CONTENTS SHEET NO. 2

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TITLE SHEET LEGEND (SOIL & ROCK) SITE PLAN PROFILE BORFLOGS SITE PHOTOGRAPHS

DESCRIPTION

STATE OF NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION **DIVISION OF HIGHWAYS GEOTECHNICAL ENGINEERING UNIT**

STRUCTURE SUBSURFACE INVESTIGATION

COUNTY	EDGECOMBE
PROJECT	DESCRIPTION REPLACE BRIDGES 320003,
	004 AND 320005 OVER SWIFT CREEK ON
	SR 1404 (SEVEN BRIDGES ROAD)
SITE DES	CRIPTION BRIDGE NO. 320004
	AT -L- STA. 31+08.50

-01 BR-REFERENCE

67111 Ë PROJEC

STATE N.C



SHEETS

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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 1919) TOT-6850. THE SUBSURFACE PLANS AND REPORTS, FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA AVAIL

GENERAL SOIL AND ROCK STRATA DESCRIPTIONS AND INDICATED BOUNDARES 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 UNPELACED TEST DATA CAN BE RELED ON ONLY TO THE DECREE OF RELIABILITY INHERENT IN THE STANDARD TEST METHOD. THE OBSERVED WATER LEVELS OR SOLL MOISTURE CONDITIONS INDICATED IN THE SUBSURFACE INVESTIGATIONS ARE AS RECORDED AT THE TIME OF THE INVESTIGATION. THESE WATER LEVELS OR SOL MOISTIGE 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 CALIFORED THAT TO THE 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 WARANT OR GUARANTEE THE SUFFICIENCY OR ACCURACY OF THE INVESTIGATION MADE, NOR THE INTERPRETATIONS MADE, OR OPNION 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 INVESTIGATION AS HE DEEMS NECESSART TO SATISTY HIMSELF AS TO CONDITIONS TO BE ENCOUNTERED ON THE PROJECT. THE CONTRACTOR SHALL HAVE NO CLAIM FOR ADDITIONAL COMPENSATION OF FOR AN EXTENSION OF TIME FOR ANY REASON RESULTING FOM THE ACTUAL CONTENS ENCOUNTERED AND THE SITE DIFFERING FROM THOSE INDICATED IN THE SUBSURFACE INFORMATION.

- NOTES: I. THE INFORMATION CONTAINED HEREIN IS NOT IMPLIED OR GUARANTEED BY THE N.C. DEPARTMENT OF TRANSPORTATION AS ACCURATE NOR IS IT CONSIDERED PART OF THE PLANS, SPECIFICATIONS OR CONTRACT FOR THE PROJECT. 2. 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.

	PERSONNEL
i i i i i i i i i i i i i i i i i i i	RUSSEK, S. C.
	OUGGINS, W. T.
	TURNER, A. D.
INVESTIGATED BY	RUSSEK, S. C.
DRAWN BY	FIELDS, W. D.
CHECKED BY	NASH, A. A.
SUBMITTED BY	EXANDER, M. J.
DATEOCT	OBER 2019
Prepared in the Description Consulting Engineers 2401 BRENTWOOD RO RALEIGH, NORTH CA NC REGISTERED ENGINE NC REGISTERED GEOL	and Scientists AD, SUITE 107 ROLINA 27604 ERING FIRM F-0869
NG INF	
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NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS GEOTECHNICAL ENGINEERING UNIT SUBSURFACE INVESTIGATION

SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

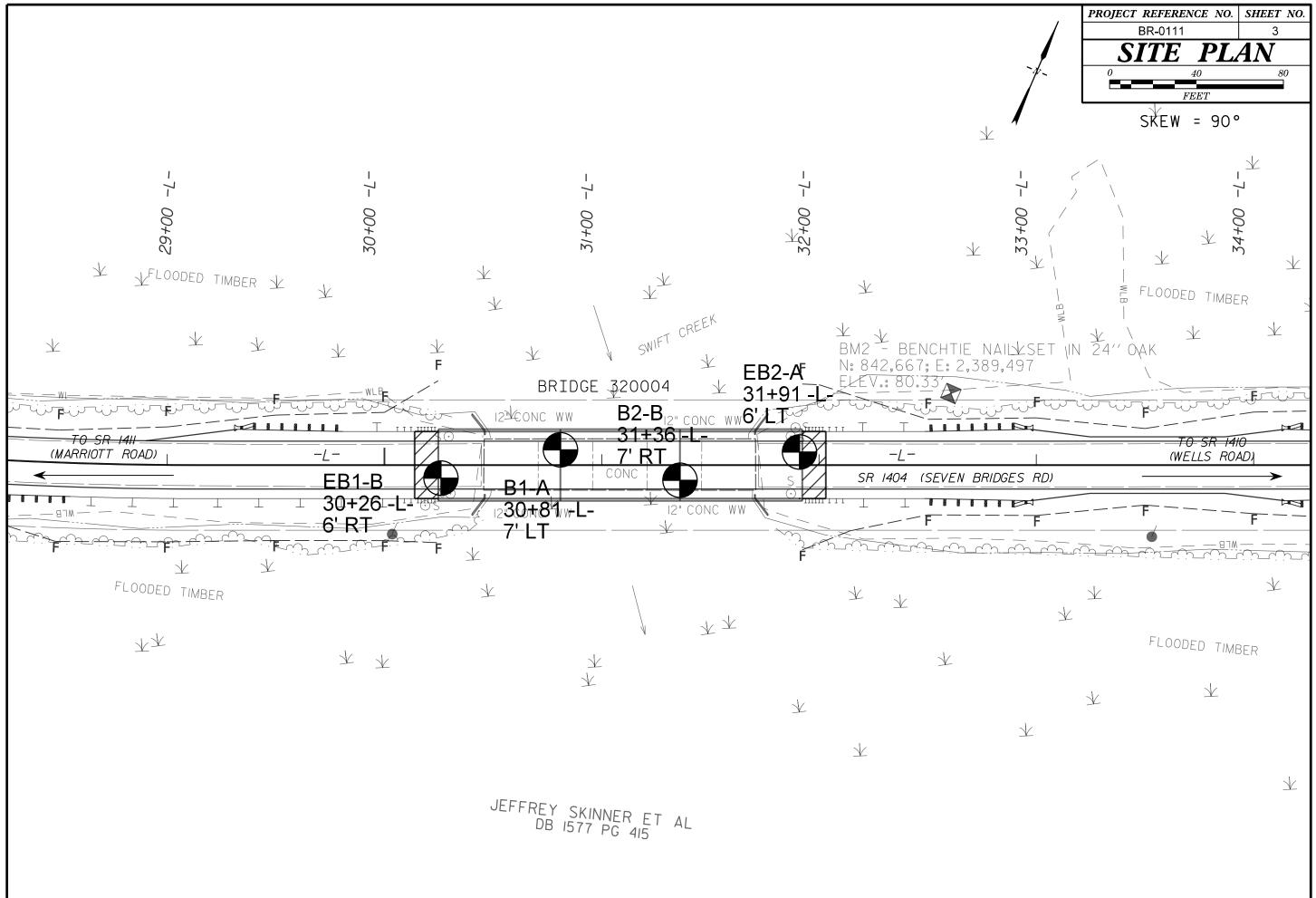
		SOIL C	ESCRIPTI	ON				GR	ADATION				ROCK DESC	CRIPTION
BE PENETR ACCORDING IS BAS CONSISTEN	ATED WITH A (G TO THE STAM SED ON THE AM ICY, COLOR, TEX	CONSOLIDATED, SEMI-CON CONTINUOUS FLIGHT POU NDARD PENETRATION TE ASHTO SYSTEM, BASIC I TURE, MOISTURE, AASHTO	VER AUGER AND ST (AASHTO T DESCRIPTIONS CLASSIFICATI	D YIELD LESS 206,ASTM D1 GENERALLY IN ON,AND OTHE	THAN 100 BLOWS PE 586), SOIL CLASSIFI ICLUDE THE FOLLOWI R PERTINENT FACTOF	ER FOOT CATION NG: RS SUCH	UNIFORMLY GRADED - IN	NDICATES THAT SOIL P S A MIXTURE OF UNIF	PARTICLES ARE ALL	LE SIZES FROM FINE TO COARSE. . APPROXIMATELY THE SAME SIZE. ES OF TWO OR MORE SIZES.	ROCK LINE INDIC SPT REFUSAL IS BLOWS IN NON-C REPRESENTED BY	ATES THE LEVEL AT PENETRATION BY A S	WHICH NON-COAST SPLIT SPOON SAMF RIAL, THE TRANS RED ROCK.	JLD YIELD SPT REFUSAL IF TEST AL PLAIN MATERIAL WOULD YIELD YLER EQUAL TO OR LESS THAN 0. SITION BETWEEN SOIL AND ROCK
		L COMPOSITION, ANGULAR SILTY CLAY,MOIST WITH INT.				•		Y OR ROUNDNESS OF S		SIGNATED BY THE TERMS:	WEATHERED	FULLE ULLA		MATERIAL THAT WOULD YIELD SP
		LEGEND AND			CATION				CAL COMPOSI	TION	ROCK (WR)	100	BLOWS PER FOOT	T IF TESTED.
GENERAL CLASS.	0	ULAR MATERIALS % PASSING #200)	SILT-CLAY (> 35% PAS		ORGANIC MATER	IALS	MINERAL NAM	MES SUCH AS QUARTZ,			CRYSTALLINE ROCK (CR)	WOL	JLD YIELD SPT RE	AIN IGNEOUS AND METAMORPHIC RO EFUSAL IF TESTED, ROCK TYPE IN
GROUP	A-1 A-3	+	A-4 A-5	A-6 A-7	A-1, A-2 A-4, A-5		ARE USED IN			RED OF SIGNIFICANCE.	NON-CRYSTALLINE	FIN		AIN METAMORPHIC AND NON-COAST
0.0	-1-a A-1-b	A-2-4 A-2-5 A-2-6 A-2-		A-7-6	A-3 A-6, A-7		SLIG	HTLY COMPRESSIBLE	ESSIBILITY	LL < 31	ROCK (NCR)		CK TYPE INCLUDES	THAT WOULD YEILD SPT REFUSAL 5 PHYLLITE, SLATE, SANDSTONE, ET
X PASSING	000000000000000000000000000000000000000		3					RATELY COMPRESSIBLE	1	LL = 31 - 50 LL > 50	COASTAL PLAIN SEDIMENTARY RO			MENTS CEMENTED INTO ROCK, BUT TYPE INCLUDES LIMESTONE, SANDS
*10 50	мх				GRANULAR SILT- CLAY	MUCK,		PERCENTAG	E OF MATER	[AL	(CP)	SHE	ELL BEDS, ETC. WEATHE	RING
	MX 50 MX 51 MN MX 25 MX 10 MX	4 K 35 MX 35 MX 35 MX 35 M	1X 36 MN 36 MN	36 MN 36 MN	SOILS SOILS	PEAT	ORGANIC MATERIAL	GRANULAR SOILS	SILT - CLAY SOILS	OTHER MATERIAL	FRESH ROO	K FRESH, CRYSTALS BR		MAY SHOW SLIGHT STAINING. ROCK
MATERIAL PASSING #40 LL PI	 6 MX NP	40 MX 41 MN 40 MX 41 M 10 MX 10 MX 11 MN 11 M			SOILS WITH LITTLE OR MODERATE	HIGHLY	TRACE OF ORGANIC M LITTLE ORGANIC MAT MODERATELY ORGANIC HIGHLY ORGANIC	TER 3 - 5%	3 - 5% 5 - 12% 12 - 20% > 20%	TRACE 1 - 10% LITTLE 10 - 20% SOME 20 - 35% HIGHLY 35% AND ABOVE	VERY SLIGHT ROO (V SLI.) CRI		SPECIMEN FACE SHI	DME JOINTS MAY SHOW THIN CLAY C INE BRIGHTLY. ROCK RINGS UNDER H
