

REFERENCE: I-2513AA

PROJECT: 34165

CONTENTS

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	LEGENDS
3	SITE PLAN
4	PROFILE
5-9	BORE LOGS

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

STRUCTURE
SUBSURFACE INVESTIGATION

COUNTY BUNCOMBE
 PROJECT DESCRIPTION I-40 FROM EAST OF SR 1224
(MONTE VISTA RD) TO PAVEMENT JOINT WEST
OF SR 3412 (SAND HILL RD). INCLUDES INITIAL
IMPROVEMENTS AT I-40EB TO I-26EB AT US 19/23
(SMOKEY PARK HIGHWAY)
 SITE DESCRIPTION RETAINING WALL NO. W701, FROM
-Y- STATION 66 + 46.00, 129.00' LT TO -Y-
STATION 74 + 55.00, 129.00' LT

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-2513AA	1	9

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

CG2

GOODNIGHT, D.J.

INVESTIGATED BY FALCON ENG.

DRAWN BY CROCKETT, S.C.

CHECKED BY HUNSBERGER, W.S.

SUBMITTED BY FALCON ENG.

DATE JANUARY 2024



DocuSigned by:
Stephen Crockett 1/30/2024
 C5CA5FED48E0435...
 SIGNATURE DATE

DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS GEOTECHNICAL ENGINEERING UNIT

