



PAT McCrory
Governor
NICHOLAS J. TENNYSON
Secretary

September 27, 2016

MEMORANDUM TO: Christopher A. Peoples, PE
State Materials Engineer

Brett Abernathy, PE, PLS
Division Project Engineer

FROM: J. L. Pilipchuk, PE, LG
State Geotechnical Engineer

STATE PROJECT: 53009 (I-5766) – DDC
COUNTY: Forsyth

DESCRIPTION: I-40 from 0.85 miles east of NC 150 to 0.2 miles east of NC 109

SUBJECT: Geotechnical Recommendations for Pavement Design

DS
MAM

DocuSigned by:
John Pilipchuk
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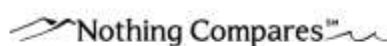
The Geotechnical Engineering Unit has completed the evaluation of the pavement design investigation for this project and presents the following recommendations.

The proposed work consists of replacing the existing concrete slabs with precast concrete slabs for lane 2 and lane 3 in both the Westbound and Eastbound directions.

Soil Type: Residual and embankment soils were encountered beneath the existing pavement. The predominant soils encountered consists of silty sand, (A-2-4/5) sandy and clayey silt (A-4, A-5) and silty clay (A-7). Soil moisture laboratory results indicate that some areas have high in-situ soil moistures relative to the soil type.

The design soil type is silty clay (A-7).

The length of this project is 1.25 miles.



Pavement Design Inputs: The following values are recommended to be used with the Design soil type:

ENVIRONMENTAL INPUTS								
DESIGN SOIL TYPE(S)	PASSING #200 SIEVE (%)	OPTIMUM MOISTURE CONTENT (%)	MAXIMUM DRY DENSITY (pcf)	D ₆₀ (in)	LL	(PI)	SPECIFIC GRAVITY (G _s)	CBR
Silty Clay	62	26.1	93.8	0.00449	60	24	2.75	7.6

Note: Average values reported were taken from county soils results

Areas of Special Geotechnical Interest

- 1) Highly Plastic Clays: Soil with a plastic index of 26 or greater.

LINE	STATION AND OFFSET	PI
-L-	87+31 EB LN 3	26
-L-	123+39 EB LN 2	41
-L-	123+41 WB LN 2	34

- 2) Auger Refusal:

LINE	STATION AND OFFSET	DEPTH OF REFUSAL
-L-	400+99 EB ISS	3.9'
-L-	401+01 EB AUX LN	4.7'
-L-	401+02 EB OSS	3.8'
-L-	87+31 EB LN 2	4.7'

- 3) Existing Aggregate Base Course:

Based upon Dynamic Cone Penetrometer Tests CBR values for the existing ABC in lanes 2 and 3 range from 15.4 to 97.7. The average CBR for the existing ABC is 58.1. The lower CBR values most likely indicate that the existing ABC has become contaminated with the soils beneath. Manipulation of the existing ABC may achieve higher strengths but consideration should be given to areas with weak, moist subgrades not to use excessive compaction that may cause pumping in the subgrade. If manipulation of the existing ABC does not provide the necessary support needed to set the precast slab the division may want to consider alternative methods suggested by the industry.

- 4) Trapped Water

Groundwater nor trapped water was encountered during this investigation. However, there is the possibility that isolated pockets of trapped water may be present beneath the concrete pavement. The areas that have the highest probability for accumulating water are long, flat areas and the bottoms of vertical curves. The division should develop a plan of action incase this scenario is encountered during construction.

DESIGN AND CONSTRUCTION RECOMMENDATIONS

I. Subgrade Stability

A. Aggregate Subgrade

Recommend a quantity of 2,000 cubic yards of shallow undercut to be included in the project contract as a contingency item. Undercut depths should be determined by the engineer and may range from 4 inches to 12 inches depending on the depth of the weak material. Undercut soils are to be wasted.

Geotextile for Soil Stabilization

Recommend 6,000 square yards of Geotextile for Soil Stabilization to be included in the project contract as a contingency item.

Class IV Subgrade Stabilization

Recommend 4,000 tons of Class IV Subgrade Stabilization material to be included in the project contract as a contingency item.

II. Miscellaneous

A. Proof Rolling

It is recommended that proof rolling not be performed on this project.

JLP/MAM/JBB

ATTACHMENT 1:	Dynamic Cone Penetrometer Tests WB Lanes	8
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ATTACHMENT 2:	Soil Test Lab Results	6
ATTACHMENT 3:	Pavement and Subgrade Inventory	39



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
GEOTECHNICAL ENGINEERING UNIT

Summary of Quantities

WBS Number: 53009

County: Forsyth

Project Engineer: _____

TIP Number: I-5766

Field Office: Central

Project Geologist: J. B. Barfield

Description: I-40 from 0.85 miles east of NC 150 to 0.2 miles east of NC 109

Pay Item No.	Pay Item/ Quantity Adjustment	Spec Book Section No. or Special Provision (SP) Reference	Report Section	Alignment	Begin Station	End Station	Quantity	Units / %
0196000000-E	Geotextile for Soil Stabilization	270 - Geotextile for Soil Stabilization	I. A	Contingency	N/A	N/A	6,000	SY
Total Quantity of Geotextile for Soil Stabilization =							6,000	SY
1099500000-E	Shallow Undercut	505 - Aggregate Subgrade	I. A	Contingency	N/A	N/A	2,000	CY
Total Quantity of Shallow Undercut =							2,000	CY
1099700000-E	Class IV Subgrade Stabilization	505 - Aggregate Subgrade	I. A	Contingency	N/A	N/A	4,000	TON
Total Quantity of Class IV Subgrade Stabilization =							4,000	TON

CONE PENETROMETER RESULTS
NC - DOT, GEOTECHNICAL ENGINEERING UNIT

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GEOTECHS	TERRACON INC.

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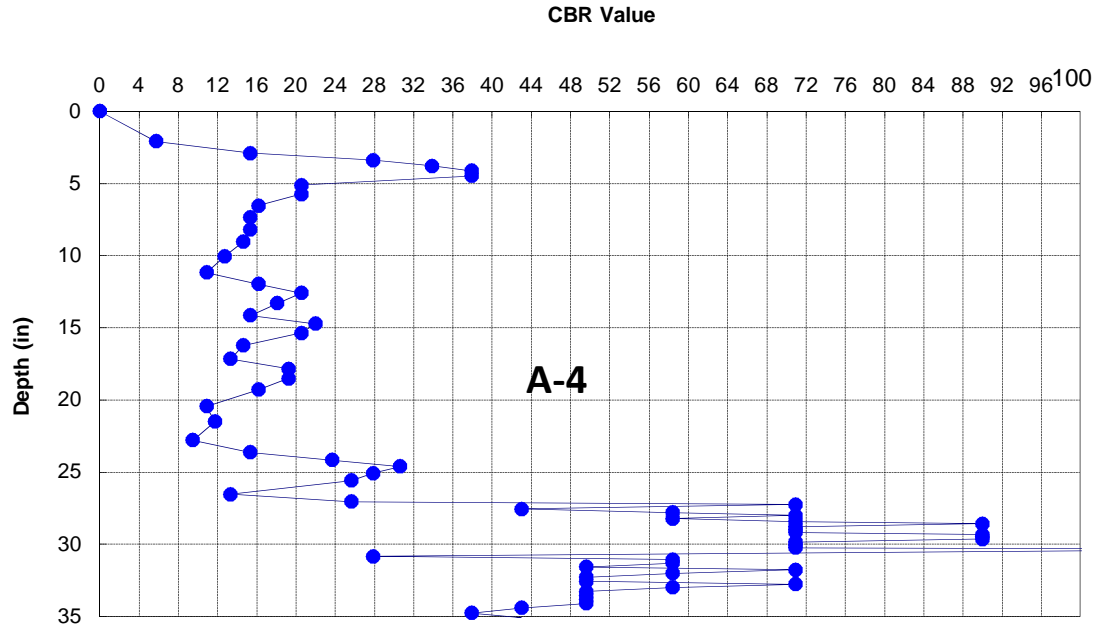
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RAW
FILL
07/17/16

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Wghtd Avg.	#DIV/0!
Max CBR	0.0
Min CBR	0.0

Interval	0.0 to 37.7
# of Values	76
Avg CBR	40.5
Wghtd Avg.	26.5
Max CBR	100+
Min CBR	5.7



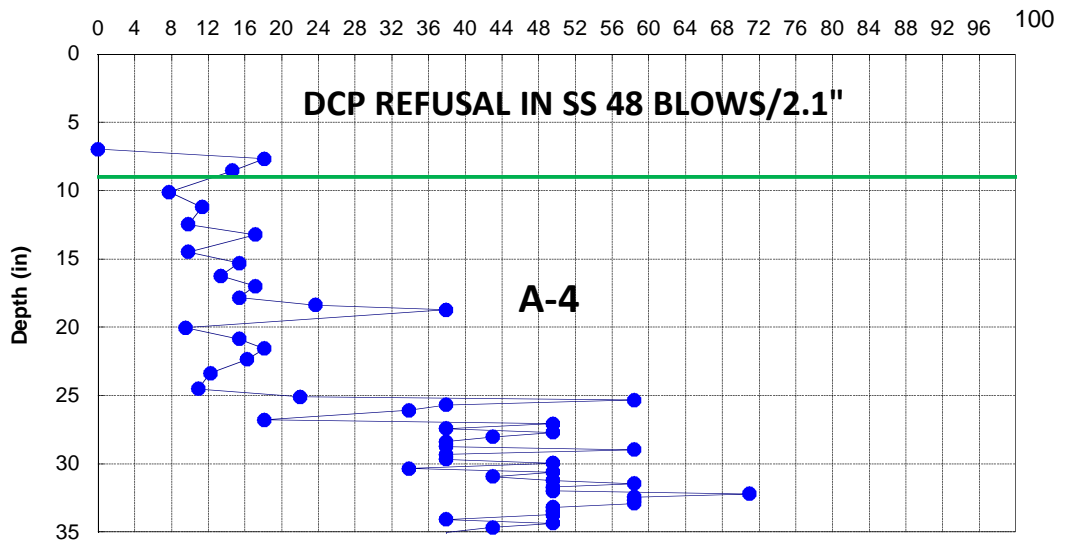
-L1- 410+99 WB AUX LANE

RAW
FILL
07/17/16

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Interval	7.0 to 10.1
# of Values	3
Avg CBR	13.5
Wghtd Avg.	11.9
Max CBR	18.1
Min CBR	7.7

Interval	10.1 to 43.8
# of Values	75
Avg CBR	38.0
Wghtd Avg.	29.4
Max CBR	70.9
Min CBR	9.5



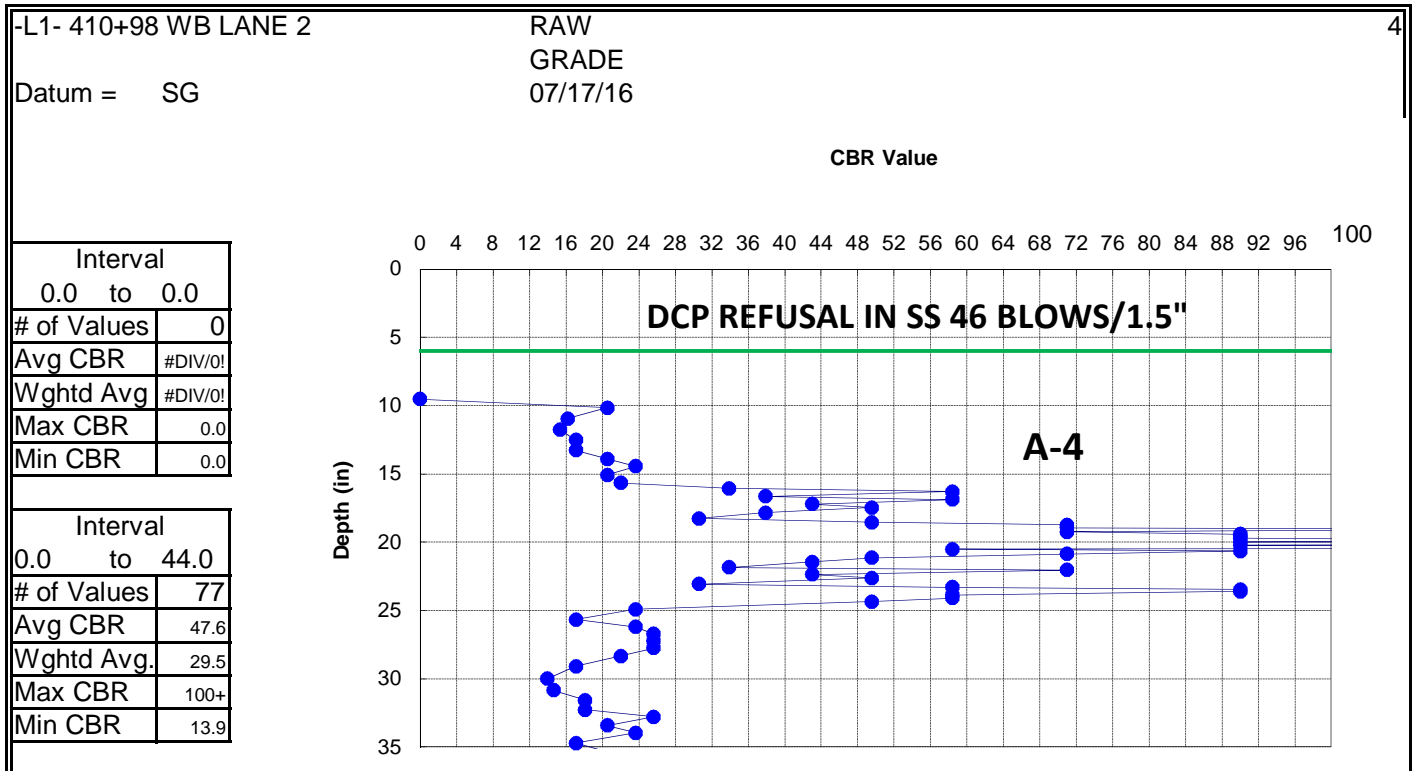
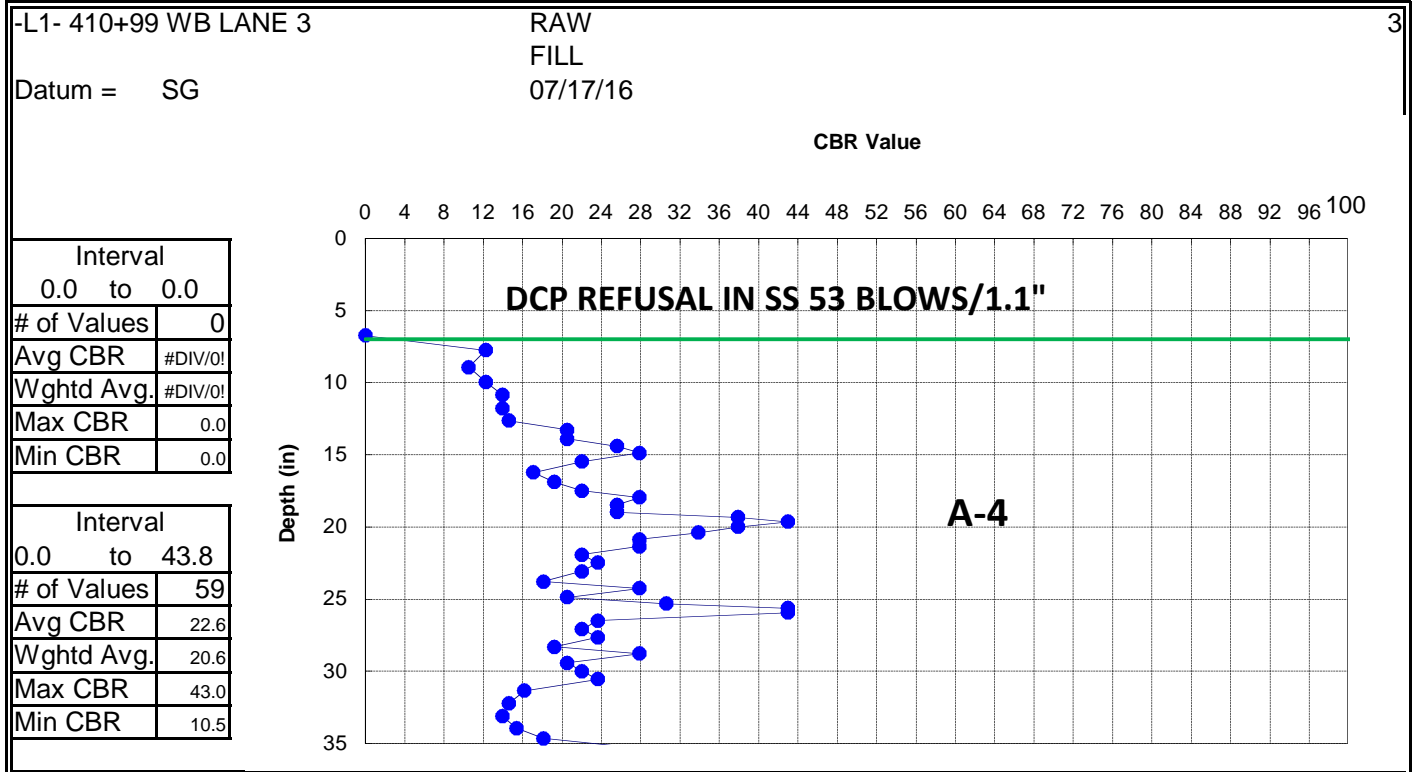
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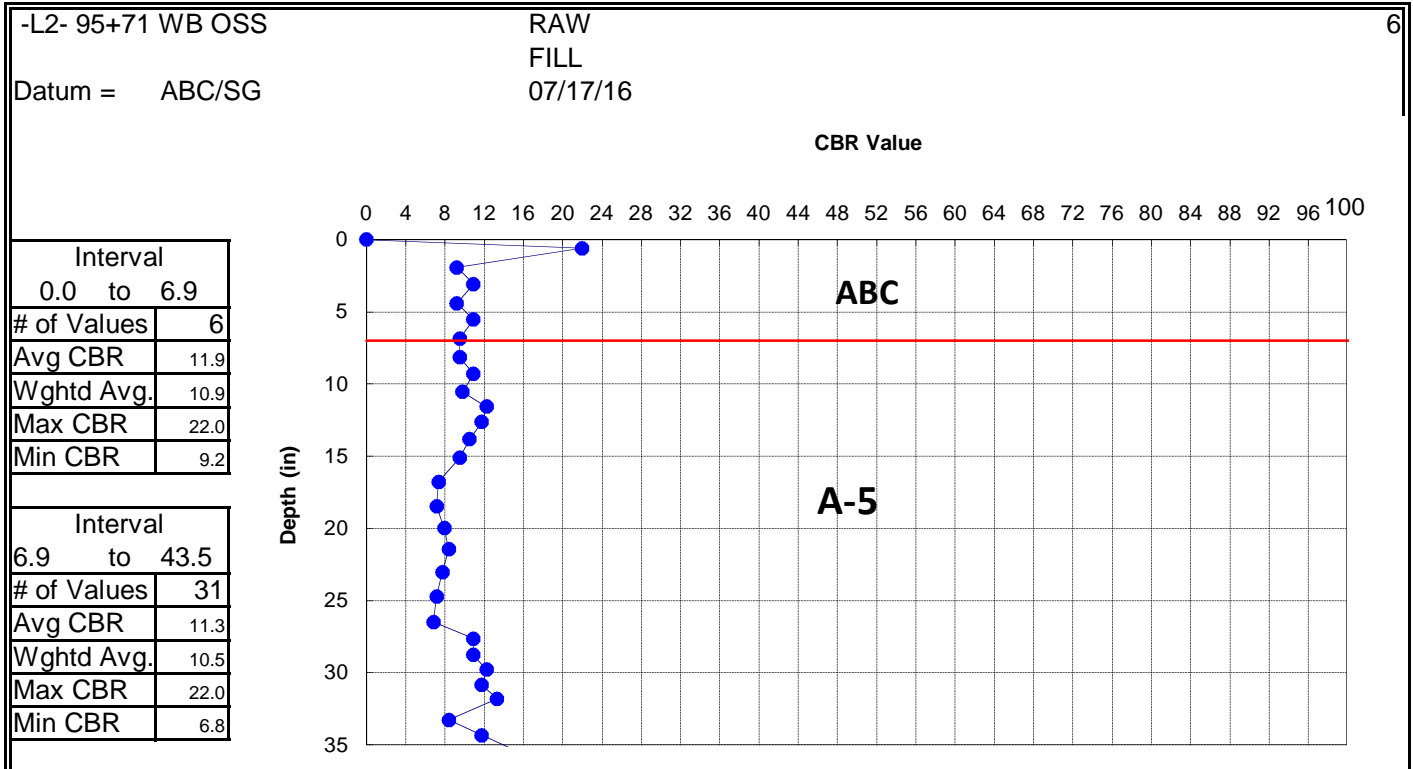
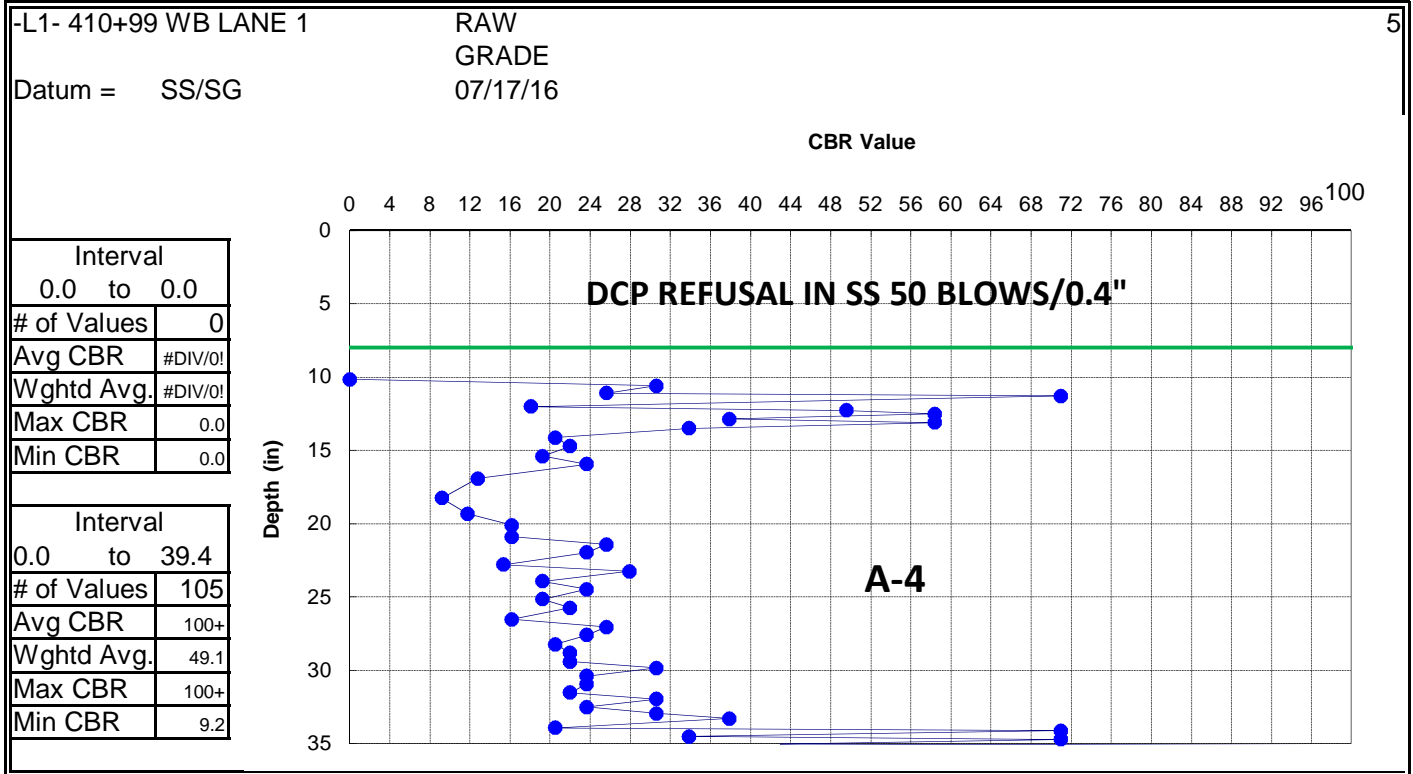
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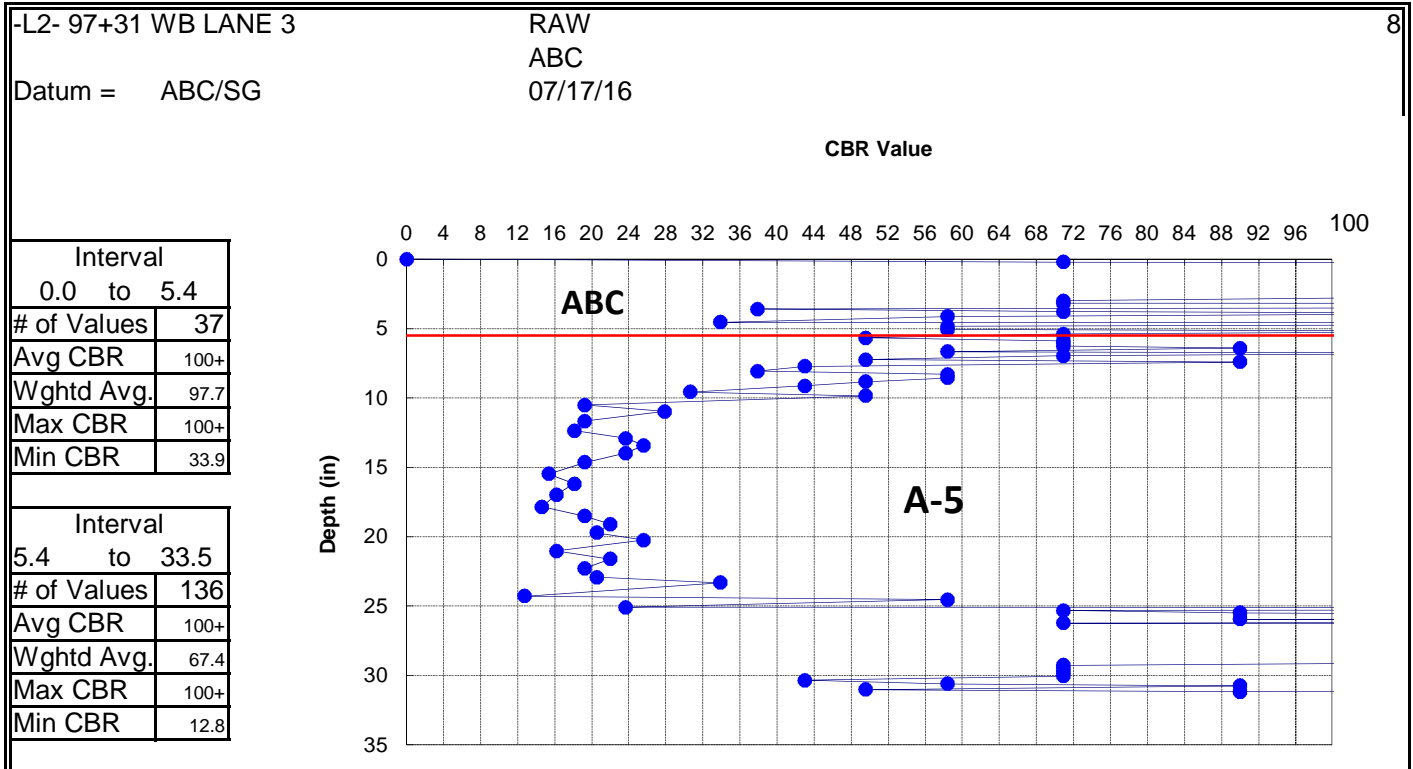
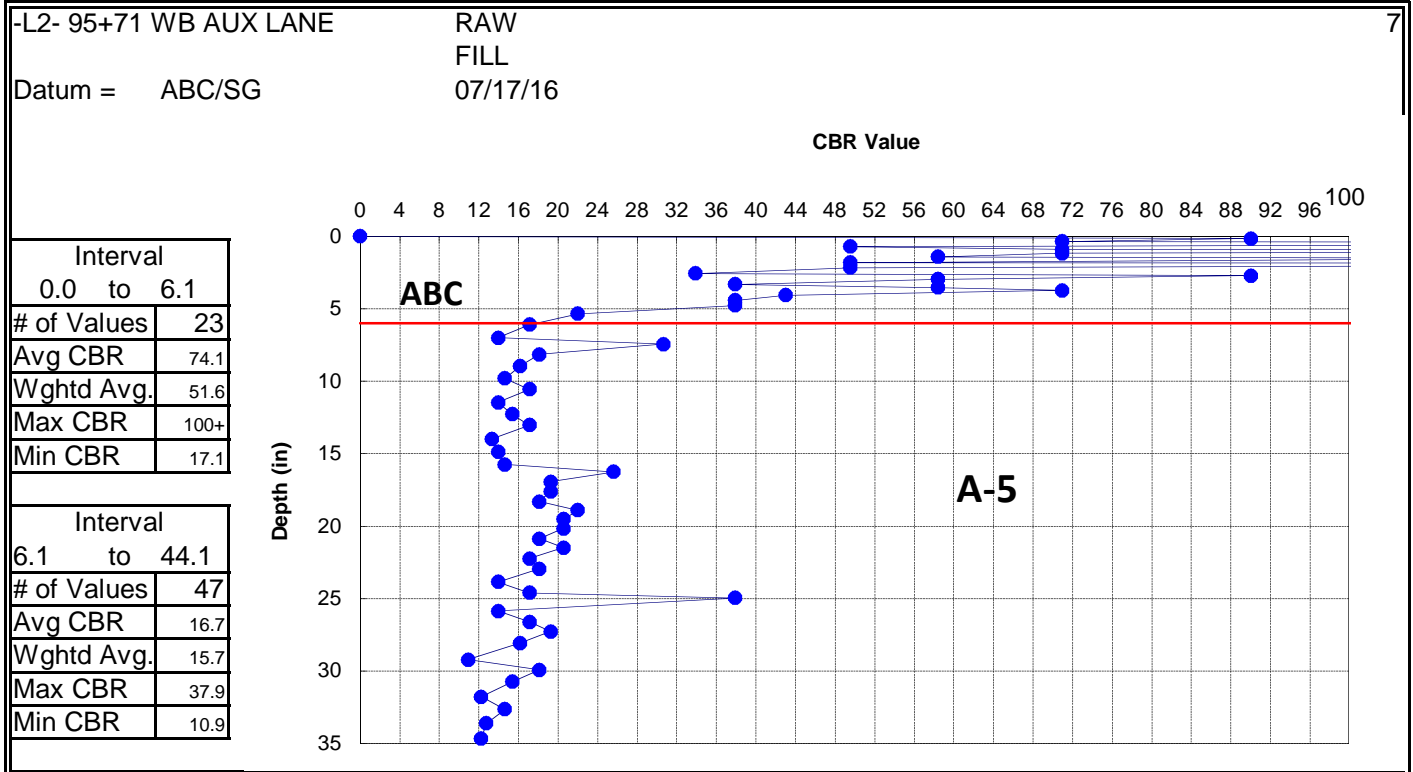
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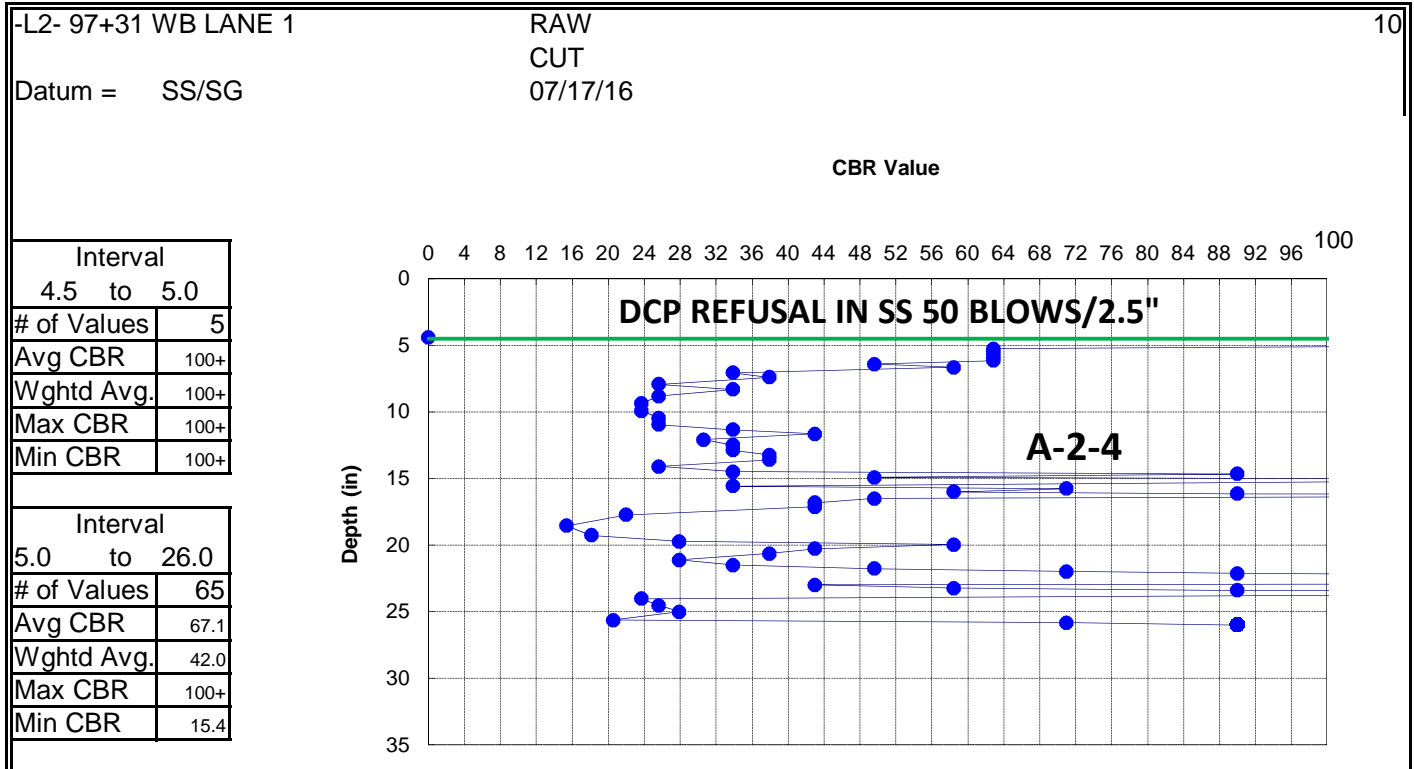
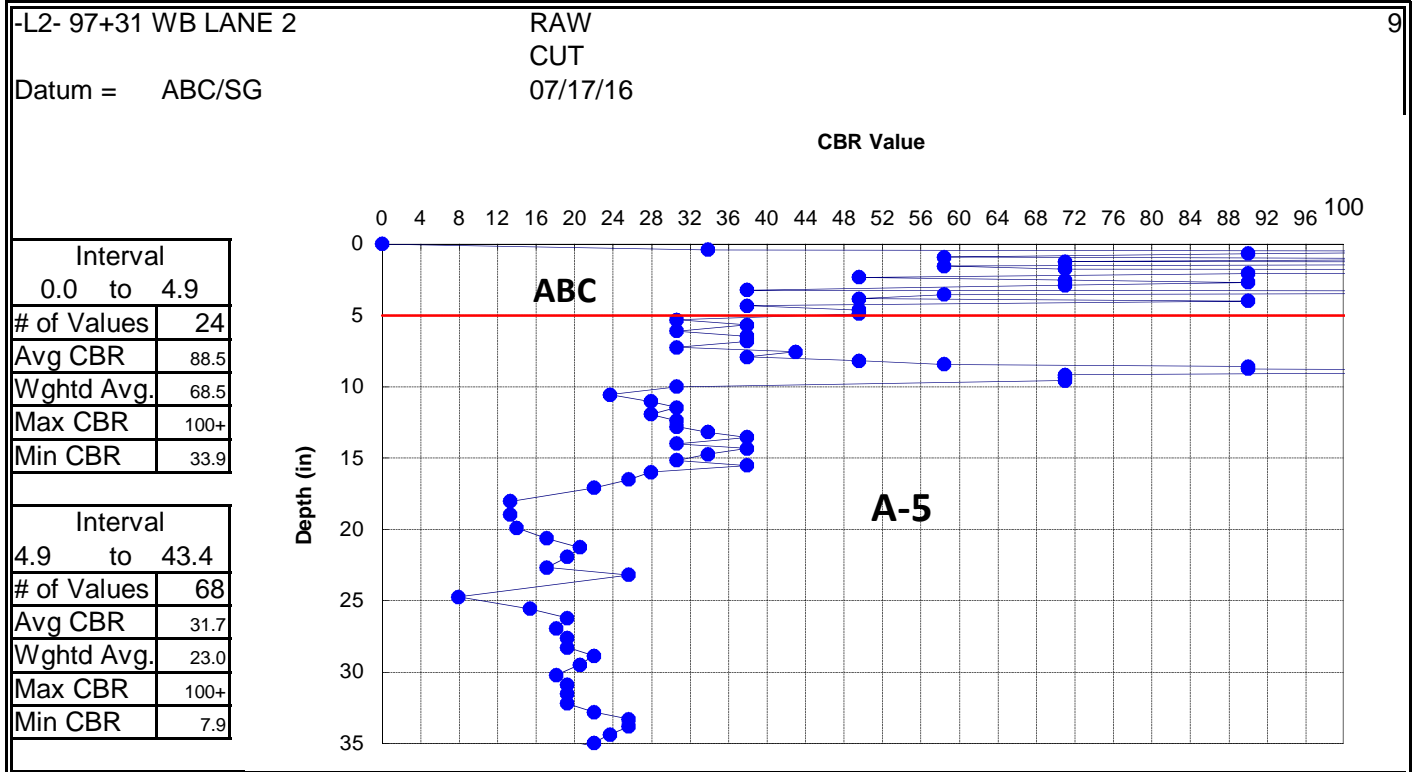
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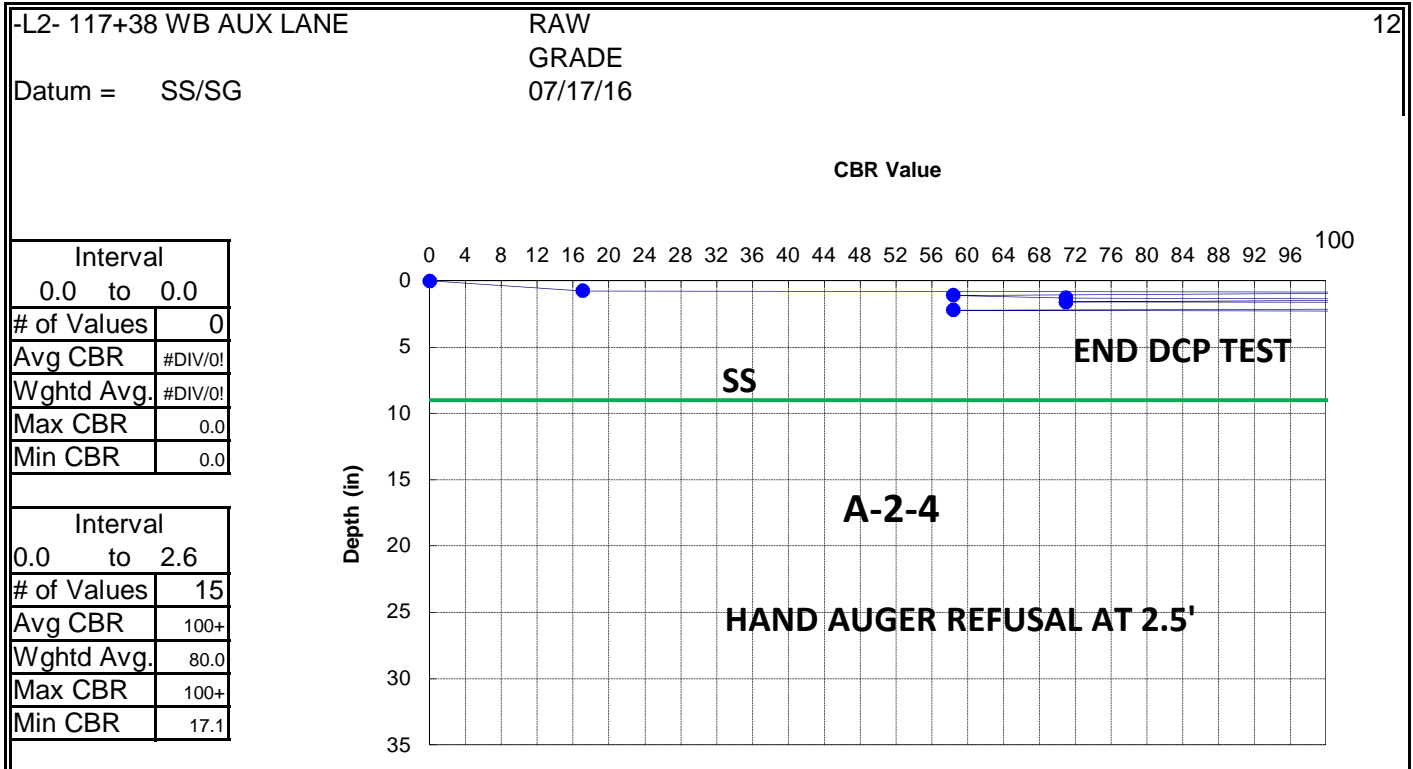
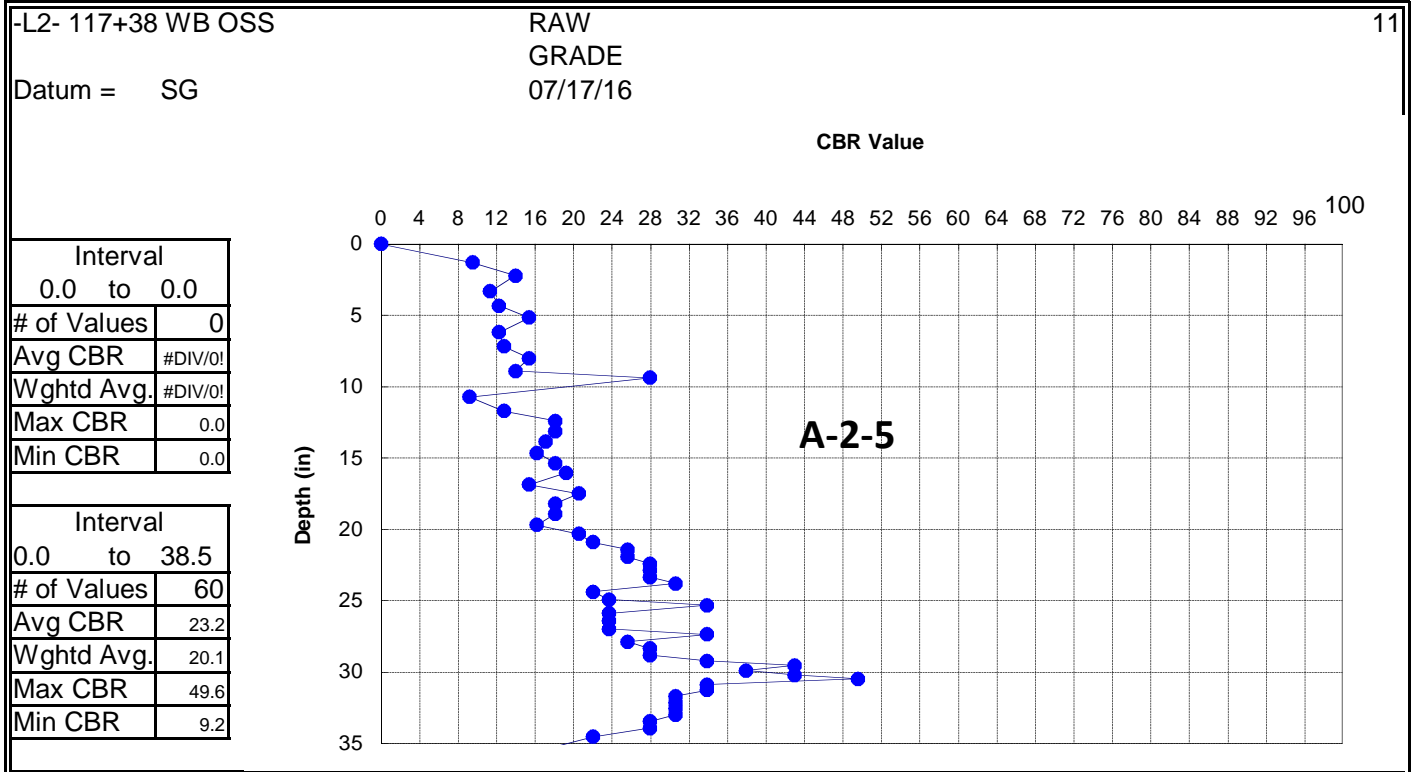
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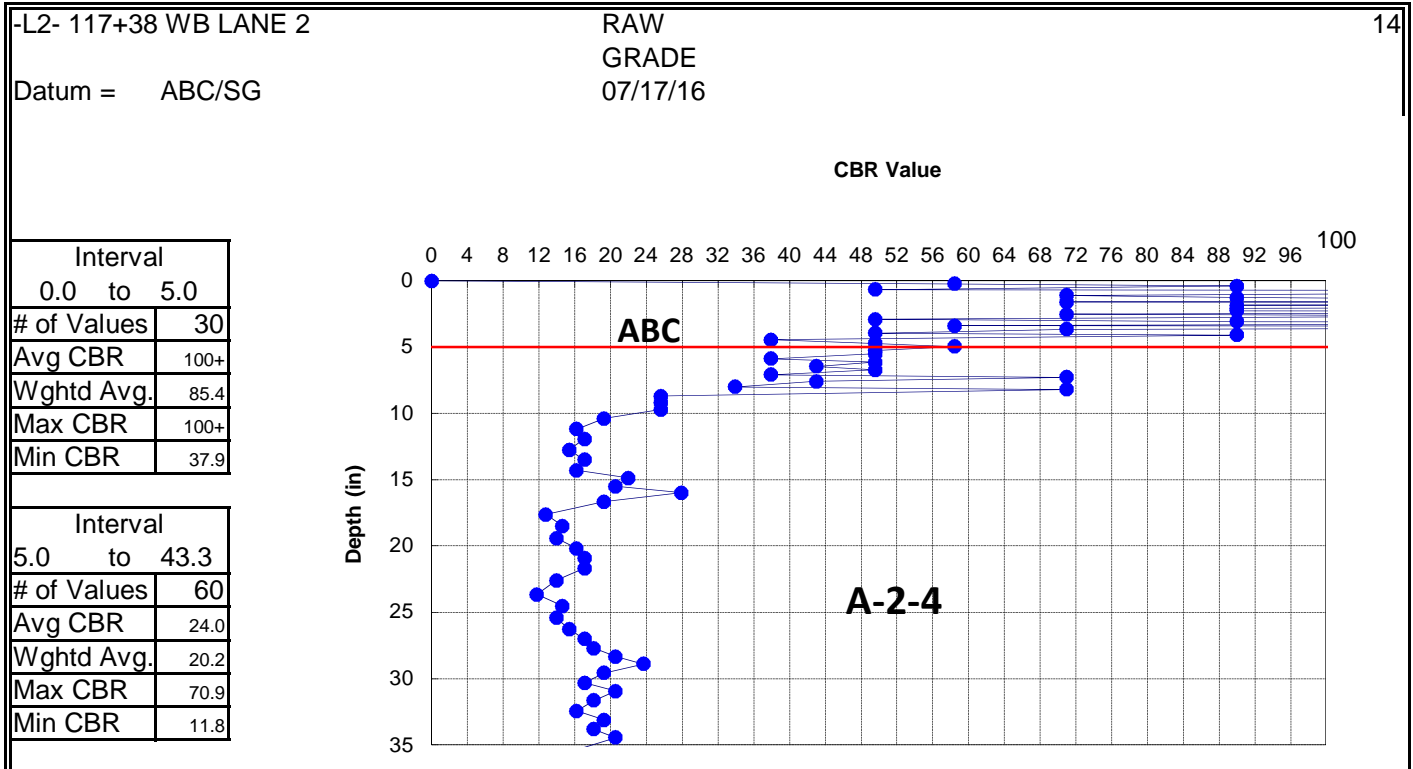
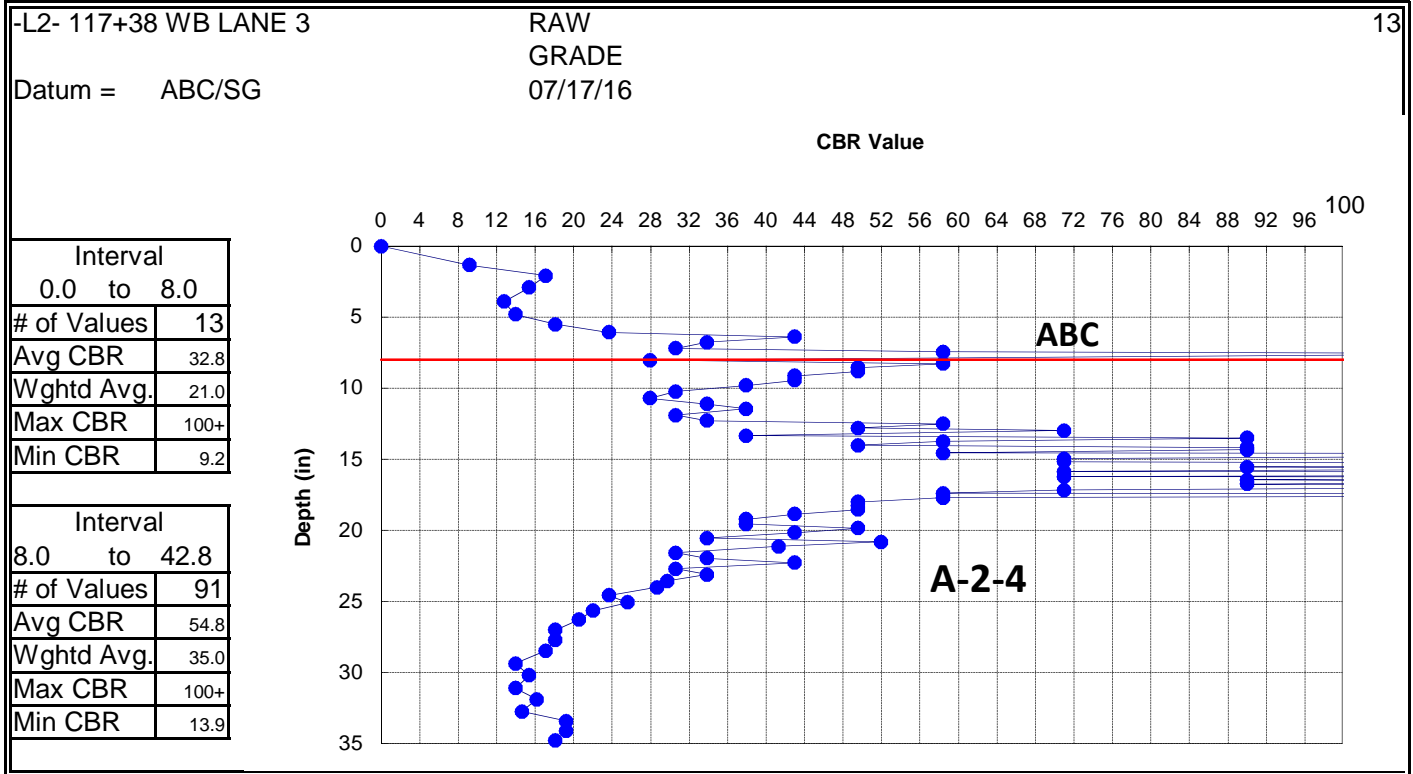
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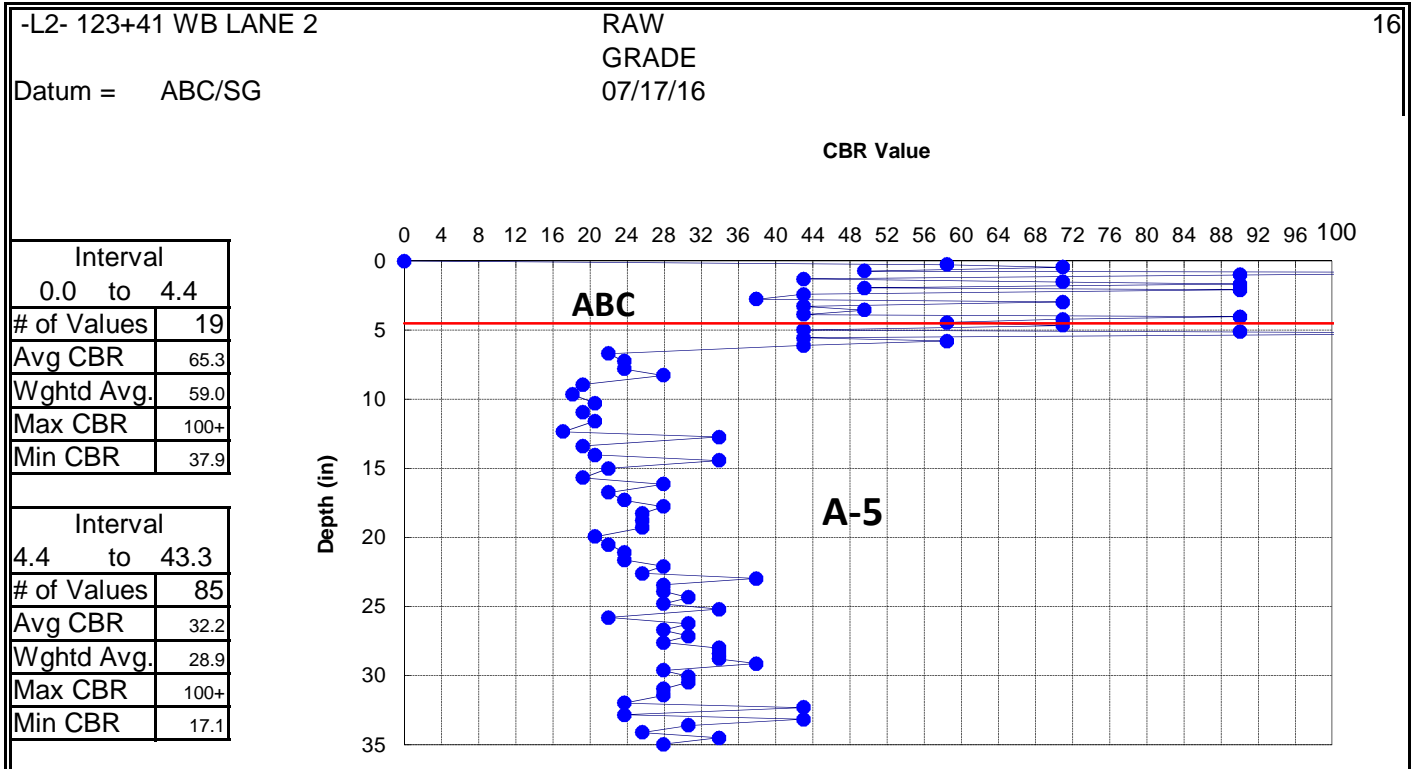
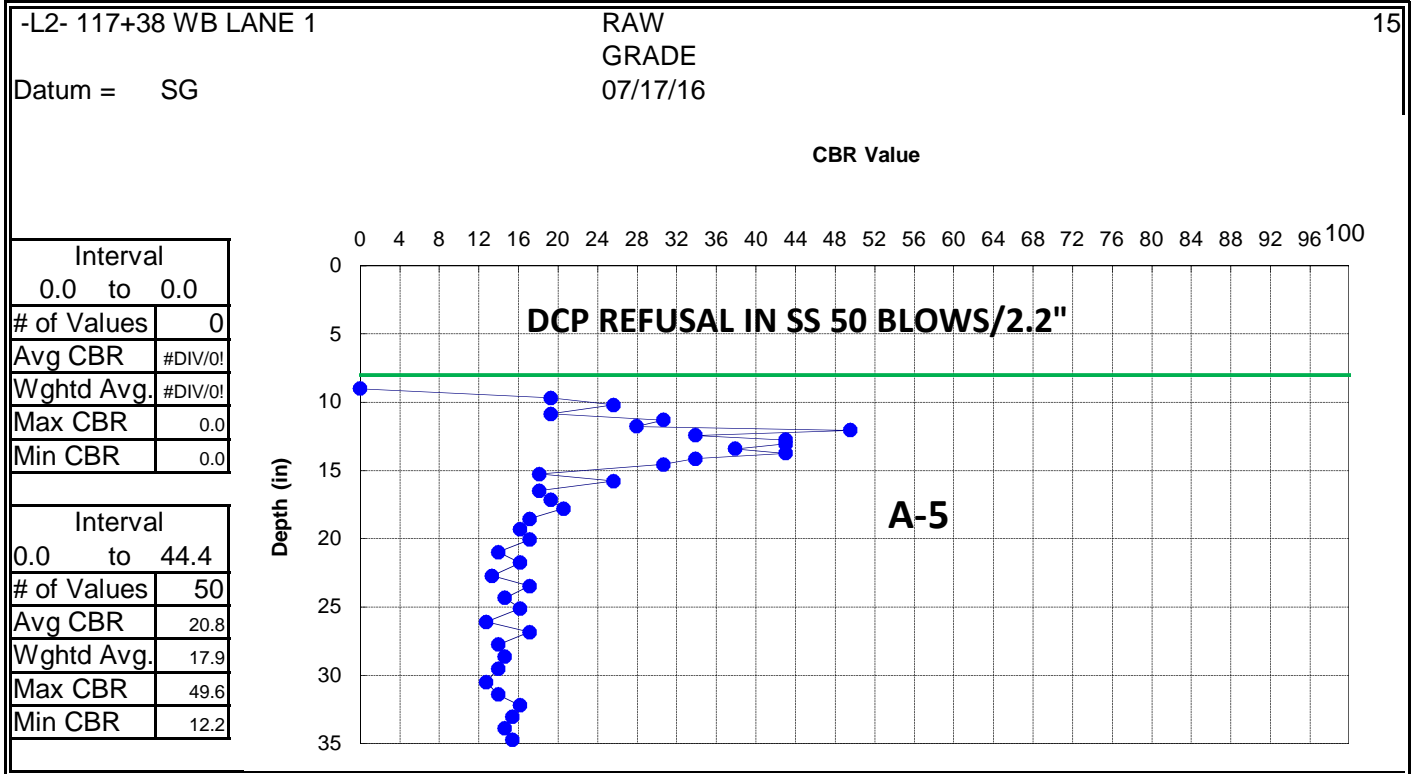
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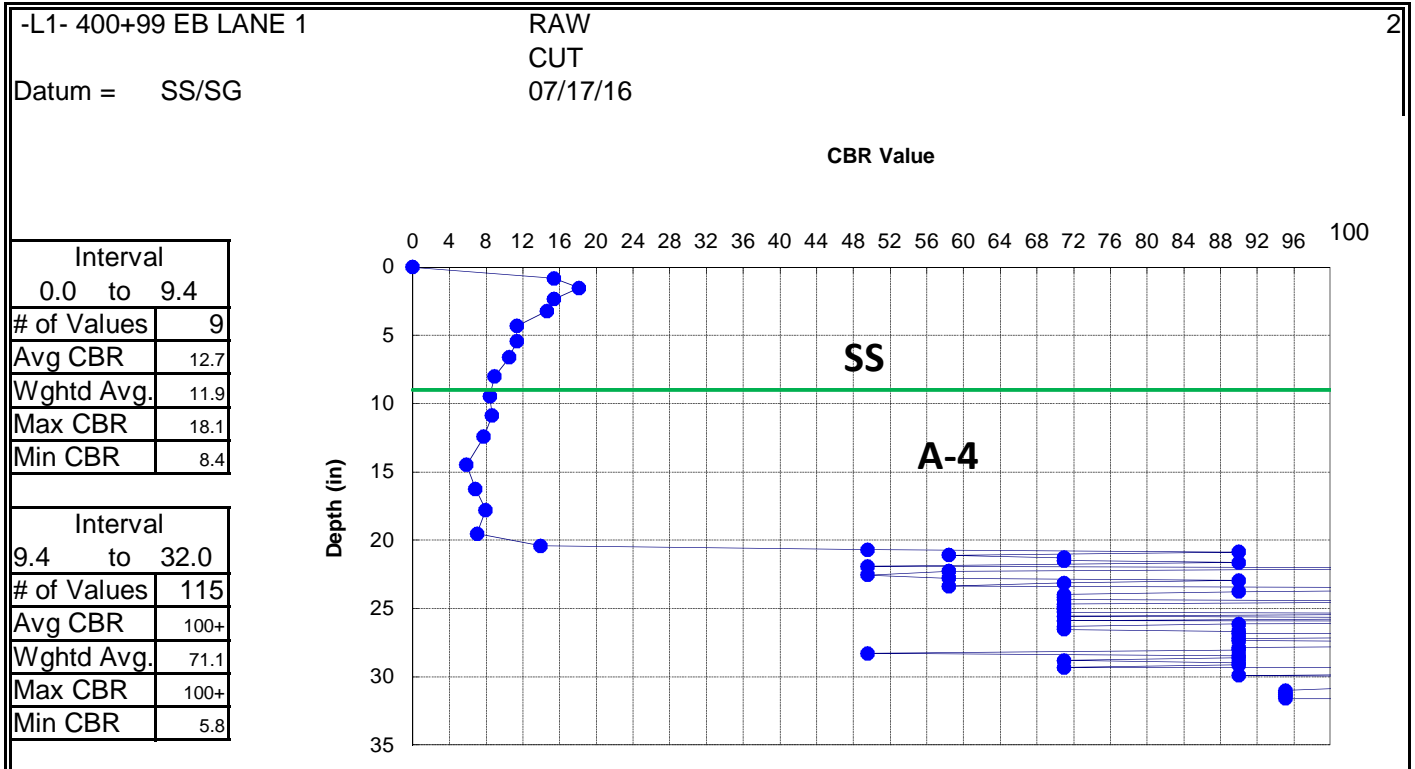
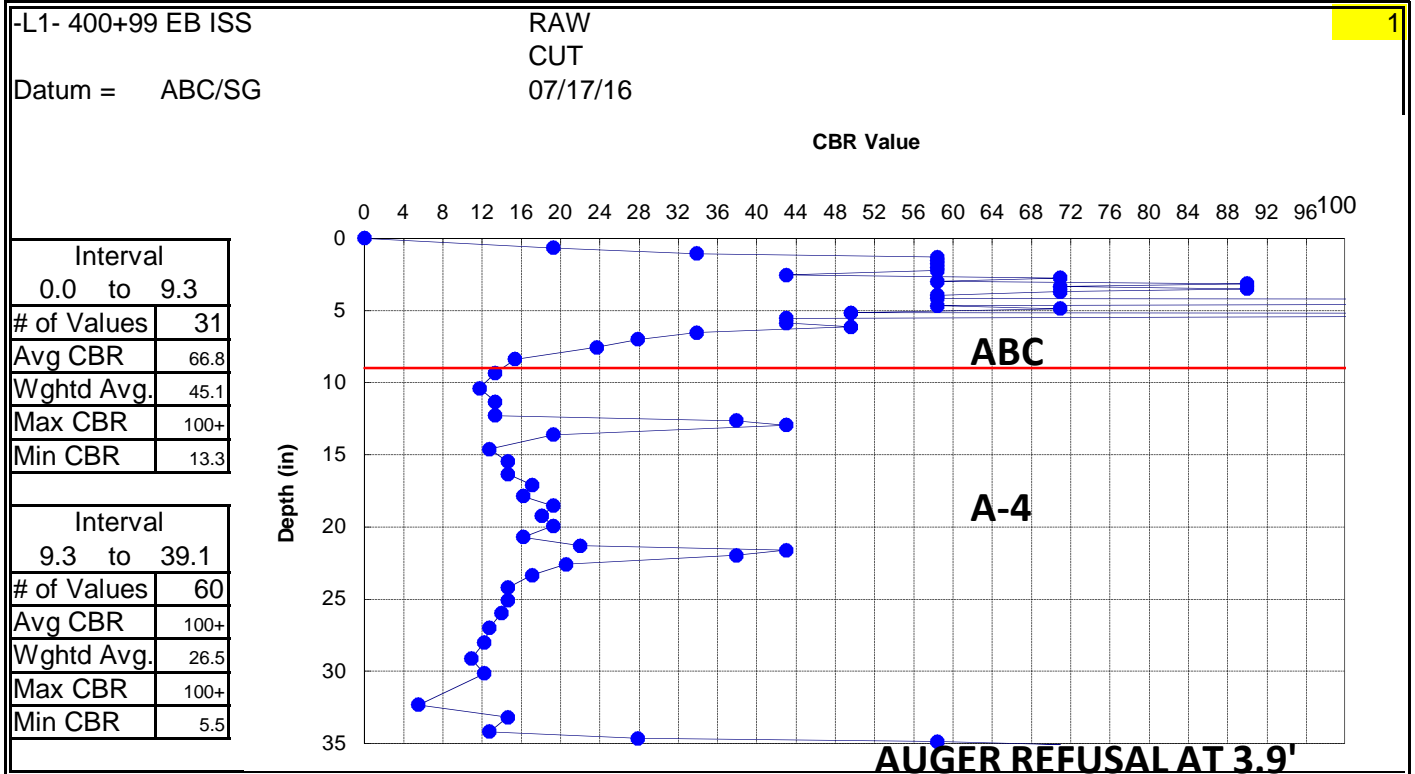
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SS = SOIL CHEMICAL STABILIZATION

