

To: Bob Klinefelter, P.E., Structures Project Manager
ASA

From: August Arles, Geotechnical Engineer

Date: April 16th, 2025

Subject: Poultney BF 0145(13) – Subsurface Investigation - **Supplement**

1.0 INTRODUCTION

As requested, we have completed our geotechnical and geological subsurface investigation for the proposed replacement of Bridge No. 4 located on VT Route 31 over the Poultney River in Poultney, Vermont. The borings were completed to determine the soil strata and depth to bedrock to aid in design of a replacement structure. Contained herein are the results of our field sampling and testing, laboratory analyses of soil and rock samples, as well as attached boring logs.

2.0 FIELD INVESTIGATION

An initial field investigation was conducted between April 10th, and April 25th, 2023. The results from this investigation can be found in the report submitted May 20th, 2023.

Due to the change in anticipated foundation design from driven H-piles to drilled micropiles, a secondary round of borings were conducted between February 25th, and March 17th, 2025. This set of boring locations were provided by Mario Barahona, HNTB Corporation, and laid out in the field by members of the Geotechnical Engineering Section using the Geotechnical Section's handheld Trimble TDC600 and Trimble DA2 GNSS GPS receiver with submeter accuracy. Due to an issue during drilling of B-105, the boring was moved and labeled B-105a. A summary of the final location of each boring and corresponding ground surface elevation can be found in Table 2.1 and the attached boring location plan. The values for the Northings and Eastings are based on the Vermont State Plane Grid Coordinate System NAD 83. The elevations for the borings, based on the North American Vertical Datum, NAVD 88, were estimated using the design file x21j164sv.dgn, dated March 2023. The locations and elevations for the borings should be considered accurate only to the degree implied by the method used to determine them.

Table 2.1: Boring Locations

Boring	Station	Offset (ft)	Northing (ft)	Easting (ft)	Elevation (ft)	Bedrock Elevation (ft)
B-105	105+18	23.4 RT	370126.2	1445924	412.8	N.A.
B-105A	105+17	20.4 RT	370125.5	1445921	412.8	388.8
B-106	103+93	6.1 LT	370010.6	1445868	424.5	382.5

The borings were performed in general accordance with AASHTO T206, *Standard Method of Test for Penetration Test and Split-Barrel Sampling of Soils*. During the boring operations, split spoon samples and standard penetration tests (SPT) were taken continuously to 19 feet (ft) below ground surface (bgs), for B-105. For B-105A, no samples were taken to 17 ft bgs, samples were then taken continuously to bedrock at 24 ft bgs. When bedrock was encountered, four 5 ft NX rock core runs, totaling 20 ft of core, were taken to confirm the presence of bedrock. For B-106, no soil samples

were conducted, and casing was advanced directly to bedrock, where five 5 ft NX rock core runs, totaling 25 ft, were taken to confirm the presence of bedrock.

Soil samples were visually identified in the field and SPT blow counts were recorded on the boring logs when applicable. Soil samples were preserved and returned to the VTrans Construction and Materials Bureau Laboratory for testing and further evaluation. Upon completion of the laboratory testing of select representative samples, the borings logs were revised to reflect the results of the laboratory classification analysis. The attached boring logs display the types of soil strata encountered and include the laboratory test data, SPT data, and any pertinent observations made by the drilling crew.

Details of the bedrock coring were recorded on the boring logs when applicable. Cores were then placed in core boxes and returned to the VTrans Construction and Materials Bureau Laboratory for further evaluation and testing, where applicable. The boring logs were revised to reflect the classification and description of the bedrock cores.

3.0 SOIL PROFILE

Review of the laboratory data, field testing, and boring logs revealed the following information pertaining to the soil strata. It should be noted that groundwater elevations are subject to change. Because groundwater elevations can fluctuate seasonally and are affected by temperature and precipitation, groundwater may be encountered during construction when not previously noted in the logs.

3.1 Boring B-105/B-105A

The ground surface elevation at B-105 is approximately 412.8 ft. Groundwater was measured after drilling on February 26th, and February 28th, 2025, at a depth of 4.9 ft and 3.2 ft, corresponding to an elevation of 407.9 ft and 409.6 ft, respectively.

Table 3.1: B-105/B-105A Soil Strata

Depth (Below Ground Surface Elevation)	Soil Profile
0 – 4 ft	Loose to Medium Dense, SAND, little Silt, trace Gravel
4 – 7 ft	NO RECOVERY
7 – 10 ft	Very Loose Fine SAND and SILT
10 – 11 ft	Very Loose Fine SAND, some Silt, some Gravel
11 – 24 ft	Very Soft CLAY and non-plastic SILT
>24 ft	Bedrock (SLATE)

3.2 Boring B-106

The ground surface elevation at B-106 is approximately 424.5 ft. Groundwater was encountered after drilling operations on March 17th, 2025 at a depth of 4.7 ft bgs corresponding to an approximate groundwater elevation of 419.8 ft.

Table 3.2: B-106 Soil Strata

Depth (Below Ground Surface Elevation)	Soil Profile
0 – 42 ft	Not Sampled (Assumed fine Sand and Silt)
> 42 ft	Bedrock (SLATE)

3.3 Rock Parameters

A summary of the rock core findings are listed in Table 3.3.1 and Table 3.3.2 as well as available in the attached boring logs. Information from the cores indicate the bedrock present at the project site is soft to moderately hard dark gray calcareous SLATE with calcite veins, The bedrock had an average rock quality designation (RQD) of 36 and an average rock mass rating (RMR) of 45, indicating fair rock.

Table 3.3.1: Rock Core Sample Results – B-105A

Run Number	Core Size	Depth (ft)	Recovery (%)	RQD (%)	Dip (deg)	Lithologic Description	RMR
1	NX	24-29	94	0	40-50	Dark gray calcareous SLATE with calcite veins. Highly fractured. Joint / Foliation surfaces mostly smooth. Very occasional faint brown/rust staining along fractures. Soft to medium hard, very slightly weathered. Poor Rock	29
2	NX	29-33	105	39	60	Dark gray calcareous SLATE with calcite veins. Joint / Foliation surfaces mostly smooth. Very occasional faint brown/rust staining along fractures. Some calcite healed fractures. Soft to medium hard, very slightly weathered. Fair Rock	41
3	NX	33-35	70	70	40-55	Dark gray calcareous SLATE with calcite veins. Joint / Foliation surfaces mostly smooth. Very occasional faint brown/rust staining along fractures. Some calcite healed fractures. Soft to medium hard, very slightly weathered. Fair Rock	46
4	NX	35-39	90	26	40	Interbedded dark gray calcareous SLATE with calcite veins and gray to dark gray thin-bedded quartz-plagioclase WACKE. Wacke from 35.9ft to 37.65 ft. Joint / Foliation surfaces mostly smooth. Very occasional faint brown/rust staining along fractures. Some calcite healed fractures. Soft to medium hard, very slightly weathered. Fair Rock	41

5	NX	39-44	96	51	40-50	Dark gray calcareous SLATE with calcite veins, interbedded with dark gray quartz-plagioclase WACKE, and autoclasts of slate. Joints / Foliation surfaces mostly smooth 39ft to 40.2ft, rough 40.2 ft to 44 ft. Very occasional faint brown/rust staining along fractures. Some calcite healed fractures. Soft to medium hard, very slightly weathered. Poor Rock	46
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Table 3.3.1: Rock Core Sample Results – B-106

Run Number	Core Size	Depth (ft)	Recovery (%)	RQD (%)	Dip (deg)	Lithologic Description	RMR
1	NX	42-47	100	17	35-45	Dark gray calcareous SLATE with calcite veins. Joint / Foliation surfaces mostly smooth. Very occasional faint brown/rust staining along fractures. Some calcite healed fractures. Soft to medium hard, very slightly weathered. Fair Rock	51
2	NX	47-52	92	45	45-55	Dark gray calcareous SLATE with calcite veins. Joint / Foliation surfaces mostly smooth. Very occasional faint brown/rust staining along fractures. Some calcite healed fractures. Soft to medium hard, very slightly weathered. Fair Rock	51
3	NX	52-57	100	42	45-60	Dark gray calcareous SLATE with calcite veins. Joint / Foliation surfaces mostly smooth. Very occasional faint brown/rust staining along fractures. Some calcite healed fractures. Soft to medium hard, very slightly weathered. Fair Rock	51
4	NX	57-62	100	57	35	Interbedded dark gray calcareous SLATE with calcite veins and gray to dark gray thin-bedded quartz-plagioclase WACKE. Wacke from 58.65ft to 62.0ft. Joint / Foliation surfaces mostly smooth. Very occasional faint brown/rust staining along fractures. Some calcite healed fractures. Medium hard, very slightly weathered. Fair Rock	56

In addition to a visual inspection and classification, four rock cores were sent to GeoTesting Express, Inc, of Acton Massachusetts, to determine compression strength to be used in modeling. The results from the testing can be found below in Table 3.3.3 as well as attached to the end of this report.

