

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

STRUCTURE
SUBSURFACE INVESTIGATION

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PROJ. REFERENCE NO. 50000.1.STR05T1B(P-5208B) F.A. PROJ. N/A
COUNTY CABARRUS
PROJECT DESCRIPTION PHARR MILL ROAD/BLACKWELDER ROAD
GRADE SEPERATION

SITE DESCRIPTION BRIDGE ON -L- (PHARR MILL ROAD/
BLACKWELDER ROAD) OVER -Y4- (NC 49) AND NCRR/NS

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. NEITHER THE SUBSURFACE PLANS AND REPORTS, NOR THE FIELD BORING LOGS, ROCK CORES, OR SOIL TEST DATA ARE 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 THIS 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.

PROJECT: 50000.1.STR05T1B ID: P-5208B

PERSONNEL

AMERIDRILL

TRIGON

A. LOFTIN

S. CROCKETT

B. COSTNER

M. BACHMAN

J. HVOZDIK

INVESTIGATED BY D. CARR

CHECKED BY P. ZHANG

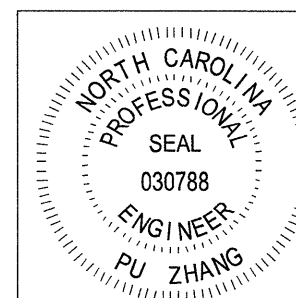
SUBMITTED BY P. ZHANG

DATE OCTOBER 2012

DRAWN BY: S. CROCKETT

NOTE - THE INFORMATION CONTAINED HEREIN IS NOT IMPLIED OR GUARANTEED BY THE N. C. DEPARTMENT OF TRANSPORTATION AS BEING ACCURATE NOR IT IS CONSIDERED TO BE PART OF THE PLANS, SPECIFICATIONS, OR CONTRACT FOR THE PROJECT.

NOTE - 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.



[Signature]
10-19-12
SIGNATURE

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

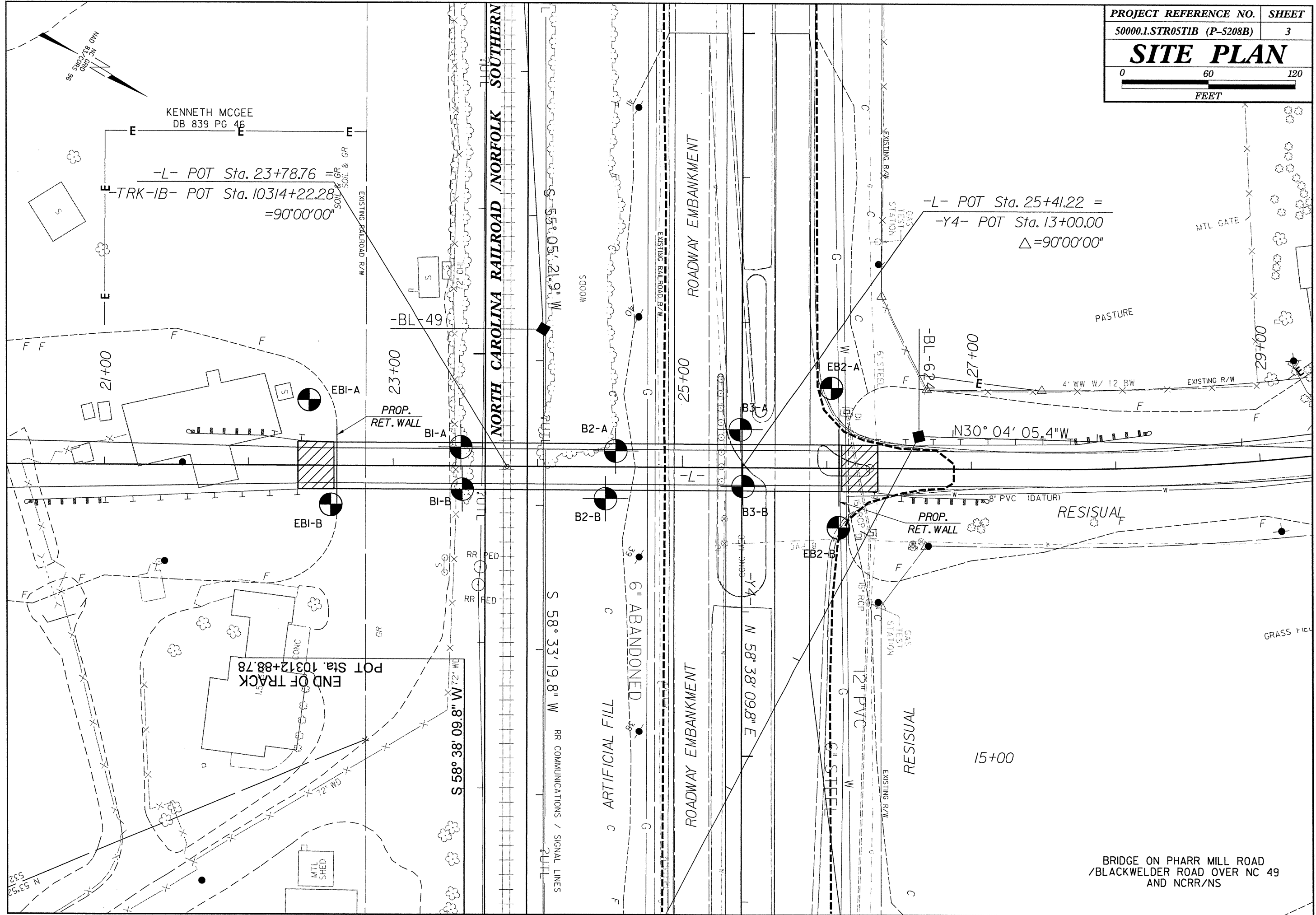
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

SUBSURFACE INVESTIGATION

SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

PROJECT REFERENCE NO. 50000.II.STRO5TIB (P-5208B) SHEET NO. 2

Table with 4 main columns: SOIL DESCRIPTION, GRADATION, ROCK DESCRIPTION, and TERMS AND DEFINITIONS. Includes sub-sections like SOIL LEGEND AND AASHTO CLASSIFICATION, MINERALOGICAL COMPOSITION, COMPRESSION, PERCENTAGE OF MATERIAL, GROUND WATER, MISCELLANEOUS SYMBOLS, ABBREVIATIONS, EQUIPMENT USED ON SUBJECT PROJECT, FRACTURE SPACING, BEDDING, INDURATION, PLASTICITY, and COLOR.



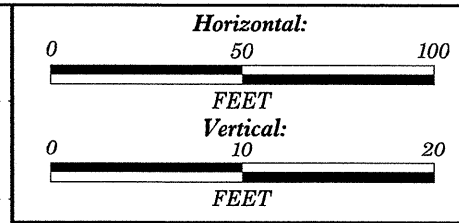
KENNETH MCGEE
DB 839 PG 46

-L- POT Sta. 23+78.76
-TRK-IB- POT Sta. 10314+22.28
=90°00'00"

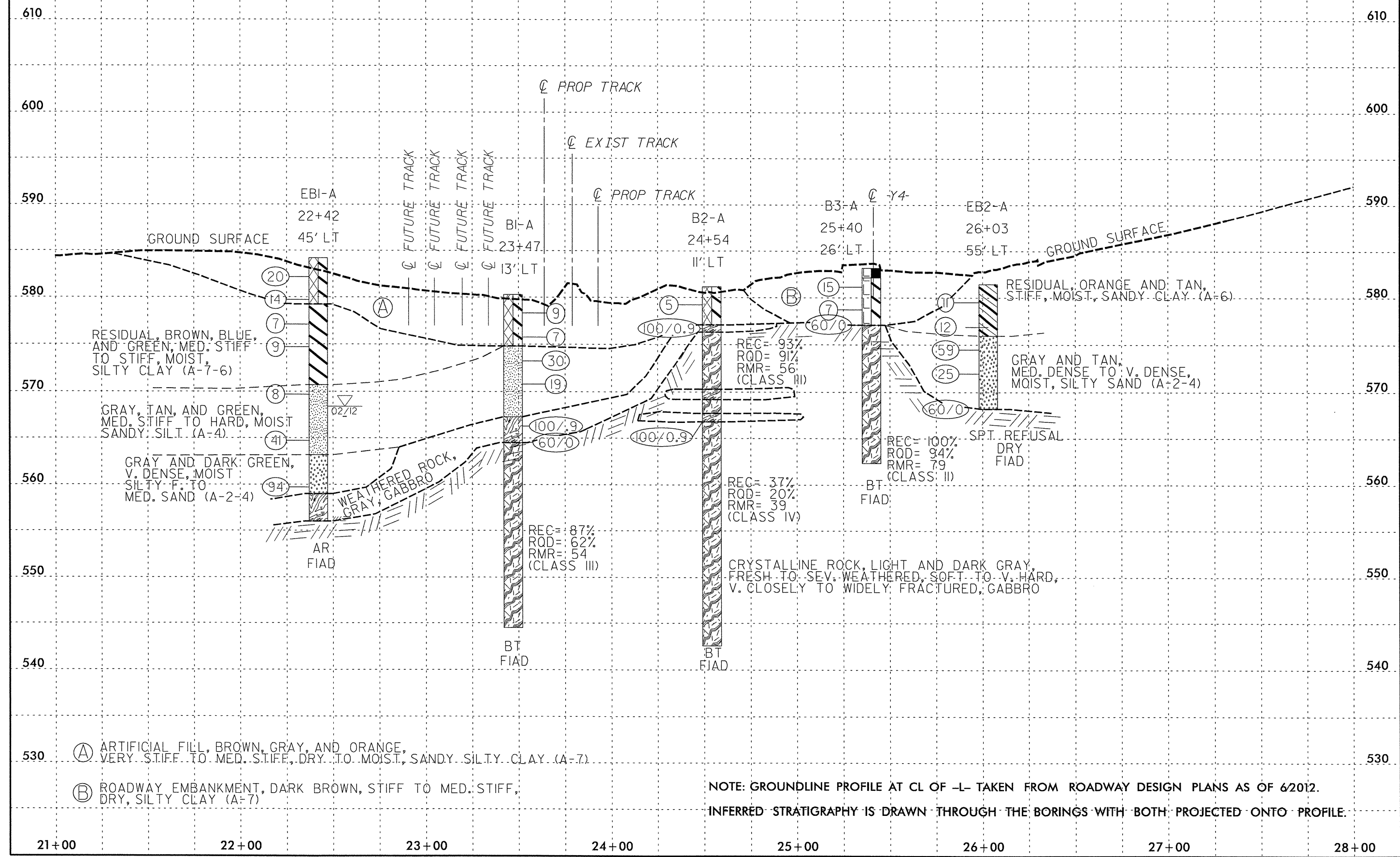
-L- POT Sta. 25+41.22 =
-Y4- POT Sta. 13+00.00
Δ=90°00'00"

