

AET JO	B NO: 01-05697	-		,			LO	G OF	BOR	ING N	O	1070	SS	(p. 1	of 1	<u> </u>
PROJEC	Southwest Ligh	t Rail Tr	ansit Pro	oject,	PEC	East; I	Iopk	cins 1	to N	Minn	eapo	lis, M	IN			
SURFAC	CE ELEVATION: 920.0	F	Hennepin Co.	. Coordi	nates:	N	14	19985	5	-	E .	49931	7			
DEPTH	MATERIAL	AECDIDTO	N		CEC	OLOGY	Νī	MC	SA	MPLE	REC	FIELI) & LA	BORAT	ORY T	ESTS
DEPTH IN FEET	MATERIAL D	ESCRIPTIO.	IN		GEA	OLOGI	,N	MC	Т	YPE	IN.	WC	DEN	LL	PL '	⁄o-#20
1 —	FILL, mostly silty sand wit brown (A-1-b)	h gravel, tr	ace roots,		FILL		12	М	\bigvee	SS	14					
3 -	FILL, mixture of silty sand a little gravel, trace roots, b	and sandy brown (A-2-	lean clay, -4)				6	M		SS	12	9				
4 - 5 -	SAND, a little gravel, fine light brown, moist, dense (grained,			RSE UVIUM	32	M	<u>}</u>	SS	14					
6 — 7 —	SAND WITH GRAVEL, r								7							
8 – 9 –	grained, light brown to bro medium dense (SP) (A-1-b	wn, moist,)	dense to				34	M	X F3	SS	14					
10 —							17	M	X	SS	12					-
11 — 12 —									H							
13 —							25	M	M	SS	12					
14 —									3							
15 —							29	M	M	SS	14					
16 —									F							
17 —									H		1.0			:	ļ :	
18 —						9	26	M	Å	SS	12	1.				
19 —									1							
20 —							38	M	X	SS	12					
21 –				- ////	: 				R							
22 —	CLAYEY SAND, a little g firm (SC) (A-2-4)	gravel, brov	vn, stiff to		TILI	_	12	_	M	SS	16	11				
23 —							12	<u> </u>	A	33	10	11				
24 —			•						1							
25 —							8	M	X	SS	18	13				
26 —	CILTY CAND - 1241-	ral hearre	madium						3							
27 -	SILTY SAND, a little grav dense to loose (SM/SC) (A	7-2-4)	meatulli				17	M/W	M	SS	18					
28 -									H			8				
29 -	1	•				•			H							
30 -	·						9	M/W	\mathbb{M}	SS	16					
31 -	END OF BORING															
DEI	PTH: DRILLING METHOD		,	WAT	ΓER LE	EVEL MEA	SURI	EMEN	TS					NOTE:	REFE	R TO
0-2	.9½' 3.25" HSA	DATE	TIME	SAMP DEP	TH .	CASING DEPTH	CAV DE	VE-IN PTH	FL	ORILLI UID LI	NG EVEL	WAT LEV	ER EL	THE A		
		5/17/13	9:56	26.	.0	24.5	2	4.7				24.		SHEE		,
		5/17/13	10:21	26	.0	24.5	2	4.4				23.	<u>/</u>	EXPLA		
BORIN COMP	NG PLETED: 5/17/13	5/17/13	10:30	26	.0	24.5	2	4.4				23.	4	TERMII		
DR: S		5/17/13	10:40	26	.0	24.5	2	4.3				23.	3	TF	IIS LO	G



AET JOI	B NO: 01-05697					LO	G OF	BORI	NG _. NO	D	1071	ST	(p. 1	lof	1)
PROJEC	Southwest Ligh	it Rail Tr	ansit Pro	ject,	PEC East; l	Hopl	cins 1	to M	Iinne	apo	lis, M	IN			
SURFAC	CE ELEVATION: 889.8	Н	lennepin Co.	Coordir	nates: N	1:	55534	1	_1	3 ;	51092	2			
DEPTH	MATERIAL I	ARECDIDITIO	NT		GEOLOGY	N	MC	SAN	/PLE	REC	FIELI) & LA	BORAT	ORY '	TESTS
IN FEET	WATERIALI	JESCKIF HOI			GEOLOGI	N	IVIC	TY	PE	IN.	WC	DEN	LL	PL	% - #2
1 - 2 -	FILL, mixture of silty sand sand with organic fines, pi roots, brown, black and grant sand sand grant sand sand sand sand sand sand sand sand	eces of cond	crete, trace		FILL	94	М		SS	17					
3 –		*				19	M	\mathbb{X}	SS	18					
5 -	LEAN CLAY, brown, firm	n (CL) (A-6)		FINE ALLUVIUM	5	М	P	SS	18	26		-		
6 — 7 — 8 — 9 —	SAND WITH SILT, a little medium grained, brown an medium dense (SP-SM) (A	d light brov			COARSE ALLUVIUM	19	М		SS	20					
10 -	SAND WITH GRAVEL, I grained, light brown, mois lens of fine grained sand w	t, medium d	ense, a			23	M		SS	18					
12 - 13 - 14 -	SAND WITH SILT, a littl medium grained, brown, m (SP-SM) (A-3)	e gravel, fin noist, mediu	e to m dense			16	M		SS	17					
15 — 16 —	SAND WITH SILT, a littl fine grained, light brown, medium dense, a lens of fi (SP-SM) (A-1-b)	moist to wat	terbearing,		·	14	N V		SS	19			-		
17 - 18 - 19 -	SANDY LEAN CLAY, a stiff (CL) (A-6)	little gravel	, brown,		TILL	15	M	X E	SS	18	13				
20 - 21 -						14	M	M	SS	20	13				
	END OF BORING														
		•						ALCONO.							
			`												
DEP	TH: DRILLING METHOD			WAT	ER LEVEL MEA	ASURI	EMEN	TS					NOTE:	REFI	ER TO
Λ 1	01/1 2.25U TTG A	DATE	TIME	SAMP DEP	LED CASING TH DEPTH	CAY	VE-IN PTH	D FLI	RILLII JID LE	VEL	WAT LEVI	ER EL	THE A	TTAC	CHEL
0-19	9½' 3.25" HSA	6/11/13	12:40	19.		 	7.5	1.1.0		, 24	16.		SHEE	TS FO	R AN
		6/11/13	12:50	19.	-	+	6.7				16.		EXPLÁ	NATI	ON C
		0/11/13	14.50				U • /	-					cco i an	TOT O	CV C
BORIN	IG LETED: 6/11/13	6/11/13	1:00	21.	0 19.5) 2	1.0				20.	6	ΓERMΠ	NOLO	GIL



1072 ST (p. 1 of 1) 01-05697 LOG OF BORING NO. AET JOB NO: Southwest Light Rail Transit Project, PEC East; Hopkins to Minneapolis, MN PROJECT: 510407 894.2 155298 Hennepin Co. Coordinates: SURFACE ELEVATION: FIELD & LABORATORY TESTS DEPTH IN FEET SAMPLE TYPE REC IN. **GEOLOGY** MATERIAL DESCRIPTION N MC WC DEN PL %-#200 LL FILL FILL, mostly silty sand with gravel, a little SS clayey sand, trace roots, brown, grayish brown 23 M 18 1 and black (A-1-b) 2 FILL, mostly sand with silt, a little gravel, pieces COARSE 29 SS 3 M 18 of brick, light brown (A-1-b) ALLUVIUM SAND WITH SILT, a little gravel, fine to 4 medium grained, light grayish brown, moist, 5 medium dense (SP-SM) (A-3) SS 31 M 18 SAND, a little gravel, medium to fine grained, 6 light grayish brown, moist, dense (SP) (A-1-b) 7 SAND WITH GRAVEL, medium to fine SS grained, light brown, a little gray, moist, medium 17 M 16 8 dense, a lens of silt at 10½' (SP) (A-1-b) 9 10 SS 17 M 17 11 12 SAND, fine to medium grained, light brown, SS moist, medium dense (SP) (A-3) 19 13 18 M 14 SAND WITH GRAVEL, medium to fine 15 grained, light brown, moist, medium dense (SP) M SS 18 26 16 (A-1-b) 17 SAND, a little gravel, medium to coarse grained, SS brown, moist to about 19' then waterbearing, 24 18 18 medium dense (SP) (A-1-b) 19 20 W SS 12 18 21 END OF BORING 01-05697.GPJ WATER LEVEL MEASUREMENTS DEPTH: DRILLING METHOD NOTE: REFER TO CAVE-IN DEPTH DRİLLING FLUID LEVEL SAMPLED DEPTH CASING DEPTH WATER LEVEL THE ATTACHED DATE TIME 0-191/21 3.25" HSA SHEETS FOR AN 21.5 19.5 19.5 19.2 6/11/13 1:45 **EXPLANATION OF** 19.2 6/11/13 1:55 21.5 19.5 19.5 BORING COMPLETED: 6/11/13 TERMINOLOGY ON THIS LOG DR: SG LG: SB Rig: 1C



 $\overline{1073}$ ST (p. 1 of 1) 01-05697 LOG OF BORING NO. AET JOB NO: Southwest Light Rail Transit Project, PEC East; Hopkins to Minneapolis, MN PROJECT: 155027 509876 898.6 Hennepin Co. Coordinates: SURFACE ELEVATION: FIELD & LABORATORY TESTS DEPTH IN FEET SAMPLE TYPE REC IN. **GEOLOGY** MATERIAL DESCRIPTION MC N WC DEN PL%-#200 LL FILL FILL, mostly silty sand with gravel, a little SS 7 clayey sand, brown and dark brown (A-2-4) 16 M 1 2 FILL, mostly gravelly sand with silt, brown SS 8 (A-1-b)16 M 15 4 3 4 FILL, mostly sand with silt and gravel, a little 5 SS 9 10 clayey sand, dark brown, a little black (A-1-b) 11 M 15 6 7 17 CLAYEY SAND, a little gravel, trace roots, TILL \dark brown, stiff (SC) (A-6) 9 SS 13 M FINE 8 19 **ALLUVIUM** LEAN CLAY, brown, stiff (CL) (A-6) 9 SAND WITH GRAVEL, fine to medium COARSE 10 grained, light brown, a little brown, moist, ALLUVIUM 18 SS 18 M 11 medium dense, a lens of fine to medium grained sand with silt (SP) (A-1-b) 12 SAND WITH GRAVEL, medium to fine SS 17 25 M 13 grained, light brown, moist, medium dense (SP) 14 15 SS 18 27 M 16 17 GRAVEL WITH SILT AND SAND, brown, moist, very dense (GP-GM) (A-1-b) 52 M SS 5 18 19 GRAVELLY SAND, medium to coarse grained, 20 SS brown, moist, dense (SP) (A-1-b) 32 M 15 21 END OF BORING 01-05697.GPJ WATER LEVEL MEASUREMENTS DEPTH: DRILLING METHOD NOTE: REFER TO DRILLING FLUID LEVEL SAMPLED DEPTH CASING DEPTH CAVE-IN DEPTH WATER LEVEL THE ATTACHED DATE TIME 0-191/21 3.25" HSA SHEETS FOR AN 21.5 19.5 21.0 None 6/11/13 3:00 EXPLANATION OF BORING COMPLETED: 6/11/13 TERMINOLOGY ON THIS LOG DR: SGLG: SB Rig: 1C



1074 ST (p. 1 of 1) 01-05697 LOG OF BORING NO. AET JOB NO: Southwest Light Rail Transit Project, PEC East; Hopkins to Minneapolis, MN PROJECT: 509326 154785 904.1 Hennepin Co. Coordinates: SURFACE ELEVATION: FIELD & LABORATORY TESTS DEPTH IN FEET SAMPLE TYPE REC IN. **GEOLOGY** MATERIAL DESCRIPTION MC WC DEN PL %-#200 LL FILL FILL, mostly sand with silt and gravel, a little 25 SS 16 silty sand and clayey sand, brown, a little dark M 1 brown (A-1-b) 2 8 19 SS 14 4 M 3 4 5 SS 12 M 10 6 12 SS M 9 10 30 M SS 8 11 12 SAND WITH SILT AND GRAVEL, fine to COARSE ALLUVIUM SS medium grained, light grayish brown, a little 27 M 4 13 OR FILL dark brown, moist, medium dense, a lens of 14 clayey sand (SP-SM) (A-1-b) (possible fill) **COARSE** SAND WITH GRAVEL, medium grained, 15 ALLUVIUM 13 M SS 12 brown, moist, medium dense (SP) (A-1-b) 16 17 SS 11 M 10 18 19 20 SS 8 15 M 21 **END OF BORING** 01-05697.GPJ WATER LEVEL MEASUREMENTS DEPTH: DRILLING METHOD NOTE: REFER TO CAVE-IN DEPTH DRILLING FLUID LEVEL WATER LEVEL SAMPLED DEPTH CASING DEPTH THE ATTACHED TIME DATE 0-191/21 3.25" HSA SHEETS FOR AN 6/12/13 21.5 19.5 21.4 None 12:30 EXPLANATION OF BORING COMPLETED: 6/12/13 TERMINOLOGY ON THIS LOG DR: JM LG: SHS Rig: 1C



AET JO	OB NO: 01-05697					LC	G OF	BORING	3 NO.	107	5 ST	(p. 2	1 of	1)
PROJEC	CT: Southwest Ligh	t Rail Tr	ansit Pro	ject,	PEC East;	Hopl	kins	to Mir	neap	olis, N	ΛN	-		
SURFA	CE ELEVATION: 909.4	H	Iennepin Co.	Coordi	nates: N	1	54516	5	_E	5087	75			
DEPTH IN FEET	MATERIAL E	DESCRIPTIO	N		GEOLOGY	N	MC	SAMP	E RE	C	-T	ABORA'	TORY T	rests
FËÈT						1,,	1,70	TYPI	E IN	· WC	DEN	LL	PL	%-#200
1 -	FILL, mostly clayey sand valittle gravel, trace roots, da FILL, mostly silty sand with	rk brown (<i>A</i>	A-2-4)	<u> </u>	FILL	23	M	ss	S 16	5				
2 —	\brick, dark brown (A-1-b)				FINE ALLUVIUM			M_{α}	, ,	0.5				
3 — 4 —	LEAN CLAY, trace roots, stiff (CL) (A-6)	dark brown	ı to brown,			9	M	X SS	5 14	25	-			
5 — 6 —	SAND WITH SILT AND cobbles, fine to medium gr	ained, light	brown,		COARSE ALLUVIUM	42	M	ss	5 12	2	-			
7 —	moist, dense to very dense	(SP-SM) (A	A-1-0)					P						
8 — 9 —	SAND WITH GRAVEL, r					53	M	X S	5 0					
10 —	dense (SP) (A-1-b)	. "	ar.		•	23	M	S:	S 16	5				
11 -	SAND WITH SILT AND	GRAVEL.	possible		•									
13 - 14 -	cobbles, fine to medium gr very dense (SP-SM) (A-1-	ained, brow				71	M	S	5 4					
15 —	SAND WITH GRAVEL, 1 grained, light brown, moist	medium to o	coarse P) (A-1-b)			31	M	S	S 12	2				
16 — 17 —	SAND WITH GRAVEL, 1	nedium to f	fine											
18 19	grained, light brownish grabrown, moist, dense (SP) (ry to light g				36	M	S	S 10	5				
20 -		6							.					
21						33	M	S	S 10	5				
	END OF BORING													
			•											
				-										
		. •												
	DRILL DRILL DIO ACCUSATOR	Т	al large account	117 A 77	DED I DATE I ME	A CT ID	EMEN	TC			<u> </u>	<u></u>	<u> </u>	<u></u>
	PTH: DRILLING METHOD	DATE	TIME	SAMP DEP	ER LEVEL ME. LED CASING TH DEPTH	CA	VE-IN	DRI	LING LEVEI	WAT	TER /EI	NOTE:	REFE ATTAC	
0-1	19½' 3.25" HSA			21.			1.5	FLUIL	LEVE	No		SHEE		
		6/12/13	2:15	21.	3 17.3	+ - 2	1.3	-		140		EXPLA		
BORI	NG PLETED: 6/12/13					-						TERMI	NOLO	GY ON
						-				1		TI	IIS LO	G
DR: J	THE LOT BLID KIET IC			l					χ.					



AET JOI	B NO: 01-05697					. LO	G OF	BOR	ING N	O	1076	ST	(p. 1	lof	1)
PROJEC	Southwest Ligh	t Rail Tra	ansit Proj	ect,	PEC East; I	Iopl	cins '	to N	Ainne	eapol	lis, M	IN			
URFAC	CE ELEVATION: 911.8	. Н	ennepin Co. (Coordi	nates: N	1:	54248	8		Е :	50824	3			
EPTH		T'G OD ID TO	AT.		CECT OCT	.,		SA	MPLE	REC	FIELD) & L	ABORAT	TORY T	TEST
IN EET	MATERIAL D	ESCRIPTION	N		GEOLOGY	N	MC	T	Ϋ́́РЕ	ÎN.	WC	DEN	LL	PL	% - #2
1 - 2 -	FILL, mostly silty sand wit clayey sand, pieces of brick roots, black, dark brown an	k, ashes/cind ad gray (A-2	ders, trace 2-4)		FILL	19	М		SS	16	-		-	2	
3 - 4 -	FILL, mostly clayey sand, a with silt, dark brown, a littl black (A-6, A-1-b)					12	M		SS	16	16				-
5 — 6 —	SAND WITH GRAVEL, f grained, light grayish brow (A-1-b)	ine to medi n, moist, de	um ense (SP)		COARSE ALLUVIUM	33	M	X	SS	14					-
7 - 8 - 9 -	SAND WITH GRAVEL, r grained, light brown, moist (A-1-b)	nedium to f , medium d	ine ense (SP)			23	M		SS	14					
10 -	GRAVELLY SAND, medigrayish brown, moist, dens					34	M	M. A.	SS	4			1		
12 — 13 — 14 —	SAND, fine to medium gra moist, medium dense, lense and medium to fine grained	es of fine gr	ained sand			15	M	T T	SS	14					
15 — 16 —	SAND WITH GRAVEL, r grayish brown, moist, med (A-1-b)	nedium grai ium dense (ined, light SP)			16	M		SS	16				٠.	
17 – 18 – 19 –						20	M		SS	12					
20 – 21 –	SAND, a little gravel, fine light brown and light grayi medium dense (SP) (A-3)	to medium sh brown, n	grained, noist,			29	М	X	SS	16				-	
	END OF BORING													-	1
1													-		
and the second s									i						
DEP	TH: DRILLING METHOD			WAT	ER LEVEL MEA	SUR	L EMEN	ITS	-	<u> </u>			NOTE	DUU	7D 72
DEF	III. DALLLING METHOD	D				+			ORILL I	NG T	WAT	ER	NOTE:		
0-19	9½' 3.25" HSA	DATE	TIME	SAMP DEP		 	VE-IN EPTH	FĹ	ORILLI UID LE	VEL	LEVI	EL	THE A		
		6/12/13	3:12	21.	5 19.5	2	1.5				Non		SHEE		
								_					EXPLA		
BORIN COMP	G LETED: 6/12/13										-		TERMI		
DR: JI													TF	IIS LO	G .



AET JOI	B NO: 01-05697					LO	G OF	BOl	RING N	O	1077	ST	(p.]	1 of	1)_
PROJEC	CT: Southwest Ligh	it Rail Tra	nsit Pro	ject,	PEC East; I	Iopl	cins 1	to]	Minn	eapol	lis, M	IN .	,		
SURFAC	CE ELEVATION: 913.2	He	nnepin Co.	Coordin	nates: N	1:	54004	4	<u> </u>	E :	50773	1			
DEPTH	MATERIAL D	VECCDIDITION	f		GEOLOGY	N	MC	SA	MPLE	REC	FIELI) & LA	BORA	TORY '	TEST
IN FEET						IN	MC]	TYPE	IN.	WC	DEN	LL	PL	%- #2
1 - 2 -	FILL, mostly clayey sand v gravel, a little silty sand, tra a little gray (A-2-4)	ace roots, da	rk brown,		FILL	11	М	M	SS	6					
3 - 4 -	FILL, mixture of silty sand little gravel, trace roots, dat (A-2-4)					10	М	X	SS	8	9				-
5 — 6 —	FILL, mixture of clayey sar gravel, brown, a little dark					10	M		SS	10	12				
7 - 8 - 9 -	SAND WITH GRAVEL, r grained, light brown, moist (A-1-b)	nedium to fir , medium de	ne ense (SP)		COARSE ALLUVIUM	29	M		SS	16					
10 - 11 -	SAND WITH SILT AND medium grained, light gray medium dense (SP-SM) (A	rish brown, n				24	М		SS	12					
12 - 13 - 14 -	SAND WITH GRAVEL, r grayish brown, moist, med (A-1-b)	nedium grair ium dense (S	ned, SP)		·	16	M		SS	14					
15 — 16 —	SAND WITH GRAVEL, r grained, light grayish brow dense (SP) (A-1-b)	nedium to fin n, moist, me	ne dium			16	M		SS	4.			-		
17 — 18 — 19 —	SAND, a little gravel, med light grayish brown, moist, (A-1-b)					11	M		SS	16					
20 — 21 —	SAND, a little gravel, fine light grayish brown, moist, (A-3)	to medium g , medium der	grained, nse (SP)			16	M	X	SS	4					
	END OF BORING													٠	
				-											
DEF															
		T					-								
DEP	TH: DRILLING METHOD		· · · · · · · · · · · · · · · · · · ·		ER LEVEL MEA			т —					NOTE:	REFI	ER TO
Λ 1	01/1 3 2511 115 4	DATE	TIME	SAMP DEP	LED CASING TH DEPTH	CAY	VE-IN PTH		DRILLI JUID LI		WAT LEVI		THE A	ATTAC	CHEL
0-1	9½' 3.25" HSA	6/12/13	4:00	21.		 	1.5	+			Non		SHEE	TS FO	R AN
		0/12/15	-11-00	#1.	17.0			+			. 101		EXPLA	NATI	ON C
BORIN	[G					+-		+				-	ERMI	NOLO	GY (
COMP.	LETED: 6/12/13		· ·			-		+					TŦ	IIS LO	G
DR: J	M LG: SHS Rig: 1C			···		1								01-E	



1	Couthwest Ligh					DC	0.01	BORING		1078		\ <u> </u>		
1	CI: Southwest Ligh	t Rail Tr	ansit Pro	ject,	PEC East;	Hopl	kins	to Min	neapo	lis, N	IN			
	CE ELEVATION: 918.1	. H	Iennepin Co.	Coordir	nates: N	[1	53465	5	<u>E</u>	50662				
DEPTH IN FEET	MATERIAL I	DESCRIPTION	N		GEOLOGY	N	MC	SAMPI TYPE	E REC	WC	D & LA DEN	BORAT	Γ	ΓΕSTS %-#20
1 - 2 - 3 -	FILL, mostly clayey sand valittle gravel, trace roots, black in FILL, mostly silty sand with clay, brown, a little black at (A-1-b)	nck (A-2-4) h gravel, a	little lean	/	FILL	28	M	ss ss		24				19
4 5 6 7	LEAN CLAY, trace roots, firm (CL) (A-6)	- *			FINE ALLUVIUM	6	M	图 ss 图	12	23				-
8 – 9 –	SAND WITH SILT, a little medium grained, brown, m lens of fine grained sand w	oist, mediu ith silt (SP-	m dense, a -SM) (A-3)		COARSE ALLUVIUM	19	M	区 图	10	,				
10 11 12	SAND WITH SILT, medium brown, moist, medium den	se (SP-SM)	(A-1-b)			11	M	SS PA	16		-			
13 — 14 —	fine grained, brown, moist, laminations of clayey sand	medium de (SP-SM) (A	ense, A-1-b)			16	M	区 图	18		-			
15 — 16 — 17 —	SAND WITH GRAVEL, r grained, grayish brown, mo (SP) (A-1-b)	oist, mediur	n dense			30	M	SS P	14				To the state of th	decima
18 — 19 —	GRAVELLY SAND, med moist, medium dense (SP)	(A-1-b)				21	М	区 图	12					
20 – 21 –	SAND, a little gravel, med brown, moist, medium den					21	M	ss	18					
	END OF BORING			Action for the second s		, .								
· ·									,					
DEF	PTH: DRILLING METHOD			WAT	ER LEVEL ME			TS				NOTE:	REFE	R TC
0-1	19½' 3.25" HSA	DATE	TIME	SAMPI DEPT	LED CASING TH DEPTH	CA' DE	VE-IN PTH	DRIL FLUID	LING LEVEL	WAT LEV	ER EL	THE A		
		6/14/13	1:23	21.	5 19.5	2	1.5			Nor		SHEE		
BORIN	NG											EXPLA TERMII		
COMP	LETED: 6/14/13 M LG: SHS Rig: 1C					ļ					'		IIS LO	



AET JOI	B NO: 01-05697				* •	LO	G OF	BOR	ING N	O,	1079	ST	(p.]	l of	1)
PROJEC	Southwest Ligh	t Rail Tra	ansit Pro	ject,	PEC East; l	Hopl	cins 1	to N	Ainn	eapol	is, M	IN			
	EE ELEVATION: 915.2	Не	ennepin Co.	Coordii	nates: N	1:	53205	5	-	E :	50608	8			
DEPTH					GROV OGV			SAT	MPLE	REC	FIELI) & LA	BORAT	TORY	TESTS
IN FEET	MATERIAL D			,	GEOLOGY	N	MC.	T	YPE	ÎN.	WC	DEN	LL	PL	%-#2
1 - 2 -	FILL, mostly silty sand, a l sand, ashes/cinders, dark b (A-2-4)	rown and bl	ack		FILL	18	M _.		SS	12	~				
3 - 4 -	SAND WITH SILT, a little medium grained, light brov moist, dense, a lens of sand (SP-SM) (A-3)	vn, a little bi	rown,		COARSE ALLUVIUM	39	М	Y H	SS	18		-		,	
5 — 6 — 7 —	SAND WITH GRAVEL, f grained, light grayish brow (A-1-b)	n, moist, de	nse (SP)			46	M	N H	SS ·	16			4	:	
8 — 9 —	SAND, medium grained, li little brown, moist, medium of silt (SP) (A-1-b)					20	M	M	SS	.18					
10 – 11 –	SAND, medium to fine gramoist, medium dense, lami (A-1-b)	ined, light b nations of si	orown, ilt (SP)			. 19	M	X P	SS	12					
12 — 13 — 14 —	SAND, a little gravel, med brown, moist, medium den (SP) (A-1-b)	ium grained se, laminatio	, light ons of silt		·	17	M	R	SS	10			Î		
15 — 16 —	SAND WITH GRAVEL, r grained, light grayish brow dense (SP) (A-1-b)	nedium to fi n, moist, me	ine edium			20	M	X I	SS	16					
17 — 18 — 19 —	GRAVELLY SAND, med light brown, moist, very de	ium to fine g ense (SP) (A	grained, -1-b)			71	M		SS	10					
20 – 21 –	GRAVELLY SAND, med moist, dense (SP) (A-1-b)	ium grained	, brown,			40	M	M	SS	8	-				
	END OF BORING														
						-	-					·			
						ALAMADA MANAGA PARTA PAR						,			
	,													,	
DEP	TH; DRILLING METHOD			WAT	ER LEVEL MEA	ASURI	EMEN	TS				1	NOTE:	REF	ER TO
Λ 1/	01/1 3 25!! UCA	DATE	TIME	SAMP DEP	LED CASING TH DEPTH	CAY	VE-IN	FLU	RILLI UID LE	NG EVEL	WAT LEVI	ER	THE A		
0-19	9½' 3.25" HSA	6/14/13	2:30	21.			1.5	1-2			Non		SHEE'	TS FO	R AN
		0/17/10	= •00	41,				-					EXPLA	NATI	ON C
BORIN	G CAAAA					-				.	-	$ \mid$ T	ERMI	NOLO	GY C
	LETED: 6/14/13					 							Τŀ	IIS LC)G
DR: JI	M LG: SHS Rig: 1C				L									01-I	



AET JO	B NO: 01-05697		•				LO	G OF	BOI	RING N	O.	1080) ST	(p. 1	lof	1)
PROJEC	~ · · · · · · · · · · · · · · ·	t Rail Tr	ansit Pro	ject,	PEC	East; I	Hopl	kins	to I	Minn	eapo]	lis, N	IN			
	CE ELEVATION: 913.5	F	Iennepin Co.	Coordi	nates:	<u>N</u>	1:	52940	6		Е ;	50554	1			
DEPTH IN FEET	MATERIAL I	FSCRIPTIO	N		GE	OLOGÝ	N	MC	SA	MPLE YPE	REC	FIELI	D & LA	BORAT	ORY T	rests
FEET							14	IVIC	Т	YPE	IN.	WC	DEN	LL	PL	%- #200
1 - 2 -	FILL, mostly silty sand wit pieces of bituminous, dark (A-1-b)	brown, a li	ttle brown		FILL	,	19	M	M	SS	10					
3 —	FILL, mostly gravelly sand sand, dark brown, a little b						26	M	M	SS	12	5				9
5 6	FILL, mostly sand with silt brown, a little brown (A-1-		l, dark				19	M	X	SS	14	4			,	8
7 — 8 — 9 —	FILL, mostly sand with grasilt, light brown, a little brown.	ivel, a little own (A-1-b	sand with				18	M		SS	16					
10	SAND, a little gravel, fine moist, medium dense, lami (A-3)	grained, lig	ght brown, silt (SP)			RSE UVIUM	21	M		SS	12				· ·	
12 - 13 - 14 -	SAND, a little gravel, med light brown, moist, medium of silt (SP) (A-1-b)						20	M	N E	SS	10			,		
15 — 16 —	·					-	17	M	M	SS	18					
17 — 18 — 19 —	GRAVELLY SAND WITH cobble at 18½, medium to brown, moist, dense (SP-S	coarse grai	ined,				42	M	THE STATE OF THE S	SS	10				-	-
20 -	SAND WITH GRAVEL, 1 brown, moist, medium den	nedium gra se (SP) (A-	nined, -1-b)				18	M	M	SS	14					
0.175	END OF BORING							and the state of t							The state of the s	
DEF 0-1 BORIN COMP DR: J															·	
DEF	PTH: DRILLING METHOD			WAT	ER LI	EVEL MEA	SURI	EMEN	TS					NOTE:	REFE	R TO
0-1		DATE	TIME	SAMP DEP		CASING DEPTH		VE-IN PTH		DRILLI UID LI	NG EVEL	WAT	ER	THE A		
		6/17/13	9:35	21.	5	19.5	2	1.3	1			Nor	1e	SHEE	TS FO	R AN
														EXPLA	NATIO	ON OF
BORIN	IG LETED: 6/17/13			. :										TERMIN	NOLO	GY ON
DR: J							Ŀ					٠.		TH	IIS LO	G
	<u> </u>		·				•								01 E	HR-0



