

REFERENCE: B-4931

PROJECT: 40134

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

STRUCTURE
SUBSURFACE INVESTIGATION

COUNTY EDGEcombe
SITE DESCRIPTION BRIDGE NO. 22 ON US 258 OVER
TOWN CREEK AT -L- 16+99

CONTENTS

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	LEGEND (SOIL & ROCK)
3	SITE PLAN
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STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4931	1	8

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) 707-6850. THE SUBSURFACE PLANS AND REPORTS, FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA ARE NOT 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 THE 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.

- NOTES:
- 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.
 - 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

W. PESL

S. DAVIS

T. BEARD

INVESTIGATED BY F&R, Inc.

DRAWN BY T.T. WALKER

CHECKED BY D. RACEY

SUBMITTED BY P. ALTON, P.E.

DATE AUGUST 2019

SINCE **Prepared in the Office of:**

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DocuSigned by:

Patrick Alton

11/5/2019

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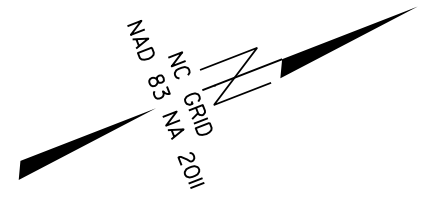
DATE

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT
SUBSURFACE INVESTIGATION
SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

