

**This electronic collection of documents is provided
for the convenience of the user
and is Not a Certified Document –**

**The documents contained herein were originally issued
and sealed by the individuals whose names and license
numbers appear on each page, on the dates appearing
with their signature on that page.**

**This file or an individual page
shall not be considered a certified document.**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5404 46119	1	7

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

STRUCTURE
SUBSURFACE INVESTIGATION

COUNTY JACKSON
PROJECT DESCRIPTION BRIDGE NO. 136 OVER
BIG PINE CREEK ON SR-1163

SITE DESCRIPTION _____

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 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:
1. 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.

CONTENTS

<u>SHEET NO.</u>	<u>DESCRIPTION</u>
1	TITLE SHEET
2	LEGEND
3	SITE PLAN
4-5	CROSS SECTION(S)
6-7	BORE LOGS

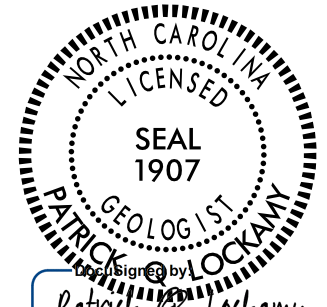
REFERENCE: B-5404

PROJECT: 46119

PERSONNEL

DC ELLIOTT
CJ COFFEY
DO CHEEK

INVESTIGATED BY PQ LOCKAMY
DRAWN BY PQ LOCKAMY
CHECKED BY JC KUHNE ^{DS}
SUBMITTED BY JC KUHNE ^{JK}
DATE 10-22-2014



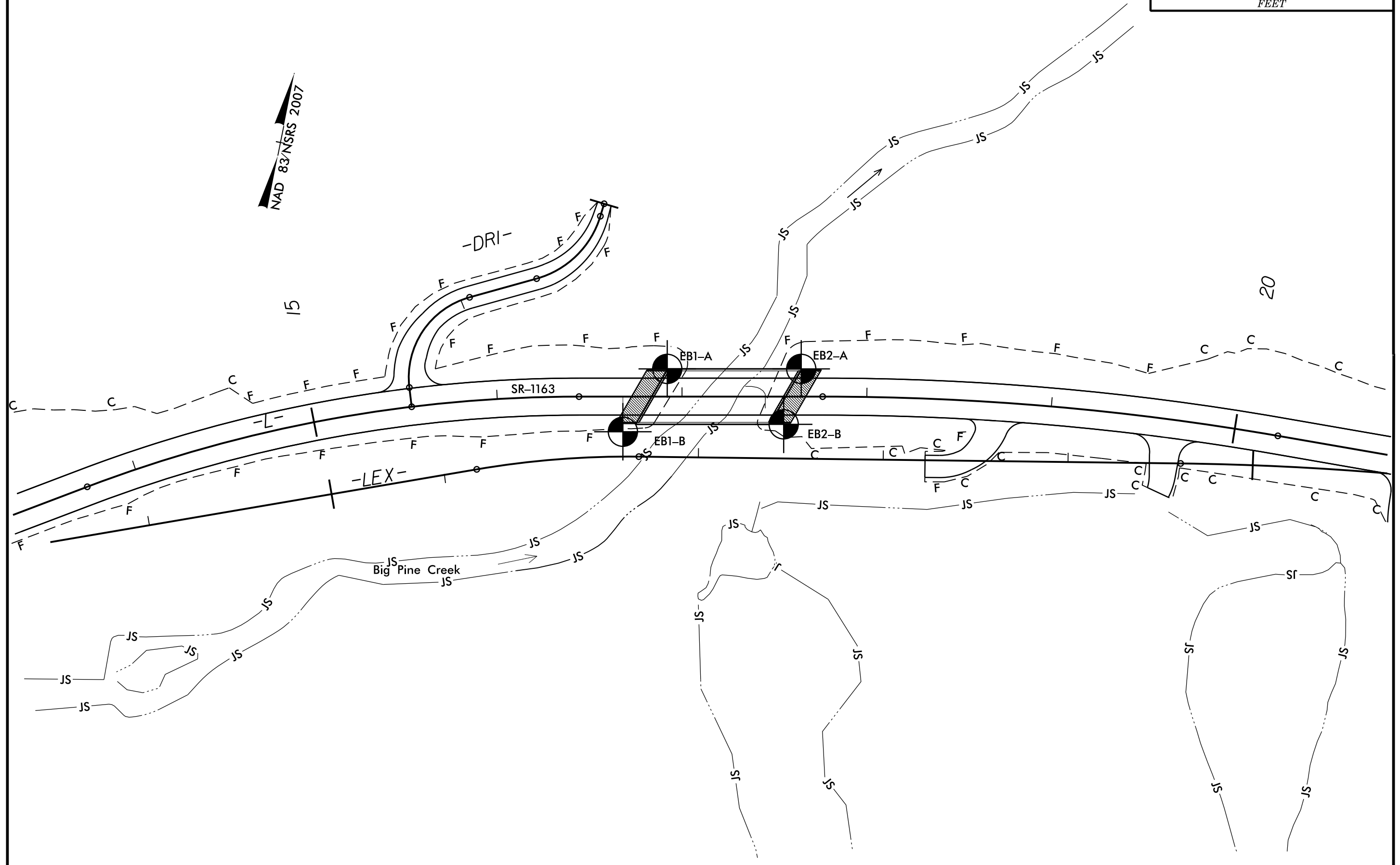
Signature by Patrick C. Lockamy
E1F223BB61883/27/2015

