

SEE SHEET 3 FOR PLAN SHEET LAYOUT
AT TIME OF INVESTIGATION

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2707D	1	125

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.

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- NOTES:
1. 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.
 2. 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

HPC

TRIGON

GOODNIGHT, D.W.

WEIS, J.M.

LANE, R.W.

INVESTIGATED BY FALCON ENG.

DRAWN BY HILL, M. J.

CHECKED BY HUNSBERGER, W. S.

SUBMITTED BY FALCON ENG.

DATE NOVEMBER 2018

ROADWAY
SUBSURFACE INVESTIGATION

COUNTY CLEVELAND

PROJECT DESCRIPTION US 74, SHELBY BYPASS FROM
EAST OF NC 150 TO EXISTING US 74, WEST OF
SR 2238 (LONG BRANCH ROAD)

INVENTORY

CONTENTS

LINE	STATION	PLAN	PROFILE
-L-	635+00.00 - 851+00.00	4-19	27-37
-RAMP_A-	9+71.05 - 47+52.43	18,19	38-40
-LOOPA-	9+89.36 - 38+02.84	18	41-42
-RAMP_C-	10+00.00 - 23+88.90	17,18	42
-RAMP_D-	10+00.00 - 32+50.00	18	43
-Y1-	10+00.00 - 29+30.00	6,20,21	44
-Y2-	11+00.00 - 32+23.90	8,22,23	45
-Y3-	12+00.00 - 32+01.21	13,24,25	46
-Y4-	9+90.00 - 21+06.50	18,26	47
-Y5-	32+50.00 - 40+50.90	26	48
-Y6-	8+35.00 - 9+88.00	22	49
-SRVRD_1-	10+00.00 - 25+90.92	6,7,20	50
-SRVRD_3-	12+00.00 - 22+43.31	18,19	51
-SRVRD_4-	9+78.55 - 20+20.00	17,18	51
-SRVRD_5-	10+10.00 - 22+96.49	17,17A	52
-PVTENT2-	10+00.00 - 14+20.00	13	53

CROSS SECTIONS

LINE	STATION	SHEETS
-L-	695+50.00 - 700+50.00	55-58
-L-	738+50.00 - 742+00.00	59-68
-L-	747+00.00 - 759+00.00	69-94
-L-	766+00.00 - 771+00.00	95-104
-Y2-	22+00.00 - 24+50.00	105-106
-SRVRD_4-	13+50.00 - 16+00.00	107-109
-SRVRD_5-	13+50.00 - 20+50.00	110-116

APPENDICES

APPENDIX	TITLE	SHEETS
A	LABORATORY RESULTS	117-120

REFERENCE: R-2707D

PROJECT: 34497



W. Scott Hunsberger

11/14/2018 1:53:08 PM PST

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 multiple columns: SOIL DESCRIPTION, GRADATION, ROCK DESCRIPTION, TERMS AND DEFINITIONS, SOIL LEGEND AND AASHTO CLASSIFICATION, MINERALOGICAL COMPOSITION, COMPRESSION, PERCENTAGE OF MATERIAL, GROUND WATER, MISCELLANEOUS SYMBOLS, RECOMMENDATION SYMBOLS, ABBREVIATIONS, EQUIPMENT USED ON SUBJECT PROJECT, FRACTURE SPACING, BEDDING, INDURATION, and COLOR.

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2707D	2A	125
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
34497.1.F56	N/A	P.E.	
		R/W & UTIL	

TIP PROJECT: R-2707D

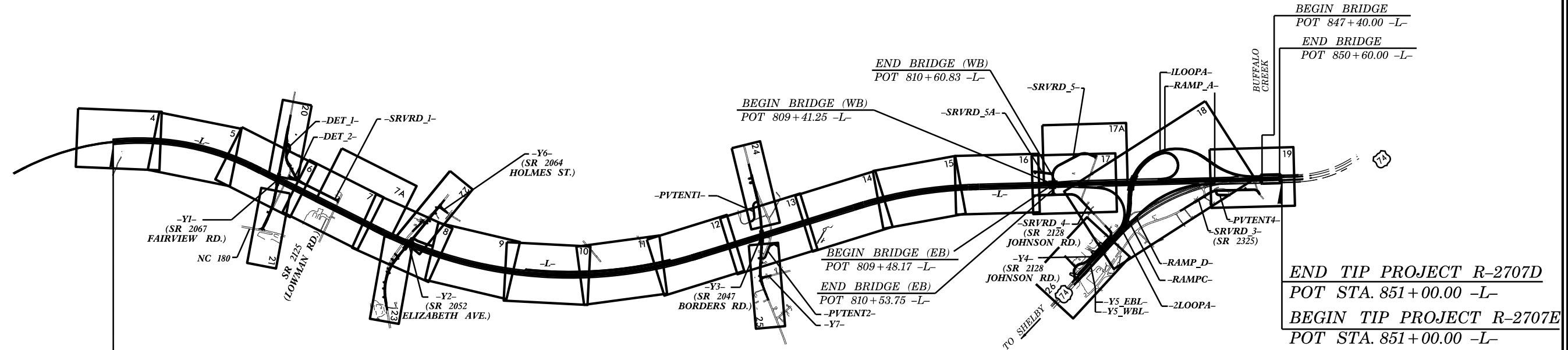
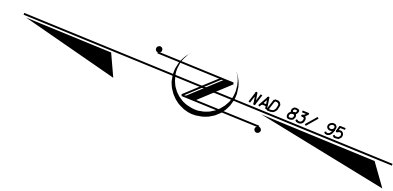
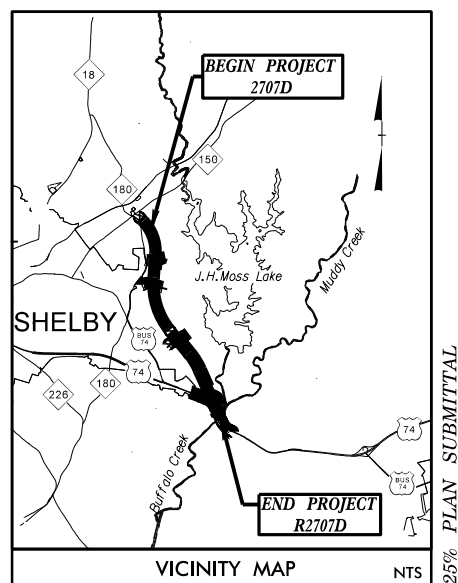
CONTRACT: 34497

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CLEVELAND COUNTY

**LOCATION: US 74, SHELBY BYPASS FROM EAST OF NC 150
TO EXISTING US 74, WEST OF SR 2238
(LONG BRANCH ROAD)**

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

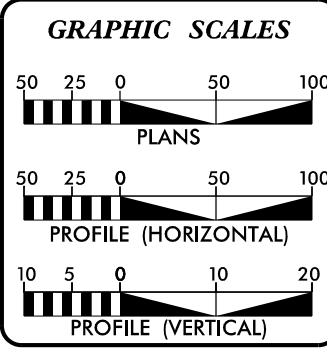


END TIP PROJECT R-2707C
POC STA. 635+00.00 -L-
BEGIN TIP PROJECT R-2707D
POC STA. 635+00.00 -L-

END TIP PROJECT R-2707D
POT STA. 851+00.00 -L-
BEGIN TIP PROJECT R-2707E
POT STA. 851+00.00 -L-

THIS PROJECT IS NOT WITHIN ANY CITY LIMITS
THIS IS A CONTROLLED ACCESS PROJECT
WITH ACCESS BEING LIMITED TO INTERCHANGES
CLEARING FOR THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD ____.

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



DESIGN DATA

ADT 2019 =	41,600
ADT 2040 =	59,200
K =	11 %
D =	55 %
T =	15 % *
V =	70 MPH
* TTST =	10% DUAL 5%
FUNC CLASS =	FREEWAY

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT R-2707D	=	4.008 MI.
LENGTH OF STRUCTURE TIP PROJECT R-2707D	=	0.083 MI.
TOTAL LENGTH OF TIP PROJECT R-2707D	=	4.091 MI.

STRUCTURE LENGTHS BASED ON WB LANES

Stantec PREPARED IN THE OFFICE OF:
STANTEC CONSULTING
801 Jones Franklin Road | Suite 300 | Raleigh, NC 27606
Tel. (919) 851-6866 | Fax. (919) 851-7024 | www.stantec.com
License No. F-0672

FOR THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
FEBRUARY 2018

LETTING DATE:
FEBRUARY 19, 2019

JOSEPH T. KELVINGTON, P.E.
PROJECT ENGINEER

MICHAEL LINDGREN, P.E.
PROJECT DESIGN ENGINEER

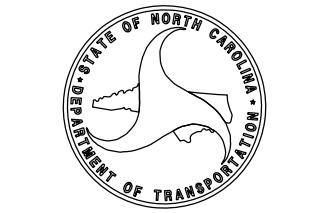
J. B. MCSWAIN
NCDOT DIVISION 12

HYDRAULICS ENGINEER

SIGNATURE: _____ P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: _____ P.E.



13-NOV-2018 10:50 I:\Projects\2017\g17053.00 Stantec R2707D&E Shelby Bypass\Design\Investigation\Design\R2707_GEO_RDWY\CADD_GEO\RDWY\CADD_GEO\TSH.dgn 09/28/2018 AT CAD04



Roadway Subsurface Investigation Report - Inventory

US 74, Shelby Bypass from East of NC 150 to Existing US 74, West of SR 2238 (Long Branch Road)

Cleveland County, North Carolina

WBS: 34497.1.1 TIP: R-2707D

Falcon Project No.: G17053.00

Prepared for:

Stantec
801 Jones Franklin Road, Suite 300
Raleigh, NC 27606-3563

Submitted by:

Falcon Engineering, Inc.
1210 Trinity Road, Suite 110
Cary, North Carolina 27513
(919) 871-0800
www.falconengineers.com

November 14, 2018

WBS: 34497.1.1
TIP: R-2707D
COUNTY: Cleveland
DESCRIPTION: US 74, Shelby Bypass From East of NC 150 to Existing US 74, West of SR 2238 (Long Branch Road)
SUBJECT: Roadway Subsurface Investigation – Inventory

PROJECT DESCRIPTION

This project consists of 4.1 miles of proposed new roadway, realignment, and widening in Cleveland County. A new four lane bypass will be constructed between NC 150 and existing US 74. The bypass will include multiple ramps, service roads, and structures. Multiple side streets and attached drives will be widened, realigned, or graded at various locations.

Included in this project are three reinforced box culverts on facilitating water crossings along the mainline, eight bridge structures along and/or over the mainline, one retaining wall between –Y4– and –Y5–, and one sound wall along the mainline. Culvert borings are included in this report. Borings for bridge structures, retaining walls, and the sound wall are not included herein and will be submitted under separate cover. Various stream locations are proposed, and borings for those locations have been submitted separately.

The investigation was conducted between December 4, 2017 and May 1, 2018 in general accordance with our Proposal to Provide Geotechnical Engineering Services, dated July 12, 2017. The recommendations provided in this report are based solely on our site reconnaissance, soil test borings and laboratory test data, engineering evaluation of these data, and generally accepted soil and foundation engineering practices and principles.

A total of one hundred and seventy-six (176) Standard Penetration Test (SPT) borings and two (2) auger probes were drilled for the proposed roadway alignments and culverts. All mechanical borings were drilled using a CME-550X or Mobil B-57 ATV rig equipped with 2 ¼-inch inside diameter hollow-stem augers, and SPT testing was performed with an automatic hammer. Representative soil samples, collected with a split-barrel sampler or hand auger, were selected for laboratory testing to verify visual field classifications. In addition, bulk samples were collected for standard Proctor compaction and California Bearing Ratio (CBR) testing.





The following alignments, totaling approximately 5.64 miles were explicitly investigated. Other minor Y-lines and driveways are included on the project but improvements are not anticipated to be significant enough to warrant investigation.

<u>Alignment</u>	<u>Station (ft)</u>
-L- (Shelby Bypass)	635+00—851+00
-Y1- (Fairview Rd)	10+00.00—29+30.30
-Y2- (Elizabeth Ave)	11+00.00—32+23.90
-Y3- (Borders Rd)	12+00.00—32+00.00
-Y4- (Johnson Rd)	9+90.00—21+06.50
-Y5- (US 74)	32+50.00—40+88.00
-Y6- (Holmes St)	8+35.00—10+00.00
-RAMP_A-	9+71.05—47+52.43
-LOOPA-	9+89.36—38+02.84
-RAMP_C-	10+00.00—23+88.90
-RAMP_D-	10+00.00—32+50.00
-SRVRD_1-	10+00.00—25+90.92
-SRVRD_3-	12+00.00—22+43.31
-SRVRD_4-	9+78.55—20+20.00
-SRVRD_5-	10+10.00—22+96.49
-PVTENT2-	10+00.00—14+20.00

In many instances, multiple alignments run parallel, and a single boring may be considered relevant to two or more alignments.

AREAS OF SPECIAL GEOTECHNICAL INTEREST

- I. The following locations contain highly plastic soils with plasticity indices (PI) greater than 35 within 3 feet of proposed subgrade elevations:

<u>Alignment</u>	<u>Station (ft)</u>
-L-	674+00 to 676+00
-L-	698+00 to 700+00

-Y2- 22+00 to 24+00

- II. Shallow ground water was measured within the following area and may cause groundwater related stability problems during construction:

<u>Alignment</u>	<u>Station (ft)</u>
-L-	755+00

- III. Alluvial soils were encountered near the following locations. The potential for shallow groundwater and wet, soft or organic soils should be anticipated at these locations:

<u>Alignment</u>	<u>Station (ft)</u>
-L-	654+14
-L-	716+89
-L-	725+00
-L-	742+00 to 744+00
-L-	777+00
-L-	797+00
-L-	805+00
-SRVRD4-	17+00

Isolated alluvial soils are likely to exist elsewhere on the site between borings in proximity to natural waterways.

- IV. Artificial fill was encountered at the following locations:

<u>Alignment</u>	<u>Station (ft)</u>
-L-	675+00
-L-	727+00
-L-	833+00
-RAMP A-	34+12
-PVTENT-	6+00
-Y4-	10+14

- V. Undocumented landfills material including various soils containing trash and debris was encountered at the following areas:

<u>Alignment</u>	<u>Station (ft)</u>
-L-	738+75 to 741+50
-SRVRD1-	18+75 to 20+00





PHYSIOGRAPHY AND GEOLOGY

The project site is in the Inner Piedmont Belt Physiographic Province of North Carolina. According to the *Geologic Map of North Carolina* (1985), the site is underlain by three major rock types in the Inner Piedmont Belt Physiographic Province. The site transitions from west to east across Biotite Gneiss and Schist (**CZbg**), Mica Schist (**CZms**) and Cherryville Granite (**Mc**). The Biotite Gneiss, Schist and Mica Schist are all of the Cambrian/Late Proterozoic Period. The intrusive Cherryville Granite is of the Mississippian subperiod.

The Biotite Gneiss and Schist (**CZbg**) is noted to consist of biotite gneiss and schist – inequigranular, with locally abundant potassic feldspar and garnet; interlayered and gradational with calc-silicate rock, sillimanite-mica schist, mica schist and amphibolite and contains small masses of granitic rock. The Mica Schist Schist (**CZms**) is noted to consist of mica schist – with garnet, staurolite, kyanite, or sillimanite occurring locally; and lenses and layers of quartz schist, micaceous quartzite, calc-silicate rock, biotite gneiss, amphibolite and phyllite. The Cherryville Granite (**Mc**) is noted to consist of granite – massive to weakly foliated; containing pegmatites.

Existing site topography is typical of North Carolina's foothills region. The foothills region is a portion of the Western Piedmont that approaches the mountain region. Terrain is typically more rugged than the majority of the piedmont, but with less overall elevation change than the mountain region. Topography along the project is generally rolling, with steep ravines in the vicinity of streams. The existing ground surface generally grades downward in the upstation direction, with elevations ranging from a high of around 910 feet to a low of around 630 feet. Exposed bedrock is visible at various locations in stream channels and banks or in close proximity to streams, as well as in various existing roadway cuts in the vicinity of the project.

Existing land use is a mix of agriculture, residential, industrial, and commercial, with large portions of the project in undeveloped fields or wooded areas. Currently developed areas are predominantly at the eastern terminus of the project as well as near various roadway crossings and tie-ins.

SOIL PROPERTIES

A variety of soils were encountered along the project, including existing roadway embankments, artificial fill, alluvial deposits, residual soils, weathered rock and crystalline rock. Areas where soils at the ground surface are of a unique origin (i.e. not residual soils) are approximately delineated on the boring location plans based on subsurface conditions encountered in nearby borings, and various topographical, vegetative, or other visual surface features.

Topsoil and rootmat was encountered in grassy, brushy, and wooded areas ranging in thickness from 0.1 to 0.7 feet, and typically on the order of 0.4 to 0.6 feet.

Artificial Fill soils were encountered at the ground surface beneath thin layers of topsoil. These consist of 3 to 16 feet of moist to wet, very loose to very dense, silty, clayey and clean sands (A-2-4, A-2-6, A-3) and moist to wet, very soft to hard, sandy silts and sandy and silty clays (A-4, A-6, A-7).

Roadway Embankment soils were encountered at the ground surface adjacent to existing roadways. These consist of 3 to 17 feet of moist, medium stiff, sandy silt (A-4).

Alluvial soils were encountered at the ground surface near the historic floodplains of natural waterways. These soils extended to depths of up to approximately 8 feet and consist of moist to wet, soft, sandy and silty clays (A-6, A-7) and very loose to loose, silty, clayey, and clean sands (A-2-4, A-2-6, A-3) with trace amounts of organic material.

Residual soils were encountered at the ground surface, or beneath artificial fill, roadway embankments or alluvial deposits. These soils consist of dry to wet, loose to dense, clayey and silty sands (A-2-4 and A-2-6) and very soft to very stiff, sandy clay and silt, clayey silt, and silty clays (A-4, A-5, A-6, A-7).

Weathered Rock (WR) is a very hard material with properties intermediate of soil and rock. WR is classified as having an N-value of greater than 100 blows per one foot. WR encountered on the project generally consists of tan, white and gray weathered granite, gneiss or mica schist.

Crystalline Rock, in the form of granite and gneiss, was encountered beneath weathered rock or residual soils at various locations throughout the site. CR is classified as material that yields auger refusal or SPT refusal (blow count of 60/0.0 or 60/0.1 feet.)





GROUNDWATER PROPERTIES

Groundwater levels were measured at the time of boring completion, and in many cases after a waiting period of at least 24 hours. Borings drilled within and in close proximity to existing roadways, and within residential or livestock areas were backfilled immediately after completion due to safety considerations.

Groundwater levels across the site were generally deep, with the exception of areas near streams and existing low, wet areas. One existing pond was noted within the project right of way limits. The Kings Mountain Reservoir is located to the northeast of the project corridor. Ten wells were noted within the project right of way.

Two ponds were encountered at the following locations:

<u>Alignment</u>	<u>Station (ft)</u>
-L-	815+00 to 816+00 LT
-SRVRD5-	18+70 to 20+00 RT

Wells are located at the following locations:

<u>Alignment</u>	<u>Station (ft)</u>
-L-	667+63, 126 ft RT
-L-	677+78, 102 ft RT
-L-	688+88, 151 ft RT
-L-	756+96, 49 ft RT
-Y2-	22+26, 40 ft RT
-Y2-	24+48, 15 ft LT
-Y3-	25+98, 95 ft RT
-Y6-	9+12, 23 ft RT
-SRVRD1-	15+17, 22 ft LT

ADDITIONAL LABORATORY TESTING

The following bulk samples were obtained:

<u>Sample</u>	<u>Location</u>	<u>Depth (ft)</u>	<u>Test</u>
BS-1	20+00, 25' RT, -SR3-	1.0 – 11.0	California Bearing Ratio, Standard Proctor
BS-2	23+00, 40' RT, -RAMP_D-	1.0 – 10.0	California Bearing Ratio, Standard Proctor
BS-3	751+00, CL, -L-	1.0 – 10.0	California Bearing Ratio, Standard Proctor

Classification test results for bulk samples are included in the subsurface profiles and cross sections and Standard Proctor and California Bearing Ratio (CBR) data is attached in the Appendix.

CLOSING

Falcon appreciates the opportunity to have provided our geotechnical engineering services for the above referenced project. If you have any questions concerning the contents of this report or need additional information, please do not hesitate to contact our office.

FALCON ENGINEERING, INC.

Report Prepared By:

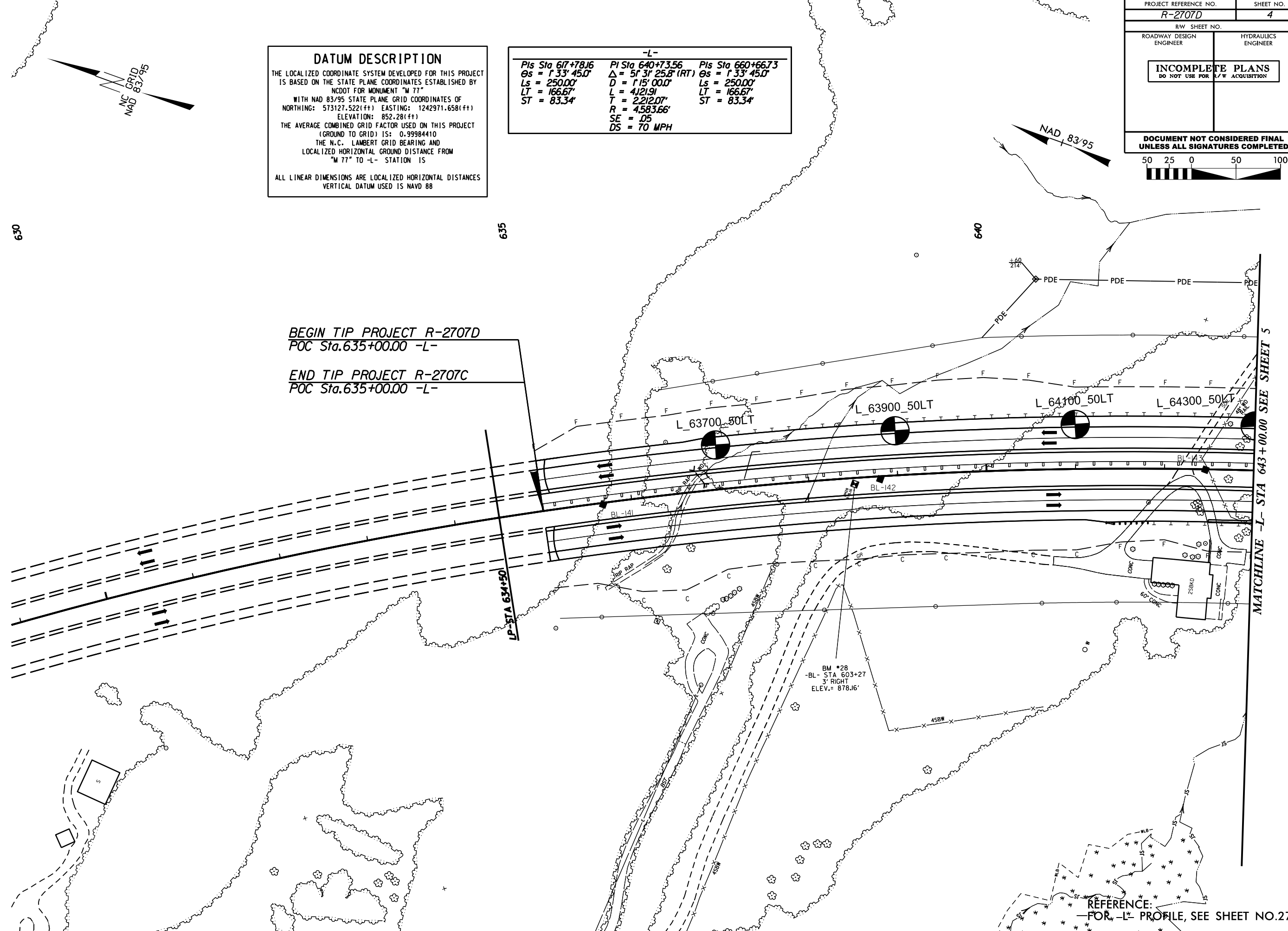
W. Scott Hunsberger, PE
Geotechnical Engineer

Report Reviewed By:

Jeremy R. Hamm, PE
Geotechnical Engineering Manager



8/17/99
REVISONS
C:\Projects\2017\17053.00 Stantec R2707D&E Shelby Bypass\2707_NCDOT_Electronic_File_Tree\Geotech\InvestigationDesign\R2707_GEO_RDWY\CADD_GEO\TECH\Plan\Prof\R2707D_GEO_PSH_04.dgn



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "M 77"

WITH NAD 83/95 STATE PLANE GRID COORDINATES OF
NORTHING: 573127.522(ft) EASTING: 1242971.658(ft)
ELEVATION: 852.28(ft)

THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99984410

THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "M 77" TO -L- STATION IS

ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

-L-

PIs Sta 617+78.16	PI Sta 640+73.56	PIs Sta 660+66.73
$\Theta_s = 1^\circ 33' 45.0''$	$\Delta = 51^\circ 31' 25.8''$ (RT)	$\Theta_s = 1^\circ 33' 45.0''$
$L_s = 250.00'$	$D = 1^\circ 15' 00.0''$	$L_s = 250.00'$
$LT = 166.67'$	$L = 412.91'$	$LT = 166.67'$
$ST = 83.34'$	$T = 2212.07'$	$ST = 83.34'$
	$R = 4583.66'$	
	$SE = 05$	
	$DS = 70$ MPH	

PROJECT REFERENCE NO. R-2707D	SHEET NO. 4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
50 25 0 50 100	

BEGIN TIP PROJECT R-2707D
POC Sta.635+00.00 -L-

END TIP PROJECT R-2707C
POC Sta.635+00.00 -L-

LP-STA 634+50

MATCHLINE -L- STA 643+00.00 SEE SHEET 5

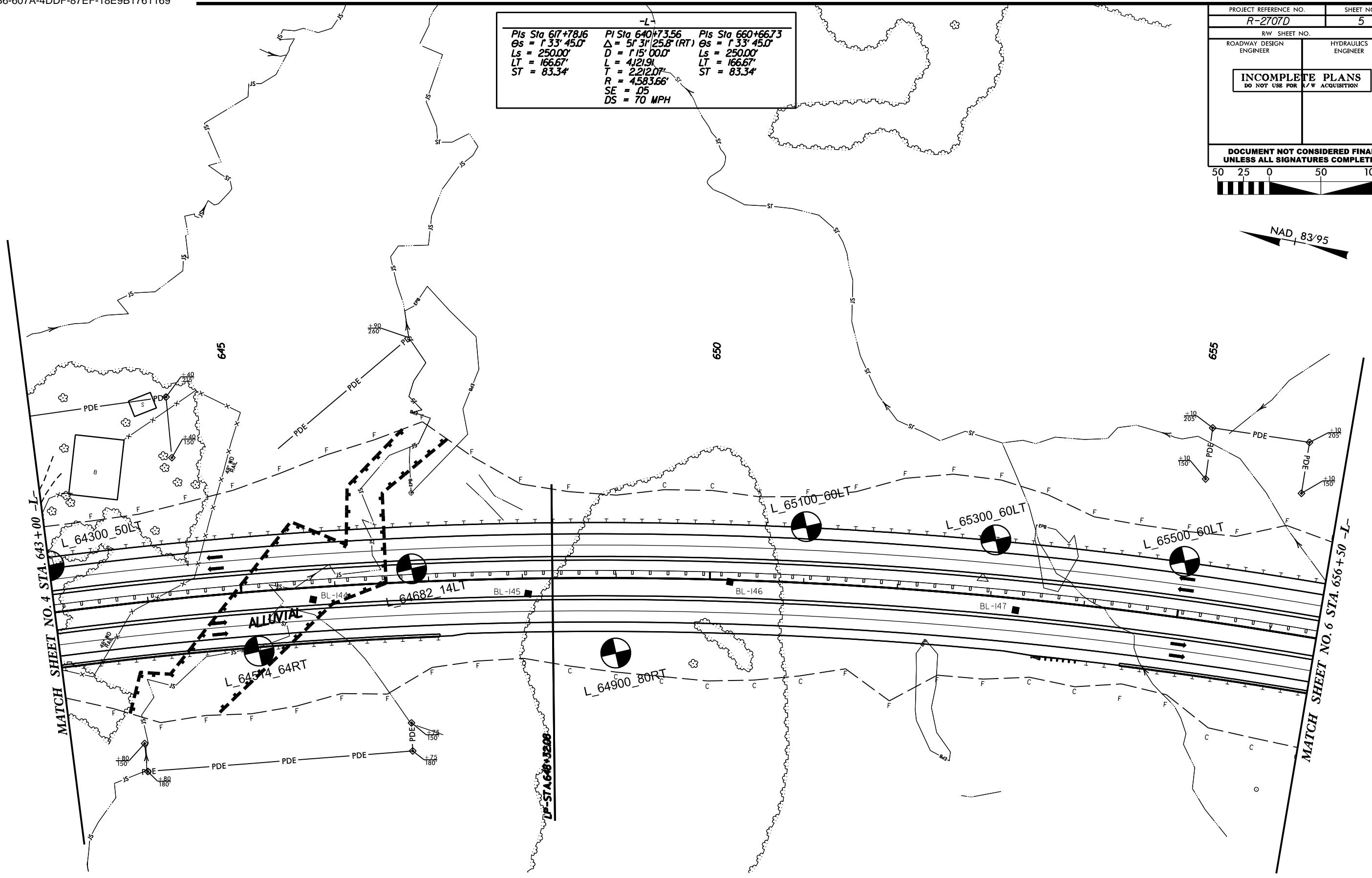
BM #28
-BL- STA 603+27
3' RIGHT
ELEV. = 878.16'

