



Boring Crew: JUDKINS, HOOK
Date Started: 10/21/15 Date Finished: 10/28/15
VTSPG NAD83: N 685809.41 ft E 1531517.81 ft
Station: 128+66 Offset: -36.80
Ground Elevation: 347.1 ft

Type: _____
I.D.: _____
Casing WB Sampler SS
I.D.: 4 in 1.5 in
Hammer Wt: N.A. 140 lb.
Hammer Fall: N.A. 30 in.
Hammer/Rod Type: Auto/AWJ
Rig: CME 45C TRACK C = 1.34

Groundwater Observations		
Date	Depth (ft)	Notes
10/26/15	34.6	W.T. during drilling
10/27/15	34.9	W.T. during drilling
10/28/15	34.8	W.T. during drilling

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Run (Dip deg.)	Core Rec. % (ROD %)	Drill Rate minutes/ft	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
5		A-2-4, GrSiSa, brn, Moist, Rec. = 1.1 ft, Lab Note: Grass and grass roots were within sample.				2-2-3-4 (5)	13.6	24.1	46.0	29.9
		A-2-4, GrSiSa, brn, Moist, Rec. = 0.9 ft, Lab Note: Broken rock was within sample.				6-7-9-12 (16)	8.8	26.9	43.0	30.1
		A-4, GrSiSa, brn, Moist, Rec. = 1.9 ft				13-13-11-12 (24)	7.4	20.0	43.2	36.8
		A-4, SaSi, brn, Moist, Rec. = 1.5 ft				9-8-8-10 (16)	9.4	15.1	40.3	44.6
		A-4, SiSa, brn, Moist, Rec. = 1.8 ft				7-8-8-9 (16)	8.0	13.8	43.4	42.8
10		A-4, SiSa, brn, Moist, Rec. = 1.5 ft				10-17-12-18 (29)	10.1	19.5	41.2	39.3
		A-2-4, SiSa, brn, Moist, Rec. = 1.7 ft				16-16-15-13 (31)	10.2	13.2	57.4	29.4
		A-4, SiSa, Lt/brn-gry, Moist, Rec. = 1.2 ft				13-11-13-15 (24)	12.8	19.0	44.7	36.3
15		A-2-4, GrSiSa, Lt/brn, Moist, Rec. = 1.3 ft				15-13-15-15 (28)	12.1	20.1	46.7	33.2
		A-2-4, GrSiSa, Lt/brn-gry, Moist, Rec. = 0.9 ft				24-30-32 (82)	14.6	23.0	43.6	33.4
						R@3.5" (62)				
25		Field Note: Cleaned out with NXDC								
		A-4, Si, Lt/brn, Moist, Rec. = 0.6 ft, Lab Note: Sample tested non-plastic.				13-14-7-5 (21)	30.7	4.1	8.6	87.3
		Field Note: Cleaned out with NXDC								
30		Field Note: Cleaned out with NXDC								
		A-4, Si, Lt/brn-gry, Moist, Rec. = 1.9 ft, Lab Note: Sample tested non-plastic.				6-4-5-5 (9)	28.1	1.6	12.5	85.9
35		Field Note: Cleaned out with NXDC								
		A-4, SiSa, brn, Moist, Rec. = 1.6 ft				13-13-8-9 (21)	22.9	12.3	50.9	36.8
40		Field Note: Cleaned out with NXDC								
		A-1-b, GrSa, Lt/brn-orange, Moist, Rec. = 0.9 ft, Lab Note: Broken rock was within sample. Sample was rust colored.				12-13-17-15 (30)	15.6	38.4	42.6	19.0
45		Field Note: Cleaned out with NXDC								
		Field Note: No Recovery				3-5-8-12 (13)				

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



Boring Crew: JUDKINS, HOOK
Date Started: 10/21/15 Date Finished: 10/28/15
VTSPG NAD83: N 685809.41 ft E 1531517.81 ft
Station: 128+66 Offset: -36.80
Ground Elevation: 347.1 ft

Type: _____
I.D.: _____
Casing WB Sampler SS
I.D.: 4 in 1.5 in
Hammer Wt: N.A. 140 lb.
Hammer Fall: N.A. 30 in.
Hammer/Rod Type: Auto/AWJ
Rig: CME 45C TRACK C = 1.34

Groundwater Observations		
Date	Depth (ft)	Notes
10/26/15	34.6	W.T. during drilling
10/27/15	34.9	W.T. during drilling
10/28/15	34.8	W.T. during drilling

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Run (Dip deg.)	Core Rec. % (ROD %)	Drill Rate minutes/ft	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
55		A-1-b, GrSa, gry-brn, Moist, Rec. = 0.5 ft, Lab Note: Broken rock was within sample.				12-28-13-12 (41)	13.2	39.9	47.0	13.1
		Field Note: Cleaned out with NXDC A-1-b, SiSaGr, gry-brn, Moist, Rec. = 0.8 ft				30-20-10-17 (30)	11.4	45.7	34.0	20.3
60		Field Note: Cleaned out with NXDC								
		Field Note: No Recovery				7-6-3-5 (9)				
65		Field Note: Cleaned out with NXDC								
		A-1-b, SaGr, brn, Moist, Rec. = 1.3 ft, Lab Note: Broken rock was within sample.				25-30-20-22 (50)	10.3	45.7	39.0	15.3
70		Field Note: Cleaned out with NXDC								
		A-1-a, SaGr, gry-brn, Moist, Rec. = 0.5 ft, Lab Note: Broken rock was within sample. Field Note: Boulder present 70.9' to 74.0'.				45-R@5.0" (R)	10.0	56.5	32.0	11.5
75		Field Note: Cleaned out with NXDC								
		A-1-b, SaGr, gry-brn, MTW, Rec. = 1.4 ft				10-9-9-28 (18)	13.3	45.8	44.9	9.3
80		77.8 ft - 82.8 ft, Light gray, Muscovite-biotite-quartz SCHIST, with porphyroblasts of albite. Hard, Unweathered, Fair rock, BX, RMR=58	1 (80)	84 (78)	5					
85		82.8 ft - 87.8 ft, Light gray to silver, Muscovite-biotite-quartz SCHIST, with consistent 2 inch horizontal breaks (likely mechanical). Hard, Unweathered, Fair rock, BX, RMR=53	2 (70)	84 (84)	6					
Hole stopped @ 87.8 ft										
90		Remarks: Hole Collapsed at 35.0 feet.								
		1.) CME 55 track drill used after 14.0 feet. (CE=1.46) 2.) Sleeved 3 inch casing into 4 inch casing at 70.0 feet. 3.) Added bentonite to drilling operation at 70.0 feet.								
95		Field Note: Cleaned out with NXDC								
		Field Note: No Recovery								

