



BORING LOG

Boring No.: B-101

Page No.: 1 of 2

Pin No.: 11b268

Checked By: J. MacGregor

Boring Crew: J. Leonhardt, K. Owens
Date Started: 9/21/12 Date Finished: 9/24/12
VTSFG NAD83: N 257381.67 ft E 1517692.97 ft
Station: Offset: 24.86W
Ground Elevation: 1933.0 ft

Casing Sampler
Type: WASH BORE SS
I.D.: 4 in 1.38 in
Hammer Wt: 140 lb. 140 lb.
Hammer Fall: 30 in. 30 in.
Hammer/Rod Type: Auto/NWJ
Rig: CME 75 ATV Mounted CE = 1.4

Groundwater Observations		
Date	Depth (ft)	Notes
09/21/12	11.0	

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Blows/ft (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
0.0 - 1.0		Augered through asphalt pavement					
2.5	x x x	A-1-b, f.c. GRAVEL, Some f.m.c. Sand, little silt, medium compact, brown/gray, Moist, Rec. = 0.5 ft, Fill	11-12-4-7 (16)	3.8	53.4	28.5	18.1
5.0	x x x	A-4, SILT, Some f. Sand, trace f. gravel, medium compact, brown/red brown, MTW, Rec. = 1.2 ft, Fill	5-6-12-20 (18)				
7.5	x x x	A-2-4					
10.0	o o o	A-2-4, f.c. GRAVEL, Some Silt, Some f.m.c. Sand, very compact, brown/gray, Moist, Rec. = 0.8 ft	48-34-56-32 (90)	11.5	34.4	33.8	31.8
12.5	o o o	A-2-4, f.m.c. SAND, Some f.c. Gravel, Some Silt, very compact, brown, Wet, Rec. = 0.6 ft	17-22-30-31 (52)				
15.0	o o o	A-2-4, f.m.c. SAND, Some Silt, Some f.c. Gravel, compact, brown, Moist, Rec. = 1.2 ft, Zones of weathered rock fragments in sample.	17-20-20-20 (40)				
17.5	o o o	A-4					
20.0	o o o	A-4, SILT, Some f.m.c. Sand, little f.c. gravel, very compact, brown/black, Moist, Rec. = 1.2 ft	25-46-26-26 (72)				
22.5	o o o	A-4, SILT, Some f.m.c. Sand, trace f.c. gravel, medium compact, brown, Wet, Rec. = 1.1 ft	13-12-11-12				

Notes: 1. Stratification lines represent approximate boundary between material types. Transition may be gradual.
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Ground Elevation: 1933.0 ft

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Hammer Fall: 30 in. 30 in.
Hammer/Rod Type: Auto/NWJ
Rig: CME 75 ATV Mounted CE = 1.4

Groundwater Observations		
Date	Depth (ft)	Notes
09/21/12	11.0	

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Blows/ft (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
27.5	hatched		(23)				
30.0	hatched	A-4, No Recovery, Rec. = 0.0 ft, Coarse gravel in shoe of spoon.	29-27-31-44 (58)				
32.5	hatched						
35.0	hatched	A-4, becomes very compact, Rec. = 1.5 ft	35-80-38-47 (118)				
37.5		Hole stopped @ 36.0 ft					
40.0		Remarks: Groundwater observations made during drilling may not represent static conditions. Drilling difficulty greatly increased at 20'.					
42.5							
45.0							
47.5							

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BORING LOG

Boring No.: B-102

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Pin No.: 11b268

Checked By: J. MacGregor



BORING LOG

Boring No.: B-102

Page No.: 2 of 2

Pin No.: 11b268

Checked By: J. MacGregor

Boring Crew: J. Leonhardt, K. Owens
Date Started: 9/21/12 Date Finished: 9/21/12
VTSFG NAD83: N 257343.66 ft E 1517727.78 ft
Station: Offset: 13.7E
Ground Elevation: 1933.5 ft

