F.A. Project: U.S. 301, Maryland State Line to I-95 Contract: 25-113-01

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
(11.)	1 1091000		Dopui				
39.84		14	39.0' 41.0'	5 10 14 14	Saturated medium dense brown fine to coarse sand w/ some silt, trace of gravel. 16" RECOVERY	A-2-4(0)	
42.33		15	44.0'	7 10 12 11	Saturated medium dense brown fine sand w/	A-2-4(0)	
44.82			46.0'	12 11	some coarse sand and silt, trace of gravel.		
49.8		16	49.0 ⁷ 51.0 ¹	10 11 12 10	Saturated medium dense brown fine sand w/ some coarse sand, trace of silt.) A-3 15	IG
52.29		17	54.0'	10	Saturated medium dense brown fine sand w/	A-2-4(0)	
54.78			56.0'	10 10 13 14	some coarse sand and silt, trace of gravel.	112-4(0)	
57.27			50 6		Statistic Statistic <td< td=""><td></td><td></td></td<>		
59.76		18	59.0' 61.0'	4 5 7 9	Saturated medium dense brown and green fine sand w/ some silt, trace of coarse sand. 18" RECOVERY	A-2-4(0)	

F.A. Project: U.S. 301, Maryland State Line to I-95 Contract: 25-113-01

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description Class./G.I. Rema	rks
62.25	1.091000		Dopui			
0474		19	64.0'	8 9 9 10	Saturated medium dense brown and green A-2-4(0)	
64.74				10	fine sand w/ some silt, trace of coarse sand.	
			66.0'		17" RECOVERY	
67.23						
					021112121 2013 Jane 1 1823 Jane 1 1823 Jane 1	
					1997 3 9960 2019 3 8960 1923 3 8960 1923 3 8960	
		20	69.0'	4 9	Saturated medium dense green fine sand w/ A-2-4(0)	
69.72				14 19	some silt, trace of coarse sand and organic matter.	
			71.0'		21" RECOVERY	
		_				
72.21				T	FOR BIDDING	
		21	74.0'	6 13 23 30	Saturated dense green fine sand w/ some silt A-2-4(0)	
74.7				23 30	and coarse sand, trace of organic matter and gravel.	
			76.0'		20" RECOVERY	
77.19						
70.00		22	79.0'	12 35 50/4"	Saturated very dense dark green fine to coarse A-2-4(0)	
79.68				50/4"	sand w/ some silt, trace of organic matter, gravel, and clay. 16" RECOVERY	
			80.5'		16" RECOVERY	
					Boring terminated at 80.3 feet.	
82.17						
84.66						

KEY TO SYMBOLS

Symbol Description

Strata symbols



Silty sand

Poorly graded sand with silt

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

- 1. Exploratory borings were drilled on 2/12/2008 using a 3 1/4-inch diameter continuous flight power auger. Rig is a ATV CME 45C.
- Groundwater levels recorded at time of drilling and rechecked the following day.
- 3. Surveyed boring locations and elevations were provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recommendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All SPT blow counts are uncorrected.

Boring No.: BR2-9-04

Boring Location: Sta. 199+20, 30	.00' Lt. C.L.					
Boring Surface Elev.: + 58.83		Ref	erence:			
Wt. of Casing Hammer: Wt. of Sample Hammer: 140 Type of: D-Sampler: Split-Barro S-Sampler: U-Sampler: Core Bit:	Lbs. Lbs. O.D. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2		IN. IN. IN. IN. IN. IN.	
Casing Size: 3 1/4" Hollow Stem Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:	46.0	•
Water Level Readings DateTime12/17/20089:00 a.m.	Depth of Hole 24.0'	Depth of Casing 24.0'		of Water 9.8'	Elev. of Water	

Pay Quantities:

Contract: 25-113-01

2 1/2 in. Dia. Dry Sample Boring: 1 No. of 2 in. Dia. Shelby Tubes:	00.0	Ft.;	Dia. U-Sample Boring: No. of: U-Samples:	Ft.
2 1/2 in. Dia. Contin. Sample Boring:		Ft.;	Core Drilling in Rock:	Ft.
Devine Contractory W 1/ C /				

Boring Contractor: Walton Corporation Driller: Jason Truver Helpers: T. Kane

F.A. Project: US. 301, Maryland State Line to I-95

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"		Sample Description	Class./G.I.	Remarks
	12/17/08	1	1.0'	5 5		Moist loose brown silty coarse to fine sand.	A-2-4(0)	Cultivated Soil - 8".
			2.0'			11" RECOVERY		
2.5		2	2.0'	7 9 9 11		Moist medium dense orange silty fine to	A-2-4(0)	
				9 11		coarse sand w/trace of gravel.		
			4.0'			14" RECOVERY		IG
		3	4.0'	6 6 8		Moist medium dense orange silty fine sand w/	A-2-4(0)	
5				8 9		some coarse sand, trace of gravel.	_	
			6.0'			13" RECOVERY	15	
		4	6.0'	9		Moist medium dense orange fine to coarse	A-2-4(0)	
				8 9 10		sand w/some silt, trace of gravel.		
7.5								
			8.0'			20" RECOVERY		
		5	8.0'	4 5 5 6	1.1.1.1.1.1	Moist loose orange fine sand and gravel w/	A-3	
				5 6		trace of silt and coarse sand.		
					1.1141. 141414 1.1111			
10			10.0'			18" RECOVERY		
		6	10.0'	5 5 5 6		Moist loose orange fine to coarse sand w/	A-2-4(0)	
				5 6		some silt, trace of gravel.		
			12.0'			19" RECOVERY		
12.5		7	12.0'	7 9 10 11		Wet medium dense brown coarse to fine sand	A-2-4(0)	
				10 11		w/some silt, trace of gravel.		
			14.0'			18" RECOVERY		
		8	14.0'	9 9		Wet medium dense brown coarse to fine sand	A-1-b	
				10 12		w/some silt, trace of gravel.		
	L		Q 1(0					

Remarks: Mud Rotary @ 46.0'

PAGE 2 OF 5

STATE OF DELAWARE DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS

F.A. Project: US. 301, Maryland State Line to I-95 Contract: 25-113-01

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"		Sample Description	Class./G.I.	Remarks
		9	16.0' 16.0'	11 13 16 19		17" RECOVERY Wet medium dense brown coarse to fine sand	A-2-4(0)	
				16 19		w/some silt, trace of gravel.		
17.5			18.0'			18" RECOVERY		
		10	18.0'	9 10 11 13	100144900 100144900 200144900 200149900 200149900 20049900 20049900 20049900 20049900 20049900 20049900 20049900 20049000		A-3	
				13	1993,1997, 1999,4309 1999,4309 1999,430 1999,430 1999,430 1999,440 1990,4400,4400,4400,4400,4400,4400,4400,	sand w/frace of sht and graver.		
20			20.0'		12013-1201 12014-1201 12014-12006 12014-12006	18" RECOVERY		
					10133169 61141366 81141366 8113366 8113366			
					10111110 01111100 01111000 00111000			
22.5					1999 1999 1999 1999 1999 1999 1999 199			
					00173000 0017300 7017300 0017300			
					1993,999 1999,932,99 1999,99 1	URAFI		
		11	24.0'	14 16 20	12033,1007, 40033,1007, 12033,1007, 12033,1007, 12033,1007, 12033,1007,410 12033,1007,410	Saturated dense brown coarse to fine sand w/ trace of silt and gravel.	A-3	
25	N		Ο.	18	i sidi. Fi farfi			
			26.0'		1	18" RECOVERY	JII	IG
					1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.			
27.5			Λ		1813,336 1917,570 1917,570 1917,570 2017,500 2017,500	GUST 20	15	
					1999, 1997, 1999, 1997, 1997, 1999, 1999, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 19 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997			
		- 10			1:(13.4)07. 1:(174)07 1:(174)07			
30		12	29.0'	18	1.0171.00 1.0171.00 1.0171.00 1.0171.00 1.0171.01	trace of silt and gravel	A-3	
30					411)1460 411141 411144 411144 411144 411144			
			31.0'		1417144 141714 14144 14144 14144 14144 14144 14144 14144			
32.5								
					06133360 06133966 27617250			
		13	34.0'	1 7	111311111 111311111 111311111 111311111 111311111 1113111111	Saturated medium dense brown fine to coarse	A-3	
35				1 7 14 21		sand w/trace of silt.		
			26.0		1999,1997, 1999,999 1999,999 1999,999 1999,999 1999,999 1999,999 1999,999 1999,999 1999,999 1999,990 1999,900 1999,900 1999,900 1999,900 1999,900 1999,900 1999,900 1999,900 1999,900 1999,900 1999,900 1999,900 1990,900 1000,900 1900,9000 1900,9000 1900,9000 19000,9000 1900,9000 1900,90000000000	15" DECOVEDV		
			36.0'		11111111111 11111111111111111111111111	15" RECOVERY		
07.5					1993.1997. 1997 (4999) 1997 (4			
37.5								
					n (1 3 9 k 0 4 (1 4 1 4 k 0 6 (1 1 1 1 4 k 0 6 (1 1 1 1 1 k 0)			

F.A. Project: US. 301, Maryland State Line to I-95 Contract: 25-113-01

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"		Sample Description	Class./G.I.	Remarks
					128 19 900 C 328 19 900 C 6 6 1 9 900 C 19 9 19 90 C 19 9 19 90 C 19 9 19 10 C 19 19 19 10 C 19 19 19 19 10 C 19 19 19 19 10 C			
		14	39.0'	5 11 13 17	1:010.1:07. 1:0174.07 1:0199:00	Saturated medium dense brown fine to coarse sand w/some silt.	A-2-4(0)	
40				17		sand w/some sitt.		
			44.01		1999 (999 (999 (9 1999 (999 (9 1999 (999 (9 1999 (999 (9)	1/" RECOVERY		
			41.0'		436444167 108919307 1089493067 1089493067	16" RECOVERY		
					n (1 4 3 6 F 1 4 1 4 1 6 F 1 4 1 1 5 6 F			
42.5					1989 - 1999 1989 - 1999 1989 - 1999 1989 - 1999 - 1999			
					1993 1998 (1993 1996 (1993 1996 (
					0.6393.66 J26173.61 66333.66 16733.66			
		15	44.0'	1		Saturated medium dense brown fine to coarse	A-3	
		10	-+.0	7 12 18	100 10 10 1000 100 10 10 100 100	sand w/trace of silt.	A-3	
45					2011.1.27. 2011.1.27. 2011.1.27.			
			46.0'			12" RECOVERY		
47.5					100199300 100199360 970179307 40939300			
					etti ter.			
	N				1993999968 209399968 209399968 209399968 209399968 209399968 209399968			
		16	49.0'		12 13 12 1 12 13 1 12 1 12 13 1 12 1 12 13 1 12 1 12 13 13 12 1 12 13 13 13 12 1 12 13 13 13 12 1 12 13 13 13 13 13 13 13 13 13 13 13 13 13	Saturated medium dense brown fine to coarse	A-3	Mud Rotary @ 46.0'.
50	•			10 12 13 15		sand w/trace of silt.		
			_		1969 (969 F 1969 (969 F			
			51.0'			21" RECOVERY	15	
							IJ	
					9964999969 109919900 196993966 196933966 196933966			
52.5					1963939969 920179202 68913926 19933997			
					1999 - 1999 -			
					1063)))(0) 10030,1007, 100333,1007, 100333,1007,			
		17	54.0'	11 13 16 19	1.(11.1.0). 1.(11.1.0). 1.(11.1.0).	Saturated medium dense brown fine sand w/	A-2-4(0)	
55				19	66174267 18171386 18171367 1817367 1817367 1817367 181737	some coarse sand and silt, trace of gravel.		
					1997) 1997) 1997)			
			56.0'		1444147 1444147 144147 1447	22" RECOVERY		
					1.6199466 1.6199566 1.619966			
57.5								
57.5					1217120 2011220 1211220			
					06133966 976133966 976133966			
	40/10/22	4.6	50 C	7	11131.1107. 100134107 101134107			
	12/18/08	18	59.0'	7 7 9 11		Saturated medium dense brown fine sand w/ some coarse sand and silt.	A-2-4(0)	
60				11		some course suite and site.		
			61.0'			17" DECOVEDY		
			01.0			17" RECOVERY		

F.A. Project: US. 301, Maryland State Line to I-95 Contract: 25-113-01

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"		Sample Description	Class./G.I.	Remarks
62.5	1 1091000							
		19	64.0'	5 6 9 9	1993, 1997. 1993 (4209 1993 (4209 1993 (4209) 1993 (4209)	Saturated medium dense brown fine sand w/ trace of silt and coarse sand.	A-3	
65				5	66134966 1993-966 1993-966 1993-966			
			66.0'		1,61,93,60 1,71,93,60 1,71,93,60 1,71,93,60 1,71,93,60 1,71,93,70 1,71,93,70 1,71,90,70 1,70,70,	19" RECOVERY		
					0017740 1017100 1017100			
67.5					1993,199 1993,200 1993,200 1993,200 1993,200 1993,200 1993,200			
					1993.1997. 1993.1997. 1993.1997.1997.1997.1997.1997.1997.1997.			
					2011))) 2012)) 2017)) 2017)) 2017)) 2017)) 2017)) 2017)) 2017) 2017) 2017) 2017) 2017) 2017) 2017) 2017)			
		20	69.0'	7 7		Saturated medium dense brown fine sand w/ some silt, trace of coarse sand.	A-2-4(0)	
70		20A	70.0' 70.0'	9 12		12" RECOVERY Saturated medium dense green fine sand w/	A-2-4(0)	Glauconite
			71.0'			some silt, trace of coarse sand. 12" RECOVERY		
72.5								
							ノロ	U
		21	74.0'	7 8 11		Saturated medium dense green fine sand w/ some silt and coarse sand.	A-2-4(0)	Glauconite
75				12			I O	
			76.0'			20" RECOVERY		
77.5								
		22	79.0'	13 14 17		Saturated dense green silty fine to coarse sand w/some clay, trace of organic matter and	A-2-4(0)	Glauconite
80				26		gravel.		
			81.0'			24" RECOVERY		
82.5								
		23	84.0'	14 22 30 50/4"		Saturated very dense green fine to coarse sand	A-2-4(0)	Glauconite
85				50/4"		w/some silt.		

F.A. Project: US. 301, Maryland State Line to I-95 Contract: 25-113-01

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description Class./G.I. Remarks
()			86.0'		20" RECOVERY
87.5					
		24	89.0'	14 29 50/5"	Saturated very dense green fine to coarse sand A-2-4(0) Glauconite w/some silt.
90			90.5'		17" RECOVERY
92.5					
		25	94.0'	21 50/2"	Saturated very dense green silty fine sand w/ A-2-4(0) Glauconite some coarse sand and gravel. 8" RECOVERY
95			95.0'		
					FOR BIDDING
		N			
97.5					
		26	98,0'	19	Saturated very dense green silty fine sand w/ A-2-4(0)
				19 28 44 50/2"	some coarse sand, trace of gravel.
100			100.0'		18" RECOVERY End of Boring
102.5					
105					
107.5					

KEY TO SYMBOLS

Symbol Description

Strata symbols



Silty sand

Poorly graded sand with silt

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

- Exploratory borings were drilled on 12-17-2008 using a 3 1/4-inch diameter hollow stem auger. Rig is a ATV CME 55.
- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

Boring No.: BR2-9-05

Boring Location:	Sta. 196+70, 30.00'	Rt. C.L.					
Boring Surface E	ev.: + 59.33		Ref	erence:			
Wt. of Casing Hamme Wt. of Sample Hamme Type of: D-Sampler S-Sampler U-Sampler Core Bit:	er: 140 r: Split-Barrel	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow S	3 1/4" tem Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:		39.0'
Water Level Readings Date 12/18/2008	Time 11:00 a.m.	Depth of Hole 26.0'	Depth of Casing 24.0'		of Water 2.0'	Elev. of	Water

Pay Quantities:

Contract: 25-113-01

2 1/2 in. Dia. Dry Sample Boring: 100	.0 Ft.;	Dia. U-Sample Boring:	Ft.
No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring:	; Ft.;	No. of: U-Samples: Core Drilling in Rock:	Ft.
Bering Contractory Walter Comparties			

Boring Contractor: Walton Corporation Driller: Jason Truver Helpers: T. Kane

F.A. Project: US. 301, Maryland State Line to I-95

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"		Sample Description	Class./G.I.	Remarks
	12/18/08	1	1.0' 2.0'	2 2		Moist very loose brown clayey fine to coarse sand.	A-2-4(0)	Cultivated Soil - 9".
		2	2.0	1		11" RECOVERY	A-2-4(0)	
2.5				1 3 4 5		Moist loose brown fine to coarse sand w/some silt, trace of gravel.	11 2 1(0)	
			4.0'	Г				JG
		3	4.0'	5 5 6		Moist medium dense orange fine to coarse	A-2-4(0)	
5				6 9		sand w/some silt.	_	
			6.0'			17" RECOVERY	15	
		4	6.0'	8 10 9 9		Moist medium dense orange fine to coarse	A-2-4(0)	
				9 9		sand w/some silt, trace of gravel.		
7.5								
			8.0'			19" RECOVERY		
		5	8.0'	4		Moist medium dense orange coarse to fine	A-1-b	
				4 8 7 10		sand w/some silt and gravel.		
			40.01					
10		6	10.0' 10.0'	7	1.6123.60	17" RECOVERY Moist medium dense orange coarse sand w/	A-1-b	
		_		7 11 13 13	14444) 1444 1444 1444	some fine sand and gravel, trace of silt.	11 1-0	
				13	1.6177460 1.617756 1.61756			
					1999 1999 1 1999 1999 1999 1999 1999 19			
		7	12.0' 12.0'	11	hissiir	20" RECOVERY		
12.5		/	12.0	11 11 8 10		Moist medium dense orange coarse to fine sand and gravel w/some silt.	A-1-b	
				10		sand and graver w/some sin.		
			14.0'			15" RECOVERY		
		8	14.0'	11 14 15 14		Wet medium dense brown fine to coarse sand	A-2-4(0)	
				15		w/some silt, trace of gravel.		

Remarks: Mud Rotary @ 39.0'

F.A. Project: US. 301, Maryland State Line to I-95 Contract: 25-113-01

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"		Sample Description	Class./G.I.	Remarks
		9	16.0' 16.0'	9 14 21 18		16" RECOVERY Wet dense brown fine to coarse sand w/some	A-2-4(0)	
				21 18		silt, trace of gravel.		
17.5			18.0'			22" RECOVERY		
		10	18.0'	11 15 16 17		Wet dense brown fine to coarse sand w/some	A-2-4(0)	
				17		silt, trace of gravel.		
20			20.0'			21" RECOVERY		
22.5								
		11	24.0'	11 14 17		Saturated dense brown fine to coarse sand w/	A-2-4(0)	
25	N			17 20		some silt, trace of gravel.		
			00.01		6 11966 6 73946 7 73946			IG
			26.0'			1		
			Λ		(444))))) (444)))) (441))))) (441))) (441))) (441))) (441))(441)) (441))) (441))			
27.5						GUST 20	15	
					10173100 1017300 1017300 10133100 10133100 10133100			
		12	29.0'	14 16	111111111 111111111 111111111111	Saturated dense brown fine to coarse sand w/	A-3	
30				21 24	126133200 126173261 96133266 126331266	trace of silt and gravel.		
			31.0'		19979999 199799 199799 199779 19970 19970			
			01.0			20 1000 1011		
20.5					(****);(; (****);(; (*****);(; (*****);(; (*****);(;			
32.5) (() () () () () () () () () () () () (
					1969 J 996 C John T J 996 C 495 J 996 C 195 J 996 C 195 J 997 C 195 J 997 C 195 J 997 C			
		13	34.0'	1 7 10 14			A-3	
35				10 14	1994 1994 1995 1997 1997 1997 1997 1997 1997 1997	sand w/trace of silt and gravel.		
			36.0'					
			-		1001 / 4200 1001 / 916 / 1001 / 916 / 1001 / 916 / 1001 / 916 / 1001 / 916 /			
37.5					1201232000 1201773201 1701773201			
51.5					122343267 122343267 122343267 122343267 122343267			
					11139160 1114161 1119151 1119151			

F.A. Project: US. 301, Maryland State Line to I-95 Contract: 25-113-01

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"		Sample Description	Class./G.I.	Remarks
40	-	14	39.0'	1 6 10 15	1213 3121	Saturated medium dense brown fine to coarse sand w/some silt, trace of gravel.	A-2-4(0)	Mud Rotary @ 39.0'.
			41.0'			12" RECOVERY		
42.5								
45	12/23/08	15	44.0'	7 9 12 12		Saturated medium dense brown fine sand w/ some coarse sand and silt, trace of gravel.	A-2-4(0)	
47.5			46.0'			20" RECOVERY		
		16	49.0'	9 10 10 12		Saturated medium dense brown fine to coarse sand w/some silt.	A-2-4(0)	IG
52.5			51.0'			22" RECOVERY	15	
55		17	54.0'	10 11 12 13		Saturated medium dense brown fine sand w/ some coarse sand and silt, trace of gravel.	A-2-4(0)	
57.5			<u> </u>			19" RECOVERY		
60		18	59.0'	7 7 8 8		Saturated medium dense greenish brown fine sand w/some silt and coarse sand. 21" RECOVERY	A-2-4(0)	

F.A. Project: US. 301, Maryland State Line to I-95 Contract: 25-113-01

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description Class./G.I.	Remarks
62.5 62.5 65 65 67.5		19	64.0' 66.0'	7 7 7 8	Saturated medium dense greenish brown fine sand w/some silt, trace of coarse sand. 20" RECOVERY	
		20	69.0' 71.0'	7 9 9 8	Saturated medium dense greenish brown fine sand w/some silt, trace of coarse sand. CORPORED 22" RECOVERY	
72.5			0.		FOR BIDDIN	IG
75		21	74.0	6 12 17 18	Saturated medium dense green fine sand w/ some silt and coarse sand, trace of organic matter. 23" RECOVERY	Glauconite
80		22	79.0' 81.0'	12 18 21 28	Saturated dense green fine sand w/some coarse sand and silt, trace of organic matter and gravel. A-2-4(0) 24" RECOVERY	Glauconite
85		23	84.0'	18 34 48 50/3"	Saturated very dense green fine to coarse sand A-2-4(0) w/some silt and organic matter.	Glauconite

F.A. Project: US. 301, Maryland State Line to I-95 Contract: 25-113-01

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"		Sample Desc	cription		Class./G.I.	Remarks
			86.0'			20" REC	OVERY			
87.5										
		24	89.0'	15 25 39 50/5"		rated very dense gome silt and organi		coarse sand	A-2-4(0)	Glauconite
90				50/5"	w/st	She sht and organi	ic matter.			
			91.0'			23" REC	OVERY			
92.5										
32.0										
							1000			
		25	94.0'	17 50/4"	Satu	rated hard green o	rganic fine	sandy clay	A-6(1)	Glauconite
95			95.0'	50/7	w/so	ome coarse sand, tr 10" REC	race of grave	el.		
						DR	\mathbf{H}			
97.5			_							
		26	98.0'	17 33 45 50/2"		rated very dense g			A-2-6(0)	Glauconite
				45 50/2"	w/sc	ome coarse sand, tr gravel.				
400			100.0				OVERY			
100			100.0'		End	20" REC	UVERY			
102.5										
105										
107.5										

KEY TO SYMBOLS

Symbol Description

Strata symbols



Clayey sand



Silty sand

Poorly graded sand with silt

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

- 1. Exploratory borings were drilled on 12-18-2008 using a 3 1/4-inch diameter hollow stem auger. Rig is a ATV CME 55.
- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: US. 301, Maryland State Line to I-95 Contract: 25-113-01

Boring Location: Sta. 256+76, C.L.

Ft. Ft.

Boring Location:	Sta. 256+76, C.L.						
Boring Surface Ele	V.: + 56.45		Ref	erence:			
Wt. of Casing Hammer: Wt. of Sample Hammer: Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:		Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow Ste	3 1/4" m Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:		31.0'
Water Level Readings Date 12/30/2008	Time 9:00 a.m.	Depth of Hole	Depth of Casing 18.0'		of Water 5.4'	Elev. of Wa	ter

Pay Quantities:

2 1/2 in. Dia. Dry Sample Boring:	94.5'	Ft.;	Dia. U-Sample Boring:
No. of 2 in. Dia. Shelby Tubes:		;	No. of: U-Samples:
2 1/2 in. Dia. Contin. Sample Boring:		Ft.;	Core Drilling in Rock:

Boring Contractor: Walton Corporation Driller: Gary Truver Helpers: T. Kane

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"		Sample Description	Class./G.I.	Remarks
	12/30/08	1	1.0' 2.0'	2 2		Moist soft brown clayey fine sandy silt w/ some coarse sand, trace of gravel. 12" RECOVERY	A-4(0)	Cultivated Soil - 10".
2.5	_	2	2.0'	3 6 7 8		Moist medium dense orange silty fine to coarse sand w/trace of gravel.	A-2-4(0)	
			4.0'	Γ		17" RECOVERY		IG
5	-	3	4.0'	3 7 7 5		Moist medium dense orange silty fine to coarse sand w/trace of gravel.	A-2-4(0)	
			6.0'			16" RECOVERY	15	
		4	6.0'	5 4 4 5		Moist loose orange fine to coarse sand w/ some silt, trace of gravel.	A-2-4(0)	
7.5			8.0'			18" RECOVERY		
		5	8.0'	3 4 4 5	10000000000000000000000000000000000000	Moist loose orange fine to coarse sand w/ some gravel, trace of silt.	A-3	
10			10.0'		1:11/1:1:U 1:[1/1][1] 1:[1/1][1]	17" RECOVERY		
		6	10.0'	7 6 8 11		Wet medium dense brown silty fine to coarse sand w/trace of gravel.	A-2-4(0)	
12.5		7	12.0' 12.0'	3 7 8 8		15" RECOVERY Wet medium dense brown fine to coarse sand w/some silt, trace of gravel.	A-2-4(0)	
			14.0'	5		13" RECOVERY		
	kor Mud	8	14.0'	5 11 15 20		Wet medium dense brown fine to coarse sand w/some silt.	A-2-4(0)	

Remarks: Mud Rotary @ 31.0'

F.A. Project: US. 301, Maryland State Line to I-95 Contract: 25-113-01

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"		Sample Description	Class./G.I.	Remarks
		9	16.0' 16.0'	17 20		18" RECOVERY Saturated dense brownish red fine to coarse	A-2-4(0)	
				17 20 24 24		sand w/some silt.		
17.5								
		10	18.0' 18.0'	11 15		20" RECOVERY Saturated dense brownish red fine to coarse	A-2-4(0)	
				11 15 21 21	1.119.11 1.119.119			
					1261 (1261) - (1261) - (1262) - (1262) - (1262) - (1262) - (1262) - (1262)			
20			20.0'		1.6133.00 4.6133.44 4.6133.60 4.6134.60	22" RECOVERY		
					1. 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			
22.5					1961 1960) 2001 1960 1969 1960 1969 1960			
					196393366 198373961 66433966 19833966	NDAET		
					h:c::::::::: ::::::::::::::::::::::::::			
		11	24.0'	6 15 20 21		Saturated dense brownish red fine to coarse	A-2-4(0)	
25	N		 .	21		sand w/some silt.		
			26.0'			19' RECOVERY	יווע	IG
	-							
07.5			Λ			DI ICT OO	1 5	
27.5						GUST 20		
		12	29.0'	6 15		Saturated dense brownish red fine to coarse	A-2-4(0)	
30				30 37		sand w/some silt.		
			31.0'			16" RECOVERY		
32.5								
		13	34.0'	8		Saturated modium James Law Constants	A 2	Mud Datama @ 21.0
35			04.0	8 11 11 12	120133220 1201332269 220173261 200173261	Saturated medium dense brown fine to coarse sand w/trace of silt.	A-3	Mud Rotary @ 31.0'.
30					1999,199 1999,199 1999,1996 1999,1996 1999,1996			
			36.0'		4 # # 1 1 1 1 1 0 6 11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	18" RECOVERY		
37.5								

F.A. Project: US. 301, Maryland State Line to I-95 Contract: 25-113-01

Depth	Daily	No.	Sample	Blows/6"	Sample Description	Class./G.I.	Remarks
(ft.)	Progress	-	Depth		1612 2012 1		
40		14	39.0'	4 7 8 8	Saturated medium dense brown fine sand some coarse sand, trace of silt and grave		
40.5			41.0'		19" RECOVERY		
42.5		15	44.0'	5	Saturated medium dense brown fine sand	d w/ A-3	
45			44.0	5 7 8 9	some coarse sand, trace of silt.	uw/ A-3	
47.5					DRAFT		
50		16	49.0'	5 7 13 15	Saturated medium dense brown fine sand some coarse sand, trace of silt.	d w/ A-3	IG
52.5			51.0'		BU ¹⁹ RECOVERY 2	015	
		17	54.0'	6 8 11 13	Saturated medium dense brown fine sand some coarse sand, trace of silt.	d w/ A-3	
55			56.0'	11 13	some coarse sand, trace of silt.		
57.5							
60		18	59.0'	5 6 8 8	Saturated medium dense brownish green sand w/some silt and coarse sand. 17" RECOVERY	fine A-2-4(0)	
			01.0				

F.A. Project: US. 301, Maryland State Line to I-95 Contract: 25-113-01

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description Class./G	I. Remarks
62.5 65 65 67.5		19	64.0' 66.0'	5 5 7 7	Saturated medium dense brownish green fine sand w/some silt, trace of coarse sand. 21" RECOVERY)
70	12/31/08	20	69.0' 71.0'	6 7 9 9	Saturated medium dense green fine sand w/ some silt, trace of coarse sand and organic matter. 20" RECOVERY) Glauconite
72.5			0		FOR BIDDI	
75		21	74.0	8 12 19 23	Saturated dense green fine sand w/some A-2-4(C coarse sand and silt, trace of gravel and organic matter. 21" RECOVERY	Glauconite
<u>80</u> 80 82.5		22	79.0'	10 33 50/3"	Saturated very dense green fine to coarse sand w/some silt, trace of organic matter and gravel. 14" RECOVERY) Glauconite
85		23	84.0'	14 14 22 24	Saturated dense green silty fine to coarse sand w/some organic matter, trace of gravel.) Glauconite

F.A. Project: US. 301, Maryland State Line to I-95 Contract: 25-113-01

Depth	Daily	No.	Sample	Blows/6"	Sample Description Cla	ass./G.I.	Remarks
(ft.)	Progress		Depth 86.0'		24" RECOVERY		
87.5							
		l					
		l					
		24	89.0'	15	Coturned James C.	2.4(0)	Clauserit
		24	09.0	15 20 24 32	Saturated dense green fine to coarse sand w/ A- some silt and organic matter, trace of gravel	-2-4(0)	Glauconite
90		l		32			
		l	91.0'		23" RECOVERY		
			01.0				
		l					
92.5		l					
		l					
		l					
		05	04.01				Spoon shoe black days
		25	94.0' 94.5'		No Sample Recovery - Lost spoon shoe in hole.		Spoon shoe blocked rotary bit from advancing.
95		l			0" RECOVERY		
				┝┓┓╸╽	End of Boring	. 🔳 👞 i	
					FOR BIDD		
		N V					
97.5		l					
51.5		l			GUST 201		
		l			1(-1) 5 1 201	5	
		l					
		l					
100		l					
		l					
		l					
		l					
102.5		l					
102.3		l					
		l					
105		l					
		l					
		l					
		l					
		l					
107.5		l					
		l					
		l					

KEY TO SYMBOLS

Symbol Description

Strata symbols



Poorly graded clayey silty sand



Silty sand



Poorly graded sand with silt

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

- 1. Exploratory borings were drilled on 12-30-2008 using a 3 1/4-inch diameter hollow stem auger. Rig is a ATV CME 55.
- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

Boring No.: BR2-9-07

Boring Location:	Sta. 256+35, 90.00' 1	Rt. C.L.					
Boring Surface El	ev.: + 55.02		Reference:				
Wt. of Casing Hammer Wt. of Sample Hamme Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:	r: 140 Split-Barrel	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2			
Casing Size: Hollow Ste	3 1/4" em Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:		26.0'
Water Level Readings Date 12/23/2008	Time 9:00 a.m.	Depth of Hole 18.0'	Depth of Casing 16.0'		of Water 3.0'	Elev. of Wa	ater

Pay Quantities:

Contract: 25-113-01

2 1/2 in. Dia. Dry Sample Boring: 101.0) Ft.;	Dia. U-Sample Boring:	Ft.
No. of 2 in. Dia. Shelby Tubes:	;	No. of: U-Samples:	-
2 1/2 in. Dia. Contin. Sample Boring:	Ft.;	Core Drilling in Rock:	Ft.
Baring Contractory Welter Comparison			

Boring Contractor: Walton Corporation Driller: Bill Holden Helpers: J. Lafferty

F.A. Project: US. 301, Maryland State Line to I-95

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"		Sample Description	Class./G.I.	Remarks
	12/23/08	1	0.5'	2 4 5		Moist stiff brown fine sandy silt w/some clay and coarse sand, trace of gravel.	A-4(0)	
					HH	and coarse sand, frace of graver.		
			2.0'	2	HIHH	18" RECOVERY		
2.5		2	2.0'	2 2 3 3		Moist firm brown clayey fine sandy silt w/	A-4(1)	
				3		some coarse sand, trace of gravel.		
			4.0'			19" RECOVERY		
		3	4.0'	4 8 13		Moist medium dense brown fine to coarse	A-2-4(0)	
5				13		sand w/some silt, trace of gravel.	1 5	
			6.0'		1	21" RECOVERY		
		4	6.0'	4 5 5 6		Moist loose brown fine to coarse sand w/some	A-2-4(0)	
				5 6		silt, trace of gravel.		
7.5								
			8.0'			21" RECOVERY		
		5	8.0'	6 6 10		Moist medium dense brown coarse to fine	A-1-b	
				10 10		sand w/some silt and gravel.		
10			10.0'			20" RECOVERY		
10		6	10.0'	6 8 10		Wet medium dense brownish green fine to	A-2-4(0)	
				10 14		coarse sand w/some silt, trace of gravel.		
			12.0'			23" RECOVERY		
10.5		7	12.0	5		Wet medium dense brownish green coarse to	A-2-4(0)	
12.5				5 5 10 14		fine sand w/some silt, trace of gravel.	· (~)	
			110					
		8	14.0' 14.0'	5 11		19" RECOVERY No Sample Recovery		Lost shoe on spoon.
		-		11				r

Remarks: Mud Rotary at 26.0'

F.A. Project: US. 301, Maryland State Line to I-95 Contract: 25-113-01

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"		Sample Description	Class./G.I.	Remarks
15				14 15				
		9	16.0' 16.0'	14 14 17 19		0" RECOVERY Saturated dense brownish green fine to coarse	A-2-4(0)	
				17 19		sand w/some silt.		
17.5			18.0'			20" RECOVERY		
		10	18.0'	9 11 15 12		Saturated medium dense brownish green fine	A-2-4(0)	
				12		to coarse sand w/some silt, trace of gravel.		
20			20.0'			21" RECOVERY		
22.5						DRAFT		
		11	24.0'	10		Saturated dense brownish green fine to coarse	A-2-4(0)	
25			Ο.	10 14 17 19		sand w/some silt, trace of gravel.		
			26.0'			21" RECOVERY		
						GUST 20	15	
27.5				NU				
-		12	29.0'	9	1.112.12EF	Saturated medium dense brownish green fine	A-2-4(0)	Mud Rotary @ 26.0'
30				9 12 15 16	1263 (4206) 1263 2 2 2000 1263 7 2 2 6 1 1263 7 2 2 6 1	to coarse sand w/some silt.	11 2 1(0)	Mud Roury C 20.0
			31.0'			22" RECOVERY		
32.5					1771)3760 17614366 276177360 276177360			
					1999 73990 1999 73990 2007 7390 499 7390 6			
		13	34.0'	9	11(33,1)07 12(33,1)07 12(33,1)07 12(33,1)07 12(33,1)07	Saturated medium dense brown fine to coarse	A-3	
35				9 10 10 11	0-61 (4)64 126 12 126 126 17 126 17 126 126 17 126 17 126 17 126 17 126 17 126 17 126 17 126 17 126 17 126 17 126 17 17 17 17 17 17 17 17 17 17 17 17 17	sand w/trace of silt and gravel.	A-3	
					1.6919.66 1.6919.66 1.6919.66 1.6919.96 1.6919.96 1.6919.96 1.6919.96 1.6919.96 1.6919.96 1.6919.96 1.6919.96 1.6919.96 1.6919.060000000000000000000000000000000			
			36.0'			23" RECOVERY		
					1.(141)() (11)() (11)() (11)()			
37.5					1997 1997 1997 1997 1997 1997 1997 1997			

F.A. Project: US. 301, Maryland State Line to I-95 Contract: 25-113-01

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"		Sample Description	Class./G.I.	Remarks
					100 1 J 700 V 130 444 1 F 6 130 1 J 130 C 130 1 J 130 C 130 1 J 130 C 130 1 J 30 C 130 1 J 30 C 140 1 J 30 C			
		14	39.0'	9 10 10 14	1999 1999 1999 1999 1999 1999 1999 199	Saturated medium dense brown fine to coarse sand w/trace of silt and gravel.	A-3	
40				14	1763 (* 1766) 4863 (* 1966) 1763 (* 1966) 1763 (* 1966) 1763 (* 1966) 1763 (* 1966)	sand withdee of sint and graver.		
			41.0'		******** ********* *********	21" RECOVERY		
					nc 141169 Jai 14169 Co 11100 Co 11100 Co 14106 Co 14106			
42.5					1993 1993 1993 1993 1993 1993 1993 1993			
					0217940 4613306 1933306 1933306 1933206 1933206 1933206			
45		15	44.0'	10 11 14 16	1411144 14114 14114 14114 14114 14114 14114 14114 14114 14114	Saturated medium dense brown fine to coarse sand w/trace of gravel.	A-3	
			46.0'		100 1 1 1 100 1 100 1 1 1 100 1 100 1 1 1 1	22" RECOVERY		
47.5					CC212:CC 1919:195 CC122:CC 1619:295 CC122:CC 2519:295 CC122:CC			
	N		Ο.	Т	1993 1996 1993 1966 1993 1996 1993 1996 1993 1996 1993 1996 1996 1996 1996 1996 1996 1996 1996 1996 1996 1996			
		16	49.0'	7	11. 2.194 12. 2.194 13. 2.194 14. 2.194 14. 2.194 14. 2.194 14. 2.194 14. 14. 14. 14. 14. 14. 14. 14. 14. 14. 14. 14. 14. 14. 14. 14. 14.	Saturated medium dense brown fine sand w/	A-3	
50				7 9 10 10	10000000000000000000000000000000000000	some coarse sand, trace of silt.		
			51.0'			20" RECOVERY	15	
52.5					1999 / J. 1999 /			
					66939966 97697966 6639966 6639966 10397966			
		17	54.0'	6 6 9 8	1999 1999 1999 1999 1999 1999 1999 199	Saturated medium dense brownish green fine sand w/some coarse sand, trace of silt.	A-3	
55				8	1.61 (1.64) 1.61 (1.64) 1.61 (1.64) 1.61 (1.64) 1.61 (1.64) 1.61 (1.64) 1.64 (1.64)	sand wysome course sure, race or site		
			56.0'		10133160 10134161 101313161 10133161 10133161 10133161	18" RECOVERY		
57.5					10111100 10111100 10111100 10111100 10111100			
51.5					02111120 20011200 2011210 2011220 20112200 20112200			
		40	50.0	6	20172300 46433406 100223007 100223007 100223007 100223007			
60		18	59.0'	6 6 7 10		Saturated medium dense brownish green fine sand w/some silt and coarse sand.	A-2-4(0)	
			61.0'		6617366 1614366 1614366 1614366 1614366	20" RECOVERY		
			01.0		CC173CC CC173CC CC173CC CC173CC CC173CC			

F.A. Project: US. 301, Maryland State Line to I-95 Contract: 25-113-01

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description Class./G.I. Remarks
62.5 65 67.5		19	64.0' 66.0'	5 5 5 5	Saturated loose green fine sand w/some silt, trace of coarse sand. A-3 22" RECOVERY 22" RECOVERY
70		20	69.0' 71.0'	6 6 8 9	Saturated medium dense green fine sand w/ some silt, trace of coarse sand and organic matter. 23" RECOVERY ORBDDDGG
75		21	74.0'	15 16 17 21	Saturated dense green fine sand and gravel w/ some coarse sand and silt, trace of organic matter. 21" RECOVERY
<u>80</u> 80 82.5		22	79.0'	15 47 50/4"	Saturated very dense green fine to coarse sand w/some silt and organic matter, trace of gravel. 16" RECOVERY
85		23	84.0'	14 17 28 45	Saturated dense green silty fine to coarse sand w/trace of organic matter and gravel. A-2-4(0) Glauconite

F.A. Project: US. 301, Maryland State Line to I-95 Contract: 25-113-01

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
			86.0'		20" RECOVERY		
87.5							
		24	89.0'	17 19 31 37	Saturated dense green fine to coarse sand w/	A-2-4(0)	Glauconite
90				37	some silt and organic matter, trace of gravel.		
			91.0'		20" RECOVERY		
92.5							
					IJRAFI		
95		25	94.0' 94.5' _	50/4"	Saturated very dense green fine to coarse sand w/some silt, trace of gravel. 4" RECOVERY	A-2-4(0)	Glauconite
			О.	Т			JG
97.5							
					IJUSI 20	C [
		26	99.0'	15	Saturated dense greenish gray silty fine sand	A-2-4(0)	
100				15 13 31 52	w/some coarse sand, trace of gravel.		
			101.0'		22" RECOVERY		
					End of Boring		
102.5							
105							
107.5							

KEY TO SYMBOLS

Symbol Description

Strata symbols



Silty low plasticity clay



Clayey sand



Silty sand

Poorly graded sand with silt

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

- Exploratory borings were drilled on 12-23-2008 using a 3 1/4-inch diameter hollow stem auger. Rig is a ATV CME 55.
- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: US. 301, Maryland State Line to I-95 **Contract:** 25-113-01

Boring Location: Sta. 257+07, 90.00' Rt. C.L.

Boring	No.:	BR2-9-08
--------	------	----------

Boring Surface Elev.: + 54.21		Reference:						
Wt. of Casing Hammer: Wt. of Sample Hammer: 140 Type of: D-Sampler: Split-Barrel S-Sampler: U-Sampler: Core Bit:	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2		IN. IN. IN. IN. IN. IN.			
Casing Size: 3 1/4" Hollow Stem Auger:	Inches	From Depth of: From Depth of:	0.0' 0.0'	To: To:	31.0'			
Water Level Readings DateTime12/18/200812:00 p.m.	Depth of Hole 16.0'	Depth of Casing 14.0'		of Water 3.2'	Elev. of Water			

Pay Quantities:

2 1/2 in. Dia. Dry Sample Boring: No. of 2 in. Dia. Shelby Tubes:	101.0	Ft.;	Dia. U-Sample Boring: No. of: U-Samples:	Ft.
2 1/2 in. Dia. Contin. Sample Boring:		Ft.;	Core Drilling in Rock:	Ft.
Dering Contractory W11 (

Boring Contractor: Walton Corporation Driller: Bill Holden Helpers: J. Lafferty

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"		Sample Description	Class./G.I.	Remarks
	12/18/08	1	0.5'	1 2 4		Moist firm brown clayey fine sandy silt w/ some coarse sand, trace of gravel.	A-4(1)	Topsoil - 6".
			2.0'			16" RECOVERY		
2.5		2	2.0'	4 5 5 5		Moist loose brown silty fine sand w/some	A-2-4(0)	
			4.0'			coarse sand, trace of gravel.		IG
		3	4.0'	4 4		Moist loose brown fine to coarse sand w/some	A-2-4(0)	
5			6.0'	5 6		silt, trace of gravel. 20	15	
		4	6.0'	3	1.01999000 1.0199900 1.1199100	Moist loose brownish orange fine to coarse	A-3	
				3 5 5 10		sand w/trace of silt and gravel.		
7.5					1.1111.1 (1.111)			
7.5			8.0'			19" RECOVERY		
		5	8.0	6		Wet medium dense brownish orange fine to	A-2-4(0)	
				6 7 7 10		coarse sand w/some silt, trace of gravel.	112 1(0)	
10			10.0'			15" RECOVERY		
		6	10.0'	7 15 17 17		Wet dense brownish orange fine to coarse	A-2-4(0)	
				17 17		sand w/some silt, trace of gravel.		
			12.0'			20" RECOVERY		
12.5		7	12.0'	7 9 11 10		Wet medium dense brownish orange fine to	A-2-4(0)	
				11 10		coarse sand w/some silt, trace of gravel.		
			14.0'			21" RECOVERY		
		8	14.0'	6		Saturated medium dense brownish orange fine	A-2-4(0)	
<u> </u>	dia. Mad	L		-	IECECCECCE	6	. /	

Remarks: Mud Rotary @ 31.0'

F.A. Project: US. 301, Maryland State Line to I-95 Contract: 25-113-01

Depth	Daily	No.	Sample	Blows/6"		Sample Description	Class./G.I.	Remarks
(ft.)	Progress	110.	Depth	9 12		to coarse sand w/some silt, trace of gravel.	01000./0.1.	
15				12		to course said w/some site, trace of graver.		
			16.0'			19" RECOVERY		
		9	16.0'	7 7 12 13		Saturated medium dense brownish green fine	A-2-4(0)	
				12 13		to coarse sand w/some silt, trace of gravel.		
17.5								
		10	18.0'	5		22" RECOVERY	
		10	18.0'	5 6 10 11		Saturated medium dense brownish green fine to coarse sand w/some silt, trace of gravel.	A-2-4(0)	
20			20.0'			22" RECOVERY		
20			20.0					
22.5								
						DRAFI		
		11	24.0'	8		Saturated medium dense brownish green fine	A-2-4(0)	
25				8 10 15 18		to coarse sand w/some silt, trace of gravel.		
		N١					JII	NG
			26.0'			20" RECOVERY		
						GUST 20	15	
27.5								
		12	29.0'	8 10 11 15		Saturated medium dense brownish green fine	A-2-4(0)	
30				11 15		to coarse sand w/some silt, trace of gravel.		
			31.0'			22" RECOVERY		
22.5								
32.5								
		13	34.0'	9 11 11 15		Saturated medium dense brown mie to coarse	A-3	Mud Rotary @ 31.0'.
35				15	174 1 Y 174 184 1 Y 174 184 1 Y 184 184 1 Y 184 184 1 Y 184	sand w/trace of silt and gravel.		
					1.6 1 4 1 1 1.6 1 4 1 1 1.6 1 4 1 1 1.6 1 4 1 1			
			36.0'			19" RECOVERY		
					1.(141) 1.(141) 1.(141) 1.(141)			
37.5								
51.5					076176799 86631399 19633139 19633139 19633139			
				1	na sa si	21		

F.A. Project: US. 301, Maryland State Line to I-95 Contract: 25-113-01

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"		Sample Description	Class./G.I.	Remarks
	-				1001 J 100 V 601 J 100 V 100 J 100 C 100 J 100 C			
		14	39.0'	8 10 10 14	1999 1999 1999 1999 1999 1999 1999 199	Saturated medium dense brown fine sand w/ some coarse sand and silt, trace of gravel.	A-2-4(0)	
40				14	1263 (1361) 669 (1466) 669 (1466) 669 (1466) 669 (1466)	some coarse sand and sin, trace of graver.		
			41.0'		1.6139166 66144167 86144167 86144167	21" RECOVERY		
					1999 1999 1999 1999 1999 1999 1999 199			
42.5					1614169 2017230 2017230 2017230 2017230 2017230 2017230			
					14143466 221723612 66433366 12231267 12231267 12231267			
		15	44.0'	9 10 10 12	10000000000000000000000000000000000000	Saturated medium dense brown fine sand w/ some coarse sand, trace of silt and gravel.	A-3	
45				12	40000000000000000000000000000000000000	some course sand, trace of sitt and graver.		
			46.0'		11111111 111111 111111 111111 111111 1111	18" RECOVERY		
					1.6143.60 1.4171.61 1.6111.00 1.6111.00 1.61141.00 1.61141.00 1.61141.00	UNALI		
47.5					1614366 22172320 6143306 1614466 1614466 1614466			
					1996 1997 1997 1997 1997 1997 1997 1997	OK RIDI		lG
		16	49.0'	10 10 11 13	et (A.197) NG 1 (A204) Et (A 1990) ANT Y 1410	Saturated medium dense brownish orange fine sand w/some coarse sand, trace of silt and	A-3	
50			Λ			gravel. ICT 20	15	
			51.0'		6644,167, 6971,166 18914,166 19914,166 1991,775	20" RECOVERY		
52.5					66999966 66999966 16999966 16999966 16999966			
					2017)000 011000 011000 011000 011000 011000			
					201723012 66333666 66333666 86333666 86333666 86333666			
55		17	54.0'	7 7 8 9	19(114)(1) 19(144)(1) 19(144)(1) 19(144)(1) 19(14)(1) 19(14)(1) 19(14)(1) 19(14)(1)	Saturated medium dense brownish orange fine sand w/some coarse sand, trace of silt.	A-3	
			56.0'		1261312065 446134266 446134266	19" RECOVERY		
			0.0		1994 1995 1994 1994 1994 1995 1995 1995	17 RECOVER I		
57.5					1917-1919 1917-1919 1917-1919 1917-1919 1917-1919 1917-1919 1917-1919			
					669 10006 19 10406 19 10406 19 10406 19 1040 19 1040 19 1040 19 1040			
		18	59.0'	7	46333206 193333267 19334367 193366 193366 193366 193366 193366	Saturated medium dense green fine sand w/	A-2-4(0)	
60				7 7 7 7	100133000 100133000 100133000 100133000 100133000 100313000 100313000 100313000	some silt, trace of coarse sand.	A-2-4(U)	
			61.0'		1961 / J + 19 1951 / J + 19 1955 / J + 1955 / J + 1	23" RECOVERY		
			-		100173990 100343169 200373900 200373900 200353990			

F.A. Project: US. 301, Maryland State Line to I-95 Contract: 25-113-01

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
62.5 62.5 65 65		19	64.0' 66.0'	5 6 6 7	Saturated medium dense green fine sand w/ trace of silt and coarse sand. 21" RECOVERY	A-3	
70		20	69.0' 71.0'	7 9 9 10	Saturated medium dense dark green fine sand w/some silt, trace of coarse sand and organic matter. 23" RECOVERY	A-2-4(0)	JG
		21	74.0' 76.0'	10 18 22 23	Saturated dense green fine to coarse sand w/ some silt and gravel, trace of organic matter. 23" RECOVERY	A-2-4(0)	
77.5 		22	79.0' 80.5'	40 35 50/4"	Saturated very dense green fine to coarse sand w/some organic matter and silt, trace of gravel. 16" RECOVERY	A-2-4(0)	
82.5		23	84.0'	18 25 24 40	Saturated dense green silty fine to coarse sand w/some organic matter, trace of gravel.	A-2-4(0)	

F.A. Project: US. 301, Maryland State Line to I-95 Contract: 25-113-01

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description Class./G.I. Remarks	
			86.0'		23" RECOVERY	
87.5						
		24	89.0'	33 40 41 50	Saturated hard green organic fine sandy silt A-4(0)	
90				41 50	w/some coarse sand, trace of clay and gravel.	
			91.0'		22" RECOVERY	
92.5						
		25	94.0'	18 30 33 50/2"	Saturated very dense green clayey fine sand w/some coarse sand, trace of gravel.A-2-6(0)	
95	N		— .	50/2"		
			96.0'			
07.5						
97.5					GUSI 2015	
100		26	99.0'	18 30 33 50/2"	Saturated very dense green clayey fine sand w/some coarse sand, trace of gravel.A-2-4(0)	
			101.0			
			101.0'		20" RECOVERY End of Boring	
102.5						
105						
107.5						

KEY TO SYMBOLS

Symbol Description

Strata symbols



Low plasticity clay

Silty sand



Poorly graded sand with silt



Clayey sand

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

- 1. Exploratory borings were drilled on 12-18-2008 using a 3 1/4-inch diameter hollow stem auger. Rig is a ATV CME 55.
- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to I-95 **Contract:** 25-113-01

Boring Location: Sta. 138+18.92, 83' Lt. C.L.

-01

Boring I	No.:	BR3-1-
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Boring Surface Elev	68.15		Re	ference:		
Wt. of Casing Hammer: Wt. of Sample Hammer: Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:	140 Split Barrel Ball Sampler	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:		IN. IN. IN. IN. IN.	
Casing Size: Hollow Sten	3 1/4 n Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:	31.0'
Water Level Readings Date 3/10/08	Time	Depth of Hole 59.0'	Depth of Casing	Depth of V 3.8'	Water	Elev. of Water 64.4 68.2 68.2 68.2 68.2
Pay Quantities: 2 1/2 in. Dia. Dry S No. of 2 in. Dia. S		99.3	Ft.; 3 : No. of:		nple Boring: U-Samples:	Ft.
2 1/2 in. Dia. Cont	tin. Sample Bor	ing:		ng in Rock:	o-oampies.	Ft.

Boring Contractor: Walton Corporation Driller: Gary Truver, Sr. Helpers: A. Joseph

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description Class./G.I.	Remarks
		1	0.0'	3 9 9 12	Wet very stiff gray clayey silt, trace of fine to A-4(8) coarse sand.	
	N	2	2.0' 2.0'	9	22" RECOVERY Wet to saturated dense brown silty fine to A-2-4(0)	
2.49		Ń	4.0'	9 13 19 24	coarse sand w/ some gravel.	NG
		3	4.0'	7 10 12 12	Saturated medium dense light brown silty A-2-4(0)	
4.98			F	12 12	coarse to fine sand w/ some gravel.	
		4	6.0' 6.0'	10	22" RECOVERY	
7.47		4	6.0	10 10 10 10	Saturated medium dense light brown silty fine A-2-4(0) to coarse sand, trace of gravel.	
7.47			8.0'		15" RECOVERY	
		5	8.0'	W/R 1 4 5	Saturated loose light brown coarse to fine sand w/ some silt, trace of gravel.A-2-4(0)	
9.96		6	10.0' 10.0'	3	16" RECOVERY Saturated loose light brown coarse to fine A-2-4(0)	
				3 4 5 16	sand w/ some silt, trace of gravel.	
		7	12.0' 12.0'	W/R	20" RECOVERY Saturated medium dense brown gravel w/ A-1-b	
12.45	ke. Mud			6 11 12	some silt and coarse to fine sand.	

Remarks: Mud Rotary @ 31.0'

F.A. Project: U.S. 301, Maryland State Line to I-95 Contract: 25-113-01

Depth	Daily		Sample	DI (01				
(ft.)	Progress	No.	Depth	Blows/6"	0000000	Sample Description	Class./G.I.	Remarks
14.94		8	<u>14.0'</u> 14.0'	5 7 9 9		10" RECOVERY Saturated medium dense orange-brown fine to coarse sand w/ some silt, trace of gravel.	A-2-4(0)	
			16.0'			13" RECOVERY		
17.43		9	16.0'	5 10 12 14	20010000000000000000000000000000000000	Staurated medium dense light brown w/ dark brown streaks coarse to fine sand, trace of silt and gravel.	A-1-b	
		10	18.0' 18.0'	W/R 4 10 9	1263 23316 2263 2346 2444 2444 2653 2344 2653 2346 2653 2354 2653 2354 2653 2355 2653 2555 2653 2555 2655 2555 2555 2555 25555 25555 25555 25555 25555 25555 255555 255555 255555 2555555	17" RECOVERY Saturated medium dense orange-brown coarse to fine sand w/ some silt, trace of gravel.	A-1-b	
19.92			20.0'		1200 8000 1200 8000 1200 1000 1200 1000 1000 1000 100000000	15" RECOVERY		
22.41	_					DRAFT		
24.9		11	24.0'	5 12 19 22		Saturated hard brown silt, trace of fine to coarse sand, clay, and gravel.	A-7-5(32)	IG
			26.0'			SUS ^{20" RECOVERY} 20	15	
27.39		U-1	27.0'			Saturated dense brown-gray clayey fine sand.	A-2-7(2)	Press Sample - Shelby Tube.
		12	29.0' 29.0'	11		24" RECOVERY Saturated hard gray coarse sandy clay w/	A-6(5)	
29.88				11 20 25 35		some fine sand.		
			31.0'			24" RECOVERY		
32.37								
34.86		13	34.0'	33 35 40 29		Saturated very dense red-brown coarse sand w/ some gravel, silt, and fine sand.	A-1-b	
37.35			36.0'			20" RECOVERY		

F.A. Project: U.S. 301, Maryland State Line to I-95 Contract: 25-113-01

Depth	Daily	No.	Sample Depth	Blows/6"		Sample Description	Class./G.I.	Remarks
(ft.)	Progress		Беріп					
		14	39.0'	4 13 13 12		Saturated medium dense brown coarse sand	A-1-b	
39.84				13 12		w/ some fine sand, trace of gravel and silt.		
			41.0'			14" RECOVERY		
42.33								
44.82		15	44.0'	20 21 21 28		Saturated dense brown coarse sand w/ some fine sand and gravel, trace of silt.	A-1-b	
						NDAET		
			46.0'		1.1.1.1.1.1.1.1 1.1.1.1.1.1.1.1 1.1.1.1.1.1.1.1.1 1.1.1.1.1.1.1.1.1 1.1.1.1.1.1.1.1.1	17" RECOVERY		
47.04					1:1:1:1:1:1:1:1:1:1:1:1:1:1:1:1:1:1:1:			
47.31						OR BIDI		
		16	49.0' 49.5'	50/5"		Saturated very dense green-brown gravel and	A-1-a	
49.8			<u>49.</u>		114125 114125	coarse sand w/ some fine sand, trace of silt. 3" RECOVERY	15	
52.29								
54.78		17	54.0' 55.0'	31 50/5"		Saturated very dense green coarse to fine sand, trace of silt	A-3	glauconitic
			00.0		101111100 01111100 01111000 01111000 01111000 01111000	11" RECOVERY		
					1937399 2017200 2011200 2011200 2012200			
57.27					19999966 17979967 29939766 19939767 19939767			
					6413366 121712111 6413366 121727			
					20174207 101193000 201772412 40199066 40199066			
		18	59.0'	25 50/5"	863 (488) 1993 (988) 1993 (986) 1993 (986) 1994 (986) 1	No Sample Recovery		
59.76			60.0'			0" RECOVERY		
					1919-1919 1919 1919-1919 1919 1919-1919 1			

F.A. Project: U.S. 301, Maryland State Line to I-95 Contract: 25-113-01

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"		Sample Description	Class./G.I.	Remarks
					111114 211114 211114 21114 21114 21114 21114 21114 21114 21114 21114 21114 21114 21114 21114 21114 21114 21114 21114 21114 21114 21114 21114 21111 21111 21111 21111 211111 21111111			
62.25					6617376 6617366 7817366 7817366 6613366			
	-				1011 (4104) 1011 (4104) 1011 (4104) 1011 (4104)			
	-				6614966 191996 191996 191996 191996			
64.74		19	64.0'	38 50/4"	1993 (1996) 1993 (1996) 1993 (1996) 1993 (1996) 1993 (1996)	Saturated very dense green fine to coarse sand, trace of silt	A-3	glauconitic
	-		65.0'		1761 (1761) 1663 (1966) 1663 (1966) 1663 (1966) 1663 (1966) 1663 (1966)	9" RECOVERY		
	-	20	66.0'	64 50/4"	40139966 40344167 10191976 10141976 101419766	Visual description: Saturated very dense		Sample brought to GTA lab
67.23	-		67.0'	50/4	11111111111111111111111111111111111111	green fine sand w/ some silt. 9" RECOVERY		for pH testing.
	-				1999-1999 1999-1999 1999-1999 1999-1999 1999-1999			
					1999 73200 1999 7360 2017 7360 2017 7360 2017 7360 2017 7360 2017 7360			
	-	21	69.0' 69.5' 7	50/4"	h:c1 ca:cc 111333:40	Saturated very dense green fine to coarse sand	A-2-4(0)	glauconitic
69.72						w/ some silt. 3" RECOVERY		
			.					
		Ν(OR BID	JIN	IG
72.21	-							
	-		Λ			JICT JO	15	
		22	74.0'	50/3"		Saturated very dense green fine to coarse sand	A-2-4(0)	glauconitic
74.7	-		74.5'			w/ some silt. 2" RECOVERY	A-2-4(0)	grauconitie
	-							
	-							
77.19								
	-							
79.68		23	79.0' 	50/4"		Saturated very dense green fine to coarse sand w/ some silt, trace of gravel. 4" RECOVERY	A-2-4(0)	glauconitic
						4" RECOVERY		
82.17	-							
	-							
	-	24	84.0'	50	198933996 178973968 178973966	Saturated very dense green fine to coarse	A-3	glauconitic

F.A. Project: U.S. 301, Maryland State Line to I-95 Contract: 25-113-01

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"		Sample Description	Class./G.I.	Remarks
(n.) 84.66	1 1091622					sand, trace of gravel. 4" RECOVERY		
87.15								
89.64		25	89.0' 89.5' ,	50/2"		Saturated very dense green silty fine sand w/ some coarse sand.	A-2-4(0)	glauconitic
92.13						2" RECOVERY		
		26	94.0'	33 50/4"	4-5-1 J - 5-5 G	Saturated very dense green fine to coarse sand	A-2-4(0)	glauconitic
94.62			95.0'	50/4"		6" RECOVERY	JIN	
97.11			A	U		GUST 20		
99.6		27	99.0' 99.5'	50/4"		Saturated very dense green fine to coarse sand w/ some silt	A-2-4(0)	glauconitic
						Boring terminated at 99.3 ft.		
102.09								
104.58								
107.07								

KEY TO SYMBOLS

Symbol Description

Strata symbols



Low plasticity clay

Silty sand

Poorly graded sand with silt



High plasticity clay

Clayey sand



Silt



Well graded sand





DRAFT Well graded sand with silt Poorly graded gravel FOR BIDDING with silt **AUGUST 2015**

Notes:

- 1. Exploratory borings were drilled on 3/10/2008 using a 3 1/4-inch diameter continuous flight power auger. Rig is a Truck CME 55.
- 2. Groundwater levels recorded at time of drilling and rechecked the following day.
- 3. Surveyed boring locations and elevations were provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recommendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All SPT blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to I-95 **Contract:** 25-113-01

Boring Location: Sta. 138+64.32, at C.L.

Boring No.: BR3-1-02

Boring Surface Elev.: 69.00		Ref		
Wt. of Casing Hammer: Wt. of Sample Hammer: 140 Type of: D-Sampler: Split Barrel S-Sampler: U-Sampler: Ball Sampler Core Bit:	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2 3	N. N. N. N. N. N.
Casing Size: 3 1/4 Hollow Stem Auger:	Inches	From Depth of: From Depth of:	0.0' To: To:	24.0'
Water Level Readings Date Time 3/6/08	Depth of Hole 74.8'	Depth of Casing	Depth of Water 7.7'	Elev. of Water 61.3 69.0 69.0 69.0
Pay Quantities: 2 1/2 in. Dia. Dry Sample Boring	: 74.8	Ft.; 3	Dia. U-Sample Boring	
No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Bo	ring:	;	U-Samples ng in Rock:	: Ft.

Boring Contractor: Walton Corporation Driller: Gary Truver, Sr. Helpers: J. Lafferty

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description Class./	G.I. Remarks
		1	0.5'	6 6 11	Moist very stiff brown coarse to fine sandy A-4(silt w/ some gravel.	0) 6" Hot-Mix
			2.0'		12" RECOVERY	
2.49		2	2.0'	17 12 17 21	Wet medium dense brown silty coarse to fine A-2-4 sand w/ some gravel.	MG
		3	4.0'	4 11 10	Wet medium dense brown silty coarse to fine A-2-4	(0)
4.98			6.0'	8	sand, trace of gravel. 201	5
		4	6.0'	6 5 5 8	Saturated loose brown and white silty fine A-2-4	(0)
				5 8	sand w/ some coarse sand, trace of gravel.	
7.47						
			8.0'		21" RECOVERY	
		5	8.0'	3 2 3 6	Saturated loose white and brown silty fine to coarse sand, trace of gravel.	(0)
9.96			10.0'		22" RECOVERY	
		6	10.0'	2 8 10 13	Saturated medium dense light brown and A-2-4	(0)
				10 13	orange silty fine sand w/ some coarse sand and gravel.	
			12.0'		17" RECOVERY	
12.45		7	12.0'	2 5 7 10	Saturated medium dense light browna nd A-1- white silty coarse to fine sand, trace of gravel.	b
			14.0'		20" RECOVERY	
	1	8	14.0'	W/H	Saturated very loose orange fine to coarse A-2-4	(0)
Dame	rke: Mud	D	0.01.0	· · ·		

Remarks: Mud Rotary @ 24.0'

F.A. Project: U.S. 301, Maryland State Line to I-95 Contract: 25-113-01

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
14.94				2 4	sand w/ some silt, trace of gravel.		
		9	16.0' 16.0'	5	21" RECOVERY Saturated medium dense orange coarse to fine	A-1-b	
				5 7 10 10	sand w/ some silt, trace of gravel.		
17.43							
		10	18.0' 18.0'	4	20" RECOVERY Saturated loose orange silty fine sand w/ some	A-2-4(0)	
			10.0	4 3 3 11	gravel and coarse sand.	A-2-4(0)	
19.92			20.0'		19" RECOVERY		
22.41					DRAFT		
	N	11	24.0'	4 4 7 8	 Saturated medium dense orange fine to coarse sand w/ some silt and gravel. 	A-2-4(0)	
24.9		N (8	sand w/ some shr and graver	JIN	
			26.0'		22" RECOVERY		
					GUST 20	15	
27.39							
29.88		U-1a U-1	29.0' 29.0'		Saturated firm gray and orange clay, trace fine sand.	A-7-6(23) A-7-6(23)	Press Sample - Shelby Tube. Press Sample - Shelby Tube.
29.00					Saturated firm gray and orange clay, trace fine	11, 5(23)	ress sample shorty rube.
			31.0'		sand. 22" RECOVERY		
			31.0'		22" RECOVERY		
32.37							
02.01							
		13	34.0'	15		A 1 1	
34.86		13	34.0	15 18 23 18	Saturated dense brown coarse to fine sand and gravel, trace of silt.	A-1-b	
			36.0'		23" RECOVERY		
37.35							

F.A. Project: U.S. 301, Maryland State Line to I-95 Contract: 25-113-01

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"		Sample Description	Class./G.I.	Remarks
39.84		14	39.0'	7 9 7 9		Saturated medium dense brown coarse to fine sand and gravel, trace of silt.	A-1-b	
			41.0'			20" RECOVERY		
			41.0			20 KLCOVEKT		
42.33								
44.82		15	44.0'	9 10 17 17		Saturated medium dense brown silty coarse sand w/ some fine sand and gravel.	A-1-b	
			46.0'			16" RECOVERY		
			40.0					
47.31							-	
						OK RIDI		IG
49.8		16	49.0' 50.0	32 50/3"		Saturated very dense green and dark brown gravel and coarse sand w/ some fine sand,	A-1-a	
						trace of silt. 9" RECOVERY	15	
					CE J 19:00 19:14 19:00 19:14 19:00 10:14 19:00 10:14 19:00 10:14 19:00			
52.29					1993, 1996 1993, 1997 1993, 1997 1993, 1997 1993, 1997 1993, 1997			
					1993 74990 1993 73996 2093 7396 2093 7396 2093 7396 2093 7396 2093 7496 2093 7496 2095 7496 2095 7496 2095 7496 2095 7496 2095 7496 2095 7496 2005 7406 2005 7405 2005 740000000000000000000000000000000000			
54.78		17	54.0'	17 22 26 32	121123125 42123426 1223426 1223426 1223426 1223425 1223425 1223425 1223425 122345 122345 122345 122345 122345 122345 122345 122345 122345 122345 12235 12355 12555 123555 123555 123555 123555 123555 123555 123555 123555 1235555 123555 123555 123555 1235555 1235555 1235555 1235555 1235555 1235555 1235555 1235555 1235555 12355555 12355555 1235555555555	Saturated dense green fine to coarse sand, trace of silt.	A-3	glauconitic
			56.0'		1111111111 11111111111 111111111111 1111	23" RECOVERY		
			00.0		66919966 6693966 66993966 66993966 6699366 6691966			
57.27					1914107. 1914300 1914300 1914300 1914300 191440			
					1997 1997 1997 1997 1997 1997 1997 1997			
59.76		18	59.0' 60.0'	32 50/4"	1196 1 9 9 9 9 6 C	Saturated very dense green fine to coarse sand w/ some silt.	A-2-4(0)	glauconitic
			00.0			10" RECOVERY		

F.A. Project: U.S. 301, Maryland State Line to I-95 Contract: 25-113-01

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
62.25 64.74 67.23		19	64.0' 65.0'	56 50/2"	Saturated very dense green fine to coarse sand w/ some silt. 8" RECOVERY	A-2-4(0)	glauconitic
<u>69.72</u> 72.21		20	69.0' 70.0'	49 50/5"	Saturated very dense green silty fine to coarse sand. 11" RECOVERY	A-2-4(0)	glauconitic
74.7		21	74.0' 75.0'	51 50/4"	Saturated very dense green fine to coarse sand w/ some silt. 10" RECOVERY Boring terminated at 74.8 ft.	A-2-4(0)	glauconitic
79.68							
82.17							

KEY TO SYMBOLS

Symbol Description

Strata symbols



Silty sand



Low plasticity clay



Poorly graded sand



Well graded sand



Poorly graded sand with silt

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

- 1. Exploratory borings were drilled on 3/6/2008 using a 3 1/4-inch diameter continuous flight power auger. Rig is a Truck CME 55.
- Groundwater levels recorded at time of drilling and rechecked the following day.
- 3. Surveyed boring locations and elevations were provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recommendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All SPT blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to I-95 **Contract:** 25-113-01

Boring Location: Sta. 139+13.27, 86' Rt. C.L.

В

Boring No	D.: BR3-1-03
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Boring Surface Elev.: 69.63		Ret		
Wt. of Casing Hammer: Wt. of Sample Hammer: 140 Type of: D-Sampler: Split Barrel S-Sampler: U-Sampler: Ball Sampler Core Bit:	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2 3	IN. IN. IN. IN. IN. IN.
Casing Size: 3 1/4 Hollow Stem Auger:	Inches	From Depth of: From Depth of:	0.0' To: To:	29.0'
Water Level Readings Date Time 3/7/08	Depth of Hole 69.0'	Depth of Casing	Depth of Water 5.9'	Elev. of Water 63.7 69.6 69.6 69.6
Pay Quantities: 2 1/2 in. Dia. Dry Sample Borin		Ft.; 3	Dia. U-Sample Bori	
No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample B		; No. of: Ft.; Core Drilliı	U-Sample ng in Rock:	es: Ft.

Boring Contractor: Walton Corporation Driller: Gary Truver, Sr. Helpers: A. Joseph

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
		1 1A	0.0' 0.5' 0.5'	2 4 4 6	Visual description: Wet loose brown fine sand w/ some silt, trace organics. <u>3' RECOVERY</u> Wet stiff gray silt w/ some clay, trace of fine	A-4(2)	No sieve analysis. Topsoil = $\sqrt{3 \text{ in.}}$
2.49		2	2.0' 2.0'	7 11 13 13	to coarse sand. <u>12" RECOVERY</u> Wet very stiff brown fine to coarse sandy silt w/ some clay, trace of gravel.	A-4(0)	IG
4.98		3	4.0' 4.0'	3 6 6 7	14" RECOVERY Wet medium dense brown silty fine to coarse sand, trace of gravel.	A-2-4(0)	
		4	6.0' 6.0'	7 5 5 5	16" RECOVERY Saturated loose brown silty fine to coarse sand w/ some gravel.	A-2-4(0)	
7.47		5	8.0' 8.0'		16" RECOVERY	A 2 4(0)	
		5		2 2 3 3	Saturated loose gray silty fine to coarse sand, trace of gravel.	A-2-4(0)	
9.96		6	10.0' 10.0'	16 17 13 18	16" RECOVERY Saturated medium dense orange-brown gravel and coarse sand w/ some fine sand and silt.	A-1-b	
12.45		7	12.0' 12.0'	3 10 11 12	13" RECOVERY Saturated medium dense orange-brown gravel and coarse sand w/ some silt and fine sand.	A-1-b	

Remarks: Mud Rotary @ 29.0'

F.A. Project: U.S. 301, Maryland State Line to I-95 Contract: 25-113-01

		-						
Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"		Sample Description	Class./G.I.	Remarks
14.94	-	8	<u>14.0'</u> 14.0'	W/R W/R 2 3		16" RECOVERY Saturated very loose orange-brown silty coarse to fine sand w/ some gravel.	A-2-4(0)	
			16.0'			18" RECOVERY		
17.43		9	16.0'	5 4 5 11		Saturated loose orange-brown coarse sand w/ some fine sand, trace of silt and gravel.	A-1-b	
			18.0'		1:1:1:1:1:1:1:1:1 1:1:1:1:1:1:1:1:1	15" RECOVERY		
		10	18.0'	5 6 3 4		Saturated loose orange-brown silty fine to coarse sand, trace of gravel.	A-2-4(0)	
<u>19.92</u>			20.0'			13" RECOVERY		
22.41								
24.9		11	24.0'	2 4 11 9		Saturated stiff brown to dark brown clayey fine sandy silt, trace of coarse sand and gravel.	A-4(3)	IG
			26.0'			SUS ^{15"RECOVERY} 20	15	
27.39		U-1	27.0'			Saturated stiff light brown clay, trace of fine sand.	A-7-6(40)	Press Sample - Shelby Tube. Pocket Penetrometer = 1.0 T.S.F.
		12	29.0	7	///	Saturated very stiff brown clayey silt, trace of	A-7-6(26)	Pocket Penetrometer = 0.25
29.88				7 10 13 17		coarse to fine sand and gravel.	11, 0(20)	T.S.F.
			31.0'			24" RECOVERY		
32.37								
34.86		13	34.0'	13 11 11 11		Saturated medium dense brown coarse sand w/ some gravel, trace of fine sand and silt.	A-1-b	
37.35			36.0'			18" RECOVERY		
37.35					1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -			

F.A. Project: U.S. 301, Maryland State Line to I-95 Contract: 25-113-01

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
39.84		14	39.0'	18 19 16 14	Saturated dense brown coarse to fine sar gravel, trace of silt.	nd and A-1-b	
			41.0'		13" RECOVERY		
42.33							
44.82		15	44.0' 46.0'		Saturated medium dense brown coarse s w/ some fine sand, trace of silt and grave		
47.31			D.	Т	FOR BID		IG
49.8		16 16A	49.0' 50.0' 50.0' 51.0'	16 16	Saturated very dense orange-brown coar fine sand, trace of silt and gravel. 3" RECOVERY Saturated dense green coarse to fine sand grave w/ some silt. 10" RECOVERY	015	iron rich glauconitic
52.29							
54.78		17	54.0' 55.5'	18 45 50/4"	Saturated very dense green coarse to fine sand, trace of silt and gravel. 17" RECOVERY	e A-1-b	glauconitic.
57.27							
59.76		18	59.0' 60.0'	32 50/4"	Saturated very dense green fine to coarse sand, trace of silt and gravel. 10" RECOVERY	e A-3	glauconitic

F.A. Project: U.S. 301, Maryland State Line to I-95 Contract: 25-113-01

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"		Sample Description	Class./G.I.	Remarks
					661 <i>4</i> 3166 2217260 2611366 2611366			
62.25					1991 7 4 200 1991 7 3 200 2007 7 200 1997 7 200 1907 7 200 1000 1000 7 200 1000 7 200 1000 7 200 1000 7 2000 1000 7 2000 1000 7 2000 7 200 1000 7 200 1000 7 200 1000 7 200 1000			
					801 (4)06 (201 (200 (201 (200 (201 (200 (201 (200)))))))))))))))))))))))))))))))))))			
					961 (966) 1819 1916 1819 1916 1819 1916 1819 1916			
64.74		19	64.0'	37 50/3"	4,64,3,47,66 133,27,27,27,27,27,27,27,27,27,27,27,27,27,	Saturated very dense green fine to coarse sand, trace of silt and gravel. 8" RECOVERY	A-3	glauconitic
			65.0'		40134900 19133907 191499 191499 191499 19149	8" RECOVERY		
		20	66.0'	37 50/3"	1997 - 1997 - 1997 1997 - 1997 - 1997 - 1997 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 1997 - 19	Visual description: Saturated very dense		Sample brought to GTA for
67.23			67.0'		1223 # 928 P (4414) - 6 (128 # 1000 C (18 # 4 100 C (18 # 4 100 C (18 # 4 100 C)	green fine sand w/ some silt. 6" RECOVERY		pH testing.
					1619369 92111960 6893906 189326 189326			
					196999966 Dairthair Ces 1966 Htphilter			
00.70		21	69.0'	62 50/4"	1201 / 3200 / 1201 / 320 / 400 / 400 / 120 / 320 / 120 / 320 / 120 / 320 / 120 / 320 /	Saturated very dense green fine to coarse	A-3	glauconitic
69.72			70.0'		1617161 6111166 6111166 611166	sand, trace of gravel. 9" RECOVERY		
	N		.		(* 14 30) 1761 y 176 (* 1761 y 176 (* 1761 y 176 (* 1761 y 176 (*			
					12 1 2 200 12 1 2 2 2 0 0 12 1 2 2 2 0 0 14 1 2 2 0 0 15 1 2 0 0 0 0 15 1 2 0 0 0 0 0 15 1 2 0 0 0 0 0 0 15 1 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	OR BIDI	ノル	NG I
72.21					1999, 2099 1999 2009 2017 2019 2017 2019 2017 2019 2017 2019 2017 2019 2017 2019 2017 2019 2019			
			Δ		1233.127 1233.127 1333.127 1333.127 1333.127 1333.127 123	JUST 20	15	
74.7		22	74.0'	47 50/3"		Saturated very dense green fine to coarse sand w/ some silt_trace of gravel.	A-2-4(0)	glauconitic
			75.0'			w/ some silt, trace of gravel. 8" RECOVERY		
						Boring terminated at 74.8 ft.		
77.19								
70.00								
79.68								
82.17								

KEY TO SYMBOLS

Symbol Description

Strata symbols

Silty low plasticity clay

Poorly graded clayey silty sand

Silty sand



Well graded sand with silt





High plasticity clay



Well graded sand



Poorly graded sand with silt

DRAFT NOT FOR BIDDING **AUGUST 2015**

Notes:

- 1. Exploratory borings were drilled on 3/7/2008 using a 3 1/4-inch diameter continuous flight power auger. Rig is a Truck CME 55.
- 2. Groundwater levels recorded at time of drilling and rechecked the following day.
- 3. Surveyed boring locations and elevations were provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recommendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All SPT blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to I-95 **Contract:** 25-113-01

E

Boring No.: BR3-1-04

Contract: 25-113-01				
Boring Location: Sta. 138+64.85,	87' Rt. C.L.			
Boring Surface Elev.: 69.44		Ret		
Wt. of Casing Hammer: Wt. of Sample Hammer: 140 Type of: D-Sampler: Split Barre S-Sampler: U-Sampler: Ball Sampl Core Bit:	O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2 3	N. N. N. N. N.
Casing Size: 3 1/4 Hollow Stem Auger:	Inches	From Depth of: From Depth of:	0.0' To: To:	34.0'
Water Level Readings Date Time 3/12/08	Depth of Hole 49.0'	Depth of Casing	Depth of Water 5.2'	Elev. of Water 64.2 69.4 69.4 69.4
Pay Quantities: 2 1/2 in. Dia. Dry Sample Bor No. of 2 in. Dia. Shelby Tube 2 1/2 in. Dia. Contin. Sample	s:	Ft.; 3 ; No. of: Ft.; Core Drillin	Dia. U-Sample Boring U-Samples ng in Rock:	

•	2 1/2 in. Dia. Dry Sample Boring:	74.5
	No. of 2 in. Dia. Shelby Tubes:	
	2 1/2 in. Dia. Contin. Sample Boring:	

Boring Contractor: Walton Corporation Driller: Gary Truver, Sr. Helpers: A. Joseph

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"		Sample Description	Class./G.I.	Remarks
		1	1.0'	15		Moist medium dense orange-brown gravel	A-1-b	
		1A	<u> </u>	12		and coarse sand w/ some fine sand and silt.	A-4(0)	
2.49		2	<u>2.0'</u> 2.0'	7 7 9 11	HH	Wet stiff gray silt w/ some fine to coarse	A-4(1)	
				9 11		sand gravel, and clay.		
					F H	6" RECOVERY Wet very stiff gray silt w/ some fine sand and		
			4.0'			clay, trace of coarse sand and gravel.		
	-	3	4.0'	3 8 8		12" RECOVERY	A-2-4(0)	
4.98			_	8 9		Wet medium stiff gray clayey fine to coarse sand, trace of gravel.		
							15	
			6.0'			16" RECOVERY		
		4	6.0'	13 11 7 7		Saturated medium dense gray silty coarse to	A-2-4(0)	
				7		fine sand, trace of gravel.		
7.47								
			8.0'			17" RECOVERY		
		5	8.0'	4 4 5 8		Saturated loose gray fine to coarse sand w/	A-2-4(0)	
				8		some silt, trace of gravel.		
9.96			10.0'			17" RECOVERY		
		6	10.0'	5 6 11 27		Saturated medium dense gray coarse to fine	A-1-b	
				27		sand w/ some silt and gravel.		
			12.0'			15" RECOVERY		
12.45		7	12.0'	14 21 18 12		Saturated dense orange and brown coarse to	A-1-b	
				12		fine sand and gravel w/ some silt.		
			14.0'			10" RECOVERY		
		8	14.0'	3 12 11	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Saturated medium dense orange and brown	A-1-b	
Bama	rko. Mud		. @ 24.0	6	1.1133.11 1.1133.110	coarse to fine sand w/ some gravel and silt.		

Remarks: Mud Rotary @ 34.0'

F.A. Project: U.S. 301, Maryland State Line to I-95 Contract: 25-113-01

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"		Sample Description	Class./G.I.	Remarks
		9	16.0' 16.0'	6	1991) 1991) 1993) 1993)	16" RECOVERY Saturated medium dense orange and brown	A-1-b	
		J	10.0	6 9 12 21		coarse to fine sand w/ some gravel, trace of	A-1-0	
17.43					12020202020202020 120202020202020 120202020	silt.		
		10	18.0'	11		20" RECOVERY		
		10	18.0'	11 13 11 13		Saturated medium dense orange-brown silty coarse sand w/ some fine sand and gravel.	A-1-b	
				13				
19.92			20.0'			20" RECOVERY		
22.41								
						NDAET		
						UNALI		
		11	24.0'	7 2 6		Saturated firm orange and brown fine sandy	A-4(0)	
24.9				6 14		silt, trace of coarse sand and gravel.		
			26.0'			15" RECOVERY		
27.39						JUSI 20	15	
		12	29.0'	4 7 9 14		Saturated very stiff light brown w/ mottles of	A-7-6(32)	
29.88				14		orange, brown, and gray silty clay, trace of coarse to fine sand.		
			24.0					
			31.0'			24" RECOVERY		
32.37		U-1a U-1	32.0' 32.0'			Saturated very stiff dark gray clay, trace of fine sand.	A-7-6(21) A-7-6(21)	Press Sample - Shelby Tube. Press Sample - Shelby Tube.
						Saturated very stiff dark gray clay, trace of		ress sample shelby rube.
			34.0'			fine sand. 20" RECOVERY		
		13	<u>34.0'</u> 34.0'	8 11 18 26		20" RECOVERY 20" RECOVERY Saturated very stiff brown clay, trace of	A-7-6(27)	
34.86				26		coarse to fine sand and gravel.		
			36.0'			24" RECOVERY		
			30.0			24 RECOVER I		
37.35								

F.A. Project: U.S. 301, Maryland State Line to I-95 Contract: 25-113-01

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
39.84		14	39.0' 41.0'	6 9 16 11	Saturated medium dense brown coarse sand w/ some fine sand, gravel, and silt.	A-1-b	
42.33					η το δεί το δεί το στο στο στο στο στο στο στο στο στο		
44.82		15	44.0'	7 6 8 11	Saturated medium dense brown coarse to fine sand w/ some silt, trace of gravel.	A-1-b	
			46.0'	11			
47.31							
49.8		16	49.0' 	50/5"	Saturated very dense orange-brown gravel and coarse sand w/ some fine sand, trace of silt.	A-1-b	IG
			A	U	BUST 20	15	
52.29					TET JATU GEA ALGE LEA		
54.78		17	54.0' 55.5'	20 34 57	Saturated very dense dark green fine to coarse sand w/ some silt. 17" RECOVERY	A-2-4(0)	glauconitic
57.27							
		18	59.0'	27 57	Saturated very dense dark green coarse to fine	A-2-4(0)	glauconitic
<u>59.76</u>			60.0'	57	sand w/ some silt. 11" RECOVERY		

F.A. Project: U.S. 301, Maryland State Line to I-95 Contract: 25-113-01

Depth	Daily Progress	No.	Sample Depth	Blows/6"		Sample Description	Class./G.I.	Remarks
(ft.) 62.25	Progress		Depth					
64.74		19	64.0'	34 57		Saturated very dense dark green fine to coarse	A-2-4(0)	glauconitic
64.74			65.0'			sand w/ some silt. 11" RECOVERY		
67.23								
69.72		20	69.0'	34 56		Saturated very dense dark green fine to ocarse sand, trace of silt.	A-3	glauconitic
			70.0'		8.6199966 10.133167 10.13167 10.13167 10.13167 10.13167	11" RECOVERY		
					- ())) () 			
72.21					11141149 111141			
		N (OR BIDI	JIN	
	_				1271 <i>732920</i> 16137366 221773277 22173277 22173277 22173277 22173277			
		21	74.0'	58		Saturated very dense dark green fine to coarse	A-2-4(0)	glauconitic
74.7			74.5'			sand w/ some silt. 5" RECOVERY	IJ	
						Boring terminated at 74.5 ft.		
77.19								
79.68								
82.17								
84.66								

KEY TO SYMBOLS

Symbol Description

Strata symbols

Silty sand

Silt



Silty low plasticity clay



Poorly graded clayey silty sand



Poorly graded sand with silt



Well graded sand with silt



High plasticity clay

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

- 1. Exploratory borings were drilled on 3/12/2008 using a 3 1/4-inch diameter continuous flight power auger. Rig is a Truck CME 55.
- Groundwater levels recorded at time of drilling and rechecked the following day.
- 3. Surveyed boring locations and elevations were provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recommendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All SPT blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to I-95 **Contract:** 25-113-01

Boring Location: Sta. 138+66.22, 86' Lt. C.L.

Boring Surface Elev: (0.00

	5100 1

Boring Surface Elev.: 69.00		Re		
Wt. of Casing Hammer: Wt. of Sample Hammer: 140 Type of: D-Sampler: Split Barrel S-Sampler: U-Sampler: Ball Sampler Core Bit: Ball Sampler	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2 3	IN. IN. IN. IN. IN. IN.
Casing Size: 3 1/4 Hollow Stem Auger:	Inches	From Depth of: From Depth of:	0.0' To: To:	26.0'
Water Level Readings Date Time 3/5/08	Depth of Hole 73.8	Depth of Casing	Depth of Water 6.3'	Elev. of Water 62.7 69.0 69.0 69.0
Pay Quantities: 2 1/2 in. Dia. Dry Sample Borin	g: 73.8	Ft. ; 3	Dia. U-Sample Bo	
No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample B		; No. of: Ft.; Core Drillin	U-Sam ng in Rock:	oles: Ft.

Boring Contractor: Walton Corporation Driller: Gary Truver, Sr. Helpers: J. Lafferty

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"		Sample Description	Class./G.I.	Remarks
		1	1.0' 2.0'	5 5		Moist stiff light brown and gray clay silt, trace of fine to coarse sand and gravel. 12" RECOVERY	A-4(7)	8" Asphalt - 4" Stone
2.49		2	2.0'	14 14 14 12		Moist medium dense brown coarse to fine sand w/ some gravel and silt.	A-1-b	
			4.0'			20" RECOVERY		JG
4.98	_	3	4.0'	4 7 9 13		Wet medium dense brown coarse to fine sand w/ some silt, trace of gravel.	A-1-b	
4.96			6.0'			21" RECOVERY	15	
		4	6.0'	4 9 8 7		Saturated medium dense light brown silty fine to coarse sand, trace of gravel.	A-2-4(0)	
7.47			8.0'			20" RECOVERY		
		5	8.0'	2 4 4 6		Saturated loose white silty fine to coarse sand, trace of gravel.	A-2-4(0)	
9.96			10.0'			18" RECOVERY		
		6	10.0'	3 4 5 5		Saturated loose white coarse to fine sand w/ some silt, trace of gravel.	A-2-4(0)	
		7	12.0' 12.0'	2		23" RECOVERY Saturated loose light brown silty fine sand,	A-2-4(0)	
12.45		,	12.0	2 2 3 7		trace of coarse sand and gravel.	A-2-4(0)	
			14.0'	0		19" RECOVERY		
		8	14.0'	9 14 17 20	196 (44) (66) 196 (44) (66) 196 (44) (66) 196 (44) (66)	Saturated dense brown gravel and coarse sand w/ some fine sand and silt.	A-1-b	

Remarks: Mud Rotary @ 26.0'

F.A. Project: U.S. 301, Maryland State Line to I-95 Contract: 25-113-01

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"		Sample Description	Class./G.I.	Remarks
	<u>v</u>				C			
			16.0'	7	(*****)*(*) (******* (********	17" RECOVERY		
		9	16.0'	7 10 14 17		Saturated medium dense light brown fine to coarse sand w/ some silt and gravel.	A-2-4(0)	
17.43				17				
11.10			18.0'			19" RECOVERY		
		10	18.0'	5 9 10 11		Saturated medium dense brown gravel and	A-1-b	
				10	(***)//**(* (****) /****	coarse to fine sand w/ some silt.		
19.92					1993.1967. 1993.1967 1993.1967			
19.92			20.0'		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	17" RECOVERY		
					(()))(() ()()()()() ()()()()()()()()()(
					1991 (4999) 1991 (4999) 1991 (1991)			
					111111111 111111111 111111111111111111			
22.41					4.63 (]61. 4.(199)() 4.(199)() 4.(199)() 4.(199)() ()			
					111111 111111 1111111 11111111			
		11	24.0'	5 9 11		Saturated very stiff orange and gray silty clay,	A-7-6(26)	
24.9	N			14		trace of coarse to fine sand and gravel.		
						$\mathbf{OR} \mathbf{BII}$		
			26.0'			23" RECOVERY		
27.39						GUST 20	15	
		U-1	29.0'			Saturated very stiff orange and gray clay,	A-6(18)	Press Sample - Shelby Tube.
29.88						trace of fine sand.		1
			31.0'			24" RECOVERY		
32.37								
		40	24.0	11				
34.86		13	34.0'	11 50/3"		Saturated hard gray and orange w/ some coarse sand, trace of gravel and fine sand. 9" RECOVERY	A-7-6(14)	
04.00			35.0'			9" RECOVERY		
37.35								
		l	I	I				

F.A. Project: U.S. 301, Maryland State Line to I-95 Contract: 25-113-01

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
39.84		14	39.0' 41.0'	4 8 11 12	Saturated medium dense orange and gray coarse to fine sand w/ some gravel, trace of silt. 17" RECOVERY	A-1-b	
42.33				12			
44.82		15	44.0' 46.0'	13 26 21 17	Saturated dense brown coarse sand w/ some fine sand and gravel, trace of silt. 20" RECOVERY	A-1-b	
47.31							
49.8		16	49.0'	38 48 50/2"	Saturated very dense brown coarse to fine sand and gravel, trace of silt.	A-1-b	IG
52.29			50.5		BUS ^{14"} RECOVERY 20	15	
54.78		17	54.0' 55.5'	30 47 50/5"	Saturated very dense green fine to coarse sand w/ some silt. 16" RECOVERY	A-2-4(0)	glauconitic
57.27							
59.76		18	59.0' 60.0'	42 50/3"	Saturated very dense green fine to coarse sand, trace of silt and gravel. 9" RECOVERY	A-3	glauconitic

F.A. Project: U.S. 301, Maryland State Line to I-95 Contract: 25-113-01

Depth	Daily	No.	Sample Depth	Blows/6"		Sample Description	Class./G.I.	Remarks
(ft.) 62.25	Progress	110.	Depth		1963 9 306 8 JOL 1 T JULIO G 6 3 3 3 3 6 6		01000.7011	Komano
02.20					120101001			
					66133666 276172920 66123666			
					1963 2019 61 1963 7 420 6 1983 2 5 5 6 6 2 6 1 7 7 2 6 6			
		19	64.0'	42 50/4"		Saturated very dense green fine to coarse	A-3	glauconitic
64.74			65.0'	30/4	11111111111 11111111111111111111111111	sand, trace of silt. 10" RECOVERY		0
					111111111 111111111 11111111111 1111111	10° RECOVERY		
					4.6.1.1.1.1.1.1 1.1.1.1.1.1.1 1.1.1.1.1.1			
					116 14 146 6 14 1 1 1 1 14 14 14 1 1 1 14 14 14			
67.23					14141) 2011) 2011) 2013			
					1414146 J.L.1.1.1.6 K.1.1.1.6			
					18839,1987, 19833,2999,6 19833,3996,6 2083,7799,67			
					664)3866 8633.1967. 86173767			
		20	69.0'	48 50/4"	100 13 936 0 100 13 936 0 201 7 22 10 100 13 976 0 100 13 976 0 100 13 976 0	Saturated very dense green fine to coarse sand	A-2-4(0)	glauconitic
69.72			70.0'		100 0 0 0 000 0 100 0 0 0 000 0	w/ some silt. 10" RECOVERY		
					14171414 111714 111714 111417 11171			
	_	_)			
72.21					1999 - 1999 - 1999 1997 - 1999 - 1999 1999 - 1999 - 1999 - 1999 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999			
		N١			12 / 22 / 24 / 24 / 24 / 24 / 24 / 24 /			
	-	21	73.0'	62 50/2"		Saturated very dense green silty fine to coarse	A-2-4(0)	glauconitic
			74.0			sand.		
74.7						HIST 20	15	
						Boring terminated at 73.8 ft.		
						boring terminated at 73.0 It.		
77.19								
79.68								
82.17								
02.17								
84.66								

KEY TO SYMBOLS

Symbol Description

Strata symbols



Low plasticity clay



Silty sand



Poorly graded sand with silt



10 High plasticity clay

Well graded sand with silt

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

- 1. Exploratory borings were drilled on 3/5/2008 using a 3 1/4-inch diameter continuous flight power auger. Rig is a Truck CME 55.
- Groundwater levels recorded at time of drilling and rechecked the following day.
- 3. Surveyed boring locations and elevations were provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recommendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All SPT blow counts are uncorrected.

Boring No.: BR3-1-06

Boring Location: Sta. 112+40,	15.00' Lt. C.L.					
Boring Surface Elev.: + 68.4	0'	Reference:				
Wt. of Casing Hammer: Wt. of Sample Hammer: 140 Type of: D-Sampler: Split-Bau S-Sampler: U-Sampler: Core Bit:	Lbs. Lbs. rel O.D. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2		IN. IN. IN. IN. IN.	
Casing Size: 3 1/4" Hollow Stem Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:	41.0'	
Water Level Readings DateTime12/10/20089:00 a.m.	Depth of Hole 12.0'	Depth of Casing 10.0'		of Water .4'	Elev. of Water	

Pay Quantities:

Contract: 25-113-01

2 1/2 in. Dia. Dry Sample Boring: 98.5	Ft.;	Dia. U-Sample Boring:	Ft.
No. of 2 in. Dia. Shelby Tubes:	_;	No. of: U-Samples:	
2 1/2 in. Dia. Contin. Sample Boring:	Ft.;	Core Drilling in Rock:	Ft.