REFERENCE:
FOR -L- PROFILE, SEE SHEET NO.27

02-AUG-2018 15:03
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 8/17/18
 REVISIONS

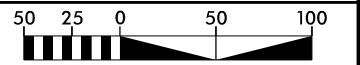
-L-		
PIs Sta 617+78.16 $\theta_s = 1' 33'' 45.0''$ $L_s = 250.00'$ $LT = 166.67'$ $ST = 83.34'$	PIs Sta 640+73.56 $\Delta = 5' 31'' 25.8'' (RT)$ $D = 1' 15'' 00.0''$ $L = 4121.91'$ $T = 2,212.07'$ $R = 4,583.66'$ $SE = 05$ $DS = 70 MPH$	PIs Sta 660+66.73 $\theta_s = 1' 33'' 45.0''$ $L_s = 250.00'$ $LT = 166.67'$ $ST = 83.34'$

PROJECT REFERENCE NO. R-2707D	SHEET NO. 5
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
50 25 0 50 100 	



REFERENCE:
FOR -L- PROFILE, SEE SHEET NO.27

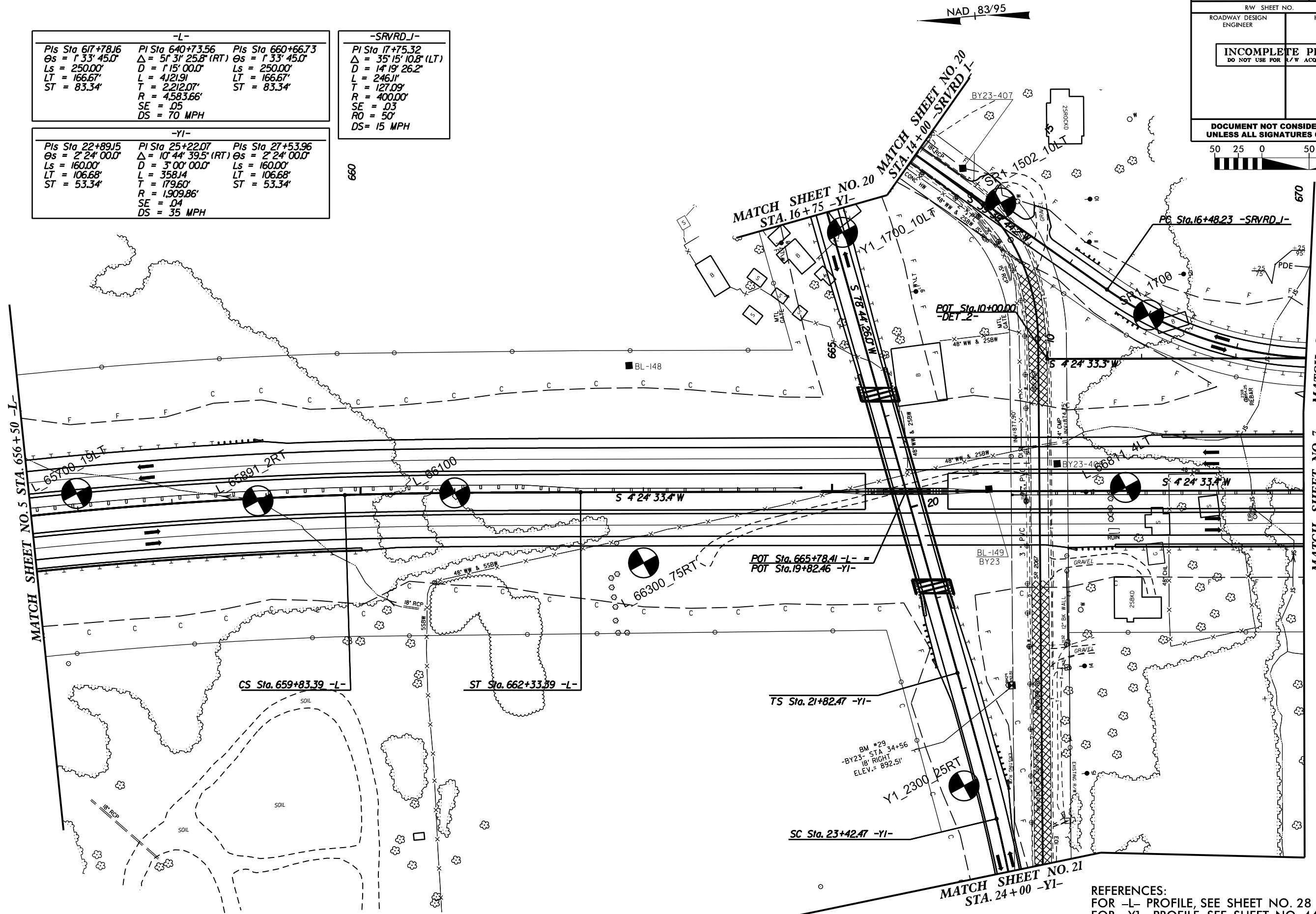
PROJECT REFERENCE NO. R-2707D	SHEET NO. 6
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



-L-		
PIs Sta 617+78.16 θs = 1° 33' 45.0" Ls = 250.00' LT = 166.67' ST = 83.34'	PI Sta 640+73.56 Δ = 51° 31' 25.8" (RT) D = 1° 15' 00.0" L = 4121.91' T = 2,212.07' R = 4,583.66' SE = 05 DS = 70 MPH	PIs Sta 660+66.73 θs = 1° 33' 45.0" Ls = 250.00' LT = 166.67' ST = 83.34'

-YI-		
PIs Sta 22+89.15 θs = 2° 24' 00.0" Ls = 160.00' LT = 106.68' ST = 53.34'	PI Sta 25+22.07 Δ = 10° 44' 39.5" (RT) D = 3° 00' 00.0" L = 358.14' T = 179.60' R = 1,909.86' SE = 04 DS = 35 MPH	PIs Sta 27+53.96 θs = 2° 24' 00.0" Ls = 160.00' LT = 106.68' ST = 53.34'

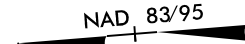
-SRVRD_I-
PI Sta 17+75.32 Δ = 35° 15' 10.8" (LT) D = 1° 19' 26.2" L = 246.11' T = 127.09' R = 400.00' SE = 03 RO = 50' DS = 15 MPH



REFERENCES:
 FOR -L- PROFILE, SEE SHEET NO. 28
 FOR -YI- PROFILE, SEE SHEET NO. 44
 FOR -SRVRD_I- PROFILE, SEE SHEET NO. 50
 FOR -DET 1- PROFILE, SEE SHEET NO. 2B-1
 FOR -DET 2- PROFILE, SEE SHEET NO. 2B-2

REVISIONS
 02-AUG-2018 15:04
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 8/17/18

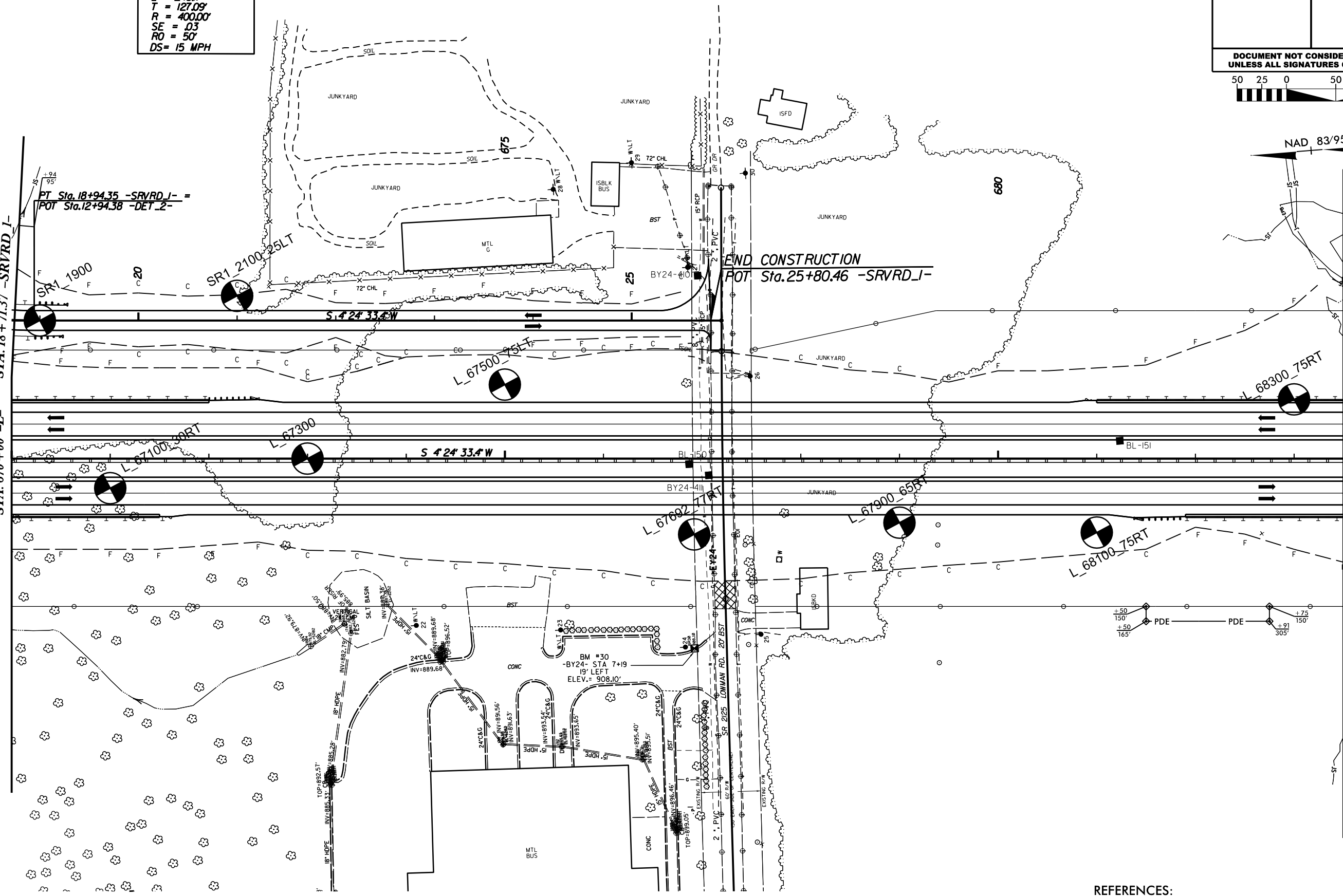
PROJECT REFERENCE NO. R-2707D	SHEET NO. 7
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



-SRVRD_1-
 PI Sta 17+75.32
 $\Delta = 35' 15" 10.8" (LT)$
 $D = 14' 19" 26.2"$
 $L = 246.1'$
 $T = 127.09'$
 $R = 400.00'$
 $SE = .03$
 $RO = 50'$
 $DS = 15 MPH$

MATCH SHEET NO. 6
 STA. 18+71.37 -SRVRD_1-
 STA. 670+00 -L-

MATCH SHEET NO. 8
 STA. 683+50 -L-



REFERENCES:
 FOR -L- PROFILE, SEE SHEET NO. 28
 FOR -SRVRD_1- PROFILE, SEE SHEET NO. 50

REVISIONS
 8/17/99
 01-AUG-2018 09:25
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 cadmachine

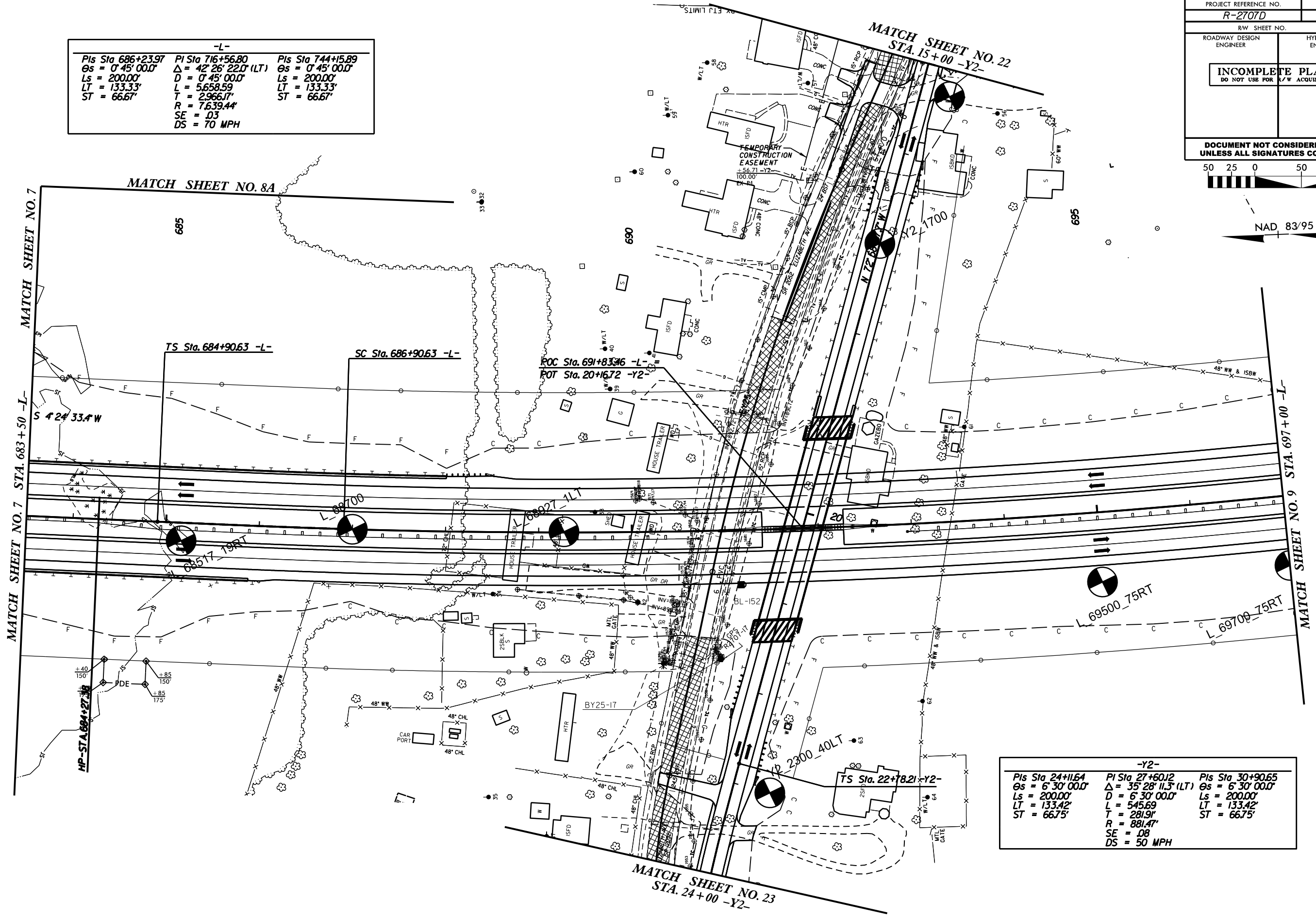
PROJECT REFERENCE NO. R-2707D	SHEET NO. 8
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



NAD 83/95

-L-		
PIs Sta 686+23.97	PI Sta 716+56.80	PIs Sta 744+15.89
$\Theta s = 0^{\circ} 45' 00.0''$	$\Delta = 42^{\circ} 26' 22.0''$ (LT)	$\Theta s = 0^{\circ} 45' 00.0''$
Ls = 200.00'	D = 0' 45' 00.0"	Ls = 200.00'
LT = 133.33'	L = 5658.59'	LT = 133.33'
ST = 66.67'	T = 2966.17'	ST = 66.67'
	R = 7.639.44'	
	SE = .03	
	DS = 70 MPH	

-Y2-		
PIs Sta 24+11.64	PI Sta 27+60.12	PIs Sta 30+90.65
$\Theta s = 6^{\circ} 30' 00.0''$	$\Delta = 35^{\circ} 28' 11.3''$ (LT)	$\Theta s = 6^{\circ} 30' 00.0''$
Ls = 200.00'	D = 6' 30' 00.0"	Ls = 200.00'
LT = 133.42'	L = 545.69'	LT = 133.42'
ST = 66.75'	T = 281.9'	ST = 66.75'
	R = 881.47'	
	SE = .08	
	DS = 50 MPH	



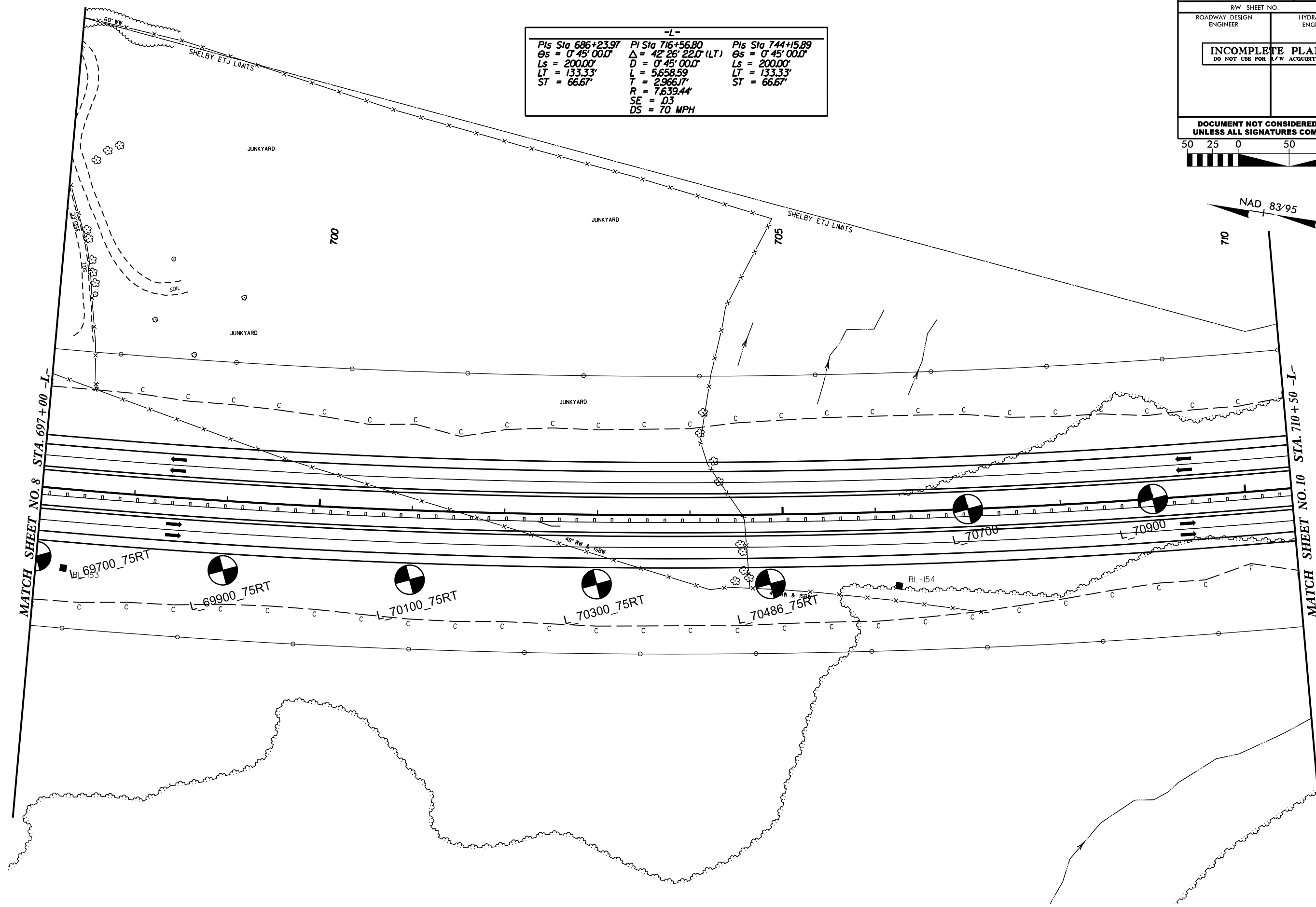
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 8/17/18

REFERENCE:
 FOR -L- PROFILE, SEE SHEET NO. 29
 FOR -Y2- PROFILE, SEE SHEET NO. 45

PROJECT REFERENCE NO. R-2707D	SHEET NO. 9
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
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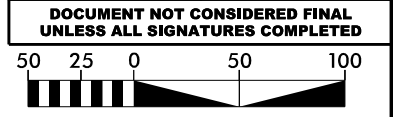
-L-		
Pis Sta 686+23.97	PI Sta 716+56.80	Pis Sta 744+15.89
$\theta_s = 0^\circ 45' 00.0''$	$\Delta = 42^\circ 26' 22.0''$ (LT)	$\theta_s = 0^\circ 45' 00.0''$
$L_s = 200.00'$	$D = 0^\circ 45' 00.0''$	$L_s = 200.00'$
$LT = 133.33'$	$L = 5,658.59'$	$LT = 133.33'$
$ST = 66.67'$	$T = 2,966.17'$	$ST = 66.67'$
	$R = 7,639.44'$	
	$SE = .03$	
	$DS = 70$ MPH	

REVISIONS
 8/17/99
 C:\NUG-2018-09-33\1-Projects\2017\17053.00 Stantec R2707D&E Shelby Bypass\R2707_NCDOT_Electronic_File_Tree\Geotech\InvestigationDesign\R2707_GEO_RDWY\CADD_GEO\TECH\PlanProf\R2707D_GEO_PSH_09.dgn

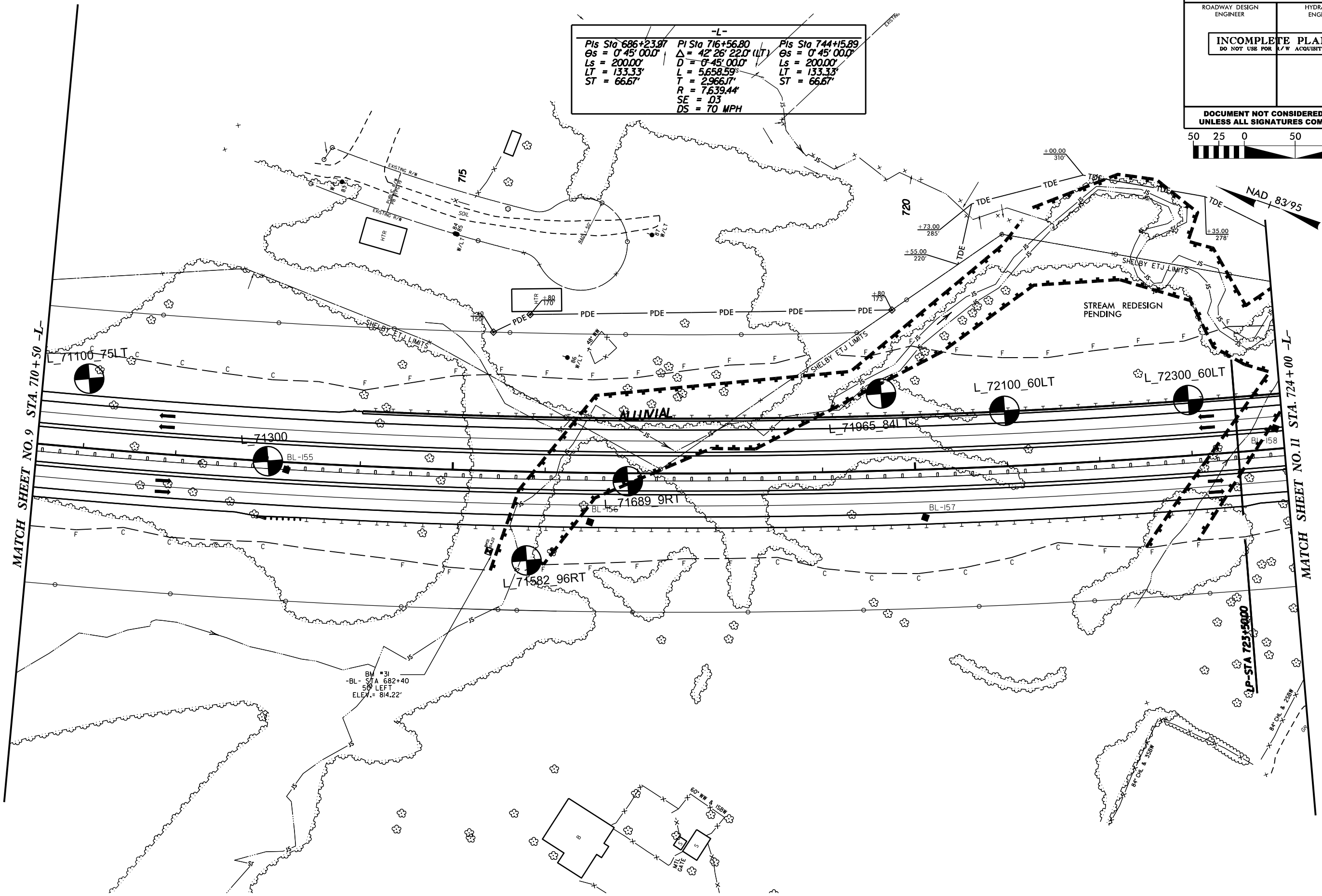


REFERENCE:
FOR -L- PROFILE, SEE SHEET NO. 29

PROJECT REFERENCE NO.	SHEET NO.
R-2707D	10
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION	



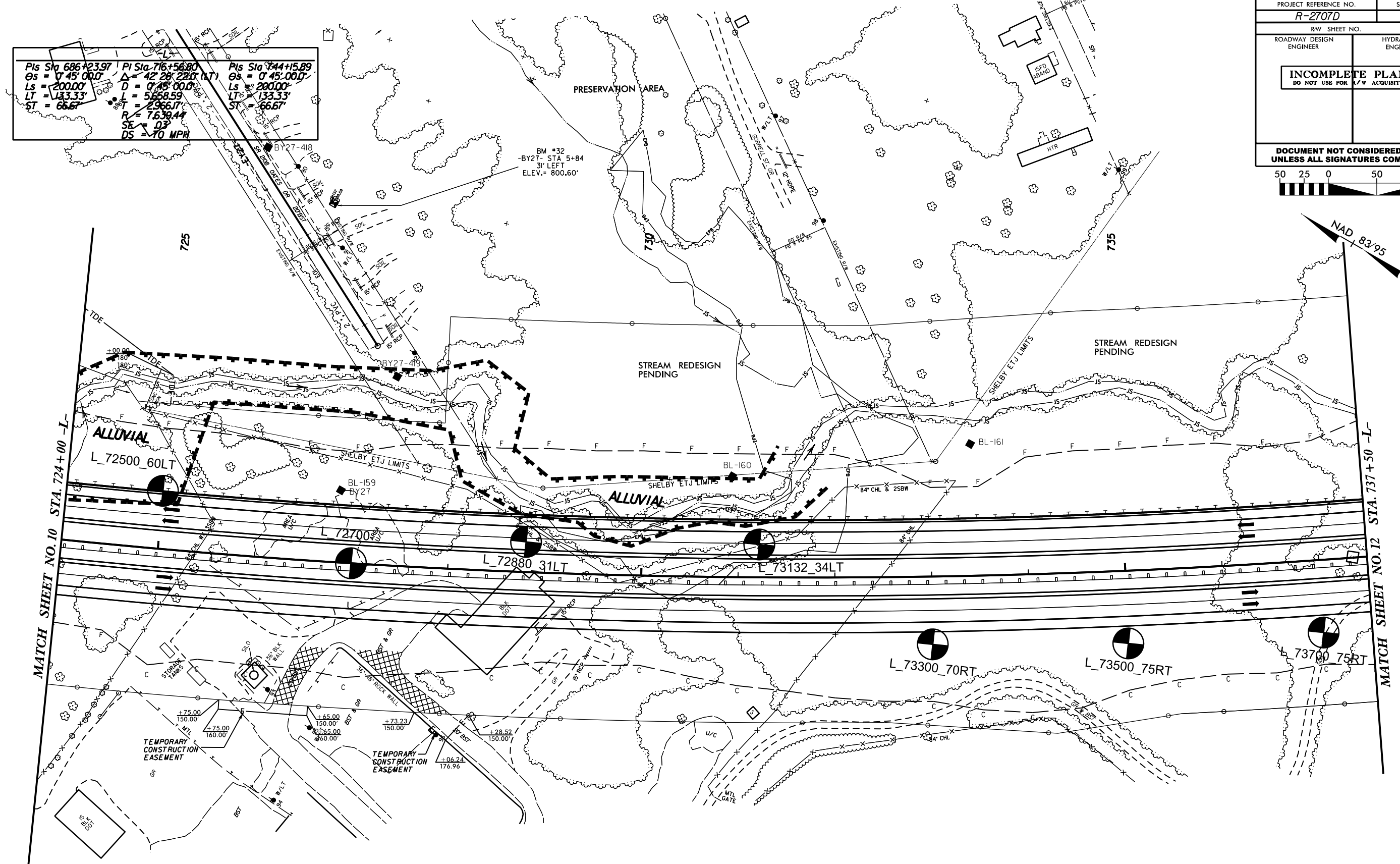
-L-		
Pts Sta 686+23.97 $\Theta_s = 0^\circ 45' 00.0''$ $L_s = 200.00'$ $LT = 133.33'$ $ST = 66.67'$	$\Delta = 42^\circ 26' 22.0''$ (LT) $D = 0^\circ 45' 00.0''$ $L = 5,658.59'$ $T = 2,966.17'$ $R = 7,639.44'$ $SE = 03$ $DS = 70$ MPH	Pts Sta 744+15.89 $\Theta_s = 0^\circ 45' 00.0''$ $L_s = 200.00'$ $LT = 133.33'$ $ST = 66.67'$



