

REFERENCE: B-5846

PROJECT: 45799

SEE SHEET 3 FOR PLAN SHEET LAYOUT  
AT TIME OF INVESTIGATION

**CONTENTS**

<u>LINE</u>	<u>STATION</u>	<u>PLAN</u>	<u>PROFILE</u>
-L-	12+50 - 26+00	4	N/A
-Y-	10+00 - 11+90	4	N/A

**CROSS SECTIONS**

<u>LINE</u>	<u>STATION</u>	<u>SHEETS</u>
-L-	12+50 - 26+00	6-26

**APPENDIX**

<u>DESCRIPTION</u>	<u>SHEETS</u>
LAB SUMMARY	27-28

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

**ROADWAY**  
**SUBSURFACE INVESTIGATION**

COUNTY IREDELL  
PROJECT DESCRIPTION REPLACE BRIDGE NO. 189 ON  
SR 1892 (JENNINGS ROAD) OVER SOUTH YADKIN  
RIVER

**INVENTORY**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5846	1	28

**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 1919 T07-6850. 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 EXPLORATION  
S. N. PATTERSON, GIT

INVESTIGATED BY CG2, PLLC  
DRAWN BY S. N. PATTERSON, GIT  
CHECKED BY R. KRAL, PE  
SUBMITTED BY CG2, PLLC  
DATE SEPTEMBER 2022

Prepared in the Office of:  
 **CAROLINAS  
GEOTECHNICAL  
GROUP**  
2400 CROWNPOINT EXECUTIVE DRIVE  
SUITE 800  
CHARLOTTE, NC 28227  
(980) 339-8684



DocuSigned by:  
D. Matthew Brewer / 15/2022  
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SIGNATURE DATE

**DOCUMENT NOT CONSIDERED FINAL  
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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

Table with 4 main columns: SOIL DESCRIPTION, GRADATION, ROCK DESCRIPTION, and TERMS AND DEFINITIONS. It contains detailed legends for soil types, gradations, rock types, and geotechnical terms, along with various symbols and abbreviations used in engineering reports.

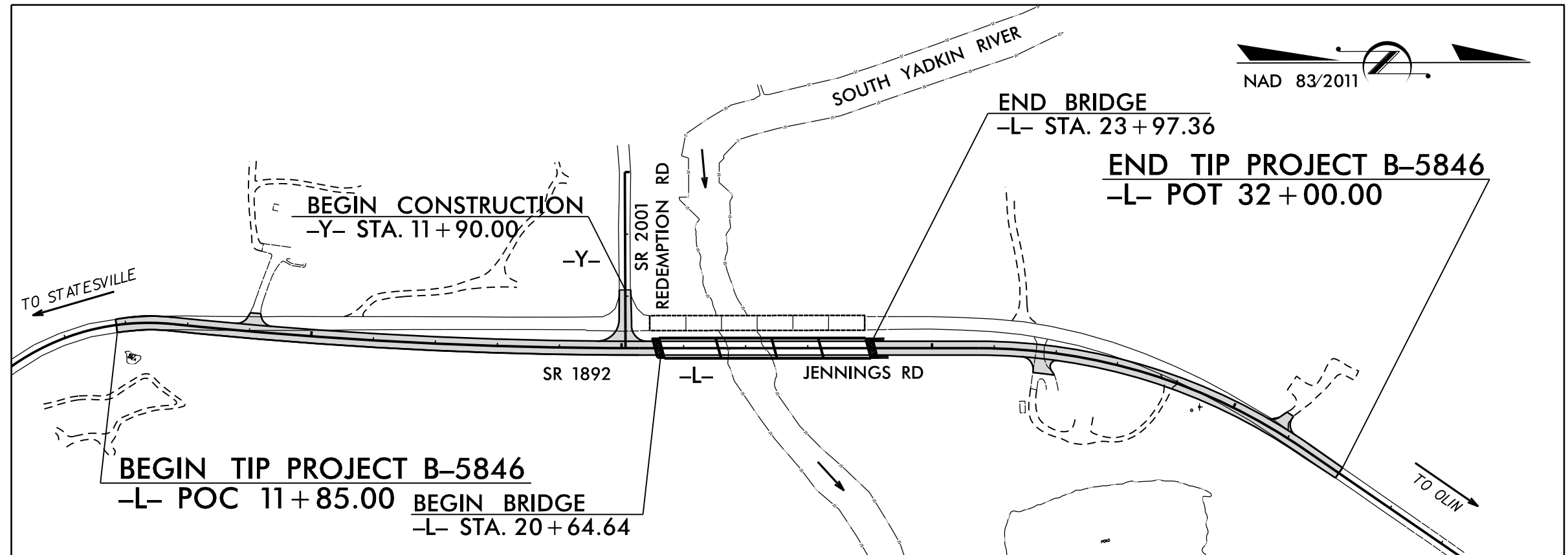
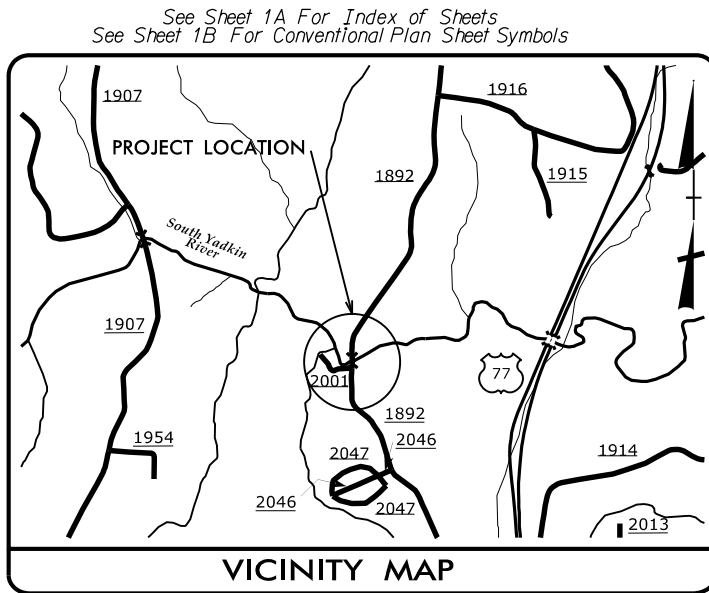
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5846	3	28
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
45799.1.1	BRZ-1892(002)	PE	
45799.2.1	BRZ-1892(002)	ROW, UTIL.	
45799.3.1	BRZ-1892(002)	CONST.	

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**IREDELL COUNTY**

LOCATION: BRIDGE #480189 ON SR 1892 (JENNINGS RD.)  
OVER SOUTH YADKIN RIVER

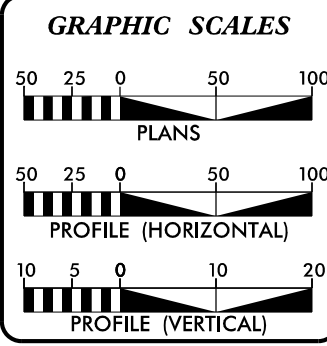
TYPE OF WORK: GRADING, PAVING, DRAINAGE, & STRUCTURE



CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD \_\_\_\_  
THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES

**INCOMPLETE PLANS**  
DO NOT USE FOR R/W ACQUISITION  
DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

**CONTRACT:**



**DESIGN DATA**

ADT 2021 =	3,050
ADT 2040 =	4,000
K =	10 %
D =	55 %
T =	10 % *
V =	50 MPH
* TTST = 1% DUAL = 9%	
FUNC CLASS =	LOCAL
SUBREGIONAL TIER	

**PROJECT LENGTH**

LENGTH ROADWAY TIP PROJECT B-5846	=	0.319 MILES
LENGTH STRUCTURE TIP PROJECT B-5846	=	0.063 MILES
TOTAL LENGTH TIP PROJECT B-5846	=	0.382 MILES

**NC DOT CONTACT:** STEVE RACKLEY, PE

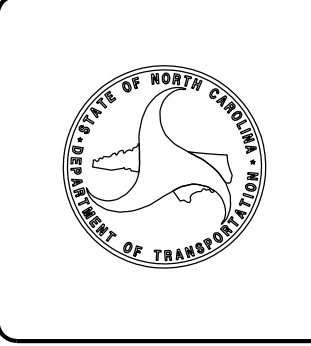
<b>PLANS PREPARED BY:</b> TGS ENGINEERS 201 W. MARION ST STE 200 SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO.: C-0275	<b>PLANS PREPARED FOR:</b> NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION 12 1710 E. MARION ST SHELBY, NC 28150
<b>RIGHT OF WAY DATE:</b> February 28, 2022	<b>JIMMY L. TERRY, PE</b> PROJECT ENGINEER
<b>LETTING DATE:</b> April 25, 2023	<b>GARRETT C. BOYLE, PE</b> PROJECT DESIGN ENGINEER
2018 STANDARD SPECIFICATIONS	

**HYDRAULICS ENGINEER**

SIGNATURE: \_\_\_\_\_ P.E.

**ROADWAY DESIGN ENGINEER**

SIGNATURE: \_\_\_\_\_ P.E.



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9/12/2022

STATE PROJECT: 45799.1.2  
 TIP NUMBER: B-5846  
 COUNTY: Iredell  
 DESCRIPTION: Bridge No. 189 on SR 1892 (Jennings Road) over South Yadkin River  
 SUBJECT: Geotechnical Roadway Inventory Report

### PROJECT DESCRIPTION

Based on a review of the plans provided to us by TGS, we understand this project consists of a bridge replacement and roadway realignment of SR 1892 (Jennings Road). The realignment of SR 1892 begins approximately 880 feet south of the proposed bridge over South Yadkin River and ends approximately 803 feet north of the proposed bridge. The project is approximately 0.382 miles in length, measured along -L- (SR 1892) from Station 11+85 to 32+00. The proposed construction consists of a new bridge, roadway improvements, and associated drainage. The following alignments are included as part of this investigation:

<u>Alignment</u>	<u>Stations</u>
-L- (SR 1892)	11+85 to 32+00
-Y- (SR 2001)	10+00 to 11+90

Cuts on the order of 5 to 20 feet are planned along the right side of -L- from Station 12+50 to Station 19+75. The replacement bridge begins at Station 20+64 and ends at Station 23+97. From -L- Station 24+25 to 26+25 fill on the order of 5 to 20 feet will be required along the right side of the alignment to achieve proposed grades. Additional sliver cuts and fills are shown on the plans at other locations.

The geotechnical field investigation was conducted by CG2 during the period of November 3 through December 9, 2021. A subcontracted drill crew was used to drill and sample each of the nine borings included in this report. The drill rigs utilized were a truck-mounted Mobile B-29 and a track-mounted Diedrich D-50 both equipped with an automatic hammer. Standard Penetration Tests (SPT) were performed at selected depths within each boring for the roadway investigation. Representative soil samples were collected for visual-manual classification in the field and evaluated in the office by a staff geologist under the supervision of a licensed engineer. Selected soil samples were submitted for laboratory analysis by an approved NCDOT M&T testing facility.

### PHYSIOGRAGHY AND GEOLOGY

The project corridor is located within the Piedmont Physiographic Province (Piedmont) of North Carolina. The Piedmont generally consists of hills and ridges which are intertwined with an established system of draws and streams. The Piedmont is predominately underlain by igneous and metamorphic rock.

The 1985 Geologic Map of North Carolina shows the project area is within the Inner Piedmont Belt, which is comprised of an upper and lower suite. The upper suite is mostly metasedimentary and consists of

interlayered Mica Schist and Biotite Paragneiss. The lower suite generally consists of Biotite Gneiss, Amphibolite, Mica Schist, and layered Granitoid Gneiss. Rock encountered during the investigation was classified as Meta-Granite, Hornblende Gneiss, and Mica Schist.

Within the project alignment, much of the bedrock is overlain by near-surface material consisting of residual and alluvial soils. Residual soils are derived from in situ chemical and physical weathering of the rock in the area and vary in thickness. The residual soils in this region are typically finer grained with a higher clay content near the surface due to advanced weathering, and typically become more coarse grained with increasing depth as the degree of weathering decreases. As the degree of weathering decreases, the residual soils generally retain the overall appearance and fabric of the parent rock (sometimes referred to as "saprolite"). The boundary between soil and rock is not always sharply defined. A transitional zone termed "weathered rock" is often found overlying the parent bedrock. Weathered rock is defined as material requiring 100 blows with less than one foot of penetration from the SPT hammer.

Alluvial soils are transported and deposited by water and are naturally variable in character, consistency/density, and often contain organic materials. Alluvial soil deposits of varying age were encountered within the project alignment in low lying areas adjacent to the South Yadkin River.

### Soil Properties

Soils and rock encountered during this investigation include roadway embankment, alluvial, residual, weathered rock, and crystalline rock.

A pavement system consisting of asphalt pavement and aggregate base course (ABC) was encountered in boring EB2-A within the existing travel lanes. The pavement system encountered was on the order of 1.3 feet thick.

Roadway Embankment soils are similar in nature to residual soils and may be derived from nearby sources. Roadway embankment soils were encountered in borings EB2-A and EB2-B due to the presence of state-maintained roadways. The roadway embankment soils encountered consist of loose to medium dense gravelly sand (A-1-b) and soft to hard highly plastic, silty, sandy clay (A-6). Trace mica and gravel were encountered within the roadway embankment soils.

Alluvial soils are typically found on floodplains and stream terrace environments. Alluvial soils were encountered within borings EB2-A and EB2-B. The alluvial soils encountered consist of soft to medium stiff highly plastic sandy, silty clay (A-7-5). Trace mica, gravel, and root fragments were encountered within the alluvial soils.

Residual soils were encountered in borings EB1-A, EB1-B, EB2-A, EB2-B, L\_B-1, L\_B-2, L\_B-3, L\_B-4, and L\_B-5. The residual fine-grained soils encountered generally consist of very soft to hard sandy silt (A-4), clayey, sandy silt (A-5), and moderately to highly plastic silty clay (A-7-5). The coarse-grained soils generally consist of loose to very dense gravelly sand (A-1-b) and silty sand (A-2-5). Trace mica and rock fragments were encountered intermittently within the residual soils.

Weathered rock was encountered along the project corridor within borings EB1-A, EB1-B, EB2-A, and EB2-B. The weathered rock encountered consists of Mica Schist, Hornblende Gneiss, and Meta-Granite.

The weathered rock was encountered at depths ranging from approximately 7.0 to 54.1 feet below existing grades.

