

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.



Project
Wells G & H Remedial Investigation

TDD No.
F1-8409-01

Sheet
1 of 2

Hole No.
586

Location
300 ft South of Well G

Angle from Horiz.
Vertical







Began 4 MAR 85	Completed 6 MAR 85	Driller NEBC	Drill Make & Model Mobile B-47	Hole Dia. 3.5"	Overburden (ft) 62	Rock (ft) NA	Total Depth 45
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Core Recovery (ft) NA	Core Bxs NA	Samples 11	El. Top of Casing	Ground El. S86S-44.66 S86D-44.33	Depth to Top of Rock unknown
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Sample Hammer Weight/Fall
140 lbs/30"

Casing
Sch 80 PVC 1.5" I.D.
0.010 slot

NUS Inspector
Baldyga

Depth	Sample No.	ROCK		SOIL			Well Construction	Stratum Description	Notes
		Core/Rec (in)	RQD	Pen/Rec (in)	Depth Interval (ft)	Blows/6"			
5	01			24/10	0-2	1/1/1/2		BN F/M SAND	
	02			24/24	5-7	13/19/19/19		BN F/C SAND, SO C Gravel, highly angular	
10									
	03			24/24	10-12	9/8/9/11		It GR to BN M/C SAND, TR F Gravel	
15									
	04			24/8	15-17	8/11/10/11		C SAND and M/C Gravel, SO F Gravel	
								S86S Top of Ottawa Sand 18'	1
20								S86S Top of screen 20'	
	05			24/6	20-22	18/24/21/18		C SAND and M/C Gravel, SO F Gravel, TR F/M Sand	
25									
	06			24/8	25-27	26/26/18/23		F/C GRAVEL, SO BN F/C Sand	
30									
	07			24/9	30-32	20/8/11/13		S86S Bottom of screen 30'	2
								BN M/C SAND, TR F Gravel	

GRANULAR SOILS PROPORTIONS ABBREVIATIONS

Blows/Ft	Density	USED		
0-4	V. Loose	Trace (TR)	0-10%	F-Fine
4-10	Loose	Little (LI)	10-20%	M-Medium
10-30	M. Dense	Some (SO)	20-35%	C-Coarse
30-50	Dense	And	35-50%	F/M-Fine to Medium
> 50	V. Dense			F/C-Fine to Coarse
				V-Very
				GR-Gray
				BN-Brown
				YEL-Yellow

1. S86S sealed in overburden with cement/bentonite slurry from 18' to GS.

2. 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.



Project Wells G & H Remedial Investigation	TDD No. F1-8409-01	Sheet 2 of 2	Hole No. S86
Location 300 ft South of Well G			

Depth	ROCK			SOIL			Well Construction	Stratum Description	Notes
	Sample No.	Core/Rec (in)	RQD	Pen/Rec (in)	Depth Interval (ft)	Blows/6"			
35								No Sample due to running sands	
40	08			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		BN F/C SAND, TR F Gravel	
								S86M Top of Ottawa sand 45'	3
								S86M Top of screen 47'	
50	10			24/12	50-52	2/2/5/8		dk BN F SAND	
								S86M Bottom of screen 52'	4
55				1/0	55	120		dk GR - TILL	
60	11			6/6	60	185			
65									

REMARKS:

- S86M sealed in overburden with cement/bentonite slurry from 45' to GS.
- Borehole backfilled from 62' to 52.5'. .5' of Ottawa sand added at top of slurry to a total depth of 52'.



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Project	TDD No.	Sheet	Hole No.
Wells G & H Remedial Investigation	FL-8409-01	1 of 1	S63
Location		Angle from Horiz.	
NW Corner of Parking Lot 200 W-Cummings		Vertical	

Began	Completed	Driller	Drill Make & Model	Hole Dia.	Overburden (ft)	Rock (ft)	Total Depth
1 Nov 85	3 Nov 85	Buffalo Drilling Co.	CME 55	3.5 ID	22'	14'	36

Core Recovery (ft)	Core Box	Samples	El. Top of Casing	Ground El.	Depth to Top of Rock
10	1	5		S63S 70.04, S63D 69.52	22'

Sample Hammer Weight/Fall	Casing	Sch 80 PVC 1.5" I.D.	NUS Inspector
140 lbs/30"	Solid	Screen 0.010 slot	Angers

Depth	Sample No.	ROCK		SOIL			Well Construction	Stratum Description	Notes
		Core/Rec (in)	RQD	Pen/Rec (in)	Depth Interval (ft)	Blows/6"			
5	01			24/12	0-2	10/7/7/7		Fill: Dark BN to BN sandy loam and GRAVEL, some PEBBLES	1
	02			24/8	3-5	6/8/11/11		Fill: Same as above	
10	03			24/24	8-10	15/20/31/52		It BN to BN SAND, fining w/ depth, C to F	2
								S63S top of Ottawa Sand 9'	
15	04			13 1/2/8	13-14.2	15/120-4"		S63S top of screen 12'	
								M/C SAND	
								Refusal at 14.2', COBBLES	
20	05			24/4	18-20	6/26/25/32		F to C SAND, TR Pebbles, TR Silt	
25								S63S Bottom of Screen 22'	
								BEDROCK: Roller bitted from 22' to 26'. Wash contained highly angular to subangular particles some w/weathered faces. Bedrock is intensely fractured.	
								S63D top of Ottawa Sand 24'	
30								S63D top of screen 26'	

GRANULAR SOILS		PROPORTIONS		ABBREVIATIONS	
Blows/Ft	Density	USED			
0-4	V. Loose	Trace (TR)	0-10%	F-Fine	
4-10	Loose	Little (LI)	10-20%	M-Medium	
10-30	M. Dense	Some (SO)	20-35%	C-Coarse	
30-50	Dense	And	35-50%	F/M-Fine to Medium	
>50	V. Dense			F/C-Fine to Coarse	
				V-Very	
				GR-Gray	
				BN-Brown	
				YEL-Yellow	

- Well S63S sealed w/2 foot layer of bentonite pellets from 8' to 10'. Natural backfill to ground surface.
- Well sealed in bedrock with 3 to 1 (by weight) cement to bentonite slurry. Slurry brought to ground surface.



Project	TDD No.	Sheet	Hole No.
Wells G & H Remedial Investigation	F1-8409-01	1 of 2	S64
Location	Angle from Horiz. Vertical		
Mass Rifle Assn			

Begin	Completed	Driller	Drill Make & Model	Hole Dia.	Overburden (ft)	Rock (ft)	Total Depth
		NEBC	Mobile B-47	3.5	35'	20'	55'

Core Recovery (ft) 20'	Core Bbs 2	Samples 8	El. Top of Casing	Ground El. S64S 57.58, S64M 57.74, S64D 57.83	Depth to Top of Rock 35'
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Sample Hammer Weight/Fall 140 lbs/30"	Casing Solid Sch 80 PVC 1.5" I.D. Screen 0.010 slot	NUS Inspector Baldyga
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Depth	Sample No.	ROCK		SOIL			Well Construction	Stratum Description	Notes
		Core/Rec (in)	RQD	Pen/Rec (in)	Depth Interval (ft)	Blows/6"			
5	01			24/14	0-2	1/1/2/3		F/M BR SAND	1
								F/M BR SAND	
	02			24/16	5-7	6/11/8/5		S64S Top of Ottawa sand 9'	
10								S64S Top of Screen 10'	1
	03			24/10	9-11	11/9/8/12		F/C BR SAND, TR F/C GRAVEL	
								S64S Bottom of Screen 15'	
15	04			24/10	14-16	21/17/18/14		M/C Dark BN SAND, some highly angular C Gravel	2
								M/C Dark BN SAND, some F Gravel	
	05			24/6	19-21	17/15/21/18		It BN to tan F SAND, LI Gravel, layered Gravel-Sand-Gravel	
25	06			24/9	24-26	31/21/17/18		S64M Top of Ottawa Sand 25'	2
								S64M Top of Screen 27'	
	07			17/14	29-31	51/57/100-5		It BN F SAND and SILT, LI Gravel	
30								S64M Bottom of Screen 32'	

GRANULAR SOILS PROPORTIONS ABBREVIATIONS

Blows/Ft	Density	USED	
0-4	V. Loose	Trace (TR)	0-10%
4-10	Loose	Little (LI)	10-20%
10-30	M. Dense	Some (SO)	25-35%
30-50	Dense	And	35-50%
>50	V. Dense		

F-Fine
M-Medium
C-Coarse
F/M-Fine to Medium
F/C-Fine to Coarse
V-Very
GR-Gray
BN-Brown
YEL-Yellow

- Well S64S sealed w/2' bentonite pellet layer from 7' to 9'. Natural backfill from GS to 7'.
- Well S64M sealed from GS to 25' with 10 to 1 (by weight, estimated) cement to bentonite slurry.



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Project

Wells G & H Remedial Investigation

Location

Mass Rifle Assn

TDD No.

FI-8409-01

Sheet

2 of 2

Hole No.

S64

Depth	ROCK			SOIL			Well Construction	Stratum Description	Notes
	Sample No.	Core/Rec (in)	RQD	Pen/Rec (in)	Depth Interval (ft)	Blows/6"			
35		60/60						Highly fractured Salem Gabbrodiorite - very angular - brecciated some gouge observable.	
40		60/60						S64D Top of Ottawa sand 38' S64D Top of Screen 40'	3
45		60/60						Highly fractured Salem Gabbrodiorite S64D Top of screen 40'	
50		60/60						less fractured Salem Gabbrodiorite	
55								More competent Salem Gabbrodiorite	
								S64D Bottom of Screen 55'	
								EOB - 56'	

REMARKS:

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



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Project

Wells G & H Remedial Investigation

Location

Behind 300 W. Cummings Bldg

TDD No.

F1-8409-01

Sheet

1 of 2

Hole No.

S65

Angle from Horiz.

