

REFERENCE: I-2513AC

PROJECT: 34165

CONTENTS

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	LEGEND (SOIL & ROCK)
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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

STRUCTURE
SUBSURFACE INVESTIGATION

COUNTY BUNCOMBE

PROJECT DESCRIPTION I-26I-40I-240 INTERCHANGE
TO SR 3548 (HAYWOOD ROAD)

SITE DESCRIPTION RETAINING WALL NO. 6
-WALL6- STA. 11+13.60 (-L- STA. 74+13.60) TO
-WALL6- STA. 16+34.39 (-L- STA. 79+47.89)

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-2513AC	1	10

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 PERFORM INDEPENDENT SUBSURFACE INVESTIGATIONS AND MAKE INTERPRETATIONS AS NECESSARY TO CONFIRM CONDITIONS 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

A. BLACKMORE

A. WEST

C. OSBORNE

TOTAL DEPTH DRILLING

INVESTIGATED BY ECS SOUHT EAST, LLC

DRAWN BY A. SUTTLE, P.G.

CHECKED BY M. MULLA, P.E.

SUBMITTED BY ECS SOUTHEAST, LLC

DATE AUGUST 2024

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Signed by:

Amanda R. Suttle P.G. 6/30/2026

399DBE4295140401

DATE

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

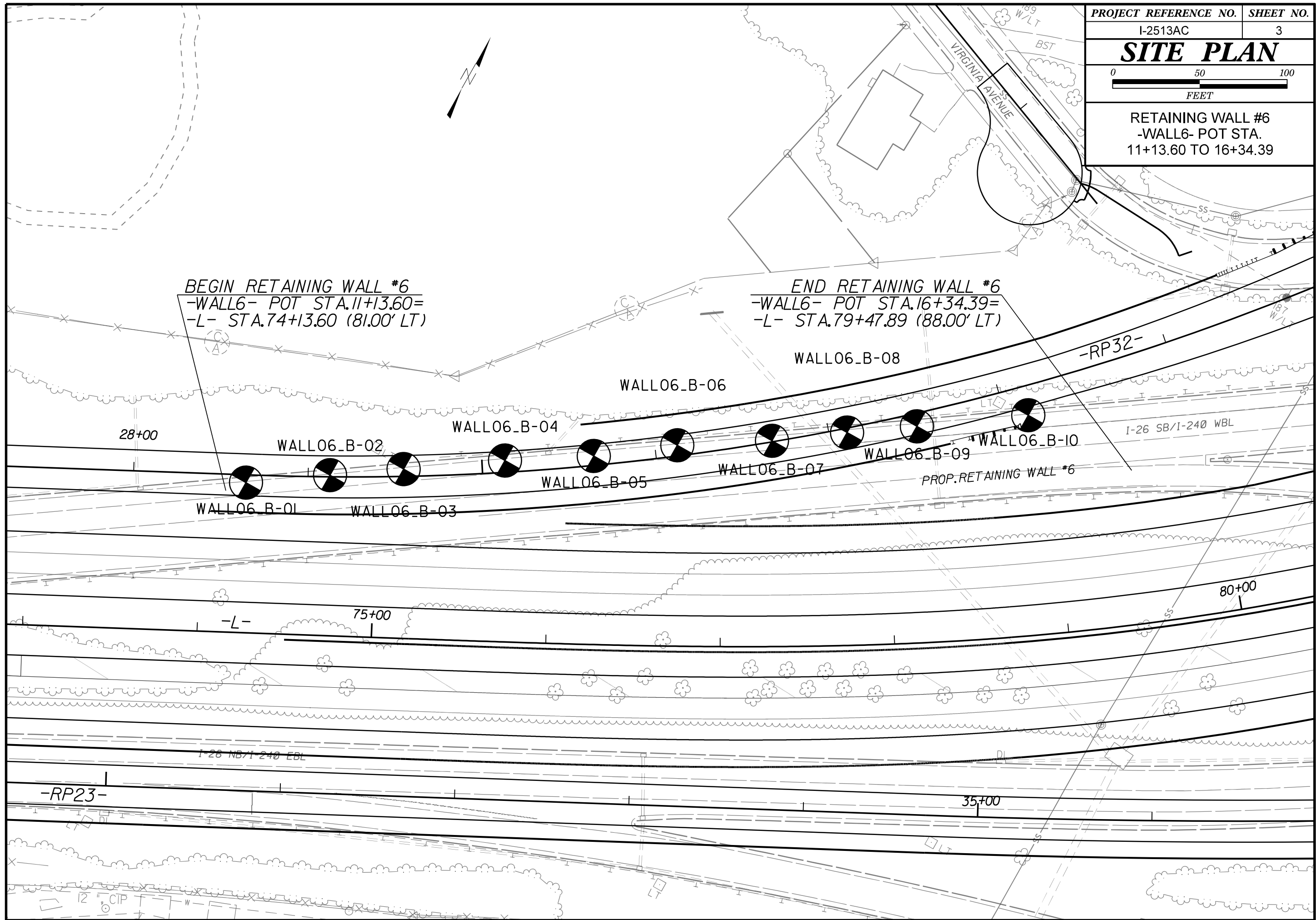
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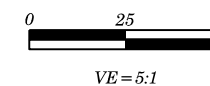
SUBSURFACE INVESTIGATION

SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

SOIL DESCRIPTION										GRADATION										ROCK DESCRIPTION										TERMS AND DEFINITIONS									
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 ACCORDING TO THE STANDARD PENETRATION TEST (AASHTO T 206, ASTM D1586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY INCLUDE THE FOLLOWING: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. FOR EXAMPLE, <i>VERY STIFF, GRAY, SILTY CLAY, MOIST WITH INTERBEDDED FINE SAND LAYERS, HIGHLY PLASTIC, A-7-6</i>										WELL GRADED - INDICATES A GOOD REPRESENTATION OF PARTICLE SIZES FROM FINE TO COARSE. UNIFORMLY GRADED - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE. GAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLE SIZES OF TWO OR MORE SIZES.										HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT REFUSAL IF TESTED. AN INFERRED ROCK LINE INDICATES THE LEVEL AT WHICH NON-COASTAL PLAIN MATERIAL WOULD YIELD SPT REFUSAL. SPT REFUSAL IS PENETRATION BY A SPLIT SPOON SAMPLER EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS IN NON-COASTAL PLAIN MATERIAL. THE TRANSITION BETWEEN SOIL AND ROCK IS OFTEN REPRESENTED BY A ZONE OF WEATHERED ROCK. ROCK MATERIALS ARE TYPICALLY DIVIDED AS FOLLOWS:										ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER. AQUIFER - A WATER BEARING FORMATION OR STRATA. ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND. ARGILLACEOUS - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING A NOTABLE PROPORTION OF CLAY IN THEIR COMPOSITION, SUCH AS SHALE, SLATE, ETC. ARTESIAN - GROUND WATER THAT IS UNDER SUFFICIENT PRESSURE TO RISE ABOVE THE LEVEL AT WHICH IT IS ENCOUNTERED, BUT WHICH DOES NOT NECESSARILY RISE TO OR ABOVE THE GROUND SURFACE. CALCAREOUS (CALC.) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE. COLLUVIUM - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM OF SLOPE. CORE RECOVERY (REC.) - TOTAL LENGTH OF ALL MATERIAL RECOVERED IN THE CORE BARREL DIVIDED BY TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE. DIKE - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT ROCKS OR CUTS MASSIVE ROCK. DIP - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL. DIP DIRECTION (DIP AZIMUTH) - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH. FAULT - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE. FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES. FLOAT - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLOGGED FROM PARENT MATERIAL. FLOOD PLAIN (FP) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM. FORMATION (FM.) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD. JOINT - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED. LEDGE - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO ITS LATERAL EXTENT. LENS - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS. MOTTLED (MOT.) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS. MOTTLING IN SOILS USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE. PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE OF AN INTERVENING IMPERVIOUS STRATUM. RESIDUAL (RES.) SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK. ROCK QUALITY DESIGNATION (ROD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE. SAPROLITE (SAP.) - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK. SILL - AN INTRUSIVE BODY OF IGNEOUS ROCK OF APPROXIMATELY UNIFORM THICKNESS AND RELATIVELY THIN COMPARED WITH ITS LATERAL EXTENT, THAT HAS BEEN EMPLACED PARALLEL TO THE BEDDING OR SCHISTOSITY OF THE INTRUDED ROCKS. SLICKENSIDE - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT OR SLIP PLANE. STANDARD PENETRATION TEST (PENETRATION RESISTANCE) (SPT) - NUMBER OF BLOWS (N OR BPF) OF A 140 LB. HAMMER FALLING 30 INCHES REQUIRED TO PRODUCE A PENETRATION OF 1 FOOT INTO SOIL WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS PENETRATION EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS. STRATA CORE RECOVERY (SREC.) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE. STRATA ROCK QUALITY DESIGNATION (SROD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE. TOPSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.									
