STATE OF NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

CONTENTS

SHEET	DESCRIPTION
1	TITLE SHEET
2	LEGEND
3	SITE PLAN
4	PROFILE
8-11	BORE LOG RESULTS
12	SOIL AND TEST RESULTS

STRUCTURE SUBSURFACE INVESTIGATION

PROJ. REFERENCE NO. 32782.1.1 (B-2965)

_ F.A. PROJ. <u>BRSTP-064B(I)</u>

COUNTY <u>EDGECOMBE</u>

PROJECT DESCRIPTION BRIDGE NO. 24 ON US 64 BUSINESS OVER

TAR RIVER AT -L- STA. 39+59

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 FELD BORNING LOGS, ROCK CORES, AND SOIL TEST DATA AVAILABLE MAY BE REVIEWED OR INSPECTED IN RALEIGH BY CONTACTING THE N.C. DEPARTMENT OF TRANSPORTATION, GEOTECHNICAL EMBINEERING UNIT AT (919) 250-4088. NEITHER THE SUBSURFACE PLANS AND REPORTS, NOR THE FIELD BORNING 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 BORNOS OR BETWEEN SAMPLED STRATA WITHIN THE BORFHOLE. THE LABORATORY SAMPLE DATA AND THE IN SITU UN-PLACED 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 THES 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 PRELMINARY 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 HINDEPENDENT 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.

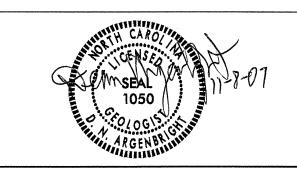
PERSONNEL

JRS

SOME
INVESTIGATED BY D.N.ARGENBRIGHT

CHECKED BY D.N.ARGENBRIGHT

DATE NOVEMBER 2007



PROJECT: 3278

965

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

GEOTECHNICAL ENGINEERING UNIT

SUBSURFACE INVESTIGATION

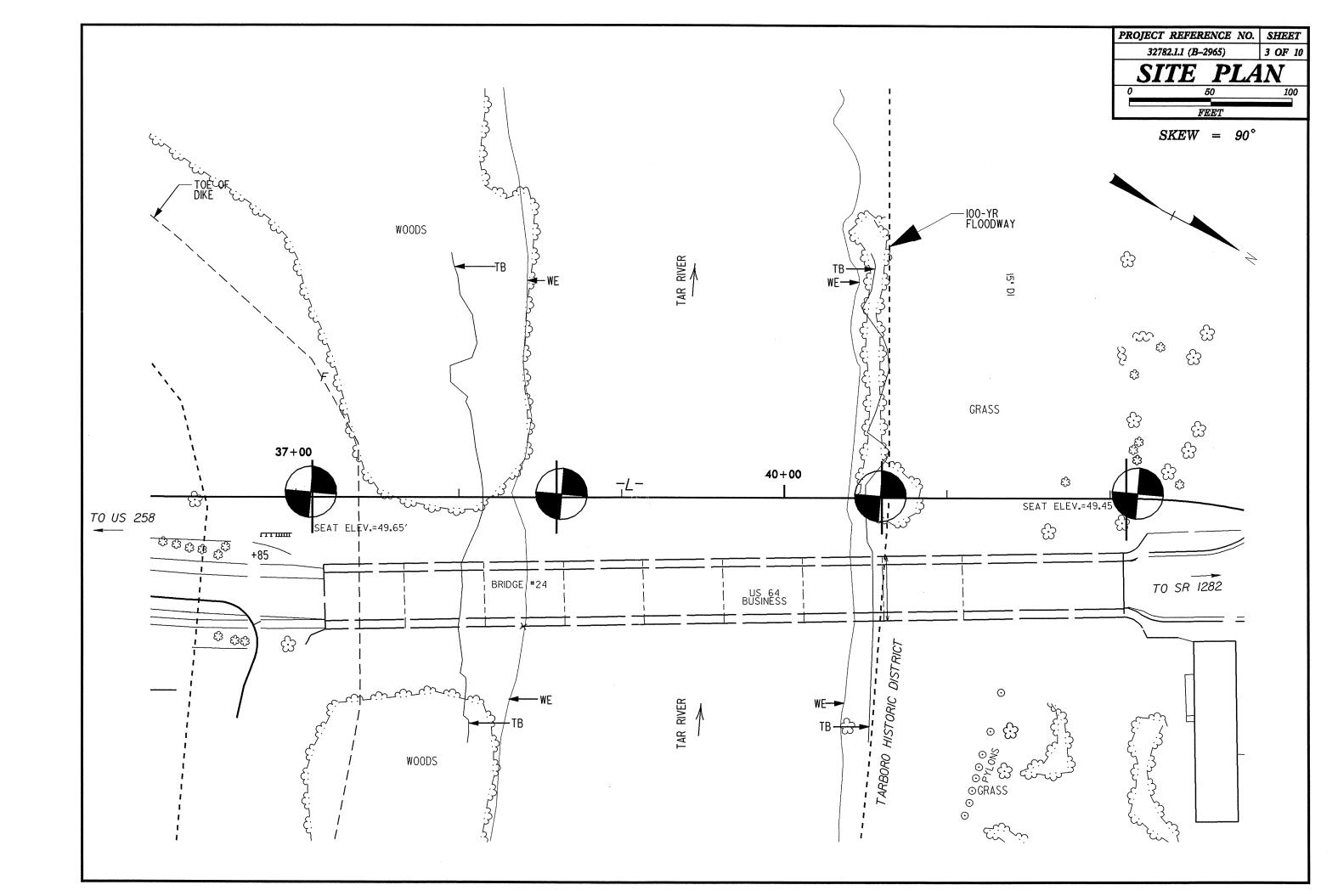
SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

