

Preliminary Foundation Recommendations
Bridge 13: I-75 Reversible Lanes over Windy Hill Road
Northwest Corridor Project
GDOT Project No. NH000-0073-03(242), PI No. 714130
Cobb County, Georgia

WILLMER ENGINEERING INC.

Project No. ATL-171-3463BFI

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Prepared For

GEORGIA TRANSPORTATION PARTNERS

Atlanta, Georgia

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Preliminary Foundation Recommendations
 Bridge 13: I-75 Reversible Lanes over Windy Hill Road
 Northwest Corridor Project

PWR AND AUGER REFUSAL ELEVATIONS (feet)			
Bent No.	Reference Boring No.	Top of PWR	Auger Refusal
1	B-81	895.5	893
2	B-82	916	-
3	B-83	861	851
4	B-84	861	-
5	B-85	861	856
6	B-80	864	-
7	B-86	884	863
8	B-87	865	-
9	B-88	880	878
10	B-89	922	909
11	B-90	951	-
12	B-91	954	948
13	B-92	912	-
14	B-93	904	-
15	B-94	879	-
16	B-95	907	-
17	B-96	915	909
18	B-97	913	911
19	B-98	921	920
20-Left	B-99A	950	949
20-Right	B-99B	-	948
21	B-100	912	909
22	B-100/A-1	912/940	909/928
23	A-1	940	928
24	A-2	942	929

Preliminary Foundation Recommendations
 Bridge 13: I-75 Reversible Lanes over Windy Hill Road
 Northwest Corridor Project

MAXIMUM PILE DESIGN LOADS			
Pile Type	Load Transfer (%)		Design Load
	Friction	End Bearing	
H-Piles	20-80	20-80	HP 10x42 = 55 Tons
			HP 12x53 = 70 Tons
			HP 14x73 = 96 Tons
			HP 14x89 = 117 Tons

Preliminary Foundation Recommendations
 Bridge 13: I-75 Reversible Lanes over Windy Hill Road
 Northwest Corridor Project

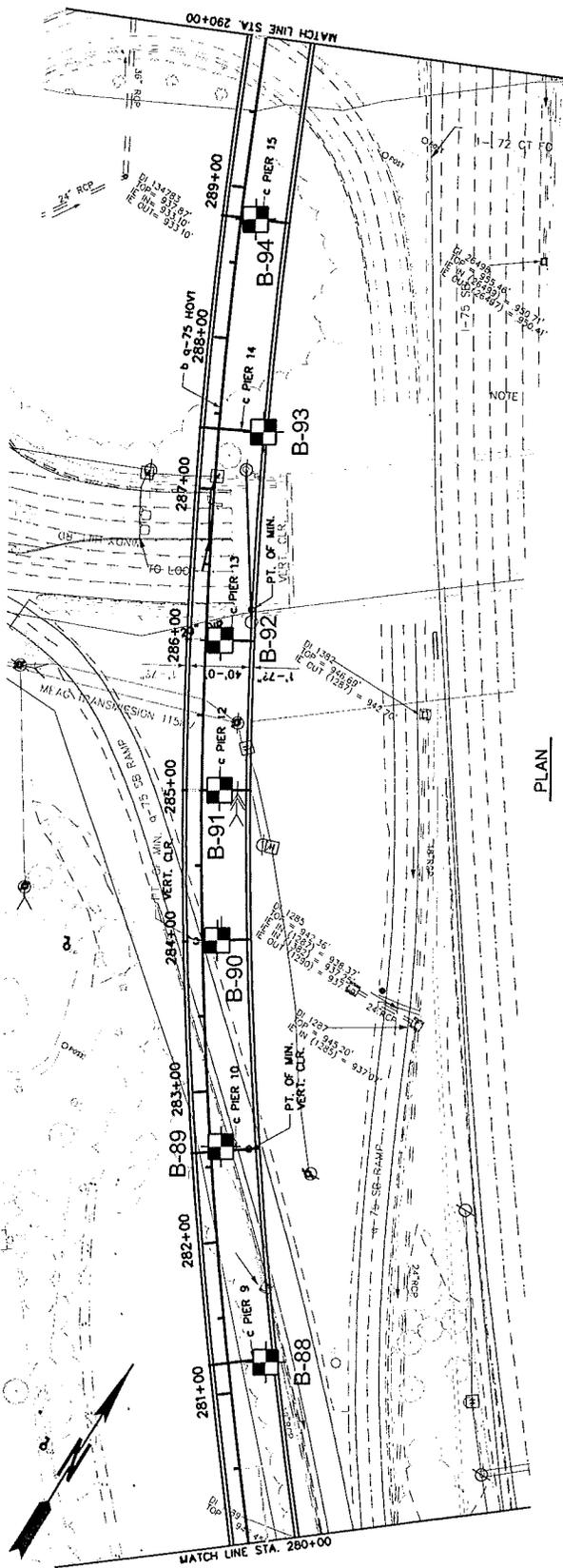
FOUNDATION RECOMMENDATIONS						
Bent No.	Drilled Shaft			Spread Footing (Bearing) (ksf)	Pile Footing (Type)	Pile Bent (Type)
	Skin Friction (ksf)		End Bearing (ksf)			
	PWR	Rock				
1						H
2					H	
3					H	
4					H	
5	2	5	60		H(ALT)	
6					H	
7					H	
8					H	
9					H	
10					H	
11					H	
12				10 ksf on PWR	H(ALT)	
13					H	
14					H	
15					H	
16					H	
17					H	
18					H	
19					H	
20-Left				20 ksf on rock		
20-Right					H	
21					H	
22					H	
23					H	
24						H

Preliminary Foundation Recommendations
 Bridge 13: I-75 Reversible Lanes over Windy Hill Road
 Northwest Corridor Project

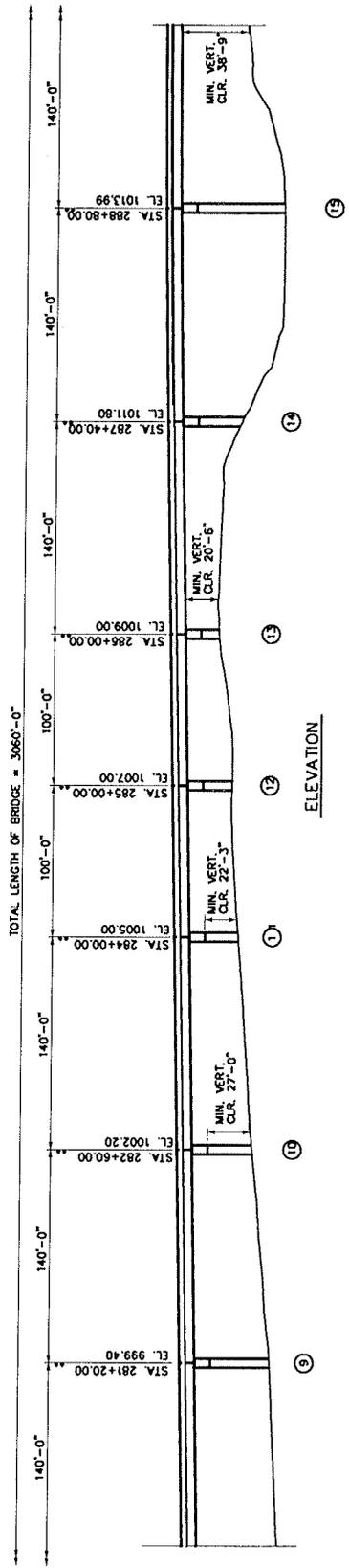
ELEVATIONS (feet)					
Bent No.	Reference Boring No.	Bottom of Drilled Shaft ¹	Bottom of Spread Footing	H-Pile	
				Minimum Tip	Estimated Tip
1	B-81			914±	912±
2	B-82			915±	913±
3	B-83			860±	858±
4	B-84			860±	858±
5	B-85	851 or below		860±(ALT) ²	858± (ALT) ²
6	B-80			864±	862±
7	B-86			884±	882±
8	B-87			864±	862±
9	B-88			879±	878±
10	B-89			921±	919±
11	B-90			949±	947±
12	B-91		962 or below	953±(ALT)	951± (ALT)
13	B-92			911±	909±
14	B-93			907±	904±
15	B-94			887±	885±
16	B-95			906±	904±
17	B-96			914±	912±
18	B-97			912±	911±
19	B-98			920±	920±
20-Left	B-99A		949 or below		
20-Right	B-99B			948±	948±
21	B-100			912±	912±
22	B-100/A-1			927±	926±
23	A-1			942±	940±
24	A-2			955±	953±

Notes:

1. Based on information provided by the Structural Engineer, the required minimum diameter of drilled shafts is 7 feet, and the maximum axial load for the shaft is about 2,400 kips. The recommended bottom elevation of drilled shaft is for a shaft diameter of 7 feet and an axial load capacity of 3,000 kips.
2. Pile points will be required if H-piles are used at Bent-5 to ensure penetration through possible boulders in the existing fill soils.



PLAN



ELEVATION

1000
990
980
970
960
950
940

1000
990
980
970
960
950
940

LEGEND:

BORING LOCATION
B-88

NOTE: BRIDGE PLAN AND PROFILE PROVIDED BY GEORGIA TRANSPORTATION PARTNERS

GDOT PROJECT NUMBER
NH000-0073-03(242)
PI No. 714130

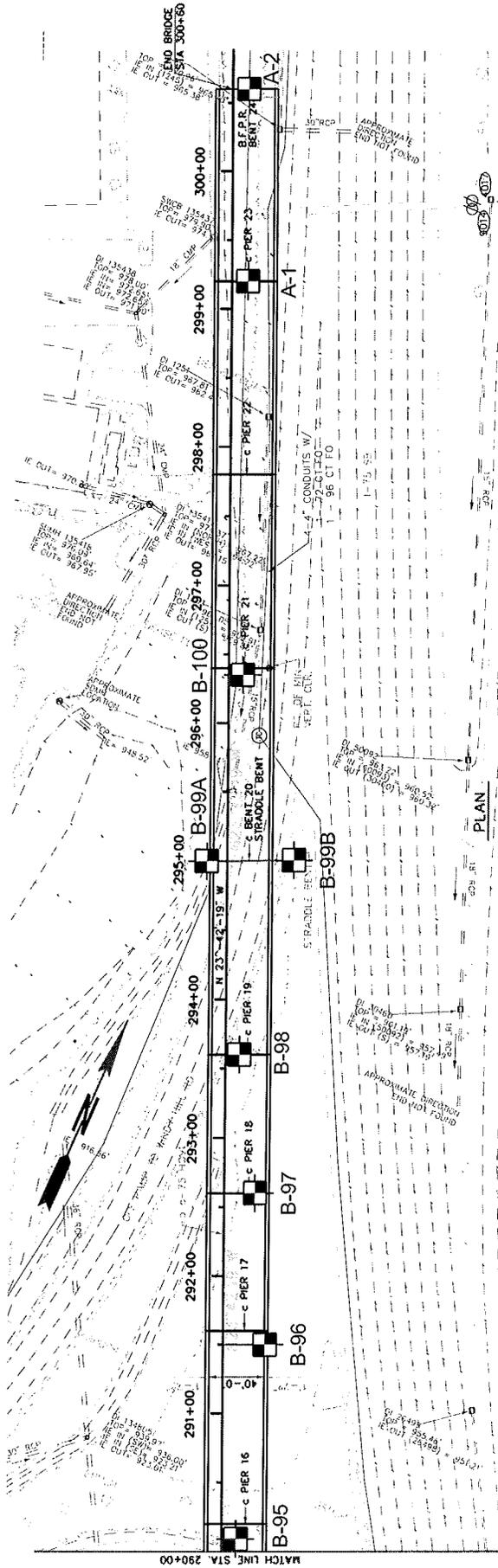
BORING LOCATION PLAN (SHEET 2 OF 3)
BRIDGE 13: I-75 REVERSIBLE LANES OVER
WINDY HILL ROAD
NORTHWEST CORRIDOR PROJECT
COBB COUNTY, GEORGIA
WILLMER PROJECT No. ATL-171-3463BF13

GEOTECHNICAL ENGINEERING ■ CONSTRUCTION SERVICES
ENVIRONMENTAL SERVICES AND ENGINEERING
3772 PLEASANTDALE ROAD - SUITE 165
ATLANTA, GA 30340-4270

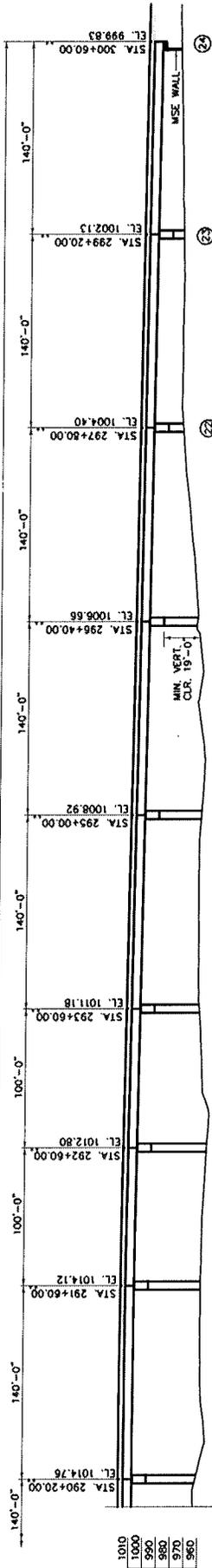


WILLMER ENGINEERING INC.

SCALE: 1" = 120'
DATE: 10/22/2009
DRAWN BY: MJW
REVIEWED BY: MK



TOTAL LENGTH OF BRIDGE = 3065'-0"



LEGEND:

 BORING LOCATION
B-95

NOTE: BRIDGE PLAN AND PROFILE PROVIDED BY GEORGIA TRANSPORTATION PARTNERS

SCALE: 1" = 120'

DATE: 10/22/2009

DRAWN BY: MJW

REVIEWED BY: MK

GDOT PROJECT NUMBER
NH000-0073-03(242)
PI No. 714130

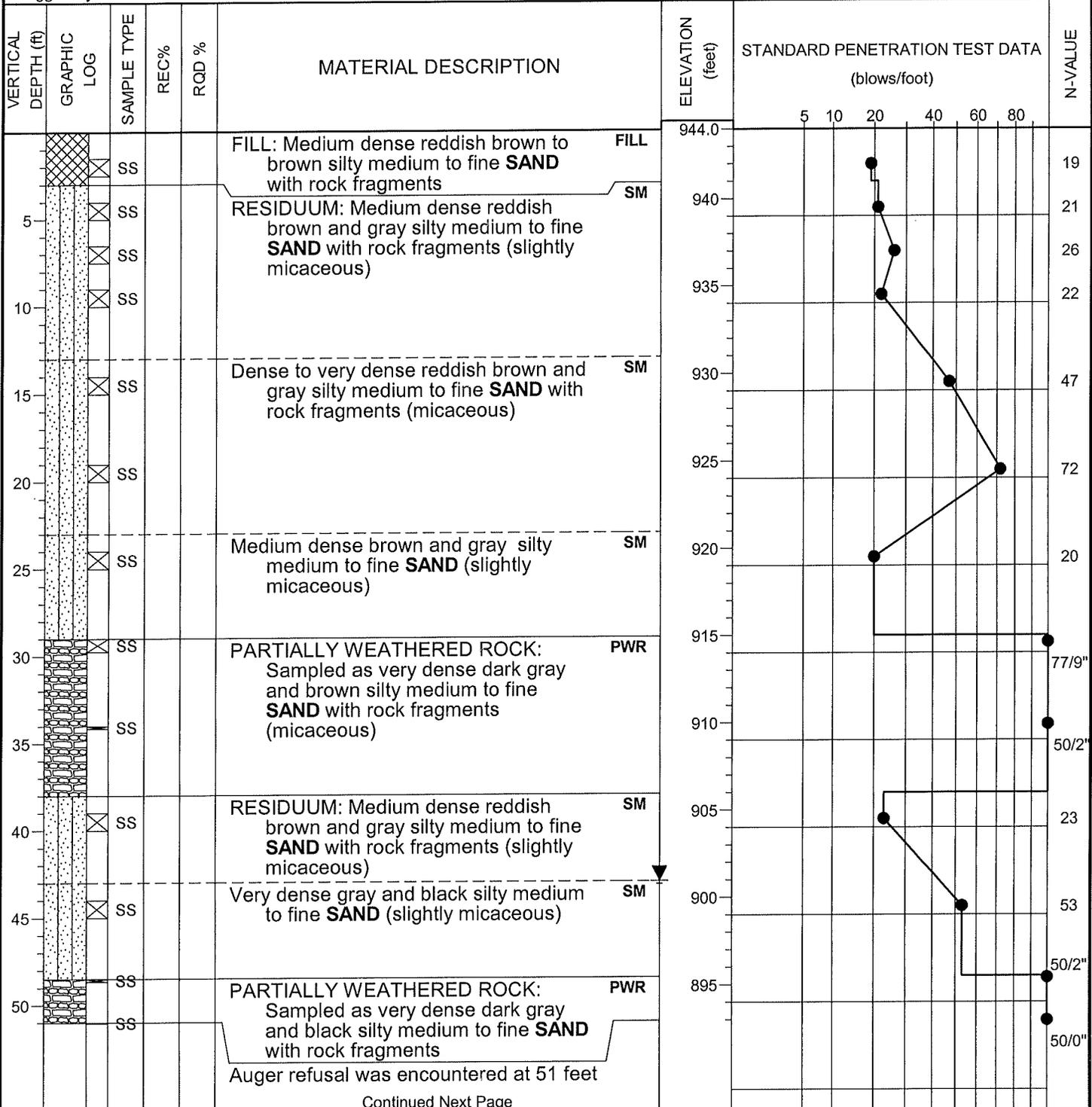
BORING LOCATION PLAN (SHEET 3 OF 3)
BRIDGE 13: I-75 REVERSIBLE LANES OVER
WINDY HILL ROAD
NORTHWEST CORRIDOR PROJECT
COBB COUNTY, GEORGIA
WILLMER PROJECT No. ATL-171-3463BF13

GEOTECHNICAL ENGINEERING - CONSTRUCTION SERVICES
ENVIRONMENTAL SERVICES AND ENGINEERING
3772 PLEASANTDALE ROAD - SUITE 185
ATLANTA, GA 30340-4270



WILLMER ENGINEERING INC.