SOIL LEGEND AND AASHTO CLASSIFICATION										MINERALOGICAL COMPOSITION										WEATHERING																			
GENERAL CLASS.										MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHEN THEY ARE CONSIDERED OF SIGNIFICANCE.										FRESH																			
GROUP CLASS.										SLIGHTLY COMPRESSIBLE MODERATELY COMPRESSIBLE HIGHLY COMPRESSIBLE										VERY SLIGHT (V SL.)																			
SYMBOL										PERCENTAGE OF MATERIAL										SLIGHT (SL.)																			
%										GROUND WATER										MODERATE (MOD.)																			
MATERIAL PASSING #40 #200										MISCELLANEOUS SYMBOLS										MODERATELY SEVERE (MOD. SEV.)																			
GROUP INDEX										RECOMMENDATION SYMBOLS										SEVERE (SEV.)																			
USUAL TYPES OF MAJOR MATERIALS										ABBREVIATIONS										VERY SEVERE (V SEV.)																			
GEN. RATING AS SUBGRADE										EQUIPMENT USED ON SUBJECT PROJECT										COMPLETE																			
PI OF A-7-5 SUBGROUP IS ≤ LL - 30 ; PI OF A-7-6 SUBGROUP IS > LL - 30																				ROCK HARDNESS																			
CONSISTENCY OR DENSENESS																				VERY HARD																			
PRIMARY SOIL TYPE																				HARD																			
GENERAL																				MODERATELY HARD																			
GRANULAR MATERIAL (NON-COHESIVE)																				MEDIUM HARD																			
GENERAL																				SOFT																			
SILT-CLAY MATERIAL (COHESIVE)																				VERY SOFT																			
TEXTURE OR GRAIN SIZE																				BEDDING																			
U.S. STD. SIEVE SIZE OPENING (MM)																				TERM										THICKNESS									
BOULDER (BLDR.)																				VERY WIDE										MORE THAN 10 FEET									
COBBLE (COB.)																				WIDE										3 TO 10 FEET									
GRAVEL (GR.)																				MODERATELY CLOSE										1 TO 3 FEET									
COARSE SAND (CSE. SD.)																				CLOSE										0.16 TO 1 FOOT									
FINE SAND (F SD.)																				VERY CLOSE										LESS THAN 0.16 FEET									
SILT (SL.)																																							
CLAY (CL.)																																							
GRAIN SIZE																																							
SOIL MOISTURE - CORRELATION OF TERMS																																							
SOIL MOISTURE SCALE (ATTERBERG LIMITS)																																							
FIELD MOISTURE DESCRIPTION																																							
GUIDE FOR FIELD MOISTURE DESCRIPTION																																							
LL - LIQUID LIMIT																																							
PL - PLASTIC LIMIT																																							
OM - OPTIMUM MOISTURE SHRINKAGE LIMIT																																							
PLASTICITY																																							
NON PLASTIC																																							
SLIGHTLY PLASTIC																																							
MODERATELY PLASTIC																																							
HIGHLY PLASTIC																																							
COLOR																																							
DESCRIPTIONS MAY INCLUDE COLOR OR COLOR COMBINATIONS (TAN, RED, YELLOW-BROWN, BLUE-GRAY). MODIFIERS SUCH AS LIGHT, DARK, STREAKED, ETC. ARE USED TO DESCRIBE APPEARANCE.																																							