Vertical

Begin	Completed	Driller	Drill Make & Model	Hole Dia.	Overburden (ft)	Rock (ft)	Total Depth
10 Nov 84	18 Nov 85	Buffalo	CME55	3.5	36.4	20	56.4

Core Recovery (ft)	Core Bxs	Samples	El. Top of Casing	Ground El.	Depth to Top of Rock
20	2	7		S65S 76.78, S65M 76.98, S65D 76.89	36.4

Sample Hammer Weight/Fall
140 lbs/30"

Casing
Solid Sch 80 PVC 1.5" I.D.
Screen 0.010 slot

NUS Inspector

Angers/Baldyga

Depth	Sample No.	ROCK		SOIL			Well Construction	Stratum Description	Notes
		Core/Rec (in)	RQD	Pen/Rec (in)	Depth Interval (ft)	Blows/6"			
5	01			24/8	0-2	12/10/10/7		Fill: Sandy loam, some C Gravel S65S Top of Ottawa Sand 3'	1
	02			24/12	3-5	6/8/8/9		BR M SAND and Gravel	
10	03			24/10	8-10	8/10/12/20		F/M SAND, SO Silt, TR Clay, TR Gravel COBBLES	
15	04			24/6	13-15	9/11/10/19		F/M SAND, SO Silt, TR Clay, TR Gravel COBBLES	
20	05			24/14	18-20	12/23/40/45		F/M SAND, SO Silt, TR Clay, TR Gravel	
25	06			24/10	23-25	17/19/26/35		F/M SAND, SO SILT, TR Clay, TR Gravel S65M Top of Ottawa Sand 25'	
	07			24/11	26-28	23/15/12/10		S65M Top of screen 27'	
30								Boulders and Cobbles to 37.4'	

GRANULAR SOILS PROPORTIONS ABBREVIATIONS

Blows/Ft	Density	USED	PROPORTIONS	ABBREVIATIONS
0-4	V. Loose	Trace (TR)	0-10%	F-Fine
4-10	Loose	Little (LI)	10-29%	M-Medium
10-30	M. Dense	Some (SO)	29-35%	C-Coarse
30-50	Dense	And	35-50%	F/M-Fine to Medium
>50	V. Dense			F/C-Fine to Coarse
				V-Very
				GR-Gray
				BN-Brown
				YEL-Yellow

1. Well S65S sealed with a 2 foot layer of bentonite pellets from 2' to 4'.
2. Well S65M sealed with 10 to 1 (by weight estimated) cement to bentonite slurry from GS to 25'.



Project	TDD No.	Sheet	Hole No.
Wells G & H Remedial Investigation	FL-8409-01	2 of 2	S65
Location			
Behind 300 W. Cummings Bldg			

Depth	ROCK			SOIL			Well Construction	Stratum Description	Notes
	Sample No.	Core/Rec (in)	RQD	Pen/Rec (in)	Depth Interval (ft)	Blows/6"			
35		60/60						S65M Bottom of screen 37'	3
								S65D Top of Ottawa Sand 39.2'	
40		60/60						S65D Top of screen 41.4'	
								Highly competent Salem Gabbrodiorite	
45		60/60							
50		60/60							
55									
56.4								S65D Bottom of screen 56.4	
								EOB - 59.2'	

REMARKS:

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



Project Wells G & H Remedial Investigation		TDD No. F1-8409-01	Sheet 1 of 1	Hole No. S66
Location At end of 600 W. Cummings Park traffic island			Angle from Horiz. Vertical	
Begun	Completed	Driller BDC	Drill Make & Model CME55	Hole Dia. 3.5"
Core Recovery (ft) 20		Core Bxs 2	Samples 2	El. Top of Casing 69.64
Sample Hammer Weight/Fall 140 lbs/30"		Casing Solid Sch 80 PVC 1.5" I.D. Screen 0.010 slot		NUS Inspector Sandhaus
		Overburden (ft) 11.5	Rock (ft) 23.2	Total Depth 34.7
		Depth to Top of Rock 11.5		

Depth	Sample No.	ROCK		SOIL			Well Construction	Stratum Description	Notes
		Core/Rec (in)	RQD	Pen/Rec (in)	Depth Interval (ft)	Blows/6"			
5	01			24/24	3-7	15/24/36/40		Bark mulch - no sample collected	
10	02			24/24	10-12	35/40/38/35			
15	60/60								
20	60/60								
25	60/60								
30	60/60								

GRANULAR SOILS		PROPORTIONS		ABBREVIATIONS	
Blows/Ft	Density	USED		F-Fine	
0-4	V. Loose	Trace (TR)	0-10%	M-Medium	
4-10	Loose	Little (LI)	10-20%	C-Coarse	
10-30	M. Dense	Some (SO)	20-35%	F/M-Fine to Medium	
30-50	Dense	And	35-50%	F/C-Fine to Coarse	
>50	V. Dense			V-Very	
				GR-Gray	
				BN-Brown	
				YEL-Yellow	

1. Well S66D sealed in bedrock from 17.7' to GS with cement bentonite slurry.



Project: Wells G & H Remedial Investigation
 TDD No.: FL-8409-01
 Sheet: 1 of 2
 Hole No.: 567

Location: Directly across Washington St. East Cummings/From 200 W. Cummings Park
 Angle from Horiz.: Vertical

Began: 5 Dec 84
 Completed: 10 DEC 85
 Driller: NEBC
 Drill Make & Model: Mobile B-47
 Hole Dia.: 3.5"
 Overburden (ft): 54
 Rock (ft): 21
 Total Depth: 75'

Core Recovery (ft): 20
 Core Box: 2
 Samples: 7
 El. Top of Casing:
 Ground El.: S67S 83.23, S67M 83.28, S67D 83.35
 Depth to Top of Rock: 54'

Sample Hammer Weight/Fall: 140 lbs/30"
 Casing Solid Screen: Sch 80 PVC 1.5" I.D. 0.010 slot
 NUS Inspector: Baldyga

Depth	Sample No.	ROCK		SOIL			Well Construction	Stratum Description	Notes
		Core/Rec (in)	RQD	Pen/Rec (in)	Depth Interval (ft)	Blows/6"			
5	01			18/18	0-1.5	12/11/12/15		Cover Fill-Sandy loam underlain by coarse Gravel	
	02			15/11	5-6.25	100/110.5		BR F/M SAND, LI M Gravel, LI Silt	
10									
	03			18/18	10-11.5	43/69/92		BR M/C SAND, LI M/C Gravel, TR Silt, very compact, Cobbles at 12.7'	
15	04			24/12	15-17	47/52/30/21		Differentiated spoon sample. 3" GR-BN C SAND, LI M Gravel, TR Clay 2" clayey SILT 1" C GRAVEL very angular 6" GREEN BN C SAND C SAND, SO SILT and F Gravel 2" layer highly angular GRAVEL S67S Top of Ottawa SAND 22' S67S Top of screen 24'	
20	05			12/12	20-21	106/100/R			
25	06			14/14	25-26.2	41/52/120.3		Green-GR SILT and F SAND, SO C Gravel	
30									
	07			14/0	30-31.2	120/100/100.5		No recovery S67M Top of Ottawa Sand 31' S67M Top of screen 33' S67S Bottom of screen 34'	

GRANULAR SOILS		PROPORTIONS		ABBREVIATIONS	
Blows/Ft	Density	Trace (TR)	0-10%	F-Fine	
0-4	V. Loose	Little (LI)	10-20%	M-Medium	
4-10	Loose	Some (SO)	20-35%	C-Coarse	
10-30	M. Dense	And	35-50%	F/M-Fine to Medium	
30-50	Dense			F/C-Fine to Coarse	
>50	V. Dense			V-Very	
				GR-Gray	
				BN-Brown	
				YEL-Yellow	

- 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	Plot No.
Wells G & H Remedial Investigation	F1-8409-01	2 of 2	S67
Location			
East Cummings/From 200 W. Cummings Park			

Depth	ROCK			SOIL		Well Construction	Stratum Description	Notes
	Sample No.	Core/Rec (in)	RQD	Pen/Rec (in)	Depth Interval (ft)			
				0/0	35	100.R	No recovery. Refusal at 35'- boulder	
40							Roller bitted to 45'	
							S67M Bottom of Screen 43'	
45				1/0	45	130.1	No recovery	
50				4/0	50	140.4	Basal Till Green-GR CLAY and Silt; SO C angular Gravel	
						R	Roller bitted 1' into bedrock 54'- 55' coring begins at 55'	
55	60/60						Highly fractured Salem Gabbrodiorite w/inclusions of Granodiorite	
							Becoming more ganitic and and competent w/depth	
60	60/60						S67D Top of Ottawa Sand 58'	
							S67D Top of screen 60'	
65	60/60							
70								

REMARKS: 60/60

S67D Bottom of screen 75'

EOB - 75'

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





Project
Wells G & H Remedial Investigation

TDD No.
F1-8409-01

Sheet
2 of 3

Hole No.
S68

Location
between G & H

Depth	ROCK			SOIL			Well Construction	Stratum Description	Notes
	Sample No.	Core/Rec (in)	RQD	Pen/Rec (in)	Depth Interval (ft)	Blows/6"			
40				24/0	38-40	15/15/17/20		No recovery	2
45				24/0	43-45	15/15/16/14		No recovery S68S Bottom of screen 45'	
50				24/4	50-52	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					55-57			NO SAMPLE ATTEMPTED DUE TO RUNNING SAND	
60				24/0	60-62	39/20/20/16		No Recovery	
65				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



Project
Wells G & H Remedial Investigation

Location
between G & H

TDD No.
F1-8409-01

Sheet
3 of 3

Hole No.
S68

Depth	ROCK			SOIL			Well Construction	Stratum Description	Notes
	Sample No.	Core/Ret (in)	RQD	Pen/Sec (in)	Depth Interval (ft)	Blows/6"			
80								No SAMPLE	
								No SAMPLE	
85				24/11	85-87	42/48/49/50		M SAND and M GRAVEL SO C SAND AND C GRAVEL highly angular, dull BN, many Rx types	
90				1/0	90	100.1 R		No RECOVERY - boulder	
95						76/112/		Sandy Till, dense GR angular Rx fragments	
				24/10	95-97	104/92		TR C SAND, SO Silt and clay	
100						14/18/		two distinct strata	
				22/22	100-102	48/135/4		1.5' F SAND, .33' Till	
105								S68D Bottom of screen 105'	
	60/60							Bedrock at 105'	
								4" Ottawa Sand cushion	
								Began coring 107'	
								Dedham Granodiorite	
								highly competent	
								Borehole backfilled to 105' w/cement/bentonite grout	
								EOB 112'	

110 REMARKS:



Project Wells G & H Remedial Investigation		TDD No. FI-8409-01	Sheet 1 of 2	Hole No. S69
Location 200 W. Cummings Park			Angle from Horiz. Vertical	

