

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-6010	1	5

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

**STRUCTURE**  
**SUBSURFACE INVESTIGATION**

COUNTY ALAMANCE  
 PROJECT DESCRIPTION US 70 (SOUTH CHURCH STREET)  
FROM WEST OF SR 1311 (UNIVERSITY DRIVE) TO  
SR 1309 (WESTBROOK AVENUE) IN BURLINGTON

SITE DESCRIPTION CULVERT AT STA. 19+84 -L- ON US 70  
(SOUTH CHURCH STREET) OVER MICHAELS BRANCH  
BETWEEN SR 2748 (SPRINGWOOD CHURCH ROAD) AND  
SR 1311 (UNIVERSITY DRIVE)

**CONTENTS**

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2	LEGEND (SOIL & ROCK)
3	SITE PLAN
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5	BORING LOGS

**REFERENCE: U-6010**

**PROJECT: 47145**

**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

POWELL, S. H.

STUDNICKY, R. T.

MOODY, J. R.

INVESTIGATED BY POWELL, S. H.

DRAWN BY FIELDS, W. D.

CHECKED BY NASH, A. A.

SUBMITTED BY RIGGS, Jr., A. F.

DATE APRIL 2020

Prepared in the Office of:

**Terracon**

Consulting Engineers and Scientists

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 NC REGISTERED GEOLOGIC FIRM: C-367



DocuSigned by:

Abner F. Riggs, Jr. 2022

SIGNATURE

DATE

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

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

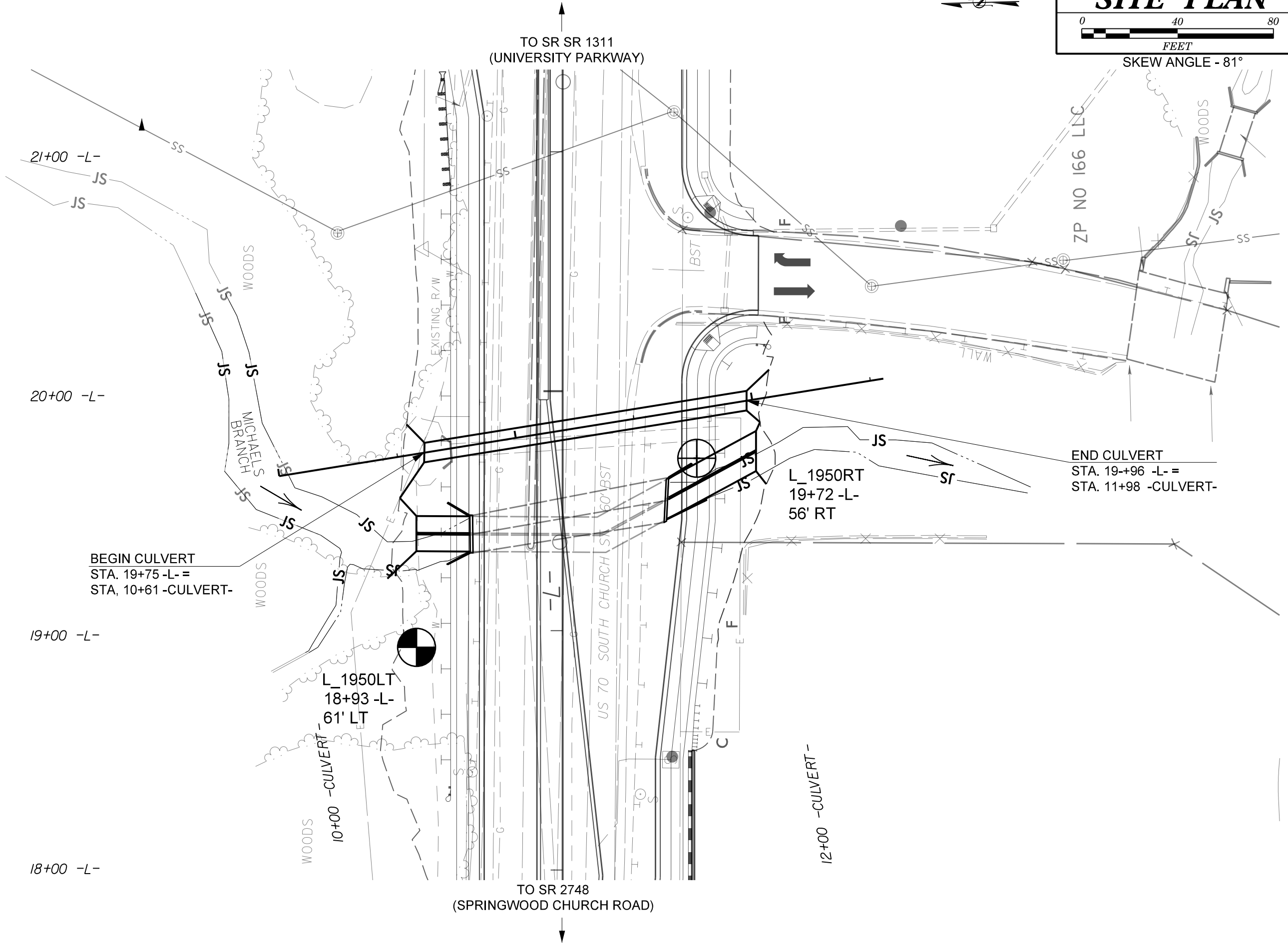
SUBSURFACE INVESTIGATION

SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

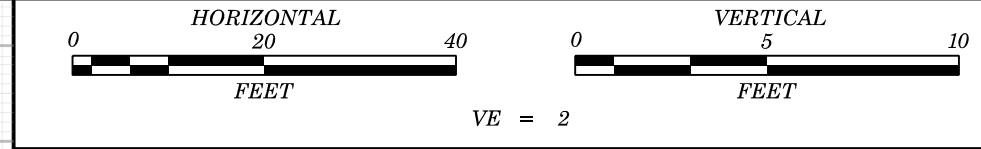
Table with multiple columns: SOIL DESCRIPTION, GRADATION, ROCK DESCRIPTION, TERMS AND DEFINITIONS, SOIL LEGEND AND AASHTO CLASSIFICATION, MINERALOGICAL COMPOSITION, COMPRESSIBILITY, PERCENTAGE OF MATERIAL, GROUND WATER, MISCELLANEOUS SYMBOLS, RECOMMENDATION SYMBOLS, ABBREVIATIONS, EQUIPMENT USED ON SUBJECT PROJECT, PLASTICITY, COLOR, FRACTURE SPACING, BEDDING, INDURATION.

# CULVERT SITE PLAN

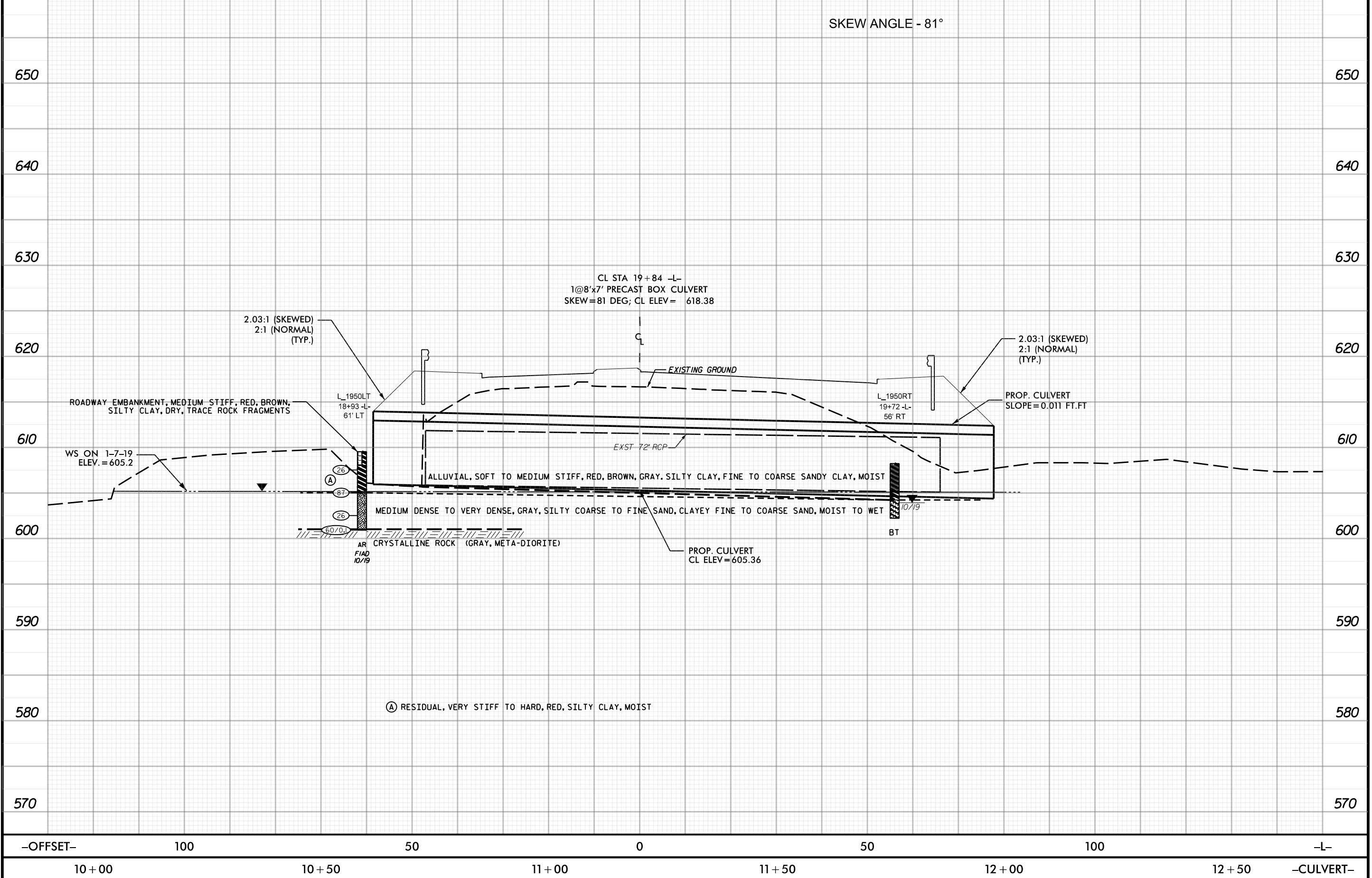
PROJECT REFERENCE NO.	SHEET NO.
U-6010	3
<b>SITE PLAN</b>	
0 40 80 FEET	
SKEW ANGLE - 81°	