Notes: 1. Stratification lines represent approximate boundary between material types. Transition may be gradual.
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3. Water level readings have been made at times and under conditions stated. Fluctuations may occur due to other factors than those present at the time measurements were made.



BORING LOG

Bolton
IM 089-2(45)
I-89

Boring No.: **B-104**
Page No.: **1 of 2**
Pin No.: **13a090**
Checked By: **MLM**

Boring Crew: HOOK, JUDKINS, NIETO
Date Started: 10/07/15 Date Finished: 10/20/15
VTSPG NAD83: N 685775.19 ft E 1531404.83 ft
Station: 129+65 Offset: -101.70
Ground Elevation: 346.0 ft

Type: _____
I.D.: 4 in SS
Hammer Wt: N.A. 140 lb.
Hammer Fall: N.A. 30 in.
Hammer/Rod Type: Auto/AWJ
Rig: CME 55 TRACK C = 1.46

Groundwater Observations		
Date	Depth (ft)	Notes
10/12/15	35.3	W.T. before drilling
10/13/15	35.8	W.T. before drilling
10/20/15	36.4	W.T. after drilling

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Run (Dip deg.)	Drill Rate minutes/ft	Blows/(N Value)	Moisture Content %	Gravel %	Sand %	Fines %
5		A-1-b, GrSa, brn, Moist, Rec. = 0.6 ft, Lab Note: Grass and Grass Roots were within sample, removed before testing.			WH-2-3-4 (5)	5.0	36.3	50.2	13.5
		A-4, SaSi, Lt/brn-brn, Moist, Rec. = 1.8 ft, Lab Note: Grass and Grass Roots were within sample, removed before testing.			3-4-6-5 (10)	15.5	5.3	38.7	56.0
		A-4, SaSi, Lt/brn-gry, Moist, Rec. = 1.5 ft			3-6-9-14 (15)	14.6	8.0	32.3	59.7
		A-4, SaSi, Lt/brn, Moist, Rec. = 1.7 ft			15-11-11-11 (22)	10.7	10.1	41.0	48.9
10		A-4, SaSi, Lt/brn, Moist, Rec. = 2.0 ft Field Note: Cleaned out with NXDC			8-8-7-9 (15)	12.3	6.9	34.7	58.4
		A-4, SaSi, brn, MTW, Rec. = 0.5 ft			8-8-8-9 (16)	18.4	10.0	32.1	57.9
15		A-4, GrSaSi, brn, MTW, Rec. = 1.4 ft			10-11-10-28 (21)	15.0	26.6	36.5	36.9
		Field Note: Cleaned out with NXDC			25-25-24 (45)	12.5	33.5	37.5	29.0
		A-2-4, SiGrSa, brn, Moist, Rec. = 0.6 ft, Lab Note: Broken rock was within sample.			8-4-2-2 (6)	18.8	3.9	35.9	60.2
		Field Note: Cleaned out with NXDC			2-8-12-12 (20)				
20		Field Note: No Recovery Field Note: Cleaned out with NXDC			12-14-11-16 (25)	15.2	12.1	37.9	50.0
		A-4, SaSi, brn, Moist, Rec. = 1.1 ft, Lab Note: Layers of black silt were apparent in sample.							
25		Field Note: Cleaned out with NXDC			12-9-7-6 (16)	19.4	15.2	37.7	47.1
		A-4, SaSi, Dk/brn, Moist, Rec. = 0.5 ft, Lab Note: Small sticks and wood fibers were within sample.							
30		Field Note: Cleaned out with NXDC			2-2-2-1 (4)	36.6	0.2	11.5	88.3
		A-4, Si, gry, Moist, Rec. = 1.0 ft							
35		Field Note: Cleaned out with NXDC			5-9-9-13 (18)	18.2	20.7	60.9	18.4
		A-2-4, GrSa, orange-brn, Moist, Rec. = 1.2 ft, Lab Note: Sample was rust colored.							
40		Field Note: Cleaned out with NXDC			9-14-36-50 (50)	14.4	31.8	48.4	19.8
		A-1-b, GrSa, orange-brn, Moist, Rec. = 1.0 ft, Lab Note: Broken rock was within sample. Rust colored layers were apparent in sample.							
45		Field Note: Cleaned out with NXDC			7-5-7-7 (12)	10.3	47.2	37.7	15.1
		A-1-b, SaGr, brn, Moist, Rec. = 0.5 ft							

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BORING LOG

Bolton
IM 089-2(45)
I-89

Boring No.: **B-104**
Page No.: **2 of 2**
Pin No.: **13a090**
Checked By: **MLM**

