



18 July 2012

Mr. Martin I. Okorie, PE RPG 4  
South Carolina Department of Transportation  
955 Park Street, Room 216  
Columbia, SC 29201

**Subject:** Results of Soils Investigation to Replace Bridge Over Peoples Creek  
Gaffney, South Carolina  
AMEC Project No. 6250-12-0013.0002  
SCDOT File No. 11.040205

Dear Mr. Okorie:

AMEC Environment & Infrastructure, Inc. (AMEC) is pleased to provide this summary of the exploration and testing performed on the soils and rock samples for the bridge over Peoples Creek site in Gaffney, SC. This summary is a compilation of the findings of the requested tests.

We appreciate the opportunity to be of service to SCDOT on this project. If you have any questions concerning the report, or if we may be of further service, please contact us at 803-798-1200.

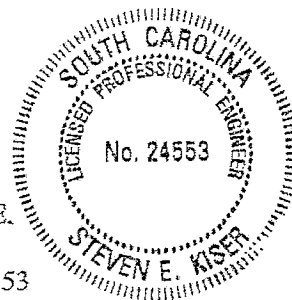
Sincerely,

AMEC Environment & Infrastructure, Inc.

  
Kelly de Montbrun, E.I.T.  
Staff Professional



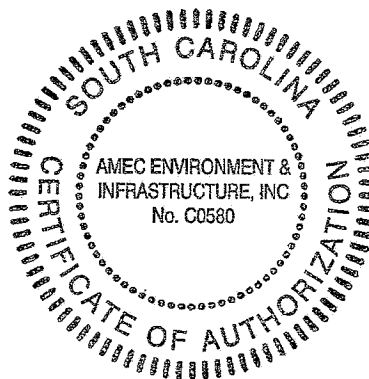
Steven E. Kiser, P.E.  
Principal Engineer  
Registered S.C. 24553



  
James A. Smith, Jr.  
Senior Project Manager/ Branch Manager

**Order of Attachments:**

Results Summary  
Boring Logs  
Survey Report  
Lab Reports  
SASW Report



Environment & Infrastructure  
720 Gracern Road, Suite 132 • Columbia, SC 29210 USA  
Tel: 803.798.1200 • Fax: 803.750.1303

## Cherokee County, South Carolina



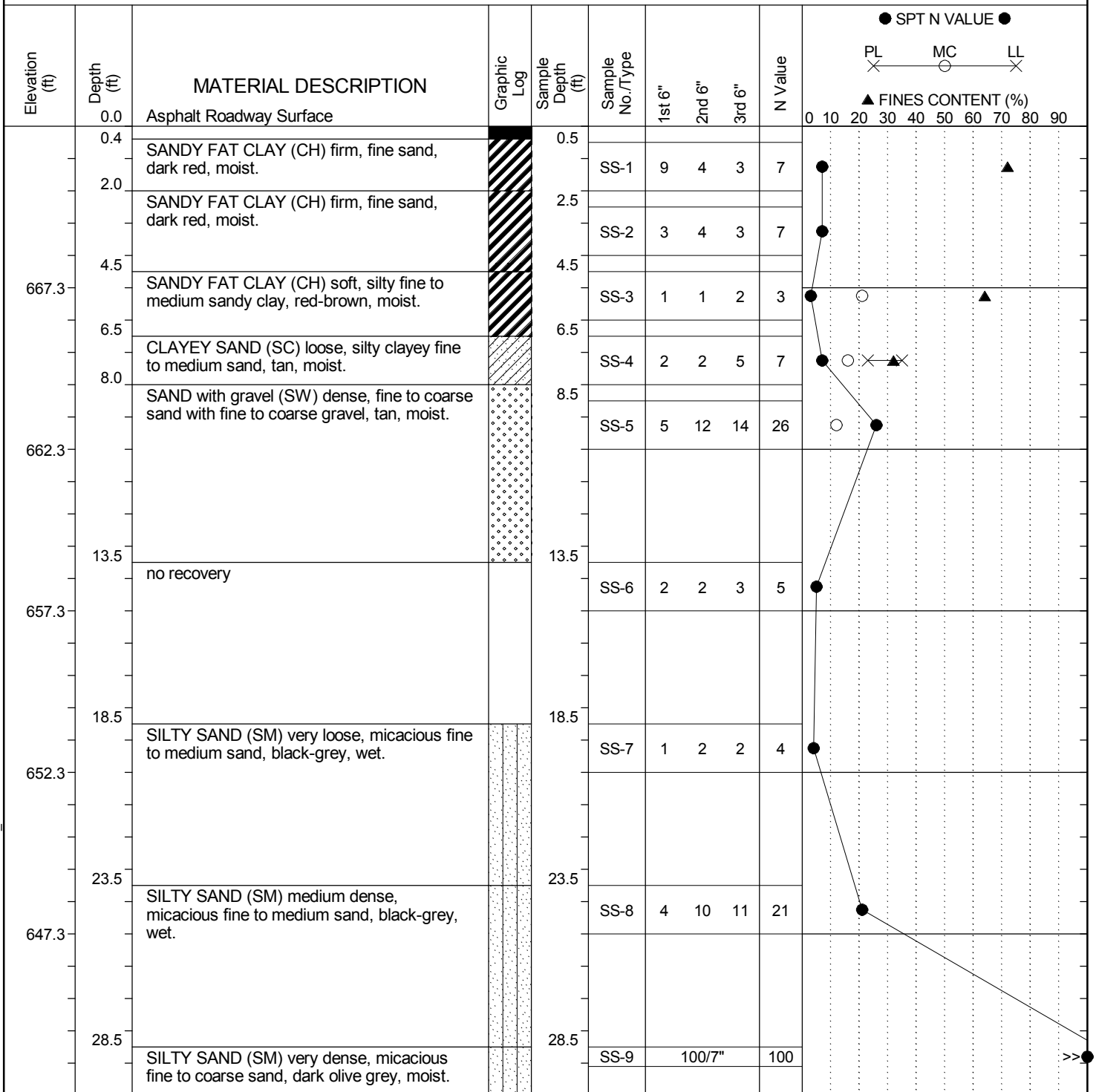
**amec**

**AMEC Project No:** 6250120013.0002  
**Road:** S-41-Beech Street  
**Project Type:** Bridge Replacement  
**County:** Cherokee

Notes:

# SCDOT Soil Test Boring Log

<b>File No.:</b>	11040205	<b>Project No. (PIN):</b>	40205	<b>County:</b>	Cherokee	<b>Eng./Geo.:</b>	K. de Montbrun
<b>Site Description:</b>	Replace Bridge Over Peoples Creek					<b>Route:</b>	S-41
<b>Boring No.:</b>	B 1	<b>Boring Location:</b>	14+00	<b>Offset:</b>	6ft L	<b>Alignment:</b>	Centerline
<b>Elev.:</b>	672.3 ft	<b>Latitude:</b>	35.07115794	<b>Longitude:</b>	81.62227756	<b>Date Started:</b>	5/30/12
<b>Total Depth:</b>	55 ft	<b>Soil Depth:</b>	55 ft	<b>Core Depth:</b>	34 ft	<b>Date Completed:</b>	5/31/2012
<b>Bore Hole Diameter (in):</b>	6"	<b>Sampler Configuration</b>		<b>Liner Required:</b>	Y (N)	<b>Liner Used:</b>	Y (N)
<b>Drill Machine:</b>	CME 45 C	<b>Drill Method:</b>	Rotary Wash	<b>Hammer Type:</b>	Automatic	<b>Energy Ratio:</b>	81.1%
<b>Core Size:</b>	NX Wireline	<b>Driller:</b>	K. de Montbrun	<b>Groundwater:</b>	TOB N/A	<b>24HR</b>	N/A



## 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	

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<b>File No.:</b>	11040205	<b>Project No. (PIN):</b>	40205	<b>County:</b>	Cherokee	<b>Eng./Geo.:</b>	K. de Montbrun
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<b>Drill Machine:</b>	CME 45 C	<b>Drill Method:</b>	Rotary Wash	<b>Hammer Type:</b>	Automatic	<b>Energy Ratio:</b>	81.1%
<b>Core Size:</b>	NX Wireline	<b>Driller:</b>	K. de Montbrun	<b>Groundwater:</b>	TOB N/A	<b>24HR</b>	N/A

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	<div> ● SPT N VALUE ● </div> <div> PL      MC      LL </div> <div> ▲ FINES CONTENT (%) </div>
637.3	33.5	SILTY SAND (SM) very dense, fine to coarse sand, yellow-tan-brown, moist.		33.5	SS-10	100/8"			100	>>●
				34.0						
					NX-1					REC=66%, RQD=25%
				36.0						
					NX-2					REC=0, RQD=0%
632.3	41.0	SILTY SAND (SM) very dense, micaceous fine to coarse sand, black grey, moist.		41.0	SS-11	100/4"			100	>>●
				43.5	SS-12	100/7"			100	>>●
627.3	43.5	SILTY SAND (SM) very dense, fine to coarse sand, dark grey, wet.		43.5						
				48.5	SS-13	30	20	80/4"	100	●
622.3	48.5	SILTY SAND (SM) very dense, micaceous fine to coarse sand, black brown, wet.		48.5						
				53.5	SS-14	100/1"			100	●
	53.5	no recovery		53.5						
617.3	55.0	BOTTOM OF BOREHOLE								

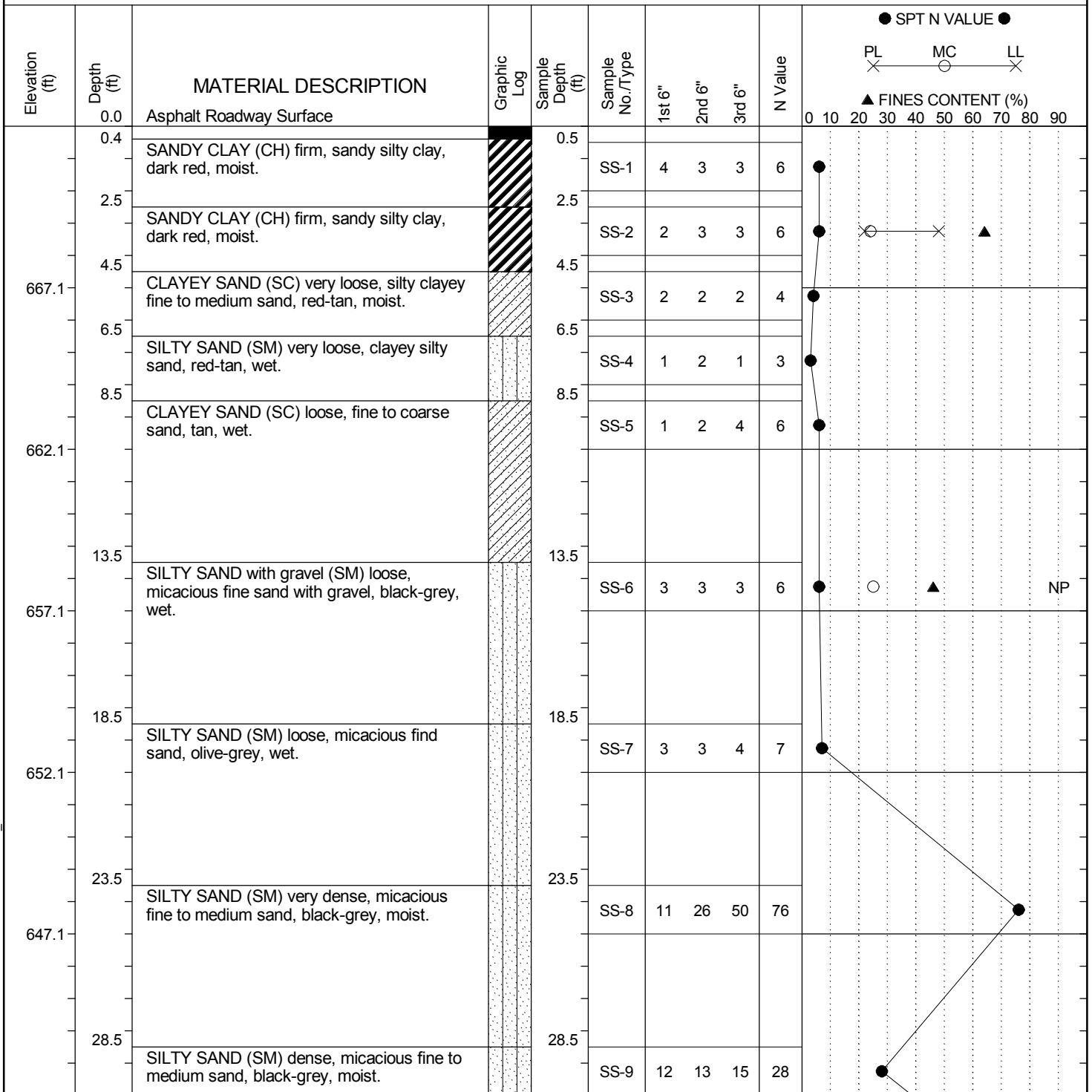
## LEGEND

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 6250120013 PEOPLES CREEK BORING LOGS.GPJ SC\_DOT.GDT 8/5/13

# SCDOT Soil Test Boring Log

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<b>Site Description:</b>	Replace Bridge Over Peoples Creek					<b>Route:</b>	S-41
<b>Boring No.:</b>	B 2	<b>Boring Location:</b>	14+00	<b>Offset:</b>	6ft R	<b>Alignment:</b>	Centerline
<b>Elev.:</b>	672.1 ft	<b>Latitude:</b>	35.07119097	<b>Longitude:</b>	81.62224147	<b>Date Started:</b>	6/4/12
<b>Total Depth:</b>	55 ft	<b>Soil Depth:</b>	55 ft	<b>Core Depth:</b>	ft	<b>Date Completed:</b>	6/4/2012
<b>Bore Hole Diameter (in):</b>	6"	<b>Sampler Configuration</b>		<b>Liner Required:</b>	Y (N)	<b>Liner Used:</b>	Y (N)
<b>Drill Machine:</b>	CME 45 C	<b>Drill Method:</b>	Rotary Wash	<b>Hammer Type:</b>	Automatic	<b>Energy Ratio:</b>	81.1%
<b>Core Size:</b>		<b>Driller:</b>	K. de Montbrun	<b>Groundwater:</b>	TOB N/A	<b>24HR</b>	N/A



