

PROJECT: 32572.1.FS10 REFERENCE: A-0009CC

CONTENTS

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	LEGEND (SOIL & ROCK)
3	SITE PLAN
4	WALL ENVELOPE
5-8	CROSS SECTIONS
9-II	BORE LOGS

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

STRUCTURE
SUBSURFACE INVESTIGATION

COUNTY GRAHAM
 PROJECT DESCRIPTION UPGRADE NC 143 FROM 0.5 MILES NORTH OF APPALACHIAN TRAIL TO NC 28 AND UPGRADE NC 28 FROM 0.2 MILES WEST OF NC 143 TO 0.3 MILES EAST OF SR 1235 (GUNTERS GAP RD)
 SITE DESCRIPTION RETAINING WALL #34: CAST-IN-PLACE GRAVITY WALL ON -Y2- FROM 71+25 TO 72+75, LT

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	A-0009CC	1	11

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

BRECCIA

CG2 EXPLORATION

N. MCLAREN

S. BRAUN

INVESTIGATED BY CG2

DRAWN BY M. BREWER, P.E.

CHECKED BY R. KRAL, P.E.

SUBMITTED BY M. BREWER, P.E.

DATE JULY 2022

Prepared in the Office of:
 **CAROLINAS GEOTECHNICAL GROUP**
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DocuSigned by:

D. Matthew Brewer

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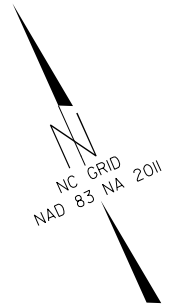
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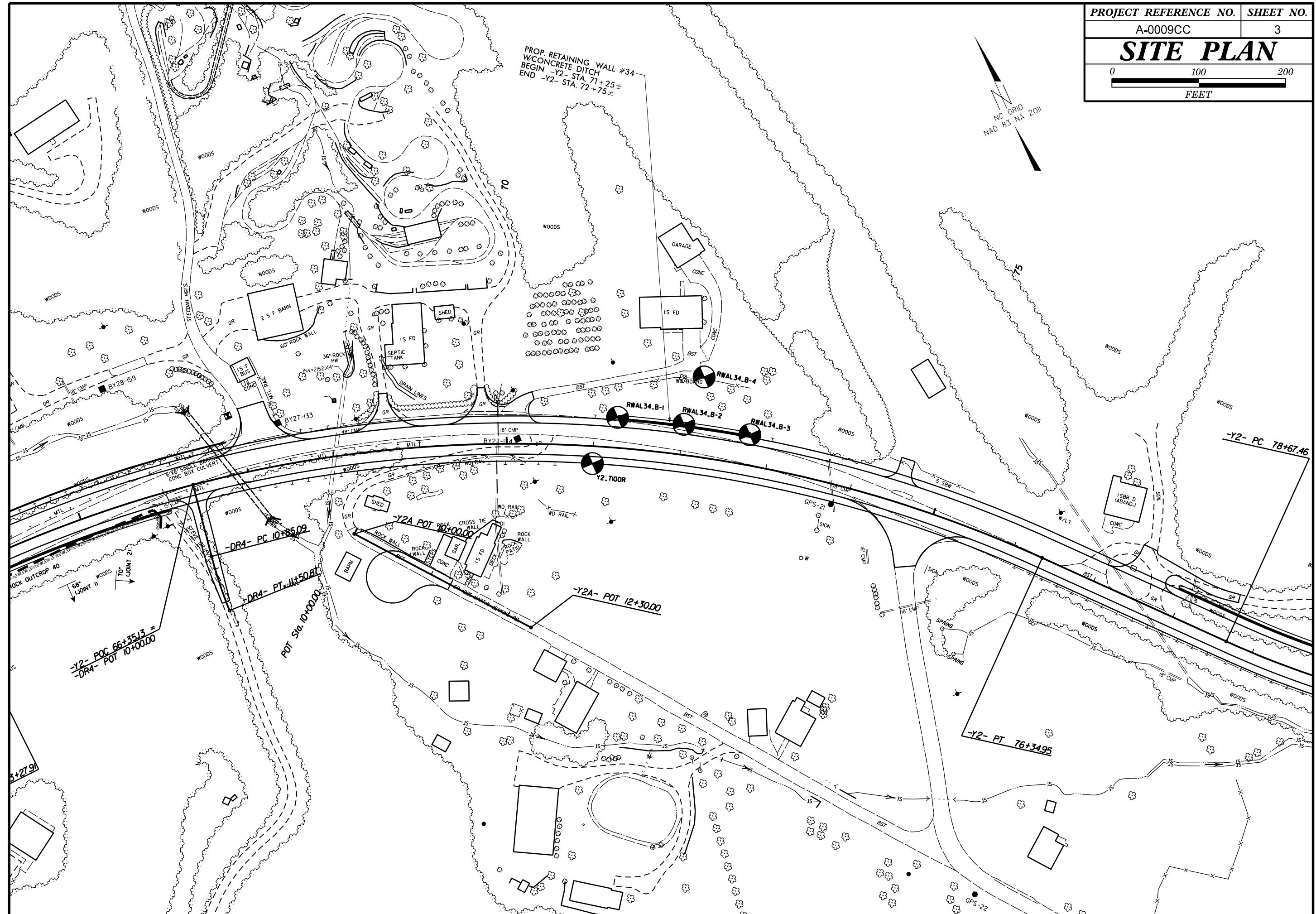
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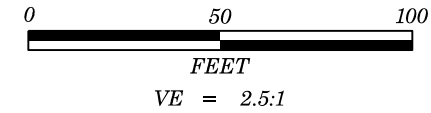
**NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT
SUBSURFACE INVESTIGATION
SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS**

