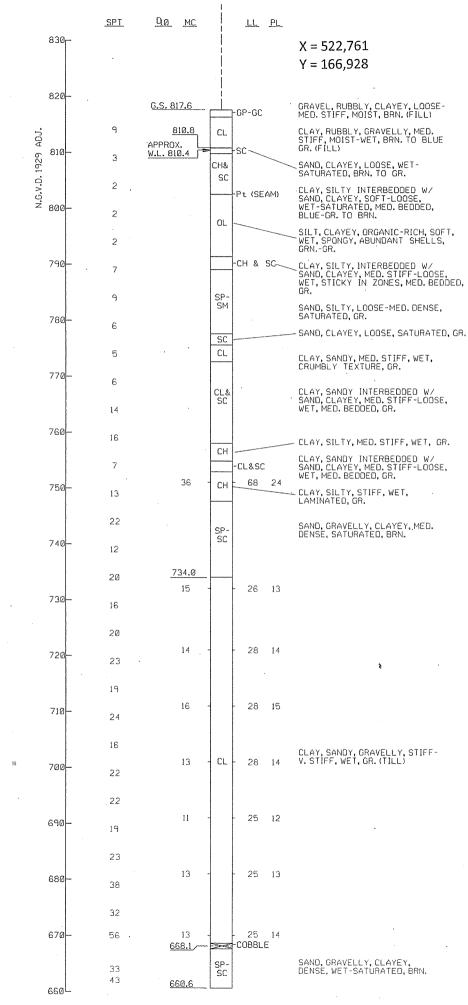
Appendix B

Subsurface Boring Logs Piezocone Penetration Test Logs Piezometer Log (1066 PS) Sieve Analysis Test Results Consolidation Test Results אוט־טש 19-21 NOVEMBER 2003







AET JO	B NO: 01-05697	f				LC	G OF	BORING	NO	1005	5 SB	(p. 1	l of	4)
PROJEC	· · · ·	Light Rail Ti	ansit Pr	ojecť,	PEC East;					-				· .
SURFA	CE ELEVATION: <u>86</u>	59.1 H	Hennepin C	o. Cooi	dinates: <u>1</u>	1	59918	8	E	51723	0			•
DEPTH IN FEET	MATER	RIAL DESCRIPTIO	N	•	GEOLOGY	N	MC	SAMPLI TYPE	E REC	FIELI		ABORA		1
FEEI	_ FILL, mostly silty sa	and with gravel, t	race roots.		FILL		F	8 SU		we	DEN		PL	%-#
1 -	\dark brown, frozen (. FILL, mostly crushed	A-2-4)		<u>/</u>			F	ss.		-			-	
2 — 3 —	silty sand, light brow $(A-1-b)$			\prod	· .		F	ss	14					
4	FILL, mostly silty sa		orown, a					E						
5 6	FILL, mostly silty sa dark brown (A-1-b)		nd wood,			6	М	SS SS	4	9				1
7 - 8 - 9 -	FILL, mostly silty sa with silt and clayey s below 11', pieces of brown and dark brow	sand, possible co wood, brown, a l	bbles	1.		15	M	SS R	12		-			
10 -						5	М	上 X ss	3					ŕ
11 - 12 -	•	· ·						E						
13 -	X					7	Μ	ss	5		:			
14 15										-				
15 16 —						21	M	X ss स	2		с. х.			
17 18	FILL, mostly gravell brick, brownish gray		ces of		~	34	М	ss	14					
19 - 20 - 21 -	FILL, mostly sand w brownish gray, a littl					. 22	: ₩	ss	14					
21 – 22 – 23 –	FILL, mostly sand w clayey sand, brownis		el, a little			19	W	ss S	16					
24 — 25 — 26 —	SAND WITH SILT A to fine grained, gray, (SP-SM) (A-1-b)				COARSE ALLUVIUM	34	Ŵ	ss	. 3		- -	-		
27 — 28 —	SAND, fine grained, medium dense (SP) (aring,			18	W	ss	14					
29 30	·					15	w	X ss	13					
31 —	•. •					13	vv	$\sum_{i=1}^{33}$	13					
DEP	TH: DRILLING METH	HOD		WATI	ER LEVEL ME	ASURE	EMENT	г <u>я</u>				NOTE:	REFF	RT
n_	22' 3.25" HSA	DATE	TIME	SAMPL DEPT	ED CASING H DEPTH	CAV	/E-IN PTH	DRILL FLUID L	ING EVEL	WATE LEVE	ER	THE A		
22-139	· · ·	3/25/13	10:50	23.5			2.4			21.1		SHEET	IS FOI	R Al
	7/2 NDF W/DIVI	3/25/13	11:00	23.5			2.3			21.3	<u> </u>	EXPLA	NATIO	ON (
BORIN	G LETED: 3/27/13	51 431 13	11.00	40.0	<u> </u>	Li2	4.5			41.3	-	ERMIN		
	גוון גור. ט ובוניוט.				1	1		I	ł					

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·Al	ET JOI							RING N					2 of 4	4)
PF	ROJEC					-						MN	[
		Hennepin Co	. Cooi	rdinates: <u>N</u>	1	<u>5991</u>	8]	<u> </u>	51723	·			
DEI I FF	PTH N EET	MATERIAL DESCRIPTION		GEOLOGÝ	N	MC	SA	MPLE	REC IN.	FIELI) & LA DEN	BORAT	<u> </u>	FEST: %-#2
		SAND, fine grained, brown, waterbearing,		COARSE ALLUVIUM	18	W	M	SS	12					
	33 – 34 –	medium dense (SP) (A-3) (continued)		(continued)			В							
	35 -				17	W	Ю	SS	15					
	36 -				1/	W	Д	66	15					
	37 —	· ·					H					×		
	38 —				19	W	Д	SS	13					
	39 -						4						·	
	40 -				21	W	X	SS	14					
	41 -	· · · ·					$\left[\right]$							
	42 - 43 -				20	w	\square	SS	13					
	44		_				\mathfrak{H}							
	45 -	SAND, a little gravel, medium grained, grayish brown, waterbearing, medium dense (SP)			14	w	\square	SS	10					
	46 -	(A-1-b)					A	00	10					
	47 —	SAND, fine grained, grayish brown, waterbearing, medium dense, laminations of		•			\mathbf{H}	a a						
	48 —	fine to medium grained sand (SP) (A-3)			21	W	Å	SS	14					
	49 -	·		•		1	K		•					
-	50 -			•	23	W	Х	SS	15					
	51 — 52 —			•			\mathbb{Z}							
	53 -		_	•			\mathbb{R}							
	1	SAND, a little gravel, fine to medium grained, brownish gray, waterbearing, medium dense,		•			$\left \right\rangle$							
	55 -	brownish gray, waterbearing, medium dense, lenses of fine grained sand, a lens of medium grained sand with gravel at 70.5' (SP) (A-3)			21	w	\mathbf{i}	SS	12					
	56 -			• •			6							
	57 –						$\left \right\rangle$							
	58 -			•			$\left \right\rangle$							
	59 -			•										
	60 - 61 -			•	19	W	Å	SS	14					
	62 -			•			$\left \left\langle \cdot\right\rangle \right $							
	63 —				h .		$\left \right\rangle$							
	64 —						$\left(\right)$							
	65 —			•	20	w	\mathbb{X}	SS	14					
	66 –						$\left[\right]$							
	67 -													
	68 — 69 —													
	ד לס						\models							

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AMERICAN ENGINEERING TESTING, INC.

SUBSURFACE BORING LOG

	B NO: 01-05697 T: Southwest Light Rail Transit P	roic	ot PEC E				UNG N						
PROJEC									пеа <u>г</u> 51723		IVIIN		
	Hennepin Co.	C001	rdinates: <u>N</u>	1:	59918	<u> </u>		E :	Г — · · · ·			CODY	
EPTH IN FEET	MATERIAL DESCRIPTION		GEOLOGY	N	MC	SA T	MPLE YPE	REC IN.	WC) & LA DEN	LL		1651
		T	COLDOD	23	W	kл	SS	11		DDIV			
71 -			COARSE ALLUVIUM	25	VV	Å	00	11					
72 -			(continued)	:	•	\mathbb{Z}							
73 -	SAND, fine to medium grained, brownish gray,					$\left \right\rangle$:					
73 – 74 –	waterbearing, medium dense, lenses of fine					$\left \right\rangle$							
	grained sand (SP) (A-3)					\mathbb{H}		10					
75 -				26	W	Å	SS	13					
76 —						$\left \right\rangle$							
77 -			•			$\left \right\rangle$					1		
. 78 –													
79						$\left \right\rangle$	•						
80 -			•	29	W	M	SĮS	12					
81 -			•			\sum_{i}							
82 –			•			$\left \right\rangle$							
83 —	SAND, medium grained, brownish gray,		<u>.</u>			$\left \right\rangle$							
84	waterbearing, medium dense (SP) (A-1-b)		•			\square							
85 —			•	15	W	X	SS	12					
86 –						Б							
87 —	SAND, a little gravel, medium grained,					$\left \right\rangle$							
88 —	brownish gray, waterbearing, medium dense, a					KI							
89 —	lens of fine to medium grained sand (SP) (A-1-b)		•			Ц							
90 —			* -	27	W	M	SS	11	6				
91 —						Н	•						
92 —						KI							
93 —	SAND, medium to fine grained, brownish gray,					K							
94 —	waterbearing, dense, a lens of fine to medium					$\left \left\langle \right \right\rangle$			1				
95 —	grained sand (SP) (A-1-b)			34	W	\square	SS	5					
96 —						Ĥ							
97 —													
98 -						$\left \left\langle \right\rangle \right $	-						
99	GRAVEL WITH SAND, possible cobbles, brownish gray, waterbearing, medium dense					$\left \right\rangle$							
100 -	(GP) (A-1-a)			13	w	\square	SS	2					
101 -			-	13	"	Д	00						
102 -						$\left \left\langle \right\rangle \right $							
102		-				2							
103 -													
			- -							1			
105 -	SAND WITH GRAVEL, medium grained, dark												
106 -	grayish brown, waterbearing, dense, a lens of gravelly sand with silt (SP) (A-1-b)					$ \langle $		1.					
107 —						11							

03/2011



AET JO	B NO:	01-05697			LO	G OF	BORI	ING N	O	1005	SB	(p. 4	+ of 4	4)
PROJEC	CT:	Southwest Light Rail Transit P	roje	ect, PEC Ea	ist;]	Нор	kin	s to	Min	neåp	olis,	MN	[
		Hennepin Co.	. Coo	rdinates: <u>N</u>	1:	59918	3]	E t	51723	0			
DEPTH				OFOLOOV			SAN	/IPLE	REC	FIELI) & LA	BORAT	FORY	TES
DEPTH IN FEET		MATERIAL DESCRIPTION		GEOLOGY	N	MC	TY	Ϋ́́PĒ	ĨÑ.	WC	DEN	LL	PL	%-#
108 -	SANI	WITH GRAVEL, medium grained, dark		COARSE			2							
109 -	grayis	h brown, waterbearing, dense, a lens of ly sand with silt (SP) (A-1-b) (continued)		ALLUVIUM			$\left \right\rangle$							·.
110 -	Elave.			(continued)	39	W	M	SS	7.			•		
111 -							A							
112 -							$\langle \langle \rangle$							
113 -				•			$\left \right\rangle$							
114 -				•			$\left \right\rangle$				· ·			
115 -				•			$\left \right\rangle$							
116 -	SANI), a little gravel, medium grained, ish gray, waterbearing, dense (SP)		•			$\left \right\rangle$							
117 -	(A-1-						$\left \left\langle \cdot\right\rangle \right $							
118 -		· · · · · · · · · · · · · · · · · · ·		•			$\langle \langle \rangle$							
				•			$\left \left\langle \cdot\right\rangle \right $							
119 -				*			H							
120 -				•	32	W	М	SS	4					
121 -				•			\square							
122 —														
123 —				•										
124 —							5					-		
125 —	(A-6)	NCLAY WITH SAND, brown, hard (CL)		TILL OR FINE			K							
126 —	()			ALLUVIUM			K							
127 —							\mathbb{R}	•						•
128 —		· ·					$\left \right\rangle$							
129 -	5						\sum				·			
130 -					54	M	M	SS	18	13				
131 —							Ю							
132 -							$\langle \langle \rangle$							
133 -	-						$\langle \langle$							
134 —							$ \langle $		•					
. 135 -		YEY SAND, a little gravel, brown, very	¥/	TILL			$\left \right\rangle$				· ·			
136 —	stiff (SC) (A-6)					$\left \right\rangle$							
137 —							$\left \right\rangle$							
138 -	-													
139 -							$ \langle $							
140 -					20	N 4	М	SS	10	11				
140 -					29	M _.	М	22	16	11			1	-
171		OF BORING												
•	Note	Lost mud circulation at 120 feet, hole collapsed at 40 feet, re-augered with HSA down to 50 feet and re-drilled with rotary methods to continue advancement									•			
	•					1			1	1		1		

03/2011



AET JO	-					•			RING N				(p. 1		5)
PROJEC	CT: Southwe	est Light Rail '	Fransit	Proje	ect, PEC				ns to				, MN	[
SURFA	CE ELEVATION:	868.4 F	Iennepin C	o. Coor	dinates:	<u>N 1</u>	60002	2		<u>E :</u>	51728	9			
DEPTH IN FEET	МАТ	ERIAL DESCRIPTIO	N		GEOLOG	Y N	MC	SA T	MPLE YPE	REC IN.	FIELI WC	D&L	ABORAT	FORY PL	1
	FILL, mostly silty little gravel and cla trace roots, dark br	ayey sand with org rown, frozen (A-2-	anic fines, 4)		FILL		F F/M	Frrd	SU SU						
3 -	FILL, mostly grave brown, frozen to 1 FILL, mixture of s gravelly, dark brow	.5' (A-1-b) ilty sand and sand	with silt,] 		30	M	X	SS	12	4				•
5	FILL, mostly sand	with silt and grave] _ 		24	M	X	ŠS	12					
7 — 8 — 9 —	FILL, mostly claye slightly organic lea ashes/cinders, trace (A-6, A-4)	an clay and silty sa	nd,			13	M	X	SS	10	10				
10 11	(A=0, A=+)					9	M	X	SS.	6	16				
12 13 14	FILL, mostly sligh little gravel and sa black and brownis	ndy lean clay, trac h gray (A-6)	e roots,			6	M		SS	12	20				
15 - 16 -	FILL, mostly silty clayey sand, brown		a little		1	30	М	A A	SS	11					
17	SAND WITH SIL medium grained, b moist, medium den sand (SP-SM) (A-	brown, a little brownse, laminations of	nish gray,	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	COARSE ALLUVIU	^{JM} 13	M		SS	5					
19 - 20 - 21 -	GRAVELLY SIL grained, brown, w medium grained sa	ΓΥ SAND, fine to et, medium dense,	a lens of			11	¥	A A A A	SS	6			•		
22 - 23 -	(A-1-b) GRAVELLY SAN fine grained, light medium dense (SF	grayish brown, wa P-SM) (A-1-b)	terbearing,	_/,		11	W	₽ }	SS	4					
24 – 25 – 26 –	SAND WITH GR medium grained, b medium dense (SF	prownish gray, wat	bbles, erbearing,			14	w	Å	SS	6			-		
27 -	GRAVELLY SAN to coarse grained, dense (SP) (A-1-b	gray, waterbearing	es, medium , medium	1	-	18	W	Å	SS	5					
23 - 26 - 26 - 27 - 28 - 29 - 30 - 31 - 29 - 31 - 31 - 31 - 31 - 31 - 31 - 31 - 3	SAND WITH SIL cobbles, medium t waterbearing, med	to fine grained, gra	y,		- - - -	18	W	X	SS	4					
	PTH: DRILLING ME	THOD		 WAT	ER LEVEL	MEASUR	EMEN	((ITS		J	<u> l </u>		NOTE:	יייייייייייייייייייייייייייייייייייייי	<u></u> דף די
	·	DATE	TIME	SAMP			VE-IN EPTH		ORILLI UID LI	NG	WAT	ER FL	THE A		
	-22' 3.25" HSA	3/27/13	3:10	23.			23.7				22.		SHEE	TS FC	R AN
22-17	79 ¹ / ₂ ' RDF w/DM	3/27/13	3:20	23.			23.3	_			21.		EXPLA	NATI	ON C
0 22-17 BORIN COMP	NG 2/27/12	3141113	J.40			<u> </u>		+					TEŔMII	NOLO	igy c
1	<u>NETED: 3/27/13</u> M LG: JB Rig: 0	58C											· TH	IIS LC)G
$\frac{1}{03/2011}$	M LG: JB Rig: 0													01-I) HR

03/2011



Southwest Light Rail Transit Project, PEC East; Hopkins to Minneapolis, MN Homegin Co. Coordinate: N 10002 E 517280 SAND, a Hild grave, possible cobbles, medium dense, a COARSE: Matter of time to medium grained sand with sit SND, a little grave, possible cobbles, fine to medium dense (SP) (A-1). COARSE: Matter of time to medium grained, fine to medium dense (SP) (A-3). 33 SAND, a little grave, fine to medium grained, medium dense (SP) (A-3). COARSE: Matter of time to medium grained, medium dense (SP) (A-3). COARSE: Matter of time grave, fine to medium grained, medium dense (SP) (A-3). 13 W SS 5 14 W SS 12 41 W SS 11 23 23 24 25 14 W SS 11 23 42 SAND, a little gravel, fine to medium grained, medium dense (SP) (A-1-b) 16 W SS 11 23 44 W SS 11 23 14 W SS 11 23 45 Matter and With Silt and lean clay grave, waterbearing, medium dense, terr, series of fine to medium grained, brownish grave, waterbearing, medium dense, terr, series of fine to medium grained, series of fine to medium grained, series of fine to medium grained, series of fine to medium grained and (SP) (A-1-b) 16 W SS <	AET IC	OB NO:	01-05697			LO	GOF	BOI	RING N	O.	1006	SB	(p. 2	l of t	5)
$\begin{array}{ c c c c c c c c c c c c c c c c c c c$				roje	ct, PEC Ea								<u>``</u>		
DATE MATERIAL DESCRIPTION GEOLOGY N McC SAMPLE NC DEN LL PL out 33 SAND, a little gravel, possible cobbles, medium grained, gray, waterbearing, medium dense, a lenses of fine to medium grained sand with sit COARSE N MC DEN LL PL out 34 Issn of the to medium grained, sand with sit COARSE ALLUVIUM 15 W SS 5 14 W SS 5 14 W SS 5 14 W SS 5 14 W SS 12 15 W SS 11 23 14 W SS 10 W SS 10 10 W SS 10 10 W SS 10 10 W SS 10 10 W SS															
33 SAND, a little gravel, possible cobbles, medium grained, gray, waterbearing, medium dense, a licontinued) IS W SS 5 34 use of fine to medium grained, shownish gray, waterbearing, medium dense (SP) (A-1-b) (continued) IS W SS 5 36 medium grained, brownish gray, waterbearing, medium dense (SP) (A-3) IS W SS 5 37 SAND, a little gravel, fine to medium grained, brownish gray, waterbearing, medium dense (SP) (A-3) IS W SS 11 W SS 12 39 SAND, a little gravel, fine to medium grained, brownish gray, waterbearing, medium dense, (SP) (A-3) IS W SS 11 US US SS 12 US	DEPTH					N	MC	SA	MPLE	REC	FIELI) & LA	BORAT	ORY	TESTS
33 grained, gray, waterbearing, medium dense, a ALLUVIUM 13 W 35 3 34 (SP) (A-1-b) (continued) (continued) 13 W SS 5 35 SAND, a little gravel, fine to medium grained, brownish gray, waterbearing, medium dense (SP) (A-3) 13 W SS 5 36 medium dense (SP) (A-3) SAND, a little gravel, fine to medium grained, torownish gray, waterbearing, medium dense, (SP) (A-3) 14 W SS 12 39 SAND, a little gravel, fine to medium grained, torownish gray, waterbearing, medium dense, lenses of fine grained sand with silt and lean clay (SP) (A-3) 15 W SS 11 23 44 SAND, a little gravel, medium grained, brownish gray, waterbearing, loose (SP) (A-1-b) 10 W SS 9 44 SAND, a little gravel, medium to fine grained, brownish gray, waterbearing, loose (SP) (A-1-b) 10 W SS 10 45 gray, waterbearing, medium dense, lenses of fine to medium grained sand (SP) 13 W SS 12 46 SAND, a little gravel, medium dense, lenses of fine to medium grained sand (SP) 13 W SS 12 50 SAND, a little gravel	FEET					IN	IVIC		YPE	IN.	WC	DEN	LL	PL	%-#200
35 SAND, a little gravel, possible cobbles, fine to medium grained, brownish gray, waterbearing, medium dense (SP) (A-3) 37 SAND, a little gravel, fine to medium grained, brownish gray, waterbearing, medium dense (SP) (A-3) 39 SAND, a little gravel, fine to medium grained, brownish gray, waterbearing, medium dense, (SP) (A-3) 41 Lenses of fine grained and with sit and lean clay (SP) (A-3) 42 SAND, a little gravel, medium dense, (SP) (A-1-b) 43 waterbearing, loose, a lens of fine to medium grained, brownish gray, waterbearing, loose (SP) (A-1-b) 44 SAND, a little gravel, medium to fine grained, brownish gray, waterbearing, loose (SP) (A-1-b) 44 SAND, a little gravel, medium to fine grained, brownish gray, waterbearing, loose (SP) (A-1-b) 45 gray, waterbearing, medium to fine grained, brownish gray, waterbearing, medium dense, lenses of fine to medium grained sand (SP) 46 Inserve the medium grained sand (SP) 47 SAND, a little gravel, medium to fine grained, brownish gray, waterbearing, medium dense, lenses of fine to medium grained sand (SP) 50 Inserve the gray of fine to medium grained sand (SP) 51 SS 52 Inserve the gray of fine to medium grained sand (SP) 54 Inserve the gray of fine to medium gray of gr		graine lens c	d, gray, waterbearing, medium dense, a fine to medium grained sand with silt		ALLUVIUM	15	W	X	SS	5					
38 brownish gray, waterbearing, medium dense, 39 SAND, a little gravel, fine to medium grained, 40 brownish gray, waterbearing, medium dense, 11 (SP) (A-3) 41 (SP) (A-3) 42 SAND, medium to fine grained, brownish gray, 43 waterbearing, loose, a lens of fine to medium grained sand (SP) (A-1-b) 10 44 SAND, a little gravel, medium grained, brownish 45 gray, waterbearing, loose (SP) (A-1-b) 46 SAND, a little gravel, medium to fine grained, brownish 47 SAND, a little gravel, medium dense, 18 W SS 10 46 SAND, a little gravel, medium to fine grained, brownish 10 W SS 10 47 SAND, a little gravel, medium dense, 13 W SS 12 48 lenses of fine to medium grained sand (SP) 15 W SS 12 50 52 53 </td <td></td> <td>SANI mediu</td> <td>D, a little gravel, possible cobbles, fine to m grained, brownish gray, waterbearing,</td> <td></td> <td></td> <td>13</td> <td>w</td> <td>Ŗ</td> <td>SS</td> <td>5</td> <td>-</td> <td></td> <td></td> <td></td> <td></td>		SANI mediu	D, a little gravel, possible cobbles, fine to m grained, brownish gray, waterbearing,			13	w	Ŗ	SS	5	-				
SAND, a little gravel, me to medum grained, lenses of fine grained sand with silt and lean clay 15 W SS 11 23 41 (SP) (A-3) SAND, medium to fine grained, brownish gray, waterbearing, loose, a lens of fine to medium grained sand (SP) (A-1-b) 10 W SS 9 44 SAND, a little gravel, medium grained, brownish gray, waterbearing, loose (SP) (A-1-b) 10 W SS 9 45 gray, waterbearing, medium dense, lenses of fine to medium grained sand (SP) 10 W SS 10 46 SAND, a little gravel, medium to fine grained, brownish gray, waterbearing, medium dense, lenses of fine to medium grained sand (SP) 13 W SS 12 48 lenses of fine to medium grained sand (SP) 15 W SS 12 50 52 54 56 56	38 -	brown	nish gray, waterbearing, medium dense			14	w	Ă	SS	12					
42 - SAND, medium to fine grained, brownish gray, waterbearing, loose, a lens of fine to medium grained sand (SP) (A-1-b) 10 W SS 9 44 SAND, a little gravel, medium grained, brownish gray, waterbearing, loose (SP) (A-1-b) 10 W SS 9 44 SAND, a little gravel, medium grained, brownish gray, waterbearing, loose (SP) (A-1-b) 10 W SS 10 46 - - - - - - - 47 - SAND, a little gravel, medium to fine grained, brownish gray, waterbearing, medium dense, lenses of fine to medium grained sand (SP) 13 W SS 12 49 - (A-1-b) - - - - - 50 - - - - - - - 51 - - - - - - - 52 - - - - - - - 54 - - - - - - - 55 - - - - - - - 56 - - - - -	40 -	brown	hish gray, waterbearing, medium dense, of fine grained sand with silt and lean clay	<u>***</u>		15	w	Å	SS	11	23				
SAND, a little gravel, medium grained, brownish 45 - gray, waterbearing, loose (SP) $(A-1-b)$ 46 - 47 - SAND, a little gravel, medium to fine grained, brownish gray, waterbearing, medium dense, lenses of fine to medium grained sand (SP) 49 - $(A-1-b)$ 50 - 51 - 52 - 53 - 54 - 55 - 56 - (A-1-b) 10 W SS 10 13 W SS 12 15 W SS 12 15 W SS 12 15 W SS 12 19 W SS 13	43 -	SAN	D, medium to fine grained, brownish gray, bearing, loose, a lens of fine to medium			10	W	Å	SS	9					
48 - brownish gray, waterbearing, medium dense,lenses of fine to medium grained sand (SP) $49 - (A-1-b)$ $50 - (A-1-b)$ $50 - (A-1-b)$ $15 W SS 12$ $15 W SS 12$ $15 W SS 12$ $15 W SS 12$ $19 W SS 13$	45 -	SAN gray,	D, a little gravel, medium grained, brownish waterbearing, loose (SP) (A-1-b)		-	10	w	X	SS	10					
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	48 -	brow lense	hish gray, waterbearing, medium dense, s of fine to medium grained sand (SP)			13	w	K	SS	12					
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	50 -		0)			15	w	X	SS	12					
$\begin{bmatrix} 55 - \\ 56 - \\ 57 \end{bmatrix}$ $\begin{bmatrix} 19 \\ W \\ \hline \\ \\ \\ \hline \\ \hline \\ \\ \hline \\ \\ \hline \\ \\ \hline \\ \hline \\ \hline \\ \\ \hline \\ \\ \hline \hline \\ \hline \\ \hline \\ \hline \\ \hline $	52 -	_													
		_			•	19	w	X	SS	13					
SR SAND, fine to medium grained, brownish gray, waterbearing, medium dense (SP) (A-3) 60 60 61 62 62 63 63 SAND WITH GRAVEL, medium to fine grained, brownish gray, a little dark brownish gray, waterbearing, medium dense, a lens of lean clay with sand (SP) (A-1-b) 66 67 68 69	57				•			$\left\{ \right\}$							
$\begin{array}{c} 61 - \\ 62 - \\ 63 - \\ 64 - \\ 65 - \\ 65 - \\ 66 - \\ 67 - \\ 68 - \\ 69 - \\ \end{array}$ $\begin{array}{c} 20 \\ W \\ S33 \\ 12 \\ V \\ S5 \\ 12 \\ V \\ V \\ V \\ V \\ S5 \\ 12 \\ V \\ V$	58 - 59 - 60 -	SAN water	D, fine to medium grained, brownish gray, bearing, medium dense (SP) (A-3)		4 • • • •	20	NV NV	$\left \right\rangle$	çç	12					
63 - SAND WITH GRAVEL, medium to fine grained, brownish gray, a little dark brownish gray, waterbearing, medium dense, a lens of lean clay with sand (SP) (A-1-b) 18 W SS 12 66 - - - - - - - 67 - - - - - - 68 - - - - - 69 - - - - -	61 -	-			•	20	vv		55	12					
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	63 64	grain gray,	ed, brownish gray, a little dark brownish waterbearing, medium dense, a lens of lean											-	
68 69 - 7	65 · 66 · 67 ·	- 2			* * * * *	18	W	X Z	SS	12					
	68 · 69 ·	_	· · · · · · · · · · · · · · · · · · ·												