GROUP INDEX	0 0	Ø 4 MX	8 MX 12 MX	16 MX NO MX	AMOUNTS OF	ORGANIC SOILS		GROU	ND WATER					D DISCOLORATION EXTENDS INTO RO
	ONE FRAGS. RAVEL, AND SAND		SILTY SOILS	CLAYEY SOILS	ORGANIC MATTER			WATER LEVEL IN BO STATIC WATER LEVE		FELY AFTER DRILLING OURS	CRI	STALS ARE DULL AND	DISCOLORED. CRYS	I GRANITOID ROCKS SOME OCCASIONA TALLINE ROCKS RING UNDER HAMMER DLORATION AND WEATHERING EFFECT
GEN. RATING AS SUBGRADE	EXCEL	LLENT TO GOOD	FAIR TI) POOR	FAIR TO POOR POOR	UNSUITABLE	 	PERCHED WATER,SA SPRING OR SEEP	TURATED ZONE, OR	WATER BEARING STRATA	DUL			L AND DISCOLORED, SOME SHOW CLA DWS SIGNIFICANT LOSS OF STRENGTH
	PI OF	A-7-5 SUBGROUP IS ≤ LL CONSISTENC			> LL - 30		0.00.							STAINED. IN GRANITOID ROCKS, ALL
			RANGE OF		RANGE OF UNC	ONFINED			NEOUS SYMBO	L5	(MOD. SEV.) AND	CAN BE EXCAVATED W	WITH A GEOLOGIST"	DLINIZATION. ROCK SHOWS SEVERE L S PICK. ROCK GIVES "CLUNK" SOUND
PRIMARY SO		COMPACTNESS OR CONSISTENCY VERY LOOSE	PENETRATION (N-VA		COMPRESSIVE S (TONS/F1	TRENGTH	L ROADWAY EMB	SCRIPTION	 OF ROCK STRUC 		SEVERE ALL		Z DISCOLORED OR S	STAINED. ROCK FABRIC CLEAR AND E GRANITOID ROCKS ALL FELDSPARS (
GENERALL GRANULAR		LOOSE MEDIUM DENSE		D 10	N/A		SOIL SYMBOL	-	OPT DMT TEST BORI	ING V INSTALLATION	IF	SOME EXTENT. SOME F TESTED, WOULD YIELD :		ONG ROCK USUALLY REMAIN. 00 BPF
MATERIAL (NON-COHE		DENSE VERY DENSE VERY SOFT	30 T >	0 50 50	< 0.25		ARTIFICIAL FI THAN ROADWA) AUGER BORING	CONE PENETROMETER TEST SOUNDING ROD	VERY ALL SEVERE BUT	ROCK EXCEPT QUARTZ	Z DISCOLORED OR S Y REDUCED TO SOI	STAINED. ROCK FABRIC ELEMENTS AF L STATUS, WITH ONLY FRAGMENTS O ROCK WEATHERED TO A DEGREE THAT
GENERALL SILT-CLAY MATERIAL	Y .	SOFT MEDIUM STIFF STIFF	2 T 4 T	04 08 015	0.25 TO 0.5 TO 1 1 TO 2	0.5 .0	INFERRED ROC	CK LINE MW	MONITORING WEI	LL - TEST BORING WITH CORE	COMPLETE ROO SCA	K REDUCED TO SOIL. F TTERED CONCENTRATIO	ROCK FABRIC NOT [N. <u>IF TESTED, WOULD YIELD SPT N N</u> DISCERNIBLE, OR DISCERNIBLE ONLY BE PRESENT AS DIKES OR STRINGERS
(COHESIVE		VERY STIFF HARD	15 1		2 TO 4		ALLUVIAL SOI	L BOUNDARY Z	INSTALLATION	- SPT N-VALUE	ALS	O AN EXAMPLE.	ROCK HAF	
		TEXTURE	OR GRAIN	SIZE				RECOMMEND	DATION SYMBO		VERY HARD CAN	NOT BE SCRATCHED BY		PICK. BREAKING OF HAND SPECIMEN
U.S. STD. SIEV OPENING (MM)		4 10 4.76 2.00	0.42	60 200 0.25 0.075	270 0.053			UNCLASSIFIED EXC UNSUITABLE WAST	re Ìæ	UNCLASSIFIED EXCAVATION - ACCEPTABLE, BUT NOT TO BE USED IN THE TOP 3 FEET OF	HARD CAN	ERAL HARD BLOWS OF I BE SCRATCHED BY KN DETACH HAND SPECIME	NIFE OR PICK ONLY	PICK. 'WITH DIFFICULTY. HARD HAMMER B