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>																																																										
<p align="center">SOIL LEGEND AND AASHTO CLASSIFICATION</p> <table border="1"> <thead> <tr> <th>GENERAL CLASS.</th> <th colspan="5">GRANULAR MATERIALS (≤ 35% PASSING #200)</th> <th colspan="5">SILT-CLAY MATERIALS (> 35% PASSING #200)</th> <th colspan="5">ORGANIC MATERIALS</th> </tr> <tr> <th>GROUP CLASS.</th> <th>A-1</th> <th>A-3</th> <th>A-2</th> <th>A-4</th> <th>A-5</th> <th>A-6</th> <th>A-7</th> <th>A-1, A-2</th> <th>A-3</th> <th>A-4, A-5</th> <th>A-6, A-7</th> <th colspan="5"></th> </tr> <tr> <th>SYMBOL</th> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </thead> </table>										GENERAL CLASS.	GRANULAR MATERIALS (≤ 35% PASSING #200)					SILT-CLAY MATERIALS (> 35% PASSING #200)					ORGANIC MATERIALS					GROUP CLASS.	A-1	A-3	A-2	A-4	A-5	A-6	A-7	A-1, A-2	A-3	A-4, A-5	A-6, A-7						SYMBOL																<p align="center">ANGULARITY OF GRAINS</p> <p>THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TERMS: ANGULAR, SUBANGULAR, SUBROUNDED, OR ROUNDED.</p>										<p>WEATHERED ROCK (WR) </p> <p>CRYSTALLINE ROCK (CR) </p> <p>NON-CRYSTALLINE ROCK (NCR) </p> <p>COASTAL PLAIN SEDIMENTARY ROCK (CP) </p>										<p>WEATHERING</p> <p>FRESH - ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING. ROCK RINGS UNDER HAMMER IF CRYSTALLINE.</p> <p>VERY SLIGHT (IV SL.) - 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>SLIGHT (SL.) - 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>MODERATE (MOD.) - 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>MODERATELY SEVERE (MOD. SEV.) - 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>SEVERE (SEV.) - 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>VERY SEVERE (IV SEV.) - 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>COMPLETE - 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 align="center">MINERALOGICAL COMPOSITION</p> <p>MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHEN THEY ARE CONSIDERED OF SIGNIFICANCE.</p>										<p align="center">COMPRESSION</p> <p>SLIGHTLY COMPRESSIBLE LL < 31 MODERATELY COMPRESSIBLE LL = 31 - 50 HIGHLY COMPRESSIBLE LL > 50</p>										<p align="center">PERCENTAGE OF MATERIAL</p> <table border="1"> <thead> <tr> <th></th> <th>GRANULAR SOILS</th> <th>SILT - CLAY SOILS</th> <th>OTHER MATERIAL</th> </tr> </thead> <tbody> <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> </tbody> </table>											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 align="center">GROUND WATER</p> <p> WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING</p> <p> STATIC WATER LEVEL AFTER 24 HOURS</p> <p> PERCHED WATER, SATURATED ZONE, OR WATER BEARING STRATA</p> <p> SPRING OR SEEP</p>																																						
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U.S. STD. SIEVE SIZE OPENING (MM)	4	10	40	60	200	270																																																																																		
