APPENDIX E
NUS/FIT WELL LOGS

This appendix contains the logs of monitoring wells installed by NUS/FIT as a part of this Remedial Investigation. In most locations, more than one well was completed. Each location is represented by a boring log. Each log contains the construction details of all wells installed at that location.

	田。	NUS DEPORATI			1	Project Wells G &	H Remedial	Inves	stigat	tion		TDD N	o. 409-01	Sheet	He	le No.
	AHai	liburton Comp	bany		1	ocation, 300 f	t South of V	Vell G					Angle	from Horiz. Vertical		
Begun		Completed	Drill	er			Make & Mod		····-,	Hole i	Dia.	Overbu	den		Tata	l Depth
4 M/	AR 85	6 MAR 85	NE	3C		Мо	bile B-47			3.	5"	(ft) 62		NA NA		
Core	Recover	y (ft)	Co	re Bxs	Samples	El. Top	of Casing	Ic	roun	d El.		02		Depth to To		5
N.				NA	11		J			44.66	5860	-44.33		unkno		Rock
Sainpi l	е натт 40 lbs/3	er Weight/Fa	all		Casing Solid Screen	0.010 sld	PVC 1.5" [.D).			NUS Insp Baldy	ector /ga				
		ROC	к			SOIL						1			$\overline{}$	
Depth	Sample No.	Core/Rec (in)	RQD	Pen/Rec (in)	Depti Interv (ft)	al	ows/6"		Con	Well	_		itratum	Description		Notes
	01			24/10	0-2		1/1/1/2		ł	<u> </u>	4 5	BNF	/M SAN	1D		
	<u></u>		 -													
		1		 	┼											
5		 													-	
	02			24/24	5-7	13/	19/19/19					BNF	/C SAN	D, SO C		
												•1		y angular		
- 1		 			 											
10					 -					1						
	03			24/24	10-1.	2 9,	/8/9/11	ļ				lt GR	to BN	M/C SAND.		
}												3	Gravel		İ	
}					ļ			1								
15					 -			-				-	3			
	04			24/8	15-17	8/1	1/10/11					C SAI	boe Ok	M/C Gravel,	-	
-													Gravel	m/C draver,		
-					ļ				1					ottawa Sand I	8	1
20			$\neg +$									S86S 1	op of se	creen 20'		
	05			24/6	20-22	18/2	24/21/18	B	1			C SAN	iD and A	M/C Gravel, S		
-														F/M Sand	Ί	- 1
-								H								
25								B								-
	06			24/8	25-27	26/2	6/18/23	H		20		F/C G	RAVFI	SO BN		
<u> </u> _								日				F/C Sa		30 B(1		1
-								Ħ				ч				1
30			_					H		15		5965 0			1	-
	07			24/9	30-32	20/8	/11/13	Н	ŀ				ottom o C SAND	f screen 30'		2
												F Grav		, IK		
-												-5				1
RANUL	AR SOII	S PROP	OR TIO	NS I	ADDDE	VIA TIONE										- 1
ows/Ft 4 10 - 30 - 50		ty to the second of the second	JSED TR) (LI) [0-10% 10-20% 20-35% 35-50%	F-Fine M-Medic C-Coars F/M-Fin F/C-Find V-Very GR-Gray	e e to Mediu e to Coarse /	m ‡						•	,	·	
					BN-Brow YEL-Yel	'n										

S86S sealed in overburden with cement/bentonite slurry from 18' to GS.
 S86S borehole backfilled with cement/bentonite slurry from 62' to 30.5'. .5 ft of Ottawa added at top of slurry for a total depth of 30 ft.



TDD No. F1-8409-01 Sheet 2 of 2

Hole No. S86

Location

300 ft South of Well G

		ROC	K		SOIL		1		
Depth	Sample No.	Core/Rec (in)	RQD	Pen/Rec (m)	Depth Interval (ft)	Blows/6"	Well Construction	Stratum Description	Note
35								No Sample due to running sands	
40									
	0.8			24/4	40-42	16/9/8/9		BN F/C SAND and F/C Gravel	
45	09			24/9	45-47	8/1/3/8	H ····································	BN F/C SAND, TR F Gravel S86M Top of Ottawa sand 45'	3
50	10			24/12	50-52	2/2/5/8		S86M Top of screen 47'	
55								S86M Bottom of screen 52	4
-				1/0	55	120		dk GR - TILL	
60	11			6/6	60	185	5000 5000 5000 5000	9	
65							00000000000000000000000000000000000000	1 ()	
-							00.00 00.00 00.00 00.00 00.00		

^{3.} S86M sealed in overburden with cement/bentonite slurry from 45 to GS.

^{4.} Borehole backfilled from 62' to 52.5'. .5' of Ottawa sand added at top of slurry to a total depth of 52'.

-		JU !	3		- 1	aject				TDD N	o.	Sheet	Hole No.
	A Hal	DRPORATION Comp	DN Jany) ——	Vells G & H	Remedial	Investig	gation	F1-8	Angle	from Horiz.	\$63
			· · · · · · · · · · · · · · · · · · ·						ot 200 W-Cum	mings	78	Vertical	
Begun		Completed	Drille	er		Drift M.	ike & Mode	l	Hole Dia.	Overbur (ft)	den	Rock (ft)	Total Depti
·	v 85 Recove	3 Nov 85		falo Drillin		CME 5		-la	3.5 ID	22'		14'	36
i .	0	y (i c)	(,3)	re B 💆 🥇	Samples 5	El. Top o	Coasing	i	und E1. 35 70.04, 563D	69.52		Depth to T	op of Rock
Sumpl	e Hami	ner Weight/F.	ili	k.	Casing	Sch 80 PVC	1.5" I.D.			spector		<u> </u>	
	1401	bs/30"		· · · · · · · · · · · · · · · · · · ·	Screen	0.010 slot			Anı	gers			
	s a mal	ROC e Core/Rec	<u>K</u>		Depth								
Depth		(in)	RQD	Pen/Rec (m)	Interva (ft)		¥\$/6"	c	Well onstruction		Stratum	Description	Note
	01			24/12	0-2	10	/7/7/7		, A	Fill: 0	Dark BN	to BN sandy AVEL, some	
	02			24/8	3-5	6/8	3/11/11			PEBB	LES Same as		
			i	ļ					💥				
5									🐉				
	03			24/24	8-10	15/3	0(2) (52						
				24/24	3-10	15/2	0/31/52		8	depth.	CtoF	AND, fining	1
10]							2635	op of O	ttawa Sand 9	" '
					 						_		
				13 1/2/8	13-14.	2 15/	20-4"	白	0003	M/C S	AND	reen 1 <i>2</i> * 2*, COBBLES	
15					 			H		Kelus	11 41 14.	z, COBBLES	
.,								Ħ					
	05			24/4	18-20	6/26	/25/32			F to C	SAND	TR Pebbles,	
								Ħ		TR Sil	t	ric repotes,	
20		 -		<u></u> -	 -								
-										BEDRO	OCK: Ro	f Screen 22 ^t Her bitted	
}		 -			 -				7 4	from 2 contain	2' to 26'. ed high!	Wash Vangular	
25									200	🕒 some w	/weathe	articles red faces.	
ŀ				·	 				占 淡	fractur	k is inter ed. on of Ott	nsely tawa Sand 24	μ' 2
-									月 ※	\$63D to	op of scr	een 26'	
_ -			-						日	•			
30									甘			_	
<u> </u>			\dashv						日 🔆				
GRANUI	AR SC	oll S op O	PORTIC	7576	10000				目				
Blows/Ft 0-4	Dens	iity	USED			VIATIONS	<u> </u>		H :::	S63D B	ottom of	screen 36'	
4-10 10-30		ose Truce ose Little lense Some (0-10% 10-20% 20-35%	F-Fine M-Medic								
30- 50 > 50		nse And		35 30%	C-Coars F/M-Fin	e e to Medim e to Coarse	13						
					V-Very GR-Gray			ů.					
					BN-Brow YEL-Yel	/n							
l. Well. 2. Well:	S63S se sealed i	aled w/2 foot	layer o	f bentonit	e pellets f	rom 8' to 1	0'. Natural	backfil	I to ground su	rface.			

aled in bedrock with 3 to 1 (by weight) cement to bentonite slurry. Slurry brought to ground surface.

<u> </u>	FI	JUS	3		Pro	ject			į	TDD No) .	Sheet	Hole	e No.
		PORATI			W	elis G & H Reme	dial Invest	igation	1	F1-840	9-01	1 of 2	S6	64
	A Hallil	burton Comp	oany		Lo	ation Mass Rifle As	ssn			<u> </u>	Angle	from Horiz. Vertical		
Begun	C	ompleted	Drills	≥ r		Drill Make & A	lodel	Hol	e Dia.	Overbur	den	Rock (ft)	Total	Depth
			NE	3C		Mobile B-47		1 :	3.5	(ft) 35'		20'	55'	
Core f	tecovery O'	(ft)	Co	re i) As S	umples 8	El. Top of Casin		ound E 54S 57.	1. 58, S64M 5	7.74, S64	D 57.83	Depth to 1	Top of I	Rock
	: famme :40 lbs/3	er Weight/Fo	111		Casing Solid Sc Screen 0	ch 80 PVC 1.5" [.	D.	T	NUS Insp Baldyga	ector		<u> </u>		
		ROC	K		501	L	T		1 33,62					
Depth		Core/Rec (in)	RQD	Pen/Red (m)	Depth Interval (ft)	Blows/6"		We Constr		S	itratum	Description		Notes
	01			24/14	0-2	1/1/2/3	 	<u> </u>	(3.000)	₹ F/M	BR SAN	ND		
							1							
]							
5					 		1							
j	02			24/16	5-7	6/11/8/5	1				BR SAN	.		
]			F/M	DK SAN	ib		
					·]							
10					 		1	1		:!		Ottawa sand	וי9י	
	03			24/10	9-11	11/9/8/12	1 占			è		Screen 10'		1
}							1 月				BR SAN C GRA	•	- 1	
					ļ <u>.</u>						o dia			
15					<u> </u>						_			
	04			24/10	14-16	21/17/18/14				4.6		of Screen L		
-					<u> </u>					*2		r C Gravel	16	
					 							ř		
20														
]-	05		-	24/6	19-21	17/15/21/18				M/C D	ark BN	SAND, som		
}				 -						F Grav		, , , , , , , , , , , , , , , , , , , ,	•	
25														
}	- 06			24/9	24-26	31/21/17/18				It BN 1	to tan F	SAND, LI		
F							_	<u> </u>				d Gravel-		
							E]		Sand-C		ottawa Sand	25	2
³⁰ -							F]				rtawa Sand Creen 27'	2)	
-	07		 	17/14	29-31	51/57/100-5	E]		i		and SILT,		
					·		Ę	ן ד		LI Grav		45	.	
RANIU	AR SOII									364M B	ottom o	of Screen 32		
	AR SOII		PORTIC USED	אאי	ABBREVI	ATIONS	*****		······································				<u> </u>	
.4 -10	V. Loc	se Trace	(TR)	0 - 10% 10 - 20%	F-Fine M-Mediga									
)- 30 - 50	M. De Den	nse Some (5(7)	29-35% 35-50%	C-Coarse									ļ
50	V. Der)0 0	F/C-Fine	to Mediam to Coarse								
					V-Very GR-Gray									
					BN-Brown YEL-Yello									

Well 5645 sealed w/2' bentonite pellet layer from 7' to 9'. Natural backfill from GS to 7'.
 Well 564M sealed from GS to 25' with 10 to 1 (by weight, estimated) cement to bentonite slurry.



Project TDD No. Sheet Hole No.

Wells G & H Remedial Investigation F1-8409-01 2 of 2 564

Location

Mass Rifle Assn

		ROC	`K		SOIL			1	7
Depth	Sample No.	Core/Rec (in)		Pen/Rac (m)	Depth Interval (ft)	Blows/6"	Well Construction	Stratum Description	No
5		60/60		 	 -			1	
0		<u> </u>				Blows/6"		Stratum Description Highly fractured Salem Gabbrodiorite - very angular - brecciated some gouge observable. S64D Top of Ottawa sand 38' S64D Top of Screen 40' Highly fractured Salem Gabbrodiorite S64D Top of screen 40' less fractured Salem Gabbrodiorite More competent Salem Gabbrodiorite S64D Bottom of Screen 55' E08 - 56'	No.

REMARKS:

3. Well S64D sealed from G5 to 38' with 10 to 1 (by weight, estimated) cement to bentonite slurry.

) !		املا	6 C & U D	. 4: 4 •				TDD No		Sheet		Hole
		liburton Co			ŀ	Locut	ion.	edial In	vestig	ation		F1-8	409-01	1 of	2	
			, ,			201.31	Behind 300	₩. Cum	mings	Bide			Angle	from Hor		
Regun	T	Completed	D	riller			Drill Make &				Dia.	Overbur	den	Vertical Rock (ft)		
10.51		1041 04				İ					.,,,,,,,	(ft)	uen	ROCK (IT)	T	otal
	ecover	18 Nov 85		Buffalo	7		CME55			3.	.5	36.4		20		56.4
		y (11)		Core Bxs	Samples	E	l. Top of Cas	ng	Grou	nd El.				Depth to	Top	of R
20 ainole		er Weight/	<u></u>	2	7				S65	5 76.7	8, S65M 7	6.98, 565	D 76.89			
	40 lbs/3		1-011		Casin Solid		80 PVC 1.5" I				NUS Insp	ector				
	10 103/ 3				Scree	n 3011.0	.010 slot				Ange	rs/Baldy;	ga			
	ĺ	RO	CK			SOIL		T		1						
	Sample		c	Pen/Re	nep Inter			7				1				
epth	No.	(in)	RÇ		(ft		Blows/6"		Со	Well nstruc		,	tratum	Description		Ι.
		 											er a cum	Description	JN	1
ŀ	01			24/8	0	- 2	12/10/10,	/7	1	1	NGS	Fill: S	andy lo	am, some		+-
ŀ		 							- 1	í	- 25 2 2 600 00 0	C Gra				1
ŀ		 	┪──					1				*1		Ottawa Sar	nd 3'	
ŀ	^-	f	+	- 				↓ ↓	.	i						
5	02	 -	+	24/1.7	2- -3-	-5	6/8/8/9	↓ E				BRM	SAND a	ınd Gravel		
f		 	1-					-		- 1						
<u> </u>		 	 					- F								
			 				 	┧ば								
	03			24/10			0/10/10/10	1 1	- 1							1
0				24/10	8-	10	8/10/12/2					F/M SA	ND, S	Silt, TR		
								1 8		İ		Clay, T		.ei		l
								1 🎞				COBBL	.63			-
							 	1 1								
. -	04			24/6	13-	15	9/11/10/19					F/11.64				
5							1 1/24/20/27	1 出				Clay, T	ND, SC R Grav	Silt, TR		
]_								1 H				COBBL	ES			i
				_				I FI	- 1							
-																
, -	- 05				18-2	20	12/23/40/45		1					Silt, TR		
-			·	ļ	-	-			-	-		Clay, Ti	R Grave	el .		
-				 	- 			Н	-							
				 				\Box		1						
	06				 				-			F/M SAN	ND. SO	SILT, TR		
-	78			24/10	23-2	5	17/19/26/3					Clay, TR	C Grave	1		
	07			24/11	26-2		22/15/15/1							tawa Sand	25	
					40-20		23/15/12/10		占			S65M To	p of sci	een 27'		
					 				H		O .					
_									Ħ	1	0	0 17				
									口			Boulders to 37.4'	and Co	bbles		
-			I						H		البان	LU 3/.4'				
-									H	1	1					
VIII A	R SOIL	5 000	1 310.4	LINE					Ħ		0					
	Densit		USED		ABBRE	:VIATĒ	ONS									
	V. Loo	se Trace	(SiT)	0-10%	F-Fine											
)	Loos M. Der			10-20% 20-35%	M=Medi C=Cour											
)	Dens V. Den	e And	•	35.50%	F/M-Fir	ne to N	Jedium									
	4.1Jen	3 C			F/C-Fii V-Very	ie to C	Coarne									
					GR-Gra											
					BN-Bro- YEL-Ye											
					· C											