REFERENCE:
FOR -L- PROFILE, SEE SHEET NO. 30

REVISIONS
 01-AUG-2018 09:34
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 8/17/18

PROJECT REFERENCE NO. R-2707D	SHEET NO. 11
RW SHEET NO. ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

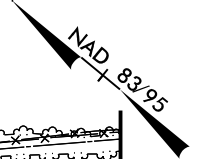


PIs Sta 686+23.97 $\theta_s = 0^\circ 45' 00.0''$ $L_s = 200.00'$ $LT = 133.33'$ $ST = 66.67'$	PIs Sta 716+56.80 $\Delta = 42^\circ 28' 22.0''$ (LT) $D = 0^\circ 45' 00.0''$ $L = 5658.59'$ $R = 7639.44'$ $SE = 0^\circ$ $DS = 70$ MPH	PIs Sta 744+15.89 $\theta_s = 0^\circ 45' 00.0''$ $L_s = 200.00'$ $LT = 133.33'$ $ST = 66.67'$
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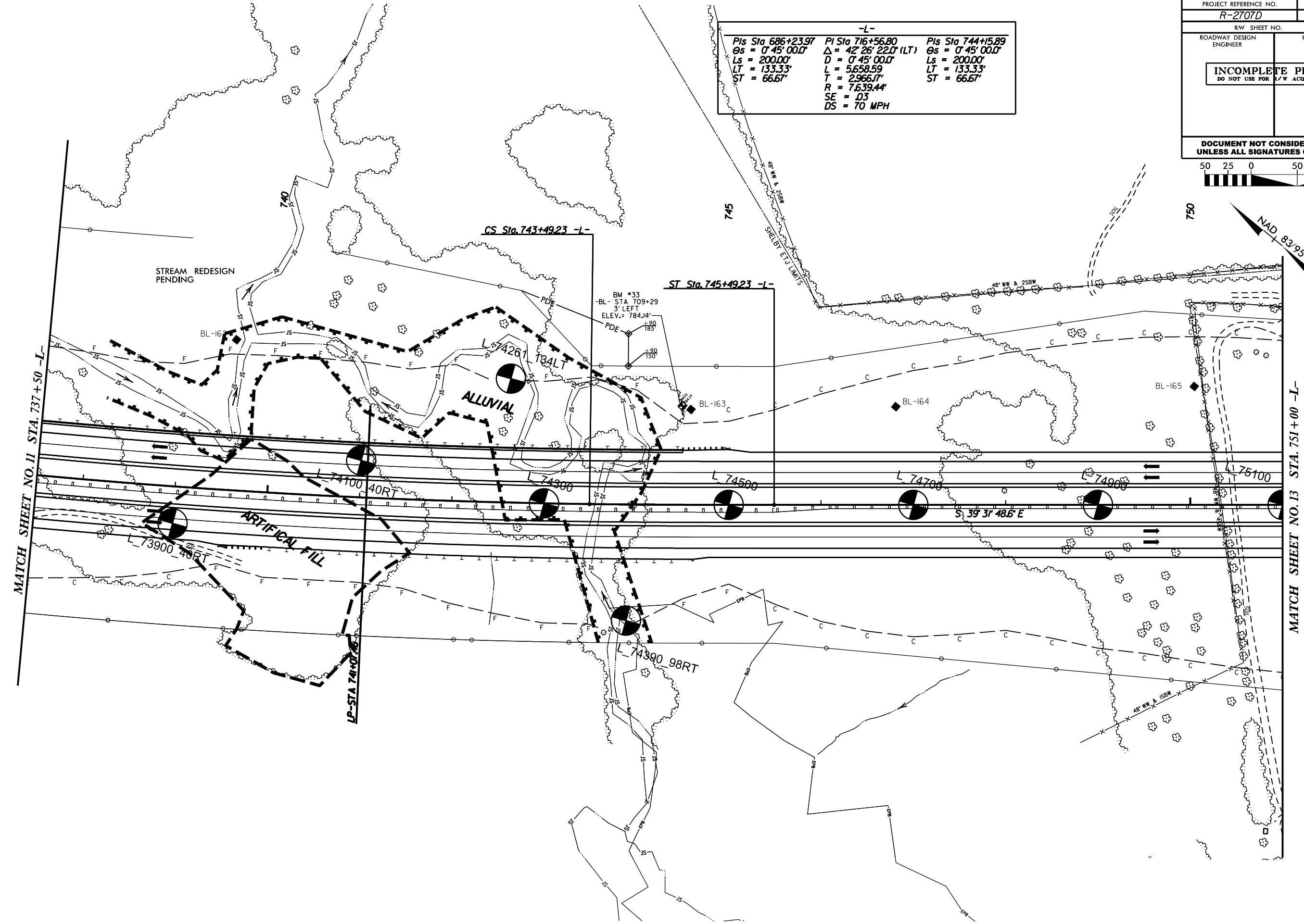
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 8/17/18

REFERENCE:
 FOR -L- PROFILE, SEE SHEET NO. 30
 NOTE:
 ALL PIPES ARE RCP UNLESS OTHERWISE NOTED

PROJECT REFERENCE NO.	SHEET NO.
R-2707D	12
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



-L-		
PIs Sta 686+23.97	PI Sta 716+56.80	PIs Sta 744+15.89
$\theta_s = 0^\circ 45' 00.0''$	$\Delta = 42^\circ 26' 22.0''$ (LT)	$\theta_s = 0^\circ 45' 00.0''$
$L_s = 200.00'$	$D = 0^\circ 45' 00.0''$	$L_s = 200.00'$
$LT = 133.33'$	$L = 5,658.59'$	$LT = 133.33'$
$ST = 66.67'$	$T = 2,966.17'$	$ST = 66.67'$
	$R = 76,39.44'$	
	$SE = .03$	
	$DS = 70$ MPH	



MATCH SHEET NO. 11 STA. 737+50 -L-

MATCH SHEET NO. 13 STA. 751+00 -L-

REFERENCE:
FOR -L- PROFILE, SEE SHEET NO. 31

REVISIONS
 09-AUG-2018 14:05
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 8/17/18

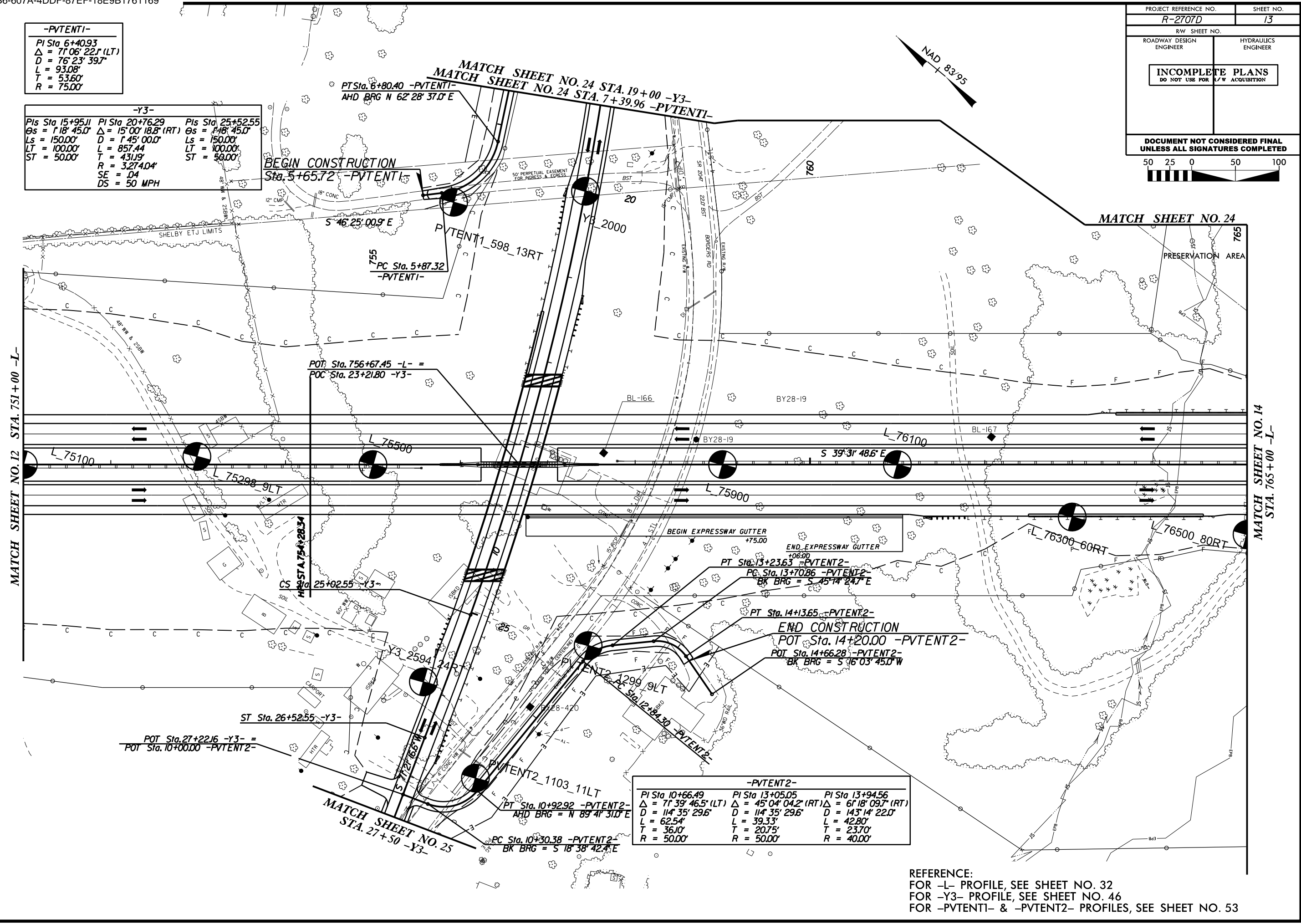
PROJECT REFERENCE NO. R-2707D	SHEET NO. 13
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



-PVTENTI-	
PI Sta 6+40.93	
$\Delta = 71^{\circ}06'22.1(LT)$	
$D = 76^{\circ}23'39.7"$	
$L = 93.08'$	
$T = 53.60'$	
$R = 75.00'$	

-Y3-		
PIs Sta 15+95.11	PI Sta 20+76.29	PIs Sta 25+52.55
$\Delta = 1^{\circ}18'45.0"$	$\Delta = 15^{\circ}00'18.8(RT)$	$\Delta = 1^{\circ}18'45.0"$
$Ls = 150.00'$	$D = 1^{\circ}45'00.0"$	$Ls = 150.00'$
$LT = 100.00'$	$L = 857.44'$	$LT = 100.00'$
$ST = 50.00'$	$T = 431.19'$	$ST = 50.00'$
	$R = 3,274.04'$	
	$SE = 04$	
	$DS = 50 MPH$	

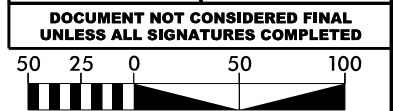
-PVTENT2-		
PI Sta 10+66.49	PI Sta 13+05.05	PI Sta 13+94.56
$\Delta = 71^{\circ}39'46.5(LT)$	$\Delta = 45^{\circ}04'04.2(RT)$	$\Delta = 61^{\circ}18'09.7(RT)$
$D = 114^{\circ}35'29.6"$	$D = 114^{\circ}35'29.6"$	$D = 143^{\circ}14'22.0"$
$L = 62.54'$	$L = 39.33'$	$L = 42.80'$
$T = 36.10'$	$T = 23.70'$	$T = 23.70'$
$R = 50.00'$	$R = 50.00'$	$R = 40.00'$



REFERENCE:
 FOR -L- PROFILE, SEE SHEET NO. 32
 FOR -Y3- PROFILE, SEE SHEET NO. 46
 FOR -PVTENTI- & -PVTENT2- PROFILES, SEE SHEET NO. 53

REVISIONS
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 cadmachine

PROJECT REFERENCE NO. R-2707D	SHEET NO. 14
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION	

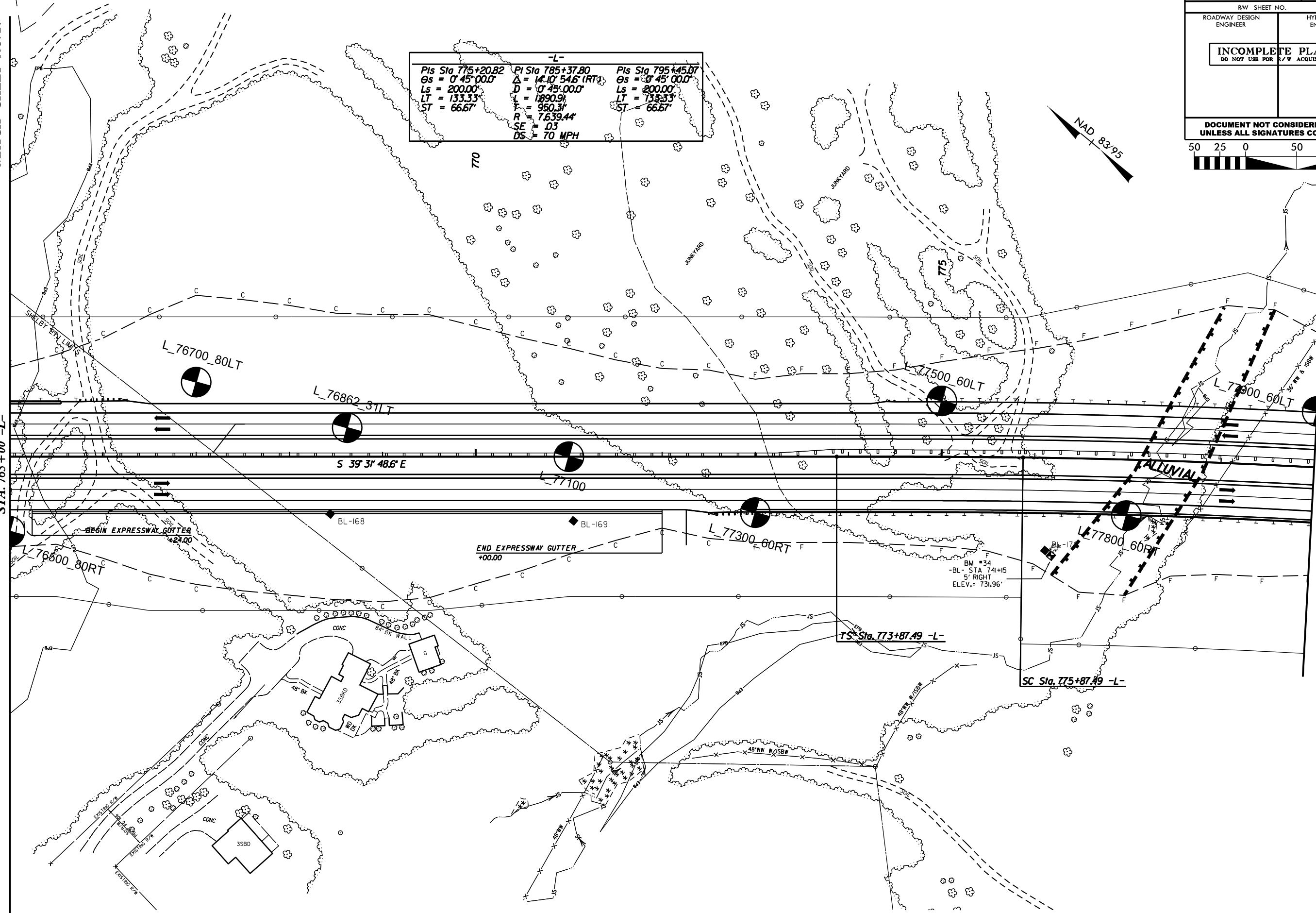


-L-		
PIs Sta 775+20.82 θs = 0° 45' 00.0"	PI Sta 785+37.80 Δ = 14° 10' 54.6" (RT) D = 0° 45' 00.0"	PIs Sta 795+45.87 θs = 0° 45' 00.0"
Ls = 200.00'	L = 1890.9'	Ls = 200.00'
LT = 133.33'	F = 950.3'	LT = 133.33'
ST = 66.67'	R = 7539.44'	ST = 66.67'
	SE = .03	
	DS = 70 MPH	

MATCH SHEET NO. 24

MATCH SHEET NO. 13
STA. 765+00 -L-

MATCH SHEET NO. 15
STA. 779+00 -L-

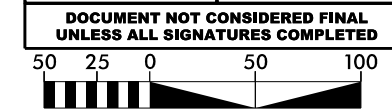


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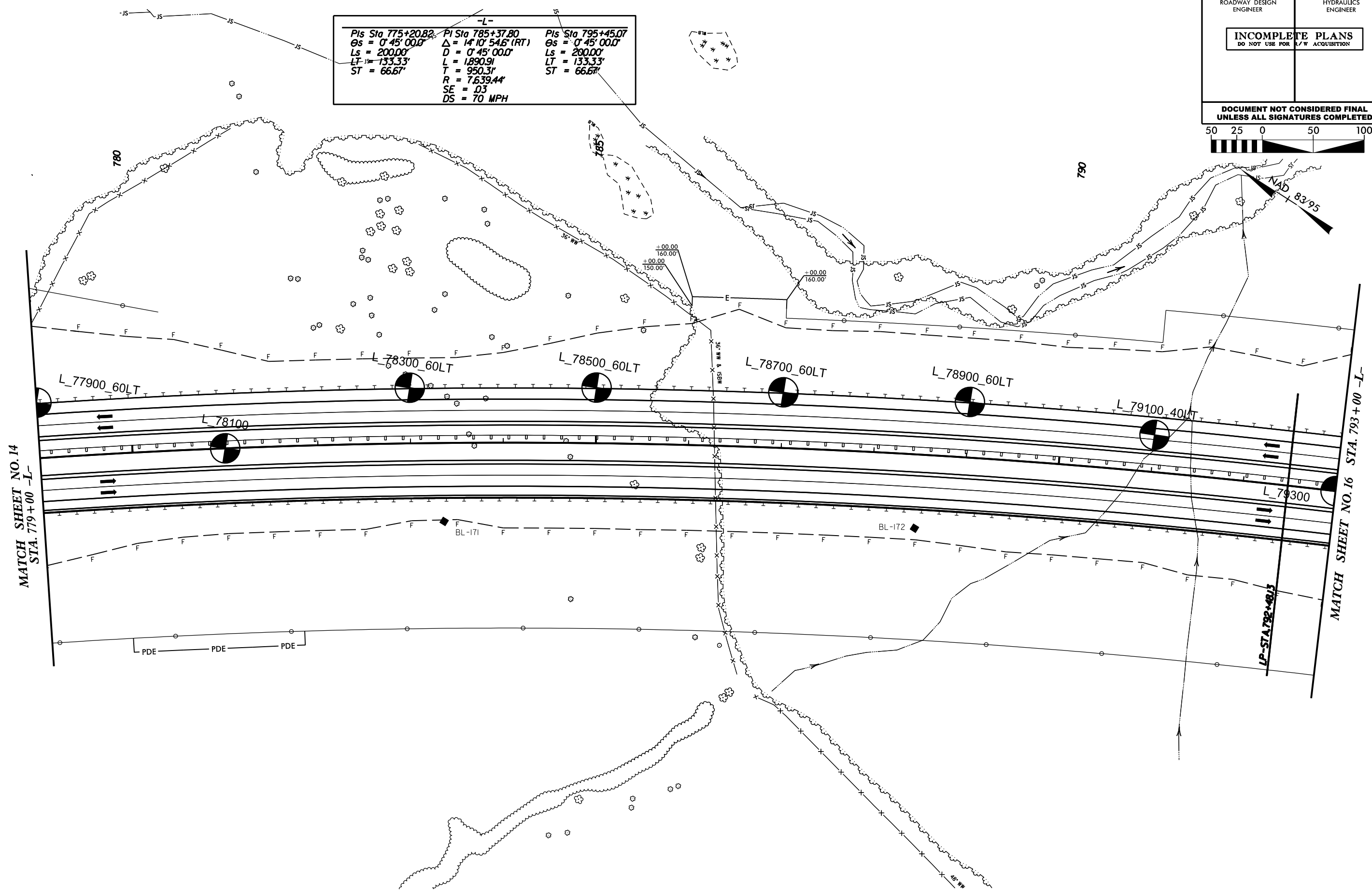
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 8/17/18

REFERENCE:
FOR -L- PROFILE, SEE SHEET NO. 33

PROJECT REFERENCE NO.	SHEET NO.
R-2707D	15
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION	



-L-		
Pls Sta 775+20.82	Pl Sta 785+37.80	Pls Sta 795+45.07
$\theta_s = 0^\circ 45' 00.0''$	$\Delta = 14^\circ 10' 54.6''$ (RT)	$\theta_s = 0^\circ 45' 00.0''$
$L_s = 200.00'$	$D = 0^\circ 45' 00.0''$	$L_s = 200.00'$
$LT = 133.33'$	$L = 1,890.91'$	$LT = 133.33'$
$ST = 66.67'$	$T = 950.31'$	$ST = 66.67'$
	$R = 7,639.44'$	
	$SE = 03$	
	$DS = 70$ MPH	

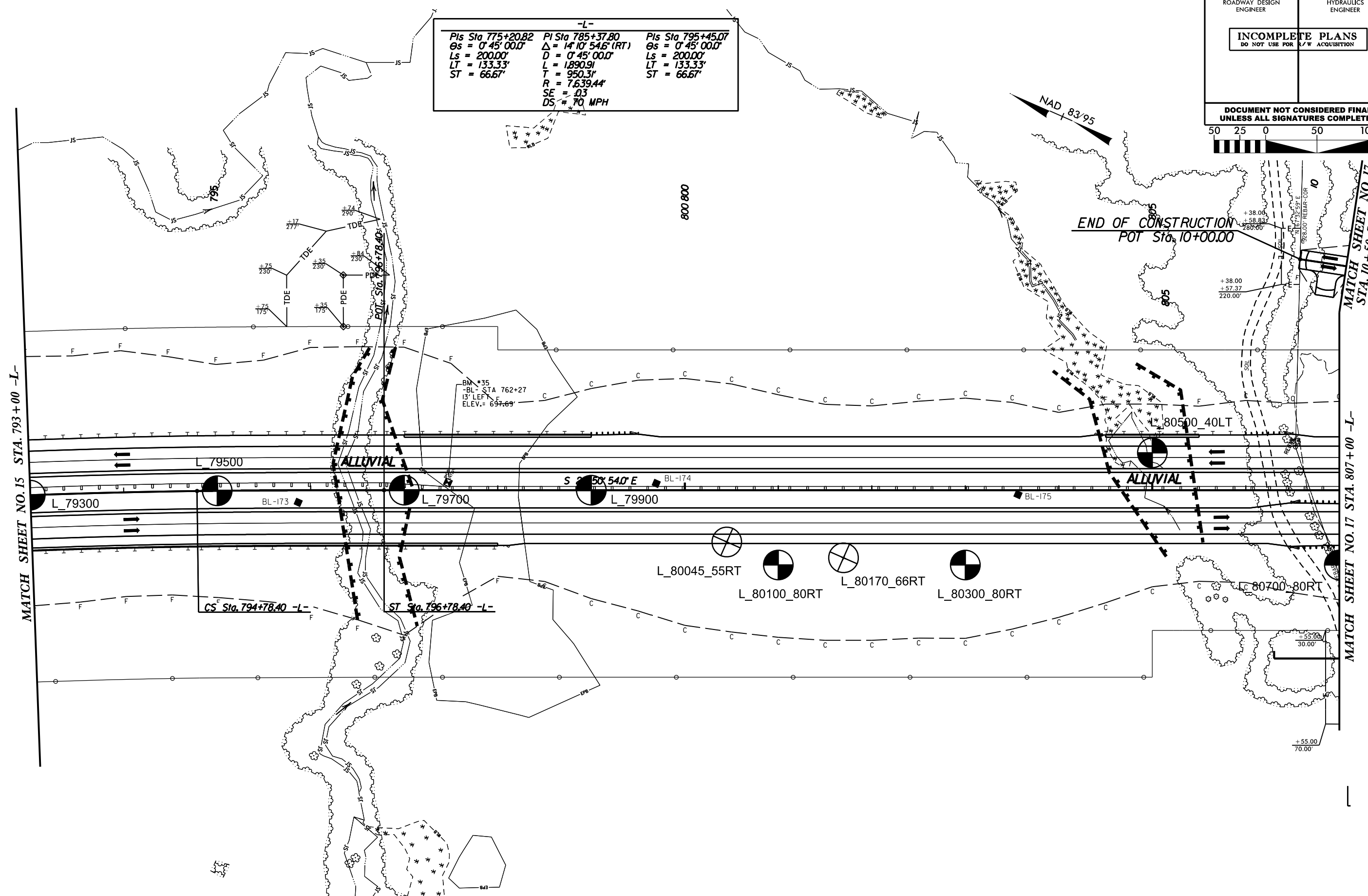


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 8/17/18

REFERENCE:
FOR -L- PROFILE, SEE SHEET NO. 14

PROJECT REFERENCE NO. <i>R-2707D</i>	SHEET NO. 16
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
50 25 0 50 100	

-L-		
Pis Sta 775+20.82	PI Sta 785+37.80	Pis Sta 795+45.07
$\theta_s = 0^\circ 45' 00.0''$	$\Delta = 14^\circ 10' 54.6''$ (RT)	$\theta_s = 0^\circ 45' 00.0''$
$L_s = 200.00'$	$D = 0^\circ 45' 00.0''$	$L_s = 200.00'$
$LT = 133.33'$	$L = 1,890.91'$	$LT = 133.33'$
$ST = 66.67'$	$T = 950.31'$	$ST = 66.67'$
	$R = 7,639.44'$	
	$SE = 0.3$	
	$DS = 70$ MPH	



MATCH SHEET NO. 15 STA. 793+00 -L-

MATCH SHEET NO. 17 STA. 807+00 -L-

MATCH SHEET NO. 17 STA. 10+50-SRVRD S-

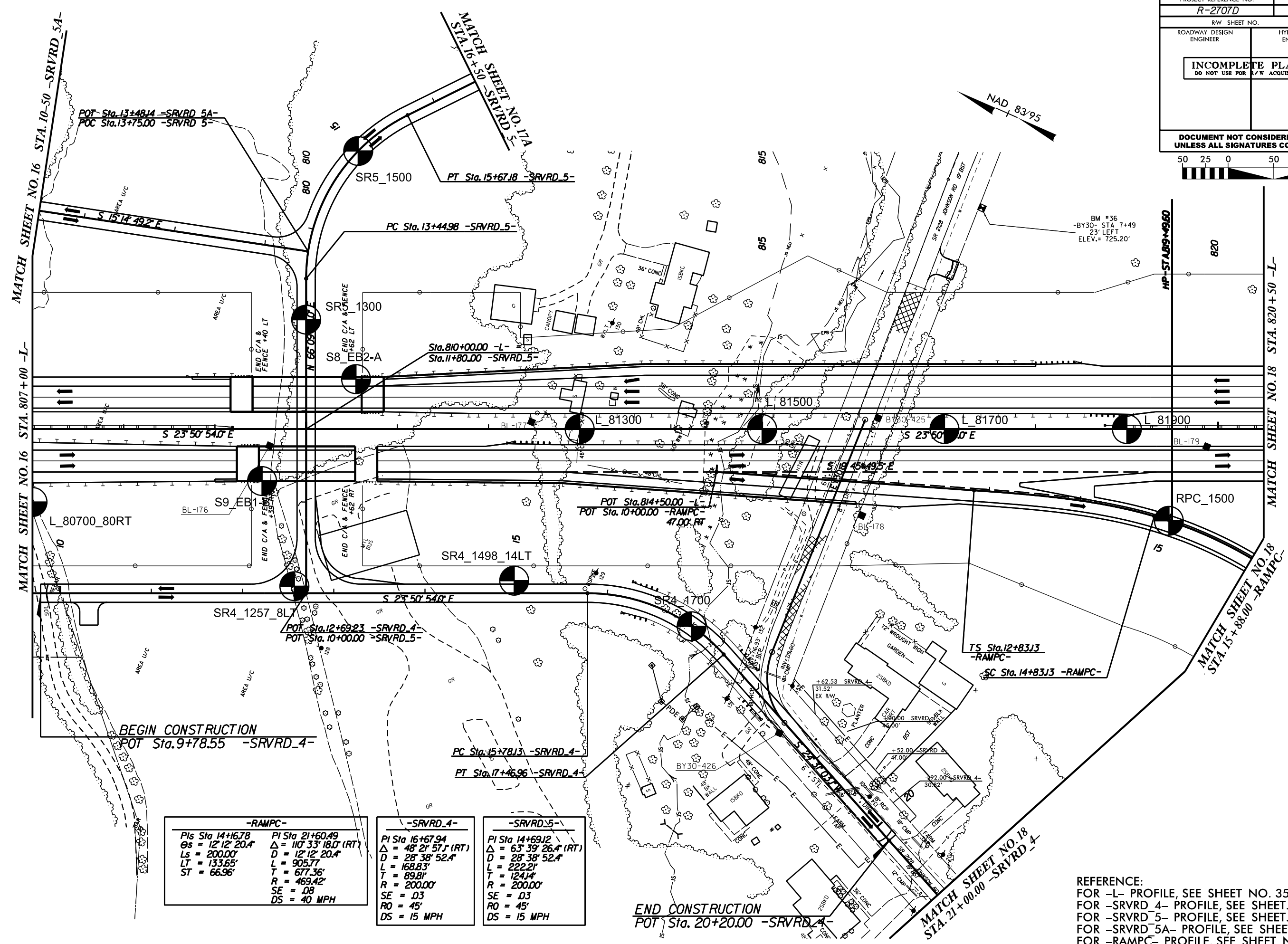
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FOR -L- PROFILE, SEE SHEET NO. 34