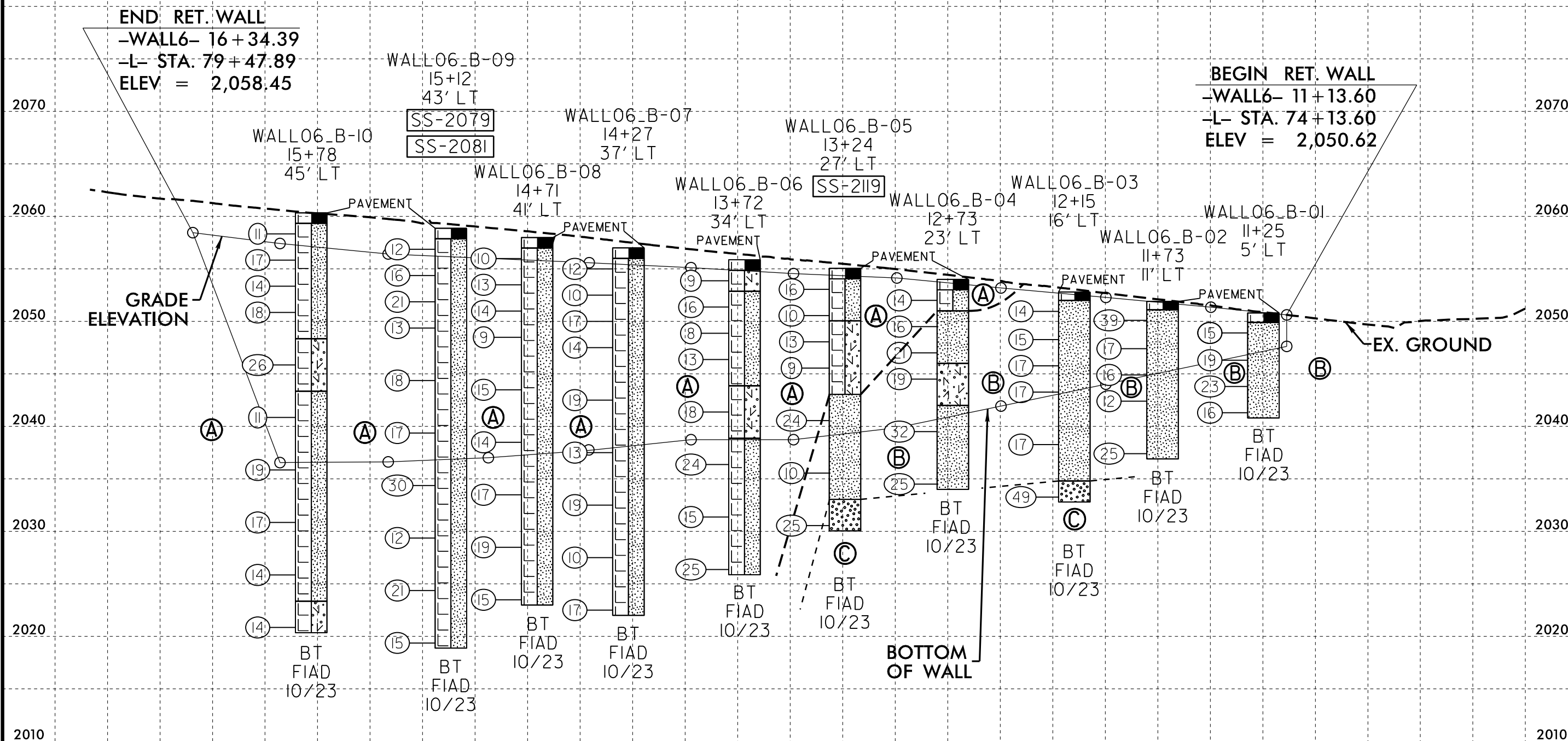
PROJECT REFERENCE NO.	SHEET NO.
I-2513AC	3
SITE PLAN	
0 50 100 FEET	
RETAINING WALL #6 -WALL6- POT STA. 11+13.60 TO 16+34.39	





-WALL6- PROFILE ALONG EXISTING GROUND LINE FROM ROADWAY. DESIGN WALL, PROVIDED BY AECOM, JULY 2024 AND I2513 Is tn.tin. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, PROJECTED ON THE PROFILE.