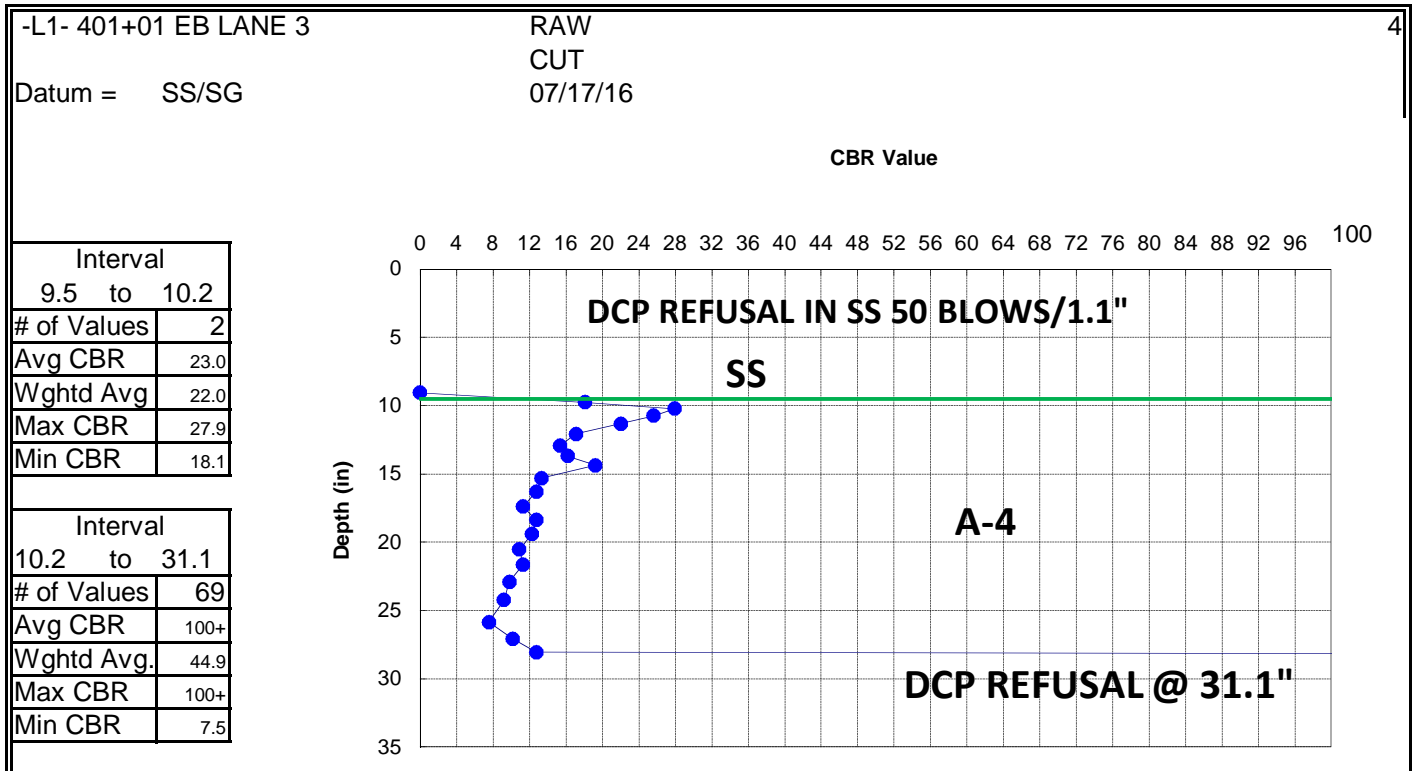
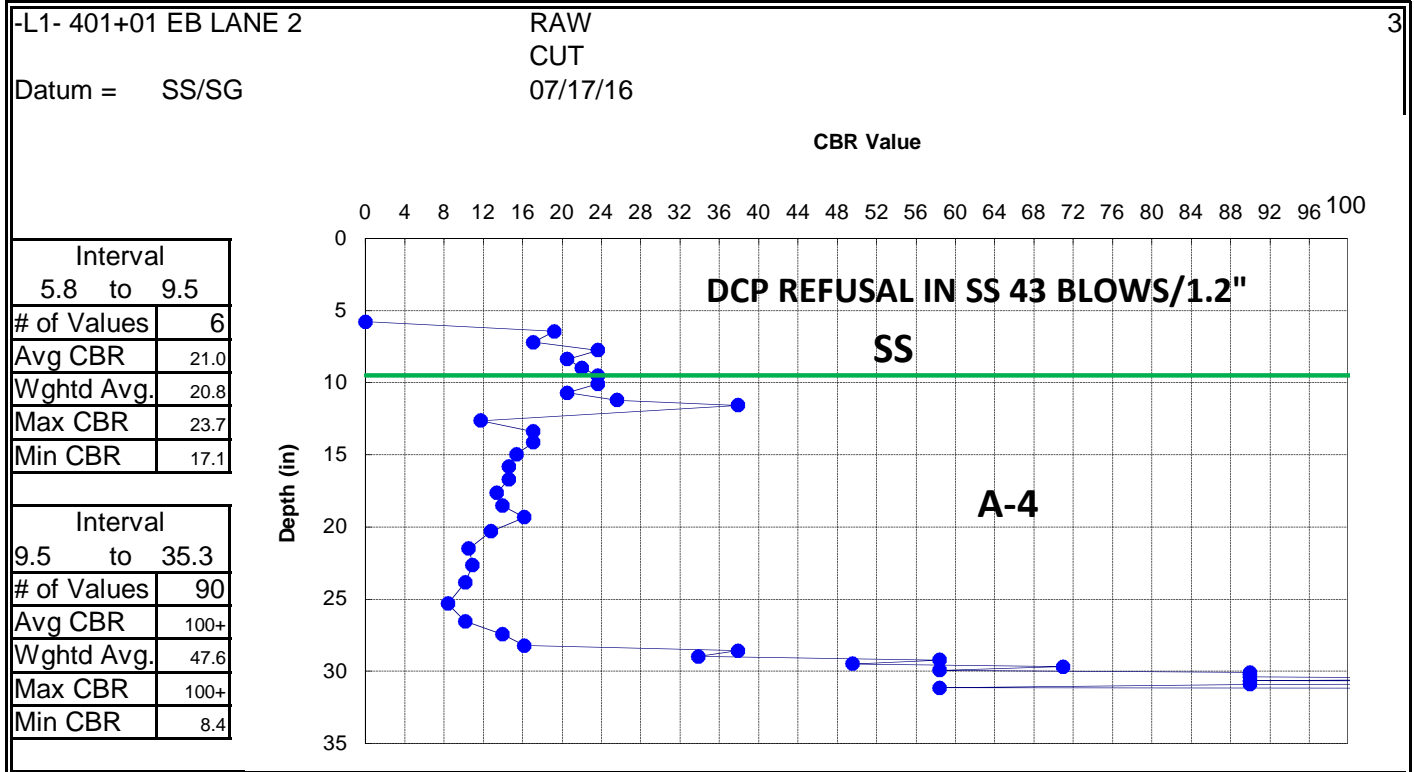
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5

DCP REFUSAL IN SS 49 BLOWS/1.1"

A-2-4

DCP REFUSAL @ 31.5"

AUGER REFUSAL AT 4.7'

The graph shows CBR Value on the x-axis (0 to 100) and Depth (in) on the y-axis (0 to 35). A horizontal green line is drawn at a depth of 11 inches. Data points are plotted as blue dots, with lines connecting points at the same depth. The CBR value starts at approximately 10 at 0 inches depth, drops to about 15 at 12 inches, and then fluctuates between 15 and 25 down to 25 inches. Below 25 inches, the CBR value increases significantly, reaching approximately 30 at 31.5 inches depth.

6

DCP REFUSAL IN SS 50 BLOWS/2.5"

A-4

DCP REFUSAL @ 24.3"

AUGER REFUSAL AT 3.8'

The graph shows CBR values plotted against depth. A horizontal green line is drawn at 11 inches depth. The data points show a general trend of increasing CBR value with depth, with a significant increase starting around 10 inches depth. The CBR value reaches a plateau of approximately 85-90 between 20 and 30 inches depth.

Depth (in)	CBR Value
6	75
8	85
10	90
12	85
14	80
16	85
18	80
20	85
22	80
24	85
26	80
28	85
30	80
32	85
34	80
36	85
38	80
40	85
42	80
44	85
46	80
48	85
50	80
52	85
54	80
56	85
58	80
60	85
62	80
64	85
66	80
68	85
70	80
72	85
74	80
76	85
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88	85
90	80
92	85
94	80
96	85
98	80
100	85