REVISIONS
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PROJECT REFERENCE NO. <i>R-2707D</i>		SHEET NO. <i>17</i>	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION			
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			



REVISIONS
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BEGIN CONSTRUCTION
 POT Sta. 9+78.55 -SRVRD_4-

END CONSTRUCTION
 POT Sta. 20+20.00 -SRVRD_4-

-RAMPC-	
PI Sta 14+16.78	PI Sta 21+60.49
θs = 12° 12' 20.4"	Δ = 110° 33' 18.0" (RT)
Ls = 200.00'	D = 12° 12' 20.4"
LT = 133.65'	L = 905.77'
ST = 66.96'	T = 677.36'
	R = 469.42'
	SE = .08
	DS = 40 MPH

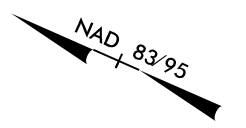
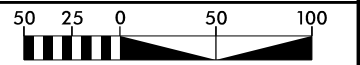
-SRVRD_4-	
PI Sta 16+67.94	Δ = 48° 21' 57.1" (RT)
Δ = 28° 38' 52.4"	L = 168.83'
L = 168.83'	T = 89.81'
T = 89.81'	R = 200.00'
R = 200.00'	SE = .03
SE = .03	RO = 45'
RO = 45'	DS = 15 MPH
DS = 15 MPH	

-SRVRD_5-	
PI Sta 14+69.12	Δ = 63° 39' 26.4" (RT)
Δ = 28° 38' 52.4"	L = 222.21'
L = 222.21'	T = 124.14'
T = 124.14'	R = 200.00'
R = 200.00'	SE = .03
SE = .03	RO = 45'
RO = 45'	DS = 15 MPH
DS = 15 MPH	

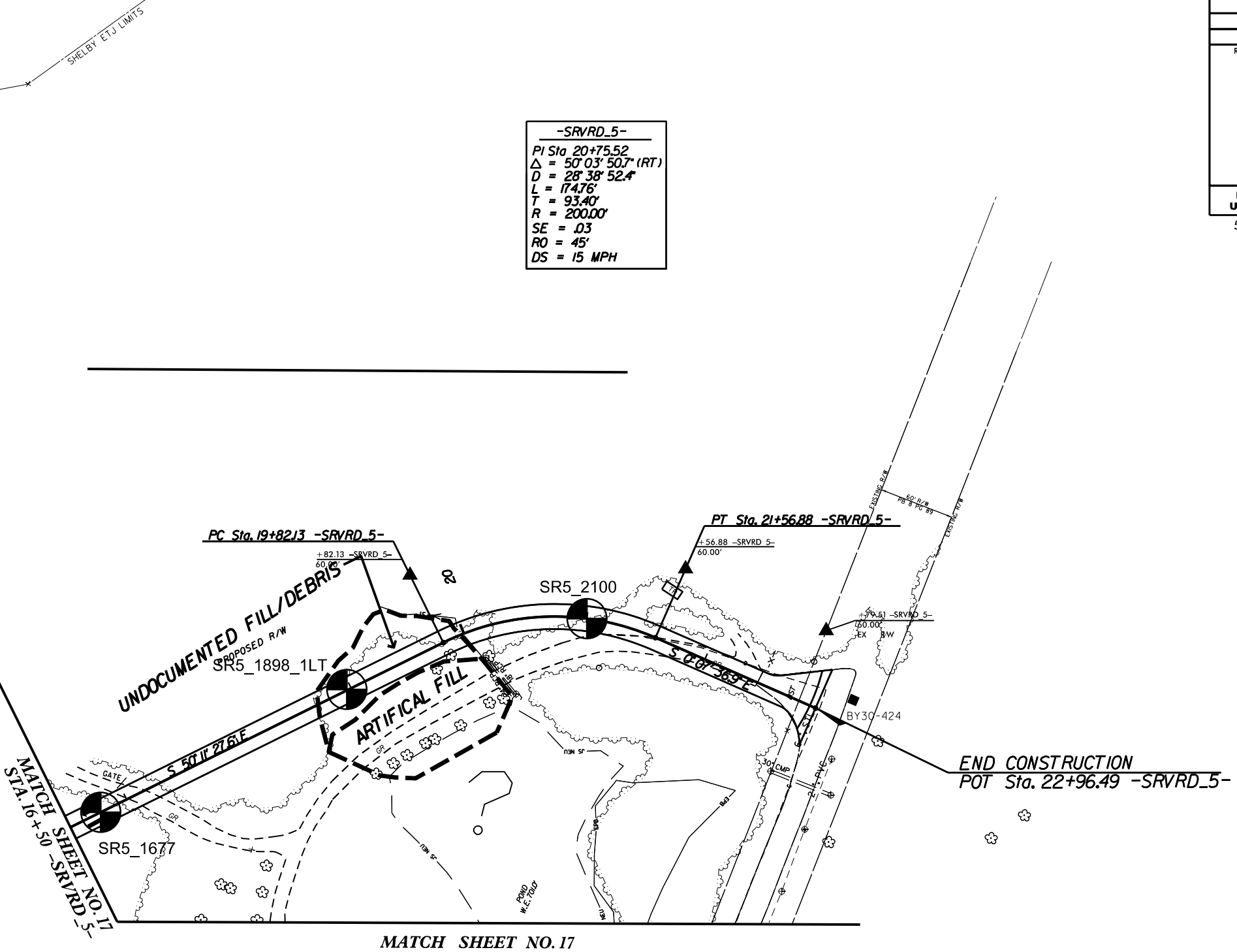
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 FOR -SRVRD_4- PROFILE, SEE SHEET. NO. 51
 FOR -SRVRD_5- PROFILE, SEE SHEET. NO. 52
 FOR -SRVRD_5A- PROFILE, SEE SHEET. NO.52
 FOR -RAMPC- PROFILE, SEE SHEET NO. 42

8/17/99
 REVISIONS
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 15-AUG-2016 16:26
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PROJECT REFERENCE NO. <i>R-2707D</i>	SHEET NO. <i>17A</i>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



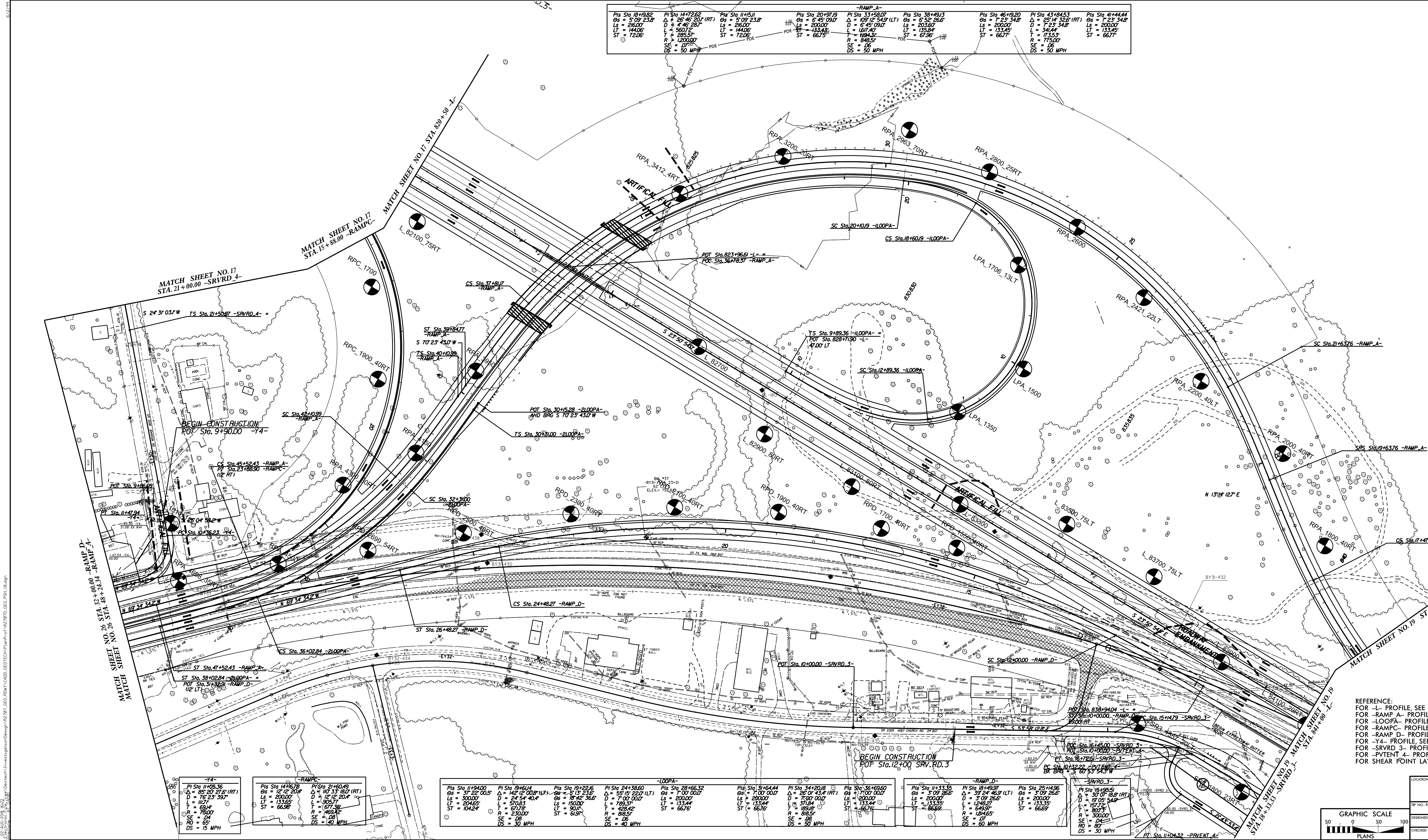
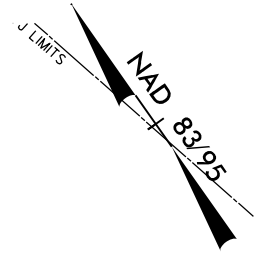
-SRVRD_5-
 PI Sta. 20+75.52
 $\Delta = 50^{\circ} 03' 50.7" (RT)$
 $D = 28^{\circ} 38' 52.4"$
 $L = 174.76'$
 $T = 93.40'$
 $R = 200.00'$
 $SE = .03$
 $RO = 45'$
 $DS = 15 MPH$



MATCH SHEET NO. 17

REFERENCE:
FOR -SRVRD_5- PROFILE, SEE SHEET NO. 52

PROJECT REFERENCE NO.	SHEET NO.
R-2707D	18
ROADWAY DESIGN	HYDRAULICS
ENGINEER	ENGINEER
INCOMPLETE PLANS NO WORK SHALL BE DONE WITHOUT THE SIGNATURES OF THE ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



PI Sta 18+98.2 OS = 578' 23.8" LS = 260.0' LT = 144.6' ST = 72.06' SE = 0.7' DS = 50 MPH	PI Sta 14+75.2 OS = 25' 46.20" (RT) D = 4' 46.20" L = 563.7' LT = 292.5' R = 1200.0' SE = 0.7' DS = 50 MPH	PI Sta 11+51.1 OS = 578' 23.8" LS = 260.0' LT = 144.6' ST = 72.06' SE = 0.7' DS = 50 MPH	PI Sta 20+97.0 OS = 578' 23.8" LS = 260.0' LT = 144.6' ST = 72.06' SE = 0.7' DS = 50 MPH	PI Sta 33+58.0 OS = 578' 23.8" LS = 260.0' LT = 144.6' ST = 72.06' SE = 0.7' DS = 50 MPH	PI Sta 38+49.3 OS = 578' 23.8" LS = 260.0' LT = 144.6' ST = 72.06' SE = 0.7' DS = 50 MPH	PI Sta 46+92.0 OS = 578' 23.8" LS = 260.0' LT = 144.6' ST = 72.06' SE = 0.7' DS = 50 MPH	PI Sta 43+84.5 OS = 25' 46.20" (RT) D = 7' 23.348" L = 348.4' LT = 173.53' R = 775.00' SE = 0.6' DS = 50 MPH	PI Sta 41+44.4 OS = 25' 46.20" (RT) D = 7' 23.348" L = 348.4' LT = 173.53' R = 775.00' SE = 0.6' DS = 50 MPH
--	---	--	--	--	--	--	---	---

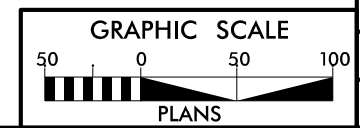
PI Sta 11+08.36 OS = 63' 23.218" (RT) D = 76' 23.397" L = 110.7' LT = 69.4' R = 780.0' SE = 1.4' DS = 15 MPH	PI Sta 14+62.78 OS = 12' 12.504" D = 12' 12.504" L = 133.65' LT = 66.38' R = 663.0' SE = 1.30' DS = 30 MPH	PI Sta 21+60.49 OS = 10' 13.192" (RT) D = 10' 13.192" L = 102.57' LT = 67.736' R = 663.0' SE = 1.30' DS = 30 MPH
---	---	---

PI Sta 11+94.00 OS = 37' 52.005" LS = 300.00' LT = 104.82' ST = 104.82' SE = 0.8' DS = 30 MPH	PI Sta 19+61.4 OS = 142' 15.008" (LT) D = 24' 54.404" L = 570.81' LT = 230.00' R = 2300.0' SE = 0.8' DS = 30 MPH	PI Sta 19+22.6 OS = 5' 15.235" D = 18' 42.366" L = 150.00' LT = 30.00' R = 429.42' ST = 61.97' SE = 1.5' DS = 40 MPH	PI Sta 24+38.80 OS = 55' 15.222" (LT) D = 7' 00.000" L = 789.37' LT = 133.44' ST = 66.78' SE = 0.8' DS = 40 MPH	PI Sta 28+66.32 OS = 7' 00.000" D = 7' 00.000" L = 370.00' LT = 133.44' ST = 66.78' SE = 0.8' DS = 50 MPH	PI Sta 31+64.44 OS = 7' 00.000" D = 7' 00.000" L = 370.00' LT = 133.44' ST = 66.78' SE = 0.8' DS = 50 MPH	PI Sta 34+20.18 OS = 38' 09.438" (RT) D = 30' 09.265" L = 370.00' LT = 133.44' ST = 66.78' SE = 0.8' DS = 50 MPH	PI Sta 36+68.60 OS = 3' 09.265" D = 3' 09.265" L = 200.00' LT = 113.35' R = 648.97' SE = 0.7' DS = 60 MPH	PI Sta 18+49.59 OS = 3' 09.265" D = 3' 09.265" L = 200.00' LT = 113.35' R = 648.97' SE = 0.7' DS = 60 MPH	PI Sta 25+14.56 OS = 3' 09.265" D = 3' 09.265" L = 200.00' LT = 113.35' R = 648.97' SE = 0.7' DS = 60 MPH
---	---	--	--	--	--	---	--	--	--

PI Sta 15+95.51 OS = 30' 09.265" (RT) D = 30' 09.265" L = 157.78' LT = 60.78' R = 300.00' SE = 0.7' DS = 30 MPH
--

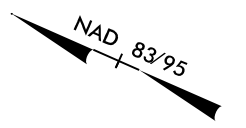
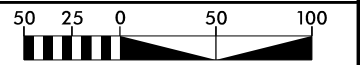
PI Sta 15+95.51 OS = 30' 09.265" (RT) D = 30' 09.265" L = 157.78' LT = 60.78' R = 300.00' SE = 0.7' DS = 30 MPH
--

REFERENCE:
 FOR -L- PROFILE, SEE SHEET NO. 36 & 37
 FOR -RAMP A- PROFILE, SEE SHEET NO. 38, 39 & 40
 FOR -LOOP A- PROFILE, SEE SHEET NO. 41 & 42
 FOR -RAMP C- PROFILE, SEE SHEET NO. 42
 FOR -RAMP D- PROFILE, SEE SHEET NO. 43
 FOR -Y4- PROFILE, SEE SHEET NO. 47
 FOR -SRVD 3- PROFILE, SEE SHEET NO. 51
 FOR -PVTENT 4- PROFILE, SEE SHEET NO. 54
 FOR SHEAR POINT LAYOUT, SEE SHEET NO. 2F

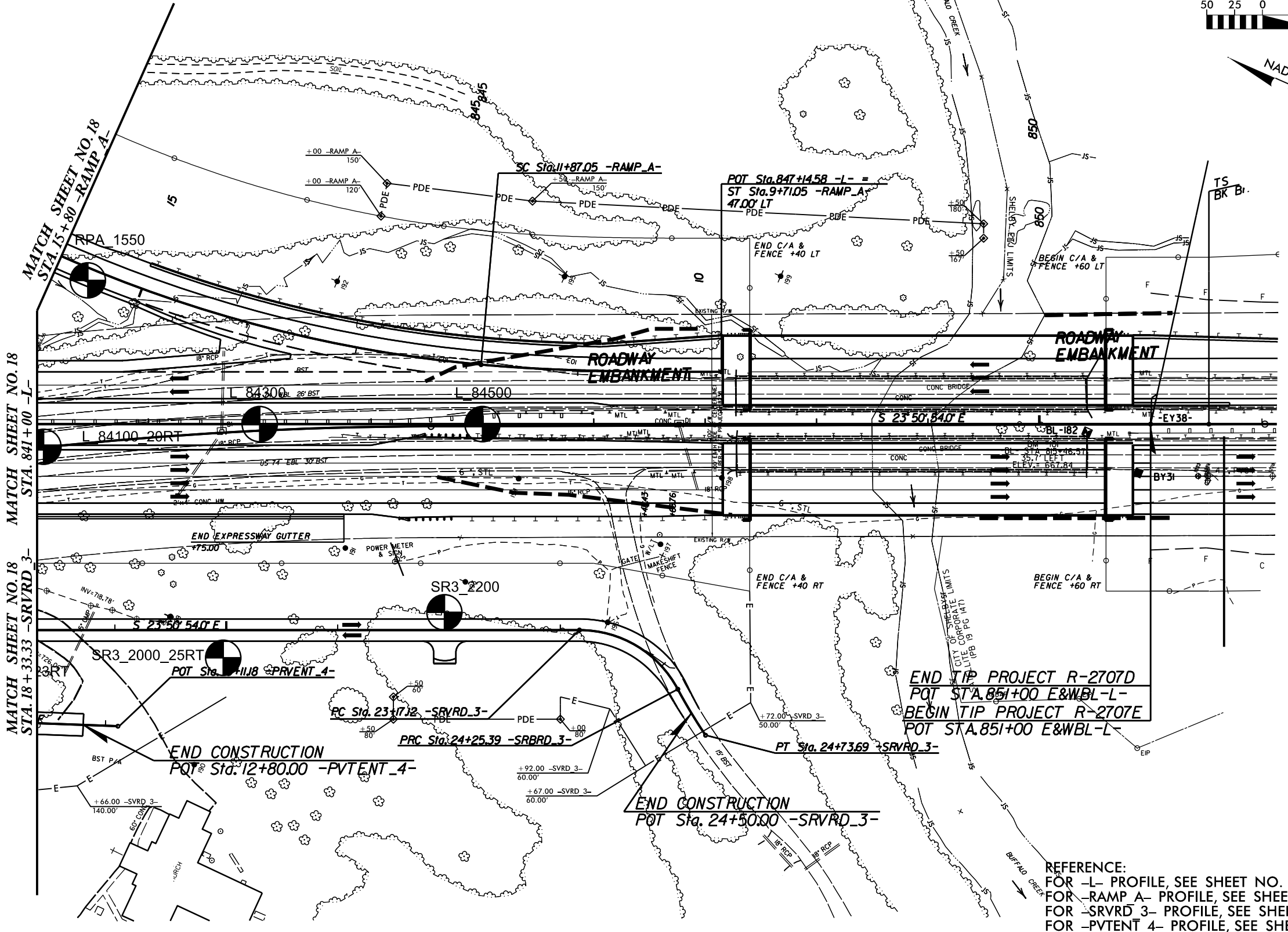


LOCATION:	TRUMPT INTERCHANGE
SHEET BY:	SKS/4
COUNTY:	CLEVELAND
DESIGNED BY:	KETH HUDSON
CHECKED BY:	
DATE:	

PROJECT REFERENCE NO.	SHEET NO.
R-2707D	19
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



-RAMP_A-			-SRVRD_3-	
PIs Sta 18+19.82	PI Sta 14+72.62	PIs Sta 11+15.11	PI Sta 23+77.25	PI Sta 24+49.57
θs = 5°09'23.8"	Δ = 26°46'20.1" (RT)	θs = 5°09'23.8"	Δ = 62°02'16.0" (RT)	Δ = 6°08'58.8" (LT)
Ls = 216.00'	D = 4°46'28.7"	Ls = 216.00'	D = 57°17'44.8"	D = 12°43'56.6"
LT = 144.06'	L = 560.72'	LT = 144.06'	L = 108.28'	L = 48.30'
ST = 72.06'	T = 285.57'	ST = 72.06'	T = 60.13'	T = 24.17'
	R = 1200.00'		R = 100.00'	R = 450.00'
	SE = .07		SE = .02	SE = EXIST.
	DS = 50 MPH		RO = 80'	RO = EXIST.
			DS = 30 MPH	



END TIP PROJECT R-2707D
 POT STA. 851+00 E&WBL -L-
 BEGIN TIP PROJECT R-2707E
 POT STA. 851+00 E&WBL -L-

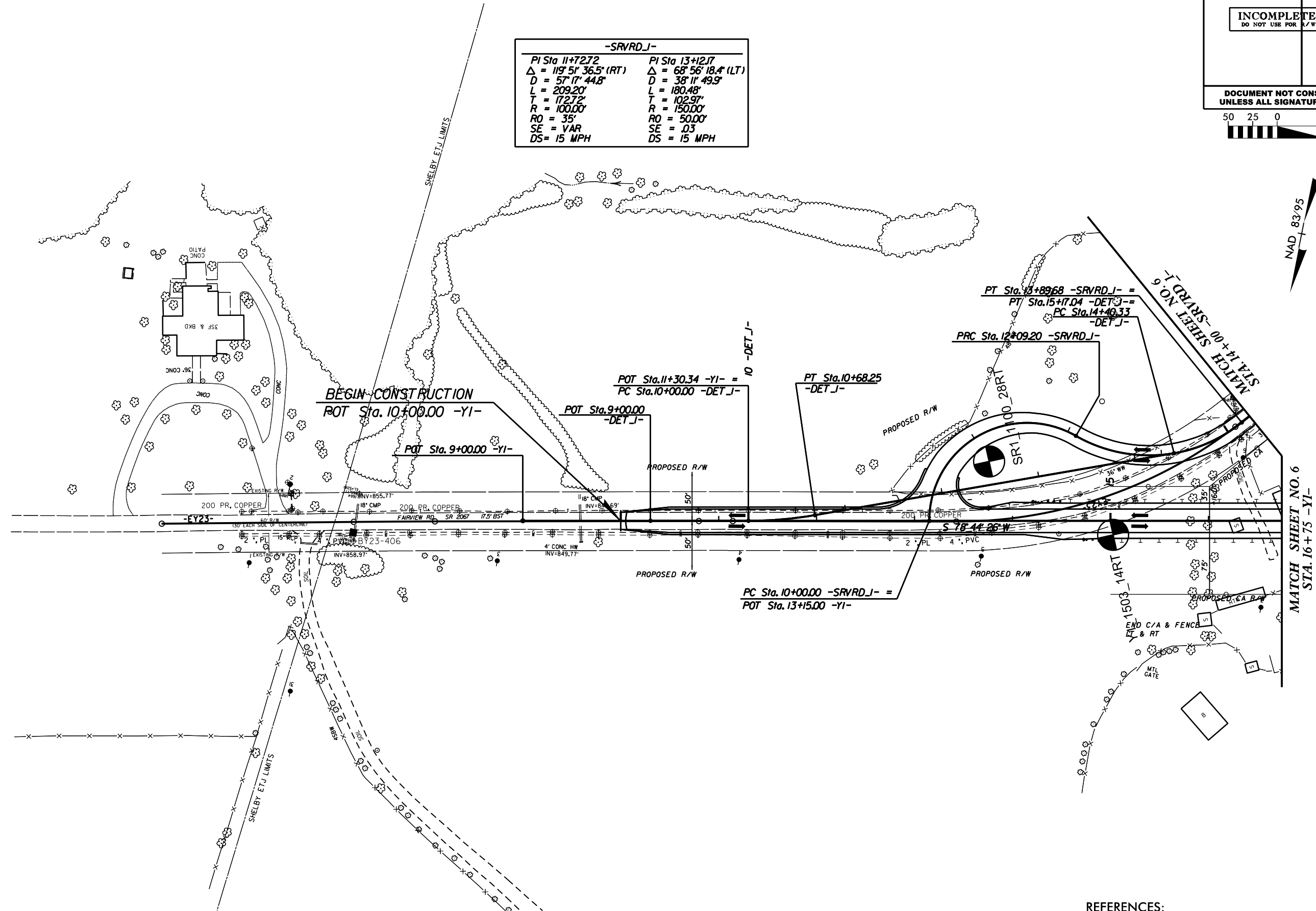
REFERENCE:
 FOR -L- PROFILE, SEE SHEET NO. 37
 FOR -RAMP_A- PROFILE, SEE SHEET NO. 38
 FOR -SRVRD_3- PROFILE, SEE SHEET NO. 51
 FOR -PVENT_4- PROFILE, SEE SHEET NO. 54

REVISIONS
 01-AUG-2018 09:54
 1-Projects\2017\17053.00 Stantec R2707D&E Shelby Bypass\2707_NCDOT_Electronic_File_Tree\Geotech\InvestigationDesign\R2707_GEO_RDWY_CADD_GEO\TECH\Plan\Prof\R2707D_GEO_PSH.19.dgn
 8/17/19

PROJECT REFERENCE NO. <i>R-2707D</i>	SHEET NO. 20
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



-SRVRD_1-	
PI Sta 11+7272	PI Sta 13+1217
$\Delta = 119^{\circ} 51' 36.5''$ (RT)	$\Delta = 68^{\circ} 56' 18.4''$ (LT)
$D = 57^{\circ} 17' 44.8''$	$D = 38^{\circ} 11' 49.9''$
$L = 209.20'$	$L = 180.48'$
$T = 172.72'$	$T = 102.97'$
$R = 100.00'$	$R = 150.00'$
$RO = 35'$	$RO = 50.00'$
$SE = VAR$	$SE = .03$
$DS = 15$ MPH	$DS = 15$ MPH



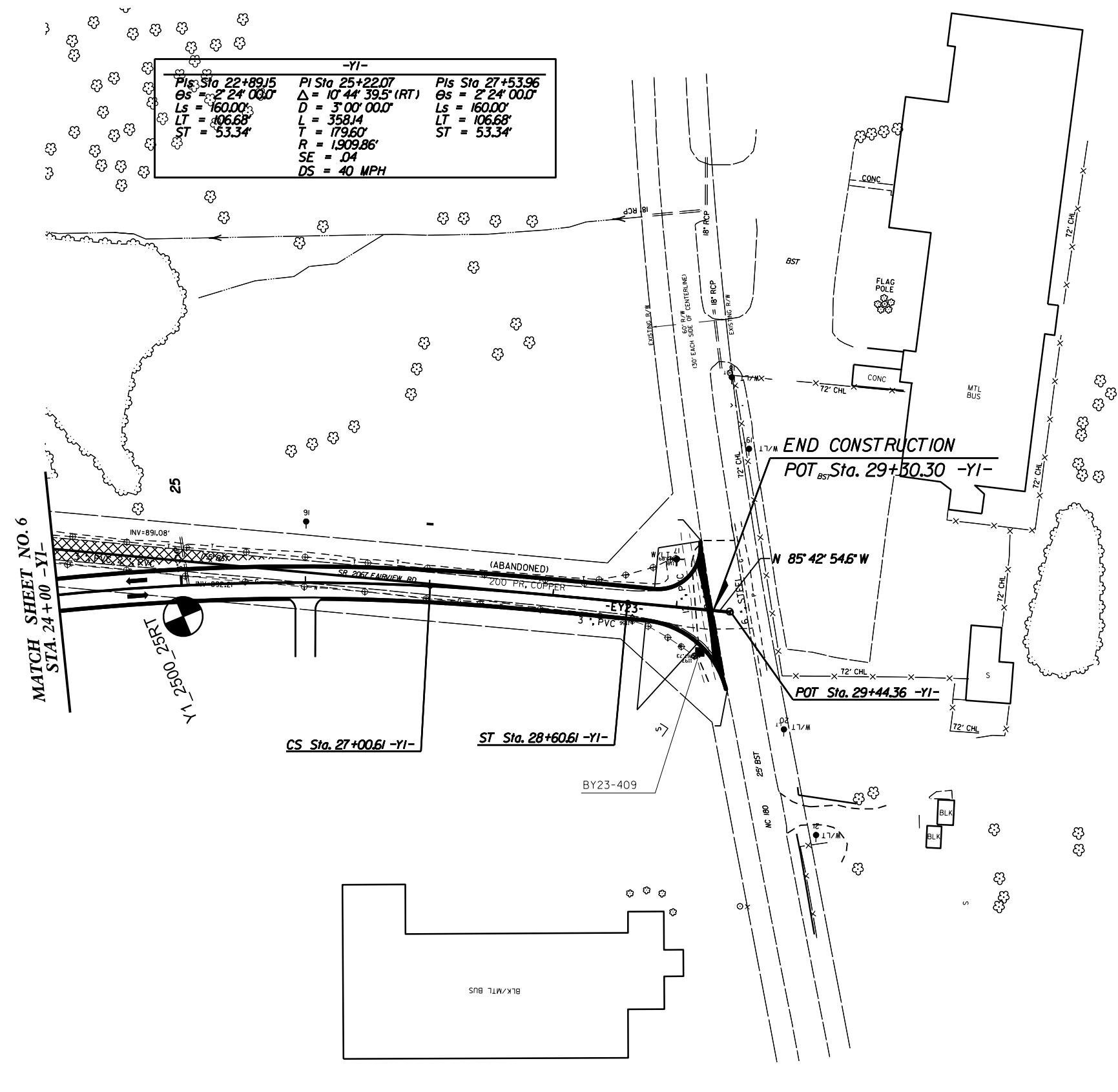
REFERENCES:
 FOR -Y1- PROFILE, SEE SHEET NO. 44
 FOR -SRVRD_1- PROFILE, SEE SHEET NO. 50