03/2011



AET JOI							ING N					, 01.	<u> </u>
PROJEC	T: Southwest Light Rail Transit P	roje	ct, PEC Ea	ıst;]	Нор	<u>kin</u>	is to	Min	neap	olis,	MN		
	Hennepin Co. (Coordii	nates: <u>N</u>	1	60002	2	_]	E 5	51728	9			
EPTH			CEOLOCY	27		SA	MPLE	REC	FIELI) & LA	BORAT	TORY 1	TES'
EPTH IN TEET	MATERIAL DESCRIPTION		GEOLOGY	N	MC	Ť	MPLE YPE	ĨN.	WC	DEN	LL	PL	%- #
	LEAN CLAY WITH SAND, brown, hard, laminations of waterbearing fine to medium grained sand (CL) (A-4) <i>(continued)</i>		FINE ALLUVIUM (continued)	31	M/W	X	SS	13	17		-		
73 - 74 -	SAND, a little gravel, medium grained, brown, waterbearing, loose (SP) (A-1-b)		COARSE ALLUVIUM			$\sum_{i=1}^{n}$		-					
75 — 76 —				10	w	Å	SS	6					
77 — 78 —													
79 — 80 —	SAND, a little gravel, fine to medium grained, brownish gray, waterbearing, medium dense, laminations of medium grained sand (SP) (A-3)		· · ·	13	w	$\left \right\rangle$	SS	14					
81 - 82 -			•	<u>, , , , , , , , , , , , , , , , , , , </u>		$\left\{ \right\}$							
83 -	SAND, medium grained, brownish gray,		•			$\left \left\langle \cdot\right\rangle \right $							
84 -	waterbearing, loose to medium dense (SP) (A-1-b)		•			$\left \right\rangle$							
85 —	()		•	10	w	\square	SS	8				•	
86 —						Н	•						
87 -			•			159							
88 -	· · · · · ·					$ \{$							
89 —			•			[]							
90 -			*	14	W	X	SS	11					
91 –	· · · ·					[]							
92 –						$\left \right\rangle$							
93 — 94 —	SAND, a little gravel, medium grained, brownish gray, waterbearing, medium dense, a lens of fine to medium grained sand (SP) (A-1-b)					$\left \right\rangle$		-					
95 —	w meurum granicu sand (Gr.) (A-1-0)			19	W	X	SS	12	· .				
96						$\left[\right]$							
97 —						$\left \right\rangle$					ľ		
98 -	SAND WITH GRAVEL, possible cobbles,												
99 – 100 –	medium grained, brownish gray, waterbearing, loose (SP) (A-1-b)					\mathbb{H}							
100 101				9	W	Д	SS	4					ŀ
101 - 102 -			•			$\left \right\rangle$							
102 -						$\left \right\rangle$							
103 -						$\left \right\rangle$							
105 -			· · · · · · · · · · · · · · · · · · ·			$\left \right\rangle$							
106 -						R							
107 -					1	$ \rangle $					1		

03/2011



	BNO: 01-05697	1 t		•		BORING				(p. 4		
PROJEC		-							0			
· .	Hennepin Co	o. Cooi	dinates: <u>N</u>	10	60002	2	E	51728				
DEPTH IN FEET	MATERIAL DESCRIPTION		GEOLOGY	N	мс	SAMPLE TYPE	REC	FIELI WC	D&LAI	LL	PL	1
FEE1 108 -	SAND WITH GRAVEL, possible cobbles,	T.)		WC	DEN	LL 	112	· · · ·
100 -	medium grained, brownish gray, waterbearing,		COARSE ALLUVIUM			$ \langle $						
	loose (SP) (A-1-b) (continued)		(continued)			KI						
110 —				9	W	X ss	. 5	-				
111 -						2						
112 -												
113 -			-			$\left \right\rangle$						
114 -			,			$\left \right\rangle$	ŀ					
115 -	SAND, a little gravel, medium grained,					S						
116	brownish gray, waterbearing, loose, a lens of medium to fine grained sand (SP) (A-1-b)					$ \langle \langle $						
117 -												
118 -										•		
119 -						R						
120 -			•	10	W	X ss	4					
121 -						\sum						
122 -	· · · ·											
123 —												
124 —												
125 —	SILTY CLAY, brown, hard (CL-ML) (A-4)		FINE			$\left \left\langle \right\rangle\right ^{-1}$						
126 —	SILTT CLAT, DOWN, Hard (CL-WIL) (A-4)		ALLUVIUM			$\left \left\langle \right\rangle \right $						
127 —						$\left \left\langle \right\rangle \right $						
128 —						\mathbb{Z}				-		
129 —						P.						
130 —				31	M	X ss	17	27				•
131 -						2						
132 —)).						
133 —						$\left \right\rangle$						
134 —						$\left \right\rangle$						
135 -	SAND WITH SILT, a little gravel, medium to		COARSE			=				• .		
136 —	fine grained, brown, waterbearing, medium dense, a lens of clayey sand at 140' (SP-SM)					$ \langle \langle$						
137 —	(A-1-b)		*			$\langle \langle$						1
138 —	·		•			2	•			6		
139 —			•			\mathcal{H}						
140 —				26	W	X SS	-1.5					
141 —						2				-		
142 —			•									
143			•									
144 —			•			S						
145 —		1.1.	-			((
3/2011	<u>.</u>			,							01-E	HR.



PROJEC	T: Southwest Light Rail Transit	rioje											
	Hennepin Co.	. Coordir	ates: <u>N</u>	1	60002	2]	Е 🕄	51728				
EPTH			GEOLOGY	NT	мс	SAN	APLE YPE	REC	FIELI) & LAI	BORAT	'ÒRY '	TEST
FEET	MATERIAL DESCRIPTION		GEOLOGI	N	MC	T	YPE	IN.	WC	DEN	LL	PL	%- #2
146 -	SAND WITH SILT, possible cobbles, fine to		COARSE ALLUVIUM			26							
147 —	medium grained, grayish brown, waterbearing, medium dense (SP-SM) (A-3) (continued)		(continued)			$\left \right\rangle$							
148 —						$\left \right\rangle$							•
149 -						\sum			-				
150 —				17	w	Μ	SS	5		-			
151 —						61							
152 -						K I							
153 —	•					$\left \left\langle \cdot\right\rangle \right $							
154 —						K(-		
155 -						K							
156 —						RI							
157 —						2			-				
158 —						$\left \right\rangle$							
159 —						þ.						i.	
160 -				23	W	X	SS	4					
161 -						5							
162 -						$\left \right\rangle$						•	
163 —						SI							
164 —						$ \langle $							
165 —	SANDY SILT, a little gravel, possible cobbles,		FINE	-		$\langle \langle$							
166 -	brownish gray, wet, very dense (ML) (A-4)		ALLUVIUM			Kł							
167 —			•			$\left \right\rangle$							
168 —						$ \rangle$							
169 -						P)							
170 —			•	81	W	X	SS	12	24				
171 —	•					$[\mathcal{I}]$							
172 —													
173 —			. . [.]	1		$\left \right\rangle$							
174 —			•			IS I							
175 -	SANDY LEAN CLAY, a little gravel, dark brownish gray, hard (CL) (A-6)		TILL	1		$\left \left\langle \cdot\right\rangle \right $							
176 —	brownish gray, hard (CL) (A-6)					$\langle \langle$							
177 –	· · ·					KI							
178 -						2							
179 -	· · ·					Ю							
180 -				80	·M	M	SS	18	13				
181 -	END OF BORING												
									·				

03/2011



AET JOI	B NO:	01-05							-			RING N				(p.]		1)
PROJEC	T:	South	west Lig	ht Rail '	Transit	Proje	ect,	PEC Ea	ast; [Hop	ki	ns to	Min	near	polis	, MN		
SURFAC	CE ELÉV	/ATION:	849.8	ł	Iennepin C	o. Cooi	rdina	tes: <u>N</u>	1	68850)	_]	E 📫	52606	4			
DEPTH IN							CT	EOLOGY	ЪŤ		SA	MPLE	REC	FIELI) & LA	ABORAT	TORY '	FES
FEET		IV	IATERIAL D	ESCRIPTIO				201001	N	MC	L	MPLE YPE	IN.	WC	DEN		PL	q
1 - 2 -	clay, black	a little gra (A-6)	of clayey sa vel, trace ro	oots, dark l	orown and	_	FIL	Ŀ	5	М	X	SS	14	14				
3 -	FILL, of bit	mostly cl uminous, o	ayey sand, dark brown	a little gra (A-6)	vel, pieces				9	М	X F	SS	16	8			•	
4 — 5 — 6 —	sand,	pieces of	ayey sand concrete, tr rown (A-6)	ace roots,					21	М		SS	14	12				
7	little s	gravel, pie	of clayey sa ces of bricl lack and lig	k and mort	ar, dark			• •	13	M		SS	14	12				
9 10 11								• • •	14	М		SS	16	.12				
12 - 13 - 14 -	brown	n (A-3)	and with sil		•				16	M		SS	16					
14 15 16		, mostly sa sh brown (and, a little (A-1-b)	gravel, bro	own and				9	M	X	SS	14	•				
10 17 18				·					·7	M	I	SS	16					
19 - 20 - 21 -	grayi	sh brown,	SILT, fine t a little brov (possible f	wn, moist,			AL	ARSE LUVIUM FILL	8	М	ET X	SS	18		•7			
22 - 23 -	light dense	brown, a l (SP) (A-1	gravel, mec ittle brown 1-b) (possit	, moist, me ble fill)	dium		•		15	М		SS	18					
24 — 25 — 26 —	LEAN	N CLAY, n and gray	brownish g , stiff (CL)	ray, a little (A-7-6)	grayish		FIN ALI	ie [:] LUVIUM	11	М		SS	18	23		42	17	
27 28 29					•			۰ ۰	12	М		SS	18	24				
30 - 31 -												TW _.	24	25	103			33
DEP	TH:	DRILLING	METHOD		•	WAT	S ER L	EVEL MEA	SURE	EMEN'	TS		l		<u>'</u>	NOTE:	REFF	R 1
<u></u>				DATE	TIME	SAMP DEP	LED	CASING DEPTH	CAV	/E-IN PTH	I	ORILLII UID LE	NG	WATI		THE A		
0-84		3.25" HS.				-					FL	UIDLE	VEL			SHEET		
841/2-19	91/2'	RDF w/D	M	4/5/13	8:09	81.		79.5		1.0		· · ·		78.7		EXPLA		
ייייי	G			4/5/13	8:19	81.	0	79.5	8	1.0	ļ			77.2	-	EAFLA FERMIN		
BORIN COMPI	LETED:	4/5/13	· .			ļ			.									
DR: S	G LG	: JJ Ri	g: 91C													TH	IS LO	Ú

03/2011



AET JO	B NO: 01-05697			LO	G OF	BOI	RING N	0. _.	1000		<u>(p. 4</u>	4 01 4	4)
PROJEC		roje	ct, PEC Ea	ist;	Нор	ki	ns to	Min	near	oolis,	MN	[
	Hennepin Co.				58850				52606				
FPTH	· · · · · · · · · · · · · · · · · · ·					GA		REC	FIELI) & LA	BORÁT	FORY '	TES
EPTH IN FEET	MATERIAL DESCRIPTION		GEOLOGY	Ŋ	MC		MPLE YPE	IN.	WC	DEN	LL	PL	q
	LEAN CLAY, brownish gray, a little grayish		FINE ALLUVIUM	11	М	М	SS	18	24		44	17	
33 -	brown and gray, stiff (CL) (A-7-6) (continued)		(continued)	ų		मि					<i>,</i> .		
34 — 35 —	LEAN CLAY, brownish gray, lenses and laminations of silty sand (CL) (A-7-6)					H							
35	familiations of sitty sand (CL) (A-7-0)					0	TW	24	24	104			39
37 -						E							
38 -	LEAN CLAY, dark brownish gray, a little brownish gray and brown, stiff, laminations of			10	М	X	SS	18	24				
39 -	silt and silty sand (CL) (A-7-6)					R							
40					•	Ħ		· ·					
41 -						\mathcal{O}	TW	24	23	105			36
42 -						臣							
43 -				12	М	X	SS	18	23				
44 -	EAT OF AV Incomist and a little light brown					मु							
45 -	FAT CLAY, brownish gray, a little light brown (CH/CL) (A-7-6)					Ø							
46 -						Ø	TW	24	25	101			51
47 -						Ŕ							
48 —	FAT CLAY, dark brownish gray to dark			15	M	М	SS	0					
49 —	gravish brown, a little light tan and gray, stiff,					Z							
50 —	laminations of silt (CH) (A-7-6)					\square	TW	24	31	92			24
51 —							1 VV	24					
52 —						Ţ							
·53 —	•					ł							
54 —						Ł							
55 —				14	M	М	SS	18	33		71	22	
56 -	× ·					R							
57 —					·	Į							
58 —						H							
59 —						Ł							
60 —				13	Μ	X	SS	18	25				
61 —						Ł							
62 —						R							
63 —	SANDY LEAN CLAY, a little gravel, brownish		TILL	1		Į							
64 —	gray, stiff (CL) (A-6)					R							
65 —				15	M	Х	SS	18	19				
. 66 —						B							
67 —	LEAN CLAY WITH SAND, brownish gray,					ł							
68	very stiff (CL) (A-6)					Į					1		
69 -		V///	3		1	K		1	1	1		1	1



AMERICAN ENGINEERING TESTING, INC.

SUBSURFACE BORING LOG

AET JC	DB NO:	01-05697			LO	G OF	BORIN	IG N	0	1008	8 SB	(p. 3	3 of 4	b)
PROJE		Southwest Light Rail Transit	Proje	ect, PEC Ea	st;	Нор	kins	to				MN	[_
		Hennepin C	o. Coo	dinates: <u>N</u>	10	6885()]	3	52606				
DEPTH IN FEET		MATERIAL DESCRIPTION		GEOLOGY	N	МС	SAMI TYF	PLE	REC) & LA		T	TESTS
FEET	1 Contraction of the second se								IN.	WC	DEN	LL	PL	qu
71 -		N CLAY WITH SAND, brownish gray, stiff (CL) (A-6) <i>(continued)</i>		TILL (continued)	18	М	X s F	SS	18	22		•		
• 72 –	1.	· .					£}							
73 -		YEY SAND WITH GRAVEL, grayish					Ŧ							
74	- browi	n, very stiff (SC) (A-6)			10		51		10	14				
75 - 76 -					19	M	Å	SS	18	14				
70 -	4						F						•	
78 -						-	Ŧ							
79 -	SANI stiff (DY LEAN CLAY, grayish brown, very CL) (A-6)					Į							
80 -	-				23	М	\square	SS	18	21				
81 -	4						R		•					
82 -							1							
83 -		N CLAY, grayish brown, stiff to very stiff		FINE			1							
84 -		(A-6)		ALLUVIUM			<u></u>							
85 -	-				14	M	X	SS	18	23				
86 -							\sum							
87 -							$\left \right\rangle$							
88 -		· · · · · · · · · · · · · · · · · · ·					$\left\{ \right\}$							
90 -					16	M	\square	SS	18	21				
91 -					10		Ą	00	10					
92 -							$\langle \langle$							
93 -		Y SAND, possible cobbles, fine to		COARSE	1		$\langle \langle$				-			
94 -	- medi	um grained, grayish brown, wet, dense		ALLUVIUM			Ц							
95 -	(SM)) (A-2-4)			44	W		SS	12					
96 -							$[\mathcal{I}]$							
97 -	-						$\left \right\rangle$							
95 - 96 - 97 - 98 - 98 - 99 - 100 - 101 - 102 - 103 - 104 - 105 - 106 - 107 -		VEL WITH SAND, gray, waterbearing (A-1-b)		TILL AND COLLUVIUM						,				
100 -	CLA	YEY SAND, a little gravel, apparent			25	W/N	4	SS	13	17				
101 -		les, grayish brown, very stiff (SC) (A-6)					2		••					
102 -							$\left \right\rangle$					•		
103 - 104 -		· .					$\left \right\rangle$			ŀ				
104 -					_									
3 105 106 ·		DSTONE, weathered to fresh, light gray		ST. PETER FORMATION	1		$\left \right\rangle$							
100	_													
ЧЕ			201	**					۱				01.5	
03/2011													01-L	DHR-0

03/2011



AET JOB	B NO:)5697					•					RING N						<u>+)</u>
PROJEC		Sout	hwes	t Light	t Rai	l Tra	ansit	Proj	ect, PEC E										
									rdinates: <u>N</u>		6885				52606			•	•
DEPTH					CDID				GEOLOGY		MC	SA	MPLE TYPE	REC	FIELL	& LA	BORAT	ORY	FEST
DEPTH IN FEET			MATER	RIAL DES	CRIPI	ION			GEOLOGI	N	MC	ſ	ГҮРЕ	IN.	.WC	DEN	LL	PL)	qu
108 -	SANI	DSTONI	E, weat	hered to	fresh,	light	gray		ST. PETER FORMATION	r		21							
109 -	(conti	nued)							(continued)			\square	66	<u>^</u>					
110 -										50/.4	W	\mathbb{M}	SS	3					
111 -										•		5.							
112 -				۰								$ \langle $							
113 —												$\left \left\langle \right\rangle \right $							
114 -												$\langle \langle$				-			
115 -							•					K							
116 -												$\left \right\rangle$							
117 -												$\left \right\rangle$						-	
118 -				•															
119 -										60/.1	W	\mathbf{b}		1/2					
	END	OF BO	RING								. .		-~						
														1					
											1			-					
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	•														<u> </u>			01-E	



AET JO	B NO: 01-05697						LC	G OF	BOF	RING N	iO	1009	SB	(p. 1	lof	3)
PROJEC	CT: Southwest Ligh	t Rail Tr	ansit Pro	oject,	PEC	East;]	Нор	kins	to	Minn	ieapo	olis, N	ΛN	ī		
SURFA	CE ELEVATION: 912.8	F	Iennepin Co	o. Coo	rdinate	es: <u>N</u>	1	50872	2		E :	50121	0			
DEPTH	MATERIAL D	ESCRIPTIO	N		GEO	DLOGY	N	MC	SA	MPLE	REC	FIELI) & LA	BORAT	FORY	TESTS
IN FEET			<u></u>				1			YPE	IN.	WC	DEN	LL	PL	%-#200
1	FILL, mostly gravelly silty brick, trace roots, dark bro (A-2-4)	wn and bro	wn, frozen		FILL			F								
3 — 4 [·] —	FILL, mostly silty sand wi clayey sand, brown (A-1-b		ı little			-	45	М	X	SS	12	4		-	•	13.
5 — 6 —							20	M		SS	2				-	
7	FILL, mostly silty sand wi and brown, a little black (A	th gravel, c A-2-4, A-1-	lark brown ·b)				32	M	H H	SS	16					
9 — 10 —							23	M		SS	12					
11 – 12 – 13 –	SAND WITH SILT AND to fine grained, light brown dense (SP-SM) (A-1-b)	GRAVEL, n, moist, m	medium edium		COA ALL	RSE UVIUM	19	М		SS	12					
14 15 16	SAND WITH GRAVEL, 1 grained, light grayish brow dense (SP) (A-1-b)	/n, moist, n	nedium				13	М		SS	14					
17 18 19	SAND WITH GRAVEL, 1 grained, light grayish brow gray, moist, medium dense clayey sand (SP) (A-1-b)	/n, a little b	prownish			7	11	M		SS	12					
20 - 21 -	SAND WITH SILT AND medium grained, brown ar medium dense (SP-SM) (A	nd light bro A-1-b)	wn, moist,		ιş		13	M	A A	SS	16					
22 23 24	SAND WITH GRAVEL, 1 grained, brown, waterbear (SP) (A-1-b)	ing, mediu	m dense		· · · · · · · · · · · · · · · · · · ·		13	Ţ	R R	SS	12		•			
	SAND WITH GRAVEL, 1 grained, brownish gray, w dense (SP) (A-1-b)	fine to med aterbearing	lium 5, medium				20	W	H H H	SS	16					
27 – 28 – 28 –	SAND WITH GRAVEL, 1 grained, brownish gray, a waterbearing, medium der medium grained sand with	little browr 1se, a lens o	ı, of fine to				20	W		SS	12					
25 - 25 - 26 - 26 - 27 - 26 - 27 - 28 - 27 - 28 - 29 - 29 - 30 - 29 - 31 - 31 - 31 - 31 - 31 - 31 - 31 - 3	GRAVELLY SILTY SAN dense, a lens of clayey san	D, browni	sh gray,		TILI	,	32	w	R R	SŚ	16					
	PTH: DRILLING METHOD		,	 WAT	ER LE	VEL MEA	SURI	L EMEN	∐¥∐ TS			1	1			
			TRAC						I	ORILLI	NG	WAT	ER	NOTE: THE A		
AND 0-4	9 ¹ / ₂ ' 3.25" HSA	DATE		SAMP DEP		CASING DEPTH		VE-IN PTH	FL	UID LE	EVEL	LEVI	3L, .	SHEE		
	-91' RDF w/DM	3/25/13	11:33	<u> </u>		24.5		4.3				23.		EXPLA		
BORIN	JG	3/25/13	12:00	26.	.0	24.5	2	4.0		<u> </u>		23.	3	EAI LA		
. 1	PLETED: 3/25/13		đ.			·						· · ·			IIS LC	
₩ DR: C	GH LG: JMMRig: 1C			~												OHR-0

03/2011



AET JO	B NO:	01-05697			LO	GOF	BOF	RING N	0	1009	SB	(p. 2	2 of 3	<u>)</u>
PROJE		Southwest Light Rail Transit Pr	oje	ct, PEC Ea	st;	Нор	kir	ns to				MN		
		Hennepin Co. Co	oordii	nates: <u>N</u>	1	50872	2		E	50121				
DEPTH IN FEET		MATERIAL DESCRIPTION		GEOLOGY	N	мс	SĂ	MPLE YPE	REC		1		ORY T	
FEET			<u></u>					TPE	IN.	WC	DEN	LL	PL •	%-#20
33 —	SAN	ID WITH GRAVEL, medium grained, vnish gray, a little brown, waterbearing, very		COARSE ALLUVIUM	72	W	М	SS	16					
34 -	dens	e, a lens of gravel with silt and sand (SP)		(continued)			मि							
35 -		-b) (continued)		FINE ALLUVIUM	30	M/W	\mathbb{N}	SS	18	12				
36 -	brow	vn, very stiff (CL) (A-6)			50	141/ 44	A	55						
37 -		YEY SAND WITH GRAVEL, brown, stiff		TILL			뵍							
38 -	(SC)) (A-6)			10	M/W	ΊM	SS	16	12				
39 -							ß							
40 -	SII 7	ΓΥ SAND, a little gravel, grayish brown,				W	Ø	TW	0					
41 -	very	loose to medium dense (SM/SC) (A-2-4)		•			F							
42 -	-				5	w	H	SS	18					
43 -	-					W	Д	66	10					
44 -							E							
45 -					7	W	М	SS	18					
46 -							Ł							
47 -	-			* - * -	4	W	\square	SS	14					
48 -	-						R							
49 -	1						K		10					
50 -					5	W	Å	SS	12					
51 -							K							
53 -							R							
54 -	_						$\left \right\rangle$							
55 -				.·]	6	w	\mathbf{N}	SS	18					
56 -	_						ß							
							$\left \right\rangle$	1						
$\begin{array}{c} 57 - 58 - 59 - 59 - 59 - 59 - 59 - 59 - 59$	_			•			K							
59 -	_						K							
- 60 F					*	W	X	ss	12					
61 -	- GR	AVEL WITH CLAY AND SAND, possible bles, grayish brown, very dense (GP-GC)	0				\sum	ļ						
62 ·	- (A-	1-b)	60				\rangle).						
5. 63 ·		0/0.5 + 36/0.5 + 50/0.4 AYEY SAND WITH GRAVEL, possible						9						
64	- cob	bbles, grayish brown, hard (SC) (A-6)					4	7						
65 ·	1 .				55	W	X	SS	12	10				
V IC 66 ·							7	2						
Hoos 67							\rangle)						
d d d d d d d d d d d d d d d d d d d							\rangle	X						
02/2011												<u> </u>)HR-(

03/2011



AET JOB	NO:	01-05697	•				LOC	3 OF E	30RIN	NG NO	D	1009	SB	(p. 3	3 of 3	3)
PROJECT		Southwest Light Ra	ail Transit	Projec	et, PEC	Eas	t; I	Iopl	kins	to]	Min	neap	olis,	MN		
		<u> </u>	Hennepin Co.	· · · · · · · · · · · · · · · · · · ·		N		0872				50121				
ÉPTH						,			SAM	PLE	REC	FIELI) & LAI	BORAT	ORY 7	TEST
EPTH IN TEET		MATERIAL DESCRIF	PTION		GEOLOGY		N	MC	SAM TY	PE	REC IN.	WC	DEN	LL	PL	%- #
	CLAY	EY SAND WITH GRAVE	L, possible		TILL		**	W	$\sum_{i=1}^{n}$	SS	6	12				
71 -	cobbles (contin	s, grayish brown, hard (SC)	(A-6)		(continued)				$\langle \langle \rangle$							
72	(comm	ueu)							$\langle \langle$							
73 –	**40/0	.5 + 50/0.1	•												-	
74 —									2							
75 —		•					35	w	M	SS	12	10				
76 —							ĺ		\mathbb{A}					-		
77 -									$\langle $		• •					
78 —	CDAV	EL WITH CLAY AND SA	ND brown						$\langle \langle$							
79 -	very de	ense (GP-GC) (A-1-b)	111, 010WII,	S_	.*				$\langle \langle$							
80 -	-			0			80	w	\square	SS	16	13				
81 -				Po Po					Ĥ	-						
82 -		• •							$ \langle $					· ,		
02	CI AN	EV CAND - 1:411 1							$ \langle \langle$							
	CLAY stiff (S	EY SAND, a little gravel, C) (A-6)	orown, very						RI							
85 -	x -	· · · ·					20	М	\square	SS	18					
86 -	÷.,						20	171	Д		10					
87 —									$\langle \langle$							
88 -									$\left \left\langle \right\rangle \right $							
89	LINE	STONE, gray			PLATTEV	ILLE		. -	RI	a ~						
90 -	LINE	JI OINE, Bray			FORMATI	ON 1	00/.1	М	\mathbf{T}	SS	0					
91 -		an nonwig														
	END (OF BORING														
		• • • • • • •											•			
	• • •															
				1	E	1		1	1 1		1	1 I	1 .	1	1	1

03/2011



AET JO	B NO: 01-05697					LC	G OF	BOI	RING N	ю	1010	SB	(p. 1	1 of 3	3)
PROJEC	Southwest Light	nt Rail Tr	ansit Pro	oject,	PEC East;	Нор	kins	to	Minn						
SURFAC	CE ELEVATION: 912.9	H	Iennepin Co	o. Coo	rdinates: <u>N</u>	[1	50994	4	- 	Е	50147				
DEPTH IN FEET	MATERIAL I	DESCRIPTIO	N		GEOLOGY	N	MC	SA T	MPLE YPE	REC IN.	FIELI WC) & LA REC	BORA'	ROD	TEST
FEE1	FILL, mostly silty sand wi				FILL		F	M	SS		, we	%	IN.	%	
2 -	FILL, mostly gravelly san	d with silt,	a little			55	M	\mathbb{A}	SS	12					
3 - 4 -	silty sand and clayey sand brown (A-1-b)	, brown and	l light			55		A Ł	00	12					
5 -						53	Μ		SS	16	2				10
6 7 8	FILL, mostly silty sand, a brown (A-2-4)	little grave	l, dark		-	14	M	ł	SS	12					
9 -	SAND WITH SILT, a littl	e gravel, fii	ne to		COARSE	_		E		-		, ,			
10 11	medium grained, light bro dense (SP-SM) (A-3)	wn, moist, 1	medium		ALLUVIUM	24	M	R	SS	18					
12 - 13 -	SAND WITH SILT AND to fine grained, light brow dense (SP-SM) (A-1-b)				· • •	19	М		SS	16					
14 — 15 —	GRAVELLY SAND WIT medium grained, brown, n (A-1-b)				4 • •	50	M		SS	12				-	
16 — 17 —	SAND WITH SILT, a littl light brown, moist, mediu	e gravel, fir m dense (Sl	ne grained. P-SM)		•	18	M	ł	SS	18					
18 — 19 —	(A-3) SAND WITH SILT AND	GRAVEL,	medium					Ł							-
20 – 21 –	to fine grained, brown, mo lens of medium to fine gra (SP-SM) (A-1-b)	oist, mediur	n dense, a		•	11	M	X {}	SS	6					
22 — 23 —	SAND, medium grained, I	ight brown	, moist,		•	6	М		SS	16					
24 — 25 —	loose (SP) (A-1-b) SAND WITH GRAVEL, brownish gray, waterbeari	medium gra	ained, 1 dense		•	15		ł	SS	12					
26	(SP) (A-1-b) SAND WITH SILT AND		•		•	10									1
27 — 28 — 29 —	grained, brownish gray, w dense, a lens of fine to me (SP-SM) (A-1-b)	aterbearing	, medium			25	W	X R	SS	18					
30 - 31 -	GRAVELLY SILTY SAN grained, grayish brown, w dense (SM) (A-1-b)			-		45	w	Å	SS	12					
		1										<u> </u>		<u> </u>	
DEP	TH: DRILLING METHOD	 	i		ER LEVEL ME	1		T .			3374009		NOTE:	REFE	ER T
0-2	9½' 4.25" HSA	DATE	TIME	SAMP DEP	LED CASING IH DEPTH		VE-IN PTH	FL	DRILLI UID LE	NG EVEL	WATI LEVI	EK EL	THE A	ATTAC	THEI
291/2-		3/27/13	10:55	26.	0 24.5	2	4.5		ę		24.2	2	SHEE	TS FOI	R Aì
		3/27/13	11:00	26.	0 24.5	2	4.5	-			24.2	2	EXPLA	NATIO	ON (
BORIN	NG LETED: 4/1/13											7	ERMI	NOLO	GY (
DR: S													TH	IIS LO	G

