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REFERENCE: B-5546

PROJECT: 45538

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

**STRUCTURE**  
**SUBSURFACE INVESTIGATION**

COUNTY RANDOLPH  
 PROJECT DESCRIPTION BRIDGE NO. 307 OVER MOUNT  
PLEASANT CREEK ON SR 2481 (LOW BRIDGE RD.)

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5546	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 (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:
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

B. WORLEY, PG

B. SMITH, PG

J. BARE

T. BRIGMAN

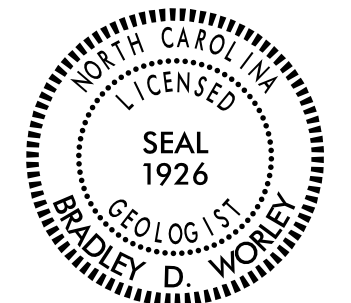
INVESTIGATED BY B. WORLEY, PG

DRAWN BY B. WORLEY, PG

CHECKED BY D. DEWEY, PE

Summit Design and Engineering, PLLC

DATE MARCH, 2015



DocuSigned by:  
*Bradley D. Worley* 4/16/2015

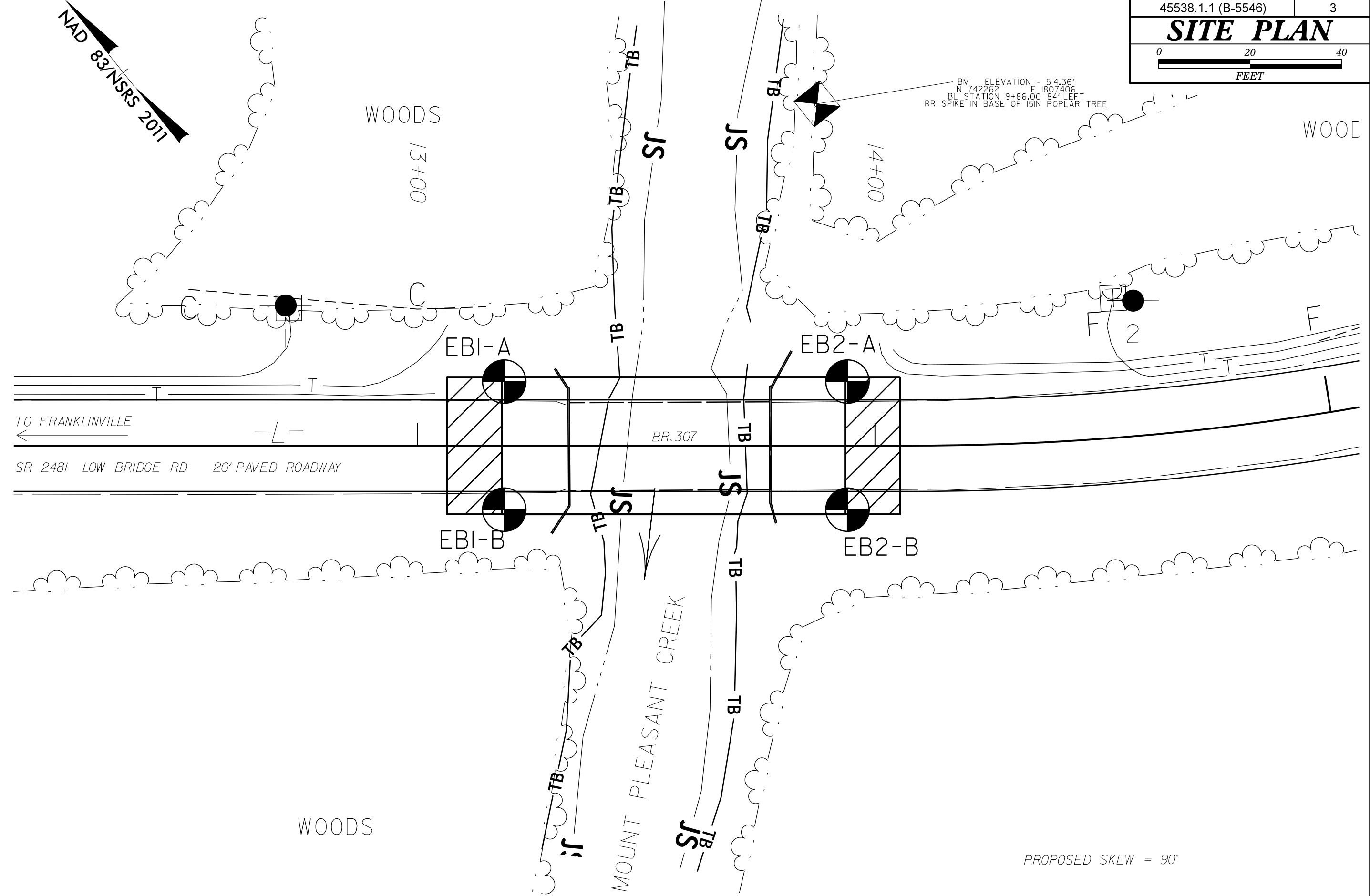
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NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT
SUBSURFACE INVESTIGATION
SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