Crystalline rock was encountered along the project corridor within borings EB1-A, EB1-B, and EB2-A. The crystalline rock encountered consists of Meta-Granite and Mica Schist and was encountered at depths ranging from approximately 8.5 to 58.4 feet below existing grades.

#### Groundwater

Groundwater measurements were taken during the months of November and December of 2021. Groundwater measurements were attempted at the completion of drilling in each boring, at which time groundwater was encountered in borings EB2-A and EB2-B at depths of approximately 41.2 and 13.1 feet below the existing grades, respectively. Subsequent groundwater measurements were attempted after at least 24 hours following the completion of drilling in each boring, with the exception of EB2-A and L\_B-5, which were backfilled upon completion of drilling due to safety concerns. At the time of subsequent water level measurements groundwater was encountered in boring EB2-B at a depth of approximately 11.0 feet below existing grades. The remaining borings were recorded as dry at the bottom of the boring cylinder. The soils encountered were generally described as moist to wet above and below groundwater elevation.

#### Areas of Special Geotechnical Interest

The following borehole locations encountered soft soils which have the potential to cause embankment stability and/or long-term settlement problems:

<u>Alignment</u>	<u>Stations</u>	<u>Offsets (ft)</u>
-L-	23+93	33 LT
-L-	24+01	21 RT

Highly Plastic Clays: Highly plastic soils (PI > 25) were encountered at the following borehole locations:

<u>Alignment</u>	<u>Stations</u>	<u>Offsets (ft)</u>
-L-	16+50	30 RT
-L-	24+01	21 RT

Based on manual manipulation and visual classification the following boring locations encountered moderately (PI >16) to highly plastic soils. The PI of these soils should be verified during construction to determine their suitability for use within the roadway.

<u>Alignment</u>	<u>Stations</u>	<u>Offsets (ft)</u>
-L-	14+00 to 19+00	27 RT to 50 RT
-L-	26+00	0 CL
-L-	23+93 to 24+01	33 LT to 21 RT

Groundwater: Borehole locations did not encounter groundwater within 6 feet of proposed grade.

Crystalline Rock: Crystalline rock was not encountered above or within 6 feet of proposed grade.

Water Wells: There are several residences near the project site which could indicate that water wells may be present. Water wells were not observed within the proposed construction corridor. However, wells may be encountered that were not observed during our field services.

Rock Outcrops: Rock outcrops were exposed within the proposed project corridor and generally consist of Mica Schist and Hornblende Gneiss.

#### Alignment

-L-

#### Stations

20+10 to 21+50

#### Geotechnical Testing

Four split spoon samples were selected for laboratory testing including Atterberg limits, grain size distribution analysis with hydrometer, and natural moisture. Two relatively undisturbed thin wall (Shelby Tubes) samples were collected for one-dimensional consolidation, Atterberg limits, grain size distribution analysis with hydrometer, and natural moisture testing at the following boring locations:

<u>Sample No.</u>	<u>Alignment</u>	<u>Stations</u>	<u>Offsets (ft)</u>	<u>Sample Depth (ft)</u>
ST-1	-L-	24+01	21 RT	3.0-5.0
ST-2	-L-	24+01	21 RT	6.0-8.0


Sincerely,  
Carolinan Geotechnical Group, PLLC

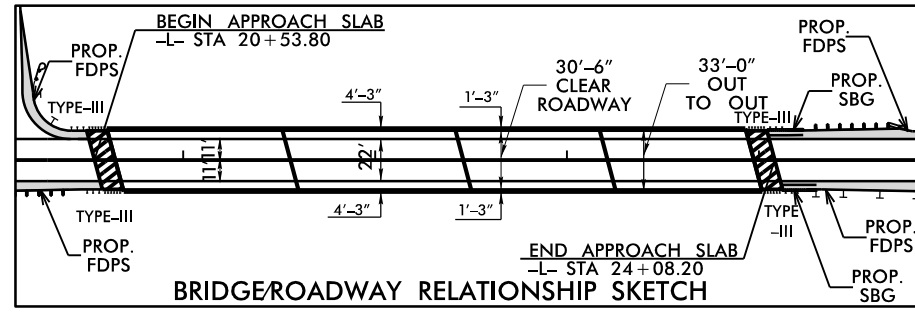
DocuSigned by:  
*Sierra N. Patterson*  
1249E0C0637E485  
Sierra N. Patterson, GIT  
Staff Geologist

DocuSigned by:  
*D. Matthew Brewer*  
386129C0A4C1462  
D. Matthew Brewer, PE  
Senior Project Engineer

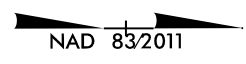


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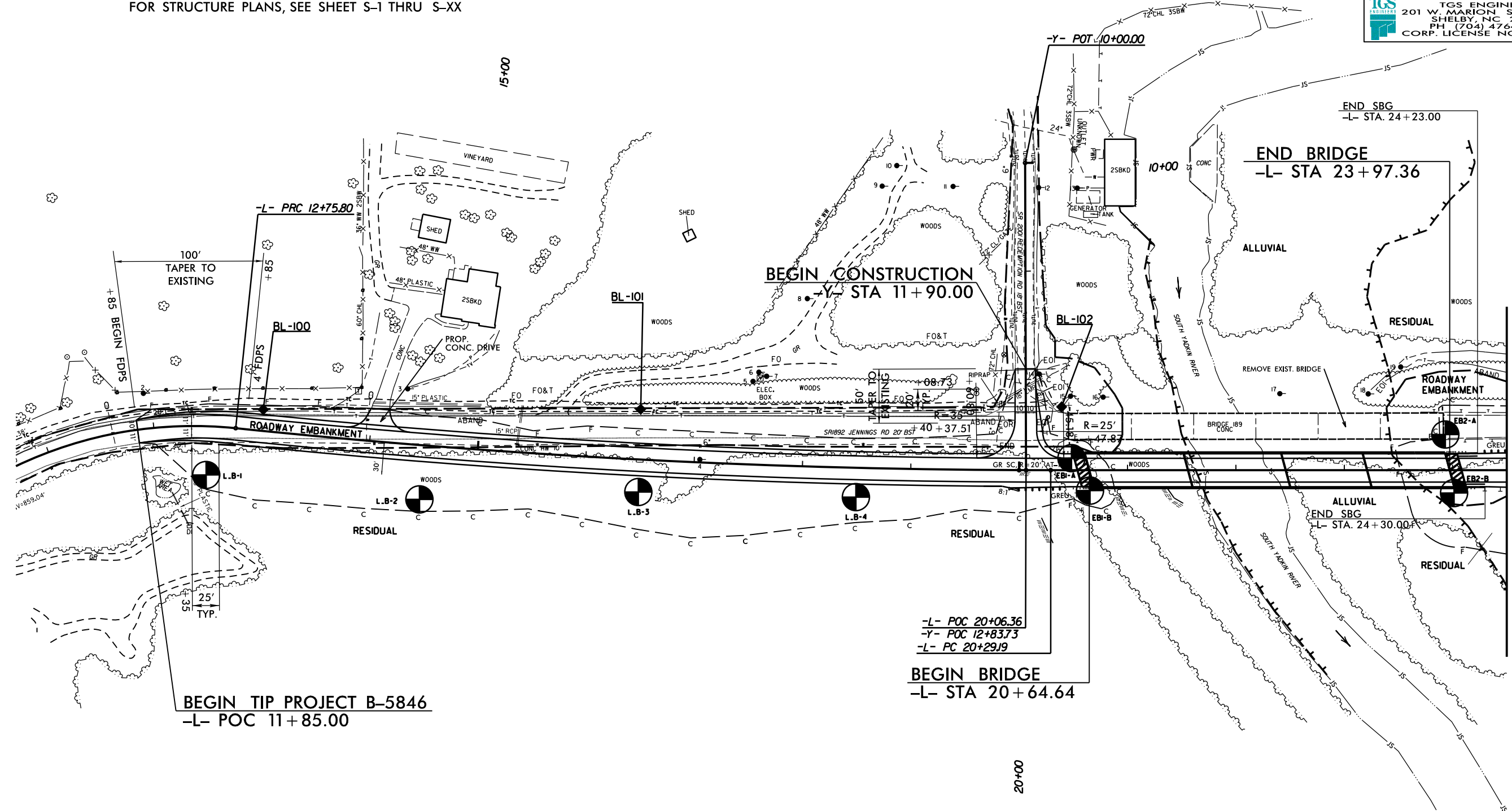
PROJECT REFERENCE NO. <b>B-5846</b>	SHEET NO. <b>4</b>
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION	
<b>DOCUMENT NOT CONSIDERED FINAL</b> UNLESS ALL SIGNATURES COMPLETED	
 <b>TGS ENGINEERS</b> 201 W. MARION ST. STE 200 SHELBY, NC 28150 PH: (704) 476-0003 CORP. LICENSE NO.: C-0275	



ASPHALT PAVEMENT REMOVAL



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**-L- CURVE DATA**

PI Sta 11+44.29	PI Sta 16+52.83
$\Delta = 41^{\circ} 35' 04.4''$ (RT)	$\Delta = 5^{\circ} 54' 47.4''$ (LT)
$D = 15^{\circ} 04' 40.2''$	$D = 0^{\circ} 47' 05.5''$
$L = 275.80'$	$L = 753.39'$
$T = 144.29'$	$T = 377.03'$
$R = 380.00'$	$R = 7,300.00'$
	$DS = 50$ MPH
	$SE = NC$

-L- POC 20+06.36  
 -Y- POC 12+83.73  
 -L- PC 20+29.19  
**BEGIN BRIDGE**  
 -L- STA 20+64.64

**END BRIDGE**  
 -L- STA 23+97.36  
 END SBG  
 -L- STA. 24+23.00

MATCH LINE STA. -L- 24+50  
 MATCH TO SHEET NO. 5

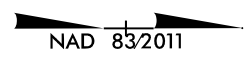
ALL DRIVE RADII ARE 20' UNLESS OTHERWISE NOTED


SEE SHEET 6 FOR -L- GRADE

SEE SHEET 7 FOR -Y- GRADE

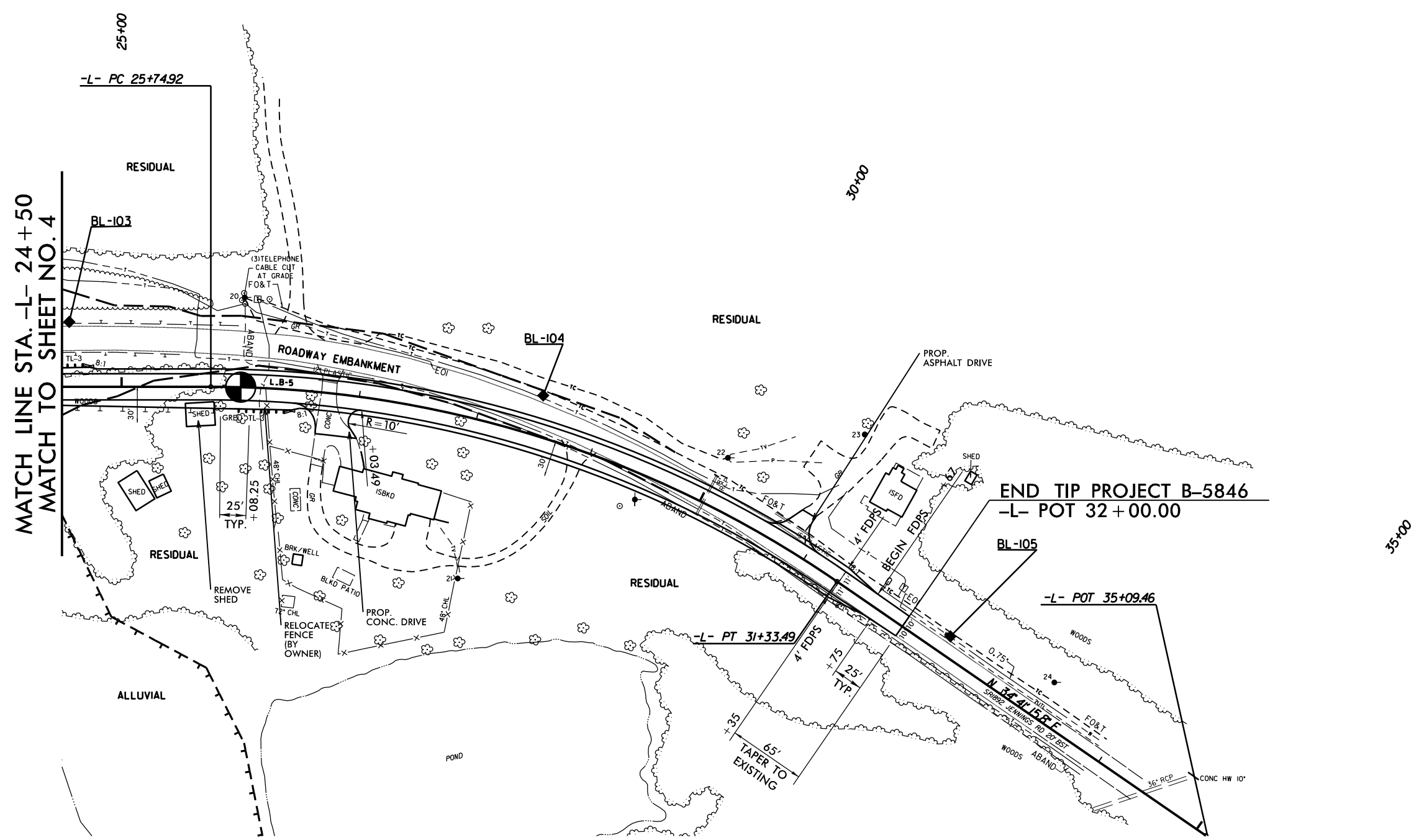
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ASPHALT PAVEMENT REMOVAL



PROJECT REFERENCE NO. <b>B-5846</b>	SHEET NO. <b>5</b>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
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 <b>TGS ENGINEERS</b> 201 W. MARION ST STE 200 SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO.: C-0275	

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**-L- CURVE DATA**  
 PI Sta 28+62.99  
 $\Delta = 34^{\circ} 33' 39.6''$  (RT)  
 $D = 6' 11'' 14.8''$   
 $L = 558.57'$   
 $T = 288.07'$   
 $R = 926.00'$   
 $DS = 50$  MPH  
 $SE = 0.04$