Boring Crew: HOOK, JUDKINS, NIETO
Date Started: 10/07/15 Date Finished: 10/20/15
VTSPG NAD83: N 685775.19 ft E 1531404.83 ft
Station: 129+65 Offset: -101.70
Ground Elevation: 346.0 ft

Type: _____
I.D.: 4 in SS
Hammer Wt: N.A. 140 lb.
Hammer Fall: N.A. 30 in.
Hammer/Rod Type: Auto/AWJ
Rig: CME 55 TRACK C = 1.46

Groundwater Observations		
Date	Depth (ft)	Notes
10/12/15	35.3	W.T. before drilling
10/13/15	35.8	W.T. before drilling
10/20/15	36.4	W.T. after drilling

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Run (Dip deg.)	Drill Rate minutes/ft	Blows/(N Value)	Moisture Content %	Gravel %	Sand %	Fines %
55		Field Note: Cleaned out with NXDC Field Note: No Recovery			21-21-16-15 (37)				
		Field Note: Cleaned out with NXDC							
60		A-1-b, SaGr, brn, Moist, Rec. = 0.7 ft, Lab Note: Broken rock was within sample.			23-15-16-27 (31)	8.9	50.8	31.4	17.8
		Field Note: Cleaned out with NXDC Field Note: No Recovery			17-28-28-23 (56)				
65		Field Note: Cleaned out with NXDC			17-16-13-11 (29)	9.0	49.8	40.4	9.8
		A-1-a, SaGr, gry-brn, Moist, Rec. = 0.5 ft							
70		Field Note: No Recovery Field Note: Cleaned out with NXDC			R@4" (R)	8.9	63.6	25.7	10.7
		A-1-a, SaGr, gry, Moist, Rec. = 0.3 ft, Lab Note: Broken rock was within sample.							
75		Field Note: Cleaned out with NXDC			15-15-15-16 (30)	9.3	44.2	43.0	12.8
		A-1-b, SaGr, gry, Moist, Rec. = 0.4 ft							
80		80.0 ft - 85.0 ft, Light gray, Quartz-muscovite-biotite-albite SCHIST, Hard, Very slightly weathered, Fair rock, BX, RMR=52	1	6	7				
				6					
				6					
				6					
85		85.0 ft - 86.0 ft, Light gray, Quartz-muscovite-biotite SCHIST, Hard, Unweathered, Fair rock, BX, RMR=41	2	5	4				
		86.0 ft - 90.0 ft, Dark gray, Biotite-quartz SCHIST, with few pyrite porphyroblasts. Hard, Very slightly weathered, Fair rock, BX, RMR=41		4	3				
				4					
				3					
90		Hole stopped @ 90.0 ft							
95		Remarks: Hole Collapsed at 24.1 feet.							
		1.) Stemmed down to 3 inch casing at 67.0 feet. 2.) Started mud drilling at 67.0 feet. 3.) Sample was attempted at 80 feet. No penetration and No recovery.							

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BORING LOG 2 BOLTON IM089-2(45) GPJ VERMONT AOT.GDT 11/23/15

BORING LOG 2 BOLTON IM089-2(45) GPJ VERMONT AOT.GDT 11/23/15



BORING LOG

Bolton
IM 089-2(45)
I-89

Boring No.: **B-106**
Page No.: **1 of 2**
Pin No.: **13a090**
Checked By: **MLM**

Boring Crew: **HOOK, JUDKINS, NIETO**
Date Started: **10/01/15** Date Finished: **10/06/15**
VTSPG NAD83: **N 685898.57 ft E 1531441.44 ft**
Station: **129+65** Offset: **27.00**
Ground Elevation: **349.6 ft**

Type:	Casing	Sampler	Groundwater Observations		
			Date	Depth (ft)	Notes
I.D.:	WB	SS			
Hammer Wt:	4 in	1.5 in	10/02/15	10.4	W.T. before drilling.
Hammer Fall:	N.A.	140 lb.	10/05/15	36.8	W.T. before drilling.
Hammer/Rod Type:	N.A.	30 in.	10/06/15	38.4	W.T. before drilling.
Rig:	Auto/AWJ				
	CME 45C TRACK	C = 1.34			

