

REFERENCE: B-3186/B-5898

PROJECT: 38332/48030

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

STRUCTURE
SUBSURFACE INVESTIGATION

COUNTY HAYWOOD
PROJECT DESCRIPTION US 23/US 74/US 19 (GREAT SMOKY MOUNTAIN HWY) FROM WEST OF NC 209 (CRABTREE RD) TO EAST OF RUSS AVE.
SITE DESCRIPTION RETAINING WALL #2 FROM -L RT- STA. 51+62.74 TO 53+56.35

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-3186/B-5898	1	6

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

N. YACOBIR. DUGGERGEOTECHNOLOGY, INC.INVESTIGATED BY C. SWAFFORDDRAWN BY T. LYNNCHECKED BY K. BUSSEYSUBMITTED BY HDRDATE NOVEMBER 2021

HDR Engineering, Inc. of the Carolinas
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N.C.B.E.L.S. License Number: F-0116



Kenneth R. Bussey, Jr.
SIGNATURE

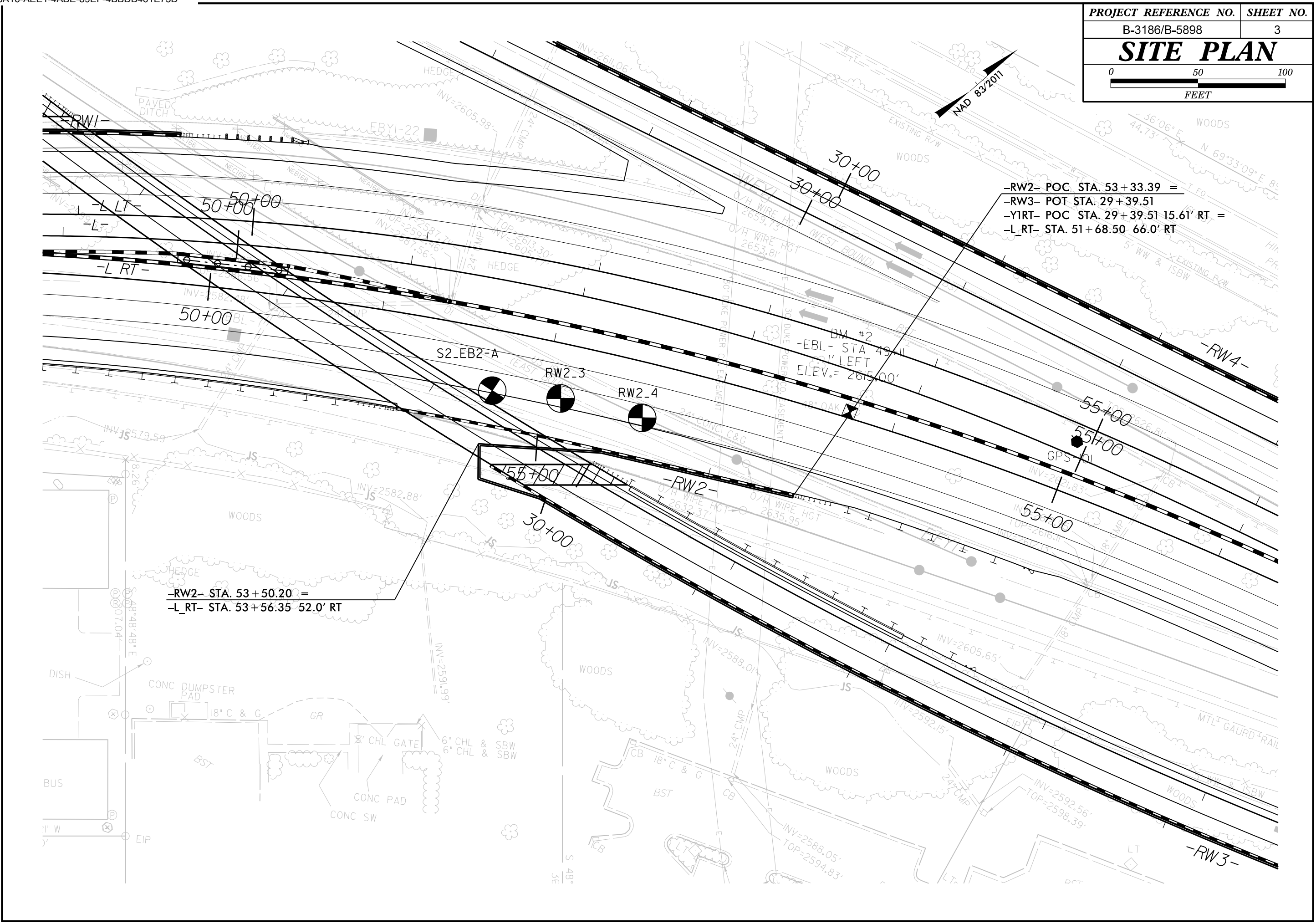
9/6/2023
DATE

**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. Includes sub-sections like SOIL LEGEND AND AASHTO CLASSIFICATION, CONSISTENCY OR DENSENESS, TEXTURE OR GRAIN SIZE, SOIL MOISTURE - CORRELATION OF TERMS, PLASTICITY, COLOR, MISCELLANEOUS SYMBOLS, RECOMMENDATION SYMBOLS, ABBREVIATIONS, EQUIPMENT USED ON SUBJECT PROJECT, FRACTURE SPACING, BEDDING, and INDURATION.