Project: Bridge 13: I-75 Reversible Lanes over Windy Hill Road		HOLE No. B-81	
Location: Cobb County, Georgia		Sheet 1 of 2	
Project Number: 171-3463BF13; GDOT Proj. # : NH000-0073-03(242); PI #: 714130		Location: BENT - 1	
Azimuth: --	Angle from Horizontal: 90	Surface Elevation (ft): 944.00	Station: ST 270+00, 20' Rt. of BL
Drilling Equipment: CME550/MACTEC		Drilling Method: HSA-Auto Hammer	
Core Boxes: NA	Samples: 13	Overburden (ft): 51	Rock (ft): NA
Logged By: PT		Date Drilled: 9/16/09	

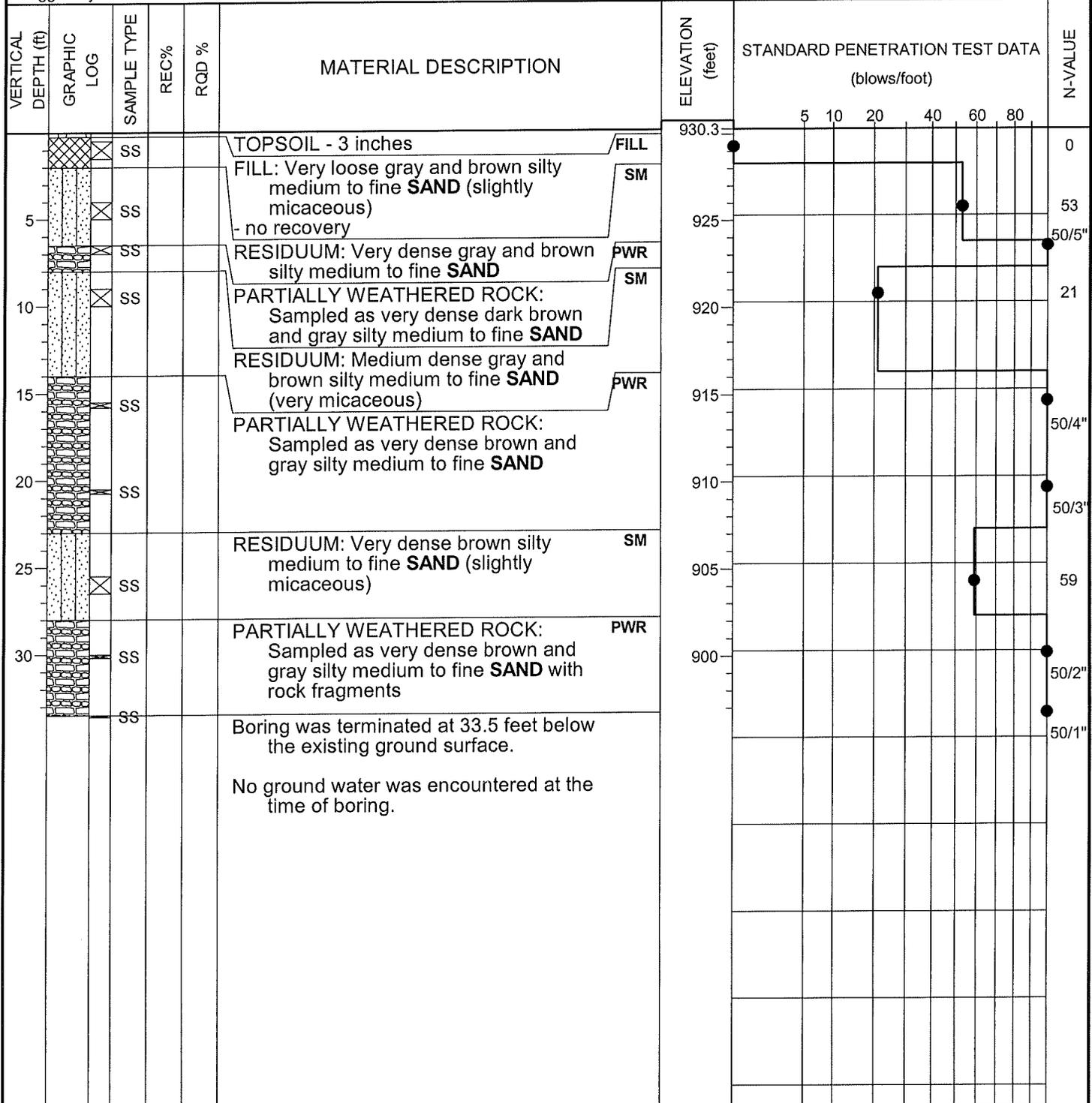


Continued Next Page

SPTN 171-3463BF13.GPJ 10/26/09

SAMPLER TYPE SS - Split Spoon ST - Shelby Tube NQ - Rock Core, 1-7/8"	NX - Rock Core, 2-1/8" CU - Cuttings CT - Continuous Tube	DRILLING METHOD HSA - Hollow Stem Auger CFA - Continuous Flight Augers DC - Driving Casing	RW - Rotary Wash RC - Rock Core Hole No. <div style="text-align: right; font-weight: bold; font-size: 1.2em;">B-81</div>
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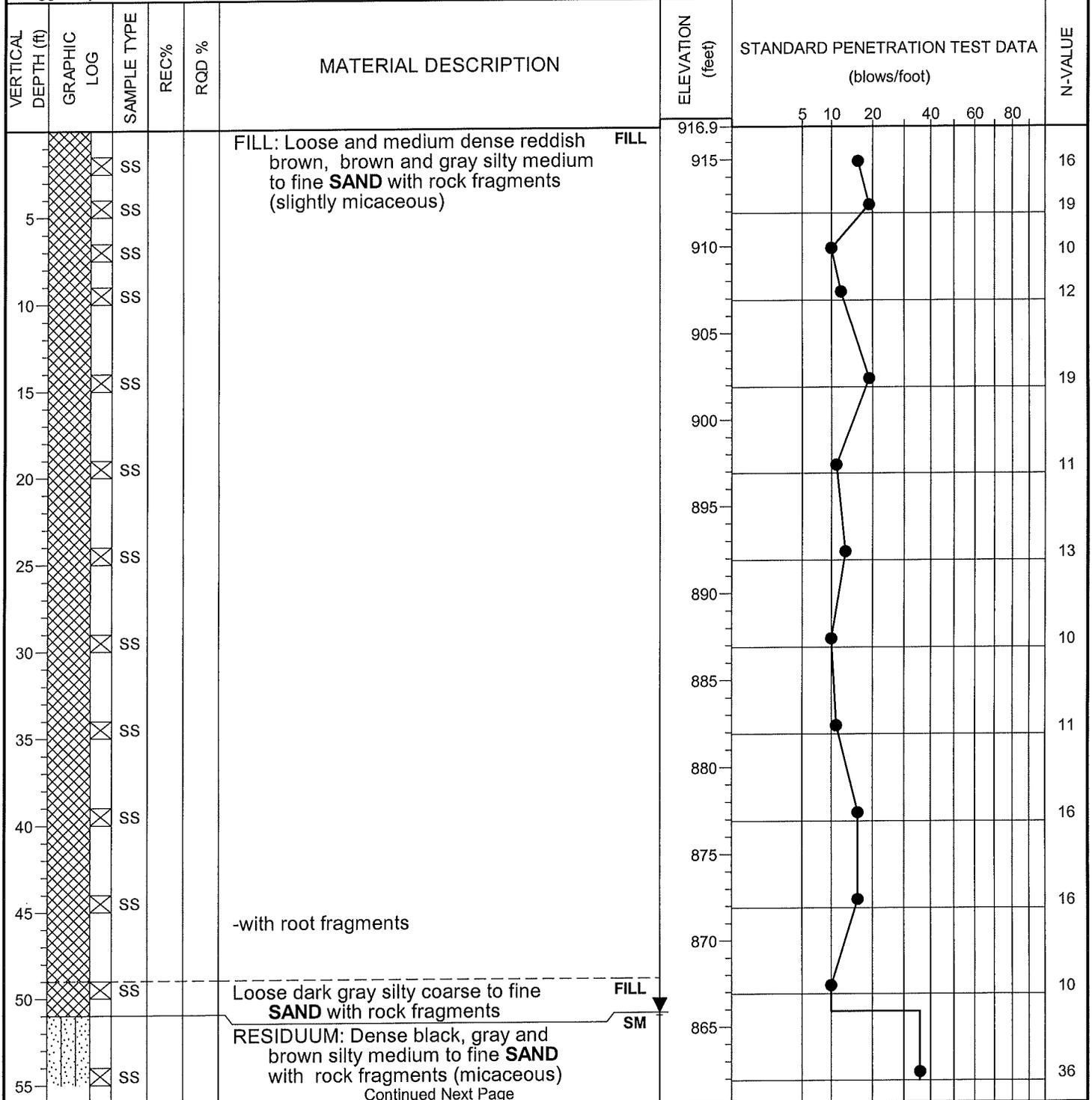
Project: Bridge 13: I-75 Reversible Lanes over Windy Hill Road		HOLE No. B-82	
Location: Cobb County, Georgia		Sheet 1 of 1	
Project Number: 171-3463BF13; GDOT Proj. # : NH000-0073-03(242); PI #: 714130		Location: BENT - 2	
Azimuth: --	Angle from Horizontal: 90	Surface Elevation (ft): 930.30	Station: ST 271+40, 6' Rt. of BL
Drilling Equipment: CME550/MACTEC		Drilling Method: HSA-Auto Hammer	
Core Boxes: NA	Samples: 9	Overburden (ft): NA	Rock (ft): NA
Logged By: PT		Date Drilled: 10/6/09	



SAMPLER TYPE SS - Split Spoon ST - Shelby Tube NQ - Rock Core, 1-7/8"	DRILLING METHOD HSA - Hollow Stem Auger CFA - Continuous Flight Augers DC - Driving Casing	NX - Rock Core, 2-1/8" CU - Cuttings CT - Continuous Tube RW - Rotary Wash RC - Rock Core
Hole No.		B-82

SPTN 171-3463BF1.GPJ 10/26/09

Project: Bridge 13: I-75 Reversible Lanes over Windy Hill Road				HOLE No. B-83	
Location: Cobb County, Georgia				Sheet 1 of 2	
Project Number: 171-3463BF13; GDOT Proj. # : NH000-0073-03(242); PI #: 714130				Location: BENT - 3	
Azimuth: --		Angle from Horizontal: 90	Surface Elevation (ft): 916.90	Station: ST 272+84, BL	
Drilling Equipment: CME550/MACTEC			Drilling Method: HSA-Auto Hammer		
Core Boxes: NA	Samples: 16	Overburden (ft): 66	Rock (ft): NA	Total Depth (ft): 66.0	
Logged By: PT			Date Drilled: 9/16/09		



Project: **Bridge 13: I-75 Reversible Lanes over Windy Hill Road**
 Location: **Cobb County, Georgia**
 Project Number: **171-3463BFI3; GDOT Proj. # : NH000-0073-03(242); PI #: 714130**

HOLE No. B-83

Sheet 2 of 2

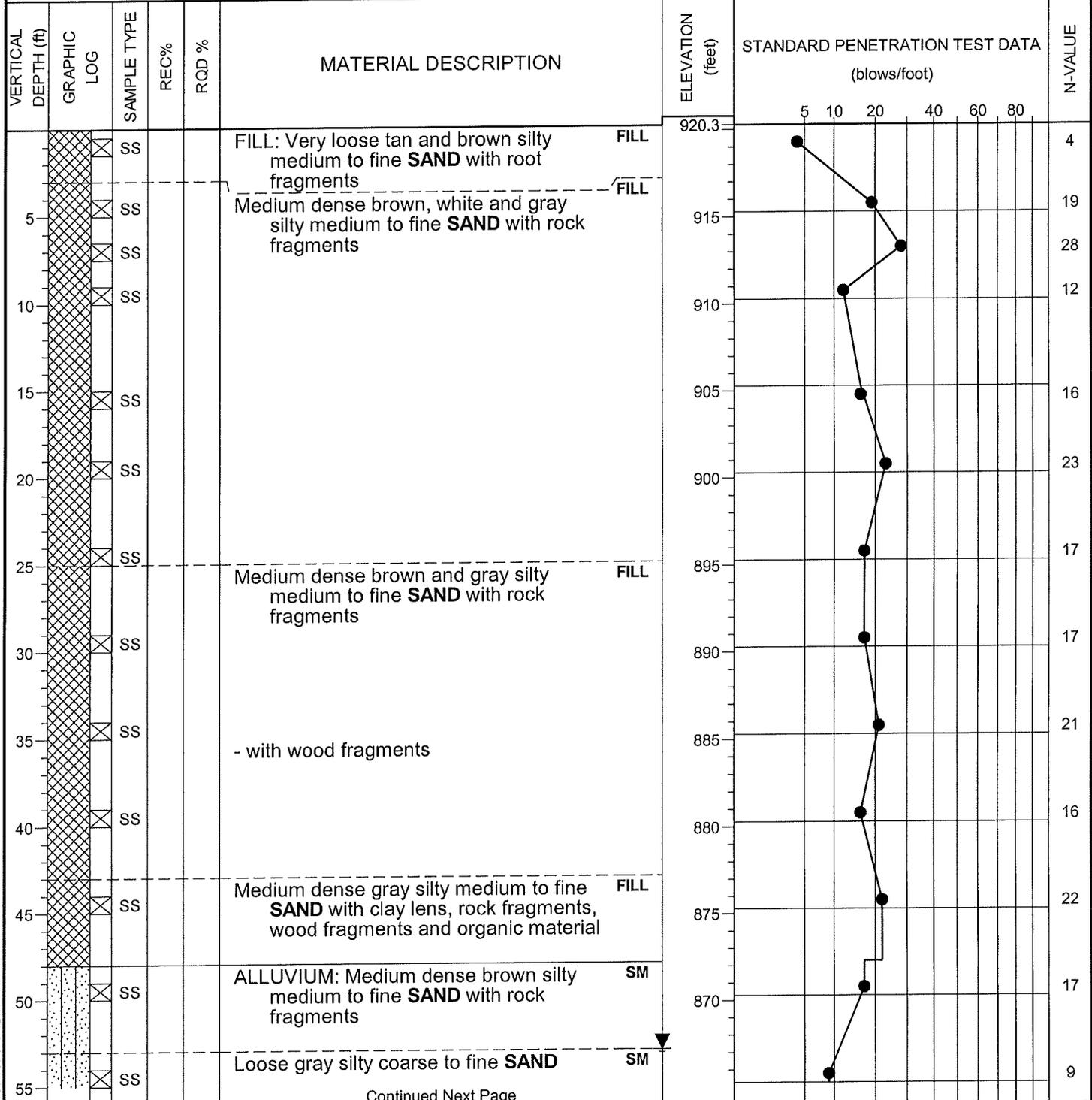
Location: **BENT - 3**

VERTICAL DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION (Continued)	ELEVATION (feet)	STANDARD PENETRATION TEST DATA (blows/foot)						N-VALUE	
							5	10	20	40	60	80		
60		SS			PARTIALLY WEATHERED ROCK: PWR Sampled as very dense reddish brown and gray silty medium to fine SAND with rock fragments (slightly micaceous)	860								50/1"
65		SS			Auger refusal was encountered at 66 feet below the existing ground surface. Groundwater was encountered at 51 feet below the existing ground surface at the time of boring completion and at 24 hours after boring completion.	855								50/5.5"
		SS												

SPTN 171-3463BFI.GPJ 10/26/09

SAMPLER TYPE SS - Split Spoon NX - Rock Core, 2-1/8" ST - Shelby Tube CU - Cuttings NQ - Rock Core, 1-7/8" CT - Continuous Tube		DRILLING METHOD HSA - Hollow Stem Auger RW - Rotary Wash CFA - Continuous Flight Augers RC - Rock Core DC - Driving Casing		Hole No. <p style="text-align: center;">B-83</p>
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Project: Bridge 13: I-75 Reversible Lanes over Windy Hill Road		HOLE No. B-84	
Location: Cobb County, Georgia		Sheet 1 of 2	
Project Number: 171-3463BF13; GDOT Proj. # : NH000-0073-03(242); PI #: 714130		Location: BENT - 4	
Azimuth: --	Angle from Horizontal: 90	Surface Elevation (ft): 920.28	Station: ST 274+20, 6' Rt. of BL
Drilling Equipment: CME550/MACTEC		Drilling Method: HSA/RW Auto Hammer	
Core Boxes: NA	Samples: 17	Overburden (ft): NA	Rock (ft): NA
Logged By: PL		Date Drilled: 9/8/09	
Total Depth (ft): 74.5			



Continued Next Page

SPTN 171-3463BF1.GPJ 10/26/09

SAMPLER TYPE SS - Split Spoon ST - Shelby Tube NQ - Rock Core, 1-7/8"	DRILLING METHOD NX - Rock Core, 2-1/8" CU - Cuttings CT - Continuous Tube HSA - Hollow Stem Auger CFA - Continuous Flight Augers DC - Driving Casing	RW - Rotary Wash RC - Rock Core Hole No. B-84
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Project: **Bridge 13: I-75 Reversible Lanes over Windy Hill Road**
 Location: **Cobb County, Georgia**
 Project Number: **171-3463BF13; GDOT Proj. # : NH000-0073-03(242); PI #: 714130**

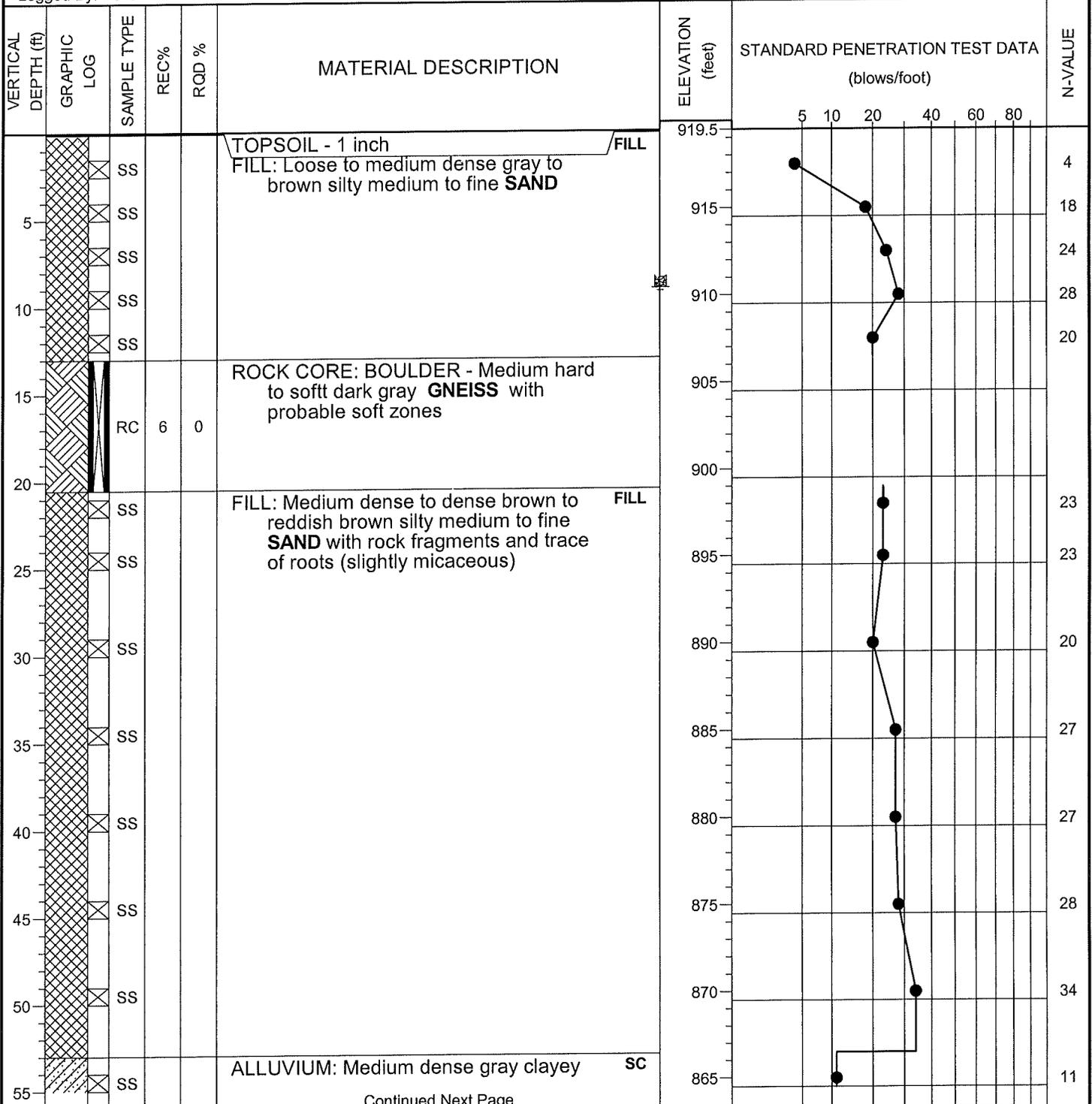
HOLE No. B-84
 Sheet 2 of 2
 Location: **BENT - 4**

VERTICAL DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE	REC%	ROD %	MATERIAL DESCRIPTION (Continued)	ELEVATION (feet)	STANDARD PENETRATION TEST DATA (blows/foot)					N-VALUE		
							5	10	20	40	60		80	
60		SS			PARTIALLY WEATHERED ROCK: PWR Sampled as very dense gray, black and green silty medium to fine SAND with rock fragments (slightly micaceous)	860							76/10"	
65		SS				855								50/5"
70		SS				850								94/9"
		SS												70/4"
					Boring was terminated at 74.5 feet below the existing ground surface. Ground water was encountered at 53 feet below the existing ground surface at the time of boring completion and at 24 hours after boring completion. An offset boring was performed 5 feet north of the original location as the original boring encountered auger refusal at 25 feet below the existing ground surface. The soil profile below 25 feet is from the offset boring.									