Table 3.3.3 Rock Core Testing Results

Boring No	Run Number	Depth (ft)	Compression Strength (psi)
B-102	R1	41.5	9,198
B-104	R2	51	3,983
B-105a	R4	36.6	9,168
B-105a	R5	42.6	1,993*

*Strain gauge broke before peak value was attained

4.0 CONCLUSION

If you have any questions, or you would like to discuss this report, please contact us via email. Please let us know when more information is available and if you'd like assistance with foundation analyses and design. Typed boring logs are attached and are available in the CADD design files: <M:\Projects\21j164\MaterialsResearch>

Reviewed by: Eric Denardo. P.E., Geotechnical Engineer *END*

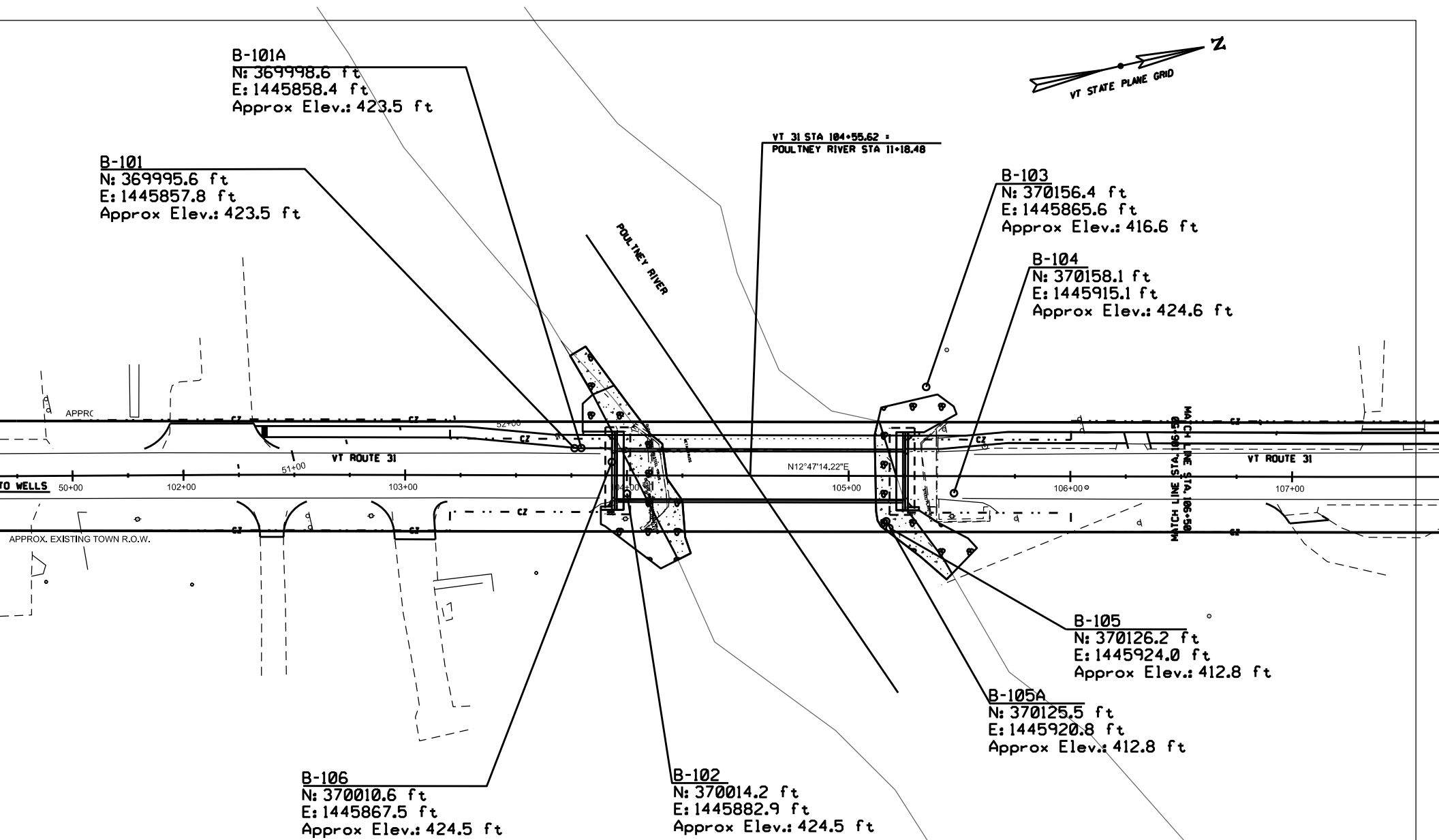
Attachments: Boring Layout (1 Page)
Boring Logs (4 pages)
Rock Testing Results (16 Pages)

cc: Read File/MG
Project File/CEE
AJA

[Z:\Highways\CMB\GeotechEngineering\Projects\Poultney BF 0145\(13\)\REPORTS\Poultney BF 0145\(13\) Subsurface Investigation Addendum.docx](Z:\Highways\CMB\GeotechEngineering\Projects\Poultney BF 0145(13)\REPORTS\Poultney BF 0145(13) Subsurface Investigation Addendum.docx)

Appendix A

Boring Layout Plan



PROJECT NAME:	POULTNEY	PLOT DATE:	SSSSDATESSS
PROJECT NUMBER:	BF 0145(13)	DRAWN BY:	T.O. BURT
FILE NAME:	BFLESS	CHECKED BY:	J.D. KEENER
PROJECT LEADER:	A.P. GUYETTE	LAYOUT PLAN SHEET (1 OF 2)	SHEET 55 OF 515
DESIGNED BY:	T.O. BURT		



Appendix B

Boring Logs



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

BORING LOG

Poultney
BF 0145(13)
BR 4 VT 31

Boring No.: **B-105**
Page No.: 1 of 1
Pin No.: 21J164
Checked By: AJA

Boring Crew: <u>Thurston, Lubas, Arles, Degener</u>	Type: <u>WB</u>	Casing <u>SS</u>	Sampler	Groundwater Observations		
Date Started: <u>2/24/25</u> Date Finished: <u>2/25/25</u>	I.D.: <u>4 in</u>	<u>1.5 in</u>		Date	Depth (ft)	Notes
VTSPG NAD83: _____	Hammer Wt: <u>N.A.</u>	<u>140 lb.</u>		02/25/25	2.8	WT After Drilling
Station: _____ Offset: _____	Hammer Fall: <u>N.A.</u>	<u>30 in.</u>		02/25/25	3.8	WT Before Drilling
Ground Elevation: _____	Hammer/Rod Type: <u>Auto/AWJ</u>					
	Rig: <u>Diedrich D25</u>	<u>C_E = 1.45</u>				

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
2.5		Field Description, Very Loose, SAND, little Silt, trace Gravel, brn, MTW, Rec. = 1.6 ft	9-2-1-3 (3)				
		Field Description, Medium Dense, SAND, little Silt, trace Gravel., brn, Moist, Rec. = 1.2 ft, Rollercone Cleanout 2.8'-4.0'	2-2-7-7 (9)				
5.0		Field Note, NO RECOVERY. GRAVEL in end of sampler, Rec. = 0.0 ft, Lost water return spinning casing to 6'. Rollercone Cleanout 5.2'-6.0'	12-11-15-13 (26)				
		Field Note, Rollercone wash in sampler, Rec. = 0.2 ft, Rollercone Cleanout 7.2'-7.4'. Rollercone would not advance past 7.4'. NXDC Cleanout 7.4'-9.0'	13-R@4" (R)				
7.5							
10.0		Field Description, Split sample: Medium SAND 0'-0.35', Rec. = 1.3 ft	3-2-2-2 (4)				
		Field Description, Fine SAND and SILT 0.35'-0.8'					
		Field Description, SILT varved with Clay 0.8'-1.5'					
12.5		Field Description, Fine SAND, some Silt, some Gravel, Rec. = 1.5 ft	2-2-2-2 (4)	35.1			
		Field Description, CLAY, some Silt					
15.0		Field Note, Pushed Shelby Tube 13'-15'. NO RECOVERY					
		Field Description, Very Soft, CLAY varved with Silt, Rec. = 1.7 ft	3-1-WOH-1 (1)	40.3			
17.5		Field Note, Pushed Shelby Tube 17'-19', Lost Piston down hole. Hole abandoned at 19.0'					
20.0		Hole stopped @ 19.0 ft					
22.5		Remarks: GPS location could not be located due to amount of ice on river bank covering hole. Piston from shelly tube sampler still down the hole					

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 may occur due to other factors than those present at the time measurements were made.



STATE OF VERMONT
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BORING LOG

Poultney
BF 0145(13)
BR 4 VT 31

Boring No.: **B-105A**

Page No.: 1 of 2

Pin No.: 21J164

Checked By: AJA

Boring Crew: Thurston, Lubas, Arles, Degener

Date Started: 2/25/25 Date Finished: 2/28/25

VTSPG NAD83: N 370125.50 ft E 1445920.80 ft

Station: 105+17.00 Offset: 20.4 ft RT

Ground Elevation: 412.8 ft

Casing Sampler
Type: WB 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: Diedrich D25 $C_E = 1.45$

Groundwater Observations

Date	Depth (ft)	Notes
02/26/25	4.9	WT After Drilling
02/28/25	3.2	WT 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 %	LL %	PI %
2.5		Field Note, Spun casing to 17' without sampling, Casing slow to advance 5'-7'										
5.0		Field Note, NXDC Cleanout 5'-7.8', Pieces of wood in wash water during cleanout										
7.5												
10.0												
12.5												
15.0												
17.5		Field Description, Very Soft CLAY, Rec. = 1.2 ft, Field Torvane Test = 200 psf				3-WOH-2 (0)	34.5				2	NP
20.0		Field Description, Very soft CLAY, varved with Silt, Rec. = 2.0 ft, Field Torvane Test = 200 psf, Field Pocket Pen Test = 0.0-0.5 tsf				1-WOH-1 (0)	39.6				6	5
22.5		Field Description, Split sample: Loose CLAY and SILT 0.0'-0.8', Rec. = 2.0 ft Field Description, Medium dense SILT, some Sand 0.8'-2.0', Field Note: N-value may be inflated due to overstuffing of split spoon sampler Field Description, Fractured Rock, some Sand, some Silt,				2-3-10-12 (13) 7-43-R@1"	39.3					

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_E 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.



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BORING LOG

Poultney
BF 0145(13)
BR 4 VT 31

Boring No.: **B-105A**

Page No.: **2 of 2**

Pin No.: **21J164**

Checked By: **AJA**

Boring Crew: Thurston, Lubas, Arles, Degener

Date Started: 2/25/25 Date Finished: 2/28/25

VTSPG NAD83: N 370125.50 ft E 1445920.80 ft

Station: 105+17.00 Offset: 20.4 ft RT

Ground Elevation: 412.8 ft

Type:

I.D.:

Hammer Wt:

Hammer Fall:

Hammer/Rod Type: Auto/AWJ

Rig: Diedrich D25 $C_E = 1.45$

Casing

WB

4 in

N.A.

N.A.

Sampler

SS

1.5 in

140 lb.

30 in.