BOULDER (BLDR.)	COBBLE (COB.)		COARSE SAND (CSE, SD.)	FINE SAND (F SD.	SILT (SL.)	CLAY (CL.)		UNCLASSIFIED EXC ACCEPTABLE DEGR	RADABLE ROCK	EMBANKMENT OR BACKFILL	MODERATELY CAN	BE SCRATCHED BY KN	VIFE OR PICK. GOU	GES OR GROOVES TO 0.25 INCHES D 'S PICK. HAND SPECIMENS CAN BE D
GRAIN MM SIZE IN.	305 12	75 2.0 3	(0.25	0.05 0.005	i	AR - AUGER REFUSAL BT - BORING TERMINATED CL CLAY		MEDIUM MICACEOUS MODERATELY	VST – VANE SHEAR TEST WEA.– WEATHERED ∑ – UNIT WEIGHT	MEDIUM CAN			EEP BY FIRM PRESSURE OF KNIFE (
		_ MOISTURE - I		ION OF	TERMS		CPT - CONE PENETRATION	N TEST NP - NO	ON PLASTIC	$\gamma_{\rm d}$ - DRY UNIT WEIGHT		NT OF A GEOLOGIST'S		CES 1 INCH MAXIMUM SIZE BY HARD
	10ISTURE SCAL RBERG LIMITS) DESCRI	PTION		IELD MOISTURE DES		CSE COARSE DMT - DILATOMETER TES DPT - DYNAMIC PENETRA		DRGANIC PRESSUREMETER TE: SAPROLITIC	ST <u>SAMPLE ABBREVIATIONS</u> S - BULK	FRO		INCHES IN SIZE B	IFE OR PICK. CAN BE EXCAVATED IN Y MODERATE BLOWS OF A PICK POIN E.
LL	_ LIQUID LIMI	- SATURA (SAT.) IT			UID; VERY WET, USU THE GROUND WATE		e - VOID RATIO F - FINE - FOSS FOSSILIFEROUS	SL SI	AND, SANDY ILT, SILTY BLIGHTLY	SS - SPLIT SPOON ST - SHELBY TUBE RS - ROCK	SOFT OR			ATED READILY WITH POINT OF PICK. FINGER PRESSURE. CAN BE SCRATCH
PLASTIC RANGE <		- WET -			EQUIRES DRYING TO MUM MOISTURE	I.	FRAC FRACTURED, FRAC FRAGS FRAGMENTS		IRICONE REFUSAL	RT - RECOMPACTED TRIAXIAL CBR - CALIFORNIA BEARING		CTURE SPACIN	G	BEDDING
(PI) PL	PLASTIC LI	MIT					HI HIGHLY	V - VER		RATIO	TERM	SPAC		TERM
OM	_ OPTIMUM MO _ SHRINKAGE		- (M)	SOLID;AT OR	NEAR OPTIMUM MC	ISTURE	DRILL UNITS:	ADVANCING TOOLS:	ON SUBJECT	HAMMER TYPE:	VERY WIDE WIDE MODERATELY I		2 FEET FEET	VERY THICKLY BEDDED THICKLY BEDDED 1 THINLY BEDDED 0.3
		- DRY -			DITIONAL WATER TO MUM MOISTURE	0	CME-45C	CLAY BITS	FLIGHT AUGER	CORE SIZE:	CLOSE VERY CLOSE	0.16 TO LESS THAN		VERY THINLY BEDDED 0.0 THICKLY LAMINATED 0.00 THINLY LAMINATED <
		PLA	STICITY					8" HOLLOW AUG		вн			INDURA	
NON	PLASTIC	PLAST	CITY INDEX (Ø-5	<u>,1)</u>	DRY STRENG VERY LOW		CME-550			□-N				G OF MATERIAL BY CEMENTING, HE NGER FREES NUMEROUS GRAINS;
SLIGH	HTLY PLASTIC		6-15		SLIGHT		VANE SHEAR TEST	TUNGCARBIDE	INSERTS	HAND TOOLS:	FRIABLE			HAMMER DISINTEGRATES SAMPLE.
	RATELY PLAST Y PLASTIC		16-25 6 OR MORE		MEDIUM HIGH		PORTABLE HOIST		W/ ADVANCER	POST HOLE DIGGER	MODERATE			SEPARATED FROM SAMPLE WITH ST WHEN HIT WITH HAMMER.
	COLOR						" TUNGCARB.	HAND AUGER	INDURATED		GRAINS ARE DIFF	ICULT TO SEPARATE WITH STEEL		
DESCRIPTIONS MAY INCLUDE COLOR OR COLOR COMBINATIONS (TAN, RED, YELLOW-BROWN, BLUE-GRAY). MODIFIERS SUCH AS LIGHT, DARK, STREAKED, ETC. ARE USED TO DESCRIBE APPEARANCE.						ACKER RENEGADE						SHARP HAMMER B	REAK WITH HAMMER.	
1											1		SAMPLE BREAKS	AURUSS URAINS.

