
 STATE OF VERMONT AGENCY OF TRANSPORTATION MATERIALS & RESEARCH SECTION SUBSURFACE INFORMATION		BORING LOG Bridge No. 93 over C&P Railroad Castleton BR# 015-2(10) (GeoDesign #750-09.14)		Boring No.: B-1 Page No.: 1 of 3 Pin No.: 12b138 Checked By: SPK
Boring Crew: J. Leonhardt (TransTech), J. Gilman (GeoDesign) Date Started: 10/18/13 Date Finished: 10/22/13 VTSPG NAD83: N 403295.98 ft E 1452512.75 ft Station: 18+86 Offset: 8.40 Ground Elevation: 410.9 ft		Casing Sampler Type: FJ SS I.D.: 4 in 2 in Hammer Wt: 140 lb. 140 lb. Hammer Fall: 30 in. 30 in. Hammer/Rod Type: Auto/NWJ Rig: CME 550X ATV C _e = -1.5		Groundwater Observations (ft) Date Depth Notes 10/21/13 27.8 In casing (2 days)


Depth (ft)	Strat ⁽¹⁾	CLASSIFICATION OF MATERIALS (Description)	Blow ⁽²⁾ (N Value) ⁽³⁾	Moisture Content %	Gravel %	Sand %	Fines %	L %	P %
0		Existing Bridge Deck (Approx.) Air Space Between Bridge Deck and Ground Surface (See Remark 5).							
15	S1 (15' to 17'): Very loose, brown fine to coarse SAND, some Silt, little fine Gravel, trace Root Fibers, wet. Rec. = 1.0 ft (AASHTO M145 Classification: A-2.4.)	WOH-1-1 (1)	14.8	26.0	43.2	30.8	NP	NP	
17	S2 (17' to 19'): Loose, brown fine to coarse SAND, some Silt, little fine Gravel, wet. Rec. = 0.5 ft (AASHTO M145 Classification: A-2.4.)	2-2-2-2 (4)	14.8	26.9	41.3	31.8	NP	NP	
19	S3 (19' to 21'): Medium dense, brown fine to coarse SAND, some Silt, little fine to coarse Gravel, wet. Rec. = 0.7 ft (AASHTO M145 Classification: A-2.4.)	4-2-3-4 (10)	14.0	33.0	39.3	27.7	NP	NP	
21	S4 (21' to 23'): Very loose, brown fine to coarse SAND, some Silt, some fine Gravel, wet. Rec. = 0.4 ft (AASHTO M145 Classification: A-1-b.)	2-2-1-2 (3)	13.1	33.6	41.9	24.5	NP	NP	
23	S5 (23' to 25'): Soft, tan with gray seams, SILT & CLAY, trace fine to coarse Sand, trace fine Gravel, wet. Rec. = 0.9 ft (AASHTO M145 Classification: A-4.)	1-1-1-1 (2)	37.7	0.6	2.8	96.6	32	8	
29	S6 (29' to 31'): Medium dense, gray fine to coarse SAND and SILT & CLAY, little fine to coarse Gravel, wet. Rec. = 1.2 ft (AASHTO M145 Classification: A-4.)	4-17-11-12 (28)	11.4	29.9	31.6	38.5	22	5	
34	S7 (34' to 36'): Medium dense, gray fine to coarse SAND and Clayey SILT, trace fine Gravel, wet. Rec. = 1.2 ft	5-7-12-17 (29)	11.8				Testing Not Performed		
39	S8 (39' to 41'): Medium dense, no recovery, Rec. = 0.0 ft	8-14-13-14 (27)	11.3				Testing Not Performed		
44	S9 (44' to 46'): Medium dense, gray SILT & CLAY and fine to coarse SAND, little fine to coarse Gravel, wet. Rec. = 1.2 ft (AASHTO M145 Classification: A-4.)	7-11-14-29 (25)	11.2	29.6	26.1	44.3	25	6	
49	S10 (49' to 51'): Medium dense, gray SILT & CLAY and fine to coarse SAND, little fine to coarse Gravel, wet. Rec. = 1.3 ft (AASHTO M145 Classification: A-4.)	9-10-15-15 (21)	11.4				Testing Not Performed		

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_e 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.