AET JO	OB NO: 01-05697	-					LO	G OF	BOF	UNG N	O	1081	ST	(p. 1	of	1)
PROJEC	Southwest Ligh	t Rail Tra	nsit Pro	ject,	PEC	East; F	lopl	cins 1	to I	Minne	eapol	is, M	N	,		
SURFA	CE ELEVATION: 911.7	Не	ennepin Co.	Coordi	nates:	N	1:	52677	7		E :	50498				
DEPTH IN FEET	MATERIAL D	ESCRIPTION	1		GEO	LOGY	N	MC	SA T	MPLE YPE	REC IN.	FIELI WC	DEN	ABORAT	l	rests %-#20
1 — 2 —	FILL, mixture of gravelly s with silt, dark brown and brown (A-1-b) FILL, mostly sand with silt	rown, a little	e black	<u> </u>	FILL	-	15	M	M	SS	12					
3 — 4 —	sand, light brown, a little br	rown (A-1-b	o) 				15	M	X PA	SS	14	4				5
5 — 6 —	FILL, mostly sand, a little g clayey sand, light brown an brown (A-1-b)	gravel, silty d brown, a	sand and little dark				11	M	X H	SS	16					
7 — 8 — 9 —			•				15	M	M R	SS	4		-			
10 — 11 —	FILL, mostly sand with gra silt and ashes/cinders, light (A-1-b)	vel, a little s brown, a lit	sand with ttle black				12	М		SS	12					
12 - 13 - 14 -	FILL, mostly gravelly sand dark brown (A-1-b)	with silt, b	rown and				14	М		SS	14					
15 — 16 —							14	M		ss	10		,			
17 18 19							15	M		SS	4			·		
20 – 21 –	FILL, mostly gravelly sand clayey sand (A-1-b)	with silt, a	little				9	M	X	SS	10					-
	END OF BORING						AAAAA MARAANAA AAAAAA AAAAAA AAAAAA AAAAAA AAAAAA									
						~							-			
DE	PTH: DRILLING METHOD	·		WAT	TER LE	VEL MEA	SUR	EMEN	TS					NOTE	REF	ER TO
0-1	19½' 3.25" HSA	DATE	TIME	SAMP DEP	LED TH	CASING DEPTH	CA' DE	VE-IN PTH	FI	DRILLI UID LI	NG EVEL	WAT LEV	ER EL		ATTAC	
		6/17/13	10:08	21.	.5	19.5	2	1.3				No	ne		TS FO	
									_					EXPLA		
DE 0-1 BORD COME	NG PLETED: 6/17/13								_					TERMI		
DR: J	M LG: SHS Rig: 1C													11	HIS LC	G VID :



AET JO	OB NO: 01-05697	-					LO	G OF	BOR	ING N	O	1082	ST	(p. 1	of	1)
PROJE	CT: Southwest Light	t Rail Tra	ansit Pro	ject,	PEC	East; I	Hopk	cins 1	to N	Ainn						
SURFA	CE ELEVATION: 911.0	Н.	ennepin Co.	Coordi	nates:	<u>N</u>	1:	52431	<u> </u>		E 5	50445				
DEPTH IN FEET	MATERIAL D	ESCRIPTION	N		GEC	LOGY	N	МС	SA T	MPLE YPE	REC IN.	FIELI WC	DEN	BORAT	1	TESTS %-#200
1 -	FILL, mostly gravelly silty ashes/cinders, dark brown a little black (A-1-b)	sand, a little and light bro	e own, a		FILL		20	М	M	SS	- 12					
3 -	FILL, mostly sand with silt silt, brown (A-1-b)	and gravel,	, a little				19	M	M	SS	10					
4 5 6	FILL, mostly sand with grallight brown, a little brown (vel, a little (A-1-b)	lean clay,				12	М	2	SS	16					
7 8 9	FILL, mostly sand with silt clayey sand, brown, a little	and gravel, dark brown	, a little n (A-1-b)				17	M	Y H	SS	12					
10 - 11 -	FILL, mostly sand with silt lean clay, brown (A-1-b)	and gravel	, a little			•	9	M		SS	10	,	w 1			
12 - 13 - 14 -	FILL, mostly sand with grabrown, a little brown (A-1-		silt, light				17	M	X	SS	16					
15 - 16 - 17 -	FILL, mostly sand with gra sand, light brown, a little de						9	M		SS	10					
18 - 19 -		11//1					9	M	Z Z	SS	8					
20 - 21 -	FILL, mostly sand with silt brown, a little dark brown	(A-1-b)	ivei,				8	M	M	SS	16					
	END OF BORING					•										
							-				·			-		
		<i>(</i>										-	-			
DE 0-									,							
DE	EPTH: DRILLING METHOD			WA	ΓER LE	VEL ME	ASUR	EMEN	ITS		r			NOTE	: REF	ER TO
0-1	19½' 3.25" HSA	DATE	TIME	SAME DEP	PLED TH	CASING DEPTH	CA'	VE-IN EPTH	FL	DRILLI UID LI	NG EVEL	WAT LEV	ER EL		ATTAC	
		6/17/13	11:37	21	.5	19.5	2	1.5				Noi	ne		TS FO	
BORI	NG CHTH2	6/17/13	12:10	21	.5	19.5	2	1.5				Noi		EXPLA TERMI		
ii.	PLETED: 6/17/13	-							+					. T	HIS LO)G
DR: d	JM LG: SHS Rig: 1C			L	_/		Д									JLD (



1083 ST (p. 1 of 1) 01-05697 LOG OF BORING NO. AET JOB NO: Southwest Light Rail Transit Project, PEC East; Hopkins to Minneapolis, MN PROJECT: 503390 910.1 151913 Hennepin Co. Coordinates: SURFACE ELEVATION: FIELD & LABORATORY TESTS DEPTH SAMPLE TYPE REC IN. **GEOLOGY** MATERIAL DESCRIPTION MC N IN FEET WC DEN **%-**#200 PLLL FILL FILL, mostly silty sand with gravel, a little sand SS with silt, trace roots, dark brown, a little black 20 M 12 1 (A-2-4)2 FILL, mixture of silty sand and sand with silt, a SS 10 15 M 3 little gravel and ashes/cinders, brown, a little black (A-2-4) 4 FILL, mostly sand with silt and gravel, a little 5 SS 8 silty sand, brown, a little dark brown (A-1-b) 13 M 6 7 FILL, mostly sand with silt, a little gravel, clayey 10 SS 12 sand and ashes/cinders, brown, a little black M 8 Q FILL, mostly sand with gravel, a little sand with 10 18 SS 16 silt, brown, a little dark brown (A-1-b) M 11 12 FILL, mostly sand with silt, a little gravel and SS M 4 11 13 clayey sand (A-1-b) 14 15 M SS 12 16 17 FILL, mostly sand, a little gravel and clayey sand, brown, a little dark brown (A-1-b) 5 M SS -12 18 19 FILL, mostly sandy lean clay, a little gravel and 2.0 7 SS 15 sand, dark brown, a little light brown (A-6) M 16 21 **END OF BORING** CORP W-COORDINATES 01-05697.GPJ AET+CPT+WELL.GDT WATER LEVEL MEASUREMENTS DEPTH: DRILLING METHOD NOTE: REFER TO CASING DEPTH CAVE-IN DEPTH DRILLING FLUID LEVEL WATER LEVEL SAMPLED DEPTH THE ATTACHED DATE TIME 3.25" HSA 0-191/21 SHEETS FOR AN 21.5 19.5 21.5 None 6/17/13 1:01 EXPLANATION OF None 6/17/13 1:11 21.5 19.5 21.5 TERMINOLOGY ON BORING COMPLETED: 6/17/13 THIS LOG DR: JM LG: SHS Rig: 1C



АЕТ ЈС	OB NO: 01-05697		· · · · · · · · · · · · · · · · · · ·			ī	OG OF	BOR	RING N	O.	1084	ST	(p. 1	lof	1)
PROJE		t Rail Tr	ansit Pro	oiect.	PEC East										
	CE ELEVATION: 911.5	······································	Iennepin Co.				15165				50284				
DEPTH	CD DDD VATIOIV.						T	T		REC	T		BORAT	TORY	TESTS
IN FEET	MATERIAL D				GEOLOGY	N	MC	T	MPLE YPE	IN.	WC	DEN	LL	PL	%-#20
1 2	FILL, mostly gravelly silty with silt, pieces of brick, trand black (A-2-4)	sand, a littlace roots, d	le sand lark brown		FILL	17	M	M	SS	12					
3 -	FILL, mostly sand with silt sandy lean clay, light brown (A-1-b)	and gravel n, a little br	, a little own			22	2 M		SS	16	4				8
5 — 6 —	FILL, mostly sand with silt sand and sandy lean clay (A		ivel, silty			26	5 M		SS	12				5	
7 8	FILL, mostly silty sand, a lean clay, trace roots, brow	ittle gravel n (A-2-4)	and sandy			48	B M	X	SS	4					
9 - 10 - 11 -	SAND, a little gravel, fine light brown, moist, medium of silt (SP) (A-3)	to medium n dense, lan	grained, ninations		COARSE ALLUVIUN	M 24	M M	ZZ M	SS	16					
12 - 13 -						26	6 M	ZZ X	SS	18					
14 15 16	GRAVELLY SAND, medilight brown, a little brown, a lamination of lean clay (S	moist, med	lium dense	,	•	22	2 M	PA M	SS	12					
17 - 18 - 19 -	SILTY SAND, a little grav brown, moist, medium den laminations of fine to medi	el, fine gra se, a lens o	ined, f lean clay,			22	2 M	H H	SS	14					
20 - 21 -	silt (SM) (A-2-4) SAND WITH SILT,a little medium grained, brown, m (A-3)	gravel, finoist, dense	e to (SP-SM)			-38	B M	M	SS	18					
	END OF BORING					,	6-3		•						
			4 -										-		
,															
	•		•												
DE	PTH: DRILLING METHOD			WAT	ER LEVEL M	TEASU	REMEN] JTS			'	1	NOTE	D.	TD TC
ומט	, DRIDING WIBITIOD	DATE	TIME	SAMP DEP			AVE-IN DEPTH		ORILLD	NG	WATI LEVI		NOTE: THE A		
0-1	9½' 3.25" HSA	DATE	TIME	-				FL	UID LE	EVEL			SHEE?		
		6/17/13	2:06	21.			21.5	-			Non		EXPLA		
BORIN	NG	6/17/13	2:13	21.	5 19.5		21.5	-			Non	le	TERMIN		
COMP	PLETED: 6/17/13							-						IIS LC	
DR: J	M LG: SHS Rig: 1C														OHR-0



AET JO	DB NO: 01-05697		01				LO	G OF I	BOF	RING N	O. <u>. </u>	1085	ST	(p.]	l of	1)
PROJEC	CT: Southwest Ligh	t Rail Tr	ansit Pro	ject,	PEC I	East; F	Iopl	kins t	to I	Minne	eapo	lis, M	IN			
SURFA	CE ELEVATION: 913.1	Н	ennepin Co.	Coordi	nates:	N	. 15	51391	<u> </u>		E :	50229				
DEPTH IN FEET	MATERIAL D	ESCRIPTIO	N		GEOI	LOGY	N	MC	SA T	MPLE YPE	REC IN.	FIELI WC	DEN	BORAT	T	TESTS %-#200
1 -	FILL, mostly silty sand, a li concrete, trace roots, dark b	ittle gravel, prown (A-2	pieces of -4)		FILL		27	M	M	SS	6					
2 — 3 — 4 —	FILL, mostly sand with gra with sand, apparent cobble little brown (A-1-b)	vel, a little at 4', light l	lean clay brown, a	Į.			25	M	M M	SS	10					
5 — 6 —	GRAVEL WITH SAND, a light brown, moist, medium (possible fill)	pparent col n dense (GP	oble at 9', ') (A-1-b)		COAR ALLU OR FII	VIUM	28	M		SS	18					
7 — 8 — 9 —	SAND WITH GRAVEL, f grained, light brown, moist (A-1-b) (possible fill)	ine to medi , medium d	um ense (SP)				29	М		SS	6					
10 — 11 —	SAND, a little gravel, fine light brown, moist, medium (fill)	n dense (SP) (possible	<i>「川</i>	TILL		20	M		SS	18	16			,	
12 13 14	CLAYEY SAND, a little g very stiff (SC) (A-6) SANDY LEAN CLAY, a l gray, a little brown, very st	ittle gravel, iff, laminat	, brownish ions of			1	19	M	N H	SS	3	16				
15 — 16 — 17 —	fine grained sand with silt						17	M	X P	SS	23	14				
17 - 18 - 19 -	SAND WITH GRAVEL, r grained, light brown, a littl medium dense, a lens of gr grained sand with silt at 19	e brown, m avelly med	oist, ium		COAR ALLU	SE VIUM	23	M	X H	SS	12		-			
20 – 21 –	6.44.4						15	M	M	SS	15					
	END OF BORING	•			· ·			-					the state of the s			
																,
DE	PTH: DRILLING METHOD			WAT	ER LEV	EL MEA	SURI	EMEN	TS				T	NOTE	REF	ER TO
0-1	19½' 3.25" HSA	DATE	TIME	SAMP DEP	LED C	CASING DEPTH	CA' DE	VE-IN PTH	FL	DRILLI UID LI	NG EVEL	WAT LEV	ER EL	THE A	ATTA(CHED
		6/18/13	9:48	21.	.5	19.5	1	9.7				Nor		SHEE		
DEI 0-1 BORIN	NG	6/18/13	9:53	21.	.5	19.5	1	9.9				Noi	16	EXPLA TERMI		ON OF GY ON
11	PLETED: 6/18/13								+						IIS LO	
DR: S	SHS LG: JM Rig: 1C						1									NID A



AET JO	B NO:	01-05697						LO	G OF 1	BORIN	NG NO). <u> </u>	1086	ST	(p. 1	lof	1)
PROJEC	CT:	Southwest Light	t Rail Tr	ansit Pro	ject,	PEC E	last; I	lopk	ins t	o M	inne	apol	is, M	IN			
SURFA	CE ELEV	ATION:914.2	Н	ennepin Co.	Coordi	nates:	<u>N</u>	15	51132		_ <u>F</u>	3 5	50175	8			
EPTH IN FEET		MATERIAL I	DESCRIPTION	N		GEOL	OGY	N	МС	SAM TY		REC IN.	FIELD WC	DEN	BORAT	PL	TESTS %-#20
1 — 2 — 3 — 4 —	with si	mostly silty sand, a l lt, pieces of bitumin race roots, dark bro)	ous, concret	te and		FILL	-	21	M M	$\left(\cdot \right)$	SS SS	16					
5 — 6 —		mostly sand with silend, light brown and						15	M	NA S	SS	12		-			
7 — 8 — 9 —	grained (possib	WITH GRAVEL, f d, light brown, moist ble fill)	, dense (SP	(A-1-b)		COARS ALLUV OR FIL	/IUM	35	М	担	ss	17					
10 11 12	cobble	WITH SILT AND s, medium to fine gr ense (SP-SM) (A-1- WITH GRAVEL, 1	ained, brow b) (possible	n, moist, fill)	/	: : COARS : ALLUV	SE /IUM	50/.4	М	X	SS	1					-
13 - 14 -	graine (A-1-b	d, light brown, mois	, very dense	e (SP)			,	59	М	X P	ss	14					7
15 — 16 — 17 —	brown	WITH GRAVEL, 1, moist, medium den	se (SP) (A-	1-b)				15	М	Z Z	SS	18					
18 - 19 -	fine gr \(SP-SI	ained, brown, moist M) (A-1-b) WITH SILT, fine g	, medium de	ense t brownish	/			21	М	X P	SS	18		-			
20 – 21 –	lean cl	noist, medium dense ay (SP-SM) (A-3) b, fine to medium gra	nined, light			:	·	25	М	X.	SS	20					
	GRAV grayis (A-1-b	/	ium to fine	grained, SP)													
	END	OF BORING															
							-										
DE	РТН: І	DRILLING METHOD				TER LEVI				T					NOTE:	REF	ER TC
0-1	19½' 3	3.25" HSA	DATE		SAMP DEP		ASING EPTH		/E-IN PTH	DF FLU	RILLIN ID LE	VEL	WAT	-	THE A		
			6/18/13	11:08	21.		19.5	+	1.3				Non	── ,	STEE EXPLA		
BORII	NG		6/18/13	11:14	21.	.5	19.5	2	1.2	-			Nor	16	ERMI		
COME	PLETED:									<u></u>						HS LO	
DR: S	SHS LG:	JM Rig: 1C								1							OHR-



AET JO	OB NO: 01-05697					, , , , , , , , , , , , , , , , , , ,	LO	G OF	BOR	UNG N	O.	1087	ST	(p. 1	of	1)
PROJE		t Rail Tra	nsit Pro	ject,	PEC	East; E										
	CE ELEVATION: 913.7		ennepin Co.			N		50619				50068				
		ESCRIBITION	Т	-	CE	OLOGY	N	MC	SA	MPLE	REC	FIELI) & LA	BORAT	ORY	rests
DEPTH IN FEET	MATERIAL D	ESCRIPTION		_			114	IVIC	T	YPE	IN.	WC	DEN	LL	PL	%- #200
1 - 2 -	FILL, mostly clayey sand w pieces of concrete, trace roc (A-2-4)	rith organic ots, dark bro	fines, own		FILI		25	М	M	SS	12	8				
3 - 4 -	FILL, mostly sand with silt clayey sand, a piece of bitum (A-1-b)	and gravel, minous at 8	a little ', brown		1		25	М		SS	12					
5 - 6 -							13	M		SS	12				,	
7 - 8 -							30	M	PA M	SS	5					
9 -	SAND WITH GRAVEL, m grained, light brown, moist, (A-1-b) (possible fill)	nedium to co , medium de	oarse ense (SP)		ALL	ARSE LUVIUM FILL	21	M		SS	12					
11 -	SAND, fine grained, light be moist, medium dense, lamin	prown, a litt	le brown,			ARSE JUVIUM	20	M		SS	18					
13 -	$(\Delta -3)$					70 110111	20	141	A	33						5
15 -	little brown, moist, medium of silt (SP) (A-3)	dense, lam	iinations				17	M	X	SS	16					
17 - 18 - 19 -	SAND, a little gravel, medibrown, moist, medium dens (SP) (A-1-b)	um to fine se, laminati	grained, ons of silt				14	M <u>▼</u>	M	SS	12					
20 -	brown, waterbearing, medi					-	16	W		SS	18					
	END OF BORING															
						ñ	A LANGE OF THE PARTY OF THE PAR									
DE OCH PRINCE COM BORI COM BORI COM														-		
5																
15.76000																
DE	EPTH: DRILLING METHOD			Т	т	EVEL MEA				יז זומט	NC T	-WAT		NOTE:		
를 0 -	19½' 3.25" HSA	DATE	TIME	SAMP DEP	TH	CASING DEPTH	DE	VE-IN EPTH	FL	DRILLI JUID LI	EVEL	WAT LEV	EK	THE A		
2		7/11/13	1:30	21	.5	19.5	1	9.5				19.		SHEE		
}		7/11/13	1:40	21	.5	19.5	1	9.5		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		19.	U	EXPLA		
BORI COM	NG PLETED: 7/11/13															GY ON
DR:	GH LG: JMM Rig: 1C													11	IIS LO	OHR-0



1088 ST (p. 1 of 1) 01-05697 LOG OF BORING NO. AET JOB NO: Southwest Light Rail Transit Project, PEC East; Hopkins to Minneapolis, MN PROJECT: 150355 500128 916.2 N Hennepin Co. Coordinates: SURFACE ELEVATION: FIELD & LABORATORY TESTS **DEPTH** SAMPLE TYPE REC IN. **GEOLOGY** MATERIAL DESCRIPTION N MC IN FEET WC DEN PL %-#200 LL FILL FILL, mostly clayey sand with organic fines, a little gravel, pieces of concrete, trace roots, dark SS 8 15 M 6 1 brown (A-2-4) 2 FILL, mostly clayey sand, a little gravel, gravish SS 15 M 10 15 3 brown (A-6) 4 FILL, mixture of sand with silt and clayey sand, 5 SS a little gravel, brown (A-2-4, A-6) 8 M 12 6 7 COARSE SAND, a little gravel, fine to medium grained, **ALLUVIUM** SS 18 light brown, moist, medium dense (SP) (A-1-b) 23 M 8 9 SAND WITH GRAVEL, medium to fine 10 SS 18 grained, light brown, moist, medium dense (SP) 25 M 11 12 14 M SS 18 13 14 SAND WITH GRAVEL, medium grained, 15 brown, moist to about 18½' then waterbearing, 12 M SS 18 16 medium dense (SP) (A-1-b) 17 SS 12 18 18 19 GRAVELLY SAND, medium grained, brown, 2.0 SS waterbearing, medium dense (SP) (A-1-b) W 22 18 21 **END OF BORING** 01-05697.GPJ AET+CPT+WELL.GDT 7/16/13 WATER LEVEL MEASUREMENTS DEPTH: DRILLING METHOD NOTE: REFER TO CAVE-IN DEPTH DRILLING FLUID LEVEL SAMPLED DEPTH CASING DEPTH WATER LEVEL THE ATTACHED DATE TIME 3.25" HSA 0-191/21 SHEETS FOR AN 18.4 21.5 19.5 19.5 7/11/13 12:20 EXPLANATION OF 18.4 7/11/13 12:30 21.5 19.5 19.5 TERMINOLOGY ON BORING COMPLETED: 7/11/13 THIS LOG DR: GH LG: JMM Rig: 1C



AET JO	B NO: 01-05697					LC	G OF	BOR	RING N	Ю	1089	SS	(p. 1	of	1)
PROJEC	Southwest Light	ıt Rail Tr	ansit Pro	ject,	PEC East;	Hop	kins	to N	Minn	eapo	lis				
	CE ELEVATION: 921.6	I	Hennepin C	o, Coo	rdinates: N	ī <u>1</u>	4982	6	-	E '	49905	6		·	
					GTOY COY			SAI	MPLE	REC	FIELI) & L	ABORA'	ORY '	TEST
DEPTH IN FEET	MATERIAL I	DESCRIPTIO	N		GEOLOGY	N	MC	T	YPE	ÎÑ.	WC	DEN	1 LL	PL	%-# 2
1 -	FILL, mostly gravelly silty fines, trace roots, dark brown				FILL	14	М	M	SS	12					
2 - 3 - 4 -	SAND WITH SILT, a little medium grained, brown, m (SP-SM) (A-3)	e gravel, fir noist, medit	ne to um dense		COARSE ALLUVIUM	20	M		SS	12					
5 — 6 —	SAND WITH GRAVEL, 1	nedium gra	ained, light			29	-	M	SS	0					
7 — 8 —	brown, moist, medium den (SP) (A-1-b)	ise, a iens o	or time sand			15	M		SS	14					
9 – 10 –	GRAVELLY SAND, med grayish brown, moist, med	ium graine	d, light (SP)			15	M	P	SS	12					
11 – 12 –	(A-1-b) SAND WITH GRAVEL, f	ine to med	ium					1							
13 — 14 —	grained, light brown, mois (A-1-b)	t, medium (dense (SP)			21	M	X P	SS	12					
15 — 16 — 17 —						50	-	X P	SS	0					
18 — 19 —	SILTY SAND, a little grav dense (SM/SC) (A-2-4)	el, brown,	medium		TILL	22	M	M	SS	18					
20 – 21 –						21	M	M	SS	18					
	END OF BORING														
DEP	TH: DRILLING METHOD			WAT	ER LEVEL MEA	ASURI	EMEN	TS					NOTE:	BEEE	וא איז
0-19		DATE 7/11/13	TIME 10:35	SAMPI DEPT	LED CASING TH DEPTH	CAY DE	VE-IN PTH 9.5		RILLI JID LE	NG VEL	WATI	ER EL	THE A SHEET	TTAC	HED
***********		7/11/13	10:35	21.			9.5 9.5			\dashv	Non		EXPLA		
BORIN	[G	//11/13	10:45	41.	3 19.5	1	7,3	-			Non		TERMIN		
COMPI	LETED: 7/11/13					-								IS LO	
DR: G	H LG: JMM Rig: 1C												111	IO LO	J



AET JO	OB NO:	01-05697			· · ·			LO	G OF	BOI	RING N	O,	1090	ST	(p.]	of	1)
PROJE		Southwest Ligh	ıt Rail Tr	ansit Pro	oject,	PEC	East;						•				
	ACE ELEV	0010		Iennepin C					49569				49851				
DEPTH				· · · · · · · · · · · · · · · · · · ·						SA	MPLE	REC	FIELL) & L	ABORA'	rory :	TESTS
IN FEET		MATERIAL D	DESCRIPTIO	N			LOGY	N	MC	r	MPLE YPE	IN.	WC	DEN	LL	PL	%- #200
1 - 2 -	\sand v \(A-1-	mostly gravelly silty with organic fines, tra b) mostly silty sand wi	ace roots, d	ark brown		FILL		15	М	\bigvee	SS	12				-	
3 - 4 - 5 -	ashes/ FILL,	mostly clayey sand lean clay, brown (A	and black (with gravel	(A-1-b)		w.*		5	M	X P	SS	14	10				
6 -		mostly sand with sil						3	M	X PA	SS	14	13				į
8 - 9 -	(A-1-)	YEY SAND, with org	ganic fines,	a little		TILL		8	М	X	ŚS	12					1
10 - 11 - 12 -		l, black to dark brow						9	M	X	SS	6	16		-		
13 - 14 -	graine (A-1-		t, medium	dense (SP))	COAF	RSE JVIUM	14	M	X A	SS	12	:			j.	
15 - 16 -	graine	O WITH GRAVEL, 1 ed, grayish brown, m A-1-b)	medium to oist, mediu	m dense				20	M	MA A	SS	12					
17 - 18 - 19 -		O WITH GRAVEL, 1 1, moist, medium der			t			24	M	X	SS	14					
20 - 21 -	GRA grayis (A-1-	VELLY SAND, med sh brown, moist, med b)	ium graine lium dense	d, light (SP)				28	M	X H	SS	12					
22 - 23 - 24 -	graine	VELLY SAND, med ed, brown, waterbear A-1-b)	ium to coa ing, mediu	rse m dense				21	$\overline{\overline{W}}$	M E	SS	12					-
25 - 26 - 27 -	hard (YEY SAND, a little (SC/SM) (A-2-4)	gravel, brov	wn, stiff to		TILL		24	-	X E	SS	0					
28 - 29 -								42	M/W	, 区	SS	6	10				
26 - 27 - 28 - 29 - 30 - 31 - DE O- COM		OF BORING						14	M/W		SS	12	12				
	END	OF DOMING	·				,		<u></u>								
DE	EPTH:	DRILLING METHOD					VEL MEA	т—		т-					NOTE:	REFE	ER TO
일 0-	29½'	3.25" HSA	DATE	TIME	SAMP DEP	LED (CASING DEPTH	CAV	VE-IN PTH	FL	ORILLI UID LE	NG EVEL	WAT! LEVI	ER EL	THE A	TTAC	HED
NO.			6/28/13	1:10	24.	0	22.0	2	3.5				22.		SHEE		
١٠			6/28/13	1:15	24.	0	22.0	2.	3.5				22.	3	EXPĻA		
BORI COM	ING PLETED:	6/28/13	6/28/13	1:45	31.	5	29.5	2	9.9				26.	0	ΓERMΠ		
II.		: TM Rig: 1C	6/28/13	2:00	31.	5	29.5	2	8.8				25.	1	TH	IIS LO	G NHP 04



AET JO	OB NO: 01-05697						LO	G OF	BOI	RING N	O.	1091	ST	(p. 1	of	1)
PROJEC	C 41 4T'1	ıt Rail Tr	ansit Pro	oject,	PEC Eas	st; F										
	CE ELEVATION: 925.4		Hennepin Co			N		19310				49797		4		
DEPTH IN FEET	MATERIAL D	ESCRIPTIO	N	٠.	GEOLOG	Y	N	MC	SA T	MPLE YPE	REC IN.	FIELI	1	ABORA'		TESTS %-#200
1 -	FILL, mostly gravelly silty sand with organic fines, trand black (A-1-b)				FILL		15	M	M	SS	12					
2 - 3 - 4 -	SAND WITH GRAVEL, 1 brown, moist, medium der (possible fill)	medium granse (SP) (A	ained, light -1-b)		COARSE ALLUVIU OR FILL	М	21	M	M	SS	12		, 3			
5 — 6 —	SAND, fine to medium grabrown, a little brown, mois laminations of silt (SP) (A	st, medium			COARSE ALLUVIU	М	23	M		SS	12				·	
7 — 8 — 9 —	SAND, a little gravel, fine light brown, a little brown dense, laminations of silt (, moist, me	n grained, dium				13	М		SS	12					
10 - 11 -	SAND WITH GRAVEL, 1 grained, brown, moist, me laminations of silt (SP) (A	dium dense					20	M	M	SS	12					
12	GRAVELLY SAND, med brown to brown, moist, me (A-1-b)	ium graine edium dens	ed, grayish se (SP)				14	М		SS	12					
15 — 16 —	14 – 15 – 16 –						21	М		SS	12		\		· ·	
17 18 19	CLAYEY SAND, a little g very stiff (SC/SM) (A-2-4	wn, stiff to		TILL		14	М	M	SS	12	10					
20 -							22	М	X	SS	12	10				
DEF	END OF BORING															
DEF	TH: DRILLING METHOD			WAT	ER LEVEL I	MEAS	SURF	EMEN	TS					NOTE	DEEL	ED TO
DEI		DATE	TIME	SAMP DEP		r		Æ-IN PTH	T	ORILLII UID LE	NG VET	WAT LEVI		NOTE: THE A		
0-1	9½' 3.25" HSA	6/28/13	10:55	21.).0	LL	OID LE	VEL	Non		SHEE		
			11:10	21.).0			-	Non		EXPLA	NATIO	ON OF
BORIN	NG PLETED: 6/28/13	6/28/13	11,10			- 1					.			TERMIN	10F00	3Y ON
II .	OTS LG: TM Rig: 1C													TH	IS LO	G
02/2011		1			I				ш						01 D	HR-0



1092 ST (p. 1 of 1) 01-05697 LOG OF BORING NO. AET JOB NO: Southwest Light Rail Transit Project, PEC East; Hopkins to Minneapolis PROJECT: 497427 149051 925.1 N Hennepin Co. Coordinates: SURFACE ELEVATION: FIELD & LABORATORY TESTS REC IN. SAMPLE TYPE DEPTH **GEOLOGY** MC N MATERIAL DESCRIPTION IN FEET %-#200 WC DEN PLFILL, mixture of sand with silt and silty sand, FILL SS 14 15 M with gravel, a little organic fines, trace roots, 1 brown, a little dark brown (A-2-4) 2 FILL, mostly sand with silt and gravel, possible 11 SS 12 6 17 M cobble at 5', a little silty sand, trace roots, light 3 grayish brown, a little dark brown (A-1-b) 4 5 70 M SS 0 GRAVELLY SAND WITH SILT, medium to COARSE 6 ALLUVIUM fine grained, grayish brown, moist, very dense to 7 medium dense (SP-SM) (A-1-b) SS 12 28 M 8 9 SAND, a little gravel, medium to fine grained, 10 SS 12 20 brown, moist, medium dense (SP) (A-1-b) M 11 12 GRAVELLY SAND WITH SILT, medium SS grained, brown, moist, very dense (SP-SM) 53 M 12 13 (A-1-b)14 SAND WITH GRAVEL, medium grained, 15 29 SS 12 M brown, moist, medium dense, a lens of fine to 16 medium grained sand at 18' (SP) (A-1-b) 17 SS 12 29 18 19 SAND WITH GRAVEL, medium to coarse 20 W SS 12 27 grained, brown, waterbearing, medium dense 21 (SP)(A-1-b)**END OF BORING** AET+CPT+WELL.GDT CORP W-COORDINATES 01-05697.GPJ WATER LEVEL MEASUREMENTS NOTE: REFER TO DEPTH: DRILLING METHOD SAMPLED DEPTH CASING DEPTH CAVE-IN DEPTH DRILLING FLUID LEVEL WATER LEVEL THE ATTACHED TIME DATE 3.25" HSA 0-191/21 SHEETS FOR AN 19.3 19.0 19.5 6/28/13 9:36 21.0 EXPLANATION OF 18.8 19.5 19.0 21.0 9:50 6/28/13 TERMINOLOGY ON BORING COMPLETED: 6/28/13 THIS LOG DR: DTS LG: TM Rig: 1C