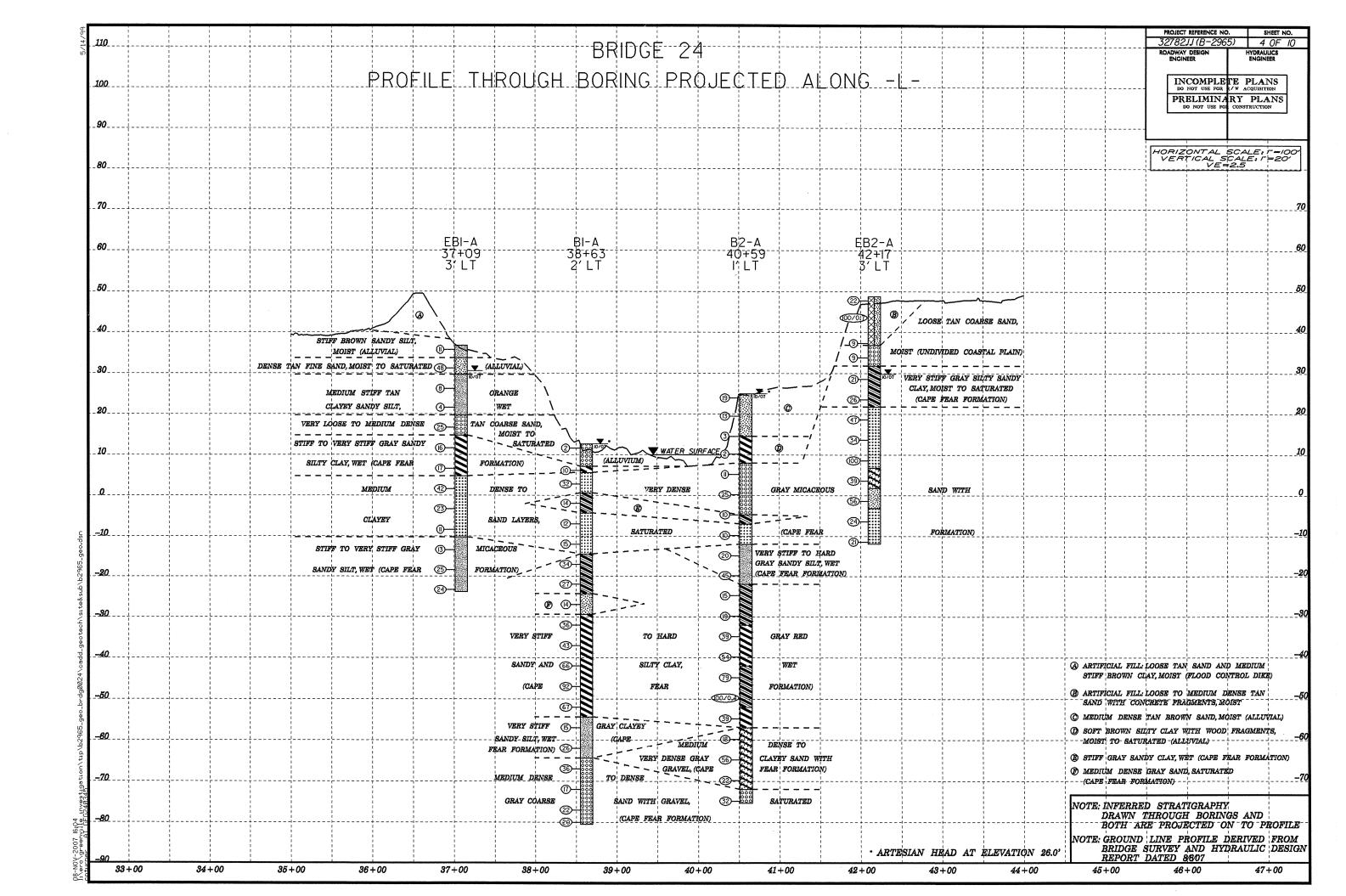
			o, 0114 10010 0,			
SOIL DESCRIPTION	GRADATION	POW FINE TO COADCE	1400 0004 10 4004		DESCRIPTION	TERMS AND DEFINITIONS
SOIL IS CONSIDERED TO BE THE UNCONSOLIDATED, SEMI-CONSOLIDATED, OR WEATHERED EARTH MATERIALS THAT CAN BE PENETRATED WITH A CONTINUOUS FLIGHT POWER AUGER, AND YIELD LESS THAN	WELL GRADED - INDICATES A GOOD REPRESENTATION OF PARTICLE SIZES F UNIFORM - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE	SAME SIZE. (ALSO	ROCK LINE INDICATI	ES THE LEVEL AT WHICH NON-	IT IF TESTED, WOULD YIELD SPT REFUSAL. AN INFERRED COASTAL PLAIN MATERIAL WOULD YIELD SPT REFUSAL.	ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER.
100 BLOWS PER FOOT ACCORDING TO STANDARD PENETRATION TEST (AASHTO T206, ASTM D-1586). SOIL	POORLY GRADED) GAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLES OF TWO OR M	MORE SIZES.	SPT REFUSAL IS PE	NETRATION BY A SPLIT SPOON AIN MATERIAL THE TRANSITI	I SAMPLER EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS. ON BETWEEN SOIL AND ROCK IS OFTEN REPRESENTED BY A ZONE	ADUIFER - A WATER BEARING FORMATION OR STRATA.
CLASSIFICATION IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY SHALL INCLUDE: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH	ANGULARITY OF GRAINS		OF WEATHERED ROC	K.		ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND.
AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. EXAMPLE:	THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE	TERMS: ANGULAR,	WEATHERED	RE TYPICALLY DIVIDED AS FOL		ARGILLACEOUS - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING A NOTABLE PROPORTION OF CLAY IN THEIR COMPOSITION, AS SHALE, SLATE, ETC.
VERY STIFF, GRAY, SIETY CLAY, MOST WITH INTERBEDDED FINE SAND LIVERS, HISHLY PLASTIC, A-7-6	SUBANGULAR, SUBROUNDED, OR ROUNDED,		ROCK (WR)	NON-CUASTAL P	LAIN MATERIAL THAT WOULD YIELD SPT N VALUES > 100	ARTESIAN - GROUND WATER THAT IS UNDER SUFFICIENT PRESSURE TO RISE ABOVE THE LEVEL
SOIL LEGEND AND AASHTO CLASSIFICATION	MINERAL OGICAL COMPOSITIO		CRYSTALLINE ROCK (CR)		E GRAIN IGNEOUS AND METAMORPHIC ROCK THAT	AT WHICH IT IS ENCOUNTERED, BUT WHICH DOES NOT NECESSARILY RISE TO OR ABOVE THE GROUND SURFACE.
GENERAL GRANULAR MATERIALS SILT-CLAY MATERIALS ORGANIC MATERIALS (≤ 35% PASSING *200) (> 35% PASSING *200)	MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE U WHENEVER THEY ARE CONSIDERED OF SIGNIFICANCE.	ISED IN DESCRIPTIONS	ROCK (CR)	WOULD YIELD S GNEISS, GABBRO	PT REFUSAL IF TESTED. ROCK TYPE INCLUDES GRANITE, ,SCHIST, ETC.	CALCAREOUS (CALC.) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE.
GROUP A-1 A-3 A-2 A-4 A-5 A-6 A-7 A-1, A-2 A-4, A-5	COMPRESSIBILITY		NON-CRYSTALLINE	FINE TO COARSI	E GRAIN METAMORPHIC AND NON-COASTAL PLAIN	COLLUVIUM - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM
CLASS. A-1-6 A-1-6 A-2-4 A-2-5 A-2-6 A-2-7 A-7-6 A-3 A-6, A-7	SLIGHTLY COMPRESSIBLE LIQUID LIMIT	LESS THAN 31	ROCK (NCR)	INCLUDES PHYLI	OCK THAT WOULD YEILD SPT REFUSAL IF TESTED. ROCK TYPE LITE, SLATE, SANDSTONE, ETC.	OF SLOPE.
SYMBOL 000000000000000000000000000000000000		EQUAL TO 31-50 GREATER THAN 50	COASTAL PLAIN SEDIMENTARY ROCK	COASTAL PLAIN	SEDIMENTS CEMENTED INTO ROCK, BUT MAY NOT YIELD ROCK TYPE INCLUDES LIMESTONE, SANDSTONE, CEMENTED	CORE RECOVERY (REC.) - TOTAL LENGTH OF ALL MATERIAL RECOVERED IN THE CORE BARREL DIVIDED BY TOTAL
% PASSING	PERCENTAGE OF MATERIAL		(CP)	SHELL BEDS, ET	C	LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE.
■ 10 56 MX GRANULAR SILT- CLAY MUCK, CLAY PEAT	ORGANIC MATERIAL GRANULAR SILT - CLAY	OTHER MATERIAL		WE.	ATHERING	DIKE - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT ROCKS OR CUTS MASSIVE ROCK.
* 40 36 MX 50 MX 51 MN	TRACE OF ORGANIC MATTER 2 - 3% 3 - 5% TRA				DINTS MAY SHOW SLIGHT STAINING, ROCK RINGS UNDER	DIP - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE
LIQUID LIMIT 48 MX 43 MN 48 MX 43 MN 48 MX 41 MN 48 MX 41 MN SOTUS WITH	LITTLE ORGANIC MATTER 3 - 5% 5 - 12% LIT MODERATELY ORGANIC 5 - 10% 12 - 20% SOM	TLE 10 - 20%	1	IF CRYSTALLINE.	NED, SOME JOINTS MAY SHOW THIN CLAY COATINGS IF OPEN,	HORIZONTAL.
40 MX 41 MN 46 MX 41 MN 46 MX 41 MN 46 MX 41 MN 46 MX 41 MN 50 ILS WITH PLASTIC INDEX 6 MX NP 18 MX 18 MX 11 MN 18 MX 18 MX 11 MN 18 MX 10 MX 11 MN LITTLE OR HIGHLY	MODERATELY ORGANIC		(V SLI.) CRYSTAI	_S ON A BROKEN SPECIMEN FA	CE SHINE BRIGHTLY. ROCK RINGS UNDER HAMMER BLOWS IF	<u>DIP_DIRECTION_OIP_AZIMUTH) - THE_DIRECTION_OR_BEARING_OF_THE_HORIZONTAL_TRACE_OF</u> THE_LINE_OF_DIP_MEASURED_CLOCKWISE_FROM_NORTH.
GROUP INDEX 8 8 4 MX 8 MX 12 MX 16 MX NO MX MODERATE ORGANIC	GROUND WATER		į.	RYSTALLINE NATURE.	WED AND DIGON SPATION FUTTINGS THE BOOK OF TO	FAULT - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE
USUAL TYPES STONE FRAGS. FINE STITY OR CLAYEY STITY CLAYEY ORGANIC	WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER D	DRILLING			NED AND DISCOLDRATION EXTENDS INTO ROCK UP TO AY. IN GRANITOID ROCKS SOME OCCASIONAL FELDSPAR	SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE.
OF MAJOR GRAVEL, AND SAND GRAVEL AND SAND SOILS MATTER	STATIC WATER LEVEL AFTER 24 HOURS		CRYSTA	LS ARE DULL AND DISCOLORED	. CRYSTALLINE ROCKS RING UNDER HAMMER BLOWS.	FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES.
GEN. RATING	→ ✓PW PERCHED WATER, SATURATED ZONE, OR WATER BEARI	NO OTDATA			DISCOLORATION AND WEATHERING EFFECTS. IN RE DULL AND DISCOLORED, SOME SHOW CLAY, ROCK HAS	FLOAT - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLODGED FROM
AS A EXCELLENT TO GOOD FAIR TO POOR POOR UNSUITABLE	PERCHED WATER, SATURATED ZONE, OR WATER BEARIN	NG SIRAIA	DULL SI	DUND UNDER HAMMER BLOWS AT	ND SHOWS SIGNIFICANT LOSS OF STRENGTH AS COMPARED	PARENT MATERIAL.
PI OF A-7-5 SUBGROUP IS ≤ LL - 30 ; PI OF A-7-6 SUBGROUP IS > LL - 30	SPRING OR SEEP		1	RESH ROCK.	O OD OTATALED IN ODANITOID DOOMS AND EST DODADO DAN	FLOOD PLAIN (FP) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM.
CONSISTENCY OR DENSENESS	MISCELLANEOUS SYMBOLS				D OR STAINED. IN GRANITOID ROCKS, ALL FELDSPARS DULL DW KAOLINIZATION. ROCK SHOWS SEVERE LOSS OF STRENGTH	FORMATION (FM.) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN
PRIMARY SOIL TYPE COMPACTNESS OR RANGE OF STANDARD RANGE OF UNCONFINED PENETRATION RESISTENCE COMPRESSIVE STRENGTH	ROADWAY EMBANKMENT (RE) WITH SOIL DESCRIPTION SPT CPT DPT OHT TEST BORIN TEST BORIN	IC SAMPLE		N BE EXCAVATED WITH A GEOL ED, WOULD YIELD SPT REFUSAL	OGIST'S PICK. ROCK GIVES "CLUNK" SOUND WHEN STRUCK.	THE FIELD.
CONSISTENCY (N-VALUE) (TONS/FT ²)	WITH SOIL DESCRIPTION VST PMT 1251 BORDIN				: D or stained, rock fabric clear and evident but reduced	JOINT - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED.
GENERALLY VERY LOOSE 4	SOIL SYMBOL AUGER BORING	S - BULK SAMPLE	(SEV.) IN STRE	NGTH TO STRONG SOIL. IN GR	ANITOID ROCKS ALL FELDSPARS ARE KADLINIZED TO SOME	LEDGE - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO ITS LATERAL EXTENT.
GRANULAR LOOSE 4 TO 10 MATERIAL MEDIUM DENSE 10 TO 30 N/A	ARTIFICIAL FILL (AF) OTHER	SS - SPLIT SPDON SAMPLE		. SOME FRAGMENTS OF STRONG TED. YIELDS SPT N VALUES > 1		LENS - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS.
(NON-CDHESIVE) DENSE 30 TO 50	THAN ROADWAY EMBANKMENT - CORE BORING	ST - SHELBY TUBE	1		D OR STAINED, ROCK FABRIC ELEMENTS ARE DISCERNIBLE BUT	MOTTLED (MOT.) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS. MOTTLING IN
VED COTT	INFERRED SOIL BOUNDARY	SAMPLE	(V SEV.) THE MAS	SS IS EFFECTIVELY REDUCED T	TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK	SOILS USUALLY INDICATES POOR AFRATION AND LACK OF GOOD DRAINAGE.
GENERALLY SOFT 2 TO 4 0.25 TO 0.50	MONITORING WEL	LL RS - ROCK SAMPLE	VESTIGE	S OF THE ORIGINAL ROCK FAB	OF ROCK WEATHERED TO A DEGREE SUCH THAT ONLY MINOR RIC REMAIN. IF TESTED, YIELDS SPT N VALUES < 100 BPF	PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE OF AN INTERVENING IMPERVIOUS STRATUM.
SILT-CLAY MEDIUM STIFF 4 TO 8 0.5 TO 1.0	△ PIEZUMETER A TNICTOLLATION	RT - RECOMPACTED TRIAXIAL	1		NOT DISCERNIBLE, OR DISCERNIBLE ONLY IN SMALL AND	RESIDUAL (RES.) SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK.
(COHESIVE) VERY STIFF 15 TO 30 2 TO 4	ALLUVIAL SOIL BOUNDARY SLOPE INDICATO	SAMPLE		RED CONCENTRATIONS. QUARTZ	MAY BE PRESENT AS DIKES OR STRINGERS. SAPROLITE IS	ROCK QUALITY DESIGNATION (ROD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF
HARD >30 >4	25/025 DIP & DIP DIRECTION OF INSTALLATION	CBR - CALIFORNIA BEARING	HLSU HI		HARDNESS	ROCK SEGMENTS EQUAL TO DR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE.
TEXTURE OR GRAIN SIZE	ROCK STRUCTURES SPT N-VALUE	RATIO SAMPLE				SAPROLITE (SAP.) - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE
U.S. STD. SIEVE SIZE 4 10 40 60 200 270	SOUNDING ROD REF— SPT REFUSAL			AL HARD BLOWS OF THE GEOLD	SHARP PICK. BREAKING OF HAND SPECIMENS REQUIRES GIST'S PICK.	PARENT ROCK.
OPENING (MM) 4.76 2.00 0.42 0.25 0.075 0.053	ABBREVIATIONS				CK ONLY WITH DIFFICULTY. HARD HAMMER BLOWS REQUIRED	SILL - AN INTRUSIVE BODY OF IGNEOUS ROCK OF APPROXIMATELY UNIFORM THICKNESS AND RELATIVELY THIN COMPARED WITH ITS LATERAL EXTENT, THAT HAS BEEN EMPLACED PARALLEL
BOULDER COBBLE GRAVEL CDARSE FINE SILT CLAY	AR - AUGER REFUSAL HI HIGHLY	₩ - MOISTURE CONTENT	1	TACH HAND SPECIMEN.		TO THE BEDDING OR SCHISTOSITY OF THE INTRUDED ROCKS.
(BLDR.) (COB.) (GR.) (CSE, SD.) (F SD.) (SL.) (CL.)	BT - BORING TERMINATED MED MEDIUM	V - VERY			CK. GOUGES OR GRODVES TO 0.25 INCHES DEEP CAN BE DLOGIST'S PICK. HAND SPECIMENS CAN BE DETACHED	SLICKENSIDE - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT OR
GRAIN MM 305 75 2,0 0.25 0.05 0.005	CL CLAY MICA MICACEOUS CPT - CONE PENETRATION TEST MOD MODERATELY	VST - VANE SHEAR TEST WEA WEATHERED	BY MOI	DERATE BLOWS.		SLIP PLANE. STANDARD PENETRATION TEST (PENETRATION RESISTANCE) (SPT) - NUMBER OF BLOWS (N OR BPF) OF
	CSE COARSE NP - NON PLASTIC DMT - DILATOMETER TEST ORG ORGANIC	7 - UNIT WEIGHT			ICHES DEEP BY FIRM PRESSURE OF KNIFE OR PICK POINT. TO PEICES 1 INCH MAXIMUM SIZE BY HARD BLOWS OF THE	A 140 LB. HAMMER FALLING 30 INCHES REQUIRED TO PRODUCE A PENETRATION OF 1 FOOT INTO SOIL WITH
SOIL MOISTURE - CORRELATION OF TERMS SOIL MOISTURE SCALE FIELD MOISTURE CHARLES FOR FIELD MOISTURE	DPT - DYNAMIC PENETRATION TEST PMT - PRESSUREMETER TEST	$\gamma_{ m d}$ - DRY UNIT WEIGHT		OF A GEOLOGIST'S PICK.	13 - E10E0 1 MINISTER STATE OF FINITE DECMO OF THE	A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER, SPT REFUSAL IS PENETRATION EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS.
(ATTERBERG LIMITS) DESCRIPTION GUIDE FOR FIELD MOISTURE DESCRIPTION	• - VOID RATIO SAP SAPROLITIC F - FINE SD SAND, SANDY				BY KNIFE OR PICK, CAN BE EXCAVATED IN FRAGMENTS	STRATA CORE RECOVERY (SREC.) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH
- SATURATED - USUALLY LIQUID: VERY WET, USUALLY	FOSS FOSSILIFEROUS SL SILT, SILTY			CAN BE BROKEN BY FINGER I	SIZE BY MODERATE BLOWS OF A PICK POINT. SMALL, THIN PRESSURE.	OF STRATUM AND EXPRESSED AS A PERCENTAGE.
(SAT.) FROM BELOW THE GROUND WATER TABLE	FRAC FRACTURED, FRACTURES SLI SLIGHTLY FRAGS FRAGMENTS TCR - TRICONE REFUSAL				EXCAVATED READILY WITH POINT OF PICK, PIECES 1 INCH	STRATA ROCK QUALITY DESIGNATION (SROD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE
PLASTIC PLASTIC PROVIDE PROVIDE TO	THROSE - PRIORERTS TON - TRACONE REPOSHE		SOFT OR MOR		KEN BY FINGER PRESSURE. CAN BE SCRATCHED READILY BY	TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE.
RANGE - WET - (W) SEMISULIU; REGUIRES DRYING TO	EQUIPMENT USED ON SUBJECT P	ROJECT		RE SPACING	BEDDING	<u>TOPSOIL (TS.)</u> - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.
(PI) PL PLASTIC LIMIT	DRILL UNITS: ADVANCING TOOLS:	HAMMER TYPE:	TERM	SPACING	TERM THICKNESS	BENCH MARK: NCGS MONUMENT "PRINCE" AT -BL- STA. 12+01.55
OM OPTIMUM MOISTURE - MOIST - (M) SOLID; AT OR NEAR OPTIMUM MOISTURE		AUTOMATIC MANUAL	VERY WIDE	MORE THAN 10 FEET	VERY THICKLY BEDDED > 4 FEET THICKLY BEDDED 1.5 - 4 FEET	DETOT TRIBIT
SL SHRINKAGE LIMIT	MOBILE B CLAY BITS		WIDE MODERATELY CLOS	3 TO 10 FEET E 1 TO 3 FEET	THINLY BEDDED 0.16 - 1.5 FEET	ELEVATION: 47.64 FT.
- DRY - (D) REQUIRES ADDITIONAL WATER TO	6 CONTINUOUS FLIGHT AUGER	CORE SIZE:	CLOSE	0.16 TO 1 FEET	VERY THINLY BEDDED 0.03 - 0.16 FEET THICKLY LAMINATED 0.008 - 0.03 FEET	NOTES:
- DRY - (D) ATTAIN OPTIMUM MOISTURE	B* HOLLOW AUGERS	B	VERY CLOSE	LESS THAN 0.16 FEET	THINLY LAMINATED < 0.008 FEET	_
PLASTICITY	CME-45C HARD FACED FINGER BITS				DURATION	
PLASTICITY INDEX (PI) DRY STRENGTH	TUNG-CARRIDE INSERTS		FOR SEDIMENTARY ROC	•	NING OF THE MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC.	
NDNPLASTIC	CME-550 X CASING W/ ADVANCER		FRIABLE		WITH FINGER FREES NUMEROUS GRAINS; BLOW BY HAMMER DISINTEGRATES SAMPLE.	
MED. PLASTICITY 16-25 MEDIUM	PORTABLE HOIST X TRICONE 215/6 STEEL TEETH	HAND TOOLS: POST HOLE DIGGER	MODERATE		CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE;	
	TRICONETUNGCARB.	HAND AUGER	MUDERATELY		EASILY WHEN HIT WITH HAMMER.	
COLOR	7 (=) =	SOUNDING ROD	INDURATED		ARE DIFFICULT TO SEPARATE WITH STEEL PROBE;	
DESCRIPTIONS MAY INCLUDE COLOR OR COLOR COMBINATIONS (TAN, RED, YELLOW-BROWN, BLUE-GRAY).	CORE BIT	VANE SHEAR TEST			ILT TO BREAK WITH HAMMER.	
MODIFIERS SUCH AS LIGHT, DARK, STREAKED, ETC. ARE USED TO DESCRIBE APPEARANCE.			EXTREMELY		HAMMER BLOWS REQUIRED TO BREAK SAMPLE; BREAKS ACROSS GRAINS.	

