

REVISED

## **GEOTECHNICAL BASE LINE REPORT**

Route S-24-95 Replacement Bridge over Camp Creek  
Greenwood County, South Carolina



### **PREPARED FOR**

SCDOT

955 Park Street

Columbia, South Carolina 29201

### **PREPARED BY**

F&ME Consultants, Inc.

1825 Blanding Street

Columbia, South Carolina 29201

SCDOT Project ID: P038063

F&ME Project #: G6100.05.03

**October 23, 2019**

October 23, 2019

Trapp Harris, P.E.  
Design-Build Group Geotechnical Engineer  
South Carolina Department of Transportation  
955 Park Street  
Columbia, South Carolina 29201

Re: Closed and Load-Restricted Bridge Package 2020-1  
REVISED Geotechnical Base Line Report  
Route S-24-95 Bridge over Camp Creek  
Greenwood County, South Carolina  
SCDOT Project ID: P038063  
F&ME Project No.: G6100.050.03

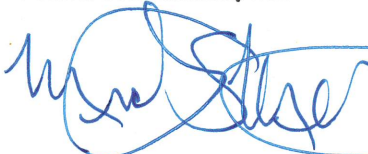
Dear Mr. Harris:

Submitted herein is F&ME Consultants, Inc. (FME) revised Geotechnical Base Line Report (GBLR) for the Route S-24-95 Replacement Bridge over Camp Creek. Revisions to our previously submitted report include the corrosion series laboratory test results. This report contains findings from our subsurface field exploration, results from the laboratory testing program, and conceptual geotechnical assessment of approach embankments and bridge foundation systems.

It has been a pleasure working with you on this project and we appreciate the opportunity to be of service. Please notify us if there are any questions or if we may be of further assistance.

Sincerely,

F&ME Consultants, Inc.

A handwritten signature in blue ink, appearing to read 'Michael S. Miller', is written over the printed name.

Michael S. Miller, P.E.  
Senior Geotechnical Engineer



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## 1.0 INTRODUCTION

FME performed geotechnical soil test borings and laboratory testing for the Route S-24-95 Replacement Bridge over Camp Creek located in Greenwood County, South Carolina. A Site Location Plan is presented as Figure 1 in Section 1 in the Appendix of this report. The South Carolina Department of Transportation (SCDOT) Scope of Services Work Request for the geotechnical subsurface exploration and laboratory testing was issued on March 1, 2019.

The field investigation consisted of performing soil test borings (STB's) with associated Standard Penetration Testing (SPT) and rock core sampling. Laboratory testing was performed on selected soil and rock core samples collected from the test borings. The exploration methods and laboratory procedures were conducted in general accordance with the current American Association of State Highway and Transportation Officials (AASHTO), American Society of Testing and Materials (ASTM) Standards, and the SCDOT Geotechnical Design Manual (GDM). This Geotechnical Base Line Report was prepared in general accordance with the 2019 SCDOT Geotechnical Design Manual (GDM), Version 2.0. along with PCDM-11 Supplemental Design Criteria for Low Volume Bridge Replacement Projects.

## 2.0 FIELD EXPLORATION SUMMARY

On June 24 and 25, 2019, F&ME performed two (2) soil test borings (STB's) and one (1) auger probe. The auger probe was required following shearing of the drill casing in test boring B-1001, prior to start of rock coring. Boring off-set to B-1001, designated as test boring B-1001A, was performed as an auger probe to refusal of the drilling equipment and then advanced into rock using rock coring in order to complete the test boring. The test boring locations were performed in proximity to the existing bridge end bent locations. The intent of the subsurface investigation was to provide a broad indication of the subsurface conditions at the site.

The STB's were advanced using a CME 45B trailer mounted drill rig with an automatic standard penetration test (SPT) hammer system. Rotary wash drilling techniques were used during drilling to maintain a stable borehole. In test borings B-1001 and B-1002, standard split-spoon sampling was performed continuously over the first ten (10) feet of the boring depth and at five (5) foot intervals thereafter. Soil test borings were advanced to a drilling refusal condition and subsequently advanced into rock using NQ rock coring techniques. Details of each STB are included on the individual Soil Test Boring Logs in Section 4 in the Appendix of this report.



## 2.1 Soil Test Borings (STB's)

The following table is a summary of the STB designations, exploration depths, locations, and ground surface elevations of the test boring locations.

Table 1 – Soil Test Boring Summary Table

SOIL TEST BORINGS (STB)							
Test Hole No.	Surface Condition	Soil Depth (ft.)	Rock Core Depth (ft.)	Total Boring Depth (ft.)	Latitude	Longitude	Elev. (ft.-MSL)
B-1001	Paved Roadway	22.5	0.0	22.5	34.294435	-82.159335	490.7
B-1001A	Paved Roadway	22.0 (Auger Probe)	10.0	32.0	34.294633	-82.159302	490.7
B-1002	Paved Roadway	26.3	10.0	36.3	34.294609	-82.159268	490.1
Totals	-	70.8	20.0	90.8	-		

## 2.2 Groundwater

Groundwater depths were recorded at the time of boring (TOB) for soil test borings B-1001, B-1001A and B-1002, with the recorded measurements noted on the individual Soil Test Boring Logs in Section 4 of the Appendix to this report. In test boring B-1001 groundwater measurements were made twenty-four (24) hours following boring completion. Soil test boring B-1002 was backfilled following TOB groundwater measurements. The following table is a summary of the groundwater measurements for the soil test borings at time of boring and at twenty-four (24) hours following boring, where recorded.

Table 2 – Groundwater Depth Summary Table

GROUNDWATER DEPTH			
Boring No.	Date of TOB Groundwater Measurement	TOB Groundwater Depth (ft.)	24-hr. Groundwater Depth (ft.)
B-1001	6/24/2019	8.2	10.0
B-1001A	6/24/2019	8.4	10.3
B-1002	6/25/2019	8.0	Backfilled

## 3.0 LABORATORY TESTING

Following completion of F&ME's field investigation, select split-spoon samples were tested in FME's AASHTO accredited laboratory to determine applicable physical and engineering properties. Four (4) rock core specimens were sent to Geotechnical Testing Services, Inc. and tested for unconfined compressive strength testing and Young's Modulus determinations. One (1) split-spoon sample was sent to an off-site AASHTO accredited laboratory for corrosion series testing. All laboratory testing was performed in general accordance with procedures set forth in the most current AASHTO and ASTM standards.

The laboratory testing performed for the split-spoon samples and rock cores are detailed in the table below. Data sheets containing the results of the laboratory testing program are provided in Section 7 of the Appendix.

**Table 3 – Split-Spoon Laboratory Soil Testing Summary Table**

LABORATORY SOIL TESTING (SPLIT-SPOON SAMPLES)		
Type of Test	Quantity	Procedure
Grain Size Analysis with Hydrometer	6	AASHTO T88
Grain Size Analyses with Wash 200	2	AASHTO T11
Atterberg Limits	4	AASHTO T89/T90
Natural Moisture Content	6	ASTM D2216
pH	1	AASHTO T289
Resistivity	1	AASHTO T288
Chloride Content	1	AASHTO T291
Sulfate Content	1	AASHTO T290
Rock Core Compressive Strength and Young's Modulus	4	ASTM D7012 Methods C and D

## 4.0 SUBSURFACE STRATIGRAPHY

The following table summarizes the soil and rock stratigraphy based on conditions as encountered in the soil test borings performed during this geotechnical subsurface investigation.

**Table 4 – Stratigraphy Summary Table**

SOIL AND ROCK STRATIGRAPHY					
Strata	Elevation of Top Layer (ft-MSL)	Depth to Top of Layer (ft.)	USCS Soil Type	Avg. SPT N Value (bpf)	Comments
Fill	490	0	SM, SC	10	-
Alluvium	484	6	SP-SM, SP-SC, SM	5	-
Residuum	482	8	SM	32	-
PWR	471	19	SM	100+	-
Bed Rock	466	24	N/A	N/A	Meta-Granite

## 5.0 CONCEPTUAL GEOTECHNICAL ASSESSMENT

Relative to the SCDOT's Supplemental Design Criteria for Low Volume Bridge Replacement Projects, the soil subgrade below the new embankment areas are anticipated to be adequate for embankment construction.

We anticipate that pile foundations will be preferred for support of the bridge abutments. The Strength Case axial loadings will likely govern the geotechnical driven pile design. We anticipate that the soil thickness above weathered rock and bedrock is sufficient to resist the assumed lateral loading conditions, and drilled piles will not be likely. We anticipate that the piles will be driven to a practical refusal driving condition on weathered rock or sound bedrock. To avoid excessive pile driving stresses, we anticipate that pile driving termination criteria will be based on encountering a pile driving practical refusal condition. Shallow foundation concepts are likely not feasible due to the estimated bearing depth and the presence of groundwater at that depth.

If a multi-span concept is pursued, the selection of the interior bent foundation type will be predicated on the scour depth relative to the bent location(s). For an assumed scour depth and channel geometry, FME anticipates that driven pile concepts will not be feasible based on an insufficient soil thickness above rock to resist the lateral loads. As such, we anticipate that drilled shafts will be utilized at the interior bent(s). The drilled shafts will consist of construction casing and rock sockets below the casing tip elevation. We expect the Strength Case axial loadings will govern the drilled shaft design. Based on the performed borings, the rock strengths range on the order of about 2,100 psi to 4,700 psi.

# **S-24-95 Replacement Bridge over Camp Creek**

## **Geotechnical Base Line Report**

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### **APPENDIX**

<b>SECTION 1</b>	<b>SITE LOCATION PLAN</b>
<b>SECTION 2</b>	<b>BORING LOCATION PLAN</b>
<b>SECTION 3</b>	<b>DRILL RIG PHOTOS</b>
<b>SECTION 4</b>	<b>TEST BORING LOGS</b>
<b>SECTION 5</b>	<b>GENERALIZED SUBSURFACE PROFILE</b>
<b>SECTION 6</b>	<b>ROCK CORE PHOTOS</b>
<b>SECTION 7</b>	<b>LABORATORY TEST RESULTS</b>

# S-24-95 Replacement Bridge over Camp Creek

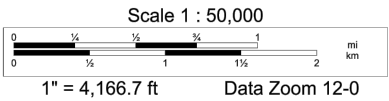
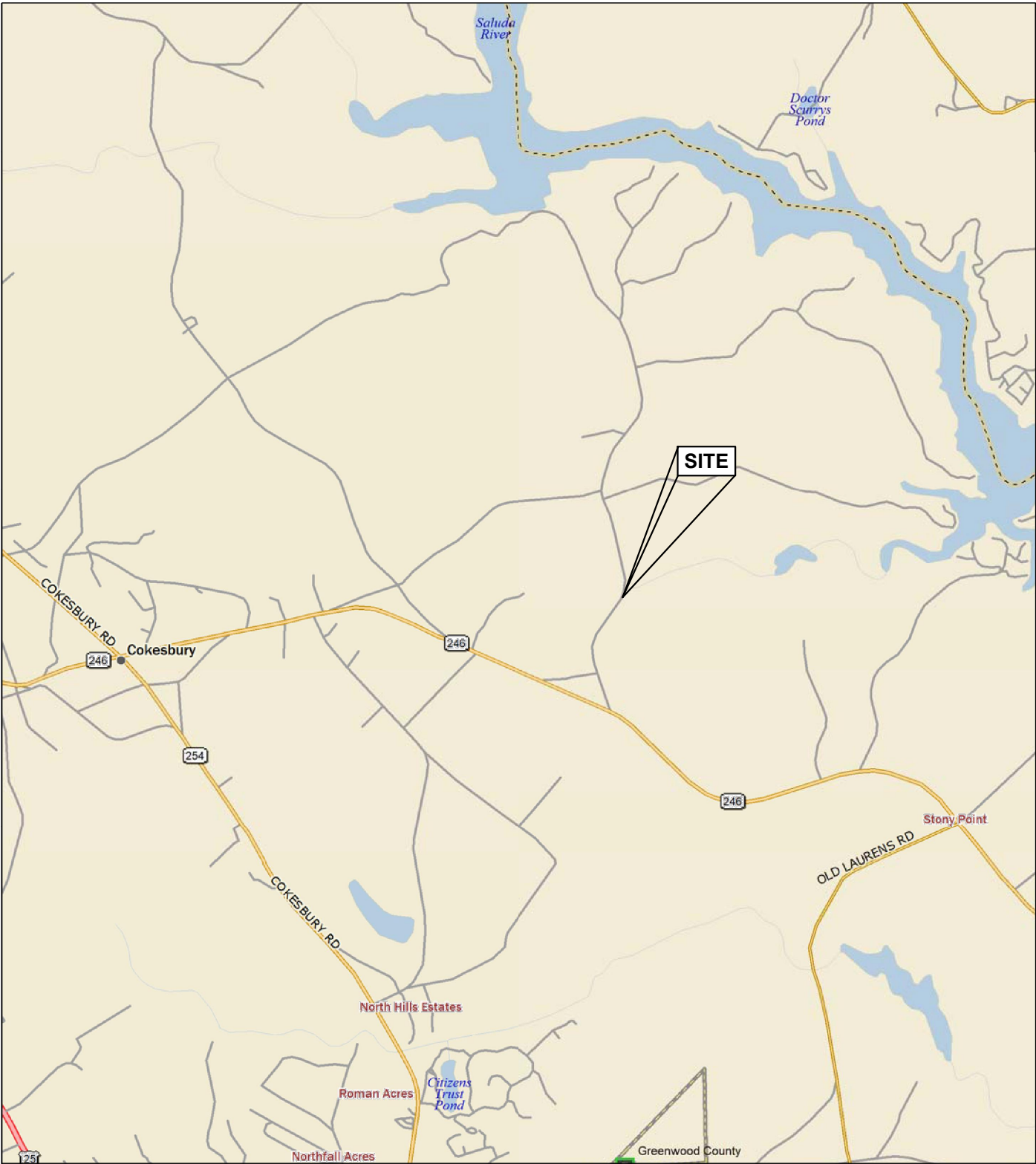
## Geotechnical Base Line Report