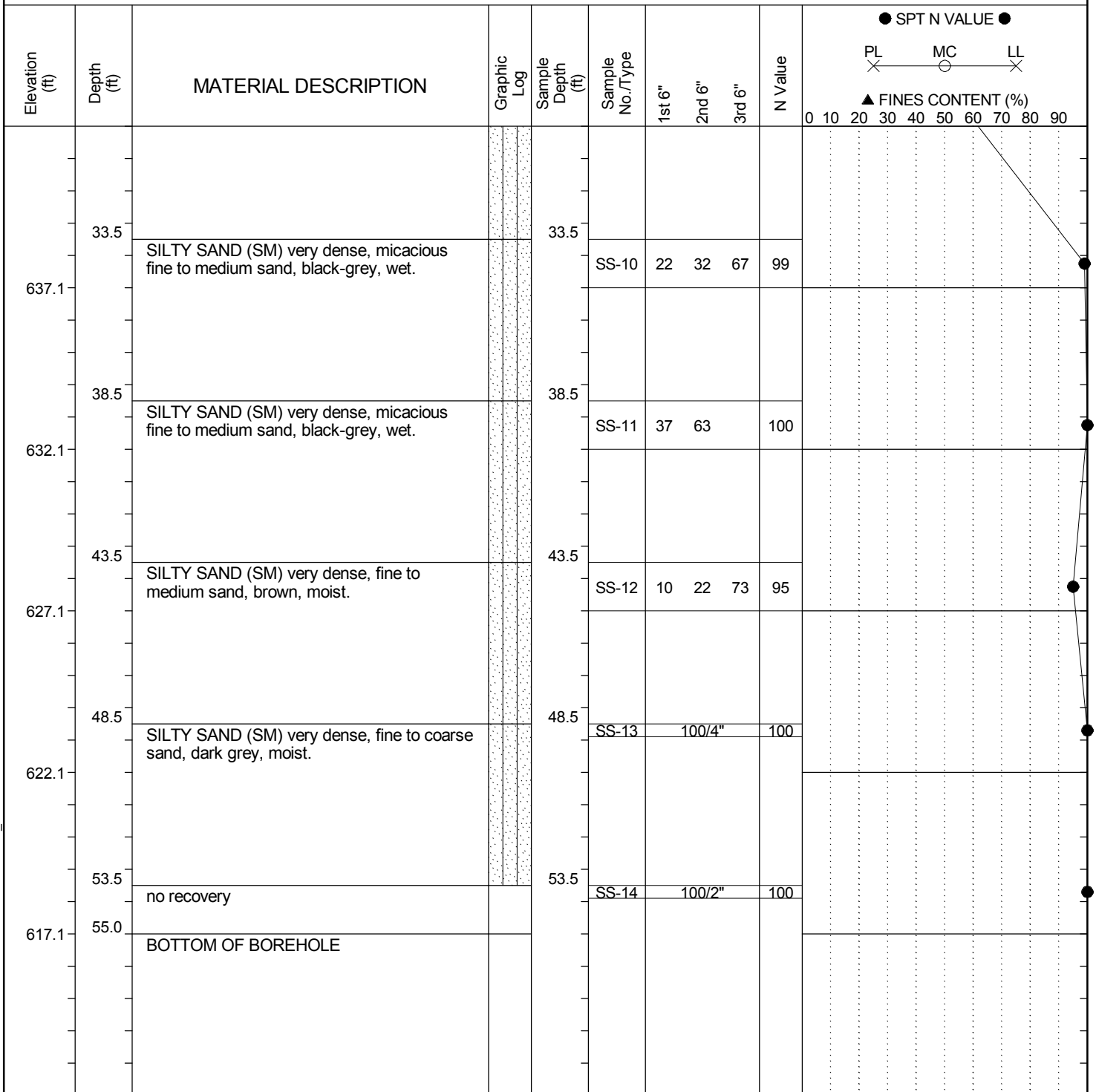
## LEGEND

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SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash	
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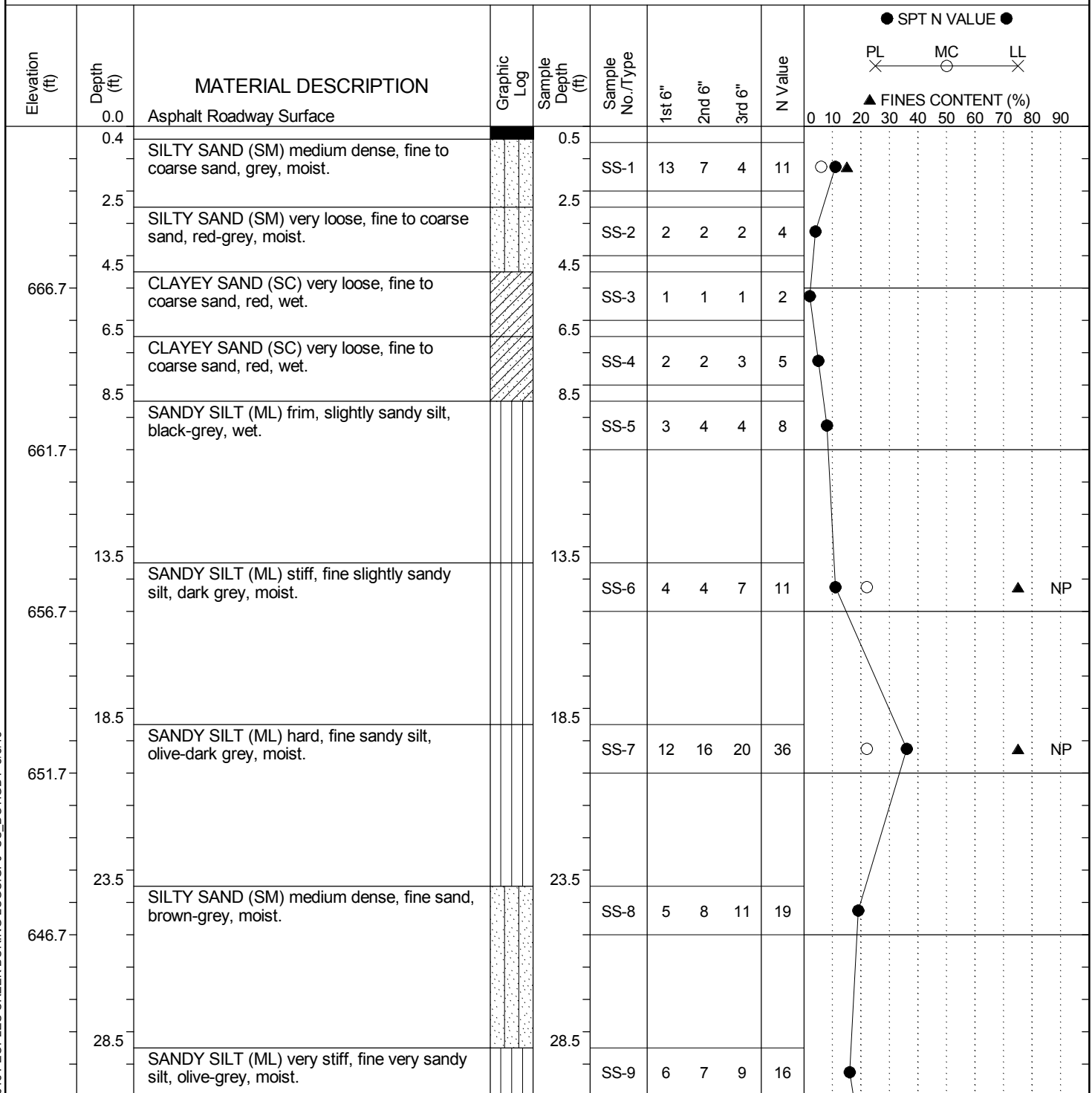


## LEGEND

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SS - Split Spoon	NQ - Rock Core, 1-7/8"		HSA - Hollow Stem Auger	RW - Rotary Wash
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<b>Boring No.:</b>	B 3	<b>Boring Location:</b>	14+41	<b>Offset:</b>	6ft L	<b>Alignment:</b>	Centerline
<b>Elev.:</b>	671.7 ft	<b>Latitude:</b>	35.07125073	<b>Longitude:</b>	81.62242028	<b>Date Started:</b>	5-31-2012
<b>Total Depth:</b>	90 ft	<b>Soil Depth:</b>	90 ft	<b>Core Depth:</b>	ft	<b>Date Completed:</b>	6/1/2012
<b>Bore Hole Diameter (in):</b>	6"	<b>Sampler Configuration</b>		<b>Liner Required:</b>	Y (N)	<b>Liner Used:</b>	Y (N)
<b>Drill Machine:</b>	CME 45 C	<b>Drill Method:</b>	Rotary Wash	<b>Hammer Type:</b>	Automatic	<b>Energy Ratio:</b>	81.1%
<b>Core Size:</b>		<b>Driller:</b>	K. de Montbrun	<b>Groundwater:</b>	TOB N/A	<b>24HR</b>	N/A



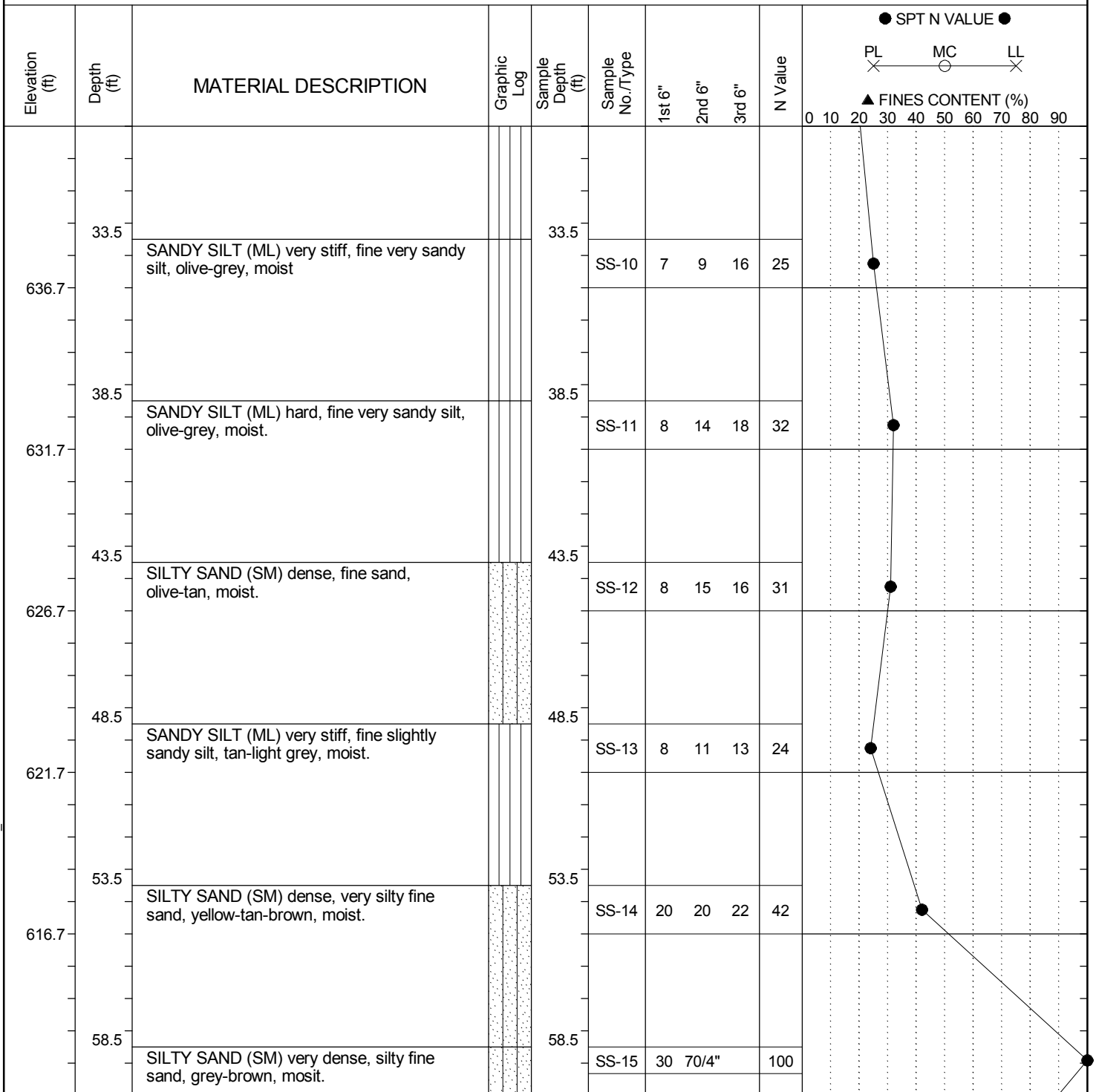
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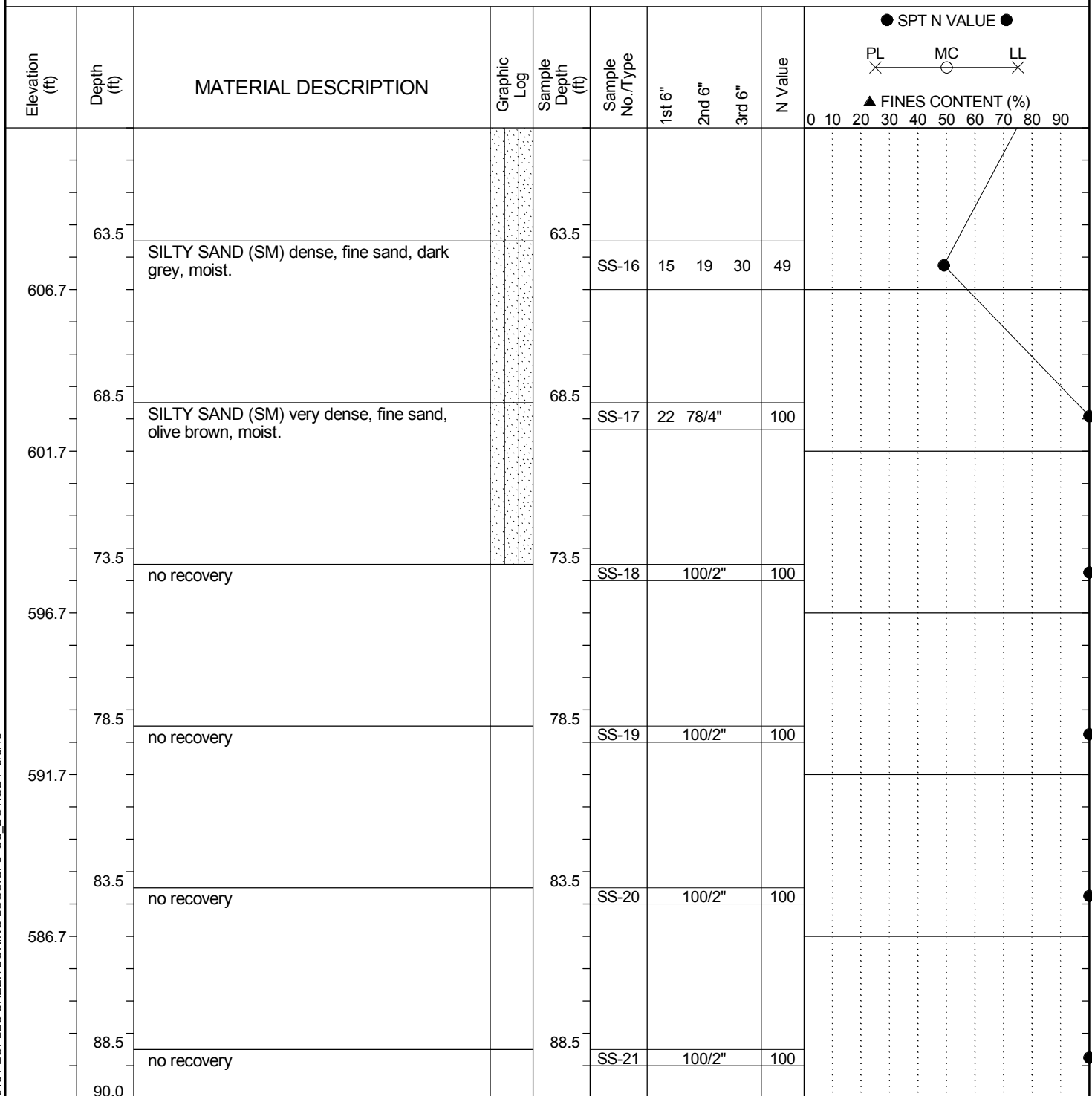
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<b>Drill Machine:</b>	CME 45 C	<b>Drill Method:</b>	Rotary Wash	<b>Hammer Type:</b>	Automatic	<b>Energy Ratio:</b>	81.1%
<b>Core Size:</b>		<b>Driller:</b>	K. de Montbrun	<b>Groundwater:</b>	TOB	N/A	<b>24HR</b> N/A