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Run (Dip deg.)	Core Rec. % (RQD %)	Drill Rate minutes/ft	Blows/(N Value)	Moisture Content %	Gravel %	Sand %	Fines %
		A-1-a, Gr, gry, Moist, Rec. = 0.3 ft, Lab Note: Broken rock was within sample.				2-3-5-11 (8)	4.8	72.8	18.8	8.4
		A-1-a, Gr, gry-brn, Moist, Rec. = 1.0 ft, Lab Note: Broken rock was within sample.				6-9-8-11 (17)	1.6	78.5	14.6	6.9
		A-2-4, SiGrSa, brn-gry, Moist, Rec. = 1.5 ft, Lab Note: Broken rock was within sample.				4-14-7-8 (21)	9.5	35.4	35.5	29.1
		A-2-4, GrSiSa, brn-gry, Moist, Rec. = 1.9 ft				12-12-12-13 (24)	9.2	22.7	47.2	30.1
10		Field Note: Cleaned out with NXDC				14-14-13-14 (27)	8.0	31.3	38.8	29.9
		A-2-4, SiGrSa, brn-gry, Moist, Rec. = 2.0 ft, Lab Note: Broken rock was within sample.				14-13-16-19 (29)	12.5	19.5	36.8	43.7
		A-4, SaSi, brn-gry, Moist, Rec. = 1.2 ft				13-11-14-16 (25)	17.3	13.5	21.3	65.2
15		A-4, SaSi, Lt/brn-gry, Moist, Rec. = 1.7 ft				4-5-7-5 (12)	15.2	26.9	36.6	36.5
		Field Note: Cleaned out with NXDC				6-5-4-6 (9)	14.9	20.0	40.2	39.8
		A-4, GrSiSa, Lt/brn, Moist, Rec. = 0.3 ft, Lab Note: Brown broken glass was within sample.				30-32-R@5" (R)	11.6	34.2	31.4	34.4
20		A-4, SiSa, Lt/brn, Moist, Rec. = 0.8 ft								
		A-2-4, SaGrSi, Lt/brn, Moist, Rec. = 1.1 ft, Lab Note: Broken rock was within sample.								
25		Field Note: Cleaned out with NXDC								
		A-4, SaSi, Lt/brn, Moist, Rec. = 1.0 ft				23-8-7-5 (15)	21.1	10.2	33.6	56.2
30		Field Note: No Recovery.								
						14-15-15-16 (30)				
35		A-1-a, SaGr, brn, Moist, Rec. = 1.0 ft, Lab Note: Sample had a very rusty color when washing.				14-7-9-19 (16)	9.7	56.5	32.0	11.5
40		A-1-b, GrSa, brn, Moist, Rec. = 0.7 ft								
						9-6-7-6 (13)	15.1	27.1	64.6	8.3
45		A-1-b, GrSa, brn, Moist, Rec. = 0.6 ft								
						18-36-39-R@2.5" (75)	13.9	38.9	49.8	11.3
		Field Note: Cleaned out with NXDC								

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3. Water level readings have been made at times and under conditions stated. Fluctuations may occur due to other factors than those present at the time measurements were made.



BORING LOG

Bolton
IM 089-2(45)
I-89

Boring No.: **B-106**
Page No.: **2 of 2**
Pin No.: **13a090**
Checked By: **MLM**

Boring Crew: **HOOK, JUDKINS, NIETO**
Date Started: **10/01/15** Date Finished: **10/06/15**
VTSPG NAD83: **N 685898.57 ft E 1531441.44 ft**
Station: **129+65** Offset: **27.00**
Ground Elevation: **349.6 ft**

Type:	Casing	Sampler	Groundwater Observations		
			Date	Depth (ft)	Notes
I.D.:	WB	SS			
Hammer Wt:	4 in	1.5 in	10/02/15	10.4	W.T. before drilling.
Hammer Fall:	N.A.	140 lb.	10/05/15	36.8	W.T. before drilling.
Hammer/Rod Type:	N.A.	30 in.	10/06/15	38.4	W.T. before drilling.
Rig:	Auto/AWJ				
	CME 45C TRACK	C = 1.34			

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Run (Dip deg.)	Core Rec. % (RQD %)	Drill Rate minutes/ft	Blows/(N Value)	Moisture Content %	Gravel %	Sand %	Fines %
		Field Note: Cleaned out with NXDC								
		Field Note: No Recovery.				15-12-11-13 (23)				
60		Field Note: No Recovery., Appears to be sand.				21-20-21-20 (41)				
65		Field Note: No Recovery.				18-13-15-17 (28)				
70		A-1-a, SaGr, brn, Moist, Rec. = 0.7 ft				15-14-13-13 (27)	10.5	69.7	21.4	8.9
75		Field Note: Cleaned out with NXDC								
		A-2-4, SiSa, brn, Moist, Rec. = 0.4 ft				R@5"	17.9	7.5	60.1	32.4
80		76.1 ft - 81.1 ft, Light gray to dark gray, Biotite-muscovite-quartz SCHIST, with few pyrite porphyroblasts. Faint brown staining on joints. Hard. Very slightly weathered, Fair rock, NX, RMR=57	1 (75-80)	100 (52)	3					
		81.1 ft - 86.1 ft, Dark gray, Biotite-muscovite-quartz SCHIST, Vertical fracture at 82.9-84.1 feet. Light brown and orange staining on joints. Hard, Slightly weathered, Fair rock, NX, RMR=49	2 (75-80)	100 (55)	3					
85										
		Hole stopped @ 86.1 ft								
90		Remarks: Hole collapsed at 16.8 feet.								
95										

Notes: 1. Stratification lines represent approximate boundary between material types. Transition may be gradual.
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BORING LOG 2 BOLTON IM089-2(45) GP1 VERMONT AOT.GDT 11/23/15

BORING LOG 2 BOLTON IM089-2(45) GP1 VERMONT AOT.GDT 11/23/15



BORING LOG

Bolton
IM 089-2(45)
I-89

Boring No.: **B-110**
Page No.: **1 of 2**
Pin No.: **13a090**
Checked By: **MLM**



BORING LOG

Bolton
IM 089-2(45)
I-89

Boring No.: **B-110**
Page No.: **2 of 2**
Pin No.: **13a090**
Checked By: **MLM**

Boring Crew: <u>JUDKINS, HOOK</u>		Casing	Sampler	Groundwater Observations			
Date Started: <u>10/30/15</u>	Date Finished: <u>11/04/15</u>	Type: <u>WB</u>	<u>SS</u>	Date	Depth (ft)	Notes	
VTSPG NAD83: <u>N 685859.88 ft E 1531353.95 ft</u>		I.D.: <u>4 in</u>	<u>1.5 in</u>	11/02/15		No W.T. to 22 feet	
Station: <u>130+37</u>	Offset: <u>-35.60</u>	Hammer Wt: <u>N.A.</u>	<u>140 lb.</u>	11/03/15	35.0	W.T. before drilling	
Ground Elevation: <u>347.6 ft</u>		Hammer/Fall: <u>N.A.</u>	<u>30 in.</u>	11/04/15	34.5	W.T. before drilling	
		Hammer/Rod Type: <u>Auto/AWJ</u>					
		Rig: <u>CME 55 TRACK</u>	<u>C = 1.46</u>				