Groundwater Observations

Date	Depth (ft)	Notes
02/26/25	4.9	WT After Drilling
02/28/25	3.2	WT 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 %	LL %	PI %
25.0		fractured Rock in end of sampler, Rec. = 0.7 ft, Refusal @ 24.1', 50 blows per 6"	R-1 (40-55)	94 (0)	8	(R)	Top of Bedrock @ 24.0 ft					
27.5		24.0 ft - 29.0 ft, Dark gray calcareous SLATE with calcite veins. Highly fractured. Joint / Foliation surfaces mostly smooth. Very occasional faint brown/rust staining along fractures. Soft to medium hard, Very slightly weathered, Poor rock, NX, RMR = 29			8							
30.0		29.0 ft - 33.0 ft, Dark gray calcareous SLATE with calcite veins. Joint / Foliation surfaces mostly smooth. Very occasional faint brown/rust staining along fractures. Some calcite healed fractures. Soft to medium hard, Very slightly weathered, Fair rock, NX, RMR = 41	R-2 (60)	105 (39)	5							
32.5					7							
35.0		33.0 ft - 35.0 ft, Dark gray calcareous SLATE with calcite veins. Joint / Foliation surfaces mostly smooth. Very occasional faint brown/rust staining along fractures. Some calcite healed fractures. Soft to medium hard, Very slightly weathered, Fair rock, NX, RMR = 46	R-3 (40-55)	70 (70)	6							
37.5		35.0 ft - 39.0 ft, Interbedded dark gray calcareous SLATE with calcite veins and gray to dark gray thin-bedded quartz-plagioclase WACKE. Wacke from 35.9 ft to 37.65 ft. Joint / Foliation surfaces mostly smooth. Very occasional faint brown/rust staining along fractures. Soft to medium hard, Very slightly weathered, Fair rock, NX, Some calcite healed fractures. RMR = 41	R-4 (40)	90 (26)	5							
40.0		39.0 ft - 44.0 ft, Dark gray calcareous SLATE with calcite veins, interbedded with dark gray quartz-plagioclase WACKE, and autoclasts of slate. Joints / Foliation surfaces mostly smooth 39 ft to 40.2 ft, rough 40.2 ft to 44 ft. Soft to medium hard, Very slightly weathered, Fair rock, NX, Very occasional faint brown/rust staining along fractures. Some calcite healed fractures. RMR = 46	R-5 (40-50)	96 (51)	6							
42.5					6							
45.0		Hole stopped @ 44.0 ft			6							
47.5		Remarks: Hole moved 2 ft closer to bridge from original B-105 location			6							

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 may occur due to other factors than those present at the time measurements were made.



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BORING LOG

Poultney
BF 0145(13)
BR 4 VT 31

Boring No.: **B-106**
Page No.: 1 of 2
Pin No.: 21J164
Checked By: AJA

Boring Crew: Thurston, Lubas, Degener
Date Started: 3/13/25 Date Finished: 3/17/25
VTSPG NAD83: N 370010.60 ft E 1445867.50 ft
Station: 103+93.00 Offset: 6.1 ft LT
Ground Elevation: 424.5 ft

Casing WB Sampler N.A.
Type: WB
I.D.: 4 in
Hammer Wt: N.A. N.A.
Hammer Fall: N.A. N.A.
Hammer/Rod Type: Auto/AWJ
Rig: Acker Renegade C_E = 1.3

Groundwater Observations		
Date	Depth (ft)	Notes
03/17/25	4.7	WT 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 %
5		Field Note, Spun casing to rock without sampling								
10										
15										
20										
25										
30										

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 may occur due to other factors than those present at the time measurements were made.



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BORING LOG

Poultney
BF 0145(13)
BR 4 VT 31

Boring No.: **B-106**

Page No.: 2 of 2

Pin No.: 21J164

Checked By: AJA

Boring Crew: Thurston, Lubas, Degener

Date Started: 3/13/25 Date Finished: 3/17/25

VTSPG NAD83: N 370010.60 ft E 1445867.50 ft

Station: 103+93.00 Offset: 6.1 ft LT

Ground Elevation: 424.5 ft

Casing: WB
Sampler: N.A.
Type: WB
I.D.: 4 in
Hammer Wt: N.A.
Hammer Fall: N.A.
Hammer/Rod Type: Auto/AWJ
Rig: Acker Renegade
C_E = 1.3

Groundwater Observations

Date	Depth (ft)	Notes
03/17/25	4.7	WT 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 %
40		Field Note, Rollercone Cleanout 39.5'-40.5'								
		Field Note, Attempted core run. Core barrel bit was too worn. NO RECOVERY								
45		42.0 ft - 47.0 ft, Dark gray calcareous SLATE with calcite veins. Joint / Foliation surfaces mostly smooth. Very occasional faint brown/rust staining along fractures. Some calcite healed fractures. Soft to medium hard, Very slightly weathered, Fair rock, NX, RMR = 51	R-2 (35-45)	100 (17)	5					
					3					
					3					
					4					
50		47.0 ft - 52.0 ft, Dark gray calcareous SLATE with calcite veins. Joint / Foliation surfaces mostly smooth. Very occasional faint brown/rust staining along fractures. Some calcite healed fractures. Soft to medium hard, Very slightly weathered, Fair rock, NX, RMR = 51	R-3 (45-55)	92 (45)	2					
					3					
					3					
					4					
55		52.0 ft - 57.0 ft, Dark gray calcareous SLATE with calcite veins. Joint / Foliation surfaces mostly smooth. Very occasional faint brown/rust staining along fractures. Some calcite healed fractures. Soft to medium hard, Very slightly weathered, Fair rock, NX, RMR = 51	R-4 (45-60)	100 (42)	4					
					4					
					4					
					5					
					11					
60		57.0 ft - 62.0 ft, Interbedded dark gray calcareous SLATE with calcite veins and gray to dark gray thin-bedded quartz-plagioclase WACKE. Wacke from 58.65 ft to 62.0 ft. Joint / Foliation surfaces mostly smooth. Very occasional faint brown/rust staining along fractures. Medium hard, Very slightly weathered, Fair rock, NX, Some calcite healed fractures. RMR = 56	R-5 (35)	100 (57)	2					
					3					
					3					
					3					
					3					
65		62.0 ft - 67.0 ft, Interbedded dark gray calcareous SLATE with calcite veins, sulfide nodules, and gray to dark gray thin-bedded quartz-plagioclase WACKE. Wacke from 62.0 ft to 62.7 ft. Joint / Foliation surfaces mostly smooth. Yellow/brown/rust staining 63.8 ft to 64.2 ft. Medium hard, Very slightly weathered, Fair rock, NX, RMR = 46	R-6 (35)	44 (14)	2					
					9					
					6					
					6					
					7					
		Hole stopped @ 67.0 ft								

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 may occur due to other factors than those present at the time measurements were made.

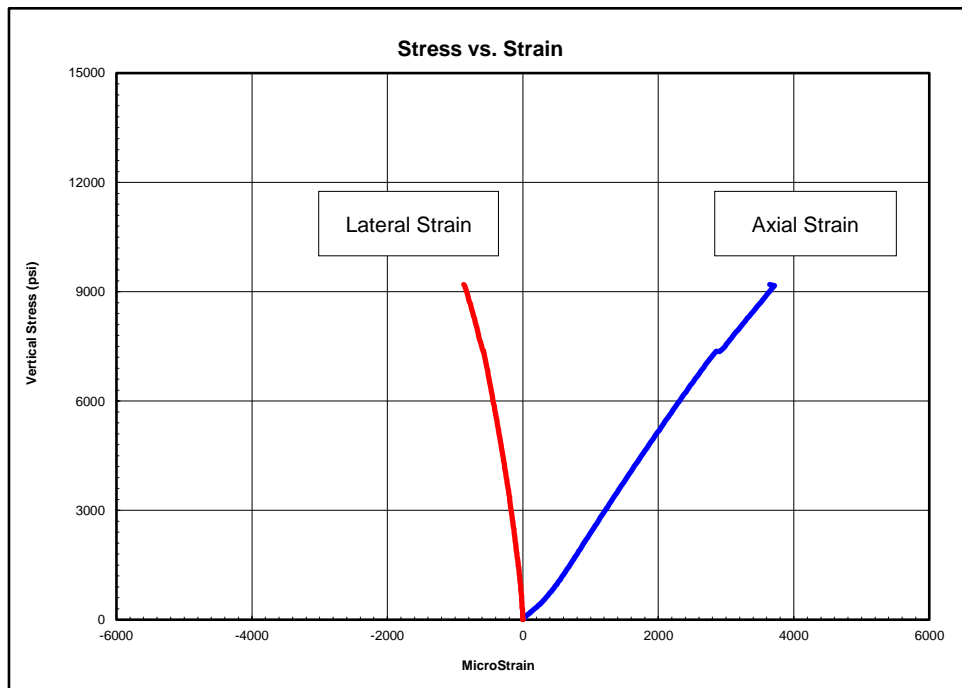
Appendix C

Rock Core Testing Results



Client:	Vermont Agency of Transportation
Project Name:	Poultney BF 0145(13)
Project Location:	Poultney, VT
GTX #:	320721
Test Date:	4/4/2025
Tested By:	gp
Checked By:	jsc
Boring ID:	B-102
Sample ID:	R1S5
Depth, ft:	41.5
Sample Type:	rock core
Sample Description:	See photographs Intact material failure Best Effort end preparation performed

Compressive Strength and Elastic Moduli of Rock by ASTM D7012 - Method D



Peak Compressive Stress: 9,198 psi

Stress Range, psi	Young's Modulus, psi	Poisson's Ratio
900-3400	2,850,000	0.19
3400-5800	2,730,000	0.25
5800-8300	2,220,000	0.27

Notes: Test specimen tested at the approximate as-received moisture content and at standard laboratory temperature.
The axial load was applied continuously at a stress rate that produced failure in a test time between 2 and 15 minutes.
Young's Modulus and Poisson's Ratio calculated using the tangent to the line in the stress range listed.
Calculations assume samples are isotropic, which is not necessarily the case.