Begin 3 MAR 85	Completed 18 MAR 85	Driller NEBC	Drill Make & Model Mobile B-53	Hole Dia. 3.5"	Overburden (ft) 35	Rock (ft) 20	Total Depth 55'
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Core Recovery (ft) 20	Core Box 2	Samples 7	El. Top of Casing 75.43	Ground El. 75.43	Depth to Top of Rock 35'
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Sample Hammer Weight/Fall 140 lbs/30"	Casing Solid Screen	Sch 80 PVC 1.5" I.D. 0.010 slot	NUS Inspector Golden
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Depth	Sample No.	ROCK		SOIL			Well Construction	Stratum Description	Notes
		Core/Rec (in)	RQD	Pen/Rec (in)	Depth Interval (ft)	Blows/6"			
5	01			24/19	0-2	5/18/11/12		F/M SAND, SO Gravel	
	02			24/21	5-7	40/21/30/41		M/C SAND, SO Gravel, TR F SAND	
10								GR SILT, SO F Sand (micaceous)	
	03			12/6	10-11	100.6			
15								GR SILT, SO F Sand	
	04			13/13	15-16	60/60.1			
20								GR F SAND, TR Silt, TR clay, TILL	
	05			24/12	20-22	37/67/63/60			
25								GR F SANDY TILL, SO SO Gravel	
	06			24/13	25-27	25/14/26/32			
30								GR M SANDY TILL, TR F Sand, TR Silt, TR Gravel	
				12/6	30-31	83/120-R			

GRANULAR SOILS		PROPORTIONS		ABBREVIATIONS	
Blows/Ft	Density	USED			
0-4	V. Loose	Trace (TR)	0-10%	F-Fine	
4-10	Loose	Little (LI)	10-20%	M-Medium	
10-30	M. Dense	Some (SO)	20-35%	C-Coarse	
30-50	Dense	And	35-50%	F/M-Fine to Medium	
>50	V. Dense			F/C-Fine to Coarse	
				V-Very	
				GR-Gray	
				BN-Brown	
				YEL-Yellow	



Project
Wells G & H Remedial Investigation

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Hole No.
S69

Location
Parking lot south of 200 W. Cummings Park

Depth	ROCK			SOIL			Well Construction	Stratum Description	Notes
	Sample No.	Core/Rec (in)	RQD	Pen/Rec (in)	Depth Interval (ft)	Blows/6"			
40		60/60						Feldspathic granite highly fractured, Some mineralization along fracture planes	1
								Brecciated, meta granodiorite	
								S69D Top of Ottawa Sand 39'	
								S69D Top of screen 40'	
45		60/60							
50		60/60						Increasing competence with depth	
55		60/60							
								S69D Bottom of screen 55'	
								EOB	

REMARKS:

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



Project Wells G & H Remedial Investigation		TDD No. F1-8409-01	Sheet 1 of 3	Hole No. S70
Location 25' West of Unifirst BLDG			Angle from Horiz. Vertical	

Begin 17 DEC 85	Completed	Driller NEBC	Drill Make & Model Mobile B-53		Hole Dia. 3.5"	Overburden (ft) 62'	Rock (ft) 20'	Total Depth 82'
Core Recovery (ft) 20'		Core Bxs 2	Samples 12	El. Top of Casing	Ground El. S70S-69.95 S70M-69.96 S70D-69.96		Depth to Top of Rock 62'	
Sample Hammer Weight/Fall 140 lbs/30"			Casing Solid Sch 80 PVC 1.5" I.D. Screen 0.010 slot			NUS Inspector Golden		

Depth	Sample No.	ROCK		SOIL			Well Construction	Stratum Description	Notes
		Core/Rec (in)	RQD	Pen/Rec (in)	Depth Interval (ft)	Blows/6"			
5	01			24/4	0-2	4/5/6/7		Fill: F SAND, SO C Sand, SO F/M Gravel	
10	02			24/15	5-7	0/24/42/80		Fill: F SAND, SO C Sand, SO F/M Gravel	
15	03			10/9	10-12	28/100.4 R		GR-Green F SAND, SO F Sand and Silt, TR TR Clay, TR F Gravel	
20	04			24/17	15-17	28/29/42/51		GR-Green M SAND, SO F Sand and Silt, TR Gravel, TR Clay	
25	05			12/8	20	33/133/R		Sandy Till highly compact F SAND, Silt and Clay	
30	06			8/8	25	33/100.2 R		GR-Green Sandy Till - sand percentage decreasing with depth	

GRANULAR SOILS		PROPORTIONS		ABBREVIATIONS	
Blows/Ft	Density	USED			
0-4	V. Loose	Trace (TR)	0-10%	F-Fine	
4-10	Loose	Little (LI)	10-20%	M-Medium	
10-30	M. Dense	Some (SO)	20-35%	C-Coarse	
30-50	Dense	And	35-50%	F/M-Fine to Medium	
>50	V. Dense			F/C-Fine to Coarse	
				V-Very	
				GR-Gray	
				BN-Brown	
				YEL-Yellow	



Project

Wells G & H Remedial Investigation

TDD No.

F1-8409-01

Sheet

2 of 3

Hole No.

S70

Location

Unifirst Parking Lot

Depth	ROCK			SOIL			Well Construction	Stratum Description	Notes
	Sample No.	Core/Rec. (in)	RQD	Pen/Rec. (in)	Depth Interval (ft)	Blows/6"			
40	07			5/3	35	120.5		Sandy Till	
45	08			6/6	40	120		S70M Top of Ottawa 40' Sandy Till	
								S70M Top of screen 42'	
50	09			3/3	45	120		Sandy Till	
55	10			4/2	50	120		Sandy Till	
60	12			6/2	55	120		Sandy Till	
65	13			3/3	60	120		Sandy Till	
		60/60						Bedrock at 62'	
								S70M Bottom of screen 62'	
								Highly fractured feldspathic granite	
		60/60						S70D Top of Ottawa SAND 62'	
								S70D Top of screen 67'	

REMARKS:



Project	FID No.	Sheet	File No.
Wells G & H Remedial Investigation	F1-8409-01	3 of 3	S70
Location			
Unifirst Parking Lot			

Depth	ROCK			SOIL			Well Construction	Stratum Description	Notes
	Sample No.	Core/Rec (in)	RQD	Pen/Rec (in)	Depth Interval (ft)	Blows/6"			
70								Less fractured Dedham (Granodiorite)	
		60/60							
								highly fractured granite	
75								highly fractured granite	
		60/60							
80								S70D Bottom of screen 82'	
								EOB - 83'	
85									

REMARKS:

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



Project Wells G & H Remedial Investigation		TDD No. FI-8409-01	Sheet 1 of 2	Hole No. S71
Location Unifirst (front gate) Parking Lot			Angle from Horiz. Vertical	
Began 1 Feb 85	Completed	Driller NEBC	Drill Make & Model Mobile B-53	Hole Dia. 3.5"
Overburden (ft) 16.5		Rock (ft) 26.2	Total Depth 42.7	
Core Recovery (ft) 25	Core Bxs 2	Samples 2	El. Top of Casing S71S-71.31	Ground El. S71D-71.39
Sample Hammer Weight/Fall 140 lbs/30"		Casing Solid Sch 80 PVC 1.5" I.D. Screen 0.010 slot	NUS Inspector Radville	

Depth	Sample No.	ROCK		SOIL			Well Construction	Stratum Description	Notes
		Core/Rec (in)	RQD	Pen/Rec (in)	Depth Interval (ft)	Blows/6"			
5	01			24/24	5-7	37/67/77/87		BN F/C GRAVEL, SO F/M Sand, TR Silt	
10	02			13/11	10-12	19/19/17/25		S71S Top of Ottawa Sand 9' S71S Top of screen 11' C SAND, SO F/C Gravel, TR Silt	1
15		60/60						S71S Bottom of screen 16' Roller bitted from 16 1/2' to 20' expecting Boulders	
20		60/60						Bedrock at 16.5'	2
25		60/60						S71D Top of Ottawa Sand 20' S71D Top of screen 22.7'	
30		60/60						Dedham Granodiorite moderately fractured, some fractures are mineralized	

GRANULAR SOILS		PROPORTIONS		ABBREVIATIONS	
Blows/Ft	Density	USED			
0-4	V. Loose	Trace (TR)	0-10%	F-Fine	
4-10	Loose	Little (LI)	10-20%	M-Medium	
10-30	M. Dense	Some (SO)	20-35%	C-Coarse	
30-50	Dense	And	35-50%	F/M-Fine to Medium	
>50	V. Dense			F/C-Fine to Coarse	
				V-Very	
				GR-Gray	
				BN-Brown	
				YEL-Yellow	

- 1.) S71S sealed in overburden with cement/bentonite slurry from 9' to GS
- 2.) S71D sealed in bedrock with cement/bentonite slurry from 22.7' to GS



Project	TDD No.	Sheet	Hole No.
Wells G & H Remedial Investigation	FI-8409-01	2 of 2	571
Location			
Unifirst (front gate) Parking Lot			

Depth	ROCK			SOIL		Well Construction	Stratum Description	Notes
	Sample No.	Core/Dec (in)	RQD	Pen/Dec (in)	Depth Interval (ft)			
40							Dedham Granodiorite EOB 42.7'	

REMARKS:



Project Wells G & H Remedial Investigation		TDD No. F1-8409-01	Sheet 1 of 4	Hole No. S72
Location Behind United Truck Leasing Bldg			Angle from Horiz. Vertical	

Begin 14 DEC 85	Completed	Driller NEBC	Drill Make & Model Mobile 847	Hole Dia. 3.5"	Overburden (ft) 116	Rock (ft) 21	Total Depth 137
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Core Recovery (ft) 20	Core Bx's 2	Samples 18	El. Top of Casing S72S 51.22, S72M 50.00, S72D 50.16	Ground El. 116'	Depth to Top of Rock
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Sample Hammer Weight/Fall 140 lbs/30"	Casing Solid Screen	Sch 80 PVC 1.5" I.D. 0.010 slot	NUS Inspector Baldyga/Sandhaus
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Depth	Sample No.	ROCK		SOIL			Well Construction	Stratum Description	Notes
		Core/Rec (in)	RQD	Pen/Rec (in)	Depth Interval (ft)	Blows/6"			
5	01			24/0	0-2	1/1/1/1		Topsoil	
10	02			24/16	5-7	1/1/1/2		Interlayered F SAND and Sandy PEAT	
15	03			25/15	10-12	32/31/28/29		2" layer M/C GRAVEL 13" layer F to C silty SAND, some GRAVEL	
20	04			24/8	15-17	10/10/9/10		GR F SAND AND SILT SO VF Sand	
25	05			24/12	20-22	9/9/10/10		GR F SAND AND SILT	
30	06			24/20	25-27	8/9/9/9		GR F Silty SAND	
35	07			24/19	30-32	7/9/8/8		GR F Silty SAND	

GRANULAR SOILS		PROPORTIONS		ABBREVIATIONS	
Blows/Ft	Density	USED			
0-4	V. Loose	Trace (TR)	0-10%	F-Fine	
4-10	Loose	Little (LI)	10-20%	M-Medium	
10-30	M. Dense	Some (SO)	20-35%	C-Coarse	
30-50	Dense	And	35-50%	F/M-Fine to Medium	
>50	V. Dense			F/C-Fine to Coarse	
				V-Very	
				GR-Gray	
				BN-Brown	
				YEL-Yellow	



Project

Wells G & H Remedial Investigation

Location

Behind United Truck Leasing Bldg

TDD No.

