

PROJECT: 17BP.8.R.750 REFERENCE: N/A

CONTENTS

<u>SHEET NO.</u>	<u>DESCRIPTION</u>
1	TITLE SHEET
2	LEGEND (SOIL & ROCK)
3	SITE PLAN
4	PROFILE
5-6	BORE LOGS
7	SOIL TEST RESULTS
8	SITE PHOTO

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

STRUCTURE
SUBSURFACE INVESTIGATION

COUNTY HOKE
PROJECT DESCRIPTION BRIDGE NO. 61 ON SR 1409
(JOHNSON MILL RD.) OVER PUPPY CREEK

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.8.R.750	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 (IN-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

S&ME, Inc.

INVESTIGATED BY R.E. KRAL

DRAWN BY J.R. SWARTLEY

CHECKED BY S.S. LANEY

SUBMITTED BY S&ME, Inc.

DATE JUNE 2017



DocuSigned by:
Robert E Kral

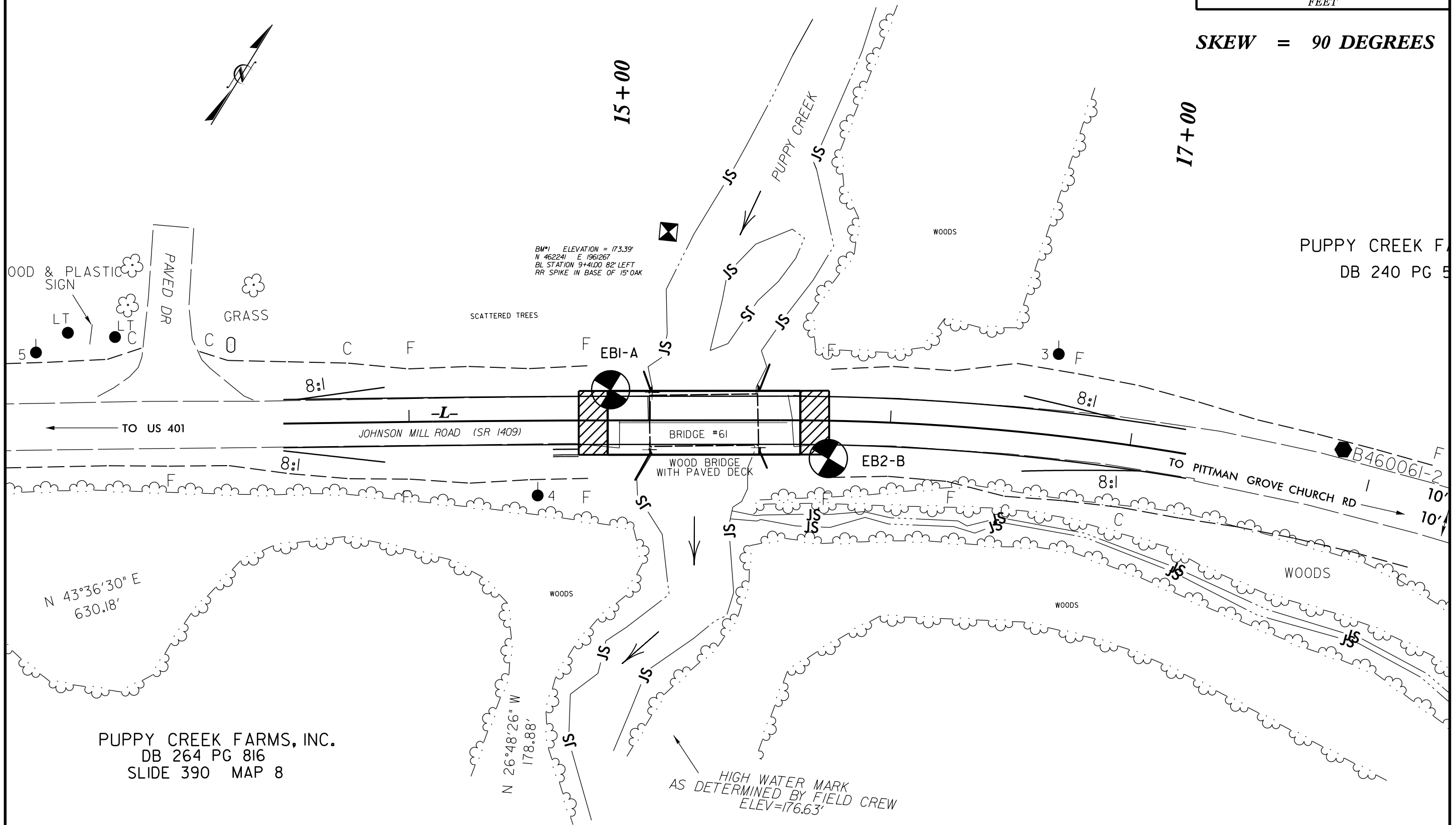
6/27/2017

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SIGNATURE

DATE

**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**

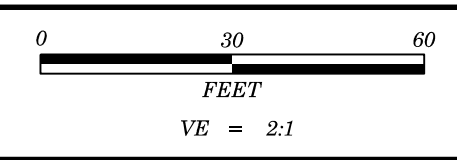
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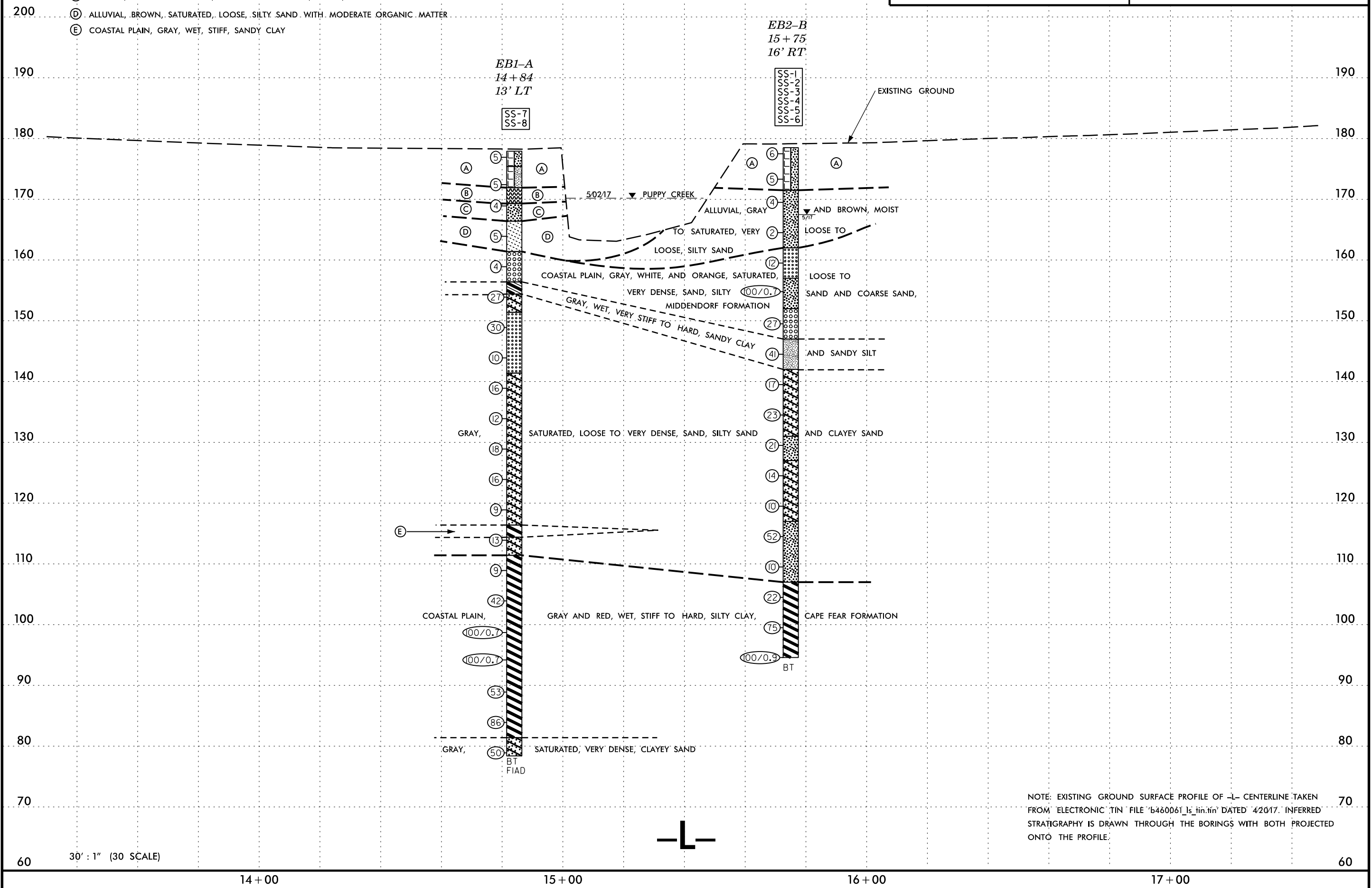
PUPPY CREEK F
DB 240 PG 5