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# APPENDIX

## SECTION 1 SITE LOCATION PLAN

FED. RD. DIV. NO.	STATE	COUNTY	PROJECT ID	ROAD / ROUTE NO.	SHEET NO.
3	SC	GREENWOOD	P038063	S-24-95	



F&ME CONSULTANTS, INC.  
COLUMBIA, SC

4			
3			
2			
1			
REV.	BY	DATE	DESCRIPTION OF REVISION
TOPO.		DATE	
DWG.	CTC	DATE 6.3.19	GROUP - -
R/W		DATE	

CAMP CREEK  
GREENWOOD COUNTY, SOUTH CAROLINA

SITE LOCATION PLAN

F&ME JOB NO. G6100.050

SCALE: AS NOTED

FIGURE 1

# S-24-95 Replacement Bridge over Camp Creek

## Geotechnical Base Line Report

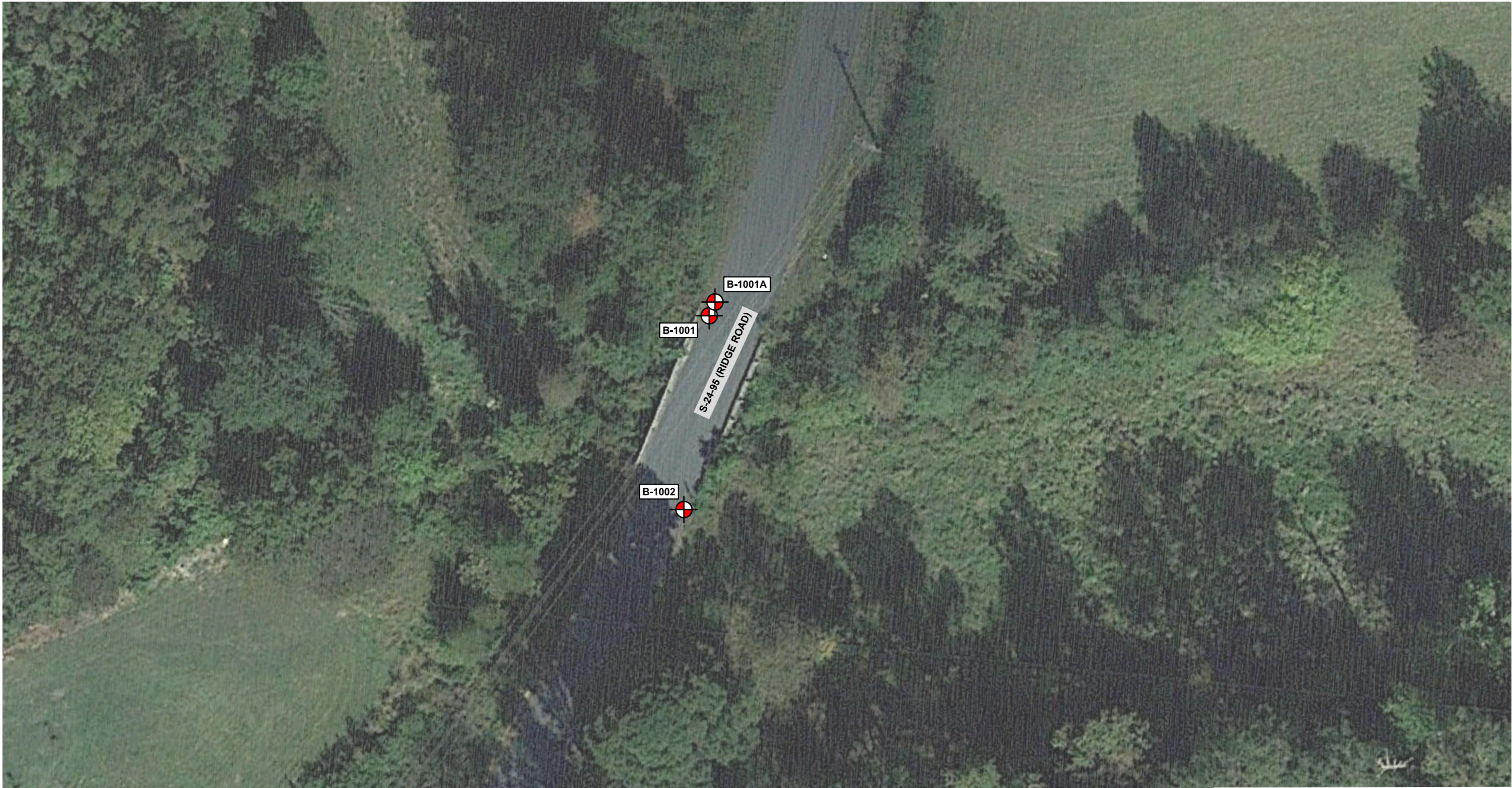
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# APPENDIX


## SECTION 2 BORING LOCATION PLAN



FED. RD. DIV. NO.	STATE	COUNTY	PROJECT ID	ROAD/ROUTE NO.	SHEET NO.
3	SC	GREENWOOD	P038063	S-24-95	



LEGEND:

 SOIL TEST BORING LOCATION

4			
3			
2			
1			
REV.	BY	DATE	DESCRIPTION OF REVISION
TOPO.		DATE	
DWG.	CTC	DATE 6.3.19	GROUP — — —
R/W		DATE	



F&ME CONSULTANTS, INC.  
COLUMBIA, SC

CAMP CREEK  
GREENWOOD COUNTY, SOUTH CAROLINA

BORING LOCATION PLAN

F&ME JOB NO. G6100.050

SCALE: 1"=30'

FIGURE 2



# S-24-95 Replacement Bridge over Camp Creek

## Geotechnical Base Line Report

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# APPENDIX

## SECTION 3 DRILL RIG PHOTOS

# Drill Rig Setup Photographs

B-1001





# Drill Rig Setup Photographs

B-1002



# S-24-95 Replacement Bridge over Camp Creek

## Geotechnical Base Line Report

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# APPENDIX

## SECTION 4 TEST BORING LOGS

## Soil Test Boring Log Descriptors

### Correlation of Penetration Resistance with Relative Density and Consistency














Coarse Grained Soils (Sands/Gravel)		Fine Grained Soils (Silt/Clay)	
SPT Blow Count	Relative Density	SPT Blow Count	Consistency
≤ 4	Very Loose	≤ 2	Very Soft
5 – 10	Loose	3 – 4	Spft
11 – 30	Medium Dense	5 – 8	Firm
31 – 50	Dense	9 – 15	Stiff
≥ 51	Very Dense	16 – 30	Very Stiff
		≥ 31	Hard

### Particle Size Identification

















Gravel	Sieve Size
Fine	#4 to ¾ inch
Coarse	¾ inch to 3 inch

Sand	Sieve Size
Fine	#200 to #40
Medium	#40 to #10
Coarse	#10 to #4

Gravel	Sieve Size
Fines Content	< #200

SYMBOL	PRINT CODE*	TYPICAL DESCRIPTION
	SCCT	CONCRETE
	SCAT	ASPHALT
	SCTS	TOPSOIL/PEAT
	SCSAND	SAND
	SCSTSAND	SILTY SAND/SANDY SILT
	SCCLSAND	CLAYEY SAND/SANDY CLAY
	SCCLAY	CLAY
	SCSILT	SILT
	SCSTCLAY	SILTY CLAY/CLAYEY SILT
	SCSAP	SAPROLITE
	SCLS	LIMESTONE
	SCBR	GRANITE (BEDROCK)
	SCMARL	MARL

### SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS		TYPICAL DESCRIPTIONS
			GRAPH	LETTER	
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
		GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
		GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES
	SAND AND SANDY SOILS	CLEAN SANDS (LITTLE OR NO FINES)		GC	CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES
		CLEAN SANDS (LITTLE OR NO FINES)		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
		SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		SP	POORLY-GRADED SANDS, GRAVELLY SAND, LITTLE OR NO FINES
FINE GRAINED SOILS	SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)	SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		SM	SILTY SANDS, SAND - SILT MIXTURES
		SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		SC	CLAYEY SANDS, SAND - CLAY MIXTURES
		SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
				MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
HIGHLY ORGANIC SOILS	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50		CH	INORGANIC CLAYS OF HIGH PLASTICITY
				OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS
				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

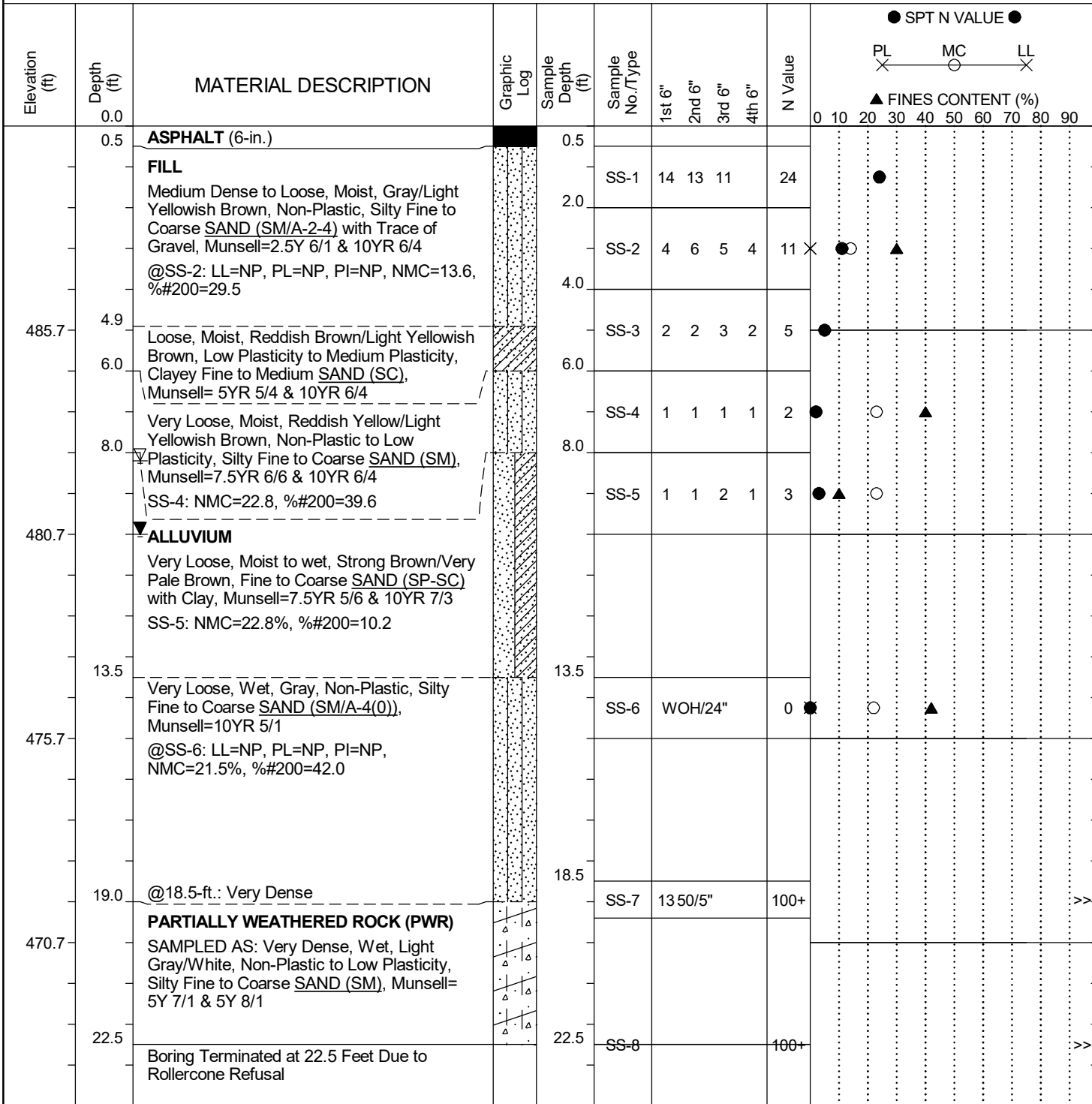
NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS





# SCDOT Soil Test Log

<b>Project ID:</b>	P038063	<b>County:</b>	Greenwood	<b>Boring No.:</b>	B-1001
<b>Site Description:</b>	S-24-95 Replacment Bridge over Camp Creek			<b>Route:</b>	S-24-95
<b>Eng./Geo.:</b>	C.Piercy	<b>Boring Location:</b>	N/A	<b>Offset:</b>	N/A
<b>Elev.:</b>	490.7 ft	<b>Latitude:</b>	34.294435	<b>Longitude:</b>	-82.159335
<b>Date Started:</b>	6/24/2019				
<b>Total Depth:</b>	22.5 ft	<b>Soil Depth:</b>	22.5 ft	<b>Core Depth:</b>	N/A ft
<b>Date Completed:</b>	6/24/2019				
<b>Bore Hole Diameter (in):</b>	4	<b>Sampler Configuration</b>		<b>Liner Required:</b>	Y (N)
<b>Liner Used:</b>	Y (N)	<b>Drill Machine:</b>	CME 45B	<b>Drill Method:</b>	RW/RC
<b>Hammer Type:</b>	Automatic	<b>Energy Ratio:</b>	92%	<b>Core Size:</b>	N/A
<b>Driller:</b>	L. Guempel	<b>Groundwater:</b>	TOB	8.2 ft	24HR
					10 ft



## LEGEND

SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	



# SCDOT Soil Test Log

<b>Project ID:</b>	P038063	<b>County:</b>	Greenwood	<b>Boring No.:</b>	B-1001A
<b>Site Description:</b>	S-24-95 Replacment Bridge over Camp Creek			<b>Route:</b>	S-24-95
<b>Eng./Geo.:</b>	C.Piercy	<b>Boring Location:</b>	N/A	<b>Offset:</b>	N/A
<b>Elev.:</b>	490.7 ft	<b>Latitude:</b>	34.294435	<b>Longitude:</b>	-82.159335
<b>Date Started:</b>	6/24/2019				
<b>Total Depth:</b>	32 ft	<b>Soil Depth:</b>	22 ft	<b>Core Depth:</b>	10 ft
<b>Date Completed:</b>	6/24/2019				
<b>Bore Hole Diameter (in):</b>	4	<b>Sampler Configuration</b>		<b>Liner Required:</b>	Y (N)
<b>Liner Used:</b>	Y (N)	<b>Drill Machine:</b>	CME 45B	<b>Drill Method:</b>	RW/RC
<b>Hammer Type:</b>	Automatic	<b>Energy Ratio:</b>	92%	<b>Core Size:</b>	NQ/8
<b>Driller:</b>	L. Guempel	<b>Groundwater:</b>	TOB	8.4 ft	24HR
					10.3 ft