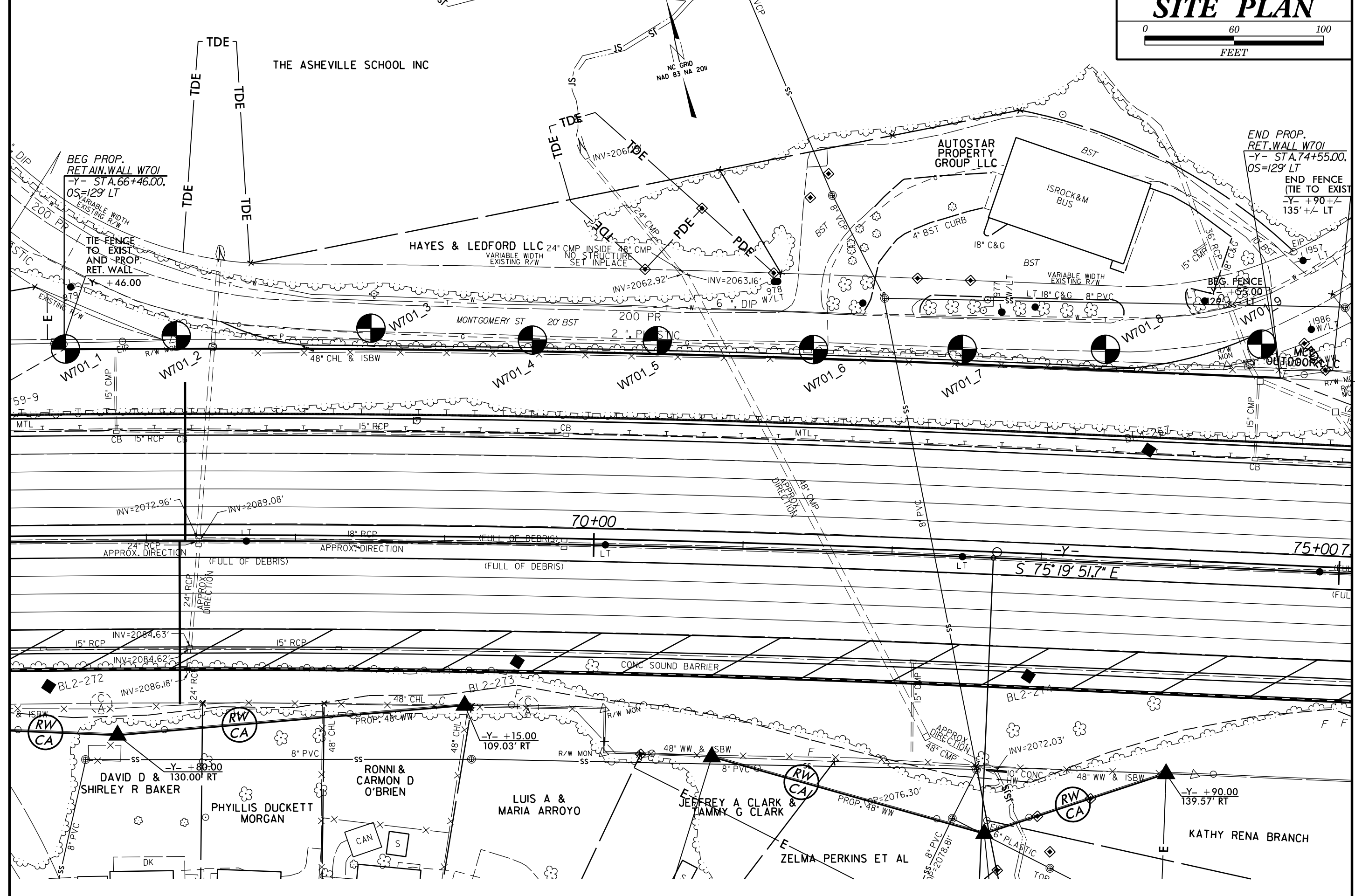
SUBSURFACE INVESTIGATION

SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

SOIL DESCRIPTION										GRADATION										ROCK DESCRIPTION										TERMS AND DEFINITIONS																																																																																																		
<p>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></p>										<p>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.</p>										<p>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:</p>										<p>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.</p>																																																																																																		
SOIL LEGEND AND AASHTO CLASSIFICATION										ANGULARITY OF GRAINS										WEATHERED ROCK (WR)										CRYSTALLINE ROCK (CR)										NON-CRYSTALLINE ROCK (NCR)										COASTAL PLAIN SEDIMENTARY ROCK (CP)																																																																														
<p>MINERALOGICAL COMPOSITION MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHEN THEY ARE CONSIDERED OF SIGNIFICANCE.</p>										<p>THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TERMS: ANGULAR, SUBANGULAR, SUBROUNDED, OR ROUNDED.</p>										<p>NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT N VALUES > 100 BLOWS PER FOOT IF TESTED.</p>										<p>FINE TO COARSE GRAIN IGNEOUS AND METAMORPHIC ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES GRANITE, GNEISS, GABBRO, SCHIST, ETC.</p>										<p>FINE TO COARSE GRAIN METAMORPHIC AND NON-COASTAL PLAIN SEDIMENTARY ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES PHYLLITE, SLATE, SANDSTONE, ETC.</p>										<p>COASTAL PLAIN SEDIMENTS CEMENTED INTO ROCK, BUT MAY NOT YIELD SPT REFUSAL. ROCK TYPE INCLUDES LIMESTONE, SANDSTONE, CEMENTED SHELL BEDS, ETC.</p>																																																																														
COMPRESSION										MINERALOGICAL COMPOSITION										WEATHERING										FRESH										VERY SLIGHT (IV SLI.)										SLIGHT (SLI.)										MODERATE (MOD.)										MODERATELY SEVERE (MOD. SEV.)										SEVERE (SEV.)										VERY SEVERE (IV SEV.)										COMPLETE																												
<p>COMPRESSION SLIGHTLY COMPRESSIBLE LL < 31 MODERATELY COMPRESSIBLE LL = 31 - 50 HIGHLY COMPRESSIBLE LL > 50</p>										<p>PERCENTAGE OF MATERIAL</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>ORGANIC MATERIAL</th> <th>GRANULAR SOILS</th> <th>SILT - CLAY SOILS</th> <th>OTHER MATERIAL</th> </tr> <tr> <td>TRACE OF ORGANIC MATTER</td> <td>2 - 3%</td> <td>3 - 5%</td> <td>TRACE 1 - 10%</td> </tr> <tr> <td>LITTLE ORGANIC MATTER</td> <td>3 - 5%</td> <td>5 - 12%</td> <td>LITTLE 10 - 20%</td> </tr> <tr> <td>MODERATELY ORGANIC</td> <td>5 - 