EL-8409-01

Sheet

2 of 4

Hole No.

S72

Depth	ROCK			SOIL			Well Construction		Stratum Description	Notes
	Sample No.	Core/Rec (in)	RQD	Pen Rec (in)	Depth Interval (ft)	Blows/6"				
35	08			24/18	35-37	6/8/8/9			GR F SAND AND SILT	
40	09			24/21	40-42	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	11			24/15	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	12			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	
65	14			24/4	65-67	1/1/4/5			GR F SAND AND SILT	

REMARKS:



Project	TDD No.	Sheet	Hole No.
Wells G & H Remedial Investigation	F1-8409-01	3 of 4	S72
Location			
Behind United Truck Leasing Bldg.			



Depth	ROCK			SOIL		Well Construction	Stratum Description	Notes
	Sample No.	Core/Rec (in)	RQD	Pen/Rec (in)	Depth Interval (ft)			
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 NESTED BOULDERS CORED THROUGH BOULDERS- RETRIEVED Boulder cores and V C SANDS AND GRAVEL	
85								
90							S76M Bottom of screen 92.5'	1
95								
100								

REMARKS:

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



Project Wells G & H Remedial Investigation	FOID No. FI-8409-01	Sheet 4 of 4	Hole No. S72
Location Behind United Truck Leasing Bldg.			

Depth	ROCK			SOIL			Well Construction	Stratum Description	Notes
	Sample No.	Core/Rec (in)	RQD	Pen/Rec (in)	Depth Interval (ft)	Blows/6"			
105	18			10/10	104-105	35-50/5		GR-GN SANDY TILL	
110								NO SAMPLE	
115								Bedrock: Roller bitted 1 ft from 116 to 117	
117								CORE 117 to 120 Green Chlorite Schist, purple stains from Fe and Mg oxides, very weathered, highly fractured	
120	36/36	5						S72 Top of screen 122'	
								Highly fractured, brecciated green schist	
								Green schist, much less fractured. Quartz veins filling fractures.	
125	60/60	0						Very highly fractured green schist. Both horizontal and vertical fractures.	
								Green schist, less fractured than above.	
130	60/60	55							
132	24/22	0							
137								S72D Bottom of screen 137' EOB - 137'	

REMARKS:



Project Wells G & H Remedial Investigation TDD No. F1-8409-01 Sheet 1 of 2 Hole No. S73

Location South of Charrette Bldg. Angle from Horiz. Vertical

Begin 4 JAN 85 Completed Driller NEBC Drill Make & Model Mobile B-53 Hole Dia. 3.5" Overburden (ft) 36 Rock (ft) 20.5 Total Depth 56.5

Core Recovery (ft) 20 Core Bxs 2 Samples 7 El. Top of Casing Ground El. S73S-52.50 S73D-52.56 Depth to Top of Rock 36

Sample Hammer Weight/Fall 140 lbs/30" Casing Solid Sch 80 PVC 1.5" I.D. Screen 0.010 slot NUS Inspector Ross

Depth	Sample No.	ROCK		SOIL			Well Construction	Stratium Description	Notes
		Core/Rec (in)	RQD	Pen/Rec (in)	Depth Interval (ft)	Blows/6"			
5	01			24/8	0-2	2/2/6/9		LOAM	1
10	02			12/10	5-6	33/120 R		lt BN C SAND and Gravel, SO M Sand, TR F Sand S73S Top of Ottawa Sand 9'	
15	03			18/6	10-11.5	8/8/7		lt BN C SAND and Gravel, SO F/M Sand S73S Top of screen 10'	
20	04			13/16	15-16.5	10/7/6		lt BN F SAND, SO M Sand, TR Gravel	
25	05			24/23	20-22	1/3/4/6		lt BN GR F SAND	
30	06			24/19	25-27	2/3/4/4		lt GR F SAND, SO M Sand, TR C Sand	
35	07			24/5	30-32	10/8/7/6		black green F/M GRAVEL, SO F/M Sand S73S Bottom of screen 35'	

GRANULAR SOILS		PROPORTIONS		ABBREVIATIONS	
Blows/Ft	Density	USED			
0-4	V. Loose	Trace (TR)	0-10%	F-Fine	
4-10	Loose	Little (LI)	10-20%	M-Medium	
10-30	M. Dense	Some (SO)	20-35%	C-Coarse	
30-50	Dense	And	35-50%	F/M-Fine to Medium	
>50	V. Dense			F/C-Fine to Coarse	
				V-Very	
				GR-Gray	
				BN-Brown	
				YEL-Yellow	

1.) S73S sealed with cement bentonite slurry from 9' to GS



Project Wells G & H Remedial Investigation		TDD No. F1-8409-01	Sheet 1 of 3	Hole No. S74
Location Behind NREC - River side of RR tracks			Angle from Horiz. Vertical	

Began 15 JAN 85	Completed	Driller NEBC	Drill Make & Model Mobile B-47	Hole Dia. 3.5"	Overburden (ft) 67.5	Rock (ft) 21	Total Depth 88.5
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Core Recovery (ft) 20'	Core Bxs 2	Samples 13	El. Top of Casing	Ground El. S74M-47.96 S74D-48.21	Depth to Top of Rock 67.5
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Sample Hammer Weight/Fall 140 lbs/30"	Casing Solid Sch 80 PVC 1.5" I.D. Screen 0.010 slot	NUS Inspector Demorest
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Depth	Sample No.	ROCK		SOIL			Well Construction	Straturn Description	Notes
		Core/Rec (in)	RQD	Pen/Rec (in)	Depth Interval (ft)	Blows/6"			
5	01			24/6	0-2	1/0/2/4		DK BN organic rich soil	
10	02			24/18	5-7	31/40/42/41		BN C SAND, SO C Gravel, angular fragments S74S Top of screen 8.0'	
15	03			24/10	10-12	19/20/21/24		GR C SAND and C angular gravel	
20	04			24/8	14-16	1/5/9/7		GR C SAND, LT GR Clay, TR M SAND and M Gravel	
25	05			24/12	19-21	5/6/5/5		GR-Green SILT and Clay LT F Sand	
30	06			24/18	24-26	6/4/4/6		GR-Green F SAND, highly micaceous	
35	07			24/24	29-31	1/2/4/4		GR-Green F SAND, SO Clay and Silt, TR M Gravel	

GRANULAR SOILS		PROPORTIONS		ABBREVIATIONS	
Blows/Ft	Density	USED			
0-4	V. Loose	Trace (TR)	0-10 %	F-Fine	
4-10	Loose	Little (LI)	10-20 %	M-Medium	
10-30	M. Dense	Some (SO)	20-35 %	C-Coarse	
30-50	Dense	And	35-50 %	F/M-Fine to Medium	
> 50	V. Dense			F/C-Fine to Coarse	
				V-Very	
				GR-Gray	
				BN-Brown	
				YEL-Yellow	



Project	TDD No.	Sheet	Plot No.
Wells G & H Remedial Investigation	FI-8409-01	2 of 3	S74

Location

Behind NREC River side of RR tracks - in the woods

Depth	ROCK			SOIL			Well Construction	Stratum Description	Notes
	Sample No.	Core/Rec (in)	RQD	Pen/Rec (in)	Depth Interval (ft)	Blows/6"			
40	08			24/12	34-36	1/0/1/1		GR-Green F SAND, and YEL-BN F Sand, highly micaceous	
45	09			24/18	39-41	8/5/7/12		GR-Green F SAND, and YEL F Sand w/iron staining - micaceous	
50	10			24/24	44-46	9/12/18/22		GR-Green F SAND, SO YEL BN F Sand	
55	11			24/14	49-51	9/16/26/41		BN F/M SAND, micaceous	
60	12			24/24	54-56	3/8/11/15		GR Gray F SAND, 1" orange BN band at 55', lt BN F micaceous Sand	
65	13			24/7	59-61	0/14/52/24		Green clayey SILT, LT F Sand, TR M Gravel	
	36/36							No split spoon due to running sands Wash: GR C SAND, angular Bedrock at 67.5 Coring begins at 68.5	

REMARKS:



Project	TDD No.	Sheet	Hole No.
Wells G & H Remedial Investigation	FL-8409-01	3 of 3	S74
Location			
Behind NREC building			

Depth	ROCK			SOIL			Well Construction	Stratum Description	Notes
	Sample No.	Core/Ret (in)	RQD	Pen/Ret (in)	Depth Interval (ft)	Blows/6"			
70								S74D Top of Ottawa Sand 70'	2
		60/60						S74D Top of screen 73'	
75									
		60/60						highly fractured schist	
80									
		60/60							
85									
		24/24							
88.5								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.



Project
Wells G & H Remedial Investigation

TDD No.
F1-8409-01

Sheet
of 3

Hole No.
S75

Location
Weyerhaeuser Lumberyard

Angle from Horiz.
Vertical

Beg
9 JAN 85

Completed

Driller

NEBC

Drill Make & Model

Mobile B-53

Hole Dia.

3.5"

Overburden

75'

Rock (ft)

20

Total Depth

95

Core Recovery (ft)

20'

Core Bxs

2

Samples

14

El. Top of Casing

~~57.55-57.00~~

S75D-56.89

Depth to Top of Rock

75'

Sample Hammer Weight/Fall

140 lbs/30"

Casing

Solid

Screen

Sch 80 PVC 1.5" I.D.

