



GEODESIGN INCORPORATED

Geotechnical / Construction / Environmental Engineers and Scientists
P.O. Box 699 Windsor, VT 05089
Phone: 802-674-2833/Fax: 802-674-5843

BORING LOG

Project Name

Stowe STP 0235(17) Stowe, VT

Boring No.: B-2 (IC)

Page No.: 1 of 2

File No.: 750-09.9

Checked By: JFW

Boring Company: SJB Drilling
Foreman: Tom Farrell
GeoDesign Rep: Alan Baribault
Date Started: December 3, 2012
N. Coordinate: 730196
Ground Surface Elevation (feet): 1022
Station: Offset: fl

Casing: FJ Sampler: SS
Type: FJ Date: 11/29/12, 0:00
I.R.: 5.0 in. 1.38 in.
Hammer WL: 140/300 140 lbs
Hammer Fall: 30 in. 30 in.
Rig Type: CME 550X
Hammer Type: Automatic

Table with columns: Depth (ft), Casing Blows/ft, Type, Penetration (blows/inch), Recovery (blows), Depth (ft), Blows / 6 inch Interval (0-6, 6-12, 12-18, 18-24), Coring Time (min./ft), Moisture Content (%). Rows include data for silty sand and silty gravelly sand.

Table with columns: Strata Description, Symbol, Sample Description, Well Log. Includes classification system (Durmister) and detailed sample descriptions S1 through S5.

Remarks: 1) Working, casing, and ground surface elevation shown based on visual approximations made in the field by GeoDesign personnel... 2) Apparently abandoned copper and steel conduits and abandoned concrete spring visible on slope...

NOTES: 1) Classification Lines represent approximate boundary between material types... 2) Sample Type Coding: Antagon: C=Core; D=Driftless; F=Fill; S=Sand; G=Gravel; Silt; Clay; etc.

Boring No.: B-2 (IC)



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Table with columns: Strata Description, Symbol, Sample Description, Well Log. Includes classification system (Durmister) and detailed sample descriptions S6 through S10.

Remarks: 5) Roller bit advanced ahead of casing below 20 feet deep to improve driving time... 6) Water level readings were taken below 40 feet and water conditions stable...

NOTES: 1) Classification Lines represent approximate boundary between material types... 2) Sample Type Coding: Antagon: C=Core; D=Driftless; F=Fill; S=Sand; G=Gravel; Silt; Clay; etc.

Boring No.: B-2 (IC)

SMALL REMARK FONT STANDARD 750-09.9 STOWE 108.DWG GEODESIGN STANDARD.dwg 12/2/13

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

BORING LOG
 Slew SIP 023E(17)
 750-08.0
 Route 108 S46 023E(17)

Boring No.: 9-2 (P2)
 Page No.: 2 of 3
 File No.: 12C388
 Checked By: JTV

Boring Crew: J.B. / A.A. (OCMA), A. Barfknecht (Geotechnical)
 Date Started: 10/06/16 Date Finished: 10/06/16
 VSPG M0063: N 7302930.00 H E 1572408.00 H
 Station: 108+5 Offset: 17.00
 Ground Elevation: 1092 H

Casing Sampler
 Type: FJ SS
 I.D.: 4 in. 1.30 in.
 Hammer Wt: 140 lb. 140 lb.
 Hammer Fall: 30 in. 30 in.
 Hammer/Blow Type: Auto
 Blp: CHE 500R ATV CE = 1.5

Groundwater Observations (3)
 Date Depth (ft) Notes
 10/12/16 42.4 VP Fluorometer