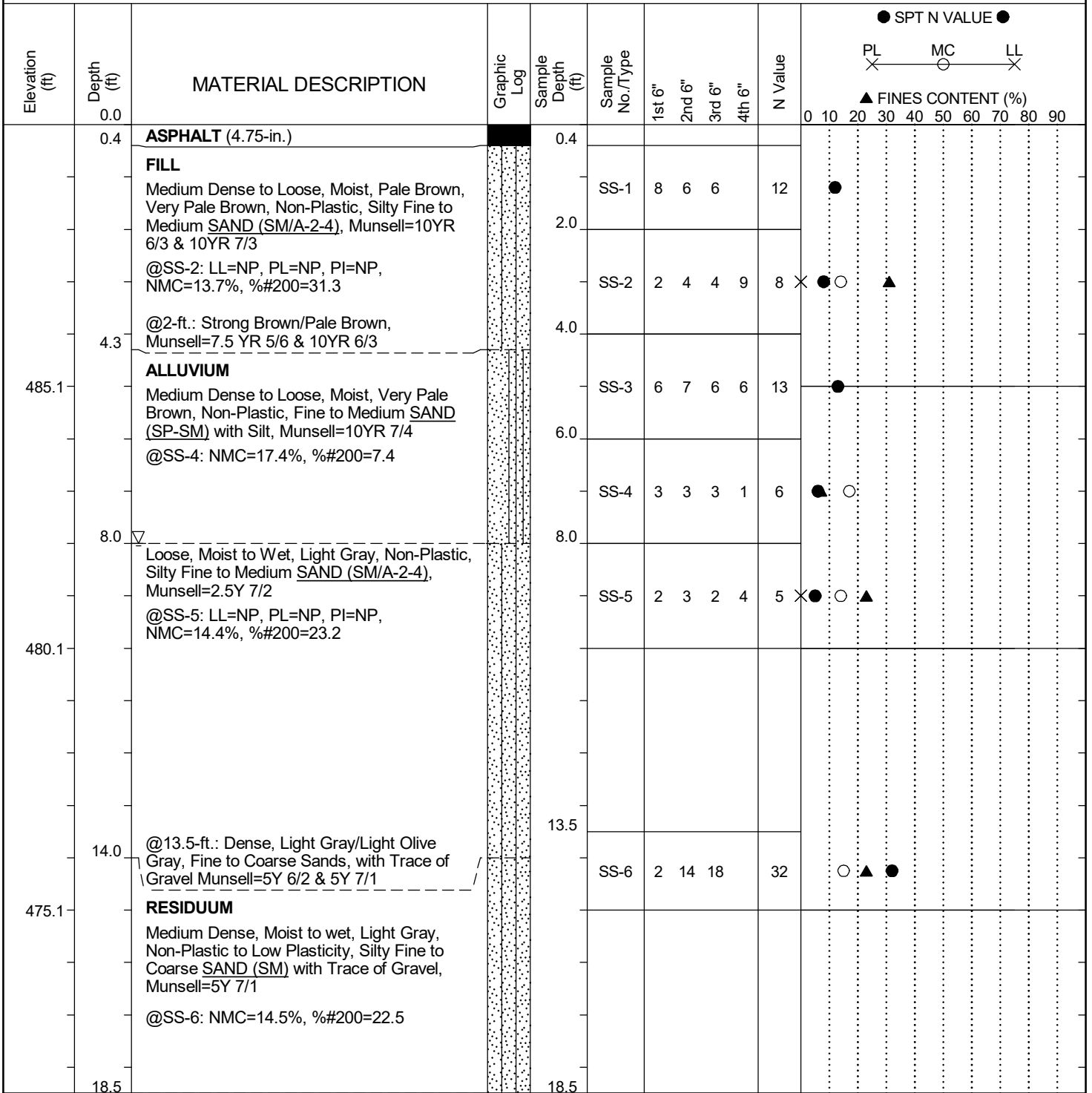
Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	4th 6"	N Value	● SPT N VALUE ●
	0.0										PL X MC X LL X
	0.4	ASPHALT (4.25-in.)									▲ FINES CONTENT (%)
		AUGER PROBE TO 22.0 FEET									0 10 20 30 40 50 60 70 80 90
485.7											
480.7											
475.7											
470.7											
22.0		METAGRANITE		22.0							
465.7		@NQ-1: Metamorphic, White/Greenish Gray, Medium to Coarse Grained, Laminated Foliations, Quartz/Feldspar/ Mica, Highly to Moderately Weathered, Medium Strong, Few Joints, Joints Dip From 1 to 80 Degrees, Moderatley Wide, No Infilling, Planar/Irregular, Very Close, Slightly Rough to Rough Joints, RMR=66, Class II			NQ-1						%REC=83,%RQD=76, 1.8min/ft, GSI=50-60
		@22.2-ft.: UC Strength= 4,637 psi		27.0							
460.7		@NQ-2: Weak, Occasional Joints, Joints Dip from 5 to 30 Degrees, Irregular, Slightly Rough to Rough, RMR=42, Class=III			NQ-2						%REC=83,%RQD=44, 1.2min/ft, GSI=45-55
		@28.8-ft.: UC Strength=2,086 psi									
	32.0	Boring Terminated at 32.0 Feet									

## LEGEND

SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

# SCDOT Soil Test Log

<b>Project ID:</b>	P038063	<b>County:</b>	Greenwood	<b>Boring No.:</b>	B-1002
<b>Site Description:</b>	S-24-95 Replacment Bridge over Camp Creek			<b>Route:</b>	S-24-95
<b>Eng./Geo.:</b>	C.Piercy	<b>Boring Location:</b>	N/A	<b>Offset:</b>	N/A
<b>Elev.:</b>	490.1 ft	<b>Latitude:</b>	34.294609	<b>Longitude:</b>	-82.159268
<b>Date Started:</b>	6/25/2019				
<b>Total Depth:</b>	36.3 ft	<b>Soil Depth:</b>	26.3 ft	<b>Core Depth:</b>	10 ft
<b>Date Completed:</b>	6/25/2019				
<b>Bore Hole Diameter (in):</b>	4	<b>Sampler Configuration</b>		<b>Liner Required:</b>	Y (N)
<b>Liner Used:</b>	Y (N)	<b>Drill Machine:</b>	CME 45B	<b>Drill Method:</b>	RW/RC
<b>Hammer Type:</b>	Automatic	<b>Energy Ratio:</b>	92%		
<b>Core Size:</b>	NQ/8	<b>Driller:</b>	L. Guempel	<b>Groundwater:</b>	TOB 8 ft
<b>24HR</b>	Backfilled				



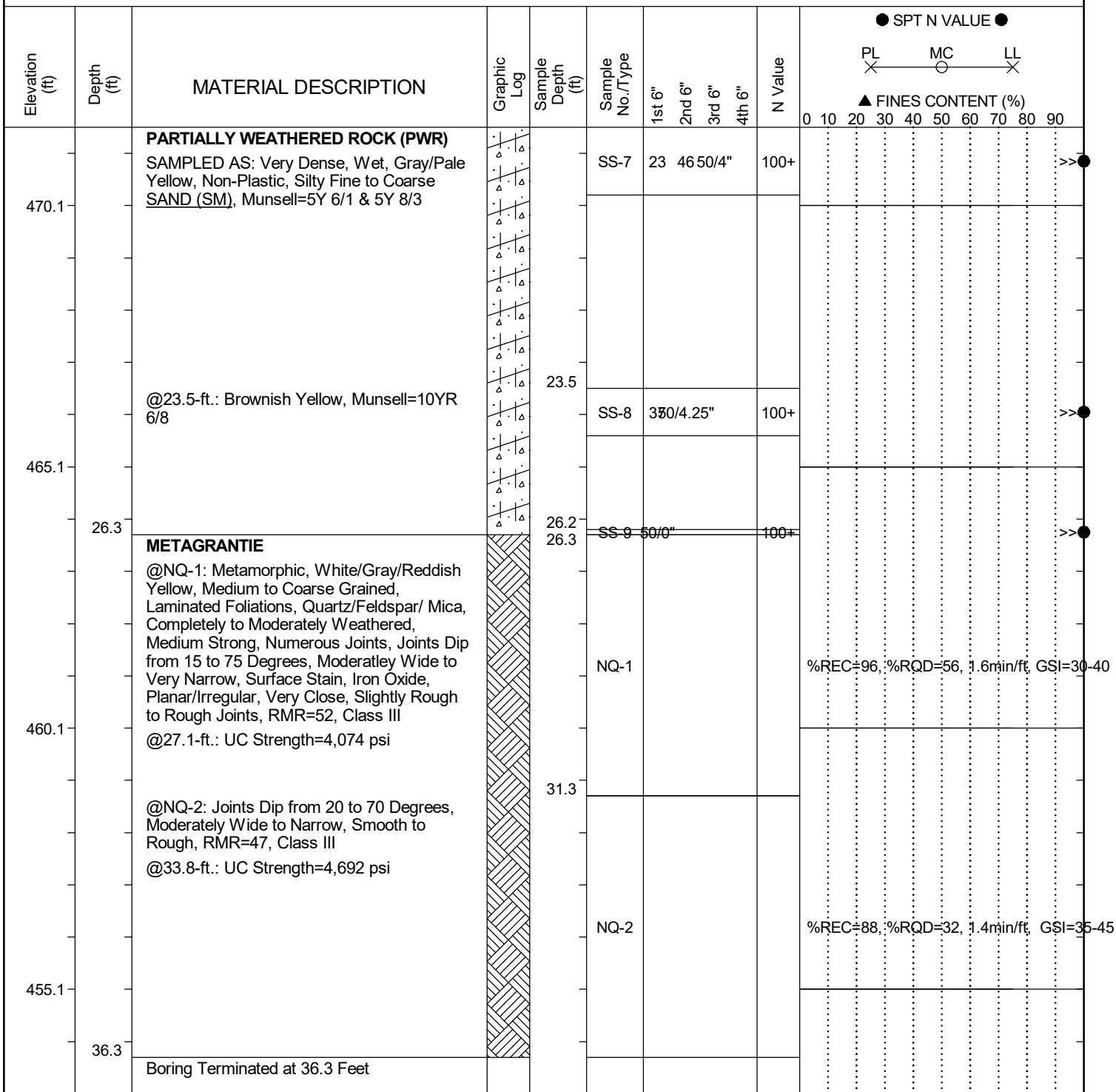
## LEGEND

Continued Next Page

<b>SAMPLER TYPE</b>	
SS - Split Spoon	NQ - Rock Core, 1-7/8"
UD - Undisturbed Sample	CU - Cuttings
AWG - Rock Core, 1-1/8"	CT - Continuous Tube

<b>DRILLING METHOD</b>	
HSA - Hollow Stem Auger	RW - Rotary Wash
CFA - Continuous Flight Augers	RC - Rock Core
DC - Driving Casing	

Project ID: P038063				County: Greenwood		Boring No.: B-1002		
Site Description:		S-24-95 Replacment Bridge over Camp Creek					Route: S-24-95	
Eng./Geo.: C.Piercy		Boring Location: N/A			Offset: N/A		Alignment: Existing	
Elev.: 490.1 ft		Latitude: 34.294609		Longitude: -82.159268		Date Started: 6/25/2019		
Total Depth: 36.3 ft		Soil Depth: 26.3 ft		Core Depth: 10 ft		Date Completed: 6/25/2019		
Bore Hole Diameter (in): 4		Sampler Configuration			Liner Required: Y (N)		Liner Used: Y (N)	
Drill Machine: CME 45B		Drill Method: RW/RC		Hammer Type: Automatic			Energy Ratio: 92%	
Core Size: NQ/8		Driller: L. Guempel		Groundwater: TOB 8 ft			24HR Backfilled	



## LEGEND

SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

# **S-24-95 Replacement Bridge over Camp Creek**

## **Geotechnical Base Line Report**

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













# **APPENDIX**

## **SECTION 5 GENERALIZED SUBSURFACE PROFILE**

KEY TO SYMBOLS

PROJECT NAME	Closed and Load-Restricted Bridge Package 2020-1 (S-24-95 Bridge Replacement over Camp Creek)
PROJECT COUNTY	Greenwood

LITHOLOGIC SYMBOLS  
(Unified Soil Classification System)



	ASPHALT
	GABC (Graded Aggregate Base Course)
	PWR: Partially Weathered Rock
	BEDROCK: Bedrock
	CH: USCS High Plasticity Clay
	CL: USCS Low Plasticity Clay
	CL-ML: USCS Low Plasticity Silty Clay
	MH: USCS Elastic Silt
	ML: USCS Silt
	SP: USCS Poorly Graded Sand
	SM: USCS Silty Sand
	SC: USCS Clayey Sand
	SP-SM: USCS Poorly Graded Sand w/ Silt
	SC-SM: USCS Silty, Clayey Sand
	SP-SC: USCS Poorly Graded Sand w/ Clay
	No Recovery