03/2011



AET JO						BORIN	_				2 of 3)
PROJE	CT: Southwest Light Rail Transit l	Proje	ect, PEC I	East;	Нор	kins	to Mir	inear	oolis,	MN		
	Hennepin Co.	Coordi	nates:	N 1	50994	I	E	50147	<u>'1</u>			
DEPTH			GEOLOGY	•	MO	SAMP	LE REC	FIEL			FORY T	
DEPTH IN FEET	MATERIAL DESCRIPTION		GEOLOGI	N	MC	TYP	3 IN.	WC	REC %	RQD IN.	RQD %	6-#20
	GRAVELLY SILTY SAND, fine to medium		COARSE ALLUVIUM	35	W	X s	5 12					
33 -	grained, grayish brown, wet, dense to very dense (SM) (A-1-b) (continued)		(continued)			Б						
34 -			•			K						
35 — 36 —			•	70	W	X s	S 0					
30	CLAYEY SAND WITH GRAVEL, brown, stiff		TILL			2						
37	(SC) (A-6)			11	M/W	M s	S 2	9				
39 -						Б						
40 —	SILTY SAND, a little gravel, brown, loose (SM/SC) (A-2-4)		•			H .						
41			•	8	W	X s	S 18					
42 -			•			Ľ.						
43 -			· •	6	-	Xs	S 0	-				
44 -	SILTY SAND WITH GRAVEL, grayish brown, very loose (SM) (A-2-4)					$\begin{bmatrix} 1 \\ 1 \end{bmatrix}$						
45 —			•	4	w	S s	S 18					
46 -				4	VV	Α°	3 10					
47 —			:			4						
48 -				3	W	X s	S 10					
49 -						$\sum_{i=1}^{n}$						
50 -				4	W	\mathbf{N} s	s 4					
51 -						Ĥ						
52 -						$\left \left\langle \cdot\right\rangle \right $						
53 -	SILTY SAND, a little gravel, brown, loose					K						
54 -	(SM/SC) (A-2-4)					K						
55 -				6	W	s	S 10					
56 -		. .				51						
57 -	- · · · ·					5				-		
58 -						$ \leq $						
59 -	- · · · · · · · · · · · · · · · · · · ·					K						
60 -				7	W	X s	S 18					
61 -						$[\mathcal{I}]$						
62 -						$\left \right\rangle$						
63 -			· · · · · · · · · · · · · · · · · · ·									
64 -	1					F)						
65 -	1 .			10	W	X s	S 18					
66 -	1					\sum						
67 -	CLAYEY SAND, a little gravel, brown, hard to					$\left \right\rangle$						
68 -	very stiff (SC) (A-6)					$\left \right\rangle$			-			
69 -	1 .					X						
			<u></u>								01-DI	l

03/2011



PROJEC										TAWYA		
	Henne	pin Co. Coordii	nates: <u>N</u>	1:	50994	!	<u> </u>	50147				
DEPTH IN FEET	MATERIAL DESCRIPTION		GEOLOGY	N	мс	SAMPL TYPE	E REC		D & LA			
FËÈT								WC	KEC %	RQD IN.	кор %	%-
	CLAYEY SAND, a little gravel, brown, have very stiff (SC) (A-6) (continued)	ard to	TILL (continued)	40	M	ss 🛛	16	11				
71 -	very suit (SC) (A-0) (commund)		(commuea)			\sum						
72 —						$\left \right\rangle$		-				
73 —						51						
74 –						Ц						
75 –				26	M	X ss	16	11				
76 –						$[\mathcal{T}]$					-	
77 -												
78 —						$\mathbb{S}^{\mathbb{N}}$						
79 —						Ц						
80 -				26	M	X ss	16	10				
81 -						5						
82 -						5						
83 —	CLAYEY SAND WITH GRAVEL, brown	n, hard				51						
84 -	(SC/SM) (A-2-4)					\Box						
85 -				34	W	$ \chi $ ss	12	10				
86 -												
87 —												
88 —						S						
89 -						\square						
90 -				56	W	X ss	8	14				
91 -	LIMESTONE, light gray and gray, crinkle	y 4	PLATTEVILL	Ē		m						
	bedded		FORMATION MIFFLIN			HQ:	2 43		100	41	95	
93 –	Weathering: Slightly weathered		MEMBER			JU IQ	2 43		100	. 41	, ,,,	•
94 —	Fracturing: Very to moderately fractured Stratification: Very thinly bedded Hardness: Hard		-									
95 —	Stratification: Very thinly bedded Hardness: Hard		-									
96 -												
97 —			-			HQ	2 60		100	55.5	92	
98 —												
99 —			-									\downarrow
	END OF BORING											
			•									



AET JO	B NO:	01-05697						LO	GOF	BOI	RING N	10	1011	SB	(p. 1	l of	4)
PROJEC	CT:	Southwest Ligh	nt Rail Tr	ansit Pro	oject,	PE	C East;	Нор	kins	to	Minn	ieapo	olis, N	⁄IN			
SURFA	CE ELE	VATION: 909.0	F	Iennepin C	o. Coo	rdina	tes: <u>N</u>	1:	52171	1	· · ·	E ź	50392	3			
DEPTH						OT				SA	MPLE	REC	FIELD) & LA	BORA	FORY	TEST
ÎN FEET		MATERIAL I	DESCRIPTIO	N		GE	EOLOGY	N	MC	Î	YPE	ÎN.	WC	OC	LL	PL	%- #2
1 -	\roots,	, mostly clayey sand dark brown (A-2-4)	-			FIL	L	22	М	M	SS	14	15				
2-3-	\brow	, mostly sand with si n (A-1-b) , mostly silty sand, a						19	M	\square	SS	6					
4 —	ashes	, mostly sifty said, a /cinders, black, a littl , mixture of silty san	le brown (A	-2-4)			2			E			-				
5 — 6 —	with (A-2-	gravel, dark brown ar 4)	nd light bro	wn				14	M	X स	SS	6					
7 — 8 —	FILL sand,	, mostly sand with gr light brown, a little of	avel, a little dark brown	e clayey (A-1-b)				14	М	X	SS	6					
9 10								13	M	Ð	SS	10					
11 — 12 —	FILL	, mostly gravelly san	d with silt.	a little		-		1.5	141		00						
13 —	claye	y sand, brown, a little	e light brow	/n (A-1-b)				17	М	X	SS	4					
14 — 15 —	claye	, mostly sand with si y sand, light brown ((A-2-4)			-		15	M	¥ X	SS	6	-	-		-	
16 — 17 —	∖(A-2-	, mostly silty sand, a 4) , mostly sand with si	, -							E							
18	light	brown, a little brown	(A-1-b)					21	M	X R	SS	12					
20		, mostly sand with gr brown (A-1-b)	ravel, a intil	e clayey				15	M		SS	12					
22 -								9	M	Ĭ	SS	12					-
23 — 24 —	FILL	, mostly silty sand, a	little grave	l and		4		-	Ţ	Ł							
25 26	light	/cinders, pieces of w brown (A-2-4)				- - - -		4	W	X	SS	12					
25 26 27 28 29 30 31 DEF 0-3 34½-11 BORIN COMP	little	, mostly clayey sand gravel and sand with , a little gray (A-6 ar	silt, trace r	ic fines, a oots,				6	W	X	SS	16	19				
29 - 30 -		, mostly sand with si y sand, brown, a littl				-		13	W	₩ X	SS	12					
31 -		·						-		E				 			
DEF	TH:	DRILLING METHOD					EVEL MEA	SURE	EMEN	TS					NOTE:	REFI	ER TO
0-3	4½'	3.25" HSA	DATE		SAMP DEP				/E-IN PTH	FL	ORILLI UID LE	NG EVEL	WATH LEVE	EL	THE A		
341/2-11	91/2'	RDF w/DM	4/15/13	9:30	26.		24.5		4.9				24.5	,			
		ć	4/15/13	9:40	26.	0	24.5	2	4.9	<u> </u>			24.5	,	EXPLA		
BORIN	↓G LETED:	4/15/13		-					. ,]]	ERMI		
DR: S		B: TM Rig: 1C										ſ	_		TH	IIS LC	G

03/2011



AET JO	B NO:	01-05697			LO	G OF	BOF	NNG N	O	1011	SB	(p. 2	2 of 4	4)
PROJEC	CT:	Southwest Light Rail Transit Pro	ject,	PEC East;	Нор	kins	to	Minn	eapo	olis, N	/IN			
		Hennepin Co	. Cooi	dinates: <u>N</u>	1	52171	1		Е :	50392	3			
DEPTH		MATEDIAL DECOUPTION		GEOLOGY	NI	MC	SA	MPLE	REC	FIELE) & LA	BORA	ORY	FESTS
DEPTH IN FEET		MATERIAL DESCRIPTION			N	MC	Ť	YPE	ĪN.	WC	OC	LL	PL	%- #20
33 — 34 —	fine g	O WITH SILT, a little gravel, medium to rained, brown, waterbearing, loose, a lens e to medium grained sand (SP-SM) b) (possible fill) <i>(continued)</i>		COARSE ALLUVIUM OR FILL (continued)	8	W	X	SS	12					
35 — 36 —	SANI 371/2'.	D WITH GRAVEL, pieces of wood at medium grained, dark gray to gray, bearing, loose (SP) (A-1-b) (possible fill)			10	W	Å	SS	6					
37 — 38 —					10	W	Å	SS	6					
39 — 40 — 41 —	GRA mediu	VEL WITH SAND, gray, waterbearing, Im dense (GP) (A-1-a) (possible fill)			13	w	Å	SS	1					
42 — 43 —	HEM	IC PEAT, black (PT) (A-8)		SWAMP DEPOSIT	18	М	Å	SS	12	281				
44 — 45 — 46 —		ANIC CLAY, trace roots, brownish gray, OL/OH) (A-8)			15	М	Å	SS	14	145				
47 — 48 —					11	M	Å	SS	12	167	25.8			
49 50 51	to dar	ANIC CLAY, trace roots and shells, black k brownish gray, firm to very stiff DH) (A-8)			6	М	Å	SS	12	109				
52 — 53 —	-				16	M	Å	SS	14	182			-	
54 55 56					15	М	Å	SS	12	201	-			
57 - 58 -					13	M	Å	SS	14	107	16.8			-
59 - 60 - 61 -	gray,	N CLAY, slightly organic, dark brownish stiff (CL) (A-6) N CLAY, brownish gray, stiff (CL) (A-6)		FINE ALLUVIUM	12	M	Ķ	SS	14	58 25		-		
62 - 63 -	GRA	VELLY SAND WITH SILT, medium		COARSE										
64 - 65 - 66 -	grain	ed, dark brownish gray, waterbearing, um dense (SP-SM) (A-1-b)			18	w	Å	SS	1					
67 - 68 -														
69 - 03/2011				•			X						<u>01-Г</u>	DHR-(



AET JOI	B NO: 01-05697			LO	G OF	BORI	NG N	0	1011	SB	(p. 3	B of	4)
PROJEC	T: Southwest Light Rail Transit Proj	ject,	PEC East;	Нор	kins	to N	/linn	eapo	olis, N	/IN			
	Hennepin Co.	. Coo	rdinates: N	1:	5217	1]	E É	50392	3			
DEPTH	• • • • • • • • • • • • • • • • •					SAN	1PLE	REC	FIELD) & LAI	BORAT	ORY	TEST
IN FEET	MATERIAL DESCRIPTION		GEOLOGY	N	MC	TY	PE	IN.	WC	OC	LL	PL	%- #2
71 – 72 –	GRAVELLY SAND WITH SILT, medium grained, dark brownish gray, waterbearing, medium dense (SP-SM) (A-1-b) <i>(continued)</i>		COARSE ALLUVIUM (continued)	12	W	X	SS	3					
73 —	CLAYEY SAND, a little gravel, dark brownish		TILL			$\left \left\langle \cdot \right\rangle \right $							
74 — 75 —	gray, very stiff (SC) (A-6)			16	М	\bigwedge	SS	10	17				
76 —				10	141	A	20	10	17				
77 — 78 —						$\left \right\rangle$							
79 -						$\left \right $							
80 81				26	M	Å	SS	14	13				
82 -						$\left \right\rangle$							
83 — 84 —	CLAYEY SAND WITH GRAVEL, brownish gray, very stiff (SC/SM) (A-2-4)					\sum							
85 — 86 —				18	М	\square	SS	12	11				
80 -						5							
88 - 89 -	SAND, medium grained, a little gravel, brownish gray, waterbearing, medium dense		COARSE ALLUVIUM			$\left \right\rangle$							
90 -	(SP) (A-1-b)			21	w	\square	SS	12					
91 - 92 -						$\left[\right]$							
93 —	GRAVEL WITH SILT AND SAND, dark		•			K							
94 — 95 —	brown, waterbearing, medium dense (GP-GM) (A-1-b)	11 10 11 11		29	w	H	SS	2			i i		
96 -		1 4 4 1		27		β	50						
97 — 98 —	CLAYEY SAND, a little gravel, brown, hard		TILL		-	$\left \right\rangle$							
99	(SC) (A-6)					K							
100 — 101 —				44	M	Å	SS	12	13				
102 - 103 -	·					$\left \right\rangle$		r					
103 -						$\left \right\rangle$							
105 — 106 —						$\left \right\rangle$							
100 -						$\left \right\rangle$							
/2011	· · · · · · · · · · · · · · · · · · ·								I			01-E	

03/2011



AI	ET JO	B NO:	01-05697			LO	G OF	BORING N	10.	1011	SB	(p. 4	4 of 4	4)
	ROJEC		Southwest Light Rail Transi	t Project,	PEC East;									
				pin Co. Cooi			5217			50392				
DE	PTH		AT A MARKAGE AND A CONTRACT OF A					SAMPLE	REC	FIELI) & LA	BORAT	FORY '	TEST
FE	PTH N ET		MATERIAL DESCRIPTION		GEOLOGY	N	MC	SAMPLE TYPE	IN.	WC	OC	LL	PL	%- #2
1	08 -				TILL (continued)			2				· .		
1	09 -	SHAI	LEY SANDSTONE, fresh, gray		ST PETER		w	s	. 0.1					
1	10 -		DSTONE, fresh, light brownish gray		FORMATION	100/.1		2	. 0.1					
1	11 -													
1	12 –													
	13 –													
	14 –					100/.2	w	SS SS	2					
	15 –					100/.2		$\langle \langle \rangle$						
	16 -				, , , , , , , , , , , , , , , , , , ,			2						
	17 -							2						
	18 –													
	19 -	TINID	OF BODINC			100/.1		SS SS	-0					
		END	OF BORING											
							1							
					29 									
			•							- - -				
			· ·											
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		1												
			7	5										
											1		· ·	
										1				



AET JOI	в NO: 01-05697						LC	G OF	во	RING N	10	1012	SB	(p.]	lof	4)
PROJEC	Southwest Ligh	t Rail Tr	ansit Pr	oject,	PE	C East;	Нор	kins	to	Minn	ieapo	olis, N	ΛN			
SURFAC	CE ELEVATION:909.6	H	Iennepin C	o. Coo	rdina	ites: <u>N</u>	1	52262	2		E É	50411	7			
DEPTH	MATERIAL I	FSCRIPTIO	N		GI	EOLOGY	N	MC	SA	MPLE	REC	FIELI) & LA	BORA	TORY	TEST
ÎN FEET							19			ГҮРЕ	IN.	WC	DEN	LL	PL	%-#2
1-	FILL, mostly clayey sand little gravel and sand with	with organi silt_trace_r	ic fines, a	\square	FIL	L	17	M	M	SS	12	23				
2 -	FILL, mostly crushed lime	stone base	· · ·						Д	0.0						
3	\sand with silt, light brown FILL, mostly sand with sil		J o littlo	_/			29	M	X	SS	12					
4 —	ashes/cinders, brown and l	olack (A-1-	b)	\rightarrow	4				रि							
5 —	FILL, mostly sand with sil brown (A-1-b)	t and grave	el, light				20	M	\square	SS	10					
6 —	010wii (A-1-0)						20	141	A	55						
7 —									뉟					-		
8 —							16	M	М	SS	6					
9 -	FILL, mostly sand with sil	t and grave	el, a little		-				I		1					
10 —	silty sand, brown, a little d						23	M	М	SS	12					
11									मि							
12 —	FILL, mostly gravelly silty lean clay, brown (A-2-4)	y sand, a lit	tle sandy				17	M	R	aa	C					
13 —							17	M	Å	SS	6					
14 —	FILL, mostly sand with sil	t and grave	el, a little		-				1							
15 —	clayey sand and ashes/cind dark brown (A-1-b)	lers, brown	i, a little				19	Μ	Х	SS	12					
16 —	FILL, mostly sand with sil	t and grave		_	-				रि							
17 -	sandy lean clay, brown (A		ei, a muie				27	M	\bigwedge	SS	10					
18 — 19 —			•						मि							
20 -	FILL, mostly sand with gr sand, light brown (A-1-b)	avel, a little	e clayey						R	aa	10					
20	sand, light brown (A-1-0)						11	M	Å	SS	10					
22 -									1							
23 -							6	M	X	SS	6		a.			
24	ETT I	1:441.0	1 minor	c	-				3							
	FILL, mostly silty sand, a wood, brown (A-2-4)	nuie grave	i, pieces o	L			8		$\sqrt{1}$	SS	3					
26 —									A							
27	FILL, mostly sand with gr sand, brown (A-1-b)	avel, a littl	e clayey		1		-		内							
25 26 27 28 29 30 31 DEP	sanu, uruwii (A-1-0)						10	W	Å	SS	12					
29 —	• •								<u>I</u>							
30 -							16	W	X	SS	14					
31 —									R							
DEP	TH: DRILLING METHOD			WAT	ER L	EVEL MEA	SURI	EMEN	TS	L <u></u>	1	1		NOTE:	REFF	ER TO
		DATE	TIME	SAMP DEP	LED	CASING DEPTH	CAN	VE-IN PTH	121	DRILLI JUID LE	NG	WATI LEVE		THE A		
0-49		4/16/13	11:17	28.		27.0		6.7			VEL	25.5		SHEE		
49½-11	1½' RDF w/DM	4/10/13	11:17	28.		27.0		6.7 6.7				25.3	— I .	EXPLA	NATI	O. NC
0-49 49½-111 BORIN COMPI	G LETED: 4/16/13	10/13	11.30	20.		<i>~</i> /.0			-					ERMIN	10LO	GY O
DR: SS														TH	IS LO	G
03/2011	5 LO, IMI Mg, IC	1		1			I				L	<u> </u>	l		01-Γ	HR-

03/2011



AET JO	B NO:	01-05697			LO	G OF	BOI	RING N	О.	1012	2 SB	(p. 2	<u>2 of 4</u>	4)
PROJEC		Southwest Light Rail Transit Pro	ject.	PEC East;]						olis, N	ΛN			
IROJEC		Hennepin Co				52262				50411				
ЪЕРТП			. 2001					-		T) & LA	BORAT	FORY	TEST
DEPTH IN FEET	•	MATERIAL DESCRIPTION		GEOLOGY	N	MC	SA T	MPLE YPE	REC IN.	WC	DEN	LL	PL	qu
33 -		DY LEAN CLAY, slightly organic, a little l, black, stiff (CL) (A-6) (possible fill)		FINE ALLUVIUM OR FILL	10	M	X	SS	6	29				
34	brow: dense	D WITH GRAVEL, medium grained, n, a little black, waterbearing, medium e, laminations of clayey sand (SP) (A-1-b)		COARSE ALLUVIUM OR FILL	15	Ŵ		SS	3					
37 – 38 –		ible fill) IC PEAT, brown and black (PT) (A-8)			27	М		SS	16	243				
39 - 40 - 41 -	SAPI gray,	RIC PEAT, trace roots, dark brownish laminations of silty sand (PT) (A-8)				M		TW	18	121	36			243
42 - 43 -		ANIC CLAY, trace shells and roots, black k brown, stiff (OH) (A-8)			13	М		SS	16	144		-		-
44 45 46	ORG	ANIC SILT, dark brown (OH) (OC=7.6%)				M	1	TW	24	58	60	94	63	Co
47 - 48 -		ANIC CLAY, trace shells and roots, dark nish gray, stiff (OH) (A-8)			13	M	A A A	SS	16	164	-			
49 50 51			<u>187</u> 187	= . = .	- - - -	M	A	TW	12	129	35			
52 - 53 -		N CLAY, slightly organic, trace roots, dark nish gray, firm (CL) (A-4/A-6)		FINE ALLUVIUM	7	М	Ř	SS	12	33				
54 — 55 — 56 —	LEA a lens (A-4)	N CLAY, trace shells, brownish gray, stiff, s of waterbearing fine grained sand (CL)			10	M/W	X	SS	12	23				
57 — 58 —	GRA	VELLY SAND, medium grained, gray and	1	COARSE ALLUVIUM	-									
59 - 60 - 61 -	dark (A-1-	gray, waterbearing, medium dense (SP) b)			20	w	X	SS	6				•	
62 — 63 —							$\left\langle \cdot \right\rangle$							
64 — 65 —	GRA	VEL WITH SAND, gray, waterbearing,			11	-		SS	0				-	
66 — 67 — 68 —		um dense (GP) (A-1-a)		a		-	$\left\{ \right\}$		-					
69 —	-			-			R	*						

03/2011



AET JO	B NO:	01-05697			LC)G OF	BORING N	10	1012	SB	(p. 3	3 of 4)
PROJEC		Southwest Light Rail Transit Pro	oject,	PEC East:					olis, N	ΛN		
I ROJEC	21,	Hennepin Co				5226			50411			
DEPTH		Tomophi et		=							BORA	FORY TES
IN FEET		MATERIAL DESCRIPTION		GEOLOGY	N	MC	SAMPLE TYPE	REC IN.	WC	DEN	LL	PL %-
	GRA	VEL WITH SAND, gray, waterbearing,										
71 -	mediu	im dense (GP) (A-1-a) (continued)	# # #				59	-				
72 -			<u> </u>		21	W	ss 🕅	6				
73 –		· ·	1 1 1		21		A					
74 -					_							
75 —		VELLY CLAYEY SAND, gray, very stiff M) (A-2-4)		TILL		2	2					
76 —	(50/5						$\left \right\rangle$					
70 77 -				•					-	<i>*</i>		
78 -					24	M/W	SS SS	6				
							2					
79 —							$\left \right\rangle$					
80 —	CLA	YEY SAND, a little gravel, gray, hard					$\left \right\rangle$					
81	(SC)	(A-0)					$\left\{ \cdot \right\}$			1		
82 —					34	M	X ss	6	28			
83 —												
84 —							$\left \right\rangle$					
85 —	GRA	VELLY SILTY SAND, gray, wet, dense					S					
86 —		(A-2-4)					K					
87 —					35	M/W	ss	6	13			
88 —							Б					
89 —							59					
90 —							$\left \left\langle \cdot\right\rangle \right $					
91	CLA	YEY SAND, a little gravel, apparent					\mathbb{Z}					
92 -	cobbl	es, brown, hard (SC) (A-6)			38	M/W	ss 🕅	6	21			
93 -					50	191/ 44	A S		21			
94 -						-	$ \langle \langle$				-	
95 -				004707	_		2					
96 -	SAN medi	D WITH SILT AND GRAVEL, fine to		COARSE ALLUVIUM			2					
90 97 —	dense	um grained, brown, waterbearing, very (SP-SM) (A-1-b)						10				
97 - 98 -					52	W	X ss	12				
98 - 99 -							2			1		
					1		$\left \right\rangle$					
100	SHA	LEY SANDSTONE, weathered, gray, a		ST. PETER	-		$\left \right\rangle$					
101 -		light gray		FORMATIO			$H \sim $					
102 —					100/.	7 W	X ss	12			·	
103 —	1						\mathbb{R}					
104 —							2					
105 —	SAN	DSTONE, fresh, gray					$\left \right\rangle$					
106						w	<pre>< SS</pre>	2				
107 —					100/.	2 **						
3/2011			· · · · · ·									01-DHI



AET JO	B NO:	01-05697						LO	G OF	BO	RING N	0	1012	2 SB	(p. 4	1 of -	4)
PROJEC	CT:	Southwest	Light Rai	I Transit]	Project,	PEC	East;	Hop	kins	to	Minn	eapo	olis, N	MN			
		<u></u>			n Co. Coor				52267		*····		50411				
DEPTH								N	MO	SA	MPLE	REC	FIELI) & LA	BORAT	FORY	TEST
DEPTH IN FEET		· .	IAL DESCRII			GEOL	.00 Y	N	MC	[]	MPLE YPE	REC IN.	wc	DEN	ĹĹ	PL	%- #
108 -	SANI	DSTONE, fresh	, gray <i>(conti</i>	nued)				· ·		27							
109 -										$\left \right\rangle$							
110										$\left \right\rangle$		r 					
111 -								100/1		\sum		-NR		/			
	END	OF BORING						100/.1			22						
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																1	
														<u> </u>		01-I	



AET JO	B NO: 01-05697		. <u></u>				LO	G OF I	BORIN	NG NC).	1020	SB	(p. 1	l of 3	3)
PROJEC		t Rail Tr	ansit Pro	ject,	PEC E	Last; E								· · · · · · · · · · · · · · · · · · ·		
	CE ELEVATION: 854.9		lennepin Co.			N		64578		E		51925				
DEPTH					CEOL				SAM	PLE	REC	FIELI)&L/	BORAT	ORY	TESTS
IN FEET	MATERIAL D	ESCRIPTIO	N		GEOL	UGY	N	MC	TY		ĪN.	WC	DEN		PL	qu
1	FILL, mostly silty sand with frozen, dark brown (A-2-4)		ace roots,		FILL			F	ł ł							
2 — 3 —	FILL, mostly silty sand with clayey sand, brown (A-2-4)		little				13	М		ss	12					
4 — 5 — 6 —	FILL, mostly clayey sand w little silty sand, trace roots, light brown (A-6)	vith organic dark brown	c fines, a n, a little				3	М		ss	18	37	-			
7	LEAN CLAY, light browni of sandy lean clay (CL) (A-	-4)			FINE ALLUV	/IUM	4	M/W		SS	10	21				
9 10 11	LEAN CLAY, gray, a little gray, firm, a lens of sandy l of silt and fat clay (CL) (A-	ean clay, la -7-6)	aminations				8	М		SS	18	43				
12 — 13 — 14 —	FAT CLAY, dark gray and laminations of silt (CH) (A	-7-6)						М		ГW	20	61	65			970
14	FAT CLAY, dark brownish laminations of waterbearing	n gray, soft g sand (CH) (A-7-6)				2	M	R	SS	18	67		84	21	
17 — 18 —								-		гw	0	-				
19 20 21	GRAVEL WITH SILT AN gray, waterbearing, medium (A-1-a)	ID SAND, n dense (G	brownish P-GM)		COARS		25	w		SS	4					
22 - 23 -				<u></u>			17	w	Å	SS	1		<u>s</u>			
24 – 25 – 26 –	GRAVELLY SAND, medi waterbearing, medium dens sand at 27 ¹ / ₂ ' (SP) (A-1-b)	ium grainec se, a lens o	l, gray, f clayey				13	w	Å	SS	7					
25 - 26 - 26 - 27 - 28 - 27 - 28 - 29 - 28 - 29 - 30 - 29 - 30 - 31 - 29 - 30 - 31 - 29 - 30 - 20 - 30 - 20 - 30 - 20 - 30 - 20 - 30 - 20 - 30 - 20 - 30 - 20 - 30 - 20 - 30 - 20 - 30 - 20 - 30 - 20 - 30 - 20 - 30 - 20 - 2							12	w	Å	SS	7					
29 – 29 – 30 – 30 – 31 – 31 –	GRAVELLY SAND, medi waterbearing, medium den						16	W	Å	SS	10					
	PTH: DRILLING METHOD			<u> </u>	H ER LEVI	EL MEA	L SURI	EMEN	TS					NOTE:	T REF	
		DATE	TIME	SAMP DEP	1	ASING EPTH		VE-IN PTH	DF	ILLIN	IG.	WAT	ER	THE A		
<u>0-1</u>	9½' 3.25" HSA		10:10			ЕРТН 14.5		етн 6.0	FLU	ID LE	VEL	15.			TS FO	
0 19½-9	19½-99½' RDF w/DM 4/10/13 10			16.		14.3		0.0				15.	5	EXPLA		
	BORING COMPLETED: 4/10/13													TERMI	1	
$\begin{array}{c c} COMP \\ \hline \\ UR: \mathbf{L} \\ \end{array}$					·									TH	IIS LO	G
$\mathbb{A} = \frac{DK}{DK} \mathbb{L}$	TO THE RIE OOC	L	L		l		I						1		01 - Г	OHR-0



AMERICAN ENGINEERING TESTING, INC.

