



**Goldman
Environmental
Consultants, Inc.**

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April 14, 1999

Mr. Ted Bzenas
USEPA
One Congress Street
Suite 1100
Mail Code HBR
Boston, Massachusetts 02114-2023

Superfund Records Center
SITE: Centredale
BREAK: 7-1
OTHER: 27010

**Re: Subsurface Investigation
Brook Village
2072 Smith Street
North Providence, Rhode Island
GEC Project No. 911-9020**

Ted:

Enclosed please find copies of Goldman Environmental Consultants, Inc.'s (GEC's) boring logs for Brook Village. The locations of the borings/monitoring wells appear on the Site Plan I sent earlier this week.

I hope these are helpful.

Sincerely,
Goldman Environmental Consultants, Inc.

Heather A. Boyd
Heather A. Boyd
Environmental Scientist



Goldman Environmental
Consultants, Inc.

PROJECT

WINN MGT.: Brook Village

911-8010

BORING LOG # B-1/GEC-1

Date 3/12/99

Sheet 1 of 1

Boring Contractor Earth Exploration **Boring Location** Northwest corner of front/handicap pk.lot
Foreman Matt Solitro **Ground Elev.** 100.04' @ PVC riser top **Weather** Cloudy, rain and snow, 30s
GEC Engineer Rick Kranes **Date Started** 3/12/99 **Date Completed** 3/12/99

KEY

- Cement seal
- Clean Backfill
- Bentonite seal
- Sand pack
- Slotted screen

DRILLING METHOD:

Hollow-stem auger

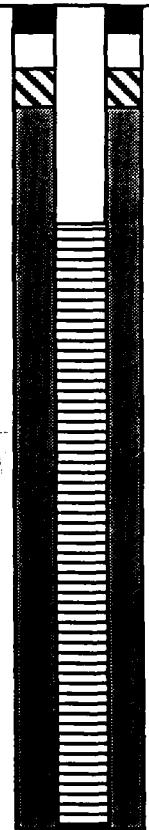
SAMPLER:

Type: Split Spoon (1-3/8")
 Hammer: 140/300 lb. Fall: 30"

Groundwater Readings

Measuring Point (M.P.): Top of PVC for survey

Date	Depth from M.P.	Stabilization Time
03/12/99	6.57 ft.	1 hr.

Depth	Cas. bl / ft.	SAMPLE				SAMPLE DESCRIPTION	Strata Change	WELL CONSTRUCTION	SCREENING PPM (FID)
		No.	Pen./Rec.	Depth	Blows/6"				
0						Auger through asphalt pvt. to 0.5 ft.			
1		B1S1	24/15	0.5-2.5	20	0-5 Tan, f-m sand, some m-c gravel.	FILL		<0.2 ppm
					5-12 Dark Tan, silt & f. sand, some rock fragments.				
2					12-15 Black, silt & f. sand, m. gravel, brick fragments no odor. Sample = FILL				
3									
4									
5		B1S2	24/2	5-7	16	0-2 Tan, m-c sand, f-m gravel sample wet, no odor	SAND SILT and GRAVEL		0.2 ppm
6					Attempt sample w/ 3" splitspoon, no recovery.				
7					Auger to 10', cuttings only damp				
8									
9									
10		B1S3	24/6	10-12	19	0-6 Tan, m-c SAND, little to some f. gravel, some silt. No odor.	TILL		<0.2 ppm
11					45/60				
12									
13						Auger to 15'. Two feet of sand blows into auger stem. Collect sample, S-4. Sample gray-tan, m. sand and fine to m. gravel. No odor.			<0.2 ppm
14									
15									
20									
25									

First 6" with 140# hammer
 6-12" 45 blows with 140# hammer, spoon not advance.
 60 blows with 300# hammer, spoon not advance.

Install well to 14.5 ft. Groundwater at 6.57 ft.
 Well construction: Schedule 40 2" I.D. PVC with 10' of 0.010 slot screen, 4' riser, Sand to 2', bentonite to 1', flush mounted roadbox.



Goldman Environmental Consultants, Inc.