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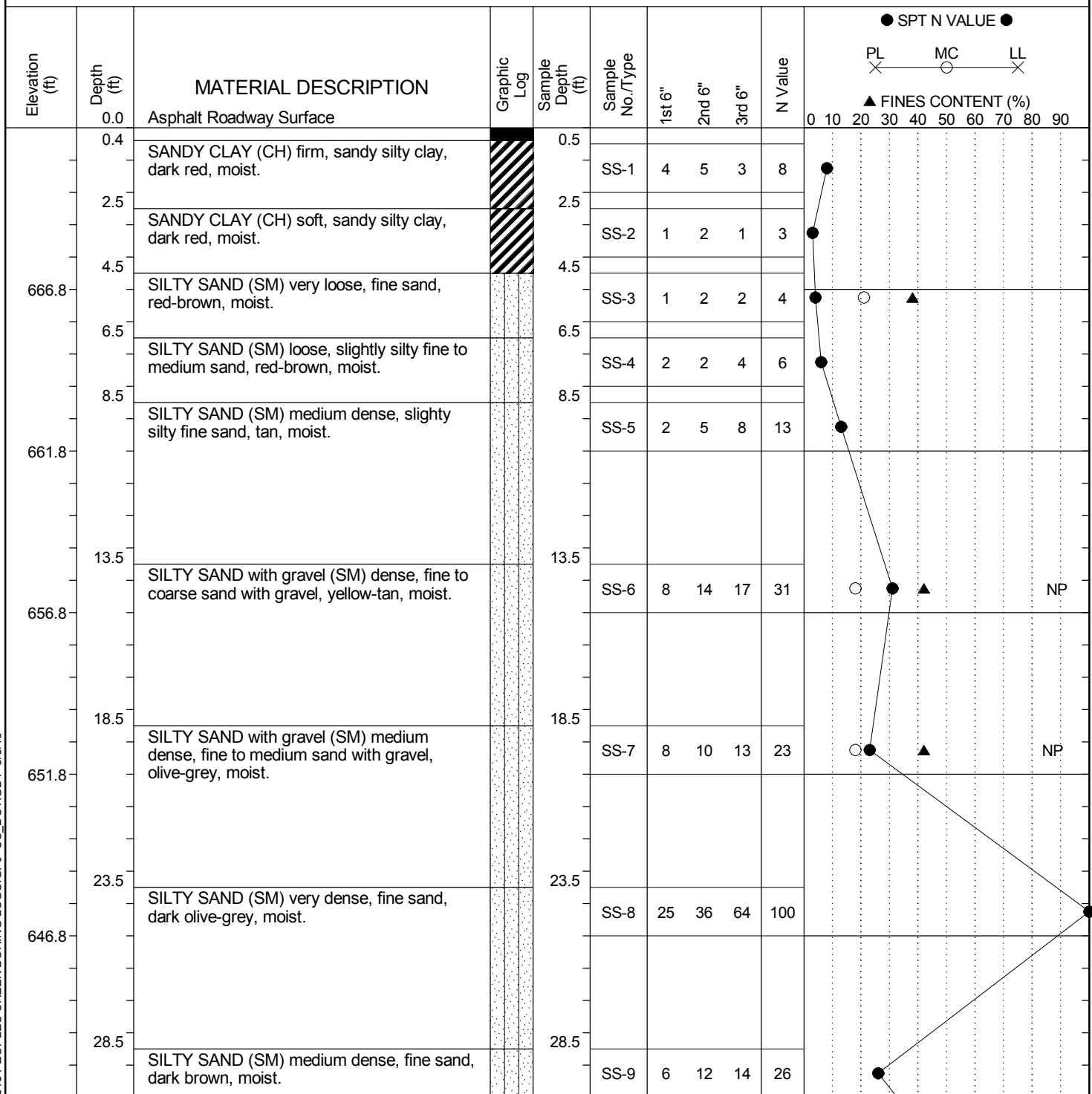
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SC\_DOT 6250120013 PEOPLES CREEK BORING LOGS.GPJ SC\_DOT.GDT 8/5/13

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<b>Elev.:</b>	671.8 ft	<b>Latitude:</b>	35.07128301	<b>Longitude:</b>	81.62238128	<b>Date Started:</b>	6/6/12
<b>Total Depth:</b>	85 ft	<b>Soil Depth:</b>	85 ft	<b>Core Depth:</b>	ft	<b>Date Completed:</b>	6/6/2012
<b>Bore Hole Diameter (in):</b>	6"	<b>Sampler Configuration</b>		<b>Liner Required:</b>	Y (N)	<b>Liner Used:</b>	Y (N)
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<b>Core Size:</b>		<b>Driller:</b>	K. de Montbrun	<b>Groundwater:</b>	TOB N/A	<b>24HR</b>	N/A



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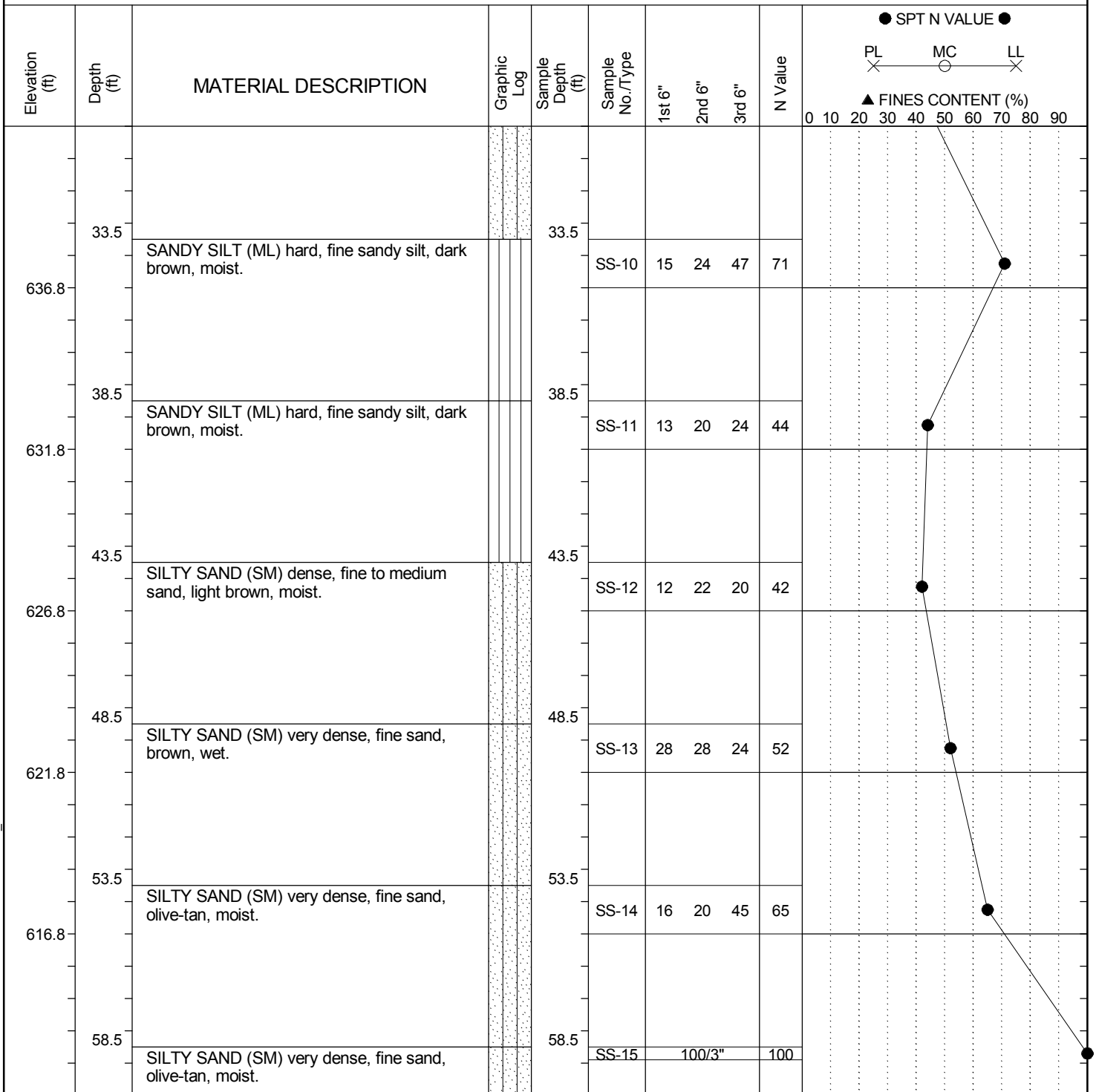
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SC\_DOT 6250120013 PEOPLES CREEK BORING LOGS.GPJ SC\_DOT.GDT 8/5/13

SAMPLER TYPE			DRILLING METHOD	
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Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	<div> ● SPT N VALUE ● </div> <div> PL MC LL </div> <div> ▲ FINES CONTENT (%) </div>
606.8	63.5	SILTY SAND (SM) very dense, fine to medium sand, olive-tan, moist.		63.5	SS-16	30	70/5"		100	
601.8	68.5	no recovery		68.5	SS-17		100/0"		100	
596.8	73.5	no recovery		73.5	SS-18		100/1"		100	
591.8	78.5	no recovery		78.5	SS-19		100/2"		100	
586.8	83.5	no recovery		83.5	SS-20		100/2"		100	
	85.0	BOTTOM OF BOREHOLE								

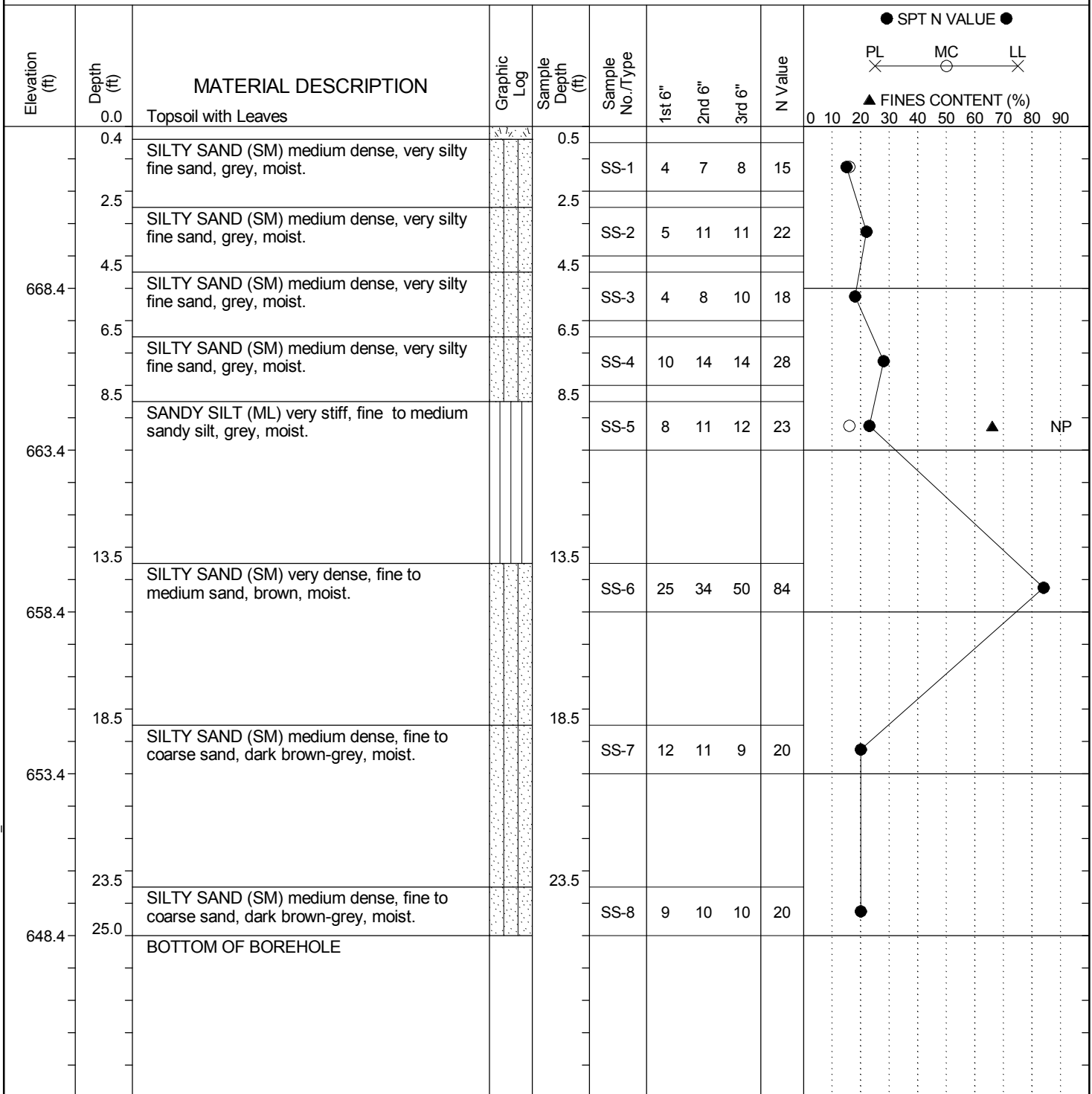
## LEGEND

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 6250120013 PEOPLES CREEK BORING LOGS.GPJ SC\_DOT.GDT 8/5/13

# SCDOT Soil Test Boring Log

<b>File No.:</b>	11040205	<b>Project No. (PIN):</b>	40205	<b>County:</b>	Cherokee	<b>Eng./Geo.:</b>	K. de Montbrun
<b>Site Description:</b>	Replace Bridge Over Peoples Creek					<b>Route:</b>	S-41
<b>Boring No.:</b>	B 5	<b>Boring Location:</b>	12+00	<b>Offset:</b>	30ft L	<b>Alignment:</b>	Centerline
<b>Elev.:</b>	673.4 ft	<b>Latitude:</b>	35.0707833	<b>Longitude:</b>	81.62181046	<b>Date Started:</b>	5/30/12
<b>Total Depth:</b>	25 ft	<b>Soil Depth:</b>	25 ft	<b>Core Depth:</b>	ft	<b>Date Completed:</b>	5/30/2012
<b>Bore Hole Diameter (in):</b>	6"	<b>Sampler Configuration</b>		<b>Liner Required:</b>	Y (N)	<b>Liner Used:</b>	Y (N)
<b>Drill Machine:</b>	CME 45 C	<b>Drill Method:</b>	Rotary Wash	<b>Hammer Type:</b>	Automatic	<b>Energy Ratio:</b>	81.1%
<b>Core Size:</b>		<b>Driller:</b>	K. de Montbrun	<b>Groundwater:</b>	TOB	14.33 ft	24HR 13.5 ft

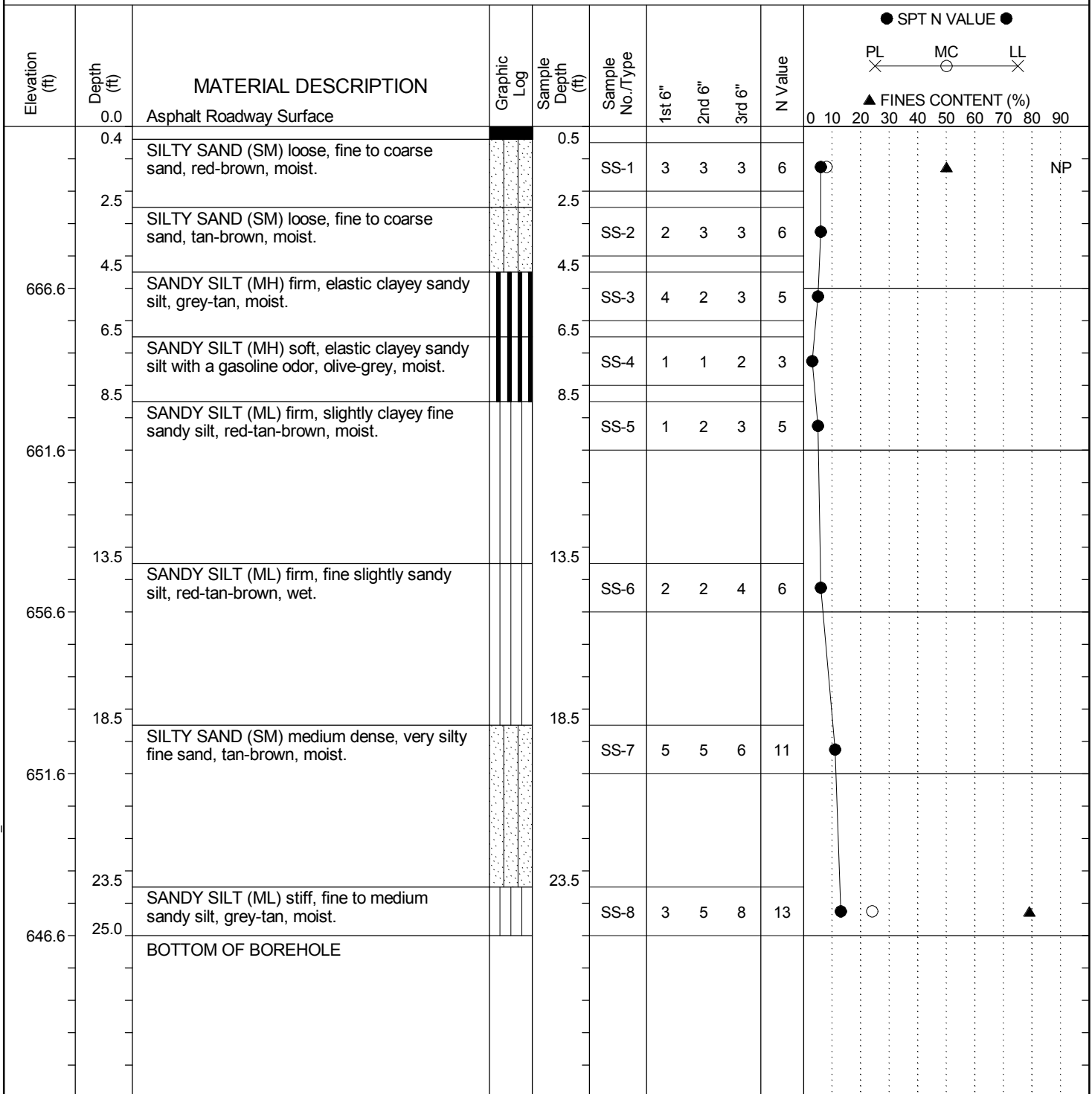


## LEGEND

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

<b>File No.:</b>	11040205	<b>Project No. (PIN):</b>	40205	<b>County:</b>	Cherokee	<b>Eng./Geo.:</b>	K. de Montbrun
<b>Site Description:</b>	Replace Bridge Over Peoples Creek					<b>Route:</b>	S-41
<b>Boring No.:</b>	B 6	<b>Boring Location:</b>	16+50	<b>Offset:</b>	25ft R	<b>Alignment:</b>	Centerline
<b>Elev.:</b>	671.6 ft	<b>Latitude:</b>	35.07146547	<b>Longitude:</b>	81.62304067	<b>Date Started:</b>	5/29/12
<b>Total Depth:</b>	25 ft	<b>Soil Depth:</b>	25 ft	<b>Core Depth:</b>	ft	<b>Date Completed:</b>	5/29/2012
<b>Bore Hole Diameter (in):</b>	6"	<b>Sampler Configuration</b>		<b>Liner Required:</b>	Y (N)	<b>Liner Used:</b>	Y (N)
<b>Drill Machine:</b>	CME 45 C	<b>Drill Method:</b>	Rotary Wash	<b>Hammer Type:</b>	Automatic	<b>Energy Ratio:</b>	81.1%
<b>Core Size:</b>		<b>Driller:</b>	K. de Montbrun	<b>Groundwater:</b>	TOB	12.67 ft	24HR N/A