10%</td> <td>12 - 20%</td> <td>SOME 20 - 35%</td> </tr> <tr> <td>HIGHLY ORGANIC</td> <td>> 10%</td> <td>> 20%</td> <td>HIGHLY 35% AND ABOVE</td> </tr> </table>										ORGANIC MATERIAL	GRANULAR SOILS	SILT - CLAY SOILS	OTHER MATERIAL	TRACE OF ORGANIC MATTER	2 - 3%	3 - 5%	TRACE 1 - 10%	LITTLE ORGANIC MATTER	3 - 5%	5 - 12%	LITTLE 10 - 20%	MODERATELY ORGANIC	5 - 10%	12 - 20%	SOME 20 - 35%	HIGHLY ORGANIC	> 10%	> 20%	HIGHLY 35% AND ABOVE	<p>WEATHERING ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING. ROCK RINGS UNDER HAMMER IF CRYSTALLINE.</p>										<p>ROCK GENERALLY FRESH, JOINTS STAINED, SOME JOINTS MAY SHOW THIN CLAY COATINGS IF OPEN. CRYSTALS ON A BROKEN SPECIMEN FACE SHINE BRIGHTLY. ROCK RINGS UNDER HAMMER BLOWS IF OF A CRYSTALLINE NATURE.</p>										<p>ROCK GENERALLY FRESH, JOINTS STAINED AND DISCOLORATION EXTENDS INTO ROCK UP TO 1 INCH. OPEN JOINTS MAY CONTAIN CLAY. IN GRANITOID ROCKS SOME OCCASIONAL FELDSPAR CRYSTALS ARE DULL AND DISCOLORED. CRYSTALLINE ROCKS RING UNDER HAMMER BLOWS.</p>										<p>SIGNIFICANT PORTIONS OF ROCK SHOW DISCOLORATION AND WEATHERING EFFECTS. IN GRANITOID ROCKS, MOST FELDSPARS ARE DULL AND DISCOLORED, SOME SHOW CLAY. ROCK HAS DULL SOUND UNDER HAMMER BLOWS AND SHOWS SIGNIFICANT LOSS OF STRENGTH AS COMPARED WITH FRESH ROCK.</p>										<p>ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. IN GRANITOID ROCKS, ALL FELDSPARS DULL AND DISCOLORED AND A MAJORITY SHOW KAOLINIZATION. ROCK SHOWS SEVERE LOSS OF STRENGTH AND CAN BE EXCAVATED WITH A GEOLOGIST'S PICK. ROCK GIVES "CLUNK" SOUND WHEN STRUCK. <i>IF TESTED, WOULD YIELD SPT REFUSAL</i></p>										<p>ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC CLEAR AND EVIDENT BUT REDUCED IN STRENGTH TO STRONG SOIL. IN GRANITOID ROCKS ALL FELDSPARS ARE KAOLINIZED TO SOME EXTENT. SOME FRAGMENTS OF STRONG ROCK USUALLY REMAIN. <i>IF TESTED, WOULD YIELD SPT N VALUES > 100 BPF</i></p>										<p>ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC ELEMENTS ARE DISCERNIBLE BUT MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK REMAINING. SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE THAT ONLY MINOR VESTIGES OF ORIGINAL ROCK FABRIC REMAIN. <i>IF TESTED, WOULD YIELD SPT N VALUES < 100 BPF</i></p>										<p>ROCK REDUCED TO SOIL. ROCK FABRIC NOT DISCERNIBLE, OR DISCERNIBLE ONLY IN SMALL AND SCATTERED CONCENTRATIONS. QUARTZ MAY BE PRESENT AS DIKES OR STRINGERS. SAPROLITE IS ALSO AN EXAMPLE.</p>																		