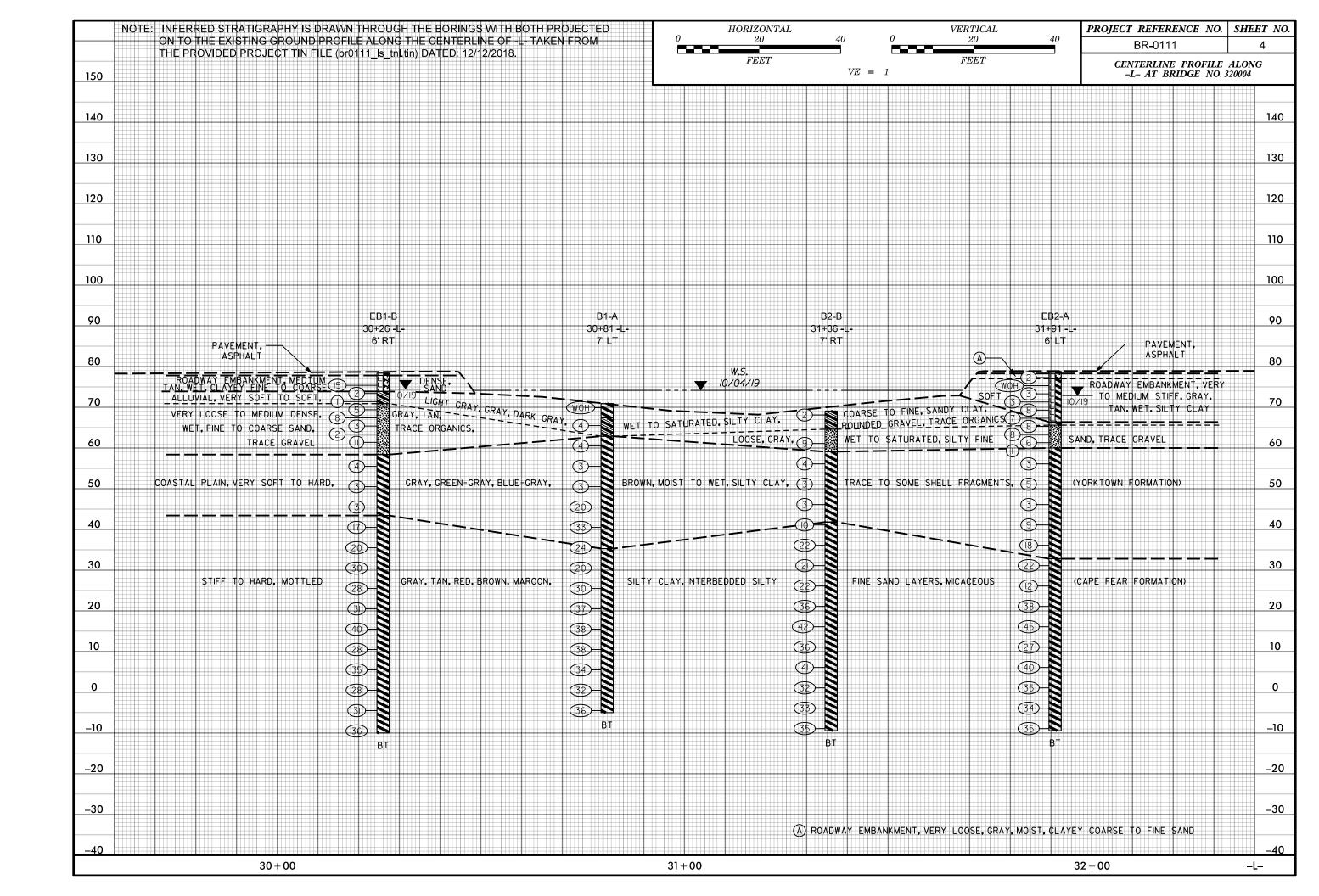
PROJECT REFERENCE NO.

