

NORTH CAROLINA DIVISION OF HIGHWAYS

GEOTECHNICAL UNIT

SOIL AND ROCK CLASSIFICATION, LEGEND, AND ABBREVIATIONS

SOIL LEGEND AND AASHTO CLASSIFICATION										CONSISTENCY OR DENSENESS					
GENERAL CLASS.	GRANULAR MATERIALS (< 35% PASSING #270)					SILT-CLAY MATERIALS (> 35% PASSING #270)			ORGANIC MATERIALS		PRIMARY SOIL TYPE	COMPACTNESS OR CONSISTENCY	RANGE OF STANDARD PENETRATION RESISTANCE (IN - VALUE)	RANGE OF UNCONFINED COMPRESSIVE STRENGTH (kN / m ²)	
GROUP CLASS.	A-1	A-3	A-2		A-4	A-5	A-6	A-7	A-1,A-2	A-4,A-5					
SYMBOL															
% PASSING	#10 #40 #270	50 MX 30 MX 15 MX	50 MX 25 MX	51 MN 10 MX	35 MX 35 MX	35 MX 35 MX	35 MX 35 MX	36 MN 36 MN	36 MN 36 MN	36 MN 36 MN	36 MN 36 MN	GRANULAR SOILS	SILT-CLAY SOILS	MUCK, PEAT	
(PASSING #40) LL PI		6 MX	N.P.	40 MX 10 MX	41 MN 10 MX	40 MX 10 MX	41 MN 10 MX	40 MX 10 MX	41 MN 10 MX	40 MX 10 MX	41 MN 10 MX	SOILS WITH LITTLE OR MODERATE AMOUNTS OF ORGANIC MATTER		HIGHLY ORGANIC SOILS	
GROUP INDEX	0	0	0	0	0	0	0	0	0	0	0				
USUAL TYPES OF MAJOR MATERIALS	STONE FRAGS. GRAVEL & SAND	FINE SAND	SILTY OR CLAYEY GRAVEL AND SAND		4 MX		SILTY SOILS		CLAYEY SOILS						

* PI OF A-7-5 ≤ (LL-30); PI OF A-7-6 > (LL-30)

TEXTURE OR GRAIN SIZE

	BOULDER	COBBLE	GRAVEL	COARSE SAND	MED. SAND	FINE SAND	SILT	CLAY
GRAIN (mm)	305	75	2	0.6	0.425	0.2	0.075	0.002
SIZE (IN)	12	3						

SOIL MOISTURE - CORRELATION OF TERMS

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

ROCK DESCRIPTION

IN THE BROADEST MEANING, HARD ROCK IS CONSIDERED TO BE THAT INDURATED EARTH MATERIAL WHICH CANNOT BE SAMPLED BY CONVENTIONAL SOIL SAMPLING TOOLS OR TECHNIQUES. THE BOUNDARY BETWEEN SOIL AND ROCK IS ARBITRARY. TRANSITION BETWEEN SOIL AND ROCK IS OFTEN REPRESENTED BY A ZONE OF 'WEATHERED ROCK'. FOR THE PURPOSE OF THIS INVESTIGATION, THESE MATERIALS ARE DIVIDED AS FOLLOWS:

TERM	SYMBOLS	DESCRIPTION
HARD ROCK (HR)		MATERIAL THAT CANNOT BE PENETRATED BY POWER AUGERS, EXCEPT IN THIN LEDGES, AND REQUIRES ROCK CORING TOOLS FOR OBTAINING A SAMPLE
WEATHERED ROCK (WR)		MATERIAL THAT CAN BE PENETRATED WITH GREAT DIFFICULTY USING POWER AUGERS AND YIELDS SPT REFUSAL
		MATERIAL THAT CAN BE PENETRATED WITH SOME DIFFICULTY USING POWER AUGERS AND YIELDS SPT VALUES > 100 BLOWS BUT < SPT REFUSAL

¹ SPT REFUSAL ≤ 25 mm OF PENETRATION PER 50 BLOWS IN SPT.

² AN INFERRED ROCK LINE INDICATES THE LEVEL AT WHICH AUGERS COULD NO LONGER PENETRATE. THE HARD ROCK SYMBOL IS SHOWN WHEN ROCK IS CORED AND ONLY TO THAT DEPTH CORED. A DESCRIPTION OF ROCK IS GIVEN, INCLUDING:

CORE RECOVERY (REC.) - TOTAL LENGTH OF ROCK RECOVERED IN THE CORE BARREL DIVIDED BY THE TOTAL LENGTH OF THE CORE RUN TIMES 100%.

ROCK QUALITY DESIGNATION (ROD) - TOTAL LENGTH OF SOUND ROCK SEGMENTS RECOVERED THAT ARE LONGER THAN OR EQUAL TO 100 mm DIVIDED BY THE TOTAL LENGTH OF THE CORE RUN TIMES 100%.

GROUND WATER

	WATER LEVEL IN BORE HOLE [IMMEDIATELY AFTER DRILLING (I.A.O.) SOON AFTER DRILLING (Σ 0 HRS.)]
	STATIC WATER LEVEL (AFTER 24 - 48 HRS.)
	PERCHED WATER (PV), SATURATED ZONE, OR WATER BEARING STRATA
	SPRING OR SEEPAGE

MISCELLANEOUS SYMBOLS AND ABBREVIATIONS

	ROADWAY EMBANKMENT WITH SOIL DESCRIPTION		SPT DCP TEST BORING		SAMPLE DESIGNATIONS
	SOIL SYMBOL		AUGER BORING		S-BULK SAMPLE
	ARTIFICIAL FILL OTHER THAN ROADWAY EMBANKMENTS		CORE BORING		SS-SPLIT SPOON SAMPLE
	INFERRED SOIL BOUNDARIES		PIEZOMETER INSTALLATION		ST-SHELBY TUBE SAMPLE
	STRIKE AND DIP		SLOPE INDICATOR INSTALLATION		PAVEMENT STRUCTURE
	APPARENT DIP (NORMAL TO _____)		SPT N-VALUE		
	ROD SOUNDING		MONITORING WELL		

ABBREVIATIONS

ALLUV.	ALLUVIUM	MIC.	MICACEOUS
A.R.	AUGER REFUSAL	MOT.	MOTTLED
B.T.	BORING TERMINATED	N	BLOWS / 300 mm
BLDR.	BOULDER	NS	NO SAMPLE TAKEN
CALC.	CALCAREOUS	ORG.	ORGANIC
CL.	CLAY	R.C.R.	ROLLER CONE REFUSAL
CLY.	CLAYEY	REF.	REFER TO
COB.	COBBLE	RES.	RESIDUAL
CSE.	COARSE	S.	SOFT
D.C.P.	DYNAMIC CONE PENETRATION	SAT.	SATURATED
EST.	ESTIMATED	SD.	SAND
F.	FINE	SDY.	SANDY
FOSS.	FOSSILIFEROUS	SED(S).	SEDIMENT(S)
FRAC.	FRACTURED	SL.	SILT, SILTY
FRAG(S).	FRAGMENT(S)	SLI.	SLIGHTLY
GR.	GRAVEL	SPT	STANDARD PENETRATION TEST
GS	SPECIFIC GRAVITY	TS.	TOPSOIL
GW	GROUND WATER	VST	VANE SHEAR TEST
MED.	MEDIUM	V.	VERY
N.M.	NOT MEASURED	W/	WITH
N.R.	NO RECOVERY	T.C.R.	TRI-CONE REFUSAL
C.T.	CORING TERMINATED	A.R.	AUGER REFUSAL

BENCH MARK: BM 4- CHISELED SQUARE IN STEP OF LOADING
DDCK. -BL- STA 12+59.304, 28.983 M LT. (EL. 354.751)

STATE PROJECT NO. 8.2791701
T.I.P. NO. U-2306A F.A. NO. MASTP-1216(8)

SITE DESCRIPTION BRIDGE ON NSRR OVER SR 1007

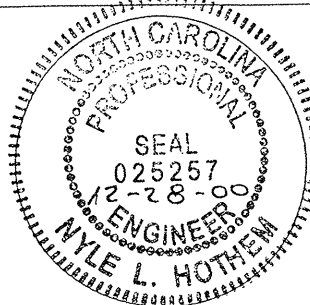
PROJECT ENGINEER C.V. NORVILLE SUBMITTED BY N.L. HOTHEM

PERSONNEL D.L. TEAGUE

T.J. ROBERSON

D.R. KITCHEN

DATE SUBMITTED 12/03



SEAL

Signature

CAUTION NOTICE

THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WAS 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 UNIT @ (919) 250-4088. NEITHER THE SUBSURFACE PLANS AND REPORTS, NOR THE FIELD BORING LOGS, ROCK CORES, OR SOIL TEST DATA IS 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.

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.

LEGEND SUPPLEMENT

In addition to the terms and abbreviations listed on the Legend Sheet, the following will be used to further describe rock quality on this project. Because of limited space on the logs, abbreviations are in parenthesis.

WEATHERING

Fresh	Rock fresh, crystals bright, few joints may show slight staining. Rock rings under hammer if crystalline
Very Slight (V.SLI.)	Rock generally fresh, joints stained, some joints may show thin clay coatings if open, crystals on a broken specimen face shine brightly. Rock rings under hammer blows if of a crystalline nature.
Slight (SLI.)	Rock generally fresh, joints stained and discoloration extends into rock up to 0.025 meters. Open joints may contain clay. In granitoid rocks some occasional feldspar crystals are dull and discolored. Crystalline rocks ring under hammer blows.
Moderate (MOD.)	Significant portions of rock show discoloration and weathering effects. In granitoid rocks, most feldspars are dull and discolored, some show clay. Rock has dull sound under hammer blows and show significant loss of strength as compared with fresh rock.
Moderately Severe (MOD.SEV.)	All rock except quartz discolored or stained. In granitoid rocks, all feldspars dull and discolored and a majority show kaolinization. Rock shows severe loss of strength & can be excavated with geologist's pick. Rock gives "clunk" sound when struck. Comparable to hard weathered rock.
Severe (SEV.)	All rocks except quartz discolored or stained. Rock "fabric" clear and evident but reduced in strength to strong soil. In granitoid rocks all feldspars are kaolinized to some extent. Some fragments of strong rock usually remain. Comparable to soft weathered rock.
Very Severe (V.SEV.)	All rock except quartz discolored or stained. Rock fabric elements are discernible but the mass is effectively reduced to soil status, with only fragments of strong rock remaining. Saprolite is an example of rock weathered to a degree such that only minor vestiges of the original rock fabric remain. Comparable to soil
Complete	Rock reduced to soil. Rock fabric not discernible only in small and scattered concentrations. Quartz may be present as dikes or stringers. Saprolite is also an example. Comparable to soil.

ROCK CONTINUITY

Sound -	Core Pieces Larger Than .2 meters
Slightly Fractured (SLI.FRAC.) -	Core Pieces Between .1 meters and .2 meters
Moderately Fractured (MOD.FRAC.) -	Core pieces between .025 meters and .1 meters
Extremely Fractured (EXT.FRAC.) -	Core pieces less than .025

JOINT SPACING

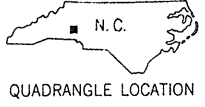
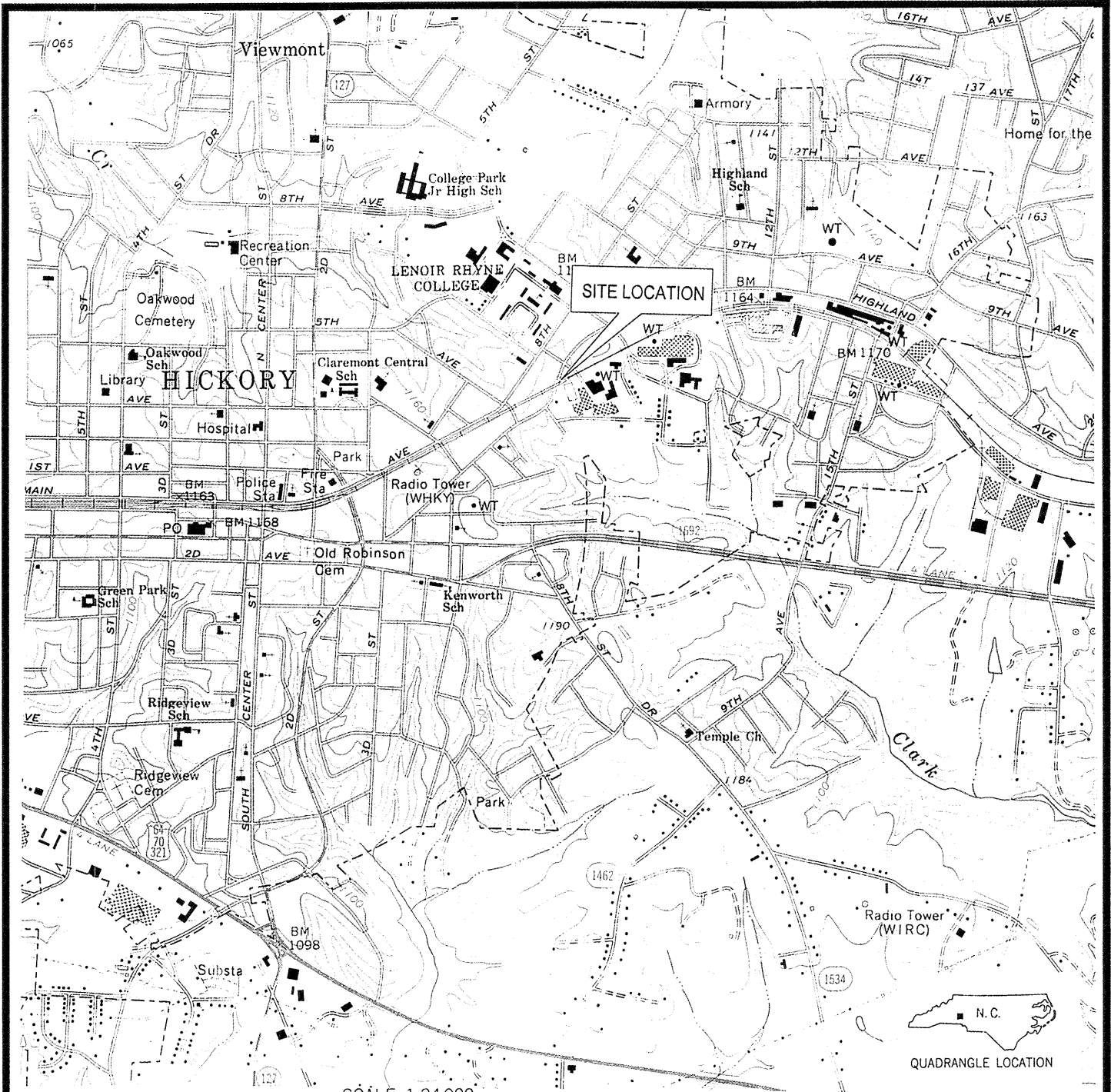
Average Discontinuity Spacing (ADS)

The average measured distance (in meters) between joints in the same set. Will not apply to individual joints.

JOINT THICKNESS

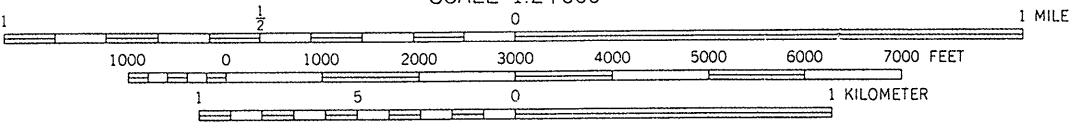
Average Discontinuity Thickness (ADS)

The average thickness or width of gap in the joint (in meters).