SUBSURFACE BORING LOG

AET JO	DB NO: 01-05697			LC	GOF	BOI	RING N	0	1020	SB	(p. 2	2 of 3	3)
PROJE	CT: Southwest Light Rail Transit Proj	ect,	PEC East; l	Hopl	cins	to I	Minn	eapo	lis, M	(N			
	Hennepin Co. C	Coordin	nates: <u>N</u>	. 1	64578	8		E	51925	2			
DEPTH	MATERIAL DESCRIPTION		GEOLOGY	N	мс	SA	MPLE	REC) & LAI	BORAT	FORY 1	ESTS
IN FEET				11	MC		YPE	IN.	WC	DEN	LL	PL	qu
33 -	GRAVELLY SAND, medium grained, gray, waterbearing, medium dense (SP) (A-1-b)		COARSE ALLUVIUM	12	W	М	SS	8					
34 -	(continued)		(continued)			Б							
35 -	GRAVEL WITH SAND, gray, waterbearing, medium dense (GP) (A-1-a)			20	w	\square	SS	4					
36 -				20	vv	Д	66	+					
37 -	GRAVELLY SAND, medium grained, gray to					H							
38 -	brownish gray, waterbearing, loose to medium dense (SP) (A-1-b)			9	W	Х	SS	5.					
39 -						\sum		Į.					
40 -				13	w	M	SS	5			:		
41 -						Ю							
42 -	SAND WITH GRAVEL, medium grained, gray, waterbearing, medium dense (SP) (A-1-b)					H							
43 -	waterbearing, medium dense (SF) (A-1-0)			19	W	М	SS	8					
44 -	- · · ·					Ц	•						
45 -				16	W	M	SS	6					
46	-		•			Б							
47 -			•	10	**7	М	99	-					
48 -	-		•	12	W	Д	SS	7					
49 -			•			Ц			r.				
50 -				20	W	X	SS	7					
51 -			•			D							
52 -			•			$\left \right\rangle$							
53 -	brownish gray, waterbearing, medium dense		•			$\left \right\rangle$							
54 -	(SP) (A-3)					\square							
55 -	-		•	30	W	Х	SS	14		-		1.1	
56 -	-		•			\sum							
57 -			•			$\left \right\rangle$							
58 -	SAND WITH GRAVEL, medium to fine												
59 -	grained, gray, waterbearing, dense, a lens of fine grained sand with silt (SP) (A-1-b)					\mathbb{H}							
60 - 61 -				47	W	М	SS	10					
62 -			•			$\left \right\rangle$							
5 63 -			•			$\left \right\rangle$							
64 -	SAND, medium grained, gray, waterbearing, dense (SP) (A-1-b)		•	1		$\left \right\rangle$							
65 -					117	\mathbb{H}	99	11					
66 -			:	42	W	Д	SS	16					
67 -					ľ	$\left \left\langle \right\rangle \right $							
68 -						$\left \right\rangle$							
69 -	-					$\left \right\rangle$		•					
$\begin{array}{c} 57 - \\ 58 - \\ 59 - \\ 60 - \\ 61 - \\ 62 - \\ 63 - \\ 63 - \\ 63 - \\ 64 - \\ 65 - \\ 66 - \\ 67 - \\ 68 - \\ 69 - \end{array}$						×							
03/2011					<u>, 1</u>							01-D	HR-0



AET JO	B NO:	-01-0	5697								LO	G OF	BOF	RING N	0	1020) SB	(p. 3	8 of 3	5) .
PROJEC	CT:	South	west I	Light I	Rail]	Frans	it Proj	ect,	PEC Eas	st; H	lopk	ins	to I	Minn	eapol	lis, M	IN			
						Henne	pin Co. C	Coordi	nates:	N	16	64578	8	· ·	E ś	51925	2			
DEPTH			MATER	AT DEC	ריסוקי	ION			GEOLOG		N	мс	SA	MPLE YPE	REC	FIELI) & LAI	BORAT	ORY T	ES
DEPTH IN FEET		•	-		-						TN		I			WC	DEN	LL	PL	q
71 — 72 —	gray, y	D, a little waterbea b) <i>(contir</i>	ring, ve	mediun ry dense	n grair e, a lei	ned, bro ns of si	ownish ilt (SP)		COARSE ALLUVIU (continued)		58	W	X	SS	16					
73 — 74 —	LEAN	NCLAY,	brown,	hard (C	CL) (A	A- 4)			FINE ALLUVIU	M			$\sum_{i=1}^{n}$							
75 — 76 —						,					72	M	X	SS	18	25		-		
77 — 78 —	ŧ						1 					•						-		
79 80 81											42	Μ	X	SS	18	25				
81 82 83	כוו די	Y SAND	a 1:++1a	moval	hrow	n mad	ium		TILL				$\left\{ \left(\right. \right. \right\}$							
84 — 85 —		Y SAND (SM/SC			UIUW	n, meu					40	М		SS	18					
86 — 87 —													$\left\{ \right\}$							
88 — 89 —					• .						50/.4	М	$\left \right\rangle$	SS	2					
90 91 92 93	mediu	D WITH um graine e (SP-SM	ed, brow	ı little g vn, wate	ravel, erbeari	fine to ing, ver	ry		COARSE ALLUVIU			141								
94 - 95 -											50/.4	W	S X	SS	10					
96 97 98	SANI	D WITH	SILT, f	ine grai	ned, b	prown,														
99 - 100	graine	bearing, ed sand (very de SP-SM)	nse, lan) (A-3)	unatio	ons of r	nedium				80	w		SS	16					
101 —	END	OF BO	RING																	
	i.						•							•						
2/2011												L	<u> </u>		<u> </u>	1	1	J	01-D	



AMERICAN ENGINEERING TESTING, INC.

SUBSURFACE BORING LOG

AET JOI	B NO: 01-05697						LO	GOF	BOR	ING N	0	1025	ST	(p.]	lof	2)
PROJEC	T: Southwest Ligh	nt Rail Tr	ansit Pro	oject,	PEC Ea	st; E	lop	kins	to I	Minn	eapo	olis, N	/IN			
SURFAC	CE ELEVATION: 854.7	H	Iennepin Co	o. Coor	dinates:	N	1	64308	3	·_]	E\$	51891	1			
DEPTH					aroloa				SAN	APLE	REC	FIELI) & LA	BORA	FORY "	FEST
DEPTH IN FEET	MATERIAL E	DESCRIPTIO	'IN		GEOLOG	TY	Ν	MС	TY	MPLE YPE	ĪN.	WC	DEN	LL	PL	%-#2
1 - 2 -	FILL, mostly silty sand, a ashes/cinders, trace roots, brown and brown (A-1-b,	black, a litt			FILL	-	5	М	X	SS	16					
3 -	FILL, mostly sand, a little silt, brown (A-1-b)	gravel and	sand with	_			16	М	X F1	SS	6	-				
5	FILL, mixture of sand with with gravel, brown (A-1-b						21	M		SS	10		- - -			
7 — 8 — 9 —	FILL, mostly sand with sil sandy lean clay and clayey and gray (A-1-b, A-6)	t, a little gr / sand, gray	ravel, vish brown		x		19	M/W	T T	SS	12					
10 — 11 —	SAPRIC PEAT, black and (A-8)	dark brow	m (PT)	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	SWAMP DEPOSIT		5	W	R	SS	18	337	- - - -		×	
12 - 13 - 14 -							3	W		SS	18	239				
15 — 16 —				lin			3	M		SS	18	231				
17 — 18 —				lite 101 101 101 101 101 101 101 101 101 10			4	М		SS	18	186				
19 — 20 — 21 —	HEMIC PEAT, brown (PT	Г) (А-8)					5	М		SS	18	375				
22 — 23 —	ORGANIC CLAY, trace r gray, a little black, firm (C SAND WITH GRAVEL,	DL/OH) (A- medium to	-8) coarse		COARSE ALLUVIU	JM	8	M/W		SS	16	77				
24	grained, gray, waterbearin SAND, a little gravel, med waterbearing, loose (SP) (lium graine					5	W		SS	10					
27 - 28 - 29 -	GRAVELLY SILTY SAN grained, gray, wet, medium lean clay (SM) (A-1-b and	n dense, le	n to fine nses of		•											
30 - 31 -			-				8	-	Å	SS	0					-
DEP	TH: DRILLING METHOD			WATI	ER LEVEL I	MEAS	SURE	EMEN'	n_i_ TS		1		'	NOTE:	REFE	RT
		DATE	TIME				CAV	/E-IN	D	RILLI	١G	WATI	ER	THE A		
0-24	1 ¹ / ₂ ' 3.25" HSA	DATE		SAMPL DEPT			DE	PTH	FLU	ЛD LE	VEL	LEVE	EL	SHEE		
241/2-44	4 ¹ / ₂ ' RDF w/DM	5/2/13	8:30	8.5				.0				6.0	<u> </u>			
		5/2/13	8:40	8.5	7.0)	7	.0				5.0		EXPLA		
BORIN COMPI	G LETED: 5/2/13									-			ŗ	ERMIN		
	K LG: TA Rig: 69C	•												TH	IS LO	G

03/2011



AET JO	B NO: 01-05697			LC	OG OF	BORING N	10.	1025	5 ST	(p. 2	2 of 2	2)
PROJEC	T: Southwest Light Rail Transit Pro	ject,	PEC East;	Нор	kins	to Minr	ieapo	olis, N	MN			
	Hennepin Co	. Cooi	dinates: <u>N</u>	1	64308	3	E :	51891				
DEPTH IN FEET	MATERIAL DESCRIPTION		GEOLOGY	N	MC	SAMPLE	REC		D & LAI	BORAT	ORY '	TEST
FËET						TYPE	IN.	WC	DEN	LL	PL	%-#2
33 —	GRAVEL WITH SAND, brownish gray, waterbearing, medium dense (GP) (A-1-b)			21	-	\propto ss	0					
34 —	(continued)					$[\mathcal{T}]$						
35 —				11	W	ss 🕅	2					
36 -						A						
37 -	SANDY LEAN CLAY, a little gravel, brownish gray, firm to stiff, lenses of fine to medium silty sand and medium to fine sand with silt (CL)		TILL									
38 —	sand and medium to fine sand with silt (CL)			8	M/W	X ss	6	23				
39 -	(A-6)					2						
40 —				15	М	\times ss	4	18				
41 —												
42 —	GRAVELLY LEAN CLAY, brownish gray, very stiff (CL) (A-6)			16	M	ss 🛛	10	22				
43 —					141	A						
44 45	SAND WITH GRAVEL, medium grained, brownish gray, waterbearing, medium dense		COARSE ALLUVIUM			KI						
43 -	(SP)(A-1-b)			17	W	X ss	4					
-10	END OF BORING											
			· · · · ·									
:												
			-									
								-				
	· · · · · · · · · · · · · · · · · · ·											
							a - 4					
					1							
		1										
				-								



AET JO	B NO: 01-05697					LC	OG OF	BOR	ING N	0	1026	ST	(p. 1	of	2)
PROJEC	CT: Southwest Ligh	t Rail Tr	ansit Pro	oject,	PEC East	; Нор	kins	to N	Ainn	eapo	olis, N	/IN -			
SURFA	CE ELEVATION: 857.7	H	Iennepin Co	o. Cooi	dinates:]	N 1	64067	7	_]	Е 🕄	51863	4			
DEPTH			<u>کر</u>	, , , ,	GEOLOGY		MC	SAN	/IPLE	REC	FIELI) & LA	BORAT	FORY	TESTS
IN FEET	MATERIAL D	ESCRIPTIO	IN		GEOLOGI	N	IVIC	ΤY	/PE	IN.	WC	DEN	LL	PL	%-#20
1	FILL, mostly silty sand wi clayey sand, trace roots, bi	th gravel, a rown (A-2-	a little 4)		FILL	10	М	X	SS	12					
2	SAPRIC PEAT, black, a li of fine grained sand (PT) (aminations	7 <u></u> 7 <u></u> 7 <u></u>	SWAMP DEPOSIT	10	M	X	SS	12	105				
4 — 5 — 6 —	SANDY LEAN CLAY, a mottled, firm (CL) (A-6)	little grave	l, gray		TILL	7	М		SS	12	15				
7 — 8 —	LEAN CLAY, trace roots, (A-4)	gray, stiff	(CL)		FINE ALLUVIUM	12	М	I	SS	10	30				
9 — 10 — 11 —	CLAYEY SAND WITH C gray, stiff to very stiff, lam to fine grained sand with s	ninations of	fmedium		TILL	14	¥		SS	6	13				
12 – 13 –						21	M/W		SS	6	16				
14 15 16	SAND WITH SILT AND to fine grained, gray, wate dense (SP-SM) (A-1-b)				COARSE ALLUVIUM	13	W		SS	2		- - -			
17 18	CLAYEY SAND, a little g brownish gray, a little darl lenses of lean clay and silt	c brownish	gray, stiff,		MIXED ALLUVIUM	10	M/W	Å	SS	10	15				
19 20 21	LEAN CLAY, grayish bro of fine grained sand (CL)	wn, stiff, l			FINE ALLUVIUM	12	M/W		SS	14	22				
22 23	LEAN CLAY, brownish g (A-4)	ray, very s	tiff (CL)			18	М	Å	SS	14	24				
24 - 25 - 26 -						20	M		SS	18	24				
20 27 - 28 -	SAND WITH SILT, fine g waterbearing, medium der (SP-SM) (A-2-4)	grained, gra ise, lenses	ay, of silt		COARSE ALLUVIUM	[11	Ŵ		SS	14					
25 - 26 - 26 - 27 - 28 - 29 - 30 - 31 - 28 - 31 - 29 - 31 - 29 - 31 - 29 - 31 - 29 - 31 - 20 - 20 - 20 - 20 - 20 - 20 - 20 - 2					•	13	w		SS	16					
31-								26				<u> </u>		·	
	PTH: DRILLING METHOD			WAT	ER LEVEL MI		EMEN	TS		·,-			NOTE:	REFI	ER TC
	A1/1 2 2511 USA	DATE	TIME	SAMP DEP	LED CASING	G CA	VE-IN EPTH	D FLI	RILLI ЛD LE	NG VEL	WAT	ER EL	THE A	TTA	CHED
	<u>4½' 3.25" HSA</u> -42' RDF w/DM	5/2/13	12:45	13.			1.9	1			11.		SHEE	TS FO	R AN
	-44 KUF W/DIYI	5/2/13	12:55	13.			1.5				11.	,	EXPLA	NATI	ON OI
0-1 14 ¹ / ₂ BORIN COMP	NG PLETED: 5/2/13	514113	14.33	1.3.			1.0						ERMI	NOLO	GY OI
	K LG: TA Rig: 69C		······································					-					TH	IIS LC	G
$DR: \mathbf{T}$	N LU: IA Kig: 09U			L								<u>l</u>		01-I	HR

03/2011



AET JC	в NO: 01-05697		LOG O	F BORING N	o. <u>1</u> 0	26 ST (p. 2 of 2)
PROJE	CT: Southwest Light Rail Transit Project, PE	EC East; H	Iopkin	s to Minr			
	Hennepin Co. Coordin	nates: <u>N</u>	16400	57		634	·····
DEPTH IN FEET	MATERIAL DESCRIPTION	GEOLOGY	N MC	SAMPLE	REC	1	DRATORY TESTS
FEET	SANDY LEAN CLAY WITH GRAVEL, dark	LL			**		LL PL %-#20
33	brownish gray, very stiff, laminations of fine to	ontinued)	18 M/\	w ss	18 2	4	
34	Drutt, a nuio Eravoi, moanani Eramoa, Erayibii	DARSE		4			
35 -	brown, waterbearing, loose (SP) (A-1-b)	LLUVIUM	10 W	ss	14		
36 - 37 -	SAND WITH SILT, a little gravel, fine to			2			
38 -	medium grained, grayish brown, waterbearing, medium dense, a lens of fine grained sand with		16 W	X ss	16		
39 -	_silt (SP-SM) (A-2-4)			\square			
40 -	SAND WITH GRAVEL, medium to coarse grained, grayish brown, waterbearing, medium		12 W	ss s	12		-
41 -	dense to dense (SP) (A-1-a)						
42 - 43 -			27 W	ss s	18		
43 -			21 •••				
	END OF BORING						
				•			
		-				-	
Ω.							
T 5/7/1							
ILL.GD							
PT+WE							
AET+C							
GPJ .						-	
1-05697							
TES 01							
ZDINA							
/-C00f							
ORP V							
AET_CORP W-COORDINATES 01-05697.GPJ_AET+CPT+WELL.GDT 5/7/13							
03/2011	· · · · · · · · · · · · · · · · · · ·						01-DHR-0



AET JO	B NO: 01-05697					LC)G OF	BORI	ING N	0	1027	ST	(p. 1	lof	1)
PROJEC	T: Southwest Ligh	nt Rail Ti	ansit Pr	oject,	PEC East;	Нор	kins	to N	Ainn	eapo	olis, N	/IN			
SURFAC	CE ELEVATION: 859.6	H	Iennepin C	o. Coo	rdinates: N	1 1	6381	8]	E ť	51843	3			
DEPTH	· · · · · · · · · · · · · · · · · · ·							SAN	/IPLE	REC	FIELI) & LA	BORAT	ORY '	TEST
IN FEET	MATERIAL E	DESCRIPTIC	N		GEOLOGY	N	MC		PE	IN.	WC	DEN	LL .	PL	% -#2
1 - 2 -	FILL, mostly silty sand wi little gravel, trace roots, da (A-2-4)	ark brown a	and black		FILL	6	М	X	SS	18					
3 — 4 —	FILL, mostly gravelly silt sand, brown (A-1-b)					29	M	X	SS	14					
5 6	CLAYEY SAND, a little § stiff (SC) (A-6)	gravel, darl	c brown,		TILL	12	М	X FI	SS	12	15				
7	SANDY LEAN CLAY, tr brown, very stiff (CL) (A- SILTY SAND, a little grav	6) vel, light bi			COARSE	16	M	R	SS	12	16				
10 — 11 —	\gray, medium dense (SM) SAND WITH SILT, fine t light brownish gray, moist \(SP-SM) (A-3)	o medium	grained, lense		ALLUVIUM	12	¥	R	SS	14					
12 13 14	CLAYEY SAND, brownis firm, lenses and lamination grained sand with silt (SC	ns of fine to (A-2-4)	o medium		MIXED ALLUVIUM	6	M/W		SS	12	24				
15 - 16 -	SAND, a little gravel, mec brownish gray, a little bro waterbearing, loose, lamin medium grained sand with	wnish gray ations of fi	, ine to	(COARSE ALLUVIUM	8	W		SS	16					
17 18 19	SAND, a little gravel, med gray, waterbearing, loose	(SP) (A-1-1	o) ¯		• • • •	10	w	Å	SS	10					
20 - 21 - 21 - 21 - 21 - 21 - 21 - 21 -	SAND, a little gravel, med waterbearing, medium der	lium graine 1se (SP) (A	ed, gray, 1-b)			16	W	X	SS	12					
	END OF BORING		·	•											
						-									
DEP	TH: DRILLING METHOD			WAT	ER LEVEL ME	ASUR	EMEN	TS				1	NOTE:	REFF	RT
		DATE	TIME	SAMP DEP	LED CASING TH DEPTH	CA	VE-IN PTH	DI	RILLII JID LE	NG	WAT		THE A		
0-14								PLU			12.5		SHEE		
141/2-19	$\frac{D^{1/2}}{2}$ RDF w/DM	5/3/13	9:30	16.			4.0					<u> </u>	XPLA		
BORIN	G FI2/12	5/3/13	9:40	16.	0 14.5		3.5				. 11.0	, 	ERMIN		
	LETED: 5/3/13				•							-	TH	IS LO	G
DR: T	K LG: TA Rig: 69C													01-D	

03/2011



AET JOI	B NO: 01-05697					LC	OG OF	BORIN	G NO.	102	8 ST	[(p.]	1 of	2)
PROJEC	Southwest Lig	ht Rail Ti	ransit Pro	oject,	PEC East;	Нор	kins	to M	nnea	polis, I	MN			
SURFAC	CE ELEVATION: 861.4	I	Hennepin C	o. Coo	rdinates: <u>N</u>	1	6356′	7	E	51826	54	_		
DEPTH					OFOL OGV			SAMP	LE RE	C FIEL	D&L	ABORA	TORY	TES
IN FEET	MATERIAL	DESCRIPTIC	N		GEOLOGY	N	MC	SAMP TYP	E ÎN		00		PL	%- #
1 - 2 -	FILL, mixture of silty san and silty sand, a little grav bituminous, trace roots, da (A-2-4)	/el, pieces c	of		FILL	4	М	s				-		
· 3 – 4 –	(112-1)					21	M	X s E	S 12	2 32	16.1			
5 6 7	FILL, mostly lean clay, a and sand, trace roots, gray (A-6)					9	M .	s S	S 12	2 19 20	5			
8	HEMIC PEAT, dark brow	vn and blac	k (PT)		SWAMP DEPOSIT	_ 5	М	X s R	S 18	3 20 335				
10 11	ORGANIC CLAY, trace (OL/OH)	roots, black	, soft			2	M	s F	5 18	3 49	5.4			
12 — 13 —	LEAN CLAY, slightly or brown, firm (CL) (A-6)	ganic, trace	roots, darl		FINE ALLUVIUM	8	▼ <u>M</u>	₽ s	S 18	3 27	2.2			
14 — 15 — 16 —	LEAN CLAY, gray, stiff	(CL) (A-6)				10	М	}} X s	S 18	3 27				
17 — 18 —	SAND WITH SILT, fine dark brown, a little gray, lenses of clayey sand (SP	waterbearin	ig, loose,		COARSE ALLUVIUM	7	W	Ъ S	S . 12	2				
19	SAND WITH SILT, a litt medium grained, brownis medium dense (SP-SM) (h gray, wat				11	w	∐ X s	S 14	1				
22 - 23 -	SAND, a little gravel, me brownish gray, waterbear (SP) (A-1-b)	dium graine ing, mediur	ed, n dense			12	w	s s	S 12	2				
24 25 26	GRAVEL WITH SILT A waterbearing, medium de	ND SAND nse (GP-GI	, dark gray M)			22	W	₿ S S S	s o					
27 — 28 —				<u>#####</u> #		20	W	∦ s	S 2					
29 — 30 — 31 —	GRAVELLY SAND, met brownish gray, waterbear (SP) (A-1-b)	dium graine ing, mediur	ed, n dense		•	27	w	s s	S 6		-			
DEP	TH: DRILLING METHOD			WAT	'I ER LEVEL ME.	ASURI	L EMEN	ICI TS	l			NOTE:		 7D 7
			m		···· •	CAV	VE-IN	T	LING	WAT	ER			
0-19	9½' 3.25" HSA	DATE	TIME	SAMP DEP		DE	PTH	FLUÏI	LLING LEVEI		EL	THE A		
191/2-32	2½' RDF w/DM	5/3/13	10:45	18.	5 17.0	1	7.0			13.		SHEE		
		5/3/13	10:55	18.	5 17.0	1	7.0			12.		EXPLA		
BORIN COMPI	IG LETED: 5/3/13											TERMI		
	K LG: TA Rig: 69C											Tŀ	IIS LO	G

03/2011



AET JOI	B NO:	01-05697					LOG	OFI	BOR	UNG N	0.	1028	ST	(p. 2	2 of 2	2)
PROJEC	-	Southwest Light Rail 7	Fransit Proj	ect,	PEC Eas	st; H										
	-		Hennepin Co. C	·		N		3567	• • • •			51826				
EPTH IN EET		MATERIAL DESCRIPT	ION		GEOLOC	v	NN	мс	SA	MPLE YPE	REC	FIELD) & LAI	BORAT	ORY 1	TEST
ËËT									T	YPE	ĪN.	WC	OC	LL	PL	%- #2
33 -	GRAV gray, v (contin	/ELLY SAND, medium grain vaterbearing, medium dense (<i>nued</i>)	ed, brownish SP) (A-1-b)		COARSE ALLUVIU (continuea	M	24	w	M	SS	18		-			
34 —	END	OF BORING														
							;					,				
									•							
		1997. •														
				-												
		1														
															1	
		,														
	2															
		· .														
														· .		
	×	·														



Γ	AET JO	OB NO: 01-0569	97						LO	G OF	BO	RING N	Ю.	1029	ST	(p. 1	l of 1	l)
	PROJE	ET: Southwe	st Light	t Rail Tr	ansit Pro	oject,	PEC	C East; I	Iopl	kins	to]	Minn	eapol	lis				
	SURFA	CE ELEVATION:	864.2	H	Iennepin C	o. Cooi	rdina	tes: <u>N</u>	1	63283	3	-	Е :	51811				
D	EPTH IN	MAT	FERIAL D	ESCRIPTIO	N		GE	EOLOGY	N	мс	SA	MPLE YPE	REC IN.			BORAT		r
]	IN FEET			h			FIL	T					11N,	WC	DEN	LL	PL	%-#200
	1 -	FILL, mostly silty brown (A-2-4)	sand with	n gravel, ti	race roots,		FIL	L	9	M	X	SS`	18					
1	2 —	FILL, mostly silty		ittle gravel	and	/	1				$\left(\right)$							
	3 -	\ashes/cinders (A-2 FILL, mostly silty		ittle gravel	and claye	_/ y			35	M	Д	SS	12					
	4 —	sand, apparent cob	bles, bro	wn, a little	black		CO	ARSE			뙵							
	5 —	SAND WITH SIL	T AND C	GRAVEL,	medium to	5		LUVIUM	34	M	X	SS	10					
	6 —	fine grained, light	grayish b	rown, moi	st, dense		•				E							
	7 -	SAND WITH GR.							18	M	M	SS	8					
	8 — 9 —	brown, moist, med	lium dens	se (SP) (A-	-1-b)						मि							
	10 -								10		K	99	14					
	11 -								18	M	Д	SS	14					
	12 —	SAND WITH GR.	AVEL, m	nedium to	fine		-				E							
	13 -	grained, light brow			ioist,		: TIL	<u>.</u>	26	M	М	SS	18	18				
	14 —	SANDY LEAN C	LAY, a li	ittle gravel	, brownish						ł							
	15 —	\gray, very stiff (Cl CLAYEY SAND,		ravel, gray	ish brown.				24	M	М	SS	18	13				
	16 —	very stiff (SC) (A-									रि							
	17 —								26	M	M	SS	18	12				
	18								20	111	A	66		12				
	19 20	CLAYEY SAND, a little brown, very				, (///					논							
	20 21	laminations of fine	e grained	silty sand	(SC) (A-6				21	M	М	SS	10	13				
	21	END OF BORIN	G															
9/14					•					6								
DT 8/1			1															
ELL.GI													ø					
3V+T																		
ET+CF																		
A L de																		
5697.0																		
CORP W.COORDINATES 01-05697.GPJ AET+CPT+WELL.GDT 8/19/14	DEI	PTH: DRILLING MI	ETHOD			1		EVEL MEA	1							NOTE:	REFE	R TO
NATE	0-1	9½' 3.25" HSA		DATE	TIME	SAMP DEP	LED TH	CASING DEPTH	CAV DE	/E-IN PTH] FL	ORILLI UID LE	NG EVEL	WAT LEVI	ER EL	THE A	TTAC	HED
JORDI				5/3/13	1:40	21.	0	19.5	2	0.2				Non	e	SHEET	FS FOI	R AN
M-C(<u></u>															EXPLA		
CORF	BORIN COMP	NG PLETED: 5/3/13									 				T	ERMIN		
AET	DR: T	K LG: TA Rig: (69C													TH	IS LO	9



