FROEHLING & ROBERTSON, INC.

Geotechnical Subsurface Data Report
Richland County Emergency Bridge Package 2
SC 48 (Bluff Road) over Toms Creek
Richland County, South Carolina
F&R Project No. 65T-0191

Prepared for:

South Carolina Department of Transportation
Design-Build Section
955 Park Street
Columbia, SC 29201

October 27, 2015

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FROEHLING & ROBERTSON, INC.
Engineering • Environmental • Geotechnical

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October 27, 2015

Mr. Trapp Harris, PE
South Carolina Department of Transportation
Design-Build Section
955 Park Street
Columbia, South Carolina 29201

Reference: Revision No. 1 - Preliminary Geotechnical Subsurface Data Report
Richland County Emergency Bridge Package 2
SC 48 (Bluff Road) over Toms Creek
Richland County, South Carolina
F&R Project No. 65T-0191
SCDOT Project ID: P029318

Dear Mr. Harris:

The purpose of this revised geotechnical subsurface data report is to present the results of the subsurface investigation program undertaken by Froehling & Robertson, Inc. (F&R) in connection with the Richland County Emergency Bridge Package 2 at State Route SC 48 (Bluff Road) over Toms Creek in Richland County, South Carolina. Our services were performed in general accordance with your work order request emailed to F&R on October 16, 2015, and as authorized by your office per our On-Call Contract with SCDOT. The attached report presents our understanding of the project, reviews our investigation procedures, and describes existing site and general subsurface conditions.

The laboratory test results have been included with this revision of the report.

We have enjoyed working with you on this project. Please contact us if you have any questions regarding this report or if we may be of further service.

Sincerely,
FROEHLING & ROBERTSON, INC.

Gary R. Taylor, PE
Senior Geotechnical Engineer
Registered SC No. 27330

Benedictus K. Azumah, PE
Geotechnical Engineer
Registered VA No. 052166

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APPENDICES

1.0 PURPOSE & SCOPE OF SERVICES

The purpose of this Geotechnical Investigation was to explore the subsurface conditions at the site and perform soil laboratory tests on selected soil samples obtained from the investigation. F&R's scope of services included the following:

- Completion of four soil test borings to depths of approximately 30 or 100 feet below the existing ground surface and as close as possible to the previous culvert location or washed-out pavement shoulder.
- Preparation of typed SCDOT Soil Boring Logs;
- Performing soil laboratory tests including natural moisture contents, Atterberg Limits and Wash No. 200 Gradation tests;
- Preparation of this geotechnical subsurface data report by professional engineers.

This report was prepared in general accordance with the 2010 SCDOT Geotechnical Design Manual (GDM), Version 1.1.

Our scope of services did not include identification and evaluation of appropriate foundation systems for the proposed replacement culvert, design capacities and other environmental aspects of the project site.

2.0 PROJECT INFORMATION

2.1 Site Description

The project site is on Bluff Road (State Route SC 48) located between Congaree Church Road and Griffins Creek Road in Richland County, South Carolina. Toms Creek flows in a north-south direction and crosses below Bluff Road at approximately 130 ft east of the intersection with Congaree Church Road. The area around the creek and the road is generally wooded. Project surroundings are shown on the attached Site Vicinity Map in Appendix I, Figure No. 1.

2.2 Project Description

Recent flooding in the region has caused extensive erosion around the culvert and resulted in a complete loss. Emergency replacement of portions of the roadway and culvert is planned. For this purpose, the geotechnical subsurface investigation and laboratory testing is required by SCDOT and will form part of a preliminary investigation of the site.

3.0 SUBSURFACE INVESTIGATION

3.1 Subsurface Investigation Program

The subsurface investigation program consisted of four soil test borings (STB). The borings, designated as B-01 and B-03 were advanced to a termination depth of 100 ft below the existing ground surface on the approaches to the previous culvert location. The borings designated as B-02 and B-04 were advanced to a termination depth of 30 ft below the existing ground surface close to the washed-out pavement shoulders near the previous culvert location. Approximate boring locations are identified on the Boring Location Plan included in Appendix I as Figure No. 2. Photographs of Borings B-01 through B-04 being drilled are also included in Appendix I as Figure No. 3A through 3D.

3.2 Location Control

The STB locations were staked in the field by personnel from our office following instructions from your office. Borings B-01 and B-03 were drilled close to the centerline of the existing alignment at approximately 23 to 24 feet from the remaining edge of the culvert approach closest to the creek. Borings B-01 and B-04 were drilled in the pavement adjacent to the washed-out shoulder areas. The ground surface elevation at the borings locations were not provided to us at the time of this writing. GPS coordinates of Borings B-01 (Latitude 33.841829 / Longitude -80.731278), B-02 (Latitude 33.841713 and Longitude -80.730175), B-03 (Latitude 33.841876 and Longitude -80.731754) and B-04 (Latitude 33.841944 and Longitude -80.732346) were obtained with a portable hand-held GPS and are recorded on the soil boring logs included in Appendix II of this report. Boring locations should be considered no more accurate that the methods and plans used to obtain them.

3.3 Subsurface Investigation Procedure

Subsurface investigation was performed on October 20, 2015 using an ATV-mounted CME/550X and truck-mounted CME/550 drill rigs. The drill rigs used for this project were equipped with an automatic hammer and the drilling method used was the wash rotary boring. The energy ratio of this ATV-mounted hammer reported to us indicates 86% and that for the truck-mounted hammer indicates 74%. SPT tests at boring locations were performed continuously from the existing ground surface to a depth of 10 feet. Thereafter, boreholes were advanced and SPT performed at approximate 5-foot intervals to their termination depths. The Standard Penetration Test (SPT) was performed at the boring locations in general accordance with ASTM D1586.

Soil samples were obtained with a long split-spoon sampler with each SPT being driven with a 140-lb automatic hammer falling 30 inches. The number of blows required to drive the sampler each 6-inch increment of penetration was recorded and are shown on the boring logs. The first six-inch increment is used to seat the sampler with the sum of the second and third penetration increments being termed the SPT value, "N". A representative portion of each disturbed split-spoon sample was collected with each SPT, placed in a glass jar, and returned to our laboratory for review and testing.

The recovered split-spoon samples were visually classified by F&R engineers in general accordance with the ASTM D2488. The boring logs provided in Appendix II show the subsurface conditions encountered on the dates and at the approximate locations indicated.

By the nature of the work performed, the drilling activities result in disturbances to the site. The completed boreholes performed were backfilled upon completion. The borehole backfill may subside at some time following our work. F&R assumes no responsibility for borehole subsidence after completion of the field investigation and departing the site.

3.4 Groundwater

Groundwater was encountered in all borings at depths of approximately 8 and 17.5 feet. The test borings were backfilled after completion of drilling for safety. The depth at which groundwater was encountered in each individual boring is indicated on the attached soil boring logs in Appendix II.

The groundwater levels at the boring locations were determined based on our observation of free water in the split-spoon soil samples following removal of the sampler. Upon completion of drilling, the boreholes were backfilled for safety, hence the absence of 24-hour water level readings on the boring logs.

The groundwater levels on the soil boring logs indicate our estimate of the hydrostatic water table at the time of our investigation. The final design should anticipate the fluctuation of the hydrostatic water table depending on variations in precipitation, surface runoff, evaporation, creek levels and similar factors.

4.0 LABORATORY TESTING

Laboratory testing consisted of Atterberg Limits Tests, No. 200 Sieve Cut grain size analyses (Wash #200), and Natural Moisture Content tests performed on specific soil samples. The specific tests performed on the selected samples are listed in Table No. 1 below.