QUADRANGLE LOCATION

SCALE 1:24 000

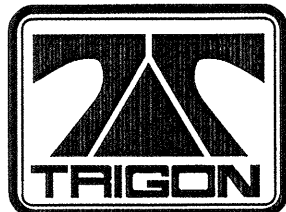


HICKORY, N. C.
N3537.5—W8115/7.5

1970

CONTOUR INTERVAL 20 FEET
DATUM IS MEAN SEA LEVEL

AMS 4755 III NE—SERIES V842



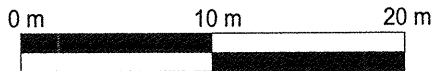
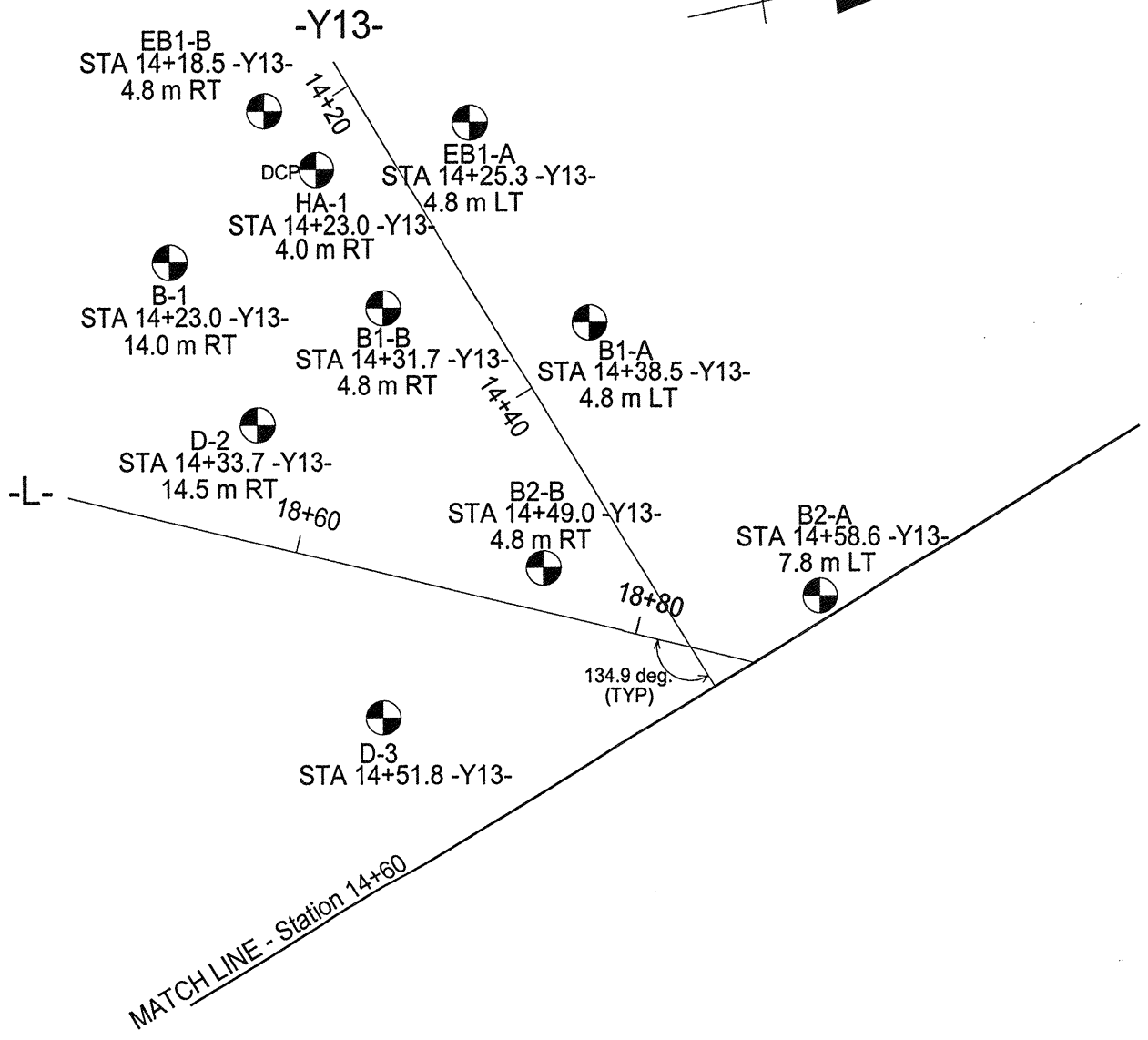
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SITE LOCATION PLAN

BRIDGE ON NSRR OVER SR 1007

CATAWBA COUNTY

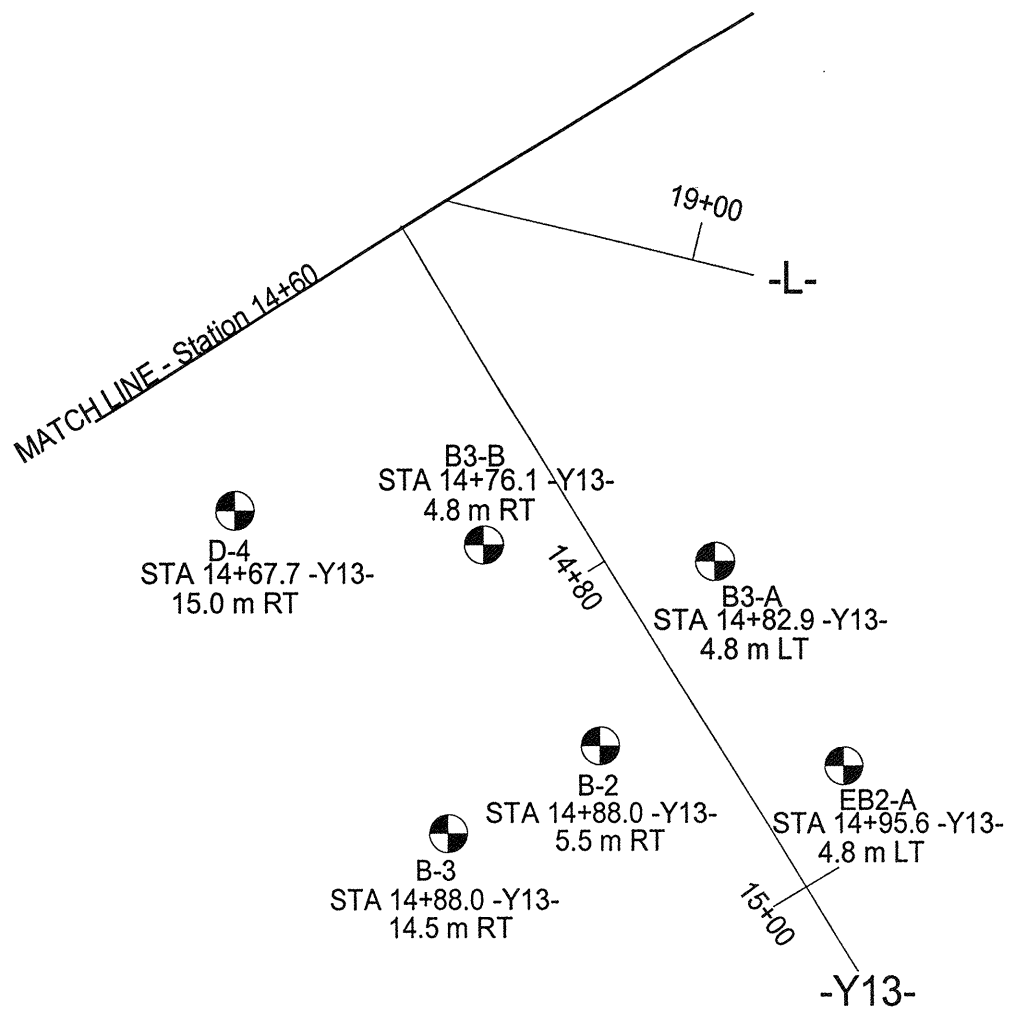
Project No.	8.2791701	Tip No.	U-2306A
Federal No.	MASTP-1216(8)	Vert. Scale	N/A
Date	12/00	Horiz. Scale	N/A
Drawn By	DLT	Drawing No.	1



BM 4 - CHISELED SQUARE IN STEP OF LOADING DOCK
 -BL- STA 12+59.304, 28.983 m LT (EL. 354.751)



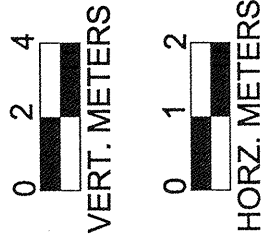
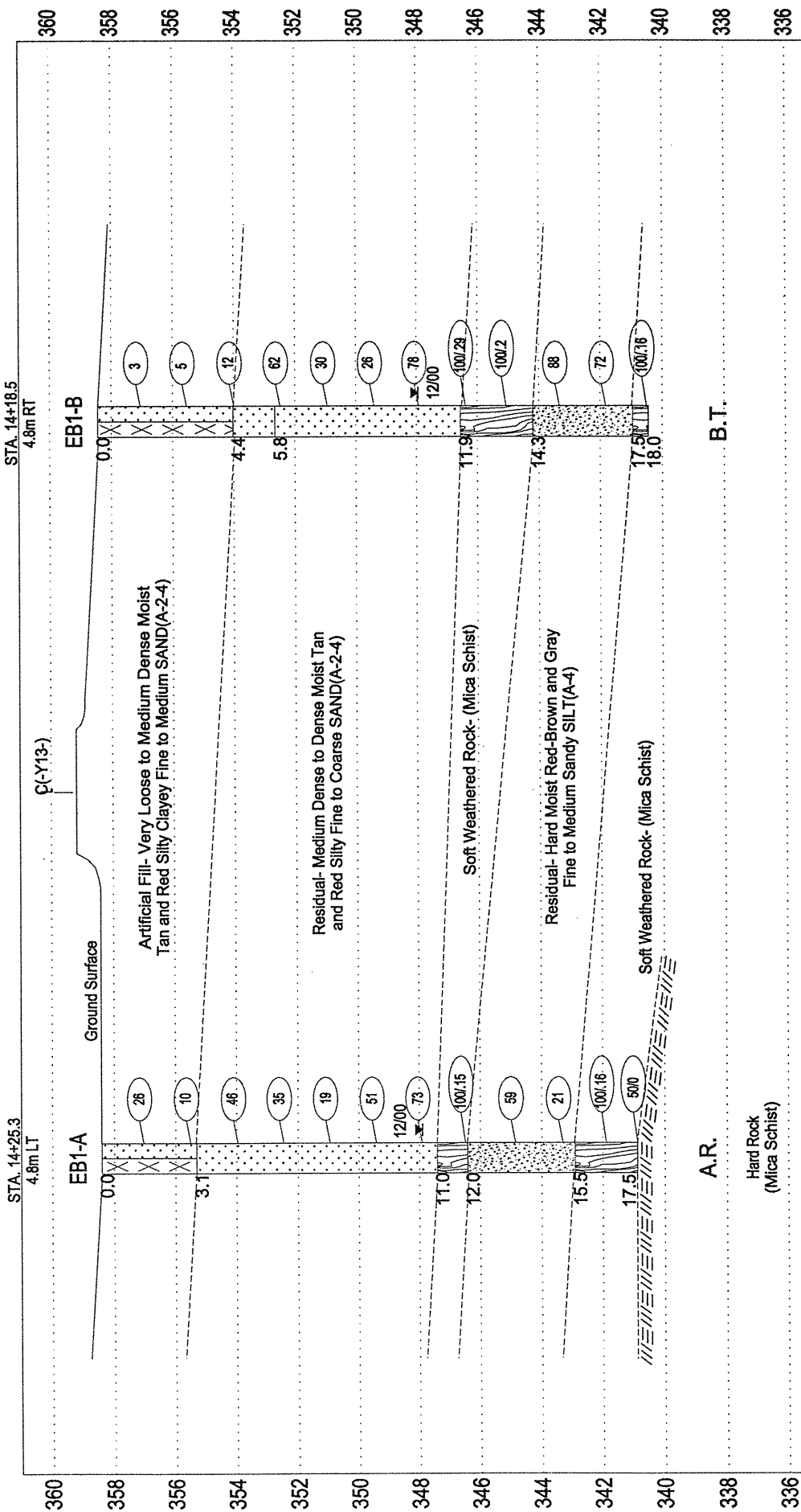
BORING IDENTIFICATION DIAGRAM	
BRIDGE ON NSRR OVER SR 1007	
CATAWBA COUNTY	
Project No. 8.2791701	Tip No. U-2306A
Federal No. MASTP-1216(8)	Vert. Scale N/A
Date 12/00	Horiz. Scale 1:400
Drawn By DLT	Drawing No. 2A



BM 4 - CHISELED SQUARE IN STEP OF LOADING DOCK
 -BL- STA 12+59.304, 28.983 m LT (EL. 354.751)

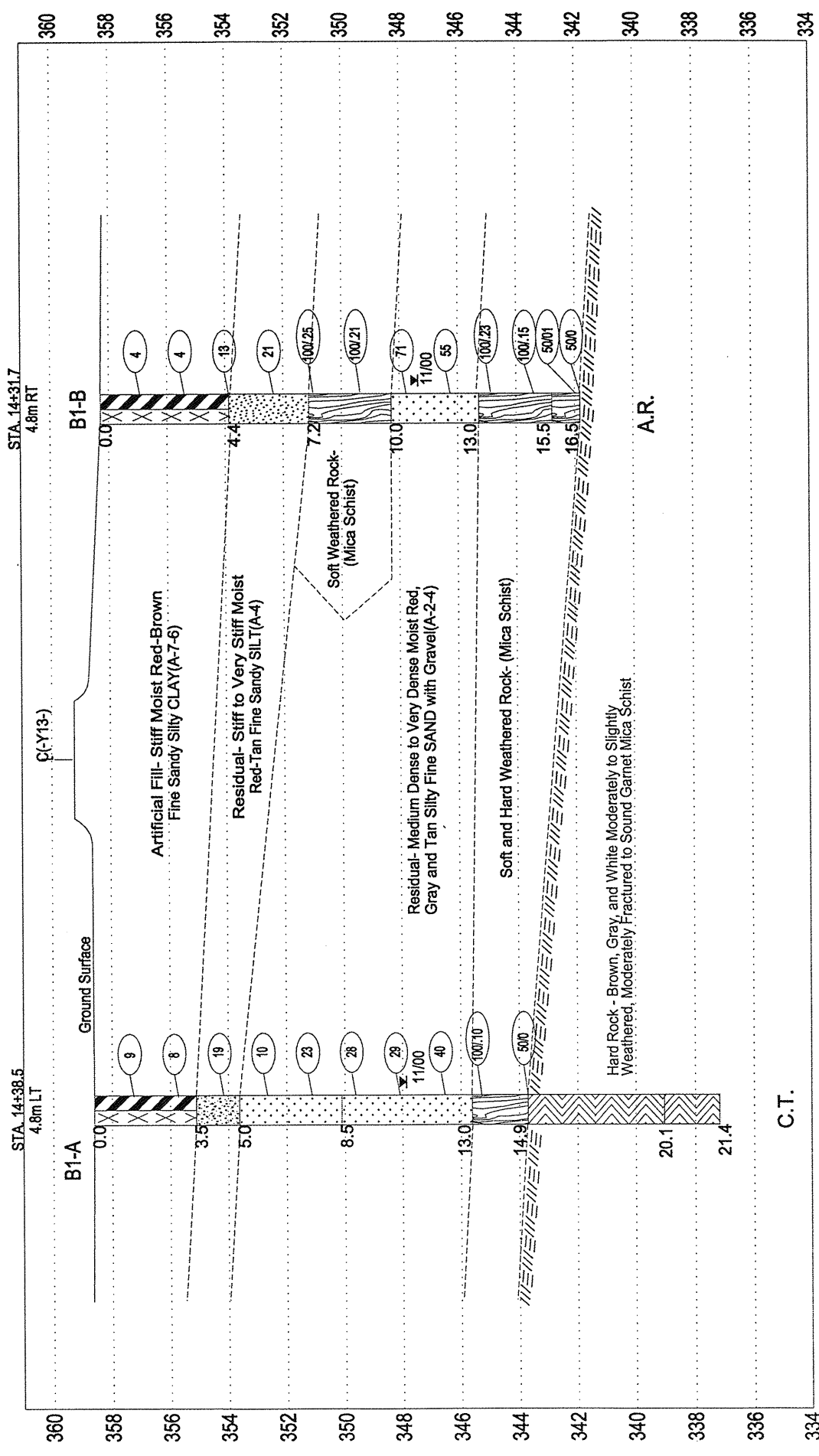


BORING IDENTIFICATION DIAGRAM	
BRIDGE ON NSRR OVER SR 1007	
CATAWBA COUNTY	
Project No. 8.2791701	Tip No. U-2306A
Federal No. MASTP-1216(8)	Vert. Scale N/A
Date 12/00	Horiz. Scale 1:400
Drawn By DLT	Drawing No. 2B