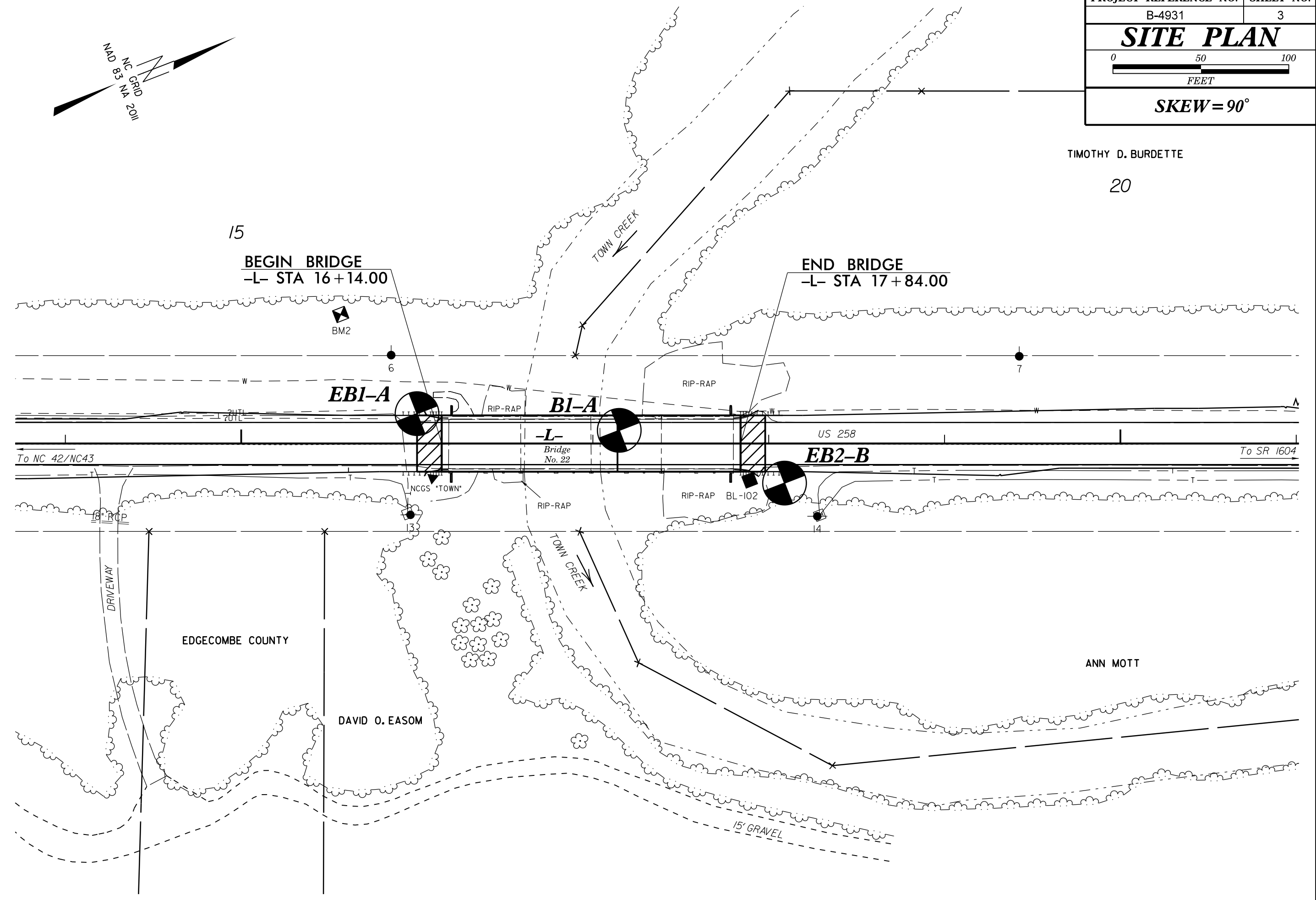
SOIL DESCRIPTION		GRADATION		ROCK DESCRIPTION		TERMS AND DEFINITIONS	
<p>SOIL IS CONSIDERED UNCONSOLIDATED, SEMI-CONSOLIDATED, OR WEATHERED EARTH MATERIALS THAT CAN BE PENETRATED WITH A CONTINUOUS FLIGHT POWER AUGER AND YIELD LESS THAN 100 BLOWS PER FOOT ACCORDING TO THE STANDARD PENETRATION TEST (AASHTO T 206, ASTM D1586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY INCLUDE THE FOLLOWING: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. FOR EXAMPLE, VERY STIFF, GRAY, SILTY CLAY, MOIST WITH INTERBEDDED FINE SAND LAYERS, HIGHLY PLASTIC, A-7-6</p>		<p>WELL GRADED - INDICATES A GOOD REPRESENTATION OF PARTICLE SIZES FROM FINE TO COARSE. UNIFORMLY GRADED - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE. GAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLE SIZES OF TWO OR MORE SIZES.</p>		<p>HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT REFUSAL IF TESTED, AN INFERRED ROCK LINE INDICATES THE LEVEL AT WHICH NON-COASTAL PLAIN MATERIAL WOULD YIELD SPT REFUSAL. SPT REFUSAL IS PENETRATION BY A SPLIT SPOON SAMPLER EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS IN NON-COASTAL PLAIN MATERIAL. THE TRANSITION BETWEEN SOIL AND ROCK IS OFTEN REPRESENTED BY A ZONE OF WEATHERED ROCK. ROCK MATERIALS ARE TYPICALLY DIVIDED AS FOLLOWS:</p>		<p>ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER. AQUIFER - A WATER BEARING FORMATION OR STRATA. ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND. 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. ARTESIAN - GROUND WATER THAT IS UNDER SUFFICIENT PRESSURE TO RISE ABOVE THE LEVEL AT WHICH IT IS ENCOUNTERED, BUT WHICH DOES NOT NECESSARILY RISE TO OR ABOVE THE GROUND SURFACE. CALCAREOUS (CALC.) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE. COLLUVIUM - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM OF SLOPE. 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. DIKE - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT ROCKS OR CUTS MASSIVE ROCK. DIP - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL. DIP DIRECTION (DIP AZIMUTH) - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH. FAULT - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE. FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES. FLOAT - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLODGED FROM PARENT MATERIAL. FLOOD PLAIN (FP) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM. FORMATION (FM) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD. 