MAINE DEPARTMENT OF TRANSPORTATION BRIDGE PROGRAM GEOTECHNICAL SECTION AUGUSTA, MAINE

GEOTECHNICAL DATA REPORT

For the Replacement of:

KNIGHTS HILL BRIDGE OVER MESERVY BROOK STATE ROUTE 52 LINCOLNVILLE, MAINE

Compiled by:

Michael J. Moreau, P.E. Geotechnical Engineer

Waldo County PIN 12676.00 Soils Report No. 2008-111 Bridge No. 3194

BB-MB.LIN-101 **Maine Department of Transportation Boring No.:** Project: Knights Hill Bridge over Meservy Brook Route 52 Soil/Rock Exploration Log Location: Lincolnville, Maine PIN: 12676.00 **US CUSTOMARY UNITS** MaineDOT Driller: Elevation (ft.) 166.6 Auger ID/OD: 5" Solid Stem Operator: E. Giguere Datum: NAVD 88 Standard Split Spoon Sampler: Hammer Wt./Fall: Logged By: G. Lidstone Rig Type: CME 45C 140#/30" Date Start/Finish: 10/17/05-10/18/05 **Drilling Method:** Cased Wash Boring Core Barrel: N/A **Boring Location:** 13+89.9, 7.6 Rt Casing ID/OD: Water Level*: 8.0' bgsa Definitions: Definitions Definitions: S_u = Insitu Field Vane Shear Strength (psf) D = Split Spoon Sample WC = water content, percent MD = Unsuccessful Split Spoon Sample attempt T_V = Pocket Torvane Shear Strength (psf) LL = Liquid Limit qp = Unconfined Compressive Strength (ksf) U = Thin Wall Tube Sample PL = Plastic Limit PI = Plasticity Index $S_{u(lab)}$ = Lab Vane Shear Strength (psf) WOH = weight of 140lb. hammer R = Rock Core Sample V = Insitu Vane Shear Test G = Grain Size Analysis SSA = Solid Stem Auger WOR = weight of rods = Consolidation Test Sample Information Laboratory Sample Depth (ft.) Ë. Testing Blows (/6 in.) Shear Strength (psf) or RQD (%) Sample No. Results/ Visual Description and Remarks Pen./Rec. Depth (ft.) Elevation (ft.) **AASHTO** N-value Casing Blows and Unified Class. PAVEMENT SSA 165 95 Brown, damp, GRAVEL, sand, trace silt, (Fill). 164.60 5 Brown, moist, very loose, silty fine SAND, trace medium to coarse sand, trace 1D 24/10 5.0 - 7.02/1/1/2 2 10 gravel. 7 13 7 8 10 (2D/A) 10.0-10.8' bgs. 2D/AB 24/9 10.0 - 12.0 6/3/1/1 4 9 Brown, wet, very loose, silty fine to medium SAND, trace coarse sand. 155.80 -10.8(2D/B) 10.8-12.0' bgs. 7 Brown, wet, very loose, silty fine SAND, trace organics. 9 24 38 15 Olive, moist, medium stiff, SILT, trace clay. 24/15 3D 15.0 - 17.06/3/3/3 6 18 17 149.60 -17.0 Grey, clayey SILT. 14 19 147.60 19.0 58 20 Grey, moist, medium dense, silty fine SAND, trace medium to coarse sand, trace 24/13 10/14/10/10 4D 20.0 - 22.0 24 19 gravel, (Till). Washed ahead of casing from 20.0-25.0' bgs. 13 17 14 16

Remarks:

aStatic water levels were not achieved

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.

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* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

