

PROJECT: 34334 ID: R-0505

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	34331 (R-0505)	1	19

**STRUCTURE
SUBSURFACE INVESTIGATION**

PROJ. REFERENCE NO. 34334 (R-0505) F.A. PROJ. APD-1954(I)
COUNTY HENDERSON
PROJECT DESCRIPTION NC 225 - US 25/I-26 CONNECTOR FROM US 25
AT ZIRCONIA TO I-26

SITE DESCRIPTION DUAL STRUCTURES ON US 25/I-26 CONNECTOR
OVER US 176

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) 250-4088. 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 (ON-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.

PERSONNEL

J. W. MANN

M. T. CAMPBELL

T. E. WILLIAMS

D. O. CHEEK

INVESTIGATED BY J. L. SHARPE

CHECKED BY F. R. GLASS

SUBMITTED BY F. R. GLASS

DATE DECEMBER 1990

NOTE: THIS IS A REDISTRIBUTION OF A 1990 SUBSURFACE INVESTIGATION.

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

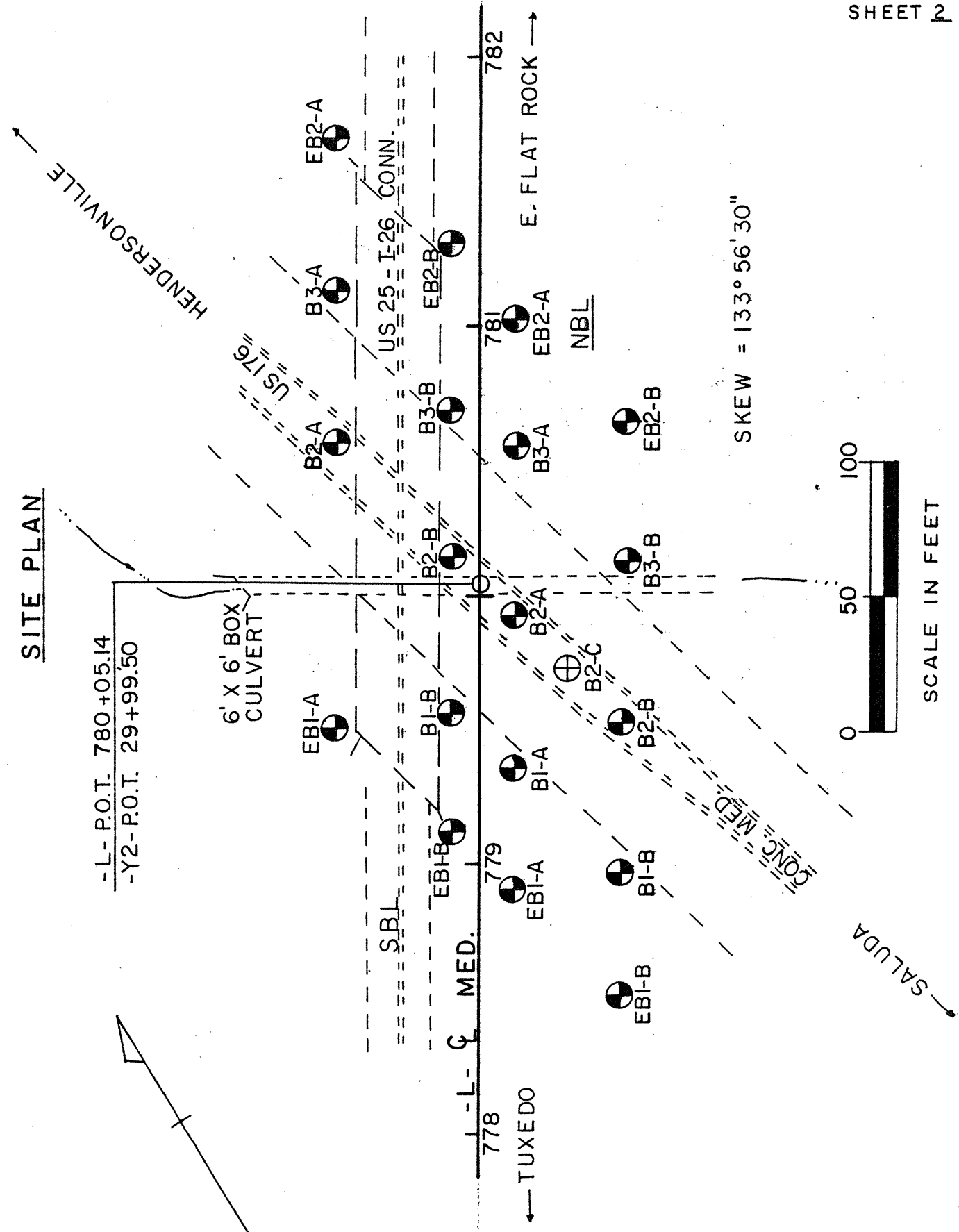
NOTE - BY HAVING REQUESTED THIS INFORMATION THE CONTRACTOR SPECIFICALLY WAIVES ANY CLAIMS FOR INCREASED COMPENSATION OR EXTENSION OF TIME BASED ON DIFFERENCES BETWEEN THE CONDITIONS INDICATED HEREIN AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

GEOTECHNICAL UNIT
SOIL AND ROCK CLASSIFICATION, LEGEND
AND ABBREVIATIONS

SHEET 1 OF 33

6.951015
R-505
SHEET 2 OF 33

SOIL LEGEND AND AASHTO CLASSIFICATION										CONSISTENCY OR DENSENESS					
GENERAL CLASS.	GRANULAR MATERIALS (≤ 35% PASSING #200)				SILT-CLAY MATERIALS (> 35% PASSING #200)				ORGANIC MATERIALS		PRIMARY SOIL TYPE	COMPACTNESS OR CONSISTENCY	RANGE OF STANDARD PENETRATION RESISTANCE (BLOWS PER FOOT)	RANGE OF UNCONFINED COMPRESSIVE STRENGTH (q _u) (TONS/FT 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	A-3	A-6-A-7			
SYMBOL	[Symbol]	[Symbol]	[Symbol]	[Symbol]	[Symbol]	[Symbol]	[Symbol]	[Symbol]	[Symbol]	[Symbol]	[Symbol]	[Symbol]	[Symbol]	[Symbol]	[Symbol]
% PASSING	#10	#40	#200												
(PASSING #40)	LL	PI													
GROUP INDEX															
USUAL TYPES OF MAJOR MATERIALS	STONE FRAGS. GRAVEL & SAND	FINE GRAVEL & SAND	SILTY OR CLAYEY SILTY GRAVEL OR SAND		SILTY SILTS	CLAYEY SILTS		SOILS WITH LITTLE OR MODERATE AMOUNTS OF ORGANIC MATTER		HIGHLY ORGANIC 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												
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 BRODEST 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)	CORED ROCK	INFERRED ROCK LINE	MATERIAL THAT CANNOT BE PENETRATED BY POWER AUGERS, EXCEPT IN THIN LEDGES, AND REQUIRES ROCK CORING TOOLS FOR OBTAINING A SAMPLE												
WEATHERED ROCK (WR)	HARD WEATHERED ROCK (HWR)		MATERIAL THAT CAN BE PENETRATED WITH GREAT DIFFICULTY USING POWER AUGERS AND YIELDS SPT REFUSAL												
	SOFT WEATHERED ROCK (SWR)		MATERIAL THAT CAN BE PENETRATED WITH SOME DIFFICULTY USING POWER AUGERS AND YIELDS SPT VALUES > 100 BPF BUT < SPT REFUSAL												
¹ SPT REFUSAL ≤ 1 INCH OF PENETRATION PER 50 BLOWS. 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 (ROQ) - TOTAL LENGTH OF SOUND ROCK SEGMENTS RECOVERED THAT ARE LONGER THAN OR EQUAL TO 4" DIVIDED BY THE TOTAL LENGTH OF THE CORE RUN TIMES 100%.															
GROUND WATER															
▽ WATER LEVEL IN BORE HOLE [IMMEDIATELY AFTER DRILLING (I.A.D.) SOON AFTER DRILLING (S.A.D.)] ▽ STATIC WATER LEVEL (AFTER 24 HRS.) ▽ PERCHED WATER (PW), SATURATED ZONE, OR WATER BEARING STRATA ○ SPRING OR SEEPAGE															
MISCELLANEOUS SYMBOLS AND ABBREVIATIONS															
[Symbol]	ROADWAY EMBANKMENT WITH SOIL DESCRIPTION	[Symbol]	SPT TEST BORING	[Symbol]	SAMPLE DESIGNATIONS										
[Symbol]	SOIL SYMBOL	[Symbol]	AUGER BORING	[Symbol]	S-BULK SAMPLE										
[Symbol]	ARTIFICIAL FILL OTHER THAN ROADWAY EMBANKMENTS	[Symbol]	CORE BORING	[Symbol]	SS-SPL. IT SPOON SAMPLE										
[Symbol]	INFERRED SOIL BOUNDARIES	[Symbol]	PIEZOMETER INSTALLATION	[Symbol]	ST-SHELBY TUBE SAMPLE										
[Symbol]	STRIKE AND DIP OF BEDS	[Symbol]	SLOPE INDICATOR INSTALLATION												
[Symbol]	APPARENT DIP (NORMAL TO)	[Symbol]	SPT N-COUNT												
ABBREVIATIONS															
ALLUV.	ALLUVIUM	MIC.	MICACEOUS												
AR	AUGER REFUSAL	MOT.	MOTTLED												
Bldr.	BOLDER	NS	NO SAMPLE TAKEN												
BPF	BLOWS PER FOOT	ORG.	ORGANIC												
CALC.	CALCAREOUS	REF.	REFER TO RESIDUAL												
CL.	CLAY	RES.	RESIDUAL												
CLY.	CLAYEY	SAT.	SATURATED												
COB.	COBBLE	SAND	SANDY												
COSE	COARSE	SED(SL)	SEDIMENT(S)												
DPT	DYNAMIC PENETRATION TEST	SIL.	SILT												
EST.	ESTIMATED	SILT	SILTY												
F.	FOSSELIFFEROUS	SPT	STANDARD PENETRATION TEST												
FRAC.	FRAGMENTED	TS.	TOPSOIL												
FRAG(S)	FRAGMENT(S)	VST	VANE SHEAR TEST												
GR.	GRAVEL	W	WITH												
GS	SPECIFIC GRAVITY														
GW	GROUND WATER														
MED.	MEDIUM														



BENCH MARK: FL. 2110.05, RR SPIKE CENTER OF TRAFFIC ISLAND AND US 176, 0.5' RT STATION 36+41, -Y2-

STATE PROJECT NO. 6.951015
T.I.P. NO. R-505 F.A. NO. _____

COUNTY HENDERSON ROUTE US 25 - I-26 CONN.

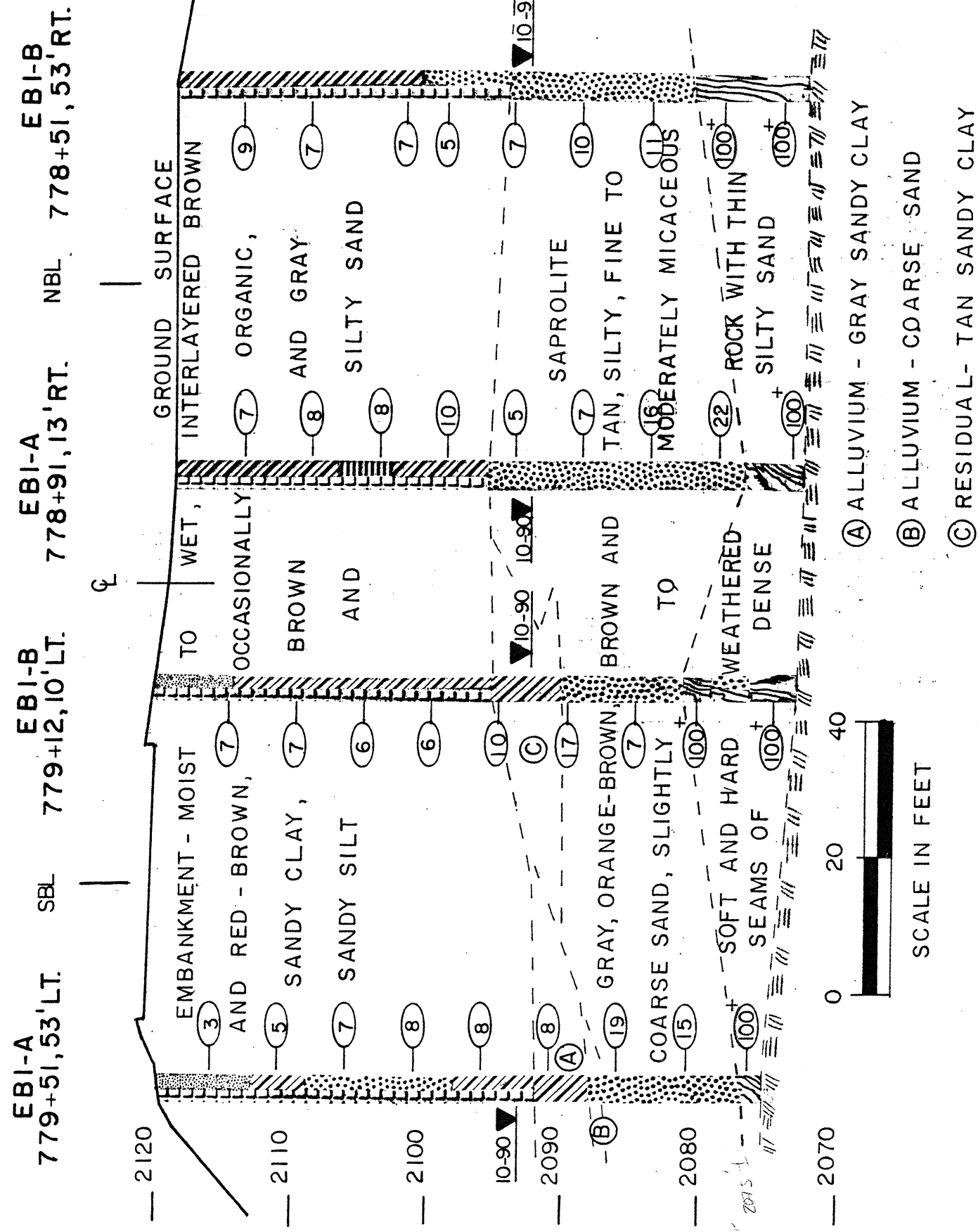
SITE DESCRIPTION DUAL BRIDGES OVER US 176 ON CONN. FROM US 25 AT ZIRCONIA TO I-26