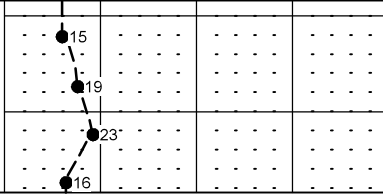
—WALL6—



- | | |
|---------------------------------------|--|
| <p>(A)-ROADWAY EMBANKMENT-</p> | <p>MEDIUM STIFF TO VERY STIFF, MOIST, PINK-BROWN-WHITE-BLACK-RED-GRAY, SLIGHTLY PLASTIC, CLAYEY SILT (A-5) AND FINE TO COARSE SANDY SILT (A-4), AND WITH TRACE MICA AND GRAVEL</p> |
| <p>(B)-RESIDUAL-</p> | <p>STIFF TO HARD, MOIST, BROWN-WHITE-RED-PINK-BLACK-TAN, FINE TO COARSE SANDY SILT (A-4) AND CLAYEY SILT (A-5), WITH TRACE MICA AND ROCK FRAGMENTS</p> |
| <p>(C)-RESIDUAL-</p> | <p>MEDIUM DENSE TO DENSE, MOIST, RED-BROWN-WHITE, SILTY FINE TO COARSE SAND (A-2-4)</p> |

GEOTECHNICAL BORING REPORT

BORE LOG

WBS				34165.1.13				TIP				I-2513AC				COUNTY				BUNCOMBE				GEOLOGIST				A. Blackmore																							
SITE DESCRIPTION																				RETAINING WALL NO. 6, STA. -L- to 74+13.60 TO -L- 79+47.89												GROUND WTR (ft)																			
BORING NO.				WALL06_B-01				STATION				11+25				OFFSET				5 ft LT				ALIGNMENT				-WALL6-				0 HR.		Dry																	
COLLAR ELEV.				2,050.8 ft				TOTAL DEPTH				10.0 ft				NORTHING				680,365				EASTING				932,943				24 HR.		FIAD																	
DRILL RIG/HAMMER EFF./DATE										TDD417 CME75 82.7% 06/15/2021										DRILL METHOD										H.S. Augers										HAMMER TYPE				Automatic							
DRILLER						D. Hamilton						START DATE						10/11/23						COMP. DATE						10/11/23						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																										
						0.5ft 0.5ft 0.5ft			0 25 50 75 100																ELEV. (ft) DEPTH (ft)																										
2055																																																			
2050		2,049.9		0.9		7 8 7																			2,050.8 GROUND SURFACE 0.0 2,049.9 ROADWAY EMBANKMENT 0.9 Asphalt (0.4'), Stonebase (0.5') RESIDUAL Stiff to Very Stiff, Brown, Fine to Coarse Sandy SILT (A-4), with trace mica 2,040.8 Boring Terminated at Elevation 2,040.8 ft In 10.0 Residual Sandy SILT (A-4)																										
2045		2,047.3		3.5		5 8 11															M																														
		2,044.8		6.0		4 9 14															M																														
		2,042.3		8.5		4 6 10															M																														

[illegible]

WBS 34165.1.13		TIP I-2513AC		COUNTY BUNCOMBE		GEOLOGIST A. West								
SITE DESCRIPTION RETAINING WALL NO. 6, STA. -L- to 74+13.60 TO -L- 79+47.89							GROUND WTR (ft)							
BORING NO. WALL06_B-04		STATION 12+73		OFFSET 23 ft LT		ALIGNMENT -WALL6-		0 HR. Dry						
COLLAR ELEV. 2,054.0 ft		TOTAL DEPTH 20.0 ft		NORTHING 680,449		EASTING 933,066		24 HR. FIAD						
DRILL RIG/HAMMER EFF./DATE ECS1390 AMS PowerProbe 9410-D 97% 12/20/2022				DRILL METHOD H.S. Augers			HAMMER TYPE Automatic							
DRILLER C. Osborne			START DATE 10/11/23		COMP. DATE 10/11/23		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
			0.5ft	0.5ft	0.5ft	0	25	50	75	100				
2055														
	2,053.0	1.0	6	7	7									2,054.0 GROUND SURFACE 0.0
														2,053.0 ROADWAY EMBANKMENT 1.0
														Asphalt (0.7'), Stonebase (0.3')
2050	2,050.5	3.5	7	7	9									2,051.0 Stiff, Pink-Brown-White, Fine to Coarse Sandy SILT (A-4), with trace mica 3.0
	2,048.0	6.0												Very Stiff, Brown-Pink-White, Fine to Coarse Sandy SILT (A-4) RESIDUAL
	2,045.5	8.5	9	8	11									2,046.0 Very Stiff, Pink-Brown-White, Clayey SILT (A-5), with trace mica 8.0
2045														2,042.0 Very Stiff to Hard, Brown-White-Pink, Fine to Coarse Sandy SILT (A-4), with trace mica and rock fragments 12.0
2040	2,040.5	13.5	17	15	17									
2035	2,035.5	18.5	12	12	13									2,034.0 Boring Terminated at Elevation 2,034.0 ft in Residual Sandy SILT (A-4) 20.0

