



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

BORING LOG

Ripton
 ER STP 0174(19)
 VT 125

Boring No.: B-101

Page No.: 1 of 1

Pin No.: 12c414

Checked By: MLM

Boring Crew: Judkins, Gomes
 Date Started: 8/25/16 Date Finished: 8/25/16
 VTSPG NAD83: N 536928.50 ft E 1494356.43 ft
 Station: 11+00 Offset: -8.80
 Ground Elevation: 900.0 ft

Casing: WB Sampler: SS
 I.D.: 3 in 1.5 in
 Hammer Wt: N.A. 140 lb.
 Hammer Fall: N.A. 30 in.
 Hammer/Rod Type: Auto/AWJ
 Rig: CME 45C SKID SUB>><<SUB>> = 1.42

Groundwater Observations		
Date	Depth (ft)	Notes
08/25/16	19.1	W.T. during drilling

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Run (Dip deg.)	Core Rec. % (RCD %)	Drill Rate minutes/ft	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
		Asphalt Pavement, 0.0 ft - 1.89 ft								
		A-1-b, SaGr, brn, Moist, Rec. = 0.4 ft				4-4-5-6 (9)	9.4	54.3	29.8	15.9
5		A-1-a, SaGr, brn, Moist, Rec. = 0.2 ft, Lab Note: Broken rock was within sample				7-21-11-4 (32)	15.1	61.4	26.2	12.4
		Field Note:, BXDC, Cleaned out casing (boulder)								
10		A-1-b, GrSa, Lt/brn, Moist, Rec. = 1.1 ft				9-7-8-8 (15)	12.9	40.7	49.6	9.7
		Field Note:, BXDC, Cleaned out casing								
15		Field Note:, No Recovery				4-4-4-4 (8)				
		Field Note:, BXDC, Cleaned out casing								
20		Field Note:, No Recovery								
		20.2 ft - 24.2 ft, Gray, Biotite-muscovite-quartz-plagioclase SCHIST, with rare pyrite. Rust staining along joints. Moderately hard, Slightly weathered, Poor rock, BX, RMR=26	1 (80)	28 (0)	5	R@2.5" (R)				
					5					
					6					
					6					
25		24.2 ft - 28.2 ft, Gray to white, Biotite-muscovite-quartz-plagioclase GNEISS, with faint brown staining along joints. Moderately hard, Very slightly weathered, Fair rock, BX, RMR=57	2 (80)	78 (77)	6					
					4					
					5					
					5					
30		Hole stopped @ 28.2 ft								
		Remarks: Hole collapsed at 5.5 feet.								
		1.Top of Bedrock @ 20.2 feet.								

Notes: 1. Stratification lines represent approximate boundary between material types. Transition may be gradual.
 <<SUB>><<SUB>> 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 RIP-10N ER STP0174(19).GFGJ - VERMONT AOT.GDT - 9/14/16



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BORING LOG

**Ripton
 ER STP 0174(19)
 VT 125**

Boring No.: **B-102**

Page No.: **1 of 1**

Pin No.: **12c414**

Checked By: **MLM**

Boring Crew: Emerson, Judkins, Gomes

Date Started: 8/24/16 Date Finished: 8/25/16

VTSPG NAD83: N 537392.58 ft E 1494881.49 ft

Station: 18+00 Offset: -8.70

Ground Elevation: 917.5 ft

Casing Type: WB Sampler: SS
 I.D.: 3 in 1.5 in
 Hammer Wt: N.A. 140 lb.
 Hammer Fall: N.A. 30 in.
 Hammer/Rod Type: Auto/AWJ
 Rig: CME 45C SKIDSUB>><<SUB>> = 1.42

Groundwater Observations

Date	Depth (ft)	Notes
08/25/16	7.9	W.T. before drilling

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 %
		Asphalt Pavement, 0.0 ft - 1.17 ft								
2.5		A-1-a, SaGr, brn, Moist, Rec. = 0.8 ft				7-8-13-10 (21)	5.5	53.8	38.4	7.8
5.0		Field Note:, BXDC, Cleaned out casing								
7.5		A-1-b, GrSa, brn, Moist, Rec. = 0.6 ft				3-4-2-14 (6)	15.1	29.5	55.7	14.8
10.0		Field Note:, BXDC, Cleaned out casing								
10.0		A-2-4, SiSaGr, brn, Moist, Rec. = 0.5 ft, Lab Note: Broken and weathered rock was within sample				42-R@5" (R)	9.2	38.7	35.3	26.0
12.5		10.9 ft - 15.9 ft, Gray, Biotite-muscovite-quartz-plagioclase SCHIST, with rare pyrite. Tan/brown staining along joints. Moderately hard, Very slightly weathered, Good rock, BX, RMR=66	1 (70)	96 (100)	5	Top of Bedrock @ 10.9 ft				
15.0					3					
15.0					4					
15.0					4					
15.0					4					
17.5		Hole stopped @ 15.9 ft								
17.5		Remarks: Hole collapsed at 6.6 feet.								