PROJECT GEOLOGIST J. L. SHARPE SUBMITTED BY F. R. GLASS

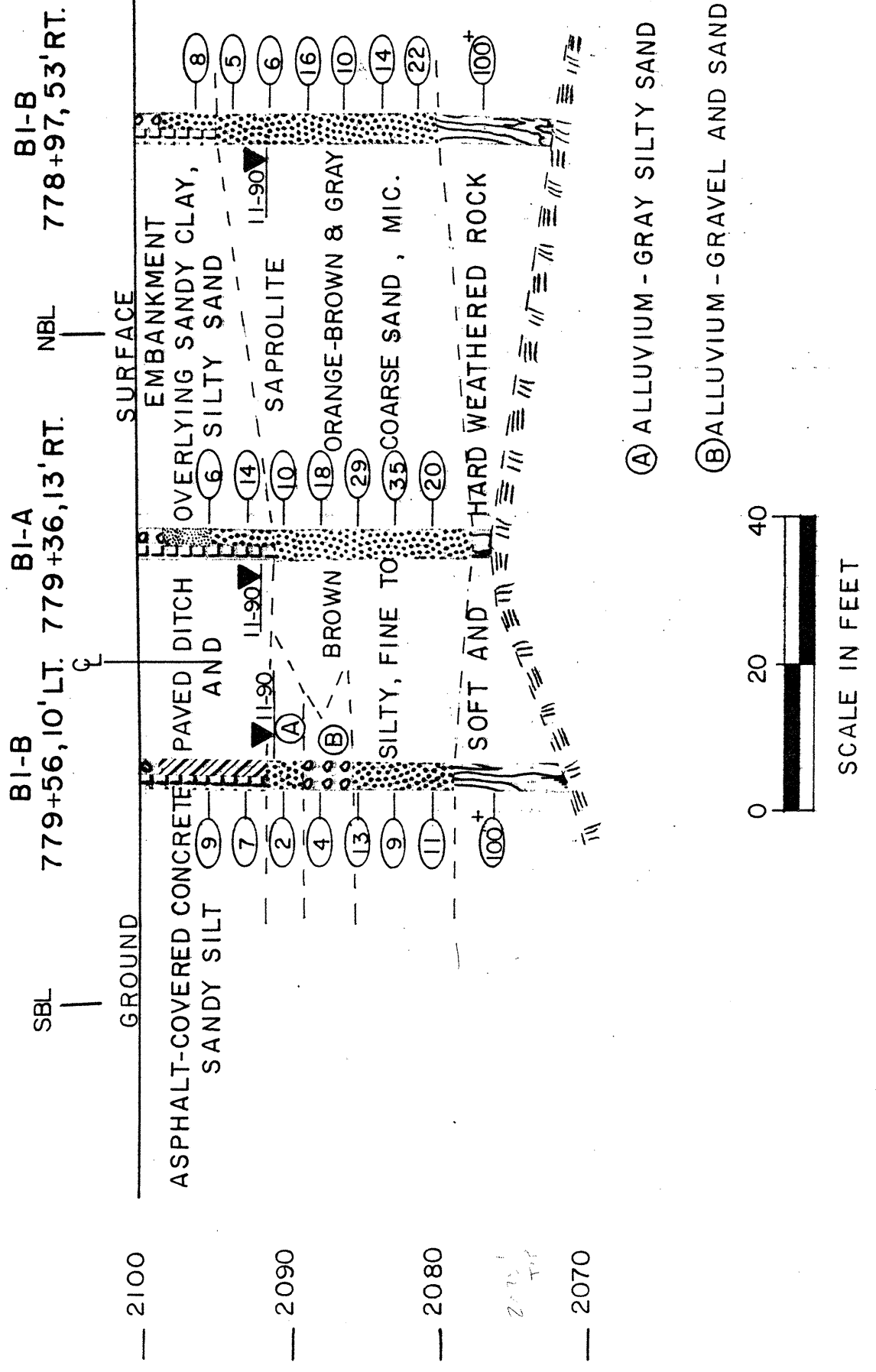
PERSONNEL J. W. MANN
M. T. CAMPBELL
T. E. WILLIAMS
D. O. CHEEK

DATE SUBMITTED DEC. 1990

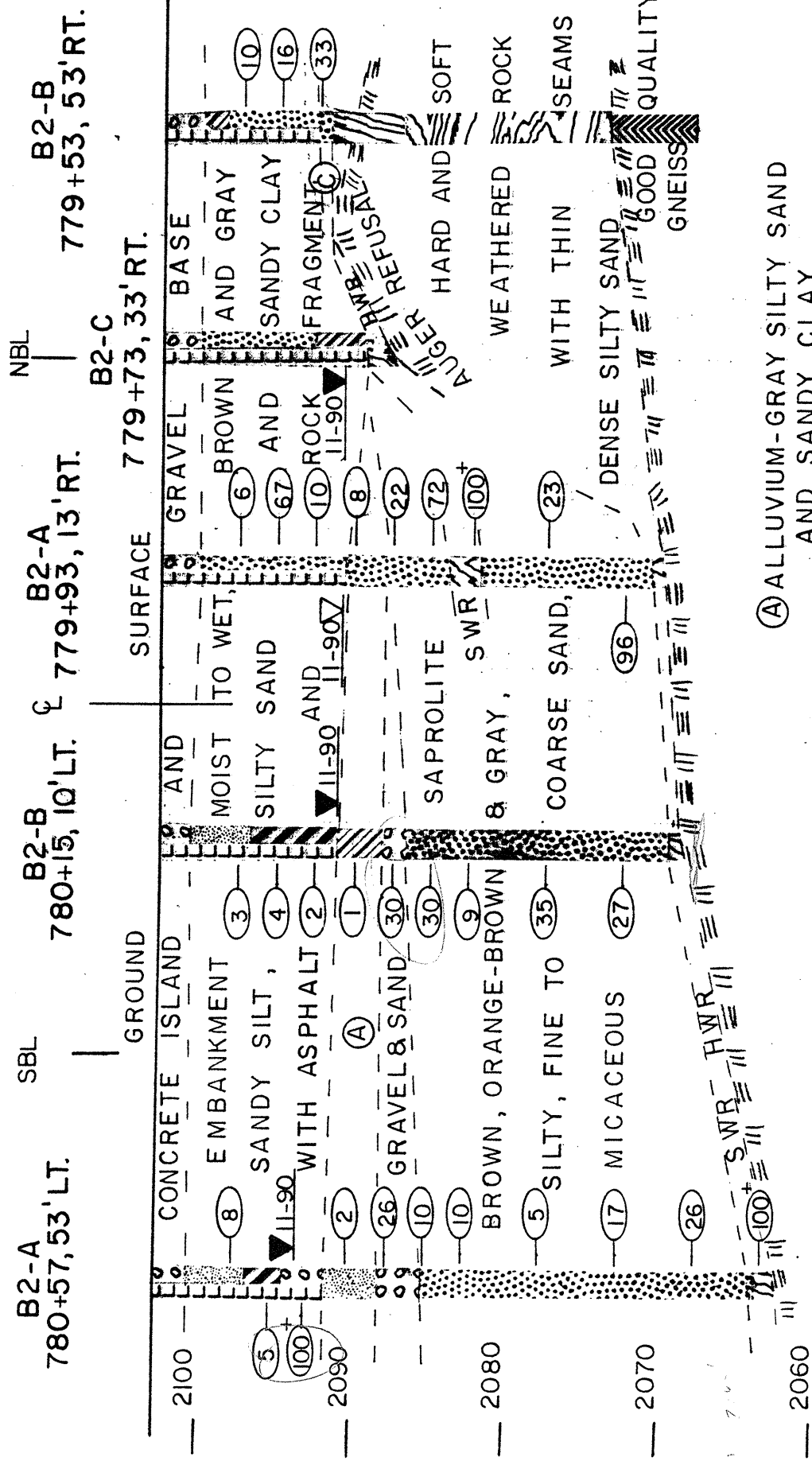
SECTION THROUGH EBI-A SBL AND EBI-B NBL



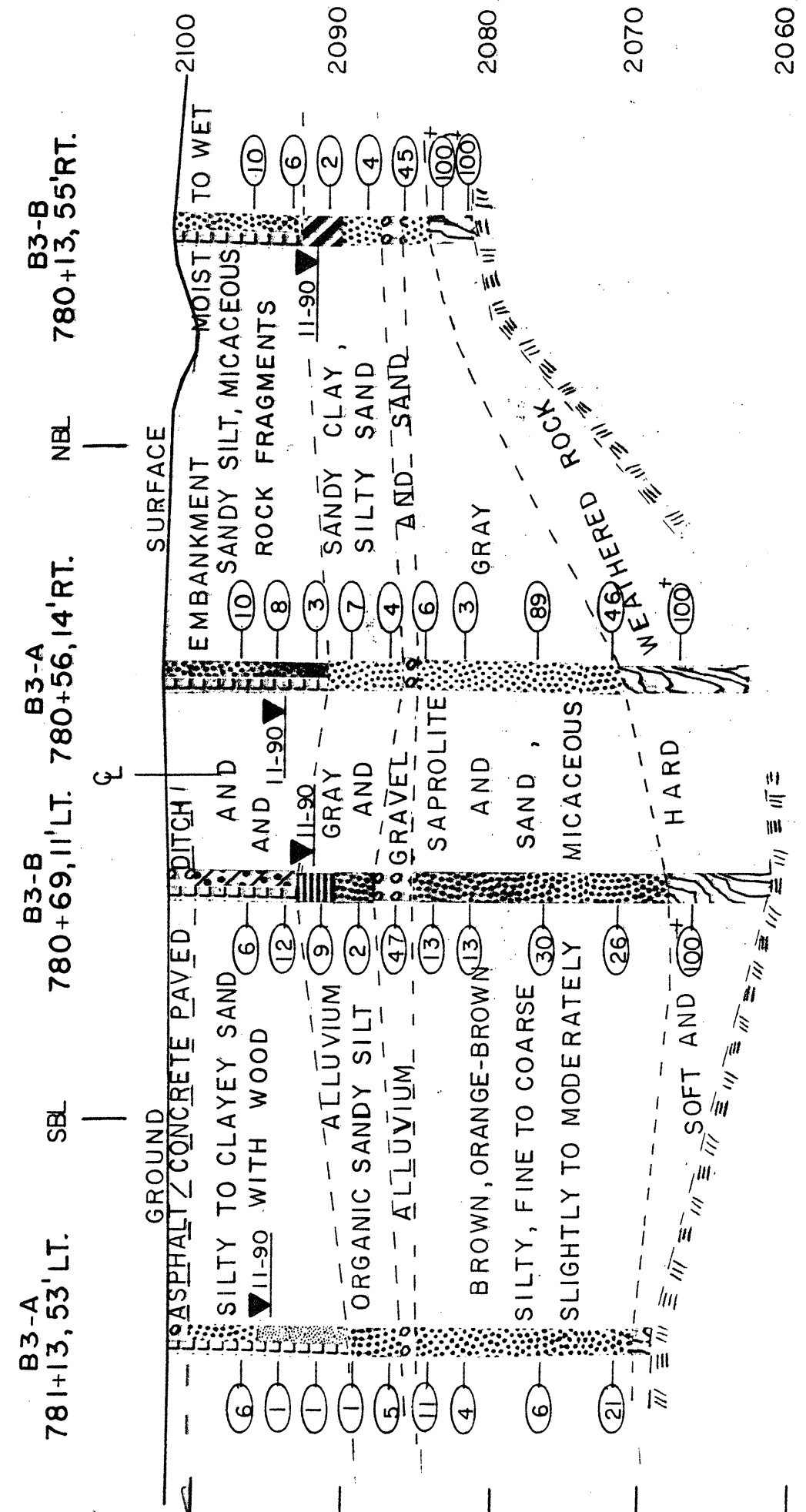
SECTION THROUGH BI-B SBL AND BI-B NBL



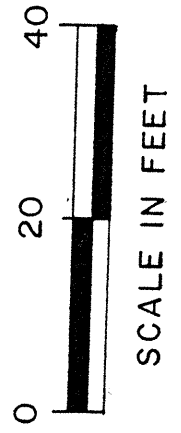
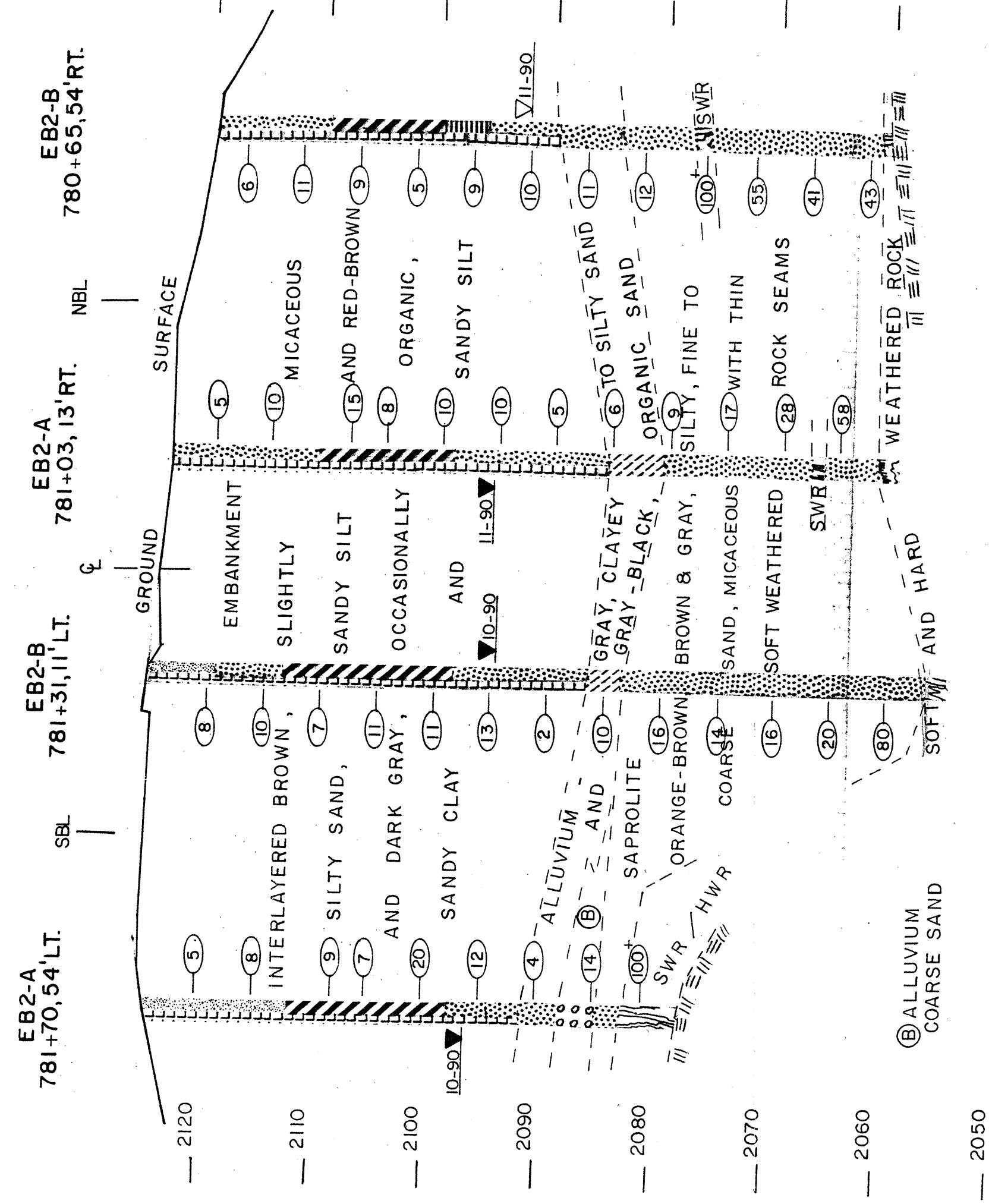
SECTION THROUGH B2-A SBL AND B2-B NBL



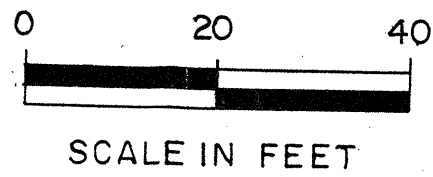
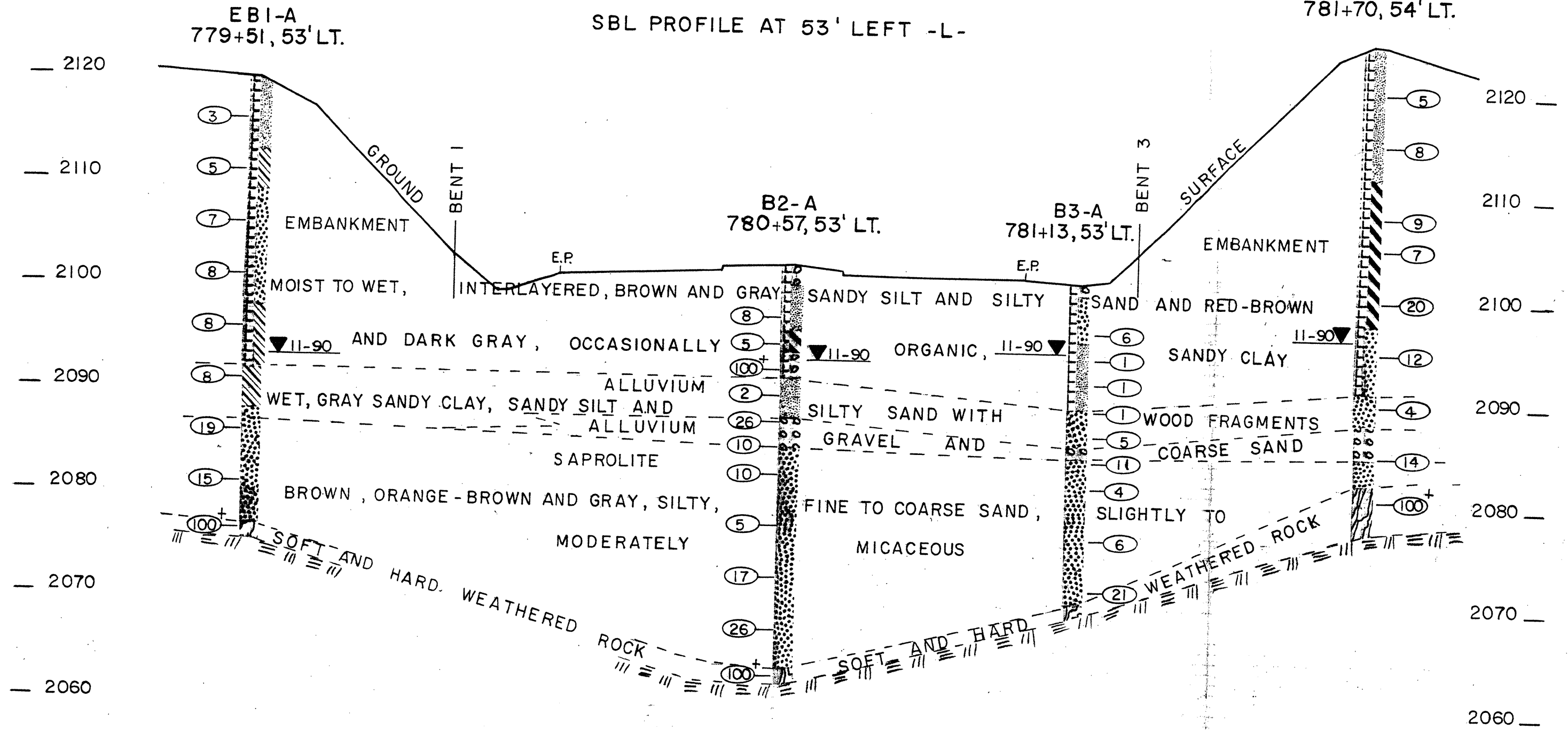
SECTION THROUGH B3-A SBL AND B3-B NBL