Boring Contractor: Walton Corporation Driller: Jason Truver Helpers: T. Kane

F.A. Project: U.S. 301, Maryland State Line to I-95

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"		Sample Description	Class./G.I.	Remarks
	12/10/08	1	0.5'	8 9 7		Moist very stiff gray silt w/some clay, trace of fine to coarse sand and gravel.	A-4(3)	Topsoil - 6".
			2.0'	6		15" RECOVERY		
2.5	ľ	2	2.0'	6 8 13 13		Moist very stiff gray clayey silt w/some fine sand, trace of coarse sand and gravel. 16" RECOVERY	A-4(3)	JG
		3	4.0'	4 6		Moist medium dense brownish gray fine to	A-2-4(0)	
5			6.0'	57		coarse sand w/trace of silt and gravel.	15	
		4	6.0'	5 10 7 6		Moist medium dense gray coarse to fine sand w/some gravel and silt.	A-1-b	
7.5			8.0'			12" RECOVERY		
		5	8.0'	5 5 5 5	400 9 9 9 9 9 9 9 100 9 9 9 9 9 9 100 9 1 9 90 0 100 9 1 9 90 0 100 9 9 9 9 9 100 9 9 9 100 9 9 100 9 9 100 9 100 9 100 9 100 0 100 9 100 0 100 0 10	Wet loose orange coarse sand w/some gravel, silt and fine sand.	A-1-b	
10			10.0'		1999 - 1999 -	17" RECOVERY		
		6	10.0'	4 5 5 5		Wet medium dense orange coarse to fine sand w/some gravel and silt. 15" RECOVERY	A-1-b	
12.5		7	12.0	2 6 9 10		Wet medium dense orange gravel and coarse to fine sand w/some silt.	A-1-b	
			14.0'			14" RECOVERY		
		8	14.0'	4 9	nti si ci. Nti take	Wet medium dense orange coarse to fine sand	A-1-b	

Remarks: Mud Rotary at 41.0'

F.A. Project: U.S. 301, Maryland State Line to I-95 Contract: 25-113-01

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"		Sample Description	Class./G.I.	Remarks
15				8 8	19999999999 2001 (2001) 69999999 1009001000 1009001000 100999000	and gravel w/trace of silt.		
					4. F F F F F F F F F F F 12 (F F F F F F F F F F F F F F F F F F			
			16.0'		1			
		9	16.0'	13		some fine and and allt	A-1-b	
47.5				6	6417346 1613316 161416 161416 16151			
17.5			18.0'		1993, 1994 1997, 1997, 1997 1997, 1997, 1997, 1997 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997			
		10	18.0'	2 6 5 2	2003 13:00 1993 19:00 1993 1997 1997 1997 1997 1997 1997 1997			
					1999,1997 1999,999,999 1999,999,999 1999,999,999 1999,999,			
20			20.0'		1:(33.1)#f N(133.1)#f N(133.1)#f	0" RECOVERY		
					12170141. 66434666 101121701			
					1417141. 1417141. 1417141.			
					44444197 64744196 64744966 64777966			
22.5								
					128313:00 128333:06 128333:06 128333:06 128333:06 12833:07 12835:07 128335:07 128335:07 128335:07 128355:07 128355:07 10	DRAFI		
					2217220 2221220 1222220 1222220 1222220 1222220 1222220 1222220 122220 122220 122220 122220 122220 12220 12220 12220 12200 12200 12200 12200 12200 12200 12200 12200 12200 12200 12200 12200 12200 12200 12200 12200 12200 12200 12200 120000000 12000 12000 12000 12000 12000 12000 12000 12000 12000 12000 12000 12000 12000 12000 12000 12000 12000 12000 12000 10000 10000 10000 100000000			
	_	11	24.0'					
25	N			4 9 5 10				
2							JII	IG
			26.0'	-	17 <mark>11</mark> (1997) - (1997) - (1997) - (1997) - (1997) - (1997) - (1997)	0" RECOVERY		
						GUST 20	15	
27.5								
					1993 1999 1999 1993 1999 1993 1997 1993 1997 1993 1997 1997			
		12	29.0'	4 9 10 12		Saturated very stiff gray silty clay w/trace of	A-7-6(17)	
30				10 12		coarse to fine sand and gravel.		
			31.0'			22" RECOVERY		
32.5								
02.0								
		- 10	04.0	10				
		13	34.0'	10 20 26 23		Saturated hard brown coarse sandy clay w/ some gravel, trace of fine sand.	A-7-6(3)	
35				23		some graver, date of file sund.		
			36.0'			23" RECOVERY		
			30.0			25 RECOVERT		
37.5								

F.A. Project: U.S. 301, Maryland State Line to I-95 Contract: 25-113-01

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"		Sample Description	Class./G.I.	Remarks
40		14	39.0'	2 4 6 4		Saturated loose brown coarse to fine sand w/ trace of silt and gravel.	A-1-b	Mud Rotary @ 41.0'.
			41.0'			6" RECOVERY		
42.5								
45		15	44.0'	5 8 8 10		Saturated medium dense light brown coarse to fine sand w/trace of silt and gravel.	A-1-b	
47.5			46.0'			17" RECOVERY		
		16	49.0' 49.5'	50/5"		Saturated very dense light brown gravel and	A-1-b	IG
50			<u>49.5'</u>	U		coarse to fine sand w/trace of silt.	15	
52.5	10/10/00		54.0	12	125 3 3 3 2 5 5 125 3 3 3 2 5 5 125 3 4 3 5 6 5 125 3 4 3 5 6 5 125 3 5 2 5 6 125 3 5 2 5 6 125 3 5 2 5 6 125 3 3 3 5 6 125 3 3 5 6 125 3 3 5 6 125 3 5 6 125 3 5 6 125 3 5 7 125 5 7 12			
55	12/12/08	17	54.0'	13 23 30 36	10000000000000000000000000000000000000	Saturated very dense brownish green fine to coarse sand w/some silt, trace of gravel.	A-2-4(0)	
			56.0'		100133000 10031300 10031300 10031300 10013300 10013300 10013300 10031300 10031300 10031300 10031300 10031300 10031300 10031300 10031300 1003100 1003100 100300 10000 100300 1000000	21" RECOVERY		
57.5					116999366 976979367 116930706 116930706 116930706 116939366 976979367 11693366 116930476 116930476 116930476 116930476			
60		18	59.0'	18 24 41 50		Saturated very dense brownish green fine to coarse sand w/some silt.	A-2-4(0)	
			61.0'			20" RECOVERY		

F.A. Project: U.S. 301, Maryland State Line to I-95 Contract: 25-113-01

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description Class./G.I.	Remarks
62.5		19	64.0' 65.0'	26 50/5"	Saturated very dense brownish green fine to A-3 coarse sand w/trace of silt.	
67.5			00.0		11" RECOVERY	
70	_	20	69.0' 70.0'	41 50/4"	Saturated very dense brownish green fine to A-3 coarse sand w/trace of silt. 9"RECOVERY	
72.5			D.	T		G
75		21	74.0' 75.0' 79.0'		Saturated very dense brownish green fine to coarse sand w/trace of silt. 10" RECOVERY Saturated very dense brownish green fine to A-3	
80			80.0'	30 50/4"	Saturated very dense brownish green fine to coarse sand w/trace of silt. 7" RECOVERY	
85		23	84.0' 85.0'	40 50/4"	Saturated very dense brownish green fine to A-3	

F.A. Project: U.S. 301, Maryland State Line to I-95 Contract: 25-113-01

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description Class./G.I. Remarks	
87.5					NET 3 AN UN NET 3	
90		24	89.0' 90.0'		Saturated very dense brownish green fine to coarse sand w/trace of silt. 10" RECOVERY	
95		25	94.0' 95.0'		Saturated very dense brownish green fine to coarse sand w/trace of silt. 10" RECOVERY	
<u>100</u> <u>102.5</u> <u>105</u>		26	9 <mark>8</mark> .0' 98.5'	50/3"	Saturated very dense brownish green fine A-2-4(0) sand w/some silt and coarse sand. 3" RECOVERY End of Boring	
107.5						

Symbol Description

Strata symbols



Silty low plasticity clay

Silty sand

Poorly graded sand with silt



Silt



Clayey sand

Poorly graded sand



Well graded sand with silt

DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 12-10-2008 using a 3 1/4-inch diameter hollow stem auger. Rig is a ATV CME 55.
- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

Boring No.: BR3-1-07

Boring Location: st	ta. 112+40, 15.00' R	t. C.L.					
Boring Surface Elev	+ 67.70'		Reference:				
Wt. of Casing Hammer: Wt. of Sample Hammer: Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:	140 Split-Barrel Ball Sampler	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2 3		IN. IN. IN. IN. IN.	
Casing Size: Hollow Stem	3 1/4" n Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:		40.0'
	Time :00 a.m.	Depth of Hole 12.0'	Depth of Casing	Depth o 8.2		Elev. of Wate	r.

Pay Quantities:

Contract: 25-113-01

2 1/2 in. Dia. Dry Sample Boring:	98.5	Ft.;	3 Dia. U-Sample Boring:	Ft.
No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring:		; Ft.;	No. of: 3" U-Samples: 1 Core Drilling in Rock:	Ft.

Boring Contractor: Walton Corporation Driller: Jason Truver Helpers: T. Kane

F.A. Project: U.S. 301, Maryland State Line to I-95

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"		Sample Description	Class./G.I.	Remarks
	12/9/08	1	1.0' 2.0'	7 4		Wet stiff gray clayey silt w/trace of fine to coarse sand.	A-4(6)	Roadway Subgrade - 9".
2.5		2	2.0'	8 9 10 14		Wet very stiff gray clayey silt w/some fine	A-4(3)	
			4.0'			sand, trace of coarse sand and gravel.		JG
		3	4.0'	4 7 7		Wet medium dense orange fine to coarse sand w/some silt, trace of gravel.	A-2-4(0)	
5			6.0'	9		19" RECOVERY	15	
7.5		4	6.0'	6 8 8 10		Wet medium dense orange coarse sand and gravel w/some fine sand and silt.	A-1-b	
1.5			8.0'			19" RECOVERY		
		5	8.0'	5 3 4 4	1000 1 4 900 0 1000 1 1000 0 1000 1 1000 0 1000 1 4 900 0 1000 1 4 900 0 1000 1 4 900 0 1000 1 4 900 0 1000 1 1000 0 1000 1 1000 0 1000 1 1000 0 1000 1 1000 0	Wet loose orange coarse sand and gravel w/ trace of silt and fine sand.	A-1-b	
10			10.0'	3	1997 7 3 990 1993 7 3 996 9 1994 7 7 7 996 9	14" RECOVERY		
		6	10.0'	3 7 7 8	n (Wet medium dense orange coarse to fine sand w/some gravel and silt.	A-1-b	
12.5		7	12.0' 12.0'	4 7 9 6	111 17 1914 111 17 1914 114 1914	20" RECOVERY Wet medium dense orange gravel and fine sand w/some coarse sand and silt.	A-1-b	
		8	14.0' 14.0'	1		14" RECOVERY Saturated loose orange fine to coarse sand w/	A-2-4(0)	
		-	<u> </u>	4 6 6		some silt, trace of gravel.	11 2 T(0)	

Remarks: Mud Roatary @ 40.0'

F.A. Project: U.S. 301, Maryland State Line to I-95 Contract: 25-113-01

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"		Sample Description	Class./G.I.	Remarks
(11.)	1 logiess		Deptil					
		0	16.0'	22		14" RECOVERY		
		9	16.0'	32 41 50/4"	4,61,99,60 (4,1,4,1,6) (4,9,1,9,6) (4,9,1,9,6) (4,9,1,9,6)	Saturated very dense brown coarse to fine sand and gravel w/some silt.	A-1-b	
17.5			17.5'		1269 9990 1269 9926 1269 1926 1269 1926	13" RECOVERY		
		40		2	1.611.616 1.611.73.110 1.614.3166			
		10	18.0'	3 4 5 6		Saturated loose orange fine sand w/some silt and gravel, trace of coarse sand.	A-2-4(0)	
				0				
20			20.0'			17" RECOVERY		
22.5								
		4.4	04.0	1				
	_	11	24.0'	4		Saturated firm gray clay w/trace of gravel and fine to coarse sand.	A-7-6(29)	
25			Ο.					
			26.0'			7"RECOVERY		
		U-1	26.0'			Saturated gray silty clay w/trace of fine to coarse sand and gravel.	A-7-5(23)	Press Sample - Shelby Tube.
27.5			Λ			21 ICT 20	15	
		12	28.0' 28.0'	4		24" RECOVERY Saturated very stiff gray silty clay w/trace of	A-7-6(27)	
				7 11 13		coarse to fine sand and gravel.	11 / 0(27)	
30			30.0'			22" RECOVERY		
32.5								
		13	34.0'	11		Saturated medium dense brownish gray	A-1-b	
35				11 12 14 13		coarse sand w/some silt and fine sand, trace of		
						gravel.		
			36.0'			22" RECOVERY		
37.5								

F.A. Project: U.S. 301, Maryland State Line to I-95 Contract: 25-113-01

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"		Sample Description	Class./G.I.	Remarks
		14	39.0'	11 12 9 10		Saturated medium dense brown coarse to fine sand w/some gravel, trace of silt.	A-1-b	Mud Rotary @ 40.0'.
40			41.0'	10		11" RECOVERY		
42.5								
		15	44.0'	6 9 12 12	1111111111 1111111111 1111111111 111111	Saturated medium dense brown coarse to fine sand w/trace of silt and gravel.	A-1-b	
45			46.0'		10133100 10134100 10133000 10133000 10133000 10133000 10133000	13" RECOVERY		
					1993 1999 1993 1999 1993 1999 1993 1999 1993 1999 1993 1990 1993 1990 1993 1990 1993 1990 1993 1990	DRAFT		
47.5					1963 4 3 6 6 276 3 7 3 6 7 16 2 3 3 5 6 6 16 2 3 4 3 6 6 16 3 3 3 6 6 276 3 7 7 7 7 7 7 7 6 5 3 3 3 6 6 276 3 7 7 7 7 7 7 7 6 6 3 3 3 6 6		- • •	
50		16	49.0'	9 12 13 14		Saturated medium dense green coarse to fine sand w/trace of silt and gravel.	A-1-b	IG
			51.0'	_		14" RECOVERY	15	
52.5							IJ	
55		17	54.0'	13 31 50		Saturated very dense green fine to coarse sand w/some silt.	A-2-4(0)	
			55.5'		-	10" RECOVERY		
57.5								
60		18	59.0'	21 30 50		Saturated very dense greenish brown fine to coarse sand w/some silt.	A-2-4(0)	
			60.5'		-	17" RECOVERY		

F.A. Project: U.S. 301, Maryland State Line to I-95 Contract: 25-113-01

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
62.5							
65		19	64.0' 65.0'	46 50/2"	Saturated very dense greenish brown fine to coarse sand w/trace of silt. 8" RECOVERY	A-3	
<u>67.5</u> 70		20	69.0' 69.5'⁄	50	Saturated very dense greenish brown fine to coarse sand w/trace of silt. 5" RECOVERY	A-3	
72.5		21	74.0	50/4"	Saturated very dense greenish brown fine to		IG
75				U	coarse sand w/trace of silt. 4" RECOVERY	15	
80		22	79.0' 79.5'	50/4"	Saturated very dense greenish brown fine to coarse sand w/trace of silt. 4" RECOVERY	A-3	
85	12/10/08	23	84.0' 85.0'	39 50/4"	Saturated very dense greenish brown fine to coarse sand w/trace of silt. 10" RECOVERY	A-3	

F.A. Project: U.S. 301, Maryland State Line to I-95 Contract: 25-113-01

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
87.5		24	89.0'		Saturated very dense greenish brown fine to	A-3	
90			90.0'	30/4"	coarse sand w/trace of silt. 9" RECOVERY		
95		25	94.0' 95.0'	32 50/5"	Saturated very dense greenish brown fine to coarse sand w/trace of silt. 10" RECOVERY	A-3	
97.5			0	T	OR BID		IG
		26	98.0' 98.5'	50/3"	Saturated very dense greenish brown fine to coarse sand w/trace of gravel and silt. 2" RECOVERY End of Boring	A-3	
100							
102.5							
105							
107.5							

Symbol Description

Strata symbols

Low plasticity clay

Silty low plasticity clay



Silty sand



Poorly graded sand with silt



High plasticity clay



1997 (1997) 1997 (1997) 1997 (1997) 1997 (1997) Elastic silt

Well graded sand with silt

DRAFT NOT FOR BIDDING AUGUST 2015

- Exploratory borings were drilled on 12-9-2008 using a 3 1/4-inch diameter hollow stem auger. Rig is a ATV CME 55.
- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1

Boring No.: C3-1-01

Ft. Ft.

Boring Location:	Sta. 126+00, 60.00'	Rt. C.L.					
Boring Surface Ele	ev.: + 65.84		Reference:				
Wt. of Casing Hammer: Wt. of Sample Hammer Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:	: 140 Split Spoon	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow Ste	3 1/4 m Auger:	Inches	From Depth of: From Depth of:	0.0	To: To:		20.0
Water Level Readings Date 12/15/08 12/15/08	Time	Depth of Hole 12.0 10.9	Depth of Casing	• ;	of Water 3.7 9.9	Elev. o	f Water

Pay	Qu	an	titi	es:	

Contract: 25-113-01

2 1/2 in. Dia. Dry Sample Boring: 20.0 No. of 2 in. Dia. Shelby Tubes: 20.0) Ft.;	Dia. U-Sample Boring: No. of: U-Samples:
2 1/2 in. Dia. Contin. Sample Boring:	Ft.;	Core Drilling in Rock:

Boring Contractor: Walton Corporation Driller: Gary Truver Helpers: D. Zmijewski

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"		Sample Description	Class./G.I.	Remarks
2		1	1.0' 2.0'	7 5		Indication of moist medium dense brown sand.		No sieve analysis. Topsoil - 12". FILL.
		2	2.0'	4 3 4		Wet loose brown fine sand and gravel w/	A-2-4(0)	FILL.
			0	4		some clay and coarse sand.	NIC	IG
4			4.0'			12" RECOVERY		
		3	4.0'	3 4 4 3		Indication of wet loose brown fine sand and gravel w/ some coarse sand.		FILL.
				3		graver w/ some coarse sand.	15	
6		4	6.0' 6.0'	3		6" RECOVERY Wet loose brown and black fine to coarse	A-2-4(0)	
			0.0	3		sand w/ some clay and gravel.	A-2-4(0)	
			7.0'			8" RECOVERY		
		4A	7.0'	7 6				
8		5	8.0' 8.0'	7	KRIGHK	8" RECOVERY Wet medium dense gray gravel and coarse to	A-1-b	
		Ű	0.0	7 6 11 12		fine sand w/ some silt.	A-1-0	
10			10.0'			4" RECOVERY		
		6	10.0'	16 9 6 11		Wet medium dense gray silty coarse to fine	A-2-4(0)	
				11		sand w/ some gravel.		
12			12.0'			20" RECOVERY		
Bomo	·			4				

PAGE 2 OF 2

STATE OF DELAWARE DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 25-113-01

Depth	Daily		Sample			_	
(ft.)	Progress	No.	Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
		7	12.0'	5 8 8	Saturated medium dense gray to brown coarse to fine sand w/ some gravel and silt.	A-1-b	
14			14.0'		18" RECOVERY		
		8	14.0'	12 12 9 8	Saturated medium dense brown fine to coarse sand w/ some silt and gravel.	A-2-4(0)	
16			16.0'		15" RECOVERY		
		9	16.0'	3 7 8 11	Saturated medium dense brown coarse sand	A-1-b	
				o 11	w/ some fine sand, trace of silt and gravel.		
18		40	18.0'	10	20" RECOVERY		
		10	18.0'	10 15 17 18	Saturated dense brown coarse sand, trace of fine sand, gravel, and silt.	A-1-b	
20			20.0'		21" RECOVERY		
					End of Boring		
		N I					U
22					GUST 20	15	
24							
26							
28							
30							

Symbol Description

Strata symbols

Poorly graded clayey silty sand

Silty sand

International
International
Well graded sandWith siltWith silt

Poorly graded sand with silt

DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 12/15/2008 using a 3 1/4-inch diameter hollow stem auger. Rig is a ATV CME 45B.
- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

Boring

Boring Surface	Elev.: + 61.06		Reference:				
Wt. of Casing Hamm Wt. of Sample Hamn Type of: D-Sampl S-Sampl U-Sampl Core Bit:	ner: 140 er: Split Spoon er: er:	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow	3 1/4 Stem Auger:	Inches	From Depth of: From Depth of:	0.0	To: To:		20.0
Water Level Reading Date 12/15/08 12/15/08	gs Time	Depth of Hole 8.0 2.9	Depth of Casing 10.0	•	of Water 4.3 2.5	Elev. d	of Water

Pay Quantities:

Contract: 25-113-01

2 1/2 in. Dia. Dry Sample Boring: 20.0 No. of 2 in. Dia. Shelby Tubes:) Ft.;	Dia. U-Sample Boring: No. of: U-Samples:	Ft.
2 1/2 in. Dia. Contin. Sample Boring:	Ft.;	Core Drilling in Rock:	Ft.
Paring Contractory Walton Comparation			

Boring Contractor: Walton Corporation Driller: Gary Truver Helpers: D. Zmijewski

F.A. Project: U.S. 301, Maryland State Line to S.R. 1

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"		Sample Description	Class./G.I.	Remarks
		1	0.5'	4 4 5		Wet stiff brown, gray, and orange mottled clayey silt w/ some fine sand, trace of coarse sand and gravel.	A-4(4)	Forest Duff - 6".
2		2	2.0' 2.0'	6		16" RECOVERY Wet medium dense gray coarse to fine sand	A-1-b	
			\bigcirc	6 11 9 11		w/ some gravel and silt.	A-1-0	IG
4			4.0			16" RECOVERY		
		3	4.0'	4 4 6		Saturated loose gray to brown coarse to fine	A-1-b	
				9	1001 2 310 0 1012 2 310 0 1023 2 310 0 1020 0 100 0 1000 0 100000000	sand w/ some silt, trace of gravel.		
6			6.0'		1993,496. 1993,496. 1993,496.	15" RECOVERY		
		4	6.0'	4 6 5 7		Saturated medium dense orange fine to coarse sand w/ some silt, trace of gravel.	A-2-4(0)	
8			8.0'			18" RECOVERY		
		5	8.0'	3 9 9 13		Saturated medium dense orange fine to coarse sand w/ some silt, trace of gravel.	A-2-4(0)	
10			10.0'			20" RECOVERY		
		6	10.0'	11 7 7 7		Saturated medium dense orange coarse to fine sand w/ some gravel, trace of silt.	A-1-b	
					1.1.1.1.1.1.1.1			l

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 Contract: 25-113-01

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description Class./G.I.	Remarks
12			12.0'		16" RECOVERY	1
		7	12.0'	3 6 10 12	Saturated very stiff brown, gray, and black mottled clay, trace of fine to coarse sand and gravel.	
14			14.0'		16" RECOVERY	
14		8	14.0'	3	Saturated stiff brown, gray, and black mottled A-7-5(18)	
				3 6 9 1	clay w/ some coarse to fine sand.	
16			16.0'		24" RECOVERY	
		9	16.0'	9 12 12 11	Saturated very stiff brown, gray, and black mottled silty clay, trace of fine sand. A-7-6(19)	
18			18.0'		24" RECOVERY	
		10	18.0'	9 17 23 19	Saturated dense brown, gray, black mottled A-2-4(0) silty coarse to fine sand.	
20			20.0'		24" RECOVERY	
					End of Boring	NG
	-			-		-
					GUST 2015	
22						
24						
26						
28						
30						
30						

Symbol Description

Strata symbols



Low plasticity clay



Silty sand

Poorly graded sand with silt



Well graded sand with silt

Elastic silt



Silt

DRAFT NOT FOR BIDDING AUGUST 2015

- Exploratory borings were drilled on 12/15/2008 using a 3 1/4-inch diameter hollow stem auger. Rig is a ATV CME 45B.
- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

Boring No.: C3-2-01

Boring Location:	Sta. 102+10, 15.00' I	Lt. C.L.					
Boring Surface Ele	ev.: + 67.27		Reference:				
Wt. of Casing Hammer: Wt. of Sample Hammer Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:		Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2		IN. IN. IN. IN. IN.	
Casing Size: Hollow Ste	3 1/4 m Auger:	Inches	From Depth of: From Depth of:	0.0	To: To:		20.0
Water Level Readings Date 12/15/08 12/15/08	Time	Depth of Hole 12.0 7.2	Depth of Casing 10.0	Depth o 8. 7.	0	Elev. of Wate	r

Pay Quantities:

Contract: 25-113-01

	20.0	Ft.;	Dia. U-Sample Boring:	Ft.
No. of 2 in. Dia. Shelby Tubes:		_;	No. of: U-Samples:	
2 1/2 in. Dia. Contin. Sample Boring:		Ft.;	Core Drilling in Rock:	Ft.

Boring Contractor: Walton Corporation Driller: Jason Truver Helpers: T. Kane

F.A. Project: U.S. 301, Maryland State Line to S.R. 1

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description Class.	G.I. Remarks
	-	1	0.0'		Augered to 2 feet.	Asphalt - 6". Crusher Run - 18".
2		2	2.0' 2.0'	4 8 8 10	0" RECOVERY Moist very stiff gray clay, trace of fine to coarse sand and gravel.	9) NG
4		3	4.0' 4.0'	5	17" RECOVERY Moist medium dense gray coarse to fine sand A-1-	5
6			6.0'	5 8 7	w/ some silt, trace of gravel.	0
		4	6.0'	7 5 6 6	Wet medium dense brown fine to coarse sand w/ some silt, trace of gravel.	(0)
8		5	8.0' 8.0'	6	16" RECOVERY Saturated medium dense orange coarse sand A-1-	b
				6 5 7 7	w/ some fine sand, trace of silt and gravel.	
		6	10.0' 10.0'	6 12 13 13	14" RECOVERY Saturated medium dense orange coarse sand and gravel w/ some fine sand, trace of gravel.	b

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 25-113-01 Boring No.: C3-2-01

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
	1 1091000				8" RECOVERY		
12		7	12.0' 12.0'	8		A 11	
		/	12.0	8 7 5 8	Saturated medium dense orange coarse sand and gravel w/ some coarse sand, trace of silt.	A-1-b	
14		8	14.0' 14.0'	1	12" RECOVERY	A-1-b	
				1 2 6 5	gravel w/ some silt.		
16			16.0'				
10		9	16.0'	4 6 8 8	Saturated stiff orange silty clay, trace of fine	A-7-6(33)	
				8 8	to coarse sand and gravel.		
18			18.0'		12" RECOVERY		
		10	18.0'	7 7 14 14	Indication of saturated very stiff orange clay, trace of sand.		No sieve analysis.
				14			
					🕅 ()R RII)I) 	
20			20.0'		13" RECOVERY End of Boring		
					IGUST 20	15	
22							
24							
26							
28							
30							

Symbol Description

Strata symbols



Low plasticity clay



Silty sand



Well graded sand with silt



Poorly graded sand with silt



High plasticity clay

DRAFT NOT FOR BIDDING AUGUST 2015

- Exploratory borings were drilled on 12/15/2008 using a 3 1/4-inch diameter hollow stem auger. Rig is a ATV CME 45B.
- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
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- 6. All blow counts are uncorrected.

Boring No.: C3-3-01

			PAC
1			

Contract: 25-113-01 Boring Location:	Sta. 119+50, 15.00'							
Boring Surface Ele	ev.: + 65.47		Reference:					
Wt. of Casing Hammer Wt. of Sample Hammer Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:	r: 140 Split Spoon	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2		IN. IN. IN. IN. IN.		
Casing Size: Hollow Ste	3 1/4 em Auger:	Inches	From Depth of: From Depth of:	0.0	To: To:		20.0	
Water Level Readings Date 12/15/08 12/15/08	Time	Depth of Hole 10.0 6.5	Depth of Casing 8.0	•	of Water 7.2 6.4	Elev	/. of Water	

Pay Quantities:

2 1/2 in. Dia. Dry Sample Boring: 20.0	Ft.;	Dia. U-Sample Boring:	Ft.
No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring:	; Ft.;	No. of: U-Samples: Core Drilling in Rock:	Ft.
Dering Contractory W16 C			

Boring Contractor: Walton Corporation Driller: Jason Truver Helpers: T. Kane

F.A. Project: U.S. 301, Maryland State Line to S.R. 1

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample	e Description	Class./G.I.	Remarks
		1	0.5'	2 2 3	Wet soft gray cla sand and gravel.	ay, trace of fine to coarse	A-6(8)	Leaf Litter - 2".
2		2	2.0' 2.0'	4		2" RECOVERY	A-4(1)	
	ſ			4 11 14 16	sand and clay, tr	ay silt w/ some fine to coarse ace of gravel.	A-4(1)	IG
4			4.0'			7" RECOVERY		
		3	4.0'	2 2 3 4		nottled silty fine sand, trace	A-2-4(0)	
6			6.0'		1'	7" RECOVERY		
		4	6.0'	10 8 9 8	Wet medium der w/ some silt, trad	nse orange coarse to fine sand ce of gravel.	A-1-b	
8			8.0'		1	3" RECOVERY		
		5	8.0'	3 5 4 4		orange fine to coarse sand w/	A-1-b	
10			10.0'		****	5" RECOVERY		
		6	10.0'	4 6 8 8	Saturated mediu sand, trace of gr	m dense orange coarse to fine avel and silt.	A-1-b	

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 Contract: 25-113-01

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"		Sample Description	Class./G.I.	Remarks
12			12.0'			14" RECOVERY		
		7	12.0'	10 12 15 7		Saturated medium dense orange gravel and coarse sand w/ some fine sand, trace of silt.	A-1-b	
14			14.0'		9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	12" RECOVERY		
		8	14.0'	4 4 3		Saturated loose light brown coarse sand w/ some fine sand and gravel, trace of silt.	A-1-b	
		9	16.0' 16.0'	5 8 18 26		12" RECOVERY Saturated medium dense light brown fine to coarse sand w/ some gravel and silt.	A-2-4(0)	
18		10	18.0' 18.0'	10 9 17 20		18" RECOVERY Saturated medium dense brown coarse sand	A-1-b	
				17 20		and gravel w/ some fine sand, trace of silt.		
20			20.0'			6" RECOVERY End of Boring		IG
2			Α			GUST 20	15	
24								
26								
30								

Symbol Description

Strata symbols

Low plasticity clay

Silty low plasticity clay



Silty sand



10 Poorly graded sand with silt

Well graded sand with silt

DRAFT NOT FOR BIDDING AUGUST 2015

- Exploratory borings were drilled on 12/15/2008 using a 3 1/4-inch diameter hollow stem auger. Rig is a ATV CME 45B.
- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 25-113-01

Boring Location: Sta. 142+20, 90.00' Rt. C.L.

Boring Surface Ele	• V.: + 69.48		Reference:					
Wt. of Casing Hammer: Wt. of Sample Hammer: Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:		Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2		IN. IN. IN. IN. IN. IN.		
Casing Size: Hollow Ste	3 1/4 m Auger:	Inches	From Depth of: From Depth of:	0.0	To: To:		20.0	
Water Level Readings Date 12/15/08 12/15/08	Time	Depth of Hole 12.0 8.2	Depth of Casing 10.0	8	o f Water .6 ry	Elev. o	f Water	

Pay Quantities:

2 1/2 in. Dia. Dry Sample Boring:	20.0	Ft.;	Dia. U-Sample Boring:	Ft.
No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring:		; Ft.;	No. of: Ú-Samples: Core Drilling in Rock:	Ft.
Denimer Operations XVI 1/ C /				

Boring Contractor: Walton Corporation Driller: Gary Truver Helpers: D. Zmijewski

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
		1	0.5'	7 7 10	Wet medium dense gray and orange mottled clayey silt, trace of fine to coarse sand and gravel.	A-4(9)	Topsoil - 7".
2		2	2.0' 2.0'	17	17" RECOVERY		
		Í		17 17 17 21	Wet hard gray and orange mottled clayey fine sandy silt w/ some coarse sand, trace of gravel.	A-4(1)	IG
4			4.0'		19" RECOVERY		
		3	4.0'	5 7 11	Wet medium dense orange silty fine sand w/	A-2-4(0)	
				ġ	some coarse sand, trace of gravel.		
6			6.0'		17" RECOVERY		
		4	6.0'	10 11 10 9	Wet medium dense orange silty fine to coarse	A-2-4(0)	
				9	sand, trace of gravel.		
8			8.0'		23" RECOVERY		
		5	8.0'	3 5 7 7	Wet medium dense orange fine to coarse sand	A-2-4(0)	
				7	w/ some silt and gravel.		
10			10.0'		16" RECOVERY		
		6	10.0'	2 2 3 4	Saturated loose orange silty fine sand, trace of	A-2-4(0)	
				4	coarse sand.		

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 Contract: 25-113-01 Boring No.: C3-4-02

Depth	Daily	No.	Sample	Blows/6"	Sample Description Class./G.I. Rem	arks
(ft.)	Progress		Depth 12.0'		17" RECOVERY	
12		7	12.0	1 2	Saturated loose orange silty fine sand, trace of A-2-4(0)	
				1 2 3 2	coarse sand.	
14			14.0'		24" RECOVERY	
		8	14.0'	2 8 24 15	Saturated dense orange fine sand and gravel A-2-4(0)	
				24 15	w/ some coarse sand and silt.	
16			16.0'		21" RECOVERY	
		9	16.0'	8 12 17 17	Saturated medium dense orange coarse to fine A-1-b sand w/ some gravel, trace of silt.	
				17		
18		10	18.0' 18.0'	9	20" RECOVERY Saturated dense orange coarse sand and A-1-b	
		10		9 13 18 19	Saturated dense orange coarse sand and A-1-b gravel w/ some fine sand and silt.	
				19		
	N		20.0'			
20			20.0		End of Boring	
					IGUST 2015	
22						
24						
26						
28						
30						
	1					

Symbol Description

Strata symbols

Low plasticity clay

Silty low plasticity clay



Silty sand



Well graded sand with silt

Poorly graded sand with silt

DRAFT NOT FOR BIDDING AUGUST 2015

- Exploratory borings were drilled on 12/15/2008 using a 3 1/4-inch diameter hollow stem auger. Rig is a ATV CME 45B.
- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

Boring No.: C3-4-03

Boring Location:	Sta. 141+40, 320.00	Rt. C.L.					
Boring Surface Ele	V.: + 70.40		Ref	erence:			
Wt. of Casing Hammer: Wt. of Sample Hammer: Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:		Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow Ste	3 1/4 m Auger:	Inches	From Depth of: From Depth of:	0.0	To: To:		20.0
Water Level Readings Date 1/15/09 1/15/09	Time	Depth of Hole 14.0 2.4	Depth of Casing 12.0	Depth of 11. Dr	.0	Elev. o	f Water

Pay Quantities:

Contract: 25-113-01

2 1/2 in. Dia. Dry Sample Boring: 20.0	Ft.;	Dia. U-Sample Boring:	Ft.
No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring:	; Ft.:	No. of: Ú-Samples: Core Drilling in Rock:	Ft.
	,	5	

Boring Contractor: Walton Corporation Driller: Bill Holden Helpers: T. Kane

F.A. Project: U.S. 301, Maryland State Line to S.R. 1

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description Class./G.	Remarks
	1/15/09	1	0.0'	8 13 16 9	A-1-a Coarse sand and organic matter, trace of fine sand and silt.	FILL.
2		2	2.0' 2.0'	4 6 7 7	16' RECOVERY Wet stiff brown gravelly silt w/ some clay and A-4(0) fine to coarse sand.	NG
4			4.0'	7	1000000000000000000000000000000000000	
		3	4.0' 5.0'	1 2	Wet soft gray silt, trace of fine to coarse sand and gravel. 10" RECOVERY	
6		3A	5.0'	5 10	Wet medium dense brown silty coarse to fine A-1-b sand w/ some gravel. 10" RECOVERY	
		4	6.0'	8 9 10 13	Wet medium dense brown to gray silty coarse A-1-b to fine sand, trace of gravel.	
8			8.0'		17" RECOVERY	
		5	8.0'	4 5 5	Wet loose gray silty fine to coarse sand, trace A-2-4(0) of gravel.	
10			10.0'		19" RECOVERY	
		6	10.0'	3 4 5 5	Wet loose gray fine to coarse sand, trace of A-3 silt.	

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 25-113-01 Boring No.: C3-4-03

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description Class./G.I. Remarks
	1 1091000		Dopui		
12			12.0'	2	22" RECOVERY
		7	12.0'	3 3 3 3	Wet loose light brown fine to coarse sand w/A-2-4(0)some silt, trace of gravel.
14		8	14.0' 14.0'	1	20" RECOVERY Wet loose light brown fine to coarse sand w/ A-2-4(0)
				1 2 3 3	some silt.
			40.0		
16		9	16.0' 16.0'	1 2 5 6	17" RECOVERY Wet loose light brown fine to coarse sand w/ A-2-4(0)
				5 6	some silt, trace of gravel.
18			18.0'		17" RECOVERY
		10	18.0'	6 8 6 7	Wet medium dense light brown gravel andA-1-bfine sand w/ some coarse sand and silt.
				7	The sand w/ some coarse sand and snt.
			Γ.		
20			20.0'		End of Design
					End of Boring
					GUST 2015
				NU	
22					
24					
26					
28					
30					

Symbol Description

Strata symbols



Well graded gravel with silt

Poorly graded clayey silty sand



rt100

Silty sand

Silt

Poorly graded sand with silt

DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 1/15/2009 using a 3 1/4-inch diameter hollow stem auger. Rig is a ATV CME 45B.
- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 25-113-01

Boring Location: Sta. 151+80, 230.00' Rt. C.L

Boring Surface Ele	ev.: + 68.94		Ref	erence:			
Wt. of Casing Hammer: Wt. of Sample Hammer: Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:		Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow Ste	3 1/4 m Auger:	Inches	From Depth of: From Depth of:	0.0	To: To:		20.0
Water Level Readings Date 1/15/09 1/15/09	Time	Depth of Hole 10.0 8.5	Depth of Casing 8.0	• ,	of Water 7.7 5.3	Elev. of	Water

Pay Quantities:

2 1/2 in. Dia. Dry Sample Boring:	20.0	Ft.;	Dia. U-Sample Boring:	Ft.
No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring:		; Ft.:	No. of: U-Samples: Core Drilling in Rock:	Ft
Daning Cantagatan Willing		,		1.

Boring Contractor: Walton Corporation Driller: Bill Holden Helpers: T. Kane

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"		Sample Description	Class./G.I.	Remarks
	1/15/09	1	0.5'	1 1 5		Wet firm gray clayey silt w/ some fine to coarse sand, trace of gravel.	A-4(3)	Leaf Litter - 3".
2	_		2.0'			12" RECOVERY		
		2	2.0'	13 11 12 15		Wet medium dense orange silty coarse to fine sand w/ some gravel.	A-1-b	JG
				-				
4			4.0'			18" RECOVERY		
		3	4.0'	3 6 7		Wet medium dense orange fine to coarse sand	A-1-b	
				8		and gravel w/ some silt.		
6			6.0'			17" RECOVERY		
		4	6.0'	8 5 5 5		Wet loose orange silty fine sand, trace of	A-2-4(0)	
				5		coarse sand and gravel.		
8			8.0'			18" RECOVERY		
		5	8.0'	2 1 5 5		Wet loose brown fine to coarse sand w/ some	A-2-4(0)	
				5 5		gravel and silt.		
10			10.0'			16" RECOVERY		
		6	10.0'	1 2 2 4		Saturated very loose brown silty fine sand,	A-2-4(0)	
				4		trace of coarse sand.		
Domo		-			netetetetetetetete			

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 Contract: 25-113-01

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
12			12.0'		20" RECOVERY		
		7	12.0	1	Saturated very loose brown fine sand w/ some	A-2-4(0)	
		-		1 1 2 6	silt, trace of coarse sand and gravel.	A-2-4(0)	
				6	sin, nace of coarse said and gravel.		
			110		15" DECOVERY		
14		8	14.0' 14.0'	6	15" RECOVERY Saturated medium dense brown fine sand and	A-1-b	
		Ŭ	14.0	6 6 7 10	gravel w/ some coarse sand and silt.	A-1-0	
				10	graver w/ some coarse sand and snt.		
	1						
16		9	16.0' 16.0'	8	18" RECOVERY		
		9	16.0	8 11 13 12	Saturated medium dense brown coarse to fine	A-1-b	
				12	sand w/ some gravel and silt.		
	1						
18			18.0'	0	17" RECOVERY		
		10	18.0'	8 8 8 8	Saturated medium dense brown coarse to fine sand w/ some gravel, trace of silt.	A-1-b	
	1			8 8			
20			20.0'		16" RECOVERY		
					End of Boring		
				-			
					GUST 20	16	
22							
1							
	1						
24							
1							
	1						
26							
28	ļ						
1							
 							
30	ļ						

Symbol Description

Strata symbols



10 10 10 10 10 10 10 10 10 10 10 10 10 10 Low plasticity clay

Silty sand

Well graded sand with silt

DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 1/15/2009 using a 3 1/4-inch diameter hollow stem auger. Rig is a ATV CME 45B.
- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

Boring No.: C3-6-03

Boring Location:	Sta. 165+20, 170.00	' Rt. C.L.					
Boring Surface Ele	ev.: + 76.81		Ref	erence:			
Wt. of Casing Hammer: Wt. of Sample Hammer Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:		Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow Ste	3 1/4 m Auger:	Inches	From Depth of: From Depth of:	0.0	To: To:		20.0
Water Level Readings Date 12/16/08	Time	Depth of Hole 20.0	Depth of Casing		of Water	Elev. of	Water

Pay Quantities:

Contract: 25-113-01

2 1/2 in. Dia. Dry Sample Boring: 20.0	Ft.;	Dia. U-Sample Boring:	Ft.
No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring:	; Ft.;	No. of: U-Samples: Core Drilling in Rock:	Ft.
Dering Contractory Walter Comparties			

Boring Contractor: Walton Corporation Driller: Jason Truver Helpers: D. Zmijewski

F.A. Project: U.S. 301, Maryland State Line to S.R. 1

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
		1	0.0'		Augered to 2.0'.		Asphalt - 9". Stone - 15".
2		2	2.0' 2.0'	4 6 10 12	0" RECOVERY Moist very stiff brown clayey fine sandy silt w/ some coarse sand, trace of gravel.	A-4(0)	IG
4		3	4.0' 4.0'	8	18" RECOVERY Moist very stiff brown clayey fine sandy silt	15 A-4(0)	
			6.01	8 10 13 10	w/ some coarse sand and gravel.	(0)	
6		4	6.0' 6.0'	9 8 6 8	18" RECOVERY Wet stiff gray to light brown clayey silt w/ some fine sand, trace of coarse sand.	A-4(6)	
8		5	8.0' 8.0'	5	19" RECOVERY	A-2-4(0)	
				5 6 8 10	Wet medium dense brown and orange-gray mottled silty fine sand w/ some gravel, trace of coarse sand.	A-2-4(0)	
10		6	10.0' 10.0'	14 13 13 14	21" RECOVERY Wet medium dense brown, orange, and gray mottled silty fine sand w/ some coarse sand.	A-2-4(0)	

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 25-113-01 Boring No.: C3-6-03

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description Class./G.I. Remarks	
(11.)	1 1091833		Берш			
12			12.0'		22" RECOVERY	
		7	12.0'	6 6 6 10	Wet medium dense orange and gray mottledA-2-4(0)fine sand w/ some silt, coarse sand, andImage: Source of the sand sector of the sand	
				10	gravel.	
14			14.0'		22" RECOVERY	
		8	14.0'	11 10 8 8	Wet medium dense orange and gray mottledA-2-4(0)fine sand w/ some coarse sand and silt, trace	
				8	of gravel.	
16		9	16.0' 16.0'	5	14" RECOVERY	
		9	16.0	5 5 6 7	Wet medium dense orange and gray mottledA-2-4(0)fine sand w/ some silt, trace of coarse sand.	
18		10	18.0' 18.0'	5	22" RECOVERY Wet medium dense orange and gray mottled A-2-4(0)	
		10		5 10 8 9	fine sand w/ some silt and coarse sand, trace	
					of gravel.	
20	┟────┦		20.0'		End of Boring	
					GUST 2015	
22						
24						
26						
28						
30						

Symbol Description

Strata symbols

Poorly graded clayey silty sand

High plasticity clay



Silty sand

DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 12/16/2008 using a 3 1/4-inch diameter hollow stem auger. Rig is a ATV CME 45B.
- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

Boring No.: C3-7-01

Contract: 25-113-01 Boring Location:	Sta. 173+20, 520.00						
Boring Surface El	ev.: + 70.04		Ref	erence:			
Wt. of Casing Hammer Wt. of Sample Hamme Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:	r: 140 Split Spoon	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow Sto	3 1/4 em Auger:	Inches	From Depth of: From Depth of:	0.0	To: To:		20.0
Water Level Readings Date 12/15/08 12/15/09	Time	Depth of Hole 10.0 9.0	Depth of Casing 8.0	• 9	of Water 9.7 3.7	Elev. o	f Water

Pay Quantities:

2 1/2 in. Dia. Dry Sample Boring: 20.0 No. of 2 in. Dia. Shelby Tubes:) Ft.;	Dia. U-Sample Boring: No. of: U-Samples:	Ft.
2 1/2 in. Dia. Contin. Sample Boring:	Ft.;	Core Drilling in Rock:	Ft.
Paring Contractory Walton Comparation			

Boring Contractor: Walton Corporation Driller: Jason Truver Helpers: T. Kane

F.A. Project: U.S. 301, Maryland State Line to S.R. 1

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
		1	0.0'		Augered to 2.0'.		Asphalt - 6". Subgrade - 18".
2		2	2.0' 2.0'	10 12 13 8	0" RECOVERY Moist very stiff gray fine sandy clay w/ some	A-6(2)	IG
				8	coarse sand, trace of gravel.	15	
4		3	4.0' 4.0'	3 3 3 13	16" RECOVERY Wet firm gray clay w/ some fine to coarse sand.	A-6(5)	
6		4	6.0' 6.0'	17	18" RECOVERY Wet medium dense light brown fine sand w/	A-2-4(0)	
				17 14 13 13	some clay, trace of coarse sand and gravel.		
8			8.0'		17" RECOVERY		
	-	5	8.0'	4 6 6 10	Wet medium dense orange silty fine sand, trace of coarse sand.	A-2-4(0)	
10			10.0'		17" RECOVERY		
		6	10.0'	7 5 5 11	Wet loose coarse to fine sand w/ some gravel and silt.	A-1-b	

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 25-113-01 Boring No.: C3-7-01

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description Class./G.I. Remarks
12			12.0'		11" RECOVERY
		7	12.0'	7 9 9 8	Saturated medium dense brown gravel and A-1-b coarse to fine sand, trace of silt.
				8	
14			14.0'	10	12/3/10/1 MIT 9" RECOVERY
		8	14.0'	12 5 7 10	Saturated medium dense light brown fine toA-3coarse sand, trace of silt and gravel.
				10	
16		9	16.0' 16.0'	12	Image: Network of the second secon
		5		12 13 14 12	Saturated medium dense brown fine to coarseA-1-bsand w/ some gravel, trace of silt.
18		10	18.0' 18.0'	8	12' RECOVERY Saturated medium dense brown fine to coarse A-3
				8 7 7 8	sand, trace of silt and gravel.
					12 RECOVERY DDING
20			20.0'		End of Boring
					IGUST 2015
22					
24					
26					
28					
30					

Symbol Description

Strata symbols



Clayey sand

Low plasticity clay



Poorly graded clayey silty sand



Silty sand

Poorly graded sand with silt

DRAFT NOT FOR BIDDING AUGUST 2015

- Exploratory borings were drilled on 12/15/2008 using a 3 1/4-inch diameter hollow stem auger. Rig is a ATV CME 45B.
- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 Contract: 25-113-01

Boring Location: Sta. 198+00, 200.00' Lt. C.L.

Boring No.: C3-8-01

Boring Surface Ele	ev.: + 60.41		Reference:					
Wt. of Casing Hammer: Wt. of Sample Hammer: 140 Type of: D-Sampler: Ball Sampler S-Sampler: U-Sampler: Core Bit:		Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2		IN. IN. IN. IN. IN. IN.		
Casing Size: Hollow Ste	3 1/4 m Auger:	Inches	From Depth of: From Depth of:	0.0	To: To:		18.0	
Water Level Readings Date 6/30/2009	Time	Depth of Hole 12.0	Depth of Casing 10.0		of Water .9	Elev. of	Water	

Pay Quantities:

2 1/2 in. Dia. Dry Sample Boring: 20.0	Ft.;	Dia. U-Sample Boring:	Ft.
No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring:	; Ft.;	No. of: U-Samples: Core Drilling in Rock:	Ft.
Devine Contractory W 1/ C /			

Boring Contractor: Walton Corparation Driller: Jason Truver Helpers: T. Kane

Daily Progress	No.	Sample Depth	Blows/6"		Sample Description	Class./G.I.	Remarks
6/30/09	1	0.5'	3 8 10		Moist medium dense brown fine to coarse sand with gravel and some silt.	A-1-b	Cultivated Soil - 6".
	2	2.0' 2.0'	7 7 17 24		12" RECOVERY Wet medium dense brown fine to coarse silty sand with gravel.	A-2-4(0)	IG
	3	4.0' 4.0'	7 18		16" RECOVERY Moist medium dense orange fine to coarse	A-1-b	
			20 16		sand with gravel and some silt.		
		6.0'		1973,197. 1973,2967. 1973,2967. 1973,2967.	16" RECOVERY		
	4	6.0'	10 10 10 10		Wet medium dense orange fine to coarse sand with trace of silt and gravel.	A-1-b	
-		8.0'	8		17" RECOVERY		
	5	0.0	9 9		Saturated medium dense silty fine to coarse sand with some gravel.	A-1-b	
		10.0'			16" RECOVERY		
	6	10.0'	3 6 8 7	1993, 1997 1993, 2007 1993, 2007	Saturated medium dense tan fine to coarse sand with some silt trave of gravel.	A-2-4(0)	
	Progress	Progress NO. 6/30/09 1 2 3 3 4 5	Progress NO. Depth 6/30/09 1 0.5' 2.0' 2.0' 2 2.0' 3 4.0' 3 4.0' 6.0' 4 6.0' 4 5 8.0' 5 8.0'	Progress NO. Depth BIOWS/6 $6/30/09$ 1 $0.5'$ $\frac{3}{8}$ 10 $2.0'$ $\frac{7}{17}$ $2.0'$ $\frac{7}{17}$ $\frac{1}{24}$ $4.0'$ $\frac{1}{24}$ $4.0'$ $\frac{7}{18}$ $\frac{4.0'}{3}$ $\frac{7}{18}$ $\frac{6.0'}{10}$ $\frac{6}{10}$ $\frac{6.0'}{10}$ $\frac{10}{10}$ $\frac{8.0'}{10}$ $\frac{8}{9}$ $\frac{8.0'}{7}$ $\frac{8}{9}$ $10.0'$ $\frac{10.0'}{10}$	Progress NO. Depth Blows/6 6/30/09 1 0.5' 3 8 10 2.0' 2 0' 2 2.0' 7 7 17 24 4.0' 4.0' 3 4.0' 6.0' 10 8.0' 10 5 8.0' 9 9 10.0' 10.0'	Progress No. Depth Blows/b Sample Description 6/30/09 1 0.5' 3///8 Moist medium dense brown fine to coarse sand with gravel and some silt. 2 2.0' 12" RECOVERY 2 2.0' 7 1/2 2 7 1/2 2 7 1/2 2 7 1/2 2 7 1/2 2 7 1/2 2 7 1/2 2 7 1/2 2 7 1/2 2 7 1/2 2 7 1/2 2 10 1/2 10 16" RECOVERY 3 4.0' 16 1/6 10 10 1/10 10 16" RECOVERY 4 6.0' 10 1/0 10 10 1/10 10 11 1/10 10 11 1/10 11 11 1/10 11 11	Progress No. Depth Blows/o Sample Description Class/oil 6/30/09 1 0.5' 3/0 Moist medium dense brown fine to coarse sand with gravel and some silt. A-1-b 2.0' 12' RECOVERY 2 0 7/2 Wet medium dense brown fine to coarse salty sand with gravel. A-2-4(0) 3 4.0' 10' 10''''''''''''''''''''''''''''''''''''

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 25-113-01 Boring No.: C3-8-01

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"		Sample Description	Class./G.I.	Remarks
12			12.0'			14" RECOVERY		
		7	12.0	2		Saturated loose orange fine to coase sand with	A-1-b	
				2 3 7 4	6634167. 6631966 6634966 6639966	some silt and gravel.		
				4		some sitt and graver.		
					1997 - 1999 - 1999 - 1997 -			
			110		666713000 1999,1999	17" DECOVEDY		
14		8	14.0' 14.0'	5		17" RECOVERY Saturated loose tan fine to coarse sand with	A-2-4(0)	
		Ū	14.0	5 4 5 5		some silt and trace gravel.	A-2-4(0)	
				5		some sint and trace graver.		
16			16.0'	5		18" RECOVERY		
		9	16.0'	5 8 10 9	1414177. 1414177. 1411177.	Saturated medium dense tan fine to coarse	A-3	
				9		sand with some silt and gravel.		
					1964 - 1996 - 1996 - 1997 1997 - 1997 - 1997 1997 - 1997 - 1996 - 1997			
					1991 1995 19 1993 1996 1 1993 1996 1			
18		40	18.0'	2	00173900 00133000	15" RECOVERY		
		10	18.0'	2 3 5 4	66344167. 66319369 66319369	Saturated loose fine to coarse sand with some	A-2-4(0)	
				5 4	****	silt and trace gravel.		
					496 494 936 64 108 9 1 996 0 108 1 9 996 0			
					116 13 316 F. 176 1 7 3 7 10 116 1 7 3 7 10			
					196199999999 10822103006			
20			20.0'		de s 1500 C Le là Niệt Ngũ sángy Ngũ sángy	13" RECOVERY		
						End of Boring		
						GUST 20		
							16	
22								
			-					
24								
26								
28								
30								

Symbol Description

Strata symbols



Silty sand

Poorly graded clayey silty sand



Poorly graded sand with silt



Poorly graded sand

DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 6/30/2009 using a 3 1/4-inch diameter hollow stem auger. Rig is a Track CME 55.
- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 25-113-01

Boring Location: Sta. 198+00, 200.00' Rt. C.L.

Boring No.: C3-8-02

Boring Surface Ele	ev.: + 60.45		Ref	Reference:					
Wt. of Casing Hammer: Wt. of Sample Hammer: 140 Type of: D-Sampler: Split Spoon S-Sampler: U-Sampler: Core Bit:		Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2		IN. IN. IN. IN. IN. IN.			
Casing Size: Hollow Ste	12/15/08 m Auger:	Inches	From Depth of: From Depth of:	0.0	To: To:		20.0		
Water Level Readings Date 12/15/08	Time	Depth of Hole 12.0	Depth of Casing 10.0		of Water 4.2	Elev. of Wa	ater		

Pay Quantities:

2 1/2 in. Dia. Dry Sample Boring:	20.0	Ft.;	Dia. U-Sample Boring:	Ft.
No. of 2 in. Dia. Shelby Tubes:		;	No. of: U-Samples:	
2 1/2 in. Dia. Contin. Sample Boring:		Ft.;	Core Drilling in Rock:	Ft.
Dering Contractory W10 C				

Boring Contractor: Walton Corporation Driller: Gary Truver Helpers: D. Zmijewski

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description Class./G.I. Remarks	
2		1	1.0' 2.0'	7 8	Indication of wet medium dense brown clayey No sieve analysis. To sand.	opsoil -
		2	2.0'	6 4	Wet loose orange and brown coarse to fine A-1-b	
			0	6	sand w/ some gravel and silt.	
4		3	4.0'	4	18" RECOVERY	
		5	4.0	4 7 9 7	Wet medium dense orange coarse to fine sand A-1-b w/ some silt, trace of gravel.	
6			6.0'		16" RECOVERY	
		4	6.0' 8.0'	6 7 8 10	Saturated medium dense orange coarse to fine sand, trace of silt and gravel. 16" RECOVERY	
8		5	8.0	7	Saturated medium dense brown coarse to fine A-1-b	
10			10.0'	7 6 7 7	sand, trace of silt and gravel.	
		6	10.0'	10 10 12	Saturated medium dense brown coarse to fine A-1-b	
				12 8	sand, trace of silt and gravel.	
12	ļ		12.0'	2	12" RECOVERY	
Poma				2		

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 25-113-01 Boring No.: C3-8-02

Depth	Daily	No.	Sample	Blows/6"	Sample Description	Class./G.I.	Remarks
(ft.)	Progress	7	Depth 12.0'	6 10 12	Saturated very stiff brown and orange mottled		
				12	clay, trace of fine to coarse sand.		
14			14.0'		16" RECOVERY		
		8	14.0'	2 4 6 10	Saturated stiff brown and orange mottled clay w/ some fine sand, trace of coarse sand.	A-7-5(16)	
				10	w/ some fine said, trace of coarse said.		
16			16.0'		19" RECOVERY		
		9	16.0'	10 12 13 7	Saturated very stiff gray silty clay w/ some coarse sand, trace of fine sand.	A-7-6(14)	
				7	coarse sand, trace of thie sand.		
18			18.0'	42	20" RECOVERY		
		10	18.0'	13 12 13 13	Saturated very stiff gray fine to coarse sandy clay.	A-7-6(5)	
				13			
20			20.0'		21" RECOVERY		
					End of Boring		
22			Λ		CILCT ON	1 [
					IGUST 20	CI	
			_				
24							
26							
28							
30							

Symbol Description

Strata symbols

Poorly graded sand

Silty sand



Well graded sand with silt

High plasticity



Silt

clay



Low plasticity clay

DRAFT NOT FOR BIDDING AUGUST 2015

- Exploratory borings were drilled on 12/15/2008 using a 3 1/4-inch diameter hollow stem auger. Rig is a ATV CME 45B.
- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

Boring No.: C3-9-01

Boring Location:	Sta. 179+00, 70.00' 1	Lt. C.L.					
Boring Surface Ele	ng Surface Elev.: + 56.19 Reference:						
Wt. of Casing Hammer: Wt. of Sample Hammer Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:		Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow Ste	3 1/4 m Auger:	Inches	From Depth of: From Depth of:	0.0	To: To:		20.0
Water Level Readings Date 12/12/08	Time	Depth of Hole 20.0	Depth of Casing 18.0		of Water 14.0	Elev.	of Water

Pay Quantities:

Contract: 25-113-01

2 1/2 in. Dia. Dry Sample Boring:	20.0	Ft.;	Dia. U-Sample Boring:	Ft.
No. of 2 in. Dia. Shelby Tubes:		;	No. of: U-Samples:	
2 1/2 in. Dia. Contin. Sample Boring:		Ft.;	Core Drilling in Rock:	Ft.
Devine Contractory W 1/ C /				

Boring Contractor: Walton Corporation Driller: Gary Truver Helpers: D. Zmijewski

F.A. Project: U.S. 301, Maryland State Line to S.R. 1

Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
	1	1.0' 2.0'	4 3	Wet firm brown clayey silt, trace of fine to coarse sand. 12" RECOVERY	A-4(4)	Cultivated Soil - 10".
	2	2.0'	7	Wet stiff brown silt w/ some fine to coarse	A-4(0)	
			6	OR BIDL	DIN	IG
	3	4.0	2	Wet stiff brown clayey silt w/ some fine to	A-4(3)	
		Α	7 8	coarse sand, trace of gravel.	15	
		6.0'		20" RECOVERY		
	4	6.0'	7 8 9 9	Wet very stiff brown fine to coarse sandy silt, trace of clay and gravel.	A-4(0)	
	5	8.0	1 2	Wet firm brown coarse to fine sandy silt, trace	A-4(0)	
		40.5	32			
	6	10.0' 10.0'	5		A-2-4(0)	
			6 3 4	some gravel.		
		12.0'	4	17" RECOVERY		
		Progress INO. 1 2 2 1 3 3 4 5	Progress No. Depth 1 1.0' 2.0' 2 2 2.0' 4.0' 3 4.0' 3 4.0' 3 6.0' 4 6.0' 4 5 8.0' 5 8.0'	Progress No. Depth Blows/6 1 1.0' $\frac{4}{3}$ 2.0' 2 2.0' 2 2.0' 7 4.0' 3 $\frac{4.0'}{7}$ 3 $\frac{4.0'}{7}$ $\frac{6.0'}{7}$ 4 $6.0'$ $\frac{6.0'}{7}$ 5 $8.0'$ $\frac{2}{3}$ 5 $8.0'$ $\frac{2}{3}$ 10.0' $\frac{6}{3}$ $\frac{10.0'}{4}$	Progress No. Depth Blows/o Sample Description 1 1.0' 4/3 Wet firm/brown clayey silt, trace of fine to coarse sand. 2 2.0' 7/6 Wet stiff brown silt w/ some fine to coarse sand, trace of gravel. 4.0' 16" RECOVERY 3 4.0' 16" RECOVERY 4 6.0' 20" RECOVERY 6 0 20" RECOVERY 4 6.0' 7/8 8 Wet very stiff brown fine to coarse sandy silt, trace of clay and gravel. 6 7 Wet firm brown coarse to fine sandy silt, trace of gravel. 8 11" RECOVERY 10.0' 8 11" RECOVERY 11" RECOVERY 5 8.0' 11" RECOVERY 6 10.0' 20" RECOVERY 6 10.0' 20" RECOVERY 6 10.0' 20" RECOVERY 6 10.0' 5 12.0' 17" RECOVERY	Progress No. Depth blows/o Sample Description Class/(s.). 1 1.0' 4 Wet firm brown clayey silt, trace of fine to coarse sand. A-4(4) 2 2.0' 7/6 Wet stiff brown silt w/ some fine to coarse A-4(0) 3 4.0' Io'' RECOVERY A-4(3) 4.0' Io'' RECOVERY A-4(3) 6.0' 20'' RECOVERY A-4(3) 6.0' 20'' RECOVERY A-4(0) 6.0' 20'' RECOVERY A-4(0) 6.0' 20'' RECOVERY A-4(0) 6.0' 20'' RECOVERY A-4(0) 6.0' 10'' RECOVERY A-4(0) 8 11''' RECOVERY A-4(0) 6 10.0' 20'' RECOVERY 6 10.0' 20'' RECOVERY 6 10.0' 20'' RECOVERY 10.0' 20'' RECOVERY A-4(0) 11.0' 20''' RECOVERY A-4(0) 11.0' 20'''' RECOVERY A-4(0) 11.0' 20''''' RECOVERY A-4(0) 11.0' 10''''''''''''''''''''''''''''''''''''

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 25-113-01

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
		7	12.0'	5 5 4	Wet loose brown silty fine to coarse sand, trace of gravel.	A-2-4(0)	
14			14.0'		21" RECOVERY		
		8	14.0'	3 4 9 9	Saturated medium dense brown silty fine to coarse sand.	A-2-4(0)	
16		9	16.0' 16.0'	6	20" RECOVERY Saturated medium dense brown silty fine to	A-2-4(0)	
				6 11 15 16	coarse sand.		
18		10	18.0' 18.0'	8	18" RECOVERY Saturated dense brown silty fine to coarse	A-2-4(0)	
				8 15 23 25	BRAFT		
20			20.0'		11" RECOVERY		
					End of Boring		IG
22							
					GUST 20	15	
24							
26							
28							
30							

Symbol Description

Strata symbols

Silty low plasticity clay

Silt

Low plasticity clay



Silty sand

DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 12/12/2008 using a 3 1/4-inch diameter hollow stem auger. Rig is a ATV CME 45B.
- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 25-113-01

Boring Location: Sta. 179+40, 70.00' Rt. C.L.

Boring Surface Ele	•••• + 56.56		Reference:			
Wt. of Casing Hammer: Wt. of Sample Hammer Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:		Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2		IN. IN. IN. IN. IN.
Casing Size: Hollow Ste	3 1/4 m Auger:	Inches	From Depth of: From Depth of:	0.0	To: To:	20.0
Water Level Readings Date 12/12/08	Time	Depth of Hole	Depth of Casing 16.0		of Water 5.8	Elev. of Water

Pay Quantities:

2 1/2 in. Dia. Dry Sample Boring:	20.0	Ft.;	Dia. U-Sample Boring:	Ft.
No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring:		; Ft.:	No. of: U-Samples: Core Drilling in Rock:	Et.
2 1/2 In: Dia: Contin: Sample Boring.		1,	Core Drining in Rock.	1.

Boring Contractor: Walton Corporation Driller: Gary Truver Helpers: D. Zmijewski

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"		Sample Description	Class./G.I.	Remarks
		1	1.0'	4 4		Moist firm brown clayey fine sandy silt w/ some coarse sand, trace of gravel.	A-4(1)	Topsoil - 8".
2			2.0'			12" RECOVERY		
		2	2.0'	4 11 9		Moist medium dense brown silty fine sand w/	A-2-4(0)	
			D.	9		some coarse sand, trace of gravel.		JG
4			4.0'	4		19" RECOVERY		
		3	4.0'	4 11 7 23		Moist medium dense brown gravel and coarse sand w/ some fine sand, trace of silt.	A-1-a	
6			6.0'		12122.1201. 121122.200 12122.200	14" RECOVERY		
		4	6.0'	7 12 7 9		Wet medium dense brown, orange, and light tan coarse to fine sand w/ some silt, trace of gravel.	A-1-b	
			8.0'					
8		5	8.0'	5 10 10 11		20" RECOVERY Wet medium dense orange coarse to fine sand w/ some silt, trace of gravel.	A-1-b	
10		6	10.0' 10.0'	14		17" RECOVERY Wet dense orange silty fine to coarse sand.	A-2-4(0)	
				14 20 16 16		wet dense orange sitty line to coarse sand.	A-2-4(0)	
12			12.0'			19" RECOVERY		
L				6				

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 25-113-01

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
		7	12.0'	9 11 12	Wet medium dense orange and brown silty fine to coarse sand.	A-2-4(0)	
14			14.0'		20" RECOVERY		
		8	14.0'	11 25 33 24	Wet very dense orange and brown fine to coarse sand w/ some silt.	A-2-4(0)	
16		9	16.0' 16.0'	11	21" RECOVERY Saturated dense orange and brown silty fine to	A-2-4(0)	
				11 16 15 16	coarse sand.		
18		10	18.0' 18.0'	8	19" RECOVERY Saturated medium dense orange and brown	A-2-4(0)	
				8 13 16 22	silty fine to coarse sand.		
20			20.0'		17" RECOVERY End of Boring		
					FOR BIDI	JIV	IG
22							
					GUST 20	15	
24							
26							
28							
30							

Symbol Description

Strata symbols



Silty low plasticity clay



Silty sand



Poorly graded sand with silt

DRAFT NOT FOR BIDDING AUGUST 2015

- Exploratory borings were drilled on 12/12/2008 using a 3 1/4-inch diameter hollow stem auger. Rig is a ATV CME 45B.
- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
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- 6. All blow counts are uncorrected.

Boring No.: C3-9-03

Boring Location: s	Sta. 245+90, 180.00'	Lt. C.L.					
Boring Surface Ele	V.: + 57.74		Reference:				
Wt. of Casing Hammer: Wt. of Sample Hammer: Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:	140 Split Spoon	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2		IN. IN. IN. IN. IN.	
Casing Size: Hollow Ster	3 1/4 n Auger:	Inches	From Depth of: From Depth of:	0.0	To: To:		20.0
Water Level Readings Date 12/12/08	Time	Depth of Hole 18.0	Depth of Casing 16.0		of Water 5.4	Elev. of Wa	ter

Pay Quantities:

Contract: 25-113-01

2 1/2 in. Dia. Dry Sample Boring:	20.0	Ft.;	Dia. U-Sample Boring:	Ft.
No. of 2 in. Dia. Shelby Tubes:		_;	No. of: U-Samples:	=.
2 1/2 in. Dia. Contin. Sample Boring:		Ft.;	Core Drilling in Rock:	Ft.

Boring Contractor: Walton Corporation Driller: Gary Truver Helpers: D. Zmijewski

F.A. Project: U.S. 301, Maryland State Line to S.R. 1

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
2		1	1.0' 2.0'	6 4	Wet stiff brown silt w/ some clay and fine to coarse sand, trace of gravel. 12" RECOVERY	A-4(1)	Cultivated Soil - 12".
		2	2.0'	4 5 3 5	Wet firm brown silt w/ some fine to coarse	A-4(0)	
				35	sand and clay, trace of gravel.		IG
4		3	4.0'	2	19" RECOVERY Wet stiff brown fine sandy silt w/ some clay	A-4(0)	
			Α	2 4 7 5	and coarse sand w/ some gravel.	15	
6			6.0'		12" RECOVERY		
		4	6.0'	4 5 8 6	Wet medium dense brown silty coarse to fine sand.	A-2-4(0)	
8		5	8.0' 8.0'	5	17" RECOVERY		
		5	0.0	5 12 12 11	Wet medium dense brown coarse to fine sand w/ some silt, trace of gravel.	A-1-b	
10		6	10.0' 10.0'	10	19" RECOVERY	A 1 L	
		0		10 12 16 19	Wet medium dense brown coarse to fine sand w/ some silt.	A-1-b	
12			12.0'	5	20" RECOVERY		
				5			

PAGE 2 OF 2

STATE OF DELAWARE DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 25-113-01 Boring No.: C3-9-03

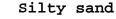
Depth	Daily		Sample	D		0	
(ft.)	Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
		7	12.0'	6 11 14	Wet medium dense orange coarse to fine sand w/ some silt, trace of gravel.	A-2-4(0)	
14			14.0'		19" RECOVERY		
		8	14.0'	8 12 15 14	Wet medium dense orange coarse to fine sand w/ some silt.	A-2-4(0)	
				14	w/ some site.		
16			16.0'		24" RECOVERY		
		9	16.0'	10 12 14 16	Saturated medium dense orange silty coarse to	A-2-4(0)	
				14 16	fine sand.		
18		10	18.0' 18.0'	8	17" RECOVERY Saturated medium dense orange silty fine to	A-2-4(0)	
				8 12 13 16	coarse sand.		
20			20.0'		19" RECOVERY		
					End of Boring		
		N V				ノロ	
22							
					IGUST 20	15	
24							
24							
26							
28							
20							
30							

Symbol Description

Strata symbols



Silty low plasticity clay



DRAFT NOT FOR BIDDING AUGUST 2015

- Exploratory borings were drilled on 12/12/2008 using a 3 1/4-inch diameter hollow stem auger. Rig is a ATV CME 45B.
- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 25-113-01

Boring Location: Sta. 244+00, 130.00' Rt. C.L.

Boring No.: C3-9-04

Boring Surface Ele	•••••••••••••••••••••••••••••••••••••		Reference:			
Wt. of Casing Hammer: Wt. of Sample Hammer Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:		Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2		IN. IN. IN. IN. IN.
Casing Size: Hollow Ste	3 1/4 m Auger:	Inches	From Depth of: From Depth of:	0.0	To: To:	20.0
Water Level Readings Date 12/8/08	Time	Depth of Hole 18.0	Depth of Casing	Depth o	of Water	Elev. of Water

Pay Quantities:

2 1/2 in. Dia. Dry Sample Boring:	20.0	Ft.;	Dia. U-Sample Boring:	Ft.
No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring:		; Ft.;	No. of: U-Samples: Core Drilling in Rock:	Ft.

Boring Contractor: Walton Corporation Driller: Gary Truver Helpers: D. Zmijewski

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description Class./G.I. Remarks
2		1	1.0' 2.0'	3 3	Moist firm gray fine sandy silt w/ some coarse A-4(0) Cultivated Soil - 12". sand, gravel, and clay. 12" RECOVERY
		2	2.0'	4 5 7 11	Moist medium dense brown and light brown A-1-b
4	ľ		4.0'	11	silty coarse to fine sand w/ some gravel.
		3	4.0'	5 11 13	Moist medium dense yellow coarse to fine A-2-4(0)
			A	13 6	sand w/ some silt, trace of gravel.
6		4	6.0' 6.0'	9	18" RECOVERY
		4	0.0	9 12 16 50/3"	Moist medium dense yellow coarse to fine A-1-b sand w/ some silt, trace of gravel.
8			8.0'		18" RECOVERY
		5	8.0'	10 29 15 5	Wet dense orange-brown coarse sand w/ some A-1-b fine sand, gravel, and silt.
10			10.0'		18" RECOVERY
		6	10.0'	4 6 11 20	Wet medium dense brown coarse to fine sand A-1-b w/ some silt.
12			12.0'	6	24" RECOVERY
<u> </u>	L			0	

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 25-113-01 Boring No.: C3-9-04

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
		7	12.0'	7 11 13	Wet medium dense brown coarse to fine sand w/ some silt, trace of gravel.	l A-1-b	
14		8	14.0' 14.0'	6	20" RECOVERY		
		0	14.0	6 5 8 20	Saturated medium dense brown coarse to fine sand w/ some silt, trace of gravel.	e A-1-b	
16		9	16.0' 16.0'	20	22" RECOVERY Saturated very dense brown, orange, and light	t A-1-b	
				20 30 30 50	brown mottled coarse to fine sand w/ some silt, trace of gravel.		
18		10	18.0' 18.0'	30 50	19" RECOVERY Saturated very dense brown, orange, and light	t A-2-4(0)	
		-	19.0'	50	brown mottled fine to coarse sand w/ some silt.		
					End of Boring		
20	N		_ .			ЫК	
					FOR BID	μι	NG
22							
					GUST 20	115	
24							
26							
28							
30							

Symbol Description

Strata symbols



Silty sand

Poorly graded sand with silt

DRAFT NOT FOR BIDDING AUGUST 2015

- Exploratory borings were drilled on 12/12/2008 using a 3 1/4-inch diameter hollow stem auger. Rig is a ATV CME 45B.
- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
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- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 25-113-01

Boring Location: Sta. 204+80, 70.00' Lt. C.L.

Boring	No.:	C3-10
--------	------	-------

Boring Surface Elev.: + 52.57		Reference:				
Wt. of Casing Hammer: Wt. of Sample Hammer: 140 Type of: D-Sampler: Split Spoon S-Sampler: U-Sampler: Core Bit:	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2		IN. IN. IN. IN. IN. IN.	
Casing Size: 3 1/4 Hollow Stem Auger:	Inches	From Depth of: From Depth of:	0.0	To: To:	20.0	
Water Level Readings Date Time 12/10/08	Depth of Hole 14.0	Depth of Casing 12.0		of Water	Elev. of Water	

Pay Quantities:

2 1/2 in. Dia. Dry Sample Boring:	20.0	Ft.;	Dia. U-Sample Boring:	Ft.
No. of 2 in. Dia. Shelby Tubes:		- ;	No. of: U-Samples:	Ξ.
2 1/2 in. Dia. Contin. Sample Boring:		Ft.;	Core Drilling in Rock:	Ft.

Boring Contractor: Walton Corporation Driller: Gary Truver Helpers: D. Zmijewski

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"		Sample Description	Class./G.I.	Remarks
		1	1.0'	3 3		Moist firm brown clayey silt w/ some fine to coarse sand, trace of gravel.	A-4(4)	Cultivated Soil - 11".
2			2.0'			8" RECOVERY		
		2	2.0'	3 4		Moist loose orange silty fine sand w/ some	A-2-4(0)	
			Ο.	5		coarse sand, trace of gravel.		IG
4			4.0'			16" RECOVERY		
		3	4.0'	3 4 7		Moist medium dense orange fine to coarse sand w/ some silt.	A-2-4(0)	
				8		sand w/ some snt.	15	
6		4	6.0' 6.0'	6		15" RECOVERY Moist medium dense orange coarse sand w/	A-1-b	
				6 9 7 6	116 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	some fine sand, gravel, and silt.		
					69449366 68913865 6633366			
					11111111 1111111 1111111			
8			8.0'		11111111111111111111111111111111111111	17" RECOVERY		
		5	8.0'	6 14 12 11		Wet medium dense orange and brown fine to	A-1-b	
				11		coarse sand w/ some silt, trace of gravel.		
10		6	10.0' 10.0'	7		20" RECOVERY	A-2-4(0)	
		Ŭ	10.0	7 8 14 21	669 (966) 669 (966) 669 (999)	Saturated medium dense orange and brown fine to coarse sand w/ some silt, trace of	A-2-4(0)	
				21	n(13916) (414)(1) (414)(1)	gravel.		
12			12.0'		86315886 1833186 1833186	18" RECOVERY		
				7				

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 25-113-01

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
		7	12.0'	8 9 15	Saturated medium dense orange and brown fine to coarse sand w/ some silt, trace of gravel.	A-2-4(0)	
14			14.0'		23" RECOVERY		
		8	14.0'	10 17 21 25	Saturated dense orange and brown fine to coarse sand w/ some silt.	A-2-4(0)	
16		9	16.0' 16.0'	15	22" RECOVERY	A-3	
		9	10.0	15 22 32 48	Saturated very dense orange and brown fine to coarse sand, trace of silt.	A-3	
18		10	18.0' 18.0'	23	18" RECOVERY Saturated very dense orange and brown fine	A-2-4(0)	
				23 42 36 44	to coarse sand w/ some silt.	A-2-4(0)	
20			20.0'		20" RECOVERY End of Boring		
					$\mathbf{F}(\mathbf{D}\mathbf{R} \mathbf{R} \mathbf{H})$		
22			Δ		GUST 20	15	
24							
26							
28							
30							

Symbol Description

Strata symbols



Low plasticity clay

Silty sand



Poorly graded sand with silt

DRAFT NOT FOR BIDDING AUGUST 2015

- Exploratory borings were drilled on 12/10/2008 using a 3 1/4-inch diameter hollow stem auger. Rig is a ATV CME 45B.
- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 25-113-01

Boring Location: Sta. 205+20, 40.00' Rt. C.L.

Boring Surface Elev.: + 53.72

Reference:	

Wt. of Sample Hammer: Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit: Casing Size:	140 Split Spoon 3 1/4	Lbs. O.D. O.D. O.D. O.D. Inches	Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core: From Depth of:	30 2 To :		IN. IN. IN. IN. IN.	
Hollow Stem Water Level Readings Date 12/10/08	n Auger: Time	Depth of Hole	From Depth of: Depth of Casing		To: of Water	Elev. of	20.0 Water

Pay Quantities:

2 1/2 in. Dia. Dry Sample Boring:	20.0	Ft.;	Dia. U-Sample Boring:	Ft.
No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring:		; Ft.;	No. of: U-Samples: Core Drilling in Rock:	Ft.

Boring Contractor: Walton Corporation Driller: Gary Truver Helpers: D. Zmijewski

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description Class./G.I.	Remarks
2		1	1.0' 2.0'	3 4	Moist firm brown fine sandy silt w/ some A-4(0) coarse sand. 12" RECOVERY	Cultivated Soil - 11".
		2	2.0'	6 5 6 5	Moist medium dense orange fine to coarse A-2-4(0)	
			0	65	sand w/ some silt, trace of gravel.	١G
4		3	4.0'	4	20" RECOVERY Moist medium dense orange fine to coarse A-2-4(0)	
			A	4 5 6 7	sand w/ some silt.	
6			6.0'		18" RECOVERY	
		4	6.0'	6 5 9 12	Moist medium dense orange fine sand w/ A-2-4(0)	
				9 12	some silt and coarse sand, trace of gravel.	
8			8.0'		19" RECOVERY	
		5	8.0'	2 3 8 9	Wet medium dense orange fine to coarse sand w/ some silt, trace of gravel. A-2-4(0)	
10			10.0'		18" RECOVERY	
		6	10.0'	9 10 15 17	Wet medium dense brown fine to coarse sand w/ some silt, trace of gravel.	
12			12.0'	15	20" RECOVERY	
Bomo		L	1	L 12	a 2665	I

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 25-113-01

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
		7	12.0'	21 31 37	Saturated very dense brown fine to coarse sand w/ some silt.	A-2-4(0)	
14			14.0'		113367 191367 1919 RECOVERY		
		8	14.0'	2 15 18 19	Saturated dense brown fine to coarse sand w/ some silt.	A-2-4(0)	
16		9	16.0' 16.0'	13	21" RECOVERY Saturated dense brown fine to coarse sand w/	A-2-4(0)	
				13 15 23 34	some silt.	112 ((0)	
18		10	18.0' 18.0'	24 24	18" RECOVERY Saturated dense brown fine to coarse sand w/	A-2-4(0)	
			20.01	24 24 24 50	some silt.		
20			20.0'		10" RECOVERY End of Boring		
					FOK BIDI	JIN	IG
			A	U	GUST 20	15	
24							
26							
28							
30							

Symbol Description

Strata symbols



silt

Silty sand



Poorly graded sand with silt

DRAFT NOT FOR BIDDING AUGUST 2015

- Exploratory borings were drilled on 12/10/2008 using a 3 1/4-inch diameter hollow stem auger. Rig is a ATV CME 45B.
- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

3

Core Drilling in Rock:

No. of:

F.A. Project: US 301 Maryland State Line to S.R. 1 **Contract:** 25-113-01

Boring Location: Sta. 186+00 C.L.

Ft.

Ft.

Boring Surface Ele	ev.: + 69.02		Ref				
Wt. of Casing Hammer: Wt. of Sample Hammer Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:		Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2 3		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow Ste	3 1/4 m Auger:	Inches	From Depth of: From Depth of:	0.0	To: To:	19.0)
Water Level Readings Date 1/29/10	Time	Depth of Hole 6	Depth of Casing 4		of Water 3.7	Elev. of Water	

Ft.;

; Ft.;

Pay Quantities:
2 1/2 in. Dia. Dry Sample Boring:
No. of 2 in. Dia. Shelby Tubes:
2 1/2 in. Dia. Contin. Sample Boring:

Boring Contractor: Walton Corporation Driller: Gary Truver Helpers: M. Derr/T. Kane

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
	1/29/10	1	1.0' 2.0'	3 4	Wet firm orange silty clay w/some fine sand, trace of coarse sand and fine gravel.		Cultivated Soil -
		2	2.0'	10 13 16	Wet medium dense orange coarse sand w/some fine sand, silt and fine	A-1-b	10".
3		_		19	gravel.		
			4.0'		22" RECOVERY		
		3	4.0'	6 10 12 10	Saturated medium dense orange silty fine sand w/some coarse sand.	A-2-4(0)	
6			6.0'		18" RECOVERY		
		4	6.0'	7 8 14 12	Saturated medium dense orange coarse sand w/some fine sand and fine gravel, trace of silt.	A-2-4(0)	
			8.0'		24" RECOVERY		
9		5	8.0'	6 7 5 5	Saturated medium dense orange coarse sand w/some fine sand and fine gravel, trace of silt.	A-1-b	
			10.0'		22" RECOVERY		
		6	10.0'	6 21 15 13	Saturated dense orange fine gravelly coarse to fine sand w/trace of silt.	A-1-b	
12			12.0'		22" RECOVERY		
		7	12.0'	23 22 17 18	No Sample Recovery		Gravel blocking spoon.
			14.0'		0" RECOVERY		-P - 0 - m
15		8	14.0'	7 6 7 9	Saturated dense orangish tan fine to coarse sand w/trace of silt and fine gravel.	A-3	
			16.0'		14171. 111717 111777 15 15" RECOVERY		
		9	16.0'	4 4	Saturated medium dense orangish tan coarse to fine sand w/trace of silt	A-1-b	
			17.0'		and fine gravel.		
		9A	17.0'	4 4	12" RECOVERY // Saturated firm orange silty clay w/trace of fine to coarse sand and fine	A-7-6(28)	
Poma	rks: Mu	1 Dot	ary @ 10) () feet	Subtraced finite orange sitty eray w/trace of fine to coarse sand and fine	1	

Remarks: Mud Rotary @ 19.0 feet

Dia. U-Sample Boring: U-Samples:

F.A. Project: US 301 Maryland State Line to S.R. 1 Contract: 25-113-01 Boring No.: HML3-1-01

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
	. 1091033	U-1	18.0' 18.0'		gravel.	A-7-6(36)	Press
			10.0		12" RECOVERY Saturated orangish tan silty clay.	A-7-0(30)	Sample -
			20.0'		21.5" RECOVERY		Shelby Tube.
			20.0		21.J KECOVEKI		Mud
21							Rotary @ 19.0'.
24		10	24.0'	5	Saturated very stiff gray coarse sandy clay w/some fine sand.	A-7-6(3)	
				5 8 9 9		- (-)	
			26.0'		24" RECOVERY		
27							
$\left - \right $					DRAFT		
30		11	29.0'	4 6 7	Saturated stiff gray coarse sandy clay w/some fine sand and silt.	A-7-6(8)	
				6	·()K KII)))//(·		
$\left - \right $			31.0'		24" RECOVERY		
33					GUST 2015		
	2/1/10	12	34.0'	5 7 9	Saturated very stiff gray silty clay w/some coarse sand, trace of fine sand.	A-7-6(15)	
$\left - \right $				9 14			
36			36.0'		20" RECOVERY		
$\left - \right $							
39		13	39.0'	5	Saturated very stiff gray silty clay w/some coarse to fine sand.	A-7-5(15)	
			-0.0	5 9 11 13	Saturated very still gray sity eray w/some coalse to fille said.	<u>A-7-3(13)</u>	
			41.0'		23" RECOVERY		
42							
		14	44.0'	40 50/3"	Saturated very dense brown coarse sandy fine gravel w/some fine sand	A-1-b	
45					and silt.		
			46.0'		3" RECOVERY		

F.A. Project: US 301 Maryland State Line to S.R. 1 Contract: 25-113-01 Boring No.: HML3-1-01

Depth	Daily	No.	Sample	Blows/6"	Sample Description	Class./G.I.	Remarks
(ft.)	Progress		Depth				
48							
		15	49.0'	28 50/5"	Saturated very dense brown fine to coarse sand w/trace of silt and fine gravel.	A-3	
51			51.0'		IIIII RECOVERY		
54					157 13 105 1 (57) 24 - (57) 25 -		
		16	54.0'	50/5"	No Sieve Analysis - Indication of saturated very dense brown sand w/		
			56.0'				
57							
		17	59.0' 59.5' j	50	Saturated very dense brown fine to coarse sand w/trace of silt. 4" RECOVERY	A-3	
60					End of Boring		
					JGUST 2015		
63							
66							
69							
72							

Symbol Description

Strata symbols

Low plasticity clay

Silty sand

Poorly graded sand with silt



Well graded sand with silt



High plasticity clay

Silt



Elastic silt

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

1. Exploratory borings were drilled on 1/29/2010 using a 3 1/4- inch diameter continues flight power auger. Rig is a Track CME 55.

- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

3 Dia. U-Sample Boring: U-Samples:

F.A. Project: US 301 Maryland State Line to S.R. 1 **Contract:** 25-113-01

Boring Location: Sta. 196+20 C.L.

Ft.

Ft.

Boring Surface Ele	V.: + 64.61		Reference:				
Wt. of Casing Hammer: Wt. of Sample Hammer: Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:		Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2 3		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow Ster	3 1/4 m Auger:	Inches	From Depth of: From Depth of:	0.0	To: To:		34.0
Water Level Readings Date 2/2/10	Time	Depth of Hole	Depth of Casing $\frac{8}{8}$		of Water 6.7	Elev. c	of Water

Pav Quantities:		
2 1/2 in. Dia. Dry Sample Boring:	Ft.;	3 Dia. U-Sar
No. of 2 in. Dia. Shelby Tubes:		No. of:
2 1/2 in. Dia. Contin. Sample Boring:	Ft.;	Core Drilling in Rock:
Boring Contractor: Walton Corporation		

Boring Contractor: Walton Corporation Driller: Gary Truver Helpers: T. Kane

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
	2/2/10	1	0.5'	5 5	Wet stiff brown silty clay w/trace of fine to coarse sand.	A-6(12)	Cultivated
			2.0'	4 5	8" RECOVERY		Soil - 8".
		2	2.0	7	Wet very stiff brown clayey silt w/trace of fine to coarse sand.	A-4(7)	
3				9 9 11			
		N	4.0'		17" RECOVERY		
	-	3	4.0'	5 11 12	Wet medium dense orange silty fine to coarse sand w/some fine gravel.	A-2-4(0)	
6			6.0'	18			
		4	6.0'	10 19 20 16	Saturated dense orange fine sandy fine gravel w/some coarse sand and silt.	A-1-b	
				16	Sitt.		
			8.0'		15" RECOVERY		
9		5	8.0'	9 11 11 11	Saturated medium dense orange fine to coarse sand w/some silt, trace of fine gravel.	A-2-4(0)	
			10.0'		16" RECOVERY		
		6	10.0'	6 9 11 11	Saturated medium dense orange fine to coarse sand w/trace of silt and fine gravel.	e A-3	
12			12.0'		111101 111001 111001		
		7	12.0'	6 8 11 10	Saturated medium dense orange coarse sand w/some fine gravel and fine sand, trace of silt.	A-1-b	
			14.0'		11100 11100 11100		
45		8	14.0'	8 9 11	Saturated medium dense orange coarse to fine sand w/trace of silt and fine	e A-1-b	
15				12	gravel.		
			16.0'		13" RECOVERY		
		9	16.0'	9 6 6 7	Saturated stiff orange silty clay w/some fine sand, trace of coarse sand and fine gravel.	A-7-6(12)	
<u> </u>			<u> </u>				

Remarks: Mud Rotary @ 34.0 feet

F.A. Project: US 301 Maryland State Line to S.R. 1 Contract: 25-113-01 Boring No.: HML3-2-01

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
18			18.0'		6" RECOVERY		
		10	18.0'	3 7 7 10	Saturated stiff orange silty clay w/some coarse sand, trace of fine sand	A-7-6(19)	
				10	and fine gravel.		
			20.0'		21" RECOVERY		
21							
24		11	24.0'	4	Saturated stiff gray silty coarse sandy clay w/some fine sand.	A-7-6(9)	
			21.0	4 5 8 7	Saturated still gray sitty coarse sandy cray w/some line sand.	A-7-0(9)	
			26.0'		20" RECOVERY		
27							
					DRAFT		
		12	29.0'	3	Saturated stiff gray silty clay w/some fine to coarse sand.	A-7-6(13)	
30		12	23.0	578	Saturated still gray sitty clay w some line to coarse sand.	A-7-0(13)	
				Ŭ			
			31.0'		20" RECOVERY		
					OUCT 004E		
33			ŀ	-1	GUST 2015		
		13	34.0'	7	Saturated hard gray silty clay w/some fine gravel and fine to coarse sand.	A-6(6)	Mud
		10	04.0	9 30 50/4"	Saturated hard gray sinty cray w/some time graver and time to coarse sand.	A-0(0)	Rotary @
				00,1			34.0'.
36			36.0'		20" RECOVERY		
39		14	39.0'	26 50	Saturated very dense brown fine to coarse sand w/some silt, trace of fine	A-2-4(0)	
		1- 1	00.0	50	gravel.	A-2-4(0)	
			41.0'		10" RECOVERY		
42							
					2017/201 6/13/06 1/12/07		
	2/3/10	15	44.0'	35	aliant illution Value Saturated your dance brown fine to coarse cand without of silt and fine	A-3	
45	2,0,10	15	- 1 .0	35 50/3"	Saturated very dense brown fine to coarse sand w/trace of silt and fine gravel.	A-3	

F.A. Project: US 301 Maryland State Line to S.R. 1 Contract: 25-113-01 Boring No.: HML3-2-01

Depth	Daily	Ne	Sample	Plows /0"	Comple Description		Domortic
(ft.)	Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
			46.0'		8" RECOVERY		
48							
		16	49.0'	21 36 50/5"	Saturated very dense brown fine to coarse sand w/some silt, trace of fine	A-2-4(0)	
				30/3	gravel.		
51			51.0'		15" RECOVERY		
54		17	54.0'	21	Saturated very dense brown fine to coarse sand w/some silt, trace of fine	A-2-4(0)	
			-	21 36 45 50/4"	gravel		
			56.0'				
57							
		18	59.0'	33 35 50	Saturated very dense brown fine to coarse sand w/trace of silt and fine	A-3	
60							
			61.0'		16" RECOVERY		
					End of Boring		
63							
66							
69							
72							

Symbol Description

Strata symbols



Low plasticity clay

Silty sand



Poorly graded sand with silt



High plasticity

Silt

clay

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

1. Exploratory borings were drilled on 2/2/2010 using a 3 1/4- inch diameter continues flight power auger. Rig is a Track CME 55.

- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: US 301 Maryland State Line to S.R. 1 Contract: 25-113-01

Boring Location: Sta. 205+50 C.L.

Boring Surface Elev.: +67.9	5	Ref		
Wt. of Casing Hammer: Wt. of Sample Hammer: 140 Type of: D-Sampler: Split Bau S-Sampler: U-Sampler: Ball Sam Core Bit:	O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2 3	N. N. N. N. N.
Casing Size: 3 1/4 Hollow Stem Auger:	Inches	From Depth of: From Depth of:	0.0 To: To:	29
Water Level Readings Date Time 2/3/10	Depth of Hole 12	Depth of Casing 10	Depth of Water 9.3	Elev. of Water 58.7 68.0 68.0 68.0
Pay Quantities: 2 1/2 in. Dia. Dry Sample Boring:		Ft.; 3	Dia. U-Sample Boring	
No. of 2 in. Dia. Shelby Tul 2 1/2 in. Dia. Contin. Samp		; No. of: Ft.; Core Drillir	U-Samples ng in Rock:	: Ft.

Boring Contractor: Walton Corporation Driller: Gary Truver Helpers: T. Kane

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description		Remarks
	2/3/10	1	1.0'	4 4	Wet firm brown clayey silt w/trace of fine to coarse sand.	A-4(7)	Cultivated
			2.0'		8" RECOVERY		Soil -
		2	2.0'	6 8 13 21	Wet medium dense orange silty coarse to fine sand w/some fine gravel.	A-1-b	10".
3				13 21			
			4.0'		16" RECOVERY		
		3	4.0'	12 15 14 13	Wet medium dense orange fine gravelly coarse sand w/some fine sand and silt.	A-1-b	
6			6.0'		14" RECOVERY		
		4	6.0'	11 16 19 29	Wet dense orange fine gravelly fine to coarse sand w/some silt.	A-1-b	
		_	8.0'		14" RECOVERY		
9		5	8.0'	11 13 14 11	Wet medium dense brown fine gravelly coarse sand w/some fine sand, trace of silt.	A-1-b	
			10.0'		15" RECOVERY		
		6	10.0'	7 13 13 13	Saturated medium dense brown fine gravelly coarse sand w/some fine sand, trace of silt.	A-1-b	
12			12.0'		15" RECOVERY		
		7	12.0'	11 13 15 15	Saturated medium dense brown coarse sandy fine gravel w/some fine sand, trace of silt.	A-1-b	
		8	14.0'	17 19 21	Saturated dense brown coarse sandy fine gravel w/some fine sand, trace	A-1-b	
15				19 21 26	of silt.		
			16.0'		12" RECOVERY		
		9	16.0'	11 16 32 21	Saturated dense brown coarse sand w/some fine gravel and fine sand, trace of silt.	A-1-b	

Remarks: Mud Rotary @ 29 Feet

F.A. Project: US 301 Maryland State Line to S.R. 1 Contract: 25-113-01 Boring No.: HML3-3-01

Depth (ft.)	Daily Progress	No.	Sample Depth 18.0'	Blows/6"	Sample Description	Class./G.I.	Remarks
		10	18.0'	8 8 8 9	Saturated medium dense brown coarse to fine sand w/some fine gravel,	A-1-b	
			20.0'	5	20" RECOVERY		
21							
24							
		11	24.0'	6 8 9 10	Saturated medium dense orange coarse to fine sand w/trace of silt and fine gravel.	A-1-b	
			26.0'		17" RECOVERY		
27							
		12	29.0'	9		A 1 L	Mud
30	N	12	23.0	9 9 9	Saturated medium dense orange fine gravelly coarse to fine sand w/trace of silt.	A-1-b	Rotary @ 29.0'.
		N	31.0'		18" RECOVERY	2	29.0.
33			H	ΑU	GUST 2015		
		13	34.0'	5 11	Saturated medium dense brown coarse to fine sand w/some silt, trace of	A-1-b	
				5 11 12 10	fine gravel.		
36			36.0'		10" RECOVERY		
					12: / / / / / / / / / / / / / / / / / / /		
39		14	39.0'	11 21 50/4"	Saturated very dense green fine to coarse sand w/trace of silt.	A-3	
				50/4			
			41.0'		15" RECOVERY		
42							
ЛЕ	2/4/10	15	44.0'	38 50/3"	Saturated very dense green fine to coarse sand w/trace of silt.	A-3	
45			46.0'		8" RECOVERY		
			40.0		8" RECOVER Y		

F.A. Project: US 301 Maryland State Line to S.R. 1 Contract: 25-113-01 Boring No.: HML3-3-01

Depth	Daily	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
(ft.)	Progress		Depth				
48					na () a sidar 19 a sidar 19 a sina (
				05			
		16	49.0'	35 50/5"	Saturated very dense green fine to coarse sand w/trace of silt.	A-3	
51			51.0'				
			51.0				
					WE (1990 M KE (
54		17	54.0'	36			
		17	J4.U	36 50/5"	Saturated very dense green fine to coarse sand w/trace of silt.	A-3	
			56.0'				
57							
5/					NET 1 3 1647 DE 19 104 7 DE 19 104 6 DE 19 104 6		
		18	59.0'	19 35 50/4"	Saturated very dense green fine to coarse sand w/some silt, trace of fine	A-2-4(0)	
60			60 FI	50/4"	gravel.		
			60.5'		End-of Boring		
63							
66							
69							
72							

Symbol Description

Strata symbols



Low plasticity clay

Silty sand



Poorly graded sand with silt



Well graded sand with silt

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

1. Exploratory borings were drilled on 2/3/2010 using a 3 1/4- inch diameter continues flight power auger. Rig is a Track CME 55.

- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: US 301 Maryland State Line to S.R. 1 **Contract:** 25-113-01

Boring Location: Sta. 212+60 C.L.

Boring Surface Elev.: +6	.19	Re		
Wt. of Casing Hammer: Wt. of Sample Hammer: 140 Type of: D-Sampler: Split S-Sampler: U-Sampler: Ball S Core Bit:	Lbs. Lbs. Barrel O.D. O.D. ampler O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2 3	IN. IN. IN. IN. IN.
Casing Size: 3 1/4 Hollow Stem Auge	Inches	From Depth of: From Depth of:	0.0 To: To:	14.0
Water Level Readings Date Time 2/3/10	Depth of Hole	Depth of Casing 14	Depth of Water 12.4	Elev. of Water 54.8 67.2 67.2 67.2 67.2
Pay Quantities: 2 1/2 in. Dia. Dry Sample		Ft.; 3	Dia. U-Sample Bor	
No. of 2 in. Dia. Shelby 7 2 1/2 in. Dia. Contin. Sar		; No. of: Ft.; Core Drilli	U-Samp ng in Rock:	les: Ft.