Table No. 1: Soil Laboratory Tests Performed on Selected Soil Samples

Item	Boring	Depth (ft)	Atterberg Limits	Percent Fines Wash # 200	Natural Moisture Content
1	B-01	4 – 6	-	yes	yes
2	B-01	18.5 – 20	-	yes	yes
3	B-01	28.5 – 30	-	yes	yes
4	B-01	38.5 – 40	yes	yes	yes
5	B-01	48.5 – 50	yes	yes	yes
6	B-01	58.5 – 60	yes	yes	yes
7	B-01	68.5 – 70	-	yes	yes
8	B-01	73.5 – 75	-	yes	yes
9	B-02	13.5 – 15	-	yes	yes
10	B-02	23.5 – 25	yes	yes	yes
11	B-03	18.5 – 20	-	yes	yes
12	B-03	28.5 – 30	-	yes	yes
13	B-03	33.5 – 35	yes	yes	yes
14	B-03	43.5 – 45	-	yes	yes
15	B-03	53.5 – 55	-	yes	yes
16	B-03	63.5 – 65	yes	yes	yes
17	B-03	68.5 – 70	-	yes	yes
18	B-03	78.5 – 80	-	yes	yes
19	B-04	6 – 8	-	yes	yes
20	B-04	23.5 – 25	-	yes	yes

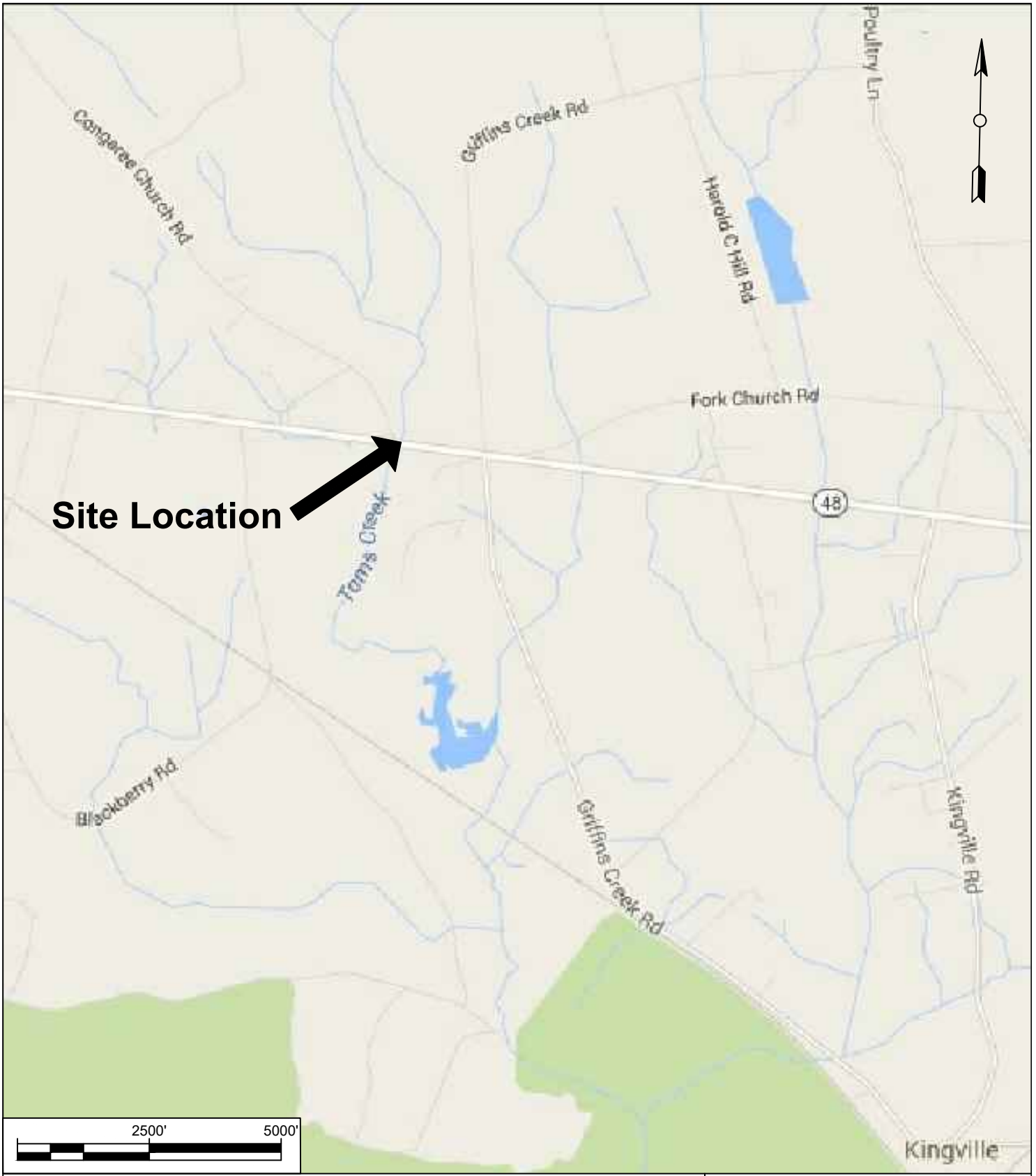
The laboratory testing results are presented in Appendix III and the laboratory test data sheets are presented in Appendix IV.

F&R greatly appreciates the opportunity to work with you on this project. If there are any questions concerning this report or if any additional information is required, please do not hesitate to contact us.

6.0 LIMITATIONS

This report has been prepared for the exclusive use of South Carolina Department of Transportation or their agent, for specific application to the referenced site in accordance with generally accepted soil and foundation engineering practices. No other warranty, express or implied, is made. Our investigation is based on site location information furnished to us; and generally accepted geotechnical engineering practice. The subsurface investigation logs included herein, do not reflect variations in subsurface conditions which could exist intermediate of the boring locations or in unexplored areas of the site. Should such variations become apparent during construction, it will be necessary to perform additional subsurface investigations based upon on-site observations of the conditions.

APPENDIX I



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DATE: 10/23/2015

CLIENT: SCDOT

PROJECT NO.: 65T-0191

Site Vicinity Map
Emergency Bridge Package 1 - Bluff Road
Richmond County, South Carolina

Figure No. 1

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DATE: 10/23/2015

CLIENT: SCDOT

PROJECT NO.: 65T-0191

Boring Location Map
Emergency Bridge Package 1 - Bluff Road
Richmond County, South Carolina

Figure No. 2

Figure No. 3A - Photograph of Boring B-01 Being Drilled

Figure No. 3B - Photograph of Boring B-02 (Red dot on pavement

Figure No. 3C - Photograph of Boring B-03 Being Drilled

Figure No. 3D - Photograph of Boring B-04 (Red dot on pavement)

APPENDIX II

SCDOT Soil Test Boring Log

File No.:	65T-0191	**Project No. (PIN):**	P029318	**County:**	Richland	**Eng./Geo.:**	SCI
Site Description:	SCDOT - Emergency Bridge Package 1 - Bluff Road Over Toms Creek					**Route:**	SC 48
Boring No.:	B-01	**Boring Location:**		**Offset:**		**Alignment:**	Existing
Elev.:	ft	**Latitude:**	33.841829	**Longitude:**	-80.731278	**Date Started:**	10/20/15
Total Depth:	100 ft	**Soil Depth:**	100 ft	**Core Depth:**	0 ft	**Date Completed:**	10/20/2015
Bore Hole Diameter (in):		**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550X	**Drill Method:**	Rotary Wash	**Hammer Type:**	Automatic	**Energy Ratio:**	86%
Core Size:		**Driller:**	SCI	**Groundwater:**	**TOB** 17.5 ft	**24HR**	N/A

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	SPT N VALUE / PL MC LL / FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
	0.0			0.0						
	0.5	Asphalt Pavement 6"								
	2.0	**FILL**, medium dense, moist, dark brown and gray, fine to coarse, **SILTY SAND (SM/A-2-4)**, contains clay lenses Munsel: 10YR 3/3		2.0	1/SS	8	7	5	12	
		very loose to loose, moist, pinkish brown, fine to coarse, **CLAYEY SAND (SC/A-2-6)** Munsel: 5YR 7/3 & 10YR 5/3		4.0	2/SS	1	3	3	6	
		soft, moist contains organics		6.0	3/SS	1	2	2	4	
				8.0	4/SS	1	1	1	2	
					5/SS	1	1	1	2	
				13.5						
		dense, mostly organics			6/SS	4	7	22	29	
	17.5			18.5						
		ALLUVIUM, medium dense, wet, light brown, medium to coarse, **POORLY GRADED SAND (SP/A-3)** Munsel: 7.5YR 6/3 SS-7: NMC=18.6%, %200=3.9			7/SS	5	7	8	15	
				23.5						
					8/SS	6	11	15	26	
	27.5			28.5						
		medium dense, wet, white, fine to coarse, **SILTY SAND (SM/A-1-b)** Munsel: 10YR 8/1 SS-9: NMC=25.7%, %200=14.2			9/SS	7	7	15	22	
				33.5						
					10/SS	7	10	11	21	

LEGEND

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

SCDOT Soil Test Boring Log

File No.:	65T-0191	**Project No. (PIN):**	P029318	**County:**	Richland	**Eng./Geo.:**	SCI
Site Description:	SCDOT - Emergency Bridge Package 1 - Bluff Road Over Toms Creek					**Route:**	SC 48
Boring No.:	B-01	**Boring Location:**		**Offset:**		**Alignment:**	Existing
Elev.:	ft	**Latitude:**	33.841829	**Longitude:**	-80.731278	**Date Started:**	10/20/15
Total Depth:	100 ft	**Soil Depth:**	100 ft	**Core Depth:**	0 ft	**Date Completed:**	10/20/2015
Bore Hole Diameter (in):		**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550X	**Drill Method:**	Rotary Wash	**Hammer Type:**	Automatic	**Energy Ratio:**	86%
Core Size:		**Driller:**	SCI	**Groundwater:**	**TOB** 17.5 ft	**24HR**	N/A