## 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 6250120013 PEOPLES CREEK BORING LOGS.GPJ SC\_DOT.GDT 8/5/13



**Glenn Associates Surveying, Inc.**  
11547 State Highway 215 S  
P.O. Box 12  
Jenkinsville, South Carolina 29065  
Tel: 803.345.5297  
Fax: 803.345.0620  
<http://www.glennassociates.com/>

June 11, 2012

SUBJECT: Peoples Creek Project, Gaffney, Cherokee County, SC. Survey of soil boring and spectral analysis locations.

COORDINATES of SURVEYED POINTS JUNE 6, 2012:

POINT	SC STATE PLANE	ELEVATION	LATITUDE	LONGITUDE
B1	N 1178682.75 E 1813771.96	672.28	N35-04-16.16860	W081-37-20.19923
B2	N 1178694.71 E 1813782.83	672.07	N35-04-16.28749	W081-37-20.06928
B3	N 1178716.78 E 1813729.45	671.71	N35-04-16-50262	W081-37-20.71302
B4	N 1178728.46 E 1813741.19	671.76	N35-04-16.61884	W081-37-20.57261
B5	N 1178544.93 E 1813910.92	673.41	N 35-04-14.81388	W081-37-18.51766
B6	N 1178796.07 E 1813544.26	671.58	N 35-04-17.27568	W081-37-22.94640

SA-1

BEGIN	N1178733.64 E 1813735.16	671.71	N35-04-16.66966	W081-37-20.64550
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SA-1

END	N1178783.31 E 1813672.58	671.28	N35-04-17.15713	W081-37-21.40189
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The coordinates shown above were surveyed on the South Carolina State Plane Coordinate System, North American Datum 83(2007 adjustment) and North American Vertical Datum 88. A local temporary benchmark was established using a TOPCON GR3 RTK Rover on the South Carolina Virtual Reference System. The operation of the system was checked by survey to Bench Marks "CINDY JANE"(PID DE7966) and "WINNIE DAVIS"(PID DN5561). The points shown above were surveyed from the local temporary benchmark using a TOPCON GR3 RTK Base-Rover System.

Mark E. Mills, SCPLS 10779



Materials Testing Report	<b>Soil Consultants, Inc.</b> P.O. Drawer 698, Charleston, S.C. 29402	Tabulated Data Sheet
Client: AMEC Environment and Infrastructure		Date: 07/17/12
Project: People's Creek Bridge		SCI No.: 24603

*Moisture Content (ASTM D2216)*

Sample Number	Sample Location	Moisture Content (%)
1.)	B-1 S-3	21.4
2.)	B-1 S-5	11.6
3.)	B-2 S-2	23.9
4.)	B-2 S-6	24.5
5.)	B-3 S-1	5.6
6.)	B-3 S-6 & S-7	22.1
7.)	B-4 S-3	20.9
8.)	B-4 S-6 & S-7	18.1
9.)	B-5 S-1	15.9
10.)	B-5 S-5	16.0
11.)	B-6 S-1	7.5
12.)	B-6 S-8	23.7
13.)	B-1 S-4	15.9

Respectfully Submitted:

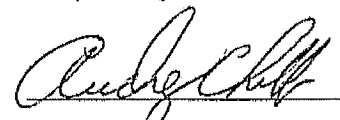
  
Soil Consultants, Inc.

<b>Materials Testing Report</b>	<b>Soil Consultants, Inc.</b> P.O. Drawer 698, Charleston, S.C. 29402	<b>Atterberg Limits AAASHTO T89/T90</b>
Client: AMEC Environment and Infrastructure		Date: 07/17/12
Project: People's Creek Bridge		SCI No. 24603

**Results of Atterberg Limits (AASHTO T89/T90)**

Sample ID	ASTM D4318		
	Atterberg Limits		
	Liquid Limit	Plastic Limit	Plasticity Index
B-1 S-4	35	23	12
B-2 S-2	48	22	26
B-2 S-6	—	NP	NP
B-3 S-6 & S-7	—	NP	NP
B-4 S-6 & S-7	—	NP	NP
B-5 S-5	—	NP	NP
B-6 S-1	—	NP	NP
B-6 S-8	—	NP	NP

Respectfully Submitted:

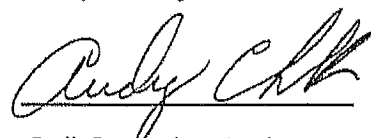
  
Soil Consultants,

Materials Testing Report	<b>Soil Consultants, Inc.</b> P.O. Drawer 698, Charleston, S.C. 29402	Tabulated Data Sheet
<b>Client:</b> AMEC Environment and Infrastructure		<b>Date:</b> 07/17/12
<b>Project:</b> People's Creek Bridge		<b>SCI No.:</b> 24603

*Wash 200 (AASHTO T11)*

Sample Location	Wash 200 % Passing
B-2 S-2	63.5%
B-5 S-1	72.3%
B-6 S-1	49.7%

Respectfully Submitted:



Soil Consultants, Inc.

Materials Testing Report		Soil Consultants, Inc. P.O. Drawer 698, Charleston, S.C.		Test Report Soil Classification	
Client: AMEC Environment and Infrastructure				Date: 07/17/12	
Project No.: 6250-12-0013		Project Name: People's Creek Bridge		SCI No.: 24603	

File No.	11.040205	PIN	
Sample Of	Boring sample	Sample ID No.	
Date Sampled		Submitted By	Kelly de Montbrun
Identification	B-3 S-1	Address	
Sample Taken from		To Be Used In	
Sampled By		Date Received	06/15/12
Quantity Represented		Date Tested	07/17/12
Supply Source		Tested By	K.Bialas
Address		Comments:	

<u>Sample as a Whole: (M-145)</u>  Passing 2 1/2" <u>100.0%</u> Passing 1 1/2" <u>100.0%</u> Passing 3/4" <u>100.0%</u> Passing 3/8" <u>70.1%</u> Passing No. 4 <u>53.8%</u> Passing No. 10 <u>40.8%</u> Silt <u>NT</u> Clay <u>NT</u>		<u>Material Under No. 10: (M-145)</u>  Passing No. 20 <u>32.5%</u> Passing No. 40 <u>28.2%</u> Passing No. 60 <u>24.9%</u> Passing No. 100 <u>21.3%</u> Passing No. 200 <u>15.1%</u> Total % Fines <u>15.1%</u> Total % Sand <u>25.7</u> Wash 200 % Passing (T-11) <u>14.5</u>	
Determination of Soil Color		<u>Gray</u>	
Liquid Limit (AASHTO T-89)	<u>NT</u>	% Moisture (AASHTO T-265)	<u>5.6</u>
Plastic Index (AASHTO T-90)	<u>NT</u>	AASHTO Classification (M-145)	<u>NA</u>

Notes: Testing Performed by SCI
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Respectfully Submitted:

  
SOIL CONSULTANTS, INC

Materials Testing Report	Soil Consultants, Inc. P.O. Drawer 698, Charleston, S.C.	Test Report Soil Classification
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Client:	AMEC Environment and Infrastructure	Date:	07/17/12
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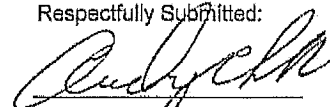
Project No.:	6250-12-0013	Project Name:	People's Creek Bridge	SCI No.:	24603
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File No.	11.040205	PIN	
Sample Of	Boring sample	Sample ID No.	
Date Sampled		Submitted By	Kelly de Montbrun
Identification	B-1 S-3	Address	
Sample Taken from		To Be Used In	
Sampled By		Date Received	06/15/12
Quantity Represented		Date Tested	07/17/12
Supply Source		Tested By	K. Blalas
Address		Comments:	

<u>Sample as a Whole: (M-145)</u>		<u>Material Under No. 10: (M-145)</u>	
Passing 2 1/2"	<u>100.0%</u>	Passing No. 20	<u>94.7%</u>
Passing 1 1/2"	<u>100.0%</u>	Passing No. 40	<u>92.3%</u>
Passing 3/4"	<u>100.0%</u>	Passing No. 60	<u>87.4%</u>
Passing 3/8"	<u>99.2%</u>	Passing No. 100	<u>79.1%</u>
Passing No. 4	<u>97.9%</u>	Passing No. 200	<u>64.0%</u>
Passing No. 10	<u>96.7%</u>	Total % Fines	<u>64.0%</u>
Silt	<u>NT</u>	Total % Sand	<u>32.7</u>
Clay	<u>NT</u>	Wash 200 % Passing (T-11)	<u>62.7</u>
Determination of Soil Color		<u>Brown</u>	
Liquid Limit (AASHTO T-89)	<u>NT</u>	% Moisture (AASHTO T-265)	<u>21.4</u>
Plastic Index (AASHTO T-90)	<u>NT</u>	AASHTO Classification (M-145)	<u>NA</u>

Notes: Testing Performed by SCI

Respectfully Submitted:

  
SOIL CONSULTANTS, INC

Materials Testing Report	Soil Consultants, Inc. P.O. Drawer 698, Charleston, S.C.	Test Report Soil Classification
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Client:	AMEC Environment and Infrastructure	Date:	07/17/12
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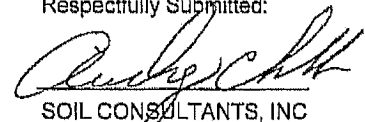
Project No.:	6260-12-0013	Project Name:	People's Creek Bridge	SCI No.:	24603
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File No.	11.040205	PIN	
Sample Of	Boring sample	Sample ID No.	
Date Sampled		Submitted By	Kelly de Montbrun
Identification	B-4 S-3	Address	
Sample Taken from		To Be Used In	
Sampled By		Date Received	06/15/12
Quantity Represented		Date Tested	07/17/12
Supply Source		Tested By	K.Bialas
Address		Comments:	

<u>Sample as a Whole: (M-145)</u>		<u>Material Under No. 10: (M-145)</u>	
Passing 2 1/2"	<u>100.0%</u>	Passing No. 20	<u>98.5%</u>
Passing 1 1/2"	<u>100.0%</u>	Passing No. 40	<u>96.2%</u>
Passing 3/4"	<u>100.0%</u>	Passing No. 60	<u>85.1%</u>
Passing 3/8"	<u>100.0%</u>	Passing No. 100	<u>64.6%</u>
Passing No. 4	<u>99.2%</u>	Passing No. 200	<u>37.8%</u>
Passing No. 10	<u>99.1%</u>	Total % Fines	<u>37.8%</u>
Silt	<u>NT</u>	Total % Sand	<u>61.3</u>
Clay	<u>NT</u>	Wash 200 % Passing (T-11)	<u>33.8</u>
Determination of Soil Color		<u>Brown</u>	
Liquid Limit (AASHTO T-89)	<u>NT</u>	% Moisture (AASHTO T-265)	<u>20.9</u>
Plastic Index (AASHTO T-90)	<u>NT</u>	AASHTO Classification (M-145)	<u>NA</u>

Notes: Testing Performed by SCI

Respectfully Submitted:

  
SOIL CONSULTANTS, INC

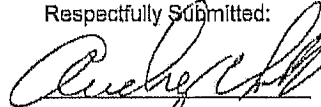
Materials Testing Report		Soil Consultants, Inc. P.O. Drawer 698, Charleston, S.C.		Test Report Soil Classification	
Client: AMEC Environment and Infrastructure				Date: 07/17/12	
Project No.: 6250-12-0013		Project Name: People's Creek Bridge		SCI No.: 24603	

File No.	11,040205	PIN
Sample Of	Boring sample	Sample ID No.
Date Sampled		Submitted By
Identification	B-5 S-5	Kelly de Montbrun
Sample Taken from		Address
Sampled By		To Be Used In
Quantity Represented		Date Received
Supply Source		06/15/12
Address		Date Tested
		07/17/12
		Tested By
		K.Bialas
		Comments:

<u>Sample as a Whole: (M-145)</u>  Passing 2 1/2" <u>100.0%</u> Passing 1 1/2" <u>100.0%</u> Passing 3/4" <u>100.0%</u> Passing 3/8" <u>100.0%</u> Passing No. 4 <u>99.4%</u> Passing No. 10 <u>97.0%</u> Silt <u>NT</u> Clay <u>NT</u>		<u>Material Under No. 10: (M-145)</u>  Passing No. 20 <u>90.5%</u> Passing No. 40 <u>81.8%</u> Passing No. 60 <u>76.6%</u> Passing No. 100 <u>72.6%</u> Passing No. 200 <u>66.1%</u> Total % Fines <u>66.1%</u> Total % Sand <u>30.9</u> Wash 200 % Passing (T-11) <u>65.0</u>	
Determination of Soil Color		<u>Silver</u>	
Liquid Limit (AASHTO T-89)	<u>NP</u>	% Moisture (AASHTO T-265)	<u>16.0</u>
Plastic Index (AASHTO T-90)	<u>NP</u>	AASHTO Classification (M-145)	<u>A-4</u>

Notes: Testing Performed by SCI
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Respectfully Submitted:

  
SOIL CONSULTANTS, INC

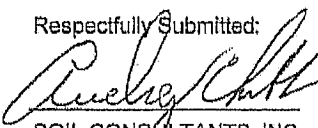
Materials Testing Report	Soil Consultants, Inc. P.O. Drawer 698, Charleston, S.C.	Test Report Soil Classification
Client: AMEC Environment and Infrastructure	Date: 07/17/12	
Project No.: 6250-12-0013	Project Name: People's Creek Bridge	SCI No.: 24603

File No.	11.040205	PIN
Sample Of	Boring sample	Sample ID No.
Date Sampled		Submitted By
Identification	B-6 S-8	Kelly de Montbrun
Sample Taken from		Address
Sampled By		To Be Used In
Quantity Represented		Date Received
Supply Source		06/15/12
Address		Date Tested
		07/17/12
		Tested By
		K.Bialas
		Comments:

<u>Sample as a Whole: (M-145)</u> Passing 2 1/2" <u>100.0%</u> Passing 1 1/2" <u>100.0%</u> Passing 3/4" <u>100.0%</u> Passing 3/8" <u>100.0%</u> Passing No. 4 <u>99.8%</u> Passing No. 10 <u>97.4%</u> Silt <u>NT</u> Clay <u>NT</u>		<u>Material Under No. 10: (M-145)</u> Passing No. 20 <u>92.6%</u> Passing No. 40 <u>89.3%</u> Passing No. 60 <u>86.9%</u> Passing No. 100 <u>84.7%</u> Passing No. 200 <u>79.2%</u> Total % Fines <u>79.2%</u> Total % Sand <u>18.2</u> Wash 200 % Passing (T-11) <u>78.3</u>	
Determination of Soil Color		<u>Tan</u>	
Liquid Limit (AASHTO T-89)	<u>NP</u>	% Moisture (AASHTO T-265)	<u>16.0</u>
Plastic Index (AASHTO T-90)	<u>NP</u>	AASHTO Classification (M-145)	<u>A-4</u>