PROJECT

WINN MGT.: Brook Village

911-8010

BORING LOG # B-2/GEC-2

Date 3/12/99

Sheet 1 of 1

Boring Contractor Earth Exploration **Boring Location** North center of pk.lot #2 by UST

Foreman Matt Solitro **Ground Elev.** 99.41 ft. @ PVC riser top **Weather** Cloudy, windy, 30s

GEC Engineer Rick Kranes **Date Started** 3/11/99 **Date Completed** 3/11/99

KEY

- Cement seal
- Clean Backfill
- Bentonite seal
- Sand pack
- Slotted screen

DRILLING METHOD:

Hollow-stem auger

SAMPLER:

Type: Split Spoon (1-3/8")
Hammer: 140/300 lb. Fall: 30"

Groundwater Readings

Measuring Point (M.P.): Top of PVC for survey

Date	Depth from M.P.	Stabilization Time
03/12/99	7.45 ft.	1 hr.

Depth	Cas. bl / ft.	SAMPLE				SAMPLE DESCRIPTION	Strata Change	WELL CONSTRUCTION	SCREENING PPM (FID)
		No.	Pen./Rec.	Depth	Blows/6"				
0						Auger through asphalt pvt. to 0.5 ft.			
1		B2S1	24/3	0.5-2.5	25	0-3 Tan, m.sand and m.gravel FILL. Collect sample from auger cuttings	FILL		<0.2 ppm
2					36				
3					20				
4					40				
5		B2S2	24/18	5-7	14	0-5.5 Gray, m.SAND, tr. gravel, tr. silt.	SAND and GRAVEL		0.6 ppm
6					40	5.5-18 Drk.gray-black, m-c SAND, c.gravel, some silt at top of spoon. No odor			
7					90				
8					50	Auger to 10', heavy grinding @ 8.5' Cuttings contain wood fragments, appear to be finished wood.			
9									
10		B2S3	24/12	10-12	40	0-12 Drk gray-tan, m-c SAND with m-cgravel and tr-some silt. Sample wet no sheen, no odor.			<0.2 ppm
11					50				
12					30	Sample collected with 300# splitspoon.			
13					45	Auger to 15' to set well. Drilling very blocky/difficult.	TILL		
14									
15									
20									
25									

Install well to 15 ft. Groundwater at 7.45 ft.
Well construction: Schedule 40 2" I.D. PVC with 10' of 0.010 slot screen, 5' riser, Sand to 3', bentonite to 1.5', flush mounted roadbox.



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PROJECT

WINN MGT.: Brook Village

911-8010

BORING LOG # B-3/GEC-3

Date 3/15/99

Sheet 1 of 1

Boring Contractor Earth Exploration

Boring Location Northeast corner of resident pk.lot #1

Foreman Matt Solitro

Ground Elev. 99.29' @ PVC riser top Weather Cloudy, windy, 30s

GEC Engineer Rick Kranes

Date Started 3/11/99 Date Completed 3/11/99

KEY

- Cement seal
- Clean Backfill
- Bentonite seal
- Sand pack
- Slotted screen

DRILLING METHOD:

Hollow-stem auger

SAMPLER:

Type: Split Spoon (1-3/8")

Hammer: 140/300 lb. Fall: 30"

Groundwater Readings

Measuring Point (M.P.): Top of PVC for survey

Date	Depth from M.P.	Stabilization Time
03/12/99	7.05 ft.	1 hr.

Depth	Cas. bl / ft.	SAMPLE				SAMPLE DESCRIPTION	Strata Change	WELL CONSTRUCTION	SCREENING PPM (FID)
		No.	Pen/Rec.	Depth	Blows/6"				
0						Auger through asphalt pvt. to 0.5'			
1		B3S1	24/17	0.5-2.5	30	0-11.5 Tan, m-c sand, m-c gravel tr. silt. Sample is FILL.	FILL		<0.2 ppm
2					25	11.5-17 Tan, F-m SAND. Some lgt. rusty coloration bands No odor.			
3					31				
4									
5		B3S2	24/12	5-7	10	0-5.5 Tan, f-m SAND. Iron stain/rings throughout sample.	SAND and SILT		<0.2 ppm
6					23	5.5-12 Drk. brown, SILT, f-m sand m. gravel, brick wedged in tip of splitspoon. No odor.			
7					38	Sample has appearance of former top soil.			
8					23				
9		B3S3	24/2	8-10	24	No sample with 2" splitspoon. Sample obtained with 3" spoon.			insufficient sample for headspace
10					39	0-2 Black, M-c SAND & c. gravel Wood plug in end of spoon. End of spoon wet. No odor.	TILL		
11					38				
12					89				
13									
14									
15									
20									
25									

Use 300# hammer for 10-12 ft interval.