CROSS SECTION THROUGH BORINGS AT END BENT-1

BRIDGE ON NSRR OVER SR 1007	
CATAWBA COUNTY, NORTH CAROLINA	
Project No. 8.2791701	TIP No. U-2306A
Federal No. MASTP-1216(8)	Vert. Scale 1 = 200
Date 12/12/00	Horiz. Scale 1 = 100
Drawn by DRK	Drawing No. 3

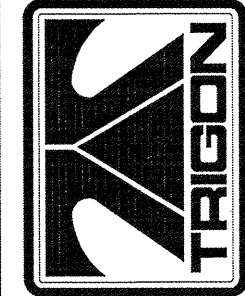
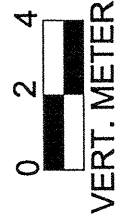
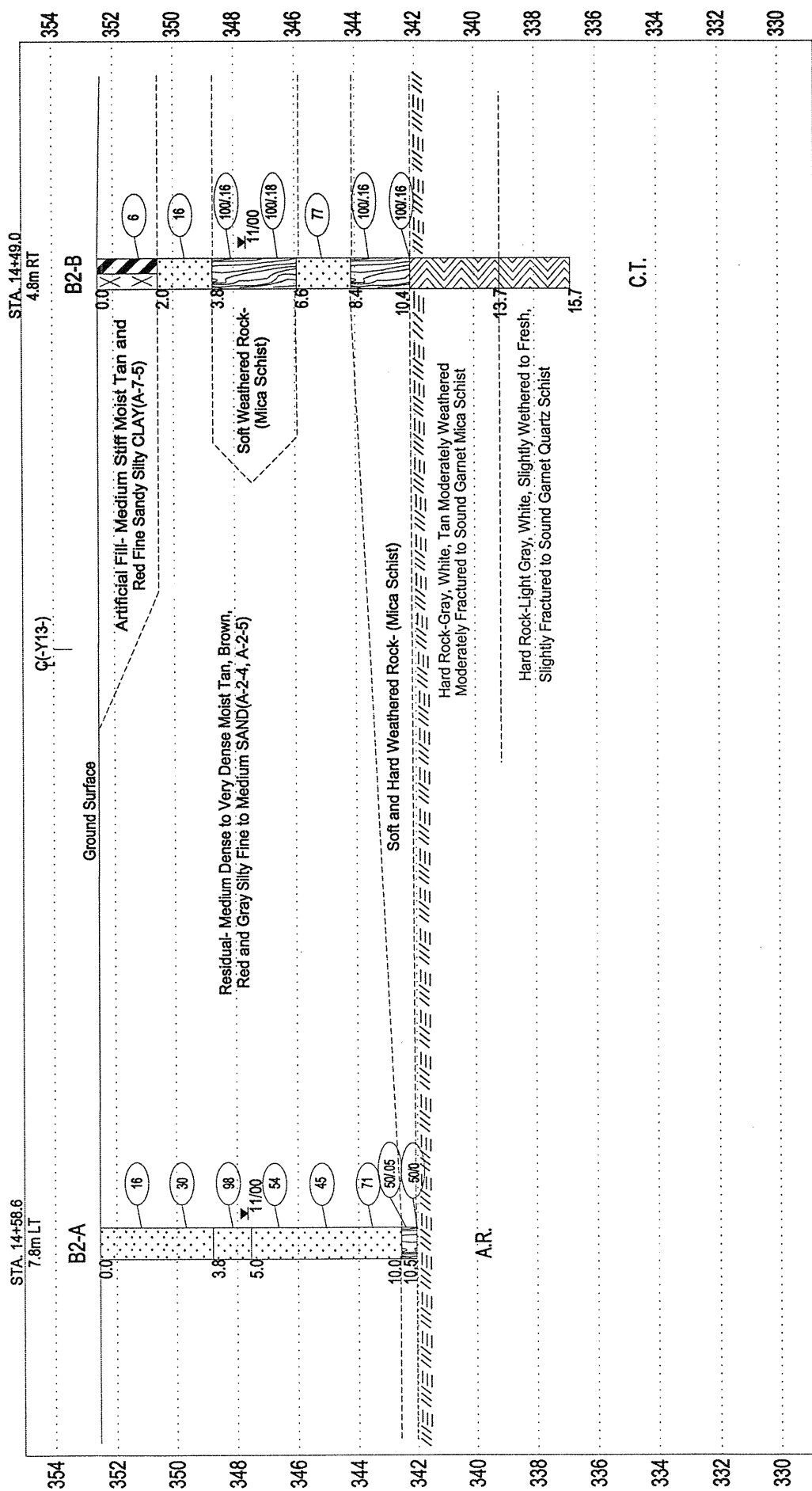


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CROSS SECTION THROUGH BORINGS AT BENT-1

BRIDGE ON NSRR OVER SR 1007	
CATAWBA COUNTY, NORTH CAROLINA	
Project No. 8.2791701	TIP No. U-2306A
Federal No. MASTP-1216(8)	Vert. Scale 1 = 200
Date 12/12/00	Horiz. Scale 1 = 100
Drawn by DRK	Drawing No. 4





CROSS SECTION THROUGH BORINGS AT BENT-2

BRIDGE ON NSRR OVER SR 1007

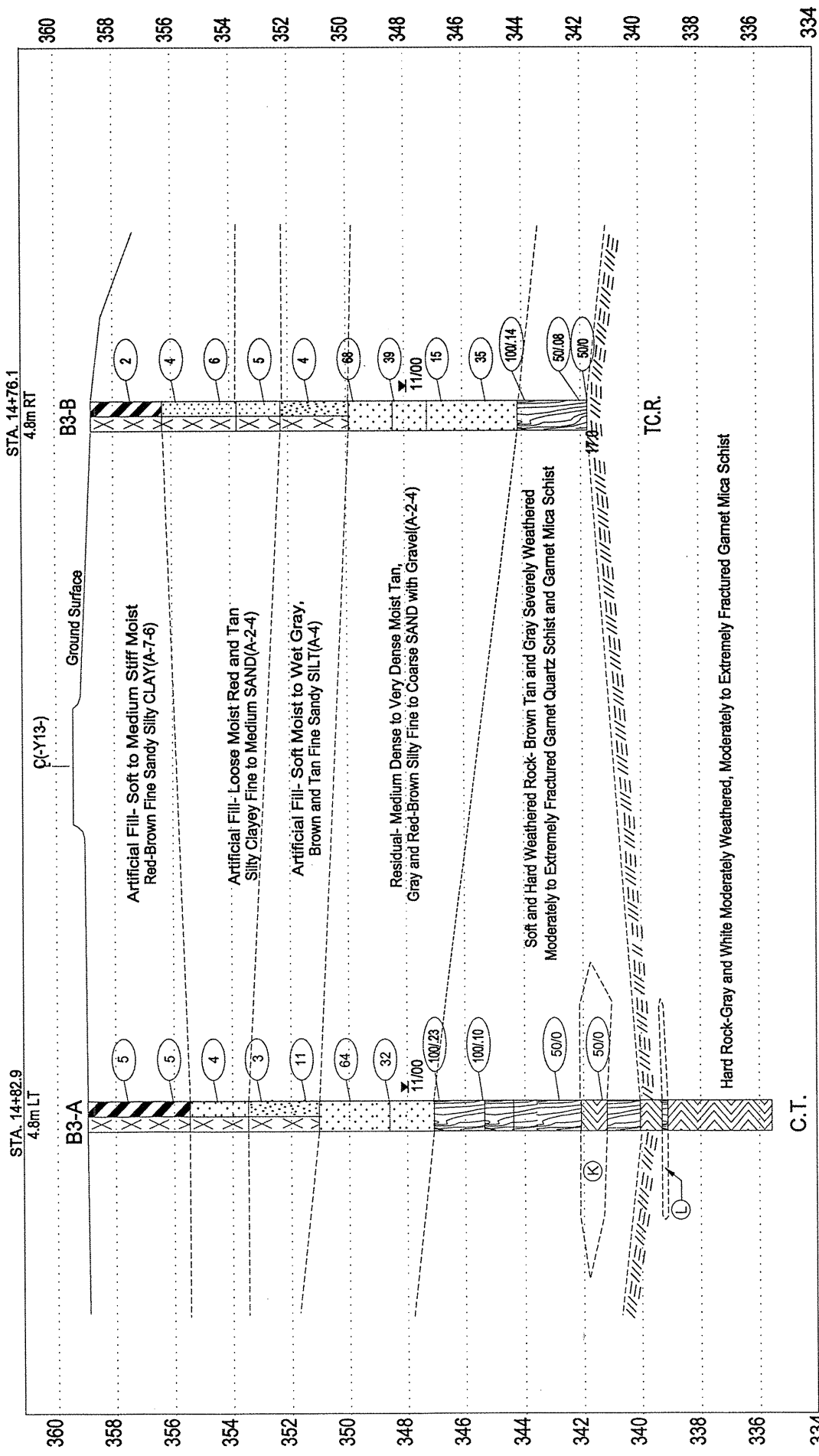
CATAWBA COUNTY, NORTH CAROLINA

Project No. 8.2791701 TIP No. UJ-2306A

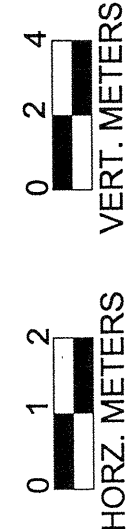
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Date 12/12/00 Horiz. Scale 1 = 100

Drawn by DRK Drawing No. 5

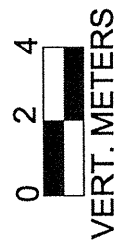
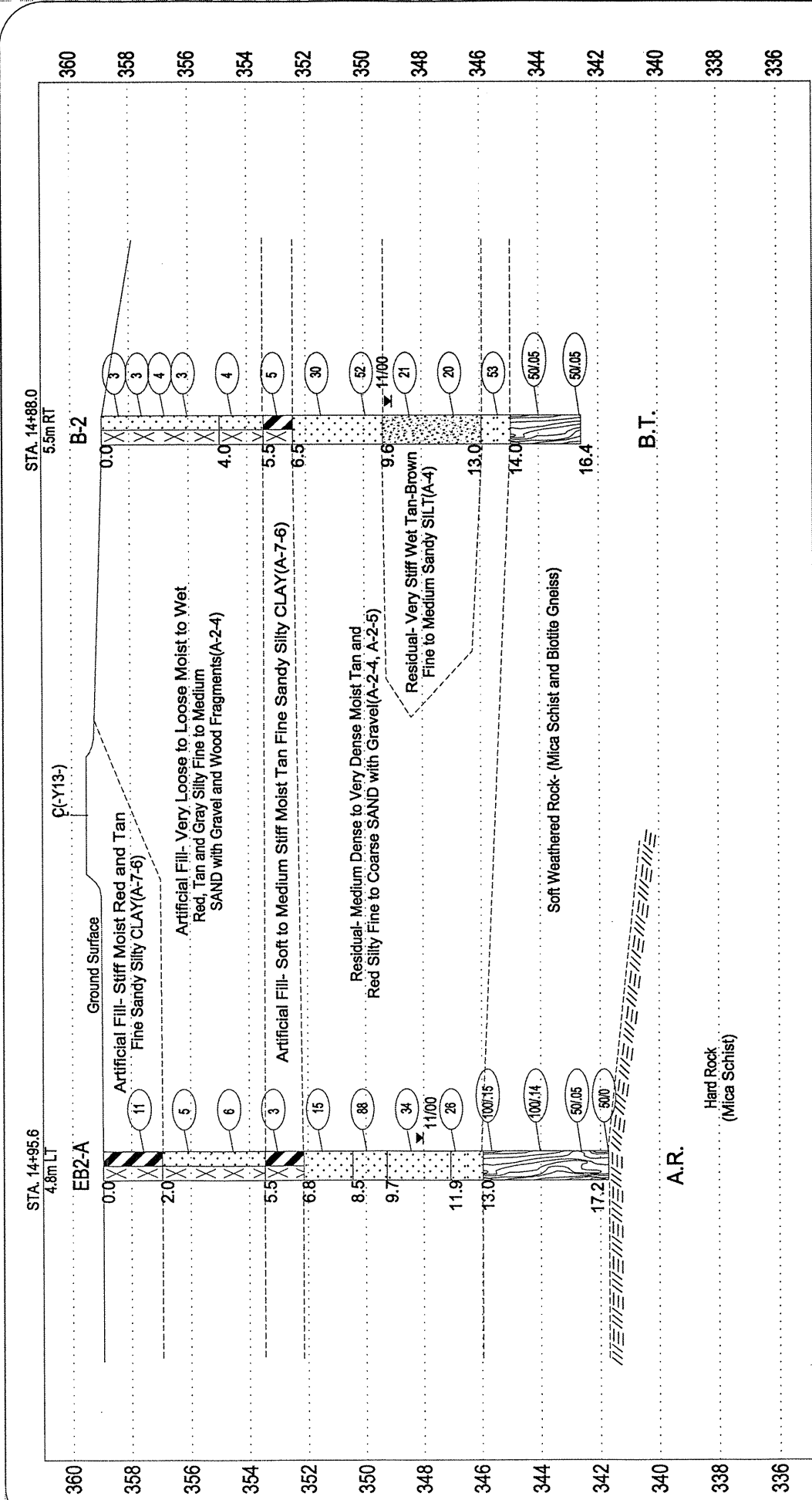


- (K) Hard Rock-Tan and Gray Moderately Weathered Moderately to Extremely Fractured Garnet Quartz Schist
- (L) Soft Weathered Rock-Tan Severely Weathered Extremely Fractured Garnet Mica Schist



CROSS SECTION THROUGH BORINGS AT BENT-3

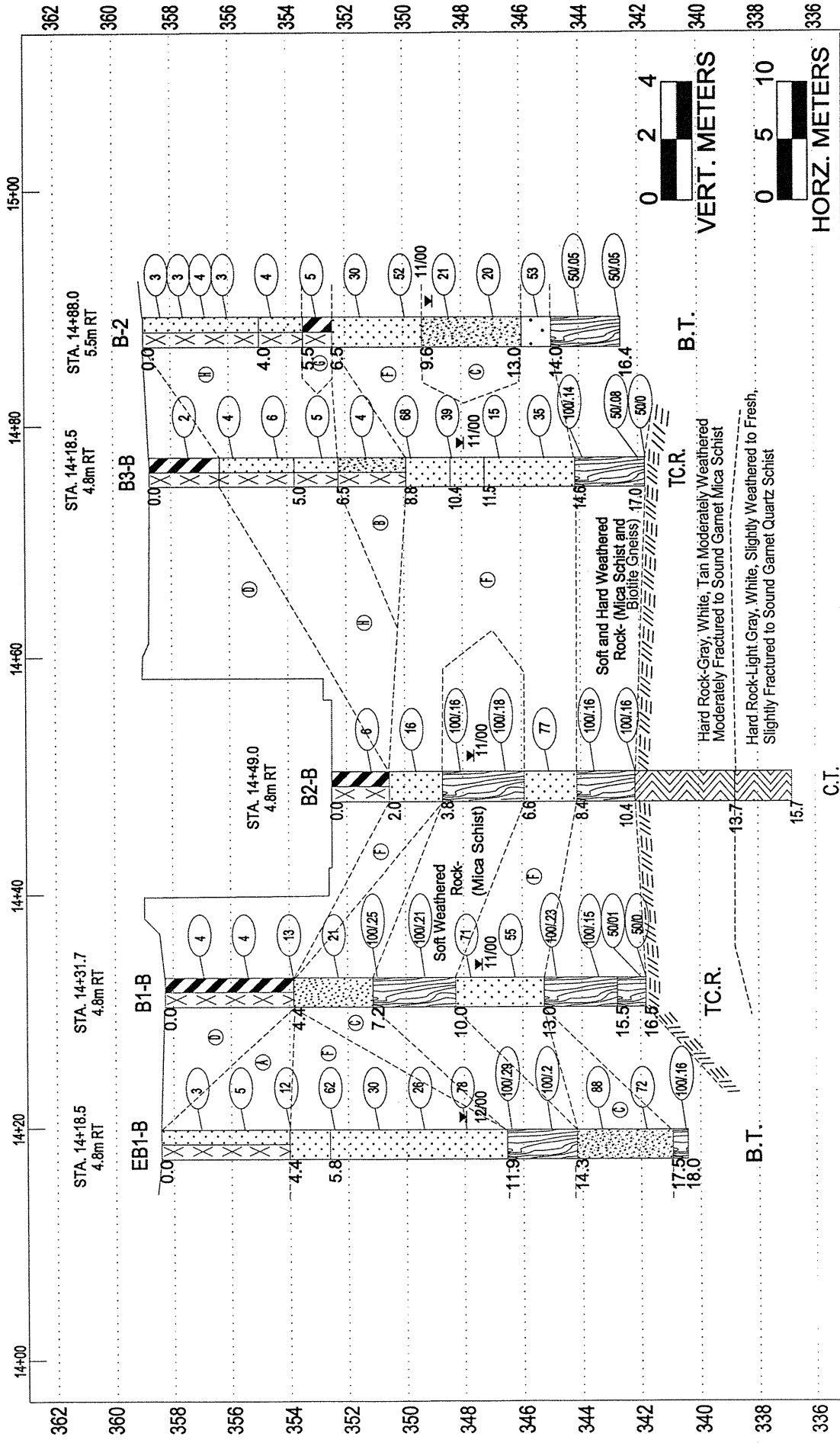
BRIDGE ON NSRR OVER SR 1007	
CATAWBA COUNTY, NORTH CAROLINA	
Project No. 8.2791701	TIP No. U-2306A
Federal No. MASTP-1216(8)	Vert. Scale 1 = 200
Date 12/12/00	Horiz. Scale 1 = 100
Drawn by DRK	Drawing No. 6