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<p align="center">SOIL MOISTURE - CORRELATION OF TERMS</p> <table border="1"> <thead> <tr> <th>SOIL MOISTURE SCALE (ATTERBERG LIMITS)</th> <th>FIELD MOISTURE DESCRIPTION</th> <th>GUIDE FOR FIELD MOISTURE DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td>LL - LIQUID LIMIT</td> <td>- SATURATED - (SAT.)</td> <td>USUALLY LIQUID; VERY WET, USUALLY FROM BELOW THE GROUND WATER TABLE</td> </tr> <tr> <td>PL - PLASTIC LIMIT</td> <td>- WET - (W)</td> <td>SEMISOLID; REQUIRES DRYING TO ATTAIN OPTIMUM MOISTURE</td> </tr> <tr> <td>OM - OPTIMUM MOISTURE SHRINKAGE LIMIT</td> <td>- MOIST - (M)</td> <td>SOLID; AT OR NEAR OPTIMUM MOISTURE</td> </tr> <tr> <td>SL - SHRINKAGE LIMIT</td> <td>- DRY - (D)</td> <td>REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE</td> </tr> </tbody> </table>										SOIL MOISTURE SCALE (ATTERBERG LIMITS)	FIELD MOISTURE DESCRIPTION	GUIDE FOR FIELD MOISTURE DESCRIPTION	LL - LIQUID LIMIT	- SATURATED - (SAT.)	USUALLY LIQUID; VERY WET, USUALLY FROM BELOW THE GROUND WATER TABLE	PL - PLASTIC LIMIT	- WET - (W)	SEMISOLID; REQUIRES DRYING TO ATTAIN OPTIMUM MOISTURE	OM - OPTIMUM MOISTURE SHRINKAGE LIMIT	- MOIST - (M)	SOLID; AT OR NEAR OPTIMUM MOISTURE	SL - SHRINKAGE LIMIT	- DRY - (D)	REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE	<p align="center">EQUIPMENT USED ON SUBJECT PROJECT</p> <p>DRILL UNITS:</p> <p><input type="checkbox"/> CME-45C</p> <p><input checked="" type="checkbox"/> CME-550</p> <p><input checked="" type="checkbox"/> CME-550X</p> <p><input type="checkbox"/> VANE SHEAR TEST</p> <p><input type="checkbox"/> PORTABLE HOIST</p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p>ADVANCING TOOLS:</p> <p><input type="checkbox"/> CLAY BITS</p> <p><input type="checkbox"/> 6" CONTINUOUS FLIGHT AUGER</p> <p><input checked="" type="checkbox"/> 8" HOLLOW AUGERS</p> <p><input type="checkbox"/> HARD FACED FINGER BITS</p> <p><input type="checkbox"/> TUNG-CARBIDE INSERTS</p> <p><input type="checkbox"/> CASING <input type="checkbox"/> W/ ADVANCER</p> <p><input type="checkbox"/> TRICONE _____ * STEEL TEETH</p> <p><input type="checkbox"/> TRICONE _____ * TUNG-CARB.</p> <p><input type="checkbox"/> CORE BIT</p> <p><input type="checkbox"/></p> <p>HAMMER TYPE:</p> <p><input checked="" type="checkbox"/> AUTOMATIC <input type="checkbox"/> MANUAL</p> <p>CORE SIZE:</p> <p><input type="checkbox"/> -B _____ <input type="checkbox"/> -H _____</p> <p><input type="checkbox"/> -N _____</p> <p>HAND TOOLS:</p> <p><input type="checkbox"/> POST HOLE DIGGER</p> <p><input type="checkbox"/> HAND AUGER</p> <p><input type="checkbox"/> SOUNDING ROD</p> <p><input type="checkbox"/> VANE SHEAR TEST</p> <p><input type="checkbox"/></p>																																																															
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<p align="center">COLOR</p> <p>DESCRIPTIONS MAY INCLUDE COLOR OR COLOR COMBINATIONS (TAN, RED, YELLOW-BROWN, BLUE-BROWN). MODIFIERS SUCH AS LIGHT, DARK, STREAKED, ETC. ARE USED TO DESCRIBE APPEARANCE.</p>										<p align="center">INDURATION</p> <p>FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC.</p> <p>FRIABLE - RUBBING WITH FINGER FREES NUMEROUS GRAINS; GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE.</p> <p>MODERATELY INDURATED - GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE; BREAKS EASILY WHEN HIT WITH HAMMER.</p> <p>INDURATED - GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE; DIFFICULT TO BREAK WITH HAMMER.</p> <p>EXTREMELY INDURATED - SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE; SAMPLE BREAKS ACROSS GRAINS.</p>																																																																														
<p align="center">BENCH MARK: N/A</p> <p align="right">ELEVATION: _____ FEET</p>										<p align="center">NOTES:</p> <p>SURVEY AND ROADWAY DESIGN FILES PROVIDED BY TGS ENGINEERS ON 04/28/2022</p>																																																																														