SOIL TEST ID'S

B-#      SOIL TEST BORING

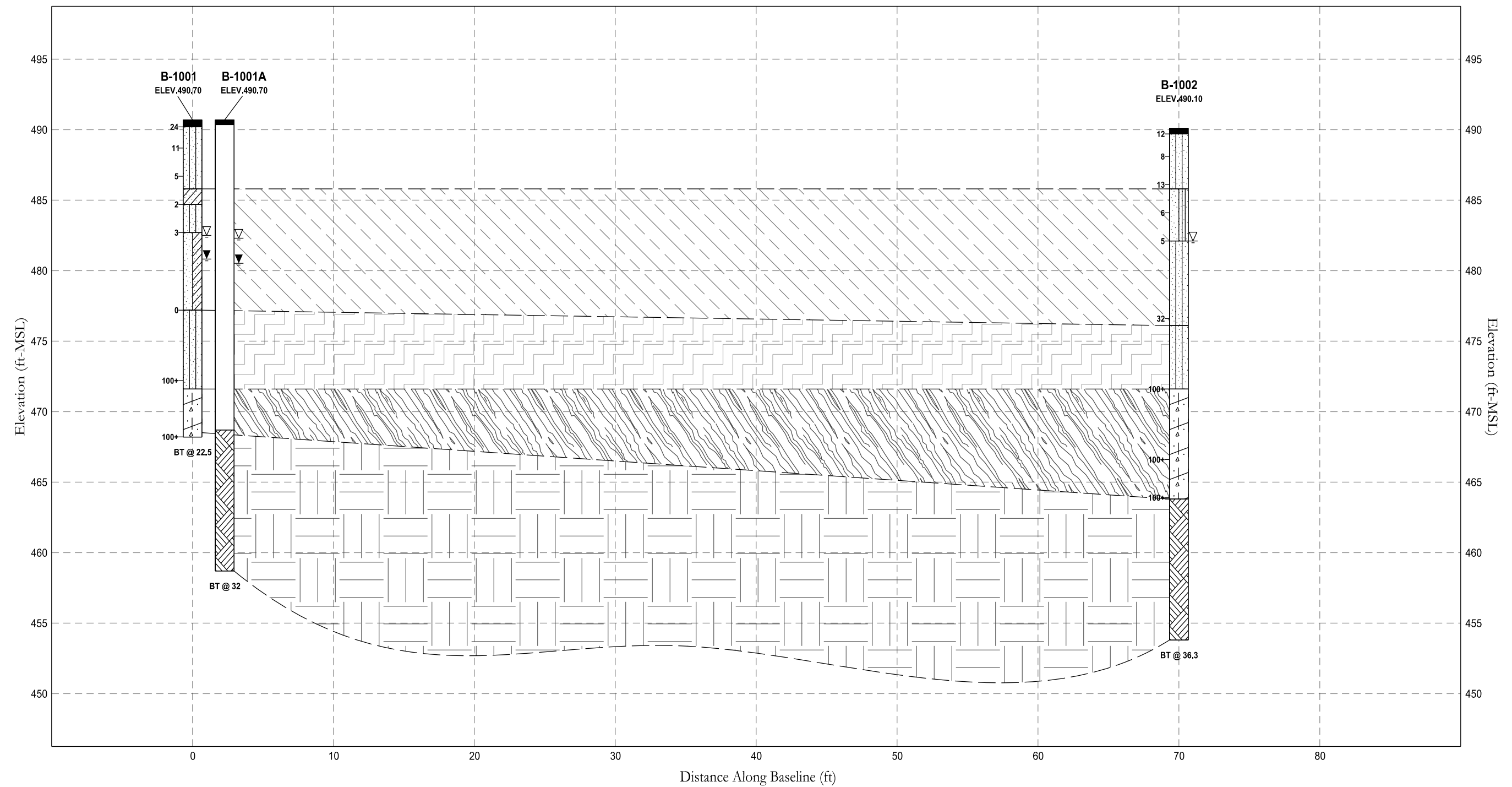
ABBREVIATIONS

- LL - LIQUID LIMIT (%)
- PL - PLASTIC LIMIT (%)
- PI - PLASTIC INDEX (%)
- NMC - MOISTURE CONTENT (%)
- NP - NON PLASTIC
- %#200 - PERCENT PASSING NO. 200 SIEVE

-  Water Level at Time Drilling, or as Shown
-  Water Level at End of Drilling, or as Shown

NOTES

- THE GENERALIZED SUBSURFACE PROFILES ARE PROVIDED ONLY FOR ILLUSTRATIVE PURPOSES. THE INTENT OF THESE DRAWINGS IS TO PROVIDE THE READER WITH VERY GENERAL INFORMATION ON SUBSURFACE CONDITIONS AT THE TIME OF THE INVESTIGATION. VARIATIONS IN THE INDICATED SUBSURFACE CONDITIONS WILL BECOME EVIDENT ONCE ADDITIONAL BORINGS ARE PERFORMED. THE INDICATED STRATIGRAPHY BETWEEN TESTING LOCATIONS WAS GENERATED USING STRAIGHT-LINE LINEAR INTERPOLATION, AND DOES NOT REPRESENT THE TRUE STRATIGRAPHY.



The generalized subsurface profile is provided for illustrative purposes. The intent of this drawing is to provide the reader with very general information on soil stratigraphy at the bridge site. Variations in the indicated subsurface conditions will become evident once additional borings are performed.

4			
3			
2			
1			
REV. NO.	BY	DATE	DESCRIPTION OF REVISION
TOPO.		DATE	
DWG.	JFH	DATE 8.27.19	GROUP - -
R/W		DATE	

**S-24-95 BRIDGE REPLACEMENT  
OVER CAMP CREEK**

**GENERALIZED SUBSURFACE PROFILE**

HRZ SCALE = NTS

VRT SCALE = NTS

# S-24-95 Replacement Bridge over Camp Creek

## Geotechnical Base Line Report

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# APPENDIX

## SECTION 6 ROCK CORE PHOTOS



S-24-95 RBO Camp Creek  
Boring B-1001A



Boring B-1002



# S-24-95 Replacement Bridge over Camp Creek

## Geotechnical Base Line Report

---

# APPENDIX

## SECTION 7 LABORATORY TEST RESULTS



# SUMMARY OF LABORATORY RESULTS

PAGE 1 OF 1

PROJECT ID P038063

PROJECT NAME S-24-95 Replacment Bridge over Camp Creek

PROJECT COUNTY Greenwood

Borehole	Depth	Liquid Limit	Plastic Limit	Plasticity Index	Maximum Size (mm)	%<#200 Sieve	Class-ification	Water Content (%)	Dry Density (pcf)	Satur-ation (%)	Void Ratio
B-1001	4.0	NP	NP	NP	19	30	SM	13.6			
B-1001	8.0				9.51	40		22.8			
B-1001	10.0				4.76	10		22.8			
B-1001	15.0	NP	NP	NP	4.76	42	SM	21.5			
B-1002	4.0	NP	NP	NP	9.51	31	SM	13.7			
B-1002	8.0				4.76	7		17.4			
B-1002	10.0	NP	NP	NP	4.76	23	SM	14.4			
B-1002	15.0				4.76	22		14.5			



## Rock Coring Summary

Project ID: P038063

Project Name: S-24-95 RBO Camp Creek

Project County: Greenwood

Borehole	Core Run Number	Core Run Top Depth (ft)	REC (%)	RQD (%)	q <sub>u</sub> (psi)	Poisson's Ratio	Elastic Modulus (ksi)	Unit Weight (pcf)	RMR
									GSI
B-1001A	NQ-1	22.0	83	76	4,637	0.66	3.68E+05	155	66
									50-60
	NQ-2	27.0	83	44	2,086	0.82	1.83E+05	149	42
									45-55
B-1002	NQ-1	26.3	96	56	4,074	0.39	3.75E+05	157	52
									30-40
	NQ-2	31.3	88	32	4,692	0.46	2.96E+05	158	47
									35-45

**F&ME CONSULTANTS**  
**3112 Devine Street**  
**Columbia, South Carolina 29205**

**MOISTURE CONTENT DETERMINATION**  
**(AASHTO T265)**

<b>PROJECT:</b>	<u>S-24-95 Replacment Bridge over Camp Creek</u>	<b>PROJECT NO.:</b>	<u>P038063</u>
<b>SAMPLE NUMBER:</b>	<u>19-1784</u>	<b>DATE SAMPLE RECEIVED:</b>	<u>7/5/2019</u>
<b>DESCRIPTION OF SOIL:</b>	<u>VARIOUS</u>		
<b>TESTED BY:</b>	<u>AMC</u>	<b>DATE OF TESTING:</b>	<u>7/30/2019</u>
<b>WEIGHED BY:</b>	<u>AMC</u>	<b>DATE OF WEIGHING:</b>	<u>8/2/2019</u>

BORING NO.	B-1001	B-1001	B-1001	B-1001	
SAMPLE NO.	SS-2	SS-4	SS-5	SS-6	
SAMPLE DEPTH	2-4'	6-8'	8-10'	13.5-15'	
WATER CONTENT, W%	13.6	22.8	22.8	21.5	

BORING NO.					
SAMPLE NO.					
SAMPLE DEPTH					
WATER CONTENT, W%					

BORING NO.					
SAMPLE NO.					
SAMPLE DEPTH					
WATER CONTENT, W%					

BORING NO.					
SAMPLE NO.					
SAMPLE DEPTH					
WATER CONTENT, W%					

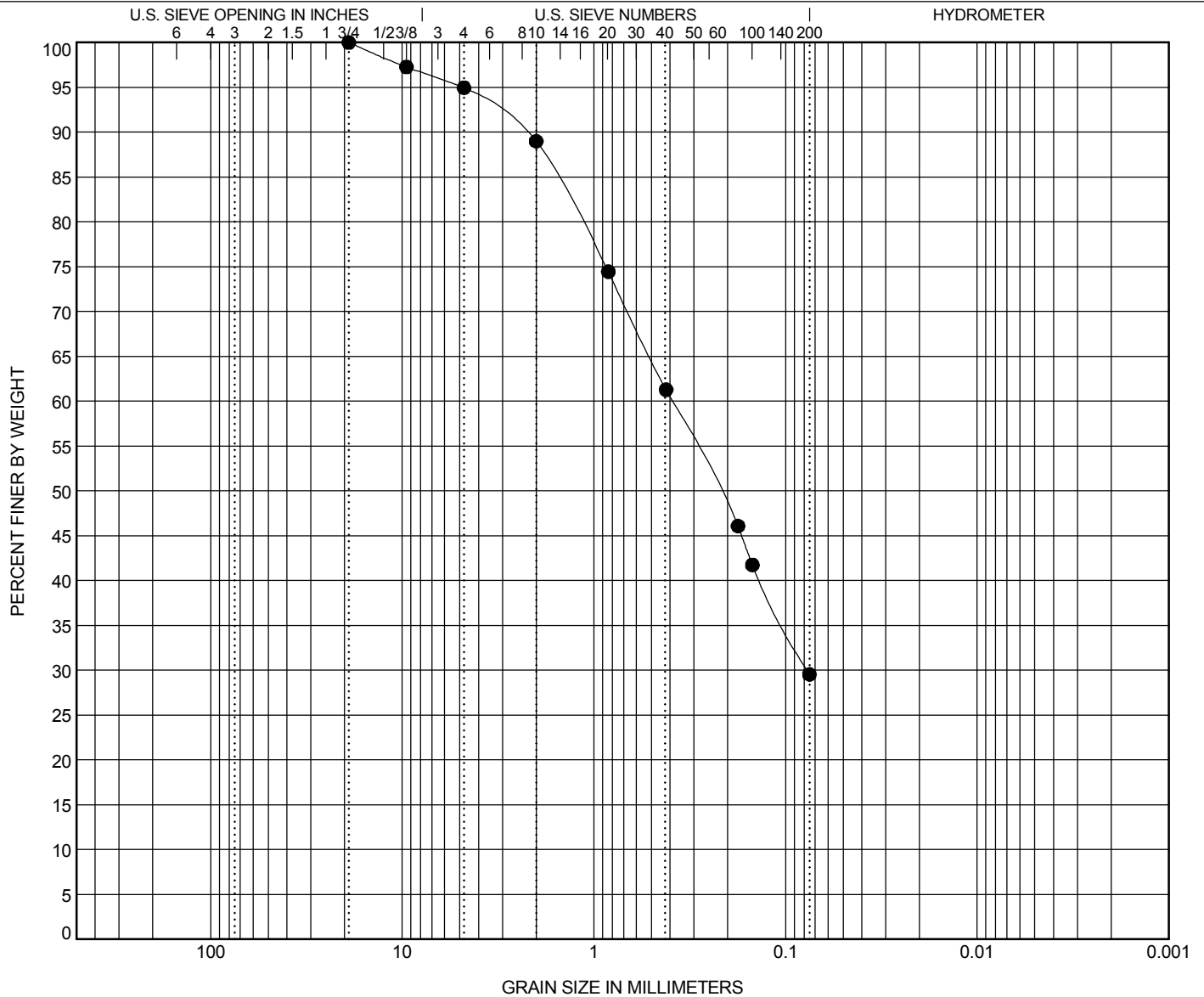


# GRAIN SIZE DISTRIBUTION

PROJECT ID P038063

PROJECT NAME S-24-95 Replacement Bridge over Camp Creek

PROJECT COUNTY Greenwood



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

BOREHOLE	DEPTH	Classification					LL	PL	PI	Cc	Cu
● B-1001	4.0	Silty SAND (SM/A-2-4)					NP	NP	NP		
BOREHOLE	DEPTH	D100	D95	D50	D10	%Gravel	%Sand	%Silt		%Clay	
● B-1001	4.0	19	4.814	0.221		5.1	65.4	29.5			

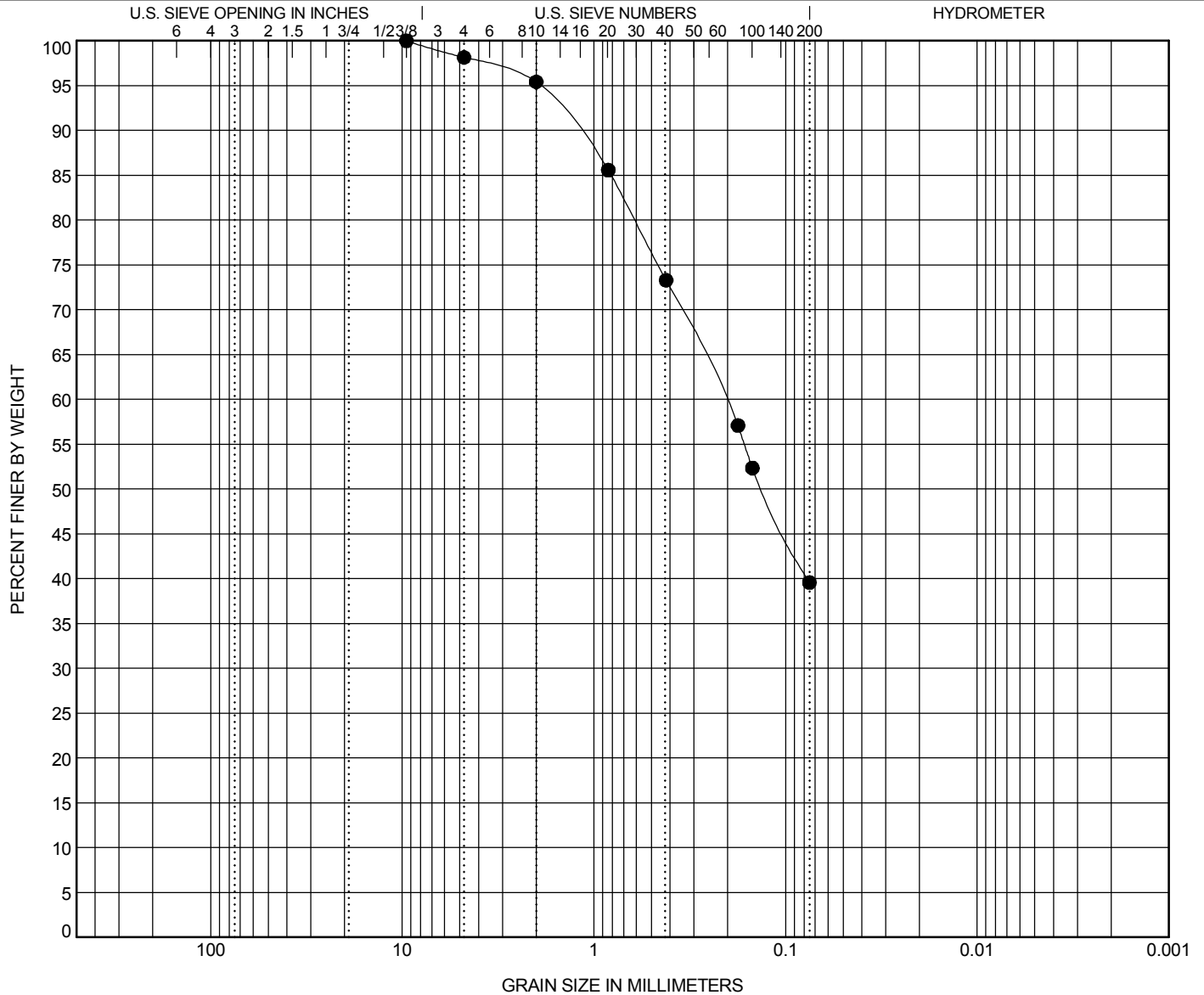


# GRAIN SIZE DISTRIBUTION

PROJECT ID P038063

PROJECT NAME S-24-95 Replacment Bridge over Camp Creek

PROJECT COUNTY Greenwood



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

BOREHOLE	DEPTH	Classification					LL	PL	PI	Cc	Cu
● B-1001	8.0	Silty SAND (SM)									
BOREHOLE	DEPTH	D100	D95	D50	D10	%Gravel	%Sand	%Silt		%Clay	
● B-1001	8.0	9.51	1.926	0.131		1.9	58.6	39.6			