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	SPT N VALUE / PL MC LL / FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
	37.5	**COASTAL PLAIN**, hard, moist, gray, **SANDY LEAN CLAY (CL/A-6)** Munsel: 10YR 6/1 SS-11: LL=31, PL=19, PI=12, NMC=18.4%, %200=67.1		38.5	11/SS	11	23	28	51	
	42.5	hard, moist, gray, **ELASTIC SILT (MH/A-5)** Munsel: 10YR 6/1		43.5	12/SS	6	14	15	29	
	47.5	very stiff, wet, light yellowish brown, **SILTY SAND (SM/A-4)** Munsel: 10YR 6/4 SS-13: NMC=30.7%, %200=42.0		48.5	13/SS	5	7	12	19	
	52.5	medium dense, wet, pinkish brown, fine to coarse, **SILTY SAND (SM/A-2-4)** Munsel: 5YR 7/3 & 10YR 5/3		53.5	14/SS	3	6	5	11	
	57.5	dense, wet, brown, fine to coarse, **POORLY GRADED SAND (SP/A-3)** Munsel: 10YR 5/3 SS-15: NMC=19.0%, %200=10.2		58.5	15/SS	7	15	20	35	
	62.5	dense, wet, light brown, fine to coarse, **SILTY SAND (SM/A-1-b)** Munsel: 7.5YR 6/3		63.5	16/SS	8	15	20	35	
	67.5	very dense, wet, light brown, fine, **SILTY SAND (SM/A-1-b)** Munsel: 7.5YR 6/3		68.5	17/SS	8	18	22	40	

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LEGEND

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

SCDOT Soil Test Boring Log

File No.:	65T-0191	**Project No. (PIN):**	P029318	**County:**	Richland	**Eng./Geo.:**	SCI
Site Description:	SCDOT - Emergency Bridge Package 1 - Bluff Road Over Toms Creek					**Route:**	SC 48
Boring No.:	B-01	**Boring Location:**		**Offset:**		**Alignment:**	Existing
Elev.:	ft	**Latitude:**	33.841829	**Longitude:**	-80.731278	**Date Started:**	10/20/15
Total Depth:	100 ft	**Soil Depth:**	100 ft	**Core Depth:**	0 ft	**Date Completed:**	10/20/2015
Bore Hole Diameter (in):		**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550X	**Drill Method:**	Rotary Wash	**Hammer Type:**	Automatic	**Energy Ratio:**	86%
Core Size:		**Driller:**	SCI	**Groundwater:**	**TOB** 17.5 ft	**24HR**	N/A

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
		SS-17: NMC=30.1%, %200=17.7							
	72.5	very dense, wet, brown, fine to medium, **SILTY SAND(SM/A-2-4)** Munsel: 10YR 5/3 SS-18: NMC=20.8%, %200=26.9		73.5	18/SS	11	18	23	41
				78.5	19/SS	12	22	28	50
	82.5	hard, moist, brown, **SANDY ELASTIC SILT (MH/A-5)** Munsel: 10YR 5/3		83.5	20/SS	12	18	25	43
	87.5	dense, wet, brown, fine to medium, **SILTY SAND (SM/A-2-4)** Munsel: 10YR 5/3		88.5	21/SS	6	11	19	30
		very dense, wet, reddish brown Munsel: 5YR 4/4		93.5	22/SS	10	16	24	40
	97.5	hard, moist, gray, **FAT CLAY (CH/A-7-6)** Munsel: 5YR 6/1		98.5	23/SS	15	33	35	68
	100.0								

SPT N VALUE

PL MC LL

FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

LEGEND

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

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SCDOT Soil Test Boring Log

File No.:	65T-0191	**Project No. (PIN):**	P029318	**County:**	Richland	**Eng./Geo.:**	SCI
Site Description:	SCDOT - Emergency Bridge Package 1 - Bluff Road Over Toms Creek					**Route:**	SC 48
Boring No.:	B-02	**Boring Location:**		**Offset:**		**Alignment:**	Existing
Elev.:	ft	**Latitude:**	33.841713	**Longitude:**	-80.730175	**Date Started:**	10/20/15
Total Depth:	30 ft	**Soil Depth:**	30 ft	**Core Depth:**	0 ft	**Date Completed:**	10/20/2015
Bore Hole Diameter (in):		**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550X	**Drill Method:**	Rotary Wash	**Hammer Type:**	Automatic	**Energy Ratio:**	86%
Core Size:		**Driller:**	SCI	**Groundwater:**	**TOB** 8 ft	**24HR**	N/A

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.5	Asphalt Pavement 6"		0.0	1/SS	7	14	10	24
	2.0	**FILL**, dense, moist, grayish brown, fine to coarse, **CLAYEY SAND (SC/A-2-6)** Munsel: 10YR 5/2		2.0	2/SS	1	2	4	6
	4.0	firm, moist, gray and brown, **SANDY FAT CLAY (CH/A-7-6)** Munsel: 10YR 5/2		4.0	3/SS	1	5	10	15
	6.0	medium dense, moist, brownish gray, fine to coarse, **SILTY SAND (SM/A-2-4)** Munsel: 10YR 6/2		6.0	4/SS	4	4	3	7
	8.0	loose, moist, brownish gray, fine to medium, **POORLY GRADED SAND with SILT (SP-SM/A-1-b)** Munsel 10YR 6/2		8.0	5/SS	WOH/18"			1
	12.5	**ALLUVIUM**, very soft, wet, gray, **SANDY LEAN CLAY (CL/A-6)** Munsel: 10YR 6/1		13.5	6/SS	6	10	13	23
	17.5	medium dense, wet, gray, fine, **SILTY SAND (SM/A-1-b)** Munsel: 10YR 6/1 SS-6: NMC=20.5%, %200=18.3		18.5	7/SS	6	10	19	29
		hard, moist, light gray and brown, **FAT CLAY TRACE SAND (CH/A-7-6)** Munsel: 10YR 7/1 & 5/3 SS-8: LL=62, PL=29, PI=33, NMC=26.5%, %200=85.2		23.5	8/SS	9	16	25	41
				28.5	9/SS	11	15	22	37
	30.0								

SPT N VALUE

PL MC LL

FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

LEGEND

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

SC_DOT BLUFF ROAD.GPJ SC_DOT.GDT 10/27/15

SCDOT Soil Test Boring Log

File No.:	65T-0191	**Project No. (PIN):**	P029318	**County:**	Richland	**Eng./Geo.:**	SCI
Site Description:	SCDOT - Emergency Bridge Package 1 - Bluff Road Over Toms Creek					**Route:**	SC 48
Boring No.:	B-03	**Boring Location:**		**Offset:**		**Alignment:**	Existing
Elev.:	ft	**Latitude:**	33.841876	**Longitude:**	-80.731754	**Date Started:**	10/19/15
Total Depth:	100 ft	**Soil Depth:**	100 ft	**Core Depth:**	0 ft	**Date Completed:**	10/20/2015
Bore Hole Diameter (in):		**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550	**Drill Method:**	Rotary Wash	**Hammer Type:**	Automatic	**Energy Ratio:**	79%
Core Size:		**Driller:**	SCI	**Groundwater:**	**TOB** 8 ft	**24HR**	N/A

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.5	Asphalt Pavement 6"		0.0	1/SS	6	6	4	10
		FILL, medium dense, moist, brown and gray, fine to coarse, **SILTY SAND (SM/A-2-4)**		2.0	2/SS	1	1	1	2
		Munsel: 10YR 5/3 & 6/1							
	4.0			4.0	3/SS	2	2	3	5
		loose, moist, brown, fine to coarse, **CLAYEY SAND (SC/A-2-6)**		6.0	4/SS	2	2	3	5
		Munsel: 10YR 5/3							
	8.0	gray		8.0	5/SS	2	2	4	6
		Munsel: 7.5YR 6/1							
		loose, wet, grayish brown, fine to coarse, **CLAYEY SAND (SC/A-2-6)**							
		Munsel: 10YR 5/2							
	12.5			13.5	6/SS	1	1	1	2
		ALLUVIUM, very soft, wet, brownish gray, **FAT CLAY (CH/A-7-6)**							
		Munsel: 10YR 6/2							
	17.5			18.5	7/SS	2	7	8	15
		medium dense, wet, grayish brown, fine to coarse, **POORLY GRADED SAND WITH SILT (SP-SM/A-3)**							
		Munsel: 10YR 5/2							
		SS-7: NMC=16.3%, %200=7.4%							
				23.5	8/SS	10	11	13	24
		dense, light brown							
		Munsel: 7.5YR 6/3							
	27.5			28.5	9/SS	10	15	17	32
		dense, wet, light brown, fine to medium, **POORLY GRADED SAND with SILT (SP-SM/A-3)**							
		Munsel: 7.5YR 6/3							
		SS-9: NMC=20.3%, %200=8.8							
	32.5			33.5	10/SS	8	10	18	28
		COASTAL PLAIN, hard, moist, light gray and light brown, **SANDY FAT CLAY (CH/A-7-6)**							