2 1/2 in. Dia. Contin. Sample Boring: Boring Contractor: Walton Corporation Driller: Jason Truver Helpers: D. Zmijewski

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
	2/3/10	1	1.0'	2 1	Wet soft orange clayey fine sandy silt w/some coarse sand and fine	A-4(2)	Topsoil -
		2	2.0' 2.0'	3	gravel 6" RECOVERY		8".
		2	2.0	3 7 10	Wet medium dense orange silty fine gravelly coarse to fine sand.	A-1-b	
3				10			
			4.0'		16" RECOVERY		
		3	4.0'	5 6 8 5	Wet medium desne orange coarse to fine sand w/some silt, trace of fine gravel.	A-1-b	
6			6.0'		17" RECOVERY		
		4	6.0'	13 12 11 12	Saturated medium desne orange fine gravelly coarse to fine sand.	A-1-b	
			8.0'		20" RECOVERY		
9		5	8.0'	6 6 8	Saturated medium dense orange fine gravelly coarse sand w/some fine sand, trace of silt.	A-1-b	
			10.0'		15" RECOVERY		
		6	10.0'	12 9 11 10	Saturated medium dense orange fine gravelly coarse sand w/some fine sand, trace of silt.	A-1-b	
			10.01				
12		7	12.0' 12.0'	8 9	10" RECOVERY Saturated medium dense tan fine gravelly coarse sand w/some fine sand,	A-1-b	
				9 12 14	trace of silt.	A-1-0	
			14.0'		8" RECOVERY		
15		8	14.0'	13 11 12 10	Saturated medium dense tan fine gravel w/some coarse to fine sand, trace of silt.	A-1-a	Mud Rotary @ 14.0'.
			16.0'		10" RECOVERY		
		9	16.0'	10 9 10 8	Saturated medium dense orange coarse sand w/some silt.	A-2-4(0)	
<u> </u>	rke: Mu	1.D					

Remarks: Mud Rotary @ 14 feet

F.A. Project: US 301 Maryland State Line to S.R. 1 Contract: 25-113-01 Boring No.: HML3-4-01

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
		10	<u>18.0'</u> 18.0'	9 10 15 11	21" RECOVERY Saturated medium dense orangish brown fine gravelly coarse to fine sand	A-1-b	
				11	w/trace of silt.		
			20.0'		12" RECOVERY		
21							
	-						
		11	23.0'	7			
24			23.0	7 8 9 10	Saturated medium dense tan fine sand w/some coarse sand and fine gravel, trace of silt.	A-3	
			25.0'		13" RECOVERY		
					114401. 114401. 114404. 114404.		
07					(14)[CF] VI VI VI VI VI VI VI VI VI VI VI VI VI VI VI VI VI VI		
27							
		12	28.0'	4 4 4 5	Saturated firm gravish brown silty clay w/some fine gravel, trace of fine to coarse sand.	A-7-5(41)	
			30.0'	5	4" RECOVERY		
30		U-1	30.0'		Saturated tan silty clay w/some fine gravel, trace of fine to coarse sand	A-7-6(27)	Press
					sand.		Sample - Shelby
			32.0'		24" RECOVERY		Tube.
33		13	33.0'	4	Saturated stiff gray fine sandy clay w/some coarse sand and silt, trace of	A-7-6(7)	
	-			4 5 6 6	fine gravel.		
	-		35.0'		24" RECOVERY		
36							
39		14	38.0'	40 50/5"	Saturated very dense green fine to coarse sand w/some silt, trace of fine gravel.	A-2-4(0)	
			40.0'		11" RECOVERY		
			4 0.0		11 NECOVERI		
42							
		15	43.0'	35 50/4"	Saturated very dense green fine to coarse sand w/trace of silt and fine	A-3	
					gravel.		
45			45.0'		10" RECOVERY		
	-				i 1516 11316 11316 11316		

F.A. Project: US 301 Maryland State Line to S.R. 1 Contract: 25-113-01 Boring No.: HML3-4-01

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
					ng (
10					Ing January 16 (January 16 (January 16 (January)		
48		16	48.0'	30 50/5"	Saturated very dense green fine to coarse sand w/some silt.	A-2-4(0)	
			50.0'		11" RECOVERY		
51							
		17	53.0'	23 35 50/3"	Saturated very dense green fine to coarse sand w/some silt.	A-2-4(0)	
54				50/3"			
			55.0'		14" RECOVERY		
					DRAFT		
57							
		18	58.0'	13	31919: Saturated dense green fine to coarse sand w/trace of silt		
		10	56.0	13 20 25 42	Saturated dense green fine to coarse sand w/trace of silt.	A-3	
60	-		60.0'		18" RECOVERY		
					End of Boring 2015		
63							
66							
00							
69							
72							

Symbol Description

Strata symbols

Low plasticity clay

Silty sand



Well graded sand with silt



Poorly graded gravel with silt



Poorly graded sand with silt



High plasticity clay

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

1. Exploratory borings were drilled on 2/3/2010 using a 3 1/4- inch diameter continues flight power auger. Rig is a Track CME 55.

- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: US 301 Maryland State Line to S.R. 1 Contract: 25-113-01

Boring Location: Sta. 216+50 C.L.

Boring Surface Ele	V.: +66.9		Re		
Wt. of Casing Hammer: Wt. of Sample Hammer: Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:	140 Split Barrel Ball Sampler	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2 3	IN. IN. IN. IN. IN. IN.
Casing Size: Hollow Ster	3 1/4 n Auger:	Inches	From Depth of: From Depth of:	0.0 To: To:	14.0
Water Level Readings Date 2/2/10	Time	Depth of Hole 14	Depth of Casing 12	Depth of Water 12	Elev. of Water 54.9 66.9 66.9 66.9
Pay Quantities: 2 1/2 in. Dia. Dry		:	Ft.; 3	Dia. U-Sample Borir	
No. of 2 in. Dia. S 2 1/2 in. Dia. Con		ring:	; No. of: Ft.; Core Drilli	U-Sample ng in Rock:	es: Ft.

Boring Contractor: Walton Corporation Driller: Jason Truver Helpers: T. Kane

Depth	Daily		Sample					
(ft.)	Progress	No.	Depth	Blows/6"		Sample Description	Class./G.I.	Remarks
	2/2/10	1	1.0'	4 3		Wet loose brown silty coarse to fine sand.	A-2-4(0)	Topsoil -
			2.0'	2		6" RECOVERY		9".
		2	2.0'	3 4 7		Wet stiff brown clayey silt w/some fine sand, trace of coarse sand and	A-4(4)	
3				8		fine gravel.		
			4.0'			16" RECOVERY		
		3	4.0'	6 6 8 10		Wet stiff brown silt w/some fine gravel, trace of fine to coarse sand.	A-4(0)	
6			6.0'			14" RECOVERY		
		4	6.0'	8 8 6 7		Wet medium dense orange fine to coarse sand w/some silt, trace of fine gravel.	A-2-4(0)	
			8.0'			16" RECOVERY		
9		5	8.0'	9 10 9 6	1997 1997 1997 1997 1997 1997 1997 1997	Wet medium dense brown fine gravelly coarse sand w/some fine sand and silt.	A-1-b	
			10.0'		1012313200 10124300 10122200	12" RECOVERY		
		6	10.0'	4 5 7 5		Wet medium dense fine gravelly coarse sand w/trace of fine sand and silt.	A-1-b	
			10.0) () () () () () () () () () (
12		7	12.0' 12.0'	4		16" RECOVERY Wet loose brown coarse to fine sand w/trace of silt and fine gravel.	A-1-b	
		,	12.0	4 4 6		wet loose brown coarse to thie sand w/trace of sht and the gravel.	A-1-0	
			14.0'		1111111111111111	15" RECOVERY		
15		8	14.0'	3 2 3 4		Wet loose brown fine sand w/some silt, trace of coarse sand.	A-2-4(0)	Mud Rotary @ 14.0'.
			16.0'			17" RECOVERY		1 1.0 .
		9	16.0'	4 4 3		Wet loose brown silty fine sand w/trace of fine gravel and coarse sand.	A-2-4(0)	
				4				
		1.D.	amy @ 1/					

Remarks: Mud Rotary @ 14 feet

F.A. Project: US 301 Maryland State Line to S.R. 1 Contract: 25-113-01 Boring No.: HML3-5-01

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
		10	<u>18.0'</u> 18.0'	12	17" RECOVERY	A-1-b	
			18.0	12 11 12 12	Wet medium dense brown fine gravelly fine to coarse sand w/some silt.	A-1-0	
			20.0'				
21					14 4 A 14 6 4 14 1 3 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5		
					(1936) NY VICT 1990 1990 1990		
0.4		11	23.0'	7 8 8 8	Wet medium dense brown coarse to fine sand w/some fine gravel, trace of silt.	f A-1-b	
24			07.5	8			
			25.0'		12" RECOVERY		
27							
		12	28.0'	10	Wet medium dense grayish brown fine gravelly coarse to fine sand w/	A-1-b	
		-	- *	10 8 16 15	some silt.		
30			30.0'		FOR BODINC		
		N				2	
33					<u>CLIST 2015</u>		
		13	33.0'	9 15 17 24	Wet dense brown coarse to fine sand w/some silt.	A-2-4(0)	
			35.0'		24" RECOVERY		
36			- *				
- 30							
		14	38.0'	22 33 50/3"	Wet very dense brown fine to coarse sand w/some silt.	A-2-4(0)	
39				50/3"			
			40.0'		15" RECOVERY		
42							
			40.01	24			
		15	43.0'	24 33 43 50/3"	Wet very dense brown fine to coarse sand w/some silt, trace of fine gravel.	A-2-4(0)	
45			45.0'		18" RECOVERY		
						1	

F.A. Project: US 301 Maryland State Line to S.R. 1 Contract: 25-113-01 Boring No.: HML3-5-01

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
40							
48		16	48.0'	16 20 31 35	Wet very dense brown coarse to fine sand w/trace of silt and fine gravel.	A-1-b	
				35			
			50.0'		22" RECOVERY		
51							
		17	53.0'	26 30 50/4"	Wet very dense brown fine to coarse sand w/some silt, trace of fine	A-2-4(0)	
54				50/4"	gravel.		
			55.0'		20" RECOVERY		
					DRAFT		
57							
		18	58.0'	11	Wet dense brown fine to coarse sand w/trace of silt and fine gravel.	A-3	
		N		11 14 23 30			
60			60.0'		End of Boring		
					End of Boring 2015		
63							
66							
69							
72							

Symbol Description

Strata symbols



Silty sand

Low plasticity clay



Silt

10 Poorly graded sand with silt

Well graded sand with silt

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

1. Exploratory borings were drilled on 2/2/2010 using a 3 1/4- inch diameter continues flight power auger. Rig is a Track CME 55.

- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: US 301 Maryland State Line to S.R. 1 Contract: 25-113-01

Boring Location: Sta. 224+50 C.L.

Boring Surface Elev.: +73.72		Ref		
Wt. of Casing Hammer: Wt. of Sample Hammer: 140 Type of: D-Sampler: Split Barrel S-Sampler: U-Sampler: Ball Sampler Core Bit:	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 IN 2 IN 3 IN	J. J. J. J.
Casing Size: 3 1/4 Hollow Stem Auger:	Inches	From Depth of: From Depth of:	0.0 To: To:	14
Water Level Readings Date Time 1/29/10	Depth of Hole	Depth of Casing 14	Depth of Water 14	Elev. of Water 59.7 73.7 73.7 73.7 73.7
Pay Quantities: 2 1/2 in. Dia. Dry Sample Boring	:	Ft.; 3	Dia. U-Sample Boring	
No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Bo	ring:	; No. of: Ft.; Core Drillir	U-Samples: ng in Rock:	Ft.

Boring Contractor: Walton Corporation Driller: Jason Truver Helpers: T. Kane

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
	1/29/10	1	0.5' 2.0'	2 3 3	Wet firm brown clayey silt w/trace of fine to coarse sand.	A-4(9)	Cultivated Soil - 8".
		2	2.0'	3 4	Wet stiff brown clayey fine sandy silt w/some coarse sand, trace of fine	A-4(2)	
3			4.0'	8	gravel.		
		3	4.0'	4 3 6 8	Wet loose orange silty fine sand w/some coarse sand and clay, trace of fine gravel.	A-2-4(0)	
6			6.0'		16" RECOVERY		
		4	6.0'	9 8 8 8	Wet medium dense orange coarse to fine sand w/some silt, trace of fine gravel.	A-2-4(0)	
			8.0'		21" RECOVERY		
9		5	8.0'	5 4 4 6	Wet loose orange silty fine to coarse sand w/trace of fine gravel.	A-2-4(0)	
		ļ	10.0'		18" RECOVERY		
		6	10.0'	4 8 7 6	Wet medium dense orange fine gravelly coarse to fine sand w/some silt.	A-1-b	
12		ļ	12.0'		18" RECOVERY		
		7	12.0'	6 5 4 6	Wet loose orange fine to coarse sand w/some silt, trace of fine gravel.	A-2-4(0)	
		ļ	14.0'		18" RECOVERY		
15		8	14.0'	7 18 20 22	Wet dense brown fine sandy fine gravel w/some coarse sand and silt.	A-1-b	Mud Rotary @ 14.0'.
		9	16.0' 16.0'	12	16" RECOVERY	A 1 1	-
		9	10.0	12 13 20 23	Wet dense brown coarse sandy fine gravel w/some fine sand, trace of silt.	A-1-b	

Remarks: Mud Rotary @ 14.0 feet

F.A. Project: US 301 Maryland State Line to S.R. 1 Contract: 25-113-01 Boring No.: HML3-6-01

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
18			18.0'		14" RECOVERY		
		10	18.0'	15 15 17	Wet dense brown coarse to fine sandy fine gravel w/trace of silt.	A-1-b	
			20.0'		10" RECOVERY		
24		11	23.0'	7 12 17 14	Wet medium dense brown fine gravelly fine to coarse sand w/trace of silt.	A-1-b	
			25.0'		14" RECOVERY		
		12	28.0'	3	Wat madium dance amanials because a first and a first state of the second secon	A 1 L	
		12	20.0	5 6 7	Wet medium dense greenish brown coarse to fine sand w/some silt, trace of fine gravel.	A-1-b	
30		V	30.0'		OR 22"RECOVERY		
33		10	22.01		<u>GUST 2015</u>		
		13	33.0 [']	17 22 22 22 22	Wet dense brown coarse to fine sand w/some silt, trace of fine gravel.	A-1-b	
36			35.0'		22" RECOVERY		
39		14	38.0'	17 26 36 33	Wet very dense brown fine to coarse sand w/some silt, trace of fine gravel.	A-2-4(0)	
			40.0'		22" RECOVERY		
42			10.01				
		15	43.0'	23 28 45 50/3"	Wet very dense brown fine to coarse sand w/some silt.	A-2-4(0)	
45			45.0'		20" RECOVERY		

F.A. Project: US 301 Maryland State Line to S.R. 1 Contract: 25-113-01 Boring No.: HML3-6-01

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
	-		-				
48		16	48.0'	18 27 47 50/2"	Wet very dense brown fine to coarse sand w/some silt.	A-2-4(0)	
				47 50/2"			
			50.0'		16" RECOVERY		
51					NY 1 / JYTC IT / JYTC		
54		17	53.0'	18 21 34 34	Wet very dense brown fine to coarse sand w/trace of silt.	A-3	
			55.0'				
57							
		18	58.0'	26	Wet very dense brown fine to coarse sand w/trace of silt.	A-3	
			30.0	26 36 45 50/5"	Wet very dense brown fine to coarse sand w/trace of silt.	A-3	
60			60.0'		End of Boring		
			F	HL			
63							
66							
69							
72							

Symbol Description

Strata symbols

Low plasticity clay

Poorly graded clayey silty sand



Silty sand

10 Poorly graded sand with silt

Well graded sand with silt

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

1. Exploratory borings were drilled on 1/29/2010 using a 3 1/4- inch diameter continues flight power auger. Rig is a Track CME 55.

- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 Contract: 25-113-01

Boring Location: Sta. 110+00, 98' Rt. C.L.

Boring No.: INF3-1

Boring Surface Elev.: + 68.4		Refe	erence:	
Wt. of Casing Hammer: Wt. of Sample Hammer: Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:		IN. IN. IN. IN. IN. IN.
Casing Size: Hollow Stem Auger:	Inches	From Depth of: From Depth of:	То: То:	
Water Level Readings Date Time 6/19/2009	Depth of Hole 8.0	Depth of Casing	Depth of Water 5.5	Elev. of Water
Pay Quantities:				

2 1/2 in. Dia. Dry Sample Boring:	Ft.;	Dia. U-Sample Boring:	Ft.
No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring:	; Ft.;	No. of: U-Samples: Core Drilling in Rock:	Ft.
Devine Contractory Walter Comparties			

Boring Contractor: Walton Corporation Driller: Dave Burt Helpers: T. Kane

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
	6/19/09	1	0.5' 1.0'		Moist brown silt w/some clay and coarse to fine sand, trace of gravel. 6" RECOVERY	A-4(1)	Hand Auger
		2	1.0'		Moist brown fine sandy silt w/some coarse sand, trace of clay and gravel.	A-4(0)	Hand
2			2.0'		12" RECOVERY		Auger
		3	2.0'		Moist gray mottled silt w/some clay and fine sand, trace of coarse sand	A-4(1)	Hand
		N			and gravel.		Auger
			3.5'	-	18" RECOVERY		
4		4	3.5'		Moist brown coarse to fine sand and gravel w/some silt.	A-1-b	Hand
							Auger
			5.5'		24" RECOVERY		
6		5	5.5'		Moist to wet orange coarse sand w/some silt, gravel and fine sand.	A-1-b	Hand
							Auger
			0.01				
8			8.0'		30" RECOVERY End of Boring		
10							
Domo							

Remarks:

Symbol Description

Strata symbols

Silty low plasticity clay

Silt

Silty sand

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

- 1. Exploratory borings were drilled on 6/19/2009 using a hand auger.
- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 Contract: 25-113-01

Boring Location: Sta. 115+00, 98' Rt. C.L.

Boring No.: INF3-1A

Ft. Ft.

Boring Surface El	ev.: + 68.2		Ref				
Wt. of Casing Hammer Wt. of Sample Hamme Type of: D-Sampler S-Sampler U-Sampler Core Bit:	r: 140 Split Barrel	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow St	3 1/4 em Auger:	Inches	From Depth of: From Depth of:	0.0	To: To:		8.0
Water Level Readings Date 6/19/2009	Time	Depth of Hole 10.0	Depth of Casing 8.0		of Water 7.6	Elev. o	f Water

Pay	Qua	ntit	ies	:

2 1/2 in. Dia. Dry Sample Boring:	10.0	Ft.;	Dia. U-Sample Boring:
No. of 2 in. Dia. Shelby Tubes:		;	No. of: U-Samples:
2 1/2 in. Dia. Contin. Sample Boring:		Ft.;	Core Drilling in Rock:
Devine Contractory W 1/ C /			

Boring Contractor: Walton Corporation Driller: Dave Burt Helpers: T. Kane

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
	6/19/09	1	0.5'	3 4 3	Moist firm tan silt w/some clay and coarse sand, trace of fine sand.	A-4(2)	Topsoil - 4".
2	_		2.0'		12" RECOVERY		
		2	2.0'	3 6 10 8	Moist medium dense brown silty coarse to fine sand w/trace of gravel.	A-2-4(0)	
4			4.0'		14" RECOVERY		
		3	4.0'	4 6 10 9	Moist medium dense orange fine to coarse sand w/some silt, trace of clay and gravel.	A-2-4(0)	USDA Classificat - Loamy Sand.
6			6.0'		17" RECOVERY		
		4	6.0'	4 8 7	Moist medium dense orange coarse to fine sand w/some silt, trace of gravel.	A-1-b	
8			8.0'		18" RECOVERY		
		5	8.0'	4 6 5	Wet medium dense orange coarse to fine sand w/some silt, trace of gravel.	A-1-b	
10			10.0'		15" RECOVERY		
					End of Boring		
Poma							

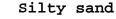
Remarks:

Symbol Description

Strata symbols



Silty low plasticity clay



DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

1. Exploratory borings were drilled on 6/19/2009 using a 3 1/4- inch diameter continuous flight power auger. Rig is a ATV CME 45.

- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 25-113-01

Boring Location: Sta. 110+00, 98' Lt. C.L.

Borning No	IINF

Boring Surface El	ev.: + 62.9		Reference:					
Wt. of Casing Hammer Wt. of Sample Hamme Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:	r: 140 Split Barrel	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2		IN. IN. IN. IN. IN.		
Casing Size: Hollow St	3 1/4 em Auger:	Inches	From Depth of: From Depth of:	0.0	To: To:	8.0		
Water Level Readings Date 6/16/2009	Time	Depth of Hole 10.0	Depth of Casing 8.0		of Water .5	Elev. of Water		
Pay Quantities:								

2 1/2 in. Dia. Dry Sample Boring: No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring:	10.0	Ft.; ; Ft.;	Dia. U-Sample Boring: No. of: U-Samples: Core Drilling in Rock:	Ft. Ft.
Devine Contractory W 10 C				

Boring Contractor: Walton Corporation Driller: Dave Burt Helpers: T. Kane

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
	6/16/09	1	0.0'	3 3 4 5	Moist firm gray silt w/some fine sand and clay, trace of coarse sand and gravel.	A-4(1)	Topsoil - 2".
2			2.0'		17" RECOVERY		
		2	2.0'	3 13 15 12	Moist very stiff gray clayey silt w/trace of fine to coarse sand and gravel.	A-4(2)	USDA Classifica - Clay.
4			4.0'		20" RECOVERY		
		3	4.0	13 20 16 13	Moist hard gray fine to coarse sandy silt w/some clay, trace of gravel.	A-4(0)	
6			6.0'		17" RECOVERY		
		4	6.0'	11 11 9 10	Moist to wet very stiff gray fine sandy silt w/some coarse sand, trace of gravel.	A-4(0)	
8			8.0'		16" RECOVERY		
		5	8.0'	4 5 5 5	Wet loose orange fine to coarse sand w/some silt, trace of gravel.	A-2-4(0)	
10			10.0'		12" RECOVERY		
Remai	·ko:				End of Boring		

Remarks:

Symbol Description

Strata symbols

Silty low plasticity clay

Poorly graded clayey silty sand



Silty sand

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

1. Exploratory borings were drilled on 6/16/2009 using a 3 1/4- inch diameter continuous flight power auger. Rig is a ATV CME 45.

- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 25-113-01

Boring Location: Sta. 114+00, 98' Lt. C.L.

Boring No.: INF3-2A

Ft.

Ft.

Boring Surface Ele	ev.: + 66.1		Ref	erence:			
Wt. of Casing Hammer: Wt. of Sample Hammer Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:	: 140 Split Barrel	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow Ste	3 1/4 em Auger:	Inches	From Depth of: From Depth of:	0.0	To: To:		8.0
Water Level Readings Date 6/15/2009	Time	Depth of Hole 10.0	Depth of Casing 8.0		of Water .5	Elev. of	Water

Ft.;

; Ft.;

Pay	Qua	antit	ies	:

,	2 1/2 in. Dia. Dry Sample Boring:	10
	No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring:	

Boring Contractor: Walton Corporation Driller: Dave Burt Helpers: T. Kane

Depth	Daily	No	Sample	Blows/6"	Sample Description	Class./G.I.	Domortic
(ft.)	Progress	No.	Depth		Sample Description		Remarks
	6/15/09	1	0.5'	4 4 6	Moist stiff gray clayey silt w/trace of fine to coarse sand and gravel.	A-4(3)	Topsoil - 4".
2			2.0'		14" RECOVERY		
		2	2.0'	8 12 16 14	Moist very stiff brown clayey fine to coarse sandy silt w/trace of gravel.	A-4(0)	
4			4.0'		20" RECOVERY		
		3	4.0'	5 6 8 8	Moist medium dense orange fine sand w/some coarse sand and silt, trace of clay.	A-2-4(0)	USDA Classifica - Sandy Loam.
6			6.0'		17" RECOVERY		
		4	6.0'	5 8 9 6	Wet medium dense orange coarse tof ine sand w/trace of silt, clay and gravel.	A-1-b	
8			8.0'		17" RECOVERY		
		5	8.0'	5 8 5 6	Wet medium dense orange fine to coarse sand w/some silt, trace of grave	. A-2-4(0)	
10			10.0'		15" RECOVERY		
					End of Boring		

Remarks:

Dia. U-Sample Boring: U-Samples:

No. of: Core Drilling in Rock:

Symbol Description

Strata symbols

Silty low plasticity clay

Poorly graded clayey silty sand



Silty sand

Poorly graded sand with silt

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

1. Exploratory borings were drilled on 6/15/2009 using a 3 1/4- inch diameter continuous flight power auger. Rig is a ATV CME 45.

- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 25-113-01

Boring Location: Sta. 118+00, 98' Lt. C.L.

Boring No.: INF3-2B

Boring Surface I	Elev.: + 69.93		Ref	erence:		
Wt. of Casing Hamm Wt. of Sample Hamn Type of: D-Sample S-Sample U-Sample Core Bit:	ner: 140 er: Split Barrel er: er:	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2		IN. IN. IN. IN. IN.
Casing Size: Hollow S	3 1/4 Stem Auger:	Inches	From Depth of: From Depth of:	0.0	To: To:	8.0
Water Level Reading Date 6/15/2009	gs Time	Depth of Hole	Depth of Casing 8.0	Depth of 8.9		Elev. of Water
Pay Quantities:	David Comula Dovin	10.0	F 4 -		mala Dar	

2 1/2 in. Dia. Dry Sample Boring: No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring:	10.0	Ft.; ; Ft.;	Dia. U-Sample Boring: No. of: U-Samples: Core Drilling in Rock:	Ft. Ft.
Boring Contractor: Walton Corporation	n			

oring Contractor: Walton Corporation Driller: Dave Burt Helpers: T. Kane

Depth	Daily	No.	Sample	Blows/6"	Sample Description	Class./G.I.	Remarks
(ft.)	Progress 6/15/09		Depth 0.5'			0.000,0.0.	
	0/15/09	1	0.5	3 3 4	No Sieve Analysis - Indication of moist loose brown clayey sand.		Topsoil - 5".
2			2.0'		10" RECOVERY		
		2	2.0'	4 6 8 10	Moist medium dense brown clayey fine to coarse sand w/trace of silt and gravel.	A-2-4(0)	USDA Classifica - Sandy Clay Loam.
4			4.0'		16" RECOVERY		
		3	4.0'	4 6 5 5	Moist medium dense orange coarse to fine sand w/some silt, trace of gravel.	A-2-4(0)	
6			6.0'		17" RECOVERY		
		4	6.0'	8 6 5 5	Moist medium dense orange coarse to fine sand w/some silt, trace of gravel.	A-1-b	
8			8.0'		15" RECOVERY		
		5	8.0'	1 5 7 8	Wet medium dense orange coarse to fine sand w/some silt, trace of gravel.	A-1-b	
10			10.0'		15" RECOVERY		
			10.0		End of Boring		
Remar	rks:		L	I		·	L

Remarks:

Symbol Description

KEY TO SYMBOLS

Strata symbols

Silty sand

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

1. Exploratory borings were drilled on 6/15/2009 using a 3 1/4- inch diameter continuous flight power auger. Rig is a ATV CME 45.

- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 25-113-01

Boring Location: Sta. 120+00, 115' Rt. C.L

Boring No.: INF3-3

Ft. Ft.

Boring Surface Ele	ev.: + 67.2		Ref	erence:			
Wt. of Casing Hammer: Wt. of Sample Hammer Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:		Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow Ste	3 1/4 m Auger:	Inches	From Depth of: From Depth of:	0.0	To: To:		8.0
Water Level Readings Date 6/19/2009	Time	Depth of Hole 10.0	Depth of Casing 8.0		of Water	Elev. of	Water
Pay Quantities							

No. of 2 in. Dia. Dry Sample Boring: No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring:	10.0	Ft.; ; Ft.;	Dia. U-Sample Bor No. of: U-Sampl Core Drilling in Rock:	

Boring Contractor: Walton Corporation Driller: Dave Burt Helpers: T. Kane

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
	6/19/09	1	0.5'	3 3 3	Moist firm brown clayey coarse sandy silt w/some fine sand, trace of gravel.	A-4(1)	Topsoil - 7".
2		2	2.0'	3	10" RECOVERY Moist medium dense brown fine to coarse sand w/trace of silt, clay and	A-1-b	USDA
		2		569	gravel.	A-1-0	Classifica - Loamy Sand.
4			4.0'		16" RECOVERY		
		3	4.0'	5 10 9 9	Moist medium dense tan silty fine to coarse sand w/some gravel.	A-2-4(0)	
6			6.0'		18" RECOVERY		
		4	6.0'	8 8 7 6	Moist medium dense tan fine to coarse sand w/some silt, trace of gravel.	A-2-4(0)	
8			8.0'		20" RECOVERY		
		5	8.0'	5565	Wet medium dense tan silty coarse to fine sand w/trace of gravel.	A-2-4(0)	
10			10.0'		17" RECOVERY		
Remai					End of Boring		

Remarks:

Symbol Description

Strata symbols



Clayey sand

Silty sand

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

1. Exploratory borings were drilled on 6/19/2009 using a 3 1/4- inch diameter continuous flight power auger. Rig is a ATV CME 45.

- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

No. of:

Core Drilling in Rock:

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 25-113-01

В

Boring No.: INF3-4

Ft.

Ft.

Boring Surface E	Elev.: + 66.2		Refe	erence:	
Wt. of Casing Hamm Wt. of Sample Hamm Type of: D-Sample S-Sample U-Sample Core Bit:	ier: er: er:	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:		IN. IN. IN. IN. IN. IN.
Casing Size: Hollow S	Stem Auger:	Inches	From Depth of: From Depth of:	To: To:	
Water Level Reading Date 7/9/2009	s Time	Depth of Hole	Depth of Casing	Depth of Water 8.0	Elev. of Water

Pay	Quan	tities	:		
-	2 1/	/2 in.	Dia	. Dry	/ Sam
	NI	- 1 0		D:_ '	0111-

ray	2 1/2 in. Dia. Dry Sample Boring: No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring:	Ft.; ; Ft.;

Boring Contractor: Walton Corporation Driller: Dave Burt Helpers: Jason Truver

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
	7/9/09	1	0.0'		Moist brown silty fine to coarse sand.	A-2-4(0)	Hand Auger 7.5 YR 3/ 4
2			2.5'		FOR BUDING	5	
		2	2.5' 3.5'		Moist brown silt w/some clay and fine sand, trace of coarse sand.	A-4(2)	Hand Auger 10 YR 4/
4		3	3.5'	AL	Moist orange coarse to fine sandy silt w/some clay, trace of gravel.	A-4(0)	6 Hand Auger 7.5 YR 4/ 4
6		4	5.5' 5.5' 8.0'		24" RECOVERY Moist brown clayey fine sandy silt w/some gravel and coarse sand. 30" RECOVERY		Hand Auger 10 YR 5/ 8
		5	8.0' 9.5'		Moist orange fine sand w/some silt and coarse sand, trace of gravel. 18" RECOVERY		Hand Auger 7.5 YR 5/ 6
10 Pomar		6	9.5' 10.0'		Wet orange fine to coarse sand w/some silt. 6" RECOVERY End of Boring		Hand Auger 7.5 YR 5/ 8

Remarks:

Dia. U-Sample Boring: U-Samples:

Symbol Description

Strata symbols



Silty sand

Silty low plasticity clay



Poorly graded clayey silty sand

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

- 1. Exploratory borings were drilled on 7/9/2009 using a hand auger.
- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 28-113-01

Boring Location: Sta. 120+00, Rt. C.L.

Boring Surface Elev.: + 64.3		Refe	erence:	
Wt. of Casing Hammer: Wt. of Sample Hammer: Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:		IN. IN. IN. IN. IN. IN.
Casing Size: Hollow Stem Auger:	Inches	From Depth of: From Depth of:	To: To:	
Water Level Readings Date Time 6/16/2009	Depth of Hole 8.5	Depth of Casing	Depth of Water 4.4	Elev. of Water

Pay Quantities: 2 1/2 in. Dia. Dry Sample Boring: No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring:	Ft.; ; Ft.;	Dia. U-Sample Boring: No. of: U-Samples: Core Drilling in Rock:	Ft. Ft.
Boring Contractor: Walton Corporation			

Boring Contractor: Walton Corporation Driller: Dave Burt Helpers: T. Kane

Depth	Daily	No.	Sample	Blows/6"	Sample Description	Class./G.I.	Remarks
(ft.)	Progress		Depth	0/08/0			
	6/16/09	1	0.5'		Moist gray mottled clayey silt w/trace of coarse to fine sand.	A-4(5)	Topsoil -
			0.01				3". Hand
		2	2.0' 2.0'		18" RECOVERY Moist gray mottled silty fine sandy clay w/some coarse sand, trace of	A-6(5)	Auger
3		_			gravel.	A-0(3)	Hand
			3.5'		18" RECOVERY		Auger
		3	3.5'		Wet brown silty fine to coarse sand w/trace of gravel.	A-2-4(0)	Hand
			4.5'		12" RECOVERY		Auger
		4	4.5'		Wet gray coarse to fine sand w/some silt, trace of gravel.	A-1-b	Hand
							Auger
6					GUST 2015		
			8.5'		48" RECOVERY		
9		5	8.5'		Wet orange coarse sand and gravel w/some silt and fine sand.	A-1-b	Hand
							Auger
			10.0'		18" RECOVERY		
					End of Boring		
12							
12							
15							
	den II						

Remarks: Hand Auger

Symbol Description

Strata symbols



Silty low plasticity clay

Low plasticity clay



Silty sand

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

- 1. Exploratory borings were drilled on 6/16/2009 using a hand auger.
- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 28-113-01

Boring Location: Sta. 125+00, Lt. C.L.

Boring Surface Elev.: + 75.5		Refe	erence:	
Wt. of Casing Hammer: Wt. of Sample Hammer: Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:		IN. IN. IN. IN. IN.
Casing Size: Hollow Stem Auger:	Inches	From Depth of: From Depth of:	То: То:	
Water Level Readings Date Time 7/21/2009	Depth of Hole 60.0	Depth of Casing	Depth of Water 5.6	Elev. of Water
Pay Quantities:				

2 1/2 in. Dia. Dry Sample Boring:	Ft.;	Dia. U-Sample Boring:	Ft.
No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring:	; Ft.;	No. of: U-Samples: Core Drilling in Rock:	Ft.

Boring Contractor: Walton Corporation Driller: John Foley Helpers:

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"		Sample Description	Class./G.I.	Remarks
	7/21/09	1	0.5' 1.0'			Moist gray silt w/some gravel, trace of fine to coarse sand. 6" RECOVERY	A-4(0)	Topsoil - 6".
		2	1.0'			Moist brownish gray silt w/some clay, trace of fine to coarse sand.	A-4(5)	Hand
2	_		2.0'			12" RECOVERY		Auger Hand
		3	2.0'			Moist grayish brown coarse to fine sand w/some gravel, trace of silt.	A-1-b	Auger
		N	3.0'		1.01.01.00 1.01.01.01 1.01.01.01 1.01.01.01 1.01.01.01 1.01.0100000000		7	Hand
		4	3.0'			Moist grayish brown silt w/some fine sand, trace of clay and coarse sand.	A-4(0)	Auger Hand
4			4.0'			12" RECOVERY		Auger
		5	4.0'			Moist grayish brown coarse to fine sand w/some silt, trace of gravel.	A-2-4(0)	USDA Classifica
			5.0'			12" RECOVERY		- Silt
		6	5.0'			Moist gray fine to coarse sand w/some silt, trace of gravel.	A-2-4(0)	Loam. Hand
								Auger
6		7	6.0' 6.0'			12" RECOVERY		Hand
			6.0			Wet gray fine sand w/some silt and coarse sand, trace of gravel.	A-2-4(0)	Auger
			7.0'			12" RECOVERY		Hand Auger
		8	7.0'			Wet brownish gray coarse to fine sand w/some silt, trace of gravel.	A-2-4(0)	Hand
8			8.0'			12" RECOVERY		Auger
		9	8.0'			Wet brownish gray fine to coarse sand w/some silt, trace of gravel.	A-2-4(0)	Hand
			0.01					Auger
		10	9.0' 9.0'			12" RECOVERY Wet brownish gray fine to coarse sand w/some silt, trace of gravel.	A-2-4(0)	Hand
								Auger
10			10.0'			12" RECOVERY		
						End of Boring		
	ko t Han	1 4					1	

Remarks: Hand Auger

Symbol Description

Strata symbols

Silt

Silty low plasticity clay



Poorly graded sand with silt



Silty sand

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

1. Exploratory borings were drilled on 6/16/2009 using a 3 1/4- inch diameter continues flight power auger. Rig is an ATV CME 45.

- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 Contract: 28-113-01

Boring Location: Sta. 142+00, 101' Lt. C.L.

Boring No.: INF3-7

Ft.

Ft.

Boring Surface	Elev.: + 69.19		Ref			
Wt. of Casing Hamn Wt. of Sample Ham Type of: D-Sampl S-Sampl U-Samp Core Bit	mer: 140 ler: Split-Barrel ler: ler:	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2		IN. IN. IN. IN. IN.
Casing Size: Hollow	3 1/4" Stem Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:	14.0'
Water Level Readin Date 3/6/2009	gs Time 12:00 p.m.	Depth of Hole 12.0'	Depth of Casing 10.0'		of Water 0.7'	Elev. of Water

Pay	Quantities	:

2 1/2 in. Dia. Dry Sample Boring:	16.0	Ft.;
No. of 2 in. Dia. Shelby Tubes:		į
2 1/2 in. Dia. Contin. Sample Boring:		Ft.;

Boring Contractor: Walton Corporation Driller: Bill Holden Helpers:

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description C		Remarks
	3/6/09	1	0.5'	4 5 6	Wet stiff gray clayey silt w/trace of fine to coarse sand and gravel.	A-4(6)	Topsoil - 4".
3		2	2.0'	8 10 13 14	Wet medium dense grayish orange silty coarse to fine sand w/trace of gravel.	A-2-4(0)	
		3	4.0' 4.0'	4 5 4 4	20" RECOVERY Wet loose gray orangish brown coarse to fine sand w/some silt, trace of gravel.	A-2-4(0)	
6			6.0'				
	-	4	6.0'	4 3 3 3	Wet loose brownish gray coarse to fine sand w/some silt, trace of gravel.	A-1-b	
9	-	5	8.0' 8.0'	1 1 2 3	21" RECOVERY Wet very loose brown silty fine sand w/trace of coarse sand and gravel.	A-2-4(0)	
			10.0'	1	20" RECOVERY		
	_	6	10.0'	1 1 2	Saturated very loose brown silty fine sand w/trace of coarse sand.	A-2-4(0)	
	-	7	12.0' 12.0'	1 2 4 4	22" RECOVERY Saturated loose brown silty fine sand w/trace of gravel and coarse sand.	A-2-4(0)	
	-	8	14.0' 14.0'	5 7	20" RECOVERY Saturated medium dense brown coarse to fine sand and gravel w/trace of	A-1-b	
15	-			7 9 11	silt.	<u>A-1-0</u>	
			16.0'		End of Boring		

Remarks:

Dia. U-Sample Boring: U-Samples:

No. of: Core Drilling in Rock:

Symbol Description

Strata symbols

Silty low plasticity clay



10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 Silty sand

Well graded sand with silt

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

1. Exploratory borings were drilled on 3/6/2009 using a 3 1/4- inch diameter continues flight power auger. Rig is an ATV CME 45.

- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 28-113-01

Boring Location: Sta. 152+00, 101' Lt. C.L.

Boring No.: INF3-8

Boring Surface E	lev.: + 70.44	Reference:					
Wt. of Casing Hamme Wt. of Sample Hamm Type of: D-Sample S-Sample U-Sample Core Bit:	er: 140 r: Split-Barrel r:	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow S	3 1/4" Stem Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:		14.0'
Water Level Reading Date 3/6/2009	s Time 1:00 p.m.	Depth of Hole 12.0'	Depth of Casing 10.0'		of Water).5'	Elev. o	f Water

Pay Quantities:

2 1/2 in. Dia. Dry Sample Boring: No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring:	16.0	Ft.; ; Ft.:	Dia. U-Sample Boring: No. of: U-Samples: Core Drilling in Rock:	Ft. Ft
Boring Contractor: Walton Corporatio		Γι,		г.

Boring Contractor: Walton Corporation Driller: Bill Holden Helpers: J. Lafferty

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description C		Remarks
	3/6/09	1	0.5' 2.0'	2 4 5	Wet stiff grayish orange clayey silt w/trace of fine to coarse sand. 16" RECOVERY	A-6(15)	Topsoil - 4".
		2	2.0'	5 9	Wet very stiff grayish orange clayey silt w/some fine to coarse sand, trace	A-4(5)	
3			4.0'	11	of gravel.		
		3	4.0'	8 9 11 12	Wet medium dense brown silty fine to coarse sand w/trace of gravel.	A-2-4(0)	
6			6.0'		20" RECOVERY		
		4	6.0'	16 16 10 9	Wet medium dense brown fine to coarse sand and gravel w/some silt.	A-1-b	
			8.0'		21" RECOVERY		
9		5	8.0'	3 4 5 5	Wet loose brown silty fine sand w/trace of coarse sand.	A-2-4(0)	
			10.0'		17" RECOVERY		
		6	10.0'	4 5 6 7	Wet medium dense brown fine to coarse sand w/some silt, trace of gravel	A-2-4(0)	
12			12.0'		22" RECOVERY		
		7	12.0'	6 6 8 10	Wet medium dense brown coarse to fine sand w/some gravel, trace of silt	A-1-b	
			14.0'		22" RECOVERY		
15		8	14.0'	5 11 10 10	Wet medium dense brown fine to coarse sand w/some gravel and silt.	A-1-b	
			16.0'		21" RECOVERY		
Remai	_				End of Boring		

Remarks:

Symbol Description

Strata symbols

Low plasticity clay

Silty sand



Well graded sand with silt



Poorly graded sand with silt

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

1. Exploratory borings were drilled on 3/6/2009 using a 3 1/4- inch diameter continues flight power auger. Rig is an ATV CME 45.

- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 28-113-01

Boring Location: Sta. 161+50, 101' Lt. C.L.

Boring Surface	Elev.: + 76.30		Ref	erence:			
Wt. of Casing Hamı Wt. of Sample Ham Type of: D-Samp S-Samp U-Samp Core Bit	mer: 140 ler: Split-Barrel ler: ler:	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow	3 1/4" Stem Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:		14.0'
Water Level Readin Date 3/6/2009	ngs Time 2:00 p.m.	Depth of Hole 14.0'	Depth of Casing 12.0'		of Water 2.5'	Elev. of	Water

Pay Quantities:

2 1/2 in. Dia. Dry Sample Boring: No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring:	16.0	Ft.; ; Ft.;	Dia. U-Sample Boring: No. of: U-Samples: Core Drilling in Rock:	Ft. Ft.
Boring Contractor: Walton Corporation	•			

oring Contractor: Walton Corporation Driller: Bill Holden Helpers: J. Lafferty

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
	3/6/09	1	0.5' 2.0'	4 3 4	Wet firm brown clayey silt w/some fine sand, trace of coarse sand and gravel 16" RECOVERY	A-6(8)	Topsoil - 4".
		2	2.0'	6 8	Wet very stiff brownish black fine sandy silt w/trace of coarse sand and	A-4(0)	
3			4.0'	9	gravel. 22' RECOVERY		
		3	4.0'	3 6 4 6	Wet stiff brownish black fine sandy silt w/trace of coarse sand.	A-4(0)	
6	-	4	6.0' 6.0'	5	20" RECOVERY Wet medium dense brownish black silty fine sand w/some coarse sand.	A-2-4(0)	
			8.0'	5 5 7 7		A-2-4(0)	
-	1	5	8.0'	3 4	19" RECOVERY Wet loose brown coarse to fine sand w/some silt, trace of gravel.	A-2-4(0)	
9	-			4 5 6			
	-	6	10.0' 10.0'	5	19" RECOVERY Wet medium dense brown coarse to fine sand w/some silt, trace of grave	l. A-1-b	
	_	0	10.0	5 8 6 8	wet medium dense brown coarse to fine sand w/some siit, trace of grave	I. A-1-0	
12	4		12.0'		20" RECOVERY		
	-	7	12.0'	3 5 7 9	Wet medium dense brown coarse sand and gravel w/some fine sand, trac of silt.	e A-1-b	
			14.0'		16" RECOVERY		
15		8	14.0'	6 7 9 7	Wet medium dense brown coarse sand and gravel w/some fine sand, trac of silt.	e A-1-b	
			16.0'		21" RECOVERY		
Rema	_				End of Boring		

Symbol Description

Strata symbols



Low plasticity clay

Silty sand



Poorly graded sand with silt



Well graded sand with silt

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

1. Exploratory borings were drilled on 3/6/2009 using a 3 1/4- inch diameter continues flight power auger. Rig is an ATV CME 45.

- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 28-113-01

Boring Location: Sta. 168+75, 72' Lt. C.L.

Boring No.: INF3-10

Boring Surface	Elev.: + 71.50		Ref				
Wt. of Casing Hamı Wt. of Sample Ham Type of: D-Samp S-Samp U-Samp Core Bit	mer: 140 ler: Split-Barrel ler: ler:	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow	3 1/4" Stem Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:		14.0'
Water Level Readin Date 3/6/2009	ngs Time 3:00 p.m.	Depth of Hole 10.0'	Depth of Casing 8.0'		of Water ^{0.5'}	Elev. of W	ater

Pay Quantities:

2 1/2 in. Dia. Dry Sample Boring: 16.0 No. of 2 in. Dia. Shelby Tubes:	Ft.;	Dia. U-Sample Boring: No. of: U-Samples:	Ft.
2 1/2 in. Dia. Contin. Sample Boring:	Ft.;	Core Drilling in Rock:	Ft.
Boring Contractor: Walton Corporation			

oring Contractor: Walton Corporation Driller: Bill Holden Helpers: J. Lafferty

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
	3/6/09	1	0.5' 2.0'	3 3 4	Moist stiff grayish orange clay w/trace of fine to coarse sand. 14" RECOVERY	A-6(16)	Topsoil - 4".
		2	2.0'	7 8 11	Moist very stiff grayish orange fine sandy silt w/some coarse sand and	A-4(0)	
3			4.0'	12	clay, trace of gravel.		
		3	4.0'	10 9 11 13	Moist medium dense brown coarse to fine sand w/some gravel and silt.	A-1-b	
6			6.0'		19" RECOVERY		
		4	6.0'	5 5 7 7	Wet medium dense brownish black silty fine sand w/trace of coarse sand and gravel.	A-2-4(0)	
			8.0'		20" RECOVERY		
9		5	8.0'	3 8 5 5	Wet medium dense brownish black fine sand w/some coarse sand and silt.	A-2-4(0)	
			10.0'		19" RECOVERY		
		6	10.0'	4 7 9 10	Wet medium dense brownish black fine sandy silt w/trace of coarse sand and gravel.	A-2-4(0)	
12			12.0'		20" RECOVERY		
		7	12.0'	4 5 7 12	Wet medium dense brownish black fine to coarse sand w/some gravel and silt.	A-2-4(0)	
			14.0'		20" RECOVERY		
15		8	14.0'	4 5 7 10	Wet medium dense brownish black fine to coarse sand and gravel w/some silt.	A-2-4(0)	
			16.0'		22" RECOVERY		
Poma					End of Boring		

Symbol Description

Strata symbols



Low plasticity clay

Silty low plasticity clay



Silty sand

Poorly graded sand with silt

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

1. Exploratory borings were drilled on 3/6/2009 using a 3 1/4- inch diameter continues flight power auger. Rig is an ATV CME 45.

- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 28-113-01

Boring Location: Sta. 176+50, 107' Lt. C.L.

Boring No.: INF3-11

Ft. Ft.

Boring Surface	Elev.: + 71.38		Ref	erence:			
Wt. of Casing Ham Wt. of Sample Ham Type of: D-Samp S-Samp U-Samp Core Bi	nmer: 140 bler: Split-Barrel bler: bler:	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow	3 1/4" v Stem Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:		14.0'
Water Level Readin Date 3/6/2009	ngs Time 4:00 p.m.	Depth of Hole 12.0'	Depth of Casing 10.0'		of Water	Elev. of V	Vater

Pay Quantities:

2 1/2 in. Dia. Dry Sample Boring:	16.0	Ft.;	Dia. U-Sample Boring:
No. of 2 in. Dia. Shelby Tubes:		_;	No. of: U-Samples:
2 1/2 in. Dia. Contin. Sample Boring:		Ft.;	Core Drilling in Rock:
Paring Contractory Walton Componetic			

Boring Contractor: Walton Corporation Driller: Bill Holden Helpers: J. Lafferty

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
	3/6/09	1	0.5' 2.0'	4 10 11	Moist very stiff gray clayey silt w/some fine sand, trace of coarse sand and gravel. 17" RECOVERY	A-4(5)	Topsoil - 4".
		2	2.0'	11 9 9	Moist very stiff grayish brown silt w/some clay and fine sand, trace of	A-4(2)	
3			4.0'	9	coarse sand and gravel. 21' RECOVERY		
		3	4.0'	5 14 15 16	Moist medium dense brown coarse sand and gravel w/some fine sand and silt.	A-1-b	
6			6.0'		22" RECOVERY		
		4	6.0'	14 13 13 11	Moist medium dense brownish black coarse sand w/some fine sand, gravel and silt.	A-1-b	
			8.0'		20" RECOVERY		
9		5	8.0'	4 5 4 5	Wet loose brownish black silty fine sand w/trace of coarse sand.	A-2-4(0)	
			10.0'		22" RECOVERY		
		6	10.0'	4 4 3 7	Wet loose brownish black silty fine sand w/trace of coarse sand.	A-2-4(0)	
12			12.0'		22" RECOVERY		
		7	12.0'	8 11 12 9	Wet medium dense brown gravel and coarse sand w/some fine sand, trace of silt.	A-1-b	
			14.0'		17790 20" RECOVERY		
15		8	14.0'	8 9 11 8	Wet medium dense brown gravel and coarse to fine sand w/trace of silt.	A-1-b	
			16.0'		21" RECOVERY		
Poma	-				End of Boring		

Symbol Description

Strata symbols



Low plasticity clay

Silty low plasticity clay



Poorly graded sand with silt



Silty sand

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

1. Exploratory borings were drilled on 3/6/2009 using a 3 1/4- inch diameter continues flight power auger. Rig is an ATV CME 45.

- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 28-113-01

Boring Location: Sta. 155+00, Lt. C.L.

PAGE 1 OF 1

Boring Surface Elev.: + 71.8		Refe	erence:	
Wt. of Casing Hammer: Wt. of Sample Hammer: Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:		IN. IN. IN. IN. IN. IN.
Casing Size: Hollow Stem Auger:	Inches	From Depth of: From Depth of:	То: То:	
Water Level Readings Date Time 6/25/2009	Depth of Hole 9.5	Depth of Casing	Depth of Water 9.0	Elev. of Water
Pay Quantitios				

2 1/2 in. Dia. Dry Sample Boring: No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring:	Ft.; ; Ft.;	Dia. U-Sample Boring: No. of: U-Samples: Core Drilling in Rock:	Ft. Ft.
Boring Contractor: Walton Corporation			

oring Contractor: Walton Corporation Driller: Dave Burt Helpers: J. Lafferty

Depth	Daily	No.	Sample	Blows/6"	Sample Description	Class./G.I.	Remarks
(ft.)	Progress		Depth	DI0W5/0			
	6/25/09	1	0.5'		Moist brown clayey fine sandy silt w/some coarse sand.	A-4(1)	Topsoil - 6".
			2.0'		18" RECOVERY		0. Hand
		2	2.0'		Moist tan coarse sand and gravel w/some silt, trace of fine sand.	A-1-b	Auger
3			\cap	T	FOR BIDDING		Hand Auger
		N				2	
6					GUST 2015		
			8.0'		72" RECOVERY		
9		3	8.0'		Moist orange coarse sand w/some fine sand and gravel, trace of silt.	A-1-b	Hand Auger
Ŭ			9.5'		18" RECOVERY		
					End of Boring		
12							
15							
	den II	1 4					

Remarks: Hand Auger

Symbol Description

Strata symbols



Silty low plasticity clay



Silty sand



Poorly graded sand with silt

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

- 1. Exploratory borings were drilled on 6/25/2009 using a hand auger.
- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 28-113-01

Boring Location: Sta. 160+00, Lt. C.L.

Boring Surface Elev.:	+ 64.30		Ref	erence:			
	40 Split Barrel	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2.0		IN. IN. IN. IN. IN. IN.	
Casing Size: 3 Hollow Stem A	1/4" Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:		8.0'
Water Level Readings Date Tin 7/29/2009	me	Depth of Hole 10.0	Depth of Casing		of Water	Elev.	of Water

Pay Quantities:

2 1/2 in. Dia. Dry Sample Boring:	10.0	Ft.;	Dia. U-Sample Boring:	Ft.
No. of 2 in. Dia. Shelby Tubes:		_ ;	No. of: U-Samples:	_
2 1/2 in. Dia. Contin. Sample Boring:		Ft.;	Core Drilling in Rock:	Ft.
Boring Contractor: welton Corporation				

Boring Contractor: walton Corporation Driller: Gary Truver Helpers: T. Kane

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
	7/29/09	1	1.0'	11 9	Moist very stiff brown clay w/trace of fine to coarse sand and gravel.	A-6(9)	Cultivated Soil -
3		2	2.0' 2.0'	13 17 21 15	5" RECOVERY Moist hard brown clayey fine sandy silt w/trace of coarse sand and gravel.	A-4(1)	10". 10 YR 5/
			4.0'				<u>8</u> 10 YR 5/
		3	4.0'	9 18 27 2	Moist dense brown fine sand and gravel w/some coarse sand and silt, trace of clay.	A-2-4(0)	8 USDA Classifica
6			6.0'		20" RECOVERY		- Sandy
		4	6.0'	16 18 19 17	Moist dense brown gravel and coarse to fine sand w/some silt.	A-1-b	Loam. 7.5 YR 5/ 8
			8.0'		22" RECOVERY		7.5 YR 5/
9		5	8.0'	5 6 5 6	Wet medium dense brown coarse to fine sand w/some gravel, trace of silt.	A-1-b	8 10 YR 5/ 6
			10.0'		16" RECOVERY		-
					End of Boring		
12							
15							
Poma							

Symbol Description

Strata symbols

Low plasticity clay

Poorly graded clayey silty sand



Silty sand

Well graded sand with silt

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

1. Exploratory borings were drilled on 7/29/2009 using a 3 1/4- inch diameter continues flight power auger. Rig is an ATV CME 55.

- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 Contract: 28-113-01

Boring Location:

Boring Surface Ele	ev.: + 65.80		Ref	erence:			
Wt. of Casing Hammer: Wt. of Sample Hammer Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:		Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2.0		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow Ste	3 1/4" m Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:		8.0'
Water Level Readings Date 6/30/2009	Time	Depth of Hole 10.0	Depth of Casing 8.0	Depth o Di		Elev. c	of Water

Pay Quantities:

2 1/2 in. Dia. Dry Sample Boring: 10.0	Ft.;	Dia. U-Sample Boring:	Ft.
No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring:	; Ft.;	No. of: U-Samples: Core Drilling in Rock:	Ft.
Paring Contractory Walton Computing			

Boring Contractor: Walton Corporation Driller: Jason Truver Helpers: T. Kane

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"		Sample Description	Class./G.I.	Remarks
	6/30/09	1	0.5' 2.0'	2 2 2		Moist soft brown clayey silt w/trace of fine to coarse sand. 9" RECOVERY	A-4(5)	Topsoil - 4". USDA
		2	2.0'	4 3		Moist firm brown clayey silt w/trace of fine to coarse sand and gravel.	A-4(6)	Classifica - Silt
3		2A	3.0' 3.0' 4.0'	5 7		Moist loose brown silty fine to coarse sand w/trace of gravel. 6" RECOVERY		Loam. 10 YR
	-	3	4.0'	5 13 17 25		Moist medium dense brown gravel and coarse sand w/some silt and fine sand.	A-1-b	4.5/6 10 YR 4.5/6
6			6.0'			14" RECOVERY		10 YR 5/
	-	4	6.0'	7 29 20 8		Moist dense brown gravel and coarse sand w/some fine sand, trace of silt.	A-1-a	8 10 YR 4.5/6
	-	5	8.0' 8.0'	39 23 14 11	1:1:1:1:1:1:1:1: 1:1:1:1:1:1:1:1:1:1:1:	13" RECOVERY Moist dense brown coarse sand and gravel w/trace of silt and fine sand.	A-1-b	2.5 YR 4/ 3
9			10.0'			15" RECOVERY End of Boring		10 YR 5/ 6
	-							
12								
15								
	-							

Symbol Description

Strata symbols

Silty low plasticity clay



Low plasticity clay



Silty sand

Well graded sand with silt

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

1. Exploratory borings were drilled on 6/30/2009 using a 3 1/4- inch diameter continues flight power auger. Rig is a Track CME 55.

- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 28-113-01

Boring Location: Sta. 180+00, Rt. C.L.

Boring No.: INF3-15

Boring Surface Ele	V.: + 65.5		Ref	erence:			
Wt. of Casing Hammer: Wt. of Sample Hammer: Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:		Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2.0		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow Ste	3 1/4" m Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:		8.0'
Water Level Readings Date 6/30/2009	Time	Depth of Hole 10.0	Depth of Casing 8.0		of Water Dry	Elev. d	of Water

Pay Quantities:

2 1/2 in. Dia. Dry Sample Boring: No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring:	10.0	Ft.; ; Ft.;	Dia. U-Sample Boring: No. of: U-Samples: Core Drilling in Rock:	Ft. Ft.
Paring Contractory Walton Compositio				

Boring Contractor: Walton Corporation Driller: Jason Truver Helpers: T. Kane

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
	6/30/09	1	0.5' 2.0'	3 3 3	Moist firm brown clayey silt w/some fine to coarse sand, trace of gravel. 10" RECOVERY	A-4(5)	Cultivated Soil - 7". 7.5 YR 4/
3		2	2.0'	5 7 7 5	Moist medium dense brown coarse to fine sand w/some silt and gravel, trace of elay.	A-1-b	6 USDA Classifica - Sandy
		3	4.0' 4.0'	5 5 6 8	18" RECOVERY Moist medium dense brown coarse to fine sand w/some silt, trace of gravel.	A-1-b	Loam. 5 YR 5.5/ 8
6		4	6.0' 6.0'	11 8 9 10	15" RECOVERY Moist medium dense brown fine to coarse sand and gravel w/some silt.	A-1-b	10 YR 6/ 8 5 YR 5/6
9		5	8.0' 8.0'	9 7 6 4	15" RECOVERY Moist medium dense brown coarse sand and gravel w/some fine sand, trace of silt.	A-1-b	5 YR 4/3
			10.0'		End of Boring		
12							
15							

Symbol Description

Strata symbols



Low plasticity clay

Poorly graded clayey silty sand



Silty sand

Poorly graded sand with silt

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

1. Exploratory borings were drilled on 6/30/2009 using a 3 1/4- inch diameter continues flight power auger. Rig is a Track CME 55.

- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 28-113-01

Boring Location: Sta. 185+00, Rt. C.L.

Boring No.: INF3-16

Boring Surface El	ev.: + 70.6		Ref	erence:			
Wt. of Casing Hammer Wt. of Sample Hamme Type of: D-Sampler S-Sampler: U-Sampler Core Bit:	r: 140 Split Barrel	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2.0		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow St	3 1/4" em Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:		8.0'
Water Level Readings Date 7/1/2009	Time	Depth of Hole 10.0	Depth of Casing 8.0		of Water ry	Elev. of V	Vater

Pay Quantities:

2 1/2 in. Dia. Dry Sample Boring: 10.0	Ft.;	Dia. U-Sample Boring:	Ft.
No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring:	; Ft.;	No. of: U-Samples: Core Drilling in Rock:	Ft.
Dering Contractory Walter Comparties			

Boring Contractor: Walton Corporation Driller: Dave Burt Helpers: T. Kane

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
	7/1/09	1	1.0' 2.0'	5 4	Moist stiff brown clayey silt w/trace of fine to coarse sand. 9" RECOVERY	A-4(8)	Cultivated Soil -
3		2	2.0'	3 5 7 12	Moist medium dense brown gravel and fine sand w/some clay and coarse sand.	A-1-b	10". USDA
			4.0'				Classifica - Silt
		3	4.0'	5 12 18 16	Moist medium dense orange coarse to fine sand w/some silt and gravel.	A-1-b	Loam. 7.5 YR 4/ 4
6			6.0'		10" RECOVERY		10 YR 5/
		4	6.0'	13 10 11 12	Moist medium dense orange silty fine to coarse sand w/trace of gravel.	A-2-4(0)	8 7.5 YR 5/ 8
			8.0'		20" RECOVERY		10 YR 6/
9		5	8.0'	4 5 8 7	Moist medium dense brown fine to coarse sand and gravel w/some silt.	A-1-b	8 7.5 YR 4.5/6
			10.0'		13" RECOVERY		
					End of Boring		
12							
15							
Boma							

Symbol Description

Strata symbols

Low plasticity clay

Poorly graded clayey silty sand



Silty sand

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

1. Exploratory borings were drilled on 7/1/2009 using a 3 1/4- inch diameter continues flight power auger. Rig is a Track CME 55.

- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 28-113-01

Boring Location: Sta. 186+00, Lt. C.L.

Boring Surface Elev.: + 72.0		Refe	erence:	
Wt. of Casing Hammer: Wt. of Sample Hammer: Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Samp. Tube:		IN. IN. IN. IN. IN.
Casing Size: Hollow Stem Auger:	Inches	From Depth of: From Depth of:	To: To:	
Water Level Readings Date Time 6/25/2009	Depth of Hole	Depth of Casing	Depth of Water Dry	Elev. of Water
Pav Quantities:				

2 1/2 in. Dia. Dry Sample Boring:	Ft.;	Dia. U-Sample Boring:	Ft.
No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring:	; Ft.;	No. of: U-Samples: Core Drilling in Rock:	Ft.
Boring Contractor: Walton Corporation			

Boring Contractor: Walton Corporation Driller: Dave Burt Helpers: J. Lafferty

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
2	6/25/09	1	1.0'		Moist brown clayey silt w/some fine sand, trace of coarse sand and gravel.	A-4(2)	Topsoil - 8". USDA Classifica
			3.0'		24" RECOVERY		- Silt Loam.
		2	3.0'		Moist orange clayey fine sandy silt w/some coarse sand, trace of gravel.	A-4(0)	Hand Auger
4			5.0'		$GUST_{24"RECOVERY}$		Hand Auger
		3	5.0'		Moist orange silty coarse to fine sand w/trace of gravel.	A-1-b	Hand
6							Auger
8			8.0'		36" RECOVERY		
		4	8.0'		Wet orangish white silty fine sand w/trace of coarse sand.	A-2-4(0)	Hand Auger
10			10.0'		24" RECOVERY		
					End of Boring		
12		1.4					

Remarks: Hand Auger

Symbol Description

Strata symbols



Silty low plasticity clay

Poorly graded clayey silty sand



Silty sand

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

- 1. Exploratory borings were drilled on 6/25/2009 using a hand auger.
- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the log3.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 28-113-01

Boring Location: Sta. 190+00, Rt. C.L.

Boring No.: INF3-18

Ft. Ft.

Boring Surface I	Elev.: + 65.7		Ref	erence:			
Wt. of Casing Hamm Wt. of Sample Hamn Type of: D-Sample S-Sample U-Sample Core Bit:	ner: 140 er: Split Barrel er: er:	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2.0		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow S	3 1/4" Stem Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:		8.0'
Water Level Reading Date 7/1/2009	ls Time	Depth of Hole 10.0	Depth of Casing 8.0		of Water Dry	Elev. o	f Water

Pay	Qua	ntitie	s:

2 1/2 in. Dia. Dry Sample Boring:	10.0	Ft.;	Dia. U-Sample Boring:
No. of 2 in. Dia. Shelby Tubes:		;	No. of: U-Samples:
2 1/2 in. Dia. Contin. Sample Boring:		Ft.;	Core Drilling in Rock:

Boring Contractor: Walton Corporation Driller: Dave Burt Helpers: T. Kane

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
2	7/1/09	1	0.5'	4 3 4	Moist firm brown clay w/trace of fine to coarse sand.	A-6(10)	Cultivated Soil - 8". 10 YR 5/ 8
		2	2.0'	3 4 9 10	Moist stiff brown clayey fine sandy silt w/some coarse sand, trace of gravel.	A-4(4)	USDA Classifica - Loam. 10 YR 4/ 6
4		3	4.0' 4.0' 5.0'	5 7	13" RECOVERY Moist medium dense dark brown coarse sand w/some silt and fine sand, trace of gravel. 11" RECOVERY	A-1-b	2.5 YR 3/ 3
6		ЗA	5.0' 6.0'	8 9	Moist medium dense orange coarse sand w/some fine sand and silt, trace of gravel. 10" RECOVERY	A-1-b	10 YR 5/ 6
		4	6.0'	8 7 6 5	Moist medium dense orange coarse to fine sand w/some silt, trace of gravel.	A-1-b	10 YR 4/ 6
8		5	8.0' 8.0'	7 5 6 6	16" RECOVERY Moist medium dense orange silty fine to coarse sand w/trace of gravel.	A-2-4(0)	7.5 YR 5/ 8
10			10.0'		18" RECOVERY End of Boring		
Boma							

Symbol Description

Strata symbols



Low plasticity clay

Silty sand

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

1. Exploratory borings were drilled on 7/1/2009 using a 3 1/4- inch diameter continues flight power auger. Rig is a Track CME 55.

- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 Contract: 28-113-01

Boring Location: Sta. 191+00, Lt. C.L.

Boring No.: INF3-19

Ft. Ft.

Boring Surface El	ev.: + 62.7		Ref	erence:			
Wt. of Casing Hamme Wt. of Sample Hamme Type of: D-Sampler S-Sampler U-Sampler Core Bit:	r: 140 Split Barrel	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2.0		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow St	3 1/4" em Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:		10.0'
Water Level Readings Date 6/30/2009	Time	Depth of Hole	Depth of Casing 8.0		of Water 7.0	Elev. o	f Water

Pay	Qua	ntit	ies:	

2 1/2 in. Dia. Dry Sample Boring: No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring:	10.0	Ft.; ; Ft.;	Dia. U-Sample Boring: No. of: U-Samples: Core Drilling in Rock:	

Boring Contractor: Walton Corporation Driller: Jason Truver Helpers: T. Kane

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
2	6/30/09	1	0.5'	3 3 3	Moist firm brown clayey fine sandy silt w/some coarse sand, trace of gravel.	A-4(3)	Topsoil - 5". 7.5 YR 5/ 6
4		2	4.0'	13 17 19 28	Moist dense brown gravel and coarse to fine sand w/trace of silt and clay.	A-1-b	USDA Classifica - Sand. 10 YR 6.5/6
6		3	4.0' 6.0'	11 8 9 14	Moist medium dense brown clayey gravel and coarse to fine sand.	A-1-b	10 YR 5/ 6
		4	6.0'	13 14 14 16	Wet medium dense brown fine to coarse sand w/some silt, trace of gravel	A-2-4(0)	7.5 YR 6/ 8
8		5	8.0' 8.0'	9 14 14 11	19" RECOVERY Wet medium dense brown fine to coarse sand w/some silt, trace of gravel	A-2-4(0)	5 YR 4.5/ 6
10			10.0'		16" RECOVERY End of Boring		
Remar	'ke•						

Symbol Description

Strata symbols

1.01.01.0

Low plasticity clay

Poorly graded sand with silt

Poorly graded clayey silty sand



Silty sand

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

1. Exploratory borings were drilled on 6/30/2009 using a 3 1/4- inch diameter continues flight power auger. Rig is a Track CME 55.

- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 Contract: 28-113-01

Boring Location: Sta. 195+00, Rt. C.L.

Boring No.: INF3-20

Ft. Ft.

Boring Surface E	lev.: + 69.0		Ref	erence:			
Wt. of Casing Hamme Wt. of Sample Hamm Type of: D-Sample S-Sample U-Sample Core Bit:	er: 140 r: Split Barrel r:	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2.0		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow S	3 1/4" tem Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:		8.0'
Water Level Readings Date 6/30/2009	s Time	Depth of Hole 10.0	Depth of Casing 8.0		of Water ^{Dry}	Elev. of Wa	iter

Pay	Qua	ntit	ies	

2 1/2 in. Dia. Dry Sample Boring:	10.0	Ft.;	Dia. U-Sa	mple Boring:
No. of 2 in. Dia. Shelby Tubes:		_ ;	No. of:	U-Samples:
2 1/2 in. Dia. Contin. Sample Boring:		Ft.;	Core Drilling in Rock:	
Paring Contractory Walton Comparation				

Boring Contractor: Walton Corporation Driller: Jason Truver Helpers: T. Kane

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
2	6/30/09	1	0.5'	3 2 3	Moist firm brown clayey silt w/trace of fine to coarse sand and gravel. 12" RECOVERY	A-4(8)	Cultivated Soil - 7". 7.5 YR 4/ 6
		2	4.0'	6 7 7 7	Moist stiff brown fine sandy clay w/some coarse sand, trace of gravel.	A-6(2)	10 YR 5/ 6
4		3	4.0'	3 4 14 17	Moist medium dense orange gravel and coarse to fine sand w/trace of silt and clay.	A-1-b	USDA Classifica - Loamy Sand. 5 YR 6/8
6 		4	6.0' 6.0'	8 8 9	9" RECOVERY Moist medium dense brown coarse to fine sand w/some silt, trace of gravel.	A-1-b	7.5 YR 5/ 8
		5	8.0' 8.0'	9 22 19 19	17" RECOVERY Moist dense brown gravel and coarse to fine sand w/some silt.	A-1-b	7.5 YR 5/ 8
			10.0'		15" RECOVERY End of Boring		
Poma							

Symbol Description

Strata symbols



Low plasticity clay

Clayey sand



Poorly graded sand with silt



Silty sand

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

1. Exploratory borings were drilled on 6/30/2009 using a 3 1/4- inch diameter continues flight power auger. Rig is a Track CME 55.

- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 28-113-01

Boring Location: Sta. 196+00, Lt. C.L.

Boring Surface Elev.: + 70.6		Refe	erence:	
Wt. of Casing Hammer: Wt. of Sample Hammer: Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Samp. Tube:		IN. IN. IN. IN. IN. IN.
Casing Size: Hollow Stem Auger:	Inches	From Depth of: From Depth of:	To: To:	
Water Level Readings Date Time 8/4/2009	Depth of Hole 10.0	Depth of Casing	Depth of Water Dry	Elev. of Water
Pay Quantities:				

2 1/2 in. Dia. Dry Sample Boring:	Ft.;	Dia. U-Sample Boring:	Ft.
No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring:	; Ft.;	No. of: U-Samples: Core Drilling in Rock:	Ft.
Dering Contractory Walter Comparties			

Boring Contractor: Walton Corporation Driller: Dave Burt Helpers:

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
	8/4/09	1	0.0'	3 5 6 10	Moist stiff brown clayey silt w/some fine sand, trace of coarse sand.	A-4(3)	USDA Classifica - Silt Loam.
2	N		2.0'				
		2	2.0'	7 8 8 7	Moist very stiff orange clayey fine sandy silt w/some coarse sand, trace of gravel.	A-4(0)	
4			4.0'		GUS 14" RECOVERY		
		3	4.0	5 4 6 14	Moist stiff orange clayey fine sandy silt w/trace of gravel.	A-4(0)	
6			6.0'		18" RECOVERY		L
		4	6.0'	22 17 13 15	Moist medium dense orange coarse to fine sand w/some gravel and silt.	A-1-b	
8			8.0'	l	19" RECOVERY	ļ	L
		5	8.0'	8 7 6 7	Moist medium dense orange silty fine to coarse sand w/some gravel.	A-2-4(0)	
10			10.0'	1	16" RECOVERY		
	ke: Han				End of Boring		

Remarks: Hand Auger

Symbol Description

Strata symbols



Silty low plasticity clay

Poorly graded clayey silty sand



Silty sand

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

1. Exploratory borings were drilled on 8/4/2009 using a 3 1/4- inch diameter continues flight power auger. Rig is a Track CME 55.

- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 28-113-01

Boring Location: Sta. 201+00, Lt. C.L.

Boring Surface Elev	+ 71.07		Refe	erence:	
Wt. of Casing Hammer: Wt. of Sample Hammer: Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:		Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:		IN. IN. IN. IN. IN. IN.
Casing Size: Hollow Sten	n Auger:	Inches	From Depth of: From Depth of:	То: То:	
Water Level Readings Date	Time	Depth of Hole	Depth of Casing	Depth of Water Dry	Elev. of Water
Pay Quantities					

2 1/2 in. Dia. Dry Sample Boring: No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring:	Ft.; ; Ft.;	Dia. U-Sample Boring: No. of: U-Samples: Core Drilling in Rock:	Ft. Ft.
Boring Contractor: Walton Corporation			

oring Contractor: Walton Corporation Driller: Dave Burt Helpers: J. lLfferty

Depth	Daily		Somela				
Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
2	6/25/09	1	0.5'		Moist brown clayey silt w/trace of fine to coarse sand.	A-4(3)	Topsoil - 6". Hand Auger
			0	Τ	FOR BIDDING)	
4		2	4.0' 4.0'		42" RECOVERY		Hand
		2	4.0 5.0'	11	Moist brown clayey silt w/some fine sand, trace of coarse sand and gravel. 12" RECOVERY	A-4(7)	Hand Auger
		3	5.0'		Moist brown coarse to fine sand w/some silt, trace of gravel.	A-1-b	Hand
							Auger
6							
8			8.0'		36" RECOVERY		
		4	8.0'		Moist brown fine to coarse sand w/some silt, trace of gravel.	A-2-4(0)	Hand Auger
10			10.0'		24" RECOVERY		
					End of Boring		
Deme	ke Uan	1 4					-

Remarks: Hand Auger

Symbol Description

Strata symbols



Silty low plasticity clay



Low plasticity clay



Silty sand

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

- 1. Exploratory borings were drilled on 6/25/2009 using a hand auger.
- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the log3.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 28-113-01

Boring Location: Sta. 205+00, Rt. C.L.

Boring No.: INF3-23

Boring Surface El	ev.: + 63.6		Ref	erence:			
Wt. of Casing Hammer Wt. of Sample Hamme Type of: D-Sampler S-Sampler: U-Sampler Core Bit:	r: 140 Split Barrel	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2.0		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow St	3 1/4" em Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:		8.0'
Water Level Readings Date 7/1/2009	Time	Depth of Hole 10.0	Depth of Casing 8.0		of Water Dry	Elev	v. of Water

Pay Quantities:

2 1/2 in. Dia. Dry Sample Boring: 1 No. of 2 in. Dia. Shelby Tubes:	0.0 Ft.;	Dia. U-Sample Boring: No. of: U-Samples:	Ft.
2 1/2 in. Dia. Contin. Sample Boring:	Ft.;	Core Drilling in Rock:	Ft.
Devine Contractory W 10 C			

Boring Contractor: Walton Corporation Driller: Dave Burt Helpers: T. Kane

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
	7/1/09	1	0.5'	6 5 7	Moist stiff brown clayey gravelly silt w/some coarse to fine sand.	A-4(2)	Topsoil - 5". USDA
2		۱ <u>۱</u>	2.0'	۱ I	14" RECOVERY		Classifica
		2	2.0' 3.0'	4 5	Moist stiff brown clayey silt w/some fine sand, trace of coarse sand and gravel. 10" RECOVERY	A-4(3)	- Loam. 10 YR 5/ 6 10 YR 5/
	_	2A	3.0'	8 10	Moist medium dense brown silty fine to coarse sand w/some gravel.	A-2-4(0)	6
4			4.0'	8	7" RECOVERY		7.5 YR 4.5/6
		3	4.0'	8 10 14 16	Moist medium dense orange silty fine to coarse sand w/trace of gravel.	A-2-4(0)	10 YR 6/ 8
6			6.0'		18" RECOVERY		
		4	6.0'	10 9 7 7	Moist medium dense orange coarse to fine sand w/some silt, trace of gravel.	A-1-b	7.5 YR 5.5/8
8		<u> </u>	8.0'	·	19" RECOVERY		
		5	8.0'	6 5 5 8	Moist loose orange coarse to fine sand w/some silt and gravel.	A-1-b	7.5 YR 5/ 8
10		t i	10.0'		16" RECOVERY		
					End of Boring		

Symbol Description

Strata symbols

Clayey sand

Silty low plasticity clay



Silty sand

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

1. Exploratory borings were drilled on 7/1/2009 using a 3 1/4- inch diameter continues flight power auger. Rig is a ATV CME 55.

- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 28-113-01

Boring Location: Sta. 206+00, Lt. C.L.

Boring No.: INF3-24

Boring Surface E	ev.: + 65.6		Ref	erence:			
Wt. of Casing Hamme Wt. of Sample Hamme Type of: D-Sampler S-Sampler U-Sampler Core Bit:	er: 140 : Split Barrel	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2.0		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow St	3 1/4" em Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:	8.	0'
Water Level Readings Date 7/24/2009	Time	Depth of Hole 10.0	Depth of Casing 8.0		of Water Dry	Elev. of Water	

Pay Quantities:

2 1/2 in. Dia. Dry Sample Boring: 10.0 No. of 2 in. Dia. Shelby Tubes:	Ft.;	Dia. U-Sample Boring: No. of: U-Samples:	Ft.
2 1/2 in. Dia. Contin. Sample Boring:	Ft.;	Core Drilling in Rock:	Ft.
Paring Contractory Walton Corporation			

Boring Contractor: Walton Corporation Driller: Cecil Velazco Helpers: J. Lafferty

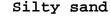
Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
7/24/09	1	0.5'	6 8 8	Moist very stiff brown fine to coarse sandy silt w/some clay, trace of gravel.	A-4(0)	Topsoil - 5". 7.5 YR 5/ 4
	2	2.0'	6 8 8 8	Moist medium dense brown silty fine to coarse sand w/trace of gravel.	A-2-4(0)	7.5 YR 4/ 4
	3	4.0'	11 16 12 12	Moist medium dense brown coarse to fine sand w/some silt, trace of gravel and clay.	A-2-4(0)	USDA Classifica - Loamy Sand. 10 YR 4/
	4	6.0' 6.0'	6 9 8 7	20" RECOVERY Moist medium dense tanish orange silty coarse to fine sand w/trace of gravel.	A-1-b	6 10 YR 6/ 3
	5	8.0'	6 7 6 8	19" RECOVERY Moist medium dense brown coarse to fine sand w/some silt and gravel.	A-1-b	10 YR 5/ 4
-		10.0'		20" RECOVERY End of Boring		
	Progress	Progress NO. 7/24/09 1 2 2 3 3 4 4 5 5	Progress NO. Depth 7/24/09 1 0.5' 2 2.0' 2 2 2.0' 2 3 4.0' 3 6.0' 4 6.0' 4 6.0' 4 5 8.0' 5 10.0' 10.0' 10.0'	Progress NO. Depth Blows/6 7/24/09 1 $0.5'$ $\frac{6}{8}$ 2 2.0' 2 2 2.0' $\frac{6}{8}$ 4.0' 3 $4.0'$ 3 $4.0'$ $\frac{11}{12}$ 6.0' $\frac{6}{12}$ $\frac{6}{12}$ 6.0' $\frac{6}{12}$ $\frac{6}{12}$ 8 $\frac{6}{12}$ $\frac{6}{12}$ 6.0' $\frac{6}{12}$ $\frac{6}{12}$ 8 $\frac{6}{12}$ $\frac{6}{12}$ 8 $\frac{6}{12}$ $\frac{6}{12}$ 10.0' $\frac{10}{7}$ $\frac{6}{8}$	Progress No. Depth Blowsis Sample Description 7/24/03 1 0.5' 8 Moist very stiff brown fine to coarse sandy silt w/some clay, trace of gravel 20' 2.0' 16' RECOVERY 2 2.0' 8 Moist medium dense brown silty fine to coarse sand w/trace of gravel 4.0' 1 0.5' 8 Moist medium dense brown coarse to fine sand w/some silt, trace of gravel 3 4.0' 16 20' RECOVERY Moist medium dense brown coarse to fine sand w/some silt, trace of gravel and clay. 6.0' 0 20' RECOVERY Moist medium dense brown coarse to fine sand w/race of gravel. 6.0' 0 10' RECOVERY Moist medium dense tanish orange silty coarse to fine sand w/trace of gravel. 8.0' 19' RECOVERY 10.0' 10' RECOVERY 4 6.0' 6' Recovery Moist medium dense brown coarse to fine sand w/some silt and gravel. 8.0' 10' Recovery 10.0' 20' RECOVERY 10.0' 10.0' 20' RECOVERY 10.0' End of Boring 20' RECOVERY	Progress No. Depth blowso Sample Description Class.73.1 7/24/09 1 0.5' 6 8 Woist very stiff brown fine to coarse sandy silt w/some clay, trace of gravel A-4(0) 2 2.0' 16' RECOVERY A-4(0) 3 4.0' 10' 10' 20' RECOVERY A-2.4(0) 3 4.0' 11' 10' 20' RECOVERY A-2.4(0) 4 6.0' 20' RECOVERY A-2.4(0) 4 6.0' 20' RECOVERY A-2.4(0) 5 8.0' 10' 10' 10' RECOVERY 5 8.0' 10' 10' RECOVERY A-1-b 10 10.0' 20' RECOVERY A-1-b 10 10.0' 20' RECOVERY A-1-b

Symbol Description

Strata symbols



Poorly graded clayey silty sand



DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

1. Exploratory borings were drilled on 7/24/2009 using a 3 1/4- inch diameter continues flight power auger. Rig is a ATV CME 55.

- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 28-113-01

Boring Location: Sta. 210+00, Rt. C.L.

Boring	No.:	INF3-25
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Ft.

Ft.

Boring Surface Ele	• • • • • • • • • • • • • • • • • • • 		Ref	erence:			
Wt. of Casing Hammer: Wt. of Sample Hammer: Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:		Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2.0		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow Ste	3 1/4" m Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:		8.0'
Water Level Readings Date 7/23/2009	Time	Depth of Hole 10.0	Depth of Casing 8.0	Depth o Di		Elev. of	Water
Dave Ourantitians							

Ft.;

; Ft.;

No. of:

Core Drilling in Rock:

Pay	Qua	ntiti	es:

2 1/2 in. Dia. Dry Sample Boring:	10.0
No. of 2 in. Dia. Shelby Tubes:	
2 1/2 in. Dia. Contin. Sample Boring	:

Boring Contractor: Walton Corporation Driller: Cecil Velazco Helpers: J. Lafferty

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
2	7/24/09	1	0.5'	9 9 9	Moist very stiff brown fine to coarse sandy silt w/some clay, trace of gravel.	A-4(0)	Topsoil - 7". 7.5 YR 5/ 6
	ſ	2	4.0'	8 8 11 9	Moist very stiff brown fine sandy silt w/some coarse sand, trace of gravel	. A-4(0)	10 YR 5/ 6
		3	4.0'	5 8 14 9	Moist medium dense brown silty fine to coarse sand w/trace of clay and gravel.	A-2-4(0)	USDA Classifica - Sandy Loam. 10 YR 5/ 6
6 		4	6.0' 6.0'	8 6 8 6	18" RECOVERY Moist medium dense brown coarse to fine sand w/some silt and gravel.	A-1-b	10 YR 6/ 8
8		5	8.0' 8.0'	5 6 5 5	21" RECOVERY Moist medium dense brown fine to coarse sand w/some silt, trace of gravel.	A-2-4(0)	10 YR 6/ 8
10			10.0'		20" RECOVERY End of Boring		
Poma	rko.						

Remarks:

Dia. U-Sample Boring: U-Samples:

Symbol Description

Strata symbols

Poorly graded clayey silty sand

Silt

Silty sand

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

1. Exploratory borings were drilled on 7/23/2009 using a 3 1/4- inch diameter continues flight power auger. Rig is a ATV CME 55.

- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

Dia. U-Sample Boring: No. of: U-Samples: Core Drilling in Rock:

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 28-113-01

Boring Location: Sta. 216+00, Lt. C.L.

Boring	No.:	INF3-28
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Ft. Ft.

Boring Surface El	ev.: + 65.30		Ref	erence:		
Wt. of Casing Hammer Wt. of Sample Hamme Type of: D-Sampler S-Sampler: U-Sampler Core Bit:	r: 140 Split Barrel	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2.0		IN. IN. IN. IN. IN. IN.
Casing Size: Hollow St	3 1/4" em Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:	8.0'
Water Level Readings Date 7/24/2009	Time	Depth of Hole 10.0	Depth of Casing 8.0	Depth of Dr		Elev. of Water
Pay Quantities:						

2 1/2 in. Dia. Dry Sample Boring:	10.0	Ft.;
No. of 2 in. Dia. Shelby Tubes:	1010	;
2 1/2 in. Dia. Contin. Sample Boring:		Ft.;

Boring Contractor: Walton Corporation Driller: Cecil Velazco Helpers: J. Lafferty

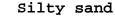
Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
2	7/24/09	1	0.5'	7 7 8	Moist stiff brown clayey fine andy silt w/some coarse sand, trace of gravel.	A-4(0)	Topsoil - 5". 2.5 YR 6/ 4
		2	4.0'	8 8 11 14	Moist very stiff brown fine sandy silt w/some coarse sand, trace of grave	I. A-4(0)	10 YR 5/ 6
6		3	4.0' 4.0' 6.0'	9 11 12 12	20 RECOVERT Moist medium dense tan silty coarse to fine sand w/trace of gravel. 21" RECOVERY	A-1-b	10 YR 7/ 6
		4	6.0'	7 11 8 7	Moist medium dense orange coarse to fine sand w/some silt, trace of clay and gravel.	A-2-4(0)	USDA Classifica - Sandy Loam. 7.5 YR 5/ 8
 		5	8.0' 8.0'	6 5 8 8	22" RECOVERY Moist medium dense orange fine to coarse sand w/some silt, trace of gravel.	A-2-4(0)	8 7.5 YR 5/ 8
			10.0'		21" RECOVERY End of Boring		

Symbol Description

Strata symbols



Silty low plasticity clay



DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

1. Exploratory borings were drilled on 7/24/2009 using a 3 1/4- inch diameter continues flight power auger. Rig is a ATV CME 55.

- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 28-113-01

Boring Location:	Sta. 221+00, Lt. C.L						
Boring Surface Ele	•••••••••••••••••••••••••••••••••••••		Ref	erence:			
Wt. of Casing Hammer: Wt. of Sample Hammer Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:		Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2.0		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow Ste	3 1/4" m Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:	1	10.0'
Water Level Readings Date 7/24/2009	Time	Depth of Hole 10.0	Depth of Casing 8.0	Depth o		Elev. of Water	r

Pay Quantities:

No. of 2 in. Dia. Shelby Tubes:	.0 Ft.;	Dia. U-Sample Boring: No. of: U-Samples:	Ft.
2 1/2 in. Dia. Contin. Sample Boring:	Ft.;	Core Drilling in Rock:	Ft.
Boring Contractor: Walton Corporation			

Boring Contractor: Walton Corporation Driller: Gary Truver Helpers: T. Kane

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
	7/24/09	1	0.5'	10 12 17	Moist very stiff brown silty fine to coarse sandy clay.		Topsoil - 7". USDA
2			2.0'		6" RECOVERY		Classifica
		2	2.0'	13 12	Moist medium dense brown silty fine to coarse sand w/trace of gravel.	A-2-4(0)	- Sandy Loam.
		N	U	13 12 10 12	FOR BIDDING	2	7.5 YR 6/ 8
4			4.0'				7.5 YR 5/ 8
		3	4.0'	9 9 9 6	Moist medium dense brown coarse to fine sand w/some silt, trace of gravel.	A-2-4(0)	7.5 YR 5/ 8
6		4	6.0'	2	15" RECOVERY		
		4	6.0'	3 7 9 10	Moist medium dense brown silty fine to coarse sand w/trace of gravel.	A-2-4(0)	10 YR 6/ 8
8			8.0'		17" RECOVERY		
		5	8.0'	6 8 6 5	Moist medium dense brown fine to coarse sand w/some silt.	A-2-4(0)	10 YR 6/ 8
10			10.0'		16" RECOVERY		
					End of Boring		
Rema							

Symbol Description

Strata symbols



Low plasticity clay

Silty sand

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

1. Exploratory borings were drilled on 7/24/2009 using a 3 1/4- inch diameter continues flight power auger. Rig is a ATV CME 55.

- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 Contract: 28-113-01

Boring Location: Sta. 225+00, Rt. C.L.

Boring No.: INF3-30

Ft.

Ft.

Boring Surface El	ev.: + 59.0		Ref	erence:			
Wt. of Casing Hammer Wt. of Sample Hamme Type of: D-Sampler S-Sampler: U-Sampler Core Bit:	r: 140 Split Barrel	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2.0		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow St	3 1/4" em Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:		8.0'
Water Level Readings Date 7/24/2009	Time	Depth of Hole 10.0	Depth of Casing 8.0		of Water ^{ry}	Elev. of V	Vater

Ft.;

; Ft.;

Pay	Quantities:	

2 1/2 in. Dia. Dry Sample Boring: No. of 2 in. Dia. Shelby Tubes:	10.0
2 1/2 in. Dia. Contin. Sample Boring:	

Boring Contractor: Walton Corporation Driller: Gary Truver Helpers: T. Kane

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
	7/24/09	1	0.5'	7 10 10	Moist very stiff brown fine to coarse sandy silt w/some clay, trace of gravel.		Cultivated Soil - 5". USDA CLassifica
2			2.0'		5" RECOVERY		- Sandy
		2	2.0'	7 8 6 7	Moist medium dense brown coarse to fine sand w/some silt, trace of gravel.	A-1-b	Loam. 10 YR 5/ 8 10 YR 5/
							10 1K 3/ 8
4		3	4.0'				
		3	4.0'	4 7 9 9	Moist medium dense brown silty fine to coarse sand w/trace of gravel.	A-2-4(0)	10 YR 5/ 8
			6.0'		20" RECOVERY		
6		4	6.0'	8 10	20 RECOVERY Moist medium dense brown coarse to fine sand w/some silt, trace of	A-2-4(0)	10 YR 6/
				8 10 9 6	gravel.		8
8		5	8.0' 8.0'	3	19" RECOVERY		10 VD 7/
		5	0.0	3 3 4 3	Moist to wet loose brown silty fine sand w/trace of coarse sand.	A-2-4(0)	10 YR 7/ 8
10			10.0'		17" RECOVERY		
					End of Boring		
Pomai		•					

Remarks:

Dia. U-Sample Boring: U-Samples:

No. of: Core Drilling in Rock:

Symbol Description

Strata symbols



Low plasticity clay

Silty sand

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

1. Exploratory borings were drilled on 7/24/2009 using a 3 1/4- inch diameter continues flight power auger. Rig is a ATV CME 55.

- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 Contract: 28-113-01

Boring Location: Sta. 226+00, Lt. C.L.

Boring No.: INF3-31

Ft.

Ft.

Boring Surface Ele	V.: + 59.1		Ref	erence:		
Wt. of Casing Hammer: Wt. of Sample Hammer Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:		Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2.0		IN. IN. IN. IN. IN.
Casing Size: Hollow Ste	3 1/4" m Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:	10.0'
Water Level Readings Date 7/24/2009	Time	Depth of Hole	Depth of Casing 8.0		of Water	Elev. of Water
Boy Quantition						

Ft.;

; Ft.;

Pay	Quantities:	

Boring Contractor: Walton Corporation Driller: Gary Truver Helpers: T. Kane

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
	7/24/09	1	0.5'	12 14 16	Moist very stiff brown clayey fine sandy silt w/some coarse sand, trace or gravel.	A-4(2)	Topsoil - 8". USDA CLassifica
2		_	2.0'		7" RECOVERY		- Loam.
		2	2.0'	12 12 8 8	Moist very stiff brown fine sandy silt w/trace of coarse sand.	A-4(0)	10 YR 6/ 6 7.5 YR 6/ 8
							0
4		3	4.0' 4.0'	5	17" RECOVERY Moist stiff brown fine sandy silt w/trace of coarse sand.	A-4(0)	10 YR 6/
		ľ	7.0	5 7 6 5	worst suit brown the sandy sitt w/trace of coarse sand.	A-4(0)	10 1K 0/ 8
				5			Č
6			6.0'		18" RECOVERY		
		4	6.0'	4 4	Wet loose brown silty fine sand w/trace of coarse sand.	A-2-4(0)	10 YR 6/
				4 4 4 4			8
8			8.0'		19" RECOVERY		
		5	8.0'	1 3 3 3	Wet loose brown silty fine sand w/trace of coarse sand and gravel.	A-2-4(0)	10 YR 6/ 8
				Ĩ			
10			10.0'		16" RECOVERY		
					End of Boring		
Poma							

Remarks:

Dia. U-Sample Boring: U-Samples:

No. of: Core Drilling in Rock:

Symbol Description

Strata symbols



Low plasticity clay

Silty sand

Silt

T

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

1. Exploratory borings were drilled on 7/24/2009 using a 3 1/4- inch diameter continues flight power auger. Rig is a ATV CME 55.

- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 28-113-01

Boring Location: Sta. 231+00, Lt. C.L.

Boring Surface Ele	ev.: + 71.23		Reference:			
Wt. of Casing Hammer: Wt. of Sample Hammer Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:		Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow Ste	em Auger:	Inches	From Depth of: From Depth of:	То: То:		
Water Level Readings Date 7/24/2009	Time	Depth of Hole	Depth of Casing	Depth of Water 7.9	Elev. of Water	
Pay Quantities:						

2 1/2 in. Dia. Dry Sample Boring:	Ft.;	Dia. U-Sample Boring:	Ft.
No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring:	; Ft.;	No. of: U-Samples: Core Drilling in Rock:	Ft.
Boring Contractor: Walton Corporation			

Boring Contractor: Walton Corporation Driller: Dave Burt Helpers: T. Kane

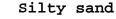
Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
	7/24/09	1	0.5'		Moist brown silt w/some clay and fine to coarse sand, trace of gravel.	A-4(1)	Forrest Duff - 3". USDA
2			2.0'		18" RECOVERY		Classifica
		2	2.0' 3.5'		Moist brown fine to coarse sandy silt w/some clay, trace of gravel.	A-4(0)	- Silt Loam. 2.5 YR 6/ 6 Hand
4		3	3.5' 5.0'	٩L	Moist brown coarse sand w/some fine sand, silt and gravel. 18" RECOVERY	A-1-b	Auger 10 YR 5/ 8 Hand Auger
6		4	5.0' 7.0'		Moist brown fine to coarse sand w/some silt, trace of gravel. 24" RECOVERY	A-2-4(0)	10 YR 5/ 8 Hand Auger 7.5 YR 6/ 8
8		5	7.0'		Moist to wet tan fine to coarse sand w/some silt, trace of gravel.	A-2-4(0)	o Hand Auger 2.5 YR 6/ 4 Hand Auger
			10.0'		36" RECOVERY End of Boring		

Symbol Description

Strata symbols



Silty low plasticity clay



DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

- 1. Exploratory borings were drilled on 7/24/2009 using a hand auger.
- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the log3.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 Contract: 28-113-01

Boring Location: Sta. 236+00, Lt. C.L.

Ft.

Ft.

Boring Surface	Elev.: + 72.38	Reference:					
Wt. of Casing Hamm Wt. of Sample Hamn Type of: D-Sampl S-Sample U-Sampl Core Bit:	ner: 140 er: Split Barrel er: er:	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2.0		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow	3 1/4" Stem Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:		8.0'
Water Level Reading Date 7/20/2009	gs Time	Depth of Hole 10.0	Depth of Casing 8.0		of Water 3.8	Elev.	of Water

Ft.;

; Ft.;

Pay	Quantiti	ies:

~,	2 1/2 in. Dia. Dry Sample Boring:	10.0
	No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring:	
	z 1/2 m. Dia. Contin. Sample Boring.	

Boring Contractor: Walton Corporation Driller: Dave Burt Helpers: T. Kane

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
	7/20/09	1	0.5'	7 9 9	Moist very stiff gray silt w/some clay, trace of fine to coarse sand.	A-4(0)	Topsoil - 4". USDA Classifica
2	_		2.0'		14" RECOVERY		- Silt
		2	2.0'	6 12 14 21	Moist very stiff gray fine sandy silt w/trace of coarse sand and clay.	A-4(0)	Loam. 2.5 YR 5/ 2 2.5 YR 6/
4			4.0'				2
		3	4.0'	4 6 7 7	Moist medium dense orange mottled silty fine to coarse sand.	A-2-4(0)	10 YR 6/ 8
6			6.0'		17" RECOVERY		
0		4	6.0'	4	Wet medium dense orange mottled silty fine sand w/trace of coarse sand	A-2-4(0)	10 YR 6/
				4 5 7 8			8
8			8.0'		18" RECOVERY		
		5	8.0'	2 6 7 7	Wet medium dense brown silty fine to coarse sand.	A-2-4(0)	10 YR 6.5/6
			10.01				
10			10.0'		End of Boring		
Bomar							

Remarks:

Dia. U-Sample Boring: U-Samples:

No. of: Core Drilling in Rock:

Symbol Description

Strata symbols



Silt

Silty sand

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

1. Exploratory borings were drilled on 7/20/2009 using a 3 1/4- inch diameter continues flight power auger. Rig is a ATV CME 45.

- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 Contract: 28-113-01

Boring Location: Sta. 236+00, Rt. C.L.

Boring No.: INF3-34

Ft. Ft.