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BORING LOG

Ripton
 ER STP 0174(19)
 VT 125

Boring No.: B-103
 Page No.: 1 of 1
 Pin No.: 12c414
 Checked By: MLM

Boring Crew: <u>Judkins, Gomes</u>	Type: <u>WB</u>	Casing: <u>SS</u>	Groundwater Observations		
Date Started: <u>8/24/16</u> Date Finished: <u>8/24/16</u>	I.D.: <u>3 in</u>	Sampler: <u>1.5 in</u>	Date	Depth (ft)	Notes
VTSPG NAD83: <u>N 537479.08 ft E 1495003.16 ft</u>	Hammer Wt: <u>N.A.</u>	Hammer Fall: <u>140 lb.</u>	08/24/16	18.0	W.T. during drilling
Station: <u>19+50</u> Offset: <u>-8.60</u>	Hammer/Rod Type: <u>Auto/AWJ</u>	Rig: <u>CME 45C SKT<SUB>><<SUB>></u>			
Ground Elevation: <u>927.0 ft</u>					

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Run (Dip deg.)	Core Rec. % (RCD %)	Drill Rate minutes/ft	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
0.0 - 0.48		Asphalt Pavement, 0.0 ft - 0.48 ft A-1-a, SaGr, white, Moist, Rec. = 0.9 ft, Lab Note: Broken rock was within sample				--42-26-16 (68)	10.4	60.0	27.4	12.6
5		Field Note: BXDC, Cleaned out casing A-1-a, SaGr, gry, Moist, Rec. = 1.4 ft, Lab Note: Broken and weathered rock was within sample				3-8-R@5" (R)	7.2	65.6	23.9	10.5
10		Field Note: BXDC, Cleaned out casing Field Note: No Recovery				5-4-5-3 (9)				
15		Field Note: BXDC, Cleaned out casing Field Note: No Recovery				R@0" (R)				
20		Field Note: BXDC, Cleaned out casing Field Note: No Recovery Field Note: BXDC, Cleaned out casing (boulder)				R@0" (R)				
22.4 - 27.4		22.4 ft - 27.4 ft, Gray to white, Muscovite-biotite-quartz-plagioclase GNEISS, with orange and rust staining along joints. Hard, Very slightly weathered, Poor rock, BX, RMR=28	1 (55)	42 (0)	2					
27.4 - 28.1		27.4 ft - 28.1 ft, Blue gray, Rusty weathering SCHIST, Medium hard, Slightly weathered, BX	2 (40)	24 (0)	2					
28.1 - 30.4		28.1 ft - 30.4 ft, Gray to white, MICACEOUS-QUARTZITE, Hard, Very slightly weathered, Poor rock, RMR=31			2					
30.4		Hole stopped @ 30.4 ft			4					
		Remarks: Hole Collapsed at 8.1 feet.								

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BORING LOG 2 RIPTON ER STP0174(19).GPJ VERMONT AOT.GDI 9/14/16



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BORING LOG

Ripton
 ER STP 0174(19)
 VT 125

Boring No.: **B-201**

Page No.: 1 of 1

Pin No.: 12c414

Checked By: AKF

Boring Crew: Olden, Judkins, Mazzei
 Date Started: 6/20/17 Date Finished: 6/20/17
 VTSPG NAD83: N 536795.41 ft E 1494165.81 ft
 Station: 8+60 Offset: -10.00
 Ground Elevation: 892.1 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 SKID CE = 1.42

Groundwater Observations		
Date	Depth (ft)	Notes
06/20/17	2.0	W.T. after drilling

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 %
0.0 - 0.38		Asphalt Pavement, 0.0 ft - 0.38 ft								
2.5		A-1-b, SaGr, brn, Wet, Rec. = 0.8 ft Field Note:, NXDC, Cleaned out casing				3-3-10-4 (13)	11.4	47.8	38.5	13.7
5.0		A-1-a, Gr, gry, Moist, Rec. = 0.4 ft, Lab Note: A lot of broken rock was within sample				29-10-1-8 (11)	2.3	90.1	9.7	0.2
7.5		Field Note:, NXDC, Cleaned out casing, Boulder 6.5 - 9.5 feet								
10.0		Field Note:, No Recovery								
10.0 - 11.3		Field Note:, NXDC, Cleaned out casing								
11.3 - 12.8		11.3 ft - 12.8 ft, Black and white, Quartz-biotite GNEISS, The fabric is banded mm wide zones of granular quartz and mm wide zones of vertically oriented biotite +/- muscovite and concentrations of carbonate. Joints have slight orange staining on them and are rough. Hard, Slightly weathered, Fair rock, NX, RMR=57	1 (85)	87 (73)	4					
12.8 - 16.3		12.8 ft - 16.3 ft, Black and white, Quartz-biotite GNEISS, The fabric is banded cm wide zones of biotite +/- muscovite and concentrations of carbonate with cm wide zones of quartz comingled with biotite and sulfides. Joints have slight orange staining on them and are rough. Hard, Slightly weathered, Fair rock, NX, RMR=52	2 (85)	106 (35)	7					
15.0					14					
15.0					10					
16.3		Hole stopped @ 16.3 ft								
17.5		Remarks: Hole collapsed at 13.0 feet.								