SPT N VALUE

PL MC LL

FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

LEGEND

Continued Next Page

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

SCDOT Soil Test Boring Log

File No.:	65T-0191	**Project No. (PIN):**	P029318	**County:**	Richland	**Eng./Geo.:**	SCI
Site Description:	SCDOT - Emergency Bridge Package 1 - Bluff Road Over Toms Creek					**Route:**	SC 48
Boring No.:	B-03	**Boring Location:**		**Offset:**		**Alignment:**	Existing
Elev.:	ft	**Latitude:**	33.841876	**Longitude:**	-80.731754	**Date Started:**	10/19/15
Total Depth:	100 ft	**Soil Depth:**	100 ft	**Core Depth:**	0 ft	**Date Completed:**	10/20/2015
Bore Hole Diameter (in):		**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550	**Drill Method:**	Rotary Wash	**Hammer Type:**	Automatic	**Energy Ratio:**	79%
Core Size:		**Driller:**	SCI	**Groundwater:**	**TOB** 8 ft	**24HR**	N/A

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	SPT N VALUE / PL MC LL / FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
		Munsel: 7.5YR 7/1 SS-10: LL=52, PL=27, PI=25, NMC=21.7%, %200=74.7								
	37.5	hard, moist, gray, **SANDY LEAN CLAY (CL/A-4)** Munsel: 7.5YR 6/1		38.5	11/SS	9	12	18	30	
	42.5	medium dense, wet, light pinkish brown, fine to medium, **SILTY SAND (SM/A-1-b)** Munsel: 5YR 7/3 & 10YR 5/3 SS-12: NMC=21.1%, %200=18.3		43.5	12/SS	8	9	9	18	
				48.5	13/SS	8	10	11	21	
	52.5	medium dense, wet, brown and gray, fine to medium, **SILTY SAND (SM/A-1-b)** Munsel: 10YR 5/3 & 6/1 SS-14: NMC=23.1, %200=19.3		53.5	14/SS	8	8	10	18	
	57.5	medium dense, wet, light brown, fine to medium, **POORLY GRADED SAND with SILT (SP-SM/A-3)** Munsel: 7.5YR 6/3		58.5	15/SS	8	7	8	15	
	62.5	hard, moist, light brown, **SILTY SAND (SM/A-2-4)** Munsel: 7.5YR 6/3 SS-16: NMC=28.0%, %200=27.3		63.5	16/SS	7	13	18	31	
	67.5	very dense, moist, light brown and light gray, fine to medium, **POORLY GRADED SAND with SILT (SP-SM/A-1-b)**		68.5	17/SS	17	21	21	42	

LEGEND

Continued Next Page

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

SC_DOT BLUFF ROAD.GPJ SC_DOT.GDT 10/27/15

SCDOT Soil Test Boring Log

File No.:	65T-0191	**Project No. (PIN):**	P029318	**County:**	Richland	**Eng./Geo.:**	SCI
Site Description:	SCDOT - Emergency Bridge Package 1 - Bluff Road Over Toms Creek					**Route:**	SC 48
Boring No.:	B-03	**Boring Location:**		**Offset:**		**Alignment:**	Existing
Elev.:	ft	**Latitude:**	33.841876	**Longitude:**	-80.731754	**Date Started:**	10/19/15
Total Depth:	100 ft	**Soil Depth:**	100 ft	**Core Depth:**	0 ft	**Date Completed:**	10/20/2015
Bore Hole Diameter (in):		**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550	**Drill Method:**	Rotary Wash	**Hammer Type:**	Automatic	**Energy Ratio:**	79%
Core Size:		**Driller:**	SCI	**Groundwater:**	**TOB** 8 ft	**24HR**	N/A

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	● SPT N VALUE ● PL MC LL ▲ FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
		Munsel: 7.5 YR 6/3 SS-17: NMC=19.0%, %200=11.0 SS-19: NMC=19.8%, %200=7.7		73.5	18/SS	14	15	18	33	
				78.5	19/SS	18	21	26	47	
	82.5	hard, moist, gray, **SANDY SILT (ML/A-4)** Munsel: 10YR 6/1		83.5	20/SS	25	35	50	85	
				88.5	21/SS	20	37	47	84	
	92.5	dense, wet, light grayish brown, fine to medium, **POORLY GRADED SAND with SILT (SP-SM/A-1-b)** Munsel: 10YR 5/2		93.5	22/SS	16	15	16	31	
				98.5	23/SS	14	12	11	23	
	100.0									

LEGEND

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

SCDOT Soil Test Boring Log

File No.:	65T-0191	**Project No. (PIN):**	P029318	**County:**	Richland	**Eng./Geo.:**	SCI
Site Description:	SCDOT - Emergency Bridge Package 1 - Bluff Road Over Toms Creek					**Route:**	SC 48
Boring No.:	B-04	**Boring Location:**		**Offset:**		**Alignment:**	Existing
Elev.:	ft	**Latitude:**	33.841944	**Longitude:**	-80.732346	**Date Started:**	10/20/15
Total Depth:	30 ft	**Soil Depth:**	30 ft	**Core Depth:**	0 ft	**Date Completed:**	10/20/2015
Bore Hole Diameter (in):		**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550	**Drill Method:**	Rotary Wash	**Hammer Type:**	Automatic	**Energy Ratio:**	79%
Core Size:		**Driller:**	SCI	**Groundwater:**	**TOB** 8 ft	**24HR**	N/A

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	SPT N VALUE / PL MC LL / FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
	0.0			0.0						
	0.5	Asphalt Pavement 6"								
		FILL, medium dense, moist, brownish gray, fine to coarse, **CLAYEY SAND (SC/A-2-6)**		2.0	1/SS	5	7	12	19	
		Munsel: 10YR 6/2								
		loose		4.0	2/SS	1	1	4	5	
					3/SS	3	2	2	4	
	6.0			6.0						
		medium dense, moist, brownish gray, fine to medium, **SILTY SAND (SM/A-1-b)**			4/SS	1	2	9	11	
	8.0	Munsel: 10YR 6/2		8.0						
		SS-4: NMC=10.3%, %200=18.9			5/SS	3	2	2	4	
	10.0									
		ALLUVIUM, firm, wet, gray, **SANDY LEAN CLAY (CL/A-6)**								
		Munsel: 10YR 6/1								
	12.5			13.5						
		medium dense, wet, brown, **SILTY GRAVEL (GM/A-1-b)**			6/SS	9	10	6	16	
		Munsel: 10YR 5/3								
		dense, wet, pinkish brown, fine to medium, **POORLY GRADED SAND with SILT (SP-SM/A-1-b)**		18.5						
		Munsel: 5YR 7/3 & 10YR 5/3			7/SS	9	9	16	25	
		SS-8: NMC=20.7%, %200=10.4								
				23.5						
					8/SS	4	16	18	34	
				28.5						
		medium dense			9/SS	7	10	11	21	
	30.0									

LEGEND

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

SC_DOT BLUFF ROAD.GPJ SC_DOT.GDT 10/27/15

APPENDIX III

FROEHLING & ROBERTSON, INC.