AET JO	B NO: 01-05697						LO	GOF	BOF	RING N	0	1030	ST	(p. 1	l of 1	1)
PROJEC	Southwest Ligh	t Rail Tr	ansit Pro	oject, I	PEC	East; I	Iopl	cins 1	to I	Minn	eapol	lis, M	[N			
SURFAC	CE ELEVATION: 866.5	Н	ennepin Co.	Coordir	nates:	<u>N</u>	1	62989)		E :	51797	3			,
DEPTH	MATERIAL D	ESCOIDTIO	N		GEC	OLOGY	N	MC	SA	MPLE	REC	FIELD) & LA	BORAT	ORY	TES'
FEET	IVIA I EKIAL, L		r 				Υ Ν	IVIÇ		YPE	IN.	WC	DEN	LL	PL	%- #
1	FILL, mostly silty sand wit little gravel and silty sand, brown (A-2-4)	h organic fi trace roots,	nes, a dark		FILL		8	М	M	SS	18					
3 — 4 —							22	M	À I	SS	18					
5 — 6 — 7 —	SANDY LEAN CLAY, a l roots, brownish gray, a littl laminations of sandy silt (C	e brown, fii			TILL		· 8	M		SS	8	22				
8 9	*possible cobble (likely inf						26	М	X Ł	SS	0*					
10 11 12	SANDY LEAN CLAY, br light brownish gray, stiff to laminations of sand (CL) (.	o very stiff,	y, a nuie				13	М		SS	12	22				
12 – 13 – 14 –	SILTY SAND, fine graine	d. brownish	grav.				16	M	X	SS	18	19				
15 — 16 —	medium dense, a lens of sa (A-2-4)	ndy lean cl	ay (SM)		FINE	3	19	M	X Ł	SS	18	31		-		-
17 — 18 — 19 —	LEAN CLAY, brownish g of sandy lean clay (CL) (A	-4)			ALLI	UVIUM	19	M	R	SS	18	17				
20 - 21 -	CLAYEY SAND WITH C brown, stiff (SC) (A-6) END OF BORING	RAVEL, g	rayish		TILL		13	M	X	SS	14	12		-		
•												-				
DEF	PTH: DRILLING METHOD			<u>т </u>		VEL MEA	1	<u> </u>						NOTE:	REF	ER T
0-1	9½' 3.25'' HSA	DATE	TIME	SAMP DEP	LED IH	CASING DEPTH	CA' DE	VE-IN PTH	J FL	DRILLI JUID LI	NG EVEL	WAT LEVI	ER EL	THE A	TTAC	CHE
	-19½' 3.25" HSA	5/6/13	8:35	21.	0	19.5	2	0.2				Nor		SHEE		
	· · · · ·	5/6/13	8:45	21.	0	19.5	2	0.2				20.	1	EXPLA	NATI	ON (
BORIN	IG LETED: 5/6/13	-											, ,	FERMI	NOLO	GY (
	K LG: TA Rig: 69C		· · · · · · · · · · · · · · · · · · ·	1					1					TI	IIS LO	G

03/2011



· AET JC	DB NO: 01-05697						LO	G OF I	BOR	ING N	0.	1031	ST	(p. 1	of 1)
PROJE		Rail Tra	nsit Proj	ect,	PEC	East; I										
	CE ELEVATION: <u>868.1</u>		ennepin Co. C			<u>N</u>		62662				51784				
DEPTH IN FEET	MATERIAL DI	ESCRIPTION	[GEC	LOGY	N	мс	SA	MPLE YPE	REC IN.	FIELI WC	D & LA	BORAT		ESTS %-#200
FEET	FILL, mostly silty sand with	organic fu	168 9		FILL							wc	DEN			/0-#200
1 - 2 -	little gravel and silty sand, t brown, a little brown (A-2-4	race roots, (dark		1 1213		21	M	Д	SS	2					
3 -	FILL, mostly sand, a little so brown, a little brown (A-3)				TILL		11	М	X	SS	10	21				
4 -	SANDY LEAN CLAY, gra								۲Į			11				
5 - 6 -	CLAYEY SAND, a little gr gray, stiff (SC) (A-6)						15	M	Å F1	SS	18	11				
7 -	CLAYEY SAND, a little gr stiff (SC) (A-2-4)	avel, brown	n, very				19	M	X	SS	14	12				
8 - 9 -	SAND WITH SILT, a little medium grained, brown, mo	gravel, fine bist, mediur	e to n dense		COA ALLI	RSE UVIUM			Ł							
10 -	(SP-SM) (A-3) SILTY SAND, a little grave brown, moist, medium dens	el, fine grai	ned,				20	M	X	SS	14					
12 -	sand (SM) (A-2-4)	ie, ielises ei	oluyoy				23	М		SS	12					
13 -	-								सि							
14 -	SAND WITH SILT AND (grained, brown, moist, med silty sand, laminations of cl	ium dense,	fine lenses of		· · · · · · · · · · · · · · · · · · ·		17	M		SS	14					
16 - 17 -	(A-3/A-2-4)		grained.		· ·				ł				-			
18 -	light brown, a little brown, a lens of fine grained silty s	moist, med	ium dense,				16	M V	र्म स	SS	14					
19 -	SAND, a little gravel, fine brown, waterbearing, medi	to medium um dense (S	grained, SP) (A-3)				11	W		SS	12					
21 -	END OF BORING				·				+							
21201											-					
CORP WC000KUNALES 01-0099/ 641 AET+Cr1 4/14																
009/.0Fu																
5 DI	EPTH: DRILLING METHOD					EVEL ME			1		, 			NOTE		
IN O-	-19½' 3.25" HSA	DATE	TIME	SAM DEI	PLED PTH	CASING DEPTH	CA D	VE-IN EPTH	F	DRILL LUID L	ING EVEL	WA' LEV	/EL		ATTA	
		5/6/13	9:45	21	.0	19.5		19.9				19			ETS FC	
S S S		5/6/13	9:55	21	.0	19.5	_	19.7				19	.1	EXPLA		
BOR COM	ING 1PLETED: 5/6/13	· .													HIS LO	
DR:	TK LG: TA Rig: 69C									·						DHR-(

03/2011



AET JO	B NO:	01-05697	·	ſ				LO	G OF I	BOR	ING NO	D	1032	ST	(p. 1	of	1)
PROJEC	CT:	Southwest Light	t Rail Tra	insit Pro	ject,]	PEC	East; H				linne						
SURFA	CE ELE	VATION: 868.7	He	ennepin Co.	Coordin	ates:	<u>N</u>	10	52437	,]	<u>E</u> 5	51780			00.00	TROTO
DEPTH IN		MATERIAL D	ESCRIPTION	1		GEO	OLOGY	N	мс	SA T	MPLE YPE	REC IN.			BORAT		1
DEPTH IN FEET 1 2 3 4 5 6 7 8 9 10 11 12 13 14 13 14 15 16 17 17 17 17 17 18 18 19 1	and s trace SAN brow lamir (poss SILT grayi dense (A-2 SAN medi lamir SILT brow lamin A-4) SAN brow lamin (SILT brow lamin (A-2 SAN brow SAN SAN SAN	, mixture of silty sand ilty sand, with gravel, roots, dark brown and D WITH SILT, fine gr n and brown, moist, m ations of silty sand (S ible fill) Y SAND, a little grave sh brown, a little brow e, laminations of sand	with organi pieces of bi brown (A-2 ained, light edium dens P-SM) (A-3 el, fine grain n, moist, m with silt (SI gravel, fine oist, medium P-SM) (A-2 ium grainec m dense, le d sand (SM um to fine ng, medium (SP) (A-1-t um to fine g, medium	c fines tuminous, 2-4) grayish e, 3) ned, light edium VI) e to n dense, 3) 1, grayish nses and 1) (A-2-4, grained, dense, b) grained, dense.		FILL COA ALLU OR F COA ALLU MIX ALL	RSE UVIUM FILL RSE UVIUM	N 13 12 20 17 19 14 16 17	MC M M M M/W M/W W W		MPLE YPE SS SS SS SS SS SS SS SS SS	REC IN. 18 14 14 14 12 12 12 14 16 14	WC 13	DEN			%-#200
18 - 19 - 20 -	$-\frac{(SP)}{SAN}$	(A-3) ID, a little gravel, med ish brown, waterbearin (A-1-b)	ium grained	l, brown to	, ,			17	w		SS	14					
21 -		OF BORING															
							×										
	EPTH: 14½'	DRILLING METHOD 3.25" HSA	DATE	TIME	WAT SAMP DEP	LED	EVEL ME CASING DEPTH	CA	EMEN VE-IN EPTH	r	DRILLI JUID LI	NG EVEL	WAT LEV		THE A	ATTA	ER TO CHED
141/2-		RDF w/DM	5/6/13	10:40	13.	.5	12.0		1.5	_			10.)R AN 10N OF
			5/6/13	10:50	13.	.5	12.0	1	1.5				10.	.0			ION OF)GY ON
BORI COM	NG PLETEI): 5/6/13				•										HIS LA	
DR:	TK L	G: TA Rig: 69C														.us L/	

2024 100



AET JC	DB NO: 01-05697						LO	G OF	BOI	RING N	0.	1033	SS	(p. 1	l of 1	l)
PROJE	CT: Southwest Ligh	t Rail Tr	ansit Pro	oject,	PEC E	ast; I	Hop	kins	to	Minn	eapo	olis				
SURFA	CE ELEVATION: 867.8	Н	lennepin Co	o. Cooi	dinates:	N	10	62087	7		Е 5	51779	4			
DEPTH	MATERIAL D	FSCRIPTIO	NĪ		GEOLO	GV	N	MC		MPLE	REC	FIELD) & LA	BORA	FORY '	TESTS
IN FEET		LOCKIPHO				01	19	IVIC	T	YPE	IN.	WC	DEN	LL	PL	%- #20
1 2	FILL, mixture of silty sand clayey sand and silty sand, of concrete, trace roots, bla \brown (A-2-4)	a little gra	vel, pieces		FILL		13	М	M	SS	14					
3 - 4 -	FILL, mostly silty sand wir (A-2-4)	0.	<u> </u>		001007		14	M	Å R	SS	12	<i>4</i>				
5	SAND WITH GRAVEL, f grained, light brown, moist lens of fine grained sand w	t, medium o	dense, a		COARSE ALLUVI		16	М	R K	SS	12					
7 - 8 -	SAND, a little gravel, med brown, moist, medium den						13	M		SS	12					
9 10 11	SAND, a little gravel, med brown, moist, medium den						12	М	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	SS	6		•			
12 - 13 -	SAND WITH GRAVEL, t fine grained, light brown, 1 (A-1-b)	race roots, noist, loose	medium to e (SP))			10	M		SS	10					
14 - 15 - 16 -	SAND, a little gravel, med moist, medium dense (SP)		d, brown,			-	14	М		SS	6					
17 - 18 - 19 -	SAND, fine grained, light medium dense (SP) (A-3)	brown, mo	ist,				13	M W		SS	12					
20 - 21 -	SILT, brown, wet, mediun				FINE	UM	27	W	Å	SS	12	24				
22 23 24	SAND WITH GRAVEL, 1 brown, waterbearing, med (A-1-b)				COARSI	E	27	w	Å	SS	14					
-	SAND WITH GRAVEL, 1	medium to	fine				25	w	Å	SS	12		-			
-, 25 - 26 - 27 - 27 - 28 - 28 - 28 - 29 - 30 - 31 - 31 - DEJ	grained, grayish brown, wa dense (SP) (A-1-b)	ateroearing	, mearum		•		15	w	Å	SS	12					
29 - 30 - 31 - 31 -	(SP) (A-1-b)	medium gra ng, mediun	ained, n dense		- - - -		17	w	Ø	SS	12					
-0269	END OF BORING						01.02.5									
	PTH: DRILLING METHOD				ER LEVEI				1	ייזוסר		W / A TI		NOTE:		
0-1 19 ¹ /2-2 BORIN COME	19½' 3.25" HSA	DATE.	TIME	SAMP DEP	TH DE	SING PTH	DE	/E-IN PTH	FL	DRILLI JUID LE	VEL	WATI LEVE	Ĩ.	THE A		
19 ¹ /2-2	29½' RDF w/DM	5/13/13	9:30	21.	0 19	9.5	19	9.4				18.		SHEE		
Ū ∧		5/13/13	9:45	21.	0 19	9.5	1	9.2				18.2	-	EXPLA		
BORI COMI	NG PLETED: 5/13/13	5/13/13	9:55	21.	0 19	9.5	19	9.2				18.2	2 [_]]	TERMI		
. 1	DTS LG: TM Rig; 1C]									·			TH	IIS LO	G



DD O VE C	CT: Southwest Light	nt Rail Tr	ancit Pra	niect	PEC Fact	: Ho	nkine	to	Minn	leand	olis. N	ΛN			
PROJEC			lennepin Co	· · ·			16198				51780				
	CE ELEVATION: <u>867.2</u>			0.000	unaus.			1			T		BORA	TORY	TES
DEPTH IN FEET	MATERIAL I	DESCRIPTIO	Ν		GEOLOGY	N	MC	SA 1	MPLE YPE	REC IN.	WC	DEN	1		
1 - 2 -	FILL, mostly clayey sand with gravel, a little silty sa A-2-4)	with organi and, dark bro	c fines, own (A-6,		FILL	15	М	M	SS	12	10				
2 3 - 4 -						19	M	X R	SS	12	12				
5 — 6 —	FILL, mostly sandy lean c light brown (A-6)	lay, a little	gravel,			8	М	Å	SS	12	13				
7 — 8 —	FILL, mostly clayey sand, (A-6)	, a little grav	/el, brown			9	М		SS	12	12				
9 — 10 — 11 —	FILL, mostly clayey sand little gravel and clayey san and dark gray (A-6)					18	М	A A A	SS	14	5				
12 13	SAND WITH SILT, fine brownish gray, moist, med (A-3)	grained, ligh dium dense	nt (SP-SM)		COARSE ALLUVIUN	⁴ 12	М	A A A A	SS	12					
14 — 15 — 16 —	SAND, a little gravel, fine brownish gray, moist, loos					9	M	A K	SS	12					×
17 18	SAND WITH SILT, fine brown, waterbearing, loos					. 7	Ŵ		SS	1					
19 - 20 - 21 -	SAND, a little gravel, med brown, waterbearing, loos					9	W	X	SS	12					
22 — 23 —	SAND WITH GRAVEL, brown, waterbearing, loos	medium gra se (SP) (A-1	nined, -b)			9	w	Ķ	SS	12					
24 - 25 - 26 -	SAND, a little gravel, met brown, waterbearing, met (A-1-b)	dium graine lium dense (d, light (SP)		•	13	w	X	SS	12				•	
27 — 28 —	SAND WITH SILT, fine brown, waterbearing, mec (A-3)	grained, gra lium dense (yish (SP-SM)			15	. W	Å	SS	14					
29 30 31	SAND, fine grained, gray waterbearing, medium de	ish brown, nse (SP) (A	-3)		•	19	W	X	SS	12					
51	END OF BORING											 			
DEF	PTH: DRILLING METHOD			WAT	ER LEVEL M	EASUF	REMEN	JTS					NOTE:	REFI	ER T
0-1	9½' 3.25" HSA	DATE	TIME	SAMP DEP	LED CASIN TH DEPTH	G CA	VE-IN EPTH	FL	DRILLI JUID LE	NG EVEL	WAT LEVI	ER EL	THE A	ATTAC	CHE
<u>19¹/2-2</u>		5/13/13	12:35	18.	5 17.0	-	18.0				17.4	4	SHEE	TS FO	R Al
17/2-4		5/13/13	12:50	18.			17.2				17.	5	EXPLA	NATI	ON (
BORIN	NG LETED: 5/13/13	5/13/13	1:00	18.			17.2				17.		FERMI	NOLO	GY (
	DTS LG: TM Rig: 1C									-			TH	IIS LC	G



AET JO	DB NO: 01-05697					LC	GOF	BOR	ING N	0	1035	5 SS	(p. 1	lof	1)
PROJE	CT: Southwest Lig	ht Rail Tra	ansit Pro	oject,]	PEC East;]	Hopl	kins 1	to N	Ainn	eapol	lis, M	IN			
SURFA	CE ELEVATION:865.3	Н	lennepin Co.	Coordir	ates: <u>N</u>	1	61795	5	- 	<u>E</u> :	51780	1			
DEPTH	MATERIAL	DESCRIPTIO	N		GEOLOGY	N	MC	SAI	MPLE YPE	REC		r	BORAT	1	1
IN FEET									YPE ·	IN.	WC	DEN	LL	PL	%- #2
1	FILL, mostly silty sand wi dark brown (A-1-b)				FILL	13	M	\mathbb{X}	SS	4					
3-4-	FILL, mostly sand with gr sand, brown (A-1-b) FILL, mostly clayey sand,					8	М	X FI	SS	12					
5 6	(A-2-4) FILL, mostly sand with si lean clay, brown (A-2-4)	_				6	М		SS	6					
7 8	FILL, mostly sand with si clayey sand, brown (A-2-4	lt, a little gra 4)	vel and			4	M		SS	6			-		
9 10 11	SANDY ORGANIC CLA roots, dark brown, a little organic clay (OL/OH) (A-	gray, firm, a 6) (possible	lens of fill)		SWAMP DEPOSIT OR FILL	5	M		SS	6	66				
12 13	SILTY SAND, a little gra grained, dark brown, mois (A-2-4)	vel, fine to n it, medium d	nedium ense (SM)		COARSE ALLUVIUM	12	Ţ		SS	12					
14 15 16	SAND WITH SILT, a litt medium grained, brown, v dense to loose (SP-SM) (A	vaterbearing	e to , medium			11	w		SS	12		-			
17 18	-		•			11	W		SS	12					
19 - 20 - 21 -	-					7	w	X	SS	12		,			
	END OF BORING														
								<i>a</i>							
-	· ·						•								
DE															
			. <u></u>									<u> </u>			
	PTH: DRILLING METHOD			· ·	ER LEVEL ME			1			TT 1 4 400		NOTE:		
0-1	19½' 3.25" HSA	DATE	TIME	SAMPI DEP	LED CASING TH DEPTH	DE	VE-IN EPTH	FL	ORILLI UID LI	EVEL	WAT LEV		THE A		
		5/15/13	10:30	16.	0 14.5	1	4.4		,		13.		SHEE		
		5/15/13	10:45	16.	0 14.5	1	4.3				13.	-	EXPLA		
0-1 BORII COMF	NG PLETED: 5/15/13	5/15/13	10:57	21.	0 19.5	1	9.0				15.	6	TERMI		
	DTS LG: TM Rig: 1C			T		1		T					TL	IIS LC	G



AET JOH	B NO: 01-05697						LO	G OF I	30R	ING NO	0	1036	ST	(p. 1	of 3	<u>5)</u>
ROJEC		t Rail Tra	ansit Pro	ject,]	PEC	East; H	lopk	ins t	o N	Ainne	eapol	is				
	E ELEVATION: 863.8		ennepin Co.			N		51477				51779	1.		•	
									S A I	MPLE	REC	FIELD) & LA	BORAT	ORY T	EST
PTH N EET	MATERIAL D	DESCRIPTIO	N		GEO	LOGY	Ν	MC		YPE	ÎN.	WC	DEN	LL	PL	q
1 -	FILL, mostly silty sand wit dark brown (A-1-b)	h gravel, tra	ace roots,		FILL		9	М	X	SS	6					
2 - 3 -	FILL, mostly sand with silt (A-1-b)	and gravel	, brown		- - -		19	М		SS	12					
4 - 5 -			. ·				31	₩		SS	6					
6	FILL, mixture of clayey sat little gravel, brown to gray		sand, a		-			<u> </u>	E							
8 - 9 -							7	W	Å FI	SS	12	24				
10 - 11 -							7	W	Х И	SS	12	19			•	
12 — 13 —							8	W		SS	6	16				
14 — 15 —							6	W	ł	SS	12	19				
16 – 17 –	HEMIC PEAT, dark brown	n (PT) (A-8	5)		SWAN DEPC				E							
18 – 19 –	SAPRIC PEAT, trace shell	ls below 24	' dark				6	M/W	Å FI	SS	. 14	309				
20 – 21 –	grayish brown (PT) (A-8)	15 0010 10 24	, uaix	1 <u>85</u> 185 185	-		2	M/W	R	SS	12	183				
22 — 23 —	an a				1				H	TW	24	314 249	17 20			10 Co
24 – 25 –						<u>.</u>	6	M/W	¥	SS	24	249	20	-		
26 – 27 –									R							
28 29	ORGANIC CLAY, trace s	hells and ro	oots	<u>111</u> 111		-	4	M/W	× F	SS	18	140				
30 - 31 -	grayish brown to light brow gray, firm to soft, lamination (OL/OH) (A-8)	wnish gray,	a little				5	M	X	SS	18	117				
DEP	TH: DRILLING METHOD			WAT	ER LEV	/EL MEA	SURI	EMEN	TS					NOTE:	REFE	R 1
		DATE	TIME	SAMP	LED Q	CASING DEPTH	CAV	/E-IN PTH	FI	ORILLI UID LE	NG	WATI LEVI	ER	THE A	TTAC	HE
0-3		5/14/13	8:45	DEF		7.0		.0	1.1.7			6.9		SHEE	IS FOI	R A
91/2-7	9½' RD w/DM	5/14/13	8:55	8.5		7.0		 6.0		, · · ·		6.1		EXPLA	NATIO	ON
BORIN	G	5/14/13	10:15	41.		39.5		8.4	-			22.4		ſERMIÌ	10LO	ĴΥ
COMPI	LETED: 5/14/13	5117/15	10.15	1 410	v	07.0	J J		1				-		IS LO	~

03/2011



AMERICAN ENGINEERING TESTING, INC.

SUBSURFACE BORING LOG

ET JOB NO						BORINGN			5 ST	(p. 4	2 01 .	5)
OJECT:	Southwest Light Rail Transit Proj	ect,	PEC East; I	Hopl	kins t	to Minn	eapo	lis				
	Hennepin Co. C	Coordii	nates: <u>N</u>	· 1	61477	1	E	51779	·····			
PTH N ET	MATERIAL DESCRIPTION		GEOLOGY	N	MC	SAMPLE TYPE	REC) & LA	BORAT	T	TEST
		14/2/6			MIC	ТҮРЕ	IN.	WC	DEN	LL	PL	qu
3 - grader	RGANIC CLAY, trace shells and roots, ayish brown to light brownish gray, a little		SWAMP DEPOSIT	4	M	s	18	91				
gr	ay, firm to soft, laminations of sand below 34'		(continued)			सि						
_ (0	DL/OH) (A-8) (continued)											
			COADGE	-	M/W	TW	12	67	60			22
- I SA	AND WITH SILT, a little gravel, medium to ne grained, gray, wet, loose (SP-SM) (A-1-b)		COARSE ALLUVIUM			É						
	RGANIC CLAY, trace roots, brownish gray,		SWAMP	8	W	ss	14	133				
fir	rm (OL/OH) (A-8)		DEPOSIT			দি						
	RAVELLY SAND WITH SILT, fine to edium grained, gray, waterbearing, medium		ALLUVIUM	15	W	ss	12					
de	ense (SP-SM) (A-1-b)			15		A	12			l.		
G	RAVELLY SAND, medium to coarse grained,		•			Ц						
	ownish gray, waterbearing, medium dense P) (A-1-a)		•	24	W	X ss	6					
- (0			•			\sum						
_				25	W	S ss	6					
-			•			Ĥ						
4			•			K-1						
-			•	13	W	X ss	6					
_			· •			\sum						
				10	W	S ss	6					
_					1.	61						
-			•			59						
-						K I				1		
_						4						
-			•	23	W	ss	6					
-						\sum						
	1					$\left \right\rangle$						
-				53	-	X ss	0					
1						27						
									-			
					2	$\left \right\rangle$						
- .						\mathbb{H}						
5 -				43	W	ss ss	6					
6 57						$\left \left\langle \cdot\right\rangle \right $						
0			· ·			2	-			4		.
G	RAVEL WITH SAND, gray, waterbearing, ense (GP) (A-1-a)					$\left \right\rangle$		1				
<u>م</u> (1	$(D_{1})(A^{-1}a)$		⁼ .			\bowtie	1			1		

03/2011



AET JC	B NÖ:	01-05697			<u></u>	LO	ĠOF	BORI	ING NO	Э	1036	ST	(p. 3	of 3	<u>})</u>
PROJE	CT:	Southwest Light Rail	Fransit Proj	ect,]											
	r		Hennepin Co. C	oordin	ates: <u>N</u>	1	61477	7]	E 5	51779				
DEPTH IN FEET		MATERIAL DESCRIPT	TION		GEOLOGY	N	мс	SAN TY	APLE 7PE	REC IN,	r	DEN	BORAT	ORY T PL	ESTS qu
	GRAV	/EL WITH SAND, gray, wat (GP) (A-1-a) <i>(continued)</i>	erbearing,	₩ ∰	COARSE ALLUVIUM	50	W	X	SS	6					
71 -	dense	(OF)(A-1-a)(communa)		11	(continued)			2							
72 - 73 -		•		∎ ∥ ∥				$\left \right\rangle$							
73 - 74 -				1 1 1 1		,		$\left \right\rangle$							
75 -				₩		39	w	$\overline{\mathbb{N}}$	SS	6					
76 -	_					39	vv	А	00						
77 -								K							
78 -	SILTY	Y SAND, fine grained, gray, v	wet medium					((
79 -	dense	(SM) (A-2-4)						K							
80 -						43	W	X	SS	6					
81 -	END	OF BORING		1.1.1.	×	-									
				1						``					
		•			2 										
											· •				
		· · · · ·													
															,
			;			-								1	
		:													
9/9/1:															
L.GDT		.*													
+WEL															
L+CP1															
2 AE									1						
397.GF															
01-05(
ATES													. ,		
RDIN		•													· ·
V-COC															
AET_CORP W-COORDINATES 01-05697.GPJ AET+CPT+WELL.GDT 9/9/13													ŀ		
ET_C														÷	



AET JO	****									RING N				(p.]	lof	1)
PROJEC	CT: Southwest Ligh	t Rail Tr	ansit Pro	oject,	PE	C East;	Нор	kins	to	Minn	eapo	olis, N	/IN			
SURFA(CE ELEVATION: 864.9	Н	ennepin C	o. Coo	rdinat	es: <u>N</u>	1	61199)	· · · ·	E	51776	8			
DEPTH			Ţ		GE	OLOGY	N	MC	SA	MPLE	REC	FIELI) & LA	BORA	FORY '	TEST
IN FEET	MATERIAL D	DESCRIPTION	N		UE	OLOG I	N	MC]]	ГҮРЕ	IN.	WC	DEN	LL	PL	%- #2
1 -	FILL, mostly silty sand, a roots, dark brown (A-1-b) FILL, mostly sand with sil				FILI	L	10	М	М	SS	18		-			
2 — 3 —	Clayey sand, brown (A-2-4 FILL, mostly sand with grad)	•				22	М	Å	SS	6					
4	FILL, mostly silty sand wi clayey sand, brown (A-1-b		little				11	M	1] X	SS	12					
6 7									E							
8 – 9 –					60	DOD	20	M	X स्	SS	12					
10 - 11 -	SAND WITH SILT AND medium grained, brown, m then waterbearing, medium	noist to about	ut 14½'			ARSE JUVIUM	25	M	A A	SS	6					
12 – 13 –	(SP-SM) (A-1-b)				· · · ·		17	-		SS	0					
14 —							· .	⊥	E							
15 — 16 —							9	W	Å	SS	2					
17 -																
18 —							6	W	Å	SS -	12					
19 -		×							1							
20 - 21 -						•	7	W	Д	SS	12					
21	END OF BORING															
										-						
				l	· .						-					
								r.								
				ĺ												
				WAT									<u> </u>			
DEP	PTH: DRILLING METHOD			r		EVEL ME				DRILLI	NG	WAT		NOTE:		
0-1	9½' 3.25" HSA	DATE	TIME	SAMP DEP	ΓΗ̈́	CASING DEPTH	DE	VE-IN PTH	FL	JUID LI	EVEL	LEVI	ŠĹ	THE A		
		5/15/13	11:45	16.	0	14.5	1	5.5				14.		SHEE		
	· · · · · · · · · · · · · · · · · · ·	5/15/13	12:00	16.	0	14.5	1	4.9				14.	0	EXPLA		
BORIN COMP	NG LETED: 5/15/13	5/15/13	12:20	21.	0	19.5	1	8.8				16.	3 7	ERMI		
	OTS LG: TM Rig: 1C						-		1.					TH	IIS LO	G