Boring Crew: <u>JUDKINS, HOOK</u>		Casing	Sampler	Groundwater Observations			
Date Started: <u>10/30/15</u>	Date Finished: <u>11/04/15</u>	Type: <u>WB</u>	<u>SS</u>	Date	Depth (ft)	Notes	
VTSPG NAD83: <u>N 685859.88 ft E 1531353.95 ft</u>		I.D.: <u>4 in</u>	<u>1.5 in</u>	11/02/15		No W.T. to 22 feet	
Station: <u>130+37</u>	Offset: <u>-35.60</u>	Hammer Wt: <u>N.A.</u>	<u>140 lb.</u>	11/03/15	35.0	W.T. before drilling	
Ground Elevation: <u>347.6 ft</u>		Hammer/Fall: <u>N.A.</u>	<u>30 in.</u>	11/04/15	34.5	W.T. before drilling	
		Hammer/Rod Type: <u>Auto/AWJ</u>					
		Rig: <u>CME 55 TRACK</u>	<u>C = 1.46</u>				

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Run (Dip deg.)	Core Rec. % (RQD %)	Drill Rate minutes/ft	Blows/ft (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
5		A-4, Si, brn, Moist, Rec. = 1.2 ft Field Note: Cobble and Boulders Field Note: Cleaned out with NXDC				1-1-2-8 (3)	22.8	1.9	9.8	88.3
5		A-4, SaSi, brn, Moist, Rec. = 1.3 ft				9-8-8-13 (16)	15.7	4.6	40.6	54.8
10		A-2-4, SiSaGr, gry-brn, Moist, Rec. = 0.8 ft, Lab Note: Broken rock was within sample Field Note: Cleaned out with NXDC				13-35-R@1" (R)	11.8	0.3	28.5	71.1
15		A-1-a, SaGr, gry, Moist, Rec. = 0.7 ft Field Note: Boulder Field Note: Cleaned out with NXDC				13-38-13-45 (51)	9.6	62.6	26.3	11.1
20		A-4, SiSa, brn, Moist, Rec. = 0.8 ft A-4, SaSi, Dk/gry, Moist, Rec. = 0.8 ft Field Note: Cleaned out with NXDC				12-13-9-9 (22)	17.0	4.8	48.1	47.1
25		A-4, SaSi, gry-orange, Moist, Rec. = 0.9 ft, Lab Note: Rust colored layers were within sample.				6-8-9-11 (17)	23.8	3.0	23.5	73.5
30		Field Note: Cleaned out with NXDC A-1-b, SaGr, orange-brn, Moist, Rec. = 0.8 ft, Lab Note: Sample had a slight rust color.				8-8-5-8 (13)	7.3	47.9	40.0	12.1
35		Field Note: Cleaned out with NXDC A-2-4, SiGrSa, brn, Moist, Rec. = 0.9 ft				15-3-4-8 (7)	14.2	25.3	54.4	20.3
		Field Note: Cleaned out with NXDC								

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

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Run (Dip deg.)	Core Rec. % (RQD %)	Drill Rate minutes/ft	Blows/ft (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
45		A-1-a, SaGr, gry-brn, Moist, Rec. = 0.9 ft, Lab Note: Broken rock was within sample Field Note: Cleaned out with NXDC				10-6-6-7 (12)	10.7	56.3	34.9	8.8
45		A-1-a, SaGr, brn-gry, Moist, Rec. = 0.2 ft, Lab Note: Broken rock was within sample				4-7-7-7 (14)	9.2	68.4	24.4	7.2
50		A-1-a, SaGr, brn-gry, Moist, Rec. = 0.7 ft				9-6-6-7 (12)	11.5	49.9	40.4	9.7
55		Field Note: Cleaned out with NXDC A-1-a, SaGr, brn, Moist, Rec. = 0.8 ft				8-7-8-7 (15)	11.2	54.1	32.3	13.6
60		Field Note: Cleaned out with NXDC Visual Description: Broken Rock, Rec. = 0.2 ft				20-15-22-20 (37)	1.9			
65		63.7 ft - 68.7 ft. Light gray to green, Muscovite-biotite-chlorite-quartz-pyrite SCHIST, Light brown and orange staining on joints. Transitions to GREEN SCHIST at 64.8 feet. Massive quartz veins at 65.9-66.55 feet and at 67.0 and 67.5 feet. Hard, Very slightly weathered, Good rock, NX, RMR=62	1 (60-65)	90 (58)	4					
65		Top of Bedrock @ 63.7 ft								
70		Hole stopped @ 68.7 ft Remarks: Hole Collapsed at 35.4 feet.								
75										

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

BORING LOG 2 BOLTON IM089-2(45)GP1 VERMONT AOT.GDT 11/23/15



STATE OF VERMONT
 AGENCY OF TRANSPORTATION
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BORING LOG

Bolton
IM 089-2(45)
I-89

Boring No.: **B-111**
 Page No.: **1 of 1**
 Pin No.: **13a090**
 Checked By: **MLM**

Boring Crew: GARROW, JUDKINS, NIETO
 Date Started: 10/13/15 Date Finished: 10/13/15
 VTSPG NAD83: N 685774.53 ft E 1531467.39 ft
 Station: 129+4 Offset: -84.40
 Ground Elevation: 346.0 ft

Casing: WB Sampler: SS
 Type: WB I.D.: 4 in 1.5 in
 Hammer Wt: N.A. 140 lb.
 Hammer Fall: N.A. 30 in.
 Hammer/Rod Type: Auto/AWJ
 Rig: CME 45C TRACK C_r = 1.34

Groundwater Observations		
Date	Depth (ft)	Notes
10/13/15	5.2	W.T. after drilling.