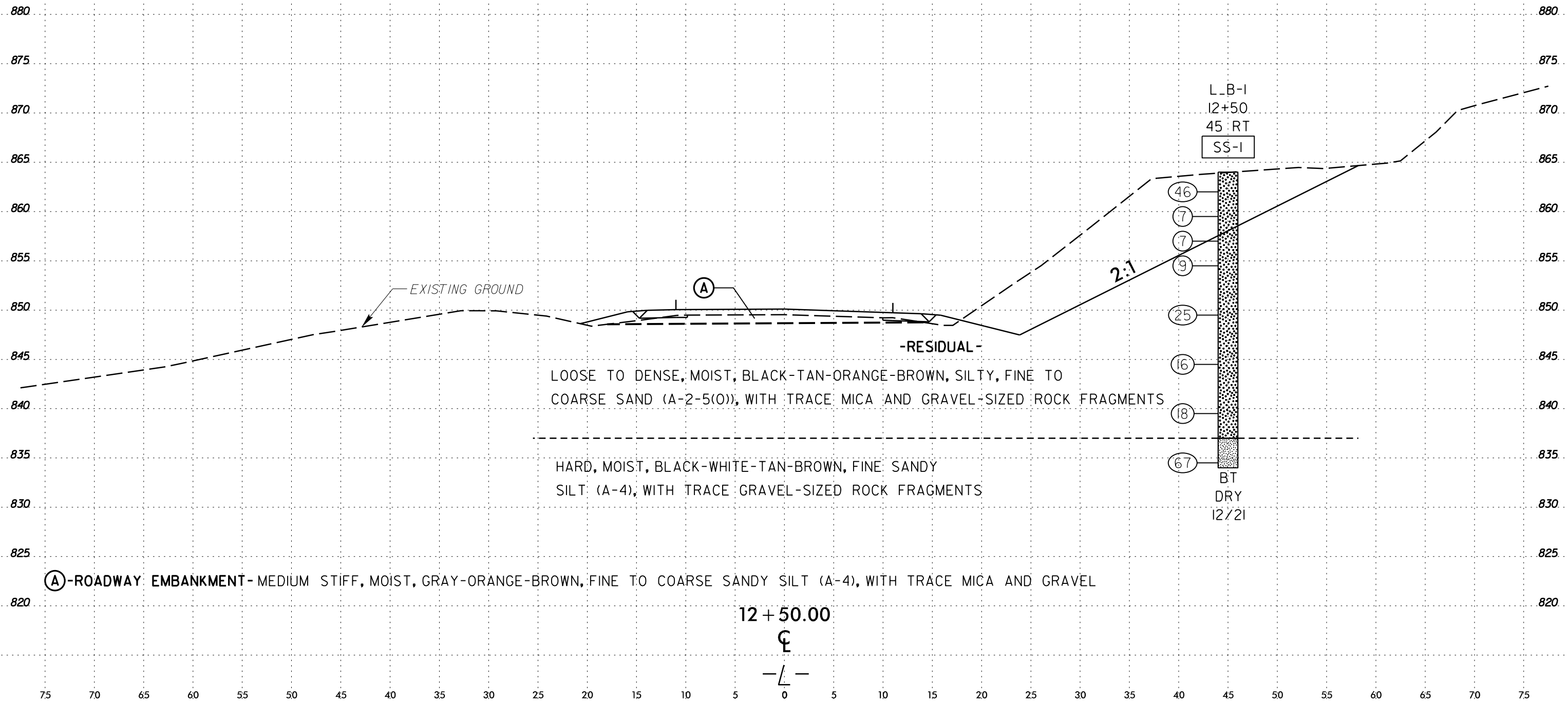
ALL DRIVE RADII ARE 20' UNLESS OTHERWISE NOTED

SEE SHEET 7 FOR -L-

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

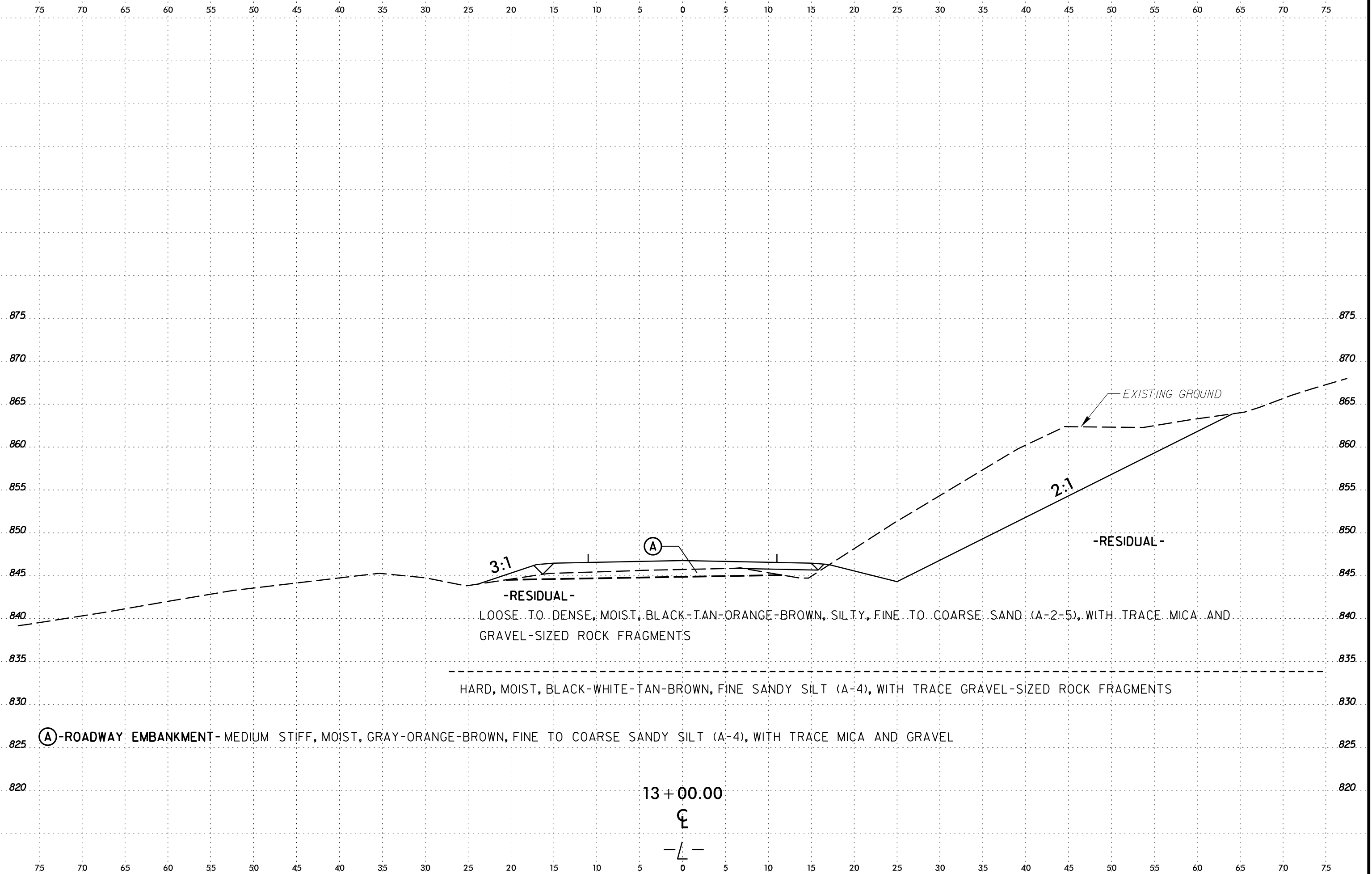
# SOIL TEST RESULTS

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-1	45' RT	12+50 -L-	8.5 - 10.0'	A-2-5(0)	42	2	49.1	32.0	18.1	0.8	93.2	60.4	21.2	8.4	-





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Ⓐ - ROADWAY EMBANKMENT - MEDIUM STIFF, MOIST, GRAY-ORANGE-BROWN, FINE TO COARSE SANDY SILT (A-4), WITH TRACE MICA AND GRAVEL

3:1  
-RESIDUAL-

2:1

-RESIDUAL-

EXISTING GROUND

LOOSE TO DENSE, MOIST, BLACK-TAN-ORANGE-BROWN, SILTY, FINE TO COARSE SAND (A-2-5), WITH TRACE MICA AND GRAVEL-SIZED ROCK FRAGMENTS

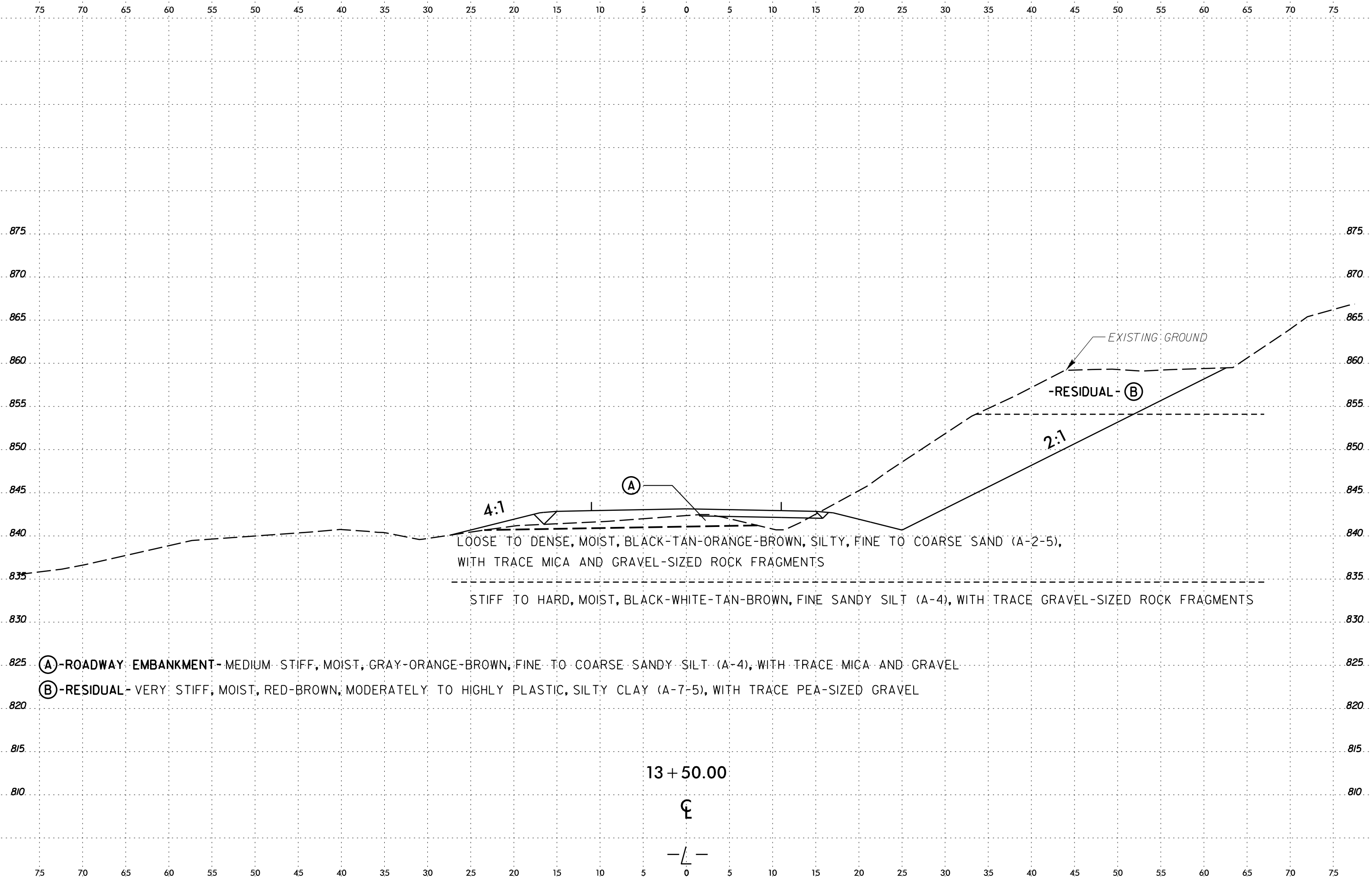
HARD, MOIST, BLACK-WHITE-TAN-BROWN, FINE SANDY SILT (A-4), WITH TRACE GRAVEL-SIZED ROCK FRAGMENTS