LABORATORY TEST SUMMARY SHEET

F&R Project No: 65T-0191
Client: South Carolina Department of Transportation
Project: SC 48 Bluff Road Bridge over Toms Creek
SCDOT Proj ID P029341
City/State: Richland County, SC

Boring/Sample No.	Depth (ft)	LL	PL	PI	USCS Classification	Water Content (%)	Percent Passing No. 200 Sieve
B-01	4 – 6					21.0	29.7
B-01	18.5 – 20					18.6	3.9
B-01	28.5 – 30					25.7	14.2
B-01	38.5 – 40	31	19	12	CL	18.4	67.1
B-01	48.5 – 50	NP	NP		SM	30.7	42.0
B-01	58.5 – 60	NP	NP		SP-SM	19.0	10.2
B-01	68.5 – 70					30.1	17.7
B-01	73.5 – 75					20.8	26.9
B-02	13.5 – 15					20.5	18.3
B-02	23.5 – 25	62	29	33	CH	26.5	85.2
B-03	18.5 – 20					16.3	7.4
B-03	28.5 – 30					20.3	8.8
B-03	33.5 – 35	52	27	25	CH	21.7	74.7
B-03	43.5 – 45					21.1	18.3
B-03	53.5 – 55					23.1	19.3
B-03	63.5 – 65	NP	NP		SM	28.0	27.3
B-03	68.5 – 70					19.0	11.0
B-03	78.5 – 80					19.8	7.7
B-04	6 – 8					10.3	18.9
B-04	23.5 – 25					20.7	10.4

NP: non-plastic

Date: 10/26/15

APPENDIX IV

BLUFF RD.

	MOIST.	-200
B-1 4-5.5	21.0%	29.7%
B-1 18.5-20	18.6	3.9
B-1 28.5-30	25.7	14.2
B-1 38.5-40	18.4	67.1
B-1 48.5-50	30.7	42.0
B-1 58.5-60	19.0	10.2
B-1 68.5-70	30.1	17.7
B-1 73.5-75	20.8	26.9

SINCE F&R 1881

FROEHLING & ROBERTSON, INC.
FULL SERVICE LABORATORIES • ENGINEERS & CHEMISTS

DATE:
SCALE:
DRWN:
DWG. NO.

FORM NO. 508

BLUFF RD.

	MOIST.	-200
B-2 13.5-15	20.5	18.3
B-2 23.5-20	26.5	85.2
B-4 6-7.5	10.3	18.9
B-4 23.5-25	20.7	10.4

SINCE F&R 1881

FROEHLING & ROBERTSON, INC.
FULL SERVICE LABORATORIES • ENGINEERS & CHEMISTS

DATE:
SCALE:
DRWN:

DWG. NO.

FORM NO. 508

BLUFF RD.

		Moist.	-200
7	B-3 18.5-20	16.3%	7.1%
9	B-3 28.5-30	20.3	8.8
10	B-3 33.5-35	21.7	74.7
12	B-3 43.5-45	21.1	18.3
14	B-3 53.5-55	23.1	19.3
16	B-3 63.5-65	28.0	27.3
17	B-3 68.5-70	19.0	11.0
19	B-3 78.5-80	19.8	7.7

SINCE F&R 1881

FROEHLING & ROBERTSON, INC.
FULL SERVICE LABORATORIES • ENGINEERS & CHEMISTS

DATE:
SCALE:
DRWN:
DWG. NO.

FORM NO. 508

BLUFF RD.

MOISTURE CONTENT (%)

	#1	#2	#3	#4	#5	#6	#7 *
Sample I.D	B-1 4-5.5		B-1 18.5-20		B-1 28.5-30		B-1 38.5-40
Wet Soil + Tare	478.88		526.13		658.81		478.43
Dry Soils + Tare	421.70		466.80		554.38		435.76
Tare # & Weight	S3 149.25		S-1 147.11		S21 147.73		AD 204.36
Weight of Water	57.18		59.33		104.43		42.67
Weight of Dry Soils	272.45		319.69		406.65		231.40
Moisture Content	0.210		0.186		0.257		0.184

	#8 *	#9	#10 *	#11	#12	#13	#14
Sample I.D.	B-1 48.5-50		B-1 58.5-60		B-1 68.5-70		B-1 73.5-75.0
Wet Soil + Tare	519.75		415.75		517.10		504.54
Dry Soils + Tare	431.92		372.72		431.78		442.96
Tare # & Weight	K 145.37		L 146.27		S10 148.27		S6 146.53
Weight of Water	87.83		43.03		85.32		61.58
Weight of Dry Soils	286.55		226.45		283.51		296.43
Moisture Content	0.307		0.190		0.301		0.208

	#15	#16	#17	#18	#19	#20	#21
Sample I.D.							
Wet Soil + Tare							
Dry Soils + Tare							
Tare # & Weight							
Weight of Water							
Weight of Dry Soils							
Moisture Content							

	#22	#23	#24	#25	#26	#27	#28
Sample I.D.							
Wet Soil + Tare							
Dry Soils + Tare							
Tare # & Weight							
Weight of Water							
Weight of Dry Soils							
Moisture Content							

BLUFF RD.

MOISTURE CONTENT (%)

	#1	#2	#3	#4	#5	#6	#7
Sample I.D	B-2 13.5-15		B-2 23.5-25.0				
Wet Soil + Tare	561.95		377.18				
Dry Soils + Tare	491.46		329.35				
Tare # & Weight	521 147.68		53 149.14				
Weight of Water	70.49		47.83				
Weight of Dry Soils	343.78		180.21				
Moisture Content	0.205		0.265				

	#8	#9	#10	#11	#12	#13	#14
Sample I.D.	B-4 6-7.5		B-4 23.5-25				
Wet Soil + Tare	390.01		381.66				
Dry Soils + Tare	367.36		341.25				
Tare # & Weight	S-7 147.08		L 146.22				
Weight of Water	22.65		40.41				
Weight of Dry Soils	220.28		195.03				
Moisture Content	0.103		0.207				

	#15	#16	#17	#18	#19	#20	#21
Sample I.D.							
Wet Soil + Tare							
Dry Soils + Tare							
Tare # & Weight							
Weight of Water							
Weight of Dry Soils							
Moisture Content							

	#22	#23	#24	#25	#26	#27	#28
Sample I.D.							
Wet Soil + Tare							
Dry Soils + Tare							
Tare # & Weight							
Weight of Water							
Weight of Dry Soils							
Moisture Content							

BLUFF RD

MOISTURE CONTENT (%) *

	#1	#2	#3	#4	#5	#6	#7
Sample I.D	B-3 18.5-20		B-3 28.5-30		B-3 33.5-35		B-3 43.5-45
Wet Soil + Tare	448.16		415.41		310.08		509.96
Dry Soils + Tare	406.23		370.54		281.20		446.99
Tare # & Weight	G 149.48		S 149.35		S8 147.86		S9 148.62
Weight of Water	41.93		44.87		28.88		62.97
Weight of Dry Soils	256.75		221.19		133.34		298.37
Moisture Content	0.163		0.203		0.217		0.211

*

	#8	#9	#10	#11	#12	#13	#14
Sample I D.	B-3 53.5-55		B-3 63.5-65		B-3 68.5-70		B-3 78.5-80
Wet Soil + Tare	491.26		325.90		447.77		484.54
Dry Soils + Tare	437.48		286.53		399.80		438.17
Tare # & Weight	L 204.25		B 146.07		S123 147.55		AE 204.26
Weight of Water	53.78		39.37		47.97		46.37
Weight of Dry Soils	233.23		146.46		252.25		233.91
Moisture Content	0.231		0.280		0.190		0.198

	#15	#16	#17	#18	#19	#20	#21
Sample I.D.							
Wet Soil + Tare							
Dry Soils + Tare							
Tare # & Weight							
Weight of Water							
Weight of Dry Soils							
Moisture Content							

	#22	#23	#24	#25	#26	#27	#28
Sample I.D.							
Wet Soil + Tare							
Dry Soils + Tare							
Tare # & Weight							
Weight of Water							
Weight of Dry Soils							
Moisture Content							

SP1 A2

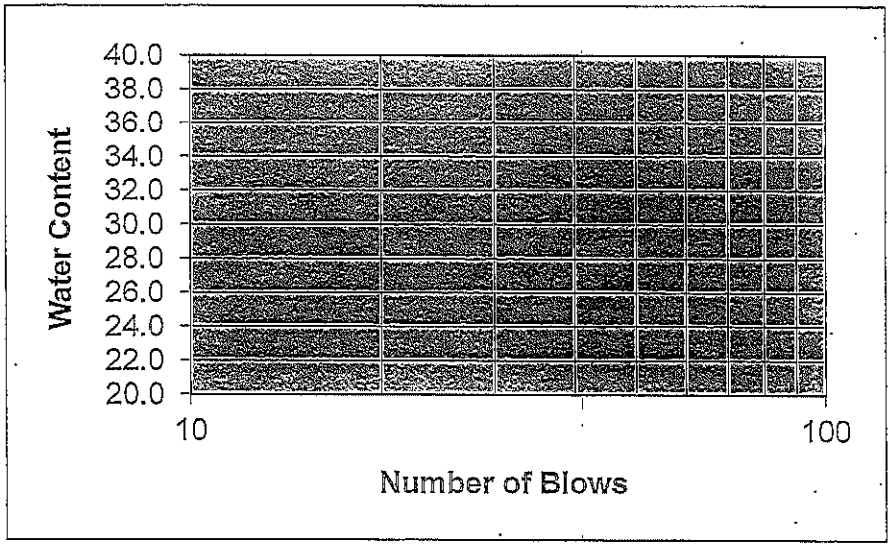
Froehling & Robertson, Inc.
Laboratory Sample Analyses