SPTN 171-3463BF1.GPJ 10/26/09

SAMPLER TYPE SS - Split Spoon ST - Shelby Tube NQ - Rock Core, 1-7/8"		DRILLING METHOD NX - Rock Core, 2-1/8" CU - Cuttings CT - Continuous Tube		HSA - Hollow Stem Auger CFA - Continuous Flight Augers DC - Driving Casing		RW - Rotary Wash RC - Rock Core		Hole No. B-84	
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Project: Bridge 13: I-75 Reversible Lanes over Windy Hill Road		HOLE No. B-85	
Location: Cobb County, Georgia		Sheet 1 of 2	
Project Number: 171-3463BFI3; GDOT Proj. # : NH000-0073-03(242); PI #: 714130		Location: BENT - 5	
Azimuth: --	Angle from Horizontal: 90	Surface Elevation (ft): 919.48	Station: ST 275+60, 17' Rt. of BL
Drilling Equipment: CME550/ Gable Drilling Co., Inc.		Drilling Method: HSA/RW -Auto Hammer	
Core Boxes: 2	Samples: 19	Overburden (ft): 63	Rock (ft): 13.75 Total Depth (ft): 76.8
Logged By: PT		Date Drilled: 7/16/09	



Continued Next Page

SPTN 171-3463BFI.GPJ 10/26/09

SAMPLER TYPE SS - Split Spoon ST - Shelby Tube NQ - Rock Core, 1-7/8"	DRILLING METHOD HSA - Hollow Stem Auger CFA - Continuous Flight Augers DC - Driving Casing	RW - Rotary Wash RC - Rock Core Hole No. B-85
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Project: **Bridge 13: I-75 Reversible Lanes over Windy Hill Road**

Location: **Cobb County, Georgia**

Project Number: **171-3463BF13; GDOT Proj. # : NH000-0073-03(242); PI #: 714130**

HOLE No. B-85

Sheet 2 of 2

Location: **BENT - 5**

VERTICAL DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION (Continued)	ELEVATION (feet)	STANDARD PENETRATION TEST DATA (blows/foot)					N-VALUE
							5	10	20	40	60	
					medium to fine SAND with roots							
60		SS			PARTIALLY WEATHERED ROCK: PWR Sampled as very dense black to dark gray silty medium to fine SAND with rock fragments (micaceous)	860						50/3"
65		SS				855						50/2"
65		RC	31	0	ROCK CORE: Dark green to black GNEISS							
63'-66.75'					Hard with probable soft zones							
66.75'-71.75'					Hard with probable soft zones							
70		RC	40	0		850						
71.75'-76.75'					Hard with probable soft zones							
75		RC	42	0		845						
					Auger refusal encountered at 63 feet below the existing ground surface.							
					Coring was terminated at 76.75 feet below the existing ground surface.							
					Auger refusal was encountered at 4 to 6 feet below the existing ground surface at three other borings performed within a 10 foot radius of the staked location.							
					Groundwater could not be recorded as the boring was performed using rotary wash method and the boring caved in at 9 feet below the existing ground surface at 24 hours after boring completion.							

SPTN 171-3463BF13.PJ 10/26/09

SAMPLER TYPE

SS - Split Spoon
ST - Shelby Tube
NQ - Rock Core, 1-7/8"

NX - Rock Core, 2-1/8"
CU - Cuttings
CT - Continuous Tube

DRILLING METHOD

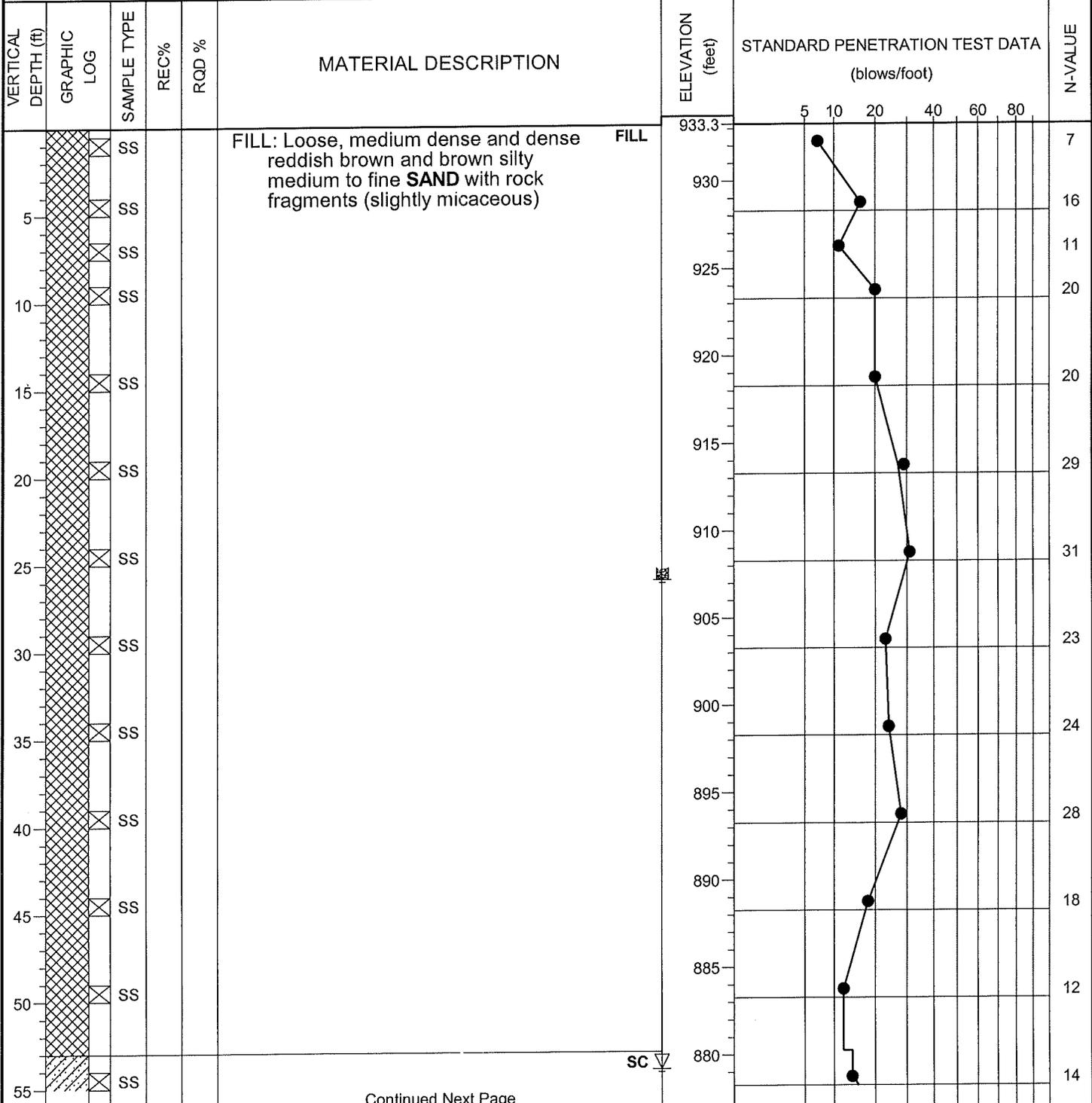
HSA - Hollow Stem Auger
CFA - Continuous Flight Augers
DC - Driving Casing

RW - Rotary Wash
RC - Rock Core

Hole No.

B-85

Project: Bridge 13: I-75 Reversible Lanes over Windy Hill Road		HOLE No. B-80	
Location: Cobb County, Georgia		Sheet 1 of 2	
Project Number: 171-3463BF13; GDOT Proj. # : NH000-0073-03(242); PI #: 714130		Location: BENT - 6	
Azimuth: --	Angle from Horizontal: 90	Surface Elevation (ft): 933.26	Station: ST 277+00, 13' Rt. of BL
Drilling Equipment: CME 550/MACTEC		Drilling Method: HSA Auto Hammer	
Core Boxes: NA	Samples: 19	Overburden (ft): NA	Rock (ft): NA
Logged By: PT		Date Drilled: 9/11/09	
Total Depth (ft): 83.5			



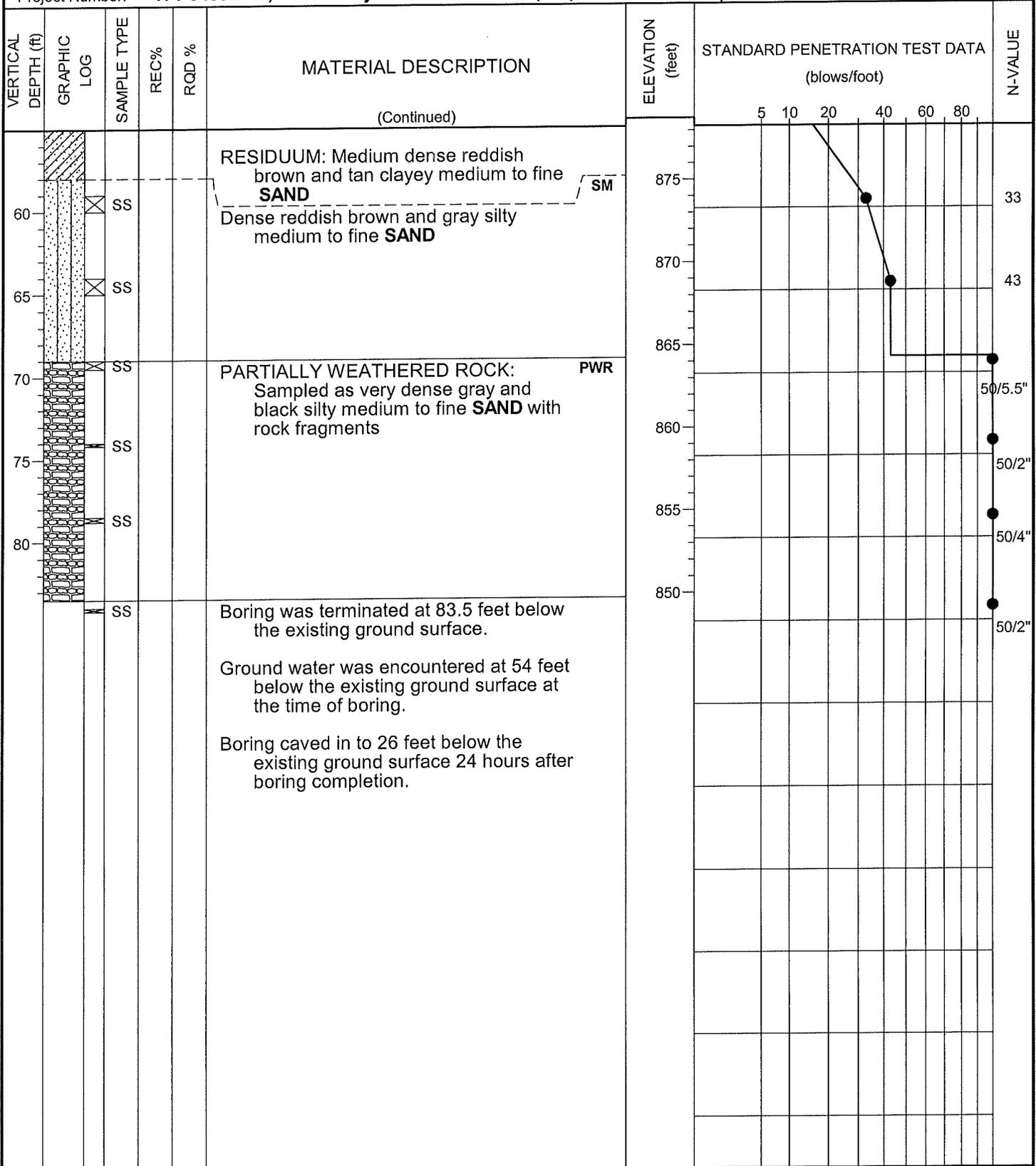
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SPTN 171-3463BF1.GPJ 10/26/09

SAMPLER TYPE SS - Split Spoon ST - Shelby Tube NQ - Rock Core, 1-7/8"	DRILLING METHOD NX - Rock Core, 2-1/8" CU - Cuttings CT - Continuous Tube	HSA - Hollow Stem Auger CFA - Continuous Flight Augers DC - Driving Casing	RW - Rotary Wash RC - Rock Core Hole No. <div style="text-align: center; font-weight: bold; font-size: 1.2em;">B-80</div>
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Project: **Bridge 13: I-75 Reversible Lanes over Windy Hill Road**
 Location: **Cobb County, Georgia**
 Project Number: **171-3463BF13; GDOT Proj. # : NH000-0073-03(242); PI #: 714130**

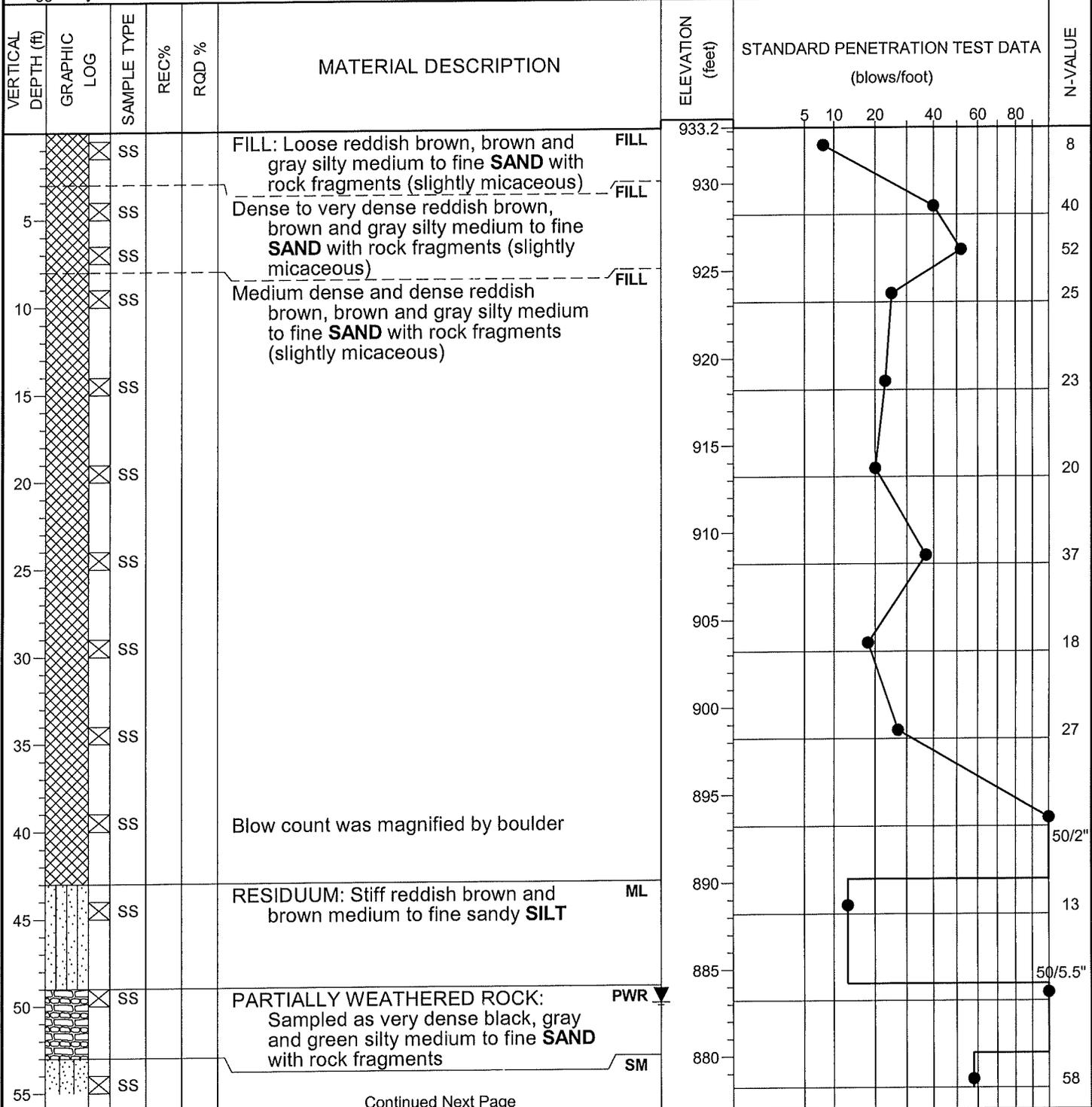
HOLE No. B-80
 Sheet 2 of 2
 Location: **BENT - 6**



SPTN 171-3463BF1.GPJ 10/26/09

SAMPLER TYPE SS - Split Spoon ST - Shelby Tube NQ - Rock Core, 1-7/8" NX - Rock Core, 2-1/8" CU - Cuttings CT - Continuous Tube		DRILLING METHOD HSA - Hollow Stem Auger CFA - Continuous Flight Augers DC - Driving Casing RW - Rotary Wash RC - Rock Core		Hole No. B-80
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Project: Bridge 13: I-75 Reversible Lanes over Windy Hill Road		HOLE No. B-86	
Location: Cobb County, Georgia		Sheet 1 of 2	
Project Number: 171-3463BF13; GDOT Proj. # : NH000-0073-03(242); PI #: 714130		Location: BENT - 7	
Azimuth: --	Angle from Horizontal: 90	Surface Elevation (ft): 933.21	Station: ST 278+40, 14' RT of BL
Drilling Equipment: CME550/MACTEC		Drilling Method: HSA-Auto Hammer	
Core Boxes: NA	Samples: 17	Overburden (ft): 70	Rock (ft): NA
Logged By: PT		Date Drilled: 9/14/09	