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34165.1.13			TIP I-2513AC			COUNTY BUNCOMBE			GEOLOGIST A. West						
SITE DESCRIPTION RETAINING WALL NO. 6, STA. -L- to 74+13.60 TO -L- 79+47.89												GROUND WTR (ft)			
BORING NO. WALL06_B-05			STATION 13+24			OFFSET 27 ft LT			ALIGNMENT -WALL6-			0 HR.	Dry		
COLLAR ELEV. 2,055.1 ft			TOTAL DEPTH 25.0 ft			NORTHING 680,477			EASTING 933,109			24 HR.	FIAD		
DRILL RIG/HAMMER EFF./DATE ECS1390 AMS PowerProbe 9410-D 97% 12/20/2022						DRILL METHOD H.S. Augers				HAMMER TYPE Automatic					
DRILLER C. Osborne			START DATE 10/12/23			COMP. DATE 10/12/23			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	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100				ELEV. (ft)	DEPTH (ft)
2060															
2055															
	2,054.1	1.0												2,055.1 GROUND SURFACE 0.0	
														2,054.1 ROADWAY EMBANKMENT 1.0	
														Asphalt (0.7'), Stonebase (0.3')	
	2,051.6	3.5	4	8	8									ROADWAY EMBANKMENT	
2050														Stiff to Very Stiff, Brown-White-Black, Fine to Coarse Sandy SILT (A-4), with trace mica	5.0
	2,049.1	6.0	3	5	5										
														Stiff, Brown-White-Black-Red, Slightly Plastic Clayey SILT (A-5(3)), with trace mica and gravel	
	2,046.6	8.5	8	7	6						SS-2119	19%			
2045															
	2,041.6	13.5	6	6	3									2,043.1 RESIDUAL 12.0	
2040														Stiff to Very Stiff, Brown-White-Red, Fine to Coarse Sandy SILT (A-4)	
	2,036.6	18.5	9	10	14										
2035															
	2,031.6	23.5	4	5	5									2,033.1 Medium Dense, Red-Brown, Silty Fine to Coarse SAND (A-2-4) 22.0	
														2,030.1 Boring Terminated at Elevation 2,030.1 ft In Residual Silty SAND (A-2-4) 25.0	

WBS 34165.1.13			TIP I-2513AC			COUNTY BUNCOMBE			GEOLOGIST A. West					
SITE DESCRIPTION RETAINING WALL NO. 6, STA. -L- to 74+13.60 TO -L- 79+47.89										GROUND WTR (ft)				
BORING NO. WALL06_B-06			STATION 13+72			OFFSET 34 ft LT			ALIGNMENT -WALL6-		0 HR. Dry			
COLLAR ELEV. 2,055.9 ft			TOTAL DEPTH 30.0 ft			NORTHING 680,505			EASTING 933,148		24 HR. FIAD			
DRILL RIG/HAMMER EFF./DATE ECS1390 AMS PowerProbe 9410-D 97% 12/20/2022						DRILL METHOD H.S. Augers				HAMMER TYPE Automatic				
DRILLER C. Osborne			START DATE 10/11/23			COMP. DATE 10/12/23			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
			0.5ft	0.5ft	0.5ft	0	25	50	75	100				
2060														
2055	2,054.9	1.0	3	4	5									2,055.9 GROUND SURFACE 0.0
														2,054.9 ROADWAY EMBANKMENT 1.0
														Asphalt (0.7'), Stonebase (0.3')
	2,052.4	3.5	5	7	9									2,052.9 Stiff, Pink-Brown-White, Clayey SILT (A-5), with trace mica 3.0
2050	2,049.9	6.0	3	4	4									Medium Stiff to Very Stiff, Pink-Brown-Black-White, Fine to Coarse Sandy SILT (A-4), with trace mica
	2,047.4	8.5	4	6	7									
2045														
	2,042.4	13.5	9	9	9									2,043.9 Very Stiff, Red-Brown-White, Clayey SILT (A-5), with trace mica 12.0
2040														
	2,037.4	18.5	9	12	12									2,038.9 Stiff to Very Stiff, Pink-Brown-Black, Fine to Coarse Sandy SILT (A-4), with trace mica 17.0
2035														
	2,032.4	23.5	7	7	8									
2030														
	2,027.4	28.5	12	12	13									