PUPPY CREEK FARMS, INC.
DB 264 PG 816
SLIDE 390 MAP 8

- (A) ROADWAY EMBANKMENT, GRAY AND ORANGE, MOIST, LOOSE, SILTY SAND AND MED. STIFF, SANDY SILT
- (B) ALLUVIAL, BROWN AND BLACK, MOIST TO WET, VERY SOFT, MUCK
- (C) ALLUVIAL, BROWN AND GRAY, MOIST TO SATURATED, LOOSE, SILTY SAND WITH TRACE ORGANIC MATTER
- (D) ALLUVIAL, BROWN, SATURATED, LOOSE, SILTY SAND WITH MODERATE ORGANIC MATTER
- (E) COASTAL PLAIN, GRAY, WET, STIFF, SANDY CLAY



PROJECT REFERENCE NO.	SHEET NO.
17BP.8.R.750	4
PROFILE ALONG -L- CENTERLINE	



NOTE: EXISTING GROUND SURFACE PROFILE OF -L- CENTERLINE TAKEN FROM ELECTRONIC TIN FILE 'b480061_1s.tin' DATED 4/2017. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE PROFILE.

30' : 1" (30 SCALE)



GEOTECHNICAL BORING REPORT

BORE LOG

WBS 17BP.8.R.750		TIP N/A		COUNTY HOKE		GEOLOGIST Swartley, J. R.	
SITE DESCRIPTION BRIDGE NO. 61 ON SR 1409 (JOHNSON MILL ROAD) OVER PUPPY CREEK						GROUND WTR (ft)	
BORING NO. EB1-A		STATION 14+84		OFFSET 13 ft LT		ALIGNMENT L	
COLLAR ELEV. 177.9 ft		TOTAL DEPTH 99.5 ft		NORTHING 462,173		EASTING 1,961,281	
DRILL RIG/HAMMER EFF./DATE SME1524 CME-45B 85% 05/02/2017			DRILL METHOD Mud Rotary			HAMMER TYPE Automatic	
DRILLER Contract Driller		START DATE 05/02/17		COMP. DATE 05/02/17		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			
			0.5ft	0.5ft	0.5ft	0	25	50	75	100				ELEV. (ft)	DEPTH (ft)		
180	177.9	0.0														GROUND SURFACE	0.0
175	173.4	4.5	2	3	2									M	ROADWAY EMBANKMENT	2.5	
170	169.9	8.0												M	TAN, SILTY SAND	6.0	
																ORANGE, SANDY SILT	
165	164.9	13.0												Sat.	ALLUVIAL	8.6	
160	159.9	18.0	1	2	2									SS-7	BLACK, MUCK (ORG. CONTENT = 21.6%)	11.5	
155	154.9	23.0												Sat.	GRAY, SILTY SAND WITH TRACE ORGANIC MATTER	16.5	
150	149.9	28.0	WOH	WOH	5									SS-8	BROWN, SILTY SAND WITH MODERATE ORGANIC MATTER (ORG. CONTENT = 7.9%)	21.5	
145	144.9	33.0												Sat.	COASTAL PLAIN	23.5	
140	139.9	38.0	1	2	2									Sat.	ORANGE, COARSE SAND (MIDDENDORF FORMATION)	26.5	
135	134.9	43.0	8	11	16									Sat.	ORANGE, SANDY CLAY	36.5	
130	129.9	48.0	10	16	14									W	TAN AND GRAY, CLAYEY SAND	141.4	
125	124.9	53.0	10	6	4									Sat.	ORANGE, FINE TO COARSE, SAND		
120	119.9	58.0	6	6	6									Sat.	TAN AND LIGHT GRAY, CLAYEY SAND		
115	114.9	63.0	6	6	6									Sat.			
110	109.9	68.0	6	6	6									Sat.			
105	104.9	73.0	8	8	10									Sat.			
100			8	17	25									W			