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55	S11 (54' to 56'): Dense, gray SILT & CLAY and fine to coarse SAND, little fine to coarse Gravel, wet. Rec. = 0.7 ft	9-13-18-20 (31)	13.0				Testing Not Performed		
60	S12 (59' to 61'): Dense, gray SILT & CLAY and fine to coarse SAND, little fine to coarse Gravel, wet. Rec. = 0.9 ft (AASHTO M145 Classification: A-4.)	11-18-20-26 (28)	11.3	28.1	26.1	45.8	25	6	
65	S13 (64' to 66'): Dense, gray SILT & CLAY and fine to coarse SAND, little fine to coarse Gravel, wet. Rec. = 1.2 ft	8-14-17-23 (31)	11.5				Testing Not Performed		
75	S14 (74' to 76'): Dense, gray Clayey SILT, some fine to coarse Sand, little fine Gravel, wet. Rec. = 1.5 ft (AASHTO M145 Classification: A-4.)	11-20-18-25 (39)	13.2	23.7	22.8	53.5	24	4	
85	S15 (84' to 86'): Dense, gray Clayey SILT, some fine to coarse Sand, little fine Gravel, wet. Rec. = 1.0 ft	11-15-18-25 (33)	10.9				Testing Not Performed		
95	S16 (94' to 96'): Dense, gray SILT & CLAY, some fine to coarse Sand, trace fine Gravel, wet. Rec. = 1.3 ft (AASHTO M145 Classification: A-4.)	10-16-25-36 (41)	15.1	17.7	23.7	58.6	26	6	

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105	S17 (104' to 106'): Refusal, gray SILT & CLAY and fine to coarse SAND, little fine Gravel, wet. Rec. = 0.9 ft	26-52-50/3" (R)	13.8				Testing Not Performed		
115	S18 (114' to 116'): Refusal, gray SILT & CLAY and fine to coarse SAND, little fine Gravel, wet. Rec. = 0.9 ft (AASHTO M145 Classification: A-4.)	30-51-50/3" (R)	10.0	30.2	26.5	43.3	24	6	
120	S19 (120' to 122'): Very dense, gray SILT & CLAY and fine to coarse SAND, little fine Gravel, wet. Rec. = 1.0 ft	38-46-54-50/3" (100)	8.7				Testing Not Performed		
122	Hole stopped @ 122.0 ft Boring terminated at 122 feet deep with no refusal.								

Remarks:
 1. Exploration locations were taped in the field by GeoDesign. Elevations were estimated based on topographic plan provided by VHB.
 2. Sample moisture descriptions may not accurately reflect in-situ conditions due to wash-drive drilling methods.
 3. Visual soil descriptions are per the Burmister system. Lab testing gradations reported are per AASHTO M145.
 4. Samples S2 and S4 were not sampled in accordance with ASTM D 1586 procedures (borehole was not advanced between consecutive samples).
 5. Boring was drilled through 6 inch core hole (performed by VTrans 10/16/13) and depths are were measured from the bridge deck. Distance from deck to ground surface below was approximately 15 feet.
 6. Driller advanced casing to 30 feet deep and then open hole below 30 feet deep; noted loss of water when drilling between 40 and 45 feet; drove casing to 50 feet deep.
 7. Driller noted excessive rig chatter while advancing roller bit from 71 to 72 feet deep (possible cobble/gravel).
 8. At end of day on 10/18/13 borehole advanced to 76 feet deep. On 10/21/13, casing advanced to 60 feet deep.
 9. Driller reported borehole instability while attempting to sample 84 to 86 feet deep (cave in ~5'). Therefore, driller advanced casing to 80 feet.
 10. At end of day on 10/21/13 borehole advanced to 96 feet deep with casing at 95 feet deep.
 11. Soil samples were tested by VTrans soil laboratory and results were transmitted to GeoDesign for incorporation into boring logs.

PROJECT NAME: CASTLETON	PLOT DATE: 9/19/2014
PROJECT NUMBER: BR# 015-2(10)	DRAWN BY: E.A. FIALA
FILE NAME: z12b138borlog.dgn	CHECKED BY: S.E. BURBANK
DESIGNED BY: GEODESIGN	BORING LOGS (1 OF 4)
SHEET 36 OF 82	