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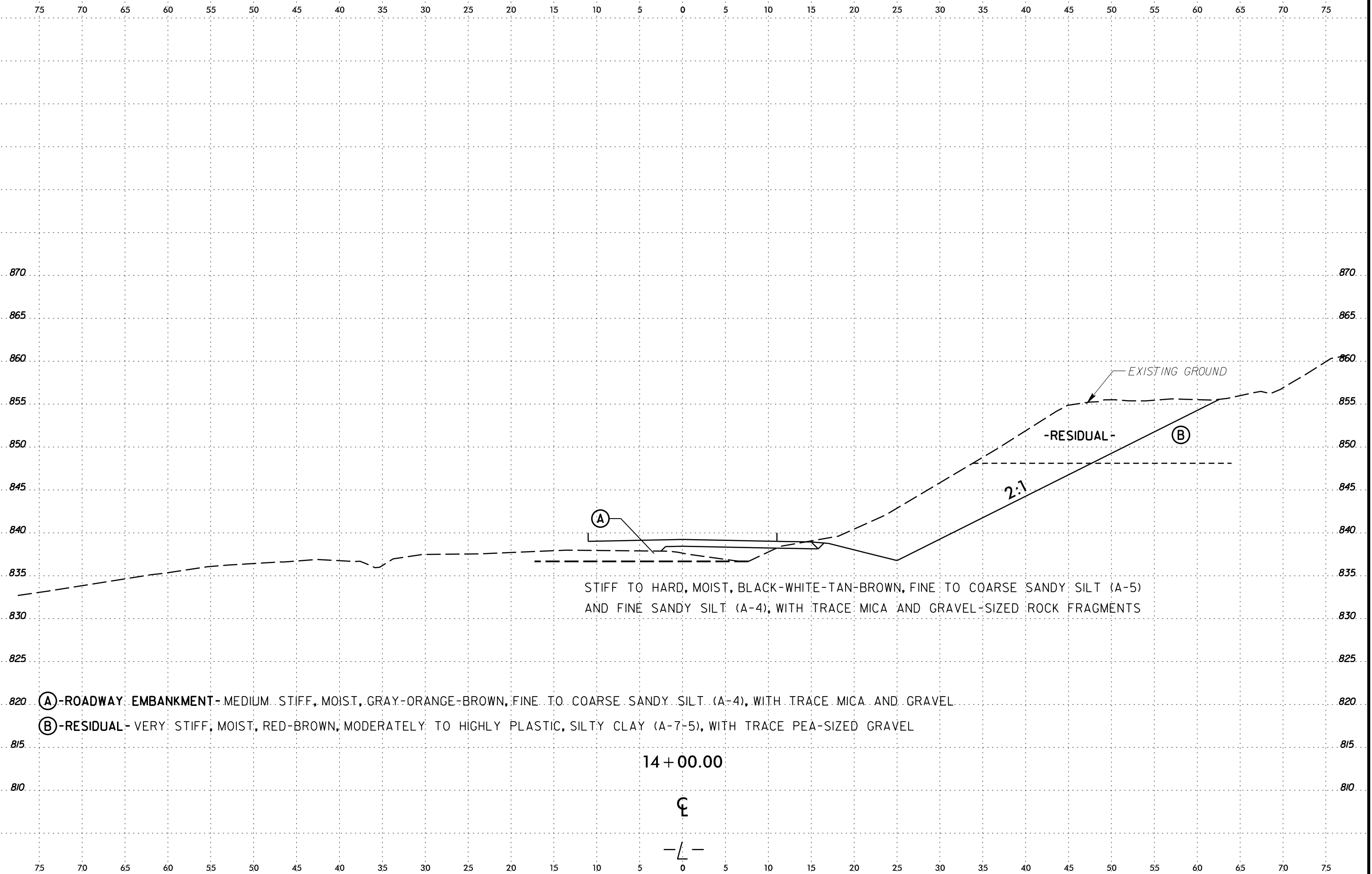
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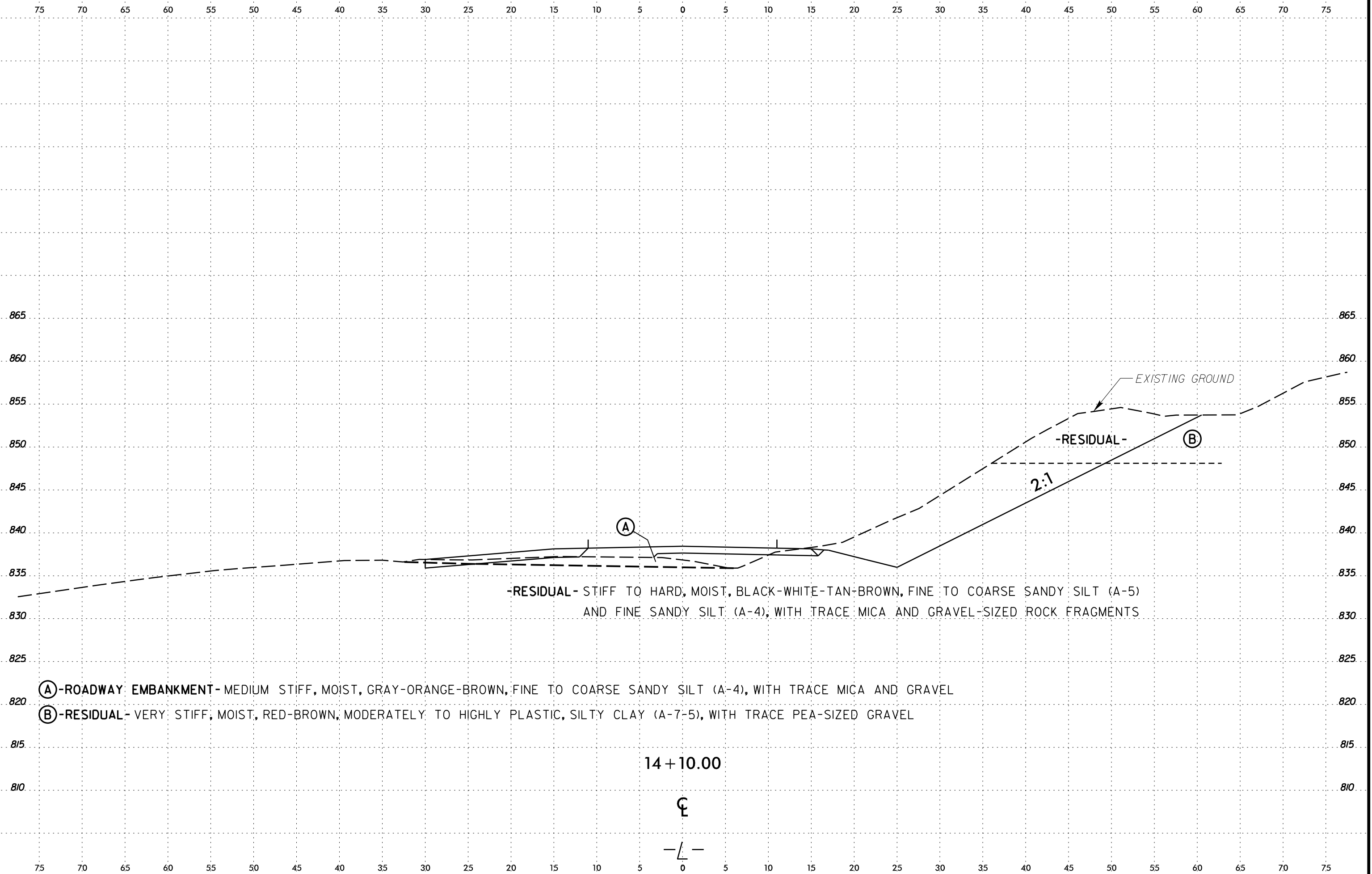
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\$\$\$\$\$SERIAL\$\$\$\$\$



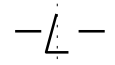
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\$\$\$\$\$SERVME\$\$\$\$\$



- (A) -ROADWAY EMBANKMENT- MEDIUM STIFF, MOIST, GRAY-ORANGE-BROWN, FINE TO COARSE SANDY SILT (A-4), WITH TRACE MICA AND GRAVEL
- (B) -RESIDUAL- VERY STIFF, MOIST, RED-BROWN, MODERATELY TO HIGHLY PLASTIC, SILTY CLAY (A-7-5), WITH TRACE PEA-SIZED GRAVEL

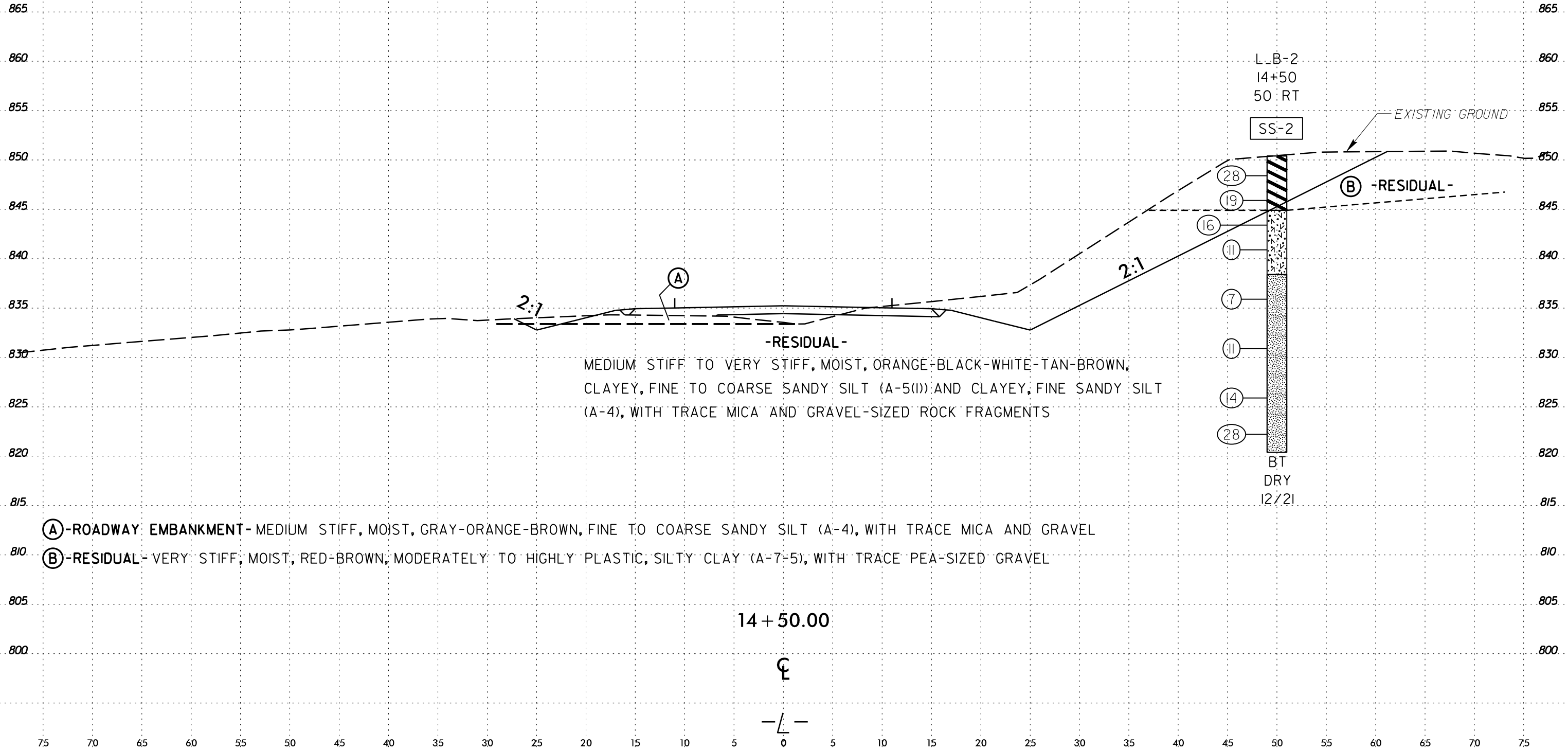
-RESIDUAL- STIFF TO HARD, MOIST, BLACK-WHITE-TAN-BROWN, FINE TO COARSE SANDY SILT (A-5) AND FINE SANDY SILT (A-4), WITH TRACE MICA AND GRAVEL-SIZED ROCK FRAGMENTS

14 + 10.00



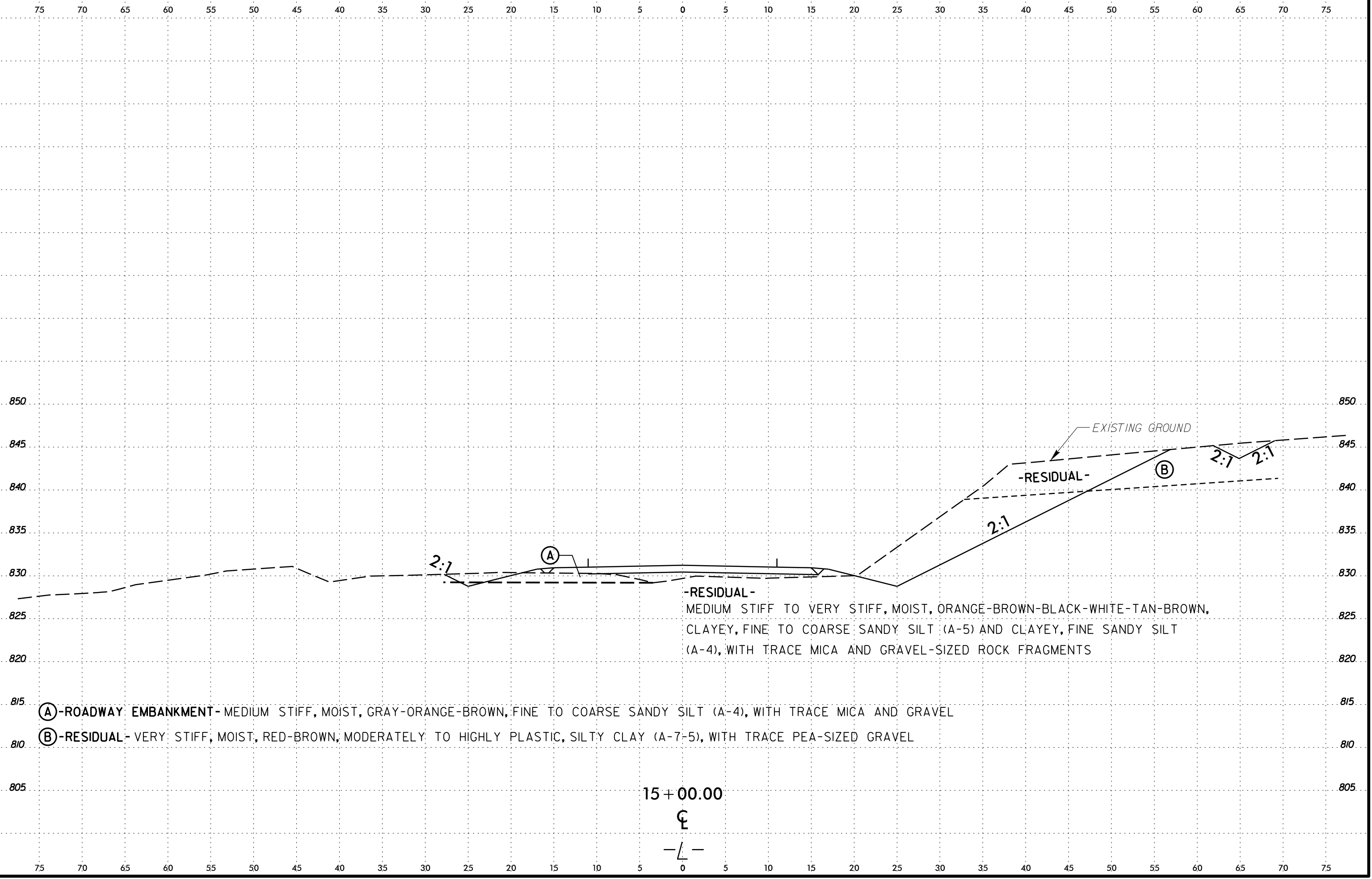
# SOIL TEST RESULTS

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-2	50' RT	14+50 -L-	8.5 - 10.0'	A-5(1)	45	4	19.6	37.0	40.6	2.8	98.6	87.3	49.1	18.0	-