NCDOT BORE DOUBLE I2513AC GEO GTM.GPJ NC DOT.GDT 8/25/24

WBS 34165.1.13		TIP I-2513AC		COUNTY BUNCOMBE		GEOLOGIST A. West							
SITE DESCRIPTION RETAINING WALL NO. 6, STA. -L- to 74+13.60 TO -L- 79+47.89							GROUND WTR (ft)						
BORING NO. WALL06_B-08		STATION 14+71		OFFSET 41 ft LT		ALIGNMENT -WALL6-		0 HR. Dry					
COLLAR ELEV. 2,058.0 ft		TOTAL DEPTH 35.0 ft		NORTHING 680,559		EASTING 933,229		24 HR. FIAD					
DRILL RIG/HAMMER EFF./DATE ECS1390 AMS PowerProbe 9410-D 97% 12/20/2022				DRILL METHOD H.S. Augers			HAMMER TYPE Automatic						
DRILLER C. Osborne		START DATE 10/11/23		COMP. DATE 10/11/23		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	MOI		
2060													
	2,057.0	1.0											2,058.0 GROUND SURFACE 0.0
2055	2,054.5	3.5	5	5	5	10	.	.	.	.		M	2,057.0 ROADWAY EMBANKMENT 1.0
	2,054.5						.	.	.	.		M	Asphalt (0.7'), Stonebase (0.3')
	2,052.0	6.0	10	9	4	13	.	.	.	.		M	Stiff to Very Stiff,
2050	2,052.0						.	.	.	.		M	Pink-Brown-White-Gray-Black, Fine to
	2,049.5	8.5	7	7	7	14	.	.	.	.		M	Coarse Sandy SILT (A-4), with trace mica
	2,049.5						.	.	.	.		M	and gravel
	2,044.5	8.5	4	4	5	9	.	.	.	.		M	
2045	2,044.5						.	.	.	.		M	
	2,044.5	13.5	5	6	9	15	.	.	.	.		M	
2040	2,039.5	18.5	6	7	7	14	.	.	.	.		M	
	2,039.5						.	.	.	.		M	
2035	2,034.5	23.5	8	8	9	17	.	.	.	.		M	
	2,034.5						.	.	.	.		M	
2030	2,029.5	28.5	7	9	10	19	.	.	.	.		M	
	2,029.5						.	.	.	.		M	
2025	2,024.5	33.5	6	6	9	15	.	.	.	.		M	
	2,024.5						.	.	.	.		M	
													2,023.0 Boring Terminated at Elevation 2,023.0 ft In Roadway Embankment Sandy SILT (A-4) 35.0

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34165.1.13			TIP I-2513AC			COUNTY BUNCOMBE			GEOLOGIST A. West						
SITE DESCRIPTION RETAINING WALL NO. 6, STA. -L- to 74+13.60 TO -L- 79+47.89												GROUND WTR (ft)			
BORING NO. WALL06_B-09			STATION 15+12			OFFSET 43 ft LT			ALIGNMENT -WALL6-			0 HR.	Dry		
COLLAR ELEV. 2,058.9 ft			TOTAL DEPTH 40.0 ft			NORTHING 680,582			EASTING 933,262			24 HR.	FIAD		
DRILL RIG/HAMMER EFF./DATE ECS1390 AMS PowerProbe 9410-D 97% 12/20/2022						DRILL METHOD H.S. Augers				HAMMER TYPE Automatic					
DRILLER C. Osborne			START DATE 10/11/23			COMP. DATE 10/11/23			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	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100				ELEV. (ft)	DEPTH (ft)
2060															
2055	2,057.9	1.0	5	5	7	12						M		2,058.9 GROUND SURFACE	0.0
														2,057.9 ROADWAY EMBANKMENT	1.0
	2,055.4	3.5	5	6	10	16						M		Asphalt (0.7'), Stonebase (0.3')	
2050	2,052.9	6.0	10	10	11	21						M		Stiff to Very Stiff,	
	2,050.4	8.5	6	6	7	13						M		Brown-Pink-Black-Gray-Red, Fine to Coarse Sandy SILT (A-4(0)), with trace mica	
2045	2,045.4	13.5	9	9	9	18					SS-2079	18%			
2040	2,040.4	18.5	8	6	11	17						M			
2035	2,035.4	23.5	9	15	15	30					SS-2081	15%			
2030	2,030.4	28.5	5	6	6	12						M			
2025	2,025.4	33.5	10	10	11	21						M			
2020	2,020.4	38.5	9	8	7	15						M		2,018.9	40.0
														Boring Terminated at Elevation 2,018.9 ft In Roadway Embankment Sandy SILT (A-4)	