REVISED 02/23/06

PROJECT REFERENCE NO. 32782.I.I (B-2965)

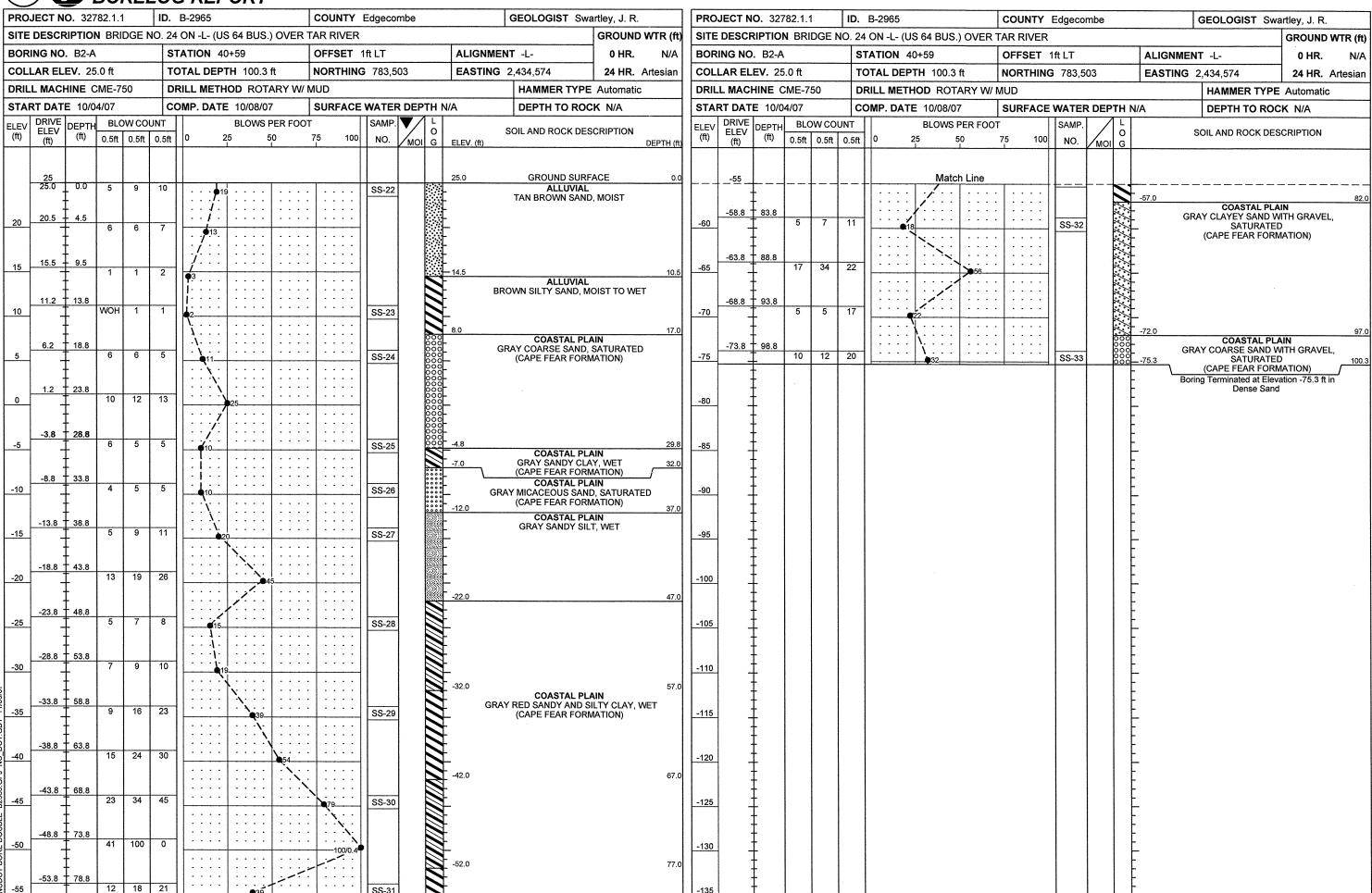
SHEET NO.