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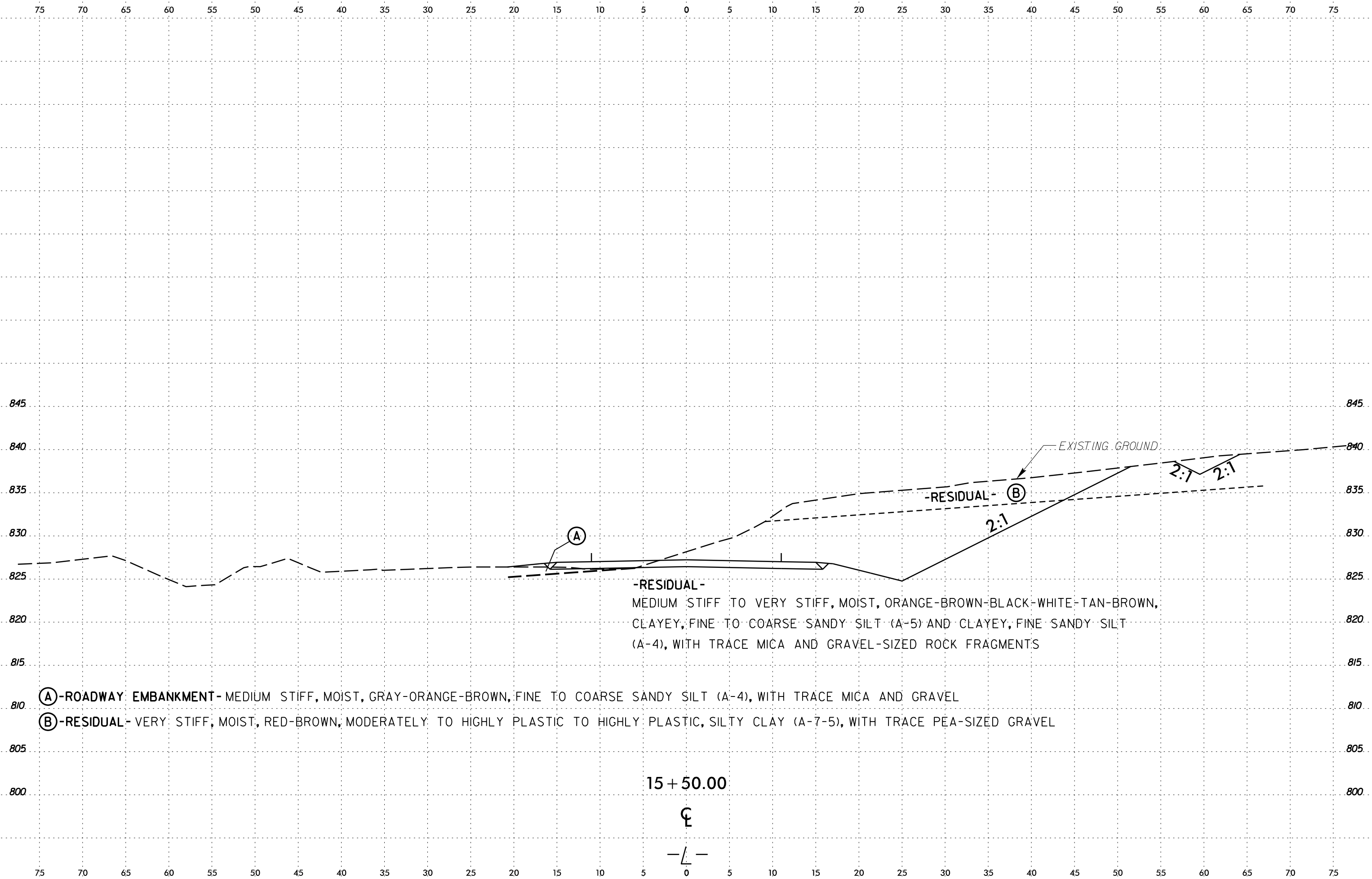
(A) -ROADWAY EMBANKMENT- MEDIUM STIFF, MOIST, GRAY-ORANGE-BROWN, FINE TO COARSE SANDY SILT (A-4), WITH TRACE MICA AND GRAVEL

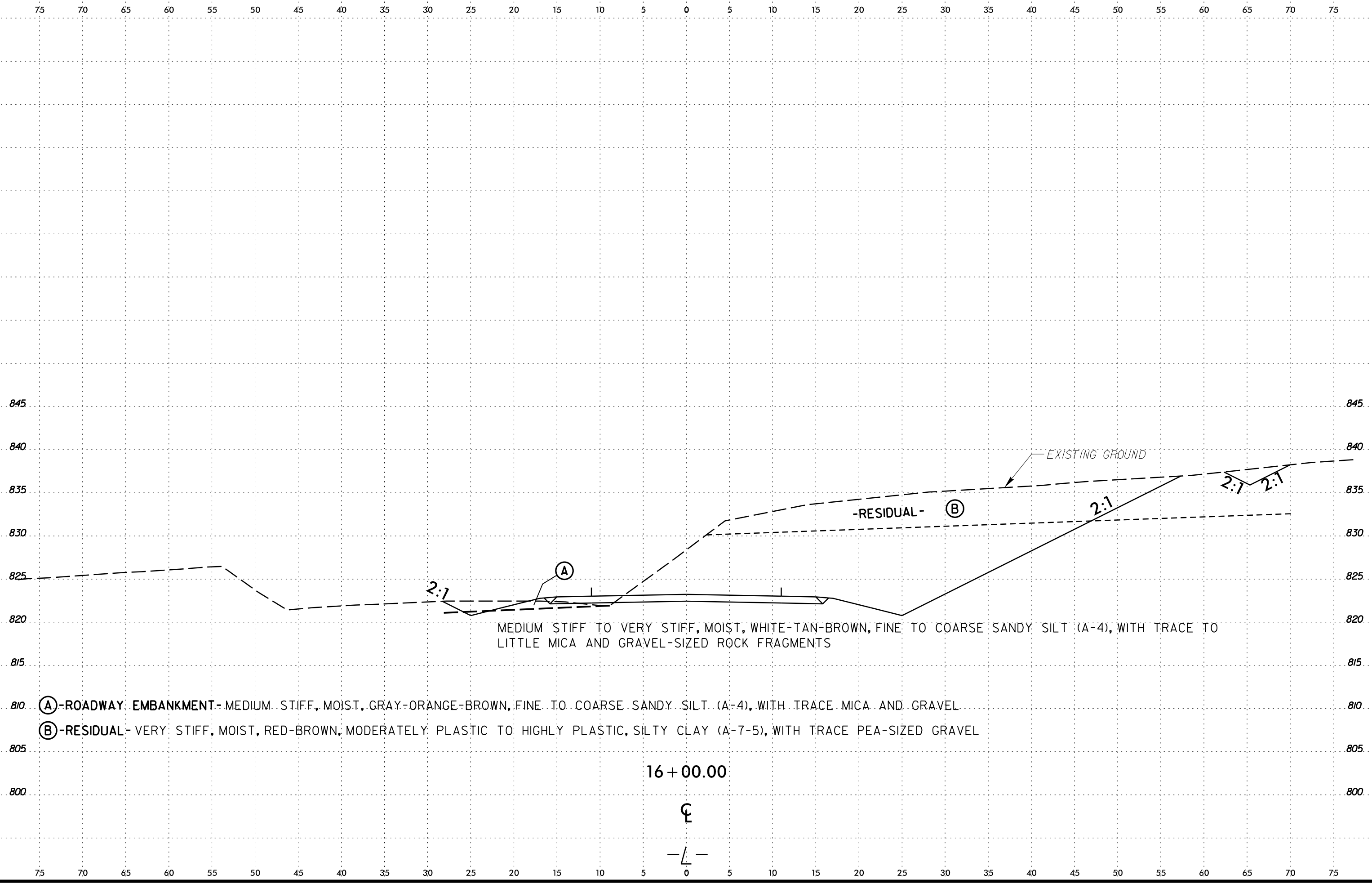
(B) -RESIDUAL- VERY STIFF, MOIST, RED-BROWN, MODERATELY TO HIGHLY PLASTIC, SILTY CLAY (A-7-5), WITH TRACE PEA-SIZED GRAVEL

-RESIDUAL-  
MEDIUM STIFF TO VERY STIFF, MOIST, ORANGE-BROWN-BLACK-WHITE-TAN-BROWN,  
CLAYEY, FINE TO COARSE SANDY SILT (A-5) AND CLAYEY, FINE SANDY SILT  
(A-4), WITH TRACE MICA AND GRAVEL-SIZED ROCK FRAGMENTS

15 + 00.00

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- (A) - ROADWAY EMBANKMENT - MEDIUM STIFF, MOIST, GRAY-ORANGE-BROWN, FINE TO COARSE SANDY SILT (A-4), WITH TRACE MICA AND GRAVEL
- (B) - RESIDUAL - VERY STIFF, MOIST, RED-BROWN, MODERATELY PLASTIC TO HIGHLY PLASTIC, SILTY CLAY (A-7-5), WITH TRACE PEA-SIZED GRAVEL

MEDIUM STIFF TO VERY STIFF, MOIST, WHITE-TAN-BROWN, FINE TO COARSE SANDY SILT (A-4), WITH TRACE TO LITTLE MICA AND GRAVEL-SIZED ROCK FRAGMENTS

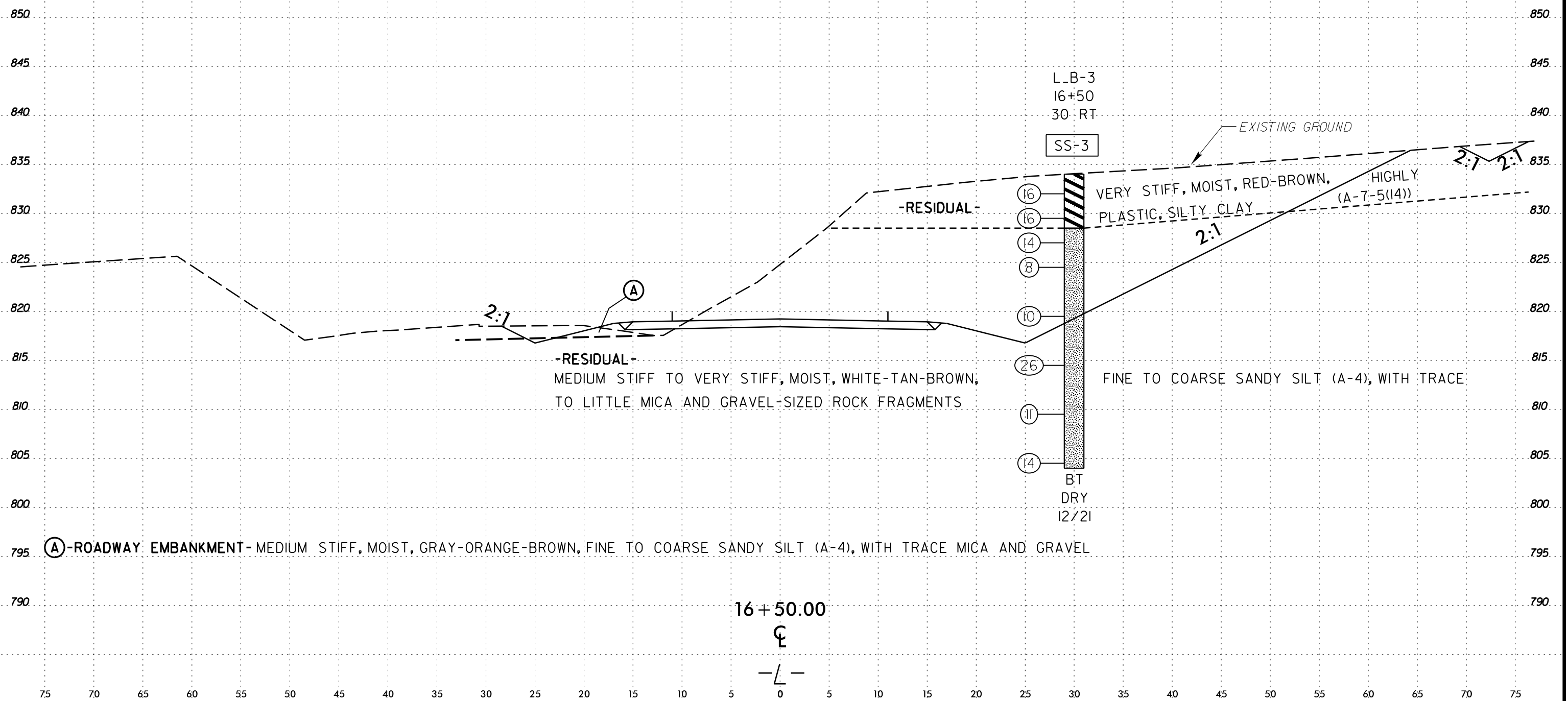
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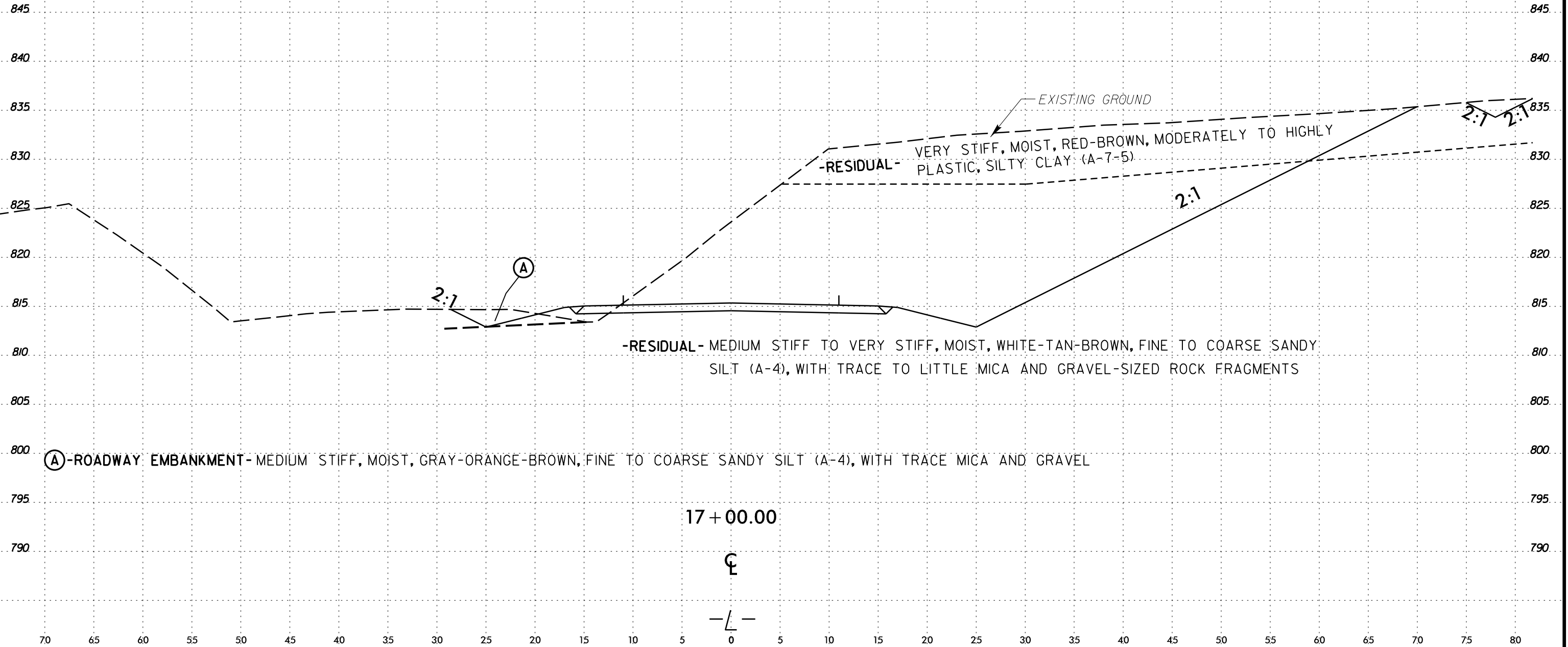
# SOIL TEST RESULTS