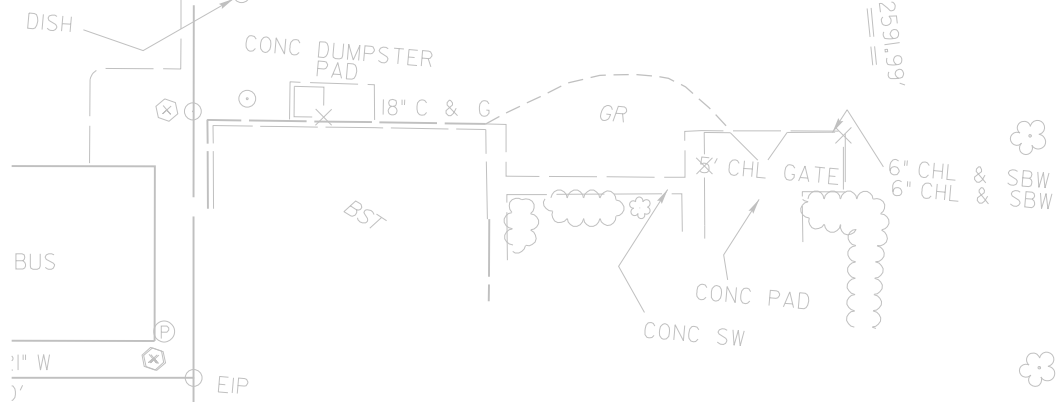
PROJECT REFERENCE NO.	SHEET NO.
B-3186/B-5898	3
SITE PLAN	
 0 50 100 FEET	

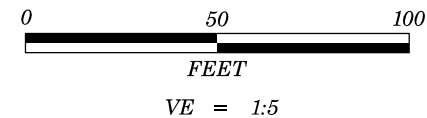


-RW2- POC STA. 53+33.39 =
 -RW3- POT STA. 29+39.51
 -YIRT- POC STA. 29+39.51 15.61' RT =
 -L_RT- STA. 51+68.50 66.0' RT

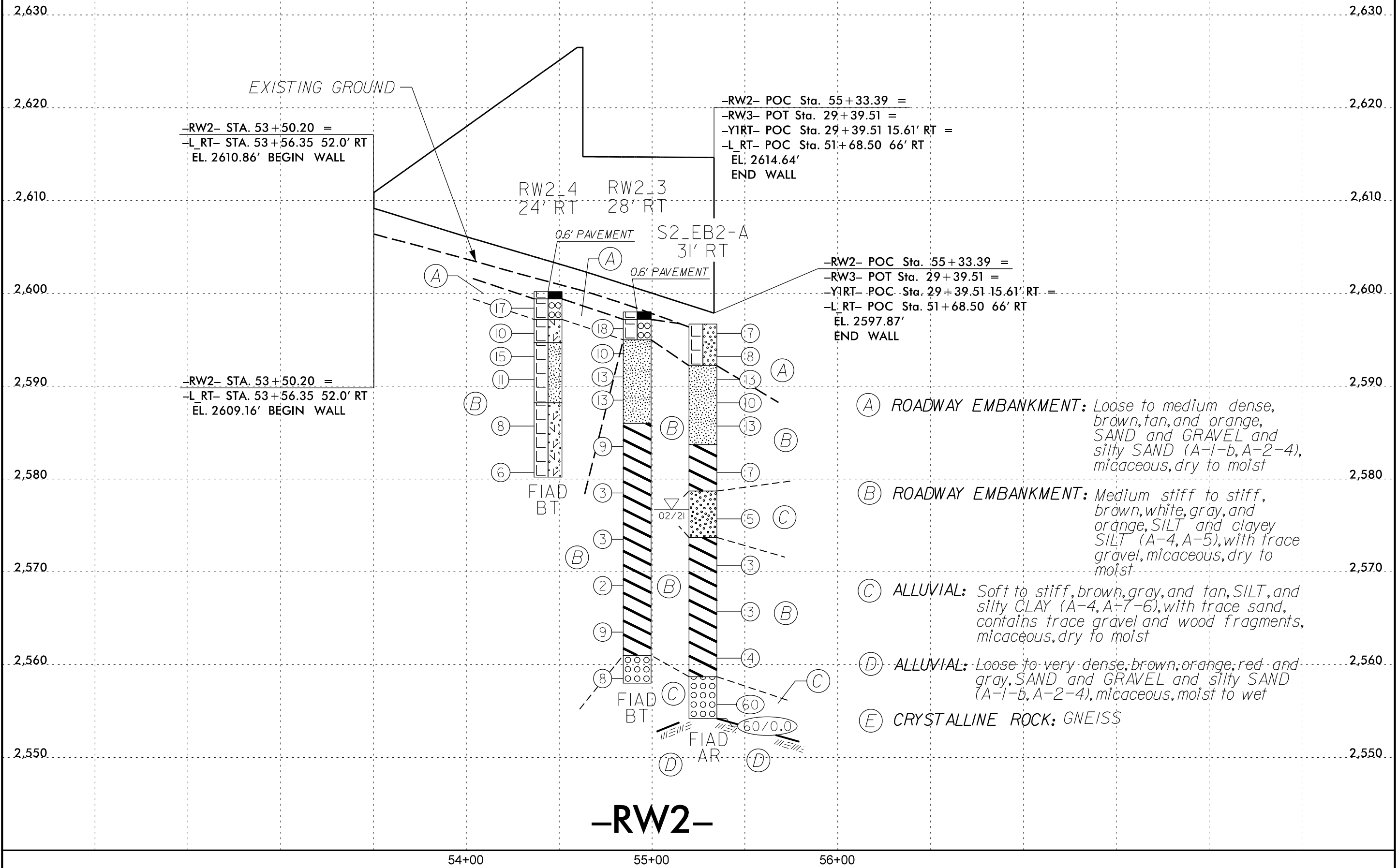
-RW2- STA. 53+50.20 =
 -L_RT- STA. 53+56.35 52.0' RT

BM #2
 -EBL- STA 49+11
 1' LEFT
 ELEV.= 2615.00'





PROJECT REFERENCE NO.	SHEET NO.
B-3186/B-5898	4
-RW2- PROFILE	



- (A) ROADWAY EMBANKMENT: Loose to medium dense, brown, tan, and orange, SAND and GRAVEL, and silty SAND (A-1-b, A-2-4), micaceous, dry to moist
- (B) ROADWAY EMBANKMENT: Medium stiff to stiff, brown, white, gray, and orange, SILT and clayey SILT (A-4, A-5), with trace gravel, micaceous, dry to moist
- (C) ALLUVIAL: Soft to stiff, brown, gray, and tan, SILT, and silty CLAY (A-4, A-7-6), with trace sand, contains trace gravel and wood fragments, micaceous, dry to moist