END OF TRACK
POT Sta. 10312+88.78

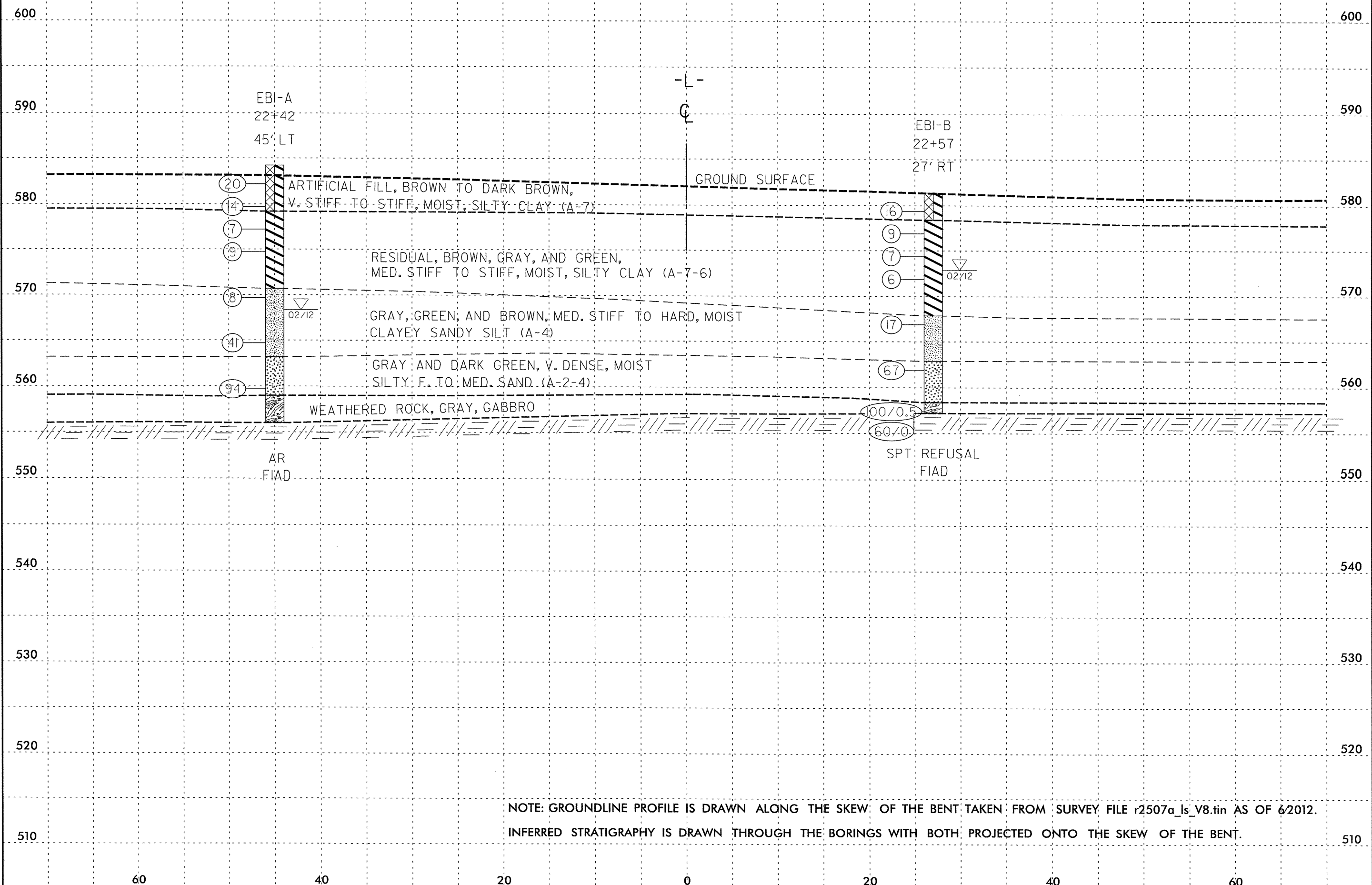
BRIDGE ON PHARR MILL ROAD
/BLACKWELDER ROAD OVER NC 49
AND NCRR/NS

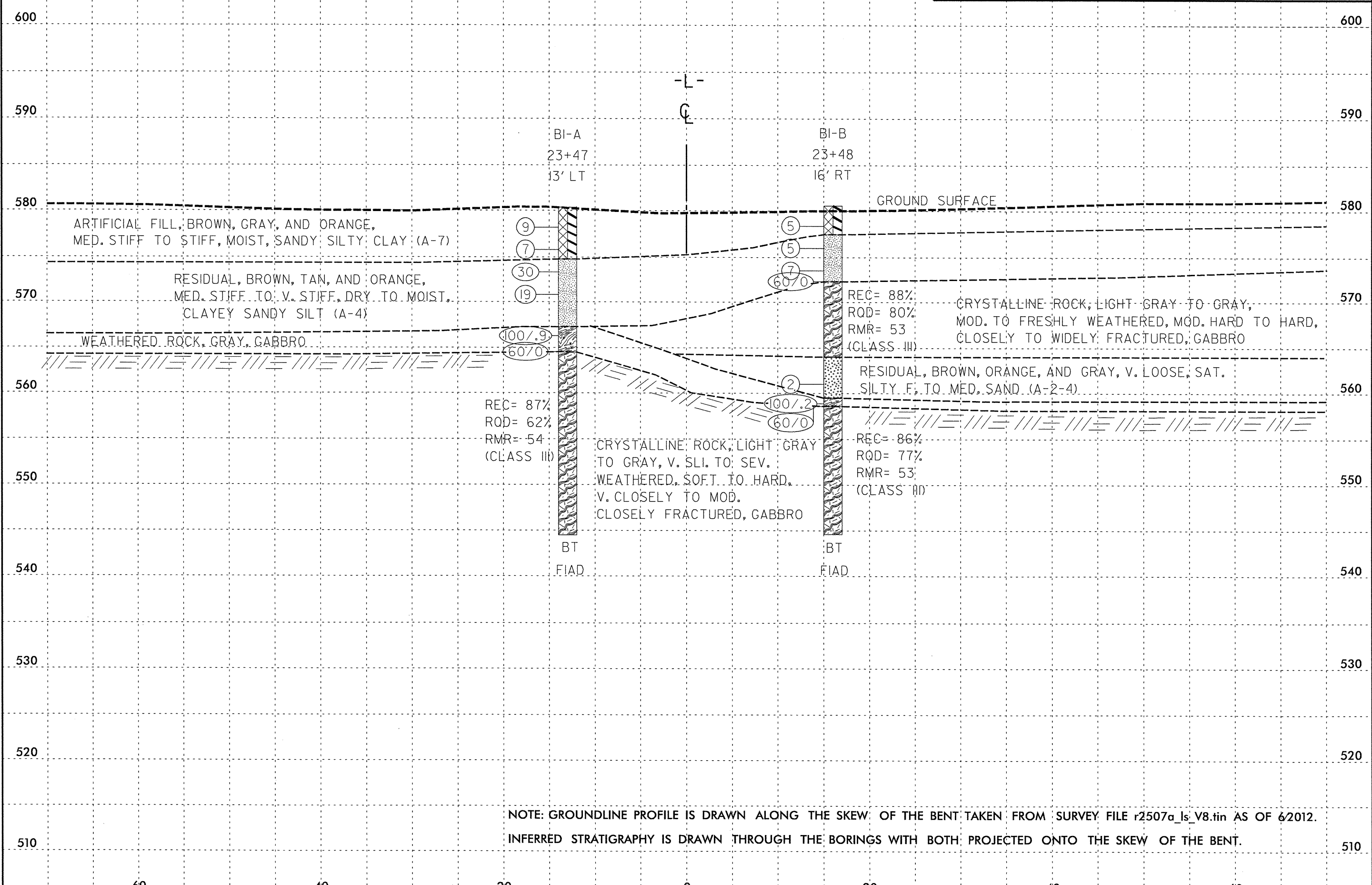


PROJECT REFERENCE NO.	SHEET
50000.1.STR05TIB (P-5208B)	4
-L- CL PROFILE BRIDGE ON PHARR MILL RD. OVER NC 49 AND NCRNNS	

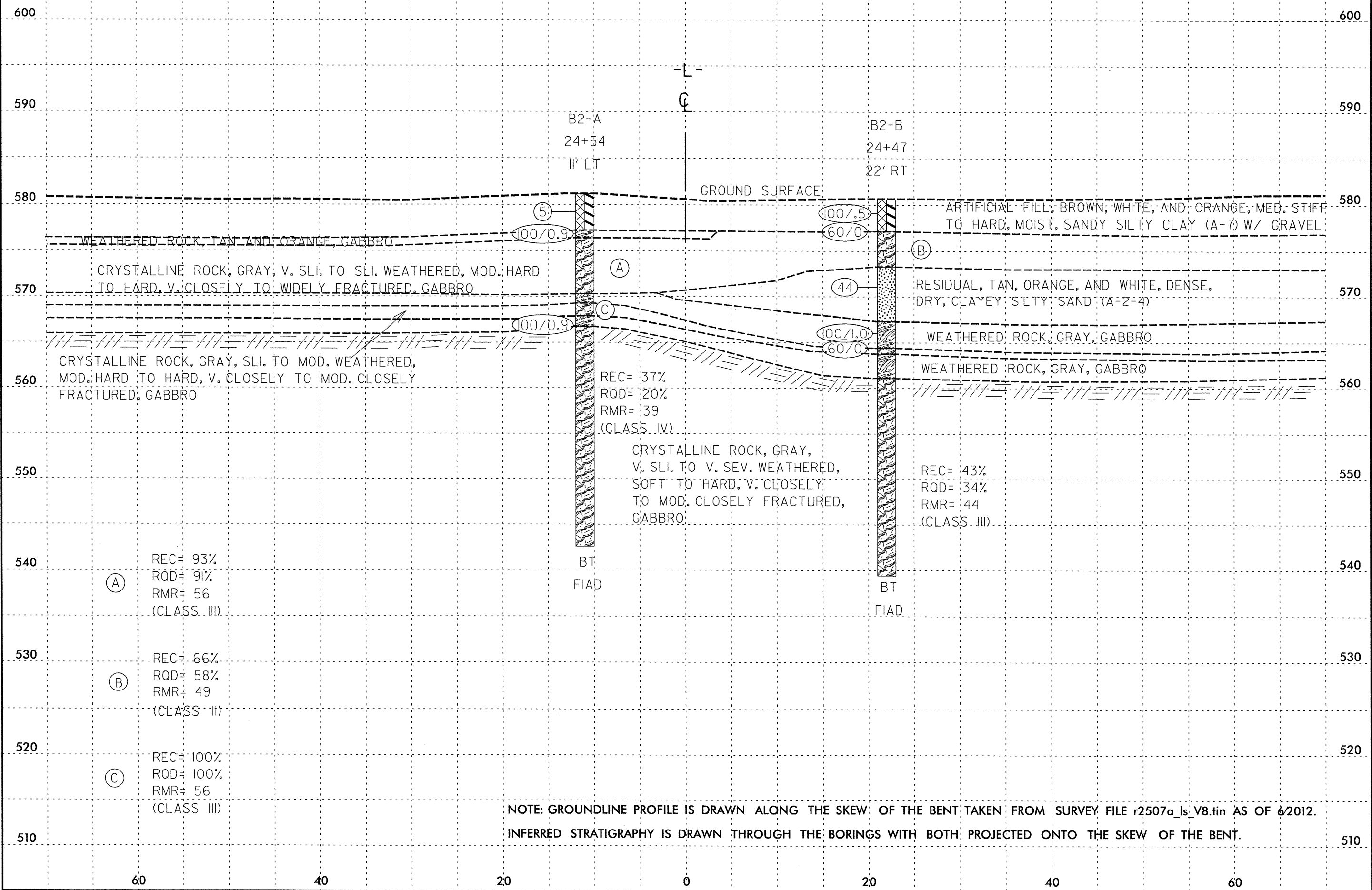


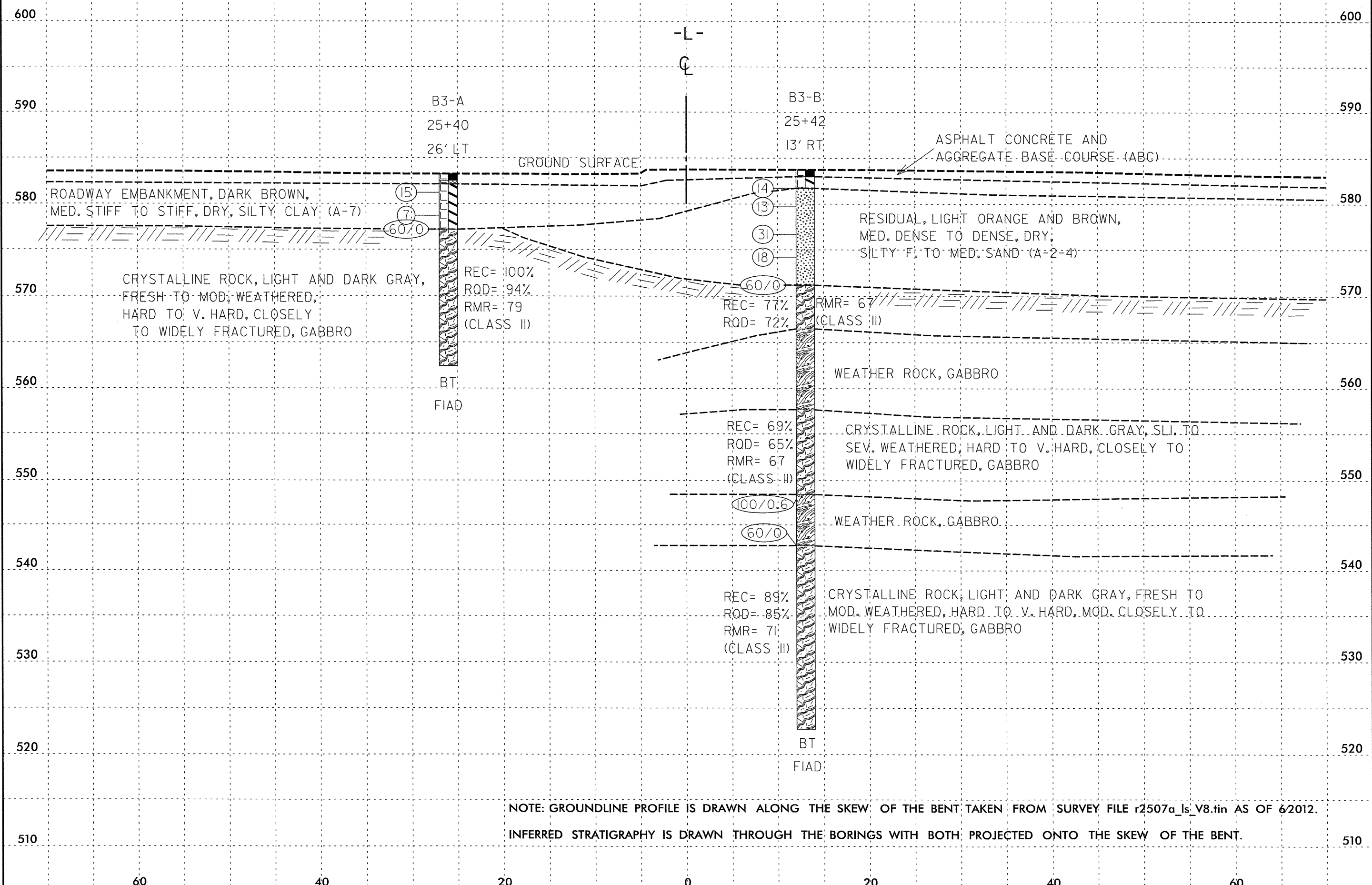
NOTE: GROUNDLINE PROFILE AT CL OF -L- TAKEN FROM ROADWAY DESIGN PLANS AS OF 6/2012.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO PROFILE.



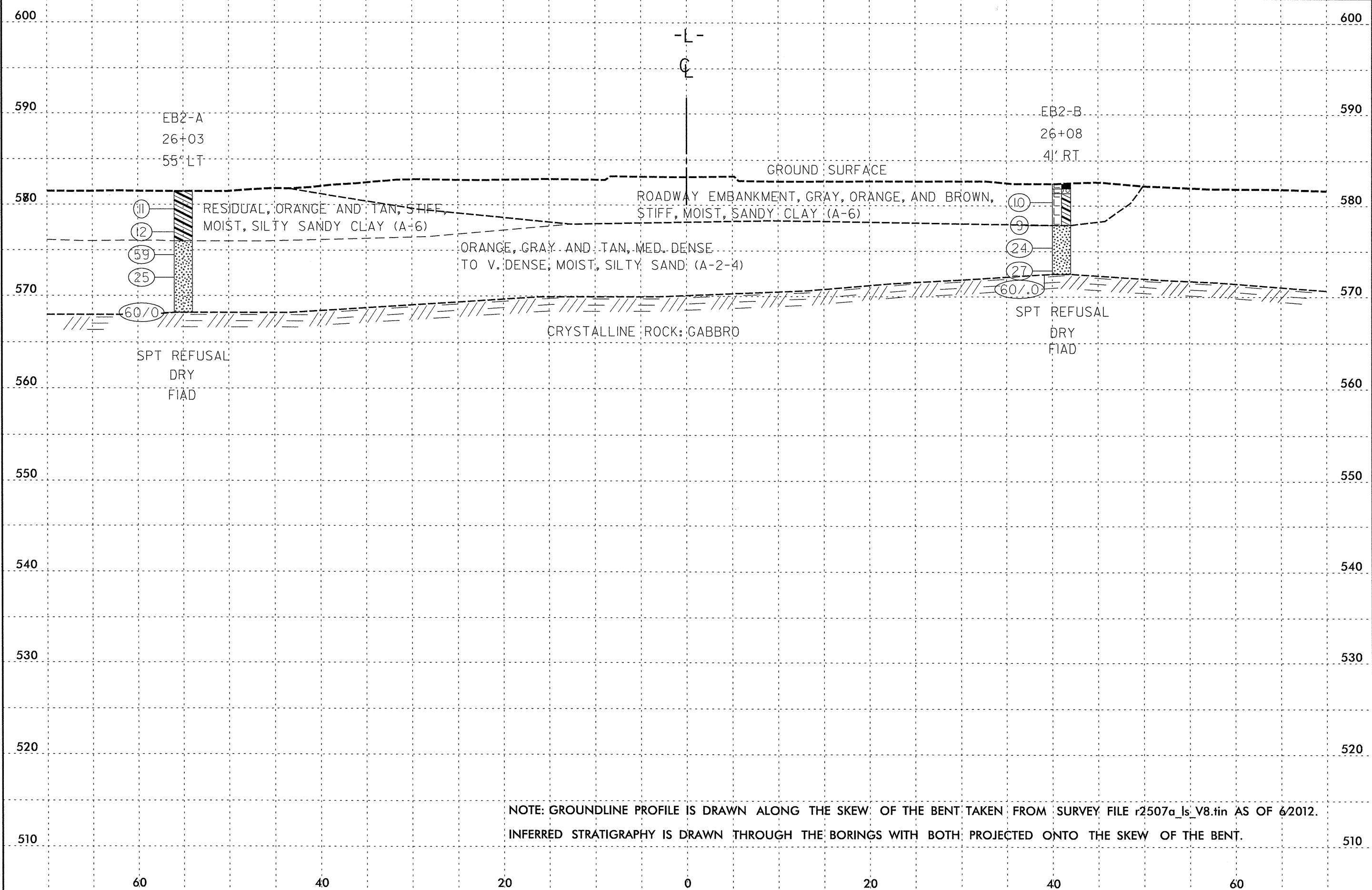


NOTE: GROUNDLINE PROFILE IS DRAWN ALONG THE SKEW OF THE BENT TAKEN FROM SURVEY FILE r2507a_ls_V8.tin AS OF 6/2012.
 INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE SKEW OF THE BENT.