Install well to 15 ft. Groundwater at 7.05 ft. Well construction: Schedule 40 2" I.D. PVC with 10' of 0.010 slot screen, 5' riser, Sand to 3', bentonite to 1.5', flush mounted roadbox.



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PROJECT

WINN MGT.: Brook Village

911-8010

BORING LOG # B-4/GEC-4

Date 3/15/99

Sheet 1 of 1

Boring Contractor Earth Exploration Boring Location North center of resident pk.lot #2

Foreman Matt Solitro Ground Elev. 97.96' @ PVC riser top Weather Cloudy, windy, 30s

GEC Engineer Rick Kranes Date Started 3/11/99 Date Completed 3/11/99

KEY

- Cement seal
- Clean Backfill
- Bentonite seal
- Sand pack
- Slotted screen

DRILLING METHOD:

Hollow-stem auger

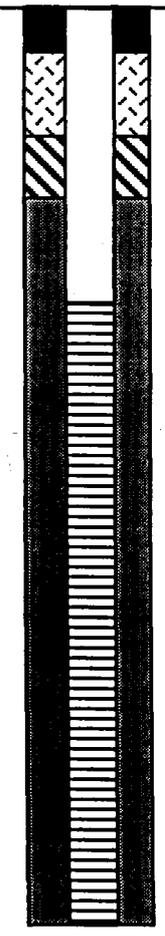
SAMPLER:

Type: Split Spoon (1-3/8")
Hammer: 140/300 lb. Fall: 30"

Groundwater Readings

Measuring Point (M.P.): Top of PVC for survey

Date	Depth from M.P.	Stabilization Time
03/12/99	6.35 ft.	1 day.

Depth	Cas. bl / ft.	SAMPLE				SAMPLE DESCRIPTION	Strata Change	WELL CONSTRUCTION	SCREENING PPM (FID)
		No.	Pen./Rec.	Depth	Blows/6"				
0						Auger through asphalt pvt. to 0.5'			
1		B4S1	24/11	0.5-2.5	9	0-5.5 Tan, F-c Sand w/ m-c gravel	FILL		<0.2 ppm
					5.5-10 Olive tan, f.sand and silt				
					tr. c-sand				
					10-11 Drk brown, SILT & m.sand, no odor.				
2					9				
					10				
3									
4									
5		B4S2	24/18	5-7	20	0-5 Drk brown-black coarse FILL	SAND and SILT		<0.2 ppm
					13	w/ brick fragments and angular gravel.			
					6	5-13.5 Blk-bm, SILT and f.sand,			
					5	13.5-14.5 Brn. SILT and f.sand w/ tr. root matter. No odor.			
6						Appears to be former top soil.			
7						14.5-18 Drk olive tan, f.silt & f.sand			
8		B4S3	24/9	8-10	10	0-9 Drk. olive, m-c sand and	TILL		<0.2 ppm
					20	c. gravel and broken rocks.			
					50	No odor.			
9						Spoon refusal @ 16" penetration			
10						Use 300# hammer for 8-10 ft interval.			
11									
12									
13									
14									
15									
20									
25									

Install well to 15 ft. Groundwater at 6.35 ft.
Well construction: Schedule 40 2" I.D. PVC with 10' of 0.010 slot screen, 5' riser, Sand to 3', bentonite to 1.5', flush mounted roadbox.