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 ITS LATERAL EXTENT. 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. PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE OF AN INTERVENING IMPERVIOUS STRATUM. RESIDUAL (RES.) SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK. ROCK QUALITY DESIGNATION (RQD) - 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 PERCENTAGE. SAPROLITE (SAP.) - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK. SILL - 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 INTRODUCED ROCKS. SLICKENSIDE - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT OR SLIP PLANE. STANDARD PENETRATION TEST (PENETRATION RESISTANCE) (SPT) - NUMBER OF BLOWS IN 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. STRATA CORE RECOVERY (SREC.) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE. STRATA ROCK QUALITY DESIGNATION (SRQD) - 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. TOPSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.</p>	
SOIL LEGEND AND AASHTO CLASSIFICATION		ANGULARITY OF GRAINS		WEATHERED ROCK (WR)		<p>CRYSTALLINE ROCK (CR) - FINE TO COARSE GRAIN IGNEOUS AND METAMORPHIC ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES GRANITE, GNEISS, GABBRO, SCHIST, ETC.</p> <p>NON-CRYSTALLINE ROCK (INCR) - FINE TO COARSE GRAIN METAMORPHIC AND NON-COASTAL PLAIN SEDIMENTARY ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES PHYLLITE, SLATE, SANDSTONE, ETC.</p> <p>COASTAL PLAIN SEDIMENTARY ROCK (CP) - COASTAL PLAIN SEDIMENTS CEMENTED INTO ROCK, BUT MAY NOT YIELD SPT REFUSAL. ROCK TYPE INCLUDES LIMESTONE, SANDSTONE, CEMENTED SHELL BEDS, ETC.</p>	
MINERALOGICAL COMPOSITION		COMPRESSION		WEATHERING			
PERCENTAGE OF MATERIAL		GROUND WATER		ROCK HARDNESS			
MISCELLANEOUS SYMBOLS		RECOMMENDATION SYMBOLS		ABBREVIATIONS			
TEXTURE OR GRAIN SIZE		SOIL MOISTURE - CORRELATION OF TERMS		EQUIPMENT USED ON SUBJECT PROJECT			
CONSISTENCY OR DENSENESS		PLASTICITY		INDURATION			
USUAL TYPES OF MAJOR MATERIALS		COLOR		NOTES			
GEN. RATING AS SUBGRADE		DESCRIPTIONS MAY INCLUDE COLOR OR COLOR COMBINATIONS (TAN, RED, YELLOW-BROWN, BLUE-BROWN, GRAY). MODIFIERS SUCH AS LIGHT, DARK, STREAKED, ETC. ARE USED TO DESCRIBE APPEARANCE.		DATE: 8-15-14			