AET JO	B NO: 01-05697					LC)G OF	BORI	NG N	0	1038	ST ST	(p. 1	l of	1)
PROJEC	Southwest Ligh	t Rail Tr	ansit Pro	oject,	PEC East;	Нор	kins	to N	/linn	eapo	olis, N	ΛN			
SURFAC	CE ELEVATION: 865.4	H	Iennepin C	o, Coo	rdinates: <u>N</u>	1	6095(0]	Ξ.	51774	6			
DEPTH	MATERIAL P		NT		GEOLOGY	N	MC	SAM	IPLE PE	REC	FIELI)&LA	BORA	FORY	TEST
DEPTH IN FEET	MATERIAL D	ESCRIPTIO	1 N		ULULUUT	IN	MC	TY	PE	IN.	WC	DEN	qu	PL	%- #2
1 —	FILL, mostly sand with sil (A-1-b)	t and grave	el, brown		FILL	8	М	X	SS	12		-			
2	SAND WITH GRAVEL, f grained, brown, moist, me (SP) (A-1-b) (possible fill)	dium dense			COARSE ALLUVIUM OR FILL	25	M	R	SS	12					
5 - 6 -					•	38	M	T T	SS	6					
7	GRAVEL WITH SAND, I to medium dense (GP) (A-		ist, dense		COARSE ALLUVIUM	40	М	L L	SS	4					
9 10 11		÷				27	M		SS	4		1	-		
12 — 13 —	SAND WITH GRAVEL, 1 grained, light brown, mois (A-1-b)	fine to med t, medium	lium dense (SP)			14	М		SS	10					
14 — 15 — 16 —	GRAVEL WITH SAND, I dense (GP) (A-1-a)	brown, wat	erbearing,			32	▼ ₩		SS	6					
17 – 18 –	SAND, a little gravel, mec brown, waterbearing, loos					5	w		SS	12					
19 — 20 —	SAND WITH GRAVEL, 1 brown, waterbearing, loos	medium gr e (SP-SM)	ained, (A-1-b)		<u>-</u>	10	w		SS	12			-		4
21 -	END OF BORING														
			· .				-			-					
						-									
					•	-									
		1										<u> </u>			
DEP	TH: DRILLING METHOD				ER LEVEL MEA		emen ve-in	· · · · · · · · · · · · · · · · · · ·	RILLIN	NG	WATI		NOTE:		
0-1	9½' 3.25" HSA	DATE	TIME	SAMP DEP	LED CASING TH DEPTH	DE	PTH	FLU	ID LE	VEL	LEVE	EL	THE A		
	·	5/15/13	1:20	16.	0 14.5	1	5.5				14.8		SHEE'		
		5/15/13	1:35	16.	0 14.5	1	5.2				14.8	0	EXPLA		
BORIN COMP	IG LETED: 5/15/13	5/15/13	2:05	21.	0 19.5	1	9.0				16.4	4	ſERMIÌ		
	TS LG: TM Rig: 1C									T			TH	IIS LO	ſG

03/2011



AET JO			Dation	and A D	1 t.	DECE	a								(p. 1		-,
PROJEC	CT: South	west Light															
	CE ELEVATION:	867.0	ŀ	Iennepin C	o. Coo	rdinates:	<u>N</u>	10	50365	5]	E É	51759				
DEPTH IN FEET	· I	MATERIAL DES	SCRIPTIO	N		GEOLO	GY	N	MC	SA T	MPLE YPE	REC IN.	FIELD WC) & LA DEN	BORA	PL	<u> </u>
1 —	FILL, mostly s little gravel an brown (A-2-4)	d ashes/cinders				FILL		13	М	X	SS	12					
2	FILL, mostly g	gravelly silty s				·		45	М	R	SS	6					
5 - 6 -	FILL, mostly s (A-1-b)	and with silt a	ind grave	el, brown				27	·M	H H	SS .	6			-		
7 — 8 —								31	M		SS	2					
9 10 11								24	М		SS	4					
12 — 13 —	SAND, fine gr 15' then water (A-3)	ained, light bro bearing, mediu	own, mo ım dense	ist to abou (SP)	t	COARSI ALLUVI		14	М		SS	12					
14 — 15 — 16 —				· .		•		13	.		SS	12	-				
17	SAND, a little brown, waterb					•		18	W		SS	12		-			
20 - 21 -	END OF BOR					•		18	W	X	SS	6					
	END OF BOT													1			
					•			r.			•		-				
-									,								-
DEP	TH: DRILLING	G METHOD		·		ER LEVEI				r					NOTE:	REFE	ER T
0-1	9½' 3.25" HS	SA	DATE	TIME	SAMP DEP	LED CAS	SING PTH	CAV DE	'E-IN PTH	D FLU	RILLIN JID LE	NG VEL	WATE LEVE	ER. EL	THE A		
		5	5/16/13	10:15	16.	0 14	1.5	15	5.5				15.3		SHEE		
		5	5/16/13	10:25	16.	0 14	1.5	15	5.4				15.1	I	EXPLA	NATIO	ON (
BORIN	IG LETED: 5/16/13	5	5/16/13	10:50	21.	0 19	9.5	19).0				16.7	7 Т	ERMIN	10LO	GY (
	TS LG: TM R	<u></u>								ŀ					TH	IS LO	G

03/2011



DEPTH		nt Rail Tr	ansit Pro	hiect	DEC	Tost.	Tam	1-1-0-0	40	Ъ. Л. !		×	ANT			
DEPTH				Juci,	PEC	- East,	нор	KIIIS	ιο	wiinn	leapo	olis, N	VIIN			
DEPTH	CE ELEVATION: <u>867.9</u>	Ή	Iennepin Co	o. Coo	rdinat	es: N	1	6005	6		E ť	51737	7			
72.7									S.V	MDIE	REC	FIELI) & LA	BORA	FORY	TES
IN FEET	MATERIAL D	DESCRIPTIO	N		GEO	OLOGY	Ν	MC	Ĩ	MPLE YPE	IN.	WC	DEN	LL	PL	%- #
	FILL, mostly silty sand, a	little gravel	and		FILL	,			М							+
1 —	ashes/cinders, trace roots,						10	M	XI	SS	16					
2 –						-			H	~~						
3 –							14	⁵ M	Å	SS	12					
4 -	FILL, mostly clayey sand,	a little gray	vel. brown		-				I							
5 —	(A-2-4)	w 8. w	,				9	M	М	SS	6	12				
6 -									H							
7 –	FILL, mostly clayey sand,	a little grav	vel, dark		1				H			1				
8 –	brown (A-6)						2	Μ	М	SS	4	22				
9 —	FILL, mixture of silty sand	d and alave	vend		·		~		E							
10 -	with gravel, brown (A-2-4		y sanu,				20	M	\square	SS	4	14				
11 —		,					20	141	Д	00						
12 -									E				. •			
13 —							9	M	X	SS	6	14				
14 —									ম							
15 —	• · · · · ·					•	7	M	M	SS	4	10				
16 —									Д	20	-	10				
17	FILL, mostly clayey sand,	a little grav	vel, brown						1							
18 -	(A-2-4)						13	M	ΊX	SS	12	26				
19 -					-				R							
20 -	FILL, mostly clayey sand ashes/cinders, black (A-2-	with gravel 4)	, a little					1117	M	66	10	21				
20		· /				•	27	W.	Д	SS	12	21				
22 -	SAND WITH SILT, fine §	grained, gra	ıy,		COA	RSE			Ц							
22 -	waterbearing, medium der	ise (SP-SM	(A-3)		ALL	UVIUM	24	W	X	SS	12					
23	· · · · · · · · · · · · · · · · · · ·				-				[f]							
25 – 26 –	SAND WITH SILT AND medium grained, gray, wa	GRAVEL,	fine to						H	C.C.	10					
23 – 26 –	dense (SP-SM) (A-1-b)	.or ocar mg,	moutuill				26	W	Ň	SS	12					_
20	END OF BORING															
														- 4 		
	· · · · ·															
DEF	PTH: DRILLING METHOD			WAT		EVEL MEA			· · · · ·					NOTE:	REFI	ER T
	4½' 3.25" HSA	DATE	TIME	SAMP DEP	LED TH	CASING DEPTH	CAV DE	/E-IN PTH	I FL	ORILLI UID LE	NG EVEL	WAT LEVI	ER	THE A	TTAC	CHEI
0-2	4 ¹ / ₂ ' 3.25" HSA	5/16/13	12:00	21.		19.5		0.6				19.9		SHEE	rs fo	R Al
	· · · ·	5/16/13	12:15	21.		19.5	1	0.4				18.3		EXPLA	NATI	ON (
BORIN		5/16/13	12:30	21.		24.5		1.2	+			18.		ERMIN	VOLO	GY (
COMP	<u>LETED: 5/16/13</u> DTS LG: TM Rig: 1C	5/10/15	1	20.				~ • •						тн	IS LO	NG.

03/2011



AMERICAN ENGINEERING TESTING, INC.

SUBSURFACE BORING LOG

AET JU	B NO: 01-05697									RING N				(p. 1	lof	1)
PROJEC	CT: Southwest Light	nt Rail Tr	ansit Pro	oject,	PEC F	Last;	Нор	kins	to	Minn	eapo	olis, N	/IN			
SURFA(CE ELEVATION: 865.9	H	Iennepin Co	o. Coo	rdinates:	N	1	60602	2		E \$	51768	2			
DEPTH IN FEET	MATERIAL I		N		GEOL	OGV	N	MC	SA	MPLE YPE	REC	FIELI)&LA	BORA	FORY	TEST
FEET	MATERIALI		1				ŢĂ	IVIC	L I	YPE	IN.	WC	DEN	qu	PL	%-# 2
1 —	FILL, mostly silty sand wi dark brown (A-1-b)	th gravel, t	race roots,		FILL	-	15	М	M	SS	12					
2 — 3 —	FILL, mostly clayey sand brown (A-2-4)	with gravel	l, dark				6	M	Å	SS	6	13				
4	FILL, mostly clayey sand, brown (A-6)	a little grav	vel, dark				5	М	ß	SS	6	19				
6 7 8	FILL, mostly clayey sand (A-1-b)	with gravel	l, brown				10	M		SS	4	12				
9 — 10 — 11 —	FILL, mixture of clayey sa with gravel, brown (A-1-b		y sand,				8	М		SS	4	10			-	
12 — 13 —	SAND WITH SILT, a littl light brown, moist, loose (COARS ALLUV		9	М		SS	12					
14 — 15 — 16 —	SILTY SAND WITH GR. medium grained, brown, v dense (SM) (A-1-b)				· · ·		8	T		SS	6		-			
17 — 18 — 19 —		·			· · ·		80	W	R	SS	3					
19	GRAVELLY SAND WIT fine grained, brown, water (SP-SM) (A-1-b)	H SILT, m bearing, de	edium to ense		•		48	w	X	SS	10					9
	END OF BORING								-							
DEP	TH: DRILLING METHOD			WAT	ER LEVE	EL MEA	SURI	EMEN	TS			4		NOTE:	REFF	ER TO
		DATE	TĪME	SAMP DEP	LED CA	SING	CAV DF	/E-IN PTH	I FI	ORILLI UID LE	NG	WAT	ER	THE A		
0-1	772 3.23" IISA	5/16/13	8:45	16.		4.5		5.8				15.		SHEE	rs fo	R AN
<u></u>		5/16/13	9:00	16.		4.5		5.7				15.4		EXPLA	NATI	ON (
		0110110	2.00		×			- • •								
BORIN	IG LETED: 5/16/13	5/16/13	9:30	21.	0 1	9.5	1	9.5				16.	5 1	rermn	VOLO	GY (

03/2011



AET JO	в NO: 01-05697					LC)G OF	BORING	NO.	1044	I SS	(p.]	l of 2	2)
PROJEC		t Rail Tr	ansit Pro	oject,	PEC East;	Нор	kins	to Min	neapo	olis, N	ΛN			.)
· · · ·	CE ELEVATION: 851.0		Hennepin Co				6468]			51953				
DEPTH	· · · · · · · · · · · · · · · · · · ·		· · · · · ·					SAMPLE	REC	FIELI)&LA	BORA	TORY	TESTS
IN FEET	MATERIAL D	ESCRIPTIO	N		GEOLOGY	N	MC	TYPE	IN.	WC	oc	LL	PL	%- #20
1 -	FILL, mostly clayey sand, gravel, trace roots, dark br	own (A-6)	-		FILL	23	М	ss	14	23				
2 — 3 —	FILL, mostly sand with sil $(A-1-b)$ FILL, mostly silty sand, a					13	M	ss	10	11				12
4 — 5 —	with silt, brown (A-1-b) FILL, mostly clayey sand roots, brownish gray (A-1-	with grave	l, trace			3	М	$\frac{11}{3}$ ss	8	17		-		18
6 - 7 - 8 -	FAT CLAY, slightly orgar gray, firm (CH/CL) (A-7-6	nic, trace ro 6) (petroleu	oots, dark 1m-type		FINE ALLUVIUM	7	M	₽ X ss	14	55	1.8			
9	odor) FAT CLAY, trace roots, g soft (CH) (A-7-6)	ray to brov	vnish gray,			4	I <u> </u>	B S S S	18	46		72	21	
11 - 12 -		•				4		F		+0			41	
13 — 14 —	FAT CLAY, gray, firm, le	nses of car	ndv lean			3	M	X ss	18	56				
15 — 16 —	clay, a little gravel and me (CH) (A-7-6)	dium grain	ned sand			7	M	र्रि ss स	18	42				
17 — 18 `—	CLAYEY SAND, a little g soft, a lens of fat clay (SC)		wnish gray		MIXED ALLUVIUM	.2	M/W	ss B	18	26				
19 — 20 —	SILTY SAND, a little grav grained, loose to very loos sand, laminations of mediu	e, lenses of	f clayey		COARSE ALLUVIUM	6	Ŵ	SS SS	12			-		
21 22 23	(SM/SC) (A-2-4)					2	w	S ss	14			-		
23 24	SAND WITH GRAVEL, 1 brownish gray to gray, wa	nedium gr	ained, loose to			12	W	S ss	6	~				r
26 - 27 -	brownish gray to gray, was medium dense (SP) (A-1-b))	(vv							
28 — 29 —						10	W	X ss	8					
30 — 31 —						13	W	ss s	4					
DEP	TH: DRILLING METHOD			WAT	ER LEVEL ME	ASUR	L EMEN	TS		1		NOTE:	 	
		DATE	TIME				VE-IN EPTH	DRILL FLUID L	ING	WAT		THE A		
0-19	9½' 3.25" HSA	DATE	TIME	SAMPI DEPT				FLUID	EVEL			SHEE'		
191/2-34	4 ¹ / ₂ ' RDF w/DM	5/1/13	1:15	18.5			7.3				<u> </u>	SHEE EXPLA		
BORIN	G	5/1/13	1:25	18.5	5 17.0		7.2			9.8	•	TERMIN		
COMPI	LETED: 5/1/13		/				-						IIS LO	
DR: T	K LG: TA Rig: 69C												01-E	

03/2011



AET J	OB 1	NO:	01-0569	7							LO	G OF	BOI	RING N	0.	1044	SS	(p. 2	2 of 2	2)
PROJI		-	Southwes		Rail T	ransit	t Proj	ect,	PEC]	East;	Hop	kins	to	Minn	eapo	olis, N	ΛN			
		-				Henner						6468				51953		-		
DEPTH	1												SA	MPLE	REC	FIELD) & LA	BORAT	ORY	TESTS
DEPTH IN FEET			MATI	ERIAL DE	SCRIPTI	ON			GEOL	JUGY	N	MC	1	MPLE YPE	IN.	wc	OC	LL	PL	%-#2
33 · 34 · 35 ·		SANE prown nediu	WITH GRA ish gray to gi m dense (SP)	VEL, me ray, water (A-1-b)	edium g rbearing <i>(contini</i>	rained, g, loose <i>ued</i>)	to				11 16	W W		SS SS	4					
36											10	~~~	М							
	I	END	OF BORING	ý											-					
							•		5.										- -	
•	- - 																-			
					·						1									
		,					·													
								-					-							
•																				
			•																	
										•										
							•													
																			01-D	



ſ	AET JC	OB NO: 01-05	697						LO	GOF	BOF	RING N	Ю.	1045	ST	(p. 1	of	1)
	PROJE	CT: Southw	vest Light	t Rail Tr	ansit Pro	oject,	PEC	C East;]	Нор	kins	to	Minn	eapo	olis, N	/IN			
	SURFA	CE ELEVATION:	847.2	H	Iennepin C	o. Cooi	rdinat	es: <u>N</u>	1	64915	5		E É	51994	1			
	DEPTH	M	ATERIAL DI	ESCRIPTIO	Ń		GE	OLOGY	N	MC	SA	MPLE	REC) & LA	BORAT		r
	IN FEET						,					YPE	IN.	WC	DEN	LL	PL 9	%-#200
	1 2	black (A-2-4)	sible cobble	es from $\frac{1}{2}$	' to 1',		FILL		10	M	X	SS	14					•
	3 -	FILL, mixture o little gravel, bro	wn (Å-2-4)						18	М	X म	SS	12					
	4 5 6	FILL, mostly gradient silty sand, light l	avelly sand prown and	with silt, brown (A·	a little -1-b)				27	М		SS	6					- -
	7 — 8 —	SAND WITH G grained, brown, moist, loose, a le	a little ligh	t grayish ł	orown,			RSE UVIUM	10	M		SS	6					
	9 10 11	SILTY SAND, a light grayish bro of lean clay and	a little grav wn, wet, m	el, brown, ledium de	a little nse, lenses				23	w		SS	4					
	12 13 14	SILTY SAND, a grained, brown, medium to fine (SM) (A-1-b)	wet, mediu	m dense,	a lens of	1			18	W		SS	12					
	15 – 16 –	SILTY SAND, a grained, light gr medium dense, a sand (SM/SC) (A	ayish brow a lens of fir	n, a little g	gray, wet,	1			13	w	Å	SS	14					
	17 - 18 - 19 -	CLAYEY SAN very stiff, a lens silt (SC) (A-6)	D, a little g of medium	n grained s	sand with			UVIUM .	24	M/W	Å	SS	12	27				
	20 - 21 -	SANDY LEAN gray, stiff (CL)	(A-6)	ittle grave	l, brownisl	1.	TILI	_ _	15	M	X	SS	8	24				
	21	END OF BORI	NG															
													-					
GDT 5/7/13				•			-									-		
F+CPT+WELL																· .		
CORP W-COORDINATES 01-05697.GPJ AET+CPT+WELL.GDT 5/7/13					•										-			
01-05	DE	PTH: DRILLING	METHOD			WAT	ER LE	EVEL MEA	SURI	EMEN	TS				1	NOTE:	REFE	R TO
VATES	. A 1	14½' 3.25" HSA		DATE	TIME	SAMP DEP	LED FH	CASING DEPTH	CAV DE	/E-IN PTH	I FL	ORILLI UID LE	NG EVEL	WATI LEVI	ER EL	THE A	TTAC	HED
ORDIN	141/2-1			5/1/13	11:20	11.		9.5		0.2				Non	e	SHEET	rs foi	R AN
W-CO		·		5/1/13	11:30	11.	0	9.5	. 1	0.2				Non	e	EXPLA		
CORP	BORI COMF	NG PLETED: 5/1/13		5/1/13	11:35	13.	5	12.0	1	3.2				12.2				GY ON
AET	DR: T	TK LG: TA Rig	;: 69C	5/1/13	11:45	13.	5	12.0	1	2.4				8.8		TH	IS LO	G



AET JO	DB NO:	01-05697						LO	GOF	BOF	RING N	0	1053	SS	(p. 1	of 2	2)
PROJE	CT:	Southwest Ligh	nt Rail Tr	ansit Proj	ject,	PEC	C East; H	Iopł	cins 1	to I	Minn	eapol	lis				
SURFA	CE ELEV	ATION: 875.0	F	Hennepin Co. (Coordi	nates:	<u>N</u>	1	5723()	- 	Е :	515403				
DEPTH IN FEET		MATERIAL I	DESCRIPTIO	N		GE	OLOGY	N	MC	SA	MPLE YPE	REC IN.	<u>├</u> r		BORAT		T
FEET		iminous pavement				FILI				FI			WC	OC	DEN	PL	qu
1 –		mostly silty sand, a	little gravel,	, brown			_	31	M	M	SS	18					
2 —	(A-2-4) mostly silty sand wi	th gravel g	ravish	/					\mathbb{H}							
3 —	brown	and dark brown (A-	-2-4)	.				18	M	М	SS	18					
4 —	- FILL, ∖gravel.	mostly silty sand wi , black (A-2-4)	th ashes/cin	ders and	/					P							
5	FILL,	mostly sand with sil	t, a little gra	avel, a little				28	М	X	SS	18					
6 7	lean ci	ay at 5' (A-3)				:				B							
, 8 –	-							24	M	M	SS	18					
9 -	-									\mathcal{A}							
10 -	FILL,	mostly sand with sil	t, a little gra	avel and		1.		17	M	M	SS	18					
11 -	asnes/	cinders, brown (A-3)					17	IVI	Д	55	10					
12 -	FILL,	mostly sand with sil	t and grave	l, a little		-				K							
. 13 -		and, brown (A-1-b)						20	Ţ	M	SS	18					
14 -		mostly sand, a little	gravel and	clavey						P							
15 -		light brown, a little b						19	M/W	'XΙ	SS	18					
16 – 17 –										E							
18 -		mostly sand with sil sand, brownish gray		l, a little				14	W	M	SS	18					
19 -		<i>barra</i> , <i>et e</i> 11.000 <i>B</i> -1.	, ()							A							
20 -	SAPR	IC PEAT, black, a l	ittle gray, le	enses of	7.84		AMP POSIT	15	M	M	SS	18	264				
21 -		peat, laminations of d sand at 23' (PT) (A		aium	234		0311			मि							
22 -					<u>-</u>					K							
23 -								23	M	Ň	SS	4	209				
24 -					7.8.	1				P			250		20	1	5040
25 -						-					TW	24	214		23		Cons
26 27										A							
28 -		ANIC CLAY WITH)H) (A-6)	SAND, bla	ack, firm				5	M	\mathbb{N}	SS	18	41				
29 -	_	2 X · · · · 2								\mathbb{A}			35	5.6			
30 -		D WITH SILT, a littl					ARSE LUVIUM	7	M	\square	SS	12				-	
24 - 25 - 26 - 27 - 28 - 29 - 30 - 31 - DE 0-2 29½-5 BORI COMI		m grained, gray, wa M) (A-3)	terbearing,	loose		. nu.		′		\square	55	14					- É
DE	PTH: I	DRILLING METHOD		-	l⊡⊡ IAW	: ER L	EVEL MEA	SURI	L EMEN	⊥)_ TS	L	1	1	L T	NOTE:		
		<u></u>	DATE	TIME	SAMP DEP	1	CASING	CA	VE-IN		DRILLI	NG	WATI	ER	THE A		
0-2		3.25" HSA	· · · · ·	12:23	DEP 21.		DEPTH 19.5		EPTH 9.7	FL	UID LI	SVEL	LEVE 15.6		SHEE		
291/2-5	59½'	RDF w/DM	5/2/13 5/2/13	12:23	21.	im	19.5		9.7 9.5	+			13.0		EXPLA	NATIO	ON OF
BORI	NG	5/2/13	514115	14,55			1710			-					TERMIN	10L0	GY ON
	PLETED:	5/2/13 JMM Rig: 1C													TH	IIS LO	G
03/2011		41,41,41,41,10 <u>5</u> , 4.0		J										d		01-D	OHR-0

03/2011



SUBSURFACE BORING LOG

AET JOF	BNO: 01-05697			LO	G OF	BOR	ING N	0	1053	55	(p. 2	2 of 2	2)
PROJEC	Southwest Light Rail Transit Pro	ject,	PEC East;]	Hop	kins	to I	Minn	eapo	olis, N	/N			
	Hennepin Co.				5723(]		51540				
EPTH						CAN	MPLE	REC	FIELD) & LAI	BORAT	FORY '	ΓES'
IN FEET	MATERIAL DESCRIPTION		GEOLOGY	N	MC		YPE	IN.	WC ⁺	OC	LL	PL	%- #
						M							
33 -	LEAN CLAY, brownish gray, very stiff,		FINE	15	М	Ň	SS	0					
34	laminations of coarse grained sand with gravel		ALLUVIUM			Б							
35 -	(CL) (A-4)			18	М	\mathbb{N}	SS	1	31		·		
36 —					,	Д							
37	SILTY CLAY, grayish brown, stiff (CL-ML)					K7	•				-		
38 -	(A-4)			9.	M	IXI-	SS	18	29				ę
39 –						۲Ľ							
40 -	LEAN CLAY, grayish brown, stiff (CL) (A-4)			10	м	M	SS	18	36				
41 -				10		Д	22						
42 +	SILTY SAND, fine grained, brownish gray,		COARSE			H							
43 -	wet, medium dense (SM) (A-2-4)		ALLUVIUM	25	W	X	SS	12					
44 —			-			Ы							
. 45 -	SANDY SILT, grayish brown, wet, medium dansa (ML) (A 4)		FINE ALLUVIUM	20	w	M	SS	24	23				
46 -	dense (ML) (A-4)			20		Д	55	2-1					
47 -	LEAN CLAY, grayish brown, a little dark					R							
48 -	grayish brown, firm, laminations of fat clay			8	М	X	SS	24	40				
49 -	(CL/CH) (A-7-6)					Ы							
50 -				6	М	M	SS	24	38				
51 -					141	Δ	55						
52 –						\mathbb{Z}							
53 -	LEAN CLAY, dark brownish gray, a little					$\left \right\rangle$							
54	grayish brown, stiff (CL) (A-6)					\sum							
55 —				10	M	Μ	SS	24	30	•			
56 -				10	141	Д	00	2-T					
57 —						\mathbb{Z}							
58 —	SANDY LEAN CLAY, a little gravel, brownish		TILL	-		$\left \right\rangle$							
59 —	gray, very stiff, laminations of fine grained sand (CL) (A-6)					$ \lambda $							
60 -	(CL) (A-6)			16	M	\mathbb{M}	SS	24	15				
61 –					141	\square							
	END OF BORING												
				· .									
								1					
								1					
									1		1		



	AET JO	B NO: 01-05697					LO	G OF	BO	RING N	10	1054	SS	(p. 1	of 2	() ·
	PROJEC	CT: Southwest Light	t Rail Transit Pr	oject,	PEC	C East; I	Нор	kins	to	Minn						
	SURFAC	CE ELEVATION: 875.7	Hennepin C	Co. Coo	rdinat	es: <u>N</u>	1	56948	8		E É	51516	5			
	DEPTH	MATERIAL DI	RCDIDTION		GF	OLOGY	N	MC	SA	MPLE		FIELD) & LA	BORAT	ORY 1	ESTS
	IN FEET	WATERIAL DI	LISCKII HON			OLOGI	IN	IVIC	·]	TYPE	IN.	WC	OC	LL	PĹ	%-#200
	1 -	FILL, mostly silty sand wit and black (A-2-4)	h gravel, dark brow	n	FILI		13	М	X	SS	18					
	2 3 4	FILL, mostly sand with silt	, light brown (A-3)				14	·M	X	SS	1					
	5 — 6 —		2 1				16	М		SS	18					
	7 — 8 — 9 —	FILL, mostly sand with silt silty sand, brown, a little da	, a little gravel and ark brown (A-3)				7	М	L L	SS	10	-				
	10 — 11 —	FILL, mostly sand, a little g fine grained, brown (A-1-b	gravel, medium to		-		8	M	\square	SS	18				-	
	12 — 13 — 14 —	FILL, mostly sand with silt medium to fine grained, bro brown (A-1-b)	, a little gravel, own, a little dark	,			6	W.	A A K	SS	12		a			
	15 16	SAPRIC PEAT, black, a lit of medium to fine grained s	tle gray, lamination sand (PT) (A-8)			AMP POSIT	2	M	A	SS	16	275				
	17 18 19	ORGANIC CLAY, trace ro grayish brown, soft (OL/Ol	oots, black, a little H) (A-8)				4	M	R	SS	18	28	1.8			
	20 21	LEAN CLAY, trace roots, gray, firm (CL) (A-6)	gray, a little dark		FIN ALI	E LUVIUM	.7	M		SS	18	28				
	22 23 24	LEAN CLAY, a little grav (A-6)	el, brown, stiff (CL)				24	M		SS	3	23				
DT 5/10/13		SAND, a little gravel, med brown, waterbearing, medi (A-1-b)	ium grained, grayis um dense (SP)	h		ARSE LUVIUM	12	w		SS	16					
01-05697.GPJ AET+CPT+WELL.GDT 5/10/13	27 — 28 — 29 —	SAND, a little gravel, med brown, waterbearing, medi (A-1-b)	ium to fine grained, um dense (SP)				16	w	Ķ	SS	24					
697.GPJ AET	30 31						16	W	Ķ	SS	10					
01-05	DEF	PTH: DRILLING METHOD		WA	TER L	EVEL MEA	SUR	EMEN	JTS					NOTE:	REFE	R TO
			DATE TIME	SAMP	PLED	CASING DEPTH	CA	VE-IN PTH	FI	DRILLI LUID LI	NG EVEL	WAT LEVI	ER EL	THE A	ATTAC	HED
W-COORDINATES		-27' 3.25" HSA	5/2/13 8:43	16		14.5		4.5				13.		SHEE	TS FOI	R AN
-000	27	-39' RDF w/DM	5/2/13 8:43 5/2/13 8:53	16		14.5	+	4.5				13.		EXPLA	NATIO	ON OF
CORP W.	BORIN	NG PLETED: 5/2/13	5/2/13 8:55 5/2/13 9:40	29		27.0		4.3 8.1				23.		TERMI	NOLO	GY ON
							+ -		- <u> </u>					Tŀ	IIS LO	G
AET	DR: 0	GH LG: JMM Rig: 1C					1						L		01-D	HR-0