Casing Sampler
Type: WASH BORE SS
I.D.: 4 in 1.38 in
Hammer Wt: 140 lb. 140 lb.
Hammer Fall: 30 in. 30 in.
Hammer/Rod Type: Auto/NWJ
Rig: CME 75 ATV Mounted CE = 1.4

Groundwater Observations		
Date	Depth (ft)	Notes
09/21/12	11.0	

Boring Crew: J. Leonhardt, K. Owens
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Hammer Wt: 140 lb. 140 lb.
Hammer Fall: 30 in. 30 in.
Hammer/Rod Type: Auto/NWJ
Rig: CME 75 ATV Mounted CE = 1.4

Groundwater Observations		
Date	Depth (ft)	Notes
09/21/12	11.0	

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
0.0		0.0 ft - 0.5 ft, Augered through asphalt pavement.					
2.5		A-1-b, f.m.c. SAND, Some f.c. Gravel, trace silt, compact, brown/gray, Moist, Rec. = 0.4 ft, Fill	11-16-18 (34)				
5.0		A-2-4, f.m.c. SAND, Some Silt, Some f.c. Gravel, medium compact, Dark brown, MTW, Rec. = 0.5 ft, Fill	7-6-8-9 (14)	14.3	29.7	36.8	33.5
10.0		A-4, SILT, Some f.m.c. Sand, little f.c. gravel, trace organics, stiff, brown/gray, MTW, Rec. = 0.4 ft, Fill	6-2-12-4 (14)				
12.5		A-2-4, f.m.c. SAND, Some Silt, Some f.c. Gravel, trace f. gravel, compact, gray, Wet, Rec. = 1.3 ft	11-15-19-39 (34)	12.0	28.4	36.9	34.7
15.0		A-2-4, Similar Soil, Rec. = 1.1 ft	26-24-24-34 (48)	12.5	35.4	40.1	24.5
20.0		A-2-4, Similar Soil, Rec. = 6.0 ft	32-26-20-15 (46)				
22.5		A-2-4, f.m.c. SAND, Some Silt, little f.c. gravel, very compact, brown, Wet, Rec. = 0.6 ft	36-37-27-21				

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Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
27.5		A-2-4, becomes compact, Rec. = 0.9 ft	64				
30.0		A-2-4, becomes very compact, Rec. = 1.0 ft	26-19-21-54 (40)				
35.0		A-4, SILT, little f.m.c. sand, very compact, brown, Wet	86-100-60-64 (160)				
36.0		Hole stopped @ 36.0 ft					
37.5		Remarks: Groundwater observations made during drilling may not represent static conditions. Rollerbit grinding at 3'. Hard difficult drilling 14' to completion.					
40.0							
42.5							
45.0							
47.5							

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Boring Crew: J. Leonhardt, K. Owens		Casing Type: WASH BORE		Sampler: SS		Groundwater Observations		
Date Started: 9/20/12	Date Finished: 9/20/12	I.D.: 4 in	1.38 in	Date	Depth (ft)	Notes		
VTSPG NAD83: N 249779.94 ft E 1524692.89 ft		Hammer Wt: 140 lb.	140 lb.	09/20/12	14.0			
Station:	Offset: 10.8N	Hammer Fall: 30 in.	30 in.					
Ground Elevation: 1638.0 ft		Hammer/Rod Type: Auto/NW						
		Rig: CME 75 ATV Mounted	CE = 1.4					

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Blogs/s (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
0.0 - 1.0		Augered through asphalt pavement.					
1.0 - 2.5	x x x	A-2-4, f.m.c. SAND, Some Silt, Some f.c. Gravel, medium compact, brown, Moist, Rec. = 1.1 ft, Fill	13-15-14-16 (29)	6.8	31.1	43.3	25.6
2.5 - 5.0	x x x	A-2-4, f.m.c. SAND, Some Silt, little f.c. gravel, compact, brown, MTW, Rec. = 0.8 ft, Fill	13-16-15-15 (31)				
5.0 - 10.0	x x x	A-2-4, becomes medium compact, Rec. = 1.0 ft, Fill	11-13-10-22 (23)				
10.0 - 15.0	x x x	A-2-4, f.m.c. SAND, little silt, little f. gravel, loose, brown, Wet, Rec. = 0.2 ft, Fill	4-3-2-2 (5)				
15.0 - 17.5	x x x	A-2-4, becomes very loose, Rec. = 0.3 ft, Fill	2-1-2-4 (3)				
17.5 - 20.0	x x x	A-2-4, becomes very compact, Rec. = 0.5 ft, Fill	17-20-51-17 (71)				
20.0 - 22.5		A-2-4, f.m.c. Sand, Some clayey Silt, Some f.c. Gravel, very compact, brown, Moist, Rec. = 1.6 ft, Glacial Till, Zones of weathered gravel fragments in sample.	20-23-27-40 (50)	12.8	26.9	41.5	31.6
22.5 - 30.0		A-2-4, Similar Soil, Rec. = 1.8 ft, Zones of weathered gravel/cobble/boulder fragments in bottom 2' of sample.	30-33-32-58				

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Boring Crew: J. Leonhardt, K. Owens		Casing Type: WASH BORE		Sampler: SS		Groundwater Observations		
Date Started: 9/20/12	Date Finished: 9/20/12	I.D.: 4 in	1.38 in	Date	Depth (ft)	Notes		
VTSPG NAD83: N 249779.94 ft E 1524692.89 ft		Hammer Wt: 140 lb.	140 lb.	09/20/12	14.0			
Station:	Offset: 10.8N	Hammer Fall: 30 in.	30 in.					
Ground Elevation: 1638.0 ft		Hammer/Rod Type: Auto/NW						
		Rig: CME 75 ATV Mounted	CE = 1.4					

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Blogs/s (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
0.0 - 27.5		A-2-4, Similar Soil, Rec. = 1.7 ft	65				
27.5 - 30.0		A-2-4, Similar Soil, Rec. = 1.6 ft	30-52-47-55 (99)				
30.0 - 35.0		A-2-4, Similar Soil, Rec. = 1.6 ft	25-40-51-42 (91)				
35.0 - 40.0		A-2-4, Similar Soil, Rec. = 1.8 ft	23-34-44-57 (78)				
40.0 - 41.0		Hole stopped @ 41.0 ft					
41.0 - 42.5		Remarks: Groundwater observations made during drilling may not represent static conditions. Difficult rollerbit from 12'-13'.					
42.5 - 45.0		Very difficult drilling 20' to boring completion.					
45.0 - 47.5							

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STATE OF VERMONT
AGENCY OF TRANSPORTATION
MATERIALS & RESEARCH SECTION
SUBSURFACE INFORMATION

BORING LOG

WINHALL
STP CULV (31)
Bridge 47

Boring No.: B-202
Page No.: 1 of 2
Pin No.: 11b268
Checked By: J. MacGregor

Boring Crew: J. Leonhardt, K. Owens
Date Started: 9/19/12 Date Finished: 9/20/12
VTSPG NAD83: N 249746.50 ft E 1524704.41 ft
Station: Offset: 10.9S
Ground Elevation: 1640.5 ft

Casing Sampler
Type: WASH BORE SS
I.D.: 4 in 1.38 in
Hammer Wt: 140 lb. 140 lb.
Hammer Fall: 30 in. 30 in.
Hammer/Rod Type: Auto/NW
Rig: CME 75 ATV Mounted CE = 1.4

Groundwater Observations		
Date	Depth (ft)	Notes
09/19/12	16.0	

Depth (ft)	Strata (l)	CLASSIFICATION OF MATERIALS (Description)	Run (Dip deg.)	Core Rec. (ROD %)	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %	LL %	PI %
		0.0 ft - 1.0 ft, Augered through asphalt pavement.									
2.5	x x x	A-1-b, f.m.c. SAND, Some f.c. Gravel, little silt, very compact, Light brown, Moist, Rec. = 1.4 ft, Fill			27-27-32-33 (59)						
5.0	x x x	A-4, f.m.c. SAND, AND SILT, little f.c. gravel, very compact, brown/red, Moist, Rec. = 0.6 ft, Fill			24-29-28-25 (57)	13.1	17.3	43.0	39.7		
10.0	x x x	A-4, SILT, Some f.m.c. Sand, little f.c. gravel, medium compact, brown, MTW, Rec. = 0.4 ft, Fill			9-10-8-7 (18)						
15.0	x x x	A-2-4, f.m.c. SAND, Some Silt, little f.c. gravel, very compact, brown, Wet, Rec. = 0.5 ft, Fill			10-6-50/5" (R)						
17.5	x x x	A-1-b, f.m.c. SAND, Some f.c. Gravel, little silt, medium compact, Dark brown, Wet, Rec. = 0.5 ft, Fill			10-12-12-8 (24)	22.8	31.8	49.8	18.4		
20.0		A-1-b, becomes very compact, Rec. = 0.2 ft, Fill Cobbles/Boulders, 18.5 ft - 20.2 ft, Fill			9-50/1" (R)						
20.0		20.0 ft - 20.2 ft, Gray, Marble, Boulder fragment recovered in R-1. NXDC	R-1	100	12-16-19-22 (35)						
22.5		A-4, Clayey SILT, Some f.m.c. Sand, hard, brown, Moist, Rec. = 1.3 ft, Glacial Till			17-31-52-	15.6	15.9	38.7	45.4	20	2
		A-4, Clayey SILT, AND f.m.c. SAND, little f.c. gravel, hard, brown, Moist, Rec. = 1.7 ft, Glacial Till									

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AGENCY OF TRANSPORTATION
MATERIALS & RESEARCH SECTION
SUBSURFACE INFORMATION

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WINHALL
STP CULV (31)
Bridge 47

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Date Started: 9/19/12 Date Finished: 9/20/12
VTSPG NAD83: N 249746.50 ft E 1524704.41 ft
Station: Offset: 10.9S
Ground Elevation: 1640.5 ft

Casing Sampler
Type: WASH BORE SS
I.D.: 4 in 1.38 in
Hammer Wt: 140 lb. 140 lb.
Hammer Fall: 30 in. 30 in.
Hammer/Rod Type: Auto/NW
Rig: CME 75 ATV Mounted CE = 1.4

Groundwater Observations		
Date	Depth (ft)	Notes
09/19/12	16.0	

Depth (ft)	Strata (l)	CLASSIFICATION OF MATERIALS (Description)	Run (Dip deg.)	Core Rec. (ROD %)	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %	LL %	PI %
27.5					50/3" (83)						
30.0		A-4, becomes medium compact, Rec. = 1.7 ft, Zones of weathered gravel/cobble/boulder in bottom 5" of sample.			12-11-16-31 (27)						
35.0		A-4, Clayey SILT, Some f.m.c. Sand, little f.c. gravel, hard, brown/white, Moist, Rec. = 1.5 ft, Glacial Till, Zones of weathered gravel/cobbles/boulders in sample.			24-48-64-60 (112)						
40.0		A-4, Clayey SILT, Some f.m.c. Sand, trace f. gravel, hard, brown, Moist, Rec. = 1.5 ft, Glacial Till			15-27-33-40 (60)						
41.0		Hole stopped @ 41.0 ft									
42.5		Remarks: Groundwater observations made during drilling may not represent static conditions. Gravel fragments recovered in sample at 1' are likely from cobble/boulder. Coarse gravel fragment blocking shoe of spoon of sample at 14'. Roller bit grinding 18.5'-20'. Roller bit grinding 28.5'-30'. Hard drilling at 30'.									

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