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<p>GROUND WATER WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING STATIC WATER LEVEL AFTER 24 HOURS PERCHED WATER, SATURATED ZONE, OR WATER BEARING STRATA SPRING OR SEEP</p>										<p>MISCELLANEOUS SYMBOLS ROADWAY EMBANKMENT (RE) WITH SOIL DESCRIPTION SOIL SYMBOL ARTIFICIAL FILL (AF) OTHER THAN ROADWAY EMBANKMENT INFERRED SOIL BOUNDARY INFERRED ROCK LINE ALLUVIAL SOIL BOUNDARY DIP & DIP DIRECTION OF ROCK STRUCTURES SPT TEST BORING AUGER BORING CORE BORING MONITORING WELL PIEZOMETER INSTALLATION SLOPE INDICATOR INSTALLATION CONE PENETROMETER TEST SOUNDING ROD TEST BORING WITH CORE SPT N-VALUE</p>										<p>RECOMMENDATION SYMBOLS UNDERCUT EXCAVATION SHALLOW UNDERCUT UNCLASSIFIED EXCAVATION - UNSUITABLE WASTE UNCLASSIFIED EXCAVATION - ACCEPTABLE DEGRADABLE ROCK UNCLASSIFIED EXCAVATION - ACCEPTABLE, BUT NOT TO BE USED IN THE TOP 3 FEET OF EMBANKMENT OR BACKFILL</p>										<p>ABBREVIATIONS AR - AUGER REFUSAL BT - BORING TERMINATED CL - CLAY CPT - CONE PENETRATION TEST CSE - COARSE DMT - DILATOMETER TEST DPT - DYNAMIC PENETRATION TEST e - VOID RATIO F - FINE FOSS. - FOSSILIFEROUS FRAC. - FRACTURED, FRACTURES FRAGS. - FRAGMENTS HI. - HIGHLY MED. - MEDIUM MICA. - MICACEOUS MOD. - MODERATELY NP - NON PLASTIC ORG. - ORGANIC PMT - PRESSUREMETER TEST SAP. - SAPROLITIC SD. - SAND, SANDY SL. - SILT, SILTY SLI. - SLIGHTLY TCR - TRICONE REFUSAL w - MOISTURE CONTENT V - VERY VST - VANE SHEAR TEST WEA. - WEATHERED UG - UNIT WEIGHT UG - DRY UNIT WEIGHT SAMPLE ABBREVIATIONS S - BULK SS - SPLIT SPOON ST - SHELBY TUBE RS - ROCK RT - RECOMPACTED TRIAXIAL CBR - CALIFORNIA BEARING RATIO</p>										<p>FRACTURE SPACING</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>TERM</th> <th>SPACING</th> </tr> <tr> <td>VERY WIDE</td> <td>MORE THAN 10 FEET</td> </tr> <tr> <td>WIDE</td> <td>3 TO 10 FEET</td> </tr> <tr> <td>MODERATELY CLOSE</td> <td>1 TO 3 FEET</td> </tr> <tr> <td>CLOSE</td> <td>0.16 TO 1 FOOT</td> </tr> <tr> <td>VERY CLOSE</td> <td>LESS THAN 0.16 FEET</td> </tr> </table>										TERM	SPACING	VERY WIDE	MORE THAN 10 FEET	WIDE	3 TO 10 FEET	MODERATELY CLOSE	1 TO 3 FEET	CLOSE	0.16 TO 1 FOOT	VERY CLOSE	LESS THAN 0.16 FEET	<p>BEDDING</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>TERM</th> <th>THICKNESS</th> </tr> <tr> <td>VERY THICKLY BEDDED</td> <td>4 FEET</td> </tr> <tr> <td>THICKLY BEDDED</td> <td>1.5 - 4 FEET</td> </tr> <tr> <td>THINLY BEDDED</td> <td>0.16 - 1.5 FEET</td> </tr> <tr> <td>VERY THINLY BEDDED</td> <td>0.03 - 0.16 FEET</td> </tr> <tr> <td>THICKLY LAMINATED</td> <td>0.008 - 0.03 FEET</td> </tr> <tr> <td>THINLY LAMINATED</td> <td>< 0.008 FEET</td> </tr> </table>										TERM	THICKNESS	VERY THICKLY BEDDED	4 FEET	THICKLY BEDDED	1.5 - 4 FEET	THINLY BEDDED	0.16 - 1.5 FEET	VERY THINLY BEDDED	0.03 - 0.16 FEET	THICKLY LAMINATED	0.008 - 0.03 FEET	THINLY LAMINATED	< 0.008 FEET																																											
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PROJECT REFERENCE NO.	SHEET NO.
I-2513AA	3
SITE PLAN	
0 60 100 FEET	