Notes: Testing Performed by SCI
---------------------------------

Respectfully Submitted:

  
SOIL CONSULTANTS, INC

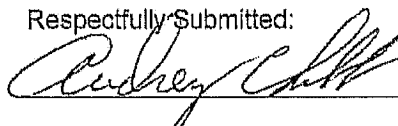


<b>Materials Testing Report</b>	<b>Soil Consultants, Inc.</b> P.O. Drawer 698, Charleston, S.C.	<b>Tabulated Dry Sieve Data Sheet</b>
<b>Client:</b> AMEC Environment and Infrastructure	<b>Date:</b> 07/17/12	
<b>Project:</b> People's Creek Bridge	<b>SCI No.:</b> 24603	
<b>Sample ID:</b> B-1 S-4	<b>Sample Color:</b> Tan	

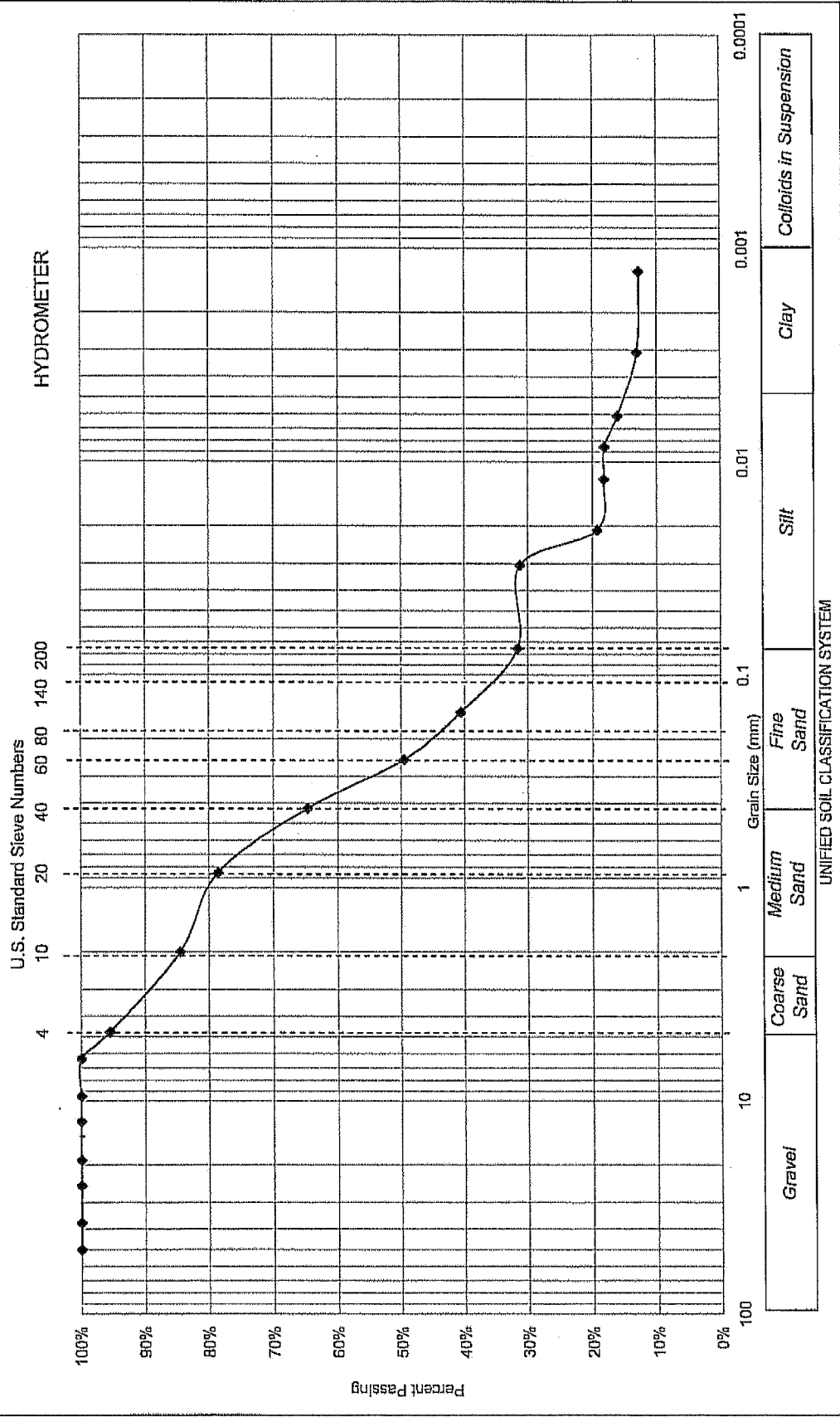
**DRY SIEVE ANALYSIS (AASHTO T-88)**  
*% Passing*

<i>Sieve Size</i>	<i>Particle Size</i>	<i>% Passing</i>
1 1/2-in.	37.5-mm	100.0%
1-in.	25-mm	100.0%
3/4-in.	19-mm	100.0%
1/2-in.	12.5-mm	100.0%
3/8-in.	9.5-mm	100.0%
1/4-in.	6.35-mm	100.0%
No. 4	4.75-mm	95.5%
No. 10	2-mm	84.5%
No. 20	0.85-mm	78.6%
No. 40	0.42-mm	64.7%
No. 60	0.25-mm	49.5%
No. 100	0.15-mm	40.6%
No. 200	0.075-mm	31.6%
Wash 200 (% passing):		23.2

Respectfully Submitted:

  
SOIL CONSULTANTS, INC

Materials Testing Report		SOIL CONSULTANTS, INC. P.O. Drawer 698, Charleston, S.C. 29402		Grain Size Distribution Diagram Hydrometer Analysis - AASHTO T-88	
Project:	People's Creek Bridge	SCI No:	24603	Date:	07/17/12
Client:	AMEC Environment and Infrastructure	Shape:	Angular	Hardness:	soft
Sample ID:	B-1 S-4	Sample Color:		G <sub>s</sub> :	2.65 Assumed
				Tan	

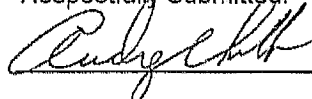


<b>Materials Testing Report</b>	<b>Soil Consultants, Inc.</b> P.O. Drawer 698, Charleston, S.C.	<b>Tabulated Dry Sieve Data Sheet</b>
<b>Client:</b> AMEC Environment and Infrastructure	<b>Date:</b> 07/17/12	
<b>Project:</b> People's Creek Bridge	<b>SCI No.:</b> 24603	
<b>Sample ID:</b> B-2 S-6	<b>Sample Color:</b> Silver	

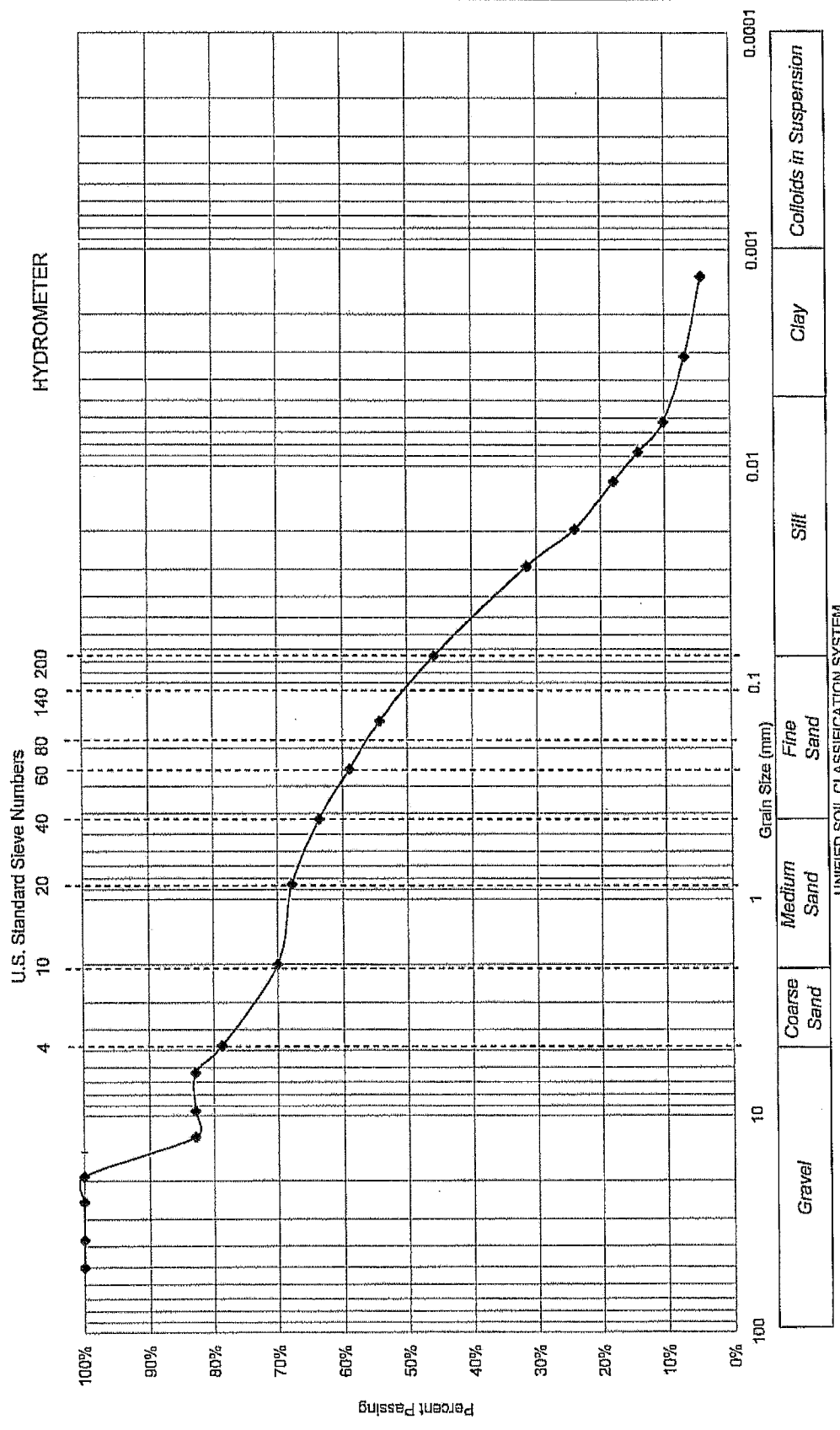
**DRY SIEVE ANALYSIS (AASHTO T-88)**  
*% Passing*

<i>Sieve Size</i>	<i>Particle Size</i>	<i>% Passing</i>
1 1/2-in.	37.5-mm	100.0%
1-in.	25-mm	100.0%
3/4-in.	19-mm	100.0%
1/2-in.	12.5-mm	100.0%
3/8-in.	9.5-mm	82.9%
1/4-in.	6.35-mm	82.9%
No. 4	4.75-mm	78.7%
No. 10	2-mm	70.0%
No. 20	0.85-mm	67.7%
No. 40	0.42-mm	63.5%
No. 60	0.25-mm	58.9%
No. 100	0.15-mm	54.2%
No. 200	0.075-mm	45.8%
Wash 200 (% passing):		43.0

Respectfully Submitted:

  
SOIL CONSULTANTS, INC

Materials Testing Report		SOIL CONSULTANTS, INC. P.O. Drawer 698, Charleston, S.C. 29402		Grain Size Distribution Diagram Hydrometer Analysis - AASHTO T-88	
Project:	People's Creek Bridge	SCI No:	24603	Date:	07/17/12
Client:	AMEC Environment and Infrastructure	Shape:	Angular	Hardness:	soft
Sample ID:	B-2 S-6	Sample Color:		G <sub>s</sub> :	2.65 Assumed
				Silver	



Gravel: 21.27%      Silt: 35.61%  
Sand: 32.90%      Clay: 10.22%

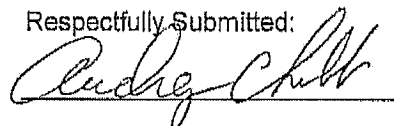
Respectfully Submitted: *Quincy Calk*

<b>Materials Testing Report</b>	<b>Soil Consultants, Inc.</b> P.O. Drawer 698, Charleston, S.C.	<b>Tabulated Dry Sieve Data Sheet</b>
<b>Client:</b> AMEC Environment and Infrastructure	<b>Date:</b> 07/17/12	
<b>Project:</b> People's Creek Bridge	<b>SCI No.:</b> 24603	
<b>Sample ID:</b> B-3 S-6 & S-7	<b>Sample Color:</b> Tan	

**DRY SIEVE ANALYSIS (AASHTO T-88)**  
*% Passing*

<i>Sieve Size</i>	<i>Particle Size</i>	<i>% Passing</i>
1 1/2-in.	37.5-mm	100.0%
1-in.	25-mm	100.0%
3/4-in.	19-mm	100.0%
1/2-in.	12.5-mm	100.0%
3/8-in.	9.5-mm	100.0%
1/4-in.	6.35-mm	100.0%
No. 4	4.75-mm	100.0%
No. 10	2-mm	98.6%
No. 20	0.85-mm	98.1%
No. 40	0.42-mm	97.1%
No. 60	0.25-mm	95.3%
No. 100	0.15-mm	91.9%
No. 200	0.075-mm	75.2%
Wash 200 (% passing):		69.4

Respectfully Submitted:



SOIL CONSULTANTS, INC

Materials Testing Report		SOIL CONSULTANTS, INC. P.O. Drawer 698, Charleston, S.C. 29402		Grain Size Distribution Diagram Hydrometer Analysis - AASHTO T-88	
Project:	People's Creek Bridge	SCI No:	24603	Date:	07/17/12
Client:	AMEC Environment and Infrastructure	Shape:	Angular	Hardness:	soft
Sample ID:	B-3 S-6 & S-7	Sample Color:		G <sub>s</sub> :	2.65 Assumed
				Tan	

Sieve / Size (mm)	Percent Passing (%)
4.75 (No. 4)	100
2.0 (No. 10)	100
0.85 (No. 20)	100
0.425 (No. 40)	95
0.25 (No. 60)	85
0.15 (No. 100)	75
0.075 (No. 200)	35
0.0375 (No. 400)	20
0.025 (No. 600)	10
0.0175 (No. 840)	0

Gravel	Coarse Sand	Medium Sand	Fine Sand	Silt	Clay	Colloids in Suspension
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UNIFIED SOIL CLASSIFICATION SYSTEM



**Respectfully Submitted:**

Andy Holt

<b>Materials Testing Report</b>	<b>Soil Consultants, Inc.</b> P.O. Drawer 698, Charleston, S.C.	<b>Tabulated Dry Sieve Data Sheet</b>
<b>Client:</b> AMEC Environment and Infrastructure	<b>Date:</b> 07/17/12	
<b>Project:</b> People's Creek Bridge	<b>SCI No.:</b> 24603	
<b>Sample ID:</b> B-4 S-6 & S-7	<b>Sample Color:</b> Tan	