NCDOT BORE DOUBLE 6235-17-014.GPJ NC_DOT_GDT 6/23/17

WBS 17BP.8.R.750		TIP N/A		COUNTY HOKE		GEOLOGIST Swartley, J. R.	
SITE DESCRIPTION BRIDGE NO. 61 ON SR 1409 (JOHNSON MILL ROAD) OVER PUPPY CREEK						GROUND WTR (ft)	
BORING NO. EB1-A		STATION 14+84		OFFSET 13 ft LT		ALIGNMENT L	
COLLAR ELEV. 177.9 ft		TOTAL DEPTH 99.5 ft		NORTHING 462,173		EASTING 1,961,281	
DRILL RIG/HAMMER EFF./DATE SME1524 CME-45B 85% 05/02/2017			DRILL METHOD Mud Rotary			HAMMER TYPE Automatic	
DRILLER Contract Driller		START DATE 05/02/17		COMP. DATE 05/02/17		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				
			0.5ft	0.5ft	0.5ft	0	25	50	75	100				ELEV. (ft)	DEPTH (ft)			
100	99.9	78.0	15	48	52/0.2											Match Line		
95	94.9	83.0	55	45/0.2										W			COASTAL PLAIN	
90	89.9	88.0	14	22	31									W			GRAY AND RED, SILTY CLAY (CAPE FEAR FORMATION) (continued)	
85	84.9	93.0	22	35	51									W				
80	79.9	98.0	15	22	28									W				
														W				Boring Terminated at Elevation 78.4 ft IN VERY DENSE CLAYEY SAND (CAPE FEAR FORMATION)

GEOTECHNICAL BORING REPORT

BORE LOG

WBS 17BP.8.R.750		TIP N/A		COUNTY HOKE		GEOLOGIST Swartley, J. R.									
SITE DESCRIPTION BRIDGE NO. 61 ON SR 1409 (JOHNSON MILL ROAD) OVER PUPPY CREEK							GROUND WTR (ft)								
BORING NO. EB2-B		STATION 15+75		OFFSET 16 ft RT		ALIGNMENT L									
COLLAR ELEV. 178.5 ft		TOTAL DEPTH 83.9 ft		NORTHING 462,196		EASTING 1,961,373									
DRILL RIG/HAMMER EFF./DATE SME1524 CME-45B 85% 05/02/2017			DRILL METHOD Mud Rotary		HAMMER TYPE Automatic										
DRILLER Contract Driller		START DATE 05/01/17		COMP. DATE 05/01/17		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					
185															
180	178.5	0.0	3	3	3										
175	174.3	4.2	2	2	3										
170	170.5	8.0	WOH	2	2										
165	165.5	13.0	1	1	1										
160	160.5	18.0	5	7	5										
155	155.5	23.0	47	53/0.2						100/0.7	SS-2	Sat.			
150	150.5	28.0	10	13	14						SS-3	Sat.			
145	145.5	33.0	7	17	24						SS-4	W			
140	140.5	38.0	7	10	7						SS-5	W			
135	135.5	43.0	8	10	13							Sat.			
130	130.5	48.0	8	8	13							Sat.			
125	125.5	53.0	6	6	8						SS-6	Sat.			
120	120.5	58.0	4	6	4							Sat.			
115	115.5	63.0	17	26	26							Sat.			
110	110.5	68.0	4	5	5							Sat.			
105	105.5	73.0										Sat.			