Table with 4 main columns: SOIL DESCRIPTION, GRADATION, ROCK DESCRIPTION, and TERMS AND DEFINITIONS. Includes sub-sections like SOIL LEGEND AND AASHTO CLASSIFICATION, CONSISTENCY OR DENSENESS, TEXTURE OR GRAIN SIZE, SOIL MOISTURE - CORRELATION OF TERMS, PLASTICITY, COLOR, and EQUIPMENT USED ON SUBJECT PROJECT.

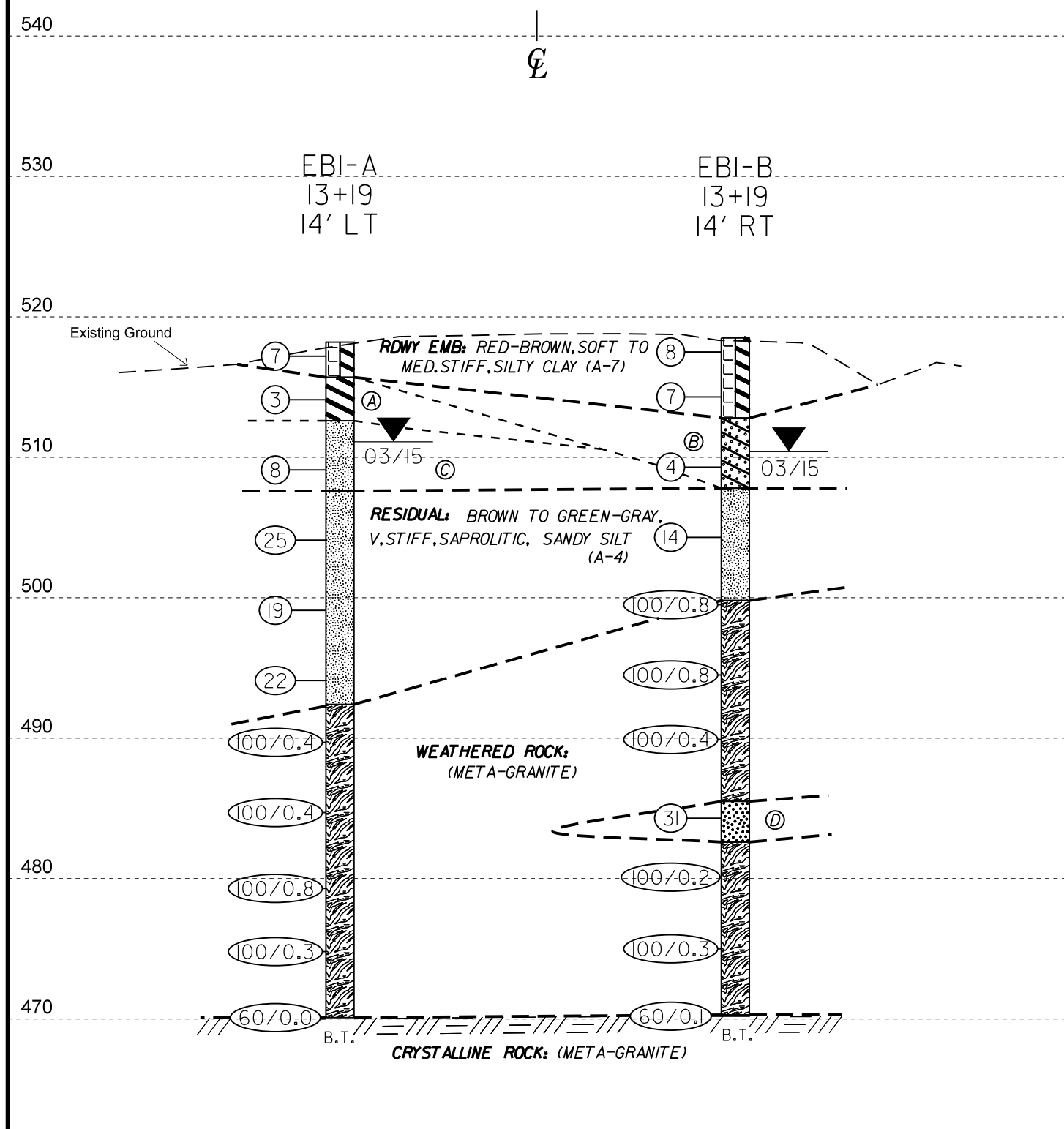
PROJECT REFERENCE NO.	SHEET NO.
45538.1.1 (B-5546)	3
<b>SITE PLAN</b>	