0.010 slot

NUS Inspector

Golden

Depth	Sample No.	ROCK		SOIL			Well Construction	Stratum Description	Notes
		Core/Rec (in)	RQD	Pen/Rec (in)	Depth Interval (ft)	Blows/6"			
5								Fill - No sample collected from 0-2	
	01			24/20	5-7	10/9/9/9		M/C SAND, TR Gravel and pebbles	
10									
	02			24/18	10-12	14/14/17/17		C SAND, TR Gravel, TR Pebbles, Iron staining	
15									
	03			24/8	15-17	8/8/10/10		C SAND, SO GRAVEL	
20									
	04			24/20	20-22	4/4/5/7		C SAND, SO Pebbles LI Silt	
25									
	05			24/15	25-27	7/11/13/14		GR M/C SAND, TR Gravel, TR Silt	
30									
	06			24/24	30-32	5/5/7/10		S75S Top of Ottawa Sand 28.5 S76S Top of Screen 29'	
								M SAND, TR F SAND TR SILT	

GRANULAR SOILS

Blows/Ft

0-4

4-10

10-30

30-50

>50

Density

V. Loose

Loose

M. Dense

Dense

V. Dense

PROPORTIONS

Trace (TR)

Little (LI)

Some (SO)

And

ABBREVIATIONS

F-Fine

M-Medium

C-Coarse

F/M-Fine to Medium

F/C-Fine to Coarse

V-Very

GR-Gray

BN-Brown

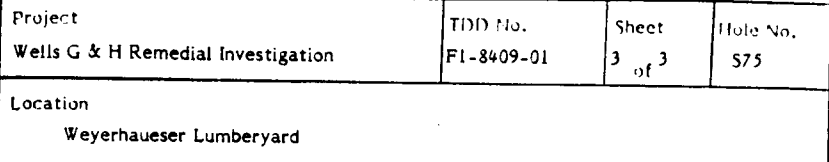
YEL-Yellow



Project	TDD No.	Sheet	Hole No.
Wells G & H Remedial Investigation	F1-8409-01	2 of 3	S75
Location			
Weyerhaeuser Lumberyard			

Depth	ROCK			SOIL			Well Construction	Stratum Description	Notes
	Sample No.	Core/Rec (in)	RQD	Pen/Rec (in)	Depth Interval (ft)	Blows/6"			
40	07			24/21	35-37	7/6/7/11		M SAND grading to F SAND, TR Silt	
								S75S Bottom of screen 44'	
								F/M SAND, TR Silt	
45									
50	08			24/20	40-42	7/12/12/13			
55	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'	
60	10			24/24	50-52	5/7/9/8		M SAND, TR F Sand	
65	11			24/21	55-57	9/9/10/13		M SAND, LI F Sand, TR Silt	
	12			24/24	60-62	4/4/6/7		F SAND, TR Silt	
	13			24/24	65-67	13/13/14/15		CLAY, SO Silt	

REMARKS:

[illegible]

REMARKS:



Project	TDD No.	Sheet	Hole No.
Wells G & H Remedial Investigation	FI-8409-01	1 of 5	S76

Location	Angle from Horiz.
Behind FJL Distributor Bldg.	Vertical

Began	Completed	Driller	Drill Make & Model	Hole Dia.	Overburden (ft)	Rock (ft)	Total Depth
16 JAN 85	23 JAN 85	NEBC	Mobile B53	3.5"	130	20	150

Core Recovery (ft)	Core Bxs	Samples	El. Top of Casing	Ground El.	S76D-52.98 S76M-52.39	Depth to Top of Rock
	2	21				130'

Sample Hammer Weight/Fall	Casing	Sch 80 PVC 1.5" I.D.	NUS Inspector
140 lbs/30"	Solid Screen	0.010 slot	Sandhaus/Golden

Depth	Sample No.	ROCK		SOIL		Well Construction	Stratum Description	Notes
		Core/Rec (in)	RQD	Pen/Rec (in)	Depth Interval (ft)			
5	01			24/7	0-2	3/27/20/34	1t BN F/M SAND	
10	02			24/24	5-7	3/14/16/21	1t BN F SAND and SILT Below water table	
15	03			24/24	10-12	11/6/8/13	1t BN F SAND and SILT S-76S Top of Ottawa Sand 13'	
20	04			24/22	15-17	9/10/16/17	1t BN SILT S-76S Top of screen at 15'	
25								
30	05			24/17	20-22	8/8/11/14	1t BN F/M SAND, Prominent Iron staining 20-20.5'	
	06			24/24	25-27	9/12/14/19	Three discernable strata Top 8" - F/M 1t BN SAND and SILT Middle 8" - 1t BN F SAND Bottom 8" - 1t BN SILT and F SAND 1t BN F SAND some SILT	
	07			24/21	30-32	10/8/5/6		

GRANULAR SOILS	PROPORTIONS	ABBREVIATIONS
Blows/Ft	Density	USED
0-4	V. Loose	Trace (TR) 0-10%
4-10	Loose	Little (LI) 10-20%
10-30	M. Dense	Some (SO) 20-35%
30-50	Dense	And 35-50%
>50	V. Dense	

F-Fine	M-Medium	C-Coarse
F/M-Fine to Medium	F/C-Fine to Coarse	V-Very
GR-Gray	BN-Brown	YEL-Yellow



Project

Wells G & H Remedial Investigation

TDD No.

F1-8409-01

Sheet

2 of 5

Hole No.

S76

Location

Behind FJL Distributors Bldg

Depth	ROCK			SOIL			Well Construction	Stratum Description	Notes
	Sample No.	Core/Rec (in)	RQD	Pen/Rec (in)	Depth Interval (ft)	Blows/6"			
35	08			24/24	35-37	8/8/7/10		lt BN F/M SAND, TR Silt biotite and muscovite plates visible	
40									
	09			24/24	40-42	4/3/5/6		lt BN F/M sand, TR Silt	
45									
	10			24/24	45-47	5/4/6/6		lt BN F SAND and SILT	
50									
	11			24/24	50-52	8/7/8/9		lt BN F SAND and SILT	
55									
	12			24/24	55-57	9/9/10/15		lt BN F SAND and SILT	
60									
	13			24/23	60-62	8/13/13/17		BN M SAND, some F SAND, little SILT	
65									
	14			24/20	65-67	5/5/8/9		S76S - Bottom of screen 65' lt BN F SAND and SILT	

REMARKS:



Project
Wells G & H Remedial Investigation

TDD No.
F1-8409-01

Sheet
3 of 5

Hole No.
S76

Location
Behind FJL Distributors Bldg.

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

REMARKS:



Project	TDD No.	Sheet	Hole No.
Wells G & H Remedial Investigation	F1-8409-01	4 of 5	S76
Location			
Behind FJL Distributors Bldg.			

Depth	ROCK			SOIL			Well Construction	Stratum Description	Notes
	Sample No.	Core/Rec (in)	RQD	Pen/Rec (in)	Depth Interval (ft)	Blows/6"			
105	21			24/3	105-107	18/29/12/21		BN M SAND, TR Gravel TR Silt	
110				24/0	110	100		NO SAMPLE	1
115								NO SAMPLED ATTEMPTED	2
120								NO SAMPLE ATTEMPTED	3
125								NO SAMPLE ATTEMPTED	4
130	60/60							Bedrock: META GABBRO-DIORITE MODERATELY FRACTURED SOME FRACTURES QUARTZ FILLED	
135	60/60							S76D Top of Ottawa Sand 133' S76D Top of screen 135' META GABBRODIORITE HIGHLY FRACTURED W/SOME FRACTURES QUARTZ AND CALCITE FILLED	

REMARKS:

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

Wells G & H Remedial Investigation

TDD No.

FI-8409-01

Sheet

5 of 5

Hole No.

S76

Location

Behind FJL Distributors Bldg.

Depth	ROCK			SOIL			Well Construction	Stratum Description	Notes
	Sample No.	Core/Rec (in)	RQD	Pen/Rec (in)	Depth Interval (ft)	Blows/6"			
140		60/60						META GABBRODIORITE HIGHLY FRACTURED META GABBRODIORITE MODERATELY FRACTURED Bottom of S76D - 150' EOB	*

REMARKS:

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



Project Wells G & H Remedial Investigation		TDD No. FI-8409-01	Sheet 1 of 5	Hole No. S77
Location Aberjona Auto Parts (NE Corner)			Angle from Horiz. Vertical	
Begun 18 FEB 85	Completed	Driller NEBC	Drill Make & Model Mobile B53	Hole Dia. 3.5"
Overburden (ft) 138.5		Rock (ft) NA	Total Depth 138.5	
Core Recovery (ft)	Core Bxs 2	Samples 21	El. Top of Casing	Ground El. S77SS-44.56 S77D-44.89
Sample Hammer Weight/Fall 140 lbs/30"		Casing Solid Sch 80 PVC 1.5" I.D. Screen 0.010 slot	NUS Inspector Baldyga	
		Depth to Top of Rock 130'		

Depth	Sample No.	ROCK		SOIL			Well Construction	Stratum Description	Notes
		Core/Rec (in)	RQD	Pen/Rec (in)	Depth Interval (ft)	Blows/6"			
5	01			24/9	0-2	9/6/10/8		dk GR F/M SAND S77SS Top of Ottawa Sand 7' S77SS Top of screen 8'	
10	02			24/10	5-7	2/2/2/2		lt GR F SAND, TR Silt S77SS Bottom of screen 13'	
15	03			24/18	10-12	4/4/5/6		lt GR F SAND, TR Silt S77SS Bottom of screen 13'	
20	04			24/24	15-17	2/2/7/8		lt BN F SAND, TR Silt S77S Top of Ottawa Sand 23.5'	
25	05			24/18	20-22	1/4/5/7		Dk BN F/M SAND, TR Silt S77S Top of screen 25'	
30	06			24/18	25-27	6/2/2/13		S77S Bottom of screen 30' Red - BN M/C SAND, SO F SO F Sand, TR Silt	
	07			24/12	30-32	61/45/28/21			

GRANULAR SOILS		PROPORTIONS		ABBREVIATIONS	
Blows/Ft	Density	USED			
0-4	V. Loose	Trace (TR)	0-10%	F-Fine	
4-10	Loose	Little (LI)	10-20%	M-Medium	
10-30	M. Dense	Some (SO)	20-35%	C-Coarse	
30-50	Dense	And	35-50%	F/M-Fine to Medium	
>50	V. Dense			F/C-Fine to Coarse	
				V-Very	
				GR-Gray	
				BN-Brown	
				YEL-Yellow	

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



Project

Wells G & H Remedial Investigation

Location

Aberjona Auto Parts

TDD No.

FI-8409-01

Sheet

2 of 5

Hole No.