SECTION THROUGH EB2-A SBL AND EB2-B NBL



SBL PROFILE AT 53' LEFT -L-



779

+50

780

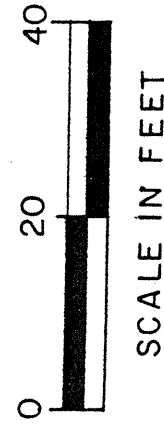
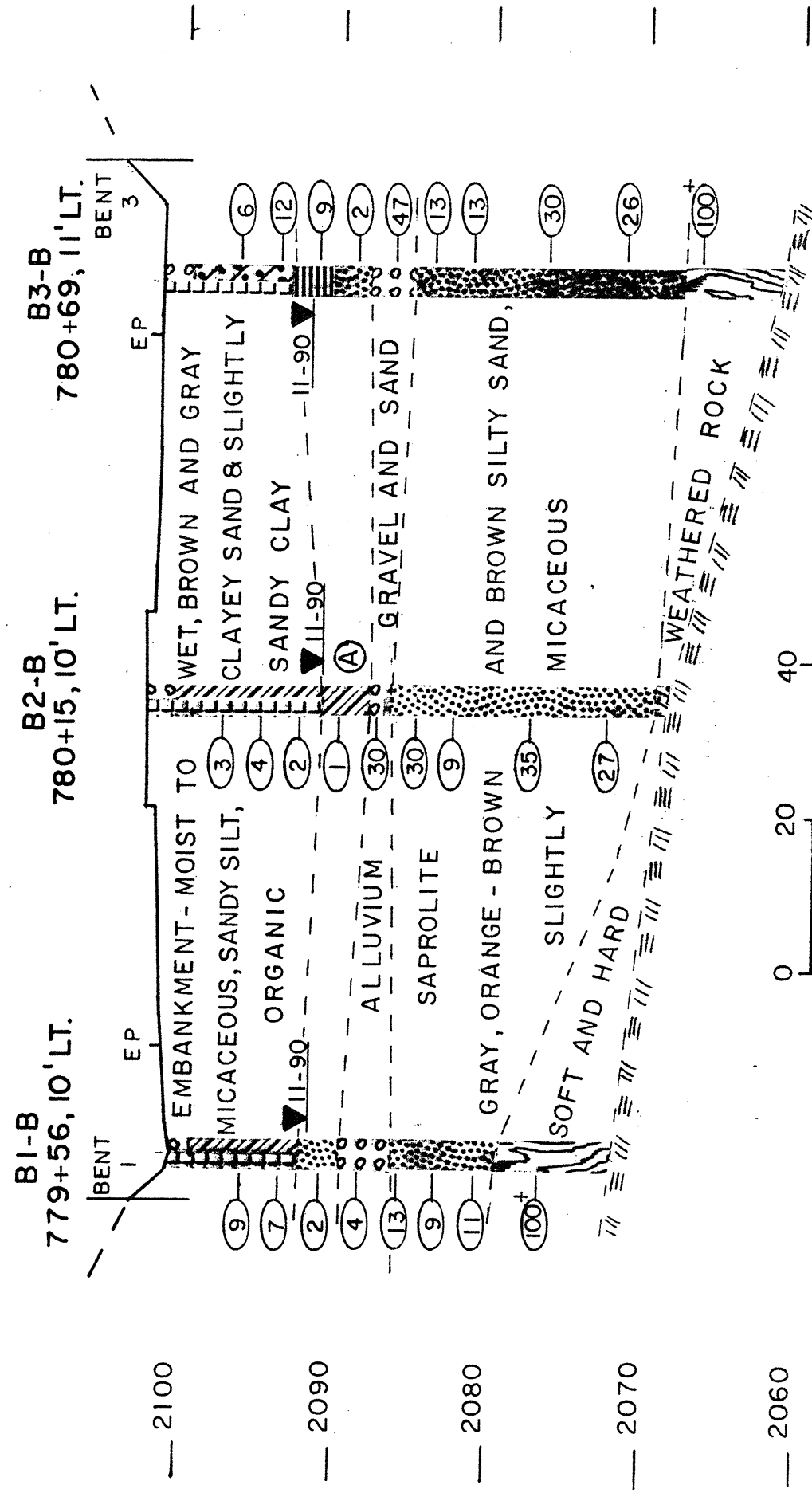
+50

781

+50

782

SBL PARTIAL PROFILE AT 10'-11' LEFT ☿



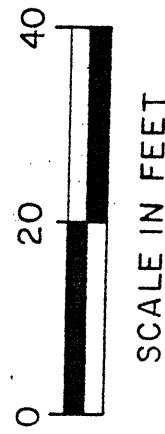
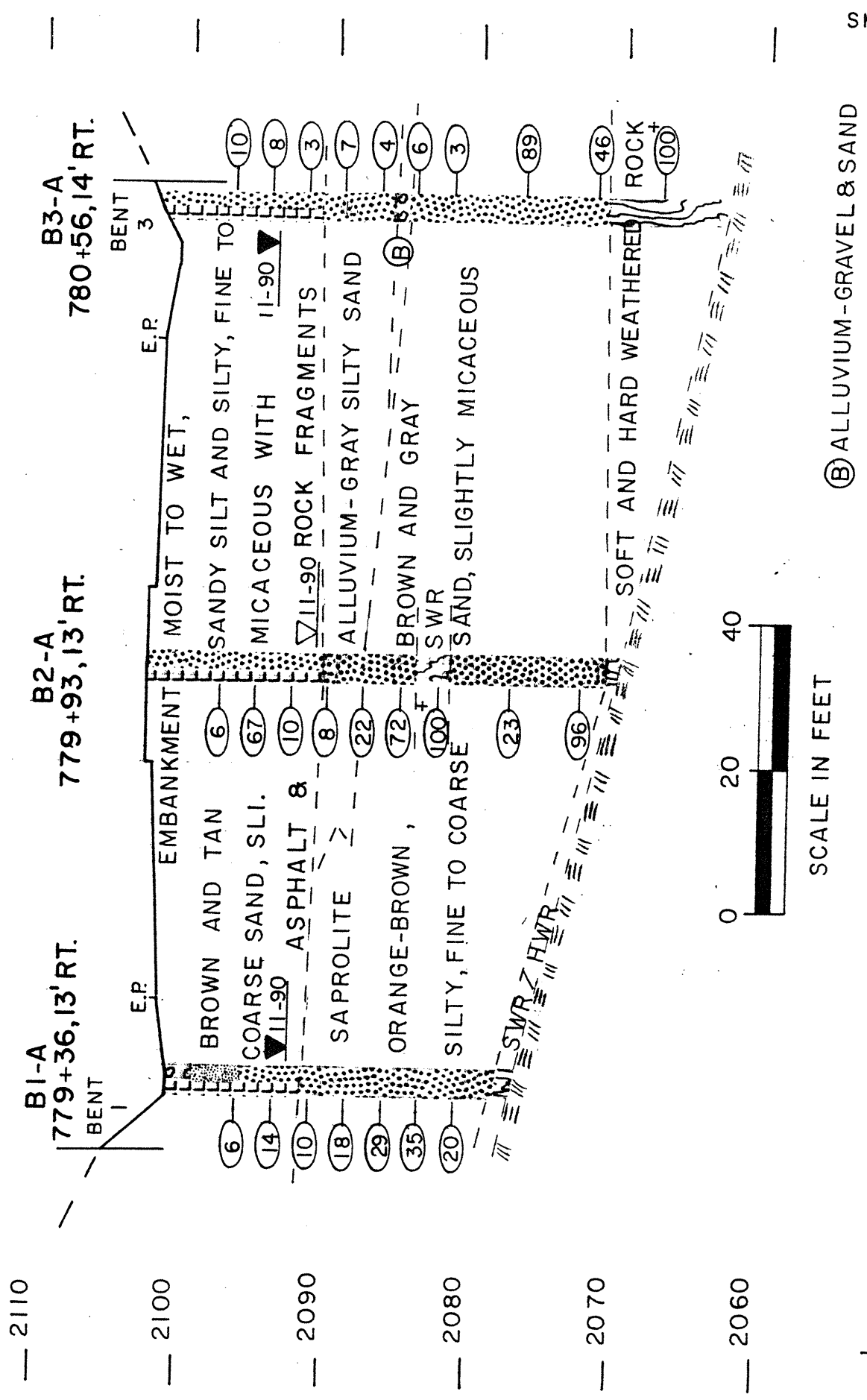
(A) ALLUVIUM - INTERLAYERED GRAY SILTY SAND, SANDY CLAY AND ORGANIC, SANDY SILT +50

SCALE IN FEET

+50
780

781

NBL PARTIAL PROFILE AT 13'-14' RIGHT ☿

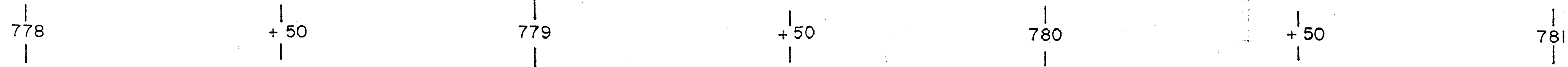
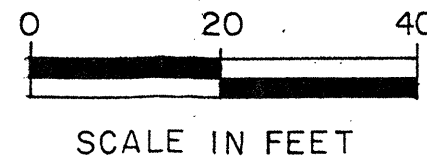
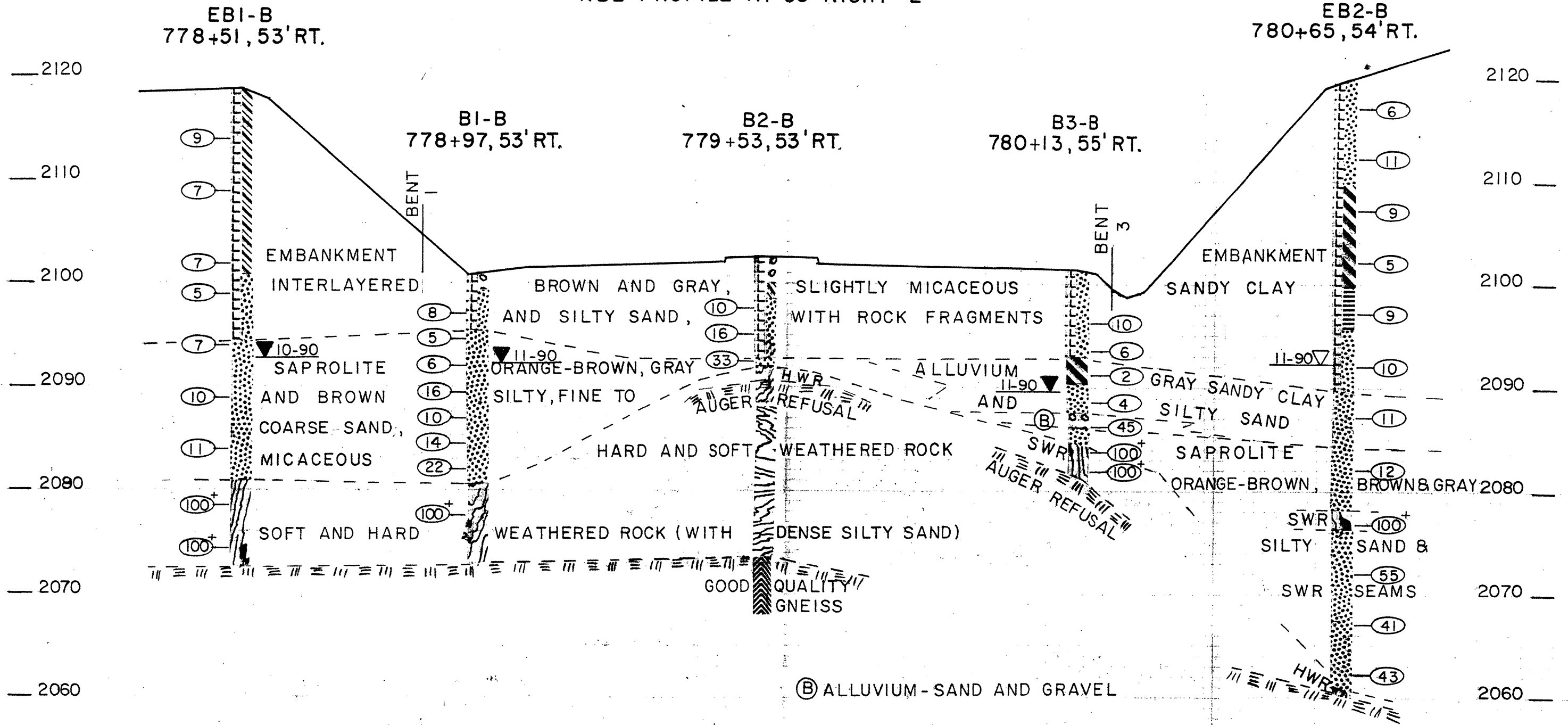


(B) ALLUVIUM - GRAVEL & SAND +50

+50
780

779

NBL PROFILE AT 53' RIGHT -L-



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL UNIT BORING LOG

PROJECT NO. 6.951015 ID. R-505 COUNTY HENDERSON GEOLOGIST J.W. MANN
 SITE DESCRIPTION DUAL BRIDGES US 25 - I-26 CONNECTOR OVER US 176
 BORING NO. EB1-A SBL BORING LOCATION (STA.) 779+51 OFFSET 53' LT GROUND WATER
 COLLAR ELEV. 2119.9 DATE STARTED 10-30-90 DRILL MACHINE CME 550 0 HR. 27.7
 TOTAL DEPTH 44.5 DATE COMPLETED 10-30-90 DRILL METHOD HOL AUG SPT 24 HR. 26.7

ELEV.	DEPTH FT.	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	L O G	W / G	SOIL & ROCK DESCRIPTION	
		.5'	.5'	.5'	0	20	40	60	80					100
2120.0	0.0													GROUND SURFACE
2119.9	3.0	1	1	2		3								EMBANKMENT INTERLAYERED RED-BROWN, BROWN AND GRAY SILTY SAND, SANDY SILT AND SLIGHTLY ORGANIC SANDY CLAY
	8.0	2	2	3		5								
2110.0	13.0	2	3	4		7								
	18.0	2	4	4		8								
2100.0	23.0	2	4	4		8								
	28.0	3	3	5		8								
2090.0	33.0	5	10	9		19								
	38.0	2	6	9		15								
2080.0	43.0	100												
2075.4	44.5												HOLLOW AUGER REFUSAL AT ELEVATION 2075.4	
2070.0														

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL UNIT BORING LOG

PROJECT NO. 6.951015 ID. R-505 COUNTY HENDERSON GEOLOGIST J.W. MANN
 SITE DESCRIPTION DUAL BRIDGES US 25 - I-26 CONNECTOR OVER US 176
 BORING NO. EB1-B SBL BORING LOCATION (STA.) 779+12 OFFSET 10' LT GROUND WATER
 COLLAR ELEV. 2120.2 DATE STARTED 10-30-90 DRILL MACHINE CME 550 0 HR. 27.7
 TOTAL DEPTH 47.1 DATE COMPLETED 10-30-90 DRILL METHOD HOL AUG SPT 24 HR. 27.7

ELEV.	DEPTH FT.	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	L O G	W / G	SOIL & ROCK DESCRIPTION	
		.5'	.5'	.5'	0	20	40	60	80					100
2120.2	0.0													GROUND SURFACE
2120.0	4.4	3	3	4		7								EMBANKMENT INTERLAYERED BROWN SANDY SILT AND DARK BROWN SLIGHTLY ORGANIC SANDY CLAY
	9.4	2	3	4		7								
2110.0	14.4	2	3	3		6								
	19.4	1	2	4		6								
2100.0	24.4	3	4	6		10								
	29.4	4	7	10		17								
2090.0	34.4	3	3	4		7								
	39.4	30	97											
2080.0	44.4	31	50	50										
2073.1	47.1												HOLLOW AUGER REFUSAL AT ELEVATION 2073.1	
2070.0														

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL UNIT BORING LOG

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL UNIT BORING LOG

PROJECT NO. 6.951015 ID. R-505 COUNTY HENDERSON GEOLOGIST M.T. CAMPBELL
SITE DESCRIPTION DUAL BRIDGES US 25 - I-26 CONNECTOR OVER US 176
BORING NO. B1-B SBL BORING LOCATION (STA.) 779+56 OFFSET 10' LT GROUND WATER
COLLAR ELEV. 2100.5 DATE STARTED 11-8-90 DRILL MACHINE CME 550 0 HR. 9.0
TOTAL DEPTH 28.6 DATE COMPLETED 11-8-90 DRILL METHOD HOL AUG SPT 24 HR. 10.0

PROJECT NO. 6.951015 ID. R-505 COUNTY HENDERSON GEOLOGIST M. T. CAMPBELL
SITE DESCRIPTION DUAL BRIDGES US 25 - I-26 CONNECTOR OVER US 176
BORING NO. B2-A SBL BORING LOCATION (STA.) 780+57 OFFSET 53' LT. GROUND WATER
COLLAR ELEV. 2102.7 DATE STARTED 11-6-90 DRILL MACHINE CME 550 0 HR. 10.6
TOTAL DEPTH 40.4 DATE COMPLETED 11-7-90 DRILL METHOD HOL AUG SPT 24 HR. 9.2

ELEV. FT.	DEPTH FT.	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	L 6	W 6	SOIL & ROCK DESCRIPTION
		.5'	.5'	.5'	0	20	40	60	80				
2110.0													
2100.5	0.0				GROUND SURFACE								
2100.0	3.7	2	4	5									EMBANKMENT - ASPHALT-COVERED CONCRETE PAVED DITCH OVER- LYING BROWN AND GRAY SANDY CLAY, SLIGHTLY ORGANIC
	6.2	2	3	4									
	8.7	1	1	1									
2090.0	11.2	2	3	1									ALLUVIUM - GRAY SILTY SAND
	13.7	3	3	10									ALLUVIUM GRAVEL AND SAND
	16.2	2	4	5									SAPROLITE GRAY AND BROWN SILTY SAND, SLIGHTLY MICACEOUS
	18.7	3	6	5									
2080.0	23.7	100											SOFT WEATHERED ROCK
2071.9	28.6												HARD AND SOFT WEATHERED ROCK
2070.0					HOLLOW AUGER REFUSAL AT ELEVATION 2071.9								