NAD 83/NSRS 2011



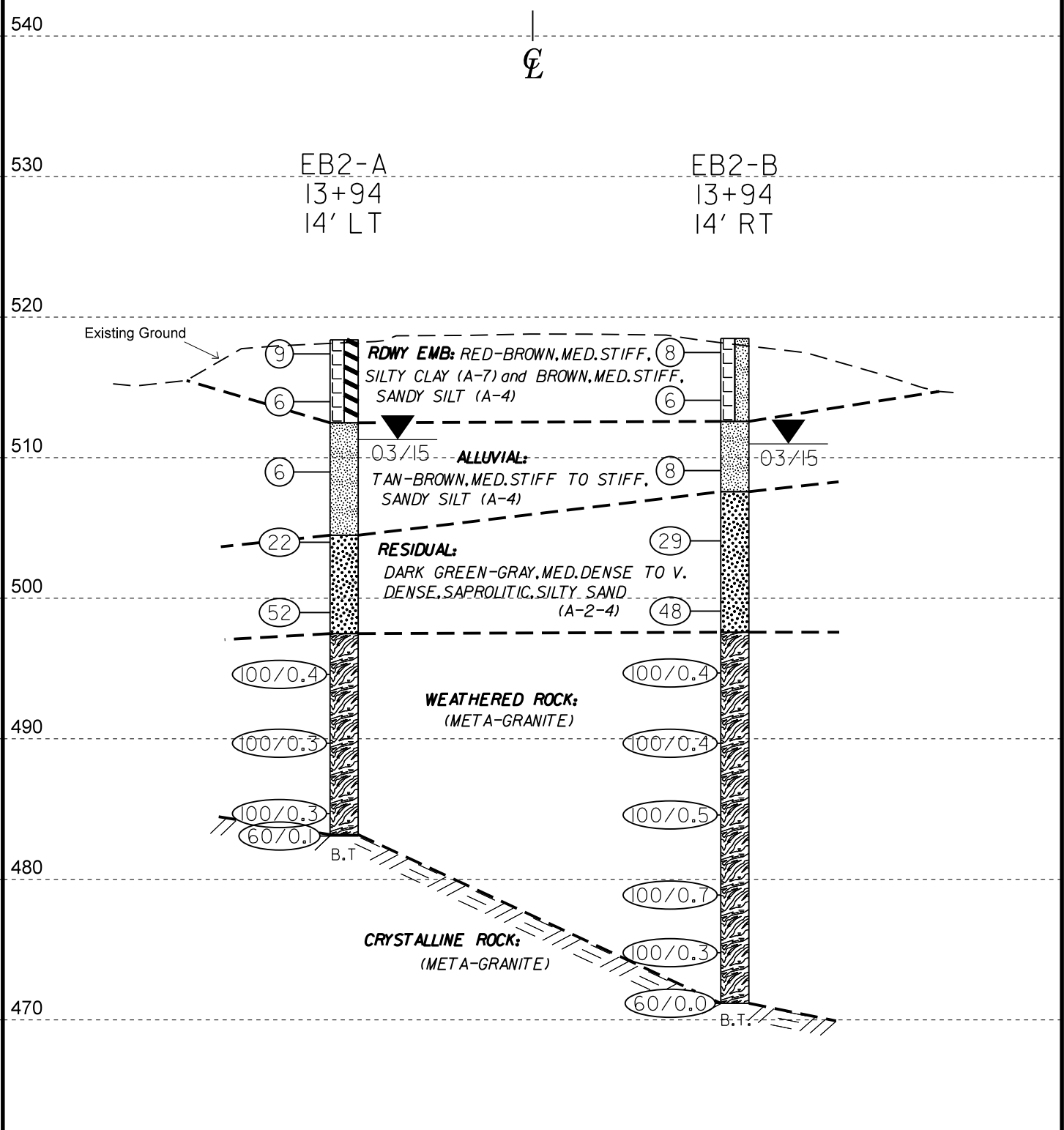
BMI ELEVATION = 514.36'  
 N 742262 E 1807406  
 BL STATION 9+86.00 84' LEFT  
 RR SPIKE IN BASE OF 15IN POPLAR TREE

PROPOSED SKEW = 90°



\*Note: Ground line cut at station -L- Station 13+17.4 along 90° skew. Ground line produced using Geopak and b5546\_ls\_tin.tin. Stratigraphy was drawn through the borings with both projected onto the section.

(A) ALLUVIAL: BROWN, SOFT, SILTY CLAY (A-7)  
 (B) ALLUVIAL: TAN TO ORANGE-BROWN, LOOSE, CLAYEY SAND (A-2-6)  
 (C) ALLUVIAL: TAN-BROWN, STIFF, SANDY SILT (A-4)  
 (D) RESIDUAL: BROWN AND WHITE, DENSE, SAPROLITIC, SILTY SAND (A-2-4)



\*Note: Ground line cut at station -L- Station 13+94.6 along 90° skew. Ground line produced using Geopak and b5546\_ls\_tin.tin. Stratigraphy was drawn through the borings with both projected onto the section.