A- PC Sta. 10+00.00=
OC Sta. 65+78.08 (59' LT)



END PROP.
RET. WALL W701
-Y- STA. 74+55.00,
OS=129' LT
END FENCE
(TIE TO EXIST)
-Y- +90 +/-
135' +/- LT

BEG PROP.
RETAIN. WALL W701
-Y- STA. 66+46.00,
OS=129' LT

TIE FENCE
TO EXIST
AND PROP.
RET. WALL
-Y- +46.00

BEG. FENCE
-Y- +53.00
OS=129' LT

70+00

75+00

-Y-
S 75°19' 51.7" E

INV=2072.96'

INV=2089.08'

INV=2084.63'

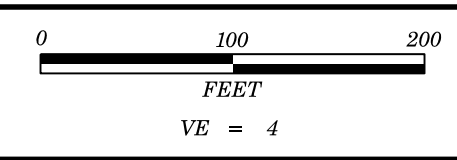
INV=2084.62'

INV=2086.18'

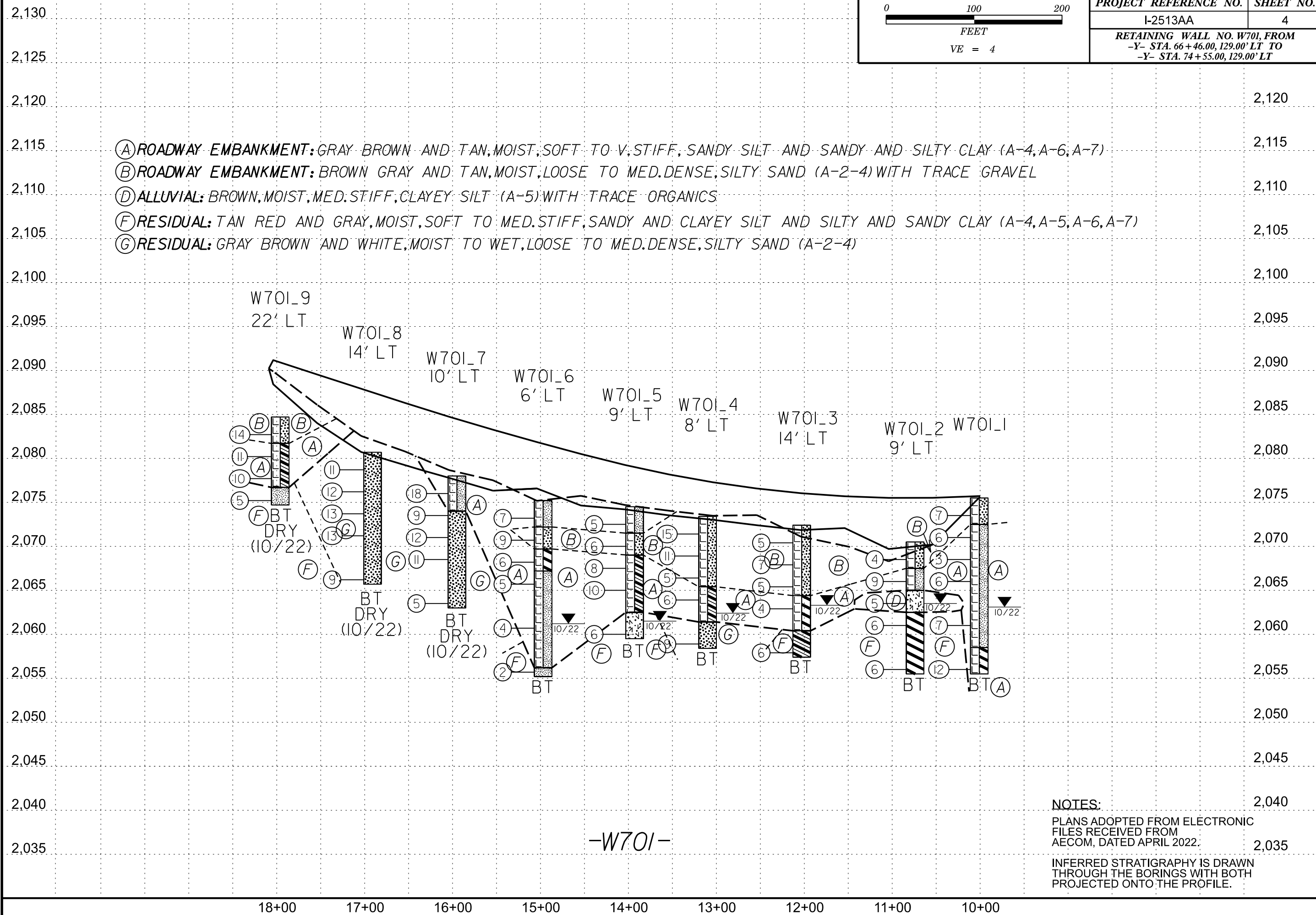
-Y- +15.00
109.03' RT

-Y- +80.00
130.00' RT

-Y- +90.00
139.57' RT



PROJECT REFERENCE NO.	SHEET NO.
I-2513AA	4
RETAINING WALL NO. W701, FROM -Y- STA. 66+46.00, 129.00' LT TO -Y- STA. 74+55.00, 129.00' LT	