ATOMICS	_{OB NO:} 01-05697					T C	OC OF	BORING	NO :	1093	ST	(n 1	1 ոք 1	<u> </u>
AET JO	G /I / I I	t Dail Tr	ansit Pro	niact	PFC Fact							(p.)		<u>., </u>
PROJEC	001.0		lennepin Co.				48263			49577			·····	
DEPTH	CE ELEVATION: 921.8		cinicpin Co.	Coordii	lates.				1.			BORAT	TORY T	ESTS
IN FEET	MATERIAL D	ESCRIPTIO1	Λ		GEOLOGY	N	MC	SAMPL TYPE	E REC IN.	WC	DEN			%- #200
1 - 2 - 3 - 4 - 5 - 6 - 7 - 8 - 0	4" Bituminous pavement 5" FILL, mostly sand with sof brick, brown (A-1-b) FILL, mostly clayey sand w gravel, black (A-1-b) SAND WITH SILT AND of fine grained, light grayish b medium dense (SP-SM) (A-SILTY SAND, a little graved dense (SM/SC) (A-2-4)	orith organic GRAVEL, rown, moist-1-b)	e fines and medium to st, loose to] 	COARSE ALLUVIUM	14 8 19 12	M - M M	SS	12	13		£		
9 - 10 - 11 -		·				13	M	SS F	18			,		
12 — 13 — 14 —	CLAYEY SAND, a little g stiff, laminations of mediur (A-2-4)	n sand (SC	/SM)			16	M	ss R	18	8				
15 — 16 — 17 —	CLAYEY SAND, a little g (SC/SM) (A-2-4) SAND WITH SILT, a little				COARSE	12	<u></u>	SS E	18	11				
18 — 19 — 20 —	grained, brown, waterbeari (SP-SM) (A-1-b) SAND, a little gravel, fine	ng, mediun	n dense		ALLUVIUM	16	W	SS 招			7			
21 —	light brown, waterbearing, of fine grained sand (SP) (A END OF BORING	medium de	nse, a lens	3		17	W	SS	18					
DEI DEI O-1														
Det	PTH: DRILLING METHOD			WAT	ER LEVEL M	EASUR	EMEN	TTS				NOTE	DEFE	D TO
0-1	9½' 3.25" HSA	DATE 7/11/13	TIME 9:15	SAMP DEP	LED CASING	G CA	VE-IN EPTH	DRIL FLUID	LING LEVEL	WAT LEV	ER EL		REFE ATTAC TS FOI	HED
3		7/11/13	9:20	21.			0.0			15.		EXPLA	NATIO	ON OF
BORIN	NG 7/11/12	//11/13	9.20	41.	3 19.3			<u> </u>		10.		TERMI	NOLOG	GY ON
	PLETED: 7/11/13		<u> </u>	 				-				TH	IIS LO	G
DR: G	GH LG: JMM Rig: 1C							1]	<u> i </u>		01-0	HR-0



AET JC	OB NO: 01-05697						LO	G OF	BOR	UNG N	O.	1094	ST	(p. 1	of	1)
PROJEC		nt Rail Tra	ansit Pro	iect. I	PEC	East: F								u		
	CE ELEVATION: 921.9		lennepin Co.	• •		N		48035				49524				
DEPTH						LOGY	.	MG	SA	MPLE	REC	FIELI) & LA	BORAT	ORY	TESTS
IN FEET	MATERIAL I	JESCRIP HOI	N .			LUGI	N	MC	Т	MPLE YPE	IN.	WC	DEN	LL	PL	%-#20
1 - 2 -	FILL, mostly silty sand wir clayey sand, sand with silt, ashes/cinders, pieces of bit dark brown, a little brown	, lean clay ar tuminous, tra	nd		FILL	,	13	М	\bigvee	SS	16					
3 -	dark brown, a nule brown	(A-1-0)					8	М	X	SS	6					
5 - 6 -	LEAN CLAY WITH SAN (CL) (A-6)			<i></i>	TILL	•	5	M	M	SS	14	24 16			,	
7 - 8 -	SANDY LEAN CLAY, a firm (CL) (A-6) SAND WITH SILT AND				COAR ALLU	RSE IVIUM	8	M	P	SS	10					
9 –	fine grained, brown, a little loose (SP-SM) (A-1-b) GRAVELLY SAND WIT	_							Z Z							
10 -	grained, moist, medium de						14	M	X	SS	16					
12 -	SAND, a little gravel, med brown, moist (SP) (A-1-b)		l, light				9	M	M	SS	16					
14 15 16	SAND, a little gravel, med light brown, moist, loose (9	М		SS	14					
17 - 18 -	GRAVELLY SAND, med waterbearing, medium den	lium grained ase (SP) (A-	l, brown, 1-b)				15	V	X	SS	14					
19 - 20 - 21 -	CLAYEY SAND, a little (SC/SM) (A-2-4)	gravel, brow	n, stiff		TILL		12	M		SS	16	11				
	END OF BORING			7////					$\uparrow \uparrow$							
							Total Administrative popular and the second									
DE 0-1 BORII COMI																
DE	PTH: DRILLING METHOD			WATI	ER LEV	VEL MEA	SURI	L EMEN	TS		1		1	NOTE:	REF	ER TO
0-1	19½' 3.25" HSA	DATE	TIME	SAMPI DEPT	ED (CASING DEPTH		VE-IN PTH	I	ORILLI UID LI	NG EVEL	WAT LEVI	ER	THE A		
U-1	AND ANDER	6/25/13	11:15	19.0	0	17.0	1	8.9				18.	1	SHEE	TS FO	R AN
		6/25/13	11:30	21.5	5	19.5	2	0.2				20.	9	EXPLA		
BORI	NG PLETED: 6/25/13	6/25/13	11:45	21.5	5	19.5	2	0.1				19.	8	ERMI		
DR: 7				j										TH	HS LC)G



AET JO	DB NO: 01-05697						LO	G OF	ВОІ	RING N	O	1095	ST	(p. 1	of	1)
PROJEC	CT: Southwest Ligh	t Rail Tr	ansit Pro	ject,	PEC	East; I	Iopl	cins 1	to I	Minn	eapol	lis, M	IN			
SURFAC	CE ELEVATION: 923.0	H	lennepin Co.	Coordi	nates:	N	1	47799)		E '	49470	3			
DEPTH	MATERIAL D	ESCRIPTIO	V		GE	OLOGY	N	МС	SĄ		REC	-	1	BORAT		1 .
IN FEET				,			1.4	.,,,,		ΓΥΡΕ 	IN.	WC	DEN	LL	PL	%- #200
1 —	FILL, mostly sand with org roots, dark brown (A-2-4) FILL, mostly gravelly sand				FILI		12	М	\mathbb{N}	SS	14			7 -		
3 -	bituminous and concrete, tr little dark brown (A-1-b)	ace roots, l	orown, a		-	ur#	14	М	M	SS	8	12				
4 - 5 -	FILL, mostly gravelly clayed dark brown (A-2-4)					ARSE JUVIUM	-		P		·					
6 —	SAND WITH GRAVEL, n brown, moist, medium dens						23	M	X	SS	16			,		
7 — 8 — 9 —	SAND WITH SILT AND Cobble around 7½, medium moist, medium dense (SP-S	n grained, b	rown,				27	M	X	SS	18					
10 -	SAND WITH SILT AND of fine grained, brown, moist, (SP-SM) (A-1-b)	GRAVEL, medium de	medium to				24	M	X	SS	14					
12 -	SAND WITH GRAVEL, n grained, light brown, moist	nedium to f , medium d	ine lense (SP)				17	M	P	SS	16					
14 -	(A-1-b) SAND WITH SILT, fine g								F	aa	1.0					
16 -	waterbearing, medium density grained sand with silt (SP-S	SM) (A-3)					19	M T	A P	SS	18					
18 -	CLAYEY SAND, a little g stiff (SC/SM) (A-2-4) SILTY SAND WITH GRA	VEL, brov	vn, a little		TIL	L	16	M/W		SS	18	12				
20 -	light brown, medium dense grained sand with silt (SM) CLAYEY SAND, a little g	(A-2-4)					12	M/W		SS	18	12				
	lenses of fine grained sand (A-2-4) END OF BORING	with silt (S	SC/SM)		2	•										
	END OF BORING														ļ	
51.12																
100													1			
WELL																
+ - - - -																
CORDINATES Of 1988 OF							00000									
-0569/	DTIL DDILL DICLETTOR	·		XX7 A 'T	TEDI	EVEL MEA	ימו ופ	EMEN	TC	<u> </u>				1		
S DE	PTH: DRILLING METHOD						1		1	DRILLI	NG	WAT	ER	NOTE:		
0-1	19½' 3.25" HSA	DATE	TIME	SAMP DEP		CASING DEPTH		VE-IN PTH	FI	DRILLI LUID LI	EVEL	WAT LEV		THE A		
 N		6/25/13	9:55	19.		17.0		7.7	-			17.		SHEE EXPLA		
NORTH A	NG	6/25/13	10:10	21.		19.5		0.0	-			18.		EXPLA TERMII		
	NG PLETED: 6/25/13	6/25/13	10:15	21.	.5	19.5	1	0.8	-			17.	9		NOLO IIS LC	
DR: T	ΓK LG: MF Rig: 1C													11		SLID A



AET JO	B NO: 01-05697					LO	G OF	BORIN	NG NC),	1096	ST	(p.)	lof	1)
PROJEC	Southwest Ligh	t Rail Tr	ansit Pro	ject,	PEC East; I	Iopl	cins 1	to M	inne	apol	lis, M	IN			,
SURFAC	CE ELEVATION: 923.2	H	Iennepin Co.	Coordi	nates: N	1	47592	2	F	}	49414	0			
DEPTH	MATERIAL D	ESCRIBITIO	N	-	GEOLOGY	N	МС	SAM	PLE	REC	FIELI) & LA	BORAT	ORY '	TESTS
FEET	WATERIAL D	ESCKII IIO.	14		GLOLOGI	14	IVIC	TY	PE	IN.	WC	DEN	LL	PL	%- #20
1 - 2 -	FILL, mostly sand with silt clayey sand with organic fir trace roots, dark brown, a li	nes, pieces	of brick,		FILL	40	М		SS	12					
3 -	FILL, mostly clayey sand w sand, dark brown, a little lig					14	M	M	ss	12	9				
4 — 5 — 6 —	FILL, mostly clayey sand, a brown (A-2-4)	a little grav	el, dark			2	M		ss	12	10				
7 — 8 —	FILL, mixture of clayey sar clay, a little gravel, trace ro brown (A-6)	nd and sand oots, dark b	dy lean rown and	-		4	M	P) :	ss	2	11	The state of the s			
9 —	LEAN CLAY, black to bro LEAN CLAY, brown, firm				FINE ALLUVIUM	5	M		ss	14	29				
11 — 12 — 13 —	LEAN CLAY, gray, a little laminations of sandy silt (C	brown, so	ft,			4	M	ZZ	SS	12	28				
14 — 15 — 16 —	GRAVELLY SAND WITH fine grained, brown, waterl dense (SP-SM) (A-1-b)	H SILT, me			COARSE ALLUVIUM	14	X	P	ss	12	,				
17 - 18 - 19 -	GRAVELLY SAND, medi waterbearing, medium dens	ium grained se (SP) (A-	l, brown, 1-b)			11	w	E E	SS	12			To the Administration and the Control of the Contro		
20 -	CANDVIENNCIAV	(°441 1	1:-1-4	1777	TILL	13	W/M		SS	16	20				
	SANDY LEAN CLAY, a larger of the state of th		, light		7 111212 · · · · · · · · · · · · · · · ·				V		20				
2177						Market Street, and a street street, and as a									
DEF							· ·	-	-						
10.10															
DEI	PTH: DRILLING METHOD			WAT	ER LEVEL MEA	SURI	EMEN	TS					NOTE:	REFI	ER TO
	9½' 3.25" HSA	DATE	TIME	SAMP DEP	LED CASING TH DEPTH	CA' DE	VE-IN PTH	DR FLUI	ID LE	IG VEL	WAT LEV	ER	THE A	ATTAC	CHED
2		6/24/13	1:31	16.	5 14.5	1	5.4				Nor		SHEE		
ĭ ≸		6/24/13	1:41	16.	5 14.5	1	6.0	-			15.	*	EXPLA		
0-1 BORIN	VG LETED: 6/24/13	6/24/13	1:50	21.	5 19.5	1	9.5				16.	0	ΓERMI		
DR: J	M LG: JM Rig: 1C	6/24/13	1:55	21.	5 19.5	1	9.5				15.	7	Tŀ	IIS LC	·G



AET JO	OB NO: 01-05697					LC	G OF	BOI	RING N	O	1097	ST	(p. 1	of	1)
PROJEC	Southwest Ligh	t Rail Tr	ansit Pro	oject,	PEC East;	Hop	kins	to I	Minn	eapo	lis, M	IN			
SURFA	CE ELEVATION: 923.3	. H	Iennepin Co.	Coordi	nates: <u>1</u>	J 1	4740	1		E '	49356				
DEPTH IN FEET	MATERIAL D	ESCRIPTIO	N		GEOLOGY	N	MC	SA	MPLE	REC	FIELI) & LA	BORAT		1 .
FÉÈT							1,110		YPE	IN.	WC	DEN	LL	PL	%- #20
1 - 2 -	FILL, mixture of sand with sand with organic fines, tradark brown (A-1-b, A-6)	ce roots, br	own and		FILL	8	M	M	SS	3		į			
3 -	FILL, mostly clayey sand, a of metal, ashes/cinders, trace (A-6)	ce roots, da	rk brown			4	M	X	SS	2	18				
5 — 6 —	FILL, mostly lean clay, trace and brown (A-6)	ce roots, da	rk brown			4	M		SS	12	25		4-1-010004		
7 8 9	LEAN CLAY, trace roots, soft, a lens of organic clay fill)	brown, a lit (CL) (A-6)	ttle black, (possible		FINE ALLUVIUM OR FILL	4	M		. SS	14	29				
10 -	SAND WITH SILT, a little medium grained, brown, m (A-3) (possible fill)	e gravel, fin oist, loose (ne to (SP-SM)		COARSE ALLUVIUM OR FILL	10	M	NA NA	SS	14					
12 - 13 - 14 -	SAND WITH GRAVEL, r grayish brown, a little brow moist, loose, lenses of fine silty sand (SP) (A-1-b) (po	vn and dark to medium	brown,			5	M	X PA	SS	12					
15 16 17	SAND, a little gravel, med light brown, moist, mediun	ium to fine n dense (SP	P) (A-1-b)		COARSE ALLUVIUM	16	M	X H	SS	14					
18 -	GRAVELLY SAND, medi- waterbearing, medium den					11	<u></u>	X H	SS	14			r		
20 - 21 -	SAND WITH GRAVEL, r brown, waterbearing, loose	nedium gra e (SP) (A-1	ined, -b)			9	W	M	SS	14	-				
	END OF BORING		(and a supply of the supply of									
O-1 BORD								i		-					
	,	Γ													
DE	PTH: DRILLING METHOD		<u> </u>	1	ER LEVEL ME	-, -		т	DDT ! !	NO T	777.4.00		NOTE:	REFE	ER TO
0-1	19½' 3.25" HSA	DATE	TIME	SAMP DEP	LED CASING TH DEPTH	CA DI	VE-IN EPTH	FI	DRILLI JUID LI	EVEL	WAT LEV	EL	THE A	ATTAC	HED
		6/24/13	12:22	19.	0 17.0	1	8.5				18.		SHEE		
	1940-194	6/24/13	12:27	19.	0 17.0]	8.5				18.	3	EXPLA	NATIO	ON OF
BORIN	NG PLETED: 6/24/13	6/24/13	12:33	21.	5 19.5	2	20.0				18.	8	ΓERMΩ	NOLO	GY ON
1	M LG: TM Rig: 1C	6/24/13	12:40	21.	5 19.5	2	20.0				18.	6	TH	IIS LO	G



	TESTINO, INC												400	~=			4.
AET JO		05697	•								RING N		1098		(p. 1	of	l)
PROJE	Sout	hwest Ligh															
	CE ELEVATION	922.5	F	Iennepin C	o. Coo	dinates:	N	14	17197	7		E '	49299		DOD 4.7	CODY	PPOTO
DEPTH IN FEET		MATERIAL D	DESCRIPTIO	N		GEOLOG	Y	N	MC	SA T	MPLE YPE	REC IN.	WC	OC OC	BORAT		%-#20
1 -	FILL, mostly little gravel a brown, a little	nd sand with	silt, trace r	oots, dark		FILL		9	M	M	SS	6	24	4.9	LL	FL	/0-#20
2 - 3 - 4 -	SAND WITH to fine graine (SP-SM) (A-	I SILT AND d, brown, mo	GRAVEL,	medium		COARSE ALLUVIU	M	12	M		SS	12	14				
5 - 6 -	SAND WITH brown, moist (SP) (A-1-b)	I GRAVEL, 1	medium granse, laminat	ained, ligh tions of sil	t t			25	M		SS	14		-			
7 8 9	SAND, a little light brown, a of silt (SP) (A	noist, mediui	lium to fine m dense, la	grained, minations				16	M		SS	14					
10 - 11 -	SAND WITH to fine graine dense, lamina (A-1-b)	d, light brow	n, moist, m	edium				23	M		SS	14					
12 - 13 - 14 -	CLAYEY SA light brown, sand from 12	very stiff to s	tiff, lamina	tions of		TILL		16	М		SS	12	10		And the state of t		
15 - 16 -								17	М		SS	12	6				
18 - 19 -							•	17	М		SS	12	10				
20 - 21 -			·					13	<u></u>	M	SS	14	10				
	END OF BO	RING					.						-				
													,				
												-					
DE 0-1 BORI COMI			٠.														
								01 25-						· .			
DE	PTH: DRILLIN	IG METHOD			· · · · · · · · · · · · · · · · · · ·	ER LEVEL			EMEN E-IN	г	ייזוקר	viG.	WATI	7D	NOTE:		
0-1	19½' 3.25" H	ISA	DATE	TIME	SAMPI DEP			DE	PTH	FL	ORILLII UID LE	VEL	LEVE	EL	THE A		
			6/24/13	10:48	21.:		-	21	1.5	<u> </u>			Non		SHEET		
	NC.		6/24/13	10:58	21.	5 19.	5	21	1.1	-			21.0	,	EXPLA		
BORI COM	NG PLETED: 6/24 /1	.3		· ·										$ \mid$ ^T	ERMIN		
DR: J	IM LG: TM	Rig: 1C													1H	IS LO	HR-0



AET JO	B NO:	01-05697			······			LO	G OF	BOF	RING N	O	1099	ST	(p. 1	of	1)
PROJEC	CT:	Southwest Ligh	t Rail Tr	ansit Pro	ject,	PEC	East; I	Iopl	kins 1	to I	Minn	eapo	lis, M	IN			
SURFA	CE ELEV	ATION: 917.5	H	Iennepin Co.	Coordi	nates:	N	1	46989)		E	49243	5			
DEPTH		MATERIAL D	FSCRIPTIO	N		GEO	OLOGY	N	MC	SA	MPLE	REC	FIELI	D&LA	BORAT	ORY '	TESTS
IN FEET								14	IVIC	1	YPE	IN.	WC	DEN	LL	PL	%- #200
1 2	sand, s	mixture of clayey sand solightly organic and solightly organic and solick, trace roots,	ilty sand, v	vith gravel,		FILL	,	9	M	M	SS	6	14				
3 - 4 -	CLAY	ayish brown (A-2-4) EY SAND, with org black, firm (SC) (A-0	anic fines, 6) (possible	trace e fill)		OR F	UVIUM TILL	7	M	M	SS	14	27				
5 — 6 —	fine gi (A-1-t	O WITH SILT, a little rained, dark brown, no (possible fill)	noist, loose	(SP-SM)		COA	UVIUM RSE UVIUM	9	M		SS	12					
7 — 8 —	fine gi (A-1-t	O WITH SILT AND (rained, brown, moist, b) (possible fill) O WITH GRAVEL, n	loose (SP-	·SM)		OR F	ILL	7	M	X Y	SS	12					
9 - 10 - 11 -	brown SANE	, moist (SP) (A-1-b) O, a little gravel, media, moist, loose (SP) (A	(possible fium to fine	ill) grained,				10	M	P	SS	3					
12 — 13 —		YEY SAND, a little g SC/SM) (A-2-4)	ravel, brow	vn, very		TILL	1	20	M	E S	SS	2	10				
14 — 15 — 16 —	CLAY very s	YEY SAND, a little g	ravel, brow and (SC/SM	vn, stiff to (A-2-4)				14	M	PA V	SS	14	11				
17 — 18 —								20	M	P	SS	6	9				
19 — 20 —		WITH SILT, fine g		nt brown,		COA	RSE*	23	M	P	SS	16	10	a)			
21 —	CLAY of san	medium dense (SP-S TEY SAND, brown, of (SC/SM) (A-2-4) OF BORING		aminations		*AL	LUVIUM			/\			9				
															The state of the s		
DEF 0-1																	
DEF	PTH: I	DRILLING METHOD		· · · · · · · · · · · · · · · · · · ·	WAT	ER LE	VEL MEA	SURI	EMEN	TS		1		' ,	NOTE:	REFF	R TO
Ո_1	9½' 3	3.25" HSA	DATE	TIME	SAMP DEP	LED TH	CASING DEPTH	CAV	VE-IN	I FL	ORILLII UID LE	NG EVEL	WAT LEVI		THE A		
U-1	. 1/2 -	AU HUA	6/24/13	9:44	21.		19.5	 	1.4				Non		SHEET	rs foi	R AN
			6/24/13	9:55	21.		19.5	ļ	1.4	\vdash			Non	- ₁	EXPLA	NATIO	ON OF
BORIN COMP	NG PLETED:	6/24/13						†		+-					ERMIN	NOTO(GY ON
II .								-		-					TH	IS LO	G
DR: J	IVI LG:	TM Rig: 1C	<u> </u>		L			L		1						0.4. 70	LID O



4 = VP = -	OB NO: 01-05697.1						1.0	C OF	DO	RING N	·	1100		(p. 1	1 of	<u></u>
АЕТ ЈО		4 Dail Tr	ancit Dre	nigat	DEC .	Fact.								(p.	L UI .	<u>., </u>
PROJEC			Iennepin Co					68772				52592				
DEPTH	CE ELEVATION: 842.9	1.	iemiepin ee	J. COOI	lamates	. 11		00772				T		ABORA'	TORY '	TESTS
IN FEET	MATERIAL D				GEOI	LOGY	N	МС	SA	MPLE YPE	REC IN.	WC	DEN	LL	PL	PID (ppm)
1 2 3 4	FILL, a mixture of sand was a little gravel, pieces of wo roots, brown, dark brown a FILL, mostly silty sand, picinders, trace roots, black FILL, mostly sand with sil	ood and brid and gray eces of wo and dark br	od,		FILL		5	M M		SS SS	17 15		Administration and other than the state of t			0.0
5 — 6 — 7 —	roots, brown FILL, mostly sand, a little silt, brown, grayish brown brown	gravel and	sand with	/-			8	M	Y H	SS	16					0.0
8 — 9 —		·					10	М	X	SS	15					0.0
10 — 11 — 12 —		·			-		- 8	M	X PA	SS	17					0.0
13 — 14 —	FILL, mostly sand with gr a little black	avel, brown	nish gray,				10	М	M M	SS	19					0.0
15 — 16 —	SAND, fine grained, light medium dense (SP) SAND WITH GRAVEL,				COAR		16	M,		SS	14	<u>.</u>				0.0
17 — 18 — 19 —	brown, a little grayish brown dense, lenses of silt (SP)						11	M	M. A.	SS	16	-	-			0.0
20 — 21 —	LEAN CLAY, grayish bro FAT CLAY, brownish gra END OF BORING				FINE ALLU	VIUM	11	M	Ä	SS	18	26 26				0.0
								1		v						
			-		District Address of the Control of t											
DEI						y=		-								
	PTH: DRILLING METHOD	-				EL MEA	·		1	•	<u>1</u>			NOTE:	REFE	R TO
0-1	9½' 3.25" HSA	DATE	TIME	SAMPI DEPT	LED C	ASING DEPTH	CAV DE	/E-IN PTH		ORILLII UID LE		WAT LEVI	ER EL	THE A	ATTAC	HED
		11/11/10	12:11	21.	0	19.5	20	0.9				Non	ie	SHEE	TS FO	R AN
0-1		11/11/10	12:21	21.	0	19.5	20	0.9				Non	ie	EXPLA	NATIO	ON OF
BORIN	NG PLETED: 11/11/10	·												ΓERMΠ	NOLO	GY ON
l <u>t</u>	OTS LG: GM Rig: 33C													TH	IIS LO	G
		L													01 F	HR.



PROJEC	CT: Southwest Lig	ght Rail Tr	ansit Proie	ct, PEC	East:	Hop	kins	to	Minn	eapo	olis, N	MN			
	CE ELEVATION: 844.8		ennepin Co. C	F.4.00			69074			-	52592				
DEPTH	CE ELEVATION.		emiepin co. c								FIELL) & L	ABORAT	TORY	 ГЕ:
IN FEET	MATERIAI	DESCRIPTION	1	GEOL	OGY	N	MC		MPLE TYPE	REC IN.	WC	DEN	1	PL	I (p
1 -	FILL, mostly clayey san little gravel, trace roots, brown	d with organi dark brownis	c fines, a	FILL		8	M	X	SS	23	26				
2 - 3 - 4 -	FILL, mostly sand with clayey sand, pieces of bi brown, a little dark brow	tuminous and	concrete,	-		8	M	M L	SS ·	16					
5 — 6 —	Sieve analysis performe 4': -#200 = 5.8%	a on sample i	rom 2 to			2	M	X	SS	15					
7 — 8 — 9 —	SAND WITH GRAVEI grained, brown, moist, le SAND, a little gravel, m grayish brown, moist, lo	oose (SP) (posedium to fine	ssible fill) /	COAR ALLU OR FIL COAR ALLU	/IUM L SE	8	M	2 7 7	SS	16					
10 -	SAND WITH GRAVEL brownish gray, moist, lo	ose (SP)		ALLO	/ IOWI	8	M	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	SS	15					
12 — 13 —	SAND, fine grained, lig loose (SP) SANDY SILT, light gra			 FINE		9	М		SS	19	20				
14 15 16	loose, a lamination of sa SAND, a little gravel, m grayish brown, moist, m	nd (ML) edium to fine edium dense,	/ /	ALLU COAR ALLU	SE	18	М	X	SS	13					
	laminations of silt and si	ilty sand (SP)													
										Ambala daga aya aya aya aya aya aya aya aya aya					
										•		,			
DEI															
DET	TH: DRILLING METHOD		W.	ATER LEV	EL ME 4	SURF	EMEN	TS	_		1	\perp	NOTE	Drop	<u></u>
		DATE			ASING EPTH		/E-IN PTH		DRILLI JUID LE	NG	WAT LEVI	ER	NOTE: THE A		
0-1	4½' 3.25" HSA							LT	LID LI	V CL	Non		SHEE		
		11/11/10			14.5	<u> </u>	5.7						EXPLA		
0-1 BORIN	NG	11/11/10	11:12	16.0	14.5	1:	5.7	-			Non		TERMIN		
II.	LETED: 11/11/10				· ,	-	-	-						IIS LO	
DR: D	OTS LG: GM Rig: 33C	1	1			1		1		i		- 1			



AET JO		01-05697.1 Southwest Li	abt Dasi T-	ancii D.	sicct.	DEC E					RING N Minn	_			(p. 1		<u> </u>
PROJÉC		. 044.5				•			69267				52592				
	CE ELEVA	TION: 844.5		lennepin C	o. Coo	rdinates:	<u>N</u>		0920	/ 		E :			BORAT	rona.	
DEPTH IN FEET		MATERIAI	DESCRIPTIO	N'		GEOLO	GY	N	МС	SA	MPLE YPE	REC IN.	WC	DEN	T	PL	
1 -	gravel,	ORGANIC CL trace roots, black ad (OL/OH)	AY, with woo	od, a little tions of		TOPSOII COARSE ALLUVI	,	12	M	\bigvee	SS	24	20				
3 -	SILTY moist, n	SAND, trace roomedium dense (SWITH SILT, find	M-SC)			ALLOVI	·	.11	M	\bigvee	SS	21					
5 - 6 -	brown, SAND,	moist, medium d a little gravel, fir moist, loose (SP)	lense (SP-SM ne to medium		/ /		ı	7	М	X	SS	18					
7 - 8 -	SAND,	fine grained, light a little brown, m	ht grayish bro	wn, minations				8	M	PA V	SS	17	-				
9 -	SAND, brownis	a little gravel, m sh gray, moist, lo	ose (SP)	_						P		·					
11 -	brownis	a little gravel, m sh gray, moist, m a little gravel, fr	edium dense	(SP) grained,		,		11	M	X	SS	18					
13 -	brownis	sh gray, moist, m	edium dense	(ŠP)				20	М	X 打	SS	16					
15 -	brownis	WITH SILT, findsh gray, a little braminations of sil	rown, moist, r t (SP-SM)	nedium				18	М	X X	SS	17				٠	
17 — 18 —	\brown, \dense, a	a little gravel, m a little brownish a lens of silt (SP) WITH SILT, a li	gray, moist, r	nedium				24	M		SS	10					
19 – 20 –	fine gra	ined, grayish bro	own, moist, m	edium				17	M	13	SS	16					
21 -	mediun	n dense (SP) F BORING															
				· · · · · · · · · · · · · · · · · · ·													
																-	
DEI																	
	PTH: DI	RILLING METHOD)		WAT	ER LEVEL	MEA	SURI	EMEN	TS					NOTE:	REFE	⊥ ER
	9½' 3.	25" HSA	DATE	TIME	SAMP DEP	LED CAS	ING PTH	CAV	/E-IN PTH	FL	ORILLI UID LE	NG VEL	WAT! LEVI	ER EL	THE A	TTAC	Ή
			11/11/10	9:48	21.	0 19	.5	. 20	0.9				Non		SHEET		
0-1 BORIN COMP	NG PLETED:	11/11/10	11/11/10	9:59	21.	0 19). 5						Non	e	EXPLA ERMIN	NOLO(GY
11		GM Rig: 33C													TH	IIS LO	G