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	Project	TDD No.	Sheet	Hole No.
	Wells G & H Remedial Investigation	F1-8409-01	2 of 2	565

Location

Behind 300 W. Cummings Bldg

	[ROC	`K		SOIL.				T
Depth	Sample No.	Core/Rec (in)	RQD	Pen/Rec (in)	Depth Interval (ft)	Blows/6"	Well Construction	Stratum Description	No
35		60/60					ô	S65M Bottom of screen 37'	
								S65D Top of Ottawa Sand 39.2'	
۰0		60/60					THE THE STREET	S65D Top of screen 41.4'	3
							القالم المالية	Highly competent Salem Gabbrodiorite	
.5		60/60					14 15 C 15		
ŀ					7				
•		60/60							
-				-			TEMPT.		
5.4							THE ME	565D Bottom of screen 56.4	
-								EOB - 59.2'	
-									

3. Well S65D sealed with a 10 to 1 (by weight estimated) cement to bentonite slurry from GS to 39.2'.

F	出	UV	S			Proj	ect					TDD	No.	Sheet	Hole No
		DAPORA iburton Con			ļ		is G & H Remed	lial Inv	estigat	ion		F1-	8409-01	l of l	566
	A Hall	iourion Con	npany		1	Loca	tion 600 W. Cumm	At ings Pa	end of ark traf	fic is	sland		Angle	from Horiz	
Begu	n C	ompleted	Drill	er			Drill Make & M				Dia.	Overb	urden	Rock (ft)	Total Dep
			BDG	:			CME55	,		3, 5	5"	(ft)		23. 2	34.7
1	Recover	y (ft)	Co	re Bxs	Sample	s [El. Top of Casir	ng .	Ground	d El.				<u> </u>	Top of Roci
	0 le Hamm	er Weight/I	Fall	2	2 Casin				69.64					11.5	rop or Rock
	140 lbs/				Solid	Sch	80 PVC 1.5" I.D				NUS Ins				
	T	RO	CK		Scree	n0.01					Sandhau	5			
i	Sample	Core/Rec		Pen/Red	Dep			1							
Depth	No.	(in)	RQD	(in)	(f1		Blows/6"			Well struc	tion		Stratum	Description	Not
									1			Bark	mulch - r	no sample	
	-	 	ļ		_]			S7-45	collec		io sample	
		 						┨							
5	01			24/24	5-	7	13/24/36/40	1				BR F/	C SAND,	LI	
								1				F Gra			
															1
									}						
10	02			36 (26											- [
	- 02			24/24	10-	12	35/40/38/35		1			BRF	SAND, TE	R M/C Sand,	
					 				İ			TR F		d C-1	
15		60/60										Highly fractured Salem Gabbrodiorite begins 11.5			
" t		80/80										Wash s	ample hi	ghly angular	1
					 -		 -							ne particles ed faces.	ľ
-														d augered	
20		60/60			 			1	_				- Coring		
		- 55/55			-			F	7					orite fairly	
								F	1			compet		awa Sand	1.
F								E				17.7'	op or Ori	awa Janu	'
25		60/60			 								op of scre		- [
							 	h					Gabbrodic ence with	orite increas	ing
-								H				, in per	cince with	тоерат	
-					 										
30		60/60			ļ ———		 	В				Salem C	abbrodio	rite very	
-								日		ľ		compete		ine very	
<u> </u>								H		-					
								H		4	4.4				
	AR SOIL Densit		PORTIO	NS	ABBR	EVIAT	IONS	Н.			يعفقيا	66D Bo	ttom of s	creen 34.7	
4 10	V. Loos	e Trace		-10%	F-Fine										
- 30 - 50	M. Den Dens	se Some (50) 2	0-20% 0-35%	M-Med C-Coar	'se				•			•		
0	V. Dens		,	5-50%	F/C-Fi	ne to	Medium Coarse								
					V-Very GR-Gra										
					BN-Bro	wn									
197-11	5//5														
. #ell3	JOOL SEA	ied in bedro	ck from	17.7' to C	GS with c	emen	t bentonite slur	ry.							

		NU	5			Proj	ells G & H Reme	dial fo				TDD N		Sheet		fole No.
C	AHa	alliburton Com	pany			 	ilion		-				409-01 Apole	from Horiz	2	567
							Directly East Cummir		Wash om 20			Park	rugic	Vertical	•	
Begur	ec 84	Completed 10 DEC 85	Drill	ler BC			Drill Make & !			Hole		Overbur (ft)	den	Rock (ft)	To	tal Depti
ļ		ery (ft)			<u> </u>		Mobile B-4		T	<u> </u>	5"	54		21		75'
2				2	Sample 7	25	El. Top of Casir	g	ł	und El.		_		Depth to	Τυρ	of Rock
Sumpl	e Harn	iner Weight/F	اله		Casi	ng 1	S + 90 Suc + 5		367	15 83.23	, <u>567M 8.</u> VUS Insp	3.28, <u>567</u> ector	D 83.35	541		
1	40 lbs/	/30"			Scree	en	Sch 80 PVC 1.5' 0.010 slot	I.D.			Bald	yga .				
		ROC	`K		10.	SOI epth	<u> </u>	Ţ							_	
Depth	Sainp No.		RQD	Pen/Rec (m)	Inte	erval ft)	Blows/6"		C	Well onstruct	tion	s	tratum	Description	n	Notes
		-		18/18		1.5	12/11/12/1	5	l			Cover	Fill-San	dy loam		
				 				1						arse Grave	ı.	
] [5					
5	02					·						Ě				
				15/11	<u> </u>	6.25	100/110.5	1				a	SAND,	LI M Grav	el,	
								1				LI Silt				ļ
10		-		 					Ì							
	03			13/18	10-	-11.5	43/69/92	1	ı			BR M/C	SAND	LI M/C		
		 							- 1			Gravel,				
												compac	t, Cobbi	es at 127'		
15									1							
ł	04	 		24/12	15	-17	47/52/30/21		j					poon sampl	e.	
İ					 									ND, LI M		
}	····									ł				2" clayey EL very		
20	05	+		12/12	20.	-21	106/100/R					angular	6" GRE	EN BN C SA		
							108/100/R							T and F Grangular GRA		
ŀ		 -			ļ									awa SAND		- 1
25					 -			\perp		ŀ	::::::::::::::::::::::::::::::::::::::	5675 Top	of scre	en 24'		
-	06	 		14/14	25-2	26.2	41/52/120.3	H				Green-G	R SILT	and F SAN(o,	
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-								H	1		1 1	667M Top		awa Sand 3. en 33'	¹ '	
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310ws/Ft 0-4 1-10 0-30 10-50	V. L La M. F De	sity oose Trace oose Little dense Some ense And ense	(LI)	0-16% 10-26% 26-35% 35-56%	F-Fir M-Mc C-Co F/M- F/C-I V-Ver GR-C	ne edium parse Fine t Fine t ry iray										
					BN-B YEL-	irown Yello	.									

S67S sealed with 2 foot thick layer of bentonite pellets from 18' to 22', Natural backfill to GS.
 S67M sealed with cement/bentonite slurry from 31' to GS.



Project	TDD No.	Sheet	Hole No.
Wells G & H Remedial Investigation	F1-8409-01	2 of 2	567

Location

East Cummings/from 200 W. Cummings Park

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Depth	No.	(in)	RQD	(in)	(ft)	Blows/6"	ĺ		ruction		ľ
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EOB - 75'

S67D sealed with cement/bentonite slurry from 58' to GS

		OFFORA				Project Well	ls G & H Remedi	al Inv	estivatio	n	TDD No.		Sheet		
		lliburton Con			ŀ	Locat		111V			F1-840		lot		
							Along road bet	ween	G&H			Angle from Horiz. Vertical			
Began	- 1	Completed	Drill				Drill Make & Mo	del	Hol	le Dia.	Overburd (ft)	len	Rock (ft)		
	10V 85		L	DC			CME-55			3.5"	105		12		
Core I	?ecove	ry (ft)	Co	re BA	Sample	· E	I. Top of Casing		Ground E				Depth to		
		ner Weight/	الد		Casin	<u>к</u>			S68S 45.	18, 568D 4 NUS Insp			105		
1	40 lbs/	30"			Solid Scree	Sc	ch 80 PVC 1.5" [. 010 slot	υ.		Ange					
		RO	`K	<u> </u>	J	SOII.				1 Aug	1		·		
	Sampl	e Core/Red		Pun/Ried	Dep Inter				₩ e						
Depth	No.	(10)	RQD	(1.1)	(fi		Blows/6"		Constr		Stratum Desc		Descriptio		
	01			24/14		-2	1/1/2/5	- 1		2000	<u> </u>				
				ļ									inct strata BN F/M		
	92	+	 	3/./	- 						SAND,	TR Pea			
5				24/15	- 3	-5	10/11/10/5				sandy F	PEAT			
		-									It BN F	/M SAN	ND		
		-									ä				
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10	03			24/15	8-	10	8/10/10/9				It BN M	SAND			
ŀ		 						-			i Div w	JAND			
ľ		1							1				tawa Sand		
[-							1				S68S To	p of scr	een 14.5'		
15	04			24/12	13-	15	6/7/7/6	占			ŭI	SAND,	SO Gravel		
}-			∤					H				·			
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20	05				-			H							
20				24/15	18-2	20	9/17/17/22	H			No recov	ery			
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-								\Box							
25	06			24/0	23-2	5	7/8/8/7	\Box	ŀ		.,				
-							7,0,0,7	H	ŀ		No recove	ery			
	-							日							
					 		 	H							
30	07			24/0	28-30)	16/18/17/20	H			No recove	rv			
}-								\Box				,			
								H							
RANUE	1R 50	ILS PRO	101 109		4000	<u> </u>		<u>コ</u>							
ows/Ft	Dens	ity	USED		ABBR	EVIAT	IONS								
10	V. Lo	se Little		0-10% 19-20%	F-Fine M-Med										
)- 30)- 50	M. Dei	ise And		27-35°a 35-56°a	C-Coa F/M-F	rse ine to	Mediam								
50	V. De	nse		,	F/C-F V-Very	ine to (Course								
					GR-Gr BN-Br	ay									
					YEL-Y										



TDD No. F1-8409-01

Sheet 2 of 3

Hole No. 568

Location

between G & H

		ROC	K		SOIL				T
Depth	Sample No.	Core/Rec (in)	BÓD	Pen/Rec (in)	Depth Interval (It)	Blows/6"	Well Construction	Stratum Description	Not
40				24/0	38-40	15/15/17/20		No recovery	
45				24/0	43-45	15/15/16/14		No recovery	
50				24/4	50=52			S68S Bottom of screen 45'	
55						68/27/21/28		GR to Black C GRAVEL SO BN C Sand S68M Top of Ottawa Sand 52' S68M Top of screen 55'	
					55-37			NO SAMPLE ATTEMPTED DUE TO RUNNING SAND	2
60 <u>-</u> -				24/0	60-62	39/20/20/16		No Recovery	
5				24/0	65-67	200-3		No Recovery	

REMARKS:

24/14 69-71

17/59/75/150

GR to Black dense silty GRAVEL

2.) S68D sealed with cement bentonite slurry from 52 to GS



TDD No. F1-8409-01 Sheet 3 of 3

Hale No. **568**

Location

between G & H

									
		ROC	`K	<u> </u>	SOIL Depth				
Depth	Sample No.	Core/Ren (in)	RQD	Pen/Red (iii)	Interval (ft)	Blows/6"	Well Construction	Stratum Description	
							日 88	No SAMPLE	-
								140 SAMPLE	
ю									
								No SAMPLE	
5								M SAND and M GRAVEL SO	
_				24/11	85-87	+2/48/49/50		C SAND AND C GRAVEL highly angular, dull BN,	
								many Rx types	
0				_1/0	90	100,1 R		No RECOVERY - boulder	
-						100,1 R			
-						1	月 ※※		
5				26/10	25.07	76/112/		Sandy Till, dense GR	
-				24/10	95-97	104/92		angular Rx fragments TR C SAND, SO Silt	
-								and clay	
0						14/18/		·	
-				22/22	100-102	48/135/4		two distinct strata	
-								1.5' F SAND, .33' Till	
, -							日。沙沙		
		60/60						S68D Bottom of screen 105' Sedrock at 105'	
-								" Ottawa Sand cushion	
							1 1 14 3 . 7 3 1	Segan coring 107'	
MARK	S:			—- 		·	1 1 1 2 3 1	Dedham Granodiorite ighly competent	
								orehole backfilled to	
						Ĺ		orenote backfuled to 05' w/cement/bentonite grout	