- Ⓐ ROADWAY EMBANKMENT: GRAY BROWN AND TAN, MOIST, SOFT TO V. STIFF, SANDY SILT AND SANDY AND SILTY CLAY (A-4, A-6; A-7)
- Ⓑ ROADWAY EMBANKMENT: BROWN GRAY AND TAN, MOIST, LOOSE TO MED. DENSE, SILTY SAND (A-2-4) WITH TRACE GRAVEL
- Ⓓ ALLUVIAL: BROWN, MOIST, MED. STIFF, CLAYEY SILT (A-5) WITH TRACE ORGANICS
- Ⓕ RESIDUAL: TAN RED AND GRAY, MOIST, SOFT TO MED. STIFF, SANDY AND CLAYEY SILT AND SILTY AND SANDY CLAY (A-4, A-5; A-6, A-7)
- Ⓖ RESIDUAL: GRAY BROWN AND WHITE, MOIST TO WET, LOOSE TO MED. DENSE, SILTY SAND (A-2-4)

-W701-

NOTES:
 PLANS ADOPTED FROM ELECTRONIC
 FILES RECEIVED FROM
 AECOM, DATED APRIL 2022.
 INFERRED STRATIGRAPHY IS DRAWN
 THROUGH THE BORINGS WITH BOTH
 PROJECTED ONTO THE PROFILE.

GEOTECHNICAL BORING REPORT

BORE LOG

WBS 34165.1.2		TIP 1-2513AA		COUNTY BUNCOMBE		GEOLOGIST Goodnight, D.J.										
SITE DESCRIPTION RETAINING WALL NO. W701, FROM -Y- STA. 66+46.00, 129.00' LT TO -Y- STA. 74+55.00, 129.00' LT							GROUND WTR (ft)									
BORING NO. W701_3		STATION 68+49		OFFSET 143 ft LT		ALIGNMENT -Y-										
COLLAR ELEV. 2,072.4 ft		TOTAL DEPTH 15.0 ft		NORTHING 678,054		EASTING 920,312										
DRILL RIG/HAMMER EFF./DATE CG24113 CME-550X 74% 04/08/2022			DRILL METHOD H.S. Augers			HAMMER TYPE Automatic										
DRILLER Odom, C.		START DATE 10/06/22		COMP. DATE 10/06/22		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						
2075														2,072.4	GROUND SURFACE	0.0
2070	2,071.4	1.0	4	3	2							M		2,068.9	ROADWAY EMBANKMENT BROWN AND GRAY, LOOSE, SILTY SAND (A-2-4) WITH TRACE TO LITTLE MICA AND TRACE GRAVEL AND ORGANICS	
2065	2,066.4	6.0	2	2	3							M		2,063.9	BROWN, SOFT TO MED. STIFF, SILTY CLAY (A-7) WITH TRACE ORGANICS	8.0
2060	2,058.9	13.5	3	2	4							M		2,057.4	RESIDUAL RED-TAN, MED. STIFF, SANDY CLAY (A-6)	15.0
Boring Terminated at Elevation 2,057.4 ft in RESIDUAL: (A-6)																

WBS 34165.1.2		TIP 1-2513AA		COUNTY BUNCOMBE		GEOLOGIST Goodnight, D.J.										
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BORING NO. W701_4		STATION 69+56		OFFSET 137 ft LT		ALIGNMENT -Y-										
COLLAR ELEV. 2,073.4 ft		TOTAL DEPTH 15.0 ft		NORTHING 678,023		EASTING 920,416										
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DRILLER Odom, C.		START DATE 10/06/22		COMP. DATE 10/06/22		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						
2075														2,073.4	GROUND SURFACE	0.0
2070	2,072.4	1.0	8	7	8							M		2,069.9	ROADWAY EMBANKMENT BROWN, LOOSE TO MED. DENSE SILTY SAND (A-2-4) WITH TRACE GRAVEL, TRACE MICA AND LITTLE ORGANICS	
2065	2,067.4	6.0	2	2	3							M		2,064.9	BROWN, MED. STIFF, SANDY CLAY (A-6)	8.0
2060	2,059.9	13.5	3	4	5							W		2,058.4	RESIDUAL TAN-BROWN, LOOSE, SILTY SAND (A-4)	15.0
Boring Terminated at Elevation 2,058.4 ft in RESIDUAL: (A-2-4)																