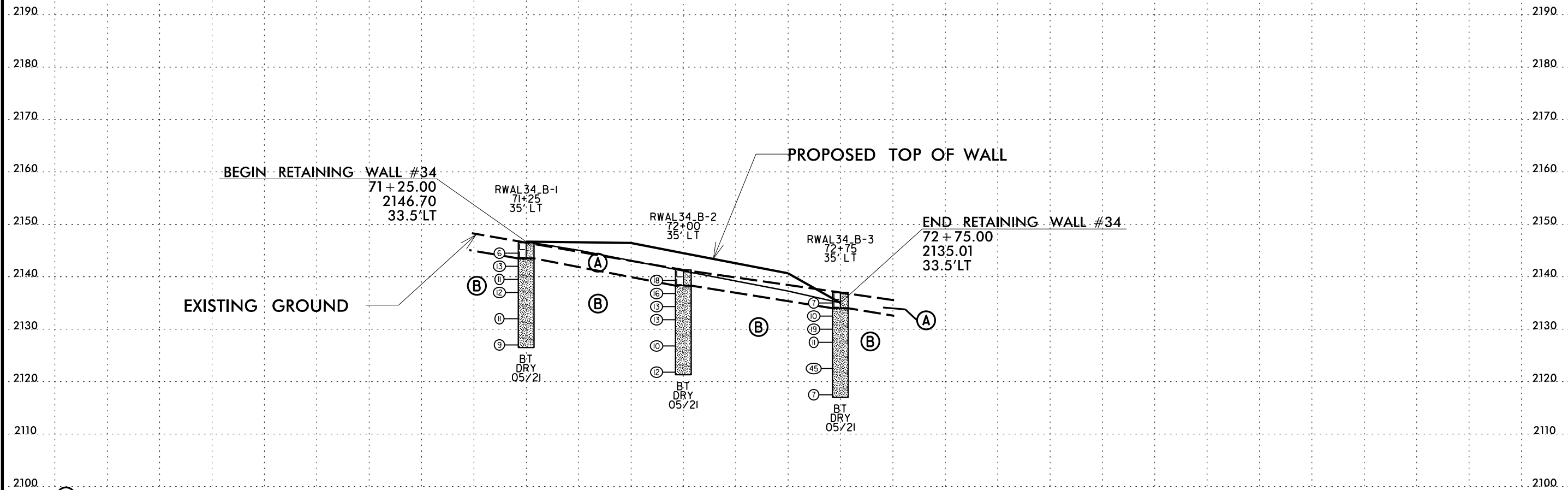


PROP. RETAINING WALL #34
W/CONCRETE DITCH
BEGIN -Y2- STA. 71+25±
END -Y2- STA. 72+75±





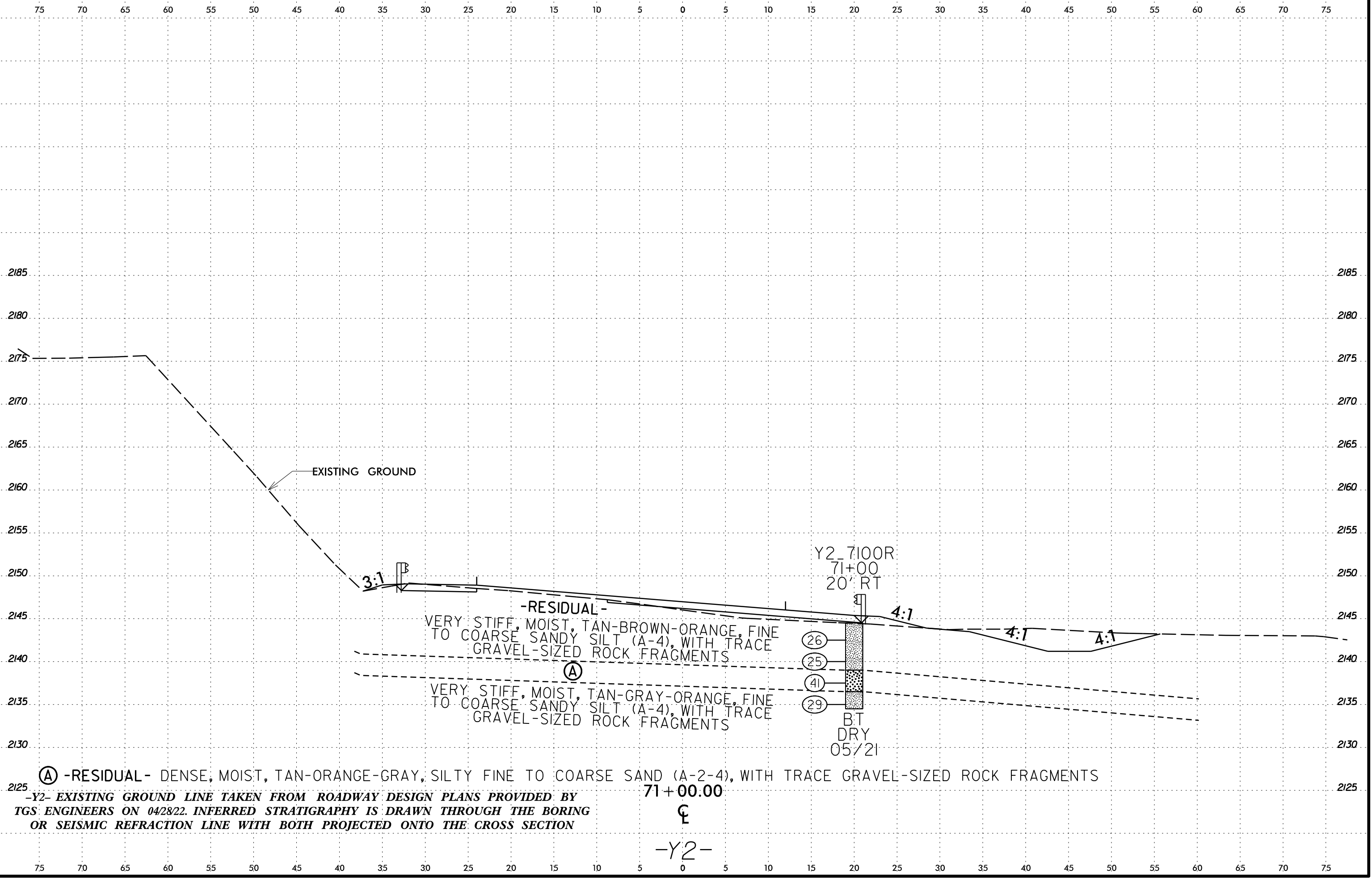
PROJECT REFERENCE NO.	SHEET NO.
A-0009CC	4
RETAINING WALL #34 PROFILE BORINGS PROJECTED ALONG WALL ENVELOPE	