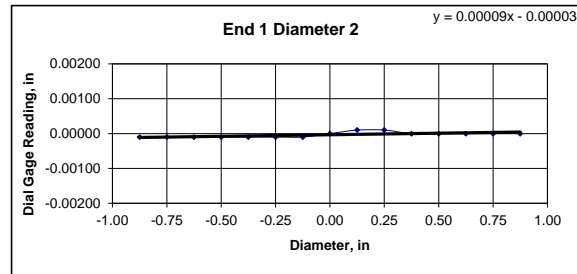
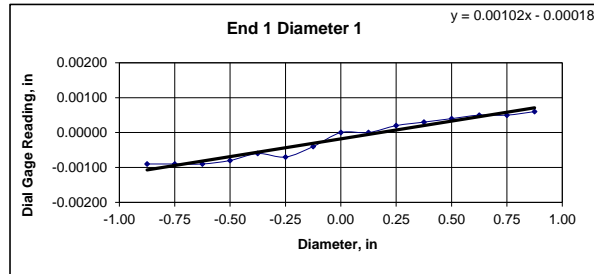


Client:	Vermont Agency of Transportation	Test Date:	4/3/2025
Project Name:	Poultney BF 0145(13)	Tested By:	cml
Project Location:	Poultney, VT	Checked By:	smd
GTx #:	320721		
Boring ID:	B-102		
Sample ID:	R1SS		
Depth (ft):	41.5		
Visual Description:	See photographs		

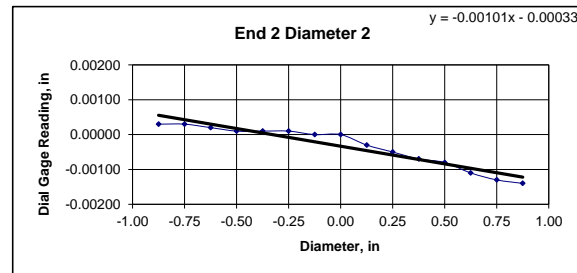
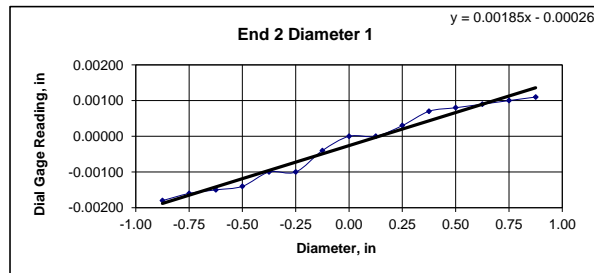
UNIT WEIGHT DETERMINATION AND DIMENSIONAL AND SHAPE TOLERANCES OF ROCK CORE SPECIMENS BY ASTM D4543

BULK DENSITY				DEVIATION FROM STRAIGHTNESS (Procedure S1)	
	1	2	Average	Maximum gap between side of core and reference surface plate: Is the maximum gap \leq 0.02 in.? YES	
Specimen Length, in:	4.29	4.29	4.29	Maximum difference must be $<$ 0.020 in. Straightness Tolerance Met? YES	
Specimen Diameter, in:	2.01	1.98	1.99		
Specimen Mass, g:	622.57				
Bulk Density, lb/ft ³	177				
Length to Diameter Ratio:	2.2	Minimum Diameter Tolerance Met? YES	Length to Diameter Ratio Tolerance Met? YES		

END FLATNESS AND PARALLELISM (Procedure FP1)															
END 1	-0.875	-0.750	-0.625	-0.500	-0.375	-0.250	-0.125	0.000	0.125	0.250	0.375	0.500	0.625	0.750	0.875
Diameter 1, in	-0.00090	-0.00090	-0.00090	-0.00080	-0.00060	-0.00070	-0.00040	0.00000	0.00000	0.00020	0.00030	0.00040	0.00050	0.00050	0.00060
Diameter 2, in (rotated 90°)	-0.00010	-0.00010	-0.00010	-0.00010	-0.00010	-0.00010	-0.00010	0.00000	0.00010	0.00010	0.00000	0.00000	0.00000	0.00000	0.00000
Difference between max and min readings, in: 0° = 0.00150 90° = 0.00020															
END 2	-0.875	-0.750	-0.625	-0.500	-0.375	-0.250	-0.125	0.000	0.125	0.250	0.375	0.500	0.625	0.750	0.875
Diameter 1, in	-0.00180	-0.00160	-0.00150	-0.00140	-0.00100	-0.00100	-0.00040	0.00000	0.00000	0.00030	0.00070	0.00080	0.00090	0.00100	0.00110
Diameter 2, in (rotated 90°)	0.00030	0.00030	0.00020	0.00010	0.00010	0.00010	0.00000	0.00000	-0.00030	-0.00050	-0.00070	-0.00080	-0.00110	-0.00130	-0.00140
Difference between max and min readings, in: 0° = 0.0029 90° = 0.0017 Maximum difference must be < 0.0020 in. Difference = ± 0.00145 Flatness Tolerance Met? NO															



DIAMETER 1	
End 1:	
Slope of Best Fit Line	0.00102
Angle of Best Fit Line:	0.05828
End 2:	
Slope of Best Fit Line	0.00185
Angle of Best Fit Line:	0.10608
Maximum Angular Difference:	0.04780
Parallelism Tolerance Met? Spherically Seated	NO



DIAMETER 2	
End 1:	
Slope of Best Fit Line	0.00009
Angle of Best Fit Line:	0.00507
End 2:	
Slope of Best Fit Line	0.00101
Angle of Best Fit Line:	0.05811
Maximum Angular Difference:	0.05304
Parallelism Tolerance Met? Spherically Seated	NO

PERPENDICULARITY (Procedure P1)						(Calculated from End Flatness and Parallelism measurements above)	
END 1		Difference, Maximum and Minimum (in.)	Diameter (in.)	Slope	Angle°	Perpendicularity Tolerance Met?	Maximum angle of departure must be \leq 0.25°
Diameter 1, in		0.00150	1.993	0.00075	0.043	YES	Perpendicularity Tolerance Met? YES
Diameter 2, in (rotated 90°)		0.00020	1.993	0.00010	0.006	YES	
END 2							
Diameter 1, in		0.00290	1.993	0.00146	0.083	YES	
Diameter 2, in (rotated 90°)		0.00170	1.993	0.00085	0.049	YES	



Client:	Vermont Agency of Transportation	Test Date:	4/3/2025
Project Name:	Poultney BF 0145(13)	Tested By:	cml
Project Location:	Poultney, VT	Checked By:	smd
GTX #:	320721		
Boring ID:	B-102	Reliable dial gauge measurements could not be performed on this rock type. Tolerance measurements were performed using a machinist straightedge and feeler gauges to ASTM specifications.	
Sample ID:	R1S5		
Depth (ft):	41.5		
Visual Description:	See photographs		

**BEST EFFORT END FLATNESS TOLERANCES OF ROCK CORE SPECIMENS TO
ASTM D4543**

END FLATNESS

END 1

Diameter 1	Is the maximum gap $\leq \pm 0.001$ in.?	YES
Diameter 2 (rotated 90°)	Is the maximum gap $\leq \pm 0.001$ in.?	YES

END 2

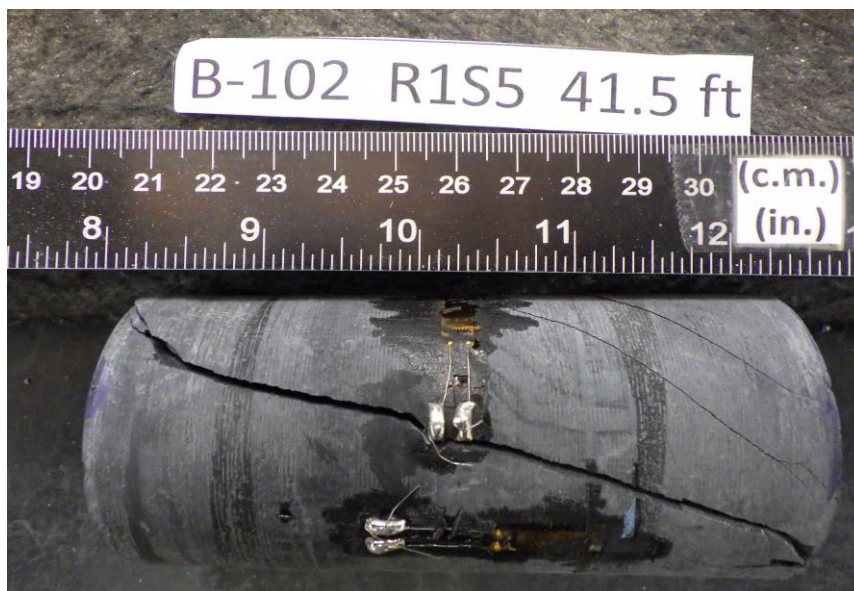
Diameter 1	Is the maximum gap $\leq \pm 0.001$ in.?	YES
Diameter 2 (rotated 90°)	Is the maximum gap $\leq \pm 0.001$ in.?	YES

End Flatness Tolerance Met? YES

Client:	Vermont Agency of Transportation
Project Name:	Poultney BF 0145(13)
Project Location:	Poultney, VT
GTX #:	320721
Test Date:	4/4/2025
Tested By:	gp
Checked By:	smd
Boring ID:	B-102
Sample ID:	R1S5
Depth, ft:	41.5