PROJECT

WINN MGT.: Brook Village

911-8010

BORING LOG # B-5/GEC-5

Date 3/15/99

Sheet 1 of 1

Boring Contractor Earth Exploration

Boring Location Southeast corner of resident pk.lot #2

Foreman Matt Solitro

Ground Elev. 99.17' @ PVC riser top **Weather** Cloudy, windy, 30s

GEC Engineer Rick Kranes

Date Started 3/11/99 **Date Completed** 3/11/99

KEY

- Cement seal 
- Clean Backfill 
- Bentonite seal 
- Sand pack 
- Slotted screen 

DRILLING METHOD:

Hollow-stem auger

SAMPLER:

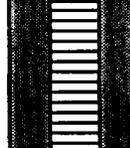
Type: Split Spoon (1-3/8")

Hammer: 300 lb. Fall: 30"

Groundwater Readings

Measuring Point (M.P.): Top of PVC for survey

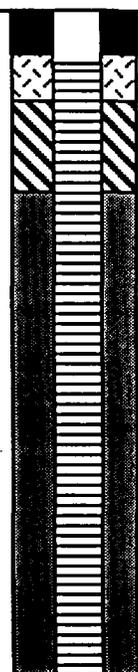
Date	Depth from M.P.	Stabilization Time
03/12/99	7.23 ft.	1 day.

Depth	Cas. bl / ft.	SAMPLE				SAMPLE DESCRIPTION	Strata Change	WELL CONSTRUCTION	SCREENING PPM (FID)
		No.	Pen./Rec.	Depth	Blows/6"				
0						Auger through asphalt pvt. to 0.5'			
1		B5S1	24/8	0.5-2.5	15	0-8 Tan, f-c sand, some m-c gravel. Sample is FILL	FILL		<0.2 ppm
2					5				
3					7				
4					5				
5		B5S2	24/22	5-7	6	0-7.5 Variable colored FILL; crushed stone with layers of f. sand, dry, no odor			<0.2 ppm
6					22	7.5-22 Black w. Tan lenses, SILT and f. sand, little gravel & ash?, no sig. odor, dry.			
7					13				
8					8				
8		B5S3	24/20	8-10	1	0-3 Black, SILT & f.sand tr. c.gravel	SAND and SILT		<0.2 ppm
9					1	3-7 Drk. olive, SILT & f. sand, tr. c. sand			
10					10	7-11 Olive, SILT & f-m sand			
10		B5S4	24/19	10-12	14	11-16 Broken rock			<0.2 ppm
11					15	16-20 Rusty orange, m-c sand Wet @ tip of spitspoon. No odor.			
11					24	0-3 Mottled blk & tan SILT and fine sand, tr. m. gravel.	TILL		
12					27	3-15.5 Black, M-c SAND, some f-m gravel. No odor.			
12					24	Spoon length wet. Auger to 15', install well.			
13									
14									
15									
20									
25									

Install well to 15 ft. Groundwater at 7.23 ft. Well construction: Schedule 40 2" I.D. PVC with 10' of 0.010 slot screen, 5' riser, Sand to 3', bentonite to 1.5', flush mounted roadbox.

Boring Contractor Earth Exploration **Boring Location** Southeast corner of Visitor's pk.lot
Foreman Matt Solitro **Ground Elev.** 95.31 @ top of PVC riser **Weather** Cloudy, windy, snow and sleet, 30s
GEC Engineer Rick Kranes **Date Started** 3/12/99 **Date Completed** 3/12/99

KEY Cement seal  Clean Backfill  Bentonite seal  Sand pack  Slotted screen 	DRILLING METHOD: Hollow-stem auger	Groundwater Readings Measuring Point (M.P.): Top of PVC for survey													
	SAMPLER: Type: Split Spoon (1-3/8") Hammer: 300 lb. Fall: 30"	<table border="1"> <thead> <tr> <th>Date</th> <th>Depth from M.P.</th> <th>Stabilization Time</th> </tr> </thead> <tbody> <tr> <td>03/12/99</td> <td>2.64 ft.</td> <td>1 hr.</td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	Date	Depth from M.P.	Stabilization Time	03/12/99	2.64 ft.	1 hr.							
Date	Depth from M.P.	Stabilization Time													
03/12/99	2.64 ft.	1 hr.													