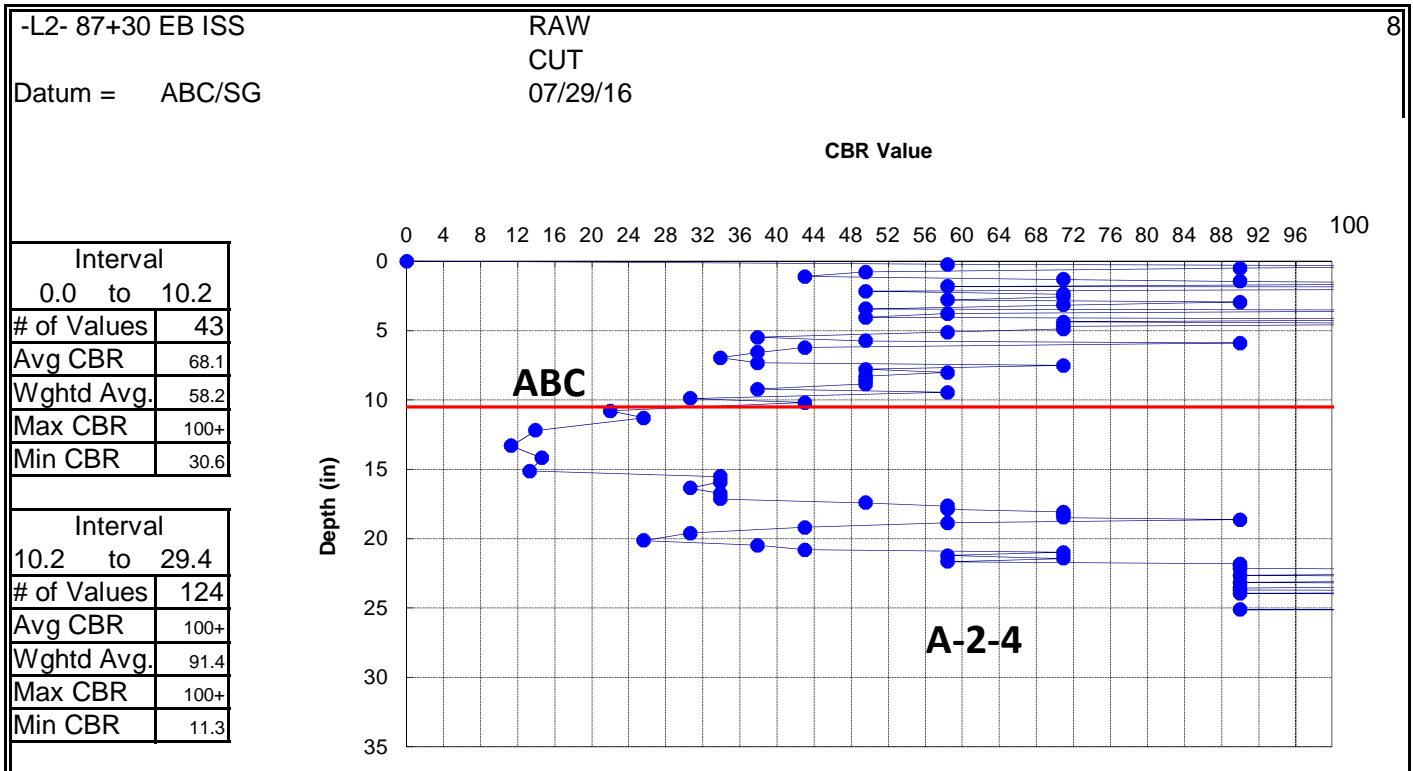
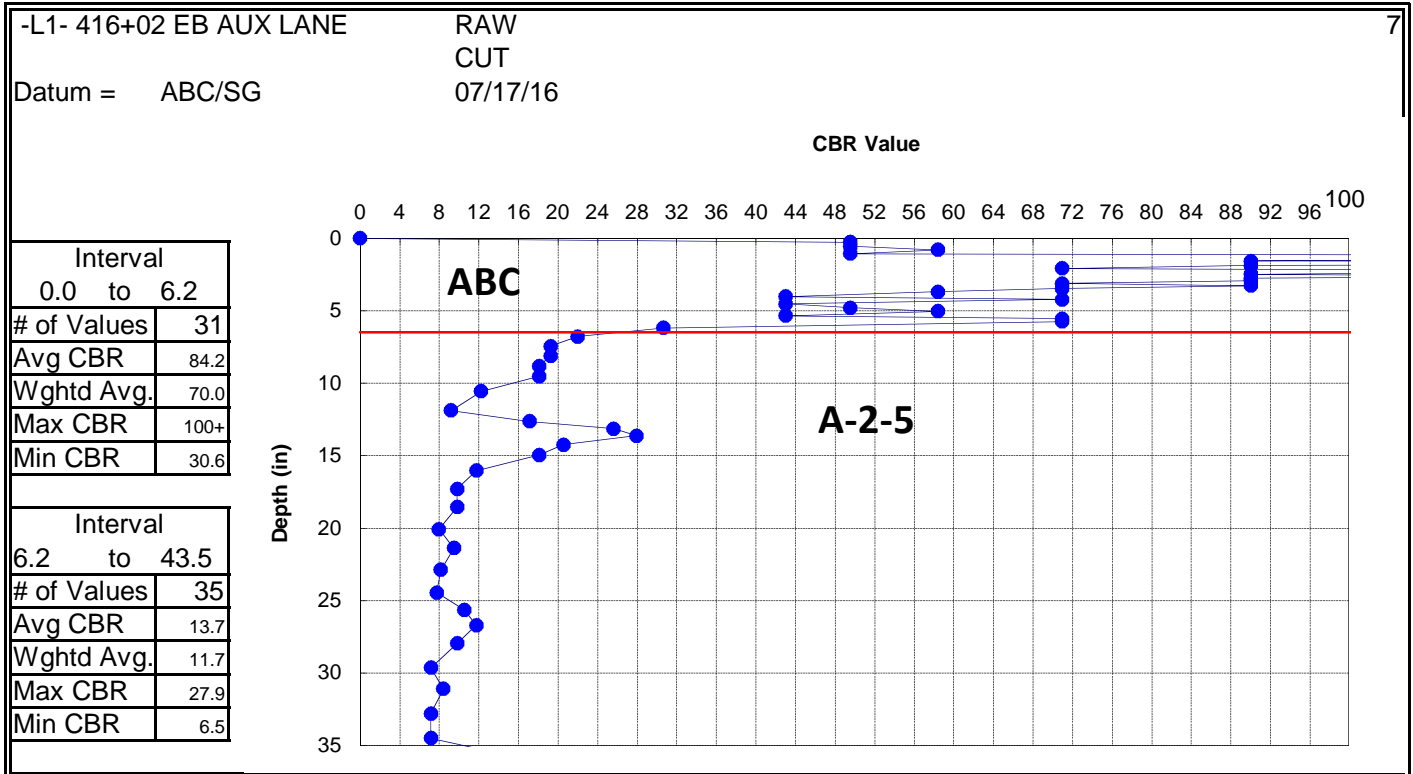
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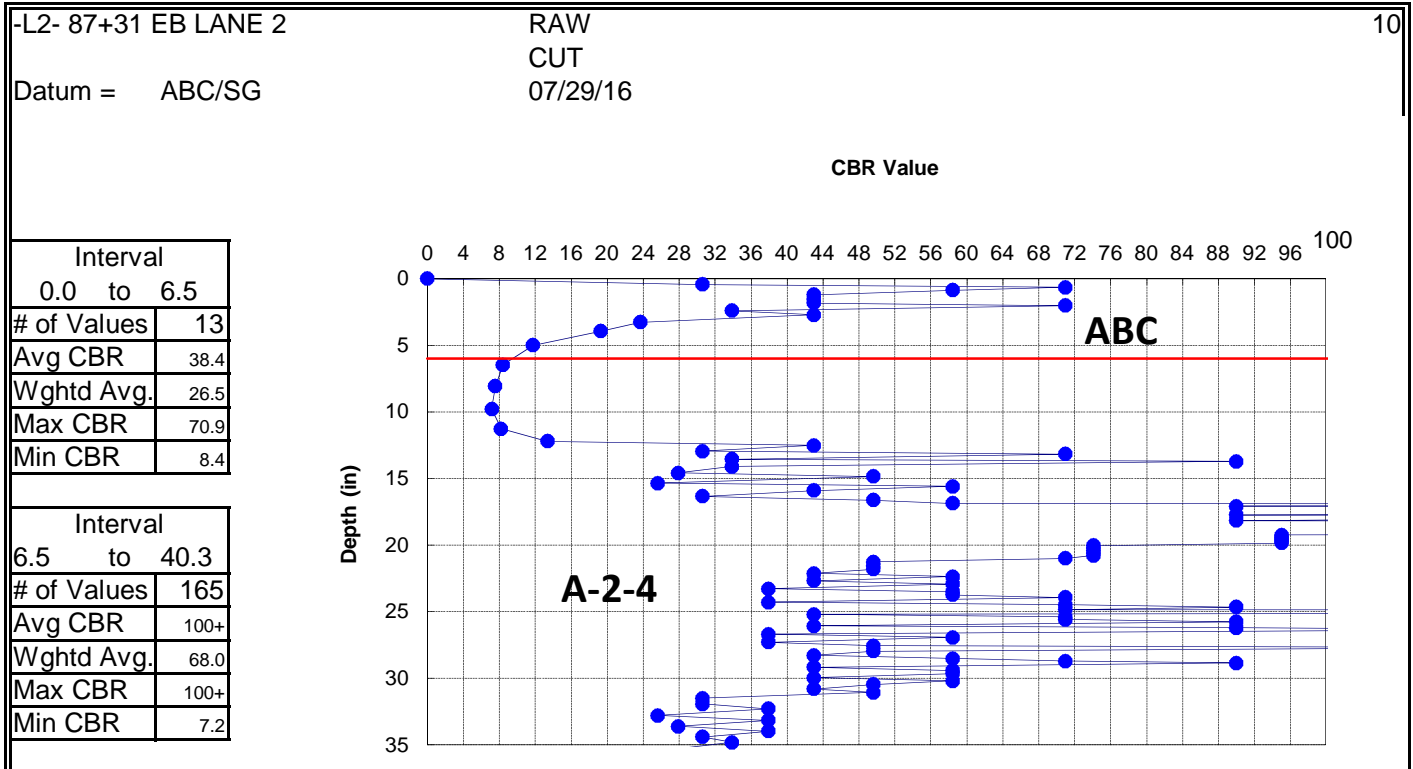
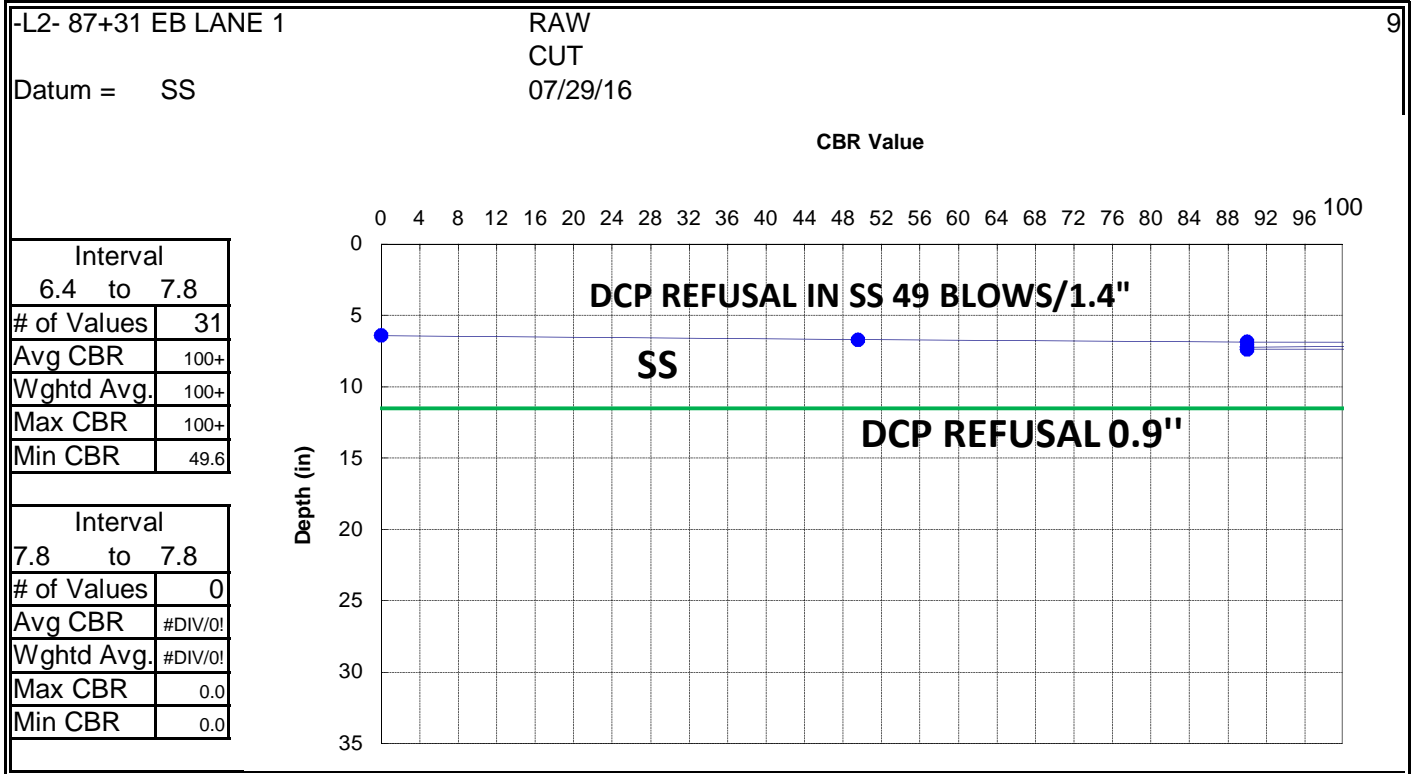
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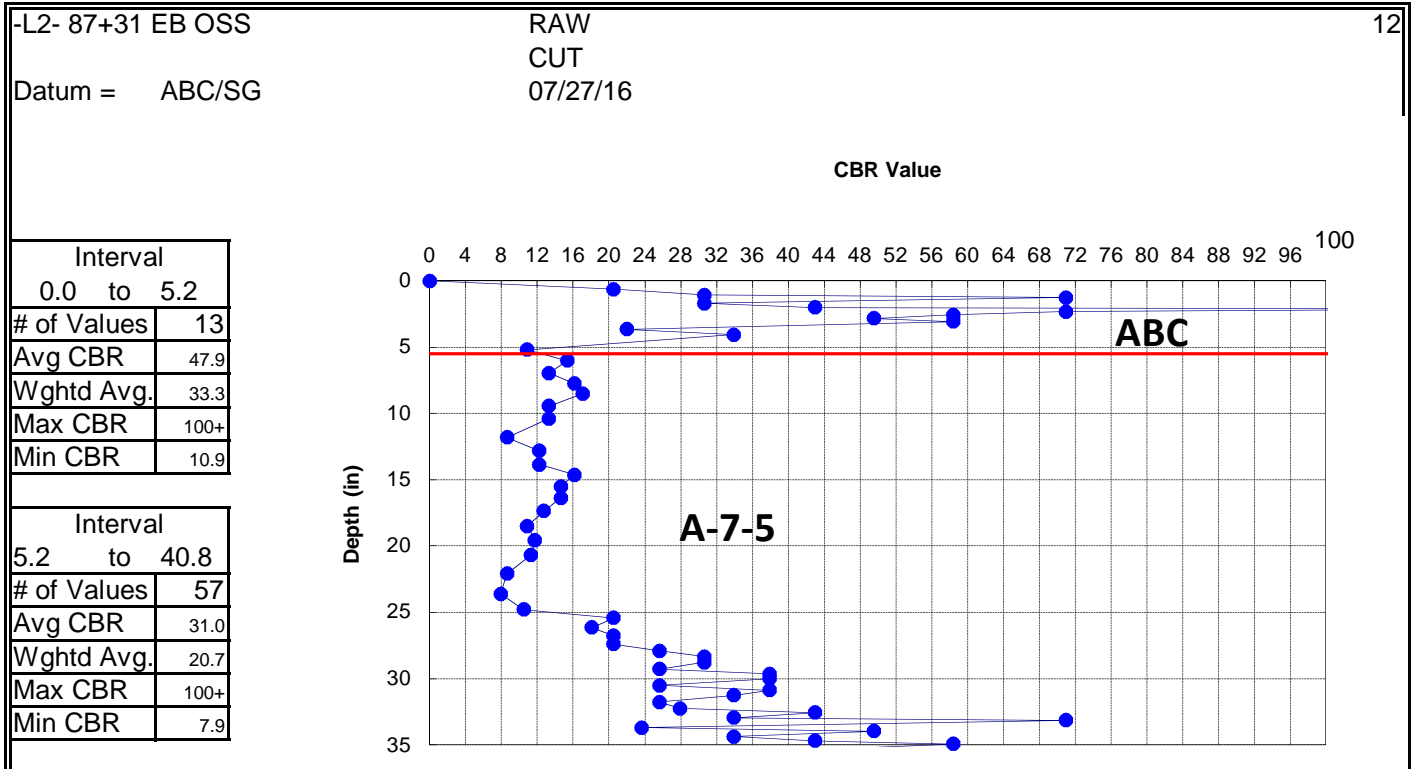
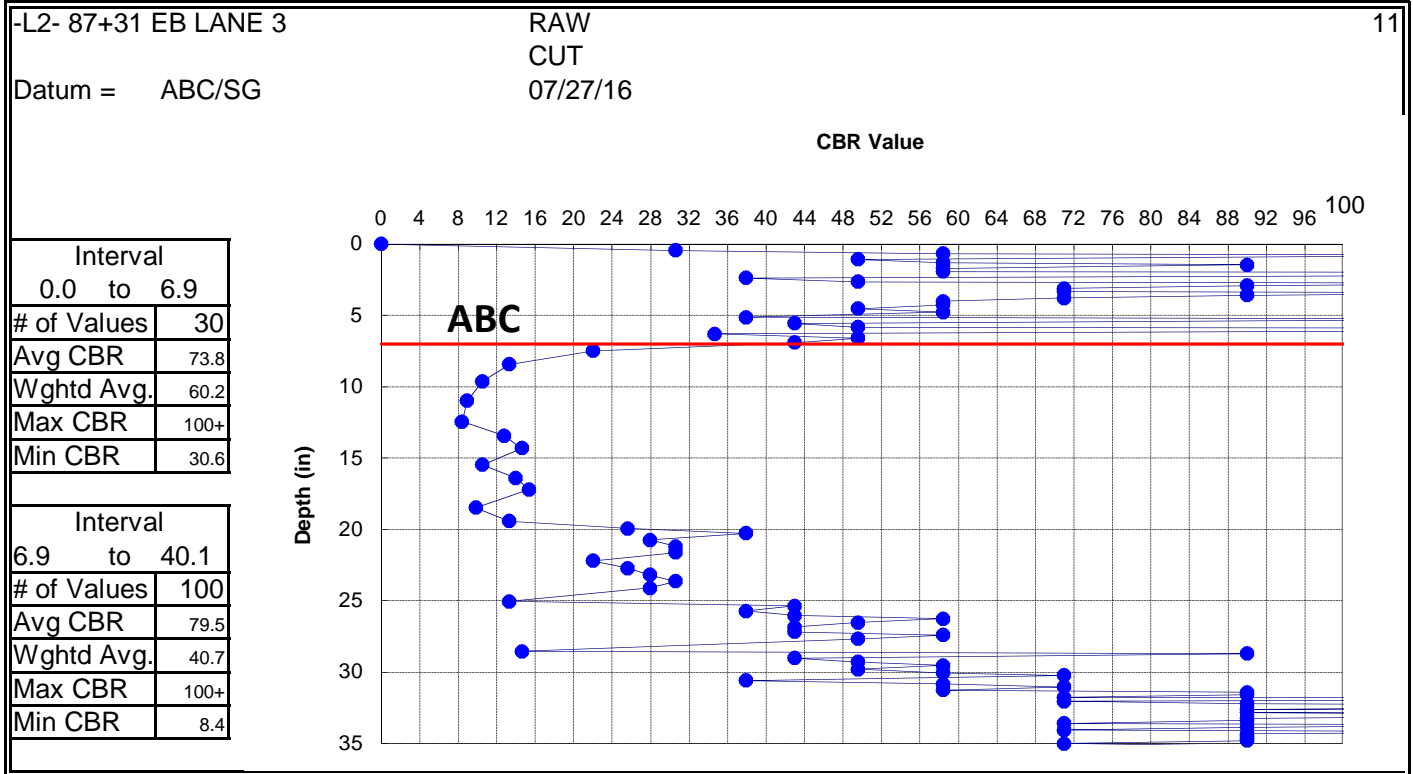
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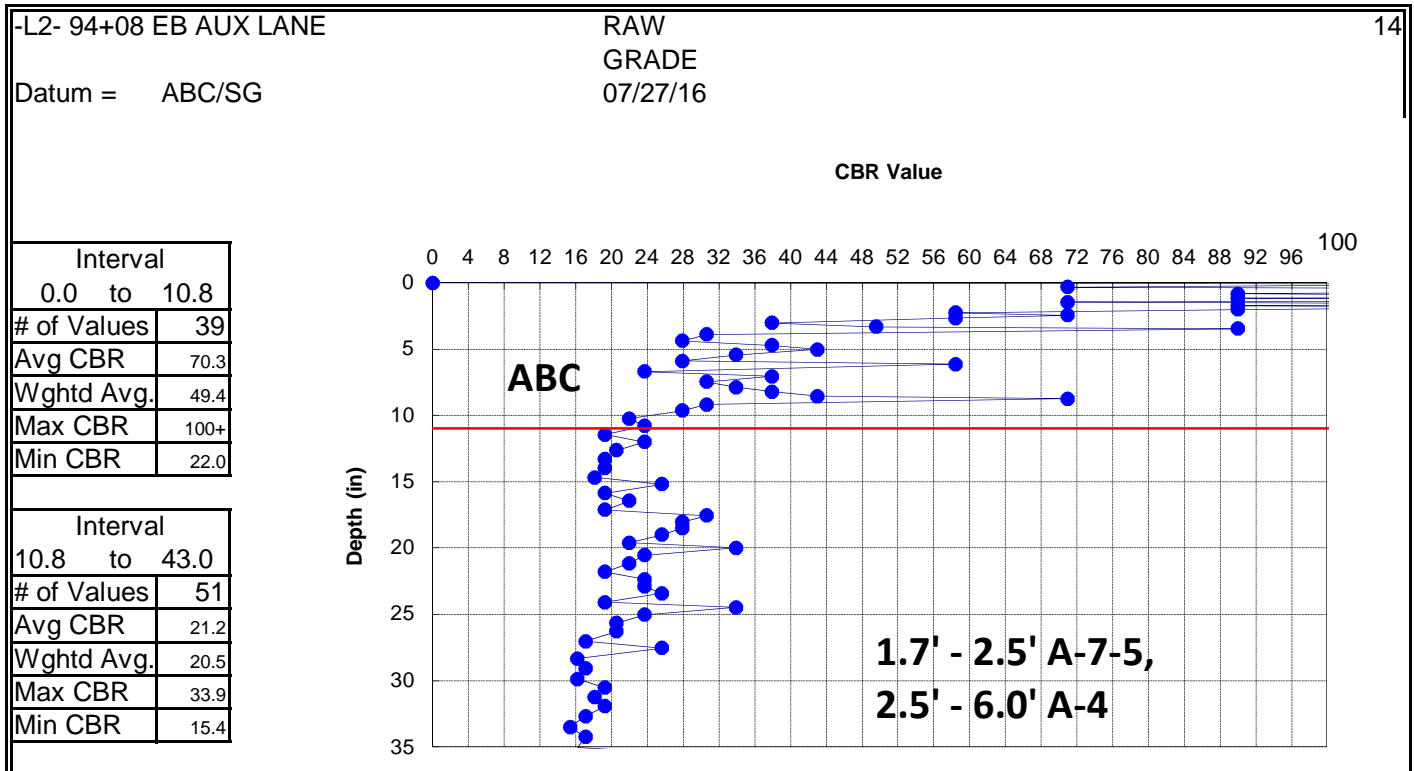
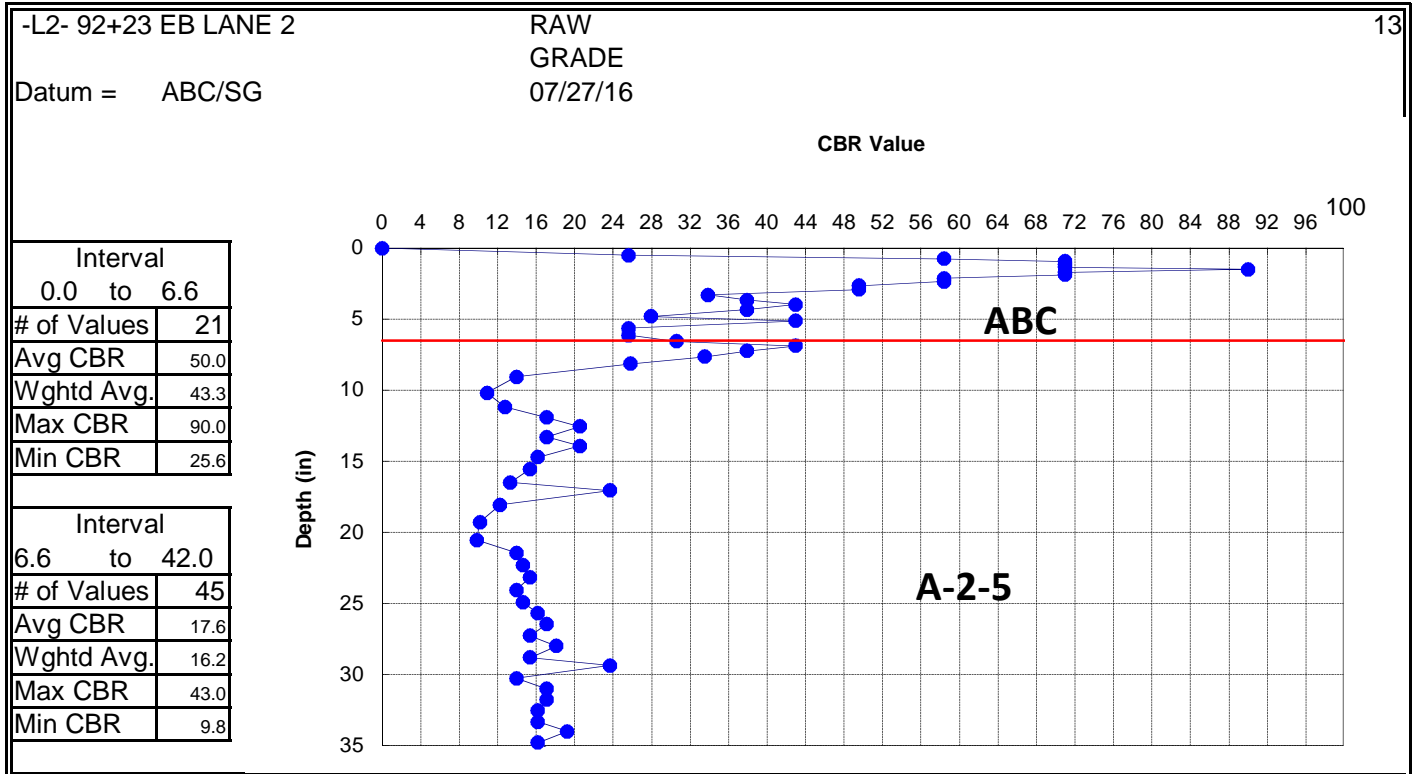
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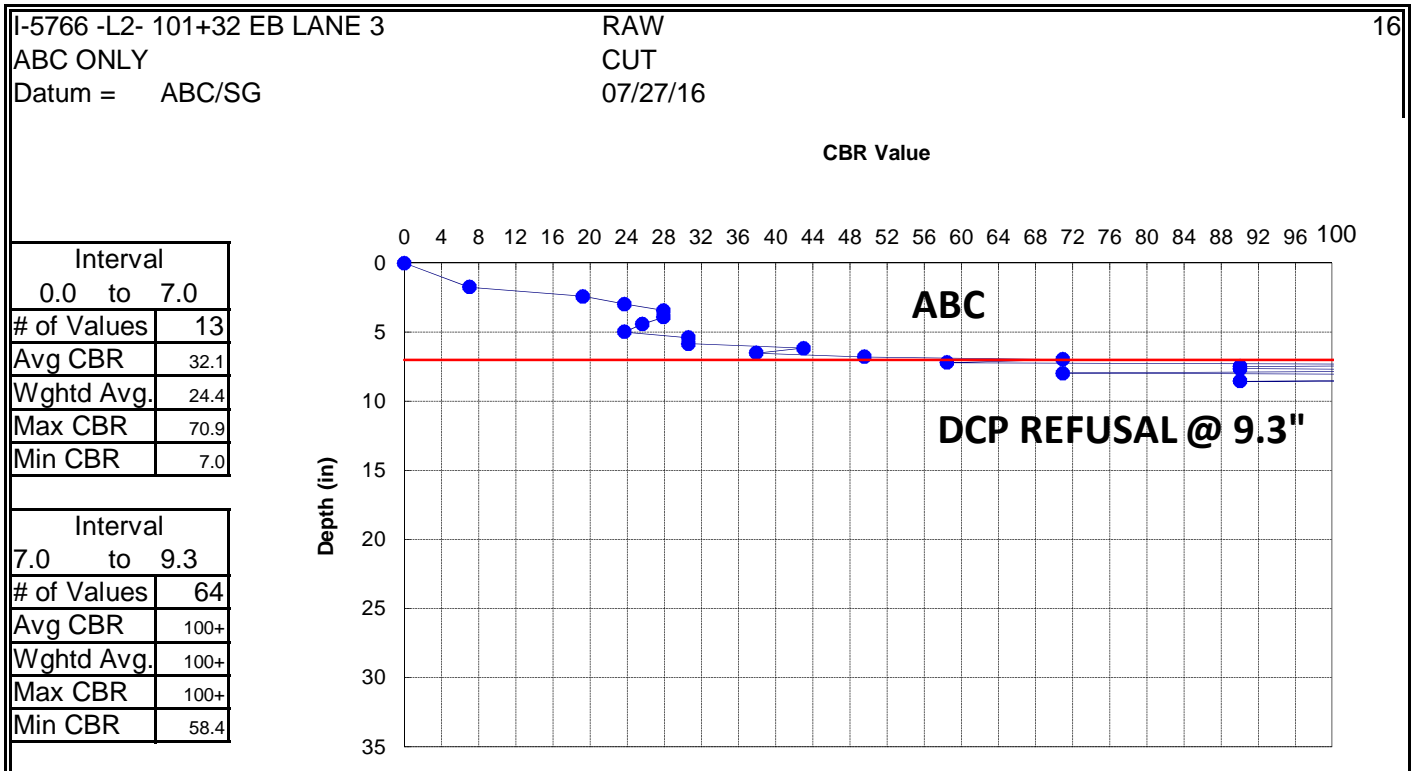
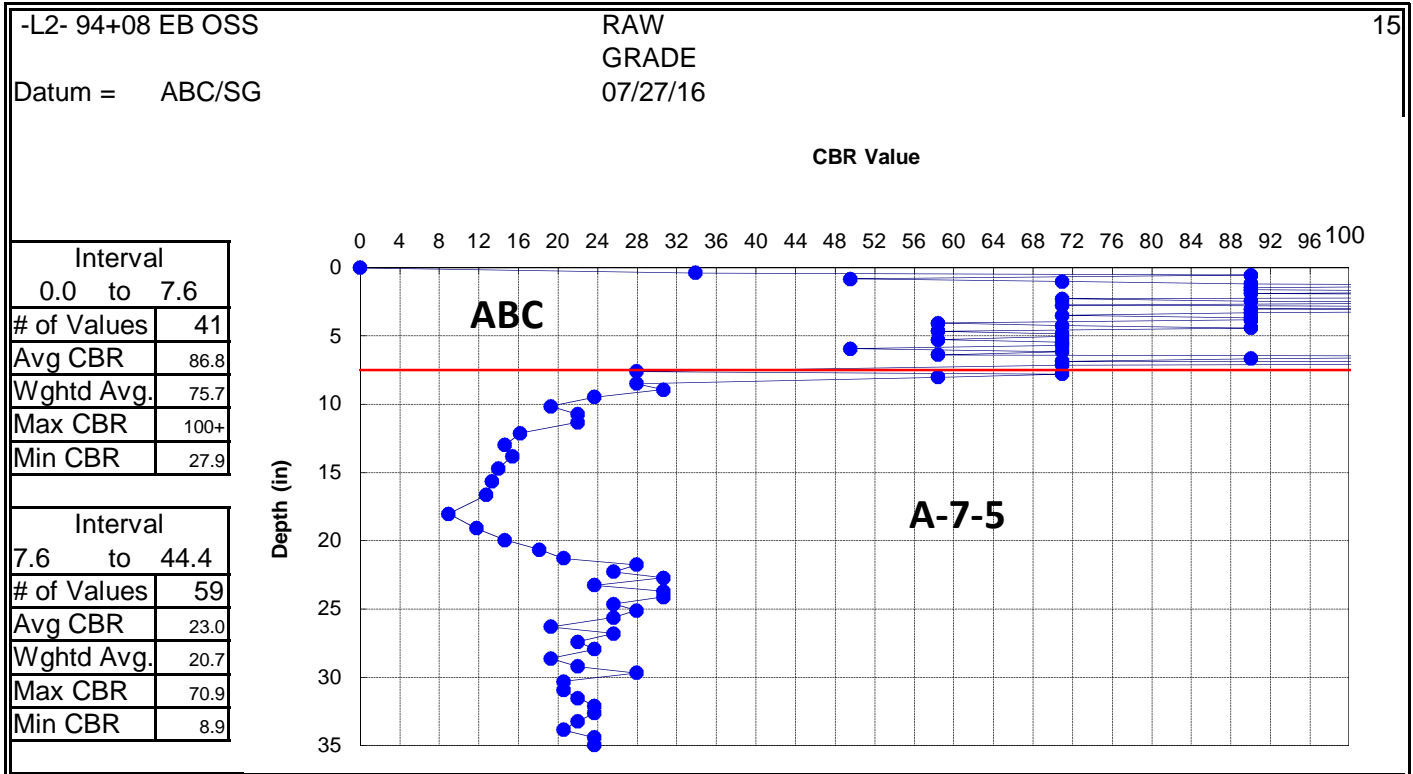
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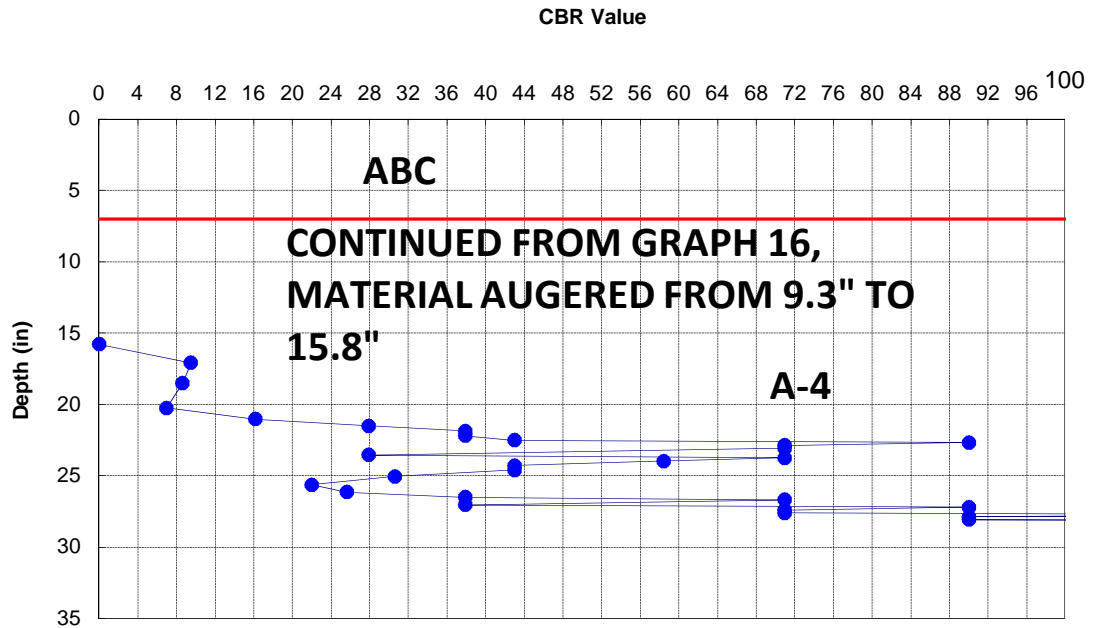
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RAW
 CUT
 07/27/16

17

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Wghtd Avg.	#DIV/0!
Max CBR	0.0
Min CBR	0.0

Interval	0.0 to 28.5
# of Values	33
Avg CBR	78.1
Wghtd Avg.	34.8
Max CBR	100+
Min CBR	7.0



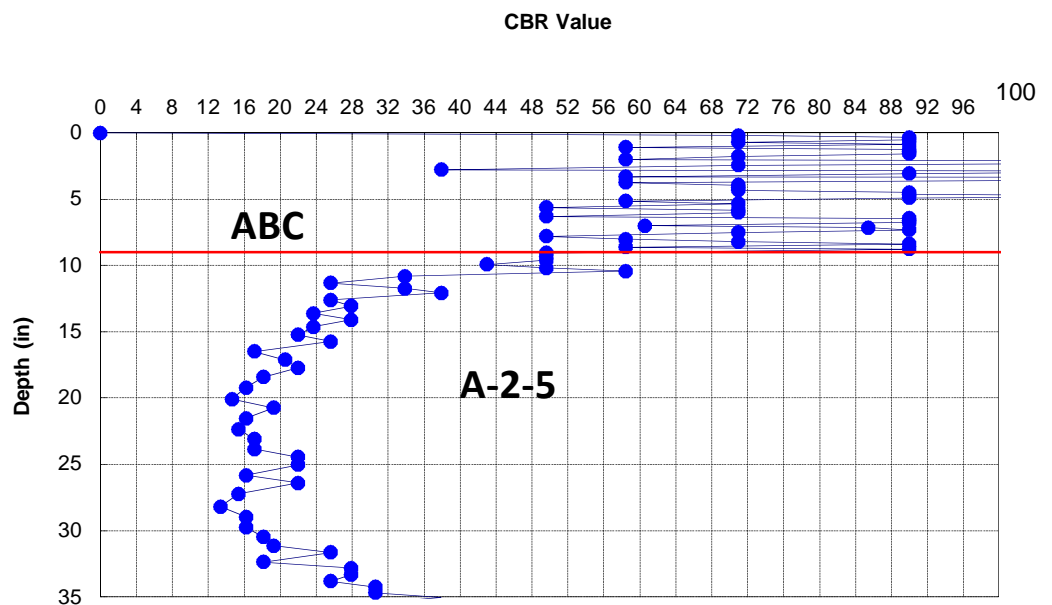
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RAW
 CUT
 07/27/16

18

Interval	0.0 to 9.1
# of Values	48
Avg CBR	80.9
Wghtd Avg.	74.2
Max CBR	100+
Min CBR	37.9

Interval	9.1 to 39.3
# of Values	59
Avg CBR	31.0
Wghtd Avg.	25.5
Max CBR	90.0
Min CBR	13.3



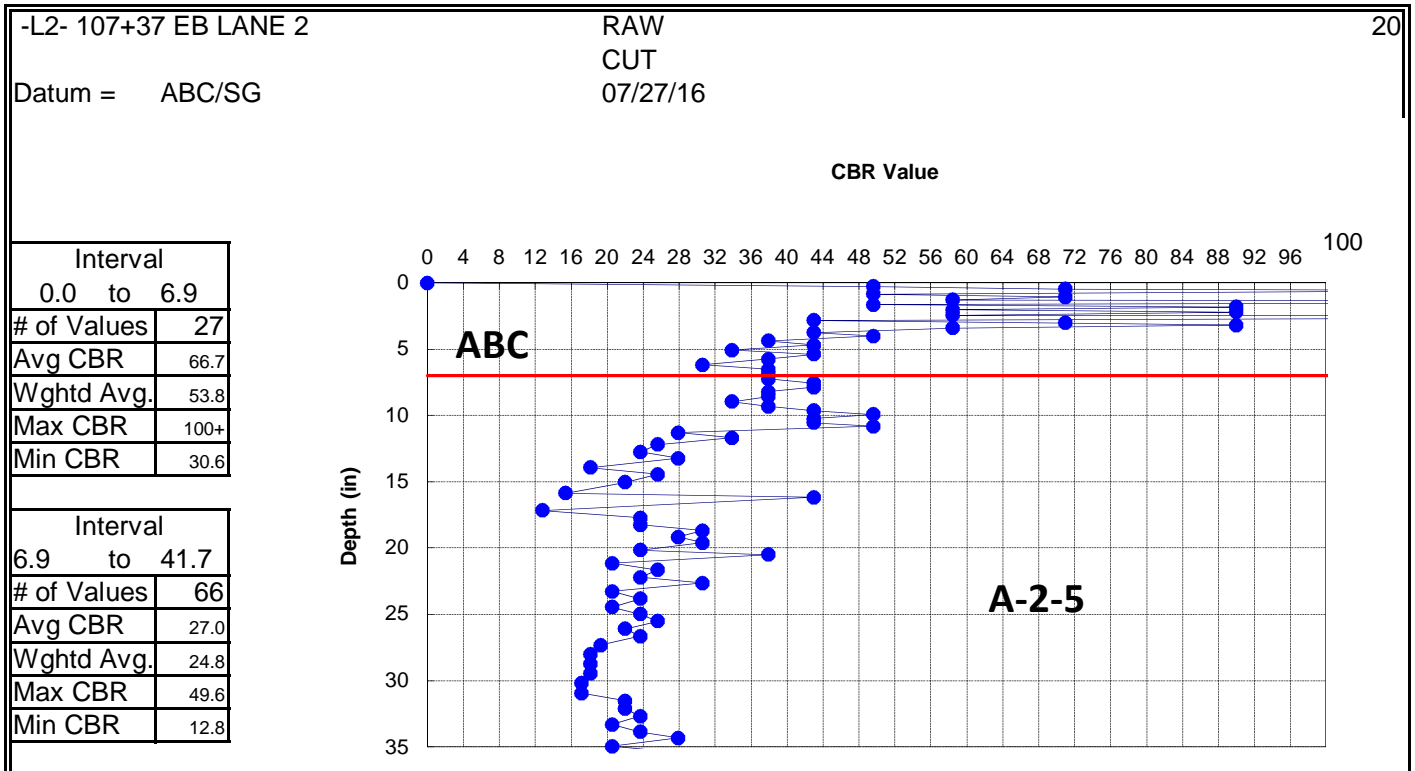
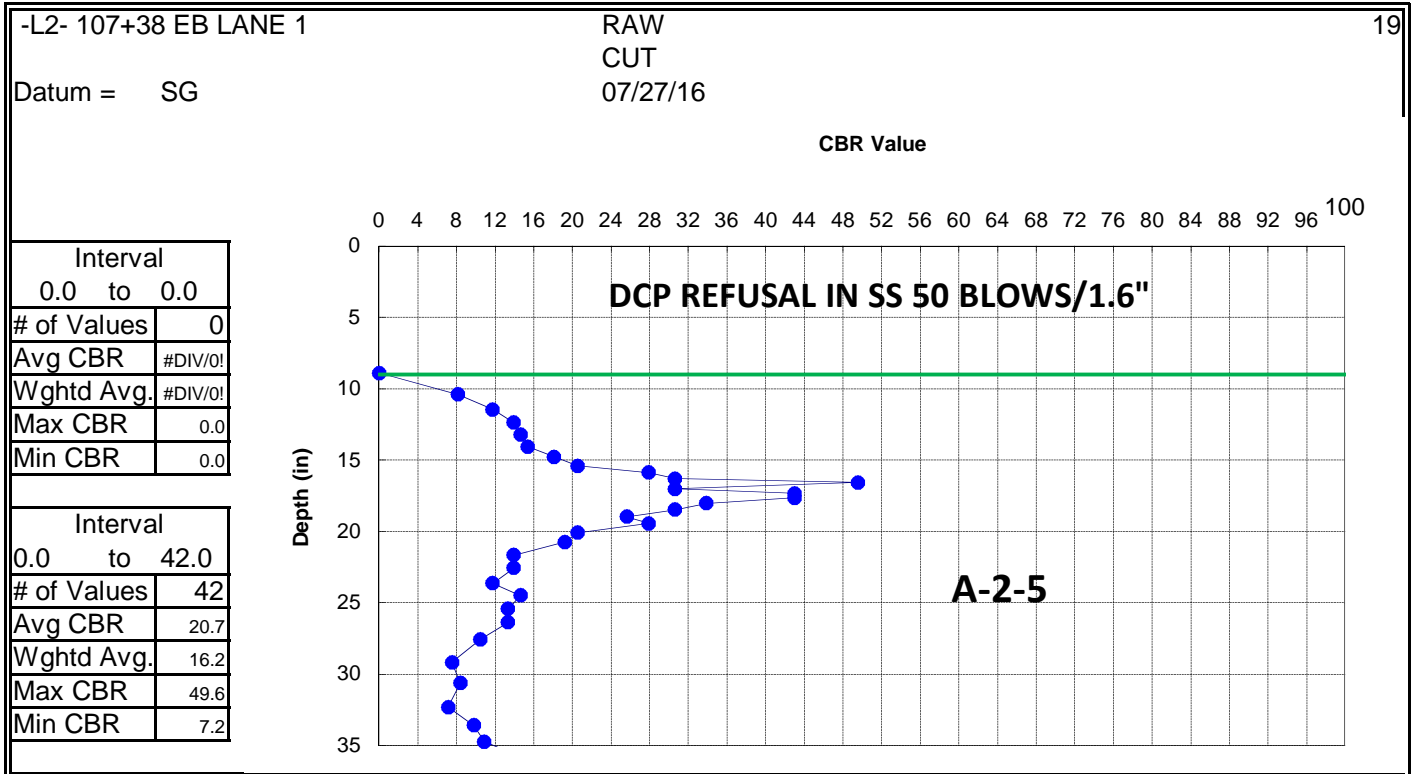
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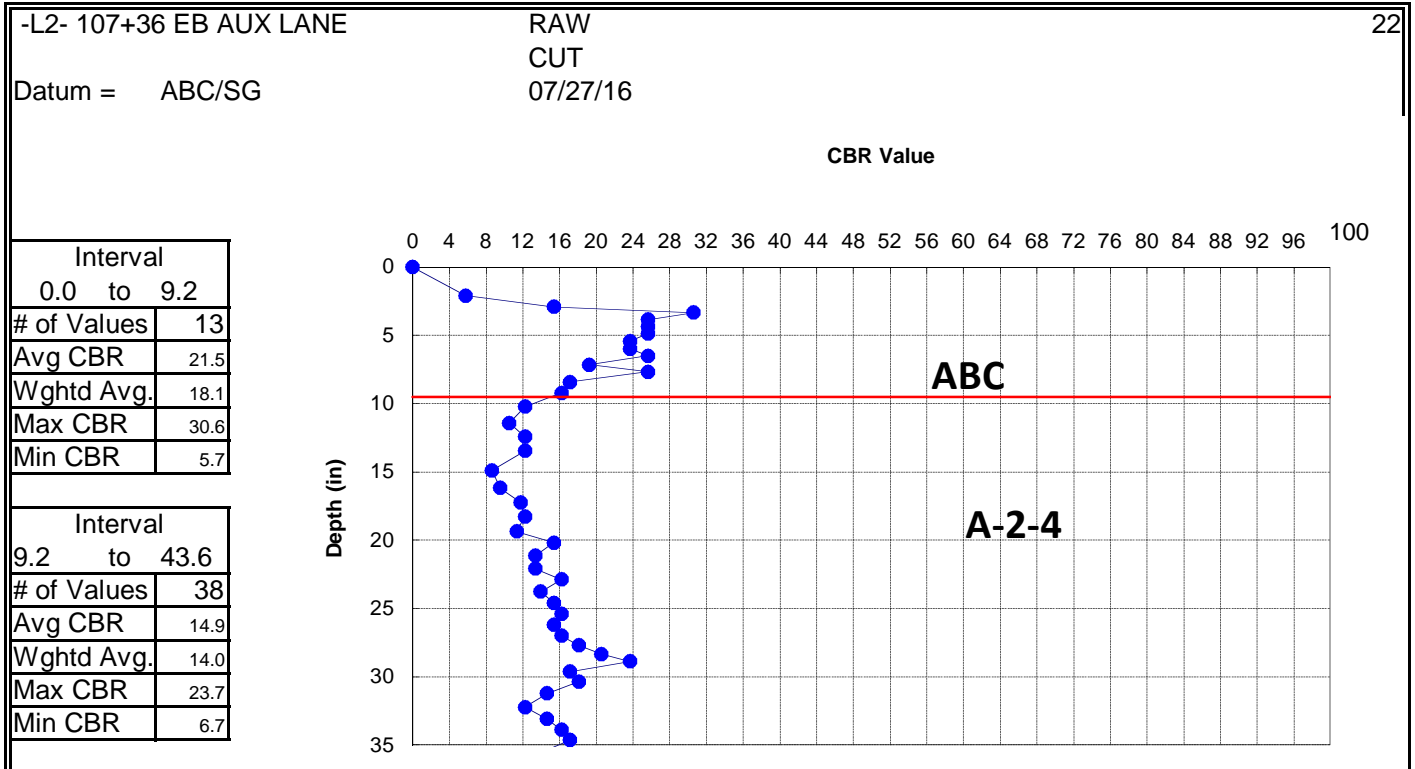
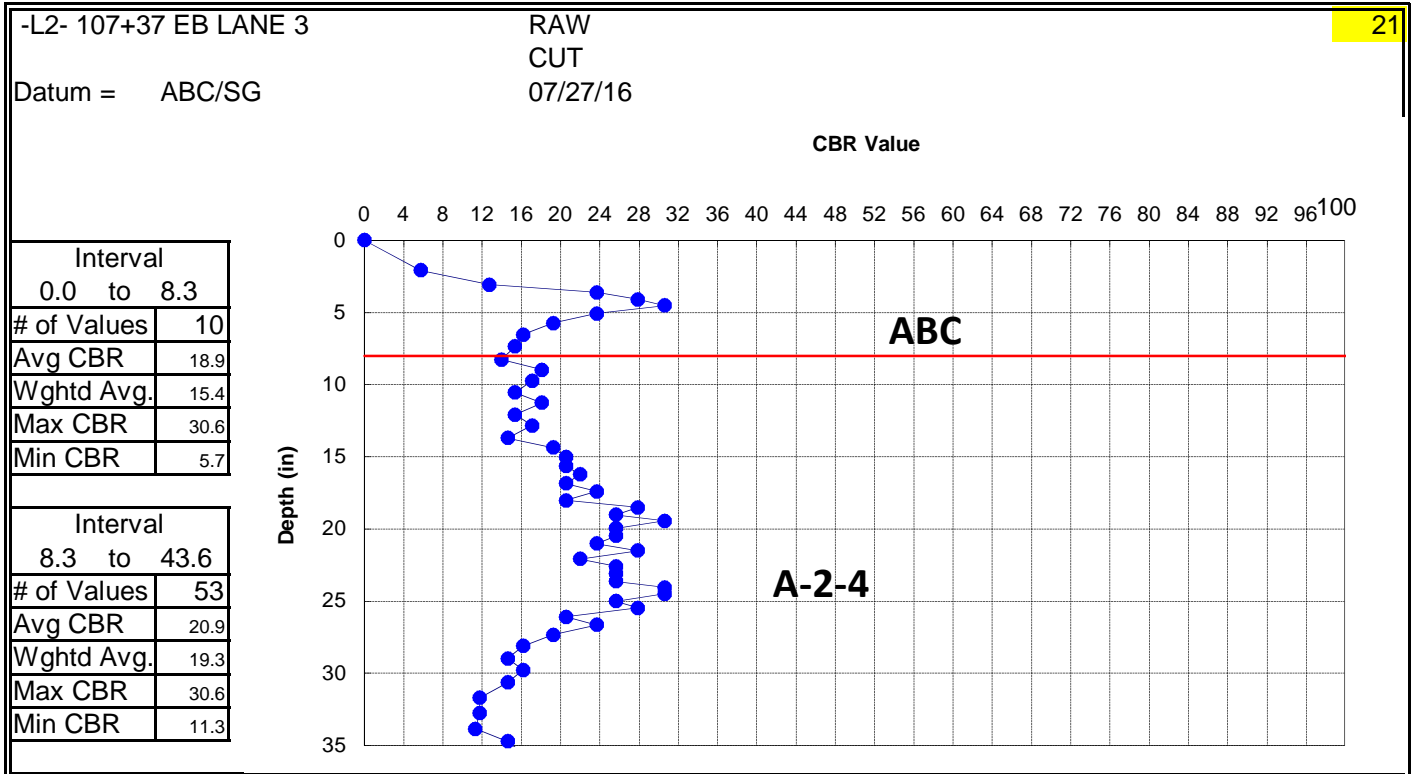
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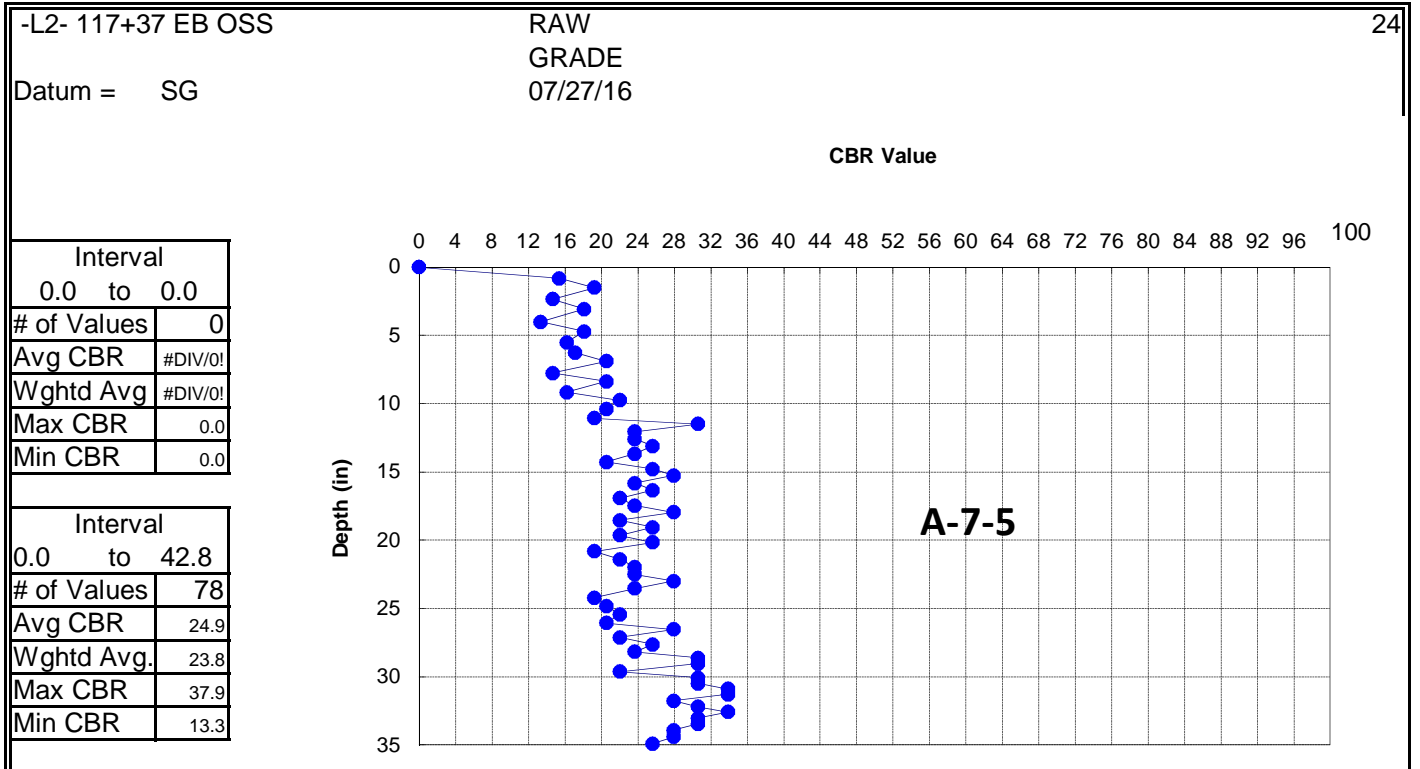
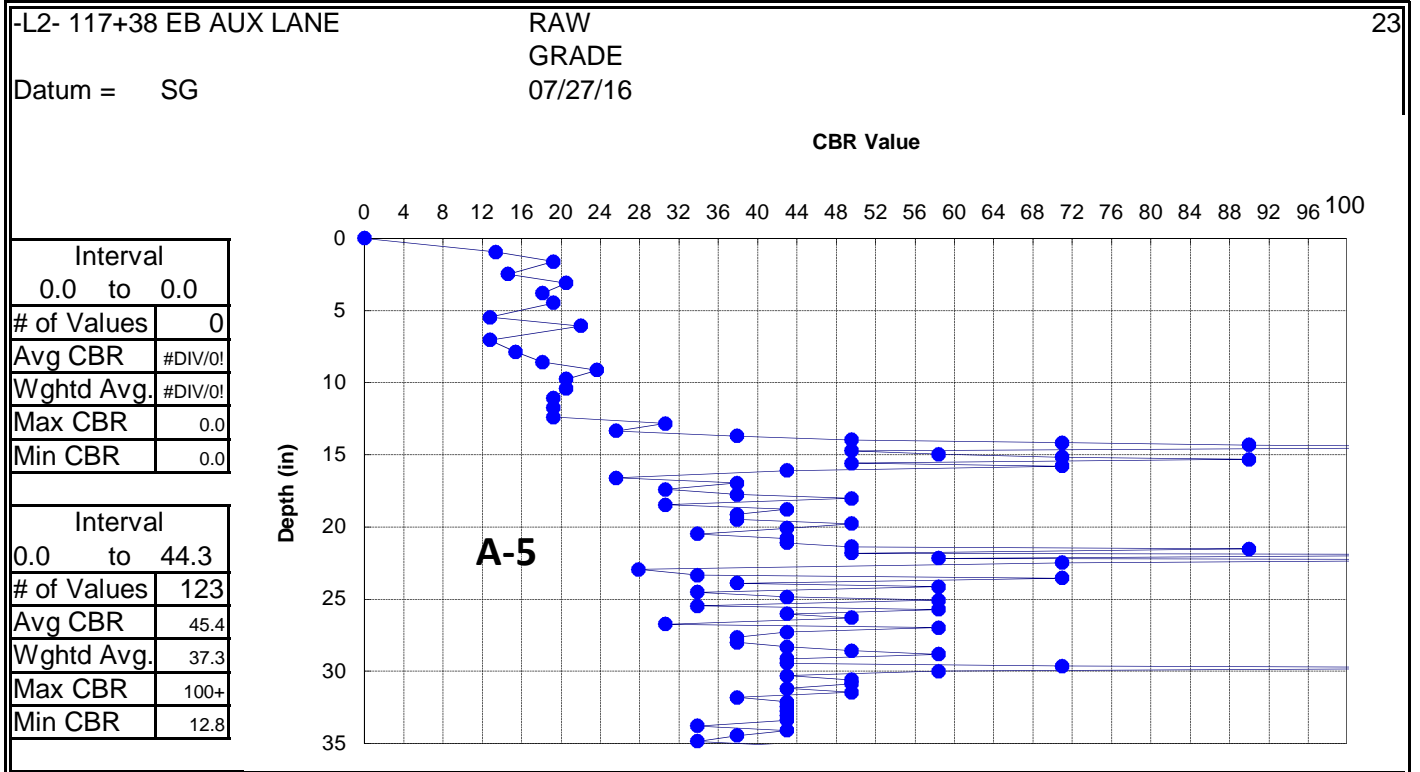
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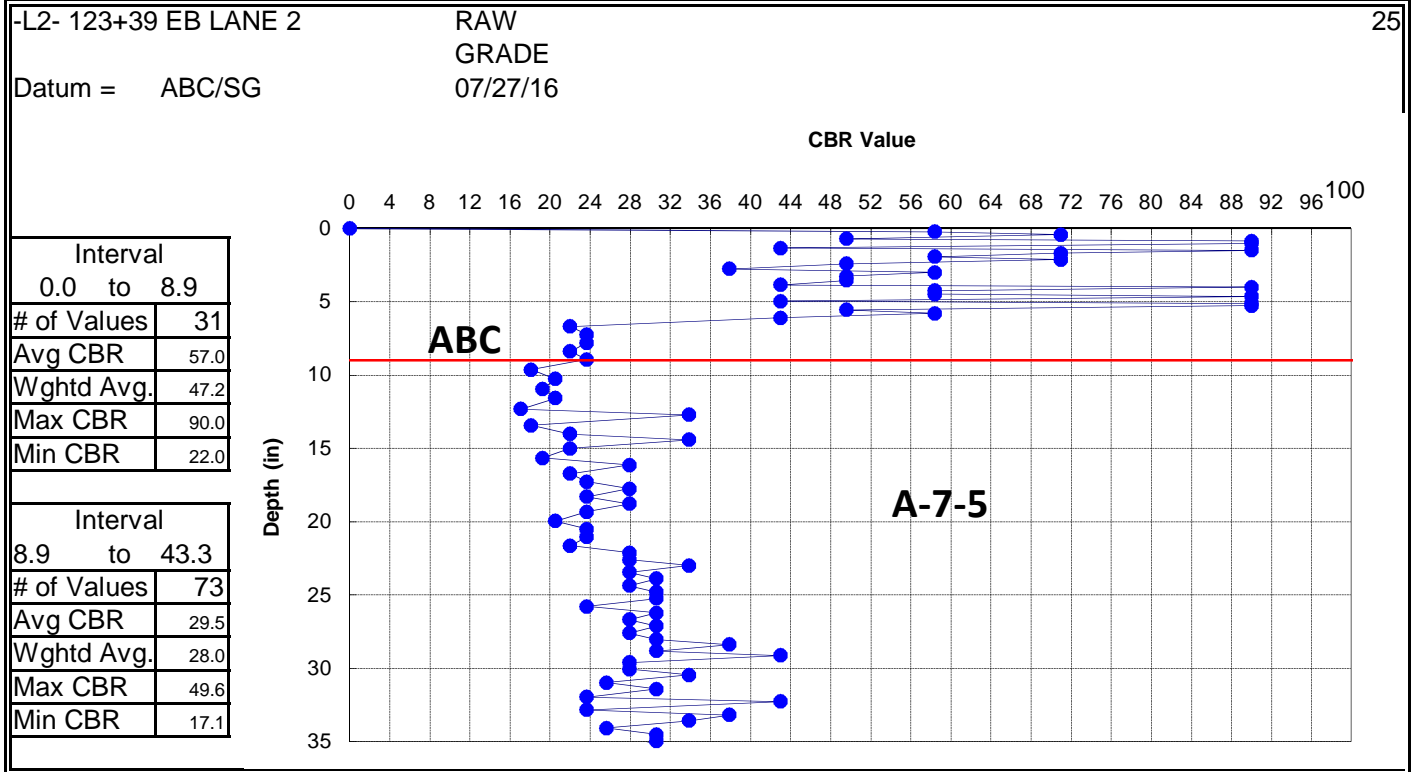
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PROJECT ID	I-5766
ROUTE	i-40
COUNTY	FORSYTH