PROJE	ECT NO) . 327	'82.1.	<u> </u>	ID.	B-2965	COUNTY	Edgeco	mbe			GEOLOGIST Sv	vartley, J. R.
SITE D	ESCR	IPTIO	N BRI	DGE N	10. 24	1 ON -L- (US 64 BUS.) OVER	TAR RIVER						GROUND WTR (1
BORIN	IG NO.	EB1-	Α		S	TATION 37+09	OFFSET 3	Sft LT			ALIGNMEN	T -L-	0 HR. N/A
COLLA	AR ELE	EV . 36	.7 ft		TO	OTAL DEPTH 60.6 ft	NORTHING	783,1	91		EASTING	2,434,732	24 HR. 7.0
DRILL	MACH	INE C	ME-7	50	D	RILL METHOD ROTARY W/	MUD					HAMMER TYP	E Automatic
START	T DATE	10/0	2/07		C	OMP. DATE 10/02/07	SURFACE	WATER	R DEP	TH N	I/A	DEPTH TO RO	CK N/A
LLLV	DRIVE ELEV	DEPTH	BLC	ow col	JNT	BLOWS PER FOO	Γ	SAMP.	$\mathbf{V}/$	L		SOIL AND ROCK DE	SCRIPTION
(ft)	(ft)	(ft)	0.5ft	0.5ft	0.5ft	0 25 50	75 100	NO.	MOI		ELEV. (ft)		DEPTH (
35	40	. 0.0	5	6	5	1	1	SS-1			36.7	GROUND SUR ALLUVIAL	•
33	1	•									. 33.7	BROWN SANDY SI	3
-	32.2	4.5	27	23	25			SS-2			•	ALLUVIAL TAN FINE SAND	
30	#	-				48		33-2	V		_29.7		7
	27.2	9.5									TAN (ALLUVIAL DRANGE CLAYEY S	
25	1		3	3	5	. • · · · · · · · · · · · · · · · · · ·		SS-3			•		
25	‡	-									-		
F	22.6	. 14.1	2	1	3	4		-			•		
20	#	-									19.7		17
	17.6	· 19.1								000	. T/	ALLUVIAL AN COARSE SAND,	
15	1		6	10	15	25		SS-4		000	•		•
15	+	<u>.</u>				/	1				14.7	COASTAL PL	
-	12.6	24.1	1	6	40	/		SS-5	25%		. (RAY SANDY SILTY CAPE FEAR FOR	CLAY, WET
10	#	-				1						•	,
	7.6	29.1									•		
5	‡		5	7	10	17		SS-6			•		
	1	•								****	_4.7	COASTAL PI	
F	2.6	34.1	18	22	20	42		SS-7		0000	GRA	Y MICACEOUS SAN CAPE FEAR FOR	ND, SATURATED RMATION)
0	#	• •									-	· ·	
	-2.4	· 39.1				: : : : /: : : : : :				0000	•		
-5	‡		10	13	10	23				0000			
-5	+	- ·								0000	- ·		
-	-7.4 	<u>. 44.1</u>	8	5	6	· · / · · · · · · · ·		SS-8		0000	•		
-10	#	-								0000	10.3		47
	-12.4	49.1									· GR/	COASTAL PL AY MICACEOUS SA	NDY SILT, WET
-15	‡	•	3	6	7	13		SS-9	1		•	(CAPE FEAR FOR	RMATION)
	47.7					,					- ·		
F	-17.4 -	<u> 54.1</u>	7	7	18	25		l			•		
-20	‡	-									-		
L	-22.4	59.1									• -		
25	‡		6	10	14	24		ļ			-23.9	a Taminated at Fla	60
-25	†	-									– Rou	ng Terminated at Elev Very Stiff S	vauon -23.9 π IN Silt
	‡												
-30		-											
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-35	+	-								1	<u>.</u> ,		
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	D. B-2965	COUNTY Edgecombe	GEOLOGIST Sv		l	DJECT NO. 32782.1				<u> </u>	Edgecombe)	GEOLOGIST Sw	
TE DESCRIPTION BRIDGE NO			1	GROUND WTR (ft)	l		RIDGE		ON -L- (US 64 BUS.) OVER				Г	GROUND WTR
ORING NO. B1-A	STATION 38+63	OFFSET 2ft LT	ALIGNMENT -L-	0 HR. N/A	l	RING NO. B1-A			TATION 38+63	OFFSET			ALIGNMENT -L-	0 HR. N
OLLAR ELEV. 12.6 ft	TOTAL DEPTH 93.1 ft	NORTHING 783,328	EASTING 2,434,663	24 HR. Artesian	l	LAR ELEV. 12.6 ft				1	G 783,328		EASTING 2,434,663	24 HR. Artesi
RILL MACHINE CME-750	DRILL METHOD ROTARY W		HAMMER TYP		l	LL MACHINE CME-			RILL METHOD ROTARY W/I		****		HAMMER TYP	
TART DATE 10/02/07	COMP. DATE 10/02/07	SURFACE WATER DEPTH	N/A DEPTH TO RO	CK N/A	l	RT DATE 10/02/07				<u> </u>	E WATER DE	PTH N/	A DEPTH TO RO	CK N/A
DRIVE DEPTH BLOW COUNTY (ft) 0.5ft 0.5ft 0		OT SAMP. CONTROL CON	SOIL AND ROCK DE	SCRIPTION DEPTH (ft)	ELEV (ft)] F F(/	LOW CO		BLOWS PER FOOT 0 25 50	1 75 100	SAMP.	OI G	SOIL AND ROCK DE	SCRIPTION
15			_			-65			Match Line					
12.6 - 0.0			- - 12.6 GROUND SUR			-66.0 78.6 6	16	20	36		SS-20	0000	GRAY COARSE SAND	WITH GRAVEL,
0 WOH 1	1 2	SS-10 0000	- ALLUVIAI - TAN COARSE SAND), MOIST TO	-70				:::: ,2'::: ::::			0000	SATURATE (CAPE FEAR FORMATION)	
† † 	1	SS-10 000 000 000 000 000 000	- SATURATE -	ED	'	-71.0 83.6	5	12			1	000		
7.1	7 10 10 10 10 10 10 10 1			5.5 -AIN 7.0				'-	17			00000		
3.8 1 8.8	10.	SS-11 SS-12	GRAY SANDY SILTY	CLAY, WET	-75	-76.0 + 88.6					41 1	000		
	18	SS-12	COASTAL PI	_AIN		7	8	14	22			0000		
			- 0.6 (CAPE FEAR FOR	MATION) 12.0	-80	-79.0 T 91.6	10	10				0000	00.5	
-1.0 13.6 6 6	8	SS-13	COASTAL PI GRAY SANDY CL	AY, WET					J 20		1	F	Boring Terminated at Ele	
			CAPE FEAR FOR 4.4	(MATION)		1 1						1 E	Medium Dense	Gravei
-6.0 18.6		SS-14	- COASTAL PI - GRAY FINE SAND, S	_AIN	-85	1 1						1 -		
4 6	6 . •12	SS-14	- (CAPE FEAR FOR				l					<u> </u>		
1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2			- -		-90	<u> </u>						1 E		
-11.0 7 23.6 5 7	8		- -			1 1						E		
			- 14.4	27.0	l	1 1						1 E		
-16.0 28.6			- COASTAL PL - GRAY SANDY SILTY	AIN	-95	1 1						1 -		
8 13 3	21 34	SS-15 20%	- (CAPE FEAR FOR			1 1						1 -		
‡			<u>.</u>		-100	<u> </u>						1 E		
-21.0 33.6 6 11	16		-				l							
			- 24.4	37.0										
-26.0 38.6	_ /		COASTAL PI - GRAY SAND, SAT		-105	1 1						1		
	14	SS-16	(CAPE FEAR FOR											
-31.0 + 43.6			29.4 COASTAL PI	42.0 LAIN	-110	1 1						1 =		
	22	SS-17	- GRAY RED SILTY (- (CAPE FEAR FOR											
			<u>-</u>	,	-115									
-36.0 48.6 10 17	26		<u></u> -		-113	1 ‡						1		
			- -									.		
-41.0 + 53.6			- -		-120								•	
		66 SS-18	-											
			. -		-125									
-46.0 58.6 21 32 C	50		- -		-123	† †						1		
		92	- -											
-51.0 + 63.6			- 		-130	‡								
	36	67	- -	,								 		
‡			- 54.4	67.0	-135									
-56.0 68.6 5 6	9	SS-19	- COASTAL PI - GRAY CLAYEY SANI	DY SILT, WET	"	1						-		
	15		- (CAPE FEAR FOF	RMATION)		‡								
-61.0 + 73.6			-		-140	4 ‡								
	15 26		- -											
			- 64 4	77.0			1					1		



PRO.	JECT N	O. 327	782.1.	1	ID.	B-2965	***************************************		COUNTY	Edgeco	mbe			GEOLOGIST Swartley, J. R.			
SITE	DESCF	RIPTIO	N BR	DGE N	10. 24	4 ON -L- (US	64 BUS.) OVER T	AR RIVER						GROUND V	VTR (f	
BOR	NG NO	. EB2-	-A		S	TATION 42	2+17		OFFSET	3ft LT			ALIGNMEN	IT -L-	0 HR.	N/A	
COLI	AR EL	EV. 48	3.8 ft		T	OTAL DEP	TH 60.7 ft		NORTHING	3 783,6	42		EASTING	2,434,499	24 HR.	19.0	
DRIL	L MACI	HINE (CME-7	'50	D	RILL METH	OD ROT	ARY W/ N	1UD					HAMMER TYPI	E Automatic		
STAF	RT DAT	E 10/0	8/07		С	OMP. DATE	10/08/0	7	SURFACE	WATER	R DEP	TH N	I/A	DEPTH TO RO	CK N/A		
LEV	DRIVE ELEV	DEPTH		ow col				PER FOOT	I	SAMP.	V /	L	1	SOIL AND ROCK DE	SCRIPTION		
(ft)	(ft)	(ft)	0.5ft	0.5ft	0.5ft	0 2	5 5	50	75 100	NO.	MOI	G	ELEV. (ft)			DEPTH (
	50 _	ļ												CDOUND CUD	EACE	,	
	48.8	0.0	5	14	8		22 · · · ·	T		+			48.8	GROUND SUR ARTIFICIAL F	ILL		
	-	‡												TAN SAND WITH C FRAGMENTS, N			
45	44.8 _	4.0	5	7	93	<u> </u>		<u> </u>		SS-34	ł	Ø:t	-	·			
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	38.3	10.5				-						Ø.F	-				
	-	Ŧ	6	5	4	9							36.8	TAN COADOE CAN	2 110107	12	
35	34.8	14.0				<u> </u>	• • • •					0000	-	TAN COARSE SANI (UNDIVIDED COAS			
	-	‡	3	5	4					SS-35		0000	•				
		‡				::'x':			: : : :		_		31.8	COASTAL PL	.AIN	17	
30	29.6 -	19.2	3	9	12	1 7		 					- GR	AY SILTY SANDY CL WET	AY, MOIST TO		
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	24.6 -	- 24.2	7	12	14		26			SS-36			-				
		‡				::::	N. II				1		21.8			2	
20	19.6 –	29.2]	. ,/					0000	- GRA	COASTAL PL Y MICACEOUS SAN	ID, SATURATED)	
		ţ	12	13	34] ::::	:::)	47		SS-37		0000		(CAPE FEAR FOR	MATION)		
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		ţ							: 100			0000	. 6.8			4:	
5	4.6 -	44.2							[· · · ·]				- Gi	COASTAL PL RAY CLAYEY SAND			
		İ	21	21	18	11 : : : :	39	1::::	: : : :	SS-38				(CAPE FEAR FOR			
		+				• • • •							1.8	COASTAL PL	ΔIN	47	
0	-0.4 -	49.2	1	- 00	24	1						F	- GRA	Y MICACEOUS SAN	ID, SATURATED)	
	-	Ŧ	13	22	34			56		SS-39				(CAPE FEAR FOR	INIATION)	-	
-5		‡											3.2			5	
-5	-5.4 <i></i>	54.2	7	10	14	1	64						-				
		t				7		: : : :				0000	•				
-10	-10.4 –	59.2				;						0000	•				
	10.4	- 00.2	9	9	12		1			SS-40			- ` -11.9			60	
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32782.1.1 B-2965 Bridge No. 24 on US 264 Bus. over Tar River