S77

Depth	ROCK			SOIL			Well Construction	Stratum Description	Notes
	Sample No.	Core/Rec (in)	RQD	Pen/Rec (in)	Depth Interval (ft)	Blows/6"			
40	08			24/24	35-37	7/10/12/10		tan SILT	
45	09			24/24	40-42	8/11/10/12		tan SILT	
50	10			24/24	45-47	15/13/15/17		tan SILT, more compact than above	
55	11			24/16	50-52	15/21/27/34		BN F SAND and SILT	
60	12			24/24	55-57	13/15/14/18		M/C BN SAND	
65	13			24/24	60-62	12/13/19/19		F/C C GRAVEL, SO C BN SAND, grading with depth	
	14			24/24	65-67	25/15/16/24		M/C BN SAND	
								S77M Top of Ottawa Sand 68'	3

REMARKS:

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



Project	TDD No.	Sheet	Hole No.
Wells G & H Remedial Investigation	FI-8409-01	3 of 5	S77
Location			
Aberjona Auto Parts			

Depth	ROCK			SOIL			Well Construction	Stratum Description	Notes
	Sample No.	Core/Rec (in)	RQD	Pen/Rec (in)	Depth Interval (ft)	Blows/6"			
70	15			24/24	70-72	35/30/22/27		M/C BN SAND S77M Top of screen 70'	
75								S77M Bottom of screen 75'	
80	16			24/24	80-82	33/38/30/21		10" F/C SAND, 14" M/C GRAVEL, TR M Sand	
85	17			8/6	85-87	147.8		F/M GRAVEL, SO C Sand	
90	18			24/20	90-92	22/22/23/27		F/C SAND, TR Silt	
95									
100	19			24/24	100-102	12/34/31/60		tan F silty SAND, very compact	

REMARKS:



Project

Wells G & H Remedial Investigation

TDD No.

F1-8409-01

Sheet

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Hole No.

S77

Location

Aberjona Auto Parts

Depth	ROCK			SOIL			Well Construction	Stratum Description	Notes
	Sample No.	Core/Rec (in)	RQD	Pen/Rec (in)	Depth Interval (ft)	Blows/6"			
105									
110									
	20			24/15	110-112	30/35/36/60		GR SILT, compact	
115									
	21			24/24	115-117	14/22/31/46		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		No Recovery	
								S77D Top of Ottawa Sand 130'	4
								S77D Top of screen 133.5'	
135								NESTED BOULDERS	
								from 130'	

REMARKS:

4. S77D sealed in overburden with cement/bentonite slurry from 130' to GS.



Project Wells G & H Remedial Investigation		TDD No. F1-8409-01	Sheet 5 of 5	Hole No. S77
Location Aberjona Auto Parts				

Depth	ROCK			SOIL			Well Construction	Stratum Description	Notes
	Sample No.	Core/Rec (in)	RQD	Pen/Rec (in)	Depth Interval (ft)	Blows/6"			
140								S77D Bottom of screen 138.5' EOB 138.5'	

REMARKS:



Project Wells G & H Remedial Investigation		TDD No. FI-8409-01	Sheet 1 of 4	Hole No. S78
Location Beatrice Property			Angle from Horiz. Vertical	

Began 16 JAN 85	Completed 02 FEB 95	Driller BDC/NEBC	Drill Make & Model CME55/Mobile B53	Hole Dia. 3.5"	Overburden (ft) 90.5	Rock (ft) 20	Total Depth 110.5
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Core Recovery (ft) 20	Core Bxs 2	Samples	El. Top of Casing	Ground El. S78D-45.41 S78D-45.77	Depth to Top of Rock 90.5
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Sample Hammer Weight/Fall 140 lbs/30"	Casing Solid Sch 80 PVC 1.5" I.D. Screen 0.010 slot	NUS Inspector Ross
--	---	-----------------------

Depth	Sample No.	ROCK		SOIL			Well Construction	Stratum Description	Notes
		Core/Rec (in)	RQD	Pen/Rec (in)	Depth Interval (ft)	Blows/6"			
5	01			24/14	0-2	4/5/2/2		BN F/M SAND, TR Silt	1
								S78S Top of Ottawa Sand 4'	
								S78S Top of screen 5'	
10	02			21/21	7-9	7/11/68/100.3		BN F SAND, LI Silt	
15	03			24/24	12-14	5/4/5/5		GR F SAND, LI Silt	
20	04			24/20	17-19	10/12/13/15		GR and BN F/M SAND, TR Silt - interbedded	
25	05			24/24	22-24	8/10/11/16		GR and BN F SAND, LI Silt	
30	06			24/24	27-29	2/23/27/40		BN VF SAND, LI Silt	
	07			24/12	32-34	2/50/52/50		BN F/C SAND, LI F/C Gravel	

GRANULAR SOILS		PROPORTIONS		ABBREVIATIONS	
Blows/Ft	Density	USED			
0-4	V. Loose	Trace (TR)	0-10%	F-Fine	
4-10	Loose	Little (LI)	10-20%	M-Medium	
10-30	M. Dense	Some (SO)	20-35%	C-Coarse	
30-50	Dense	And	35-50%	F/M-Fine to Medium	
>50	V. Dense			F/C-Fine to Coarse	
				V-Very	
				GR-Gray	
				BN-Brown	
				YEL-Yellow	

1. S78S sealed in overburden with bentonite pellets from 4' to GS.



Project: Wells G & H Remedial Investigation
 TDD No.: F1-8409-01
 Sheet: of 3
 Hole No.: S85
 Location: 500 ft North of Well H
 Angle from Horiz. Vertical

Begun: 20 FEB 85
 Completed: 26 FEB 85
 Driller: NEBC
 Drill Make & Model: Mobile B-47
 Hole Dia.: 3.5"
 Overburden (ft):
 Rock (ft): NA
 Total Depth:
 Core Recovery (ft): NA
 Core Bxs: 0
 Samples: 11
 El. Top of Casing:
 Ground El.: S85M-46.09 S85S-46.08
 Depth to Top of Rock: unknown
 Sample Hammer Weight/Fall: 140 lbs/30"
 Casing: Solid Screen
 Sch 80 PVC 1.5" I.D. 0.010 slot
 NUS Inspector: Ross

Depth	Sample No.	ROCK		SOIL			Well Construction	Stratum Description	Notes
		Core/Rec (in)	RQD	Pen/Rec (in)	Depth Interval (ft)	Blows/6"			
5	01			24/14	0-2	1/1/3/2		BN F SAND, SO M Sand	
10	02			24/24	5-7	7/11/12/14		lt BN F/M SAND	
15	03			24/14	10-12	3/5/5/5		GR-BN F SAND, TR C Gravel	
20	04			24/18	15-17	3/3/3/5		lt GR F Sand	
25	05			24/18	20-22	1/1/3/5		S85S Top of Ottawa sand 18' lt GR-BN F SAND	
30	06			24/18	25-27	30/36/24/25		C SAND and Gravel, SO lt BN F Sand	
	07			24/10	30-32	11/17/21/25		S85S Bottom of screen 30' BN M SAND, SO F Sand	

GRANULAR SOILS		PROPORTIONS		ABBREVIATIONS	
Blows/Ft	Density	USED			
0-4	V. Loose	Trace (TR)	0-10%	F-Fine	
4-10	Loose	Little (LI)	10-20%	M-Medium	
10-30	M. Dense	Some (SO)	20-35%	C-Coarse	
30-50	Dense	And	35-50%	F/M-Fine to Medium	
>50	V. Dense			F/C-Fine to Coarse	
				V-Very	
				GR-Gray	
				BN-Brown	
				YEL-Yellow	

1. S85S sealed in overburden with cement/bentonite slurry from 18' to GS. Borehole backfilled from 62' to 30'.



Project Wells G & H Remedial Investigation		TDD No. FI-8409-01	Sheet 2 of 3	Hole No. S85
Location 500 feet North of Well H				

Depth	ROCK			SOIL			Well Construction			Stratum Description	Notes													
	Sample No.	Core/Rec. (in)	RQD	Pen/Rec. (in)	Depth Interval (ft)	Blows/6"																		
	08			24/22	35-37	7/15/12/14			BN C SAND, SO C Gravel, TR F Sand, TR Silt															
40	09			24/14	40-42	6/31/50/83						C SAND, SO F/M Gravel, TR C Gravel												
45															No samples collected due to running sands 45-65'									
50																								
55																								
60																								
65																								
			9/3	65	120/30.3																			

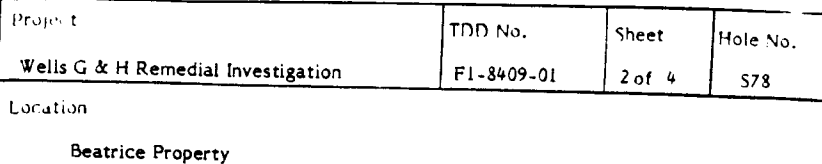
REMARKS:


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

Location
500 feet North of Well H

[illegible]

REMARKS:



Depth	ROCK			SOIL			Well Construction		Stratum Description	Notes
	Sample No.	Core/Rec (in)	RQD	Pen/Rec (iii)	Depth Interval (ft)	Blows/6"				
35									BN C SAND, LI F/M Gravel	
	08			27/7	38-40	22/13/11/16				
40										
	09			24/24	43-45	16/28/20/20				
45										
	10			24/22	48-50	7/27/60/77				
50										
	11			24/14	53-55	8/24/34/34				
55										
				24/0	58-60	58/26/18/16				
60										
	12			24/15	63-65	45/45/60/75				
65										

REMARKS: 13 24/22 68-70 12/12/25/40



Project Wells G & H Remedial Investigation	TDD No. F1-8409-01	Sheet 3 of 4	Hole No. S78
Location Beatrice Property			

Depth	ROCK			SOIL			Well Construction	Stratum Description	Notes
	Sample No.	Core/Rec (in)	RQD	Pen/Rec (in)	Depth Interval (ft)	Blows/6"			
70								8" F GR SAND and Silt 4" VC Rx fragments, highly angular, w/sharp faces Boulders nested in very coarse sand and gravels - large volume of water lost to aquifer No Sample attempted 75-90' NO RECOVERY - Bedrock - 90.5' Schist increasing competence with depth S78D Top of Ottawa Sand 93' S78D Top of screen 95.5'	2
	14			16/12	73-75	40/65/100			
75	14				75.5-76.7				
	16				77-78.3				
	15				78.5-79.8				
80									
85									
90				3/0	90	100 R			
	60/60								
95									
	60/60								
100									
	60/60								

REMARKS:

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

REMARKS:



Project
Wells G & H Remedial Investigation

TDD No.
F1-8409-01

Sheet
1 of 4

Hole No.
S79

Location
Along B & M RR Tracks 150 yds north of Lechmere

Angle from Horiz. Vertical

Regun
12 DEC 85

Completed

Driller
BDC

Drill Make & Model
CME55

Hole Dia.
3.5"

Overburden
(ft)
107.5

Rock (ft)
20.5

Total Depth
128

Core Recovery (ft)
20

Core Bxs
2

Samples

El. Top of Casing

Ground El.

