

PROJECT: 34497 REFERENCE: R-2707C

CONTENTS

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	LEGEND (SOIL & ROCK)
3	SITE PLAN
4	PROFILE(S)
5-7	BORE LOG(S)

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

**STRUCTURE**  
**SUBSURFACE INVESTIGATION**

COUNTY CLEVELAND  
 SITE DESCRIPTION CULVERT AT -L- STA. 453+07 OVER  
UNNAMED TRIBUTARY TO WILLIAM CREEK ON  
PROPOSED US 74

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2707C	1	7

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 1991 T07-6850. 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.

PERSONNEL

R.W. TODD

M.L. SMITH

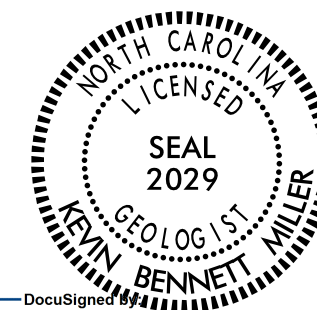
INVESTIGATED BY R.W. TODD

DRAWN BY T.T. WALKER

CHECKED BY J.E. BEVERLY

SUBMITTED BY K.B. MILLER

DATE NOVEMBER 2016



DocuSigned by

*[Signature]*

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11/30/2016

SIGNATURE

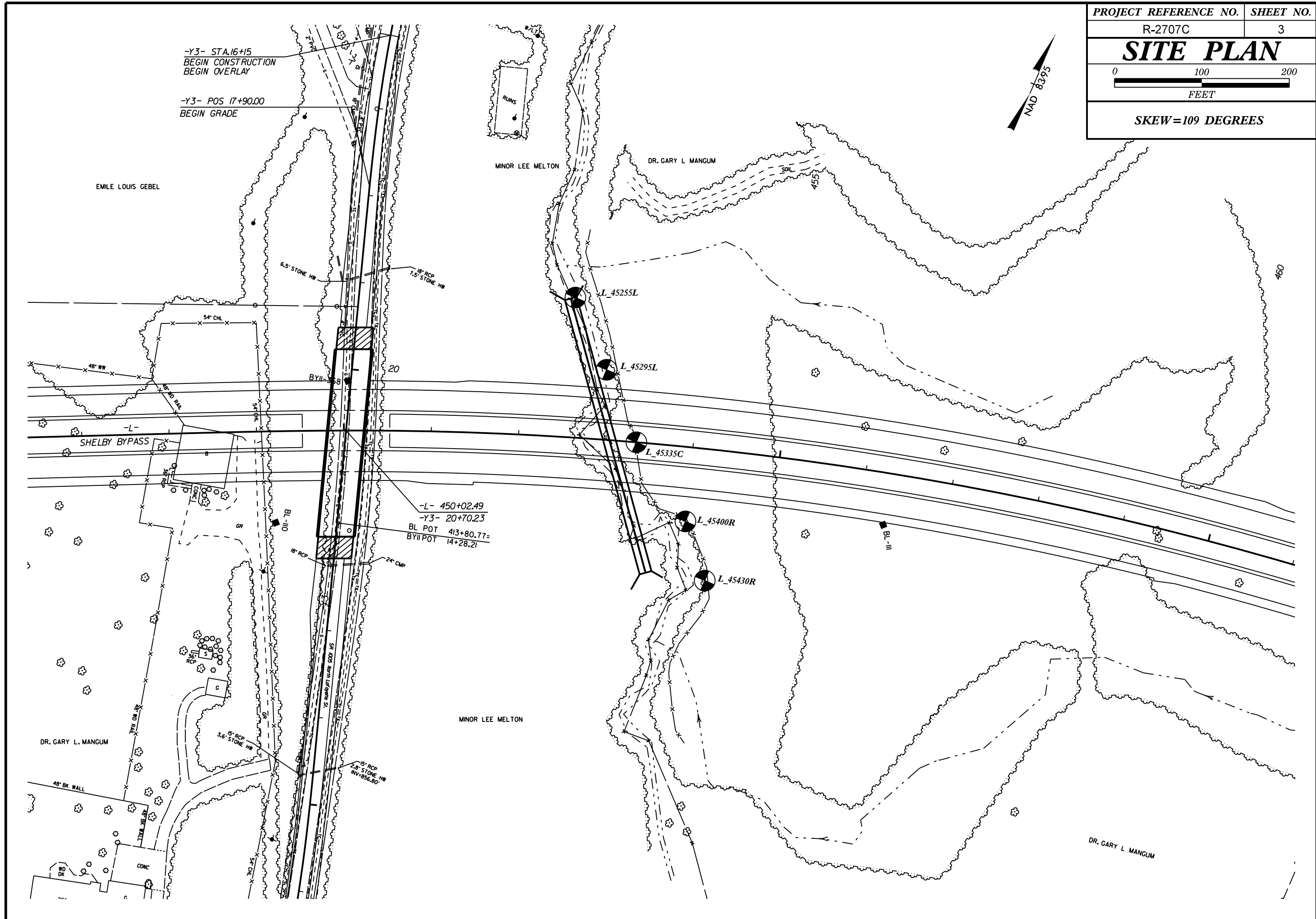
DATE

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 4 main columns: SOIL DESCRIPTION, GRADATION, ROCK DESCRIPTION, and TERMS AND DEFINITIONS. It contains detailed classification schemes, symbols, and definitions for various soil and rock types.

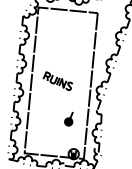
PROJECT REFERENCE NO.	SHEET NO.
R-2707C	3
<b>SITE PLAN</b>	
FEET	
SKEW=109 DEGREES	