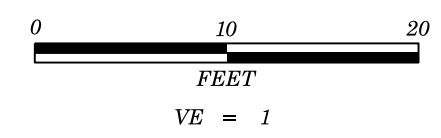
SIGNATURE _____ DATE _____

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

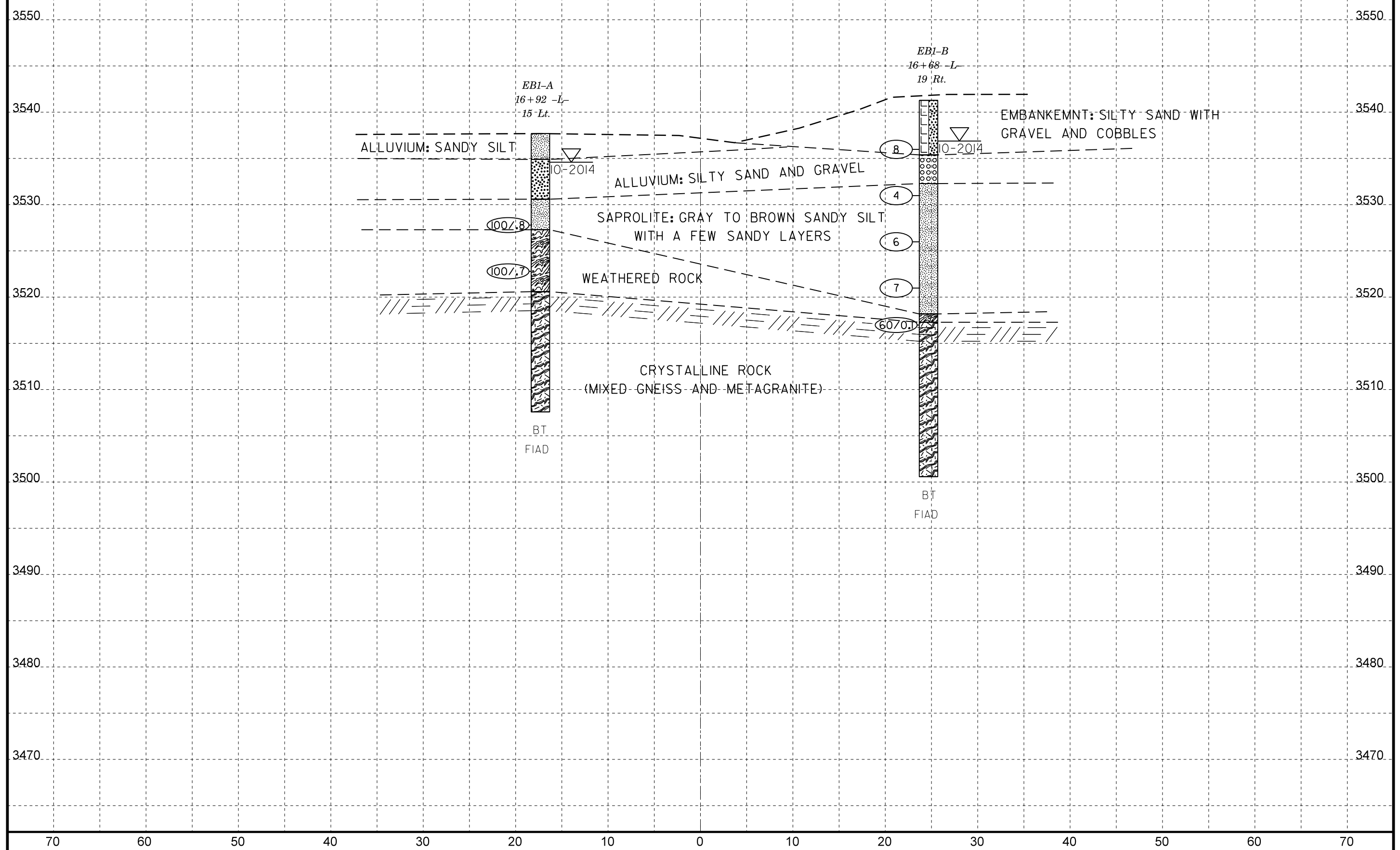
SOIL DESCRIPTION: SOIL IS CONSIDERED UNCONSOLIDATED, SEMI-CONSOLIDATED, OR WEATHERED EARTH MATERIALS THAT CAN BE PENETRATED WITH A CONTINUOUS FLIGHT POWER AUGER AND YIELD LESS THAN 100 BLOWS PER FOOT... SOIL LEGEND AND AASHTO CLASSIFICATION: GENERAL CLASS., GRANULAR MATERIALS, SILT-CLAY MATERIALS, ORGANIC MATERIALS... GRADATION: WELL GRADED, UNIFORMLY GRADED, GAP-GRADED... ROCK DESCRIPTION: HARD ROCK IS NON-COASTAL PLAIN MATERIAL... TERMS AND DEFINITIONS: ALLUVIUM, AQUIFER, ARENACEOUS... TEXTURE OR GRAIN SIZE: U.S. STD. SIEVE SIZE... SOIL MOISTURE - CORRELATION OF TERMS... PLASTICITY... COLOR... EQUIPMENT USED ON SUBJECT PROJECT: DRILL UNITS, ADVANCING TOOLS, HAMMER TYPE, CORE SIZE, HAND TOOLS... FRACTURE SPACING, BEDDING, INDURATION.