•	A Hallit	PPOPAT burton Com	707		Project Well Locat	s G & H Remedial		ation	TDD No. F1-8409-01	from Horiz.	Hole No. S69	
Begun	C	ompleted	Dall	·ſ		Drill Make & Mode		Hole Dia.	Overburden	Vertical Rock (ft)		
-	- 1	18 MAR 85	i			Mobile B-53		3.5"	(ft)	!!!	Total Dep	
Core F	Recovery				imples E	I. Top of Casing	lc	nd El.	35	20	55'	
20	•	,		2	7	. rop or casing	75.4			Depth to To	pp of Ruck	
الإست	Harome	er Weight/F	اله		Casing Solid Se	-L 80 DVC L 60 L 70		NUS Ins	spector			
1	40 lbs/30)''				th 80 PVC 1.5" I.D. 010 slot		Go	lden			
		ROC	K		SOIL Depth			L				
Depth	Sainple No.	Core/Rec (in)	RQD	Pen/Rec (m)	Interval (ft)	Blows/6"	Co	Well enstruction	Stratum	Description	Not	
	01			24/19	0-2	5/18/11/12		**	F/M SAND	, SO Gravel		
5	02			24/21	5-7	40/21/30/41			M/C SAND TR F SAND			
10	03			12/6	10-11	100.6			0.000,00	GR SILT, SO F Sand (micaceous)		
15	04			13/13	15-16	60/60.1			GR SILT, SO) F Sand		
20	05			24/12	20-22	37/67/63/60		sti	GR F SAND, TR clay, TIL			
25	06			24/13	25-27	25/14/26/32		5.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00	GR F SANDY SO Gravel	r till, so		
10 -				1 2/6	30-31	83/120-R		00.000°	GR M SAND			
	AR SOIL Densit V. Loos Loos M. Den Dens V. Den	y ise Trace ie Little ise Some ise And	(5,7)	0- 19% 19- 29% 29- 35% 39- 59%	ABBREVIAT F-Fine M-Median C-Course F/M-Fine to F/C-Fine to V-Very GR-Gray YEL-Yellow	Medium	l	0,50	() _			



TDD No. F1-8409-01 Sheet 2 2

Hole No. 569

Location

Parking lot south of 200 W. Cummings Park

	ļ	ROC	K	ļ	SOIL Depth			
Depth	Sample No.	Core/Rec (in)	RQD	Pen/Rec (in)	Depth Interval (ft)	Blows/6"	Well Construction Stratum Description	Notes
40 45		60/60					Feldspathic granite highly fractured, Some mineralization along fracture planes Brecciated, meta granodiorite S69D Top of Ottawa Sand 39' S69D Top of screen 40' Increasing competence with depth S69D Bottom of screen 55' EOB	ı

REMARKS:

1.) S69D sealed with cement/bentonite slurry from 39' to GS

Begun 17 DEG		burton Comj			Wei	s G & H Remedia	ıl inves	tigati	F1-8409-01	11 08 3	S70				
	Ic		bany			ation						le from Horiz.			
		ompleted	Drille			25' West of Unit		.DG	T .		Vertical				
1	1	ompreted	NEBC			Drill Make & Model Hole Dia. Mobile 8-53 3.5"					Overburden (ft) 62'	Rock (ft) 20'	Total Depth		
ł	Recovery	/([t)	1		amples	5705-69.3						Depth to T	op of Rock		
Sample	e Hamme	er Weight/Fi	all		Casing					S70D-6		62'			
140	lbs/30"				Solid S Screen 0	ch 80 PVC 1.5" [.010 slot	D.			NUS Insp Golden					
		ROC	K		SO Depth	IL _			·1_						
Depth	Sample No.	Core/Rec (in)	RQD	Pen/Rec (in)	Interval (ft)	Blows/6"		Со	Well Instruct	ion	Stratu	m Description	Notes		
	01			24/4	0-2	4/5/6/7	 		1	MAG	Fill: F SANI	, SO C Sand,			
											SO F/M Gra				
5]						İ		
,	02			24/15	5-7	0/24/42/80					Fill: F SAND), SO C Sand, vel			
10							1				GR-Green F	SAND, SO F			
	03			10/9	10-12	28/100.4 R	1		j		Sand and Silt				
											TR Clay, TR	F Gravel			
15	04			24/17	15-17	28/29/42/51	占				GR-Green M Sand and Silt				
							H				Gravel, TR C				
							H								
20							日		Ì	ي ريز ن	Sandy Till hig	hly compact			
-	05		-	12/8	20	33/133/R	H			0000	F SAND, Silt	and Clay			
							Ħ			000					
25							H			000					
	06			8/8	25	33/100.2 R	H	1		1440.4		ndy Till - sand creasing with			
-							H				depth	J			
-							H			0000					
10							Н			ð: ¿C					
-										3.0.gr					
										30.0					
RANUL	AR SOIL	S PROP	011 NO	NS	Anover	ATIONS				0.00					
	Densit V. Loo	y	USED	-	ABBREVI	VIION2									
-10 0-30	Loos M. Der	e Little	(1,1)		F-Fine M-Medium	า									
0- 50 50	Dens V. Den	≅ And		35-50 %	C-Coarse F/M-Fine F/C-Fine V-Very GR-Gray BN-Brown										



Project

Wells G & H Remedial Investigation

TDD No. F1-8409-01

Sheet 2 of 3 Hole No. S70

Location

Unifirst Parking Lot

		ROC	K	<u> </u>	SOIL		1		
Depth	Sample No.	Core/Rec (in)	RQD	Pen/Rec (m)	Depth Interval (ft)	Blows/6"	Well Construction	Stratum Description	Not
	07			5/3	35	120.5		Sandy TIII	
				ļ					
ļ						 			
				<u> </u>	ļ 		ROC	<u>(6)</u>	
40	08			6/6	40	120		S70M Top of Ottawa 40' Sandy Till	
-			i 			ļ		S70M Top of screen 42	
						· 	$H \mid \mathcal{A} \subseteq \mathcal{A}$	0	
45								Sandy Till	
}	09			3/3	45	120			
ŀ						 		2	
								3	
50								Sandy Till	
}-	10			4/2	50	1 20	日 300	e S	
						 	H 000	070/	
-								1:0	
55	12							Sandy Till	
ŀ	12			6/2	55	120			i
							H I Sign	3	
60								o l	
-	13			3/3	60	120		Sandy Till	
-		60/60				120	7000	Bedrock at 62' 570M Bottom of screen 62'	
-							٥٠٠٥	Highly fractured felds-	
65					 -			pathic granite	
-		60/60			······	 		4 S70D T	
]_								4:	
]-							占 [[]		

NUS
A Halliburton Company

Project	
Walle C & H Damadial taxasis at	

TDD No. F1-8409-01 Sheet Hole No.

S70

3 of 3

Wells G & H Remedial Investigation

Location

Unifirst Parking Lot

	1	ROC		T				T	
Depth	Sample No.	Core/Rec	1	Pen/Ren (in)	Depth Interval (ft)	Blows/6"	Well Construction	Stratum Description	Notes
70		60/60						Less fractured Dedham (Granodiorite) highly fractured granite	
75		60/60						highly fractured granite	
80								S70D Bottom of screen 82' EOB - 83'	
85									
<u> </u>									

REMARKS:

All wells sealed with cement/bentonite slurry from top of sand to GS.

	出了		3		Proje				Wells G & H Remedial Investigation						
		DEPORATI burton Comp					ial Inves	stigatio	on	F1-84		1 of 2	571		
•	A 1 100	outon com	Jariy		1 -	Location					Angle	from Horiz.			
Begun	С	ompleted	Drill	er		Unifirst (front gate) Parking Lot Drill Make & Model Hole Dia.					Overburden Rock ((t) To				
i Feb	85		NEBO	2		Mobile B-53			3, 5"	(ft) 16.5			Total Dep		
Core F	Recovery	/ ([t)			Samples E	El. Top of Casi		Ground		16.7		Depth to T	42.7		
	Maria	er Weight/Fa		2	2					.39		16.5	op or Roci		
			ılı		Casing Solid Sci	1 80 PVC 1.5" I			NUS Ins			1. 18.2	· <u></u>		
140	lbs/30"	·			Screen 0.0	10 slot			Radvi	ile					
		ROC	к	 	SOIL Depth		\dashv								
epth	Sample No.	Core/Rec (in)	RQD	Pen/Rec (in)	Interval (ft)	Blows/6"			Well struction	2	itratum	Description	No		
				ļ						8					
					 		-								
							-			Š					
	01			24/24	5-7	27//7/77/07]					VEL, SO F/M			
				24/24	 '-'	37/67/77/87	-			Sand,	TR Silt				
							1								
,]					ttawa Sand 9	, l		
-	02			13/11	10-12	19/19/17/25	1		200			reen 11' C Gravel,			
							1 占			TR Silt		·/C Gravel,			
- }] 🛭								
-				·			↓ 片						1		
					 		$H \boxminus$: 5715 Be	ottom c	f screen 16'			
-		60/60					1 "			- 1		rom 16 1/2"			
-										. 1		g Boulders			
						 				Bedroci		5' ttawa Sand 2	01 2		
-		(0/(0							72.7	• 1	-	reen 22.7'			
-		60/60								Dedham					
 						 		f	与			ctured, some	!		
						 		E		-1-516.	3 4 6 1	micranized			
-		60/60						E							
						 				1					
								<u> </u>		İ					
-			-					F							
-		60/60				 		F							
						 		F							
VNIIE	AR SOIL	S PROP	ORTIO		1000000			F							
vs/Pt D	Densit V. Loo Loos	y ! se Trace (e Little (JSED TR)	0-10% 10-20%	ABOREVIA F-Fine M-Medium	TIONS									
30 50	M. Der Dens V. Den	e And			C-Coarse F/M-Fine to F/C-Fine to V-Very	Medium Coarse									
					GR-Gray BN-Brown YEL-Yellow										

√



	Project
ı	Wells G & H Remedial Investigation

TDD No. F1-8409-01

Sheet 20f 2

Hole No. 571

Location

Unifirst (front gate) Parking Lot SOIL Depth Interval (ft) ROCK Depth No. Core/Per Pen/Rec Well (in) RQD ((1) Blows/6" Construction Stratum Description Notes 60/60 Dedham Granodiorite 40 EOB 42.7'

NUS Insp	Overburden (1t) 116 0.00, S72D 50.16 eector yga/Sandhaus	from Horiz. Vertical Rock (ft) 21 Depth to To	Total Dep 137 op of Rock
ole Dia. 3.5" E1. 1.22, \$72M 50 NUS Insp Baldy	Overburden (It) 116 0.00, \$72D 50.16 Dector yga/Sandhaus Stratum Topsoil	Vertical Rock (ft) 21 Depth to To	137 op of Rock
ole Dia. 3.5" E1. 1.22, \$72M 50 NUS Insp Baldy	(it) 116 0.00, \$72D \$0.16 ector yga/Sandhaus Stratum Topsoil	Rock (ft) 21 Depth to To 116' Description	137 op of Rock
3.5" E1. 1.22, \$72M 50 NUS Insp Baldy	(it) 116 0.00, \$72D \$0.16 ector yga/Sandhaus Stratum Topsoil	Depth to To	137 op of Rock
E1. 1.22, S72M 50 NUS Insp Baldy	0.00, S72D 50.16 Dector yga/Sandhaus Stratum Topsoil	Depth to To	op of Rock
1.22, \$72 <u>M</u> 50 NUS Insp Baldy	yga/Sandhaus Stratum Topsoil	Description	
NUS Insp Baldy Vell	yga/Sandhaus Stratum Topsoil	Description	Note
Baldy	yga/Sandhaus Stratum Topsoil		Note
Vell	Stratum Topsoil Interlayered		Note
	Topsoil		Note
	Topsoil		Note
truction	Topsoil		Note
	Interlayered		
	Interlayered		
	'≱I		1
	'≱I	F SAND	
	퇽		1
1 2.50	<u> </u>		İ
	70 Janes M/G	CDAVE	
	2" layer M/C 13" layer F to		1
	SAND, some		
		AND SILT SO	
	VF Sand	v	
	1		
	GR F SAND A	ND SILT	
	CP F Sileu SAS	NID.	
	GRAP SHEY SAF	70	
\$40.			
	GR F Silty SAN	D D	}
			!
	•		
		,	
-		GR F SAND A	GR F SAND AND SILT GR F Silty SAND



Project TDD No. Sheet Hole No.

Wells G & H Remedial Investigation F1_8409_01 2 of 4 \$72

Location

GR F SAND AND SILT

Behind United Truck Leasing Bldg ROCK SOIL Depth Sample Core/Rec No. (in) Interval (ft) Pen'Rec Well Depth RQD (1.1) Blows/6" Construction Stratum Description Notes 35 24/18 35-37 6/8/8/9 GR F SAND AND SILT 40 09 7/9/9/10 GR F SAND AND SILT 45 10 24/24 45-47 6/8/10/10 GR F SAND AND SILT 50 50-52 3/4/13/10 GR F SAND AND SILT S72M Top of Ottawa Sand S72S Bottom of screen 54' S72M Top of screen 54.5 55 24/10 55-57 3/4/5/8 GR F SAND AND SILT 60 13 24/8 60-62 1/5/4/6 GR F SAND AND SILT

REMARKS:

14

24/4

65-67

1/1/4/5

65



Project TDD No. Sheet Hole No.

Wells G & H Remedial Investigation F1-8409-01 3 of 4 572

Location

Behind United Truck Leasing Bldg.

						Sentina Unitea	iruck Leasing bldg.		
		ROC	:K	<u> </u>	SOIL				
Depth	Sample No.	Core/Rec (in)	RQD	Pen/Rec (iii)	Depth Interval (ft)	Blows/6"	Well Construction	Stratum Description	Notes
70	15			24/12	70-72	7/7/8/9		GR F SAND AND SILT	
75	16			24/10	75-77	1/4/5/7		two distinct layers: 4" GR F SAND, TR SILT 6" Angular F/M GRAVEL	
80	17			11/11	80-81	35/125/5		GR F to C SAND, LI SILT	
85								NESTED BOULDERS CORED THROUGH BOULDER RETRIEVED Boulder cores and V C SANDS AND GRAVE	
90								576M Bottom of screen 92.5	L
95									
100							20.0000 0.0000 0.000000		
							000 000 000 000 000		

REMARKS:

1. No samples attempted due to running sands from 80 to 105 feet.



FDD No. F1-8409-01

Sheet 4 08 4

Hole No. S72

Behind United Truck Leasing Bldg.