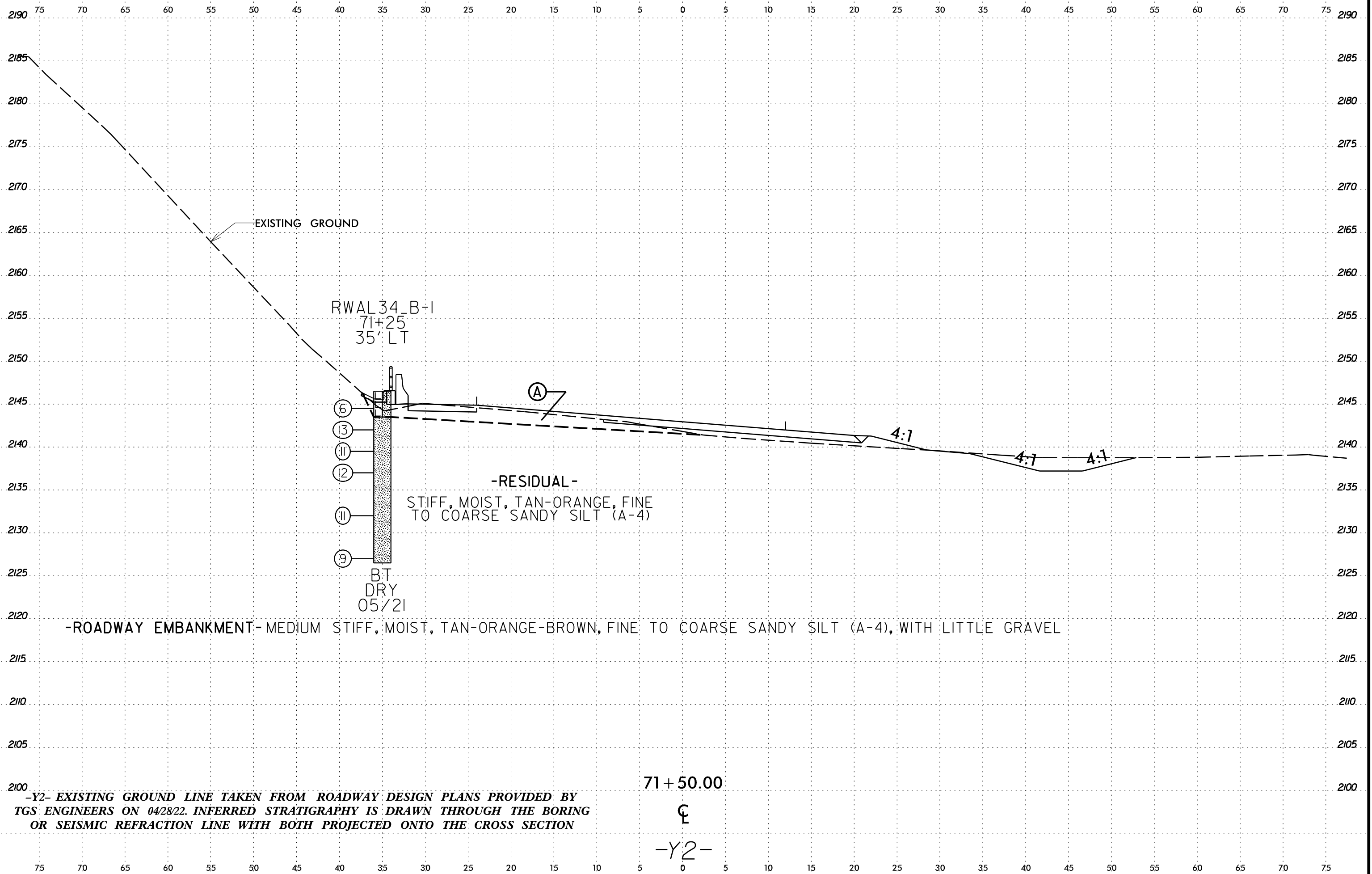
- (A) -ROADWAY EMBANKMENT- MEDIUM STIFF TO VERY STIFF, MOIST TAN-ORANGE-BROWN, FINE TO COARSE SANDY SILT (A-4), WITH LITTLE GRAVEL AND TRACE ORGANICS
- (B) -RESIDUAL- MEDIUM STIFF TO HARD, MOIST, TAN-GRAY-ORANGE, FINE TO COARSE SANDY SILT (A-4), WITH LITTLE GRAVEL-SIZED ROCK FRAGMENTS

WALL ENVELOPE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY TGS ENGINEERS ON 04/28/22. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING WITH BOTH PROJECTED ONTO THE PROFILE. EXISTING GROUND LINE IS DRAWN BORING TO BORING.

08-JUL-2022 20:03
C:\Users\jviper\OneDrive - Carolines Geotechnical Group, PLLC\Projects\0068 - A-0009CC - Future US 74_TGS\A-0009CC\CADD\GEO\TECH\Site\Sub\A-0009CC.GEO_RWAL_34_XS1.dgn
\$\$\$\$\$USERNAME\$\$\$\$\$



08-JUL-2022 20:03
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6/23/16



EXISTING GROUND

RWAL34_B-1
71+25
35' LT

- ⑥
- ⑬
- ⑪
- ⑫
- ⑪
- ⑨

BT
DRY
05/21

-RESIDUAL-
STIFF, MOIST, TAN-ORANGE, FINE
TO COARSE SANDY SILT (A-4)