After cutting and grinding

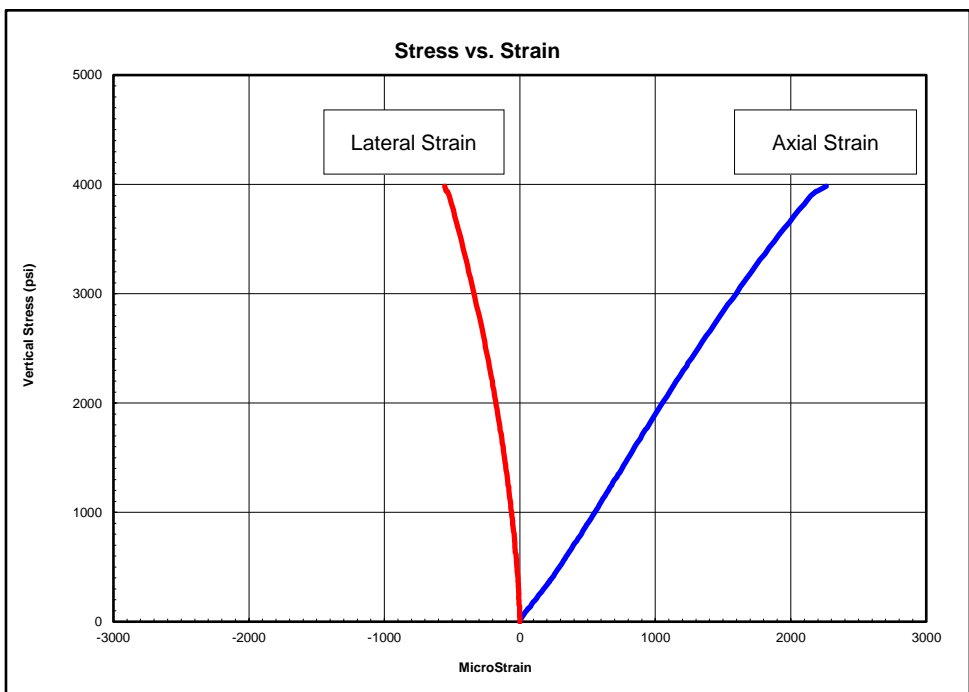


After break



Client:	Vermont Agency of Transportation
Project Name:	Poultney BF 0145(13)
Project Location:	Poultney, VT
GTX #:	320721
Test Date:	4/4/2025
Tested By:	gp
Checked By:	jsc
Boring ID:	B-104
Sample ID:	R2S4
Depth, ft:	51
Sample Type:	rock core
Sample Description:	See photographs Discontinuity failure Best Effort end preparation performed

Compressive Strength and Elastic Moduli of Rock by ASTM D7012 - Method D



Peak Compressive Stress: 3,983 psi

Stress Range, psi	Young's Modulus, psi	Poisson's Ratio
400-1500	1,950,000	0.17
1500-2500	1,940,000	0.27
2500-3600	1,740,000	0.33

Notes: Test specimen tested at the approximate as-received moisture content and at standard laboratory temperature.
The axial load was applied continuously at a stress rate that produced failure in a test time between 2 and 15 minutes.
Young's Modulus and Poisson's Ratio calculated using the tangent to the line in the stress range listed.
Calculations assume samples are isotropic, which is not necessarily the case.

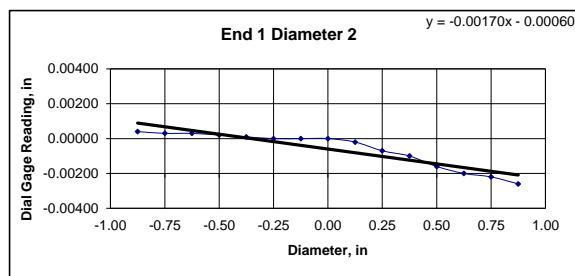
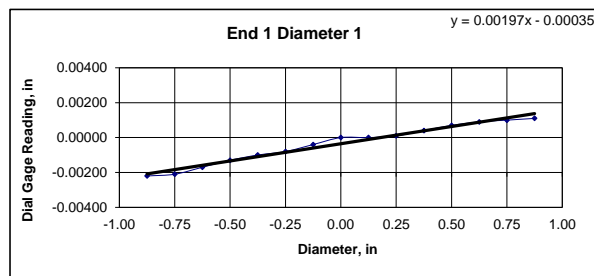


Client:	Vermont Agency of Transportation	Test Date:	4/3/2025
Project Name:	Poultney BF 0145(13)	Tested By:	cml
Project Location:	Poultney, VT	Checked By:	smd
GTx #:	320721		
Boring ID:	B-104		
Sample ID:	R2S4		
Depth (ft):	51		
Visual Description:	See photographs		

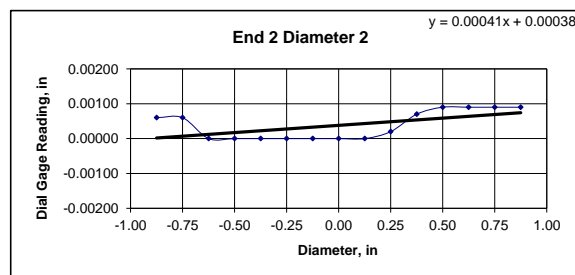
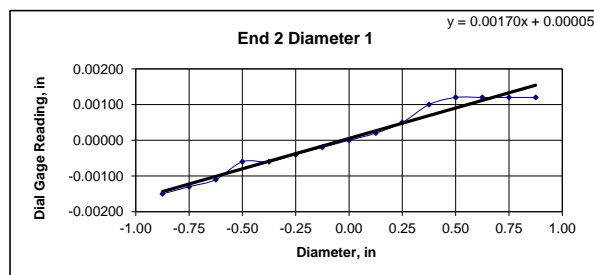
UNIT WEIGHT DETERMINATION AND DIMENSIONAL AND SHAPE TOLERANCES OF ROCK CORE SPECIMENS BY ASTM D4543

BULK DENSITY				DEVIATION FROM STRAIGHTNESS (Procedure S1)	
	1	2	Average	Maximum gap between side of core and reference surface plate: Is the maximum gap \leq 0.02 in.? YES	
Specimen Length, in:	4.43	4.45	4.44	Maximum difference must be $<$ 0.020 in.	
Specimen Diameter, in:	2.02	2.02	2.02	Straightness Tolerance Met? YES	
Specimen Mass, g:	649.71				
Bulk Density, lb/ft ³	173				
Length to Diameter Ratio:	2.2	Minimum Diameter Tolerance Met? YES			
		Length to Diameter Ratio Tolerance Met? YES			

END FLATNESS AND PARALLELISM (Procedure FP1)															
END 1	-0.875	-0.750	-0.625	-0.500	-0.375	-0.250	-0.125	0.000	0.125	0.250	0.375	0.500	0.625	0.750	0.875
Diameter 1, in	-0.00220	-0.00210	-0.00170	-0.00130	-0.00100	-0.00080	-0.00040	0.00000	0.00000	0.00010	0.00040	0.00070	0.00090	0.00100	0.00110
Diameter 2, in (rotated 90°)	0.00040	0.00030	0.00030	0.00020	0.00010	0.00000	0.00000	0.00000	-0.00020	-0.00070	-0.00100	-0.00160	-0.00200	-0.00220	-0.00260
Difference between max and min readings, in:															
0° = 0.00330 90° = 0.00300															
END 2	-0.875	-0.750	-0.625	-0.500	-0.375	-0.250	-0.125	0.000	0.125	0.250	0.375	0.500	0.625	0.750	0.875
Diameter 1, in	-0.00150	-0.00130	-0.00110	-0.00060	-0.00060	-0.00040	-0.00020	0.00000	0.00020	0.00050	0.00100	0.00120	0.00120	0.00120	0.00120
Diameter 2, in (rotated 90°)	0.00060	0.00060	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00020	0.00070	0.00090	0.00090	0.00090	0.00090
Difference between max and min readings, in:															
0° = 0.0027 90° = 0.0009															
Maximum difference must be < 0.0020 in. Difference = ± 0.00165															
Flatness Tolerance Met? NO															



DIAMETER 1	
End 1:	
Slope of Best Fit Line	0.00197
Angle of Best Fit Line:	0.11312
End 2:	
Slope of Best Fit Line	0.00170
Angle of Best Fit Line:	0.09757
Maximum Angular Difference:	0.01555
Parallelism Tolerance Met? Spherically Seated	NO



DIAMETER 2	
End 1:	
Slope of Best Fit Line	0.00170
Angle of Best Fit Line:	0.09757
End 2:	
Slope of Best Fit Line	0.00041
Angle of Best Fit Line:	0.02374
Maximum Angular Difference:	0.07383
Parallelism Tolerance Met? Spherically Seated	NO

PERPENDICULARITY (Procedure P1)						(Calculated from End Flatness and Parallelism measurements above)	
END 1		Difference, Maximum and Minimum (in.)	Diameter (in.)	Slope	Angle°	Perpendicularity Tolerance Met?	Maximum angle of departure must be \leq 0.25°
Diameter 1, in	0.00330	2.022	0.00163	0.094	YES		
Diameter 2, in (rotated 90°)	0.00300	2.022	0.00148	0.085	YES		Perpendicularity Tolerance Met? YES
END 2							
Diameter 1, in	0.00270	2.022	0.00134	0.077	YES		
Diameter 2, in (rotated 90°)	0.00090	2.022	0.00045	0.026	YES		



Client:	Vermont Agency of Transportation	Test Date:	4/3/2025
Project Name:	Poultney BF 0145(13)	Tested By:	cml
Project Location:	Poultney, VT	Checked By:	smd
GTX #:	320721		
Boring ID:	B-104	Reliable dial gauge measurements could not be performed on this rock type. Tolerance measurements were performed using a machinist straightedge and feeler gauges to ASTM specifications.	
Sample ID:	R2S4		
Depth (ft):	51		
Visual Description:	See photographs		