		ROC	K		SOIL				
Depth	Sample No.	Core/Rec (in)	RQD	Pen/Rec (m)	Depth Interval ((t)	Blows/6"	Well Construction	Stratum Description	,
05	18			10/10	104-105	35-50/5	00.0	GR-GN SANDY TILL	-
10								NO SAMPLE	
15								Bedrock: Roller bitted 1 ft from 116 to 117 CORE 117 to 120 Green Chlorite Schist,	
20		36/36	5					purple stains from fe and Mg oxides, very weathered, highly fractured	
5		60/60	0					572 Top of screen 122* Highly fractured, brecciated green schist Green schist, much less	
,		60/60	55					fractured. Quartz veins filling fractures. Very highly fractured green	
2		24/22	0					schist. Both horizontal and vertical fractures. Green schist, less fractured than above.	
,								572D Bottom of screen 137' EOB - 137'	

					l		& H Remedia				F1-8409-01	l of 2
1	D A Halli	burton Com	pany			Locati	on outh of Charre	atte Bi	da		Angle	e from Horiz
Begu	in C	oinpleted	Drill	er	l		Orill Make & N			lole Dia.	Overburden	Vertical Rock (ft)
4 JA	N 85		NEBO	:			Mobile B-53			3.5"	([t) 36	20.5
Core	Recovery	([t)	Co	re Bxs	Sample	s El	. Top of Casin	g	Ground	El.		Depth to
20	1			2	7				S73S-52	.50 S73D	52.56	36
İ		er Weight/F	ali		Casir Solid	Sch	80 PVC 1.5" I.	D.	· · · · · · · · · · · · · · · · · · ·	NUS Ins	ector	
1	40 lbs/30"	т ——		T	Scree	en 0.01	0 slot			Ross		
	Same I.	ROC		 		SOIL pth		1				
Depti	Sample No.	Core/Rec (in)	RQD	Pen/Rec (in)		erval (t)	Blows/6"			Well truction	Stratum	n Descriptio
	01			24/8	0-	. 2	2/2/6/9			1888	LOAM	
]			8	
İ							+	1			2	
5	-03							1			3	
	02			12/10	5-	6	33/120 R]	:		It BN C SAN	
					-			1			S73S Top of	
								1				
10	03			18/6	10-1	1.5	8/8/7] ,			It BN C SAN	D and Cook
					+-			$ \Box$. 1	
										*	S73S Top of	
15	-							ᆸ				
	04			13/16	15-1	6.5	10/7/6				It BN F SAND	D. SO M Sar
											TR Gravel	-, · · · · · · · · · · · · · · · · ·
							<u> </u>					
20					+			日				
	05			24/23	20-2	22	1/3/4/6				It BN GR F S	AND
							<u> </u>	A				
					+			日				
25	06			24/19	-							
				24/17	25-2		2/3/4/4	H			It GR F SAND	
ŀ					 			Н			Sand, TR C 3	2110
30								Н				
ı	07			24/5	30-3	2	10/8/7/6	H			black green F	/M CD AVE
İ					 		***************************************	H			SO F/M Sand	/M GRAVE
<u>JRANC</u>	LAR SOI	LS PRO	PORTIC	NS NS	\ <u>\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ </u>	REVIAT	IONS				S73S Bottom o	of screen 35
	t Densi V. Lo	ty	USED (TR)									
4-10 19-30	Loo		(L1)	10-20% 20-35%		edium			•		·	
30 - 50 > 50	Den V. De	se And		35-50%		Fine to	Medium					
		.			V-Ve		Coarse					
						iray Brown Yellow						



TDD No. F1-8409-01

Sheet 2 2 of Hoto ¥o. \$73

Location

South of Charrette Bldg.

		ROC	K.		SOIL				
Depth	Sample No.	Care/Red (in)	RQD	Pen/Ret (in)	Depth Interval (ft)	Blows/6"	Well Construction	Stratum Description	Note
		60/60						Roller Bitted from 35 to 36'	
40								Began Coring at 36' green Schist, highly fractured and veined	
		60/60						S73D Top of Ottawa sand 39' S73D Top of screen 41'	2
45									
		60/60							
50									
		60/60						Green schist w/interfingered	
55								granodioritic material Possibly Dedham Granodiorite	
								\$73D Bottom of screen 56.5' EOB - 56.5'	
50									

-									
-									

REMARKS:

2. S73D sealed w/cement bentonite slurry from 39' to GS

	A Hailil	burton Com	pany		Loc	ation			<u></u>	Angle	from Horiz.	
						Behind NREC -	River side	of RR tracks			Vertical	
Rogur		oinpleted	Drille	er		Drill Make & M	odel	Hole Dia.	Overbur (ft)	den	Rock ((t)	Tota
15 JA	N 85	· · · · · · · · · · · · · · · · · · ·	NEBC			Mobile B-47		3.5"	67.5		21	88.
Core	Recovery	(ft)	Co	re Bxs	Sunples	El. Top of Casing	g Gro	und El.			Depth to T	op of
Sample	e Harnme	er Weight/F	211	2	13 Casing	<u> </u>	5748	M-47.96 574D-4			67.5	
1		_	a.r.		Solid	Sch 80 PVC 1.5" [.1	D.	NUS Ins	pector			
14	0 lbs/30"					0.010 slot		Demo	rest			
		ROC	1	 	SC Depth		1					
Depth	No.	Core/Rec (in)	RQD	Pen/Rec (in)	Interval (ft)	Blows/6"		Well Construction	\$	Stratum	Description	
	01			24/6	0-2	1/0/2/4		1888	DK B	N organ	nic rich soil	+
	ļ	 							8	-		
	ļ											
5									S			
	02			24/18	5-7	31/40/42/41			BNC	SAND,	SO C Gravel,	,
										er fragn		
					 				5745	op of s	screen 8.01	
10												
	03			24/10	10-12	19/20/21/24	月		1		and C angular	.
					-		\Box		gravel			
					 		-					
15							口					
	04			24/8	14-16	1/5/9/7			• 1		LT GR Clay,	1
					 				TRM	SAND a	and M Gravel	-
					 							
20	05			21.71.2								
			-	24/12	19-21	5/6/5/5					T and Clay	
ļ				·	 				LTFS	and		
Ţ									•			
25	06			21.41.0			-					
ļ	76			24/18	24-26	6/4/4/6	口		GR-Gr micace		SAND, highly	
									micace	ous		
30		T					Н					
~ }	07			24/24	29-31	1/2/4/4	口		66.6		AND CO	
ŀ						-/2/7/7	口		Clay as		SAND, SO TR M	
							Н		Gravel	-		
GRANU	LAR SOL	LS DRA	JI SOU	185	A 13 O 13 15	(ATINE	H					
Blows/F	Densi	ty	USED		MODREV	IATIONS	-					
0-4 4-10 10-30	V. Loo	se Little	(L1)	9-10-3 10-30%	F-Fine M-Mediu							
30-50	Den			20-35% 35 - 50%	C-Coarse F/M-Fine	to Medium		•				
> 50	V. Dei	nse			F/C-Fine V-Very	to Coarse						
					GR-Gray BN-Brow							



Project	TDD No.	Sheet	Hole No.
Wells G & H Remedial Investigation	F1-8409-01	2 of 3	\$74

Location

	T						er side of RR tracks - in the woods	
T epth	Sample No.	Core/Ren (in)	· · · · ·	Pen/Rec (m)	SOIL Depth Interval (ft)	Blows/6"	Well Construction Stratum Description	
	08			24/12	34-36	1/0/1/1	GR-Green F SAND, and	
							YEL-BN F Sand, highly	
	<u> </u>		ļ ——	 			micaceous	
0		 	 -	 -				
	09			24/18	39-41	8/5/7/12	GR-Green F SAND, and	
							YEL F Sand w/iron	
				ļ			staining - micaceous	
¥5					 	-		
	10			24/24	44-46	9/12/18/22	GR-Green F SAND, SO	
							YEL BN F Sand	
io						_		
	11			24/14	49-51	9/16/26/41	AN E/M SAND	
							BN F/M SAND, micaceous	
5						- -		
Ī	12			24/24	54-56	3/8/11/15	GR Gray F SAND, I" orange	
[.							BN band at 55', It BN F	
].							micaceous Sand	
,								
-	13			24/7	59-61	0/14/52/24		
						0/14/32/24	Green clayey SILT, LT F Sand, TR M Gravel	
-							Janu, IR w Gravei	
-								
]-						 	No split spoon due to	
						 	running sands	
]							Wash: GR C SAND, angular Bedrock at 67.5	
L		36/36		T			Coring begins at 68.5	



Project TDD No. Sheet Hole No. Wells G & H Remedial Investigation F1-8409-01 3 of 3 574

Location

Behind NREC building

	,					ehind NREC build	···o	· · · · · · · · · · · · · · · · · · ·	
		800	`K		SOIL				
Depth	Sample No.	Core/Rec (in)	RQD	Pen/Red (in)	Depth Interval (ft)	Blows/6"	Well Construction	Stratum Description	Notes
70								S74D Top of Ottawa Sand 70'	
		60/60						S74D Top of screen 73'	2
75									
		60/60						highly fractured schist	
80									
		60/60							
35	·								
		24/24							
8.5								S74D Bottom of screen 88.0' EOB 88.5	
	-								

REMARKS:

2. S74D sealed in bedrock with cement bentonite slurry from 70' to GS. All wells sealed with cement/bentonite slurry from top of sand to GS.

		OFF	PORATI	20		Wei	ls G & H Remed	ial Inve	stigatio	on ,	TDD No.		Sheet of	
	АНа	llibur	ton Comp	bany		Loc	ation Weyerhaueser	Lumbe	ryard			Angle	from Horiz. Vertical	
Beg 9JAN		Com	pleted	Drill NEBC			Drill Make & Mobile B-53		ŀ	Hole Dia. 3.5"	Overbur ([t)	den	Rock (ft) 20	r
20'	Recove				re Bxs S	Samples 14	El. Top of Casi	ng Sr	\$75 3405 \$75\$-57	7.00 S75D	-56.89	-	Depth to T	υр
ľ	e Harni O Ibs/30		Veight/Fa	ıll		Casing Solid Screen	ich 80 PVC 1.5" 1.010 slot	.D.		NUS Ins	•		.1	
			ROC	K		SO	IL	 	 -					
Depth	Sampl No.	e C	ore/Rec (in)	RQD	Pen/Rec (in)	Depth Interval (ft)	Blows/6"			Well struction		Stratum	Description	
		-						1			Fill - N	No samp	le collected	_
i I		\pm			 	┧		-			From 0	-2		
į								1			8			
5	01	-			24/20	5-7	10/9/9/9	-				NID TI	R Gravel and	
		\bot]			pebbles		K Graver and	
		╁						Ì						
10								1						
	02	╂			24/18	10-12	14/14/17/17				2 71		iravel, TR	
						 		1			Pebbles	, Iron s	taining	
.		┼												
15	03			\dashv	24/8	15-17	8/8/10/10				C SAND). SO G	RAVEI	
-												, 3 0 u		
-		 												
20	- ^-													
-	04	-			24/20	20-22	4/4/5/7				C SAND), SO Pe	ebbles	
											LI Silt			
25														
	05				24/15	25-27	7/11/13/14				GR M/C	SAND,	TR	
F											Gravel,		tawa Sand 28.	•
,											576S To			ر.
30	06			$-\Gamma$	24/24	30-32	3/3/7/10	白			M SAUS		CAND	
							2,2,1,1	日			M SAND TR SILT		חמועכ	
}-				-				日						i
RANUE				जर गंउ	NS I	ABBREVI	ATIONS	1	-]			
Nows/Ft -4 -10 0-30 0-50 50	V. Lo Lo M. D	ose ose ense nse	Trace (Little (Some (S And	LI) 50)	0-19% 10-29% 20-35% 35-50%	F-Fine M-Medium C-Coarse F/M-Fine F/C-Fine V-Very GR-Gray BN-Brown	to Medium to Coarse							



	Project	TDD No.	Sheet	Hole No.
	Wells G & H Remedial Investigation	F1-8409-01	20f 3	\$75
1	Location			

Weverhaueser Lumbervard

				·		Weyerhaueser	Lumberyard			
		ROC	К		SOIL					
Depth	Sample No.	Core/Rec (in)	RQD	Pen/Rec (in)	Depth Interval (ft)	Blows/6"	Well Construction	1	Stratum Description	Notes
	07			24/21	35-37	7/6/7/11		300	M SAND grading to F SAND,	<u> </u>
									TR Silt S755 Bottom of screen 44	
40	28			24/20	40-42	7/12/12/13		:::::::	F/M SAND, TR Silt	
45	09			24/24	45-47	10/13/13/15			M SAND, LI F Sand, TR Silt	
									S75M Top of Ottawa Sand 48' S75M Top of screen 50'	
50	10			24/24	50-52	5/7/9/8			M SAND, TR F Sand	
55	11			24/21	55-57	9/9/10/13			M SAND, LI F Sand, TR Silt	
60	12			24/24	60-62	4/4/6/7		F	F SAND, TR Silt	
65	13			24/24	65-67	13/13/14/15			CLAY, SO Silt	
	<u>:</u>									



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Location

Weyerhaueser Lumberyard

	ROCK				SOIL				
Depth	Sample No.	Core/Rec (in)	RQD	Pen/Rec (in)	Depth Interval (ft)	Blows/6"	Well Construction	Stratium Description	No
70	14			24/18	70-72	18/17/14/16		M/C SAND, SO Silt	
75		60/60						S75M Bottom of screen 75' Highly metamorphosed quartzi and schists. Moderately	te
80		60/60						fractured secondary quartz veins present. S75D Top of Ottawa Sand 79' S75D Top of screen 80'	
5		60/60						Highly metamorphosed sedimentary rock Highly fractured w/no quartz filling. Some fractures are very weathered	
- - - -		60/60						Moderately fractured meta- edimentary rock Green white to purple	
- - - -		60/60							
								75D Bottom of screen 95' OB 95'	

	田」	VU	5			roject	TDD No.		Sheet		
	AHN	JHPORA liburton Con				Wells G & H Remedial Investigation				F1-8409-01 1 of 5	
•	A nai	NOUNDER CON	npany		Lo	ocation	Angle from Horiz.				
Begun	gun Completed Driller					Behind FJL Dis			1-		Vertical
			-			John Make &	iogei	Hole Dia.	Overbur (ft)	rden	Rock (ft)
-		3 JAN 85	NEBC			Mobile B53		3.5"	130		20
Core	Recover	y (tt)	Co	1	Samples	El. Top of Casir	-	und El. S76D	-52.98		Depth to T
Sample	e Harnm	er Weight/			21 Casing	<u> </u>		-53.45 S76:M	-52.39		130'
1) ibs/30'	_			Solid	Sch 80 PVC 1.5" [. 0.010 slot	٥.	NUS Ins Sandh	pector laus/Golde	en	
	ROCK		CK	K		OIL.					
	Sample	Core/Red		Pen/Rec	Depth		1		ļ		
Depth	No.	(in)	RQD	(in)	(ft)	Blows/6"	c	Well onstruction	,	Stratum	Description
	 	 					<u> </u>				Description
	01	 	 	24/7	0-2	3/27/20/34	1 1		It BN	F/M SA	ND
		 	1								
		 					 				