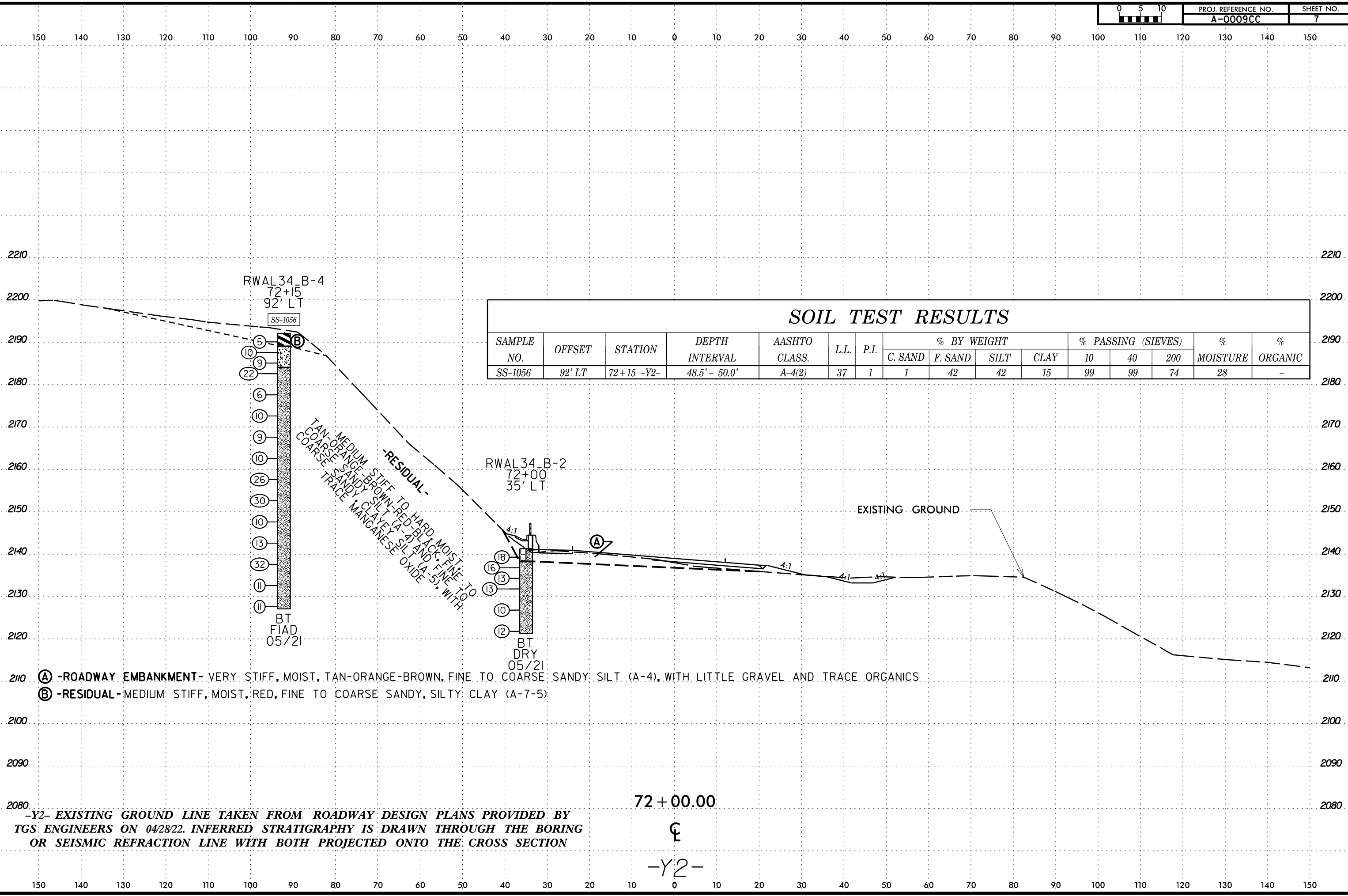
-ROADWAY EMBANKMENT- MEDIUM STIFF, MOIST, TAN-ORANGE-BROWN, FINE TO COARSE SANDY SILT (A-4), WITH LITTLE GRAVEL

71+50.00

☺
-Y2-

-Y2- EXISTING GROUND LINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY
TGS ENGINEERS ON 04/28/22. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING
OR SEISMIC REFRACTION LINE WITH BOTH PROJECTED ONTO THE CROSS SECTION

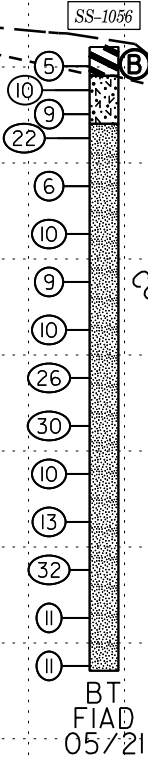
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SOIL TEST RESULTS

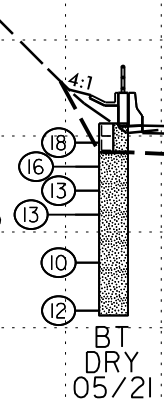
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-1056	92' LT	72+15 -Y2-	48.5' - 50.0'	A-4(2)	37	1	1	42	42	15	99	99	74	28	-

RWAL 34_B-4
72+15
92' LT
SS-1056



TAN-MEDIUM STIFF TO HARD MOIST TO BLACK, FINE TO COARSE SANDY SILT (A-4) AND FINE TO COARSE SANDY CLAYEY SILT (A-5), WITH TRACE MANGANESE OXIDE.