AET JO	OB NO: 01-05697.1					LC	G OF	BORING N	Ю.	1103	3 SS	(p. 1	of	<u> </u>
PROJE		t Rail Tr	ansit Pr	oject,	PEC East;							·*		
	ACE ELEVATION: 842.6		Hennepin C				69543			52592				
DEPTH		ESCRIPTIO	NŤ.		GEOLOGY	N	МС	SAMPLE TYPE	REC	FIELI	& LA	BORA	ORY '	
IN FEET	WIATERIAL D	ESCRIPTIO	11		-	19	IVIC	TYPE	IN.	WC	DEN	LL	PL	PID (ppm)
1 -	SILTY SAND, with organifine grained, black, moist,	loose (SM)) .	_	TOPSOIL MIXED	6	М	\searrow ss	24	20				0.0
3 -	CLAYEY SAND, trace roo SAND WITH SILT, fine g medium dense to loose (SF	rained, bro SM)	wn, moist	/ 1 ⋅ . 1 ⋅	ALLUVIUM COARSE ALLUVIUM	12	M	\searrow ss	24			-		0.0
4 -	Sieve analysis performed of 4': -#200 = 9.5%	on sample f	from 2' to			*		国						
5 - 6 -	SAND WITH SILT, fine g	rained, ligi	ht grayish			9	M	$\int \int ss$	24				-	0.0
7 - 8 -	brown, moist, loose (SP-SI SAND, a little gravel, fine light grayish brown, moist,	to medium	grained, lense,	/		14	M	☑ ss	18					0.0
. 9 –	laminations of silt (SP) SAND, a little gravel, med	ium to fine	grained,											,
10 - 11 -	brownish gray, moist, med	ium dense	(SP)			22	M	ss	13					0.0
12 - 13 -	- - - .					17	M	SS	16					0.0
14 - 15 -	SAND, medium to fine gramoist, medium dense (SP)	ined, brow	vnish gray,			13	M	Ss ss	14					0.0
16 - 17 -	SAND, fine grained, light	grayish bro	own, moist	,							-			
18 - 19 -	medium dense (SP) SAND, fine grained, brown moist, medium dense, lam			, i.i.i		15	M	X SS ₽	12					0.0
20 -	LEAN CLAY, grayish bro stiff, laminations of sand w	wn, a little	brown,		FINE ALLUVIUM	13	M	SS	18	28 27		7		0.0
21 -	FAT CLAY, gray, a little l stiff, laminations of silt (C END OF BORING	ight brown H)	nish gray,											
														-
						_								
DE														
i e	PTH: DRILLING METHOD			WAT	ER LEVEL MEA	SURI	EMEN	TS				NOTE:	REFE	R TO
0-1	0-19½' 3.25" HSA DATE TIM				LED CASING TH DEPTH	1	/E-IN PTH	DRILLI FLUID LI	NG EVEL	WATI LEVE		THE A		
11/11/10 8:45					0 19.5	ļ	0.9			Non		SHEET		
	NG	11/11/10	8:58	21.	0 19.5	20	0.9			Non		EXPLA		
BORII COMI	NG PLETED: 11/11/10											ERMIN		
DR: I	DTS LG: GM Rig: 33C											TH	IS LO	ن



		01.05607								_			1116	CT	(n 1	1 ^t	1)
AET JC	OB NO:	01-05697	, D. 11.55		• ,	DEC	· ·				RING N			0.51	(p.]	1 01	1)
PROJE	_	Southwest Light			•									7			
	CE ELEV.	ATION: 836.9	F	Hennepin Co	o. Coo	rdinat T	es: N	l	65292	<u>Z</u>		E:	52091		DOD 45	rony.	TECTO
DEPTH IN FEET		MATERIAL D	ESCRIPTIO	N.		GE	OLOGY	N	MC	SA T	MPLE YPE	REC IN.	WC	DEN	BORAT	Ī	%-#200
1 -		mostly silty sand wi n brown and dark br				FILL		17	M	M	SS	13					
2 - 3 - 4 -	FILL, light g	mixture of silty sand rayish brown and lig	d and sand ght brown (with silt, A-2-4,				16.	M	X F	SS	9					
5 - 6 -	brown	,						26	M	Y Y	SS	13					
7 - 8 - 9 -	brown	mostly sand with sil ish gray (A-1-b)	, .					30	М	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	SS	10					
10 -	clay, g	mostly gravelly sandrayish brown (A-1-1	0)		1			31	M	A A	SS	7		-			
12 - 13 - 14 -	brown FILL,	mostly sand with sil, a little brown (A-1 mixture of lean clay ish gray and brown	-b) and clayey	y sand,				22	<u>¥</u>	X	SS	12	21				
15 -	SAND WITH GRAVEL, medium grained, brown, waterbearing, medium dense (SP)						ARSE UVIUM	20	W	X R	SS	12	The state of the s				
17 - 18 - 19 -	waterb	o, a little gravel, med bearing, loose (SP) (A-1-b)					10	W	X R	SS	16					
20 -	brown	O WITH GRAVEL, 1, waterbearing, loose						8	W	X	SS	10					
DEI O-1 BORIN COME		or boking															
200			1														
DEI	PTH:	PRILLING METHOD			WATER LEVEL ME SAMPLED CASING			T		T			WAT		NOTE: REFER TO		
0-1	0-19½' 3.25" HSA					LH	CASING DEPTH	DE	VE-IN PTH	FL	ORILLII UID LE	VEL	WAT LEVI		THE A		
12/2/13 9:25						0	14.5	1	4.5				14.		SHEE		
12/2/13 9:35					16.	0	14.5	1	4.0				13.		EXPLA		
BORING COMPLETED: 12/2/13 12/2/13 9:45 2						0	19.5	1	7.4	_	<u> </u>		15.	4 T			GY ON
DR: S	SG LG:	SB Rig: 91C										-			TH	IIS LO	G NUD 04



ROBECT: Southwest Light Rail Transit Project, PEC East; Hopkins to Minneapolis	AET JO	B NO: 01-05697	•					1.0	GOF	BOR	RINGN	O.	1116	ST	(p. 1	of	()
SURFACE ELEVATION: 834.9			t Rail Tr	ansit Pro	ject,	PEC	C East; I								NE -		
DEPTH MATERIAL DESCRIPTION GEOLOGY N MC SAMPLE REC FILL MEDISTRIPE NEW NEW DEPTH FILL MEDISTRIPE NEW NEW DEPTH NEW NEW DEPTH NEW NEW DEPTH DEP		0240			-									0			
FILL, mostly silty sand with gravel, apparent	DEPTH		reen mare	NT.		CE	OI OGV	ът.	MC	SA	MPLE	REC	FIELI) & LA	BORA	ORY 7	TESTS
Cobbies, brown and gray (A. 1-b) Fill, mostly silty sand with gravel, pieces of broke, black, frozen (A.2-4) Fill, mostly silty sand, a little gravel, brown Fill, mostly sand with silt, a little gravel and claysy sand, brown, a little gray and black A.2-40 Fill, mostly sand with gravel, a little Sandy lean clay, brown, a little gray, a lens of sand with silt (PT) (A-8) Fill	IN FEET							IN .		Γ	YPE	IN.	WC	DEN	LL	PL	%-#200
FILL, mostly sand, a little gravel, brown		Cobbles, brown and gray (A FILL, mostly silty sand with	k-1-b) h gravel, pi	· /		FILI		25	F M	ÁTY V	SU SU			-			
Coarse C	4 —	FILL, mostly silty sand, a li (A-2-4) FILL, mostly sand with silt	ttle gravel,			1							11				
SAPRIC PEAT, black, a little gray, a lens of sand with silt (PT) (A-8) SAPRIC PEAT, black, a little gray, a lens of sand with silt (PT) (A-8) FINE ALLUVIUM SS 10 SAPRIC PEAT, a little grayel, medium to fine grained, gray, waterbearing, medium dense (PS-SM) (A-1-b) SAND WITH SILT, a little gravel, medium to fine grained, gray, waterbearing, medium dense (PS-SM) (A-1-b) SAND WITH SILT AND GRAVEL, medium to fine grained, gray, waterbearing, medium dense, a lens of sandy lean clay (SP-SM) (A-1-b) SAND WITH SILT AND GRAVEL, medium to fine grained, gray, waterbearing, medium dense, a lens of sandy lean clay (SP-SM) (A-1-b) SAND WITH SILT AND GRAVEL, medium to fine grained, gray, waterbearing, medium dense, a lens of sandy lean clay (SP-SM) (A-1-b) SAND WITH SILT AND GRAVEL, medium to fine grained, gray waterbearing, medium dense, a lens of sandy lean clay (SP-SM) (A-1-b) SAND WITH SILT AND GRAVEL, medium to fine grained, gray waterbearing, medium dense, a lens of sandy lean clay (SP-SM) (A-1-b) SAND WITH SILT AND GRAVEL, medium to fine grained, gray waterbearing, medium dense, a lens of sandy lean clay (SP-SM) (A-1-b) SAND WITH SILT AND GRAVEL, medium to fine grained, gray waterbearing, medium dense, a lens of sandy lean clay (SP-SM) (A-1-b) SAND WITH SILT AND GRAVEL, medium to fine grained, gray waterbearing, medium dense, a lens of sandy lean clay (SP-SM) (A-1-b) SAND WITH SILT AND GRAVEL, medium to fine grained, gray waterbearing, medium dense, a lens of sandy lean clay (SP-SM) (A-1-b) SAND WITH SILT AND GRAVEL, medium to fine grained, gray waterbearing, medium dense, a lens of sandy lean clay (SP-SM) (A-1-b) SAND WITH SILT AND GRAVEL, medium to fine grained, gray waterbearing, medium dense, a lens of sandy lean clay (SP-SM) (A-1-b) SAND WITH SILT AND GRAVEL, medium to fine grained, gray waterbearing, medium dense, and gray firm, lenses and laminations of silty sand (CD) (A-1-b) SAND WITH SILD WATER LEVEL MEASUREMENTS SS 16 24 SW 17 37 37 37 37 37 37 37 37 37 37 37 37 37	6 —	FILL, mostly clayey sand w sandy lean clay, brown, a li	vith gravel,	a little ad black		SWA	AMP POSIT										
DEPTH: DRILLING METHOD DATE TIME SAMPLED CASING CAVE-IN CASING CAVE-IN CAVE-	9 -	SAPRIC PEAT, black, a lit sand with silt (PT) (A-8)				FIN	E	7	M	X	SS	16	304	and the state of t			
SAND WITH SILT, a little gravel, medium to fine grained, gray, waterbearing, medium dense (SP-SM) (A-1-b)	11 -	laminations of silty sand (C	CH) (A-7-6))		ALL	LUVIUM	5	<u>*</u>	X	SS	17					
SANDY LEAN CLAY, brownish gray, firm, lenses and laminations of silty sand (CL) (A-6) SAND WITH SILT AND GRAVEL, medium to fine grained, gray, waterbearing, medium dense, a lens of sandy lean clay (SP-SM) (A-1-b) SAND, fine to medium grained, grayish brown, waterbearing, loose (SP) (A-3) SAND, fine to medium grained, grayish brown, waterbearing, loose (SP) (A-3) SAND, fine to medium grained, grayish brown, waterbearing, loose (SP) (A-3) SAND, fine to medium grained, grayish brown, waterbearing, loose (SP) (A-3) SAND, fine to medium grained, grayish brown, waterbearing, loose (SP) (A-3) SAND, fine to medium grained, grayish brown, waterbearing, loose (SP) (A-3) SAND, fine to medium grained, grayish brown, waterbearing, loose (SP) (A-3) SAND, fine to medium grained, grayish brown, waterbearing, loose (SP) (A-3) SAND, fine to medium grained, grayish brown, waterbearing, loose (SP) (A-3) SAND, fine to medium grained, grayish brown, waterbearing, loose (SP) (A-3) SAND, fine to medium grained, grayish brown, waterbearing, loose (SP) (A-3) SAND, fine to medium grained, grayish brown, waterbearing, loose (SP) (A-3) SAND, fine to medium grained, grayish brown, waterbearing, loose (SP) (A-3) SAND, fine to medium grained, grayish brown, waterbearing, loose (SP) (A-3) SAND, fine to medium dense, a lens of sandy lean clay (SP-SM) (A-1-b) SAND, fine to medium dense, a lens of sandy lean clay (SP-SM) (A-1-b) SAND, fine to medium dense, a lens of sandy lean clay (SP-SM) (A-1-b) SAND, fine to medium dense, a lens of sandy lean clay (SP-SM) (A-1-b) SAND, fine to medium dense, a lens of sandy lean clay (SP-SM) (A-1-b) SAND, fine to medium dense, a lens of sandy lean clay (SP-SM) (A-1-b) SAND, fine to medium dense, a lens of sandy lean clay (SP-SM) (A-1-b) SAND, fine to medium dense, a lens of sandy lean clay (SP-SM) (A-1-b) SAND, fine to medium dense, a lens of sandy lean clay (SP-SM) (A-1-b) SAND, fine to medium dense, a lens of sandy lean clay (SP-SM) (A-1-b) SAND, fine to m	13 —	fine grained, gray, waterbea	gravel, medi	edium to um dense		ALI	LUVIUM_	20	M/W	X II	SS	16	25				
Time grained, gray, waterbearing, medium dense, a lens of sandy lean clay (SP-SM) (A-1-b) SAND, fine to medium grained, grayish brown, waterbearing, loose (SP) (A-3) SND, fine to medium grained, grayish brown, waterbearing, loose (SP) (A-3) SND, fine to medium grained, grayish brown, waterbearing, loose (SP) (A-3) SND, fine to medium grained, grayish brown, waterbearing, loose (SP) (A-3) SND, fine to medium grained, grayish brown, waterbearing, loose (SP) (A-3) SND, fine to medium grained, grayish brown, waterbearing, loose (SP) (A-3) SND, fine to medium grained, grayish brown, waterbearing, loose (SP) (A-3) SND, fine to medium grained, grayish brown, waterbearing, loose (SP) (A-3) SND, fine to medium grained, grayish brown, waterbearing, loose (SP) (A-3) SND, fine to medium grained, grayish brown, waterbearing, loose (SP) (A-3) SND, fine to medium grained, grayish brown, waterbearing, loose (SP) (A-3) SND, fine to medium grained, grayish brown, waterbearing, loose (SP) (A-3) SND, fine to medium grained, grayish brown, waterbearing, loose (SP) (A-3) SND, fine to medium grained, grayish brown, waterbearing, loose (SP) (A-3) SND, fine to medium grained, grayish brown, waterbearing, loose (SP) (A-3) SND, fine to medium grained, grayish brown, waterbearing, loose (SP) (A-3) SND, fine to medium grained, grayish brown, waterbearing, loose (SP) (A-3) SND, fine to medium grained, grayish brown, waterbearing, loose (SP) (A-3) SND, fine to medium grained, grayish brown, waterbearing, loose (SP) (A-3) SND, fine to medium grained, grayish brown, waterbearing, loose (SP) (A-3) SND, fine to medium grained, grayish brown, waterbearing, loose (SP) (A-3) SND, fine to medium grained, grayish brown, waterbearing, loose (SP) (A-3) SND, fine to medium grained, grayish brown, waterbearing, loose (SP) (A-3) SND, fine to medium grained, grayish brown, waterbearing, loose (SP) (A-3) SND, fine to medium grained, grayish brown, waterbearing, loose (SP) (A-3) SND, fine to medium graine	16 —	SANDY LEAN CLAY, brolenses and laminations of s	ilty sand (C	CL) (A-6)				8	W/M		SS	6	24		7		
DEPTH: DRILLING METHOD	18 —	fine grained, gray, waterber a lens of sandy lean clay (S	aring, medi P-SM) (A-	um dense, ·1-b)				30	W	X {}	SS	12			-		
DEPTH: DRILLING METHOD WATER LEVEL MEASUREMENTS NOTE: REFER				sn brown,			·	5	W	X	SS	18					
BORING COMPLETED: 12/2/13 10:50 21.0 19.5 15.6 13.5 TERMINOLOGY	21 —	END OF BORING															
BORING COMPLETED: 12/2/13 10:50 21.0 19.5 15.6 13.5 TERMINOLOGY	DEV				37.47	TED I	EXTEL ME A	CLIDI	EMEN	TE							
12/2/13 10:25 16.0 14.5 14.3 12.6 SHEETS FOR A			DATE	TIME			CASING	CA	VE-IN	l	DRILLI UID LI	NG EVEL	WAT LEV	ER			
12/2/13 10:35 16.0 14.5 13.0 11.0 EXPLANATION	· U-1	714 SIES INSIA	12/2/13	10:25				 					12.	6.	SHEE	TS FO	R AN
BORING COMPLETED: 12/2/13 10:50 21.0 19.5 15.6 13.5 TERMINOLOGY			10:35	16.	.0	14.5	1	3.0				11.	0	EXPLA	NATI(ON OF	
THIS LOG	BORIN COMP	NG LETED: 12/2/13		10:50	21.	.0	19.5	1	5.6	1			13.	5 1	ERMI	NOLO	GY ON
DR; SG LG: SB Rig: 91C															TF	IIS LO	G



AET JO	B NO:	01-05	697						LO	G OF	BO	RING N	О.	1117	ST	(p. 1	1 of	1)
PROJEC	CT:	South	vest Ligh	t Rail Tr	ansit Pr	oject,	PE	C East;	Hop	kins	to	Minn	eapo	olis				
SURFA	CE ELEV	/ATION:	831.7	F	Iennepin C	o. Coo	rdina	tes: N	10	65630)		Е :	52135	6			
DEPTH		N.4	ATERIAL D	ECCDIDTIO	NI		GE	OLOGY	N	МС	SA	MPLE TYPE	REC	FIELD) & L	ABORA'	TORY '	TEST
IN FEET									11		1		IN.	WC	DEN	LL	PL	%-# 2
1 2 3 4	Clayey (A-3, FILL, metal,	y sand, bro A-6) mostly sil black, fro mostly sil	nd with sile own, a little lity sand with ozen (A-2-4 lity sand with own (A-2-4	dark brow th gravel, p th gravel, a	on, frozen		FILI		26 .	F F M M		SU SU SU SS	6					
5 — 6 — . 7 —	FILL, sandy	mostly sa lean clay mostly sa	nd with sile and clayey nd with sile sandy lear	t, a little gr sand, brov t and grave	vn (A-2-4) el, a little				14	М	X	SS	6					-
8 — 9 — 10 —		(A-1-b)	sandy ledi	i ciay, orov	vii, a muic		ALOPETE PER PER PER PER PER PER PER PER PER PE		8	M		SS	6					j
11 — 12 —						-	1848		8	M		SS						
13 — 14 — 15 —									13	M		SS	10					
16 – 17 –	sand v	mostly cl with silt, tr	ayey sand,	a little gra orown, a li	vel and ttle black				12	M		SS	. 7	11	ad lamatic sport and tracking the sport and			
18 - 19 - 20 - 21 -	to fine	e grained,	ILT AND brown, wat SP-SM) (A	terbearing,	medium loose to			ARSE UVIUM	7	W		SS	3			-		THE STATE OF THE S
22 - 23 - 24 -									7	W	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	SS .	3	and the state of t			The state of the s	
25 — 26 —	END	OF BOR	ING						21	W	X	SS	5					,
				· ·						The state of the s		·						
DEF	TH:	ORILLING	METHOD			WAT	ER LI	EVEL MEA	SURE	EMEN	ΓS					NOTE:	REFE	ER T
0-2	4½' :	3.25" HSA	\	DATE	TIME	SAMP DEP		CASING DEPTH	DE	/E-IN PTH	FL	ORILLIN UID LE	NG VEL	WATI	EL	THE A		
				12/2/13	11:45	21.	_	19.5	-	9.5				19.1		SHEE EXPLA		
BORIN COMP	IG LETED:	12/2/13		12/2/13 12/2/13	12:00 12:30	21. 26.		19.5 24.5	-	9.5 3.3				18.9	'	EXPLA FERMIN		
DR: S			g: 91C													TH	IIS LO	G



1118 ST (p. 1 of 1) 01-05697 LOG OF BORING NO. AET JOB NO: Southwest Light Rail Transit Project, PEC East; Hopkins to Minneapolis PROJECT: 521576 829.3 165827 Hennepin Co. Coordinates: SURFACE ELEVATION: FIELD & LABORATORY TESTS DEPTH SAMPLE TYPE REC IN. MATERIAL DESCRIPTION **GEOLOGY** Ν MC IN FEET WC. DEN %-#200 LL PL FILL FILL, mostly silty sand with gravel, a little ashes/cinders, black, frozen to 1' (A-2-4) F/M SS 12 1 -2 FILL, mostly sand with silt, a little gravel and SS 29 M 12 3 silty sand, brown (A-2-4) 4 FILL, mostly sand with silt and gravel, a little 5 clavey sand, brown (A-1-b) SS 13 M 10 6 7 -SS 13 Μ 6 8 9 FILL, mostly sand with silt, a little gravel and 10 clayey sand, brown (A-3) SS 7 M 11 FILL, mostly sand with silt and gravel, brown 12 (A-1-b)SS 6 M 11/2 13 14 FILL, mostly sand with silt, a little gravel and clavey sand, brown (A-1-b) 15 SS 10 M 16 SAND WITH SILT AND GRAVEL, medium COARSE 17 ALLUVIUM to fine grained, brown, waterbearing, very loose W SS 2. 10 OR FILL 18 (SP-SM) (A-1-b) (possible fill) 19 20 W SS 7 3 21 COARSE SAND, a little gravel, medium grained, brown, 22 ALLUVIUM waterbearing, very loose, lenses of clayey sand 3 W SS 12 23 (SP) (A-1-b) 24 01-05697.GPJ AET+CPT+WELL.GDT 12/10/13 25 W SS 2 6 26 END OF BORING DEPTH: DRILLING METHOD WATER LEVEL MEASUREMENTS NOTE: REFER TO **A-COORDINATES** DRILLING FLUID LEVEL SAMPLED DEPTH CASING DEPTH CAVE-IN WATER LEVEL DATE TIME THE ATTACHED DEPTH 3.25" HSA $0-24\frac{1}{2}$ SHEETS FOR AN None 17.0 17.2 12/3/13 8:45 18.5 EXPLANATION OF 19.5 19.5 18.8 8:50 12/3/13 21.0 BORING COMPLETED: 12/3/13 TERMINOLOGY ON 19.2 16.6 12/3/13 9:00 21.0 19.5 THIS LOG 19.4 9:20 26.0 24.5 23.5 12/3/13 DR: SG LG: SB Rig: 91C



AET JC	DB NO: 01-05697					L	OG OF	BOR	ING N	О,	1119	ST	(p. :	1 of	1)
PROJEC		t Rail Tr	ansit Pro	ject,	PEC East					_					
	CE ELEVATION: 825.7		Iennepin Co.	Coordi	nates:	N 1	6603′	7	_	E :	52179	4			
DEPTH	MATERIAL D	ESCRIPTIO	N	,	GEOLOGY	N	МС		MPLE	REC	-	Ι	BORA'		T
IN FEET					FILL	_		1	YPE ———	IN.	WC	DEN	LL	PL	%-#200
1 - 2	FILL, mostly silty sand wit clayey sand, pieces of conc ashes/cinders, black, a little to 1' (A-2-4)	rete, bitum	inous and		FILL		F/M		SS	16				,	
3 -	10 1 (A-2-4)					27	M	A	SS	3					
4 - 5 -	FILL, mostly sand with silt clayey sand, brown (A-1-b)	and gravel	, a little			12	M		SS	6		The second secon		-	
6 -	FILL, mostly sand with silt	a 1:441a aug	aval and					2							
8 -	clayey sand, brown (A-2-4)	, a nuie gra	iver and	· ·		10	M		SS	4			4		
9	FILL, mostly sand with silt clayey sand, light brown ar	and gravel ad brown (A	, a little A-1-b)			12	M	7	SS	7					
11 -								I							
12 -					1	14	<u>¥</u>		SS	5					
14 - 15 -	SAND WITH GRAVEL, r brown, waterbearing, very and laminations of clayey s	loose to loc	ose, lenses		COARSE	A 4	W		SS	4					
16 -	, ,		,			10	W		SS	14	Total and the second				
18	SAND, fine to medium gra	ined, light	brown,						,						
20 -	waterbearing, loose (SP) (A	4-3)				7	W	X	SS	3					
21 -	END OF BORING					-								i	
			•									-			
DE OOR WCOOKINALES OLOGON AEL CONTROLL COMM COMM COMM COMM COMM COMM COMM C															
15.7900			,												
DE	PTH: DRILLING METHOD			т	ER LEVEL M			7					NOTE	: REF	ER TO
道 전 0-1	19½' 3.25" HSA	DATE	TIME	SAMP DEP	LED CASIN TH DEPT	IG CA	VE-IN EPTH	FLU	ORILLI UID LI	NG EVEL	WAT LEVI	ER EL		ATTA	
0040		12/3/13	10:10	16.	0 14.5		14.5				13.			TS FC	•
ÿ ×		12/3/13	10:20	16.	0 14.5		14.5				13.	.			ON OF
BORII COMI	NG PLETED: 12/3/13	12/3/13	10:30	21.	.0 19.5		19,4				16.	3			GY ON
DR: S	SG LG: SB Rig: 91C										1		Tl	HIS LO)G



ET JO	B NO:	01-05697					LO	G OF I	BORING N	10.	1120	ST	(p.]	1 of	1)
ROJEC	CT:	Southwest Ligh	ht Rail Tra	ansit Pro	oject, F	EC East;]	Hopl	kins t	o Minn	eapo	lis				
		VATION: 823.8	Н	lennepin Co.	Coordina	ntes: N	1	66265		E	52202	5			
	OH DID			-	T				CAMBIE	REC	FIELD) & LA	BORAT	ΓORY	TESTS
PTH IN EET		MATERIAL	DESCRIPTIO	И		GEOLOGY	N	MC	SAMPLE TYPE	IN.	WC	ОС	LL	PL	% - #2
1 - 2 -	cobbl	, mostly silty sand wi les, pieces of concrete ashes/cinders, black,	e and bitumi	nous, a		FILL		F/M	ss	24					
3 -	FILL	, mostly sand with sil y sand, brown (A-1-l	t, a little gra				24	М	SS	13					
4 - 5 -	FILL (A-1-	, mostly sand with gr b)	avel, light b	rown			10	M	ss	12					
6 —															
8			-				11	M	X ss	7		-			
10 -	sand	, mixture of gravel ar and silty sand, light b black (A-1-b)					8	M	SS SS	12					
12 – 13 –		ANIC CLAY, trace of the firm, laminations of				SWAMP DEPOSIT	8	M	SS SS	16	84	18.5		100	
14 — 15 —		ANIC CLAY, trace s nish gray, very soft (ots, light			WH	-M	Ss ss	18	76		57	44	-
16 — 17 — 18 —		D WITH SILT, fine rbearing, loose (SP-S		c gray,		COARSE ALLUVIUM	9	W	Ss	13					
19 — 20 — 21 —	gray,	D WITH SILT, fine waterbearing, very lo (SP-SM) (A-2-4)					2	W	Ss ss	15					
21 – 22 – 23 –		D WITH SILT, fine rnish gray, waterbeari					9	W	Ss ss	8					
24 — 25 —	SAN brow (A-2	D WITH SILT, fine mish gray, waterbeari	grained, gra ng, loose (S	y to P-SM)			. 8	W	ss	4					
26 – 27 – 28 –	(, , ,			-		·	8	W	Ss ss	8					
29 –															
30 — 31 —		00000000				·	8	W	SS	8					_
	L	OF BORING					<u></u>					1			<u> </u>
DEF	PTH:	DRILLING METHOD		<u></u>		ER LEVEL MEA		EMEN' VE-IN	TS DRILL	ING I	WAT		NOTE:		
	9½'	3.25" HSA	DATE	TIME	SAMPL DEPT		DE	PTH	FLUID L	ËVEL	WAT LEVI		THE A		
91/2-2	91/21	RDF w/DM	12/3/13	11:45	18.5			$\frac{7.0}{6.0}$			15.	<u>.</u>	EXPLA		
BORIN	IG LETED		12/3/13	12:00	18.5	17.0	1	U.U			15.	4	ERMI		
'OMP	LETED	: 12/3/13					1		1					IIS LO	



AET JO	OB NO: 01-05697						LO	G OF	BOF	RING N	О,	1121	ST	(p. :	1 of	1)
PROJEC	G /I / I	t Rail Tr	ansit Pro	ject,	PEC	C East; 1						lis				
SURFA	CE ELEVATION: 822.4	Н	lennepin Co.	Coordi	nates:	N	10	6642	5		E :	52223	2			
DEPTH IN FEET	MATERIAL D	FSCRIPTIO	VI		GE	EOLOGY	N	МС	SA	MPLE	REC	FIELE) & LA	BORA	TORY	TESTS
FEET							8		T	YPE	IN.	WC	OC	LL	PL	%-#200
1 -	FILL, mostly silty sand wit (A-2-4)				FIL	L .	50/.3	М	 	SS SU	3					
2	FILL, mostly silty sand wit dark brown (A-2-4) (petrol	h gravel, tra eum-type o	ace roots, dor)	/												
3 - 4 -	FILL, mostly sand with silt silty sand and ashes/cinders	and gravel s, pieces of	, a little				22	M	A	SS	12					
5 —	bituminous, black (A-1-b) (FILL, mostly sand with gra			7/			16	M	M	SS	6					
6 -	brown (A-1-b)						10	IVI	\mathbb{A}	აა						
7 - 8 -	FILL, mostly sand with silt sandy lean clay, brown (A-FILL, mostly sand, a little	1-b)					9	M	M	SS	18					
9	clay, light grayish brown, a	little gray	(A-1-b)						图							
10 -	FILL, mostly sand with silt (A-1-b)	and gravel	, brown				11	M	\mathbb{N}	SS	10					
12 -	SAPRIC PEAT, black (PT	, \) (A'-8)			SW	AMP			P			99	26.5	-		
13 -	BOGLIME, light gray, firm		7-5)			POSIT	7	M	M	SS	.16	45	1.7			
14 -	ORGANIC CLAY, trace sl		ots, light	- 2.1.1 7.1.1	=				P							
. 16 –	brownish gray, soft (OH) (A-7-5)		322			2	M	\triangle	SS	20	84	4.6			,
17 -	SAND WITH SILT, fine g brown, waterbearing, medi	rained, ligh um dense (it grayish SP-SM)			ARSE LUVIUM	25	$\frac{\blacksquare}{W}$	M	SS	16					
18 -	(A-3)							,,	R							
20 -	SAND, fine to medium gra- light brownish gray, water						30	W	M	SS	18					
21 -	dense (SP) (A-3)								7							
22 -							21	W		SS	16					
2.5	END OF BORING	and the second s							\uparrow					1		
5																
				1												
5																
,																
DE	PTH: DRILLING METHOD			WAI	ER L	EVEL ME.	ASURI	EMEN	ITS	L				NOTE	REF	ER TO
N S)-22' 3.25" HSA	DATE	TIME	SAMP DEP	LED TH	CASING DEPTH	CAN	VE-IN PTH	FL	DRILLI UID LI	NG EVEL	WAT LEVI	ER EL	THE A	ATTA	CHED
DYO.		11/27/13	1:40	18.	5	17.0	1	7.8				16.		SHEE		
3		11/27/13	1:55	23.	.5	22.0	1	9.9		,		17.	1			ON OF
DE D	NG PLETED: 11/27/13							···	-						NOLC HIS LC	GY ON OG
P DR: I	DS LG: CD Rig: 33C															71B 04