Depth	Cas. bl / ft.	SAMPLE				SAMPLE DESCRIPTION	Strata Change	WELL CONSTRUCTION	SCREENING PPM (FID)	
		No.	Pen./Rec.	Depth	Blows/6"					
0						Auger through asphalt pvt. to 0.5'				
1		B6S1	24/17	0.5-2.5	9	0-3.5 Tan, F-m Sand w/ m-c gravel tr. silt	FILL		28 ppm	
2					3.5-5.5 Wood					
3		B6S2	24/18	2.5-4.5	6	5.5-11 Concrete				
4					10	11-17 Choc. brown, SILT & f.sand, Possible former top soil (11-17).	SAND and SILT		5.0 ppm	
5		B6S3	24/12	4.5-6.5	6	0-9 Drk. olive-black, c. weathered granite cobble, wet.				
6					5	9-18 Choc. brown to black SILT and f. sand, no odor Possible former wetland deposit	TILL		1.2 ppm	
7					5					
8					5					
10		B6S4	24/12	10-12	13	0-12 Gray, coarse weathered granite, Black layer @ ~9-10'			<0.2 ppm	
11					22					
12					17					
13					14					
14										
15										
20										
25										

Install well to 11 ft. Groundwater at 2.64ft.
 Well construction: Schedule 40 2" I.D. PVC with 10' of 0.010 slot screen, 1' riser, Sand to 3', bentonite to 1', flush mounted roadbox.

PROJECT

WINN MGT.: Brook Village
911-8010

BORING LOG # B-7/GEC-7

Date 3/15/99

Sheet 1 of 1

Boring Contractor Earth Exploration

Boring Location Southeast corner of Visitor's pk.lot

Foreman Matt Solitro

Ground Elev. 94.57 @ top of PVC riser **Weather** snow and sleet, 30s
Cloudy, windy,

GEC Engineer Rick Kranes

Date Started 3/12/99

Date Completed 3/12/99

KEY

- Cement seal 
- Clean Backfill 
- Bentonite seal 
- Sand pack 
- Slotted screen 

DRILLING METHOD:

Hollow-stem auger

SAMPLER:

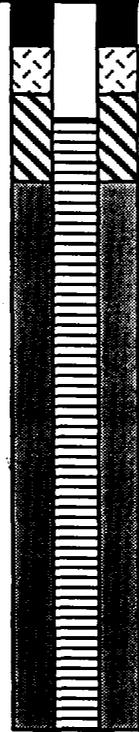
Type: Split Spoon (1-3/8")

Hammer: 300 lb. Fall: 30"

Groundwater Readings

Measuring Point (M.P.): Top of PVC for survey

Date	Depth from M.P.	Stabilization Time
03/12/99	3.41 ft.	1 hr.

Depth	Cas. bl / ft.	SAMPLE				SAMPLE DESCRIPTION	Strata Change	WELL CONSTRUCTION	SCREENING PPM (FID)
		No.	Pen./Rec.	Depth	Blows/6"				
0						Auger through asphalt pvt. to 0.5'			
1		B7S1	24/15	0.5-2.5	6	0-2 Tan, m-c SAND, some gravel	FILL		<0.2 ppm
2					2-6.5 Drk. choc. bm, SILT & f. sand some m. gravel, rounded				
3					6.5-11 Broken concrete, angular				
3		B7S2	24/15	2.5-4.5	7	0-4 Olive-tan, f-m SAND, little to some m-c gravel, tr. coal(?)	SAND and SILT		<0.2 ppm
4					4-7 Choc. bm, f-m SAND & silt				
5					f-m gravel, shiny angular grains @ 6.5" (coal ash?)				
5		B7S3	24/15.5	4.5-6.5	6	7-9 Olive, f-m SAND w/ thin bands of rust staining.			
6					9-15 Choc. bm, SILT & f.sand				
6					0-15.5 Banded gray/black & tan, m-c SAND, angular				
7					(Rock appears weathered)				
7					Wet at tip of spoon				
8									
9									
10		B7S4	24/16	10-12	19	0-9 Gray-tan, m.SAND, tr-some f.sand & silt			<0.2 ppm
11					19	9-14 Tan, m-cSAND, angular			
11					21	tr. semi-angular gravel			
12					21	14-16 Gray-tan, SILT, f.sand, m-c gravel, compact (basal till?)			
13									
14									
15									
20									
25									

Install well to 12 ft. Groundwater at 3.41ft. Well construction: Schedule 40 2" I.D. PVC with 10' of 0.010 slot screen, 2' riser, Sand to 3', bentonite to 1', flush mounted roadbox.