Client: SCDOT
Project: BLUFF RD.
F&R Project No.:
Item Code/Use:

Material:
Sample No: 11
Location: B-1 38.5-40
Source:

Date Received: 10/22/15
Date Processed:

Liquid Limit				
Tare No.	D10	8	85	
Cup & Wet Soil	37.31	37.64	37.33	
Cup & Dry Soil	34.12	34.24	33.91	
Moisture Loss	3.19	3.40	3.42	
Cup Weight	23.14	23.09	23.16	
Dry Soil	10.98	11.15	10.75	
Blows	34	26	18	
Moisture %	0.291	0.305	0.318	
Plastic Limit				
Tare No.	M1	DG		
Cup & Wet Soil	29.47	29.32		
Cup & Dry Soil	28.44	28.31		
Moisture Loss	1.03	1.01		
Cup Weight	23.04	22.99		
Dry Soil	5.40	5.32		
Moisture %	0.191	0.190		



Laboratory Technician: D. Durham
Reviewed By: B. Azumah
Program Administrator

LL =
PL =
PI =
USCS =

$$LL = 30.5\left(\frac{28}{25}\right)^{0.121} = 31$$

PL = 19

PI = 12

SP2

123

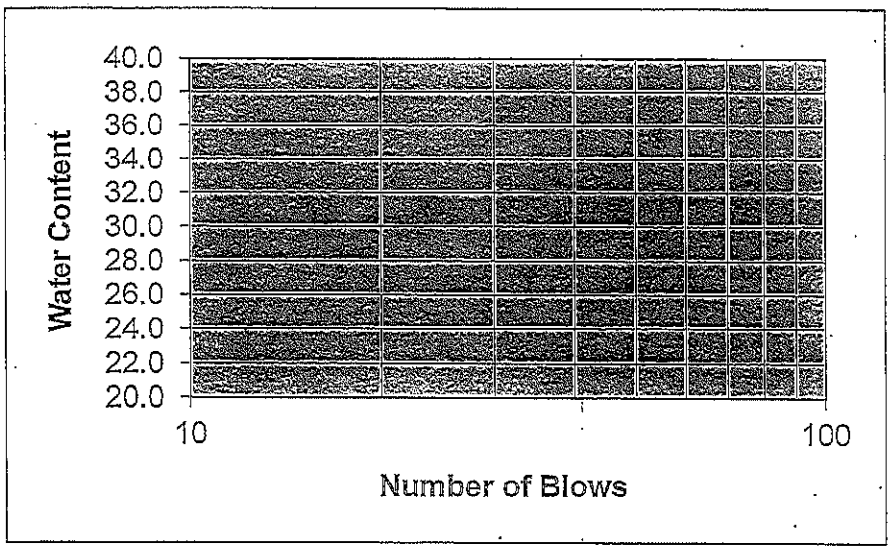
Froehling & Robertson, Inc.
Laboratory Sample Analyses

Client: SCDOT
Project: BLUFF RD.
F&R Project No.:
Item Code/Use:

Material
Sample No: 13
Location: B-1 48.5 - 50
Source:

Date Received: 10/22/15
Date Processed:

Liquid Limit				
Tare No.				
Cup & Wet Soil				
Cup & Dry Soil				
Moisture Loss	NON-PLASTIC			
Cup Weight				
Dry Soil				
Blows				
Moisture %				
Plastic Limit				
Tare No.				
Cup & Wet Soil				
Cup & Dry Soil				
Moisture Loss				
Cup Weight				
Dry Soil				
Moisture %				



LL =
PL =
PI =
USCS =

Laboratory Technician:
Reviewed By:
Program Administrator

PI DD

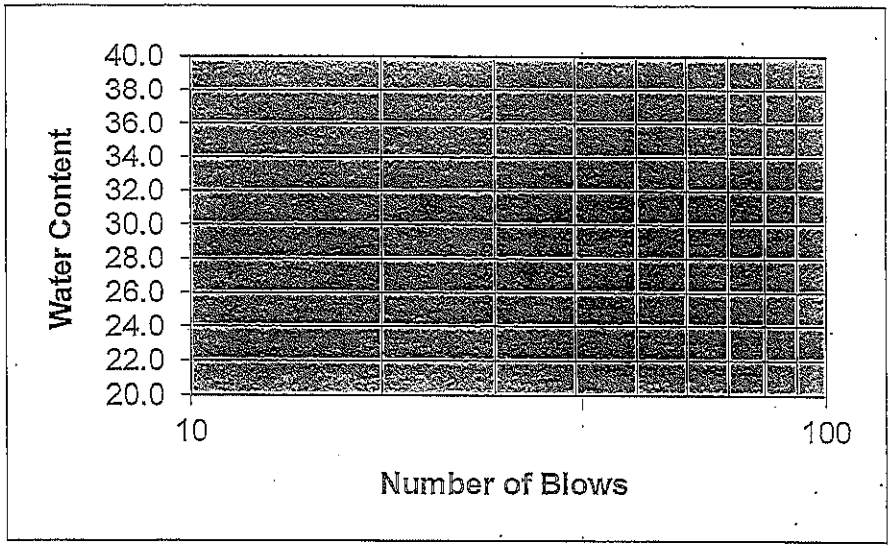
Froehling & Robertson, Inc.
Laboratory Sample Analyses

Client: SCDOT
Project: BLUFF RD.
F&R Project No.:
Item Code/Use:

Material
Sample No: 15
Location: B-1 58.5-60
Source:

Date Received: 10/22/15
Date Processed:

Liquid Limit				
Tare No.				
Cup & Wet Soil				
Cup & Dry Soil				
Moisture Loss	NON-PLASTIC			
Cup Weight				
Dry Soil				
Blows				
Moisture %				
Plastic Limit				
Tare No.				
Cup & Wet Soil				
Cup & Dry Soil				
Moisture Loss				
Cup Weight				
Dry Soil				
Moisture %				



LL =
PL =
PI =
USCS =

Laboratory Technician:
Reviewed By:
Program Administrator

SP4
TP

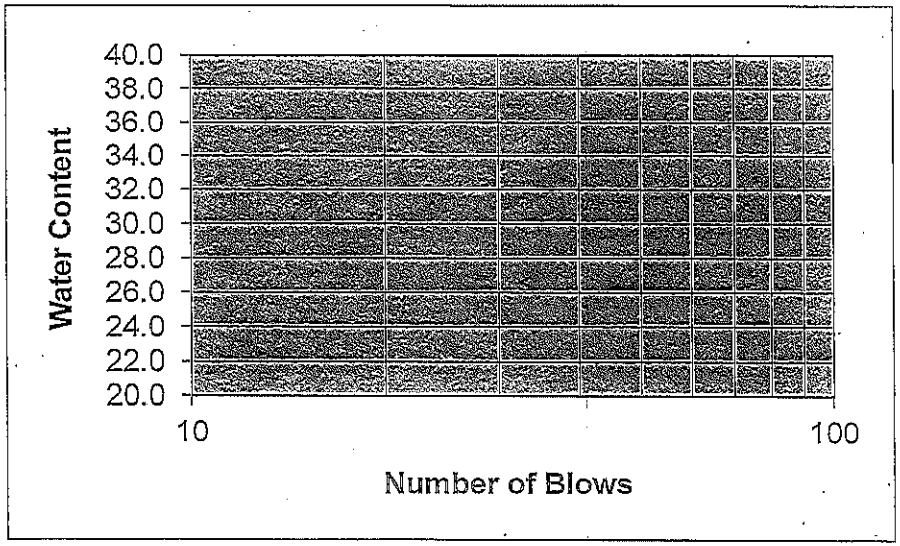
Froehling & Robertson, Inc.
Laboratory Sample Analyses

Client: SCDOT
Project: BLUFF RD.
F&R Project No.:
Item Code/Use:

Material:
Sample No: 8
Location: B-2 23.5-25.0
Source:

Date Received: 10/22/15
Date Processed:

Liquid Limit				
Tare No.	1	82	42	
Cup & Wet Soil	34.70	34.98	34.71	
Cup & Dry Soil	30.41	30.50	29.98	
Moisture Loss	4.29	4.48	4.73	
Cup Weight	23.04	23.27	22.92	
Dry Soil	7.37	7.23	7.06	
Blows	35	26	16	
Moisture %	0.582	0.620	0.670	
Plastic Limit				
Tare No.	M2	44		
Cup & Wet Soil	29.89	28.58		
Cup & Dry Soil	28.38	27.30		
Moisture Loss	1.46	1.28		
Cup Weight	23.27	22.81		
Dry Soil	5.11	4.49		
Moisture %	0.286	0.285		



Laboratory Technician:
Reviewed By:
Program Administrator

LL =
PL =
PI =
USCS =

$$LL = 62\left(\frac{26}{25}\right)^{0.121} = 62$$

PL = 29

PI = 33

SP3 3

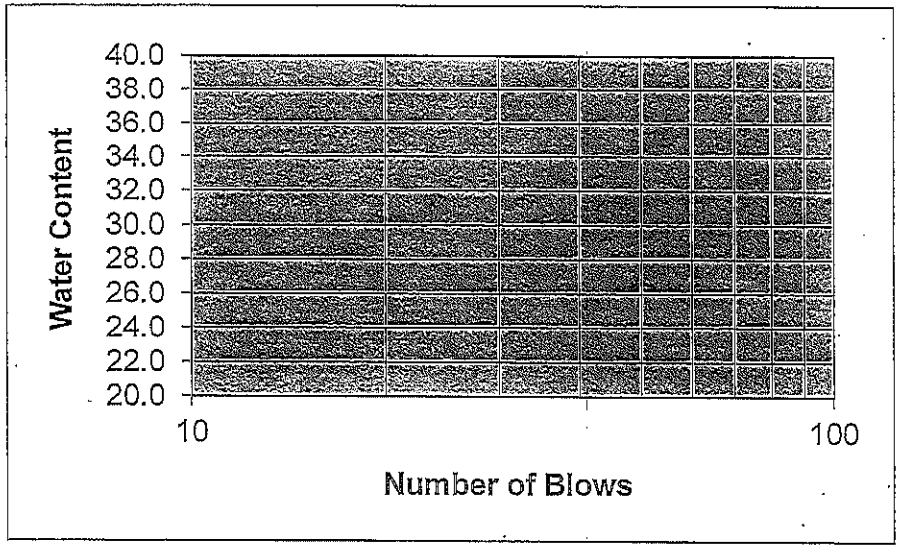
Froehling & Robertson, Inc.
Laboratory Sample Analyses

Client: SCDOT
Project: BLUFF RD.
F&R Project No.:
Item Code/Use:

Material
Sample No:
Location: B-3 33.5-35.0
Source:

Date Received: 10/22/15
Date Processed:

Liquid Limit				
Tare No.	51	108	12	
Cup & Wet Soil	34.94	34.73	34.13	
Cup & Dry Soil	31.06	30.79	30.29	
Moisture Loss	3.88	3.94	3.84	
Cup Weight	23.05	23.15	23.07	
Dry Soil	8.01	7.64	7.22	
Blows	35	26	18	
Moisture %	0.484	0.516	0.532	
Plastic Limit				
Tare No.	7A	D1		
Cup & Wet Soil	29.46	29.75		
Cup & Dry Soil	28.13	28.33		
Moisture Loss	1.33	1.42		
Cup Weight	23.25	23.00		
Dry Soil	4.88	5.33		
Moisture %	0.273	0.2662		



0.2695

Laboratory Technician:
Reviewed By:
Program Administrator

LL =
PL =
PI =
USCS =

LL = 52

PL = 27

PI = 25

SPS FF

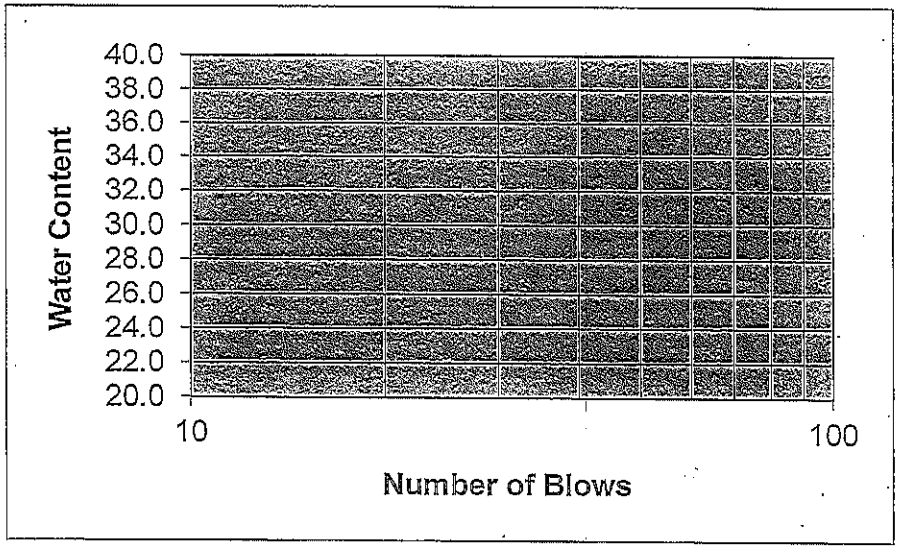
Froehling & Robertson, Inc.
Laboratory Sample Analyses

Client: SCDOT
Project: BLUFF RD
F&R Project No.:
Item Code/Use:

Material:
Sample No:
Location: B-3 63.5-65.0
Source:

Date Received: 10/22/15
Date Processed:

Liquid Limit				
Tare No.				
Cup & Wet Soil				
Cup & Dry Soil		NON-PLASTIC		
Moisture Loss				
Cup Weight				
Dry Soil				
Blows				
Moisture %				
Plastic Limit				
Tare No.				
Cup & Wet Soil				
Cup & Dry Soil				
Moisture Loss				
Cup Weight				
Dry Soil				
Moisture %				



LL =
PL =
PI =
USCS =

Laboratory Technician:
Reviewed By:
Program Administrator

WASH 200 (C 117)

CLIENT SCDOT B-1 TECHNICIAN

PROJECT BLUFF RD. 4-5.5 TEST DATE

RECORD NO.

SOIL CLASSIFICATION

TARE # N4 TARE WEIGHT 330,52

A Tare and Dry Soil		603,80
B Dry Soil	(A-Tare)	273.28
C Tare and Dry Soil After Wash		522,59
D Dry Soil After Wash	(C-Tare)	192.07
E Material Lost	(B-D)	81.21

Percent Passing #200 (B-D)/B x 100= 29.7%

WASH 200 (C 117)

CLIENT SCDOT

PROJECT BLUFF RD.

RECORD NO.

B-1

18.5-20

TECHNICIAN

TEST DATE

SOIL CLASSIFICATION

TARE # X D

TARE WEIGHT 306.18

A Tare and Dry Soil		626.10
B Dry Soil	(A-Tare)	319.92
C Tare and Dry Soil After Wash		613.61
D Dry Soil After Wash	(C-Tare)	307.43
E Material Lost	(B-D)	12.49

Percent Passing #200 (B-D)/B x 100= 3.9 %

WASH 200 (C 117)

CLIENT SDDOT B-1 TECHNICIAN

PROJECT BLUFF RD 28.5-30 TEST DATE

RECORD NO.

SOIL CLASSIFICATION

TARE # KC TARE WEIGHT 374.60

A Tare and Dry Soil		781.62
B Dry Soil	(A-Tare)	407.02
C Tare and Dry Soil After Wash		723.87
D Dry Soil After Wash	(C-Tare)	349.27
E Material Lost	(B-D)	57.75

Percent Passing #200 (B-D)/B x 100= 14.2%

WASH 200 (C 117)

CLIENT SCDOT B-1 TECHNICIAN

PROJECT BLUFF RD 38.5-40 TEST DATE

RECORD NO.

SOIL CLASSIFICATION

TARE # ACC TARE WEIGHT 255.12

A Tare and Dry Soil		486.89
B Dry Soil	(A-Tare)	231.77
C Tare and Dry Soil After Wash		331.30
D Dry Soil After Wash	(C-Tare)	76.18
E Material Lost	(B-D)	155.59

Percent Passing #200 (B-D)/B x 100= 67.1%

WASH 200 (C 117)

CLIENT SCDOT B-1 TECHNICIAN

PROJECT BLUFF RD. 48.5-50 TEST DATE

RECORD NO.

SOIL CLASSIFICATION

TARE # N1 TARE WEIGHT 327.23

A Tare and Dry Soil		614.08
B Dry Soil	(A-Tare)	286.85
C Tare and Dry Soil After Wash		493.47
D Dry Soil After Wash	(C-Tare)	166.24
E Material Lost	(B-D)	120.61

Percent Passing #200 (B-D)/B x 100= 42.0%

WASH 200 (C 117)

CLIENT SCDOT B-1 TECHNICIAN

PROJECT BLUFF RD. 58.5-60 TEST DATE

RECORD NO.