AET JO	DB NO: 01 -	-05697	· · · · · · · · · · · · · · · · · · ·					LC	G OF	BOI	RING N	O.	1122	ST	(p. :	of	1)
PROJEC		thwest Ligh	t Rail Tra	ansit Pro	ject,	PEC	C East;]	Hopl	kins 1	to I	Minn	eapol	lis			,	
	CE ELEVATION	I: 819.3	Н	ennepin Co.	Coordii	nates;	N	1	66659)		E :	52245	0			•
DEPTH		MATERIAL D	ECCDIDTION	VI		GE	OLOGY	N	MC	SA	MPLE YPE	REC	FIELD) & LA	BORA	ORY '	rests
IN FEET								IN	IVIC	Г	YPE	IN.	WC	ОС	LL	PL	%-#2 00
1 2	brown (A-2-	y silty sand with 4) y silty sand, a li				FILI	Ĺ	16	М	\bigvee	SS	6					
3 - 4 -	black (A-2-4)		vel, a little	- contract	/			5	M	M	SS	8				APPLANTA AND AND AND AND AND AND AND AND AND AN	
5 - 6 -	FILL, mostly roots, gray, a	y lean clay, a lit a little dark bro	ttle organic wnish gray	clay, trace and black	,			9	М		SS	12	32				
7 — 8 —							,	5	M	X	SS	10	28				
9 - 10 -								4	M	Z X	SS	18	14				
11 - 12 - 13 -	gray, soft to	CLAY, trace ro firm (OH) (A-	7-5)		7.11	DEF	AMP POSIT	5	M		SS	20	85	3.0			
14 -	loose, lenses (SP-SM) (A		ns of silty s	and			ARSE LUVIUM		T	2							
16 - 17 -	SAND, fine waterbearing	to medium grag, loose to med	ined, browi ium dense (nish gray, (SP) (A-3)				9	W	Ž Z	SS	18					
18 - 19 -								12	W	X F	SS	22					
20 - 21 -	brownish gr dense (SP) (medium gr aterbearing	rained, , medium				14	W	M	SS	24					Y
	END OF B	ORING							1144								
COMP BORD COMP BORD COMP				J.													
GFJ AEITOFICE																	
-0303/	DULI ENTE	DIO METERICO	-		11/4/7	T C T	EVEL ME	A CI ID	EMEN	Te				1			<u> </u>
DE1	PTH: DRILLI 19½' 3.25"	NG METHOD HSA	DATE	TIME	SAMP DEP		EVEL ME. CASING DEPTH	CA.	VE-IN VE-IN PTH	1	DRILLI UID LI	NG EVEL	WAT LEVI	ER EL	NOTE:	REFI	
		,	11/27/13	12:15	16.	.5	14.5	1	5.1				14.			TS FO	
3			11/27/13	12:40	21.	5_	19.5	1	9.1				15.	1	EXPLA		
BORIN COMF	NG PLETED: 11/2	7/13	11/27/13	12:45	21.	.5	19.5	1	7.8				15.	3			GY ON
DR: I		Rig: 33C													TI	IS LO	G



AET JO	OB NO: 01-05697					LO	OG OF	BORING 1	VO	1123	SS SS	(p. 1	of 2	2)
PROJEC	Southwest Light	t Rail Tr	ansit Pr	oject,	PEC East;	Hop	kins	to Min	neap	olis				
SURFA	CE ELEVATION: 818.1	F	łennepin C	o. Coo	rdinates: <u>N</u>	1 1	66850)	Е	52265	6			٠
		SECONIBEIO	N î		GEOLOGY	1	MO	SAMPLE TYPE	REC	FIELI) & L/	BORA	TORY	TESTS
DEPTH IN FEET	MATERIAL I	DESCRIPTIO	IN		GEOLOGI	N	MC	TYPE	IN.	WC	ОС	LL	PL	%-#20
1 - 2 -	FILL, mostly silty sand wi ashes/cinders, trace roots, (A-2-4)	th gravel, a black, a litt	little le brown		FILL	7	М	SS	18					
3 4	FILL, mostly sand with sil sandy lean clay and ashes/ wood, dark brownish gray	cinders, pie	eces of			9	M <u>Y</u>	X ss {{}	17					
5 — 6 —	\A-6) FILL, mostly fat clay, a lit	tle silt, gra	y (A-7-6)	<i>_</i>		3	M	SS	14	44		- Andrews		
7 — 8 —	FILL, mostly clayey sand little sand, trace roots, black brownish gray (A-6)					4	M	SS SS	16	23				
9 10	FILL, mixture of fat clay a and sand, possible cobbles gray (A-7-6, A-1-b)					11	M/W	Ss ss	14	39				
12 — 13 —	FILL, mostly clayey sand wood, brownish gray (A-6		l and		-	5	W	SS SS	1					
14 — 15 — 16 —	ORGANIC CLAY, with s brownish gray to grayish b			nt ====	DEPOSIT	5	W	SS SS	_					
17 — 18 —	(A-7-5)					5	W	SS	18	106	4.6			
19 – 20 – 21 –				<u> </u>		2	M	\frac{1}{\sqrt{ss}} ss	18	120	6.5			
22 – 23 –	,					2	M	Ss ss	18	120		108	68	
24 – 25 –	ORGANIC CLAY, trace s to brown to gray, soft (OF	shells, gray I) (A-7-5)	ish brown	28.5 12.5 12.5 12.5 12.5 12.5 12.5 12.5 12		3	M	SS SS	18	94		88	47	
26 – 27 –				7.5.7 7.5.7	1 : :	3	M	Ss ss	18	84	5.2			
28 - 29 - 30 -				7.8.5 7.8.5 7.8.5	= = =			S ss	18	101		89	48	Marie Commence of the Company of the
31 -				<u> </u>		4	M	A SS	10	101		09	40	
				////		167=	TIL	[]] TO			<u> </u>		<u></u>	
DEI	PTH: DRILLING METHOD				ER LEVEL ME				INIC	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\		NOTE:		
0-3	9½' 3.25" HSA	DATE	TIME	SAMP) DEP	LED CASING TH DEPTH	DI	VE-IN EPTH	DRILL FLUID L	ËVEL	WAT! LEVI	EL	THE A		
	·	11/27/13	11:25	11.	0 9.5	1	0.5			4.0		SHEET		
		11/27/13	11:45	11.	0 9.5	1	0.5			4.6		EXPLA		
BORIN COMP	NG PLETED: 11/27/13	11/27/13	1:20	41.	0 39.5	2	9.0			22.0	$\begin{bmatrix} 0 & \end{bmatrix}$	ΓERMIN		
DR; T										-		TH	IS LO	G



03/2011

SUBSURFACE BORING LOG

1123 SS (p. 2 of 2) 01-05697 AET JOB NO: LOG OF BORING NO. Southwest Light Rail Transit Project, PEC East; Hopkins to Minneapolis PROJECT: 522656 166850 N Hennepin Co. Coordinates: FIELD & LABORATORY TESTS DEPTH IN FEET SAMPLE TYPE REC IN. MATERIAL DESCRIPTION **GEOLOGY** N MC WC OC LL PL %-#200 FINE FAT CLAY, brownish gray, a little brown, firm, M/W SS 29 5 18 ALLUVIUM laminations of waterbearing sand (CH) (A-7-6) 33 (continued) (continued) 34 FAT CLAY, brownish gray, firm (CH) (A-7-6) 35 SS 5 M 18 55 36 COARSE SAND, fine grained, trace roots, brownish gray, 37 ALLUVIUM waterbearing, loose to very loose (SP) (A-3) SS 5 W 18 38 39 40 SS 4 18 41 END OF BORING CORP W-COORDINATES 01-05697.GPJ AET+CPT+WELL.GDT 12/20/13

01-DHR-060



AET JO		w . w	•	•	nr ~ =					RING N			51	(p. 1	101	4)
PROJEC			1 4/11/1													
1	CE ELEVATION: 817.8	H	Iennepin (Co. Coo	rdinates:	N	<u> </u>	67038	<u>s</u>		E ;	52289			FOD3/	Tro
DEPTH IN FEET	MATERIAL	DESCRIPTION	N		GEOL	OGY	N	МС	SAI	MPLE YPE	REC IN.	WC	OC.	ABORAT	l	1ES
1 —	FILL, mostly clayey san silty sand and silt, pieces brown and black (A-2-6)	s of concrete,	, a little dark	ī	FILL		13	M	M	SS	18	11				
2 - 3 - 4 -	FILL, mixture of sand w lean clay, brown and bla A-7-6)	rith silt and gr	ravel and ay (A-1-b	,			17	M		SS	18					
5 — 6 —	FILL, mostly fat clay, a brown and gray, a little b						7	M		SS	18	43				
7 — 8 — 9 —			•	-			4	M		SS	20	38				
10 — 11 —	FILL, mostly lean clay, and organic clay, light g			d			6	М		SS ·	21	30				
12 — 13 — 14 —	LEAN CLAY, brown an black, firm to soft, a lens laminations of sandy silt	s of organic c	lay,		FINE ALLUV OR FIL	IUM L	5	M/W		SS	20	33				
15 — 16 —	(A-6)						4 .	M		SS	18	36				To a constant of the constant
17 — 18 — 19 —	ORGANIC CLAY, trace pieces of wood, grayish (OH) (A-7-5)			7-2-7 7-2-7	SWAM DEPOS		2	M.	A A	SS	22	107	9.6	. 7	Supplement of the control of the con	
20 – 21 –							3	М		SS	22	106		100	63	
22 — 23 — 24 —	FAT CLAY, slightly org very soft, laminations of	ganic, browni Silt (CH) (A-	sh gray, -7-6)		FINE ALLUV	'IUM	WH	M		SS	24	67	2.0			
25 — 26 —	FAT CLAY, slightly org gray, firm (CH) (A-7-6)		ownish				5	M		SS	24	52	2.8			
27 — 28 — 29 —	SAND WITH SILT, find gray, waterbearing, very	e grained, bro loose (SP-SI	ownish M) (A-3)		COARS		3	W		SS	18					
30 — 31 —	SAND, fine grained, browaterbearing, loose to m	ownish gray, nedium dense	(SP) (A-	3)	•		6	W		SS	18					
DEP	TH: DRILLING METHOD)		WAT	ER LEVE	L MEA	SURI	EMEN	TS					NOTE:	REFE	ER T
0.2	9½' 3.25" HSA	DATE	TIME	SAMPI DEP	LED CA	SING EPTH	CAV DE	/E-IN PTH	E FLI	RILLII UID LE	NG VEL	WATI LEVE	ER EL	THE A		
201/ 3		11/27/13	10:54	29.		7.0		3.3	+			20.0		SHEET	rs fo	R A
29½-3	9½' RDF w/DM	11/27/13	11:04	29.		7.0		1.8				19.0		EXPLA	NATIO	ON (
BORIN	G LETED: 11/27/13		10/ F1											TERMIN	1OLO	GY
DR: J												mr		TH	IS LO	G



03/2011

SUBSURFACE BORING LOG

1124 ST (p. 2 of 2) 01-05697 LOG OF BORING NO. AET JOB NO: Southwest Light Rail Transit Project, PEC East; Hopkins to Minneapolis PROJECT: 522892 167038 Hennepin Co. Coordinates: DEPTH IN FEET FIELD & LABORATORY TESTS SAMPLE TYPE REC IN, MATERIAL DESCRIPTION GEOLOGY MC N WC OC LL PL %-#200 COARSE SAND, fine grained, brownish gray, ALLUVIUM waterbearing, loose to medium dense (SP) (A-3) SS 18 W 12 33 (continued) (continued) 34 SAND WITH GRAVEL, medium to fine 35 grained, brownish gray, waterbearing, medium SS W 17 10 dense (SP) (A-1-b) 36 37 SAND, fine to medium grained, brownish gray, W SS waterbearing, medium dense (SP) (A-3) 18 12 38 39 SAND, fine grained, brownish gray, 40 W SS waterbearing, medium dense (SP) (A-3) 18 12 41 -END OF BORING CORP W-COORDINATES 01-05697.GPJ AET+CPT+WELL.GDT 12/20/13

01-DHR-060



AET JO	B NO: 01-05697						LO	G OF	BOI	RING N	0	1125	ST	(p. 1	of	1)
PROJEC	Southwest Ligh	t Rail Tra	ansit Pro	ject,	PEC	East; E	Iopl	cins 1	to]	Minne	eapo	lis				
SURFAC	CE ELEVATION: 818.0	Н	ennepin Co.	Coordin	nates:	N	1	67231	<u> </u>		Е :	52312	6			
DEPTH	MATERIAL D	ESCRIPTION	١ .		GEO	OLOGY	N	MC	SA	MPLE	REC	——) & L	ABORAT	ORY	TESTS
IN FEET									,	TYPE	IN.	, WC	OC	LL	PL	%- #20
1 - 2 -	FILL, mostly sand with silt silty sand and ashes/cinders dark brown (A-1-b, A-2-4)				FILL		17	М	X	SS	16					
3 - 4 -	FILL, mostly fat clay, a litt brownish gray (A-7-6)	le silt, gray	and				13	М	X FI	SS	0					
5 — 6 —	FILL, mixture of sandy lea	n clay and s	silty sand,				8	<u>*</u>	M	SS	14	35 31				
7 — 8 —	\alpha a little gravel, pieces of wo \A-2-4\) FILL, mostly fat clay, gray		ots (A-6,	<u></u>			8	M	M	SS	8	46				
9 – 10 – 11 –	FILL, mostly fat clay with	gravel, gray	(A-7-6)			and a second a second and a second a second and a second a second and a second and a second and	26	M/W		SS	8	39				
12 — 13 —	ORGANIC CLAY, trace sl little black, firm, a lens of s (A-7-5)	nells and ro sapric peat (ots, gray, a (OH)	a ====================================	1 3 W P		6	M		SS	12	43				
14 — 15 — 16 —	ORGANIC CLAY, trace re soft (OH) (A-7-5)	oots, grayisl	h brown,		; ; ; ;		4	M	M	SS	18	85	7.1		The same of the sa	
17 — 18 — 19 —	FAT CLAY, brownish gra	y, soft (CH)) (A-7-6)		FINE ALL	E UVIUM	3	M		SS	24	45				country of the second s
20 – 21 –							4	М	X	SS	24	56		105	27	
	END OF BORING												AND THE REAL PROPERTY.			
											The state of the s					
Ça.							Andreas de constitute de la constitute d									
					A. A											
DEI	 PTH: DRILLING METHOD			WAT	ER LE	EVEL MEA	SUR	L EMEN	TS		1		1	NOTE:	REF	ER TO
	9½' 3.25" HSA	DATE	TIME	SAMP DEP		CASING DEPTH	DE	VE-IN PTH	FI	DRILLI LUID LE	NG EVEL	WAT LEVI	EL	THE A	ATTAC	CHED
		11/27/13	10:30	9.0		7.0		3.3	+			6.2		EXPLA		
DEI 0-1 BORIN	NG	11/27/13	11:00	21.		19.5	-	1.2	-			$\frac{18.6}{17.6}$		TERMIN		
COMP	PLETED: 11/27/13	11/27/13	11:15	21.	3	19.5	2	1.2	+-			1/,	+		IIS LO	
DR: D	OS LG: CD Rig: 33C			l			<u> </u>		<u> </u>							ALID.



АЕТ ЈО	DB NO: 01-05697			,			LO	G OF :	BOF	UNG N	Ó.	1126	ST	(p. 1	of 1	 1)
PROJEC		t Rail Tra	ansit Pro	oject,	PEC	C East; H					***************************************					
SURFA	CE ELEVATION: 818.9	Н	ennepin Co.	. Coordii	nates:	N	16	57378	3		Е :	52338	3			
DEPTH	MATERIAL D	ESCRIPTION	V		ĞE	EOLOGY	N	МС	SĄ	MPLE	ŖĘC) & L/	ABORAT	ORY T	TESTS
IN FEET										YPE	IN.	WC	OC	LL	PL	%-#200
1 -	FILL, mostly silty sand, a lashes/cinders, trace roots, b				FIL	L	14	M	M	SS	12					
3 -	FILL, mostly lean clay, a li \light gray, brown and dark						16	М	X	SS	12	18				
5 —	FILL, mostly sand with silt brown (A-3) FILL, mostly sand with silt						11	M	X	SS	8					
6 - 7 -	clayey sand, brown, a little FILL, mostly sand with silt	dark brown	n (A-1-b)	1			12	M	P.	SS	10					
8	light brown (A-3) FILL, mostly sand with silt	, a little gra	vel and				12	IVI		55	10					
10 -	clayey sand, brown (A-3)						8	М	X	SS	14					
12 - 13 - 14 -	FILL, mixture of silty sand trace shells and roots, light little dark brown (A-4) BOGLIME, light gray (MF	brownish g	c clay, gray, a	<i>_</i> /		AMP POSIT	7	М		SS	16	24 44		-		
15 -	, , , , , , , , , , , , , , , , , , , ,						2	M		SS	24	60	0.9			
17 -	FAT CLAY, grayish brown laminations of silt (CH) (A	n, very soft, -7-6)	•		FIN ALI	IE LUVIUM	WH	<u>M</u>	M	SS	24	57				
19 - 20 - 21 -							WH	М	X Y	SS	24	69				
22 -	FAT CLAY, brownish gra (A-7-6)	y, soft to fi	rm (CH)				2	M	P	SS	16	72		105	28	
24 25 -												7 0		Total Annual Control of the Control	-	
25 - 26 - 27 - 28 - 29 - 30 - 31 - DEJ DEJ BORN COMP	SAND, fine grained, brow waterbearing, medium den	se, laminati	ons of			ARSE LUVIUM	6	M/W		SS	24	73				
28 – 29 –	clayey sand above 27' (SP)	(A-3)							1	-						
30 -							27	W	\mathbb{X}	ŞS	16					
31 -	END OF BORING				1							1			-	
DEI	PTH: DRILLING METHOD			WAT	ER L	EVEL MEA	SURE	EMEN	TS		+			NOTE:	REFE	R TO
0-2	29½' 3.25" HSA	DATE	TIME	SAMP DEP	LED TH	CASING DEPTH	DE:	/E-IN PTH	FL	DRILLI UID LE	NG EVEL	WAT LEVI	EL	THE A	TTAC	HED
Z		11/27/13	9:30	26.		24.5	 	4.3				21.		SHEE'		
BOBN S	NG	11/27/13	9:55	31.	0	29.5	27	7.1	-			18.	U	EXPLA TERMIN		
	PLETED: 11/27/13								-				-		IS LO	
DR: L	OS LG: CDRig: 33C						<u> </u>		<u> L</u>					.1.		JID A



АЕТ ЈО	B NO: 01-05697				-	LC	G OF	BOR	ING N	O.	1127	ST	(p. 1	lof	1)
PROJEC		t Rail Tra	ansit Pro	ject,	PEC East;										
	CE ELEVATION: 821.7		ennepin Co.				67506				52365	7			
		DOCD DOTION			ODOLOGY			SAI	MPLE	REC	FIELD) & LA	BORAT	ORY	TESTS
DEPTH IN FEET	MATERIAL D	ESCRIPTION	V		GEOLOGY	N	MC	T	MPLE YPE	ÎÑ.	WC	DEN	LL	PL	%- #200
1 2	FILL, mostly clayey sand, a ashes/cinders, trace roots, b (A-6)	lack, frozer	n to 1½'		FILL		F/M		SS	24	12				
3 - 4 -	FILL, mixture of sand with gravel, clayey sand and silt light grayish brown (A-2-4,	y sand, brov , A-3)	wn and			25	М	X 13	SS	17			Total Property of the Control of the		
5 - 6 -	FILL, mostly sand with gra sand, light brown, a little br	vel, a little or rown (A-1-b	clayey b)			16	M		SS	15					
7 — 8 —	SAND, fine grained, light to moist, medium dense (SP)				COARSE ALLUVIUM OR FILL	16	M	14	SS	16					
9 - 10 - 11 -	·					16	M	1	SS	18					
12 — 13 —		T.				17	M	1	SS	18					
14 — 15 — 16 —						17	M		SS	17		MHP. 10.00.00.00.00.00.00.00.00.00.00.00.00.0			
17 — 18 —	SANDY LEAN CLAY, a l cobbles, brownish gray, ve				TILL	22	M		SS	14	17		-		
19 - 20 - 21 -	CLAYEY SAND, grayish stiff, laminations of sand (S	brown, a lit SC) (A-6)	tle brown,			13	М		SS	1					
21,722	END OF BORING									And the state of t					
DEI O-1 BORIN COMP							Account of the second of the s								
DEI	PTH: DRILLING METHOD			WAT	ER LEVEL MI	EASUR	 EMEN	TS		<u></u>		1	MOTE	DELL	D TO
DEI		DATE	TIME	SAMP			VE-IN EPTH	1	PRILLI	NG NG	WAT	ER	NOTE:		
0-1	9½' 3.25" HSA			-				FL	UID LE	VEL	LEVI			TS FO	
		11/27/13	10:40	21.	0 19.5	1 2	1.0	-			Non		EXPLA		
BORIN	NG.							-					TERMII		
	LETED: 11/27/13	\ \ \ \ \					-	ļ						iis lo	
DR: T	A LG: SB Rig: 85							<u> </u>		.,			11		O O



AET JO	B NO: 01-05697					-	LO	G OF	BORI	NG N	O	1128	ST	(p.)	of	1)
PROJEC	Southwest Ligh	t Rail Tra	ansit Pro	ject,	PEC	East; I	Hopl	cins 1	to N	linne						
SURFA	CE ELEVATION: 822.1	Н	ennepin Co.	Coordi	nates:	. <u>N</u>	1	67628	3		E :	52392				
DEPTH IN FEET	MATERIAL D	ESCRIPTION	J		GEC	DLOGY	N	МС	SAN TY	IPLE PE	REC IN.	FIELI	DEN	BORAT	Γ	TESTS %-#2
1	FILL, mostly silty sand wit concrete and brick, a little a brown, frozen to 4" (A-2-4)	ashes/cinder	eces of rs, dark		FILL		34	F/M	M	SS	8				,	
2 — 3 —	FILL, mostly gravelly silty sand, grayish brown (A-2-4	sand, a little	e clayey				12	M	\bigvee	SS	3					
4 — 5 — 6 —	FILL, mixture of sand with little gravel and clayey sand brown (A-2-4)						32	M		SS	. 18					
7 — 8 — 9 —	FILL, mostly sand, a little of brown, a little grayish brown	/n (A-3)					26	М		SS	.18					
10 — 11 —	FILL, mostly sand with silt clay, brown and light grayi (A-1-b, A-7-6)	and gravel, sh brown, n	, a little fat noist				14	M		SS	14				H. J.	
12 — 13 — 14 —	FAT CLAY, brownish grassilt (CH) (A-7-6)	y, firm, lami	inations of		FINE ALLU	: UVIUM	6	M		SS	24	45				
15 — 16 — 17 —							6	M	M H	SS	21	40				
18 -			-				8	M	N E	SS	24	37	-			
20 – 21 –	FAT CLAY, brownish grag sand (CH) (A-7-6)	y, firm, lam	inations of				8	M	M	SS	24	30		56	21	
	END OF BORING						And the second s					ć			The state of the s	
	DELL DRULDIC METHOD			WAT	FEDIE	VEL MEA	V CI ID	EMEN	TS							
DEI	PTH: DRILLING METHOD	D.1.000	(DY) (**)				,		т —	RILLI	NG	WAT		NOTE:		
0-1	9½' 3.25" HSA	DATE	TIME	SAMP DEP		CASING DEPTH		VE-IN EPTH	FLU	RILLI IID LE	VEL	WAT LEV		THE A		
		11/27/13	9:20	21.		19.5	+	1.5				Nor		SHEE		
		11/27/13	9:30	21.	.5	19.3	2	1.5				Nor	ic	EXPLA		
BORIN COMP	NG PLETED: 11/27/13													TERMII		
DR: J	M LG: SHS Rig: 91C													TI	IIS LO	G



	OB NO: 01-05697						T .	C OT	יסמ	ONIC N		1120	ST	(p. 1	l of	1)
AET JO		t Rail Tw	ancit Dua	vient	PE/	TEast. I				RING N Minn				(h.)	. UI	<u>.,</u>
PROJEC	CE ELEVATION: 822.6		ennepin Co.	-				67789				113 52422	3			
DEPTH	CLI ELLE VITTON.	- 700.00 -		Coordi						MOLE.		T		BORAT	ORY '	TESTS
IN FEET	MATERIAL D	ESCRIPTION	N		GE	EOLOGY	N	MC	SA	MPLE TYPE	REC IN.	WC	DEN	LL	PL	%-#20
1 -	FILL, mostly silty sand, a li ashes/cinders, black, frozen	ttle gravel a to 4" (A-2	and -4)		FILI	L	56	F/M	M	SS	18					
3 -	FILL, mostly silty sand with ashes/cinders, black (A-2-4		little				28	M	M	SS	18		1			
4 — 5 —	FILL, mostly lean clay, a lit little light brown (A-7-6)	ttle sand, br	rown, a				16	M	M	SS	16	19				
7 -	FILL, mostly silty sand, bla	ick (A-2-4)							<u> </u>							
8 — 9 —							4	M	X P	SS	16					
10 -	FILL, mostly sand, grayish	brown (A-	٥)				17	W	X	SS	18		,			
12 -	FILL, mostly sand with silt	, brown (A	-3)				9	W		SS	24					
14 - 15 - 16 -	FAT CLAY, grayish brown	n, firm (CH) (A-7-6)		FIN ALI	E LUVIUM	8	M	X	SS	20	39				*
17 - 18 -	FAT CLAY, brownish gray silt (CH) (A-7-6)	y, firm, lam	inations of	f			7	M	R	SS	20	. 44				
19 - 20 -	FAT CLAY, grayish brown waterbearing sand (CH) (A	n, firm, lam 7-6)	inations of	f W			5	M/W		SS	24	34				
21 -	END OF BORING								/ \		·					
2																
1. GD 1.		4		-	-											
DE DE DE COMI				-												
DE	PTH: DRILLING METHOD			WA	 ΓER L	EVEL MEA	L ASUR	L EMEN	TS	L	.1		1	NOTE:	REF	ER TO
		DATE	TIME	SAMP DEP		CASING DEPTH	,	VE-IN EPTH	1	DRILLI JUID LI	NG EVET	WAT LEV	ER	THE A		
2 0-1	19½' 3.25" HSA	11/26/13	1:03	11.		9.5	+	0.6	1 r1		1 A TY	8.6		SHEE	TS FO	R AN
000		11/26/13	1:13	11.		9.5	-	9.9	+			8.0		EXPLA	NATI	ON OF
BORII	NG PLETED: 11/04/12	11/26/13	1:36	21.		19.5	+	1.2	+	· Liun		18.		TERMI	NOLO	GY ON
DR: J	PLETED: 11/26/13 JM LG: SHS Rig: 91C	11/26/13	1:47	21		19.5		9.7	\top			18.		TF	HIS LC)G
F DK: J	JIVI LO; SIIS Rig. 91C	11/20/10									,					AID (



AET JO	B NO:	01-05697									UNG N			51	(p.]	lof	<i>2)</i>
PROJEC	CT:	Southwest Ligh	ıt Rail Tra	ansit Pro	ject, P	PEC Eas	t; H				Minne					***************************************	
SURFAC	CE ELE	VATION: 822.4	Н	ennepin Co.	Coordina	ites:	N	16	57899)		E :	524513	3	-		
EPTH IN FEET		MATERIAL)	DESCRIPTION	V		GEOLOG	Y	N	MC	SA	MPLE	REC			ABORA"	ORY '	TEST
FËÈT									1.10	1	YPE	IN.	WC	DEN	LL	PL	%-# 2
1 - 2 -	wood froze	, mixture of silty sand , a little gravel, dark n to 4" (A-2-4)	brown and b	lack,		FILL	A	14	F/M	M	SS	12					
3 -	sand,	, mixture of clayey sa dark brown and ligh 6, A-1-b)	and and grave t grayish bro	el with wn				27	M	M	SS	12	7				
5 — 6 —	FILL	, mostly silty sand, da	ark brownish	gray, a				32	M		SS	0					
7 —	little	grayish brown (A-2-4	1)	<i>3</i> ,				16	▼ M/W		SS	10					
8 — 9 —	FILL	, mostly sand, gray a	nd brown (A	-3)			1	10	TAT\ AA		SS	10					
10 — 11 —								5	W		SS	12					
12 -	FAT mottl	CLAY, trace roots, ged, soft (CH) (A-7-6	ray and brov)	wn		FINE ALLUVIU	М	3	M	M	SS	8	42				
14 — 15 —	FAT soft t	CLAY, brownish gra	ny to grayish	brown,				2	M/W	H X	SS	6	56				
16 — 17 —		(CH) (A-7-6)		J								-					
18 — 19 —								1 -	M/W	X H	SS	12	63				
20 — 21 —								WH	M/W	, V	SS	18	54		W. The second se		
22 — 23 — 24 —						·		WH	М		SS	18	81		82	26	
25 — 26 —								WH	M/W	M	SS	20	74				
27 — 28 —								WH	M/W	A	SS	22	70				
29 — 30 —							-	WH	M/W		SS	22	70			-	
31 -		a de la companya de l						****	212/ '44	N P			, ,				
DEF	PTH:	DRILLING METHOD				R LEVEL				1				_	NOTE:	REF	ER T
0-3	91/41	3.25" HSA	DATE	TIME	SAMPL DEPT	ED CASI H DEP	NG I'H	CAV	/E-IN PTH	FL	ORILLI UID LE	NG EVEL	WATE LEVE	ER	THE A	ATTAC	CHEI
0-3	114	U.EU INUA	11/26/13	9:26	11.0		-+		0.1	T			7.3	\exists	SHEE	TS FO	R Aì
										1					EXPLA	NATIO	ON (
BORIN	IG	11/26/13		,											TERMI	NOLO:	GY (
DR: J		SHS Rig: 91C	1						-						TH	IIS LO	G