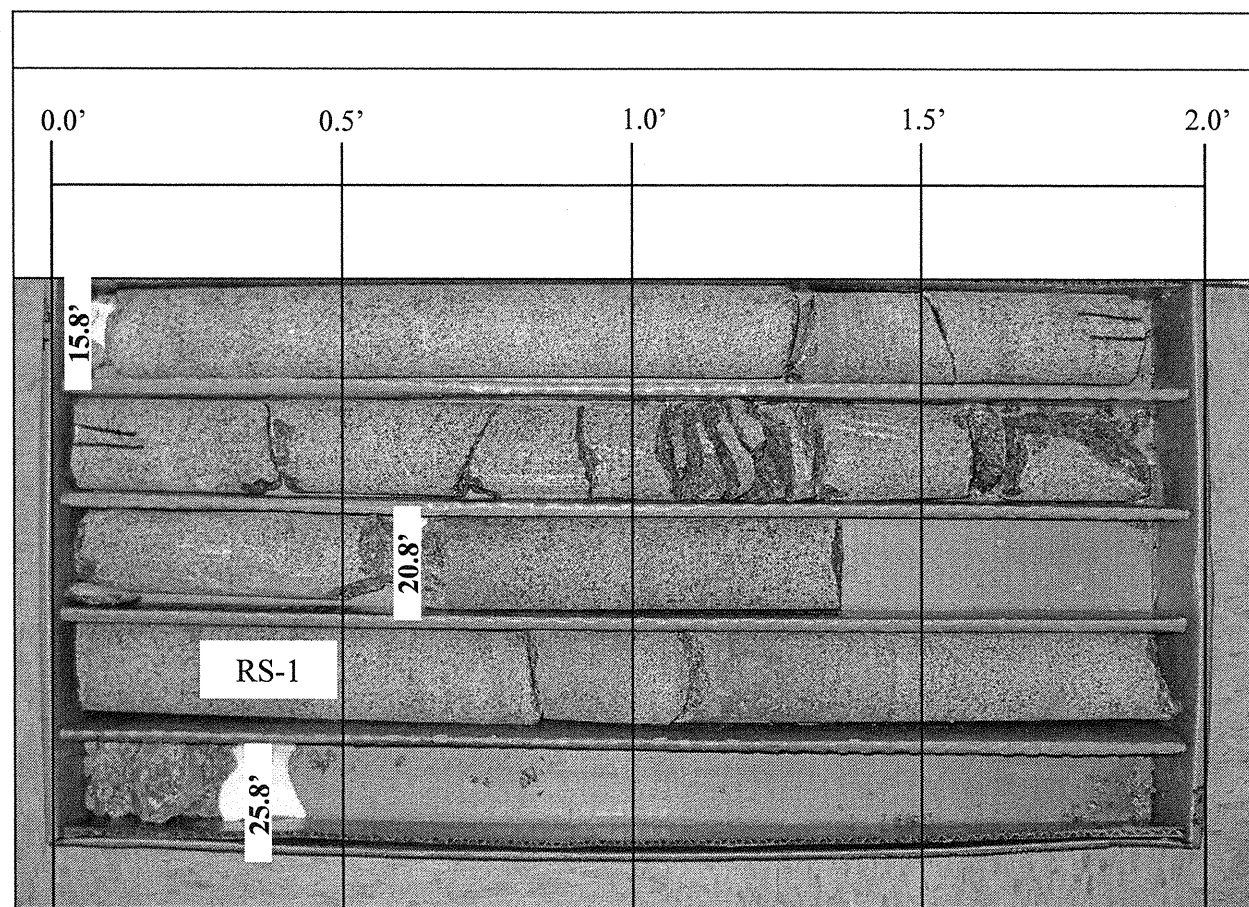




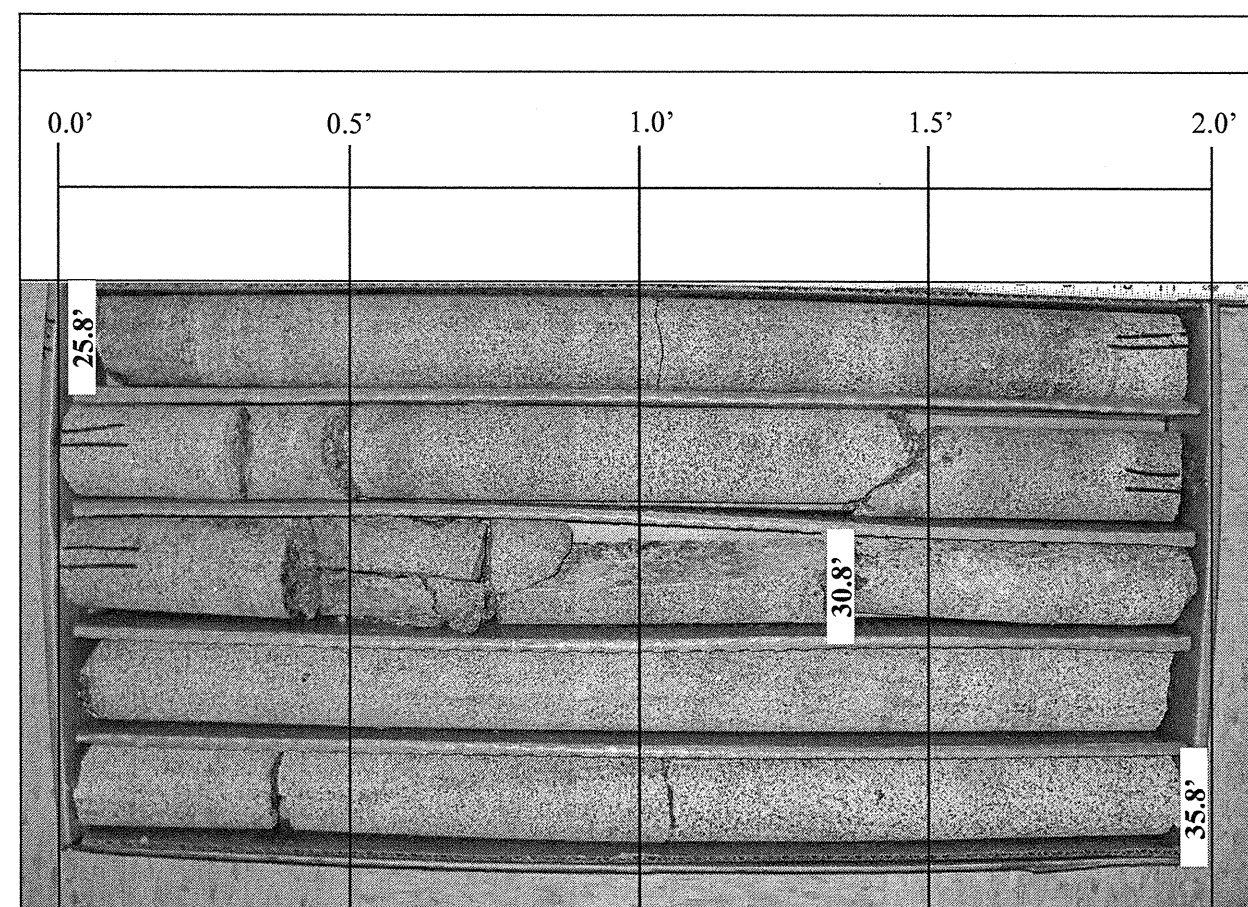
NOTE: GROUNDLINE PROFILE IS DRAWN ALONG THE SKEW OF THE BENT TAKEN FROM SURVEY FILE r2507a_ls_V8.tin AS OF 6/2012.
 INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE SKEW OF THE BENT.



NOTE: GROUNDLINE PROFILE IS DRAWN ALONG THE SKEW OF THE BENT TAKEN FROM SURVEY FILE r2507a_ls_V8.tin AS OF 6/2012.
 INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE SKEW OF THE BENT.



B1-A Box 1 of 2, 15.8 feet to 25.8 feet.



B1-A, Box 2 of 2, 25.8 feet to 35.8 feet.

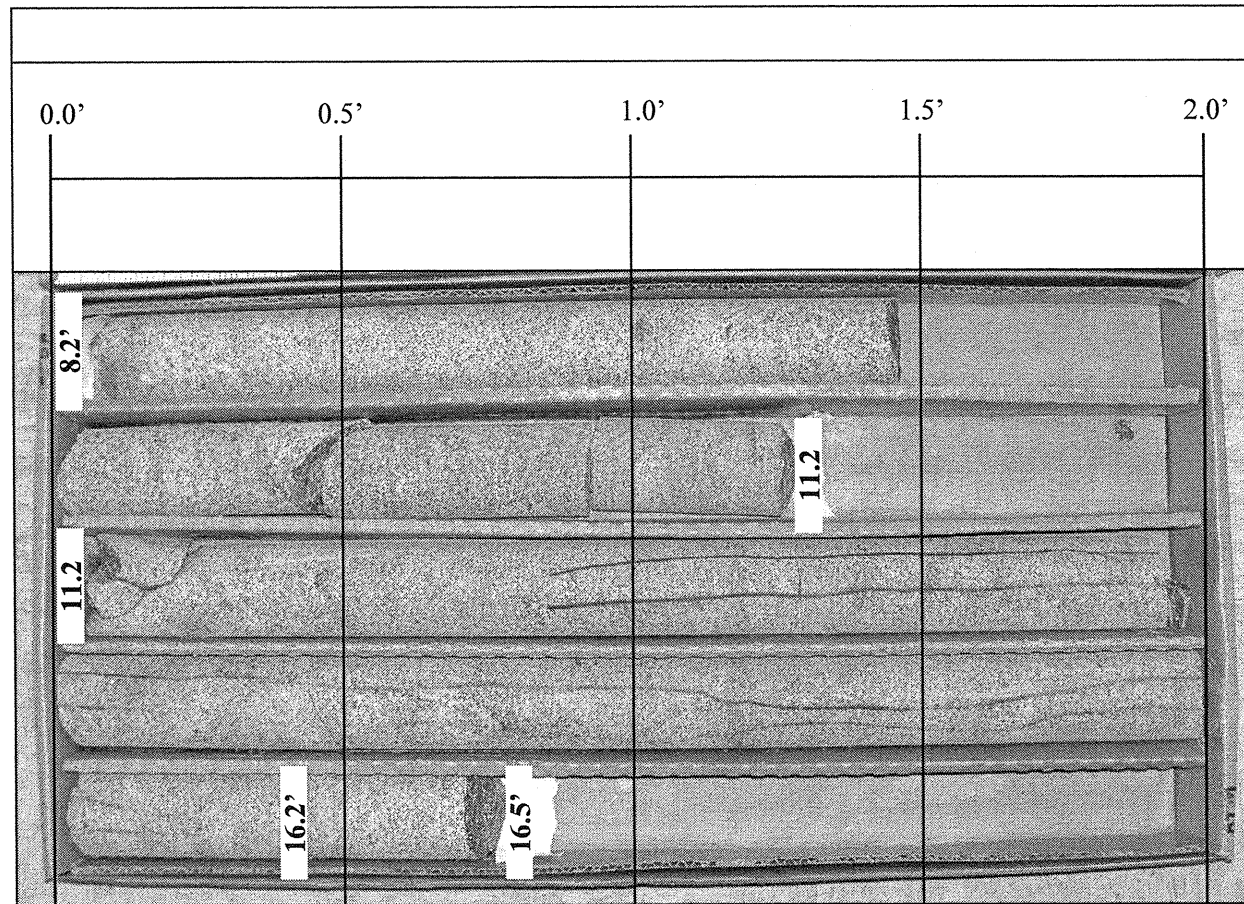
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ROCK CORE PHOTOGRAPHS

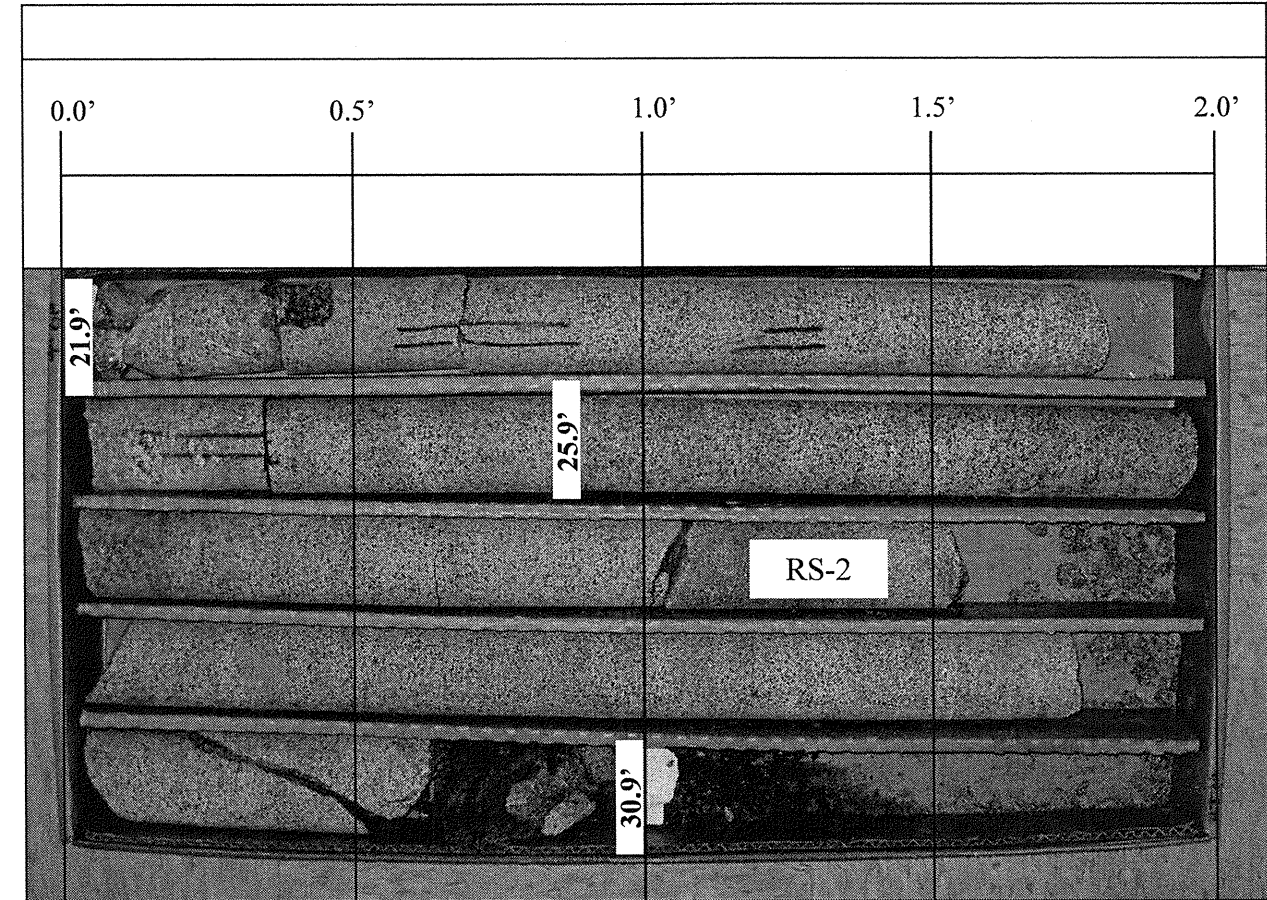
**BRIDGE ON -L- (PHARR MILL RD/ BLACKWELDER
RD. OVER -Y4- (NC 49) AND NCRR/NS
CABARRUS COUNTY, NORTH CAROLINA
WBS NO.: 50000.1.STR05T1B, TIP NO.: P-5208B**



URS Corporation – North Carolina
1600 Perimeter Park Drive, Suite 400
Morrisville, NC 27560
Tel: 919-461-1100 Fax: 919-46-1415



B1-B, Box 1 of 3, 8.2 feet to 16.5 feet.



B1-B, Box 2 of 3, 21.9 feet to 30.9 feet.

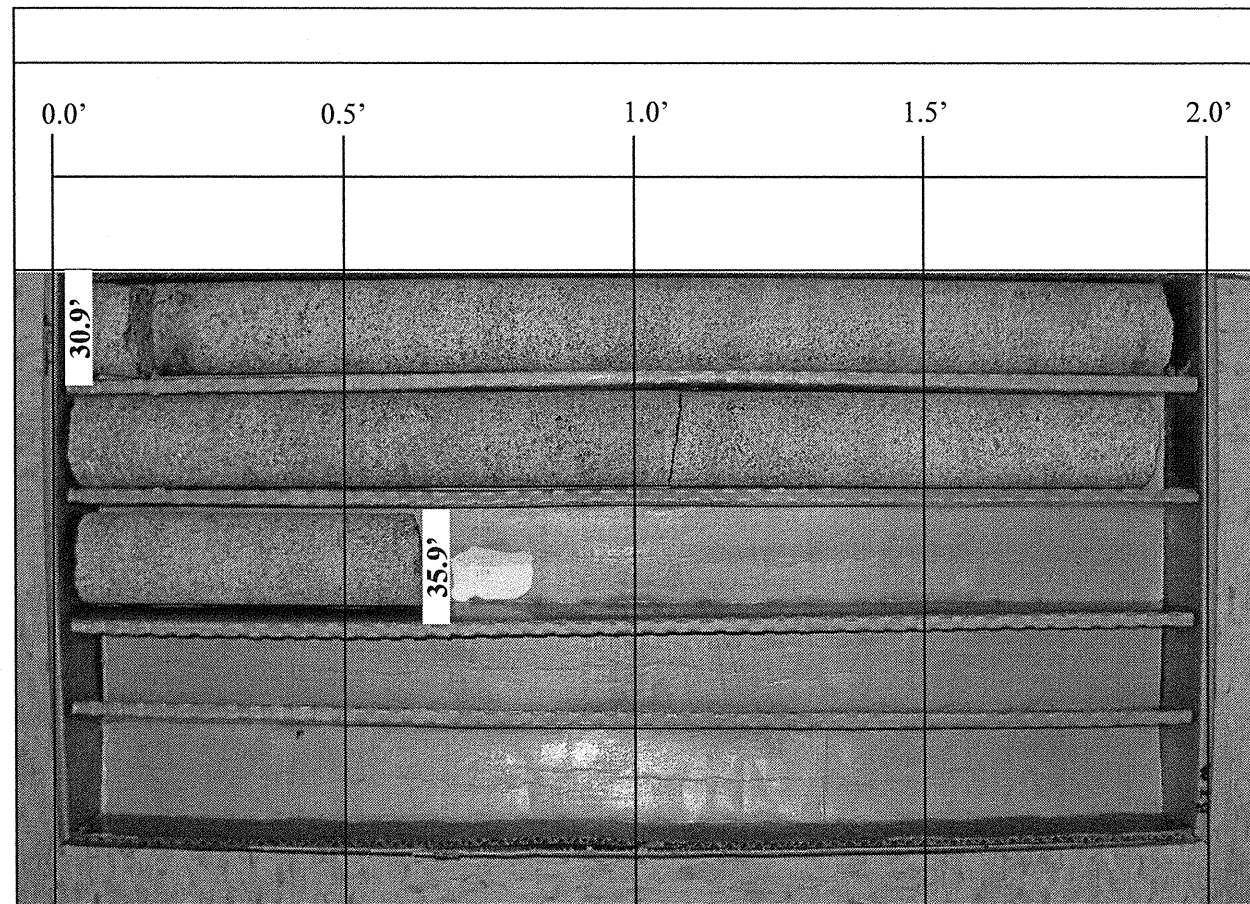
SCALE 1:40 (1"=4")

ROCK CORE PHOTOGRAPHS

**BRIDGE ON -L- (PHARR MILL RD/ BLACKWELDER
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B1-B, Box 3 of 3, 30.9 feet to 35.9 feet.