HOLE #	SAMPLE#	RET 4	PASS 10	PASS 40	PASS 200	CSESAND	FINESAND	SI	CL	LL	PI	CLASS	DEPTH	MOIST.	ORG.
EB1-A	SS-1	-	95	68	36	40.7	25.4	15.7	18.3	25	9	A-4(0)	1.0-1.5		
	SS-2	-	100	100	15	10.9	77.5	5.5	6.1	15	NP	A-2-4(0)	4.5-6.0		
	SS-3	-	100	100	41	6.7	59.1	11.8	22.4	22	6	A-4(0)	9.5-11.0		
	SS-4	-	99	31	6	81.5	13.8	2.6	2.0	19	NP	A-1-b(0)	19.1-20.6		
	SS-5	-	92	89	76	4.1	22.8	44.7	28.5	41	16	A-7-6(12)	24.1-25.6	24.8%	
	SS-6	-	95	92	62	8.9	36.6	30.1	24.4	43	22	A-7-6(11)	29.1-30.6		
	SS-7	-	100	62	10	62.0	29.4	3.6	5.1	23	NP	A-3(0)	34.1-35.6		
	SS-8	-	100	65	5	85.6	10.3	3.2	1.0	23	NP	A-3(0)	44.1-45.6		
	SS-9	-	100	97	76	4.1	33.5	48.2	14.2	36	8	A-4(6)	49.1-50.6		
B1-A	SS-10	-	83	19	2	89.6	9.0	0.3	1.0	25	NP	A-1-b(0)	1.0-1.5		
	SS-11	-	100	94	77	13.2	13.8	26.2	46.7	42	27	A-7-6(19)	5.5-6.0		
	SS-12	-	99	67	8	71.1	22.9	1.9	4.1	15	NP	A-3(0)	8.8-10.3		
	SS-13	-	95	89	48	13.0	44.5	18.1	24.4	26	12	A-6(2)	13.6-15.1		
	SS-14	-	100	59	8	84.9	8.5	1.5	5.1	23	NP	A-3(0)	18.6-20.1		
	SS-15	-	100	99	83	2.2	22.8	46.5	28.5	39	23	A-6(18)	28.6-30.1	20.0%	
	SS-16	-	100	79	19	58.4	24.2	6.2	11.2	21	NP	A-2-4(0)	38.6-40.1		
	SS-17	-	100	98	87	4.7	11.6	47.2	36.6	53	23	A-7-5(23)	43.6-45.1		
	SS-18	-	100	93	84	10.0	8.3	16.7	65.0	54	31	A-7-6(28)	53.6-55.1		
	SS-19	-	100	90	37	42.1	22.2	7.3	28.5	24	10	A-4(0)	68.6-70.1		
	SS-20	-	96	46	20	73.4	6.6	3.8	16.3	19	6	A-1-b(0)	78.6-80.1		
B2-A	SS-22	-	93	64	20	49.3	32.5	10.1	8.1	16	NP	A-2-4(0)	1.0-1.5		
	SS-23	-	100	100	92	0.6	12.6	46.2	40.6	49	18	A-7-5(20)	13.8-15.3		
	SS-24	-	93	36	3	85.2	12.7	1.1	1.0	14	NP	A-1-b(0)	18.8-20.3		
	SS-25	-	100	91	54	13.8	42.2	25.7	18.3	37	15	A-6(5)	28.8-30.3		
	SS-26	-	100	78	10	64.0	27.0	1.9	7.1	18	NP	A-3(0)	33.8-35.3		
	SS-27	-	100	99	67	2.2	42.6	38.9	16.2	28	9	A-4(4)	38.8-40.3		
	SS-28	-	100	97	57	14.2	37.0	28.5	20.3	33	17	A-6(7)	48.8-50.3		
	SS-29	-	100	99	94	2.4	4.9	23.7	69.0	65	41	A-7-6(44)	58.8-60.3		
	SS-30	-	100	95	73	11.4	18.9	12.8	56.9	40	17	A-6(12)	68.8-70.3		
	SS-31	-	100	97	87	6.1	10.8	32.3	50.8	50	24	A-7-6(23)	78.8-80.3	25.6%	
	SS-32	-	98	67	30	57.4	12.5	4.7	25.4	29	16	A-2-6(1)	83.8-85.3		
	SS-33	-	75	21	7	82.9	8.9	2.0	6.1	18	4	A-1-b(0)	98.8-100.3		
EB2-A	SS-34	-	95	72	29	38.3	37.0	13.5	11.2	18	3	A-2-4(0)	4.0-5.2		
	SS-35	-	96	25	4	89.6	7.4	0.9	2.0	14	NP	A-1-b(0)	14.0-15.5		
	SS-36	-	100	91	52	24.8	30.5	26.5	18.2	30	17	A-6(5)	24.2-25.7	22.6%	
	SS-37	-	100	75	7	66.5	28.0	3.5	2.0	20	NP	A-3(0)	29.2-30.7		
	SS-38	-	99	45	19	68.2	13.5	4.1	14.1	30	17	A-2-6(0)	44.2-45.7		
	SS-39	-	100	99	16	29.1	57.7	5.1	8.1	21	NP	A-2-4(0)	49.2-50.7		
	SS-40	-	100	62	6.	73.4	21.1	3.5	2.0	19	NP	A-3(0)	59.2-60.7		



FIELD SCOUR REPORT

WBS:	32782.1.1	TIP:	B-2965	COUNTY: Edgecombe
DESCRIPTION(1):	Bridge No. 24 or	n US 64 Bเ	usiness over th	ne Tar River
			EXISTING	BRIDGE
Information from:			X Mi Bridge Docume	crofilm (reel pos:) ent Management System
Bridge No.: Foundation Type:			Total Bents: _	11 Bents in Channel: 4 Bents in Floodplain: 6
EVIDENCE OF Abutments or I	SCOUR(2) End Bent Slopes:	None		
Interior Bents:	Scour pockets 2 downstream sid			ent 3, 4, 5, 6 and extending 25 feet on the
Channel Bed:	None			
Channel Bank:	Erosion due to s			lar to river for approximately 25 feet up the bank just
EXISTING SCO	UR PROTECTIO	N		
Type(3):	Concrete abutm	ent and wi	ng walls	
Extent(4):	20 feet outside e	edge of bri	dge	
Effectiveness(5):	Appears satisfac	ctory		
Obstructions(6):	None			

INSTRUCTIONS

- 1 Describe the specific site's location, including route number and body of water crossed.
- 2 Note scour evidence at existing end bents or abutments (e.g. undermining, sloughing, degradations).
- 3 Note existing scour protection (e.g. rip rap).
- 4 Describe extent of existing scour protection.
- 5 Describe whether or not the scour protection appears to be working.
- 6 Note obstructions such as dams, fallen trees, debris at bents, etc.
- 7 Describe the channel bed material based on observation and/or samples. Include any lab results with report.
- 8 Describe the channel bank material based on observation and/or samples. Include any lab results with report.
- 9 Describe the material covering the banks (e.g. grass, trees, rip rap, none).
- 10 Determine the approximate floodplain width from field observation or a topographic map.
- 11 Describe the material covering the floodplain (e.g. grass, trees, crops).
- 12 Use professional judgement to specify if the stream is degrading, aggrading, or static.
- 13 Describe potential and direction of the stream to migrate laterally during the bridge's life (approx. 100 years).
- Give the design scour elevation (DSE) expected over the life of the bridge (approx. 100 years). This elevation can be given as a range across the site, or for each bent. Discuss the relationship between the Hydraulics Unit theoritical scour and the DSE. If the DSE is dependent on scour counter measures, explain (e.g. rip rap armoring on slopes). The DSE is based on the erodability of materials, giving consideration to the influence of joints, foliation, bedding characteristics, % core recovery, % RQD, differential weathering, shear strength, observations at existing structures, other tests deemed appropriate, and overall geologic conditions at the site.

Channel Bank Material(R): Sand, silt and clay Channel Bank Cover(9): Trees and shrubs Floodplain Width(10): 250 feet if the flood control dike is not breached Floodplain Cover(11): Trees and shrubs Stream is(12): Aggrading Degrading X Static Channel Migration Tendency(13): Very slight chance of migration toward End Bent 2 Observations and Other Comments: River is entrenched DESIGN SCOUR ELEVATIONS(14) Feet X Meters BENTS B1 B2 0.3 19 Comparison of DSE to Hydraulics Unit theoretical scour: Design Scour Elevation agrees with the Hydraulic Unit's 100year scour elevation at Bent 1 and Bent 2. SOIL ANALYSIS RESULTS FROM CHANNEL BED AND BANK MATERIAL Sample No. Retained #4 Passed #10 Passed #10 Passed #20 Coarse Sand Fine Sand Fine Sand Fine Sand Fine Sand Fine Sand Channel Bank: SS-1,2,3,2,2,3 Channel Bed: SS-10 Ph ASHTO Station Offset Depth				DESIG	N IN	FORM/	ATION					
Channel Bank Material(8): Sand, silt and clay Channel Bank Cover(9): Trees and shrubs Floodplain Width(10): 250 feet if the flood control dike is not breached Floodplain Cover(11): Trees and shrubs Stream is(12): Aggrading DegradingX Static Channel Migration Tendency(13): Very slight chance of migration toward End Bent 2 Observations and Other Comments: River is entrenched DESIGN SCOUR ELEVATIONS(14) Feet _X Meters BENTS B1 B2 0.3 19	Channel Bed M	/laterial(7): (Coarse sa	and							•	
Channel Bank Cover(9): Trees and shrubs Floodplain Width(10): 250 feet if the flood control dike is not breached Floodplain Cover(11): Trees and shrubs Stream is(12): Aggrading Degrading Static Channel Migration Tendency(13): Very slight chance of migration toward End Bent 2 Observations and Other Comments: River is entrenched DESIGN SCOUR ELEVATIONS(14) Feet _X Meters BENTS B1 B2												
Channel Bank Cover(9): Trees and shrubs Floodplain Width(10): 250 feet if the flood control dike is not breached Floodplain Cover(11): Trees and shrubs Stream is(12): Aggrading Degrading Static Channel Migration Tendency(13): Very slight chance of migration toward End Bent 2 Observations and Other Comments: River is entrenched DESIGN SCOUR ELEVATIONS(14) Feet _X Meters BENTS B1 B2	Channel Bank N	/laterial(8): 9	Sand, silt	and clav								
Floodplain Width(10): 250 feet if the flood control dike is not breached Floodplain Cover(11): Trees and shrubs Stream is(12): Aggrading DegradingX Static				urra olay								
Floodplain Width(10): 250 feet if the flood control dike is not breached Floodplain Cover(11): Trees and shrubs Stream is(12): Aggrading DegradingX Static	Channel Bank	Cover(0): 7	F									
Stream is(12): Aggrading Degrading _X Static Channel Migration Tendency(13): Very slight chance of migration toward End Bent 2 Observations and Other Comments: River is entrenched DESIGN SCOUR ELEVATIONS(14) Feet _X Meters BENTS	Channel Bank	Cover(9).	rees and	snrubs								
Stream is(12): Aggrading DegradingX Static Channel Migration Tendency(13): Very slight chance of migration toward End Bent 2 Observations and Other Comments: River is entrenched DESIGN SCOUR ELEVATIONS(14) Feet _X Meters BENTS	Floodplain '	Width(10): <u>2</u>	250 feet if	the flood	contro	ol dike is	not brea	ached				
Channel Migration Tendency(13): Very slight chance of migration toward End Bent 2 Observations and Other Comments: River is entrenched DESIGN SCOUR ELEVATIONS(14) Feet X Meters	Floodplain (Cover(11): _	Frees and	shrubs								
DESIGN SCOUR ELEVATIONS(14) BENTS B1 B2 0.3 19 Comparison of DSE to Hydraulics Unit theoretical scour: Design Scour Elevation agrees with the Hydraulic Unit's 100year scour elevation at Bent 1 and Bent 2. SOIL ANALYSIS RESULTS FROM CHANNEL BED AND BANK MATERIAL Sample No. Retained #4 Passed #10 Passed #40 Passed #20 Coarse Sand Fine Sand Fine Sand Fine Sand Sitt Clay Channel Bank: SS-1,2,3,22,23 Channel Bed: SS-10 AASHTO Station Offset	Stre	am is(12):	Agg	rading		Degra	iding	X_	Sta	atic	-	
DESIGN SCOUR ELEVATIONS(14) BENTS B1 B2 0.3 19 0.3 19 Comparison of DSE to Hydraulics Unit theoretical scour: Design Scour Elevation agrees with the Hydraulic Unit's 100year scour elevation at Bent 1 and Bent 2. SOIL ANALYSIS RESULTS FROM CHANNEL BED AND BANK MATERIAL Sample No. Retained #4 Passed #10 Passed #20 Coarse Sand Fine Sand Fine Sand Fine Sand Sitt Clay Channel Bank: SS-1,2,3,22,23 Channel Bed: SS-10 HASHTO Station Offset	Channel Migration Tend	dency(13): \	/ery sligh	t chance c	of migr	ation tow	vard En	d Bent 2				
DESIGN SCOUR ELEVATIONS(14) BENTS B1 B2 0.3 19 0.3 19 Comparison of DSE to Hydraulics Unit theoretical scour: Design Scour Elevation agrees with the Hydraulic Unit's 100year scour elevation at Bent 1 and Bent 2. SOIL ANALYSIS RESULTS FROM CHANNEL BED AND BANK MATERIAL Sample No. Retained #4 Passed #10 Passed #20 Coarse Sand Fine Sand Fine Sand Fine Sand Sitt Clay Channel Bank: SS-1,2,3,22,23 Channel Bed: SS-10 HASHTO Station Offset	05											
BENTS B1 B2 0.3 19 0.3 19 Comparison of DSE to Hydraulics Unit theoretical scour: Design Scour Elevation agrees with the Hydraulic Unit's 100year scour elevation at Bent 1 and Bent 2. SOIL ANALYSIS RESULTS FROM CHANNEL BED AND BANK MATERIAL Sample No. Retained #4 Passed #10 Passed #40 Passed #40 Passed #200 Coarse Sand Fine Sand Sitt for samples: Channel Bank: SS-1,2,3,22,23 Channel Bed: SS-10 AASHTO Station Offset	Observations and O	ther Comme	ents: Rive	er is entren	nched							
BENTS B1 B2 0.3 19 0.3 19 Comparison of DSE to Hydraulics Unit theoretical scour: Design Scour Elevation agrees with the Hydraulic Unit's 100year scour elevation at Bent 1 and Bent 2. SOIL ANALYSIS RESULTS FROM CHANNEL BED AND BANK MATERIAL Sample No. Retained #4 Passed #10 Passed #40 Passed #40 Passed #200 Coarse Sand Fine Sand Sitt for samples: Channel Bank: SS-1,2,3,22,23 Channel Bed: SS-10 AASHTO Station Offset												
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SOIL ANALYSIS RESULTS FROM CHANNEL BED AND BANK MATERIAL Sample No. Retained #4 Passed #10 Passed #200 Coarse Sand Fine Sand Silt Clay LL PI AASHTO Station Offset		L			L			<u> </u>	1	1	I	
SOIL ANALYSIS RESULTS FROM CHANNEL BED AND BANK MATERIAL Sample No. Retained #4 Passed #10 Passed #40 See Sheet 9, "Soil Test Results", for samples: Channel Bank: SS-1,2,3,22,23 Channel Bed: SS-10 AASHTO Station Offset	-	•										
Sample No. Retained #4 Passed #10 Passed #200 Coarse Sand Fine Sand Silt Clay LL PI AASHTO Station Offset	Design Scour Eleva	tion agrees	with the F	łydraulic U	Jnit's 1	100year s	scour e	evation a	at Bent 1	and Ben	nt 2.	
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Silt Clay LL Pl AASHTO Station Offset					sults"							
Clay LL PI AASHTO Station Offset					,						 	
Channel Bed: SS-10 PI AASHTO Station Offset					k: SS-	1.2.3.22	23					
AASHTO Station Offset	*											
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Station Offset											-	
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Form GEU-017e Revised 7/26/2007