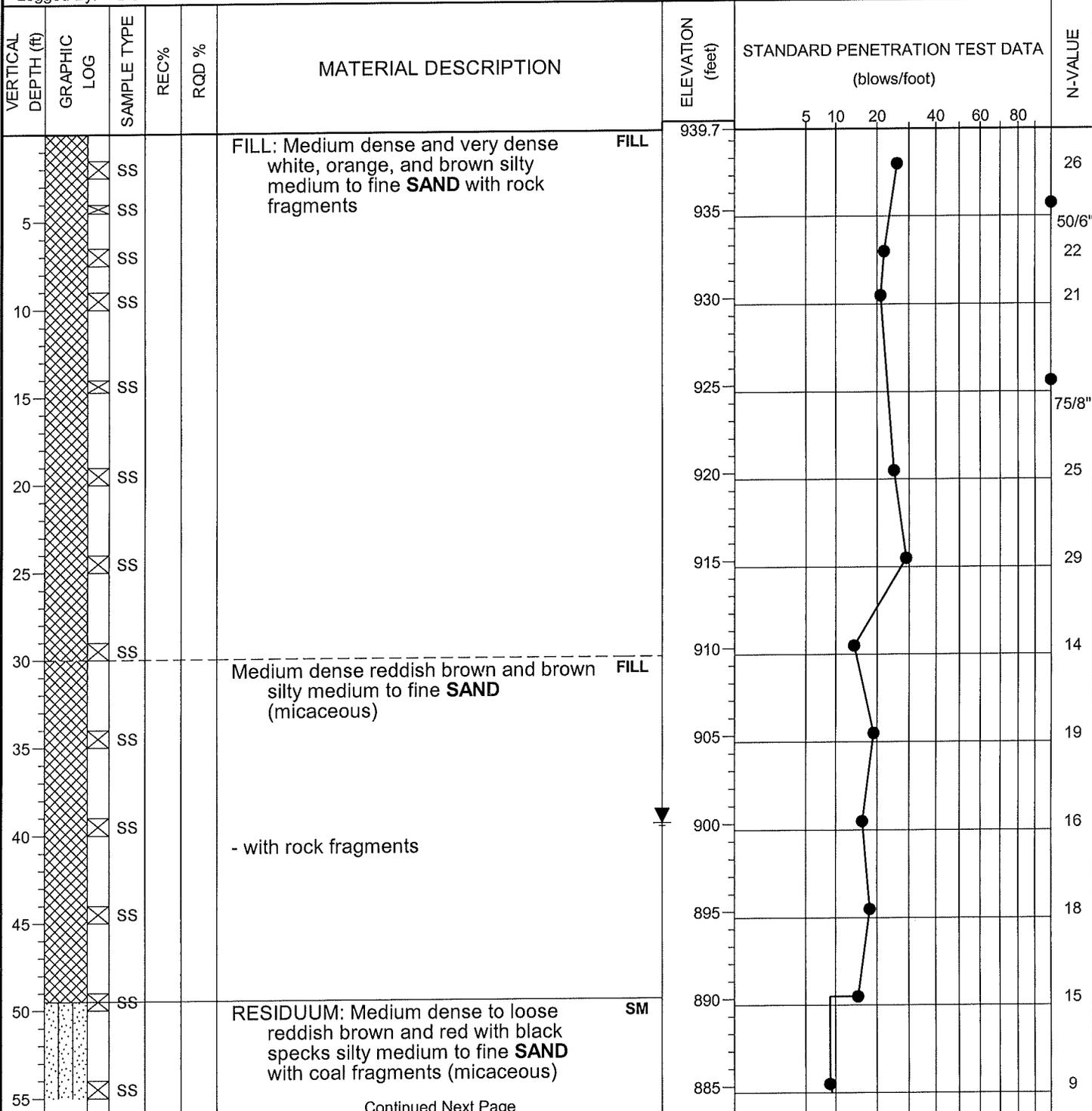


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SPTN 171-3463BF13.GPJ 10/26/09

SAMPLER TYPE SS - Split Spoon ST - Shelby Tube NQ - Rock Core, 1-7/8"	DRILLING METHOD NX - Rock Core, 2-1/8" CU - Cuttings CT - Continuous Tube HSA - Hollow Stem Auger CFA - Continuous Flight Augers DC - Driving Casing	RW - Rotary Wash RC - Rock Core Hole No. <div style="text-align: center; font-weight: bold; font-size: 1.2em;">B-86</div>
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Project: Bridge 13: I-75 Reversible Lanes over Windy Hill Road		HOLE No. B-87	
Location: Cobb County, Georgia		Sheet 1 of 2	
Project Number: 171-3463BF13; GDOT Proj. # : NH000-0073-03(242); PI #: 714130		Location: BENT - 8	
Azimuth: --	Angle from Horizontal: 90	Surface Elevation (ft): 939.65	Station: ST 279+85, 20' RT of BL
Drilling Equipment: CME 550/MACTEC		Drilling Method: HSA-Auto Hammer	
Core Boxes: NA	Samples: 19	Overburden (ft): NA	Rock (ft): NA
Logged By: CO		Date Drilled: 9/23/09	
Total Depth (ft): 84.0			



Continued Next Page

SPTN 171-3463BF13.GPJ 10/26/09

SAMPLER TYPE SS - Split Spoon NX - Rock Core, 2-1/8" ST - Shelby Tube CU - Cuttings NQ - Rock Core, 1-7/8" CT - Continuous Tube		DRILLING METHOD HSA - Hollow Stem Auger RW - Rotary Wash CFA - Continuous Flight Augers RC - Rock Core DC - Driving Casing		Hole No. <div style="text-align: center; font-size: 1.2em;">B-87</div>
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Project: **Bridge 13: I-75 Reversible Lanes over Windy Hill Road**

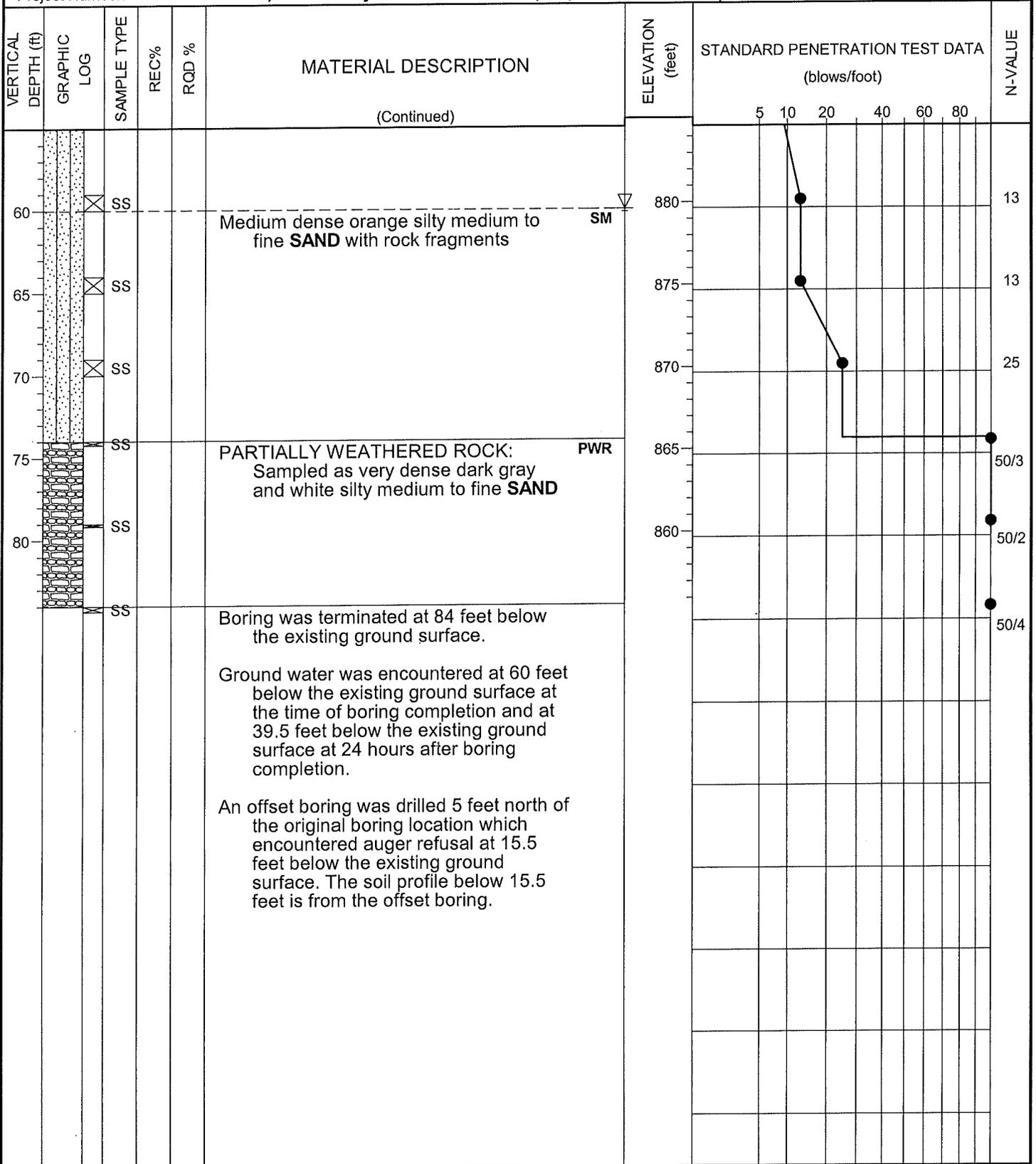
Location: **Cobb County, Georgia**

Project Number: **171-3463BFI3; GDOT Proj. # : NH000-0073-03(242); PI #: 714130**

HOLE No. B-87

Sheet 2 of 2

Location: **BENT - 8**



Ground water was encountered at 60 feet below the existing ground surface at the time of boring completion and at 39.5 feet below the existing ground surface at 24 hours after boring completion.

An offset boring was drilled 5 feet north of the original boring location which encountered auger refusal at 15.5 feet below the existing ground surface. The soil profile below 15.5 feet is from the offset boring.

SPTN 171-3463BFI.GPJ 10/26/09

SAMPLER TYPE

SS - Split Spoon
 ST - Shelby Tube
 NQ - Rock Core, 1-7/8"

NX - Rock Core, 2-1/8"
 CU - Cuttings
 CT - Continuous Tube

DRILLING METHOD

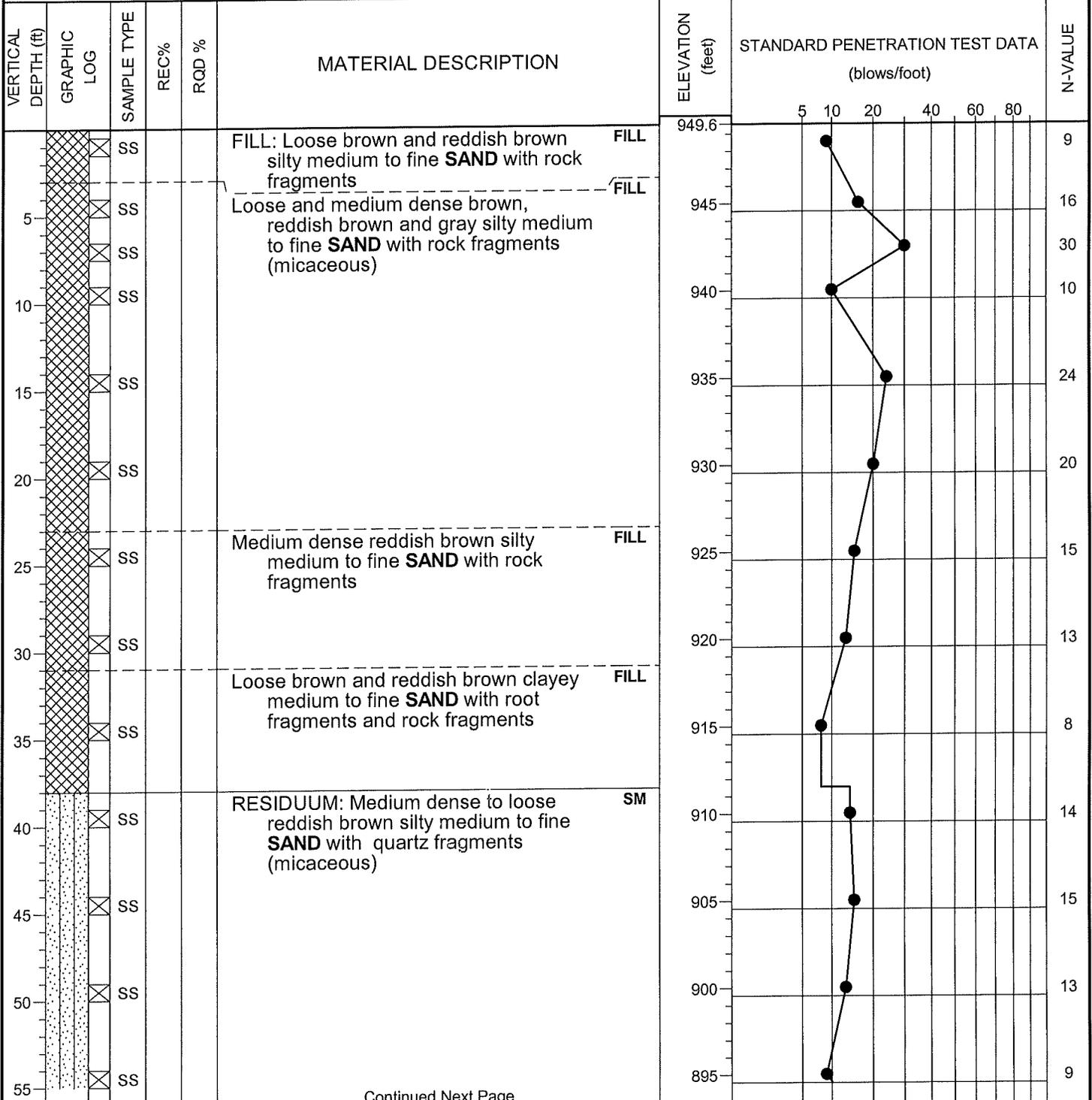
HSA - Hollow Stem Auger
 CFA - Continuous Flight Augers
 DC - Driving Casing

RW - Rotary Wash
 RC - Rock Core

Hole No.

B-87

Project: Bridge 13: I-75 Reversible Lanes over Windy Hill Road		HOLE No. B-88	
Location: Cobb County, Georgia		Sheet 1 of 2	
Project Number: 171-3463BF13; GDOT Proj. # : NH000-0073-03(242); PI #: 714130		Location: BENT - 9	
Azimuth: --	Angle from Horizontal: 90	Surface Elevation (ft): 949.56	Station: ST 281+18, 25' Rt. of BL
Drilling Equipment: CME550/MACTEC		Drilling Method: HSA Auto Hammer	
Core Boxes: NA	Samples: 17	Overburden (ft): 71	Rock (ft): NA Total Depth (ft): 71.0
Logged By: PT		Date Drilled: 9/4/09	



Continued Next Page

SPTN 171-3463BF13.GPJ 10/26/09

SAMPLER TYPE SS - Split Spoon NX - Rock Core, 2-1/8" ST - Shelby Tube CU - Cuttings NQ - Rock Core, 1-7/8" CT - Continuous Tube		DRILLING METHOD HSA - Hollow Stem Auger RW - Rotary Wash CFA - Continuous Flight Augers RC - Rock Core DC - Driving Casing		Hole No. <div style="text-align: center; font-weight: bold; font-size: 1.2em;">B-88</div>
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Project: **Bridge 13: I-75 Reversible Lanes over Windy Hill Road**
 Location: **Cobb County, Georgia**
 Project Number: **171-3463BF13; GDOT Proj. # : NH000-0073-03(242); PI #: 714130**

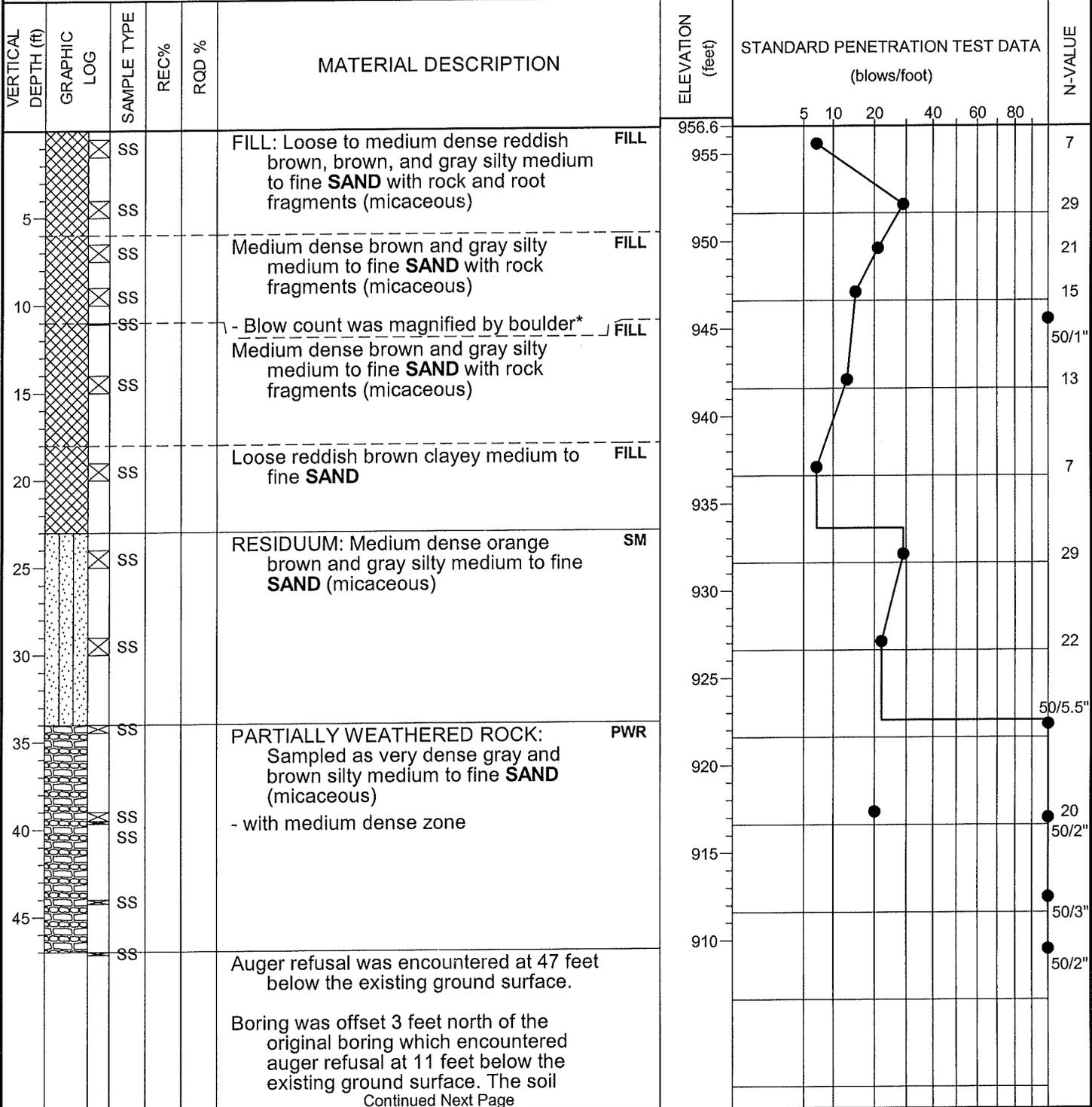
HOLE No. B-88
 Sheet 2 of 2
 Location: **BENT - 9**

VERTICAL DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION	ELEVATION (feet)	STANDARD PENETRATION TEST DATA (blows/foot)					N-VALUE
							5	10	20	40	60	
(Continued)												
60		SS			Medium dense to dense reddish brown and black silty medium to fine SAND with rock fragments (slightly micaceous)	890						24
65		SS				885						42
70		SS			PARTIALLY WEATHERED ROCK: Sampled as very dense gray and brown silty medium to fine SAND (micaceous)	880						50/2"
		SS			Auger refusal was encountered at 71 feet below the existing ground surface.							50/0"
					Ground water was encountered at 56 feet below the existing ground surface at the time of boring completion.							
					This is an offset boring performed 2 feet south and 1 foot east of the original boring location, which encountered auger refusal at 3 feet below the existing ground surface.							