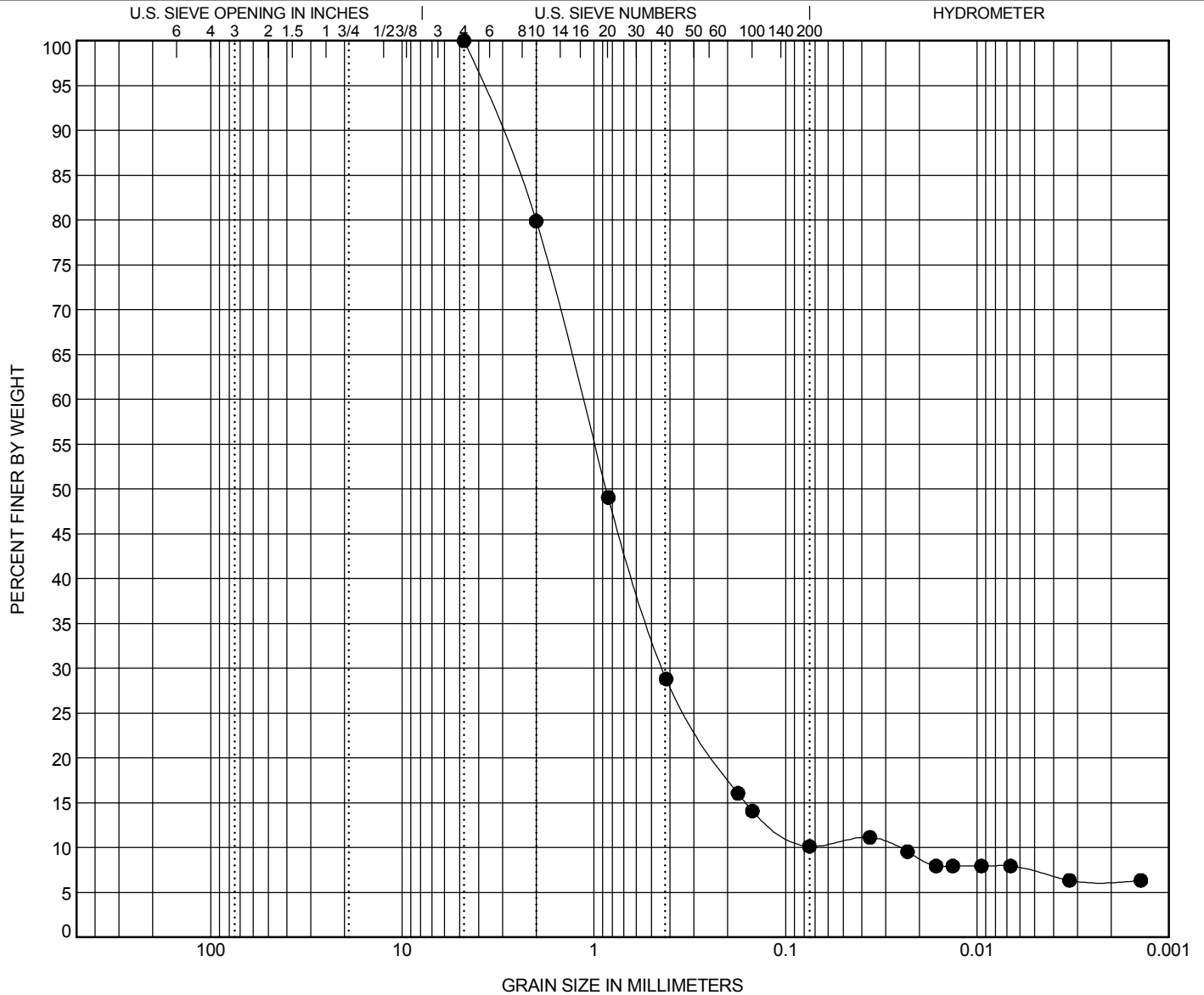


# GRAIN SIZE DISTRIBUTION

PROJECT ID P038063

PROJECT NAME S-24-95 Replacement Bridge over Camp Creek

PROJECT COUNTY Greenwood



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

BOREHOLE	DEPTH	Classification					LL	PL	PI	Cc	Cu
● B-1001	10.0	SAND (SP-SC) with Clay								3.00	20.52
BOREHOLE	DEPTH	D100	D95	D50	D10	%Gravel	%Sand	%Silt	%Clay		
● B-1001	10.0	4.76	3.837	0.863	0.056	0.0	89.8	2.9	7.3		

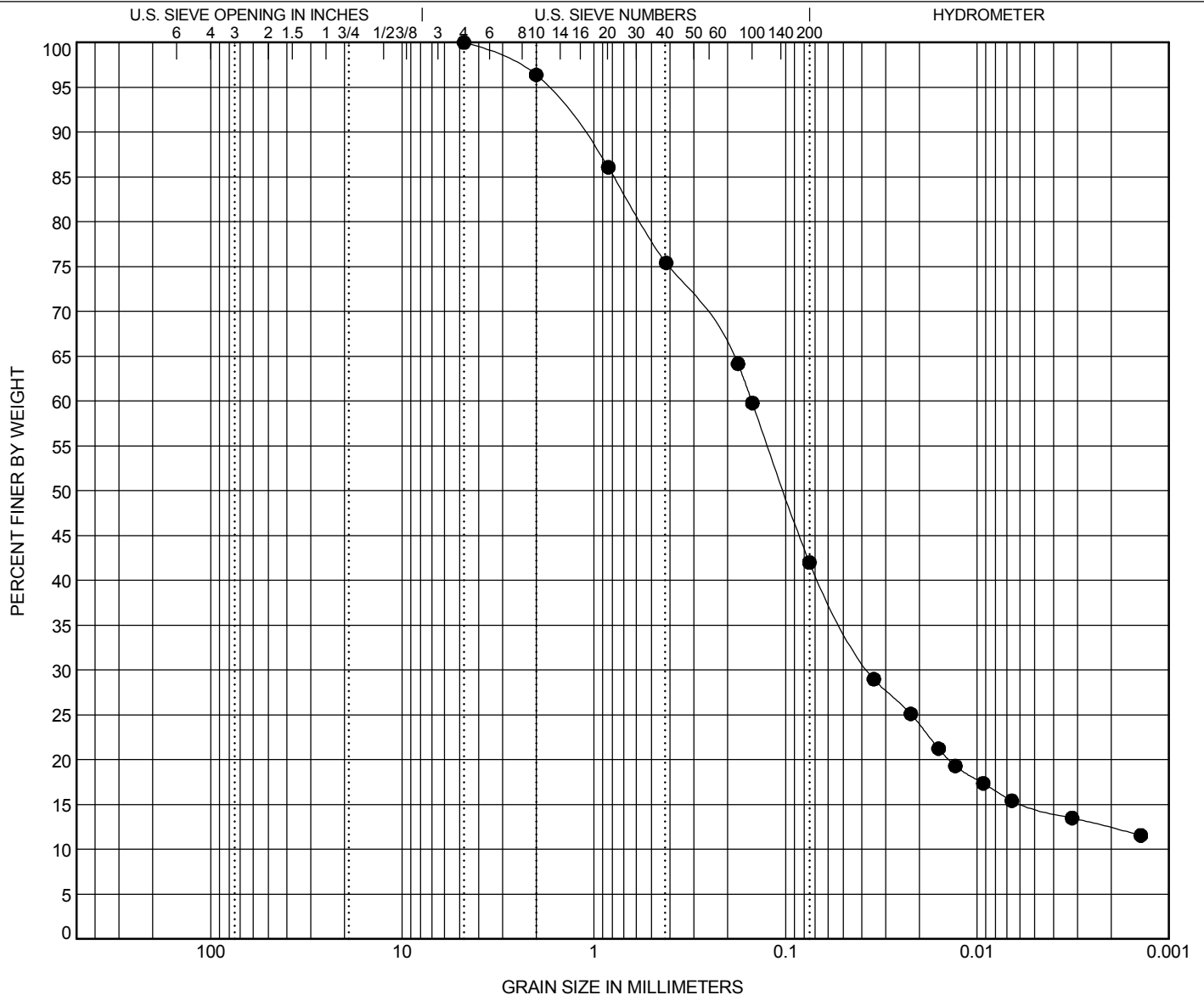


# GRAIN SIZE DISTRIBUTION

PROJECT ID P038063

PROJECT NAME S-24-95 Replacment Bridge over Camp Creek

PROJECT COUNTY Greenwood

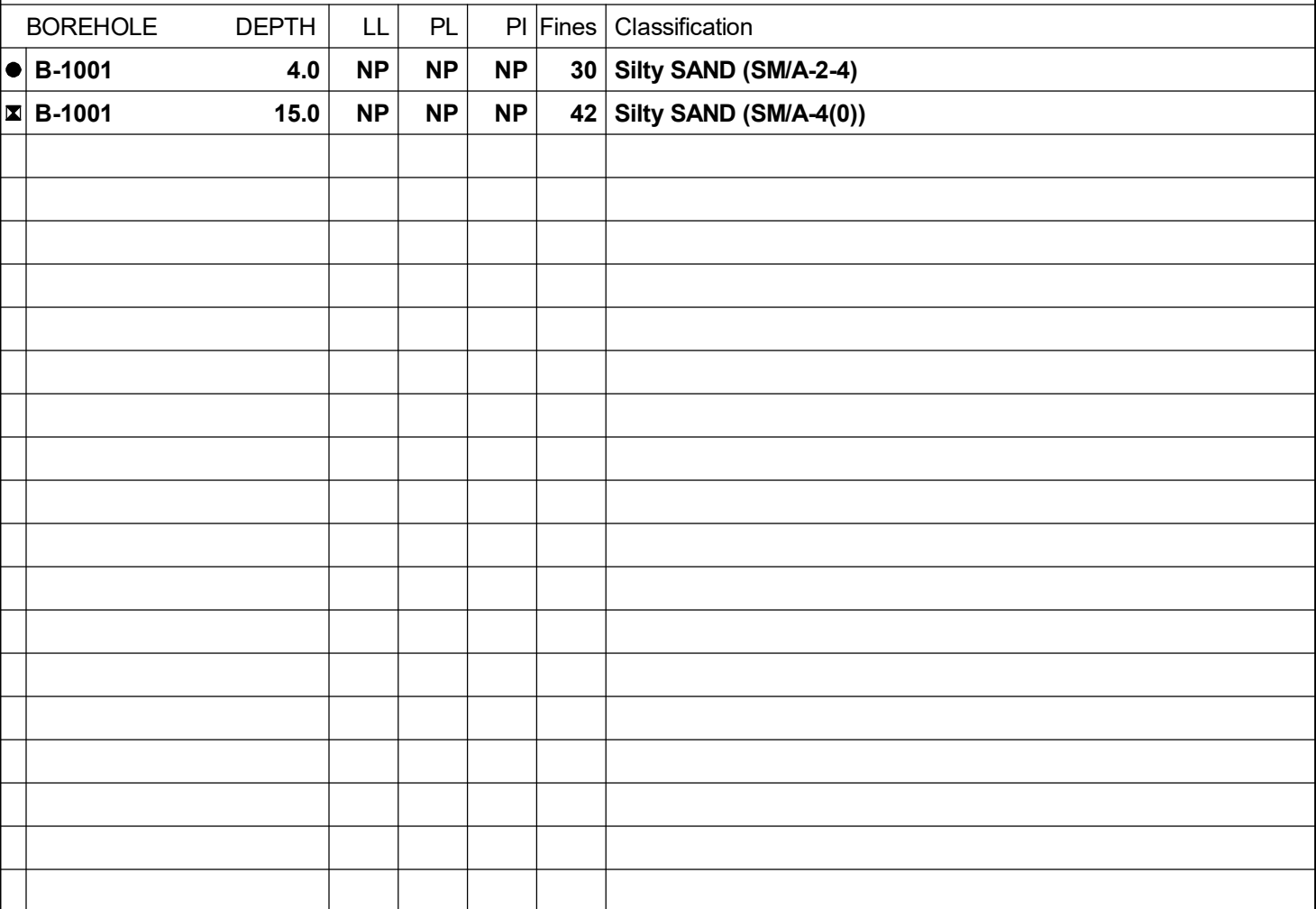


COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

BOREHOLE	DEPTH	Classification					LL	PL	PI	Cc	Cu
● B-1001	15.0	Silty SAND (SM/A-4(0))					NP	NP	NP		
BOREHOLE	DEPTH	D100	D95	D50	D10	%Gravel	%Sand	%Silt		%Clay	
● B-1001	15.0	4.76	1.778	0.102		0.0	58.0	27.3		14.7	