eported by: Network Nagarbright

Date: 11/6/2007

CONTENTS

SHEET

I TITLE SHEET

2

DESCRIPTION

LEGEND SITE PLAN

PROFILE
SOIL TEST RESULTS

STATE OF NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

STRUCTURE SUBSURFACE INVESTIGATION

PROJ. REFERENCE NO. 32782.1.1 (B-2965)

COUNTY EDGECOMBE

PROJECT DESCRIPTION BRIDGE NO. 24 OVER THE TAR RIVER

ON US 64 BUSINESS /NC 33 (MAIN ST.) FROM US 258 /

NC 111-122 (MUTUAL BLVD) TO SR 1308 (ALBEMARLE AVE)

SITE DESCRIPTION RETAINING WALL LOCATED 33.8 TO 44.71 FEET

LEFT OF -L- STA. 28+00

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 BORNING 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 FELD BORNING 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 IN WITHIN THE BORFHOLE, THE LABORATIONY SAMPLE DATA AND THE IN STILL WIN-PLACED TEST DATA CAN BE RELIED ON ONLY TO THE DEGREE OF RELIABILITY INHERENT IN THE STANDARD TEST METHOD. THE OSSERVED WATER LEVELS OR SOIL MOSITURE CONDITIONS NOTICATED 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 CLAMBTIC CONDITIONS INCLUDING TEMPERATURES, PRECIPITATION, AND WIND, AS WELL AS OTHER NON-CLIMATIC FACTORS.

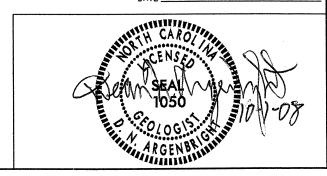
THE BIDDER OR CONTRACTOR IS CAUTIONED THAT DETAILS SHOWN ON THE SUBSURFACE PLANS ARE PRELIMINARY ONLY AND IN MANY CASES THE FINAL DESIGN DETAILS ARE DIFFERENT. FOR BIDDING AND CONSTRUCTION PURPOSES, REFER TO THE CONSTRUCTION PLANS AND DOCUMENTS FOR FINAL DESIGN INFORMATION ON THIS PROJECT, THE DEPARTMENT DOES NOT WARRANT OR GUARANTEE THE SUFFICIENCY OR ACCURACY OF THE INVESTIGATION MADE, NOR THE INTERPRETATIONS MADE, OR PINNON 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 MOIGHTED IN THE SUBSURFACE INFORMATION.

-	J. M. EDMONDSON
	F. M. WESCOTT III
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INVESTIGATED B	Y F.M. WESCOTT III
CHECKEU BA	D.N. ARGENBRIGHT

SUBMITTED BY___D.N. ARGENBRIGHT

OCTOBER, 2008

PERSONNEL R.E. SMITH



ID: B-296:

OJECT: 32782.1.