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Ripton
 ER STP 0174(19)
 VT 125

Boring No.: B-204

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Pin No.: 12c414

Checked By: AKF

Boring Crew: Emerson, Garrow, Mazzei
 Date Started: 7/11/17 Date Finished: 7/11/17
 VTSPG NAD83: N 537128.37 ft E 1494580.49 ft
 Station: 14+00 Offset: -8.30
 Ground Elevation: 900.3 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 55 TRACK CE = 1.42

Groundwater Observations		
Date	Depth (ft)	Notes
07/11/17	8.5	W.T. during drilling

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 %
0.0 - 0.4		Asphalt Pavement, 0.0 ft - 0.4 ft								
0.4 - 1.0		Reclaimed Asphalt, 0.4 ft - 1.0 ft								
1.0 - 5.0		A-1-b, SaGr, brn, Moist, Rec. = 0.8 ft				18-18-19-25 (37)	8.6	45.9	38.7	15.4
5.0 - 10.0		Field Note:, NXDC, Cleaned out casing A-2-4, SiGrSa, brn, Moist, Rec. = 0.5 ft, Lab Note: Decomposing plant material and broken rock was within sample				5-3-R@2.5" (R)	22.4	28.8	49.3	21.9
10.0 - 15.0		Field Note:, NXDC, Cleaned out casing, Boulder A-1-a, SaGr, brn, Moist, Rec. = 0.5 ft				25-21-11-6 (32)	10.5	59.9	32.1	8.0
15.0 - 20.0		Field Note:, NXDC, Cleaned out casing A-2-4, SaSiGr, brn, Moist, Rec. = 0.8 ft				3-3-15-R@5" (R)	13.9	40.8	24.7	34.5
20.0 - 25.0		Field Note:, NXDC, Cleaned out casing Field Note:, No Recovery				R@1" (R)				
25.0 - 30.0		Field Note:, NXDC, Cleaned out casing Field Note:, No Recovery				R@0" (R)				
30.0 - 31.5		26.5 ft - 31.5 ft, Light gray, Quartz-biotite GNEISS, Fabric is banded mm wide zones of disjunct quartz and mm wide zones of biotite. Sub-hedral crystals of cm size microcline are sporadically strewn throughout. Joints have slight orange staining on them and are rough. Very hard, Slightly weathered, Good rock, NX, RMR=62	1 (50)	100 (70)	6	Top of Bedrock @ 26.5 ft				
31.5 - 31.5		Hole stopped @ 31.5 ft								
		Remarks: Hole collapsed at 10.8 feet.								

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BORING LOG

Ripton
ER STP 0174(19)
VT 125

Boring No.: **B-209**
Page No.: **1 of 2**
Pin No.: **12c414**
Checked By: **AKF**

Boring Crew: Mazzei, Judkins, Emerson
Date Started: 6/27/17 Date Finished: 7/07/17
VTSPG NAD83: N 537923.23 ft E 1497366.20 ft
Station: 47+00 Offset: -9.70
Ground Elevation: 986.7 ft

Type: _____
I.D.: _____
Casing: WB Sampler: SS
4 in 1.5 in
Hammer Wt: N.A. 140 lb.
Hammer Fall: N.A. 30 in.
Hammer/Rod Type: Auto/AWJ
Rig: CME 55 TRACK CE = 1.41

Groundwater Observations		
Date	Depth (ft)	Notes
07/07/17	11.2	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 %
0.0 - 0.42		Asphalt Pavement, 0.0 ft - 0.42 ft								
0.42 - 1.2		Reclaimed Asphalt Pavement, 0.42 ft - 1.2 ft								
1.2 - 2.5		Field Note: No Recovery				11-11-5 (16)				
2.5 - 5.0		Field Note: No Recovery				47-R@2.5"				
5.0 - 7.5		Field Note: NXDC, Cleaned out casing, Cobbles								
7.5 - 10.0		A-1-a, SaGr, brn, Moist, Rec. = 0.4 ft				9-45-R@0" (R)	9.3	61.1	29.9	9.0
10.0 - 12.5		Field Note: NXDC, Cleaned out casing, Cobbles								
12.5 - 15.0		Field Note: No Recovery				50-35-34-R@3.5" (R)				
15.0 - 17.5		Field Note: NXDC, Cleaned out casing								
17.5 - 21.5		A-1-a, SaGr, brn, Wet, Rec. = 0.3 ft, Lab Note: Broken rock was within sample				22-19-24-28 (43)	7.0	75.4	20.1	4.5
21.5 - 34.6		Field Note: NXDC, Cleaned out casing								