**PROJECT COUNTY** Greenwood



**Elastic Moduli of Intact Rock Core Specimens in Uniaxial Compression**  
**ASTM D7012-14e1 (D) / D4543-08e1**

Client F&ME Consultants  
 Client Project G6100.050 - Load Restricted Bridge Projects  
 Project Number 42140

Boring G6100.050.00003 - Camp Creek  
 Depth 22.2' - 22.5'  
 Sample RC-1001.1  
 Lab ID number 42140009

**Method of Calculating Young's Modulus from Axial Stress-Strain Curve**

**Average Modulus** - Linear Portion of Axial Stress Strain Curve

Manually selected by lab at 25% and 50% of the total Compressive strength (psi) - other values possible

Description: Tan Weathered Granite  
 As-Received Condition: Useable L/D > 2  
 Sample Preparation: Diamond saw blade cut, surface ground flat

Axial Strain	Diametric Strain	Axial Stress psi
9.98E-03	-3.02E-03	2327
6.80E-03	-9.14E-04	1157

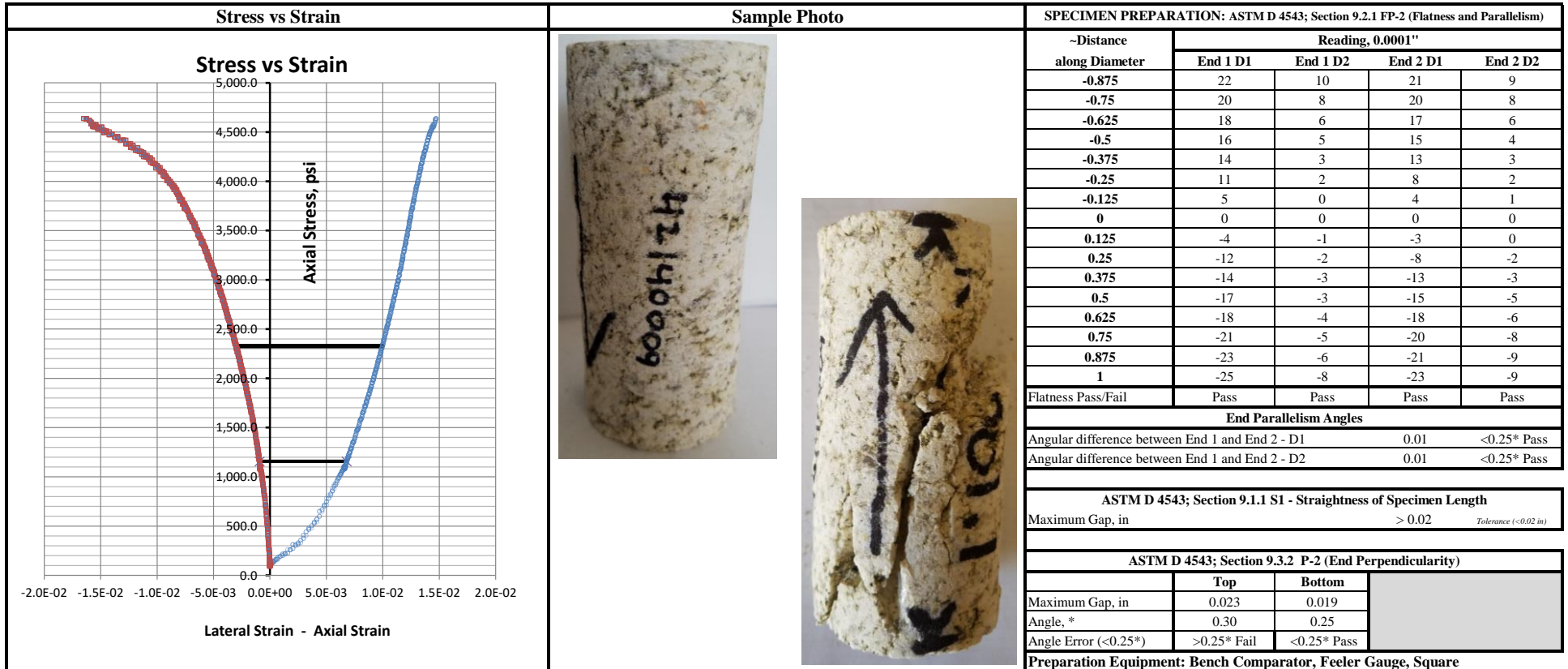
ASTM D 4543; Section 4.2 & 5.6	
Length, in	4.405
Mid Height Diameter #1, in	1.85
Mid Height Diameter #2, in	1.842
Average Mid. Height Diameter, in.	1.85
Sample Area, in <sup>2</sup>	2.68
<b>L/D Ratio (2.0-2.5)</b>	<b>2.39</b>

Test Parameters		
Test Temperature	Room	
Moisture Condition	As-Received	
Sample Weight, gms	480.46	
Sample Volume, cc	193	
Wet Density, pcf	155	

Test Results	
Overall Loading Rate, psi/sec	40
Peak Load, lbs	12411
<b>Unconfined Compressive Strength, psi</b>	<b>4,637</b>
<b>Youngs Modulus, E psi</b>	<b>367.9 E+03</b>
<b>Slope of Lateral Curve, psi</b>	<b>-554.7 E+03</b>
<b>Poisson's Ratio</b>	<b>0.66</b>

Load Application in Relation to Lithology:

Unable to Determine



Performed By: MAK

Input Validation: MAK

Reviewed By: ALO

Date Tested: 7/25/2019

**Elastic Moduli of Intact Rock Core Specimens in Uniaxial Compression**  
**ASTM D7012-14e1 (D) / D4543-08e1**

Client F&ME Consultants  
 Client Project G6100.050 - Load Restricted Bridge Projects  
 Project Number 42140

Boring G6100.050.00003 - Camp Creek  
 Depth 28.8' - 29.1'  
 Sample RC-1001.2  
 Lab ID number 42140010

**Method of Calculating Young's Modulus from Axial Stress-Strain Curve**

**Average Modulus** - Linear Portion of Axial Stress Strain Curve

Manually selected by lab at 25% and 50% of the total Compressive strength (psi) - other values possible

Description: Tan Weathered Granite  
 As-Received Condition: Useable L/D > 2  
 Sample Preparation: Diamond saw blade cut, surface ground flat

Axial Strain	Diametric Strain	Axial Stress psi
1.16E-02	-3.69E-03	1035
8.68E-03	-1.29E-03	500

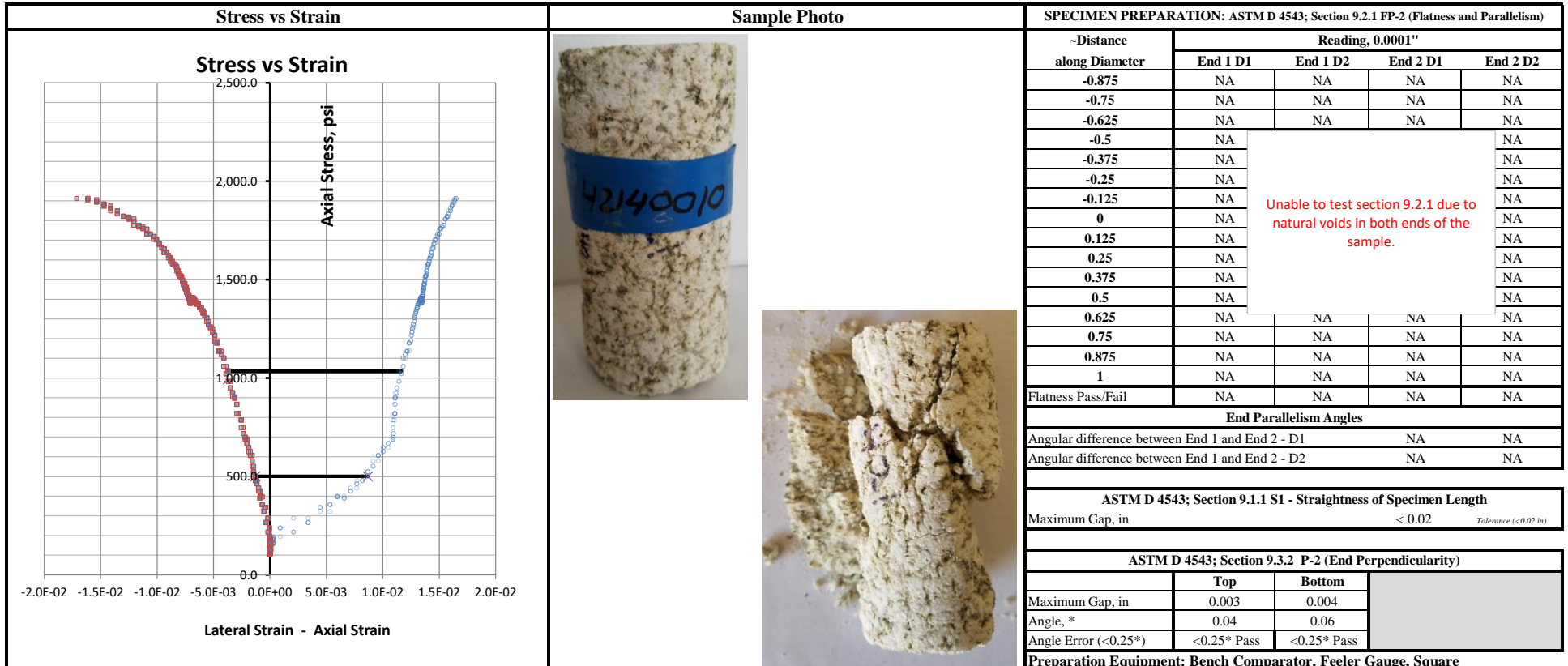
ASTM D 4543; Section 4.2 & 5.6	
Length, in	4.105
Mid Height Diameter #1, in	1.859
Mid Height Diameter #2, in	1.856
Average Mid. Height Diameter, in.	1.86
Sample Area, in <sup>2</sup>	2.71
<b>L/D Ratio (2.0-2.5)</b>	<b>2.21</b>

Test Parameters		
Test Temperature	Room	
Moisture Condition	As-Received	
Sample Weight, gms	435.88	
Sample Volume, cc	182	
Wet Density, pcf	149	

Test Results	
Overall Loading Rate, psi/sec	40
Peak Load, lbs	5653
<b>Unconfined Compressive Strength, psi</b>	<b>2,086</b>
<b>Youngs Modulus, E psi</b>	<b>183.1 E+03</b>
<b>Slope of Lateral Curve, psi</b>	<b>-222.4 E+03</b>
<b>Poisson's Ratio</b>	<b>0.82</b>

Load Application in Relation to Lithology:

Unable to Determine



Performed By: MAK

Input Validation: MAK

Reviewed By: ALO

Date Tested: 7/25/2019

**F&ME CONSULTANTS**  
**3112 Devine Street**  
**Columbia, South Carolina 29205**

**MOISTURE CONTENT DETERMINATION**  
**(AASHTO T265)**

<b>PROJECT:</b>	S-24-95 Replacment Bridge over Camp Creek	<b>PROJECT NO.:</b>	P038063
<b>SAMPLE NUMBER:</b>	19-1786	<b>DATE SAMPLE RECEIVED:</b>	7/5/2019
<b>DESCRIPTION OF SOIL:</b>	VARIOUS		
<b>TESTED BY:</b>	AMC	<b>DATE OF TESTING:</b>	7/30/2019
<b>WEIGHED BY:</b>	AMC	<b>DATE OF WEIGHING:</b>	8/2/2019

BORING NO.	B-1002	B-1002	B-1002	B-1002	
SAMPLE NO.	SS-2	SS-4	SS-5	SS-6	
SAMPLE DEPTH	2-4'	6-8'	8-10'	13.5-15'	
WATER CONTENT, W%	13.7	17.4	14.4	14.5	