# NCDOT GEOTECHNICAL ENGINEERING UNIT

## BORELOG REPORT

WBS 45538.1.1		TIP B-5446		COUNTY RANDOLPH		GEOLOGIST Smith, B.										
SITE DESCRIPTION Bridge No. 307 over Mount Pleasant Cr. on SR 2481 (Low Bridge Rd.)							GROUND WTR (ft)									
BORING NO. EB1-A		STATION 13+19		OFFSET 14 ft LT		ALIGNMENT -L-										
COLLAR ELEV. 518.2 ft		TOTAL DEPTH 48.1 ft		NORTHING 742,257		EASTING 1,807,315										
DRILL RIG/HAMMER EFF./DATE SUM0093 DIEDRICH D-50 86% 10/10/2014			DRILL METHOD H.S. Augers		HAMMER TYPE Automatic											
DRILLER Bare, J.		START DATE 03/10/15		COMP. DATE 03/10/15		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						
520	518.2	0.0	2	3	4									518.2	0.0	GROUND SURFACE
														515.7	2.5	ROADWAY EMBANKMENT Red-brown, silty CLAY (A-7) w/ little sand, trace gravel and trace organics
515	515.1	3.1	2	1	2									512.6	5.6	ALLUVIAL Brown, silty CLAY (A-7) w/ some sand Tan-brown, sandy SILT (A-4) w/ some clay
510	510.1	8.1	WOH	3	5									507.6	10.6	RESIDUAL Brown to orange-brown, saprolitic, sandy SILT (A-4)
505	505.1	13.1	8	13	12											
500	500.1	18.1	3	7	12											
495	495.1	23.1	4	8	14									492.4	25.8	WEATHERED ROCK (meta-granite)
490	490.1	28.1	100/0.4													
485	485.1	33.1	100/0.4													
480	480.1	38.1	72	28/0.3												
475	475.1	43.1	100/0.3													
	470.1	48.1	60/0.0											470.1	48.1	CRYSTALLINE ROCK (meta-granite) Boring Terminated with Standard Penetration Test Refusal at Elevation 470.1 ft on Crystalline Rock (meta-granite)

WBS 45538.1.1		TIP B-5446		COUNTY RANDOLPH		GEOLOGIST Smith, B.										
SITE DESCRIPTION Bridge No. 307 over Mount Pleasant Cr. on SR 2481 (Low Bridge Rd.)							GROUND WTR (ft)									
BORING NO. EB1-B		STATION 13+19		OFFSET 14 ft RT		ALIGNMENT -L-										
COLLAR ELEV. 518.5 ft		TOTAL DEPTH 48.3 ft		NORTHING 742,235		EASTING 1,807,297										
DRILL RIG/HAMMER EFF./DATE SUM0093 DIEDRICH D-50 86% 10/10/2014			DRILL METHOD H.S. Augers		HAMMER TYPE Automatic											
DRILLER Bare, J.		START DATE 03/10/15		COMP. DATE 03/10/15		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						
520	518.5	0.0	2	5	3									518.5	0.0	GROUND SURFACE
														515.3	3.2	ROADWAY EMBANKMENT Red-brown, silty CLAY (A-7) w/ little sand and trace gravel
515	515.3	3.2	3	3	4									512.8	5.7	ALLUVIAL Tan-brown to orange-brown, clayey SAND (A-2-6)
510	510.3	8.2	WOH	2	2									507.8	10.7	RESIDUAL Green-gray, saprolitic, sandy SILT (A-4)
505	505.3	13.2	4	5	9											
500	500.3	18.2	24	66	34/0.3									499.8	18.7	WEATHERED ROCK (meta-granite)
495	495.3	23.2	27	73/0.3												
490	490.3	28.2	100/0.4													
485	485.3	33.2	10	8	23									485.5	33.0	RESIDUAL Brown and white, saprolitic, silty SAND (A-2-4)
														482.6	35.9	WEATHERED ROCK (meta-granite)
480	480.3	38.2	100/0.2													
475	475.3	43.2	100/0.3													
	470.3	48.2	60/0.1											470.3	48.2	CRYSTALLINE ROCK (meta-granite) Boring Terminated with Standard Penetration Test Refusal at Elevation 470.2 ft in Crystalline Rock (meta-granite)