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-3	30' RT	16+50 -L-	3.5 - 5.0'	A-7-5(14)	68	30	24.3	22.0	42.0	11.7	94.2	78.4	53.7	28.6	-



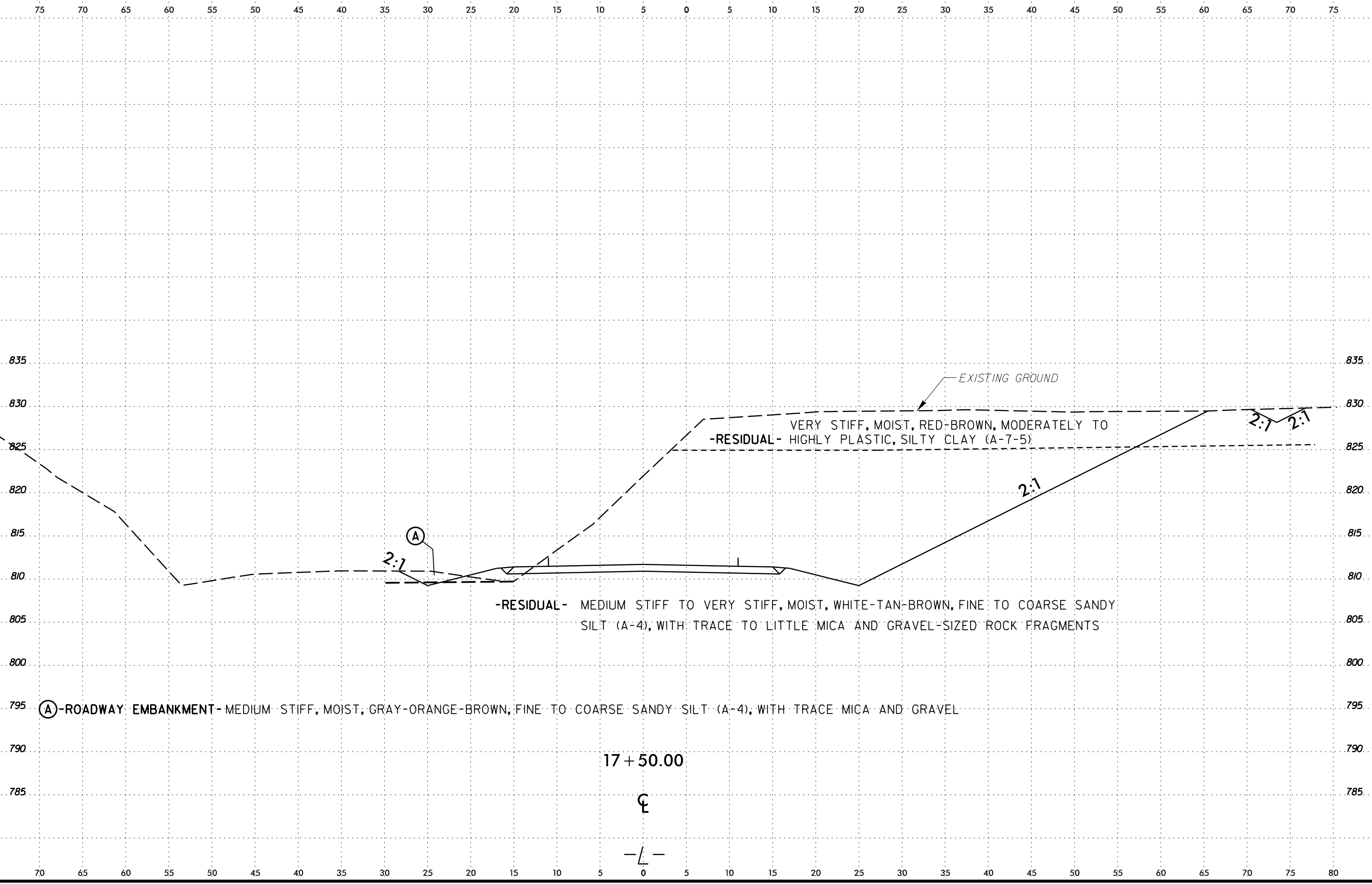
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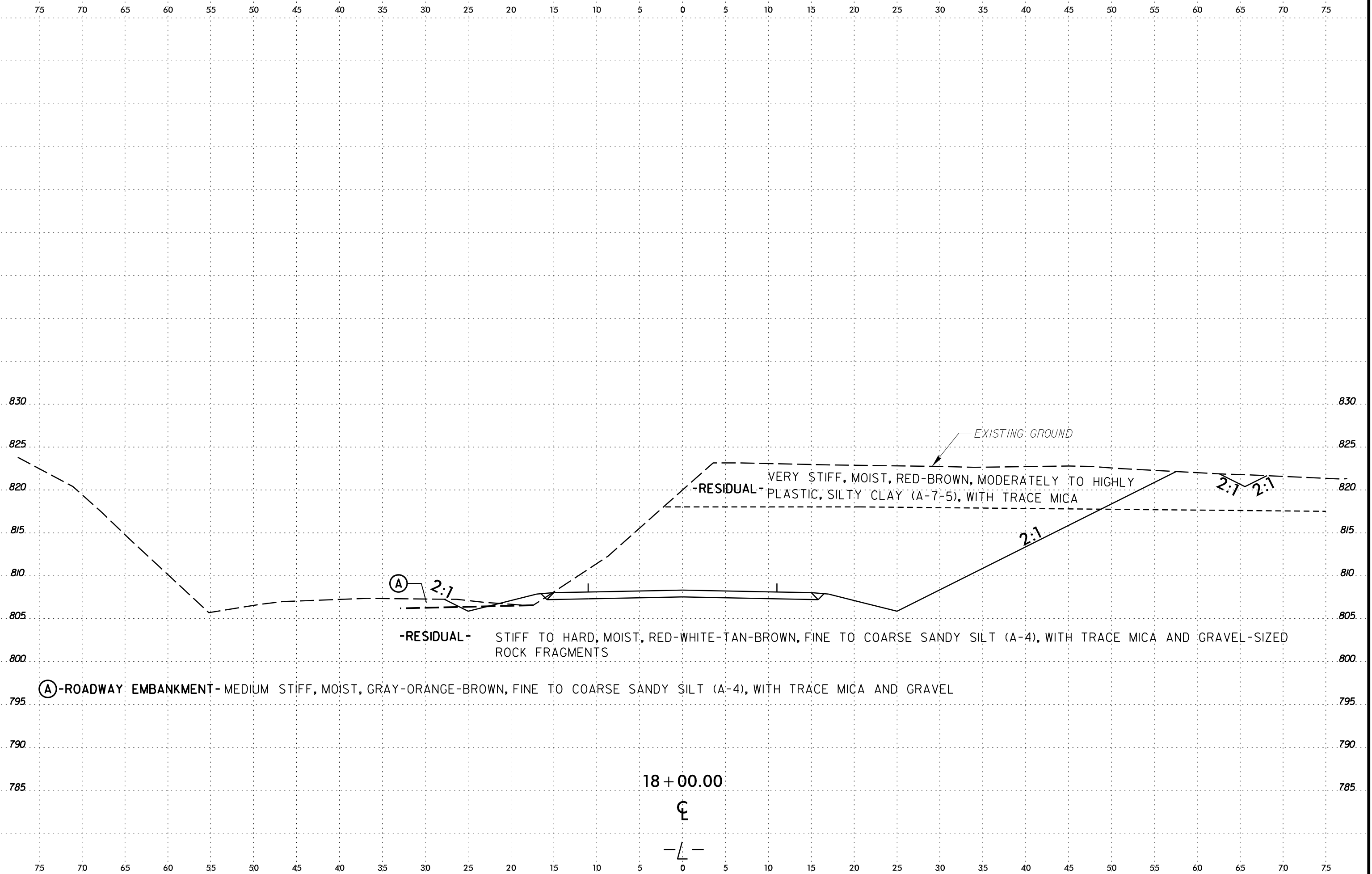


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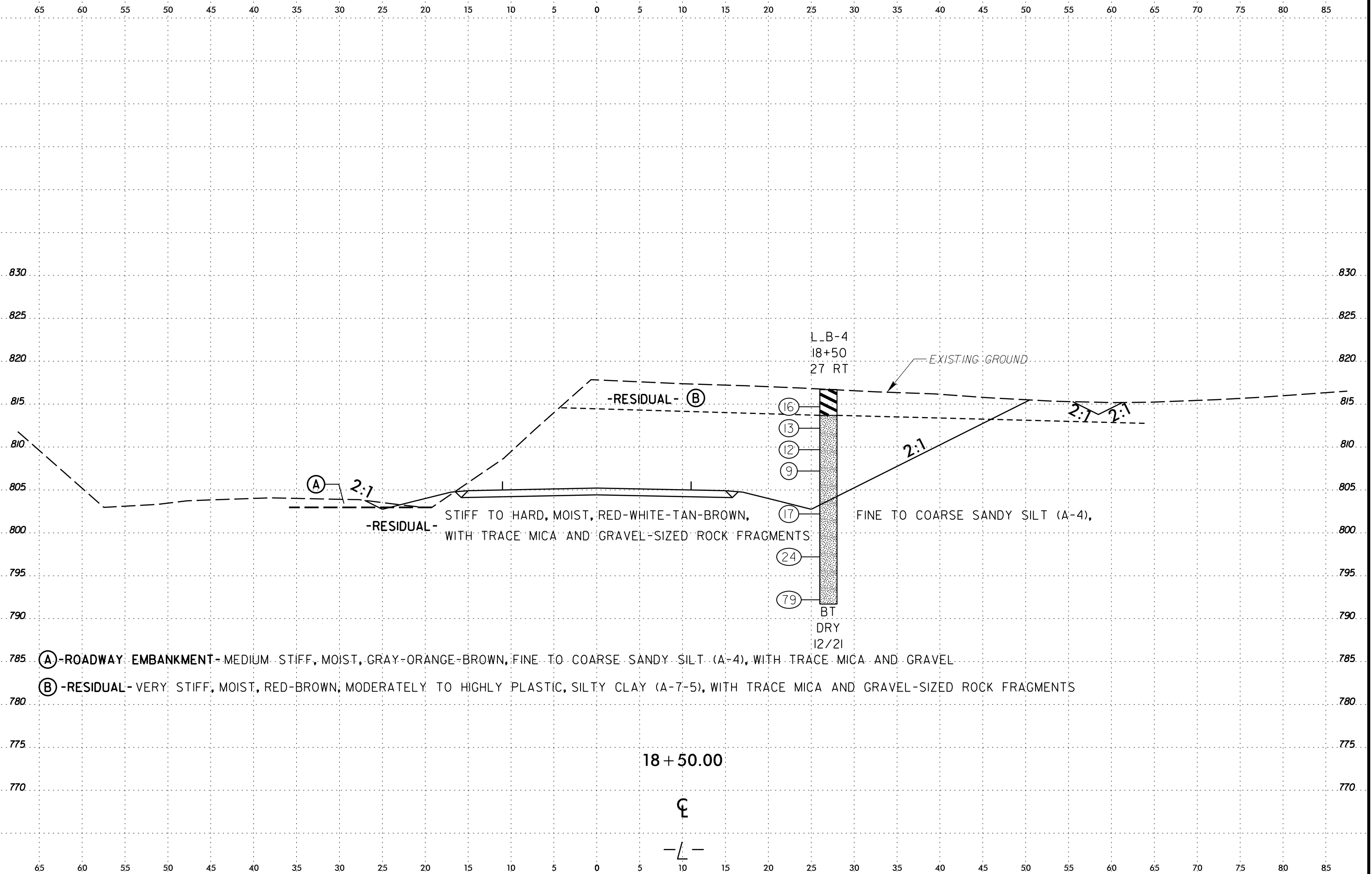