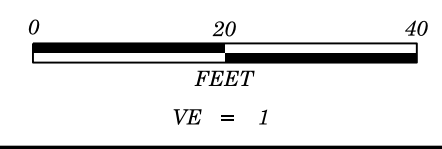
PROJECT REFERENCE NO.	SHEET NO.
B-4931	3
SITE PLAN	
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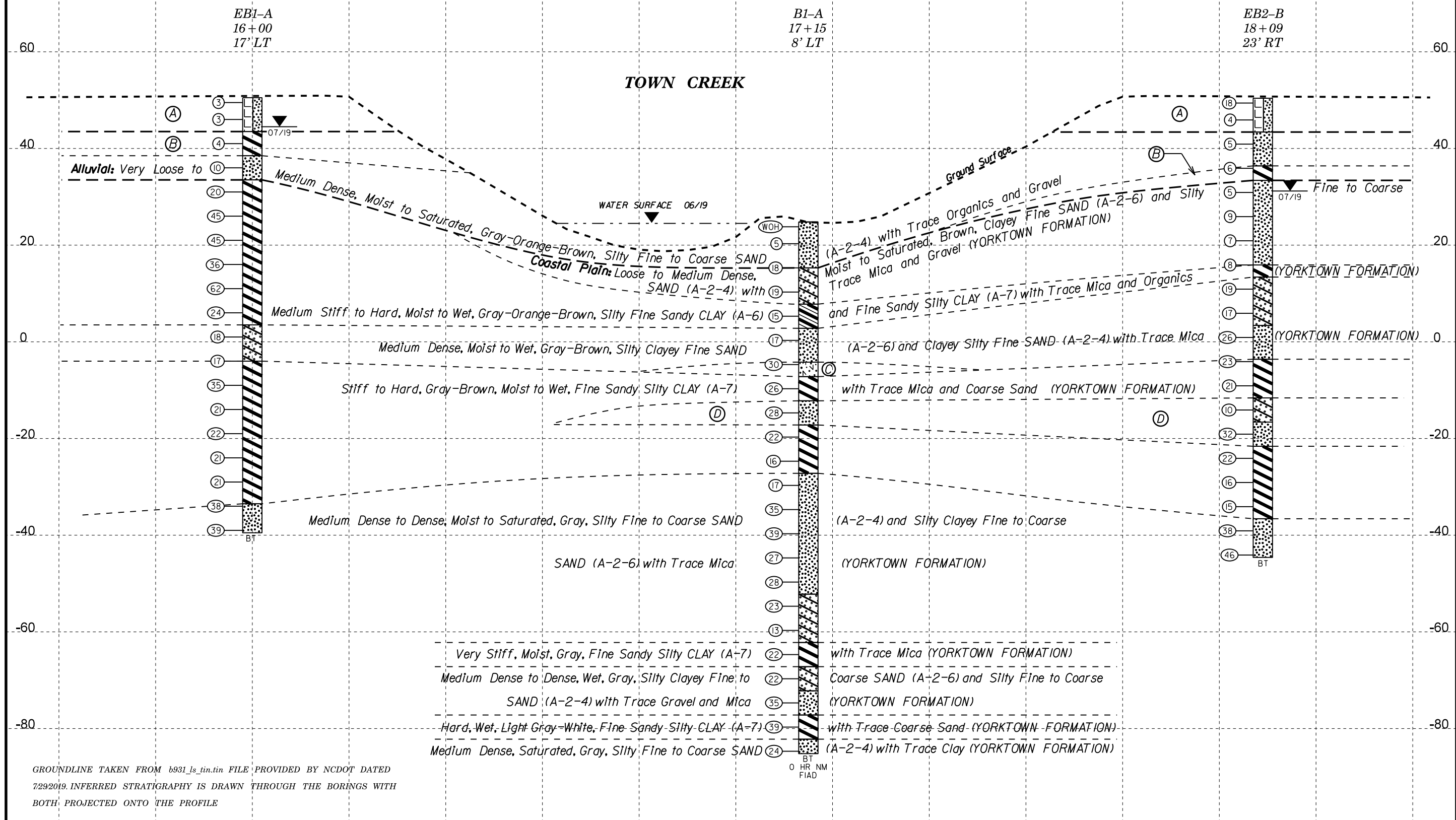
TIMOTHY D. BURDETTE