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
		A-1-a, SaGr, Lt/gry-Lt/brn, Moist, Rec. = 1.7 ft, Lab Note: Broken Rock was within sample.	16-17-12-16 (29)	3.3	55.8	33.4	10.8
5		A-4, SaSi, Lt/brn, Moist, Rec. = 1.9 ft	13-13-12-12 (25)	7.7	13.9	42.7	43.4
		A-4, SaSi, Lt/brn-Lt/gry, Moist, Rec. = 1.9 ft	11-10-9-7 (19)	8.2	11.9	43.1	45.0
		A-4, SaSi, Lt/brn, Moist, Rec. = 0.9 ft	5-4-3-2 (7)	9.1	14.4	39.8	45.8
10		A-4, SaSi, Lt/brn, Moist, Rec. = 1.4 ft	3-3-2-3 (5)	16.4	6.8	25.1	68.1
		A-4, SaSi, Lt/brn, Moist, Rec. = 0.4 ft	4-4-4-5 (8)	10.4	12.4	43.5	44.1
15		Field Note:, No Recovery	7-6-5-5 (11)				
		A-4, SaSi, Lt/brn, Moist, Rec. = 0.9 ft	4-4-6-8 (10)	18.9	15.7	35.9	48.4
		A-2-4, GrSiSa, Lt/brn-orange, Moist, Rec. = 1.0 ft	9-7-7-5 (14)	11.3	26.3	46.4	27.3
20		A-2-4, SiGrSa, brn, Moist, Rec. = 0.8 ft	6-4-5-5 (9)	11.5	27.1	47.0	25.9
	Hole stopped @ 21.0 ft						
25	Remarks: Hole Collapsed at 9.3 feet.						

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

BORING LOG - Z BOLTON IM089-2(45).GPJ VERMONT - AOT.GDI T17Z3/13



BORING LOG

Bolton
IM 089-2(45)
I-89

Boring No.: **B-112**
Page No.: 1 of 2
Pin No.: 13a090
Checked By: MLM

Boring Crew: HOOK, JUDKINS, NIETO
Date Started: 9/28/15 Date Finished: 9/29/15
VTSPG NAD83: N 685863.56 ft E 1531494.63 ft
Station: 129+04 Offset: 8.70
Ground Elevation: 351.0 ft

Type: Casing WB Sampler SS
I.D.: 4 in 1.5 in
Hammer Wt: N.A. 140 lb.
Hammer Fall: N.A. 30 in.
Hammer/Rod Type: Auto/AWJ
Rig: CME 45C TRACK C = 1.34

Groundwater Observations		
Date	Depth (ft)	Notes
09/29/15	22.4	W.T. During Drilling.
09/29/15	42.6	W.T. After Drilling.

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
		Asphalt Pavement, 0.0 ft - 0.92 ft					
		A-1-a, SaGr, gry-brn, Moist, Rec. = 1.3 ft	19-36-27-16 (63)	1.8	58.2	30.9	10.9
		A-1-b, SiSaGr, brn-gry, Moist, Rec. = 1.8 ft, Lab Note: Broken rock was within sample. Field Note:; Cleaned out with NXDC	20-26-23-27 (49)	4.0	43.9	35.1	21.0
5		Field Note:; No Recovery.	8-9-9-10 (18)				
		A-4, SaSi, Lt/brn-gry, Moist, Rec. = 0.8 ft	9-5-4-4 (9)	11.8	11.3	40.0	48.7
		Field Note:; Cleaned out with NXDC					
10		A-4, SaSi, Lt/brn, Moist, Rec. = 1.0 ft	4-3-3-4 (6)	17.6	17.9	32.0	50.1
		A-4, GrSaSi, Lt/brn, Moist, Rec. = 0.7 ft	3-3-4-5 (7)	13.0	22.2	38.7	39.1
		A-1-b, GrSa, brn-gry, Moist, Rec. = 0.7 ft, Lab Note: Broken rock was within sample.	7-6-8-9 (14)	13.4	35.9	46.2	17.9
15		Field Note:; Cleaned out with NXDC					
		A-4, SiSa, brn-gry, Moist, Rec. = 0.8 ft	4-4-5-9 (9)	15.3	14.3	45.9	39.8
		A-2-4, GrSiSa, brn, Moist, Rec. = 1.0 ft	9-7-8-21 (15)	11.3	26.8	46.3	26.9
20		A-1-b, SiGrSa, brn-gry, Moist, Rec. = 0.8 ft, Lab Note: Broken rock was within sample.	21-8-9-6 (17)	11.1	38.9	39.8	21.3
		Field Note:; Cleaned out with NXDC					
25		A-2-4, SiGrSa, brn-gry, Moist, Rec. = 0.8 ft, Lab Note: Wood and broken rock was within sample.	28-38-@2.5" (R)	11.7	34.0	35.3	30.7
		Field Note:; Cleaned out with roller cone					
30		A-4, Si, gry, Moist, Rec. = 1.2 ft, Lab Note: A very small amount of clay was within sample. Sample tested non-plastic.	2-2-3-5 (5)	32.3		9.4	90.6
		Field Note:; Cleaned out with roller cone					
35		A-4, Si, gry-brn, Moist, Rec. = 1.3 ft	2-4-7-6 (11)	28.0	7.5	10.2	82.3
		Field Note:; Cleaned out with roller cone					
40		A-2-4, SiGrSa, orange-Lt/brn, Moist, Rec. = 0.9 ft	10-12-16-18 (28)	14.7	26.7	52.0	21.3