RWAL 34_B-2
72+00
35' LT

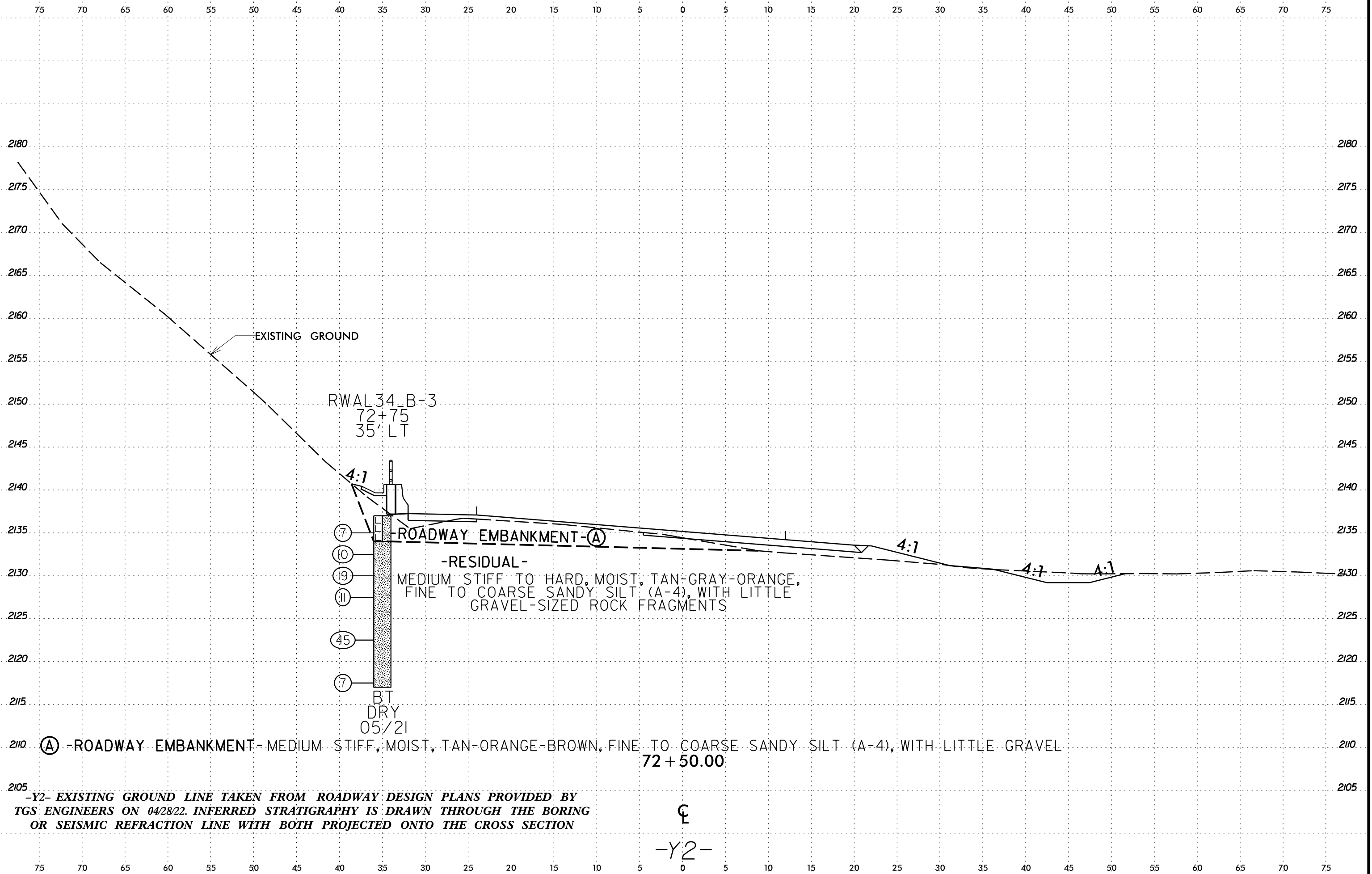


- Ⓐ -ROADWAY EMBANKMENT- VERY STIFF, MOIST, TAN-ORANGE-BROWN, FINE TO COARSE SANDY SILT (A-4), WITH LITTLE GRAVEL AND TRACE ORGANICS.
- Ⓑ -RESIDUAL- MEDIUM STIFF, MOIST, RED, FINE TO COARSE SANDY, SILTY CLAY (A-7-5)

-Y2- EXISTING GROUND LINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY TGS ENGINEERS ON 04/28/22. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING OR SEISMIC REFRACTION LINE WITH BOTH PROJECTED ONTO THE CROSS SECTION

72 + 00.00
Ⓒ
-Y2-

08-JUL-2022 20:03
C:\Users\jvibrer\OneDrive - Carolines Geotechnical Group, PLLC\Projects\0068 - A-0009CC - Future US 74_TGS\A-0009CC\CADD\GEO\TECH\Site\Sub\A-0009CC_GEO_RWAL_34_XS1.dgn
\$\$\$\$\$USERRNAME\$\$\$\$\$



GEOTECHNICAL BORING REPORT

BORE LOG

WBS 32572.1.FS10		TIP A-0009CC		COUNTY GRAHAM		GEOLOGIST N. McLaren											
SITE DESCRIPTION NC 143 from 0.5 mi. N. of A.T. to NC 28 & NC 28 from 0.2 mi. W. of NC 143 to 0.3 mi. E. of SR 1235							GROUND WTR (ft)										
BORING NO. Y2_7100R		STATION 71+00		OFFSET 20 ft RT		ALIGNMENT Y2											
COLLAR ELEV. 2,144.5 ft		TOTAL DEPTH 10.0 ft		NORTHING 623,761		EASTING 599,638											
DRILL RIGHAMMER EFF./DATE CG29473 CME-550 79%03/12/2021				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic											
DRILLER J. Estep		START DATE 05/19/21		COMP. DATE 05/19/21		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							
2145															2,144.5	GROUND SURFACE	0.0
	2,143.5	1.0	4	6	20								M				
2140	2,141.0	3.5	8	13	12								M				
	2,138.5	6.0	16	26	15								M				
2135	2,136.0	8.5	18	15	14								M				