BPT	Depth (ft)	CLASSIFICATION OF MATERIALS (Description)	BPT	Depth (ft)	Moisture (%)	Sand (%)	Silt (%)	Clay (%)	LL (%)	PL (%)	UC	Notes	
													Moisture (%)
5	1-2	S1 (0'-2'): Very loose, brown silt to coarse SAND, some fine gravel, little SILT, mod. Occ. = 0.7 H (ASHSTO M145 Classification: A-1-B.)	100-1	7.3	33.5	54.3	12.4	NP	NP				
	2-3	S2 (2'-3'): Medium dense, brown and gray silt to coarse SAND, some (s) silt to coarse gravel, little SILT, mod. Occ. = 0.6 H (ASHSTO M145 Classification: A-1-A.)	2-3	4.1	47.1	41.1	11.8	NP	NP				
	3-4	S3 (3'-4'): Medium dense, brown silt to coarse SAND, some silt to coarse gravel, little SILT, mod. Occ. = 0.6 H (ASHSTO M145 Classification: A-1-B.)	11-12	11.1	31.0	53.0	14.3	NP	NP				
	4-5	S4 (4'-5'): Medium dense, brown silt to coarse SAND, some silt to coarse gravel, little SILT, mod. Occ. = 0.6 H (ASHSTO M145 Classification: A-1-B.)	0-2	0.7	31.4	57.0	10.8	NP	NP				
10	5-6	S5 (5'-6'): Medium dense, brown (with gray leaching in lower 3" of sample) silt to coarse SAND, some silt to coarse gravel, little SILT, mod. Occ. = 1.2 H (ASHSTO M145 Classification: A-1-A.)	0-1	0.0	15.2	67.2	17.6	NP	NP				
	6-7	S6 (6'-7'): Loose, brown silt to medium SAND, little SILT, loose fine gravel, mod. Occ. = 0.5 H (ASHSTO M145 Classification: A-2-A.)	21-22	0.1	33.1	53.0	13.0	NP	NP				
15	7-8	S7 (7'-8'): Brown, brown and gray silt to coarse SAND, some silt to coarse gravel, little SILT, mod. Occ. = 1.4 H (ASHSTO M145 Classification: A-1-A.)	20-21	0.8	62.1	25.8	11.1	NP	NP				
	8-9	S8 (8'-9'): Very dense, gray and brown silt to coarse GRVEL, some (s) silt to coarse SAND, little SILT, mod. (1) phase of coarse gravel lodged in open sho. Occ. = 0.3 H (ASHSTO M145 Classification: A-1-A.)	10	10.4	46.6	35.1	16.3	NP	NP				
20	9-10	S9 (9'-10'): Medium dense, gray and brown silt to coarse SAND and silt to coarse GRVEL, little SILT, mod. Occ. = 0.6 H (ASHSTO M145 Classification: A-1-A.)	13-12	10.4	46.6	35.1	16.3	NP	NP				
	10-11	S10 (10'-11'): Relaxed, gray silt to coarse GRVEL, some silt to coarse SAND, little SILT, mod. (slightly weathered gravel or cobbles), Occ. = 0.2 H (ASHSTO M145 Classification: A-1-A.)	100-0	11.2	68.0	23.7	13.7	NP	NP				
25	Inferred Bedrock / Cobble												
	Inferred Bedrock / Cobble												
30													
35	S16 (32'-33'): Loose, gray and tan silt to medium SAND and SILT, loose (-) fine gravel, mod. Occ. = 1.5 H (ASHSTO M145 Classification: A-4.)	17-16	21.3	1.5	46.5	48.0	NP	NP					
40													
45	S11 (44'-46'): Loose, gray-brown fine SAND and SILT, loose (-) fine gravel, mod. Occ. = 1.5 H (ASHSTO M145 Classification: A-4.)	15-14	25.2	1.8	58.0	43.0	NP	NP					

Notes: 1. Standard flow resistant aggregate boundary between material types. Boundaries may be graded. 2. Water and moisture have been made of these and their conditions noted. Classification of groundwater may occur due to other factors than those present at the time measurements were made.

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

BORING LOG
 Slew SIP 023E(17)
 750-08.0
 Route 108 S46 023E(17)

Boring No.: 9-2 (P2)
 Page No.: 2 of 3
 File No.: 12C388
 Checked By: JTV

Boring Crew: J.B. / A.A. (OCMA), A. Barfknecht (Geotechnical)
 Date Started: 10/06/16 Date Finished: 10/06/16
 VSPG M0063: N 7302930.00 H E 1572408.00 H
 Station: 108+5 Offset: 17.00
 Ground Elevation: 1092 H

Casing Sampler
 Type: FJ SS
 I.D.: 4 in. 1.30 in.
 Hammer Wt: 140 lb. 140 lb.
 Hammer Fall: 30 in. 30 in.
 Hammer/Blow Type: Auto
 Blp: CHE 500R ATV CE = 1.5

Groundwater Observations (3)
 Date Depth (ft) Notes
 10/12/16 42.4 VP Fluorometer