GEOLOGIST	JBB
GEOTECHS	TERRACON INC.

FILE	I5766_EB_2_CONPEN_ENG...
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NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAY
MATERIALS & TESTS UNIT
SOILS LABORATORY

T. I. P. No. **I-5766**

REPORT ON SAMPLES OF SOILS FOR QUALITY

Project **53009.1.FS1** **County** **FORSYTH** **Owner**
Date: Sampled **7/19/16** **Received** **7/27/16** **Reported** **7/29/16**
Sampled from **ROADWAY** **By** **J.B BARFIELD**
Submitted by **2012** **Standard Specifications**

801146 TO 801160
9/27/16

TEST RESULTS

Proj. Sample No.		S-1	S-2	S-4	S-5	S-6	S-7
Lab. Sample No.		801146	801147	801148	801149	801150	801151
Retained #4 Sieve	%	1	9	-	1	3	-
Passing #10 Sieve	%	92	83	96	96	89	91
Passing #40 Sieve	%	74	63	76	87	71	76
Passing #200 Sieve	%	41	27	35	35	44	44

MINUS NO. 10 FRACTION

SOIL MORTAR - 100%							
Coarse Sand Ret - #60	%	30.1	38.4	34.1	23.2	30.9	28.3
Fine Sand Ret - #270	%	29.3	34.1	33.7	48.9	23.8	28.7
Silt 0.05 - 0.005 mm	%	18.4	13.3	9.9	19.8	17.0	16.8
Clay < 0.005 mm	%	22.2	14.1	22.2	8.1	28.3	26.3
Passing #40 Sieve	%	-	-	-	-	-	-
Passing #200 Sieve	%	-	-	-	-	-	-

L. L.	38	30	46	30	49	42
P. I.	NP	NP	NP	NP	16	13
AASHTO Classification	A-4(0)	A-2-4(0)	A-2-5(0)	A-2-4(0)	A-7-5(4)	A-7-6(3)
Station	400+99	400+99	416+02	87+31	87+31	87+31
Offset	EB ISS	EB LN1	EB AUX LN	EB ISS	EB LN 1	EB LN 1
Alignment	-L1-	-L1-	-L1-	-L2-	-L2-	-L2-
Location	500'	500'	2000'	3000'	3000'	3000'
Depth (Ft)	1.30	4.00	1.40	2.30	1.20	2.20
to	1.90	6.00	6.00	6.00	2.20	6.00
% Moisture	24.6	19.8	6.3	28.9	21.1	38.5

cc: J.B BARFIELD

Soils Engineer

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
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801146 TO 801160
9/27/16

TEST RESULTS

Proj. Sample No.		S-8	S-9	S-10	S-17	S-19	S-20
Lab. Sample No.		801152	801153	801154	801155	801156	801157
Retained #4 Sieve	%	-	-	-	-	14	-
Passing #10 Sieve	%	96	98	98	99	80	98
Passing #40 Sieve	%	78	92	81	86	65	81
Passing #200 Sieve	%	54	35	40	72	37	36

MINUS NO. 10 FRACTION

SOIL MORTAR - 100%							
Coarse Sand Ret - #60	%	27.7	21.6	29.3	18.8	29.1	31.1
Fine Sand Ret - #270	%	19.8	47.3	37.2	11.3	28.9	38.6
Silt 0.05 - 0.005 mm	%	14.1	17.0	19.4	11.3	15.8	16.2
Clay < 0.005 mm	%	38.4	14.1	14.1	58.6	26.3	14.1
Passing #40 Sieve	%	-	-	-	-	-	-
Passing #200 Sieve	%	-	-	-	-	-	-

L. L.	59	42	37	79	39	27
P. I.	26	NP	NP	41	5	NP
AASHTO Classification	A-7-5(12)	A-2-5(0)	A-4(0)	A-7-5(32)	A-4(0)	A-4(0)
Station	87+31	92+23	94+08	123+39	410+99	97+31
Offset	EB LN 3	EB LN 2	EB AUX LN	EB LN 2	WB LN2	WB LN3
Alignment	-L2-	-L2-	-L2-	-L2-	-L1-	-L2-
Location	3000'	3500'	3800'	6600'	1500'	4000'
Depth (Ft)	1.30	1.30	2.50	1.40	2.20	3.00
to	4.50	6.00	6.00	6.00	5.00	6.00
% Moisture	14.2	18.3	21.6	19.7	24.2	7.7

cc: J.B BARFIELD

Soils Engineer

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAY
MATERIALS & TESTS UNIT
SOILS LABORATORY

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Submitted by **2012** **Standard Specifications**

801146 TO 801160
 9/27/16

TEST RESULTS

Proj. Sample No.		S-21	S-25	S-26			
Lab. Sample No.		801158	801159	801160			
Retained #4 Sieve	%	-	-	-			
Passing #10 Sieve	%	98	96	95			
Passing #40 Sieve	%	80	83	74			
Passing #200 Sieve	%	31	42	57			

MINUS NO. 10 FRACTION

SOIL MORTAR - 100%							
Coarse Sand Ret - #60	%	34.3	25.1	28.5			
Fine Sand Ret - #270	%	41.8	36.6	13.5			
Silt 0.05 - 0.005 mm	%	15.8	18.2	11.5			
Clay < 0.005 mm	%	8.1	20.2	46.5			
Passing #40 Sieve	%	-	-	-			
Passing #200 Sieve	%	-	-	-			

L. L.		26	50	72			
P. I.		NP	NP	34			
AASHTO Classification		A-2-4(0)	A-5(0)	A-7-5(18)			
Station		97+31	117+38	123+41			
Offset		WB LN1	WB LN2	WB LN2			
Alignment		-L2-	-L2-	-L2-			
Location		4000'	6000'	6600'			
Depth (Ft)		1.80	1.10	1.20			
	to	6.00	6.00	6.00			
% Moisture		30.8	11.6	19.7			

cc: J.B BARFIELD

 Soils Engineer

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAY
MATERIALS & TESTS UNIT
SOILS LABORATORY

T. I. P. No. **I-5766****REPORT ON SAMPLES OF SOILS FOR QUALITY**

Project **53009.1.FS1** **County** **FORSYTH** **Owner**
Date: Sampled **8/7/16** **Received** **8/9/16** **Reported** **8/12/16**
Sampled from **ROADWAY** **By** **J.B BARFIELD**
Submitted by **2012** **Standard Specifications**

801283 TO 801294
 9/27/16

TEST RESULTS

Proj. Sample No.		S-3A	S-16	S-11	S-12	S-13	S-14
Lab. Sample No.		801283	801284	801285	801286	801287	801288
Retained #4 Sieve	%	16	-	4	3	-	1
Passing #10 Sieve	%	76	97	90	90	98	95
Passing #40 Sieve	%	59	75	75	74	75	72
Passing #200 Sieve	%	30	57	39	27	30	28

MINUS NO. 10 FRACTION

SOIL MORTAR - 100%							
Coarse Sand Ret - #60	%	35.4	28.4	28.2	33.0	37.7	38.7
Fine Sand Ret - #270	%	31.4	18.7	36.3	42.1	38.5	37.5
Silt 0.05 - 0.005 mm	%	15.0	14.6	17.4	10.8	13.8	11.8
Clay < 0.005 mm	%	18.1	38.3	18.1	14.1	10.1	12.1
Passing #40 Sieve	%	-	-	-	-	-	-
Passing #200 Sieve	%	-	-	-	-	-	-

L. L.	31	68	26	32	31	31
P. I.	NP	16	NP	NP	NP	NP
AASHTO Classification	A-2-4(0)	A-7-5(10)	A-4(0)	A-2-4(0)	A-2-4(0)	A-2-4(0)
Station	400+99	117+38	101+32	107+37	107+37	107+37
Offset	EB AUX	EB OSS	EB LN3	EB LN3	EB AUX	EB OSS
Alignment	-L1-	-L2-	-L2-	-L2-	-L2-	-L2-
Location	500	6000	4400	5000	5000	5000
Depth (Ft)	2.30	1.40	1.30	1.40	1.60	1.60
to	3.20	4.50	6.00	6.00	6.00	6.00
% Moisture	17		20	18.9	21.2	19

cc: J.B BARFIELD

Soils Engineer

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DIVISION OF HIGHWAY
MATERIALS & TESTS UNIT
SOILS LABORATORY

T. I. P. No. **I-5766****REPORT ON SAMPLES OF SOILS FOR QUALITY**

Project **53009.1.FS1** **County** **FORSYTH** **Owner**
Date: Sampled **8/7/16** **Received** **8/9/16** **Reported** **8/12/16**
Sampled from **ROADWAY** **By** **J.B BARFIELD**
Submitted by **2012** **Standard Specifications**

801283 TO 801294
 9/27/16

TEST RESULTS

Proj. Sample No.		S-15	S-3B	S-18	S-22	S-23	S-24
Lab. Sample No.		801289	801290	801291	801292	801293	801294
Retained #4 Sieve	%	-	7	12	4	-	1
Passing #10 Sieve	%	95	85	82	92	98	95
Passing #40 Sieve	%	83	84	67	71	80	68
Passing #200 Sieve	%	54	26	37	35	30	31

MINUS NO. 10 FRACTION

SOIL MORTAR - 100%							
Coarse Sand Ret - #60	%	21.1	35.2	30.8	34.8	33.8	43.1
Fine Sand Ret - #270	%	25.4	41.5	31.0	33.8	42.9	30.0
Silt 0.05 - 0.005 mm	%	13.2	13.2	14.0	13.2	13.2	8.8
Clay < 0.005 mm	%	40.3	10.1	24.2	18.1	10.1	18.1
Passing #40 Sieve	%	-	-	-	-	-	-
Passing #200 Sieve	%	-	-	-	-	-	-

L. L.	62	23	32	45	27	40
P. I.	9	NP	NP	3	NP	NP
AASHTO Classification	A-5(6)	A-2-4(0)	A-4(0)	A-2-5(0)	A-2-4(0)	A-2-4(0)
Station	117+38	400+99	410+99	117+38	117+37	117+38
Offset	EB AUX	EB AUX	WB OSS	WB OSS	WB AUX	WB LN 3
Alignment	-L2-	-L1-	-L1-	-L2-	-L2-	-L2-
Location	6000	500	1500	6000	6000	6000
Depth (Ft)	1.30	3.20	1.20	1.50	2.20	1.40
to	6.00	4.70	6.00	4.50	2.50	2.50
% Moisture	22.9	6.2	21.3	20.7	11.2	14.7

cc: J.B BARFIELD

 Soils Engineer

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAY
MATERIALS & TESTS UNIT
SOILS LABORATORY

T. I. P. No. I-5766

REPORT ON SAMPLES OF SOILS FOR MOISTURE

Project 53009.1.FS1 **County** FORSYTH **Owner**
Date: Sampled 8/7/16 **Received** 8/9/16 **Reported** 8/11/16
Sampled from ROADWAY **By** J.B BARFIELD
Submitted by 2012 Standard Specifications

801255 TO 801256
 9/27/16

TEST RESULTS

Proj. Sample No.		S-3A	S-3B				
Lab. Sample No.		801255	801256				
Retained #4 Sieve	%	-	-				
Passing #10 Sieve	%						
Passing #40 Sieve	%						
Passing #200 Sieve	%						

MINUS NO. 10 FRACTION

SOIL MORTAR - 100%							
Coarse Sand Ret - #60	%						
Fine Sand Ret - #270	%						
Silt 0.05 - 0.005 mm	%						
Clay < 0.005 mm	%						
Passing #40 Sieve	%	-	-				
Passing #200 Sieve	%	-	-				

L. L.							
P. I.							
AASHTO Classification							
Station							
Offset	EB AUX	EB AUX					
Alignment	-L-	-L-					
Location	500	500					
Depth (Ft)	2.30	3.20					
to	3.20	4.70					
% Moisture	17	6.2					

cc: J.B BARFIELD

 Soils Engineer

REFERENCE: I-5766

PROJECT: 53009

CONTENTS	
<u>STATION</u>	<u>-L1- STA. 399+20 TO STA. 416+57.44 =</u> <u>-L2- STA. 77+85.47 TO STA. 126+25</u>
PLAN SHEETS	3-8
WBL CROSS SECTIONS	9-11
WBL PAVEMENT DATA SHEETS	12-14
WBL DCP LOGS	15-18
WBL CORE PHOTOS	19-20
EBL CROSS SECTIONS	21-25
EBL PAVEMENT DATA SHEETS	26-29
EBL DCP LOGS	30-36
EBL CORE PHOTOS	37-39



Consulting Engineers & Scientists

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

ROADWAY
SUBSURFACE INVESTIGATION

COUNTY FORSYTH
PROJECT DESCRIPTION I-40 FROM 0.85 MILES EAST
OF NC 150 TO 0.2 MILES EAST OF NC 109

PAVEMENT DESIGN INVESTIGATION

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-5766	1	39

CAUTION NOTICE

THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WERE MADE FOR THE PURPOSE OF STUDY, PLANNING AND DESIGN, AND NOT FOR CONSTRUCTION OR PAY PURPOSES. THE VARIOUS FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA AVAILABLE MAY BE REVIEWED OR INSPECTED IN RALEIGH BY CONTACTING THE N.C. DEPARTMENT OF TRANSPORTATION, GEOTECHNICAL ENGINEERING UNIT AT (919) 707-6850. THE SUBSURFACE PLANS AND REPORTS, FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA ARE NOT PART OF THE CONTRACT.

GENERAL SOIL AND ROCK STRATA DESCRIPTIONS AND INDICATED BOUNDARIES ARE BASED ON A GEOTECHNICAL INTERPRETATION OF ALL AVAILABLE SUBSURFACE DATA AND MAY NOT NECESSARILY REFLECT THE ACTUAL SUBSURFACE CONDITIONS BETWEEN BORINGS OR BETWEEN SAMPLED STRATA WITHIN THE BOREHOLE. THE LABORATORY SAMPLE DATA AND THE IN SITU (IN-PLACE) TEST DATA CAN BE RELIED ON ONLY TO THE DEGREE OF RELIABILITY INHERENT IN THE STANDARD TEST METHOD. THE OBSERVED WATER LEVELS OR SOIL MOISTURE CONDITIONS INDICATED IN THE SUBSURFACE INVESTIGATIONS ARE AS RECORDED AT THE TIME OF THE INVESTIGATION. THESE WATER LEVELS OR SOIL MOISTURE CONDITIONS MAY VARY CONSIDERABLY WITH TIME ACCORDING TO CLIMATIC CONDITIONS INCLUDING TEMPERATURES, PRECIPITATION AND WIND, AS WELL AS OTHER NON-CLIMATIC FACTORS.

THE BIDDER OR CONTRACTOR IS CAUTIONED THAT DETAILS SHOWN ON THE SUBSURFACE PLANS ARE PRELIMINARY ONLY AND IN MANY CASES THE FINAL DESIGN DETAILS ARE DIFFERENT. FOR BIDDING AND CONSTRUCTION PURPOSES, REFER TO THE CONSTRUCTION PLANS AND DOCUMENTS FOR FINAL DESIGN INFORMATION ON THIS PROJECT. THE DEPARTMENT DOES NOT WARRANT OR GUARANTEE THE SUFFICIENCY OR ACCURACY OF THE INVESTIGATION MADE, NOR THE INTERPRETATIONS MADE, OR OPINION OF THE DEPARTMENT AS TO THE TYPE OF MATERIALS AND CONDITIONS TO BE ENCOUNTERED. THE BIDDER OR CONTRACTOR IS CAUTIONED TO MAKE SUCH INDEPENDENT SUBSURFACE INVESTIGATIONS AS HE DEEMS NECESSARY TO SATISFY HIMSELF AS TO CONDITIONS TO BE ENCOUNTERED ON THE PROJECT. THE CONTRACTOR SHALL HAVE NO CLAIM FOR ADDITIONAL COMPENSATION OR FOR AN EXTENSION OF TIME FOR ANY REASON RESULTING FROM THE ACTUAL CONDITIONS ENCOUNTERED AT THE SITE DIFFERING FROM THOSE INDICATED IN THE SUBSURFACE INFORMATION.

- NOTES:
1. THE INFORMATION CONTAINED HEREIN IS NOT IMPLIED OR GUARANTEED BY THE N.C. DEPARTMENT OF TRANSPORTATION AS ACCURATE NOR IS IT CONSIDERED PART OF THE PLANS, SPECIFICATIONS OR CONTRACT FOR THE PROJECT.
 2. BY HAVING REQUESTED THIS INFORMATION, THE CONTRACTOR SPECIFICALLY WAIVES ANY CLAIMS FOR INCREASED COMPENSATION OR EXTENSION OF TIME BASED ON DIFFERENCES BETWEEN THE CONDITIONS INDICATED HEREIN AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

PERSONNEL

M. J. ALEXANDER
T. S. SCHLEMM
J. R. TURNAGE
T. E. COGAR

INVESTIGATED BY TERRACON CONSULTANTS
DRAWN BY W. D. FIELDS
CHECKED BY A. F. RIGGS, Jr.
SUBMITTED BY TERRACON CONSULTANTS
DATE SEPTEMBER 2016



DocuSigned by:

Matt Alexander 27/2016

05B0038EEFA06452...

SIGNATURE

DATE

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

***NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT
SUBSURFACE INVESTIGATION
SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS***

SOIL DESCRIPTION

SOIL IS CONSIDERED UNCONSOLIDATED, SEMI-CONSOLIDATED, OR WEATHERED EARTH MATERIALS THAT CAN BE PENETRATED BY A CONTINUOUS FLIGHT POWER AUGER AND YIELD LESS THAN 100 BLOWS PER FOOT ACCORDING TO THE STANDARD PENETRATION TEST (AASHTO T 296, ASTM D1586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY INCLUDE THE FOLLOWING: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. FOR EXAMPLE, *VERY STIFF, GRAY, SILTY CLAY, MOST WITH INTERBEDDED FINE SAND LAYERS, HIGH PLASTIC, A-7-6*

SOIL LEGEND AND AASHTO CLASSIFICATION

GENERAL CLASS.	GRANULAR MATERIALS (≤ 35% PASSING #200)				SILT-CLAY MATERIALS (≥ 35% PASSING #200)				ORGANIC MATERIALS											
GROUP CLASS.	A-1		A-3		A-2		A-4		A-5		A-6		A-7		A-1, A-2		A-4, A-5		A-6, A-7	
SYMBOL	A-1-a	A-1-b			A-2-4	A-2-5	A-2-6	A-2-7								A-3				
Z PASSING #10	50	MX	50	MX	51	MM														
#40	30	MX	50	MX	35	MX	35	MX	35	MX	35	MX	35	MX	35	MM	36	MM	36	MM
#200	15	MX	25	MX	10	MM	35	MX	35	MX	35	MX	35	MX	35	MM	36	MM	36	MM

MATERIAL PASSING #10
#40
#200

GROUP INDEX

USUAL TYPES OF MAJOR MATERIALS

GEN. RATING AS SUBGRADE

GRANULAR SOILS

SILT-CLAY SOILS

MUCK, PEAT

SOILS WITH LITTLE OR MODERATE AMOUNTS OF ORGANIC MATTER

HIGHLY ORGANIC SOILS

UNSATURABLE

CONSISTENCY OR DENSENESS

PRIMARY SOIL TYPE	COMPACTNESS OR CONSISTENCY	RANGE OF STANDARD PENETRATION RESISTANCE (N-VALUE)	RANGE OF UNCONFINED COMPRESSIVE STRENGTH (TONS/FT ²)
GENERALLY GRANULAR MATERIAL (NON-COHESIVE)	VERY LOOSE LOOSE MEDIUM DENSE DENSE VERY DENSE	< 4 4 TO 10 10 TO 30 30 TO 50 > 50	N/A
GENERALLY SILT-CLAY MATERIAL (COHESIVE)	VERY SOFT SOFT MEDIUM STIFF STIFF VERY STIFF HARD	< 2 2 TO 4 4 TO 8 8 TO 15 15 TO 30 > 30	< 0.25 0.25 TO 0.5 0.5 TO 1.0 1 TO 2 2 TO 4 > 4

TEXTURE OR GRAIN SIZE

U.S. STD. SIEVE SIZE OPENING (MM)	4	10	40	60	200	270
	4.75	2.00	0.42	0.25	0.075	0.053

BOULDER (BLDR.)

COBBLE (COB.)

GRAVEL (GR.)

COARSE SAND (CSE. SD.)

FINE SAND (F. SD.)

SILT (SL.)

CLAY (CL.)

SOIL MOISTURE - CORRELATION OF TERMS

SOIL MOISTURE SCALE (ATTERBERG LIMITS)		FIELD MOISTURE DESCRIPTION	GUIDE FOR FIELD MOISTURE DESCRIPTION
LL PLASTIC RANGE (PI) PL	LIQUID LIMIT	- SATURATED - (SAT.)	USUALLY LIQUID; VERY WET, USUALLY FROM BELOW THE GROUND WATER TABLE
	PLASTIC LIMIT	- WET - (W)	SEMISOLID; REQUIRES DRYING TO ATTAIN OPTIMUM MOISTURE
OM SL	OPTIMUM MOISTURE	- MOIST - (M)	SOLID; AT OR NEAR OPTIMUM MOISTURE
	SHRINKAGE LIMIT	- DRY - (D)	REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE

PLASTICITY

	PLASTICITY INDEX (PI)	DRY STRENGTH
NON PLASTIC	0-5	VERY LOW
SLIGHTLY PLASTIC	6-15	SLIGHT
MODERATELY PLASTIC	16-25	MEDIUM
HIGHLY PLASTIC	26 OR MORE	HIGH

COLOR

DESCRIPTIONS MAY INCLUDE COLOR OR COLOR COMBINATIONS (TAN, RED, YELLOW-BROWN, BLUE-GRAY). MODIFIERS SUCH AS LIGHT, DARK, STREAKED, ETC. ARE USED TO DESCRIBE APPEARANCE.

GRADATION

WELL GRADED - INDICATES A GOOD REPRESENTATION OF PARTICLE SIZES FROM FINE TO COARSE. UNIFORMLY GRADED - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE. GAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLE SIZES OF TWO OR MORE SIZES.

ANGULARITY OF GRAINS

THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TERMS: ANGULAR, SUBANGULAR, SUBROUNDED, OR ROUNDED.

MINERALOGICAL COMPOSITION

MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHEN THEY ARE CONSIDERED OF SIGNIFICANCE.

COMPRESSIBILITY

	SLIGHTLY COMPRESSIBLE	MODERATELY COMPRESSIBLE	HIGHLY COMPRESSIBLE
LL < 31			
LL = 31 - 50			
LL > 50			

PERCENTAGE OF MATERIAL

ORGANIC MATERIAL	GRANULAR SOILS	SILT - CLAY SOILS	OTHER MATERIAL
TRACE OF ORGANIC MATTER	2 - 3%	3 - 5%	TRACE
LITTLE ORGANIC MATTER	3 - 5%	5 - 12%	LITTLE
MODERATELY ORGANIC	5 - 10%	12 - 20%	SOME
HIGHLY ORGANIC	> 10%	> 20%	HIGHLY

GROUND WATER

▽

▽

▽PW

○

WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING

STATIC WATER LEVEL AFTER 24 HOURS

PERCHED WATER, SATURATED ZONE, OR WATER BEARING STRATA

SPRING OR SEEP

MISCELLANEOUS SYMBOLS

ROADWAY EMBANKMENT (RE) WITH SOIL DESCRIPTION

SOIL SYMBOL

ARTIFICIAL FILL (AF) OTHER THAN ROADWAY EMBANKMENT

INFERRED SOIL BOUNDARY

INFERRED ROCK LINE

ALLUVIAL SOIL BOUNDARY

25/825

DIP & DIP DIRECTION OF ROCK STRUCTURES

TEST BORING

AUGER BORING

CORE BORING

MONITORING WELL

PIEZOMETER INSTALLATION

SLOPE INDICATOR INSTALLATION

CONE PENETROMETER TEST

SOUNDING ROD

TEST BORING WITH CORE

SPT N-VALUE

RECOMMENDATION SYMBOLS

UNDERCUT

SHALLOW UNDERCUT

UNCLASSIFIED EXCAVATION - UNSUITABLE WASTE

UNCLASSIFIED EXCAVATION - ACCEPTABLE DEGRADABLE ROCK

UNCLASSIFIED EXCAVATION - ACCEPTABLE, BUT NOT TO BE USED IN THE TOP 3 FEET OF EMBANKMENT OR BACKFILL

ABBREVIATIONS

AR - AUGER REFUSAL
BT - BORING TERMINATED
CL - CLAY
CPT - CONE PENETRATION TEST
CSE - COARSE
DPT - DILATOMETER TEST
DPM - DYNAMIC PENETRATION TEST
e - VOID RATIO
f - FINE
FOSS. - FOSSILIFEROUS
FRAC. - FRACTURED, FRACTURES
FRAGS. - FRAGMENTS
HL - HIGHLY

MED. - MEDIUM
MICA - MICACEOUS
MOD. - MODERATELY
NP - NON PLASTIC
ORG. - ORGANIC
PMT - PRESSUREMETER TEST
SAP. - SAPROLITIC
SD. - SAND, SANDY
SL. - SILT, SILTY
SL. - SLIGHTLY
TCR - TRICONE REFUSAL
w - MOISTURE CONTENT
V - VERY

VST - VANE SHEAR TEST
WEA. - WEATHERED
γ - UNIT WEIGHT
γ_d - DRY UNIT WEIGHT

SAMPLE ABBREVIATIONS

S - BULK
SS - SPLIT SPOON
ST - SHELBY TUBE
RS - ROCK
RT - RECOMPACTED TRIAXIAL
CBR - CALIFORNIA BEARING RATIO

EQUIPMENT USED ON SUBJECT PROJECT

DRILL UNITS:

☐ CME-45C

☐ CME-55

☐ CME-550

☐ VANE SHEAR TEST

☐ PORTABLE MOIST

☒ CME-75 (ITER6847)

☒ HILTI DD 200

ADVANCING TOOLS:

☐ CLAY BITS

☐ 6" CONTINUOUS FLIGHT AUGER

☐ 8" HOLLOW AUGERS

☐ HARD FACED FINGER BITS

☐ TUNG-CARBIDE INSERTS

☐ CASING ☐ W/ ADVANCER

☐ TRICONE _____ STEEL TEETH

☐ TRICONE _____ TUNG-CARB.

☐ CORE BIT

☒ 3 1/2" SOLID STEM AUGERS

HAMMER TYPE:

☐ AUTOMATIC

☐ MANUAL

CORE SIZE:

☐ -B

☐ -H

ROCK DESCRIPTION

HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT REFUSAL IF TESTED. AN INFERRED ROCK LINE INDICATES THE LEVEL AT WHICH NON-COASTAL PLAIN MATERIAL WOULD YIELD SPT REFUSAL. SPT REFUSAL IS PENETRATION BY A SPLIT SPOON SAMPLER EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS IN NON-COASTAL PLAIN MATERIAL. THE TRANSITION BETWEEN SOIL AND ROCK IS OFTEN REPRESENTED BY A ZONE OF WEATHERED ROCK. ROCK MATERIALS ARE TYPICALLY DIVIDED AS FOLLOWS:

WEATHERED ROCK (WR)

CRYSTALLINE ROCK (ICR)

NON-CRYSTALLINE ROCK (NCR)

COASTAL PLAIN SEDIMENTARY ROCK (CPI)

WEATHERING

FRESH

VERY SLIGHT (V SL.)

SLIGHT (SL.)

MODERATE (MOD.)

MODERATELY SEVERE (MOD. SEV.)

SEVERE (SEV.)

VERY SEVERE (V SEV.)

COMPLETE

ROCK HARDNESS

VERY HARD

HARD

MODERATELY HARD

MEDIUM HARD

SOFT

VERY SOFT

FRACTURE SPACING

TERM

SPACING

VERY WIDE

WIDE

MODERATELY CLOSE

CLOSE

VERY CLOSE

MORE THAN 10 FEET

3 TO 10 FEET

1 TO 3 FEET

0.16 TO 1 FOOT

LESS THAN 0.16 FEET

BEDDING

TERM

THICKNESS

VERY THICKLY BEDDED

THICKLY BEDDED

THINLY BEDDED

VERY THINLY BEDDED

THICKLY LAMINATED

THINLY LAMINATED

4 FEET

1.5 - 4 FEET

0.16 - 1.5 FEET

0.03 - 0.16 FEET

0.008 - 0.03 FEET

< 0.008 FEET

INDURATION

FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC.

FRIABLE

MODERATELY INDURATED

INDURATED

EXTREMELY INDURATED

RUBBING WITH FINGER FREES NUMEROUS GRAINS; GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE.

GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE; BREAKS EASILY WHEN HIT WITH HAMMER.

GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE; DIFFICULT TO BREAK WITH HAMMER.

SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE; SAMPLE BREAKS ACROSS GRAINS.

TERMS AND DEFINITIONS

ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER.

AQUIFER - A WATER BEARING FORMATION OR STRATA.

ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND.

ARGILLACEOUS - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING A NOTABLE PROPORTION OF CLAY IN THEIR COMPOSITION, SUCH AS SHALE, SLATE, ETC.

ARTESIAN - GROUND WATER THAT IS UNDER SUFFICIENT PRESSURE TO RISE ABOVE THE LEVEL AT WHICH IT IS ENCOUNTERED, BUT WHICH DOES NOT NECESSARILY RISE TO OR ABOVE THE GROUND SURFACE.

CALCAREOUS (CALC.) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE.

COLLUVIUM - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM OF SLOPE.

CORE RECOVERY (REC.) - TOTAL LENGTH OF ALL MATERIAL RECOVERED IN THE CORE BARREL DIVIDED BY TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE.

DIKE - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT ROCKS OR CUTS MASSIVE ROCK.

DIP - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL.

DIP DIRECTION (DIP AZIMUTH) - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH.

FAULT - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE.

FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES.

FLOAT - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLODGED FROM PARENT MATERIAL.

FLOOD PLAIN (FP) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM.

FORMATION (FM) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD.

JOINT - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED.

LEDGE - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO ITS LATERAL EXTENT.

LENS - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS.

MOTTLED (MTD.) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS, MOTTLING IN SOILS USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE.

PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE OF AN INTERVENING IMPERVIOUS STRATUM.

RESIDUAL (RES.) SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK.

ROCK QUALITY DESIGNATION (RQD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE.

SAPROLITE (SAP.) - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK.

SILL - AN INTRUSIVE BODY OF IGNEOUS ROCK OF APPROXIMATELY UNIFORM THICKNESS AND RELATIVELY THIN COMPARED WITH ITS LATERAL EXTENT, THAT HAS BEEN EMPLACED PARALLEL TO THE BEDDING OR SCHISTOSITY OF THE INTRUDED ROCKS.

SLICKENSIDE - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT OR SLIP PLANE.

STANDARD PENETRATION TEST (PENETRATION RESISTANCE) (SPT) - NUMBER OF BLOWS IN OR BPF) OF A 140 LB. HAMMER FALLING 30 INCHES REQUIRED TO PRODUCE A PENETRATION OF 1 FOOT INTO SOIL WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS PENETRATION EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS.

STRATA CORE RECOVERY (SREC.) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE.

STRATA ROCK QUALITY DESIGNATION (SRQD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE.

TOPSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.