SPTN 171-3463BF13.PJ 10/26/09

SAMPLER TYPE SS - Split Spoon NX - Rock Core, 2-1/8" ST - Shelby Tube CU - Cuttings NQ - Rock Core, 1-7/8" CT - Continuous Tube		DRILLING METHOD HSA - Hollow Stem Auger RW - Rotary Wash CFA - Continuous Flight Augers RC - Rock Core DC - Driving Casing		Hole No. <p style="text-align: center; font-size: 1.2em;">B-88</p>
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Project: Bridge 13: I-75 Reversible Lanes over Windy Hill Road		HOLE No. B-89	
Location: Cobb County, Georgia		Sheet 1 of 2	
Project Number: 171-3463BFI3; GDOT Proj. # : NH000-0073-03(242); PI #: 714130		Location: BENT - 10	
Azimuth: --	Angle from Horizontal: 90	Surface Elevation (ft): 956.60	Station: ST 282+63, 7' Rt. of BL
Drilling Equipment: CME550/MACTEC		Drilling Method: HSA Auto Hammer	
Core Boxes: NA	Samples: 13	Overburden (ft): 47	Rock (ft): NA Total Depth (ft): 47.0
Logged By: PT		Date Drilled: 9/4/09	

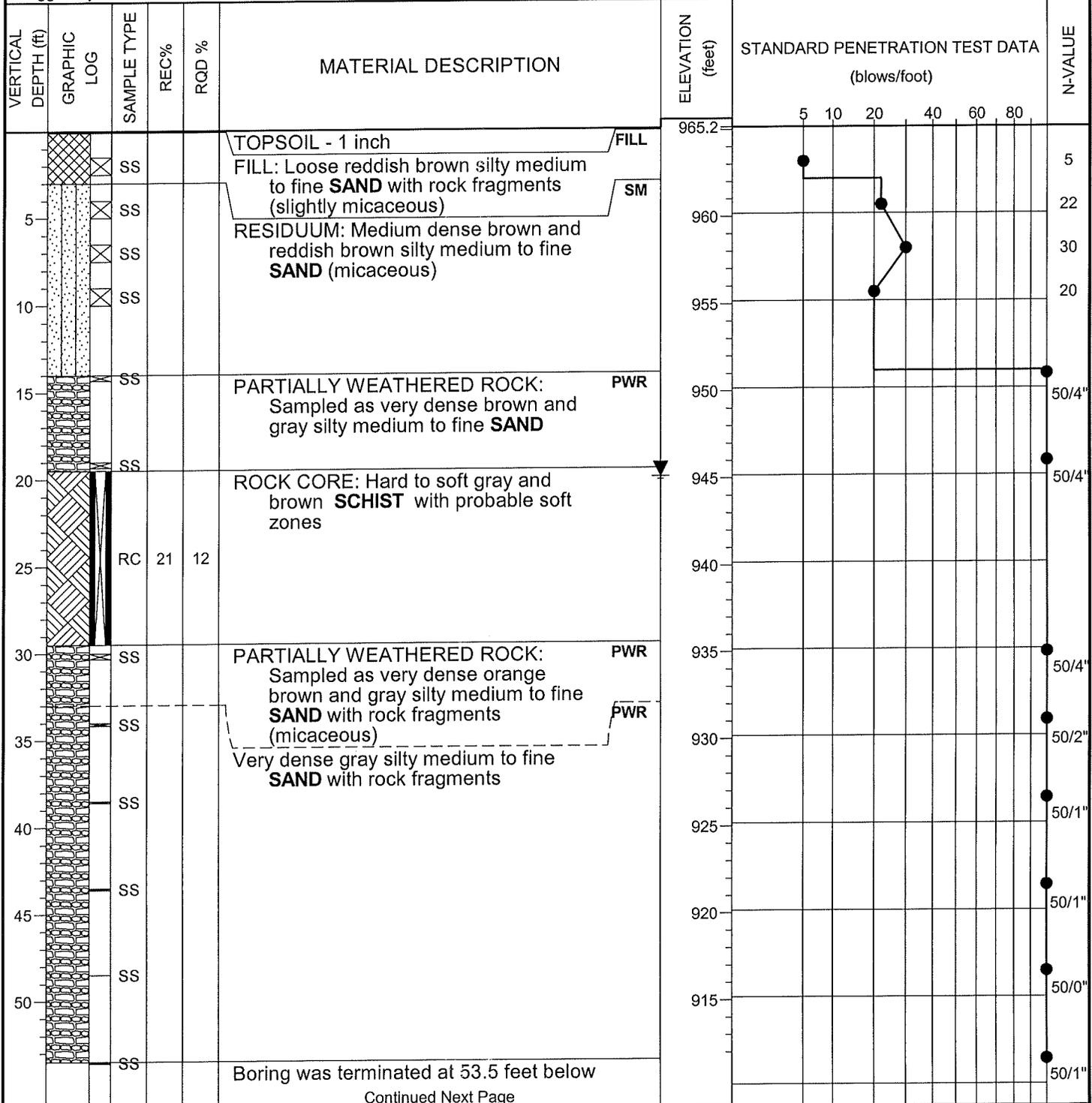


SPTN 171-3463BFI.GPJ 10/26/09

SAMPLER TYPE SS - Split Spoon ST - Shelby Tube NQ - Rock Core, 1-7/8"	DRILLING METHOD NX - Rock Core, 2-1/8" CU - Cuttings CT - Continuous Tube HSA - Hollow Stem Auger CFA - Continuous Flight Augers DC - Driving Casing	RW - Rotary Wash RC - Rock Core Hole No. <p style="text-align: center; font-size: 1.2em;">B-89</p>
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Project: Bridge 13: I-75 Reversible Lanes over Windy Hill Road				HOLE No. B-90	
Location: Cobb County, Georgia				Sheet 1 of 2	
Project Number: 171-3463BF13; GDOT Proj. # : NH000-0073-03(242); PI #: 714130				Location: BENT - 11	
Azimuth: --		Angle from Horizontal: 90		Surface Elevation (ft): 965.16	
Station: ST 284+00, 10' Rt. of BL		Drilling Equipment: CME550/MACTEC			
Drilling Method: HSA/RC/RW Auto Hammer		Core Boxes: 1			
Samples: 13		Overburden (ft): 53.5		Rock (ft): 10	
Total Depth (ft): 53.5					
Logged By: PT				Date Drilled: 9/3/09	

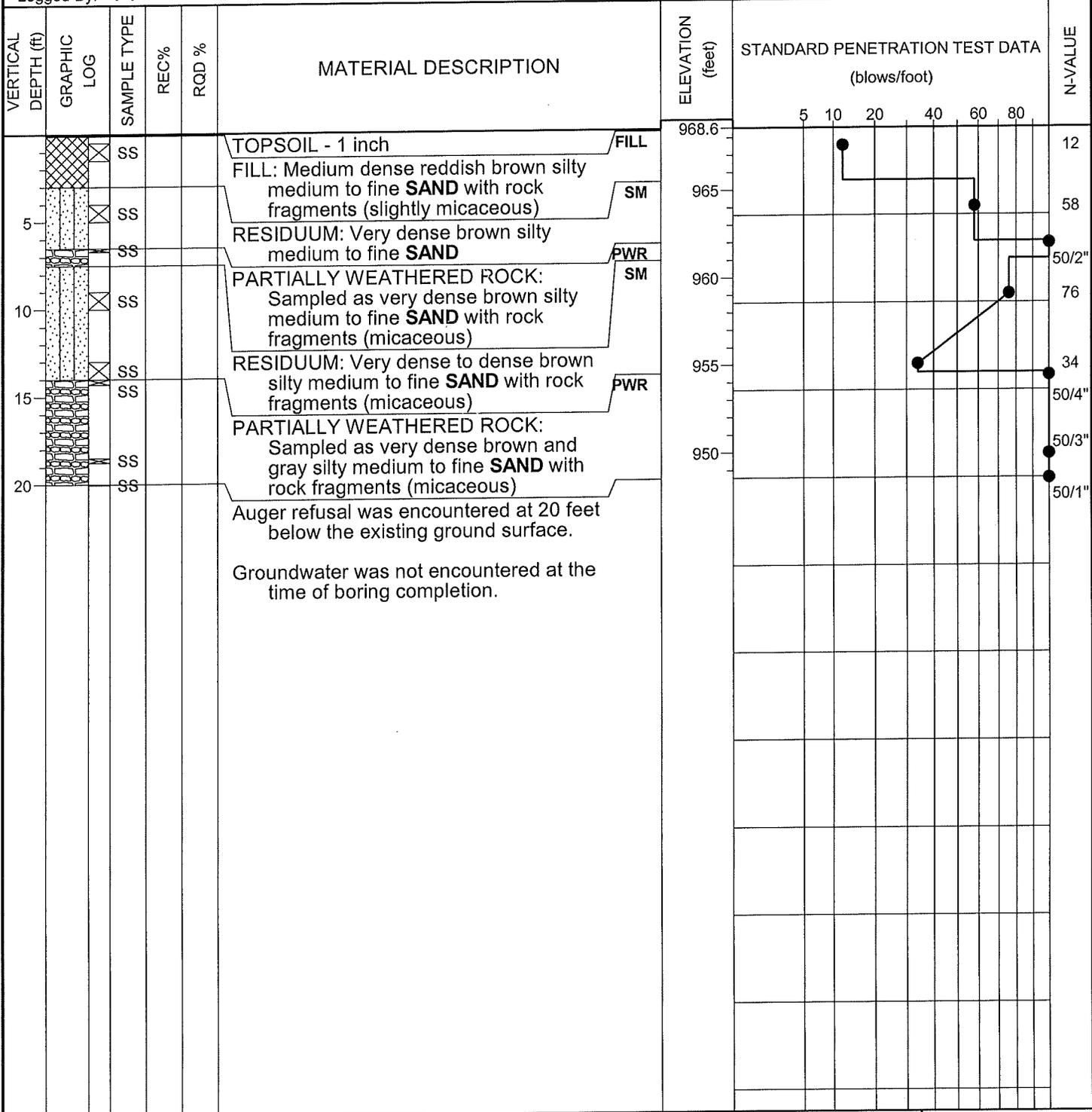


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SAMPLER TYPE SS - Split Spoon ST - Shelby Tube NQ - Rock Core, 1-7/8"	NX - Rock Core, 2-1/8" CU - Cuttings CT - Continuous Tube	DRILLING METHOD HSA - Hollow Stem Auger CFA - Continuous Flight Augers DC - Driving Casing	RW - Rotary Wash RC - Rock Core Hole No. B-90
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SPTN 171-3463BF13.GPJ 10/26/09

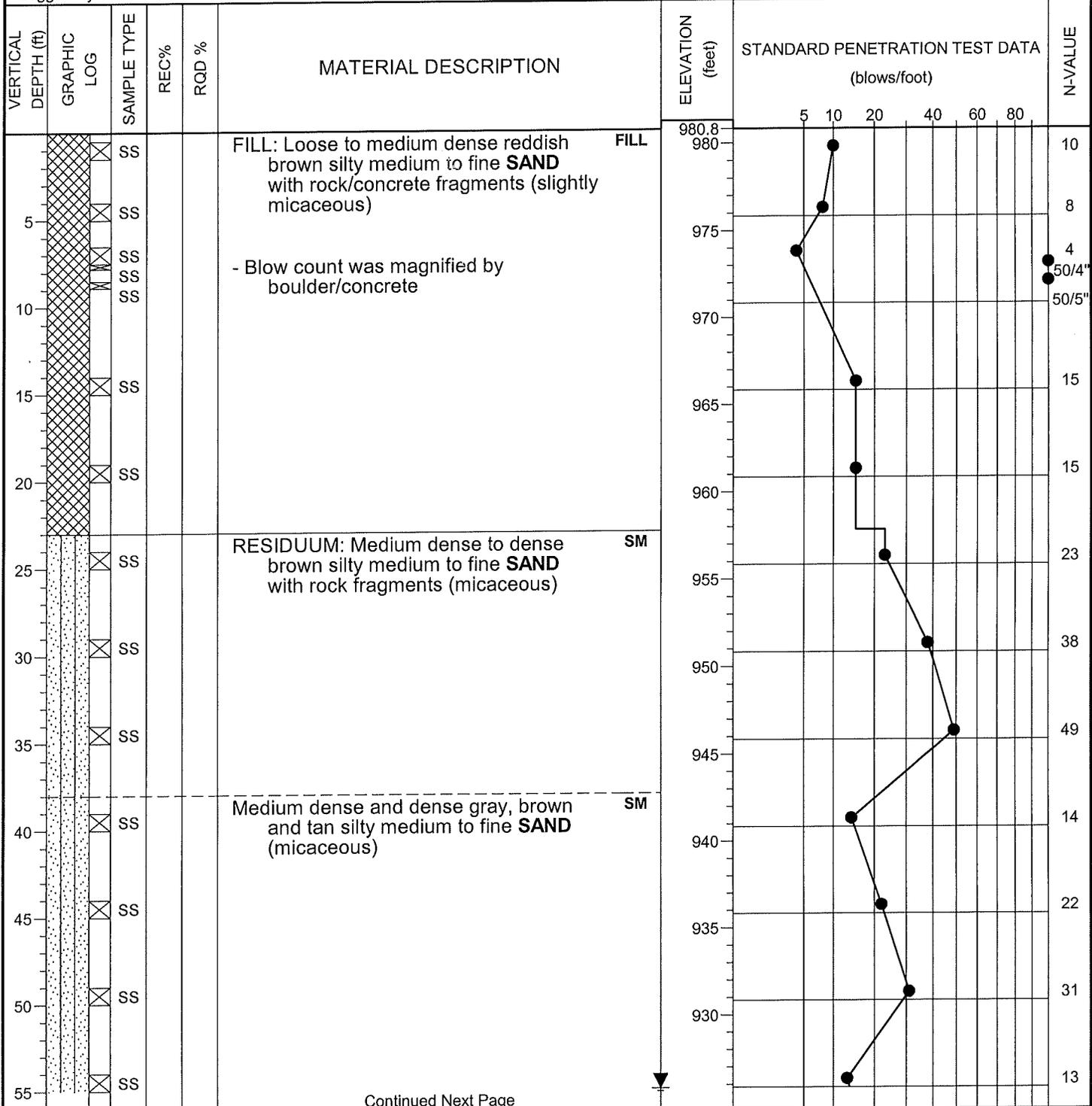
Project: Bridge 13: I-75 Reversible Lanes over Windy Hill Road		HOLE No. B-91	
Location: Cobb County, Georgia		Sheet 1 of 1	
Project Number: 171-3463BFI3; GDOT Proj. # : NH000-0073-03(242); PI #: 714130		Location: BENT - 12	
Azimuth: --	Angle from Horizontal: 90	Surface Elevation (ft): 968.55	Station: ST 285+00, 12Rt. of BL
Drilling Equipment: CME550/MACTEC		Drilling Method: HSA Auto Hammer	
Core Boxes: NA	Samples: 7	Overburden (ft): 20	Rock (ft): NA Total Depth (ft): 20.0
Logged By: PT		Date Drilled: 9/2/09	



SPTN 171-3463BFI.GPJ 10/26/09

SAMPLER TYPE SS - Split Spoon NX - Rock Core, 2-1/8" ST - Shelby Tube CU - Cuttings NQ - Rock Core, 1-7/8" CT - Continuous Tube	DRILLING METHOD HSA - Hollow Stem Auger RW - Rotary Wash CFA - Continuous Flight Augers RC - Rock Core DC - Driving Casing	Hole No. B-91
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Project: Bridge 13: I-75 Reversible Lanes over Windy Hill Road		HOLE No. B-92	
Location: Cobb County, Georgia		Sheet 1 of 2	
Project Number: 171-3463BFI3; GDOT Proj. # : NH000-0073-03(242); PI #: 714130		Location: BENT - 13	
Azimuth: --	Angle from Horizontal: 90	Surface Elevation (ft): 980.83	Station: ST 286+00, 10' Rt. of BL
Drilling Equipment: CME550/MACTEC		Drilling Method: HSA Auto Hammer	
Core Boxes: NA	Samples: 19	Overburden (ft): NA	Rock (ft): NA
Logged By: PT		Date Drilled: 9/2/09	
Total Depth (ft): 83.5			



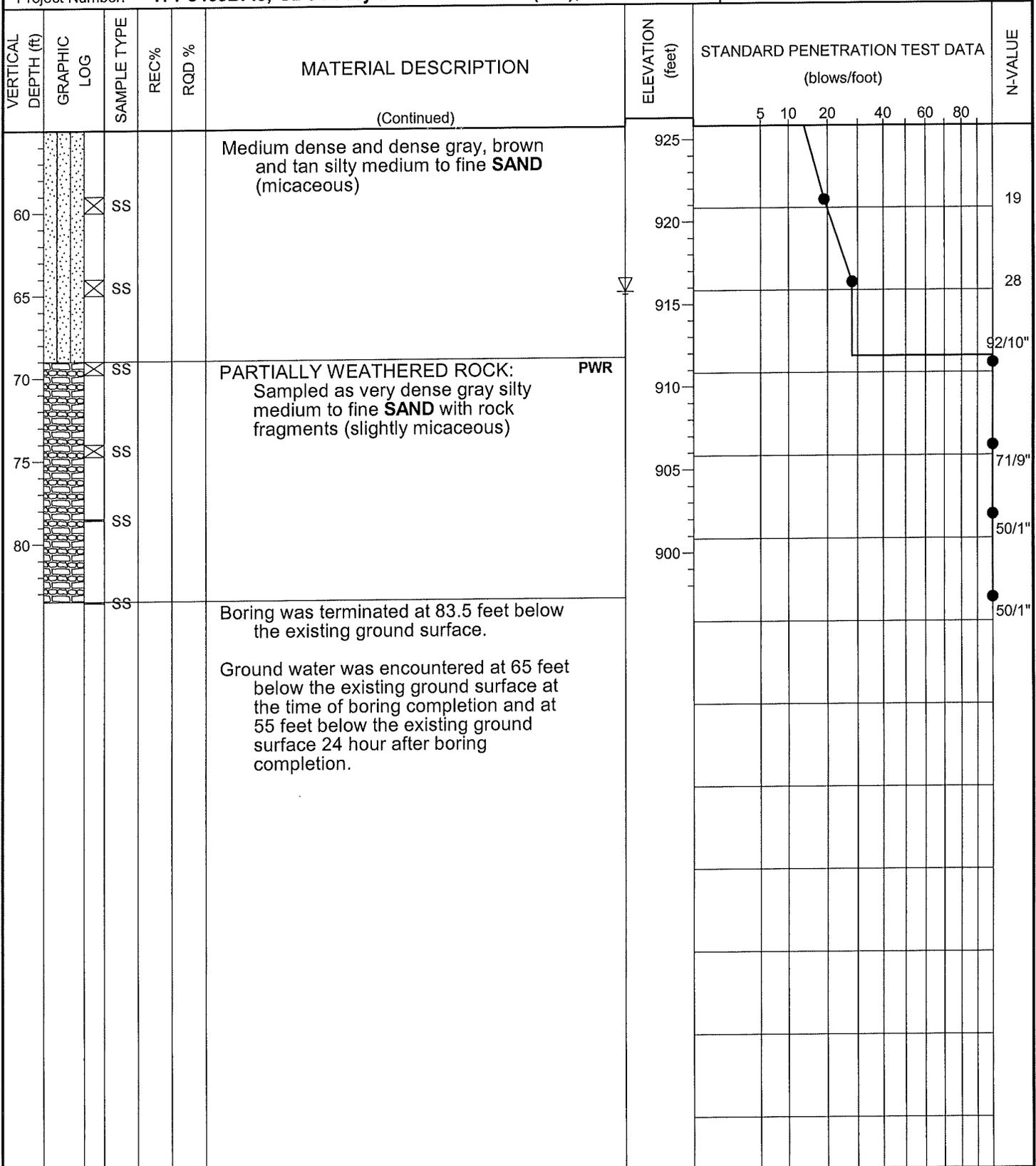
Continued Next Page

SPTN 171-3463BFI.GPJ 10/26/09

SAMPLER TYPE SS - Split Spoon ST - Shelby Tube NQ - Rock Core, 1-7/8"	NX - Rock Core, 2-1/8" CU - Cuttings CT - Continuous Tube	DRILLING METHOD HSA - Hollow Stem Auger CFA - Continuous Flight Augers DC - Driving Casing	RW - Rotary Wash RC - Rock Core Hole No. <div style="text-align: center; font-weight: bold; font-size: 1.2em;">B-92</div>
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Project: **Bridge 13: I-75 Reversible Lanes over Windy Hill Road**
 Location: **Cobb County, Georgia**
 Project Number: **171-3463BF13; GDOT Proj. # : NH000-0073-03(242); PI #: 714130**