Boring Surface	Elev.: + 72.0	Reference:					
Wt. of Casing Hamm Wt. of Sample Hamn Type of: D-Sample S-Sample U-Sample Core Bit:	ner: 140 er: Split Barrel er: er:	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2.0		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow 3	3 1/4" Stem Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:		8.0'
Water Level Reading Date 7/17/2009	gs Time	Depth of Hole 10.0	Depth of Casing 8.0		of Water 3.6	Elev. of	f Water

Pay	Qua	antit	ies	:

2 1/2 in. Dia. Dry Sample Boring: 10.0	Ft.;	Dia. U-Sample Boring:
No. of 2 in. Dia. Shelby Tubes:	;	No. of: U-Samples:
2 1/2 in. Dia. Contin. Sample Boring:	Ft.;	Core Drilling in Rock:
Paring Contractory Walton Comparation		

Boring Contractor: Walton Corporation Driller: Cecil Velazco Helpers: T. Kane

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
	7/17/09	1	0.0'	10 10 10 9	Moist very stiff orange clayey fine sandy silt w/some coarse sand, trace of gravel.	A-4(2)	Topsoil - 2". 7.5 YR 7/ 6
2			2.0'		19" RECOVERY		
		2	2.0'	<mark>4</mark> 5 8 6	Moist stiff orange fine sandy silt w/trace of clay and coarse sand.	A-4(0)	USDA CLassifica - Sandy Loam.
4			4.0'		GUST _{16" RECOVERY}		7.5 YR 5/ 8
		3	4.0	6 8 9 9	Moist medium dense orange coarse to fine sand and gravel w/some silt.	A-1-b	7.5 YR 6/ 6
6			6.0'		18" RECOVERY		
		4	6.0'	6 8 7 6	Moist medium dense orange coarse sand w/some fine sand, silt and gravel.	A-1-b	10 YR 5/ 8
8			8.0'		20" RECOVERY		
		5	8.0'	2 4 7 7	Wet medium dense brown coarse to fine sand and gravel w/some silt.	A-1-b	10 YR 4/ 6
10			10.0'		14" RECOVERY		
Rema					End of Boring		

Symbol Description

Strata symbols



Low plasticity clay

Silty sand

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

1. Exploratory borings were drilled on 7/17/2009 using a 3 1/4- inch diameter continues flight power auger. Rig is a ATV CME 45.

- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 28-113-01

Boring Location: Sta. 241+00, Rt. C.L.

Boring Surface Elev.: +7	0.70	Reference:			
Wt. of Casing Hammer: Wt. of Sample Hammer: Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow Stem Auge	Inches r:	From Depth of: From Depth of:	То: То:		
Water Level Readings Date Time 7/21/2009	Depth of Hole	Depth of Casing	Depth of Water 9.0	Elev. of Water	
Pav Quantities:					

2 1/2 in. Dia. Dry Sample Boring: No. of 2 in. Dia. Shelby Tubes:	Ft.;	Dia. U-Sample Boring: No. of: U-Samples:	Ft.
2 1/2 in. Dia. Contin. Sample Boring:	Ft.;	Core Drilling in Rock:	Ft.
Paring Contractory Walton Comparation			

Boring Contractor: Walton Corporation Driller: John Foley Helpers:

Depth	Daily		Sample			e i 15	
(ft.)	Progress	No.	Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
	7/21/09	1	0.9'		Moist brown silt w/some clay, trace of fine to coarse sand.	A-4(4)	Topsoil - 10.8".
2			2.0'		13.2" RECOVERY		USDA
		2	2.0'		Moist light grayish brown clayey silt w/some fine to coarse sand, trace of	A-4(4)	Classifica
			3.0'		gravel. 12" RECOVERY		- Silt Loam.
		3	3.0'		Moist light grayish brown silt w/some fine to coarse sand and clay, trace	A-4(1)	Hand Auger
			4.0'		of gravel. 12" RECOVERY		Hand
4		4	4.0'		Moist orangish brown gravelly silt w/trace of coarse to fine sand.	A-4(0)	Auger
					in the stangest of surgicity site with the stand start file stand.		Hand
			5.0'		12" RECOVERY		Auger
		5	5.0		Moist brown silty coarse sand and gravel w/some fine sand.	A-1-b	Hand Auger
							Hand
6		6	6.0' 6.0'		12" RECOVERY Moist brown gravel and coarse to fine sand w/some silt.	A-1-b	Auger
		0	0.0		and worst brown gravel and coarse to fine sand w/some silt.	A-1-0	Hand
			7.0'		12" RECOVERY		Auger
		7	7.0'		Moist brown silty fine sand w/trace of coarse sand and gravel.	A-2-4(0)	Hand
							Auger
8			8.0'		12" RECOVERY		
		8	8.0'		Moist brown fine to coarse sand and gravel w/some silt.	A-1-b	Hand
					17 JULET 17 JULET 17 JULET		Auger
		9	9.0' 9.0'		12" RECOVERY Wet brown coarse sand and gravel w/trace of silt and fine sand.	A-1-b	Hand
			0.0			A-1-0	Hand Auger
10			10.0'		12" RECOVERY		1 14501
				ĺ	End of Boring		
					č		
12	des II.						

Remarks: Hand Auger

Symbol Description

Strata symbols



silt

Low plasticity clay



Silty low plasticity clay



Silty sand



Poorly graded sand with silt

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

- 1. Exploratory borings were drilled on 7/21/2009 using a hand auger.
- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the log3.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 Contract: 28-113-01

Boring Location: Sta. 246+00, Lt. C.L.

Ft. Ft.

Boring Surface I	Elev.: + 64.60		Ref				
Wt. of Casing Hamm Wt. of Sample Hamn Type of: D-Sample S-Sample U-Sample Core Bit:	ner: 140 er: Split Barrel er: er:	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2.0		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow 3	3 1/4" Stem Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:		8.0'
Water Level Reading Date 7/23/2009	gs Time	Depth of Hole 10.0'	Depth of Casing 8.0'		of Water Dry	Elev. of V	later

Pay	Qua	ntit	ies	:

2 1/2 in. Dia. Dry Sample Boring:	10.0	Ft.;	Dia. U	J-Sample Boring:
No. of 2 in. Dia. Shelby Tubes:		;	No. of:	U-Samples:
2 1/2 in. Dia. Contin. Sample Boring:		Ft.;	Core Drilling in Roc	ck:
Boring Contractor: Walton Corporatio	n			

Boring Contractor: Walton Corporation Driller: Gary Truver Helpers: T. Kane

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
2	7/23/09	1	1.0' 2.0'	4 5	Moist stiff brown silt w/some clay and fine sand, trace of coarse sand and gravel. 7" RECOVERY	A-4(5)	Cultivated Soil - 9". USDA
		2	2.0' 2.5'	6	Moist very stiff brown clayey gravelly silt w/some fine to coarse sand. 6" RECOVERY	A-4(0)	Classifica
		2A	2.5'	10 18 21	Moist medium dense brown coarse sand w/some fine sand and silt, trace of gravel.	A-1-b	- Silt Loam. 2.5 YR 5/ 4
4			4.0'		10" RECOVERY		2.5 YR 5/
		3	4.0'	11 18 19 13	Moist dense brown coarse to fine sand w/some gravel and silt.	A-1-b	4 10 YR 5/ 6 7.5 YR 5/ 8
6		4	6.0' 6.0'	10	17" RECOVERY	A-1-b	7.5 YR 5/
		-		10 25 26 20	Moist very dense brown gravel and coarse sand w/some fine sand and silt.	A-1-0	8 8
8		5	8.0' 8.0'	5	17" RECOVERY	A 1 1	10 VD (/
		5	0.0	5 9 6 3	Moist medium dense brown fine to coarse sand w/some gravel and silt.	A-1-b	10 YR 6/ 8
10			10.0'		16" RECOVERY		
					End of Boring		
12 Pomar							

Symbol Description

Strata symbols



Clayey sand



Silty sand

Poorly graded sand with silt

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

1. Exploratory borings were drilled on 7/23/2009 using a 3 1/4- inch diameter continues flight power auger. Rig is a ATV CME 45.

- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 28-113-01

Boring Location: Sta. 246+00, Rt. C.L.

B	or	'n	g	No).:	INF3-37

Ft. Ft.

Boring Surface Ele	ev.: + 70.90		Ref				
Wt. of Casing Hammer: Wt. of Sample Hammer Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:		Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2.0		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow Ste	3 1/4" m Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:		10.0'
Water Level Readings Date 7/23/2009	Time	Depth of Hole 10.0	Depth of Casing 8.0		of Water ^{Dry}	Elev. of V	/ ater

Pay	Qua	antit	ies	:

2 1/2 in. Dia. Dry Sample Boring: 10.0	Ft.;	Dia. U-Sample Boring:
No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring:	; Ft.;	No. of: U-Samples: Core Drilling in Rock:
Paring Contractor: Walton Cronoration		-

Boring Contractor: Walton Croporation Driller: Gary Truver Helpers: T. Kane

Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
7/23/09	1	0.5'	9 9 10	Moist very stiff brown clayey silt w/trace of fine to coarse sand. 6" RECOVERY	A-4(6)	Cultiviate Soil - 6" 10 YR 6/ 8
	2	2.0'	11 9 17 16	Moist very stiff brown fine to coarse sandy silt w/trace of clay and gravel	. A-4(0)	7.5 YR 5/ 6
	3	4.0'	8 11 15 11	Moist medium dense brown silty coarse to fine sand w/trace of gravel.	A-1-b	10 YR 6/ 8
	4	6.0' 6.0'	5 7 13 13	18" RECOVERY Moist medium dense brown silty coarse to fine sand w/some gravel.	A-2-4(0)	10 YR 6/ 6
	5	8.0' 8.0'	6 7 9 10	17" RECOVERY Moist medium dense brown fine to coarse sand w/some silt, trace of gravel.	A-2-4(0)	2.5 YR 7/ 8
		10.0'		20" RECOVERY End of Boring		
	Progress	Progress NO. 7/23/09 1 2 3 3 4	Progress NO. Depth 7/23/09 1 0.5' 2 2.0' 2 2 2.0' 2 4.0' 3 4.0' 3 4.0' 3 6.0' 4 6.0' 4 6.0' 4 5 8.0' 5	Progress NO. Depth Blows/6 7/23/09 1 $0.5'$ $\frac{9}{9}$ 2 2.0' $\frac{9}{10}$ 2 2.0' $\frac{11}{9}$ 4.0' $\frac{4.0'}{16}$ 3 $4.0'$ 6.0' $\frac{6.0'}{13}$ 4 $6.0'$ 5 $8.0'$ 70 $\frac{6}{7}$ 9 10	Progress No. Depth Blows/s Sample Description 7/23/09 1 0.5' 9/3 Moist very stiff brown clayey silt w/trace of fine to coarse sand. 2.0' 6'' RECOVERY 2 2.0' 6'' RECOVERY 3 4.0' 16 3 4.0' 16 4 6.0' 16 6.0' 18'' RECOVERY 4 6.0' 18'' RECOVERY 4 6.0' 18'' RECOVERY 4 6.0' 18'' RECOVERY 4 6.0' 18'' RECOVERY 5 8.0' 10 13 10 Moist medium dense brown silty coarse to fine sand w/some gravel. 13 13'' 10'' 8.0' 11''' RECOVERY 5 8.0'' 10'' 10.0' 10'' 20'' RECOVERY	Progress No. Depth blows/o Sample Description Class./s.i. 7/2309 1 0.5 3 1 0.5 3 1 0.6 A-4(6) 2 2.0 6'' RECOVERY 6'' RECOVERY A-4(0) A-4(0) 4.0' 1 10 Moist very stiff brown fine to coarse sandy silt w/trace of clay and gravel. A-4(0) 3 4.0' 1 Moist medium dense brown silty coarse to fine sand w/trace of gravel. A-1-b 6.0' 1 1 Moist medium dense brown silty coarse to fine sand w/some gravel. A-2-4(0) 4 6.0' 5 8.0' 1 Moist medium dense brown silty coarse to fine sand w/some gravel. A-2-4(0) 5 8.0' 7 1 Moist medium dense brown silty coarse to fine sand w/some silt, trace of gravel. A-2-4(0) 10 10.0' 10 10'' RECOVERY A-2-4(0) A-2-4(0)

Symbol Description

Strata symbols



Low plasticity clay

Silty sand

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

1. Exploratory borings were drilled on 7/23/2009 using a 3 1/4- inch diameter continues flight power auger. Rig is a ATV CME 45.

- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 28-113-01

Boring Location: Sta. 251+00, Lt. C.L.

Boring	No.:	INF3-38
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Ft. Ft.

Boring Surface El	ev.: + 71.70		Reference:				
Wt. of Casing Hammer: Wt. of Sample Hammer: 140 Type of: D-Sampler: Split Barrel S-Sampler: U-Sampler: Core Bit:		Lbs. Lbs. O.D. O.D. O.D. O.D.			30 2.0		
Casing Size: Hollow St	3 1/4" em Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:		8.0'
Water Level Readings Date 7/23/2009	Time	Depth of Hole 10.0	Depth of Casing 8.0		of Water ry	Elev. o	f Water

Pay	Qua	anti	ties	s:

2 1/2 in. Dia. Dry Sample Boring: 10.0	Ft.;	0	Dia. U-Sample Boring:
No. of 2 in. Dia. Shelby Tubes:	;	No. of:	U-Samples:
2 1/2 in. Dia. Contin. Sample Boring:	Ft.;	Core Drilling in	n Rock:
Devine Contractory W 1/ C /			

Boring Contractor: Walton Corporation Driller: Gary Truver Helpers: T. Kane

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
	7/23/09	1	0.5'	8 10 9	Moist very stiff brown clayey silt w/trace of fine to coarse sand.	A-4(6)	Cultivated Soil - 8". USDA Classifica
2			2.0'		8" RECOVERY		- Silt
		2 2A	2.0' 3.0' 3.0'	12	Moist very stiff brown clayey silt w/some fine sand, trace of coarse sand and gravel. 8" RECOVERY	A-4(6)	Loam. 2.5 YR 6/ 6
		ZA	3.0	12 13	Moist medium dense brown clayey fine to coarse sand w/trace of gravel.	A-2-4(0)	10 YR 5/ 6
4			4.0'		8" RECOVERY		10 YR 5/
		3	4.0'	4 7 8 13	Moist medium dense tan silty coarse to fine sand w/trace of gravel.	A-2-4(0)	8 10 YR 7/ 8
6			6.0'		16" RECOVERY		
		4	6.0'	7 7 7 9	Moist medium dense tan silty fine to coarse sand w/trace of gravel.	A-2-4(0)	10 YR 7/ 8
8			8.0'		18" RECOVERY		
		5	8.0'	4 8 8 7	Moist medium dense tan silty fine to coarse sand w/some gravel.	A-2-4(0)	10 YR 7/ 8
10			10.0'		14" RECOVERY		
					End of Boring		

Symbol Description

Strata symbols



Silty low plasticity clay



Low plasticity clay

Poorly graded clayey silty sand



Silty sand

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

1. Exploratory borings were drilled on 7/23/2009 using a 3 1/4- inch diameter continues flight power auger. Rig is a ATV CME 45.

- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 28-113-01

Boring Location: Sta. 251+00, Rt. C.L

Boring Surface Ele	ev.: + 67.10		Reference:					
Wt. of Casing Hammer Wt. of Sample Hammer Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:	: 140 Split Barrel	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2.0		IN. IN. IN. IN. IN. IN.		
Casing Size: Hollow Ste	3 1/4" em Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:		8.0'	
Water Level Readings Date 7/23/2009	Time	Depth of Hole 10.0	Depth of Casing 8.0		of Water Dry	Elev. o	f Water	

Pay Quantities:

2 1/2 in. Dia. Dry Sample Boring: 10.0 No. of 2 in. Dia. Shelby Tubes:	Ft.;	Dia. U-Sample Boring: No. of: U-Samples:	Ft.
2 1/2 in. Dia. Contin. Sample Boring:	Ft.;	Core Drilling in Rock:	Ft.
Boring Contractor: Walton Corporation			

Boring Contractor: Walton Corporation Driller: Cecil Velazco Helpers: J. Lafferty

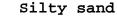
Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
	7/23/09	1	0.5'	11 10 12	Moist very stiff brown fine sandy silt w/some clay and coarse sand, trace of gravel.	A-4(1)	Topsoil - 5". USDA Classifica
2			2.0'		15" RECOVERY		- Loam.
		2	2.0'	8 7 8 7	Moist medium dense brown silty fine sand w/some coarse sand, trace of gravel.	A-2-4(0)	10 YR 6/ 8 10 YR 4/ 6
4			4.0'		17" RECOVERY		
		3	4.0'	4 4 8 8	Moist medium dense brown silty fine to coarse sand w/some gravel.	A-2-4(0)	10 YR 5/ 8
			6.0'	0	17" RECOVERY		
6		4	6.0'	11	Moist medium dense brown coarse to fine sand w/some silt, trace of	A-1-b	7.5 YR 5/
				11 10 12 11	gravel.		8
8			8.0'		20" RECOVERY		
		5	8.0'	7 7 9 8	Moist medium dense brown fine to coarse sand w/some silt, trace of gravel.	A-2-4(0)	10 YR 5/ 6
10			10.0'		20" RECOVERY		
					End of Boring		
Poma							

Symbol Description

Strata symbols



Silty low plasticity clay



DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

1. Exploratory borings were drilled on 7/23/2009 using a 3 1/4- inch diameter continues flight power auger. Rig is a ATV CME 45.

- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 28-113-01

Boring Location: Sta. 256+00, Lt. C.L.

Boring No.: INF3-40

Boring Surface El	ev.: + 62.0		Reference:					
Wt. of Casing Hammer Wt. of Sample Hamme Type of: D-Sampler S-Sampler: U-Sampler Core Bit:	r: 140 Split Barrel	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2.0		IN. IN. IN. IN. IN. IN.		
Casing Size: Hollow St	3 1/4" em Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:	8.0)'	
Water Level Readings Date 7/29/2009	Time	Depth of Hole 10.0	Depth of Casing 8.0		of Water ry	Elev. of Water		
Pay Quantities:								

2 1/2 in. Dia. Dry Sample Boring: 10.0 No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring:	Ft.; ; Ft.;	Dia. U-Sample Boring: No. of: U-Samples: Core Drilling in Rock:	Ft. Ft.
Paring Contractory Walton Comparation		C	

Boring Contractor: Walton Corporation Driller: Gary Truver Helpers: T. Kane

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
	7/29/09	1	0.5'	10 17 18	Moist hard brown clayey silt w/some fine sand, trace of coarse sand.	A-4(4)	Cultivatec Soil - 5". USDA Classifica
2			2.0'	10	10" RECOVERY		- Loam.
		2	2.0'	10 12 19 15	Moist hard brown fine sandy silt w/some coarse sand,	A-4(0)	10 YR 6/ 8 10 YR 5/ 6
4			4.0'		19" RECOVERY		
		3	4.0'	4 14 23 29	Moist dense brown coarse to fine sand w/some silt, trace of gravel.	A-1-b	7.5 YR 7/ 8
6			6.0'		16" RECOVERY		
		4	6.0'	16 16 14 20	Moist medium dense brown silty fine to coarse sand w/trace of gravel.	A-2-4(0)	5 YR 5/8
8			8.0'		18" RECOVERY		
		5	8.0'	10 14 14 14	Moist medium dense brown silty fine to coarse sand and gravel.	A-2-4(0)	2.5 YR 4/ 8
10			10.0'		12" RECOVERY		
					End of Boring		

Symbol Description

Strata symbols



Low plasticity clay

Silty sand

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

1. Exploratory borings were drilled on 7/29/2009 using a 3 1/4- inch diameter continues flight power auger. Rig is a ATV CME 55.

- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 Contract: 28-113-01

Boring Location: Sta. 256+00, Rt. C.L.

Boring No.: INF3-41

Ft. Ft.

Boring Surface Ele	ev.: + 62.60		Reference:						
Wt. of Casing Hammer: Wt. of Sample Hammer Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:		Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2.0		IN. IN. IN. IN. IN. IN.			
Casing Size: Hollow Ste	3 1/4" m Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:		8.0'		
Water Level Readings Date 7/29/2009	Time	Depth of Hole 10.0	Depth of Casing 8.0	Depth o		Elev. of	Water		

Pay	Qua	anti	itie	s:

2 1/2 in. Dia. Dry Sample Boring: 10.0	Ft.;	Dia. U-Sample Boring:	
No. of 2 in. Dia. Shelby Tubes:	;	No. of: U-Samples:	
2 1/2 in. Dia. Contin. Sample Boring:	Ft.;	Core Drilling in Rock:	
Boring Contractor: Walton Corneration			

Boring Contractor: Walton Corporation Driller: Gary Truver Helpers: T. Kane

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
	7/29/09	1	0.5'	10 12 14	Moist very stiff brown silty clay w/some gravel, trace of fine to coarse sand. 9" RECOVERY	A-6(7)	Cultivated Soil - 8". USDA CLassifica
		2	2.0'	11 18 22 26	Moist hard brown fine sandy silt w/some gravel, trace of coarse sand.	A-4(0)	- Silt Loam. 10 YR 7/ <u>8</u> 10 YR 6/ 4
		3	4.0' 4.0'	8 14 18 17	16" RECOVERY Moist dense brown coarse to fine sand w/some gravel and silt.	A-1-b	10 YR 6/ 6
		4	6.0' 6.0'	9 12 14 16	17" RECOVERY Moist medium dense orange silty fine to coarse sand.	A-2-4(0)	7.5 YR 6/ 8
		5	8.0' 8.0'	5 10 11 9	18" RECOVERY Moist medium dense tan coarse to fine sand w/some silt, trace of gravel.	A-1-b	10 YR 8/ 6
10	rke:		10.0'		16" RECOVERY End of Boring		

Symbol Description

Strata symbols

Low plasticity clay

Silt

Silty sand

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

1. Exploratory borings were drilled on 7/29/2009 using a 3 1/4- inch diameter continues flight power auger. Rig is a ATV CME 55.

- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 28-113-01

Boring Location: Sta 10+00 Rt CI

Boring Surface Ele	V.: + 68.30		Ref	erence:			
Wt. of Casing Hammer: Wt. of Sample Hammer Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:		Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2.0		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow Ste	3 1/4" m Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:		8.0'
Water Level Readings Date 7/16/2009	Time	Depth of Hole	Depth of Casing 8.0		of Water 5.4	Elev. c	of Water

Pay Quantities:

2 1/2 in. Dia. Dry Sample Boring: 1 No. of 2 in. Dia. Shelby Tubes:	0.0	Ft.; ;	Dia. U-Sample Boring: No. of: U-Samples:	Ft.
2 1/2 in. Dia. Contin. Sample Boring:		Ft.;	Core Drilling in Rock:	Ft.
Boring Contractor: Walton Corporation				

Boring Contractor: Walton Corporation Driller: Cecil Velazco Helpers: T. Kane

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
	7/16/09	1	0.5'	6 7 8	Moist stiff gray silt w/some clay, trace of fine to coarse sand.	A-4(0)	Topsoil - 4". USDA Classifica
2			2.0'		15" RECOVERY		- Silt
		2	2.0' 2.5'	5	Moist very stiff gray silt w/some clay, trace of fine to coarse sand. 6"RECOVERY	A-4(2)	Loam.
		24	2.5'	8 11 13	Moist medium dense brownish gray silty fine to coarse sand w/some gravel.	A-2-4(0)	7.5 YR 6/ 1
					graver.		7.5 YR 6/
4			4.0'				1 7.5 VD 5.4
	1	3	4.0'	9 18 11 12	Moist medium dense gray coarse to fine sand w/trace of silt and gravel.	A-1-b	7.5 YR 5/ 2
				11 12			5 YR 5/1
6			6.0'				
Ť	1	4	6.0'	7 7 8 8	Wet medium dense gray fine to coarse sand w/some silt, trace of gravel.	A-2-4(0)	5 YR 7/1
				8 8			
8			8.0'		18" RECOVERY		
		5	8.0'	2 3 3 5	Wet loose gray coarse to fine sand and gravel w/some silt.	A-1-b	10 YR 6/
				з 5			1
—							
10			10.0'		14" RECOVERY		
					End of Boring		
Rema							

Symbol Description

Strata symbols



Silt

Silty low plasticity clay



Silty sand



Poorly graded sand with silt

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

1. Exploratory borings were drilled on 7/16/2009 using a 3 1/4- inch diameter continues flight power auger. Rig is a ATV CME 55.

- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 Contract: 28-113-01

Boring Location: Sta. 18+00, Rt. C.L.

Ft. Ft.

Boring Surface E	1ev.: + 67.80		Refe	erence:	
Wt. of Casing Hamme Wt. of Sample Hamm Type of: D-Sample S-Sample U-Sample Core Bit:	ler: er: er:	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:		IN. IN. IN. IN. IN. IN.
Casing Size: Hollow S	Stem Auger:	Inches	From Depth of: From Depth of:	То: То:	
Water Level Reading Date 8/3/2009	s Time	Depth of Hole	Depth of Casing	Depth of Water 4.7	Elev. of Water

Pay Quantities: 2 1/2 in. Dia. Dry Sample Boring:	Ft.:	Dia. U-Sa
No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring:	; Ft.;	No. of: Core Drilling in Rock:
Poring Contractory Walton Corneration		

Boring Contractor: Walton Corporation Driller: Dave Burt Helpers:

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
	8/3/09	1	1.0'		Moist gray clayey silt w/trace of fine to coarse sand and gravel.	A-4(5)	Topsoil - 4".
2			2.0'		12" RECOVERY		USDA
		2	2.0'		Moist grayish orange silt w/some fine sand, trace of clay, coarse sand and	A-4(0)	Classifica
			3.0'		gravel.		- Silt Loam
		3	3.0'		Moist tan coarse to fine sand and gravel w/trace of silt.	A-1-b	Hand
				-			Auger Hand
4		4	4.0' 4.0'		12" RECOVERY Moist tan coarse to fine sand and gravel w/trace of silt.	A-1-b	Auger
					worst tail coalse to fille salid and graver w/date of sill.	A-1-0	Hand
			5.0'		12" RECOVERY		Auger
		5	5.0		Wet tan coarse to fine sand w/some silt, trace of gravel.	A-1-b	Hand
							Auger Hand
6		6	6.0' 6.0'		12" RECOVERY Wet tan coarse to fine sand w/some silt, trace of gravel.	A-2-4(0)	Auger
		-			wet an coarse to fine said w/some sitt, trace of graver.	A-2-4(0)	Hand
			7.0'		12" RECOVERY		Auger
		7	7.0'		Wet tan coarse to fine sand and gravel w/some silt.	A-1-b	Hand
							Auger
8		8	8.0' 8.0'		12" RECOVERY	A-1-b	Hand
					Hinter Minter Minter	1110	Auger
			9.0'		12" RECOVERY		
					End of Boring		
10							
12							
Boma							

Remarks:

U-Sample Boring: U-Samples:

Symbol Description

Strata symbols

с.¹

Silt

clay

Poorl



Poorly graded sand with silt

Well graded sand

Silty low plasticity



Silty sand

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

- 1. Exploratory borings were drilled on 8/3/2009 using a hand auger.
- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 28-113-01

Boring Location: Sta. 22+00, Rt. C.L.

Ft. Ft.

Boring Surface Ele	ev.: + 67.30		Reference:				
Wt. of Casing Hammer: Wt. of Sample Hammer Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:	: 140 Split Barrel	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2.0		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow Ste	3 1/4" em Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:		8.0'
Water Level Readings Date 7/16/2009	Time	Depth of Hole 10.0	Depth of Casing 8.0		of Water 7.0	Elev. o	f Water

Pay Quantities:

2 1/2 in. Dia. Dry Sample Boring: No. of 2 in. Dia. Shelby Tubes:	10.0	Ft.;	Dia. U-Sample Boring: No. of:U-Samples:	
2 1/2 in. Dia. Contin. Sample Boring:		Ft.;	Core Drilling in Rock:	l
Poring Contractor: Walton Compositio	n			

Boring Contractor: Walton Corporation Driller: Cecil Velazco Helpers: T. Kane

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
	7/16/09	1	0.5'	4 6 7	Moist stiff brown clayey fine to coarse sandy silt.	A-4(1)	Topsoil - 4" USDA
2			2.0'		14" RECOVERY		Classifica - Loam.
		2	2.0'	8 8 8	Moist medium dense brown fine to coarse sand w/some silt, trace of gravel.	A-2-4(0)	- Loam. 2.5 YR 6/ 6 10 YR 5/ 6
4			4.0'		19" RECOVERY		
		3	4.0'	4 8 9 6	Moist medium dense brown coarse to fine sand w/some silt, trace of gravel.	A-2-4(0)	10 YR 5.5/6
6			6.0'		15" RECOVERY		
		4	6.0'	6 6 4 4	Wet stiff orange fine sandy silt w/some coarse sand.	A-4(0)	7.5 YR 6/ 8
8			8.0'		16" RECOVERY		
		5	8.0'	1 2 2 2	Wet very loose orange silty fine sand w/trace of coarse sand.	A-2-4(0)	7.5 YR 5.5/8
10			10.0'		21" RECOVERY		
					End of Boring		

Symbol Description

Strata symbols



Silty low plasticity clay



Silty sand

Silt

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

1. Exploratory borings were drilled on 7/16/2009 using a 3 1/4- inch diameter continues flight power auger. Rig is a ATV CME 55.

- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 28-113-01

Boring Location: Sta. 105+00, Lt. C.L.

Boring No.: INF3-45

Ft. Ft.

Boring Surface Ele	ev.: + 74.0		Ref	erence:			
Wt. of Casing Hammer: Wt. of Sample Hammer Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:	: 140 Split Barrel	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2.0		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow Ste	3 1/4" em Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:		8.0'
Water Level Readings Date 7/20/2009	Time	Depth of Hole 10.0	Depth of Casing 8.0		of Water 9.6	Elev. of Wa	Iter

Pay	Qua	anti	tie	s:

2 1/2 in. Dia. Dry Sample Boring: No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring:	10.0	Ft.; ; Ft.;	Dia No. of: Core Drilling in F	n. U-Sample Boring: U-Samples: Rock:	
Baring Contractory Walter Compared			-		

Boring Contractor: Walton Corporation Driller: Dave Burt Helpers: T. Kane

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
	7/20/09	1	0.5'	7 7 8	Moist stiff brown silt w some clay and fine sand, trace of coarse sand.	A-4(2)	Topsoil - 4". USDA
2	_		2.0'		12" RECOVERY		Classifica - Silt
		2	2.0'	3 5 6 8	Moist stiff brown clayey fine sandy silt w/some coarse sand, trace of gravel.	A-4(4)	- Sht Loam. 10 YR 5.5/8 7.5 YR 5/
4			4.0'		16" RECOVERY		6
4		3	4.0'	5 7 7	Moist medium dense orange silty fine sand w/trace of coarse sand.	A-2-4(0)	7.5 YR 6/ 8
6		4	6.0' 6.0'	10	17" RECOVERY Moist medium dense brown silty fine sand w/trace of coarse sand.	A-2-4(0)	10 YR 6/
			0.0	10 5 7 7	worst medium dense brown sitty rine sand w/trace or coarse sand.	A-2-4(0)	6
8			8.0'		19" RECOVERY		
		5	8.0'	2 3 4 5	Moist loose brown coarse to fine sand w/some silt, trace of gravel.	A-2-4(0)	7.5 YR 6/ 8
10			10.0'		15" RECOVERY		
					End of Boring		
Remai	rke						

Symbol Description

Strata symbols



Silty low plasticity clay



Low plasticity clay



Silty sand

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

1. Exploratory borings were drilled on 7/20/2009 using a 3 1/4- inch diameter continues flight power auger. Rig is a ATV CME 55.

- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 Contract: 28-113-01

Boring Location: Sta. 105+00, Rt. C.L.

Boring No.: INF3-46

Ft.

Ft.

Boring Surface E	ev.: + 69.8		Ref	erence:			
Wt. of Casing Hamme Wt. of Sample Hamme Type of: D-Sampler S-Sampler U-Sampler Core Bit:	er: 140 : Split Barrel :	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2.0		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow S	3 1/4" tem Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:		8.0'
Water Level Readings Date 10/6/2009	Time	Depth of Hole 10.0	Depth of Casing 8.0		of Water	Elev. of	f Water

Ft.;

; Ft.;

Pay	Qua	ntit	ies	:

2 1/2 in. Dia. Dry Sample Boring:	10.0
No. of 2 in. Dia. Shelby Tubes:	
2 1/2 in. Dia. Contin. Sample Boring:	

Boring Contractor: Walton Corporation Driller: Jason Truver Helpers: D. Zmijewski

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
	10/6/09	1	0.0'	4 4 5	Wet firm gray clayey silt w/trace of coarse to fine sand and fine gravel.	A-4(6)	Forrest Duff - 3". USDA Classifica - Silt
2			2.0'		19" RECOVERY		Loam
		2	2.0'	14 18 21 24	Wet hard gray silt w/some clay, trace of fine to coarse sand.	A-4(3)	
4			4.0'		RECOVERY 15		
		3	4.0	4 8 9 11	Wet medium dense tan silty coarse to fine sand w/trace of fine gravel.	A-2-4(0)	2.5 YR - 6/6
6			6.0'		15" RECOVERY		
		4	6.0'	10 8 8 10	Wet medium dense orange silty fine to coarse sand w/trace of fine gravel.	A-2-4(0)	5 YR - 6/ 8
8			8.0'		17" RECOVERY		
		5	8.0'	8 8 10 9	Wet medium dense orange fine to coarse sand w/some silt, trace of fine gravel.	A-2-4(0)	5 YR - 6/ 8
10			10.0'		16" RECOVERY		
Remai	rko.				End of Boring		

Remarks:

Dia. U-Sample Boring: U-Samples:

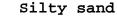
No. of: Core Drilling in Rock:

Symbol Description

Strata symbols



Silty low plasticity clay



DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

1. Exploratory borings were drilled on 10/6/2009 using a 3 1/4- inch diameter continues flight power auger. Rig is a ATV CME 55.

- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 28-113-01

Boring Location: Sta. 110+00, Lt. C.L.

Boring No.: INF3-47

Boring Surface Ele	ev.: + 69.0		Ref	erence:			
Wt. of Casing Hammer Wt. of Sample Hammer Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:	r: 140 Split Barrel	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2.0		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow Ste	3 1/4" em Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:		8.0'
Water Level Readings Date 10/6/2009	Time	Depth of Hole 10.0	Depth of Casing 8.0		of Water 5.1	Elev. c	of Water

Pay Quantities:

2 1/2 in. Dia. Dry Sample Boring: No. of 2 in. Dia. Shelby Tubes:	10.0	Ft.;	Dia. U-Sample Boring: No. of: U-Samples:	Ft.
2 1/2 in. Dia. Contin. Sample Boring:		Ft.;	Core Drilling in Rock:	Ft.
Dering Contractory W11 (

Boring Contractor: Walton Corporation Driller: Jason Truver Helpers: D. Zmijewski

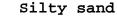
Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"		Sample Description	Class./G.I.	Remarks
	10/6/09	1	0.0'	3 4 4 5		Wet firm gray silt w/some clay, trace of fine to coarse sand.	A-4(3)	Forrest Duff - 3". USDA CLassifica - Silt
2			2.0'			12"RECOVERY		Loam
		2	2.0'	8 10 11 13		Wet very stiff gray silt w/some fine sand and clay, trace of coarse sand and fine gravel.	A-4(2)	
4			4.0'			S 22" RECOVERY		
		3	4.0'	8 10 10 8		Wet medium dense gray fine to coarse sand w/some silt and fine gravel.	A-2-4(0)	7.5 YR - 5/8
6			6.0'			16" RECOVERY		
		4	6.0'	4 7 6		Wet very dense tan coarse to fine sand w/some silt, trace of fine gravel.	A-1-b	10 YR - 8/4
8			8.0'			17" RECOVERY		
		5	8.0'	6 7 8 8		Wet medium dense tan coarse to fine sand w/some silt, trace of fine gravel.	A-2-4(0)	10 YR - 8/4
10			10.0'			15" RECOVERY		
Remar	_		10.0		0.121212121212121	End of Boring		

Symbol Description

Strata symbols



Silty low plasticity clay



DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

1. Exploratory borings were drilled on 10/6/2009 using a 3 1/4- inch diameter continues flight power auger. Rig is a ATV CME 55.

- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 28-113-01

Boring Location: Sta. 115+00, Lt. C.L

Boring Surface El	ev.: + 61.80		Ref	erence:			
Wt. of Casing Hammer Wt. of Sample Hamme Type of: D-Sampler S-Sampler U-Sampler Core Bit:	r: 140 Split Barrel	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2.0		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow St	3 1/4" em Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:		8.0'
Water Level Readings Date 10/8/2009	Time	Depth of Hole	Depth of Casing 8.0		of Water Dry	Elev. of Wa	ter

Pay Quantities:

2 1/2 in. Dia. Dry Sample Boring: 10.0 No. of 2 in. Dia. Shelby Tubes:	Ft.;	Dia. U-Sample Boring: No. of: U-Samples:	Ft.
2 1/2 in. Dia. Contin. Sample Boring:	Ft.;	Core Drilling in Rock:	Ft.
Paring Contractory Walton Comparation			

Boring Contractor: Walton Corporation Driller: Jason Truver Helpers: D. Zmijewski

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
2	10/8/09	1	1.0' 2.0'	2 1	Wet soft brown clayey silt w/some fine to coarse sand. 6" RECOVERY	A-4(4)	Cultivated Soil - 10".
		2	2.0'	3 4	Wet loose tan silty fine to coarse sand w/some clay, trace of fine gravel.	A-2-4(0)	2.5 YR -
			0	4	FOR BIDDING)	4/6 USDA Classifica - Sandy
4		3	4.0' 4.0'	3	22" RECOVERY	A 2 4(0)	Loam 5 YR - 5/
		3		3998	Wet medium dense orange silty coarse to fine sand w/trace of fine gravel.	A-2-4(0)	5 YR - 6/ 8
6		4	6.0' 6.0'	5	16" RECOVERY Wet medium dense orange silty fine to coarse sand w/trace of fine gravel.	A-2-4(0)	5 YR - 6/
				5 7 6 3	wet medium dense ofange sitty fine to coarse sand w/trace of fine gravel.	11-2-+(0)	8
8			8.0'	10	19" RECOVERY		
		5	8.0'	10 11 11 7	Wet medium dense orange fine to coarse sand w/some silt and fine gravel.	A-2-4(0)	5 YR - 6/ 8
10			10.0'		20" RECOVERY		
					End of Boring		
Poma							

Symbol Description

Strata symbols

Low plasticity clay

Poorly graded clayey silty sand



Silty sand

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

1. Exploratory borings were drilled on 10/8/2009 using a 3 1/4- inch diameter continues flight power auger. Rig is a ATV CME 55.

- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 28-113-01

Boring Location: Sta. 120+00, Lt. C.L.

Boring Surface Ele	V.: + 57.20		Ref	erence:			
Wt. of Casing Hammer: Wt. of Sample Hammer: Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:		Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2.0		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow Ste	3 1/4" m Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:		8.0'
Water Level Readings Date 10/8/2009	Time	Depth of Hole	Depth of Casing 8.0		of Water Dry	Elev. o	f Water

Pay Quantities:

2 1/2 in. Dia. Dry Sample Boring: 10.0 No. of 2 in. Dia. Shelby Tubes:	Ft.;	Dia. U-Sample Boring: No. of: U-Samples:	Ft.
2 1/2 in. Dia. Contin. Sample Boring:	Ft.;	Core Drilling in Rock:	Ft.
Paring Contractory Walton Composition			

Boring Contractor: Walton Corporation Driller: Jason Truver Helpers: D. Zmijewski

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
2	10/8/09	1	1.0' 2.0'	4 3	Wet firm brown clayey fine sandy silt w/trace of coarse sand and fine gravel. 12" RECOVERY	A-4(1)	Cultivated Soil - 10".
		2	2.0'	344	Wet firm tan clayey fine sandy silt w/some coarse sand, trace of gravel.	A-4(0)	USDA
			0	5	FOR BIDDING		Classifica - Loam 2.5 YR - <u>4/6</u>
4		3	4.0' 4.0'	4	24" RECOVERY	A 2 4(0)	5 YR - 5/ 6
		3		4 5 6 6	Wet medium dense orange fine to coarse sand w/some silt, trace of fine gravel.	A-2-4(0)	5 YR - 6/ 8
6		4	6.0' 6.0'	6	18" RECOVERY Wet medium dense orange coarse to fine sand w/some silt, trace of fine	A-1-b	5 YR - 6/
				6 6 6	gravel.	A-1-0	8
8		5	8.0' 8.0'	6	19" RECOVERY	4 1 1	5 ND (/
		5	0.0	6 5 7 7	Wet medium dense orange coarse to fine sand w/some silt, trace of gravel.	A-1-b	5 YR - 6/ 8
10			10.0'		18" RECOVERY		
12					End of Boring		

Symbol Description

Strata symbols



Silty low plasticity clay

Poorly graded clayey silty sand



Silty sand

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

1. Exploratory borings were drilled on 10/8/2009 using a 3 1/4- inch diameter continues flight power auger. Rig is a ATV CME 55.

- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

(SPLAS) AST 44BAL AST J WS + A BARG Z Other 4t N Select c 3 M N M HMA – Hot Mix Asphalt, PCC – Portland Cement Concrete, ST – Surface Treatment, ATB – Asphalt Treated Base, CTB – Cement Treated Base, SC – Soil Cement, CR – Crusher Run 1. 611 Sand 教会 Page Direction: (NB &B (M) WB County: K S (NC) Maint. #. So (M) Stone Material Thickness (inches) SR 424 9 3 3 434 SC J CTB Z 6 2 ATB 2 M - Cha Cb 5 X 24 ST PCC 20 HMA 4 275 414 Xa 3% 3 0 Dist. 2 2 δ 5 7 N A Offset (ft.) (H) RA (H)H) -R. EX. Ð Ř Rt. E Ľ. R. Ę Ť H ਹਿ E H ರ 己日 (い印 리 5 5 С E Ч 5 T PROJECT Trav Trav Shid Trav Shid Shid Lum Trav Shid Turn Shid Turn Trav Lurn Trav Shid Lurn Trav Turn Trav um Turn Trav Ium Turn Trav Lane Ľ Ľ Ľ. Ľ Ľ 抗 Ľ Ľ Ľ Ľ 갑감 내군 · · · · Ľ Ľ Location Description RT301 - 3-30 5 - 3 T, M -2-4 \mathcal{O} S, S 2. 1 3 2 00-3-2) ١ 1 2 20 **Road Name:** 0 0 G 0 à Limits: Core 3 3 9 2 # 5

Date: /<u>a - / < - 0</u> つ

LB-60 (Rev 5/2003) Doc # 55-08/04/07/27

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Date: 6-15-09

LB-60 (Rev 5/2003) Doc # 55-08/04/07/27

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LB∔60 (Rev 5/2003) Doc # 55-08/04/07/27

Boring No.: R2-001

Boring Location:	Sta. 245+00.00, 45' L	.t. C.L.					
Boring Surface Ele	V.: + 58.74'		Ref	erence:			
Wt. of Casing Hammer: Wt. of Sample Hammer: Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:	: 140	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2 3		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow Ste	3 1/4 m Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:		10.0'
Water Level Readings Date 3/18/2008	Time	Depth of Hole	Depth of Casing 8.0'		of Water Dry	Ele	v. of Water

Pay Quantities:

Contract: 25-113-01

2 1/2 in. Dia. Dry Sample Boring:	10.0	Ft.;	3 Dia. U-Sample Boring:	Ft.
No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring:		; Ft.;	No. of: U-Samples: Core Drilling in Rock:	Ft.

Boring Contractor: Walton Corporation Driller: Dan Taylor Helpers: Amber Joseph

F.A. Project: U.S. 301, Maryland State Line to I-95

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description Class./G.I. Remarks
	3/18/08	1	0.5'	3 4 4	Wet firm dark brown silt w/ some fine sand, trace of coarse sand and gravel. 18" RECOVERY
		2	2.0'	4	Wet firm dark brown silt w/ some fine to A-4(0)
3			4.0'	4	coarse sand and clay, trace of gravel.
		-3	4.0'	1 2 2 3	Wet soft dark brown fine sandy silt w/ some A-4(0)
				3	coarse sand and clay, trace of gravel.
6			6.0'		18" RECOVERY
		4	6.0'	3 4 4 5	Wet firm dark brown fine sandy silt w/ some A-4(4) coarse sand and clay, trace of gravel.
			8.0'		6" RECOVERY
9		5	8.0'	1 3 4 4	Wet firm brown fine sandy clay w/ some A-7-6(7) coarse sand.
			10.0'		15" RECOVERY
					Boring terminated at 10.0 feet.
12					
15					

Symbol Description

Strata symbols



silt

Silty low plasticity clay



Low plasticity clay

DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 3/18/2008 using a 3 1/4-inch diameter continuous flight power auger. Rig is a ATV CME 45.
- Groundwater levels recorded at the time of drilling. Borings backfilled upon completion.
- 3. Surveyed boring locations and elevations were provided by Century engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to I-95 **Contract:** 25-113-01

Boring Location: Sta. 250+00.08, 45' Rt. C.L.

Boring Surface Ele	V.: + 63.12'		Reference:						
Wt. of Casing Hammer: Wt. of Sample Hammer: Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:		Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2 3		IN. IN. IN. IN. IN.			
Casing Size: Hollow Ste	3 1/4 m Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:	10.0'			
Water Level Readings Date 3/18/2008	Time	Depth of Hole	Depth of Casing 8.0'		of Water Dry	Elev. of Water			

Pay Quantities:

	10.0 Ft.;	3 Dia. U-Sample Boring:	Ft.
No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring:	; Ft.;	No. of: U-Samples: Core Drilling in Rock:	Ft.

Boring Contractor: Walton Corporation Driller: Dan Taylor Helpers: Amber Joseph

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description Class./G.I. Remarks	
	3/18/08	1	1.0' 2.0'	3 3	Wet loose brown silty coarse to fine sand.A-2-4(0)12" of cultivated soil.12" RECOVERY12" RECOVERY	
		2	2.0'	3 3 3 4	Wet firm brown clayey fine sandy silt w/ A-4(0) some coarse sand.	
3	ĸ		·	4		
		3	4.0' 4.0'	3 4 7 9	20" RECOVERY Wet stiff brown fine to coarse sandy silt, trace A-4(0)	
				9 7 9	of clay.	
6			6.0'		17" RECOVERY	
		4	6.0	8 7 9 11	Wet medium dense brown silty fine to coarse A-2-4(0) sand w/ some gravel. Sand w/ some gravel.	
		5	8.0' 8.0'	3	18" RECOVERY Wet loose brown fine to coarse sand w/ some A-1-b	
9		Ŭ	0.0	3 3 6 8	gravel, trace of silt.	
				0		
			10.0'		14" RECOVERY	
					Boring terminated at 10.0 feet.	
12						
15						

Symbol Description

Strata symbols



Silty sand

Poorly graded clayey silty sand



Poorly graded sand with silt

DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 3/18/2008 using a 3 1/4-inch diameter continuous flight power auger. Rig is a ATV CME 45.
- Groundwater levels recorded at the time of drilling. Borings backfilled upon completion.
- 3. Surveyed boring locations and elevations were provided by Century engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to I-95 **Contract:** 25-113-01

Boring Location: Sta.255+00.00, 45' lt. C.L.

Boring Surface Ele	ev.: + 58.26'		Ref	erence:		
Wt. of Casing Hammer: Wt. of Sample Hammer Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:	: 140 Split Barrel	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2 3		IN. IN. IN. IN. IN.
Casing Size: Hollow Ste	3 1/4 m Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:	10.0'
Water Level Readings Date 3/18/2008	Time	Depth of Hole	Depth of Casing 8.0'		of Water Dry	Elev. of Water

Pay Quantities:

2 1/2 in. Dia. Dry Sample Boring:	10.0	Ft.;	3 D	ia. U-Sample Boring:	Ft.
No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring	:	; Ft.;	No. of: Core Drilling in	Ú-Samples: Rock:	Ft.

Boring Contractor: Walton Corporation Driller: Dan Taylor Helpers: Amber Joseph

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description Class./G.I. Remarks
	3/18/08	1	0.5' 2.0'	2 2 2	Moist soft red-brown clayey fine to coarse A-4(0) 8" of cultivated soil. sandy silt, trace of gravel. 17" RECOVERY
		2	2.0'	4 4	Moist loose light brown fine to coarse sand w/ A-2-4(0)
3			4.0'	4	some silt, trace of gravel.
		-3	4.0	3 4 7 10	Moist medium dense orange-brown coarse to A-1-b fine sand w/ some silt, trace of gravel.
6			6.0'		15" RECOVERY
		4	6.0'	7 6 5	Moist medium dense orange-brown silty fine A-2-4(0) to coarse sand w/ some gravel.
			8.0'	4	20" RECOVERY
9		5	8.0'	8 10 9 9	Moist medium dense orange-brown coarse to fine sand w/ some silt and gravel.A-1-b
			10.0'		17" RECOVERY
					Boring terminated at 10.0 feet.
12					
15					

Symbol Description

Strata symbols



Poorly graded clayey silty sand

Silty sand

DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 3/18/2008 using a 3 1/4-inch diameter continuous flight power auger. Rig is a ATV CME 45.
- Groundwater levels recorded at the time of drilling. Borings backfilled upon completion.
- 3. Surveyed boring locations and elevations were provided by Century engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

Boring No.: R2-004

Boring Surface Ele	V.: + 50.54'		Reference:						
Wt. of Casing Hammer: Wt. of Sample Hammer: Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:		Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2 3		IN. IN. IN. IN. IN. IN.			
Casing Size: Hollow Ste	3 1/4 m Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:		10.0'		
Water Level Readings Date 3/18/2008	Time	Depth of Hole 10.0'	Depth of Casing 8.0'		of Water ^{ry'}	Elev. of W	ater		

Pay Quantities:

Contract: 25-113-01

2 1/2 in. Dia. Dry Sample Boring:	10.0	Ft.;	3 Dia. U-Sample Boring:	Ft.
No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring:		; Ft.;	No. of: U-Samples: Core Drilling in Rock:	Ft.

Boring Contractor: Walton Corporation Driller: Dan Taylor Helpers: Amber Joseph

F.A. Project: U.S. 301, Maryland State Line to I-95

Boring Location: Sta. 260+00.00, 45' Rt. C.L.

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
	3/18/08	1	0.8' 2.0'	4 3 4	Wet firm brown clayey fine sandy silt w/ some coarse sand, trace of gravel. 15" RECOVERY	A-4(1)	9" of cultivated soil.
		2	2.0'	3 4 4 11	Wet firm brown clayey fine sandy silt w/	A-4(3)	
3			4.0'		some coarse sand, trace of gravel.		IG
		3	4.0'	6 7 10 11	Wet medium dense brown fine to coarse sand w/ some gravel and silt.	A-2-4(0)	
6			6.0		16" RECOVERY		
		4	6.0'	12 14 17 15	Wet dense orange-brown fine to coarse sand and gravel w/ some silt.	A-1-b	
			8.0'		16" RECOVERY		
9		5	8.0'	16 25 29 33	Wet very dense orange-brown silty fine to coarse sand, trace of gravel.	A-2-4(0)	
			10.0'		9" RECOVERY		
					Boring terminated at 10.0 feet.		
12							
15							

Symbol Description

Strata symbols



Silty low plasticity clay

Low plasticity clay



Silty sand

DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 3/18/2008 using a 3 1/4-inch diameter continuous flight power auger. Rig is a ATV CME 45.
- Groundwater levels recorded at the time of drilling. Borings backfilled upon completion.
- 3. Surveyed boring locations and elevations were provided by Century engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

Boring No.: R2-005

Boring Location:	Sta. 268+25.31, 105'	Lt. C.L.					
Boring Surface Ele	ev.: + 51.15'		Ref	erence:			
Wt. of Casing Hammer: Wt. of Sample Hammer Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:	: 140 Split Barrel	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2 3		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow Ste	3 1/4 m Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:		16.0'
Water Level Readings Date 3/18/2008	Time	Depth of Hole 14.0'	Depth of Casing 12.0'		of Water 2.3'	Elev. of Wate	r

Pay Quantities:

Contract: 25-113-01

2 1/2 in. Dia. Dry Sample Boring: No. of 2 in. Dia. Shelby Tubes:	16.0	Ft.;	3 Dia. U-Sample Boring: No. of: U-Samples:	Ft.
2 1/2 in. Dia. Contin. Sample Boring:		Ft.;	Core Drilling in Rock:	Ft.

Boring Contractor: Walton Corporation Driller: Dan Taylor Helpers: Amber Joseph

F.A. Project: U.S. 301, Maryland State Line to I-95

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description Class./G.I.	Remarks
	3/18/08	1	0.8' 2.0'	3 4 6	Moist stiff brown clayey fine sandy silt w/ A-4(3) some coarse sand, trace of gravel. 15" RECOVERY	9" of cultivated soil.
3		2	2.0'	5 16 20 17	Moist dense orange-brown coarse to fine sand A-1-b and gravel, trace of silt.	
			4.0'		15" RECOVERY	
		3	4.0'	18 22 15 11	Moist dense orange-brown gravel and fine A-1-b sand w/ some coarse sand and silt.	
6			6.0'		16" RECOVERY	
		4	6.0'	6 7 8 9	Wet medium dense orange-brown fine to coarse sand w/ some silt, trace of gravel.	
			8.0'		19" RECOVERY	
9		5	8.0'	10 7 8 8	Wet medium dense orange-brown fine to coarse sand w/ some silt and gravel, trace of clay.A-2-4(0)	
		6	10.0' 10.0'	8	17" RECOVERY	Glauconitic
		0	10.0	8 7 8 10	Wet medium dense orange-brown and green- brown fine to coarse sand w/ some silt.A-2-4(0)	Glauconitic
12			12.0'		20" RECOVERY	
		7	12.0'	13 14 15 15	Saturated medium dense orange-brown and green-brown fine to coarse sand w/ some silt.	Glauconitic
		8	14.0' 14.0'	6	14" RECOVERY Saturated medium dense orange-brown and A-2-4(0)	Glauconitic
15		0		6 9 11 11	green fine to coarse sand w/ some silt.	Giauconnuc
			16.0'		17" RECOVERY Boring terminated at 16.0 feet.	
					boring terminated at 10.0 feet.	

Remarks:

PAGE 1 OF 1

Symbol Description

Strata symbols



Low plasticity clay

Poorly graded sand with silt



Silty sand

DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 3/18/2008 using a 3 1/4-inch diameter continuous flight power auger. Rig is a ATV CME 45.
- 2. Groundwater levels recorded at the time of drilling and rechecked the following day.
- 3. Surveyed boring locations and elevations were provided by Century engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

Boring No.: R2-006

Boring Surface Ele	V.: + 54.64'		Reference:					
Wt. of Casing Hammer: Wt. of Sample Hammer: Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:		Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2 3		IN. IN. IN. IN. IN.		
Casing Size: Hollow Ster	3 1/4 m Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:	16.0'		
Water Level Readings Date 3/18/2008	Time	Depth of Hole 14.0'	Depth of Casing 12.0'		of Water 3'	Elev. of Water		

Pay Quantities:

Contract: 25-113-01

2 1/2 in. Dia. Dry Sample Boring:	16.0	Ft.;	3 Dia. U-Sample Boring:	Ft.
No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring:		; Ft.;	No. of: U-Samples: Core Drilling in Rock:	Ft.

Boring Contractor: Walton Corporation Driller: Dan Taylor Helpers: Amber Joseph

F.A. Project: U.S. 301, Maryland State Line to I-95

Boring Location: Sta. 279+93.08, 129' Lt. C.L.

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"		Sample Description	Class./G.I.	Remarks
	3/18/08	1	0.5' 2.0'	6 8 9		Moist very stiff brown clayey fine to coarse sandy silt, trace of gravel. 17" RECOVERY	A-4(1)	7" of cultivated soil.
		2	2.0'	6 7 6 3		Moist medium dense brown fine to coarse	A-2-4(0)	
3			4.0'			sand w/ some clay, trace of gravel.		JG
		-3	4.0'	5 9 7 13		Moist medium dense brown silty coarse to fine sand, trace of gravel.	A-2-4(0)	
6			6.0'			18" RECOVERY	15	
		4	6.0'	14 16 14 14		Moist medium dense light brown coarse to fine sand w/ some silt and gravel.	A-1-b	
			8.0'			16" RECOVERY		
9		5	8.0'	9 12 10 10		Moist medium dense light brown coarse to fine sand w/ some gravel and silt.	A-1-b	
			10.0'			19" RECOVERY		
		6	10.0'	9 6 5 6	10110100 10110100 10110100 10110100 101101	Wet medium dense orange-brown coarse to fine sand w/ some silt, trace of gravel.	A-1-b	
12			12.0'		6933,3966 97173999 96143969	19" RECOVERY		
		7	12.0'	5 6 7 5		Saturated medium dense orange-brown coarse sand w/ some gravel, trace of fine sand and silt.	A-1-b	
		8	14.0' 14.0'	3		19" RECOVERY Saturated loose orange-brown coarse to fine	A-1-b	
15			40.01	3 4 5 6		sand w/ some gravel, trace of silt.		
			16.0'			22" RECOVERY Boring terminated at 16.0 feet.		
Boma								

Symbol Description

Strata symbols

Clayey sand

Poorly graded clayey silty sand



Silty sand



10 Poorly graded sand with silt

Well graded sand with silt

DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 3/18/2008 using a 3 1/4-inch diameter continuous flight power auger. Rig is a ATV CME 45.
- 2. Groundwater levels recorded at the time of drilling and rechecked the following day.
- 3. Surveyed boring locations and elevations were provided by Century engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

Boring No.: R2-007

Boring Location:	Sta. 285+00.00, 122'	Lt. C.L.					
Boring Surface Ele	V.: + 56.98'		Ref	erence:			
Wt. of Casing Hammer: Wt. of Sample Hammer: Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:		Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2 3		IN. IN. IN. IN. IN.	
Casing Size: Hollow Ste	3 1/4 m Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:		16.0'
Water Level Readings Date 3/18/2008	Time	Depth of Hole 14.0'	Depth of Casing 12.0'		of Water	Elev. of Wa	ter

Pay Quantities:

Contract: 25-113-01

1/2 in. Dia. Dry Sample Boring: 16 b. of 2 in. Dia. Shelby Tubes:	t.; 3 Dia. U-Sample Boring: : No. of: U-Samples:	Ft.
1/2 in. Dia. Contin. Sample Boring:	t.; Core Drilling in Rock:	Ft.
1/2 in. Dia. Contin. Sample Boring:	-t.; Core Drilling in R	ock:

Boring Contractor: Walton Corporation Driller: Dan Taylor Helpers: Amber Joseph

F.A. Project: U.S. 301, Maryland State Line to I-95

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
	3/18/08	1	1.0' 2.0' 2.0'	2 2 3 3 3 3 3	Moist soft brown clayey silt w/ some coarse to fine sand, trace of gravel. 12" RECOVERY Moist loose brown silty coarse sand w/ some	A-4(2) A-1-b	11" of cultivated soil.
3		3	4.0' 4.0'	2 3 2 4	fine sand, trace of gravel. <u>16" RECOVERY</u> Moist loose brown silty coarse to fine sand,	A-1-b	IG
6		4	6.0' 6.0'		trace of gravel. 17" RECOVERY Moist loose brown coarse to fine sand w	A-1-b	
		-	8.0'	3 2 3 4	some silt, trace of gravel.	CI	
9		5	8.0'	3 3 2 3	Moist loose brown coarse sand w/ some fine sand, gravel, and silt. 16" RECOVERY	A-1-b	
		6	10.0'	3 3 3 1	Wet loose brown coarse sand w/ some fine sand and silt, trace of gravel.	A-1-b	
12		7	12.0' 12.0'	1 1 1 1	18" RECOVERY Saturated very loose orange-brown silty fine sand w/ some coarse sand, trace of gravel.	A-2-4(0)	
15		8	14.0' 14.0'	1 2 3 3	17" RECOVERY Saturated loose orange-brown fine to coarse sand w/ some silt, trace of gravel.	A-2-4(0)	
			16.0'		19" RECOVERY Boring terminated at 16.0 feet.		

Symbol Description

Strata symbols



Silty low plasticity clay



Silty sand



Poorly graded sand with silt

DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 3/18/2008 using a 3 1/4-inch diameter continuous flight power auger. Rig is a ATV CME 45.
- Groundwater levels recorded at the time of drilling. Borings backfilled upon completion.
- 3. Surveyed boring locations and elevations were provided by Century engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to I-95 **Contract:** 25-113-01

Boring Location: Sta. 290+00.00, 45' Rt. C.L.

Boring Surface Ele	ev.: + 59.29'		Reference:				
Wt. of Casing Hammer: Wt. of Sample Hammer Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:	: 140	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2 3		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow Ste	3 1/4 m Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:	10.0'	
Water Level Readings Date 3/18/2008	Time	Depth of Hole	Depth of Casing 8.0'		of Water Dry	Elev. of Water	

Pay Quantities:

2 1/2 in. Dia. Dry Sample Boring:	10.0	Ft.;	3 Dia. U-Sample Boring:	Ft.
No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring:		; Ft.;	No. of: U-Samples: Core Drilling in Rock:	Ft.

Boring Contractor: Walton Corporation Driller: Dan Taylor Helpers: Amber Joseph

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description Class./G.I. Remarks
	3/18/08	1	1.0' 2.0'	2 3	Wet firm brown clayey fine sandy silt w/ A-4(2) 10" of cultivated soil. some coarse sand, trace of gravel. 12" RECOVERY A-2-4(0)
3		2	2.0'	6 10 9 8	Wet medium dense orange-brown silty fine sand w/ some coarse sand, trace of gravel.
			4.0		17" RECOVERY
		3	4.0'	4 5 7 10	Wet medium dense orange-brown silty fine A-2-4(0) sand w/ some coarse sand, trace of gravel.
6		4	6.0' 6.0'	a	19" RECOVERY
		4	0.0	9 9 9 7	Wet medium dense orange-brown coarse to fine sand w/ some silt, trace of gravel.A-2-4(0)
			8.0'		18" RECOVERY
9		5	8.0'	4 5 5 7	Wet loose orange-brown coarse to fine sandA-2-4(0)w/ some silt, trace of gravel.
			10.0'		20" RECOVERY
					Boring terminated at 10.0 feet.
12					
15					
Demo					

Symbol Description

Strata symbols



Low plasticity clay

Silty sand

DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 3/18/2008 using a 3 1/4-inch diameter continuous flight power auger. Rig is a ATV CME 45.
- Groundwater levels recorded at the time of drilling. Borings backfilled upon completion.
- 3. Surveyed boring locations and elevations were provided by Century engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

Boring No.: R2-009

Boring Location:	Sta. 295+00.00, 45'L	t. C.L.					
Boring Surface Ele	• • • • • • • • • • • • • • • • • • • 		Reference:				
Wt. of Casing Hammer: Wt. of Sample Hammer Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:	: 140 Split Barrel Ball Sampler	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2 3		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow Ste	3 1/4 m Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:		10.0'
Water Level Readings Date 3/17/2008	Time	Depth of Hole	Depth of Casing 8.0'		of Water Dry	Elev. o	f Water

Pay Quantities:

Contract: 25-113-01

2 1/2 in. Dia. Dry Sample Boring:	10.0	Ft.;	3 Dia. U-Sample Boring:	Ft.
No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring:		; Ft.;	No. of: U-Samples: Core Drilling in Rock:	Ft.

Boring Contractor: Walton Corporation Driller: Dan Taylor Helpers: Amber Joseph

F.A. Project: U.S. 301, Maryland State Line to I-95

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description Class./G.I. Remarks	
	3/17/08	1	0.8' 2.0'	3 4 4	Moist loose brown clayey fine sand and gravel w/ some coarse sand. 15" RECOVERY	
3		2	2.0'	3 5 4 3	Moist loose red-brown silty fine to coarse A-2-4(0) sand, trace of gravel.	
			4.0'	Т	17" RECOVERY	
		3	4.0'	2 1 1 2	Moist very loose orange-brown fine to coarse A-2-4(0) sand w/ some silt, trace of gravel.	
6			6.0'		15" RECOVERY	
		4	6.0'	2 3 2 4	Moist loose orange-brown silty coarse to fine A-2-4(0) sand, trace of gravel.	
			8.0'		16" RECOVERY	
9		5	8.0'	3 2 2 3	Moist very loose orange-brown fine to coarseA-2-4(0)sand w/ some silt, trace of gravel.	
			10.0'		16" RECOVERY	
					Boring terminated at 10.0 feet.	
12						
15						

Symbol Description

Strata symbols



Clayey sand

Silty sand

DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 3/17/2008 using a 3 1/4-inch diameter continuous flight power auger. Rig is a ATV CME 45.
- Groundwater levels recorded at the time of drilling. Borings backfilled upon completion.
- 3. Surveyed boring locations and elevations were provided by Century engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

Boring No.: R2-010

Boring Location:	Sta. 300+00.00, 45' F	Rt. C.L.					
Boring Surface Ele	V.: + 66.03'		Reference:				
Wt. of Casing Hammer: Wt. of Sample Hammer: Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:		Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2 3		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow Ste	3 1/4 m Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:		10.0'
Water Level Readings Date 3/17/2008	Time	Depth of Hole	Depth of Casing 8.0'		of Water Dry	Elev. d	of Water

Pay Quantities:

Contract: 25-113-01

2 1/2 in. Dia. Dry Sample Boring: 10.0	Ft.;	3 Dia. U-Sample Boring:	Ft.
No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring:	; Ft.;	No. of: U-Samples: Core Drilling in Rock:	Ft.

Boring Contractor: Walton Corporation Driller: Dan Taylor Helpers: Amber Joseph

F.A. Project: U.S. 301, Maryland State Line to I-95

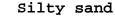
Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description Class./G.I. Remarks
	3/17/08	1	1.0' 2.0'	2 2	Moist soft brown clayey fine sandy silt w/ A-4(1) 10" of cultivated soil.
		2	2.0'	3 4 5 5	some coarse sand, trace of gravel. 12" RECOVERY Moist loose orange-brown silty coarse to fine A-2-4(0)
3				5	sand, trace of gravel.
		3	4.0' 4.0'	2	16' RECOVERY Moist loose orange-brown silty coarse to fine A-1-b
		Ň	4.0	2 4 6 7	sand, trace of gravel.
6			6.0'		18" RECOVERY
		4	6.0'	6 6 7 6	Moist medium dense orange-brown coarse to A-1-b fine sand w/ some silt, trace of gravel.
		5	8.0' 8.0'	3	20" RECOVERY
9		5	0.0	3 2 3 4	Moist loose orange-brown coarse to fine sand w/ some silt, trace of gravel.A-2-4(0)
			10.0'		16" RECOVERY
					Boring terminated at 10.0 feet.
12					
15					

Symbol Description

Strata symbols



Silty low plasticity clay



DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 3/17/2008 using a 3 1/4-inch diameter continuous flight power auger. Rig is a ATV CME 45.
- 2. Groundwater levels recorded at the time of drilling. Borings backfilled upon completion.
- 3. Surveyed boring locations and elevations were provided by Century engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

IN. IN. IN. IN. IN.

Boring No.: R2-011

16.0'

Ft. Ft.

F.A. Project: U.S. 301, Contract: 25-113-01	Maryland State Line	to I-95		
Boring Location: st	a 205 00 00 110 I t	CI		
-		_		
Boring Surface Elev	+ 61.58'		Re	ference:
Wt. of Casing Hammer: Wt. of Sample Hammer: Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:	140 Split Barrel Ball Sampler	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2
Casing Size:	3 1/4	Inches	From Depth of	

Casing Size: Hollow St	3 1/4 em Auger:	Inches	From Depth of: From Depth of:	0.0' To: 0.0'	16.
Water Level Readings Date 3/17/2008	Time	Depth of Hole 12.0'	Depth of Casing 10.0'	Depth of Water 10.0'	Elev. of Water

Pay Quantities:

2 1/2 in. Dia. Dry Sample Boring: 10	6.0 Ft.;	Dia. U-Sample Boring:
No. of 2 in. Dia. Shelby Tubes:	;	No. of: U-Samples:
2 1/2 in. Dia. Contin. Sample Boring:	Ft.;	Core Drilling in Rock:

Boring Contractor: Walton Corporation Driller: Dan Taylor Helpers: Amber Joseph

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description Class./G.I. Remarks
	3/17/08	1	0.8' 2.0'	5 3 3	Moist firm brown clayey silt w/ some fine to A-4(4) 9" of cultivated soil. coarse sand, trace of gravel. 15" RECOVERY
3		2	2.0'	7 15 15	Moist medium dense orange-brown gravel A-1-b and coarse sand w/ some fine sand and gravel.
			4.0'	15	16" RECOVER Y
		3	4.0'	6 7 7 7	Wet medium dense orange-brown silty coarse A-1-b to fine sand.
6			6.0'		17" RECOVERY
		4	6.0'	8 8 9 7	Wet medium dense orange-brown silty coarse A-1-b to fine sand, trace of gravel.
			8.0'		19" RECOVERY
9		5	8.0'	9 5 5 6	Wet loose orange-brown coarse to fine sand w/ some silt, trace of gravel.A-1-b
			10.0'		20" RECOVERY
		6	10.0'	5 5 5 4	Saturated loose orange-brown silty coarse to fine sand.A-2-4(0)
12			12.0'		17" RECOVERY
		7	12.0'	2 4 8 8	Saturated medium dense orange-brown coarse to fine sand and gravel w/ some silt. A-1-b
		8	14.0' 14.0'	3	16" RECOVERY Saturated loose orange-brown coarse sand A-1-b
15				3 5 5 5	and gravel w/ some fine sand, trace of silt.
			16.0'		17" RECOVERY
					Boring terminated at 16.0 feet.

Symbol Description

Strata symbols



Low plasticity clay

Silty sand



Poorly graded sand with silt

DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 3/17/2008 using a 3 1/4-inch diameter continuous flight power auger. Rig is a ATV CME 45.
- Groundwater levels recorded at the time of drilling. Borings backfilled upon completion.
- 3. Surveyed boring locations and elevations were provided by Century engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

Boring No.: R2-012

Ft. Ft.

Boring Location:	Sta. 310+00.00, 119'	Rt. C.L.					
Boring Surface Ele	V.: + 66.09'		Reference:				
Wt. of Casing Hammer: Wt. of Sample Hammer Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:		Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2 3		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow Ste	3 1/4 m Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:		16.0'
Water Level Readings Date 3/17/2008	Time	Depth of Hole 16.0'	Depth of Casing 14.0'		of Water 2.7'	Elev. of Wa	ater

Pay Quantities:

Contract: 25-113-01

2 1/2 in. Dia. Dry Sample Boring: No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring:	16.0	Ft.; ; Ft.;	3 Dia. No. of: Core Drilling in Ro	U-Sample Boring: U-Samples: ock:	
Dering Contractory W11 C					

Boring Contractor: Walton Corporation Driller: Dan Taylor Helpers: Amber Joseph

F.A. Project: U.S. 301, Maryland State Line to I-95

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description Class./G.I.	Remarks
	3/17/08	1	1.0' 2.0'	2 2	some coarse sand.	10" of cultivated soil.
3		2	2.0'	6 10 10 11	12" RECOVERYA-2-4(0)Moist medium dense brown silty coarse to fine sand, trace of gravel.A-2-4(0)	
		3	4.0' 4.0'	5	15" RECOVERY Moist medium dense brown silty coarse to A-1-b	
		V	4.0	5 9 12 12	fine sand, trace of gravel.	
6			6.0'		17" RECOVERY	
		4	6.0'	11 10 13 12	Moist medium dense light brown fine sand w/ A-2-4(0) some coarse sand and clay.	
			8.0'		16" RECOVERY	
9		5	8.0'	6 4 4 6	Moist loose light brown silty fine to coarse A-2-4(0) sand.	
			10.0'		18" RECOVERY	
		6	10.0'	3 3 3 3 3	Wet loose light brown silty coarse to fine sand, trace of gravel.A-2-4(0)	
12			12.0'		19" RECOVERY	
		7	12.0'	2 2 1 1	Wet very loose light brown coarse to fine sand w/ some silt, trace of gravel.A-1-b	
			14.0'		17" RECOVERY	
15		8	14.0'	2 1 1	Wet very loose light brown fine to coarseA-1-bsand w/ some gravel and silt.	
15				3		
			16.0'		Boring terminated at 16.0 feet.	
					Bornig terminated at 10.0 rect.	
Boma						

Symbol Description

Strata symbols



Low plasticity clay

Silty sand



Poorly graded clayey silty sand

DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 3/17/2008 using a 3 1/4-inch diameter continuous flight power auger. Rig is a ATV CME 45.
- Groundwater levels recorded at the time of drilling. Borings backfilled upon completion.
- 3. Surveyed boring locations and elevations were provided by Century engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to I-95

Boring No.: R2-013

Boring Location:	Sta. 315+00.00, 45' I	Lt. C.L.					
Boring Surface Ele	•••••••••••••••••••••••••••••••••••••		Ref	erence:			
Wt. of Casing Hammer: Wt. of Sample Hammer: Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:		Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2 3		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow Ste	3 1/4 m Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:		10.0'
Water Level Readings Date 3/17/2008	Time	Depth of Hole	Depth of Casing 8.0'		of Water Dry	Elev.	of Water

Pay Quantities:

Contract: 25-113-01

2 1/2 in. Dia. Dry Sample Boring:	10.0	Ft.;	3 Dia. U-Sample Boring:	Ft.
No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring:		; Ft.;	No. of: U-Samples: Core Drilling in Rock:	Ft.

Boring Contractor: Walton Corporation Driller: Dan Taylor Helpers: Amber Joseph

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description Class./G.I. Remarks
	3/17/08	1	0.8' 2.0'	1 3 3	Moist firm brown fine to coarse sandy clay, A-4(1) 8" of cultivated soil. trace of gravel. 15" RECOVERY
3		2	2.0'	2 3 4 5	Moist loose red-brown clayey coarse to fine A-2-4(0) sand, trace of gravel.
			4.0'	T	17" RECOVERY
		3	4.0'	9 9 13 14	Moist medium dense red-brown silty coarse to A-1-b fine sand, trace of gravel.
6			6.0'		18" RECOVERY
		4	6.0'	12 11 10 8	Moist medium dense orange-brown fine to A-2-4(0) coarse sand w/ some silt and gravel.
			8.0'		19" RECOVERY
9		5	8.0'	5 4 3 3	Moist loose light brown coarse to fine sand w/ A-1-b some silt.
			10.0'		17" RECOVERY
					Boring terminated at 10.0 feet.
12					
15					

Symbol Description

Strata symbols

Clayey sand

Poorly graded clayey silty sand



Silty sand

DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 3/17/2008 using a 3 1/4-inch diameter continuous flight power auger. Rig is a ATV CME 45.
- Groundwater levels recorded at the time of drilling. Borings backfilled upon completion.
- 3. Surveyed boring locations and elevations were provided by Century engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to I-95 **Contract:** 25-113-01

Boring Location: Sta. 320+00.00, 45' Rt. C.L.

Boring Surface Ele	V.: + 56.72'		Reference:				
Wt. of Casing Hammer: Wt. of Sample Hammer Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:		Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2 3		IN. IN. IN. IN. IN.	
Casing Size: Hollow Ste	3 1/4 m Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:	10.0'	
Water Level Readings Date 3/17/2008	Time	Depth of Hole 4.0'	Depth of Casing 2.0'		of Water .0'	Elev. of Water	

Pay	Quant	ities:

No. of 2 in. Dia. Shelby Tubes:	
2 1/2 in. Dia. Contin. Sample Boring:	

Boring Contractor: Walton Corp Driller: Dan Taylor Helpers: Amber Joseph

g:	Ft.;	3 Dia. U-Sample Boring: No. of: U-Samples:	Ft.	
oring:	Ft.;	Core Drilling in Rock:	Ft.	
rporation				

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description Class./G.I. Remarks
	3/17/08	1	0.0'	1 1 2	Wet very loose orange-brown coarse to fine A-1-b sand w/ some silt. Image: sand w/ some silt.
			2.0'		18" RECOVERY
3		2	2.0'	2 2 2 3	Saturated very loose orange-brown coarse to A-1-b fine sand w/ some silt, trace of gravel.
6		3	4.0' 6.0'	3 2 4 4	Saturated loose orange-brown coarse to fine A-1-b sand w/ some silt, trace of gravel.
		4	6.0' 8.0'	3 4 6 6	Saturated loose orange-brown coarse to fine A-2-4(0) sand w/ some silt, trace of gravel. 17" RECOVERY
9		5	8.0'	4 6 8 6	Saturated medium dense orange-brown coarse to fine sand w/ some silt, trace of gravel. 17" RECOVERY
					Boring terminated at 10.0 feet.
12					
15					
Boma					

Symbol Description

Strata symbols



Silty sand

Poorly graded sand with silt

DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 3/17/2008 using a 3 1/4-inch diameter continuous flight power auger. Rig is a ATV CME 45.
- Groundwater levels recorded at the time of drilling. Borings backfilled upon completion.
- 3. Surveyed boring locations and elevations were provided by Century engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

Boring No.: R2-015

Boring Location:	Sta. 325+00.00, 135'	Lt. C.L.					
Boring Surface Ele	V.: + 60.16'		Reference:				
Wt. of Casing Hammer: Wt. of Sample Hammer: Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:		Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2 3		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow Ste	3 1/4 m Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:		16.0'
Water Level Readings Date 3/17/2008	Time	Depth of Hole 8.0'	Depth of Casing 6.0'		of Water .4'	Elev. of W	/ater

Pay Quantities:

Contract: 25-113-01

2 1/2 in. Dia. Dry Sample Boring: No. of 2 in. Dia. Shelby Tubes:	16.0	Ft.; ;	3 Dia. U-Sample Boring: No. of: U-Samples:	Ft.
2 1/2 in. Dia. Contin. Sample Boring:		Ft.;	Core Drilling in Rock:	Ft.
Deviner Contractory W110 C				

Boring Contractor: Walton Corporation Driller: Dan Taylor Helpers: Amber Joseph

F.A. Project: U.S. 301, Maryland State Line to I-95

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	'	Class./G.I.	Remarks
	3/17/08	1	0.0'	3 3 3 6	Wet firm gray clay, trace of fine to coarse sand and gravel.		A-6(10)	
			2.0'		18" RECOVERY			
3		2	2.0'	7 11 14 15	Wet very stiff gray silty clay, trace of fine t coarse sand and gravel. 19" RECOVERY		A-6(12)	G
		3	4.0'	9 21 15	Saturated dense orange-brown and gray		A-1-b	
6			6.0'	16	coarse sand and gravel w/ some fine sand a silt. 16" RECOVERY		15	
		4	6.0'	7 8 7 7	Saturated medium dense light brown coarse		A-1-b	
				7	fine sand w/ some silt, trace of gravel.			
			8.0'		15" RECOVERY			
9		5	8.0'	5 4 3 3	Saturated loose light brown coarse to fine sand w/ some silt, trace of gravel.		A-1-b	
			10.0'		17" RECOVERY			
		6	10.0'	5 3 3 4	Saturated loose light brown coarse to fine sand w/ some silt, trace of gravel.		A-1-b	
12			12.0'		15" RECOVERY			
		7	12.0'	3 3 5 7	sand w/ some silt, trace of gravel.		A-1-b	
1			14.0'			116313000 11633300 11633300		
15		8	14.0'	7 5 6 6	Saturated medium dense orange-brown coa to fine sand w/ some gravel, trace of silt.		A-1-b	
			16.0'			1993 1996 1 1993 1996 1 1993 1996 1		
					Boring terminated at 16.0 feet.			
L								

Symbol Description

Strata symbols



Low plasticity clay

Silty sand



Poorly graded sand with silt

DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 3/17/2008 using a 3 1/4-inch diameter continuous flight power auger. Rig is a ATV CME 45.
- Groundwater levels recorded at the time of drilling. Borings backfilled upon completion.
- 3. Surveyed boring locations and elevations were provided by Century engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to I-95 **Contract:** 25-113-01

Boring Location: Sta. 330+00.00, 45' Rt. C.L.

Boring Surface Ele	•••••••••••••••••••••••••••••••••••••		Reference:				
Wt. of Casing Hammer: Wt. of Sample Hammer Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:		Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2 3		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow Ste	3 1/4 m Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:	10.0'	
Water Level Readings Date 3/14/2008	Time	Depth of Hole 8.0'	Depth of Casing 6.0'		of Water	Elev. of Water	

Pay Quantities:

2 1/2 in. Dia. Dry Sample Boring: 10.0	Ft.;	3 Dia. U-Sample Boring:	Ft.
No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring:	; Ft.;	No. of: Ú-Samples: Core Drilling in Rock:	Ft.

Boring Contractor: Walton Corporation Driller: Dan Taylor Helpers: Amber Joseph

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description Class./G.I. Remarks
	3/14/08	1	0.8' 2.0'	2 4 5	Wet loose brown silty fine to coarse sand, trace of gravel. 15" RECOVERY
3		2	2.0'	4 11 12 13	Wet medium dense orange-brown coarse to A-1-b
			4.0'		fine sand w/ some silt and gravel.
		3	4.0'	9 9 9 8	Wet to saturated medium dense orange-brown A-2-4(0) coarse to fine sand w/ some silt, trace of gravel.
6			6.0'		17" RECOVERY
		4	6.0'	5 4 4 4	Saturated loose orange-brown coarse to fine A-1-b sand w/ some silt, trace of gravel.
			8.0'		14" RECOVERY
9		5	8.0'	4 3 3 5	Saturated loose orange-brown coarse to fine A-1-b sand w/ some silt, trace of gravel. Image: Saturate of the sa
			10.0'		19" RECOVERY
					Boring terminated at 10.0 feet.
12					
15					

Symbol Description

KEY TO SYMBOLS

Strata symbols

Silty sand

DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 3/14/2008 using a 3 1/4-inch diameter continuous flight power auger. Rig is a ATV CME 45.
- 2. Groundwater levels recorded at the time of drilling. Borings backfilled upon completion.
- 3. Surveyed boring locations and elevations were provided by Century engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

Boring No.: R2-017

Boring Location:	Sta. 335+00.00, 45' I	.t. C.L.					
Boring Surface Ele	•••• + 65.29'		Reference:				
Wt. of Casing Hammer: Wt. of Sample Hammer Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:	: 140	Lbs. Lbs. O.D. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2 3		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow Ste	3 1/4 m Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:		10.0'
Water Level Readings Date 3/14/2008	Time	Depth of Hole 10.0'	Depth of Casing 8.0'		of Water	Elev. of V	Vater

Pay Quantities:

Contract: 25-113-01

2 1/2 in. Dia. Dry Sample Boring:	10.0	Ft.;	3 Dia. U-Sample Boring:	Ft.
No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring:		; Ft.;	No. of: Ú-Samples: Core Drilling in Rock:	Ft.

Boring Contractor: Walton Corporation Driller: Dan Taylor Helpers: Amber Joseph

F.A. Project: U.S. 301, Maryland State Line to I-95

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description Class./G.I. Remarks
	3/14/08	1	0.8' 2.0'	2 3 4	Wet firm brown clayey silt w/ some fine sand, A-4(6) 8" of cultivated soil. trace of coarse sand and gravel. 15" RECOVERY
3		2	2.0'	4 5 7 7	Wet stiff brown fine to coarse sandy silt w/ A-4(0) some clay, trace of gravel.
			4.0'		18" RECOVERY
		3	4.0'	5 6 7 11	Wet medium dense gray silty fine to coarse A-2-4(0) sand, trace of gravel.
6			6.0'		17" RECOVERY
		4	6.0'	11 11 10 7	Wet medium dense orange-brown coarse to fine sand w/ some silt, trace of gravel.A-1-b
			8.0'	-	20" RECOVERY
9		5	8.0'	5 7 5 5	Wet medium dense light brown coarse sandA-1-bw/ some gravel, fine sand, and silt.
			10.0'		Wet medium dense light brown coarse sand A-1-b w/ some gravel, fine sand, and silt. 15" RECOVERY
					Boring terminated at 10.0 feet.
12					
15					

Symbol Description

Strata symbols



Low plasticity clay

Poorly graded clayey silty sand



Silty sand

Poorly graded sand with silt

DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 3/14/2008 using a 3 1/4-inch diameter continuous flight power auger. Rig is a ATV CME 45.
- Groundwater levels recorded at the time of drilling. Borings backfilled upon completion.
- 3. Surveyed boring locations and elevations were provided by Century engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to I-95

Boring No.: R2-018

Boring Surface Ele	V.: + 60.87'		Reference:					
Wt. of Casing Hammer: Wt. of Sample Hammer:140Type of:D-Sampler: S-Sampler: U-Sampler: Core Bit:Split barrel Ball Sampler		Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2 3		IN. IN. IN. IN. IN.		
Casing Size: Hollow Ste	3 1/4 m Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:	16.0'		
Water Level Readings Date 3/14/2008	Time	Depth of Hole 8.0'	Depth of Casing 6.0'	Depth 5	of Water	Elev. of Water		

Pay Quantities:

Contract: 25-113-01

2 1/2 in. Dia. Dry Sample Boring: 16.0	Ft.;	3 Dia. U-Sample Boring:	Ft.
No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring:	; Ft.;	No. of: Ú-Samples: Core Drilling in Rock:	Ft.

Boring Contractor: Walton Corporation Driller: Dan Taylor Helpers: Amber Joseph

Boring Location: Sta. 340+00.00, 121' Rt. C.L.

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
	3/14/08	1	0.5' 2.0'	1 1 2	Wet soft brown coarse to fine sandy silt w/ some clay, trace of gravel. 15" RECOVERY	A-4(0)	7" of leaf litter/topsoil.
		2	2.0'	2 2 7 16	Wet stiff gray clayey fine sandy silt w/ some	A-4(2)	
3			4.0'		coarse sand, trace of gravel.		JG
	•	3	4.0'	8 12 11 9	Wet medium dense orange-brown silty coarse to fine sand, trace of gravel.	A-2-4(0)	
6			6.0'		16" RECOVERY	15	
		4	6.0'	4 4 5 6	Saturated loose orange-brown and gray coarse to fine sand w/ some silt, trace of gravel.	A-2-4(0)	
			8.0'		17" RECOVERY		
9		5	8.0'	4 5 4 4	Saturated loose orange-brown coarse to fine sand w/ some silt, trace of gravel.	A-1-b	
			10.0'		17" RECOVERY		
		6	10.0'	5 3 3 4	Saturated loose orange-brown coarse sand w/ some fine sand and silt, trace of gravel.	A-1-b	
12			12.0'		17" RECOVERY		
		7	12.0'	4 2 4 3	Saturated loose orange-brown coarse to fine sand w/ some silt, trace of gravel.	A-2-4(0)	
			14.0'		20" RECOVERY		
15		8	14.0'	5 5 8 9	Saturated medium dense orange-brown silty fine to coarse sand, trace of gravel.	A-2-4(0)	
			16.0'		16" RECOVERY		
					 Boring terminated at 16.0 feet.		
Bomo							

Symbol Description

Strata symbols

Poorly graded clayey silty sand



Clayey sand



Silty sand

DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 3/14/2008 using a 3 1/4-inch diameter continuous flight power auger. Rig is a ATV CME 45.
- 2. Groundwater levels recorded at the time of drilling and rechecked the following day.
- 3. Surveyed boring locations and elevations were provided by Century engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to I-95 Contract: 25-113-01

Boring Location: Sta. 345+35.76, 119' Lt. C.L.

Boring No.: R2-019

Boring Surface Ele	V.: + 60.00'		Reference:						
Wt. of Casing Hammer: Wt. of Sample Hammer: Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:		Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2 3		IN. IN. IN. IN. IN.			
Casing Size: Hollow Ste	3 1/4 m Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:	14.0'			
Water Level Readings Date 3/14/2008	Time	Depth of Hole 6.0'	Depth of Casing 4.0'		of Water	Elev. of Water			

Pay Quantities:

2 1/2 in. Dia. Dry Sample Boring: No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring:	14.0	Ft.; ; Ft.:	3 No. of: Core Drilling	Dia. U-Sample Boring: U-Samples: a in Rock:	Ft. Ft.
		,			

Boring Contractor: Walton Corporation Driller: Dan Taylor Helpers: Amber Joseph

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description Class./G.I. Remarks
	3/14/08	1	0.8' 2.0'	4 3 5	Wet firm gray clay w/ some coarse to fine sand, trace of gravel. 15" RECOVERY
3		2	2.0' 3.0'	6 9	Wet stiff gray clayey coarse sandy silt w/ A-4(3) some fine sand, trace of grayel.
		2A	3.0' 4.0'	12 23	12" RECOVERY A-1-b Saturated dense gray coarse sand w/ some silt,
		3	4.0'	6 8 10 7	trace of gravel and fine sand. 9" RECOVERY Saturated medium dense orange-brown coarse
6		4	6.0'	2	sand w/ some silt, trace of fine sand and gravel.
		4	6.0'	3 3 3 3	17" RECOVERY A-1-b Saturated loose orange-brown coarse to fine
			8.0'		sand w/ some silt, trace of gravel. 18" RECOVERY
9		5	8.0'	2 3 3 5	Saturated loose orange-brown coarse sand w/ A-1-b some fine sand and silt, trace of gravel.
			10.0'	5	15" RECOVERY
		6	10.0'	5 4 6 5	Saturated loose orange-brown coarse sand w/ A-1-b some fine sand and silt, trace of gravel.
12			12.0'		16" RECOVERY
		7	12.0'	7 7 6 7	Saturated medium dense orange-brown coarse A-1-b sand w/ some fine sand, trace of silt and gravel.
			14.0'		18" RECOVERY
15					Boring terminated at 14.0 feet (due to excessive heave).

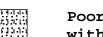
Symbol Description

Strata symbols



Low plasticity clay

Silty sand



Poorly graded sand with silt



Well graded sand with silt

DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 3/14/2008 using a 3 1/4-inch diameter continuous flight power auger. Rig is a ATV CME 45.
- 2. Groundwater levels recorded at the time of drilling and rechecked the following day.
- 3. Surveyed boring locations and elevations were provided by Century engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to I-95 **Contract:** 25-113-01

Boring Location: Sta. 349+99.87, 33' Rt. C.L.

Boring No.: R2-020

Boring Surface Elev	+ 62.97'		Reference:					
Wt. of Casing Hammer: Wt. of Sample Hammer: Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:	140 Split Barrel Ball Sampler	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2 3		IN. IN. IN. IN. IN. IN.		
Casing Size: Hollow Stem	3 1/4 Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:	10.0'		
Water Level Readings Date 7 3/14/2008	Гime	Depth of Hole 8.0'	Depth of Casing 6.0'	Depth o 4.		Elev. of Water		

Pay Quantities:

2 1/2 in. Dia. Dry Sample Boring: No. of 2 in. Dia. Shelby Tubes:	10.0	Ft.;	3 Dia. U-Sample Boring: No. of: U-Samples:	Ft.
2 1/2 in. Dia. Contin. Sample Boring:		Ft.;	Core Drilling in Rock:	Ft.

Boring Contractor: Walton Corporation Driller: Dan Taylor Helpers: Amber Joseph

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description Class./G.I. Remarks
	3/14/08	1	0.8' 2.0'	1 2 3	Wet soft brown clayey coarse to fine sandy silt, trace of gravel. 15" RECOVERY
3		2	2.0'	1 2 2 2	Wet very loose brown coarse sand w/ some A-1-b
			4.0'		silt and fine sand, trace of gravel.
		3	4.0'	6 7 10 9	Wet medium dense brown coarse sand w/ A-1-b some gravel, silt, and fine sand.
6			6.0'		17" RECOVERY
		4	6.0'	6 4 5 6	Saturated loose orange-brown coarse sand w/ A-1-b some silt and fine sand, trace of gravel.
			8.0'		17" RECOVERY
9		5	8.0'	4 4 4 4	Saturated loose orange-brown coarse sand w/ A-1-b some silt and fine sand, trace of gravel.
			10.0'		18" RECOVERY
					Boring terminated at 10.0 feet.
12					
15					

Symbol Description

Strata symbols



Clayey sand

Silty sand

DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 3/14/2008 using a 3 1/4-inch diameter continuous flight power auger. Rig is a ATV CME 45.
- Groundwater levels recorded at the time of drilling. Borings backfilled upon completion.
- 3. Surveyed boring locations and elevations were provided by Century engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

Boring No.: R2-021

Boring Location: Sta. 35	55+00.00, 119' Lt. C.L.						
Boring Surface Elev.:	+ 63.74'	Ref	Reference:				
S-Sampler:	40 Lbs. plit Barrel O.D. all Sampler O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2 3		IN. IN. IN. IN. IN.		
Casing Size: 3 Hollow Stem Au	1/4 Inches uger:	From Depth of: From Depth of:	0.0'	To: To:	16.0'		
Water Level Readings Date Tim 3/14/2008	ne Depth of Hole	Depth of Casing 8.0'		of Water	Elev. of Water		

Pay Quantities:

Contract: 25-113-01

2 1/2 in. Dia. Dry Sample Boring:	16.0	Ft.;	3 Dia. U-Sample Boring:	Ft.
No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring:		; Ft.;	No. of: U-Samples: Core Drilling in Rock:	Ft.

Boring Contractor: Walton Corporation Driller: Dan Taylor Helpers: Amber Joseph

F.A. Project: U.S. 301, Maryland State Line to I-95

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description Class./G.I. Remarks	
	3/14/08	1	0.8'	2 3 2	Moist loose brown silty fine to coarse sand, A-2-4(0) 9" of cultivated soil. trace of gravel.	
3		2	2.0'	1 2 2 2	Moist very loose brown silty fine to coarse A-2-4(0) sand, trace of gravel.	
			4.0'		19" RECOVERY	
		3	4.0'	1 2 1 1	Wet very loose brown silty fine to coarse A-2-4(0) sand, trace of gravel.	
6			6.0'		13" RECOVERY	
		4	6.0'	1 1/12" 1	Wet very loose gray fine to coarse sand w/ A-2-4(0) some silt, trace of gravel.	
			8.0'		16" RECOVERY	
9		5	8.0'	1 1 3 3	Saturated soft orange fine to coarse sandy silt, A-4(0) trace of gravel.	
			10.0'	2	16" RECOVERY	
		6	10.0'	3 3 2 3	Saturated loose orange-brown coarse sand, A-1-b trace of fine sand, gravel, and silt.	
12			12.0'		17" RECOVERY	
		7	12.0'	2 4 3 4	Saturated loose orange-brown coarse to fine sand w/ some silt, trace of gravel. A-2-4(0) 15" RECOVERY 15" RECOVERY	
15		8	14.0'	3 4 2 6	Saturated loose light brown coarse to fine A-2-4(0) sand w/ some silt, trace of gravel. A-2-4(0)	
			16.0'		18" RECOVERY	
Bama	_				Boring terminated at 16.0 feet.	

Symbol Description

Strata symbols

Silty sand

silt

Poorly graded sand

DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 3/14/2008 using a 3 1/4-inch diameter continuous flight power auger. Rig is a ATV CME 45.
- 2. Groundwater levels recorded at the time of drilling and rechecked the following day.
- 3. Surveyed boring locations and elevations were provided by Century engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

Boring No.: R2-022

Boring Surface Ele	V.: + 66.04'		Reference:				
Wt. of Casing Hammer: Wt. of Sample Hammer: Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:		Lbs. Lbs. O.D. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2 3		IN. IN. IN. IN. IN.	
Casing Size: Hollow Ste	3 1/4 m Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:	10.0'	
Water Level Readings Date 3/13/2008	Time	Depth of Hole 8.0'	Depth of Casing 6.0'	Depth c	of Water	Elev. of Water	

Pay Quantities:

Contract: 25-113-01

2 1/2 in. Dia. Dry Sample Boring:	10.0	Ft.;	3 Dia. U-Sample Boring:	Ft.
No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring:		; Ft.;	No. of: U-Samples: Core Drilling in Rock:	Ft.

Boring Contractor: Walton Corporation Driller: Dan Taylor Helpers: Dan Zmijewski

F.A. Project: U.S. 301, Maryland State Line to I-95

Boring Location: Sta. 375+00.00, 45' Lt. C.L.

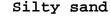
Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description Class./G.I. Remarks
	3/13/08	1 2	1.0' 2.0' 2.0'	1 1 3 3 5 6	Wet soft brown clayey fine sandy silt w/ someA-4(0)11" of cultivated soil.coarse sand, trace of gravel.12" RECOVERYA-2-4(0)
3	N	3	4.0' 4.0'		Wet loose brown silty fine to coarse sand, trace of gravel. 16" RECOVERY
6			6.0'	5 6 9 6	Wet medium dense brown coarse to fine sand A-1-b w/ some silt and gravel.
		4	6.0'	5 7 5 6	Saturated medium dense brown coarse to fine A-1-b sand w/ some silt, trace of gravel.
9		5	8.0' 8.0'	5 4 5 5	18" RECOVERY Saturated loose brown coarse to fine sand w/ some silt, trace of gravel.
			10.0'		11" RECOVERY
					Boring terminated at 10.0 feet.
12					
15					

Symbol Description

Strata symbols



Poorly graded clayey silty sand



DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 3/13/2008 using a 3 1/4-inch diameter continuous flight power auger. Rig is a ATV CME 45.
- Groundwater levels recorded at the time of drilling. Borings backfilled upon completion.
- 3. Surveyed boring locations and elevations were provided by Century engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

Boring No.: R2-023

PAGE 1 OF 1

Boring Location:	Sta. 380+55.51, 265'	Rt. C.L.					
Boring Surface Ele	V.: + 67.00'		Ref	erence:			
Wt. of Casing Hammer: Wt. of Sample Hammer Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:		Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2 3		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow Ste	3 1/4 m Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:		16.0'
Water Level Readings Date 4/1/2008	Time	Depth of Hole	Depth of Casing 8.0'		of Water	Elev. of W	ater

Pay Quantities:

Contract: 25-113-01

2 1/2 in. Dia. Dry Sample Boring: 16.0	Ft.;	3 Dia. U-Sample Boring:	Ft.
No. of 2 in. Dia. Shelby Tubes:	_;	No. of: U-Samples:	_
2 1/2 in. Dia. Contin. Sample Boring:	Ft.;	Core Drilling in Rock:	Ft.