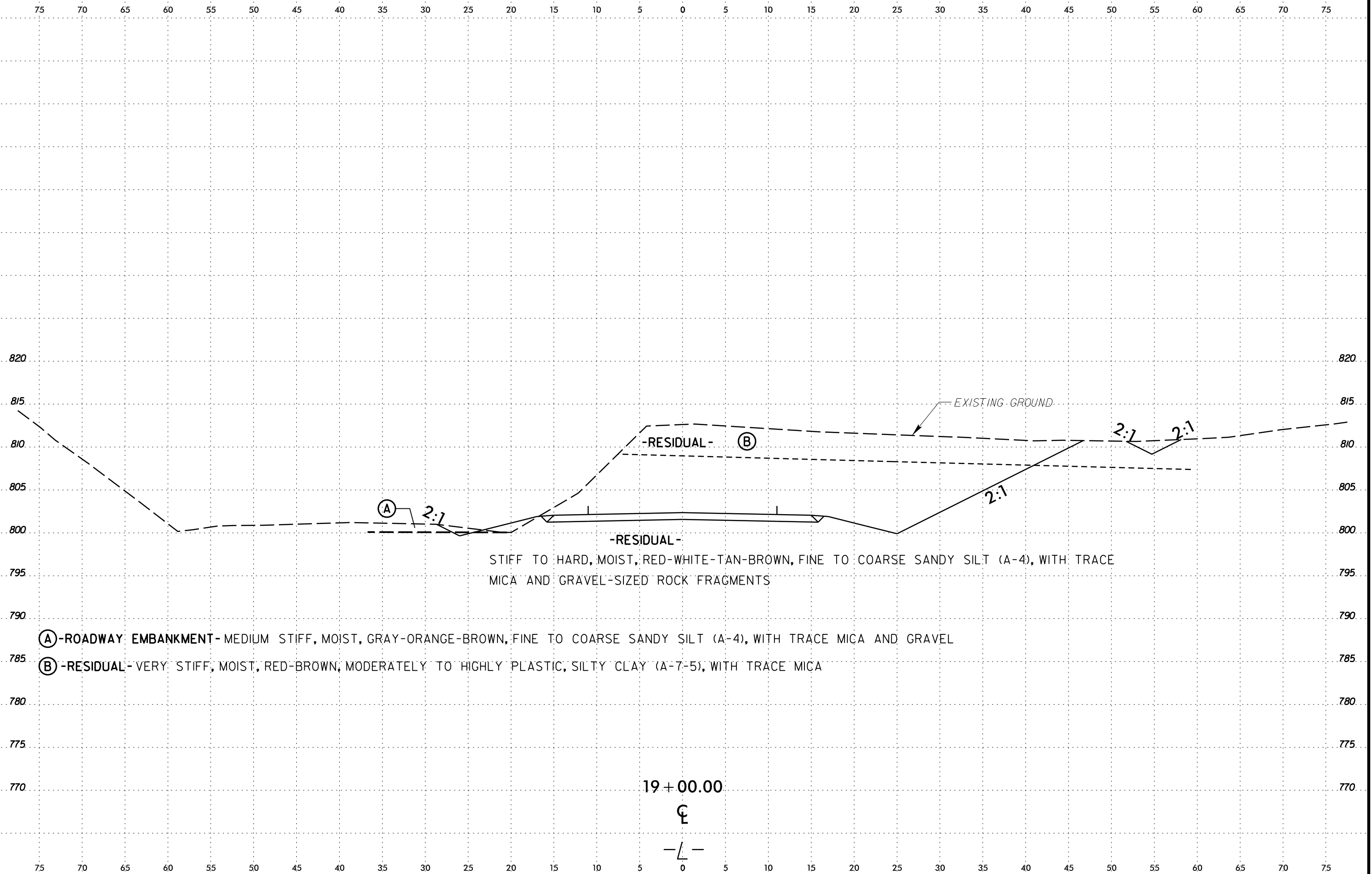
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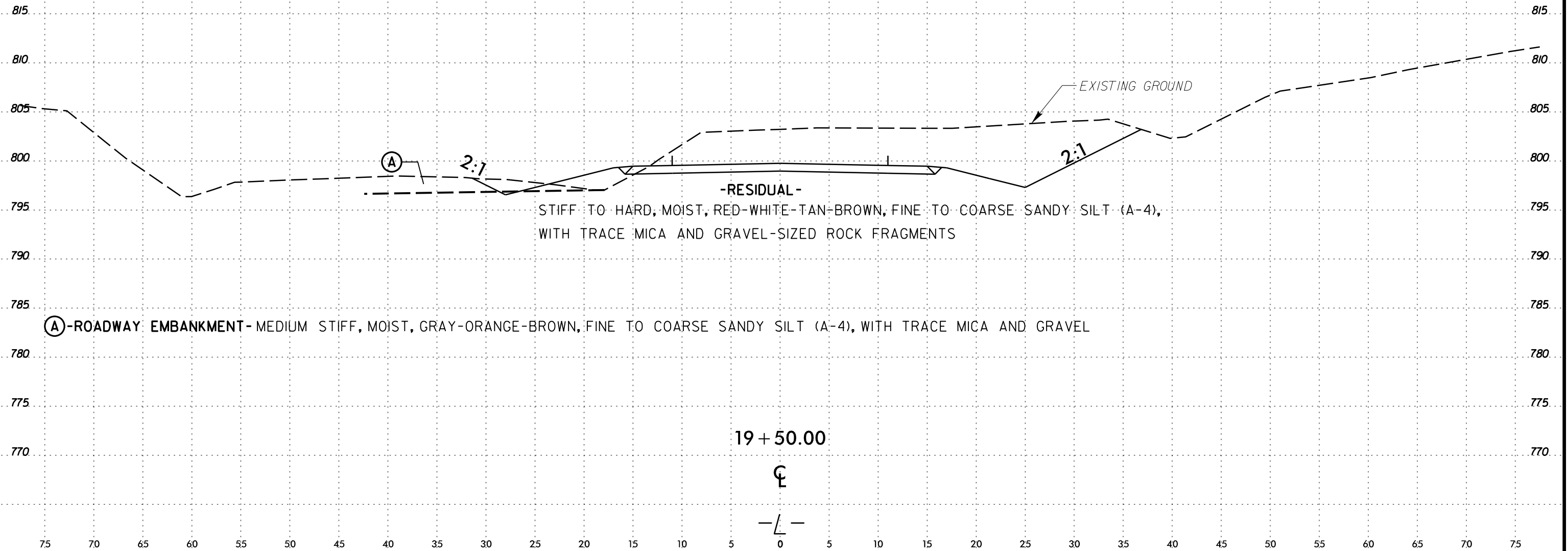
(A) -ROADWAY EMBANKMENT- MEDIUM STIFF, MOIST, GRAY-ORANGE-BROWN, FINE TO COARSE SANDY SILT (A-4), WITH TRACE MICA AND GRAVEL

(B) -RESIDUAL- VERY STIFF, MOIST, RED-BROWN, MODERATELY TO HIGHLY PLASTIC, SILTY CLAY (A-7-5), WITH TRACE MICA

-RESIDUAL-  
STIFF TO HARD, MOIST, RED-WHITE-TAN-BROWN, FINE TO COARSE SANDY SILT (A-4), WITH TRACE MICA AND GRAVEL-SIZED ROCK FRAGMENTS

19+00.00  
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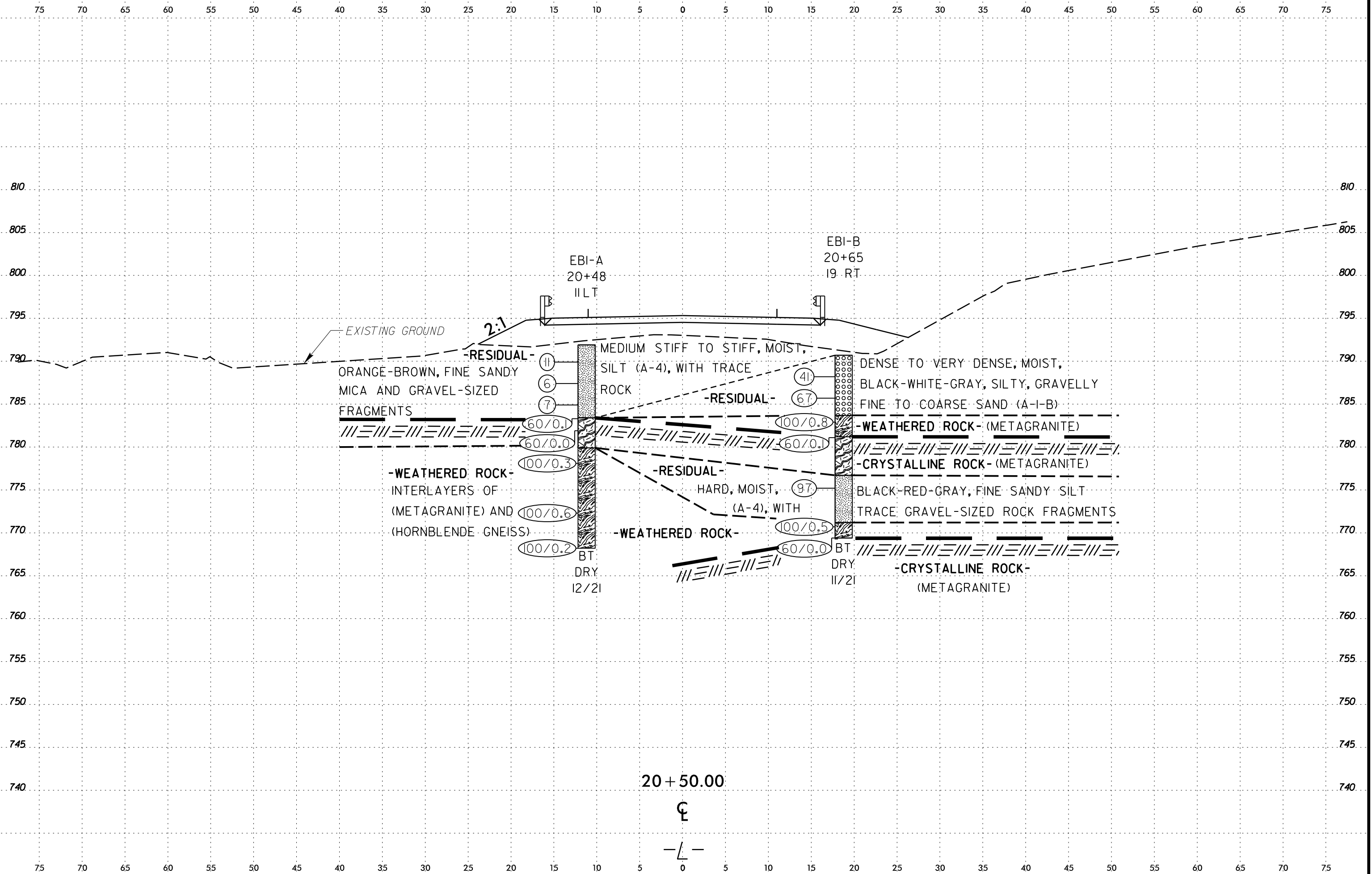
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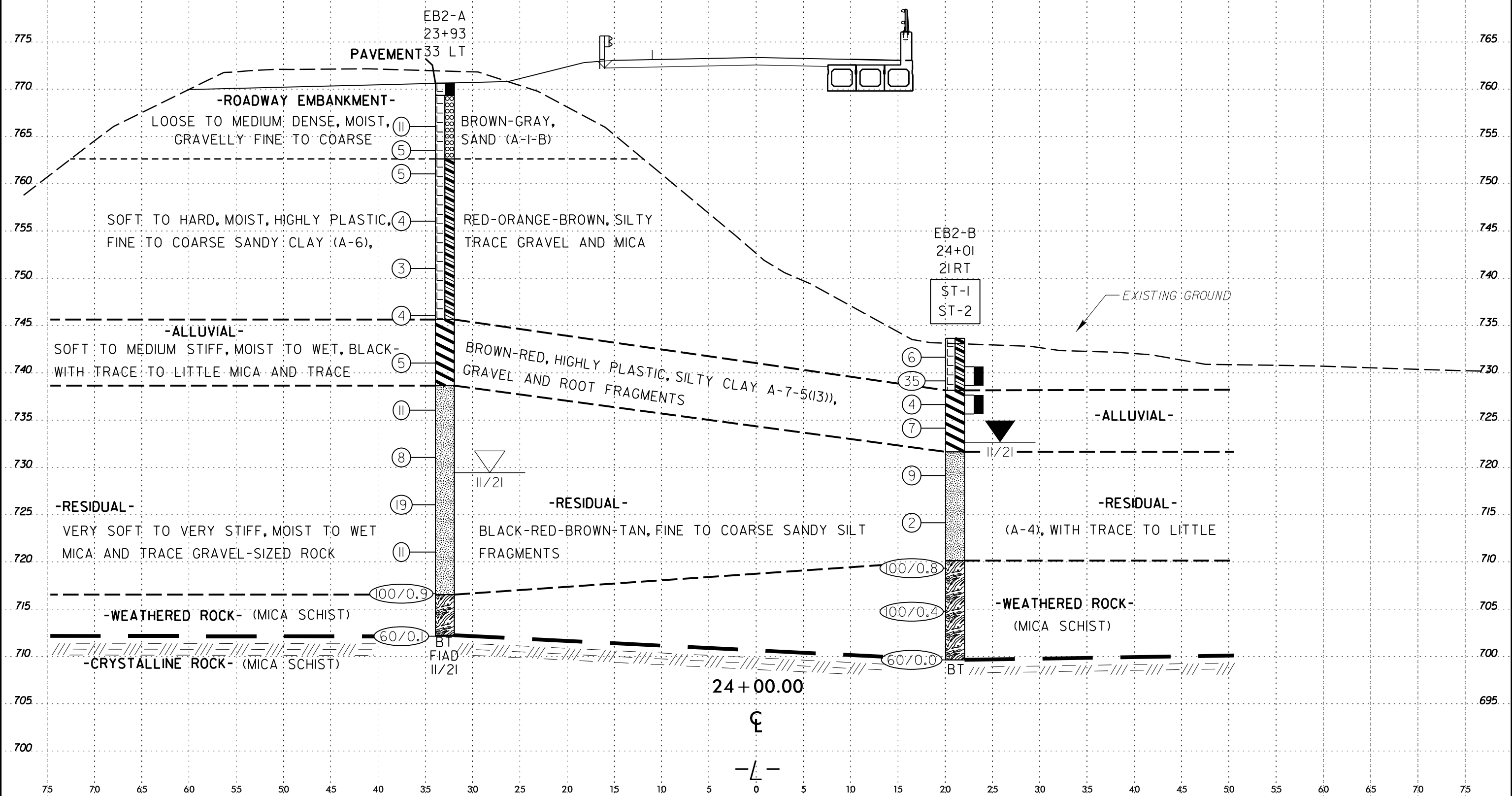