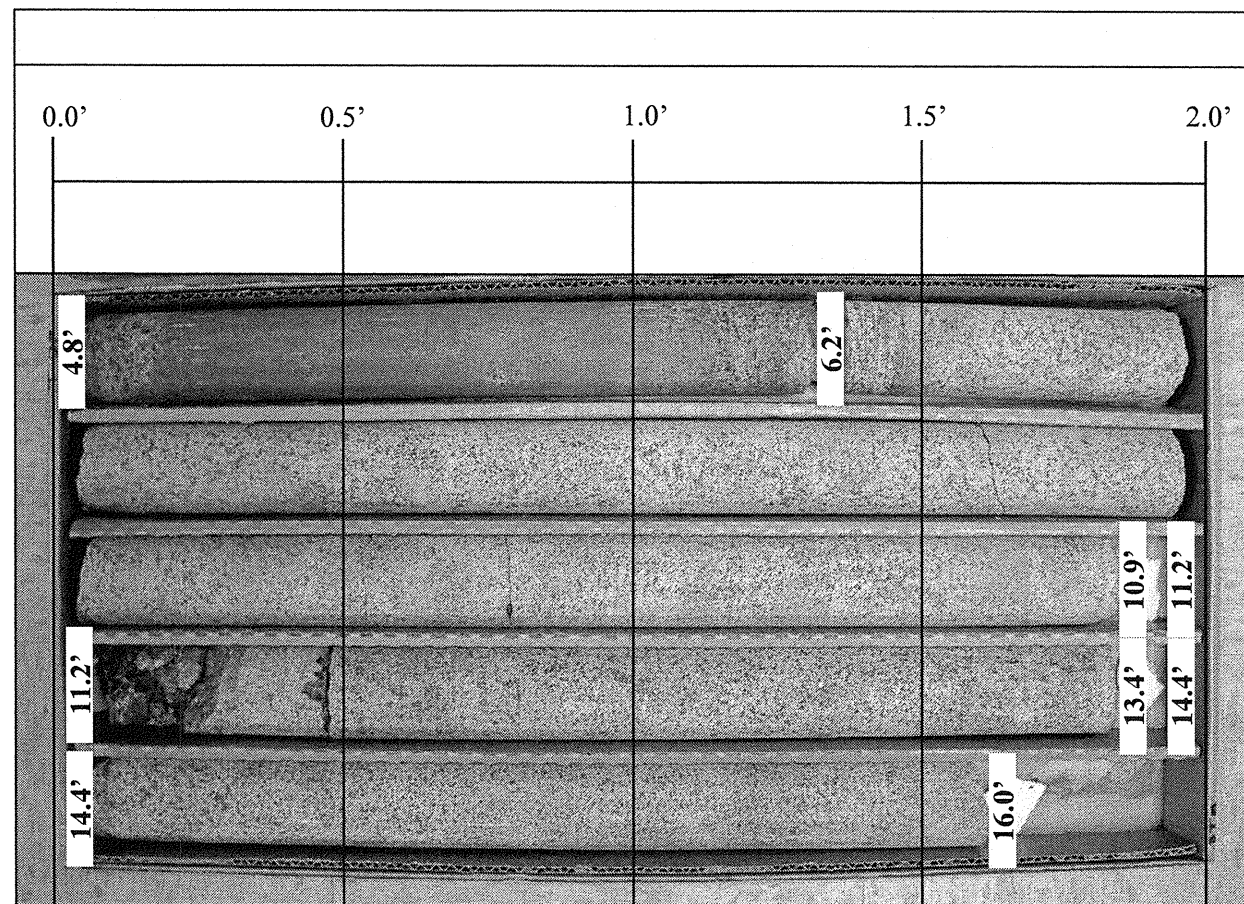
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ROCK CORE PHOTOGRAPHS

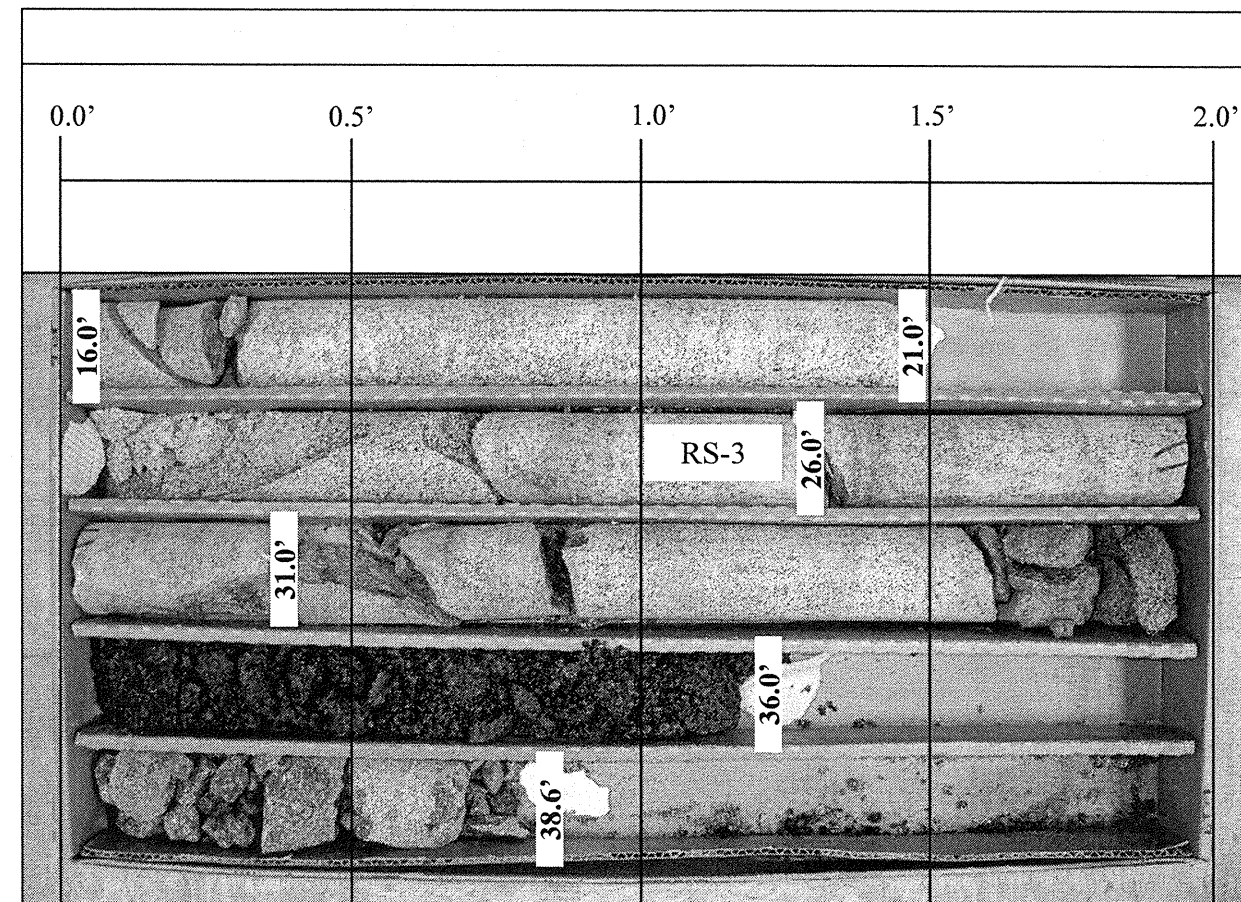
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B2-A, Box 1 of 2, 4.8 feet to 16.0 feet.



B2-A, Box 2 of 2, 16.0 feet to 38.6 feet.

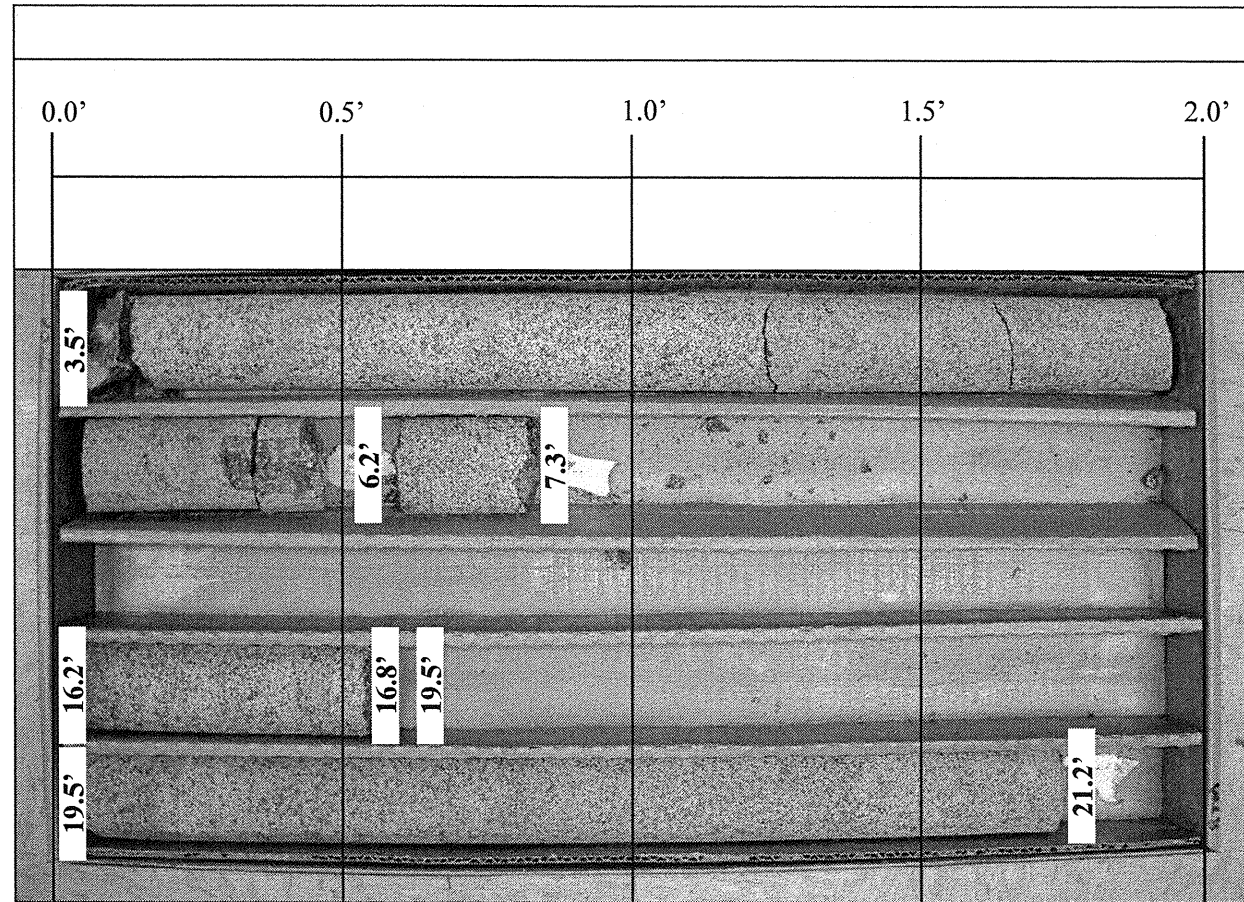
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ROCK CORE PHOTOGRAPHS

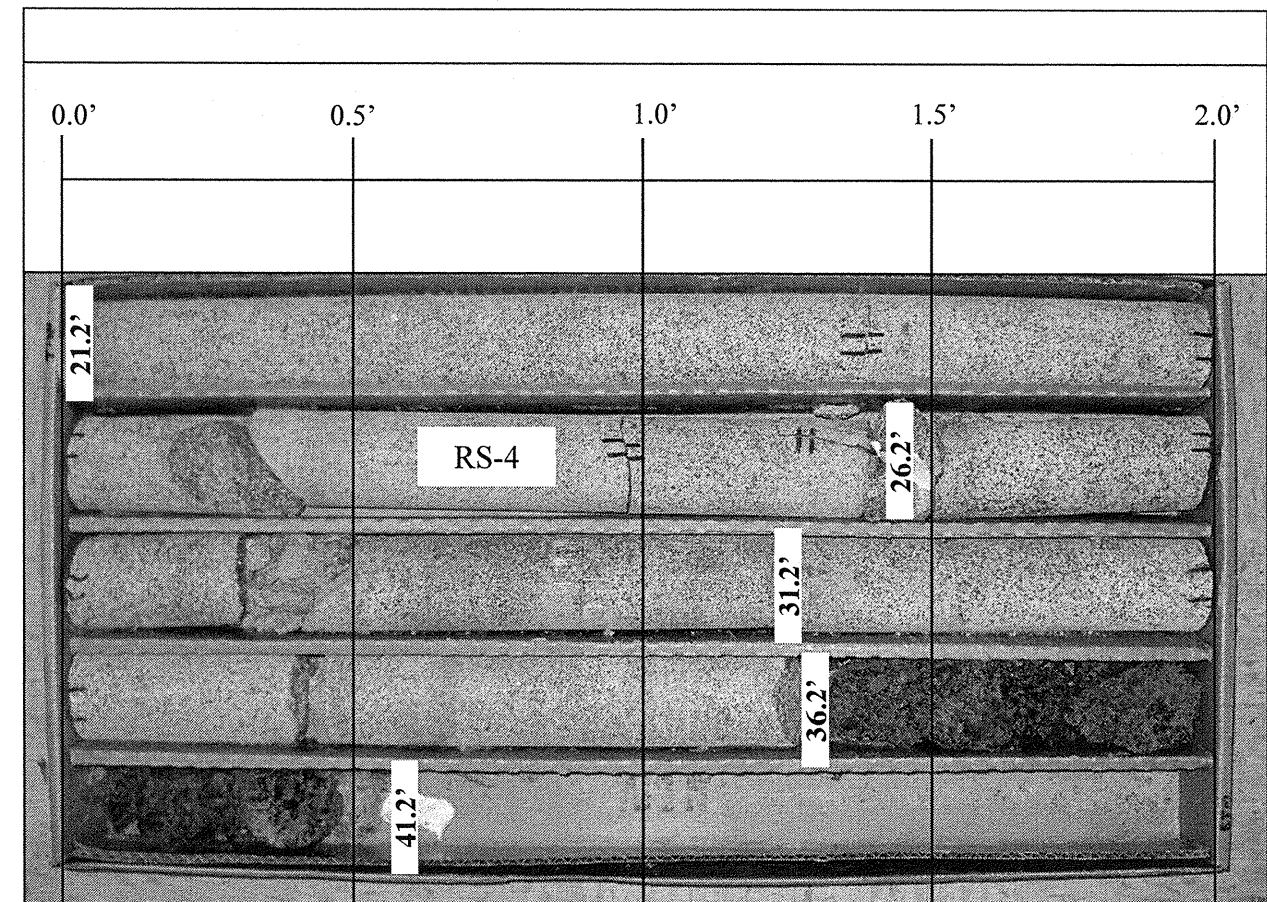
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B2-B, Box 1 of 2, 3.5 feet to 7.3 feet, 16.2 feet to 21.2 feet.