ELEV. FT.	DEPTH FT.	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	L 6	W 6	SOIL & ROCK DESCRIPTION
		.5'	.5'	.5'	0	20	40	60	80				
2110.0													
2102.7	0.0				GROUND SURFACE								
2100.0	4.1	1	4	4									CONCRETE ISLAND /GRAVEL BASE
	6.6	3	2	3									EMBANKMENT
	9.1	11	50										INTERLAYERED GRAY SANDY SILT AND ORGANIC, SANDY CLAY WITH ASPHALT FRAGMENTS & GRAVEL
	11.6	1	1	1									
2090.0	14.1	1	10	16									ALLUVIUM - GRAY SILTY FINE SAND AND WOOD FRAGMENTS
	16.6	11	8	2									ALLUVIUM - GRAVEL AND SAND
	19.1	2	4	6									
2080.0	24.1	1	2	3									SAPROLITE BROWN, ORANGE-BROWN AND GRAY SILTY SAND, MICACEOUS
	29.1	4	7	10									
2070.0	34.1	12	12	14									
	39.1	100											
2062.3	40.4												SOFT AND HARD WEATHERED ROCK
2060.0					HOLLOW AUGER REFUSAL AT ELEVATION 2062.3								

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
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NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL UNIT BORING LOG

PROJECT NO. 6.951015 ID. R-505 COUNTY HENDERSON GEOLOGIST M.T. CAMPBELL
 SITE DESCRIPTION DUAL BRIDGES US 25 - I-26 CONNECTOR OVER US 176
 BORING NO. B3-B SBL BORING LOCATION (STA.) 780+69 OFFSET 11' LT. GROUND WATER
 COLLAR ELEV. 2101.4 DATE STARTED 11-13-90 DRILL MACHINE CME 550 0 HR. 10.6
 TOTAL DEPTH 40.2 DATE COMPLETED 11-13-90 DRILL METHOD HOL AUG SPT 24 HR. 9.5

PROJECT NO. 6.951015 ID. R-505 COUNTY HENDERSON GEOLOGIST J. W. MANN
 SITE DESCRIPTION DUAL BRIDGES US 25 - I-26 CONNECTOR OVER US 176
 BORING NO. EB2-A SBL BORING LOCATION (STA.) 781+70 OFFSET 54' LT. GROUND WATER
 COLLAR ELEV. 2124.8 DATE STARTED 10-31-90 DRILL MACHINE CME 550 0 HR. 33.4
 TOTAL DEPTH 47.0 DATE COMPLETED 10-31-90 DRILL METHOD HOL AUG SPT 24 HR. 28.3

ELEV. FT.	DEPTH FT.	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	L O G	SOIL & ROCK DESCRIPTION
		.5'	.5'	.5'	0	20	40	60	80			
2110.0												
2101.4	0.0				GROUND SURFACE							
2100.0	4.0	2	3	3								EMBANKMENT - ASPHALT-COVERED CONCRETE PAVED DITCH OVER- LYING CLAYEY SAND, NICACEOUS
	6.5	2	5	7								
	9.0	5	6	3								
2090.0	11.5	1	1	1								ALLUVIUM-ORGANIC SANDY SILT
	14.0	7	19	28								ALLUVIUM - GRAY SILTY SAND
	16.5	5	7	6								ALLUVIUM - GRAVEL AND SAND
	19.0	4	6	7								
2080.0	24.0	7	14	16								SAPROLITE
	29.0	11	11	15								GRAY AND BROWN SILTY SAND, SLIGHTLY NICACEOUS
2070.0	34.0	37	63									
2061.2	40.2											SOFT AND HARD WEATHERED ROCK
2060.0					HOLLOW AUGER REFUSAL AT ELEVATION 2061.2							

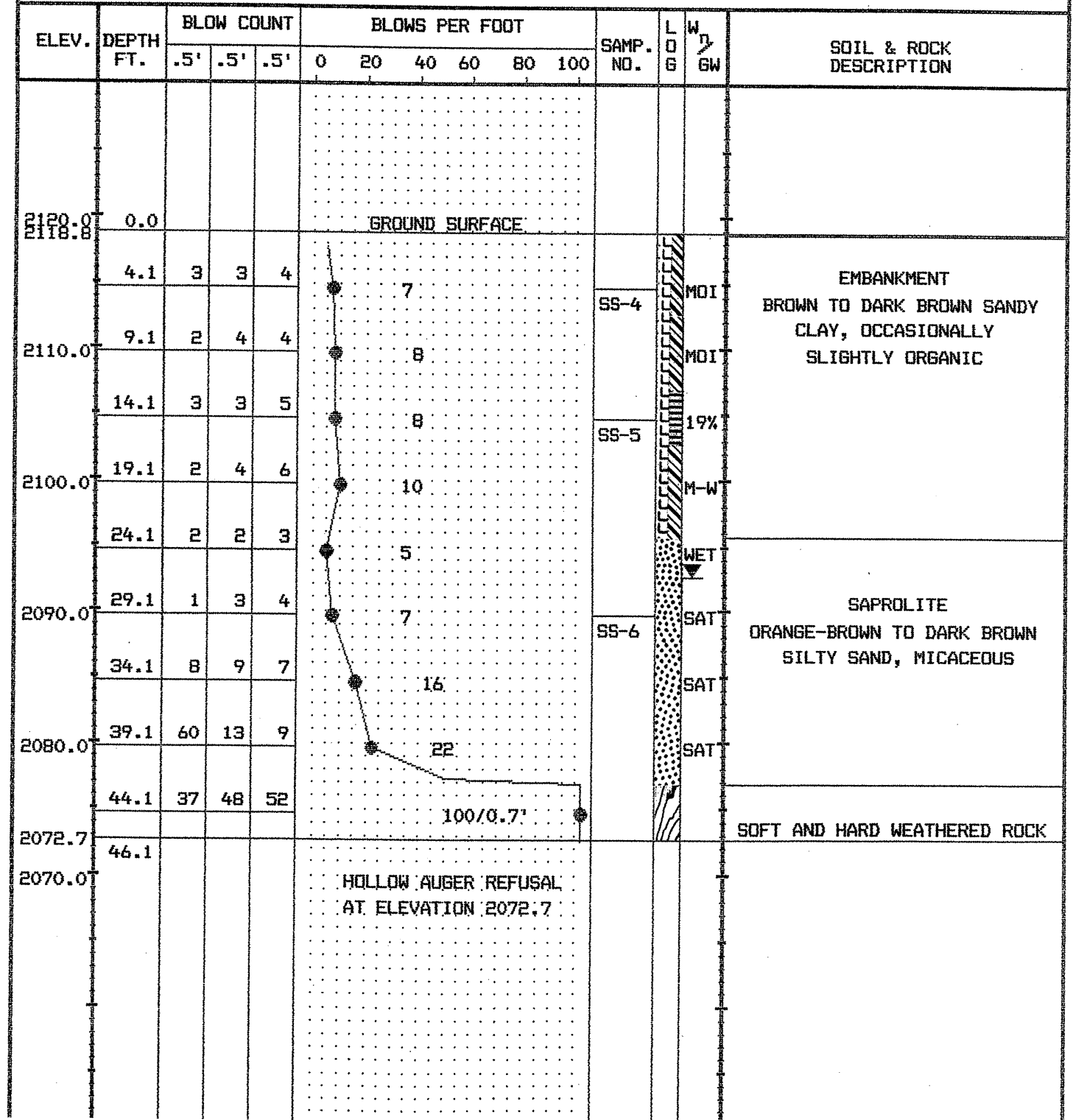
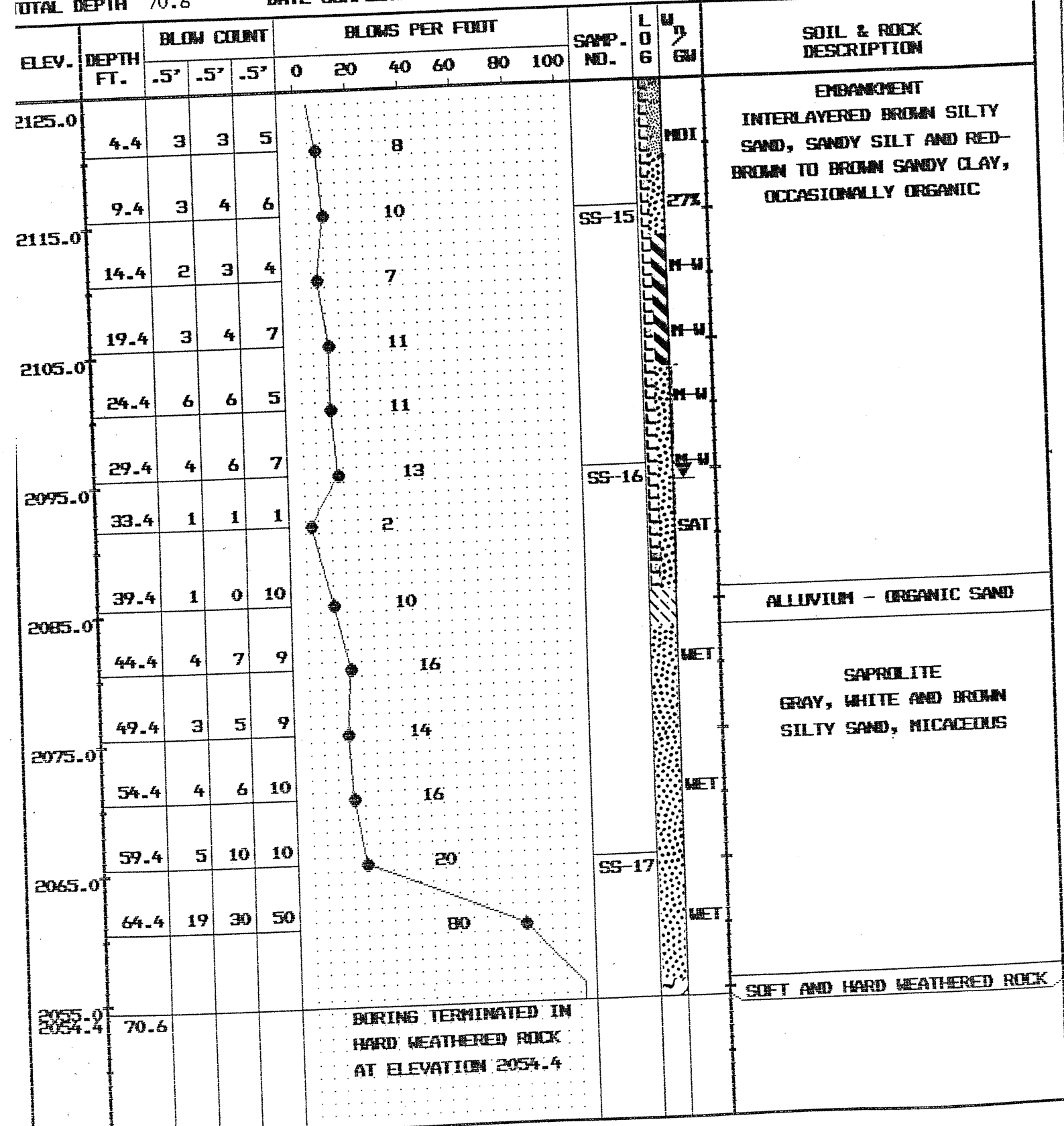
ELEV. FT.	DEPTH FT.	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	L O G	SOIL & ROCK DESCRIPTION
		.5'	.5'	.5'	0	20	40	60	80			
2124.8	0.0				GROUND SURFACE							
	3.7	2	2	3								EMBANKMENT
2120.0	8.7	4	4	4								INTERLAYERED BROWN NICACEOUS SANDY SILT AND DARK BROWN TO DARK GRAY SANDY CLAY WITH ORGANIC LAYERS
	15.7	3	4	5								
2110.0	18.7	4	3	4								
	23.7	4	5	15								
2100.0	28.7	3	6	6								
	33.7	1	2	2								
2090.0	38.7	9	10	4								ALLUVIUM
	43.7	100										GRAY CLAYEY SAND
2080.0												ALLUVIUM - COARSE SAND
2077.8	47.0											SAPROLITE - GRAY SILTY SAND
2070.0												SOFT WEATHERED ROCK AND VERY DENSE SILTY SAND
												HARD WEATHERED ROCK
					HOLLOW AUGER REFUSAL AT ELEVATION 2077.8							

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL UNIT BORING LOG

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL UNIT BORING LOG

PROJECT NO. 6.951015 ID. R-505 COUNTY HENDERSON GEOLOGIST J. W. MANN
 SITE DESCRIPTION DUAL BRIDGES US 25 - I-26 CONNECTOR OVER US 176
 BORING NO. EB2-B SBL BORING LOCATION (STA.) 781+31 OFFSET 11' LT. GROUND WATER 0 HR.
 COLLAR ELEV. 2125.0 DATE STARTED 10-31-90 DRILL MACHINE CME 550 24 HR. 30.8
 TOTAL DEPTH 70.6 DATE COMPLETED 10-31-90 DRILL METHOD HOL AUG SPT

PROJECT NO. 6.951015 ID. R-505 COUNTY HENDERSON GEOLOGIST J. W. MANN
 SITE DESCRIPTION DUAL BRIDGES US 25 - I-26 CONNECTOR OVER US 176
 BORING NO. EB1-A NBL BORING LOCATION (STA.) 778+91 OFFSET 13' RT. GROUND WATER 0 HR. 26.5
 COLLAR ELEV. 2118.8 DATE STARTED 10-29-90 DRILL MACHINE CME 550 24 HR. 26.2
 TOTAL DEPTH 46.1 DATE COMPLETED 10-29-90 DRILL METHOD HOL AUG SPT



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL UNIT BORING LOG

PROJECT NO. 6.951015 ID. R-505 COUNTY HENDERSON GEOLOGIST J. W. MANN
 SITE DESCRIPTION DUAL BRIDGES US 25 - I-26 CONNECTOR OVER US 176
 BORING NO. EB1-B NBL BORING LOCATION (STA.) 778+51 OFFSET 53' RT. GROUND WATER
 COLLAR ELEV. 2118.8 DATE STARTED 10-29-90 DRILL MACHINE CME 550 0 HR. 26.5
 TOTAL DEPTH 46.3 DATE COMPLETED 10-29-90 DRILL METHOD HOL AUG SPT 24 HR. 26.1

ELEV.	DEPTH FT.	BLOW COUNT			BLOWS PER FOOT						SAMP. NO.	LOG	W/GW	SOIL & ROCK DESCRIPTION
		.5'	.5'	.5'	0	20	40	60	80	100				
2120.0	0.0													GROUND SURFACE
2118.8	3.9	3	4	5										EMBANKMENT INTERLAYERED BROWN SANDY CLAY AND SILTY SAND
2110.0	8.9	2	3	4										
2100.0	15.9	2	3	4										
2100.0	18.9	2	1	4										SAPROLITE BROWN, TAN AND WHITE SILTY SAND
2090.0	23.9	3	3	4										
2090.0	28.9	7	6	4										SOFT AND HARD WEATHERED ROCK
2080.0	33.9	4	4	7										
2080.0	38.9	31	33	67										100/0.9'
2072.5	43.9	63	37											100/0.6'
2070.0	46.3													HOLLOW AUGER REFUSAL AT ELEVATION 2072.5

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL UNIT BORING LOG

PROJECT NO. 6.951015 ID. R-505 COUNTY HENDERSON GEOLOGIST M. T. CAMPBELL
 SITE DESCRIPTION DUAL BRIDGES US 25 - I-26 CONNECTOR
 BORING NO. B1-A NBL BORING LOCATION (STA.) 779+36 OFFSET 13' RT. GROUND WATER
 COLLAR ELEV. 2100.7 DATE STARTED 11-8-90 DRILL MACHINE CME 550 0 HR. 9.3
 TOTAL DEPTH 23.7 DATE COMPLETED 11-8-90 DRILL METHOD HOL AUG SPT 24 HR. 8.3

ELEV.	DEPTH FT.	BLOW COUNT			BLOWS PER FOOT						SAMP. NO.	LOG	W/GW	SOIL & ROCK DESCRIPTION
		.5'	.5'	.5'	0	20	40	60	80	100				
2110.0	0.0													GROUND SURFACE
2100.7	0.0													EMBANKMENT - ASPHALT-COVERED PAVED DITCH OVERLYING BROWN AND TAN SANDY SILT AND SILTY SAND
2100.0	3.8	1	2	4										
	6.3	26	11	3										
	8.8	4	4	6										
2090.0	11.3	17	8	10										
	13.8	8	14	15										
	16.3	10	9	26										SAPROLITE ORANGE-BROWN, BROWN AND GRAY SILTY, FINE TO COARSE SAND, SLIGHTLY MICACEOUS
2080.0	18.8	13	11	9										
2080.0														SOFT AND HARD WEATHERED ROCK
2077.0	23.7													
2070.0														HOLLOW AUGER REFUSAL AT ELEVATION 2077.0

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL UNIT BORING LOG

PROJECT NO. 6.951015 ID. R-505 COUNTY HENDERSON GEOLOGIST M. T. CAMPBELL
 SITE DESCRIPTION DUAL BRIDGES US 25 - I-26 CONNECTOR OVER US 176
 BORING NO. B1-B NBL BORING LOCATION (STA.) 778+97 OFFSET 53' RT. GROUND WATER
 COLLAR ELEV. 2101.1 DATE STARTED 11-7-90 DRILL MACHINE CME 550 0 HR. 9.6
 TOTAL DEPTH 28.3 DATE COMPLETED 11-7-90 DRILL METHOD HOL AUG SPT 24 HR. 9.0

ELEV.	DEPTH FT.	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	W / GW	SOIL & ROCK DESCRIPTION
		.5'	.5'	.5'	0	20	40	60	80				
2110.0													
2101.1	0.0				GROUND SURFACE								
2100.0	3.1	3	4	4									EMBANKMENT - ASPHALT-COVERED PAVED DITCH OVERLYING BROWN SILTY SAND
	5.6	3	2	3									
	8.1	4	3	3									
	10.6	5	6	10									
2090.0	13.1	5	5	5									SAPROLITE BROWN, ORANGE-BROWN AND GRAY SILTY, FINE TO COARSE SAND, MICACEOUS
	15.6	2	6	8									
	18.1	11	10	12									
2080.0	23.1	100											SOFT AND HARD WEATHERED ROCK
2072.8	28.3												
2070.0					HOLLOW AUGER REFUSAL AT ELEVATION 2072.8								

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL UNIT BORING LOG

PROJECT NO. 6.951015 ID. R-505 COUNTY HENDERSON GEOLOGIST J. L. SHARPE
 SITE DESCRIPTION DUAL BRIDGES US 25 - I-26 CONNECTOR OVER US 176
 BORING NO. B2-A NBL BORING LOCATION (STA.) 779+73 OFFSET 13' RT. GROUND WATER
 COLLAR ELEV. 2102.5 DATE STARTED 11-1-90 DRILL MACHINE CME 550 0 HR. 11.7
 TOTAL DEPTH 32.6 DATE COMPLETED 11-1-90 DRILL METHOD HOL AUG SPT 24 HR.