S79D-47.41 S79M-47.95

Depth to Top of Rock
107.5

Sample Hammer Weight/Fall
140 lbs/30"

Casing
Solid Sch 80 PVC 1.5" I.D.
Screen 0.010 slot

NUS Inspector
Angers

Depth	Sample No.	ROCK		SOIL			Well Construction	Stratum Description	Notes
		Core/Rec (in)	RQD	Pen/Rec (in)	Depth Interval (ft)	Blows/6"			
5								Fill: very dense gravel with high percentage of "blast rock"	1
								Highly angular very sharp edged boulders and cobbles	
								S79S Top of Ottawa Sand 4'	2
								S79S Top of screen 5'	
10	01			24/16	9-11	5/5/8/9		BN to dark BN and GR F SAND, and Silt, TR Peat	
15	02			24/18	14-16	2/2/5/45		lt GR F SAND, micaceous, TR C SAND sized biotite and muscovite flakes	
20				24/0	19-21	1/1/2/3		No Recovery	
25				24/0	23-25	5/5/11/10		Augers continue to bring up soils fitting above description	
								S79S Bottom of screen 25'	
30				24/0	29-31	4/4/7/8			
				24/0	34-36	5/10/13/15			

GRANULAR SOILS

PROPORTIONS

ABBREVIATIONS

Blows/Ft	Density	USED		
0-4	V. Loose	Trace (TR)	0-10%	F-Fine
4-10	Loose	Little (LI)	10-20%	M-Medium
10-30	M. Dense	Some (SO)	20-35%	C-Coarse
30-50	Dense	And	35-50%	F/M-Fine to Medium
>50	V. Dense			F/C-Fine to Coarse
				V-Very
				GR-Gray
				BN-Brown
				YEL-Yellow

1. Blast rock: a generic term for bedrock that has been excavated for road cuts or foundation construction through the use of explosives.
2. S79S sealed in overburden with bentonite pellets from 4' to GS.



Project

Wells G & H Remedial Investigation

TDD No.

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Sheet

2 of 4

Hole No.

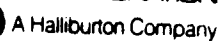
S79

Location

Along B & M RR Tracks 150 yds north of Lechmere

Depth	ROCK			SOIL			Well Construction		Stratum Description	Notes
	Sample No.	Core/Rec (in)	RQD	Pen/Rec (in)	Depth Interval (ft)	Blows/6"				
35										
40				24/2	39-41	5/8/13/30			Recovery not consistent with blow counts - WASH	
45				24/0	44-46	7/7/8/5			No Recovery Wash and blow counts indicate fine sand strata continues	
50				24/0	49-51	8/11/11/15				
55				24/0	54-56	8/11/10/15				
60	03			24/5	59-61	10/11/13/14			Grayish BN, VF SAND SO Silt, TR C Sand, micaceous	
65	04			24/0	64-66	10/11/13/14			Grayish BN, VF SAND, SO Silt, TR C Sand	

REMARKS:



Along B & M RR tracks 150 yds north of Lechmere

S79

REMARKS:



Project
Wells G & H Remedial Investigation

TDD No.
F1-8409-01

Sheet
4 of 4

Hole No.
S79

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

Depth	ROCK			SOIL			Well Construction	Stratum Description	Notes
	Sample No.	Core/Rec (in)	PQD	Pen/Rec (in)	Depth Interval (ft)	Blows/6"			
105				5/0	103	100 R		Bedrock at 107.5 Highly competent META GABBRODIORITE S79D Top of Sand 111' S79D Top of Screen 112.5' S79D Bottom of screen 127.9' EOB - 128'	3
		60/60							
110									
		60/60							
115									
		60/60							
120									
		60/60							
125									
130									

REMARKS:

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



Project
Wells G & H Remedial Investigation

TDD No.
FI-8409-01

Sheet
1 of 3

Hole No.
S80

Location
Behind Lechmere Warehouse

Angle from Horiz. Vertical

Began
20 NOV 84

Completed

Driller
BDC

Drill Make & Model
CME 55

Hole Dia.
3.5"

Overburden
(ft)
65

Rock (ft)
NA

Total Depth
65

Core Recovery (ft)
NA

Core Bxs
0

Samples

El. Top of Casing

Ground El.
S80M-48.68 S80S-48.66

Depth to Top of Rock
unknown

Sample Hammer Weight/Fall
140 lbs/30"

Casing
Solid Sch 80 PVC 1.5" I.D.
Screen 0.010 slot

NUS Inspector
Angers

Depth	Sample No.	ROCK		SOIL			Well Construction	Stratum Description	Notes
		Core/Rec (in)	RQD	Pen/Rec (in)	Depth Interval (ft)	Blows/6"			
5	01			24/18	0-2	9/18/18/33		F/C SAND and Gravel	
	02			24/12	3-5	18/49/73/29		F/C SAND and Gravel, SO Pebbles very angular	
10									
	03			24/20	8-10	5/5/6/4		GR-BN F SAND and Silt, micaceous	
15	04			24/24	13-15	4/3/4/6		GR-BN F SAND and Silt, micaceous	
20	05			24/24	18-20	3/8/8/10		F SAND and Silt, micaceous, iron stained	
25	06			24/22	23-25	5/9/13/13		F SAND, LI Silt	
30	07			24/16	28-30	29/26/26/38		M/C GRAVEL and SAND, SO Silt	

GRANULAR SOILS

Blows/Ft
0-4
4-10
10-30
30-50
>50

Density
V. Loose
Loose
M. Dense
Dense
V. Dense

PROPORTIONS

USED
Trace (TR) 0-10%
Little (LI) 10-20%
Some (SO) 20-35%
And 35-50%

ABBREVIATIONS

F-Fine
M-Medium
C-Coarse
F/M-Fine to Medium
F/C-Fine to Coarse
V-Very
GR-Gray
BN-Brown
YEL-Yellow



Project	TDD No.	Sheet	Hole No.
Wells G & H Remedial Investigation	FI-8409-01	2 of 3	S80
Location			
Behind Lechmere Warehouse			

Depth	ROCK			SML			Well Construction	Stratum Description	Notes
	Sample No.	Core/Rec (in)	RQD	Pen/Rec (in)	Depth Interval (ft)	Blows/6"			
40	08			24/3	35-37	27/22/22/23		C GRAVEL, SO Silt, TR Clay	
45	09			24/4	40-42	9/20/22/21		C GRAVEL, SO C SAND, LT Silt, TR, Clay	1
								S80S Top of Ottawa Sand 42'	
								S80S Top of Screen 45'	
50	10			24/16	45-47	9/19/22/27		M/C SAND, TR F GRAVEL	
55	10							Nested boulders	2
								S80M Top of Ottawa Sand 53'	
								S80M Top of screen 55'	
60								S80S Bottom of screen 55'	
65	11			7/3	55	40/140 R		F/C GRAVEL, TR Silt, TR Clay	
								S80M Bottom of screen 65'	
				14/8	67-69	40/60/100R		F/C GRAVEL, M/C SAND LT Silt, TR Clay, TR F SAND	

REMARKS:

EOB - 70'

1. S80S sealed in overburden with cement/bentonite slurry from 42' to GS.
2. S80M sealed in overburden with cement/bentonite slurry from 53' to GS.
3. 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'.



Project: Wells G & H Remedial Investigation
 TDD No.: FI-8409-01
 Sheet: 1 of 3
 Hole No.: S81

Location: Across Olympia Ave from Unifirst (in the wood near swamp)
 Angle from Horiz. Vertical

Begun: 8 FEB 85
 Completed:
 Driller: NEBC
 Drill Make & Model: Mobile B-47
 Hole Dia.: 3.5"
 Overburden (ft): 62
 Rock (ft): 20
 Total Depth: 82

Core Recovery (ft): 20'
 Core Bxs: 2
 Samples:
 El. Top of Casing:
 Ground El.: S81D-54.10, S81S-54.68, S81M-55.43
 Depth to Top of Rock: 62

Sample Hammer Weight/Fall: 140 lbs/30"
 Casing Solid Screen: Sch 80 PVC 1.5" I.D. 0.010 slot
 NUS Inspector: Ross

Depth	Sample No.	ROCK		SOIL			Well Construction	Stratum Description	Notes
		Core/Rec (in)	RQD	Pen/Rec (in)	Depth Interval (ft)	Blows/6"			
5	01			24/19	0-2	1/2/3/2	54	Interbedded F/M SAND and Sandy Peat	1
	02			24/16	5-7	4/4/3/3		F/M SAND, SO PEAT	
10							44	S81S Top of Ottawa sand 8'	
								S81S Top of screen 10'	
	03			24/20	10-12	7/10/12/13		It BN C SAND and F/M Gravel, SO M SAND	
15							39		
	04			24/12	15-17	14/11/14/15		It BN F M SAND, SO C Sand TR Gravel	
20								S81S Bottom of screen 20'	
	05			6/6	20	120 R		BN-GR F/C SAND and F/M Gravel, TR silt, TR Clay Nested boulders and cobbles	
25									
	06			6/6	25	142 R		It BN M SAND, SO Gravel, TR C Sand	
30									
	07			7/7	30	150 R		It BN F/M SAND, SO Gravel	
								S81M Top of Ottawa Sand 34'	

GRANULAR SOILS		PROPORTIONS		ABBREVIATIONS	
Blows/Ft	Density	USED			
0-4	V. Loose	Trace (TR)	0-10%	F-Fine	
4-10	Loose	Little (LI)	10-20%	M-Medium	
10-30	M. Dense	Some (SO)	20-35%	C-Coarse	
30-50	Dense	And	35-50%	F/M-Fine to Medium	
>50	V. Dense			F/C-Fine to Coarse	
				V-Very	
				GR-Gray	
				BN-Brown	
				YEL-Yellow	

1. S81S sealed in overburden with bentonite pellets from 8' to GS.



Project
Wells G & H Remedial Investigation

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F1-8409-01

Sheet
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of

Hole No.
S81

Location
Across Olympia Ave from Unifirst

Depth	ROCK			SOIL			Well Construction	Stratum Description	Notes
	Sample No.	Core/Rec (in)	RQD	Pen/Rec (in)	Depth Interval (ft)	Blows/6"			
40								Roller bitted through boulders and cobbles 30-40'	2
								S81M Top of screen 35'	
50	08			11/10	50-52	45/130 R		S81M Bottom of screen 50'	
								GR-Green clayey SILT, LT F/C SAND, TR M Gravel - TILL	
55	09			6/6	55-57	110			
60	10			5/5	60-62	120		Highly fractured Dedham granodiorite - 62'	
65		60/60						S81D Top of Ottawa sand 65'	3
								S81D Top of screen 67'	