B2-B, Box 2 of 2, 21.2 feet to 41.2 feet.

SCALE 1:40 (1"=4")

ROCK CORE PHOTOGRAPHS

**BRIDGE ON -L- (PHARR MILL RD/ BLACKWELDER
RD. OVER -Y4- (NC 49) AND NCRR/NS
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WBS NO.: 50000.1.STR05T1B, TIP NO.: P-5208B**



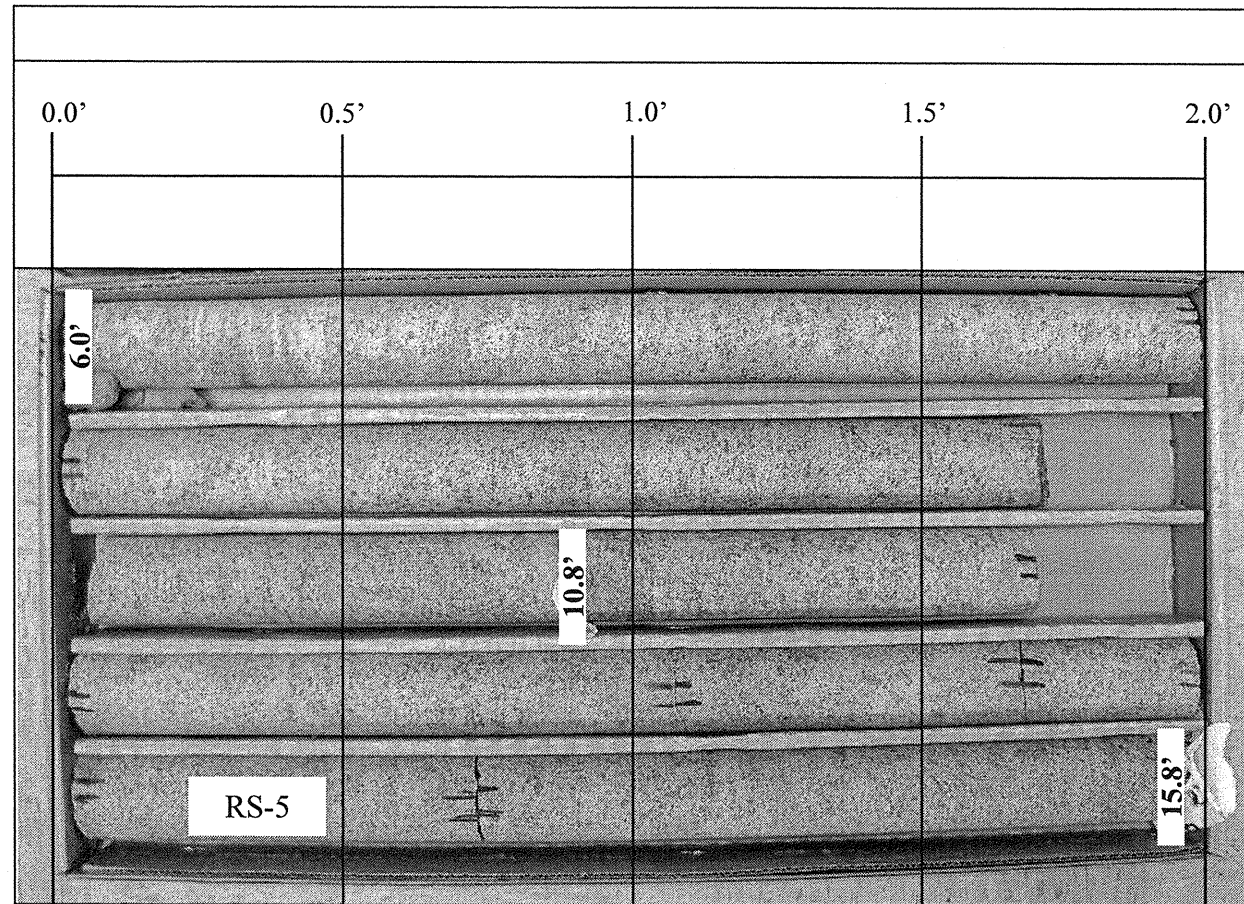
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Tel: 919-461-1100 Fax: 919-46-1415

WBS 50000.1.STR05T1B		TIP P-5208B		COUNTY CABARRUS		GEOLOGIST COSTNER, B.										
SITE DESCRIPTION BRIDGE ON -L- (PHARR MILL RD/BLACKWELDER RD) OVER -Y4- (NC 49) AND NCRR/ NS							GROUND WTR (ft)									
BORING NO. B3-A		STATION 25+40		OFFSET 26 ft LT		ALIGNMENT -L-										
COLLAR ELEV. 583.2 ft		TOTAL DEPTH 21.0 ft		NORTHING 581,467		EASTING 1,516,985										
DRILL RIG/HAMMER EFF./DATE AME9553 CME-550X 72% 04/01/2011		DRILL METHOD H.S. Augers		HAMMER TYPE Automatic												
DRILLER MEATYARD, C.		START DATE 02/20/12		COMP. DATE 02/20/12		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)		
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
585																
	582.2	1.0														
580	579.7	3.5														
	577.2	6.0														
575																
570																
565																
Boring Terminated at Elevation 562.2 ft BY BORING TERMINATION IN CR: GABBRO																

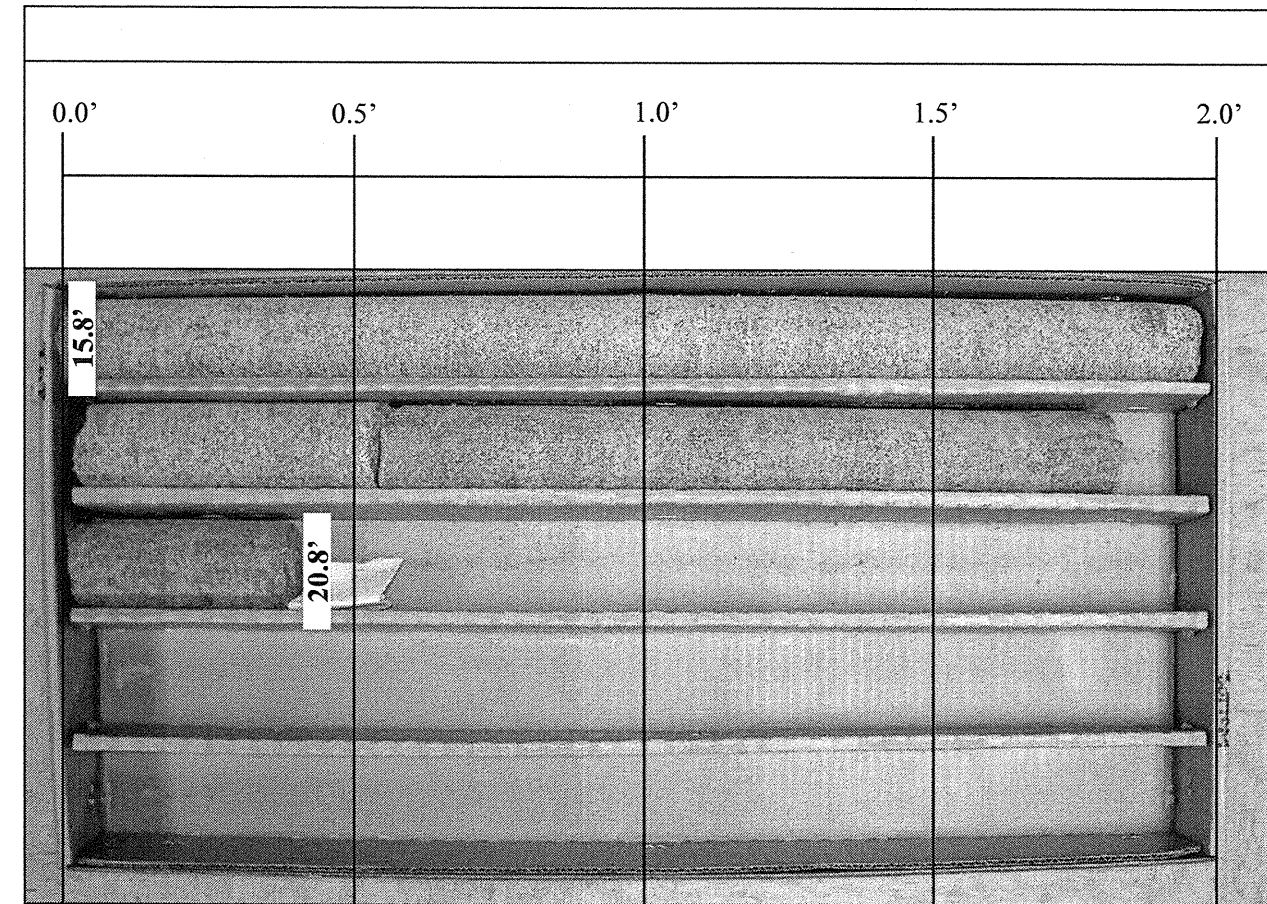
NCDOT BORE SINGLE P-5208B_GEO_BRDG.GPJ NC_DOT.GDT 10/23/12

WBS 50000.1.STR05T1B		TIP P-5208B		COUNTY CABARRUS		GEOLOGIST COSTNER, B.					
SITE DESCRIPTION BRIDGE ON -L- (PHARR MILL RD/BLACKWELDER RD) OVER -Y4- (NC 49) AND NCRR/ NS							GROUND WTR (ft)				
BORING NO. B3-A		STATION 25+40		OFFSET 26 ft LT		ALIGNMENT -L-					
COLLAR ELEV. 583.2 ft		TOTAL DEPTH 21.0 ft		NORTHING 581,467		EASTING 1,516,985					
DRILL RIG/HAMMER EFF./DATE AME9553 CME-550X 72% 04/01/2011		DRILL METHOD H.S. Augers		HAMMER TYPE Automatic							
DRILLER MEATYARD, C.		START DATE 02/20/12		COMP. DATE 02/20/12		SURFACE WATER DEPTH N/A					
CORE SIZE NQ			TOTAL RUN 14.8 ft								
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN		STRATA		LOG	DESCRIPTION AND REMARKS	DEPTH (ft)
					REC. (%)	RQD (%)	REC. (%)	RQD (%)			
577.2	577.2	6.0	4.8	4:15/1.0	(4.8)	(4.7)					
575				3:06/1.0	100%	97%					
				3:20/1.0							
				3:32/1.0							
				2:20/0.8							
570	572.4	10.8	5.0	3:42/1.0	(5.0)	(4.9)					
				3:04/1.0	100%	98%					
				3:19/1.0							
				3:41/1.0							
				3:29/1.0							
565				3:28/1.0	(5.0)	(4.4)					
				2:53/1.0	100%	88%					
				2:13/1.0							
				2:37/1.0							
	562.4	20.8									
Boring Terminated at Elevation 562.2 ft BY BORING TERMINATION IN CR: GABBRO											

NCDOT CORE SINGLE P-5208B_GEO_BRDG.GPJ NC_DOT.GDT 10/23/12



B3-A, Box 1 of 2, 6.0 feet to 15.8 feet.



B3-A, Box 2 of 2, 15.8 feet to 20.8 feet.

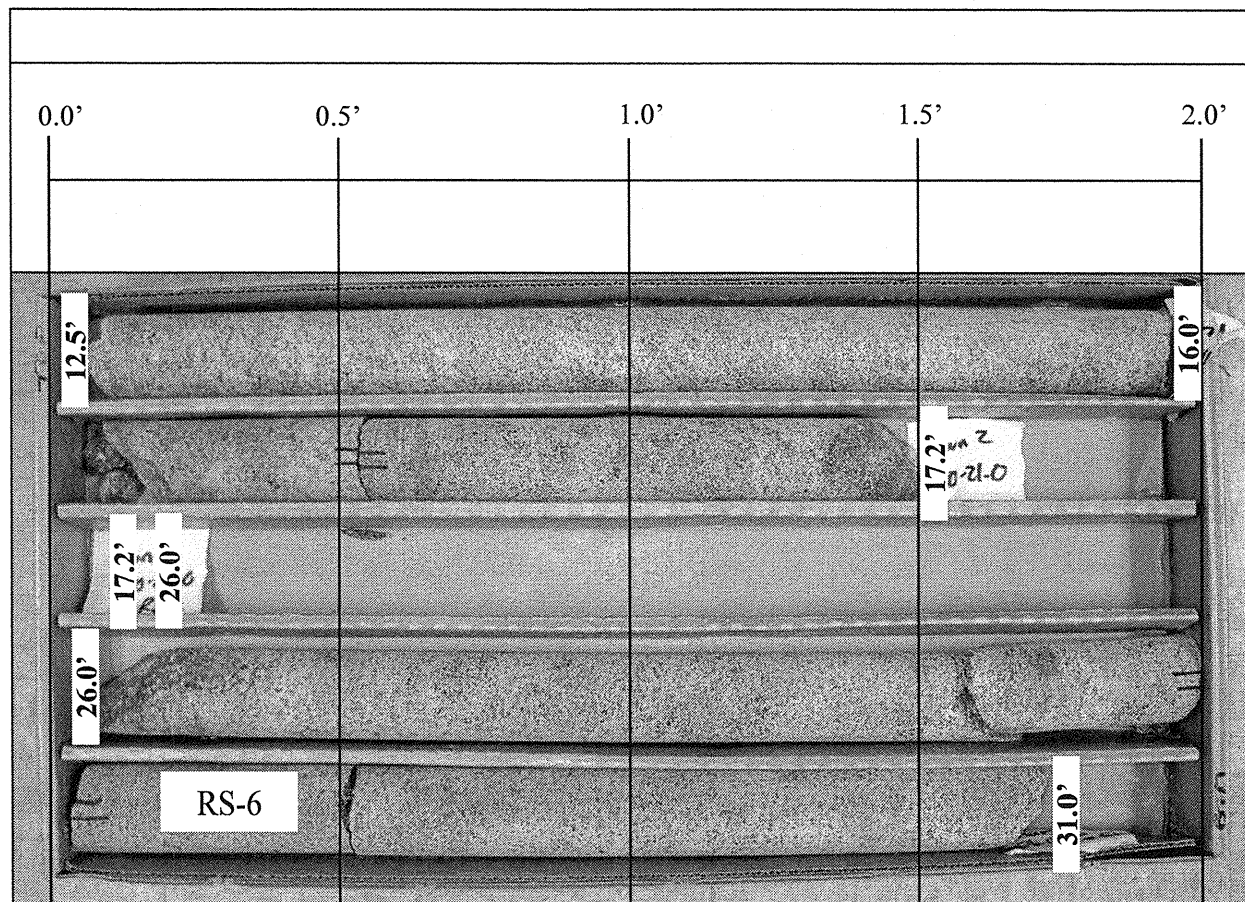
SCALE 1:40 (1"=4")