NCDOT BORE DOUBLE\_B5546\_GEO\_BRDG0307\_GINT.GPJ\_NC\_DOT.GDT\_4/16/15



# NCDOT GEOTECHNICAL ENGINEERING UNIT

## BORELOG REPORT

WBS 45538.1.1		TIP B-5446		COUNTY RANDOLPH		GEOLOGIST Smith, B.										
SITE DESCRIPTION Bridge No. 307 over Mount Pleasant Cr. on SR 2481 (Low Bridge Rd.)							GROUND WTR (ft)									
BORING NO. EB2-A		STATION 13+94		OFFSET 14 ft LT		ALIGNMENT -L-										
COLLAR ELEV. 518.4 ft		TOTAL DEPTH 35.3 ft		NORTHING 742,210		EASTING 1,807,373										
DRILL RIG/HAMMER EFF./DATE SUM0093 DIEDRICH D-50 86% 10/10/2014				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic										
DRILLER Bare, J.		START DATE 03/09/15		COMP. DATE 03/09/15		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						
520	518.4	0.0	1	3	6									518.4	0.0	GROUND SURFACE
																ROADWAY EMBANKMENT
																Red-brown, silty CLAY (A-7) w/ little sand, trace gravel, and little organics
515	515.0	3.4	2	2	4									512.5	5.9	ALLUVIAL
																Tan-brown, sandy SILT (A-4) w/ little clay
510	510.0	8.4	WOH	2	4											
505	505.0	13.4	5	10	12									504.5	13.9	RESIDUAL
																Dark green-gray, saprolitic, silty SAND (A-2-4)
500	500.0	18.4	12	27	25									497.5	20.9	WEATHERED ROCK
																(meta-granite)
495	495.0	23.4	100/0.4													
490	490.0	28.4	100/0.3													
485	485.0	33.4	100/0.3													
	483.2	35.2	60/0.1											483.2	35.2	CRYSTALLINE ROCK
														483.1	35.3	(meta-granite)
																Boring Terminated with Standard Penetration Test Refusal at Elevation 483.1 ft in Crystalline Rock (meta-granite)

WBS 45538.1.1		TIP B-5446		COUNTY RANDOLPH		GEOLOGIST Smith, B.										
SITE DESCRIPTION Bridge No. 307 over Mount Pleasant Cr. on SR 2481 (Low Bridge Rd.)							GROUND WTR (ft)									
BORING NO. EB2-B		STATION 13+94		OFFSET 14 ft RT		ALIGNMENT -L-										
COLLAR ELEV. 518.5 ft		TOTAL DEPTH 47.3 ft		NORTHING 742,188		EASTING 1,807,356										
DRILL RIG/HAMMER EFF./DATE SUM0093 DIEDRICH D-50 86% 10/10/2014				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic										
DRILLER Bare, J.		START DATE 03/09/15		COMP. DATE 03/09/15		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						
520	518.5	0.0	2	3	5									518.5	0.0	GROUND SURFACE
																ROADWAY EMBANKMENT
																Brown, sandy SILT (A-4) w/ little clay and gravel
515	515.1	3.4	2	3	3									512.6	5.9	ALLUVIAL
																Light tan-brown, f. sandy SILT (A-4) w/ little clay
510	510.1	8.4	2	3	5											
505	505.1	13.4	5	12	17									507.6	10.9	RESIDUAL
																Dark green-gray and white, saprolitic, silty SAND (A-2-4)
500	500.1	18.4	9	14	34									497.6	20.9	WEATHERED ROCK
																(meta-granite)
495	495.1	23.4	100/0.4													
490	490.1	28.4	100/0.4													
485	485.1	33.4	100/0.5													
480	480.1	38.4	7	58	42/0.2											
475	475.1	43.4	100/0.3													
	471.2	47.3	60/0.0											471.2	47.3	CRYSTALLINE ROCK
																(meta-granite)
																Boring Terminated with Standard Penetration Test Refusal at Elevation 471.2 ft on Crystalline Rock (meta-granite)

NCDOT BORE DOUBLE B5546\_GEO\_BRDG0307\_GINT.GPJ NC\_DOT\_GDT 4/6/15

# SITE PHOTOGRAPHS

Bridge No. 307 over Mt. Pleasant Creek on SR 2481 (Low Bridge Rd.)



Looking East along -L- (SR 2481)



Looking West along -L- (SR 2481)