AET JO PROJECT DEPTH IN FEET 33 - 34 - 35 - 36 - 37 - 38 - 40 - 41 - 41 - 41 - 41 - 41 - 41 - 41	B NO:	01-0									RING N	***********		ST	(p. 2	2 01	<i>2)</i>
PROJEC	CT:	South	west Light R	ail Transit P	roject	, PE	C East;	Hopl	kins 1	to 3	Minne						
	· · · · · · · · · · · · · · · · · · ·			Hennepin C	Co. Coord	linates	N	1	67899)		E :	52451	3			
DEPTH		, , , , , , , , , , , , , , , , , , ,	MATERIAL DESC	TRIPTION			EOLOGY	N	MC	SA	MPLE TYPE	REC	FIELI) & LAI	BORAT	rory '	TEST
FEET								IN	IVIC		TYPE	ĪN.	WC	DEN	LL	PL	%- #2
22	FATO	CLAY, bi	rownish gray to	grayish brown,		FIN	E LUVIUM	WILL	M/W	M	SS	22	66				
	son to	very sor CH) (A-7	t, laminations o 7-6) <i>(continued)</i>	r waterbearing		(coi	ntinued)	WH	IVI/ W	M	33	22	00				
-	FAT	LAV tr	ace roots, dark	brownish grav						P			-52				
	¬ very s	oft, lamir	nations of organ	ic clay (CH)		CO	ARSE	10	M	IXI	SS	24	32				
	\(A-7-6		SII T fine grain	ed, gray, moist,		AL	LUVIUM			H							
	\loose ((SP-SM)	(A-3)					8	W	M	SS	16					
	SAND	WITH S	SILT, a little gra	avel, medium to				0	l vv	\square	သ	10					
-	nne gi ∖loose ((SP-SM)	ark brownish gr (A-1-b)	ay, waterbearing	"					H							
	SANI	WITH S	SILT, fine grain	ed, brown,				16	W	IXI	SS	18					
41 -		oearing, r	medium dense (S	SP-SM) (A-3)		·[:				$\overline{}$							
	END	Or DON							,								
,																	
			•														
			•														
			·														
													1				
									-								
																01-E	



AET JO	OB NO: 01-05697					L	OG OF	BOR	ING N	0.	1143	ST	(p. 1	of	2)
PROJE	Southwest Light	Rail Tra	ansit Pro	ject,	PEC East	; Нор	kins 1	to N	Iinn	eapol	lis				
SURFA	ACE ELEVATION: 866.2	Н	ennepin Co.	Coordin	ates:	N 1	60773	3		E :	51772	_			
DEPTH IN FEET	MATERIAL DI	ESCRIPTION	N		GEOLOGY	N	мс	SAI	MPLE YPE	REC IN.	FIELI	DEN	BORAT LL		TESTS %-#200
reel	FILL, mostly silty sand, trac	e roots, da	rk brown		FILL			M			***	DEAT	LL	10	1 1200
1 - 2 -	FILL, mostly sand with silt	and gravel,	, trace	/		. 22	M		SS	16					
3 -	\roots, dark brown (A-1-b) FILL, mixture of clayey san	d and sand	with silt,	/		23	M	X	SS	14	11				
4 - 5 -	\(A-2-4)				FINE ALLUVIUM	1		1	aa	10	20				
6 -	SANDY ORGANIC CLAY roots, black, stiff (OH) (A-6			-11.F	OR FILL	9	M	R	SS	10	39				
7 -	SILTY SAND, a little grave grained, dark brown, moist,	el, medium loose (SM	to fine (/SC)		COARSE ALLUVIUN	1 7	M		SS	16					
8 -	(A-2-4) (possible fill)	- CYL M	11 1		OR FILL			73	-						ç
10 -	GRAVELLY SAND WITH cobbles, trace roots, medium	n to fine gr	rained,			33	M	M	SS	6					
11 -	light brownish gray, a little laminations of clayey sand	orown, mo (SP-SM) (A	A-1-b)		COARSE			1							
12 -	GRAVELLY SAND, medi	um grained	l, light		ALLUVIUN	I 20	M	M	SS	16					
14	grayish brown and brown, r waterbearing, medium dens medium grained sand with	e, lenses of	f fine to		·		T	I							
15		siii (Sr.) (A	x-1- 0)			25	W	X	SS	6					
16								1							
18	_					14	W	X	SS	10					
19 20	SAND WITH GRAVEL, n brown, waterbearing, media	nedium gra	ined,			18	w	H	SS	12					
21	$(\Delta_{-1}b)$)			10	· W	\mathbb{H}	33						
22						21	W	M	SS	10					
23 24											,				
25						22	$\mathbf{v} \mid \mathbf{w}$	X	SS	12			,		
26	SAND, a little gravel, medi	ium oraine	d grav.												
27 28	waterbearing, medium dens	se (SP) (A-	·1-b)			19	w	M	SS	14					
29	GRAVELLY SAND, medi	um grained	d, gray,												
25 26 27 28 29 30 31 DI BOR COM	8,	se (SP) (A-	·1-b)			22	2 W	X	SS	10					
31				3374.77	ER LEVEL M	ALE V OX III	אידואמוי					1	<u></u>		
DI	EPTH: DRILLING METHOD	DATE	TIME	SAMP DEP			VE-IN		ORILLI UID LI	NG.	WAT LEV				ER TO CHED
1-	0-17' 3.25" HSA	8/28/13	3:00	DEP'			EPTH 14.5	FL	LI CILU	EVEL	14.				OR AN
17-	-59½' RDF w/DM	8/29/13	8:15	16.			14.5	-			14.		EXPLA	NAT.	ION OF
BOR	ING PLETED: 8/29/13	8/29/13	8:30	18.			17.0				15.	.0			GY ON
11	GH LG: TK Rig: 1C	8/29/13	8:40	18.	5 17.0) _	17.0				15.	0	TI	HIS LO	OG



1143 ST (p. 2 of 2) 01-05697 LOG OF BORING NO. AET JOB NO: Southwest Light Rail Transit Project, PEC East; Hopkins to Minneapolis PROJECT: 517726 160773 Hennepin Co. Coordinates: FIELD & LABORATORY TESTS DEPTH IN FEET REC IN. SAMPLE TYPE MATERIAL DESCRIPTION **GEOLOGY** Ν MC WC DEN LLPL%-#200 SAND, a little gravel, medium to fine grained, W SS 22 14 gray, waterbearing, medium dense (SP) (A-1-b) 33 (continued) 34 35 W SS 14 18 36 37 W SS 22 14 38 20 FINE SANDY SILT, gray, wet, medium dense (ML) ALLUVIUM 39 (A-4)COARSE GRAVELLY SAND WITH SILT, possible 40 ALLUVIUM W SS 12 23 cobbles, medium to fine grained, brownish gray, 41 waterbearing, medium dense (SP-SM) (A-1-b) 42 43 -44 45 W SS 0 55 SAND WITH GRAVEL, medium grained, grayish brown, a little brown, waterbearing, 46 medium dense to very dense, a lens of silt at 55' 47 (SP)(A-1-b)48 49 50 29 W SS 6 51 52 53 54 55 W SS 51 12 56 57 CORP W-COORDINATES 01-05697.GPJ AET+CPT+WELL.GDT 9/4/13 58 SAND WITH SILT, fine grained, brown, waterbearing, very dense, laminations of medium 59 grained sand (SP-SM) (A-3) 60 61 W SS 10 61 END OF BORING

03/2011



AET JO	DB NO:	01-05697						LO	G OF 1	BOR	ING N	O. '	1144	ST	(p. 3	1 of	2)
PROJE		Southwest Light	t Rail Tra	ansit Pro	ject,]	PEC	East; I	Iopk	cins 1	to N	Ainne	eapol	lis				
SURFA	CE ELEV	ATION: 868.9	Н	ennepin Co.	Coordin	nates:	<u>N</u>	10	62372	2		E :	51782	9			
DEPTH IN FEET	·	MATERIAL D	ESCRIPTIO1	N		GE	OLOGY	N	MC	SA: T	MPLE YPE	REC IN.	FIELD	0 & LA	BORAT	Т	TESTS %-#200
1 -	concre	mostly silty sand, a li ete, glass, trace roots, ashed limestone base,	dark brown	n (A-2-4)	/	FILI		30	М	M	SS	16					
3 -	FILL, sand a	mostly sand with silt, and clayey sand, brow	a little gra	vel, silty			-	7	M	X	SS	14					
5 -	FILL,	h brown (A-3) mostly sand, a little g mostly sand with silt,						6	М	X	SS	12					
6 - 7 - 8 -	SANI	n (A-3) O WITH SILT, mediun to dark brown, water M) (A-1-b)	m to fine g	rained, ery loose		CO/ ALL	ARSE LUVIUM	3	w		SS	10			-	1	-
9 -							•	2	w w	1	SS	10					
11 - 12 - 13 -		DY LEAN CLAY, a ley stiff (CL) (A-6)	ittle gravel,	gray, firm		TIL	L	8	M		SS	10	19			•	
14 - 15 -		-						17	w	X	SS	14	13				
16 - 17 - 18 -	CLAY (SC)	YEY SAND, a little g (A-6) D WITH SILT, a little					ARSE	37	M	1	SS	16	13				
19 - 20 - 21 -	mediu lens c	am grained, brown, want silty sand (SP-SM) O, a little gravel, medin, waterbearing, medin	aterbearing (A-2-4) ium to fine	grained,		ALI	LUVIUM	19	w	X	SS	12					
22 - 23 -	fina	rained silty sand (SP)	(A-1-b)					25	W	X	SS	10					
24 - 25 - 26 -		Y SAND, a little grav (SM) (A-2-4)	el, brown,	medium		TIL	L	30	W		SS	12					7
25 - 26 - 27 - 28 - 29 - 30 - 31 - DE 0 9½-	hard,	YEY SAND, a little g laminations of sand f	ravel, brow rom 29½' to	vnish gray, o 33' (SC)				46	M	X	SS	16	10				
30 -								34	M	X	SS	14	10				
DE	 EPTH:	DRILLING METHOD			<i>\\///</i> Wat	ER L	EVEL MEA	ASURI	L EMEN	JL.1 ITS		<u> </u>	1.		NOTE	. prr	ER TO
2			DATE	TIME	SAMP	LED	CASING DEPTH	CA	VE-IN	Tr	ORILLI	NG	WAT LEVI				CHED
0		3.25" HSA	DATE		DEP	ПН		DE	PTH	FL	UID LI	¿VEL	9.3				OR AN
91/2-	59½'	RDF w/DM	8/28/13	9:30	11.		9.5).5).5				9.3	─ ,			ION OF
ĕ BORI	NG	0.40.04.5	8/28/13 8/28/13	9:40 9:50	11. 11.		9.5		9.5 9.5		-:		9.2	<u>'</u>			GY ON
	PLETED:		0/20/13	3:50	11.	<u> </u>	7.3	+	,.J	-			J.2		TH	HIS LO)G
DR:	GH LG	: TK Rig: 1C		<u> </u>	<u> </u>			Щ.							-	01-1	DHR-06



1144 ST (p. 2 of 2) 01-05697 LOG OF BORING NO. AET JOB NO: Southwest Light Rail Transit Project, PEC East; Hopkins to Minneapolis PROJECT: 517829 162372 Hennepin Co. Coordinates: FIELD & LABORATORY TESTS DEPTH IN FEET SAMPLE TYPE **GEOLOGY** MATERIAL DESCRIPTION N MC DEN WC LL PL %-#200 10 41 M SS 14 33 COARSE SAND WITH SILT, fine grained, brown to ALLUVIUM brown and gray, waterbearing, dense, a lens of 34 silt at 33½' (SP-SM) (A-3) 35 55 W SS 12 36 SAND, a little gravel, fine to medium grained, 37 brown, waterbearing, very dense, a lens of fine grained silty sand (SP) (A-3) 76 W SS 12 38 39 SAND WITH SILT, a little gravel, medium 40 grained, dark brownish gray, waterbearing, very W SS 64 10 dense (SP-SM) (A-1-b) 41 42 43 SAND WITH SILT, fine to medium grained, 44 gravish brown to brownish gray, waterbearing, very dense (SP-SM) (A-3) 45 SS W 12 65 46 47 48 SAND, fine grained, grayish brown, waterbearing, very dense (SP) (A-3) 49 50 W SS 14 69 51 52 53 54 55 W SS 14 61 56 57 01-05697.GPJ AET+CPT+WELL.GDT 9/4/13 SAND, fine to medium grained, grayish brown, 58 waterbearing, very dense (SP) (A-3) 59 60 SS W 10 70 61 END OF BORING



03/2011

	iesting, inc.						***************************************									
AET JC							1			ING N			ST	(p. 1	l of	2)
PROJE		t Rail Tr	ansit Pr	oject,	PEC	East;				Minn						
SURFA	CE ELEVATION: 864.6	F	Iennepin C	o. Coo	rdinate	es: N	. 10	63206	<u> </u>]	Ε :	51807				
DEPTH IN FEET	MATERIAL D	ESCRIPTIO	N		GEO	OLOGY	N	МС	SAN	MPLE YPE	REC IN.	WC	DEN	ABORA"	1	TESTS %-#200
FEET	FILL, mostly silty sand wi	th graval o	little.		FILL				\			wc	DEN	LL	FL	70-#200
1 - 2 -	sapric peat and ashes/cinde trace roots, dark brown and	ers, pieces o	of glass,				10	M		SS	15			~~.		
3 -	(A-2-4) FILL, mixture of silty sand a little gravel, dark brown,			,			. 15	M	X FT	SS	7					
5 —	brownish gray (A-2-4) FILL, mostly sand, a little light grayish brown (A-3)	gravel, trac	ce roots,				13	М	X	SS	8					
6 – 7 – 8 –	SAND WITH SILT AND cobbles, fine to medium gr brown, medium dense (SP	rained, ligh	t grayish			RSE UVIUM	27	М		SS	8		•			
9 10 11	GRAVELLY SAND WITT medium grained, light brown (SP-SM) (A-1-b)				•		30	M		SS	2					
12 - 13 -	SAND, a little gravel, med grayish brown, moist, med (A-1-b)	lium graine lium dense	ed, light (SP)			•	25	M	X Y	SS	5			•		
14 15 16	CLAYEY SAND, a little g very stiff (SC) (A-6)	gravel, gray	vish brown	,	TILI	٠	18	М	I	SS	17	15				
17 –	CLAYEY SAND, a little g stiff (SC) (A-6)						17	M	1	SS	16	14				
18 – 19 –	CLAYEY SAND WITH Cobbles, brown, hard (SC)		oossible				50/.2	M	TT A	SS.	8	12				
20 -	CLAYEY SAND, a little g	mayel nos	zible						1							
22 -	cobbles, brown, very stiff, (SM/SC) (A-2-6)	a lens of s	ilty sand				17	M/W		SS	10	12				
24 - 25 -	CLAYEY SAND, a little stiff (SC) (A-6)	gravel, bro	wn, very				19	M/Ŵ		SS	17	10				
25 - 26 - 27 - 28 - 29 - 30 -	SAND WITH SILT, medi waterbearing, medium der	um grained nse (SP-SM	l, brown, l) (A-1-b)			ARSE LUVIUM	12	w w		SS	18		,			
	SAND, possible cobbles, no brown, waterbearing, med clayey sand (SP) (A-1-b)						25	W		SS	10					
31 - DE									121							
DE	PTH: DRILLING METHOD			Т		EVEL MEA					·····			NOTE:	REF	ER TO
n)-29' 3.25" HSA	DATE	TIME	SAMP DEP	LED TH	CASING DEPTH	CAV	VE-IN PTH	FLU	RILLI JID LE	NG EVEL	WAT LEVI	ER EL	THE A	ATTAC	CHED
29-3	39½' RDF w/DM	10/1/13	8:57	28.	.5	27.0	2	6.7				21.	5	SHEE	TS FO	R AN
29-3		10/1/13	9:07	28.	.5	27.0	2	4.2				18.	6	EXPLA	NATI	ON OF
BORII	NG PLETED: 10/1/13											***		TERMI	NOLO	GY ON
II .	SG LG: SB Rig: 91C						· ·	,						TF	IIS LC)G
1 21. 0	July Dug. Jac	<u> </u>	<u></u>	1 .			í									ATTD A



1148 ST (p. 2 of 2) 01-05697 LOG OF BORING NO. AET JOB NO: Southwest Light Rail Transit Project, PEC East; Hopkins to Minneapolis PROJECT: 518072 163206 Hennepin Co. Coordinates: FIELD & LABORATORY TESTS DEPTH SAMPLE TYPE REC IN. MATERIAL DESCRIPTION **GEOLOGY** MC N IN FEET DEN LLPL%-#20 SAND, medium grained, brown, waterbearing, COARSE W 14 39 SS ALLUVIUM 33 dense, lenses of sand with silt (SP) (A-1-b) (continued) (continued) 34 SAND WITH SILT, a little gravel, fine to 35 medium grained, brown, waterbearing, dense 40 W SS 10 (SP-SM) (A-1-b) 36 SAND WITH SILT AND GRAVEL, possible 37 cobbles, fine to medium grained, brown, 50 W SS 6 38 waterbearing, dense (SP-SM) (A-1-b) 39 SAND WITH GRAVEL, possible cobbles, 40 medium grained, gray, waterbearing, medium 30 W SS11 dense, a lens of sand with silt (SP) (A-1-b) 41 END OF BORING CORP W-COORDINATES 01-05697 GPJ AET+CPT+WELL GDT 10/15/13



АЕТ ЈО	DB NO: 01-05697	1					LO	G OF I	BOR	ING N	O	1149	ST	(p. 1	of 2	2)
PROJEC	Southwest Ligh	t Rail Tr	ansit Pro	ject,	PEC	East; H	lopk	cins t	to N	Minne	eapol	lis				
SURFA	CE ELEVATION: 867.4	Н	lennepin Co.	Coordir	nates:	N	10	62761	<u> </u>]	E :	51789	1			
DEPTH IN FEET	MATERIAL D	ESCRIPTIO	7		GEO	LOGY	N	МC	SĄ	MPLE	ŖĘĊ			BORAT		· ·
FÉÈT										YPE	IN.	WC	DEN	LL	PL	%-#200
1	FILL, mostly silty sand, a li sand, trace roots, dark brow (A-2-4)	n, a little b	rown		FILL	· ·	20	M		SS	18				:	-
3 — 4 —	FILL, mostly silty sand with cobbles, pieces of concrete, brown (A-2-4)	, a little ash	es/cinders,	7.7.	COAT	2075	51	M	X Fi	SS	4					
5 — 6 —	SILTY SAND, a little grave brown, moist, medium dens				COAF ALLU OR FI	JVIUM	25	М		SS	13			-		
7 — 8 — 9 —	SAND WITH SILT AND (grained, light brown, a little moist, medium dense (SP-S fill)	e light brow	vnish gray,				19	М	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	SS	12					
10	SAND WITH SILT, fine gr moist, medium dense, a lan (SP-SM) (A-3)	rained, ligh nination of	t brown, lean clay		COAF	RSE JVIUM	17	М	T T	SS	14					
12 13	SAND, medium to fine gra moist, medium dense (SP-S					,	14	M		SS	15					
14 15 16	SAND, fine to medium gra little brown, moist, medium with silt (SP) (A-3)						22	М	11	SS	14		-			
17 -	CLAYEY SAND, brown, I laminations of waterbearing	moist, very g sand (SC	stiff,) (A-6)		TILL		27	MW		SS	17	15				
19 20 21	CLAYEY SAND, a little g brown, stiff, laminations of (SC) (A-6)	ravel, gray. f waterbear	, a little ing sand		MIXE ALLU	ED JVIUM	14	M/W		SS	. 17	13	1			
22 -	SAND WITH SILT, a little fine grained, brown, waterl dense (SP-SM) (A-1-b)				COAI	RSE JVIUM	16	W	1	SS	15					
24 25 - 26 -			-				15	W	7	SS	18					
27 - 28 -	GRAVELLY SAND WITT fine grained, brownish gramedium dense (SP-SM) (A	y, waterbea					30	W		SS	2			100		
25 26 27 28 29 30 31 DE: 0-2 25½-4	SILTY SAND, a little grave grained, brownish gray, we (SM) (A-1-b)	vel, fine to net, medium	medium dense				20	W		SS	13					
1777	DTU. DDU I BIC METUOD			VX/AT	ים ו קקי	VEL MEA	STIR	EMEN	ICA		<u> </u>	<u> </u>	1	NOTE	DEEL	ID TO
DE.	PTH: DRILLING METHOD			SAMP		CASING		VE-IN	T	DRILLI	NG	WAT		NOTE:		
0-2	25½' 3.25" HSA	DATE	TIME	DEP.	TH	DEPTH	DE	PTH	FL	UID LI	EVEL	WAT LEV	——	THE A		
251/2-4	19½' RDF w/DM	10/1/13	11:46	26.		24.5		3.2				21.		SFIEE EXPLA		
BORI	NG .	10/1/13	12:00	26.	.0	24.5	2	2.2	-	•••		18.	3	EXI LA FERMII	,	
	PLETED: 10/1/13				-				-						IIS LO	
DR: S	GG LG: SB Rig: 91C						<u> </u>		Ш.							HR-0



03/2011

SUBSURFACE BORING LOG

1149 ST (p. 2 of 2) 01-05697 LOG OF BORING NO. AET JOB NO: Southwest Light Rail Transit Project, PEC East; Hopkins to Minneapolis PROJECT: 162761 517891 Hennepin Co. Coordinates: FIELD & LABORATORY TESTS DEPTH IN FEET SAMPLE TYPE REC IN. MATERIAL DESCRIPTION **GEOLOGY** MC N wc l DEN PL %-#200 LL COARSE SAND WITH SILT, a little gravel, medium to 39 W SS 13 ALLUVIUM fine grained, gray, waterbearing, dense (SP-SM) 33 (continued) (A-1-b) (continued) 34 SAND WITH SILT, fine grained, brown, 35 waterbearing, dense to medium dense (SP-SM) 33 W SS 10 (A-3)36 37 SS W 12 40 38 39 40 W SS 29 16 41 42 W SS 12 30 43 44 GRAVELLY SAND WITH SILT, fine grained, 45 brown, waterbearing, dense (SP-SM) (A-3) W 47 SS 1 46 SAND, fine to medium grained, brown, 47 waterbearing, medium dense, a lens of sand with SS 10 W 19 48 silt at 48' (SP) (A-3) 49 50 -SS 13 W 1/2 51 END OF BORING CORP W-COORDINATES 01-05697.GPJ AET+CPT+WELL.GDT 10/15/13

01-DHR-060



AET JO	OB NO:	01-05697	·					LOC	OF I	BOR	ING N	0	1150	ST	(p. 1	of	2)
PROJE	CT:	Southwest Light	t Rail Tra	ansit Pro	ject, I	PEC East	t; Ho	opk	ins t	to N	/linne	eapol	lis				
SURFA	CE ELEV	/ATION: 864.8	Н	ennepin Co.	Coordin	ates:	N	16	1728		_]	Е :	51780	2			
DEPTH		MATERIAL D	ECCDIDITION	AT .		GEOLOG?	v .	N	MC	SA	MPLE YPE	REC	FIELD) & LA	BORAT	ORY	TESTS
IN FEET		WATERIAL D	ESCRII IIOI					14	MC	Т	YPE	IN.	WC	DEN	LL	PL	%-#200
1 - 2 -	little g		ers, trace ro	ots, black		FILL		9	М	\bigvee	·SS	20					
3 - 4	silty s (A-2-	mostly sand with silt, and, trace roots, brow 4, A-1-b)	n, a little b	lack	<u> </u>	COARSE		15	·M	X 13	SS	10					,
5	mediu	D WITH SILT AND (nm grained, brown, mo M) (A-1-b)	GRAVEL, toist, mediu	fine to m dense		ALLUVIUI	М	11	M		SS	6					
7 -		D, a little gravel, medi n, a little brown, moist								H			,				
8 -	water (A-1-	bearing, loose, lenses	of clayey s	and (SP)				5	M .	X II	SS	16					
. 10 -	ļ ·							5	M/W	M	SS	12					
11 -	SANI	D WITH SILT, a little	gravel fin	e grained.						1							
13 -	grayis	sh brown, a little dark am dense, lenses of sil	brownish g	gray, wet;				16	W/M	M	SS	10					
14	fines	(SP-SM) (A-2-4)			<u> </u>					I							
15 -	mediı	D WITH SILT AND (Im grained, grayish by	own, wet t					13	W	M	SS	10		-			
16 - 17 -	SAN	bearing (SP-SM) (A- D WITH GRAVEL, n e dark brownish gray,	nedium gra	ined, gray, ng, loose				5	W	!	SS	10					
18 -	to ver	y loose, lenses of fine organic fines (SP) (A-	e grained si				•									,	
20 -								4	W	X	SS .	18					
21 -										F							
22 -	1	RIC PEAT, black (PT) (A-8)		<u> </u>	SWAMP DEPOSIT		9	W		SS	18	188				
24 -	ORG	ANIC CLAY, trace sl	hells, gray	to .	<u> </u>	-				岱							
25 - 26 - 27 - 28 - 29 - 30 - 31 - DE	brow	nish gray, soft to very	soft (OH)	(A-8)	<u> </u>			3	M/W	$ \chi $	SS	16	57				
26 -	1	-			7.8.F 7.8.F					P						1	
27 - 28 -	1						,	WR	M/W	\sqrt{M}	SS	20	87		,		-
29 -	-				-1.F			-		日							
30	a littl	D WITH GRAVEL, r e dark brownish gray,	nedium gra waterbeari	ined, gray ng, loose	,	COARSE ALLUVIU	M	9	w	M	SŞ	16					· .
31 -		(A-1-b)						.:		<u>}</u>							
DE	EPTH:	DRILLING METHOD				ER LEVEL I									NOTE:	REF	ER TO
[] [] 0 -:	29½'	3.25" HSA	DATE	TIME	SAMPI DEPT	ED CASII H DEPT	NG IH	CAV DEI	E-IN PTH	FL	ORILLI UID LI	NG EVEL	WAT LEV	ER EL	THE A		
291/2-4		RDF w/DM	9/26/13	11:15	11.0	9.5	; <u> </u>	9	.8				9.5		SHEE		
\ \	• .		9/26/13	11:25	11.0	9.5	;	9	.5		•		9.5	,	EXPLA		
BORI	NG PLETED:	9/26/13	9/26/13	11:40	18.	5 17.0	0	16	5.9				15.	1	TERMI		
DR: S		G: GH Rig: 41C	9/26/13	11:45	18.	5 17.0	0	16	5.8				14.	9	TŦ	IIS LO)G



1150 ST (p. 2 of 2) 01-05697 LOG OF BORING NO. AET JOB NO: Southwest Light Rail Transit Project, PEC East; Hopkins to Minneapolis PROJECT: 517802 161728 Hennepin Co. Coordinates: FIELD & LABORATORY TESTS DEPTH IN FEET SAMPLE TYPE REC IN. MATERIAL DESCRIPTION **GEOLOGY** N MC WC DEN PL %-#20 LLSAND, a little gravel, medium grained, gray, SS waterbearing, medium dense (SP) (A-1-b) 12 W 12 33 34 GRAVELLY SAND, medium to fine grained, 35 W SS gray, waterbearing, medium dense to loose (SP) 4 11 36 37 8 W SS 38 -39 SAND, a little gravel, medium to fine grained, 40 gray, waterbearing, loose (SP) (A-1-b) SS 8 W 8 41 SAND, fine to medium grained, brownish gray, 42 waterbearing, medium dense, lenses of fine W SS 12 43 grained sand with silt (SP) (A-1-b) 44 45 19 W SS 16 46 47 18 W SS 8 48 49 SAND WITH SILT, fine grained, brownish 50 gray, waterbearing, medium dense (SP) (A-3) 23 W SS 16 51 END OF BORING CORP W-COORDINATES 01-05697.GPJ AET+CPT+WELL.GDT 10/15/13



AFT	JOB NO	01-05697						LO	G OF	BOR	ING N	Э.	1151	ST	(p. 1	of	2)
PROJ		Southwest Ligh	t Rail Tra	ansit Pro	ject,	PEC	C East; I							-			
1		LEVATION: 865.3		Iennepin Co.			N		61335		. <u>.</u>]		517782	2			
DEPTH	-	MATERIAL D	ECCRIPTION	NT.		GE	OLOGY	N	мс	SA	MPLE	REC	FIELD	& LA	BORAT	ORY '	rests
IN FEET					,			IN	IVIC	Т	YPE	IN.	WC	DEN	LL	PL	%-#200
1	litt	LL, mostly silty sand with le gravel, trace roots, dar	h organic fi k brown (A	ines, a \-2-4)		FILI		19	M	M	SS	18					-
3	FII	LL, mostly sand with silt -1-b)	and gravel	, brown			s.	20	M		SS	18	,				
5 6	· ve	AYEY SAND, a little gry stiff, laminations of m d sandy silt (SC)	ravel, brow edium grain	n mottled, ned sand		MIX ALL	ED UVIUM	16	М		SS	18	13				
7 8	bro cla	AND WITH SILT, a little own, moist, medium dens by with sand (SP-SM) (A	se, laminati -2-4)	ons of lean			ARSE UVIUM	12	М		ŚS	18					
10	bro	AND WITH SILT, fine to own, moist, loose, a lens P-SM) (A-1-b, A-6)	medium g of clayey s	rained, and				9	M/W	A A	SS .	18					
12 13 14	fir	AND WITH SILT, a little ne grained, gray, a little b ry loose, lenses of sapric ayey sand (SP-SM) (A-1-	lack, water peat with s	bearing,				3	$\overline{\overline{W}}$	A A	SS	18				•	
15								3	w		SS	18				,	•
17	bla	EMIC PEAT, dark brown ack, a lens of sapric peat				DEI	AMP POSIT	5	w	THE STATE OF THE S	SS	18	290				
19 20 21	, -				7.5.			10	W	1	SS	16	292				
22 23		AND WITH SILT AND ne grained, brownish granedium dense (SP-SM) (A	y, waterbea			: CO.	ARSE LUVIUM	24	W]}	SS	12			- American		
24 25 26 26 27 28 29 30 31 31 31 32 31 31 31 31 31 31 31 31 31 31 31 31 31	SA months	AND WITH SILT AND edium grained, dark brow ght gray, waterbearing, m lamination of lean clay at	GRAVEL, vnish gray, edium dens	a little se to loose,				14	W	LY PA	ŚS	10					
27 28 3 29	3 -	∆-1-b)						7	W	M P	SS	5	٠				
30	ĺ m	RAVEL WITH SAND, § edium dense to loose (Gl		bearing,		⊨ .	· ·	19	W		· SS	1					
1	DEPTH:	DRILLING METHOD				ΓER L	EVEL ME	ASUR	EMEN	ITS					NOTE:	REF	ER TO
<u>.</u>			DATE	TIME	SAMP DEP	LED	CASING DEPTH		VE-IN EPTH	FI	OR'ILLI UID LI	NG VEL	WAT. LEVI	ER EL	THE A	ATTAC	CHED
2414		24½' 3.25" HSA 9/27/ 49½' RDF w/DM 9/27/		9:36	13.		12.0		2.5				12.		SHEE	TS FO	R AN
247	2-47/2	VDL M/DM	9/27/13	9:45	13.		12.0		2.4				11.		EXPLA	NATI	ON OF
BOI	RING MPLET	ED: 9/27/13	9/27/13	10:05	23.		22.0	2	2.3	1			18.	0	ΓERMI		
11	SS	LG: GH Rig: 41C	9/27/13	10:10	23.	.5	22.0	2	1.5				17.	0	TI	IIS LC	G