ROCK CORE PHOTOGRAPHS

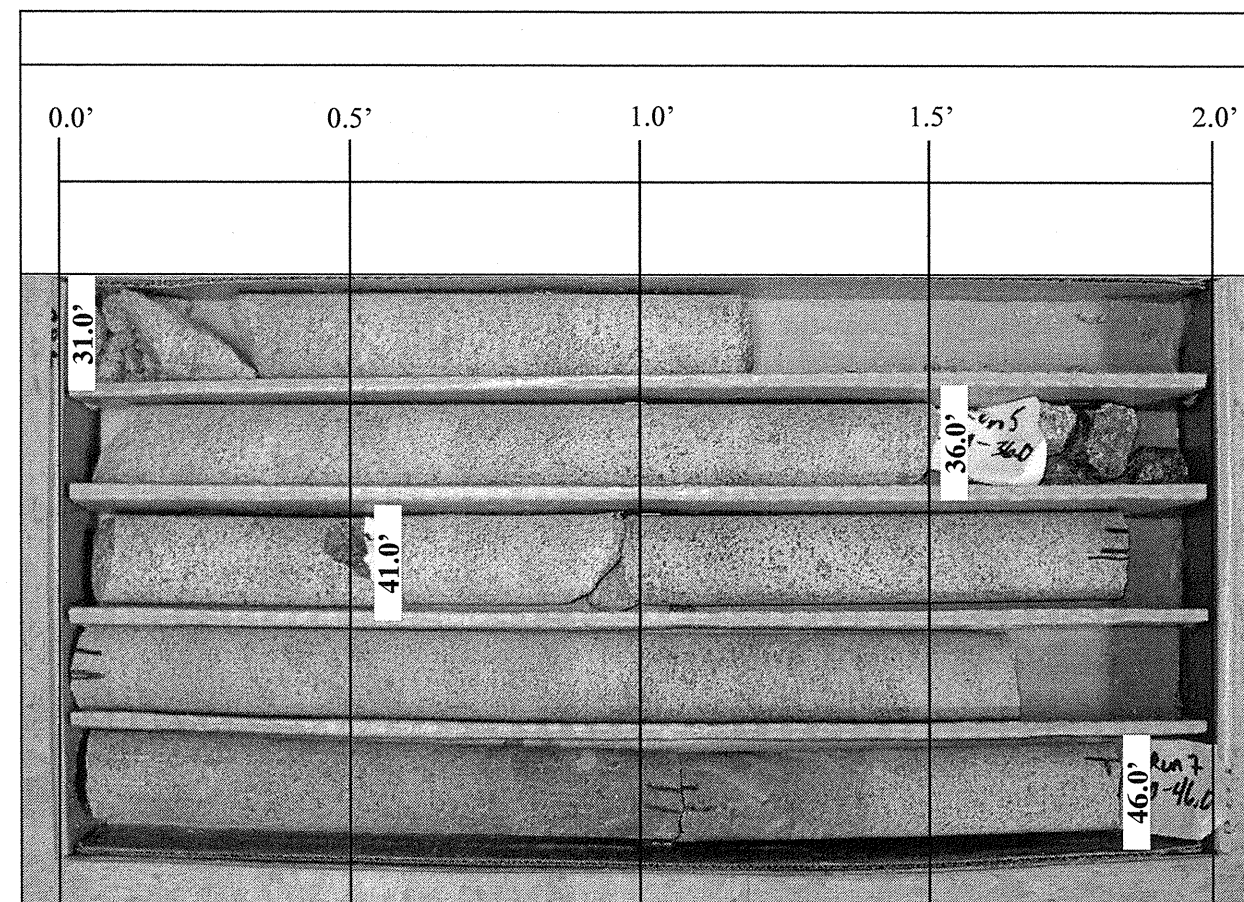
**BRIDGE ON -L- (PHARR MILL RD/ BLACKWELDER
RD. OVER -Y4- (NC 49) AND NCRR/NS
CABARRUS COUNTY, NORTH CAROLINA
WBS NO.: 50000.1.STR05T1B, TIP NO.: P-5208B**



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B3-B, Box 1 of 4, 12.5 feet to 31.0 feet.



B3-B, Box 2 of 4, 31.0 feet to 46.0 feet.

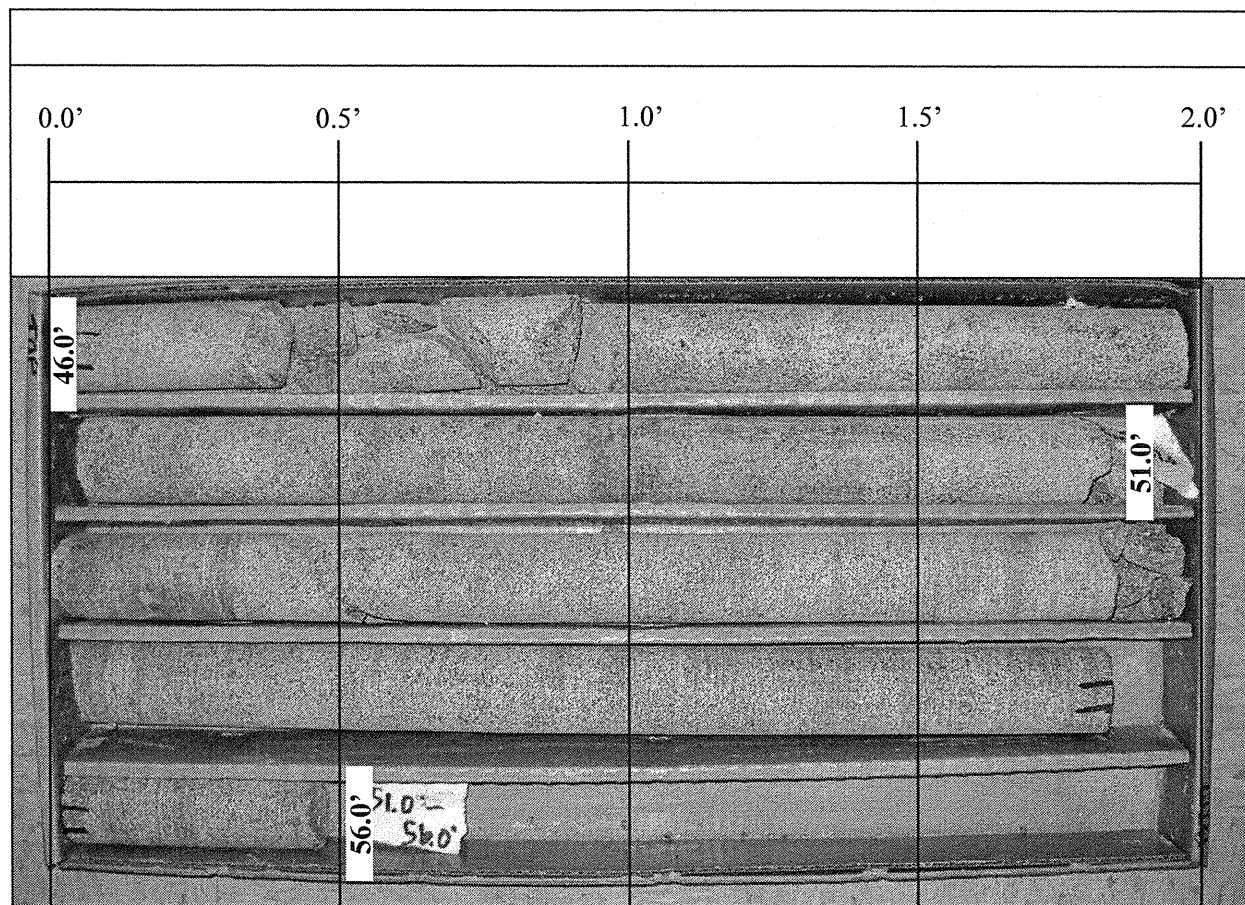
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ROCK CORE PHOTOGRAPHS

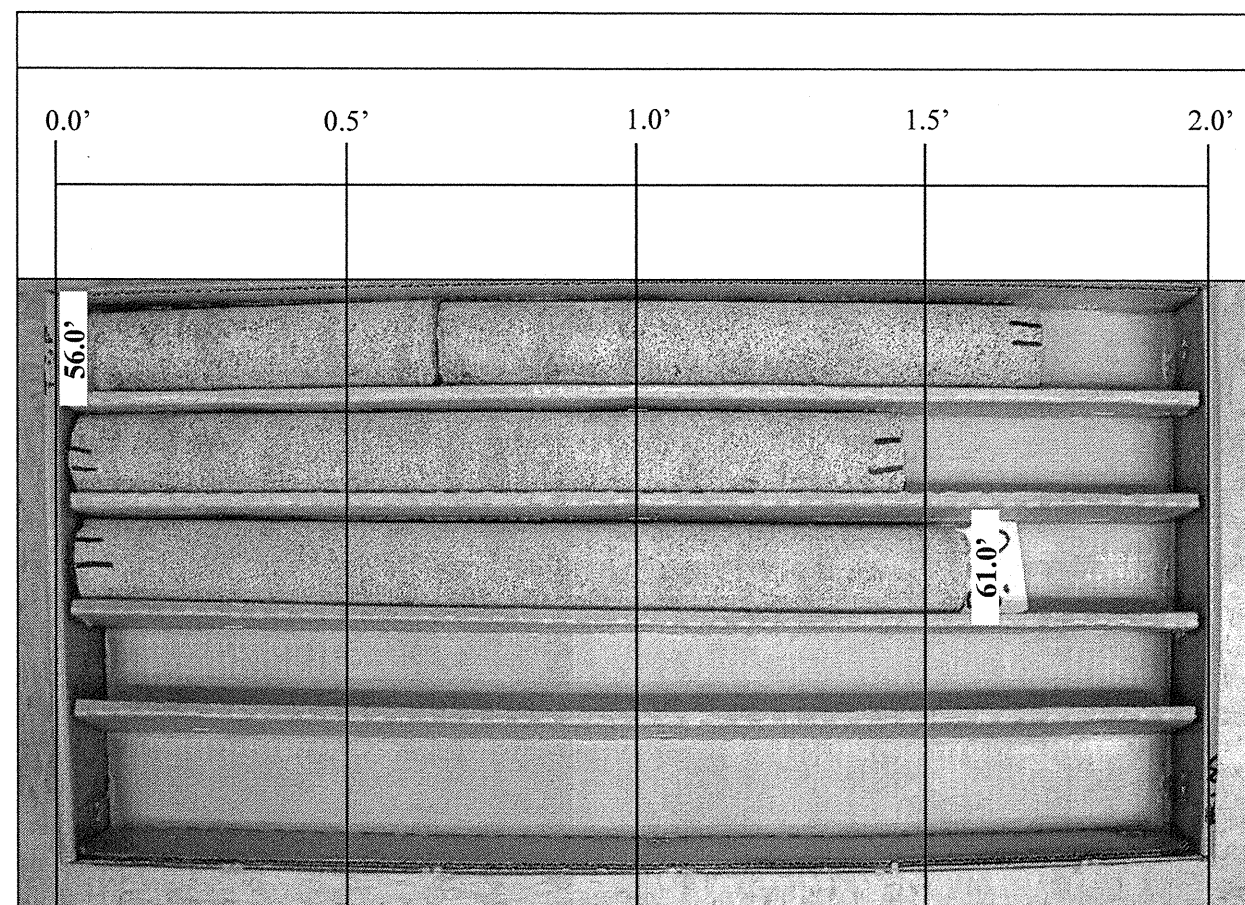
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B3-B, Box 3 of 4, 46.0 feet to 56.0 feet.



B3-B, Box 4 of 4, 56.0 feet to 61.0 feet.

SCALE 1:40 (1"=4")

ROCK CORE PHOTOGRAPHS

**BRIDGE ON -L- (PHARR MILL RD/ BLACKWELDER
RD. OVER -Y4- (NC 49) AND NCRR/NS
CABARRUS COUNTY, NORTH CAROLINA
WBS NO.: 50000.1.STR05T1B, TIP NO.: P-5208B**



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AASHTO SOIL CLASSIFICATION AND GRADATION SHEET
BRIDGE ON -L- (PHARR MILL RD/BLACKWELDER RD) OVER -Y4- (NC 49) AND NCRR/NS
NCDOT Project No: 50000.1.STR05T1B, T.I.P. No: P-5208B
CABARRUS COUNTY, NC

BORING #		SAMPLE #	TOTAL SAMPLE			MINUS 2.00 mm FRACTION				Atterberg Limit Test Results			MC
AASHTO Classification			% PASSING SIEVES			% BY WEIGHT							
STATION #	OFFSET (FEET)	DEPTH (FEET)	#10	#40	#200	Coarse Sand	Fine Sand	SILT	CLAY	LL	PL	PI	%
EB1-A		SS-1	100	91	70	13	19	28	40	50	27	23	34
A-7-6													
22+42	45' LT	6.0-7.5											
B1-B		SS-2	99	78	58	28	16	20	36	41	23	18	19
A-7-6													
23+48	16' RT	1.0-2.5											
B1-B		SS-3	98	73	15	58	29	5	8	21	NP	NP	27
A-2-4													
23+48	16' RT	18.5-20.0											
B2-A		SS-4	98	83	65	21	14	20	44	45	23	22	26
A-7-6													
24+54	11' LT	1.0-2.5											
B3-B		SS-5	97	85	56	22	23	17	39	45	21	24	14
A-7-6													
25+42	13' RT	1.0-2.5											
EB2-B		SS-6	96	79	42	29	31	16	24	37	20	17	20
A-6													
26+08	41' RT	1.0-2.5											

SIGNATURE

NCDOT NO.

101-0603

Notes:

- LL = Liquid limit
- PL = Plastic limit
- PI = Plasticity index = LL - PL



Unconfined Compression Test Test Data Sheet

Project: P5208B Pharr Mill/Blackwelder Rd. Grade Separation over NCR/NS
TIP No. : P-5208B

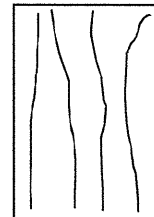
Boring No.: B1 - A
Sample ID: RS - 1
Depth, ft.: 21.5' - 22.3'

Specimen Conditions	
Diameter (in.)	1.99
Height (in.)	4.08
Area (in ²)	3.11
Unit Wt. (pcf)	182.4

Shear Testing Conditions	
Loading Rate (%/min):	0.02 in/min.