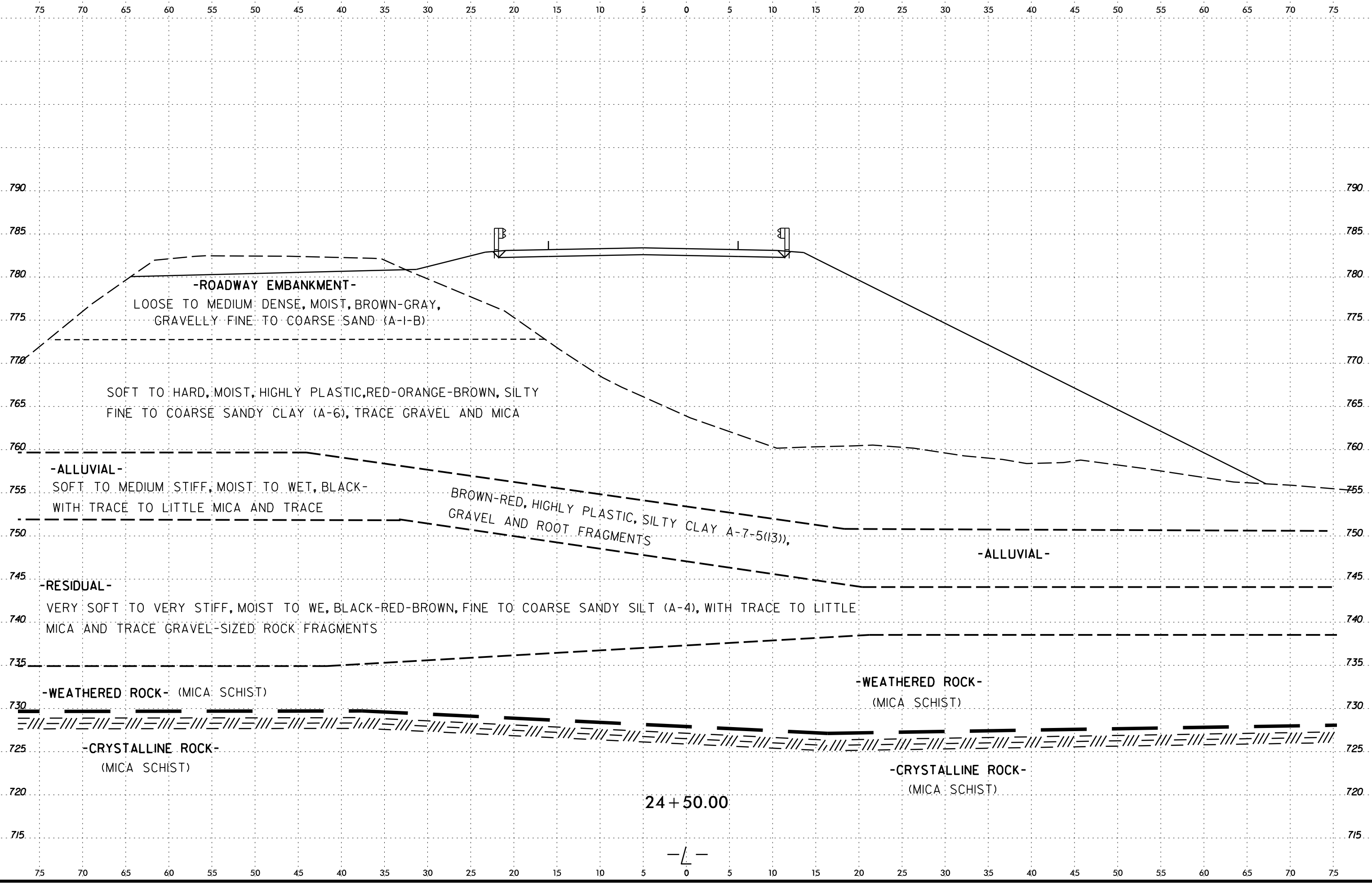
PROJ. REFERENCE NO.  
B-5846

SHEET NO.  
23

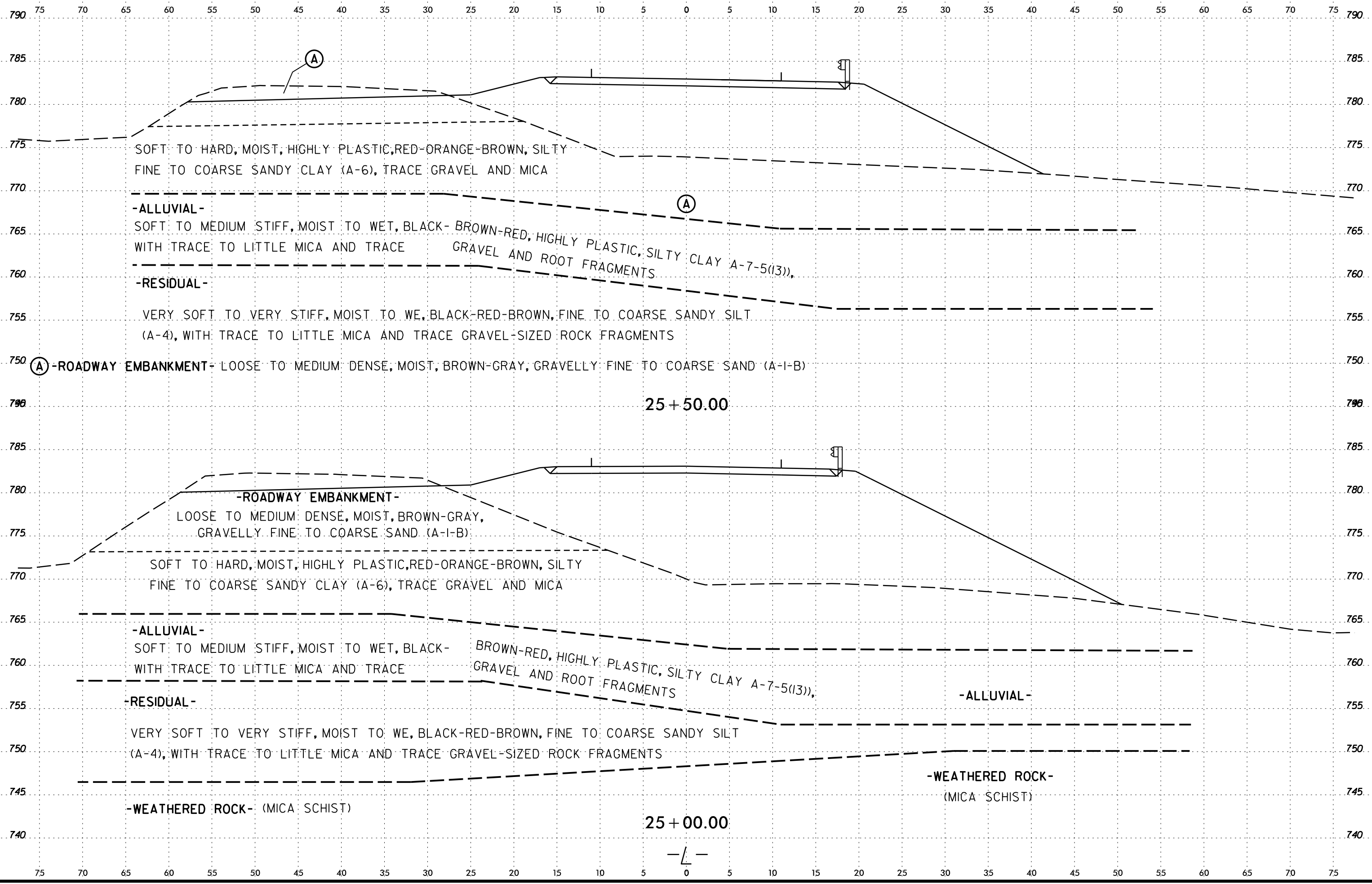
# SOIL TEST RESULTS

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		
ST-1	21' RT	24+01 -L-	3.0 - 5.0'	A-6(2)	31	13	25.2	31.3	15.2	28.2	88.1	76.9	40.8	16.0	-
ST-2	21' RT	24+01 -L-	6.0 - 8.0'	A-7-5(13)	71	28	18.7	21.8	12.8	46.7	82.0	67.1	52.0	36.8	-





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SOFT TO HARD, MOIST, HIGHLY PLASTIC, RED-ORANGE-BROWN, SILTY FINE TO COARSE SANDY CLAY (A-6), TRACE GRAVEL AND MICA

**-ALLUVIAL-**

SOFT TO MEDIUM STIFF, MOIST TO WET, BLACK-BROWN-RED, HIGHLY PLASTIC, SILTY CLAY A-7-5(13), WITH TRACE TO LITTLE MICA AND TRACE GRAVEL AND ROOT FRAGMENTS

**-RESIDUAL-**

VERY SOFT TO VERY STIFF, MOIST TO WE, BLACK-RED-BROWN, FINE TO COARSE SANDY SILT (A-4), WITH TRACE TO LITTLE MICA AND TRACE GRAVEL-SIZED ROCK FRAGMENTS

**(A) -ROADWAY EMBANKMENT-** LOOSE TO MEDIUM DENSE, MOIST, BROWN-GRAY, GRAVELLY FINE TO COARSE SAND (A-I-B)

25 + 50.00

**-ROADWAY EMBANKMENT-**  
LOOSE TO MEDIUM DENSE, MOIST, BROWN-GRAY, GRAVELLY FINE TO COARSE SAND (A-I-B)

SOFT TO HARD, MOIST, HIGHLY PLASTIC, RED-ORANGE-BROWN, SILTY FINE TO COARSE SANDY CLAY (A-6), TRACE GRAVEL AND MICA

**-ALLUVIAL-**

SOFT TO MEDIUM STIFF, MOIST TO WET, BLACK-BROWN-RED, HIGHLY PLASTIC, SILTY CLAY A-7-5(13), WITH TRACE TO LITTLE MICA AND TRACE GRAVEL AND ROOT FRAGMENTS

**-RESIDUAL-**

VERY SOFT TO VERY STIFF, MOIST TO WE, BLACK-RED-BROWN, FINE TO COARSE SANDY SILT (A-4), WITH TRACE TO LITTLE MICA AND TRACE GRAVEL-SIZED ROCK FRAGMENTS

**-ALLUVIAL-**

**-WEATHERED ROCK-** (MICA SCHIST)

**-WEATHERED ROCK-**  
(MICA SCHIST)

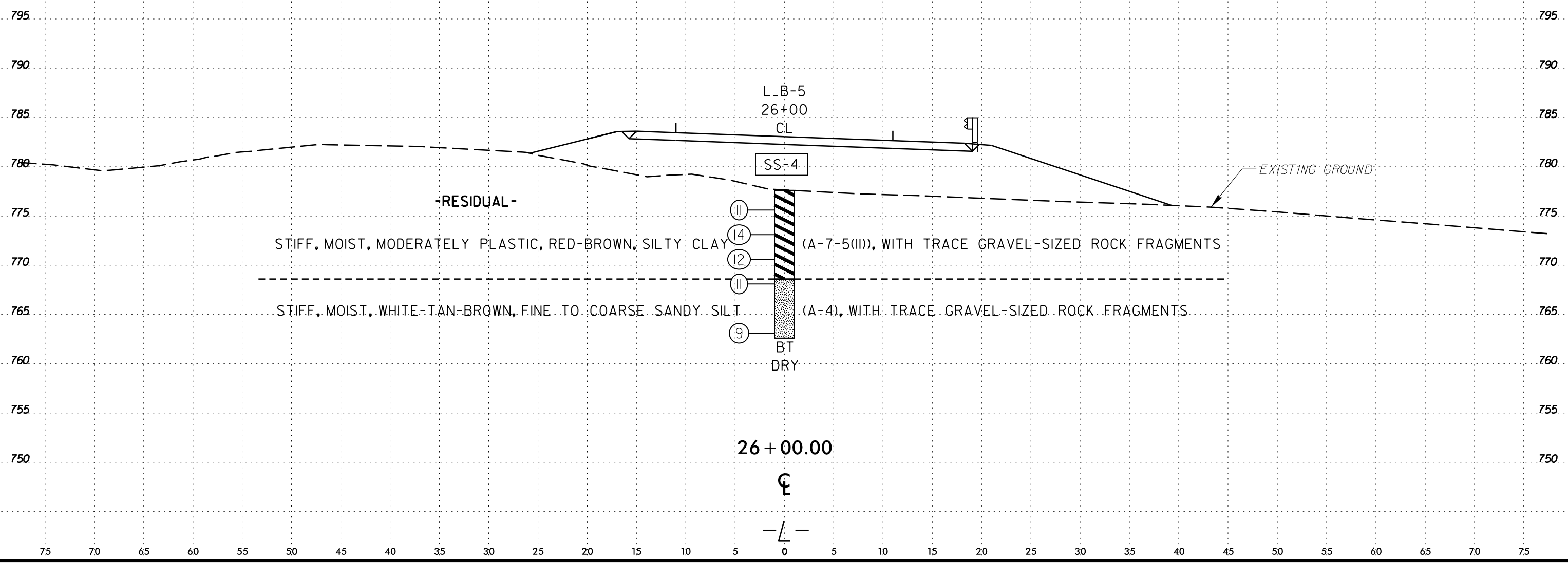
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## SOIL TEST RESULTS

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-4	CL	26+00 -L-	3.5 - 5.0'	A-7-5(II)	52	18	14.4	25.4	43.4	16.8	99.7	94.5	62.4	25.1	-





NORTH CAROLINA DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
GEOTECHNICAL ENGINEERING UNIT  
**SUBSURFACE INVESTIGATION**  
APPENDIX A  
SOIL TEST RESULTS

REFERENCE: B-5846

PROJECT: 45799

Prepared in the Office of:  
F&ME CONSULTANTS, INC.  
COLUMBIA, SC  
NCDOT LAB CERT. NO. 130-04-0212  
&  
GEOSCIENCE GROUP, INC.  
CHARLOTTE, NC  
NCDOT LAB CERT. NO. 117-1104

**LAB RESULTS****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		
ST-1	21' RT	24+01 -L-	3.0 - 5.0'	A-6(2)	31	13	25.2	31.3	15.2	28.2	88.1	76.9	40.8	16.0	-
ST-2	21' RT	24+01 -L-	6.0 - 8.0'	A-7-5(13)	71	28	18.7	21.8	12.8	46.7	82.0	67.1	52.0	36.8	-

LAB TESTING PERFORMED BY NCDOT LAB CERT NO.134-04

**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-1	45' RT	12+50 -L-	8.5 - 10.0'	A-2(5)	42	2	49.1	32.0	18.1	0.8	93.2	60.4	21.2	8.4	-
SS-2	50' RT	14+50 -L-	8.5 - 10.0'	A-5(1)	45	4	19.6	37.0	40.6	2.8	98.6	87.3	49.1	18.0	-
SS-3	30' RT	16+50 -L-	3.5 - 5.0'	A-7-5(14)	68	30	24.3	22.0	42.0	11.7	94.2	78.4	53.7	28.6	-
SS-4	CL	26+00 -L-	3.5 - 5.0'	A-7-5(11)	52	18	14.4	25.4	43.4	16.8	99.7	94.5	62.4	25.1	-

LAB TESTING PERFORMED BY NCDOT LAB CERT NO.117-1104