ELEV.	DEPTH FT.	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	W / GW	SOIL & ROCK DESCRIPTION
		.5'	.5'	.5'	0	20	40	60	80				
2110.0													
2102.5	0.0				GROUND SURFACE								
2100.0	4.0	4	3	3									CONCRETE ISLAND /GRAVEL BASE
	6.5	2	45	22									EMBANKMENT - YELLOW-BROWN AND BROWN SILTY, MEDIUM TO COARSE SAND WITH ASPHALT AND ROCK FRAGMENTS
	9.0	2	4	6									
	11.5	3	4	4									
2090.0	14.0	3	4	18									ALLUVIUM - GRAY SILTY SAND
	16.5	30	31	41									
	19.0	33	67	33									
2080.0	24.0	12	10	13									SAPROLITE GRAY AND BROWN SILTY, MEDIUM TO COARSE SAND AND THIN SOFT WEATHERED ROCK SEAMS
	29.0	20	24	72									
2070.0	32.6				HOLLOW AUGER REFUSAL AT ELEVATION 2069.9								
2069.9													
2060.0													

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL UNIT BORING LOG

PROJECT NO. 6.951015 ID. R-505 COUNTY HENDERSON GEOLOGIST M. T. CAMPBELL
SITE DESCRIPTION DUAL BRIDGES US 25 - I-26 CONNECTOR OVER US 176
BORING NO. B3-A NBL BORING LOCATION (STA.) 780+56 OFFSET 14' RT. GROUND WATER
COLLAR ELEV. 2101.9 DATE STARTED 11-6-90 DRILL MACHINE CME 550 0 HR. 11.7
TOTAL DEPTH 39.0 DATE COMPLETED 11-6-90 DRILL METHOD HOL AUG SPT 24 HR. 8.0

ELEV.	DEPTH FT.	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	L G	W GM	SOIL & ROCK DESCRIPTION
		.5'	.5'	.5'	0	20	40	60	80				
2110.0													
2101.9	0.0				GROUND SURFACE								
2100.0	4.0	4	4	6									EMBANKMENT BROWN SILTY SAND, SLIGHTLY MICACEOUS W/ ROCK FRAGMENTS AND SMALL Boulders
	6.5	1	2	6									
	9.0	4	2	1									
	11.5	2	4	3									ALLUVIUM GRAY SILTY FINE SAND
2090.0	14.0	2	2	2									
	16.5	17	4	2									ALLUVIUM - GRAVEL AND SAND
	19.0	1	1	2									
	24.0	14	29	60									SAPROLITE - GRAY, BROWN AND ORANGE-BROWN SILTY SAND, SLIGHTLY MICACEOUS
2080.0	29.0	23	24	22									
	34.0	97											SOFT WEATHERED ROCK
2070.0													
2062.9	39.0												HARD WEATHERED ROCK
2060.0													

BORING TERMINATED IN
HARD WEATHERED ROCK
AT ELEVATION 2062.9

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL UNIT BORING LOG

PROJECT NO. 6.951015 ID. R-505 COUNTY HENDERSON GEOLOGIST M. T. CAMPBELL
SITE DESCRIPTION DUAL BRIDGES US 25 - I-26 CONNECTOR OVER US 176
BORING NO. B3-B NBL BORING LOCATION (STA.) 780+13 OFFSET 55' RT. GROUND WATER
COLLAR ELEV. 2101.3 DATE STARTED 11-14-90 DRILL MACHINE CME 550 0 HR. 12.5
TOTAL DEPTH 19.8 DATE COMPLETED 11-14-90 DRILL METHOD HOL AUG SPT 24 HR. 11.7

ELEV.	DEPTH FT.	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	L G	W GM	SOIL & ROCK DESCRIPTION
		.5'	.5'	.5'	0	20	40	60	80				
2110.0													
2101.3	0.0				GROUND SURFACE								
2100.0	4.2	5	4	4									EMBANKMENT BROWN AND GRAY SILTY SAND, SLIGHTLY MICACEOUS WITH ROCK FRAGMENTS
	6.7	3	3	3									
	9.2	1	1	1									
	11.7	1	1	3									ALLUVIUM - GRAY SANDY CLAY ALLUVIUM - SILTY FINE SAND
2090.0	14.2	4	36	9									
	16.7	31	69										ALLUVIUM - SAND AND GRAVEL SAPROLITE - ORANGE-BROWN MEDIUM TO COARSE SAND
	19.2	50											
2081.5	19.8												SOFT AND HARD WEATHERED ROCK
2080.0													

HOLLOW AUGER REFUSAL
AT ELEVATION 2081.5

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL UNIT BORING LOG

PROJECT NO. 6.951015 ID. R-505 COUNTY HENDERSON GEOLOGIST M. T. CAMPBELL
SITE DESCRIPTION DUAL BRIDGES US 25 - I-26 CONNECTOR OVER US 176
BORING NO. EB2-A NBL BORING LOCATION (STA.) 781+03 OFFSET 13' RT. GROUND WATER
COLLAR ELEV. 2123.1 DATE STARTED 11-5-90 DRILL MACHINE CME 550 0 HR. 30.7
TOTAL DEPTH 64.1 DATE COMPLETED 11-5-90 DRILL METHOD HOL AUG SPT 24 HR. 28.3

ELEV.	DEPTH FT.	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	L O 6	M D GM	SOIL & ROCK DESCRIPTION
		.5'	.5'	.5'	0	20	40	60	80				
2123.1	0.0												GROUND SURFACE
2120.0	2.9	1	2	3									EMBANKMENT - INTERLAYERED BROWN SLIGHTLY MICACEOUS SILTY SAND, RED-BROWN SANDY CLAY AND ORGANIC CLAYEY SILT WITH WOOD FRAGMENTS
	7.9	3	4	6									
2110.0	14.9	4	6	9									EMBANKMENT - INTERLAYERED BROWN AND GRAY SILTY SAND, RED-BROWN SANDY CLAY AND GRAY, ORGANIC, SANDY SILT
	17.9	2	3	5									
2100.0	22.9	5	5	5									EMBANKMENT - INTERLAYERED BROWN AND GRAY SILTY SAND, RED-BROWN SANDY CLAY AND GRAY, ORGANIC, SANDY SILT
	27.9	4	5	5									
2090.0	32.9	3	2	3									EMBANKMENT - INTERLAYERED BROWN AND GRAY SILTY SAND, RED-BROWN SANDY CLAY AND GRAY, ORGANIC, SANDY SILT
	37.9	3	3	3									
2080.0	42.9	2	3	6									ALLUVIUM BLACK SILTY SAND, ORGANIC
	47.9	7	9	8									
2070.0	52.9	7	12	16									SAPROLITE ORANGE-BROWN, BROWN AND GRAY, MICACEOUS SILTY SAND WITH THIN SOFT WEATHERED ROCK SEAMS
	57.9	26	30	28									
2060.0 2059.0	64.1												BORING TERMINATED IN HARD WEATHERED ROCK AT ELEVATION 2059.0

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL UNIT BORING LOG

PROJECT NO. 6.951015 ID. R-505 COUNTY HENDERSON GEOLOGIST M. T. CAMPBELL
SITE DESCRIPTION DUAL BRIDGES US 25 - I-26 CONNECTOR OVER US 176
BORING NO. EB2-B NBL BORING LOCATION (STA.) 780+65 OFFSET 54' RT. GROUND WATER
COLLAR ELEV. 2119.7 DATE STARTED 11-5-90 DRILL MACHINE CME 550 0 HR. 27.5
TOTAL DEPTH 59.5 DATE COMPLETED 11-6-90 DRILL METHOD HOL AUG SPT 24 HR.

ELEV.	DEPTH FT.	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	L O 6	M D GM	SOIL & ROCK DESCRIPTION
		.5'	.5'	.5'	0	20	40	60	80				
2120.0 2119.7	0.0												GROUND SURFACE
	1.6	2	3	3									EMBANKMENT - INTERLAYERED BROWN AND GRAY SILTY SAND, RED-BROWN SANDY CLAY AND GRAY, ORGANIC, SANDY SILT
	6.6	3	5	6									
2110.0	11.6	3	4	5									EMBANKMENT - INTERLAYERED BROWN AND GRAY SILTY SAND, RED-BROWN SANDY CLAY AND GRAY, ORGANIC, SANDY SILT
	16.6	2	2	3									
2100.0	21.6	2	4	5									EMBANKMENT - INTERLAYERED BROWN AND GRAY SILTY SAND, RED-BROWN SANDY CLAY AND GRAY, ORGANIC, SANDY SILT
	26.6	4	4	6									
2090.0	31.6	3	5	6									ALLUVIUM GRAY SILTY SAND
	36.6	4	5	7									
2080.0	41.6	7	53	47									SAPROLITE ORANGE-BROWN, BROWN AND GRAY, MICACEOUS SILTY SAND WITH THIN SOFT WEATHERED ROCK SEAMS
	46.6	22	25	30									
2070.0	51.6	20	21	20									SAPROLITE ORANGE-BROWN, BROWN AND GRAY, MICACEOUS SILTY SAND WITH THIN SOFT WEATHERED ROCK SEAMS
	56.6	16	21	22									
2060.2 2060.0	59.5												HOLLOW AUGER REFUSAL AT ELEVATION 2060.2

SOIL TEST RESULTS

SHEET 32 OF 33

STATE PROJECT 6.951015 ID NO. R-505

F.A. PROJECT _____ COUNTY HENDERSON

DESCRIPTION BRIDGE ON SBL CONNECTOR OVER US 176

SAMPLE NUMBER	STATION	DEPTH INTERVAL	AASHO CLASS.	L.L.	P.L.	% BY WEIGHT				% PASSING 200 SIEVE	% MOISTURE
						C. SAND	F. SAND	SILT	CLAY		
SS-10	EBI-A	8.5-9.5	A-6(3)	36	15	33	24	17	26	46	21.6
SS-11	"	23.5-24.5	A-6(2)	35	13	37	24	15	24	42	
SS-12	"	38.5-39.5	A-2-4(O)	37	NP	55	35	8	2	14	
SS-7	EBI-B	9.9-10.9	A-6(2)	38	11	35	25	18	22	43	18.8
SS-8	"	14.9-15.9	A-6(2)	40	14	37	23	14	26	42	20.5
SS-9	"	34.9-35.9	A-2-5(O)	43	NP	40	50	8	2	15	
SS-41	BI-B	4.2-5.2	A-6(3)	35	13	34	25	15	26	44	
SS-42	"	19.2-20.2	A-2-5(O)	41	NP	39	50	8	3	16	
SS-32	B2-A	7.1-8.1	A-7-6(4)	42	16	33	23	14	30	44	
SS-33	"	12.1-13.1	A-4(I)	29	9	30	33	15	22	40	
SS-34	"	24.6-25.6	A-2-5(O)	48	NP	32	53	11	4	21	
SS-21	B2-B	7.0-8.0	A-7-5(6)	47	17	31	23	14	32	48	24.6
SS-22	"	12.0-13.0	A-6(3)	38	17	34	26	13	27	42	27.2
SS-23	"	19.5-20.5	A-2-5(O)	42	NP	38	49	9	4	18	
SS-35	B3-A	19.2-20.2	A-2-4(O)	33	NP	37	42	15	6	27	
SS-36	"	29.2-30.2	A-2-4(O)	32	NP	27	58	12	3	22	
SS-43	B3-B	4.5-5.5	A-2-7(O)	45	11	37	31	12	20	34	
SS-44	"	12.0-13.0	A-2-4(O)	31	6	35	38	11	16	29	
SS-45	"	19.5-20.5	A-2-4(O)	34	NP	36	47	13	4	23	
SS-13	EB2-A	16.2-17.2	A-7-5(5)	47	17	29	28	15	28	46	25.0
SS-14	"	29.2-30.2	A-2-4(O)	32	6	40	27	13	20	35	
SS-15	EB2-B	9.9-10.9	A-2-4(O)	36	NP	30	44	18	8	32	26.7
SS-16	"	29.9-30.9	A-2-4(O)	33	NP	42	32	16	10	29	

SOIL TEST RESULTS

SHEET 33 OF 33

STATE PROJECT 6.951015 ID NO. R-505

F.A. PROJECT _____ COUNTY HENDERSON

DESCRIPTION BRIDGE ON NBL CONNECTOR OVER US 176

SAMPLE NUMBER	STATION	DEPTH INTERVAL	AASHO CLASS.	L.L.	P.L.	% BY WEIGHT				% PASSING 200 SIEVE	% MOISTURE
						C. SAND	F. SAND	SILT	CLAY		
SS-4	EBI-A	4.6-5.6	A-6(4)	38	15	39	21	14	26	42	
SS-5	"	14.6-15.6	A-7-6(7)	44	21	30	23	17	30	50	19.2
SS-6	"	29.6-30.6	A-2-5(O)	46	NP	45	40	13	2	19	
SS-1	EBI-B	4.4-5.4	A-6(3)	39	14	36	24	14	26	43	
SS-2	"	16.4-17.4	A-6(3)	40	14	32	23	17	28	47	19.7
SS-3	"	34.4-35.4	A-2-4(O)	32	NP	27	47	20	6	34	
SS-39	BI-A	11.8-12.8	A-1-B(O)	36	NP	63	23	9	5	13	
SS-40	"	16.8-17.8	A-2-4(O)	36	NP	45	41	11	3	20	
SS-37	BI-B	6.1-7.1	A-1-B(O)	38	NP	45	37	14	4	16	
SS-38	"	18.6-19.6	A-2-4(O)	33	NP	46	39	12	3	18	
SS-19	B2-A	9.5-10.5	A-2-4(O)	31	6	50	27	9	14	21	
SS-20	"	17.0-18.0	A-2-4(O)	27	NP	47	40	10	3	18	
SS-18	B2-B	4.5-5.5	A-2-4(O)	37	5	38	30	12	20	35	
SS-30	B3-A	4.5-5.5	A-2-4(O)	35	NP	38	39	13	10	27	17.3
SS-31	"	19.5-20.5	A-2-5(O)	43	NP	45	30	15	10	28	46.1
SS-46	B3-B	9.7-10.7	A-7-6(4)	41	16	33	26	13	28	45	
SS-24	EB2-A	15.4-16.4	A-7-5(3)	45	14	31	28	17	24	44	23.1
SS-25	"	28.4-29.4	A-2-4(O)	33	NP	39	36	15	10	30	
SS-26	"	38.4-39.4	A-2-5(O)	42	NP	52	31	10	7	17	
SS-27	"	53.4-54.4	A-2-4(O)	34	NP	38	50	10	2	17	
SS-28	EB2-B	12.1-13.1	A-7-5(5)	50	17	28	28	16	28	46	
SS-29	"	47.1-48.1	A-2-4(O)	32	NP	46	41	10	3	16	

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	34334.1.1 (R-0505)	1	11

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

STRUCTURE
SUBSURFACE INVESTIGATION

CONTENTS

<u>SHEET</u>	<u>DESCRIPTION</u>
1	TITLE SHEET
2	LEGEND
3	SITE PLAN
4	PROFILE
5-II	BORE LOGS

PROJ. REFERENCE NO. 34334.1.1 (R-0505) F.A. PROJ. APD-1954(1)
COUNTY Henderson
PROJECT DESCRIPTION NC 225 - US 25/I-26 Connector from
US 25 at Zirconia to I-26

SITE DESCRIPTION _____

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) 250-4088. 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 (ON-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: 34334.1.1
ID: R-0505