DATE: 8-15-14



D. AN INFERRED	TERMS AND DEFINITIONS
SPT REFUSAL.	ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER.
FOOT PER 60 IS OFTEN	AQUIFER - A WATER BEARING FORMATION OR STRATA.
	ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND.
N VALUES >	ARGILLACEOUS - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING A NOTABLE PROPORTION OF CLAY IN THEIR COMPOSITION, SUCH AS SHALE, SLATE, ETC.
N VALUES >	ARTESIAN - GROUND WATER THAT IS UNDER SUFFICIENT PRESSURE TO RISE ABOVE THE LEVEL AT
СК ТНАТ	WHICH IT IS ENCOUNTERED, BUT WHICH DOES NOT NECESSARILY RISE TO OR ABOVE THE GROUND
CLUDES GRANITE,	SURFACE.
L PLAIN	CALCAREOUS (CALC.) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE. COLLUVIUM - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM
F TESTED.	OF SLOPE.
MAY NOT YIELD TONE, CEMENTED	$\underline{\text{CORE}}$ Recovery (ReC.) - Total length of all material recovered in the Core barrel divided by total length of core run and expressed as a percentage.
RINGS UNDER	DIKE - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT ROCKS OR CUTS MASSIVE ROCK.
	$\underline{\text{DIP}}$ - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL.
DATINGS IF OPEN. AMMER BLOWS IF	<u>DIP DIRECTION (DIP AZIMUTH)</u> - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH.
CK UP TO FELDSPAR	<u>FAULT</u> - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE.
BLOWS.	FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES.
. IN Y. ROCK HAS	FLOAT - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIG _I NAL POSITION AND DISLODGED FROM PARENT MATERIAL.
AS COMPARED	FLOOD PLAIN (FP) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM.
ELDSPARS DULL DSS OF STRENGTH	FORMATION (FM.) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD.
WHEN STRUCK.	JOINT - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED.
	LEDGE - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO
VIDENT BUT RE KAOLINIZED	ITS LATERAL EXTENT.
NE KHOLINIZED	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 SOILS USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE.
E DISCERNIBLE STRONG ROCK	PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE
ONLY MINOR	OF AN INTERVENING IMPERVIOUS STRATUM.
<u>ALUES < 100 BPF</u> IN SMALL AND	RESIDUAL (RES.) SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK.
. SAPROLITE IS	ROCK QUALITY DESIGNATION (ROD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTACE.
REQUIRES	$\underline{SAPROLITE}$ - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK.
OWS REQUIRED	<u>SILL</u> - AN INTRUSIVE BODY OF IGNEOUS ROCK OF APPROXIMATELY UNIFORM THICKNESS AND RELATIVELY THIN COMPARED WITH ITS LATERAL EXTENT, THAT HAS BEEN EMPLACED PARALLEL TO THE BEDDING OR SCHISTOSITY OF THE INTRUDED ROCKS.
EP CAN BE ETACHED	$\underline{\rm SLICKENSIDE}$ - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT OR SLIP PLANE.
R PICK POINT. BLOWS OF THE	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 A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER, SPT REFUSAL IS PENETRATION EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS.
FRAGMENTS T. SMALL, THIN	STRATA CORE RECOVERY (SREC.) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE.
PIECES 1 INCH ED READILY BY	STRATA ROCK DUALITY 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 TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE.
LO NEMDIET DI	TOPSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.
	BENCH MARK: BM2 - BENCTIE NAIL SET IN 24" OAK,
THICKNESS	32.9' LEFT OF -L- STA. 32+60.68
4 FEET 5 - 4 FEET	N: 842,667; E: 2,389,497 ELEVATION: 80.33 FEET
6 - 1.5 FEET	NOTES:
3 - 0.16 FEET 8 - 0.03 FEET	
0.008 FEET	
AT, PRESSURE, ETC.	
EEL PROBE;	
PROBE:	
:	
	DATE: 9-15-14