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CROSS SECTION THROUGH BORINGS AT END BENT-2

BRIDGE ON NSRR OVER SR 1007	
CATAWBA COUNTY, NORTH CAROLINA	
Project No. 8.2791701	TIP No. U-2306A
Federal No. MASTP-1216(8)	Vert. Scale 1 = 200
Date 12/12/00	Horiz. Scale 1 = 100
Drawn by DRK	Drawing No. 7



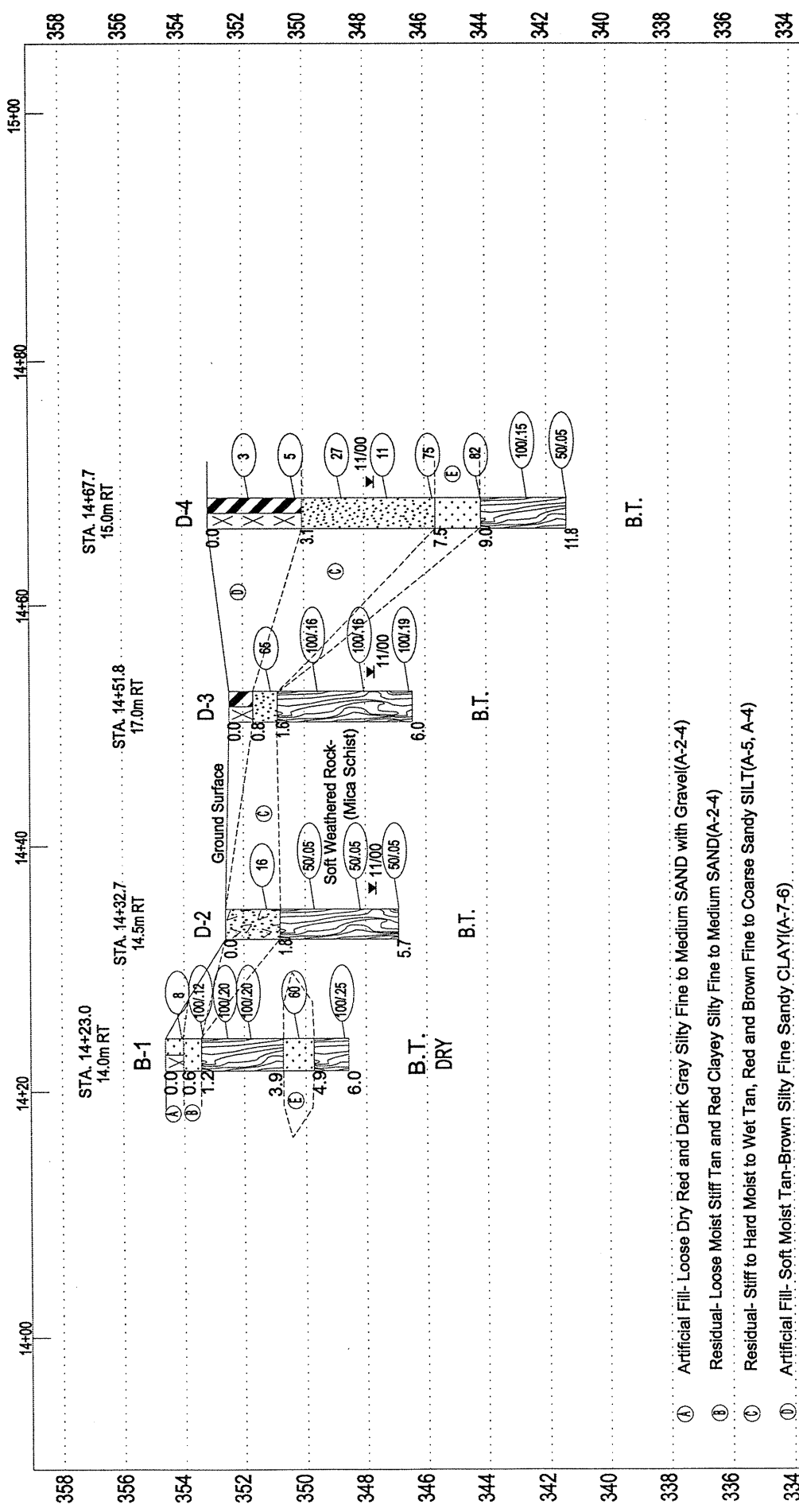
PROFILE 4.8m RIGHT OF -Y13-

BRIDGE ON NSRR OVER SR 1007	
CATAWBA COUNTY, NORTH CAROLINA	
Project No. 8.2791701	TIP No. U-2306A
Federal No. MASTP-12/16(8)	Vert. Scale 1 = 200
Date 12/12/00	Horiz. Scale 1 = 500
Drawn by DRK	Drawing No. 8



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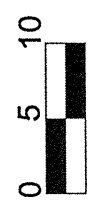
- (A) Artificial Fill- Loose Dry Red and Dark Gray Silty Fine to Medium SAND with Gravel(A-2-4)
- (B) Residual- Loose Moist Stiff Tan and Red Clayey Silty Fine to Medium SAND(A-2-4)
- (C) Residual- Stiff to Hard Moist to Wet Tan, Red and Brown Fine to Coarse Sandy SILT(A-5, A-4)
- (D) Artificial Fill- Soft Moist Tan-Brown Silty Fine Sandy CLAY(A-7-6)
- (F) Residual- Medium Dense to Very Dense Moist Tan, Red, Gray and Brown Silty Fine to Coarse SAND with Gravel(A-2-4)
- (G) Artificial Fill- Medium Stiff Wet Tan Fine Sandy Silty CLAY(A-7-6)
- (H) Residual- Very Loose to Loose Wet Tan, Red and Dark Gray Silty Fine to Medium SAND with Gravel and Wood Fragments (A-2-4)



- Ⓐ Artificial Fill- Loose Dry Red and Dark Gray Silty Fine to Medium SAND with Gravel(A-2-4)
- Ⓑ Residual- Loose Moist Silt Tan and Red Clayey Silty Fine to Medium SAND(A-2-4)
- Ⓒ Residual- Stiff to Hard Moist to Wet Tan, Red and Brown Fine to Coarse Sandy SILT(A-5, A-4)
- Ⓓ Artificial Fill- Soft Moist, Tan-Brown Silty Fine Sandy CLAY(A-7-6)
- Ⓔ Residual- Very Dense Moist Tan and Brown Silty Fine to Coarse SAND(A-2-4)



VERT. METERS



HORZ. METERS



ENGINEERING CONSULTANTS, INC.

PROFILE 14.5m RIGHT OF -Y13-(DETOUR STRUCTURE)

BRIDGE ON NSRR OVER SR 1007

CATAWBA COUNTY, NORTH CAROLINA

Project No. 8.2791701

TIP No. U-2306A

Federal No. MASTP-1216(8)

Vert. Scale 1 = 200

Date 12/12/00

Horiz. Scale 1 = 500

Drawn by DRK

Drawing No. 9



TRIGON ENGINEERING CONSULTANTS, INC.
BORING LOG

SHEET 1 OF 1

PROJECT NO. 8.2791701	ID. U-2306A	COUNTY Catawba	GEOLOGIST C. Norville
SITE DESCRIPTION Bridge on NSRR over SR 1007			GROUND WATER (m)
BORING NO. EB1-A	BORING LOCATION 14+25.3	OFFSET 4.8 LT	ALIGNMENT -Y13-
COLLAR ELEV. 358.41 m	NORTHING	EASTING	
TOTAL DEPTH 17.54 m	DRILL MACHINE Mobile B-57	DRILL METHOD 82.6 mm ID HSA	HAMMER TYPE 63.5 kg. manual
DATE STARTED 11/21/00	COMPLETED 11/21/00	SURFACE WATER DEPTH	

ELEV. (m)	DEPTH (m)	BLOW COUNT			BLOWS PER 30 CM					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	
		15cm	15cm	15cm	0	20	40	60	80				100
358.41					Ground Surface Elev. 358.41							358.41	0.00
358	1.07	8	13	13							M	Artificial Fill: Medium Dense, Moist, Tan and Red, Silty Fine to Medium SAND (A-2-4)	
356	2.59	4	5	5							M		
354	4.12	17	23	23							M	Residual: Medium Dense to Very Dense, Moist, Tan and Red, Silty Fine to Coarse SAND (A-2-4)	3.10
352	5.64	13	19	16							SS-4		17.7
350	7.16	6	8	11							M		
348	8.69	25	30	21							M		
346	10.21	25	29	44									
344	11.74	29	100/15								D	Soft Weathered Rock - Mica Schist	11.00
342	13.26	16	26	33							M	Residual: Very Stiff to Hard, Moist, Brown and Gray, Fine Sandy SILT (A-4)	12.00
340	14.79	7	7	14							M		
338	16.31	13	85	15/01							D	Soft Weathered Rock - Mica Schist	15.50
336	17.54	50/0									D	Auger Refusal at 17.54m (EL 340.87) on Hard Rock - Mica Schist	17.54

TEC-NCDDOT_BORE_NEW_01100112.GPJ NCDOT2.GDT 12/21/00



TRIGON ENGINEERING CONSULTANTS, INC.
BORING LOG

SHEET 1 OF 1

PROJECT NO. 8.2791701	ID. U-2306A	COUNTY Catawba	GEOLOGIST D. Teague
SITE DESCRIPTION Bridge on NSRR over SR 1007			GROUND WATER (m)
BORING NO. EB1-B	BORING LOCATION 14+18.5	OFFSET 4.8 RT	ALIGNMENT -Y13-
COLLAR ELEV. 358.44 m	NORTHING	EASTING	
TOTAL DEPTH 18.00 m	DRILL MACHINE CME 45 Mud Bldg	DRILL METHOD 82.6 mm ID HSA	HAMMER TYPE 63.5 kg. manual
DATE STARTED 11/30/00	COMPLETED 12/1/00	SURFACE WATER DEPTH	

ELEV. (m)	DEPTH (m)	BLOW COUNT			BLOWS PER 30 CM					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION		
		15cm	15cm	15cm	0	20	40	60	80				100	
358.44					Ground Surface Elev. 358.44							358.44	0.00	
358	1.07	2	2	1										Artificial Fill: Very Loose to Loose, Moist, Red and Brown, Clayey Fine Sand (A-2-4)
356	2.59	3	2	3										
354	4.12	5	4	8										
352	5.64	14	25	37										
350	7.16	12	15	15										
348	8.69	10	11	15										
346	10.21	31	45	33										
344	11.74	15	33	67/14										
342	13.26	65	35/05											
340	14.79	18	38	50										
338	16.31	23	30	42										
336	17.84	35	65/01											

FEC-NCDDOT_BORE_NEW_01100112.GPJ_NCDOT2.GDT 12/21/00



PROJECT NO. 8.2791701	ID. U-2306A	COUNTY Catawba	GEOLOGIST C. Norville
SITE DESCRIPTION Bridge on NSRR over SR 1007			GROUND WATER (m)
BORING NO. B1-A	BORING LOCATION 14+38.5	OFFSET 4.8 LT	ALIGNMENT -Y13-
COLLAR ELEV. 358.61 m	NORTHING	EASTING	0 HR. NM 24 HR. 10.74
TOTAL DEPTH 21.44 m	DRILL MACHINE Mobile B-57	DRILL METHOD 98 mm Tricone	HAMMER TYPE 63.5 kg. manual
DATE STARTED 11/20/00	COMPLETED 11/21/00	SURFACE WATER DEPTH	

ELEV. (m)	DEPTH (m)	BLOW COUNT			BLOWS PER 30 CM					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION
		15cm	15cm	15cm	0	20	40	60	80			
358.61					Ground Surface Elev. 358.61							0.00
358	1.07	6	5	4							M	Artificial Fill: Stiff, Moist, Red, Fine to Medium Sandy Silty CLAY (A-7-6)
356	2.59	2	4	4							M	
354	4.12	6	7	12						SS-3	47.9	Residual: Very Stiff, Moist, Red, Fine Sandy SILT (A-4)
352	5.64	4	5	5							M	Medium Dense, Moist, Tan and Red, Silty Fine SAND (A-2-4)
350	7.16	6	10	13							M	
348	8.69	9	12	16							M	Medium Dense to Dense, Moist, Tan and Brown, Silty Fine SAND (A-2-4)
346	10.21	10	13	16							M	
344	11.74	6	12	28							M	
342	13.26	100/10									D	Soft Weathered Rock - Mica Schist
340	14.90	50/0									D	Hard Rock - Brown White Mod. Weathered, Mod. Fractured to Sound Garnet Mica Schist with Extremely Fractured Zones from 15.16 m to 15.22 m, 16.80 m to 16.92 m, 18.50 m to 18.60 m, 19.10 m to 19.30 m, and 19.94 m to 20.07 m.