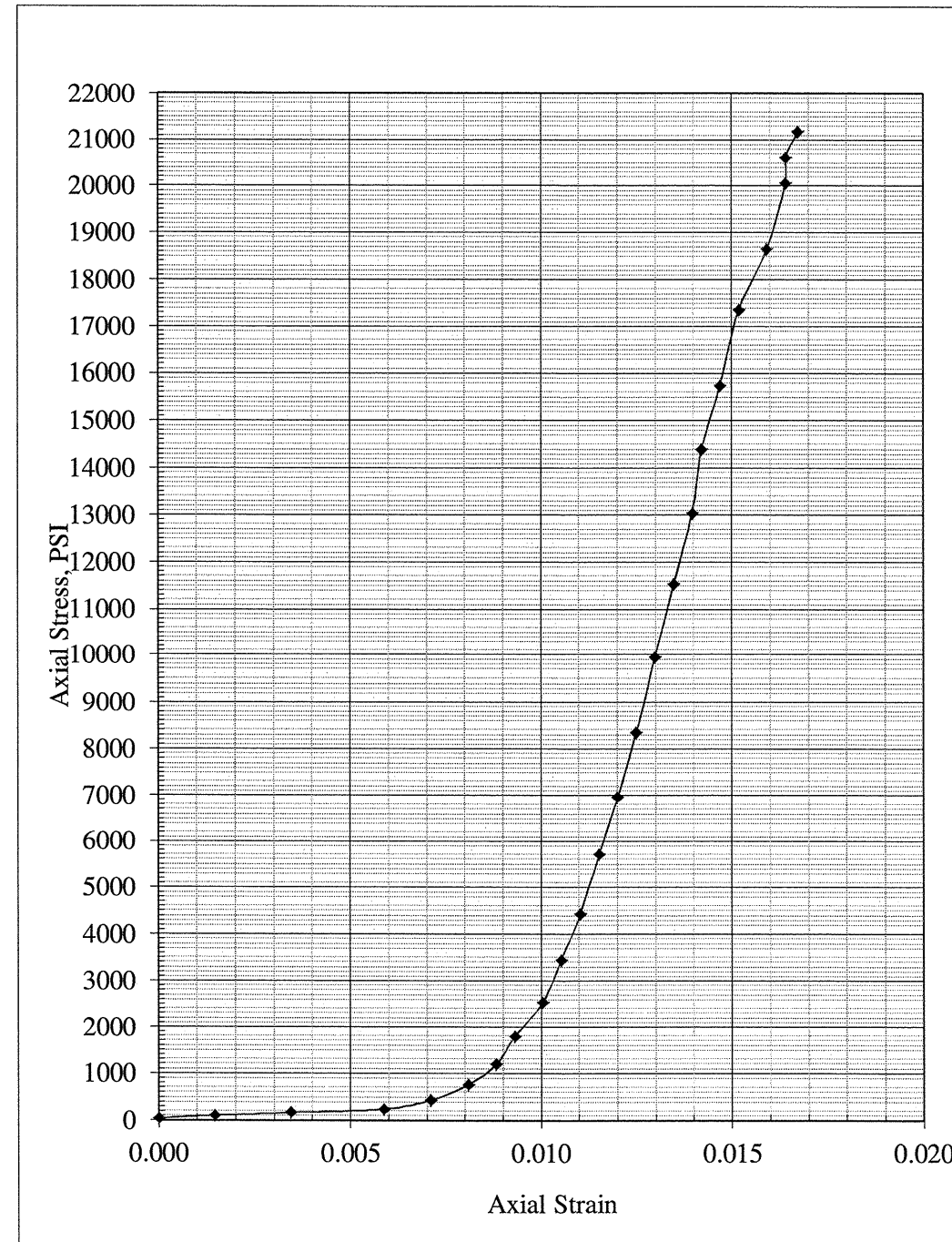
Youngs Modulus (average, ksf): 430,431

Failure Sketch*



Reading No.	Dial Guage Reading (in.)	Axial Load (lbs)	Total Axial Deformation (in.)	Axial Strain	Corrected Area ¹ (in ²)	Axial Stress (psi)	Axial Stress (Kpa)
1	0.000	122	0.000	0.0000	3.11	39.29	270.88
2	0.006	329	0.006	0.0015	3.11	105.95	730.48
3	0.014	516	0.014	0.0034	3.11	166.16	1145.66
4	0.024	758	0.024	0.0059	3.11	244.09	1682.93
5	0.029	1360	0.029	0.0071	3.11	437.94	3019.46
6	0.033	2350	0.033	0.0081	3.11	756.72	5217.40
7	0.036	3700	0.036	0.0088	3.11	1191.42	8214.58
8	0.038	5560	0.038	0.0093	3.11	1790.35	12344.01
9	0.041	7890	0.041	0.0100	3.11	2540.60	17516.81
10	0.043	10700	0.043	0.0105	3.11	3445.41	23755.26
11	0.045	13750	0.045	0.0110	3.11	4427.49	30526.47
12	0.047	17700	0.047	0.0115	3.11	5699.36	39295.70
13	0.049	21600	0.049	0.0120	3.11	6955.11	47953.84
14	0.051	25900	0.051	0.0125	3.11	8339.66	57499.92
15	0.053	30900	0.053	0.0130	3.11	9949.58	68599.96
16	0.055	35800	0.055	0.0135	3.11	11527.29	79477.88
17	0.057	40500	0.057	0.0140	3.11	13040.58	89911.68
18	0.058	44700	0.058	0.0142	3.11	14392.90	99235.62
19	0.060	48900	0.060	0.0147	3.11	15745.18	108559.24
20	0.062	53900	0.062	0.0152	3.11	17355.03	119658.78
21	0.065	57900	0.065	0.0159	3.11	18642.84	128537.89
22	0.067	62310	0.067	0.0164	3.11	20062.69	138327.40
23	0.067	64000	0.067	0.0164	3.11	20606.83	142079.18
24	0.068	65769	0.068	0.0167	3.11	21176.35	146005.87

Specimen Description: GRAY to LIGHTGRAY, GABBRO



Notes: 1. Right Cylinder Correction Method 2. *Specimen failed violently resulting in complete destruction of sample



Unconfined Compression Test Test Data Sheet

Project: P5208B Pharr Mill/Blackwelder Rd. Grade Separation over NCRR/NS
TIP No. : P-5208B

Boring No.: B1 - B
Sample ID: RS - 2
Depth, ft.: 28.0 - 28.5

Specimen Description: LIGHT GRAY TO GRAY, GABBRO

Specimen Conditions	
Diameter (in.)	1.98
Height (in.)	3.98
Area (in ²)	3.06
Unit Wt. (pcf)	184.6

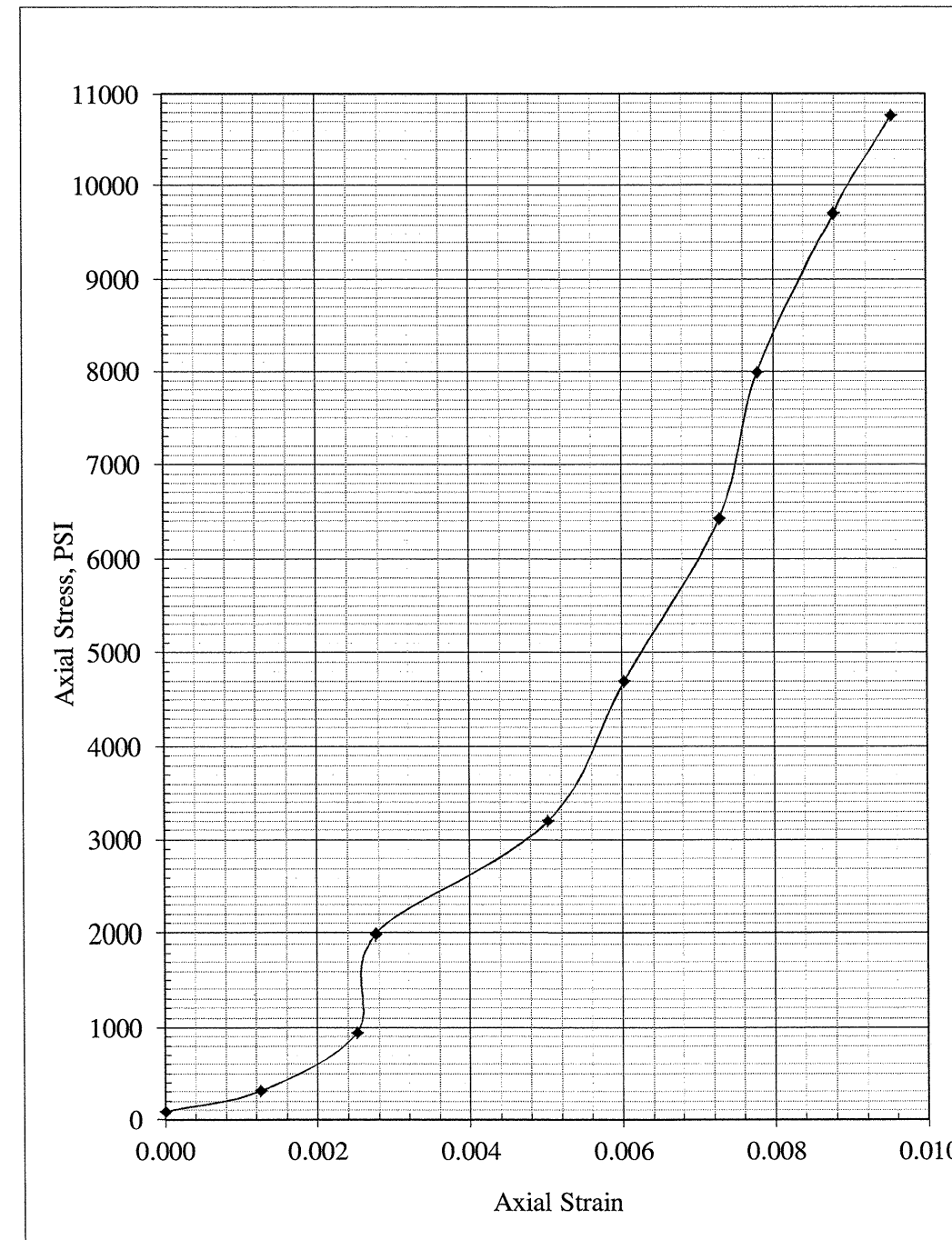
Shear Testing Conditions	
Loading Rate (%/min):	0.02 in/min.

Youngs Modulus (average, ksf): 241,016

Failure Sketch



Reading No.	Dial Guage Reading (in.)	Axial Load (lbs)	Total Axial Deformation (in.)	Axial Strain	Corrected Area ¹ (in ²)	Axial Stress (psi)	Axial Stress (Kpa)
1	0.000	275	0.000	0.0000	3.06	89.73	618.66
2	0.005	960	0.005	0.0013	3.06	313.23	2159.66
3	0.010	2900	0.010	0.0025	3.06	946.21	6523.90
4	0.011	6100	0.011	0.0028	3.06	1990.30	13722.65
5	0.020	9800	0.020	0.0050	3.06	3197.46	22045.73
6	0.024	14400	0.024	0.0060	3.06	4698.26	32393.41
7	0.029	19700	0.029	0.0073	3.07	6427.41	44315.42
8	0.031	24500	0.031	0.0078	3.07	7993.43	55112.81
9	0.035	29800	0.035	0.0088	3.07	9722.53	67034.50
10	0.038	32996	0.038	0.0095	3.07	10765.17	74223.28



Notes: 1. Right Cylinder Correction Method



Unconfined Compression Test Test Data Sheet

Project: P5208B Pharr Mill/Blackwelder Rd. Grade Separation over NCRR/NS
TIP No. : P-5208B

Boring No.: B2 - A
Sample ID: RS - 3
Depth, ft.: 25.4' - 26.0'

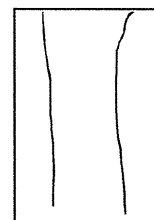
Specimen Description: GRAY, GABBRO

Specimen Conditions	
Diameter (in.)	1.99
Height (in.)	4.19
Area (in ²)	3.12
Unit Wt. (pcf)	182.8

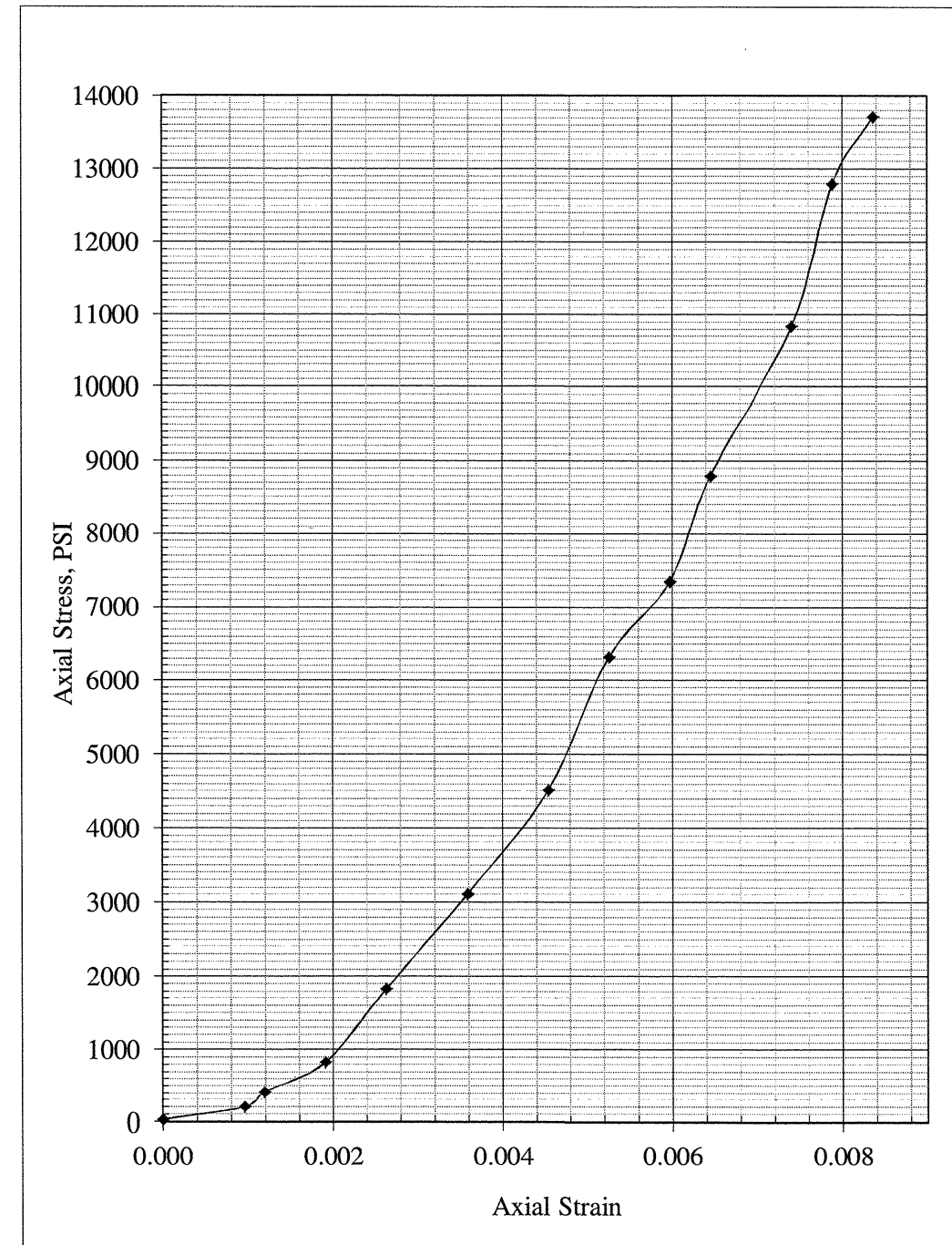
Shear Testing Conditions	
Loading Rate (%/min):	0.02 in/min.

Youngs Modulus (average, ksf): 317,451

Failure Sketch



Reading No.	Dial Guage Reading (in.)	Axial Load (lbs)	Total Axial Deformation (in.)	Axial Strain	Corrected Area ¹ (in ²)	Axial Stress (psi)	Axial Stress (Kpa)
1	0.000	103	0.000	0.0000	3.12	33.04	227.78
2	0.004	630	0.004	0.0010	3.12	202.07	1393.20
3	0.005	1290	0.005	0.0012	3.12	413.75	2852.73
4	0.008	2600	0.008	0.0019	3.12	833.91	5749.64
5	0.011	5700	0.011	0.0026	3.12	1828.18	12604.90
6	0.015	9700	0.015	0.0036	3.12	3111.09	21450.23
7	0.019	14100	0.019	0.0045	3.12	4522.27	31179.94
8	0.022	19700	0.022	0.0053	3.12	6318.30	43563.15
9	0.025	22920	0.025	0.0060	3.12	7350.98	50683.26
10	0.027	27400	0.027	0.0064	3.12	8787.78	60589.64
11	0.031	33800	0.031	0.0074	3.12	10840.30	74741.25
12	0.033	39900	0.033	0.0079	3.12	12796.62	88229.64
13	0.035	42765	0.035	0.0084	3.12	13715.41	94564.47



Notes: 1. Right Cylinder Correction Method



Unconfined Compression Test Test Data Sheet

Project: P5208B Pharr Mill/Blackwelder Rd. Grade Separation over NCRR/NS
TIP No. : P-5208B

Boring No.: B2 - B
Sample ID: RS - 4
Depth, ft.: 25.2' - 25.8'

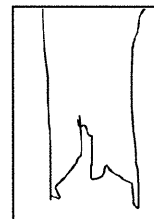
Specimen Description: GRAY, GABBRO

Specimen Conditions	
Diameter (in.)	1.99
Height (in.)	4.50
Area (in ²)	3.12
Unit Wt. (pcf)	176.8

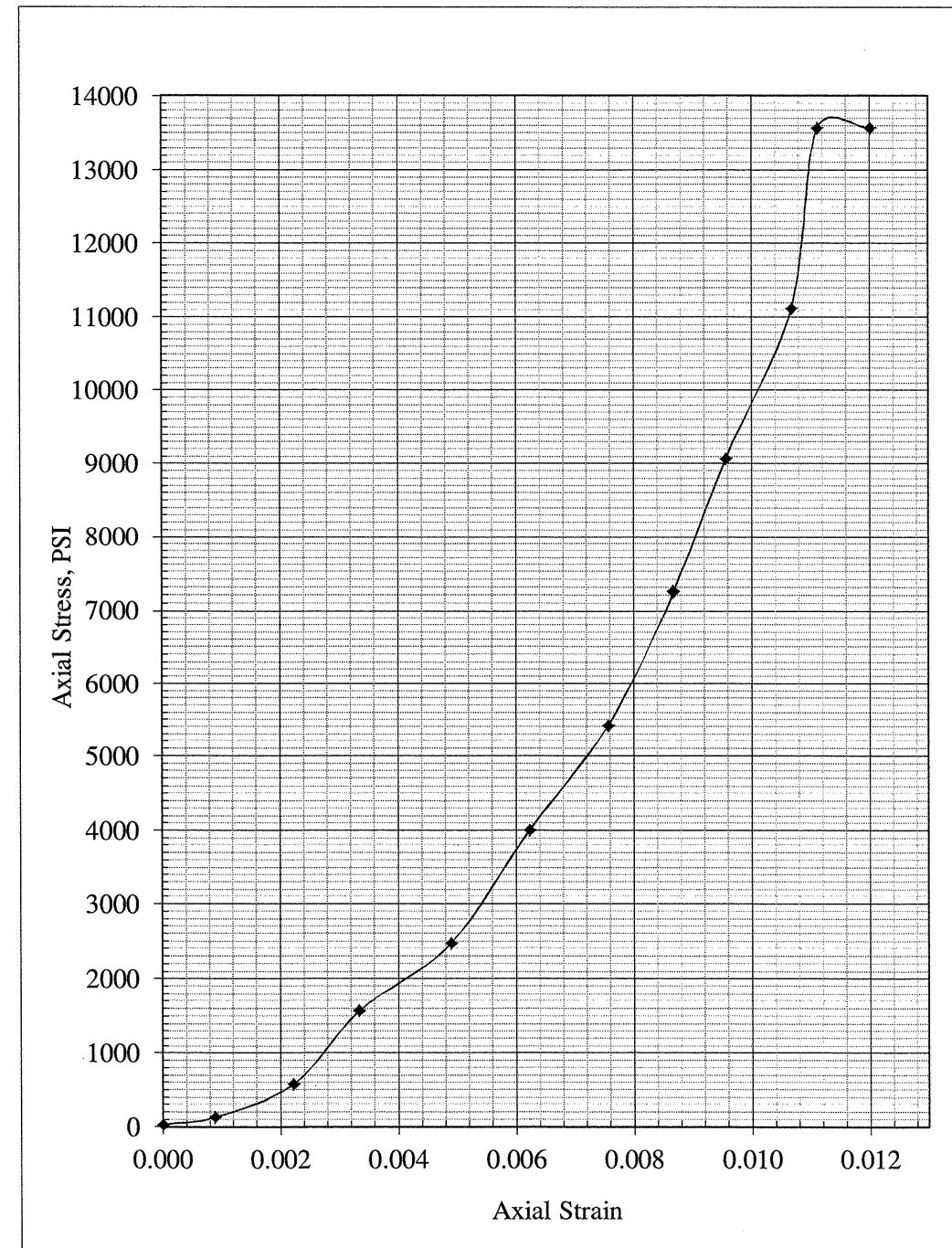
Shear Testing Conditions	
Loading Rate (%/min):	0.02 in/min.