5					 		1				
	02			24/24	5-7	3/14/16/21	1 1		1 1		
		 							(2) 1	SAND water t	and SILT
		ļ							Delow	watert	able
		 			- 						
10	.03			21.121					A		
İ				24/24	10-12	11/6/8/13			It BN F	SAND	and SILT
					 				<u> </u>		
									S-76S T	Top of C	Ottawa Sand
15									it BN SI		
-	04			24/22	15-17	9/10/16/17	白	, skew			creen at 15'
-			-		 -		H I			OP 01 3	arcental 19
-					 		日1				
20					 		日		}		
	05			24/17	20-22	8/8/11/14					D, Prominent
						5/8/11/14	\Box		Iron stai	ining 20)- 20 . 5'
-									·]		
-											
25	 +				<u> </u>				Three di	iscernat	le strata
-	06			24/24	25-27	9/12/14/19			,		BN SAND an
							日		SILT		
						+	H I	William.			N F SAND
30	- I							22.00	1		N SILT and
-	07			24/21	30-32	10/8/5/6			F SAND		a
-			_						ILL DA F S	OMNL) S	ome SILT
<u> </u>							E I				
RANUL	AR SOII	-S PRO	PORTIO	/2 	ABBREV	IA FION'S	上上				
llows/Ft	Densi	ty	USED		. 151 AC V	0.11 U/143					
-4 -10	V. Loo	se Little	(TR) 0 (LI) I	- 1076 0- 20%	F-Fine M-Mediur	n					
	M. De		(SO) 2	0-35%	C-Coarse						
0~30	Den										
0-30 0-50 50	V. Der		,	J- J'). o	F/C-Fine	to Medium to Coarse					
0- 30 0- 50			,		F/M-Fine F/C-Fine V-Very GR-Gray	to Medium to Coarse					



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Hole No. S76

Location

Behind FJL Distributors Bldg

		ROC	ĸ		SOIL					1
Depth	Sample No.	Core/Rec (in)	RQD	Pen/Rec (in)	Depth Interval (ft)	Blows/6"		Well Construction	Stratum Description	N
35	08			24/24	35-37	8/8/7/10	 	1 1 50523	It BN F/M SAND, TR Silt	igspace
	! 						1		biotite and muscovite	
							18		plates visible	
				ļ][
40							旧			
**	09			24/24	40.42	112/5/5	日			İ
				24/24	40-42	4/3/5/6	H		It BN F/M sand, TR Silt	
						- 	出			
ļ						-	甘			l
45										
}	10			24/24	45-47	5/4/6/6]		It BN F SAND and SILT	
ŀ										
							IH .			
50						 				
	11			24/24	50-52	8/7/8/9	H		It BN F SAND and SILT	
						1	l H		IT DIN F SAND and SILT	
-							8			
55							日			
"	12			24/24	55-57	2/2/12/12	H			
-				24/24))-)/ ————	9/9/10/15	出		It BN F SAND and SILT	
						 	Н			
						†	\Box			
60							\Box			
-	13			24/23	60-62	8/13/13/17	\Box		BN M SAND, some F SAND,	
							H		little SILT	
-						ļ]	Ħ			
55 -						 -			6760	
	14			24/20	65-67	5/5/8/9	=		S76S - Bottom of scren 65' It BN F SAND and SILT	
									TO SEE SUITE AND SEE I	
		l_								



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Hole No. \$76

Location

Behind FJL Distributors Bldg.

				1					
Depth	Sample No.	ROC Core/Red (in)	RQD	Pen/Rec (in)	SOIL Depth Interval (ft)	Blows/6"	Well Construction	Stratum Description	`
70	15			24/17	70-72	6/6/8/12		It BN F SAND and SILT	
75	16			24/20	75-77	7/7/6/10		It BN F SAND and SILT S76M Top of Ottawa Sand 75' S76M Top of screen at 78'	
30	17			24/23	80-82	7/10/14/18		BN F SAND and SILT	
35	18			24/22	85-87	5/9/15/12		BN F SAND, TR SILT	
0	19			24/15	90-92	4/6/8/11		BN M SAND, TR F SAND, TR SILT	
5	20			2/2	95-95	100		BN M SAND, TR F SAND, TR SILT NESTED BOULDERS	
00								NO SAMPLE NESTED BOULDERS	



Project	TDD No.	Sheet	Hole No.
Wells G & H Remedial Investigation	F1-8409-01	4 of 5	\$74

Location

Behind FJL Distributors Bldg.

	L	ROC	K		SOIL	1	_			
Depth	Sample No.	Core/Rec (in)	RQD	Pen/Rec (m)	Depth Interval (ft)	Blows/6"		Well truction	Stratum Description	Not
105							H			
	21			24/3	105-107	18/29/12/21	Ħ		BN M SAND, TR Gravel TR Silt	
110										
				24/0	110	100			NO SAMPLE	ı
							F			
115									NO SAMPLED ATTEMPTED	
							Ħ			2
20									NO SAMPLE ATTEMPTED	
										3
25									NO SAMPLE ATTEMPTED	
-										4
-		 -							Bedrock: META GABBRO-	
30 F		 +							DIORITE MODERATELY	
-		60/60					į		FRACTURED SOME	
-							-		FRACTURES QUARTZ	
\vdash								3200	FILLED	
-]	September 5	S76D Top of Ottawa Sand 133	
5									576D Top of screen 135'	
-		60/60							META GABBRODIORITE	
-	 -		+				F		HIGHLY FRACTURED W/SOME	:
		L				1	_] F	RACTURES QUARTZ AND	

^{1.} No sample due to running sands. Sands filled casing as much as 40' when tool string was retracted.

^{2.} No sample attempted due to running sands (see note 1).

^{3.} Same as note 2.

^{4.} Same as note 3.



Project TDD No. Sheet Hole No.
Wells G & H Remedial Investigation F1-8409-01 5 of 5 S76

Location

Behind FJL Distributors Bldg.

	r			т		bening 1 JE Di	stributors Bldg.		
	ļ	ROC	:K	<u> </u>	SOIL				
Depth	Sample No.	Core/Rec (in)	RŲD	Pen/Rec (in)	Depth Interval (ft)	Blows/6"	Well Construction	Stratum Description	Not
ļ							ALCO ALCO AND AND AND AND AND AND AND AND AND AND		
140		60/60				ļ	FAITING		
								META GABBRODIORITE HIGHLY FRACTURED	
145		60/60					3/2/3/3/2	META CARREDONICO	
								META GABBRODIORITE MODERATELY FRACTURED	
50								Bottom of S76D - 150'	
F								EOB	*
-									
-									
-									
-									
-									
							İ		

n	EM	٨		v	•
"	L.31	\sim	ĸ	•	•

*General Note: All wells backfilled with 10 to 1 (by weight) cement/bentonite slurry to ground surface.

	印了	UV	15			Proj	ect					TDD No	·.	Sheet	Hole	≥ No.
		OPPORA				Wells	G & H Reme	dial Inve	stiga	tion		F1-840	9-01	Lof 5	S7	7
U	и пан	iburton Cor	mpany			Loca						<u> </u>	Angle	from Horiz.		
Begun	C	ompleted	Dril	ler			Aberjona Aut Drill Make &	o Parts (NE C			T	<u> </u>	Vertical		
18 FE	B 85		NEB	c						1	e Dia.	Overbur (ft)	den	Rock (ft)	Total	Depth
	Recover	/ (ft)		ore Bxs	Sample		Mobile B53			3.		138.5		NA	138.5	5
	_			2	21	•	El. Top of Cas	•	577S	und El S-44.5	6 S77S-	44.73		Depth to T	op of R	₹ock
Sample	e Hamm	er Weight/	Fall	<u> </u>	Casin	ng P			577D	-44.89	NUS Ins	.44.69 Dector		130'		
140	lbs/30"				Solid Scree	Sci 0.0	n 80 PVC 1.5" 110 slot	I.D.			Baldy					
		RO	СК			SOIL				*****		, _				
Depth	Sample	Core/Red		Pen/Re	De Inte	pth rval		7		We.		İ				
рерип	No.	(in)	RQD	(in)	(f	t)	Blows/6"		C	onstru		s	tratum	Description	. .	Notes
	01		1	24/9	0	,	9/6/10/8	 -		T 1	PHOT			·		
				37/2		<u>. </u>	7/6/10/8	-				8				
ĺ			 	ļ												
]				Ž				
5	02		 	24/10	5-7	,	2/2/2/2	$\dashv \mid$								
				2.7.13	1 /-/		2/2/2/2	$\dashv \mid$	1			dk GR I			-	
								-	1					Ottawa Sand i screen 8'	"	
ŀ								自				3,,33	op or s	creen a		
° -	03			26.41.0]						
r				24/18	10-1		4/4/5/6	-				It GR F	SAND	, TR Silt	1	
								18				\$7786 B		of screen 13'		
- -								┤'ᢇ'				3//33 B	ottom	or screen 13'	İ	
` -]				It GR F	SAND,	TR Silt	1	
 -	04			24/24	15-17	7	2/2/7/8	4								
					-		+	-							Ì	
 -					1		 	1							İ	
· -								1								
-	05			24/18	20-22	2	1/4/5/7	1				It BN F	SAND,	TR Silt		
<u> </u>					 		 	1					·			
					-			-				S77S Top	of Ot	tawa Sand 23.	8	
_							 	1		1						ł
-	06			24/18	25-27		6/2/2/13	l E	l E			Dk BN F	/M SAN	ND, TR Silt	-	
-					 				1		1	S77S Top				
					 		ļ	=	#							i
							 		1							
<u> </u>	07			24/12	30-32		51/45/28/21	_	1					screen 30' SAND, SO F	ł	
-												SO F Sand			ĺ	
	IR SOILS	PRO	PORTIO	NS	ABBR	EVIAT	IONS				33.5					
ws/Ft	Density V. Loos		USED	0-10%												
0 30	Loose M. Dens	Little	(L1) I	0-20%	F-Fine M-Med	lium										
50	Dense	And		20-35% 15-50%	C-Coar	ne to	Medium									- -
	V. Dens	е			F/C-Fi V-Very	ne to	Coarse									-
					GR-Gra	ay										
					BN-Bro											
57755 -						- **										

S77SS sealed in overburden with cement/bentonite slurry from 7' to GS.
 S77S sealed in overburden with cement/bentonite slurry from 23.5' to GS.



TDD No. F1-8409-01 Sheet Ifole No.
2 of 5 S77

Lacation

Aberjona Auto Parts

 		ROC	346			7,000	1 4 13		
Depth	Sample No.	Core/Rec		Pen/Rec (in)	Depth Interval (ft)	Blows/6"	Well Construction	Stratum Description	Notes
	08			24/24	35-37	7/10/12/10		tan SIL T	
40									
, ,,	09			24/24	40-42	8/11/10/12	1 (1) (1) (1) (1) (1) (1) (1) (1) (1) (1	tan SILT	
45	10			24/24	45-47	15/13/15/17			
						13/13/13/17		tan SILT, more compact than above	
50									
F	11			24/16	50-52	15/21/27/34		BN F SAND and SILT	
55	12			24/24	55-57	13/15/14/18			
-						13/13/14/18		M/C BN SAND	
60									
-	13			24/24	60-62	12/13/19/19		F/C C GRAVEL, SO C BN	
-								SAND, grading with depth	
65	14			24/24	65-67	25/15/16/24			
-						27/17/16/24		M/C BN SAND	
FHARK	L		!_	<u>-</u> L		I	I I MARKET S	77M Top of Ottawa Sand 68'	3

REMARKS:

3. S77M sealed in overburden with cement/bentonite slurry from 68' to GS.



TDD No. F1-8409-01 Sheet
3 of 5

Hole No. S77

liburion Company Location

Aberjona Auto Parts

	<u> </u>	ROC	`K		SOIL					
Depth	Sample No.	Core/Rec (in)	RQD	Pen/Rec (in)	Depth Interval (ft)	Blows/6"	Well Constructio	on	Stratum Description	No
70							1 1	1001411000		
	15			24/24	70-72	35/30/22/27			M/C BN SAND	1
					ļ				S77M Top of screen 70'	
										1
75						-			\$77M B	
					1				S77M Bottom of screen 75'	
}							j j			
80										
	16			24/24	80-82	33/38/30/21			10" F/C SAND, 14" M/C	
						75/50/50/21			GRAVEL, TR M Sand	
-										
85										
•	17			8/6	85-87	147.8				
					07-07	147.8			F/M GRAVEL, SO C Sand	
L									ľ	
₉₀ -										
~	18			24/20	90-92	22/22/22				
				24/20		22/22/23/27			F/C SAND, TR Silt	
						1				
,, -									·	
" -					·					
-						 				
-						 				
								**		
00										
-	19			24/24	100-102	12/34/31/60			tan F silty SAND,	
-		 -					[200	very compact	



TDD No. F1-8409-01 Sheet 4 of 5

Hole No. 877

Location

Aberjona Auto Parts

		ROC	K		SOIL					
Depth	Sample No.	Core/Rec (in)	RQD	Pen/Rec (in)	Depth Interval (f1)	Blows/6"	Well Construction		Stratum Description	Note
105										
110	20			24/15	110-112	30/35/36/60			GR SILT, compact	
115	21			24/24	115-117	14/22/31/46	1 1 1 1 1		GR SILT, compact	
120	22			24/22	120-122	32/39/48/52			GR SILT, compact	
125										
130	23			24/0	130-132	4/6/38/27		s	No Recovery 177D Top of Ottawa Sand 130	4
135								l N	77D Top of screen 133.5' NESTED BOULDERS rom 130'	

REMARKS:

4. S77D sealed in overburden with cement/bentonite slurry from $130^{\rm t}$ to GS.



Project	TOD No.	Sheet	Hole No.
Weils G & H Remedial Investigation	F1-8409-01	5 of 5	S77
Location			

Aberjona Auto Parts

		ROC	`K		SOIL				
Depth	Sample No.	Core/Rec (in)	RQD	Pen/Rec (m)	SOIL Depth Interval (ft)	Blows/6"	Well Construction	Stratum Description	Notes
								\$77D Bottom of screen 138.5' EOB 138.5'	
140				ļ					
}									
							·		
-									
-									
-									
-		-							
EMARK									