1151 ST (p. 2 of 2) 01-05697 LOG OF BORING NO. AET JOB NO: Southwest Light Rail Transit Project, PEC East; Hopkins to Minneapolis PROJECT: 517782 161335 Hennepin Co. Coordinates: FIELD & LABORATORY TESTS DEPTH IN FEET SAMPLE REC MATERIAL DESCRIPTION **GEOLOGY** N MC DEN PL%-#200 LL GRAVEL WITH SAND, gray, waterbearing, medium dense to loose (GP) (A-1-b) W .ŚS 1/2 12 33 (continued) 34 35 W SS 14 6 36 37 -19 W SS 2 38 39 40 SS 8 W 4 41 42 W SS 17 4 43 44 45 18 W SS 6 46 47 18 W SS 8 48 49 50 SS W 2 45 51 END OF BORING AET_CORP W-COORDINATES 01-05697.GPJ AET+CPT+WELL.GDT 10/15/13



AET JO		מו ני מו ו	· / m		ora i	74. T				RINGN				(p. 2		
PROJEC	0/50											us 51750	7	-		
	CE ELEVATION: 867.9	В	lennepin Co.	Coordin	ates:	<u>N</u>	10	50223	,		E	T		DOD 45	POD M	TTPOTT
DEPTH IN FEET	MATERIAI	L DESCRIPTION	N		GEOI	.OGY	N	MC	SA	MPLE TYPE	REC IN.	WC	T	ABORAT		%-#2
. 1 –	FILL, mixture of clayey and silty sand, a little grabrown (A-2-4)	ivel, trace roo	ts, dark		FILL	•	16	M	M	SS	12	19				
3 - 4 -	FILL, mostly sand with s silty sand, grayish brown (A-1-b)	silt and gravel a, a little dark	, a little brown				33	M	\ {}	SS	12					
5 – 6 –	FILL, mostly gravelly sat clayey sand, brown and b dark brown (A-1-b)	nd with silt, a prownish gray	little v, a little				22	-	\ {{	SS	0					
7 — 8 — 9 —		, , , , , , , , , , , , , , , , , , ,		1			18	М	X R	SS	4		٠			
10 – 11 –							19	M	Y X	SS	16				4-	
12 — 13 —		·					48	М	A K	SS	6					
14 — 15 — 16 —	SAND WITH SILT, fine medium dense (SP-SM)		wn, moist,		COAR ALLU	SE VIUM	20	M T	A A	SS	12					
17 — 18 —	SAND WITH GRAVEL brown, waterbearing, me (A-1-b)						13	W	7	SS	12					
19 — 20 — 21 —	SAND, a little gravel, m waterbearing (SP) (A-1-		d, brown,				13	W	X	SS	10				200, 44	
22 — 23 —	SAND WITH SILT, find waterbearing, medium d						21	W	X	SS	12	-				
24 25 26	SAND, a little gravel, m brown, waterbearing, loo	edium graine ose (SP) (A-1	d, grayish -b)				10	w	X	SS	6	And the second s				
27 28	SAND WITH GRAVEI brownish gray, waterbea (SP) (A-1-b)	aring, medium	n dense				11	w		SS	6					
29 – 30 – 31 –	SAND, a little gravel, m brown, waterbearing, me (A-1-b)	nedium graine edium dense (d, grayish (SP)				18	W	X	SS	10	-				
ומת	L PTH: DRILLING METHOD	,		WAT	ER LEV	EL MEA	SURI	EMEN	TS	I		_1	1	NOTE	DEE.	ED TY
		DATE	TIME	SAMPI DEPT		ASING DEPTH	,	VE-IN PTH		DRILLI JUID LI	NG EVEL	WAT LEV	ER EL	THE		
	-17' 3.25" HSA	10/7/13	11:36	18.5		17.0		7.2			-	16.		SHEE	TS FC	R AN
17-4	9½' RDF w/DM	10/7/13	12:09	18.5		17.0	 	7.1	+-	•		16.		EXPLA	NATI	ON C
BORIN	1G	10///13	14:03	10	-	1/10	1	11.	+			10.		TERMI	NOLC	GY C
CŎMP	LETED: 10/7/13						_	-	-						HIS LO	
DR: S	G LG: SHS Rig: 91C														01-1	



03/2011

SUBSURFACE BORING LOG

1152 ST (p. 2 of 2) LOG OF BORING NO. 01-05697 AET JOB NO: Southwest Light Rail Transit Project, PEC East; Hopkins to Minneapolis PROJECT: 160223 517507 Hennepin Co. Coordinates: FIELD & LABORATORY TESTS DEPTH IN FEET REC IN. SAMPLE TYPE **GEOLOGY** MATERIAL DESCRIPTION N MC WC DEN PL %-#200 LL COARSE W SS 12 38 SAND WITH SILT, a little gravel, fine to ALLUVIUM 33 (continued) medium grained, brown, waterbearing, medium 34 dense (SP-SM) (A-3) SAND, a little gravel, medium grained, brownish 35 W 14 SS 10 gray, waterbearing, medium dense (SP) (A-1-b) 36 SAND WITH SILT, fine grained, grayish 37 brown, waterbearing, medium dense (SP-SM) W SS 2 26 38 (A-3)39 SAND WITH GRAVEL, medium grained, grayish brown, waterbearing, medium dense 40 W SS 12 21 (SP) (A-1-b) 41 42 W SS 10 24 43 44 SAND WITH GRAVEL, medium grained, gray, 45 waterbearing, medium dense (SP) (A-1-b) SS W 10 17 46 47 -W SS 10 13 48 49 SAND, fine grained, brownish gray, waterbearing, medium dense (SP) (A-3) 50 SS 24 W 12 51 END OF BORING CORP W-COORDINATES 01-05697.GPJ AET+CPT+WELL.GDT 10/15/13

01-DHR-060



AET JOI	B NO: 01-05697						LC	G OF	во	RING N	Ю	1166	ST	(p. 1	lof	<u>l)</u> _
PROJEC	Southwest Ligh	t Rail Tr	ansit Pro	ject,	PEC	CEast;	Hop	kins	to :	Minn	eapo	lis				
SURFAC	CE ELEVATION: 884.3	H	Hennepin Co	, Coo	rdinat	es: <u>N</u>	1 1	55893	3	-	E :	51202	9			
DEPTH IN FEET	MATERIAL D	FSCBIPTIO	N.		GF	OLOGY	N	мс	SA	MPLE	REC	FIELI) & LA	BORAT	FORY	TESTS
FEET	WATERIAL	ESCRII IIO	·1N				,14	IVIC	-	ГҮРЕ	IN.	WC	DEN	LL	PL	%-#2
1 -	FILL, mostly silty sand, a l ashes/cinders, trace roots, b	ittle gravel lack (A-2-	and 4)		FILI		6	M	\bigvee	SS	18					
3 -	FILL, mostly sand with silt clayey sand, brown, a little						4	M	X	SS	16					
4 — 5 — 6 —	FILL, mostly silty sand, a l brick, wood and metal, gray (A-2-4)	ittle gravel y, black an	, pieces of d brown				10	M	SI K	SS	6					
7 - 8 -							4	M	THE PARTY OF THE P	SS	14					
9 - 10 - 11 -	SAPRIC PEAT, pieces of gray, laminations of sand (wood, blac PT) (A-8)	k, a little	1.1.1 1.1.1 1.1.1		AMP POSIT	3	M	14 X X	SS	16	84				
12 - 13 - 14 -	SAND WITH SILT, a little medium to fine grained, gr loose (SP-SM) (A-3)	ay, waterbe	earing,			ARSE LUVIUM	6	V	13 13 13 13 13 13 13 13 13 13 13 13 13 1	SS	10					
15 — 16 —	SAND, a little gravel, med gray, waterbearing, loose (ium to fine SP) (A-1-b	grained,				6	W	X	SS	18					
17 – 18 – 19 –	SAND WITH GRAVEL, r waterbearing, loose to med sand with silt at 18' (SP) (A	ium dense,	ained, gray, , a lens of				6	W	1	SS	18					
20 – 21 –	END OF BORING						13	w	X	SS	18					
	END OF BORING				and districtions of the state o											
DEP	TH: DRILLING METHOD			WAT	ER LI	EVEL ME	ASUR	LLEMEN	TS	I	<u> </u>	<u></u>	1	NOTE:	REEL	R TC
0-1		DATE	TIME	SAMP DEP		CASING DEPTH	CA DI	VE-IN PTH	_	DRILLI UID LI	NG EVEL	WAT LEVI	ER EL	THE A	TTAC	HED
		6/4/14	12:35	16.	0	14.5		3.8	-			12.	,	SHEE'		
BASS.		6/4/14	12:50	16.	0	14.5	1	3.8	1			12.		EXPLA		
BORIN COMP	G LETED: 6/4/14]	TERMIN		
DR: D	S LG: GH Rig: 41C													TH	IIS LO	G



AET JO	B NO: 01-05697						LO	G OF	BOR	UNG N	O	1167	ST	(p.)	1 of	1)
PROJEC	Southwest Ligh	t Rail Tr	ansit Pro	ject,	PEC E	ast; F	Iopk	cins 1	to N	Minne	eapol	lis				
SURFAC	CE ELEVATION: 886.4	Н	Iennepin Co.	Coordi	nates:	N	1:	55888	8	_]	Е :	51169	7			
DEPTH		TO CONTROL			OT OT) CIVI			SA	MPLE	REC	FIELI) & LA	ABORA'	TORY	TESTS
IN FEET	MATERIAL D	ESCRIPTIO	N		GEOLO	JGY	N	MC	Ť	ŸPĒ	ÎN.	WC	DEN	LL	PL	%-#200
1	FILL, mostly silty sand, a li sand, dark brown and brow		and clayey	,	FILL		6	M	M	SS	12					
2 - 3 -	FILL, mostly sand with gra brown, a little dark brown (silty sand,				8	M	X	SS	10	-				
4 — 5 —	FILL, mostly sand with gra sand and silty sand (A-1-b)		clayey		· ·		7	М		SS.	10					
6 — 7 — 8 —	FILL, mostly sand, a little g (A-1-b)	gravel, ligh	t brown				33	M	II X	SS	8					
9 – 10 –	SILTY SAND, a little grav grained, dark brown, moist,	el, fine to r , dense (SP	nedium '-SM)		COARS		38	М		SS	12					
11 — 12 —	(A-2-4) SAND WITH SILT, a little fine grained, brown, moist						1,									-
13 — 14 —	medium dense (SP-SM) (A	-1-b)					23	M/W		SS	14					
15 — 16 —	brown, waterbearing, loose silt (SP-SM) (A-1-b)	, a lens of	sand with				8	W	X R	SS	10					
17 — 18 —	SAND, a little gravel, medibrown, a little grayish brownedium dense, a lens of sa (A-1-b)	vn, waterbe	earing,				11	W	X	SS	6					
19 — 20 — 21 —	SAND WITH GRAVEL, n brown, a little brown, wate medium dense (SP) (A-1-b	rbearing, lo					8	W		SS	18					
22 - 23 -							12	W	X	SS	16					
24 25							11	W		SS	16					
26 - 27 -	SAND, a little gravel, med	ium graine	d, light					.,,								
28 29	grayish brown, waterbearin loose (SP) (A-1-b)	ng, medium	dense to				14	W	X	SS	10					
25 26 27 28 29 30 31 DEI 0-1 19-2 BORING							9	W	X	SS	18					
31 -	END OF BORING				• 1					1.00				-		
DE	PTH; DRILLING METHOD			WAT	TER LEVE	EL MEA	SURI	EMEN	ITS		1	-1		NOTE	: REF	ER TO
		DATE	TIME	SAMP DEP	LED CA	ASING EPTH	CAY	VE-IN PTH	FI	ORILLI UID LI	NG EVEL	WAT LEV	ER EL		ATTA	
0-1	9½' 3.25" HSA	4/29/14	12:15	16.		14.5	 	4.3	111			13.		SHEE	TS FC	R AN
19-2	29½' RDF w/DM	4/29/14	12:15	16.		14.5	+	4.0	+			12.		EXPLA	NATI	ON OF
BORIN	NG	4/47/14	12:25	10.		ι Τ ι Ο _γ	1	1,0	-			14,		TERMI	NOLO	GY ON
ii .	PLETED: 4/29/14								-	-				TI	HIS LO)G
DR: T	TA LG: SHS Rig: 69C		<u> </u>				1						L			JHB U



AET JO										RING N			ST	(p.	l of	<u>l)</u>
PROJEC	Southwest Ligh	t Rail Tr	ansit Pro	ject,	PEC	C East;	Hop	kins	to	Minn	eapo	lis				
SURFAC	CE ELEVATION: 890.9	H	Hennepin Co	. Coo	rdina	tes: <u>N</u>	1	5538	9	. <u> </u>	E :	51072	8	-		
DEPTH	MATERIAL D	ESCRIPTIO	iNI		GE	EOLOGY	N	MC	SA	AMPLE LYPE	REC	FIELI) & L.	ABORA'	TORY '	TEST
IN FEET	MATEMALD	LICKII IIO	414		GL	COLOGI	114	IVIC	1	ГҮРЕ	IN.	WC	DEN	1 LL	PL	%- #2
1 - 2 -	FILL, mostly silty sand, a l ashes/cinders, trace roots, p (A-2-4)	ittle gravel pieces of gl	and ass, black		FIL	L	18	М	M	SS	8					
3 - 4 -	FILL, mostly sand with gratrace roots at 12', light brov (A-1-b)	vel, a little vn, a little l	silty sand, black				17	M	\\ {{}	SS	12				-	
5 — 6 —							43	M	K	SS	6			-		
7 — 8 —							17	M	1	SS	12					
9 – 10 – 11 –							17	M	1	SS	10					
12 — 13 —							12	М	17	SS	6	-				
14 - 15 - 16 -	FILL, mostly sand, a little g clay, brown and light brow brown (A-1-b)	gravel and nish gray,	sandy lean a little dark				10	M	1	SS	8		-			
17 – 18 –	LEAN CLAY, gray and brolens of silty sand, lamination (A-4)	own mottle ons of sand	ed, firm, a (CL)		FIN ALI	IE LUVIUM	6	M/W		SS	6	20				
19 — 20 — 21 —	SAND WITH SILT, a little fine grained, brown, a little waterbearing, very loose, a \((SP-SM) (A-1-b)\)	elight brow	vnish gray,	/		ARSE LUVIUM	3	W	[] 	SS	6					
	END OF BORING															
															-	
															,	-
									_				<u> </u>			
DEP	TH: DRILLING METHOD		1		- 1	EVEL ME			-		F			NOTE:	REFI	ER TO
Λ 1	9½' 3.25" HSA	DATE	TIME	SAMP DEP	LED TH	CASING DEPTH	CA	VE-IN EPTH	FI	DRILLI LUID LI	NG EVEL	WAT LEVI	ER EL	THE A	ATTAC	CHEL
0-1	772 3.45 NSA	6/3/14	12:41	18.		17.0	+-	7.9	+-			17.		SHEE	TS FO	R AN
		6/3/14	12:46	21.		19.5	+	9.6	+	<u></u>		17.		EXPLA	NATI(ON C
BORIN	G	6/3/14	12:56	21.		19.5		9.4	+			16.	-	TERMI		
COMP	LETED: 6/5/14	0/3/14	12:50	41.	U	13.3	1	J. +	+			IV.	<u>'</u>		IIS LO	
DR: J l	M LG: SHS Rig: 68C														01-E	



AET JO	B NO: 01-05697						LOC	G OF	BOF	UNG N	O	1169	ST	(p. 1	of	1)
PROJEC	CT: Southwest Ligh	t Rail Tr	ansit Proj	ject,	PEC East	t; H	lopk	ins t	to I	Minn	eapol	lis				
SURFA	CE ELEVATION: 896.6	F	Hennepin Co	. Coo	dinates:	N	15	5064	<u> </u>		Е :	51019	9			
DEPTH MATERIAL I		DESCRIPTION			GEOLOGY	Y	N	MC S	SĄ	MPLE	REC		Ι	ABORAT	ſ	
IN FEET							TYPE		IN.	WC	DEN	LL	PL	%-#20		
1 -	FILL, mostly silty sand with organic fines, a little gravel and sand, trace roots, black and light brown (A-2-4, A-1-b)				FILL		11	M	\bigvee	SS	18					
3 -	SAND, a little gravel, med light brown, moist, mediun	ium to coar n dense (SF	rse grained, P) (A-1-b)		COARSE ALLUVIUI	М	13	M		SS	10					
4 — 5 — 6 —	SAND WITH GRAVEL, medium grained, light grayish brown, moist, medium dense (SP) (A-1-b)						13	M) }	SS	12					
7 — 8 —	SAND, a little gravel, medium grained, light grayish brown, moist, loose, a lens of sandy lean clay at 10' (SP) (A-1-b)						10	M	<u>}</u>	SS	8					
9 — 10 — 11 —							10	M	<u>}</u> 	SS	10					
12 — 13 — 14 —	SAND, a little gravel, trace grained, brown, moist, loos	e roots at 18	B', medium				15	-	Y PT	SS	0					
15 — 16 —	lean clay at 18' (SP) (A-1-b)						9	M	Y FT	SS	8					
17 18 19				7777			7	М	Y R	SS	10					E
20 – 21 –	LEAN CLAY, gray and br laminations of waterbearin (CL) (A-4)	own mottle g sand and	ed, soft, silty sand		FINE ALLUVIU	М	4	M/W	M	SS	12	24				
21	END OF BORING															
			•													
		T					1									
DEI	PTH: DRILLING METHOD				ER LEVEL N				1		T T	****		NOTE:	REF	ER TO
0-1	9½' 3.25" HSA	DATE	TIME	LED CASIN TH DEPT	VG H	G CAVE-I H DEPTH		-IN DRILLING H FLUID LEVE			WATER LEVEL		THE ATTACHED			
V 1		6/3/14	10:30	21.	0 19.5	5	21.0					None		SHEETS FOR AN		
		6/3/14	10:40	21.	0 19.5	5	21	.0				Non	ie	EXPLA	NATI	ON OI
BORIN COMP	NG PLETED: 6/3/14											-	7	ΓERMΠ	NOLO	GY O
201111	M LG: SHS Rig: 68C							-	Г					TH	IIS LO)G



1 - 2 - 3 - 4 - 5 - 6 - 7 - 8 - 9	MATERIAL D FILL, mostly silty sand, a lashes/cinders, black and da FILL, mostly sand with silt brown (A-1-b) FILL, mostly sand, a little g(A-1-b)	ESCRIPTIO ittle gravel, rk brown (, sand and A-2-4)	o, Coo		OLOGY	N 1:	MC M M			REC IN. 16	FIELI WC		ABORA'	Ţ	TEST:
1 — 2 — 3 — 4 — 5 — 6 — 7 — 8 — 9 — 9	FILL, mostly silty sand, a lashes/cinders, black and da FILL, mostly sand with silt brown (A-1-b)	ittle gravel rk brown (, sand and A-2-4)				7	М	SĄ	SS	IN. 16		T		Ţ	T
1 - 2 - 3 - 4 - 5 - 6 - 7 - 8 - 9	FILL, mostly sand with silt brown (A-1-b)	rk brown (A-2-4)		FILL	, , , , , , , , , , , , , , , , , , , ,			M X							
3 - 4 - 5 - 6 - 7 - 8 - 9 9	brown (A-1-b) FILL, mostly sand, a little a	and grave	l, light				1	M	M	SS	12					
5 - 6 - 7 - 8 - 9 9	brown (A-1-b) FILL, mostly sand, a little a	and grave	l, light					1	4						1	
7 - 8 - 9	brown (A-1-b) FILL, mostly sand, a little a	and grave	l, light		1		8	M	13	SS	2					
9 —	FILL, mostly sand, a little g	·							1	aa	0					
		gravel, ligh	ıt brown				24	M		SS	8					
11 —							21	M	X	SS	10					
	FILL, mostly gravelly sand (A-1-b)	l with silt, l	brown				23	M	X	SS	6					
15 —	GRAVELLY SAND WITH grained, brown, moist, med (A-1-b) (possible fill)	RAVELLY SAND WITH SILT, medium nined, brown, moist, medium dense (SP-SM) (possible fill)				ARSE JUVIUM FILL	17	М	11	SS	8					
18 —	SAND WITH GRAVEL, n brown, moist, medium den	medium grained, nse (SP) (A-1-b)				ARSE JUVIUM	16	M	1	SS	10					
19 -							18	M	<u>[</u>]	SS	8					
21	END OF BORING															
			*													
				*****	<u> </u>		A OX TEX	E) (E) :	TC				1			Т
DEPT	TH: DRILLING METHOD		· I.			EVEL MI			1	>D## # #	NC T	337 A 03	ED	NOTE		
0-19	½' 3.25" HSA	DATE	TIME	SAMPLEI DEPTH		ED CASING H DEPTH		VE-IN PTH	N DRILLING I FLUID LEVEL			WATER LEVEL		THE ATTACHED		
		6/3/14	9:13	21.	.0	19.5	2	20.9			None		SHEETS FOR A			
		6/3/14	9:23	21.	.0	19.5	2	0.9				Nor	1e	EXPLA	NATI	O NC
BORING COMPL	FETED: 6/3/14													TERMI	NOLO	GY (



PROJEC	Southwest Ligh	t Rail Trai	nsit Pro	ject,	PEC East	; Hop	kins	to I	Minn	eapol	lis				
SURFAC	CE ELEVATION: 909.0	He	nnepin Co	o. Coor	dinates:	N	5430′	7	_	Е :	508552	2			
DEPTH		ECCDIBITION			GEOLOGY	7 N	МС	SA	MPLE YPE	REC	FIELD	& LA	ABORAT	ГORY	TEST
IN FEET	MATERIAL D	ESCRIPTION				N	IVIC	Γ	YPE	IN.	WC	DEN	LL	PL	%- #2
1 —	FILL, mostly silty sand wit (A-1-b)	h gravel, dar	k brown		FILL	9	M	M	SS	16					
2	FILL, mostly lean clay, dar (A-6)	k brown and	brown			16	M	\bigvee	SS	. 8	24				
3 - 4 -	FILL, mostly silty sand and (A-1-b)	l gravel, brov	wn		COARSE			P	55						
5 –	SAND, a little gravel, med light brown, moist, medium	ium to fine g n dense (SP)	rained, (A-1-b)		ALLUVIUN	л ₁₄	M	X	SS	14					
6 – 7 –	SAND, fine to medium gra \moist, medium dense (SP)	ined, light bı (A-3)	own,	/				1							
8 –	SAND, a little gravel, fine light brown, moist, medium	to medium g n dense (SP)	rained, (A-3)			21	M	X	SS	14					
9 – 10 –						1.0		1	aa	10					
11 -						18	M	R	SS	12					
12 – 13 –	SAND WITH GRAVEL, r brown, moist, medium den	nedium grain se (SP) (A-1	ned, light -b)			17	M	M	SS	12					
14 –					,			1				-			
15 – 16 –			•			19	M	X	SS	10					
17 -						1.0		1	. 00	10					
18 - 19 -						19	M	A P	SS	12					
20 -						21	M	X	SS	10					
21 –	END OF BORING														
												-			
						:	į								
		,													
•															
•															
DEF	TH: DRILLING METHOD			WAT	ER LEVEL N								NOTE:	REF	ER TO
0-1	9½' 3.25" HSA	DATE	TIME	SAMP DEP	LED CASIN TH DEPT	IG CA H D	VE-IN EPTH	FL	DRILLI JUID LI	NG VEL	WATI	ER EL	THE A		
		5/23/14	2:08	21.	0 19.5		20.7	_			Non	e	SHEE		
													EXPLA		
BORIN COMP	NG LETED: 5/23/14												TERMI		
DR: S	G LG: CD Rig: 91C												TH	IIS LO)G



AET JO	DB NO: 01-05697		,			LC	OG OF	BO	RING N	O.	1172	ST	(p. 1	lof	1)
PROJEC		t Rail Tr	ansit Proj	ect,	PEC East;										
SURFA	CE ELEVATION: 911.5	I-	Iennepin Co.	Coor	dinates: 1	1 1	54041	l		Е ;	50799				
DEPTH IN FEET	MATERIAL D	DESCRIPTIO	N		GEOLOGY	N	MC	SA	MPLE TYPE	REC IN.	FIELI	DEN	BORA		TESTS %-#20
1 -	FILL, mixture of silty sand gravel, dark brown and bro	and clayey	sand, with		FILL	12	M	M	SS	12	16	DEAM	LL		70-1720
2 -	SAND WITH SILT AND	GRAVEL,	fine to		COARSE ALLUVIUM	27	M	\bigvee	SS	8					
3 - 4 -	medium grained, brown, m (SP-SM) (A-1-b) (possible SAND WITH GRAVEL, r	fill)			OR FILL COARSE						-				
5 — 6 —	grained, light brown, moist	t, dense (SP	P) (A-1-b)		ALLUVIUM	31	M	X FI	SS	12					
7 — 8 —						20	M	X	SS	12					
9 —						22.	M	T T	SS	10					
11 -								PT P							
13 -	CAND	-1-4 1			· · ·	20	M	X PJ	SS	14					
15 - 16 -	SAND, medium grained, li medium dense (SP) (A-1-b	ignt brown,	moist,			13	M		SS	10					
17 - 18 -	SAND WITH GRAVEL, 1 grained, light brown to brodense (SP) (A-1-b)	medium to town, moist,	fine medium			19	M		SS	12			-		
19 - 20 -						20	M		SS	10					
21 -	END OF BORING														
									-						
									,						
														-	
DEI O-1 BORIN COMP DR: S									·						
DEI	PTH: DRILLING METHOD			WAT	ER LEVEL ME	ASUR	EMEN	TS		L	<u> </u>	Ц_	NOTE	DEEL	ZD TO
DE LOCAL		DATE	TIME S	SAMPI DEP			VE-IN]	DRILLI	NG	WAT	ER	NOTE: THE A		
0-1	19½' 3.25" HSA						EPTH	FL	LUID LE	VEL	LEVI	BL BL	SHEE'		
3		5/23/14	1:25	21.	0 19.5	2	0.5	-			Non		EXPLA		
BORIN	NG FIGURE												TERMI	·	
3 COMP	PLETED: 5/23/14							-					TH	IIS LO	G
DR: S	GG LG: CD Rig: 91C	L	<u> </u>					_						01.5	HR.0



AET JO PROJEC		nt Rail Tr	ansit Pro	ject.	PEC East: I				RING N Minn e			ST			
	CE ELEVATION: 916.6		Hennepin Co				53523				50691	6			
DEPTH								G A	MDI E	REC	FIELI) & LA	BORAT	rory '	TEST
IN FEET	MATERIAL I	DESCRIPTIO	N		GEOLOGY	N	MC	r	MPLE YPE	ÎN.	WC	DEN	LL	PL	%-#2
1.	FILL, mostly silty sand wi	th gravel, tr	race roots,		FILL TOPSOIL OR	7	М	M	SS	16	26				
1 - 2 -	\dark brown (A-1-b) LEAN CLAY WITH SAN	D. trace roo	ots, dark	1 <i>((())</i>	FINE	'	IVI	M	33	10	20	l '			
3 -	grayish brown, firm (A-6)		•		ALLUVIUM	5	M	M	SS	12	20				
4 -								F							
5 –	GRAVELLY SAND, med brown, moist, dense (SP) (grained,		COARSE ALLUVIUM	11	M	M	SS	6				:	
6 -	orowing moising defined (51)	(1110)				44	M	Д	.22	6					
7 -	SAND WITH GRAVEL, 1	nedium to	fine					[1]			-				
8 –	grained, light brown, mois (A-1-b)	t, medium o	dense (SP)			30	M	X	SS	12					
9 –	(11.1.0)							3							
10 -						21	M	M	SS	12					
11 -							177	\Box	DD	12					
12 –								H							
13 —						15	M	M	SS	12					
14 –								3							
15 —						21	M	M	SS	12					
16 –								H							
17 —	SAND WITH GRAVEL, 1 brown, moist, medium der	medium gra	ined, light					H		10					
18 —	orown, moist, mediam der	150 (51) (11	1 0)		•	27	M	\triangle	SS	12					
19 —	SAND, a little gravel, fine	to medium	grained,					1							
20 —	light brown, moist, mediu	m dense (SI	P) (A-1-b)			16	M	X	SS.	12					
21 —	END OF BORING							M						ļ .	
		•													
				*											
									,						
										,			10		
*														ļ.	
DEF	DATE DATE DISCOUNTING			XXAT	ED LEVEL ME	CLIDI	CMENI	TC				<u> </u>		<u> </u>	
DEF	PTH: DRILLING METHOD				ER LEVEL MEA			т	ORILLI	VIC	WAT	ED	NOTE:		
0-1	9½' 3.25" HSA	DATE	TIME	SAMP DEP	LED CASING TH DEPTH	DE	VE-IN PTH	FL	UID LE	VEL	LEVI	EL	THE A		
		5/22/14	2:05	21.	0 19.5	2	0.3		******		Non		SHEE		
D.C													EXPLA		
BORIN COMP	IG LETED: 5/22/14											. T	ERMI		
DR: S	G LG: TM Rig: 91C												TH	IIS LO	G



03/2011

SUBSURFACE BORING LOG

01-05697 1174 ST (p. 1 of 1) LOG OF BORING NO. AET JOB NO: Southwest Light Rail Transit Project, PEC East; Hopkins to Minneapolis PROJECT: 506402 915.0 153260 Hennepin Co. Coordinates: SURFACE ELEVATION: FIELD & LABORATORY TESTS DEPTH IN FEET SAMPLE TYPE REC IN. **GEOLOGY** MATERIAL DESCRIPTION MC N WC DEN PL %-#200 LL FILL FILL, mostly clayey sand with organic fines, a little gravel, trace roots, black and dark brown 4 M SS 12 15 1 (A-6)2 FILL, mostly clayey sand, a little gravel, brown SS 19 10 4 M 3 and black 4 FILL, mostly sand with silt and gravel, a little clayey sand, possible cobbles, brown, a little 5 SS 21 M 16 black (A-1-b, A-6) 6 7 SS 23 M 0 8 COARSE SAND, fine to medium grained, light brown, moist, medium dense to loose, laminations of silt **ALLUVIUM** 9 (SP)(A-3)10 9 SS M 14 11 SAND, a little gravel, medium grained, light 12 brown, moist, medium dense, laminations of silt SS 16 M 16 13 (SP)(A-1-b)14 SAND, a little gravel, fine to medium grained, light brown, moist, medium dense (SP-SM) 15 SS 15 17 M (A-3)16 SAND, a little gravel, fine to medium grained, 17 light grayish brown, moist, medium dense (SP) SS 12 19 M 18 (A-3)19 SAND, fine grained, light grayish brown, moist, dense, laminations of silt (SP) (A-3) 20 SS 18 41 M 21 END OF BORING W-COORDINATES 01-05697.GPJ AET+CPT+WELL.GDT. 6/10/14 WATER LEVEL MEASUREMENTS DEPTH: DRILLING METHOD NOTE: REFER TO SAMPLED DEPTH CASING DEPTH CAVE-IN DEPTH DRILLING FLUID LEVEL WATER LEVEL TIME THE ATTACHED DATE 0-191/21 3.25" HSA SHEETS FOR AN 5/30/14 2:44 21.0 19.5 21.0 None **EXPLANATION OF** BORING COMPLETED: 5/30/14 TERMINOLOGY ON THIS LOG DR: SHS LG: JM Rig: **68C**