-Y3- STA.16+15  
BEGIN CONSTRUCTION  
BEGIN OVERLAY

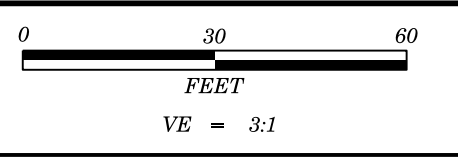
-Y3- POS 17+90.00  
BEGIN GRADE

-L- 450+02.49  
-Y3- 20+70.23  
BL POT 413+80.77=  
BYII POT 14+28.21

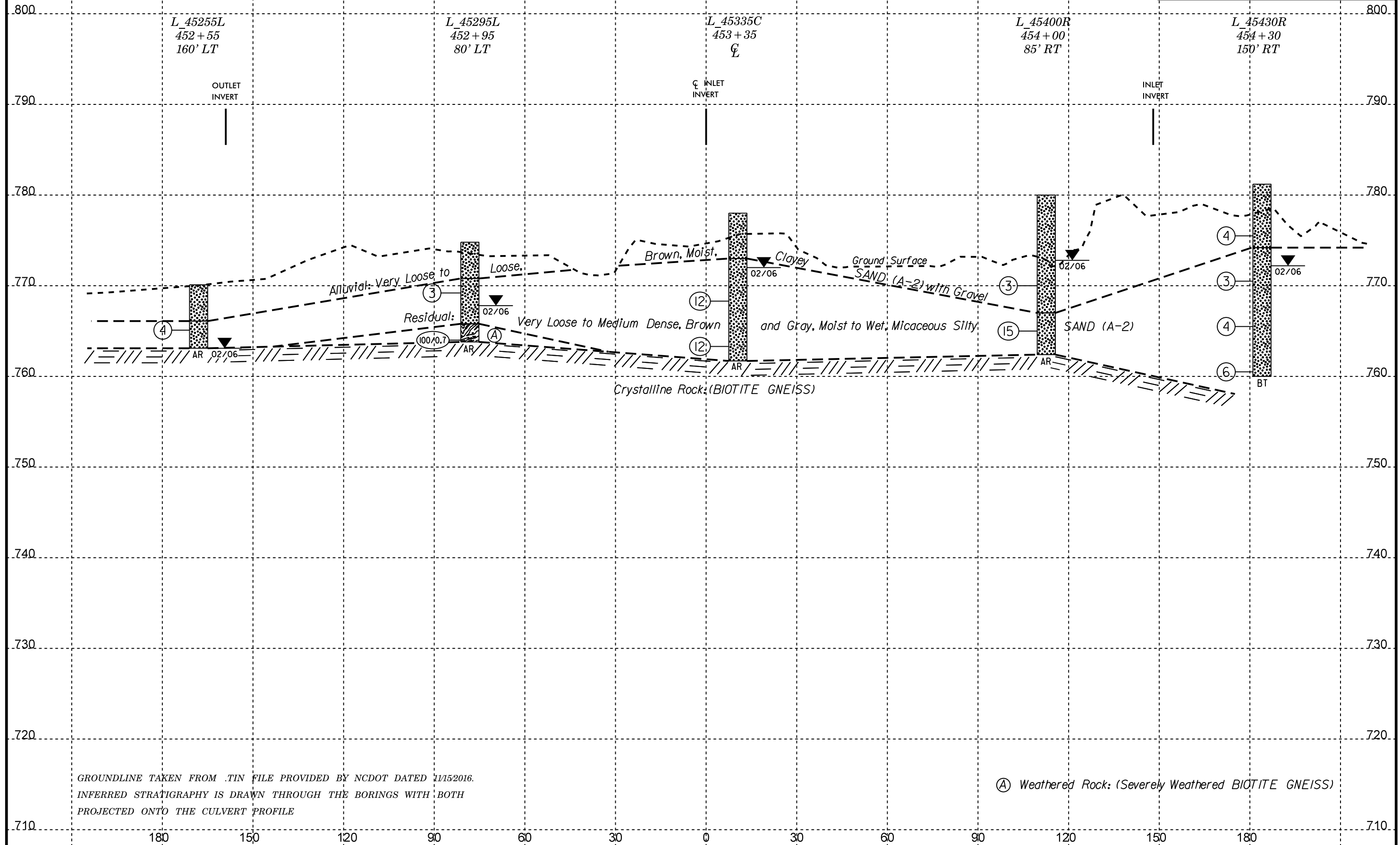


160

DR. GARY L. MANGUM



PROJECT REFERENCE NO.	SHEET NO.
R-2707C	4
CULVERT PROFILE ALONG -L- AT 453+04.08	
SKEW=109 DEGREES	



GROUNDLINE TAKEN FROM .TIN FILE PROVIDED BY NCDOT DATED 11/15/2016.  
 INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH  
 PROJECTED ONTO THE CULVERT PROFILE

(A) Weathered Rock: (Severely Weathered BIOTITE GNEISS)

# GEOTECHNICAL BORING REPORT

## BORE LOG

WBS 34497.1.2		TIP R-2707C		COUNTY CLEVELAND		GEOLOGIST Todd, R. W.										
SITE DESCRIPTION Culvert at -L- Station 453+07 over Unnamed Tributary to Williams Creek on Proposed US 74							GROUND WTR (ft)									
BORING NO. L_45255L		STATION 452+55		OFFSET 160 ft LT		ALIGNMENT -L-										
COLLAR ELEV. 770.1 ft		TOTAL DEPTH 7.0 ft		NORTHING 583,086		EASTING 1,242,878										
DRILL RIG/HAMMER EFF./DATE HFC0064 CME-550 84% 03/19/2014			DRILL METHOD H.S. Augers		HAMMER TYPE Automatic											