Boring Contractor: Walton Corporation Driller: Gary Truver Sr. Helpers: Amber Joseph

F.A. Project: U.S. 301, Maryland State Line to I-95

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description Class./G.I. Remarks
	4/1/08	1	0.5' 2.0'	3 3 3	Wet firm brown clayey silt w/ some fine to coarse sand, trace of gravel. 16" RECOVERY
		2	2.0'	8 12 15 12	Wet very stiff orange-brown clayey fine A-4(0)
3			4.0'		sandy silt, trace of coarse sand.
		3	4.0'	4	Wet loose orange-brown silty fine sand w/ A-2-4(0)
			_	5 8	some coarse sand, trace of gravel.
6			6.0'		15" RECOVERY
		4	6.0'	9 10 9 10	Wet medium dense orange-brown silty fine to A-2-4(0) coarse sand, trace of gravel.
			8.0'		17" RECOVERY
9		5	8.0'	3 6 6 6	Saturated medium dense orange-brown coarse sand w/ some silt and fine sand, trace of gravel.A-1-b
		6	10.0' 10.0'	7 8 7	13" RECOVERY Saturated medium dense orange-brown coarse A-1-b
				8 7 10	sand w/ some silt, gravel, and fine sand.
12		7	12.0' 12.0'	3	16" RECOVERY Saturated loose light brown coarse sand w/ A-1-b
				3 4 5 5	some silt and fine sand, trace of gravel.
		8	14.0' 14.0'	6	18" RECOVERY Saturated medium dense light brown coarse to A-1-b
15				6 6 9 9	fine sand w/ some silt, trace of gravel.
			16.0'		15" RECOVERY
Boma	-				Boring terminated at 16.0 feet.

Symbol Description

Strata symbols

Low plasticity clay

Poorly graded clayey silty sand



Silty sand

DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 4/1/2008 using a 3 1/4-inch diameter continuous flight power auger. Rig is a CME 55.
- Groundwater levels recorded at the time of drilling. Borings Backfilled upon completion.
- 3. Surveyed boring locations and elevations were provided by Century engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

Boring No.: R2-024

Boring Location: Sta. 385+60.44, 2' Lt. C.L.									
Boring Surface Ele	V.: + 68.76'		Reference:						
Wt. of Casing Hammer: Wt. of Sample Hammer Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:	: 140 Split Barrel	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2 3		IN. IN. IN. IN. IN. IN.			
Casing Size: Hollow Ste	3 1/4 m Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:	10.0'			
Water Level Readings Date 3/13/2008	Time	Depth of Hole 10.0'	Depth of Casing 8.0'		of Water	Elev. of Water			

Pay Quantities:

Contract: 25-113-01

2 1/2 in. Dia. Dry Sample Boring: 10.0) Ft.;	3 Dia. U-Sample Boring:	Ft.
No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring:	; Ft.;	No. of: U-Samples: Core Drilling in Rock:	Ft.

Boring Contractor: Walton Corporation Driller: Dan Taylor Helpers: Dan Zmijewski

F.A. Project: U.S. 301, Maryland State Line to I-95

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description Class./G.I. Remarks
	3/13/08	1	1.0' 2.0'	2 4	Wet firm brown clayey silt w/ some fine to coarse sand, trace of gravel. A-4(5) 10" of cultivated soil. 12" RECOVERY A 2 4(0)
3		2	2.0'	9 14 14 10	Wet medium dense brown silty fine to coarse
	N		4.0'	10	sand, trace of gravel.
		3	4.0	5 5 6 7	Wet medium dense brown silty fine to coarse A-2-4(0) sand.
6			6.0'		19" RECOVERY
		4	6.0	5 6 7 7	Wet to saturated medium dense brown silty A-2-4(0) fine sand, trace of coarse sand.
			8.0'		19" RECOVERY
9		5	8.0'	5 6 6 7	Saturated medium dense light brown fine to coarse sand w/ some silt, trace of gravel. A-2-4(0)
			10.0'		18" RECOVERY
					Boring terminated at 10.0 feet.
12					
15					

Symbol Description

Strata symbols



Low plasticity clay

Silty sand

DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 3/13/2008 using a 3 1/4-inch diameter continuous flight power auger. Rig is a ATV CME 45.
- Groundwater levels recorded at the time of drilling. Borings Backfilled upon completion.
- 3. Surveyed boring locations and elevations were provided by Century engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

Boring No.: R2-025

Boring Surface Ele	V.: + 65.11'		Reference:					
Wt. of Casing Hammer: Wt. of Sample Hammer: Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:		Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2 3		IN. IN. IN. IN. IN.		
Casing Size: Hollow Ste	3 1/4 m Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:	16.0'		
Water Level Readings Date 3/13/2008	Time	Depth of Hole 4.0'	Depth of Casing 2.0'	Depth	of Water	Elev. of Water		

Pay Quantities:

Contract: 25-113-01

1/2 in. Dia. Dry Sample Boring: 16 b. of 2 in. Dia. Shelby Tubes:	t.; 3 Dia. U-Sample Boring: : No. of: U-Samples:	Ft.
1/2 in. Dia. Contin. Sample Boring:	t.; Core Drilling in Rock:	Ft.
1/2 in. Dia. Contin. Sample Boring:	-t.; Core Drilling in R	ock:

Boring Contractor: Walton Corporation Driller: Dan Taylor Helpers: Dan Zmijewski

F.A. Project: U.S. 301, Maryland State Line to I-95

Boring Location: Sta. 390+00.00, 123' Rt. C.L.

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description Class./G.I. Remarks
	3/13/08	1	1.0' 2.0' 2.0'	3 4 9	Wet firm brown clayey silt w/ some fine to coarse sand and gravel.A-4(0)12" of cultivated soil.12" RECOVERYA-2-4(0)
3	N		-	9 15 15 17	Wet medium dense gray and brown fine to coarse sand w/ some silt, trace of gravel.
		3	4.0'	8 12 11 13	18" RECOVERY Wet to saturated medium dense orange silty A-2-4(0) fine to coarse sand, trace of gravel.
6			6.0'		15" RECOVERY
		4	6.0'	8 8 12 15	Saturated medium dense orange fine to coarse A-2-4(0) sand w/ some silt, trace of gravel.
			8.0'		18" RECOVERY
9		5	8.0'	4 3 4 3	Saturated loose orange coarse to fine sand w/ A-1-b some silt, trace of gravel. Image: Saturated loose orange coarse to fine sand w/
			10.0'		16" RECOVERY
		6	10.0'	4 3 3 3	Saturated loose orange coarse to fine sand w/ A-2-4(0) some silt, trace of gravel.
12			12.0'		19" RECOVERY
		7	12.0'	2 2 2 4	Saturated very loose orange fine to coarse sand w/ some silt, trace of gravel.A-2-4(0)
			14.0'		20" RECOVERY
15		8	14.0'	2 3 10 10	Saturated medium dense orange fine to coarse sand w/ some silt, trace of gravel.A-2-4(0)
			16.0'		22" RECOVERY
					Boring terminated at 16.0 feet.

Symbol Description

Strata symbols



Poorly graded clayey silty sand

Silty sand

DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 3/13/2008 using a 3 1/4-inch diameter continuous flight power auger. Rig is a ATV CME 45.
- Groundwater levels recorded at the time of drilling. Borings Backfilled upon completion.
- 3. Surveyed boring locations and elevations were provided by Century engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

Boring No.: R2-026

Boring Location: Sta. 395+00.00, 124	4' Lt. C.L.				
Boring Surface Elev.: + 63.43'		Ret	ference:		
Wt. of Casing Hammer: Wt. of Sample Hammer: 140 Type of: D-Sampler: Split Barrel S-Sampler: U-Sampler: Ball Sampler Core Bit:	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2 3		IN. IN. IN. IN. IN.
Casing Size: 3 1/4 Hollow Stem Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:	16.0'
Water Level Readings Date Time 3/13/2008	Depth of Hole 4.0'	Depth of Casing 2.0'		of Water	Elev. of Water

Pay Quantities:

Contract: 25-113-01

2 1/2 in. Dia. Dry Sample Boring: No. of 2 in. Dia. Shelby Tubes:	16.0	Ft.;	3 Dia. U-Sample Boring: No. of: U-Samples:	Ft.
2 1/2 in. Dia. Contin. Sample Boring:		Ft.;	Core Drilling in Rock:	Ft.
Denima Oraciana IVI Ic. C				

Boring Contractor: Walton Corporation Driller: Dan Taylor Helpers: Dan Zmijewski

F.A. Project: U.S. 301, Maryland State Line to I-95

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
		1	0.0'	WOH 1 1	Wet soft brown fine to coarse sandy clay w/ some organic matter, trace of gravel.	A-6(3)	
				1	some organic matter, trace of graver.		
			2.0'		12" RECOVERY		
3	N	2	2.0'	9 12 11	Wet medium dense gray clayey coarse to fine sand, trace of gravel.	A-2-4(0)	
			4.0'	9	15" RECOVERY	JIP	J
		3	4.0'	4	Saturated loose gray to orange silty fine to	A-2-4(0)	
6			6.0'	8	coarse sand, trace of gravel.	15	
		4	6.0'	3 5 8 8	Saturated medium dense orange fine to coarse	A-2-4(0)	
				8	sand w/ some silt, trace of gravel.		
			8.0'		14" RECOVERY		
		5	8.0'	3 4 3 2	Saturated loose orange coarse to fine sand w/	A-2-4(0)	
9				2	some silt, trace of gravel.		
			10.0'		18" RECOVERY		
		6	10.0'	4 4 5 6	Saturated loose orange coarse to fine sand w/	A-2-4(0)	
				5 6	some silt, trace of gravel.		
12			12.0'		21" RECOVERY		
		7	12.0	7 11	Saturated medium dense orange fine to coarse	A-2-4(0)	
				16 13	sand w/ some silt, trace of gravel.		
			14.0'		18" RECOVERY		
		8	14.0	8	Saturated medium dense green fine to coarse	A-2-4(0)	Glauconitic.
15				8 6 5 7	sand w/ some silt, trace of gravel.	. /	
			16.0'		15" RECOVERY Boring terminated at 16.0 feet.		
					Doring terminated at 10.0 feet.		

Symbol Description

Strata symbols

Clayey sand

Poorly graded clayey silty sand



Silty sand

DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 3/13/2008 using a 3 1/4-inch diameter continuous flight power auger. Rig is a ATV CME 45.
- Groundwater levels recorded at the time of drilling. Borings Backfilled upon completion.
- 3. Surveyed boring locations and elevations were provided by Century engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

PAGE 1 OF 1

Boring No.: R2-027

Boring Surface Ele	•••••••••••••••••••••••••••••••••••••	Reference:					
Wt. of Casing Hammer: Wt. of Sample Hammer Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:		Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2 3		IN. IN. IN. IN. IN.	
Casing Size: Hollow Ste	3 1/4 m Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:	10.0'	
Water Level Readings Date 3/13/2008	Time	Depth of Hole 8.0'	Depth of Casing 6.0'	Depth o		Elev. of Water	

Pay Quantities:

Contract: 25-113-01

2 1/2 in. Dia. Dry Sample Boring:	10.0	Ft.;	3 Dia. U-Sample Boring:	Ft.
No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring:		; Ft.;	No. of: Ú-Samples: Core Drilling in Rock:	Ft.

Boring Contractor: Walton Corporation Driller: Dan Taylor Helpers: Dan Zmijewski

F.A. Project: U.S. 301, Maryland State Line to I-95

Boring Location: Sta. 400+00.00, 45' Rt. C.L.

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description Class./G.I. Remark	s
	3/13/08	1	0.5'	2 4 7	Wet stiff brown and gray mottled clayey silt, A-4(3) 8" of topsoil. trace of fine to coarse sand. 15" RECOVERY	
		2	2.0'	7 14 17 16	Wet dense brown silty fine to coarse sand,A-2-4(0)	
3			4.0'		trace of gravel.	
		3	4.0'	8 8 11 17	Wet very stiff gray and brown fine to coarse A-4(0)	
				17	sandy silt w/ some clay, trace of gravel.	
6			6.0'		18" RECOVERY	
		4	6.0'	16 12 11 10	Saturated medium dense brown and light brown silty fine to coarse sand, trace of	
			8.0'		gravel. 20" RECOVERY	
		5	8.0'	4	Saturated stiff brown and light brown fine to A-4(0)	
9				4 6 4 4	coarse sandy silt, trace of gravel.	
			10.0'		24" RECOVERY	
					Boring terminated at 10.0'.	
12						
15						

Symbol Description

Strata symbols



Silty low plasticity clay



Silty sand

Poorly graded clayey silty sand

DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 3/13/2008 using a 3 1/4-inch diameter continuous flight power auger. Rig is a ATV CME 45.
- Groundwater levels recorded at the time of drilling. Borings Backfilled upon completion.
- 3. Surveyed boring locations and elevations were provided by Century engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

Boring No.: R2-028

Boring Location:	Sta. 405+00.00, 138'	Lt. C.L.					
Boring Surface Ele	V.: + 66.17'		Ref	erence:			
Wt. of Casing Hammer: Wt. of Sample Hammer Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:		Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2 3		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow Ste	3 1/4 m Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:		16.0'
Water Level Readings Date 3/13/2008	Time	Depth of Hole 6.0'	Depth of Casing	Depth o	of Water	Elev. of Wa	ıter

Pay Quantities:

Contract: 25-113-01

2 1/2 in. Dia. Dry Sample Boring: No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring:	16.0	Ft.; ; Ft.;	3 Dia. U-Sample Boring: No. of: U-Samples: Core Drilling in Rock:	Ft. Ft.
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Boring Contractor: Walton Corporation Driller: Dan Taylor Helpers: Dan Zmijewski

F.A. Project: U.S. 301, Maryland State Line to I-95

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description Class./G.I. Remarks
		1	0.0'	WOH WOH 2 4	Wet soft gray and brown clayey silt, trace of A-4(6) grayel and fine to coarse sand.
			2.0'		16" RECOVERY
3		2	2.0'	12 16 13 15	Wet medium dense gray fine to coarse sand A-2-4(0) w/ some clay and gravel. 17" RECOVERY
		3	4.0'	8 9 10	Saturated medium dense gray coarse to fine A-2-4(0)
6			6.0'	10	sand w/ some silt, trace of gravel. 24" RECOVERY
		4	6.0'	2 6 6 5	Saturated medium dense gray silty coarse to A-2-4(0) fine sand, trace of gravel.
			8.0'		16" RECOVERY
9		5	8.0'	2 1 2 2	Saturated very loose brown silty fine to coarse A-2-4(0) sand, trace of gravel.
		6	10.0' 10.0'	1	21" RECOVERY Saturated very loose brown silty fine sand w/ A-2-4(0)
				1 1 2	some coarse sand.
12		7	12.0' 12.0'	2	19" RECOVERY Saturated very loose brown silty fine sand w/ A-2-4(0)
				2 2 2 2	some coarse sand, trace of gravel.
			14.0'		20" RECOVERY
15		8	14.0'	2 4 11 14	Saturated medium dense brown fine sand w/ some silt and coarse sand, trace of gravel.A-2-4(0)
			16.0'		24" RECOVERY
					Boring terminated at 16.0 feet.
<u> </u>					

Symbol Description

Strata symbols



Low plasticity clay

Silty sand

DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 3/13/2008 using a 3 1/4-inch diameter continuous flight power auger. Rig is a ATV CME 45.
- Groundwater levels recorded at the time of drilling. Borings Backfilled upon completion.
- 3. Surveyed boring locations and elevations were provided by Century engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

Boring No.: R2-029

Boring Location: s	ta. 415+00.00, 164'	Rt. C.L.					
Boring Surface Elev.: + 69.00' Reference:							
Wt. of Casing Hammer: Wt. of Sample Hammer: Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:	140 Split Barrel Ball Sampler	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2 3		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow Sten	3 1/4 n Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:		16.0'
Water Level Readings Date 3/12/2008	Time	Depth of Hole 10.0'	Depth of Casing 8.0'		of Water	Elev. o	f Water

Pay Quantities:

Contract: 25-113-01

2 1/2 in. Dia. Dry Sample Boring: No. of 2 in. Dia. Shelby Tubes:	16.0	Ft.; ;	3 Dia. U-Sample Boring: No. of: U-Samples:	Ft.
2 1/2 in. Dia. Contin. Sample Boring:		Ft.;	Core Drilling in Rock:	Ft.

Boring Contractor: Walton Corporation Driller: Dan Taylor Helpers: Tom Kane

F.A. Project: U.S. 301, Maryland State Line to I-95

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
	3/12/08	1	1.0' 2.0'	22	Wet soft light brown clayey silt, trace of fine to coarse sand and gravel. 9" RECOVERY	A-4(5)	12" of cultivated soil.
3		2	2.0'	3 9 12 14	Wet medium dense brown silty fine to coarse sand w/ some gravel.	A-2-4(0)	
			4.0	6	13" RECOVERY	\sum	
		3	4.0'	6 9 9 10	Wet medium dense orange silty fine sand w/ some coarse sand, trace of gravel.	A-2-4(0)	
6			6.0'		13" RECOVERY		
		4	6.0'	6 7 6 6	Saturated medium dense orange silty fine sand w/ some coarse sand, trace of gravel.	A-2-4(0)	
			8.0'		18" RECOVERY		
9		5	8.0'	2 2 2 3	Saturated very loose orange coarse to fine sand w/ some silt, trace of gravel.	A-1-b	
			10.0'		22" RECOVERY		
		6	10.0'	3 2 3 3	Saturated loose orange coarse to fine sand w/ some silt, trace of gravel.	A-1-b	
12	ļ	7	12.0' 12.0'	3	14" RECOVERY		
		/	12.0	3 2 3 4	Saturated loose orange silty fine to coarse sand, trace of gravel.	A-2-4(0)	
			14.0'		18" RECOVERY		
15		8	14.0'	2 3 4 4	Saturated loose light brown fine to coarse sand, trace of silt and gravel.	A-3	
			16.0'		16" RECOVERY		
					Boring terminated at 16.0 feet.		

Symbol Description

Strata symbols



Low plasticity clay

Silty sand



Poorly graded sand with silt

DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 3/12/2008 using a 3 1/4-inch diameter continuous flight power auger. Rig is a ATV CME 45.
- Groundwater levels recorded at the time of drilling. Borings Backfilled upon completion.
- 3. Surveyed boring locations and elevations were provided by Century engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

Boring No.: R2-030

Boring Location: Sta. 420+00.00, 43' Lt. C.L.							
Boring Surface Ele	V.: + 70.90'		Ref	erence:			
Wt. of Casing Hammer: Wt. of Sample Hammer: Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:	: 140 Split Barrel Ball Sampler	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2 3		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow Ste	3 1/4 m Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:		10.0'
Water Level Readings Date 3/12/2008	Time	Depth of Hole 8.0'	Depth of Casing 6.0'		of Water	Elev. c	of Water

Pay Quantities:

Contract: 25-113-01

2 1/2 in. Dia. Dry Sample Boring: No. of 2 in. Dia. Shelby Tubes:	10.0	Ft.;	3 Dia. U-Sample Boring: No. of: U-Samples:	Ft.
2 1/2 in. Dia. Contin. Sample Boring:		Ft.;	Core Drilling in Rock:	Ft.

Boring Contractor: Walton Corporation Driller: Dan Taylor Helpers: Tom Kane

F.A. Project: U.S. 301, Maryland State Line to I-95

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description Class./G.I. Remarks
3	3/12/08	1	1.0' 2.0' 2.0'	2 1 3 5 6 6	Wet soft brown fine to coarse sandy silt w/ some clay, trace of gravel. 10" RECOVERYA-4(0)10" of cultivated soil.Wet stiff gray fine sandy clay w/ some coarseA-6(2)
		3	4.0' 4.0'	2 7 12 14	sand, trace of gravel. Saturated medium dense gray clayey coarse to A-2-4(0) fine sand, trace of gravel.
6		4	6.0' 6.0'	14 15 16 17 12	17" RECOVERY Saturated dense light brown silty coarse to A-1-b
		5	8.0' 8.0'		fine sand w/ some gravel. 21" RECOVERY 21" RECOVERY Saturated loose light brown coarse sand w/
9			10.0'	5 5 5 5	some silt and fine sand, trace of gravel. 17" RECOVERY
12					Boring terminated at 10.0 feet.
15					

Symbol Description

Strata symbols

Poorly graded clayey silty sand



Clayey sand



Silty sand

DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 3/12/2008 using a 3 1/4-inch diameter continuous flight power auger. Rig is a ATV CME 45.
- Groundwater levels recorded at the time of drilling. Borings Backfilled upon completion.
- 3. Surveyed boring locations and elevations were provided by Century engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to I-95	
Contract: 25-113-01	
Boring Location: Sta. 425+00.00, 130' Rt. C.L.	
Boring Surface Elev.: + 73.30'	Reference:

Boring Surface El	ev.: + 73.30'		Reference:				
Wt. of Casing Hammer Wt. of Sample Hamme Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:	r: 140 Split Barrel	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2 3		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow Ste	3 1/4 em Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:	16.	
Water Level Readings Date 3/12/2008	Time	Depth of Hole 12.0'	Depth of Casing 10.0'		of Water	Elev. of Water	

Pay Quantities:

2 1/2 in. Dia. Dry Sample Boring: 16.	.0 Ft.;	3 Dia. U-Sample Boring:
No. of 2 in. Dia. Shelby Tubes:	;	No. of: Ú-Samples:
2 1/2 in. Dia. Contin. Sample Boring:	Ft.;	Core Drilling in Rock:

Boring Contractor: Walton Corporation Driller: Dan Taylor Helpers: Tom Kane

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
	3/12/08	1	1.0' 2.0'	23	Moist firm brown clayey fine sandy silt w/ some coarse sand.	A-4(2)	10" of cultivated soil.
3		2	2.0'	3 5 7 4	8" RECOVERY Moist stiff brown fine sandy silt w/ some coarse sand, trace of gravel.	A-4(0)	
			4.0'		18" RECOVERY		
		3	4.0'	4 5 7 7	Moist medium dense light brown clayey fine to coarse sand, trace of gravel.	A-2-4(0)	
6			6.0'		15" RECOVERY		
		4	6.0	8 10 12 15	Wet very stiff gray fine to coarse sandy clay, trace of gravel.	A-6(2)	
			8.0'		21" RECOVERY		
9		5	8.0'	5 9 9 7	Wet medium dense light brown fine to coarse sand w/ some clay and gravel.	A-2-4(0)	
			10.0'		19" RECOVERY		
12		6	10.0'	3 3 3 4	Saturated loose light brown coarse to fine sand w/ some silt, trace of gravel. 15" RECOVERY	A-2-4(0)	
12		7	12.0	3	Saturated loose light brown fine sand w/ some	A-2-4(0)	
			14.0'	3 3 3 4	silt and coarse sand, trace of gravel.		
		8	14.0'	2 1	Saturated very loose light brown fine sand w/	A-2-4(0)	
15				1 4	some silt and coarse sand.	(-)	
			16.0'		20" RECOVERY		
Bomo	-				Boring terminated at 16.0 feet.		

Remarks:

Boring No.: R2-031

16.0'

Ft. Ft.

Symbol Description

Strata symbols

Low plasticity clay

Silty sand

Poorly graded clayey silty sand



Clayey sand

DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 3/12/2008 using a 3 1/4-inch diameter continuous flight power auger. Rig is a ATV CME 45.
- 2. Groundwater levels recorded at the time of drilling and rechecked the following day.
- 3. Surveyed boring locations and elevations were provided by Century engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

Boring No.: R2-032

Boring Surface Ele	V.: + 68.00'		Ref			
Wt. of Casing Hammer: Wt. of Sample Hammer: Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:	140 Split Barrel Ball Sampler	Lbs. Lbs. O.D. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2 3		IN. IN. IN. IN. IN.
Casing Size: Hollow Ster	3 1/4 m Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:	16.0'
Water Level Readings Date 3/12/2008	Time	Depth of Hole	Depth of Casing 8.0'	Depth c	of Water	Elev. of Water

Pay Quantities:

Contract: 25-113-01

2 1/2 in. Dia. Dry Sample Boring: No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring:	16.0	Ft.; ; Ft.;	3 Dia. U-Sample Boring: No. of: U-Samples: Core Drilling in Rock:	Ft. Ft.
Dealers Constructions XV 1/ C				

Boring Contractor: Walton Corporation Driller: Dan Taylor Helpers: Tom Kane

F.A. Project: U.S. 301, Maryland State Line to I-95

Boring Location: Sta. 430+00.00, 152' Lt. C.L.

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description Class./G.I. R	emarks
		No. 1 2 3		2 3 14 16 4 5 10 10	Sample Description Class./G.l. R Wet firm brown clay, trace of fine to coarse sand and gravel. A-6(10) 10" of cultises of coarse sand and gravel. Wet medium dense light brown silty fine to coarse sand w/ some gravel. A-2-4(0) Up RECOVERY A-2-4(0) Wet medium dense light brown coarse to fine sand w/ some silt, trace of gravel. A-1-b 16" RECOVERY A-1-b 16" RECOVERY A-2-4(0)	
9		5	8.0' 8.0' 10.0' 10.0'	5 7 6 6 7 6 6 2 2 3 3 3 5	coarse sand w/ some silt, trace of gravel. 17" RECOVERY Saturated very loose light brown coarse to fine sand w/ some silt, trace of gravel. 17" RECOVERY 17" RECOVERY A-1-b 17" RECOVERY Saturated loose light brown coarse to fine A-1-b	
12		7	12.0' 12.0' 14.0'	3 5 2 1 1	sand w/ some silt, trace of gravel. 15" RECOVERY Saturated very loose light brown coarse to fine sand w/ some silt and gravel. 12" RECOVERY	
15		8	14.0' 16.0'	8 13 13 11	Saturated medium dense light brown fine sand and gravel w/ some silt and coarse sand. A-2-4(0) 8" RECOVERY 8" RECOVERY Boring terminated at 16.0 feet. 4	

Symbol Description

Strata symbols



Low plasticity clay

Silty sand

DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 3/12/2008 using a 3 1/4-inch diameter continuous flight power auger. Rig is a ATV CME 45.
- Groundwater levels recorded at the time of drilling. Borings backfilled upon completion.
- 3. Surveyed boring locations and elevations were provided by Century engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to I-95 Contract: 25-113-01

Boring Location: Sta. 433+21.61, 12' Lt. C.L.

Boring Surface Ele	Y.: + 72.00'		Reference:				
Wt. of Casing Hammer: Wt. of Sample Hammer Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:		Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2 3		IN. IN. IN. IN. IN.	
Casing Size: Hollow Ste	3 1/4 m Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:	10.0'	
Water Level Readings Date 3/31/2008	Time	Depth of Hole 12.0'	Depth of Casing	Depth o 9.0		Elev. of Water	

Pay Quantities:

2 1/2 in. Dia. Dry Sample Boring: No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring:	10.0	Ft.; ; Ft.;	3 Dia. U-Sample Boring: No. of: U-Samples: Core Drilling in Rock:	Ft.
2 1/2 m. Dia. Contin. Sample Boring:		г.,	Core Drilling in Rock:	гι.

Boring Contractor: Walton Corporation Driller: Gary Truver Sr. Helpers: Amber Joseph

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description Class./G.I. Remarks
	3/31/08	1	0.5' 2.0'	4 4 6	Moist stiff brown clayey silt w/ some fine to coarse sand, trace of gravel. 18" RECOVERY
		2	2.0'	5 6 8 6	Moist medium dense orange-brown clayey A-2-4(0)
3			4.0'		coarse to fine sand w/ some gravel.
		-3	4.0'	5 6 10 13	Moist medium dense light brown coarse to A-1-b fine sand w/ some silt and gravel.
6			6.0'		16" RECOVERY
		4	6.0'	15 13 12 9	Moist medium dense light brown coarse sand and gravel w/ some silt and fine sand.A-1-b
			8.0'		17" RECOVERY
9		5	8.0'	4 2 4 4	Wet loose light brown coarse to fine sand w/ A-1-b some silt, trace of gravel. Image: Compare the same set of t
			10.0'		17" RECOVERY
					Boring terminated at 10.0 feet.
12					
15					

Symbol Description

Strata symbols



Low plasticity clay



Clayey sand

Silty sand

DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 3/31/2008 using a 3 1/4-inch diameter continuous flight power auger. Rig is a ATV CME 45.
- Groundwater levels recorded at the time of drilling. Borings backfilled upon completion.
- 3. Surveyed boring locations and elevations were provided by Century engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project:	U.S. 301, Maryland State Line to I-95
Contract: 25	-113-01

Boring Location: Sta. 439+68.81, 29' Lt. C.L.

Boring No.: R2-034

Boring Surface Elevent	V.: + 67.00'		Reference:					
Wt. of Casing Hammer: Wt. of Sample Hammer: Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:	140 Split Barrel Ball Sampler	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2 3		IN. IN. IN. IN. IN. IN.		
Casing Size: Hollow Ster	3 1/4 n Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:	10.0'		
Water Level Readings Date 3/12/2008	Time	Depth of Hole	Depth of Casing 8.0'	Depth o	of Water	Elev. of Water		

Pay Quantities:

2 1/2 in. Dia. Dry Sample Boring:	10.0	Ft.;	3 Dia. U-Sample Boring:	Ft.
No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring:		; Ft.;	No. of: U-Samples: Core Drilling in Rock:	Ft.

Boring Contractor: Walton Corporation Driller: Dan Taylor Helpers: Dan Zmijewski

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description Class./G.I. Remarks
	3/12/08	1	0.5'	1 2 2	Moist soft brown clay, trace of fine to coarse A-6(11) 8" of topsoil. sand 16" RECOVERY
		2	2.0'	3 7 10 11	Moist medium dense light brown coarse sand A-2-4(0)
3			4.0'		w/ some clay, fine sand, and gravel.
		3	4.0'	5 6 5 7	Wet medium dense orange and light brown A-2-6(0)
				7	clayey coarse sand w/ some fine sand and gravel.
6			6.0'		15" RECOVERY
		4	6.0'	5 6 8 7	Wet medium dense orange and light brown silty fine to coarse sand w/ some gravel.
			8.0'		20" RECOVERY
9		5	8.0'	4 7 9 6	Wet medium dense orange and light brown silty coarse sand w/ some organic matter, fine sand, and gravel. A-1-b 17" RECOVERY 17" RECOVERY
					Boring terminated at 10.0 feet.
12					
15					

Symbol Description

Strata symbols

Low plasticity clay

Poorly graded clayey silty sand





Silty sand

Clayey sand

DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 3/12/2008 using a 3 1/4-inch diameter continuous flight power auger. Rig is a ATV CME 45.
- Groundwater levels recorded at the time of drilling. Borings backfilled upon completion.
- 3. Surveyed boring locations and elevations were provided by Century engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to I-95

Boring Location:	Sta. 444+00.00, 80' I	Lt. C.L.					
Boring Surface Elev.: + 56.45' Reference:							
Wt. of Casing Hammer: Wt. of Sample Hammer: Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:	: 140 Split Barrel	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2 3		IN. IN. IN. IN. IN.	
Casing Size: Hollow Ste	3 1/4 m Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:		10.0'
Water Level Readings Date 3/12/2008	Time	Depth of Hole 6.0'	Depth of Casing 4.0'		of Water .0'	Ele	v. of Water

Pay Quantities:

Contract: 25-113-01

2 1/2 in. Dia. Dry Sample Boring: 10.0	Ft.;	3 Dia. U-Sample Boring:	Ft.
No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring:	; Ft.;	No. of: U-Samples: Core Drilling in Rock:	Ft.

Boring Contractor: Walton Corporation Driller: Dan Taylor Helpers: Dan Zmijewski

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description Class./G.I. Remarks
	3/12/08	1	0.0'	1 2 5 5	Wet loose black clayey gravel and coarse sand w/ some organic matter and fine sand.
3		2	2.0' 2.0' 4.0'	2 4 3 4	16" RECOVERY Saturated loose black clayey organic gravel A-2-7(1) and fine sand w/ some coarse sand.
6		3	4.0' 6.0'	1 2 4 7	Saturated loose green silty fine sand w/ some A-2-4(0) coarse sand.
		4	6.0' 8.0'	2 7 7 10	Saturated medium dense green clayey fine A-2-6(0) sand, trace of coarse sand.
9		5	8.0'	2 10 10 13	Saturated medium dense green clayey fine sand w/ some coarse sand, trace of gravel. A-2-6(1) 21" RECOVERY 21" RECOVERY
					Boring terminated at 10.0 feet.
12					
15					

Symbol Description

Strata symbols



Silty sand

Clayey sand

DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 3/12/2008 using a 3 1/4-inch diameter continuous flight power auger. Rig is a ATV CME 45.
- Groundwater levels recorded at the time of drilling. Borings backfilled upon completion.
- 3. Surveyed boring locations and elevations were provided by Century engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

Boring No.: R2-036

Boring Surface Ele	•••• + 72.64'		Reference:					
Wt. of Casing Hammer: Wt. of Sample Hammer Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:		Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2 3		IN. IN. IN. IN. IN.		
Casing Size: Hollow Ste	3 1/4 m Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:	10.0'		
Water Level Readings Date 3/24/2008	Time	Depth of Hole 10.0'	Depth of Casing 8.0'		of Water	Elev. of Water		

Pay Quantities:

Contract: 25-113-01

2 1/2 in. Dia. Dry Sample Boring:	10.0	Ft.;	3 Dia. U-Sample Boring:	Ft.
No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring:		; Ft.;	No. of: U-Samples: Core Drilling in Rock:	Ft.

Boring Contractor: Walton Corporation Driller: Dan Taylor Helpers: Amber Joseph

F.A. Project: U.S. 301, Maryland State Line to I-95

Boring Location: Sta. 423+98.47, 528' Rt. C.L.

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description Class./G.I. Remarks
	3/24/08	1	0.5'	2 2 3	Moist firm brown clay w/ some fine to coarse A-6(9) 6" of cultivated soil. sand.
		2	2.0'	8 17 14 12	Moist dense brown fine to coarse sand w/ A-2-4(0)
3			4.0'		some silt, trace of gravel.
		3	4.0'	5 9 13 15	Moist medium dense light brown coarse sand A-1-b
			_	15	w/ some fine sand and gravel, trace of clay.
6			6.0'		17" RECOVERY
		4	6.0'	12 13 13 12	Moist medium dense light brown coarse sand w/ some fine sand and silt, trace of gravel.
			8.0'		19" RECOVERY
9		5	8.0'	6 7 6 8	Wet medium dense light brown coarse to fine sand w/ some silt, trace of gravel.A-1-b
			10.0'		18" RECOVERY
					Boring terminated at 10.0 feet.
12					
15					

Symbol Description

Strata symbols



Low plasticity clay

Silty sand

DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 3/24/2008 using a 3 1/4-inch diameter continuous flight power auger. Rig is a ATV CME 45.
- Groundwater levels recorded at the time of drilling. Borings backfilled upon completion.
- 3. Surveyed boring locations and elevations were provided by Century engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

Boring No.: R2-037

Boring Surface Ele	V.: + 54.19'		Reference:					
Wt. of Casing Hammer: Wt. of Sample Hammer: Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:		Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2 3		IN. IN. IN. IN. IN.		
Casing Size: Hollow Ste	3 1/4 m Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:	10.0'		
Water Level Readings Date 3/24/2008	Time	Depth of Hole	Depth of Casing 8.0'		of Water Dry	Elev. of Water		

Pay Quantities:

Contract: 25-113-01

2 1/2 in. Dia. Dry Sample Boring:	10.0	Ft.;	3 Dia. U-Sample Boring:	Ft.
No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring:		; Ft.;	No. of: U-Samples: Core Drilling in Rock:	Ft.

Boring Contractor: Walton Corporation Driller: Dan Taylor Helpers: Amber Joseph

F.A. Project: U.S. 301, Maryland State Line to I-95

Boring Location: Sta. 262+97.95, 360' Lt. C.L.

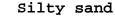
Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description Class./G.I. Remarks
	3/24/08	1	0.5' 2.0'	2 3 5	Moist firm brown clayey silt w/ some coarse A-4(2) 8" of cultivated soil. to fine sand, trace of gravel. 18" RECOVERY
		2	2.0'	9 9 8 8	Moist medium dense orange-brown silty fine A-2-4(0)
3			4.0'		to coarse sand, trace of gravel.
		3	4.0'	4 6 7	Moist medium dense orange-brown silty fine A-2-4(0) to coarse sand, trace of gravel.
				11	to coarse sand, trace of gravel.
6			6.0'		18" RECOVERY
		4	6.0'	9 9 9 9	Moist medium dense orange-brown silty fine to coarse sand, trace of gravel.
			8.0'		18" RECOVERY
9		5	8.0'	7 5 6 4	Wet medium dense orange-brown silty fine sand w/ some coarse sand, trace of gravel.A-2-4(0)
			10.0'		20" RECOVERY
					Boring terminated at 10.0 feet.
12					
15					

Symbol Description

Strata symbols



Silty low plasticity clay



DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 3/24/2008 using a 3 1/4-inch diameter continuous flight power auger. Rig is a ATV CME 45.
- 2. Groundwater levels recorded at the time of drilling. Borings backfilled upon completion.
- 3. Surveyed boring locations and elevations were provided by Century engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

Boring No.: R2-038

Boring Location:	Sta. 262+76.25, 515	Rt. C.L.					
Boring Surface Ele	V.: + 38.96'		Reference:				
Wt. of Casing Hammer: Wt. of Sample Hammer Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:		Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2 3		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow Ste	3 1/4 m Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:		16.0'
Water Level Readings Date 3/24/2008	Time	Depth of Hole 4.0'	Depth of Casing 2.0'		of Water	Elev. of Wa	ater

Pay Quantities:

Contract: 25-113-01

2 1/2 in. Dia. Dry Sample Boring:	16.0	Ft.;	3 Dia. U-Sample Boring:	Ft.
No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring:		; Ft.;	No. of: U-Samples: Core Drilling in Rock:	Ft.

Boring Contractor: Walton Corporation Driller: Dan Taylor Helpers: Amber Joseph

F.A. Project: U.S. 301, Maryland State Line to I-95

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description Class./G.I. Remarks	
	3/24/08	1	0.0'	1 1 1	Wet soft brown organic silt w/ some fine to coarse sand, trace of gravel. 18" RECOVERY	
		1A	1.5'	1	Saturated very loose gray coarse to fine sand A-2-4(0)	
3		2	2.0' / 2.0' 4.0'	3 6 2 1	w/ some silt, trace of gravel. 6" RECOVERY Saturated loose gray coarse to fine sand, trace of silt and gravel. 14" RECOVERY	
		3	4.0'	2	Saturated very loose gray coarse to fine sand, A-1-b	
6			6.0'	i	trace of silt and gravel. 4" RECOVERY	
		4	6.0'	1 1 2 2	Saturated very loose black fine to coarse sand w/ some silt and gravel, trace of organic matter.	
		5	8.0' 8.0'	5	16" RECOVERY Saturated medium dense green and brown A-2-4(0) Glauconitic.	
9		-	10.0'	5 12 6 5	fine to coarse sand w/ some silt.	
		6	10.0'	5 6 6 8	Saturated medium dense green and brown fine to coarse sand w/ some silt.A-2-4(0)Glauconitic.	
12		7	12.0' 12.0'	7	18" RECOVERY	
			12.0	7 9 13 15	Saturated medium dense green and brown fine to coarse sand w/ some silt.A-2-4(0)Glauconitic.	
			14.0'		17" RECOVERY	
15		8	14.0'	7 10 18 24	Saturated medium dense green and brown fine to coarse sand w/ some silt.A-2-4(0)Glauconitic.	
			16.0'		16" RECOVERY	
					Boring terminated at 16.0 feet.	

Symbol Description

Strata symbols



Silt

Silty sand

Poorly graded sand with silt

DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 3/24/2008 using a 3 1/4-inch diameter continuous flight power auger. Rig is a ATV CME 45.
- 2. Groundwater levels recorded at the time of drilling and rechecked the following day.
- 3. Surveyed boring locations and elevations were provided by Century engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

Boring No.: R2-039

Boring Surface Ele	V.: + 63.36'		Reference:					
Wt. of Casing Hammer: Wt. of Sample Hammer: Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:		Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2 3		IN. IN. IN. IN. IN. IN.		
Casing Size: Hollow Ster	3 1/4 m Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:	10.0'		
Water Level Readings Date 3/24/2008	Time	Depth of Hole 10.0'	Depth of Casing 8.0'	Depth o		Elev. of Water		

Pay Quantities:

Contract: 25-113-01

2 1/2 in. Dia. Dry Sample Boring:	10.0	Ft.;	3 Dia. U-Sample Boring:	Ft.
No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring:		; Ft.;	No. of: Ú-Samples: Core Drilling in Rock:	Ft
		1,	oore brining in Rock.	

Boring Contractor: Walton Corporation Driller: Dan Taylor Helpers: Amber Joseph

F.A. Project: U.S. 301, Maryland State Line to I-95

Boring Location: Sta. 253+06.03, 395' Lt. C.L.

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description Class./G.I. Remarks	
	3/24/08	1	0.5' 2.0'	1 2 3	Moist firm brown clayey silt w/ some fine A-4(3) 8" of cultivated soil. sand, trace of coarse sand and gravel. 18" RECOVERY	
		2	2.0'	2 3 4 9	Moist loose orange-brown clayey coarse to A-2-6(0)	
3			4.0'		fine sand, trace of gravel.	
	-	3	4.0'	7 8 12 14	Moist medium dense orange-brown clayey A-2-4(0) fine sand w/ some coarse sand, trace of	
6			6.0'		gravel.	
		4	6.0'	11 12 11 11	Moist medium dense orange-brown silty fine A-2-4(0) sand, trace of coarse sand and gravel.	
			8.0'		18" RECOVERY	
9		5	8.0'	6 7 6 3	Moist medium dense light brown fine to coarse sand w/ some silt, trace of gravel.A-2-4(0)	
			10.0'		18" RECOVERY	
					Boring terminated at 10.0 feet.	
12						
15						

Symbol Description

Strata symbols



Silty low plasticity clay



Clayey sand



Silty sand

DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 3/24/2008 using a 3 1/4-inch diameter continuous flight power auger. Rig is a ATV CME 45.
- Groundwater levels recorded at the time of drilling. Borings backfilled upon completion.
- 3. Surveyed boring locations and elevations were provided by Century engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

Boring No.: R2-040

Boring Location: s	sta. 251+45.23, 409'	Rt. C.L.					
Boring Surface Ele	V.: + 62.15'		Reference:				
Wt. of Casing Hammer: Wt. of Sample Hammer: Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:	140 Split Barrel Ball Sampler	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2 3		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow Ster	3 1/4 n Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:		16.0'
Water Level Readings Date 3/24/2008	Time	Depth of Hole 16.0'	Depth of Casing 14.0'		of Water 4.3'	Elev. d	of Water

Pay Quantities:

Contract: 25-113-01

2 1/2 in. Dia. Dry Sample Boring:	16.0	Ft.;	3 Dia. U-Sample Boring:	Ft.
No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring:		; Ft.;	No. of: U-Samples: Core Drilling in Rock:	Ft.

Boring Contractor: Walton Corporation Driller: Dan Taylor Helpers: Amber Joseph

F.A. Project: U.S. 301, Maryland State Line to I-95

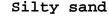
Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description Class./G.I. Remarks
	3/24/08	1	0.5'	2 2 2	Wet very loose brown fine sand w/ some A-2-4(0) 8" of cultivated soil. coarse sand and clay, trace of gravel. 18" RECOVERY
		2	2.0'	2 2 3 3	Wet firm brown clayey fine sandy silt, trace A-4(0)
3			4.0'		of coarse sand and gravel.
		3	4.0'	3 3 4 4	Wet firm orange-brown fine sandy silt, trace A-4(0) of coarse sand.
6			6.0'		15" RECOVERY
		4	6.0'	3 2 3 3	Wet firm orange-brown fine sandy silt, trace A-4(0) of coarse sand and gravel.
			8.0'		20" RECOVERY
9		5	8.0'	3 3 4 6	Wet loose orange-brown silty fine to coarse A-2-4(0) sand, trace of gravel.
			10.0'		17" RECOVERY
		6	10.0'	4 4 3	Wet loose orange-brown silty fine to coarse A-2-4(0) sand, trace of gravel.
12			12.0'		18" RECOVERY
		7	12.0'	5 6 5 5	Wet medium dense orange-brown coarse to fine sand w/ some silt, trace of gravel.A-1-b
		8	14.0' 14.0'	4	19" RECOVERY
15		0	14.0	4 4 3 4	Wet loose light brown coarse to fine sand w/ A-1-b some silt, trace of gravel. Image: Compare the same set of t
			16.0'		16" RECOVERY
Berre					Boring terminated at 16.0 feet.

Symbol Description

Strata symbols



Poorly graded clayey silty sand



DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 3/24/2008 using a 3 1/4-inch diameter continuous flight power auger. Rig is a ATV CME 45.
- 2. Groundwater levels recorded at the time of drilling and rechecked the following day.
- 3. Surveyed boring locations and elevations were provided by Century engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to S.R.1 Contract: 25-113-01

Boring Location: Sta. 106+00, C.L.

Borning Location.	Sta. 106+00, C.L.						
Boring Surface Ele	EV.: + 68.47		Ref	erence:			
Wt. of Casing Hammer: Wt. of Sample Hammer Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:	: 140 Split-Barrel	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow Ste	3 1/4" em Auger:	Inches	From Depth of: From Depth of:	0.0	To: To:		14.0
Water Level Readings Date 12/15/2008	Time	Depth of Hole 12.0'	Depth of Casing 10.0'		of Water	Elev. of	Water

Pay Quantities:

2 1/2 in. Dia. Dry Sample Boring: 16 No. of 2 in. Dia. Shelby Tubes:	5.0 Ft.;	Dia. U-Sample Boring: No. of: U-Samples:	Ft.
2 1/2 in. Dia. Contin. Sample Boring:	Ft.;	Core Drilling in Rock:	Ft.
Devine Contractory W 1/ C /			

Boring Contractor: Walton Corporation Driller: Jason Truver Helpers: D. Zmijewski

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"		Sample Description	Class./G.I.	Remarks
	12/15/08	1	0.0'			No Sample		Asphalt - 6". Crusher Run - 18".
			2.0'			0" RECOVERY		
	_	2	2.0'	7 5		Moist stiff gray silt w/some clay and fine to	A-4(2)	-
3.5			4.0'	7 5 7 10		coarse sand, trace of gravel. 16" RECOVERY		IG
		3	4.0'	4 7		Moist stiff gray fine to coarse sandy silt w/	A-4(0)	
				8 10		some clay, trace of gravel.		
			6.0'			16" RECOVERY		
		4	6.0'	11 11 12 12		Wet medium dense light brown coarse to fine	A-1-b	
7				12 12		sand w/some silt, trace of gravel.		
			8.0'			20" RECOVERY		
		5	8.0'	4		Saturated medium dense orange coarse sand	A-1-b	
				4 8 7 9		and gravel w/some fine sand and silt.		
				9				
			10.0'		1961 (A164) 1981 - A164 1981 - A164	14" RECOVERY		
10.5		6	10.0'	6 7 9		Saturated medium dense orange coarse to fine	A-1-b	
				10	0202020202020202020 02020202020202020 020202020202020202020	sand and gravel w/trace of silt.		
			12.0'			15" RECOVERY		
		7	12.0'	7		Saturated medium dense orange coarse to fine	A-1-b	
				7 8 7 7	8:8:8:8:8:8:8:8:8: 8:8:9:8:8:9:9:9:8:8: 8:8:0:8:8:8:8:8:8:8:8:8:8:8:8:8:8:	sand w/some gravel, trace of silt.	-	
14		8	14.0' 14.0'	7		15" RECOVERY	1	
		0	14.0	7 6 7	8-8-8-8-8-8-8-8-8-8- 9-9-9-9-9-9-9-9-9-9	Saturated medium dense orange coarse to fine	A-1-b	
				12		sand w/trace of silt and gravel.		
			16.0'			18" RECOVERY		
						End of Boring		
						-		
17.5								
Boma								

Symbol Description

Strata symbols



Silty low plasticity clay



Silty sand

Poorly graded sand



Well graded sand with silt

DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 12/15/2008 using a 3 1/4-inch diameter hollow stem auger. Rig is a Truck CME 55.
- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to S.R.1 Contract: 25-113-01

Boring Location: Sta. 159+00, 410.00' Rt. C.L.

Boring Surface Ele	ev.: + 73.46	Reference:					
Wt. of Casing Hammer: Wt. of Sample Hammer Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:	: 140	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow Ste	3 1/4" m Auger:	Inches	From Depth of: From Depth of:	0.0	To: To:	14.0	
Water Level Readings Date 1/15/2009	Time	Depth of Hole	Depth of Casing		of Water 1.2'	Elev. of Water	

Pay Quantities:

	16.0	Ft.;	Dia. U-Sample Boring:	Ft.
No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring:		; Ft.:	No. of: U-Samples: Core Drilling in Rock:	Ft.
		,	••••• = ·······g ··· ··•••···	

Boring Contractor: Walton Corporation Driller: Bill Holden Helpers: T. Kane

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description Class./G.I. Remarks
	1/15/09	1	1.0' 2.0'	3 4	Wet firm brown clayey silt w/some fine sand, A-4(3) Topsoil - 12".
		2	2.0'	6 8 10	trace of coarse sand and gravel. 10" RECOVERY A-4(0)
3.5				9	Wet very stiff brown fine to coarse sandy silt w/trace of gravel.
	N	2	4.0' 4.0'	3	20" RECOVERY
		N (4.0	3 4 7 6	Wet medium dense orange fine to coarse sand A-2-4(0) w/some silt.
		4	6.0' 6.0'	6	16" RECOVERY
7		4	0.0	6 8 8 9	Wet medium dense orange fine to coarse sand A-2-4(0) w/some silt.
			8.0' 8.0'		22" RECOVERY
		5	8.0	2 2 3 4	Wet loose brown silty fine to coarse sand w/ A-2-4(0) trace of gravel.
			10.01	4	
10.5		6	10.0' 10.0'	2	19" RECOVERY Wet loose brown coarse to fine sand w/some A-1-b
				2 4 5 5	gravel, trace of silt.
			12.0'		13" RECOVERY
		7	12.0'	4 5 4 5	Wet loose brown coarse to fine sand w/some A-1-b
				5	silt, trace of gravel.
14			14.0'	2	17" RECOVERY
		8	14.0'	3 3 4 5	Wet loose brown fine to coarse sand w/some A-3 gravel, trace of silt.
			16.0'		20" RECOVERY
					End of Boring
17.5					

Symbol Description

Strata symbols



Silty low plasticity clay



Silty sand



Poorly graded sand with silt

DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 1/15/2009 using a 3 1/4-inch diameter hollow stem auger. Rig is a ATV CME 55.
- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to S.R.1 **Contract:** 25-113-01

Boring Location: Sta. 218+00, C.L.

Boring Surface Ele	,		Reference:				
Wt. of Casing Hammer: Wt. of Sample Hammer Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:	: 140	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2		IN. IN. IN. IN. IN.	
Casing Size: Hollow Ste	3 1/4" m Auger:	Inches	From Depth of: From Depth of:	0.0	To: To:	14.	.0
Water Level Readings Date 12/15/2008	Time	Depth of Hole	Depth of Casing 14.0		of Water Dry	Elev. of Water	

Pay Quantities:

2 1/2 in. Dia. Dry Sample Boring:	16.0	Ft.;	Dia. U-Sample Boring:	Ft.
No. of 2 in. Dia. Shelby Tubes:		;	No. of: U-Samples:	
2 1/2 in. Dia. Contin. Sample Boring:		Ft.;	Core Drilling in Rock:	Ft.

Boring Contractor: Walton Corporation Driller: Gary Truver Helpers: D. Zmijewski

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description Class./G.I. Remarks
	12/15/08	1 2	1.0' 2.0' 2.0'	4 4 7 7 5 5	Moist loose brown clayey coarse to fine sand A-2-4(0) Cultivated Soil - 10".
3.5	N	3	4.0' 4.0'		Moist medium dense orange coarse sand w/ some fine sand, silt and gravel. 20" RECOVERY Moist medium dense orange coarse sand w/ A-1-b
			6.0'	7 5 7 9	some fine sand and silt, trace of gravel.
7		4	6.0' 8.0'	8 9 8 7	Moist medium dense orange coarse to fine A-1-b sand w/some silt, trace of gravel. 20" RECOVERY
		5	8.0' 10.0'	3 2 1 4	Moist very loose orange fine to coarse sand w/some silt, trace of gravel. 22" RECOVERY
10.5		6	10.0' 12.0'	3 4 5 5	Moist loose orangish brown coarse sand w/ A-1-b some fine sand, trace of silt and gravel.
14		7	12.0'	4 6 6 7	Moist medium dense orangish brown coarse A-1-b sand w/some fine sand and silt, trace of gravel.
		8	14.0'	7 4 5 5	Wet loose orange silty fine sand w/trace of coarse sand and gravel. 14" RECOVERY
			10.0		End of Boring
17.5					

Symbol Description

Strata symbols



Poorly graded clayey silty sand



Silty sand



Poorly graded sand with silt

DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 12/15/2008 using a 3 1/4-inch diameter hollow stem auger. Rig is a ATV CME 45B.
- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to S.R.1 **Contract:** 25-113-01

Boring Location: Sta. 211+00, C.L.

Borning Location.	Sta. 211+00, C.L.						
Boring Surface Ele	•••• + 59.32		Ref				
Wt. of Casing Hammer: Wt. of Sample Hammer: 140 Type of: D-Sampler: Split-Barrel S-Sampler: U-Sampler: Core Bit:		Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow Ste	3 1/4" m Auger:	Inches	From Depth of: From Depth of:	0.0	To: To:		14.0
Water Level Readings Date 12/10/2008	Time	Depth of Hole 12.0'	Depth of Casing 10.0'		of Water 1.9'	Elev. of	Water

Pay Quantities:

	6.0	Ft.;	Dia. U-Sample Boring:	Ft.
No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring:		; Ft.;	No. of: U-Samples: Core Drilling in Rock:	Ft.

Boring Contractor: Walton Corporation Driller: Gary Truver Helpers: D. Zmijewski

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description Class.	/G.I. Remarks
	12/10/08	1	1.0' 2.0'		Wet soft orangish brown clayey fine to coarse A-4 sandy silt w/trace of gravel.	
3.5		2	2.0'	4 3 3 5	Wet loose orange silty fine to coarse sand.	↓(0)
0.0	N		4.0'		17" RECOVERY	
		3	4.0'	2 4 3 5	Wet loose orange silty fine sand w/trace of A-2-2 coarse sand.	
		4	6.0' 6.0'	4	19" RECOVERY Wet loose orange silty fine sand w/trace of A-2-4	1(0)
7			8.0	4 5 4 5	coarse sand.	
		5	8.0' 10.0'	4 3 3 4	Wet loose orange silty fine sand w/trace of A-2-2 coarse sand. 24" RECOVERY	k(O)
10.5		6	10.0'	4 4 5 5	Wet loose orange fine sand w/some silt and coarse sand, trace of gravel.A-2-4	k(0)
		7	12.0' 12.0'	3 4 4 3	17" RECOVERY Wet loose orangish brown coarse to fine sand w/some gravel, trace of silt.	-b
14		8	14.0' 14.0'	3 4 4 3	18" RECOVERY Wet loose orangish brown coarse to fine sand A-1	-b
			16.0'	3	w/some silt, trace of gravel.	
			10.0		End of Boring	
17.5						

Symbol Description

Strata symbols

Clayey sand

Silty sand

Well graded sand



Poorly graded sand with silt

DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 12/10/2008 using a 3 1/4-inch diameter hollow stem auger. Rig is a ATV CME 45B.
- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to I-95

Boring No.: R3-004

Boring Surface Ele	V.: + 67.73'		Ref			
Wt. of Casing Hammer: Wt. of Sample Hammer: Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:		Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2 3		IN. IN. IN. IN. IN.
Casing Size: Hollow Ste	3 1/4 m Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:	10.0'
Water Level Readings Date 3/21/08	Time	Depth of Hole 10.0'	Depth of Casing 8.0'		of Water 2'	Elev. of Water

Pay Quantities:

Contract: 25-113-01

Boring Location: Sta. 120+47.89, 14' Lt. C.L.

2 1/2 in. Dia. Dry Sample Boring: No. of 2 in. Dia. Shelby Tubes:	10.0	Ft.;	3 Dia. U-Sample Boring: No. of: U-Samples:	3 Ft.
2 1/2 in. Dia. Contin. Sample Boring:		Ft.;	Core Drilling in Rock:	Ft.

Boring Contractor: Walton Corporation Driller: Danny Taylor Helpers: A. Joseph

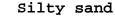
Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description Class./G.I. Remarks
	3/21/08	1	0.5'	3 2 3	Moist firm brown clayey silt w/ some fine sand, trace of coarse sand and gravel. 16" RECOVERY
		2	2.0'	5 8 9 10	Moist very stiff orange-brown fine to coarse A-4(0)
3			4.0'		sandy silt, trace of gravel.
		-3	4.0'	10 11 10 8	Wet medium dense orange-brown silty fine to A-2-4(0) coarse sand, trace of gravel.
6			6.0'		16" RECOVERY
		4	6.0'	8 7 8 5	Saturated medium dense orange-brown silty A-2-4(0) fine to coarse sand, trace of gravel.
			8.0'		16" RECOVERY
9		5	8.0'	2 3 5 8	Saturated firm orange-brown silty coarse to fine sand, trace of gravel.A-2-4(0)
			10.0'		18" RECOVERY
					Boring Terminated at 10.0'
12					
15					

Symbol Description

Strata symbols



Silty low plasticity clay



DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 3/21/2008 using a 3 1/4-inch diameter continuous flight power auger. Rig is a ATV CME 45.
- 2. Groundwater levels recorded at the time of drilling. Boring backfilled upon completion.
- 3. Surveyed boring locations and elevations were provided by Century engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to I-95

Boring No.: R3-005

Boring Surface Ele	V.: + 66.64'		Reference:					
Wt. of Casing Hammer: Wt. of Sample Hammer: Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:	: 140 Split Barrel Ball Sampler	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2 3		IN. IN. IN. IN. IN.		
Casing Size: Hollow Ste	3 1/4 m Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:	16.0'		
Water Level Readings Date Time 3/21/08		Depth of Hole 12.0'	Depth of Casing 10.0°		of Water .6'	Elev. of Water		

Pay Quantities:

Contract: 25-113-01

2 1/2 in. Dia. Dry Sample Boring: No. of 2 in. Dia. Shelby Tubes:	16.0	Ft.;	3 Dia. U-Sample Boring: 3 No. of: U-Samples:	Ft.
2 1/2 in. Dia. Contin. Sample Boring:		Ft.;	Core Drilling in Rock:	Ft.

Boring Contractor: Walton Corporation Driller: Danny Taylor Helpers: A. Joseph

Boring Location: Sta. 125+23.73, 125' Rt. C.L.

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description Class./G.I. Remarks	
	3/21/08	1	0.5'	6 7 5	Moist medium dense orange-brown silty fine A-2-4(0) 3" of topsoil; fill material. sand w/ some coarse sand and gravel. 18" RECOVERY	
		2	2.0'	4 8	Moist medium dense orange-brown silty fine A-2-4(0)	
3			4.0	7 4	sand w/ some gravel and coarse sand.	
		-3	4.0'	4	Moist loose orange-brown silty coarse to fine A-2-4(0) sand w/ some gravel.	
6		ЗA	5.0' 5.0' 6.0'	4 10	8" RECOVERY Wet stiff orange-brown fine sand w/ some A-4(0)	
0		4	6.0' 7.3'	87	Coarse sand and clay, trace of gravel 12" RECOVERY Wet stiff brown clayey fine sandy silt w/	
		4A	7.3' 8.0'	6 6	some coarse sand, trace of gravel. 9" RECOVERY A-4(0)	
9		5	8.0'	2 6 6 5	Wet stiff black organic fine to coarse sandy silt, trace of gravel. <u>9" RECOVERY</u> Saturated stiff gray fine sandy silt w/ some	
12		6	10.0' 10.0' 12.0'	8 8 7 7 7	coarse sand, trace of clay and gravel. 20" RECOVERY Saturated medium dense gray coarse to fine sand w/ some silt, trace of gravel. 16" RECOVERY	
		7	12.0'	6 11 13 13	Saturated medium dense brown silty gravel and fine to coarse sand. A-1-b	
		8	14.0' 14.0'	11 7	17" RECOVERY Saturated medium dense brown fine to coarse A-1-b	
15				7 13 10	sand and gravel w/ some silt.	
			16.0'		Boring terminated at 16.0'	

Symbol Description

Strata symbols

Silty sand

Silt

Silty low plasticity clay



Low plasticity organic silts

DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 3/21/2008 using a 3 1/4-inch diameter continuous flight power auger. Rig is a ATV CME 45.
- 2. Groundwater levels recorded at the time of drilling and rechecked the following day.
- 3. Surveyed boring locations and elevations were provided by Century engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

Boring No.: R3-006

Boring Surface Ele	V.: + 74.06'		Ref			
Wt. of Casing Hammer: Wt. of Sample Hammer: Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:		Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2 3		IN. IN. IN. IN. IN. IN.
Casing Size: Hollow Ste	3 1/4 m Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:	16.0'
Water Level Readings Date 3/21/08	Time	Depth of Hole 6.0'	Depth of Casing $4.0'$		of Water .8'	Elev. of Water

Pay Quantities:

Contract: 25-113-01

2 1/2 in. Dia. Dry Sample Boring: No. of 2 in. Dia. Shelby Tubes:	16.0	Ft.;	3 Dia. U-Sample Boring: No. of: U-Samples:	3 Ft.
2 1/2 in. Dia. Contin. Sample Boring:		Ft.;	Core Drilling in Rock:	Ft.

Boring Contractor: Walton Corporation Driller: Danny Taylor Helpers: A. Joseph

F.A. Project: U.S. 301, Maryland State Line to I-95

Boring Location: Sta. 130+50.00, 117' Lt. C.L.

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description C	Class./G.I.	Remarks
	3/21/08	1	0.5' 2.0'	3 5 12	Wet very stiff gray clayey silt w/ some fine to coarse sand, trace of gravel. 18" RECOVERY	A-4(2)	5" of leaf litter topsoil.
		2	2.0'	6 11 16 17		A-2-4(0)	
3			4.0'		sand and gravel.		JG
		-3	4.0'	9 12 10 10	Saturated medium dense gray silty fine sand w/ some coarse sand, trace of gravel.	A-2-4(0)	
6			6.0'		17" RECOVERY	$1 \mathbf{L}$	
		4	6.0'	3 5 5 3	Saturated loose gray silty fine sand w/ some coarse sand, trace of gravel.	A-2-4(0)	
			8.0'		15" RECOVERY		
9		5	8.0'	2 3 4 6	Saturated loose orange-brown silty fine to coarse sand, trace of gravel.	A-2-4(0)	
			10.0'		21" RECOVERY		
		6	10.0'	5 8 11 10	Saturated medium dense orange-brown fine to coarse sand and gravel w/ some silt.	A-1-b	
12			12.0'		15" RECOVERY		
		7	12.0'	8 8 7 9	Saturated medium dense orange-brown coarse to fine sand and gravel w/ some silt.	A-1-b	
			14.0'	0	10" RECOVERY		
15		8	14.0'	9 11 5 5	Saturated medium dense orange-brown fine to coarse sand and gravel, trace of silt.	A-1-b	
			16.0'		8" RECOVERY		
Bomo	_				Boring terminated at 16.0'		

Symbol Description

Strata symbols



Silty low plasticity clay



Silty sand



Poorly graded sand with silt

DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 3/21/2008 using a 3 1/4-inch diameter continuous flight power auger. Rig is a ATV CME 45.
- 2. Groundwater levels recorded at the time of drilling and rechecked the following day.
- 3. Surveyed boring locations and elevations were provided by Century engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to I-95

Boring No.: R3-007

Boring Surface Ele	V.: + 67.03'		Ref	erence:		
Wt. of Casing Hammer: Wt. of Sample Hammer: Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:	140 Split Barrel Ball Sampler	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2 3		IN. IN. IN. IN. IN.
Casing Size: Hollow Ster	3 1/4 m Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:	10.0'
Water Level Readings Date 3/21/08	Time	Depth of Hole 6.0'	Depth of Casing 4.0'		of Water	Elev. of Water

Pay Quantities:

Contract: 25-113-01

Boring Location: Sta. 135+51.74, 73' Lt. C.L.

2 1/2 in. Dia. Dry Sample Boring: No. of 2 in. Dia. Shelby Tubes:	10.0	Ft.;	3 Dia. U-Sample Boring: 3 No. of: U-Samples:	Ft.
2 1/2 in. Dia. Contin. Sample Boring:		Ft.;	Core Drilling in Rock:	Ft.

Boring Contractor: Walton Corporation Driller: Danny Taylor Helpers: A. Joseph

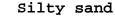
Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description Class./G.I. Remarks
	3/21/08	1	0.5'	6 6 9	Wet stiff gray clayey silt w/ fine to coarse A-4(4) 5" of topsoil. sand, trace of gravel.
		2	2.0'	11 12 16 20	Saturated medium dense gray silty fine to A-2-4(0)
3			4.0'		coarse sand w/ some gravel.
	-	3	4.0'	8 14 16 13	Saturated medium dense gray silty fine toA-2-4(0)coarse sand w/ some gravel.
6			6.0'		15" RECOVERY
		4	6.0'	8 10 8 7	Saturated medium dense gray silty fine to A-2-4(0) coarse sand, trace of gravel.
			8.0'		17" RECOVERY
9		5	8.0'	3 5 5 5	Saturated loose gray silty coarse to fine sand, trace of gravel.A-2-4(0)
			10.0'		24" RECOVERY
					Boring terminated at 10.0'
12					
15					

Symbol Description

Strata symbols



Silty low plasticity clay



DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 3/21/2008 using a 3 1/4-inch diameter continuous flight power auger. Rig is a ATV CME 45.
- 2. Groundwater levels recorded at the time of drilling. Boring backfilled upon completion.
- 3. Surveyed boring locations and elevations were provided by Century engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to I-95 **Contract:** 25-113-01

Boring No.: R3-009

Boring Location: Boring Surface Ele		Rt. C.L.	Ref	erence:			
Wt. of Casing Hammer: Wt. of Sample Hammer: Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:		Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2 3		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow Ste	3 1/4 m Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:		16.0'
Water Level Readings Date 3/21/08	Time	Depth of Hole	Depth of Casing 8.0'		of Water .0'	Elev. o	of Water

Pay Quantities:

2 1/2 in. Dia. Dry Sample Boring: No. of 2 in. Dia. Shelby Tubes:	16.0	Ft.;	3 Dia. U-Sample Boring: No. of: U-Samples:	3 Ft .	•
2 1/2 in. Dia. Contin. Sample Boring:			Core Drilling in Rock:	Ft.	

Boring Contractor: Walton Corporation Driller: Danny Taylor Helpers: A. Joseph

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description Class./G.I. Remarks
	3/21/08	1	0.5'	3 3 5	Wet firm brown clayey silt w/ some coarse to A-4(3) 4" of topsoil. fine sand, trace of gravel.
		2	2.0'	5 7 7 10	Wet medium dense brown silty coarse to fine A-2-4(0)
3			4.0'		sand, trace of gravel.
		3	4.0'	5 9 11 11	Wet medium dense light brown silty fine to A-2-4(0) coarse sand.
6			6.0'		15" RECOVERY
		4	6.0'	6 8 8 6	Saturated medium dense light brown silty fine A-2-4(0) to coarse sand.
			8.0'		18" RECOVERY
9		5	8.0'	2 5 6 5	Saturated medium dense light brown silty fine sand w/ some coarse sand, trace of gravel.A-2-4(0)
			10.0'		17" RECOVERY
		6	10.0'	3 4 5 7	Saturated loose gray silty fine to coarse sand, A-2-4(0) trace of gravel.
12			12.0'		16" RECOVERY
		7	12.0'	2 4 6 8	Saturated loose gray silty fine to coarse sand, A-2-4(0) trace of gravel.
		8	14.0' 14.0'	6	19" RECOVERY
15				6 7 10 10	Saturated medium dense gray coarse to fine A-1-b sand and gravel w/ some silt.
			16.0'		18" RECOVERY Boring terminated at 16.0'
Boma					

Symbol Description

Strata symbols



Low plasticity clay

Silty sand

DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 3/21/2008 using a 3 1/4-inch diameter continuous flight power auger. Rig is a ATV CME 45.
- 2. Groundwater levels recorded at the time of drilling and rechecked the following day.
- 3. Surveyed boring locations and elevations were provided by Century engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to I-95

Boring No.: R3-010

Boring Surface Ele	ev.: + 63.59'		Ref	erence:		
Wt. of Casing Hammer: Wt. of Sample Hammer Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:	: 140 Split Barrel	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2 3		IN. IN. IN. IN. IN.
Casing Size: Hollow Ste	3 1/4 m Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:	10.0'
Water Level Readings Date 3/21/08	Time	Depth of Hole 10.0'	Depth of Casing 8.0'		of Water	Elev. of Water

Pay Quantities:

Contract: 25-113-01

Boring Location: Sta. 150+50.23, 45' Lt. C.L.

2 1/2 in. Dia. Dry Sample Boring: No. of 2 in. Dia. Shelby Tubes:	10.0	Ft.;	3 No. of:	Dia. U-Sample Boring: U-Samples:	3	Ft.
2 1/2 in. Dia. Contin. Sample Boring:		Ft.;	Core Drillin			Ft.

Boring Contractor: Walton Corporation Driller: Danny Taylor Helpers: A. Joseph

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description Class./G.I. Remarks
	3/21/08	1	0.5' 2.0'	1 2 2	Wet soft brown clayey silt w/ some fine sand, A-4(4) 4" of leaf litter/topsoil. trace of coarse sand. 18" RECOVERY
	_	2	2.0'	3 6 8	Wet medium dense brown silty fine to coarse A-2-4(0)
3			4.0'		sand, trace of gravel.
		3	4.0'	4 5 9 10	Wet medium dense brown fine sand w/ some A-2-4(0) clay and coarse sand, trace of gravel.
6			6.0'		20" RECOVERY
		4	6.0'	11 9 10 10	Wet medium dense brown fine to coarse sand A-2-4(0) w/ some silt, trace of gravel.
			8.0'		19" RECOVERY
9		5	8.0'	6 8 7 9	Wet medium dense brown coarse to fine sand w/ some gravel and silt.A-1-b
			10.0'		19" RECOVERY
					Boring terminated at 10.0'
12					
15					

Symbol Description

Strata symbols



Silty low plasticity clay



Silty sand

F S

Poorly graded clayey silty sand

DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 3/21/2008 using a 3 1/4-inch diameter continuous flight power auger. Rig is a ATV CME 45.
- 2. Groundwater levels recorded at the time of drilling. Boring backfilled upon completion.
- 3. Surveyed boring locations and elevations were provided by Century engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to I-95 **Contract:** 25-113-01

Boring Location c. a 155±/0.71 58' ₽t C I

Boring Location:	Sta. 155+49.71, 58' I	Rt. C.L.					
Boring Surface El	ev.: + '74.25		Ref	erence:			
Wt. of Casing Hammer Wt. of Sample Hamme Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:	r: 140 Split Barrel	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2 3		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow St	3 1/4 em Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:	10	0.0'
Water Level Readings Date 3/20/08	Time	Depth of Hole 10.0'	Depth of Casing 10.0'		of Water 9.9'	Elev. of Water	

Pay Quantities:

2 1/2 in. Dia. Dry Sample Boring: No. of 2 in. Dia. Shelby Tubes:	10.0	Ft.;	3 Dia. U-Sample Boring: No. of: U-Samples:	3	Ft.
2 1/2 in. Dia. Contin. Sample Boring:		Ft.;	Core Drilling in Rock:		Ft.
Devine Contractory Walter Comparis					

Boring Contractor: Walton Corporation Driller: Danny Taylor Helpers: A. Joseph

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description Class./G.I. Remarks
	3/20/08	1	0.5'	2 2 3	Wet firm brown silt w/ some clay and fine A-4(2) 4" of leaf litter/topsoil. sand, trace of coarse sand, 17" RECOVERY
		2	2.0'	2 4 8 10	Wet stiff brown clayey fine sandy silt w/ A-4(2)
3			4.0		some coarse sand.
		3	4.0'	5 12 8 9	Wet medium dense brown silty coarse to fine A-2-4(0) sand, trace of gravel.
6			6.0'		16" RECOVERY
		4	6.0'	10 9 10 7	Wet medium dense brown fine to coarse sand A-2-4(0) w/ some silt, trace of gravel.
			8.0'		17" RECOVERY
9		5	8.0'	7 7 7 7	Wet medium dense brown coarse to fine sand w/ some silt and gravel.A-1-b
			10.0'		17" RECOVERY
					Boring terminated at 10.0'
12					
15					

Symbol Description

Strata symbols



Silty low plasticity clay

Low plasticity clay



Silty sand

DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 3/20/2008 using a 3 1/4-inch diameter continuous flight power auger. Rig is a ATV CME 45.
- 2. Groundwater levels recorded at the time of drilling. Boring backfilled upon completion.
- 3. Surveyed boring locations and elevations were provided by Century engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to I-95 **Contract:** 25-113-01

Boring Location: Sta. 161+05.71, 62' Rt. C.L.

Boring No.: R3-012

Boring Surface Ele	V.: + 77.00'		Ref	erence:		
Wt. of Casing Hammer: Wt. of Sample Hammer: Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:		Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2 3		IN. IN. IN. IN. IN.
Casing Size: Hollow Ster	3 1/4 m Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:	16.0
Water Level Readings Date 3/20/08	Time	Depth of Hole 14.0'	Depth of Casing 12.0'	Depth of 11.		Elev. of Water

Pay Quantities:

2 1/2 in. Dia. Dry Sample Boring: No. of 2 in. Dia. Shelby Tubes:	16.0	Ft.;	3 Dia. U-Sample Boring: 3 No. of: U-Samples:	Ft.
2 1/2 in. Dia. Contin. Sample Boring:		Ft.;	Core Drilling in Rock:	Ft.

Boring Contractor: Walton Corporation Driller: Danny Taylor Helpers: A. Joseph

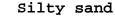
Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description Class./G.I. Remarks	
	3/20/08	1	1.0' 2.0'	6 5	Wet stiff brown clayey silt w/ some fine to coarse sand, trace of gravel. 12" RECOVERY	
3		2	2.0'	4 4 5 6	Wet loose brown silty fine to coarse sand,	
	N		4.0'		trace of gravel.	
		3	4.0'	6 7 7 8	Wet medium dense brown silty fine to coarse A-2-4(0) sand, trace of gravel.	
6			6.0'		19" RECOVERY	
		4	6.0	5 5 5 6	Wet loose orange-brown and gray silty fine to A-2-4(0) coarse sand, trace of gravel.	
			8.0'		19" RECOVERY	
9		5	8.0'	6 7 8 8	Wet medium dense orange-brown and gray silty fine to coarse sand, trace of gravel.A-2-4(0)	
			10.0'		18" RECOVERY	
		6	10.0'	5 6 6 6	Wet medium dense orange-brown coarse to fine sand w/ some silt, trace of gravel.A-2-4(0)	
12			12.0'		16" RECOVERY	
		7	12.0'	7 7 10 6	Saturated medium dense orange-brown fine to coarse sand w/ some gravel and silt.A-1-b	
			14.0'		16" RECOVERY	
15		8	14.0'	2 2 4 4	Saturated loose orange-brown silty fine sand w/ some coarse sand.A-2-4(0)	
			16.0'		18" RECOVERY	
					Boring terminated at 16.0'	
Boma						

Symbol Description

Strata symbols



Silty low plasticity clay



DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 3/20/2008 using a 3 1/4-inch diameter continuous flight power auger. Rig is a ATV CME 45.
- 2. Groundwater levels recorded at the time of drilling. Boring backfilled upon completion.
- 3. Surveyed boring locations and elevations were provided by Century engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to I-95 Contract: 25-113-01

Boring Location: Sta. 165+61.92, 54' Rt. C.L.

Boring Surface Ele	ev.: + 72.10'		Ref	erence:		
Wt. of Casing Hammer Wt. of Sample Hammer Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:	: 140 Split Barrel	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2 3		IN. IN. IN. IN. IN.
Casing Size: Hollow Ste	3 1/4 em Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:	10.0'
Water Level Readings Date 3/20/08	Time	Depth of Hole 10.0'	Depth of Casing 10.0'		of Water .8'	Elev. of Water

Pay Quantities:

2 1/2 in. Dia. Dry Sample Boring: No. of 2 in. Dia. Shelby Tubes:	10.0	Ft.;	3 Dia. U-Sample Boring: 3 No. of: U-Samples:	Ft.
2 1/2 in. Dia. Contin. Sample Boring:		Ft.;	Core Drilling in Rock:	Ft.
Dealers Oraclass W11/ C				

Boring Contractor: Walton Corporation Driller: Danny Taylor Helpers: A. Joseph

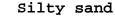
Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description Class./G.I. Remarks
	3/20/08	1 2	1.0' 2.0' 2.0'	2 2 4 6 9 11	Wet soft gray clayey silt w/ some fine sand, trace of coarse sand.A-4(4)9" of leaf litter/topsoil.12" RECOVERYA-4(2)
3	N		4.0' 4.0'		Wet stiff gray silt w/ some clay and fine sand, trace of coarse sand and gravel. 18" RECOVERY
		3		8 15 15 17	Wet medium dense light brown coarse to fine A-2-4(0) sand w/ some silt, trace of gravel.
6		4	6.0' 6.0'	9 17 18 11	17" RECOVERY Wet dense orange-brown fine to coarse sand W some silt, trace of gravel.
			8.0'		19" RECOVERY
9		5	8.0'	6 8 7 8	Saturated medium dense brown silty fine sand A-2-4(0) w/ some coarse sand.
			10.0'		23" RECOVERY
					Boring terminated at 10.0'
12					
15					

Symbol Description

Strata symbols



Silty low plasticity clay



DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 3/20/2008 using a 3 1/4-inch diameter continuous flight power auger. Rig is a ATV CME 45.
- 2. Groundwater levels recorded at the time of drilling. Boring backfilled upon completion.
- 3. Surveyed boring locations and elevations were provided by Century engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to I-95 Contract: 25-113-01

Boring Location: Sta. 170+67.78, 43' Rt. C.L.

Boring Surface El	ev.: + 70.91'		Reference:			
Wt. of Casing Hammer Wt. of Sample Hamme Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:	r: 140 Split Barrel	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2 3		IN. IN. IN. IN. IN. IN.
Casing Size: Hollow Ste	3 1/4 em Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:	10.0'
Water Level Readings Date 3/20/08	Time	Depth of Hole 10.0'	Depth of Casing 8.0'		of Water	Elev. of Water

Pay Quantities:

2 1/2 in. Dia. Dry Sample Boring: 10.0	Ft.;	3 Dia. U-Sample Boring: 3	Ft.
No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring:	; Ft.;	No. of: U-Samples: Core Drilling in Rock:	Ft.
Dering Contractory W 10 C			

Boring Contractor: Walton Corporation Driller: Danny Taylor Helpers: A. Joseph

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description Class./G.I. Remarks	
	3/20/08	1	0.5'	2 3 6	Moist stiff gray clay, trace of fine sand. A-6(18) 8" of topsoil.	
		2	2.0'	9 9 9 15	Moist very stiff gray silt w/ some fine sand, A-4(0)	
3		3	4.0'		trace of coarse sand and gravel.	
	-	-9	4.0	12 17 17 14	Moist dense brown coarse to fine sand w/ A-1-b some silt, trace of gravel.	
6			6.0'		16" RECOVERY	
		4	6.0'	13 11 10 13	Wet medium dense brown silty fine sand w/ A-2-4(0) some coarse sand.	
			8.0'		17" RECOVERY	
9		5	8.0'	5 5 8 7	Saturated medium dense brown fine to coarse A-2-4(0) sand w/ some silt.	
			10.0'		17" RECOVERY	
					Boring terminated at 10.0'	
12						
15						

Symbol Description

Strata symbols

Low plasticity clay

Silt

Silty sand

DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 3/20/2008 using a 3 1/4-inch diameter continuous flight power auger. Rig is a ATV CME 45.
- 2. Groundwater levels recorded at the time of drilling. Boring backfilled upon completion.
- 3. Surveyed boring locations and elevations were provided by Century engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to I-95

Boring No.: R3-015

Boring Surface Ele	V.: + 71.93'		Reference:					
Wt. of Casing Hammer: Wt. of Sample Hammer: Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:	140 Split Barrel Ball Sampler	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2 3		IN. IN. IN. IN. IN.		
Casing Size: Hollow Ster	3 1/4 m Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:	16.0'		
Water Level Readings Date 3/20/08	Time	Depth of Hole 14.0'	Depth of Casing 12.0'		of Water	Elev. of Water		

Pay Quantities:

Contract: 25-113-01

2 1/2 in. Dia. Dry Sample Boring: No. of 2 in. Dia. Shelby Tubes:	16.0	Ft.;	3 Dia. U-Sample Boring: 3	Ft.
2 1/2 in. Dia. Contin. Sample Boring:		Ft.;	No. of: U-Samples: Core Drilling in Rock:	Ft.
Dening Organization, WI 10 Const				

Boring Contractor: Walton Corporation Driller: Danny Taylor Helpers: A. Joseph

Boring Location: Sta. 175+53.40, 146' Rt. C.L.

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description Class./G.I. Remarks
	3/20/08	1	1.0' 2.0'	2 4	Moist firm brown clayey silt, trace of fine to coarse sand.
3		2	2.0'	4 11 12 14	12" RECOVERY A-2-4(0) Moist medium dense brown fine to coarse sand w/ some silt, trace of gravel. A-2-4(0)
			4.0	12	15" RECOVERY
		3	4.0'	13 23 22 18	Moist dense light brown silty fine to coarse A-2-4(0) sand.
6		4	6.0'	11	15" RECOVERY
		4	6.0'	11 12 14 14	Moist medium dense orange-brown coarse to fine sand w/ some gravel and silt.
			8.0'		17" RECOVERY
9		5	8.0'	6 8 8 8	Wet medium dense orange-brown coarse to fine sand and gravel w/ some silt.A-1-b
			10.0'		15" RECOVERY
		6	10.0'	4 4 5 6	Wet loose brown coarse to fine sand, trace of gravel and silt.
12		7	12.0' 12.0'	3	16" RECOVERY
		7	13.5'	3 4 6	Saturated loose brown coarse to fine sand w/ A-1-b some gravel, trace of silt. 18" RECOVERY
		7A	13.5'	4	Saturated soft brown fine sandy silt. A-4(0) 6" RECOVERY A-1-b
15		8	<u>14.0'</u> 14.0'	2 8 14 13	6" RECOVERY A-1-b Saturated medium dense brown gravel and fine sand w/ some silt and coarse sand.
			16.0'		8" RECOVERY
Poma	4				Boring terminated at 16.0'

Symbol Description

Strata symbols



Low plasticity clay

Silty sand



Well graded sand with silt



Poorly graded sand with silt

DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 3/20/2008 using a 3 1/4-inch diameter continuous flight power auger. Rig is a ATV CME 45.
- 2. Groundwater levels recorded at the time of drilling and rechecked the following day.
- 3. Surveyed boring locations and elevations were provided by Century engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to I-95

Boring No.: R3-016

Boring Surface Ele	V.: + 74.56'		Reference:					
Wt. of Casing Hammer: Wt. of Sample Hammer: Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:		Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2 3		IN. IN. IN. IN. IN.		
Casing Size: Hollow Ste	3 1/4 m Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:	16.0'		
Water Level Readings Date 3/7/08	Time	Depth of Hole 16.0'	Depth of Casing 14.0'		of Water 2.8'	Elev. of Water		

Pay Quantities:

Contract: 25-113-01

2 1/2 in. Dia. Dry Sample Boring: No. of 2 in. Dia. Shelby Tubes:	16.0	Ft.;		Dia. U-Sample Boring:	3	Ft.
2 1/2 in. Dia. Contin. Sample Boring:		; Ft.;	No. of: Core Drilling i	U-Samples: in Rock:		Ft.

Boring Contractor: Walton Corporation Driller: Danny Taylor Helpers: D. Zmijewski

Boring Location: Sta. 180+50.00, 109' Lt. C.L.

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"		Sample Description	Class./G.I.	Remarks
	3/7/08	1	1.0' 2.0' 2.0'	2 4 4		Moist firm brown silt w/ some clay, trace of fine to coarse sand. 11" RECOVERY	A-4(4)	12" of culitvated soil.
3		2	2.0	4 7 8 7		Moist stiff brown fine sandy silt w/ some coarse sand, trace of clay and gravel.	A-4(0)	
		3	4.0' 4.0'	4		24" RECOVERY Moist medium dense brown fine to coarse	A-2-4(0)	
				4 10 11 7		sand w/ some clay, trace of gravel.		
6			6.0'			18" RECOVERY		
		4	6.0'	4 11 14 15	1	Moist medium dense light brown silty coarse to fine sand w/ some gravel.	A-1-b	
			8.0'			20" RECOVERY		
9		5	8.0'	11 15 12 12		Moist medium dense orange coarse to fine sand and gravel w/ some silt.	A-1-b	
			10.0'			19" RECOVERY		
		6	10.0'	11 12 12 11		Moist medium dense orange coarse to fine sand and gravel, trace of silt and clay.	A-1-b	
12			12.0'			19" RECOVERY		
		7	12.0'	11 11 11 12		Wet medium dense orange coarse to fine sand w/ some gravel, trace of silt.	A-1-b	
		8	14.0' 14.0'	7		21" RECOVERY	A 0 1(0)	
15		o	14.0	7 7 11 12		Wet medium dense orange fine to coarse sand w/ some gravel and silt.	A-2-4(0)	
			16.0'			18" RECOVERY		
					n-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1	Boring terminated at 16.0'		
Bomo	L				1			1

Symbol Description

Strata symbols

Silty low plasticity clay

Silt

Poorly graded clayey silty sand



10 Silty sand

Well graded sand with silt

DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 3/7/2008 using a 3 1/4-inch diameter continuous flight power auger. Rig is a ATV CME 45.
- 2. Groundwater levels recorded at the time of drilling. Boring backfilled upon completion.
- 3. Surveyed boring locations and elevations were provided by Century engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to I-95 **Contract:** 25-113-01

Boring Location: Sta. 185+50.00, 51' Rt. C.L.

Boring N	0.:	R3-0
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Boring Surface Ele	V.: + 68.51'		Reference:					
Wt. of Casing Hammer: Wt. of Sample Hammer Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:		Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2 3		IN. IN. IN. IN. IN. IN.		
Casing Size: Hollow Ste	3 1/4 m Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:		10.0'	
Water Level Readings Date 3/7/08	Time	Depth of Hole	Depth of Casing 8.0'		of Water	Elev. of Wa	ter	

Pay Quantities:

2 1/2 in. Dia. Dry Sample Boring: No. of 2 in. Dia. Shelby Tubes:	10.0	Ft.;	3 Dia. U-Sample Boring: 3 No. of: U-Samples:	Ft.
2 1/2 in. Dia. Contin. Sample Boring:		Ft.;	Core Drilling in Rock:	Ft.
Dering Contractory W11 C				

Boring Contractor: Walton Corporation Driller: Danny Taylor Helpers: D. Zmijewski

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description Class./G.I. Remarks
	3/7/08	1	1.0' 2.0'	3 4	Wet firm gray clayey silt, trace of coarse to A-4(8) 10" of cultivated soil. fine sand.
3		2	2.0'	3 5 7 10	12" RECOVERY A-4(4) Wet stiff gray clayey silt, trace of fine to A-4(4)
	N		4.0'	10	coarse sand.
		3	4.0	14 23 19 16	Wet dense brown coarse to fine sand w/ some A-1-b
				16	silt, trace of gravel.
6		4	6.0' 6.0'	12 12 15 13	17" RECOVERY Wet medium dense brown coarse to fine sand A-1-b
				13	w some silt, trace of gravel.
		5	8.0' 8.0'	6 6 7 8	21" RECOVERY Wet medium dense brown fine to coarse sand A-2-4(0)
9				7 8	w/ some silt, trace of gravel.
			10.0'		18" RECOVERY
					Boring terminated at 10.0'
12					
15					
L	-				

Symbol Description

Strata symbols

Low plasticity clay

Silty low plasticity clay



Silty sand

DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 3/7/2008 using a 3 1/4-inch diameter continuous flight power auger. Rig is a ATV CME 45.
- 2. Groundwater levels recorded at the time of drilling. Boring backfilled upon completion.
- 3. Surveyed boring locations and elevations were provided by Century engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to I-95

Boring No.: R3-018

Boring Surface Ele	V.: + 64.78'		Reference:			
Wt. of Casing Hammer: Wt. of Sample Hammer Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:		Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2 3		IN. IN. IN. IN. IN.
Casing Size: Hollow Ste	3 1/4 m Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:	10.0'
Water Level Readings Date 3/7/08	Time	Depth of Hole	Depth of Casing 8.0'		of Water .6'	Elev. of Water

Pay Quantities:

Contract: 25-113-01

Boring Location: Sta. 190+50.00, 45' Lt. C.L.

2 1/2 in. Dia. Dry Sample Boring: 10 No. of 2 in. Dia. Shelby Tubes:	.0 Ft.;	3 Dia. U-Sample Boring: No. of: U-Samples:	3 Ft.
2 1/2 in. Dia. Contin. Sample Boring:	Ft.;	Core Drilling in Rock:	Ft.

Boring Contractor: Walton Corporation Driller: Danny Taylor Helpers: D. Zmijewski

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description Class./G.I.	Remarks
	3/7/08	1	1.0' 2.0'	2 4	Moist firm brown and gray clayey silt w/ A-4(6) some fine sand, trace of coarse sand and	11" of cultivated soil.
3		2	2.0'	4 7 10 13	gravel. 12" RECOVERY A-4(9)	
	N		4.0'	13	Moist very stiff gray and brown mottled clayey silt, trace of coarse to fine sand.	
		3	4.0	4 6 8 11	Moist stiff gray and brown mottled clayey silt, A-4(9) trace of fine to coarse sand.	NG
				11		
6		4	6.0' 6.0'	15 20 13 12	24" RECOVERY Moist dense orange gravel and coarse sand w/ A-1-b	
				12	some fine sand and silt.	
		5	8.0' 8.0'	9 10 12 13	12" RECOVERY Wet very stiff orange coarse sandy silt w/ A-4(0)	
9				12 13	some gravel, trace of fine sand.	
			10.0'		18" RECOVERY Boring terminated at 10.0'	
					Boring terminated at 10.0	
12						
15						

Symbol Description

Strata symbols



silt

Low plasticity clay



Silty sand

DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 3/7/2008 using a 3 1/4-inch diameter continuous flight power auger. Rig is a ATV CME 45.
- 2. Groundwater levels recorded at the time of drilling. Boring backfilled upon completion.
- 3. Surveyed boring locations and elevations were provided by Century engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

Boring	No.:	R3-019
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Boring Surface Ele	V.: + 62.23'		Reference:				
Wt. of Casing Hammer: Wt. of Sample Hammer: Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:		Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2 3		IN. IN. IN. IN. IN.	
Casing Size: Hollow Ste	3 1/4 m Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:	16.0'	
Water Level Readings Date 3/7/08	Time	Depth of Hole 12.0'	Depth of Casing		of Water	Elev. of Water	

Pay Quantities:

Contract: 25-113-01

2 1/2 in. Dia. Dry Sample Boring: No. of 2 in. Dia. Shelby Tubes:	16.0	Ft.;	3 No. of: 3	Dia. U-Sample Boring: U-Samples:	3	Ft.
2 1/2 in. Dia. Contin. Sample Boring:		Ft.;	Core Drilling			Ft.

Boring Contractor: Walton Corporation Driller: Danny Taylor Helpers: D. Zmijewski

F.A. Project: U.S. 301, Maryland State Line to I-95

Boring Location: Sta. 195+50.00, 233' Lt. C.L.

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description Class./G.I. R	emarks
	3/7/08	1	1.0' 2.0'	5 10	Moist stiff brown clayey fine sandy silt w/ A-4(1) 10" of culit some coarse sand, trace of gravel.	vated soil.
3		2	2.0'	8 8 10	I2" RECOVERY A-4(0) Moist very stiff brown fine sandy silt w/ some coarse sand, gravel, and clay. A-4(0)	
			4.0' 4.0'	2	21" RECOVERY	
		3	4.0	2 5 8 12	Moist medium dense gray and orange gravel A-1-b and coarse to fine sand w/ some silt.	
6			6.0'		13" RECOVERY	
		4	6.0'	11 11 11 8	Wet medium dense orange coarse to fine A-1-b sand, trace of silt and gravel.	
			8.0'		21" RECOVERY	
9		5	8.0'	5 7 7 8	Saturated stiff orange fine to coarse sandy silt, A-4(0) trace of gravel.	
			10.0'		16" RECOVERY	
		6	10.0'	3 4 6 7	Saturated loose orange coarse to fine sand, A-1-b trace of silt and gravel. Itace of silt and gravel.	
12			12.0'		21" RECOVERY	
		7	12.0'	4 7 10 11	Saturated medium dense brown coarse to fine A-1-b sand w/ some silt, trace of gravel. A-1-b	
			14.0'		21" RECOVERY	
15		8	14.0'	WOH 2 3 5	Saturated loose brown silty fine to coarse A-2-4(0) sand, trace of gravel.	
			16.0'	5	23" RECOVERY	
			10.0		Boring terminated at 16.0'	
Boma						

Symbol Description

Strata symbols

Low plasticity clay

Poorly graded clayey silty sand



Silty sand

10 Poorly graded sand with silt

Well graded sand with silt

DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 3/7/2008 using a 3 1/4-inch diameter continuous flight power auger. Rig is a ATV CME 45.
- 2. Groundwater levels recorded at the time of drilling. Boring backfilled upon completion.
- 3. Surveyed boring locations and elevations were provided by Century engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to I-95 **Contract:** 25-113-01

Boring Location: Sta. 200+50.00, 168' Rt. C.L.

Boring Surface Ele	V.: + 63.92'		Reference:					
Wt. of Casing Hammer: Wt. of Sample Hammer: Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:		Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2 3		IN. IN. IN. IN. IN.		
Casing Size: Hollow Ster	3 1/4 m Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:	16.0'		
Water Level Readings Date 3/7/08	Time	Depth of Hole 12.0'	Depth of Casing 10.0'		of Water	Elev. of Water		

Pay Quantities:

2 1/2 in. Dia. Dry Sample Boring: No. of 2 in. Dia. Shelby Tubes:	16.0	Ft.;	3 No. of: 3	Dia. U-Sample Boring: U-Samples:	3	Ft.
2 1/2 in. Dia. Contin. Sample Boring:		Ft.;	Core Drilling			Ft.

Boring Contractor: Walton Corporation Driller: Danny Taylor Helpers: D. Zmijewski

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description Class./G.I. Remarks
	3/7/08	1	1.0' 2.0'	4 4	Moist firm brown and gray mottled clay, trace A-6(14) 12" of cultivated soil. of fine to coarse sand and gravel.
		2	2.0'	7 12 13 10	Moist medium dense brown fine to coarse A-2-4(0)
3				10	sand w/ some clay and gravel.
			4.0'	1	15" RECOVERY
		3	4.0	4 6 12 15	Moist medium dense light brown clayey fine A-2-6(0) sand w/ some coarse sand, trace of gravel.
				15	
6		4	6.0' 6.0'	13	16" RECOVERY
		4	0.0	13 17 13 11	Moist medium dense light brown and orange A-1-b coarse to fine sand, trace of silt and gravel.
			8.0'		21" RECOVERY
		5	8.0'	6 4 5 4	Wet loose brown silty fine to coarse sand, A-2-4(0)
9				4	trace of gravel.
			10.0'		21" RECOVERY
		6	10.0'	4 4	Saturated loose brown fine to coarse sand w/ A-2-4(0)
		6A	11.0' 11.0'	2 10	some silt, trace of gravel.
12		0/1	12.0'	10	Saturated stiff gray silt w/ some coarse to fine A-4(0)
-12		7	12.0'	8 10	sand and gravel. A-2-4(0)
				8 10	Saturated medium dense orange silty fine to
			14.0'		coarse sand, trace of gravel. 23" RECOVERY
		8	14.0'	1 2	Saturated loose orange silty fine to coarse A-2-4(0)
15				1 2 4 3	sand, trace of gravel.
			16.0'		15" RECOVERY
			10.0		Boring terminated at 16.0'
	·				

Symbol Description

Strata symbols

Low plasticity clay

Poorly graded clayey silty sand



Clayey sand

Silty sand

Poorly graded sand with silt



Silt

DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 3/7/2008 using a 3 1/4-inch diameter continuous flight power auger. Rig is a ATV CME 45.
- 2. Groundwater levels recorded at the time of drilling. Boring backfilled upon completion.
- 3. Surveyed boring locations and elevations were provided by Century engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to I-95 **Contract:** 25-113-01

Boring Location: Sta. 205+50.00, 45' Lt. C.L.