FEC-NCDDOT_BORE_NEW 01100112.GPJ NCDDOT2.GDT 12/21/00



PROJECT NO. 8.2791701		ID. U-2306A		COUNTY Catawba		GEOLOGIST C. Norville									
SITE DESCRIPTION Bridge on NSRR over SR 1007							GROUND WATER (m)								
BORING NO. B1-A		BORING LOCATION 14+38.5		OFFSET 4.8 LT	ALIGNMENT -Y13-		0 HR. NM								
COLLAR ELEV. 358.61 m		NORTHING		EASTING			24 HR. 10.74								
TOTAL DEPTH 21.44 m		DRILL MACHINE Mobile B-57		DRILL METHOD 98 mm Tricone		HAMMER TYPE 63.5 kg. manual									
DATE STARTED 11/20/00		COMPLETED 11/21/00		SURFACE WATER DEPTH											
ELEV. (m)	DEPTH (m)	BLOW COUNT			BLOWS PER 30 CM					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION		
		15cm	15cm	15cm	0	20	40	60	80					100	
339.61					Continued from previous page										
	338								RS-2			338.54	20.07	Hard Rock - Grey White, Slightly Weathered Slightly Fractured to Sound Garnet Mica Schist With Extremely Fractured Zone from 20.77 m to 20.78 m.
												337.17	21.44	Coring Terminated at 21.44m (EL 337.17) in Hard Rock - Mica Schist

TEC-NC DOT_BORE_NEW 01:100112.GPJ NCDOT2.GDT 12/21/00



TRIGON ENGINEERING CONSULTANTS, INC.
CORE BORING REPORT

SHEET 1 OF 2

PROJECT NO. 8.2791701		ID. U-2306A		COUNTY Catawba		GEOLOGIST C. Norville			
SITE DESCRIPTION Bridge on NSRR over SR 1007							GROUND WATER (m)		
BORING NO. B1-A		BORING LOCATION 14+38.5		OFFSET 4.8 LT		ALIGNMENT -Y13-			
COLLAR ELEV. 358.610 m		NORTHING		EASTING		0 HR. NM			
TOTAL DEPTH 21.44 m		DRILL MACHINE Mobile B-57		DRILL METHOD 98 mm Tricone		HAMMER TYPE 63.5 kg. manual			
DATE STARTED 11/20/00		COMPLETED 11/21/00		SURFACE WATER DEPTH					
CORE SIZE NQ2		TOTAL RUN 6.84 m		DRILLER B.S.					
ELEV. (m)	DEPTH (m)	RUN (m)	DRILL RATE (Min./0.3m)	REC. (%)	RQD (%)	SAMP. NO.	STRATA REC. (%)	RQD (%)	DESCRIPTION AND REMARKS
343.71	14.90								Begin Coring @ 343.71 m
		0.6	4:30	(0.61)	(0.52)		99%	57%	Hard Rock - Brown White Mod. Weathered, Mod. Fractured to Sound Garnet Mica Schist with Extremely Fractured Zones from 15.16 m to 15.22 m, 16.80 m to 16.92 m, 18.50 m to 18.60 m, 19.10 m to 19.30 m, and 19.94 m to 20.07 m. 3 jts @ 10°-15° ADS=0.01m ADT=0.00m 3 jts @ 5° - 10° ADS=0.01m ADT=0.00m 5 jts @ 10° - 15° ADS=0.01m ADT=0.00m 1 jt @ 68° ADT=0.00m 2 jts @ 15° ADS=0.04m ADT=0.00m 1 jt @ 40° ADT=0.00m 9 jts @ 10° - 20° ADS=0.02m ADT=0.00m 3 jts @ 5° ADS=0.01m ADT=0.00m 11 jts @ 10° - 20° ADS=0.02m ADT=0.00m 1 jt @ 65° ADT=0.00m
		3:45/31		100%	85%				
343.10	15.51	1.5	5:20	(1.49)	(0.96)				
			6:15	98%	63%				
			3:00						
			4:00						
			3:00/32						
341.58	17.03	1.5	3:25	(1.52)	(0.79)				
			4:00	100%	52%				
			3:45						
			4:10						
			4:00/32						
340.06	18.55	1.5	3:40	(1.52)	(0.68)				
			3:45	100%	45%				
			4:00						
			3:50						
			3:10/32						
338.54	20.07	1.4	4:40	(1.34)	(1.19)		98%	87%	Hard Rock - Grey White, Slightly Weathered Slightly Fractured to Sound Garnet Mica Schist With Extremely Fractured Zone from 20.77 m to 20.78 m. 2 jts @ 5° ADS=0.10m ADT=0.00m 2 jts @ 5° ADS=0.01m ADT=0.00m
			5:00	98%	87%				
			5:00						

TEC-NC DOT_CORE#2_01100112.GPJ_NCDOT2.GDT_1/13/01



TRIGON ENGINEERING CONSULTANTS, INC.
CORE BORING REPORT

SHEET 2 OF 2

PROJECT NO. 8.2791701			ID. U-2306A			COUNTY Catawba			GEOLOGIST C. Norville		
SITE DESCRIPTION Bridge on NSRR over SR 1007								GROUND WATER (m)			
BORING NO. B1-A		BORING LOCATION 14+38.5			OFFSET 4.8 LT		ALIGNMENT -Y13-		0 HR. NM		
COLLAR ELEV. 358.610 m		NORTHING			EASTING			24 HR. 10.74			
TOTAL DEPTH 21.44 m		DRILL MACHINE Mobile B-57			DRILL METHOD 98 mm Tricone			HAMMER TYPE 63.5 kg. manual			
DATE STARTED 11/20/00			COMPLETED 11/21/00			SURFACE WATER DEPTH					
CORE SIZE NQ2			TOTAL RUN 6.84 m			DRILLER B.S.					
ELEV. (m)	DEPTH (m)	RUN (m)	DRILL RATE (Min./0.3m)	RUN		SAMP. NO.	STRATA		DESCRIPTION AND REMARKS		
				REC. (m) %	RQD (m) %		REC. %	RQD %			
337.63	20.98								Continued from previous page		
337.17	21.44		6:00 3:20/0.17						Coring Terminated at 21.44m (EL 337.17) in Hard Rock - Mica Schist		

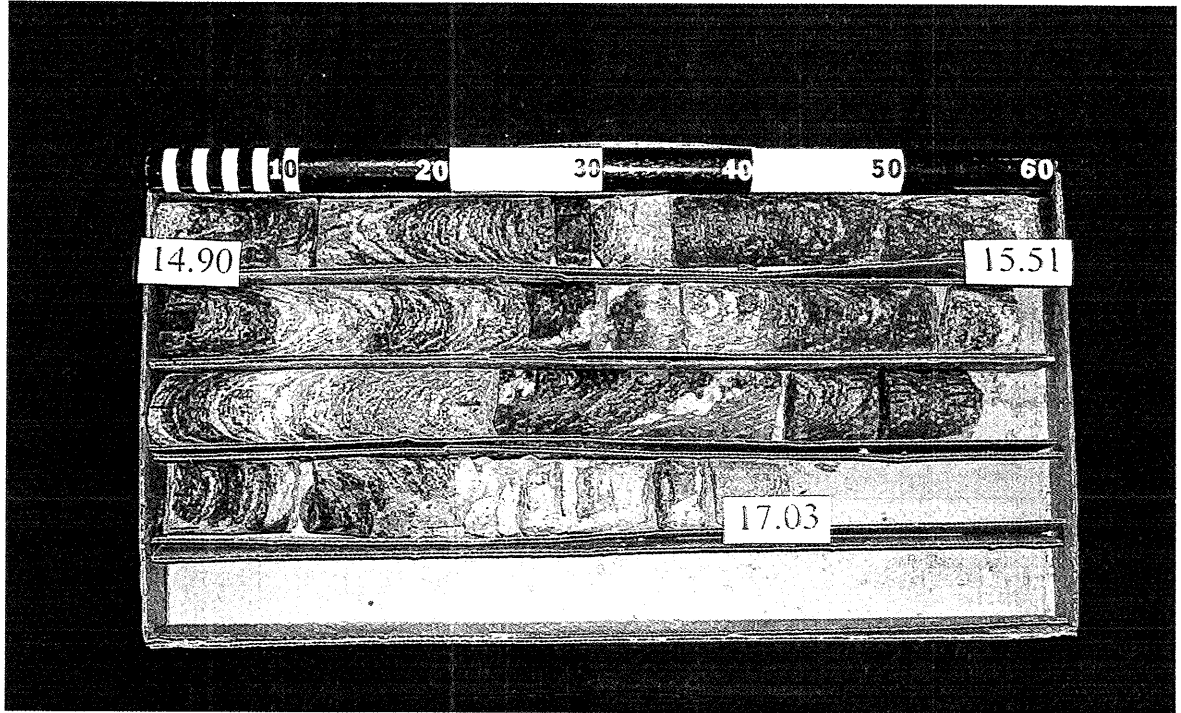
TEC-NCDOT_CORE#2 01100112.GPJ NCDOT2.GDT 1/13/01

CORE PHOTOGRAPHS

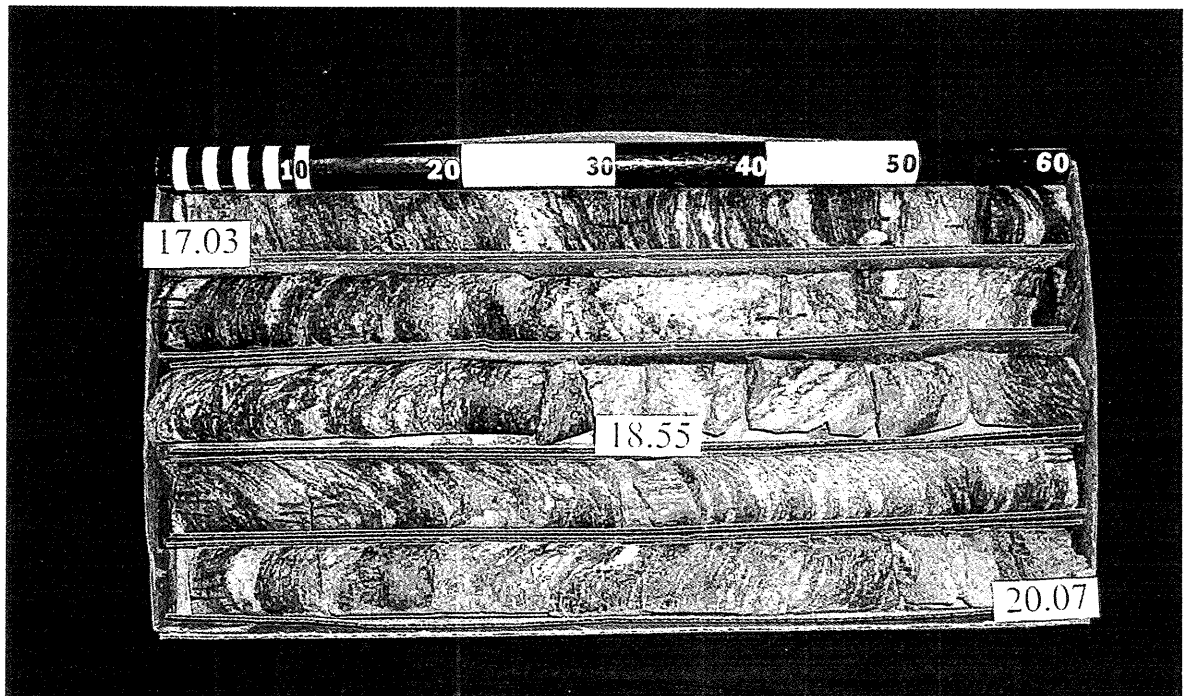
Bridge on NSRR Over SR 1007 and Detour Bridge

NCDOT Project 8.2791701 (U-2306 A)

B1-A



Box 1 of 3



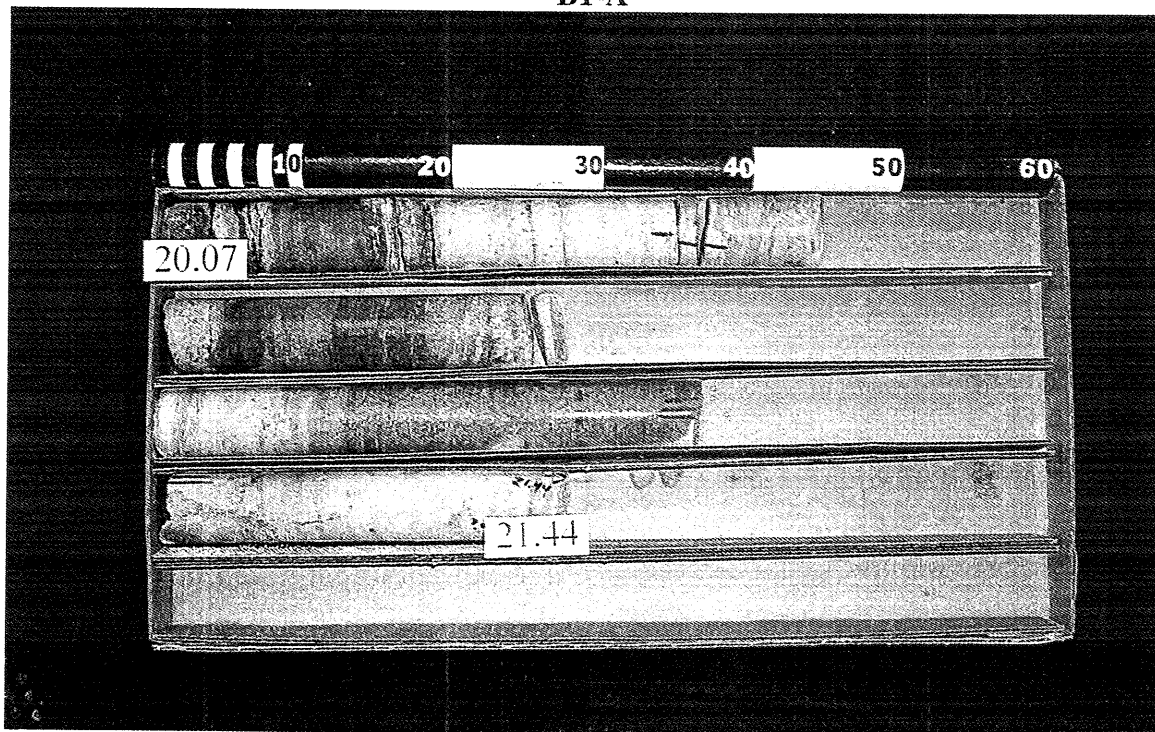
Box 2 of 3

CORE PHOTOGRAPHS

Bridge on NSRR Over SR 1007 and Detour Bridge

NCDOT Project 8.2791701 (U-2306 A)

B1-A



Box 3 of 3



PROJECT NO. 8.2791701		ID. U-2306A		COUNTY Catawba		GEOLOGIST D. Teague							
SITE DESCRIPTION Bridge on NSRR over SR 1007							GROUND WATER (m)						
BORING NO. B1-B		BORING LOCATION 14+31.7		OFFSET 4.8 RT		ALIGNMENT -Y13-							
COLLAR ELEV. 358.28 m		NORTHING		EASTING		0 HR. 10.97							
TOTAL DEPTH 16.47 m		DRILL MACHINE CME 45 Mud B		DRILL METHOD 82.6 mm ID HSA		24 HR. 10.97							
DATE STARTED 11/30/00		COMPLETED 11/30/00		SURFACE WATER DEPTH		HAMMER TYPE 63.5 kg. manual							
ELEV. (m)	DEPTH (m)	BLOW COUNT			BLOWS PER 30 CM					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	
		15cm	15cm	15cm	0	20	40	60	80				100
358.28					Ground Surface Elev. 358.28								0.00
358	1.07	1	2	2								M	Artificial Fill: Soft, Moist, Red and Brown, Fine Sandy Silty CLAY (A-7-6)
356	2.59	3	2	2								M	
354	4.12	2	4	9								M	Residual: Stiff to Very Stiff, Moist, Red and Tan, Fine Sandy SILT (A-4)
352	5.64	8	8	13								M	
350	7.16	30	70/10							100/25		D	Soft Weathered Rock - Mica Schist
348	8.69	16	43	57/06						100/21		D	
346	10.21	28	51	20								M	Residual: Very Dense, Moist, Red and Gray, Silty Fine to Medium SAND with Gravel (A-2-4)
344	11.74	12	23	32								SS-8	
342	13.26	45	55/08							100/23		D	Soft Weathered Rock - Mica Schist
	14.79	100/15								100/15		D	Hard Weathered Rock - Mica Schist
	16.31	50/01								50/01		D	Auger Refusal at 16.47m (EL 341.81) on Hard Rock - Mica Schist
	16.47	50/0								50/0		D	

TEC-NCCOT_BORE_NEW_01100112.GPJ NCCDOT2.GDT 12/21/00



TRIGON ENGINEERING CONSULTANTS, INC.
BORING LOG

SHEET 1 OF 1

PROJECT NO. 8.2791701	ID. U-2306A	COUNTY Catawba	GEOLOGIST D. Teague
SITE DESCRIPTION Bridge on NSRR over SR 1007			GROUND WATER (m)
BORING NO. B2-A	BORING LOCATION 14+58.6	OFFSET 7.8 LT	ALIGNMENT -Y13-
COLLAR ELEV. 352.55 m	NORTHING	EASTING	0 HR. 4.88
TOTAL DEPTH 10.51 m	DRILL MACHINE Mobile B-57	DRILL METHOD 82.6 mm ID HSA	24 HR. 4.88
DATE STARTED 11/28/00	COMPLETED 11/28/00	SURFACE WATER DEPTH	

ELEV. (m)	DEPTH (m)	BLOW COUNT			BLOWS PER 30 CM					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	
		15cm	15cm	15cm	0	20	40	60	80					100
352.55					Ground Surface Elev. 352.55								352.55	0.00
352	1.07	4	7	9							SS-1	28.8		Residual: Medium Dense to Dense, Moist, Tan, Silty Fine SAND (A-2-5)
350	2.59	12	17	13								M		
348	4.12	19	78	20								M	348.80	3.75
346	5.64	7	21	33								M	347.55	5.00
344	7.16	14	24	21								M		
	8.69	11	11	60								M		
	10.21											D	342.55	10.00
	10.51	50/05										D	342.04	10.51
		50/0										D		