REVISIONS
 01-AUG-2018 09:54
 1-PROJECTS\2017\617053.00 Stantec R2707D&E Shelby Bypass\2707_NCDOT_Electronic_File_Tree\Geotech\InvestigationDesign\R2707_GEO_RDWY\CADD_GEO\TECH\Plan\Prof\R2707D_GEO_PSH_20.dgn
 8/17/18

PROJECT REFERENCE NO. <i>R-2707D</i>	SHEET NO. <i>21</i>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



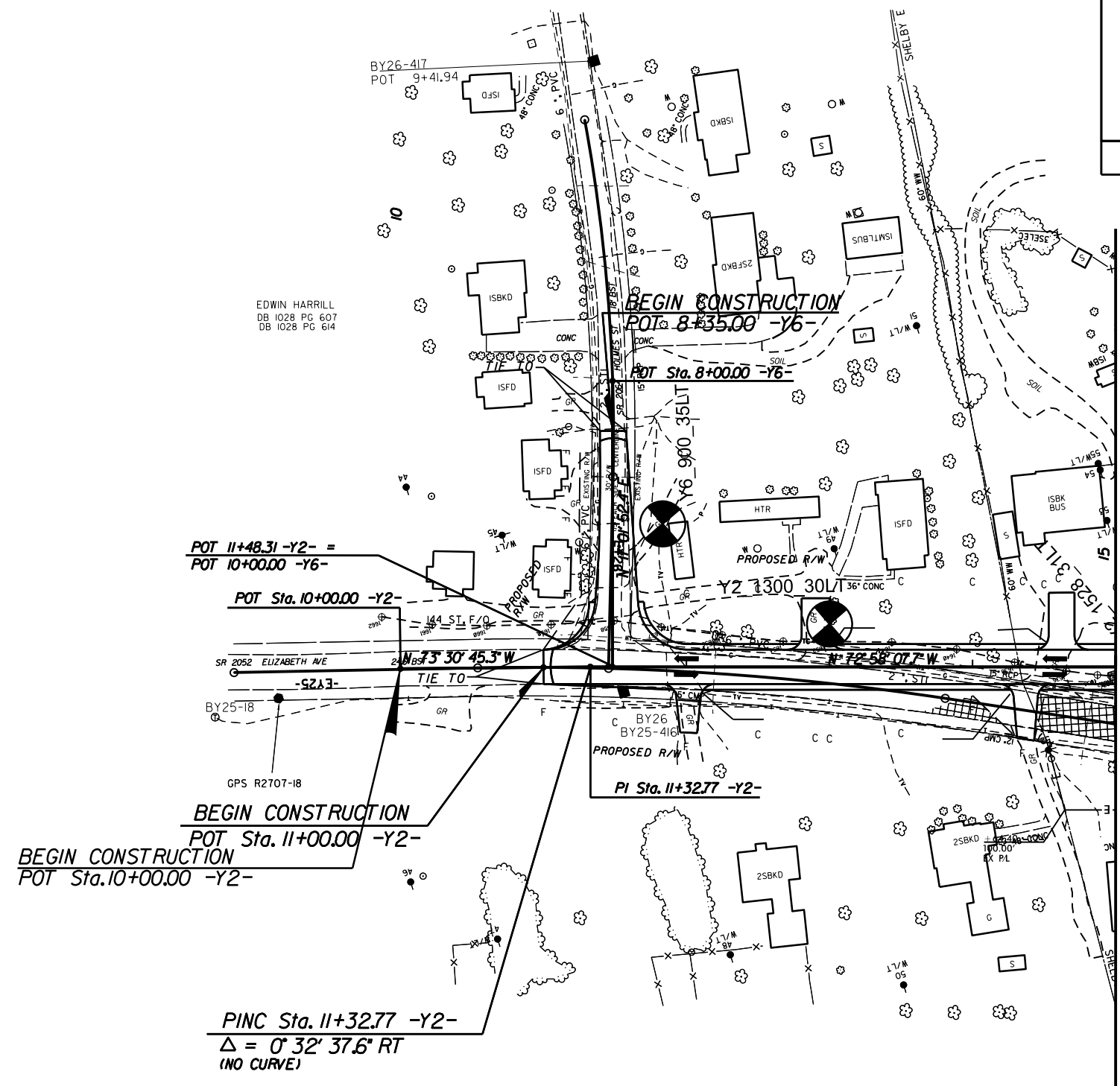
-Y1-		
PIs Sta 22+89.15	PI Sta 25+22.07	PIs Sta 27+53.96
$\theta_s = 2' 24'' 00.0'$	$\Delta = 10' 44'' 39.5' (RT)$	$\theta_s = 2' 24'' 00.0'$
$L_s = 160.00'$	$D = 3' 00'' 00.0'$	$L_s = 160.00'$
$LT = 106.68'$	$L = 358.14'$	$LT = 106.68'$
$ST = 53.34'$	$T = 179.60'$	$ST = 53.34'$
	$R = 1,909.86'$	
	$SE = .04$	
	$DS = 40 \text{ MPH}$	



REVISIONS
 8/17/99
 P:\AUG-2018\09155\1-Projects\2017\617053.00 Stantec R2707D&E Shelby Bujoss\R2707_NCDOT_Electronic_File_Tree\Geotech\InvestigationDesign\R2707_GEO_RDWY\CADD_GEO\TECH\PlanProf\R2707D_GEO_PSH_21.dgn
 01-AUG-2018 09:55
 1-Projects\2017\617053.00 Stantec R2707D&E Shelby Bujoss\R2707_NCDOT_Electronic_File_Tree\Geotech\InvestigationDesign\R2707_GEO_RDWY\CADD_GEO\TECH\PlanProf\R2707D_GEO_PSH_21.dgn

REFERENCES:
FOR -Y1- PROFILE, SEE SHEET NO. 44

PROJECT REFERENCE NO.	SHEET NO.
R-2707D	22
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



MATCH SHEET NO. 8 STA. 15+00 -Y2-

REVISIONS
 02-AUG-2018 15:26
 15-Projects\2017\617053.00 Stantec R2707D&E Shelby Bypass\R2707_NCDOT_Electronic_File_Tree\Geotech\InvestigationDesign\R2707_GEO_RDWY\CADD_GEO\TECH\PlanProf\R2707D_GEO_PSH_22.dgn
 8/17/18

BEGIN CONSTRUCTION
 POT Sta. 11+00.00 -Y2-
BEGIN CONSTRUCTION
 POT Sta. 10+00.00 -Y2-

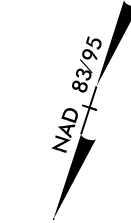
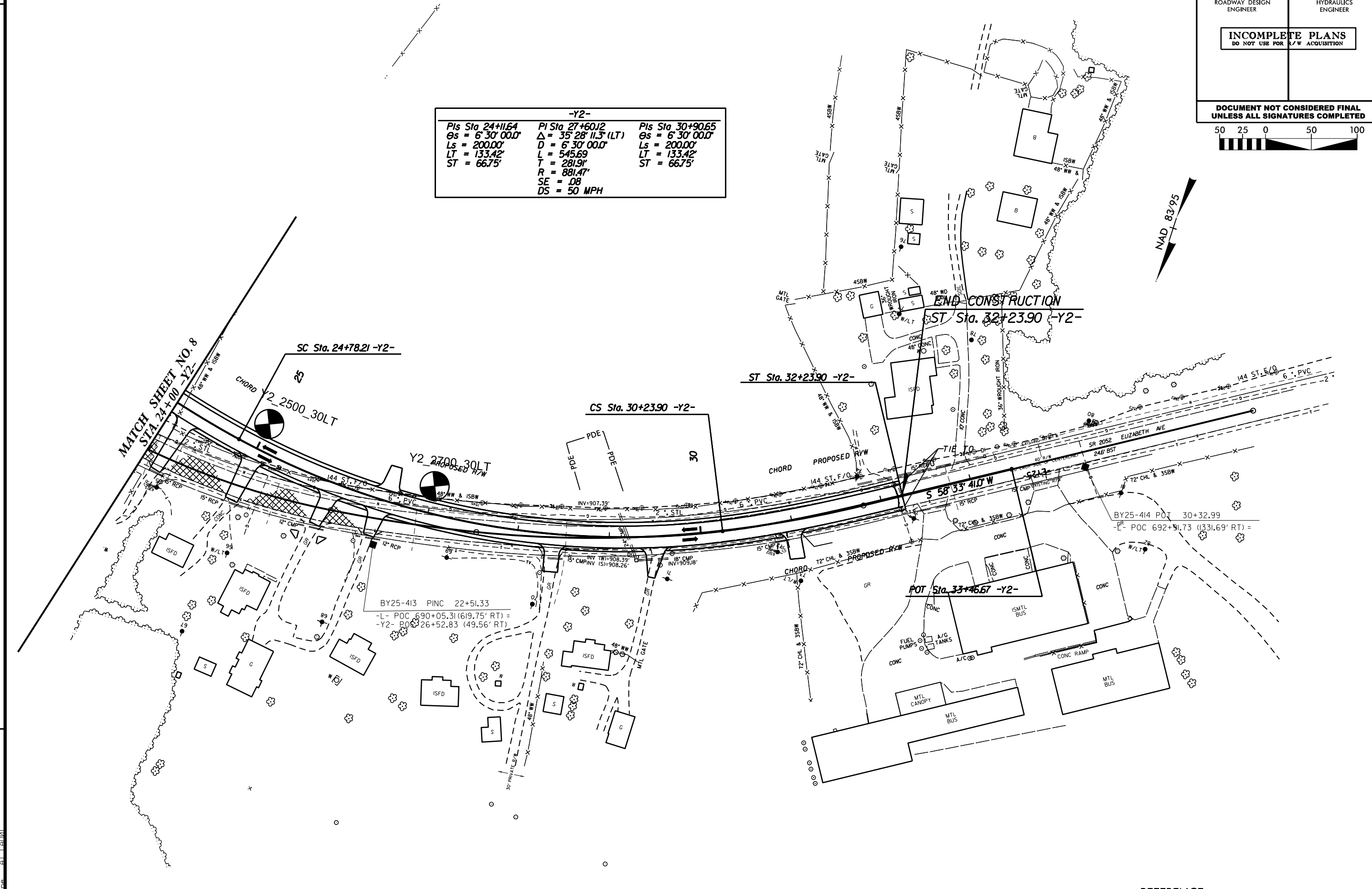
PINC Sta. 11+32.77 -Y2-
 $\Delta = 0^\circ 32' 37.6''$ RT
 (NO CURVE)

REFERENCE:
 FOR -Y2- PROFILE, SEE SHEET NO. 45
 FOR -Y6- PROFILE, SEE SHEET NO. 49

PROJECT REFERENCE NO.	SHEET NO.
R-2707D	23
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



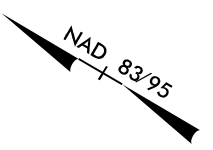
-Y2-		
PIs Sta 24+11.64	PI Sta 27+60.12	PIs Sta 30+90.65
$\theta_s = 6^\circ 30' 00.0''$	$\Delta = 35^\circ 28' 11.3''$ (LT)	$\theta_s = 6^\circ 30' 00.0''$
LS = 200.00'	D = 6' 30' 00.0"	LS = 200.00'
LT = 133.42'	L = 545.69'	LT = 133.42'
ST = 66.75'	T = 281.9'	ST = 66.75'
	R = 881.47'	
	SE = .08	
	DS = 50 MPH	



REVISIONS
 02-AUG-2018 15:28
 15-Projects\2017\617053.00 Stantec R2707D&E Shelby_Bjorass\R2707_NCDOT_Electronic_File_Tree\Geotech\InvestigationDesign\R2707_GEO_RDWY\CADD_GEO\TECH\Plan\Prof\R2707D_GEO_PSH_23.dgn
 8/17/18

REFERENCE:
FOR -Y2- PROFILE, SEE SHEET NO. 45

PROJECT REFERENCE NO. R-2707D	SHEET NO. 24
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



-Y3-

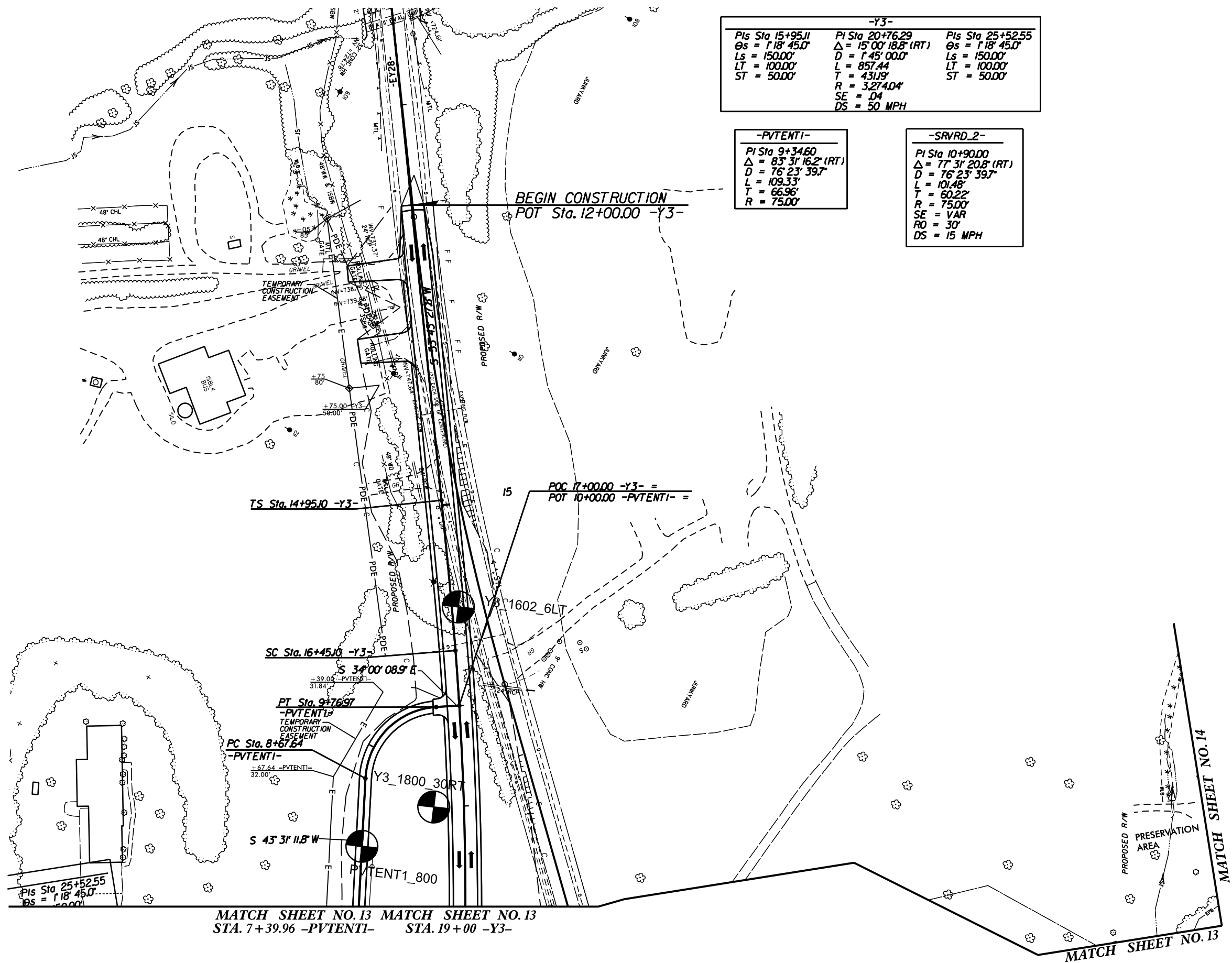
PIs Sta 15+95.11 θs = 1'18" 45.0" Ls = 150.00' LT = 100.00' ST = 50.00'	PI Sta 20+76.29 Δ = 15'00" 18.8" (RT) D = 1'45" 00.0" L = 857.44 T = 431.19 R = 3274.04' SE = 04 DS = 50 MPH	PIs Sta 25+52.55 θs = 1'18" 45.0" Ls = 150.00' LT = 100.00' ST = 50.00'
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-PVTENTI-

PI Sta 9+34.60 Δ = 83'31" 16.2" (RT) D = 76'23" 39.7" L = 109.33' T = 66.96' R = 75.00'
--

-SRVRD_2-

PI Sta 10+90.00 Δ = 77'31" 20.8" (RT) D = 76'23" 39.7" L = 101.48' T = 60.22' R = 75.00' SE = VAR RO = 30' DS = 15 MPH
--



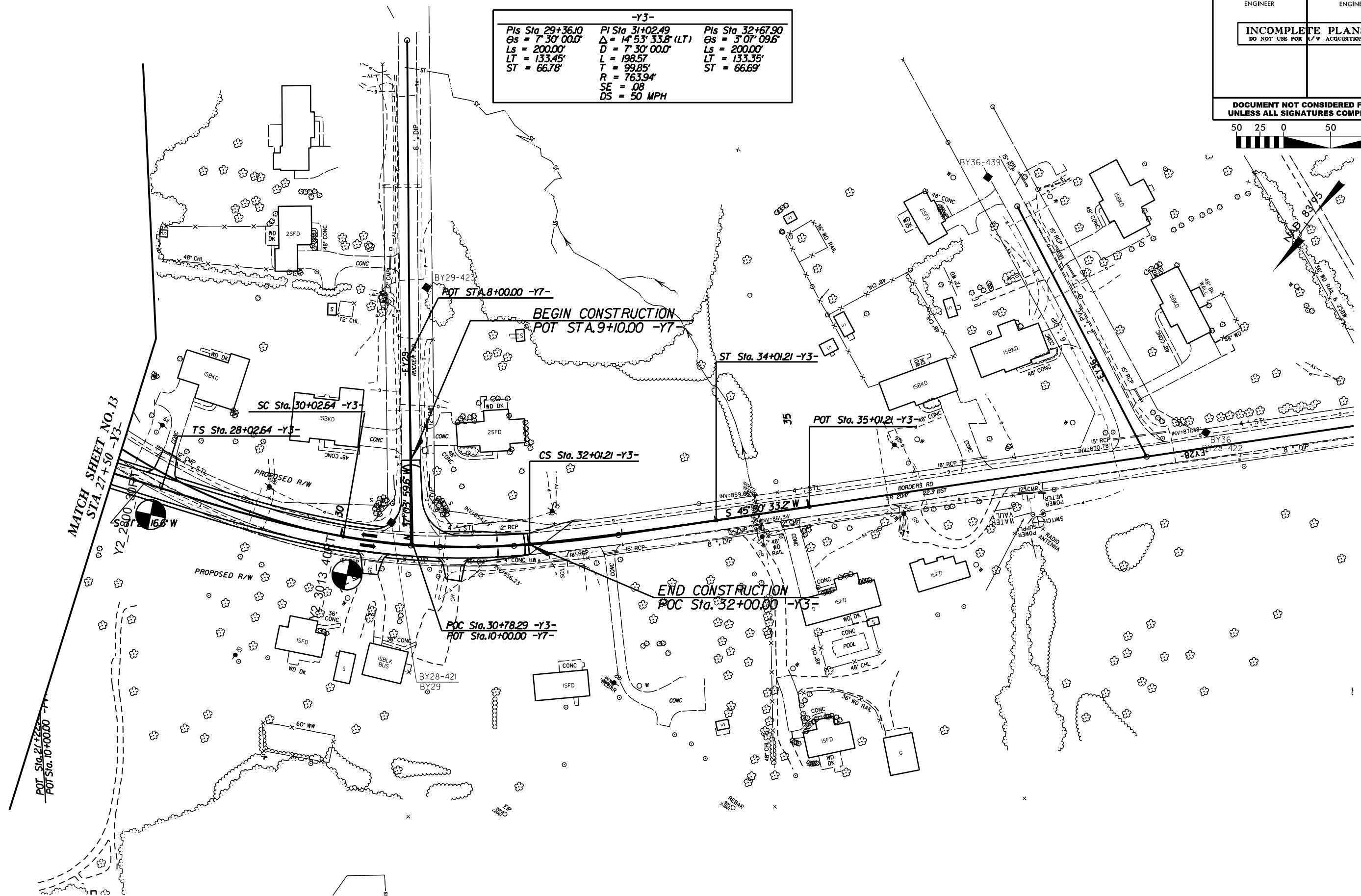
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 8/17/18

REFERENCE:
 FOR -Y3- PROFILE, SEE SHEET NO. 46
 FOR -PVTENTI- PROFILE, SEE SHEET NO. 53

PROJECT REFERENCE NO.	SHEET NO.
R-2707D	25
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



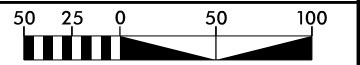
-Y3-		
PIs Sta. 29+36.10	PI Sta. 31+02.49	PIs Sta. 32+67.90
$\Theta_s = 7^\circ 30' 00.0''$	$\Delta = 14^\circ 53' 33.8''$ (LT)	$\Theta_s = 3^\circ 07' 09.6''$
$L_s = 200.00'$	$D = 7^\circ 30' 00.0''$	$L_s = 200.00'$
$LT = 133.45'$	$L = 198.57'$	$LT = 133.35'$
$ST = 66.78'$	$T = 99.85'$	$ST = 66.69'$
	$R = 763.94'$	
	$SE = 08$	
	$DS = 50$ MPH	



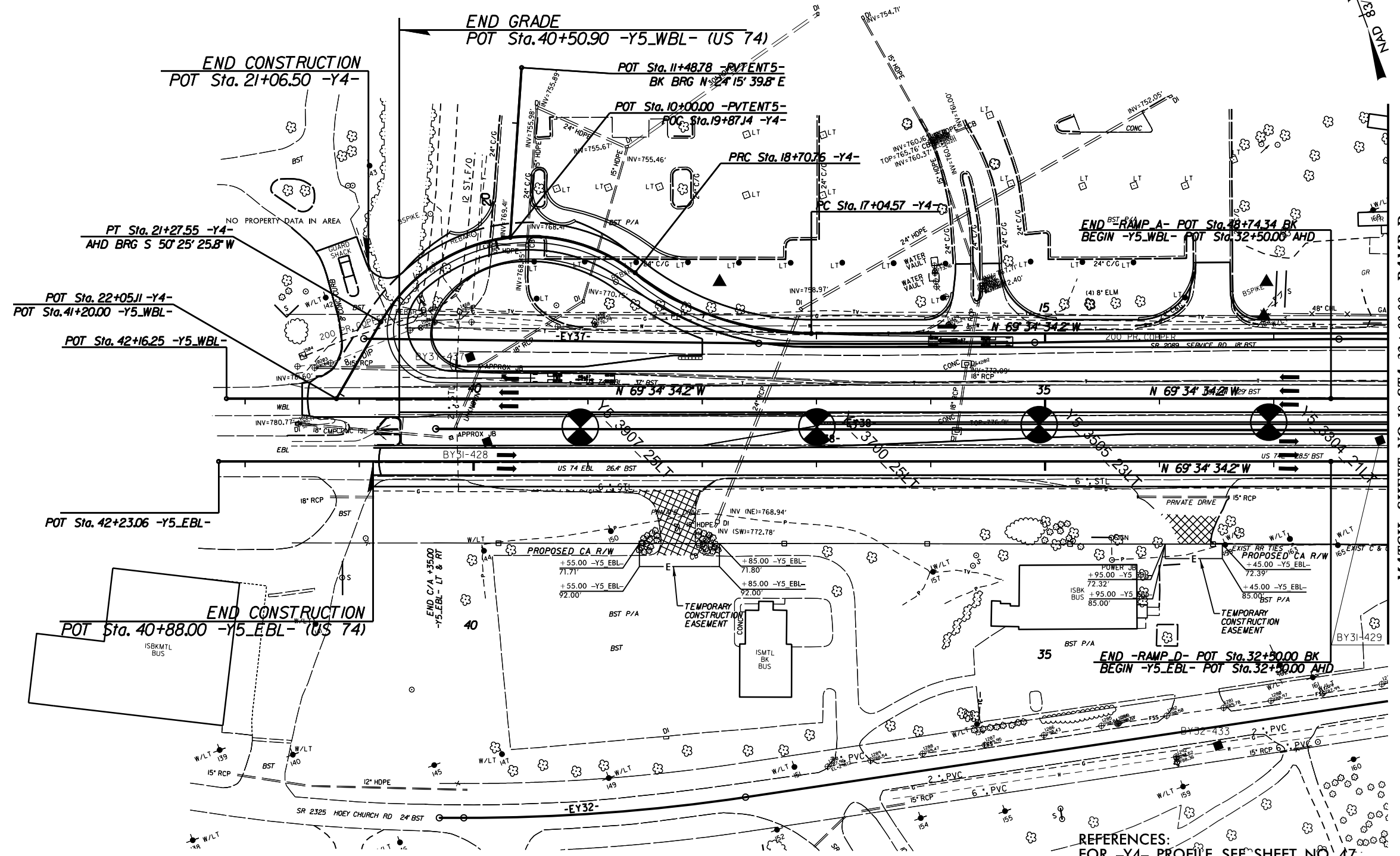
REVISIONS
 01-AUG-2018 09:58
 1-Projects\2017\17053.00 Stantec R2707D&E Shelby_Bypass\R2707_NCDOT_Electronic_File_Tree\Geotech\InvestigationDesign\R2707_GEO_RDWY\CADD_GEO\TECH\Plan\Prof\R2707D_GEO_PSH_25.dgn
 8/17/18

REFERENCE:
 FOR -Y3- PROFILE, SEE SHEET NO. 46
 FOR -Y7- PROFILE, SEE SHEET NO. 49

PROJECT REFERENCE NO.	SHEET NO.
R-2707D	26
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



-Y4-	
PI Sta 17+90.86	PI Sta 20+43.58
$\Delta = 38^{\circ} 05' 14.9''$ (RT)	$\Delta = 98^{\circ} 05' 14.9''$ (LT)
D = 22' 55" 05.9"	D = 38' 11" 49.9"
L = 166.19'	L = 256.79'
T = 86.30'	T = 172.82'
R = 250.00'	R = 150.00'
SE = .04	SE = .04
RO = 80'	RO = 80'
DS = 30 MPH	DS = 20 MPH



REFERENCES:
 FOR -Y4- PROFILE, SEE SHEET NO. 47
 FOR -Y5- PROFILES (EBL & WBL), SEE SHEET NO. 48
 FOR -RAMP_A- PROFILE, SEE SHEET NO. 40

MATCH SHEET NO. 18 STA. 32+00.00 -RAMP_D-
 MATCH SHEET NO. 18 STA. 48+24.34 -RAMP_A-
 MATCH SHEET NO. 18 STA. 12+00.00 -Y4-

REVISIONS
 02-AUG-2018 15:38
 15-Projects-2017-1817053.00 Stantec R2707D&E Shelby_Bjorass\R2707D_NCDOT_Electronic_File_Tree\Geotech\InvestigationDesign\R2707D_GEO_PSH_26.dgn
 8/17/18

