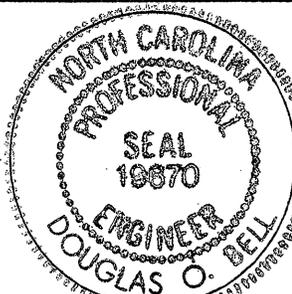


NORTH CAROLINA DIVISION OF HIGHWAYS

GEOTECHNICAL UNIT

SOIL AND ROCK CLASSIFICATION, LEGEND, AND ABBREVIATIONS

SOIL LEGEND AND AASHTO CLASSIFICATION										CONSISTENCY OR DENSENESS						
GENERAL CLASS.	GRANULAR MATERIALS (≤ 35% PASSING #200)					SILT-CLAY MATERIALS (> 35% PASSING #200)				ORGANIC MATERIALS						
GROUP CLASS.	A-1	A-3	A-2			A-4	A-5	A-6	A-7	A-1,A-2 A-3	A-4,A-5 A-6,A-7	PRIMARY SOIL TYPE	COMPACTNESS OR CONSISTENCY	RANGE OF STANDARD PENETRATION RESISTANCE (IN - VALUE)	RANGE OF UNCONFINED COMPRESSIVE STRENGTH (qu) (kN / m ²)	
SYMBOL												GENERALLY GRANULAR MATERIAL	VERY LOOSE LOOSE MEDIUM DENSE DENSE VERY DENSE	< 4 4 TO 10 10 TO 30 30 TO 50 > 50	N/A	
% PASSING	#10 #40 #200	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 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	41 MN 11 MN	40 MX 10 MX	41 MN 10 MX	40 MX 11 MN	41 MN 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 50 50 TO 100 100 TO 200 200 TO 400 > 400	
GROUP INDEX	0	0	0	4 MX	8 MX	12 MX	16 MX	NO 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	-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)	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)						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 ≤ 2.5 cm 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 0.1 m DIVIDED BY THE TOTAL LENGTH OF THE CORE RUN TIMES 100%.																
ABBREVIATIONS																
ALLUV.	ALLUVIUM	MIC.	MICACEOUS													
AR	AUGER REFUSAL	MOT.	MOTTLED													
BLDR.	BOULDER	N	BLOWS / 30 CM													
CALC.	CALCAREOUS	NS	NO SAMPLE TAKEN													
CL.	CLAY	ORG.	ORGANIC													
CLY.	CLAYEY	P.P.	POCKET PENETROMETER													
COB.	COBBLE	REF.	REFER TO													
CSE.	COARSE	RES.	RESIDUAL													
DPT	DYNAMIC PENETRATION TEST	S.	SOFT													
EST.	ESTIMATED	SAT.	SATURATED													
F.	FINE	SD.	SAND													
FIAD	FILLED (AFTER DRILLING)	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													
		W/	WITH													
BENCH MARK: -BY 5-9 STA. 22 + 69,662,16.633																
m RT -Y5- ELEV= 42.953m																
STATE PROJECT NO. 6,469002T																
T.I.P. NO. R - 0513C F.A. NO. NA																
COUNTY ROBESON ROUTE -Y5-																
SITE DESCRIPTION Bridge on -Y5- (SR 1207 Hilly BRANCH RD) OVER -L- (PROP. US 74)																
PROJECT GEOLOGIST T. ROBERSON SUBMITTED BY D. O. BELL																
PERSONNEL M. H. STEPHENS																
M. SELLER																
DATE SUBMITTED 5/11/01																



SEAL

Douglas O. Bell

Signature