BORING NO.					
SAMPLE NO.					
SAMPLE DEPTH					
WATER CONTENT, W%					

BORING NO.					
SAMPLE NO.					
SAMPLE DEPTH					
WATER CONTENT, W%					

BORING NO.					
SAMPLE NO.					
SAMPLE DEPTH					
WATER CONTENT, W%					

## GRAIN SIZE DISTRIBUTION

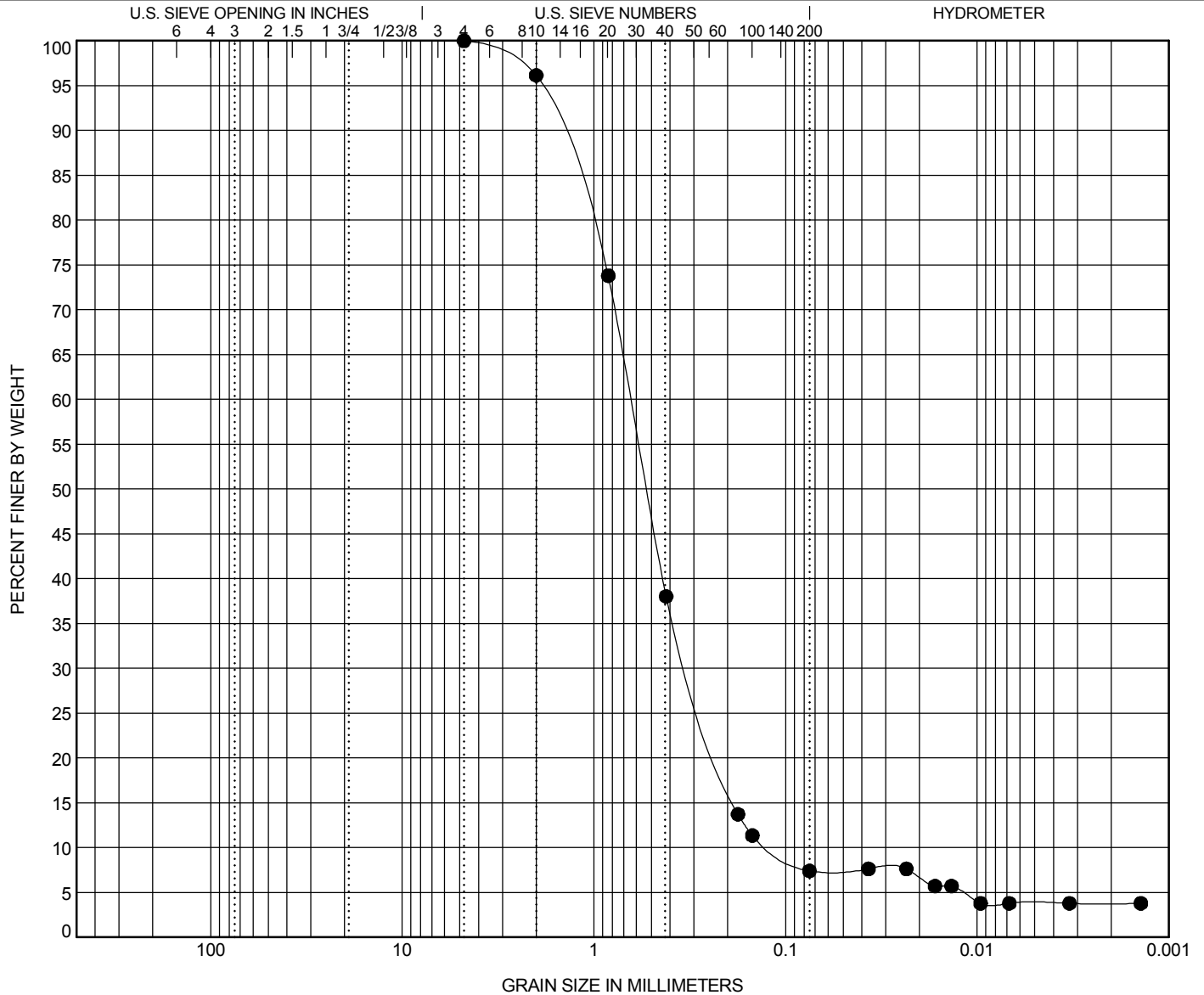


# GRAIN SIZE DISTRIBUTION

PROJECT ID P038063

PROJECT NAME S-24-95 Replacment Bridge over Camp Creek

PROJECT COUNTY Greenwood





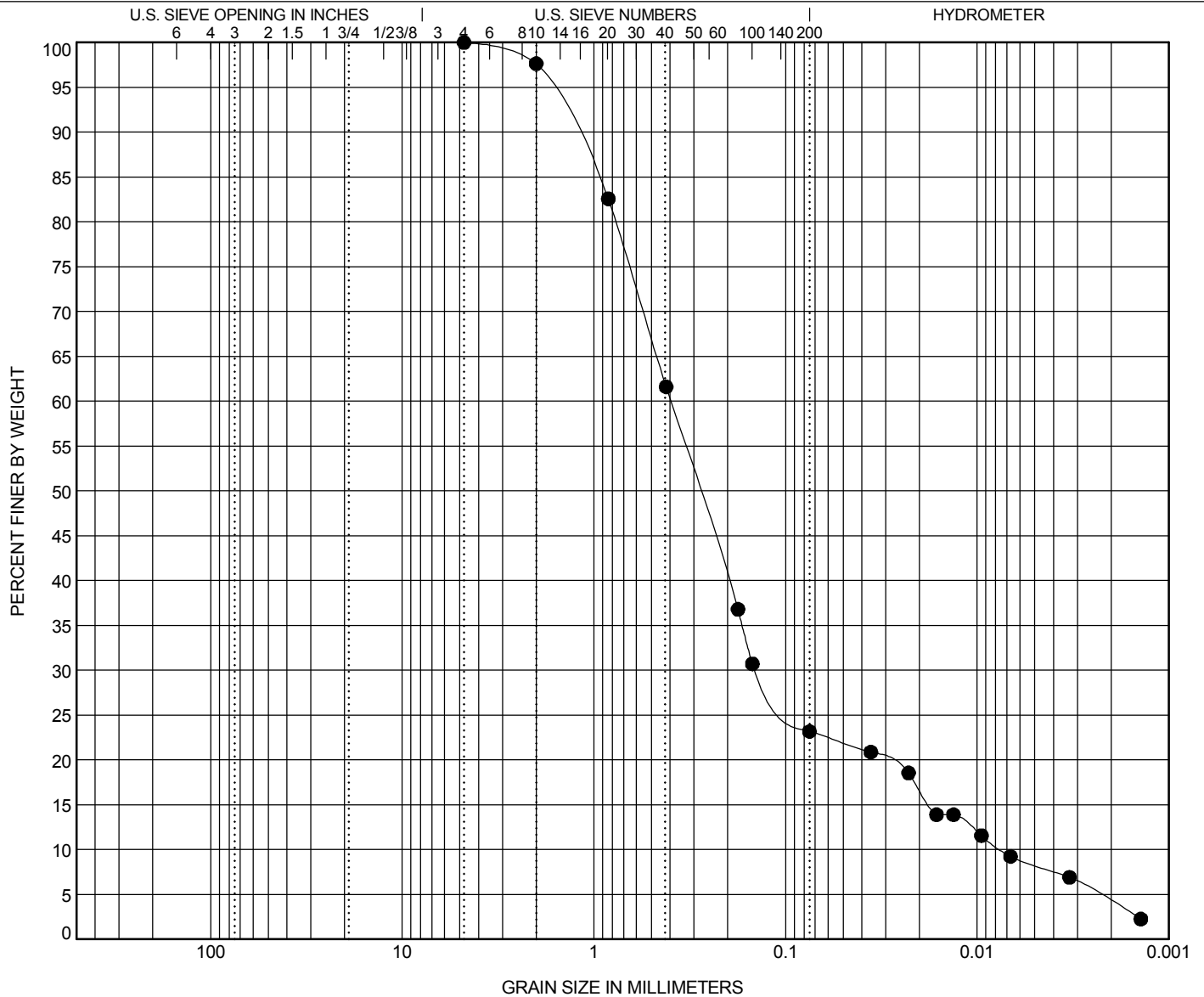


# GRAIN SIZE DISTRIBUTION

PROJECT ID P038063

PROJECT NAME S-24-95 Replacement Bridge over Camp Creek

PROJECT COUNTY Greenwood



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

BOREHOLE	DEPTH	Classification					LL	PL	PI	Cc	Cu
● B-1002	10.0	Silty SAND (SM/A-2-4)					NP	NP	NP	6.53	52.91
BOREHOLE	DEPTH	D100	D95	D50	D10	%Gravel	%Sand	%Silt	%Clay		
● B-1002	10.0	4.76	1.717	0.28	0.008	0.0	76.8	14.9	8.3		

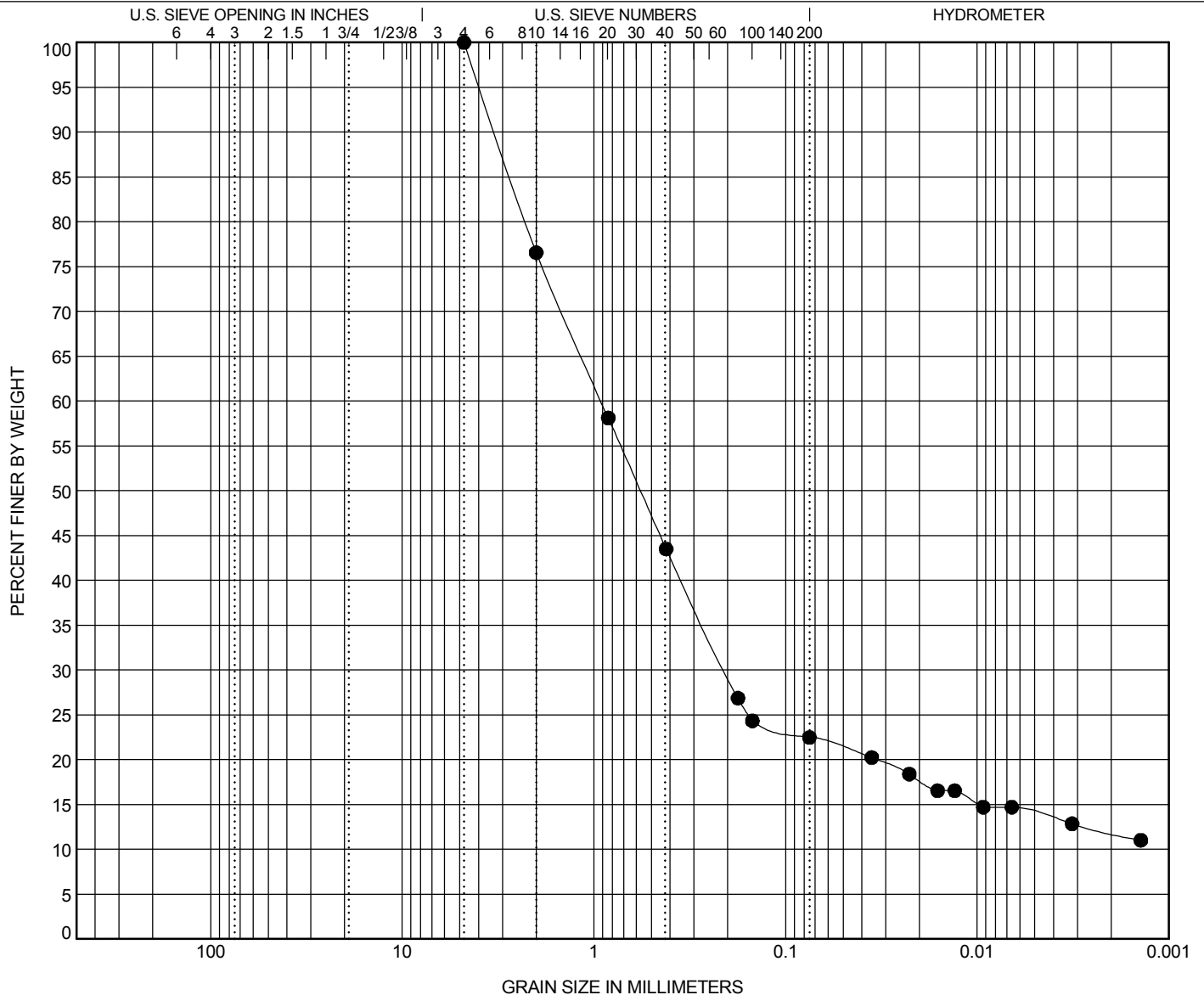


# GRAIN SIZE DISTRIBUTION

PROJECT ID P038063

PROJECT NAME S-24-95 Replacement Bridge over Camp Creek

PROJECT COUNTY Greenwood



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

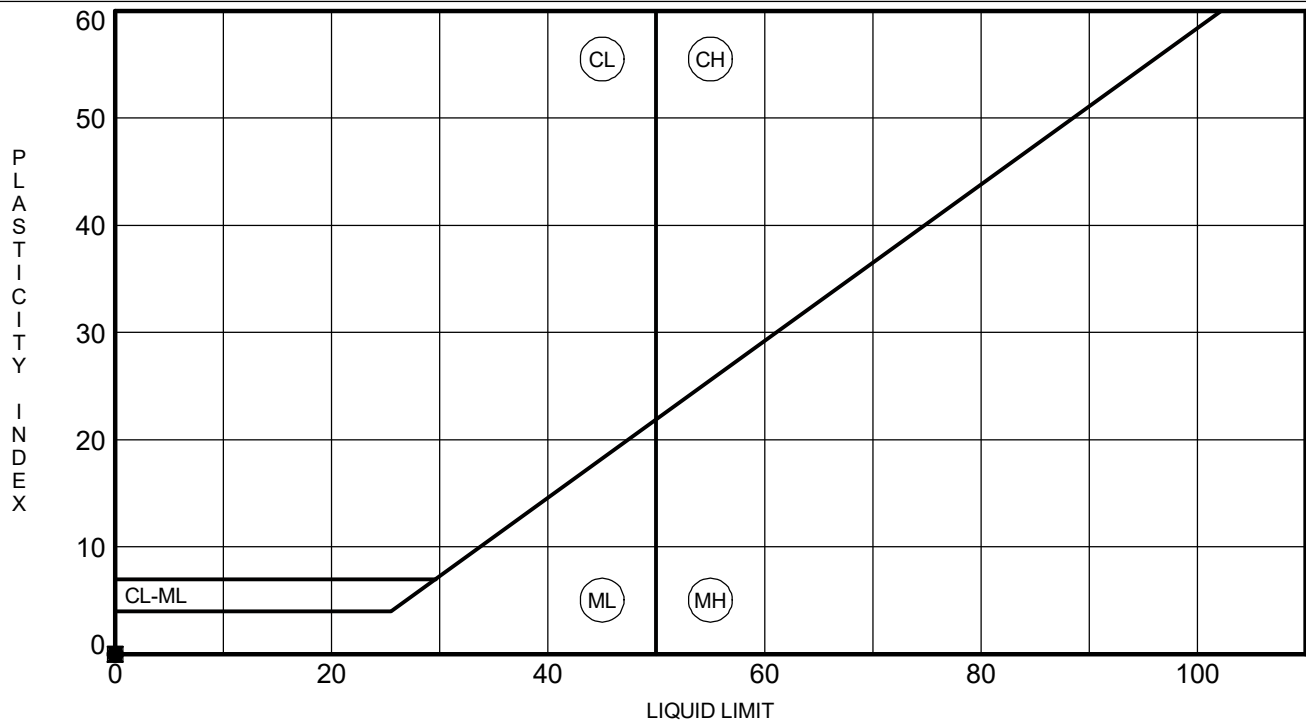
BOREHOLE	DEPTH	Classification					LL	PL	PI	Cc	Cu
● B-1002	15.0	Silty SAND (SM)									
BOREHOLE	DEPTH	D100	D95	D50	D10	%Gravel	%Sand	%Silt	%Clay		
● B-1002	15.0	4.76	3.956	0.572		0.1	77.4	8.5	14.0		

## ATTERBERG LIMITS' RESULTS

**PROJECT ID** P038063

**PROJECT NAME** S-24-95 Replacment Bridge over Camp Creek

**PROJECT COUNTY** Greenwood

[illegible]

**Elastic Moduli of Intact Rock Core Specimens in Uniaxial Compression**  
**ASTM D7012-14e1 (D) / D4543-08e1**

Client F&ME Consultants  
 Client Project G6100.050 - Load Restricted Bridge Projects  
 Project Number 42140

Boring G6100.050.00003 - Camp Creek  
 Depth 27.1' - 27.4'  
 Sample RC-1002.3  
 Lab ID number 42140011