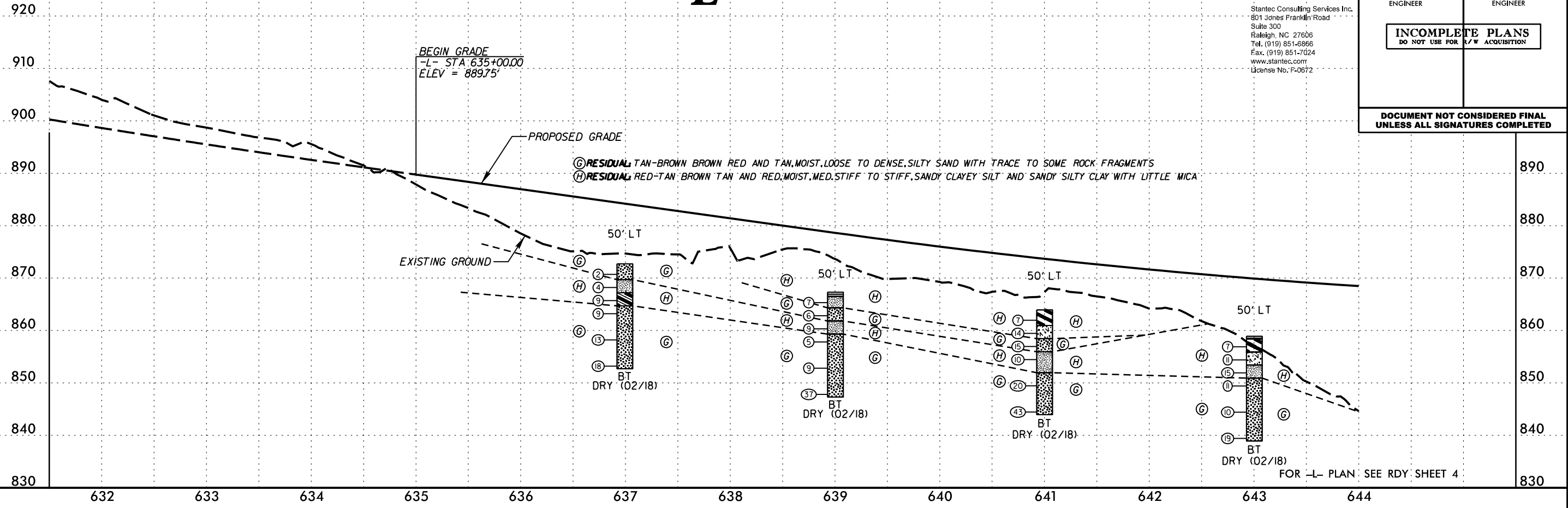
-L-



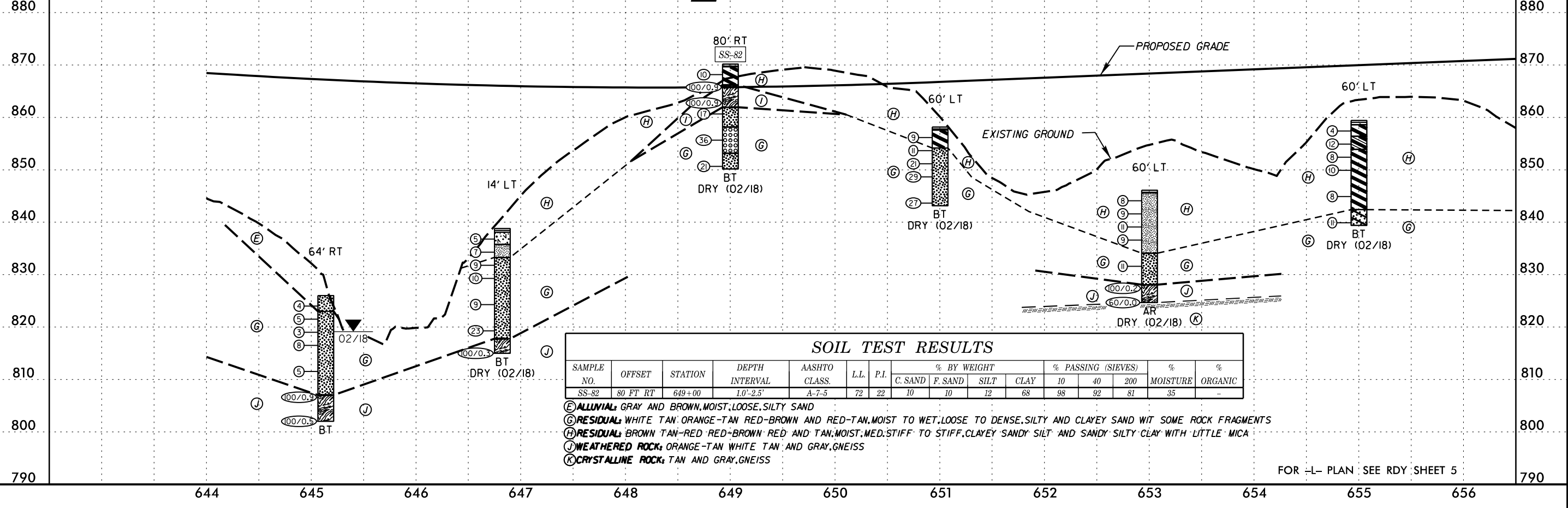
Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

PROJECT REFERENCE NO. R-2707D	SHEET NO. 27
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

I:\N\1-2018\1510_1-1-2018\1510\17\053.00 Stantec R2707D&E Shelby Bypass\R2707_NCDOT-Electronic-File_Tree\Geotech\InvestigationDesign\R2707_GEO_RDWY\CADD_GEO_TECHELYPlanPof\R2707D_GEO_PEL_PSH.dgn 5/28/18



-L-



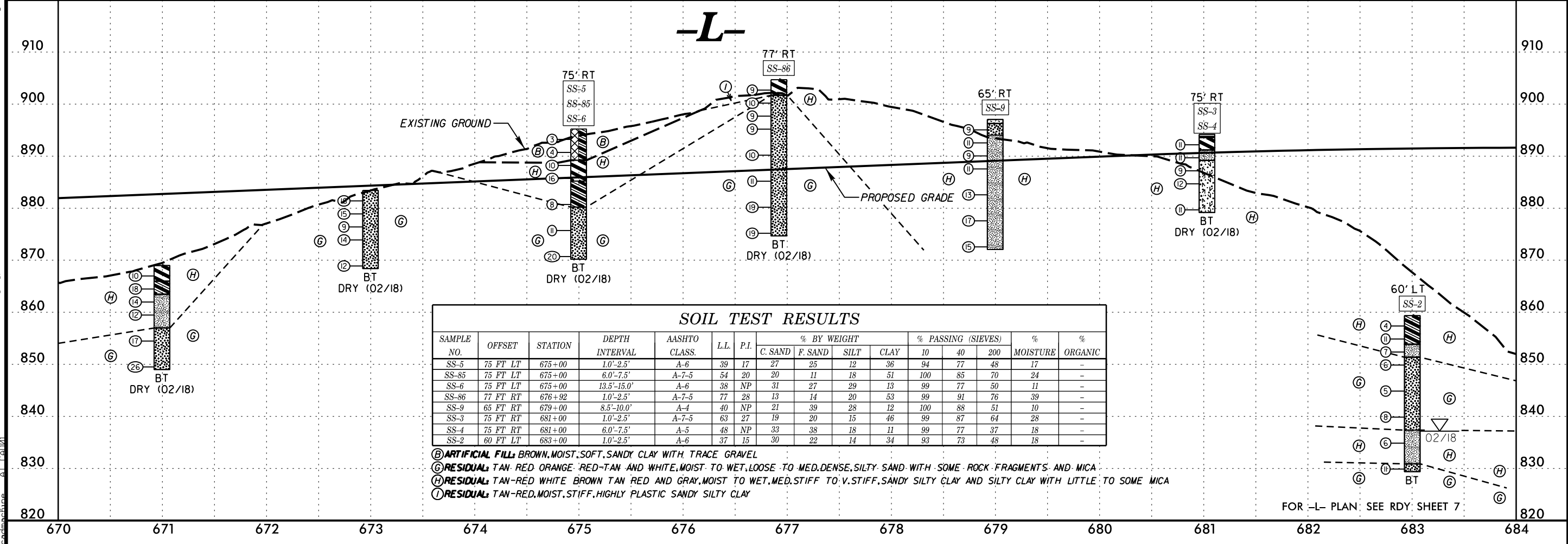
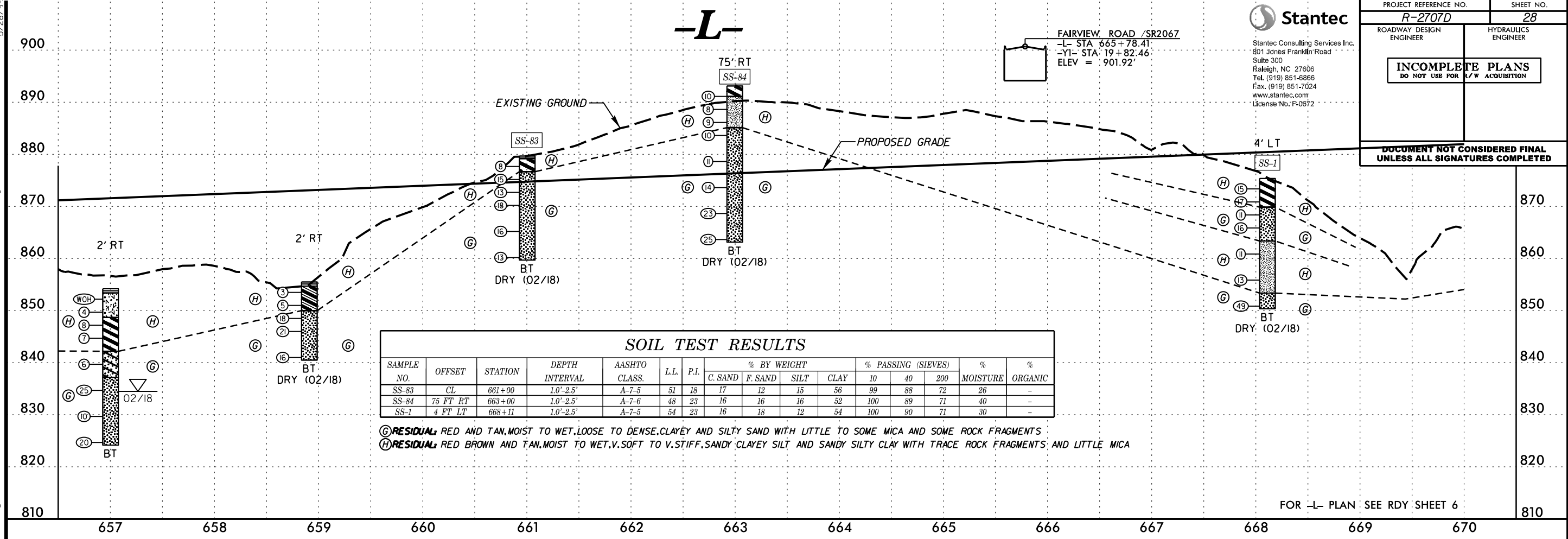
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	LL	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
							SS-82	80 FT RT	649+00	1.0'-2.5'	A-7-5	72	22		

- (E) ALLUVIAL: GRAY AND BROWN, MOIST, LOOSE, SILTY SAND
- (G) RESIDUAL: WHITE TAN, ORANGE-TAN, RED-BROWN AND RED-TAN, MOIST TO WET, LOOSE TO DENSE, SILTY AND CLAYEY SAND WITH SOME ROCK FRAGMENTS
- (H) RESIDUAL: BROWN TAN-RED, RED-BROWN, RED AND TAN, MOIST, MED. STIFF TO STIFF, CLAYEY SANDY SILT AND SANDY SILTY CLAY WITH LITTLE MICA
- (J) WEATHERED ROCK: ORANGE-TAN, WHITE TAN AND GRAY, GNEISS
- (K) CRYSTALLINE ROCK: TAN AND GRAY, GNEISS

5/28/09
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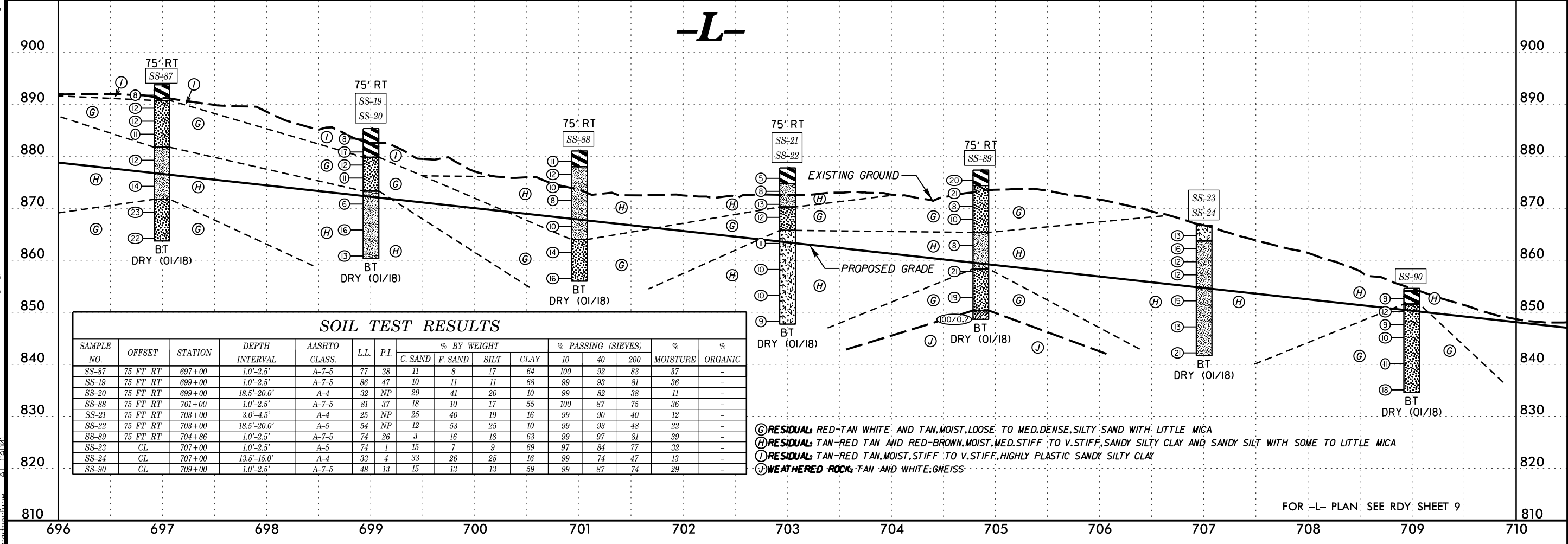
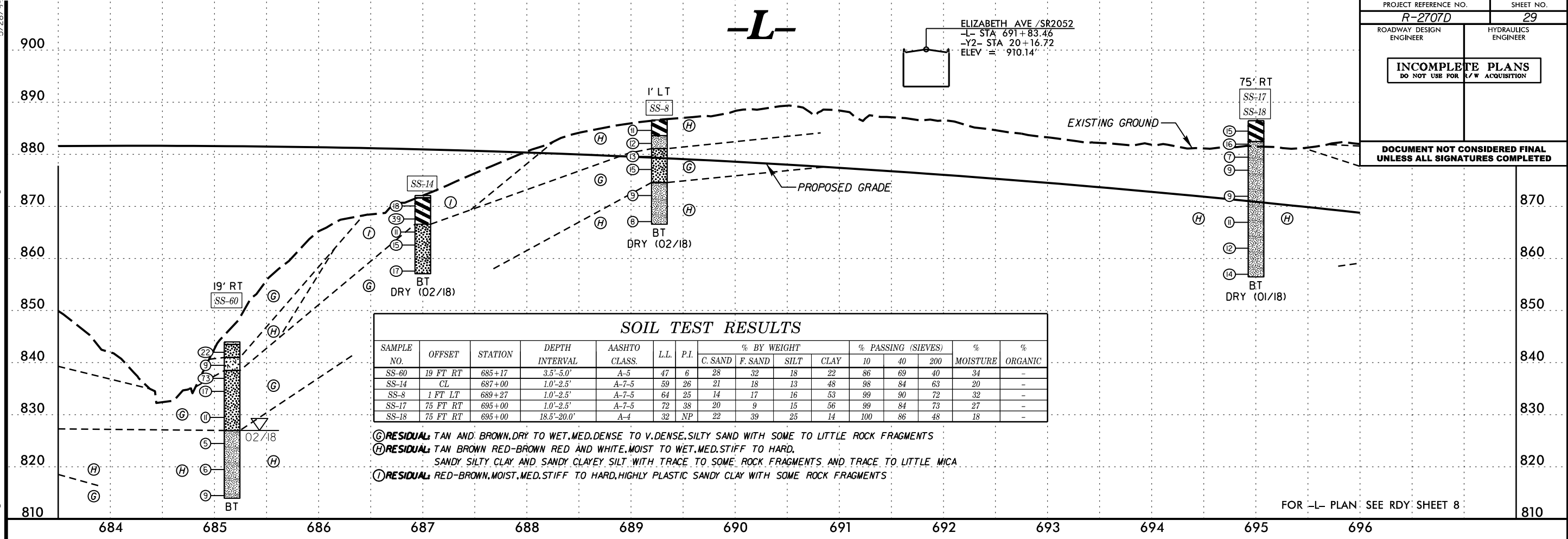
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PROJECT REFERENCE NO. R-2707D	SHEET NO. 28
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



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PROJECT REFERENCE NO. R-2707D	SHEET NO. 29
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



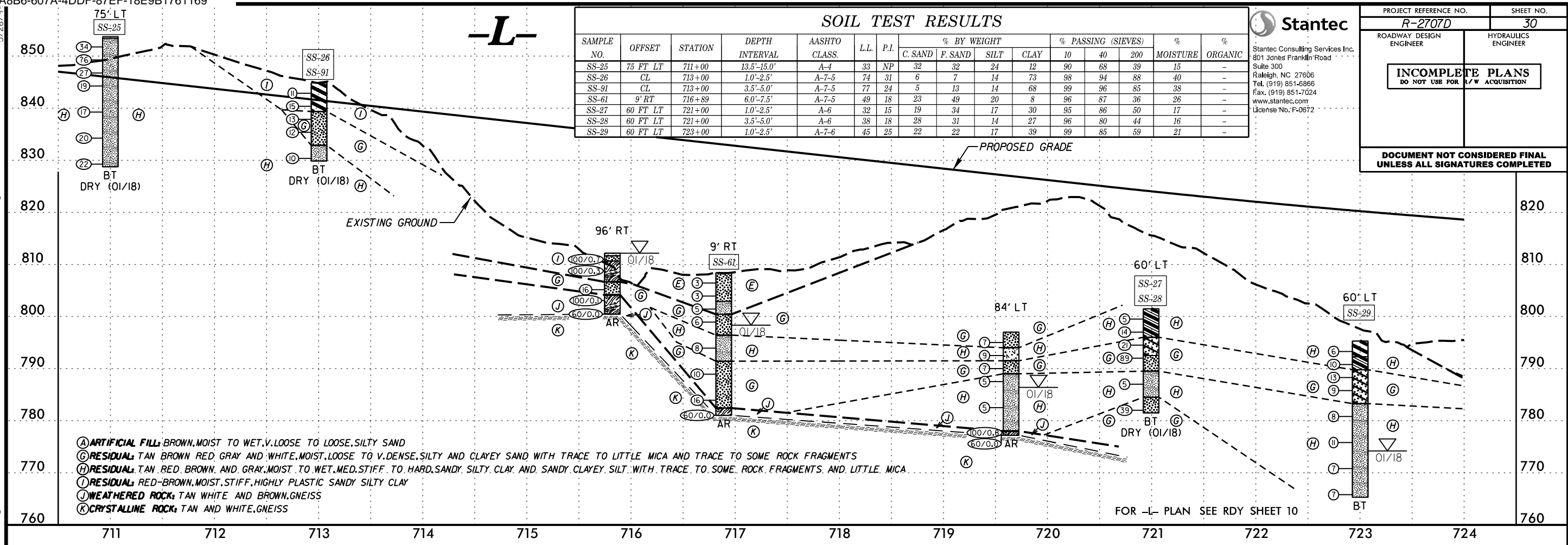


PROJECT REFERENCE NO. R-2707D		SHEET NO. 30	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
INCOMPLETE PLANS DO NOT USE FOR ACQUISITION			
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			

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-25	75 FT LT	711+00	13.5'-15.0'	A-4	33	NP	32	32	24	12	90	68	39	15	-
SS-26	CL	713+00	1.0'-2.5'	A-7-5	74	31	6	7	14	73	98	94	88	40	-
SS-91	CL	713+00	3.5'-5.0'	A-7-5	77	24	5	13	14	68	99	96	85	38	-
SS-61	9' RT	716+89	6.0'-7.5'	A-7-5	49	18	23	49	20	8	96	87	36	26	-
SS-27	60 FT LT	721+00	1.0'-2.5'	A-6	32	15	19	34	17	30	95	86	50	17	-
SS-28	60 FT LT	721+00	3.5'-5.0'	A-6	38	18	28	31	14	27	96	80	44	16	-
SS-29	60 FT LT	723+00	1.0'-2.5'	A-7-6	45	25	22	22	17	39	99	85	59	21	-

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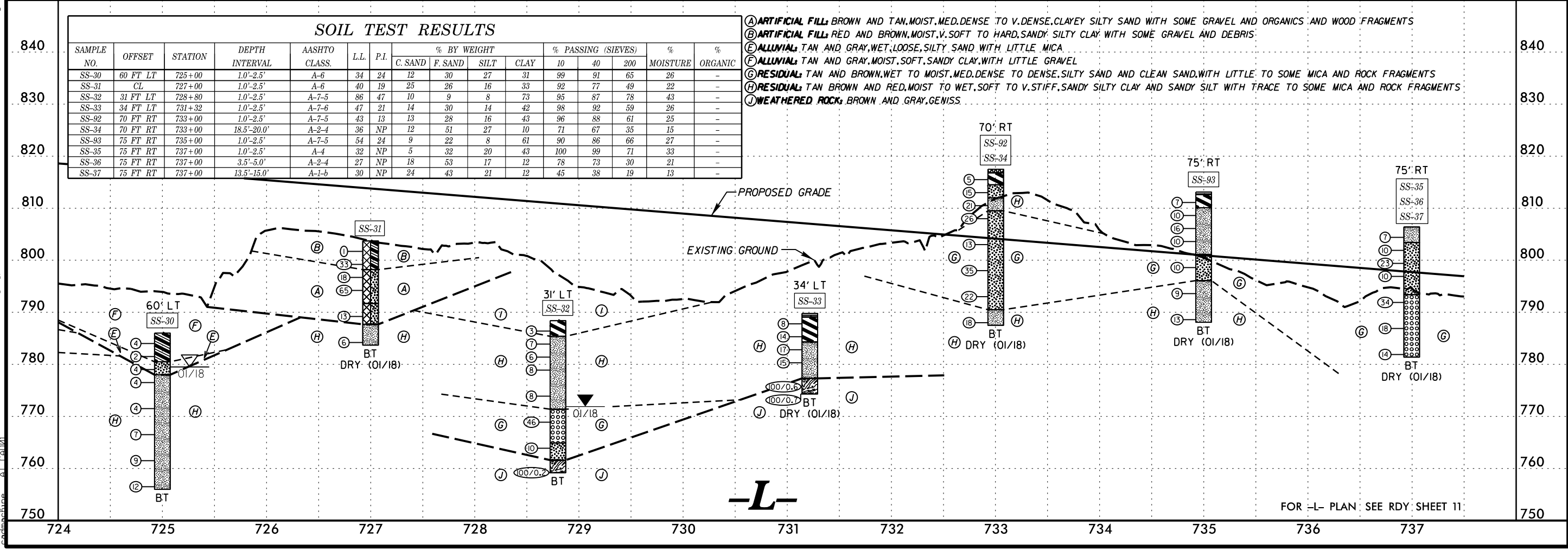
- (A) ARTIFICIAL FILL: BROWN, MOIST TO WET, V. LOOSE TO LOOSE, SILTY SAND
- (B) RESIDUAL: TAN BROWN RED GRAY AND WHITE, MOIST, LOOSE TO V. DENSE, SILTY AND CLAYEY SAND WITH TRACE TO LITTLE MICA AND TRACE TO SOME ROCK FRAGMENTS
- (C) RESIDUAL: TAN RED BROWN AND GRAY, MOIST TO WET, MED. STIFF TO HARD, SANDY, SILTY CLAY AND SANDY CLAYEY SILT WITH TRACE TO SOME ROCK FRAGMENTS AND LITTLE MICA
- (D) RESIDUAL: RED-BROWN, MOIST, STIFF, HIGHLY PLASTIC SANDY SILTY CLAY
- (E) WEATHERED ROCK: TAN WHITE AND BROWN, GNEISS
- (K) CRYSTALLINE ROCK: TAN AND WHITE, GNEISS

FOR -L- PLAN SEE RDY SHEET 10

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-30	60 FT LT	725+00	1.0'-2.5'	A-6	34	24	12	30	27	31	99	91	65	26	-
SS-31	CL	727+00	1.0'-2.5'	A-6	40	19	25	26	16	33	92	77	49	22	-
SS-32	31 FT LT	728+80	1.0'-2.5'	A-7-5	86	47	10	9	8	73	95	87	78	43	-
SS-33	34 FT LT	731+32	1.0'-2.5'	A-7-6	47	21	14	30	14	42	98	92	59	26	-
SS-92	70 FT RT	733+00	1.0'-2.5'	A-7-5	43	13	13	28	16	43	96	88	61	25	-
SS-34	70 FT RT	733+00	18.5'-20.0'	A-2-4	36	NP	12	51	27	10	71	67	35	15	-
SS-93	75 FT RT	735+00	1.0'-2.5'	A-7-5	54	24	9	22	8	61	90	86	66	27	-
SS-35	75 FT RT	737+00	1.0'-2.5'	A-4	32	NP	5	32	20	43	100	99	71	33	-
SS-36	75 FT RT	737+00	3.5'-5.0'	A-2-4	27	NP	18	53	17	12	78	73	30	21	-
SS-37	75 FT RT	737+00	13.5'-15.0'	A-1-b	30	NP	24	43	21	12	45	38	19	13	-

- (A) ARTIFICIAL FILL: BROWN AND TAN, MOIST, MED. DENSE TO V. DENSE, CLAYEY SILTY SAND WITH SOME GRAVEL AND ORGANICS AND WOOD FRAGMENTS
- (B) ARTIFICIAL FILL: RED AND BROWN, MOIST, V. SOFT TO HARD, SANDY SILTY CLAY WITH SOME GRAVEL AND DEBRIS
- (E) ALLUVIAL: TAN AND GRAY, WET, LOOSE, SILTY SAND WITH LITTLE MICA
- (F) ALLUVIAL: TAN AND GRAY, MOIST, SOFT, SANDY CLAY WITH LITTLE GRAVEL
- (G) RESIDUAL: TAN AND BROWN, WET TO MOIST, MED. DENSE TO DENSE, SILTY SAND AND CLEAN SAND, WITH LITTLE TO SOME MICA AND ROCK FRAGMENTS
- (H) RESIDUAL: TAN BROWN AND RED, MOIST TO WET, SOFT TO V. STIFF, SANDY SILTY CLAY AND SANDY SILT WITH TRACE TO SOME MICA AND ROCK FRAGMENTS
- (J) WEATHERED ROCK: BROWN AND GRAY, GNEISS



FOR -L- PLAN SEE RDY SHEET 11

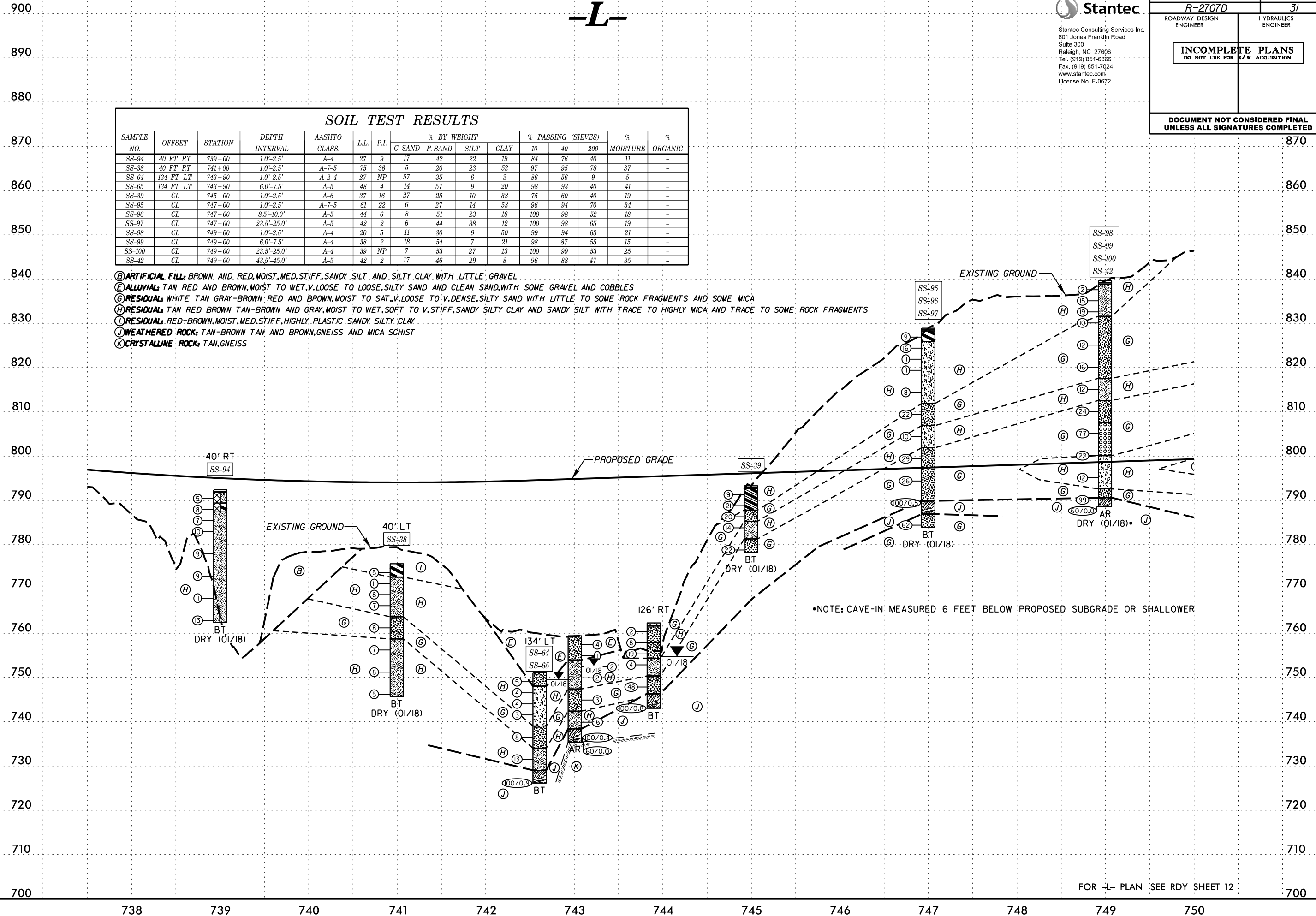
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PROJECT REFERENCE NO. R-2707D	SHEET NO. 31
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS <small>DO NOT USE FOR A/W ACQUISITION</small>	
DOCUMENT NOT CONSIDERED FINAL <small>UNLESS ALL SIGNATURES COMPLETED</small>	