PERSONNEL

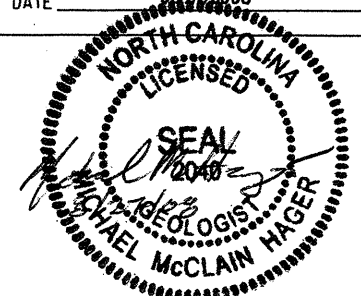
M.M. Hager
R.D. Childers
C.J. Coffey

INVESTIGATED BY M.M. Hager

CHECKED BY W.D. Frye

SUBMITTED BY W.D. Frye

DATE 08/27/08

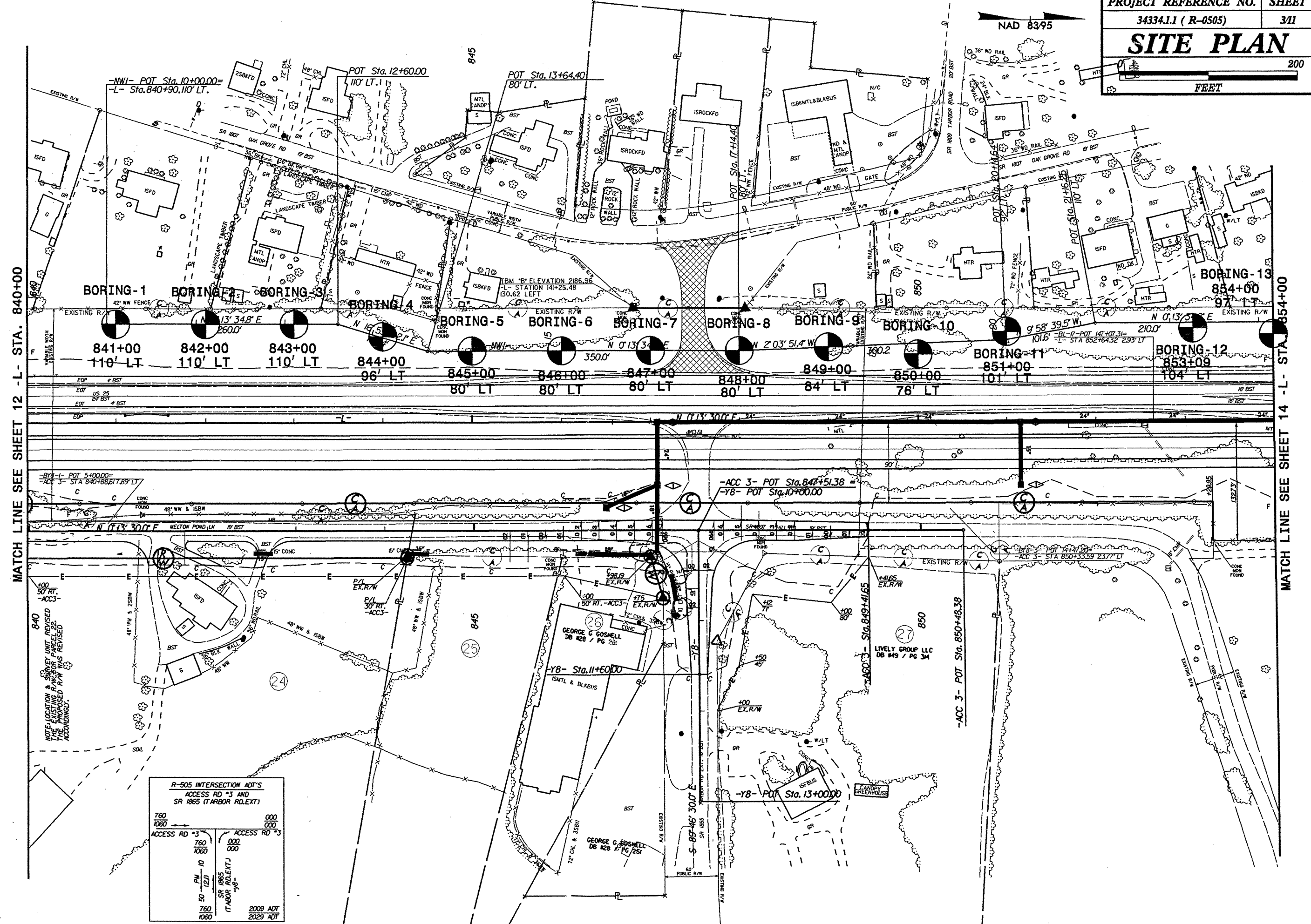


DRAWN BY: M.M.Hager

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.

NAD 8395



MATCH LINE SEE SHEET 12 - L- STA. 840+00

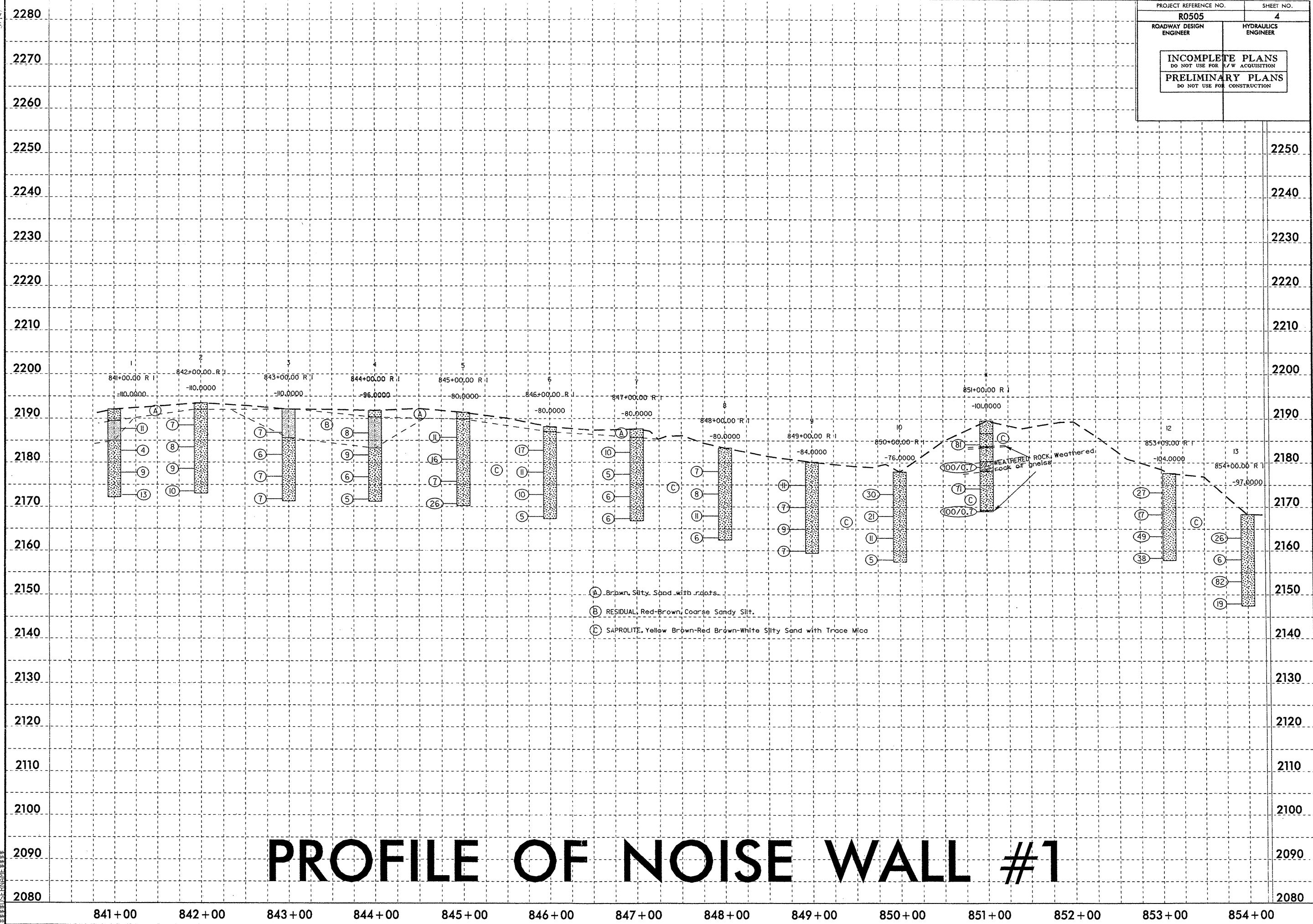
MATCH LINE SEE SHEET 14 - L- STA. 854+00

NOTE: LOCATION & SHOWN UNIT REVISED TO REFLECT THE EXISTING R/W WAS REVISED ACCORDING.

R-505 INTERSECTION ADT'S ACCESS RD #3 AND SR 1865 (TARBOR RD, EXT)

760	000
1060	000
ACCESS RD #3	ACCESS RD #3
760	000
1060	000
PM 10 (21)	
50	SR 1865 (TARBOR RD, EXT)
760	2009 ADT
1060	2029 ADT

26-AUG-2008 12:43 0505-0505 500_southwest@geoparc.com geotool\alanspencer_V-505.dwg 13 1:1 scale sheet 3/11



PROFILE OF NOISE WALL #1

SYSTEMATIC DESIGN SURVEILLANCE



NCDOT GEOTECHNICAL ENGINEERING UNIT

BORELOG REPORT

PROJECT NO. 34334.1.1	ID. R-0505	COUNTY Henderson	GEOLOGIST Hager, M. M.
SITE DESCRIPTION Sound Barrier Wall, US 25/I-26 Connector from US 25 at Zirconia to I-26			GROUND WTR (ft)
BORING NO. 1	STATION 841+00	OFFSET 110ft LT	ALIGNMENT -L-
COLLAR ELEV. 2,192.0 ft	TOTAL DEPTH 19.9 ft	NORTHING 572,901	EASTING 984,815
DRILL MACHINE CME-550	DRILL METHOD H.S. Augers	HAMMER TYPE Automatic	
START DATE 08/14/08	COMP. DATE 08/14/08	SURFACE WATER DEPTH N/A	DEPTH TO ROCK N/A

PROJECT NO. 34334.1.1	ID. R-0505	COUNTY Henderson	GEOLOGIST Hager, M. M.
SITE DESCRIPTION Sound Barrier Wall, US 25/I-26 Connector from US 25 at Zirconia to I-26			GROUND WTR (ft)
BORING NO. 2	STATION 842+00	OFFSET 110ft LT	ALIGNMENT -L-
COLLAR ELEV. 2,193.5 ft	TOTAL DEPTH 20.5 ft	NORTHING 572,192	EASTING 984,816
DRILL MACHINE CME-550	DRILL METHOD H.S. Augers	HAMMER TYPE Automatic	
START DATE 08/14/08	COMP. DATE 08/14/08	SURFACE WATER DEPTH N/A	DEPTH TO ROCK 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				
2195														
													GROUND SURFACE	0.0
2190	2,188.6	3.4	3	5	6							D	RESIDUAL Brown, Silty Sand with roots.	2.6
													RESIDUAL Red-Brown, Coarse Sandy Silt.	
2185	2,183.6	8.4	3	2	2							M	SAPROLITE Yellow-Brown to Red-Brown, Silty Sand with Trace Mica.	7.1
2180	2,178.6	13.4	1	4	5							D		
2175	2,173.6	18.4	3	4	9							D		
2170													Boring Terminated at Elevation 2,172.1 ft In Saprolite	19.9
2165														
2160														
2155														
2150														
2145														
2140														
2135														
2130														
2125														
2120														
2115														

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				
2195														
													GROUND SURFACE	0.0
2190	2,189.5	4.0	2	3	4							D	RESIDUAL Brown Silty Sand with roots.	1.5
													SAPROLITE Yellow-Brown to Red-Brown, Silty Sand with Trace Mica.	
2185	2,184.5	9.0	3	4	4							D		
2180	2,179.5	14.0	3	5	4							D		
2175	2,174.5	19.0	3	5	5							M		
2170													Boring Terminated at Elevation 2,173.0 ft In Saprolite	20.5
2165														
2160														
2155														
2150														
2145														
2140														
2135														
2130														
2125														
2120														
2115														

NCDOT BORE DOUBLE R0505 GEO BORELOGS.GPJ NC_DOT.GDT 08/26/08



NCDOT GEOTECHNICAL ENGINEERING UNIT

BORELOG REPORT

PROJECT NO. 34334.1.1	ID. R-0505	COUNTY Henderson	GEOLOGIST Hager, M. M.
SITE DESCRIPTION Sound Barrier Wall, US 25/I-26 Connector from US 25 at Zirconia to I-26			GROUND WTR (ft)
BORING NO. 3	STATION 843+00	OFFSET 110ft LT	ALIGNMENT -L-
COLLAR ELEV. 2,192.0 ft	TOTAL DEPTH 20.8 ft	NORTHING 572,292	EASTING 984,816
DRILL MACHINE CME-550		DRILL METHOD H.S. Augers	
START DATE 08/14/08		COMP. DATE 08/14/08	
SURFACE WATER DEPTH N/A		DEPTH TO ROCK N/A	

PROJECT NO. 34334.1.1	ID. R-0505	COUNTY Henderson	GEOLOGIST Hager, M. M.
SITE DESCRIPTION Sound Barrier Wall, US 25/I-26 Connector from US 25 at Zirconia to I-26			GROUND WTR (ft)
BORING NO. 4	STATION 844+00	OFFSET 96ft LT	ALIGNMENT -L-
COLLAR ELEV. 2,191.8 ft	TOTAL DEPTH 20.6 ft	NORTHING 572,392	EASTING 984,831
DRILL MACHINE CME-550		DRILL METHOD H.S. Augers	
START DATE 08/15/08		COMP. DATE 08/15/08	
SURFACE WATER DEPTH N/A		DEPTH TO ROCK N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	SOIL AND ROCK DESCRIPTION	DEPTH (ft)
			0.5ft	0.5ft	0.5ft	0	25	50	75	100				
2195													2,192.0 GROUND SURFACE	0.0
2190	2,187.7	4.3	2	3	4							M	RESIDUAL Red-Brown, Coarse Sandy Silt.	
2185	2,182.7	9.3	2	3	3							D	SAPROLITE Red-Brown, Silty Sand	6.5
2180	2,177.7	14.3	1	3	4							D		
2175	2,172.7	19.3	2	3	4							D		
2170													Boring Terminated at Elevation 2,171.2 ft In Saprolite	20.8
2165														
2160														
2155														
2150														
2145														
2140														
2135														
2130														
2125														
2120														
2115														

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	SOIL AND ROCK DESCRIPTION	DEPTH (ft)
			0.5ft	0.5ft	0.5ft	0	25	50	75	100				
2195													2,191.8 GROUND SURFACE	0.0
2190	2,187.7	4.1	4	5	3							M	RESIDUAL Brown, Silty Sand with roots.	1.5
2185	2,182.7	9.1	4	4	5							M	RESIDUAL Red-Brown, Coarse Sandy Silt.	8.5
2180	2,177.7	14.1	3	3	3							M	SAPROLITE Red Brown to Gray, Silty Sand with Trace Mica.	
2175	2,172.7	19.1	1	2	3							M		
2170													Boring Terminated at Elevation 2,171.2 ft In Saprolite	20.6
2165														
2160														
2155														
2150														
2145														
2140														
2135														
2130														
2125														
2120														
2115														

NCDOT BORE DOUBLE R0505_GEO_BORELOGS.GPJ_NC_DOT_GDT_08/28/08



NCDOT GEOTECHNICAL ENGINEERING UNIT

BORELOG REPORT

PROJECT NO. 34334.1.1	ID. R-0505	COUNTY Henderson	GEOLOGIST Hager, M. M.
SITE DESCRIPTION Sound Barrier Wall, US 25/I-26 Connector from US 25 at Zirconia to I-26			GROUND WTR (ft)
BORING NO. 5	STATION 845+00	OFFSET 80ft LT	ALIGNMENT -L-
COLLAR ELEV. 2,191.4 ft	TOTAL DEPTH 21.2 ft	NORTHING 572,492	EASTING 984,847
DRILL MACHINE CME-550	DRILL METHOD H.S. Augers	HAMMER TYPE Automatic	
START DATE 08/15/08	COMP. DATE 08/15/08	SURFACE WATER DEPTH N/A	DEPTH TO ROCK N/A

PROJECT NO. 34334.1.1	ID. R-0505	COUNTY Henderson	GEOLOGIST Hager, M. M.
SITE DESCRIPTION Sound Barrier Wall, US 25/I-26 Connector from US 25 at Zirconia to I-26			GROUND WTR (ft)
BORING NO. 6	STATION 846+00	OFFSET 80ft LT	ALIGNMENT -L-
COLLAR ELEV. 2,188.1 ft	TOTAL DEPTH 20.9 ft	NORTHING 572,592	EASTING 984,848
DRILL MACHINE CME-550	DRILL METHOD H.S. Augers	HAMMER TYPE Automatic	
START DATE 08/15/08	COMP. DATE 08/15/08	SURFACE WATER DEPTH N/A	DEPTH TO ROCK 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				
2195														
2190													2,191.4 GROUND SURFACE 0.0	
													2,189.9 RESIDUAL 1.5	
													Brown, Silty Sand with roots.	
													SAPROLITE	
													Yellow Row to Red Brown, Silty Sand with Trace Mica and Trace Manganese Oxide	
2185	2,186.7	4.7	4	5	6							M		
2180	2,181.7	9.7	2	8	8							M		
2175	2,176.7	14.7	3	3	4							M		
2170	2,171.7	19.7	6	11	15							M		
2170													2,170.2 Boring Terminated at Elevation 2,170.2 ft In	21.2
2165													Saprolite	
2160														
2155														
2150														
2145														
2140														
2135														
2130														
2125														
2120														
2115														
2110														

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				
2190													2,188.1 GROUND SURFACE 0.0	
													2,186.9 RESIDUAL 1.2	
													Brown, Silty Sand with roots	
													SAPROLITE	
													Red Brown to Gray to Yellow Brown and White, Silty Sand, with MnO.	
2185	2,183.7	4.4	5	7	10							D		
2180	2,178.7	9.4	4	5	6							D		
2175	2,173.7	14.4	1	6	4							D		
2170	2,168.7	19.4	2	3	2							M		
2165													2,167.2 Boring Terminated at Elevation 2,167.2 ft In	20.9
2160													Saprolite	
2155														
2150														
2145														
2140														
2135														
2130														
2125														
2120														
2115														
2110														