WBS 34165.1.13		TIP I-2513AC		COUNTY BUNCOMBE		GEOLOGIST A. West								
SITE DESCRIPTION RETAINING WALL NO. 6, STA. -L- to 74+13.60 TO -L- 79+47.89							GROUND WTR (ft)							
BORING NO. WALL06_B-10		STATION 15+78		OFFSET 45 ft LT		ALIGNMENT -WALL6-		0 HR. Dry						
COLLAR ELEV. 2,060.3 ft		TOTAL DEPTH 40.0 ft		NORTHING 680,619		EASTING 933,315		24 HR. FIAD						
DRILL RIG/HAMMER EFF./DATE ECS1390 AMS PowerProbe 9410-D 97% 12/20/2022				DRILL METHOD H.S. Augers			HAMMER TYPE Automatic							
DRILLER C. Osborne			START DATE 10/11/23		COMP. DATE 10/11/23		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
			0.5ft	0.5ft	0.5ft	0	25	50	75	100				
2065														
2060														
2055	2,059.3	1.0	5	5	6	11	.	.	.	.	.	.	.	2,060.3 GROUND SURFACE 0.0
	2,056.8	3.5	5	8	9	17	.	.	.	.	.	.	.	2,059.3 ROADWAY EMBANKMENT 1.0
	2,054.3	6.0	7	6	8	14	.	.	.	.	.	.	.	Asphalt (0.7'), Stonebase (0.3')
2050	2,051.8	8.5	22	11	7	18	.	.	.	.	.	.	.	Stiff to Very Stiff, Pink-White-Brown, Fine to Coarse Sand SILT (A-4), with trace mica
	2,046.8	13.5	56	13	13	26	.	.	.	.	.	.	.	2,048.3 Very Stiff, Red-Pink-White, Clayey SILT 12.0
	2,041.8	18.5	15	5	6	11	.	.	.	.	.	.	.	2,043.3 Stiff to Very Stiff, Brown-White-Black, Fine to Coarse Sandy SILT (A-4), with trace mica and gravel 17.0
2035	2,036.8	23.5	13	9	10	19	.	.	.	.	.	.	.	
	2,031.8	28.5	5	8	9	17	.	.	.	.	.	.	.	
	2,026.8	33.5	4	6	8	14	.	.	.	.	.	.	.	
2025	2,021.8	38.5	5	6	8	14	.	.	.	.	.	.	.	2,023.3 Stiff, Brown-White-Pink, Clayey SILT (A-5), with trace mica 37.0
														2,020.3 Boring Terminated at Elevation 2,020.3 ft In Roadway Embankment Clayey SILT (A-5) 40.0

NCDOT BORE DOUBLE I2513AC_GEO_GTM.GPJ NC_DOT.GDT 8/25/24

SOIL TEST RESULTS																
BORING NO.	SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
								C. SAND	F. SAND	SILT	CLAY	10	40	200		
WALL06_B-05	SS-2119	27' LT	13+24 -WALL6-	6.0 - 7.5	A-5(3)	41	9	28.4	25.0	15.8	30.8	92.9	72.7	48.7	19.1	-
WALL06_B-09	SS-2079	43' LT	15+12 -WALL6-	13.5 - 15.0	A-4(0)	35	3	34.3	29.7	19.3	16.7	97.8	76.8	41.5	18.3	-
WALL06_B-09	SS-2081	43' LT	15+12 -WALL6-	23.5 - 25.0	A-4(0)	34	2	27.2	38.0	26.1	8.7	95.3	80.7	41.6	14.6	-

LAB TECHNICIAN: DANIEL REEVE

NCDOT CERTIFICATION NO. 135-03-0816