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GEOTECHNICAL BORING REPORT

BORE LOG

WBS 34165.1.2		TIP 1-2513AA		COUNTY BUNCOMBE		GEOLOGIST Goodnight, D.J.										
SITE DESCRIPTION RETAINING WALL NO. W701, FROM -Y- STA. 66+46.00, 129.00' LT TO -Y- STA. 74+55.00, 129.00' LT							GROUND WTR (ft)									
BORING NO. W701_5		STATION 70+39		OFFSET 138 ft LT		ALIGNMENT -Y-										
COLLAR ELEV. 2,074.5 ft		TOTAL DEPTH 15.0 ft		NORTHING 678,005		EASTING 920,498										
DRILL RIG/HAMMER EFF./DATE CG24113 CME-550X 74% 04/08/2022			DRILL METHOD H.S. Augers			HAMMER TYPE Automatic										
DRILLER Odom, C.		START DATE 10/06/22		COMP. DATE 10/06/22		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						
2075														2,074.5	GROUND SURFACE	0.0
	2,073.5	1.0	1	1	4								M	2,071.5	ROADWAY EMBANKMENT TAN-BROWN, MED. STIFF, SANDY SILT (A-4) WITH LITTLE MICA AND TRACE GRAVEL	3.0
2070	2,071.0	3.5	3	3	3								M	2,069.0	TAN-BROWN, LOOSE, SILTY SAND (A-2-4) WITH LITTLE MICA	5.5
	2,068.5	6.0	3	3	5								M		BROWN, MED. STIFF TO STIFF, SANDY CLAY (A-6) WITH TRACE GRAVEL	
2065	2,066.0	8.5	3	5	5								M	2,062.5	RESIDUAL	12.0
2060	2,061.0	13.5	3	2	4								M	2,059.5	TAN, MED. STIFF, SANDY CLAYEY SILT (A-5) WITH TRACE MICA	15.0
															Boring Terminated at Elevation 2,059.5 ft in RESIDUAL: (A-5)	

WBS 34165.1.2		TIP 1-2513AA		COUNTY BUNCOMBE		GEOLOGIST Goodnight, D.J.										
SITE DESCRIPTION RETAINING WALL NO. W701, FROM -Y- STA. 66+46.00, 129.00' LT TO -Y- STA. 74+55.00, 129.00' LT							GROUND WTR (ft)									
BORING NO. W701_6		STATION 71+43		OFFSET 135 ft LT		ALIGNMENT -Y-										
COLLAR ELEV. 2,075.2 ft		TOTAL DEPTH 20.0 ft		NORTHING 677,977		EASTING 920,599										
DRILL RIG/HAMMER EFF./DATE CG24113 CME-550X 74% 04/08/2022			DRILL METHOD H.S. Augers			HAMMER TYPE Automatic										
DRILLER Odom, C.		START DATE 10/06/22		COMP. DATE 10/06/22		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						
2080														2,075.2	GROUND SURFACE	0.0
2075	2,074.2	1.0	2	2	5								M	2,072.2	ROADWAY EMBANKMENT BROWN, MED. STIFF, SANDY SILT (A-4) WITH TRACE GRAVEL	3.0
	2,071.7	3.5	4	4	5								M	2,069.7	TAN-BROWN, LOOSE, SILTY SAND (A-2-4) WITH TRACE ORGANICS AND GRAVEL	5.5
2070	2,069.2	6.0	2	3	3								M	2,067.2	BROWN, MED. STIFF, SILTY CLAY (A-7) WITH LITTLE MICA	8.0
	2,066.7	8.5	2	2	3								W		GRAY AND BROWN, SOFT TO MED. STIFF, SANDY SILT (A-4) WITH LITTLE MICA AND TRACE ORGANICS	
2065	2,061.7	13.5	2	2	2								W			
2060	2,056.7	18.5	8	1	1								W	2,056.2	RESIDUAL	19.0
														2,055.2	GRAY-TAN, SOFT, SANDY SILT (A-4) SAPROLITIC	20.0
															Boring Terminated at Elevation 2,055.2 ft in RESIDUAL: (A-4)	