NCDOT BORE DOUBLE R0505 GEO BORELOGS.GPJ NC.DOT.GDT 08/26/08



NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

PROJECT NO. 34334.1.1	ID. R-0505	COUNTY Henderson	GEOLOGIST Hager, M. M.
SITE DESCRIPTION Sound Barrier Wall, US 25/I-26 Connector from US 25 at Zirconia to I-26			GROUND WTR (ft)
BORING NO. 7	STATION 847+00	OFFSET 80ft LT	ALIGNMENT -L-
COLLAR ELEV. 2,187.6 ft	TOTAL DEPTH 20.9 ft	NORTHING 572,692	EASTING 984,848
DRILL MACHINE CME-550		DRILL METHOD H.S. Augers	HAMMER TYPE Automatic
START DATE 08/15/08	COMP. DATE 08/15/08	SURFACE WATER DEPTH N/A	DEPTH TO ROCK N/A

PROJECT NO. 34334.1.1	ID. R-0505	COUNTY Henderson	GEOLOGIST Hager, M. M.
SITE DESCRIPTION Sound Barrier Wall, US 25/I-26 Connector from US 25 at Zirconia to I-26			GROUND WTR (ft)
BORING NO. 8	STATION 848+00	OFFSET 80ft LT	ALIGNMENT -L-
COLLAR ELEV. 2,183.3 ft	TOTAL DEPTH 20.9 ft	NORTHING 572,792	EASTING 984,848
DRILL MACHINE CME-550		DRILL METHOD H.S. Augers	HAMMER TYPE Automatic
START DATE 08/15/08	COMP. DATE 08/15/08	SURFACE WATER DEPTH N/A	DEPTH TO ROCK N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	LOG G	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
2190																
														2,187.6	0.0	GROUND SURFACE
2185														2,185.6	2.0	RESIDUAL Brown, Silty Sand with roots.
	2,183.2	4.4														SAPROLITE Red Brown to White, Silty Sand.
2180																
	2,178.2	9.4														
2175																
	2,173.2	14.4														
2170																
	2,168.2	19.4														
2165																
														2,166.7	20.9	Boring Terminated at Elevation 2,166.7 ft In Saprolite
2160																
2155																
2150																
2145																
2140																
2135																
2130																
2125																
2120																
2115																
2110																

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	LOG G	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
2185																
														2,183.3	0.0	GROUND SURFACE
2180																
	2,178.9	4.4														
2175																
	2,173.9	9.4														
2170																
	2,168.9	14.4														
2165																
	2,163.9	19.4														
2160																
														2,162.4	20.9	Boring Terminated at Elevation 2,162.4 ft In Saprolite
2155																
2150																
2145																
2140																
2135																
2130																
2125																
2120																
2115																
2110																
2105																

NCDOT BORE DOUBLE R0505 GEO_BORELOGS.GPJ NC_DOT.GDT 08/26/08



NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

PROJECT NO. 34334.1.1	ID. R-0505	COUNTY Henderson	GEOLOGIST Hager, M. M.
SITE DESCRIPTION Sound Barrier Wall, US 25/I-26 Connector from US 25 at Zirconia to I-26			GROUND WTR (ft)
BORING NO. 9	STATION 849+00	OFFSET 84ft LT	ALIGNMENT -L-
COLLAR ELEV. 2,180.1 ft	TOTAL DEPTH 20.7 ft	NORTHING 572,892	EASTING 984,845
DRILL MACHINE CME-550		DRILL METHOD H.S. Augers	
START DATE 08/15/08		COMP. DATE 08/15/08	
SURFACE WATER DEPTH N/A		DEPTH TO ROCK N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT				SAMP. NO.	LOG MOI	SOIL AND ROCK DESCRIPTION	DEPTH (ft)
			0.5ft	0.5ft	0.5ft	0	25	50	75				
2185													
2180												2,180.1	0.0
2175	2,175.9	4.2	3	5	6						D		
2170	2,170.9	9.2	1	3	4						D		
2165	2,165.9	14.2	2	5	4						M		
2160	2,160.9	19.2	1	3	4						M		
												2,159.4	20.7
2155													
2150													
2145													
2140													
2135													
2130													
2125													
2120													
2115													
2110													
2105													

PROJECT NO. 34334.1.1	ID. R-0505	COUNTY Henderson	GEOLOGIST Hager, M. M.
SITE DESCRIPTION Sound Barrier Wall, US 25/I-26 Connector from US 25 at Zirconia to I-26			GROUND WTR (ft)
BORING NO. 10	STATION 850+00	OFFSET 76ft LT	ALIGNMENT -L-
COLLAR ELEV. 2,177.9 ft	TOTAL DEPTH 20.5 ft	NORTHING 572,992	EASTING 984,853
DRILL MACHINE CME-550		DRILL METHOD H.S. Augers	
START DATE 08/18/08		COMP. DATE 08/18/08	
SURFACE WATER DEPTH N/A		DEPTH TO ROCK N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT				SAMP. NO.	LOG MOI	SOIL AND ROCK DESCRIPTION	DEPTH (ft)
			0.5ft	0.5ft	0.5ft	0	25	50	75				
2180													
												2,177.9	0.0
2175	2,173.9	4.0	11	14	16						D		
2170	2,168.9	9.0	7	13	8						D		
2165	2,163.9	14.0	4	6	5						M		
2160	2,158.9	19.0	1	2	3						W		
												2,157.4	20.5
2155													
2150													
2145													
2140													
2135													
2130													
2125													
2120													
2115													
2110													
2105													
2100													

NCDOT BORE DOUBLE R0505_GEO_BORELOGS.GPJ NC_DOT_GDT 08/26/08



NCDOT GEOTECHNICAL ENGINEERING UNIT

BORELOG REPORT

PROJECT NO. 34334.1.1	ID. R-0505	COUNTY Henderson	GEOLOGIST Hager, M. M.
SITE DESCRIPTION Sound Barrier Wall, US 25/I-26 Connector from US 25 at Zirconia to I-26			GROUND WTR (ft)
BORING NO. 11	STATION 851+00	OFFSET 101ft LT	ALIGNMENT -L-
COLLAR ELEV. 2,189.6 ft	TOTAL DEPTH 20.6 ft	NORTHING 573,092	EASTING 984,829
DRILL MACHINE CME-550		DRILL METHOD H.S. Augers	
START DATE 08/18/08		COMP. DATE 08/18/08	
SURFACE WATER DEPTH N/A		DEPTH TO ROCK N/A	

PROJECT NO. 34334.1.1	ID. R-0505	COUNTY Henderson	GEOLOGIST Hager, M. M.
SITE DESCRIPTION Sound Barrier Wall, US 25/I-26 Connector from US 25 at Zirconia to I-26			GROUND WTR (ft)
BORING NO. 12	STATION 853+09	OFFSET 104ft LT	ALIGNMENT -L-
COLLAR ELEV. 2,177.6 ft	TOTAL DEPTH 19.8 ft	NORTHING 573,302	EASTING 984,826
DRILL MACHINE CME-550		DRILL METHOD H.S. Augers	
START DATE 08/18/08		COMP. DATE 08/18/08	
SURFACE WATER DEPTH N/A		DEPTH TO ROCK N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	SOIL AND ROCK DESCRIPTION	DEPTH (ft)
			0.5ft	0.5ft	0.5ft	0	25	50	75	100				
2190													2,189.6 GROUND SURFACE	0.0
													RESIDUAL Brown, Silty Sand with roots.	2.9
2185	2,185.2	4.4	3	15	66								SAPROLITE Red White to Gray, Silty Sand, Trace Gravel	5.8
													WEATHERED ROCK Granite	6.1
2180	2,180.2	9.4	33	64	36/0.2								SAPROLITE Red White to Gray, Silty Sand, Trace Gravel	9.3
													WEATHERED ROCK Granite	11.6
2175	2,175.2	14.4	8	8	63								SAPROLITE Red White to Gray, Silty Sand, Trace Gravel	20.3
2170	2,170.2	19.4	42	39	61/0.2								WEATHERED ROCK Granite	20.6
2165													Boring Terminated at Elevation 2,169.0 ft In Weathered Rock	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	SOIL AND ROCK DESCRIPTION	DEPTH (ft)
			0.5ft	0.5ft	0.5ft	0	25	50	75	100				
2180													2,177.6 GROUND SURFACE	0.0
													SAPROLITE Yellow Brown to Red Brown, Silty Sand with Trace Mica	
2175	2,174.3	3.3	13	16	11									
2170	2,169.3	8.3	5	6	11									
2165	2,164.3	13.3	12	28	21									
2160	2,159.3	18.3	30	12	26									
2155													Boring Terminated at Elevation 2,157.8 ft In Saprolite	19.8

NCDOT BORE DOUBLE R0505_GEO_BORELOGS.GPJ NC_DOT_GDT_08/26/08



NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

PROJECT NO. 34334.1.1		ID. R-0505		COUNTY Henderson		GEOLOGIST Hager, M. M.										
SITE DESCRIPTION Sound Barrier Wall, US 25/I-26 Connector from US 25 at Zirconia to I-26							GROUND WTR (ft)									
BORING NO. 13		STATION 854+00		OFFSET 97ft LT		ALIGNMENT -L-										
COLLAR ELEV. 2,168.3 ft		TOTAL DEPTH 20.9 ft		NORTHING 573,392		EASTING 984,834										
DRILL MACHINE CME-550		DRILL METHOD H.S. Augers				HAMMER TYPE Automatic										
START DATE 08/18/08		COMP. DATE 08/18/08		SURFACE WATER DEPTH N/A		DEPTH TO ROCK N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						ELEV. (ft)
2170																
															2,168.3	GROUND SURFACE
2165	2,163.9	4.4														
			5	13	13									D		
2160	2,158.9	9.4														
			3	3	3									D		
2155	2,153.9	14.4														
			30	54	28									D		
2150	2,148.9	19.4														
			6	8	11									M	2,147.4	20.9
2145																Boring Terminated at Elevation 2,147.4 ft In
																Saprolite
2140																
2135																
2130																
2125																
2120																
2115																
2110																
2105																
2100																
2095																
2090																

NCDOT BORE DOUBLE R0505 GEO. BORELOGS.GPJ NC_DOT.GDT 08/26/08

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	34334.1.1 (R-0505)	1	8

CONTENTS

<u>SHEET</u>	<u>DESCRIPTION</u>
1	TITLE SHEET
2	LEGEND
3	SITE PLAN
4	PROFILE
5	BORE LOG REPORTS
8	SOIL TEST RESULTS

STRUCTURE SUBSURFACE INVESTIGATION

PROJ. REFERENCE NO. 34334.1.1 F.A. PROJ. APD-1954 (1)
 COUNTY HENDERSON
 PROJECT DESCRIPTION NC 225-US 25/1-26 CONNECTOR FROM US 25
AT ZIRCONIA TO I-26

SITE DESCRIPTION -Y4REV- RETAINING WALL

CAUTION NOTICE

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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: 34334.1.1 ID: R-0505

PERSONNEL

T.B. DANIEL

C.J. COFFEY

G.K. ROSE

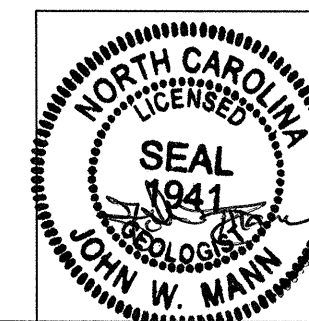
R.D. CHILDERS

INVESTIGATED BY J.W. MANN

CHECKED BY W.D. FRYE

SUBMITTED BY W.D. FRYE

DATE 04/17/06



DRAWN BY: J.W. MANN

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**NORTH CAROLINA DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT
SOIL AND ROCK CLASSIFICATION, LEGEND, AND ABBREVIATIONS**

SOIL LEGEND AND AASHTO CLASSIFICATION										CONSISTENCY OR DENSENESS				
GENERAL CLASS.	GRANULAR MATERIALS (≤ 35% PASSING #200)				SILT-CLAY MATERIALS (> 35% PASSING #200)				ORGANIC MATERIALS		PRIMARY SOIL TYPE	COMPACTNESS OR CONSISTENCY	RANGE OF STANDARD PENETRATION RESISTANCE (BLOWS PER FOOT)	RANGE OF UNCONFINED COMPRESSIVE STRENGTH (q _u) (TONS/FT 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	GENERALLY GRANULAR MATERIAL	VERY LOOSE LOOSE MEDIUM DENSE DENSE VERY DENSE	< 4 4 TO 10 10 TO 30 30 TO 50 > 50	N/A
SYMBOL														
% PASSING	#10 #40 #200	50 MX 30 MX 15 MX	50 MN 25 MN 10 MN	35 MX 35 MX 35 MX	35 MN 36 MN 36 MN	36 MN 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 41 MN 10 MX	41 MN 40 MX 11 MN	41 MN 40 MX 11 MN	41 MN 40 MX 11 MN	41 MN 40 MX 11 MN	SOILS WITH LITTLE OR MODERATE AMOUNTS OF ORGANIC MATTER	HIGHLY ORGANIC SOILS		VERY SOFT SOFT MEDIUM STIFF STIFF VERY STIFF HARD	< 2 2 TO 4 4 TO 8 8 TO 15 15 TO 30 > 30	< .25 .25 TO .5 .5 TO 1 1 TO 2 2 TO 4 > 4
GROUP INDEX	0	0	0	4 MX	8 MX	12 MX	16 MX	ND MX						
USUAL TYPES OF MAJOR MATERIALS	STONE FRAGS. GRAVEL & SAND	FINE SAND	SILTY OR CLAYEY GRAVEL AND SAND	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	FINE SAND	SILT	CLAY								
GRAIN (MM) SIZE (IN)	305 12"	75 3"	2	0.25	0.05	0.005								
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										
PL	PLASTIC LIMIT	-WET- (W)		SEMISOLID; REQUIRES DRYING TO ATTAIN OPTIMUM MOISTURE										
OM	OPTIMUM MOISTURE SHRINKAGE LIMIT	-MOIST- (M)		SOLID; AT OR NEAR OPTIMUM MOISTURE										
SL		-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)	CORED ROCK	INFERRED ROCK LINE		MATERIAL THAT CANNOT BE PENETRATED BY POWER AUGERS, EXCEPT IN THIN LEDGES, AND REQUIRES ROCK CORING TOOLS FOR OBTAINING A SAMPLE										
WEATHERED ROCK (WR)	HARD WEATHERED ROCK (HWR)		MATERIAL THAT CAN BE PENETRATED WITH GREAT DIFFICULTY USING POWER AUGERS AND YIELDS SPT REFUSAL											
	SOFT WEATHERED ROCK (SWR)		MATERIAL THAT CAN BE PENETRATED WITH SOME DIFFICULTY USING POWER AUGERS AND YIELDS SPT VALUES > 100 BPF BUT < SPT REFUSAL											
¹ SPT REFUSAL ≤ 1 INCH OF PENETRATION PER 50 BLOWS. 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 4" DIVIDED BY THE TOTAL LENGTH OF THE CORE RUN TIMES 100%.														
ABBREVIATIONS														
ALLUV.	ALLUVIUM	MIC.	MICACEOUS											
AR	AUGER REFUSAL	MOT.	MOTTLED											
BLDR.	BOULDER	NS	NO SAMPLE TAKEN											
BPF	BLOWS PER FOOT	ORG.	ORGANIC											
CALC.	CALCAREOUS	P.P.	POCKET PENETROMETER											
CL.	CLAY	REF.	REFER TO											
CLY.	CLAYEY	RES.	RESIDUAL											
COB.	COBBLE	S.	SOFT											
CSE.	COARSE	SAT.	SATURATED											
DPT	DYNAMIC PENETRATION TEST	SD.	SAND											
EST.	ESTIMATED	SDY.	SANDY											
F.	FINE	SED(S).	SEDIMENT(S)											
FIAD	FILLED IMMED. AFTER DRILLING	SL.	SILT, SILTY											
FOSS.	FOSSILIFEROUS	SLI.	SLIGHTLY											
FRAC.	FRACTURED	SPT	STANDARD PENETRATION TEST											
FRAG(S).	FRAGMENT(S)	TS.	TOPSOIL											
GR.	GRAVEL	VST	VANE SHEAR TEST											
GS	SPECIFIC GRAVITY	V.	VERY											
GW	GROUND WATER	W/	WITH											
MED.	MEDIUM													
BENCH MARK: I2+75, CENTERLINE, -Y4REV- ELEVATION ASSUMED ELEVATION = 2079.0 FEET (ASSUMED)														
STATE PROJECT NO. 34334.1.1														
T.I.P. NO. R-0505 F.A. NO. APD-1954 (I)														
COUNTY HENDERSON ROUTE US-25														
SITE DESCRIPTION -Y4REV- RETAINING WALL														
PROJECT GEOLOGIST J.W. MANN SUBMITTED BY W.D. FRYE														
PERSONNEL T.B. DANIEL C.J. COFFEY R.D. CHILDERS DATE SUBMITTED 04/2006 G.K. ROSE														

