



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

BORING LOG

Culvert Replacement  
 Bridge 24  
 Theftford STP CULV (48)

Boring No.: B-101  
 Page No.: 1 of 1  
 Pin No.: 13c348  
 Checked By: \_\_\_\_\_

Boring Crew: J. Leonhardt, K. Owens  
 Date Started: 4/08/15 Date Finished: 4/08/15  
 VTSPG NAD83: N 509308.66 ft E 1703312.70 ft  
 Station: T0+18 Offset: 29L  
 Ground Elevation: 710.5 ft

Type: H.S.A. SS  
 I.D.: 3.25 in 1.38 in  
 Hammer Wt: N.A. 140 lb.  
 Hammer Fall: N.A. 30 in.  
 Hammer/Rod Type: Auto/NW  
 Rig: CME 550 TRACK CE = 1.4

Groundwater Observations

Date	Depth (ft)	Notes
04/08/15	8.0	During drilling.

Depth (ft)	Strata (i)	CLASSIFICATION OF MATERIALS (Description)	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
5		A-2-4, <u>f.c. SAND</u> , little silt, little f.c. gravel, medium dense, brown, Moist, Rec. = 0.6 ft A-1-b, Rec. = 0.6 ft, grades to Some f.c. Gravel, becomes dense. F.c. gravel primarily comprised of cobble/boulder fragments. A-1-a, <u>f.c. GRAVEL</u> , trace silt, trace f.c. sand, dense, brown, Moist, Rec. = 0.5 ft, F.c. gravel primarily comprised of cobble/boulder fragments. A-1-a, <u>f.c. GRAVEL</u> , AND f.c. SAND, trace silt, dense, brown, Moist, Rec. = 1.2 ft	14-7-7-6 (14) 52-22-15-17 (37) 11-19-16-18 (35) 20-29-16-14 (45)	6.0	52.5	45.0	2.5
10		A-1-a, <u>f.c. GRAVEL</u> , little f.c. sand, trace silt, medium dense, brown, Wet, Rec. = 0.5 ft, F.c. gravel primarily comprised of cobble/boulder fragments. A-1-a, <u>f.c. GRAVEL</u> , AND f.c. SAND, little silt, very dense, brown, Wet, Rec. = 1.1 ft	5-5-7-18 (12) 42-44-23-32 (67)	13.3	52.5	35.8	11.7
15		A-1-a, <u>Similar Soil</u> , Rec. = 0.5 ft	16-17-23 (40)				
20		Hole stopped @ 15.5 ft Boring terminated at 15.5' due to vertical deviation of augers preventing advancement of sampling and borehole.  Remarks: 10': Hard drilling/ augers grinding at 10'. 15.5': Offset 1.5' west to B-101A. Boulders & cobbles likely encountered throughout boring advancement.					
25							
30							
35							
40							

Notes: 1. Stratification lines represent approximate boundary between material types. Transition may be gradual.  
 2. N Values have not been corrected for hammer energy. CE is the hammer energy correction factor.  
 3. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING LOG 29928 THEFTFORD STP CULV (48) LOGS.GPJ VERMONT AOT.GDT 5/7/15



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Boring No.: B-101A  
 Page No.: 1 of 1  
 Pin No.: 13c348  
 Checked By: \_\_\_\_\_

Boring Crew: J. Leonhardt, K. Owens  
 Date Started: 4/08/15 Date Finished: 4/08/15  
 VTSPG NAD83: N 509307.82 ft E 1703311.46 ft  
 Station: T0+17 Offset: 28L  
 Ground Elevation: 711.0 ft

Casing Sampler  
 Type: FJC SS  
 I.D.: 3 in 1.38 in  
 Hammer Wt: N.A. 140 lb.  
 Hammer Fall: N.A. 30 in.  
 Hammer/Rod Type: Auto/NW  
 Rig: CME 550 TRACK CE = 1.4

Groundwater Observations

Date	Depth (ft)	Notes
04/08/15		None observed.

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Run (Dip deg.)	Core Rec. % (RQD %)	Drill Rate minutes/ft	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
0 - 19.0		0.0 ft - 19.0 ft, Boring offset from B-101. Advanced to 19' without sampling.								
19.0 - 22.0		A-2-4, f.c. SAND, Some Silt, little f.c. gravel, very dense, brown, Wet, Rec. = 0.4 ft				74-100/2" (R)				
22.0 - 25.0		22.0 ft - 25.0 ft, Boulder and cobble zone.NXDC	R-1	27	1					
25.0 - 29.0		A-1-a, f.c. GRAVEL, little f.c. sand, trace silt, very dense, brown, Wet, Rec. = 0.0 ft				80/5" (R)				
29.0 - 39.1		29.0 ft - 39.1 ft, No recovery in samples from 29' to 39'. Spoon bouncing at each sample location.  Rec. = 0.0 ft				100/1" (R)				
39.1 - 40.0		Rec. = 0.0 ft  Hole stopped @ 39.1 ft				100/1" (R)				
Remarks:		Boulders & cobbles likely encountered throughout boring advancement.								

Notes:

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Theford STP CULV (48)

Boring No.: B-102  
Page No.: 1 of 1  
Pin No.: 13c348  
Checked By: \_\_\_\_\_

Boring Crew: J. Leonhardt, K. Owens  
Date Started: 4/08/15 Date Finished: 4/09/15  
VTSPG NAD83: N 509266.55 ft E 1703267.24 ft  
Station: T0+27 Offset: 33R  
Ground Elevation: 719.0 ft

Casing Sampler  
Type: FJC SS  
I.D.: 3 in 1.38 in  
Hammer Wt: N.A. 140 lb.  
Hammer Fall: N.A. 30 in.  
Hammer/Rod Type: Auto/NW  
Rig: CME 550 TRACK CE = 1.4

Groundwater Observations		
Date	Depth (ft)	Notes
04/09/15	13.0	During drilling.

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
0.0 - 4.0		Boring advanced to 4' for first sample.					
5	x x x	(FILL), f.c. SAND, Some f.c. Gravel, little silt, dense, brown, Wet, Rec. = 0.9 ft, (FILL)	7-18-12-11 (30)	15.7	29.8	50.7	19.5
7.0 - 8.0	x x x	(FILL), f.c. GRAVEL, little f.c. sand, trace silt, very dense, gray, Moist, Rec. = 0.1 ft, F.c. gravel primarily comprised of cobble/boulder fragments.	100/5" (R)				
15		A-1-b A-1-b, f.c. SAND, AND f.c. GRAVEL, little silt, very dense, brown, Wet, Rec. = 1.4 ft A-1-b, <u>Similar Soil</u> , Rec. = 1.1 ft A-1-b, <u>Similar Soil</u> , Rec. = 0.9 ft	54-80-94-100/4" (174) 17-49-42-85 (91) 33-51-102 (R)	10.3	38.8	45.5	15.7
20		A-4, SILT, Some f.c. Sand, Some f.c. Gravel, very dense, brown, Moist, Rec. = 0.8 ft, Non-plastic.	22-49-61-100/1" (R)	18.3	20.9	33.1	46.0
25		A-1-b A-1-b, f.c. SAND, little silt, little f.c. gravel, very dense, brown, Moist, Rec. = 1.2 ft	34-61-75-105 (136)				
30		A-1-b, f.c. SAND, AND f.c. GRAVEL, little silt, very dense, brown, Wet, Rec. = 0.8 ft, C. gravel in shoe of spoon.	81-100/4" (R)				
35		A-1-b, <u>Similar Soil</u> , Rec. = 1.2 ft	42-57-62-95 (119)	8.4	40.4	46.1	13.5
40		A-2-4 A-2-4, Rec. = 0.4 ft, grades to Some Silt, little f.c. gravel	68-100 (R)				
		Hole stopped @ 39.0 ft					
		Remarks: Boulders & cobbles likely encountered throughout boring advancement.					

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Boring No.: B-103  
 Page No.: 1 of 1  
 Pin No.: 13c348  
 Checked By: \_\_\_\_\_

Boring Crew: J. Leonhardt, K. Owens  
 Date Started: 4/07/15 Date Finished: 4/07/15  
 VTSPG NAD83: N 509291.70 ft E 1703302.97 ft  
 Station: T0+27 Offset: 11L  
 Ground Elevation: 717.0 ft

Type: H.S.A. SS  
 I.D.: 3.25 in 1.38 in  
 Hammer Wt: N.A. 140 lb.  
 Hammer Fall: N.A. 30 in.  
 Hammer/Rod Type: Auto/NW  
 Rig: CME 550 TRACK CE = 1.4

Groundwater Observations

Date	Depth (ft)	Notes
04/07/15	16.0	During drilling.