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AET JOI	B NO:	01-05697					BORING N			SS	(p. 2	01	2)
PROJEC	CT:	Southwest Light Rail Transit Pro	ject,	PEC East;	Нор	kins	to Minr	eapo	olis, N	/IN			
		Hennepin Co	o. Coo	rdinates: <u>N</u>	1	56948	8	E:	51516	5			
DEPTH		MATERIAL DESCRIPTION		GEOLOGY	N	MC	SAMPLE TYPE	REC	FIELD	& LA	30RA1	'ORY	TEST
EPTH IN 7EET					11	IVIC	TYPE	IN.	WC	OC	LL	PL	%- #2
33 — 34 —	SANI brown (A-1-	D, a little gravel, medium to fine grained, h, waterbearing, medium dense (SP) b) <i>(continued)</i>		COARSE ALLUVIUM (continued)	19	w	ss	12					
35 — 36 —	SANI mediu mediu	D WITH GRAVEL, possible cobbles, im to fine grained, brown, waterbearing, im dense (SP)			22	W	ss	1					
37 — 38 —					18	w	ss	6					
39 -	END	OF BORING						-					
				•									
-													
		·											
								· ·					
			1										

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AET JO	B NO: 01-05697						LO	G OF	BOI	RING N	0.	1055	5 ST	(p. 1	l of 2	2)
PROJEC	CT: Southwest Ligh	nt Rail Tr	ansit Pro	oject,	PE	C East;	Нор	kins	to	Minn	eapo	olis, N	MN			
SURFAG	CE ELEVATION: 876.4	ŀ	Iennepin Co	o. Cooi	rdina	tes: N	1:	56748	8	. <u> </u>	E é	51495	6			
DEPTH									SA	MPI F	REC	FIELI	D & L/	BORAT	FORY '	TEST
IN FEET	MATERIAL I	DESCRIPTIO	N .		GE	OLOGY	Ň	MC	T	MPLE YPE	IN.	WC	DEN	OC	PL	qu
1	FILL, mostly sand with si little light brown (A-1-b)	lt and grave	el, brown, a	L	FILI		8	М	M	SS	18					
2 — 3 — 4 —	FILL, mostly silty sand, a clayey sand, brown (A-2-4		l and				7	М	\mathbb{X}	SS	12					
5 — 6 —	FILL, mostly sand with si brown (A-3)	lt, a little gi	ravel, light				10	М	A A	SS	18			· .	-	
7	FILL, mixture of sand and gravel, brown and dark br	l sand with own (A-1-t	silt, with		·. ·		10	.		SS	12					
10 11	FILL, mostly sand, a little grayish brown (A-1-b)	gravel, bro	own and				6	w		SS	18					
12 — 13 — 14 —	LEAN CLAY WITH SAN trace roots, dark brown, so				FIN ALI	E LUVIUM	4	M		SS	18	29 [.]		1.4		
15 — 16 —	SANDY LEAN CLAY, a gray, gray and dark gray r (CL) (A-6)			1				M	La la	TW	24	23	107		• -	11
17 — 18 —			1				8	М	$\left \right $	SS	18	22		-		
19 20 21							11	M	R	SS	4	24				e e la sur la debie a debie debier debier e la debier de la debier debier e la debier de bier debier e la debier e
22 23	SANDY LEAN CLAY, a brown, stiff (CL) (A-6)	little grave	l, grayish		TIL	L	10	М	X	SS	20	17				
24 — 25 — 26 —	CLAYEY SAND, a little stiff (SC) (A-6)	gravel, gray	yish brown	, ////////////////////////////////////			14	M	X	SS	24	13				
27 28 29	SAND, a little gravel, me to grayish brown, waterbe (A-1-b)	earing, loos	e (SP)			ARSE LUVIUM	10	W	M	SS	24		•			-
30 - 31 -	SAND, a little gravel, find grayish brown, waterbear (SP) (A-3)	e to mediun ing, mediur	n grained, n dense		•		6	w	Å	SS	12					
DEP	TH: DRILLING METHOD			WAT	ER L	EVEL MEA	SURI	EMEN	TS	L	1	1	-L	NOTE:	REE	RT
		DATE	TIME				T		1	DRILLI	NG	WAT LEVI	ER	THE A		
0-2	9½' 3.25" HSA	DATE		SAMP DEP		CASING DEPTH		VE-IN PTH	FL	DRILLI JUID LE	EVEL			SHEE		
291/2-3	9 ¹ / ₂ ' RDF w/DM	5/3/13	8:46	11.		9.5	·	9.5	•			8.5				
	~	5/3/13	8:56	11.	5	9.5	9	9.5				8.2	·	EXPLA		
BORIN COMP	NG LETED: 5/3/13													TERMI		
	····	1	1				1				· T		1	(11)	IIS LO	G

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AET JO	B NO:	01-05697			LO	G OF	во	RING N	0.	1055	ST	(p. 2	2 of 2	2)
PROJEC	CT;	Southwest Light Rail Transit Proj	ject,	PEC East;	Нор	kins	to	Minn	eapo	lis, N	ΛN			
		Hennepin Co.	Coo	rdinates: <u>N</u>	1:	5674	8		E t	51495	6			
EPTH		MATERIAL DESCRIPTION		GEOLOGY	N	мс	SA	MPLE TYPE	REC	FIELI) & LAI	BORAT	ORY	FES'
DEPTH IN FEET					14	MIC		ГҮРЕ	IN.	WC	DEN	OC	PL	q
33 - 34 -	SAN grayi (SP)	D, a little gravel, fine to medium grained, h brown, waterbearing, medium dense A-3) <i>(continued)</i>		COARSE ALLUVIUM (continued)	13	W	\mathbb{X}	SS	18					
35 - 36 -	SAN grayi	D, a little gravel, medium to fine grained, sh brown, waterbearing, medium dense A-1-b)			12	w	$\left \right\rangle$	SS	16					
37 38	(51)	A-1-0)			13	w	X	SS	10		-			
39 — 40 —														
41 —				•	11	W	Ŵ	SS	0					
	END	OF BORING						•						
								-						
													-	
		· · ·												
		• • • • • • • • • • • • • • • • • • •												
	1							-						
•						1								

03/2011



ſ	AET JO	B NO:	01-05697						LO	G OF	BO	RING N	0	1056	5 ST	(p.]	lof	l)
	PROJEC	CT:	Southwest Ligh	t Rail Tr	ansit Pro	oject,	PEC	C East;	Нор	kins	to	Minn	eapo	olis, N	MN			
	SURFAC	CE ELEV	ATION: 877.9	Н	lennepin Co	o. Cooi	dinat	es: <u>N</u>	1	56538	8		E É	51469	6			
	DEPTH			ESCRIPTIO	N		GE	OLOGY	N	MC	SA	MPLE	REC	FIELI) & LA	BORA	ORY '	FESTS
	IN FEET		MATERIAL D	ESCRIPTIO	N				IN	IVIC .	ר	YPE	IN.	WC	DEN	LL	·PL	%- #20
	1 -	FILL, (A-3)	mostly sand with silt	and grave	l, brown		FILL	, ,	8.	М	M	SS	18					
	2	FILL, little g	, mixture of sand with gravel, brown and dar	n silt and si k brown (A	lty sand, a \-1-b)				8	М	\mathbb{X}	SS	18					
	4 5 6								-7	М	X	SS	18	-				
	7 — 8 —		DY LEAN CLAY, a l nish gray, stiff (CL) (.		, light		TILI	<u>,</u>	10	М	R	SS	18	19				
	9 10 11		Y CLAY, light browr ML) (A-4)	nish gray, s	oft		FINI ALL	e UVIUM	3	▼ M	R	SS	18	28	· .	λ.		
	12	little l	DY LEAN CLAY, a l brown, stiff to very st v silt (CL) (A-6)	little gravel iff, laminat	, gray, a tions of		TILI		14	M		SS	18	22	2			
	15 — 16 —								17	М		SS	18	22				
	17 — 18 — 19 —		D WITH GRAVEL, r n, waterbearing, loose			t		ARSE UVIUM	7	w		SS	24					
	20 - 21 -	FAID	OF BORING				· · · ·		8	W	X	SS	18					
JT 5/10/13		END	OF BURING															
01-05697.GPJ AET+CPT+WELL.GDT 5/10/13											· · · · · · · · · · · · · · · · · · ·							
-05697.																		
	DEP	TH:	DRILLING METHOD	I			r	EVEL MEA	·		· · ·	י ז זו קרו		WAT		NOTE:		
INATE	0-1	9½'	3.25" HSA	DATE	TIME	SAMP DEP	TH	CASING DEPTH	DE	VE-IN PTH	FL	DRILLI JUID LI	EVEL	LEVI	ËL	·THE A		
ORD				5/1/13	1:35	21.	0	19.5	1	9.3				9.8		SHEE		
M-CC				5/1/13	1:40	21.	0	19.5	1	9.0				9.9	·	EXPLA		
CORP W-COORDINATES	BORIN COMP	IG LETED:	5/1/13													FERMI		
AET_0	DR: G	H LG	: JMMRig: 1C													·Tŀ	IIS LO	G OHR-(



AET JOI	B NO: 01-05697]	LOG O	F BO	RING N	10	1057	'ST	(p. 1	of	1)
PROJEC	T: Southwest Ligh	t Rail Tr	ansit Pr	oject,	PEC Eas	st; Ho	pkin	s to	Minn	eapo	olis, N	/N			
SURFAC	CE ELEVATION: 879.4	H	Iennepin C	o. Cooi	dinates:	N	1564	9		E :	51443	7			
								. SA	AMPLE	REC	FIELD) & L	ABORAT	ORY	TEST
DEPTH IN FEET	MATERIAL D				GEOLOG	Y N	I MC		AMPLE TYPE	ÎN.	WC	ос	LL	PL	%-# 2
1 —	FILL, mostly silty sand wi little dark brown (A-1-b)	th gravel, t	brown, a		FILL	1	8 M	X	SS	18					
2 — 3 —	FILL, mostly sand with sil (A-3)	t and grave	el, brown			2	0 M	$\left \right $	SS	18					-
4 — 5 — 6 —	FILL, mostly sand, a little grained sand with silt (A-1	gravel and -b)	fine			1	5 M7V	, PA īv	SS	18					
7	FILL, mostly sand with sil silty sand, dark brown (A-		el, a little				7 W		SS	12					
9 - 10 - 11 -	SAPRIC PEAT, pieces of black, soft (PT) (A-8)	wood, trace	e roots,	1.2.2	SWAMP DEPOSIT		2 .M		SS	18	311	70			
12 - 13 - 14 -	SANDY LEAN CLAY, a roots, gray mottled, firm to				TILL		5 M		SS	18	25				
15 – 16 –							2 M		SS	18	26				
17 — 18 — 19 —	SANDY LEAN CLAY, a firm to very stiff, laminatic sand with silt below 20' (C	ons of fine	l, gray, grained		``````````````````````````````````````		7 M		SS	18	18				
20 -	· · ·		•			1	6 M	X	SS	18	24				
21 -	END OF BORING						·								
												,			
DEP	TH: DRILLING METHOD			WAT	ER LEVEL N	MEASU	JREME	NTS	· · ·	1			NOTE:	REF	ER T
		DATE	TIME	SAMP DEP			AVE-II DEPTH		DRILLI LUID LI	NG	WAT LEVI	ER	THE A		
0-1	9½' 3.25" HSA	5/1/13	11:20	11.			9.5				<u> </u>		SHEE	ГS FO	R Al
				<u> </u>			9.5 9.2				5.2	-	EXPLA	NATI	ON (
BORIN	G	5/1/13	11:30	11.							<u> </u>		TERMI		
COMP	LETED: 5/1/13	5/1/13	11:45	21.	0 19.	<u>-</u>	21.0	_			1/.	0		IIS LC	
DR: G	H LG: JMMRig: 1C			<u> </u>										01-[

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AET JOI	B NO: 01-05697					LC	OG OF	BOF	RING N	0	1058	ST ST	(p.]	lof	1)
PROJEC	T: Southwest Ligh	t Rail Tr	ansit Pro	oject,	PEC East;	Нор	kins	to	Minn	eapo	olis, N	ΛN			
SURFAC	CE ELEVATION: 880.6	H	Iennepin Co	o. Coo	rdinates: <u>1</u>	v 1	5631	1		E :	51413	9			
	MATERIAL D	ESCRIPTIO	N		GEOLOGY	N	MC	SA	MPLE	REC	FIELI) & L/	ABORA	FORY '	TEST
DEPTH IN FEET	WATERIAL D	·	1 N				IVIC	Т	YPE	IN.	WC	OC	LL	PL	%- #2
1	FILL, mostly gravelly sand dark brown (A-1-b)	l with silt,	trace roots,		FILL	12	М	M	SS	3				-	
2 - 3 -	FILL, mostly sand with sile brown (A-3)	t, a little gr	avel, light			15	М	\square	SS	18					
4 5	FILL, mostly sand with sill lean clay, brown, a little gr	t and grave ayish brow	el, a little vn (A-1-b)			12	$\left \underbrace{\mathbf{V}}_{\overline{W}} \right $	E	SS	16					
6 — 7 —								E							
8 — 9 —				THE F	GUVAND	11	W	Ř	SS	12					
10 — 11 —	ORGANIC CLAY, trace r (OL/OH) (A-6)	oots, black	, stiff		SWAMP DEPOSIT	. 11	W	X	SS	18	40	4.2			
12 — 13 — 14 —	SANDY LEAN CLAY, tra (CL) (A-6)	ace roots, g	ray, soft		FINE ALLUVIUM	2	M		SS	18	29				
15 — 16 —	SILTY CLAY, trace roots, laminations of fine to med silt (CL-ML) (A-4)	, gray, firm ium graine	d sand and			7	м	A	SS	18	21				
17 — 18 —	SANDY LEAN CLAY, a stiff to firm, lenses of lean				TILL	10	M	X	SS	18	18				
19 20 21			· .			8	M	X	SS	18	17				
21	END OF BORING			×										-	
														-	
				-											
									•						
DEP	TH: DRILLING METHOD	-		WAŢ	ER LEVEL MI	EASUR	EMEN	ITS					NOTE:	REFE	ER T
0-19	9½' 3.25" HSA	DATE		SAMP DEP			VE-IN EPTH	FL	DRILLI JUID LI	NG EVEL	WAT LEVI		THE A		
		5/1/13	10:00	11.			9.5				6.9		EXPLA		
BORIN	G	5/1/13	10:10	11.	······	_	9.0				5.1		TERMI		
COM	LETED: 5/1/13	5/1/13	10:30	21.	0 19.5	1 2	20.8				16.	U			`



AET JO	B NO: 01-05697					LC	OG OF	BO	RING N	ю	1059	ST	(p.]	lof	1)
PROJEC	CT: Southwest Ligh	t Rail Tr	ansit Pro	oject,	PEC East;	Нор	kins	to	Minn	eapo	olis, N	/IN		~	
SURFAC	CE ELEVATION: 881.1	ŀ	Iennepin C	o. Cooi	dinates: <u>N</u>	1	5625	L		E É	51381	9			
DEPTH	MATERIAL D	ESCRIPTIO	NT		GEOLOGY	N	MC	SA	MPLE	REC	FIELI)&LA	BORAT	FORY	TEST
IN FEET	WATERIAL D	ESCRIPTIO	11				IVIC]]	TYPE .	IN.	WC	OC	LL	PL	% -#2
	FILL, mostly gravel with s	and, browi	n (A-1-b)		FILL	10	М	M	SS	12					
1	FILL, mostly sand with silt ashes/cinders and gravel, b	t, a little	e brown			10		Ш	00	12			- N	• .	
2 — 3 —	\(A-1-b)			/		19	M/W	M	SS	12					
3 4 —	FILL, mostly sand, a little	gravel and	sand with		-			मि							
5 -	silt, brown (A-1-b) ORGANIC CLAY, trace re	oots, dark	gray, soft,		FINE		M	K	SS	6	44	3.8			
6 -	a lamination of sandy organ	nic clay (C	ĎH)		ALLUVIUM	4	M	Д	66	0	44	3.0			
7 -	LEAN CLAY, trace roots,	gray, soft	(CL) (A-6)					E,							
8 —	•					2	M	Х	SS	12	28				
9 -	I FANI CLAY Incomist or		cmore soft					रि							
10 -	LEAN CLAY, brownish ga a lens of lean clay with san	ray, a nuie id (CL) (A	-6)			4		M	SS	16	33				
11 —															
12 —	SILTY SAND WITH GRA	VEL, fine	e to		COARSE ALLUVIUM].		Ł							
13 —	medium grained, gray, a lit medium dense, a lens of sa	ind with si	lt (SM)			11	W	M	SS	8					
14 —	(A-2-4)							2							
15 —	SAND WITH SILT, fine g gray, waterbearing, mediu	m dense (S	SP-SM)			20	W	M	SS	10					
16 —	(A-3)							В							
17 -	SAND WITH GRAVEL, r brown, waterbearing, medi			t ::::	•		11/	\square	aa	14					
18 —	(A-1-b)	tuin dense			•	13	W	Д	SS	14					
19 —	SAND, medium grained, g	gray, a little	e light		•			4							
20 —	grayish brown, waterbearin lenses of fine grained sand	ng, mediur	n dense,			14	W	X	SS	12					
21 —	END OF BORING	(51) (A-1	-0)	-				ſ							
															1
DEI												-			
							-								
	PTH: DRILLING METHOD			1	ER LEVEL ME				DRILLI	NG	WAT	FR	NOTE:		
0	-12' 3.25" HSA	DATE	TIME	SAMP DEP	LED CASING TH DEPTH		VE-IN EPTH	FI	JUID LE	ÉVEL	LEVI	ĔĹ	THE A		
12-1	9½' RDF w/DM	6/3/13	10:30	11.	0 9.5	1	0.0	_			Nor		SHEE		
0 12-1 BORIN COMP		6/3/13	10:45	13.			2.5				11.	•	EXPLA		
BORIN COMP	NG PLETED: 6/3/13	6/3/13	10:55	13.		-	2.0	_			10.	3	TERMII TL		
DR: S	G LG: SB Rig: 1C	6/3/13	11:05	13.	5 12.0	1	2.0				10.	3	1F)HR·

03/2011



AET JO	B NO: 01-05697				· ·	LC	OG OF	BORING N	10	1060	ST	(p. 1	l of 1	1)
PROJEC	CT: Southwest Ligh	t Rail Tr	ansit Pro	oject,	PEC East;	Нор	kins	to Min	neapo	olis, N	ΛN			
SURFA	CE ELEVATION: 883.1	ŀ	Iennepin C	o. Coor	dinates: <u>N</u>	1	56247	1	E :	51352	6			
DEPTH	MATERIAL D	FSCRIPTIO	N		GEOLOGY	N	MC	SAMPLE	REC	FIELI) & LA	BORAT	CORY '	TEST
IN FEET	MATERIAL D			· · · · ·				TYPE	IN.	WC	DEN	OC	PL	%-#20
	FILL, mostly gravel with s FILL, mixture of silty sand with gravel, a little ashes/c dark brown and brown (A-	and sand inders, trac	with silt e roots,		FILL	11 16	M M	ss ss	8				-	
4	FILL, mostly sand with silt silty sand, trace roots, brow					11	M	SS SS	12					
7 8 9	SAPRIC PEAT, dark brow	`			SWAMP DEPOSIT FINE	5	w ▼_	S ss	14	300	·			
10 - 11 -	LEAN CLAY, slightly org (A-6)	v m	· ·	,	ALLUVIUM	11	M	ss R	14	29			5	
12 13	CLAYEY SAND, with org very stiff, a lens of sandy le	anic fines, ean clay (S	, black, SC) (A-6)		MIXED ALLUVIUM	17	M/W	ss R	14	16				· · .
14 15 16 17	LEAN CLAY WITH SAN brown, stiff, laminations of (A-6) SILTY SAND WITH GRA fine grained, dark brown, a	f silty sand	dium to		FINE ALLUVIUM COARSE ALLUVIUM	11	M/W	SS SS	16	22				
18 - 19 -	GRAVEL WITH SAND, p gray, waterbearing, very lo	an clay (SI ossible co	<u>M) (A-1-b)</u> bbles,			53	W	ss	0					
20 - 21 -					TILL	5	M	ss s	1					
22 23 24	LEAN CLAY WITH GRA cobbles, light gray, stiff (C	L) (A-6)				9	Μ	ss -	11/2	27				
25 - 26 -						7	M	ss	0					
23	END OF BORING													
j DEI	TH: DRILLING METHOD			WAT	I ER LEVEL ME	ASUR	EMEN	TS			1	⊥ NOTE:	BEEF	R TO
		DATE	TIME	SAMP			VE-IN EPTH	DRILL FLUID L	NG	WAT LEVI		THE A		
0-1	4 ¹ / ₂ ' 3.25" HSA					-		FLUIDL	EVEL	<u>1EVI</u> 9.0		SHEE		
<u>14½-</u>	24 ¹ / ₂ RDF w/DM	6/3/13	12:00	11. 16.			9.5 4.6			<u>9.0</u> 14.	— I ,	EXPLA		
0-1 14½-2 BORIN COMP	NG	6/3/13 6/3/13	12:10 12:30	16. 16.			4.0			14.		ERMI		
1I	LETED: 6/3/13	0/3/13	12:30	10.	<u> </u>	I	U.T.			17.		TH	IIS LO	G
DR: S	G LG: SB Rig: 1C				· · ·			I					01 - E	AT ID

03/2011



AMERICAN ENGINEERING TESTING, INC.

SUBSURFACE BORING LOG

ſ	AET JOI	B NO: 01-05697					LC	G OF	BO	RING N	10.	1061	ST	(p. 1	lof	1)
	PROJEC	T: Southwest Ligh	t Rail Ti	ransit Pro	oject,	PEC East;	Нор	kins	to	Minn	eapo	olis, N	1N			
	SURFAC	CE ELEVATION: 886.4	I	Hennepin C	o. Cooi	rdinates: <u>N</u>	1	56234	1		E :	51321′	7			
	DEPTH	MATERIAL D	FSCRIPTIC	N		GEOLOGY	N	MC	SA	MPLE	REC	FIELD	8 LA	BORAT	r	1
	IN FEET	WATERAL D					14]	TYPE	IN.	WC	DEN	OC	PL	%- #200
24/24 A.2		FILL, mostly gravel with s			/	FILL	13	М	М	SS	7					
4.	1	FILL, mostly gravel with s with organic fines, pieces of	and, a littl of wood, tr	e silty sance roots.			15	141	Δ	55						
	3 -	brownish gray, a little blac	k (A-1-b)]	COARSE ALLUVIUM	22	M	M	SS	12					
	4	SAND, fine to medium gra moist, medium dense (SP)				OR FILL			सि							
	5	GRAVELLY SAND, medi	um graine	d, light	-		20		\mathbb{A}	SS	13					
	6 -	brown, moist, medium den (possible fill)	se (SP) (A	- <u>I-</u> D)			20	M	Д	66	15					
	7	SAND, a little gravel, trace							B							
	8 -	grained, light brown, moist (A-1-b) (possible fill)	, medium	dense (SP))		16	M	Х	SS	14					
	9		-let leuoren	maint		COARSE			শ্বি					1		
	10 -	SAND, medium grained, li medium dense (SP) (A-1-b)	i, moisi,		ALLUVIUM	16	М	\square	SS	17					
	11 -								\mathcal{A}	88						1
 	12 -	SAND WITH GRAVEL, r	nedium to	fine					H							
	13 -	grained, light brown, moist (A-1-b)	, meaium	dense (SP)			20	M	М	SS	12					
s) S	14 —	GRAVELLY SAND, med	um to coa	rse					Ĭ	`						
	15 –	grained, brown, waterbeari	ng, mediu	m dense			16	W	М	SS	11					
	16 –	(SP) (A-1-b)		-				▼	मि							
	17 -	SAND WITH GRAVEL, f grained, brown, waterbear	ine to mediu	lium m dense		•	16	w	K	SS	15					
	18 —	(SP) (A-1-b)				•	10	W	Д	22	15					
	19 -	SAND, a little gravel, med	ium to fin	e grained,		<u>.</u>			Į,							
	20 -	brown, waterbearing, medi (A-1-b)	um dense	(SP)		•	15	W	X	SS	24					
	21 —	END OF BORING				•			Д							
		END OF BOKING														
6/7/13	·.															
GDT.																
WELL																
+CPT+																
AET-																
7.GPJ	-															
CORP W-COORDINATES 01-05697.GPJ AET+CPT+WELL.GDT- 6/7/13	 DEP	TH: DRILLING METHOD) <u>)</u>	ER LEVEL MEA	SUP		 TS			<u> </u>				
ES 0	DEP						r			DRILLI	NG	WATE		NOTE:		
DINAT	0-19	9 ¹ / ₂ ' 3.25" HSA	DATE	TIME	SAMP DEP			/E-IN PTH	FĹ	UID LE	EVEL	WATE LEVE		THE A		
COOR			6/3/13	1:50	16.			4.5				Non	,	EXPLA		
P W-C	BORIN	G	6/3/13	2:05	21.	5 19.5		8.3				16.4	•			GY ON
	COMPI	LETED: 6/3/13													IS LO	
AET	DR: S	G LG: SB Rig: 1C														



AET JC	DB NO:	01-05697		· · · · · · · · · · · · · · · · · · ·			LO	G OF	BOF	RING N	Ю	1062	ST	(p. 1	lof	1)
PROJE	CT:	Southwest Ligh	t Rail Tr	ansit Pro	oject,	PEC East;	Нор	kins	to	Minn	eapo	olis, N	/IN			
SURFA	CE ELE	VATION: 887.8	H	Hennepin C	o. Coor	dinates: <u>N</u>	1	5619	1		<u>E </u> :	51291				
DEPTH IN FEET		MATERIAL D	ESCRIPTIO	N		GEOLOGY	Ŋ	мс	SA T	MPLE YPE	REC IN.	FIELE WC) & LA DEN	BORAT		TEST
FEEI	SEILI	, mostly gravel with s	and (A-1-1	<u></u>		FILL			$\frac{1}{1}$			WC	DER		112	10-112
1 2	FILL	, mostly silty sand with organic fi	th gravel, a	a little		-	13	M	\mathbb{N}	SS	8					
3 -	\dark FILL	brown (A-2-4) , mostly sand, a little	ashes/cind				-17	M	X	SS	12	1				
4 5 6	SAN medi	el, light brown (A-1-b) D WITH SILT, a little um grained, light gray um dense (SP-SM) (A	e gravel, fi /ish brown			COARSE ALLUVIUM	17	- M		SS	15					
7 -		D WITH GRAVEL, r n, moist, medium den			t l		23	M		SS	11		· · · ·			
9 10 11							22	M		SS	12					-
12 - 13 -	light	D, a little gravel, med brown, moist, mediur	n dense (S	P) (A-1-b)			23	М	H H H H	SS	15					
14 - 15 - 16 -	- to fin (A-1-		ist, dense ((SP-SM)			40	M V	R R	SS	6					
17 - 18 - 19 -	SAN brow (A-1	D WITH GRAVEL, 1 n, waterbearing, med -b)	nedium gr ium dense	ained, (SP)			16	w		SS	16					
20 -				·) 			19	W	K	SS	24					
21 -	END	OF BORING														
															-	a a construction of the second se
						· · ·										
DE	PTH:	DRILLING METHOD	:		WAT	ER LEVEL MEA	SURI	EMEN	ITS			. <u>l</u>		NOTE:	REFI	ER T
	191⁄2'	3.25" HSA	DATE	TIME	SAMPI DEP	LED CASING TH DEPTH	CAV	VE-IN PTH	FL	DRILLI UID LI	NG EVEL	WAT LEVI	ER	THE A		
<u> </u>	17/2		6/3/13	2:45	18.		1	7.0	-			16.	5	SHEE	ΓS FO	R AN
			6/3/13	2:55	21.	0 19.5	1	8.5				17.		EXPLA		
BORI COMI	NG PLETED	: 6/3/13												TERMI		
DR: S	SG LO	G: SB Rig: 1C								•				TH	IIS LC 01-L	