- (D) ALLUVIAL: Loose to very dense, brown, orange, red, and gray, SAND and GRAVEL and silty SAND (A-1-b, A-2-4), micaceous, moist to wet
- (E) CRYSTALLINE ROCK: GNEISS

-RW2-

54+00 55+00 56+00

GEOTECHNICAL BORING REPORT

BORE LOG

WBS 38332.1.FS1		TIP B-3186 / B-5898		COUNTY HAYWOOD		GEOLOGIST N. Yacobi										
SITE DESCRIPTION Retaining Wall No. 2 from -L_RT- STA 51+63 to 53+56							GROUND WTR (ft)									
BORING NO. RW2_4		STATION 54+44		OFFSET 24 ft RT		ALIGNMENT -RW2-										
COLLAR ELEV. 2,600.2 ft		TOTAL DEPTH 20.0 ft		NORTHING 667,055		EASTING 819,630										
DRILL RIGHAMMER EFF./DATE GTC3277 CME-75 83% (09/15/2020)				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic										
DRILLER K. Boone		START DATE 02/10/21		COMP. DATE 02/11/21		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						
2605																
2600	2,599.4	0.8														
			15	11	6											
	2,596.7	3.5	6	5	5											
2595	2,594.2	6.0	8	7	8											
	2,591.7	8.5	4	5	6											
2590	2,586.7	13.5	2	4	4											
	2,581.7	18.5	3	3	3											