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

GEOTECHNICAL ENGINEERING UNIT

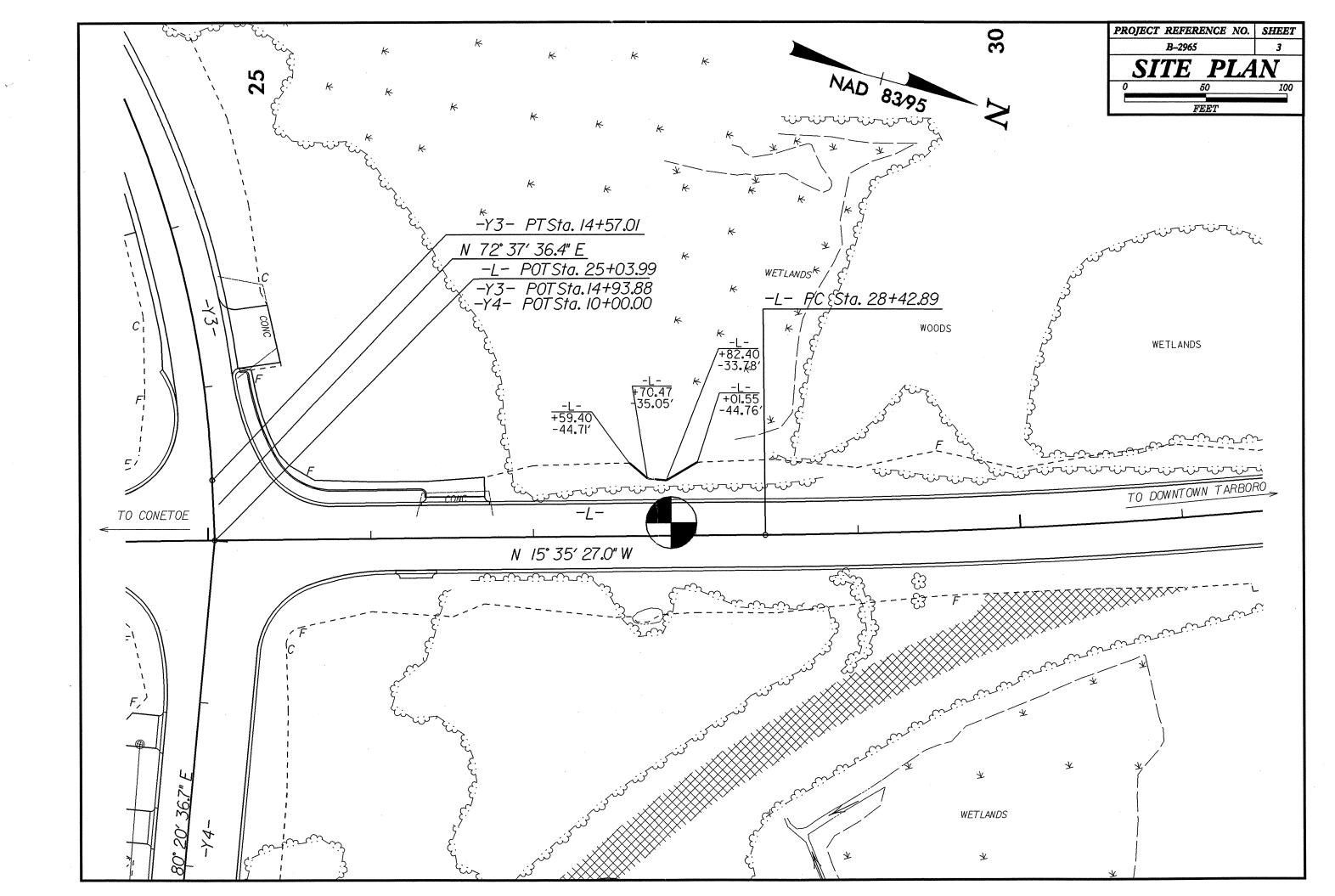
SUBSURFACE INVESTIGATION

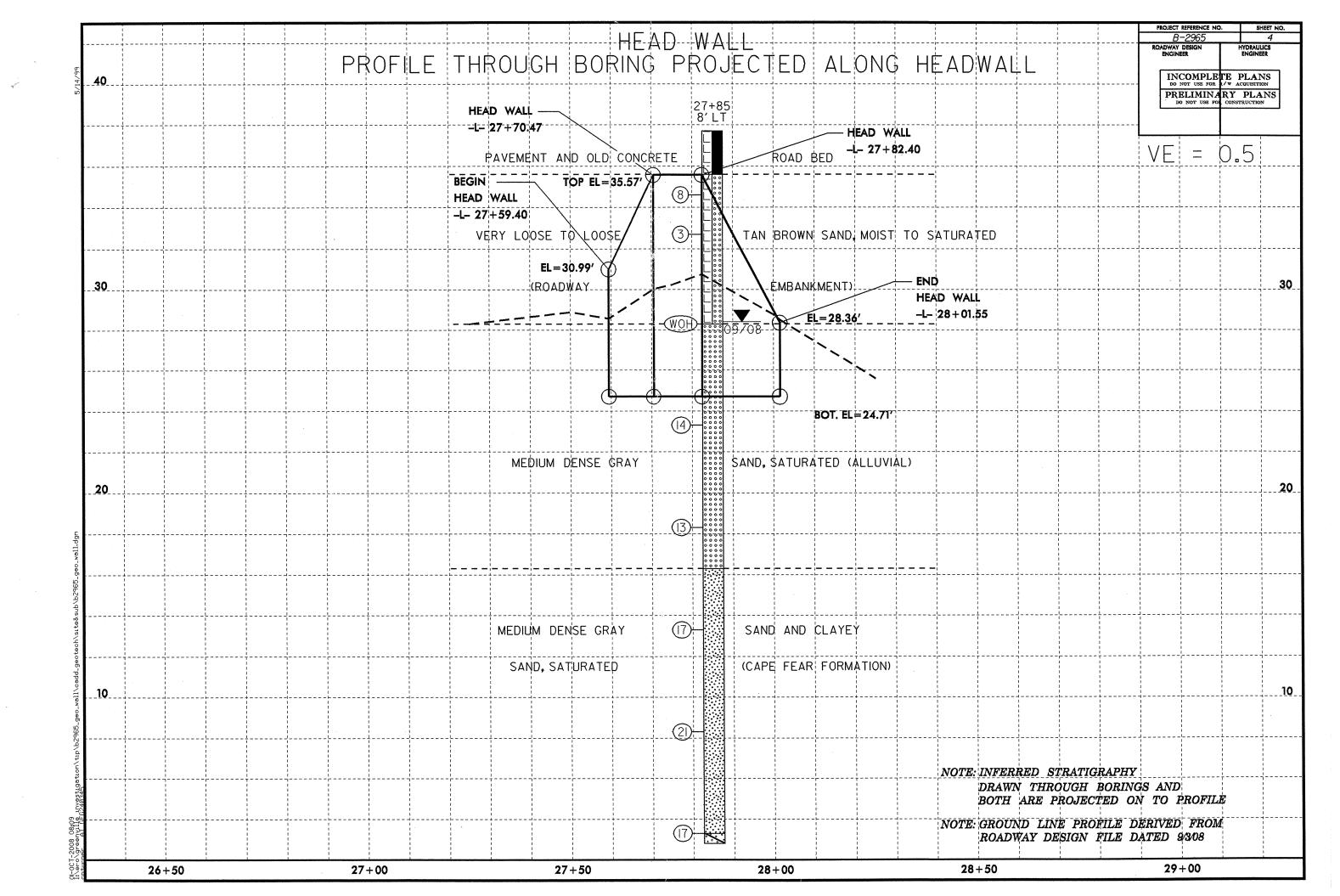
				SOIL AND ROO	CK LEGEND, TERM	s, symb	OLS, AND ABBR	EVIATIONS		
	SOIL DESCRIPTION			GRADATION				OCK DESCRIPTION		TERMS AND DEFINITIONS
SOIL IS CONSIDERED TO BE THE UNCOR	INSOLIDATED, SEMI-CONSOLIDATED, OR WEATH	HERED EARTH MATERIALS	WELL GRADED - INDICATES A G UNIFORM - INDICATES THAT SO	OOD REPRESENTATION OF PARTICLE SIZES FI IL PARTICLES ARE ALL APPROXIMATELY THE	ROM FINE TO COARSE. SAME SIZE.(ALSO			AL THAT IF TESTED, WOULD YIELD SPT H NON-COASTAL PLAIN MATERIAL WOUL		ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER.
	INTINUOUS FLIGHT POWER AUGER, AND YIELD STANDARD PENETRATION TEST (AASHTO T200		POORLY GRADED) GAP-GRADED - INDICATES A MIX	IL PARTICLES ARE ALL APPROXIMATELY THE TURE OF UNIFORM PARTICLES OF TWO OR M	ORE SIZES.			SPOON SAMPLER EQUAL TO OR LESS TRANSITION BETWEEN SOIL AND ROCK IS		ADUIFER - A WATER BEARING FORMATION OR STRATA.
CLASSIFICATION IS BASED ON THE AAS	SHTO SYSTEM. BASIC DESCRIPTIONS GENERA RE, AASHTO CLASSIFICATION, AND OTHER PER	ALLY SHALL INCLUDE:		ANGULARITY OF GRAINS		OF WEATHE				ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND.
AS MINERALOGICAL COMPOSITION, ANGUL	LARITY, STRUCTURE, PLASTICITY, ETC. EXAMP	LE:		S OF SOIL GRAINS IS DESIGNATED BY THE	TERMS: ANGULAR,	WEATHERED	NUMBUA	ASTAL PLAIN MATERIAL THAT WOULD YII	ELD CRT N VALUES \ 100	ARGILLACEOUS - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING A NOTABLE PROPORTION OF CLAY IN THEIR COMPOSITION, AS SHALE, SLATE, ETC.
	CLAY, WOIST WITH INTERBEDDED FINE SAND LAYERS, HIGHLY P.		SUBANGULAR, SUBROUNDED, OR	MINERALOGICAL COMPOSITIO	NI .	ROCK (WR)	BLOWS I	PER FOOT IF TESTED.		ARTESIAN - GROUND WATER THAT IS UNDER SUFFICIENT PRESSURE TO RISE ABOVE THE LEVEL
GENERAL GRANULAR MATER	ND AND AASHTO CLASSIFIC			Z, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE U		CRYSTALLINE ROCK (CR)	FINE TO WOULD	CDARSE GRAIN IGNEOUS AND METAMOR	PHIC ROCK THAT TYPE INCLUDES GRANITE.	AT WHICH IT IS ENCOUNTERED, BUT WHICH DDES NOT NECESSARILY RISE TO OR ABOVE THE GROUND SURFACE.
CLASS. (≤ 35% PASSING *		ORGANIC MATERIALS	WHENEVER THEY ARE CONSIDERE			NULK (CN)	GNEISS,	GABBRO, SCHIST, ETC. COARSE GRAIN METAMORPHIC AND NON-		CALCAREOUS (CALC.) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE.
GROUP A-1 A-3	A-2 A-4 A-5 A-6 A-7			COMPRESSIBILITY		NON-CRYSTAL ROCK (NCR)	.INE SEDIMEN	TARY ROCK THAT WOULD YEILD SPT RE		COLLUYIUM - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM OF SLOPE.
000000000000000000000000000000000000000	4-2-5 A-2-6 A-2-7 A-7-8	A-3 A-6, A-7	SLIGHTLY COMPRESSI MODERATELY COMPRE	SSIBLE LIQUID LIMIT	EQUAL TO 31-50	COASTAL PLA	N CDASTAL	S PHYLLITE, SLATE, SANDSTONE, ETC. PLAIN SEDIMENTS CEMENTED INTO ROO	CK. BUT MAY NOT YIELD	CORE RECOVERY (REC.) - TOTAL LENGTH OF ALL MATERIAL RECOVERED IN THE CORE BARREL DIVIDED BY TOTAL
SYMBOL COCCOCCOCCOCCOCCOCCOCCOCCOCCOCCOCCOCCOC		<u> </u>	HIGHLY COMPRESSIBL	E LIQUID LIMIT PERCENTAGE OF MATERIAL	GREATER THAN 50	SEDIMENTARY (CP)	ROCK SPT REF	USAL. ROCK TYPE INCLUDES LIMESTONE EDS, ETC.	, SANDSTONE, CEMENTED	LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE.
% PASSING # 10 50 mx		GRANULAR SILT- MUCK,	ORGANIC MATERIAL	GRANIII AR STIT - CLAY				WEATHERING		DIKE - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT ROCKS OR CUTS MASSIVE ROCK.
# 40 38 MX 58 MX 51 MN # 200 15 MX 25 MX 10 MX 35 MX 3	35 MX 35 MX 35 MX 36 MN 36 MN 36 MN 36 MN	SOILS SOILS PEAT	TRACE OF ORGANIC MATTER	SOILS SOILS 2 - 3% 3 - 5% TRA	OTHER MATERIAL CE 1 - 10%	FRESH		FEW JOINTS MAY SHOW SLIGHT STAIN	ING. ROCK RINGS UNDER	DIP - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE
Linear Linear				3 - 5% 5 - 12% LIT	TLE 10 - 20%	VERY SLIGHT	HAMMER IF CRYSTALLINE. ROCK GENERALLY ERESH. JOINT	S STAINED, SOME JOINTS MAY SHOW TH	IN CLAY COATINGS IF OPEN.	HORIZONTAL. DIP DIRECTION (DIP AZIMUTH) - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF
	41 MN 48 MX 41 MN 48 MX 41 MN 48 MX 41 MN 18 MX 11 MN 11 MN 18 MX 18 MX 11 MN 11 MN	SOILS WITH LITTLE OR HIGHLY	HIGHLY ORGANIC	5 - 10% 12 - 20% SOM >10% >20% HIGH		(V SLI.)		MEN FACE SHINE BRIGHTLY, ROCK RING		THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH.
GROUP INDEX Ø Ø Ø	4 MX 8 MX 12 MX 16 MX No MX	MODERATE ORGANIC		GROUND WATER		SLIGHT	•	S STAINED AND DISCOLORATION EXTEND	OS INTO ROCK UP TO	FAULT - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE.
INF MATRIC USRAVEL AND 11 I	TY OR CLAYEY SILTY CLAYEY	ORGANIC MATTER	1	VEL IN BORE HOLE IMMEDIATELY AFTER D	RILLING	(SLI.)		TAIN CLAY. IN GRANITOID ROCKS SOME OLORED. CRYSTALLINE ROCKS RING UND		FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES.
MATERIALS SAND SAND GRAV	VEL AND SAND SOILS SOILS	MATTER	-	TER LEVEL AFTER 24 HOURS		MODERATE	SIGNIFICANT PORTIONS OF ROC	K SHOW DISCOLORATION AND WEATHERIN	NG EFFECTS. IN	FLOAT - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLODGED FROM
GEN. RATING AS A EXCELLENT TO G	GOOD FAIR TO POOR	FAIR TO POOR UNSUITABLE	PERCHED 1	WATER, SATURATED ZONE, OR WATER BEARIN	NG STRATA	(MOD.)		PARS ARE DULL AND DISCOLORED, SOME LOWS AND SHOWS SIGNIFICANT LOSS OF		PARENT MATERIAL.
SUBGRADE	IS ≤ LL - 30 :PI OF A-7-6 SUBGR	1	SPRING OF	SEEP			WITH FRESH ROCK.			FLOOD PLAIN (FP) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM.
	NSISTENCY OR DENSENESS	1001 13 > EL 30		MISCELLANEOUS SYMBOLS		MODERATELY SEVERE	AND DISCOLORED AND A MAJOR	COLORED OR STAINED. IN GRANITOID RO ITY SHOW KAOLINIZATION. ROCK SHOWS	SEVERE LOSS OF STRENGTH	FORMATION (FM.) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN
PRIMARY SOIL TYPE COMPACT	TNESS OR RANGE OF STANDARD	RANGE OF UNCONFINED COMPRESSIVE STRENGTH	ROADWAY EMBANKA	IENT (RE) SPT CPT DPT DMT TEST BORIN PTION ST PMT	SAMPLE	(MOD. SEV.)	AND CAN BE EXCAVATED WITH IF TESTED WOULD YIELD SPT	A GEOLOGIST'S PICK. ROCK GIVES "CLU REFUSAL	NK' SDUND WHEN STRUCK.	THE FIELD. JOINT - FRACTURE IN ROCK ALONG WHICH ND APPRECIABLE MOVEMENT HAS OCCURRED.
CONSI	ISTENCY (N-VALUE)	(TONS/FT ²)	WITH SOIL DESCRI	PTION VST PMT	DESIGNATIONS S - BULK SAMPLE	SEVERE		COLORED OR STAINED ROCK FABRIC CLI		LEDGE - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO
GENERALLY VERY L			SOIL SYMBOL	AUGER BORING	SS - SPLIT SPOON	(SEV.)		. IN GRANITOID ROCKS ALL FELDSPARS STRONG ROCK USUALLY REMAIN.	ARE KAOLINIZED TO SOME	ITS LATERAL EXTENT.
MATERIAL MEDIUM	M DENSE 10 TO 30	N/A	ARTIFICIAL FILL		SAMPLE		IF TESTED, YIELDS SPT N VAL	UES > 100 BPF		LENS - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS. MOTTLED (MOT.) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS. MOTTLING IN