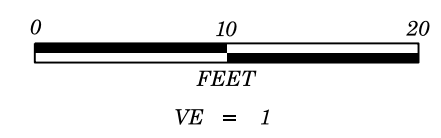
NAD 83/NRS 2007



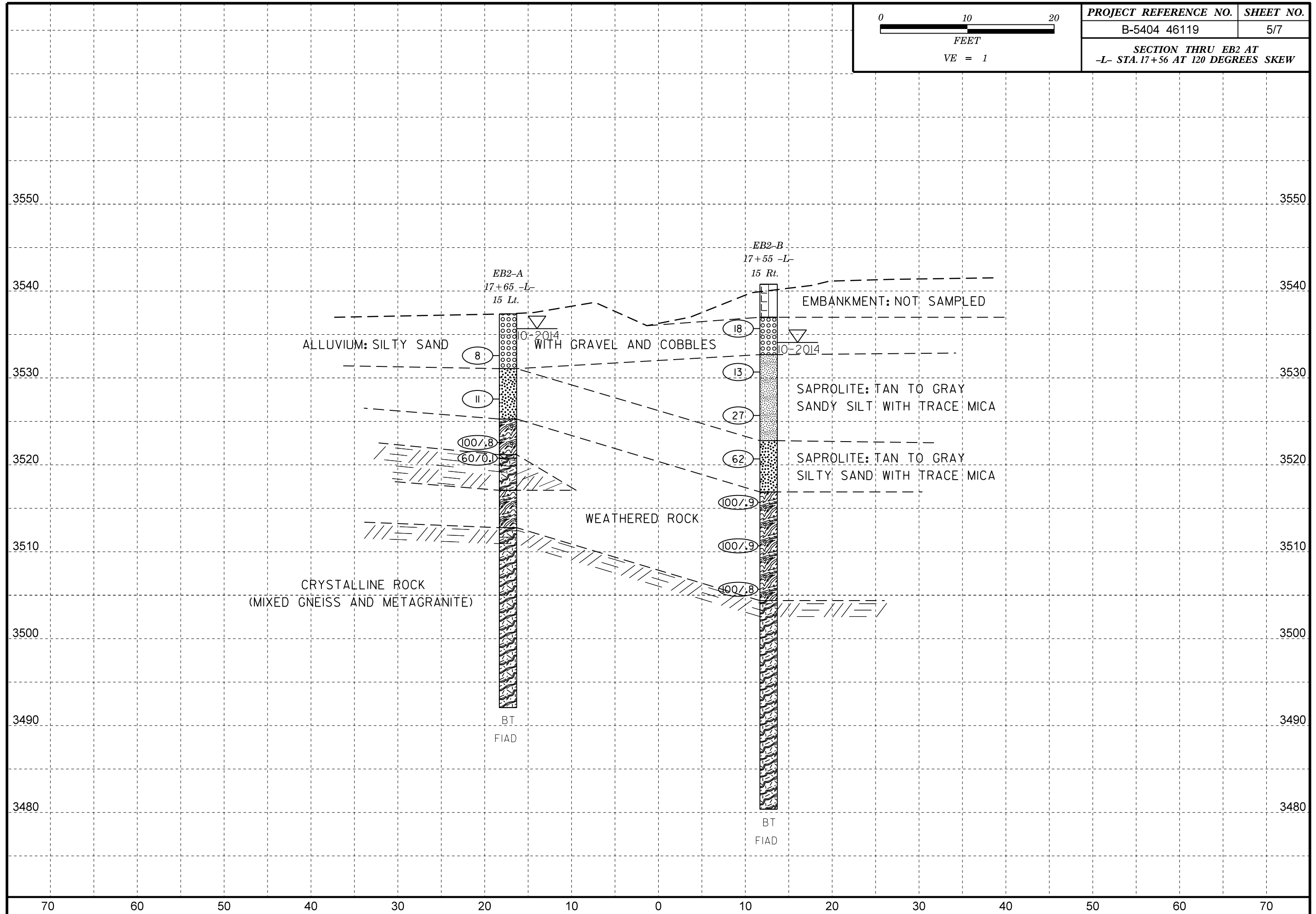


PROJECT REFERENCE NO.	SHEET NO.
B-5404 46119	4/7
SECTION THRU EBI AT -L- STA. 16+83.5 AT 120 DEGREES SKEW	





PROJECT REFERENCE NO.	SHEET NO.
B-5404 46119	5/7
SECTION THRU EB2 AT -L- STA. 17+56 AT 120 DEGREES SKEW	



WBS 46119.1.1		TIP B5404		COUNTY JACKSON		GEOLOGIST Elliott, D. C.										
SITE DESCRIPTION JACKSON COUNTY BRIDGE NO. 136 ON SR-1163 OVER PINE CREEK							GROUND WTR (ft)									
BORING NO. EB1-A		STATION 16+92		OFFSET 15 ft LT		ALIGNMENT L										
COLLAR ELEV. 3,537.7 ft		TOTAL DEPTH 30.1 ft		NORTHING 548,256		EASTING 750,783										
DRILL RIG/HAMMER EFF./DATE AFO9394 CME-45C 88% 05/14/2014		DRILL METHOD NW Casing W/SPT & Core		HAMMER TYPE Automatic												
DRILLER Cheek, D. O.		START DATE 10/09/14		COMP. DATE 10/09/14		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						
3540														3,537.7	0.0	GROUND SURFACE
3535														3,534.9	2.8	ALLUVIUM: SANDY SILT, MOI.
3530														3,530.6	7.1	ALLUVIUM: SILTY SAND GRADING TO CSE SAND AND GRAVEL WITH BASAL COBBLES, MOI. TO WET
3525	3,527.8	9.9	13	87/3										3,527.3	10.4	SAPROLITE: SANDY SILT, WET
3520	3,522.8	14.9	48	52/2										3,520.6	17.1	WEATHERED ROCK
3515														3,517.6	20.1	CRYSTALLINE ROCK (MIXED GNEISS AND METAGRANITE)
3510														3,512.6	25.1	CRYSTALLINE ROCK (MIXED GNEISS AND METAGRANITE)
														3,507.6	30.1	CRYSTALLINE ROCK (MIXED GNEISS AND METAGRANITE)
Boring Terminated at Elevation 3,507.6 ft IN CRYSTALLINE ROCK																