Boring Surface Ele	ev.: + 67.48'		Reference:			
Wt. of Casing Hammer: Wt. of Sample Hammer: Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:		Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2 3		IN. IN. IN. IN. IN.
Casing Size: Hollow Ste	3 1/4 m Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:	10.0'
Water Level Readings Date 3/7/08	Time	Depth of Hole	Depth of Casing 8.0'		of Water Dry	Elev. of Water

Pay Quantities:

2 1/2 in. Dia. Dry Sample Boring: No. of 2 in. Dia. Shelby Tubes:	10.0	Ft.; :	3 Dia. U-Sample Boring: 3 No. of: U-Samples:	Ft.
2 1/2 in. Dia. Contin. Sample Boring:		Ft.;	Core Drilling in Rock:	Ft.
Dealars Orantaratan IVI Ic. C				

Boring Contractor: Walton Corporation Driller: Danny Taylor Helpers: D. Zmijewski

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description Class./G.I. Remarks
	3/7/08	1	1.0' 2.0'	2 3	Moist firm brown clayey silt, trace of fine to A-4(6) 10" of cultivated soil.
		2	2.0'	3 4 6 10	Moist stiff brown clayey silt w/ some fine
3				10	sand, trace of coarse sand and gravel.
			4.0'		24" RECOVERY
		3	4.0	4 10 10 10	Moist medium dense brown fine to coarse A-2-4(0) sand w/ some silt and gravel.
6			6.0'		18" RECOVERY
		4	6.0	9 10 44 42	Moist very dense brown silty coarse sand and A-2-4(0) gravel w/ some fine sand.
				42	
		5	8.0' 8.0'	15	14" RECOVERY
9		5	0.0	15 15 15 13	Moist medium dense light brown and brown A-1-a gravel and coarse sand w/ some silt, trace of
				15	Cine and
			10.0'		19" RECOVERY
					Boring terminated at 10.0'
12					
15					
10					

Symbol Description

Strata symbols



Silty low plasticity clay



Low plasticity clay



Silty sand

Poorly graded sand with silt

DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 3/7/2008 using a 3 1/4-inch diameter continuous flight power auger. Rig is a ATV CME 45.
- 2. Groundwater levels recorded at the time of drilling. Boring backfilled upon completion.
- 3. Surveyed boring locations and elevations were provided by Century engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to I-95 **Contract:** 25-113-01

Boring Location: Sta. 210+50.00, 99' Rt. C.L.

Boring Surface Ele	V.: + 68.89'		Ref			
Wt. of Casing Hammer: Wt. of Sample Hammer: Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:		Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2 3		IN. IN. IN. IN. IN.
Casing Size: Hollow Ste	3 1/4 m Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:	10.0'
Water Level Readings Date 3/7/08	Time	Depth of Hole	Depth of Casing 8.0'		of Water	Elev. of Water

Pay Quantities:

2 1/2 in. Dia. Dry Sample Boring: No. of 2 in. Dia. Shelby Tubes:	10.0	Ft.;	3 Dia. U-Sample Boring: 3 No. of: U-Samples:	Ft.
2 1/2 in. Dia. Contin. Sample Boring:		Ft.;	Core Drilling in Rock:	Ft.

Boring Contractor: Walton Corporation Driller: Danny Taylor Helpers: D. Zmijewski

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description Class./G.I. Remarks
	3/7/08	1	1.0' 2.0'	3 4	Moist firm brown clay w/ some fine sand, A-6(7) 10" of cultivated soil. trace of coarse sand.
3		2	2.0'	3 4 7 9	Moist medium dense brown silty fine to
Ū	N		4.0'	9	coarse sand w/ some gravel.
		3	4.0	8 19 19 12	Moist dense brown gravel and coarse to fine A-1-b sand w/ some silt.
6			6.0'		18" RECOVERY
		4	6.0	9 9 11 21	Moist medium dense brown silty coarse to fine sand w/ some gravel.A-2-4(0)
			8.0'		17" RECOVERY
9		5	8.0'	9 11 9 9	Moist medium dense brown coarse sand and A-1-b gravel w/ some silt and fine sand.
			10.0'		20" RECOVERY
					Boring terminated at 10.0'
12					
15					

Symbol Description

Strata symbols



Low plasticity clay

Silty sand

DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 3/7/2008 using a 3 1/4-inch diameter continuous flight power auger. Rig is a ATV CME 45.
- 2. Groundwater levels recorded at the time of drilling. Boring backfilled upon completion.
- 3. Surveyed boring locations and elevations were provided by Century engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to I-95

Boring No.: R3-023

Boring Surface Ele	V.: + 67.66'	+ 67.66' Reference:							
Wt. of Casing Hammer: Wt. of Sample Hammer Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:		Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2 3		IN. IN. IN. IN. IN.			
Casing Size: Hollow Ste	3 1/4 m Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:	16.0'			
Water Level Readings Date 3/7/08	Time	Depth of Hole 16.0'	Depth of Casing 14.0'		of Water 3.0'	Elev. of Water			

Pay Quantities:

Contract: 25-113-01

2 1/2 in. Dia. Dry Sample Boring: No. of 2 in. Dia. Shelby Tubes:	16.0	Ft.;	3 No. of:	Dia. U-Sample Boring: U-Samples:	3	Ft.
2 1/2 in. Dia. Contin. Sample Boring:		Ft.;	Core Drilling			Ft.

Boring Contractor: Walton Corporation Driller: Danny Taylor Helpers: D. Zmijewski

Boring Location: Sta. 215+50.00, 336' Lt. C.L.

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"		Sample Description	Class./G.I.	Remarks
	3/7/08	1	1.0' 2.0'	4 4		Moist firm light brown clay, trace of fine to coarse sand.	A-6(11)	12" of cultivated soil.
		2	2.0'	3 6		Moist loose light brown silty coarse to fine	A-1-b	
3		2A	3.0' 3.0'	12		\neg sand w/ some gravel.	A-6(10)	
			4.0'	12		12" RECOVERY	A 0(10)	
		3	4.0	4 8 9 8		sand, trace of coarse sand and gravel. 10" RECOVERY	A-2-4(0)	J
						Moist medium dense orange silty coarse to		
6		4	6.0' 6.0'	10		fine sand, trace of gravel.	A-1-b	
		-	0.0	10 8 9 15		Moist medium dense orange coarse sand w/ some silt, fine sand, and gravel.	A-1-0	
			8.0'			23" RECOVERY		
		5	8.0'	16 21		Moist dense brown and light brown gravel w/	A-1-a	
9				16 21 23 18		some coarse to fine sand, trace of silt.		
			10.0'			14" RECOVERY		
		6	10.0'	12 23 9 10		Moist dense brown and light brown coarse to	A-1-b	
				10		fine sand and gravel, trace of silt.		
12			12.0'			20" RECOVERY		
		7	12.0'	7 7 7 7 7		Wet medium dense light brown coarse to fine	A-1-b	
				7		sand w/ some silt, trace of gravel.		
			14.0'		111111111 111111111 1111111111	15" RECOVERY		
		8	14.0'	6 6 6 8		Wet medium dense light brown coarse to fine	A-1-b	
15				6 8	1:1:1:1:1:1:1:1:1:1:1:1:1:1:1:1:1:1:1:	sand, trace of silt and gravel.		
			16.0'		1:1:1:1:1:1:1:1:1:1:1:1:1:1:1:1:1:1:1:	19" RECOVERY		
			10.0			Boring terminated at 16.0'		
Domo					•			•

Symbol Description

Strata symbols



Low plasticity clay

Silty sand



Poorly graded gravel with silt



Description not given for: ":=DG3"



Poorly graded sand with silt



Well graded sand with silt

DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 3/7/2008 using a 3 1/4-inch diameter continuous flight power auger. Rig is a ATV CME 45.
- 2. Groundwater levels recorded at the time of drilling. Boring backfilled upon completion.
- 3. Surveyed boring locations and elevations were provided by Century engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to I-95 **Contract:** 25-113-01

Boring Location: Sta. 220+51.62, 169' Rt. C.L.

Boring Surface I	Elev.: + 71.04'	1.04' Reference:							
Wt. of Casing Hamm Wt. of Sample Hamn Type of: D-Sample S-Sample U-Sample Core Bit:	her: 140 er: Split Barrel er: er: Ball Sampler	Lbs.Average Fall:Lbs.Average Fall:O.D.O.D. of Sampler:O.D.O.D. of Samp. Tube:O.D.O.D. of Samp. Tube:O.D.O.D. of Samp. Tube:O.D.O.D. of Rock Core:				IN. IN. IN. IN. IN. IN.			
Casing Size: Hollow S	3 1/4 Stem Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:	16.0'			
Water Level Reading Date 3/7/08	ls Time	Depth of Hole 16.0'	Depth of Casing 14.0'		of Water 5.9'	Elev. of Water			

Pay Quantities:

2 1/2 in. Dia. Dry Sample Boring: No. of 2 in. Dia. Shelby Tubes:	16.0	Ft.;	3 No. of:	Dia. U-Sample Boring: U-Samples:	3	Ft.
2 1/2 in. Dia. Contin. Sample Boring:		Ft.;	Core Drilling			Ft.

Boring Contractor: Walton Corporation Driller: Danny Taylor Helpers: D. Zmijewski

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
	3/7/08	1	1.0' 2.0'	2 3	Moist firm brown clayey silt, trace of fine to coarse sand.	A-4(8)	10" of cultivated soil.
3		2	2.0' 3.0'	2 3	Moist firm brown clayey silt w/ some fine to	A-4(5)	
	N	2A	3.0' 4.0'	79	coarse sand.	A-1-b	
		3	4.0'	4 11 11 11	Moist medium dense brown coarse to fine sand w/ some gravel and silt. 7" RECOVERY	A-2-4(0)	UG
6			6.0'		Moist medium dense brown silty coarse to fine sand, trace of gravel.		
		4	6.0'	14 19 16 15	19" RECOVERY Moist dense orange and light brown gravel and fine to coarse sand w/ some silt.	A-1-b	
			8.0'		19" RECOVERY		
9		5	8.0'	9 14 12 10	Moist medium dense orange and light brown silty fine sand and gravel w/ some coarse sand.	A-2-4(0)	
			10.0'	-	15" RECOVERY		
		6	10.0'	5 7 7 6	Moist medium dense light brown silty coarse to fine sand w/ some gravel.	A-1-b	
12		7	12.0' 12.0'	8 19	22" RECOVERY Moist medium dense orange coarse sand and	A-1-b	
			14.0'	19 11 11	gravel w/ some fine sand, trace of gravel.		
		8	14.0'	4 7	Wet medium dense orange coarse sand w/	A-1-b	
15				4 7 7 6	some silt and fine sand, trace of gravel.		
			16.0'		20" RECOVERY		
					Boring terminated at 16.0'		

Symbol Description

Strata symbols



10 10 10 10 10 10 10 10 10 10 10 10 Low plasticity clay

Silty sand

Well graded sand with silt

DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 3/7/2008 using a 3 1/4-inch diameter continuous flight power auger. Rig is a ATV CME 45.
- 2. Groundwater levels recorded at the time of drilling. Boring backfilled upon completion.
- 3. Surveyed boring locations and elevations were provided by Century engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to I-95 Contract: 25-113-01

Boring Location: Sta. 225+49.55, 45' Lt. C.L.

Boring Surface Ele	Y.: + 73.88'	Reference:							
Wt. of Casing Hammer: Wt. of Sample Hammer: Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:		Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2 3		IN. IN. IN. IN. IN.			
Casing Size: Hollow Ste	3 1/4 m Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:	10.0'			
Water Level Readings Date 3/6/08	Time	Depth of Hole	Depth of Casing 8.0'		of Water Dry	Elev. of Water			

Pay Quantities:

2 1/2 in. Dia. Dry Sample Boring: 10.0 No. of 2 in. Dia. Shelby Tubes:	Ft.;	3 Dia. U-Sample Boring: 3 No. of: U-Samples:	Ft.
2 1/2 in. Dia. Contin. Sample Boring:	Ft.;	Core Drilling in Rock:	Ft.
Devine Contractory W10 C			

Boring Contractor: Walton Corporation Driller: Danny Taylor Helpers: D. Zmijewski

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description Class./G.I. Remarks
	3/6/08	1	0.5'	2 2 3	Wet firm brown clayey silt, trace of fine to A-4(7) 8" of cultivated soil. coarse sand.
		2	2.0'	3 3 4 7	Wet firm brown clayey fine sandy silt, trace A-4(5)
3		3	4.0'		of coarse sand.
		-5	4.0	4 5 10 9	Wet medium dense brown silty fine to coarse A-2-4(0) sand, trace of gravel.
6			6.0'		16" RECOVERY
		4	6.0'	5 8 10 11	Wet medium dense brown silty fine to coarse A-2-4(0) sand, trace of gravel.
			8.0'		13" RECOVERY
9		5	8.0'	8 11 10 12	Wet medium dense brown fine sand w/ someA-2-4(0)silt and coarse sand, trace of gravel.
			10.0'		18" RECOVERY
					Boring terminated at 10.0'
12					
15					

Symbol Description

Strata symbols



Low plasticity clay

Silty sand

DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 3/7/2008 using a 3 1/4-inch diameter continuous flight power auger. Rig is a ATV CME 45.
- 2. Groundwater levels recorded at the time of drilling. Boring backfilled upon completion.
- 3. Surveyed boring locations and elevations were provided by Century engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to I-95 **Contract:** 25-113-01

Boring Location: Sta. 230+51.62, 169' Rt. C.L

During Location. Sta. $230+51.62, 109$	KI. C.L.				
Boring Surface Elev.: + 71.31'		Ref	erence:		
Wt. of Casing Hammer: Wt. of Sample Hammer: 140 Type of: D-Sampler: Split Barrel S-Sampler: U-Sampler: Ball Sampler Core Bit:	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2 3		IN. IN. IN. IN. IN. IN.
Casing Size: 3 1/4 Hollow Stem Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:	16.0'
Water Level Readings Date Time 3/4/08	Depth of Hole 16.0'	Depth of Casing 14.0'		of Water	Elev. of Water

Pay Quantities:

2 1/2 in. Dia. Dry Sample Boring: No. of 2 in. Dia. Shelby Tubes:	16.0	Ft.;	3 No. of: 3	Dia. U-Sample Boring: U-Samples:	3	Ft.
2 1/2 in. Dia. Contin. Sample Boring:		Ft.;	Core Drillin			Ft.
Devine Contractory W 1/ C /						

Boring Contractor: Walton Corporation Driller: Cesar Velasco Helpers: A. Joseph

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
	3/4/08	1	1.0' 2.0' 2.0'	5 5 3	Moist stiff brown silt w/ some clay, trace of fine to coarse sand and gravel. 12" RECOVERY	A-4(3)	14" of cultivated soil.
3			-	3 4 5 5	Moist stiff brown clayey silt, trace of fine to coarse sand and gravel.	A-4(0)	
		3	4.0' 4.0'	3 11 14 13	17" RECOVERY Moist medium dense light brown gravel and	A-1-b	
				14 13	coarse sand w/ some silt and fine sand.		
6		4	6.0' 6.0'	8 8 7 6	15" RECOVERY Moist medium dense light brown silty coarse	A-1-b	
				76	to fine sand w/ some gravel.	I O	
			8.0'		18" RECOVERY		
9		5	8.0'	4 6 7 7	Moist medium dense light brown fine to coarse sand w/ some silt, trace of gravel.	A-2-4(0)	
			10.0'		22" RECOVERY		
		6	10.0'	5 6 6 6	Moist medium dense light brown coarse to fine sand w/ some silt, trace of gravel.	A-2-4(0)	
12		7	12.0' 12.0'	3	20" RECOVERY	A 2 4(0)	
		1	12.0	3 4 4 5	Wet loose light brown silty fine sand, trace of coarse sand and gravel.	A-2-4(0)	
			14.0'		20" RECOVERY		
15		8	14.0'	5 5 6 8	Wet medium dense light brown fine to coarse sand w/ some silt, trace of gravel.	A-2-4(0)	
			16.0'		19" RECOVERY		
					 Boring terminated at 16.0'		
Poma							

Symbol Description

Strata symbols



Silty low plasticity clay

Low plasticity clay



Silty sand

DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 3/4/2008 using a 3 1/4-inch diameter continuous flight power auger. Rig is a ATV CME 55.
- 2. Groundwater levels recorded at the time of drilling. Boring backfilled upon completion.
- 3. Surveyed boring locations and elevations were provided by Century engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to I-95 **Contract:** 25-113-01

Boring Location: Sta. 235+47.60, 252' Lt. C.L.

Boring No.: R3-027

Boring Surface El	ev.: + 70.00'	Reference:						
Wt. of Casing Hammer Wt. of Sample Hamme Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:	r: 140 Split Barrel	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2 3		IN. IN. IN. IN. IN. IN.		
Casing Size: Hollow St	3 1/4 em Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:	15.4'		
Water Level Readings Date 3/4/08	Time	Depth of Hole 15.4'	Depth of Casing 14.0'		of Water Dry	Elev. of Water		

Pay Quantities:

2 1/2 in. Dia. Dry Sample Boring: No. of 2 in. Dia. Shelby Tubes:	15.4	Ft.;	3 No. of:	Dia. U-Sample Boring: U-Samples:	3	Ft.
2 1/2 in. Dia. Contin. Sample Boring:		Ft.;	Core Drilling			Ft.
Dealers Oraclass W11 C						

Boring Contractor: Walton Corporation Driller: Cesar Velasco Helpers: A. Joseph

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description Class./G.I. Remarks	
	3/4/08	1	0.5' 2.0'	2 4 2	Moist loose brown clayey coarse to fine sand, A-2-6(0) 7" of cultivated soil. trace of gravel.	
		2	2.0'	8 8 9	Moist medium dense brown silty coarse sand A-1-b	
3			4.0'		w/ some fine sand, trace of gravel.	
		3	4.0'	3 4 4 6	Moist loose brown silty fine to coarse sand, A-2-4(0) trace of gravel.	
6			6.0'			
		4	6.0'	4 4 2 3	Moist loose brown fine to coarse sand w/ A-2-4(0) some silt, trace of gravel.	
			8.0'		19" RECOVERY	
9		5	8.0'	2 2 3 3	Moist loose light brown coarse to fine sand w/ A-1-b some silt and gravel.	
			10.0'		16" RECOVERY	
		6	10.0'	4 3 4 3	Moist loose light brown coarse to fine sand w/ A-1-b some silt, trace of gravel.	
12			12.0'		19" RECOVERY	
		7	12.0'	2 3 4 4	Moist loose light brown silty fine to coarse sand w/ some gravel.A-2-4(0)	
			14.0'		20" RECOVERY	
15		8	14.0'	6 7 50/5"	Moist very dense light brown coarse to fine A-1-b Boring terminated at 16 sand and gravel w/ some silt.	5.0'.
			16.0'		12" RECOVERY	
Rema	de la companya de la				Boring terminated at 16.0'	

Symbol Description

Strata symbols



Clayey sand

Silty sand

DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 3/4/2008 using a 3 1/4-inch diameter continuous flight power auger. Rig is a ATV CME 55.
- 2. Groundwater levels recorded at the time of drilling. Boring backfilled upon completion.
- 3. Surveyed boring locations and elevations were provided by Century engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to I-95 **Contract:** 25-113-01

Boring Location: Sta. 240+50.00, 45' Rt. C.L.

Boring Surface Ele	ev.: + 63.40'		Reference:						
Wt. of Casing Hammer: Wt. of Sample Hammer Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:		Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2 3		IN. IN. IN. IN. IN.			
Casing Size: Hollow Ste	3 1/4 m Auger:	Inches	From Depth of: From Depth of:	0.0'	To: To:	10.0'			
Water Level Readings Date 3/4/08	Time	Depth of Hole 10.0'	Depth of Casing 8.0'		of Water ^{ry}	Elev. of Water			

Pay Quantities:

2 1/2 in. Dia. Dry Sample Boring: No. of 2 in. Dia. Shelby Tubes:	10.0	Ft.;	3 Dia. U-Sample Boring: 3 No. of: U-Samples:	Ft.
2 1/2 in. Dia. Contin. Sample Boring:		Ft.;	Core Drilling in Rock:	Ft.
Dealers Oraclass W11 C				

Boring Contractor: Walton Corporation Driller: Cesar Velasco Helpers: A. Joseph

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description Class./G.I. Remarks
	3/4/08	1	0.5'	3 2 4	Moist firm brown clayey silt w/ some fine A-4(3) 6" of cultivated soil. sand, trace of coarse sand and gravel. 16" RECOVERY
		2	2.0'	9 11 14 20	Moist medium dense brown silty coarse to A-1-b
3			4.0'		fine sand, trace of gravel.
		3	4.0'	4 9 10 9	Wet medium dense brown coarse to fine sand A-1-b w/ some silt, trace of gravel.
6			6.0'		19" RECOVERY
		4	6.0'	9 9 7 8	Wet medium dense brown silty fine sand w/ A-2-4(0) some gravel and coarse sand.
			8.0'		17" RECOVERY
9		5	8.0'	3 5 7 15	Wet medium dense brown fine to coarse sand and gravel w/ some silt.A-2-4(0)
			10.0'		17" RECOVERY
					Boring terminated at 10.0'
12					
15					

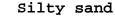
Remarks:

Symbol Description

Strata symbols



Silty low plasticity clay



DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 3/4/2008 using a 3 1/4-inch diameter continuous flight power auger. Rig is a ATV CME 55.
- 2. Groundwater levels recorded at the time of drilling. Boring backfilled upon completion.
- 3. Surveyed boring locations and elevations were provided by Century engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 Contract: 28-113-01

Boring Location: Sta. 133+00, 7' Rt. C.L.

Boring Surface Ele	EV.: + 67.09		Ref	erence:			
Wt. of Casing Hammer Wt. of Sample Hammer Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:	: 140 Split Barrel	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow Ste	3 1/4" em Auger:	Inches	From Depth of: From Depth of:	0.0	To: To:		24.0
Water Level Readings Date 10/6/2009	Time	Depth of Hole 12.0	Depth of Casing 10.0		of Water 3.5	Elev. of V	Vater

Pay Quantities:

2 1/2 in. Dia. Dry Sample Boring: 61.0 No. of 2 in. Dia. Shelby Tubes:	Ft.;	Dia. U-Sample Boring: No. of: U-Samples:	Ft.
2 1/2 in. Dia. Contin. Sample Boring:	Ft.;	Core Drilling in Rock:	Ft.
Paring Contractor: Walton Composition			

Boring Contractor: Walton Corporation Driller: Gary Truver Helpers: T. Kane

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
	10/6/09	1	0.0'	11 18 36 36	Moist very dense gray silty coarse to fine sand.	A-2-4(0)	
				36			
			2.0'		6" RECOVERY		
		2	2.0'	9 11 12	Moist very stiff gray clayey silt w/some fine sand, trace of coarse sand.	A-4(4)	
3		N	3.5'		13' RECOVERY		
		2A	3.5'	15	Moist medium dense brown fine gravelly silty fine sand w/some coarse	A-2-4(0)	
		3	<u>4.0'</u> 4.0'	10 20	sand.	A-2-4(0)	
				11 12	Moist dense brownish gray fine gravelly fine to coarse sand w/some silt.		
6			6.0'		16" RECOVERY		
		4	6.0'	16 13	Wet medium dense brown coarse to fine sand w/some silt, trace of fine	A-2-4(0)	
				10 8	gravel.		
			8.0'		23" RECOVERY		
		5	8.0'	2 2 3	Saturated loose gray silty fine sand w/trace of coarse sand.	A-2-4(0)	
9				2 3 4			
			10.0'		17" RECOVERY		
		6	10.0'	2 3 7	Saturated loose gray coarse to fine sand w/some silt, trace of fine gravel.	A-1-b	
				8			
12			12.0'		18" RECOVERY		
		7	12.0'	4 4	Saturated loose brown silty fine to coarse sand w/trace of fine gravel.	A-2-4(0)	
				4 2 7			
		8	14.0' 14.0'	4	17" RECOVERY	A-1-b	
15		0		4 7 11	Saturated medium dense brown fine gravelly coarse to fine sand w/some silt.	A-1-0	
15				13			
			16.0'		15" RECOVERY		
		9	16.0'	11 13	Saturated dense brown fine to coarse sand w/some silt.	A-2-4(0)	
				27			

Remarks: Mud Rotary @ 24 feet.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 28-113-01 Boring No.: SS3-1-01

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
				21			
18		10	18.0' 18.0'	4	13" RECOVERY Saturated medium dense brown fine to coarse sand w/some silt.	A-2-4(0)	
				4 7 13 15			
			20.0'		19" RECOVERY		
21							
24		11	24.0'	4	Saturated very stiff brown silty clay w/trace of coarse to fine sand.	A-7-6(38)	
			-	4 6 10 16	A set of the set of th		
			26.0'		17" RECOVERY		
27					DRAFT		
	N	12	29.0'		Saturated hard gray silty coarse sandy clay w/some fine sand.	A-7-6(9)	
30		N		11 14 17 22			
			31.0'		24" RECOVERY		
					GUST 2015		
33							
$\left - \right $		13	34.0'	10 10	Saturated medium dense brown fine gravelly coarse sand w/some silt,	A-1-b	
				10 10 11	trace of fine sand.		
36			36.0'		21" RECOVERY		
39		14	39.0'	10 12 14 15	Saturated medium dense brown coarse to fine sand w/some fine gravel,	A-1-b	
				i.	trace of silt.		
			41.0'	2 5 	17" RECOVERY		
42							
				1			
$\left - \right $		15	44.0'	4 10 12 14	Saturated medium dense brown coarse sand w/some fine sand, trace of	A-1-b	
45				12 14	fine gravel and silt.		

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 28-113-01 Boring No.: SS3-1-01

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"		Sample Description	Class./G.I.	Remarks
			46.0'			16" RECOVERY		
48								
		16	49.0'	69	2011/02/ 2015/2017 2017/2017 2017/2017 2017/2017	Saturated very dense brown fine gravelly coarse to fine sand w/trace of silt.	A-1-b	
54			51.0'	12	n ()) () () () () () () () () ()	10" RECOVERY		
51			51.0		1961 999499 1961 999499 1964 99949 1969 19969 1969 19969	10 RECOVERY		
					1999 - 2099 1999 - 2099 2009 - 2009 2009 - 2009 2000 - 2009 2000 - 2009 2000 - 2009 2000 - 2009 2000 - 2009 2000 -			
					1999 1999 1999 1999 1997 1997 1997 1997			
54		17	54.0'	16 20	20172220 2111220 2112220 2112220 2112220 2112220 2112220 2112220 2112220	Saturated dense green coarse to fine sand w/trace of silt.	A-3	
				35	2617161 4117169 4174169 4174169	URAFI		
			56.0'		4,61,7,7,61, 11,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,	14" RECOVERY		
57								
		N	U		10, 20, 1 10, 1 10, 1 20, 10, 1 20, 10, 10, 10, 10, 10, 10, 10, 10, 10, 1	-OR BIDDING	2	
		18	59.0'	25 31 43 50/5"		Saturated very dense brown coarse to fine sand w/trace of silt.	A-3	
60			61.0'	50/5"		GUS 10" RECOVERY		
			01.0		2836221	End of Boring		
63								
66								
69								
72								

Symbol Description

Strata symbols

Silty sand

Silty low plasticity clay



High plasticity clay



Low plasticity clay



Well graded sand with silt



Well graded sand

Poorly graded sand



DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 10/6/2009 using a 3 1/4- inch diameter continuous flight power auger. Rig is a Track CME 55.
- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 Contract: 28-113-01

Boring Location: Sta. 133+00, 71' Rt. C.L.

Boring No.: SS3-1-02

Ft. Ft.

Boring Surface El	ev.: + 66.88		Reference:					
Wt. of Casing Hammer Wt. of Sample Hamme Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:	r: 140 Split Barrel	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2		IN. IN. IN. IN. IN. IN.		
Casing Size: Hollow St	3 1/4 em Auger:	Inches	From Depth of: From Depth of:	0.0	To: To:		24.0	
Water Level Readings Date 10/5/2009	Time	Depth of Hole 10.0	Depth of Casing 8.0		of Water 7.5	Elev. o	f Water	

Pay Quantities:

2 1/2 in. Dia. Dry Sample Boring: 61	Ft.;	Dia. U-Sample Boring:
No. of 2 in. Dia. Shelby Tubes:	; Ft.:	No. of: U-Samples:
2 1/2 in. Dia. Contin. Sample Boring:	г.,	Core Drilling in Rock:
Poring Contractor: Walton Componetion		

Boring Contractor: Walton Corporation Driller: Gary Truver Helpers: T. Kane

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
	10/5/09	1	0.5' 2.0'	5 7 7	Moist medium dense orange fine gravelly coarse sand w/some fine sand and silt. 8" RECOVERY	A-1-b	Topsoil - 6".
		2	2.0'	3 3 5	Moist loose brown fine gravelly silty coarse sand w/some fine sand.	A-1-b	
3			4.0'	6	FOR BURNEL		
		3	4.0'	2 4 11 11	Moist medium dense gray silty fine gravelly fine to coarse sand.	A-1-b	
6			6.0'		15" RECOVERY		
		4	6.0'	10 11 13 11	Wet medium dense gray coarse to fine sand w/some silt, trace of fine gravel.	A-1-b	
			8.0'	-	23" RECOVERY		
9		5	8.0'	5 6 4	Saturated medium dense gray coarse to fine sand w/some silt, trace of fir gravel.	e A-1-b	
			10.0'		9" RECOVERY		
		6	10.0'	5 6 8 7	Saturated medium dense gray coarse to fine sand w/some silt and fine gravel.	A-1-b	
12			12.0'		14" RECOVERY		
		7	12.0'	5 6 8 8	Saturated medium dense gray coarse to fine sand w/some fine gravel and silt.	A-1-b	
			14.0'		14" RECOVERY		
15		8	14.0'	12 7 4 5	Saturated medium dense gray fine to coarse sand w/some silt and fine gravel.	A-2-4(0)	
			16.0'		16" RECOVERY		
		9	16.0'	5 8 11 16	Saturated medium dense gray coarse sand w/trace of silt, fine sand and fine gravel.	A-1-b	

Remarks: Mud Rotary @ 24 feet

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 28-113-01 Boring No.: SS3-1-02

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
18			18.0'		15" RECOVERY		
		10	18.0'	3 11	Saturated medium dense orange coarse sand w/trace of silt, fine sand and	A-1-b	
				11 13	iiiiii fine gravel.		
			20.0'		11" RECOVERY		
21							
					57 / 175 17 / 1755 17 / 1750		
					11750 13000 13000		
					() /) / () N / / N / /		
24		44	04.01	6			
		11	24.0'	6 9 10 11	Saturated very stiff brown silty clay w/trace of fine to coarse sand.	A-7-6(34)	Mud Rotary @
				11			24.0'.
			26.0'		17" RECOVERY		
27							
					DRAFT		
		12	29.0'	10 14	Saturated very stiff gray silty clay w/some coarse to fine sand.	A-7-6(14)	
30		N		14			
			31.0'		21" RECOVERY		
					GUST 2015		
33							
		13	34.0'	11 13	Saturated medium dense brown coarse sand w/some fine gravel and silt,	A-1-b	
				15 20	trace of fine sand.		
36			36.0'		22" RECOVERY		
			00.0				
39		14	39.0'	6 8	Saturated medium dense brown coarse to fine sand w/trace of fine gravel	A-1-b	
				8 9 10	and silt.	11-1-0	
			41.0'		16" RECOVERY		
42							
					EFERINE EFERINE EFERINE EFERINE		
		4-	44.5				
AF		15	44.0'	8 9 11	Saturated medium dense brown coarse to fine sand w/trace of fine gravel and silt.	A-1-b	
45				11			
L			1	1		1	

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 28-113-01 Boring No.: ss3-1-02

10 Ployers 200 Int RECOVERY 40 16 40.0° 1 40 16 40.0° 1 51 51.0° 10° 10° 51 51.0° 10° 10° 51 51.0° 10° 10° 51 51.0° 10° 10° 51 51.0° 10° 10° 51 51.0° 10° 10° 52 51.0° 10° 10° 53 51.0° 10° 10° 54 11° 10° 10° 55 10° 10° 10° 56 10° 10° 10° 57 10° 10° 10° 58 10° 10° 10° 10° 10° 10° 10° 10° 10° 10° 10° 10° 10° 10° 10° 10° 10° 10° 10° 10° 10° 10° 10° 10°	Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
-43 18 49.0 10 Saturated dense brown coarse to fine sand w/some fine gravel, trace of sit. A-1-b 54 51.0 10 10 ⁻¹ B-COVERY A-1-b 54 17 54.0 10 ⁻¹ B-COVERY A-1-b 56 18 59.0 10 ⁻¹ B-COVERY A-1-b 57 18 59.0 10 ⁻¹ B-COVERY A-1-b 58 18 59.0 10 ⁻¹ B-COVERY A-3 59 18 59.0 10 ⁻¹ B-COVERY A-3 60 18 59.0 10 ⁻¹ B-COVERY A-3 61.0 4 4 4 A-3 62 19 4 4 4 4 63 19 4 4 4 4 64 4 4 4	(11.)	Filgress						
48 16 49.0 13 Saturated dense brown coarse to fine sand w/some fine gravel, trace of sit. A-1-b 51 51.0 10 10" RECOVERY A-1-b 54 17 54.0 10" RECOVERY A-1-b 54 17 54.0 10" RECOVERY A-1-b 57 18 56.0 10" RECOVERY A-1-b 57 18 56.0 10" RECOVERY A-1-b 57 18 58.0 10" RECOVERY A-1-b 57 18 58.0 10" RECOVERY A-1-b 60 18 58.0 10" RECOVERY A-1-b 61 18 58.0 10" RECOVERY A-1-b 62 18 58.0 10" RECOVERY A-3 63 19 58.0 10" RECOVERY A-3 64 19 10" RECOVERY A-3 65 19 10" RECOVERY A-3 66 10" RECOVERY A-3 67 10" RECOVERY A-3 68 10" RECOVERY A-3								
48 16 49.0 13/2 Saturated dense brown coarse to fine sand w/some fine gravel, trace of sit. A-1-b 51 51.0 10 16 80.0 17 84.0 18 54 17 54.0 0 0 0 0 0 54 17 54.0 0 0 0 0 0 54 17 54.0 0 0 0 0 0 54 17 54.0 0 0 0 0 0 54 17 54.0 0 0 0 0 0 0 54 17 54.0 0								
16 49.0 13 31 31 Million Million Saturated dense brown coarse to fine sand w/some fine gravel, trace of sit. A-1-b 51 51.0 10 10 Billion 10 RECOVERY A-1-b 54 17 54.0 10 20 Billion Billion A-1-b A-1-b 54 17 54.0 10 20 Billion Billion A-1-b 55 18 59.0 10 20 Billion Billion A-1-b 60 18 59.0 10 20 Billion Billion A-1-b 60 18 59.0 10 20 Billion Billion A-1-b 63 18 59.0 10 20 Billion Billion A-3 63 19 10 Billion Billion A-3 63 10 10 Billion Billion A-3 63 10 10 10 Billion A-3 63 10 10 10 10 Billion 63 10 10 10 10								
16 49.0 10 32 Saturated dense brown coarse to fine sand w/some fine gravel, trace of sit. A-1-b 51 51.0 10 10 10 10 A-1-b 54 17 54.0 10 20 20 20 20 54 17 54.0 10 20 <td< td=""><td>48</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>	48							
11 49.0 11/2 32/2 Saturated dense brown coarse to fine sand w/some fine gravel, trace of sit. A-1-b 51 51.0 10 10° RECOVERY A-1-b 54 17 54.0 10 Saturated dense brown coarse to fine sand w/trace of sit. A-1-b 54 17 54.0 10 Saturated dense brown coarse to fine sand w/trace of sit. A-1-b 56.0 18 50.0 18 Saturated dense brown coarse to fine sand w/trace of sit. A-1-b 57 18 59.0 18 Saturated very dense brown fine to coarse sand w/trace of sit. A-3 60 18 59.0 31 Saturated very dense brown fine to coarse sand w/trace of sit. A-3 61 18 59.0 18 Saturated very dense brown fine to coarse sand w/trace of sit. A-3 63 61.0 18 50.0 Saturated very dense brown fine to coarse sand w/trace of sit. A-3 63 63 64 65 65 66 66 66 66 66 67 68 68 68 68 68 68 68 68								
51 51.0 10° RLCOVLRY 54 17 54.0 0 56.0 56.0 56.0 57 18 59.0 0 58 18 59.0 0 60 18 59.0 0 61.0 18 59.0 0 60 18 59.0 0 61.0 10 10 10° RLCOVLRY 63 10 10° RLCOVLRY A-3 64 10 10° RLCOVLRY A-3 68 10° RLCOVLRY A-3			16	49.0'	11 13		A-1-b	
54 17 54.0' 0 </td <td></td> <td></td> <td></td> <td></td> <td>24 21</td> <td>silt.</td> <td></td> <td></td>					24 21	silt.		
54 17 54.0' 0 </td <td>51</td> <td></td> <td></td> <td>51 0'</td> <td></td> <td>16" DECOVEDY</td> <td></td> <td></td>	51			51 0'		16" DECOVEDY		
17 54.0° 00 33 Saturated dense brown coarse to fine sand w/trace of silt. A-1-b 57 0 0 0 0 0 0 0 57 0 0 0 0 0 0 0 60 18 59.0° 3 0 0 0 0 0 60 18 59.0° 3 0 0 0 0 0 0 0 60 18 59.0° 3 0				51.0				
17 54.0° 00 33 Saturated dense brown coarse to fine sand w/trace of silt. A-1-b 57 0 0 0 0 0 0 0 57 0 0 0 0 0 0 0 60 18 59.0° 3 0 0 0 0 0 60 18 59.0° 3 0 0 0 0 0 0 0 60 18 59.0° 3 0								
17 54.0° 00 33 Saturated dense brown coarse to fine sand w/trace of silt. A-1-b 57 0 0 0 0 0 0 0 57 0 0 0 0 0 0 0 60 18 59.0° 3 0 0 0 0 0 60 18 59.0° 3 0 0 0 0 0 0 0 60 18 59.0° 3 0								
17 54.0° 00 33 Saturated dense brown coarse to fine sand w/trace of silt. A-1-b 57 0 0 0 0 0 0 0 57 0 0 0 0 0 0 0 60 18 59.0° 3 0 0 0 0 0 60 18 59.0° 3 0 0 0 0 0 0 0 60 18 59.0° 3 0								
17 54.0° 00 33 Saturated dense brown coarse to fine sand w/trace of silt. A-1-b 57 0 0 0 0 0 0 0 57 0 0 0 0 0 0 0 60 18 59.0° 3 0 0 0 0 0 60 18 59.0° 3 0 0 0 0 0 0 0 60 18 59.0° 3 0	54							
57 56.0° DRA 22" RECOVERY 57 NOT OR BIDDING 60 18 59.0° 31 500° 61.0° Endrof Boring 63 61.0° 64 64 65 64			17	54.0'	10 20	Fight Suturated dense brown coarse to fine sand w/face of site.	A-1-b	
57 60 18 59.0 ¹ 31 562 ¹ Saturated very dense brown fine to coarse sand w/trace of silt. A-3 61.0 ¹ End of Boring 63 64 65 69 69 69 69 69 69 69 69 60 60 60 60 60 60 60 60 60 60					28 29	126 1 4 32126		
57 60 18 59.0 ¹ 31 562 ¹ Saturated very dense brown fine to coarse sand w/trace of silt. A-3 61.0 ¹ End of Boring 63 64 65 69 69 69 69 69 69 69 69 60 60 60 60 60 60 60 60 60 60				56 0'				
Image: Note of site of				50.0				
Image: Note of site of	57							
60 18 59.0' 31 50.0' Saturated very dense brown fine to coarse sand w/trace of silt. A-3 60 61.0' <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>								
60 18 59.0' 31 Saturated very dense brown fine to coarse sand w/trace of silt. A-3 60 61.0 61.0 61.0 61.0 61.0 61.0 61.0 63 63 63 63 64 64 64 65 64 66								
60 61.0'A End of Boring 63 66 69 69			N					
00 61.0 <			18	59.0'	31 50	Saturated very dense brown fine to coarse sand w/trace of silt.	A-3	
61.0' End of Boring 63 63 64 65 65 66 66 66 67 68 68 68 69 69 69 60	60				50/3"			
63 63 66 66 69 69 69 60				61 0'				
				01.0		End of Boring		
	63							
	66							
	66							
	69							
	72							

Symbol Description

Strata symbols

Silty sand

Poorly graded clayey silty sand



Poorly graded sand with silt



High plasticity clay



Low plasticity clay



Well graded sand with silt



Poorly graded sand

DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 10/5/2009 using a 3 1/4- inch diameter continuous flight power auger. Rig is a Track CME 55.
- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 Contract: 28-113-01

Boring Location: Sta. 192+00, 7' Rt. C.L.

Ft. Ft.

Boring Surface Ele	•••• + 65.32		Reference:				
Wt. of Casing Hammer: Wt. of Sample Hammer: Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:		Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2 3		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow Ste	3 1/4 m Auger:	Inches	From Depth of: From Depth of:	0.0	To: To:		39.0
Water Level Readings Date 10/13/2009	Time	Depth of Hole 39.0	Depth of Casing 39.0		of Water ^{Dry}	Elev. of	f Water

Pay Quantities:

2 1/2 in. Dia. Dry Sample Boring:	Ft.;	3	Dia. U-Sample Boring:
No. of 2 in. Dia. Shelby Tubes:	;	No. of:	U-Samples:
2 1/2 in. Dia. Contin. Sample Boring:	Ft.;	Core Drilling	g in Rock:
Dening Contractory W11 C	,		g

Boring Contractor: Walton Corporation Driller: Gary Truver Helpers: T. Kane

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
	10/13/09	1	0.5' 2.0'	4 3 5	Wet firm brown silty clay w/trace fine to coarse sand and fine gravel. 9" RECOVERY	A-6(10)	Topsoil - 7".
		2	2.0'	7 8 12	Wet very stiff tan clayey silt w/trace of fine to coarse sand and fine	A-4(6)	
3			4.0'	12	gravel. Recovery		
		3	4.0' 5.0'	<mark>5</mark> 10	Wet stiff tan clayey silt w/trace of fine to coarse sand and fine gravel. 8" RECOVERY	A-4(8)	
		ЗA	5.0'	20 19	Wet dense orange fine gravelly coarse to fine sand w/some silt.	A-1-b	
6			6.0'		10" RECOVERY		
		4	6.0'	20 29 20 19	Wet dense orange coarse sand w/some fine sand and silt, trace of fine gravel.	A-1-b	
		5	8.0' 8.0'	6 10	17" RECOVERY Wet medium dense brown coarse to fine sand w/trace of fine gravel and	A-1-b	
9		-		10 11 13	silt.	A-1-0	
			10.0'		18" RECOVERY		
		6	10.0'	7 13 11 5	Wet medium dense brown coarse to fine sand w/some fine gravel, trace of silt.	A-1-b	
12		7	12.0' 12.0'	3	19" RECOVERY		
		1		3 5 8 11	Wet stiff orange silty clay w/trace of fine to coarse sand.	A-7-6(27)	
		U-1	14.0' 14.0'		20" RECOVERY Saturated orange silty clay w/some fine sand, trace of coarse sand and	A-7-6(18)	Press
15		- •			fine gravel.	A-7-0(10)	Sample - Shelby
		8	16.0' 16.0'	7	24" RECOVERY	A 6(10)	Tube.
		U		7 8 10 10	Saturated stiff orange silty clay w/some fine sand, trace of coarse sand.	A-6(10)	

Remarks: Mud Rotary @ 39.0 feet.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 Contract: 28-113-01 Boring No.: SS3-3-01

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
18			18.0'		18" RECOVERY		
		U-2	18.0'		Saturated gray silty clay w/some fine sand, trace of coarse sand. 24" RECOVERY	A-6(8)	Press Sample - Shelby Tube.
			20.0				
24		9	24.0'	3 3 3 5	Saturated very stiff orange silty clay w/some coarse to fine sand.	A-6(8)	
			26.0'		15" RECOVERY		
					DRAFT		
	10/14/09	10	29.0' 31.0'	3 4 5 8	Saturated firm gray silty clay w/some fine sand, trace of coarse sand.	A-7-6(14)	
33				٩L	GUST 2015		
		11	34.0'	4 5 8 9	Saturated firm gray silty clay w/some coarse to fine sand and organic matter.	A-7-6(12)	
<u> 36 </u>			36.0'		22" RECOVERY		
39		12	39.0'	11 24 29 33	Saturated loose gray coarse to fine sand w/some silt and fine gravel.	A-1-b	Mud Rotary @
				33			Rotary @ 39.0'.
42			41.0'		20" RECOVERY		
45		13	44.0'	20 25 36 36	Saturated medium dense gray fine to coarse sand w/some silt.	A-2-4(0)	

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 28-113-01 Boring No.: SS3-3-01

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
			46.0'		21" RECOVERY		
48							
		14	49.0'	15 20 35 50	Saturated very dense brown fine to coarse sand w/some silt, trace of fine gravel.	A-2-4(0)	
			51.0'		21" RECOVERY		
54		15	54.0'	21	Saturated very dense brown fine to coarse sand w/some silt.	A-2-4(0)	
			56.0'	21 21 27 44	DRA 22" RECOVERY		
			0	T	FOR BIDDING	5	
60		16	59.0' 61.0'	15 17 24 30	Saturated very dense brown fine to coarse sand w/trace of silt and fine gravel.	A-3	
					End of Boring		
63							
66							
69							
72							

Symbol Description

Strata symbols



Low plasticity clay

Silty sand

with silt

Poorly graded sand with silt



with silt Well graded sand



Silt

DRAFT NOT FOR BIDDING AUGUST 2015

- Exploratory borings were drilled on 10/13/2009 using a 3 1/4- inch diameter continuous flight power auger. Rig is a Track CME 55.
- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 Contract: 28-113-01

Boring Location: Sta. 192+00, 83' Rt. C.L.

Boring No.: SS3-3-02

Boring Surface Ele	V.: + 66.20		Reference:				
Wt. of Casing Hammer: Wt. of Sample Hammer: Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:		Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2 3		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow Ste	3 1/4 m Auger:	Inches	From Depth of: From Depth of:	0.0	To: To:		39.0
Water Level Readings Date 10/19/2009	Time	Depth of Hole 14.0	Depth of Casing 12.0		of Water 0.1	Elev. of W	ater

Pay Quantities:

2 1/2 in. Dia. Dry Sample Boring: No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring:	61.0	Ft.; ; Ft.:	3 Dia. U-Sample Boring: No. of: U-Samples:	Ft.
2 1/2 In. Dia. Contin. Sample Boring.		г.,	Core Drilling in Rock:	г.

Boring Contractor: Walton Corporation Driller: Gary Truver Helpers: T. Kane

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"		Sample Description	Class./G.I.	Remarks
	10/19/09	1	0.5' 2.0'	3 3 6		Wet firm tan clayey silt w/trace of fine to coarse sand. 12" RECOVERY	A-4(5)	Topsoil - 4".
		2	2.0'	6 8 11		Wet very stiff tan silt w/some clay, trace of fine to coarse sand.	A-4(4)	
3			4.0'	16		- RECOVERY		
		3	4.0'	9 11 8 13		Wet very stiff brown fine sandy silt w/trace of coarse sand and fine gravel.	A-4(0)	
6			6.0'			17" RECOVERY		
		4	6.0'	20 24 28 25		Wet very dense brown gravelly coarse sand w/some fine sand and silt.	A-1-b	
			8.0'		1993 1999 1999 1999 1999 1999 1999 1999	14" RECOVERY		
9		5	8.0'	5 13 20 22	1994 - 1995 - 19	No Sample Recovery		
			10.0'		1993.999 1993.999 1993.999 1993.999 1993.999	0" RECOVERY		
		6	10.0'	25 20 23 20		Wet dense brown gravelly coarse sand w/some fine sand, trace of silt.	A-1-b	
12			12.0'		1:1:1:1:1:1:1:1:1: 1:1:1:1:1:1:1:1:1:1:	4" RECOVERY		
		7	12.0'	6 11 3 4		No Sample Recovery		Gravel blocking tip.
			14.0'			0" RECOVERY		
15		8	14.0'	2 5 6 9		Wet stiff brown silty clay w/trace of gravel and fine to coarse sand.	A-7-6(20)	
			16.0'			18" RECOVERY		
		9	16.0'	6 6 8 8		Wet stiff brown silty clay w/some fine gravel and coarse sand, trace of fine sand.	A-7-6(10)	

Remarks: Mud Rotary @ 39.0 feet.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 Contract: 28-113-01 Boring No.: SS3-3-02

Depth Daily Sample Blows/6" Class./G.I. No. Sample Description Remarks (ft.) Progress Depth 18.0' 20" RECOVERY 18 10 18.0' 2 4 5 7 Wet stiff gray fine to coarse sandy clay w/some silt. A-6(5) 20.0' 21" RECOVERY 21 U-1 22.0' Wet gray silty clay w/trace of fine to coarse sand. A-6(13) Press Sample -Shelby Tube. 24.0' 24" RECOVERY 24 11 4 5 6 12 24.0' Wet stiff gray coarse sandy clay w/some silt and fine sand. A-7-6(8) 26.0' 19" RECOVERY 27 U-2 27.0' Wet gray silty clay w/some fine sand, trace of coarse sand. A-6(12) Press Sample -Shelby Tube. 29.0' 24" RECOVERY 12 29.0 Wet very stiff gray coarse sandy clay w/some fine sand and silt. A-7-6(7) 30 31.0' 24" RECOVERY GUST 2015 33 13 34.0' 4 8 11 11 Wet very stiff gray silty coarse sandy clay w/trace of fine sand. A-7-6(11) 24" RECOVERY 36 36.0' 39 6 10 10 11 14 39.0' Wet very stiff gray coarse sandy clay w/some silt and fine sand. A-7-6(8) Mud Rotary @ 39.0'. 41.0' 24" RECOVERY 42 7 19 28 29 15 44.0' Wet dense brown fine to coarse sand w/some silt, trace of fine gravel. A-2-4(0) 45

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 28-113-01 Boring No.: SS3-3-02

Depth	Daily		Sample	DI		a ,	
(ft.)	Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
			46.0'		17" RECOVERY		
48							
		16	49.0'	17 29 36 43	Wet very dense brown fine to coarse sand w/trace of silt.	A-3	
51			51.0'				
54		17	54.0'	21 22 44 52	Wet very dense brown fine to coarse sand w/some silt.	A-2-4(0)	
			56.0'	44 52	DRA 24" RECOVERY		
57			0	Т	FOR BIDDING		
60		18	59.0' 61.0'	18 28 20 34	Wet dense brown fine to coarse sand w/some fine gravel and silt.	A-2-4(0)	
					End of Boring		
63							
66							
69							
72							

Symbol Description

Strata symbols

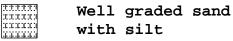
Low plasticity clay Silty low plasticity clay



Silty sand



Poorly graded sand with silt



Silt

DRAFT NOT FOR BIDDING AUGUST 2015

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F.A. Project: U.S. 301, Maryland State Line to S.R. 1 Contract: 28-113-01

Boring Location: Sta. 202+70, 67' Rt. C.L.

Boring No.: SS3-4-01

Boring Surface Ele	ev.: + 67.64		Reference:				
Wt. of Casing Hammer: Wt. of Sample Hammer Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:		Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2 3		IN. IN. IN. IN. IN.	
Casing Size: Hollow Ste	3 1/4 m Auger:	Inches	From Depth of: From Depth of:	0.0	To: To:	32.0	
Water Level Readings Date 11/30/2009	Time	Depth of Hole 16.0	Depth of Casing 14.0	Depth o 12	of Water	Elev. of Water	

Pay Quantities:

2 1/2 in. Dia. Dry Sample Boring: No. of 2 in. Dia. Shelby Tubes:	60.0	Ft.;	3 Dia. U-Sample Boring: No. of: U-Samples:	Ft.
2 1/2 in. Dia. Contin. Sample Boring:		Ft.;	Core Drilling in Rock:	Ft.
Baring Contractory Walter Compartie				

Boring Contractor: Walton Corporation Driller: Jason Truver Helpers: T. Kane

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
	11/30/09	1	0.5' 2.0'	1 2 2	Wet soft brown silty clay w/trace of fine to coarse sand. 6" RECOVERY	A-6(10)	Topsoil - 8".
		2	2.0'	3 5	Wet stiff brown silty clay w/some fine to coarse sand, trace of fine gravel	. A-6(7)	
3			4.0'	8	FOR POPERT		
		3	4.0'	4 7 8 9	Wet medium dense orange silty fine to coarse sand w/trace of fine gravel	A-2-4(0)	
6			6.0'		14" RECOVERY		
		4	6.0'	4 7 8 13	Wet medium dense orange silty fine sand w/some coarse sand, trace of fine gravel.	A-2-4(0)	
			8.0'		21" RECOVERY		
9		5	8.0'	5 10 11 12	Wet medium dense orange fine gravelly coarse sand w/some fine sand and silt.	A-1-b	Mud Rotary @ 9.0'.
			10.0'		13" RECOVERY		
		6	10.0'	11 12 9 8	Wet medium dense orange coarse sandy fine gravel w/some silt and fine sand.	A-1-b	
12			12.0'		12" RECOVERY		
		7	12.0'	6 8 8 8	Wet medium dense orange fine to coarse sand w/some fine gravel and sil	. A-2-4(0)	
			14.0'		18" RECOVERY		
15	12/1/09	8	14.0'	7 8 11 11	Wet medium dense blackish orange coarse sand w/some fine sand and fine gravel, trace of silt.	A-1-b	
		9	16.0'	27	14" RECOVERY		
		9	16.0'	27 21 14 12	Wet dense orange coarse to fine sand w/some silt and fine gravel.	A-1-b	

Remarks: Mud Rotary @ 32.0 feet.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 28-113-01 Boring No.: SS3-4-01

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	n Class./G.I.	Remarks
18			18.0'		12" RECOVER	XY	
		10	18.0' 20.0'	6 9 8 11	Wet medium dense orange fine to coarse gravel. 14" RECOVER		
24		11	23.0' 25.0'	8 8 10 10	Wet medium dense brown fine sand w/so fine gravel. 12" RECOVER		
27					<u>UKAFI</u>		
		12	28.0'	4 4 5 6	Saturated stiff orange silty clay w/trace of gravel.	f fine to coarse sand and fine A-7-6(43)	
30		U-1	30.0' 30.0'		15" RECOVER Saturated gray silty clay w/trace of coarse		Press Sample - Shelby
33			32.0'	λt	GUS ^{18"} RECOVER	015	Tube.
		13	33.0 ['] 35.0'	3 5 9 13	Saturated stiff gray silty clay w/some fine gravel. 18" RECOVER		
36							
39		14	38.0' 39.0'	4 12	Saturated medium dense gray clayey fine fine sand, trace of silt.	gravelly coarse sand w/some A-2-6(1)	
		14A	39.0' 40.0'	11 16	Saturated medium dense brown silty fine 12" RECOVER		
42		45	40.01	30			
		15	43.0'	30 50/3"	Saturated very dense green fine to coarse gravel.	sand w/trace of silt and fine A-3	
45			45.0'		7" RECOVER	Y	

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 28-113-01 Boring No.: SS3-4-01

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
	<u> </u>				19 17 3921 DA 17 DA 17 AG 1 Dan C LEI DA 1727 DE 1 ADAC		
					1619367 1619167 1619366 1619366		
48		16	48.0'	21 50	Saturated very dense green fine to coarse sand w/trace of silt.	A-3	
			50.0'		11" RECOVERY		
51							
					19719-1991 19719-1991 19719-1991 19719-19919		
		17	53.0'	26 50/5"	Saturated very dense green fine to coarse sand w/trace of silt.	A-3	
54							
			55.0'				
					DRAFT		
57				_			
		18	58.0'	14 26 26 25	Saturated very dense green fine to coarse sand w/some silt, trace of fine	A-2-4(0)	
				25	gravel and organic matter.		
60			60.0'		End-of Boring		
63							
66							
69							
09							
72							

Symbol Description

Strata symbols

Low plasticity clay

Silty sand



Well graded sand with silt



Poorly graded sand with silt

High plasticity



clay

Silt



Clayey sand

DRAFT NOT FOR BIDDING AUGUST 2015

- Exploratory borings were drilled on 11/30/2009 using a 3 1/4- inch diameter continuous flight power auger. Rig is a Track CME 55.
- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

3

Core Drilling in Rock:

No. of:

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 28-113-01

Boring Location: Sta. 202+70, 136' Rt. C.L.

Ft.

Ft.

Boring Surface Ele	V.: + 68.03		Reference:				
Wt. of Casing Hammer: Wt. of Sample Hammer: Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:		Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2 3		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow Ste	3 1/4 m Auger:	Inches	From Depth of: From Depth of:	0.0	To: To:		58.0
Water Level Readings Date 11/20/2009	Time	Depth of Hole 16.0	Depth of Casing 14.0		of Water 2.8	Elev. of	f Water

Ft.;

; Ft.;

Pay Quantities:

2 1/2 in. Dia. Dry Sample Boring:	60.0
No. of 2 in. Dia. Shelby Tubes:	
2 1/2 in. Dia. Contin. Sample Boring	:

Boring Contractor: Walton Corporation Driller: Dave Burt/Jason Truver Helpers: D. Zmijewski/T. Kane

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
	11/20/09	1	0.0'	1 1 2 2	Wet soft brown clayey silt w/some fine sand, trace of coarse sand.	A-4(6)	
			2.0'		19" RECOVERY		
3		2	2.0'	3 3 8 8	Wet stiff brown clayey silt w/some fine to coarse sand and fine gravel. 24" RECOVERY	A-4(1)	
6		3	4.0' 6.0'	6 7 10 11	Wet medium dense orange silty coarse to fine sand w/some fine gravel.	A-1-b	
		4	6.0	13 10 7 7	Wet medium dense orange fine gravelly coarse sand w/some fine and and silt.	A-1-b	
		5	8.0' 8.0'	4	24" RECOVERY Wet loose orange fine sand w/some coarse sand, fine gravel and silt.	A-2-4(0)	
9		0	10.0'	4 4 4	19" RECOVERY	A-2-4(0)	
		6	10.0'	5 5 4	Wet medium dense orange fine to coarse sand w/trace of silt and fine gravel.	A-3	
12		7	12.0' 12.0'	3	20" RECOVERY Saturated loose orange coarse to fine sand w/trace of silt and fine gravel.	A-1-b	
			14.0'	4 5 4	17" RECOVERY	A-1-0	
15		8	14.0'	5 8 10 11	Saturated medium dense orange coarse to fine sand w/trace of silt and fine gravel.	A-1-b	
		9	16.0' 16.0'	7 10	21" RECOVERY Saturated medium dense brown coarse sand w/some fine gravel, trace of	A-1-b	
				10 11	sublated includin dense stown course said w/some fine graver, frace of		

Remarks:

Dia. U-Sample Boring: U-Samples:

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 Contract: 28-113-01 Boring No.: ss3-4-02

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
()	- 9. 500			11	fine sand and silt.		1
18			18.0'		23" RECOVERY		
		10	18.0'	2 6 10 9	Saturated medium dense orange fine to coarse sand w/trace of silt and fin	e A-3	
			20.0'		21" RECOVERY		
21					6146167 6113000 5113000 5113000		
					51-1-1277 6-1-1287 1918-1967 1919-1969		
24	44/05/00	11	24.0	4			
	11/25/09	11	24.0'	4 4 5	Saturated loose orange fine sand w/some coarse sand, trace of silt and fin gravel.	e A-3	
			26.0'		15" RECOVERY		
27					DRAFT		
	N						
30		12	29.0'	2 3 5 6	Saturated firm orange silty clay w/some fine gravel, trace of coarse to fin sand.	A-7-5(27)	
			31.0'		17" RECOVERY		
		U-1	31.0'		Saturated gray silty clay w/trace of fine to coarse sand and fine gravel.	A-7-6(34)	Press Sample - Shelby
33			33.0'		14" RECOVERY		Tube.
		13	34.0'	2 4	Saturated stiff gray silty clay w/some fine sand and organic matter, trace	A-7-6(13)	
				4 6 8	of coarse sand.		
36			36.0'		20" RECOVERY		
39	11/30/09	14	39.0'	6 6 9 16	Saturated medium dense brown fine to coarse sand w/some silt.	A-2-4(0)	
			41.0	16	17" DECOVERY		
			41.0'		17" RECOVERY		
42							
45		15	44.0'	32 50/4"	Saturated very dense green fine to coarse sand w/trace of silt.	A-3	
40							

PAGE 3 OF 3

STATE OF DELAWARE DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 28-113-01 Boring No.: ss3-4-02

Depth	Daily	Ne	Sample	Plaus /0"			Domorius
(ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
			46.0'		7" RECOVERY		
48							
					19 9 9000 27 9 9000 27 9 7000		
		16	49.0'	18 50/5"	Saturated very dense green fine to coarse sand w/trace of silt.	A-3	
51			51.0'		11" RECOVERY		
54		17	54.0'	19	Saturated very dense green fine to coarse sand w/trace of silt.	A-3	
				19 34 50	Saturated very dense green mie to coarse sand w/frace of sitt.		
			56.0'				
57							
		V		10			
		18	58.0'	18 31 50/5"	Saturated very dense green fine to coarse sand w/trace of silt.	A-3	
60			60.0'		End of Boring		
63							
66							
69							
72							
<u> </u>			·	·			L

Symbol Description

Strata symbols

Low plasticity clay

Silty low plasticity clay



Silty sand



Poorly graded sand with silt



Well graded sand with silt



Poorly graded sand



High plasticity clay

DRAFT NOT FOR BIDDING AUGUST 2015

- Exploratory borings were drilled on 11/20/2009 using a 3 1/4- inch diameter continuous flight power auger. Rig is a ATV CME 55.
- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 28-113-01

Boring Location: Sta. 242+55, 83' Rt. C.L.

Boring No.: SS3-5-01

Boring Surface Ele	ev.: + 69.82		Ref	erence:			
Wt. of Casing Hammer Wt. of Sample Hammer Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:	r: 140 Split Barrel	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow Ste	3 1/4 em Auger:	Inches	From Depth of: From Depth of:	0.0	To: To:		14.0
Water Level Readings Date 10/20/2009	Time	Depth of Hole 14.0	Depth of Casing 12.0		of Water 2.0	Elev. c	of Water

Pay Quantities:

2 1/2 in. Dia. Dry Sample Boring: No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring:	60.0	Ft.; ; Ft.:	Dia. U-Sample Boring: No. of: U-Samples: Core Drilling in Rock:	Ft. Ft
Boring Contractor: Walton Corneratio	n	r t.,		1

Boring Contractor: Walton Corporation Driller: Jason Truver Helpers: T. Kane

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
	10/20/09	1	0.5' 2.0'	1 3 6	Moist soft brown fine sandy silt w/some coarse sand, trace of fine gravel. 12" RECOVERY	A-4(0)	Topsoil - 4".
		2	2.0'	4 5 2	Wet firm brown fine sandy silt w/some coarse sand and clay, trace of fine	A-4(0)	
3			4.0'	3	gravel. 18' RECOVERY		
		3	4.0'	1 2 3 6	Wet firm brown clayey fine sandy silt w/some coarse sand, trace of fine gravel.	A-4(2)	
6			6.0'		18" RECOVERY		
		4	6.0'	8 9 7 13	Wet medium dense brown fine gravelly fine sand w/some silt and coarse sand.	A-2-4(0)	
			8.0'		14" RECOVERY		
9		5	8.0'	13 6 13 14	Wet medium dense brown silty coarse to fine sand w/trace of fine gravel.	A-2-4(0)	
			10.0'		11" RECOVERY		
		6	10.0'	9 6 6 10	Wet medium dense brownish green coarse to fine sand w/some silt.	A-2-4(0)	
12			12.0'		21" RECOVERY		
		7	12.0'	10 11 18 18	Wet medium dense brown coarse to fine sand w/some silt.	A-2-4(0)	
			14.0'		21" RECOVERY		
15		8	14.0'	5 9 10 14	Wet medium dense brown coarse to fine sand w/some silt.	A-1-b	Mud Rotary @ 14.0'.
		9	16.0'	14	19" RECOVERY		
		Э	16.0'	14 18 30 36	Wet dense brown coarse to fine sand w/some silt.	A-2-4(0)	

Remarks: Mud Rotary @ 14.0 feet.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 28-113-01 Boring No.: SS3-5-01

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
18			18.0'		16" RECOVERY		
		10	18.0'	15 16 20 23	Wet dense brown fine to coarse sand w/some silt.	A-2-4(0)	
				23			
			20.0'		22" RECOVERY		
21							
		11	23.0'	8 13 32 41	Wet dense brown silty fine to coarse sand.	A-2-4(0)	
24				41			
			25.0'		23" RECOVERY		
27							
		12	28.0'	13 20 38 36	Wet very dense brown silty fine to coarse sand.	A-2-4(0)	
				38 36			
30			30.0'		22" RECOVERY	+ i	
33		13	33.0'	30 45 50/5"	Wet very dense brown fine to coarse sand w/some silt.	A-2-4(0)	
				50/5"			
			35.0'		14" RECOVERY		
36							
	10/21/09	14	38.0'	25 50/5"	Wet very dense brown fine to coarse sand w/some silt.	A-2-4(0)	
39				50/5"	wet very dense brown fine to coarse sand w/some snt.		
			40.0'		10" RECOVERY		
42							
		15	43.0'	10			
		10	43.0	10 20 25 28	Wet dense green fine to coarse sand w/some silt.	A-2-4(0)	
AE			45.0'		23" RECOVERY		
45			-+0.U				

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 28-113-01 Boring No.: SS3-5-01

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
	0						
48							
		16	48.0'	11 22 32 33	Wet very dense green fine to coarse sand w/some silt.	A-2-4(0)	
			50.0'		19" RECOVERY		
51							
54		17	53.0'	10 20 31 35	Wet very dense green fine sand w/some silt and coarse sand.	A-2-4(0)	
			55.0'				
					DRAFT		
57							
		18	58.0'	10 15 18 24	Wet dense green fine sand w/some coarse sand and silt.	A-2-4(0)	
60			60.0'		19" RECOVERY		
			F	- 1 U	JGUSI 2015		
63							
66							
69							
72							

Symbol Description

Strata symbols

silt

Silty low plasticity clay



Low plasticity clay



Silty sand

1.030.000 1.030.000

Poorly graded sand with silt

DRAFT NOT FOR BIDDING AUGUST 2015

- Exploratory borings were drilled on 10/20/2009 using a 3 1/4- inch diameter continuous flight power auger. Rig is a Track CME 55.
- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 Contract: 28-113-01

Boring Location: Sta. 239+00, 7' Lt. C.L.

Boring No.: SS3-6-01

Ft. Ft.

Boring Surface Ele	V.: + 67.0		Ref	erence:			
Wt. of Casing Hammer: Wt. of Sample Hammer: Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:		Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow Ste	3 1/4 m Auger:	Inches	From Depth of: From Depth of:	0.0	To: To:		18.0
Water Level Readings Date 10/20/2009	Time	Depth of Hole 23.0	Depth of Casing 23.0		of Water	Elev. of W	/ater

Pay Quantities:

2 1/2 in. Dia. Dry Sample Boring:	60.0	Ft.;	Dia. U-Sa	mple Boring:
No. of 2 in. Dia. Shelby Tubes:		;	No. of:	U-Samples:
2 1/2 in. Dia. Contin. Sample Boring:		Ft.;	Core Drilling in Rock:	-

Boring Contractor: Walton Corporation Driller: Bill Holden Helpers: D. Zmijewski

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
	10/20/09	1	1.0' 2.0'	3 4	Moist firm brown silt w/some fine to coarse sand and clay. 12" RECOVERY	A-4(2)	Cultivated Soil -
3	_	2	2.0'	8 9 10 12	Moist medium dense orange clayey fine gravelly fine to coarse sand w/ trace of silt.	A-2-4(0)	12".
			4.0'		16" RECOVERY		
		3	4.0'	10 11 12 14	Moist medium dense orange coarse to fine sand w/some silt, trace of fine gravel.	A-2-4(0)	
6			6.0'		20" RECOVERY		
		4	6.0'	12 13 10 5	Moist medium dense yellowish orange coarse to fine sand w/some silt, trace of fine gravel.	A-2-4(0)	
			8.0'		22" RECOVERY		
9		5	8.0'	3 5 6 5	Moist medium dense orange fine to coarse sand w/some silt, trace of fine gravel.	A-2-4(0)	
			10.0'		18" RECOVERY		
		6	10.0'	8 9 10 9	Moist medium dense yellowish orange coarse to fine sand w/some silt, trace of fine gravel.	A-1-b	
12			12.0'		19" RECOVERY		
		7	12.0'	8 7 8 9	Moist medium dense yellowish orange fine to coarse sand w/some silt, trace of fine gravel. 21" RECOVERY	A-2-4(0)	
		8	14.0'	8	Moist medium dense yellowish orange fine gravelly coarse to fine sand w/	A-1-b	
15			16.0'	8 9 9	some silt.	1110	
		9	16.0'	8 9 17 10	Moist medium dense orange fine gravelly coarse to fine sand w/some silt, trace of organic matter.	A-1-b	

Remarks: Mud Rotary @ 18.0 feet.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 Contract: 28-113-01 Boring No.: SS3-6-01

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	 Sample Description	Class./G.I.	Remarks
		10	<u>18.0'</u> 18.0'	1 2 4 2	16" RECOVERY Wet loose grayish green silty coarse to fine sand w/trace of organic	A-2-4(0)	
				2	matter.		
			20.0'		21" RECOVERY		
21							
		11	23.0'	10	Wet dense orangeish brown coarse to fine sand w/some silt, trace of	A-1-b	
24				10 15 16 17	organic matter.	11 1-0	
			25.0'		19" RECOVERY		
27							
		12	28.0'	10 16 27 40	Wet dense orangish brown organic fine to coarse sand w/some silt.	A-2-4(0)	
30	N		30.0'		19" RECOVERY		
		V			FOR ^{19" RECOVERY} DINC]	
				_			
33					CIICT 2015		
		13	33.0'	19 32 31 50	Wet very dense orange organic fine to coarse sand w/some silt.	A-2-4(0)	
			25.01	50			
			35.0'		20" RECOVERY		
36							
	10/21/09	14	38.0'	28 37 50/4"	Wet very dense orange fine to coarse sand w/some silt and organic matter.	A-2-4(0)	
39				50/4"			
			40.0'		16" RECOVERY		
42							
		15	43.0'	16	Wet very dense orange fine to coarse sand w/some silt, trace of organic	A-2-4(0)	
				16 41 50	matter.		
45			45.0'		17" RECOVERY		

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 28-113-01 Boring No.: SS3-6-01

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
	<u> </u>						
40							
48		16	48.0'	14 31 38 42	Wet very dense orange fine to coarse sand w/some silt.	A-2-4(0)	
				42			
			50.0'		20" RECOVERY		
51							
		17	53.0'	13 23 35 46	Wet very dense orange fine to coarse sand w/some silt.	A-2-4(0)	
54				35 46			
			55.0'		20" RECOVERY		
					DRAFT		
57							
		18	58.0'	12	Wet dense orange fine to coarse sand w/some silt.	A-2-4(0)	
		Ň		12 18 26 33	Wer dense orange line to coarse sand w/some sitt.	A-2-4(0)	
60	-		60.0'	-	19" RECOVERY		
					JGUST 2015		
63							
66							
69							
72							

Symbol Description

Strata symbols



Silty low plasticity clay



Clayey sand



Silty sand



Poorly graded sand with silt

DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 10/20/2009 using a 3 1/4- inch diameter continuous flight power auger. Rig is a ATV CME 55.
- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 Contract: 28-113-01

Boring Location: Sta. 239+00, 83' Lt. C.L.

Boring No.: SS3-6-02

Boring Surface Ele	•••• + 67.13		Ref	erence:			
Wt. of Casing Hammer: Wt. of Sample Hammer: Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:		Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow Ste	3 1/4 m Auger:	Inches	From Depth of: From Depth of:	0.0	To: To:		18.0
Water Level Readings Date 10/20/2009	Time	Depth of Hole 19.0	Depth of Casing 19.0		of Water 8.2	Elev. of Wa	ter

Pay Quantities:

2 1/2 in. Dia. Dry Sample Boring: No. of 2 in. Dia. Shelby Tubes:	61.0	Ft.;	Dia. U-Sample Boring: No. of: U-Samples:	Ft.
2 1/2 in. Dia. Contin. Sample Boring:		Ft.;	Core Drilling in Rock:	Ft.
Dering Contractory W 1/ C /				

Boring Contractor: Walton Corporation Driller: Gary Truver Helpers: K. Kershaw

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
	10/20/09	1	1.0' 2.0'	2 3	Moist firm brown silt w/some clay and fine sand, trace of coarse sand. 12" RECOVERY	A-4(2)	Topsoil - 12".
3		2	2.0'	4 2 5 3	Moist frim brown clayey silt w/some fine sand, trace of coarse sand.	A-4(4)	
			4.0'	T			
		3	4.0'	6 7 10 11	Moist medium dense orange fine to coarse sand w/some silt and fine gravel.	A-2-4(0)	
6			6.0'		18" RECOVERY		
		4	6.0'	10 8 9 11	Moist medium dense orange fine to coarse sand w/some silt and fine gravel.	A-2-4(0)	
			8.0'		24" RECOVERY		
9		5	8.0'	6 9 9 8	Moist medium dense orange coarse sand w/some fine sand and fine gravel, trace of silt.	A-1-b	
			10.0'		18" RECOVERY		
		6	10.0'	10 8 10 8	Moist medium dense orange coarse sand w/some fine sand, silt and fine gravel.	A-1-b	
12			12.0'		20" RECOVERY		
		7	12.0'	7 8 8 6	Moist medium dense orange coarse to fine sand w/some fine gravel and silt.	A-1-b	
		8	14.0' 14.0'	5	24" RECOVERY Moist medium dense orange fine to coarse sand w/some silt, trace of fine	A-2-4(0)	
15				5 5 7 11	gravel.	A-2-4(0)	
		9	16.0' 16.0'	14	24" RECOVERY No Sieve Analysis - Indication of moist dense orangish brown silty sand		
				14 18 14 14	w/trace of fine gravel.		

Remarks: Mud Rotary @ 19.0 feet

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 Contract: 28-113-01 Boring No.: SS3-6-02

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
		10	18.0'	7	5" RECOVERY		
		10	18.0'	7 5 6 8	Wet medium dense tan coarse to fine sand w/some silt, trace of fine gravel.	A-1-b	Mud Rotary @
							18.0'.
			20.0'		24" RECOVERY		
21							
24							
	-	11	24.0'	14 18 24 29	Wet dense brownish orange coarse to fine sand w/some silt and fine	A-1-b	
				24 29	gravel.		
			00.51		ar an ter 6 / fabre 1 / an ter		
\vdash			26.0'		24" RECOVERY		
27					14 19 HEL 14 19 HEL 14 19 HEL		
					DRAFT		
				1 1 1			
	-	12	29.0'	15	Wet dense brownish orange coarse to fine sand w/trace of silt and fine	A-1-b	
30			20.0	15 17 20 27		A-1-0	
				27	gravel.		
		N	31.0'		24" RECOVERY		
33					GUSI 2015		
	-		-				
		13	34.0'	14 19 26 35	Wet dense orangish brown fine to coarse sand w/some silt.	A-2-4(0)	
				35			
36			36.0'		24" RECOVERY		
	-						
39							
		14	39.0'	15 21 28 34	Wet dense orangish brown fine to coarse sand w/trace of silt.	A-3	
				28 34	n i a inef Ni Vandi 1 a sta		
			44.0				
\vdash			41.0'		24" RECOVERY		
42							
$\left - \right $		15	44.0'	16	Wet dense orangish brown fine to coarse sand w/trace of silt.	A-3	
45				16 21 26 30			
	-		46.0'		174001 177700 24" RECOVERY		

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 28-113-01 Boring No.: SS3-6-02

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
()			Dopui				
48							
		16	49.0'	13	Wet dense orangish brown fine to coarse sand w/trace of silt.	A-3	
				13 19 28 32			
51			51.0'		24" RECOVERY		
					17 () () () () () () () () () (
54					UZITUZA GIJDEC RIJSTEFI NGIJARC GIJALE		
		17	54.0'	17 21 25 23	Wet dense orangish brown fine to coarse sand w/trace of silt.	A-3	
			56.0'	23			
			00.0				
57							
		18	59.0'	16 18 30 30	Wet dense orangish brown fine sand w/some coarse sand, trace of silt.	A-3	
60				30 30			
			61.0'		End of Boring		
63							
66							
69							
72							

Symbol Description

Strata symbols

Silty low plasticity clay



Silty sand



Well graded sand with silt

Poorly graded sand

DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 10/20/2009 using a 3 1/4- inch diameter continuous flight power auger. Rig is a ATV CME 55.
- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 Contract: 28-113-01

Boring Location: Sta. 231+00, 7' LT. C.L.

Boring Surface Ele	Y.: + 70.85		Ref	erence	:	
Wt. of Casing Hammer: Wt. of Sample Hammer Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:	: 140 Split Barrel	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2		IN. IN. IN. IN. IN. IN.
Casing Size: Hollow Ste	3 1/4 m Auger:	Inches	From Depth of: From Depth of:	0.0	To: To:	14.0
Water Level Readings Date 10/9/2009	Time	Depth of Hole 14	Depth of Casing 14		of Water Dry	Elev. of Water

Pay Quantities:

2 1/2 in. Dia. Dry Sample Boring: 60.0 No. of 2 in. Dia. Shelby Tubes:	Ft.;	Dia. U-Sample Boring: No. of: U-Samples:	Ft.
2 1/2 in. Dia. Contin. Sample Boring:	Ft.;	Core Drilling in Rock:	Ft.
Boring Contractor: Walton Corporation			

Boring Contractor: Walton Corporation Driller: Jason Truver Helpers: T. Kane

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
	10/9/09	1	0.5' 2.0'	3 4 4	Moist firm brown clayey silt w/trace of fine to coarse sand. 6" RECOVERY	A-4(8)	
		2	2.0'	3 4	Moist firm brown clayey fine to coarse sandy silt w/trace of fine gravel.	A-4(0)	
3			4.0'	5	FOR BIT RECOVERY		
		3	4.0'	3 6 6 8	Moist medium dense brown silty coarse to fine sand w/trace of fine gravel.	A-2-4(0)	
6		4	6.0' 6.0'	8	16" RECOVERY Moist medium dense brown fine to coarse sand w/some silt and fine	A-2-4(0)	
				8 10 10 14	gravel.	A-2-4(0)	
		5	8.0' 8.0'	3	18" RECOVERY		
9		5	0.0	3 5 6 5	Moist medium dense orange fine sand w/some silt and fine gravel.	A-2-4(0)	
			10.0'		16" RECOVERY		
		6	10.0'	4 5 5 6	Moist loose orange silty fine sand w/trace of coarse sand.	A-2-4(0)	
12			12.0'		19" RECOVERY		
		7	12.0'	7 6 6 7	Moist medium dense orange fine sand w/some silt and coarse sand.	A-2-4(0)	
			14.0'		20" RECOVERY		
15		8	14.0'	8 7 8 9	No Sieve Analysis - Indication of wet medium dense green sandy clay.		Mud Rotary @ 14.0'.
			16.0'		2" RECOVERY		
		9	16.0'	6568	No Sample Recovery		

Remarks: Mud Rotary @ 14 feet

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 28-113-01 Boring No.: SS3-7-01

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
18			18.0'	44	0" RECOVERY		
		10	18.0'	11 24 35 44	Saturated hard greenish brown fine sandy clay w/some fine gravel, coarse sand and silt.	A-7-5(2)	
			20.0'		7" RECOVERY		
			20.0		/ RECOVER I		
21							
		11	23.0'	3	Saturated loose green coarse to fine sand w/some silt.	A-2-4(0)	
24			20.0	5 6 9	The said w/some site in the said w/some site.	A-2-4(0)	
			25.0'		22" RECOVERY		
					4-1577 3 1396 13396 13396 13396		
27							
		12	28.0'	11 22	Saturated dense greenish brown coarse to fine sand w/some silt.	A-2-4(0)	
				11 22 27 38			
30			30.0'		16" RECOVERY		
33		13	33.0'	17 24 45 50/4"	Saturated very dense brown fine to coarse sand w/some silt.	A-2-4(0)	
				45 50/4"			
			35.0'		24" RECOVERY		
36							
39		14	38.0'	17 30 50	Saturated very dense brown fine to coarse sand w/some silt.	A-2-4(0)	
			40.0'		18" RECOVERY		
42							
		15	43.0'	23			
		15	43.0	23 29 40 46	Saturated very dense brown fine to coarse sand w/some silt.	A-2-4(0)	
45			45.0'		24" RECOVERY		

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 28-113-01 Boring No.: SS3-7-01

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
			·				
48		16	48.0'	27 32 50	Saturated very dense brown fine to coarse sand w/some silt.	A-2-4(0)	
			50.0'		11/187 11/187 11/187 11/187 11/187 11/187		
51							
		47	50.01	14			
54		17	53.0'	14 19 24 25	Saturated dense brown fine to coarse sand w/trace of silt.	A-3	
			55.0'		DRAF ^{23" RECOVERY}		
57							
		18	58.0'	8 12 16 19	Saturated medium dense brown fine to coarse sand w/trace of silt.	A-3	
60			60.0'	19	21" RECOVERY		
			F	ΑL	End of Boring 2015		
63							
66							
69							
72							

Symbol Description

Strata symbols



Low plasticity clay

Poorly graded clayey silty sand



Silty sand

Poorly graded sand with silt

DRAFT NOT FOR BIDDING AUGUST 2015

- Exploratory borings were drilled on 10/9/2009 using a 3 1/4- inch diameter continuous flight power auger. Rig is a Track CME 55.
- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
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- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 28-113-01

Boring Location: Sta. 231+00, 83' Lt. C.L.

Ft. Ft.

Boring I	No.:	SS3-
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Boring Surface El	ev.: + 71.52		Reference:				
Wt. of Casing Hamme Wt. of Sample Hamme Type of: D-Sampler S-Sampler U-Sampler Core Bit:	r: 140 Split Barrel	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow St	3 1/4 em Auger:	Inches	From Depth of: From Depth of:	0.0	To: To:		19.0
Water Level Readings Date 10/7/2009	Time	Depth of Hole 19.0	Depth of Casing 19.0		of Water Pry	Elev. of W	ater
Pay Quantities:							

Pay Quantities: 2 1/2 in. Dia. Dry Sample Boring: No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring:	61	Ft.; ; Ft.;	Dia. U-Sample Boring: No. of: U-Samples: Core Drilling in Rock:	I

Boring Contractor: Walton Corporation Driller: Gary Truver Helpers: T. Kane

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
	10/7/09	1	1.0' 2.0' 2.0'	3 3 3	Moist firm brown clayey silt w/some fine to coarse sand, trace of fine gravel.	A-4(3)	Topsoil - 9".
3		2		3 2 2 2	Moist very loose brown silty fine sand w/some coarse sand, trace of fine gravel.	A-2-4(0)	
		3	4.0' 4.0'	2 3 4 4	15" RECOVERY Moist loose orange silty fine to coarse sand w/trace of fine gravel.	A-2-4(0)	
6			6.0'		18" RECOVERY		
		4	6.0'	5 5 5 4	Moist loose orange silty fine to coarse sand w/trace of fine gravel.	A-2-4(0)	
		5	8.0' 8.0'	7	21" RECOVERY	A 2 4(0)	
9		5	0.0	7 9 7 7	Moist medium dense orange fine to coarse sand w/some silt and fine gravel.	A-2-4(0)	
			10.0'	6	18" RECOVERY		
		6	10.0'	6 6 10 11	Moist medium dense orange fine to coarse sand w/some silt, trace of fine gravel.	e A-2-4(0)	
12			12.0'		22" RECOVERY		
		7	12.0'	6 8 11 10	Wet medium dense orange fine gravelly fine sand w/some coarse sand and silt.	A-2-4(0)	
		8	14.0	8 10	Wet medium dense orange fine gravelly fine to coarse sand w/some silt.	A-1-b	
15			15.0'	10	8" RECOVERY		
		8A	15.0' 16.0'	11 11	Wet very stiff green fine sandy clay w/some coarse sand, trace of silt. 6" RECOVERY	A-7-5(3)	
		9	16.0'	15 17 20 22	Wet hard green fine sandy clay w/some silt and coarse sand.	A-7-5(8)	

Remarks: Mud Rotary @ 19 feet

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 28-113-01 Boring No.: SS3-7-02

Depth (ft.)	Daily Progress	No.	Sample Depth 18.0'	Blows/6"	Sample Description	Class./G.I.	Remarks
		10	<u>18.0</u> 18.0'	7 16 16 16	Wet dense green silty fine sand w/some coarse sand, trace of fine gravel.	A-2-7(1)	Mud Rotary @
			20.0'		20" RECOVERY		19.0'.
21							
24		11	24.0'	10 13 17 25	Wet medium dense greenish red coarse to fine sand w/trace of silt.	A-3	
			26.0'	25	17" RECOVERY		
27							
					DRAFT		
		12	29.0'	18 23	Wet very dense greenish red coarse to fine sand w/some silt, trace of fine	A-2-4(0)	
30			31.0'	37 34	gravel. 24" RECOVERY		
	•		51.0		24 KEUVEKI		
33			ł	٩L	GUST 2015		
		13	34.0'	20 50	Wet very dense brown fine to coarse sand w/some silt.	A-2-4(0)	
36			36.0'		10" RECOVERY		
					11 A 300 F. 11 A 300 F. 12 A 300 F. 12 A 300 F. 12 A 300 F. 12 A 300 F.		
39		14	39.0'	20 24 29 30	Wet very dense brown fine to coarse sand w/some silt.	A-2-4(0)	
			41.0'	30	23" RECOVERY		
42							
	10/8/09	15	44.0'	22 32 50	Wet very dense brown fine to coarse sand w/trace of silt.	A-3	
45				50			
			46.0'		18" RECOVERY		

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 28-113-01 Boring No.: SS3-7-02

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
	0						
40					K 1 / John 1		
48							
		16	49.0'	18 30 35 50	Wet very dense brown fine to coarse sand w/some silt.	A-2-4(0)	
				50			
51			51.0'		24" RECOVERY		
					12 (/ 1/ 1/ 1/ 1/ 1/ 1/ 1/ 1/ 1/ 1/ 1/ 1/ 1		
54		17	54.0'	16 28	Wet very dense brown fine to coarse sand w/some silt.	A-2-4(0)	
				16 28 35 37			
			56.0'		$24^{"}RECOVERY$		
57							
		18	59.0'	21	Wet very dense brown fine to coarse sand w/trace of silt.	A-3	
60			00.0	21 24 36 47	Wet very dense brown fine to coarse sand w/trace of silt.	A-3	
			61.0'		22" RECOVERY		
					End of Boring		
63							
66							
69							
09							
72							

Symbol Description

Strata symbols



Low plasticity clay

Silty sand

Poorly graded sand with silt



1.03.01 1.03.01

Silt

DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 10/7/2009 using a 3 1/4- inch diameter continuous flight power auger. Rig is a Track CME 55.
- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
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- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 Contract: 28-113-01

Boring Location: Sta. 221+20, 7' LT. C.L.

Boning Looution	5td. 221 20, 7 E1.	C.L.						
Boring Surface Ele	•••• + 71.13		Reference:					
Wt. of Casing Hammer: Wt. of Sample Hammer Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:	: 140	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2		IN. IN. IN. IN. IN. IN.		
Casing Size: Hollow Ste	3 1/4 m Auger:	Inches	From Depth of: From Depth of:	0.0	To: To:		19.0	
Water Level Readings Date 10/19/2009	Time	Depth of Hole 19.0	Depth of Casing 19.0		of Water 4.9	Elev. of	Water	

Pay Quantities:

2 1/2 in. Dia. Dry Sample Boring: 60.0 No. of 2 in. Dia. Shelby Tubes:	Ft.;	Dia. U-Sample Boring: No. of: U-Samples:	Ft.
2 1/2 in. Dia. Contin. Sample Boring:	, Ft.;	Core Drilling in Rock:	Ft.
Paring Contractory Walton Comparation			

Boring Contractor: Walton Corporation Driller: Jason Truver Helpers: J. Lafferty

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
	10/19/09	1	0.5' 2.0'	1 2 4	Moist soft brown clayey silt w/some coarse to fine sand. 17" RECOVERY	A-4(5)	Topsoil - 6".
		2	2.0'	4 4	No Sieve Analysis - Indication of moist stiff brown clayey silt.		
3			4.0'	4	FOR PIPIRECOVERY		
	•	3	4.0'	6 8 9 6	Moist medium dense tan silty fine sand w/some coarse sand, trace of fine gravel.	A-2-4(0)	
6			6.0'		22" RECOVERY		
		4	6.0'	7 5 9 10	Moist medium dense orange coarse to fine sand w/trace of silt and fine gravel.	A-1-b	
			8.0'		20" RECOVERY		
9		5	8.0'	10 14 14 18	Moist medium dense orange fine to coarse sand w/some silt, trace of fine gravel.	A-2-4(0)	
			10.0'		17" RECOVERY		
		6	10.0'	8 13 13 17	Moist medium dense brown coarse sandy fine gravel w/some fine sand, trace of silt.	A-1-a	
12			12.0'		19" RECOVERY		
		7	12.0'	16 17 17 15	Moist dense brown coarse sandy fine gravel w/trace of silt and fine sand.	A-1-a	
			14.0'		18" RECOVERY		
15		8	14.0'	7 6 8 17	No Sieve Analysis - Indication of moist medium dense brown silty sand w/some fine gravel.		
			16.0'		14" RECOVERY		
		9	16.0'	8 11 13 8	Moist medium dense brown coarse to fine sandy fine gravel w/some silt.	A-1-b	

Remarks: Mud Rotary @ 19 feet

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 28-113-01 Boring No.: SS3-8-01

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"		Sample Description	Class./G.I.	Remarks
18	0		18.0'		1. FA JARE 1. CJA. 1. CFA 1. CJA. 1. CFA 1. CJA. 1. CFA 1. CJA. 1. CFA 1. CJA. 1. CFA	19" RECOVERY		
		10	18.0'	8 17 8 9	111 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Moist medium dense brown fine gravelly coarse to fine sand w/trace of silt.	A-1-b	Mud Rotary @ 20.0'.
21			20.0'			16" RECOVERY		
					112 1 1 1 2 2 2 4 2 2 4 2 4 4 2 4 4 2 4 4 2 4 4 2 4 4 2 4 4 2 4 4 2 4 4 2 4 4 2 4 4 2 4 4 2 4 4 2 4 4 2 4 4 2			
		11	24.0'	4 6 12 12	122 3 5, 12 6 7, NG 1 7 4 7 6 7 14 1 4 1 4 1 6 6 14 1 4 1 4 1 6 6 14 1 4 1 6 6 14 1 1 6 7 6 7 6 14 1 6 7 6 7 6 7 6 7 6 14 1 6 7 6 7 6 7 6 7 6 7 6 7 6 7 6 7 6 7 6	Moist medium dense tan fine gravelly coarse sand w/some fine sand, trace of silt.	A-1-b	
			26.0'		1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 1 - 1 -	4" RECOVERY		
						DRAFT		
30		12	29.0' 31.0'	9 10 10 14		Wet medium dense greenish brown coarse to fine sand w/some silt, trace of fine gravel. 21" RECOVERY	A-1-b	
33				٩L		GUST 2015		
		13	34.0'	18 39 50/5"	<u> 111166</u>	Wet very dense brown fine to coarse sand w/some silt.	A-2-4(0)	
36			36.0'			16" RECOVERY		
39		14	39.0'	21 30 50/5"		Wet very dense brown fine to coarse sand w/some silt.	A-2-4(0)	
42			41.0'			16" RECOVERY		
42								
45		15	44.0'	23 43 50/5"		Wet very dense brown fine to coarse sand w/some silt.	A-2-4(0)	

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 28-113-01 Boring No.: SS3-8-01

Depth	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
(ft.)	Progress	INO.	Depth 46.0'	DIUWS/0	16" RECOVERY	UIASS./G.I.	Remarks
48			46.0		16 RECOVERY		
		16	49.0'	16 24 26 38	Wet very dense brown fine to coarse sand w/some silt.	A-2-4(0)	
			51.0'		21" RECOVERY		
		17	54.0' 56.0'	15 24 40 40	Wet very dense brown fine to coarse sand w/some silt.	A-2-4(0)	
		18	59.0'	17 28 50	FOR BIDDING Wet very dense brown fine to coarse sand w/trace of silt.	A-3	
60			61.0'		Wet very dense brown fine to coarse sand w/trace of silt.		
63							
66							
69							

Symbol Description

Strata symbols



Low plasticity clay

Silty sand



Well graded sand with silt



Poorly graded sand with silt

DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 10/19/2009 using a 3 1/4- inch diameter continuous flight power auger. Rig is a ATV CME 55.
- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 Contract: 28-113-01

Boring Location: Sta. 221+20, 83' LT C.L.

Boring No.: SS3-8-02

Boring Surface Ele	V.: + 71.19		Reference:				
Wt. of Casing Hammer: Wt. of Sample Hammer: Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:		Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow Ste	3 1/4 m Auger:	Inches	From Depth of: From Depth of:	0.0	To: To:	24.0)
Water Level Readings Date 10/12/2009	Time	Depth of Hole 24	Depth of Casing 24		of Water 6.1	Elev. of Water	

Pay Quantities:

2 1/2 in. Dia. Dry Sample Boring: 61 No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring:	1.0 Ft.; ; Ft.;	Dia. U-Sample Boring: No. of: U-Samples: Core Drilling in Rock:	Ft. Ft.
Boring Contractor: Walton Corporation		-	

Boring Contractor: Walton Corporation Driller: Gary Truver Helpers: T. Kane

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
	10/12/09	1	0.5' 2.0'	3 4 5	Moist firm brown clayey silt w/some coarse sand, trace of fine sand. 7" RECOVERY	A-6(9)	Topsoil - 6".
3		2	2.0'	4 12 11 11	Moist medium dense brown silty fine to coarse sand w/some clay, trace of fine gravel.	A-2-4(0)	
		3	4.0' 4.0'	7 12 9 12	15" RECOVERY Moist medium dense brown silty coarse to fine sand w/some fine gravel.	A-1-b	
6			6.0'				
		4	6.0'	14 16 16 16	Moist dense orange coarse sand w/some fine sand and silt, trace of fine gravel.	A-1-b	
9		5	8.0' 8.0'	4 8 10 13	18" RECOVERY Moist medium dense orange fine to coarse sand w/some fine gravel and silt.	A-1-b	
			10.0'		16" RECOVERY		
		6	10.0'	14 15 13 13	Moist medium dense brown coarse sandy fine gravel w/trace of silt and fine sand.	A-1-a	
12			12.0'		10" RECOVERY		
		7	12.0'	10 11 11 8	Moist medium dense brown coarse sandy fine gravel w/some fine sand, trace of silt.	A-1-b	
			14.0'		18" RECOVERY		
15		8	14.0'	6 10 11 12	Moist medium dense brown coarse sandy fine gravel w/some fine sand, trace of silt.	A-1-b	
		9	16.0'	11 9 10 10	Moist medium dense brown coarse to fine sand w/some fine gravel, trace of silt.	A-1-b	

Remarks: Mud Rotary @ 24.0 feet

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 28-113-01 Boring No.: SS3-8-02

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
18			18.0'		18" RECOVERY		
		10	18.0'	2 5 7 5	Wet medium dense brown coarse sand w/some fine sand and fine gravel, trace of silt.	A-1-b	
				5			
			20.0'		10" RECOVERY		
21							
24		11	24.0'	3	Wet loose greenish brown silty fine to coarse sand.	A-2-4(0)	Mud
			27.0	3 3 3 4	wet loose greenish brown siny line to coarse sand.	A-2-4(0)	Rotary @
			26.0'		17" RECOVERY		24.0'.
			20.0				
27					DRAFT		
	N	12 12A	29.0' 29.5' /	5	Wet medium dense green coarse to fine sand w/trace of fine gravel and	A-1-b	
30			29.5'	19 21 22	6" RECOVERY	A-1-b	
	_		31.0'		Wet dense brown coarse to fine sand w/trace of silt and fine gravel. 12" RECOVERY		
33				\mathbf{H}	GUST 2015		
		13	34.0'	18 23 22	Wet dense brown coarse to fine sand w/some silt, trace of fine gravel.	A-2-4(0)	
				23 22 32			
36			36.0'		18" RECOVERY		
39			20.0	20			
		14	39.0'	20 26 50	Wet very dense brown fine to coarse sand w/some silt.	A-2-4(0)	
			44.5				
			41.0'		18" RECOVERY		
42							
		15	44.0'	16 29 41 50	Wet very dense brown fine to coarse sand w/some silt.	A-2-4(0)	
45				41 50			

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 28-113-01 Boring No.: SS3-8-02

Depth	Daily		Sample	Dia /or		01- (0.1	D.
(ft.)	Progress	No.	Sample Depth		Sample Description	Class./G.I.	Remarks
48			46.0'		21" RECOVERY		
		16	49.0' 51.0'	20 23 30 40	Wet very dense brown fine to coarse sand w/some silt. 21" RECOVERY	A-2-4(0)	
		17	54.0' 56.0'	19 28 40 50	Wet very dense brown fine to coarse sand w/some silt.	A-2-4(0)	
<u>57</u> 60		18	59.0'	14 20 38 50	FOR BIDDING Wet very dense brown fine to coarse sand w/some silt.	A-2-4(0)	
63			61.0'	\ [18" RECOVERY		
66							
69							

Symbol Description

Strata symbols

Low plasticity clay

Poorly graded clayey silty sand

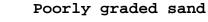


Silty sand

Poorly graded sand with silt



Well graded sand with silt



DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 10/12/2009 using a 3 1/4- inch diameter continuous flight power auger. Rig is a ATV CME 55.
- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 28-113-01

Boring Location: Sta. 208+70, 7' LT C.L.