Youngs Modulus (average, ksf): 215,448

Failure Sketch



Reading No.	Dial Guage Reading (in.)	Axial Load (lbs)	Total Axial Deformation (in.)	Axial Strain	Corrected Area ¹ (in ²)	Axial Stress (psi)	Axial Stress (Kpa)
1	0.000	104	0.000	0.0000	3.12	33.32	229.76
2	0.004	410	0.004	0.0009	3.12	131.37	905.77
3	0.010	1800	0.010	0.0022	3.12	576.74	3976.52
4	0.015	4900	0.015	0.0033	3.12	1570.01	10824.84
5	0.022	7700	0.022	0.0049	3.12	2467.12	17010.20
6	0.028	12500	0.028	0.0062	3.12	4005.01	27613.59
7	0.034	16900	0.034	0.0076	3.12	5414.70	37333.08
8	0.039	22600	0.039	0.0087	3.12	7240.88	49924.15
9	0.043	28303	0.043	0.0096	3.12	9068.00	62521.71
10	0.048	34700	0.048	0.0107	3.12	11117.42	76651.92
11	0.050	42343	0.050	0.0111	3.12	13566.07	93534.80
12	0.054	42343	0.054	0.0120	3.12	13565.95	93533.97



Notes: 1. Right Cylinder Correction Method



Unconfined Compression Test Test Data Sheet

Project: P5208B Pharr Mill/Blackwelder Rd. Grade Separation over NCR/NS
TIP No. : P-5208B

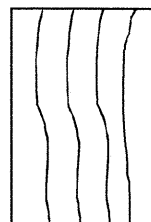
Boring No.: B3 - A
Sample ID: RS - 5
Depth, ft.: 13.8' - 14.5'

Specimen Conditions	
Diameter (in.)	1.87
Height (in.)	4.21
Area (in ²)	2.74
Unit Wt. (pcf)	183.6

Shear Testing Conditions	
Loading Rate (%/min):	0.02 in/min.

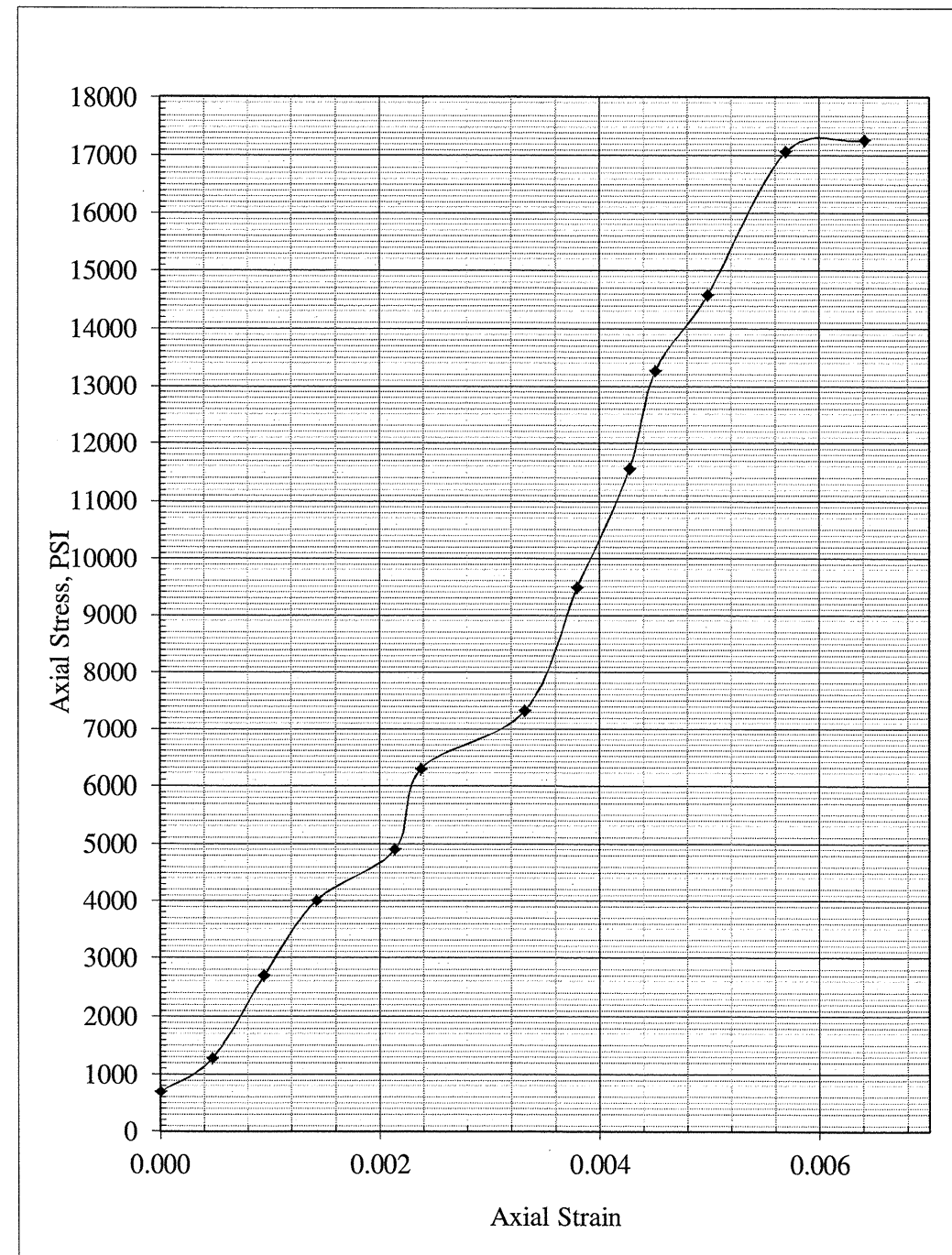
Youngs Modulus (average, ksf): 435,383

Failure Sketch*



Reading No.	Dial Guage Reading (in.)	Axial Load (lbs)	Total Axial Deformation (in.)	Axial Strain	Corrected Area ¹ (in ²)	Axial Stress (psi)	Axial Stress (Kpa)
1	0.000	1898	0.000	0.0000	2.74	692.27	4773.06
2	0.002	3500	0.002	0.0005	2.74	1276.58	8801.70
3	0.004	7400	0.004	0.0009	2.74	2699.04	18609.23
4	0.006	11000	0.006	0.0014	2.74	4012.07	27662.23
5	0.009	13446	0.009	0.0021	2.74	4904.17	33813.07
6	0.010	17200	0.010	0.0024	2.74	6273.35	43253.27
7	0.014	20100	0.014	0.0033	2.74	7331.00	50545.49
8	0.016	26000	0.016	0.0038	2.74	9482.84	65381.91
9	0.018	31700	0.018	0.0043	2.74	11561.72	79715.26
10	0.019	36400	0.019	0.0045	2.74	13275.88	91534.02
11	0.021	40000	0.021	0.0050	2.74	14588.81	100586.36
12	0.024	46800	0.024	0.0057	2.74	17068.79	117685.20
13	0.027	47352	0.027	0.0064	2.74	17269.99	119072.44

Specimen Description: LIGHT TO DARK GRAY, GABBRO



Notes: 1. Right Cylinder Correction Method 2. *Specimen failed violently resulting in complete destruction of sample



Unconfined Compression Test Test Data Sheet

Project: P5208B Pharr Mill/Blackwelder Rd. Grade Separation over NCRR/NS
TIP No. : P-5208B

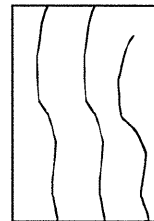
Boring No.: B3 - B
Sample ID: RS - 6
Depth, ft.: 28.0' - 28.5'

Specimen Conditions	
Diameter (in.)	1.87
Height (in.)	4.18
Area (in ²)	2.74
Unit Wt. (pcf)	185.0

Shear Testing Conditions	
Loading Rate (%/min):	0.02 in/min.

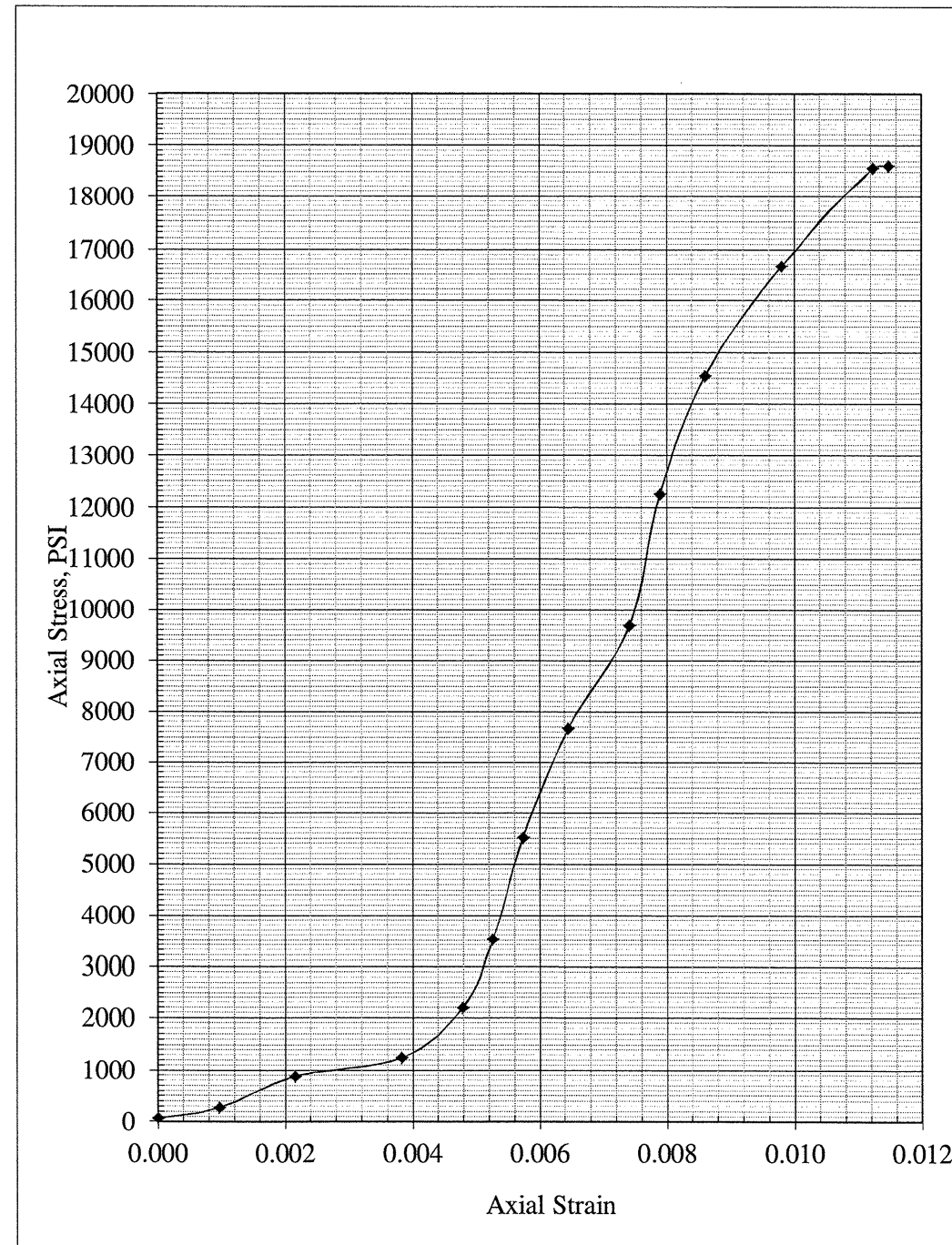
Youngs Modulus (average, ksf): 415,138

Failure Sketch



Reading No.	Dial Guage Reading (in.)	Axial Load (lbs)	Total Axial Deformation (in.)	Axial Strain	Corrected Area ¹ (in ²)	Axial Stress (psi)	Axial Stress (Kpa)
1	0.000	182	0.000	0.0000	2.74	66.52	458.67
2	0.004	750	0.004	0.0010	2.74	274.14	1890.12
3	0.009	2400	0.009	0.0022	2.74	877.23	6048.30
4	0.016	3400	0.016	0.0038	2.74	1242.72	8568.28
5	0.020	6000	0.020	0.0048	2.74	2193.02	15120.35
6	0.022	9600	0.022	0.0053	2.74	3508.81	24192.44
7	0.024	15100	0.024	0.0057	2.74	5519.05	38052.51
8	0.027	21000	0.027	0.0065	2.74	7675.44	52920.32
9	0.031	26500	0.031	0.0074	2.74	9685.58	66779.77
10	0.033	33500	0.033	0.0079	2.74	12243.98	84419.30
11	0.036	39800	0.036	0.0086	2.74	14546.48	100294.45
12	0.041	45600	0.041	0.0098	2.74	16666.11	114908.86
13	0.047	50800	0.047	0.0112	2.74	18566.37	128010.66
14	0.048	50926	0.048	0.0115	2.74	18612.38	128327.86

Specimen Description: LIGHT TO DARK GRAY, GABBRO



Notes: 1. Right Cylinder Correction Method



PROFILE (-L-), LOOKING DOWNSTATION FROM STA. 28+00.



NC 49 (-Y4-) CROSSING AT STA. 25+40 -L-, LOOKING WEST

SITE PHOTOGRAPHS

**BRIDGE ON -L- (PHARR MILL RD/BLACKWELDER RD)
OVER -Y4- (NC 49) AND NCRR/ NS
CABARRUS COUNTY, NORTH CAROLINA
WBS NO.: 50000.1.STR05T1B, TIP NO.: P-5208B**



URS Corporation – North Carolina
1600 Perimeter Park Drive, Suite 400
Morrisville, NC 27560
Tel: 919-461-1100 Fax: 919-46-1415



NCRR/NS CROSSING AT STA. 23+80 -L-, LOOKING WEST

SITE PHOTOGRAPHS

**BRIDGE ON -L- (PHARR MILL RD/BLACKWELDER RD)
OVER -Y4- (NC 49) AND NCRR/ NS
CABARRUS COUNTY, NORTH CAROLINA
WBS NO.: 50000.1.STR05T1B, TIP NO.: P-5208B**



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