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I	Main	e Depa	artment	of Transporta	ation	F	Project:		ats Hill Bridge over Meservy Brook	Boring No.:	BB-MB	.LIN-101	
			Soil/Rock Expl JS CUSTOMA			l	ocation	Route Line	52 colnville, Maine	PIN:	126	2676.00	
Drille	er:		MaineDOT		Ele	vation (ft.)	166	.6	Auger ID/OD:	5" Solid Stem		
Oper			E. Giguere			um:	,		VD 88	Sampler:	Standard Split	Spoon	
<u> </u>	ed By:		G. Lidstone		+	Type:			E 45C	Hammer Wt./Fall:	140#/30"		
─ ─	Start/Fir	nish:	10/17/05-10/18	3/05	+	ling Me	thod:		ed Wash Boring	Core Barrel:	N/A		
Borir	ng Locat	ion:	13+89.9, 7.6 R		$\overline{}$	sing ID/		HW		Water Level*:	8.0' bgsa		
Definiti D = Sp MD = U U = Th R = Ro V = Ins	ons: lit Spoon S	ample ful Split Spoo be Sample ample hear Test	on Sample attemp	t	S _u = T _v = q _p = S _{u(la} WOH	Pocket To Unconfine (ab) = Lab	orvane She ed Compre Vane Shea of 140lb. I	ear Strer essive St ar Streng	rength (ksf)	Definitions: WC = water content, percer LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test			
		Τ_		Sample Information		_	1	I	1			Laborator	
Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-value	Casing Blows	Elevation (ft.)	Graphic Log	Visual Descr	iption and Remarks		Testing Results/ AASHTO and Unified Clas	
25	5D	24/10	25.0 - 27.0	8/17/24/26	41	19	141.60		Grey, damp, hard, SILT, trace sand, Washed ahead of casing from 25.0-				
						17							
						14							
						1.4	1						
						14	137.60						
						36							
- 30 -	6D	15.6/11	30.0 - 31.3	27/52/50b		26			b50 blows for 4 inches Grey, damp, very dense, silty fine to	madium SAND little ago	area cand traca		
							-		gravel (Till).		arse sand, trace		
						25			Washed ahead of casing from 30.0-	35.0' bgs.			
						26							
						43							
							-						
- 35 -						82	131.60				— — — — 35.0		
33	7D	18/12	35.0 - 36.5	31/35/52	87	OPEN			Brown, moist, very dense, silty fine	SAND, trace medium to			
						LHOLE	1		gravel, (Till). Washed ahead of casing from 35.0-	40.0' bgs.			
							-		<i>G</i>				
							120.60				20.0		
							128.60		Grey, moist, very dense, silty fine S	AND, trace medium to co	——————————————————————————————————————		
							1						
- 40 -							4						
	8D	18/12	40.0 - 41.5	33/52/97	149	$ \cdot $							
						ΓV	125.10				41.5		
							1		Bottom of Exploration at	41.5 feet below ground	surface.		
							1						
							1						
- 45 -							-						
1							1						
l							1						
							4						
						<u> </u>							

50 Remarks:

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Page 2 of 2

BB-MB.LIN-102 **Maine Department of Transportation Boring No.:** Project: Knights Hill Bridge over Meservy Brook Route 52 Soil/Rock Exploration Log Location: Lincolnville, Maine PIN: 12676.00 **US CUSTOMARY UNITS** MaineDOT Driller: Elevation (ft.) 165.4 Auger ID/OD: 5" Solid Stem Operator: E. Giguere Datum: NAVD 88 Standard Split Spoon Sampler: Hammer Wt./Fall: Logged By: G. Lidstone Rig Type: CME 45C 140#/30" Date Start/Finish: 10/18/05; 10:15-16:00 **Drilling Method:** Cased Wash Boring Core Barrel: N/A **Boring Location:** 13+46.6, 8.7 Lt. Casing ID/OD: Water Level*: 9.7' bgsa Definitions Definitions Definitions: S_u = Insitu Field Vane Shear Strength (psf) D = Split Spoon Sample WC = water content, percent MD = Unsuccessful Split Spoon Sample attempt T_V = Pocket Torvane Shear Strength (psf) LL = Liquid Limit qp = Unconfined Compressive Strength (ksf) U = Thin Wall Tube Sample PL = Plastic Limit PI = Plasticity Index $S_{u(lab)}$ = Lab Vane Shear Strength (psf) WOH = weight of 140lb. hammer R = Rock Core Sample V = Insitu Vane Shear Test G = Grain Size Analysis SSA = Solid Stem Auger WOR = weight of rods = Consolidation Test Sample Information Laboratory Sample Depth (ft.) Ë. Testing Blows (/6 in.) Shear Strength (psf) or RQD (%) Results/ Sample No Visual Description and Remarks Pen./Rec. Depth (ft.) Elevation **AASHTO** N-value Casing Blows and Jnified Class. (ff.) PAVEMENT SSA 164.80 Brown, damp, GRAVEL, cobbles, little fine to coarse sand, trace silt, (Fill). 162.40 5 (1D/A) 5.0-6.7' bgs. 1D/AB 24/7 5.0 - 7.02/4/4/2 8 11 Brown, damp, loose, silty fine to coarse SAND, little gravel, (Fill). 16 158.70 (1D/B) 6.7-7.0' bgs. 14 Brown, moist, loose, silty fine SAND. 15 35 WOOD from 9.2 to 9.7' bgs 155.70 Possible timber crib. 10 2D 24/14 10.0 - 12.0 11/4/4/4 8 21 Brown, wet, loose, silty fine SAND with organics. 11 17 16 151.90 18 15 Grey, wet, very soft, clayey SILT. 24/18 15.0 - 17.0 1/1/1/2 2 3D 20 18 17.0 19 61 93 20 Grey, moist, dense, silty fine to medium SAND, little coarse sand, trace gravel 24/13 4D 20.0 - 22.0 17/17/15/17 32 18 (Till). Washed ahead of casing from 20.0-25.0' bgs. 21 24 45