BENCH MARK: N/A

ELEVATION: N/A FEET

NOTES:

FIAD - FILLED IN AFTER DRILLING

EBL - EASTBOUND LANE

WBL - WESTBOUND LANE

OSS - OUTSIDE SHOULDER

ISS - INSIDE SHOULDER

OSL - OUTSIDE LANE

ISL - INSIDE LANE

EM - EARTH MEDIAN

HA - HAND AUGER

DATE: 8-15-14

PROJECT REFERENCE NO.
1-5766

SHEET NO.
3

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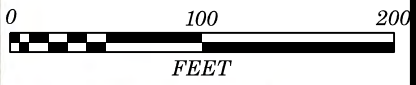
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FEET



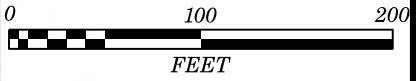
-LI- 400+99_EB ISS		-LI- 400+99_EB LANE 1		-LI- 401+01_EB LANE 2		-LI- 401+01_EB LANE 3		-LI- 401+01_EB AUX LANE		-LI- 401+02_EB OSS	
PAVEMENT STRUCTURE		PAVEMENT STRUCTURE		PAVEMENT STRUCTURE		PAVEMENT STRUCTURE		PAVEMENT STRUCTURE		PAVEMENT STRUCTURE	
CONCRETE	6.5"	CONCRETE	11.5"	CONCRETE	12.0"	CONCRETE	11.5"	CONCRETE	12.0"	CONCRETE	12.0"
PADL	9.0"	PADL	4.5"	PADL	3.0"	PADL	5.5"	PADL	4.0"	PADL	3.5"
		ASPHALT	1.5"	ASPHALT	1.5"	ASPHALT	2.0"	ASPHALT	1.25"	STAB. SUBGRADE	11.0"
		STAB. SUBGRADE	9.0"	STAB. SUBGRADE	9.5"	STAB. SUBGRADE	9.5"	STAB. SUBGRADE	10.75"		



-LI- 410+99_WB OSS		-LI- 410+99_WB AUX LANE		-LI- 410+99_WB LANE 3		-LI- 410+99 WB LANE 2		-LI- 410+99 WB LANE 1	
PAVEMENT STRUCTURE		PAVEMENT STRUCTURE		PAVEMENT STRUCTURE		PAVEMENT STRUCTURE		PAVEMENT STRUCTURE	
CONCRETE	9.0"	CONCRETE	11.0"	CONCRETE	12.0"	CONCRETE	12.0"	CONCRETE	10.5"
PADL	5.5"	PADL	3.0"	PADL	3.0"	PADL	4.0"	PADL	4.0"
		ASPHALT	3.5"	ASPHALT	1.5"	ASPHALT	4.0"	ASPHALT	3.0"
		STAB. SUBGRADE	9.0"	STAB. SUBGRADE	7.0"	STAB. SUBGRADE	6.0"	STAB. SUBGRADE	8.0"



-LI- 416+02_EB AUX LANE	
PAVEMENT STRUCTURE	
CONCRETE	9.5"
ABC	6.5"



MATCHLINE -L- STA. 80+00

MATCHLINE -L- STA. 94+00

I-40 WBL

I-40 EBL

85

90

-L2- 87+30.EB ISS

-L2- 87+31.EB LANE 2

-L2- 87+31.EB OSS

-L2- 87+31.EB LANE 1

-L2- 87+31.EB LANE 3

-L2- 92+23.EB LANE 2

-L2- 87+30.EB ISS		-L2- 87+31.EB LANE 1		-L2- 87+31.EB LANE 2		-L2- 87+31.EB LANE 3		-L2- 87+31.EB OSS	
PAVEMENT STRUCTURE		PAVEMENT STRUCTURE		PAVEMENT STRUCTURE		PAVEMENT STRUCTURE		PAVEMENT STRUCTURE	
CONCRETE	12.0"	CONCRETE	11.5"	CONCRETE	9.0"	CONCRETE	9.5"	CONCRETE	9.5"
ABC	15.5"	ASPHALT	3.0"	ABC	6.0"	ABC	7.0"	ABC	5.5"
		STAB. SUBGRADE	11.5"						

-L2- 92+23.EB LANE 2	
PAVEMENT STRUCTURE	
CONCRETE	9.0"
ABC	6.5"

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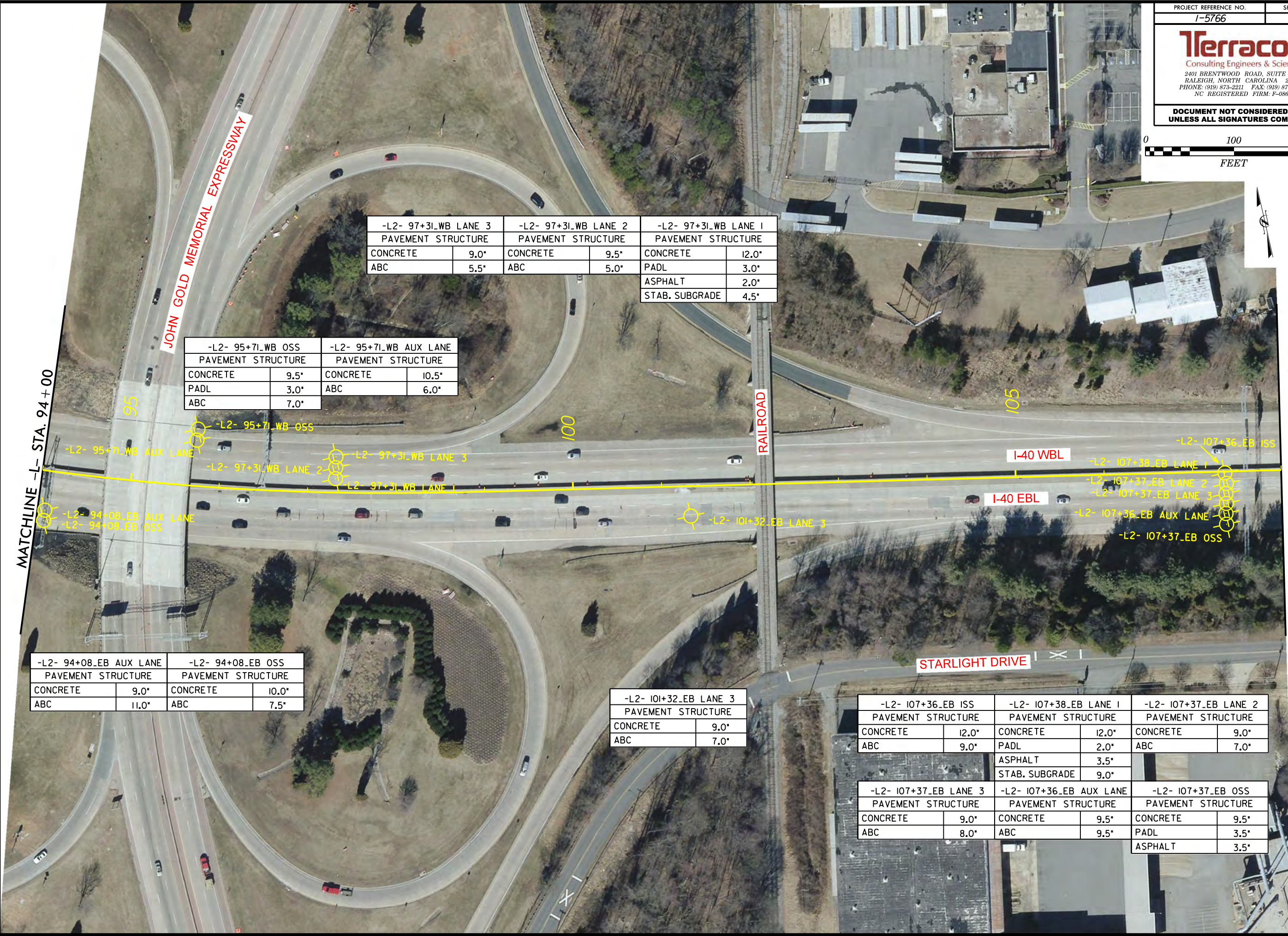
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FEET



-L2- 97+31.WB LANE 3		-L2- 97+31.WB LANE 2		-L2- 97+31.WB LANE 1	
PAVEMENT STRUCTURE		PAVEMENT STRUCTURE		PAVEMENT STRUCTURE	
CONCRETE	9.0"	CONCRETE	9.5"	CONCRETE	12.0"
ABC	5.5"	ABC	5.0"	PADL	3.0"
				ASPHALT	2.0"
				STAB. SUBGRADE	4.5"

-L2- 95+71.WB OSS		-L2- 95+71.WB AUX LANE	
PAVEMENT STRUCTURE		PAVEMENT STRUCTURE	
CONCRETE	9.5"	CONCRETE	10.5"
PADL	3.0"	ABC	6.0"
ABC	7.0"		

-L2- 94+08.EB AUX LANE		-L2- 94+08.EB OSS	
PAVEMENT STRUCTURE		PAVEMENT STRUCTURE	
CONCRETE	9.0"	CONCRETE	10.0"
ABC	11.0"	ABC	7.5"

-L2- 101+32.EB LANE 3	
PAVEMENT STRUCTURE	
CONCRETE	9.0"
ABC	7.0"

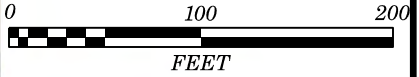
-L2- 107+36.EB ISS		-L2- 107+38.EB LANE 1		-L2- 107+37.EB LANE 2	
PAVEMENT STRUCTURE		PAVEMENT STRUCTURE		PAVEMENT STRUCTURE	
CONCRETE	12.0"	CONCRETE	12.0"	CONCRETE	9.0"
ABC	9.0"	PADL	2.0"	ABC	7.0"
		ASPHALT	3.5"		
		STAB. SUBGRADE	9.0"		

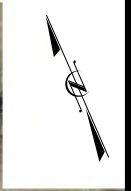
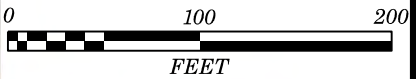
-L2- 107+37.EB LANE 3		-L2- 107+36.EB AUX LANE		-L2- 107+37.EB OSS	
PAVEMENT STRUCTURE		PAVEMENT STRUCTURE		PAVEMENT STRUCTURE	
CONCRETE	9.0"	CONCRETE	9.5"	CONCRETE	9.5"
ABC	8.0"	ABC	9.5"	PADL	3.5"
				ASPHALT	3.5"

MATCHLINE -L- STA. 108 + 00

MATCHLINE -L- STA. 108 + 00

MATCHLINE -L- STA. 122 + 00





MATCHLINE -L- STA. 122+00

-L2- I23+41.WB LANE 2	
PAVEMENT STRUCTURE	
CONCRETE	9.5"
ABC	4.5"

END PROJECT I-5766
-L2- POT Sta. 126+25



-L2- I23+41.WB LANE 2



-L2- I23+39.EB LANE 2

-L2- I23+39.EB LANE 2	
PAVEMENT STRUCTURE	
CONCRETE	9.5"
ABC	9.0"

MORAVIA STREET

CLEMMONVILLE ROAD

I-40 WBL

I-40 EBL

TO KERNERSVILLE →

130

125

CROSS SECTION AT STA. -L2- 95+71 WBL

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0 50 100
FEET
VE=20:1

0 2.5 5 7.5

ROADWAY

EMBANKMENT, LIGHT BROWN, MOIST, SILT, MICACEOUS

STRUCTURE

BT

BT

70 60 50 40 30 20 10 0

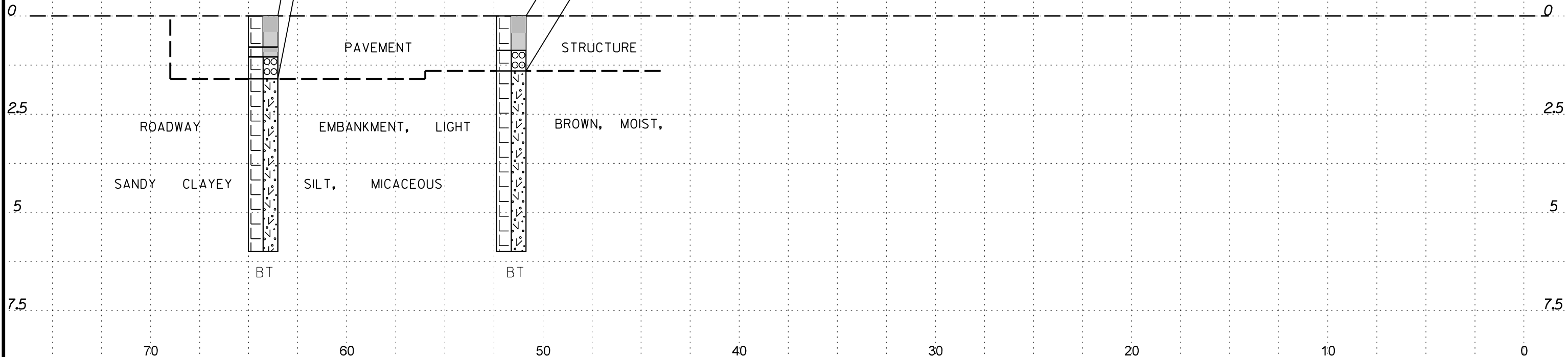
PAVEMENT STRUCTURE

-L2- 95+71 WB OSS	
CONCRETE	9.5'
PADL	3.0'
ABC	7.0'

PAVEMENT STRUCTURE

-L2- 95+71 WB AUX LANE	
CONCRETE	10.5'
ABC	6.0'

-L2- 95+71_WB AUX LANE	
PAVEMENT STRUCTURE	
CONCRETE	10.5"
ABC	6.0"



CROSS SECTION AT STA. -LI- 410+99 WBL

-LI- 410+99.WB OSS	
PAVEMENT STRUCTURE	
CONCRETE	9.0"
PADL	5.5"

-LI- 410+99.WB: AUX LANE	
PAVEMENT STRUCTURE	
CONCRETE	11.0"
PADL	3.0"
ASPHALT	3.5"
STAB. SUBGRADE	9.0"

-LI- 410+99.WB LANE 3	
PAVEMENT STRUCTURE	
CONCRETE	12.0"
PADL	3.0"
ASPHALT	1.5"
STAB. SUBGRADE	7.0"

-LI- 410+99.WB LANE 2	
PAVEMENT STRUCTURE	
CONCRETE	12.0"
PADL	4.0"
ASPHALT	4.0"
STAB. SUBGRADE	6.0"

-LI- 410+99.WB LANE 1	
PAVEMENT STRUCTURE	
CONCRETE	10.5"
PADL	4.0"
ASPHALT	3.0"
STAB. SUBGRADE	8.0"

ROADWAY

EMBANKMENT, BROWN WITH DARK GRAY, MOIST, CLAYEY SANDY SILT, WITH TRACE MICA TO MICACEOUS

BT

BT

BT

BT

BT

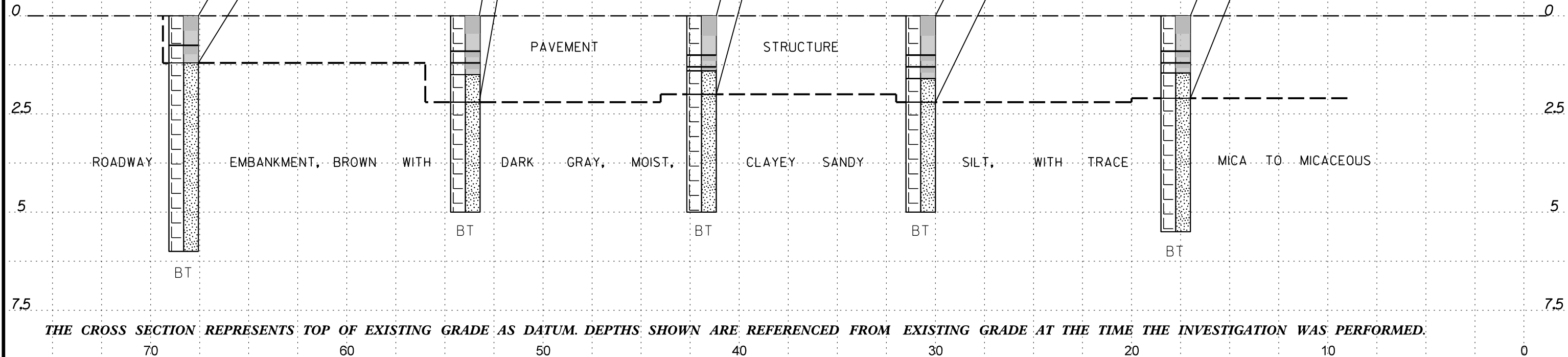
THE CROSS SECTION REPRESENTS TOP OF EXISTING GRADE AS DATUM. DEPTHS SHOWN ARE REFERENCED FROM EXISTING GRADE AT THE TIME THE INVESTIGATION WAS PERFORMED.

-LI- 410+99_WB: AUX LANE	
PAVEMENT STRUCTURE	
CONCRETE	11.0"
PADL	3.0"
ASPHALT	3.5"
STAB. SUBGRADE	9.0"

-LI- 410+99_WB LANE 3	
PAVEMENT STRUCTURE	
CONCRETE	12.0"
PADL	3.0"
ASPHALT	1.5"
STAB. SUBGRADE	7.0"

-L1- 410+99 WB LANE 2	
PAVEMENT STRUCTURE	
CONCRETE	12.0"
PADL	4.0"
ASPHALT	4.0"
STAB. SUBGRADE	6.0"

-LI- 410+99 WB LANE	
PAVEMENT STRUCTURE	
CONCRETE	10.5"
PADL	4.0"
ASPHALT	3.0"
STAB. SUBGRADE	8.0"



THE CROSS SECTION REPRESENTS TOP OF EXISTING GRADE AS DATUM. DEPTHS SHOWN ARE REFERENCED FROM EXISTING GRADE AT THE TIME THE INVESTIGATION WAS PERFORMED.

CROSS SECTION AT -L2- 117+38 WBL

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0 50 100
FEET
VE=20:1

-L2- 117+38.WB OSS
PAVEMENT STRUCTURE
CONCRETE 12.5"
PADL 3.5"
ASPHALT 1.5"

-L2- 117+39.WB AUX. LANE
PAVEMENT STRUCTURE
CONCRETE 12.0"
PADL 3.0"
ASPHALT 2.0"
STAB. SUBGRADE 9.0"

-L2- 117+38.WB LANE 3
PAVEMENT STRUCTURE
CONCRETE 9.0"
ABC 8.0"

-L2- 117+38.WB LANE 2
PAVEMENT STRUCTURE
CONCRETE 8.5"
ABC 5.0"

-L2- 117+38.WB LANE 1
PAVEMENT STRUCTURE
CONCRETE 12.0"
PADL 4.0"
STAB. SUBGRADE 8.0"

S-22 S-23 S-24 S-25

PAVEMENT STRUCTURE

RESIDUAL, RED-ORANGE AND LIGHT BROWN, MOIST, SANDY CLAYEY SILT, MICACEOUS

RESIDUAL, LIGHT MOIST, CLAYEY SILTY

RED-BROWN, GRAY TO LIGHT GRAY AND RED-BROWN, SAND, AND SILTY CLAYEY SAND, SAPROLITIC, WITH TRACE MICA

HA REFUSAL @ 2.5'

BT

0 2.5 5 7.5

70 60 50 40 30 20 10 0

CROSS SECTION AT -L2- 97+31 WBL

-L2- 97+31.WB LANE 3
PAVEMENT STRUCTURE
CONCRETE 9.0"
ABC 5.5"

-L2- 97+31.WB LANE 2
PAVEMENT STRUCTURE
CONCRETE 9.5"
ABC 5.0"

-L2- 97+31.WB LANE 1
PAVEMENT STRUCTURE
CONCRETE 12.0"
PADL 3.0"
ASPHALT 2.0"
STAB. SUBGRADE 4.5"

S-20 S-21

PAVEMENT STRUCTURE

RESIDUAL, LIGHT BROWN AND SILT AND SANDY

LIGHT GRAY-BROWN, MOIST, CLAYEY SANDY

CLAYEY SANDY

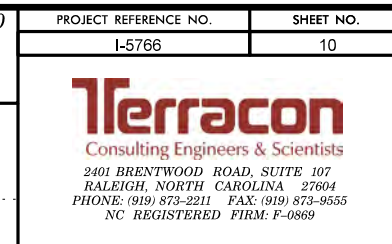
LIGHT BROWN, DRY, SILTY SAND, MICACEOUS

BT

0 2.5 5 7.5

70 60 50 40 30 20 10 0

THE CROSS SECTION REPRESENTS TOP OF EXISTING GRADE AS DATUM. DEPTHS SHOWN ARE REFERENCED FROM EXISTING GRADE AT THE TIME THE INVESTIGATION WAS PERFORMED.



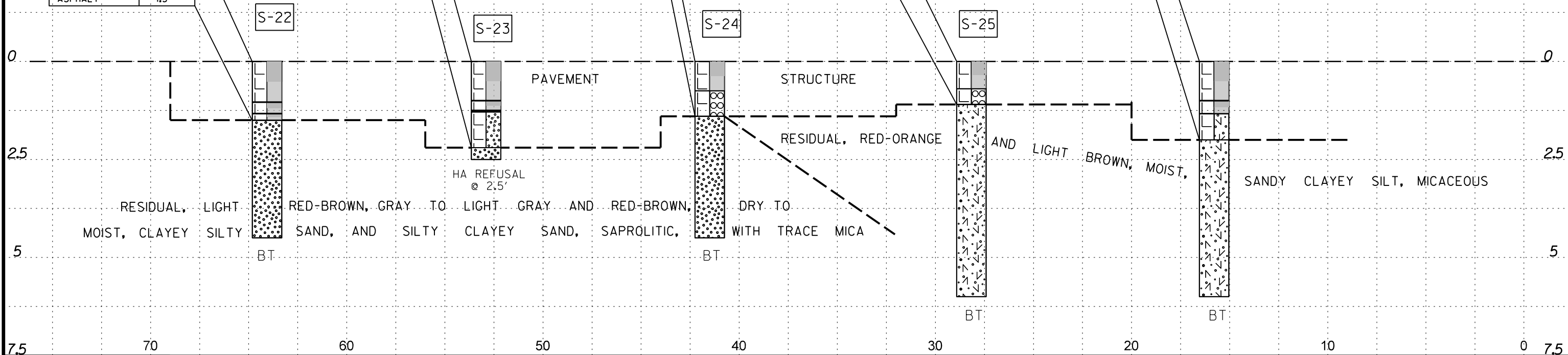
-L2- 117+38_WB OSS	
PAVEMENT STRUCTURE	
CONCRETE	12.5"
PADL	3.5"
ASPHALT	1.5"

-L2- 117+39. WB. AUX. LANE	
PAVEMENT STRUCTURE	
CONCRETE	12.0"
PADL	3.0"
ASPHALT	2.0"
STAB. SUBGRADE	9.0"

-L2- 117+38_WB LANE 3	
PAVEMENT STRUCTURE	
CONCRETE	9.0"
ABC	8.0"

-L2- 117+38_WB LANE 2	
PAVEMENT STRUCTURE	
CONCRETE	8.5"
ABC	5.0"

-L2- 117+38_WB LANE 1	
PAVEMENT STRUCTURE	
CONCRETE	12.0"
PADL	4.0"
STAB. SUBGRADE	8.0"



**CROSS SECTION AT
-L2- 97+31 WBL**

-L2- 97+31_WB LANE 3	
PAVEMENT STRUCTURE	
CONCRETE	9.0"
ABC	5.5"

S-20

-L2- 97+31_WB LANE 2	
PAVEMENT STRUCTURE	
CONCRETE	9.5"
ABC	5.0"

STRUCTURE

-L2- 97+31_WB LANE 1	
PAVEMENT STRUCTURE	
CONCRETE	12.0"
PADL	3.0"
ASPHALT	2.0"
STAB. SUBGRADE	4.5"

S-21

RESIDUAL, LIGHT BROWN AND SILT AND SANDY CLAYEY SILT, WITH TRACE MICA TO MICACEOUS SAND, MICACEOUS

BT BT BT

0 2.5 5 7.5

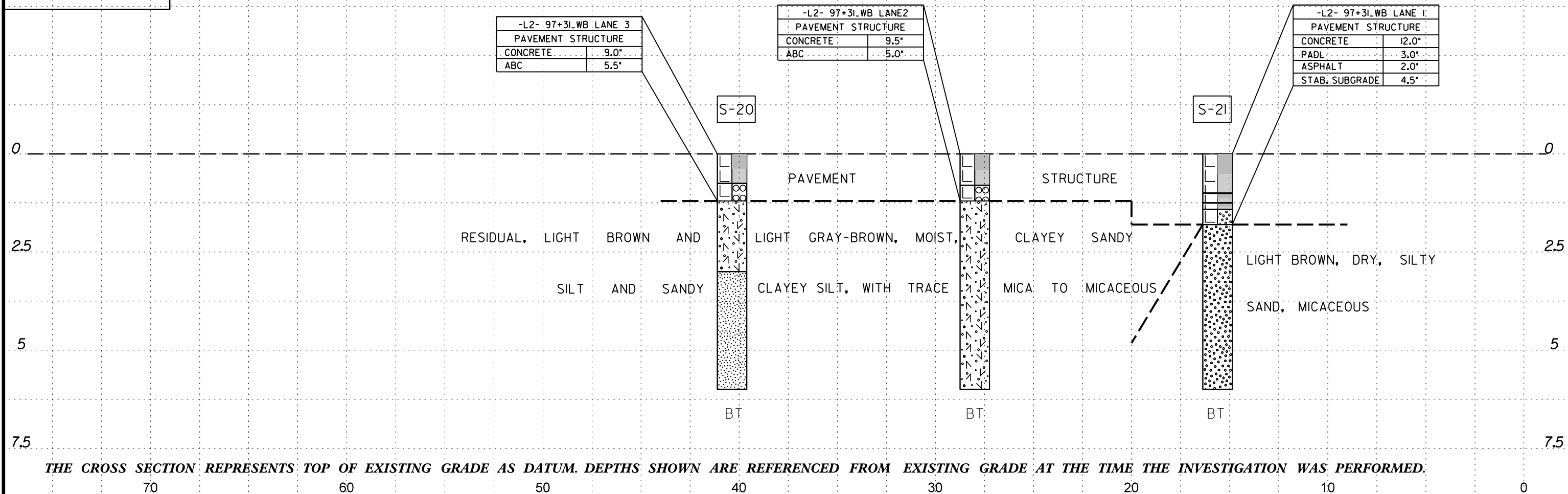
THE CROSS SECTION REPRESENTS TOP OF EXISTING GRADE AS DATUM. DEPTHS SHOWN ARE REFERENCED FROM EXISTING GRADE AT THE TIME THE INVESTIGATION WAS PERFORMED.

70 60 50 40 30 20 10 0

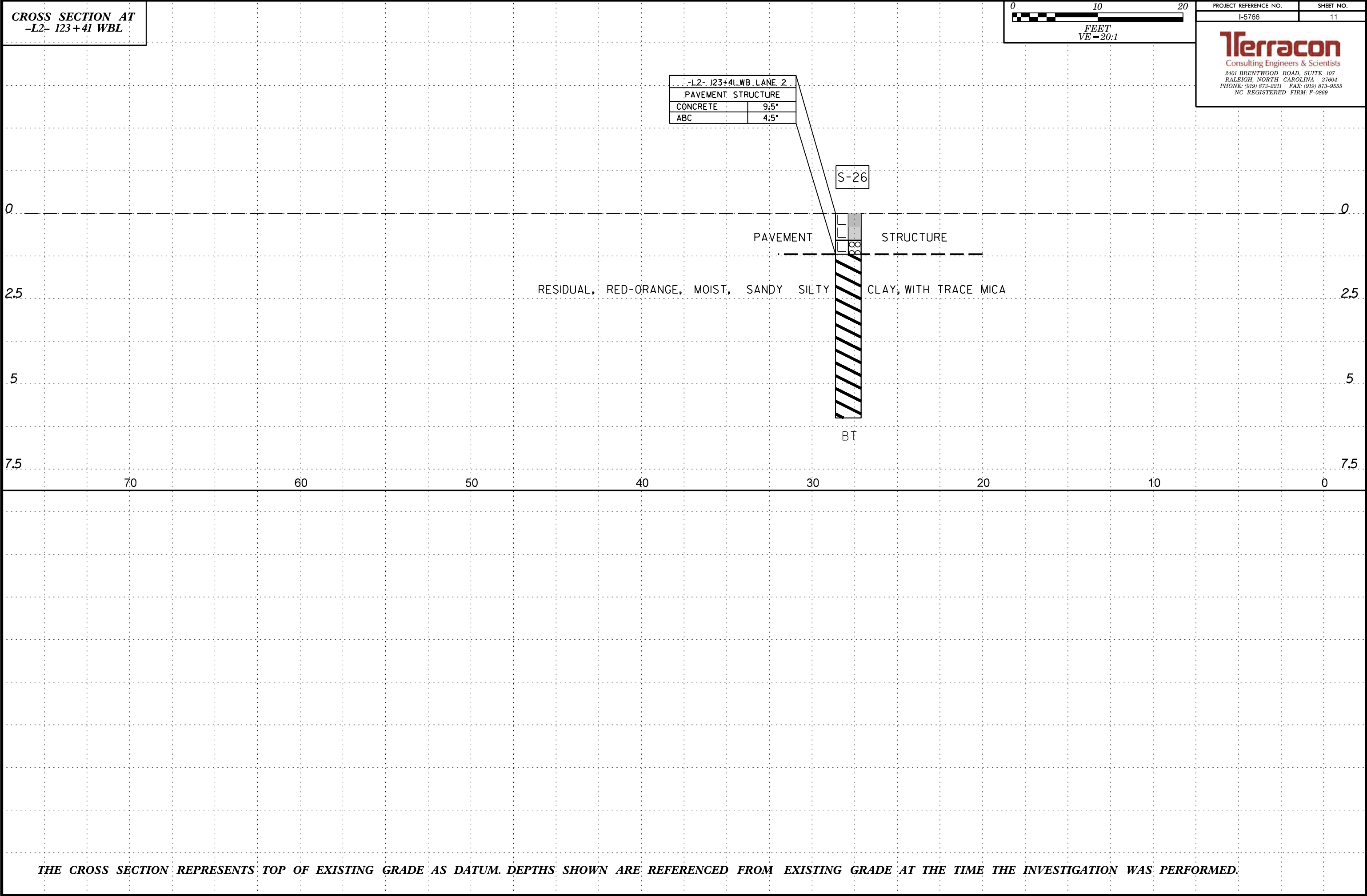
-L2- 97+31_WB LANE 3	
PAVEMENT STRUCTURE	
CONCRETE	9.0"
ABC	5.5"

-L2- 97+31_WB LANE2	
PAVEMENT STRUCTURE	
CONCRETE	9.5"
ABC	5.0"

-L2- 97+31_WB LANE 1	
PAVEMENT STRUCTURE	
CONCRETE	12.0"
PADL	3.0"
ASPHALT	2.0"
STAB. SUBGRADE	4.5"



THE CROSS SECTION REPRESENTS TOP OF EXISTING GRADE AS DATUM. DEPTHS SHOWN ARE REFERENCED FROM EXISTING GRADE AT THE TIME THE INVESTIGATION WAS PERFORMED.



PAVEMENT INVESTIGATION DATA SHEET

Project:		53009		County:		FORSYTH		Date:		07/17/2016 - 08/07/2016										
TIP:		I-5766		Route:		WBL I-40 from 0.85 miles East of NC 150 to 0.02 miles East of NC 109								Notes By:		T. S. Schlemm				
		Width				Pavement Structure, Thickness						Subgrade							GPS Coordinates	
Test Location	Cut/Fill (Est. of Amount)	Lane(s)	Shoulder(s)	Offset Distance (See Notes)	Crown "C" or Super "S"	Pavement Layering	Concrete	PADL	Asphalt	ABC	Stabilized Subgrade	Total to Subgrade	Description	Sample Number	AASHTO Classification	Soil Moisture	Probe Depth	Pavement Notes	Northing	Easting
-L1- 410+99 WB OSS	FILL 10'	WB LANE 1 12.0'	WB OSS 4.0'	FW 3.0'	S LT	CONCRETE PADL	9.0"	5.5"	-	-	-	14.5"	1.2' - 6.0' ROADWAY EMBANKMENT: BROWN, CLAYEY SANDY SILT, MICACEOUS	S-18	A-4	M	6.0'	-DIAMOND GROOVING -POLISHED AGGREGATE -POP OUTS -LOW SEVERITY SPALLING ON CONSTRUCTION JOINTS -MODERATE SEVERITY SPALLING ON CENTERLINE JOINT IN WB LANE 1 AND 2 -WB ISS FAULTED 0.5" BELOW WB LANE 1	845,186	1,634,040
		WB LANE 2 12.0'	WB ISS 5.0'																	
-L1- 410+99 WB AUX LANE		WB LANE 3 12.0'	FW 3.5'		CONCRETE PADL ASPHALT STABILIZED SG	11.0"	3.0"	3.5"	-	9.0"	26.5"	2.2' - 5.0' ROADWAY EMBANKMENT: BROWN WITH DARK GRAY, CLAYEY SANDY SILT, WITH TRACE MICA	REF S-19	A-4	M	5.0'	845,173		1,634,034	
		WB AUX LANE 12.0'																		
-L1- 410+99 WB LANE 3		FW 16.5'		CONCRETE PADL ASPHALT STABILIZED SG	12.0"	3.0"	1.5"	-	7.0"	23.5"	2.0' - 5.0' ROADWAY EMBANKMENT: BROWN WITH DARK GRAY, CLAYEY SANDY SILT, WITH TRACE MICA	REF S-19	A-4	M	5.0'	845,162	1,634,029			
-L1- 410+98 WB LANE 2		FY 14.0'		CONCRETE PADL ASPHALT STABILIZED SG	12.0"	4.0"	4.0"	-	6.0"	26.0"	2.2' - 5.0' ROADWAY EMBANKMENT: BROWN WITH DARK GRAY, CLAYEY SANDY SILT, WITH TRACE MICA	S-19	A-4	M	5.0'	845,152	1,634,024			
-L1- 410+99 WB LANE 1		FY 4.0'		CONCRETE PADL ASPHALT STABILIZED SG	10.5"	4.0"	3.0"	-	8.0"	25.5"	2.1' - 5.5' ROADWAY EMBANKMENT: BROWN WITH DARK GRAY, CLAYEY SANDY SILT, WITH TRACE MICA	REF S-19	A-4	M	5.5'	845,140	1,634,019			
-L2- 95+71 WB OSS	FILL 5'	WB LANE 1 NM	WB OSS 9.0'	FW 3.0'	S RT	CONCRETE PADL ABC	9.5"	3.0"	-	7.0"	-	19.5"	1.6' - 6.0' ROADWAY EMBANKMENT: LIGHT BROWN, SANDY CLAYEY SILT, MICACEOUS	REF S-25	A-5	M	6.0'	-DIAMOND GROOVING IN WB LANE 1 -MAP CRACKING IN WB LANE 2, 3 AND AUX LANE -POLISHED AGGREGATE IN LANE 2, 3 AND AUX LANE -POP OUTS IN WB LANE 2, 3 AND AUX LANE -LOW SEVERITY SPALLING ON CONSTRUCTION JOINTS	844,034	1,636,065
		WB LANE 2 NM	WB ISS NM																	
-L2- 95+71 WB AUX LANE		WB LANE 3 12.0'	FW 5.0'		CONCRETE ABC	10.5"	-	-	6.0"	-	16.5"	1.4' - 6.0' ROADWAY EMBANKMENT: LIGHT BROWN, SANDY CLAYEY SILT, MICACEOUS	REF S-25	A-5	M	6.0'	844,022		1,636,061	
		WB AUX LANE 12.0'																		

Notes:

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SG = Subgrade



PAVEMENT INVESTIGATION DATA SHEET

Project:		53009				County:		FORSYTH				Date:		07/29/2016 - 07/30/2016								
TIP:		I-5766				Route:		WBL I-40 from 0.85 miles East of NC 150 to 0.02 miles East of NC 109										Notes By:		T. S. Schlemm		
		Width						Pavement Structure, Thickness						Subgrade							GPS Coordinates	
Test Location		Cut/Fill (Est. of Amount)	Lane(s)	Shoulder(s)	Offset Distance (See Notes)	Crown "C" or Super "S"	Pavement Layering	Concrete	PADL	Asphalt	ABC	Stabilized Subgrade	Total to Subgrade	Description	Sample Number	AASHTO Classification	Soil Moisture	Probe Depth	Pavement Notes		Northing	Easting
-L2- 97+31 WB LANE 3		CUT 10'+	WB LANE 3 12.0'	WB OSS 4.0'	FW 1.5'	S RT	CONCRETE ABC	9.0"	-	-	5.5"	-	14.5"	1.2' - 3.0' RESIDUAL: LIGHT BROWN, SANDY CLAYEY SILT, MICACEOUS	REF S-25	A-5	M	6.0'	-DIAMOND GROOVING IN WB LANE 1 -POLISHED AGGREGATE IN WB LANE 2, 3 AND RAMP -POP OUTS IN WB LANE 2, 3 AND RAMP -MAP CRACKING IN WB LANE 2, 3 AND RAMP -LOW SEVERITY TRANSVERSE CRACK WITH SPALLING IN WB LANE 1 -LOW SEVERITY SPALLING ON CONSTRUCTION JOINTS		843,969	1,636,210
			WB LANE 2 12.0'	WB ISS 3.5'									3.0' - 6.0' LIGHT GRAY-BROWN, CLAYEY SANDY SILT, WITH TRACE MICA	S-20	A-4	M						
-L2- 97+31 WB LANE 2			WB LANE 1 12.0'		FY 14.0'		CONCRETE ABC	9.5"	-	-	5.0"	-	14.5"	1.2' - 6.0' RESIDUAL: LIGHT BROWN, SANDY CLAYEY SILT, MICACEOUS	REF S-25	A-5	M	6.0'			843,957	1,636,207
			GORE NM																			
-L2- 97+31 WB LANE 1			RAMP NM		FY 4.0'		CONCRETE PADL ASPHALT STABILIZED SG	12.0"	3.0"	2.0"	-	4.5"	21.5"	1.8' - 6.0' RESIDUAL: LIGHT BROWN, SILTY SAND, MICACEOUS	S-21	A-2-4	D	6.0'			843,945	1,636,204
-L2- 117+38 WB OSS		GRADE	WB AUX LANE 12.0'	WB OSS 10.0'	FW 2.0'	S LT	CONCRETE PADL ASPHALT	12.5"	3.5"	1.5"	-	-	17.5"	1.5' - 4.5' RESIDUAL: RED-BROWN,CLAYEY SILTY SAND, WITH TRACE MICA	S-22	A-2-5	M	HA 4.5'	-DIAMOND GROOVING IN WB LANE 1 AND AUX -POLISHED AGGREGATE IN WB LANE 2, 3 AND AUX -POP OUTS IN WB LANE 2, 3 AND AUX -MAP CRACKING IN WB LANE 2, 3 AND AUX -HIGH SEVERITY CORNER BREAKS 1.0 SQ. FT. WITH ASPHALT PATCHING IN WB LANE 2 AND 3 -MODERATE SEVERITY SEALED LONGITUDINAL CRACK >50.0' LENGTH IN WB LANE 3 -PUNCH OUT WITH ASPHALT PATCH 3.0 SQ. FT. IN WB LANE 3 -LOW SEVERITY SPALLING ON CONSTRUCTION JOINTS -GEOTEXTILE BETWEEN PADL AND ASPHALT IN WB OSS AND AUX LANE -HAND AUGERED IN WB OSS AND AUX LANE		843,594	1,638,182
			WB LANE 3 12.0'	WB ISS 9.0'									HAND AUGER TO 4.5'									
-L2- 117+39 WB AUX LANE			WB LANE 2 12.0'		FW 1.3'		CONCRETE PADL ASPHALT STABILIZED SG	12.0"	3.0"	2.0"	-	9.0"	26.0"	2.2' - 2.5' RESIDUAL: GRAY AND LIGHT GRAY, CLAYEY SILTY SAND, SAPROLITIC	S-23	A-2-4	D	HA 2.5'			843,583	1,638,180
			WB LANE 1 12.0'											HAND AUGER REFUSAL AT 2.5'								
-L2- 117+38 WB LANE 3					FW 13.3'		CONCRETE ABC	9.0"	-	-	8.0"	-	17.0"	1.4' - 2.5' RESIDUAL: LIGHT RED-BROWN, SILTY CLAYEY SAND, WITH TRACE MICA	S-24	A-2-4	M	HA 4.5'			843,572	1,638,177
														2.5' - 3.0' GRAY TO LIGHT GRAY, CLAYEY SILTY SAND, SAPROLITIC	REF S-23	A-2-4	M					
														3.0' - 4.5' RED-BROWN, SILTY CLAYEY SAND, WITH TRACE MICA	REF S-22	A-2-5	M					
-L2- 117+38 WB LANE 2					FY 15.0'		CONCRETE ABC	8.5"	-	-	5.0"	-	13.5"	1.1' - 6.0' RESIDUAL: LIGHT BROWN, SANDY CLAYEY SILT, MICACEOUS	S-25	A-5	M	6.0'			843,559	1,638,174
-L2- 117+38 WB LANE 1					FY 2.0'		CONCRETE PADL STABILIZED SG	12.0"	4.0"	-	-	8.0"	24.0"	2.0' - 6.0' RESIDUAL: LIGHT BROWN, SANDY CLAYEY SILT, MICACEOUS	REF S-25	A-5	M	6.0'			843,547	1,638,171

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PAVEMENT INVESTIGATION DATA SHEET

Project:

53009

TIP:

I-5766

County:

FORSYTH

Date:

07/29/2016 - 07/30/2016

Notes By:

T. S. Schlemm

Route:

WBL I-40 from 0.85 miles East of NC 150 to 0.02 miles East of NC 109

		Width				Pavement Structure, Thickness						Subgrade						GPS Coordinates			
Test Location	Cut/Fill (Est. of Amount)	Lane(s)	Shoulder(s)	Offset Distance (See Notes)	Crown "C" or Super "S"	Pavement Layering	Concrete	PADL	Asphalt	ABC	Stabilized Subgrade	Total to Subgrade	Description	Sample Number	AASHTO Classification	Soil Moisture	Probe Depth	Pavement Notes	Northing	Easting	
-L2- 123+41 WB LANE 2	GRADE	WB AUX LANE NM	WB OSS NM	FY 2.0'	C	CONCRETE ABC	9.5"	-	-	4.5"	-	14.0"	1.2' - 6.0' RESIDUAL: RED-ORANGE, SANDY SILTY CLAY, WITH TRACE MICA	S-26	A-7-5	M	6'	-DIAMOND GROOVING IN WB LANE 1 -POLISHED AGGREGATE IN WB LANE 2, 3 AND AUX -POP OUTS IN WB LANE 2, 3 AND AUX -HIGH SEVERITY CORNER BREAKS PATCHED WITH ASPHALT IN WB LANE 2 AND 3 -MODERATE SEVERITY SEALED LONGITUDINAL CRACK >100.0' LENGTH IN WB LANE 2 AND 3 -MAP CRACKING IN WB LANE 2, 3 AND AUX	843,369	1,638,750	
		WB LANE 3 NM	WB ISS 9.0'																		
		WB LANE 2 12.0'																			
		WB LANE 1 12.0'																			

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CONE PENETROMETER DATA CODE SHEET								PROJECT NUMBER				TIP				ROUTE			
								53009				I-5766				I-40			
								COUNTY				GEOLOGIST				TECHNICIANS			
								FORSYTH				T. S. SCHLEMM				J. R. TURNAGE / T. E. COGAR			
TEST LOCATIONS DESCRIPTION								DATE RUN				TEST LOCATION DESCRIPTION				DATE RUN			
-L1- 410+99 WB OSS								7/17 - 8/7/16				-L1- 410+99 WB AUX LANE				7/17 - 8/7/16			
DATUM		CUT / FILL		NORTHING		EASTING		DATUM		CUT / FILL		NORTHING		EASTING					
SG		FILL		845,186		1,634,040		SS		FILL		845,173		1,634,034					
CUMULATIVE PENETRATION IN CENTIMETERS								CUMULATIVE PENETRATION IN CENTIMETERS											
5.3		78.9							0.2	10.8	74.8								
7.4		79.5							0.4	14.0	75.5								
8.6		80.2							0.7	15.9	76.1								
9.6		80.7							0.9	19.1	76.9								
10.5		81.3							1.1	21.2	77.6								
11.4		82.0							1.2	23.6	78.6								
13.0		82.7							1.3	25.5	79.6								
14.6		83.2							1.4	27.6	80.6								
16.6		83.8							1.5	29.0	81.7								
18.7		84.5							1.6	29.9	82.7								
20.8		85.2							1.7	33.2	83.7								
23.0		85.9							1.9	35.3	84.7								
25.5		86.6							2.0	37.1	85.5								
28.4		87.4							2.2	39.1	86.3								
30.4		88.3							2.3	41.7	87.3								
32.0		89.1							2.5	44.6	88.2								
33.8		90.0							2.7	46.1	89.0								
35.9		90.9							2.9	46.7	89.7								
37.4		91.8							3.1	47.6	90.4								
39.0		92.9							3.3	48.6	91.5								
41.2		94.0							3.4	50.4	92.4								
43.6		94.9							3.5	51.1	93.6								
45.3		95.8							3.6	52.0									
47.0									3.7	52.7									
49.0									3.8	53.5									
51.9									3.9	54.4									
54.6									4.0	55.3									
57.9									4.1	55.9									
60.0									4.2	56.8									
61.4									4.3	57.7									
62.5									4.35	58.4									
63.7									4.40	59.4									
65.0									4.45	60.1									
67.4									4.50	60.9									
68.7									4.55	61.6									
69.2									4.60	62.2									
70.0									4.65	62.9									
70.6									4.70	63.6									
71.1									4.77	64.1									
71.7									4.84	64.7									
72.2									4.91	65.3									
72.6									4.98	65.9									
73.1									5.05	66.6									
73.6									5.12	67.3									
74.1									5.19	68.0									
74.5									5.26	68.9									
74.9									5.33	69.6									
75.3									5.40	70.4									
75.8									Augered	71.3									
76.3									12.3 cm	72.2									
76.8									1.8	73.0									
77.1									4.0	73.6									
78.3									8.0	74.2									

SG = Subgrade
SS = Stabilized Soil
CTBC = Cement-Treated Base Course
ABC = Aggregate Base Course
ESG = Estimated Subgrade (Augered to approximately 1 foot below existing ground surface prior to beginning DCP)