		DEPORAT	DANY		}-	Well	s G & H Remed	al Inve	estiga	ition		F1-84	09-01	l of 4	S
•	7 A 1 10		ралу		İ	Loca	tion Beatrice Prope	rty					Angle	from Horiz. Vertical	
Begun	1	Completed	Drill	ler			Drill Make & N	odel		Hole D	ia.	Overbur	den	Rock (ft)	Total
16 JA	N 85	02 FEB 95	BDC	/NEBC			CME55/Mobil	e B53		3,5"		(ft) 90.5		20	110.
Core I	Recover	y (ft)	C	ore Bxs	Samples		El. Top of Casin	g	Grou	ind El.	·	1		Depth to T	
20	o Hama	ner Weight/F		2					S78D	-45.41	578D	-45.77		90.5	op 01 ((
		_	œ11		Casin Solid	So	ch 80 PVC 1.5" [.D.		N	US Insp	ector			
	0 lbs/30				Scree	n 0.	010 slot				Ross				
		ROC		 	Dep			1						· · · · · · · · · · · · · · · · · · ·	
Depth	Sample No.	Core/Rec (in)	RQD	Pen/Rec (in)	Inter (ft		Blows/6"		Co	Well onstructi	on	s	tratum	Description	
	01			24/14	0-	2	4/5/2/2			1		BN F/N	A SAND	, TR Silt	
				 	-										
				<u> </u>	+										
5												S785 To		tawa Sand 4	·
	l	 		ļ				ΙĖ	}				-P 01 3C		
	02	 		21/21	7-9	•	7/11/68/100.3	F	7						
					1		7/11/00/100.5		}			BN F S	AND, LI	Silt	
10								F	}						
}				····				-	1						
1	03	 		24/24	12-1	4	5/4/5/5	E	}					6 11.	-
[GR F S	AND, LI	Silt	
15								Е							}
ŀ					 			Ь							
	04			24/20	17-19	9	10/12/13/15	Н				CR and	BN E/M	SAND, TR	
<u>,</u> }								Н				Silt - int			
20					ļ			Н							
Ė					 			Н							
-	05			24/24	22-24		8/10/11/16	H				GR and I	3N F SA	ND, LI Silt	Ī
, -															
F												578S Bot	tom of	screen 25'	Ī
					 		1								
-	06		$-\!T$	24/24	27-29		2/23/27/40					BN VF SA	AND, LI	Silt	
。		 -			ļ					ļ					1
			_+				+								
\vdash	07			30.71.3	34 -										
-	-			24/12	32-34		2/50/52/50					BN F/C S	AND, L	I F/C Gravel	
RANUL			PORTIC	ONS	ABBR	EVIA	TIONS								
ows/Ft 4	Densi V. Lo		USED (TR)	0-10%	F-Fine										
10 - 30	Loc M. De	se Little	(L1)	10-20% 20-35%	M-Med C-Coa	dium							•		
- 50 0	Der V. De	ise And		35-50%	F/M-F	ine to	Medium								
					V-Very	/	Coarse					•	,		
					GR-Gr BN-Bro	own									
				ntonite pel	YEL-Y	cllow	,								

		VILI	9			Proj	ect					TDD No	ο,	Sheet		Hole No.
		OPPOPA				Wel	ls G & H Remedi	ial Inve	stiga	tion		F1-8	409-01	d f	3	585
Œ	A Ha	lliburton Con	npany		Ī	Loca							Angle	from Horiz	•	
Begun		Completed	Dri	ller			500 ft North Drill Make & M		Н	Hole	Dia	Overbur	14-2	Vertical Rock (ft)	т_	
_	EB 85	26 FEB 85	- 1	EBC			Mobile B-47				5"	(ft)	Gen	NA	110	otal Dep
Core I	Recove			Core Bxs	Sample	s	El. Top of Casing		Trou	nd El.				Depth to	<u> </u>	- (D)
N	٠			<u> </u>	11					1-46.0	9 S85S	-46.08		unkn		
	Hamr	ner Weight/ 30"	Fall		Casir Solid Scree	_ 6	ich 80 PVC 1.5" .010 slot	.D.			NUS Insp Ross				<u> </u>	
		RO			De	SOII										
Depth	Sampl No.	e Core/Red (in)	RQI	Pen/Red (in)		rval	Blows/6"		Со	Well nstruc ⊶		,	Stratum	Description	1	Note
	01		1	24/14	0	- 2	1/1/3/2		T	1		7.1	SAND,	SO M		
		+	 	-								Sand				
5	02	 	-	24/24		-7	7/11/12/14									
		 	 	1	+-		7/11/12/14					II BN	F/M SA	ND		
						······································)	11	>		
10		 	 													
İ	03			24/14	10	-12	3/5/5/5					GR-B	N F SAN	ND, TR C		
		ļ		 								Grave	ı			
				-	 											
15	04			2:1:0												
-	- 04			24/18	15-	-17	3/3/3/5					it GR	F Sand			
												S85S T	op of O	ttawa sand	l 8¹	,
20				 	-							5055 7				
	05			24/18	20-	-22	1/1/3/5	_	7			51	OP OF SC BN F SA	reen 20' AND		
-								-	‡							
ŀ							+	F	1							
25	- 04							F	7	22						
-	06			24/18	25-	27	30/36/24/2	F	-			C SAN		ravel, SO		
					<u> </u>		+						₇			
30 -		— —			 			F				5055	/	_		
-	07			24/10	30-	32	11/17/21/2		j	15				f screen 30' O F Sand		
													• -			ì
-												5				
RANUL			SPORT	IONS	ABBI	REVIA	TIONS			<u> </u>		1				 -
ows/Ft 4 10 - 30 - 50 0	Lo M. D	ouse Trace lose Little lense Some case And	USED e (TR) e (LI) e (SO)		F-Fir M-Me C-Co F/M-I F/C-I V-Ver GR-C BN-B	edium arse Fine t Fine t y iray	o Medium o Coarse									

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Project
Wells G & H Remedial Investigation

TDD No. F1-8409-01

Sheet 2 of Hole No. S85

Location

500 feet North of Well H

	[ROC	K		SOIL				<u> </u>
Depth	Sample No.	Core/Rec (in)	RQD	Pan/Rec (in)	Depth Interval (ft)	Blows/6"	Well Construction	Stratum Description	Notes
	08			24/22	35-37	7/15/12/14		BN C SAND, SO C Gravel, TR F Sand, TR Silt	
i									
40	09			24/14	40-42	6/31/50/83		C SAND, SO F/M Gravei, TR C Gravei	
45								No samples collected due	
								to running sands 45-65'	
50									
55									
60									
-								S85M Top of sand 64'	
65				9/3	65	120/30.3		S85M Top of screen 65' C SAND with schistose rock	2
							[] 10.000	fragments	

R	EM	Α	R	ĸ	ς.

2. S85M sealed in overburden with cement/bentonite slurry from 64' to GS.



TDD No. F1-8409-01

5..... 3 ,3

Hobs to. 585

Location

500 feet North of Well H

	ļ	ROC	ĸ		SOIL				_
Depth	Sample No.	Cor Rec (m)	RQD	Pen/Rec (in)	Depth Interval (ft)	Blows/6"	Well Construction	Stratum Description	70
70				4/2	70	1 20.4		Subangular schistotic	
		36/36						rock fragments S85M Bottom of screen 71' Gabbrodiorite boulder casing will not advance	
							- 30	costing with not advance	
ļ									
					-				
-									
-									
-									
-									



TOO No. F1-8409-01

Sheet 2 of 4 Hole No. S78

Location

Beatrice Property

		ROC	:K		SOII	_			T
Depth	Sample No.	Core/Rec (in)	RQD	Pen/Rec (iii)	Depth Interval (ft)	Blows/6"	Well Construction	Stratum Description	Note
35							0.00		
40	08			27/7	38-40	22/13/11/16		BN C SAND, LI F/M Gravel	
45	09			24/24	43-45	16/28/20/20		BN C SAND, TR F Gravel	
50	10			24/22	48-50	7/27/60/77		C SAND, TR F Gravel	
55	11			24/14	53-55	8/24/34/34		C SAND, TR F Gravel	
60				24/0	58-60	58/26/18/16			
65	12			24/15	63-65	45/45/60/75		Silty CLAY, color change from BN to GR with depth	
MARKS	5; 13			24/22	68-70	12/12/25/40		R F SAND, and Silt	



P	roject			
W	ells G	åсн	Remedial	Investigation

TDD No. F1-8409-01 Sheet

3 of 4

Hole No.

Location

Beatrice Property

F GR SAND and Silt VC Rx fragments, ghly angular, w/sharp ces	Note
VC Rx fragments, ghly angular, w/sharp	
VC Rx fragments, ghly angular, w/sharp	
ghly angular, w/sharp	1
,c3	1
ulders nested in very arse sand and gravels -	
ge volume of water lost	
Sample attempted	
90'	
RECOVERY -	
st increasing competence	!
Top of Ottawa Sand 93	
) Top of screen 95.5'	2
1	
֓֝֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜	ock - 90.5 ¹ st increasing competence depth

REMARKS:

2. S78D well sealed with cement/bentonite slurry from 90.5' to GS.



Project	TDD No.	Sheet	Hole No.
Wells G & H Remedial Investigation	F1-8409-01	4 of 4	578

Location

Beatrice Property

		ROC	K		SOIL			1	T
Depth	Sample No.	Core/Rec (in)		Pen/Rec (in)	Depth Interval (ft)	Blows/6"	Well Construction	Stratum Description	Note
105	_ 								
		60/60							
110								\$78D Bottom of screen 110.5 EOB	
ļ									
-									
F							10000		
ļ									
-									
F									
}							j		
-									
-									
-									
-									
E									
F									

	里。	JU.	S §			Proj Wel	ect ls G & H Reme	dial Inv	estig	ation		TDD No	o. 409-01	Sheet I 4	- 1	ole No. S79
		burton Corr	pany			Loca	ition Along B & M	RR Tra	cks	l 50 yds	north of	Lechmer	Angle	from Horiz.	_ v	ertical
Begu 12 [DEC 85	ompleted	Drill BDC				Drill Make & CME55	Model		J	Dia.	Overbur (ft) 107.5		Rock (ft) 20.5	ł	tal Depti
Core 2	Recovery 0	(ft)	Co	ore Bxs	Sample	5	El. Top of Casi	ng	1	und El.				Depth to T	op o	f Rock
í		er Weight/F	all		Casir	ng			579	D-47.4	NUS Ins	1-47.95		107.5		
1	40 lbs/30	1			Solid Scree		ch 80 PVC 1.5" .010 slot	i.D.			Ange					
		ROC	CK .			SOIL						1				
Depti	Sample No.	Core/Rec (in)	RQD	Pen/Rec (in)	Inte	pth rval t)	Blows/6"		С	Wel onstru		5	tratum	Description		Notes
		 -		 				- 1						se gravel wit		
1								1						ge of "blast r r very sharp	ock!	·
]						r very snarp s and cobbles		
5								┤┌	7			579S T	op of O	ttawa Sand 4		2
]	‡			579S T	op of so	reen 5'		
]	1		888	Į.				
10	01			24/16	9-1	11	5/5/8/9	┨	1		7	2				
								1 🗀	1					and GR F t, TR Peat		
] =	1					,	ł	
					+			∤ ⊨	1							
15	02			24/18	14-1	16	2/2/5/45	1 =	1			It CR F	SAND	micaceous,	TD	
			\longrightarrow		┼] [biotite and	IK	
					+							muscovi	te flak	es .		
20				24/0	19-2	21	1/1/2/3					No Reco	very			
					 -											
25				24/0	-			l H				Augers o	ontinue	to bring up		
				24/0	23-2		5/5/11/10					soils fitt	ing abo	ve descriptio	n	
-	 .											3/ 73 601	ton of	screen 25'		
ŀ		 				·									ļ	
30				24/0	29-31		4/4/7/8									
-										ĺ						
ŀ																
				24/0	34-36		5/10/13/15									1
	AR SOIL Density V. Loos	y se Trace	PORTIO USED (TR) (NS 0-10%	ABBR F-Fine		TIONS	 .							1	
10-30	M. Den	se Some (50) 2	10-20% 20-35%	M-Med C-Coa	dium irse										-
30-50 >50	Dense V. Dens			35-50%	F/M-F F/C-F V-Very GR-Gr	ine to ine to ay	Medium Coarse									
					BN-Bro YEL-Y											

Blast rock: a generic term for bedrock that has been excavated for road cuts or foundation construction through the use of explosives.
 579S sealed in overburden with bentonite pellets from 4' to GS.



Project

Wells G & H Remedial Investigation

TDD No. F1-8409-01 Sheet 2 of 4 Hole No. 579

Location

Along B & M RR Tracks 150 yds north of Lechmere

		ROC	-11	1					
Depth	No.	Core/Rec (in)	RQD	Pen/Rec (m)	SOIL Depth Interval (ft)	Blows/6"	Well Construction	Stratum Description	Notes
35 40 45 50	03			24/0	39-41 44-46 49-51 54-56	5/8/13/30 7/7/8/5 8/11/11/15 8/11/10/15 10/11/13/14		Recovery not consistant with blow counts - WASH No Recovery Wash and blow counts indicate fine sand strata continues Grayish BN, VF SAND SO Silt, TR C Sand, micaceous	



TDD No. F1-8409-01

Sheet

Hole No. S79

Loc

Along B & M RR tracks 150 yds north of Lechmere

		ROC	CK		SOIL				T
Depth	Sample No.	Core/Rec (in)	RQD	Pen/Rec (in)	Depth Interval (ft)	Blows/6"	Well Construction	Stratum Description	
70	05			24/14	69-71	30/25/15/10		It BN F/M Gravel, SO Silt,	-
				ļ				SO M/C Sand, TR C Sand	
									
75	06			24/12	74-76	30/25/38/55		It BN GRAVEL, SO Silt	
ľ	· ·							SO M/C SAND, TR Pebbles	
1						 			
80				24/7	80-82	42/16/10/12		M/C GRAVEL and C Sand	
						 		TR F/M Sand	
-								ļ	
85									
"				24/12	84-86	21/15/15/21		It BN M SAND, TR F SAND,	
								TR Silt subangular grains well sorted and stratified	
-								well sorted and stratified	
90					89-91				
					37-71			No Sample - running sands	
ļ.								filled casing to 80'	
-	+								
95				24/12	93-95	22/22/25/25			
						22/22/25/25		t BN M SAND and F/C Gravel, FR F/C Sand subangular rx	
								ragments poorly sorted	
-								, , , , , , , , , , , , , , , , , , , ,	
.00				24/3	98-100	64/58/60/64			
ļ									
MARKS			L						



TDD No. F1-8409-01

Sheet 4 4 of

Hole No. **579**

Location Along B & M RR tracks 150 yds North of Lechmere

		ROC	K.		SOIL				T
Depth	Sample No.	Corp/Rec (in)	, PQD	Pen/Red (m)	Depth Interval (ft)	Blows/6"	Well Construction	Stration Description	14:01
105				5/0	103	100 R			
		60/60						Bedrock at 107.5 Highly competent META	
110							MEDIE AND MILE AND MI	GABBRODIORITE	
		60/60					ALIBAH	S79D Top of Sand III'	
, .								S79D Top of Screen 112.5	
15		60/60							
		50/50					EN PLIA		
20									
		60/60							
25									
-									
0 -								S79D Bottom of screen 127.5 EOB - 128'	
-									
-									
-									
-									