NCDOT BORE SINGLE B5404 GEO BORINGS.GPJ_NC_DOT.GDT 10/22/14

WBS 46119.1.1		TIP B5404		COUNTY JACKSON		GEOLOGIST Cheek D.O.										
SITE DESCRIPTION JACKSON COUNTY BRIDGE NO. 136 ON SR-1163 OVER PINE CREEK							GROUND WTR (ft)									
BORING NO. EB1-B		STATION 16+68		OFFSET 19 ft RT		ALIGNMENT L										
COLLAR ELEV. 3,541.3 ft		TOTAL DEPTH 40.7 ft		NORTHING 750,766		EASTING 548,218										
DRILL RIG/HAMMER EFF./DATE AFO9394 CME-45C 88% 05/14/2014		DRILL METHOD NW Casing W/SPT & Core		HAMMER TYPE Automatic												
DRILLER Coffey, Jr., C.		START DATE 10/13/14		COMP. DATE 10/13/14		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						
3545														3,541.3	0.0	GROUND SURFACE
3540														3,536.0	5.3	EMBANKMENT: GRAY SILTY SAND WITH GRAVEL AND COBBLES, MOI.
3535						6	7	8						3,535.4	5.9	ALLUVIUM: SILTY SAND AND GRAVEL
3530	3,531.0	10.3	1	2	2									3,532.3	9.0	SAPROLITE: GRAY TO BROWN SANDY SILT WITH FEW SANDY LAYERS, WET
3525	3,526.0	15.3	2	3	3									3,518.2	23.1	WEATHERED ROCK
3520	3,521.0	20.3	3	3	4									3,517.3	24.0	CRYSTALLINE ROCK
3515	3,517.0	24.3												3,516.5	24.4	CRYSTALLINE ROCK (METAGRANITE)
														3,515.6	25.7	CRYSTALLINE ROCK (METAGRANITE)
3510														3,510.6	30.7	CRYSTALLINE ROCK (METAGRANITE AND GNEISS)
3505														3,505.6	35.7	CRYSTALLINE ROCK (METAGRANITE AND GNEISS)
														3,500.6	40.7	CRYSTALLINE ROCK (METAGRANITE AND GNEISS)
Boring Terminated at Elevation 3,500.6 ft IN CRYSTALLINE ROCK																

NCDOT BORE SINGLE B5404 GEO BORINGS.GPJ_NC_DOT.GDT 10/22/14

WBS 46119.1.1		TIP B5404		COUNTY JACKSON		GEOLOGIST Cheek D.O.										
SITE DESCRIPTION JACKSON COUNTY BRIDGE NO. 136 ON SR-1163 OVER PINE CREEK							GROUND WTR (ft)									
BORING NO. EB2-A		STATION 17+65		OFFSET 15 ft LT		ALIGNMENT L										
COLLAR ELEV. 3,537.4 ft		TOTAL DEPTH 45.3 ft		NORTHING 548,270		EASTING 750,854										
DRILL RIG/HAMMER EFF./DATE AFO9394 CME-45C 88% 05/14/2014		DRILL METHOD NW Casing W/SPT & Core		HAMMER TYPE Automatic												
DRILLER Coffey, Jr., C.		START DATE 10/16/14		COMP. DATE 10/16/14		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	L O G	SOIL AND ROCK DESCRIPTION	DEPTH (ft)		
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
3540														3,537.4	GROUND SURFACE	0.0
3535	3,532.6	4.8	3	4	4										ALLUVIUM: TAN TO GRAY SAND AND GRAVEL WITH COBBLES, MOI. TO SAT.	
3530	3,527.6	9.8	5	5	6									3,531.1	SAPROLITE: BROWN AND GRAY SILTY SAND WITH TRACE MICA, SAT.	6.3
3525	3,522.6	14.8	28	36	64/3									3,525.3	WEATHERED ROCK (SCHISTY GNEISS WITH A FEW GRANITIC STRINGERS)	12.1
3520	3,520.8	16.6	60/1											3,521.2	CRYSTALLINE ROCK	16.2
														3,520.8	CRYSTALLINE ROCK (SCHISTY GNEISS)	16.5
3515														3,517.1	WEATHERED ROCK	20.3
3510														3,512.8	CRYSTALLINE ROCK (GNEISS)	24.6
														3,512.1	CRYSTALLINE ROCK - (VARIABLE WEATHERED GNEISS)	25.3
3505														3,504.7	CRYSTALLINE ROCK (GNEISS)	32.7
3500														3,502.1	CRYSTALLINE ROCK (GNEISS)	35.3
3495														3,497.1	CRYSTALLINE ROCK (GNEISS)	40.3
														3,492.1	CRYSTALLINE ROCK (GNEISS)	45.3
Boring Terminated at Elevation 3,492.1 ft IN CRYSTALLINE ROCK																