TEC-NC DOT_BORE_NEW_01100112.GPJ NCDOT2.GDT 12/21/00



PROJECT NO. 8.2791701		ID. U-2306A		COUNTY Catawba		GEOLOGIST D. Teague								
SITE DESCRIPTION Bridge on NSRR over SR 1007							GROUND WATER (m)							
BORING NO. B2-B		BORING LOCATION 14+49.0		OFFSET 4.8 RT		ALIGNMENT -Y13-								
COLLAR ELEV. 352.52 m		NORTHING		EASTING		0 HR. NM								
TOTAL DEPTH 15.69 m		DRILL MACHINE Mobile B-57		DRILL METHOD 98 mm Tricone		HAMMER TYPE 63.5 kg. manual								
DATE STARTED 11/29/00		COMPLETED 11/29/00		SURFACE WATER DEPTH										
ELEV. (m)	DEPTH (m)	BLOW COUNT			BLOWS PER 30 CM					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION		
		15cm	15cm	15cm	0	20	40	60	80				100	
352.52					Ground Surface Elev. 352.52							352.52	0.00	
352	1.07	2	3	3							M	Artificial Fill: Medium Stiff, Moist, Tan and Red, Fine Sandy Silty CLAY (A-7-5)	350.52	2.00
350	2.59	4	6	10							M	Residual: Medium Dense, Moist, Red and Gray, Silty Fine to Medium SAND (A-2-4)	348.70	3.82
348	4.12	95	5/01							100/16		Soft Weathered Rock - Mica Schist		
346	5.64	48	52/03							100/16			345.92	6.60
344	7.16	23	38	39						77		Residual: Very Dense, Moist, Tan and Brown, Silty Fine to Medium SAND (A-2-4)	344.13	8.39
342	8.69	75	25/01							100/16		Hard Weathered Rock - Mica Schist		
	10.21	62	38/01							100/16			342.15	10.37
												Hard Rock - Gray White and Tan, Moderately Weathered, Moderately Fractured to Sound, Garnet Mica Schist with Extremely Fractured Zones from 10.64 m to 10.67 m, 13.38 m to 13.50 m and 13.66 m to 13.69 m.		
											RS-3		338.80	13.72
												Hard Rock - Light Gray and White, Slightly Weathered to Fresh, Slightly Fractured to Sound Garnet Quartz Schist with Extremely Fractured Zone from 15.17 m to 15.19 m.		
											RS-4		336.83	15.69
												Coring Terminated at 15.69m (EL 336.83) in Hard Rock - Quartz Schist		

TEC-NC DOT_BORE_NEW 01100112.GPJ NCDOT2.GDT 1/13/01



TRIGON ENGINEERING CONSULTANTS, INC.
CORE BORING REPORT

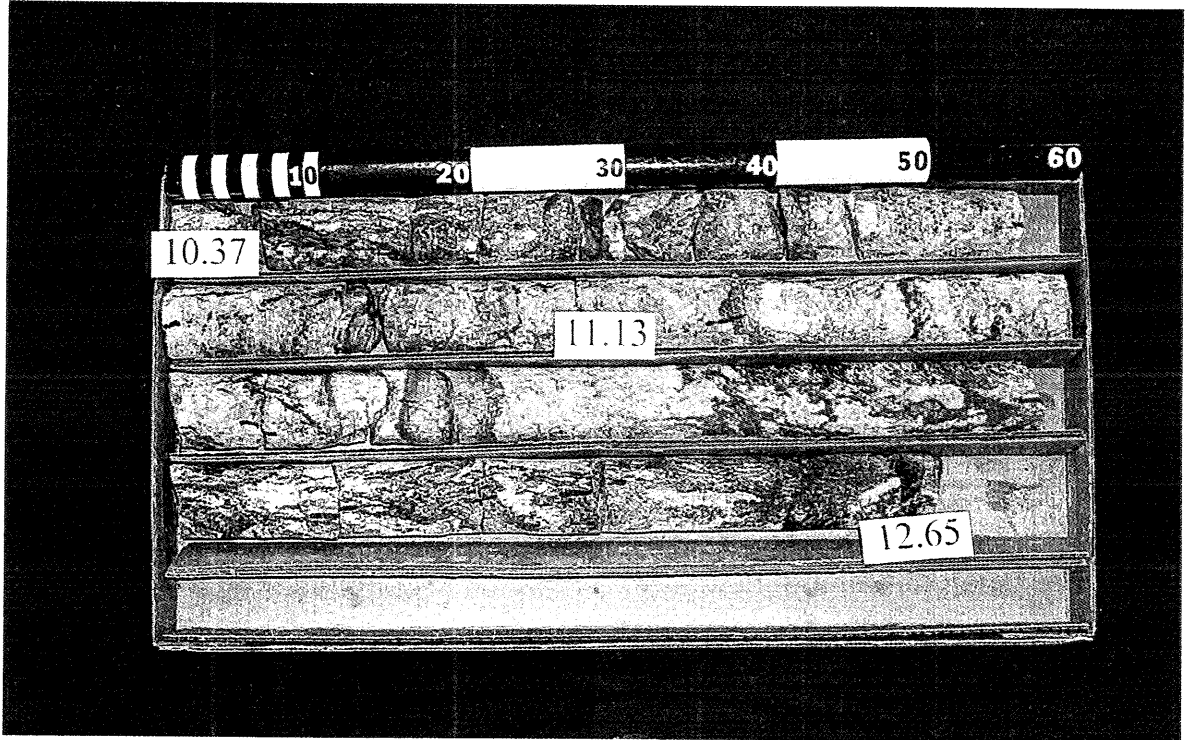
SHEET 1 OF 1

PROJECT NO. 8.2791701			ID. U-2306A			COUNTY Catawba			GEOLOGIST D. Teague		
SITE DESCRIPTION Bridge on NSRR over SR 1007								GROUND WATER (m)			
BORING NO. B2-B		BORING LOCATION 14+49.0			OFFSET 4.8 RT		ALIGNMENT -Y13-		0 HR. NM		
COLLAR ELEV. 352.520 m		NORTHING			EASTING			24 HR. 4.88			
TOTAL DEPTH 15.69 m		DRILL MACHINE Mobile B-57			DRILL METHOD 98 mm Tricone			HAMMER TYPE 63.5 kg. manual			
DATE STARTED 11/29/00			COMPLETED 11/29/00			SURFACE WATER DEPTH					
CORE SIZE NQ2			TOTAL RUN 5.32 m			DRILLER B.S.					
ELEV. (m)	DEPTH (m)	RUN (m)	DRILL RATE (Min./0.3m)	RUN		SAMP. NO.	STRATA		DESCRIPTION AND REMARKS		
				REC. (%)	RQD (%)		REC. (%)	RQD (%)			
342.15	10.37								Begin Coring @ 342.15 m		
		0.8	4:25	(0.76)	(0.46)		100%	56%	Hard Rock - Gray White and Tan, Moderately Weathered, Moderately Fractured to Sound, Garnet Mica Schist with Extremely Fractured Zones from 10.64 m to 10.67 m, 13.38 m to 13.50 m and 13.66 m to 13.69 m. 7 jts @ 5° - 10° ADS=0.03m ADT=0.00m 2 jts @ 5° ADS=0.01m ADT=0.00m 2 jts @ 20° - 25° ADS=0.02m ADT=0.00m 2 jts @ 10° ADS=0.10m ADT=0.00m with Fe Stains 1 jt @ 77° ADT=0.00m 4 jts @ 10° - 20° ADS=0.03m ADT=0.00m		
			3:58								
341.39	11.13	1.5	1:45/0.16								
		1.5	2:29	(1.52)	(1.20)						
			2:28								
			3:20								
			2:44								
			3:29/32								
339.87	12.65	1.5	4:11	(1.52)	(0.57)				Hard Rock - Light Gray and White, Slightly Weathered to Fresh, Slightly Fractured to Sound Garnet Quartz Schist with Extremely Fractured Zone from 15.17 m to 15.19 m. 4 jts @ 15° - 20° ADS=0.04m ADT=0.00m with Fe Stains 1 jt @ 30° ADT=0.00m 2 jts @ 10° ADS=0.01m ADT=0.00m with Fe Stains		
			3:16								
			1:34								
			3:18								
			3:57/32				100%	89%	338.80 13.72		
338.35	14.17	1.5	4:03	(1.52)	(1.40)				Coring Terminated at 15.69m (EL 336.83) in Hard Rock - Quartz Schist		
			4:14								
			4:35								
			4:04								
			4:26/32								
336.83	15.69								336.83 15.69		

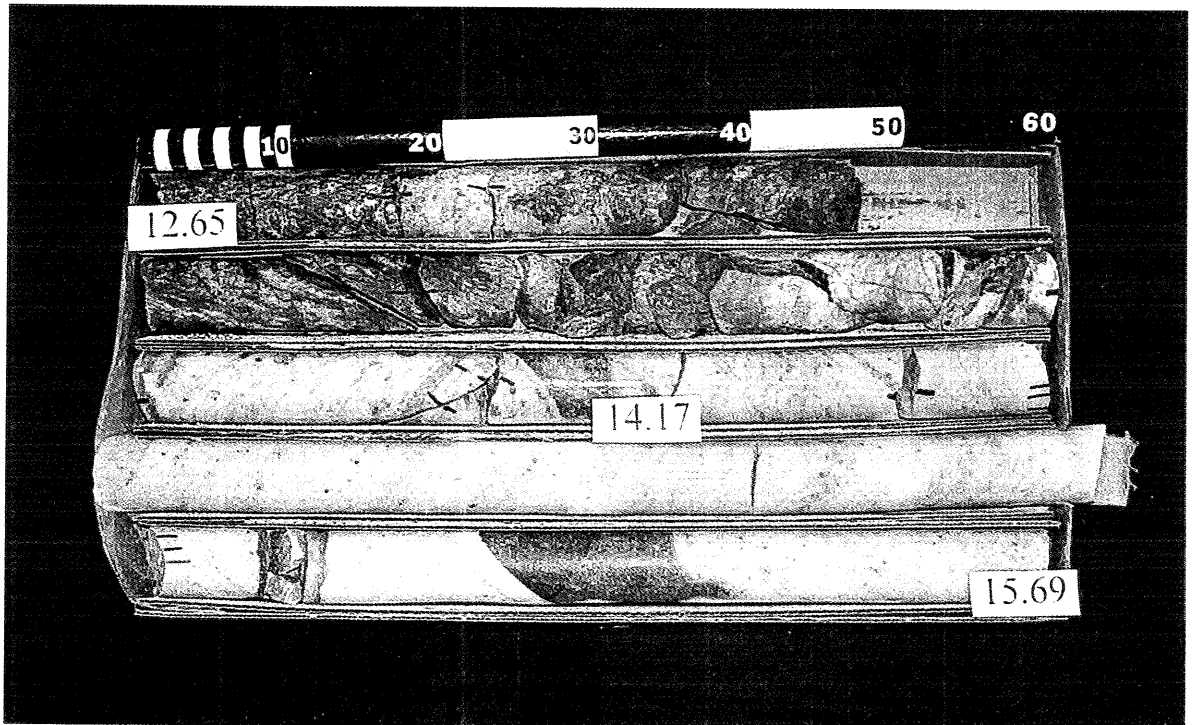
TEC-NCDDOT_CORE#2 01100112.GPJ_NCDOT2.GDT 1/13/01

CORE PHOTOGRAPHS

Bridge on NSRR Over SR 1007 and Detour Bridge
NCDOT Project 8.2791701 (U-2306 A)
B2-B



Box 1 of 2



Box 2 of 2



PROJECT NO. 8.2791701	ID. U-2306A	COUNTY Catawba	GEOLOGIST D. Teague
SITE DESCRIPTION Bridge on NSRR over SR 1007			GROUND WATER (m)
BORING NO. B3-A	BORING LOCATION 14+82.9	OFFSET 4.8 LT	ALIGNMENT -Y13-
COLLAR ELEV. 358.96 m			NORTHING EASTING
TOTAL DEPTH 23.39 m		DRILL MACHINE Mobile B-57	DRILL METHOD 98 mm Tricone
DATE STARTED 11/17/00		COMPLETED 11/20/00	SURFACE WATER DEPTH
HAMMER TYPE 63.5 kg. manual			

ELEV. (m)	DEPTH (m)	BLOW COUNT			BLOWS PER 30 CM					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION		
		15cm	15cm	15cm	0	20	40	60	80					100	
358.96					Ground Surface Elev. 358.96								358.96	0.00	
358	1.07	2	2	3											Artificial Fill: Medium Stiff, Moist, Red and Brown, Fine Sandy Silty CLAY (A-7-6)
356	2.59	3	2	3											Artificial Fill: Loose, Moist, Red and Tan, Silty Fine to Medium SAND (A-2-4)
354	4.12	3	2	2											Artificial Fill: Soft to Stiff, Moist, Gray and Brown, Fine Sandy SILT (A-4)
352	5.64	2	1	2											Residual: Very Dense, Moist, Tan and Red, Silty Fine to Medium SAND (A-2-4)
350	7.16	5	5	6											Dense, Moist, Gray and Brown, Silty Fine to Coarse SAND with Gravel (A-2-4)
348	8.69	9	20	44											Soft Weathered Rock - Quartz Schist
346	10.21	30	19	13											Soft Weathered Rock - Brown, Severely Weathered Extremely Fractured Garnet Quartz Schist.
344	11.74	13	50	50/0.08											Hard Weathered Rock - Tan and Gray, Moderately Severly Weathered, Moderately to Extremely Fractured Garnet Quartz Schist.
342	13.26	100/10													Hard Rock - Tan and Gray, Moderately Weathered, Moderately to Extremely Fractured Garnet Quartz Schist.
	15.79	50/0													Soft Weathered Rock - Gray and Tan, Severly Weathered, Extremely Fractured Garnet Mica
	17.31	50/0													
	18.83														

TEC-NCDOT_BORE_NEW_01100112.GPJ_NCDOT2.GDT_12/29/00



PROJECT NO. 8.2791701		ID. U-2306A		COUNTY Catawba		GEOLOGIST D. Teague						
SITE DESCRIPTION Bridge on NSRR over SR 1007							GROUND WATER (m)					
BORING NO. B3-A		BORING LOCATION 14+82.9		OFFSET 4.8 LT	ALIGNMENT -Y13-		0 HR. NM					
COLLAR ELEV. 358.96 m		NORTHING		EASTING		24 HR. 11.00						
TOTAL DEPTH 23.39 m		DRILL MACHINE Mobile B-57		DRILL METHOD 98 mm Tricone		HAMMER TYPE 63.5 kg. manual						
DATE STARTED 11/17/00		COMPLETED 11/20/00		SURFACE WATER DEPTH								
ELEV. (m)	DEPTH (m)	BLOW COUNT			BLOWS PER 30 CM					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION
		15cm	15cm	15cm	0	20	40	60	80			
339.96					Continued from previous page							
	20.35	50/0									D	339.56 Schist. 19.40
	338	50/0									D	338.81 Hard Rock - Gray and Tan, Moderately Weathered, Moderately to Extremely Fractured Garnet Mica Schist. 20.15
	21.87	50/0									D	338.61 Soft Weathered Rock - Tan, Severely Weathered, Extremely Fractured Garnet Mica Schist. 20.35
	336	50/0								RS-6	D	Hard Rock - Gray and White, Moderately Weathered, Moderately to Extremely Fractured Garnet Mica Schist.
												335.57 Coring Terminated at 23.39m (EL 335.57) in Hard Rock - Garnet Mica Schist. 23.39