REMARKS:

3 S79D sealed in bedrock with cement/bentonite slurry from 111' to GS.

		VU.	~ •			Projec Welis	ct G & H Remedial In	nvestig 	ation		TDD No F1-84		Sheet I 3 of	Hole No. S80
		burton Com	pany			Locati	ion Behind Lechmere V	Vareho	use		<u> </u>	Angle	from Horiz.	Vertical
Begur 20 No	DV 84	ompleted	Drill BDC			Ī	Orill Make & Mode CME 55	·I		Dia. 5"	Overbur (ft) 65	den	Rock (ft) NA	Total Depth
Core NA	Recover	y (ft)	Co	ore Bxs	Samples	EI	. Top of Casing		und El. M-48.6		48 66		Depth to Tounknow	
	e Harnm 0 lbs/30"	er Weight/F	all		Casing Solid Screen	0.01	80 PVC 1.5" I.D. 0 slot			NUS Insp	ector		unknow	<u> </u>
		ROC	K			SOIL					T	 -		
Depth	Sample No.	Core/Rec (in)	RQD	Pen/Rec (in)	Depi Interv (ft)	/al	Blows/6"	c	Wel Construc		s	tratum	Description	Notes
	01			24/18	0-2		9/18/18/33	i	- -	XXXX	F/C S	AND an	id Gravel	
					\pm						2			
5	02			24/12	3-5		18/49/72/20							
					1		18/49/73/29					ND and bles ve	d Gravel, rv	
i					+						angula		•	
10	03			2//20										İ
.,	- 03			24/20	8-10		5/5/6/4				GR-BN			
										7.7	Silt, mi	caceou	S	-
15	04			24/24	13-15		4/3/4/6				GR-BN			
F			_								Silt, mi	caceous	3	
-														
20	05			24/24	18-20		3/8/8/10				F SAND	and Sil	l t,	
											micaced stained	us, iror	י	
-											Justiled			
25	06			24/22	23-25		5/9/13/13				F SAND	, LI Silt	<u>:</u>	
-			-											
F														
o E	07			24/16	28-30		29/26/26/38				M/C GR	AVFI -	nd SAND,	
-											SO Silt	VV LL &	ild SAND,	
			_			\dashv								
RANUL	AR SOIL	S PROP	ORTIO	NIS	1505									
	Density V. Loos Loos M. Den Densi V. Dens	y Lise Trace (e Little (I se Some (S e And	JSED TR) (LI) 1 (O) 2	0-10% 0-20% 0-35% 0-35%	F-Fine M-Medi C-Coare F/M-Fir F/C-Fin V-Very GR-Gra BN-Brow YEL-Ye	urn se ne to M ne to C y vn	1edium					-		



Project TOD No. Hoto 40. Sheet Wells G & H Remedial Investigation F1-8409-01 2 013 580

Location

Behind Lechmere Wareh

				T		Behind Lechme	ere Wareh	ouse			
	<u> </u>	ROC	K	 	SOIL Depth		_				
Depth	Sample No.	Core/Red (in)	RQD	Pen/Rec (in)	Interval (ft)	Blows/6"			Vell truction	Stratum Description	Notos
	08			24/3	35-37	27/22/22/2	3			C GRAVEL, SO Silt, TR Clay	
40	09			24/4	40-42	9/20/22/21				C GRAVEL, SO C SAND, LT Silt, TR, Clay	t
45										S80S Top of Ottawa Sand 42' S80S Top of Screen 45'	
	10			24/16	45-47	9/19/22/27				M/C SAND, TR F GRAVEL	
50	10										
										Nested boulders S80M Top of Ottawa Sand 57 S80M Top of screen 55'	2
55	11			7/3	55	40/140 R				580S Bottom of screen 55' F/C GRAVEL, TR Silt, TR	
-								H		Clay	
50 -											
.5										S80M Bottom of screen 65'	
-				14/8	67-69	40/60/100R				F/C GRAVEL, M/C SAND L Silt, TR Clay, TR F SAND	
										, Siej, IX I SAID	

REMARKS:

EOB - 70'

S80S sealed in overburden with cement/bentonite slurry from 42 to GS.
 S80M sealed in overburden with cement/bentonite slurry from 53 to GS.
 Borehole backfilled to 65 due to the shearing off of drilling tool at 72. Hole backfilled with bentonite to 65.5 a half foot of Ottawa sand emplaced above that to 65.



TDD No. F1-8409-01 Sheet 3 3

11 No. No. 880

Location
Behind Lechmere Warehouse

		ROC	:K		SOIL				
)r pth	Sample No.	Corn/Ren (in)	nob	Per/Per (iii)	Depth Interval (It)	Blows/6"	Well Construction	Strutinn Description	No
70									ļ
								EOB Borehole backfilled to 65'] 3
									l
						 			
- }						1			
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	-								
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-	 -						1	į.	

Location Completed Completed Completed Completed Completed NEBC NEBC Mobile 8-47 3.9* 62 20 3 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2		用	VU.	S			Projec		4					TDD No	-	Shee	et .	Hol	e No.
Angle from Horiza Negret of		D A Ha				}			dial Inv	estiga	ation			F1-8				<u></u>	S 8 1
STED STED	Barry			· · · · ·			(Across Olymp in the wood	oia Ave near sw	from amp)	Unifi	rst			Angle				
Core Recovery (II)	1	- 1	Completed	- 1			ם	rill Make & I	Model						den			Total	Depth
Sample Hammer Weight/Fall Casing School Casing Sality Salit			a (6a)					Mobile B-4	7		3.	. 5"				20		82	
Sample Hammer Weight/Fall Scaling School	1		ry (Lt)	Co	ore Bxs	Samples	EI.	Top of Casin	ng gr							Depth	to To	p of I	Rock
140 150	Sainp	le Harnr	ner Weight/	Fall	2	Casing				5815	-54.6		81.W	-55.43		6	2		
Depth Sample Core/Re RQD Pen/Rec Depth Core/Rec RQD Pen/Rec Depth RQD Pen/Rec RQD Pen/Rec RQD	1	40 lbs/3	10"				5ch	80 PVC 1.5"	I.D.					ector					
Depth Note Only RQD Perifice Interval Blows/6" Well Construction Stratum Description Notes			RO	ск			SOIL		T				COSS						
10 24/19 0-2 1/2/3/2	Depth			•		Inter	val	Blows/6"		Co		tion	,	S	tratum	D es crip	tion		Notes
and Sandy Peat 10		01			24/19	0-	2	1/2/3/2	 	ŀ	1	T		Interbe	dded F	/M SAN	<u> </u>		
10 02 28/16 5-7 4/4/3/3			 	 -	ļ]					· i					
10 02 28/16 5-7 4/4/3/3							···········	 	1										
10	5	02						<u> </u>	†										
10 03 24/20 10-12 7/10/12/13 1t BN C SAND and F/M Gravel, SO M SAND 15		- <u>*</u> -	 		24/16	5-7	, 	4/4/3/3	1					F/M SA	ND, SO	PEAT			
10 03 24/20 10-12 7/10/12/13 1t BN C SAND and F/M Gravel, SO M SAND 15									1					S81S To	on of Or	Tawa sa	nd 91		
15	10																		
Gravel, SO M SAND 15		03			24/20	10-1	2	7/10/12/13	_	Ц		44		IN BALC	SAND				
20									E	3		'							
20	}					 													
20 03 6/6 20 120 R S81S Bottom of screen 20' BN-GR F/C SAND and F/M Gravel, TR silt, TR Clay Nested boulders and cobbles 25 06 6/6 29 192 R 1t BN M SAND, SO Gravel, TR C C Sand 1t BN M SAND, SO Gravel, TR C C Sand 1t BN F/M SAND, SO Gravel, TR C Sand 1t BN F/M SAND, SO Gravel, TR C Sand 1t BN M SAND, SO Gravel, TR C Sand 1t BN F/M SAND, SO Gravel, TR C Sand 1t BN	15	706				 			F	7									
20	}	04			24/12	15-1.		14/11/14/13	E]		37		It BN F	M SANE	o, so c	Sand		
30 6/6 20 120 R	t								E] [TR Grav	el				
30 6/6 20 120 R	20								F										
BN-GR F/C SAND and F/M Gravel, TR silt, TR Clay Nested boulders and cobbles It BN M SAND, SO Gravel, TR C Sand It BN F/M SAND, SO Gravel It BN F/M SAND, SO Gravel It BN F/M SAND, SO Gravel S81M Top of Ottawa Sand 34' S81M Top of Ottawa Sand 34' It BN F/M SAND, SO Gravel S81M Top of Ottawa Sand 34' S81M Top of Ottawa Sand 34' S81M Top of Ottawa Sand 34' S81M Top of Ottawa Sand 34' S81M Top of Ottawa Sand 34' S81M Top of Ottawa Sand 34' S81M Top of Ottawa Sand 34' S81M Top of Ottawa Sand 34' S81M Top of Ottawa Sand 34' S81M Top of Ottawa Sand 34' S81M Top of Ottawa Sand 34' S81M Top of Ottawa Sand 34' S81M Top of Ottawa Sand 34' S81M Top of Ottawa Sand 34' S81M Top of Ottawa Sand 34' S81M Top of Ottawa Sand 34' S81M Top of Ottawa Sand 34' S81M Top of Ottawa Sand 34'	²⁰ -	05			6/6	20		120.0	E										
Nested boulders and cobbles					······································	-		120 K											
1	-																		
30 O7 O7 O7 O7 O7 O7 O7 O7 O7 O	25																		
C Sand C		06			6/6	25		142 R						t BN M S	SAND. S	SO Grav	ai To		
It BN F/M SAND, SO Gravel SRANULAR SOILS PROPORTIONS ABBREVIATIONS lows/Ft Density USED V. Loose Trace (TR) 0-16% F-Fine Loose Little (LI) 10-20% M-Medium D-30 M. Dense Some (SO) 20-35% C-Coarse Dense And 33-50% F/M-Fine to Medium F/C-Fine to Coarse V-Very GR-Gray BN-Brown	-														, -		,		
It BN F/M SAND, SO Gravel SRANULAR SOILS PROPORTIONS ABBREVIATIONS lows/Ft Density USED V. Loose Trace (TR) 0-16% F-Fine Loose Little (LI) 10-20% M-Medium D-30 M. Dense Some (SO) 20-35% C-Coarse Dense And 33-50% F/M-Fine to Medium F/C-Fine to Coarse V-Very GR-Gray BN-Brown																			
RANULAR SOILS PROPORTIONS ABBREVIATIONS lows/Ft Density USED -4 V. Loose Trace (TR) 0-16% F-Fine -10 Loose Little (LI) 10-20% M-Medium 0-30 M. Dense Some (SO) 20-35% C-Coarse 50 V. Dense And 35-50% F/M-Fine to Medium F/C-Fine to Coarse V-V-very GR-Gray BN-Brown	30	07									l								
IRANULAR SOILS PROPORTIONS ABBREVIATIONS Ilows/Ft Density USED -4 V. Loose Trace (TR) 0-16% F-Fine -10 Loose Little (LI) 10-20% M-Medium 0-30 M. Dense Some (SO) 20-35% C-Coarse 0-50 Dense And 35-50% F/M-Fine to Medium F/C-Fine to Coarse V-Very GR-Gray BN-Brown	-	"			7/7	30		150 R					11	t BN F/M	SAND,	, SO Gra	vel		
IRANULAR SOILS PROPORTIONS ABBREVIATIONS Ilows/Ft Density USED -4 V. Loose Trace (TR) 0-16% F-Fine -10 Loose Little (LI) 10-20% M-Medium 0-30 M. Dense Some (SO) 20-35% C-Coarse 0-50 Dense And 35-50% F/M-Fine to Medium F/C-Fine to Coarse V-Very GR-Gray BN-Brown													$\ .$	RIM Ton	-4.0				
No. No.	RANUL	AR SOL	5 000				_				1			oriwi rop	or Orta	iwa san	1 34'		
-10	lows/Ft	Densit			NS	ABBRE	VIATIO	NS					••••						\dashv
Dense And 35-50% C-Coarse F/M-Fine to Medium F/C-Fine to Coarse V-Very GR-Gray BN-Brown	-10	Loos	e Little (11)			ım								٠				
F/C-Fine to Coarse V-Very GR-Gray BN-Brown	D- 50	Dens	e And		0-35%	C-Coars	e	edium											
GR-Gray BN-Brown	<i>,</i> ,	v. i)en	se			F/C-Fin	e to Co	arse											
						GR-Gray													
· ·																			

^{1.} S815 sealed in overburden with bentonite pellets from 8' to GS.



F1-8409-01

Sheet 2 3 of

Holo No. S81

Location

Across Olympia Ave from Unifirst

		ROC	K	ļ	SOIL			<u> </u>
Depth	Sample No.	Core/Rec (in)	RQD	Pen/Rec (in)	Depth Interval (ft)	Blows/6"	Well Construction Stratum Description	Note
	ļ						Roller bitted through	
	 -			ļ			boulders and cobbles	
				 			30-40'	1
40						-	S81M Top of screen 35'	
+0					 			
								
ļ							Ы ∥ ∭	
ł								İ
45					ļ			
								
				 -		 		
-						 		
50							S81M Bottom of screen 50'	-
-	08			11/10	50-52	45/130 R	GR-Green clayey SILT, LT	
 						<u> </u>	F/C SAND, TR M Gravel -	ļ
<u> </u>						 	Der TILL	
55						 		
	09			6/6	55-57	110	0.	
-							0.5	
-							300	
60 F							000	
-	10			5/5	60-62	120	3.6	1
-						120		
							Highly fractured Dedham	
.		60/60					granoutorite - 62	
5 _								
 -							S8ID Top of Ottawa sand 65	3
-							SSID Top of screen 67'	
-							14	
111211			L_					

- S81M sealed in overburden with cement/bentonite slurry from 34' to GS.
 S81D sealed in overburden with cement/bentonite slurry from 65' to GS.