**BEST EFFORT END FLATNESS TOLERANCES OF ROCK CORE SPECIMENS TO
ASTM D4543**

END FLATNESS

END 1

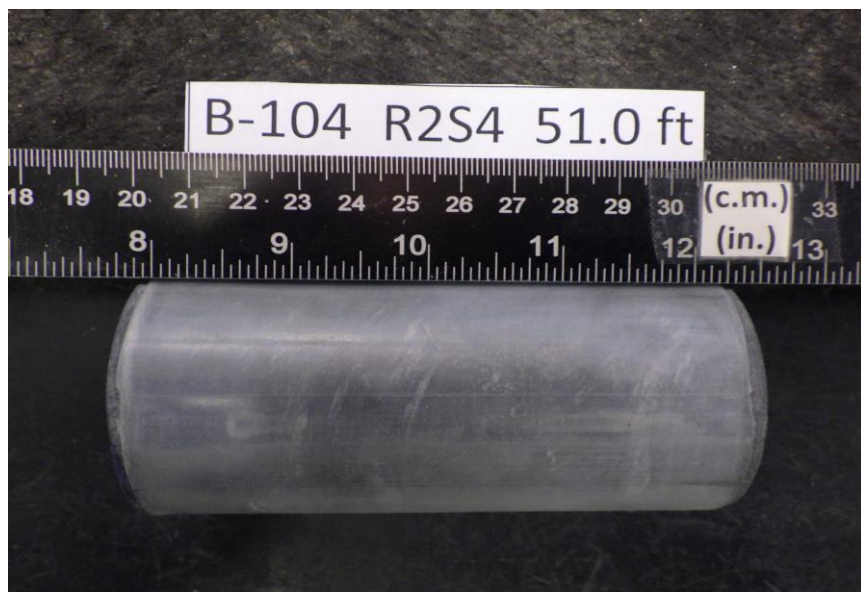
Diameter 1	Is the maximum gap $\leq \pm 0.001$ in.?	YES
Diameter 2 (rotated 90°)	Is the maximum gap $\leq \pm 0.001$ in.?	YES

END 2

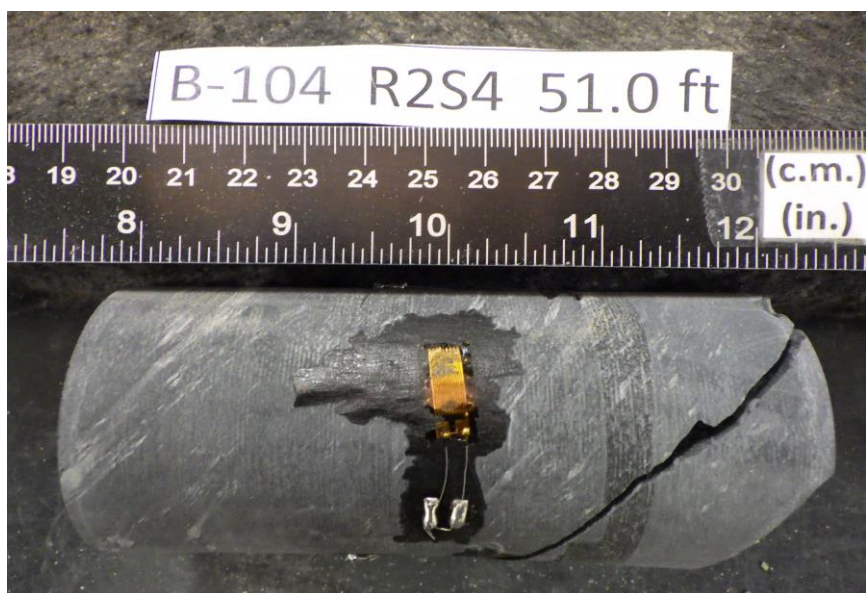
Diameter 1	Is the maximum gap $\leq \pm 0.001$ in.?	YES
Diameter 2 (rotated 90°)	Is the maximum gap $\leq \pm 0.001$ in.?	YES

End Flatness Tolerance Met? YES

Client:	Vermont Agency of Transportation
Project Name:	Poultney BF 0145(13)
Project Location:	Poultney, VT
GTX #:	320721
Test Date:	4/4/2025
Tested By:	gp
Checked By:	smd
Boring ID:	B-104
Sample ID:	R2S4
Depth, ft:	51



After cutting and grinding

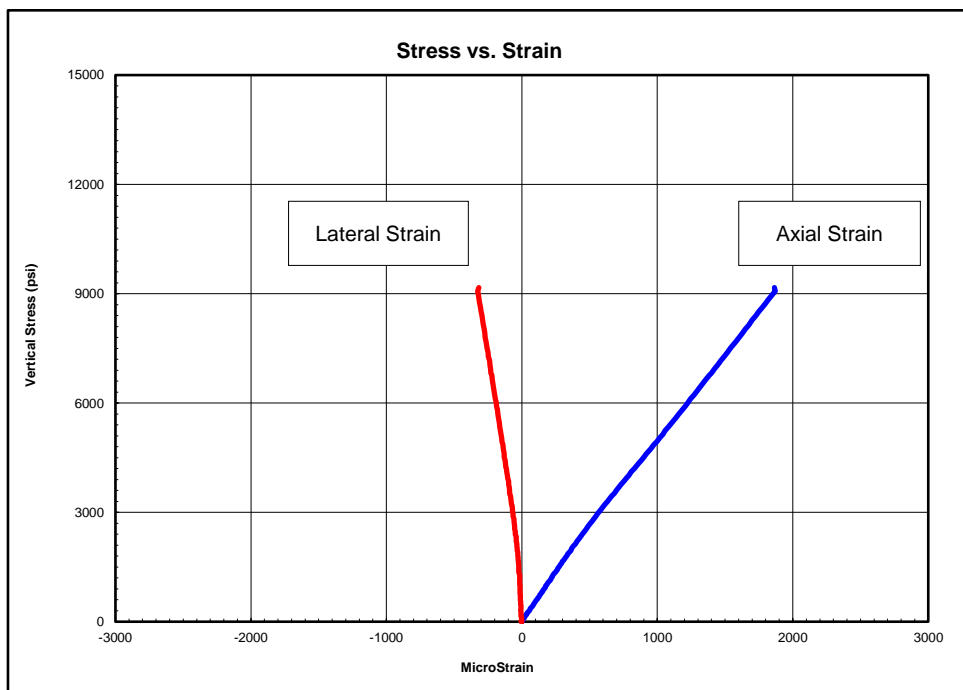


After break



Client:	Vermont Agency of Transportation
Project Name:	Poultney BF 0145(13)
Project Location:	Poultney, VT
GTX #:	320721
Test Date:	4/4/2025
Tested By:	gp
Checked By:	jsc
Boring ID:	B-105a
Sample ID:	R4S1
Depth, ft:	36.6
Sample Type:	rock core
Sample Description:	See photographs Discontinuity failure Best Effort end preparation performed

Compressive Strength and Elastic Moduli of Rock by ASTM D7012 - Method D



Peak Compressive Stress: 9,168 psi

Stress Range, psi	Young's Modulus, psi	Poisson's Ratio
900-3400	5,150,000	0.14
3400-5800	4,520,000	0.19
5800-8300	4,740,000	0.21

Notes: Test specimen tested at the approximate as-received moisture content and at standard laboratory temperature.
The axial load was applied continuously at a stress rate that produced failure in a test time between 2 and 15 minutes.
Young's Modulus and Poisson's Ratio calculated using the tangent to the line in the stress range listed.
Calculations assume samples are isotropic, which is not necessarily the case.

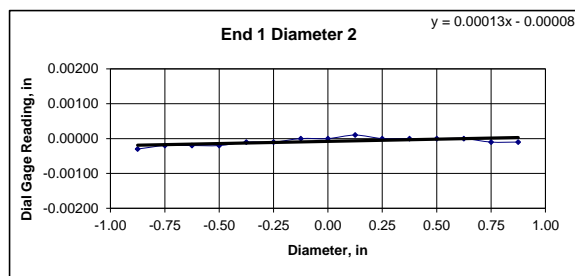
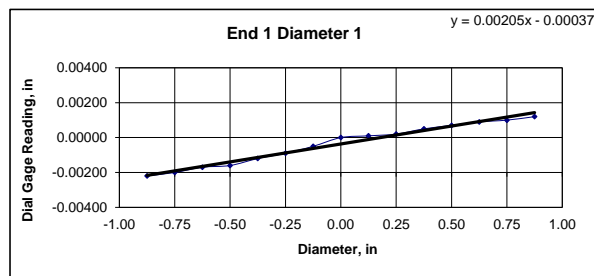


Client:	Vermont Agency of Transportation	Test Date:	4/3/2025
Project Name:	Poultney BF 0145(13)	Tested By:	cml
Project Location:	Poultney, VT	Checked By:	smd
GTx #:	320721		
Boring ID:	B-105a		
Sample ID:	R4S1		
Depth (ft):	36.6		
Visual Description:	See photographs		

UNIT WEIGHT DETERMINATION AND DIMENSIONAL AND SHAPE TOLERANCES OF ROCK CORE SPECIMENS BY ASTM D4543

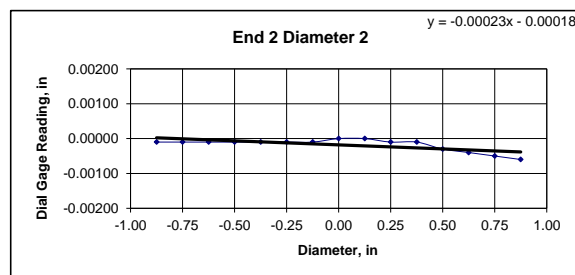
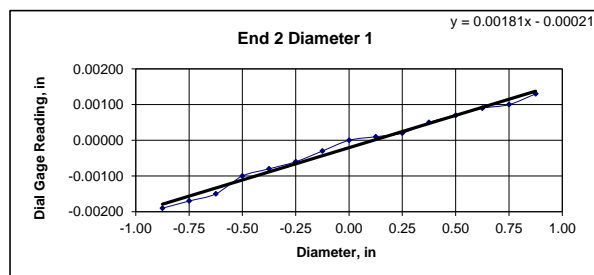
BULK DENSITY				DEVIATION FROM STRAIGHTNESS (Procedure S1)	
	1	2	Average	Maximum gap between side of core and reference surface plate: Is the maximum gap \leq 0.02 in.? YES	
Specimen Length, in:	4.40	4.40	4.40	Maximum difference must be < 0.020 in.	
Specimen Diameter, in:	2.02	2.03	2.02	Straightness Tolerance Met? YES	
Specimen Mass, g:	628.96				
Bulk Density, lb/ft ³	169				
Length to Diameter Ratio:	2.2	Minimum Diameter Tolerance Met? YES			
		Length to Diameter Ratio Tolerance Met? YES			