WBS 38332.1.FS1		TIP B-3186 / B-5898		COUNTY HAYWOOD		GEOLOGIST N. Yacobi										
SITE DESCRIPTION Retaining Wall No. 2 from -L_RT- STA 51+63 to 53+56							GROUND WTR (ft)									
BORING NO. RW2_3		STATION 54+92		OFFSET 28 ft RT		ALIGNMENT -RW2-										
COLLAR ELEV. 2,598.0 ft		TOTAL DEPTH 40.0 ft		NORTHING 667,028		EASTING 819,591										
DRILL RIGHAMMER EFF./DATE GTC3277 CME-75 83% (09/15/2020)				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic										
DRILLER K. Boone		START DATE 02/10/21		COMP. DATE 02/10/21		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						
2600																
	2,597.2	0.8	9	12	6											
2595	2,594.5	3.5	5	5	5											
	2,592.0	6.0	5	6	7											
2590	2,589.5	8.5	7	6	7											
	2,584.5	13.5	4	4	5											
2585	2,579.5	18.5	2	1	2											
	2,574.5	23.5	1	1	2											
2575	2,569.5	28.5	1	1	1											
	2,564.5	33.5	0	4	5											
2565	2,559.5	38.5	0	3	5											

NCDOT BORE DOUBLE B3186_GEO_SPT.GPJ_NC_DOT.GDT 11/18/21

GEOTECHNICAL BORING REPORT

BORE LOG

WBS 38332.1.FS1		TIP B-3186 / B-5898		COUNTY HAYWOOD		GEOLOGIST R. Dugger										
SITE DESCRIPTION US 23/ US 74 (Great Smoky Mountain Highway)							GROUND WTR (ft)									
BORING NO. S2_EB2-A		STATION 29+30		OFFSET 14 ft LT		ALIGNMENT -Y1RT-										
COLLAR ELEV. 2,596.7 ft		TOTAL DEPTH 42.5 ft		NORTHING 667,001		EASTING 819,562										
DRILL RIGHAMMER EFF./DATE GTC9083 CME-550X 80%(11/24/2020)				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic										
DRILLER L. Wanstrath		START DATE 02/10/21		COMP. DATE 02/10/21		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION			
			0.5ft	0.5ft	0.5ft	0	25	50	75	100			ELEV. (ft)	DEPTH (ft)		
2600																
	2,596.7	0.0												2,596.7	0.0	GROUND SURFACE
2595	2,594.2	2.5	2	3	4	7							M	2,592.2	4.5	ROADWAY EMBANKMENT Loose, brown and orange, f-c silty SAND (A-2-4), with little gravel
	2,591.7	5.0	3	4	4	8							D			
2590	2,589.2	7.5	3	6	7	13							D			ALLUVIAL Stiff, brown and orange, SILT (A-4), micaceous
	2,586.7	10.0	4	4	6	10							D			
2585	2,583.7	13.0	7	6	7	13							D	2,583.7	13.0	Medium stiff, brown and gray, f silty CLAY (A-7-6), micaceous
	2,581.7	15.0	3	3	4	7							M			
2580	2,578.7	18.0	3	3	2	5							M	2,578.7	18.0	Loose, brown and gray, f-c silty SAND (A-2-4), micaceous
	2,576.7	20.0														
2575	2,573.7	23.0	1	1	2	3							M	2,573.7	23.0	Soft to medium stiff, gray, CLAY (A-7-6), contains trace wood fragments, micaceous
	2,571.7	25.0														
2570	2,566.7	30.0	1	1	2	3							M			
	2,564.7	32.0														
2565	2,561.7	35.0	1	2	2	4							M			
	2,559.7	37.0														
2560	2,558.7	38.0	1	2	2	4							M	2,558.7	38.0	Very dense, gray, SAND and GRAVEL (A-1-b)
	2,556.7	40.0	9	25	35	60							W			
2555	2,554.2	42.5	60/0.0			60/0.0								2,554.2	42.5	Boring Terminated with Standard Penetration Test Refusal at Elevation 2,554.2 ft on Crystalline Rock (GNEISS). A.R. at a depth of 42.5'.

NCDOT BORE DOUBLE B3186_GEO_SITE 2.GPJ NC_DOT.GDT 8/10/21