TDD No. F1-8409-01

Sheet 3 3

Пове No. - **S81**

Location Across Olympia Ave from Unifirst

		I		,	SOIL				
Depti	Sample No.	Core/११ ल (in)	RÓD	Pen/Rec (a)	Depth Interval (ft)	Blows/6"	Well Construction	Stratum Description	,
70							11-2/ 11-2/	w/granodioritic inclusions	
75		60/60					THE STATE OF THE S	Salem Gabbrodiorite	
80		60/60						4, 3cpui	
								581D Bottom of screen 82' EOB - 82.5'	
35									

		VL	S	3			Proj	ect					TDD No	·.	Sheet	Hole No
		OPPOR					₩e	lls G & H Remedia	al Inve	stiga	tion		F1-8	09-01	lof 2	S82
C	A Ha	lliburton Co	mpa	ny			Loca	ition						Angle	from Horiz.	
Begun		Completed		Drille	er			MASS Rifle Ass			Hole	Dia.	Overbur	daa	Vertical Rock (ft)	1
18 M	AR 8	18 MAR 8	5	NEB	sc			Mobile B-53				.5"	(ft) 45	den		Total Dep
Core I	Recove	ry ([t)		Co	re Bxs	Sample	es	El. Top of Casing		Grou	nd El.				Depth to T	45
Sample	A Hame	ner Weight	/E . II		NA	8				S82-	57.00				45	op or Roca
		_	/ F dili			Casi Solid	1 9	ich 80 PVC 1.5" I.	D.			NUS Insp	ector		<u>-</u>	
	+0 lbs/3		ock		<u>r — — </u>	Scre	SOI	0.010 slot				Golde	en			<u>-</u>
Depth	Sampl No.		ec	RQD	Pen/Rec (in)	Inte	pth rval (t)	Biows/6"		Co	Wel Instru	ction	s	tratum	Description	Not
										1	5	335	TOPS	OIL, N	O SAMPLE	
	ļ	 	-								Š6.		COLI	ECTE)	
			\perp			+-										
5	01	ļ	\bot		26/26											
			╁	-	24/24	-	5-7	12/13/13/16					FSA	ND, TR	M Sand	
10		·	+													
	02				24/18	10	-12	12/14/14/16					M SA	ND, TR	Grave!	
				\Box												
ŀ		 	+-	-	·											
15											ΣY					
-	03		-	\dashv	24/13	15.	-17	12/19/20/2					(.	D, TR	M Sand	
				十	 -	 							trace(-) Clay		
			_						•							
20	04	 	-	-	24/15	20-	-22	9/11/15/52		}			60	4000		
				士				711/15/52		1			M Sand		SAND, some	
-			_													
25			_	+		 							582 To	n of Ot	tawa Sand 24	, 1
-	05			\perp	24/16	25-	27	13/14/10/26		3					ome Silt,	
-				╁		-			F	7			TR Cla	•	een 25'	
30				工					F]				- 01 3CL	Cen 27	
~ -	06			+	24/12	30-	32	43/46/120.	E	3			BNES	AND		
				士				+	F	#	25		TR Silt		ome M Sand, ay	
-				\bot					F	7	۲)	0.00				
RANUL			.OPO	RTIO	NS .	ABB	REVIA	TIONS		1_		100 C				
lows/Ft -4 -10 0-30 0-50 50	V. Lo Loc M. D Der V. De	oose Trac ose Litt ense Som nse And ense	ce (TF le (L1 e (SO) :	0-10% 10-20% 20-35% 35-50%	F-Fir M-Me C-Co F/M- F/C-I V-Ver GR-C BN-B YEL-	ne edium earse Fine to fine to ry Gray rown Yelloo	o Medium o Coarse								
l. Seale	d in ove	erburden w	ith ce	ment	t/bentonit			24' to GS.								



Project	TDD No.	Sheet	Hote Vo.
Wells G & H Remedial Investigation	F1-8409-01	20t 2	507

Location

Mass Rifle Assn

	1	ROC	`K	1	SOIL				1
Depth	Sample No.	Core/Rec (in)	RQD	Pen/Rec (in)	Depth Interval (ft)	Blows/6"	Well Construction	Stratum Description	Note
35	07			9/9	35-36	82/100.3		F sandy TILL, trace	
						-	609	Silt, TR Clay, GR-GN	1
				 -			O	compact	
				 			90.0		
				 			00.1	S82 Bottom of screen 351	
40						 	900		ļ
	08			6/6	 	100/6	300	F sandy TILL, TR Silt,	
						+	04° C	TR Clay, GR-GN, compact	
				 -			0000	TR Clay, GR-GN, compact	ŀ
					·	 i	ြင့္သ		ļ
45		 	 -	 		 	12	EOB 45'	}
						-		Backfilled to 35'	
						-		packing to 3).	1
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	└ □	\mathbf{U}				Proj	ect				TDD No		Sheet	Hole No.
		POP/				Well	G & H Remedial I	nvestiga	tion		F1-84	10-90	of 3	S83
<u> </u>	A Halli	burton Co	mpany	/		Loca	tion Aberjona Auto Par	ts			<u>-i</u>	Angle	from Horiz. Vertical	
Begun	C	ompleted	D	riller	.		Drill Make & Mod		Hole	Dia.	Overbur	den	Rock (ft)	Total Dept
28 FE	B 85		N	EBC			Mobile B-53		3.	5"	(ft) 80		NA NA	80
	lecover	/ (ft)		Core Bxs	Sample	S	El. Top of Casing	Grou	and El. 0-48.09		1 30			op of Rock
NA Sample	Hamm	er Weight	/Fall	NA NA	17			3050	7-43.07				unknow	
) lbs/30"	_	, . .		Casir Solid Scree	Sc	h 80 PVC 1.5" I.D. 010 slot			NUS Ins Mark				
-		RO	оск			SOIL								
Depth	Sample No.	Core/Re (in)	RC	Pen/Re		pth rval t)	Blows/6"	C	Wel onstru	ction	5	tratum	Description	Notes
		 		24/0	0-	2	13/7/5/6							
ŀ		 -												
l			 											
5														
}	<u> </u>		 	24/14	5-	7	8/8/10/13				BN F SA	ND		
				_				l						
ľ			+					1						
10			1											
. [02			24/24	10-	2	14/16/17/21							
-							14/10/1//21				GR-Gree	en F SA	ND and	ĺ
-			├											1
5			├			·								
' Ľ	03			24/24	15-1	7	2/2/5/2							ļ
				1,7,5,4	1,7-1		2/3/5/7				GR-Gree Silt	n F SA	ND and	
-) III			
_														ļ
, -	05			20.126	+									
				24/24	20-2	2	1/2/2/3				GR-Gree	n F SA	ND and	
							 				Silt			
-											F/M	5. 1		
·	06			 	-									
	"			24/23	25-27	<u> </u>	2/3/4/6	ļ			GR-Gree	n F SAI	ND and	}
				 -	+		 		1		Silt			
-									į					
, -									į.					
-	07			24/24	30-32	<u> </u>	3/4/6/8		5		GR-Green	FSAN	iD and	
					 		<u> </u>				Silt			
上					-				<u> </u>					
	R SOIL Density		OPOR T		ABBR	EVIA	IONS				6			
0 30 50	V. Loos	se Trace e Little se Some e And	USED (TR) (LI) (SO)	0-10% 10-20% 20-35% 35-50%	F-Fine M-Med C-Coa F/M-F F/C-F V-Very GR-Gr BN-Bro	fium rse ine to ine to r	Medium Coarse							

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Project	
Wells G & H Remedial	Investigation

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Sheet 2 of 3

Hole No. S83

Location

Aberjona Auto Parts

		ROC	·κ		SOIL				7
Depth	Sample No.	Core/Rec (in)	RQD	Pen/i≀ec (in)	Depth Interval (ft)	Blows/6"	Well Construction	Stratum Description	Note
	07			24/24	15_17	6/5/11/10	12	DK GR SILT and Clay	-
								SO red-BN F SAND	
40								4	
	08			24/24	40-42	5/9/9/20		GR F/C Sand, TR C	
								Gravel	
45	09						3		
-	_ <u></u>			24/4	45-47	120.4		F/C GRAVEL, SO C Sand Boulders	
							-2	7	
50	_10			24/24	50-52	9/13/15/38		M/C BN SAND	
-								4	
15							<u>- 6</u>	'	
-	-11			24/2	55-57	24/13/8/8		BN C SAND	
° -	12			24/24	60-62	5/11/20/28			
-	-					7/11/20/28		BN C SAND	
,									
-	13			24/18	65-67	30/29/100 R		BN C SAND and F/M Gravel	
								S83M Top of Ottawa Sand 66'	l

REMARKS:

1. S83M sealed in overburden with cement/bentonite slurry from 66° to GS.



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Sheet 3 3 of Hole No. S83

Halliburdon Comos-

Location
Aberjona Auto Parts

		ROC	`K		SOIL				Т
Depth	Sample No.	Core/Rec (in)	RQD	Pen/Rec (m)	Depth Interval (ft)	Blows/6"	Well Construction	Stratum Description	
70	14			24/8	70~72	17/21/22/26		S83M Top of screen 70' M/C BN SAND, SO F Gravel TR F Sand	
75	15			24/24	75-77	22/23/38/41	-27	BN M SAND, SO C Gravel, TR F Sand	
80	16			24/6	80-82	14/17/21/33	F-37_	S83M Botton of screen 80' BN Silt, TR F SAND	
85	17			24/24	85-87	48/58/46/90	(0)	B C SAND EOB 87'	
-									
-									

REMARKS:

2. S83M borehole backfilled with cement/bentonite slurry to 80.33. Four inches of Ottawa Sand added to bring the bottom of the well to 80.0.

		<u>u</u>									TDD N		Sheet		Hol
	A Halli	DEPORATION Com			<u> </u>	Wells G & H Remedial Investigation					F1-8	3409-01	l of	3	(
•	A Lianz	outon con	ipariy		Loc	Location Rifle Range Road 300 fet from Well G					Angle from Horiz				
Begun	С	ompleted	Dril	ler		Drill Make &		300 E	Hole		Overbur	idon.	Vertical Rock (ft)		
5 M	AR 85	NEBC		BC		Mobile 8-			1		(ft)	den		'	otal
Core I	Recovery	((t))			Samples	El. Top of Casi		1		. 5"	81.5		10		91
10)				·	El. Top of Cas	ing	584	und El. IS-45.9	0			Depth to	Тор	of
Sample	e Harnme	er Weight/F	all		Casing			584	M-45.9	99 <u>S84</u> NUS Ins	0-46.13 pector		81.5		
1	40 lbs/30	yıı			Solid Screen	Sch 80 PVC 1.5 0.010 slot	" I.D.			Ros					
		ROC	CK		SOI		_		1	103.	<u> </u>	·			_
	Sample	Core/Rec		Pen/Rec	Depth Interval				Well	,					
Depth	No.	(in)	RQD	(in)	(ft)	Blows/6"	1	Co	onstruc	ction		Stratum	Description	1	
	01	l	 	24/14	0-2	4/4/5/6	,			46 F::::	SI IT BN	F/M SA	ND		\downarrow
							-		ļ			1 7 WI 37	MD		
]								
5]								
ĺ	02			24/12	5-7	22/23/23/	2					E/14 CA	ND SO		
1							7				7 al	r/m sn ND, TR i	ND, SO F/C		
							1	ł			Grave				
10			 -	<u></u>]	İ	1						1
., }	03		· <u> </u>	24/22	10-12	13/17/21/			1						
				- 1, - 2	+	13/17/21/					31	C SAND I, TR M	and F/C		
							1	ľ			21		sand Ittawa Sand	11.	
] 📥						creen 13'	••	
15	04			24/6	15-17	10/8/36/9] 🗏		į						
İ				21/0	15-17	10/8/36/9	18				It BN I Sand	F/C GR	AVEL, SO N	1	
							1日				1	ottom o	f screen 18	,	
								i							
20]	1			No sam	•			
-					 		}				boulder	rs at 20'			ı
					 				İ				7		
, -			-)		
25	05			24/10	25-27	12/13/17/3								Ì	
-	-				25-27	13/12/14/2					It BN F	'/M SAN	ID, TR F Gr	ave	ı
					ļ										
30														ł	
-	06			24/22	30-32	2///14/28						.			
						7///14/25					Green-I Gravel,		SAND, TR		
						+				7	diavel,	111 3	and		
ZANDE	AD COL								-	2				Ì	
	AR SOIL Densit V. Loos Loos M. Den Dens V. Dens	y se Trace e Little ise Some e And	(L1) (SO)	0-10% 10-20% 20-35% 35-50%	F-Fine M-Medium C-Coarse F/M-Fine t F/C-Fine t V-Very GR-Gray BN-Brown YEL-Yellon	o Medium o Coarse		1.							

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Hole No. 584

Location

Rifle Range Road 300 ft from Well G

		ROC	K		SOIL				
Depth	Sample No.	Core/Rec (in)	RQD	Pen/Rec (m)	Nepth Interval (ft)	Blows/6"	Well Construction	Stratum Description	Not
				24/6	35-37	39/26/14/13		GR-BN F/C GRAVEL, SO It BN F Sand, TR Silt	
							7	7) S84M Top of Ottawa Sand 39*	
40				24/22	40-42	10/17/25/21		S84M Top of screen 40' It BN M/C SAND, SO F Sand	
								TR Gravel	
45				24/24	45-47	11/8/13/14		S84M Bottom of screen 45' It BN-Green M SAND SO F Sand, TR C Sand, TR F/M	
								Gravel	
50				11/6	50-52	32/52.5		It BN W/C SAND, TR F Sand	
55									
				24/18	55-57	22/30/35/34	-10	It BN-Green C SAND, SO M Sand, TR F SAND, TR C	
50								Gravel 5	
				12/12	60-62	44/110 R		It BN-Green F/M SAND, SO C Sand, SO F/M Gravel, TR Silt,	
.5							7	TR Clay	
-				18/18	65-67	49/78/74		It BN-Green C SAND and F Gravel, SO F/M Sand, TR Silt, TR Clay	

REMARKS:

2. 584M sealed in overburden with cement/bentonite slurry from 39^{\prime} to GS.



Project	
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Sheet 3 3

Hale No. **584**

Location Rifle Range Road 300 ft from Well G

		RO	Κ		SOIL				
Depth	Sample No.	Core/Ren (in)	ROD	Pon/Rec (m)	Depth Interval ((t)	Blows/6"	Well Construction	Stratum Description	Note
70								C SAND and F/M Gravel	
				24/.5	70-72	50/47/88/72			
								S84D Top of screen 73'	
75				12/8	75-76	62/100.6		C SAND and F/M Gravel, Tr	
Ì							日《	Silt, TR Clay	
į								S84D Bottom of screen 78'	
0								Bedrock 81.5'	
			: 				145	Dedham Granodiorite for 1' with 4' of Salem	
								Gabbrodiorite cored to	
5					: 			ensure bedrock	4
}									
<u> </u>									
)									
-								EOB - 91.5'	
-									
-									
-									
						 			

^{3.} S84D sealed in overburden with cement/bentonite slurry from 68' to GS.

^{4.} S84D was cored to ensure bedrock. Coring was backfilled with cement/bentonite slurry to 78.5. Six inches of Ottawa sand was added to bring total well depth to 78'.