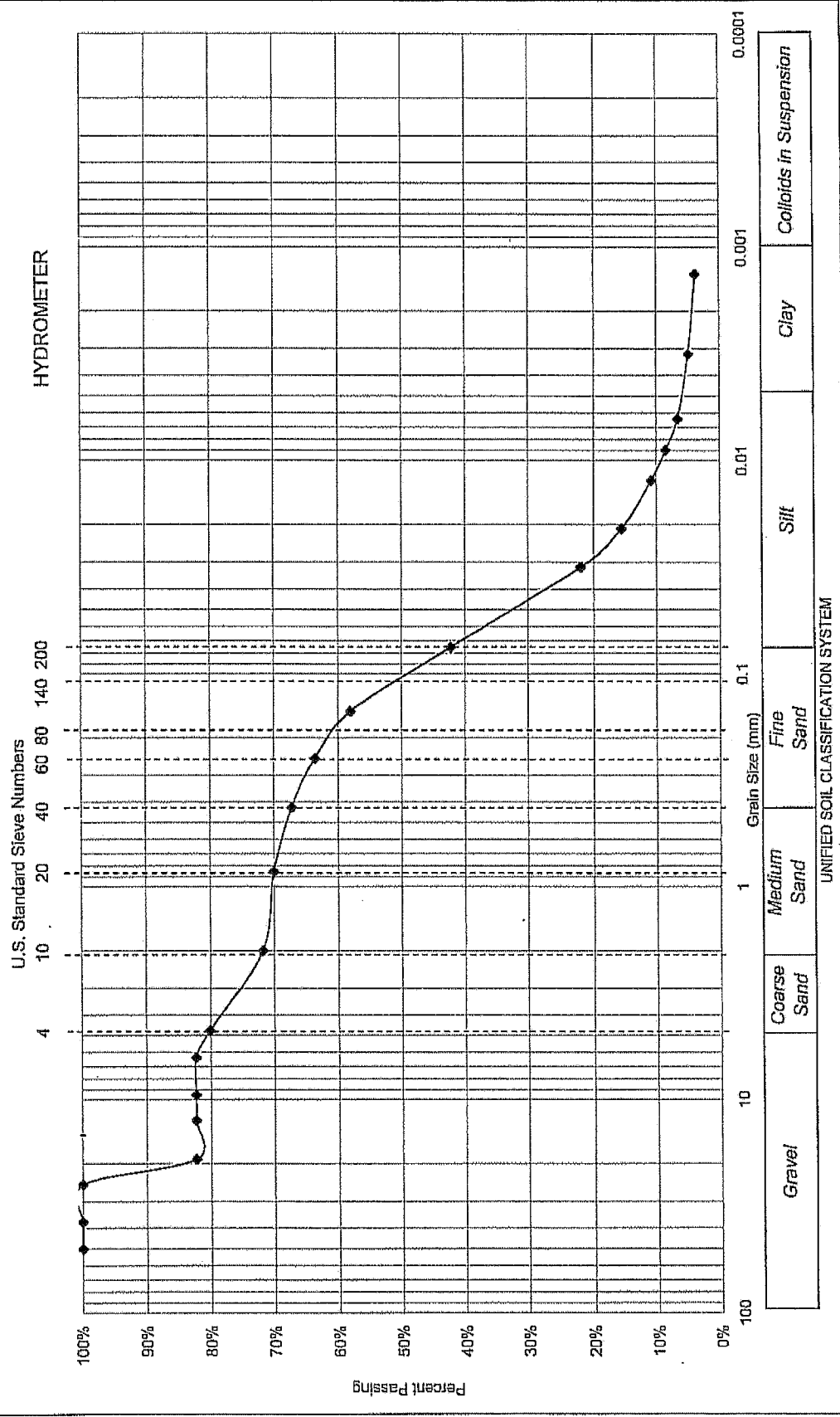
**DRY SIEVE ANALYSIS (AASHTO T-88)**  
*% Passing*

<i>Sieve Size</i>	<i>Particle Size</i>	<i>% Passing</i>
1 1/2-in.	37.5-mm	100.0%
1-in.	25-mm	100.0%
3/4-in.	19-mm	100.0%
1/2-in.	12.5-mm	82.3%
3/8-in.	9.5-mm	82.3%
1/4-in.	6.35-mm	82.3%
No. 4	4.75-mm	80.2%
No. 10	2-mm	71.8%
No. 20	0.85-mm	70.0%
No. 40	0.42-mm	67.3%
No. 60	0.25-mm	63.7%
No. 100	0.15-mm	58.0%
No. 200	0.075-mm	42.2%
Wash 200 (% passing):		39.7

Respectfully Submitted:

  
SOIL CONSULTANTS, INC

Materials Testing Report		SOIL CONSULTANTS, INC. P.O. Drawer 698, Charleston, S.C. 29402		Grain Size Distribution Diagram Hydrometer Analysis - AASHTO T-88	
Project:	People's Creek Bridge	SCI No:	24603	Date:	07/17/12
Client:	AMEC Environment and Infrastructure	Shape:	Angular	Hardness:	soft
Sample ID:	B-4 S-6 & S-7	Sample Color:		G <sub>s</sub> :	2.65 Assumed
				Tan	

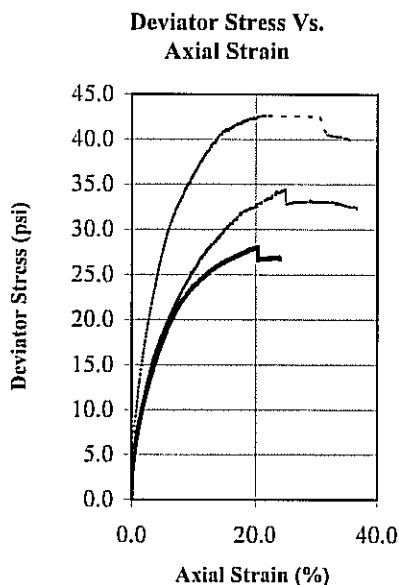
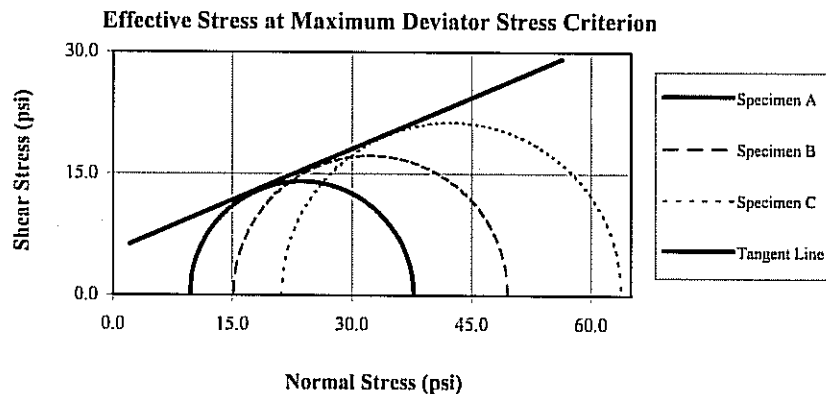


Gravel: 19.83%      Silt: 35.55%  
Sand: 37.95%      Clay: 6.68%

Respectfully Submitted, *[Signature]*




Tested By: Ving Biabo Date: 07-03-12  
Checked By: A. Talbot-Henderson Date: 7/3/12



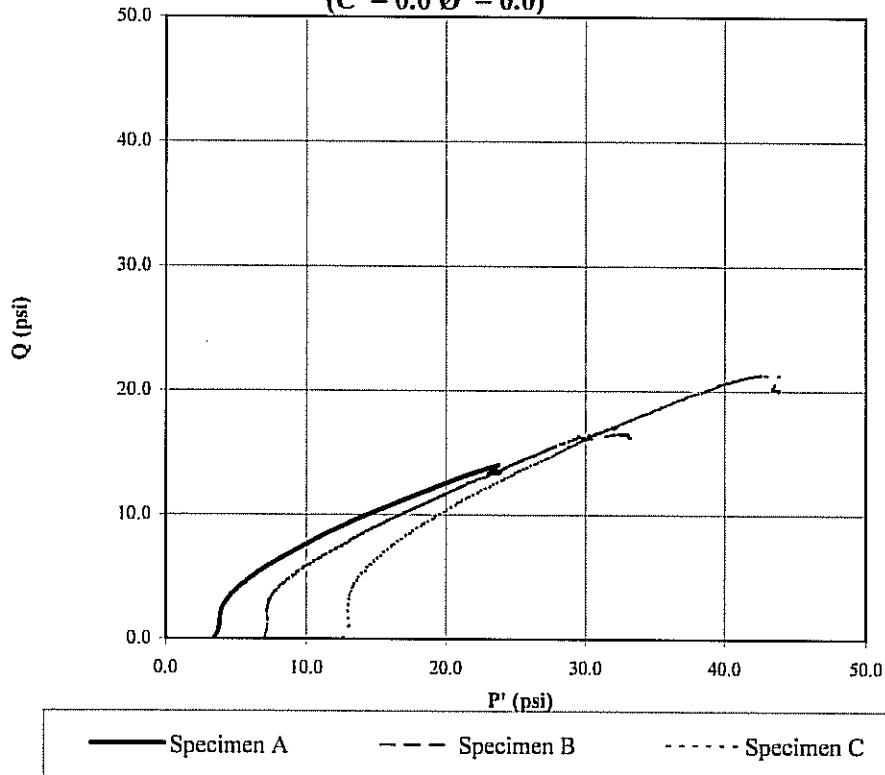
Initial	Specimen			D
	A	B	C	
Water Content (%)	17.6	17.2	18.8	
Dry Density (pcf)	99.9	100.2	98.6	
Saturation (%)	70.88	70.17	73.44	
Void Ratio	0.654	0.647	0.675	
Diameter (in)	1.406	1.406	1.406	
Height (in)	3.469	3.469	3.469	
Specific Gravity	2.65	2.65	2.65	
Liquid Limit	0	0	0	
Plastic Limit	0	0	0	
After Consolidation	A	B	C	D
B-Value	98.00	98.00	98.00	
Water Content (%)	16.6	15.3	15.9	
Dry Density (pcf)	101.41	102.59	102.87	
Saturation (%)	100.00	100.00	100.00	
Void Ratio	0.631	0.613	0.608	
Effective Stress (psi)	3.4	7.0	12.5	
Back Press. (psi)	40.1	40.0	41.5	
Rate of Strain	0.00054	0.00035	0.00038	

Maximum Deviator Stress Criterion		After Shear	A	B	C	D
C (psi)	7.1	$\sigma'_1$ at Failure (psi)	37.74	49.53	63.81	
C' (psi)	5.4	$\sigma'_3$ at Failure (psi)	9.71	15.10	21.17	
$\emptyset$ (deg)	26.4					
$\emptyset'$ (deg)	22.9					

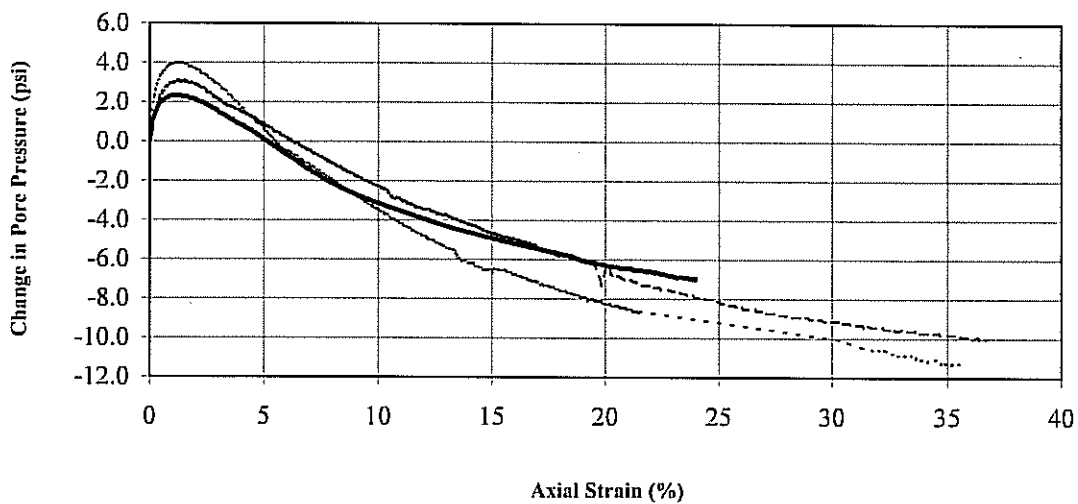
Project:	People's Creek Bridge, Project # 6250-12-0013 Task 002	
Location:	Gaffney, SC	
Project Number:	121269	
Boring Number:	12+50	
Sample Number:	12+50 Bulk sample	
Depth:	NA	
Sample Type:	Remolded	
Description:	Brown silt with sand	
Test Type	Consolidated Undrained	Failure Photographs
Remarks		

Soil Consultants, Inc.  
Consolidated Undrained Triaxial Test (ASTM D4767)

Stress Paths (Effective)  
( $C' = 0.0$   $\phi' = 0.0$ )