DRILLER Smith, M.L.		START DATE 02/09/06		COMP. DATE 02/09/06		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						
775																
770															770.1	0.0
	766.1	4.0													766.1	4.0
			2	2	2											
765															763.1	7.0
															Boring Terminated by Auger Refusal at Elevation 763.1 ft on Crystalline Rock (BIOTITE GNEISS)	

WBS 34497.1.2		TIP R-2707C		COUNTY CLEVELAND		GEOLOGIST Todd, R. W.										
SITE DESCRIPTION Culvert at -L- Station 453+07 over Unnamed Tributary to Williams Creek on Proposed US 74							GROUND WTR (ft)									
BORING NO. L_45295L		STATION 452+95		OFFSET 80 ft LT		ALIGNMENT -L-										
COLLAR ELEV. 776.8 ft		TOTAL DEPTH 11.0 ft		NORTHING 583,024		EASTING 1,242,944										
DRILL RIG/HAMMER EFF./DATE HFC0064 CME-550 84% 03/19/2014			DRILL METHOD H.S. Augers		HAMMER TYPE Automatic											
DRILLER Smith, M.L.		START DATE 02/09/06		COMP. DATE 02/09/06		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						
780																
															776.8	0.0
															772.8	4.0
															767.8	9.0
															765.8	11.0
															Boring Terminated by Auger Refusal at Elevation 765.8 ft on Crystalline Rock (BIOTITE GNEISS)	