CONE PENETROMETER DATA CODE SHEET						PROJECT NUMBER				TIP				ROUTE									
						53009				I-5766				I-40									
						COUNTY				GEOLOGIST				TECHNICIANS									
						FORSYTH				T. S. SCHLEMM				J. R. TURNAGE / T. E. COGAR									
TEST LOCATIONS DESCRIPTION						DATE RUN				TEST LOCATION DESCRIPTION				DATE RUN									
-L1- 410+99 WB LANE 3						7/17 - 8/7/16				-L1- 410+98 WB LANE 2				7/17 - 8/7/16									
DATUM		CUT / FILL		NORTHING		EASTING		DATUM		CUT / FILL		NORTHING		EASTING									
SS		FILL		845,162		1,634,029		SS		GRADE		845,152		1,634,024									
CUMULATIVE PENETRATION IN CENTIMETERS												CUMULATIVE PENETRATION IN CENTIMETERS											
0.5		Augered	81.4							0.1	11.1	59.1											
0.6		14.4 cm	82.9							0.2	12.5	60.7											
0.7		2.6	84.5							0.3	14.1	62.1											
0.75		5.6	86.3							0.4	15.6	64.0											
0.80		8.2	88.3							0.5	16.6	65.6											
0.85		10.5	90.6							0.6	17.2	67.4											
0.90		12.8	92.7							0.8	18.1	69.3											
0.95		15.0	94.2							0.9	18.7	71.0											
1.00		16.6								1.1	19.5	72.7											
1.05		18.2								1.2	20.2	74.5											
1.10		19.5								1.3	21.1	75.9											
1.15		20.7								1.4	22.2	77.1											
1.20		22.2								1.5	22.9	78.4											
1.25		24.1								1.6	23.4	79.8											
1.30		25.8								1.7	23.9	81.3											
1.35		27.3								1.8	24.2	82.7											
1.40		28.5								2.0	24.7	84.6											
1.45		29.8								2.1	25.1	85.7											
1.50		31.1								2.3	25.5	87.6											
1.55		32.0								2.4	25.9												
1.60		32.8								2.6	26.2												
1.65		33.7								2.7	26.6												
1.70		34.7								2.9	26.8												
1.73		35.9								3.0	27.2												
1.77		37.1								3.2	27.3												
1.80		38.6								3.3	27.9												
1.83		40.0								3.4	28.3												
1.87		41.5								3.5	28.8												
1.90		43.3								3.6	29.5												
1.93		44.5								3.70	30.3												
1.96		46.1								3.71	31.3												
2.00		47.2								3.73	31.8												
2.03		47.7								3.74	32.6												
2.06		48.8								3.75	33.3												
2.10		50.2								3.77	34.4												
2.13		51.7								3.78	35.0												
2.16		53.1								3.79	35.4												
2.20		54.8								3.80	35.8												
2.23		56.0								3.82	36.4												
2.26		57.6								3.83	37.0												
2.29		59.1								3.84	37.7												
2.33		60.5								3.86	39.1												
2.36		62.5								3.87	41.0												
2.39		64.7								3.88	42.4												
2.43		67.0								3.895	43.7												
2.46		69.1								3.900	45.0												
2.49		70.9								Augered	46.3												
2.53		72.2								20.3 cm	47.8												
2.56		73.9								1.6	49.7												
2.59		75.4								3.6	52.0												
2.62		76.8								5.7	54.2												
2.66		78.3								7.6	56.0												
2.70		80.0								9.5	57.8												

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CONE PENETROMETER DATA CODE SHEET						PROJECT NUMBER			TIP			ROUTE					
						53009			I-5766			I-40					
						COUNTY			GEOLOGIST			TECHNICIANS					
						FORSYTH			T. S. SCHLEMM			J. R. TURNAGE / T. E. COGAR					
TEST LOCATIONS DESCRIPTION						DATE RUN			TEST LOCATION DESCRIPTION			DATE RUN					
-L1- 410+99 WB LANE 1						7/17 - 8/7/16			-L2- 95+71 WB OSS			7/17 - 8/7/16					
DATUM		CUT / FILL		NORTHING		EASTING		DATUM		CUT / FILL		NORTHING		EASTING			
SS		GRADE		845,140		1,634,019		ABC		FILL		844,034		1,636,065			
CUMULATIVE PENETRATION IN CENTIMETERS									CUMULATIVE PENETRATION IN CENTIMETERS								
0.1			2.4						1.5								
0.16			2.9						4.9								
0.24			4.7						7.8								
0.32			5.4						11.2								
0.40			6.0						14.1								
0.44			6.9						17.4								
0.48			7.5						20.7								
0.52			8.5						23.6								
0.56			10.1						26.8								
0.60			11.6						29.4								
0.61			13.3						32.1								
0.62			14.7						35.1								
0.63			17.2						38.4								
0.64			20.6						42.6								
0.65			23.3						46.9								
0.66			25.3						50.8								
0.67			27.3						54.5								
0.68			28.6						58.5								
0.69			30.0						62.8								
0.70			32.1						67.3								
0.71			33.3						70.2								
0.72			35.0						73.1								
0.73			36.4						75.7								
0.74			38.1						78.4								
0.75			39.6						80.8								
0.76			41.6						84.5								
0.77			42.9						87.2								
0.78			44.3						89.4								
0.79			45.9						91.7								
0.80			47.4						94.0								
0.81			48.9						96.8								
0.82			50.0						99.3								
0.83			51.4						101.7								
0.84			52.8						104.8								
0.85			54.3						106.3								
0.86			55.4						108.5								
0.87			56.8						110.4								
0.88			57.9														
0.89			58.8														
0.90			60.4														
0.91			60.9														
0.92			61.9														
0.93			62.4														
0.94			63.2														
0.95			63.5														
0.96			64.4														
0.97			65.5														
0.98			67.3														
0.99			68.7														
1.00			69.6														
Augered			69.8														
24.8 cm			69.9														
1.10			70.2														

SG = Subgrade
SS = Stabilized Soil
CTBC = Cement-Treated Base Course
ABC = Aggregate Base Course
ESG = Estimated Subgrade (Augered to approximately 1 foot below existng ground surface prior to beginning DCP)



CONE PENETROMETER DATA CODE SHEET								PROJECT NUMBER				TIP				ROUTE			
								53009				I-5766				I-40			
								COUNTY				GEOLOGIST				TECHNICIANS			
								FORSYTH				T. S. SCHLEMM				J. R. TURNAGE / T. E. COGAR			
TEST LOCATIONS DESCRIPTION								DATE RUN				TEST LOCATION DESCRIPTION				DATE RUN			
-L2- 95+71 WB AUX LANE								7/17 - 8/7/16				-L2- 97+31 WB LANE 3				7/29 - 7/30/16			
DATUM		CUT / FILL		NORTHING		EASTING		DATUM		CUT / FILL		NORTHING		EASTING					
ABC		FILL		844,022		1,636,061		ABC		CUT		843,969		1,636,210					
CUMULATIVE PENETRATION IN CENTIMETERS								CUMULATIVE PENETRATION IN CENTIMETERS											
0.4		74.2							0.5		24.3		71.6		83.5				
0.9		76.0							0.7		25.0		71.8		83.6				
1.1		78.1							0.9		26.7		72.1		83.8				
1.8		80.7							1.1		27.9		72.3		83.9				
2.3		82.9							1.4		29.6		72.6		84.0				
2.5		85.4							1.7		31.4		72.9		84.1				
3.0		88.0							1.9		32.8		73.2		84.2				
3.6		90.5							2.2		34.1		73.5		84.3				
3.9		93.0							2.5		35.5		73.8		84.5				
4.6		95.0							2.9		37.2		74.3		84.6				
4.8		97.5							3.2		39.3		74.8		84.7				
5.5		99.8							3.6		41.1		75.3		84.8				
6.5		102.1							3.9		43.1		75.8		84.9				
6.9		104.7							4.3		45.3		76.3		85.0				
7.5		107.2							4.5		47.0		77.1						
8.4		109.7							4.7		48.5		77.7						
9.0		112.1							4.9		50.1		78.1						
9.5									5.1		51.4		78.8						
10.3									5.3		53.4		79.2						
11.2									5.7		54.9		79.3						
12.1									6.0		56.6		79.4						
13.6									6.4		58.2		79.6						
15.5									6.7		59.2		79.8						
17.8									7.1		61.7		80.0						
18.9									7.6		62.3		80.2						
20.7									8.1		63.7		80.4						
22.7									8.2		63.8		80.6						
24.9									9.1		64.3		80.7						
26.8									9.6		64.7		80.9						
29.1									9.9		65.0		81.0						
31.2									10.5		65.2		81.2						
33.1									11.5		65.4		81.3						
35.5									11.7		65.5		81.36						
37.8									12.3		65.9		81.44						
40.0									12.9		66.1		81.5						
41.3									13.2		66.6		81.6						
43.0									13.7		66.8		81.7						
44.7									14.4		67.1		81.8						
46.5									14.9		67.4		81.9						
48.0									15.4		67.8		82.0						
49.6									15.9		68.1		82.1						
51.2									16.3		68.4		82.2						
53.0									16.9		68.6		82.3						
54.6									17.2		68.9		82.5						
56.5									17.7		69.1		82.6						
58.3									18.4		69.4		82.7						
60.6									18.8		69.6		82.8						
62.5									19.6		69.9		82.9						
63.4									20.5		70.2		82.96						
65.7									21.1		70.5		83.04						
67.6									21.7		70.8		83.1						
69.3									22.4		71.1		83.2						
71.3									23.2		71.4		83.3						

CONE PENETROMETER DATA CODE SHEET						PROJECT NUMBER			TIP			ROUTE					
						53009			I-5766			I-40					
						COUNTY			GEOLOGIST			TECHNICIANS					
						FORSYTH			T. S. SCHLEMM			J. R. TURNAGE / T. E. COGAR					
TEST LOCATIONS DESCRIPTION						DATE RUN			TEST LOCATION DESCRIPTION						DATE RUN		
-L2- 117+38 WB LANE 3						7/29 - 7/30/16			-L2- 117+38 WB LANE 2						7/29 - 7/30/16		
DATUM		CUT / FILL		NORTHING		EASTING			DATUM		CUT / FILL		NORTHING		EASTING		
ABC		GRADE		843,572		1,638,177			ABC		GRADE		843,559		1,638,174		
CUMULATIVE PENETRATION IN CENTIMETERS									CUMULATIVE PENETRATION IN CENTIMETERS								
3.4		43.6							0.6		42.3						
5.3		44.2							1.0		44.8						
7.4		44.4							1.7		47.0						
9.9		45.0							1.9		49.3						
12.2		45.7							2.0		51.3						
14.0		46.4							2.3		53.2						
15.4		47.1							2.8		55.1						
16.2		47.9							3.2		57.4						
17.2		48.8							3.5		60.1						
18.3		49.7							3.6		62.3						
18.9		50.4							4.1		64.6						
19.2		51.2							4.3		66.7						
20.4		52.2							4.7		68.6						
21.0		52.9							4.9		70.4						
21.7		53.7							5.3		72.0						
22.4		54.8							5.7		73.4						
23.2		55.8							5.9		75.1						
24.0		56.6							6.4		77.0						
24.9		57.7							6.7		78.6						
26.0		58.7							7.4		80.4						
27.2		59.8							7.8		82.4						
28.2		61.0							8.0		84.1						
29.1		62.4							8.6		85.9						
30.2		63.7							8.8		87.5						
31.2		65.2							9.3		89.4						
31.8		66.8							10.0		91.0						
32.5		68.6							10.4		92.9						
33.0		70.4							11.3		94.4						
33.9		72.3							12.0		96.1						
34.3		74.6							12.6		97.7						
34.9		76.7							13.3		99.2						
35.6		79.0							14.0		100.8						
36.0		81.0							14.9		102.5						
36.4		83.2							15.6		104.2						
37.0		84.9							16.4		105.9						
37.2		86.6							17.1		108.0						
37.5		88.4							18.0		110.1						
38.0		90.2							18.5								
38.5		91.8							19.3								
38.8		93.4							20.3								
39.1		95.0							20.8								
39.5		96.6							22.1								
39.8		98.2							23.4								
40.3		99.9							24.7								
40.5		101.4							26.4								
40.7		102.6							28.4								
41.2		103.9							30.3								
41.4		105.1							32.4								
41.8		106.4							34.3								
42.1		107.5							36.3								
42.5		108.7							37.8								
42.8									39.4								
43.1									40.6								

SG = Subgrade
SS = Stabilized Soil
CTBC = Cement-Treated Base Course
ABC = Aggregate Base Course
ESG = Estimated Subgrade (Augered to approximately 1 foot below existng ground surface prior to beginning DCP)



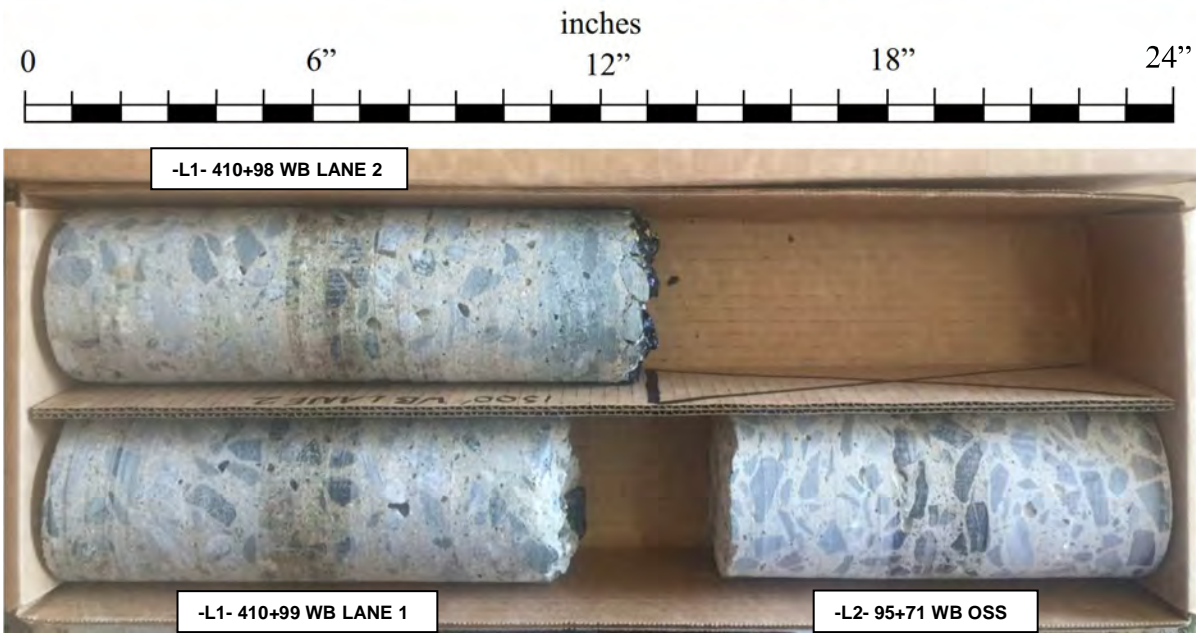
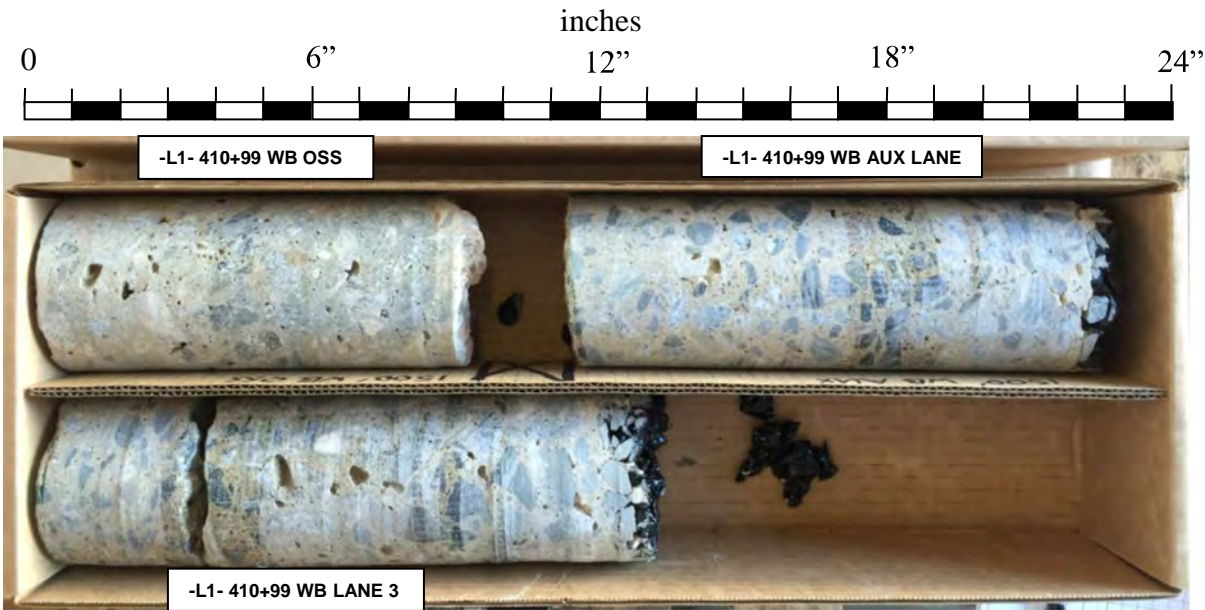
CONE PENETROMETER DATA CODE SHEET								PROJECT NUMBER				TIP				ROUTE			
								53009				I-5766				I-40			
								COUNTY				GEOLOGIST				TECHNICIANS			
								FORSYTH				T. S. SCHLEMM				J. R. TURNAGE / T. E. COGAR			
TEST LOCATIONS DESCRIPTION								DATE RUN				TEST LOCATION DESCRIPTION				DATE RUN			
-L2- 117+38 WB LANE 1								7/29 - 7/30/16				-L2- 123+41 WB LANE 2				7/29 - 7/30/16			
DATUM		CUT / FILL		NORTHING		EASTING		DATUM		CUT / FILL		NORTHING		EASTING					
SS		GRADE		843,547		1,638,171		ABC		GRADE		843,369		1,638,750					
CUMULATIVE PENETRATION IN CENTIMETERS								CUMULATIVE PENETRATION IN CENTIMETERS											
0.2		3.0							0.6		56.1								
0.5		4.7							1.1		57.4								
0.7		5.8							1.8		58.3								
1.0		7.0							2.1		59.5								
1.2		7.7							2.5		60.7								
1.26		8.7							3.3		61.8								
1.32		9.5							3.8		63.0								
1.38		10.3							4.2		64.0								
1.44		11.2							4.9		65.5								
1.50		12.0							5.3		66.6								
1.64		13.0							6.1		67.8								
1.78		14.1							7.0		68.9								
1.92		15.9							7.5		70.1								
2.06		17.2							8.3		71.1								
2.20		19.0							9.0		72.1								
2.28		20.7							9.8		73.1								
2.36		22.3							10.2		74.0								
2.44		24.2							10.7		75.2								
2.5		26.2							11.3		76.3								
2.6		28.1							11.8		77.4								
2.7		30.4							12.6		78.6								
2.8		32.4							13.0		79.8								
3.0		34.8							13.3		81.2								
3.1		36.7							14.1		82.0								
3.2		38.9							14.7		83.4								
3.3		40.9							15.5		84.2								
3.4		43.4							17.0		85.3								
3.5		45.3							18.4		86.6								
3.6		47.6							19.8		87.6								
3.7		49.8							21.0		88.8								
3.8		52.1							22.7		90.0								
4.0		54.6							24.5		91.1								
4.1		56.9							26.1		92.2								
4.3		58.9							27.8		93.3								
4.4		61.0							29.4		94.6								
4.5		63.2							31.3		95.7								
4.6		65.3							32.3		96.9								
4.6		67.4							34.0		98.0								
4.7		70.0							35.6		99.0								
4.8		72.2							36.6		100.1								
4.9		74.3							38.1		100.9								
5.0		76.7							39.8		101.8								
5.1		79.2							41.0		102.8								
5.2		81.4							42.5		103.6								
5.3		83.5							43.9		104.4								
5.4		85.5							45.1		105.2								
5.5		87.4							46.4		106.0								
5.5		88.9							47.7		106.8								
5.6		90.0							49.0		107.7								
5.7									50.6		108.8								
Augered									52.1		110.0								
17.2 cm									53.5										
1.7									54.9										

SG = Subgrade
SS = Stabilized Soil
CTBC = Cement-Treated Base Course
ABC = Aggregate Base Course
ESG = Estimated Subgrade (Augered to approximately 1 foot below existng ground surface prior to beginning DCP)



Pavement Core Photo

Project No.: 53009	I.D. No.: I-5766	County: Forsyth	Date: 08/2016
Site Description: I-40 from 0.85 miles East of NC 150 to 0.02 miles East of NC 109			
Driller: J. R. Turnage	Core Size: 4 – inch	Drill Machine: Hilti DD 200, Diedrich D-50	
Geologist / Engineer: T. S. Schlemm			

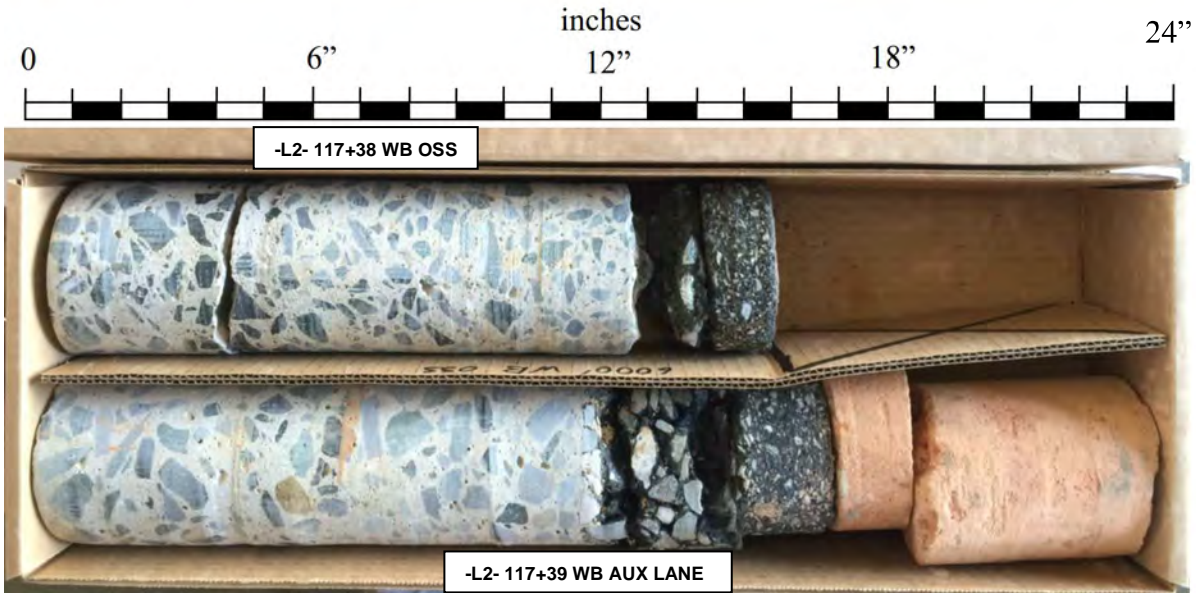
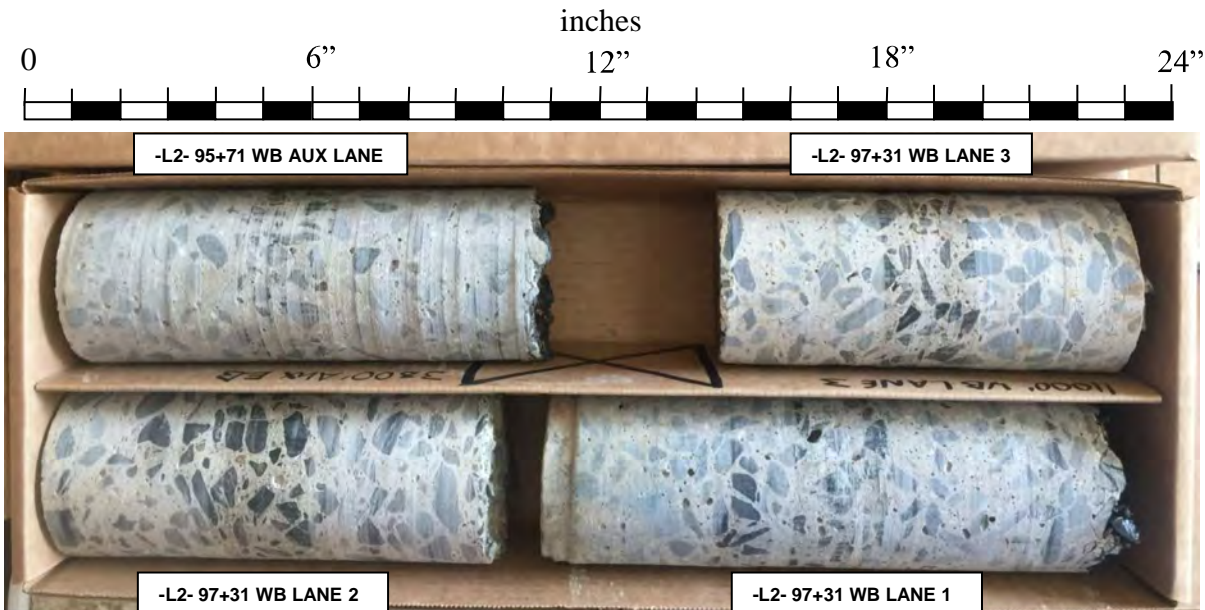


Notes:
OSL - Outside Lane
OSS - Outside Shoulder
ACCEL - Acceleration Lane
LTL - Left Turn Lane
RT LN - Right Lane
EB - Eastbound
(I) - Inside
ISL - Inside Lane
ISS - Inside Shoulder
DECEL - Deceleration Lane
RTL - Right Turn Lane
LT LN - Left Lane
WB – Westbound
(O) - Outside
CL - Center Lane
PS - Paved Shoulder
COL - Collector Lane
AUX – Auxiliary Lane

Terracon
Terracon Consultants, Inc.
2401 Brentwood Road, Suite 107
Raleigh, North Carolina 27604
www.terracon.com

Pavement Core Photo

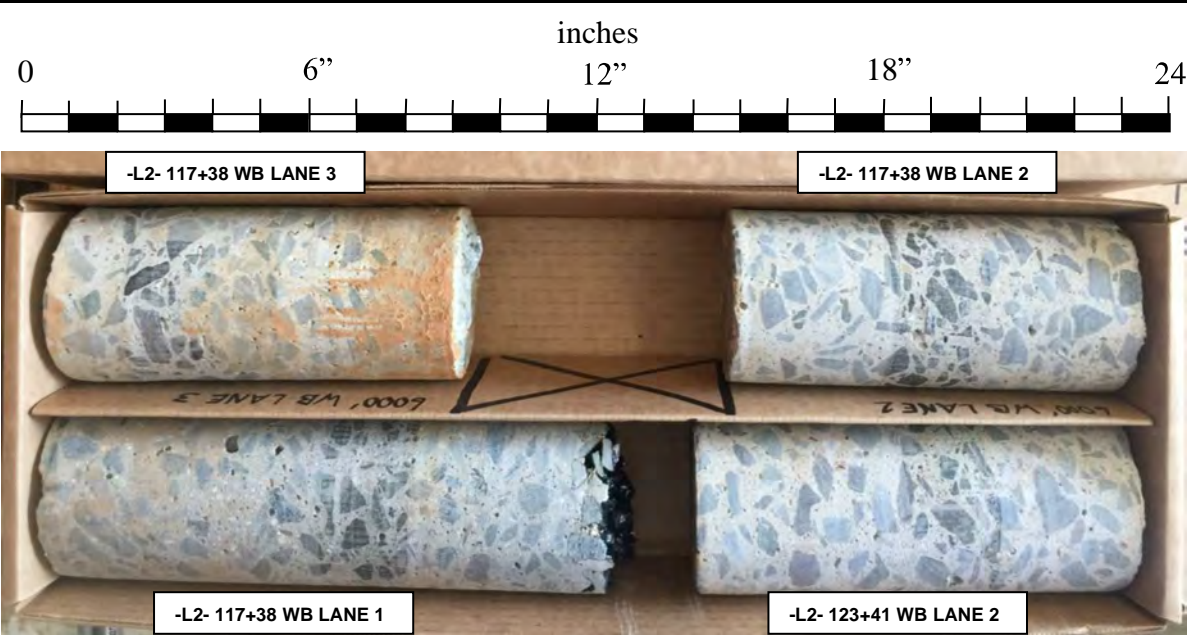
<i>Project No.:</i> 53009	<i>I.D. No.:</i> I-5766	<i>County:</i> Forsyth	<i>Date:</i> 08/2016
<i>Site Description:</i> I-40 from 0.85 miles East of NC 150 to 0.02 miles East of NC 109			
<i>Driller:</i> J. R. Turnage	<i>Core Size:</i> 4 – inch	<i>Drill Machine:</i> Hilti DD 200, Diedrich D-50	
<i>Geologist / Engineer:</i> T. S. Schlemm			



Notes:
OSL - Outside Lane
OSS - Outside Shoulder
ACCEL - Acceleration Lane
LTL - Left Turn Lane
RT LN - Right Lane
WB – Westbound
(I) - Inside
ISL - Inside Lane
ISS - Inside Shoulder
DECEL - Deceleration Lane
RTL - Right Turn Lane
LT LN - Left Lane
WB – Westbound
(O) - Outside
CL - Center Lane
PS - Paved Shoulder
COL - Collector Lane
AUX – Auxiliary Lane

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<i>Project No.:</i> 53009	<i>I.D. No.:</i> I-5766	<i>County:</i> Forsyth	<i>Date:</i> 08/2016
<i>Site Description:</i> I-40 from 0.85 miles East of NC 150 to 0.02 miles East of NC 109			
<i>Driller:</i> J. R. Turnage	<i>Core Size:</i> 4 – inch	<i>Drill Machine:</i> Hilti DD 200, Diedrich D-50	
<i>Geologist / Engineer:</i> T. S. Schlemm			



Notes:

- OSL - Outside Lane

OSS - Outside Shoulder

ACCEL - Acceleration Lane

LTL - Left Turn Lane

RT LN - Right Lane

EB - Eastbound

(I) - Inside
- ISL - Inside Lane

ISS - Inside Shoulder

DECEL - Deceleration Lane

RTL - Right Turn Lane

LT LN - Left Lane

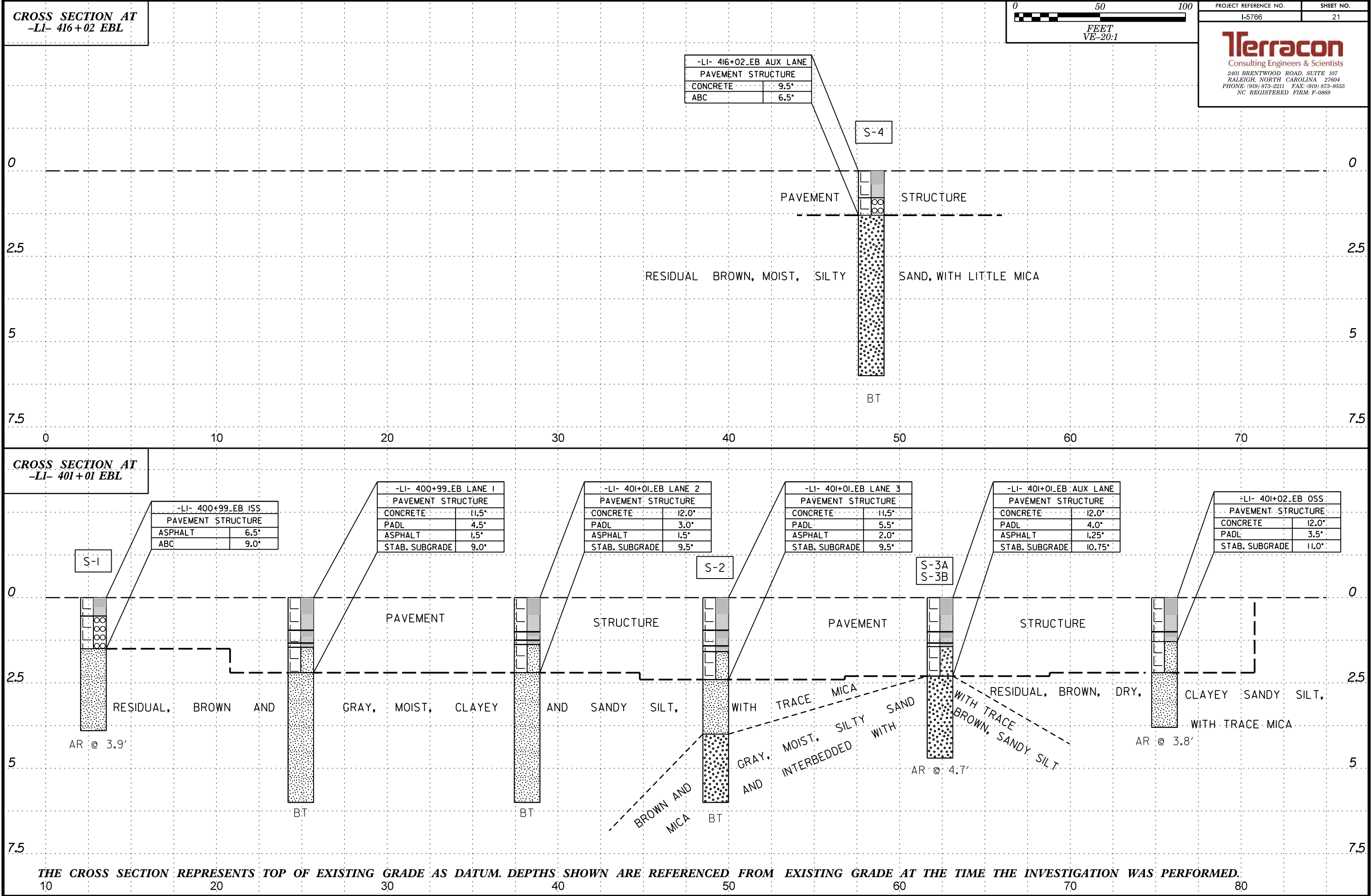
WB – Westbound

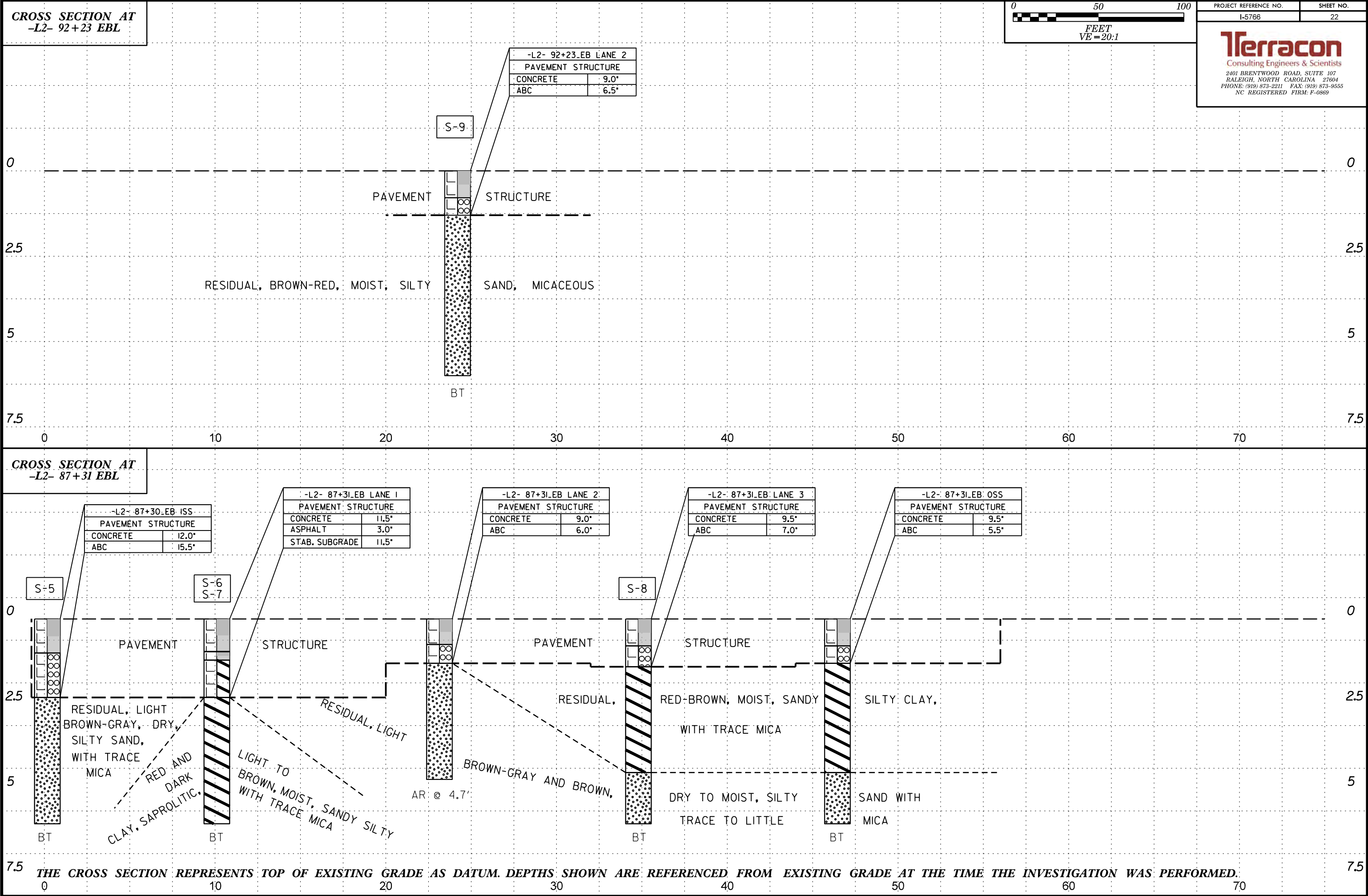
(O) - Outside
- CL - Center Lane

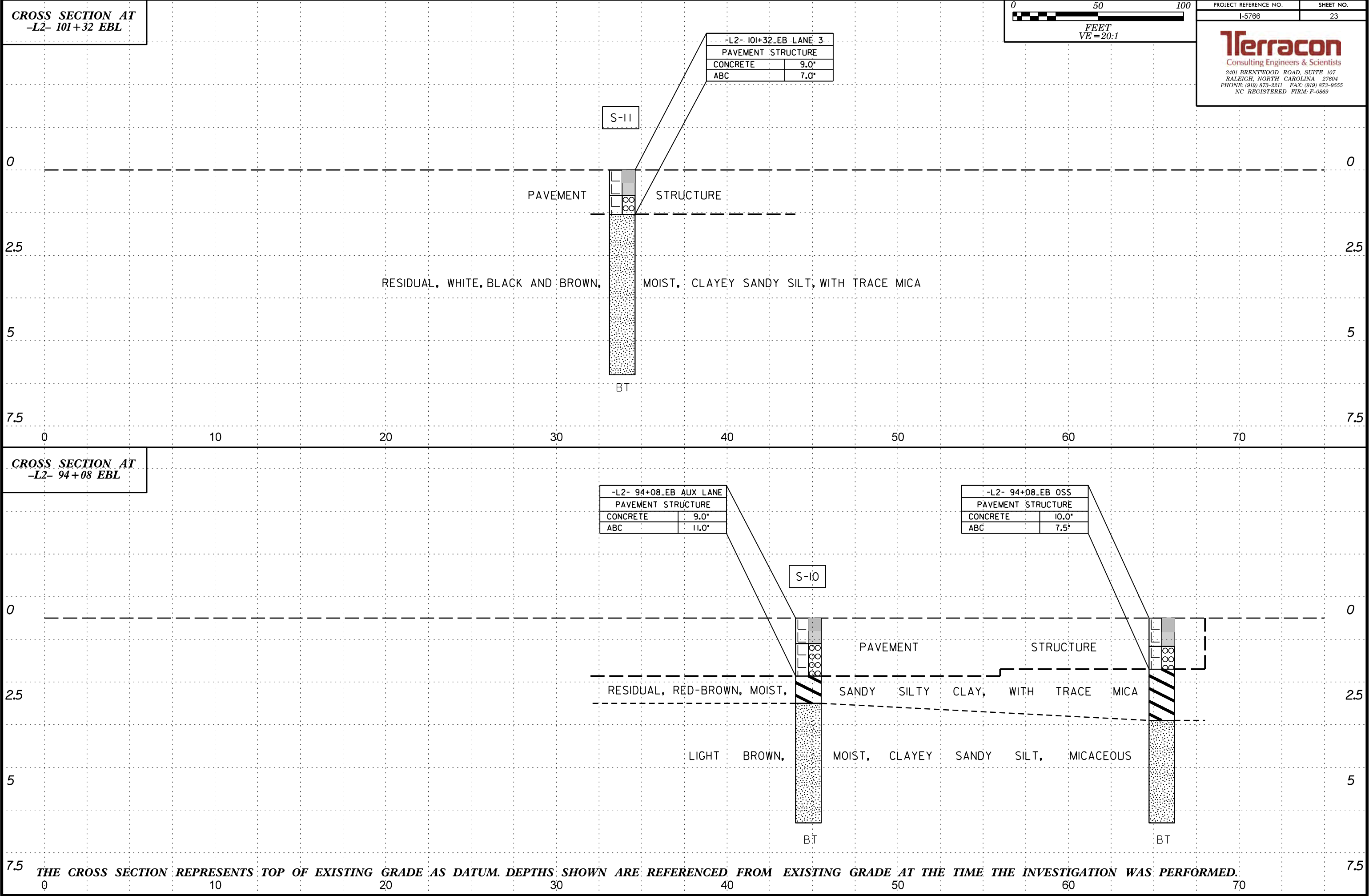
PS - Paved Shoulder

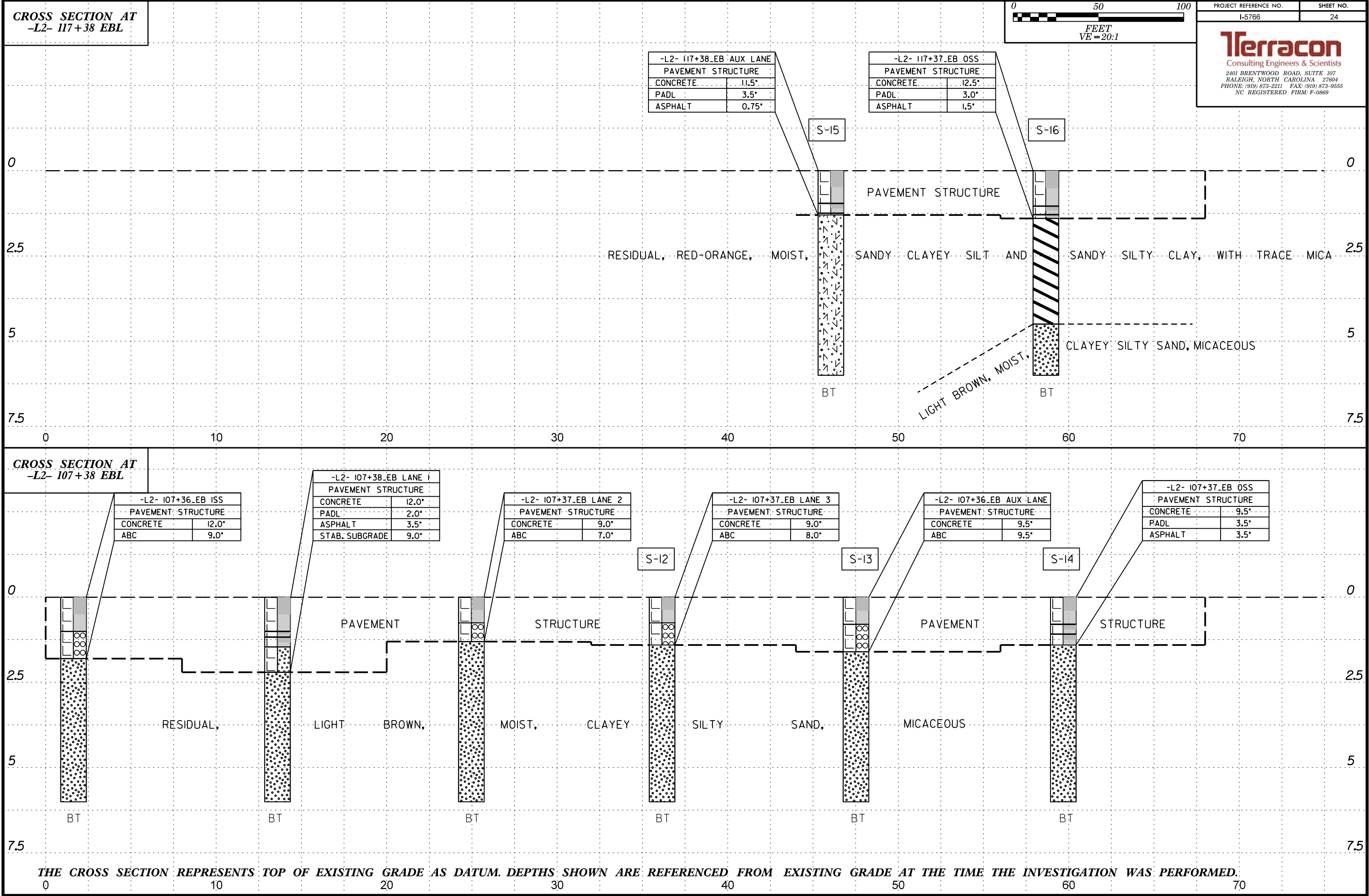
COL - Collector Lane

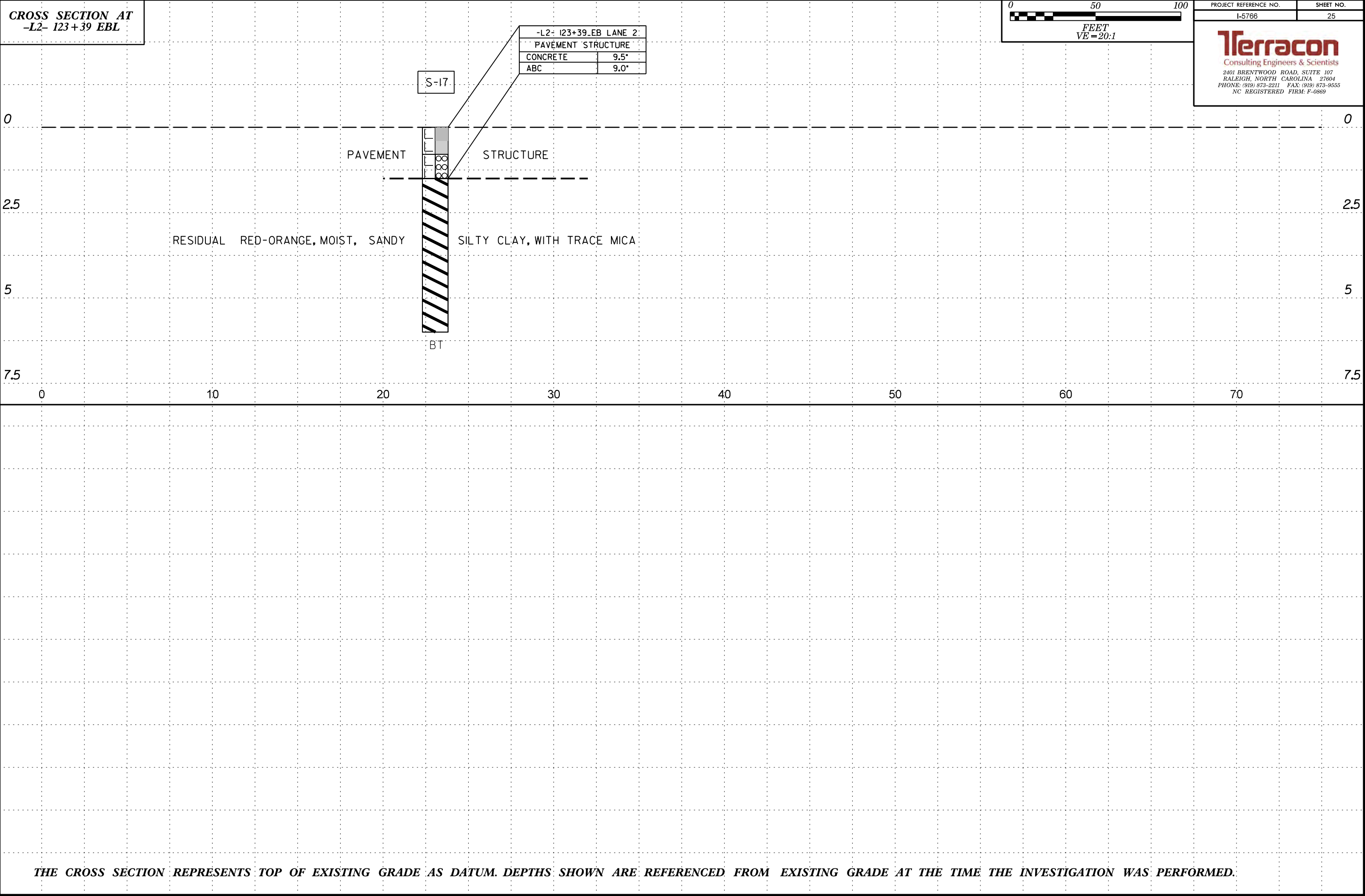
AUX – Auxiliary Lane











PAVEMENT INVESTIGATION DATA SHEET

Project:		53009		County:		FORSYTH		Date:		07/07/2016 - 08/07/2016										
TIP:		I-5766		Route:		EBL I-40 from 0.85 miles East of NC 150 to 0.02 miles East of NC 109						Notes By:		T. S. Schlemm						
		Width				Pavement Structure, Thickness						Subgrade							GPS Coordinates	
Test Location	Cut/Fill (Est. of Amount)	Lane(s)	Shoulder(s)	Offset Distance (See Notes)	Crown "C" or Super "S"	Pavement Layering	Concrete	PADL	Asphalt	ABC	Stabilized Subgrade	Total to Subgrade	Description	Sample Number	AASHTO Classification	Soil Moisture	Probe Depth	Pavement Notes	Northing	Easting
-L1- 400+99 EB ISS	CUT 30'	EB LANE 1 12.0'	EB ISS 10.0'	FY 4.5'	S LT	ASPHALT ABC	-	-	6.5"	9.0"	-	15.5"	1.5' - 3.9' RESIDUAL: BROWN, CLAYEY SANDY SILT, WITH TRACE MICA	S-1	A-4	M	AR 3.9'	-DIAMOND GROOVING -POLISHED AGGREGATE -POP OUTS	845,260	1,633,036
		EB LANE 2 12.0'	EB OSS 4.0'										AUGER REFUSAL AT 3.9'							
-L1- 400+99 EB LANE 1		EB LANE 3 12.0'		FY 6.0'		CONCRETE PADL ASPHALT STABILIZED SG	11.5"	4.5"	1.5"	-	9.0"	26.5"	2.2' - 6.0' RESIDUAL: BROWN, CLAYEY SANDY SILT, WITH TRACE MICA	REF S-1	A-4	M	6.0'		845,248	1,633,038
		EB AUX LANE 16.0'																		
-L1- 401+01 EB LANE 2				FY 16.0'		CONCRETE PADL ASPHALT STABILIZED SG	12.0"	3.0"	1.5"	-	9.5"	26.0"	2.2' - 6.0' RESIDUAL: BROWN, CLAYEY SANDY SILT, WITH TRACE MICA	REF S-1	A-4	M	6.0'		845,235	1,633,041
-L1- 401+01 EB LANE 3				FW 19.0'		CONCRETE PADL ASPHALT STABILIZED SG	11.5"	5.5"	2.0"	-	9.5"	28.5"	2.4' - 4.0' RESIDUAL: BROWN, CLAYEY SANDY SILT, WITH TRACE MICA	REF S-1	A-4	M	6.0'		845,224	1,633,042
													4.0' - 6.0' GRAY, CLAYEY SILTY SAND, WITH TRACE MICA AND INTERBEDDED BROWN, SANDY SILT	S-2	A-2-4	M				
-L1- 401+01 EB AUX LANE				FW 7.0'		CONCRETE PADL ASPHALT STABILIZED SG	12.0"	4.0"	1.25"	-	10.75"	28.0"	2.3' - 3.2' RESIDUAL: BROWN, CLAYEY SILTY SAND, WITH TRACE MICA	S-3A	A-2-4	M	AR 4.7'		845,211	1,633,044
													3.2' - 4.7' GRAY, CLAYEY SILTY SAND, WITH TRACE MICA AND INTERBEDDED BROWN, SANDY SILT AUGER REFUSAL AT 4.7'	S-3B	A-2-4	M				
-L1- 401+02 EB OSS	CUT 5'			FW 1.5'		CONCRETE PADL STABILIZED SG	12.0"	3.5"	-	-	11.0"	26.5"	2.2' - 3.8' RESIDUAL: BROWN, CLAYEY SANDY SILT, WITH TRACE MICA	REF S-1	A-4	D	AR 3.8'	-DIAMOND GROOVING -POLISHED AGGREGATE -POP OUTS -MODERATE SEVERITY SPALLING ON CENTER AND TRANSVERSE JOINTS IN EB LANE 1, 2 AND 3 -LOW SEVERITY SPALLING ON JOINTS IN EB AUX LANE	845,198	1,633,046
												AUGER REFUSAL AT 3.8'								
-L1- 416+02 EB AUX LANE		EB LANE 1 NM	EB ISS NM	FW 5.0'	C	CONCRETE ABC	9.5"	-	-	6.5"	-	16.0"	1.3' - 6.0' RESIDUAL: BROWN, SILTY SAND, WITH LITTLE MICA	S-4	A-2-5	M	6.0'		844,836	1,634,423
		EB LANE 2 NM	EB OSS 5.0'																	
	EB LANE 3 12.0'																			
	EB AUX LANE 11.5'																			

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PAVEMENT INVESTIGATION DATA SHEET

Project:		53009		County:		FORSYTH		Date:		07/29/2016 - 07/30/2016										
TIP:		I-5766		Route:		EBL I-40 from 0.85 miles East of NC 150 to 0.02 miles East of NC 109						Notes By:		T. S. Schlemm						
		Width				Pavement Structure, Thickness						Subgrade							GPS Coordinates	
Test Location	Cut/Fill (Est. of Amount)	Lane(s)	Shoulder(s)	Offset Distance (See Notes)	Crown "C" or Super "S"	Pavement Layering	Concrete	PADL	Asphalt	ABC	Stabilized Subgrade	Total to Subgrade	Description	Sample Number	AASHTO Classification	Soil Moisture	Probe Depth	Pavement Notes	Northing	Easting
-L2- 87+30 EB ISS	CUT 5.0'	EB LANE 1 11.5'	EB ISS 9.0'	FY 2.0'	C	CONCRETE ABC	12.0"	-	-	15.5"	-	27.5"	2.3' - 6.0' RESIDUAL: LIGHT BROWN-GRAY, SILTY SAND, WITH TRACE MICA	S-5	A-2-4	D	6.0'	-SCALING 10.0 SQ. FT. IN EB LANE 1 -POLISHED AGGREGATE -POP OUTS IN EB LANE 1 -DIAMOND GROOVING IN EB LANE 1 -LOW SEVERITY TRANSVERSE CRACK IN EB ISS -LOW SEVERITY SPALLING ON CONSTRUCTION JOINTS	844,333	1,635,289
		EB LANE 2 12.0'	EB OSS 10.0'																	
-L2- 87+31 EB LANE 1		EB LANE 3 12.0'		FY 6.0'		CONCRETE ASPHALT STABILIZED SG	11.5"	-	3.0"	-	11.5"	26.0"	2.2' - 3.3' RESIDUAL: RED, SANDY SILTY CLAY, WITH TRACE MICA	S-6	A-7-5	M	6.0'		844,324	1,635,284
													3.3' - 6.0' LIGHT TO DARK BROWN, SANDY SILTY CLAY, SAPROLITIC WITH TRACE MICA	S-7	A-7-6	M				
-L2- 87+31 EB LANE 2				FY 17.0'		CONCRETE ABC	9.0"	-	-	6.0"	-	15.0"	1.3' - 4.7' RESIDUAL: LIGHT BROWN-GRAY, SILTY SAND, WITH TRACE MICA	REF S-5	A-2-4	D	AR 4.7'		844,313	1,635,277
													AUGER REFUSAL AT 4.7'							
-L2- 87+31 EB LANE 3				FW 2.5'		CONCRETE ABC	9.5"	-	-	7.0"	-	16.5"	1.4' - 4.5' RESIDUAL: RED-BROWN, SANDY SILTY CLAY, WITH TRACE MICA	S-8	A-7-5	M	6.0'		844,303	1,635,271
													4.5' - 6.0' BROWN, SILTY SAND, SAPROLITIC WITH LITTLE MICA	REF S-4	A-2-5	M				
-L2- 87+31 EB OSS				FW 5.5'		CONCRETE ABC	9.5"	-	-	5.5"	-	15.0"	1.3' - 4.5' RESIDUAL: RED-BROWN, SANDY SILTY CLAY, WITH TRACE MICA	REF S-8	A-7-5	M	6.0'		844,293	1,635,265
													4.5' - 6.0' BROWN, SILTY SAND, WITH LITTLE MICA	REF S-4	A-2-5	M				
-L2- 92+23 EB LANE 2	GRADE	EB LANE 1 12.0'	EB ISS 9.0'	FY 13.0'	S LT	CONCRETE ABC	9.0"	-	-	6.5"	-	15.5"	1.3' - 6.0' RESIDUAL: BROWN-RED, SILTY SAND, MICACEOUS	S-9	A-2-5	M	6.0'	-DISTRESSED ASPHALT PATCH AT TEST LOCATION -DIAMOND GROOVING IN EB LANE 1 -POLISHED AGGREGATE AND POP OUTS IN EB LANE 2 AND 3 -HIGH SEVERITY CORNER BREAKS WITH SPALLING IN EB LANE 2 AND 3 -ASPHALT PATCHES 1.0' - 1.5' WIDTH, 10.0' LENGTH ALONG TRANSVERSE JOINTS IN EB LANE 2 -MODERATE SEVERITY TRANSVERSE CRACKING WITH SPALLING IN EB LANE 2	844,073	1,635,710
		EB LANE 2 12.0'	EB OSS NM																	
		EB LANE 3 NM GORE NM RAMP NM																		
-L2- 94+08 EB AUX LANE	GRADE	EB LANE 1 NM	EB ISS NM	FW 6.0'	C	CONCRETE ABC	9.0"	-	-	11.0"	-	20.0"	1.7' - 2.5' RESIDUAL: RED-BROWN, SANDY SILTY CLAY, WITH TRACE MICA	REF S-8	A-7-5	M	6.0'	-DIAMOND GROOVING IN EB LANE 1 -POLISHED AGGREGATE -POP OUTS -MODERATE SEVERITY TRANSVERSE CRACKING SPACED 30.0' WITH SPALLING IN EB AUX LANE -MAP CRACKING IN EB LANE 2, 3 AND AUX	843,983	1,635,876
		EB LANE 2 NM	EB OSS 9.0'										2.5' - 6.0' LIGHT BROWN, CLAYEY SANDY SILT, MICACEOUS	S-10	A-4	M				
-L2- 94+08 EB OSS		EB LANE 3 12.0'		FW 3.0'		CONCRETE ABC	10.0"	-	-	7.5"	-	17.5"	1.5' - 3.0' RESIDUAL: RED-BROWN, SANDY SILTY CLAY, WITH TRACE MICA	REF S-8	A-7-5	M	6.0'	-HIGH SEVERITY CORNER BREAKS 0.5 SQ. FT. IN EB LANE 2 AND 3 -LOW SEVERITY TRANSVERSE CRACK WITH SPALLING IN EB OSS	843,972	1,635,872
		EB AUX LANE 12.0'											3.0' - 6.0' LIGHT BROWN, CLAYEY SANDY SILT, MICACEOUS	REF S-10	A-4	M				

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PAVEMENT INVESTIGATION DATA SHEET

Project:		53009		County:		FORSYTH		Date:		07/29/2016 - 08/08/2016										
TIP:		I-5766		Route:		EBL I-40 from 0.85 miles East of NC 150 to 0.02 miles East of NC 109		Notes By:		T. S. Schlemm										
		Width				Pavement Structure, Thickness						Subgrade							GPS Coordinates	
Test Location	Cut/Fill (Est. of Amount)	Lane(s)	Shoulder(s)	Offset Distance (See Notes)	Crown "C" or Super "S"	Pavement Layering	Concrete	PADL	Asphalt	ABC	Stabilized Subgrade	Total to Subgrade	Description	Sample Number	AASHTO Classification	Soil Moisture	Probe Depth	Pavement Notes	Northing	Easting
-L2- 101+32 EB LANE 3	CUT 5'	EB LANE 1 NM	EB ISS 4.0'	FW 10.5'	C	CONCRETE ABC	9.0"	-	-	7.0"	-	16.0"	1.3' - 6.0' RESIDUAL: WHITE, BLACK AND BROWN, CLAYEY SANDY SILT, WITH TRACE MICA, SAPROLITIC	S-11	A-4	M	6.0'	-DIAMOND GROOVING IN EB LANE 1 -POLISHED AGGREGATE IN EB LANE 1, 2 AND 3 -POP OUTS IN EB LANE 1, 2 AND 3 -REPAIR PATCH 14.0' LENGTH WITH LOW SEVERITY SPALLING IN EB LANE 2 AND 3 -MAP CRACKING IN EB AUX LANE -EB AUX LANE FAULTED 0.5" ABOVE EB LANE 3 -HIGH SEVERITY CORNER BREAKS PATCHED WITH ASPHALT AND CONCRETE IN EB LANE 2 AND 3	843,815	1,636,586
		EB LANE 2 NM	EB OSS 9.0'																	
		EB LANE 3 12.0' EB AUX LANE 9.0'																		
-L2- 107+36 EB ISS	CUT 5'	EB LANE 1 12.0'	EB ISS 9.0'	FY 3.0'	C	CONCRETE ABC	12.0"	-	-	9.0"	-	21.0"	1.8' - 6.0' RESIDUAL: LIGHT BROWN, CLAYEY SILTY SAND, MICACEOUS	REF S-9	A-2-5	M	6.0'	-DIAMOND GROOVING IN EB LANE 1 -POLISHED AGGREGATE -POP OUTS -ASPHALT AND CONCRETE REPAIR PATCHING 6.0 SQ. FT. IN EB LANE 2 AND 3 -MAP CRACKING IN EB LANE 2 AND 3	843,729	1,637,185
		EB LANE 2 12.0'	EB OSS 10.0'																	
-L2- 107+38 EB LANE 1		EB LANE 3 12.0'		FY 6.0'		CONCRETE PADL ASPHALT STABILIZED SG	12.0'	2.0"	3.5"	-	9.0"	26.5"	2.2' - 6.0' RESIDUAL: LIGHT BROWN, CLAYEY SILTY SAND, MICACEOUS	REF S-9	A-2-5	M	6.0'	-MODERATE SEVERITY SPALLING ON CONSTRUCTION JOINTS -MODERATE SEVERITY LONGITUDINAL CRACK WITH SPALLING IN EB LANE 3 -GEOTEXTILE BETWEEN PADL AND ASPHALT IN EB OSS	843,717	1,637,184
		EB AUX LANE 12.0'																		
-L2- 107+37 EB LANE 2				FY 14.5'		CONCRETE ABC	9.0"	-	-	7.0"	-	16.0"	1.3' - 6.0' RESIDUAL: LIGHT BROWN, CLAYEY SILTY SAND, MICACEOUS	REF S-9	A-2-5	M	6.0'		843,706	1,637,181
-L2- 107+37 EB LANE 3				FW 14.5'		CONCRETE ABC	9.0"	-	-	8.0"	-	17.0"	1.4' - 6.0' RESIDUAL: LIGHT BROWN, SILTY SAND, MICACEOUS	S-12	A-2-4	M	6.0'		843,695	1,637,179
-L2- 107+36 EB AUX LANE				FW 4.0'		CONCRETE ABC	9.5"	-	-	9.5"	-	19.0"	1.6' - 6.0' RESIDUAL: LIGHT BROWN, CLAYEY SILTY SAND, MICACEOUS	S-13	A-2-4	M	6.0'		843,684	1,637,176
-L2- 107+37 EB OSS				FW 5.0'		CONCRETE PADL ASPHALT	9.5"	3.5"	3.5"	-	-	16.5"	1.4' - 6.0' RESIDUAL: LIGHT BROWN, SILTY SAND, MICACEOUS	S-14	A-2-4	M	6.0'		843,672	1,637,174

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PAVEMENT INVESTIGATION DATA SHEET

Project:		53009		County:		FORSYTH		Date:		07/29/2016 - 08/08/2016											
TIP:		I-5766		Route:		EBL I-40 from 0.85 miles East of NC 150 to 0.02 miles East of NC 109		Notes By:		T. S. Schlemm											
		Width				Pavement Structure, Thickness						Subgrade							GPS Coordinates		
Test Location	Cut/Fill (Est. of Amount)	Lane(s)	Shoulder(s)	Offset Distance (See Notes)	Crown "C" or Super "S"	Pavement Layering	Concrete	PADL	Asphalt	ABC	Stabilized Subgrade	Total to Subgrade	Description	Sample Number	AASHTO Classification	Soil Moisture	Probe Depth	Pavement Notes	Northing	Easting	
-L2- 117+38 EB AUX LANE	GRADE	EB LANE 1 NM	EB ISS NM	FW 4.0'	S RT	CONCRETE PADL ASPHALT	11.5"	3.5"	0.75"	-	-	15.75"	1.3' - 6.0' RESIDUAL: RED-ORANGE, SANDY CLAYEY SILT, WITH TRACE MICA	S-15	A-5	M	6.0'	-DIAMOND GROOVING IN EB LANE 1 AND AUX LANE -HIGH SEVERITY LONGITUDINAL CRACK WITH FLEXIBLE SEAL IN EB LANE 3	843,487	1,638,156	
		EB LANE 2 NM	EB OSS 10.0'																-POLISHED AGGREGATE IN EB LANE 2 AND 3 -POP OUTS IN EB LANE 2 AND 3 -MAP CRACKING IN EB AUX LANE		
-L2- 117+37 EB OSS		EB LANE 3 12.0'		FW 6.0'		CONCRETE PADL ASPHALT	12.5"	3.0"	1.5"	-	-	17.0"	1.4' - 4.5' RESIDUAL: RED-ORANGE, SANDY SILTY CLAY, WITH TRACE MICA	S-16	A-7-5	M	6.0'	-LOW SEVERITY SPALLING ON CONSTRUCTION JOINTS -GEOTEXTILE BETWEEN PADL AND ASPHALT IN EB OSS AND AUX LANE		843,475	1,638,152
		EB AUX LANE 12.0'											4.5' - 6.0' LIGHT BROWN, CLAYEY SILTY SAND, MICACEOUS	REF S-14	A-2-4	M					
-L2- 123+39 EB LANE 2	GRADE	EB LANE 1 12.0'	EB ISS 3.5'	FY 15.0'	C	CONCRETE ABC	9.5"	-	-	9.0"	-	18.5"	1.5' - 6.0' RESIDUAL: RED-ORANGE, SANDY SILTY CLAY, WITH TRACE MICA	S-17	A-7-5	M	6.0'	-DIAMOND GROOVING IN EB LANE 1 -POLISHED AGGREGATE IN EB LANE 2 AND 3 -POP OUTS IN EB LANE 2 AND 3 -MAP CRACKING IN EB LANE 1 -MODERATE SEVERITY TRANSVERSE CRACKING WITH SPALLING IN EB LANE 2 AND 3 -FAULTING 0.5" ON TRANSVERSE CRACKS IN EB LANE 2 AND 3 -HIGH SEVERITY CORNER BREAKS -PUNCH OUT 0.5 SQ. FT. ON CENTERLINE JOINT IN EB LANE 1 AND 3 -HIGH SEVERITY TRANSVERSE CRACKS WITH SPALLING AND +0.5" FAULTING IN EB LANE 2 AND 3	843,323	1,638,728	
		EB LANE 2 12.0'	EB OSS NM																		
		EB LANE 3 NM																			
		GORE NM																			
		RAMP NM																			

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CONE PENETROMETER DATA CODE SHEET								PROJECT NUMBER				TIP				ROUTE			
								53009				I-5766				I-40			
								COUNTY				GEOLOGIST				TECHNICIANS			
								FORSYTH				T. S. SCHLEMM				J. R. TURNAGE / T. E. COGAR			
TEST LOCATIONS DESCRIPTION								DATE RUN				TEST LOCATION DESCRIPTION				DATE RUN			
-L1- 400+99 EB ISS								7/17 - 8/7/2016				-L1- 400+99 EB LANE 1				7/17 - 8/7/2016			
DATUM		CUT / FILL		NORTHING		EASTING		DATUM		CUT / FILL		NORTHING		EASTING					
ABC		CUT		845,260		1,633,036		SS		CUT		845,248		1,633,038					
CUMULATIVE PENETRATION IN CENTIMETERS								CUMULATIVE PENETRATION IN CENTIMETERS											
1.7		66.0							2.1	69.1		80.99							
2.7		68.5							3.9	69.5		81.02							
3.3		71.1							6.0	69.8		81.05							
3.9		74.0							8.2	70.1		81.08							
4.5		76.6							11.0	70.4		81.11							
5.1		82.1							13.8	70.8		81.14							
5.7		84.3							16.8	71.2		81.17							
6.5		86.8							20.3	71.9		81.20							
7.0		88.0							24.0	72.3		81.22							
7.6		88.6							27.6	72.7		81.24							
8.0		89.1							31.6	73.2		81.26							
8.5		89.7							36.8	73.6		81.28							
8.9		90.3							41.3	74.0		81.30							
9.4		91.0							45.2	74.5		81.32							
10.0		91.8							49.6	74.7		81.34							
10.6		92.7							51.9	75.0		81.36							
10.8		93.9							52.6	75.3		81.38							
11.1		94.8							53.0	75.6		81.40							
11.3		95.8							53.6	76.0									
11.9		96.8							54.1	76.3									
12.4		97.7							54.6	76.6									
13.1		98.7							55.0	77.0									
13.3		99.00							55.7	77.3									
14.1		99.02							56.0	77.7									
14.9		99.04							56.6	78.0									
15.6		99.06							57.3	78.4									
16.6		99.08							57.9	78.8									
17.8		99.10							58.3	79.2									
19.2		99.12							58.8	79.5									
21.3		99.14							59.4	79.9									
23.7		99.16							59.7	80.30									
26.4		99.18							60.0	80.33									
28.8		99.20							60.4	80.36									
31.2		99.22							60.9	80.39									
32.1		99.24							61.4	80.42									
32.9		99.26							61.9	80.45									
34.6		99.28							62.2	80.48									
37.1		99.30							62.7	80.51									
39.3									63.2	80.54									
41.5									63.7	80.57									
43.4									64.2	80.60									
45.4									64.5	80.63									
47.1									65.0	80.66									
48.9									65.3	80.69									
50.6									65.8	80.72									
52.6									66.0	80.75									
54.1									66.4	80.78									
54.9									66.9	80.81									
55.8									67.4	80.84									
57.4									67.8	80.87									
59.3									68.2	80.90									
61.5									68.4	80.93									
63.7									68.7	80.96									

SG = Subgrade
SS = Stabilized Soil
CTBC = Cement-Treated Base Course
ABC = Aggregate Base Course
ESG = Estimated Subgrade (Augered to approximately 1 foot below exisitng ground surface prior to beginning DCP)

Terracon

Terracon Consultants, Inc.

2401 Brentwood Road, Suite 107

Raleigh, North Carolina 27604

CONE PENETROMETER DATA CODE SHEET						PROJECT NUMBER				TIP				ROUTE			
						53009				I-5766				I-40			
						COUNTY				GEOLOGIST				TECHNICIANS			
						FORSYTH				T. S. SCHLEMM				J. R. TURNAGE / T. E. COGAR			
TEST LOCATIONS DESCRIPTION						DATE RUN				TEST LOCATION DESCRIPTION				DATE RUN			
-L1- 401+01 EB LANE 2						7/17 - 8/7/2016				-L1- 401+01 EB LANE 3				7/17 - 8/7/2016			
DATUM		CUT / FILL		NORTHING		EASTING		DATUM		CUT / FILL		NORTHING		EASTING			
SS		CUT		845,235		1,633,041		SS		CUT		845,224		1,633,042			
CUMULATIVE PENETRATION IN CENTIMETERS								CUMULATIVE PENETRATION IN CENTIMETERS									
0.3		10.9		68.2				0.1		2.80		53.9					
0.6		12.5		68.4				0.2		Augered		54.1					
0.8		13.8		68.6				0.3		18.2 cm		54.2					
1.0		14.7		68.8				0.4		1.8		54.4					
1.1		17.4		68.9				0.5		3.0		54.6					
1.16		19.3		69.1				0.6		4.3		54.8					
1.24		21.2		69.3				0.66		5.8		54.9					
1.32		23.3		69.5				0.74		7.7		55.1					
1.40		25.5		69.8				0.82		9.8		55.3					
1.46		27.7		70.0				0.98		11.8		55.4					
1.52		30.1		70.3				1.06		13.5		55.60					
1.58		32.4		70.5				1.14		15.9		55.64					
1.64		34.4		70.8				1.22		18.4		55.68					
1.70		36.9		71.1				1.30		21.2		55.72					
1.72		39.9		71.3				1.50		23.7		55.76					
1.74		42.8		71.6				1.60		26.3		55.80					
1.76		45.9		71.9				1.70		29.2		55.84					
1.78		49.6		72.1				1.80		32.0		55.88					
1.80		52.7		72.3				1.90		35.2		55.92					
1.84		55.0		72.6				2.00		38.6		55.96					
1.88		57.0		72.8				2.05		42.7		56.00					
1.92		57.9		73.0				2.07		45.8							
1.96		58.9		73.2				2.09		48.3							
2.00		59.5		73.4				2.12		48.6							
2.30		60.2		73.6				2.14		48.8							
2.34		60.7		73.8				2.16		49.0							
2.37		61.3		74.0				2.18		49.2							
2.41		61.7		74.1				2.21		49.4							
2.44		62.1		74.2				2.23		49.7							
2.48		62.5		74.3				2.25		49.9							
2.51		62.8		74.4				2.28		50.1							
2.55		63.2		74.5				2.30		50.3							
2.58		63.4		74.6				2.32		50.5							
2.62		63.8		74.66				2.35		50.7							
2.65		64.4		74.74				2.37		50.9							
2.69		64.6		74.8				2.39		51.1							
2.72		64.9		74.9				2.41		51.4							
2.76		65.1						2.44		51.6							
2.79		65.4						2.46		51.8							
2.83		65.6						2.48		52.0							
2.86		65.8						2.51		52.2							
2.90		66.1						2.53		52.5							
2.93		66.3						2.55		52.7							
2.97		66.6						2.58		52.9							
3.00		66.8						2.60		53.0							
Augered		67.0						2.62		53.1							
11.7 cm		67.1						2.64		53.2							
1.7		67.3						2.67		53.3							
3.6		67.4						2.69		53.4							
5.0		67.6						2.71		53.5							
6.6		67.8						2.74		53.6							
8.1		67.9						2.76		53.7							
9.5		68.1						2.78		53.8							

SG = Subgrade
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ESG = Estimated Subgrade (Augered to approximately 1 foot below exisitng ground surface prior to beginning DCP)

Terracon

Terracon Consultants, Inc.

2401 Brentwood Road, Suite 107

Raleigh, North Carolina 27604

CONE PENETROMETER DATA CODE SHEET						PROJECT NUMBER				TIP				ROUTE					
						53009				I-5766				I-40					
						COUNTY				GEOLOGIST				TECHNICIANS					
						FORSYTH				T. S. SCHLEMM				J. R. TURNAGE / T. E. COGAR					
TEST LOCATIONS DESCRIPTION						DATE RUN				TEST LOCATION DESCRIPTION				DATE RUN					
-L1- 401+01 EB AUX LANE						7/17 - 8/7/2016				-L1- 401+02 EB OSS				7/17 - 8/7/2016					
DATUM		CUT / FILL		NORTHING		EASTING		DATUM		CUT / FILL		NORTHING		EASTING					
SS		CUT		845,211		1,633,044		SS		CUT		845,198		1,633,046					
CUMULATIVE PENETRATION IN CENTIMETERS										CUMULATIVE PENETRATION IN CENTIMETERS									
0.9		6.3		58.90					0.7		6.68		42.5		55.6		61.678		
1.3		8.9		58.92					1.1		6.72		42.9		56.0		61.680		
1.5		11.5		58.94					1.3		6.76		43.2		56.4		61.682		
1.80		13.5		58.96					1.5		6.80		43.6		57.0		61.684		
1.84		15.5		58.98					1.6		Augered		43.8		57.4		61.686		
1.88		17.7		59.00					1.8		9.7 cm		44.0		57.8		61.688		
1.92		20.0		59.02					2.0		0.1		44.3		58.4		61.690		
1.96		22.2		59.04					2.2		0.3		44.5		58.9		61.692		
2.00		24.3		59.06					2.5		0.4		44.7		59.3		61.694		
2.03		27.2		59.08					2.7		0.6		45.1		59.8		61.696		
2.06		29.9		59.10					3.0		0.7		45.4		60.2		61.698		
2.09		32.7		59.13					3.2		1.0		45.6		60.6		61.700		
2.12		35.8		59.16					3.3		1.4		45.8		61.0				
2.15		38.8		59.19					3.4		1.7		46.0		61.4				
2.18		40.8		59.22					3.6		2.1		46.2		61.600				
2.21		44.6		59.25					3.7		2.4		46.5		61.602				
2.24		46.4		59.28					3.8		3.0		46.7		61.604				
2.27		47.8		59.31					3.9		3.7		46.9		61.606				
2.30		48.8		59.34					4.0		4.3		47.0		61.608				
2.33		49.9		59.37					4.1		5.5		47.1		61.610				
2.36		50.6		59.40					4.2		6.7		47.2		61.612				
2.39		51.3		59.41					4.3		8.8		47.3		61.614				
2.42		52.2		59.42					4.36		11.4		47.4		61.616				
2.45		53.1		59.43					4.42		15.3		47.7		61.618				
2.48		53.9		59.44					4.48		19.6		48.0		61.620				
2.51		54.6		59.45					4.54		23.0		48.2		61.622				
2.54		55.3		59.46					4.60		25.5		48.5		61.624				
2.57		55.8		59.47					4.66		28.3		48.8		61.626				
2.60		56.2		59.48					4.72		31.4		49.2		61.628				
2.62		56.6		59.49					4.78		33.2		49.6		61.630				
2.63		56.9		59.50					4.84		34.2		50.0		61.631				
2.65		57.1							4.9		34.9		50.4		61.634				
2.66		57.2							5.0		35.5		50.8		61.636				
2.68		57.3							5.1		35.9		51.1		61.638				
2.69		57.4							5.2		36.2		51.4		61.640				
2.71		57.5							5.3		36.5		51.7		61.642				
2.72		57.6							5.4		37.0		52.0		61.644				
2.74		57.7							5.5		37.2		52.3		61.646				
2.75		57.8							5.7		37.5		52.36		61.648				
2.77		57.9							5.8		37.8		52.42		61.650				
2.78		58.0							6.0		38.1		52.48		61.652				
2.80		58.2							6.10		38.7		52.54		61.654				
2.81		58.2							6.12		39.0		52.6		61.656				
2.83		58.3							6.14		39.2		52.8		61.658				
2.84		58.36							6.16		39.6		52.9		61.660				
2.86		58.42							6.18		40.0		53.1		61.662				
2.87		58.5							6.20		40.2		53.2		61.664				
2.89		58.5							6.28		40.5		53.4		61.666				
2.90		58.6							6.36		40.8		53.8		61.668				
Augered		58.66							6.44		41.2		54.1		61.670				
17.5 cm		58.72							6.52		41.5		54.5		61.672				
1.5		58.78							6.60		41.8		54.8		61.674				
3.7		58.84							6.64		42.2		55.2		61.676				

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CONE PENETROMETER DATA CODE SHEET								PROJECT NUMBER				TIP				ROUTE			
								53009				I-5766				I-40			
								COUNTY				GEOLOGIST				TECHNICIANS			
								FORSYTH				T. S. SCHLEMM				J. R. TURNAGE / T. E. COGAR			
TEST LOCATIONS DESCRIPTION								DATE RUN				TEST LOCATION DESCRIPTION				DATE RUN			
-L1- 416+02 EB AUX LANE								7/17 - 8/7/2016				-L2- 87+30 EB ISS				7/29 - 7/30/2016			
DATUM		CUT / FILL		NORTHING		EASTING		DATUM		CUT / FILL		NORTHING		EASTING					
ABC		CUT		844,836		1,634,423		ABC		CUT		844,333		1,635,289					
CUMULATIVE PENETRATION IN CENTIMETERS								CUMULATIVE PENETRATION IN CENTIMETERS											
0.7		75.3							0.6		43.5		64.9		74.4				
1.4		79.0							0.9		44.2		65.1		74.5				
2.0		83.3							1.3		44.8		65.2		74.56				
2.7		87.6							2.0		45.4		65.4		74.60				
3.0		90.0							2.8		45.9		65.6		74.62				
3.3		91.7							3.3		46.4		65.8		74.68				
3.6		93.9							3.7		46.9		66.0		74.74				
4.0		97.2							4.0		47.3		66.1		74.8				
4.2		101.9							4.6		47.9		66.3						
4.4		104.3							4.8		48.7		66.5						
4.8		106.6							5.5		49.8		66.7						
5.3		108.5							6.0		51.1		67.0						
5.6		110.5							6.5		52.0		67.2						
5.9									7.1		52.8		67.5						
6.3									7.5		53.3		67.7						
6.6									8.0		53.9		67.9						
7.0									8.7		54.4		68.1						
7.4									9.0		55.0		68.4						
7.9									9.6		55.4		68.6						
8.3									10.3		55.8		68.8						
8.8									10.6		56.2		69.1						
9.4									11.1		56.5		69.4						
10.2									11.4		56.8		69.6						
10.7									11.9		57.1		69.9						
11.5									12.4		57.5		70.2						
12.2									13.0		57.8		70.4						
12.8									13.9		58.1		70.7						
13.6									14.6		58.4		70.9						
14.1									15.0		58.8		71.2						
14.6									15.8		59.1		71.4						
15.7									16.7		59.4		71.6						
17.2									17.7		59.8		71.9						
18.9									18.6		60.2		72.1						
20.6									19.1		60.4		72.4						
22.4									19.8		60.8		72.6						
24.2									20.4		61.1		72.8						
26.8									21.1		61.4		72.9						
30.2									21.8		61.5		73.1						
32.1									22.5		61.8		73.2						
33.4									23.4		62.0		73.4						
34.6									24.0		62.2		73.46						
36.2									25.1		62.4		73.52						
38.0									25.9		62.6		73.58						
40.7									27.4		62.8		73.64						
43.9									28.7		63.0		73.7						
47.1									31.0		63.2		73.76						
51.0									33.8		63.4		73.82						
54.3									36.0		63.8		73.88						
58.1									38.4		64.0		73.94						
62.1									39.4		64.2		74.0						
65.1									40.4		64.3		74.1						
67.8									41.5		64.5		74.2						
71.0									42.5		64.7		74.3						

CONE PENETROMETER DATA CODE SHEET								PROJECT NUMBER				TIP				ROUTE			
								53009				I-5766				I-40			
								COUNTY				GEOLOGIST				TECHNICIANS			
								FORSYTH				T. S. SCHLEMM				J. R. TURNAGE / T. E. COGAR			
TEST LOCATIONS DESCRIPTION								DATE RUN				TEST LOCATION DESCRIPTION				DATE RUN			
-L2- 87+31 EB LANE 1								7/29 - 7/30/2016				-L2- 87+31 EB LANE 2				7/29 - 7/30/2016			
DATUM		CUT / FILL		NORTHING		EASTING		DATUM		CUT / FILL		NORTHING		EASTING					
SS		CUT		844,324		1,635,284		ABC		CUT		844,313		1,635,277					
CUMULATIVE PENETRATION IN CENTIMETERS								CUMULATIVE PENETRATION IN CENTIMETERS											
0.8		1.3								1.1		48.0		77.4		100.1			
1.1		1.6								1.6		48.2		78.2		100.2			
1.4		2.0								2.2		48.3		78.9		100.3			
1.7		2.4								3.0		48.5		80.0		100.5			
1.8		2.5								3.8		48.9		81.1		100.6			
2.0		2.6								4.6		49.3		82.0		100.7			
2.2		2.7								5.1		49.6		83.3		100.8			
2.7		2.9								6.1		50.0		84.2		100.9			
2.90		3.2								6.9		50.4		85.4		101.0			
2.92		3.500								8.3		50.9		86.3		101.1			
2.94		3.505								10.0		51.4		87.4		101.3			
2.95		3.510								12.7		51.8		88.4		101.4			
2.97		3.515								16.4		52.3		89.6		101.5			
2.99		3.520								20.5		52.8		90.7		101.7			
3.01		3.525								24.8		53.3		91.9		101.8			
3.02		3.530								28.6		54.0		92.9		101.9			
3.04		3.535								31.0		54.7		93.7		102.0			
3.06		3.540								31.8		55.4		94.2		102.2			
3.08		3.545								32.9		56.2		94.8		102.3			
3.09		3.550								33.4		56.8		95.2					
3.11		3.555								34.4		57.6		95.6					
3.13		3.560								34.8		58.2		96.4					
3.15		3.565								35.8		59.1		96.7					
3.16		3.570								37.0		59.7		96.9					
3.18		3.575								37.7		60.3		97.3					
3.20		3.580								39.0		60.8		97.5					
3.22		3.585								39.6		61.7		97.7					
3.23		3.590								40.4		62.2		97.8					
3.25		3.595								41.5		62.6		97.9					
3.27		3.600								42.2		63.1		98.0					
3.29										42.8		63.2		98.1					
3.30										43.0		64.0		98.2					
3.32										43.4		64.5		98.3					
3.34										43.6		65.0		98.36					
3.36										43.7		65.4		98.44					
3.37										43.9		66.2		98.5					
3.39										44.2		66.6		98.6					
3.41										44.4		66.9		98.7					
3.43										44.6		67.8		98.76					
3.44										45.0		68.4		98.84					
3.46										45.2		69.3		98.9					
3.48										45.4		70.0		99.0					
3.50										45.7		70.3		99.1					
3.51										46.1		71.0		99.2					
3.53										46.3		71.8		99.3					
3.55										46.5		72.4		99.4					
3.57										46.7		72.9		99.5					
3.58										46.8		73.3		99.5					
3.60										47.0		74.1		99.6					
Augered 16.3 cm										47.2		74.7		99.7					
										47.5		75.3		99.8					
0.7										47.7		76.1		99.9					
1.1										47.9		76.7		100.0					