BPT	Depth (ft)	CLASSIFICATION OF MATERIALS (Description)	BPT	Depth (ft)	Moisture (%)	Sand (%)	Silt (%)	Clay (%)	LL (%)	PL (%)	UC	Notes
35	32-33	S12 (32'-33'): Very dense, gray-brown (with orange mottling) SILT and silt to coarse SAND, little silt to coarse gravel, mod. to very mod. (see note) Occ. = 1.4 H (ASHSTO M145 Classification: A-4.)	72-71	14.3	10.7	35.0	44.4	NP	NP			
65	64-65	S13 (64'-65.8'): Relaxed, gray SILT and silt to coarse SAND, loose fine gravel, mod. Occ. = 0.5 H (ASHSTO M145 Classification: A-4.)	72-70	10.6	0.0	38.5	52.5	NP	NP			
70	66-67	S14 (66'-67.1'): Very dense, varied gray SILT, loose Clay & SIL (varied fines), from (-) fine SAND, from (-) fine GRVEL, from (-) organic, wet. Occ. = 2.0 H (ASHSTO M145 Classification: A-4.)	1-3	26.4	1.3	2.3	66.4	NP	NP			
75	68-69	S15 (68'-69.3'): Very dense, gray (with dark gray partings in upper 6 inches) SILT, from (-) Clay SIL, from (-) Organic (in dark partings, upper 6"), from (-) fine SAND, wet. Occ. = 2.0 H (ASHSTO M145 Classification: A-4.)	20-19	27.1	1.3	68.7	NP	NP				
80	70-71	S16 (70'-71'): Very dense, gray SILT, from Clayey SIL, from (-) fine SAND, wet. Occ. = 1.7 H (ASHSTO M145 Classification: A-4.)	20-18	26.6	0.7	69.3	NP	NP				
85	72-73	S17 (72'-73.5'): Hard, SILT (upper 10") mixed gray SILT & CLAY, from fine SAND (additional sand partings up to 1/2" thick). Occ. = 1.0 H (ASHSTO M145 Classification: A-4.) (ASHSTO M145 Classification: A-4.)	16-15	27.9	0.5	0.6	65.1	34	9			
90	74-75	S17b (Lower 7"): Gray CLAY & SIL, little silt to coarse SAND, little silt to coarse gravel. Occ. = 1.7 H (ASHSTO M145 Classification: A-4.)	16-14	14.3	10.7	15.3	67.0	36	13			
95	76-77	S18 (76'-77.3'): Relaxed, gray silt to coarse SAND, some SIL, some fine gravel (mostly fractured), mod. Occ. = 0.2 H (ASHSTO M145 Classification: A-2-A.)	100-0	11.0	53.2	36.7	38.1	NP	NP			
		Inferred Weathered Bedrock										
		Note stopped @ 83.0 H Rafter lift refusal										

Notes: 1. Standard flow resistant aggregate boundary between material types. Boundaries may be graded. 2. Water and moisture have been made of these and their conditions noted. Classification of groundwater may occur due to other factors than those present at the time measurements were made.

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

BORING LOG
 Slew SIP 023E(17)
 750-08.0
 Route 108 S46 023E(17)

Boring No.: 9-2 (P2)
 Page No.: 3 of 3
 File No.: 12C388
 Checked By: JTV

Boring Crew: J.B. / A.A. (OCMA), A. Barfknecht (Geotechnical)
 Date Started: 10/06/16 Date Finished: 10/06/16
 VSPG M0063: N 7302930.00 H E 1572408.00 H
 Station: 108+5 Offset: 17.00
 Ground Elevation: 1092 H

Casing Sampler
 Type: FJ SS
 I.D.: 4 in. 1.30 in.
 Hammer Wt: 140 lb. 140 lb.
 Hammer Fall: 30 in. 30 in.
 Hammer/Blow Type: Auto
 Blp: CHE 500R ATV CE = 1.5

Groundwater Observations (3)
 Date Depth (ft) Notes
 10/12/16 42.4 VP Fluorometer

BPT	Depth (ft)	CLASSIFICATION OF MATERIALS (Description)	BPT	Depth (ft)	Moisture (%)	Sand (%)	Silt (%)	Clay (%)	LL (%)	PL (%)	UC	Notes
100	84-85	S19 (84'-85.3'): Relaxed, gray silt to coarse SAND, some SIL, some fine gravel (mostly fractured), mod. Occ. = 0.2 H (ASHSTO M145 Classification: A-2-A.)										