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



BORING LOG

Bolton
IM 089-2(45)
I-89

Boring No.: **B-112**
Page No.: 2 of 2
Pin No.: 13a090
Checked By: MLM

Boring Crew: HOOK, JUDKINS, NIETO
Date Started: 9/28/15 Date Finished: 9/29/15
VTSPG NAD83: N 685863.56 ft E 1531494.63 ft
Station: 129+04 Offset: 8.70
Ground Elevation: 351.0 ft

Type: Casing WB Sampler SS
I.D.: 4 in 1.5 in
Hammer Wt: N.A. 140 lb.
Hammer Fall: N.A. 30 in.
Hammer/Rod Type: Auto/AWJ
Rig: CME 45C TRACK C = 1.34

Groundwater Observations		
Date	Depth (ft)	Notes
09/29/15	22.4	W.T. During Drilling.
09/29/15	42.6	W.T. After Drilling.

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
		A-1-b, GrSa, blk-Lt/brn, Moist, Rec. = 0.7 ft	10-8-9-8 (17)	15.6	30.6	51.1	18.3
50		Field Note:; Cleaned out with NXDC Field Note:; No Recovery.	11-11-9-9 (20)				
55		Field Note:; Cleaned out with NXDC A-1-b, GrSa, brn, Moist, Rec. = 0.6 ft	12-10-7-7 (17)	13.1	35.2	53.5	11.3
60		A-2-4, Sa, brn, Moist, Rec. = 0.2 ft	12-11-13-13 (24)	14.0	4.6	77.4	18.0
		Hole stopped @ 62.0 ft					
65		Remarks: Hole collapsed at 4.8 feet.					
70							
75							
80							
85							

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

BORING LOG 2 BOLTON IM089-2(45).GP1 VERMONT AOT.GDT 12/4/15

BORING LOG 2 BOLTON IM089-2(45).GP1 VERMONT AOT.GDT 12/4/15



STATE OF VERMONT
AGENCY OF TRANSPORTATION
CONSTRUCTION AND
MATERIALS BUREAU
CENTRAL LABORATORY

BORING LOG

Bolton
IM 089-2(45)
I-89

Boring No.: **B-113**
Page No.: **1 of 2**
Pin No.: **13a090**
Checked By: **MLM**

Boring Crew: **HOOK, JUDKINS, NIETO**
Date Started: **10/06/15** Date Finished: **10/07/15**
VTSPG NAD83: **N 685776.23 ft E 1531443.98 ft**
Station: **129+27** Offset: **-89.50**
Ground Elevation: **346.0 ft**

Type: _____
I.D.: **4 in** **1.5 in**
Casing **WB** **SS**
Sampler **SS**
Hammer Wt: **N.A.** **140 lb.**
Hammer Fall: **N.A.** **30 in.**
Hammer/Rod Type: **Auto/AWJ**
Rig: **CME 55 TRACK** **C = 1.46**

Groundwater Observations		
Date	Depth (ft)	Notes
10/07/15	24.3	W.T. After Drilling.

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Blows/(ft) (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
		Asphalt Pavement, 0.0 ft - 1.0 ft					
		A-1-a, SaGr, gry-brn, Moist, Rec. = 1.1 ft, Lab Note: Broken rock was within sample.	20-28-21-14 (49)	4.2	61.3	29.5	9.2
		A-4, SiSa, brn-gry, Moist, Rec. = 2.0 ft	13-11-11-11 (22)	7.9	16.3	46.7	37.0
5		A-4, SaSi, Lt/brn-gry, Moist, Rec. = 1.7 ft	10-4-6-5 (10)	10.4	16.1	37.2	46.7
		A-4, SiSa, Lt/brn, Moist, Rec. = 1.4 ft	4-3-2-3 (5)	8.9	12.8	44.2	43.0
10		A-4, SiSa, Lt/brn, Moist, Rec. = 0.3 ft	1-3-1-2 (4)	11.0	5.8	47.7	46.5
		A-2-4, GrSiSa, brn, Moist, Rec. = 1.1 ft	3-2-1-3 (3)	9.7	29.8	36.9	33.3
		A-4, SiSa, brn, Moist, Rec. = 0.9 ft	15-10-2-3 (12)	9.9	16.6	46.7	36.7
15		A-4, SaSi, brn, Moist, Rec. = 2.0 ft Field Note: Cleaned out with NXDC.	3-3-3-4 (6)	12.9	10.7	39.0	50.3
		A-1-b, GrSi, brn, Moist, Rec. = 0.7 ft, Lab Note: Broken rock was within sample.	6-6-13-6 (19)	10.9	60.7	19.2	20.1
20		A-1-b, SiGrSa, brn, Moist, Rec. = 0.8 ft	4-3-3-3 (6)	11.2	32.7	44.5	22.8
		Field Note: Cleaned out with NXDC.					
25		A-4, SiSa, Lt/brn-Lt/gry, Moist, Rec. = 1.3 ft, Lab Note: Wood fibers and a rusty nail were within sample, removed before testing.	23-22-18-11 (40)	13.7	14.9	49.6	35.5
		Field Note: Cleaned out with NXDC.					
30		A-4, Si, Dk/gry, Moist, Rec. = 1.8 ft, Lab Note: Sample tested non-plastic.	WH-WH-WH-WH (WH)	36.2	3.8	17.1	79.1
		Field Note: Cleaned out with NXDC.					
35		A-4, SaSi, gry, Moist, Rec. = 1.5 ft, Lab Note: Sample tested non-plastic.	WH-WH-3-2 (3)	30.5	4.6	23.2	72.2
		A-4, SiSa, gry, Moist, Rec. = 0.5 ft, Lab Note: Sample tested non-plastic.		27.4	4.4	56.2	39.4