NCDOT BORE SINGLE B5404_GEO_BORINGS.GPJ_NC_DOT.GDT_3/27/15

WBS 46119.1.1		TIP B5404		COUNTY JACKSON		GEOLOGIST Cheek D.O.											
SITE DESCRIPTION JACKSON COUNTY BRIDGE NO. 136 ON SR-1163 OVER PINE CREEK							GROUND WTR (ft)										
BORING NO. EB2-B		STATION 17+55		OFFSET 15 ft RT		ALIGNMENT L											
COLLAR ELEV. 3,540.8 ft		TOTAL DEPTH 60.4 ft		NORTHING 548,239		EASTING 750,850											
DRILL RIG/HAMMER EFF./DATE AFO9394 CME-45C 88% 05/14/2014		DRILL METHOD NW Casing W/SPT & Core		HAMMER TYPE Automatic													
DRILLER Coffey, Jr., C.		START DATE 10/15/14		COMP. DATE 10/15/14		SURFACE WATER DEPTH N/A											
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	L O G	SOIL AND ROCK DESCRIPTION	DEPTH (ft)			
			0.5ft	0.5ft	0.5ft	0	25	50	75	100							
3545															3,540.8	GROUND SURFACE	0.0
3540																EMBANKMENT: NOT SAMPLED	
3535	3,535.7	5.1	7	9	9									3,537.0	ALLUVIUM: GRAY SILTY SAND AND SUB ROUNDED GRAVELS WITH TRACE MICA, MOI. TO SAT.	3.8	
3530	3,530.7	10.1	5	5	8									3,532.7	SAPROLITE: TAN TO GRAY SANDY SILT WITH TRACE MICA, WET	8.1	
3525	3,525.7	15.1	9	13	14										WEATHERED ROCK (SCHISTY GNEISS WITH A FEW GRANITIC STRINGERS)		
3520	3,520.7	20.1	16	32	30									3,522.8	SAPROLITE: TAN TO GRAY SILTY SAND WITH TRACE MICA, SAT.	18.0	
3515	3,515.7	25.1	35	37	63/4									3,516.9	WEATHERED ROCK	23.9	
3510	3,510.7	30.1	46	54/4											CRYSTALLINE ROCK (GNEISS)		
3505	3,505.7	35.1	48	52/3										3,504.4	CRYSTALLINE ROCK (GNEISS)	36.4	
														3,504.1	CRYSTALLINE ROCK (GNEISS)	36.7	
3500														3,500.4	CRYSTALLINE ROCK (GNEISS)	40.4	
3495														3,495.4	CRYSTALLINE ROCK (GNEISS)	45.4	
3490														3,490.4	CRYSTALLINE ROCK (GNEISS)	50.4	
3485														3,485.4	GNEISS - VERY HARD ANBD FRESH - NO FRACTURES	55.4	
														3,480.4	CRYSTALLINE ROCK (GNEISS)	60.4	
Boring Terminated at Elevation 3,480.4 ft																	

NCDOT BORE SINGLE B5404_GEO_BORINGS.GPJ_NC_DOT.GDT_3/27/15