Change in Pore Pressure vs. Axial Strain



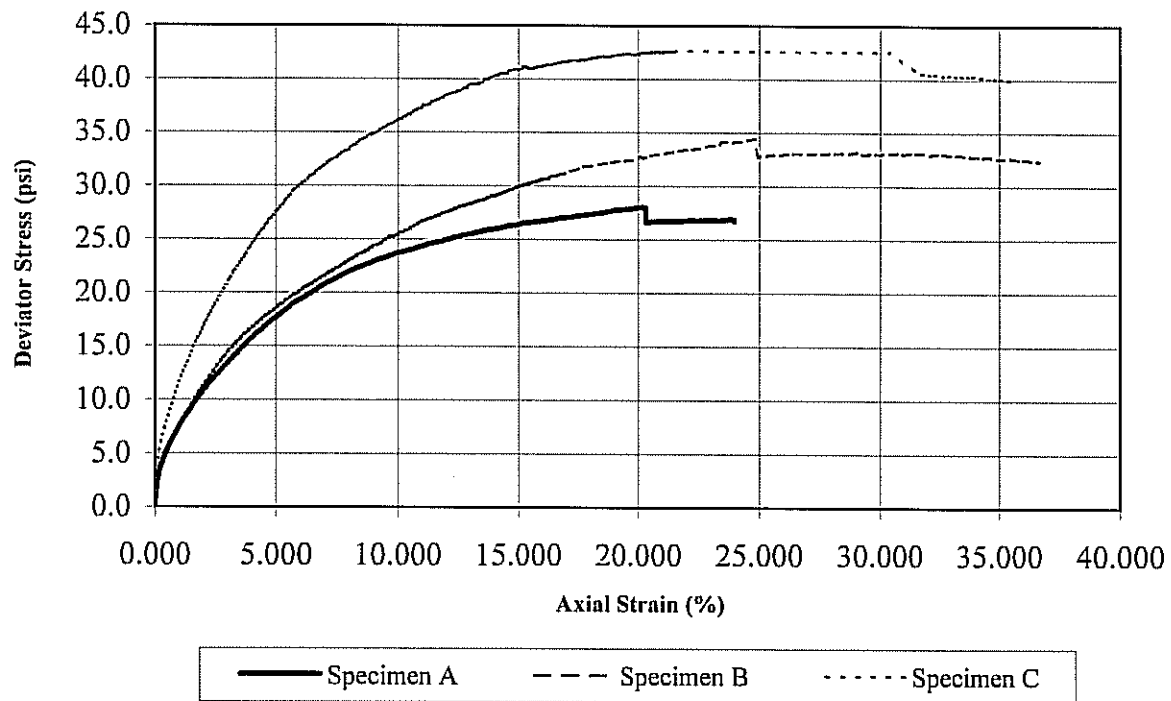
Date: 7/3/12

Checked By: A. Taheri

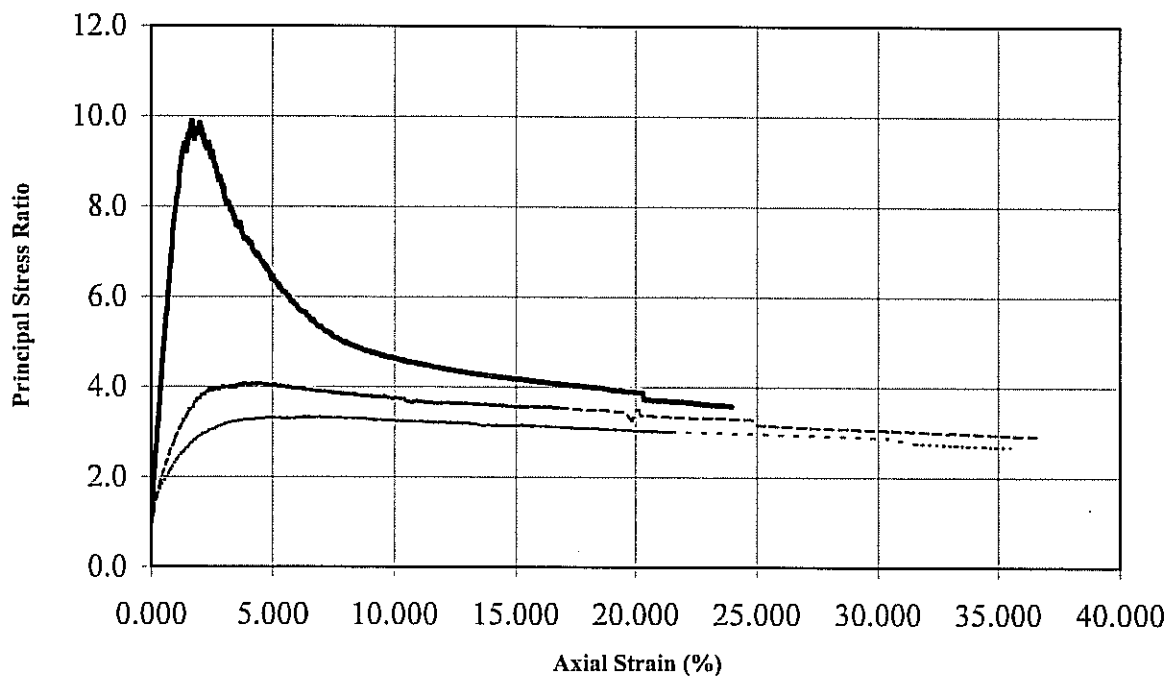
Date: 07.03.12

Tested By: King Biele

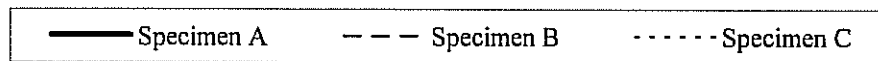
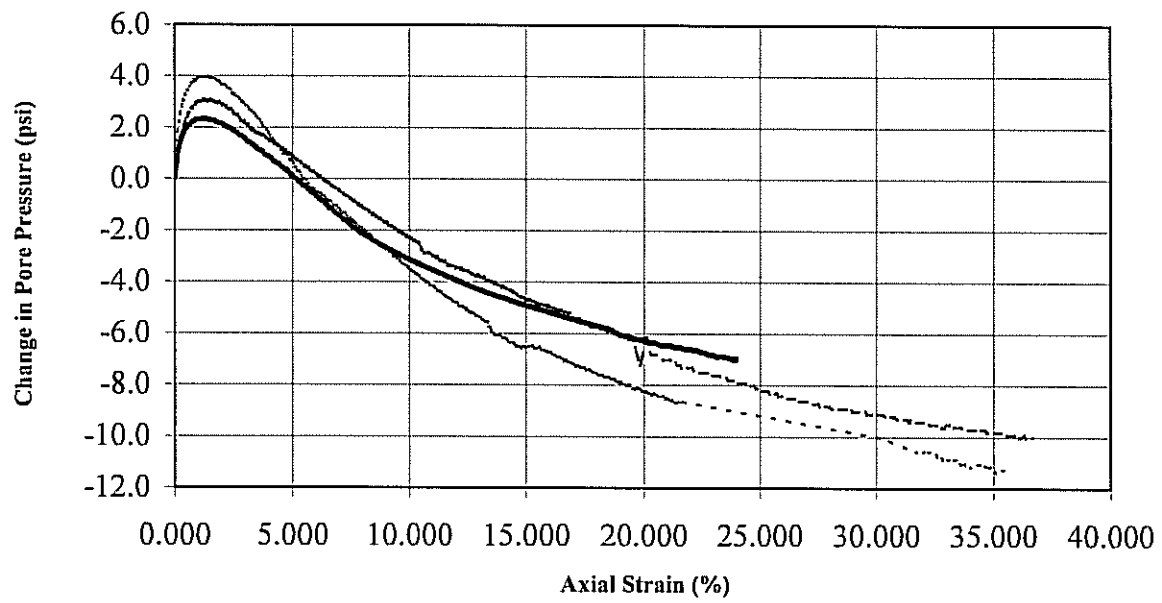
**Deviator Stress vs. Axial Strain**



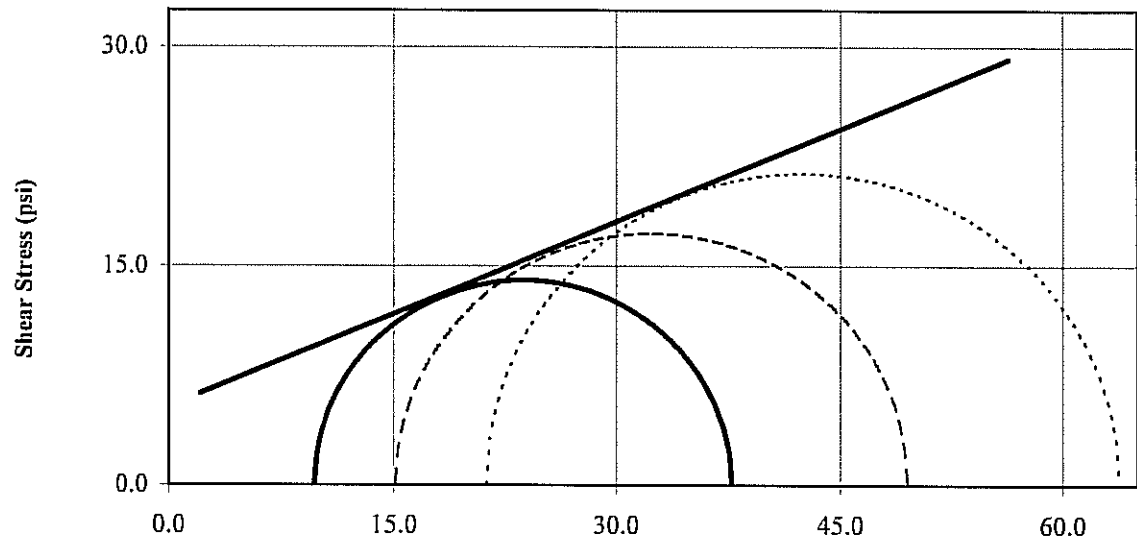
**Principal Stress Ratio vs. Axial Strain**



## Change in Pore Pressure vs. Axial Strain

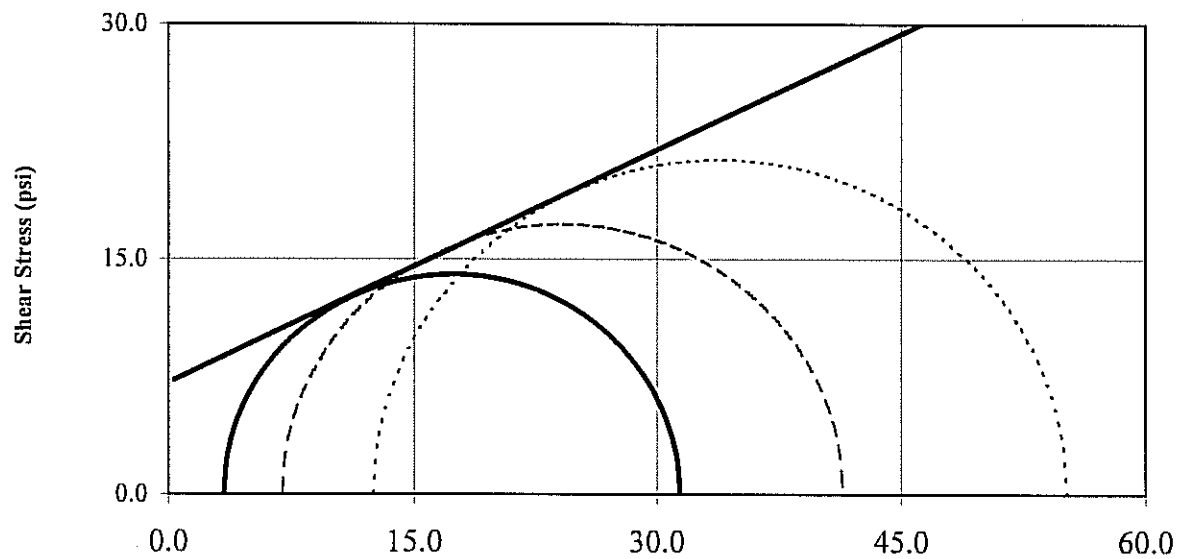


# **Mohr Stress Circles at Maximum Deviator Stress Criterion** **Effective Stress** $(C' = 5.4 \ \phi' = 22.9)$



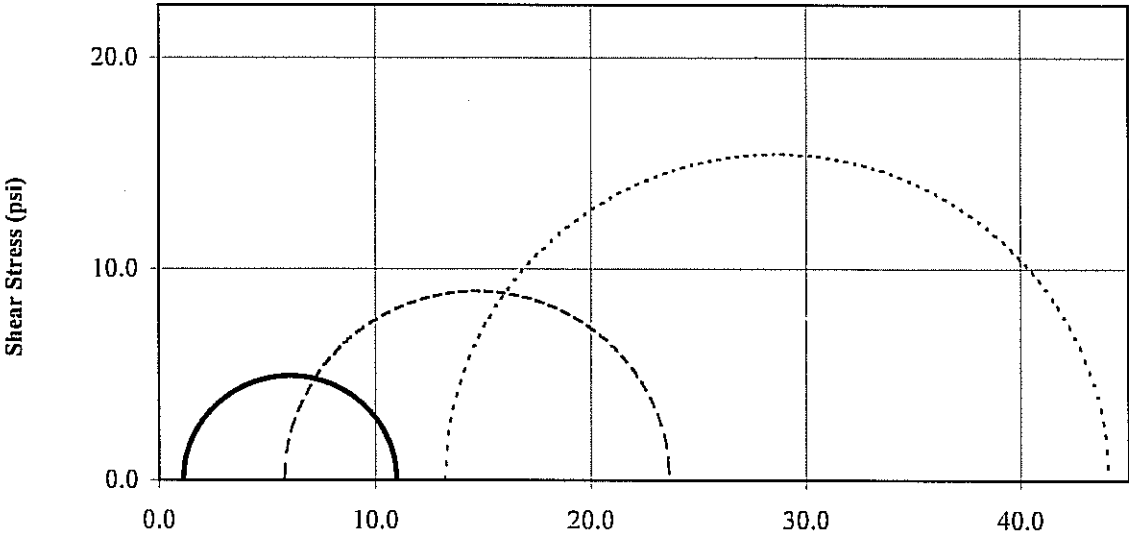
— Specimen A    - - - Specimen B    . . . . . Specimen C    — Tangent Line

## **Total Stress** $(C = 7.1 \ \phi = 26.4)$



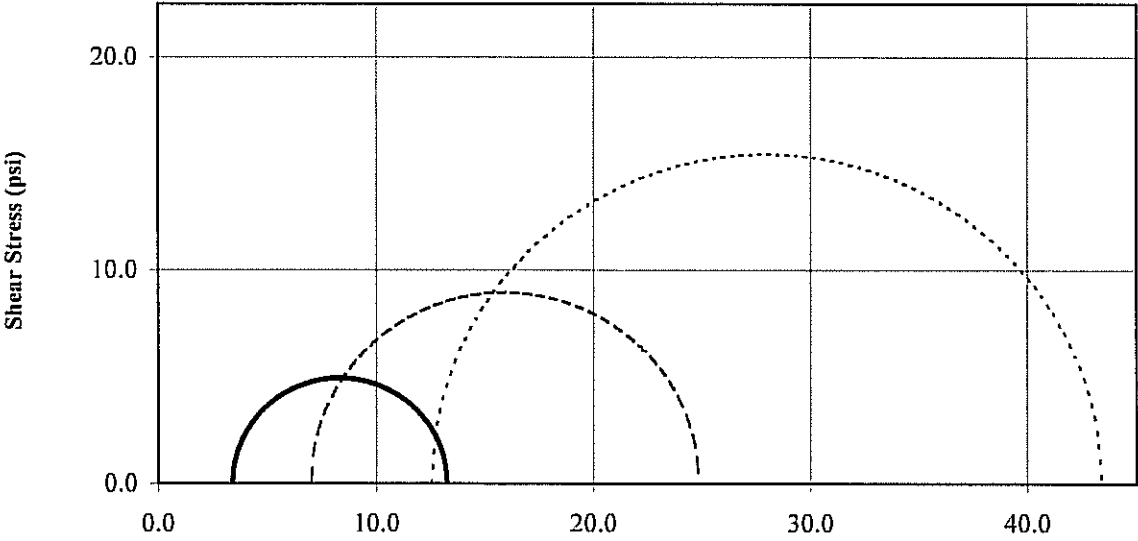
Normal Stress (psi)

# **Mohr Stress Circles at Maximum Principal Stress Ratio Criterion** **Effective Stress** **( $C' = 0.0$ $\phi' = 0.0$ )**



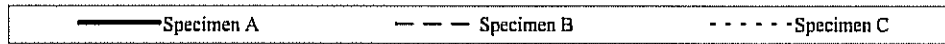
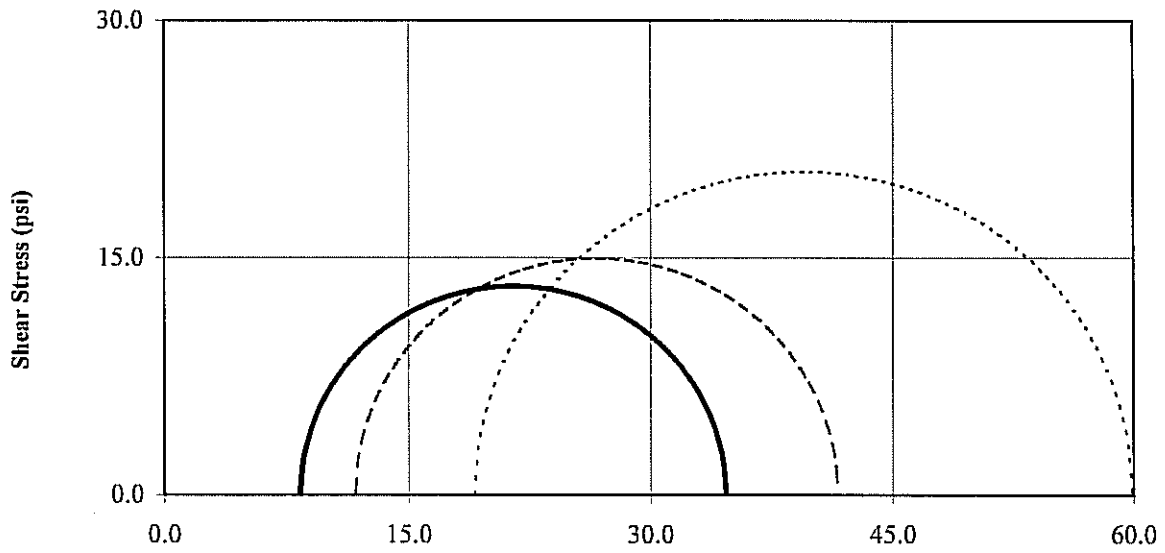
Specimen A
  Specimen B
  Specimen C

## **Total Stress** **( $C = 0.0$ $\phi = 0.0$ )**

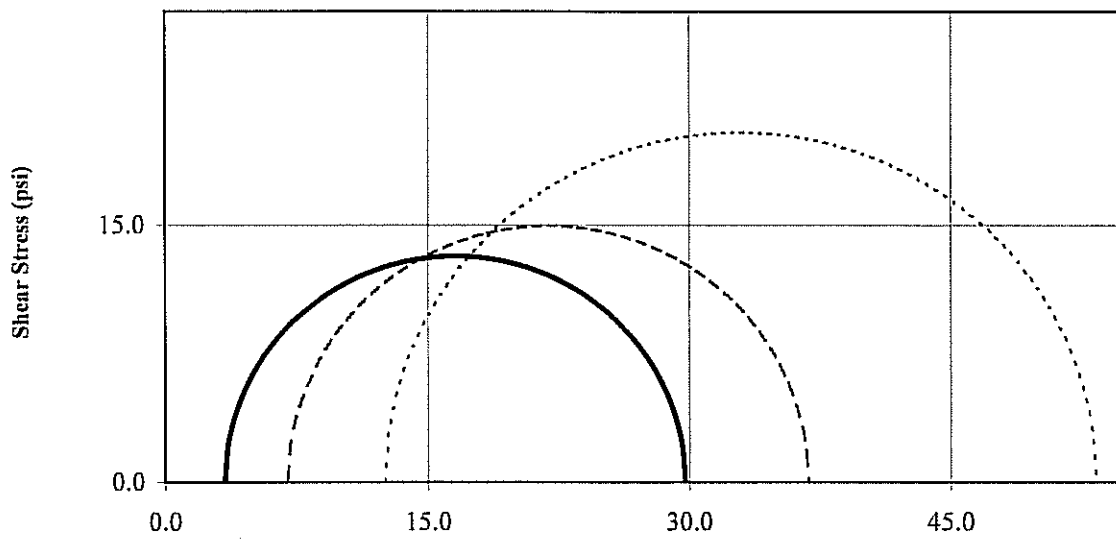


Normal Stress (psi)