**Method of Calculating Young's Modulus from Axial Stress-Strain Curve**

**Average Modulus** - Linear Portion of Axial Stress Strain Curve

Manually selected by lab at 25% and 50% of the total Compressive strength (psi) - other values possible

Description: Tan Weathered Granite  
 As-Received Condition: Useable L/D > 2  
 Sample Preparation: Diamond saw blade cut, surface ground flat

Axial Strain	Diametric Strain	Axial Stress psi
7.04E-03	-1.54E-03	2032
4.29E-03	-4.60E-04	1000

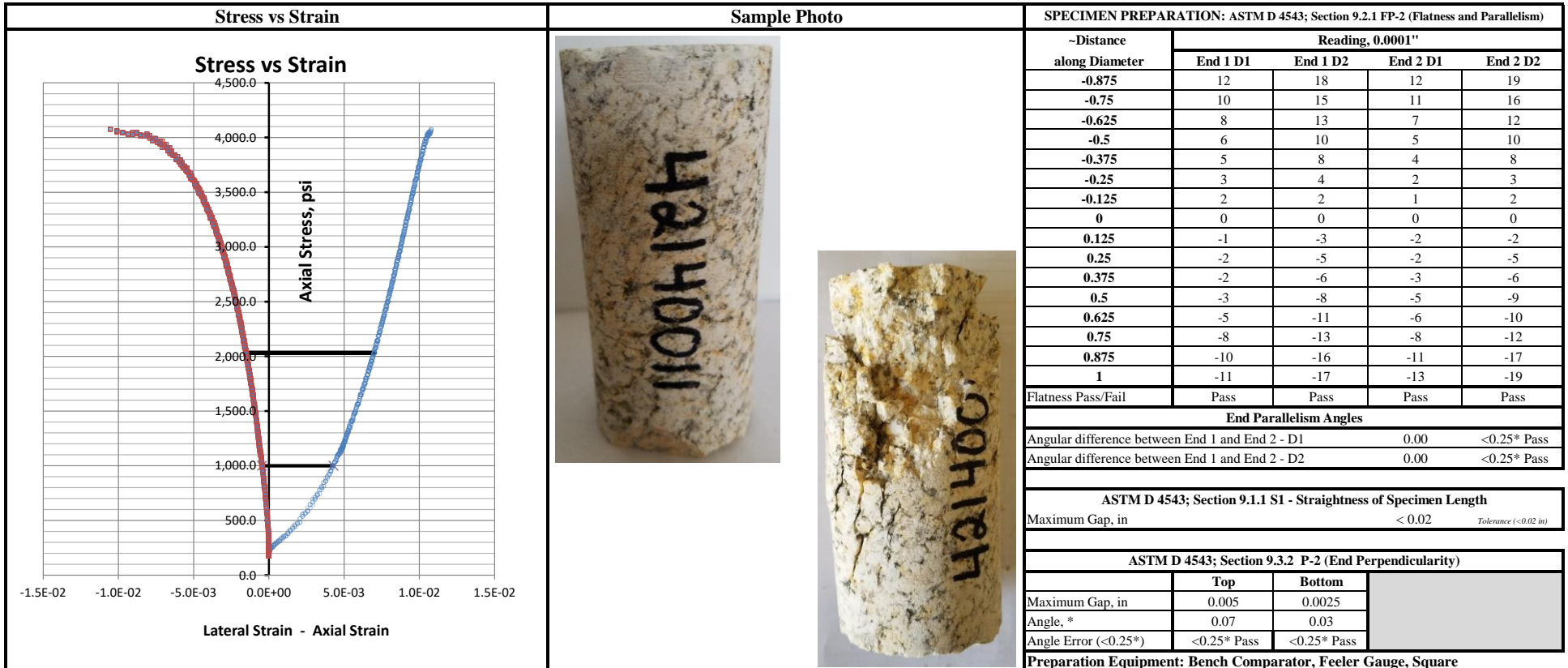
ASTM D 4543; Section 4.2 & 5.6	
Length, in	4.393
Mid Height Diameter #1, in	1.86
Mid Height Diameter #2, in	1.862
Average Mid. Height Diameter, in.	1.86
Sample Area, in <sup>2</sup>	2.72
<b>L/D Ratio (2.0-2.5)</b>	<b>2.36</b>

Test Parameters		
	Test Temperature	Room
	Moisture Condition	As-Received
	Sample Weight, gms	491.81
	Sample Volume, cc	196
	Wet Density, pcf	157

Test Results	
Overall Loading Rate, psi/sec	40
Peak Load, lbs	11081
<b>Unconfined Compressive Strength, psi</b>	<b>4,074</b>
<b>Youngs Modulus, E psi</b>	<b>375.3 E+03</b>
<b>Slope of Lateral Curve, psi</b>	<b>-953.5 E+03</b>
<b>Poisson's Ratio</b>	<b>0.39</b>

Load Application in Relation to Lithology:

Unable to Determine



Performed By: MAK

Input Validation: MAK

Reviewed By: ALO

Date Tested: 7/25/2019

**Elastic Moduli of Intact Rock Core Specimens in Uniaxial Compression**  
**ASTM D7012-14e1 (D) / D4543-08e1**

Client F&ME Consultants  
 Client Project G6100.050 - Load Restricted Bridge Projects  
 Project Number 42140

Boring G6100.050.00003 - Camp Creek  
 Depth 33.8' - 34.1'  
 Sample RC-1002.4  
 Lab ID number 42140012

**Method of Calculating Young's Modulus from Axial Stress-Strain Curve**

**Average Modulus** - Linear Portion of Axial Stress Strain Curve

Manually selected by lab at 25% and 50% of the total Compressive strength (psi) - other values possible

Description: Tan Weathered Granite  
 As-Received Condition: Useable L/D > 2  
 Sample Preparation: Diamond saw blade cut, surface ground flat

Axial Strain	Diametric Strain	Axial Stress psi
1.21E-02	-2.69E-03	2370
7.96E-03	-7.79E-04	1147

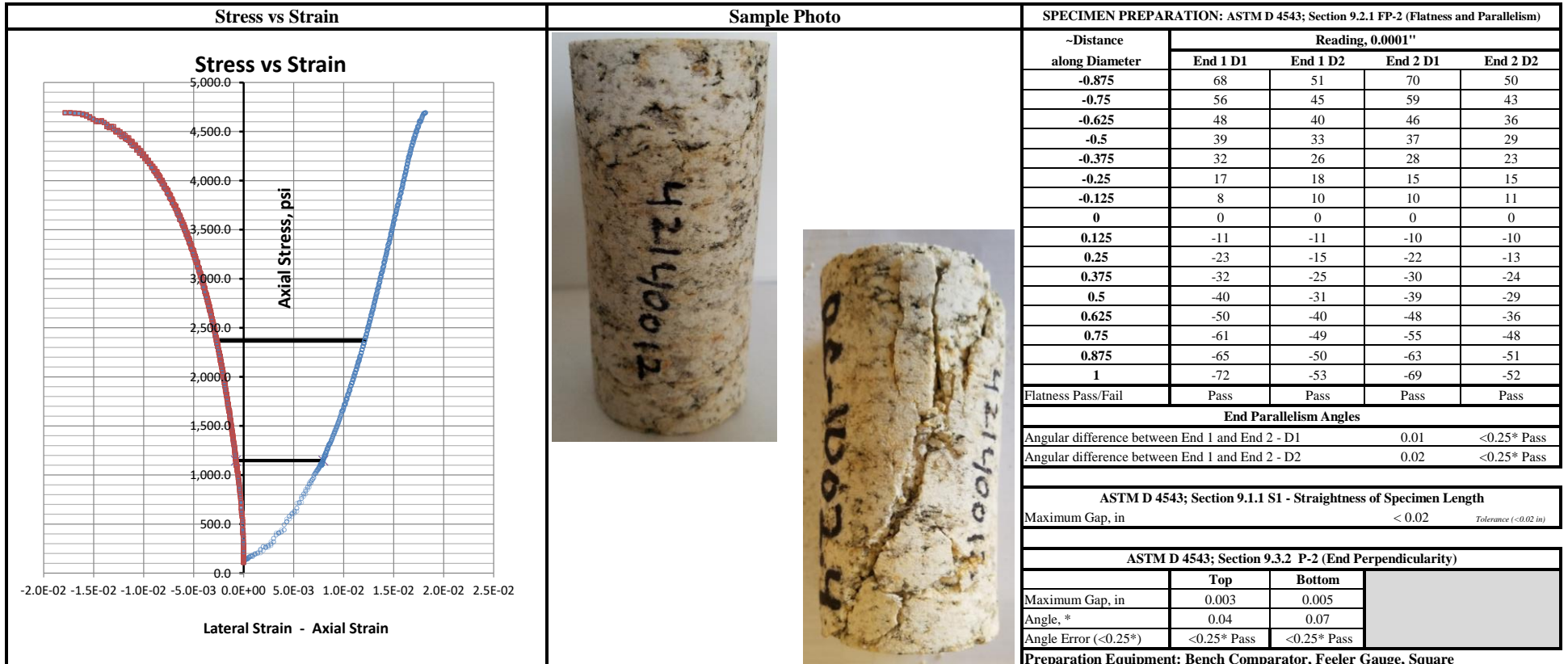
ASTM D 4543; Section 4.2 & 5.6	
Length, in	4.246
Mid Height Diameter #1, in	1.862
Mid Height Diameter #2, in	1.86
Average Mid. Height Diameter, in.	1.86
Sample Area, in <sup>2</sup>	2.72
<b>L/D Ratio (2.0-2.5)</b>	<b>2.28</b>

Test Parameters		
	Test Temperature	Room
	Moisture Condition	As-Received
	Sample Weight, gms	479.02
	Sample Volume, cc	189
	Wet Density, pcf	158

Test Results	
Overall Loading Rate, psi/sec	40
Peak Load, lbs	12762
<b>Unconfined Compressive Strength, psi</b>	<b>4,692</b>
<b>Youngs Modulus, E psi</b>	<b>295.5 E+03</b>
<b>Slope of Lateral Curve, psi</b>	<b>-638.7 E+03</b>
<b>Poisson's Ratio</b>	<b>0.46</b>

Load Application in Relation to Lithology:

Unable to Determine



Performed By: MAK

Input Validation: MAK

Reviewed By: ALO

Date Tested: 7/25/2019

### Corrosivity Testing

Client F&ME Consultants  
 Client Project G6100.050 Load Restricted Bridge Package 2020-1  
 Project No. 42301

Lab Sample ID	Boring	Depth	Sample	Matrix	pH AASHTO T289			Chloride AASHTO T291 (Method B)			Sulfate AASHTO T290 (Method B)			Min. Soil Resistivity AASHTO T288		
					Result	Date Tested	Tested By	Result mg/kg (ppm)	Date Tested	Tested By	Result mg/kg (ppm)	Date Tested	Tested By	Result, Ohm-cm	Date Tested	Tested By
42301013	G6100.050.00001	B-901	0.0' - 10.0'	Soil	5.3	8/27/2019	AMP	75	8/29/2019	AMP	<30	8/28/2019	AMP	16,500	8/27/2019	AMP
42301014	G6100.050.00002	B-802	0.0' - 10.0'	Soil	5.4	8/27/2019	AMP	47	8/29/2019	AMP	<30	8/28/2019	AMP	9,850	8/27/2019	AMP
42301015	G6100.050.00003	B-1001	0.0' - 10.0'	Soil	5.7	8/27/2019	AMP	<10	8/29/2019	AMP	<30	8/28/2019	AMP	16,500	8/27/2019	AMP
42301016	G6100.050.00004	B-602	0.0' - 10.0'	Soil	5.6	8/27/2019	AMP	<10	8/29/2019	AMP	<30	8/28/2019	AMP	15,500	8/27/2019	AMP
42301017	G6100.050.00005	B-501	0.0' - 10.0'	Soil	6.0	8/27/2019	AMP	75	8/29/2019	AMP	<30	8/28/2019	AMP	4,900	8/27/2019	AMP
42301018	G6100.050.00006	B-701	0.0' - 10.0'	Soil	5.2	8/27/2019	AMP	<10	8/29/2019	AMP	<30	8/28/2019	AMP	18,000	8/27/2019	AMP
42301019	G6100.050.00007	B-1202	0.0' - 10.0'	Soil	5.5	8/27/2019	AMP	38	8/29/2019	AMP	88	8/28/2019	AMP	1,700	8/27/2019	AMP
42301020	G6100.050.00008	B-1602	0.0' - 10.0'	Soil	6.1	8/27/2019	AMP	136	8/29/2019	AMP	<30	8/28/2019	AMP	3,500	8/27/2019	AMP
42301021	G6100.050.00009	B-402	0.0' - 10.0'	Soil	5.9	8/27/2019	AMP	<10	8/29/2019	AMP	<30	8/28/2019	AMP	10,500	8/29/2019	AMP
42301022	G6100.050.00010	B-301	0.0' - 10.0'	Soil	7.5	8/27/2019	AMP	40	8/29/2019	AMP	28	8/28/2019	AMP	2,200	8/29/2019	AMP
42301023	G6100.050.00011	B-202	0.0' - 10.0'	Soil	5.9	8/27/2019	AMP	<10	8/29/2019	AMP	36	8/28/2019	AMP	7,200	8/29/2019	AMP
42301024	G6100.050.00012	B-101	0.0' - 10.0'	Soil	6.2	8/27/2019	AMP	<10	8/29/2019	AMP	<30	8/28/2019	AMP	6,000	8/29/2019	AMP
42301025	G6100.050.00013	B-1302	0.0' - 10.0'	Soil	4.9	8/27/2019	AMP	40	8/29/2019	AMP	<30	8/28/2019	AMP	8,500	8/28/2019	AMP
42301026	G6100.050.000014	B-1402	0.0' - 10.0'	Soil	5.2	8/27/2019	AMP	<10	8/29/2019	AMP	<30	8/28/2019	AMP	11,000	8/28/2019	AMP
42301027	G6100.050.00015	B-1501	0.0' - 10.0'	Soil	5.8	8/27/2019	AMP	<10	8/29/2019	AMP	<30	8/28/2019	AMP	11,000	8/28/2019	AMP
42301028	G6100.050.00016	B-1102	0.0' - 10.0'	Soil	5.7	8/27/2019	AMP	78	8/29/2019	AMP	<30	8/28/2019	AMP	5,200	8/28/2019	AMP

Input Validation: AMP

Reviewed By: ALO