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Ripton
ER STP 0174(19)
VT 125

Boring No.: **B-209**
Page No.: **2 of 2**
Pin No.: **12c414**
Checked By: **AKF**

Boring Crew: Mazzei, Judkins, Emerson
Date Started: 6/27/17 Date Finished: 7/07/17
VTSPG NAD83: N 537923.23 ft E 1497366.20 ft
Station: 47+00 Offset: -9.70
Ground Elevation: 986.7 ft

Type: _____
I.D.: _____
Casing: WB Sampler: SS
4 in 1.5 in
Hammer Wt: N.A. 140 lb.
Hammer Fall: N.A. 30 in.
Hammer/Rod Type: Auto/AWJ
Rig: CME 55 TRACK CE = 1.41

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 %
0.0 - 19.2		Field Note: No Recovery				19-20-31-27 (51)				
19.2 - 22.5		Field Note: Rollercone, Cleaned out casing								
22.5 - 25.0		A-4, SaSi, gry, Moist, Rec. = 0.35 ft				20-25-46-R@1" (R)	22.8	2.7	46.6	50.7
25.0 - 30.0		A-1-b, SiSaGr, gry, Moist, Rec. = 0.3 ft, Lab Note: Broken rock was within sample					11.3	46.4	29.3	24.3
30.0 - 32.2		29.6 ft - 32.2 ft, Light gray, Quartz-muscovite-biotite GNEISS, Irregular banding of cm wide variegated, sulfidic quartz +/- biotite and mica ribbons. NX	1 (70)	100 (26)	7					Top of Bedrock @ 29.6 ft
32.2 - 35.0		32.2 ft - 34.6 ft, Salt and peppered, Biotite-quartz GNEISS, Banding of mm wide zones of biotite with mm wide zones of granular quartz. Joints have slight orange staining on them and are rough. Hard, Slightly weathered, Fair rock, RMR=52			6					
35.0 - 37.5		Hole stopped @ 34.6 ft			7					
37.5 - 39.0		Remarks: Hole collapsed at 21.5 feet.			5					

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BORING LOG 2 RIPTON ER STP 0174(19) GSPJ VERMONT AOT LGDT 8/4/17



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BORING LOG

Ripton
ER STP 0174(19)
VT 125

Boring No.: **B-211**

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Pin No.: 12c414

Checked By: AKF

Boring Crew: Emerson, Garrow, Mazzei
Date Started: 7/10/17 Date Finished: 7/10/17
VTSPG NAD83: N 538066.65 ft E 1497542.70 ft
Station: 49+25 Offset: -10.00
Ground Elevation: 996.4 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 55 TRACK CE = 1.41

Groundwater Observations		
Date	Depth (ft)	Notes
07/10/17	11.6	W.T. during drilling

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
0.0 - 0.42		Asphalt Pavement, 0.0 ft - 0.42 ft					
0.42 - 5.0		A-1-b, SaGr, brn, Moist, Rec. = 0.5 ft	3-18-13 (31)	6.0	41.9	41.5	16.6
5.0 - 10.0		Visual Description: Broken Rock, Rec. = 0.1 ft	5-6-7-4 (13)				
10.0 - 15.0		Field Note: BXDC, Cleaned out casing					
15.0 - 20.0		A-2-4, SiGrSa, gry, Moist, Rec. = 0.5 ft	5-3-3-3 (6)	14.9	29.2	45.7	25.1
20.0 - 25.0		Field Note: BXDC, Cleaned out casing					
25.0 - 30.0		Field Note: No Recovery	20-22-22-17 (44)				
30.0 - 32.0		A-2-4, Sa, brn, Moist, Rec. = 0.6 ft	2-10-14-12 (24)	19.3	10.7	76.2	13.1
30.0 - 32.0		A-2-4, Sa, gry-orange, Moist, Rec. = 0.4 ft		23.4	0.1	81.4	18.5
32.0 - 35.0		A-1-b, SiSaGr, brn, Moist, Rec. = 0.9 ft, Lab Note: Broken rock was within sample	5-26-25-24 (51)	12.7	40.3	39.5	20.2
Hole stopped @ 32.0 ft							
35.0		Remarks: Hole collapsed at 17.5 feet.					

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