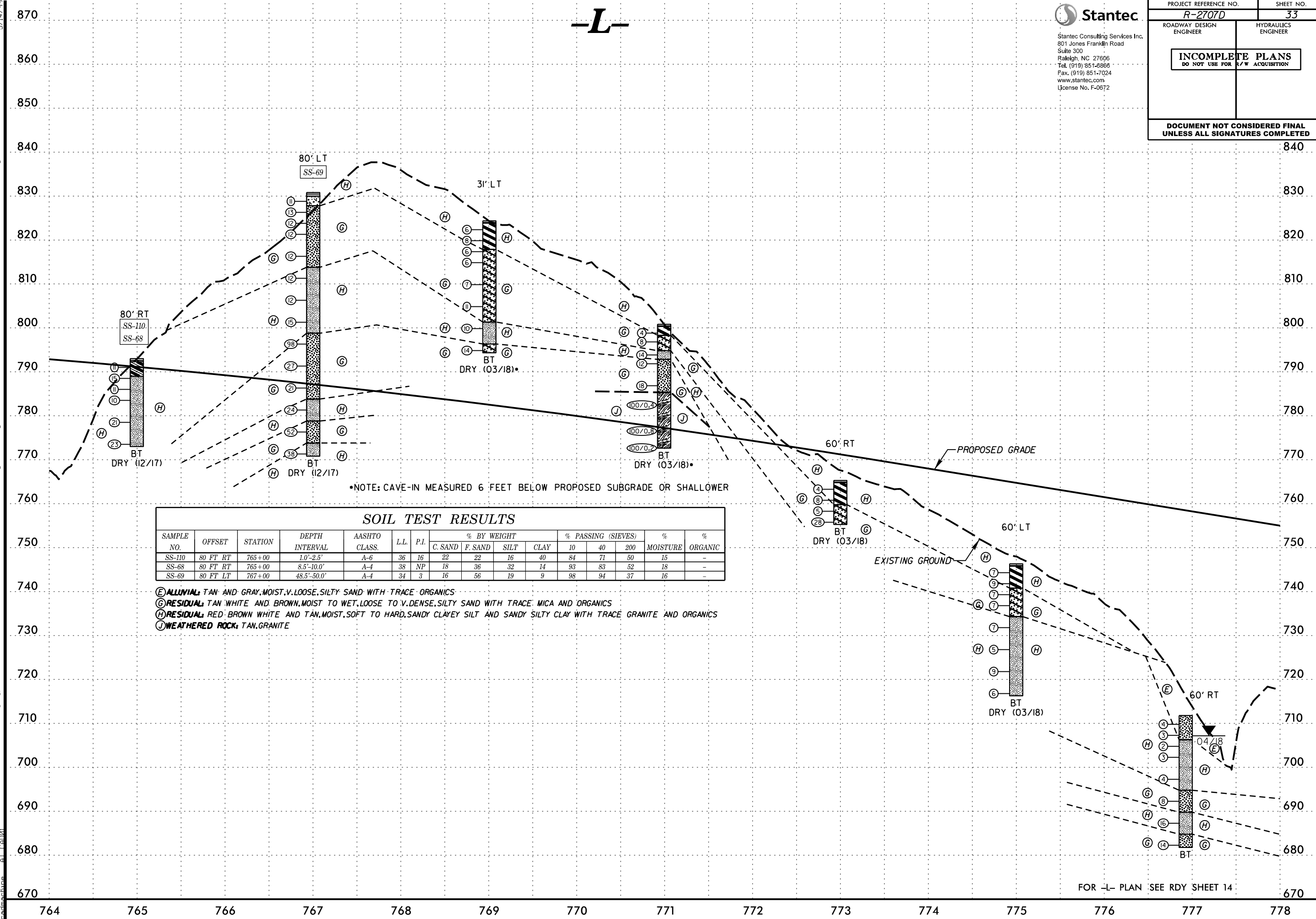


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PROJECT REFERENCE NO. <i>R-2707D</i>	SHEET NO. <i>33</i>
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



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-110	80 FT RT	765+00	1.0'-2.5'	A-6	36	16	22	22	16	40	84	71	50	15	-
SS-68	80 FT RT	765+00	8.5'-10.0'	A-4	38	NP	18	36	32	14	93	83	52	18	-
SS-69	80 FT LT	767+00	48.5'-50.0'	A-4	34	3	16	56	19	9	98	94	37	16	-

- (E) ALLUVIAL: TAN AND GRAY, MOIST, V. LOOSE, SILTY SAND WITH TRACE ORGANICS
- (G) RESIDUAL: TAN WHITE AND BROWN, MOIST TO WET, LOOSE TO V. DENSE, SILTY SAND WITH TRACE MICA AND ORGANICS
- (H) RESIDUAL: RED BROWN WHITE AND TAN, MOIST, SOFT TO HARD, SANDY CLAYEY SILT AND SANDY SILTY CLAY WITH TRACE GRANITE AND ORGANICS
- (J) WEATHERED ROCK: TAN, GRANITE

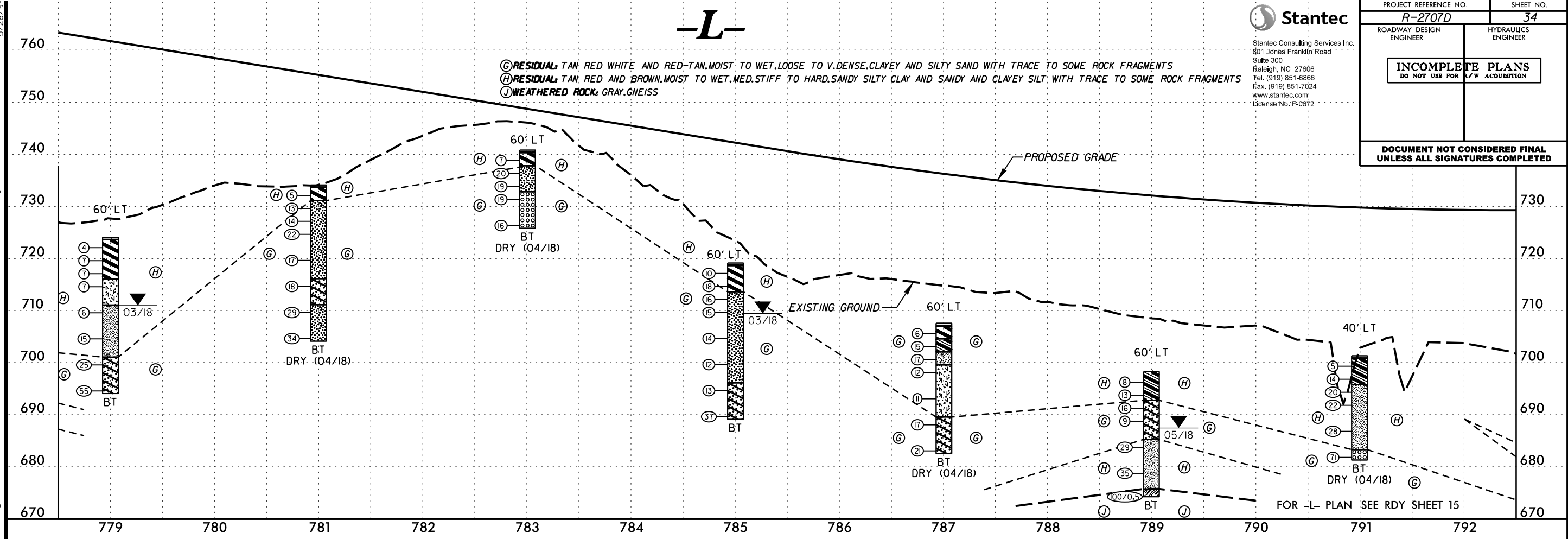
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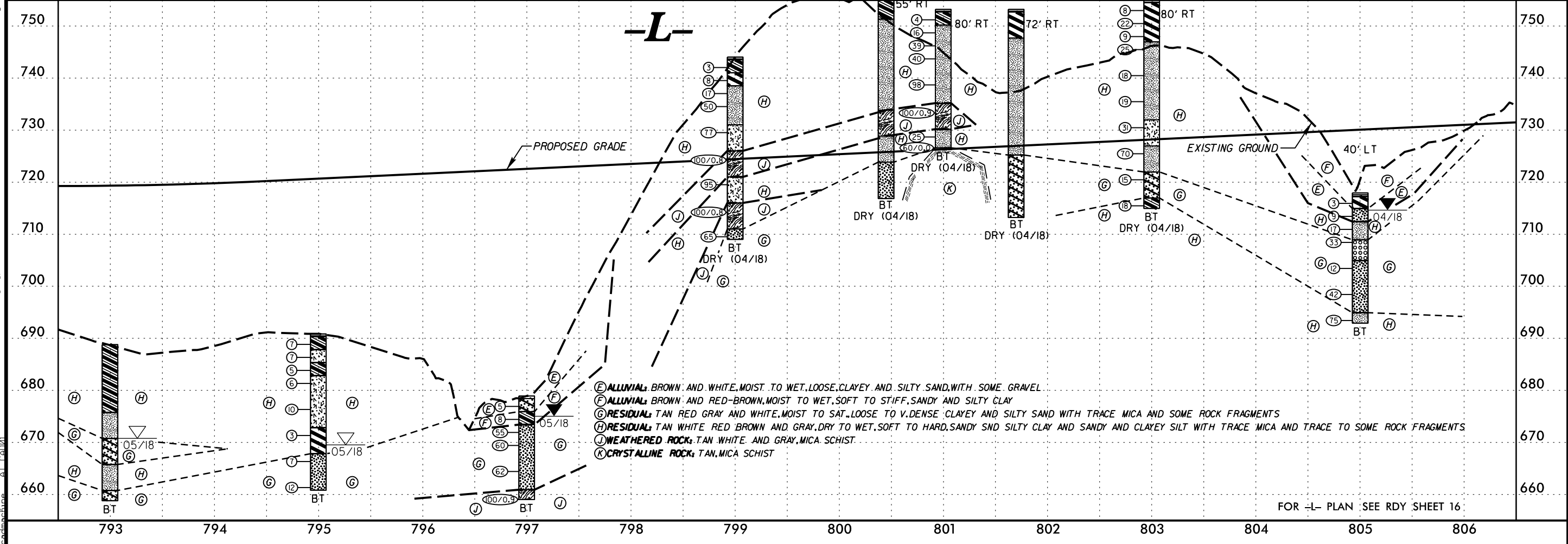
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PROJECT REFERENCE NO. R-2707D	SHEET NO. 34
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
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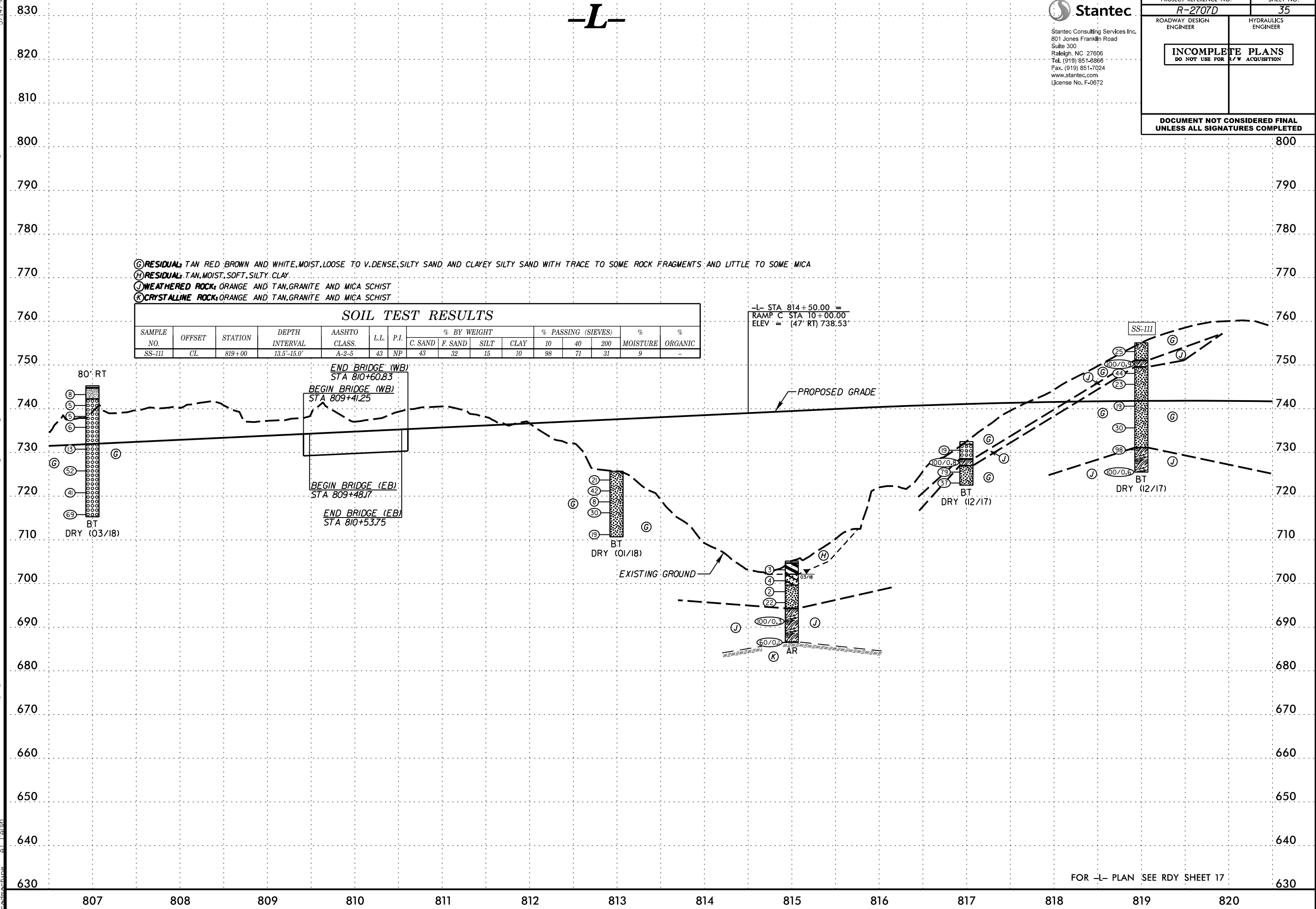
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PROJECT REFERENCE NO. <i>R-2707D</i>	SHEET NO. 35
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

- (G) RESIDUAL; TAN RED BROWN AND WHITE, MOIST, LOOSE TO V. DENSE, SILTY SAND AND CLAYEY SILTY SAND WITH TRACE TO SOME ROCK FRAGMENTS AND LITTLE TO SOME MICA
- (H) RESIDUAL; TAN, MOIST, SOFT, SILTY CLAY
- (J) WEATHERED ROCK; ORANGE AND TAN, GRANITE AND MICA SCHIST
- (K) CRYSTALLINE ROCK; ORANGE AND TAN, GRANITE AND MICA SCHIST

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-111	CL	819+00	13.5'-15.0'	A-2-5	43	NP	43	32	15	10	98	71	31	9	-

-L- STA 814+50.00 =
 RAMP C STA 10+00.00
 ELEV = (47' RT) 738.53'



FOR -L- PLAN SEE RDY SHEET 17

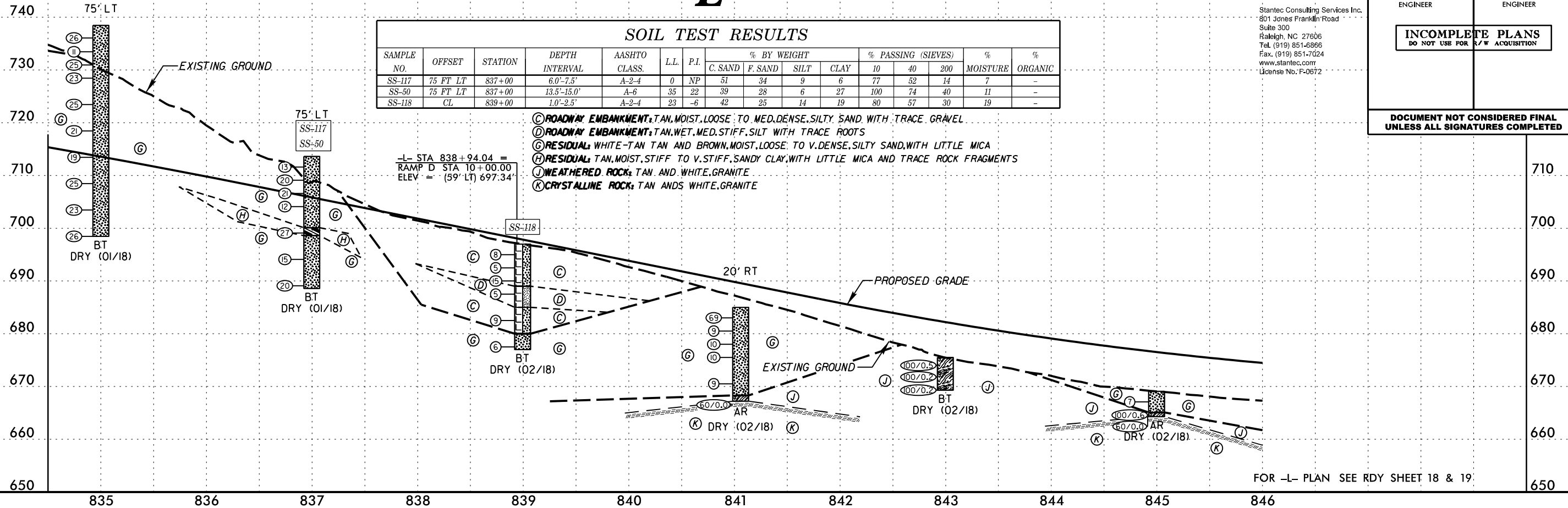
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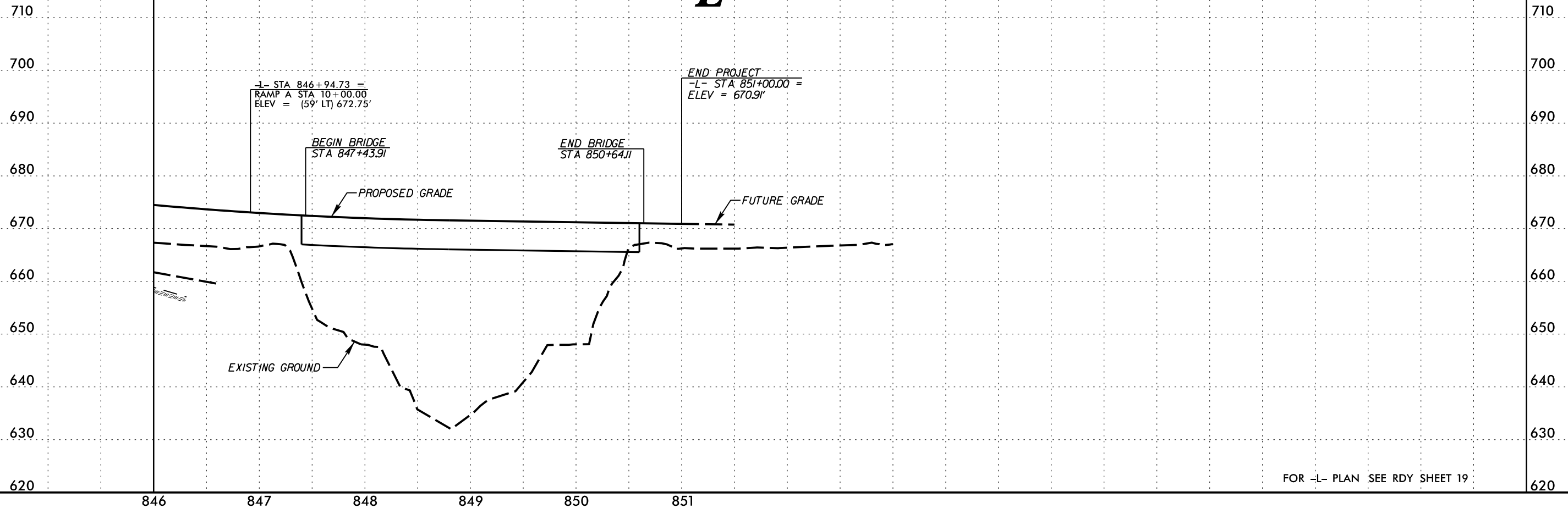
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ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION			
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			

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-117	75 FT LT	837+00	6.0'-7.5'	A-2-4	0	NP	51	34	9	6	77	52	14	7	-
SS-50	75 FT LT	837+00	13.5'-15.0'	A-6	35	22	39	28	6	27	100	74	40	11	-
SS-118	CL	839+00	1.0'-2.5'	A-2-4	23	-6	42	25	14	19	80	57	30	19	-



FOR -L- PLAN SEE RDY SHEET 18 & 19

-L-



FOR -L- PLAN SEE RDY SHEET 19

5/28/09
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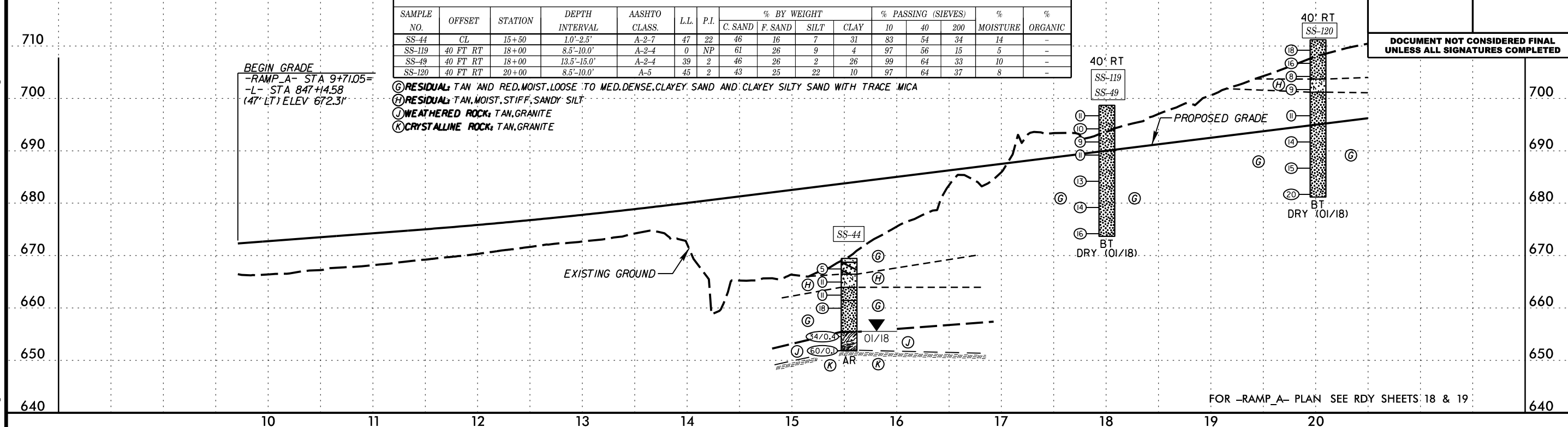
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PROJECT REFERENCE NO. R-2707D	SHEET NO. 38
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INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

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-44	CL	15+50	1.0'-2.5'	A-2-7	47	22	46	16	7	31	83	54	34	14	-
SS-119	40 FT RT	18+00	8.5'-10.0'	A-2-4	0	NP	61	26	9	4	97	56	15	5	-
SS-49	40 FT RT	18+00	13.5'-15.0'	A-2-4	39	2	46	26	2	26	99	64	33	10	-
SS-120	40 FT RT	20+00	8.5'-10.0'	A-5	45	2	43	25	22	10	97	64	37	8	-

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-L- STA 847+4.58
(47' LT) ELEV 672.31'

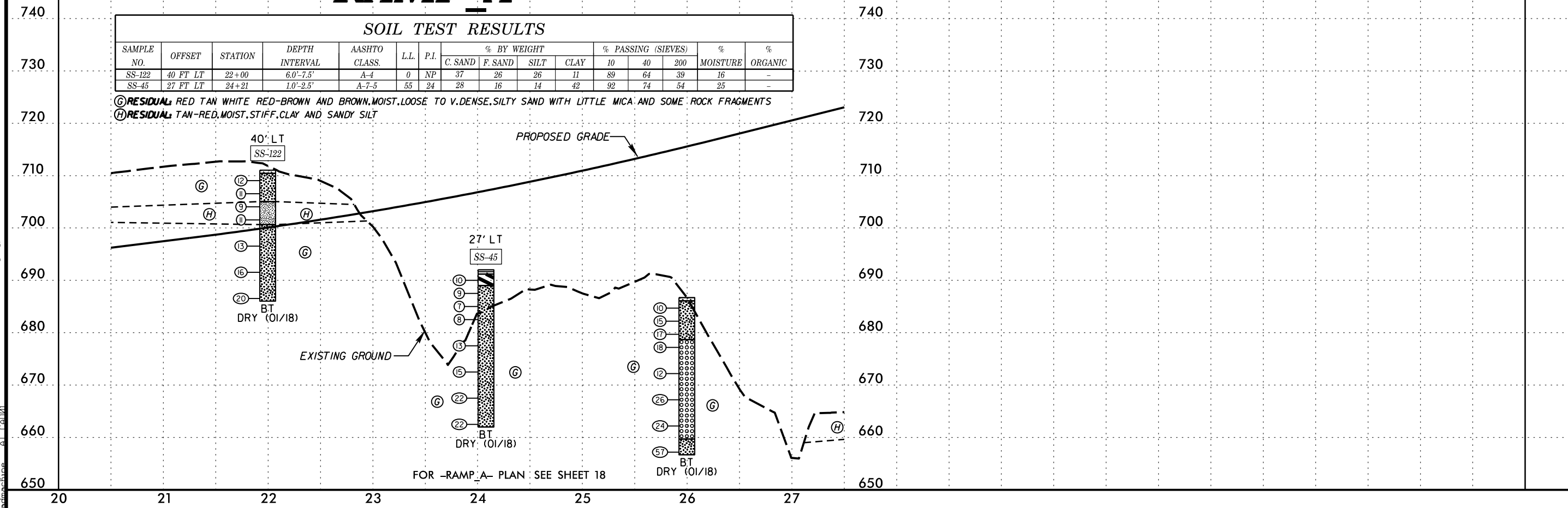
- Ⓒ RESIDUAL: TAN AND RED, MOIST, LOOSE TO MED. DENSE, CLAYEY SAND AND CLAYEY SILTY SAND WITH TRACE MICA
- Ⓓ RESIDUAL: TAN, MOIST, STIFF, SANDY SILT
- Ⓙ WEATHERED ROCK: TAN, GRANITE
- Ⓚ CRYSTALLINE ROCK: TAN, GRANITE



-RAMP_A-

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-122	40 FT LT	22+00	6.0'-7.5'	A-4	0	NP	37	26	26	11	89	64	39	16	-
SS-45	27 FT LT	24+21	1.0'-2.5'	A-7-5	55	24	28	16	14	42	92	74	54	25	-

- Ⓒ RESIDUAL: RED TAN WHITE RED-BROWN AND BROWN, MOIST, LOOSE TO V. DENSE, SILTY SAND WITH LITTLE MICA AND SOME ROCK FRAGMENTS
- Ⓓ RESIDUAL: TAN-RED, MOIST, STIFF, CLAY AND SANDY SILT