REMARKS:

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

Location
Across Olympia Ave from Unifirst

[illegible]

REMARKS:



Project Wells G & H Remedial Investigation		TDD No. F1-8409-01	Sheet 1 of 2	Hole No. S82
Location MASS Rifle Assn			Angle from Horiz. Vertical	

Begun 18 MAR 85	Completed 18 MAR 85	Driller NEBC	Drill Make & Model Mobile B-53	Hole Dia. 3.5"	Overburden (ft) 45	Rock (ft) -	Total Depth 45
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Core Recovery (ft) NA	Core Bxs NA	Samples 8	El. Top of Casing S82-57.00	Ground El. S82-57.00	Depth to Top of Rock 45
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Sample Hammer Weight/Fall 140 lbs/30"	Casing Solid Screen Sch 80 PVC 1.5" I.D. 0.010 slot	NUS Inspector Golden
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Depth	Sample No.	ROCK		SOIL			Well Construction	Stratum Description	Notes
		Core/Rec (in)	RQD	Pen/Rec (in)	Depth Interval (ft)	Blows/6"			
5							57	TOPSOIL, NO SAMPLE COLLECTED	
	01			24/24	5-7	12/13/13/16	36.5	F SAND, TR M Sand	
10									
	02			24/18	10-12	12/14/14/16		M SAND, TR Gravel	
15							43		
	03			24/13	15-17	12/19/20/25		F SAND, TR M Sand trace(-) Clay	
20									
	04			24/15	20-22	9/11/15/52		GR and BN F SAND, some M Sand	
25									
	05			24/16	25-27	13/14/10/24		S82 Top of Ottawa Sand 24' BN F SAND, Some Silt, TR Clay	1
								S82 Top of screen 25'	
30									
	06			24/12	30-32	43/46/120.5	25	BN F SAND, some M Sand, TR Silt, TR Clay	

GRANULAR SOILS		PROPORTIONS		ABBREVIATIONS	
Blows/Ft	Density	USED			
0-4	V. Loose	Trace (TR)	0-10%	F-Fine	
4-10	Loose	Little (LI)	10-20%	M-Medium	
10-30	M. Dense	Some (SO)	20-35%	C-Coarse	
30-50	Dense	And	35-50%	F/M-Fine to Medium	
>50	V. Dense			F/C-Fine to Coarse	
				V-Very	
				GR-Gray	
				BN-Brown	
				YEL-Yellow	

1. Sealed in overburden with cement/bentonite slurry from 24' to GS.



Project	TDD No.	Sheet	Hole No.
Wells G & H Remedial Investigation	F1-8409-01	2 of 2	S82
Location			
Mass Rifle Assn			

Depth	ROCK			SOIL			Well Construction	Stratum Description	Notes
	Sample No.	Core/Rec (in)	RQD	Pen/Rec (in)	Depth Interval (ft)	Blows/6"			
35	07			9/9	35-36	82/100.3		F sandy TILL, trace Silt, TR Clay, GR-GN compact S82 Bottom of screen 35'	
40	08			6/6		100/6	12	F sandy TILL, TR Silt, TR Clay, GR-GN, compact	
45								EOB 45' Backfilled to 35'	

REMARKS:



Project Wells G & H Remedial Investigation		TDD No. F1-8409-01	Sheet 1 of 3	Hole No. S83
Location Aberjona Auto Parts			Angle from Horiz. Vertical	

Begun 28 FEB 85	Completed	Driller NEBC	Drill Make & Model Mobile B-53	Hole Dia. 3.5"	Overburden (ft) 80	Rock (ft) NA	Total Depth 80
Core Recovery (ft) NA		Core Bxs NA	Samples 17	El. Top of Casing	Ground El. S83D-48.09	Depth to Top of Rock unknown	
Sample Hammer Weight/Fall 140 lbs/30"				Casing Solid Sch 80 PVC 1.5" I.D. Screen 0.010 slot	NUS Inspector Markt		

Depth	Sample No.	ROCK		SOIL			Well Construction	Stratum Description	Notes
		Core/Rec (in)	RQD	Pen/Rec (in)	Depth Interval (ft)	Blows/6"			
5				24/0	0-2	13/7/5/6	48	BN F SAND	
10	01			24/14	5-7	8/8/10/13		GR-Green F SAND and Silt	
15	02			24/24	10-12	14/16/17/21		GR-Green F SAND and Silt	
20	03			24/24	15-17	2/3/5/7		GR-Green F SAND and Silt	
25	04			24/24	20-22	1/2/2/3		GR-Green F SAND and Silt F/M Sand	
30	05			24/23	25-27	2/3/4/6		GR-Green F SAND and Silt	
35	06			24/24	30-32	3/4/6/8		GR-Green F SAND and Silt	

GRANULAR SOILS		PROPORTIONS		ABBREVIATIONS	
Blows/Ft	Density	USED			
0-4	V. Loose	Trace (TR)	0-10%	F-Fine	
4-10	Loose	Little (LI)	10-20%	M-Medium	
10-30	M. Dense	Some (SO)	20-35%	C-Coarse	
30-50	Dense	And	35-50%	F/M-Fine to Medium	
>50	V. Dense			F/C-Fine to Coarse	
				V-Very	
				GR-Gray	
				BN-Brown	
				YEL-Yellow	



Project
Wells G & H Remedial Investigation

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Hole No.
S83

Location
Aberjona Auto Parts

Depth	ROCK			SOIL			Well Construction	Stratum Description	Notes
	Sample No.	Core/Rec (in)	RQD	Pen/Rec (in)	Depth Interval (ft)	Blows/6"			
40	07			24/24	35-37	6/5/11/10		DK GR SILT and Clay SO red-BN F SAND	
45	08			24/24	40-42	5/9/9/20		GR F/C Sand, TR C Gravel	
50	09			24/4	45-47	120.4		F/C GRAVEL, SO C Sand Boulders	
55	10			24/24	50-52	9/13/15/38		M/C BN SAND	
60	11			24/2	55-57	24/13/8/8		BN C SAND	
65	12			24/24	60-62	5/11/20/28		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'	

REMARKS:

- S83M sealed in overburden with cement/bentonite slurry from 66' to GS.

Location
Aberjona Auto Parts

[illegible]

REMARKS:

2. 583M 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'.



Project Wells G & H Remedial Investigation		TDD No. F1-8409-01	Sheet 1 of 3	Hole No. S84
Location Rifle Range Road 300 feet from Well G			Angle from Horiz. Vertical	

Began 5 MAR 85	Completed	Driller NEBC	Drill Make & Model Mobile B-53	Hole Dia. 3.5"	Overburden (ft) 81.5	Rock (ft) 10	Total Depth 91.5
Core Recovery (ft) 10		Core Bxs 1	Samples 15	El. Top of Casing S84S-45.90	Ground El. S84M-45.99 S84D-46.13		Depth to Top of Rock 81.5
Sample Hammer Weight/Fall 140 lbs/30"			Casing Solid Screen	Sch 80 PVC 1.5" I.D. 0.010 slot	NUS Inspector Ross		

Depth	Sample No.	ROCK		SOIL			Well Construction	Stratum Description	Notes
		Core/Rec (in)	RQD	Pen/Rec (in)	Depth Interval (ft)	Blows/6"			
5	01			24/14	0-2	4/4/5/6		1t BN F/M SAND	1
10	02			24/12	5-7	22/23/23/25		1t BN F/M SAND, SO C SAND, TR F/C Gravel	
15	03			24/22	10-12	13/17/21/25		1t BN C SAND and F/C Gravel, TR M Sand S84S Top of Ottawa Sand 11' S84S Top of screen 13'	
20	04			24/6	15-17	10/8/36/92		1t BN F/C GRAVEL, SO M Sand S84S Bottom of screen 18'	
25								No sample boulders at 20'	
30	05			24/10	25-27	13/12/14/25		1t BN F/M SAND, TR F Gravel	
35	06			24/22	30-32	5/7/14/25		Green-BN M/C SAND, TR Gravel, TR F Sand	

GRANULAR SOILS		PROPORTIONS		ABBREVIATIONS	
Blows/Ft	Density	USED			
0-4	V. Loose	Trace (TR)	0-10%	F-Fine	
4-10	Loose	Little (LI)	10-20%	M-Medium	
10-30	M. Dense	Some (SO)	20-35%	C-Coarse	
30-50	Dense	And	35-50%	F/M-Fine to Medium	
>50	V. Dense			F/C-Fine to Coarse	
				V-Very	
				GR-Gray	
				BN-Brown	
				YEL-Yellow	

1. S84S sealed in overburden with cement/bentonite slurry from 11' to GS.



Project Wells G & H Remedial Investigation	TDD No. F1-8409-01	Sheet 2 of 3	Hole No. S84
Location Rifle Range Road 300 ft from Well G			

Depth	ROCK			SOIL			Well Construction	Stratum Description	Notes
	Sample No.	Core/Rec (in)	RQD	Pen/Rec (in)	Depth Interval (ft)	Blows/6"			
40				24/6	35-37	39/26/14/13		GR-BN F/C GRAVEL, SO It BN F Sand, TR Silt	2
								7 S84M Top of Ottawa Sand 39'	
								S84M Top of screen 40'	
				24/22	40-42	10/17/25/21		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 M/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 Gravel	
60									
				12/12	60-62	44/110 R		15 It BN-Green F/M SAND, SO C Sand, SO F/M Gravel, TR Silt, TR Clay	
65									
				18/18	65-67	49/78/74		17 It BN-Green C SAND and F Gravel, SO F/M Sand, TR Silt, TR Clay	

REMARKS:

2. S84M sealed in overburden with cement/bentonite slurry from 39' to GS.



Project
Wells G & H Remedial Investigation

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Plate No.
S84

Location
Rifle Range Road 300 ft from Well G

Depth	ROCK			SOIL			Well Construction	Stratum Description	Notes
	Sample No.	Core/Rec (in)	RQD	Pen/Rec (in)	Depth Interval (ft)	Blows/6"			
70				24/.5	70-72	50/47/88/72		C SAND and F/M Gravel	
								S84D Top of screen 73'	
								C SAND and F/M Gravel, Tr Silt, TR Clay	
75				12/8	75-76	62/100.6		S84D Bottom of screen 78'	
								Bedrock 81.5'	
								Dedham Granodiorite for 1' with 4' of Salem Gabbrodiorite cored to ensure bedrock	
80									
85									
90								EOB - 91.5'	

REMARKS:

- S84D sealed in overburden with cement/bentonite slurry from 68' to GS.
- 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'.