HOLE No. B-92
 Sheet 2 of 2
 Location: **BENT - 13**

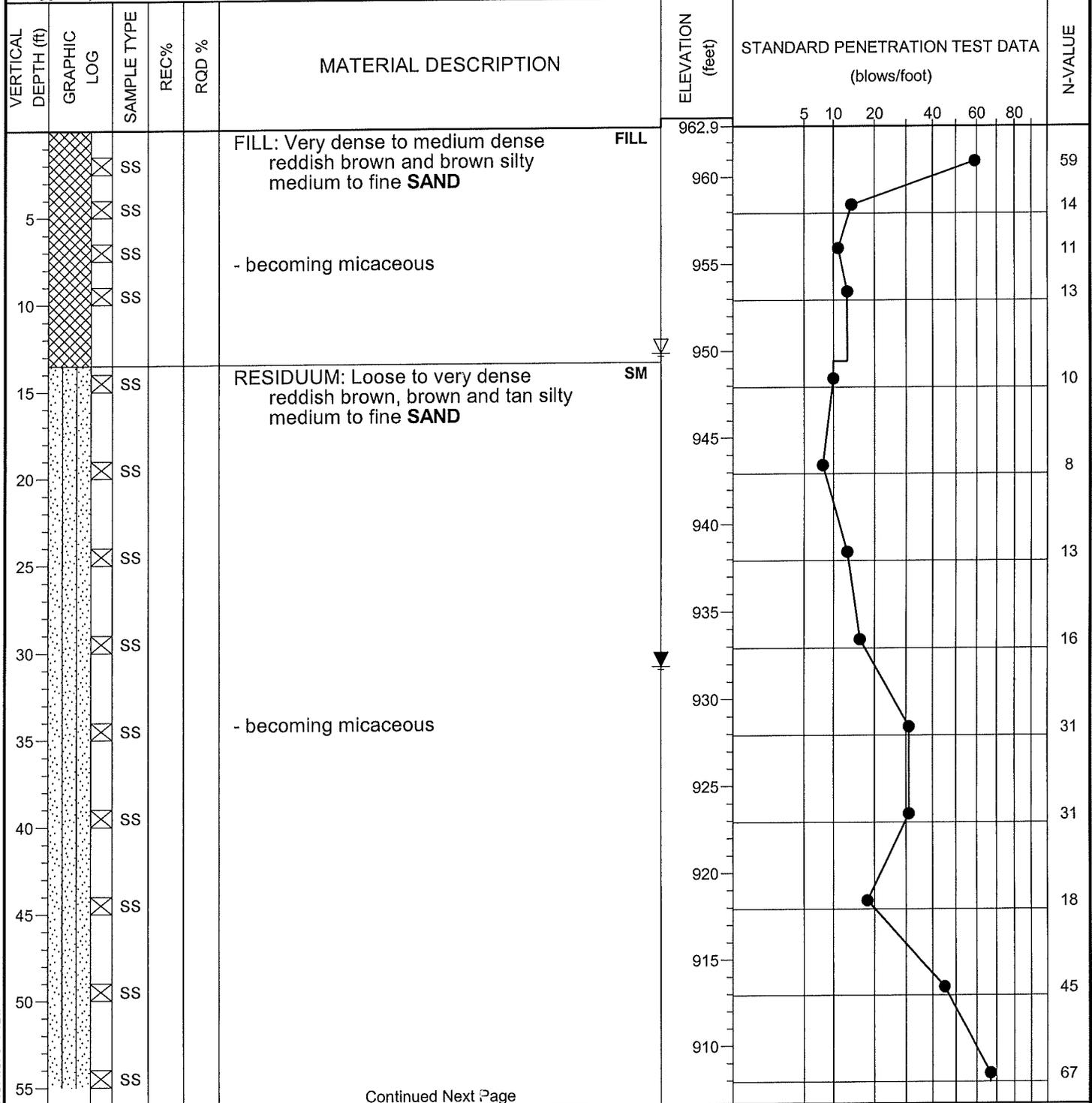


Ground water was encountered at 65 feet below the existing ground surface at the time of boring completion and at 55 feet below the existing ground surface 24 hour after boring completion.

SPTN 171-3463BF13GPJ 10/26/09

SAMPLER TYPE SS - Split Spoon ST - Shelby Tube NQ - Rock Core, 1-7/8"		DRILLING METHOD NX - Rock Core, 2-1/8" CU - Cuttings CT - Continuous Tube		RW - Rotary Wash RC - Rock Core		Hole No. B-92
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Project: Bridge 13: I-75 Reversible Lanes over Windy Hill Road		HOLE No. B-93	
Location: Cobb County, Georgia		Sheet 1 of 2	
Project Number: 171-3463BFI3; GDOT Proj. # : NH000-0073-03(242); PI #: 714130		Location: BENT - 14	
Azimuth: --	Angle from Horizontal: 90	Surface Elevation (ft): 962.91	Station: ST 287+40, 30'Rt of BL
Drilling Equipment: CME 550/MACTEC		Drilling Method: HSA-Auto Hammer	
Core Boxes: NA	Samples: 17	Overburden (ft): NA	Rock (ft): NA
Logged By: CO		Date Drilled: 9/22/09	
Total Depth (ft): 74.0			



Continued Next Page

SPTN 171-3463BFI.GPJ 10/26/09

SAMPLER TYPE SS - Split Spoon ST - Shelby Tube NQ - Rock Core, 1-7/8"	DRILLING METHOD NX - Rock Core, 2-1/8" CU - Cuttings CT - Continuous Tube HSA - Hollow Stem Auger CFA - Continuous Flight Augers DC - Driving Casing	RW - Rotary Wash RC - Rock Core Hole No. <div style="text-align: center; font-weight: bold; font-size: 1.2em;">B-93</div>
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Project: **Bridge 13: I-75 Reversible Lanes over Windy Hill Road**
 Location: **Cobb County, Georgia**
 Project Number: **171-3463BF13; GDOT Proj. # : NH000-0073-03(242); PI #: 714130**

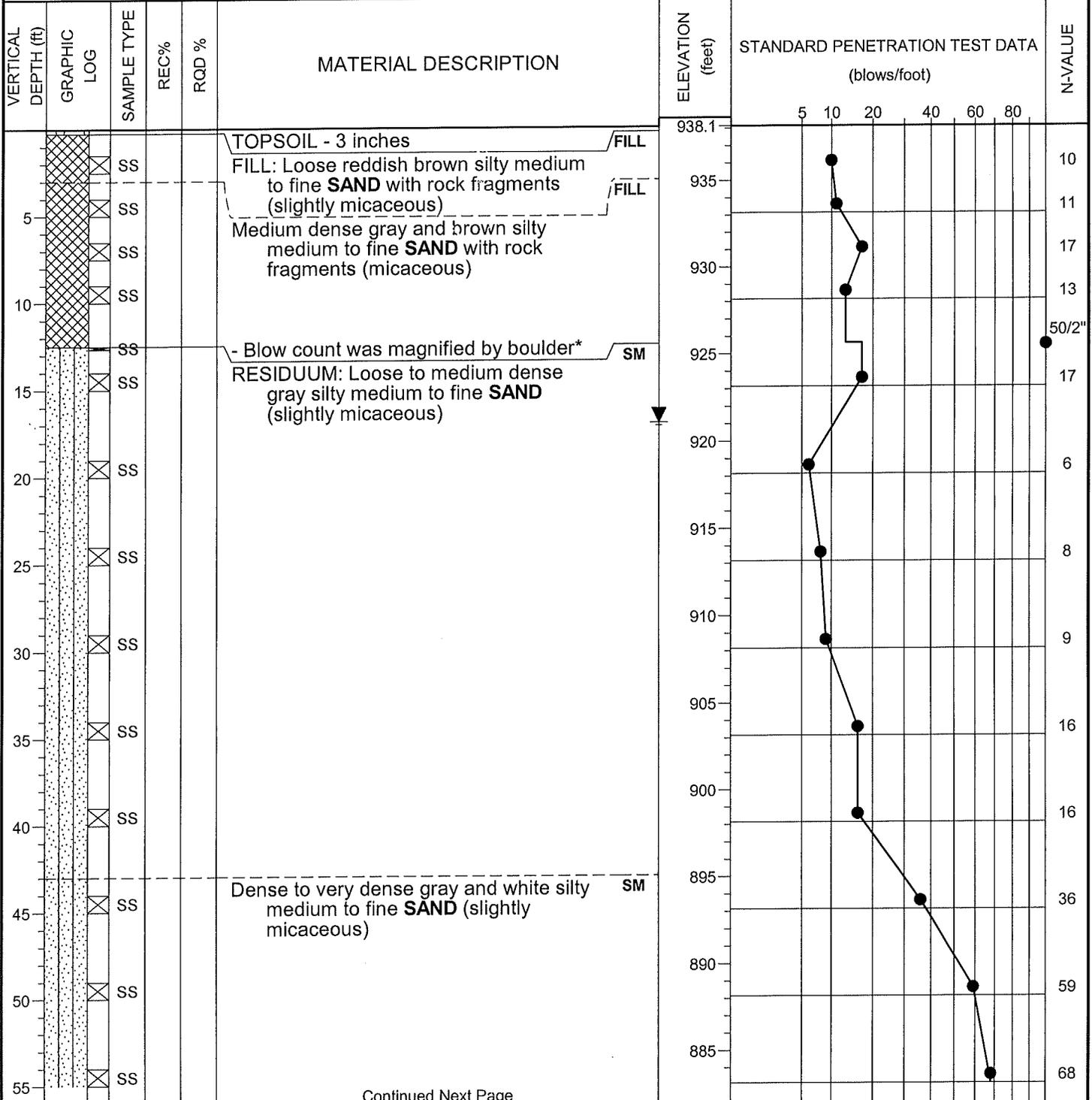
HOLE No. B-93
 Sheet 2 of 2
 Location: **BENT - 14**

VERTICAL DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION (Continued)	ELEVATION (feet)	STANDARD PENETRATION TEST DATA (blows/foot)						N-VALUE	
							5	10	20	40	60	80		
60		SS			PARTIALLY WEATHERED ROCK: PWR Sampled as very dense black, white, and brown silty medium to fine SAND (micaceous)	905								50/5"
65		SS				900								50/3"
70		SS				895								50/5"
		SS				890								50/3"
<p>Boring was terminated at 74 feet below the existing ground surface.</p> <p>Ground water was encountered at 13 feet below the existing ground surface at the time of boring completion and at 31 feet below the existing ground surface at 24 hours after boring completion.</p> <p>An offset boring was performed 5 feet east of the original boring location, which encountered auger refusal at 12.5 feet below the existing ground surface. The soil profile below 12.5 feet is from the offset bring.</p>														

SPTN 171-3463BF1.GPJ 10/26/09

SAMPLER TYPE SS - Split Spoon NX - Rock Core, 2-1/8" ST - Shelby Tube CU - Cuttings NQ - Rock Core, 1-7/8" CT - Continuous Tube		DRILLING METHOD HSA - Hollow Stem Auger RW - Rotary Wash CFA - Continuous Flight Augers RC - Rock Core DC - Driving Casing		Hole No. <p style="text-align: center;">B-93</p>
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Project: Bridge 13: I-75 Reversible Lanes over Windy Hill Road		HOLE No. B-94	
Location: Cobb County, Georgia		Sheet 1 of 2	
Project Number: 171-3463BF13; GDOT Proj. # : NH000-0073-03(242); PI #: 714130		Location: BENT - 15	
Azimuth: --	Angle from Horizontal: 90	Surface Elevation (ft): 938.14	Station: ST 288+80, 10' Rt. of BL
Drilling Equipment: CME550/MACTEC		Drilling Method: HSA Auto Hammer	
Core Boxes: NA	Samples: 17	Overburden (ft): NA	Rock (ft): NA
Logged By: PT		Date Drilled: 9/3/09	
Total Depth (ft): 69.0			



Continued Next Page

SPTN 171-3463BF13.GPJ 10/26/09

SAMPLER TYPE SS - Split Spoon NX - Rock Core, 2-1/8" ST - Shelby Tube CU - Cuttings NQ - Rock Core, 1-7/8" CT - Continuous Tube		DRILLING METHOD HSA - Hollow Stem Auger RW - Rotary Wash CFA - Continuous Flight Augers RC - Rock Core DC - Driving Casing		Hole No. <div style="text-align: center; font-size: 1.2em; font-weight: bold;">B-94</div>
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Project: **Bridge 13: I-75 Reversible Lanes over Windy Hill Road**
 Location: **Cobb County, Georgia**
 Project Number: **171-3463BF13; GDOT Proj. # : NH000-0073-03(242); PI #: 714130**

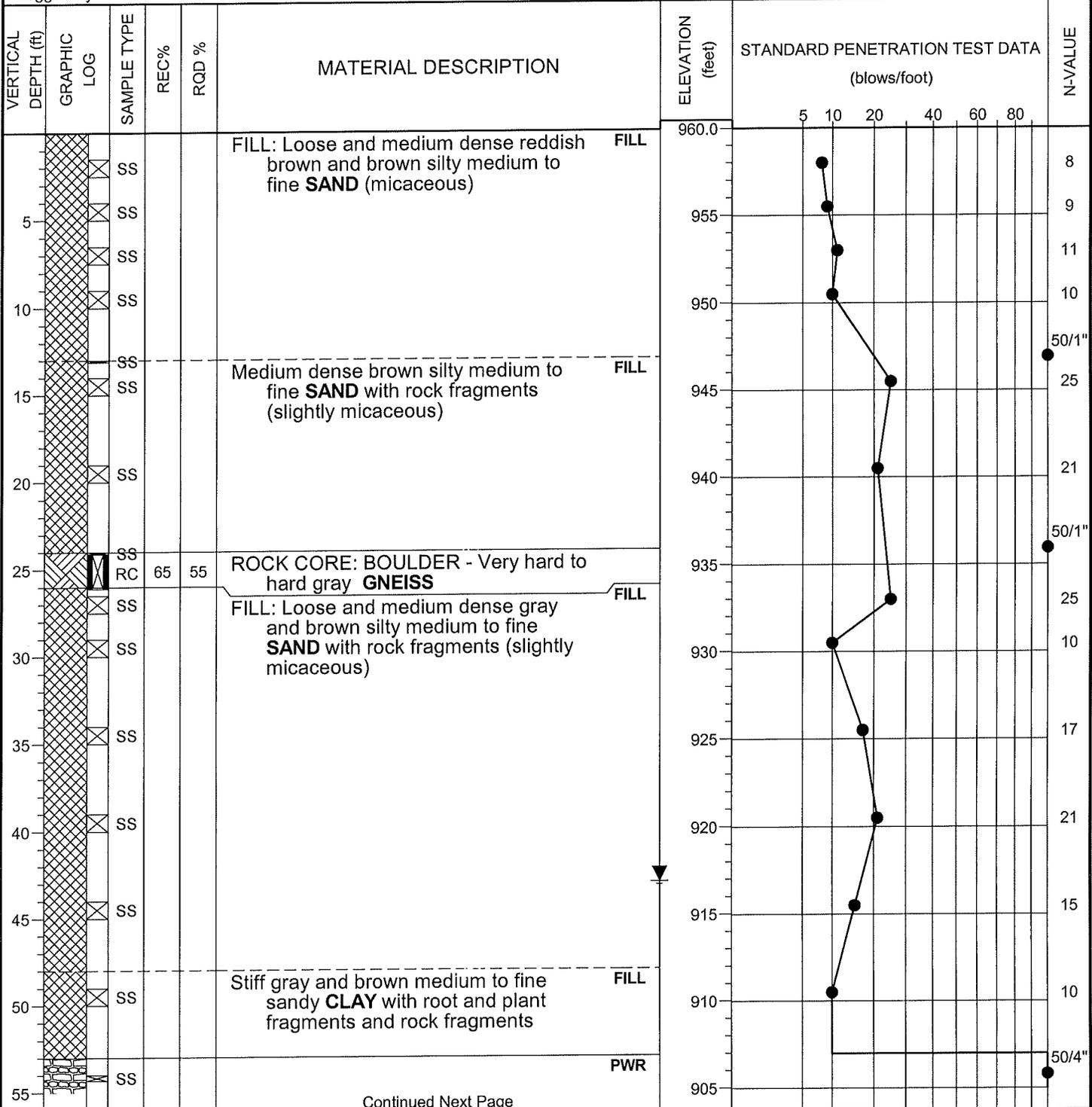
HOLE No. B-94
 Sheet 2 of 2
 Location: **BENT - 15**

VERTICAL DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION (Continued)	ELEVATION (feet)	STANDARD PENETRATION TEST DATA (blows/foot)						N-VALUE	
							5	10	20	40	60	80		
60		SS			PARTIALLY WEATHERED ROCK: PWR Sampled as very dense gray silty medium to fine SAND (slightly micaceous)	880							95/11"	
65		SS				875								91/11.5"
		SS				870								50/4
					Boring was terminated at 69 feet below the existing ground surface. This is an offset boring performed 5 feet north of the original location where refusal was encountered at 12.5 feet below the existing ground surface. Ground water was encountered at 17 feet below the existing ground surface 24 hours after boring completion.									