Boring No.: SS3-9-01

Boring Surface Ele	ev.: + 66.32		Reference:				
Wt. of Casing Hammer: Wt. of Sample Hammer Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:	: 140	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow Ste	3 1/4 m Auger:	Inches	From Depth of: From Depth of:	0.0	To: To:		9.0
Water Level Readings Date 12/2/2009	Time	Depth of Hole	Depth of Casing 9		of Water 0.1	Elev. of W	Vater

Pay Quantities:

2 1/2 in. Dia. Dry Sample Boring:	59.0	Ft.;	Dia. U-Sample Boring:	Ft.
No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring:		; Ft.;	No. of: Ú-Samples: Core Drilling in Rock:	Ft.

Boring Contractor: Walton Corporation Driller: Jason Truver/Gary Truver Helpers: T. Kane

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
	12/2/09	1	0.5'	2 2 2	Moist soft brown clayey silt w/trace of fine to coarse sand.	A-4(10)	Topsoil - 8".
			2.0'		6" RECOVERY		
		2	2.0'	3 5	Moist firm brown silty clay w/trace of fine to coarse sand and fine gravel.	A-6(11)	
3			3.5'	13	14" RECOVERY		
		2A	3.5' 4.0'	13	Moist medium dense brown fine gravelly coarse sand w/some fine sand	A-1-b	
		3	4.0'	<mark>3</mark> 8 8	and silt. 6" RECOVERY	A-2-4(0)	
6			6.0'	13	Moist medium dense brown fine to coarse sand w/some silt and fine gravel.		
		4	6.0'	4 5 11 13	Moist medium dense brown coarse sandy fine gravel w/some fine sand, trace of silt.	A-1-b	
			8.0'		111100 111100 111100		
9		5	8.0'	13 16 15 13	Moist dense brown coarse sandy fine gravel w/some fine sand, trace of silt.	A-1-a	Mud Rotary @ 9.0'.
			10.0'		6" RECOVERY		9.0.
		6	10.0'	15 15 10 8	Moist medium dense brown coarse sandy fine gravel w/some fine sand, trace of silt	A-1-b	
			10.01				
12		7	12.0' 12.0'	9	8" RECOVERY Wet loose brown fine to coarse sand w/some fine gravel and silt.	A-1-b	
				9 5 4 5	we loose brown line to course said w/some line graver and sit.		
			14.0'		15" RECOVERY		
15		8	14.0'	9 4 8 9	Wet medium dense brown coarse sandy fine gravel w/some fine sand and silt.	A-1-a	
			16.0'		9" RECOVERY		
		9	16.0'	6	Wet medium dense brown coarse to fine sand w/some fine gravel, trace of	A-1-b	
				7 8 8	silt.		

Remarks: Mud Rotary @ 9 feet Mud Rotary @ 9 feet

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 28-113-01 Boring No.: SS3-9-01

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"		Sample Description	Class./G.I.	Remarks
18			18.0'			17" RECOVERY		
		10	18.0'	4 5 8 7		Wet medium dense brown coarse to fine sand w/trace of fine gravel and silt.	A-1-b	
			20.0'			8" RECOVERY		
21								
24		11	23.0'	5 7 7 8		Wet medium dense brown coarse to fine sand w/trace of silt and fine gravel.	A-1-b	
			25.0'	Ť		10" RECOVERY		
			_0.0					
					1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			
27						I)RAF I		
		12	28.0'	4 6 6		Wet medium dense brown coarse to fine sand w/some fine gravel, trace of	A-1-b	
	N			7				
30		V	30.0'			9"RECOVERY	7	
33						GUST 2015		
		13	33.0'	4 15 19 13		Saturated hard orange silty clay w/some fine to coarse sand.	A-7-5(20)	
			35 0'	13		12" DECOVEDV		
			35.0'			12" RECOVERY		
36								
		14	38.0'	15 30 50		Saturated very dense brown fine to coarse sand w/some silt.	A-2-4(0)	
39				50		-		
			40.0'		5 1 1 1 2 6 6 6 7 1 4 2 6 6 6 7 7 7 7 8 6 6 6 7 7 7 8 6 6 6 7 7 7 8 6 6 7 7 7 8 7 8 7 9 7 9 7 9 7 9 7 9 7 9 7 9 7 9 7 9 7 9	16" RECOVERY		
					()))))))) ())))))) ()))))))) ()))))))))			
42								
					0111100 6111000 6111000 6111000 6111000 6111000			
	12/3/09	15	43.0'	23 38 50/4"	6111161. 6111161. 6111161. 6111161.	Saturated very dense green fine to coarse sand w/trace of silt and fine gravel.	A-3	
45			45.0'		66433466 66433466 6614366 66143666 66143666	15" RECOVERY		
<u>40</u>			-J.U			15 KECOVEKI		

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 28-113-01 Boring No.: SS3-9-01

(1) Progress 0.000 10	Depth	Daily	No.	Sample	Blows/6"	Sample Description	Class./G.I.	Remarks
10 10 45.0 300 51 50.0 10 51 50.0 17 53.0 30 56.0 10 56.0 10 57 55.0 74 55.0 75 55.0 74 55.0 75 55.0 74 55.0 75 55.0 74 55.0 75 55.0 74 55.0 75 55.0 74 55.0 75 55.0 74 55.0 75 55.0 74 55.0 75 55.0 74 55.0 75 55.0 74 55.0 75 55.0 74 55.0 75 55.0 74 55.0 75 55.0 74 55.0 75 55.0 74 55.0 75 55.0 74 55.0 75 55.0 74 55.0 75 55.0 74 55.0 75 55.0 74 55.0 75 55.0 74 55.0 75 55.0 75 55.0 75 55.0 76 55.0 77 55.0 76 55.0 77 55.0 76 55.0 76 55.0 76 55.0 <td>(ft.)</td> <td>Progress</td> <td></td> <td>Depth</td> <td></td> <td></td> <td></td> <td></td>	(ft.)	Progress		Depth				
10 10 45.0 300 51 50.0 10 51 50.0 17 53.0 30 56.0 10 56.0 10 57 55.0 74 55.0 75 55.0 74 55.0 75 55.0 74 55.0 75 55.0 74 55.0 75 55.0 74 55.0 75 55.0 74 55.0 75 55.0 74 55.0 75 55.0 74 55.0 75 55.0 74 55.0 75 55.0 74 55.0 75 55.0 74 55.0 75 55.0 74 55.0 75 55.0 74 55.0 75 55.0 74 55.0 75 55.0 74 55.0 75 55.0 74 55.0 75 55.0 74 55.0 75 55.0 74 55.0 75 55.0 74 55.0 75 55.0 75 55.0 75 55.0 76 55.0 77 55.0 76 55.0 77 55.0 76 55.0 76 55.0 76 55.0 <td></td> <td></td> <td></td> <td></td> <td></td> <td>12(13),1(07) http://doi.org/ 13(13)) http://doi.org/ 14(14)</td> <td></td> <td></td>						12(13),1(07) http://doi.org/ 13(13)) http://doi.org/ 14(14)		
10 10 45.0 300 51 50.0 10 51 50.0 17 53.0 30 56.0 10 56.0 10 57 55.0 74 55.0 75 55.0 74 55.0 75 55.0 74 55.0 75 55.0 74 55.0 75 55.0 74 55.0 75 55.0 74 55.0 75 55.0 74 55.0 75 55.0 74 55.0 75 55.0 74 55.0 75 55.0 74 55.0 75 55.0 74 55.0 75 55.0 74 55.0 75 55.0 74 55.0 75 55.0 74 55.0 75 55.0 74 55.0 75 55.0 74 55.0 75 55.0 74 55.0 75 55.0 74 55.0 75 55.0 74 55.0 75 55.0 75 55.0 75 55.0 76 55.0 77 55.0 76 55.0 77 55.0 76 55.0 76 55.0 76 55.0 <td>40</td> <td></td> <td></td> <td></td> <td></td> <td>HT 5 A FFF HT 5 A AFF HT 5 A AFF HT 5 B AFF HT 5 B AFF HT 5 B AFF HT 5 B AFF HT 5 A AFF</td> <td></td> <td></td>	40					HT 5 A FFF HT 5 A AFF HT 5 A AFF HT 5 B AFF HT 5 B AFF HT 5 B AFF HT 5 B AFF HT 5 A AFF		
51 17 53.0' 50' Saturated very dense green fine to coarse sand w/trace of silt. A.3 54 17 53.0' 10' Baturated very dense green fine to coarse sand w/trace of silt. A.3 57 18 680' 13 Saturated very dense green fine to coarse sand w/some silt. A.3 57 18 680' 13 Saturated very dense green fine to coarse sand w/some silt. A.3 58 18 680' 13 Saturated very dense green fine to coarse sand w/some silt. A.3 60 18 680' 14 Saturated very dense green fine to coarse sand w/some silt. A.3 60 18 680' 14 Interception of Boring Interception of Boring 60 19 19 10 10 10 10 10 60 19 19 10 10 10 10 10 10 60 19 19 10 10 10 10 10 10 10 10 60 10 10 10 10 10 10 10 10	48		16	48.0'	18 50/5"	Saturated very dense green fine to coarse sand w/some silt.	A-2-4(0)	
51 17 53.0' 50' Saturated very dense green fine to coarse sand w/trace of silt. A.3 54 17 53.0' 10' Baturated very dense green fine to coarse sand w/trace of silt. A.3 57 18 680' 13 Saturated very dense green fine to coarse sand w/some silt. A.3 57 18 680' 13 Saturated very dense green fine to coarse sand w/some silt. A.3 58 18 680' 13 Saturated very dense green fine to coarse sand w/some silt. A.3 60 18 680' 14 Saturated very dense green fine to coarse sand w/some silt. A.3 60 18 680' 14 Interception of Boring Interception of Boring 60 19 19 10 10 10 10 10 60 19 19 10 10 10 10 10 10 60 19 19 10 10 10 10 10 10 10 10 60 10 10 10 10 10 10 10 10								
17 53.0 20 100 Saturated very dense green fine to coarse sand w/race of sit. A.3 57 18 55.0 DRAFI A.3 57 18 58.0 20 Saturated very dense green fine to coarse sand w/some sit. A.3 57 18 58.0 20 Saturated very dense green fine to coarse sand w/some sit. A.3 57 18 58.0 20 Saturated very dense green fine to coarse sand w/some sit. A.3 50 18 58.0 20 Saturated very dense green fine to coarse sand w/some sit. A.3 60 18 58.0 20 Saturated very dense green fine to coarse sand w/some sit. A.3 60 18 19 100 Saturated very dense green fine to coarse sand w/some sit. A.43 60 19 100 100 100 100 100 61 19 19 100 100 100 100 62 19 19 19 19 100 100 63 19 19 19 19 100 100 100				50.0'		10" RECOVERY		
54 55.0' 57 57 57 58 58.0' 58.0' 59.0' 50	51							
54 55.0' 57 57 57 58 58.0' 58.0' 59.0' 50								
54 55.0' 57 57 57 58 58.0' 58.0' 59.0' 50								
in	54		17	53.0'	27 50	Saturated very dense green fine to coarse sand w/trace of silt.	A-3	
brack of Boring brack of Borin	- 54							
57 18 58.0' 2 59.0' 2 59.0' 2 Subtracted very dense green fine to coarse sand w/some sil. 10' RECOVERY 10'				55.0'				
18 58.0 3 60 61 63 66 69 61 62 63 64 65 66 67 68 69 61 62 63 64 65 66 67 68 69 61 62 63 64 65 66 67 68 69 60 61 62 63 64 65 66 67 68 69 61 62 63 64 65 66 67 68 69 61 62 63 64 65 66 67 68 </td <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>								
60 61 63 66 66 69	57		_			18/J / 19/00 19/J / 19/00 19/J / 19/00 20/J / 19/00 20/J / 19/00 20/J / 19/00 20/J / 19/00 20/J / 19/00 20/J / 20/J / 20		
60 61 63 66 66 69			12	58 0'	21		A 2	
60 AUGUST 2015 63 66 69 69			10		50	10" RECOVERY	A-3	
AUGUST 2015	60							
						IGUST 2015		
	63							
	66							
	69							
	72							

Symbol Description

Strata symbols



Low plasticity clay

Poorly graded sand with silt



Silty sand



Well graded sand with silt



Elastic silt

DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 12/2/2009 using a 3 1/4- inch diameter continuous flight power auger. Rig is a Track CME 55.
- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 Contract: 28-113-01

Boring Location: Sta 208+70, 136' LT C.L.

Boring No.: SS3-9-02

Ft. Ft.

Boring Surface Ele	ev.: + 64.78		Ref	erence:			
Wt. of Casing Hammer: Wt. of Sample Hammer Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:		Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow Ste	3 1/4 m Auger:	Inches	From Depth of: From Depth of:	0.0	To: To:		9.0
Water Level Readings Date 12/3/2009	Time	Depth of Hole 9.0	Depth of Casing 9.0		of Water 3.2	Elev. of W	ater

Pay Quantities:

2 1/2 in. Dia. Dry Sample Boring:	61	Ft.;	Dia. U-Sample Boring:
No. of 2 in. Dia. Shelby Tubes:		;	No. of: U-Samples:
2 1/2 in. Dia. Contin. Sample Boring:		Ft.;	Core Drilling in Rock:
2 1/2 III. Dia. Contin. Sample Bornig.		г.,	Core Drining in Rock.

Boring Contractor: Walton Corporation Driller: Gary Truver Helpers: T. Kane

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"		Sample Description	Class./G.I.	Remarks
	12/3/09	1	0.5' 2.0'	1 2 3		Wet soft brown clayey silt w/some fine sand, trace of fine gravel and coarse sand. 6" RECOVERY	A-4(5)	Topsoil - 8".
		2	2.0'	355		Wet loose tan silty fine to coarse sand w/trace of fine gravel.	A-2-4(0)	
3			4.0'	5		18" RECOVERY		
		3	4.0'	1 2 6 5		Wet loose tan clayey fine to coarse sand w/trace of silt and fine gravel.	A-2-4(0)	
6			6.0'			16" RECOVERY		
		4	6.0'	16 18 18 17		Wet dense brown coarse sandy fine gravel w/some fine sand, trace of silt.	A-1-a	
			8.0' 8.0'	0		10" RECOVERY		
9		5	8.0	8 15 10 7		Wet medium dense brown coarse sandy fine gravel w/some fine sand, trace of silt.	A-1-b	Mud Rotary @ 9.0'.
			10.0'			12" RECOVERY		
		6	10.0'	8 9 8 6	43,44,164, 199,199,000 199,14,200 199,140,1000 199,140,10000000000000000000000000000000	Wet medium dense brown fine gravelly coarse to fine sand w/some silt.	A-1-b	
12			12.0'	4	eti <i>li</i> re Eliiie	12" RECOVERY		
		7	12.0'	4 3 2 3	2004 - 10000 - 10000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 -	Wet loose brown coarse sand w/some fine sand, trace of silt and fine gravel.	A-1-b	
			14.0'		6613.366 01175700 01175700	7" RECOVERY		
15		8	14.0'	9 10 17 14		Wet medium dense brown coarse to fine sandy fine gravel w/some silt.	A-1-b	
		9	16.0' 16.0'	9	C 8 3 1 9:0 C	10" RECOVERY Wet medium dense brown fine to coarse sand w/some fine gravel, trace of	A-1-b	
				9 8 15 16	111111111111 111111111111 111111111111	silt.	A-1-0	

Remarks: Mud Rotary @ 9 feet

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 Contract: 28-113-01 Boring No.: SS3-9-02

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"		Sample Description	Class./G.I.	Remarks
18			18.0'		16444466 16433466 16644666 16644666	14" RECOVERY		
		10	18.0'	7 8 8 9	********** ********** ***********	Wet medium dense brown fine to coarse sand w/some silt, trace of fine gravel.	A-3	
				9	1111111111 1111111111 11111111111 111111	gravei.		
			20.0'		111111111 111111111 11111111111	16" RECOVERY		
21					1999 1996 1996 1996 1997 1997 1997 1997			
					2017-1966 61919-00 6693-1966 6693-1966 6693-1966			
				2	1999 2017 2017 2017 2017 2017 2017 2017 2017			
					1999 - 1999 -			
24		11	24.0'	5	1933.967. 2017.3207 1914.946	XXX		
		11	24.0	5 6 7 9		Wet medium dense brown coarse sand w/some fine sand and fine gravel, trace of silt.	A-1-b	
				5				
			26.0'		9:9:9:9:9:9:9:9:9: 1:1:1:1:1:1:1:1:1:1:1	12" RECOVERY		
27				1	1:1:1:1:1:1:1:1:1:1: 1:1:1:1:1:1:1:1:1:	DRAFT		
					1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -			
					1:1:1:1:1:1:1:1:1:1:1:1:1:1:1:1:1:1:1:			
		12	29.0'	3 7 13		Saturated very stiff brown fine gravelly clay w/some silt, trace of fine to	A-7-5(8)	
30		N		23		coarse sand.	7	
			31.0'	_		15" RECOVERY		
			l l			GUST 2015		
33								
		13	34.0'	4 7		Saturated dense green fine to coarse sand w/some silt.	A-2-4(0)	
				7 37 50/4"		Saturated dense green file to coarse saild w/some site.	A-2-4(0)	
36			36.0'			16" RECOVERY		
			00.0					
39								
		14	39.0'	27 50/5"	*********** *********** ***********	Saturated very dense green fine to coarse sand w/some silt.	A-2-4(0)	
			41.0'		1.5 1 1 1 1 1 1 1 6 4 6 6 7 7 7 9 4 6 1 6 6 7 7 7 7 8 6 1 6 6 7 7 7 7 8 1 6 6 7 7 7 8 7 7 7 7 8 7 7 7 7 7 7 7 7 7 7 7	10" RECOVERY		
42					C 6 5 1 5 6 C C 6 5 4 5 6 C C 6 1 5 5 5 C C C 6 1 5 5 5 C C			
					2017),817 2011),926 2011),926 2011),826 2011),827			
					5617366 2617920 2611920 2611920			
		15	44.0'	29 50/5"	1997 (19	Saturated very dense green fine to coarse sand w/trace of silt.	A-3	
45			-	50/5"	20172202 0117200 20172202 20172202	Zanalation (e.g. dense green fine to course suite w/trace of site		
					at 12.1201. 1991 (4304)			

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 28-113-01 Boring No.: SS3-9-02

Unit Decords No. Decords Blowder Sample Description Class./G.1 Remarks -49 -46.0° -46.0° -46.0° -9° RECOVERY -46.0° <t< th=""><th>Denth</th><th>Daily</th><th></th><th>Sample</th><th></th><th></th><th></th><th></th></t<>	Denth	Daily		Sample				
48 16 49.0° 50° 510° 9° RECOVERY 51 17 54.0° 50° 9° RECOVERY 54 17 54.0° 50° 9° RECOVERY 55 17 54.0° 50° 10° 54 17 54.0° 50° 10° 55 17 54.0° 50° 10° 55 17 54.0° 50° 10° 55 18 50.0° 10° 10° 56 18 59.0° 10° 50 18 59.0° 10° 50 18 59.0° 10° 51 18 59.0° 10° 50 18 59.0° 10° 51 18 59.0° 10° 52 18 59.0° 10° 53 18 59.0° 10° 60 10° 10° 10° 610° 10° 10° 10° 62 10° 10° 10° 63 10° 10° 10° 64 10° 10° 10°	Depth (ft.)	Daily Progress	No.		Blows/6"	Sample Description	Class./G.I.	Remarks
16 49.0 40.0 <				46.0'		9" RECOVERY		
16 49.0 40.0 <								
16 49.0 40.0 <								
51 51.0' Saturated very dense green fine to coarse sand w/some sit, trace of fine A-2-4(0) 54 17 54.0' 350' Saturated very dense green fine to coarse sand w/some sit, trace of fine A-2-4(0) 57 56.0' 56.0' Saturated very dense green fine to coarse sand w/some sit, trace of fine A-2-4(0) 57 58.0' 58.0' Saturated very dense green fine to coarse sand w/some sit, trace of fine A-2-4(0) 60 18 59.0' 30' Saturated very dense green fine to coarse sand w/some sit, trace of fine A-2-4(0) 60 18 59.0' 30' Saturated very dense green fine to coarse sand w/some sit, trace of fine A-2-4(0) 60 18 59.0' 30' Saturated very dense green fine to coarse sand w/some sit, trace of fine A-2-4(0) 61.0' 10' 10' Saturated very dense green fine to coarse sand w/some sit, trace of fine A-2-4(0) 63 10' 10' 10' 10' 10' 10' 64 10' 10' 10' 10' 10' 10' 63 10' 10' 10' 10' 10' 10' 10'	48							
51 51.0' Saturated very dense green fine to coarse sand w/some sit, trace of fine A-2-4(0) 54 17 54.0' 350' Saturated very dense green fine to coarse sand w/some sit, trace of fine A-2-4(0) 57 56.0' 56.0' Saturated very dense green fine to coarse sand w/some sit, trace of fine A-2-4(0) 57 58.0' 58.0' Saturated very dense green fine to coarse sand w/some sit, trace of fine A-2-4(0) 60 18 59.0' 30' Saturated very dense green fine to coarse sand w/some sit, trace of fine A-2-4(0) 60 18 59.0' 30' Saturated very dense green fine to coarse sand w/some sit, trace of fine A-2-4(0) 60 18 59.0' 30' Saturated very dense green fine to coarse sand w/some sit, trace of fine A-2-4(0) 61.0' 10' 10' Saturated very dense green fine to coarse sand w/some sit, trace of fine A-2-4(0) 63 10' 10' 10' 10' 10' 10' 64 10' 10' 10' 10' 10' 10' 63 10' 10' 10' 10' 10' 10' 10'								
9° RECOVERY 51 51 51 51 51 51 51 51 51 51 5 5 5 5			16	49.0'	44 50/4"	Saturated very dense green fine to coarse sand w/some silt.	A-2-4(0)	
17 54.0 307 Saturated very dense green fine to coarse sand w/some silt, trace of fine 56.0 A-2-4(0) 57 56.0 FOR BIDDING A-2-4(0) 57 58.0 Saturated very dense green fine to coarse sand w/some silt, trace of fine 56.0 A-2-4(0) 57 58.0 Saturated very dense green fine to coarse sand w/some silt, trace of 50.0 A-2-4(0) 60 18 59.0 10 Saturated very dense green fine to coarse sand w/some silt, trace of organic matter. A-2-4(0) 60 61.0 10 Saturated very dense green fine to coarse sand w/some silt, trace of organic matter. A-2-4(0) 63 64.0 64.0 65.0 66.0 66.0 66 66 67.0 67.0 67.0 67.0 68								
54 17 54.0 34 17 54.0 360° 360° 56.0 56.0 9°RCOVERY 57 18 59.0 18 59.0 10 60 60 61.0 61.0 61.0 63 64 65 66 69 61 63 64 65 66 67 7 18 59.0 18 59.0 18 59.0 18 59.0 19°RECOVERY	51			51.0'		9" RECOVERY		
54 17 54.0 34 17 54.0 360° 360° 56.0 56.0 9°RCOVERY 57 18 59.0 18 59.0 10 60 60 61.0 61.0 61.0 63 64 65 66 69 61 63 64 65 66 67 7 18 59.0 18 59.0 18 59.0 18 59.0 19°RECOVERY								
54 17 54.0 34 17 54.0 360° 360° 56.0 56.0 9°RCOVERY 57 18 59.0 18 59.0 10 60 60 61.0 61.0 61.0 63 64 65 66 69 61 63 64 65 66 67 7 18 59.0 18 59.0 18 59.0 18 59.0 19°RECOVERY								
54 17 54.0 34 17 54.0 360° 360° 56.0 56.0 9°RCOVERY 57 18 59.0 18 59.0 10 60 60 61.0 61.0 61.0 63 64 65 66 69 61 63 64 65 66 67 7 18 59.0 18 59.0 18 59.0 18 59.0 19°RECOVERY								
17 54.0° 30° Saturated very dense green fine to coarse sand w/some silt, trace of fine gravel, and organic matter. A-2-4(0) 57 56.0° 9° RECOVERY A-2-4(0) 60 18 59.0° 18 Saturated very dense green fine to coarse sand w/some silt, trace of organic matter. A-2-4(0) 60 18 59.0° 18 Saturated very dense green fine to coarse sand w/some silt, trace of organic matter. A-2-4(0) 60 18 59.0° 18 Saturated very dense green fine to coarse sand w/some silt, trace of organic matter. A-2-4(0) 61.0° 19 59.0° 18 Saturated very dense green fine to coarse sand w/some silt, trace of organic matter. A-2-4(0) 63 63 64 64 65 64 64 65 64 65 65 65 69 63 64 65 65 65 65 69 66 67 67 67 67 67	54							
57 18 59.0' 19 50.0'			17	54.0'	34 50/5"	Saturated very dense green fine to coarse sand w/some silt, trace of fine	A-2-4(0)	
57 18 59.0' 18 Saturated very dense green fine to coarse sand w/some silt, trace of oreanic matter. A-2-4(0) 60 61.0' 61.0' End of Boring A-2-4(0) 63 64 64 64 64 69 69 64 64 65						gravel and organic matter.		
60 18 59.0 19 50.0 19 50.0 10 A-2-4(0) 60 61.0 61.0 61.0 A-2-4(0) A-2-4(0) 63 63 64 64 64 64 65 63 64 64 64 65 65 66				56.0'		9" RECOVERY		
60 18 59.0 19 50.0 19 50.0 10 A-2-4(0) 60 61.0 61.0 61.0 A-2-4(0) A-2-4(0) 63 63 64 64 64 64 65 63 64 64 64 65 65 66	E7							
60 61.0 <	57							
60 61.0 <				$\left(\right)$				
60 61.0 <								
60 61.0 <			18	59.0'	16 29 50	125 1 3 3 2 6 5	A-2-4(0)	
61.0 End of Boring 63 63 66 66 69 61.0	60							
				61.0'		15" RECOVERY		
						End of Boring		
	63							
	66							
	69							
	72							

Symbol Description

Strata symbols



Low plasticity clay

Silty sand

Poorly graded clayey silty sand



Well graded sand with silt



Poorly graded sand with silt



Clayey sand

DRAFT NOT FOR BIDDING AUGUST 2015

- Exploratory borings were drilled on 12/3/2009 using a 3 1/4- inch diameter continuous flight power auger. Rig is a Track CME 55.
- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 Contract: 28-113-01

Boring Location: Sta. 220+00, 7' RT C.L.

Boring Surface Ele	V.: + 70.66		Ref	erence:			
Wt. of Casing Hammer: Wt. of Sample Hammer: Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:		Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow Ste	3 1/4 m Auger:	Inches	From Depth of: From Depth of:	0.0	To: To:		14.0
Water Level Readings Date 10/14/2009	Time	Depth of Hole 14.0	Depth of Casing 14.0		of Water Dry	Elev. of	Water

Pay Quantities:

2 1/2 in. Dia. Dry Sample Boring: 60.0	Ft.;	Dia. U-Sample Boring:	Ft.
No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring:	; Ft.;	No. of: U-Samples: Core Drilling in Rock:	Ft.
Paring Contractory Walton Comparation			

Boring Contractor: Walton Corporation Driller: Jason Truver Helpers: J. Lafferty

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"		Sample Description	Class./G.I.	Remarks
	10/19/09	1	0.5' 2.0'	2 2 2		Moist soft tan clayey silt w/trace of fine to coarse sand and fine gravel. 14" RECOVERY	A-4(5)	Topsoil - 5".
		2	2.0'	3 3		Moist stiff tan fine sandy silt w/some clay and fine sand, trace of fine	A-4(0)	
3			4.0'	10		gravel. 19' RECOVERY		
		3	4.0'	6 8 11 11		Moist medium dense brown coarse to fine sand w/some silt and fine gravel.	A-1-b	
6			6.0'			14" RECOVERY		
		4	6.0'	11 10 13 15		Moist medium dense tan coarse to fine sand w/some silt and fine gravel.	A-1-b	
		5	8.0' 8.0'	2 6		20" RECOVERY Moist medium dense orange coarse to fine sand w/some silt, trace of fine	A-1-b	
9		Ū		6 5 6		gravel.	A-1-0	
			10.0'			18" RECOVERY		
		6	10.0'	8 8 9 11		Moist medium dense orange coarse sandy fine gravel w/some fine sand, trace of silt.	A-1-b	
12		7	12.0' 12.0'	11		19" RECOVERY	A 1 a	
		,	12.0	11 24 17 17	1999 1999 1999 1999 1999 1999 1999 199	Moist dense orange coarse sandy fine gravel w/trace of fine sand and silt. 7" RECOVERY	A-1-a	
		8	14.0'	8	<u> </u>	Moist loose brown fine gravelly coarse sand w/some fine sand, trace of	A-1-b	
15			10.01	8 5 6		silt.		
		9	16.0' 16.0'	5		13" RECOVERY Wet medium dense brown coarse sandy fine gravel w/some fine sand and	A-1-b	Mud
		-		5 7 7 8		silt.	A-1-0	Rotary @

Remarks: Mud Rotary @ 14 feet

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 Contract: 28-113-01 Boring No.: SS3-10-01

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
		10	18.0' 18.0' 20.0'	11 21 11 7	21" RECOVERY No Sieve Analysis - Indication of wet dense brown sand w/silt and fine gravel. 1" RECOVERY		16.0'. Piece of gravel in tip of spoon.
24		11	23.0'	16 10 8 21	Wet medium dense brown fine gravelly coarse to fine sand w/some silt.	A-1-b	
27			25.0'		19" RECOVERY		
		12	28.0'	8 10 16 16	Wet medium dense brownish orange coarse to fine sand w/some silt.	A-2-4(0)	
			30.0'	16	FOR 20" RECOVERY DINC	5	
33		13	33.0'	16	GUST 2015 Wet dense orangish brown coarse to fine sand w/some silt.	A-2-4(0)	
		10		16 19 26 48	23" RECOVERY	A-2-4(0)	
36			35.0'		23 RECOVERY		
39		14	38.0'	16 30 50/4"	Wet very dense orangish brown fine to coarse sand w/some silt.	A-2-4(0)	
			40.0'		10" RECOVERY		
42							
		15	43.0'	25 50/4"	Wet very dense orangish brown fine to coarse sand w/some silt.	A-2-4(0)	
45			45.0'		10" RECOVERY		

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 28-113-01 Boring No.: SS3-10-01

Depth	Daily	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
(ft.)	Progress		Depth	2.0.10,0			
			ļ				Į
			ļ				Į
48		16	48.0'	27 50/3"	Wet very dense orangish brown fine to coarse sand w/some silt.	A-2-4(0)	ļ
			ļ	JU/3 [™]			Į
			50.0'		8" RECOVERY		
51							
51							
			ļ				
		17	53.0'	16	Wet very dense brownish green fine to coarse sand w/some silt, trace of	A-2-4(0)	
54				16 28 50/5"	fine gravel.	A-2-4(0)	
			55.0'				
					DRAFT		
			ļ				
57					17 1 7 3 7 17 7 1 7 3 1 3 10 0 7 1 7 1 7 1 1		
		18	58.0'	25			
		10	30.0	25 50/5"	Wet very dense green fine to coarse sand w/some silt, trace of fine gravel.	A-2-4(0)	
60			60.0'		11" RECOVERY		
					End of Boring		
			י 🎢				
			ļ				
63			ļ				
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			ļ				
			ļ				
66			ļ				
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69			ļ				
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72			ļ				
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Symbol Description

Strata symbols

Silty low plasticity clay



Silty sand



Well graded sand with silt

Poorly graded sand with silt

DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 10/19/2009 using a 3 1/4- inch diameter continuous flight power auger. Rig is a ATV CME 55.
- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 28-113-01

Boring Location: Sta. 220+00, 83' RT C.L.

Boring Surface Ele	ev.: + 70.77		Ref	erence:			
Wt. of Casing Hammer: Wt. of Sample Hammer Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:	: 140 Split Barrel	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow Ste	3 1/4 em Auger:	Inches	From Depth of: From Depth of:	0.0	To: To:		14.0
Water Level Readings Date 10/8/2009	Time	Depth of Hole 14	Depth of Casing		of Water 4.3	Elev. c	of Water

Pay Quantities:

2 1/2 in. Dia. Dry Sample Boring:	60.0	Ft.;	Dia. U-Sample Boring:	Ft.
No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring:		; Ft.;	No. of: U-Samples: Core Drilling in Rock:	Ft.
Dealers Ocastana IVI 1/ C				

Boring Contractor: Walton Corporation Driller: Jason Truver Helpers: D. Zmijewski

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"		Sample Description	Class./G.I.	Remarks
	10/8/09	1	1.0'	2 2		Moist soft brown silty clay w/trace of fine to coarse sand.	A-6(10)	Cultivated
			2.0'	4	инини	12" RECOVERY		Soil -
		2	2.0'	4 6 7		Moist medium dense brown silty fine to coarse sand w/some clay.	A-2-4(0)	10".
3		L _		5				
			4.0'			24" RECOVERY		
		3	4.0'	3 3 4		Moist loose orange clayey fine to coarse sand w/some fine gravel and silt.	A-2-4(0)	
				4				
6			6.0'			18" RECOVERY		
		4	6.0'	6 11 9 10		Moist medium dense orange coarse to fine sand w/some silt and fine	A-1-b	
				9 10		gravel.		
			8.0'			18" RECOVERY		
		5	8.0'	3 5 6		Moist medium dense yellowish tan fine to coarse sand w/some silt and	A-2-4(0)	
9				6 4		fine gravel.	(-)	
		6	10.0' 10.0'	5		13" RECOVERY		
		0	10.0	5 5 7 11		Moist medium dense orange coarse to fine sand w/some fine gravel and silt.	A-1-b	
				11		Siit.		
12			12.0'			15" RECOVERY		
		7	12.0'	9 7 9 10		Moist medium dense orange gravelly coarse sand w/trace of silt and fine	A-1-b	
				9 10		sand.		
			14.0'		1:1:1:1:1:1:1:1:1 1:1:1:1:1:1:1:1:1:1 1:	19" RECOVERY		
		8	14.0	11 10	terrister Terrister	Moist medium dense tan coarse sandy fine gravel w/trace of fine sand and	A-1-a	Mud
15				10 10 11		silt.		Rotary @
								14.0'.
		9	16.0' 16.0'	4	195197. 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997	4" RECOVERY		
		9	10.0	5 5		No Sample Recovery		
				4	1993 (1996) 1993 (1996) 1993 (1996)			

Remarks: Mud rotary @ 14.0 feet

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 Contract: 28-113-01 Boring No.: SS3-10-02

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
			18.0'		0" RECOVERY		
		10	18.0'	3 3 3 3	Saturated loose tan silty fine sand w/trace of fine gravel.	A-2-4(0)	
			20.0'		17" RECOVERY		
24		11	23.0'	4 4 4 7	Saturated loose tannish brown fine to coarse sand w/trace of silt.	A-3	
			25.0'		13:167 17:17		
27							
		12	28.0'	50/4"	No Sieve Analysis - Indication of very dense orange silty sand w/some clay.		
30			30.0'		OR BODINC		
33		13	33.0'	10 17 29 34	Saturated dense orange coarse to fine sand w/some silt.	A-2-4(0)	
			35.0'		24" RECOVERY		
<u> 36 </u>							
39		14	38.0'	17 13 19 20	Saturated dense orange fine to coarse sand w/some silt.	A-2-4(0)	
			40.0'		24" RECOVERY		
42							
		15	43.0'	23			
		10	43.0	23 39 50/4"	Saturated very dense orange fine to coarse sand w/some silt.	A-2-4(0)	
45			45.0'		16" RECOVERY		

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 28-113-01 Boring No.: SS3-10-02

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
(11.)	1 1091633		Берш				
48		16	48.0'	19 50	Saturated very dense orangish brown fine to coarse sand w/some silt.	A-2-4(0)	
				50	Suturated very dense orangish brown the to coarse sand w/some shit.		
			50.0'		12" RECOVERY		
51							
		17	53.0'	31 45 50/4"	Saturated very dense orange fine to coarse sand w/some silt.	A-2-4(0)	
54				45 50/4"			
			55.0'		14" RECOVERY		
57					DRAFT		
57							
		18	58.0'	16 24 24 35	Saturated dense brownish orange fine to coarse sand w/some silt.	A-3	
		N		24 35		2	
60			60.0'		19" RECOVERY End of Boring		
					IGUST 2015		
63							
66							
69							
72							

Symbol Description

Strata symbols

Low plasticity clay

Poorly graded clayey silty sand



Clayey sand



Silty sand



Well graded sand with silt

Poorly graded sand with silt

DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 10/8/2009 using a 3 1/4- inch diameter continuous flight power auger. Rig is a ATV CME 55.
- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 28-113-01

Boring Location: Sta. 79+50, 69' Rt. C.L.

Boring Surface Ele	EV.: + 60.00		Reference:				
Wt. of Casing Hammer: Wt. of Sample Hammer Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:	: 140 Split Barrel	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2 3		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow Ste	3 1/4 em Auger:	Inches	From Depth of: From Depth of:	0.0	To: To:		58.0
Water Level Readings Date 6/22/2009	Time	Depth of Hole 58.0	Depth of Casing 58.0		of Water 3.9	Elev. o	f Water
Pay Quantities:							

2 1/2 in. Dia. Dry Sample Boring: 59.4 No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring:	Ft.; ; Ft.;	3 Dia. U-Sample Boring: No. of: U-Samples: Core Drilling in Rock:	Ft. Ft.
Boring Contractor: Walton Corporation		-	

Boring Contractor: Walton Corporation Driller: Dan Taylor Helpers: T. Kane

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
	6/22/09	1	0.0'		No Sample		Asphalt - 6". Subgrade
			2.0'		0" RECOVERY		- 6".
3		2	2.0'	10 18 15 9	Moist hard brown clayey fine sandy silt w/some coarse sand, trace of fine gravel.	A-4(0)	Augered to 2'.
		3	4.0'	4 5 6 5	Moist stiff brown fine sandy silt w/some coarse sand and clay, trace of fine gravel.	A-4(0)	
6			6.0'		8" RECOVERY		
		4	6.0'	4 4 6 8	Moist stiff gray fine sandy silt w/some coarse sand, trace of fine gravel and clay.	A-4(0)	
			8.0'		17" RECOVERY		
9		5	8.0'	2 2 3 3	Wet firm gray fine to coarse sandy silt w/some clay, trace of fine gravel.	A-4(0)	
		6	10.0' 10.0'	8	16" RECOVERY Wet very stiff gray silty clay w/some fine sand, trace of coarse sand.	A-6(9)	
12		-	12.0'	8 9 10 14	21" RECOVERY	A-0(9)	
		7	12.0'	10 25 19 14	Wet dense brown fine to coarse sand w/some silt, trace of fine gravel.	A-2-4(0)	
			14.0'		17" RECOVERY		
15		8	14.0'	3 10 11 7	Wet medium dense orange coarse to fine sand w/some silt, trace of fine gravel.	A-2-4(0)	
			16.0'		14" RECOVERY		
		9	16.0'	3 6 10	Saturated very stiff brown silty clay w/some fine sand, trace of coarse	A-7-6(20)	
Domo			L			L	

Remarks:

PAGE 2 OF 3

STATE OF DELAWARE DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 28-113-01 Boring No.: SS3-11-01

Depth	Daily	No.	Sample	Blows/6"	Sample Description	Class./G.I.	Remarks
(ft.)	Progress		Depth	12	sand.		
10			18.0'		15" RECOVERY		
18		10	18.0'	3 4	Saturated stiff brown silty clay w/trace of fine to coarse sand.	A-7-6(27)	
				3 4 5 7			
			20.0'		19" RECOVERY		
		U-1	20.0'		Saturated gray silty clay w/trace of fine to coarse sand.	A-7-6(23)	Press
21							Sample -
			22.0'		24" RECOVERY		Shelby Tube.
24							
		11	24.0'	2 2 4 5	Saturated firm gray silty coarse sandy clay w/some fine sand.	A-6(6)	
				4 5			
			26.0'		24" RECOVERY		
					DDAET		
27					DRAFT		
		12	29.0'	1	Saturated firm gray clay w/some coarse to fine sand and silt.	A-6(7)	
30		N		3 4 6			
			31.0'		24" RECOVERY		
					GUST 2015		
33							
		13	34.0'	3 5 8 9	Saturated medium dense gray coarse sand w/some fine sand and silt, trace of fine gravel.	A-1-b	
				9	טו ווווכ צומעכו.		
36			36.0'		22" RECOVERY		
20							
39		14	39.0'	27 45	No Sieve Analysis - Indication of saturated very dense green clayey sand.		
				27 45 8 13			
			41.0'		2" RECOVERY		
			ч1.U		2 NECOVENI		
42							
			44.0	20			
AE		15	44.0'	20 50	Saturated very dense green fine to coarse sand w/some silt.	A-2-4(0)	
45							

PAGE 3 OF 3

STATE OF DELAWARE DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 28-113-01 Boring No.: SS3-11-01

Depth	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
(ft.)	Progress	190.	Depth	0/00/0		01035./0.1.	Temarks
			46.0'		11" RECOVERY		
48							
		4.6	40.0	30			
		16	49.0'	39 50/2"	Saturated very dense gray fine to coarse sand w/some silt.	A-2-4(0)	
51			51.0'		6" RECOVERY		
54		17	54.0'	17 27 50	Saturated very dense brown fine to coarse sand w/some silt.	A-2-4(0)	
				50			
			56.0'		14" RECOVERY		
57	_	_					
- 57						\mathbf{P}	
		18	58.0'	27	Saturated very dense brown fine to coarse sand w/some silt.	A-2-4(0)	
				27 44 50/5"			
60			60.0'		13" RECOVERY		
					End of Boring		
63							
66							
69							
72							

Symbol Description

Strata symbols

Poorly graded clayey silty sand



Silty sand



Low plasticity clay



High plasticity clay

Silt

DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 6/22/2009 using a 3 1/4- inch diameter continuous flight power auger. Rig is a ATV CME 55.
- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

3

Core Drilling in Rock:

No. of:

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 Contract: 28-113-01

Boring Location: Sta. 89+50, 72' Rt. C.L.

Ft.

Ft.

Boring Surface Ele	• V.: + 56.32		Ref	erence:			
Wt. of Casing Hammer: Wt. of Sample Hammer: Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:		Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2 3		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow Ste	3 1/4 m Auger:	Inches	From Depth of: From Depth of:	0.0	To: To:		59.0
Water Level Readings Date 6/22/2009	Time	Depth of Hole 59.0	Depth of Casing 59.0		of Water 7.2	Elev. o	f Water

Pay Quantities:

2 1/2 in. Dia. Dry Sample Boring:	60.25	Ft.;
No. of 2 in. Dia. Shelby Tubes:		
2 1/2 in. Dia. Contin. Sample Borin	ig:	Ft.;
-	-	

Boring Contractor: Walton Corporation Driller: Bill Holden Helpers: J. Lafferty

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
	6/22/09	1	0.5'	6 7 9	Moist medium dense brown silty fine to coarse sand w/trace of fine gravel. 14" RECOVERY	A-2-4(0)	Topsoil - 6".
		2	2.0'	9 10 10	Moist medium dense tan silty fine to coarse sand w/trace of fine gravel.	A-2-4(0)	
3			4.0'	12	FOR BOLL		
	•	3	4.0'	10 10 14 14	Moist medium dense gray silty fine to coarse sand w/some clay, trace of fine gravel.	A-2-4(0)	
6			6.0'		16" RECOVERY		
		4	6.0'	5 7 6 9	Moist stiff gray fine to coarse sandy silt w/trace of fine gravel.	A-4(0)	
			8.0'		14" RECOVERY		
9		5	8.0'	5 7 14 64	Wet medium dense gray fine to coarse sand w/some silt, trace of fine gravel.	A-2-4(0)	
			10.0'		15" RECOVERY		
		6	10.0'	50/3"	No Sieve Analysis - Indication of wet very dense gray silty sand w/some gravel.		
12			12.0'	-	3" RECOVERY		
		7	12.0'	3 5 7 9	Saturated stiff brownish orange silty clay w/some fine sand, trace of coarse sand.	A-6(11)	
			14.0'		18" RECOVERY		
15		8	14.0'	3 5 5 6	Saturated stiff brownish orange fine gravelly clay w/some silt, trace of fine to coarse sand.	A-7-6(8)	
			16.0'		13" RECOVERY		
		9	16.0'	13 7 8 9	Saturated stiff grayish orange silty clay w/some fine sand, trace of coarse sand.	A-7-6(16)	

Remarks:

Dia. U-Sample Boring: U-Samples:

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 28-113-01 Boring No.: SS3-12-01

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"		Sample Description	Class./G.I.	Remarks
18			18.0'			19" RECOVERY		
		10	18.0'	3 4 3 5		Saturated firm gray silty clay w/some fine to coarse sand.	A-6(8)	
				3 5				
			20.0'			22" RECOVERY		
21								
		U-1	22.0'			Saturated gray coarse sandy silty clay w/some fine sand, trace of fine	A-6(7)	Press
						gravel.		Sample - Shelby
24			24.0'			24" RECOVERY		Tube.
		11	24.0'	3 7 5 5		Saturated stiff gray coarse to fine sandy clay w/some silt.	A-6(3)	
				5				
			26.0'			18" RECOVERY		
27								
						DRAFI		
	N	12	29.0'	9 13		Saturated very stiff gray fine to coarse sandy clay w/trace silt and fine	A-6(1)	
30		N		13 41		gravel.		
			31.0'	-		23" RECOVERY		
						GUST 2015		
33								
		13	34.0'	13 29		Saturated dense brown gravelly coarse sand w/some fine sand, trace of	A-1-b	
				7	1:1:1:1:1:1:1:1:1: 1:1:1:1:1:1:1:1:1:1 1:	silt.		
36			36.0'			15" RECOVERY		
			00.0		1:1:1:1:1:1:1:1:1: 1:1:1:1:1:1:1:1:1:1:			
					1:1:1:1:1:1:1:1:1:1:1:1:1:1:1:1:1:1:1:			
39		14	39.0'	13		Saturated dense green coarse to fine sand w/some silt, trace of fine gravel.	A-2-4(0)	
				13 20 29 52		Saturated Souse green course to the band wisome one, these of the graver.		
			44.01					
			41.0'			22" RECOVERY		
42								
			44.01	40				
AE		15	44.0'	42 50/4"		Saturated very dense green fine to coarse sand w/some silt.	A-2-4(0)	
45								
			1				I	

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 28-113-01 Boring No.: SS3-12-01

Depth	Daily	NI-	Sample	Dia:			Derrel
(ft.)	Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
			46.0'		10" RECOVERY		
48							
		16	49.0'	50 50/3"	Saturated very dense green fine to coarse sand w/trace of silt.	A-3	
				50/3"		11.5	
51			51.0'		8" RECOVERY		
51			51.0				
54		17	54.0'	50/4"	Saturated very dense green fine to coarse sand w/trace of silt.	A-3	
			56.0'		4" RECOVERY		
57							
		18	59.0'	30 44 50/3"	Saturated very dense green fine to coarse sand w/trace of silt.	A-3	
60							
			61.0'		13" RECOVERY		
					End of Boring		
63							
66							
69							
72							
						1	

Symbol Description

Strata symbols

Silty sand

Poorly graded clayey silty sand

Low plasticity



clay Silt



Clayey sand



Well graded sand with silt



Poorly graded sand with silt

DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 6/22/2009 using a 3 1/4- inch diameter continuous flight power auger. Rig is a ATV CME 55.
- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 28-113-01

Boring Location: Sta. 229+00, 83' Rt. C.L.

Boring No.: SS3-13-01

Ft. Ft.

Boring Surface	Elev.: + 71.9		Ref	erence:			
Wt. of Casing Hamn Wt. of Sample Hamr Type of: D-Sampl S-Sampl U-Sampl Core Bit:	ner: 140 er: Split Barrel er: er:	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow	3 1/4 Stem Auger:	Inches	From Depth of: From Depth of:	0.0	To: To:		14.0
Water Level Reading Date 1/28/2010	gs Time	Depth of Hole 14.0	Depth of Casing 14.0		of Water 3.8	Elev. o	f Water

Pay	Qua	n	tit	ies	5:

2 1/2 in. Dia. Dry Sample Boring:	60.0	Ft.;	Dia. U-Sa
No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring:		; Ft.:	No. of: Core Drilling in Rock:
z 1/2 m. Dia. Contin. Sample Boring.		г.,	Core Drining in Rock.

Boring Contractor: Walton Corporation Driller: Jason Truver Helpers: T. Kane

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Clas	ss./G.I.	Remarks
	1/28/10	1	1.0'	2 1	Wet firm brown clayey silt w/some fine sand, trac	ce of coarse sand. A-		Cultivated
		2	2.0' 2.0'	1 2 2	6" RECOVERY Wet firm brown fine sandy silt w/some coarse sar	nd and clay, trace of fine A-		Soil - 10".
3		_		2 4	gravel.			
			4.0'		10" RECOVERY			
		3	4.0'	3 2 3 3	Wet loose orange coarse to fine sand w/some silt,	trace of fine gravel. A-2	2-4(0)	
6			6.0'		15" RECOVERY			
		4	6.0'	3 5 5 5 5	Wet loose orange coarse to fine sand w/some silt	and fine gravel. A	∆-1-b	
			8.0' 8.0'	3	16" RECOVERY			
9		5	8.0	3 3 3 3	Wet loose orange fine to coarse sand w/some silt,	trace of fine gravel. A-2	2-4(0)	
			10.0'	2	20" RECOVERY			
		6	10.0'	3 3 4 3	Wet loose orange fine sand w/some silt, trace of c	coarse sand. A-2	2-4(0)	
12			12.0'		18" RECOVERY			
		7	12.0'	4 2 3 3	Wet loose orange silty fine sand w/trace of coarse	e sand. A-2	2-4(0)	
			14.0'	2	20" RECOVERY			
15		8	14.0'	2 3 3 3	Saturated loose brown fine sand w/some silt, trace	e of coarse sand. A-2		Mud Rotary @ 14.0'.
		9	16.0' 16.0'	3 2 4 6	19" RECOVERY Saturated loose brown fine sand w/some silt, trace gravel.	e of coarse sand and fine A-2	2-4(0)	

Remarks: Mud Rotary @ 14 feet

Dia. U-Sample Boring: U-Samples:

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 28-113-01 Boring No.: SS3-13-01

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
		10	<u>18.0'</u> 18.0'	5 4 6	17" RECOVERY Saturated loose brown fine to coarse sand w/some silt and fine gravel.	A-2-4(0)	
				6 4			
			20.0'		12" RECOVERY		
21							
		11	23.0'	1	Saturated very loose greenish brown silty coarse to fine sand w/trace of	A-2-4(0)	
24			20.0	1 2 2 2	fine gravel.	A-2-4(0)	
			25.0'		24" RECOVERY		
			20.0				
27							
		12	28.0'	7 6 9 9	Saturated medium dense brown coarse to fine sand w/some silt, trace of fine gravel.	A-1-b	
				9	ta a stel Equator		
30			30.0'		OR BODINC		
		N					
33							
		13	33.0'	15 17 23 33	Saturated dense brown silty coarse to fine sand w/trace of fine gravel.	A-2-4(0)	
				33			
			35.0'		23" RECOVERY		
36							
		14	38.0'	13 17	Saturated dense reddish brown fine to coarse sand w/some silt, trace of	A-2-4(0)	
39				13 17 21 29	fine gravel.		
			40.0'		23" RECOVERY		
42							
		15	43.0'	16	Saturated very danse reddish brown fine to seems and w/sems -ilt tra-	A-2-4(0)	
			-70.0	16 23 32 33	Saturated very dense reddish brown fine to coarse sand w/some silt, trace of fine gravel.	A-2-4(0)	
45			45.0'		24" RECOVERY		
40			<u></u>		24 RECOVERI		

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 28-113-01 Boring No.: SS3-13-01

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
(11.)	FIUGIESS		Берш				
48		16	48.0'	15	Saturated dense reddish brown fine to coarse sand w/some silt.	A-2-4(0)	
		10	.0.0	15 20 27 30	Saturated dense reduisit brown time to coarse sand w/some sitt.	A-2-4(0)	
			50.0'		23" RECOVERY		
51							
		17	53.0'	16	Saturated dense reddish brown fine to coarse sand w/some silt.	A-2-4(0)	
54			00.0	16 21 25 37		A-2-4(0)	
			55.0'		22" RECOVERY		
					DRAFT		
57					76 1 / 516 P 26 1 / 21 / 1 26 1 / 21 / 1		
	N	18	58.0'	16	Saturated very dense reddish brown fine to coarse sand w/trace of silt and	A-3	
		V		33	fine gravel, R BIDDINC	7	
60	-		60.0'	_	24" RECOVERY		
					End of Boring		
			F	HU	JGUST 2015		
63							
66							
69							
72							

Symbol Description

Strata symbols

Silty low plasticity clay

Poorly graded clayey silty sand



Silty sand

Poorly graded sand with silt

DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 1/28/2010 using a 3 1/4- inch diameter continuous flight power auger. Rig is a ATV CME 55.
- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

Boring Location: Sta. 105+91, 145' Rt. C.L.

Boring No.: SWM3-1-1

Boring Surface Elev.: + 63.3		Ref	erence:	
Wt. of Casing Hammer: Wt. of Sample Hammer: Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow Stem Auger:	Inches	From Depth of: From Depth of:	To: To:	
Water Level Readings Date Time 6/19/2009	Depth of Hole 10.0	Depth of Casing	Depth of Water	Elev. of Water
Pay Quantities: 2 1/2 in. Dia. Dry Sample Borir No. of 2 in. Dia. Shelby Tubes:	-	Ft.; ; No. of:	Dia. U-Sample Boring: U-Samples:	Ft.
2 1/2 in. Dia. Contin. Sample B	loring:	Ft.; Core Drillin	g in Rock:	Ft.

No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring: Boring Contractor: Walton Corporation Driller: Dave Burt Helpers: T. Kane

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
	6/19/09	1	0.5'		No Sieve Analysis - Indication of moist tan clayey sandy silt. 12" RECOVERY		Topsoil - 3". Hand
		2	1.5'		Moist orange clayey silt w/some fine to coarse sand, trace of gravel.	A-4(3)	Auger
2			2.8'		FOR BISTRECOVERY		Hand Auger
		3	2.8'		Moist brown silty fine to coarse sand w/trace of gravel.	A-2-4(0)	Hand Auger
4			4.0'		15" RECOVERY		
		4	4.0'		Moist to wet tan clayey fine sandy silt w/some coarse sand, trace of gravel.	A-4(0)	Hand Auger
			5.5'		18" RECOVERY		
 		5	5.5'		Wet orange coarse to fine sand w/some silt, trace of gravel.	A-1-b	Hand Auger
10			10.0'		54" RECOVERY End of Boring		
Remai							

Symbol Description

Strata symbols



Low plasticity clay

Silty sand



Clayey sand

DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 6/19/2009 using a hand auger.
- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.

Boring Location: Sta. 106+78, 145' Rt. C.L.

Boring No.: SWM3-1-2

Boring Surface Elev.: + 62.9		Refe	erence:	
Wt. of Casing Hammer: Wt. of Sample Hammer: Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:		IN. IN. IN. IN. IN.
Casing Size: Hollow Stem Auger:	Inches	From Depth of: From Depth of:	To: To:	
Water Level Readings Date Time 6/19/2009	Depth of Hole 8.0	Depth of Casing	Depth of Water 4.5	Elev. of Water
Pay Quantities:		_		

2 1/2 in. Dia. Dry Sample Boring: No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring:	Ft.; ; Ft.:	Dia. U-Sample Boring: No. of: U-Samples: Core Drilling in Rock:	Ft. Ft.
Boring Contractor: Walton Corporation	·,		

Boring Contractor: Walton Corporation Driller: Dave Burt Helpers: T. Kane

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
	6/19/09	1	0.0'		Moist tan silt w/some fine sand and clay, trace of coarse sand and gravel.	A-4(2)	Hand Auger
2			2.0'		24"RECOVERY		
		2	2.0' 3.0'		Moist brown mottled clay w/trace of coarse sand. 12" RECOVERY	A-6(13)	Hand Auger
4		3	3.0'	٩L	Moist brown silty coarse tof ine sand w/trace of gravel.	A-2-4(0)	Hand Auger
		4	4.5'		Wet orange silty fine to coarse sand w/trace of gravel.	A-2-4(0)	Hand Auger
6							
8			8.0'		42" RECOVERY End of Boring		
10							

Symbol Description

Strata symbols



Silty low plasticity clay



Low plasticity clay



Silty sand

DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 6/19/2009 using a hand auger.
- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.

Boring Location: Sta. 108+26, 136 Rt. C.L.

Boring No.: SWM3-1-3

Boring Surface Elev.: + 62.9		Reference:					
Wt. of Casing Hammer: Wt. of Sample Hammer: Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:		IN. IN. IN. IN. IN. IN.			
Casing Size: Hollow Stem Auger:	Inches	From Depth of: From Depth of:	То: То:				
Water Level Readings Date Time 6/19/2009	Depth of Hole 7.0	Depth of Casing	Depth of Water 4.5	Elev. of Water			
Pay Quantities:							

2 1/2 in. Dia. Dry Sample Boring: No. of 2 in. Dia. Shelby Tubes:	Ft.;	Dia. U-Sample Boring: No. of: U-Samples:	Ft.
2 1/2 in. Dia. Contin. Sample Boring:	Ft.;	Core Drilling in Rock:	Ft.
Boring Contractor: Walton Corporation			

Dring Contractor: Walton Corporation Driller: Dave Burt Helpers: T. Kane

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
	6/19/09	1	0.5'		Moist tan silt w/some fine to coarse sand, trace of clay and gravel.	A-4(0)	Leaf Litter - 3". Hand
2	_		2.0'		18" RECOVERY		Auger
		2	2.0'		Moist orange clayey fine to coarse sand w/trace of gravel. 18" RECOVERY	A-2-4(0)	Hand Auger
4		3	3.5' 5.0'	٩L	Moist orange silty fine sand w/some coarse sand and gravel. 18" RECOVERY	A-2-4(0)	Hand Auger
		4	5.0' 5.5'		No Sieve Analysis - Indication of wet orange mottled silty sand.		Hand
6		4A	5.5'		6" RECOVERY Wet orange mottled fine to coarse sand w/some silt, trace of gravel.	A-2-4(0)	Auger Hand Auger
			7.0'		18" RECOVERY		
					End of Boring		
8							
10							

Symbol Description

Strata symbols



Silt

Clayey sand

Silty sand

DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 6/19/2009 using a hand auger.
- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.

Boring No.: SWM3-2-01

Boring Location:									
Boring Surface Ele	EV.: + 62.9		Reference:						
Wt. of Casing Hammer: Wt. of Sample Hammer Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:	: 140 Split Barrel	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2		IN. IN. IN. IN. IN. IN.			
Casing Size: Hollow Ste	3 1/4 em Auger:	Inches	From Depth of: From Depth of:	0.0	To: To:		8.0		
Water Level Readings Date 6/16/2009	Time	Depth of Hole	Depth of Casing 8.0		of Water 5.2	Elev. o	f Water		

Pay Quantities:

Contract: 25-113-01

2 1/2 in. Dia. Dry Sample Boring: 10.0	Ft.;	Dia. U-Sample Boring:	Ft.
No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring:	; Ft.;	No. of: U-Samples: Core Drilling in Rock:	Ft.
Devine Contractory Welter Comparties			

Boring Contractor: Walton Corporation Driller: Dave Burt Helpers: T. Kane

F.A. Project: U.S. 301 Maryland State Line to S.R. 1

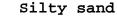
Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
	6/16/09	1	0.5'	4 4 4	Moist firm gray clayey silt w/trace of fine to coarse sand and gravel.	A-4(3)	Topsoil - 4".
2			2.0'		15" RECOVERY		
		2	2.0'	7 9 12 15	Moist very stiff gray fine sandy silt w/some coarse sand, trace of clay and gravel.	A-4(0)	
4			4.0'		16" RECOVERY		
		3	4.0'	8 10 11 11	Moist very stiff gray clayey fine sandy silt w/trace of coarse sand and gravel.	A-4(0)	USDA Classifica - Loam.
6			6.0'		16" RECOVERY		
		4	6.0'	8 9 13 15	Wet medium dense brown fine to coarse sand w/some silt and gravel.	A-2-4(0)	
8			8.0'		19" RECOVERY		
		5	8.0'	5 4 4 5	Wet loose orange silty fine sand.	A-2-4(0)	
10			10.0'		17" RECOVERY		
					End of Boring		

Symbol Description

Strata symbols



Silty low plasticity clay



DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

1. Exploratory borings were drilled on 6/16/2009 using a 3 1/4-inch diameter continues flight power auger. Rig is a ATV CME 45.

- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blows are uncorrected.

Boring No.: SWM3-2-02

Boring Surface Ele	ev.: + 63.7		Ref	erence:		
Wt. of Casing Hammer Wt. of Sample Hammer Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:	r: 140 Split Barrel	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2		IN. IN. IN. IN. IN. IN.
Casing Size: Hollow Ste	3 1/4 em Auger:	Inches	From Depth of: From Depth of:	0.0	To: To:	8
Water Level Readings Date 6/15/2009	Time	Depth of Hole 10.0	Depth of Casing 8.0		of Water	Elev. of Water

All Standard Standa Standard Standard Stand Standard Standard Stand Standar	0.0 Ft.; ; Ft.;	Dia. U-Sample Boring: No. of: U-Samples: Core Drilling in Rock:	Ft. Ft.
Boring Contractor: Walton Corporation			

Boring Contractor: Walton Corporation Driller: Dave Burt Helpers: T. Kane

F.A. Project: U.S. 301 Maryland State Line to S.R. 1

Contract: 25-113-01

Depth	Daily		Sample				
(ft.)	Progress	No.	Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
	6/15/09	1	0.5'	2 3 3	No Sieve Analysis - Indication of moist firm gray clayey sandy silt.		Topsoil - 4".
2			2.0'		14" RECOVERY		
		2	2.0'	4	Moist very stiff gray clay w/trace of fine to coarse sand and gravel.	A-6(12)	
		N	U	4 4		2	
4			4.0'		18" RECOVERY		
		3	4.0'	4 10 10 11	Wet very stiff orange clayey fine sandy silt w/some coarse sand.	A-4(1)	USDA Classifica
							- Loam.
6		4	6.0' 6.0'	10	17" RECOVERY		
		4	0.0	10 10 9 9	Wet loose orange silty fine sand w/trace of coarse sand.	A-2-4(0)	
8			8.0'		18" RECOVERY		
		5	8.0'	7 6 5 6	Wet medium dense orange silty fine sand.	A-2-4(0)	
10			10.0'		18" DECOVEDV		
			10.0		18" RECOVERY End of Boring		

Symbol Description

Strata symbols



Low plasticity clay

Silty low plasticity clay



Silty sand

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

1. Exploratory borings were drilled on 6/15/2009 using a 3 1/4-inch diameter continues flight power auger. Rig is a ATV CME 45.

- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blows are uncorrected.

Boring No.: SWM3-2-03

Boring Surface Ele	V.: + 63.8	Reference:					
Wt. of Casing Hammer: Wt. of Sample Hammer Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:	: 140	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow Ste	3 1/4 m Auger:	Inches	From Depth of: From Depth of:	0.0	To: To:		8.0
Water Level Readings Date 6/15/2009	Time	Depth of Hole	Depth of Casing 8.0		of Water 3.7	Elev. o	f Water

Pay Quantities:

Contract: 25-113-01

2 1/2 in. Dia. Dry Sample Boring: 10.0 No. of 2 in. Dia. Shelby Tubes:	Ft.;	Dia. U-Sample Boring: No. of: U-Samples:	Ft.
2 1/2 in. Dia. Contin. Sample Boring:	Ft.;	Core Drilling in Rock:	Ft.
Paring Contractory Walton Composition			

Boring Contractor: Walton Corporation Driller: Dave Burt Helpers: T. Kane

F.A. Project: U.S. 301 Maryland State Line to S.R. 1

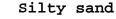
Depth	Daily	No.	Sample	Blows/6"	Sample Description	Class./G.I.	Remarks
(ft.)	Progress 6/15/09	1	Depth 0.5'				
	0,10,00		0.5	2 3 5	Moist firm gray silt w/some clay, trace of fine to coarse sand.	A-4(4)	Topsoil - 3".
2			2.0'		18" RECOVERY		
		2	2.0'	8 9 12	Moist very stiff gray coarse to fine sandy silt w/trace of clay and gravel.	A-4(0)	
		Ν	U	14		7	
4			4.0'		TI5" RECOVERY		
		3	4.0'	6 11 6 6	Wet medium dense orange fine to coarse sand w/some silt, trace of gravel.	A-2-4(0)	
6		4	6.0' 6.0'	5	15" RECOVERY	1.2.4(0)	
		4	0.0	5 4 5 6	Wet loose orange silty fine sand w/trace of coarse sand.	A-2-4(0)	
				-			
8			8.0'	E	14" RECOVERY		
		5	8.0'	5 4 5 6	Wet loose orange fine sand w/some silt, trace of coarse sand and gravel.	A-2-4(0)	
				U			
10			10.0'		13" RECOVERY		
					 End of Boring		
Roma	rke						

Symbol Description

Strata symbols



Silty low plasticity clay



DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

1. Exploratory borings were drilled on 6/15/2009 using a 3 1/4-inch diameter continues flight power auger. Rig is a ATV CME 45.

- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blows are uncorrected.

Boring Location: Sta. 121+65, 145' Rt. C.L.

Boring No.: SWM3-3-01

Boring Surface Elev	+ 62.9		Reference:			
Wt. of Casing Hammer: Wt. of Sample Hammer: Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:		Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow Sten	n Auger:	Inches	From Depth of: From Depth of:	To: To:		
Water Level Readings Date 6/19/2009	Time	Depth of Hole	Depth of Casing	Depth of Water 5.0	Elev. of Water	
Pay Quantities:						

2 1/2 in. Dia. Dry Sample Boring: No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring:	Ft.; ; Ft.;	Dia. U-Sample Boring: No. of: U-Samples: Core Drilling in Rock:	Ft. Ft.
Poring Contractor: Walton Corneration		-	

Boring Contractor: Walton Corporation Driller: Dave Burt Helpers: T. Kane

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
	6/19/09	1	0.5'		Moist tan fine to coarse sand w/trace of clay.	A-2-4(0)	Leaf Litter - 3".
2		2	1.5'		Moist gray clayey coarse to fine sand.	A-2-4(0)	Hand
2							Auger Hand
		3	2.5' 2.5'		Moist to wet tan coarse to fine sand w/some silt, trace of gravel.	A-1-b	Auger
					None to wet an course to me tand w some shit, thee of graten	1110	Hand
							Auger
4			5.0'	٩L	GUST2015		
		4	5.0'		Wet orange fine to coarse sand w/some silt, trace of gravel.	A-2-4(0)	Hand
6							Auger
0							
8							
10			10.0				
10			10.0'		60" RECOVERY End of Boring		
					C		
Poma						1	

Symbol Description

Strata symbols

Y / / / Y / / / Y / / /

Poorly graded sand with clay

Poorly graded clayey silty sand



Silty sand

DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 6/19/2009 using a hand auger.
- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.

Boring Location: Sta. 122+50, 133' Rt. C.L.

Boring No.: SWM3-3-02

Boring Surface Elev.: + 55.0		Refe	erence:	
Wt. of Casing Hammer: Wt. of Sample Hammer: Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow Stem Auger:	Inches	From Depth of: From Depth of:	To: To:	
Water Level Readings Date Time 6/19/2009	Depth of Hole	Depth of Casing	Depth of Water 6.5	Elev. of Water
Pay Quantities: 2 1/2 in Dia, Dry Sample Bori	na.	Ft ·	Dia, U-Sample Boring:	Ft.

2 1/2 in. Dia. Dry Sample Boring: No. of 2 in. Dia. Shelby Tubes:	Ft.;	Dia. U-Sample Boring: No. of: U-Samples:	Ft.
2 1/2 in. Dia. Contin. Sample Boring:	Ft.;	Core Drilling in Rock:	Ft.
Devine Contractory Walter Comparties			

Boring Contractor: Walton Corporation Driller: Dave Burt Helpers: T. Kane

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
2	6/19/09	1	0.5'		Moist gray mottled clayey silt w/some fine sand, trace of c gravel.	coarse sand and A-4(4)	Leaf Litter - 3". Hand Auger
		2	2.5' 2.5'		24" RECOVERY		
		2	2.5		Moist gray mottled coarse to fine sandy silt w/some clay, t	trace of gravel. A-4(0)	Hand Auger
			5.0'	٩L	GUST ₂₀₁	5	
6		3	5.0'		Wet gray silty fine to coarse sand w/trace of gravel.	A-2-4(0)	Hand Auger
		4	6.5' 6.5'		18" RECOVERY		II.a. 1
		4	0.0		Wet orange silty fine to coarse sand.	A-2-4(0)	Hand Auger
8							
10			10.0'		42" RECOVERY End of Boring		
					Lid of boring		
Poma	dia.	I					

Symbol Description

Strata symbols

Silty low plasticity clay

Poorly graded clayey silty sand



Silty sand

DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 6/19/2009 using a hand auger.
- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.

Boring Location: Sta. 123+11, 132' Rt. C.L.

Boring No.: SWM3-3-03

Ft. Ft.

Boring Surface E	1ev.: + 60.3		Refe	erence:	
Wt. of Casing Hamme Wt. of Sample Hamm Type of: D-Sample S-Sample U-Sample Core Bit:	er: r: r:	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Samp. Tube:		IN. IN. IN. IN. IN.
Casing Size: Hollow S	item Auger:	Inches	From Depth of: From Depth of:	To: To:	
Water Level Readings Date 6/19/2009	s Time	Depth of Hole 10.0	Depth of Casing	Depth of Water 4.0	Elev. of Water

Pay Quantities	5:		
2 1/2 in	. Dia. Dr	y Sample) Bor
		Shelby	

2 1/2 in. Dia. Dry Sample Boring:	Ft.;	Dia. U-Sample Boring:	F
No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring:	; Ft.;	No. of: U-Samples: Core Drilling in Rock:	F
Devine Contractory Walter Comparties			

Boring Contractor: Walton Corporation Driller: Dave Burt Helpers: T. Kane

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description Class./G.I.	Remarks
	6/19/09	1	0.5'		Moist gray mottled clayey silt w/some fine to A-4(4) coarse sand, trace of gravel.	Topsoil - 4". Hand Auger
2	ľ	2	2.0'	Τ	18" RECOVERY Moist gray mottled silt w/some coarse tof ine sand, gravel and clay.	Hand Auger
4		3	4.0		Wet gray fine to coarse sand w/some gravel, trace of clay. A-2-4(0)	Hand Auger
<u>6</u> 8		4	6.0'		24" RECOVERY Wet brown silty fine sand w/some coarse sand, trace of gravel.	Hand Auger
10			10.0'		48" RECOVERY	
					End of Boring	

Symbol Description

Strata symbols

Silty low plasticity clay

Poorly graded clayey silty sand



Silty sand

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

 Exploratory borings were drilled on 6/19/2009 using a hand auger.

2. Groundwater levels recorded at the tme of drilling and re-checked the following day.

- 3. Surveyed boring location and elevation provided by Century Engineering.
- These logs are subject to the limitations, conclusions, and recommendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.

Boring Location: Sta. 124+25, 108' Lt. C.L.

Boring No.: SWM3-4-01

Boring Surface Elev.: + 62.6		Refe	erence:	
Wt. of Casing Hammer: Wt. of Sample Hammer: Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:		IN. IN. IN. IN. IN. IN.
Casing Size: Hollow Stem Auger:	Inches	From Depth of: From Depth of:	To: To:	
Water Level Readings Date Time 6/24/2009	Depth of Hole 8.0	Depth of Casing	Depth of Water 2.0	Elev. of Water
Pay Quantities:				

2 1/2 in. Dia. Dry Sample Boring: No. of 2 in. Dia. Shelby Tubes:	Ft.; ;	Dia. U-Sample Boring: No. of: U-Samples:	Ft.
2 1/2 in. Dia. Contin. Sample Boring:	Ft.;	Core Drilling in Rock:	Ft.
Boring Contractor: Walton Corporation			

Boring Contractor: Walton Corporation Driller: Dave Burt Helpers: J. Lafferty

.I. Remarks
) Topsoil - 4". Hand Auger
)) Hand Auger
)) Hand Auger

Symbol Description

Strata symbols



Silty low plasticity clay



Silty sand



Poorly graded sand with silt

DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 6/24/2009 using a hand auger.
- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.

Boring Location: Sta. 124+70, 126 Lt. C.L.

Boring No.: SWM3-4-02

Boring Surface Elev.: + 62.3		Refe	erence:	
Wt. of Casing Hammer: Wt. of Sample Hammer: Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	IN IN IN IN IN IN	. . .
Casing Size: Hollow Stem Auger:	Inches	From Depth of: From Depth of:	To: To:	
Water Level Readings Date Time 6/24/2009	Depth of Hole 8.0	Depth of Casing	Depth of Water	Elev. of Water
Pay Quantities:				

2 1/2 in. Dia. Dry Sample Boring: No. of 2 in. Dia. Shelby Tubes:	Ft.;	Dia. U-Sample Boring: No. of: U-Samples:	Ft.
2 1/2 in. Dia. Contin. Sample Boring:	Ft.;	Core Drilling in Rock:	Ft.
Paring Contractory Walton Corneration			

Boring Contractor: Walton Corporation Driller: Dave Burt Helpers: J. Lafferty

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
2	6/24/09	1	0.5'		Moist to wet grayish orange clayey silt w/some fine to coarse sand, of gravel.	trace A-4(2)	Topsoil - 4". Hand Auger
			2.5'		24" RECOVERY		
		2	2.5'		Wet gray silt w/some coarse to fine sand, clay and gravel.	A-4(0)	Hand Auger
4		3	4.0' 4.0'		18" RECOVERY		
		3	4.0		Wet orange clayey coarse to fine sand w/trace of gravel.	A-2-4(0)	Hand Auger
6							
8			8.0'		48" RECOVERY End of Boring		
10							
<u> </u>	den.						



Symbol Description

Strata symbols



Silty low plasticity clay



Clayey sand

DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 6/24/2009 using a hand auger.
- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.

Boring Location: Sta. 124+92, 143' Lt. C.L.

Boring No.: SWM3-4-03

Boring Surface Elev.: + 62	5	Ref	erence:	
Wt. of Casing Hammer: Wt. of Sample Hammer: Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Samp. Tube:	IN IN IN IN IN IN	. . .
Casing Size: Hollow Stem Auger:	Inches	From Depth of: From Depth of:	To: To:	
Water Level Readings Date Time 6/24/2009	Depth of Hole 6.0	Depth of Casing	Depth of Water 2.3	Elev. of Water
Pay Quantities: 2 1/2 in Dia Dry Sample I	Boring:	Ft ·	Dia II-Sample Boring:	Ft

2 1/2 in. Dia. Dry Sample Boring: No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring:	Ft.; ; Ft.;	Dia. U-Sample Boring: No. of: U-Samples: Core Drilling in Rock:	Ft. Ft.
oring Contractor: Walton Corporation			

Boring Contractor: Walton Corporation Driller: Dave Burt Helpers: J. Lafferty

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
2	6/24/09	1	0.5'		Moist grayish orange mottled clayey silt w/some fine to coarse sand and gravel. 18" RECOVERY	A-4(0)	Topsoil - 4". Hand Auger
		2	2.0'	Τ	Moist to wet orangish gray mottled clayey coarse to fine sand w/trace of gravel.	A-2-4(0)	Hand Auger
4		3	4.0' 4.0'	łt	24" RECOVERY Wet orange coarse to fine sand w/some gravel and silt.	A-1-b	Hand Auger
6			6.0'		24" RECOVERY		
					End of Boring		
8							
10							
Roma	_						

Symbol Description

Strata symbols



Poorly graded clayey silty sand

Silty sand

DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 6/24/2009 using a hand auger.
- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.

Boring Location: Sta. 126+27, 231' Rt. C.L.

Boring No.: SWM3-5-01

Boring Surface Elev.: + 61.08		Ref		
Wt. of Casing Hammer: Wt. of Sample Hammer: 140 Type of: D-Sampler: Split Barrel S-Sampler: U-Sampler: Core Bit:	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2	IN. IN. IN. IN. IN. IN.
Casing Size: Hollow Stem Auger:	Inches	From Depth of: From Depth of:	To: To:	
Water Level Readings Date Time 7/21/2009	Depth of Hole 4.0	Depth of Casing	Depth of Water 3.5	Elev. of Water
Pay Quantities:				

2 1/2 in. Dia. Dry Sample Boring: No. of 2 in. Dia. Shelby Tubes:	Ft.;	Dia. U-Sample Boring:	Ft.
2 1/2 in. Dia. Contin. Sample Boring:	, Ft.;	No. of: U-Samples: Core Drilling in Rock:	Ft.

Boring Contractor: Walton Corporation Driller: John Foley Helpers:

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
	7/21/09	1 2	0.5' 1.0' 1.0'		Moistbrownish gray silt w/some gravel, trace of fine to coarse sand and clay. Moist brownish gray clayey silt w/some fine to coarse sand and gravel.	A-4(0) A-4(2)	Topsoil - 6". Hand
2		3	2.0' 2.0' 3.0'		Moist gray gravelly fine sandy silt w/some coarse sand and clay.	A-4(0)	Auger Hand Auger Hand
4	-	4	3.0' 4.0'		Moist grayish brown coarse sand and gravel w/some fine sand, trace of silt.	A-1-b	√Auger Hand Auger
			F	11	End of Boring		
6							
8							
10							

Remarks: Hand Auger

Symbol Description

Strata symbols

Silt

Low plasticity clay



Poorly graded clayey silty sand



Poorly graded sand

DRAFT NOT FOR BIDDING AUGUST 2015

- 1. Exploratory borings were drilled on 7/21/2009 using a hand auger.
- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 Contract: 28-113-01

Boring Location: Sta. 126+75, 175' Rt. C.L.

Boring No.: SWM3-5-02

Boring Surface Elev.: + 61.55		Reference:				
Wt. of Casing Hammer: Wt. of Sample Hammer: 140 Type of: D-Sampler: Split Barrel S-Sampler: U-Sampler: Core Bit:	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2	IN. IN. IN. IN. IN.		
Casing Size: Hollow Stem Auger:	Inches	From Depth of: From Depth of:	То: То:			
Water Level Readings Date Time 7/21/2009	Depth of Hole 8.2	Depth of Casing	Depth of Water 3.5	Elev. of Water		
Pay Quantities:						

2 1/2 in. Dia. Dry Sample Boring:	Ft.;	Dia. U-Sample Boring:	Ft.
No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring:	; Ft.;	No. of: U-Samples: Core Drilling in Rock:	Ft.

Boring Contractor: Walton Corporation Driller: John Foley Helpers:

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
	7/21/09	1	0.5' 1.0'		Moist gray silt w/trace of clay and fine to coarse sand.	A-4(2)	Topsoil -
		2	1.0'		Moist gray coarse to fine sandy silt w/some clay.	A-4(0)	6". Hand
2			2.0'				Auger
		3	2.0'		Moist brownish gray fine to coarse sandy silt w/some clay, trace of	A-4(0)	Hand Auger
					gravel.	H	Hand
	•	4	3.0' 3.0'		Moist grayish brown coarse sand and gravel w/some fine sand, trace of	A-1-b	Auger
					silt.		Hand Auger
4		5	4.0' 4.0'		OUCT 001E		-
		5	4.0 5.0'		Moist grayish brown silty coarse to fine sand w/trace of gravel.	A-2-4(0)	Hand Auger
		6	5.0'		Wet light brown fine to coarse sand w/some silt, trace of gravel.	A-2-4(0)	Hand
6			6.0'				Auger
0		7	6.0'		Wet light brown fine to coarse sand w/some silt, trace of gravel.	A-2-4(0)	Hand Auger
			7.0'				
		8	7.0'		Wet light brown fine to coarse sand w/some silt, trace of gravel.	A-2-4(0)	Hand Auger
8		9	8.0' 8.0'		Wet light brown fine to coarse sand w/some silt, trace of gravel.	A-2-4(0)	Hand
			9.0'		wet light brown line to coarse sand w/some sitt, trace of graver.	A-2-4(0)	Auger
		10	9.0'		Wet brown fine to coarse sand w/some silt, trace of gravel.	A-2-4(0)	Hand
10			10.0'				Auger
					End of Boring		

Remarks: Hand Auger

Symbol Description

Strata symbols

silt

Silty low plasticity clay



Poorly graded clayey silty sand



Well graded sand with silt



Silty sand

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

- 1. Exploratory borings were drilled on 7/21/2009 using a hand auger.
- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.

STA 128+00.00 OFFSET 160.00 RT

DODING NO.	WALTON CORF DRILLING CONTF P.O. BOX 1097, NEWARK, DE BORING LO DRILLER DRILLER DRILLER DRILLER DRILLER DRILLER DRILLER DRILLER DRILLER DRILLER DRILLER	RACTOR ELAWARE 19715 OG	9	BLOWS ON CASING B 0-1 1-2 2-3 3-4 4-5 5-6 6-7 7-8 8-9 9-10 10-11 11-12 12-13 13-14 14-15 15-16
+ 6 50 1 0:0 1 2 1.0 2 3 2 0 3 4 3.0 4 5 4 0 5 	$\begin{array}{c c c c c c c c c c c c c c c c c c c $	C Let $v \neq t$ SALe i = SAL		$\begin{array}{c} 16.17 \\ 17.18 \\ 18.19 \\ 19.20 \\ 20.21 \\ 21.22 \\ 22.23 \\ 23.24 \\ 24.25 \\ 25.26 \\ 26.27 \\ 27.28 \\ 28.29 \\ 29.30 \\ 30.31 \\ 31.32 \\ 32.33 \\ 33.34 \\ 34.35 \\ 35.36 \\ 36.37 \\ 37.38 \\ 38.39 \\ 39.40 \\ 40.41 \\ 41.42 \\ 42.43 \\ 43.44 \\ 44.45 \\ 45.46 \\ 46.47 \\ 47.48 \\ 48.49 \\ 49.50 \\ 50.51 \\ 51.52 \\ 52.53 \\ 53.54 \\ 54.55 \\ 55.56 \\ 56.57 \\ 57.58 \\ 58.59 \\ 58.59 \\ \end{array}$

]

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 28-113-01

Boring Location: Sta. 128+30, 200' Lt. C.L.

Boring No.: SWM3-6-01

Ft. Ft.

Boring Surface E	lev.: + 61.98	Reference:						
Wt. of Casing Hamme Wt. of Sample Hamme Type of: D-Sample S-Sample U-Sample Core Bit:	er: 140 r: Split Barrel r:	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2		IN. IN. IN. IN. IN. IN.		
Casing Size: Hollow S	3 1/4 tem Auger:	Inches	From Depth of: From Depth of:	0.0	To: To:		8.0	
Water Level Readings Date 7/20/2009	s Time	Depth of Hole 10.0	Depth of Casing 8.0		of Water 5.7	Elev. c	f Water	

Pay Quantities:

2 1/2 in. Dia. Dry Sample Boring:	10.0	Ft.;	Dia. U-Sample Boring:	
No. of 2 in. Dia. Shelby Tubes:		_;	No. of: U-Samples:	
2 1/2 in. Dia. Contin. Sample Boring:		Ft.;	Core Drilling in Rock:	
Dering Contractory W11 C				

Boring Contractor: Walton Corporation Driller: Dave Burt Helpers: T. Kane

(ft.)	Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
	7/20/09	1	0.5'	5 7 9	Moist very stiff gray mottled silt w/some clay and fine to coarse sand, trace of gravel.	A-4(1)	Forrest Duff - 4".
2			2.0'		16" RECOVERY		
		2	2.0' 3.0'	6 10	Moist very stiff gray mottled clayey fine to coarse andy silt w/trace of gravel. 8" RECOVERY	A-4(0)	
		2A	3.0'	11 12	Moist medium dense gray coarse to fine sand w/some silt, trace of gravel	. A-2-4(0)	
4			4.0'		10" RECOVERY		
		3	4.0'	4 7 4 4	Wet medium dense gray fine to coarse sand w/some silt, trace of gravel.	A-2-4(0)	
6			6.0'		10" RECOVERY		
		4	6.0'	6 6 7 7	Wet medium dense brown silty fine to coarse sand w/trace of gravel.	A-2-4(0)	
8			8.0'		16" RECOVERY		
		5	8.0'	5 8 12 8	Wet medium dense orange coarse to fine sand and gravel w/trace of silt.	A-1-b	
10			10.0'		17" RECOVERY		
					End of Boring		

Symbol Description

Strata symbols

Silty low plasticity clay

Poorly graded clayey silty sand



Silty sand

Poorly graded sand with silt

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

1. Exploratory borings were drilled on 7/20/2009 using a 3 1/4- inch diameter continues flight power auger. Rig is an ATV CME 45.

- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

Boring No.: SWM3-6-02

Contract: 28-113-01 Boring Location:	Sta. 128+36, 165' L						
Boring Surface Ele	EV.: + 68.94		Ref	erence:			
Wt. of Casing Hammer Wt. of Sample Hammer Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:	: 140 Split Barrel	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow Ste	3 1/4 em Auger:	Inches	From Depth of: From Depth of:	0.0	To: To:		8.0
Water Level Readings Date 7/20/2009	Time	Depth of Hole 10.0	Depth of Casing 8.0		of Water 7.7	Elev.	of Water

Pay Quantities:

2 1/2 in. Dia. Dry Sample Boring: No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring:	10.0	Ft.; ; Ft.;	Dia. U-Sample Boring: No. of: U-Samples: Core Drilling in Rock:	Ft. Ft.
Boring Contractor: Walton Corporatio	'n	,	-	

Boring Contractor: Walton Corporation Driller: Dave Burt Helpers: T. Kane

F.A. Project: U.S. 301, Maryland State Line to S.R. 1

Depth	Daily	No	Sample	Blows/6"	Sample Description	Class./G.I.	Bomorke
(ft.)	Progress	No.	Depth		Sample Description		Remarks
	7/20/09	1	0.0'	4 6 5 5	Moist stiff gray mottled silt w/trace of gravel and fine to coarse sand.	A-4(0)	
2		2	2.0' 2.0'	14 11 10	16" RECOVERY Moist very stiff gray mottled fine sandy silt w/some coarse sand, trace of	A-4(0)	
				10 8	gravel.		
4			4.0'		16" RECOVERY		
		3	4.0	3 4 7 7	Wet medium dense gray fine to coarse sand w/some silt, trace of gravel.	A-2-4(0)	
6			6.0'		14" RECOVERY		
		4	6.0'	5 5 4 6	Wet loose brown fine to coarse sand w/some silt, trace of gravel.	A-2-4(0)	
8			8.0'		14" RECOVERY		
		5	8.0'	2 3 3 4	Wet loose brown fine to coarse sand w/some silt, trace of gravel.	A-2-4(0)	
			10.0				
10			10.0'		End of Boring		
	'ks'	<u> </u>	·				

Symbol Description

Strata symbols



Silt

Silty sand

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

1. Exploratory borings were drilled on 7/20/2009 using a 3 1/4- inch diameter continues flight power auger. Rig is an ATV CME 45.

- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

Boring No.: SWM3-6-03

Boring Location: s		. с.д.					
Boring Surface Elev	V.: + 66.6		Ref	erence:			
Wt. of Casing Hammer: Wt. of Sample Hammer: Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:	140 Split Barrel	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow Sten	3 1/4 n Auger:	Inches	From Depth of: From Depth of:	0.0	To: To:		8.0
Water Level Readings Date 7/20/2009	Time	Depth of Hole	Depth of Casing 8.0		of Water 4.0	Elev. o	of Water

Pay Quantities:

Contract: 28-113-01

2 1/2 in. Dia. Dry Sample Boring:	10.0	Ft.;	Dia. U-Sample Boring:	Ft.
No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring:		E + ;	No. of: U-Samples: Core Drilling in Rock:	E+
1 0		г.,	Core Drining in Rock.	г.
Baring Contractory Walton Comparation				

Boring Contractor: Walton Corporation Driller: Dave Burt Helpers: T. Kane

F.A. Project: U.S. 301, Maryland State Line to S.R. 1

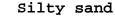
Depth	Daily	No	Sample	Blows/6"	Sample Description	Class./G.I.	Domortic
(ft.)	Progress	No.	Depth				Remarks
	7/20/09	1	0.0'	4 4 10 7	Moist stiff gray mottled silt w/some clay, trace of gravel and fine to coarse sand.	A-4(3)	Forrset Duff - 1".
2			2.0'		19" RECOVERY		
		2	2.0'	10 10 17 9	Moist medium dense gray silty coarse to fine sand w/trace of gravel.	A-1-b	
4		3	4.0' 4.0'		GUS ⁸ " RECOVERY		
		3	4.0	4 7 7	Wet medium dense gray silty fine to coarse sand w/trace of gravel.	A-2-4(0)	
6			6.0'		15" RECOVERY		
		4	6.0'	7 7 5 4	Wet medium dense tan coarse to fine sand w/some silt, trace of gravel.	A-2-4(0)	
8			8.0'		15" RECOVERY		
		5	8.0'	1 3 2 3	Wet loose orange fine to coarse sand w/some silt, trace of gravel.	A-2-4(0)	
10			10.0'		14" RECOVERY		
Remai					End of Boring		

Symbol Description

Strata symbols



Silty low plasticity clay



DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

1. Exploratory borings were drilled on 7/20/2009 using a 3 1/4- inch diameter continues flight power auger. Rig is an ATV CME 45.

- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

Boring No.: SWM3-7-04

Boring Location:	Sta. 1004+45, 185' F	Rt. C.L.						
Boring Surface Ele	ev.: + 67.2		Reference:					
Wt. of Casing Hammer: Wt. of Sample Hammer Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:	: 140	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2		IN. IN. IN. IN. IN. IN.		
Casing Size: Hollow Ste	3 1/4 m Auger:	Inches	From Depth of: From Depth of:	0.0	To: To:		8.0	
Water Level Readings Date 10/6/2009	Time	Depth of Hole	Depth of Casing 8.0		of Water .9	Elev. o	f Water	

Pay Quantities:

Contract: 28-113-01

2 1/2 in. Dia. Dry Sample Boring: No. of 2 in. Dia. Shelby Tubes:	10.0	Ft.;	Dia. U-Sample Boring: No. of: U-Samples:	Ft.
2 1/2 in. Dia. Contin. Sample Boring:		Ft.;	Core Drilling in Rock:	Ft.
Dering Contractory Walter Compartie				

Boring Contractor: Walton Corporation Driller: Jason Truver Helpers: D. Zmijewski

F.A. Project: U.S. 301, Maryland State Line to S.R. 1

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"		Sample Description	Class./G.I.	Remarks
	10/6/09	1	0.5'	3 2 2		Wet soft gray clayey silt w/trace of fine to coarse sand and fine gravel.	A-4(4)	Topsoil - 6".
2	_	_	2.0'			12" RECOVERY		
		2	2.0' 3.0'	33		Wet firm gray clay w/some fine sand, trace of coarse sand and fine gravel. 9" RECOVERY	A-6(7)	2.5 YR - 8/1
4		2A	3.0' 4.0'	5 10		Wet medium dense tan silty fine sand w/some coarse sand, trace of fine gravel.	A-2-4(0)	2.5 YR - 8/1
		3	4.0'	11 12 13 10		Wet medium dense orange coarse to fine sand w/some fine gravel. trace of silt.	A-1-b	5 YR - 5/ 8
6			6.0'		186 3 3, 496 f. 197 1 7 3 2010 194 1 4 3 5 6 6	14" RECOVERY		
		4	6.0'	9 9 10 11		Wet medium dense orange coarse to fine sand w/some silt, trace of fine gravel.	A-2-4(0)	5 YR - 5/ 8
8			8.0'			21" RECOVERY		
		5	8.0'	4 5 4 4		Wet loose orange fine sand w/some fine gravel, trace of fine sand and silt.	A-1-b	5 YR - 5/ 6
10			10.0')	19" RECOVERY		
						End of Boring		

Symbol Description

Strata symbols

Silty low plasticity clay



Low plasticity clay



Silty sand



10 Poorly graded sand with silt

Well graded sand with silt

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

1. Exploratory borings were drilled on 10/6/2009 using a 3 1/4- inch diameter continues flight power auger. Rig is an ATV CME 55.

- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 28-113-01

Boring Location: Sta. 136+70, Rt. C.L

Boring Surface Ele	V.: + 66.5		Ref				
Wt. of Casing Hammer: Wt. of Sample Hammer: Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:		Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow Ste	3 1/4 m Auger:	Inches	From Depth of: From Depth of:	0.0	To: To:		8.0
Water Level Readings Date 10/5/2009	Time	Depth of Hole 10.0	Depth of Casing 8.0		of Water 4.2	Elev. of V	Vater

Pay Quantities:

2 1/2 in. Dia. Dry Sample Boring: 10 No. of 2 in. Dia. Shelby Tubes:	0.0 Ft.;	Dia. U-Sample Boring: No. of: U-Samples:	Ft.
2 1/2 in. Dia. Contin. Sample Boring:	Ft.;	Core Drilling in Rock:	Ft.
Baring Contractory Walter Comparties			

Boring Contractor: Walton Corporation Driller: Bill Holden Helpers: D. Zmijewski

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
2	10/5/09	1	0.5'	5 5 8	Moist stiff tan clayey silt w/some fine to coarse sand, trace of fine gravel. 12" RECOVERY	A-4(2)	Topsoil - 6". 7.5 YR - 5/2
		2	2.0'	7 10 13 11	Moist medium dense tan silty fine to coarse sand w/some clay, trace of fine gravel.	A-2-4(0)	7.5 YR - 5/2
4		3	4.0' 4.0'	3 6 5 7	Wet medium dense gray silty coarse to fine sand.	A-2-4(0)	10 YR - 5/1
6		4	6.0' 6.0'	4 7 7 5	16" RECOVERY Wet medium dense orange coarse to fine sand w/some silt, trace of gravel	. A-1-b	7.5 YR - 5/6
8		5	8.0' 8.0'	3 5 5 5	15" RECOVERY Wet loose orange coarse sand w/some fine sand and silt, trace of fine gravel.	A-1-b	7.5 YR - 5/6
10	rke:		10.0'		16" RECOVERY End of Boring		

Symbol Description

Strata symbols

Silty low plasticity clay

Poorly graded clayey silty sand



Silty sand

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

1. Exploratory borings were drilled on 10/5/2009 using a 3 1/4- inch diameter continues flight power auger. Rig is an ATV CME 55.

- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 Contract: 28-113-01

Boring Location: Sta. 144+70, 245' Rt. C.L.

Boring No.: SWM3-9-04

Ft.

Ft.

Boring Surface	Elev.: + 71.4		Ref				
Wt. of Casing Hamn Wt. of Sample Ham Type of: D-Sampl S-Sampl U-Sampl Core Bit	mer: 140 ler: Split Barrel ler: ler:	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow	3-1/4 Stem Auger:	Inches	From Depth of: From Depth of:	0.0	To: To:		8.0
Water Level Readin Date 1/27/2010	gs Time	Depth of Hole 10.0	Depth of Casing 8.0		of Water 4.3	Elev.	of Water

Ft.;

; Ft.;

Pay	Quantities	:

2 1/2 in. Dia. Dry Sample Boring:	10.0
No. of 2 in. Dia. Shelby Tubes:	
2 1/2 in. Dia. Contin. Sample Boring:	
1 0	

Boring Contractor: Walton Corporation Driller: D. Burt Helpers: T. Kane

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
	1/27/10	1	0.5' 2.0'	5 4 4	Moist stiff brown fine sandy silt w/some coarse sand, trace of fine gravel 6" RECOVERY	A-4(0)	Topsoil - 4".
		2	2.0'	3 3	Wet firm brown fine to coarse sandy silt w/trace of fine gravel.	A-4(0)	
3		3	4.0'	4	12' RECOVERY Saturated medium dense brown fine to coarse sand w/some silt, trace of	A-2-4(0)	
		Ŭ	4.0	7 7 7	fine gravel.	A-2-4(0)	
6			6.0'		16" RECOVERY		
		4	6.0'	5 6 5 6	Saturated medium dense brown silty fine to coarse sand w/trace of fine gravel.	A-2-4(0)	
			8.0'		17" RECOVERY		
9		5	8.0'	7 7 8 8	Saturated medium dense brown fine to coarse sand w/some silt, trace of fine gravel.	A-2-4(0)	
			10.0'		16" RECOVERY		
					End of Boring		
12							
15							

Remarks:

Dia. U-Sample Boring: U-Samples:

No. of: Core Drilling in Rock: Symbol Description

KEY TO SYMBOLS

Strata symbols

Silty sand

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

- 1. Exploratory borings were drilled on 1/27/2010 using a 3 1/4- inch diameter continuous flight power auger. Rig is a ATV CME 55.
- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 28-113-01

Boring Location: Sta. 148+25, 265' Rt. C.L.

Boring No.: SWM3-9-05

Ft.

Ft.