Notes: 1. Standard flow resistant aggregate boundary between material types. Boundaries may be graded. 2. Water and moisture have been made of these and their conditions noted. Classification of groundwater may occur due to other factors than those present at the time measurements were made.

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STATE OF VERMONT
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MATERIALS & RESEARCH SECTION
SUBSURFACE INFORMATION

BORING LOG

Stowe STP 0235(17)
750-09.9
Route 108 Slide 0235(17)

Boring No.: B-5 (OW)
Page No.: 1 of 1
Pin No.: 12C388
Checked By: JFW

Boring Crew: J. Leonhardt (QCQA), A. Baribault (GeoDesign)
Date Started: 10/09/14 Date Finished: 10/09/14
VTSPG NAD83: N 730194.00 ft E 1572437.00 ft
Station: 102+1 Offset: 86.00
Ground Elevation: 1022 ft

Type: FJ SS
I.D.: 4 in 1.38 in
Hammer Wt: 140 lb. 140 lb.
Hammer Fall: 30 in. 30 in.
Hammer/Rod Type: Auto
Rig: CME 550X ATV CE = 1.5

Groundwater Observations (3)

Date	Depth (ft)	Notes
10/09/14	4.7	In well (1 Hr.)
10/13/14	5.1	Pre-Develop
10/13/14	19.5	Post-Develop

Depth (ft)	Strata(1)	CLASSIFICATION OF MATERIALS (Description)	Well Diagram	Blows/6" (N Value)(2)	Moisture Content %	Gravel %	Sand %	Fines %	LL %	PI %
5		S1 (3'-5'): Very dense, tan (with gray and orange areas) fine to coarse SAND, some fine to coarse Gravel (friable, possible highly weathered gravel/cobble), little Silt, very moist. Rec. = 1.0 ft (AASHTO M145 Classification: A-1-b.)		12-59-20-15 (79)	13.8	40.1	45.6	14.3	NP	NP
10		S2 (8'-10'): Medium dense, light brown/gray/orange fine to coarse SAND, some (+) fine to coarse Gravel, some Silt, very moist. Rec. = 1.3 ft (AASHTO M145 Classification: A-1-b.)		11-12-13-14 (25)	12.1	41.4	37.3	21.3	NP	NP
15		S3 (13'-15'): Medium dense, light brown (with occasional orange mottling) SILT and fine to medium SAND, trace fine Gravel, wet. Rec. = 1.2 ft (AASHTO M145 Classification: A-4.)		6-6-5-8 (11)	22.8	8.7	36.1	55.2	NP	NP
20		S4 (18'-20'): Very dense, gray fine to coarse GRAVEL, some fine to coarse Sand, some Silt, moist. Rec. = 1.0 ft (AASHTO M145 Classification: A-2-4.)		9-29-23-24 (52)	11.1	49.9	21.9	28.2	NP	NP
25		S5 (23'-25'): Very dense, gray SILT, some (+) fine to coarse Gravel (some fractured), some (+) fine to coarse Sand, moist. Rec. = 1.1 ft (AASHTO M145 Classification: A-4.)		14-21-37-51 (58)	13.9	37.9	24.6	37.5	NP	NP
Hole stopped @ 25.0 ft										
<p>Remarks:</p> <ol style="list-style-type: none"> 1) Northing, easting, and ground surface elevation shown based on taped measurements made in the field by GeoDesign personnel and an electronic site plan titled, "d12c388_nu1.dgn" provided by VTTrans on December 10, 2012. 2) Moisture in samples may be affected by use of water as a drilling fluid. 3) Boring advanced using 4-inch diameter flush joint casing and wash-and drive method. Casing advanced using auto hammer to 14 with open hole below. 4) Upon completion, 2-inch ID PVC observation well installed with 2.5 feet stickup and protective steel riser. Well screen 13 to 23 feet deep. 5) Well developed on 10/13/14, removing approximately 7 gallons, then another 2.5 after approximately 30 minutes. 6) Hammer energy is assumed. 										

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.

GEODESIGN BORING LOG 750-09.9 STOWE 108 VTRANS FORMAT.GPJ VERMONT AOT.GDT 1/9/15