# GEOTECHNICAL BORING REPORT

## BORE LOG

WBS 34497.1.2		TIP R-2707C		COUNTY CLEVELAND		GEOLOGIST Todd, R. W.									
SITE DESCRIPTION Culvert at -L- Station 453+07 over Unnamed Tributary to Williams Creek on Proposed US 74							GROUND WTR (ft)								
BORING NO. L_45335C		STATION 453+35		OFFSET CL		ALIGNMENT -L-									
COLLAR ELEV. 778.0 ft		TOTAL DEPTH 16.3 ft		NORTHING 582,962		EASTING 1,243,008									
DRILL RIG/HAMMER EFF./DATE HFC0064 CME-550 84% 03/19/2014				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic									
DRILLER Smith, M.L.		START DATE 02/09/06		COMP. DATE 02/09/06		SURFACE WATER DEPTH N/A									
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
780															
														778.0	0.0
														773.0	5.0
	769.3	8.7	2	5	7										
	764.3	13.7	3	5	7										
														761.7	16.3
Boring Terminated by Auger Refusal at Elevation 761.7 ft on Crystalline Rock (BIOTITE GNEISS)															

WBS 34497.1.2		TIP R-2707C		COUNTY CLEVELAND		GEOLOGIST Todd, R. W.									
SITE DESCRIPTION Culvert at -L- Station 453+07 over Unnamed Tributary to Williams Creek on Proposed US 74							GROUND WTR (ft)								
BORING NO. L_45400R		STATION 454+00		OFFSET 85 ft RT		ALIGNMENT -L-									
COLLAR ELEV. 780.8 ft		TOTAL DEPTH 17.6 ft		NORTHING 582,901		EASTING 1,243,096									
DRILL RIG/HAMMER EFF./DATE HFC0064 CME-550 84% 03/19/2014				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic									
DRILLER Smith, M.L.		START DATE 02/09/06		COMP. DATE 02/09/06		SURFACE WATER DEPTH N/A									
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
785															
														780.8	0.0
	771.8	9.0	2	1	2										
	766.8	14.0	2	5	10										
														763.2	17.6
Boring Terminated by Auger Refusal at Elevation 763.2 ft on Crystalline Rock (BIOTITE GNEISS)															

NCDOT BORE DOUBLE R2707C\_GEO\_BH.GPJ\_NC\_DOT.GDT 11/29/16

# GEOTECHNICAL BORING REPORT BORE LOG

WBS 34497.1.2	TIP R-2707C	COUNTY CLEVELAND	GEOLOGIST Todd, R. W.
SITE DESCRIPTION Culvert at -L- Station 453+07 over Unnamed Tributary to Williams Creek on Proposed US 74			GROUND WTR (ft)
BORING NO. L_45430R	STATION 454+30	OFFSET 150 ft RT	ALIGNMENT -L-
COLLAR ELEV. 781.2 ft	TOTAL DEPTH 21.2 ft	NORTHING 582,847	EASTING 1,243,143
DRILL RIG/HAMMER EFF./DATE HFO0064 CME-550 84% 03/19/2014		DRILL METHOD H.S. Augers	HAMMER TYPE Automatic
DRILLER Smith, M.L.	START DATE 02/09/06	COMP. DATE 02/09/06	SURFACE WATER DEPTH N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	L O G	SOIL AND ROCK DESCRIPTION	DEPTH (ft)		
			0.5ft	0.5ft	0.5ft	0	25	50	75	100							
785																	
780															781.2	GROUND SURFACE 0.0	
775	776.5	4.7	1	2	2												
770	771.5	9.7	2	1	2										774.2	<b>ALLUVIAL</b> Brown, Loose, Moist to Wet, Clayey SAND (A-2)	
765	766.5	14.7	2	2	2												
760	761.5	19.7	2	2	4												
																760.0	<b>RESIDUAL</b> Brown, Very Loose to Loose, Wet, Micaceous Silty SAND (A-2)
																	Boring Terminated at Elevation 760.0 ft in Residual Silty SAND

NCDOT BORE DOUBLE R2707C\_GEO\_BH.GPJ NC\_DOT.GDT 11/22/16