AET JO	ов NO: 01-05697						LOG OI	7 BO	RING N	O.	1175	ST	(p. 1	of 1)	
PROJEC		t Rail Tra	ansit Pro	ject,	PEC East										
ł	CE ELEVATION: 912.3		lennepin Co			N	15302				50591:	2			
DEPTH	MATERIAL D	ECCDIDITION	AT.		GEOLOG	v ,	N MC	SA	AMPLE TYPE	REC	FIELD) & LA	ABORAT	ORY TE	ESTS
IN FEET						1	N MIC		ГҮРЕ	IN.	WC	DEN	LL	PL %	-#200
1 -	FILL, mostly gravel with s brown (A-1-b)	ilt and sand	, dark		FILL		5 M	\bigvee	SS	3					
3 -	FILL, mostly gravelly sand (A-1-b)	l with silt, b	rown			,	4 M	R	SS	3					
4 — 5 — 6 —	CLAYEY SAND, with org gravel, trace roots, dark bro silty sand (SC) (possible fil	own, firm, a	a little lens of		MIXED ALLUVIUI OR FILL	М	6 M		SS	8	20				•
7 — 8 —	SAND WITH GRAVEL, n brown, moist, medium den	nedium grai se (SP) (A-	ined, light 1-b)		COARSE	M 1	8 M		SS	10					
9 - 10 - 11 -	SAND, fine grained, light moist, medium dense, lami (A-3)	brown, a litt nations of s	tle black, silt (SP)			1	.1 M	1	SS	12					
12 -	SAND, a little gravel, med brown, moist, medium den	ium grained se (SP) (A-	l, light 1-b)				4 M		SS	12					
14 15 16	SAND, fine to medium gra	nined, light	brown,			3	35 -		SS	0	٠				
17 — 18 —	moist, medium dense, lami (A-3)	inations of s	silt (SP)			2	20 M		SS	14					
19 - 20 -	SAND WITH GRAVEL, r brown, moist, medium den	nedium gra se (SP) (A-	ined, 1-b)			2	25 M	X 13	SS	14	r				
21 – 21 – 21 – 22 – 22 – 22 – 22 – 22 –	END OF BORING														
5697.GPJ AET+CP	·										-				
DEI	PTH: DRILLING METHOD			WAT	ER LEVEL N		JREME	NTS					NOTE:	REFER	L TO
<u>4</u>	19½' 3.25" HSA	DATE	TIME	SAMP DEP	LED CASII TH DEPT	NG C	CAVE-IN DEPTH	۱ Fl	DRILLI LUID LI	NG EVEL	WAT LEVI	ER EL	THE A	ATTACH	ED
MONO WOND	17/2 J.43 HSA	5/30/14	1:12	21.			21.0				Non		SHEE	TS FOR	AN
Š 		5/30/14	1:22	21.			21.0				Non	_	EXPLA	NATIO	N OF
BORIN	NG PLETED: 5/30/14					-		\top					TERMI	NOLOG	Y ON
DR: J													TH	IIS LOG	
02/2011		<u> </u>												01-DE	m 0



1176 ST (p. 1 of 1) 01-05697 LOG OF BORING NO. AET JOB NO: Southwest Light Rail Transit Project, PEC East; Hopkins to Minneapolis PROJECT: 503628 904.9 151996 Hennepin Co. Coordinates: SURFACE ELEVATION: DEPTH IN FEET FIELD & LABORATORY TESTS SAMPLE TYPE REC IN. **GEOLÓGY** MATERIAL DESCRIPTION MC N WC DEN PL **%**-#20 LL FILL FILL, mostly sand with silt, a little gravel and SS 14 clavey sand, trace roots, brown (A-3) 13 M 1 . 2 SS 26 0 3 4 FILL, mostly silty sand with gravel, a little clayey sand, trace roots, dark brown (A-1-b) 5 16 M SS 8 6 7 SS 7 6 M 8 9 10 SS 8 6 M 11 FILL, mostly silty sand, a little gravel, trace 12 roots, dark brown (A-2-4) 14 M SS 12 13 14 FILL, mostly silty sand with gravel, a little 15 ashes/cinders, dark brown (A-1-b) 7 M SS 6 16 17 7 SS 4 18 19 SAND WITH SILT AND GRAVEL, medium to COARSE ALLUVIUM fine grained, brown, waterbearing, loose 20 8 W SS 8 (SP-SM)(A-1-b)21 SAND, a little gravel, medium to fine grained, 22 grayish brown, waterbearing, loose (SP) (A-1-b) 7 W SS 8 23 END OF BORING WATER LEVEL MEASUREMENTS DEPTH: DRILLING METHOD NOTE: REFER TO CAVE-IN DEPTH SAMPLED DEPTH DRILLING FLUID LEVEI WATER LEVEL **CASING** DATE TIME THE ATTACHED 0-22' 3.25" HSA SHEETS FOR AN 5/23/14 2:00 21.0 19.5 19.7 18.8 **EXPLANATION OF** 18.3 5/23/14 2:10 19.5 19.4 21.0 BORING COMPLETED: 5/23/14 TERMINOLOGY ON 19.5 18.3 5/23/14 2:15 21.0 19.4 THIS LOG 22.0 18.7 5/23/14 2:23 23.5 22.0 DR: GH LG: SHS Rig: 68C

01-05697.GPJ AET+CPT+WELL.GDT 6/10/14



		01-05697		i i				·	20.05	DO:	DDIC		1177	7 ST	(p. 1	of '	1)
	OB NO:		4 D - 21 T		4	DE/	7 IF a a4a				RING N	_		91	(p. 1	UI.	1)
PROJE		Southwest Ligh							Kins 15177:		IVIIIIII(118 50317	6			
	ACE ELEV	ATION: 903.9	h.	Iennepin Co	o. Cooi	raina	tes:	<u>N</u>	13177	1					ABORAT	ORY'	TESTS
DEPTH IN FEET	·	MATERIAL D					EOLOGY	N	МС	SA	MPLE TYPE	REC IN.	WC		7		%-#20(
1 -	FILL, little g	mostly silty sand wit gravel, trace roots, dan	th organic f rk brown (A	ines, a A-1-b)		FILI	L	8	M	M	SS	6					
3 -						ř		4	M	M	SS	6					
4 -	FILI	mostly gravelly silty	sand a litt	le clavev						3							
5 -	sand,	trace roots, dark brov	vn (A-1-b)	ic clayey				6	M	M	SS	3.					
6 - 7 -	FILL, roots,	mostly clayey sand, dark brown and brow	a little grav vn (A-6)	el, trace	-			6	M	<u> </u>	SS	6	17				
8 - 9 -	CLAN	YEY SAND, a little g	ravel brow	n a little	9777	TIL	L OR	_		<u> </u>							
10 - 11 -	light b	prown, firm, lamination (possible fill)	ons of sand	(SC)		FIL		7	M	X	SS	12	14				
12 -	SANI	OY LEAN CLAY, a l ed, firm (CL) (A-6) (p	ittle gravel oossible fill	, brown)				5	M	<u>}</u>	SS	14	19				
14 -		Y SAND, a little grav (A-1-b) (possible fill		own, loose				7	M		SS	6					
16 - 17 -	SANI	DY LEAN CLAY, a l n and brown, firm (Cl	ittle gravel	, dark ossible fill				8	M	PI V	SS	14	16		:		
18 - 19 -		O WITH SILT AND				CO	ARSE	- 0			55	1 1 7					
20 - 21 -	fine g	rained, light brown to to medium dense (SI	brown, wa	aterbearing	,		LUVIUM	38	MŁW	/ } }	SS	8					
22 -	_							20	W	X	SS	12					
4	END	OF BORING										,					
CORDINALES OF USES OF																	
WELL.GD																	
}																	
AE AE																	
7.76601			I				TO TO TO TO										
DE	EPTH:	DRILLING METHOD					EVEL M				DDITT	NC T	TILATE	EB.	NOTE:		
NA CINA	0-22'	3.25" HSA	DATE	TIME	SAMP DEP		CASING DEPTH		VE-IN EPTH	FI	DRILLI LUID LI	EVEL	WAT LEV	EL	THE A		
ğ 			5/23/14	9:51	23.		22.0	-	21.7				20.		SHEE'		
S BORI	NG		5/23/14	10:01	23.		22.0		21.7	-			20.	- ,	EXPLA		
	PLETED:	5/23/14	5/23/14	10:06	23.	5	22.0		21.7	-			20.	6	TERMI		
DR:	GH LG	: SHS Rig: 68C													11.	IIS LO	G NID 04



AET JO	B NO: 01-05697					L	OG OF	ВО	RING N	O	1178	ST	(p. 1	l of	<u>l)</u>
PROJEC	CT: Southwest Light	t Rail Tr	ansit Proj	ject,	PEC East;	Hop	kins	to :	Minn	eapo	lis				
SURFAC	CE ELEVATION: 907.1	H.	Iennepin Co	. Cooi	dinates:	N_	15147	8	_	Е :	50266	2			
DEPTH IN FEET	MATERIAL I	ESCRIPTIO	N .		GEOLOGY	N	MC	SA	MPLE	REC	FIELI) & L	ABORA	TORY '	rest
FEET	WATERIAL	ESCRII IIO	IN		drorodi	14	IVIC	-	ГҮРЕ	IN.	WC	DEN	LL	PL	%- #2
1 - 2 -	FILL, mostly clayey sand v silty sand, pieces of bitumi brown and brown (A-6)	with gravel, nous, trace	a little roots, light		FILL	4	М	M	SS	8	8				
3 —						9	M	X	SS	8	10				
4 — 5 — 6 —	SAND, a little gravel, med light brown, moist, medium	ium to fine n dense (SP	grained, ') (A-1-b)		COARSE ALLUVIUM	20	M		SS	10					
7 – 8 – 9 –	SAND, a little gravel, fine light brown, moist, medium of silt (SP)	to medium n dense, lan	grained, ninations			21	M	11/1	SS	16					
10 -						20	M		SS	12					
12 — 13 —	GRAVELLY SAND, med brown, moist, medium den	ium to coar se (SP) (A-	se grained, 1-b)			19	M	A A	SS	10			,		
14 — 15 — 16 —	SAND WITH GRAVEL, f grained, light brown, moist (A-1-b)	ine to medi t, medium c	um lense (SP)			24	M	1	SS	12					
17 – 18 –	SAND, a little gravel, fine brown, moist to waterbeard (SP) (A-3)	to medium ng, mediun	grained, n dense			25	M/W		SS	14	and the second s				
19 - 20 -	CLAYEY SAND, brown, (A-2-4)	very stiff (S	SC/SM)		TILL	27	M		SS	16	12				
21	END OF BORING														
															_!
DEP	TH: DRILLING METHOD			WAT	ER LEVEL M	EASU	REMEN	TS	<u> </u>	L	1	1	NOTE	DEFF	1 TY
		DATE	TIME	SAMP DEP			VE-IN EPTH		DRILLII JUID LE	NG VEI	WAT LEVI		NOTE: THE A		
0-19	9½' 3.25" HSA	5/29/14	12:09	21.			20.9	I.T		, v 1:L	We		SHEE		
													EXPLA		
BORIN	IG ·	5/29/14	12:19	21.	0 19.5		20.9	-			We	ı	TERMIN		
COMP	LETED: 5/29/14					_						_		IS LO	
DR: JI	M LG: SHS Rig: 68C							<u></u>					ŕt.	01-D	



AET JO	B NO: 01-05697						LOG	oF	BOF	UNG N	О	1179	ST	(p.]	of	<u>()</u>
PROJEC	Southwest Light	t Rail Tr	ansit Pro	ject,	PEC East	t; H	opki	ins t	to I	Minn	eapo]	lis				
SURFAC	CE ELEVATION: 910.0	I	Tennepin C	o. Coo	rdinates:	N	15	1181			E :	50204	5			
DEPTH IN FEET	MATERIAL I	AESCDIDTIC	iNi		GEOLOG	,	N	MC	SA	MPLE	REC	FIELD	& LA	BORA	ORY '	rest:
FEET	WATERIAL	ALSCRII IIC	11		GLOLOG	1	IN .	IVIC	T	YPE	IN.	WC	DEN	LL	PL	6-#2
1 -	FILL, mostly silty sand, a roots, dark brown (A-2-4)	little gravel	, trace		FILL		5	M	M	SS	10				-	
3 -	FILL, mostly sand with sil roots, light brown (A-3)	t, a little gr	avel, trace				6	M		SS	12					
5 —	FILL, mostly sand with silsandy lean clay, brown (A-	t, a little gr 3)	avel and				14	M	<u>}</u>	SS	12					
6 - 7 - 8 -	SAND WITH SILT, a little medium grained, brown, m (SP-SM) (A-3) (possible fi	ioist, medii	ne to im dense		COARSE ALLUVIUI OR FILL	М	15	M		SS	10					And the state of t
9 10 - 11 -	CLAYEY SAND WITH Clittle dark brown, lens of si (possible fill)				TILL OR FILL		16	M		SS	10	8				
12 — 13 — 14 —	SAND WITH SILT, a little medium grained, brown, m (SP-SM) (A-3)	e gravel, fii oist, medi	ne to am dense		COARSE	М	45	M		SS	12					
15 — 16 —							20	M	II II	SS	14					
17 — 18 —							19	M		SS	14					
19 — 20 —	SAND WITH SILT, fine g moist, medium dense (SP-	rained, ligi SM) (A-3)	nt brown,				22	M	X	SS	12				,	
21	END OF BORING															
														1		
DEP	TH: DRILLING METHOD			WAT	ER LEVEL N	1EAS	UREN	MEN'	TS		1	1	<u>' </u>	NOTE:	REFE	R TC
0.44	N/I 2 450 XXX	DATE	TIME	SAMP DEP	LED CASIN	iG (CAVE DEP	E-IN	FL	RILLI UID LE	NG VEI	WATI LEVE	ER	THE A		
0-19	0½' 3.25" HSA	5/23/14	12:37	21.			20.	-	יייי		, v 1517	Non	11.	SHEET		
		5/23/14	12:37	21.			20.					Non	┧.	EXPLA		
BORIN	G	3/23/14	14:4/	41.	19.5	'	4 U.	<i>-</i>				11011		ERMIN		
COMPI	LETED: 5/23/14					+							┤.		IS LO	
DR: G	H LG: SHS Rig: 68C								<u> </u>						01-D	



PROJEC	CT: Southwest Lig	ht Rail Tr	ansit Pro	ject,	PEC Ea	st; H	[opk	cins (to I	Minn	eapo	lis				
URFAC	CE ELEVATION: 910.7	H	lennepin Co	o. Coor	dinates:	N	15	50719)		E :	50100	7			
DEPTH IN FEET	MATERIAL	DESCRIPTION	N		GEOLOG	GY	N	МС	SA T	MPLE YPE	REC IN.	ļ	DEN	BORA'	T	TEST %-#2
1 -	FILL, mostly silty sand w bituminous, dark brown (vith gravel, pi A-1-b)	eces of		FILL		12	M	M	SS	14					
3 —	FILL, mostly sand with s (A-1-b)	ilt and gravel	, brown				27	M		SS	12					
4 — 5 — 6 —	FILL, mostly silty sand, a brown (A-1-b)	ı little gravel,	dark				31	М	1	SS	2	-				
7 – 8 – 9 –							16	M	[<u>}</u>	SS	12					
10 - 11 -	SANDY LEAN CLAY, s roots, black, stiff (CL) (A		ic, trace		TOPSOIL		15	M		SS	12	26				
12 – 13 –	SAND WITH SILT, a litt fine grained, brown, mois (SP-SM) (A-1-b)	le gravel, me st, medium de	edium to ense		COARSE ALLUVII		14	М		SS	12					
14 — 15 — 16 —	SAND WITH SILT AND medium grained, brown, (SP-SM) (A-1-b)	GRAVEL, moist, mediu	fine to m dense				14	M W	LY P	SS	6					
17 — 18 —	SILTY SAND WITH GR grained, brown, wet, loos	RAVEL, fine e (SM) (A-1	to medium -b)				6	W	1	SS	6					
19 — 20 —	GRAVEL WITH SAND medium dense (GP) (A-1		erbearing,				11	W		SS	1					
21 —	END OF BORING															
															-	
DEP	TH: DRILLING METHOD			WAT	ER LEVEL	MEA	SURE	EMEN	TS		.L			NOTE:	REF	ER TO
0-1	9½' 3.25" HSA	DATE	TIME	SAMP DEP	LED CAS	ING TH	CAV DE	/E-IN PTH	FL.	DRILLI UID LE	NG EVEL	WAT LEVI	ER	THE A	ATTAC	CHEL
		5/22/14	1:01	21.	0 19	.5	19	9.1				17.		SHEE		
BORIN	NG	5/22/14	1:10	21.	0 19	.5	19	9.2				16.	<u> </u>	EXPLA [ERMI]		
COMP	LETED: 5/22/14 GH LG: SHS Rig: 68C								-						IIS LC	



AET JO	B NO: 01-05697						LO	G OF	BOI	RING N	О	1181	ST	(p. 1	of	1)
PROJEC	Southwest Ligh	t Rail Tr	ansit Pro	ject,	PEC Ea	st; F				Minn						
SURFAC	CE ELEVATION: 913.0	F	Hennepin Co	o. Cooi	dinates:	N	1:	50383	3		E :	50039				
DEPTH IN	MATERIAL D	ESCRIPTIO	N		GEOLOG	3Y	N	МС	SĄ	MPLE YPE	REC IN.	 	Γ.	ABORA'		1
IN FEET									1	IFE	11N.	WC	DEN	LL	PL	%- #20
1 -	FILL, mostly silty sand wit brown (A-1-b)	h gravel, tr	ace roots,		FILL		11	M	M	SS	12					
3 -	FILL, mostly sand with silt sandy lean clay, brown and	, a little gra dark brow	avel and n (A-3)		·		9	M	X	SS	12					
5 -	LEAN CLAY WITH SAN brown, stiff (CL) (A-6)	D, trace roo	ots, dark		TOPSOIL		9	M	X	SS	6	23				
6 -	SILTY SAND, a little grav	el, fine to r	nedium		COARSE				3							
8 –	grained, brown, moist, loos	e (SM) (A	-1-b)		ALLUVI	ЈМ	10	М	X	SS	6					
9 - 10 -	SAND WITH GRAVEL, n brown, moist, dense (SP) (A	nedium gra A-1-b)	ined, light				40	М		SS	12					
11 -	·						39	M	\{\frac{1}{2}}	SS	12					
13 -					•				H							
15 — 16 —	24212 11222 222	CID 1 + room	11				24	<u>M</u> W	 	SS	12					
17 — 18 —	SAND WITH SILT AND of fine grained, brown, waterl dense (SP-SM) (A-1-b)				•		20	W	X	SS	4		-			
19 — 20 —							15	W	<u>1</u>	SS	6					
21 -	END OF BORING															
DEF		•			-											
DEF	TH: DRILLING METHOD			WAT	ER LEVEL	MEA	SURI	EMEN	TS					MOTE	DEEL	D TO
i i		DATE	TIME	SAMP DEP				/E-IN PTH	Т	ORILLI	NG_	WAT LEVI	ER	NOTE:		
0-1	9½' 3.25" HSA								FL	UID LI	VEL			SHEE		
<u> </u>		5/22/14	10:37	21.				8.0 7.8	-			16.		EXPLA		
0-1 BORIN	NG ZIAZIA	5/22/14	10:48	21.	0 19	,5	1	/.0	+			13.0	<u> </u>	TERMII		
H	LETED: 5/22/14								+						IIS LO	
DR: G	GH LG: SHS Rig: 68C						<u> </u>								01-Г	



AET JO									RING N			2 ST	(p.]	l of 1	<u> </u>
PROJEC	Southwest Light	t Rail Tr	ansit Pro	ject,	PEC East;	Hop	kins	to]	Minn	eapo	lis		,		
SURFAC	CE ELEVATION: 916.1	F	Iennepin Co	. Coo	dinates:	N :	15013′	7		E '	49988	6			
DEPTH IN FEET	MATERIAL D	ESCRIPTIO	N .		GEOLOGY	N	MC	SA	MPLE	REC	FIELI) & LA	ABORA'	rory 7	rest:
FËET				. ,		- 11	1110		TYPE 	IN.	WC	DEN	LL	PL	%-#2(
1 -	FILL, mostly silty sand, a l roots, dark brown (A-2-4)	little gravel	, trace		FILL	16	M	M	SS	6					
3 -	FILL, mostly sand with silt medium grained, brown (A SANDY LEAN CLAY, sli	-1-b)			TOPSOIL	_ 10	M	X	SS	12	33				
5 —	roots, dark brown, stiff (CI SANDY LEAN CLAY, br	L) (A-6)			FINE ALLUVIUM	6	M	X	SS	6	19				
6 -	SAND WITH GRAVEL, f	ine to medi	um lense (SP)		COARSE ALLUVIUM	27		T	SS	12					
8 — 9 —	(A-1-b)	., .	(01)			21	M		55	12					
10 — 11 —						30	M	K	SS	12					
12 – 13 –	SAND, a little gravel, med brown, moist, medium den	ium grained se (SP) (A-	d, light ·1-b)			22	M		SS	12	٠				
14 — 15 — 16 —	SAND WITH GRAVEL, r grained, light brown, moist (A-1-b)	nedium to t t, medium o	fine dense (SP)			25	М		SS	12					
17 – 18 –	SAND WITH GRAVEL, r brown, waterbearing, medi (A-1-b)	nedium gra ium dense (ined, SP)			19	MA		SS	12					
19 - 20 -	SAND WITH SILT AND grained, brown, waterbeard (SP-SM) (A-1-b)	GRAVEL, ing, mediun	medium n dense			21	W	11	SS	6					
21 —	END OF BORING														
									-						
				W// C	ED LEXES 25	E A CT E	TD 4TT	TC		<u> </u>		<u> </u>			
DEP	TH: DRILLING METHOD		T		ER LEVEL M	1			ייים	NG	337 A T		NOTE:		
0-19	9½' 3.25" HSA	DATE	TIME	SAMP) DEP	LED CASING TH DEPTH	I D	VE-IN EPTH	FL	DRILLI UID LE	EVEL	WAT LEVI	EL		TTAC	
		5/22/14	9:24	21.	0 19.5	3	19.0				18.			TS FOI	
		5/22/14	9:35	21.	0 19.5		18.9				18.	<u> </u>	EXPLA		
BORIN COMP	IG LETED: 5/22/14												TERMI?		
DR: Se							•					7	TH	IIS LO	G



AET JO	B NO: 01-05697	_					LC	G OF	ВО	RING N	Ю	1183	SS	(p. 1	of 1	1)
PROJEC	CT: Southwest L	- ight Rail Tr	ansit Pr	oject,	PEC	C East;]	Hopl	kins	to]	Minn	eapo!	lis				
SURFA	CE ELEVATION: 919.	5 H	Hennepin C	o. Coo	rdina	tes: N	1	49878	3		E '	49934	3			
DEPTH	MATERIA	AL DESCRIPTIO	N		GF	EOLOGY	N	MC	SA	MPLE	REC	FIELI) & L/	ABORA'	ORY '	TESTS
IN FEET							11	IVIC	[]	ГҮРЕ	IN.	WC	DEN	LL	PL	%-#20
1 -	FILL, mostly silty sand roots, dark brown (A-2-	with organic f -4)	fines, trace		FILI	L	6	M	M	SS	1					
3 -	FILL, mostly silty sand roots, brown (A-4)	, a little gravel	, trace				10	M		SS	6					
4 -	FILL, mostly silty sand clay, brown (A-2-4)	, a little gravel	and lean				9	M	1	SS	6					
6 - 7 -								IVI		33						
8 —							11	M	M	SS	12					
9 -							5	M	[] []	SS	12					-
11 -	FILL, mostly silty sand	with gravel, d	lark brown													
13 -	(A-1-b)						8	M	X	SS	12					
15 — 16 —							23	-		SS	0					
17 —	SAND WITH GRAVE brown, moist, very den	L, medium gra se to dense (SI	nined, light			ARSE LUVIUM	57	M	17	SS	12					
18 — 19 —									1							
20 -							37	M	X	SS	12					
	END OF BORING			,			-									
DEF 0-1 BORIN COMP DR: S												-				
										-		-				
DEF	TH: DRILLING METHO	DD		WAT	ER L	EVEL ME	ASURI	EMEN	TS					NOTE:	REFE	ER TO
0-1	9½' 3.25" HSA	DATE	TIME	SAMP DEP		CASING DEPTH	+	VE-IN PTH	FL	DRILLI LUID LE	NG EVEL	WAT LEVI	ER EL	THE A	TTAC	CHED
		5/22/14	8:38	21.	0	19.5	2	0.9	-			Non		SHEE. EXPLA		
BORIN COMP	NG LETED: 5/22/14													EAFLA FERMIN		
DR: S		-												TH	IIS LO	G ·



AET JO										RING N			101	(p. 1	LOI	1)
PROJEC	CT: Southwest Ligh	t Rail Tr	ansit Pro	ject,	PEC	East; I	Iopl	kins	to .	Minn						
SURFAC	CE ELEVATION: 922.4	I I	Hennepin Co	. Coo	rdinates	s: <u>N</u>	1	4962	1		E '	<u> 49879</u>	8			
DEPTH	MATERIAL D	ESCRIPTIO	N		GEO	LOGY	N	МС	SĄ	AMPLE	REC	<u> </u>	1	ABORAT	ORY	TEST
IN FEET							- '			ГҮРЕ	IN.	WC	DEN	LL	PL	%-# 2
1 -	FILL, mostly silty sand, a l roots, brown and dark brow	ittle gravel vn (A-1-h)	, trace		FILL		13	M	M	SS	3					
2 –	100ts, 010 WH and dark 010 V	, ii (i i i o)					13	""	\triangle	55						
3 —							11	M	X	SS	6					
4 —		. 1 1			-				रि							
5 —	FILL, mostly silty sand with (A-1-b)	th gravel, d	ark brown				12	M	V	SS	6		-			
6 -							12	IVI	\triangle	ು	U					
7 -									13							
8 –							9	M	X	SS	1					
9 –									13							
10 -							9	M	∇	SS	6					
11 -								141		55						
12 -	SAND WITH GRAVEL, r	nedium gra	ined, light		COAF				1							
13 -	brown, moist, dense to med (A-1-b)	dium dense	(SP)		ALLC	IVIUM	33	M	X	SS	10					
14 –	()								3							
15 —	•						23	M	V	SS	6					
16 –																
17 –									H							
18 –	•						25	M	X	SS	6					
19 –	SAND, a little gravel, fine	to medium	grained					_	1							
20 –	brown, waterbearing, medi	um dense ((SP)				17	W	X	SS	10					
21 –	(A-1-b) END OF BORING			+					\vdash							
	END OF BORING															
DEP	TH: DRILLING METHOD			WAT	ER LEV	EL MEA	SURI	EMEN	TS	l	<u> </u>	.1		NOTE:	REE	ER TY
		DATE	TIME	SAMP DEP		CASING DEPTH	· · · · · · · · · · · · · · · · · · ·	VE-IN PTH	Π	DŖĬĻĻĨ	NG.	WAT	ER	THE A		
0-1	9½' 3.25" HSA								FL	LUID LE	EVEL	LEVI	EL	SHEET		
		5/22/14	1:05	21.		19.5	 	0.1	+-			20.0		EXPLA		
BORIN	G	5/22/14	1:16	21.	U	19.5	2	0.1	-			20.0	•	TERMIN		
COMP	LETED: 5/22/14					···			+			-			IS LO	
DR: J	M LG: CD Rig: 68C	<u> </u>	<u> </u>				,							111	01-Γ	



AET JO	-	4 TD - 01 PP	To		DECE :				RING N				(p. 1	COLI	<u> </u>	
PROJEC									Winn							
SURFA	CE ELEVATION: 925.5	Hennepin Co. Coor			rdinates:	N	14937	2,	<u>* E</u>		498302 FIELD & LABORATORY TESTS					
DEPTH IN FEET	MATERIAL D	DESCRIPTION			GEOLOGY	N	MC	ŞĄ	MPLE TYPE	REC IN.		I	T	Γ	т	
FEET	DILL (1 1)	P2/1 1 1 1	1		FILL			1			WC	DEN	LL	PL '	/o-#2	
1 -	FILL, mostly silty sand, a l brown (A-1-b)	iittie gravei, dai	rĸ		FILL	12	M	M	SS	6						
2 - 3 -	GRAVELLY SAND, medibrown, moist, loose (SP) (A				COARSE ALLUVIUM OR FILL	8	M		SS	8						
4 — 5 — 6 —	SAND, fine grained, light dense (SP) (A-3)	brown, moist, medium			COARSE ALLUVIUM	1 11	M	1	SS	12						
7 – 8 –						10	M	1	SS	12						
9 10 11	SAND, fine to medium grained, light brown, moist, medium dense (SP) (A-3)					10	M	1	SS	14						
12 — 13 —	SAND, fine grained, light brown, moist, medium dense to dense, lenses and laminations of silt (SP) (A-3)					24	M	11	SS	10						
14 — 15 — 16 —	SILT WITH SAND, brown	n. moist. dense	(ML)		FINE	31	M	7	SS	12						
17 — 18 —	(A-4) SAND, fine to medium grained, light brown, moist, dense (SP) (A-3)			COARSE	ALLUVIUN COARSE ALLUVIUN	_	M	11	SS	14						
19 — 20 —	SAND WITH SILT, fine to light brown, moist, dense, of silty sand (SP-SM) (A-3	lenses and lami	ned, inations			31	M	ET X	SS	14						
21 -	END OF BORING	')		1.1.13												
		й						* /								
r.r.v	OTH. DRILLING ACTION			W/ A (T)	DD LEVEL >4	E A CI II	DEN ATON	ITC								
DEF	PTH: DRILLING METHOD				ER LEVEL M				DDILLL	NG.	337 A 771		NOTE:			
0-19½' 3.25" HSA		DATE T	IME S	AMP DEP	LED CASIN TH DEPTI	I D	CAVE-IN DEPTH		DRILLING FLUID LEVEL		WATER LEVEL		THE ATTACHED			
		5/22/14 8	3:18	21.	0 19.5		20.8				None		SHEETS FOR AN			
		5/22/14 8	3:58	21.	0 19.5		2.7				Non	ie I	EXPLA	NATIO)N(
BORIN COMP	NG LETED: 5/22/14											7	TERMIN	OLOC) Yí	
	M LG: CD Rig: 68C												TH	IIS LO	3	