SPTN 171-3463BF13PJ 10/26/09

SAMPLER TYPE SS - Split Spoon NX - Rock Core, 2-1/8" ST - Shelby Tube CU - Cuttings NQ - Rock Core, 1-7/8" CT - Continuous Tube		DRILLING METHOD HSA - Hollow Stem Auger RW - Rotary Wash CFA - Continuous Flight Augers RC - Rock Core DC - Driving Casing		Hole No. <p style="text-align: center; font-size: 1.2em;">B-94</p>
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Project: Bridge 13: I-75 Reversible Lanes over Windy Hill Road		HOLE No. B-95	
Location: Cobb County, Georgia		Sheet 1 of 2	
Project Number: 171-3463BF13; GDOT Proj. # : NH000-0073-03(242); PI #: 714130		Location: BENT - 16	
Azimuth: --	Angle from Horizontal: 90	Surface Elevation (ft): 959.96	Station: ST 290+09, 10' Rt. of BL
Drilling Equipment: CME 550/MACTEC		Drilling Method: HSA/RC/RW Auto Hammer	
Core Boxes: NA	Samples: 18	Overburden (ft): NA	Rock (ft): NA
Logged By: CO		Date Drilled: 9/11/09	
Total Depth (ft): 64.5			



Continued Next Page

SPTN 171-3463BF13GPJ 10/26/09

SAMPLER TYPE SS - Split Spoon ST - Shelby Tube NQ - Rock Core, 1-7/8"	NX - Rock Core, 2-1/8" CU - Cuttings CT - Continuous Tube	DRILLING METHOD HSA - Hollow Stem Auger CFA - Continuous Flight Augers DC - Driving Casing	RW - Rotary Wash RC - Rock Core Hole No. B-95
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Project: **Bridge 13: I-75 Reversible Lanes over Windy Hill Road**

Location: **Cobb County, Georgia**

Project Number: **171-3463BF13; GDOT Proj. # : NH000-0073-03(242); PI #: 714130**

HOLE No. B-95

Sheet 2 of 2

Location: **BENT - 16**

VERTICAL DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION (Continued)	ELEVATION (feet)	STANDARD PENETRATION TEST DATA (blows/foot)						N-VALUE	
							5	10	20	40	60	80		
60		SS			PARTIALLY WEATHERED ROCK: Sampled as very dense gray, white and tan silty medium to fine SAND with rock fragments	900								50/1"
		SS			Boring was terminated at 64.5 feet below the existing ground surface. Ground water was encountered at 43 feet below the existing ground surface at 24 hours after boring completion.									50/5"

SPTN 171-3463BF13.PJ 10/26/09

SAMPLER TYPE

SS - Split Spoon NX - Rock Core, 2-1/8"
 ST - Shelby Tube CU - Cuttings
 NQ - Rock Core, 1-7/8" CT - Continuous Tube

DRILLING METHOD

HSA - Hollow Stem Auger RW - Rotary Wash
 CFA - Continuous Flight Augers RC - Rock Core
 DC - Driving Casing

Hole No.

B-95

Project: **Bridge 13: I-75 Reversible Lanes over Windy Hill Road**
 Location: **Cobb County, Georgia**
 Project Number: **171-3463BF13; GDOT Proj. # : NH000-0073-03(242); PI #: 714130**

HOLE No. B-96

Sheet 1 of 2

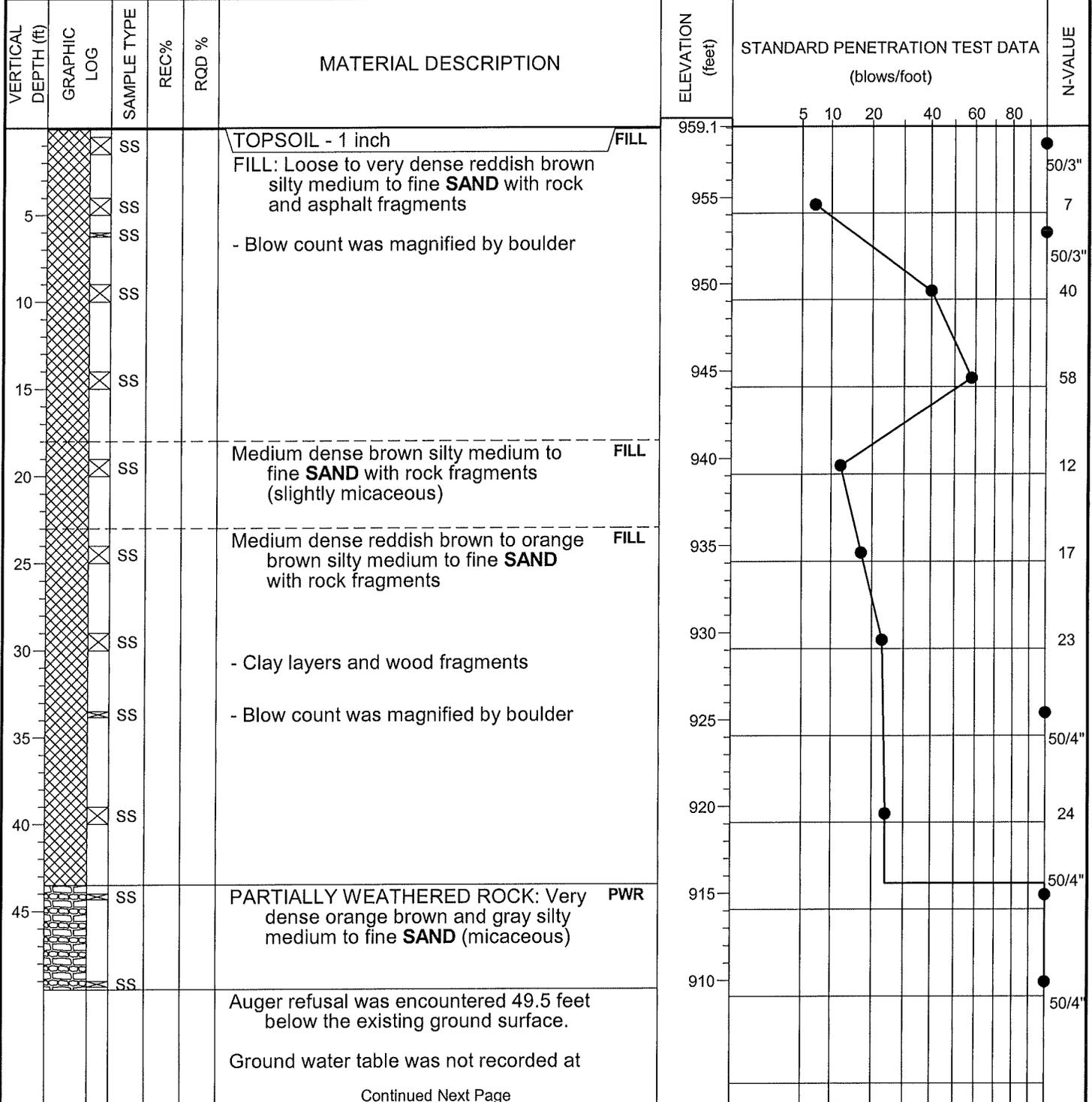
Location: **BENT - 17**

Azimuth: -- Angle from Horizontal: **90** Surface Elevation (ft): **959.08** Station: **291+50, 30' Rt. of BL**

Drilling Equipment: **CME550/MACTEC** Drilling Method: **HSA/RW Auto Hammer**

Core Boxes: **NA** Samples: **12** Overburden (ft): **49.5** Rock (ft): **NA** Total Depth (ft): **49.5**

Logged By: **PT** Date Drilled: **8/19/09**

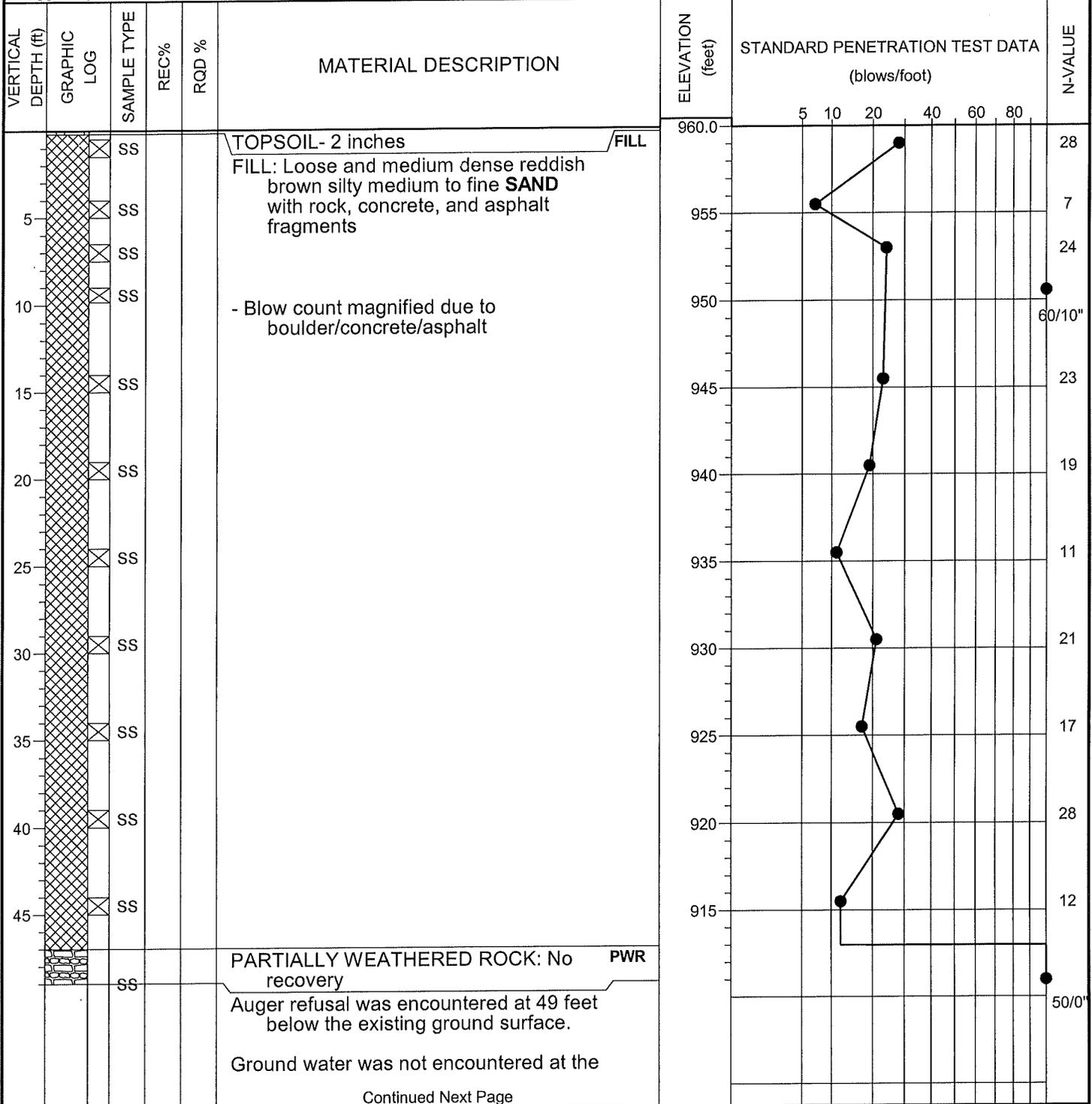


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SPTN 171-3463BF1.GPJ 10/25/09

SAMPLER TYPE SS - Split Spoon ST - Shelby Tube NQ - Rock Core, 1-7/8"	NX - Rock Core, 2-1/8" CU - Cuttings CT - Continuous Tube	DRILLING METHOD HSA - Hollow Stem Auger CFA - Continuous Flight Augers DC - Driving Casing	RW - Rotary Wash RC - Rock Core	Hole No. <p style="text-align: center;">B-96</p>
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Project: Bridge 13: I-75 Reversible Lanes over Windy Hill Road		HOLE No. B-97	
Location: Cobb County, Georgia		Sheet 1 of 2	
Project Number: 171-3463BFI3; GDOT Proj. # : NH000-0073-03(242); PI #: 714130		Location: BENT - 18	
Azimuth: --	Angle from Horizontal: 90	Surface Elevation (ft): 960.00	Station: ST 292+60, 22' Rt. of BL
Drilling Equipment: CME550/MACTEC		Drilling Method: HSA/RW Auto Hammer	
Core Boxes: NA	Samples: 12	Overburden (ft): 49	Rock (ft): NA Total Depth (ft): 49.0
Logged By: PT		Date Drilled: 8/19/09	

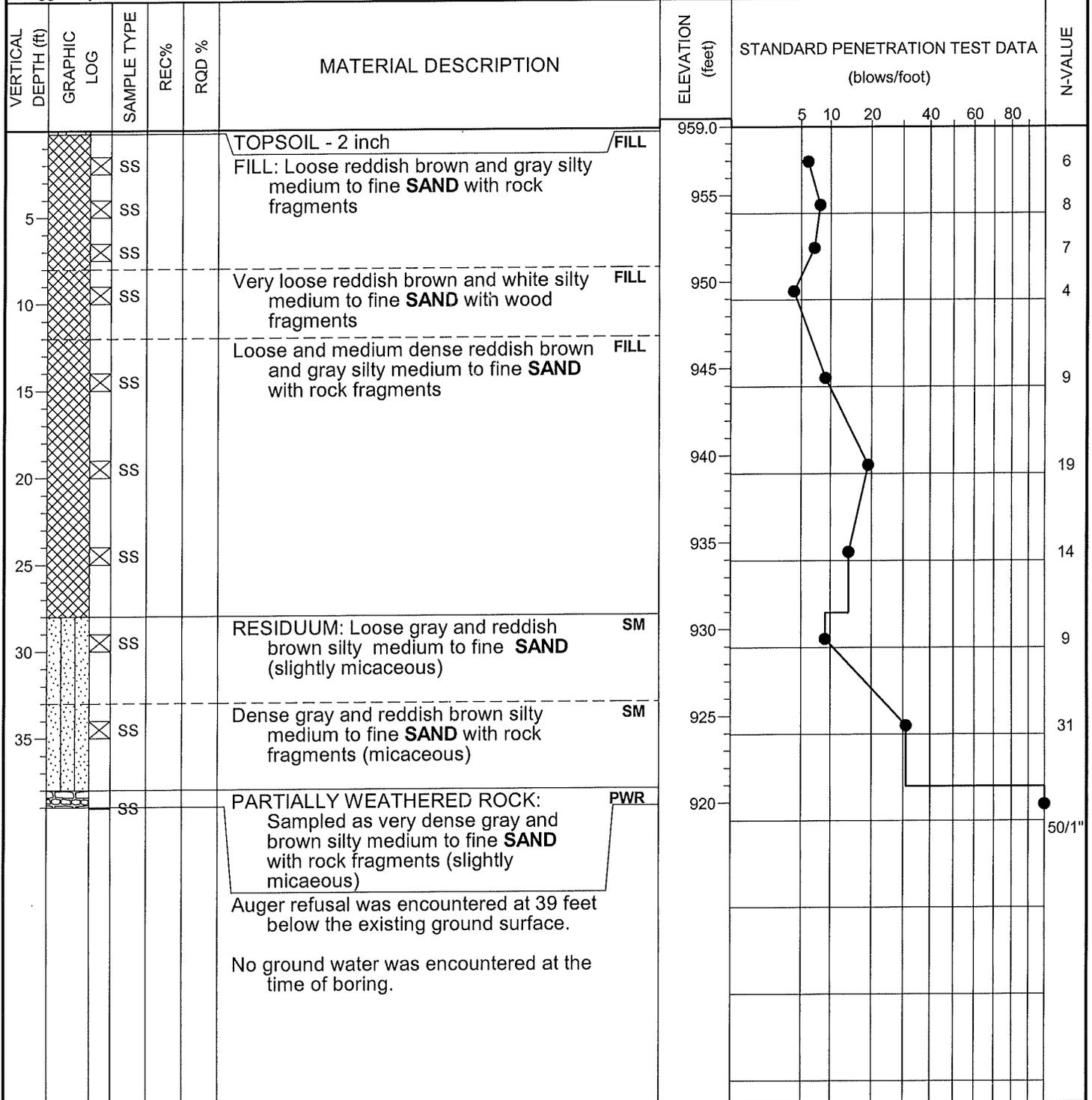


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SPTN 171-3463BFI.GPJ 10/26/09

SAMPLER TYPE SS - Split Spoon ST - Shelby Tube NQ - Rock Core, 1-7/8"	DRILLING METHOD NX - Rock Core, 2-1/8" CU - Cuttings CT - Continuous Tube	HSA - Hollow Stem Auger CFA - Continuous Flight Augers DC - Driving Casing	RW - Rotary Wash RC - Rock Core Hole No. <div style="text-align: center; font-weight: bold; font-size: 1.2em;">B-97</div>
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Project: Bridge 13: I-75 Reversible Lanes over Windy Hill Road				HOLE No. B-98	
Location: Cobb County, Georgia				Sheet 1 of 1	
Project Number: 171-3463BF13; GDOT Proj. # : NH000-0073-03(242); PI #: 714130				Location: BENT - 19	
Azimuth: --		Angle from Horizontal: 90		Surface Elevation (ft): 958.95	
Station: ST 293+60, 10' Rt. of BL		Drilling Equipment: CME550/MACTEC			
Drilling Method: HSA-Auto Hammer		Core Boxes: NA			
Samples: 10		Overburden (ft): 39		Rock (ft): NA	
Total Depth (ft): 39.0		Logged By: PT			
Date Drilled: 8/19/09					



SAMPLER TYPE SS - Split Spoon ST - Shelby Tube NQ - Rock Core, 1-7/8"	NX - Rock Core, 2-1/8" CU - Cuttings CT - Continuous Tube	DRILLING METHOD HSA - Hollow Stem Auger CFA - Continuous Flight Augers DC - Driving Casing
RW - Rotary Wash RC - Rock Core		Hole No. B-98

SPTN 171-3463BF1.GPJ 10/26/09

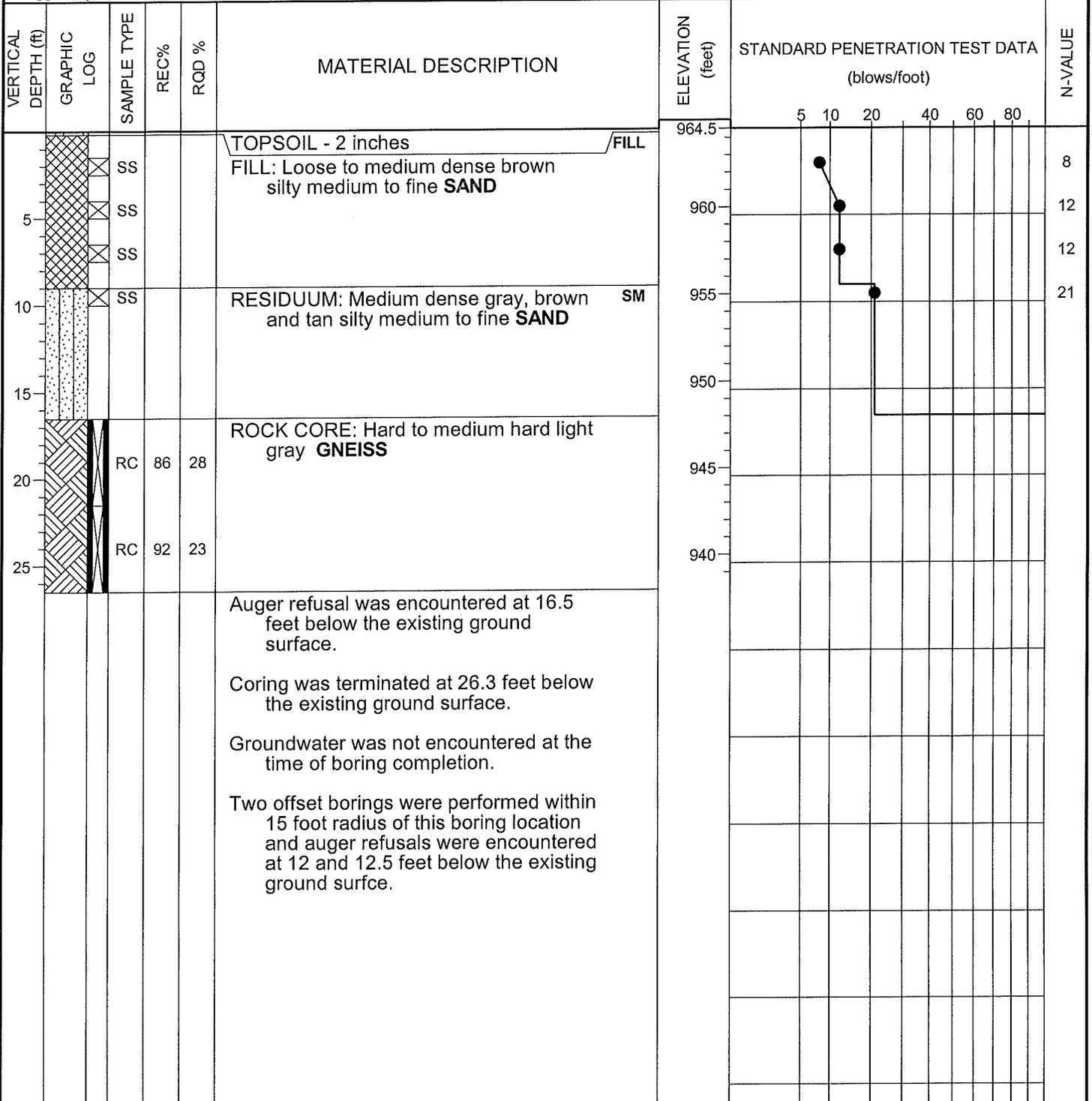
Project: Bridge 13: I-75 Reversible Lanes over Windy Hill Road		HOLE No. B-99A	
Location: Cobb County, Georgia		Sheet 1 of 1	
Project Number: 171-3463BF13; GDOT Proj. # : NH000-0073-03(242); PI #: 714130		Location: BENT - 20 LEFT	
Azimuth: --	Angle from Horizontal: 90	Surface Elevation (ft): 956.51	Station: ST 295+00, 16' Lt. of BL
Drilling Equipment: CME 550/Gable Drilling Co., Inc.		Drilling Method: HSA-Auto Hammer	
Core Boxes: NA	Samples: 4	Overburden (ft): 7.5	Rock (ft): NA
Logged By: CO		Date Drilled: 7/24/09	