END FLATNESS AND PARALLELISM (Procedure FP1)															
END 1	-0.875	-0.750	-0.625	-0.500	-0.375	-0.250	-0.125	0.000	0.125	0.250	0.375	0.500	0.625	0.750	0.875
Diameter 1, in	-0.00220	-0.00200	-0.00170	-0.00160	-0.00120	-0.00090	-0.00050	0.00000	0.00010	0.00020	0.00050	0.00070	0.00090	0.00100	0.00120
Diameter 2, in (rotated 90°)	-0.00030	-0.00020	-0.00020	-0.00020	-0.00010	-0.00010	0.00000	0.00000	0.00010	0.00000	0.00000	0.00000	0.00000	-0.00010	-0.00010
Difference between max and min readings, in:															
0° = 0.00340 90° = 0.00040															
END 2	-0.875	-0.750	-0.625	-0.500	-0.375	-0.250	-0.125	0.000	0.125	0.250	0.375	0.500	0.625	0.750	0.875
Diameter 1, in	-0.00190	-0.00170	-0.00150	-0.00100	-0.00080	-0.00060	-0.00030	0.00000	0.00010	0.00020	0.00050	0.00070	0.00090	0.00100	0.00130
Diameter 2, in (rotated 90°)	-0.00010	-0.00010	-0.00010	-0.00010	-0.00010	-0.00010	-0.00010	0.00000	0.00000	-0.00010	-0.00010	-0.00030	-0.00040	-0.00050	-0.00060
Difference between max and min readings, in:															
0° = 0.0032 90° = 0.0006															
Maximum difference must be < 0.0020 in. Difference = ± 0.00170															
Flatness Tolerance Met? NO															



DIAMETER 1	
End 1:	
Slope of Best Fit Line	0.00205
Angle of Best Fit Line:	0.11770
End 2:	
Slope of Best Fit Line	0.00181
Angle of Best Fit Line:	0.10362
Maximum Angular Difference:	0.01408

Parallelism Tolerance Met? NO
Spherically Seated



DIAMETER 2	
End 1:	
Slope of Best Fit Line	0.00013
Angle of Best Fit Line:	0.00720
End 2:	
Slope of Best Fit Line	0.00023
Angle of Best Fit Line:	0.01326
Maximum Angular Difference:	0.00606

Parallelism Tolerance Met? NO
Spherically Seated

PERPENDICULARITY (Procedure P1)						(Calculated from End Flatness and Parallelism measurements above)	
END 1		Difference, Maximum and Minimum (in.)	Diameter (in.)	Slope	Angle°	Perpendicularity Tolerance Met?	Maximum angle of departure must be \leq 0.25°
Diameter 1, in		0.00340	2.025	0.00168	0.096	YES	
Diameter 2, in (rotated 90°)		0.00040	2.025	0.00020	0.011	YES	Perpendicularity Tolerance Met? YES
END 2							
Diameter 1, in		0.00320	2.025	0.00158	0.091	YES	
Diameter 2, in (rotated 90°)		0.00060	2.025	0.00030	0.017	YES	



Client:	Vermont Agency of Transportation	Test Date:	4/3/2025
Project Name:	Poultney BF 0145(13)	Tested By:	cml
Project Location:	Poultney, VT	Checked By:	smd
GTX #:	320721		
Boring ID:	B-105a	Reliable dial gauge measurements could not be performed on this rock type. Tolerance measurements were performed using a machinist straightedge and feeler gauges to ASTM specifications.	
Sample ID:	R4S1		
Depth (ft):	36.6		
Visual Description:	See photographs		

**BEST EFFORT END FLATNESS TOLERANCES OF ROCK CORE SPECIMENS TO
ASTM D4543**

END FLATNESS

END 1

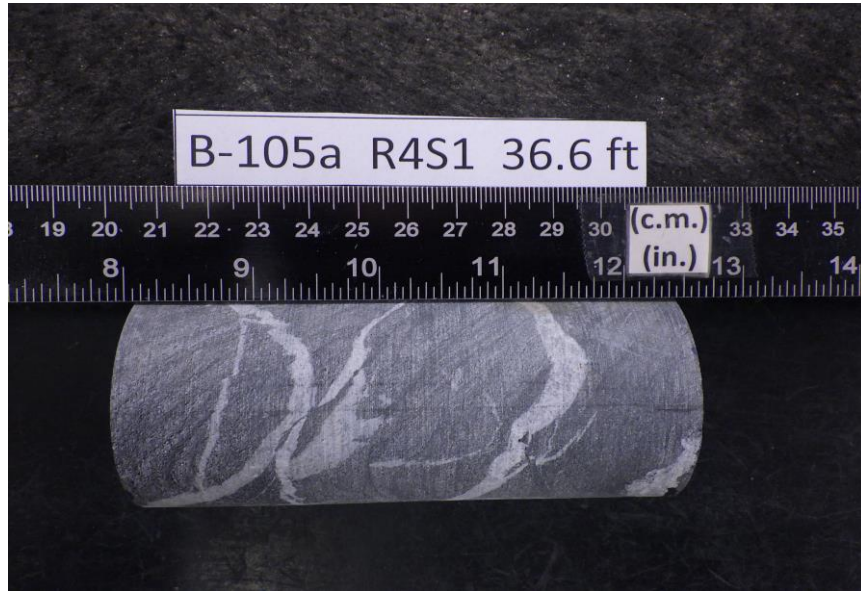
Diameter 1	Is the maximum gap $\leq \pm 0.001$ in.?	YES
Diameter 2 (rotated 90°)	Is the maximum gap $\leq \pm 0.001$ in.?	YES

END 2

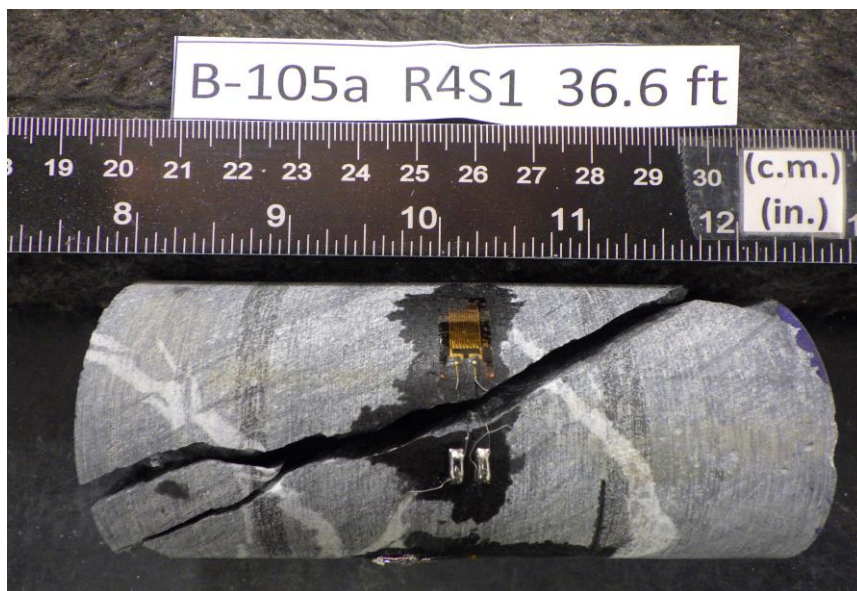
Diameter 1	Is the maximum gap $\leq \pm 0.001$ in.?	YES
Diameter 2 (rotated 90°)	Is the maximum gap $\leq \pm 0.001$ in.?	YES

End Flatness Tolerance Met? YES

Client:	Vermont Agency of Transportation
Project Name:	Poultney BF 0145(13)
Project Location:	Poultney, VT
GTX #:	320721
Test Date:	4/4/2025
Tested By:	gp
Checked By:	smd
Boring ID:	B-105a
Sample ID:	R4S1
Depth, ft:	36.6



After cutting and grinding

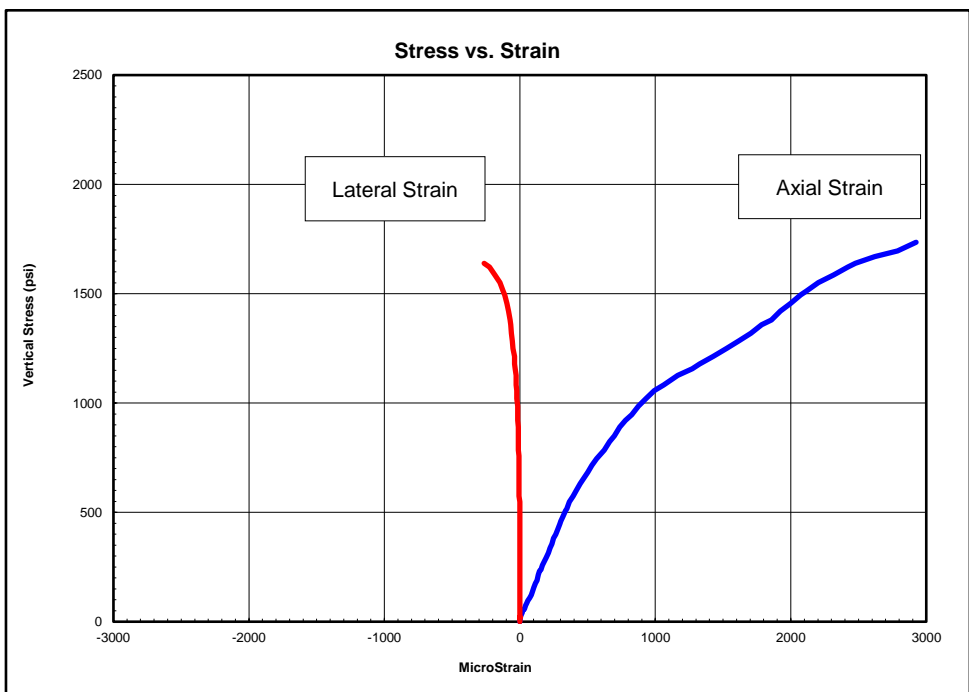


After break



Client:	Vermont Agency of Transportation
Project Name:	Poultney BF 0145(13)
Project Location:	Poultney, VT
GTX #:	320721
Test Date:	4/4/2025
Tested By:	gp
Checked By:	jsc
Boring ID:	B-105a
Sample ID:	R5S2
Depth, ft:	42.6
Sample Type:	rock core
Sample Description:	See photographs Discontinuity failure Best Effort end preparation performed

Compressive Strength and Elastic Moduli of Rock by ASTM D7012 - Method D



Peak Compressive Stress: 1,933 psi

The strain gauges failed before the peak value was attained.