Boring Surface E	lev.: + 70.0		Ref				
Wt. of Casing Hamme Wt. of Sample Hamm Type of: D-Sample S-Sample U-Sample Core Bit:	er: 140 er: Split Barrel er:	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow S	3 1/4 Stem Auger:	Inches	From Depth of: From Depth of:	0.0	To: To:		8.0
Water Level Reading Date 1/27/2010	s Time	Depth of Hole 10.0	Depth of Casing 8.0		of Water .4	Elev. of	Water

Ft.;

; Ft.;

Pay	Quantities:	

~,	2 1/2 in. Dia. Dry Sample Boring:	10.0
	No. of 2 in. Dia. Shelby Tubes:	
	2 1/2 in. Dia. Contin. Sample Boring:	

Boring Contractor: Walton Corporation Driller: Dave Burt Helpers: T. Kane

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
	1/27/10	1	0.5'	1 1 1	Saturated soft grayish brown silt w/some fine to coarse sand, trace of fin gravel. 12" RECOVERY	e A-4(0)	Topsoil - 3".
		2	2.0'	2 4	Saturated loose brown silty coarse to fine sand w/trace of fine gravel.	A-2-4(0)	
3			4.0'	4	FOR BIS'RECOVERY		
		3	4.0'	4 8 8 8	Saturated medium dense brown coarse to fine sand w/some silt and fine gravel.	A-1-b	
6			6.0'		16" RECOVERY		
		4	6.0'	8 8 9 9	Saturated medium dense brown silty fine sand w/some fine gravel and coarse sand.	A-2-4(0)	
			8.0'		18" RECOVERY		
9		5	8.0'	6 6 10 11	Saturated medium dense brown fine to coarse sand w/some silt, trace of fine gravel.	A-2-4(0)	
			10.0'		10" RECOVERY		
					End of Boring		
12							
15							

Remarks:

Dia. U-Sample Boring: U-Samples:

No. of: Core Drilling in Rock:

Symbol Description

Strata symbols



Silt

Silty sand

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

- 1. Exploratory borings were drilled on 1/27/2010 using a 3 1/4- inch diameter continuous flight power auger. Rig is a ATV CME 55.
- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 28-113-01

Boring Location: Sta. 193+00, 280' Lt. C.L.

Boring Surface E	Hev.: + 63.4		Ref	erence:		
Wt. of Casing Hamm Wt. of Sample Hamm Type of: D-Sample S-Sample U-Sample Core Bit:	er: 140 er: Slit Barrel er:	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2		IN. IN. IN. IN. IN. IN.
Casing Size: Hollow S	3 1/4 Stem Auger:	Inches	From Depth of: From Depth of:	0.0	To: To:	8.0
Water Level Reading Date 7/21/2009	s Time	Depth of Hole	Depth of Casing 8.0	Depth o 8.		Elev. of Water
Pay Quantities:						

No. of 2 in. Dia. Contin. Sample Boring: 10.0 No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring:	Ft.; ; Ft.;	Dia. U-Sample Boring: No. of: U-Samples: Core Drilling in Rock:	Ft. Ft.
aring Contractory Walton Comparation	,		

Boring Contractor: Walton Corporation Driller: Gary Truver Helpers: T. Kane

Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
7/21/09	1	0.5'	8 17 12	Moist very stiff brown clayey silt w/some fine sand, trace of coarse sand and gravel.	A-4(5)	Cultivated Soil - 6".
	_	2.0'		9" RECOVERY		
	2	2.0'	9 9 16 19	Moist medium dense brown fine to coarse sand w/some silt, trace of gravel.	A-2-4(0)	
		4.0'		14" RECOVERY		
_	3	4.0'	9 17 16 9	Moist dense brown gravel and fine to coarse sand w/some silt.	A-1-b	
1						
-	4	6.0' 6.0'	9 24 25 52		A-1-b	USDA Classifica - Loamy Sand.
		8.0'		16" RECOVERY		
-	5	8.0'	16 19 20 17	No Sample Recovery		
1		10.0'		0" RECOVERY		
-		10.0		End of Boring		
	Progress	Progress NO. 7/21/09 1 2 3 3 4	Progress NO. Depth 7/21/09 1 0.5' 2.0' 2 2.0' 2 2.0' 2 3 4.0' 3 6.0' 4 6.0' 4 6.0' 8.0'	Progress NO. Depth BIOWS/O $7/21/09$ 1 0.5' $\frac{8}{17}$ 2 2.0' 9 2 2.0' 9 4.0' 9 3 4.0' 6.0' 9 6.0' 9 4 6.0' 9 10 10 10 10 10 10 10 10 10 10 10 11 10 12 10 10 10 10 10 11 10 11 10 11 10 11 10 11 10 11 10 11 10 11 10 12 10 13 10 14 10 15 10 10 10	Progress No. Depth blows/o Sample Description 7/21/09 1 0.5' $\frac{8}{12}$ Moist very stiff brown clayev silt w/some fine sand, trace of coarse sand and gravel. 2 2.0' 9'' RECOVERY 2 2.0' 9'' RECOVERY 3 4.0' 10'' 3 4.0' 10'' 6.0' 10''' 6.0' 14'' RECOVERY 14'' RECOVERY 4 6.0' 6.0' 14'''''' 14''' RECOVERY 6.0' 14''''''''''''''''''''''''''''''''''''	Progress No. Depth Blowso Sample Description Otass./s.i. 7/21/09 1 0.5 8 / 7 / 12 Moist very stiff brown clayer sill w/some fine sand, trace of coarse sand and gravel. A-4(5) 2 2.0 9" RECOVERY A-2.4(0) 3 4.0' 9 / 70 10 / 10 Moist medium dense brown fine to coarse sand w/some silt, trace of gravel. A-2.4(0) 3 4.0' 9 / 70 10 / 10 Moist dense brown gravel and fine to coarse sand w/some silt. A-1-b 6.0' 14" RECOVERY A-1-b A-1-b A-1-b 4 6.0' 9 / 24 / 22 Moist dense brown gravel and coarse sand w/some fine sand, trace of silt A-1-b 6.0' 14" RECOVERY A-1-b A-1-b A-1-b A-1-b 6.0' 10 / 10 10 / 10 No Sample Recovery 16" RECOVERY A-1-b

Symbol Description

Strata symbols



Low plasticity clay

Silty sand



Poorly graded sand with silt

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

1. Exploratory borings were drilled on 7/21/2009 using a 3 1/4- inch diameter continues flight power auger. Rig is an ATV CME 45.

- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

Boring No.: SWM3-10-02

Boring Location: Sta	a. 193+85, 440' Lt	. C.L.					
Boring Surface Elev	+ 62.1		Ref	erence:			
Wt. of Casing Hammer: Wt. of Sample Hammer: Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:	140 Split Barrel	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow Stem	3 1/4 Auger:	Inches	From Depth of: From Depth of:	0.0	To: To:		8.0
Water Level Readings Date 7/21/2009	Time	Depth of Hole 10.0	Depth of Casing 8.0	Depth o 8.		Elev. of Wa	ter

Pay	Qua	n	tit	ies	5:

Contract: 28-113-01

2 1/2 in. Dia. Dry Sample Boring: 10.0 No. of 2 in. Dia. Shelby Tubes:	Ft.;	Dia. U-Sample Boring: No. of: U-Samples:	Ft.
2 1/2 in. Dia. Contin. Sample Boring:	., Ft.;	Core Drilling in Rock:	Ft.
Paring Contractor: Walton Comparation			

Boring Contractor: Walton Corporation Driller: Gary Truver Helpers: T. Kane

F.A. Project: U.S. 301, Maryland State Line to S.R. 1

Depth	Daily	No.	Sample	Blows/6"		Sample Description	Class./G.I.	Remarks
(ft.)	Progress 7/21/09	1	Depth 0.5'		////x	Moist hard brown clayey gravelly silt w/some coarse to fine sand.	A-4(1)	Cultivated
			0.0	11 14 18		worst hard brown crayey graveny sitt w/some coarse to fine salid.	A-4(1)	Soil - 5".
2			2.0'			8" RECOVERY		
		2	2.0'	17 20 28 20		Moist dense brown gravel w/some fine to coarse sand and gravel.	A-1-b	
4			4.0'			14" RECOVERY		
		3	4.0'	12 24 26 20		Moist dense brown coarse sand and gravel w/some fine sand, trace of silt.	A-1-b	
				20	1444 1444 1444 1444 1444 1444 1444 144			
6			6.0'	- 21	81113990 81113990	14" RECOVERY		
		4	6.0'	21 23 17 14		Moist dense brown gravel and fine to coarse and w/trace of silt and clay.	A-1-b	USDA Classifica - LOamy Sand.
8			8.0'		1993, 1994 1997 - 1997 1997 - 1997 - 1997 - 1997 1997 -	19" RECOVERY		
		5	8.0'	6 8 14 17		Wet medium dense brown gravel and coarse to fine sand w/some silt.	A-1-b	
			10.0					
			10.0'			6" RECOVERY End of Boring		
Remai	rke:							

Symbol Description

Strata symbols



Clayey sand



Silty sand

Poorly graded sand with silt

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

1. Exploratory borings were drilled on 7/21/2009 using a 3 1/4- inch diameter continues flight power auger. Rig is an ATV CME 45.

- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 28-113-01

Boring Location: Sta. 194+30, 360' Lt. C.L.

Boring No 3

Boring No.:	SWM3-10-03
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Boring Surface Ele	ev.: + 62.3		Reference:				
Wt. of Casing Hammer Wt. of Sample Hammer Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:	: 140 Split Barrel	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow Ste	3 1/4 em Auger:	Inches	From Depth of: From Depth of:	0.0	To: To:		8.0
Water Level Readings Date 7/21/2009	Time	Depth of Hole	Depth of Casing 8.0		of Water	Elev. of	Water
Pay Quantities:							

2 1/2 in. Dia. Dry Sample Boring: No. of 2 in. Dia. Shelby Tubes:	10.0	Ft.;	Dia. U-Sample Boring: No. of: U-Samples:	Ft.
2 1/2 in. Dia. Contin. Sample Boring:		Ft.;	Core Drilling in Rock:	Ft.
Dealers Orantarations W/ 1/ C				

Boring Contractor: Walton Corporation Driller: Gary Truver Helpers: T. Kane

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
	7/21/09	1	0.5'	9 9 6	Moist stiff brown clayey silt w/trace of fine to coarse sand.	A-4(8)	Cultivated Soil - 4".
2		_	2.0'		12" RECOVERY		
		2	2.0'	9 19 16 19	Moist dense tan silty gravel and fine sand w/some coarse sand.	A-2-4(0)	
4			4.0'				
		3	4.0'	15 16 30 33	Moist dense brown coarse sand and gravel w/some silt and fine sand.	A-1-b	
6		4	6.0' 6.0'	35 47 21 18	18" RECOVERY Moist very dense brown gravel and coarse to fine sand w/some silt.	A-1-b	USDA Classifica
				10			- Loamy Sand.
8			8.0'		16" RECOVERY		
		5	8.0'	9 14 14 11	Wet medium dense brown coarse to fine sand w/trace of silt and gravel.	A-1-b	
			10.0		17" RECOVERY		
			10.0'		End of Boring		
Remai	rke:						

Symbol Description

Strata symbols

Low plasticity clay

Silty sand

Well graded sand with silt

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

1. Exploratory borings were drilled on 7/21/2009 using a 3 1/4- inch diameter continues flight power auger. Rig is an ATV CME 45.

- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 Contract: 28-113-01

Boring Location: Sta. 193+40, 160' Rt. C.L.

Boring No.: SWM3-11-01

Boring Surface Ele	V.: + 66.8		Reference:				
Wt. of Casing Hammer: Wt. of Sample Hammer: Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:	140 Split Barrel	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow Ster	3 1/4 n Auger:	Inches	From Depth of: From Depth of:	0.0	To: To:		14.0
Water Level Readings Date 7/21/2009	Time	Depth of Hole 16.0	Depth of Casing 14.0		of Water 2.0	Elev. of	Water

Pay Quantities:

2 1/2 in. Dia. Dry Sample Boring: 16.0	Ft.;	Dia. U-Sample Boring:	Ft.
No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring:	; Ft.;	No. of: U-Samples: Core Drilling in Rock:	Ft.
Paring Contractory Walton Comparation			

Boring Contractor: Walton Corporation Driller: Gary Truver Helpers: T. Kane

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
	7/21/09	1	0.5' 2.0'	13 11 10	Moist very stiff brown clayey silt w/some fine to coarse sand, trace of gravel. 8" RECOVERY	A-4(3)	Cultivated Soil - 8". 10 YR -
		2	2.0'	6 8	Moist medium dense brown clayey fine to coarse sand w/trace of gravel.	A-2-4(0)	5/8
3			4.0'	13 8	FOR BUDING		7.5 YR - 5/6
		3	4.0'	5 7 9 7	Moist medium dense tan coarse to fine sand w/some silt, trace of gravel.	A-2-4(0)	2.5 YR - 7/6
6			6.0'		21" RECOVERY		
		4	6.0'	4 6 6 6	Moist medium dense tan silty fine sand w/some coarse sand, trace of gravel.	A-2-4(0)	10YR - 7/ 8
			8.0'		19" RECOVERY		
9		5	8.0'	2 13 25 29	Moist dense brown gravel w/some fine to coarse sand and silt.	A-1-b	10 YR - 5/8
			10.0'		8" RECOVERY		
		6	10.0'	12 17 14 19	Moist dense brown coarse to fine sand and gravel w/some silt.	A-1-b	10 YR - 5/8
12			12.0'		16" RECOVERY		
		7	12.0'	11 10 14 15	Wet medium dense brown coarse to fine sand w/trace of silt and gravel.	A-1-b	7.5 YR - 3/3
			14.0'		13" RECOVERY		
15		8	14.0'	9 11 14 11	Wet medium dense brown coarse to fine sand and gravel w/trace of silt.	A-1-b	7.5 YR - 5/6
			16.0'		16" RECOVERY		
Remai	rke				End of Boring		

Symbol Description

Strata symbols

Low plasticity clay

Poorly graded clayey silty sand



10 Silty sand

Well graded sand with silt

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

1. Exploratory borings were drilled on 7/21/2009 using a 3 1/4- inch diameter continues flight power auger. Rig is a ATV CME 45.

- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 Contract: 28-113-01

Boring Location: Sta. 195+00, 170' Rt. C.L.

Ft.

Ft.

Boring Surface El	ev.: + 66.35		Reference:				
Wt. of Casing Hammer Wt. of Sample Hamme Type of: D-Sampler S-Sampler U-Sampler Core Bit:	r: 140 Split Barrel	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow St	3 1/4 em Auger:	Inches	From Depth of: From Depth of:	0.0	To: To:		8.0
Water Level Readings Date 7/21/2009	Time	Depth of Hole 10.0	Depth of Casing 8.0		of Water 3.9	Elev. of	Water

Ft.;

; Ft.;

Pay	Quantiti	ies:

-	2 1/2 in. Dia. Dry Sample Boring:	10.0
	No. of 2 in. Dia. Shelby Tubes:	
	2 1/2 in. Dia. Contin. Sample Boring:	

Boring Contractor: Walton Corporation Driller: Gary Truver Helpers: T. Kane

Depth	Daily		Sample				
(ft.)	Progress	No.	Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
	7/21/09	1	0.5'	11 12 7	Moist medium dense brown clayey fine to coarse sand and gravel. 6" RECOVERY	A-2-4(0)	Cultivated Soil - 5". 10 YR - 6/6
2		2	2.0	6	Moist medium dense brown coarse to fine sand w/some silt and gravel.	A-1-b	10 YR -
			U	8 7 8			6/8
4		3	4.0' 4.0'	3	14" RECOVERY	A 1 1	10 VD
		3	4.0	3 9 13 18	Moist medium dense brown coarse sand and gravel w/some fine sand and silt.	A-1-b	10 YR - 6/8
6			6.0'		15" RECOVERY		
		4	6.0'	36 26 20 13	No Sample Recovery		Cobble blocking spoon.
8			8.0'		0" RECOVERY		
		5	8.0'	4 12 15 13	Moist to wet medium dense brown coarse to fine sand w/trace of silt and gravel.	A-1-b	10 YR - 7/8
10			10.0'		16" RECOVERY		
Remai					End of Boring		

Remarks:

Dia. U-Sample Boring: U-Samples:

No. of: Core Drilling in Rock:

Symbol Description

Strata symbols

Poorly graded clayey silty sand



10 10 10 10 10 10 10 10 10 10 10 10 10 10 Silty sand

Well graded sand with silt

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

1. Exploratory borings were drilled on 7/21/2009 using a 3 1/4- inch diameter continues flight power auger. Rig is an ATV CME 45.

- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 Contract: 28-113-01

Boring Location: Sta. 196+95, 190' Rt. C.L.

Boring No.: SWM3-11-03

Ft.

Boring Surface I	Elev.: + 63.7		Reference:				
Wt. of Casing Hammer: Wt. of Sample Hammer: Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:		Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:				
Casing Size: Hollow Stem Auger:		Inches	From Depth of: From Depth of:	To: To:			
Water Level Reading Date 10/6/2009	ls Time	Depth of Hole	Depth of Casing	Depth of Water 6.0	Elev. of Water		
) Dry Sample Bor a. Shelby Tube		Ft.; : No. of:	Dia. U-Sample Boring: U-Samples:	Ft.		

2 1/2 in. Dia. Dry Sample Boring:	Ft.;	No. of: U-Sample Boring:
No. of 2 in. Dia. Shelby Tubes:	;	No. of: U-Samples:
2 1/2 in. Dia. Contin. Sample Boring:	Ft.;	Core Drilling in Rock:
Boring Contractor: Walton Corporation		

Boring Contractor: Walton Corporation Driller: John Foley Helpers:

Depth	Daily	No.	Sample	Blows/6"	Sample Description	Class./G.I.	Remarks
(ft.)	Progress		Depth	510003/0		0/035./0.1.	
	10/6/09	1			No Sample Taken		Topsoil
							Hand Auger
		2			Moist brownish orange clayey fine to coarse sandy silt w/trace of fine	A-4(0)	Hand
		L _			gravel.	A-4(0)	Auger
2							Auger
_		3			Moist brownish orange fine gravel and fine to coarse sand w/trace of silt.	A-1-b	Hand
	•						Auger
		4			Moist brown coarse to fine sand and fine gravel w/some silt.	A-1-b	Hand
							Auger
4		5			Moist brown coarse sand and fine gravel w/some fine sand, trace of silt.	A-1-b	Hand
		_	_		wholst brown coarse sand and thie graver w/some the sand, trace of sint.	A-1-0	Auger
							ruger
		6			Moist brown fine to coarse sand w/some silt, trace of gravel.	A-2-4(0)	Hand
							Auger
6		_					
		7			Wet brownish orange fine to coarse sand w/trace of silt and fine gravel.	A-3	Hand
							Auger
		8			Wet brownish orange coarse to fine sand w/trace of silt and fine gravel.	A-1-b	Hand
						A-1-0	Auger
8							1 Jugor
Ť		9			Wet brownish orange fine to coarse sand and fine gravel w/trace of silt.	A-1-b	Hand
							Auger
		10			Wet brownish orange fine to coarse sand w/some silt, trace of fine gravel.	A-2-4(0)	Hand
							Auger
10					End of Boring		
					Lid of Bornig		

Remarks: Hand Auger

Symbol Description

Strata symbols

Clayey sand

Poorly graded sand with silt



10 10 10 10 10 10 10 10 10 10 10 10 10 10 Silty sand

Well graded sand with silt

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

- 1. Exploratory borings were drilled on 10/6/2009 using a hand auger.
- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.

Boring No.: SWM3-12-01

Boring Location:							
Boring Surface Ele	V.: + 69.9		Reference:				
Wt. of Casing Hammer: Wt. of Sample Hammer Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:		Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow Ste	3 1/4 m Auger:	Inches	From Depth of: From Depth of:	0.0	To: To:		10.0
Water Level Readings Date 7/17/2009	Time	Depth of Hole 10.0	Depth of Casing 8.0		of Water 7.0	Elev. of	Water

Pay Quantities:

Contract: 28-113-01

2 1/2 in. Dia. Dry Sample Boring: 10.0 No. of 2 in. Dia. Shelby Tubes:	Ft.;	Dia. U-Sample Boring: No. of: U-Samples:	Ft.
2 1/2 in. Dia. Contin. Sample Boring:	Ft.;	Core Drilling in Rock:	Ft.
Paring Contractory Walton Comparation			

Boring Contractor: Walton Corporation Driller: Cecil Velazco Helpers: T. Kane

F.A. Project: U.S. 301, Maryland State Line to S.R. 1

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
	7/17/09	1	0.5'	5 7 6	Moist stiff gray silt w/some clay and fine sand, trace of coarse sand and gravel. 14" RECOVERY	A-4(1)	Topsoil - 4". 2.5 YR - 6/2
2		2	2.0' 3.5'	7 9 11	Moist very stiff gray silt w/some fine sand, trace of coarse sand and gravel. 15" RECOVERY	A-4(0)	10 YR - 7/1
4		2A	3.5' 4.0'	16	Moist medium dense orange coarse to fine sand w/some silt and gravel.	A-1-b	10 YR -
		3	4.0'	9 18 18 10	Moist dense brown fine to coarse sand w/some silt, trace of gravel and clay.	A-2-4(0)	5/6 USDA Classifica - Loamy Sand 10 YR -
6			6.0'		18" RECOVERY		10 YR - 4/6
		4	6.0'	9 8 5 7	Wet medium dense tan silty fine sand w/some coarse sand, trace of gravel.	A-2-4(0)	2.5 YR - 8/3
8			8.0'		23" RECOVERY		
		5	8.0'	4 5 5 6	Wet loose tan fine to coarse sand w/some silt.	A-2-4(0)	2.5 YR - 7/3
10			10.0'		16" RECOVERY		
					End of Boring		

Symbol Description

Strata symbols

Silty low plasticity clay

Silt

Silty sand

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

1. Exploratory borings were drilled on 7/17/2009 using a 3 1/4- inch diameter continues flight power auger. Rig is an ATV CME 45.

- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

Boring No.: SWM3-12-02

Boring Surface Ele	ev.: + 78.1		Reference:				
Wt. of Casing Hammer Wt. of Sample Hammer Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:	: 140 Split Barrel	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow Ste	3 1/4 em Auger:	Inches	From Depth of: From Depth of:	0.0	To: To:		8.0
Water Level Readings Date 7/17/2009	Time	Depth of Hole	Depth of Casing 8.0		of Water 7.9	Elev. o	f Water

Pay Quantities:

Contract: 28-113-01

2 1/2 in. Dia. Dry Sample Boring: 10. No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring:	0 Ft.; ; Ft.:	Dia. U-Sample Boring: No. of: U-Samples: Core Drilling in Rock:	Ft. Ft.
Boring Contractor: Walton Corporation	· · · · ,		1

Boring Contractor: Walton Corporation Driller: Cecil Velazco Helpers: T. Kane

F.A. Project: U.S. 301, Maryland State Line to S.R. 1

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
	7/17/09	1	0.5'	4 4 3	Moist firm gray silt w/some fine sand, trace of coarse sand and gravel.	A-4(0)	Topsoil - 5". 2.5 YR - 6/3
2			2.0'		12" RECOVERY		
		2	2.0'	6 7 9	Moist stiff gray mottled silt w/some fine sand and clay, trace of coarse sand and gravel.	A-4(0)	USDA Classifica - Silt Loam 10 YR -
4			4.0'	6			6/3
		3	4.0'	6 16 18 10	Moist dense brown fine to coarse sand w/some gravel, trace of silt.	A-1-b	10 YR - 5/6
6			6.0'		13470 20" RECOVERY		
		4	6.0'	7 11 11 11	Moist to wet medium dense brown silty fine sand w/some coarse sand, trace of gravel.	A-2-4(0)	7.5 YR - 5/8
8			8.0'		21" RECOVERY		
		5	8.0'	2 4 4 5	Wet loose gray silty fine sand w/trace of coarse sand.	A-2-4(0)	2.5 YR - 7/1
10			10.0'		17" RECOVERY		
					End of Boring		
Poma						1	

Symbol Description

Strata symbols

Silt

Poorly graded sand with silt



Silty sand

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

1. Exploratory borings were drilled on 7/17/2009 using a 3 1/4- inch diameter continues flight power auger. Rig is an ATV CME 45.

- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

Boring No.: SWM3-12-03

Boring Surface Ele	V.: + 70.6		Ref	erence:						
Wt. of Casing Hammer: Wt. of Sample Hammer: Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:		Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2		IN. IN. IN. IN. IN. IN.				
Casing Size: Hollow Ste	3 1/4 m Auger:	Inches	From Depth of: From Depth of:	0.0	To: To:		8.0			
Water Level Readings Date 7/17/2009	Time	Depth of Hole	Depth of Casing 8.0		of Water	Elev. o	f Water			

Pay Quantities:

Contract: 28-113-01

2 1/2 in. Dia. Dry Sample Boring: No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring:	10.0	Ft.; ; Ft.:	Dia. U-Sample Boring: No. of: U-Samples: Core Drilling in Rock:	Ft. Ft
Poring Contractor: Walton Corporation		· · · ,	oore brining in Nock.	1.

Boring Contractor: Walton Corporation Driller: Cecil Velazco Helpers: T. Kane

F.A. Project: U.S. 301, Maryland State Line to S.R. 1

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
2	7/17/09	1	0.5'	6 6 6	Moist stiff brown fine sandy silt w/some coarse sand, trace of clay and gravel. 4" RECOVERY	A-4(0)	Topsoil - 4". 10 YR - 5/6
		2	4.0'	3 5 4 4	Moist stiff brown fine sandy silt w/some coarse sand and gravel, trace of elay.	A-4(0)	2.5 YR - 5/6
4		3	4.0'	4 8 13 17	Moist medium dense orange fine to coarse sand w/some silt, trace of gravel and clay.	A-2-4(0)	USDA Classifica - Loamy Sand 7.5 YR -
6		4	6.0' 6.0'	11 13 16 13	16" RECOVERY Moist to wet medium dense brown coarse sand w/some fine sand, trace of silt and gravel.	A-1-b	5/8 10 YR - 5/6
8		5	8.0' 8.0'	4 6 10 12	18" RECOVERY Wet medium dense orange coarse to fine sand w/some silt, trace of gravel	. A-1-b	10 YR - 6/8
			10.0'		14" RECOVERY End of Boring		

Symbol Description

Strata symbols



Silty sand

Poorly graded sand with silt

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

1. Exploratory borings were drilled on 7/17/2009 using a 3 1/4- inch diameter continues flight power auger. Rig is an ATV CME 45.

- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

Boring No.: SWM3-12-04

Contract: 28-113-01 Boring Location:	Sta. 156+85, 525' R						
Boring Surface Ele			Ref	erence:			
Wt. of Casing Hammer Wt. of Sample Hammer Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:	r: 140 Split Barrel	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow Ste	3 1/4 em Auger:	Inches	From Depth of: From Depth of:	0.0	To: To:		8.0
Water Level Readings Date 10/7/2009	Time	Depth of Hole 10.0	Depth of Casing 8.0		of Water Dry	Elev. o	f Water

Pay Quantities:

2 1/2 in. Dia. Dry Sample Boring: 10.0 No. of 2 in. Dia. Shelby Tubes:	Ft.;	Dia. U-Sample Boring: No. of: U-Samples:	Ft.
2 1/2 in. Dia. Contin. Sample Boring:	Ft.;	Core Drilling in Rock:	Ft.
Paring Contractory Walton Corneration			

Boring Contractor: Walton Corporation Driller: Jason Truver Helpers: J. Lafferty

F.A. Project: U.S. 301, Maryland State Line to S.R. 1

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
	10/7/09	1	0.0'	1 2 3	Wet brown soft clayey fine to coarse sandy silt w/trace of fine gravel.	A-4(1)	Topsoil - 3". USDA Classifica - Sandy
2	N		2.0'				Loam.
		2	2.0'	5 5 7 6	Wet brown medium dense silty fine sand w/some coarse sand, trace of fine gravel.	A-2-4(0)	10 YR - 4/6 10 YR -
4			4.0'		GUSTI9" RECOVERY 015		5/8
		3	4.0	4 5 5 6	Wet brown loose silty fine sand w/trace of coarse sand and fine gravel.	A-2-4(0)	7.5 YR - 5/6
6			6.0'		20" RECOVERY		
		4	6.0'	6 5 6 6	Wet orange medium dense silty fine to coarse sand w/trace of fine gravel.	A-2-4(0)	10 YR - 6/8
8			8.0'		19" RECOVERY		ļ
		5	8.0'	3 4 4 5	Wet orange loose fine to coarse sand w/some silt, trace of fine gravel.	A-2-4(0)	10 YR - 6/8
10			10.0'		17" RECOVERY		
Remar			10.0		End of Boring		

Symbol Description

Strata symbols



Clayey sand

Silty sand

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

1. Exploratory borings were drilled on 10/7/2009 using a 3 1/4- inch diameter continues flight power auger. Rig is an ATV CME 55.

- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

Boring No.: SWM3-12-05

Boring Location:	Sta. 155+85, 515' R	t. C.L.					
Boring Surface Ele	Y.: + 72.0		Ref	ference:			
Wt. of Casing Hammer: Wt. of Sample Hammer Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:		Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow Ste	3 1/4 m Auger:	Inches	From Depth of: From Depth of:	0.0	To: To:		8.0
Water Level Readings Date 10/7/2009	Time	Depth of Hole 10.0	Depth of Casing 8.0		of Water ^{Dry}	Elev. of V	Vater

Pay Quantities:

Contract: 28-113-01

2 1/2 in. Dia. Dry Sample Boring: 10.0 No. of 2 in. Dia. Shelby Tubes:	Ft.;	Dia. U-Sample Boring: No. of: U-Samples:	Ft.
2 1/2 in. Dia. Contin. Sample Boring:	Ft.;	Core Drilling in Rock:	Ft.
Boring Contractor: Walton Corporation			

Boring Contractor: Walton Corporation Driller: Jason Truver Helpers: J. Laferty

F.A. Project: U.S. 301, Maryland State Line to S.R. 1

2 2.0' 2 20' RECOVERY 2 2.0' 2 2.0' 2 4 4.0' 4.0' 4.0' 4.0' 4 4.0' 5 8.0' 20' RECOVERY 4 6.0' 6 10' RECOVERY 6 6.0' 19' RECOVERY 6 6.0' 19' RECOVERY 8 8.0' 20' RECOVERY 8 8.0' 20' RECOVERY	I. Remarks	Class./G.I.	/6" Sample Description	Blows/6"	Sample Depth	No.	Daily Progress	Depth (ft.)
2 2.0 2 2.0 7 1 2 2.0 7 1 Wet medium dense orangish gray silty fine sand w/trace of coarse sand and fine gravel. A-2-4(0) 1 4 4.0 4.0 5 Wet stiff orangish gray clayey silt w/trace of fine to coarse sand and fine gravel. A-4(5) 5 4 4.0 5 Wet stiff orangish gray clayey silt w/trace of fine to coarse sand and fine gravel. A-4(5) 5 6 6.0' 19" RECOVERY 4 6.0' 6 A-2-4(0) 7 8 8.0' 0 20" RECOVERY A-2-4(0) 7	Topsoil - 3". USDA Classifica	A-4(6)	Wet firm gray clayey silt w/trace of fine to coarse sand and fine gravel.	2 2 4 6		1		
4 4.0 6 A.0 7 A.0 6 A.0 7 A.0 <td< th=""><th>- Silt Loam. 10 YR - 6/3 7.5 YR -</th><th>A-2-4(0)</th><th>Wet medium dense orangish gray silty fine sand w/trace of coarse sand</th><th>7 8 11 11</th><th></th><th>2</th><th></th><th>2</th></td<>	- Silt Loam. 10 YR - 6/3 7.5 YR -	A-2-4(0)	Wet medium dense orangish gray silty fine sand w/trace of coarse sand	7 8 11 11		2		2
6 6.0' 19" RECOVERY 4 6.0' 6 5 6 6 8 8 8.0'	5/8	A 4(5)				3		4
4 6.0' 6 Wet medium dense brown silty fine sand w/some coarse sand, trace of fine gravel. A-2-4(0) 7 8 8.0' 8.0' 20'' RECOVERY A-2-4(0) 7	7.5 YR - 5/8	A-4(5)	gravel.			5		
) 7.5 YR - 5/4	A-2-4(0)	Wet medium dense brown silty fine sand w/some coarse sand, trace of fine gravel.	6 6 5 6	6.0'	4		
) 7.5 YR - 5/4	A-2-4(0)		6 8 8 9		5		8
10 10.0' 21" RECOVERY					10.0'			

Symbol Description

Strata symbols

Low plasticity clay

Silty sand

Silty low plasticity clay

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

1. Exploratory borings were drilled on 10/7/2009 using a 3 1/4- inch diameter continues flight power auger. Rig is an ATV CME 55.

- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 28-113-01

Boring Location: Sta. 1204+11, 92' Lt. C.L.

Boring No)1

Soring No.: SWM3-13	3-01
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Boring Surface E	Elev.: + 67.4		Reference:				
Wt. of Casing Hamm Wt. of Sample Hamm Type of: D-Sample S-Sample U-Sample Core Bit:	er: 140 er: Split Barrel er:	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow S	3 1/4 Stem Auger:	Inches	From Depth of: From Depth of:	0.0	To: To:	8.0	
Water Level Reading Date 7/17/2009	s Time	Depth of Hole 10.0	Depth of Casing 8.0		of Water .6	Elev. of Water	
Pay Quantities:							

No. of 2 in. Dia. Shelby Tubes:	0.0 Ft.;	Dia. U-Sample Boring: No. of: U-Samples:	Ft.
2 1/2 in. Dia. Contin. Sample Boring:	Ft.;	Core Drilling in Rock:	Ft.
Paring Contractory Walton Comparation			

Boring Contractor: Walton Corporation Driller: Cecil Velazco Helpers: T. Kane

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
2	7/17/09	1	0.5'	6 7 8	Moist stiff gray fine sandy silt w/some coarse sand and clay, trace of gravel. 17" RECOVERY	A-4(0)	Topsoil - 3". 2.5 YR - 6/2
		2	4.0'	14 14 17 16	Moist dense brown coarse to fine sand w/trace of silt, clay and gravel.	A-1-b	USDA Classifica - Loamy Sand 5 YR - 4/ 6
4		3	4.0'	6 7 6 7	Moist medium dense tan silty fine to coarse sand w/trace of gravel.	A-2-4(0)	2.5 YR - 7/6
6			6.0'		21" RECOVERY		
		4	6.0'	4 5 6 6	Wet medium dense gray fine to coarse sand w/some silt, trace of gravel.	A-2-4(0)	10 YR - 6/2
8			8.0'		18" RECOVERY		
		5	8.0'	3 5 6 6	Wet medium dense tan coarse to fine sand w/some silt, trace of gravel.	A-1-b	2.5 YR - 7/4
10			10.0'		20" RECOVERY		
Remar					End of Boring		

Symbol Description

Strata symbols



Silt

Silty sand

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

1. Exploratory borings were drilled on 7/17/2009 using a 3 1/4- inch diameter continues flight power auger. Rig is an ATV CME 45.

- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

Boring No.: SWM3-13-02

Boring Location:	Sta. 1204+11, 65' Lt	. C.L.					
Boring Surface Ele	V.: + 67.7		Ref	erence:			
Wt. of Casing Hammer: Wt. of Sample Hammer: Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:		Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow Ste	3 1/4 m Auger:	Inches	From Depth of: From Depth of:	0.0	To: To:		8.0
Water Level Readings Date 7/17/2009	Time	Depth of Hole 10.0	Depth of Casing 8.0		of Water 3.0	Elev. o	of Water

Pay Quantities:

Contract: 28-113-01

2 1/2 in. Dia. Dry Sample Boring: 10.0	Ft.;	Dia. U-Sample Boring:	Ft.
No. of 2 in. Dia. Shelby Tubes:	;	No. of: Ú-Samples:	
2 1/2 in. Dia. Contin. Sample Boring:	Ft.;	Core Drilling in Rock:	Ft.
Boring Contractor: Walton Corporation			

Boring Contractor: Walton Corporation Driller: Cecil Velazco Helpers: T. Kane

F.A. Project: U.S. 301, Maryland State Line to S.R. 1

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
	7/17/09	1	0.5'	3 6 8	Moist stiff gray silt w/some fine sand, trace of coarse sand, clay and gravel.	A-4(0)	Topsoil - 3". 7.5 YR - 6/2
2		2	2.0'	5 6 8 9	16" RECOVERY MOist medium dense brown coarse to fine sand w/trace of silt, clay and gravel.	A-1-b	USDA Classifica - Loamy Sand 7.5 YR -
4		3	4.0' 4.0'	3 6 8 6	16" RECOVERY Moist medium dense grayish brown silty fine to coarse sand w/trace of gravel.	A-2-4(0)	5/4 10 YR - 6/3
6			6.0'		18" RECOVERY		
		4	6.0'	5 7 7 8	Wet medium dense gray silty fine sand w/some coarse sand, trace of gravel.	A-2-4(0)	2.5 YR - 6/3
8			8.0'		20" RECOVERY		
		5	8.0'	3 3 7 7	Wet loose brown fine to coarse sand w/some silt, trace of gravel.	A-2-4(0)	2.5 YR - 5/4
10			10.0'		17" RECOVERY		
Poma					End of Boring		

Symbol Description

Strata symbols



Silt

Silty sand

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

1. Exploratory borings were drilled on 7/17/2009 using a 3 1/4- inch diameter continues flight power auger. Rig is an ATV CME 45.

- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

Boring No.: SWM3-13-03

Boring Location:	Sta. 1204+63, 55' Lt	. C.L.					
Boring Surface Ele	ev.: + 68.0		Reference:				
Wt. of Casing Hammer: Wt. of Sample Hammer Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:	: 140 Split Barrel	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow Ste	3 1/4 m Auger:	Inches	From Depth of: From Depth of:	0.0	To: To:		8.0
Water Level Readings Date 7/17/2009	Time	Depth of Hole	Depth of Casing 8.0		of Water	Elev. o	f Water

Pay Quantities:

Contract: 28-113-01

2 1/2 in. Dia. Dry Sample Boring: 10 No. of 2 in. Dia. Shelby Tubes:	0.0 Ft.;	Dia. U-Sample Boring: No. of: U-Samples:	Ft.
2 1/2 in. Dia. Contin. Sample Boring:	Ft.;	Core Drilling in Rock:	Ft.
Paring Contractor: Walton Composition			

Boring Contractor: Walton Corporation Driller: Cecil Velazco Helpers: T. Kane

F.A. Project: U.S. 301, Maryland State Line to S.R. 1

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
	7/17/09	1	0.0'	4 6 8 7	Moist stiff gray silt w/some fine sand, trace of clay and coarse sand.	A-4(0)	Topsoil - 2". 10 YR - 6/2
2	N		2.0'		16" RECOVERY		
		2	2.0'	8 13	Moist very stiff gray fine sandy silt w/some coarse sand, trace of clay and gravel.	A-4(0)	10 YR - 6/2
4		2A	3.0' 3.0' 4.0'	9 10	8" RECOVERY Moist medium dense brown fine to coarse sand w/some silt, trace of gravel. 8" RECOVERY	A-2-4(0)	7.5 YR - 5/8
		3	4.0'	9 13 10 12	MOist medium dense brown coarse to fine sand w/some silt and gravel, trace of clay.	A-2-4(0)	USDA Classifica - Loamy Sand 7.5 YR - 5/8
 		4	6.0' 6.0'	8 9 9 10	18" RECOVERY Moist to wet medium dense brown silty fine to coarse sand w/some gravel.	A-2-4(0)	5/8 10 YR - 5/6
8		5	8.0' 8.0'	4	21" RECOVERY Wet medium dense brown silty fine sand w/some coarse sand.	A-2-4(0)	2.5 YR -
				4 6 6 6	wet meutum dense brown sitty mie sand w/some coarse sand.	A-2-4(0)	2.3 TK - 7/6
10			10.0'		16" RECOVERY		
Remai					End of Boring		

Symbol Description

Strata symbols



Silt

Silty sand

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

1. Exploratory borings were drilled on 7/17/2009 using a 3 1/4- inch diameter continues flight power auger. Rig is an ATV CME 45.

- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 28-113-01

Boring Location: Sta. 198+00, 520' Lt. C.L.

... B

Ft.

Ft.

Boring	No.:	SWM3-14-01
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Boring Surface	Elev.: + 60.1		Reference:				
Wt. of Casing Hamm Wt. of Sample Hamn Type of: D-Sampl S-Sample U-Sampl Core Bit:	ner: 140 er: Split Barrel er: er:	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow	3 1/4 Stem Auger:	Inches	From Depth of: From Depth of:	0.0	To: To:		8.0
Water Level Reading Date 7/23/2009	gs Time	Depth of Hole 10.0	Depth of Casing 8.0		of Water 3.2	Elev. of V	Vater

Ft.;

; Ft.;

No. of:

Core Drilling in Rock:

Pay	Quantities	

2 1/2 in. Dia. Dry Sample Boring:	10.0	
No. of 2 in. Dia. Shelby Tubes:		
2 1/2 in. Dia. Contin. Sample Boring:		

Boring Contractor: Walton Corporation Driller: Gary Truver Helpers: T. Kane

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
2	7/23/09	1	1.0' 2.0'	3 4	Moist firm brown clayey fine sandy silt w/some coarse sand. 8" RECOVERY	A-4(2)	Cultivated Soil - 9". 10 YR -
		2	2.0'	4	Moist loose brown silty coarse to fine sand w/some gravel and clay.	A-2-4(0)	4/6
4			4.0'	3	FOR BIDDINC	5	USDA Classifica - Sandy Loam 10 YR -
4		3	4.0	10	Moist very dense brown gravel and coarse sand w/some fine sand, trace	A-1-a	5/8
				10 30 46 50	of silt. US 2015		10 YR - 5/8
6		4	6.0' 6.0'	41	13" RECOVERY Moist very dense brown gravel and coarse sand w/some fine sand, trace	A-1-a	10 YR -
				41 30 21 16	of silt.	/	5/4
8		_	8.0'	6	7" RECOVERY		
		5	8.0'	6 7 9	Wet medium dense orange coarse to fine sand w/some gravel, trace of sile	. А-1-b	7.5 YR - 5/8
10			10.0'		14147 11/129 16" RECOVERY		
					End of Boring		
12							

Remarks:

Dia. U-Sample Boring: U-Samples:

Symbol Description

Strata symbols



Low plasticity clay

Silty sand



Poorly graded sand with silt



Poorly graded gravel with silt

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

1. Exploratory borings were drilled on 7/23/2009 using a 3 1/4- inch diameter continues flight power auger. Rig is an ATV CME 45.

- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 Contract: 28-113-01

Boring Location: Sta. 198+40, 425' Lt. C.L.

Boring No.: SWM3-14-02

Ft.

Ft.

Boring Surface E	ev.: + 61.5		Reference:				
Wt. of Casing Hamme Wt. of Sample Hamme Type of: D-Sampler S-Sampler U-Sampler Core Bit:	er: 140 : Split Barrel	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow St	3 1/4 em Auger:	Inches	From Depth of: From Depth of:	0.0	To: To:		8.0
Water Level Readings Date 7/23/2009	Time	Depth of Hole	Depth of Casing 8.0		of Water 9.1	Elev. d	of Water

Pay	Qua	ntit	ies	:

2 1/2 in. Dia. Dry Sample Boring: No. of 2 in. Dia. Shelby Tubes:	10.0	Ft.; ;	Dia. U-Sample Boring: No. of: U-Samples:
2 1/2 in. Dia. Contin. Sample Boring:		Ft.;	Core Drilling in Rock:
Dealers Oranta at any MULL Charles			

Boring Contractor: Walton Corporation Driller: Gary Truver Helpers: T. Kane

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
2	7/23/09	1	2.0'	3 4 5	Moist stiff brown clayey silt w/trace of fine to coarse sand. 9" RECOVERY	A-4(7)	Cultivated Soil - 8". 10 YR - 4/6
		2	2.0'	4 7 8 11	Moist stiff brown clay w/some fine to coarse sand, trace of gravel.	A-6(6)	10 YR - 4/6
4		3	4.0' 4.0'	10 17 19 34	18" RECOVERY Moist dense brown silty coarse sand and gravel w/some fine sand, trace of	A-2-4(0)	USDA
				19 34			Classifica - Sandy Loam 10 Yr - 5/
6		4	6.0' 6.0'	35	17" RECOVERY Moist very dense orange gravel and coarse to fine sand w/some silt.	A-1-b	6 10 YR -
				35 42 21 22			6/8
8		5	8.0' 8.0'	8	11" RECOVERY Moist to wet medium dense orange coarse to fine sand w/trace of silt and	A-1-b	2.5 YR -
		0		8 10 10 9	gravel.	A-1-0	2.5 Y K - 6/8
10			10.0'		15" RECOVERY		
Remai					End of Boring		

Symbol Description

Strata symbols

Low plasticity clay

Poorly graded clayey silty sand



Silty sand

Well graded sand with silt

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

1. Exploratory borings were drilled on 7/23/2009 using a 3 1/4- inch diameter continues flight power auger. Rig is an ATV CME 45.

- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 28-113-01

Boring Location: Sta. 198+85, 295' Lt. C.L.

Boring No 3

Soring No.: SWM3-14-

Boring Surface E	ev.: + 62.9		Reference:				
Wt. of Casing Hamme Wt. of Sample Hamme Type of: D-Sample S-Sampler U-Sampler Core Bit:	er: 140 : Split Barrel	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow S	3 1/4 tem Auger:	Inches	From Depth of: From Depth of:	0.0	To: To:		8.0
Water Level Readings Date 7/21/2009	i Time	Depth of Hole 10.0	Depth of Casing 8.0		of Water ^{Dry}	Elev. of V	Vater

Pay	Quantities:
	0 4 /0 1 D

2 1/2 in. Dia. Dry Sample Boring: 10.0 No. of 2 in. Dia. Shelby Tubes:	Ft.;	Dia. U-Sample Boring: No. of: U-Samples:	Ft.
2 1/2 in. Dia. Contin. Sample Boring:	Ft.;	Core Drilling in Rock:	Ft.
Paring Contractory Walton Comparation			

Boring Contractor: Walton Corporation Driller: Gary Truver Helpers: T. Kane

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
2	7/21/09	1	1.0' 2.0'	2 3	Moist firm brown clay w/trace of fine sand. 6" RECOVERY	A-6(10)	Cultivated Soil - 9". 10 YR -
		2	2.0'	4 4	Moist stiff brown clay w/trace of fine sand.	A-6(13)	5/6
			0	8	FOR BIDDING	6	10 YR - 6/8
4		3	4.0' 4.0'	5	19" RECOVERY	A 4(1)	
		5		5 7 11 24	Moist very stiff tan clayey gravelly silt w/trace of fine to coarse sand.	A-4(1)	USDA Classifica - Silty Clay Loam
6		4	6.0' 6.0'	17	12" RECOVERY	A 1 1	2.5 YR - 6/4
		4		17 21 19 16	Moist dense brown gravel and fine to coarse sand w/some silt.	A-1-b	0/4 10 YR - 6/8
8		5	8.0' 8.0'	4	17" RECOVERY		10 1/0
		5	0.0	4 8 7 9	Moist medium dense brown coarse to fine sand w/some silt, trace of gravel.	A-2-4(0)	10 YR - 5/8
10			10.0'		17" RECOVERY		
					End of Boring		
12							
Remai	rke		•				

Symbol Description

Strata symbols



Low plasticity clay

Silty low plasticity clay



Silty sand

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

1. Exploratory borings were drilled on 7/21/2009 using a 3 1/4- inch diameter continues flight power auger. Rig is an ATV CME 45.

- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1

Boring No.: SWM3-15-01

Boring Location:	Sta. 248+70, 537' Lt	. C.L.					
Boring Surface Ele	V.: + 57.9		Ref	erence:			
Wt. of Casing Hammer: Wt. of Sample Hammer: Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:		Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow Ster	3 1/4 m Auger:	Inches	From Depth of: From Depth of:	0.0	To: To:		10.0
Water Level Readings Date 7/23/2009	Time	Depth of Hole 10.0	Depth of Casing 8.0		of Water Dry	Elev. of Wate	er

Pay	Quantities	:

Contract: 28-113-01

2 1/2 in. Dia. Dry Sample Boring: 10.0 No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring:	Ft.; ; Ft.;	Dia. U-Sample Boring: No. of: U-Samples: Core Drilling in Rock:	Ft. Ft.
Poring Contractor: Walton Composition			

Boring Contractor: Walton Corporation Driller: Cecil Velazco Helpers: J. Lafferty

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
2	7/23/09	1	0.5' 2.0'	11 12 12	Moist very stiff brown clayey silt w/some fine to coarse sand, trace of gravel. 13" RECOVERY	A-4(5)	Topsoil - 7". 2.5 YR - 7/6
		2	4.0'	22 29 13 14	Moist dense brown gravel and coarse to fine sand w/trace of silt and clay	. A-1-b	USDA Classifica - Loamy Sand 10 Yr - 5/ 4
		3	4.0'	9 10 10 10	Moist medium dense brown silty fine to coarse sand and gravel.	A-2-4(0)	10 YR - 5/6
		4	6.0' 6.0'	20 18 19 18	20" RECOVERY Moist dense brown coarse to fine sand and gravel w/some silt.	A-1-b	10 YR - 4/4
8		5	8.0' 8.0'	7 10 10 11	19" RECOVERY Moist medium dense brown clayey coarse to fine sand w/trace of gravel.	A-2-7(0)	10 YR - 3/6
10 			10.0'		20" RECOVERY End of Boring		

Symbol Description

Strata symbols



Low plasticity clay

Poorly graded sand with silt



Silty sand

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

1. Exploratory borings were drilled on 7/23/2009 using a 3 1/4- inch diameter continues flight power auger. Rig is an ATV CME 55.

- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1

Contract: 28-113-01 Boring Location: Sta. 249+25, 400' Lt. C.L.

5-02

	Borin	g No.:	SWM3-15
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Ft. Ft.

Boring Surface Ele	EV.: + 60.7		Ref	erence:			
Wt. of Casing Hammer Wt. of Sample Hammer Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:	: 140 Split Barrel	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow Ste	3 1/4 em Auger:	Inches	From Depth of: From Depth of:	0.0	To: To:		8.0
Water Level Readings Date 7/23/2009	Time	Depth of Hole 10.0	Depth of Casing 8.0		of Water Dry	Elev. of Wat	er
Dave Overstitland							

Pay	Qua	Intiti	ies:

2 1/2 in. Dia. Dry Sample Boring: No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring:	10.0	Ft.; ; Ft.;	Di No. of: Core Drilling in	a. U-Sample Boring: U-Samples:
z 1/2 m. Dia. Contin. Sample Boring:		г.,	Core Drilling in	ROCK:
Paring Contractory Walton Comparation				

Boring Contractor: Walton Corporation Driller: Cecil Velazco Helpers: J. Lafferty

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
2	7/23/09	1	0.5'	9 9 11	Moist very stiff brown clayey fine sandy silt w/some coarse sand. 13" RECOVERY	A-4(2)	Topsoil - 5". 10 YR - 7/6
4		2	4.0'	6 6 9 11	Moist stiff brown fine sandy silt w/some coarse sand, trace of clay and gravel.	A-4(0)	USDA Classifica - Sandy Loam 10 YR - 5/6
6		3	4.0' 6.0'	7 14 11 9	Moist medium dense brown fine to coarse sand w/some gravel and silt.	A-1-b	7.5 YR - 5/8
		4	6.0'	7 18 18 17	Moist dense brown coarse sand and gravel w/some fine sand and silt.	A-1-b	10 YR - 6/6
		5	8.0' 8.0'	9 13 10 14	20" RECOVERY Moist medium dense brown coarse to fine sand w/some silt and gravel.	A-1-b	10 YR - 4/6
10	rke:		10.0'		20" RECOVERY End of Boring		

Symbol Description

Strata symbols



Low plasticity clay

Silty sand

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

1. Exploratory borings were drilled on 7/23/2009 using a 3 1/4- inch diameter continues flight power auger. Rig is an ATV CME 55.

- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

Boring No.: SWM3-15-03

Boring Surface El	ev.: + 61.9		Ref	erence:			
Wt. of Casing Hammer Wt. of Sample Hammer Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:	r: 140 Split Barrel	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow Ste	3 1/4 em Auger:	Inches	From Depth of: From Depth of:	0.0	To: To:		8.0
Water Level Readings Date 7/23/2009	Time	Depth of Hole	Depth of Casing 8.0		of Water Dry	Elev. c	of Water

Pay Quantities:

Contract: 28-113-01

2 1/2 in. Dia. Dry Sample Boring: No. of 2 in. Dia. Shelby Tubes:	10.0	Ft.;	Dia. U-Sample Boring: No. of: U-Samples:	Ft.
2 1/2 in. Dia. Contin. Sample Boring:		Ft.;	Core Drilling in Rock:	Ft.
Boring Contractor: Walton Corporation	'n			

Boring Contractor: Walton Corporation Driller: Cecil Velazco Helpers: J. Lafferty

F.A. Project: U.S. 301, Maryland State Line to S.R. 1

Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
7/23/09	1	0.5'	5 6 4		A-4(1)	Topsoil - 5". 2.5 YR - 6/6
	2	2.0'	6 7 7 11	Moist stiff brown fine sandy silt w/some clay and coarse sand, trace of gravel.	A-4(1)	10 YR - 4/6
	3	4.0'	7 11 11 13	Moist medium dense brownish gray clayey fine sand w/some silt, coarse sand and gravel.	A-2-4(0)	USDA Classifica - Sandy Loam 2.5 Yr - 7/4
	4	6.0'	9 12 16 19		A-2-6(0)	10 YR - 7/6
	5	8.0' 8.0'	10 11 12 13	21" RECOVERY Moist medium dense brown coarse to fine sand w/some gravel and silt.	A-1-b	7.5 YR - 5.6
		10.0'		17" RECOVERY End of Boring		
	Progress	Progress NO. 7/23/09 1 2 3 3 4	Progress NO. Depth 7/23/09 1 0.5' 2 2.0' 2 2 2.0' 2 2 2.0' 2 3 4.0' 3 4.0' 3 4.0' 3 4.0' 4.0' 5 8.0' 5	Progress NO. Depth Blows/6 $7/23/09$ 1 $0.5'$ $\frac{5}{6}$ 2 $2.0'$ $\frac{2}{7}$ $\frac{1}{11}$ 2 $2.0'$ $\frac{6}{7}$ $\frac{1}{11}$ 4.0' $\frac{4.0'}{11}$ $\frac{1}{11}$ $\frac{1}{11}$ 4 $\frac{6.0'}{11}$ $\frac{1}{11}$ $\frac{1}{11}$ 4 $6.0'$ $\frac{9}{12}$ $\frac{16}{19}$ 8.0' $\frac{10}{11}$ $\frac{11}{12}$ $\frac{13}{13}$	Progress No. Depth BOWS/C Sample Decipion 7/23/09 1 0.5' 5/4 Moist stiff brown silt w/some clay, trace of gravel and fine to coarse sand. 2 2.0' 14" RECOVERY 2 2.0' 1 4 0 22" RECOVERY 3 4.0' 1 4.0' 22" RECOVERY 4 6.0' 20" RECOVERY 4 6.0' 20" RECOVERY 4 6.0' 20" RECOVERY 4 6.0' 20" RECOVERY 4 6.0' 21" RECOVERY 5 8.0' 11 13 10 Moist medium dense brownish gray clayey fine sand w/some silt, coarse sand and gravel. 5 8.0' 21" RECOVERY 4 10.1' 10 Moist medium dense brownish gray clayey fine to coarse sand w/trace of gravel. 10.0' 10 11" Moist medium dense brown coarse to fine sand w/some gravel and silt.	Progress No. Depth Blows/o Sample Description Class./s.i. 7/23/09 1 0.5 5 4 Moist stiff brown silt wisome clay, trace of gravel and fine to coarse sand. A-4(1) 2 2.0' 14" RECOVERY A A-4(1) 2 2.0' 9 Moist stiff brown fine sandy silt wisome clay and coarse sand, trace of gravel. A-4(1) 3 4.0' 7 Moist stiff brown fine sandy silt wisome clay and coarse sand, trace of gravel. A-4(1) 3 4.0' 7 Moist medium dense brownish gray clayey fine sand wisome silt, coarse A-2-4(0) 4 6.0' 9 Moist medium dense brownish gray clayey fine to coarse sand wirace of gravel. A-2-6(0) 4 6.0' 9 Moist medium dense brownish gray clayey fine to coarse sand wirace of gravel. A-2-6(0) 6 9 10 Moist medium dense brown coarse to fine sand wisome gravel and silt. A-1-b 13 10.0' 10 10' 10' 10' 10'

Symbol Description

Strata symbols

Silty low plasticity clay

Poorly graded clayey silty sand



Silty sand

Clayey sand



Notes:

1. Exploratory borings were drilled on 7/23/2009 using a 3 1/4- inch diameter continues flight power auger. Rig is an ATV CME 55.

- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

Boring No.: SWM3-16-01

Boring Location:	Sta. 152+33, 246' Rt	t. C.L.					
Boring Surface Ele	V.: + 70.7		Ref	erence:			
Wt. of Casing Hammer: Wt. of Sample Hammer Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:		Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow Ste	3 1/4 m Auger:	Inches	From Depth of: From Depth of:	0.0	To: To:		8.0
Water Level Readings Date 7/17/2009	Time	Depth of Hole	Depth of Casing 8.0		of Water 5.8	Elev. o	f Water

Pay Quantities:

Contract: 28-113-01

2 1/2 in. Dia. Dry Sample Boring: 10.0	Ft.;	Dia. U-Sample Boring:	Ft.
No. of 2 in. Dia. Shelby Tubes:	_ ;	No. of: U-Samples:	_
2 1/2 in. Dia. Contin. Sample Boring:	Ft.;	Core Drilling in Rock:	Ft.
Boring Contractor: Walton Corporation			

Boring Contractor: Walton Corporation Driller: Cecil Velazco Helpers: T. Kane

F.A. Project: U.S. 301, Maryland State Line to S.R. 1

Donth	Deily		Somele	I			
Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
	7/17/09	1	0.0'	11 6 6 8	Moist stiff brown fine sandy silt w/some coarse sand, clay and gravel.	A-4(0)	Topsoil - 2". 10 YR - 5/3
2			2.0'		14" RECOVERY		
		2	2.0'	6 6 8 8	Moist stiff gray clayey fine sandy silt w/some coarse sand, trace of gravel.	A-4(0)	2.5 Yr - 6/2
4			4.0'	\mathbf{M}	IS 18" RECOVERY		
		3	4.0 ¹ 6.0'	8 11 11 10	Moist medium dense brown coarse to fine sand w/some silt, trace of clay and gravel. 20" RECOVERY	A-1-b	USDA Classifica - Loamy Sand 2.5 YR - 6/4
6		4	6.0'	13 11 11 10	Moist to wet medium dense brown coarse to fine sand w/some silt, trace of gravel.	A-1-b	10 YR - 6/6
8			8.0'		1777 1777 1777 1777 1777 1777 18" RECOVERY		
		5	8.0'	4 6 4 5	Wet stiff brown fine sandy silt w/some coarse sand, trace of gravel.	A-4(0)	7.5 YR - 5/8
10			10.0'		18" RECOVERY End of Boring		
Remai	dec.						

Symbol Description

Strata symbols



Silty sand

Silty low plasticity clay



Poorly graded sand with silt

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

1. Exploratory borings were drilled on 7/17/2009 using a 3 1/4- inch diameter continues flight power auger. Rig is an ATV CME 45.

- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

Boring No.: SWM3-16-02

Boring Location:	Sta. 154+82, 139' R	t. C.L.					
Boring Surface Ele	ev.: + 73.9		Ref	erence:			
Wt. of Casing Hammer Wt. of Sample Hammer Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:	: 140 Split Barrel	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow Ste	3 1/4 em Auger:	Inches	From Depth of: From Depth of:	0.0	To: To:		8.0
Water Level Readings Date 7/6/2009	Time	Depth of Hole	Depth of Casing 8.0		of Water 8.2	Elev. o	of Water

Pay Quantities:

Contract: 28-113-01

2 1/2 in. Dia. Dry Sample Boring: 10.	0 Ft.;	Dia. U-Sample Boring:	Ft.
No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring:	; Ft.;	No. of: U-Samples: Core Drilling in Rock:	Ft.
Bering Contractory Walter Comparis			

Boring Contractor: Walton Corporation Driller: Cecil Velazco Helpers: T. Kane

F.A. Project: U.S. 301, Maryland State Line to S.R. 1

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
	7/16/09	1	0.0'	7 3 4 4	Moist firm brown clayey silt w/some fine sand, trace of coarse sand and gravel.	A-4(4)	Topsoil - 2". 7.5 YR - 5/8
2			2.0'		15" RECOVERY		
		2	2.0'	8 12 11 10	Moist medium dense brown fine sand w/some silt and coarse sand, trace of clay and gravel.	A-2-4(0)	USDA Classifica - Sandy Loam
4			4.0'		19" RECOVERY		5 YR - 5.5
		3	4.0	5 7 7 7	Moist medium dense orange silty fine to coarse sand w/trace of gravel.	A-2-4(0)	10 YR - 5/8
6			6.0'		19" RECOVERY		
		4	6.0'	7 6 5 5	Moist medium dense brown fine to coarse sand w/some silt, trace of gravel.	A-2-4(0)	7.5 YR - 5/8
8			8.0'		17" RECOVERY		
		5	8.0'	3 2 3 3	Wet loose tan coarse to fine sand w/some silt and gravel.	A-1-b	7.5 YR - 6/6
10			10.0'		15" RECOVERY		
Remai	iko:				End of Boring		

Symbol Description

Strata symbols



Silty low plasticity clay



Silty sand



Poorly graded sand with silt

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

1. Exploratory borings were drilled on 7/16/2009 using a 3 1/4- inch diameter continues flight power auger. Rig is an ATV CME 45.

- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

Dia. U-Sample Boring: U-Samples:

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 Contract: 28-113-01

Boring Location: Sta. 157+60, 157' Rt. C.L.

Boring No.: SWM3-16-03

Ft.

Ft.

Boring Surface E	Elev.: + 75.7		Ref	erence:			
Wt. of Casing Hamm Wt. of Sample Hamm Type of: D-Sample S-Sample U-Sample Core Bit:	er: 140 er: Split Barrel er:	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow S	3 1/4 Stem Auger:	Inches	From Depth of: From Depth of:	0.0	To: To:		8.0
Water Level Reading Date 7/20/2009	ls Time	Depth of Hole 10.0	Depth of Casing 8.0		of Water ^{Dry}	Elev. of Wa	iter
Pay Quantitios							

Pay	Quantities:
	0 4 /0 1 D

2 1/2 in. Dia. Dry Sample Boring:	10.0	Ft.;	Dia. U-Sa
No. of 2 in. Dia. Shelby Tubes:		;	No. of:
2 1/2 in. Dia. Contin. Sample Boring:		Ft.;	Core Drilling in Rock:

Boring Contractor: Walton Corporation Driller: Dave Burt Helpers: T. Kane

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
	7/20/09	1	0.0'	9 4 6 6	Moist stiff gray silt w/some clay, fine sand and gravel, trace of organic matter and coarse sand.	A-4(1)	Topsoil - 2". 2.5 YR - 5/3
2		2	2.0' 2.0'	3			10 1/0
		2	2.0	3 5 7 8	Moist stiff brown clay w/some fine sand, trace of coarse sand and gravel.	A-6(9)	10 YR - 6/6
4			4.0'		IP" RECOVERY		
		3	4.0'	8 9 13 19	Moist very stiff brown fine to coarse sandy silt w/some clay, trace of gravel.	A-4(0)	USDA Classifica - Sandy Loam 10 YR -
6		4	6.0' 6.0'	14	18" RECOVERY	A 4(0)	5/6
		-	0.0	14 10 10 10	Moist very stiff orange fine sandy silt w/trace of gravel and coarse sand.	A-4(0)	2.5 YR - 6/8
8			8.0'		19" RECOVERY		
		5	8.0'	3 5 6	Moist medium dense tan coarse to fine sand w/some silt, trace of gravel.	A-1-b	10 YR - 7/8
10			10.0'		18" RECOVERY		
Poma					End of Boring		

Symbol Description

Strata symbols



Silty low plasticity clay



Low plasticity clay

Poorly graded clayey silty sand



Silty sand

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

1. Exploratory borings were drilled on 7/20/2009 using a 3 1/4- inch diameter continues flight power auger. Rig is an ATV CME 45.

- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

Boring No.: SWM3-17-01

Ft. Ft.

Boring Location:		t. C.L.					
Boring Surface Ele	ev.: + 65.9		Reference:				
Wt. of Casing Hammer: Wt. of Sample Hammer Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:		Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow Ste	3 1/4 m Auger:	Inches	From Depth of: From Depth of:	0.0	To: To:		8.0
Water Level Readings Date 10/6/2009	Time	Depth of Hole	Depth of Casing 8.0		of Water Dry	Elev. d	of Water

Pay Quantities:

Contract: 28-113-01

2 1/2 in. Dia. Dry Sample Boring: 10	0.0 Ft.;	Dia. U-Sample Boring:
No. of 2 in. Dia. Shelby Tubes:	;	No. of: U-Samples:
2 1/2 in. Dia. Contin. Sample Boring:	Ft.;	Core Drilling in Rock:
Dering Contractory Walter Comparties		

Boring Contractor: Walton Corporation Driller: Jason Truver Helpers: D. Zmijewski

F.A. Project: U.S. 301, Maryland State Line to S.R. 1

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
	10/6/09	1	0.5'	3 4 4	Wet firm gray clayey silt w/some fine sand, trace of coarse sand and fine gravel.	A-4(4)	Topsoil - 4". USDA Classifica
2			2.0'		16" RECOVERY		- Silt
		2	2.0'	4 8 7 7	Wet medium dense gray clayey fine to coarse sand w/trace of gravel.	A-2-4(0)	Loam.
4			4.0'		16" RECOVERY		
		3	4.0'	4 8 7 6	Wet medium dense orange silty coarse to fine sand.	A-2-4(0)	7.5 YR - 5/8
6			6.0'		14" RECOVERY		
		4	6.0'	3 4 3 2	Wet loose orange fine to coarse sand w/some silt, trace of fine gravel.	A-2-4(0)	7.5 YR - 5/8
8			8.0'		19" RECOVERY		
		5	8.0'	1 1 2	Wet very loose orange silty fine sand w/trace of coarse sand.	A-2-4(0)	7.5 YR - 5/8
10			10.0'		18" RECOVERY		
					End of Boring		

Symbol Description

Strata symbols

Silty low plasticity clay

Poorly graded clayey silty sand



Silty sand

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

1. Exploratory borings were drilled on 10/6/2009 using a 3 1/4- inch diameter continues flight power auger. Rig is an ATV CME 55.

- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 Contract: 28-113-01

Boring Location: Sta. 1016+70, 65' Rt. C.L.

Boring No.: SWM3-17-02

Ft.

Ft.

Boring Surface E	ev.: + 65.2		Ref	erence:			
Wt. of Casing Hamme Wt. of Sample Hamme Type of: D-Sampler S-Sampler U-Sampler Core Bit:	er: 140 : Split Barrel	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2		IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow St	3 1/4 em Auger:	Inches	From Depth of: From Depth of:	0.0	To: To:		8.0
Water Level Readings Date 10/6/2009	Time	Depth of Hole 10.0	Depth of Casing 8.0		of Water 5.9	Elev. o	f Water

Ft.;

; Ft.;

10.0

Pay Quantities:
2 1/2 in. Dia. Dry Sample Boring:
No. of 2 in. Dia. Shelby Tubes:

2 1/2 in. Dia. Contin. Sample Boring: Boring Contractor: Walton Corporation Driller: Jason Truver Helpers: D. Zmijewski

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
	10/6/09	1	0.5'	5 5 6	Wet stiff gray elayey silt w/some fine sand, trace of coarse sand and fine gravel.	A-4(6)	Topsoil - 6". USDA Classifica
2			2.0'		17" RECOVERY		- Silt
		2	2.0'	10 14 11 9	Wet very stiff gray clayey fine sandy silt w/some coarse sand, trace of fine gravel.	A-4(0)	Loam.
4			4.0'		18" RECOVERY		
		3	4.0'	5 14 10 7	Wet medium dense orange silty fine sand w/trace of coarse sand and fine gravel.	A-2-4(0)	7.5 YR - 5/8
6			6.0'		20" RECOVERY		
		4	6.0'	5 7 6 5	Wet medium dense orange fine to coarse sand w/some silt.	A-2-4(0)	7.5 YR - 5/8
8			8.0'		16" RECOVERY		
		5	8.0'	3 4 3 5	Wet loose orange coarse to fine sand w/some silt, trace of fine gravel.	A-1-b	7.5 YR - 5/8
10			10.0'		16" RECOVERY		
					End of Boring		
Remai	rks:		1			1	

Remarks:

Dia. U-Sample Boring: U-Samples:

No. of: Core Drilling in Rock:

Symbol Description

Strata symbols



Low plasticity clay

Poorly graded clayey silty sand



Silty sand

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

1. Exploratory borings were drilled on 10/6/2009 using a 3 1/4- inch diameter continues flight power auger. Rig is an ATV CME 55.

- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 28-113-01

Boring Location: Sta. 197+40, Lt. C.L.

Soring No.: SWM3-18

Boring Surface Ele	ev.: + 65.0		Ref				
Wt. of Casing Hammer: Wt. of Sample Hammer Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:	: 140 Split Barrel	Lbs. Lbs. O.D. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:			IN. IN. IN. IN. IN. IN.	
Casing Size: Hollow Ste	3 1/4 m Auger:	Inches	From Depth of: From Depth of:	0.0	To: To:		14.0
Water Level Readings Date 11/20/2009	Time	Depth of Hole 16.0	Depth of Casing 14.0		of Water 2.1	Elev. of W	later

Pay Quantities:

2 1/2 in. Dia. Dry Sample Boring:	16.0	Ft.;	Dia. U-Sample Boring:	Ft.
No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring:		; Ft.;	No. of: U-Samples: Core Drilling in Rock:	Ft.

Boring Contractor: Walton Corporation Driller: Dave Burt Helpers: D. Zmijewski

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
	11/20/09	1	0.0'	1 2 2 2	Moist soft brown clayey silt w/trace of fine to coarse sand.	A-4(7)	2.5 YR 4/ 8
			2.0'		10" RECOVERY		
		2	2.0'	4 7	Moist stiff brown fine sandy silt w/some coarse sand, fine gravel and clay	7. A-4(0)	2.5 YR 4/
3.5			4.0'	6	EOR PAURECOVERY		8
		3	4.0'	<mark>5</mark> 11	Moist medium dense brown coarse to fine sand and fine gravel w/some	A-1-b	2.5 YR 3/
				15 16	silt, trace of clay.		3
				10			USDA
		4	6.0' 6.0'	12 11	21' RECOVERY Moist medium dense orange coarse to fine sand w/some silt, trace of fine	A-1-b	CLassifica
7		7	0.0	10	gravel.	A-1-0	- Sandy
				9			Loam.
			8.0'		23" RECOVERY		2.5 YR 3/
		5	8.0'	5 8 14 13	Wet medium dense orange coarse to fine sand and fine gravel w/some sil	t. A-1-b	3
				14 13			2.5 YR 3/
			10.0'		16" RECOVERY		3
10.5		6	10.0'	6	Wet medium dense orange coarse sand and fine gravel w/some silt, trace	A-1-b	7.5 YR 6/
				6 11 6 6	of fine sand.		8
			12.0'		16" RECOVERY		
		7	12.0'	6 6 6	Wet medium dense orange fine sand w/some coarse sand, trace of silt and fine gravel.	1 A-3	7.5 YR 6/ 8
14			14.0'		113167 113167 113167		
		8	14.0'	7 8 9 10	Wet medium dense orange coarse to fine sand w/trace of silt and fine gravel.	A-1-b	7.5 YR 6/ 8
							0
			16.0'		14" RECOVERY		
					End of Boring		
175							
17.5							
Boma				1		1	

Symbol Description

Strata symbols



Low plasticity clay

Poorly graded clayey silty sand



Silty sand

Poorly graded sand with silt

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

1. Exploratory borings were drilled on 11/20/2009 using a 3 1/4- inch diameter continues flight power auger. Rig is an ATV CME 55.

- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

F.A. Project: U.S. 301, Maryland State Line to S.R. 1 **Contract:** 28-113-01

Boring Location: Sta. 201+20, 190' Rt. C.L.

Boring	No.:	SWM3-18-02
--------	------	------------

Boring Surface E	Elev.: + 65.5		Ref			
Wt. of Casing Hamm Wt. of Sample Hamm Type of: D-Sample S-Sample U-Sample Core Bit:	er: 140 er: Split Barrel er:	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2		IN. IN. IN. IN. IN. IN.
Casing Size: Hollow S	3 1/4 Stem Auger:	Inches	From Depth of: From Depth of:	0.0	To: To:	14.0
Water Level Reading Date 11/20/2009	s Time	Depth of Hole 16.0	Depth of Casing 14.0		of Water 3.8	Elev. of Water

Pay Quantities:

2 1/2 in. Dia. Dry Sample Boring:	16.0	Ft.;	Dia. U-Sample Boring:	Ft.
No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring:		; Ft.;	No. of: U-Samples: Core Drilling in Rock:	Ft.

Boring Contractor: Walton Corporation Driller: Dave Burt Helpers: D. Zmijewski

2.0'310' RECOVERY83.52.0'34.0'10' RECOVERY2.5 YF3.54.0'210' RECOVERY884.0'10' RECOVERY18 RECOVERY4.0'2.5 YF3.54.0'1910' RECOVERY10' RECOVERY10' RECOVERY46.0'710' RECOVERY10' RECOVERYUSDA46.0'710' RECOVERY10' RECOVERY10' RECOVERY58.0'10' RECOVERY10' RECOVERY10' RECOVERY10.5610' RECOVERY10' RECOVERY2.5 YF10.5610' RECOVERY10' RECOVERY2.5 YF10.5610' RECOVERY10' RECOVERY2.5 YF10.5610.0'10' RECOVERY310.5610.0'10' RECOVERY310.5610.0'10' RECOVERY310.5710' RECOVERY3310.510' RECOVERY10' RECOVERY310.510' RECOVERY10' RECOVERY310.511' RECOVERY10' RECOVERY310.511' RECOVERY10' RECOVERY310.511' RECOVERY10' RECOVERY310.511' RECOVERY10' RECOVERY310.511' RECOVERY10' RECOVERY10' RECOVERY10.511' RECOVERY10' RECOVERY10' RECOVERY10.511' RECOVERY10' RECOVERY10' RECOVERY11' RECOVERY1	Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
22.03Moist stiff brown clayey fine sandy silt w/some coarse sand, trace of fine gravel.A-4(2)2.5 YH 83.54.019Moist medium dense gray silty coarse to fine sand and fine gravel w/trace of clay.A-1-b2.5 YH 8746.07 6Moist medium dense blackish orange coarse to fine sand w/some fine gravel and silt.A-1-b2.5 YH 38.010*10*10*10*Class 8758.0'4Moist medium dense blackish orange coarse to fine sand w/some fine gravel and silt.A-1-bClass 		11/20/09	1	0.0'	1 2 3 3	Moist firm brown silty clay w/trace of fine to coarse sand and fine gravel.	A-6(9)	2.5 YR 4/ 8
3.5 4.0 19 Moist medium dense gray sitty coarse to fine sand and fine gravel w/trace A-1-b 2.5 YF 3 4.0 19 Moist medium dense gray sitty coarse to fine sand and fine gravel w/trace A-1-b 2.5 YF 6.0 6.0 7 10 Moist medium dense blackish orange coarse to fine sand w/some fine gravel w/trace A-1-b 2.5 YF 7 4 6.0 7 10 Moist medium dense blackish orange coarse to fine sand w/some fine gravel w/trace A-1-b 2.5 YF 5 8.0 4 10 17" RECOVERY 2.5 YF 10.5 6 10.0 4 100 17" RECOVERY 2.5 YF 10.5 6 10.0 4 100 17" RECOVERY 3 10.5 6 10.0 4 100 17" RECOVERY 3 10.5 10 4 100 100 100 100 100 10.5 10.0 4 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100								
3.54.0'18' RECOVERY34.0' $\frac{9}{10}$ Moist medium dense gray silty coarse to fine sand and fine gravel w/trace of clay.A-1-b2.5 YH46.0' $\frac{7}{10}$ Moist medium dense blackish orange coarse to fine sand w/some fine gravel and silt.A-1-b2.5 YH58.0' $\frac{7}{10}$ Moist medium dense orange coarse to fine sand w/some fine gravel.A-1-b2.5 YH58.0' $\frac{7}{10}$ Moist medium dense orange coarse to fine sand w/race of silt and fine gravel.A-3310.5610.0' $\frac{4}{10}$ Moist medium dense orange coarse to fine sand w/trace of silt and fine gravel.A-1-b7.5 YH10.5610.0' $\frac{4}{10}$ Moist medium dense orange coarse to fine sand w/trace of silt and fine gravel.A-1-b7.5 YH10.511.0'11.0'10''''''''''''''''''''''''''''''''''''			2	2.0'	3	Moist stiff brown clayey fine sandy silt w/some coarse sand, trace of fine	A-4(2)	2.5 YR 4/
3 4 $6.0'$ $7/7$ $7/9$ Moist medium dense blackish orange coarse to fine sand w/some fine gravel and sil. $A-1-b$ $CLassSandLoam2.5 YF58.0'46Moist medium dense orange coarse to fine sand w/trace of silt and finegravel.A-32.5 YF10.5'6710.0'17''''''''''''''''''''''''''''''''''''$	3.5			4.0'	6 7			8
76.0°77Moist medium dense blackish orange coarse to fine sand w/some fine gravel and silt.A-1-bCLass Sand Loam78.0°610.0°1000100010002.5 YF10.5610.0°6100010001000310.510.0°61000100010001000310.510.0°10001000100010001000100010.510.0°10001000100010001000100010.510.0°10001000100010001000100010.510.0°10001000100010001000100010.510.0°10001000100010001000100010.510.0°10001000100010001000100011.510.0°10001000100010001000100011.510.0°10001000100010001000100011.611.0°10001000100010001000100011.011.0°10001000100010001000100011.011.0°10001000100010001000100011.01000100001000010000100001000011.010000100001000010000100001000011.01000010000010000			3	4.0'	<mark>10</mark> 11 9 6		A-1-b	-
4 6.0' 7 Moist medium dense blackish orange coarse to fine sand w/some fine gravel and silt. A-1-b CLass Sind Loam Loam Loam Loam Loam Loam Loam Loam				6.0'				
58.0' $\frac{4}{6}$ Moist medium dense orange coarse to fine sand w/trace of silt and fine gravel.A-3 $\frac{3}{2.5 \text{ YF}}$ 10.5610.0' $\frac{4}{6}$ Moist medium dense orange coarse to fine sand w/trace of silt and fine gravel.A-1-b7.5 YF10.5610.0' $\frac{4}{6}$ Moist medium dense orange coarse to fine sand w/trace of silt and fine gravel.A-1-b7.5 YF10.512.0' $\frac{4}{6}$ Wet medium dense orange coarse to fine sand w/trace of silt and fine gravel.A-1-b7.5 YF12.0' $\frac{6}{7}$ Wet medium dense orange coarse to fine sand w/trace of silt and fine gravel.A-1-b7.5 YF1414.0'19" RECOVERYA-1-b7.5 YF1414.0'19" RECOVERYA-1-b7.5 YF16.0'20" RECOVERYA-1-b816.0'20" RECOVERYA-1-b8	7		4		7 7 9 11	Moist medium dense blackish orange coarse to fine sand w/some fine	A-1-b	- Sandy Loam
10.5 6 10.0' 10.5 10.0' 10.0' 10.0' 10.0' 10.5 6 10.0' 4 10.0' 10' <				8.0'		17" RECOVERY		2.5 YR 3/
$\begin{array}{c c c c c c c c c c c c c c c c c c c $			5	8.0'	6		A-3	<u>3</u> 2.5 YR 3/
10.5 6 10.0' 4 Moist medium dense orange coarse to fine sand w/trace of silt and fine gravel. A-1-b 7.5 YH 12.0' 20'' RECOVERY 20'' RECOVERY A-1-b 7.5 YH 12.0' 6 Wet medium dense orange coarse to fine sand w/trace of silt and fine gravel. A-1-b 7.5 YH 14 14.0' 14.0' 19'' RECOVERY A-1-b 7.5 YH 14 14.0' 7 70 10 Wet medium dense orange coarse to fine sand and fine gravel w/trace of silt and fine gravel. A-1-b 7.5 YH 14 14.0' 7 70 10 Wet medium dense orange coarse to fine sand and fine gravel w/trace of silt and fine gravel w/trace of silt. A-1-b 7.5 YH 14 14.0' 7 70 10 Wet medium dense orange coarse to fine sand and fine gravel w/trace of silt. A-1-b 7.5 YH 16.0' 20'' RECOVERY A-1-b 8 A-1-b 8 16.0' 20'' RECOVERY A A-1-b A-1-b A-1-b				10.0'		11/1/17 RECOVERY		3
12.0' 12.0' 0	10.5		6		4 6 10 12	Moist medium dense orange coarse to fine sand w/trace of silt and fine gravel.	A-1-b	7.5 YR 6/ 8
14 14.0' 19" RECOVERY 8 14.0' 7/7 10 10 10 10 16.0' 10 20" RECOVERY 16.0' End of Boring				12.0'				
14 14.0' 19" RECOVERY 10" 8 14.0' 7 10 11 10 10 11 10 11 16.0' 16.0' 20" RECOVERY A-1-b 7.5 YF End of Boring End of Boring Image: State of Boring Image: State of Boring Image: State of Boring			7		6 6 7 10	gravel.	A-1-b	7.5 YR 6/ 8
16.0' 20" RECOVERY End of Boring	14			14.0'				
16.0' 20" RECOVERY End of Boring End of Boring			8	14.0'	7 7 10 11	silt.	A-1-b	7.5 YR 6/ 8
End of Boring				16.0'		20" RECOVERY		
						č		
	17.5							

Symbol Description

Strata symbols

Low plasticity clay



Clayey sand



Silty sand



10 Poorly graded sand with silt

Well graded sand with silt

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

1. Exploratory borings were drilled on 11/20/2009 using a 3 1/4- inch diameter continues flight power auger. Rig is an ATV CME 55.

- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

Boring No.: SWM3-19-01

Boring Location:	Sta. 242+55, 165' Lt	t. C.L.						
Boring Surface Ele	ev.: + 63.8		Reference:					
Wt. of Casing Hammer: Wt. of Sample Hammer Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:	: 140 Split Barrel	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2		IN. IN. IN. IN. IN. IN.		
Casing Size: Hollow Ste	3 1/4 m Auger:	Inches	From Depth of: From Depth of:	0.0	To: To:		8.0	
Water Level Readings Date 10/20/2009	Time	Depth of Hole	Depth of Casing 8.0		of Water Dry	Elev. o	of Water	

Pay Quantities:

Contract: 28-113-01

	10.0	Ft.;	Dia. U-Sample Boring:	Ft.
No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring:		; Ft.;	No. of: U-Samples: Core Drilling in Rock:	Ft.
Bering Contractory Walter Comparties				

Boring Contractor: Walton Corporation Driller: Jason Truver Helpers: T. Kane

F.A. Project: U.S. 301, Maryland State Line to S.R. 1

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
	10/20/09	1	0.5'	2 2 5	Wet soft brown clay w/some fine sand, trace of coarse sand and fine gravel.	A-6(9)	Topsoil - 7". 7.5 YR -
2			2.0'		14" RECOVERY		5/6
		2	2.0'	6 9 7 10	Wet very stiff brown clayey fine sandy silt w/trace of fine gravel and coarse sand.	A-4(0)	7.5 YR - 6/6
4			4.0'		21" RECOVERY		
		3	4.0'	6 8 9 11	Wet medium dense brown silty fine sand w/trace of gravel and coarse sand.	A-2-4(0)	7.5 YR - 6/8
6			6.0'		17" RECOVERY		
		4	6.0'	8 8 10 8	Wet medium dense brown silty fine sand.	A-2-4(0)	7.5 YR - 6/8
8			8.0'		21" RECOVERY		
		5	8.0'	8 13 9 16	Wet medium dense brown silty fine sand w/some coarse sand, trace of fine gravel.	A-2-4(0)	7.5 YR - 6/8
10			10.0'		15" RECOVERY		
Remai					End of Boring		

Symbol Description

Strata symbols



Low plasticity clay

Poorly graded clayey silty sand



Silty sand

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

1. Exploratory borings were drilled on 10/20/2009 using a 3 1/4- inch diameter continues flight power auger. Rig is an ATV CME 55.

- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

Boring No.: SWM3-19-02

Boring Surface Ele	ev.: + 56.7		Reference:					
Wt. of Casing Hammer Wt. of Sample Hammer Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:	: 140 Split Barrel	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2		IN. IN. IN. IN. IN. IN.		
Casing Size: Hollow Ste	3 1/4 em Auger:	Inches	From Depth of: From Depth of:	0.0	To: To:		8.0	
Water Level Readings Date 10/7/2009	Time	Depth of Hole	Depth of Casing 8.0		of Water Dry	Elev. o	of Water	

Pay Quantities:

Contract: 28-113-01

No. of 2 in. Dia. Shelby Tubes:	10.0 Ft. ;	Dia. U-Sample Boring: No. of: U-Samples:	Ft.
2 1/2 in. Dia. Contin. Sample Boring:	Ft.;	Core Drilling in Rock:	Ft.
Paring Contractor: Walton Composition			

Boring Contractor: Walton Corporation Driller: Jason Truver Helpers: J. Lafferty

F.A. Project: U.S. 301, Maryland State Line to S.R. 1

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
2	10/7/09	1	0.5' 2.0'	2 3 3	Wet firm brown fine gravelly silt w/some fine to coarse sand and clay. 14" RECOVERY	A-4(0)	Topsoil - 6". 10 YR - 4/4
		2	2.0'	5 5 4 5	Wet stiff brown fine sandy silt w/some coarse sand, fine gravel and clay.	A-4(0)	10 YR - 5/4
		3	4.0'	2 2 2 2 2 2	Wet soft brown fine sandy silt w/some coarse sand and clay, trace of fine gravel.	A-4(0)	10 YR - 4/4
		4	6.0' 6.0'	1 2 2 2	19" RECOVERY Wet soft brown fine to coarse sandy silt w/some clay.	A-4(1)	10 YR - 4/4
8		5	8.0' 8.0'	4 4 4 7	21" RECOVERY Wet loose brown silty fine to coarse sand and fine gravel.	A-2-4(0)	10 YR - 4/6
			10.0'		19" RECOVERY End of Boring		
Pomar	tko-						

Symbol Description

Strata symbols

Poorly graded clayey silty sand

Silty low plasticity clay



Silty sand

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

1. Exploratory borings were drilled on 10/7/2009 using a 3 1/4- inch diameter continues flight power auger. Rig is an ATV CME 55.

- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

Boring No.: SWM3-19-03

Boring Surface El	ev.: + 57.5		Reference:					
Wt. of Casing Hammer Wt. of Sample Hamme Type of: D-Sampler S-Sampler: U-Sampler Core Bit:	r: 140 Split Barrel	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2		IN. IN. IN. IN. IN. IN.		
Casing Size: Hollow St	3 1/4 em Auger:	Inches	From Depth of: From Depth of:	0.0	To: To:		8.0	
Water Level Readings Date 10/7/2009	Time	Depth of Hole	Depth of Casing 8.0		of Water Dry	Elev. o	of Water	

Pay Quantities:

Contract: 28-113-01

2 1/2 in. Dia. Dry Sample Boring: 10.0 No. of 2 in. Dia. Shelby Tubes:	Ft.;	Dia. U-Sample Boring: No. of: U-Samples:	Ft.
2 1/2 in. Dia. Contin. Sample Boring:	Ft.;	Core Drilling in Rock:	Ft.
Paring Contractory Walton Composition			

Boring Contractor: Walton Corporation Driller: Jason Truver Helpers: J. Lafferty

F.A. Project: U.S. 301, Maryland State Line to S.R. 1

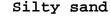
Depth	Daily	No.	Sample	Blows/6"	Sample Description	Class./G.I.	Remarks
(ft.)	Progress 10/7/09	1	Depth 0.0'	1 2 3 7	Moist firm brown fine sandy silt w/some coarse sand, fine gravel and	A-4(0)	Topsoil -
				3 7	clay.		3". 10 YR -
							4/5
2			2.0'	3	12" RECOVERY		10.100
		2	2.0'	4 4 7	Wet loose brown clayey fine to coarse sand and gravel.	A -2-6(0)	10 YR - 3/6
4			4.0'		18" RECOVERY		
		3	4.0'	5 5 5 7	Wet loose brown silty coarse to fine sand.	A-2-4(0)	10 YR 4/ 4
				7			
6		4	6.0' 6.0'	7	17" RECOVERY		10 100 1/
		4	6.0	7 8 9 14	Wet medium dense brown silty coarse to fine sand.	A-2-4(0)	10 YR 4/ 6
8			8.0'		17" RECOVERY		
		5	8.0'	8 9 9 13	Wet medium dense brown fine to coarse sand w/some silt, trace of gravel	. A-2-4(0)	10 YR 4/ 6
				13			
10			10.0'		19" RECOVERY		
					End of Boring		
Rema	rks:						1

Symbol Description

Strata symbols



Poorly graded clayey silty sand



DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

1. Exploratory borings were drilled on 10/7/2009 using a 3 1/4- inch diameter continues flight power auger. Rig is an ATV CME 55.

- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

Boring No.: SWM3-20-01

Boring Surface Ele	EV.: + 53.7		Reference:					
Wt. of Casing Hammer: Wt. of Sample Hammer Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:	: 140 Split Barrel	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2		IN. IN. IN. IN. IN. IN.		
Casing Size: Hollow Ste	3 1/4 em Auger:	Inches	From Depth of: From Depth of:	0.0	To: To:		8.0	
Water Level Readings Date 1/27/2010	Time	Depth of Hole 8.0	Depth of Casing 10.0		of Water 5.5	Elev. d	of Water	

Pay Quantities:

Contract: 28-113-01

2 1/2 in. Dia. Dry Sample Boring: 10 No. of 2 in. Dia. Shelby Tubes:).0 Ft.;	Dia. U-Sample Boring: No. of: U-Samples:	Ft.
2 1/2 in. Dia. Contin. Sample Boring:	Ft.;	Core Drilling in Rock:	Ft.
Dering Contractory Walter Comparties			

Boring Contractor: Walton Corporation Driller: Dave Burt Helpers: T. Kane

F.A. Project: U.S. 301, Maryland State Line to S.R. 1

Depth (ft.)	Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
	1/27/10	1	1.0' 2.0'	3 3	Wet firm brown clayey fine sandy silt w/trace of coarse sand. 10" RECOVERY	A-4(3)	Topsoil - 12".
3		2	2.0'	4 5 6 8	Wet stiff brown clayey fine sandy silt w/some fine gravel, trace of coarse sand.	A-4(0)	
			4.0'		18" RECOVERY		
		3	4.0'	6 7 6 6	Wet medium dense brown fine sand w/some silt and coarse sand.	A-2-4(0)	
6			6.0'		18" RECOVERY		
		4	6.0'	5 4 3 4	Wet loose brown fine to coarse sand w/some silt, trace of fine gravel.	A-2-4(0)	
			8.0'		17" RECOVERY		
9		5	8.0'	4 5 5 6	Wet loose brown coarse sand w/some fine sand and silt, trace of fine gravel.	A-1-b	
			10.0'		16" RECOVERY		
					End of Boring		
12							
15							

Symbol Description

Strata symbols

Low plasticity clay

Poorly graded clayey silty sand



Silty sand

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

- 1. Exploratory borings were drilled on 1/27/2010 using a 3 1/4- inch diameter continuous flight power auger. Rig is a ATV CME 55.
- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
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- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

Boring No.: SWM3-20-02

Boring Location: Boring Surface Ele			Reference:					
Wt. of Casing Hammer Wt. of Sample Hammer Type of: D-Sampler: S-Sampler: U-Sampler: Core Bit:	: 140 Split Barrel	Lbs. Lbs. O.D. O.D. O.D. O.D.	Average Fall: Average Fall: O.D. of Sampler: O.D. of Samp. Tube: O.D. of Samp. Tube: O.D. of Rock Core:	30 2		IN. IN. IN. IN. IN. IN.		
Casing Size: Hollow Ste	3 1/4 em Auger:	Inches	From Depth of: From Depth of:	0.0	To: To:		8.0	
Water Level Readings Date 1/27/2010	Time	Depth of Hole 10.0	Depth of Casing $\frac{8.0}{8.0}$		of Water 4.2	Elev.	of Water	

Pay Quantities:

Contract: 28-113-01

2 1/2 in. Dia. Dry Sample Boring: 10.0 No. of 2 in. Dia. Shelby Tubes: 2 1/2 in. Dia. Contin. Sample Boring:	Ft.; ; Ft.;	Dia. U-Sample Boring: No. of: U-Samples: Core Drilling in Rock:	Ft. Ft.
Boring Contractor: Walton Corporation		C C	

oring Contractor: Walton Corporation Driller: Dave Burt Helpers: T. Kane

F.A. Project: U.S. 301, Maryland State Line to S.R. 1

Daily Progress	No.	Sample Depth	Blows/6"	Sample Description	Class./G.I.	Remarks
1/27/10	1	0.5' 2.0'	4 4 3	Moist loose brown coarse to fine sand w/some silt, trace of fine gravel. 18" RECOVERY	A-1-b	Topsoil - 4".
	2	2.0'	2 3 3	Wet loose brown fine to coarse sand w/some silt, trace of fine gravel.	A-2-4(0)	
		4.0'	3	FOR BIS'RECOVERY		
	3	4.0'	5 4 3 5	Wet loose brown coarse to fine sand w/some silt, trace of fine gravel.	A-1-b	
		6.0'		16" RECOVERY		
	4	6.0'	4 5 5 6	Wet loose brown coarse to fine sand w/some fine gravel and silt.	A-1-b	
		8.0'				
	5	8.0'	4 6 11 11		. A-2-4(0)	
		10.0'		16" RECOVERY		
				End of Boring		
	Progress	Progress NO. 1/27/10 1 2 3 3	Progress NO. Depth 1/27/10 1 0.5' 2.0' 2 2.0' 2 2.0' 3 4.0' 3 4.0' 3 4.0' 6.0' 4 6.0' 8.0'	Progress NO. Depth Blows/6 1/27/10 1 $0.5'$ $\frac{4}{4}$ 2 $2.0'$ $\frac{2}{3}$ 2 $2.0'$ $\frac{2}{3}$ 3 $4.0'$ $\frac{3}{3}$ 6.0' $\frac{4}{4}$ $\frac{5}{5}$ 6.0' $\frac{4}{5}$ 8.0' $\frac{6}{11}$ 11 $\frac{4}{5}$	Progress No. Depth Blows/b Sample Description 1/27/10 1 0.5' 4/4 Moist loose brown coarse to fine_sand w/some silt, trace of fine gravel. 2.0' 2 2.0' 2 Wet loose brown fine to coarse sand w/some silt, trace of fine gravel. 3 4.0' 1 18' RECOVERY 3 4.0' 18' RECOVERY 4 6.0' 18' RECOVERY 4 6.0' 18' RECOVERY 4 6.0' 18' RECOVERY 4 6.0' 18' RECOVERY 5 8.0' 10' 10' 10' 10' 10' 10' 10' 10' 10' 10'	ProgressNo.DepthBlows/oSample DescriptionClass./G.I.1/27/1010.5' $\frac{4}{3}$ Moist loose brown coarse to fine sand w/some silt, trace of fine gravel.A-1-b22.0' $\frac{2}{3}$ Wet loose brown fine to coarse sand w/some silt, trace of fine gravel.A-2-4(0)34.0' $\frac{5}{3}$ Wet loose brown coarse to fine sand w/some silt, trace of fine gravel.A-1-b6.0'16" RECOVERYA-1-b6.0'16" RECOVERYA-1-b6.0'16" RECOVERYA-1-b8.0'19" RECOVERYA-1-b98.0'1000000000000000000000000000000000000

Symbol Description

Strata symbols



Silty sand

Poorly graded sand with silt

DRAFT NOT FOR BIDDING AUGUST 2015

Notes:

- 1. Exploratory borings were drilled on 1/27/2010 using a 3 1/4- inch diameter continuous flight power auger. Rig is a ATV CME 55.
- 2. Groundwater levels recorded at the time of drilling and re-checked the following day.
- 3. Surveyed boring location and elevation was provided by Century Engineering.
- 4. These logs are subject to the limitations, conclusions, and recomendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs.
- 6. All blow counts are uncorrected.

STA 128+00.00 OFFSET 160.00 RT

	WEAT	IG NO.	-0'3	ک SRILLE	Р.О)0[TON COR DRILLING CONT D. BOX 1097, NEWARK, E BORING I SEC A Cecil VATION	RACTOR Delaware	t z 19715		9	0/		BLOWS ON CASING B 1 2 3 4
	SAMPLE		· FEET	DEPTH S FE	ET	DRILLER'S DESCRIPTION	ON OF MATE	RIALS	REC	• BI	LO₩S A		16-17 17-18 18-19
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	<u> </u>		1.0		0.7	100 Soil	1. 8.01	vt SAL	IN				21-22
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	10:	80	60	80		4. BX 7 BR. 54	had y	Self men		4-4			40-41
		0.	1-	0		Liffle Clay		1	C				41-42
	. 4.7%	10% H		+		hille conte	15		3		++		43-44
	10	9.0	10.0	h	ļ	LIBRY BL CM	om) SA	10-9		1xto			45-46
					100	ulsome Silt	et «	ing	1				46-47
					En	1		/					47-48
				1	1				1				48.49
				<u> </u>			alit snown sa	moler for each of t	hree 6	in incremen	ts.		50-51
	Numbe	r of blow	s of 300	th hainm	er droppe	ed 30 in. required to drive 2 in. sp ed 18 in. required to drive	in c	asing 12 inches.					51-52
	REAL	RKS	uli	5.	G V	1.1010 G. 3.	/						<u>52-53</u> 53-54
	NLIM/)		1-1010 6-124 - 3.5 8 4.11					 .		54-55
	•	1	1	2	An	- 3.5			GROU	INDWAT	FR	•	<u>55-56</u> 56-57
			6.6						GROU			٦	57-58
		 	. 1.5	-		- 1 1 1 I						1	58-59
		ie hi	20	W. W.S.	1. 1. K	8 7.1							<u>59-60</u> 60-61
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