Remarks:

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Maine Department of Transportat						P	roject:		ts Hill Bridge over Meservy Brook	Boring No.:	BB-MB	.LIN-102	
Soil/Rock Exploration Log US CUSTOMARY UNITS							ocation	Route Line	52 colnville, Maine	PIN:	126	12676.00	
Drille	r:		MaineDOT		Ele	vation (ft.)	165	.4	Auger ID/OD:	5" Solid Stem		
Oper			E. Giguere			um:			VD 88	Sampler:	Standard Split	Spoon	
⊢-i-	ed By:		G. Lidstone		Ria	Type:			E 45C	Hammer Wt./Fall:	140#/30"		
	Start/Fir	nish:	10/18/05; 10:1:	5-16:00		ling Me	thod:		ed Wash Boring	Core Barrel:	N/A		
\vdash	ng Locat		13+46.6, 8.7 L		+	ing ID/0		HW		Water Level*:	9.7' bgsa		
Definiti D = Sp MD = U U = Th R = Ro V = Ins	ons: lit Spoon S	ample ul Split Spo e Sample imple near Test	on Sample attemp	t	S _u = T _v = q _p = S _{u(la} WOH	Pocket To	orvane She ed Compre /ane Shea of 140lb.	ear Strer essive St ar Streng	rength (ksf) ith (psf)	Definitions: WC = water content, percer LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test		ı	
				Sample Information					1			Laborator	
Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-value	Casing Blows	Elevation (ft.)	Graphic Log		ption and Remarks		Testing Results/ AASHTO and Unified Clas	
25	5D	24/11	25.0 - 27.0	14/20/22/31	42	25			Grey, moist, dense, silty fine to med (Till).	ium SAND, little coarse	sand, trace gravel		
						31	1		Washed ahead of 25.0-30.0' bgs.				
						31	-						
						23	_						
						21							
						10	136.40				——————————————————————————————————————	-	
- 30 -						48	1		Grey, moist, very dense, silty fine to	medium SAND little co	arse sand trace silt		
	6D	18/8	30.0 - 31.5	16/17/63	80	25	1		layers (Till).		arse saile, trace sin		
						26		1888	Washed ahead of casing from 30.0-3	55.0 bgs.			
						20		800					
						28	1						
							+						
- 35 -						130	1		Cobble from 34.8-35.6' bgs.				
	MD	0/0	35.0 - 35.0	50(0")					Failed sample attempt. Washed ahea	nd from 35.0-40.0' bgs.			
							1		Boulder from 36.2-38.4' bgs.				
							1						
							127.00				——————————————————————————————————————	1	
							1						
- 40 -							1		Grey, moist, very dense, silty fine to	medium SAND, little co	arse sand, (Till).		
	7D	18/11	40.0 - 41.5	38/67/80	147		1						
							123.90		D.44 6E 4 4	41.5.6.41.11	41.5	1	
							1		Bottom of Exploration at	41.5 feet below ground	surface.		
							-						
]						
- 45 -							1						
							-						
							1						
							1						
							1						
	I	I	1			I	1	1	i			1	