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CONE PENETROMETER DATA CODE SHEET								PROJECT NUMBER				TIP				ROUTE			
								53009				I-5766				I-40			
								COUNTY				GEOLOGIST				TECHNICIANS			
								FORSYTH				T. S. SCHLEMM				J. R. TURNAGE / T. E. COGAR			
TEST LOCATIONS DESCRIPTION								DATE RUN				TEST LOCATION DESCRIPTION				DATE RUN			
-L2- 87+31 EB LANE 3								7/29 - 7/30/2016				-L2- 87+31 EB OSS				7/29 - 7/30/2016			
DATUM		CUT / FILL		NORTHING		EASTING		DATUM		CUT / FILL		NORTHING		EASTING					
ABC		CUT		844,303		1,635,271		ABC		CUT		844,293		1,635,265					
CUMULATIVE PENETRATION IN CENTIMETERS								CUMULATIVE PENETRATION IN CENTIMETERS											
1.1		64.4		91.7						1.6		88.1							
1.7		65.3		91.9						2.7		88.7							
2.0		66.1		92.4						3.2		89.4							
2.7		66.7		92.7						4.3		89.9							
3.3		67.4		93.1						5.1		90.4							
3.7		68.2		93.4						5.4		90.7							
4.3		69.0		93.8						5.9		91.4							
4.9		69.6		94.0						6.5		92.0							
5.1		70.3		94.5						7.2		92.4							
6.0		72.5		95.0						7.8		92.9							
6.7		72.9		95.3						9.3		93.7							
7.0		73.7		95.8						10.3		94.7							
7.4		74.4		96.3						13.2		96.1							
7.9		75.0		97.1						15.3		97.7							
8.4		75.7		97.2						17.7		99.5							
8.7		76.3		98.1						19.7		101.6							
9.1		76.8		98.7						21.6		103.7							
9.6		77.7		98.9						24.0									
10.2		78.3		99.3						26.4									
10.8		78.8		99.7						30.0									
11.5		79.4		100.4						32.6									
12.1		79.8		100.6						35.2									
13.0		80.2		101.3						37.2									
13.3		80.7		101.8						39.4									
14.1		80.9								41.6									
14.8		81.4								44.1									
15.0		81.8								47.0									
16.0		82.1								49.7									
16.7		82.4								52.5									
17.5		82.8								56.1									
19.0		83.0								60.0									
21.4		83.4								63.0									
24.4		83.7								64.6									
27.9		84.0								66.4									
31.6		84.4								68.0									
34.1		84.8								69.6									
36.3		85.3								70.9									
39.3		85.6								72.0									
41.6		86.0								73.1									
43.7		86.5								74.4									
46.9		86.8								75.3									
49.3		87.2								76.2									
50.6		87.6								77.5									
51.5		88.0								78.4									
52.7		88.4								79.4									
53.8		88.9								80.7									
54.9		89.3								81.9									
56.4		89.7								82.7									
57.7		90.3								83.7									
58.9		90.4								84.2									
60.0		90.7								85.6									
61.2		91.3								86.3									
63.6		91.7								87.3									

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ABC = Aggregate Base Course
ESG = Estimated Subgrade (Augered to approximately 1 foot below exisitng ground surface prior to beginning DCP)

CONE PENETROMETER DATA CODE SHEET						PROJECT NUMBER			TIP			ROUTE			
						53009			I-5766			I-40			
						COUNTY			GEOLOGIST			TECHNICIANS			
						FORSYTH			T. S. SCHLEMM			J. R. TURNAGE / T. E. COGAR			
TEST LOCATIONS DESCRIPTION						DATE RUN			TEST LOCATION DESCRIPTION			DATE RUN			
-L2- 92+23 EB LANE 2						7/29 - 7/30/2016			-L2- 94+08 EB AUX LANE			7/29 - 7/30/2016			
DATUM		CUT / FILL		NORTHING		EASTING		DATUM		CUT / FILL		NORTHING		EASTING	
ABC		GRADE		844,073		1,635,710		ABC		GRADE		843,983		1,635,876	
CUMULATIVE PENETRATION IN CENTIMETERS						CUMULATIVE PENETRATION IN CENTIMETERS									
1.3		82.7							0.3		49.8				
1.9		84.7							0.8		50.8				
2.4		86.4							1.1		52.2				
2.9		88.4							1.4		53.7				
3.4		90.2							1.7		55.4				
3.8		92.1							2.1		56.8				
4.3		93.9							2.4		58.2				
4.8		95.8							2.6		59.5				
5.4		97.6							3.0		61.2				
6.0		99.5							3.2		62.2				
6.7		101.6							3.7		63.6				
7.4		104.0							4.0		65.2				
8.4		106.7							4.4		66.8				
9.3									4.7		68.7				
10.1									5.1		70.0				
11.0									5.7		72.0				
12.2									6.2		73.9				
13.0									6.8		75.9				
14.3									7.7		77.6				
15.6									8.4		79.4				
16.7									8.8		81.1				
17.5									9.9		83.0				
18.4									11.1		85.1				
19.4									12.0		87.0				
20.7									12.8		89.0				
23.0									13.8		90.2				
25.9									15.0		91.9				
28.4									15.6		93.5				
30.3									17.0		95.1				
31.9									17.9		96.9				
33.8									19.0		98.7				
35.4									20.0		100.5				
37.4									20.9		102.4				
39.5									21.7		104.2				
41.9									22.2		106.0				
43.3									23.3		107.6				
45.9									24.5		109.3				
49.0									26.0						
52.2									27.4						
54.5									29.1						
56.7									30.5						
58.8									32.1						
61.1									33.8						
63.3									35.5						
65.3									37.3						
67.2									38.6						
69.3									40.3						
71.1									41.8						
73.2									43.5						
74.6									44.6						
76.9									45.8						
78.8									47.0						
80.7									48.3						

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CONE PENETROMETER DATA CODE SHEET								PROJECT NUMBER				TIP				ROUTE			
								53009				I-5766				I-40			
								COUNTY				GEOLOGIST				TECHNICIANS			
								FORSYTH				T. S. SCHLEMM				J. R. TURNAGE / T. E. COGAR			
TEST LOCATIONS DESCRIPTION								DATE RUN				TEST LOCATION DESCRIPTION				DATE RUN			
-L2- 94+08 EB OSS								7/29 - 7/30/2016				-L2- 101+32 EB LANE 3				7/29 - 8/8/2016			
DATUM		CUT / FILL		NORTHING		EASTING		DATUM		CUT / FILL		NORTHING		EASTING					
ABC		GRADE		843,972		1,635,872		ABC		CUT		843,815		1,636,586					
CUMULATIVE PENETRATION IN CENTIMETERS								CUMULATIVE PENETRATION IN CENTIMETERS											
1.0									4.4			23.37							
1.4									6.1			23.38							
2.1									7.5			23.40							
2.6									8.7			23.41							
3.0									9.9			23.42							
3.3									11.2			23.44							
3.7									12.6			23.45							
4.1									13.7			23.47							
4.4									14.8			23.48							
4.8									15.6			23.49							
5.1									16.5			23.51							
5.3									17.2			23.52							
5.8									17.7			23.54							
6.2									18.3			23.55							
6.5									18.6			23.56							
7.0									19.0			23.58							
7.3									19.4			23.59							
7.7									19.7			23.61							
8.0									20.2			23.62							
8.4									20.5			23.63							
8.9									20.8			23.65							
9.3									21.0			23.66							
9.7									21.3			23.68							
10.3									21.7			23.70							
10.8									21.9			Augered							
11.2									22.0			40.1 cm							
11.8									22.1			3.3							
12.3									22.2			6.9							
12.8									22.3			11.3							
13.4									22.5			13.3							
13.9									22.6			14.5							
14.4									22.7			15.4							
15.1									22.75			16.3							
15.6									22.80			17.1							
16.2									22.85			17.4							
16.5									22.90			18.0							
16.9									22.95			18.5							
17.4									23.00			19.7							
17.6									23.05			19.9							
18.1									23.10			20.8							
19.3									23.15			21.6							
19.8									23.20			22.4							
20.4									23.21			23.5							
21.6									23.23			25.0							
22.7									23.24			26.3							
24.1									23.26			27.2							
25.8									23.27			27.7							
27.3									23.28			28.6							
28.8									23.30			29.0							
30.8									23.31			29.5							
33.0									23.33			30.0							
35.1									23.34			30.3							
37.4									23.35			30.7							

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						53009				I-5766				I-40			
						COUNTY				GEOLOGIST				TECHNICIANS			
						FORSYTH				T. S. SCHLEMM				J. R. TURNAGE / T. E. COGAR			
TEST LOCATIONS DESCRIPTION						DATE RUN				TEST LOCATION DESCRIPTION				DATE RUN			
-L2- 107+36 EB ISS						7/29 - 8/8/2016				-L2- 107+38 EB LANE 1				7/29 - 8/8/2016			
DATUM		CUT / FILL		NORTHING		EASTING		DATUM		CUT / FILL		NORTHING		EASTING			
ABC		CUT		843,729		1,637,185		SG		CUT		843,717		1,637,184			
CUMULATIVE PENETRATION IN CENTIMETERS								CUMULATIVE PENETRATION IN CENTIMETERS									
0.5				27.5					0.7				2.99				
0.9				28.8					1.1				3.00				
1.3				29.8					1.2				Augered 22.6 cm				
1.8				30.7					1.3								
2.2				32.0					1.4				3.8				
2.8				33.2					1.5				6.5				
3.1				34.6					1.60				8.8				
3.6				35.8					1.63				11.0				
4.0				37.2					1.66				13.1				
4.3				38.7					1.69				14.9				
5.1				40.0					1.72				16.5				
5.3				41.9					1.75				17.7				
5.7				43.5					1.78				18.8				
6.2				45.0					1.81				19.5				
7.1				46.8					1.84				20.6				
7.3				48.8					1.87				21.4				
7.8				51.0					1.90				22.2				
8.4				52.7					1.95				23.2				
8.6				54.7					2.00				24.3				
8.9				56.8					2.05				25.6				
9.5				58.7					2.10				26.8				
10.0				60.6					2.15				28.4				
10.5				62.1					2.20				30.1				
11.0				63.6					2.25				32.4				
11.4				65.6					2.30				34.7				
11.8				67.1					2.35				37.4				
12.0				69.2					2.40				39.6				
12.5				71.6					2.45				42.0				
13.1				73.6					2.50				44.4				
13.6				75.6					2.55				47.4				
14.3				77.4					2.60				51.5				
14.8				79.1					2.65				55.2				
15.3				80.4					2.70				59.5				
16.0				82.2					2.75				62.7				
16.3				83.4					2.80				65.6				
16.8				84.6					2.81				67.9				
17.2				85.9					2.82				70.5				
17.8				87.0					2.83				72.8				
18.2				88.1					2.84				74.7				
18.6				89.0					2.85				76.8				
19.1				90.1					2.86				78.2				
19.8				91.2					2.87				79.8				
20.4				91.9					2.88				81.0				
20.9				92.8					2.89				82.2				
21.3				93.8					2.90				83.2				
21.9				94.5					2.91				84.0				
22.3				95.4					2.92								
23.0				96.2					2.93								
23.7				97.0					2.94								
24.4				97.7					2.95								
25.2				98.2					2.96								
25.9				98.8					2.97								
26.5				99.5					2.98								

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CONE PENETROMETER DATA CODE SHEET								PROJECT NUMBER				TIP				ROUTE			
								53009				I-5766				I-40			
								COUNTY				GEOLOGIST				TECHNICIANS			
								FORSYTH				T. S. SCHLEMM				J. R. TURNAGE / T. E. COGAR			
TEST LOCATIONS DESCRIPTION								DATE RUN				TEST LOCATION DESCRIPTION				DATE RUN			
-L2- 107+37 EB LANE 2								7/29 - 8/8/2016				-L2- 107+37 EB LANE 3				7/29 - 8/8/2016			
DATUM		CUT / FILL		NORTHING		EASTING		DATUM		CUT / FILL		NORTHING		EASTING					
ABC		CUT		843,706		1,637,181		ABC		CUT		843,695		1,637,179					
CUMULATIVE PENETRATION IN CENTIMETERS								CUMULATIVE PENETRATION IN CENTIMETERS											
0.7		48.7							5.3		96.7								
1.2		49.8							7.8		98.9								
1.5		51.2							9.2		101.0								
2.2		52.1							10.4		103.1								
2.7		53.7							11.5		104.9								
3.3		55.0							12.9		106.0								
3.5		56.4							14.6		107.1								
4.2		57.5							16.6		108.2								
4.6		59.1							18.7		109.3								
5.2		60.5							21.0		110.8								
5.6		62.1							22.8										
6.2		63.5							24.7										
6.4		64.8							26.8										
7.2		66.3							28.6										
7.7		67.7							30.7										
8.1		69.4							32.6										
8.7		71.2							34.8										
9.5		73.0							36.5										
10.2		74.8							38.1										
11.1		76.7							39.7										
11.9		78.6							41.2										
12.9		80.1							42.8										
13.7		81.6							44.2										
14.6		83.0							45.8										
15.7		84.6							47.0										
16.6		86.0							48.3										
17.5		87.2							49.4										
18.4		88.8							50.7										
19.2		90.0							52.0										
20.0		91.3							53.4										
20.9		92.6							54.6										
21.8		94.0							56.1										
22.8		95.5							57.4										
23.7		97.2							58.7										
24.5		98.6							60.0										
25.2		100.1							61.1										
26.0		101.4							62.2										
26.8		103.0							63.5										
27.5		104.4							64.7										
28.7		105.9							66.3										
29.7									67.7										
31.0									69.4										
32.4									71.4										
33.6									73.6										
35.4									75.6										
36.7									77.8										
38.2									80.5										
40.3									83.2										
41.1									86.0										
43.6									88.2										
45.0									90.2										
46.4									92.2										
47.5									94.5										

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CONE PENETROMETER DATA CODE SHEET								PROJECT NUMBER				TIP				ROUTE			
								53009				I-5766				I-40			
								COUNTY				GEOLOGIST				TECHNICIANS			
								FORSYTH				T. S. SCHLEMM				J. R. TURNAGE / T. E. COGAR			
TEST LOCATIONS DESCRIPTION								DATE RUN				TEST LOCATION DESCRIPTION				DATE RUN			
-L2- 107+36 EB AUX LANE								7/29 - 8/8/2016				-L2- 107+37 EB OSS				7/29 - 8/8/2016			
DATUM		CUT / FILL		NORTHING		EASTING		DATUM		CUT / FILL		NORTHING		EASTING					
ABC		CUT		843,684		1,637,176		SG		CUT		843,672		1,637,174					
CUMULATIVE PENETRATION IN CENTIMETERS								CUMULATIVE PENETRATION IN CENTIMETERS											
5.3								4.6											
7.4								7.2											
8.5								10.5											
9.8								13.5											
11.1								15.9											
12.4								18.1											
13.8								20.5											
15.2								23.3											
16.5								25.6											
18.2								28.3											
19.5								31.2											
21.4								34.3											
23.4								37.8											
26.0								41.5											
29.0								45.0											
31.6								48.5											
34.2								52.9											
37.8								55.8											
41.1								58.1											
43.8								60.1											
46.4								61.8											
49.2								64.2											
51.3								66.2											
53.7								68.1											
56.1								69.8											
58.1								71.9											
60.4								73.6											
62.5								75.8											
64.5								78.2											
66.6								80.5											
68.6								83.1											
70.4								85.6											
72.0								87.9											
73.4								90.3											
75.3								93.3											
77.1								96.3											
79.3								100.3											
81.9								104.2											
84.1																			
86.1																			
88.0																			
90.3																			
92.4																			
97.0																			
99.7																			
102.3																			
104.0																			
105.7																			
107.5																			
109.0																			
110.7																			

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CONE PENETROMETER DATA CODE SHEET						PROJECT NUMBER				TIP				ROUTE									
						53009				I-5766				I-40									
						COUNTY				GEOLOGIST				TECHNICIANS									
						FORSYTH				T. S. SCHLEMM				J. R. TURNAGE / T. E. COGAR									
TEST LOCATIONS DESCRIPTION						DATE RUN				TEST LOCATION DESCRIPTION				DATE RUN									
-L2- 117+38 EB AUX LANE						7/29 - 8/8/2016				-L2- 117+37 EB OSS				7/29 - 8/8/2016									
DATUM		CUT / FILL		NORTHING		EASTING		DATUM		CUT / FILL		NORTHING		EASTING									
SG		GRADE		843,487		1,638,156		SG		GRADE		843,475		1,638,152									
CUMULATIVE PENETRATION IN CENTIMETERS												CUMULATIVE PENETRATION IN CENTIMETERS											
2.4		59.3		100.2						2.1		80.7											
4.1		59.8		100.8						3.8		81.8											
6.3		60.7		101.4						6.0		82.8											
7.9		61.3		102.0						7.8		83.9											
9.7		62.3		102.7						10.2		85.0											
11.4		63.1		103.5						12.0		86.2											
13.9		63.7		104.3						14.0		87.4											
15.4		64.7		105.0						15.9		88.7											
17.9		65.3		105.8						17.5		90.0											
20.0		66.1		106.6						19.7		91.2											
21.8		66.8		107.4						21.3		92.1											
23.2		67.9		108.2						23.3		93.2											
24.8		68.5		109.1						24.8		94.4											
26.4		69.3		109.8						26.4		95.6											
28.1		70.2		110.7						28.1		96.8											
29.8		71.1		111.5						29.2		98.0											
31.5		71.9		112.4						30.6		99.2											
32.6		72.6								32.0		100.4											
33.9		73.2								33.3		101.6											
34.8		74.0								34.7		102.8											
35.5		74.8								36.3		104.0											
36.0		75.3								37.6		105.2											
36.4		75.6								38.8		106.3											
36.7		76.2								40.2		107.5											
37.4		77.0								41.5		108.7											
38.0		77.7								43.0													
38.5		78.4								44.4													
38.9		79.2								45.6													
39.6		79.9								47.1													
40.1		80.8								48.4													
40.9		81.6								49.9													
42.2		82.4								51.2													
43.1		83.2								52.9													
44.2		84.0								54.4													
45.1		84.8								55.8													
45.8		85.8								57.2													
46.9		86.6								58.4													
47.7		87.5								59.8													
48.6		88.5								61.5													
49.5		89.3								63.1													
50.2		90.2								64.6													
51.0		91.2								66.2													
52.0		92.2								67.4													
52.8		93.1								68.9													
53.6		94.1								70.2													
54.3		94.8								71.6													
54.7		95.5								72.7													
55.4		96.3								73.8													
55.7		97.1								75.3													
56.3		97.7								76.4													
56.6		98.3								77.5													
57.1		99.0								78.5													
58.3		99.6								79.5													

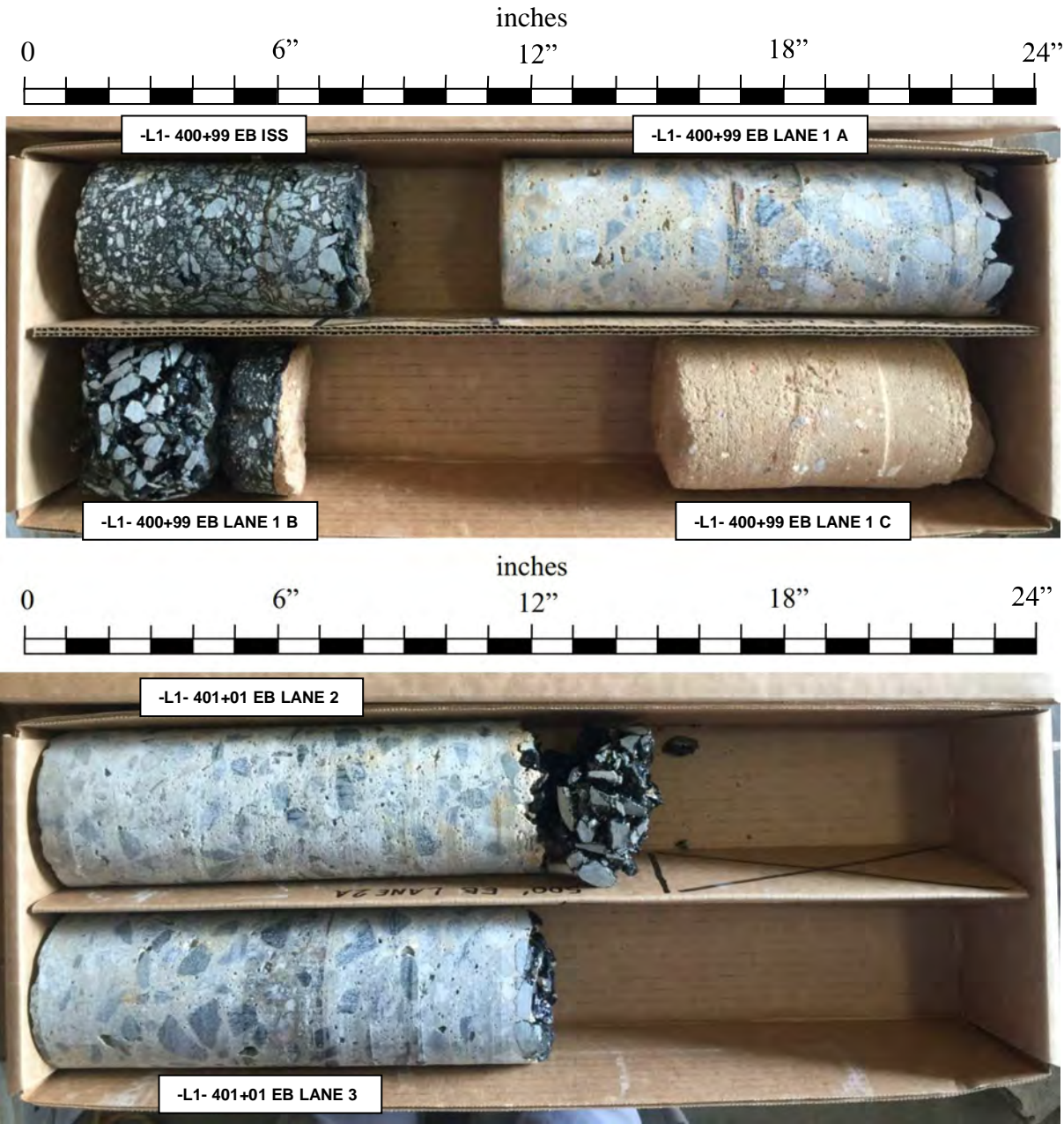
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CONE PENETROMETER DATA CODE SHEET								PROJECT NUMBER				TIP				ROUTE			
								53009				I-5766				I-40			
								COUNTY				GEOLOGIST				TECHNICIANS			
								FORSYTH				T. S. SCHLEMM				J. R. TURNAGE / T. E. COGAR			
TEST LOCATIONS DESCRIPTION								DATE RUN				TEST LOCATION DESCRIPTION				DATE RUN			
-L2- 123+39 EB LANE 2								7/29 - 8/8/2016											
DATUM		CUT / FILL		NORTHING		EASTING		DATUM		CUT / FILL		NORTHING		EASTING					
ABC		GRADE		843,323		1,638,728													
CUMULATIVE PENETRATION IN CENTIMETERS								CUMULATIVE PENETRATION IN CENTIMETERS											
0.6		56.2																	
1.1		57.4																	
1.8		58.4																	
2.2		59.6																	
2.6		60.7																	
3.4		61.9																	
3.8		63.0																	
4.3		64.1																	
4.9		65.5																	
5.4		66.6																	
6.1		67.8																	
7.0		68.9																	
7.6		70.1																	
8.3		71.2																	
9.0		72.1																	
9.8		73.2																	
10.2		74.0																	
10.8		75.2																	
11.4		76.4																	
11.8		77.4																	
12.6		78.7																	
13.0		79.8																	
13.4		81.2																	
14.1		82.0																	
14.7		83.4																	
15.5		84.3																	
17.0		85.3																	
18.4		86.6																	
19.8		87.7																	
21.3		88.8																	
22.7		90.0																	
24.5		91.2																	
26.1		92.3																	
27.8		93.5																	
29.4		94.7																	
31.3		95.8																	
32.3		96.9																	
34.1		98.0																	
35.6		99.0																	
36.6		100.1																	
38.1		101.0																	
39.8		101.8																	
41.0		102.8																	
42.5		103.7																	
43.9		104.4																	
45.1		105.2																	
46.5		106.0																	
47.7		106.9																	
49.1		107.7																	
50.7		108.8																	
52.1		110.0																	
53.5																			
55.0																			

SG = Subgrade
SS = Stabilized Soil
CTBC = Cement-Treated Base Course
ABC = Aggregate Base Course
ESG = Estimated Subgrade (Augered to approximately 1 foot below exisiting ground surface prior to beginning DCP)

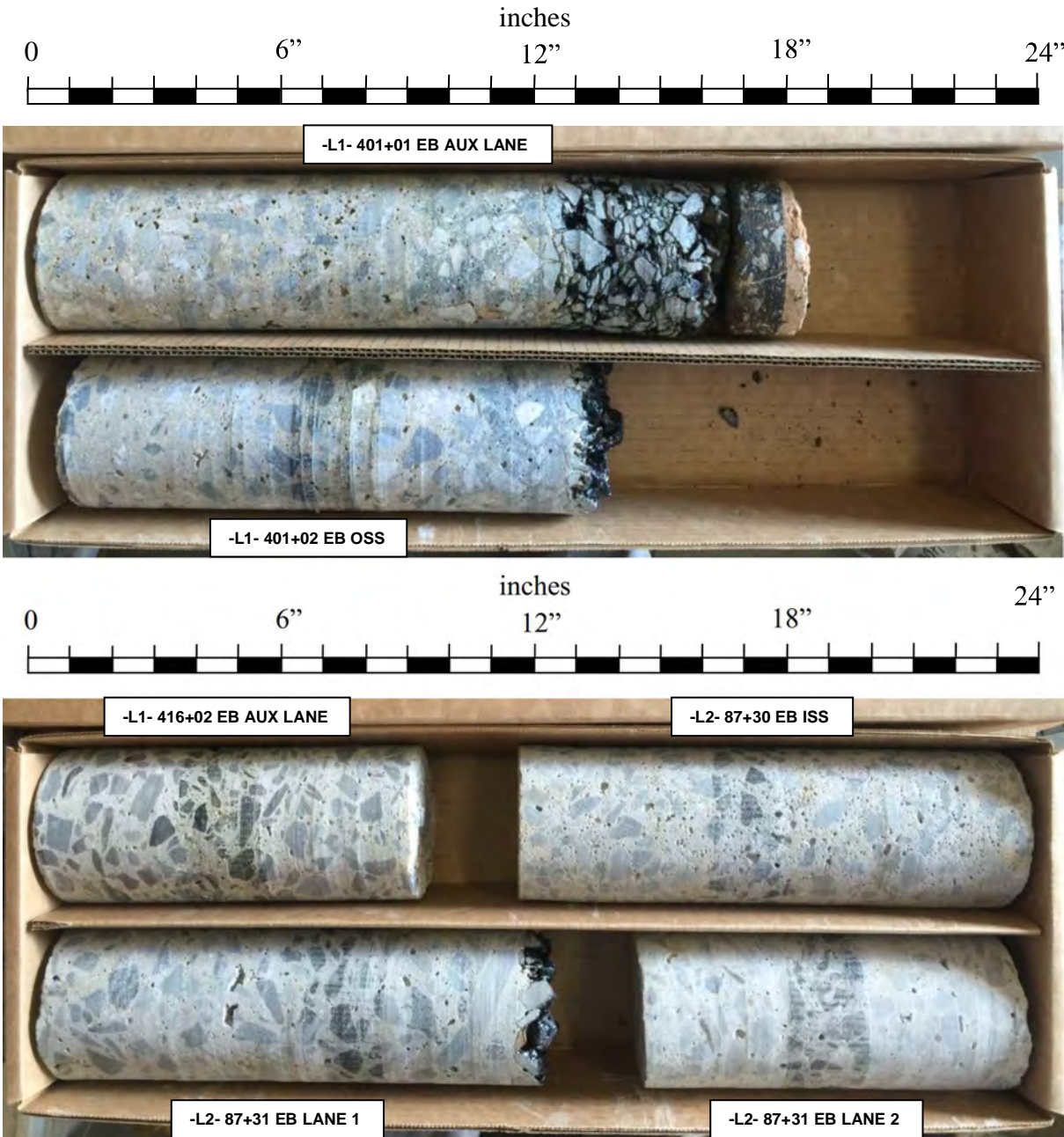
Pavement Core Photo

Project No.: 53009	I.D. No.: I-5766	County: Forsyth	Date: 08/2016
Site Description: I-40 from 0.85 miles East of NC 150 to 0.02 miles East of NC 109			
Driller: J. R. Turnage	Core Size: 4 – inch	Drill Machine: Hilti DD 200, Diedrich D-50	
Geologist / Engineer: T. S. Schlemm			



Pavement Core Photo

<i>Project No.:</i> 53009	<i>I.D. No.:</i> I-5766	<i>County:</i> Forsyth	<i>Date:</i> 08/2016
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Notes:

- OSL - Outside Lane
OSS - Outside Shoulder
ACCEL - Acceleration Lane
LTL - Left Turn Lane
RT LN - Right Lane
EB - Eastbound
(I) - Inside
- ISL - Inside Lane
ISS - Inside Shoulder
DECEL - Deceleration Lane
RTL - Right Turn Lane
LT LN - Left Lane
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(O) - Outside
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COL - Collector Lane
AUX – Auxiliary Lane

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Raleigh, North Carolina 27604
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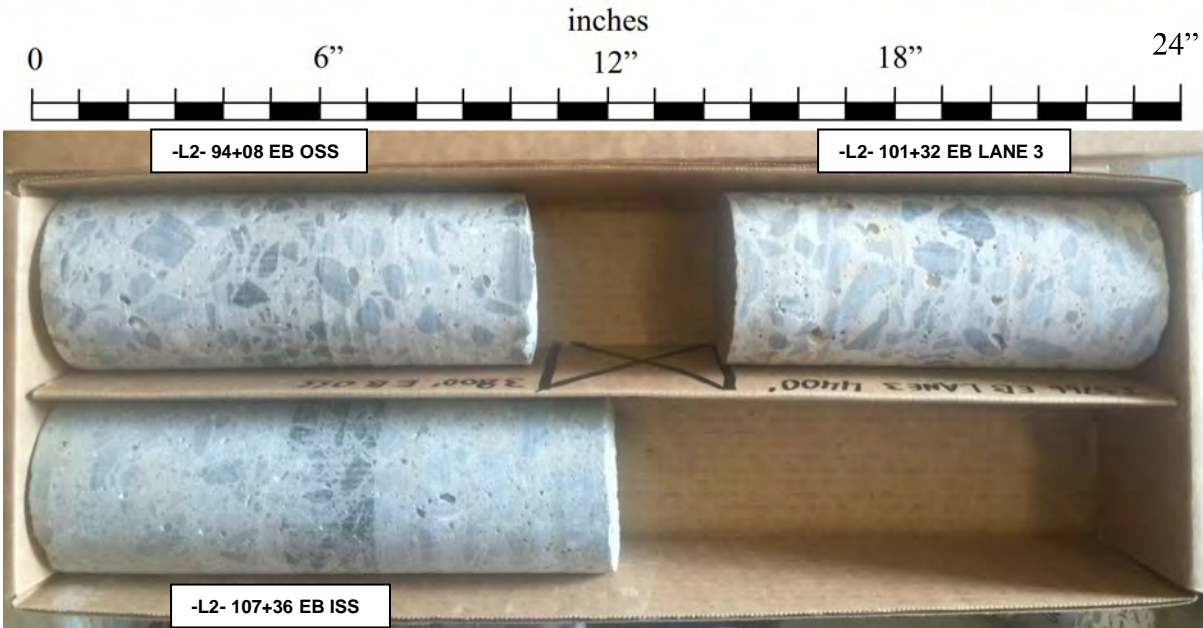
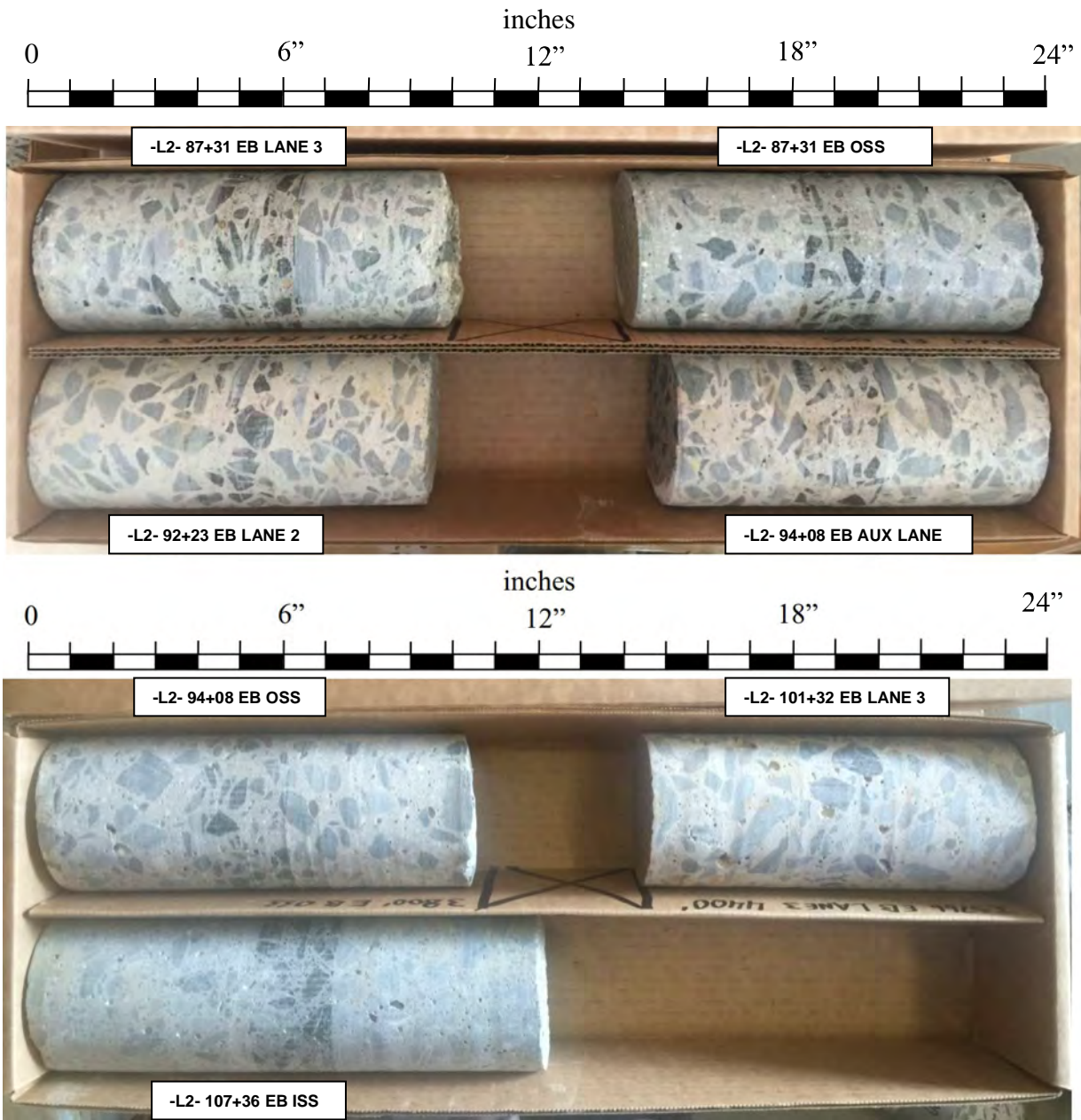
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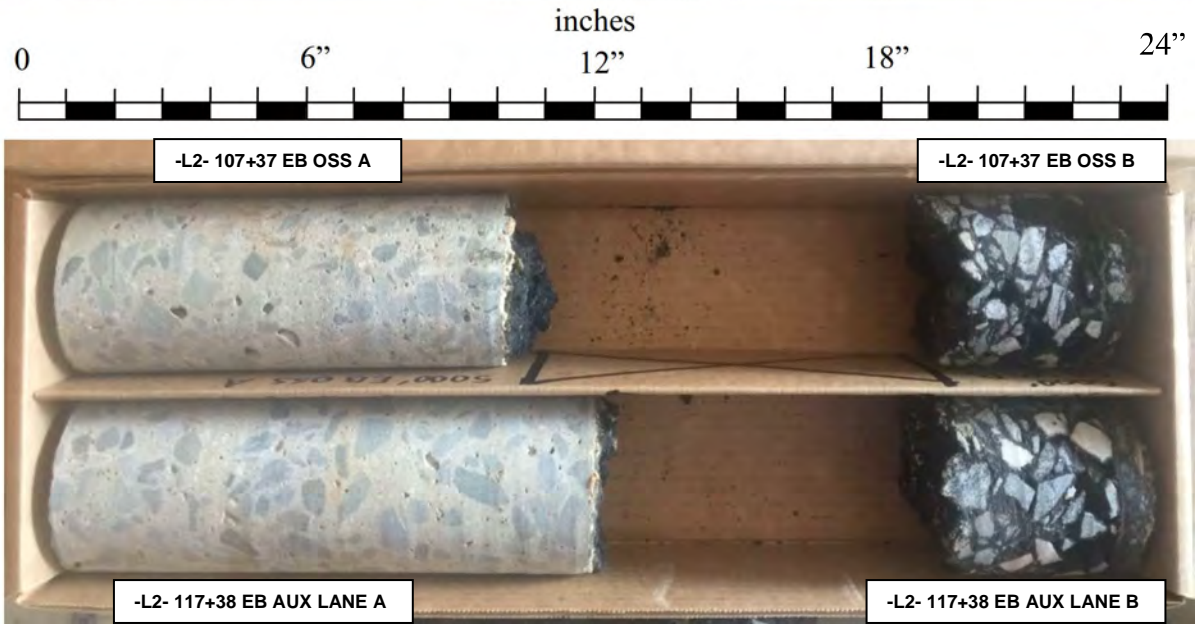
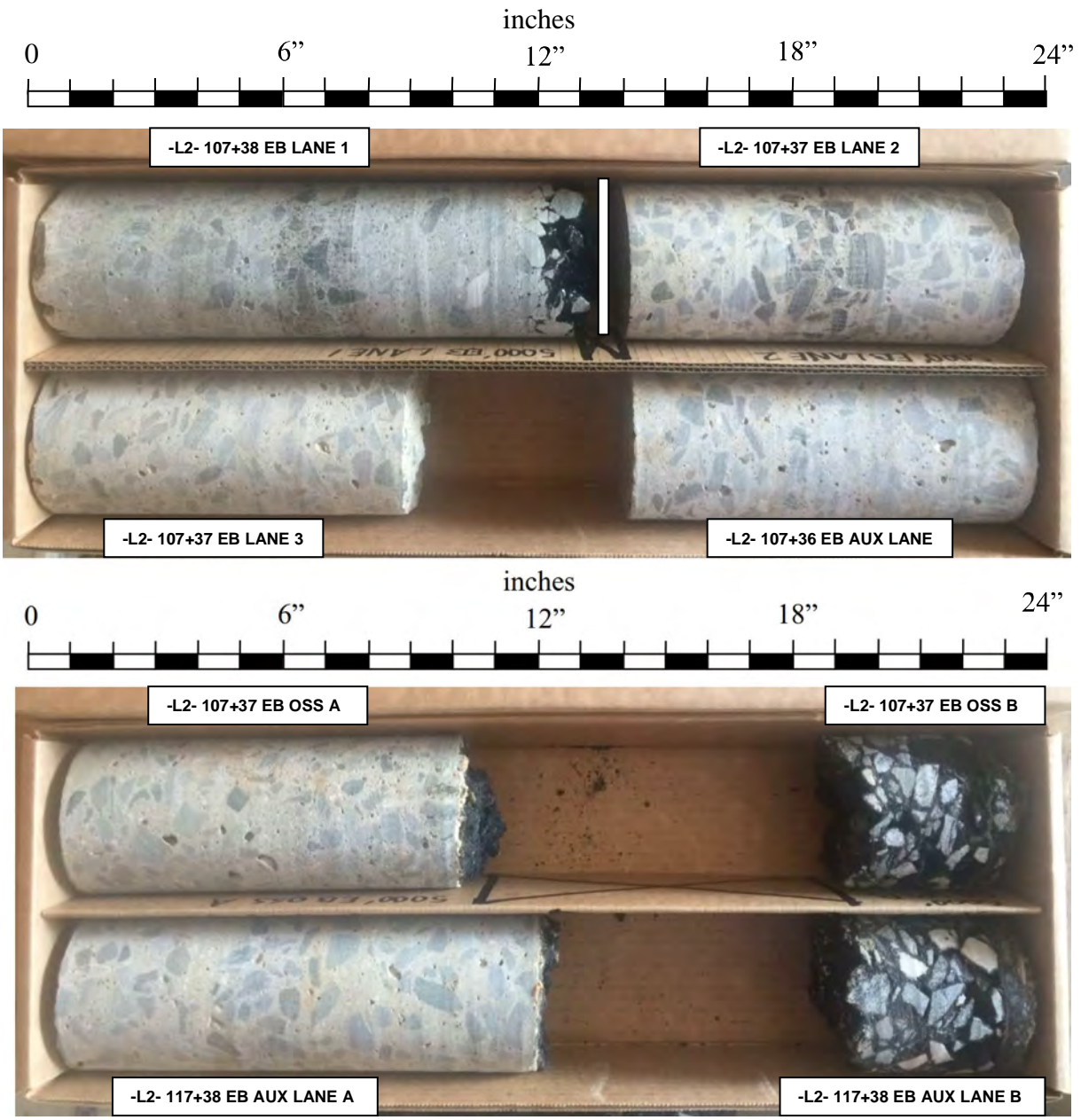
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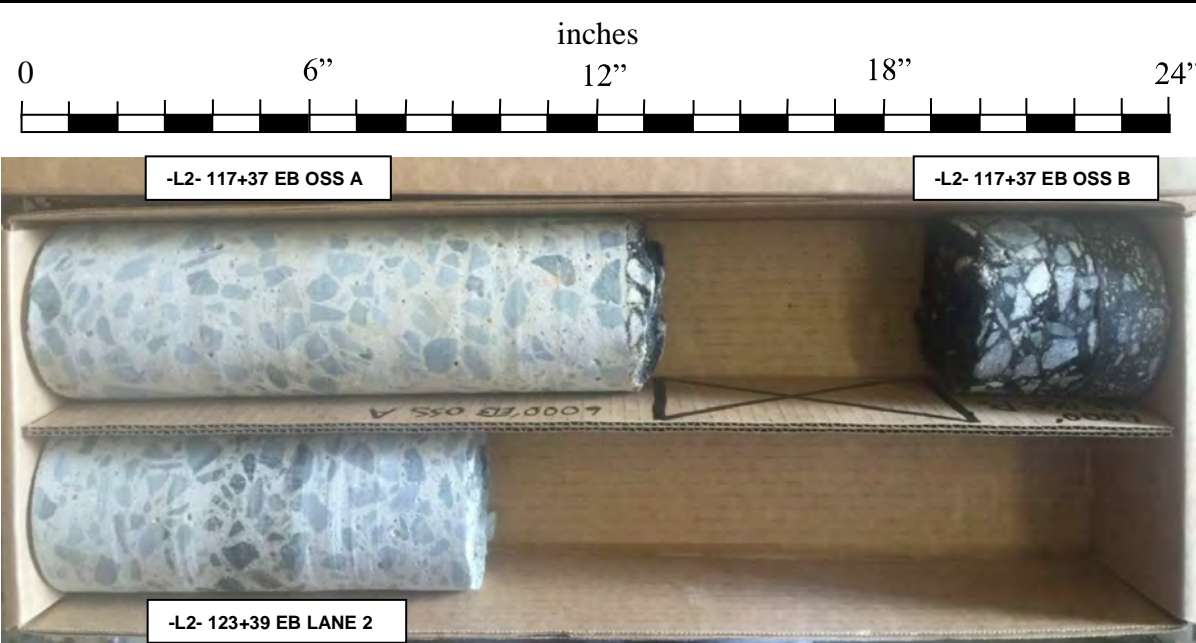
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