									<u> </u>	30	<u>RE L</u>	OG																	-	
WBS	67111	.1.1			TI	P BR-0 ²	111		COUNT	FY E	EDGECO	MBE			GEO	LOGIST	RUSSEK, S.	С.			WBS	67111	.1.1			Т	TIP BR-01	11	COUN	ſY
SITE	DESCR	IPTION	REP	LACE	BRIDG	GE 32000	04 OVE	ER SW	IFT CRE	EK C	ON SR 14	04 (SEV	'EN B	RIDG	ES ROA	D)			GROUND W	VTR (ft)	SITE	DESCRI	PTION	REPI	LACE	BRID	GE 320004	OVER SV	VIFT CRE	EK
BOR	ing no.	EB1-I	В		S	TATION	30+2	6		OF	F FSET 6	6 ft RT			ALIG	NMENT	-L-		0 HR.	N/A	BORI	Ng No.	EB1-E	3		s	STATION 3	30+26		0
COL	LAR ELE	EV. 78	3.4 ft		т	OTAL DE	PTH	88.4 ft	1	NC	ORTHING	842,5	38		EAS	FING 2,3	389,297	2	24 HR.	4.0	COLL	AR ELE	V. 78	3.4 ft		Т	TOTAL DEF	•TH 88.4	ft	N
DRILL	. RIG/HAN	IMER EF	F./DAT	E TEF	192-0 AC	CKER REN	IEGADE	E 86% 02	2/15/2019			DRILL N	IETHO	D M	ud Rotary		H	AMMEF	R TYPE Auto	omatic	DRILL	RIG/HAM	MER EF	F./DATE	E TER	R92-0 A	ACKER RENE	GADE 86%	02/15/2019	
DRIL	LER D	UGGIN	S, W.	Т.	ST	FART DA	TE (09/30/1	9	CC	OMP. DAT	FE 09/3	30/19		SURF	ACE WA	TER DEPTH	N/A			DRIL	ER DI	JGGIN	S, W. 1	Т.	s	START DAT	FE 09/30/	19	С
ELEV	DRIVE ELEV	DEPTH	BLC	w co	UNT		BI	LOWS	PER FOC)T		SAMP.	▼/		1	50					ELEV	DRIVE	DEPTH	BLO	w co	UNT	Π	BLOWS	PER FOC	л
(ft)	(ft)	(ft)	0.5ft	0.5ft	0.5ft	0	25		50	75	100	NO.	Имо	DI G	ELEV. (L AND ROCK	DESCI		DEPTH (ft)	(ft)	ELEV (ft)	(ft)	0.5ft	0.5ft	0.5ft	0	25	50	75
80																					0							Ma	tch Line	
	-	F				_									- <u>78</u> .4		GROUND S		CE	0.0 0.6						1				•
	76.4	2.0												∟	-]	PAVEM ASPHA					-3.5	- 81.9	10	45	10				
75	74.4 -	4.0	5	5	10	· · •	15			-					73.9		ROADWAY EM LAYEY FINE T			4.5	-5	-	-	10	15	16		431		·
	- 72.4	6.0	3	1	1	P ²							Ŵ		- 13.8	-	ALLUV	/IAL		4.5		1	-					1 1		
70	70.4	t	WOH	WOH	1	1	· ·	· · · · · ·					Sat.		70.9		HT GRAY, FINE			7.5	-10	-8.5	- 86.9 -	11	18	18				:
10	68.4	t	2	2	3	•5							w		-	SAN	, TAN, SILTY F D, TRACE OR(GANIC	S, TRACE		-10		_				+			
	66.4	t	3	5	3	.9 8	: :	· · · ·					w		-		GRAV	'EL				4	-							
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55	56.5	<u>† 21.9</u>	2	2	2	● 4							w		-	GRA	Y, SILTY CLAY FRAGM		LE SHELL			-	-							
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EDGECON	1BE			GEOLOGIST RUSSEK,	S. C.					
K ON SR 140	4 (SEV	EN BF	RIDGE	S ROAD)		GROUND WTR (ft)				
OFFSET 6	ft RT			ALIGNMENT -L-		0 HR.	N/A			
NORTHING	842,53	38		EASTING 2,389,297		24 HR.	4.0			
	DRILL M	ETHOD) Muc	Rotary	HAMME	R TYPE	Automatic			
COMP. DAT				SURFACE WATER DEPT						
	SAMP.		L							
75 100	NO.	мо	O G	SOIL AND ROC	K DESC	RIPTION				
<u> </u>			N	MOTTLED GRAY, T CLAY, TF	AN, MA	ROON, S	ilty — — —			
				(CAPE FEAR FOR) (continu	ied)			
		W								
		W	\mathbf{N}	10.0						
		~~		-10.0 Boring Terminated a	at Elevat	ion -10.0	88.4 ft IN			
				COĂSTAL PLAIN FEAR FO	SILTY C RMATIC	LAY (CA DN)	PE			
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WBS 67111.1.1	BS 67111.1.1 TIP BR-0111 COUNTY EDGECOMBE GEOLOGIST BUNCH, C. M.					WBS 67111.1.1 TIP BR-0111 COUNTY EDGECOMBE GEOLOGIST BUNCH, C. M.									
SITE DESCRIPTION REPLACE BE	RIDGE 320004 OVER SWIFT CRE	EK ON SR 1404 (SEVEN BRIDGI	ES ROAD)	GROUND WTR (ft)	SITE	E DESCRI	PTION	REPLA	CE BRIDGE	320004 OVER SWIFT CRE	EK ON SR 14	04 (SEVEN BRIDO	GES ROAD)	GROUND WTR (ft)	
BORING NO. B1-A	STATION 30+81	OFFSET 7 ft LT	ALIGNMENT -L-	0 HR. N/A	BOR	RING NO.	B1-A		STA	TION 30+81	OFFSET 7	' ft LT	ALIGNMENT -L-	0 HR. N/A	
COLLAR ELEV. 70.9 ft	TOTAL DEPTH 75.9 ft	NORTHING 842,572	EASTING 2,389,343	24 HR. N/A	COL	LAR ELE	V. 70.9	9 ft	тот	TAL DEPTH 75.9 ft	NORTHING	842,572	EASTING 2,389,343 24 HR.		
DRILL RIG/HAMMER EFF./DATE TER92	-0 ACKER RENEGADE 86% 02/15/2019	DRILL METHOD Mu	ud Rotary HAMM	IER TYPE Automatic	DRIL	L RIG/HAM	MER EFF.	/DATE	TER92-0 ACK	ER RENEGADE 86% 02/15/2019	1	DRILL METHOD M			
DRILLER DUGGINS, W. T.	START DATE 10/01/19	COMP. DATE 10/01/19	SURFACE WATER DEPTH 3.3	3ft	DRIL	LER DI	JGGINS,	, W. T.	STA	ART DATE 10/01/19	COMP. DAT	TE 10/01/19	SURFACE WATER DEPTH 3	3ft	
ELEV DRIVE DEPTH BLOW COUN	IT BLOWS PER FOO	DT SAMP.	SOIL AND ROCK DES		ELEV	DRIVE ELEV	DEPTH	BLOW	COUNT	BLOWS PER FOC)T	SAMP.	SOIL AND ROCK DES		
$\begin{array}{c c} (ft) & \overset{ELEV}{(ft)} & (ft) & 0.5ft & 0.5ft & 0 \end{array}$	0.5ft 0 25 50	75 100 NO. MOI G		DEPTH (ft)	(ft)	(ft)	(ft) (0.5ft 0.	5ft 0.5ft	0 25 50	75 100	NO. MOI G			
75			WATER SURFACE (10/01/19)	5					Match Line					
				10/01/13)									Boring Terminated at Elev COASTAL PLAIN SILTY	CLAY (CAPE	
70.9 + 0.0			GROUND SURF										FEAR FORMAT	ION)	
	/OH	Sat.	ALLUVIAL GRAY, SILTY CLAY, TRAC										-		
			67.4 GRAY, COARSE TO FINE										-		
	1	· · · · · Sat.	ROUNDED GRAVEL, TRA	CE ORGANICS									-		
			62.9	8.0									-		
61.5 + 9.4 2 2	$\begin{array}{c c c c c c c c c c c c c c c c c c c $		GREEN-GRAY, SILTY C												
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51.5 + 19.4 WOH 1	2		_										L		
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46.5 + 24.4															
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36.5 + 34.4	/														
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			RED, BROWN, GRAY, S (CAPE FEAR FORM	ATION)									L		
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SHEET 6 OF 9