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- (A) **Roadway Embankment:** Very Loose to Medium Dense, Moist, Gray-Brown, Silty Fine SAND (A-2-4) with Trace Organics and Gravel from 0.0'-1.5'
- (B) **Alluvial:** Soft to Medium Stiff, Moist, Gray-Orange-Brown, Fine Sandy Silty CLAY (A-7) with Trace Mica and Organics
- (C) **Coastal Plain:** Very Stiff, Wet, Gray, Clayey SILT (A-5) with Trace Fine to Coarse Sand and Mica (YORKTOWN FORMATION)
- (D) **Coastal Plain:** Loose to Dense, Moist to Wet, Green-Gray, Silty Clayey Fine SAND (A-2-6) and Clayey Silty Fine SAND (A-2-4) with Trace Mica and Coarse Sand (YORKTOWN FORMATION)



GROUNDLINE TAKEN FROM b931_ls_tin.tin FILE PROVIDED BY NCDOT DATED 7/29/2019. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE PROFILE

16+00

17+00

18+00

GEOTECHNICAL BORING REPORT

BORE LOG

WBS 40134.1.1		TIP B-4931		COUNTY EDGECOMBE		GEOLOGIST W. Pesl										
SITE DESCRIPTION Bridge 22 on US 258 over Town Creek at -L- 16+99							GROUND WTR (ft)									
BORING NO. EB1-A		STATION 16+00		OFFSET 17 ft LT		ALIGNMENT -L-										
COLLAR ELEV. 50.5 ft		TOTAL DEPTH 90.0 ft		NORTHING 748,347		EASTING 2,417,621										
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 84% 03/01/2019			DRILL METHOD Mud Rotary			HAMMER TYPE Automatic										
DRILLER S. Davis		START DATE 07/17/19		COMP. DATE 07/17/19		SURFACE WATER DEPTH 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						
55																
50	50.5	0.0	1	1	2											50.5
	47.0	3.5	2	1	2											
45	42.0	8.5	1	2	2											
40	37.0	13.5	3	5	5											
35	32.0	18.5	7	9	11											
30	27.0	23.5	13	22	23											
25	22.0	28.5	12	19	26											
20	17.0	33.5	11	16	20											
15	12.0	38.5	19	28	34											
10	7.0	43.5	7	10	14											
5	2.0	48.5	6	7	11											
0	-3.0	53.5	5	4	13											
-5	-8.0	58.5	10	15	20											
-10	-13.0	63.5	7	9	12											
-15	-18.0	68.5	8	10	12											
-20	-23.0	73.5	5	8	13											
-25																

WBS 40134.1.1		TIP B-4931		COUNTY EDGECOMBE		GEOLOGIST W. Pesl										
SITE DESCRIPTION Bridge 22 on US 258 over Town Creek at -L- 16+99							GROUND WTR (ft)									
BORING NO. EB1-A		STATION 16+00		OFFSET 17 ft LT		ALIGNMENT -L-										
COLLAR ELEV. 50.5 ft		TOTAL DEPTH 90.0 ft		NORTHING 748,347		EASTING 2,417,621										
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 84% 03/01/2019			DRILL METHOD Mud Rotary			HAMMER TYPE Automatic										
DRILLER S. Davis		START DATE 07/17/19		COMP. DATE 07/17/19		SURFACE WATER DEPTH 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						
-25																
	-28.0	78.5	6	10	11											
-30	-33.0	83.5	7	18	20											
-35	-38.0	88.5	14	18	21											

NCDOT BORE DOUBLE 66X-0196 BORE LOGS.GPJ NC_DOT.GDT 8/5/19

Gray-Brown, Fine Sandy Silty CLAY (A-7) with Trace Mica (YORKTOWN FORMATION) (continued)

Gray, Silty Fine SAND (A-2-4) with Trace Mica (YORKTOWN FORMATION)

Boring Terminated at Elevation -39.5 ft in SAND (COASTAL PLAIN-YORKTOWN FORMATION)

- Notes:
 1. Surficial Organic Soil: 0.0-0.1'
 2. NM=Not Measured (due to Mud Rotary)