SOIL CLASSIFICATION

TARE # A3 TARE WEIGHT 249.96

A Tare and Dry Soil		476.66
B Dry Soil	(A-Tare)	226.70
C Tare and Dry Soil After Wash		453.60
D Dry Soil After Wash	(C-Tare)	203.64
E Material Lost	(B-D)	23.06

Percent Passing #200 (B-D)/B x 100= 10.2%

WASH 200 (C 117)

CLIENT SCDOT B-1 TECHNICIAN

PROJECT BLUFF RD. 68.5-70 TEST DATE

RECORD NO.

SOIL CLASSIFICATION

TARE # D3 TARE WEIGHT 250.07

A Tare and Dry Soil		533.83
B Dry Soil	(A-Tare)	283.76
C Tare and Dry Soil After Wash		483.68
D Dry Soil After Wash	(C-Tare)	233.61
E Material Lost	(B-D)	50.15

Percent Passing #200 (B-D)/B x 100= 17.7 %

WASH 200 (C 117)

CLIENT SCDOT B-1 TECHNICIAN

PROJECT BLUFF RD 73.5-75 TEST DATE

RECORD NO.

SOIL CLASSIFICATION

TARE # E TARE WEIGHT 248.06

A Tare and Dry Soil		544.81
B Dry Soil	(A-Tare)	296.75
C Tare and Dry Soil After Wash		464.85
D Dry Soil After Wash	(C-Tare)	216.79
E Material Lost	(B-D)	79.96

Percent Passing #200 (B-D)/B x 100= 26.9%

WASH 200 (C 117)

CLIENT SCDOT B-2 TECHNICIAN

PROJECT BLUFF RD. 13.5-15.0 TEST DATE

RECORD NO.

SOIL CLASSIFICATION

TARE # B TARE WEIGHT 397.85

A Tare and Dry Soil		741.92
B Dry Soil	(A-Tare)	344.07
C Tare and Dry Soil After Wash		678.97
D Dry Soil After Wash	(C-Tare)	281.12
E Material Lost	(B-D)	62.95

Percent Passing #200 (B-D)/B x 100= 18.3%

WASH 200 (C 117)

CLIENT SCDOT B-2 TECHNICIAN

PROJECT BLUFF RD. 23.5-25.0 TEST DATE

RECORD NO.

SOIL CLASSIFICATION

TARE # AA TARE WEIGHT 247.81

A Tare and Dry Soil		428.26
B Dry Soil	(A-Tare)	180.45
C Tare and Dry Soil After Wash		274.51
D Dry Soil After Wash	(C-Tare)	26.70
E Material Lost	(B-D)	153.75

Percent Passing #200 (B-D)/B x 100= 85.2%

WASH 200 (C 117)

CLIENT BLUFF RD. B-3 TECHNICIAN _____

PROJECT _____ 18.5-20 TEST DATE _____

RECORD NO. _____

SOIL CLASSIFICATION _____

TARE # R TARE WEIGHT 442.44

A Tare and Dry Soil		699.43
B Dry Soil	(A-Tare)	256.99
C Tare and Dry Soil After Wash		680.39
D Dry Soil After Wash	(C-Tare)	237.95
E Material Lost	(B-D)	19.04

Percent Passing #200 (B-D)/B x 100= 7.4 %

WASH 200 (C 117)

CLIENT SCDOT B-3 TECHNICIAN

PROJECT BLUFF RD. 28.5-30 TEST DATE

RECORD NO.

SOIL CLASSIFICATION

TARE # 1.18 TARE WEIGHT 536.27

A Tare and Dry Soil		757.86
B Dry Soil	(A-Tare)	221.59
C Tare and Dry Soil After Wash		738.35
D Dry Soil After Wash	(C-Tare)	202.08
E Material Lost	(B-D)	19.51

Percent Passing #200 (B-D)/B x 100= 8.8%

WASH 200 (C 117)

CLIENT SCDOT B-3 TECHNICIAN

PROJECT BLUFF RD 335-35 TEST DATE

RECORD NO.

SOIL CLASSIFICATION

TARE # D TARE WEIGHT 304.24

A Tare and Dry Soil		437.91
B Dry Soil	(A-Tare)	133.67
C Tare and Dry Soil After Wash		338.07
D Dry Soil After Wash	(C-Tare)	33.83
E Material Lost	(B-D)	99.84

Percent Passing #200 (B-D)/B x 100= 74.7 %

WASH 200 (C 117)

CLIENT SCDOT B-3 TECHNICIAN

PROJECT BLUFF RD. 43.5-45.0 TEST DATE

RECORD NO.

SOIL CLASSIFICATION

TARE # B TARE WEIGHT 397.86

A Tare and Dry Soil		696.48
B Dry Soil	(A-Tare)	298.62
C Tare and Dry Soil After Wash		641.74
D Dry Soil After Wash	(C-Tare)	243.88
E Material Lost	(B-D)	54.74

Percent Passing #200 (B-D)/B x 100= 18.3%

WASH 200 (C 117)

CLIENT SCDOT B-3 TECHNICIAN

PROJECT BLUFF RD. 53.5-55 TEST DATE

RECORD NO.

SOIL CLASSIFICATION

TARE # A TARE WEIGHT 388.47

A Tare and Dry Soil		621.99
B Dry Soil	(A-Tare)	233.52
C Tare and Dry Soil After Wash		577.03
D Dry Soil After Wash	(C-Tare)	188.56
E Material Lost	(B-D)	44.96

Percent Passing #200 (B-D)/B x 100= 19.3%

WASH 200 (C 117)

CLIENT SC DOT B-3 TECHNICIAN

PROJECT BLUFF RD. 63.5-65.0 TEST DATE

RECORD NO.

SOIL CLASSIFICATION

TARE # N2 TARE WEIGHT 319.94

A Tare and Dry Soil		460.68
B Dry Soil	(A-Tare)	140.74
C Tare and Dry Soil After Wash		422.31
D Dry Soil After Wash	(C-Tare)	102.37
E Material Lost	(B-D)	38.37

Percent Passing #200 (B-D)/B x 100= 27.3 %

WASH 200 (C 117)

CLIENT SCDOT B-3 TECHNICIAN

PROJECT BLUFF RD. 68.5-70 TEST DATE

RECORD NO.

SOIL CLASSIFICATION

TARE # 8A TARE WEIGHT 337.73

A Tare and Dry Soil		590.22
B Dry Soil	(A-Tare)	252.49
C Tare and Dry Soil After Wash		562.43
D Dry Soil After Wash	(C-Tare)	224.70
E Material Lost	(B-D)	27.79

Percent Passing #200 (B-D)/B x 100= 11.0 %

WASH 200 (C 117)

CLIENT SCDOT

PROJECT BLUFF RD.

RECORD NO. _____

B-3

78.5-80

TECHNICIAN _____

TEST DATE _____

SOIL CLASSIFICATION _____

TARE # C

TARE WEIGHT 394.20

A Tare and Dry Soil		628.30
B Dry Soil	(A-Tare)	234.10
C Tare and Dry Soil After Wash		610.21
D Dry Soil After Wash	(C-Tare)	216.01
E Material Lost	(B-D)	18.09

Percent Passing #200 (B-D)/B x 100= 7.7%

WASH 200 (C 117)

CLIENT SCDOT

PROJECT BLUFF RD.

RECORD NO. _____

B-4
6-7.5

TECHNICIAN _____

TEST DATE _____

SOIL CLASSIFICATION _____

TARE # AB-4

TARE WEIGHT 172.80

A Tare and Dry Soil		393.33
B Dry Soil	(A-Tare)	220.53
C Tare and Dry Soil After Wash		351.68
D Dry Soil After Wash	(C-Tare)	178.88
E Material Lost	(B-D)	41.65

Percent Passing #200 (B-D)/B x 100= 18.9%

WASH 200 (C 117)

CLIENT SCDOT B-4 TECHNICIAN

PROJECT BLUFF RD. TEST DATE

RECORD NO. 23.5-25

SOIL CLASSIFICATION

TARE # 176 TARE WEIGHT 178.23

A Tare and Dry Soil		373.54
B Dry Soil	(A-Tare)	195.21
C Tare and Dry Soil After Wash		353.11
D Dry Soil After Wash	(C-Tare)	174.88
E Material Lost	(B-D)	20.33

Percent Passing #200 (B-D)/B x 100= 10.4%