NCDOT BORE DOUBLE 6235-17-014.GPJ NC_DOT_GDT 6/23/17

WBS 17BP.8.R.750		TIP N/A		COUNTY HOKE		GEOLOGIST Swartley, J. R.									
SITE DESCRIPTION BRIDGE NO. 61 ON SR 1409 (JOHNSON MILL ROAD) OVER PUPPY CREEK							GROUND WTR (ft)								
BORING NO. EB2-B		STATION 15+75		OFFSET 16 ft RT		ALIGNMENT L									
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DRILL RIG/HAMMER EFF./DATE SME1524 CME-45B 85% 05/02/2017			DRILL METHOD Mud Rotary		HAMMER TYPE Automatic										
DRILLER Contract Driller		START DATE 05/01/17		COMP. DATE 05/01/17		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					
105															
100	100.5	78.0	16	30	45										
95	95.5	83.0	38	62/0.4						100/0.9					

Match Line

COASTAL PLAIN
GRAY AND RED, SILTY CLAY
(CAPE FEAR FORMATION) (continued)

Boring Terminated at Elevation 94.6 ft IN
HARD SILTY CLAY (CAPE FEAR
FORMATION)

SUMMARY OF LABORATORY TEST DATA
Soil Classification and Gradation



Quality Assurance

S&ME, Inc. Raleigh, 3201 Spring Forest Road, Raleigh, North Carolina 27616

S&ME Project #:	6235-17-014	Date Report	5/27/2017
State Project No.:	17BP.8.R.750	County:	Hoke
Federal ID No.:	N/A	TIP No.:	N/A
Project Name:	Br. No. 61 on SR 1409 (Johnson Mill Road) over Puppy Creek		
Client Name:	CH Engineering	Client Address:	3220 Glen Royal Road, Raleigh, NC

Sample No.	Station #:	Offset	Boring #.	Sample Depth (ft)	AASHTO Classification	Total % Passing Sieve #					Total Mortar Fraction (%)				LL	PL	PI	Organic Content %	Moist. %	
						10	40	60	200	270	Coarse Sand	Fine Sand	Silt	Clay						
SS-1	N/A	N/A	EB2-B	8.0-9.5	A-2-4 (0)	97	70	47	10.6	8.1	52	40	4	4	18	0	N.P.	ND	ND	
SS-2	N/A	N/A	EB2-B	23.0-23.7	A-2-4 (0)	96	73	45	20.2	18.7	53	28	7	12	19	16	3	ND	ND	
SS-3	N/A	N/A	EB2-B	28.0-29.5	A-1-b (0)	99	31	22	10.5	9.5	78	12	3	7	18	17	1	ND	ND	
SS-4	N/A	N/A	EB2-B	33.0-34.5	A-4 (1)	100	99	98	69.2	55.5	2	43	28	27	21	16	5	ND	ND	
SS-5	N/A	N/A	EB2-B	38.0-39.5	A-2-6 (0)	99	70	52	31.5	30.3	47	22	7	24	27	13	14	ND	ND	
SS-6	N/A	N/A	EB2-B	53.0-54.5	A-2-6 (1)	99	69	49	33.6	32.4	51	16	7	26	29	14	15	ND	ND	
SS-7	N/A	N/A	EB1-A	8.0-8.6	A-4 (0)	100	97	87	40.2	32.7	13	54	19	14	23	0	N.P.	21.6	ND	
SS-8	N/A	N/A	EB1-A	13.0-14.5	A-2-4 (0)	99	98	88	26.6	18.9	11	70	11	8	26	0	N.P.	7.9	ND	

References / Comments / Deviations: ND=Not Determined.

- AASHTO T88: Particle Size Analysis of Soils as Modified by the NCDOT
- AASHTO T89: Determining the Liquid Limit of Soils
- AASHTO T90: Determining the Plastic Limit & Plasticity Index of Soils
- AASHTO T265: Laboratory Determination of Moisture Content of Soils
- AASHTO M145: The Classification of Soils and Soil Aggregate Mixtures for Highway Construction Purposes

Mal Krajan, ET
Technician Name:


Signature

104-01-0703
Certification #

Jarett Swartley
Technical Responsibility:

Project Manager
Position

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SITE PHOTOGRAPH

Bridge No. 61 on -L- (SR 1409) over Puppy Creek



Looking Northeast towards End Bent 2