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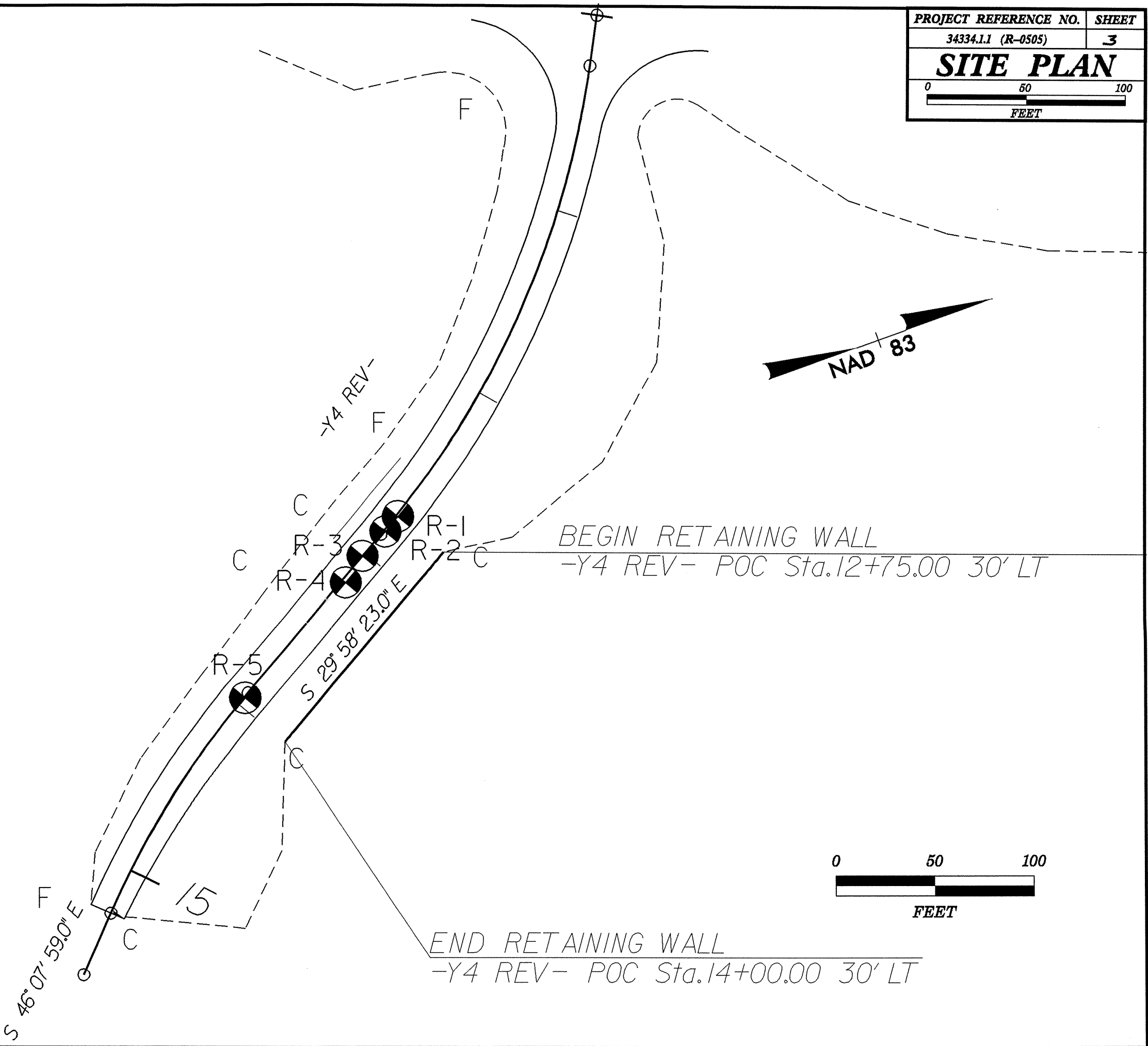
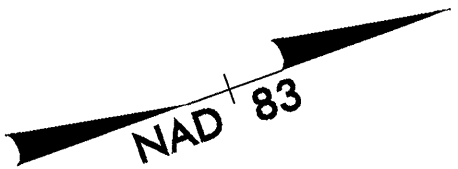
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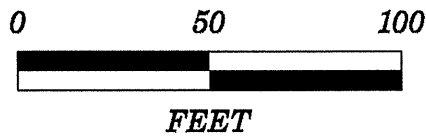


SITE PLAN



BEGIN RETAINING WALL
-Y4 REV- POC Sta.12+75.00 30' LT

END RETAINING WALL
-Y4 REV- POC Sta.14+00.00 30' LT

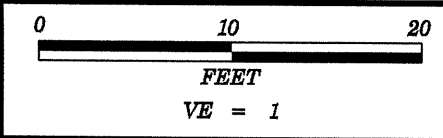


S 46° 07' 59.0" E
15

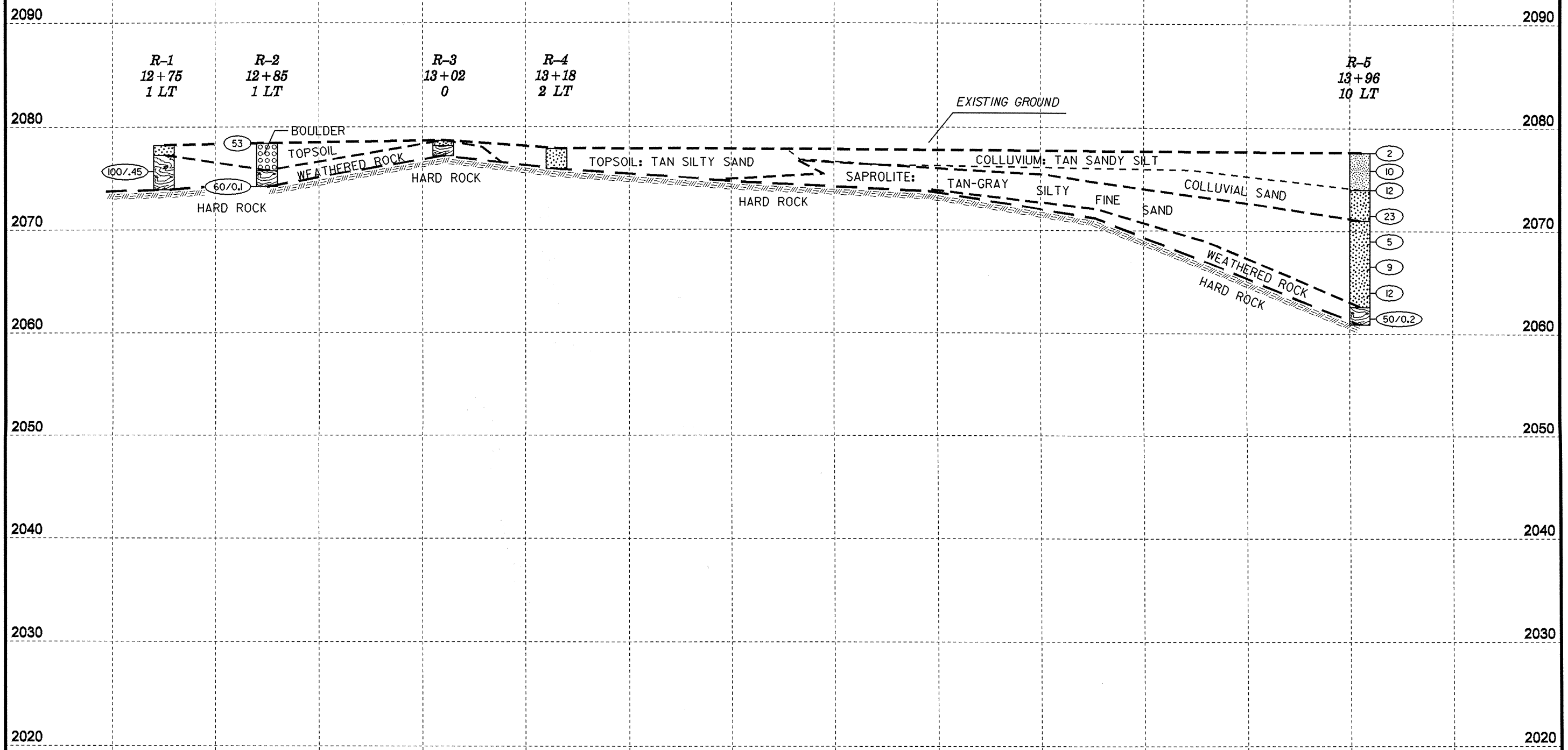
S 29° 58' 23.0" E

R-5
R-4
R-3
R-2
R-1

C C C C C



PROJECT REFERENCE NO.	SHEET
34334.1.1 (R-0505)	4
PROFILE THRU BORINGS	



-Y4REV-

12+70

13+00

13+50

14+00

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
 GEOTECHNICAL UNIT BORING LOG

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
 GEOTECHNICAL UNIT BORING LOG

PROJECT NO 34334.1.1		ID R-0505		COUNTY HENDERSON		GEOLOGIST T.B. DANIEL									
SITE DESCRIPTION -Y4REV- PROPOSED RETAINING WALL							GND WATER								
BORING NO R-1		NORTHING 0.00		EASTING 0.00		0 HR N/A									
ALIGNMENT -Y4REV-		BORING LOCATION 12+75.000		OFFSET 1.00ft LT		24 HR N/A									
COLLAR ELEV 2078.20ft		TOTAL DEPTH 4.30ft		START DATE 3/23/06		COMPLETION DATE 03/23/06									
DRILL MACHINE CME-550			DRILL METHOD H.S. AUGERS			HAMMER TYPE AUTOMATIC									
SURFACE WATER DEPTH			DEPTH TO ROCK 4.30ft			Log R-1, Page 1 of 1									
ELEV	DEPTH	BLOW CT			PEN (ft)	BLOWS PER FOOT					SAMPLE NO	LOG MOI	LOG	SOIL AND ROCK DESCRIPTION	
		6in	6in	6in		0	25	50	75	100					
2078.20															Ground Surface
2073.90	2.60	9	100	0.5											TOPSOIL: BROWN SILTY FINE SAND
															WEATHERED ROCK
BORING TERMINATED AT ASSUMED ELEV. 2073.9' ON HARD ROCK															

PROJECT NO 34334.1.1		ID R-0505		COUNTY HENDERSON		GEOLOGIST T.B. DANIEL									
SITE DESCRIPTION -Y4REV- PROPOSED RETAINING WALL							GND WATER								
BORING NO R-2		NORTHING 0.00		EASTING 0.00		0 HR N/A									
ALIGNMENT -Y4REV-		BORING LOCATION 12+85.000		OFFSET 1.00ft LT		24 HR N/A									
COLLAR ELEV 2078.38ft		TOTAL DEPTH 4.20ft		START DATE 3/23/06		COMPLETION DATE 03/23/06									
DRILL MACHINE CME-550			DRILL METHOD H.S. AUGERS			HAMMER TYPE AUTOMATIC									
SURFACE WATER DEPTH			DEPTH TO ROCK 4.20ft			Log R-2, Page 1 of 1									
ELEV	DEPTH	BLOW CT			PEN (ft)	BLOWS PER FOOT					SAMPLE NO	LOG MOI	LOG	SOIL AND ROCK DESCRIPTION	
		6in	6in	6in		0	25	50	75	100					
2078.38	0.00	2	20	33	1.0										Ground Surface
															X 53
2074.18	3.60	7	60	0.1											WEATHERED BOULDER
															X 67
															WEATHERED ROCK
BORING TERMINATED AT ASSUMED ELEV. 2074.2' ON HARD ROCK															

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
 GEOTECHNICAL UNIT BORING LOG

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
 GEOTECHNICAL UNIT BORING LOG

PROJECT NO 34334.1.1		ID R-0505		COUNTY HENDERSON		GEOLOGIST T.B. DANIEL								
SITE DESCRIPTION -Y4REV- PROPOSED RETAINING WALL							GND WATER							
BORING NO R-3		NORTHING 0.00		EASTING 0.00		0 HR N/A								
ALIGNMENT -Y4REV-		BORING LOCATION 13+02.000		OFFSET 0.00ft		24 HR N/A								
COLLAR ELEV 2078.66ft		TOTAL DEPTH 1.50ft		START DATE 3/23/06		COMPLETION DATE 03/23/06								
DRILL MACHINE CME-550			DRILL METHOD H.S. AUGERS			HAMMER TYPE AUTOMATIC								
SURFACE WATER DEPTH			DEPTH TO ROCK 1.50ft			Log R-3, Page 1 of 1								
ELEV	DEPTH	BLOW CT			PEN (ft)	BLOWS PER FOOT					SAMPLE NO	LOG MOI	SOIL AND ROCK DESCRIPTION	
		6in	6in	6in		0	25	50	75	100				
2078.66														Ground Surface
2077.16														TOPSOIL: SILTY SAND
														FRACTURED WEATHERED ROCK
														BORING TERMINATED AT ASSUMED ELEV. 2077.2' ON HARD ROCK

PROJECT NO 34334.1.1		ID R-0505		COUNTY HENDERSON		GEOLOGIST T.B. DANIEL								
SITE DESCRIPTION -Y4REV- PROPOSED RETAINING WALL							GND WATER							
BORING NO R-4		NORTHING 0.00		EASTING 0.00		0 HR N/A								
ALIGNMENT -Y4REV-		BORING LOCATION 13+18.000		OFFSET 2.00ft LT		24 HR N/A								
COLLAR ELEV 2077.85ft		TOTAL DEPTH 2.00ft		START DATE 3/23/06		COMPLETION DATE 03/23/06								
DRILL MACHINE CME-550			DRILL METHOD H.S. AUGERS			HAMMER TYPE AUTOMATIC								
SURFACE WATER DEPTH			DEPTH TO ROCK 2.00ft			Log R-4, Page 1 of 1								
ELEV	DEPTH	BLOW CT			PEN (ft)	BLOWS PER FOOT					SAMPLE NO	LOG MOI	SOIL AND ROCK DESCRIPTION	
		6in	6in	6in		0	25	50	75	100				
2077.85														Ground Surface
2075.85														TOPSOIL: TAN SILTY SAND
														BORING TERMINATED AT ASSUMED ELEV. 2075.9' ON HARD ROCK

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
 GEOTECHNICAL UNIT BORING LOG

PROJECT NO 34334.1.1	ID R-0505	COUNTY HENDERSON	GEOLOGIST T.B. DANIEL
SITE DESCRIPTION -Y4REV- PROPOSED RETAINING WALL			GND WATER
BORING NO R-5	NORTHING 0.00	EASTING 0.00	0 HR N/A
ALIGNMENT -Y4REV-	BORING LOCATION 13+96.000	OFFSET 10.00ft LT	24 HR 13.00ft
COLLAR ELEV 2077.60ft	TOTAL DEPTH 16.70ft	START DATE 3/22/01	COMPLETION DATE 03/22/01
DRILL MACHINE CME-550	DRILL METHOD H.S. AUGERS	HAMMER TYPE AUTOMATIC	
SURFACE WATER DEPTH		DEPTH TO ROCK 16.70ft	

ELEV	DEPTH	BLOW CT			PEN (ft)	BLOWS PER FOOT					SAMPLE NO	MOI	LOG	SOIL AND ROCK DESCRIPTION	
		6in	6in	6in		0	25	50	75	100					
2077.60	0.00	0	1	1	1.0										Ground Surface
	1.80	2	5	5	1.0						SS-1	M			COLLUVIUM: TAN SANDY SILT
	3.60	2	5	7	1.0						SS-2	M			COLLUVIUM: TAN-BROWN SILTY FINE-COARSE SAND
2070.00	6.10	3	7	16	1.0										SAPROLITE: TAN-GRAY SILTY FINE SAND
	8.60	4	2	3	1.0										
	11.10	3	4	5	1.0						SS-3	W			
	13.60	3	4	8	1.0										
2060.90	16.10	50			0.2										WEATHERED ROCK
BORING TERMINATED AT ASSUMED ELEV. 2060.9' ON HARD ROCK															

JCS
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS-MATERIALS AND TESTS UNIT
SOILS TEST REPORT-SOILS LABORATORY

T.I.P. ID #: R-0505

REPORT ON SAMPLES OF: Soils for Classification

PROJECT:	34334.1.1	COUNTY:	Henderson	Owner:	--
DATE SAMPLED:	3.22.06	DATE RECEIVED:	3.30.06	DATE REPORTED:	4.11.06
SAMPLED FROM:	Wall	SAMPLED BY:	J. W. Mann		
SUBMITTED BY:	W. D. Frye	2002	STANDARD SPECIFICATION		
LABORATORY:	Asheville				

TEST RESULTS

Project Sample No.	SS-1	SS-2	SS-3	SS-5	SS-6	SS-7	SS-8	SS-9
Lab Sample No. A	152212	152213	152214	152215	152216	152217	152218	152219
HiCAMS Sample #	--	--	--	--	--	--	--	--
Retained #4 Sieve %	--	--	--	--	--	--	--	--
Passing #10 Sieve %	88	83	100	89	99	90	99	98
Passing #40 Sieve %	73	64	84	71	82	72	72	81
Passing #200 Sieve %	39	32	22	35	21	26	28	29

MINUS #10 FRACTION

Soil Mortar - 100%								
Coarse Sand -Ret. #60	32	37	38	35	38	37	43	34
Fine Sand - Ret. #270	27	27	47	30	46	42	34	43
Silt 0.05-0.005 mm %	13	10	11	31	12	17	19	19
Clay < 0.005 mm %	28	26	4	4	4	4	4	4
Passing # 40 Sieve %	--	--	--	--	--	--	--	--
Passing # 200 Sieve %	--	--	--	--	--	--	--	--

Liquid Limit	31	34	41	34	44	36	37	38
Plastic Index	NP	NP	NP	NP	NP	NP	NP	NP
AASHTO Classification	A-4 (1)	A-2-4 (0)	A-2-5 (0)	A-2-4 (0)	A-2-5 (0)	A-2-4 (0)	A-2-4 (0)	A-2-4 (0)
Quantity								
Texture								
Station	13+96	13+96	13+96	10+85	10+85	10+85	10+85	10+85
Hole No.								
Depth (ft) From:	0.0	3.6	11.1	0.0	2.8	5.3	7.8	10.3
To:	1.5	5.1	12.6	1.5	4.3	6.8	9.3	11.8

Remarks:

A-152212 - 152219

CC:

J. W. Mann	
File	

SOILS ENGINEER: