

PROJECT: 32572.1.FS10 REFERENCE: A-0009CA

CONTENTS

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

STRUCTURE
SUBSURFACE INVESTIGATION

COUNTY GRAHAM
 PROJECT DESCRIPTION UPGRADE US 129 FROM
SOUTH OF SR 1275 (FIVE POINTS ROAD) TO NC
143 AND UPGRADE NC 143 FROM US 129 TO SR
1223 (BEECH CREEK ROAD)
 SITE DESCRIPTION RETAINING WALL #6:
SOIL NAIL WALL WITH ARCHITECTURAL FINISH
ON -L- FROM 186+75 RT TO 192+05 RT

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	A-0009CA	1	16

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

S. BRAUN
D. GOODNIGHT
N. MCLAREN
CG2 EXPLORATION

INVESTIGATED BY CG2
 DRAWN BY M. BREWER, P.E.
 CHECKED BY R. KRAL, P.E.
 SUBMITTED BY M. BREWER, P.E.
 DATE MARCH 2022

Prepared in the Office of:
 **CAROLINAS GEOTECHNICAL GROUP**
 2400 CROWNPOINT EXECUTIVE DRIVE
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 (980) 339-8684

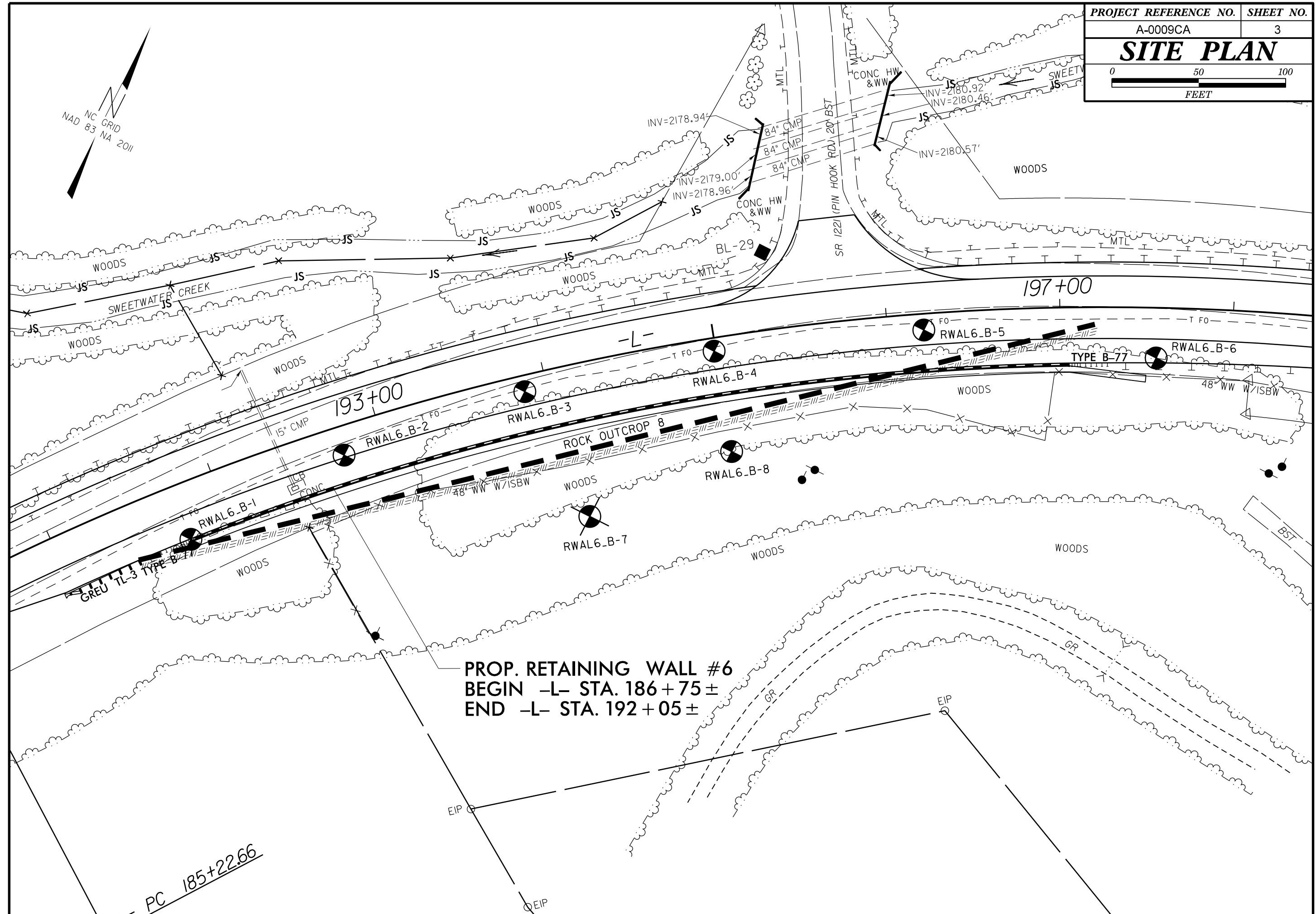
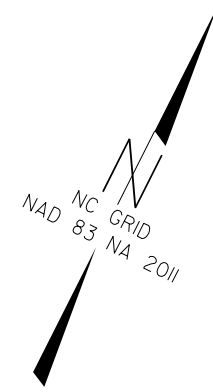


DocuSigned by:
D. Matthew Brewer 3/22/2022
386129C0A4C1462
 SIGNATURE DATE

**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

Table with 4 main columns: SOIL DESCRIPTION, GRADATION, ROCK DESCRIPTION, and TERMS AND DEFINITIONS. It contains detailed technical specifications, legends, and definitions for geotechnical engineering.



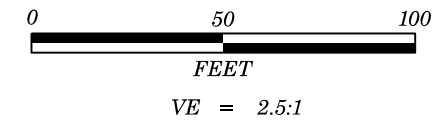
PROP. RETAINING WALL #6
 BEGIN -L- STA. 186 + 75 ±
 END -L- STA. 192 + 05 ±



Prepared in the Office of:



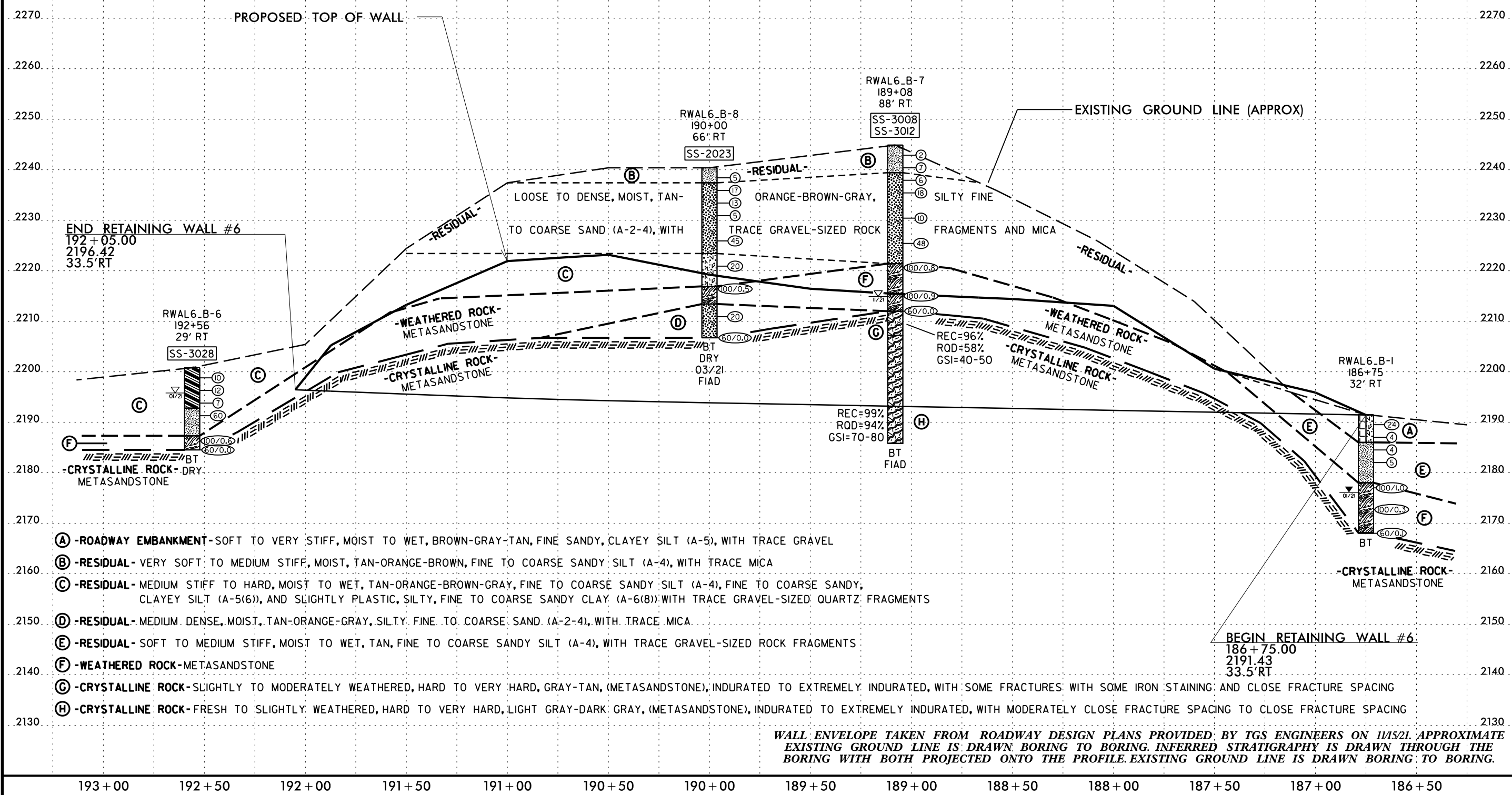
CAROLINAS
GEOTECHNICAL
GROUP



PROJECT REFERENCE NO.	SHEET NO.
A-0009CA	4
RETAINING WALL #6 PROFILE BORINGS PROJECTED ALONG WALL ENVELOPE	

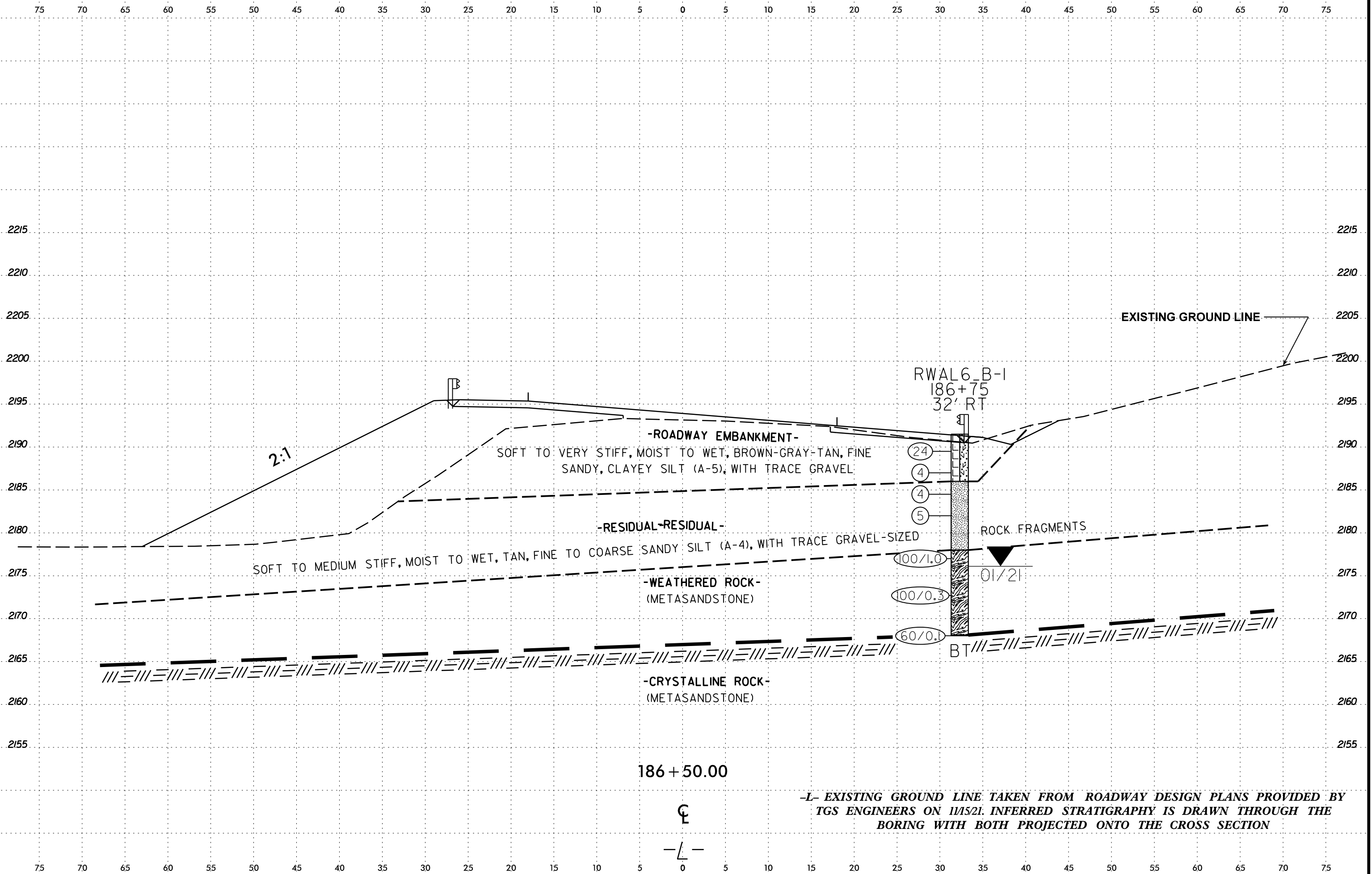
SOIL TEST RESULTS

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-3008	88' RT	189+08 -L-	1.0 - 2.5'	A-4(1)	33	1	10.0	28.0	41.0	21.0	99.0	93.0	72.0	23.0	-
SS-3012	88' RT	189+08 -L-	13.5 - 15.0'	A-2-4(0)	23	NP	28.0	36.0	27.0	9.0	60.0	48.0	27.0	7.0	-
SS-2023	66' RT	190+00 -L-	18.5 - 20.0'	A-5(6)	41	10	20.0	24.0	25.0	31.0	100.0	86.0	64.0	36.0	-
SS-3028	29' RT	192+56 -L-	3.5 - 5.0'	A-6(8)	39	11	6.0	27.0	32.0	35.0	100.0	97.0	75.0	28.0	-

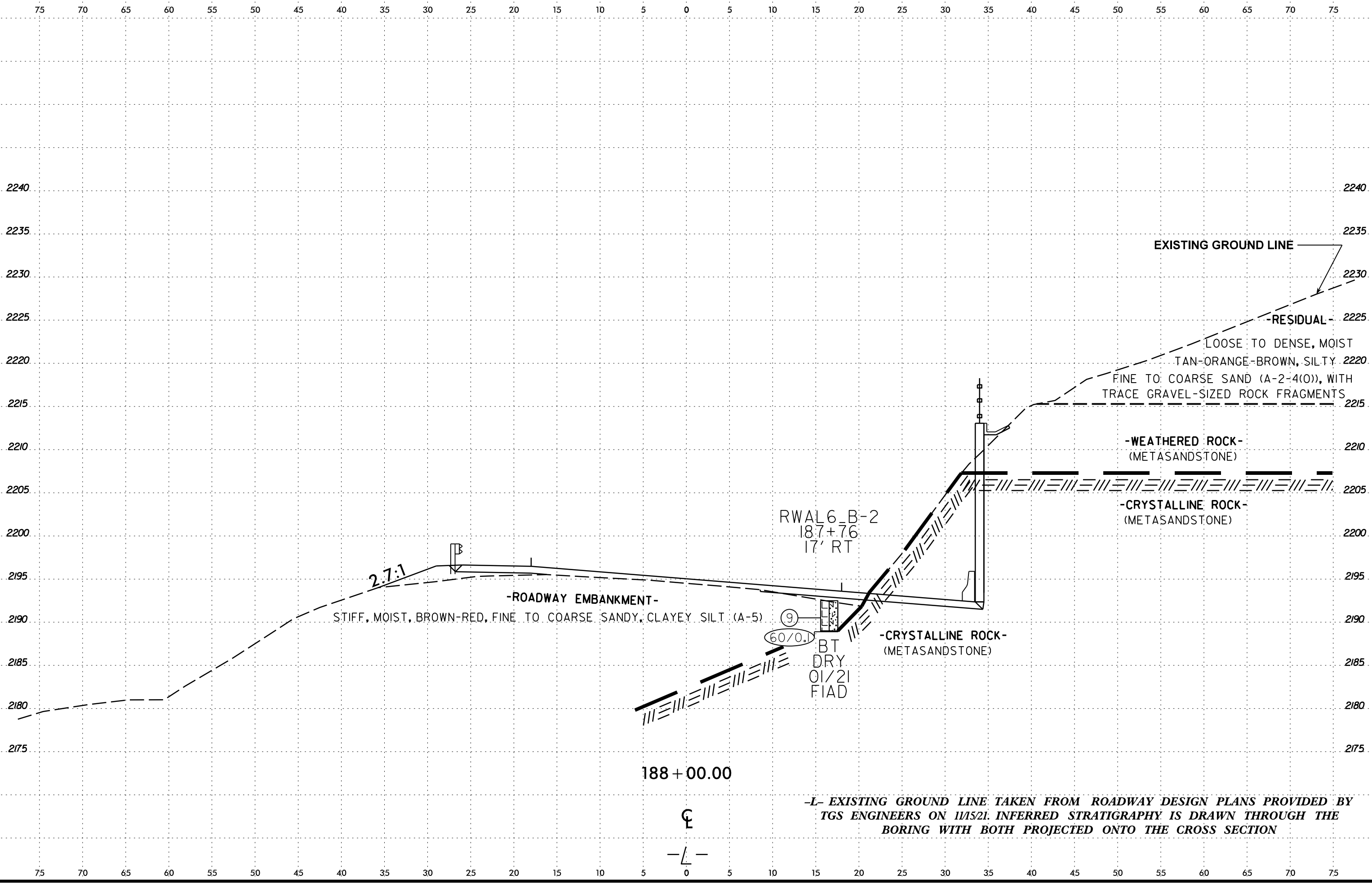


WALL ENVELOPE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY TGS ENGINEERS ON 11/15/21. APPROXIMATE EXISTING GROUND LINE IS DRAWN BORING TO BORING. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING WITH BOTH PROJECTED ONTO THE PROFILE. EXISTING GROUND LINE IS DRAWN BORING TO BORING.

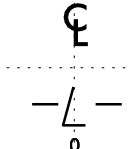
6/23/16
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\$\$\$\$USERNAME\$\$\$



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\$\$\$\$\$USERNAME\$\$\$\$\$



-L- EXISTING GROUND LINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY TGS ENGINEERS ON 11/5/21. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING WITH BOTH PROJECTED ONTO THE CROSS SECTION



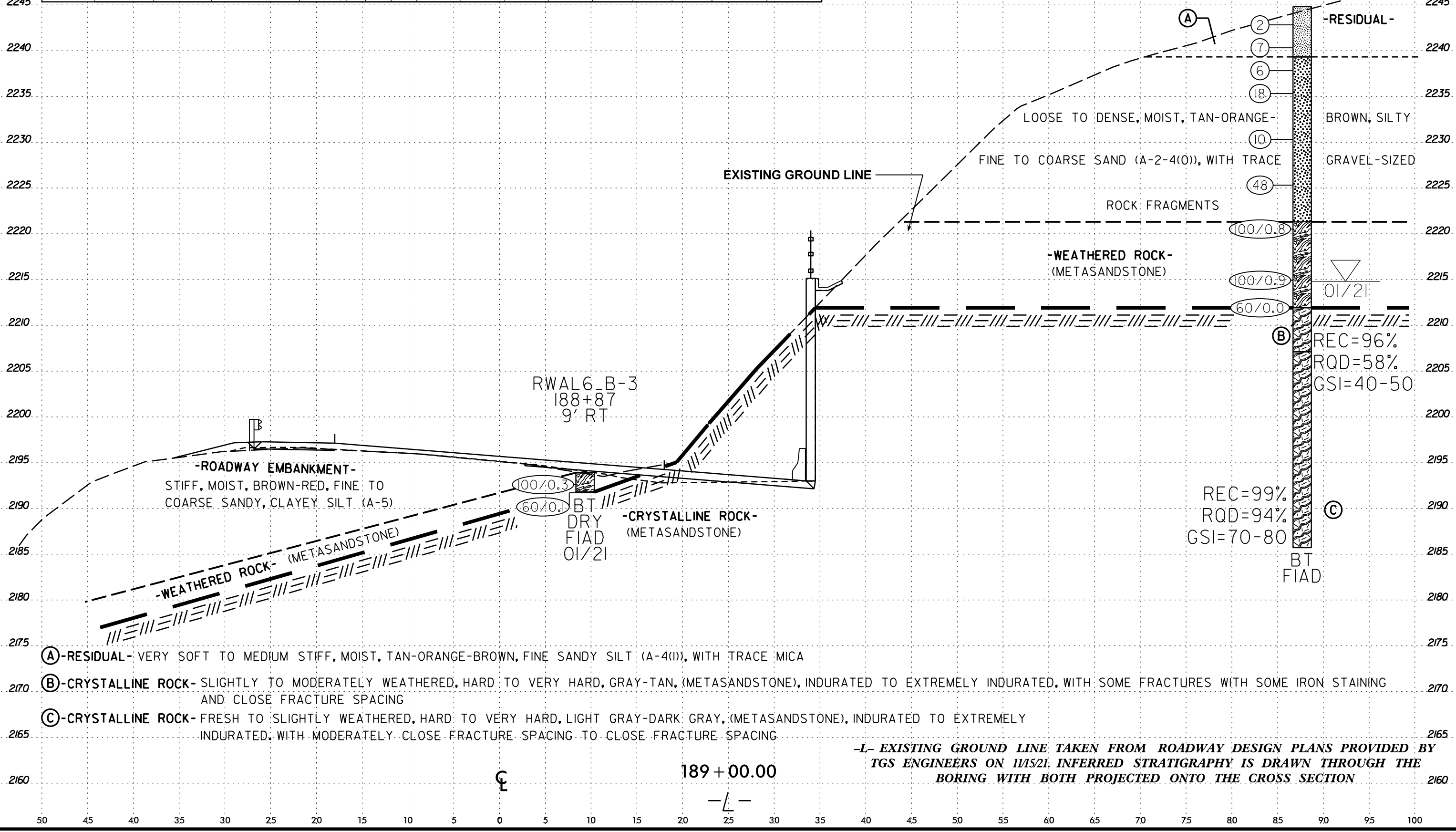
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 \$\$\$USERNAME\$\$\$

50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	LL	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-3008	88' RT	189+08 -L-	1.0 - 2.5'	A-4(1)	33	1	10.0	28.0	41.0	21.0	99.0	93.0	72.0	23.0	-
SS-3012	88' RT	189+08 -L-	13.5 - 15.0'	A-2-4(0)	23	NP	28.0	36.0	27.0	9.0	60.0	48.0	27.0	7.0	-

RWAL6_B-7
189+08 88' RT
SS-3008
SS-3012



- (A) -RESIDUAL- VERY SOFT TO MEDIUM STIFF, MOIST, TAN-ORANGE-BROWN, FINE SANDY SILT (A-4(1)), WITH TRACE MICA
- (B) -CRYSTALLINE ROCK- SLIGHTLY TO MODERATELY WEATHERED, HARD TO VERY HARD, GRAY-TAN, (METASANDSTONE), INDURATED TO EXTREMELY INDURATED, WITH SOME FRACTURES WITH SOME IRON STAINING AND CLOSE FRACTURE SPACING
- (C) -CRYSTALLINE ROCK- FRESH TO SLIGHTLY WEATHERED, HARD TO VERY HARD, LIGHT GRAY-DARK GRAY, (METASANDSTONE), INDURATED TO EXTREMELY INDURATED, WITH MODERATELY CLOSE FRACTURE SPACING TO CLOSE FRACTURE SPACING

-L- EXISTING GROUND LINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY TGS ENGINEERS ON 11/15/21. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING WITH BOTH PROJECTED ONTO THE CROSS SECTION

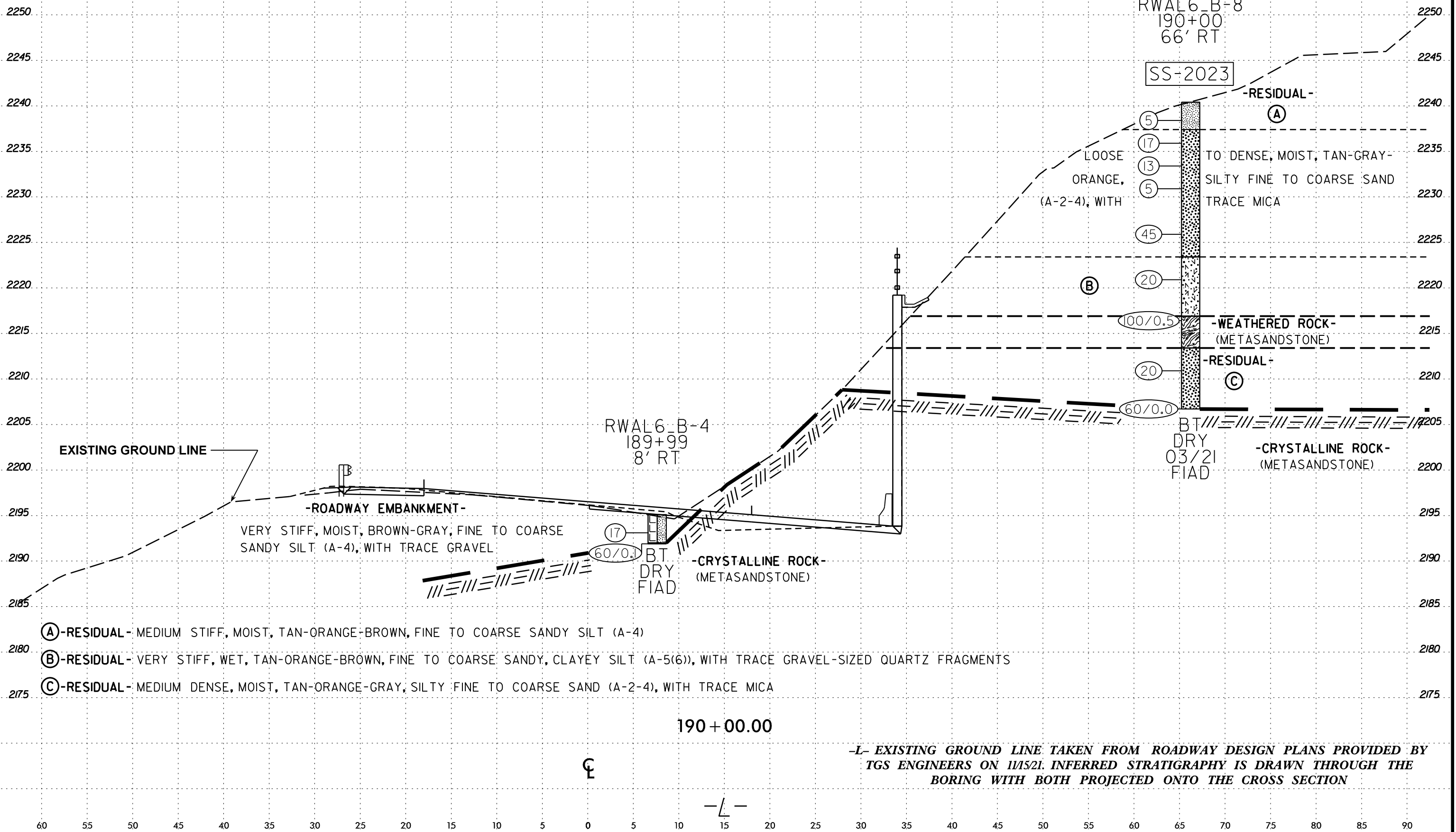
189+00.00

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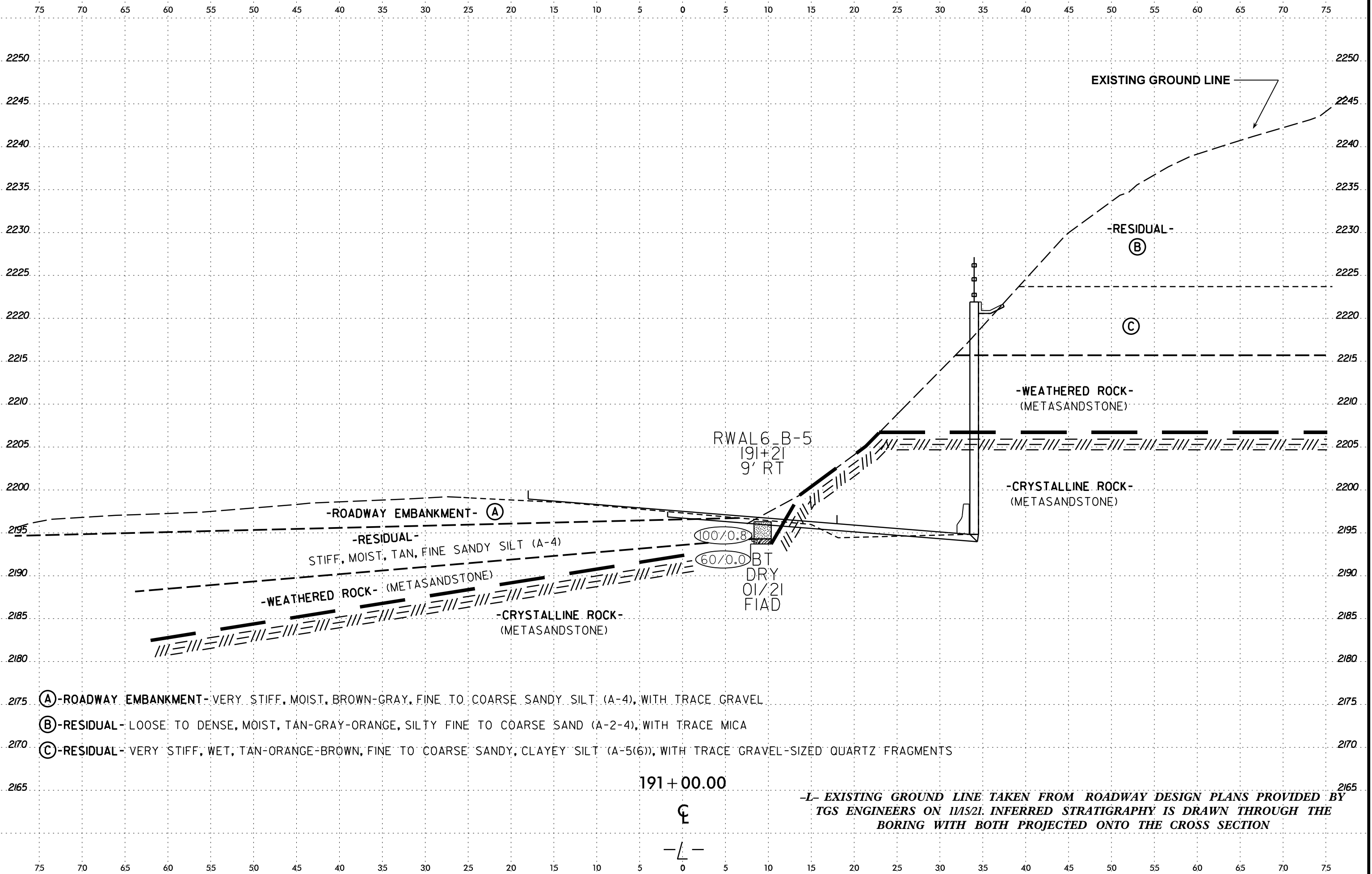
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60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90

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-2023	46' RT	190+00 -L-	18.5 - 20.0'	A-5(6)	41	10	20.0	24.0	25.0	31.0	100.0	86.0	64.0	36.0	-



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- (A) -ROADWAY EMBANKMENT- VERY STIFF, MOIST, BROWN-GRAY, FINE TO COARSE SANDY SILT (A-4), WITH TRACE GRAVEL
- (B) -RESIDUAL- LOOSE TO DENSE, MOIST, TAN-GRAY-ORANGE, SILTY FINE TO COARSE SAND (A-2-4), WITH TRACE MICA
- (C) -RESIDUAL- VERY STIFF, WET, TAN-ORANGE-BROWN, FINE TO COARSE SANDY, CLAYEY SILT (A-5(6)), WITH TRACE GRAVEL-SIZED QUARTZ FRAGMENTS

RWAL6_B-5
 191+21
 9' RT
 100/0.8
 60/0.0 BT
 DRY
 01/21
 FIAD

-ROADWAY EMBANKMENT- (A)
 -RESIDUAL-
 STIFF, MOIST, TAN, FINE SANDY SILT (A-4)

-WEATHERED ROCK- (METASANDSTONE)
 -CRYSTALLINE ROCK- (METASANDSTONE)

-WEATHERED ROCK- (METASANDSTONE)

-CRYSTALLINE ROCK- (METASANDSTONE)

EXISTING GROUND LINE

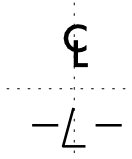
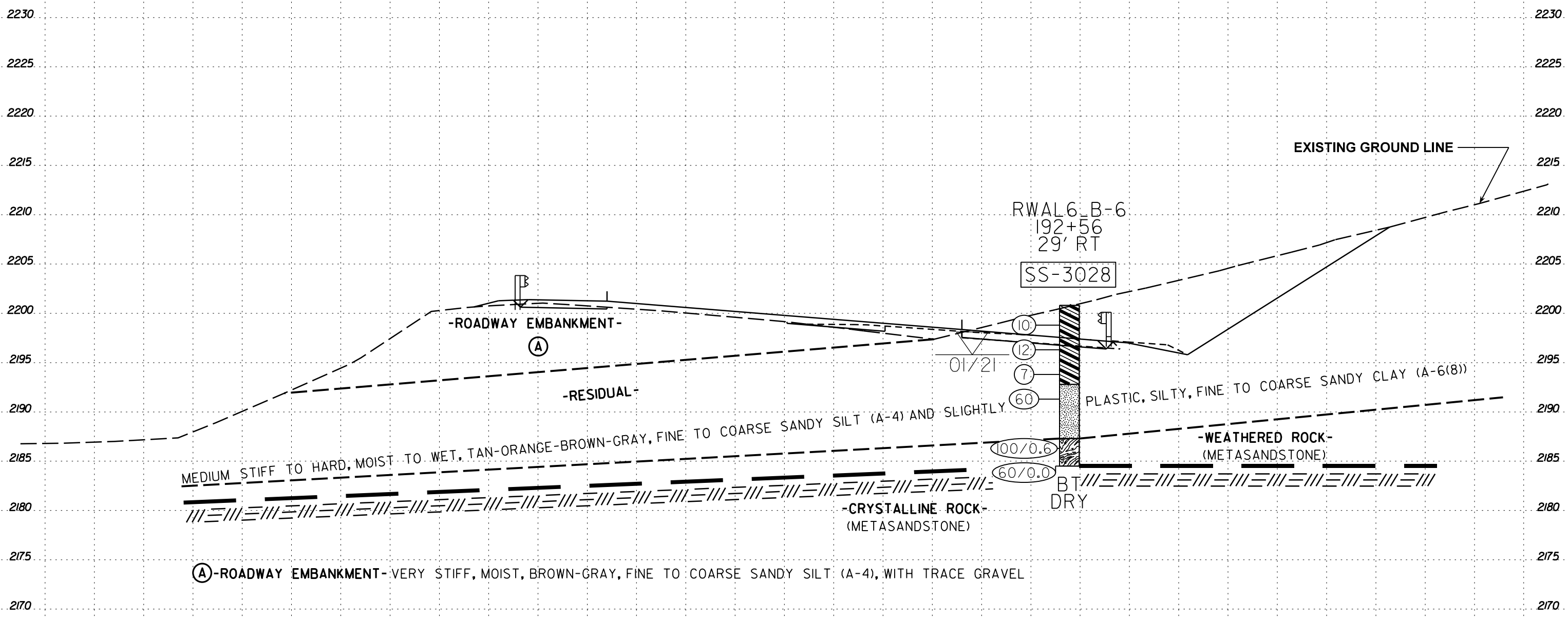
-RESIDUAL- (B)

(C)

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 \$\$\$USERNAME\$\$\$

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

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-3028	29' RT	192+56 -L-	3.5 - 5.0'	A-6(8)	39	11	6.0	27.0	32.0	35.0	100.0	97.0	75.0	28.0	-



GEOTECHNICAL BORING REPORT

BORE LOG

WBS 32572.1.FS10		TIP A-0009CA		COUNTY GRAHAM		GEOLOGIST S. Braun									
SITE DESCRIPTION Upgrade US 129 from South of SR 1275 to NC 143 and Upgrade NC 143 from US 129 to SR 1223							GROUND WTR (ft)								
BORING NO. RWAL6_B-1		STATION 186+75		OFFSET 32 ft RT		ALIGNMENT L									
COLLAR ELEV. 2,191.5 ft		TOTAL DEPTH 23.5 ft		NORTHING 612,304		EASTING 583,447									
DRILL RIG/HAMMER EFF./DATE CG29022 Mobile B-29 88%/03/26/2020			DRILL METHOD H.S. Augers			HAMMER TYPE Automatic									
DRILLER J. Estep		START DATE 01/13/21		COMP. DATE 01/13/21		SURFACE WATER DEPTH N/A									
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
2195															
2190	2,190.5	1.0	8	16	8									2,191.5	0.0
	2,188.0	3.5	4	2	2									2,186.0	5.5
2185	2,185.5	6.0	2	1	3									2,178.0	13.5
	2,183.0	8.5	4	3	2									2,178.0	13.5
2180															
	2,178.0	13.5	54	30	70/0.5									2,178.0	13.5
2175															
	2,173.0	18.5	100/0.3											2,168.1	23.4
2170														2,168.1	23.4
	2,168.1	23.4	60/0.1											2,168.0	23.5

WBS 32572.1.FS10		TIP A-0009CA		COUNTY GRAHAM		GEOLOGIST S. Braun									
SITE DESCRIPTION Upgrade US 129 from South of SR 1275 to NC 143 and Upgrade NC 143 from US 129 to SR 1223							GROUND WTR (ft)								
BORING NO. RWAL6_B-2		STATION 187+76		OFFSET 17 ft RT		ALIGNMENT L									
COLLAR ELEV. 2,192.5 ft		TOTAL DEPTH 3.6 ft		NORTHING 612,387		EASTING 583,504									
DRILL RIG/HAMMER EFF./DATE CG29022 Mobile B-29 88%/03/26/2020			DRILL METHOD H.S. Augers			HAMMER TYPE Automatic									
DRILLER J. Estep		START DATE 01/13/21		COMP. DATE 01/13/21		SURFACE WATER DEPTH N/A									
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
2195															
2190	2,191.5	1.0	4	4	5									2,192.5	0.0
	2,189.0	3.5	60/0.1											2,189.0	3.5

NCDOT BORE DOUBLE A-0009CA_GEO_RDY_GTM.GPJ NC_DOT.GDT 4/29/22

GEOTECHNICAL BORING REPORT

BORE LOG

WBS 32572.1.FS10		TIP A-0009CA		COUNTY GRAHAM		GEOLOGIST S. Braun										
SITE DESCRIPTION Upgrade US 129 from South of SR 1275 to NC 143 and Upgrade NC 143 from US 129 to SR 1223							GROUND WTR (ft)									
BORING NO. RWAL6_B-3		STATION 188+87		OFFSET 9 ft RT		ALIGNMENT L										
COLLAR ELEV. 2,194.0 ft		TOTAL DEPTH 2.2 ft		NORTHING 612,466		EASTING 583,580										
DRILL RIGHAMMER EFF./DATE CG29022 Mobile B-29 88% 03/26/2020				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic										
DRILLER J. Estep		START DATE 01/13/21		COMP. DATE 01/13/21		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						
2195																
	2,193.0	1.0														2,194.0
	2,191.9	2.1	100/0.3													2,191.9
			60/0.1													2,191.8

WBS 32572.1.FS10		TIP A-0009CA		COUNTY GRAHAM		GEOLOGIST S. Braun										
SITE DESCRIPTION Upgrade US 129 from South of SR 1275 to NC 143 and Upgrade NC 143 from US 129 to SR 1223							GROUND WTR (ft)									
BORING NO. RWAL6_B-4		STATION 189+99		OFFSET 8 ft RT		ALIGNMENT L										
COLLAR ELEV. 2,195.1 ft		TOTAL DEPTH 3.2 ft		NORTHING 612,536		EASTING 583,667										
DRILL RIGHAMMER EFF./DATE CG29022 Mobile B-29 88% 03/26/2020				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic										
DRILLER J. Estep		START DATE 01/13/21		COMP. DATE 01/13/21		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						
2200																
																2,195.1
																2,195.1
																2,192.0
																2,191.9

NCDOT BORE DOUBLE A-0009CA_GEO_RDY_GTM.GPJ NC_DOT.GDT 4/29/22

**GEOTECHNICAL BORING REPORT
BORE LOG**

WBS 32572.1.FS10		TIP A-0009CA		COUNTY GRAHAM		GEOLOGIST S. Braun										
SITE DESCRIPTION Upgrade US 129 from South of SR 1275 to NC 143 and Upgrade NC 143 from US 129 to SR 1223							GROUND WTR (ft)									
BORING NO. RWAL6_B-5		STATION 191+21		OFFSET 9 ft RT		ALIGNMENT L										
COLLAR ELEV. 2,196.3 ft		TOTAL DEPTH 2.6 ft		NORTHING 612,601		EASTING 583,769										
DRILL RIGHAMMER EFF/DATE CG29022 Mobile B-29 88%/03/26/2020			DRILL METHOD H.S. Augers			HAMMER TYPE Automatic										
DRILLER J. Estep		START DATE 01/13/21		COMP. DATE 01/13/21		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						
2200																
2195	2,195.3	1.0	4	9	91/0.3							M	2,196.3 GROUND SURFACE 0.0 2,194.8 RESIDUAL 1.5 2,193.7 Stiff, Tan, Fine Sandy SILT (A-4) 2.6			
	2,193.7	2.6	60/0.0							100/0.8 60/0.0			WEATHERED ROCK Gray, (METASANDSTONE) Boring Terminated with Standard Penetration Test Refusal at Elevation 2,193.7 ft On Crystalline Rock (METASANDSTONE)			

WBS 32572.1.FS10		TIP A-0009CA		COUNTY GRAHAM		GEOLOGIST S. Braun										
SITE DESCRIPTION Upgrade US 129 from South of SR 1275 to NC 143 and Upgrade NC 143 from US 129 to SR 1223							GROUND WTR (ft)									
BORING NO. RWAL6_B-6		STATION 192+56		OFFSET 29 ft RT		ALIGNMENT L										
COLLAR ELEV. 2,200.8 ft		TOTAL DEPTH 16.3 ft		NORTHING 612,647		EASTING 583,896										
DRILL RIGHAMMER EFF/DATE CG20446 Diedrich D50 89%/05/22/2019			DRILL METHOD H.S. Augers			HAMMER TYPE Automatic										
DRILLER C. Odom		START DATE 01/26/21		COMP. DATE 01/26/21		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						
2205																
2200	2,199.8	1.0	6	5	5							M	2,200.8 GROUND SURFACE 0.0			
	2,197.3	3.5	3	5	7							M	RESIDUAL Medium Stiff to Stiff, Brown-Gray-Tan, Slightly Plastic, Silty Fine to Coarse Sandy CLAY (A-6(8))			
2195	2,194.8	6.0	4	4	3							W	2,192.8 Hard, Gray-Tan, Fine to Coarse Sandy SILT (A-4) 8.0			
	2,192.3	8.5	10	32	28							M	2,187.3 WEATHERED ROCK 13.5 Gray-Tan, (METASANDSTONE)			
2190	2,187.3	13.5	75	25/0.1									2,184.5 WEATHERED ROCK 16.3 Gray-Tan, (METASANDSTONE) Boring Terminated with Standard Penetration Test Refusal at Elevation 2,184.5 ft On Crystalline Rock (METASANDSTONE)			
2185	2,184.5	16.3	60/0.0							100/0.6 60/0.0						

NCDOT BORE DOUBLE A-0009CA_GEO_RDY_GTM.GPJ NC_DOT.GDT 4/29/22

GEOTECHNICAL BORING REPORT BORE LOG

GEOTECHNICAL BORING REPORT CORE LOG

WBS 32572.1.FS10		TIP A-0009CA		COUNTY GRAHAM		GEOLOGIST N. McLaren / D. Goodnight	
SITE DESCRIPTION Upgrade US 129 from South of SR 1275 to NC 143 and Upgrade NC 143 from US 129 to SR 1223							GROUND WTR (ft)
BORING NO. RWAL6_B-7		STATION 189+08		OFFSET 88 ft RT		ALIGNMENT L	
COLLAR ELEV. 2,244.9 ft		TOTAL DEPTH 59.1 ft		NORTHING 612,419		EASTING 583,646	
DRILL RIGHAMMER EFF./DATE CG20446 Diedrich D50 83%/06/16/2020			DRILL METHOD NW Casing W/SPT & Core			HAMMER TYPE Automatic	
DRILLER C. Odom		START DATE 01/26/21		COMP. DATE 11/01/21		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)
2245																2,244.9 GROUND SURFACE 0.0
2240	2,243.9	1.0	3	1	1									SS-3008 23%		RESIDUAL Very Soft to Medium Stiff, Tan-Orange-Brown, Fine Sandy SILT (A-4(1)), with trace mica
2235	2,241.4	3.5	2	3	4									M		
2230	2,238.9	6.0	3	4	2									M		
2225	2,236.4	8.5	6	4	14									M		Loose to Dense, Tan-Orange-Brown, Silty Fine to Coarse SAND (A-2-4(0)), with trace gravel-sized rock fragments
2220	2,231.4	13.5	4	5	5									M		
2215	2,226.4	18.5	22	18	30									M		
2210	2,221.4	23.5	43	57/0.3										M		WEATHERED ROCK Tan-Gray, (METASANDSTONE)
2205	2,216.4	28.5	11	27	73/0.4									M		
2200	2,212.0	32.9												M		CRYSTALLINE ROCK Gray-Tan, (METASANDSTONE)
2195														M		REC: 96% RQD: 58% GSI: 40-50 Light to Dark Gray, (METASANDSTONE)
2190														M		REC: 99% RQD: 94% GSI: 70-80
														M		Boring Terminated at Elevation 2,185.8 ft In Crystalline Rock (METASANDSTONE)

WBS 32572.1.FS10		TIP A-0009CA		COUNTY GRAHAM		GEOLOGIST N. McLaren / D. Goodnight	
SITE DESCRIPTION Upgrade US 129 from South of SR 1275 to NC 143 and Upgrade NC 143 from US 129 to SR 1223							GROUND WTR (ft)
BORING NO. RWAL6_B-7		STATION 189+08		OFFSET 88 ft RT		ALIGNMENT L	
COLLAR ELEV. 2,244.9 ft		TOTAL DEPTH 59.1 ft		NORTHING 612,419		EASTING 583,646	
DRILL RIGHAMMER EFF./DATE CG20446 Diedrich D50 83%/06/16/2020			DRILL METHOD NW Casing W/SPT & Core			HAMMER TYPE Automatic	
DRILLER C. Odom		START DATE 01/26/21		COMP. DATE 11/01/21		SURFACE WATER DEPTH N/A	

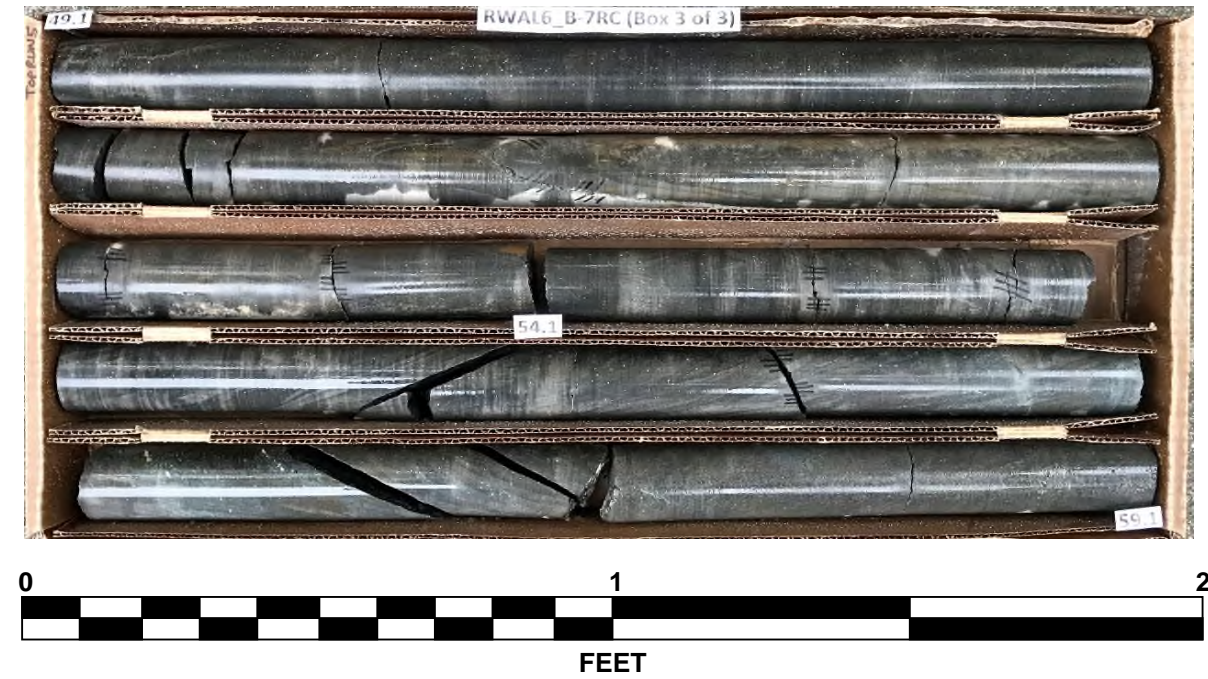
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN		SAMP. NO.	STRATA		LOG	DESCRIPTION AND REMARKS
					REC. (%)	RQD (%)		REC. (%)	RQD (%)		
2212	2,212.0	32.9	1.2	N=60/0.0	(1.1)	(0.0)		(4.6)	(2.8)		Begin Coring @ 32.9 ft
2210	2,210.8	34.1	5.0	06:22/1.0 00:32/0.2	92%	0%		96%	58%		CRYSTALLINE ROCK Slightly to Moderately Weathered, Hard to Very Hard, Gray-Tan, (METASANDSTONE), Indurated to Extremely Indurated, with some iron staining and close fracture spacing
2205	2,205.8	39.1	5.0	03:13/1.0 03:00/1.0 02:24/1.0 02:38/1.0 07:03/1.0	(4.9)	(4.2)		99%	94%		Fresh to Slightly Weathered, Hard to Very Hard, Light Gray-Dark Gray, (METASANDSTONE) Indurated to Extremely Indurated, with moderately close fracture spacing to close fracture spacing
2200	2,200.8	44.1	5.0	05:00/1.0 03:15/1.0 02:37/1.0 03:02/1.0 04:31/1.0	(4.7)	(4.2)					
2195	2,195.8	49.1	5.0	04:11/1.0 03:52/1.0 04:00/1.0 03:45/1.0 03:44/1.0	(5.0)	(5.0)					
2190	2,190.8	54.1	5.0	03:14/1.0 04:04/1.0 03:35/1.0 03:47/1.0 03:21/1.0	(5.0)	(4.8)					
	2,185.8	59.1		02:49/1.0 03:09/1.0 02:43/1.0 02:51/1.0 02:53/1.0	100%	96%					Boring Terminated at Elevation 2,185.8 ft In Crystalline Rock (METASANDSTONE)

Upgrade US 129 from South of SR 1275 to NC 143 and Upgrade NC 143 from US 129 to SR 1223

Rock Core Photographs
Boring: RWAL6_B-7
32.9 to 49.1 Feet



Rock Core Photographs
Boring: RWAL6_B-7
49.1 to 59.1 Feet



GEOTECHNICAL BORING REPORT

BORE LOG

WBS 32572.1.FS10		TIP A-0009CA		COUNTY GRAHAM		GEOLOGIST N. McLaren										
SITE DESCRIPTION Upgrade US 129 from South of SR 1275 to NC 143 and Upgrade NC 143 from US 129 to SR 1223							GROUND WTR (ft)									
BORING NO. RWAL6_B-8		STATION 190+00		OFFSET 66 ft RT		ALIGNMENT L										
COLLAR ELEV. 2,240.4 ft		TOTAL DEPTH 33.7 ft		NORTHING 612,489		EASTING 583,702										
DRILL RIG/HAMMER EFF./DATE CG29022 Mobile B-29 88% 03/26/2020				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic										
DRILLER C. Odom		START DATE 03/26/21		COMP. DATE 03/26/21		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)		
2245																
2240	2,239.4	1.0	1	2	3									2,240.4	0.0	GROUND SURFACE
	2,236.9	3.5	3	8	9									2,237.4	3.0	RESIDUAL Medium Stiff, Tan-Orange-Brown, Fine to Coarse Sandy SILT (A-4)
2235	2,234.4	6.0	4	7	6											Loose to Dense, Tan-Gray-Orange, Silty Fine to Coarse SAND (A-2-4), with trace mica
	2,231.9	8.5	4	2	3											
2230	2,226.9	13.5	7	16	29											
	2,221.9	18.5	3	4	16									2,223.4	17.0	Very Stiff, Tan-Orange-Brown, Fine to Coarse Sandy, Clayey SILT (A-5(6)), with trace gravel-sized quartz fragments
2220	2,216.9	23.5	100/0.5											2,216.9	23.5	WEATHERED ROCK Tan-Brown (METASANDSTONE)
2215	2,211.9	28.5	6	8	12									2,213.4	27.0	RESIDUAL Medium Dense, Tan-Orange-Gray, Silty Fine to Coarse SAND (A-2-4), with trace mica
2210	2,206.7	33.7	60/0.0											2,206.7	33.7	Boring Terminated with Standard Penetration Test Refusal at Elevation 2,206.7 ft On Crystalline Rock (METASANDSTONE)

NCDOT BORE DOUBLE A-0009CA_GEO_RDY_GTM.GPJ NC_DOT.GDT 4/29/22