TEC-NC DOT_BORE_NEW 01100112.GPJ NCDOT2.GDT 12/28/00



TRIGON ENGINEERING CONSULTANTS, INC.
CORE BORING REPORT

SHEET 1 OF 2

PROJECT NO. 8.2791701		ID. U-2306A		COUNTY Catawba		GEOLOGIST D. Teague			
SITE DESCRIPTION Bridge on NSRR over SR 1007							GROUND WATER (m)		
BORING NO. B3-A		BORING LOCATION 14+82.9		OFFSET 4.8 LT		ALIGNMENT -Y13-			
COLLAR ELEV. 358.960 m		NORTHING		EASTING		0 HR. NM			
TOTAL DEPTH 23.39 m		DRILL MACHINE Mobile B-57		DRILL METHOD 98 mm Tricone		24 HR. 11.00			
DATE STARTED 11/17/00		COMPLETED 11/20/00		SURFACE WATER DEPTH					
CORE SIZE NQ2		TOTAL RUN 9.42 m		DRILLER B.S.					
ELEV. (m)	DEPTH (m)	RUN (m)	DRILL RATE (Min./0.3m)	RUN (m) REC. % RQD %		SAMP. NO.	STRATA REC. % RQD %		DESCRIPTION AND REMARKS
344.99	13.97								Begin Coring @ 344.99 m
		1.8	0:45	(0.83)	(0.12)		0%	0%	Soft Weathered Rock - Brown, Severely Weathered Extremely Fractured Garnet Quartz Schist.
			1:00	46%	7%				
			0:55						
			1:31				100%	31%	344.00 Hard Weathered Rock - Tan and Gray, Moderately Severly Weathered, Moderately to Extremely Fractured Garnet Quartz Schist.
			2:30						5 jts @ 15° - 20° ADS=0.03m ADT=0.00m with Fe Stains 9 jts @ 10° - 15° ADS=0.04m ADT=0.001m 2 jts @ 5° ADS=0.02m ADT=0.00m with Fe Stains 7 jts @ 10° - 15° ADS=0.08m ADT=0.001m with Fe Stains 5 jts @ 15° - 20° ADS=0.04m ADT=0.001m
343.17	15.79	1.5	2:00/32						14.96
			2:06	(1.52)	(0.62)				
			1:49	100%	41%				
			2:21						
			2:12						
			2:11/32						
341.65	17.31	1.5					67%	0%	341.65 Hard Rock - Tan and Gray, Moderately Weathered, Moderately to Extremely Fractured Garnet Quartz Schist.
			2:39	(1.18)	(0.00)				8 jts @ 10° - 15° ADS=0.05m ADT=0.00m with Fe Stains
			2:06	78%	0%				
			3:02						
			2:57				48%	0%	340.73 Soft Weathered Rock - Gray and Tan, Severely Weathered, Extremely Fractured Garnet Mica Schist.
			6:26/32						18.23
340.13	18.83	1.5							
			2:40	(0.82)	(0.00)				
			2:54	54%	0%				339.56 Hard Rock - Gray and Tan, Moderately Weathered, Moderately to Extremely Fractured Garnet Mica Schist.
			2:53				95%	0%	8 jts @ 30° - 40° ADS=0.07m ADT=0.00m with Fe Stains
			3:02						19.40

TEC-NCDDOT_CORE#2 01100112.GPJ NCDOT2.GDT 1/13/01



TRIGON ENGINEERING CONSULTANTS, INC.
CORE BORING REPORT

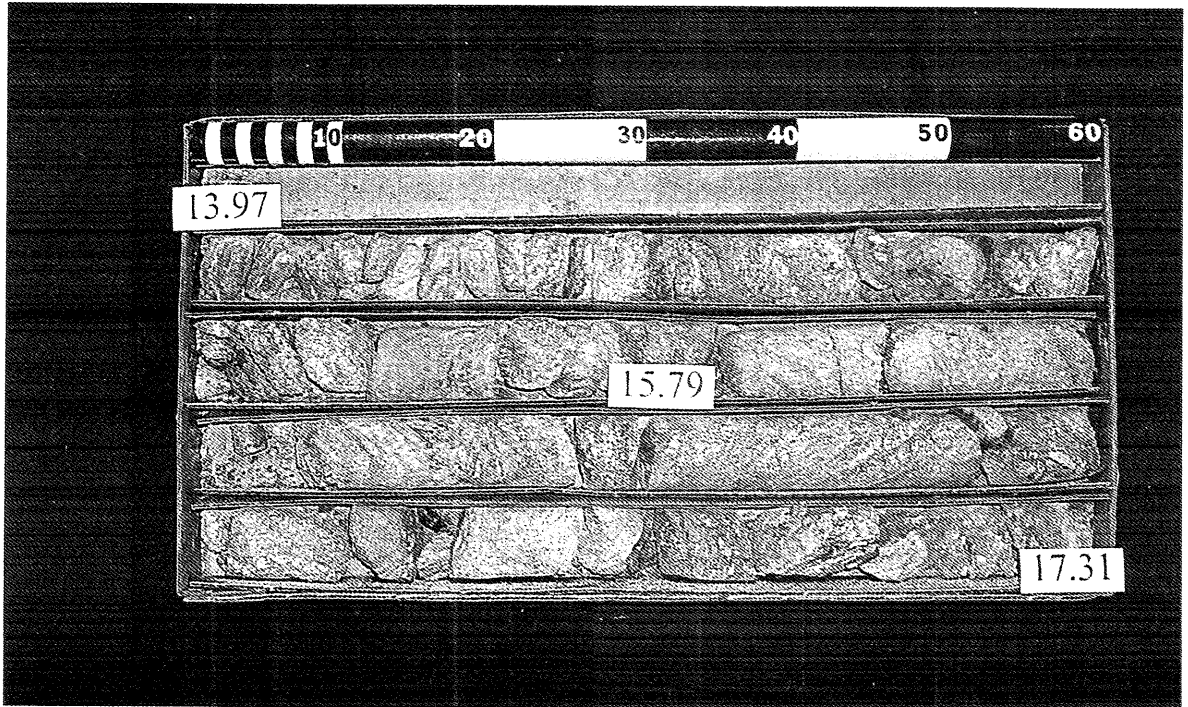
SHEET 2 OF 2

PROJECT NO. 8.2791701			ID. U-2306A			COUNTY Catawba			GEOLOGIST D. Teague		
SITE DESCRIPTION Bridge on NSRR over SR 1007								GROUND WATER (m)			
BORING NO. B3-A		BORING LOCATION 14+82.9			OFFSET 4.8 LT		ALIGNMENT -Y13-		0 HR. NM		
COLLAR ELEV. 358.960 m		NORTHING			EASTING			24 HR. 11.00			
TOTAL DEPTH 23.39 m		DRILL MACHINE Mobile B-57			DRILL METHOD 98 mm Tricone			HAMMER TYPE 63.5 kg. manual			
DATE STARTED 11/17/00			COMPLETED 11/20/00			SURFACE WATER DEPTH					
CORE SIZE NQ2			TOTAL RUN 9.42 m			DRILLER B.S.					
ELEV. (m)	DEPTH (m)	RUN (m)	DRILL RATE (Min./0.3m)	RUN		SAMP. NO.	STRATA		DESCRIPTION AND REMARKS		
				REC. (m) %	RQD (m) %		REC. %	RQD %			
338.91	20.05								Continued from previous page		
			4:14/.32						338.81	20.15	
338.61	20.35						95%	0%	338.61	20.35	Soft Weathered Rock - Tan, Severely Weathered, Extremely Fractured Garnet Mica Schist.
		1.5	2:40	(1.34)	(0.00)		92%	20%			Hard Rock - Gray and White, Moderately Weathered, Moderately to Extremely Fractured Garnet Mica Schist.
			3:45	88%	0%						25 jts @ 15° - 20° ADS=0.03m ADT=0.00m 1 jt @ 85° ADT=0.00m with Fe Stains 6 jts @ 15° - 20° ADS=0.04m ADT=0.00m 1 jt @ 45° ADT=0.00m
			6:25								
			13:20								
			19:20/.32								
337.09	21.87										
		1.5	2:25	(1.52)	(0.56)						
			3:40	100%	37%						
			5:20								
			4:30								
			3:55/.32								
335.57	23.39								335.57	23.39	Coring Terminated at 23.39m (EL 335.57) in Hard Rock - Garnet Mica Schist

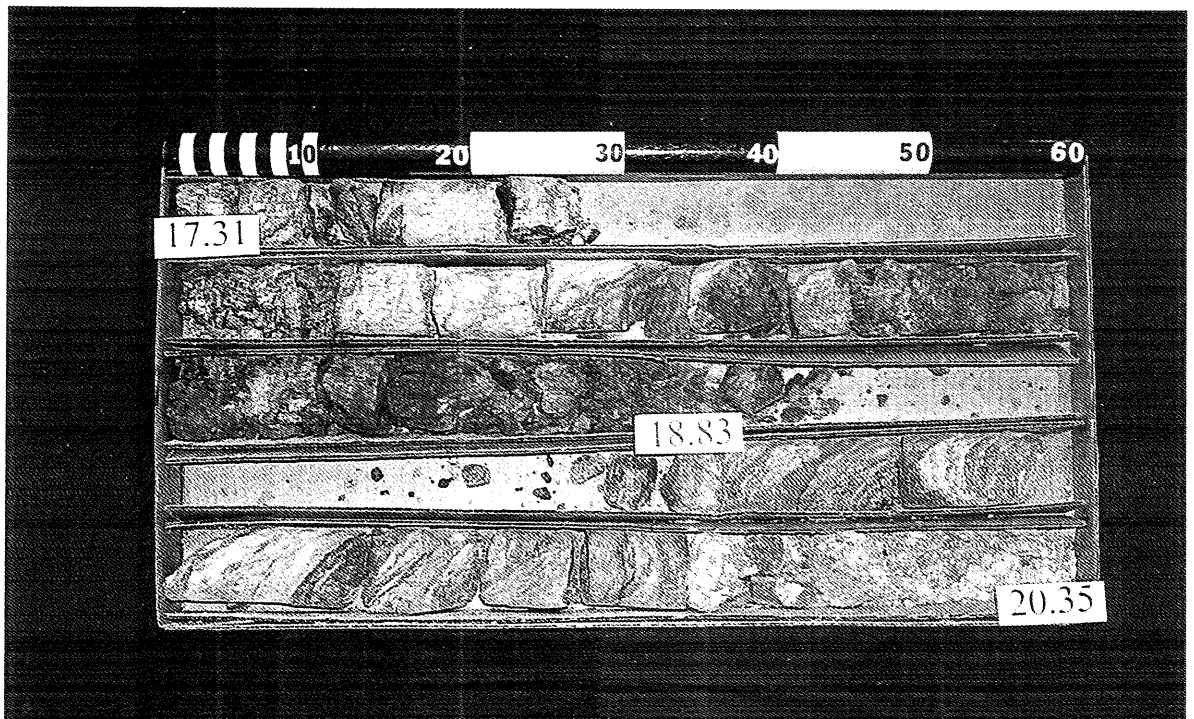
CORE PHOTOGRAPHS

Bridge on NSRR Over SR 1007 and Detour Bridge
NCDOT Project 8.2791701 (U-2306 A)

B3-A



Box 1 of 3



Box 2 of 3

CORE PHOTOGRAPHS

Bridge on NSRR Over SR 1007 and Detour Bridge
NCDOT Project 8.2791701 (U-2306 A)
B3-A



Box 3 of 3



PROJECT NO. 8.2791701		ID. U-2306A		COUNTY Catawba		GEOLOGIST D. Teague									
SITE DESCRIPTION Bridge on NSRR over SR 1007							GROUND WATER (m)								
BORING NO. B3-B		BORING LOCATION 14+76.1		OFFSET 4.8 RT		ALIGNMENT -Y13-									
COLLAR ELEV. 358.75 m		NORTHING		EASTING		0 HR. 10.86									
TOTAL DEPTH 16.98 m		DRILL MACHINE Mobile B-57		DRILL METHOD 98 mm Tricone		24 HR. 10.86									
DATE STARTED 11/15/00		COMPLETED 11/16/00		SURFACE WATER DEPTH		HAMMER TYPE 63.5 kg. manual									
ELEV. (m)	DEPTH (m)	BLOW COUNT			BLOWS PER 30 CM					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION		
		15cm	15cm	15cm	0	20	40	60	80					100	
358.75					Ground Surface Elev. 358.75								358.75	0.00	
	1.07	1	1	1								M	Artificial Fill: Soft, Moist, Red and Brown, Fine Sandy Silty CLAY (A-7-6)		
	2.59	2	2	2								SS-2	Artificial Fill: Loose, Moist, Red and Tan, Silty Clayey Fine SAND (A-2-4)		
	4.12	2	3	3								M			
	5.64	2	2	3								M			
	7.16	1	2	2								W	Artificial Fill: Soft, Wet, Tan, Fine Sandy SILT (A-4)		
	8.69	6	21	47								M	Residual: Very Dense, Moist, Tan, Silty Fine SAND (A-2-4)		
	10.21	50	28	11								M	Dense, Moist, Gray, Silty Fine to Coarse SAND with Gravel (A-2-4)		
	11.74	5	7	8								M	Medium Dense to Dense, Moist, Gray, Silty Fine SAND (A-2-4)		
	13.26	8	20	15								M			
	14.79	100/14										D	Soft Weathered Rock - Mica Schist		
	16.31	50/08										D			
	16.98	50/0										D	Tricone Refusal at 16.98m (EL341.77) on Hard Rock - Mica Schist		

TEC-NC DOT_BORE_NEW 01100112.GPJ NCDOT2.GDT 1/13/01



PROJECT NO. 8.2791701		ID. U-2306A		COUNTY Catawba		GEOLOGIST D. Teague										
SITE DESCRIPTION Bridge on NSRR over SR 1007							GROUND WATER (m)									
BORING NO. EB2-A		BORING LOCATION 14+95.6		OFFSET 4.8 LT		ALIGNMENT -Y13-										
COLLAR ELEV. 358.96 m		NORTHING		EASTING		0 HR. 10.97										
TOTAL DEPTH 17.24 m		DRILL MACHINE Mobile B-57		DRILL METHOD 82.6 mm ID HSA		24 HR. 10.97										
DATE STARTED 11/16/00		COMPLETED 11/16/00		SURFACE WATER DEPTH												
ELEV. (m)	DEPTH (m)	BLOW COUNT			BLOWS PER 30 CM					SAMP. NO.	LOG MOI	SOIL AND ROCK DESCRIPTION				
		15cm	15cm	15cm	0	20	40	60	80				100			
358.96		Ground Surface Elev. 358.96										358.96	0.00			
	1.07	5	6	5									M	Artificial Fill: Stiff, Moist, Red and Tan, Fine Sandy Silty CLAY (A-7-5)	356.96	2.00
	2.59	4	3	2									M	Artificial Fill: Loose, Moist, Red and Tan, Silty Fine to Medium SAND (A-2-4)		
	4.12	3	3	3									M			
	5.64	3	2	1									W	Artificial Fill: Soft, Wet, Tan, Fine Sandy CLAY (A-7-6)	353.46	5.50
	7.16	4	7	8									M	Residual: Medium Dense, Moist, Red and Tan, Silty Fine SAND (A-2-4)	352.14	6.82
	8.69	38	50	38									M	Very Dense, Moist, Red and Tan, Silty Fine to Coarse SAND with Gravel (A-2-4)	350.46	8.50
	10.21	13	14	20									SS-7	Dense, Moist, Gray and Red, Silty Fine to Coarse SAND (A-2-4)	349.28	9.68
	11.74	12	11	15									M	Medium Dense, Moist, Red and Brown, Clayey Silty Fine SAND (A-2-5)	347.07	11.89
	13.26	100/15											D	Soft Weathered Rock - Mica Schist	345.96	13.00
	14.79	14	100/14										D			
	16.31	50/05											D			
	17.24	50/0											D	Auger Refusal at 17.24m (EL 341.72) on Hard Rock - Mica Schist	341.72	17.24

TEC-NCDDOT_BORE_NEW 01100112.GPJ NCDOT2.GDT 1/13/01



PROJECT NO. 8.2791701	ID. U-2306A	COUNTY Catawba	GEOLOGIST C. Norville
SITE DESCRIPTION NSRR over Lenoir Rhyne Boulevard Extension			GROUND WATER (m)
BORING NO. B-2	BORING LOCATION 14+88.0	OFFSET 5.5m RT	ALIGNMENT -Y13-
			0 HR. 9.94
COLLAR ELEV. 358.94 m	NORTHING	EASTING	24 HR. 10.00
TOTAL DEPTH 16.36 m	DRILL MACHINE Mobile B-57	DRILL METHOD 82.6mm ID HSA	HAMMER TYPE 63.5kg Manual
DATE STARTED 03/09/99	COMPLETED 03/09/99	SURFACE WATER DEPTH N/A	