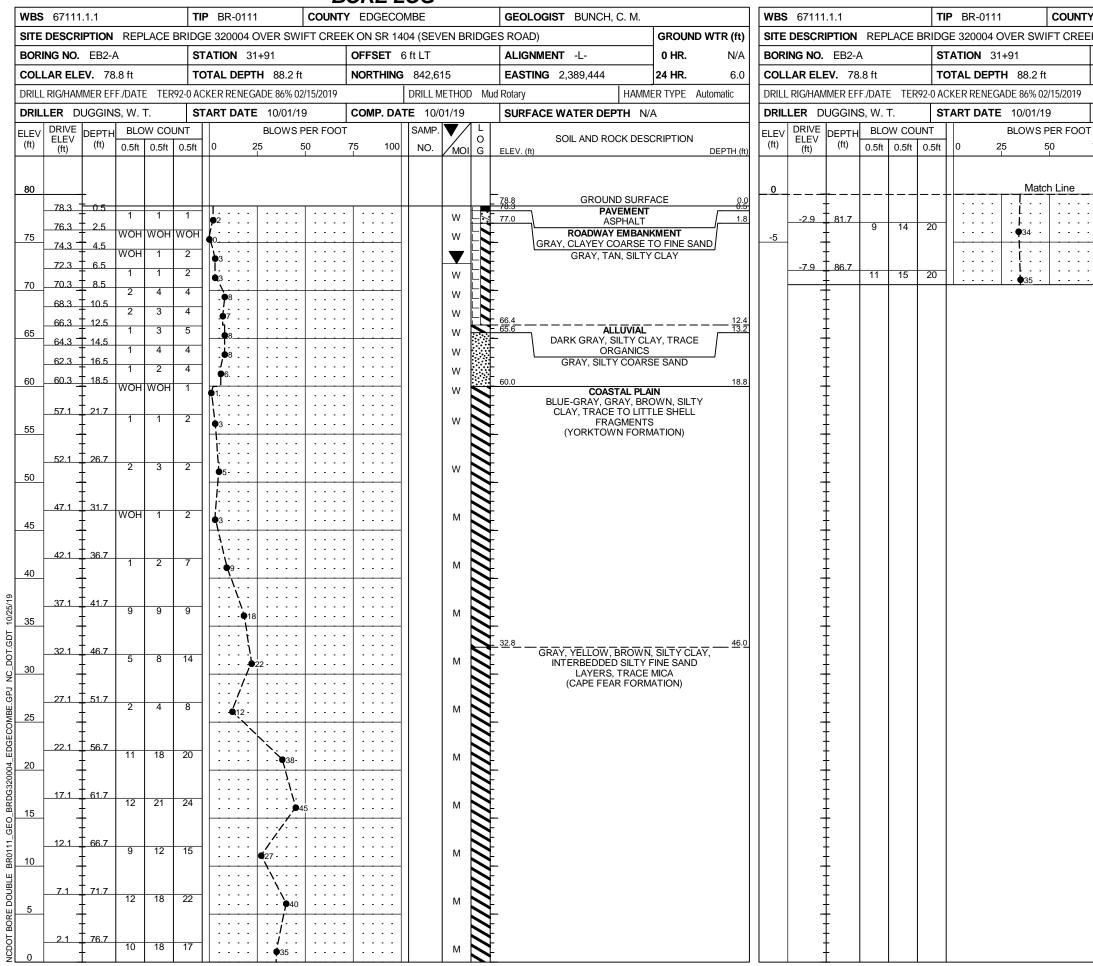


COLLARE LEV. 63.11 TOTAL DEPTH 75.61 NOTAL DEPTH 75.61 NO Dalla Bland MARCELLAN EGG 28 Schullen Dalla Collar District Units Collar District Collar District Units Collar District Collar District Units Collar District Collar Distric Collar District Colla											SORE				-											
DORMAND, D.2.0 TATADO, 31-50 OFFEET 7.18T LUNMENT 0 HR, MAN ORMAND, D.2.0 TATADO, 31-50 ORMAND, D.2.0 DELABLERU, COLORAT, TOPA ADDA, MONTHON, COLORATION, COL	WBS	67111	1.1.1			TI	P BR-C	0111		COUNT	Y EDGE	COMBE			GEOLOGIST RUSSEK, S. C.	T		WBS	67111	.1.1			TIF	BR-0111	COUNT	Υ
COLLAGE LLY: 01:1 TOTAL DEPTH: 16.2:1 NON-TIME 04.2011 DATE DAT	SITE	DESCR	IPTION	REP	LACE	BRIDG	GE 32000	04 OV	ER SW	IFT CRE	EK ON SR	1404 (SE	VEN B	RIDG	SES ROAD)		ft)	SITE	DESCR	IPTION	REP	LACE	BRIDG	E 320004 OVER SW	IFT CREE	EK C
Bit Line Monthematical Security 2014 Instruction Security 2014	BOR	ing no.	B2-B			S	TATION	31+	36		OFFSET	7 ft RT				0 HR. N	/A	BORIN	ig no.	B2-B			ST	ATION 31+36		OF
DelLet DUCADES V.T First Date Openant Description DelLet DUCADES V.T First Date Openant Openant <t< td=""><td>COL</td><td>LAR ELI</td><td>EV. 69</td><td>9.1 ft</td><td></td><td>т</td><td>DTAL D</td><td>EPTH</td><td>78.5 f</td><td>t</td><td>NORTH</td><td>NG 842,</td><td>581</td><td></td><td>EASTING 2,389,399</td><td>24 HR.</td><td>/A</td><td>COLL</td><td>AR ELI</td><td>EV. 69</td><td>9.1 ft</td><td></td><td>ТС</td><td>)TAL DEPTH 78.5 f</td><td>t</td><td>NO</td></t<>	COL	LAR ELI	EV. 69	9.1 ft		т	DTAL D	EPTH	78.5 f	t	NORTH	NG 842,	581		EASTING 2,389,399	24 HR.	/A	COLL	AR ELI	EV. 69	9.1 ft		ТС)TAL DEPTH 78.5 f	t	NO
model model model model model model model model model model model model model model model model model model model model model <td>DRILL</td> <td>_ RIG/HAN</td> <td>MMER EF</td> <td>F./DAT</td> <td>E TER</td> <td>92-0 AC</td> <td>CKER REI</td> <td>NEGAD</td> <td>DE 86% 0</td> <td>2/15/2019</td> <td></td> <td>DRILL</td> <td>METHC</td> <td>D Mu</td> <td>lud Rotary HAMN</td> <td>IER TYPE Automatic</td> <td></td> <td>DRILL</td> <td>rig/han</td> <td>IMER EF</td> <td>F./DATE</td> <td>e ter</td> <td>92-0 AC</td> <td>KER RENEGADE 86% 0</td> <td>2/15/2019</td> <td></td>	DRILL	_ RIG/HAN	MMER EF	F./DAT	E TER	92-0 AC	CKER REI	NEGAD	DE 86% 0	2/15/2019		DRILL	METHC	D Mu	lud Rotary HAMN	IER TYPE Automatic		DRILL	rig/han	IMER EF	F./DATE	e ter	92-0 AC	KER RENEGADE 86% 0	2/15/2019	
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SHEET 7 OF 9

EDGECON	1BE			GEOLOGIST RUSSEK, S.	C.								
K ON SR 140	4 (SEV	EN BR	IDGE	S ROAD)		GROUN	ID WTR (ft)						
OFFSET 7	ft RT			ALIGNMENT -L-		0 HR.	N/A						
NORTHING	842,58	31		EASTING 2,389,399		24 HR.	N/A						
	DRILL M	ethod) Muc	d Rotary HA	MME	R TYPE	Automatic						
COMP. DAT	E 09/3	80/19		SURFACE WATER DEPTH	5.0	ft							
	SAMP.		L O	SOIL AND ROCK DESCRIPTION									
75 100	NO.	/моі	Ğ										
				MOTTLED GRAY, MAR									
				CLAY, TRAC (CAPE FEAR FORMA	CE MI	CA							
		W	N	-9.4			78.5						
			ļF	- Boring Terminated at E COASTAL PLAIN SIL	ТҮ С	LAY (CAI	t IN PE						
			ļĘ	FEAR FORM	IATIC	DN)							
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SHEET 8 OF 9

EDGECON	1BE			GEOLOGIST BUNCH, C. M.		
K ON SR 140	4 (SEV	EN BR	IDGE	S ROAD)	GROUN	ND WTR (ft)
OFFSET 6	ft LT			ALIGNMENT -L-	0 HR.	N/A
NORTHING	842,61	15		EASTING 2,389,444	24 HR.	6.0
	DRILL M	ETHOD	Mud	Rotary HAMN	ER TYPE	Automatic
COMP. DAT	E 10/0	01/19		SURFACE WATER DEPTH N	A	
75 100	SAMP. NO.		L O	SOIL AND ROCK DES	CRIPTION	1
	NO.	/MOI	G			
T			\mathbf{x}	GRAY, YELLOW, BROWN	I, SILTY C	LAY,
				INTERBEDDED SILTY LAYERS, TRACE	MICA	
		М		(CAPE FEAR FORMATIO	N) (contini	ued)
		М		-9.4		88.2
			F	Boring Terminated at Elev COASTAL PLAIN SILTY	ation -9.4 CLAY (CA	ft IN PE
			F	FEAR FORMAT	ION)	
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SITE PHOTOGRAPHS

REPLACE BRIDGE NO. 320004 OVER SWIFT CREEK ON SR 1404 (SEVEN BRDGES ROAD)



FROM END BENT 2 LOOKING WEST



FROM END BENT 1 RIGHT LOOKING EAST

	PROJECT REFERENCE	<i>NO</i> .	SHEET	NO.
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