WBS 32572.1.FS10		TIP A-0009CC		COUNTY GRAHAM		GEOLOGIST N. McLaren											
SITE DESCRIPTION NC 143 from 0.5 mi. N. of A.T. to NC 28 & NC 28 from 0.2 mi. W. of NC 143 to 0.3 mi. E. of SR 1235							GROUND WTR (ft)										
BORING NO. RWAL34_B-1		STATION 71+25		OFFSET 35 ft LT		ALIGNMENT Y2											
COLLAR ELEV. 2,146.5 ft		TOTAL DEPTH 20.0 ft		NORTHING 623,798		EASTING 599,686											
DRILL RIGHAMMER EFF./DATE CG29473 CME-550 79%03/12/2021				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic											
DRILLER J. Estep		START DATE 05/19/21		COMP. DATE 05/19/21		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							
2150															2,146.5	GROUND SURFACE	0.0
	2,145.5	1.0	3	3	3								M				
2145	2,143.0	3.5	5	7	6								M				
	2,140.5	6.0	5	6	5								M				
2140	2,138.0	8.5	4	5	7								M				
	2,133.0	13.5	4	5	6								M				
2130	2,128.0	18.5	2	3	6								M				

NCDOT BORE DOUBLE A-0009CC_GEO_RDY_GTM.GPJ_NC_DOT.GDT 7/8/22

GEOTECHNICAL BORING REPORT

BORE LOG

WBS 32572.1.FS10		TIP A-0009CC		COUNTY GRAHAM		GEOLOGIST N. McLaren										
SITE DESCRIPTION NC 143 from 0.5 Mi. North of AT to NC 28 & NC 28 from 0.2 Mi. West of NC 143 to 0.3 Mi. East of SR 1235							GROUND WTR (ft)									
BORING NO. RWAL34_B-2		STATION 72+00		OFFSET 35 ft LT		ALIGNMENT Y2										
COLLAR ELEV. 2,141.3 ft		TOTAL DEPTH 20.0 ft		NORTHING 623,759		EASTING 599,752										
DRILL RIGHAMMER EFF./DATE CG29473 CME-550 79% 03/12/2021				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic										
DRILLER J. Estep		START DATE 05/20/21		COMP. DATE 05/20/21		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	LOG G	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
2145																
2140	2,140.3	1.0	6	9	9										2,141.3	GROUND SURFACE
	2,137.8	3.5	9	8	8										2,138.3	ROADWAY EMBANKMENT Very Stiff, Tan-Orange-Brown, Fine to Coarse Sandy SILT (A-4), with little gravel and trace organics
2135	2,135.3	6.0	5	6	7											RESIDUAL Stiff to Very Stiff, Tan-Brown-Orange, Fine to Coarse Sandy SILT (A-4)
	2,132.8	8.5	5	4	9											
2130	2,127.8	13.5	4	4	6											
2125	2,122.8	18.5	4	5	7											
															2,121.3	Boring Terminated at Elevation 2,121.3 ft In Residual Sandy Silt (A-4)

WBS 32572.1.FS10		TIP A-0009CC		COUNTY GRAHAM		GEOLOGIST S. Braun										
SITE DESCRIPTION NC 143 from 0.5 Mi. North of AT to NC 28 & NC 28 from 0.2 Mi. West of NC 143 to 0.3 Mi. East of SR 1235							GROUND WTR (ft)									
BORING NO. RWAL34_B-4		STATION 72+15		OFFSET 92 ft LT		ALIGNMENT Y2										
COLLAR ELEV. 2,192.1 ft		TOTAL DEPTH 65.0 ft		NORTHING 623,799		EASTING 599,796										
DRILL RIGHAMMER EFF./DATE FVE9553 CME-550X 80% 03/12/2021				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic										
DRILLER J. Phillips		START DATE 05/27/21		COMP. DATE 05/27/21		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	LOG G	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
2195																
2190	2,191.1	1.0	2	2	3										2,192.1	GROUND SURFACE
	2,188.6	3.5	3	4	6										2,189.1	RESIDUAL Medium Stiff, Red, Fine to Coarse Sandy, Silty CLAY (A-7-5)
2185	2,186.1	6.0	3	3	6											Stiff, Red-Orange, Fine to Coarse Sandy, Clayey SILT (A-5)
	2,183.6	8.5	6	8	14										2,184.1	RESIDUAL Medium Stiff to Hard, Tan-Orange-Brown-Red-Black, Fine to Coarse Sandy SILT (A-4(2)), with trace manganese oxide
2180	2,178.6	13.5	10	4	2											
2175	2,173.6	18.5	2	4	6											
2170	2,168.6	23.5	4	4	5											
2165	2,163.6	28.5	3	4	6											
2160	2,158.6	33.5	8	12	14											
2155	2,153.6	38.5	9	15	15											
2150	2,148.6	43.5	3	4	6											
2145	2,143.6	48.5	3	5	8											
2140	2,138.6	53.5	9	16	16											
2135	2,133.6	58.5	3	5	6											
2130	2,128.6	63.5	3	5	6											
															2,127.1	Boring Terminated at Elevation 2,127.1 ft In Residual Sandy Silt (A-4)

NCDOT BORE DOUBLE A-0009CC_GEO_RDY_GTM.GPJ_NC_DOT.GDT 7/8/22