03/2011



Ī	AET JO	B NO: 01-05697		<u></u>				LO	G OF	BOI	RING N	Ю.	1063	ST	(p. 1	of 1)
	PROJE	CT: Southwest L	- ight Rail Tr	ansit Pr	oject,	PEC	C East; 1	Hop	kins	to	Minn	eapo	olis, N	4N			
<i>.</i> ,	SURFA	CE ELEVATION: 887.	6 <u> </u>	Iennepin C	o. Coo	rdinat	es: <u>N</u>	1	56111	1		E É	51262	6			
Ĩ	DEPTH	MATERIA	L DESCRIPTIO	N		GE	OLOGY	N	мс	SA	MPLE	REC	FIELD) & LA	BORAT	ORY 7	ESTS
	IN FEET										YPE	IN.	WC	DEN	OC	PL 9	%-#200
	1	FILL, mostly gravelly with organic fines, trac black (A-1-b)	sand, a little cl e roots, brown	ayey sand , a little	1	FILL	<u>,</u>	19	M	М	SS	12					
and the second	3 —	FILL, mostly sand with clayey sand, light brow			-	×		25	М	X	SS.	6			and a second		
	4 5 6	FILL, mostly sand with silt, light brown, a little	n gravel, a little brown (A-3)	e sand with	1			23	М	Ľ	SS	13					
	7 — 8 —	SAND WITH GRAVE grained, light grayish b dense (SP) (A-1-b) (po	rown, moist, n	fine nedium		ALL	ARSE JUVIUM FILL	19	М		SS	12			-		
	9 — 10 — 11 —	GRAVELLY SAND W fine grained, brown, m (SP-SM) (A-1-b) (poss	oist, medium o	edium to lense				21	М		SS	7					
	12 — 13 — 14 —	SAND WITH GRAVE grained, light grayish b moist, medium dense (rown, a little b SP) (A-1-b)	orown,			ARSE JUVIUM	14	М	LA KI	SS	16					
	14 15 — 16 —	SAND WITH SILT, a medium grained, brow medium dense, a lens o (SP-SM) (A-3)	n, moist to wa	terbearing,		· · · · · · · · · · · · · · ·		30	M#W	H X R	SS	7					
	17 – 18 –	SAND, a little gravel, materbearing, medium	medium graine dense (SP) (A	ed, brown, 1-b)				14	W	Å	SS	18					
	19 — 20 —					· · · · · · · · · · · · · · · · · · ·		12	W		SS	18					
	21 -	END OF BORING				•			<u> </u>								
		-											-				
6/7/13																-	
01-05697.GPJ AET+CPT+WELL.GDT 6/7/13								¢									
J AET+CPT																	
397.GP.			•										,				
01-056	DEI	PTH: DRILLING METHO	D		WAT	ER LE	EVEL MEA	SURI	EMEN	TS		<u>.</u>	<u>المن المنامع</u>	<u> </u>	NOTE:	REFE	R TO
CORP W-COORDINATES		9½' 3.25" HSA	DATE	TIME	SAMP DEP	LED TH	CASING DEPTH	CAV DE	VE-IN PTH	I FL	DRILLI UID LE	NG EVEL	WATI LEVE	ER EL	THE A	TTAC	HED
OORE			6/3/13	3:35	21.		19.5		9.3				15.2	<u> </u>	SHEET		
P W-C	DODD	IG	6/3/13	3:55	21.	.0	19.5	1	8.0				15.0)	EXPLA FRMIN		JN OF. JY ON
		LETED: 6/3/13												1		IS LO	
Ē	DR: S	G LG: SB Rig: 1C						1							11	10 1.0	. ال



AET JO)B NO:	01-05697						LO	G OF	BOI	RING N	О.	1064	ST	(p. 1	lof2	2)
PROJEC	ст: 5	Southwest Ligh	ht Rail Tr	ansit Pr	oject,	PEC	East;]	Hop	kins	to	Minn	eapo	olis, N	ΛN			
SURFA	CE ELEVAT	FION: 884.9	H	Iennepin C	o. Coor	dinate	s: <u>N</u>	15	56005	5		Е :	51234	4			
DEPTH		MATERIAL I		N		GEC	DLOGY	N	MC	SA	MPLE YPE	REC	FIELI)&L/	BORA	FORY	TESTS
IN FEET			JESCKIP IIO	1			LOUI	IN	IVIC .	L I	YPE	IN.	WC	DEN	LL	PL	%- #20
1 — 2 —	clayey sa	ixture of gravelly and, trace roots, d ostly sand with sil	ark brown ((A-2-4)		FILL		17	M	M	SS	10					
3	FILL, m	ostly silty sand, p nders, trace roots,	ieces of gla dark brown	ss, n (A-1-b)			1	4	М	Å	SS	15	29		÷		21
6 - 7 -	FILL m	ostly sand with si	It and grave	l nieces				4	М ,	X F	SS	12					
8 — 9 —	of brick,	dark brown and g	grayish brow	wn (A-3)				4	M	X R	SS	12					
10						ſ		21	Ŵ	X Y	SS	20					
13 — 14 —	grayish 1	ostly sand, a little brown, a little dar	k gray (A-1	-b)		CWUA		11	W	R R	SS	24					
15 — 16 — 17 —	ORGAN	NC CLAY, black,	, soft (OL/C)н) (д-8)		SWA DEP(4	M	X R	SS	. 18	43				~
18 — 19 —	grained	CLAY, gray, firm, sand (CL) (A-6)		L. L			JVIUM	6	M	X	SS	24	33				
20 21 22	dark bro loose, a	WITH SILT, medi wwn, a little gray, v lens of lean clay (waterbearin (SP-SM) (A	g, very 1-b)			UVIUM	1½	W	X R	SS	24					
23 – 24 –	a lens of	CLAY, brownish g f medium to fine g L) (A-6)	gray, very s grained sand	off to firm I with silt	,	FINE	UVIUM	WH	М	X	SS	20	28				
25 - 26 - 27 -		· · ·						6	М	X	SS	24	30				
25 - 25 - 26 - 26 - 27 - 27 - 28 - 29 - 29 - 30 - 31 - 31 - 29 - 31 - 29 - 21 - 29 - 29 - 31 - 31 - 31 - 31 - 31 - 31 - 31 - 3	- · · · · · · · · · · · · · · · · · · ·		-					7	M	X	SS	17	25				- -
30 - 30 - 31 - 31 -	fine grai	WITH SILT, a litt ined, dark gray, w) (A-1-b)	le gravel, m vaterbearing	nedium to , loose		COA ALL	RSE UVIUM	8	w	Å	SS	8					
	PTH: DR	ILLING METHOD			1		VEL MEA					1			NOTE:	REFE	ER TO
ATES	241/2' 3.2	25" HSA	DATE	TIME	SAMPI	LED (TH	CASING DEPTH	CAV DE	/E-IN PTH	I FL	ORILLI JUID LE	NG EVEL	WAT LEVI	ER EL	THE A	TTAC	HED
0-2 24 ¹ /2-4		DF w/DM	6/11/13	9:15	14.		12.0		1.7	1			11.	1	SHEE	TS FO	R AN
	17/4 INI		6/11/13	9:25	14.		12.0		1.3	1			10.	0	EXPLA	NATIO	ON OF
BORD	NG PLETED: 6	5/11/13		_						-				ī	FERMI	NOLO	GY ON
	\mathbf{SG} LG: \mathbf{S}														TH	IIS LO	G
03/2011			· · · · · · · · · · · · · · · · · · ·	• • • • • • •	•											01-E	HR-(

03/2011



AET JOI	B NO:	01-05697			LO	G OF	BOł	RING N	0	1064	ST	(p. 2	2 of 2	2)
PROJEC	CT:	Southwest Light Rail Transit Proje	ect,	PEC East; I	Hopl	kins	to I	Minno	eapo	lis, M	N			
	•	Hennepin Co. C	oordiı	nates: <u>N</u>	1	5600	5		E	51234	4			
DEPTH		MATERIAL DESCRIPTION		GEOLOGY	N	мс	SA	MPLE YPE	REC	FIELI) & LAI	ABORATOR		FEST
DEPTH IN FEET		MATERIAL DESCRIPTION			IN	MC	I I	YPE	IN.	WC	DEN	LL	PL	%- #2
22	SANE	WITH SILT, a little gravel, fine to n grained, gray, medium dense (SP-SM)		COARSE ALLUVIUM	12	w	М	SS	5		(
33 — 34 —	(A-1-t)		(continued)	12	**	Δ	00	5					
34 -	SAND	WITH GRAVEL, medium grained, gray,					Ρ.		×					· -
36 -	waterb	earing, loose to medium dense, a lens of medium grained sand at 40' (SP) (A-1-b)		. Х.	9	W	X	SS	8					
37 -	tine to	medium grained sand at 40 (SP) (A-1-0)					日							
38 -					. 10	W	M	SS	6					
39 -							Д							
40 -				•			М							
41 -					.9	W	M	SS	5					1
42 -				•			БŢ							
43 —				•	12	w	X	SS	4					
44				•			А							
45 —				•	10	w	Ń	00	1/					
46 —					12	W	\mathbb{N}	SS	1/2					
	END	DF BORING					·							
• .														
								x						-
-												•		
				1										
								- 1						
												-		
				-		-								
	· .													
												r.		
								,						
	· .													
		S.,												



AET JO	B NO: 01-05697		,			LC	G OF	BOI	RINGN	Ю.	1065	5 SS	(p. 1	of	1)
PROJEC	CT: Southwest Ligh	nt Rail Tr	ansit Pro	oject,	PEC East;	Нор	kins	to	Minn	ieapo	lis, N	ΛN			
SURFAG	CE ELEVATION: 886.9	Н	Iennepin Co	o. Cooi	dinates: <u>N</u>	1	5578′	7		E t	51145	0			
DEPTH			N T	-	CEOLOCY			SA	MPLE	REC	FIELD) & LA	BORA	ORY	TEST
IN FEET	MATERIAL I	DESCRIPTIO	N		GEOLOGY	N	MC	T	MPLE YPE	· ĪN.	WC	DEN	LL	PL	%- #2
	FILL, mostly silty sand, a	little gravel	l, black		FILL	1.5	M	М	00	10					
1 -	(A-2-4)					15	. M	Μ	SS	12					
2 -	SAND WITH GRAVEL,	fine to med	ium		COARSE ALLUVIUM	31	M	М	SS	4					
3 -	grained, light brown, mois (possible fill)	t, dense (SI	-) (A-1-D)		OR FILL	51	111	\square	ەد	4	1				
4 5	SAND WITH SILT AND	GRAVEL	fine to		COARSE	-		R							
6 -	medium grained, brown, n	noist, medi	um dense		ALLUVIUM	11	M	X	SS	18					
	(SP-SM) (A-1-b)							R							
7	SAND WITH GRAVEL, grained, light brown, mois	medium to	fine			14	M	M	SS	18					
9 -	waterbearing, medium der	nse (SP) (A-	-1-b)					Д	55						
10 -								M							
11 -						20	M	M	SS	12					
12 -								P	-						
13						15	M	W	SS	18					
14								Д							
15 -								\square	~ ~						
16 -						18	W	Ň	SS	18					
17 —		1			•		,	E							
18 —	SAND WITH SILT, fine waterbearing, medium der				•	14	W	X	SS	18					
19		·			•			H							
20 -	SAND, a little gravel, me	dium graine	ed, brown,		•	10	w	\square	SS	18					
21 —	waterbearing, medium der	nse (SP) (A	-1-b)		•	12	W	\wedge	22	10					
22 —	SAND WITH GRAVEL,	medium to	fine		•			P							
23 —	grained, brown, waterbeau	ring, mediu	m dense		•	12	W	X	SS	12					
24 —	(SP) (A-1-b)				•			Б							
25 —	SAND, a little gravel, me	dium graine	ed, brown		•	10	W	M	SS	12					
26 —	to brownish gray, waterbe medium dense (SP) (A-1-	b)	. 10		•			Д	55	12					
27 —								H							
28 -						16	W	X	SS	16					
29 -	-							þ							
30 -	-					21	w	\mathbb{N}	SS	1	1				
31 -		-		<u> </u>				$\left \right\rangle$					_		
	END OF BORING													1	
DEF	PTH: DRILLING METHOD		· · · · · · · · · · · · · · · · · · ·	WAT	'ER LEVEL ME	ASUR	EMEN	ITS	h		1		NOTE:	REFI	ER T
		DATE	TIME	SAMP	LED CASING TH DEPTH	CA	VE-IN EPTH		DRILLI JUID LI	NG	WAT LEVI		THE A		
	4 ¹ / ₂ ' 3.25" HSA			DEP					UD LI	SVEL	14.		SHEE		
141/2-2	29 ¹ /2' RDF w/DM	5/9/13	8:32	16.			4.3	-			14.		EXPLA		
BORIN	NG	5/9/13	8:37	16.			4.5	_					TERMI		
	NG PLETED: 5/9/13	5/9/13	8:42	16.	5 14.5		4.5				13.	U		IIS LC	
DR: C	GH LG: JMMRig: 1C							1				<u> </u>		01-I	



AET JO	DB NO: 01-05697					<u></u>	LO	G OF 1	BOR	ING N	 Э.	1066	SS	(p. 1	of	2)
PROJEC		t Rail Tra	ansit Proj	ject.	PEC	East: H										<u></u>
	CE ELEVATION:887.9		ennepin Co. (<u>N</u>		55683				511229				
							N T	MC	SA	MPLE	REC	FIELD) & LA	BORAT	'ORY	FESTS
DEPTH IN FEET	MATERIAL DI	ESCRIPTION	N			DLOGY	N	MC	Ť	YPĒ	ĨN.	WC	DEN	LL	PL	%- #200
. 1-	FILL, mostly silty sand with (A-2-4)	n gravel, bla	ack		FILL		15	М	M	SS	10					
2 — 3 —	FILL, mostly sand with silt brown (A-1-b)	and gravel,	, light				15	М	\square	SS	10					
4		- anarral ha		_					P							
5	FILL, mostly silty sand with (A-1-b)	i gravei, or	OWII				9	М	X	SS	12					
6									R							
8 -	little gravel and sand, dark	FILL, mixture of silty sand and clayey sand, a little gravel and sand, dark brown, brown and light brown (A-1-b)					6	M [′]	M	SS	10					
9 - 10 -	FILL, mostly sand with silt dark brownish gray (A-1-b)		, brown to				6	w	R	SS	12					
11 -									E					-		
12 -		•					6	Ŵ	M	SS	12					
14 -									A							
15 -	SAPRIC PEAT, dark brow	n (PT) (A-	8)			AMP POSIT	10		M	SS	18	283				
16 -						0311	10	M	М	22	10	203	1			
17 -	ORGANIC CLAY, trace ro	oots, black	a little						E							
18 -	gray, laminations of sand (OL/OH) (A	- 6)				9	M	X	SS	18	48				
19 -						DOP			E	1						
20 -	SAND WITH SILT AND fine grained, gray, waterbe	GRAVEL, aring, medi	medium to ium dense			ARSE LUVIUM	13	w	X	SS	12					
21 -	(SP-SM) (A-1-b)								R							
22 -	SILTY CLAY, brownish g	ray, soft (C	CL-ML)		FIN ALI	E JUVIUM	3	M/W	γV	SS	18	37				
23 -	- (A-4)							111 41	·μ							
	LEAN CLAY, a little grave	el, gray, fir	m (CL)						K7							
25 - 25 - 26 - 27 - 27 - 27 - 27 - 27 - 27 - 27	(A-6)						5	M	Ň	SS	4	30				
27 -	SAND WITH GRAVEL, r	nedium to	fine			ARSE LUVIUM]		F							
⊒ 28 -	grained, gray, waterbearing to medium grained sand wi	ith silt (SP)	(A-1-b)			10111	9	W	X	SS	16					
- 29 -									Ľ							
- 30 -	SAND WITH GRAVEL, 1 waterbearing, loose (SP) (A	nedium gra	ained, gray,				7	W	\mathbb{N}	SS	10					
- 31 -		x-1-0)							Ŕ							
B DF	PTH: DRILLING METHOD			WA	ij FER Li	EVEL MEA	SUR	EMEN	ITS	I		.]		NOTE	: REF	ER TO
		DATE	TIME	SAMI DEP	PLED	CASING DEPTH	CA	VE-IN EPTH	וק וק	DRILLI JUID LI	NG EVEL	WAT LEV	ER EL	THE .	ATTA	CHED
	0-22' 3.25" HSA	5/9/13	12:43	11		<u>9.5</u>		1.1				9.8		SHEE	ETS FC	OR AN
	2-47' RDF w/DM	5/9/13	12:43	11		9,5	10.0					9.		- EXPLANATION		
≥ BORI	NG PLETED: 5/9/13	5/9/13	12:53	11		9.5	10.0					9.0		TERMINOLOG		
	PLETED: 5/9/13 GH LG: JMMRig: 1C	5/9/13	12:50	11		9.5	1	0.0				9.	0	T	HIS LO	
03/2011		L	<u></u>	L			1								01-	DHR-0

03/2011

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AET JOI	B NO:	01-05697									RINGN			SS	(p. 2	of	2)
PROJEC	T:	Southwest I	light Rail	Transit Proj	ject,]	PEC Eas	t; E				Minne						
				Hennepin Co. (Coordin	nates:	N	15	5683	}]	E 5	51122				
EPTH IN TEET		MATERI	AL DESCRIP	ΓΙΟΝ		GEOLOG	Y	N	MC	SA T	MPLE YPE	REC IN.	FIELD WC) & LAI DEN	BORAT LL		7ESTS %-#20
33 -	SAND waterb	WITH GRAVI bearing, loose (S	EL, medium P) (A-1-b) <i>(c</i>	grained, gray, continued)		COARSE ALLUVIU (continued)	м)	6	W	X	SS	12					
34 35										Ħ	~~						
36 -						-		6	W	Å	SS	4	-				
37 — 38 —	SANE graine	WITH GRAV d, gray, waterbe	EL, medium aring, loose	to coarse (SP) (A-1-b)				. 7	W	Ń	SS	12					
39 — 40 —								10	W	X	SS	4					
41 - 42 -	SILTY	/ SAND, a little	gravel, brov	vn, loose		TILL				\mathbb{H}							
43 — 44 —		SC) (A-2-4)						10	W	Å	SS	18					
45 — 46 —	х I	· ·				•		7	W	M	SS	18					
47 -		VEL WITH SIL		D				50/.3	W	U	SS	2					_
		a, very dense (G	P-GM) (A-1	-6)													
			а. •														
		• •			×												
											-						
				-					<u> </u>								



AET JOI	B NO: 01-05										RINGN				(p. 1		IJ
PROJEC	T: South	west Light	Rail Tr	ansit Pro	ject,	PEC Ea	st; H				Minne						
SURFAC	E ELEVATION:	915.6	н	lennepin Co.	Coordin	ates:	N	15	3878	3		E É	50748				
DEPTH		MATERIAL DE	SCRIPTIO	N		GEOLO	GY	N	MC	SA	MPLE	REC			BORAT	1	
IN FEET								14			YPE	IN.	WC	DEN	LL	PL	%-#
1 -	FILL, mostly si ashes/cinders, b		le gravel	and		FILL		12	Μ	M	SS	12					
2 — 3 — 4 —	FILL, mixture of gravel, a little of brown (A-1-b)	of sand and sa layey sand, li	nd with s ght browr	ilt, with 1 and				25	М	R	SS	12		. *			-
5 — 6 —								12	Μ	X	SS	12			ų		
7	FILL, mostly si (A-1-b)	lty sand with	gravel, br	own .				12	Ņ	A	SS	3					
10 — 11 —	FILL, mostly sa (A-1-b)	and with silt a	nd gravel	, brown				8	М		SS	12					
12 — 13 — 14 —								8	М		SS	18					
15 - 16 -	LEAN CLAY stiff (CL) (A-6)		, dark bro	own, very		FINE ALLUVI	UM	18	М		SS	16	15				
17 — 18 — 19 —	SAND, a little light brown, mo	gravel, fine to bist, medium) medium dense (SP	grained, ') (A-3)		COARSE ALLUVI		25	М	K	SS	16					
20 - 21 -								26	М	R	SS	18					-
22 — 23 — 24 —	SAND WITH (grained, light b (A-1-b)	GRAVEL, me rown, moist,	edium to f medium d	iine lense (SP)				30	М	K	SS	18					
25 — 26 —	SAND, a little light brown, mo			grained,				32	М	R	SS	18					
27 — 28 — 29 —	SAND WITH (grained, light b (A-1-b)	GRAVEL, mo rown, moist,	edium to f medium d	fine lense (SP)				22	М	M	SS	12					-
30 - 31 -	SAND WITH s grained, brown							10	M	\square	SS	12					
	END OF BOR	RING															
		METHOD						י מן זיב		<u></u> те		I		<u> </u>			
DEF	TH: DRILLING	METHOD				ER LEVEL				- T	ייזוומח	NG	W 7 A TT		NOTE:		
0-2	0-29½' 3.25" HSA	DATE	TIME	SAMP DEP	TH DE	SING PTH	DE	/E-IN PTH	FL	DRILLI JUID LE	VEL	WAT LEVI	EL	THE A			
			5/10/13	11:15	31.	5 29	9.5	3().3				Non	e	SHEE	TS FO	RA
			5/10/13	11:20	31.	5 29).5	3().3				Non	e	EXPLA	NATI	ON
BORIN	IG LETED: 5/10/13									1]1	FERMI	NOLO	GY
	LETED: 5/10/13	i			1					1		1				HIS LO	

AMERICAN ENGINEERING TESTING, INC.

SUBSURFACE BORING LOG

AET JO	B NO: 01-05697					LO	G OF	BO	RING N	0	1068	SS SS	(p. 1	lof	1)
PROJEC	CT: Southwest Lig	ht Rail Tr	ansit Pro	oject,	PEC East; I	Hopl	kins	to]	Minn	eapol	lis, M	IN			
SURFAC	CE ELEVATION:917.2	Ē	Iennepin Co.	Coordin	nates: N	1:	5377	9		E :	50726	2			
EPTH			NT		OF OL OCY			SA	MPLE	REC	FIELI) & LA	BORAT	ORY '	TEST
IN EET	MATERIAL I	DESCRIPTIO	in .		GEOLOGY	N.	MC		TYPE	ĪN.	WC	DEN	LL	PL	%- #:
1 -	FILL, mostly silty sand, a ashes/cinders, black and d	little gravel ark brown (and A-2-4)		FILL	29	М	M	SS	18					
2	SAND WITH GRAVEL, s grained, light brown, mois (A-1-b) (possible fill)	medium to f t, medium c	fine lense (SP)		COARSE ALLUVIUM OR FILL	14	М	Image: A start in the start	SS	12					
5 - 6 - 7	SAND WITH GRAVEL, brown, moist, medium der (possible fill)					19	M		SS	18			-		
7	SAND, a little gravel, med light brown, moist, medium (possible fill)					22	М	R	SS	10		-			
10	SAND WITH GRAVEL, grayish brown, moist, med				COARSE ALLUVIUM	12	М	Image: A start in the start	SS	18	-				
12 — 13 — 14 —	SAND WITH GRAVEL, grained, light brown, mois (A-3)					12	М	Image: A start in the start	SS	18					- - -
15 — 16 —	SAND WITH GRAVEL, brown, moist, medium der					13	М	Image: A start of the start of	SS	5					
17	SAND, a little gravel, mec moist, medium dense (SP)		l, brown,			20	M	R	SS	5	•				
20 – 21 –	SAND WITH GRAVEL, grained, light grayish brow dense (SP) (A-1-b)					30	M	X	SS	16					
22 - 23 - 24 -						20	M	X X	SS	18					
25 - 26 -	SAND WITH GRAVEL, brown, moist, medium der (SP) (A-3)	fine grained ise, laminat	l, light ions of silt			18	М	R	SS	18					
27 — 28 — 29 —	• •					20	M	X	SS	18					
30 - 31 -	SAND WITH SILT, fine g little brown, moist, dense, (SP-SM) (A-3)	grained, ligh laminations	nt brown, a s of silt			38	M	X	SS	20					
	END OF BORING		•												
DEP	TH: DRILLING METHOD			WATI	ER LEVEL MEA	SURE	EMEN	TS				1	NOTE:	REFE	RT
0.01		DATE	TIME	SAMPI DEPT	ED CASING H DEPTH	CAV	/E-IN PTH	FI	ORILLIN UID LE	IG VFI	WATE	ER	THE A		
0-29	0-29 ¹ /2' 3.25" HSA	5/10/13	9:08	31.5			1.1		ODLE	V ĽL	Non	. L.	SHEET		
													XPLA		
BORIN	G	5/10/13	9:13	31.5	5 29.5	3	1.1	-			Non	C	ERMIN		
	G LETED: 5/10/13				·						•			IS LO	
DR: G	H LG: JMM Rig: 1C				-								. 11		<u> </u>

03/2011



AET JO	B NO: 01-05697								RING N			51	(p.]	l of])
PROJEC	CT: Southwest Ligh	t Rail Tr	ansit Pro	ject,	PEC East	; Hop	kins	to]	Minn	eapo	lis	-			
SURFAC	CE ELEVATION: 918.0	H	Hennepin Co	o. Cooi	dinates:	<u>N 1</u>	5007.	3		E ·	49951	2			
EPTH IN FEET	MATERIAL D	ESCRIPTIO	N		GEOLOGY	N	MC	SA	MPLE TYPE	REC	FIELI) & LA	BORAT	FORY 7	'ES'
TEET	MATERIAL		11			14	WIC	[]	ГҮРЕ	IN.	WC	DEN	LL	PL	%-#
1 -	FILL, mostly silty sand wit ashes/cinders, trace roots, c				FILL	16	М	M	SS	18					
2 — 3 —	FILL, mostly silty sand, a l brown (A-2-4) FILL, mostly sand with gra		-	/		24	M	X	SS	16					
4 — 5 — 6 —	LEAN CLAY, trace roots, brown, firm to stiff, lamina (CL) (A-6)	dark brown	n, a little		TOPSOIL O FINE ALLUVIUN		M	Li X R	SS	14	24				Þ
7 8 0						9	M	X	SS	14	28				
9	LEAN CLAY, brown and (A-6)	light browr	n, stiff $\overline{(CL)}$		FINE ALLUVIUN	1 11	М		SS	10	15				
12 — 13 —	SILTY SAND, a little grav brown, moist, medium den	vel, fine gra ise (SM) (A	iined, -2-4)		COARSE ALLUVIUN	1 15	M		SS	12					
14 — 15 — 16 —	SAND WITH GRAVEL, f grained, light brown, moist (A-1-b)					16	M		SS	14					
17 — 18 —	SAND, a little gravel, fine light brown, moist, dense (grained,			38	M		SS	12					
19	SAND WITH GRAVEL, f grained, light brown, moist (A-1-b)	ine to med t, medium o	ium dense (SP)			23	₩	¥ A	SS	14					
22 – 23 –	SAND, a little gravel, med brown, waterbearing, medi (A-1-b)	ium to fine ium dense (grained, (SP)		- - - -	12	w	X	SS	14					
24 25 26						12	w	Å	SS	. 14					
27 28	SAND WITH SILT AND fine grained, brown, water dense (SP-SM) (A-1-b)				- - - - - -	27	w	K	SS	14					
29 30 31	CLAYEY SAND, a little g hard, lenses and lamination (A-2-4)	gravel, brov ns of silty s	vnish gray, and (SC)		TILL	33	М	X	SS	16	13				
	END OF BORING											<u> </u>			
DEP	TH: DRILLING METHOD				ER LEVEL M			-					NOTE:	REFE	RΊ
0-2	9½' 3.25" HSA	DATE	TIME	SAMPI DEPT	LED CASIN TH DEPTH	G CA I DE	VE-IN EPTH	FL	DRILLI JUID LE	NG EVEL	WAT LEVI	ER EL	THE A	TTAC	HE
<u> </u>		5/17/13	11:55	23.			1.4				21.2	2	SHEE	FS FOF	R A
		5/17/13	12:25	23.			1.5	-			21.3	,	EXPLA	NATIC)N (
	a		·					-				— -			v.
BORIN	IG LETED: 5/17/13	5/17/13	1:00	23.	1 29.5	2	9.5			ļ	24.8	8 11	ERMIN	NOLOC	ιr /