ELEV. (m)	DEPTH (m)	BLOW COUNT			BLOWS PER 30 CM					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	
		15cm	15cm	15cm	0	20	40	60	80					100
358.94					Ground Surface Elev. 358.94								358.94	0.00
	0.30													
	1.07	1	2	1								M	Artificial Fill: Very Loose Moist to Wet Tan, Red, and Dark Gray Silty Fine to Medium SAND with Gravel and Wood Fragments (A-2-4)	
358	1.83	2	1	2								W		
	2.59	2	2	2								W		
	3.25	1	2	1								W		
356	4.12	2	2	2								M		354.94
	5.64	1	2	3								W	Artificial Fill: Loose Moist Tan Silty Fine to Medium SAND (A-2-4)	
354	6.50	1	2	3								W		353.44
	7.16	18	15	15								M	Artificial Fill: Medium Stiff Wet Fine Sandy Silty CLAY (A-7-6)	
352	8.69	8	20	32								M		352.44
	10.21	5	12	9								M	Residual: Dense to Very Dense Moist Tan and Red Silty Fine to Medium SAND with Rock Fragments (A-2-4)	
350	11.74	4	8	12								M		349.34
	13.26	10	25	28								W	Residual: Very Stiff Wet Tan and Brown Fine to Medium Sandy SILT (A-4)	
348	14.79	70	50/05									W		345.94
	16.31	50/05										SS-10	Residual: Very Dense Moist Tan and Brown Slightly Micaceous Silty Fine to Medium SAND (A-2-5)	
346												SS-11		344.94
												M	SOFT WEATHERED ROCK - Biotite Gneiss	
344												D		342.58
												D	Boring Terminated at 16.36m (Elev. 342.58) in SOFT WEATHERED ROCK - Biotite Gneiss	

TEC-NCDDOT_BORE_NEW_01199044.GPJ_NCDOT2.GDT_12/29/00



TRIGON ENGINEERING CONSULTANTS, INC.
BORING LOG

SHEET 1 OF 1

PROJECT NO. 8.2791701	ID. U-2306A	COUNTY Catawba	GEOLOGIST C. Norville
SITE DESCRIPTION NSRR over Lenoir Rhyne Boulevard Extension			GROUND WATER (m)
BORING NO. B-1	BORING LOCATION 14+23.0	OFFSET 14.0m RT	ALIGNMENT -Y13-
			0 HR. Dry
COLLAR ELEV. 354.86 m	NORTHING	EASTING	24 HR. Dry
TOTAL DEPTH 6.04 m	DRILL MACHINE Mobile B-57	DRILL METHOD 82.6mm ID HSA	HAMMER TYPE 63.5kg Manual
DATE STARTED 03/09/99	COMPLETED 03/09/99	SURFACE WATER DEPTH N/A	

ELEV. (m)	DEPTH (m)	BLOW COUNT			BLOWS PER 30 CM					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION		
		15cm	15cm	15cm	0	20	40	60	80				100	
354.86					Ground Surface Elev. 354.86							354.86 0.00		
	0.30	3	3	5								D	X	Artificial Fill: Loose Dry Red and Dark Gray Silty Fine to Medium SAND with Gravel (A-2-4)
	1.07	20	100/12									M		Residual: Loose Moist Tan and Red Clayey Silty Fine to Medium SAND (A-2-4)
	1.83	39	56	44/05								D		SOFT WEATHERED ROCK - Biotite Gneiss
	2.59	30	48	52/05								D		
	4.12	18	20	40								D		Residual: Very Dense Dry Micaceous Tan Silty Fine to Medium SAND with Rock Fragments (A-2-4)
	5.64	21	60	40/10								D		SOFT WEATHERED ROCK - Biotite Gneiss
														Boring Terminated at 6.04m (Elev. 348.82) in SOFT WEATHERED ROCK - Biotite Gneiss

EC-NC DOT_BORE_NEW_01199044.GPJ NCDOT2.GDT 12/29/00



TRIGON ENGINEERING CONSULTANTS, INC.
BORING LOG

SHEET 1 OF 1

PROJECT NO. 8.2791701	ID. U-2306A	COUNTY Catawba	GEOLOGIST C. Norville
SITE DESCRIPTION Bridge on NSRR over SR 1007			GROUND WATER (m)
BORING NO. D-2	BORING LOCATION 14+32.7	OFFSET 14.5 RT	ALIGNMENT -Y13-
COLLAR ELEV. 352.84 m	NORTHING	EASTING	0 HR. 5.00
TOTAL DEPTH 5.69 m	DRILL MACHINE Mobile B-57	DRILL METHOD 82.6 mm ID HSA	24 HR. 5.00
DATE STARTED 11/22/00		COMPLETED 11/22/00	SURFACE WATER DEPTH
HAMMER TYPE 63.5 kg. manual			

ELEV. (m)	DEPTH (m)	BLOW COUNT			BLOWS PER 30 CM					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	
		15cm	15cm	15cm	0	20	40	60	80				100
352.84					Ground Surface Elev. 352.84							352.84 0.00	
352	1.07	7	7	9						SS-1	18.9	Residual: Very Stiff, Moist, Tan and Red, Fine to Medium Sandy SILT (A-5)	
350	2.59	34	50/05								D	351.04 1.80	Soft Weathered Rock - Mica Schist
348	4.12	39	50/05								D		
	5.64	50/05									D	347.15 5.69	Boring Terminated at 5.69 m (EL 347.15) in Soft Weathered Rock - Mica Schist



PROJECT NO. 8.2791701		ID. U-2306A		COUNTY Catawba		GEOLOGIST C. Norville								
SITE DESCRIPTION Bridge on NSRR over SR 1007							GROUND WATER (m)							
BORING NO. D-3		BORING LOCATION 14+51.8		OFFSET 17.0 RT		ALIGNMENT -Y13-								
COLLAR ELEV. 352.70 m		NORTHING		EASTING		0 HR. 4.80								
TOTAL DEPTH 6.04 m		DRILL MACHINE Mobile B-57		DRILL METHOD 82.6 mm ID HSA		24 HR. 4.80								
DATE STARTED 11/22/00		COMPLETED 11/22/00		SURFACE WATER DEPTH										
ELEV. (m)	DEPTH (m)	BLOW COUNT			BLOWS PER 30 CM					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION		
		15cm	15cm	15cm	0	20	40	60	80				100	
352.70					Ground Surface Elev. 352.70							352.70	0.00	
	1.07	10	25	40	●65						M	Artificial Fill: Soft Moist, Brown, Silty Fine to Medium Sandy CLAY (A-7-6)	0.80	
	2.59	90	10/01		●100/16						D	Residual: Hard, Dry, Tan and Brown, Fine to Coarse Sandy SILT (A-4)	1.60	
	4.12	90	10/01		●100/16						D	Soft Weathered Rock - Mica Schist		
	5.64	25	67	33/10	●100/26						D			
												Boring Terminated at 6.04m (EL 346.66) in Soft Weathered Rock - Mica Schist	6.04	



TRIGON ENGINEERING CONSULTANTS, INC.
BORING LOG

SHEET 1 OF 1

PROJECT NO. 8.2791701	ID. U-2306A	COUNTY Catawba	GEOLOGIST C. Norville
SITE DESCRIPTION Bridge on NSRR over SR 1007			GROUND WATER (m)
BORING NO. D-4	BORING LOCATION 14+67.7	OFFSET 15.0 RT	ALIGNMENT -Y13-
			0 HR. 5.49
COLLAR ELEV. 353.38 m	NORTHING	EASTING	24 HR. 5.49
TOTAL DEPTH 11.79 m	DRILL MACHINE Mobile B-57	DRILL METHOD 82.6 mm ID HSA	HAMMER TYPE 63.5 kg. manual
DATE STARTED 11/22/00	COMPLETED 11/22/00	SURFACE WATER DEPTH	

ELEV. (m)	DEPTH (m)	BLOW COUNT			BLOWS PER 30 CM					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION		
		15cm	15cm	15cm	0	20	40	60	80				100	
353.38												0.00	Ground Surface Elev. 353.38	
	1.07	1	2	1							M		Artificial Fill: Soft to Medium Stiff, Moist, Tan and Brown, Fine Sandy CLAY (A-7-6)	
	2.59	1	2	3						SS-2	22.5	350.28	3.10	Residual: Stiff to Very Stiff, Moist to Wet, Tan and Red, Fine Sandy SILT (A-4)
	4.12	4	10	17							M			
	5.64	2	3	8							W			
	7.16	5	10	65							M	345.88	7.50	Very Dense, Moist, Tan and Brown, Silty Fine to Coarse SAND (A-2-4)
	8.69	13	29	53							M	344.38	9.00	Soft Weathered Rock - Mica Schist
	10.21	100/15									D			
	11.74	50/05									D	341.59	11.79	Boring Terminated at 11.79m (EL 341.59) in Soft Weathered Rock - Mica Schist

EC-NCDOT_BORE_NEW_01100112.GPJ NCDOT2.GDT 12/21/00



PROJECT NO. 8.2791701	ID. U-2306A	COUNTY Catawba	GEOLOGIST C. Norville
SITE DESCRIPTION NSRR over Lenoir Rhyne Boulevard Extension			GROUND WATER (m)
BORING NO. B-3	BORING LOCATION 14+88.0	OFFSET 14.5m RT	ALIGNMENT -Y13-
			0 HR. 6.55
COLLAR ELEV. 355.66 m	NORTHING	EASTING	
			24 HR. 6.71
TOTAL DEPTH 11.96 m	DRILL MACHINE Mobile B-57	DRILL METHOD 82.6mm ID HSA	HAMMER TYPE 63.5 kg Manual
DATE STARTED 03/08/99	COMPLETED 03/08/99	SURFACE WATER DEPTH N/A	

ELEV. (m)	DEPTH (m)	BLOW COUNT			BLOWS PER 30 CM					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	
		15cm	15cm	15cm	0	20	40	60	80					100
355.66													0.00	Ground Surface Elev. 355.66
	0.30	4	4	3								M	355.66	Artificial Fill: Loose to Medium Dense Moist Red, Gray, and Tan Silty Clayey Fine SAND with Gravel (A-2-6)
	1.07	3	2	2								M		
354	1.83	4	5	6								M	353.46	Residual: Hard Moist Fine to Medium Sandy Silty CLAY (A-2-6)
	2.59	10	11	30						SS-4		25	351.86	Residual: Medium Dense Moist Tan and Red Silty Fine to Medium SAND (A-2-4)
352	4.12	15	15	12								M		
	5.64	10	56	44/05								D	349.86	SOFT WEATHERED ROCK - Biotite Gneiss
350	7.16	12	14	21								W	349.16	Residual: Dense Wet Tan Silty Fine to Medium SAND (A-2-4)
348	8.69	18	22	69						SS-7				
	10.21	100/14										M	346.81	Residual: Very Dense Moist Tan Micaceous Silty Fine to Coarse SAND with Rock Fragments (A-2-4)
346												M	346.36	SOFT WEATHERED ROCK - Biotite Gneiss
	11.74	42	50/07									M	343.70	Boring Terminated at 11.96m (Elev. 343.7) in SOFT WEATHERED ROCK - Biotite Gneiss

EC-NC DOT_BORE_NEW 01199044.GPJ_NCDOT2.GDT 1/22/00

DYNAMIC CONE PENETROMETER DATA SHEET

Trigon Engineering Consultants, Inc.
700 Blue Ridge Road
Raleigh, North Carolina 27606

Date: 03/10/99
Project: NSRR over Lenoir Rhyne Boulevard Extension
County: Catawba
Project No.: 8.2791701 (U-2306A)
Trigon Project No.: 01199044
Personnel: B. Whitaker, B. Foster

Test Location	Penetrometer Blow Count Per .044m Increments				Depth Below	Soil Description Ground Surface Elev. 358.47
	1st	2nd	3rd	Avg.	Grade (m)	
HA-1	3	2	1	1	0.76	(0.00 - 2.59m) Artificial Fill: Very Loose to
STA						Loose Moist Red and Dark Gray Silty Fine to
14+23.0	2	1	1	1	1.52	Coarse SAND with Gravel (A-2-4)
-Y13 -						(Elev. 355.88)
4.0m RT						
	4	5	4	4	2.29	(2.59 - 3.35m) Artificial Fill: Loose Moist
						Slightly Micaceous Tan and Red Silty Fine Sandy
	6	9	2	5	3.05	CLAY with Gravel (A-6) (Elev. 355.12)
						(3.35 - 3.93m) Residual: Medium Dense
	15	13	18	15	3.81	Moist Slightly Micaceous Tan and Red Silty Fine
						to Medium SAND (A-2-4) (Elev. 354.54)
						Boring Terminated at 3.93m (Elev. 354.54) in
						Silty Fine to Medium SAND
						Dry at Time of Boring

State Project No. 8.2791701

TIP No. U-2306A

Bridge on NSRR over SR 1007

Hickory, North Carolina

SUMMARY OF LABORATORY TEST DATA

Boring No.	Sample Depth (m)	Sample No.*	Natural Moisture Content (%)	AASHTO Class (Group Index)	N-Value (bpf)**	Atterberg Limits			Gradation Results							
						L.L.	P.L.	P.I.	Pass #10 Sieve	Pass #40 Sieve	Pass #200 Sieve	Pass #270 Sieve	Coarse Sand (%)	Med. & Fine Sand (%)	Silt (%)	Clay (%)
EB1-A	5.64-6.10	SS-4	17.7	A-2-4 (0)	35	31	NP	NP	97	69	26	19	3	78	5	14
EB1-B	10.21-10.67	SS-7	21.3	A-2-4 (0)	78	36	NP	NP	91	65	30	22	9	69	12	10
B1-A	4.12-4.57	SS-3	47.9	A-4 (0)	19	26	NP	NP	96	81	45	39	4	57	18	21
B1-B	11.74-12.20	SS-8	19.0	A-2-4 (0)	55	39	NP	NP	100	76	29	22	0	78	15	7
B2-A	1.07-1.52	SS-1	28.8	A-2-5 (0)	16	56	NP	NP	92	71	31	22	8	70	4	18
B3-A	5.64-6.10	SS-4	30.7	A-4 (2)	3	24	16	8	100	86	57	54	0	46	20	34
B3-B	2.59-3.05	SS-2	20.8	A-2-4 (0)	4	25	NP	NP	91	70	28	24	9	67	6	18
EB2-A	10.21-10.67	SS-7	17.5	A-2-4 (0)	34	33	NP	NP	96	55	17	17	4	79	9	8
D-4	2.59-3.05	SS-2	22.5	A-7-6 (4)	5	43	20	23	100	79	40	35	0	65	25	10
D-2	1.07-1.52	SS-1	18.9	A-5 (0)	16	87	NP	NP	100	94	39	32	0	68	0	32

* SS = Split-Spoon Sample (ASTM-D-1586)

** bpf = blows per 30 cm.

*** S = Bulk Sample

NP -- Non Plastic

TRIGON ENGINEERING CONSULTANTS, INC.

RALEIGH, NORTH CAROLINA

Trigon Job Number: 011-00-112

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State Project No. 8.2791701
 Federal Project No. MASTP-1216(8)
 NSRR over Lenoir Rhyne Boulevard Extension
 Catawba County, North Carolina

SUMMARY OF LABORATORY TEST DATA

Boring No.	Sample Depth (m)	Sample No.*	Natural Moisture Content (%)	AASHTO Class (Group Index)	N-Value (bpi)**	Atterberg Limits			Gradation Results							
						L.L.	P.L.	P.I.	Pass #10 Sieve	Pass #40 Sieve	Pass #200 Sieve	Pass #270 Sieve	Coarse Sand (%)	Med. & Fine Sand (%)	Silt (%)	Clay (%)
HA-1	2.90-3.05	NA	-	A-6(1)	NA	32	17	15	83	67	37	32	17	51	18	14
B-2	11.74-12.20	SS-10	-	A-4(0)	20	37	NP	NP	100	82	40	28	0	72	28	0
B-2	13.26-13.72	SS-11	-	A-2-5	53	45	NP	NP	99	76	34	20	1	79	20	0
B-3	2.59-3.05	SS-4	25	A-7-6(28)	41	59	23	36	83	68	51	47	17	36	10	37
B-3	7.16-7.62	SS-7	-	A-2-4	35	39	NP	NP	95	61	24	12	5	83	11	1

* SS = Split-Spoon Sample (ASTM-D-1586)
 ** bpi = Blows per increment of 30 cm
 *** S = Bulk Sample
 NP -- Non Plastic
 NA -- Not Applicable
 HA -- Hand Auger