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GEOTECHNICAL BORING REPORT

BORE LOG

WBS 34165.1.2		TIP 1-2513AA		COUNTY BUNCOMBE		GEOLOGIST Goodnight, D.J.										
SITE DESCRIPTION RETAINING WALL NO. W701, FROM -Y- STA. 66+46.00, 129.00' LT TO -Y- STA. 74+55.00, 129.00' LT							GROUND WTR (ft)									
BORING NO. W701_7		STATION 72+41		OFFSET 139 ft LT		ALIGNMENT -Y-										
COLLAR ELEV. 2,078.0 ft		TOTAL DEPTH 15.0 ft		NORTHING 677,956		EASTING 920,696										
DRILL RIG/HAMMER EFF./DATE CG24113 CME-550X 74% 04/08/2022			DRILL METHOD H.S. Augers		HAMMER TYPE Automatic											
DRILLER Odom, C.		START DATE 10/06/22		COMP. DATE 10/06/22		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						
2080																
	2,077.0	1.0	8	8	10										2,078.0	0.0
2075	2,074.5	3.5	4	4	5										2,074.0	4.0
	2,072.0	6.0	4	6	6											
2070	2,069.5	8.5	4	4	7											
2065	2,064.5	13.5	4	2	3										2,063.0	15.0
Boring Terminated at Elevation 2,063.0 ft in RESIDUAL: (A-2-4)																

WBS 34165.1.2		TIP 1-2513AA		COUNTY BUNCOMBE		GEOLOGIST Goodnight, D.J.										
SITE DESCRIPTION RETAINING WALL NO. W701, FROM -Y- STA. 66+46.00, 129.00' LT TO -Y- STA. 74+55.00, 129.00' LT							GROUND WTR (ft)									
BORING NO. W701_8		STATION 73+37		OFFSET 143 ft LT		ALIGNMENT -Y-										
COLLAR ELEV. 2,080.7 ft		TOTAL DEPTH 15.0 ft		NORTHING 677,936		EASTING 920,790										
DRILL RIG/HAMMER EFF./DATE CG24113 CME-550X 74% 04/08/2022			DRILL METHOD H.S. Augers		HAMMER TYPE Automatic											
DRILLER Odom, C.		START DATE 10/06/22		COMP. DATE 10/06/22		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						
2085																
															2,080.7	0.0
2080	2,079.7	1.0	5	5	6											
	2,077.2	3.5	5	6	6											
2075	2,074.7	6.0	5	6	7											
	2,072.2	8.5	5	6	7											
2070	2,067.2	13.5	3	5	4										2,065.7	15.0
Boring Terminated at Elevation 2,065.7 ft in RESIDUAL: (A-2-4)																

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GEOTECHNICAL BORING REPORT

BORE LOG

WBS 34165.1.2		TIP 1-2513AA		COUNTY BUNCOMBE		GEOLOGIST Goodnight, D.J.										
SITE DESCRIPTION RETAINING WALL NO. W701, FROM -Y- STA. 66+46.00, 129.00' LT TO -Y- STA. 74+55.00, 129.00' LT							GROUND WTR (ft)									
BORING NO. W701_9		STATION 74+42		OFFSET 151 ft LT		ALIGNMENT -Y-										
COLLAR ELEV. 2,084.7 ft		TOTAL DEPTH 10.0 ft		NORTHING 677,917		EASTING 920,893										
DRILL RIG/HAMMER EFF./DATE CG24113 CME-550X 74% 04/08/2022				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic										
DRILLER Odom, C.		START DATE 10/06/22		COMP. DATE 10/06/22		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)		
2085														2,084.7	0.0	GROUND SURFACE
	2,083.7	1.0	4	6	8								M	2,081.7	3.0	ROADWAY EMBANKMENT TAN-BROWN, MED. DENSE, SILTY SAND (A-2-4)
2080	2,081.2	3.5	5	5	6								M			BROWN AND RED, STIFF, SANDY CLAY (A-6) WITH TRACE ORGANICS AND GRAVEL
	2,078.7	6.0	3	4	6								M			
2075	2,076.2	8.5	2	2	3								M	2,076.7	8.0	RESIDUAL
														2,074.7	10.0	TAN-BROWN, MED. STIFF, SANDY SILT (A-4) WITH LITTLE MICA Boring Terminated at Elevation 2,074.7 ft in RESIDUAL: (A-4)

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