Stress Range, psi	Young's Modulus, psi	Poisson's Ratio
200-700	1,340,000	0.03
700-1200	596,000	0.04
1200-1700	385,000	0.21

Notes: Test specimen tested at the approximate as-received moisture content and at standard laboratory temperature.
The axial load was applied continuously at a stress rate that produced failure in a test time between 2 and 15 minutes.
Young's Modulus and Poisson's Ratio calculated using the tangent to the line in the stress range listed.
Calculations assume samples are isotropic, which is not necessarily the case.

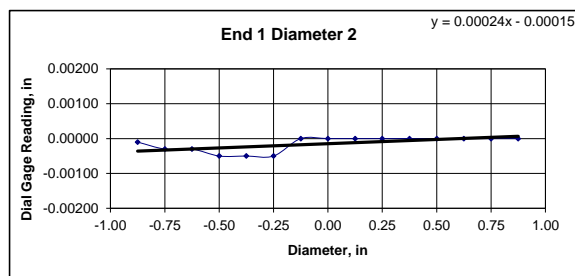
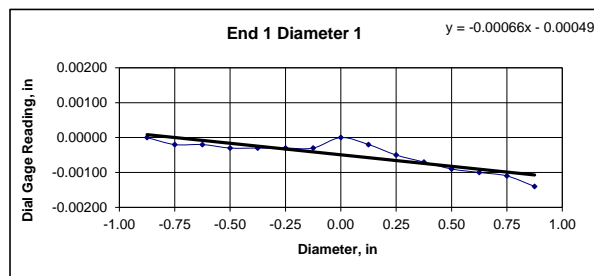


Client: Vermont Agency of Transportation	Test Date: 4/3/2025
Project Name: Poultney BF 0145(13)	Tested By: cml
Project Location: Poultney, VT	Checked By: smd
GTX #: 320721	
Boring ID: B-105a	
Sample ID: R5S2	
Depth (ft): 42.6	
Visual Description: See photographs	

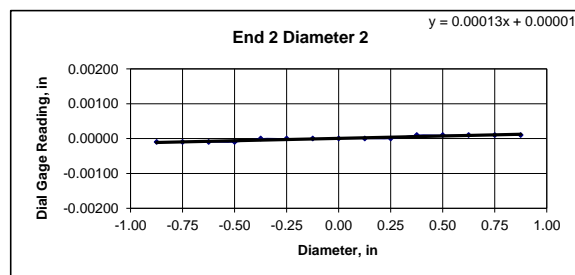
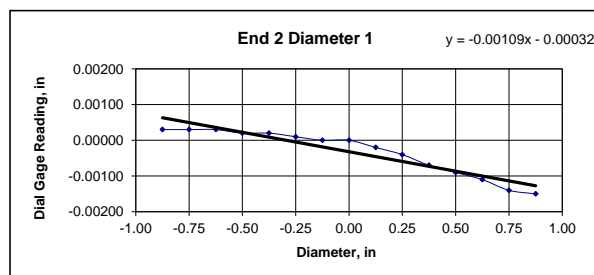
UNIT WEIGHT DETERMINATION AND DIMENSIONAL AND SHAPE TOLERANCES OF ROCK CORE SPECIMENS BY ASTM D4543

BULK DENSITY				DEVIATION FROM STRAIGHTNESS (Procedure S1)	
	1	2	Average		
Specimen Length, in:	4.37	4.37	4.37	Maximum gap between side of core and reference surface plate:	
Specimen Diameter, in:	2.01	2.02	2.02	Is the maximum gap \leq 0.02 in.?	YES
Specimen Mass, g:	630.75			Maximum difference must be $<$ 0.020 in.	
Bulk Density, lb/ft ³	172			Straightness Tolerance Met?	YES
Length to Diameter Ratio:	2.2	Minimum Diameter Tolerance Met?	YES	Length to Diameter Ratio Tolerance Met?	YES

END FLATNESS AND PARALLELISM (Procedure FP1)															
END 1	-0.875	-0.750	-0.625	-0.500	-0.375	-0.250	-0.125	0.000	0.125	0.250	0.375	0.500	0.625	0.750	0.875
Diameter 1, in	0.00000	-0.00020	-0.00020	-0.00030	-0.00030	-0.00030	-0.00030	0.00000	-0.00020	-0.00050	-0.00070	-0.00090	-0.00100	-0.00110	-0.00140
Diameter 2, in (rotated 90°)	-0.00010	-0.00030	-0.00030	-0.00050	-0.00050	-0.00050	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Difference between max and min readings, in:															
0° = 0.00140 90° = 0.00050															
END 2	-0.875	-0.750	-0.625	-0.500	-0.375	-0.250	-0.125	0.000	0.125	0.250	0.375	0.500	0.625	0.750	0.875
Diameter 1, in	0.00030	0.00030	0.00030	0.00020	0.00020	0.00010	0.00000	0.00000	-0.00020	-0.00040	-0.00070	-0.00090	-0.00110	-0.00140	-0.00150
Diameter 2, in (rotated 90°)	-0.00010	-0.00010	-0.00010	-0.00010	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00010	0.00010	0.00010	0.00010	0.00010
Difference between max and min readings, in:															
0° = 0.0018 90° = 0.0002															
Maximum difference must be < 0.0020 in. Difference = ± 0.00090															
Flatness Tolerance Met? YES															



DIAMETER 1	
End 1:	
Slope of Best Fit Line	0.00066
Angle of Best Fit Line:	0.03782
End 2:	
Slope of Best Fit Line	0.00109
Angle of Best Fit Line:	0.06237
Maximum Angular Difference:	0.02456
Parallelism Tolerance Met?	NO
Spherically Seated	



DIAMETER 2	
End 1:	
Slope of Best Fit Line	0.00024
Angle of Best Fit Line:	0.01391
End 2:	
Slope of Best Fit Line	0.00013
Angle of Best Fit Line:	0.00769
Maximum Angular Difference:	0.00622
Parallelism Tolerance Met?	NO
Spherically Seated	

PERPENDICULARITY (Procedure P1)						Maximum angle of departure must be \leq 0.25°
END 1	Difference, Maximum and Minimum (in.)	Diameter (in.)	Slope	Angle°	Perpendicularity Tolerance Met?	
Diameter 1, in	0.00140	2.016	0.00069	0.040	YES	
Diameter 2, in (rotated 90°)	0.00050	2.016	0.00025	0.014	YES	Perpendicularity Tolerance Met? YES
END 2						
Diameter 1, in	0.00180	2.016	0.00089	0.051	YES	
Diameter 2, in (rotated 90°)	0.00020	2.016	0.00010	0.006	YES	



Client:	Vermont Agency of Transportation	Test Date:	4/3/2025
Project Name:	Poultney BF 0145(13)	Tested By:	cml
Project Location:	Poultney, VT	Checked By:	smd
GTX #:	320721		
Boring ID:	B-105a	Reliable dial gauge measurements could not be performed on this rock type. Tolerance measurements were performed using a machinist straightedge and feeler gauges to ASTM specifications.	
Sample ID:	R5S2		
Depth (ft):	42.6		
Visual Description:	See photographs		

**BEST EFFORT END FLATNESS TOLERANCES OF ROCK CORE SPECIMENS TO
ASTM D4543**

END FLATNESS

END 1

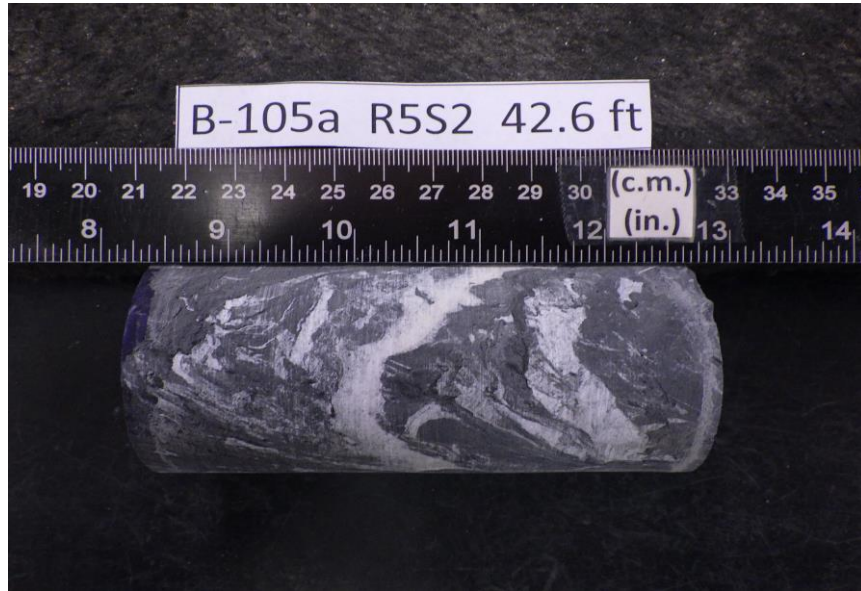
Diameter 1	Is the maximum gap $\leq \pm 0.001$ in.?	YES
Diameter 2 (rotated 90°)	Is the maximum gap $\leq \pm 0.001$ in.?	YES

END 2

Diameter 1	Is the maximum gap $\leq \pm 0.001$ in.?	YES
Diameter 2 (rotated 90°)	Is the maximum gap $\leq \pm 0.001$ in.?	YES

End Flatness Tolerance Met? YES

Client:	Vermont Agency of Transportation
Project Name:	Poultney BF 0145(13)
Project Location:	Poultney, VT
GTX #:	320721
Test Date:	4/4/2025
Tested By:	gp
Checked By:	smd
Boring ID:	B-105a
Sample ID:	R5S2
Depth, ft:	42.6



After cutting and grinding



After break