GEOTECHNICAL BORING REPORT

BORE LOG

WBS 40134.1.1		TIP B-4931		COUNTY EDGECOMBE		GEOLOGIST W. Pesl	
SITE DESCRIPTION Bridge 22 on US 258 over Town Creek at -L- 16+99							GROUND WTR (ft)
BORING NO. B1-A		STATION 17+15		OFFSET 8 ft LT		ALIGNMENT -L-	
COLLAR ELEV. 24.8 ft		TOTAL DEPTH 110.0 ft		NORTHING 748,450		EASTING 2,417,671	
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 84% 03/01/2019			DRILL METHOD Mud Rotary			HAMMER TYPE Automatic	
DRILLER S. Davis		START DATE 07/18/19		COMP. DATE 07/19/19		SURFACE WATER DEPTH 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					
25	24.8	0.0	WOH	WOH	WOH								24.8	GROUND SURFACE	0.0
														ALLUVIAL	
														Brown-Gray, Silty Fine SAND (A-2-4) with Trace Organics and Gravel	
20	21.3	3.5	2	2	3										
15	16.3	8.5	1	4	14									COASTAL PLAIN	
														Brown, Clayey Fine SAND (A-2-6) with Trace Silt and Mica (YORKTOWN FORMATION)	
10	11.3	13.5	5	8	11										
5	6.3	18.5	6	7	8									Gray-Brown, Silty Fine Sandy CLAY (A-6) with Trace Mica (YORKTOWN FORMATION)	
0	1.3	23.5	6	8	9										
-5	-3.7	28.5	8	10	20									Gray-Brown, Silty Fine SAND (A-2-4) with Trace Clay and Mica (YORKTOWN FORMATION)	
-10	-8.7	33.5	10	12	14										
-15	-13.7	38.5	4	9	19									Gray, Clayey SILT (A-5) with Trace Fine to Coarse Sand and Mica (YORKTOWN FORMATION)	
-20	-18.7	43.5	6	9	13									Gray, Fine Sandy Silty CLAY (A-7) with Trace Mica (YORKTOWN FORMATION)	
-25	-23.7	48.5	5	8	8										
-30	-28.7	53.5	7	6	11									Gray, Silty Fine SAND (A-2-4) with Trace Mica (YORKTOWN FORMATION)	
-35	-33.7	58.5	15	15	20										
-40	-38.7	63.5	15	19	20									Gray, Silty CLAY (A-7) with Trace Fine to Coarse Sand and Mica (YORKTOWN FORMATION)	
-45	-43.7	68.5	6	10	17										
-50	-48.7	73.5	16	15	13									Gray, Silty Fine to Coarse SAND (A-2-4) with Trace Clay and Mica (YORKTOWN FORMATION)	
-55	-53.7	78.5	11	11	12										

WBS 40134.1.1		TIP B-4931		COUNTY EDGECOMBE		GEOLOGIST W. Pesl	
SITE DESCRIPTION Bridge 22 on US 258 over Town Creek at -L- 16+99							GROUND WTR (ft)
BORING NO. B1-A		STATION 17+15		OFFSET 8 ft LT		ALIGNMENT -L-	
COLLAR ELEV. 24.8 ft		TOTAL DEPTH 110.0 ft		NORTHING 748,450		EASTING 2,417,671	
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 84% 03/01/2019			DRILL METHOD Mud Rotary			HAMMER TYPE Automatic	
DRILLER S. Davis		START DATE 07/18/19		COMP. DATE 07/19/19		SURFACE WATER DEPTH 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					
-55														Match Line	
-60	-58.7	83.5	6	6	7									Gray, Silty Clayey Fine to Coarse SAND (A-2-6) with Trace Mica (YORKTOWN FORMATION) (continued)	
-65	-63.7	88.5	9	10	12									Gray, Fine Sandy Silty CLAY (A-7) with Trace Mica (YORKTOWN FORMATION)	
-70	-68.7	93.5	10	11	11									Gray, Silty Clayey Fine to Coarse SAND (A-2-6) with Trace Mica (YORKTOWN FORMATION)	
-75	-73.7	98.5	13	15	20									Gray, Silty Fine to Coarse SAND (A-2-4) with Trace Clay, Gravel, and Mica (YORKTOWN FORMATION)	
-80	-78.7	103.5	10	18	21									Light Gray-White, Fine Sandy Silty CLAY (A-7) with Trace Coarse Sand (YORKTOWN FORMATION)	
-85	-83.7	108.5	9	10	14									Gray, Silty Fine to Coarse SAND (A-2-4) with Trace Clay (YORKTOWN FORMATION)	
														Boring Terminated at Elevation -85.2 ft in SAND (COASTAL PLAIN-YORKTOWN FORMATION)	

NCDOT BORE DOUBLE 66X-0196 BORE LOGS.GPJ NC_DOT.GDT 8/5/19

- Notes:
1. Surficial Organic Soil: 0.0-0.2'
 2. NM=Not Measured (due to Mud Rotary)
 3. FIAD=Filled Immediately After Drilling due to the boring location on the bridge deck