(NON-COHESIVE) VERY D			THAN ROADWAY EM	DHAKI-LIA Y	ST - SHELBY TUBE SAMPLE	VERY SEVERE (V SEV.)		COLORED OR STAINED. ROCK FABRIC EL DUCED TO SOIL STATUS, WITH ONLY FRA		SOILS USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE.
GENERALLY SOFT		⟨0,25	INFERRED SOIL BO	MONITORING WEL			REMAINING. SAPROLITE IS AN VESTIGES OF THE ORIGINAL RO	EXAMPLE OF ROCK WEATHERED TO A DE OCK FABRIC REMAIN. <i>IF TESTED, YIELD</i>	GREE SUCH THAT ONLY MINOR	PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE OF AN INTERVENING IMPERVIOUS STRATUM.
SILT-CLAY MEDIUM	M STIFF 4 TO 8	0.25 TO 0.50 0.5 TO 1.0	INFERRED ROCK LI	NE PIEZOMETER INSTALLATION	RT - RECOMPACTED TRIAXIAL	COMPLETE		FABRIC NOT DISCERNIBLE, OR DISCERNI		RESIDUAL (RES.) SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK.
MATERIAL STIF (COHESIVE) VERY S		1 TO 2 2 TO 4	₹₹₽₽₽₹ ALLUVIAL SOIL BE	UNDARY SLOPE INDICATO	SAMPLE		SCATTERED CONCENTRATIONS, (ALSO AN EXAMPLE,	DUARTZ MAY BE PRESENT AS DIKES OR	STRINGERS, SAPROLITE IS	ROCK QUALITY DESIGNATION (ROD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF
HARD		>4	25/025 DIP & DIP DIRECT ROCK STRUCTURES	ION OF INSTALLATION	CBR - CALIFORNIA BEARING RATIO SAMPLE			ROCK HARDNESS	·	ROCK SEGMENTS EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE.
T	TEXTURE OR GRAIN SIZE		4'	SPT N-VALUE	,	VERY HARD	CANNOT BE SCRATCHED BY K	NIFE OR SHARP PICK, BREAKING OF HAN	D SPECIMENS REQUIRES	SAPROLITE (SAP.) - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE
U.S. STD. SIEVE SIZE OPENING (MM)	4 10 40 60 200 4.76 2.00 0.42 0.25 0.07		SOUNDING ROD	REF — SPT REFUSAL			SEVERAL HARD BLOWS OF TH			PARENT ROCK. SILL - AN INTRUSIVE BODY OF IGNEOUS ROCK OF APPROXIMATELY UNIFORM THICKNESS AND
	COARSE FINE	F		ABBREVIATIONS	MOTOTUDE CONTENT	HARD	TO DETACH HAND SPECIMEN.	OR PICK ONLY WITH DIFFICULTY. HARD	HAMMER BLOWS REQUIRED	RELATIVELY THIN COMPARED WITH ITS LATERAL EXTENT, THAT HAS BEEN EMPLACED PARALLEL TO THE BEDDING OR SCHISTOSITY OF THE INTRUDED ROCKS.
BOULDER COBBLE (GRAVEL SAND SANI (GR.) (CSE. SD.) (F S	ID SILI CLAY	AR - AUGER REFUSAL BT - BORING TERMINATED	HI HIGHLY MED MEDIUM	# - MOISTURE CONTENT V - VERY			OR PICK. GOUGES OR GROOVES TO 0.2		SLICKENSIDE - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT OR
GRAIN MM 305 75	2.0 0.25	0.05 0.005	CL CLAY CPT - CONE PENETRATION 1	MICA MICACEOUS TEST MOD MODERATELY	VST - VANE SHEAR TEST WEA WEATHERED	HARD	BY MODERATE BLOWS.	F A GEOLOGIST'S PICK. HAND SPECIMEN	S CAN BE DETACHED	SLIP PLANE.
SIZE IN. 12 3			CSE COARSE	NP - NON PLASTIC	→ UNIT WEIGHT	MEDIUM HARD		0.05 INCHES DEEP BY FIRM PRESSURE CHIPS TO PEICES 1 INCH MAXIMUM SI		STANDARD PENETRATION TEST (PENETRATION RESISTANCE) (SPT) - NUMBER OF BLOWS (N OR BPF) OF A 140 LB. HAMMER FALLING 30 INCHES REQUIRED TO PRODUCE A PENETRATION OF 1 FOOT INTO SOIL WITH
	STURE - CORRELATION OF	TERMS	DMT - DILATOMETER TEST DPT - DYNAMIC PENETRATION	ORG DRGANIC IN TEST PMT - PRESSUREMETER TEST	$\gamma_{\rm d}$ - DRY UNIT WEIGHT	ЛНПО	POINT OF A GEOLOGIST'S PIC		EL BI TIMO BLOWS OF THE	A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS PENETRATION EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS.
SOIL MOISTURE SCALE (ATTERBERG LIMITS)	FIELD MOISTURE GUIDE FOR DESCRIPTION	FIELD MOISTURE DESCRIPTION	e - VOID RATIO F - FINE	SAP SAPROLITIC SD SAND, SANDY		SOFT		READILY BY KNIFE OR PICK. CAN BE EX CHES IN SIZE BY MODERATE BLOWS OF		STRATA CORE RECOVERY (SREC.) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH
	- SATURATED - USUALLY I	LIQUID; VERY WET, USUALLY	FOSS FOSSILIFEROUS	SL SILT, SILTY			PIECES CAN BE BROKEN BY F	INGER PRESSURE.		OF STRATUM AND EXPRESSED AS A PERCENTAGE. STRATA ROCK QUALITY DESIGNATION (SROD) - A MEASURE OF ROCK QUALITY DESCRIBED BY
LL LIOUID LIMIT	(SAT.) FROM BEL	DW THE GROUND WATER TABLE	FRAC FRACTURED, FRACTU FRAGS FRAGMENTS	RES SLI SLIGHTLY TCR - TRICONE REFUSAL		VERY SOFT	CAN BE CARVED WITH KNIFE. OR MORE IN THICKNESS CAN	CAN BE EXCAVATED READILY WITH POIL BE BROKEN BY FINGER PRESSURE. CAN	NT OF PICK. PIECES 1 INCH BE SCRATCHED READILY BY	TOTAL LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE
PLASTIC T	SEMISOLID	D: REQUIRES DRYING TO				<u> </u>	FINGERNAIL.			IDPSOIL (IS) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.
RANGE < PLASTIC LIMIT	- WET - (W) ATTAIN OF	PTIMUM MOISTURE	EQU:	PMENT USED ON SUBJECT P			RACTURE SPACING	TERM BELL	DING THICKNESS	
, PLC T 12.101.10			DRILL UNITS:	ADVANCING TODLS:	HAMMER TYPE:	TERN VERY WII		VERY THICKLY BEDDED	> 4 FEET	BENCH MARK:
OM OPTIMUM MOISTURE SL SHRINKAGE LIMIT	- MOIST - (M) SOLID; AT	T OR NEAR OPTIMUM MOISTURE	MOBILE B-	CLAY BITS	X AUTOMATIC MANUAL	WIDE	3 TO 10 FEET	THICKLY BEDDED THINLY BEDDED	1.5 - 4 FEET 0.16 - 1.5 FEET	ELEVATION: FT.
SI SIRINAHOE LIMIT	REQUIRES	ADDITIONAL WATER TO	1 = =	6° CONTINUOUS FLIGHT AUGER	CORE SIZE:	CLOSE	ELY CLOSE 1 TO 3 FEET Ø.16 TO 1 FEET	VERY THINLY BEDDED THICKLY LAMINATED	0.03 - 0.16 FEET 0.008 - 0.03 FEET	NOTES:
		PTIMUM MOISTURE	BK-51	8º HOLLOW AUGERS		VERY CLI	DSE LESS THAN 0.16	THINLY LAMINATED	< 0.008 FEET	
	PLASTICITY		CME-45C	HARD FACED FINGER BITS		FOR CERTAIN	TARY ROCKE THRUDATION TO THE	INDURATION HARDENING OF THE MATERIAL BY CEM	ENTING HEAT DESCRIPE ETC	-
	PLASTICITY INDEX (PI)	DRY STRENGTH		TUNGCARBIDE INSERTS				HARDENING OF THE MATERIAL BY CEMI RUBBING WITH FINGER FREES NUMEROUS		
NONPLASTIC LOW PLASTICITY	0-5 6-15	VERY LOW SLIGHT	CME-550	X CASING W/ ADVANCER	HAND TOOLS:	- FI		GENTLE BLOW BY HAMMER DISINTEGRAT		
MED. PLASTICITY HIGH PLASTICITY	16-25 26 OR MORE	MEDIUM HIGH	PORTABLE HOIST	X TRICONE 2 15/16 STEEL TEETH	POST HOLE DIGGER	MC		GRAINS CAN BE SEPARATED FROM SAME		
	COLOR		X CME-45B	TRICONE TUNGCARB.	HAND AUGER			BREAKS EASILY WHEN HIT WITH HAMME		
DESCRIPTIONS MAY INCLUDE COLO	OR OR COLOR COMBINATIONS (TAN, RED,	YELLOW-BROWN, BLUE-GRAY).		CORE BIT	SOUNDING ROD	IN		GRAINS ARE DIFFICULT TO SEPARATE OF	#IIN SIEEL PRUBE;	
	ARK, STREAKED, ETC. ARE USED TO DESC				VANE SHEAR TEST	Ex	TREMELY INDURATED	SHARP HAMMER BLOWS REQUIRED TO BE	REAK SAMPLE:	
			1		<u> </u>	1		SAMPLE BREAKS ACROSS GRAINS.		

PROJECT REFERENCE NO.

B-2965

SHEET NO. 2 OF 6





Proj. No: 32782.1.1 County: Edgecombe

B-2965 SOILS TEST RESULTS

HOLE#	SAMPLE#	PASS 10	PASS 40	PASS 200	CSESAND	FINESAND	SI	CL L	L PI	CLASS	DEPTH	MOIST.	ORG.
27+85	SS-1	98	83	9	43.1	49.9	3.0	4.0 12	2 NP	A-3(0)	2.1-3.6		
8' LT	SS-2	96	58	11	60.7	29.7	5.6	4.0 1	7 NP	A-2-4(0)	13.4-14.9		
	SS-3	99	71	12	67.3	22.6	8.1	2.0 2	1 NP	A-2-4(0)	23.4-24.9		
	SS-4	61	38	22	49.0	18.6	14.3	18.0 3	2 11	A-2-6(0)	34.4-34.9	•	