50 Remarks:

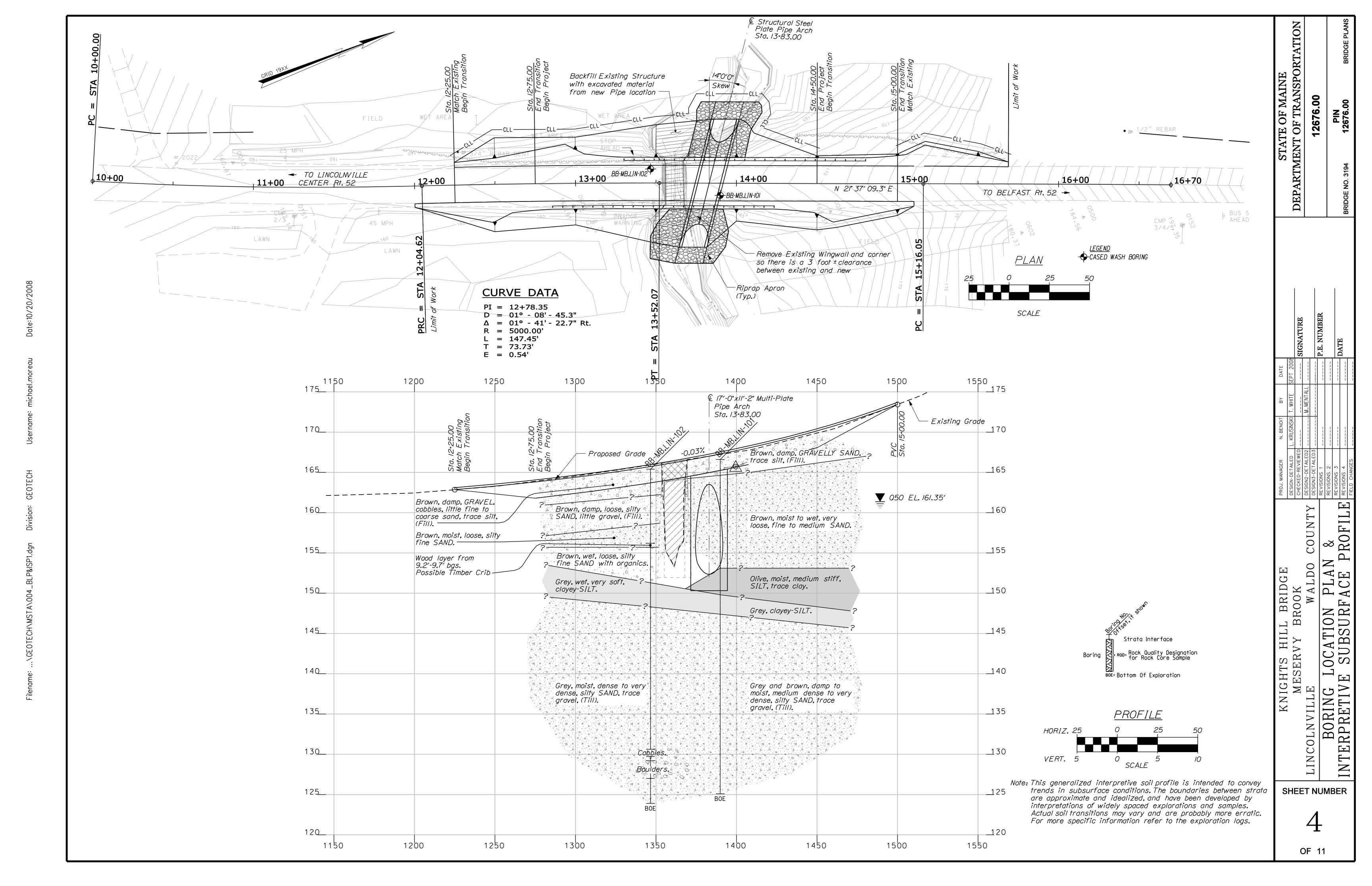
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Mai	ine D		tment o		tati			Brook		Boring No.:	_BB-MB.	IN-102
		30.	US CUSTOMAR				Location	n: Lin	colnville, Maine	PIN:	1267	6.00
rill			MaineDOT		-		n (ft.)	165		Auger ID/OD:	5" Solid Ste	
_	ed By:		E. Giguere G. Lidstone		+	Type:			D 88 45C	Sampler: Hammer Wt./Fall:	Standard Sp 140#/30"	it Spoon
			10/18/05; 10):15-16:00	+		Method:		ed Wash Boring	Core Barrel:	N/A	
	ng Locat	ion:	13+46.6, 8.7	'Lt.	_	ing [[HW		Water Level*:	9.7′ bgsa	
) = Sp 4D = U J = Th R = Ro / = In	nin Wall Took Core S	ul Split Sp ube Sample ample Shear Tes	t	ample Information	S _U = T _V = q _D = S _{U(1} WOH WOR	= Pocket = Unconf (ab) = L = weigh	Field Var Torvane S Fined Compr ab Vane St at of 1401b	ihear St essive near Str	Strength (psf) Frength (psf) Strength (ksf) Frength (psf)	Definitions: WC = water content, per LL = Liquid Limit PL = Plastic Limit Pl = Plastic Limit Pl = Plasticity Index G = Grain Size Analysis C = Consolidation Test		
•		i.		ċ				ō	1			Laboratory Testing
Depth (ft.)	Sample No.	en./Rec.	Sample Depth (ft.)	Blows (/6 i Shear Strength (psf) or ROD (%)	N-value	Casing Blows	Elevation (ff.)	aphic Log	Visual Descri	iption and Remarks	U	Results/ AASHTO and nified Class
o De	Sa	Pe	So (+	<u> </u>	ż	SSA	164.80	ပ်	PAVEMENT Brown, damp, GRAVEL, cobble	s. little fine to co		
									trace silt. (Fill).			
							162.40				3.000	
							4					
5 -			5.00 -			V	4		(1D/A) 5.0-6.7' bgs.			
	1D/AB	24/7	7.00	2/4/4/2	8	11	4		Brown, damp, loose, silty f gravel, (Fill).	ine to coarse SAND.	little	
					_	16	158.70		(1D/B) 6.7-7.0' bgs.		6.700	
					_	14	4		Brown• moist• loose• silty	TIME SAND.		
					_	15	4					
0 -			10.00 -		_	35	155.70		W000 from 9.2 to 9.7' bgs Possible timber crib.		9.700-	
	2D	24/14	12.00	11/4/4/4	8	21	4		Brown, wet, loose, silty fi	ne SAND with organic	cs.	