GEOTECHNICAL BORING REPORT

BORE LOG

WBS 40134.1.1		TIP B-4931		COUNTY EDGECOMBE		GEOLOGIST W. Pesl									
SITE DESCRIPTION Bridge 22 on US 258 over Town Creek at -L- 16+99							GROUND WTR (ft)								
BORING NO. EB2-B		STATION 18+09		OFFSET 23 ft RT		ALIGNMENT -L-									
COLLAR ELEV. 50.4 ft		TOTAL DEPTH 95.0 ft		NORTHING 748,527		EASTING 2,417,734									
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 84% 03/01/2019			DRILL METHOD Mud Rotary			HAMMER TYPE Automatic									
DRILLER S. Davis		START DATE 07/16/19		COMP. DATE 07/16/19		SURFACE WATER DEPTH 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					
55															
50	50.4	0.0	2	9	9									50.4	GROUND SURFACE
45	46.9	3.5	2	2	2									43.4	ROADWAY EMBANKMENT Gray-Brown, Silty Fine SAND (A-2-4) with Trace Organics and Gravel from 0.0-1.5'
40	41.9	8.5	4	2	3									43.4	ALLUVIAL Orange-Brown, Silty Fine to Coarse SAND (A-2-4) with Trace Organics
35	36.9	13.5	2	2	4									36.4	Orange-Brown, Fine Sandy Silty CLAY (A-7) with Trace Organics
30	31.9	18.5	2	2	3									33.4	COASTAL PLAIN Light Brown, Silty Fine to Coarse SAND (A-2-4) with Trace Gravel from 33.5'-34.5' (YORKTOWN FORMATION)
25	26.9	23.5	4	4	5									15.9	Gray-Brown, Fine Sandy Silty CLAY (A-7) (YORKTOWN FORMATION)
20	21.9	28.5	3	3	4									13.4	Gray, Silty Clayey Fine SAND (A-2-6) with Trace Mica (YORKTOWN FORMATION)
15	16.9	33.5	3	3	5									3.4	Green-Gray, Clayey Silty Fine SAND (A-2-4) with Trace Mica and Coarse Sand (YORKTOWN FORMATION)
10	11.9	38.5	9	8	11									-3.6	Gray, Fine Sandy Silty CLAY (A-7) with Trace Mica and Coarse Sand (YORKTOWN FORMATION)
5	6.9	43.5	7	6	11									-11.6	Gray, Silty Clayey Fine SAND (A-2-6) with Trace Mica (YORKTOWN FORMATION)
0	1.9	48.5	6	11	15									-16.6	Gray, Silty Fine SAND (A-2-4) (YORKTOWN FORMATION)
-5	-3.1	53.5	6	10	13									-21.6	Dark Gray-Brown, Fine Sandy Silty CLAY (A-7) with Trace Mica (YORKTOWN FORMATION)
-10	-8.1	58.5	9	9	12										
-15	-13.1	63.5	6	4	6										
-20	-18.1	68.5	11	14	18										
-25	-23.1	73.5	7	10	12										

WBS 40134.1.1		TIP B-4931		COUNTY EDGECOMBE		GEOLOGIST W. Pesl									
SITE DESCRIPTION Bridge 22 on US 258 over Town Creek at -L- 16+99							GROUND WTR (ft)								
BORING NO. EB2-B		STATION 18+09		OFFSET 23 ft RT		ALIGNMENT -L-									
COLLAR ELEV. 50.4 ft		TOTAL DEPTH 95.0 ft		NORTHING 748,527		EASTING 2,417,734									
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 84% 03/01/2019			DRILL METHOD Mud Rotary			HAMMER TYPE Automatic									
DRILLER S. Davis		START DATE 07/16/19		COMP. DATE 07/16/19		SURFACE WATER DEPTH 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					
-25															
-30	-28.1	78.5	6	7	9										Match Line
-35	-33.1	83.5	6	6	9										Dark Gray-Brown, Fine Sandy Silty CLAY (A-7) with Trace Mica (YORKTOWN FORMATION) (continued)
-40	-38.1	88.5	5	14	24										Gray, Silty Fine to Coarse SAND (A-2-4) with Trace Mica (YORKTOWN FORMATION)
	-43.1	93.5	12	21	25										Boring Terminated at Elevation -44.6 ft in SAND (COASTAL PLAIN-YORKTOWN FORMATION)