PROJECT REFERENCE NO.	SHEET NO.
U-6010	4
CENTERLINE PROFILE ALONG -CULVERT- AT -L- STA. 19+84	



NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ON TO THE EXISTING GROUND PROFILE ALONG THE CENTERLINE OF -CULVERT- TAKEN FROM THE PROVIDED PROJECT TIN FILE (u6010\_ls\_tin.tin) DATED 12/04/2019.





# GEOTECHNICAL BORING REPORT

## BORE LOG

WBS 47145.1.1	TIP U-6010	COUNTY ALAMANCE	GEOLOGIST POWELL, S. H.
SITE DESCRIPTION CULVERT AT STA. 19+84 -L- ON US 70 OVER MICHAELS BRANCH BETWEEN SR 2748 AND SR 1311			GROUND WTR (ft)
BORING NO. L_1950LT	STATION 18+93	OFFSET 61 ft LT	ALIGNMENT -L-
COLLAR ELEV. 609.6 ft	TOTAL DEPTH 8.6 ft	NORTHING 848,681	EASTING 1,843,911
DRILL RIG/HAMMER EFF./DATE TER1974 CME-45B 85% 02/15/2019		DRILL METHOD N/A	HAMMER TYPE Automatic
DRILLER STUDNICKY, R. T.	START DATE 10/10/19	COMP. DATE 10/10/19	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						
610														609.6	GROUND SURFACE	0.0
	608.6	1.0	6	12	14									608.1	ROADWAY EMBANKMENT RED, BROWN, SILTY CLAY, TRACE ROCK FRAGMENTS	1.5
	606.1	3.5	8	27	60									605.1	RESIDUAL RED, SILTY CLAY	4.5
	603.6	6.0	12	13	13									601.1	GRAY, SILTY COARSE TO FINE SAND	8.5
	601.1	8.5												601.0	CRYSTALLINE ROCK (GRAY, META-DIORITE)	8.6
Boring Terminated WITH STANDARD PENETRATION TEST REFUSAL at Elevation 601.0 ft IN CRYSTALLINE ROCK (META-DIORITE)																

WBS 47145.1.1	TIP U-6010	COUNTY ALAMANCE	GEOLOGIST POWELL, S. H.
SITE DESCRIPTION CULVERT AT STA. 19+84 -L- ON US 70 OVER MICHAELS BRANCH BETWEEN SR 2748 AND SR 1311			GROUND WTR (ft)
BORING NO. L_1950RT	STATION 19+72	OFFSET 56 ft RT	ALIGNMENT -L-
COLLAR ELEV. 608.3 ft	TOTAL DEPTH 6.0 ft	NORTHING 848,562	EASTING 1,843,986
DRILL RIG/HAMMER EFF./DATE N/A		DRILL METHOD N/A	HAMMER TYPE N/A
DRILLER N/A	START DATE 10/17/19	COMP. DATE 10/17/19	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						
610														608.3	GROUND SURFACE	0.0
														605.3	ALLUVIAL RED, BROWN, FINE TO COARSE SANDY CLAY	3.0
														604.3	GRAY, SILTY CLAY	4.0
														602.3	GRAY, CLAYEY FINE TO COARSE SAND	6.0
Boring Terminated at Elevation 602.3 ft IN RESIDUAL SILTY SAND																

NCDOT BORE DOUBLE U6010\_GEO\_CULV\_GRP\_NC\_DOT\_GDT 4/22/20