					_	11	4					
						17	4					
						16	151.90				13.500	
5 -			15.00			18	4		Grey, wet, very soft, claye	y SILT.		
	3D	24/18	15.00 - 17.00	1/1/1/2	2	20	4			, , , , , , , , , , , , , , , , , , , ,		
						18	148.40				17.000	
						19	4					
						61						
o -						93			Grey, moist, dense, silty f	ing to modium SAND	1:4410 000000	
	4D	24/13	20.00 - 22.00	17/17/15/17	32	18			sand, trace gravel (Till). Washed ahead of casing from		Tittle course	
						21				•		
						24						
						45						
5 -						83						
-	5D	24/11	25.00 - 27.00	14/20/22/31	42	25			Grey, moist, dense, silty f sand, trace gravel (Till). Washed ahead of 25.0-30.0'		little coarse	
						31						
						23						
						21	136.40				29.000-	
0 -						48						
	6D	18/8	30.00 - 31.50	16/17/63	80	25	_		Grey, moist, very dense, si coarse sand, trace silt lay Washed ahead of casing from	ers (Till).	AND TITTIE	
						26						
						20		600				
						28						
5 -						130	_	90 a	Cobble from 34.8–35.6′ bgs. Failed sample attempt. Wash			
	MD	0/0	35.00 - 35.00	50(0")							10.0' bgs.	
						$oxedsymbol{oxedsymbol{oxed}}$			Boulder from 36.2-38.4′ bgs	•		
							╛					
							127.00				38 • 400	
0												
0 -	70	18/11	40.00 - 41.50	38/67/80	147]	0.00	Grey, moist, very dense, si coarse sand, (Till),	Ity fine to medium S	SAND. little	
							123.90		Bottom of Exploration at 4	1.50 feet below aro	41.500- und surface.	
							7		2	23.04 gi 00		
							7					
							7					
5 -							7					
							1					
						T	7					
							1					
							\dashv					
0 emar	ks:	<u> </u>	<u> </u>						<u> </u>			<u> </u>
IS†¢	atic wat	er level	s were not	achieved								
										1.		
				times and under condi						Page 1 of 1		
, re	. ievei r	outings ha	• o veen made at	rimes und under condi	uns st	7160.	o oundwate	. Truct	uations may occur due to conditions o	Portos No	• DD MD I I	N 100

* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Boring No.: BB-MB.LIN-102

				Driller: MaineDOT Operator: E. Giguere				166. NAVI		Auger ID/OD: 5" Solid Stem Sampler: Standard Split Spoon		
Logged By: G. Lidstone Date Start/Finish: 10/17/05-10/18/05				_	Type:	1015000	CME		Hammer Wt./Fall: 140#/	30"		
Boring Location: 13+89.9, 7.6 Rt.					_	ing ID/		HW	ed Wash Boring	Core Barrel: N/A Water Level*: 8.0'	bgsa	
	tions: lit Spoon	Sample				nitions: Insitu f		ne Shear	Strength (psf)	Definitions: WC = water content, percent		
J = Th		ube Sample	oon Sample att	empt	qp =	Unconfir	ned Compr	ressive	rength (psf) Strength (ksf) ength (psf)	LL = Liquid Limit PL = Plastic Limit Pl = Plasticity Index		
V = 1r		Shear Test			WOH	= weight	of 1401t	. hamme		G = Grain Size Analysis C = Consolidation Test		
		ri G		ample Information				Ι_				Laboratory Testing
÷:	o S		Dep†h	(%)	Φ		<u>6</u>	c Log	Visual Descr	iption and Remarks		Results/ AASHTO
Depth	Sample	en./Rec.	Sample (ff.)	Blows (76) Shear Strength (psf) or ROD (%)	N-value	Casing Blows	Elevation (ft.)	aphic			u	and nified Class
0	v)	ď.	ري د	m v v ⊃ o	z	SSA	165.95	ß	PAVEMENT		-0 . 650-	
						\vdash	103.3		Brown, damp, GRAVEL, sand,	trace silt. (Fill).	0.030	
							164.60				-2.000-	
							i					
						1/	1	155				
5 •	1D	24/10	5.00 - 7.00	2/1/1/2	2	10	1		Brown, moist, very loose, s coarse sand, trace gravel.	silty fine SAND, trace mediu	m to	
						7	1					
						13	1					
						7	158.60				-8. 000-	
						8	1					
10 •	2D/AB	24/9	10.00 - 12.00	6/3/1/1	4	9	155.80		(2D/A) 10.0-10.8' bgs. Brown, wet, very loose, si Coarse sand.	Ity fine to medium SAND, tra	ce	
						7]		(2D/B) 10.8-12.0' bgs.	 Ity fine SAND, trace organic		
						9			DIOWIN WEIT VERY 1003ET 31			
						24	153.40				-13.200-	
15 •						38	1		Dlive, moist, medium stiff	. SILT. trace clay.		
	3D	24/15	15.00 - 17.00	6/3/3/3	6	18	1		OTIVE INDISTA INEGIGNI STITT	· Sierv made dray.		
						17	149.60				-17.000-	
						14	1		Grey, clayey SILT,			
						19	147.60				-19.000-	
20 -			20.00 -			58	-		Grey, moist, medium dense,	silty fine SAND, trace medi	um to	
	4D	24/13	22.00	10/14/10/10	24	19	-		coarse sand, trace gravel, Washed ahead of casing from			
						13	-					
						17	-					
						14	┨					
25 -	5D	24/10	25.00 -	8/17/24/26	41	16	141.60		Grev. damo. bard. SILT. tro	ace sand, trace gravel, (Til		
	30	24710	27.00	0/11/24/20	"	17	┨		Washed ahead of casing from			
						14	1					
						14	1					
						36	137.60				-29.000-	
30 -	6D	15.6/11	30.00 - 31.30	27/52/50 ^b		26	1			Ity fine to medium SAND. lit	tle	
			31130			25	1		coarse sand, trace gravel Washed ahead of casing from			
						26	1					
						43	1					
75					L_	82],,				36 ^^-	
35 •	7D	18/12	35.00 - 36.50	31/35/52	87	OPEN HOLE	131.60		coarse sand, trace gravel,		ຫ †o	
									Washed ahead of casing from	m 35.0-40.0' bgs.		
							128.60				-38.nnn-	
										ilty fine SAND, trace medium		
40 -			45				1					
	8D	18/12	40.00 - 41.50	33/52/97	149	1/	1					
					_	V	125.10		Bottom of Exploration at 4	41.50 feet below ground surf	41.500- ace.	
					<u> </u>		4					
					<u> </u>		1					
45 -					_	_	1					
					_		4					
					_		4					
					_		-					
					_	_	1					
50 Remar	ks:											
		er level	s were not	achieved								

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
12676.00 P.E. NUMBER COUN KNIGHTS HILL BRIDGE MESERVY BROOK VILLE WALDO SDOT BORING LINCOLN SHEET NUMBER