Notes: 1. Stratification lines represent approximate boundary between material types. Transition may be gradual.
2. N Values have not been corrected for hammer energy, C is the hammer energy correction factor.
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STATE OF VERMONT
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BORING LOG

Bolton
IM 089-2(45)
I-89

Boring No.: **B-113**
Page No.: **2 of 2**
Pin No.: **13a090**
Checked By: **MLM**

Boring Crew: **HOOK, JUDKINS, NIETO**
Date Started: **10/06/15** Date Finished: **10/07/15**
VTSPG NAD83: **N 685776.23 ft E 1531443.98 ft**
Station: **129+27** Offset: **-89.50**
Ground Elevation: **346.0 ft**

Type: _____
I.D.: **4 in** **1.5 in**
Casing **WB** **SS**
Sampler **SS**
Hammer Wt: **N.A.** **140 lb.**
Hammer Fall: **N.A.** **30 in.**
Hammer/Rod Type: **Auto/AWJ**
Rig: **CME 55 TRACK** **C = 1.46**

Groundwater Observations		
Date	Depth (ft)	Notes
10/07/15	24.3	W.T. After Drilling.

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Blows/(ft) (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
		A-1-b, SaGr, brn, Moist, Rec. = 1.0 ft, Lab Note: Broken rock was within sample.	6-11-9-9 (20)	13.8	44.4	39.9	15.7
		Field Note: Cleaned out with NXDC.					
45		A-2-4, GrSa, brn, Moist, Rec. = 1.0 ft	10-11-16-21 (27)	13.8	25.4	62.1	12.5
		Field Note: Cleaned out with NXDC.					
50		A-1-b, GrSa, Lt/brn, Moist, Rec. = 1.0 ft	12-11-12-14 (23)	12.0	38.3	51.8	9.9
		A-1-b, GrSa, Lt/brn-Lt/gry, Moist, Rec. = 0.8 ft	16-13-14-17 (27)	10.8	40.3	46.2	13.5
60		A-1-b, Sa, Lt/gry, Moist, Rec. = 0.6 ft	4-8-9-14 (17)	15.6	5.7	87.5	6.8
		Hole stopped @ 62.0 ft					
65		Remarks: Hole Collapsed at 25.3 feet. 1.) Soft drilling 27.0-40.0 feet.					
70							
75							

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



STATE OF VERMONT
 AGENCY OF TRANSPORTATION
 CONSTRUCTION AND
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 CENTRAL LABORATORY

BORING LOG

Bolton
IM 089-2(45)
I-89

Boring No.: **B-114**
 Page No.: **1 of 1**
 Pin No.: **13a090**
 Checked By: **MLM**

Boring Crew: NIETO, HOOK, JUDKINS
 Date Started: 9/28/15 Date Finished: 9/28/15
 VTSPG NAD83: N 685874.15 ft E 1531474.99 ft
 Station: 129+26 Offset: 13.20
 Ground Elevation: 350.6 ft

Casing WB Sampler SS
 I.D.: 4 in 1.5 in
 Hammer Wt: N.A. 140 lb.
 Hammer Fall: N.A. 30 in.
 Hammer/Rod Type: Auto/AWJ
 Rig: CME 45C TRACK C_c = 1.34

Groundwater Observations

Date	Depth (ft)	Notes
09/28/15		No water to depth

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
		Asphalt Pavement, 0.0 ft - 0.6 ft					
		A-1-a, SaGr, gry-brn, Moist, Rec. = 1.4 ft, Lab Note: Broken rock was within sample.	9-16-21-15 (37)	6.5	57.8	30.5	11.7
		A-1-b, SaGr, gry-brn, Moist, Rec. = 0.5 ft, Lab Note: Broken rock was within sample.	11-10-10-14 (20)	7.8	50.5	34.0	15.5
		A-2-4, SiSa, brn, Moist, Rec. = 1.1 ft		6.3	18.1	58.8	23.1
5		A-4, SaSi, brn, Moist, Rec. = 1.3 ft	8-6-4-3 (10)	11.8	8.2	29.1	62.7
		A-4, SaSi, brn, Moist, Rec. = 1.4 ft	3-3-2-4 (5)	11.9	3.7	32.1	64.2
10		A-2-4, SiSa, brn, Moist, Rec. = 1.2 ft	6-4-3-4 (7)	9.3	14.8	50.8	34.4
		A-2-4, SiSa, brn, Moist, Rec. = 1.2 ft	3-3-3-3 (6)	8.1	15.1	54.4	30.5
15		A-4, SaSi, brn, Moist, Rec. = 1.6 ft	1-2-2-2 (4)	11.4	6.8	45.0	48.2
		A-4, SaSi, brn, Moist, Rec. = 1.1 ft	2-3-3-3 (6)	11.9	12.1	41.3	46.6
20		Field Note:, No Recovery	6-8-8-8 (16)				
		Field Note:, No Recovery	8-9-8-10 (17)				
		Hole stopped @ 21.0 ft					
25		Remarks: Hole Collapsed at 21.0 feet. 1.) When sampling from 11-13 feet, the sampler went 0.3 feet past the bottom depth.					

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

BORING LOG 2 BOLTON IM089-2(45).GPJ VERMONT AOT.GDT 11/23/15