# **Mohr Stress Circles at 15% Axial Strain Criterion** **Effective Stress** **( $C' = 0.0$ $\phi' = 0.0$ )**

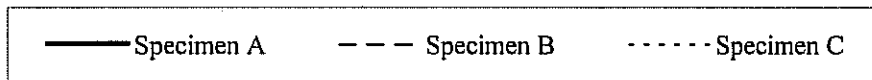
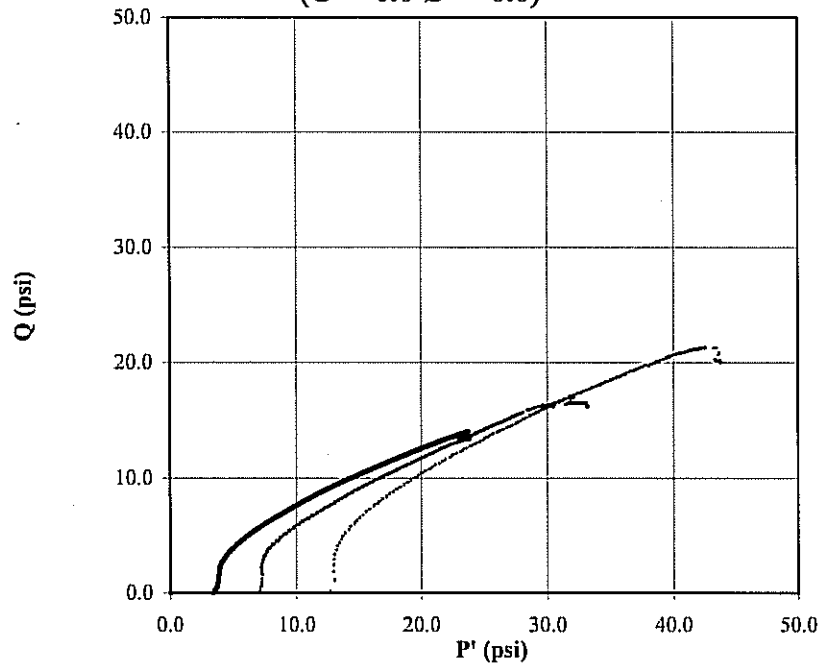


## **Total Stress** **( $C = 0.0$ $\phi = 0.0$ )**

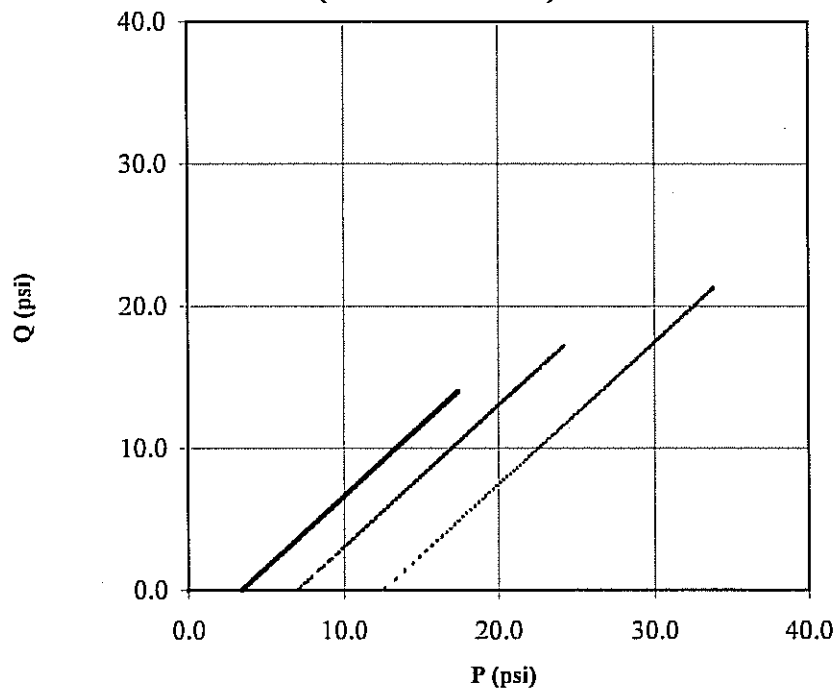


Normal Stress (psi)

**Stress Paths (Effective)**  
**( $C' = 0.0$   $\phi' = 0.0$ )**



**Stress Paths (Total)**  
**( $C' = 0.0$   $\phi' = 0.0$ )**





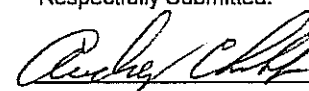
<b>Materials Testing Report</b>	<b>Soil Consultants, Inc.</b> P.O. Drawer 698, Charleston, S.C.	<b>Test Report Soil Classification</b>
<b>Client:</b> AMEC Environment and Infrastructure	<b>Date:</b> 06/12/12	
<b>Project No.:</b> 6250-12-0013	<b>Project Name:</b> People's Creek Bridge	<b>SCI No.:</b> 24300

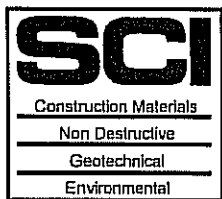
File No.	11.040205	PIN	
Sample Of	Bulk	Sample ID No.	
Date Sampled	05/31/12	Submitted By	Jim Smith
Identification	12+50 Bulk	Address	
Sample Taken from	12+50	To Be Used In	
Sampled By	Dewey Nurris	Date Received	06/01/12
Quantity Represented		Date Tested	06/12/12
Supply Source		Tested By	K.Bialas
Address		Comments:	

<u>Sample as a Whole: (M-145)</u>		<u>Material Under No. 10: (M-145)</u>	
Passing 2 1/2"	<u>100.0%</u>	Passing No. 20	<u>96.3%</u>
Passing 1 1/2"	<u>100.0%</u>	Passing No. 40	<u>93.7%</u>
Passing 3/4"	<u>100.0%</u>	Passing No. 60	<u>91.2%</u>
Passing 3/8"	<u>100.0%</u>	Passing No. 100	<u>88.3%</u>
Passing No. 4	<u>100.0%</u>	Passing No. 200	<u>81.3%</u>
Passing No. 10	<u>98.5%</u>	Total % Fines	<u>81.3%</u>
Silt	<u>NT</u>	Total % Sand	<u>17.2</u>
Clay	<u>NT</u>	Wash 200 % Passing (T-11)	<u>79.9</u>
Determination of Soil Color <u>Brown</u>			
Liquid Limit (AASHTO T-89)	<u>NP</u>	% Moisture (AASHTO T-265)	<u>26.6</u>
Plastic Index (AASHTO T-90)	<u>NP</u>	AASHTO Classification (M-145)	<u>A-4</u>

Notes: Testing Performed by SCI
---------------------------------

Respectfully Submitted:

  
SOIL CONSULTANTS, INC



# SOIL CONSULTANTS, INC.

ENGINEERS AND GEOLOGISTS

SINCE 1951

P.O. Drawer 698 • CHARLESTON, SC 29402 • (843) 723-4539 • Fax (843) 723-3648

[www.soilconsultantsinc.com](http://www.soilconsultantsinc.com)

Acct. No: AM049 Project No: 121269 Date Sampled: 06/01/2012  
Report Date: 07/03/2012 Sampled By: Bialas, Kristy  
Project: People's Creek Bridge, Project # 6250-12-0013 Task 002 - By Order Of: Client  
Location: Station No. 12+50 Order Number:  
Client: AMEC ENVIRONMENT AND INFRASTRUCTURE  
REPORT: Proctor

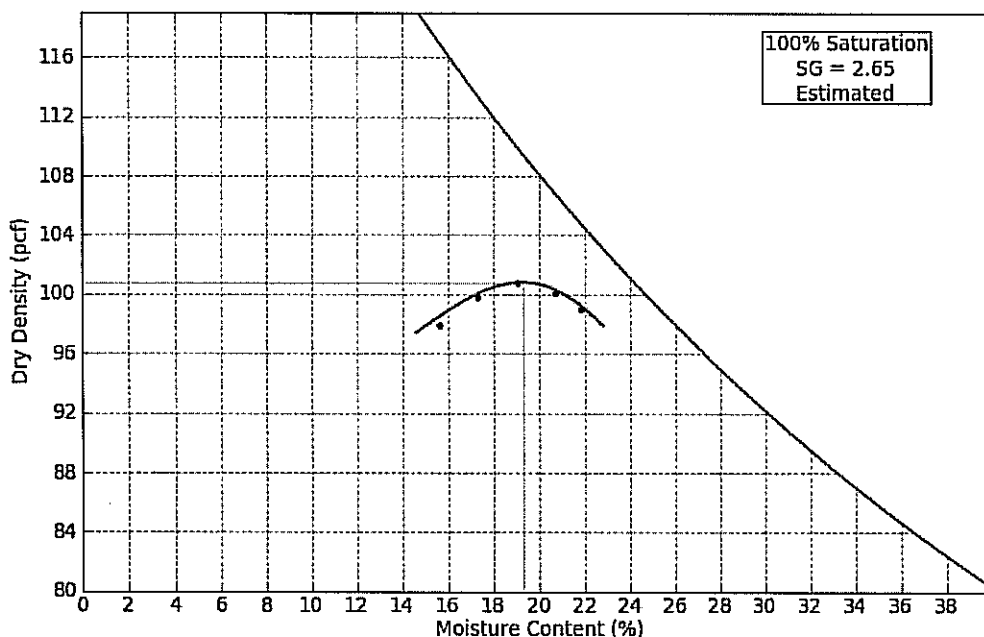
LAB NO: 24300-4  
Test Method: See Below

## TEST RESULTS

Report No: 24300-4  
Page 1 of 1

Visual Classification: Brown silt with sand  
Supplier: On Site Material  
Material Application:

Rammer Type: Mechanical  
Prep. Method: Dry



### Test Results:

Maximum Dry Unit Weight: 100.8 pcf  
Optimum Water Content: 19.3 %

### Properties:

Liquid Limit NP  
Plastic Limit NP  
Plasticity Index NP

Test Methods: ASTM D-698 Method-A

Orig: AMEC ENVIRONMENT AND INFRASTRUCTURE  
(COLUMBIA, SC) Attn: Mr. Jim Smith  
E-Mail: [Jim.A.Smith@amec.com](mailto:Jim.A.Smith@amec.com) (1-ec copy)  
1-ec AMEC ENVIRONMENT AND INFRASTRUCTURE  
Attn: MS. KELLY DEMONTBRUN  
E-Mail: [kelly.demontbrun@amec.com](mailto:kelly.demontbrun@amec.com)

Respectfully Submitted,  
SOIL CONSULTANTS, INC.



Audrey Chubb, DMT Manager



July 18, 2012

Mr. Martin I. Okorie, PE RPG 4  
South Carolina Department of Transportation  
955 Park Street, Room 216  
Columbia, South Carolina 29201

Subject: **Report of SASW Testing**  
**Replacement Bridge Over Peoples Creek Bridge**  
**Gaffney, South Carolina**  
**AMEC Project No. 6250-12-0013.0002**  
**SCDOT File No. 11.040205**

Dear Mr. Okorie:

AMEC Environment & Infrastructure, Inc. (AMEC) has completed spectral analysis of surface waves (SASW) testing for the Peoples Creek Bridge in Gaffney, South Carolina. This report discusses our understanding of the project, describes the SASW testing procedures, and presents the associated shear wave velocity profile.

#### **PROJECT INFORMATION**

We understand that the South Carolina Department of Transportation (SCDOT) is planning to replace the existing Peoples Creek Bridge located along Beech Street between the intersections with 13<sup>th</sup> Street and Goldmine Springs Road in Gaffney, South Carolina. For design of the replacement bridge, we understand that determination of the appropriate Site Class according to the International Building Code (IBC) is required. To that end, AMEC performed shear wave velocity profiling at the site using SASW. For this project, one SASW array, designated SA-1, was performed to the immediate northwest of the existing bridge.

#### **SASW TESTING**

Shear wave velocity profiling was performed using SASW. SASW is a nondestructive and nonintrusive seismic method used to evaluate shear wave velocity profiles in the field. The method utilizes the dispersive nature of Rayleigh-type surface waves propagating through a layered material to determine the shear wave velocity ( $V_s$ ) profile of the material. Dispersion in surface wave velocity arises from changing stiffness properties of the soil and rock layers with depth. A high-frequency surface wave, which propagates with a short wavelength, only stresses material near the exposed surface and thus only samples the properties of the shallow, near-surface material. A lower frequency surface wave, which has a longer wavelength,

AMEC Environment & Infrastructure, Inc.  
1000 Hurricane Shoals Road  
Building B, Suite 100  
Lawrenceville, Georgia 30043  
Tel (770) 962-7435  
Fax (770) 962-7436

stresses material to a greater depth and thus samples the properties of the shallower and deeper materials. Spectral analysis is used to separate the waves by frequency and wavelength to determine the experimental (field) dispersion curve. An analytical, forward-modeling procedure is then used to theoretically match the field dispersion curve with a one-dimensional layered system of varying layer stiffnesses and thicknesses. The profile that generates a dispersion curve that most closely matches the field dispersion curve is presented as the shear wave velocity profile for the array.

### **Data Collection**

SASW testing involved generating surface waves at one point on the surface and measuring the motions perpendicular to the surface created by the passage of surface waves past three, 1-Hz geophones arranged on the surface along a single radial path from the source. Sources included hammers and metal plates of various sizes to provide data over a range of frequencies. A four-channel digital signal analyzer was used to record the data from each geophone and to perform frequency domain calculations for review in the field. As the test progresses and the geophone and source spacing increases, a field dispersion curve was developed which can be used to determine the shear wave velocity profile of the underlying soil.

### **Data Processing**

The collected data was processed and analyzed using proprietary software. The software, WinSASW, enables the user to compute a velocity spectrum for the Rayleigh-wave dispersion curve. Analytical forward modeling is then used to theoretically match the dispersion curve with a layered profile consisting of variable thickness and stiffness layers. This layered profile can then be used to calculate the appropriate IBC Site Class.

### **Shear Wave Velocity Profile and Site Class**

The shear wave velocity profile for array SA-1 is attached. Based on the profile, subsurface conditions are characterized by approximately 30 feet of low to moderate velocity soils (shear wave velocities from about 550 to 800 fps) underlain by approximately 40 feet of stiffer soils (shear wave velocities from about 950 to 1100 fps). Around 70 feet below grade, higher velocity materials interpreted as partially weathered rock (shear wave velocity about 1700 fps) were encountered until the maximum depth explored of 80 feet. Using this profile, IBC methodology described in Section 1613.5, and assuming that the shear wave velocity below 80 feet is the same as that directly above, we calculate an average shear wave velocity for a 100-foot deep profile of 940 fps. This value is greater than 600 fps and less than 1200 fps. Therefore, the Site Class according to IBC Table 1613.5.2 is "D".


## QUALIFICATIONS

The provided shear wave velocity profile represents average shear wave velocities of a large volume of the subsurface and thus are representative of conditions responsible for site response. The local velocities and depths of individual layers may vary along the length of the array. Therefore, these results should not be used for other purposes without consulting the geotechnical engineer.

We appreciate the opportunity of working with you on this project. Please contact us if you have any questions about this report or if we may be of further service.

Sincerely,

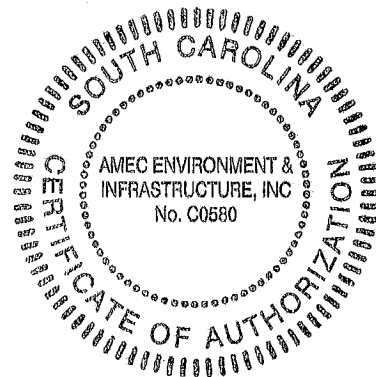
AMEC ENVIRONMENT & INFRASTRUCTURE, INC.

 R. Jeffrey Smith with permission  
Principal Professional

Steve Kiser, P.E.  
Principal Engineer  
Registered, SC 24553



Attachment: Shear Wave Velocity Profile for Array SA-1



Peoples Creek Bridge  
Gaffney, South Carolina  
AMEC Project No. 6250-12-0013