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
0-0.4		Asphalt Pavement, 0.0 ft - 0.4 ft					
0.4-7.0	x x	(FILL), f.c. SAND, Some f.c. Gravel, trace silt, dense, brown/gray, Moist, Rec. = 1.5 ft, (FILL)  Rec. = 2.0 ft, 4.0 ft - 7.0 ft, becomes very dense (FILL)  7.0 ft - 9.0 ft  (FILL), f.c. GRAVEL,, Rec. = 0.1 ft, Boulder/cobble fragments	25-14-12 (26)  14-40-34-20 (74)  100/1" (R)				
7.0-15.0		A-1-a  A-1-a, f.c. GRAVEL, Some f.c. Sand, little clayey silt, dense, brown/black, Moist, Rec. = 1.0 ft  A-1-a, f.c. GRAVEL, little silt, little f.c. sand, dense, brown, Wet, Rec. = 0.8 ft	8-15-18-18 (33) 25-23-12-11 (35)	9.7	61.6	30.9	7.5
15.0-20.8		A-2-4, f.c. SAND, little silt, very dense, brown, Moist, Rec. = 0.9 ft, micaceous  A-2-4, Rec. = 0.5 ft, grades to little f.c. gravel	58-90/5" (R)  77-100/4" (R)	11.9	22.9	55.5	21.6
20.8-20.8		Hole stopped @ 20.8 ft Boring terminated at 20.8' due to vertical deviation of augers preventing advancement of sampling and borehole.					
20.8-25.0		Remarks: 7': Augers grinding 7'-9', 13'-14'. 14': Difficult drilling 14'-20'. 20': Offset 2' south to B-103A. Boulders & cobbles likely encountered throughout boring advancement.					

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Boring No.: B-103A  
 Page No.: 1 of 1  
 Pin No.: 13c348  
 Checked By: \_\_\_\_\_

Boring Crew: J. Leonhardt, K. Owens  
 Date Started: 4/07/15 Date Finished: 4/07/15  
 VTSPG NAD83: N 509285.42 ft E 1703304.98 ft  
 Station: T0+33 Offset: 9L  
 Ground Elevation: 717.0 ft

Type: H.S.A. SS  
 I.D.: 3.25 in 1.38 in  
 Hammer Wt: N.A. 140 lb.  
 Hammer Fall: N.A. 30 in.  
 Hammer/Rod Type: Auto/NW  
 Rig: CME 550 TRACK CE = 1.4

Groundwater Observations

Date	Depth (ft)	Notes
04/07/15		None observed.

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
0 - 15		0.0 ft - 15.0 ft, Boring offset from B-103. Advanced to 15' without sampling.					
15 - 40		<p>Hole stopped @ 15.0 ft            Boring terminated at 15' due to vertical deviation of augers preventing advancement of sampling and borehole.</p> <p>Remarks:            12': Augers grinding 12'-14'.            15': Offset 2' northwest to B-103B.            Boulders &amp; cobbles likely encountered throughout boring advancement.</p>					

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Boring No.: B-103B  
 Page No.: 1 of 1  
 Pin No.: 13c348  
 Checked By: \_\_\_\_\_

Boring Crew: J. Leonhardt, K. Owens  
 Date Started: 4/07/15 Date Finished: 4/07/15  
 VTSPG NAD83: N 509287.71 ft E 1703299.40 ft  
 Station: T0+28 Offset: 6L  
 Ground Elevation: 717.0 ft

Casing Sampler  
 Type: FJC SS  
 I.D.: 3 in 1.38 in  
 Hammer Wt: N.A. 140 lb.  
 Hammer Fall: N.A. 30 in.  
 Hammer/Rod Type: Auto/NW  
 Rig: CME 550 TRACK CE = 1.4

Groundwater Observations		
Date	Depth (ft)	Notes
04/07/15	22.0	During drilling.

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
0 - 22.0		0.0 ft - 22.0 ft, Boring offset from B-103A. Advanced to 22' without sampling.					
22.0 - 22.4		A-1-b, f.c. SAND, little silt, little f.c. gravel, very dense, brown, Wet, Rec. = 0.3 ft Hole stopped @ 22.4 ft Boring terminated at 22.4' due to time constraints and vertical deviation of augers preventing advancement of sampling and borehole. Remarks: 9': Difficult drilling 9'-16'. Boulders & cobbles likely encountered throughout boring advancement.	100/5" (R)				

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