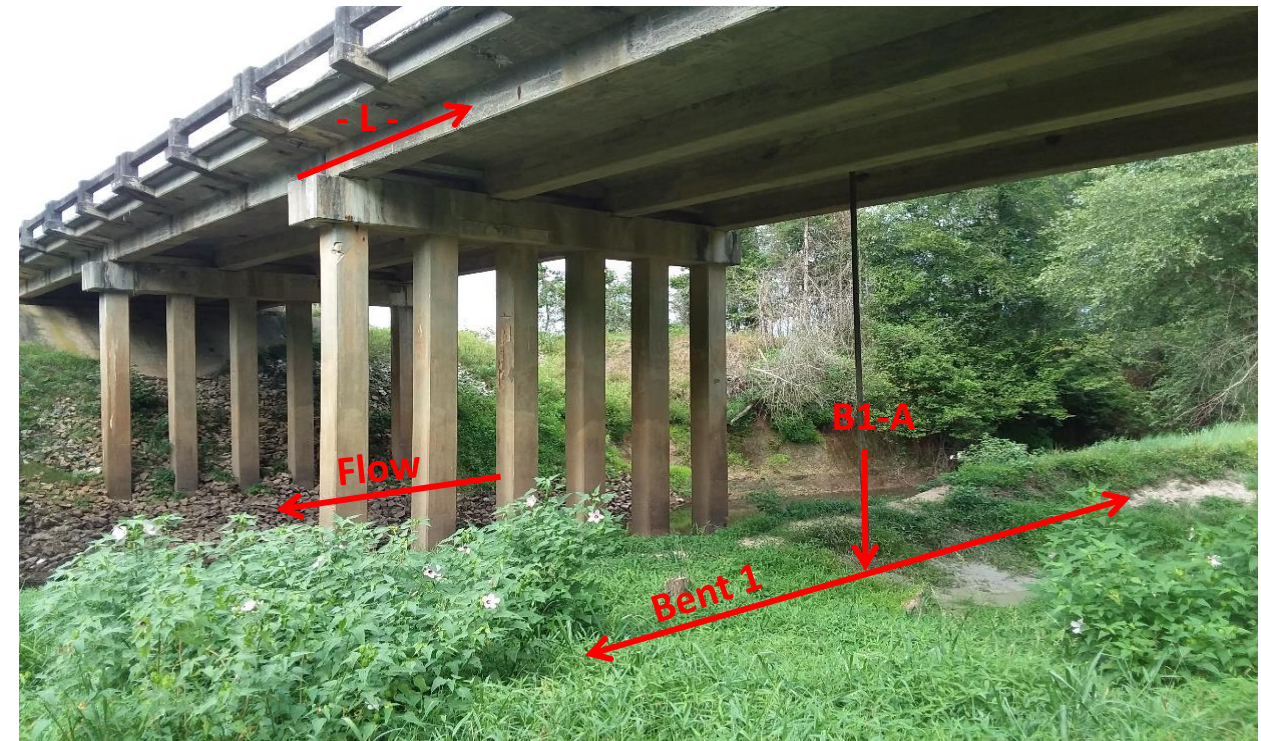
NCDOT BORE DOUBLE 66X-0196 BORE LOGS.GPJ NC_DOT.GDT 8/5/19

- Notes:
 1. Surficial Organic Soil: 0.0-0.2'
 2. NM=Not Measured (due to Mud Rotary)

Bridge No. 22 over Town Creek at -L- Station 16+99.0
SITE PHOTOGRAPHS



Photograph No. 1: View from West Side of Bridge looking North



Photograph No. 3: View of Bent 1 looking South



Photograph No. 2: View from End Bent 1 looking North



Photograph No. 4: View from East Side of bridge looking South, drilling B1-A