VERTICAL DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION	ELEVATION (feet)	STANDARD PENETRATION TEST DATA (blows/foot)	N-VALUE
	5				CONCRETE - 6 inches FILL FILL: Loose brown silty medium to fine SAND with rock fragments	956.5	10	10
		SS				955	8	8
		SS				950	50/3.5"	50/3.5"
		SS			PARTIALLY WEATHERED ROCK: PWR Sampled as very dense brown silty medium to fine SAND with rock fragments Auger refusal encountered at 7.5 feet below the existing ground surface. Groundwater was not encountered at the time of boring completion.			50/2"

SAMPLER TYPE SS - Split Spoon ST - Shelby Tube NQ - Rock Core, 1-7/8"	DRILLING METHOD NX - Rock Core, 2-1/8" CU - Cuttings CT - Continuous Tube HSA - Hollow Stem Auger CFA - Continuous Flight Augers DC - Driving Casing	DRILLING METHOD RW - Rotary Wash RC - Rock Core Hole No. <div style="text-align: right; font-weight: bold; font-size: 1.2em;">B-99A</div>
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SPTN 171-3463BF13PJ 10/26/09

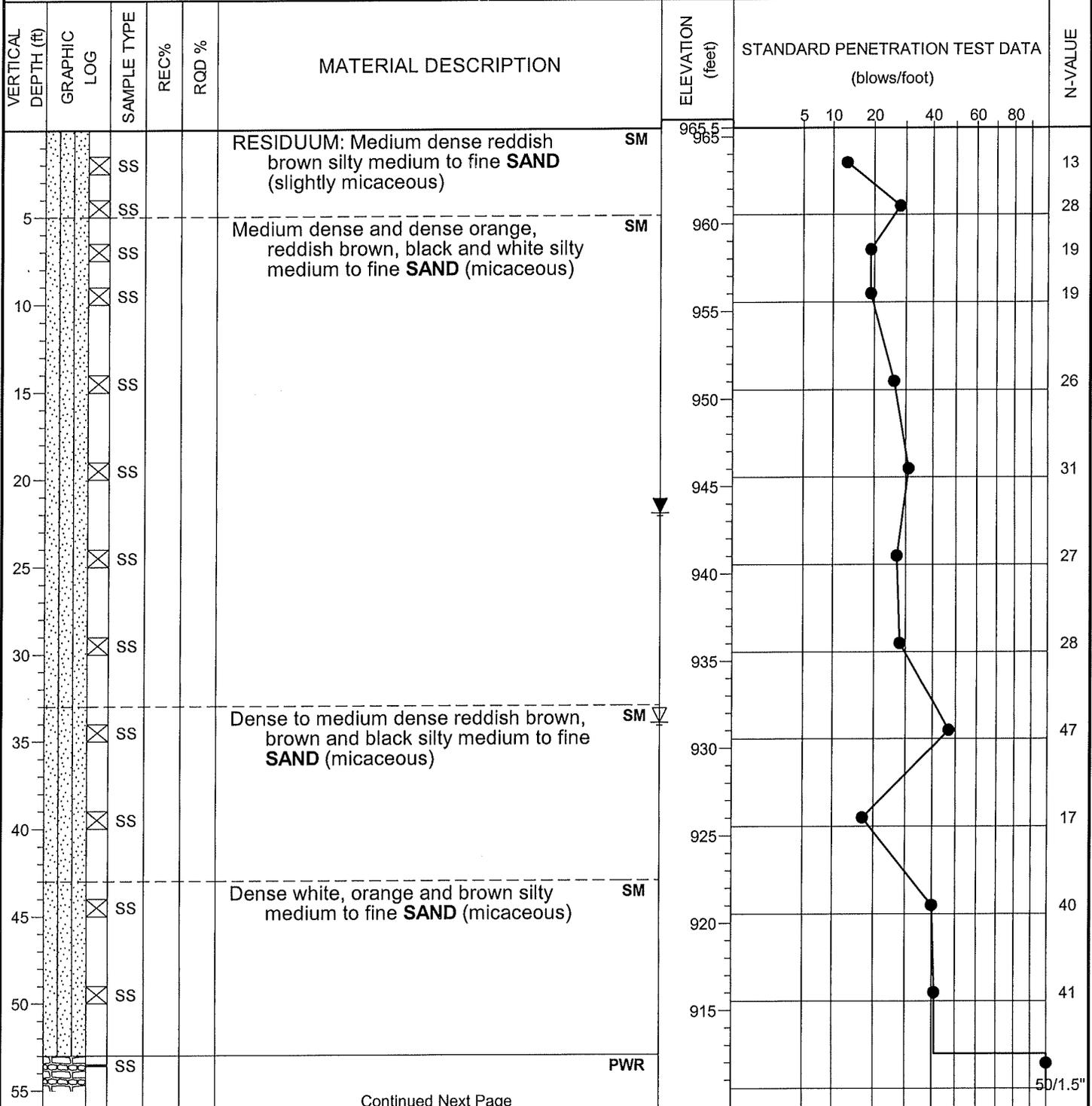
Project: Bridge 13: I-75 Reversible Lanes over Windy Hill Road		HOLE No. B-99B	
Location: Cobb County, Georgia		Sheet 1 of 1	
Project Number: 171-3463BFI3; GDOT Proj. # : NH000-0073-03(242); PI #: 714130		Location: BENT - 20 RIGHT	
Azimuth: --	Angle from Horizontal: 90	Surface Elevation (ft): 964.52	Station: ST 295+00, 48' Rt. of BL
Drilling Equipment: CME75/MACTEC		Drilling Method: HSA-Auto Hammer	
Core Boxes: 1	Samples: 4	Overburden (ft): 16.5	Rock (ft): 10 Total Depth (ft): 26.5
Logged By: PL		Date Drilled: 8/21/09	



SPTN 171-3463BFI.GPJ 10/26/09

SAMPLER TYPE SS - Split Spoon ST - Shelby Tube NQ - Rock Core, 1-7/8"	DRILLING METHOD NX - Rock Core, 2-1/8" CU - Cuttings CT - Continuous Tube HSA - Hollow Stem Auger CFA - Continuous Flight Augers DC - Driving Casing	RW - Rotary Wash RC - Rock Core Hole No. <p style="text-align: center; font-weight: bold; font-size: 1.2em;">B-99B</p>
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Project: Bridge 13: I-75 Reversible Lanes over Windy Hill Road		HOLE No. B-100	
Location: Cobb County, Georgia		Sheet 1 of 2	
Project Number: 171-3463BFI3; GDOT Proj. # : NH000-0073-03(242); PI #: 714130		Location: BENT - 21	
Azimuth: --	Angle from Horizontal: 90	Surface Elevation (ft): 965.52	Station: ST 296+35, 10' Rt. of BL
Drilling Equipment: CME550/MACTEC		Drilling Method: HSA-Auto Hammer	
Core Boxes: NA	Samples: 14	Overburden (ft): 56.5	Rock (ft): NA Total Depth (ft): 56.5
Logged By: CO		Date Drilled: 8/25/09	

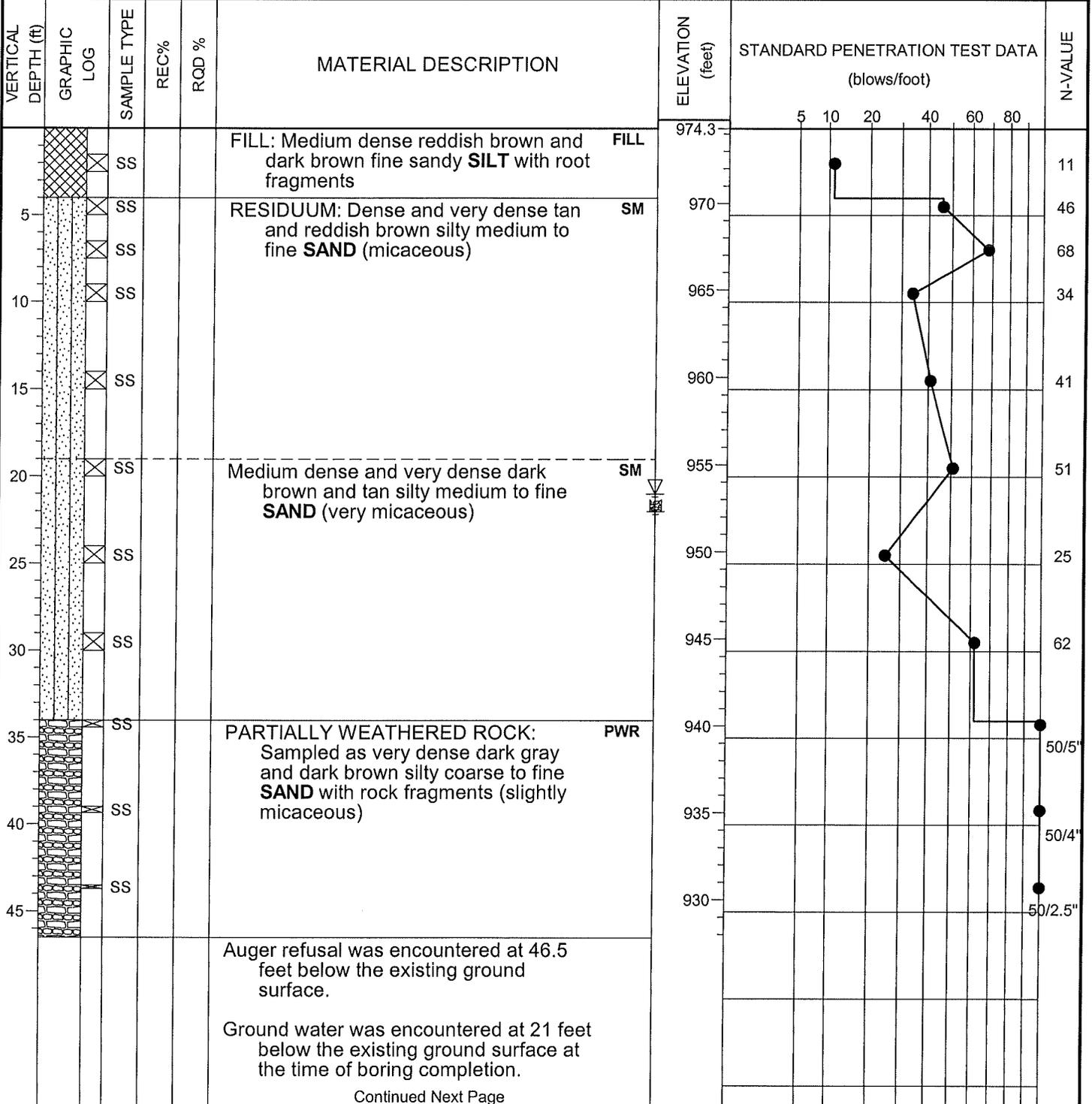


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SPTN 171-3463BFI.GPJ 10/26/09

SAMPLER TYPE SS - Split Spoon ST - Shelby Tube NQ - Rock Core, 1-7/8"	DRILLING METHOD NX - Rock Core, 2-1/8" CU - Cuttings CT - Continuous Tube HSA - Hollow Stem Auger CFA - Continuous Flight Augers DC - Driving Casing	RW - Rotary Wash RC - Rock Core Hole No. B-100
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Project: Bridge 13: I-75 Reversible Lanes over Windy Hill Road		HOLE No. A-1	
Location: Cobb County, Georgia		Sheet 1 of 2	
Project Number: 171-3463BF13; GDOT Proj. # : NH000-0073-03(242); PI #: 714130		Location: BENT - 23	
Azimuth: --	Angle from Horizontal: 90	Surface Elevation (ft): 974.30	Station: ST 299+20, 10' Rt of BL
Drilling Equipment: CME 550/Gable		Drilling Method: HSA-Auto Hammer	
Core Boxes: NA	Samples: 11	Overburden (ft): 46.5	Rock (ft): NA Total Depth (ft): 46.5
Logged By: MT		Date Drilled: 9/28/09	

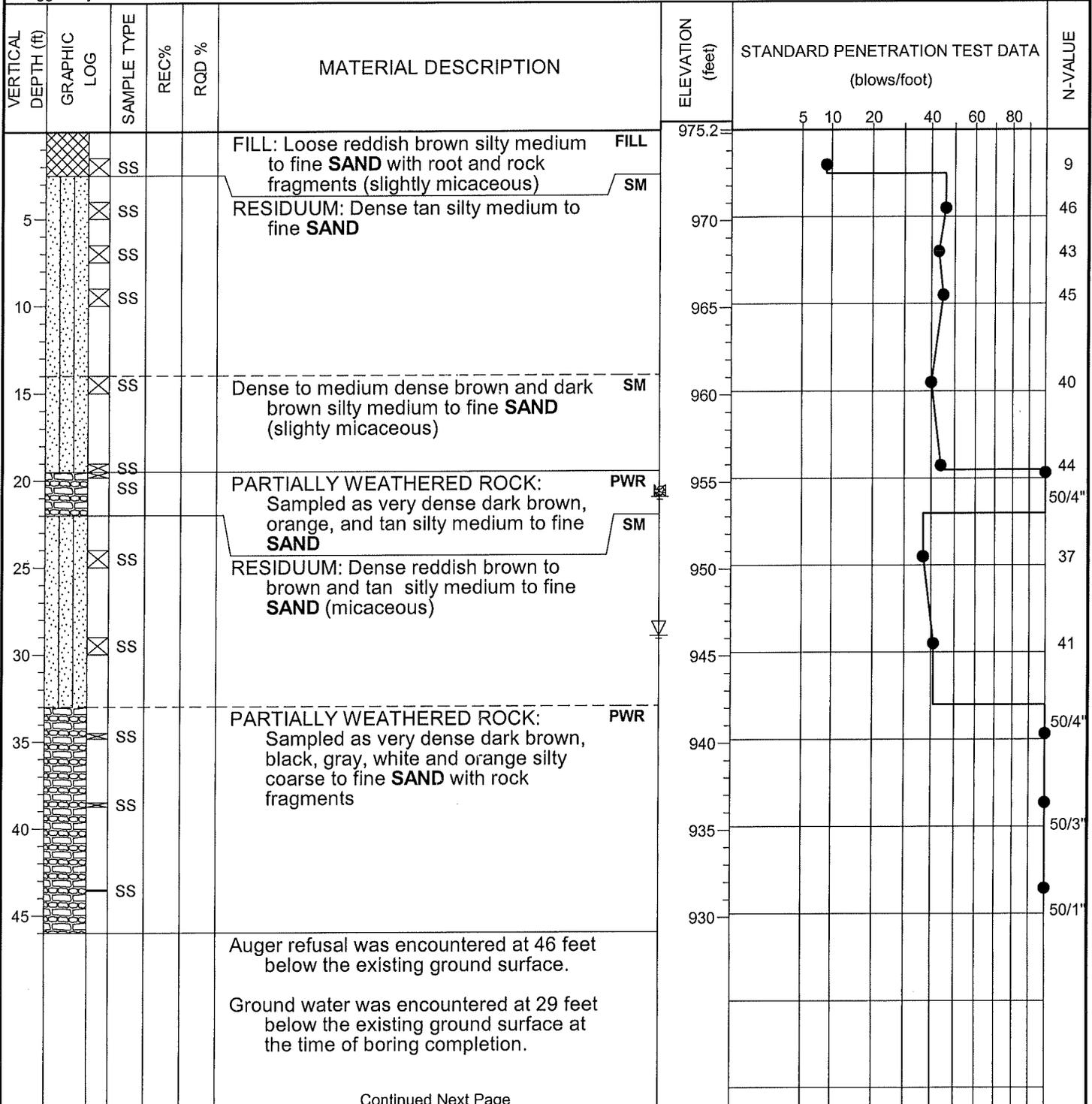


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SAMPLER TYPE SS - Split Spoon ST - Shelby Tube NQ - Rock Core, 1-7/8"	DRILLING METHOD NX - Rock Core, 2-1/8" CU - Cuttings CT - Continuous Tube HSA - Hollow Stem Auger CFA - Continuous Flight Augers DC - Driving Casing RW - Rotary Wash RC - Rock Core	Hole No. <p style="text-align: center; font-size: 1.2em;">A-1</p>
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SPTN 171-3463BF1.GPJ 10/26/09

Project: Bridge 13: I-75 Reversible Lanes over Windy Hill Road		HOLE No. A-2	
Location: Cobb County, Georgia		Sheet 1 of 2	
Project Number: 171-3463BF13; GDOT Proj. # : NH000-0073-03(242); PI #: 714130		Location: BENT - 24	
Azimuth: --	Angle from Horizontal: 90	Surface Elevation (ft): 975.20	Station: ST 300+60, 10' Rt of BL
Drilling Equipment: CME 550/Gable		Drilling Method: HSA-Auto Hammer	
Core Boxes: NA	Samples: 11	Overburden (ft): 46	Rock (ft): NA
Total Depth (ft): 46.0		Logged By: MT	
Date Drilled: 9/28/09			



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SPTN 171-3463BF1.GPJ 10/26/09

SAMPLER TYPE SS - Split Spoon ST - Shelby Tube NQ - Rock Core, 1-7/8"	DRILLING METHOD NX - Rock Core, 2-1/8" CU - Cuttings CT - Continuous Tube HSA - Hollow Stem Auger CFA - Continuous Flight Augers DC - Driving Casing	RW - Rotary Wash RC - Rock Core Hole No. <h2 style="text-align: center;">A-2</h2>
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