-RAMP_A-



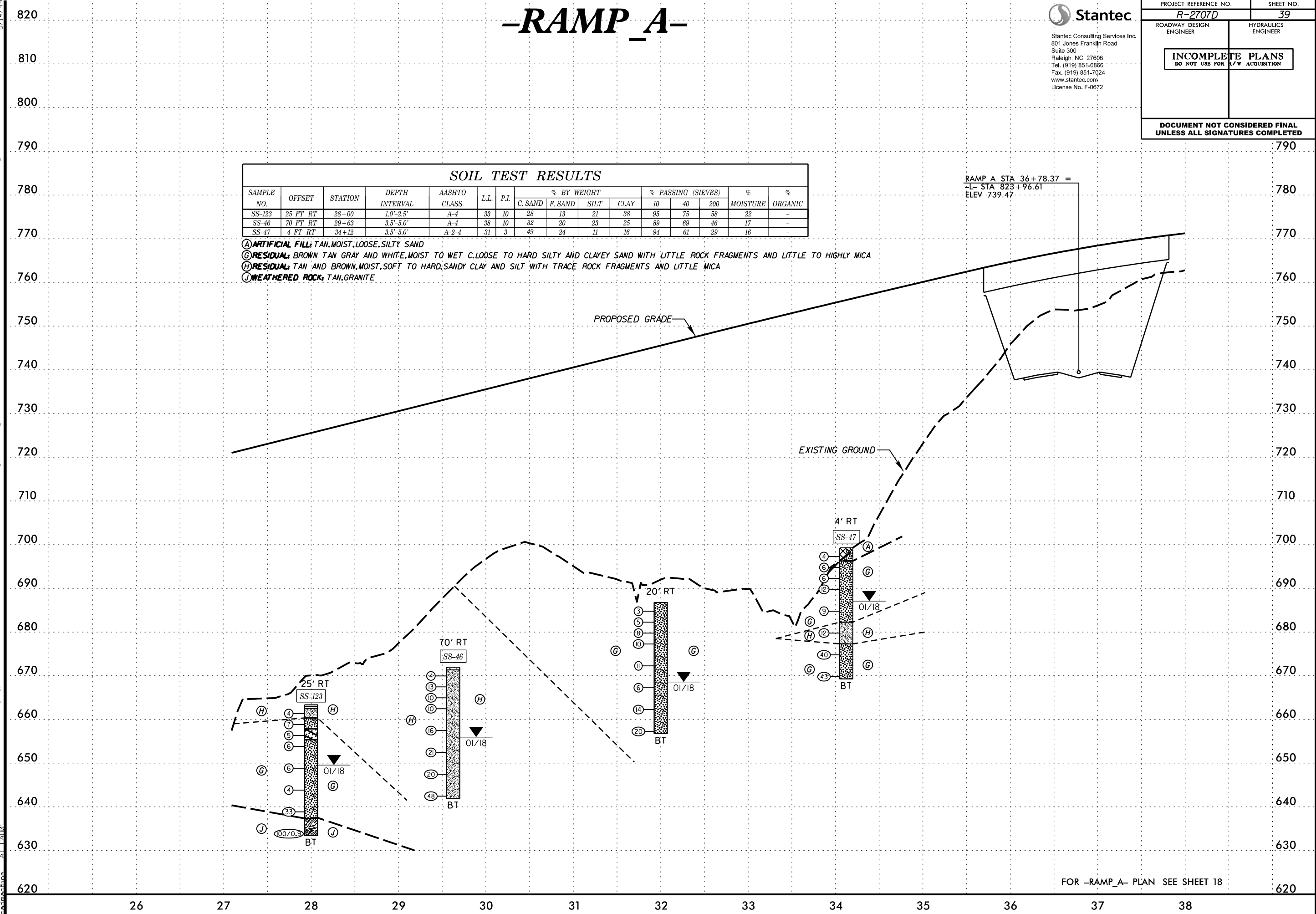
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PROJECT REFERENCE NO. R-2707D	SHEET NO. 39
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SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	LL	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-123	25 FT RT	28+00	1.0'-2.5'	A-4	33	10	28	13	21	38	95	75	58	22	-
SS-46	70 FT RT	29+63	3.5'-5.0'	A-4	38	10	32	20	23	25	89	69	46	17	-
SS-47	4 FT RT	34+12	3.5'-5.0'	A-2-4	31	3	49	24	11	16	94	61	29	16	-

- Ⓐ ARTIFICIAL FILL: TAN, MOIST, LOOSE, SILTY SAND
- Ⓒ RESIDUAL: BROWN TAN GRAY AND WHITE, MOIST TO WET C. LOOSE TO HARD SILTY AND CLAYEY SAND WITH LITTLE ROCK FRAGMENTS AND LITTLE TO HIGHLY MICA
- Ⓓ RESIDUAL: TAN AND BROWN, MOIST, SOFT TO HARD, SANDY CLAY AND SILT WITH TRACE ROCK FRAGMENTS AND LITTLE MICA
- Ⓙ WEATHERED ROCK: TAN, GRANITE

RAMP A STA 36+78.37 =
+L- STA 823+96.61
ELEV 739.47



FOR -RAMP_A- PLAN SEE SHEET 18

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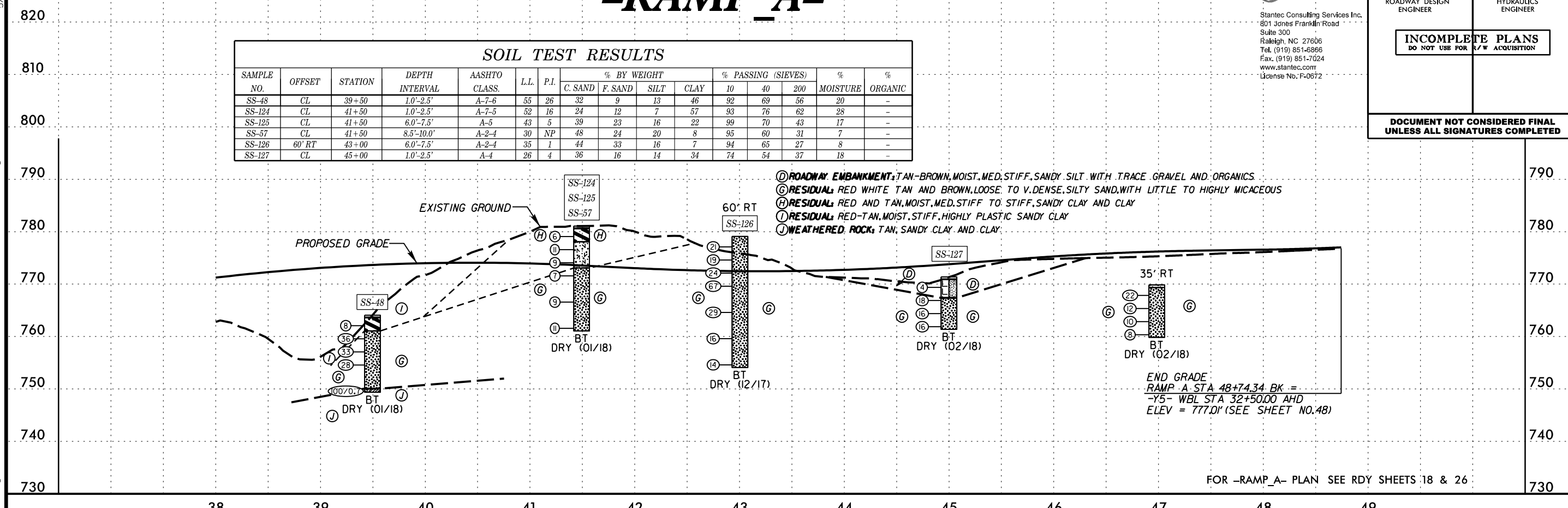
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PROJECT REFERENCE NO. R-2707D	SHEET NO. 40
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

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-48	CL	39+50	1.0'-2.5'	A-7-6	55	26	32	9	13	46	92	69	56	20	-
SS-124	CL	41+50	1.0'-2.5'	A-7-5	52	16	24	12	7	57	93	76	62	28	-
SS-125	CL	41+50	6.0'-7.5'	A-5	43	5	39	23	16	22	99	70	43	17	-
SS-57	CL	41+50	8.5'-10.0'	A-2-4	30	NP	48	24	20	8	95	60	31	7	-
SS-126	60' RT	43+00	6.0'-7.5'	A-2-4	35	1	44	33	16	7	94	65	27	8	-
SS-127	CL	45+00	1.0'-2.5'	A-4	26	4	36	16	14	34	74	54	37	18	-



FOR -RAMP A- PLAN SEE RDY SHEETS 18 & 26

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5/28/09
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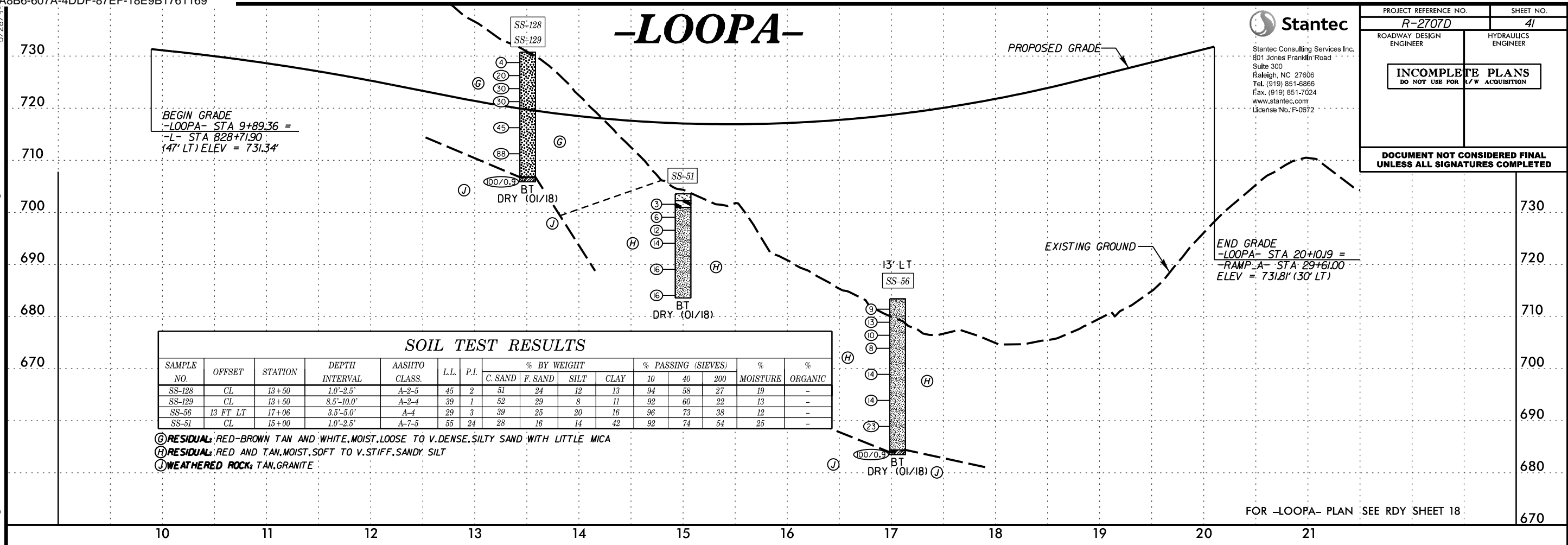
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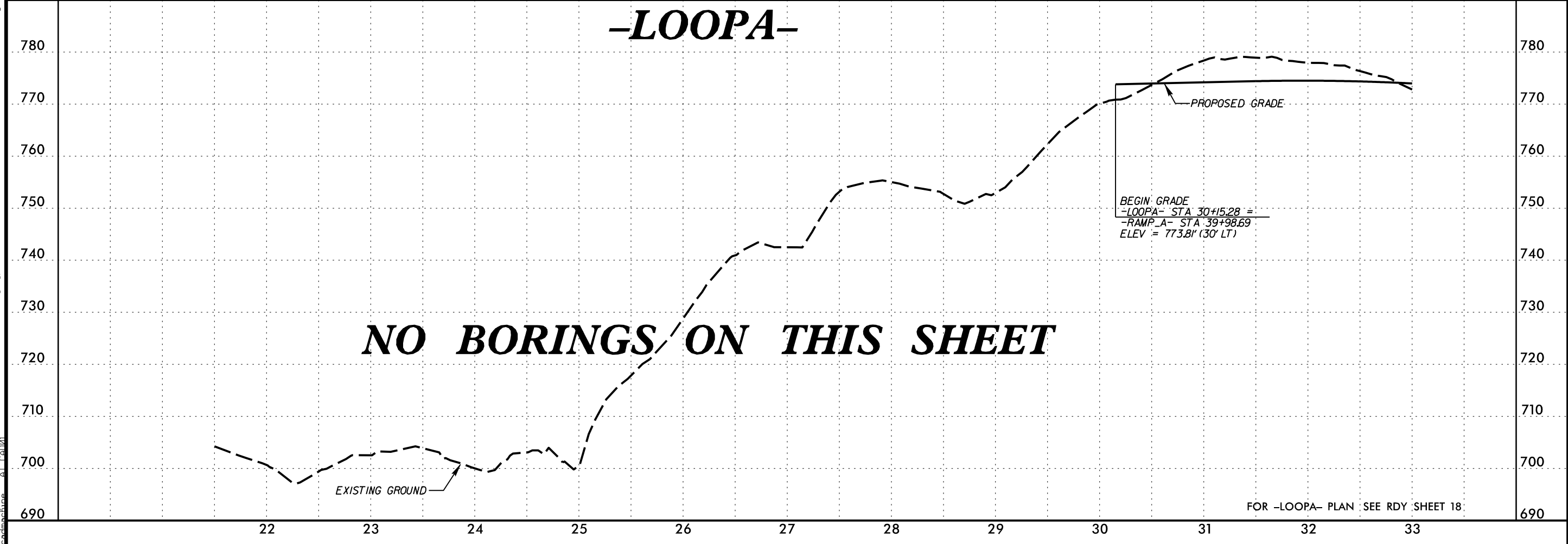


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PROJECT REFERENCE NO. R-2707D	SHEET NO. 41
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

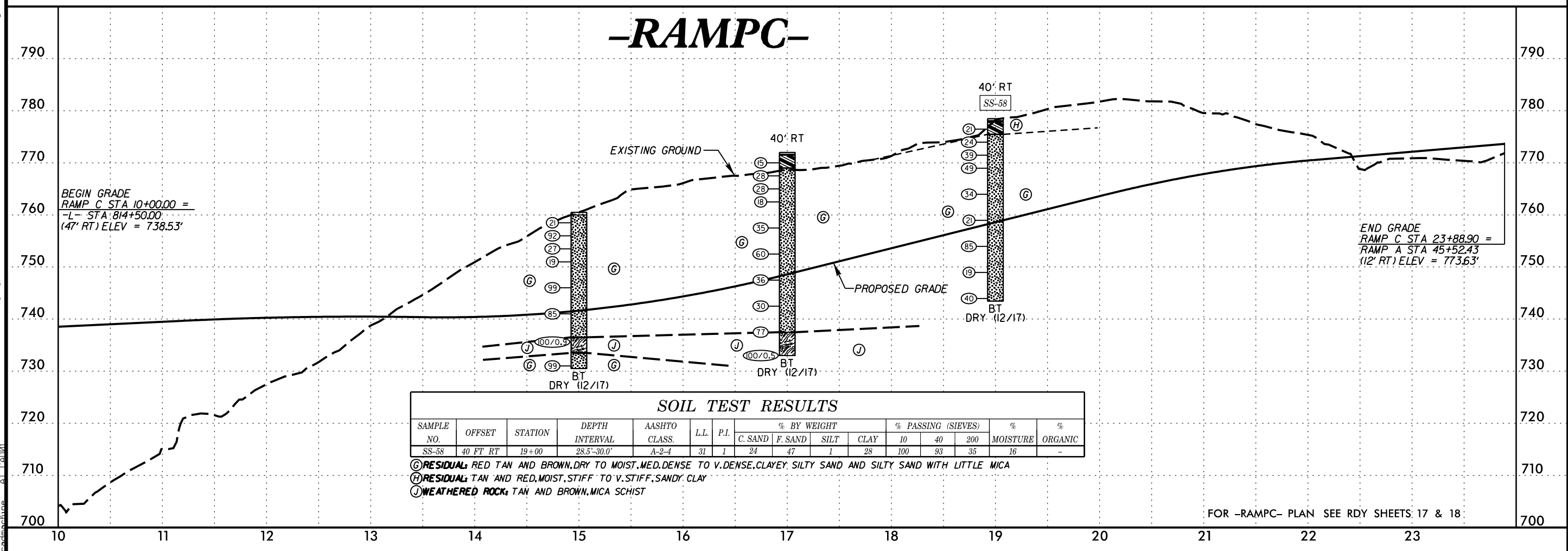
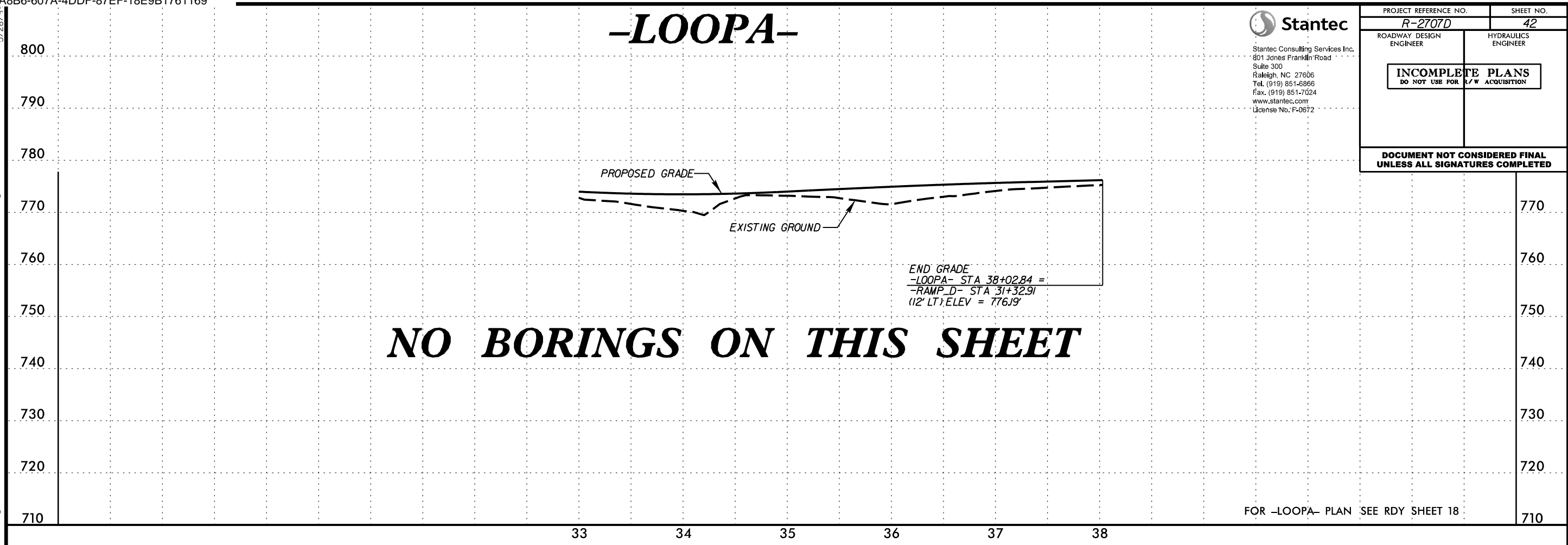


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PROJECT REFERENCE NO. R-2707D	SHEET NO. 42
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



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-58	40 FT RT	19+00	28.5'-30.0'	A-2-4	31	1	24	47	1	28	100	93	35	16	-

(G) RESIDUAL: RED TAN AND BROWN, DRY TO MOIST, MED. DENSE TO V. DENSE, CLAYEY, SILTY SAND AND SILTY SAND WITH LITTLE MICA
 (H) RESIDUAL: TAN AND RED, MOIST, STIFF TO V. STIFF, SANDY CLAY
 (J) WEATHERED ROCK: TAN AND BROWN, MICA SCHIST

5/28/09
 R2707D&E_Shelby_Bjorass\R2707_NCDOT_Electronic_File_Tree\Geotech\InvestigationDesign\R2707_GEO_RDWY\CADD_GEO\TECH\Plan\Prof\R2707D_GEO_PEL_PSH2.dgn
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5/28/09
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-RAMP_D-

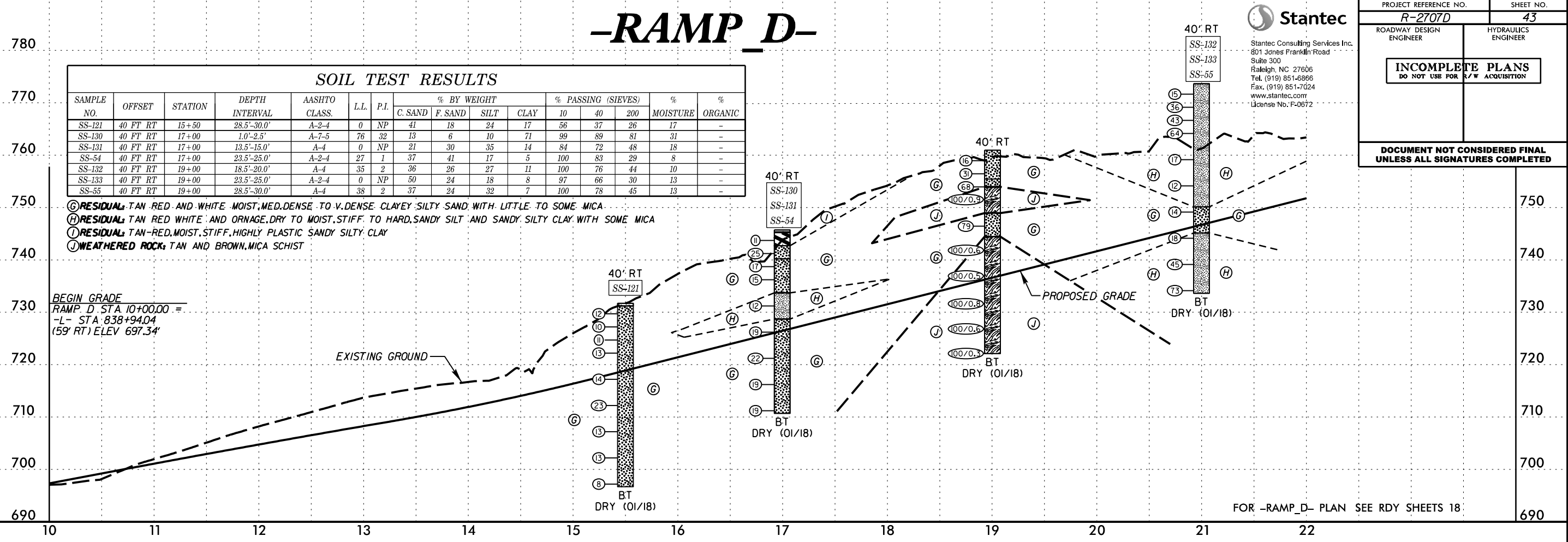
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PROJECT REFERENCE NO. R-2707D	SHEET NO. 43
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

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-121	40 FT RT	15+50	28.5'-30.0'	A-2-4	0	NP	41	18	24	17	56	37	26	17	-
SS-130	40 FT RT	17+00	1.0'-2.5'	A-7-5	76	32	13	6	10	71	99	89	81	31	-
SS-131	40 FT RT	17+00	13.5'-15.0'	A-4	0	NP	21	30	35	14	84	72	48	18	-
SS-54	40 FT RT	17+00	23.5'-25.0'	A-2-4	27	1	37	41	17	5	100	83	29	8	-
SS-132	40 FT RT	19+00	18.5'-20.0'	A-4	35	2	36	26	27	11	100	76	44	10	-
SS-133	40 FT RT	19+00	23.5'-25.0'	A-2-4	0	NP	50	24	18	8	97	66	30	13	-
SS-55	40 FT RT	19+00	28.5'-30.0'	A-4	38	2	37	24	32	7	100	78	45	13	-

- Ⓒ **RESIDUAL:** TAN RED AND WHITE MOIST, MED. DENSE TO V. DENSE CLAYEY SILTY SAND WITH LITTLE TO SOME MICA
- Ⓓ **RESIDUAL:** TAN RED WHITE AND ORANGE, DRY TO MOIST, STIFF TO HARD, SANDY SILT AND SANDY SILTY CLAY WITH SOME MICA
- Ⓔ **RESIDUAL:** TAN-RED, MOIST, STIFF, HIGHLY PLASTIC SANDY SILTY CLAY
- Ⓙ **WEATHERED ROCK:** TAN AND BROWN, MICA SCHIST

BEGIN GRADE
 RAMP D STA 10+00.00 =
 -L- STA 838+94.04
 (59' RT) ELEV 697.34'



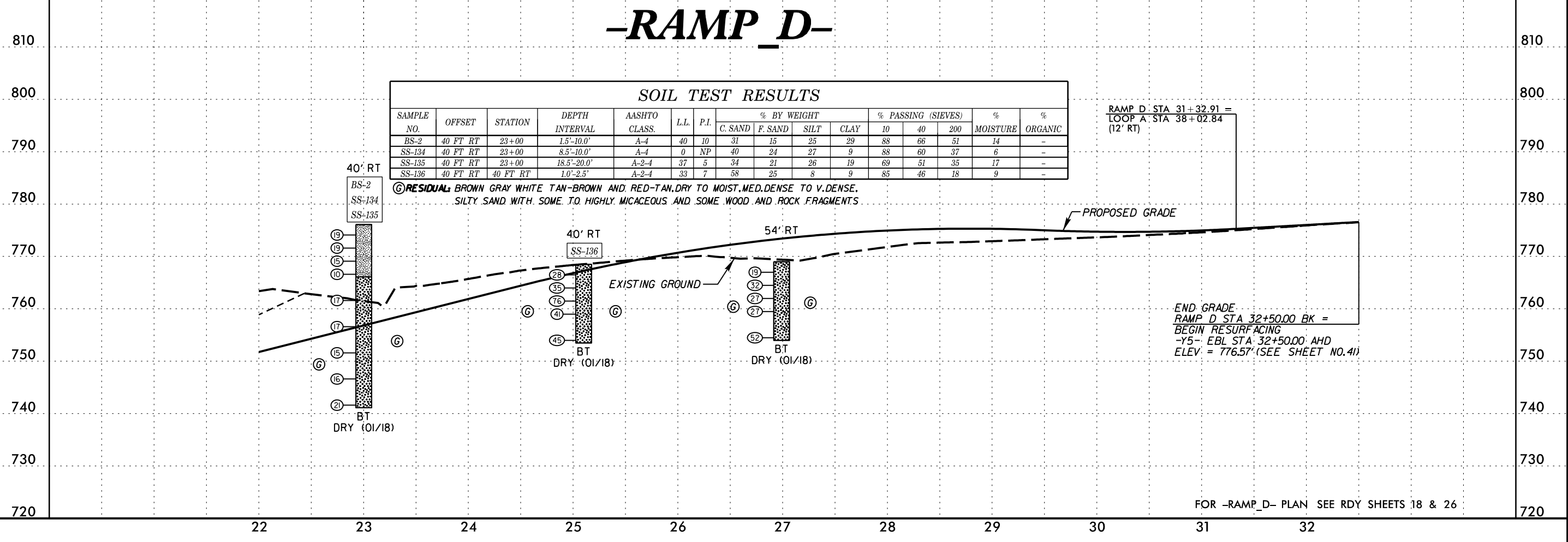
-RAMP_D-

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		
BS-2	40 FT RT	23+00	1.5'-10.0'	A-4	40	10	31	15	25	29	88	66	51	14	-
SS-134	40 FT RT	23+00	8.5'-10.0'	A-4	0	NP	40	24	27	9	88	60	37	6	-
SS-135	40 FT RT	23+00	18.5'-20.0'	A-2-4	37	5	34	21	26	19	69	51	35	17	-
SS-136	40 FT RT	40 FT RT	1.0'-2.5'	A-2-4	33	7	58	25	8	9	85	46	18	9	-

- Ⓒ **RESIDUAL:** BROWN GRAY WHITE TAN-BROWN AND RED-TAN, DRY TO MOIST, MED. DENSE TO V. DENSE, SILTY SAND WITH SOME TO HIGHLY MICACEOUS AND SOME WOOD AND ROCK FRAGMENTS

RAMP D STA 31+32.91 =
 LOOP A STA 38+02.84
 (12' RT)

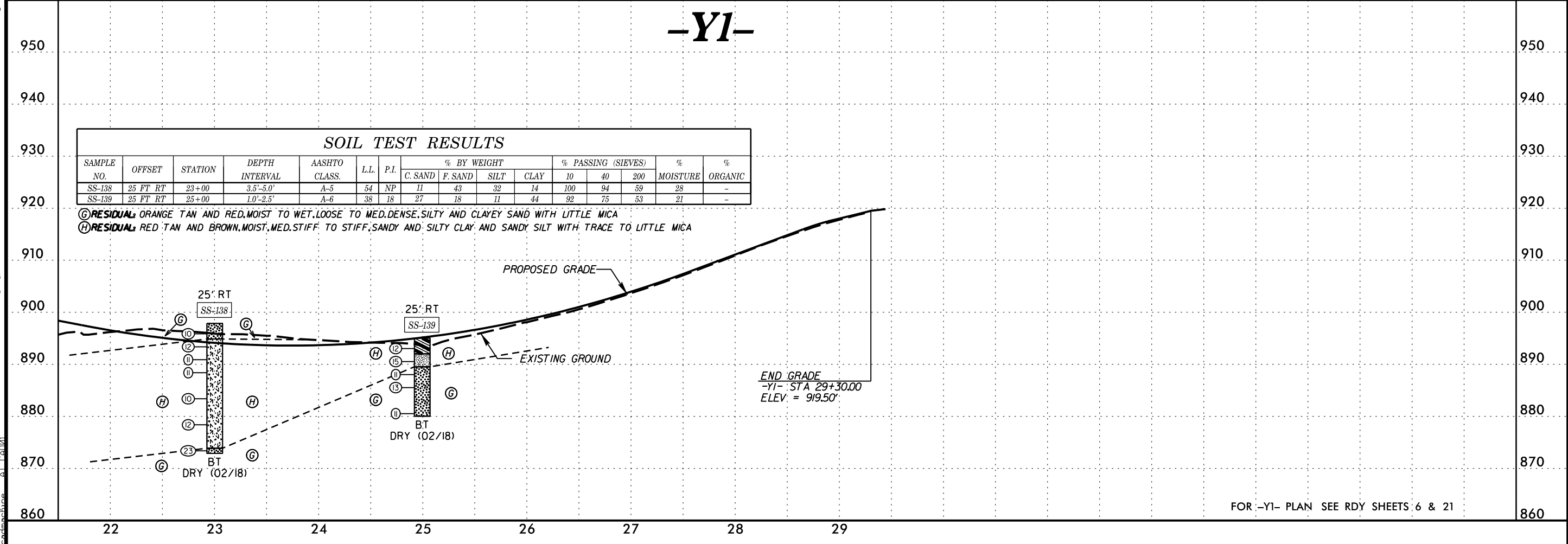
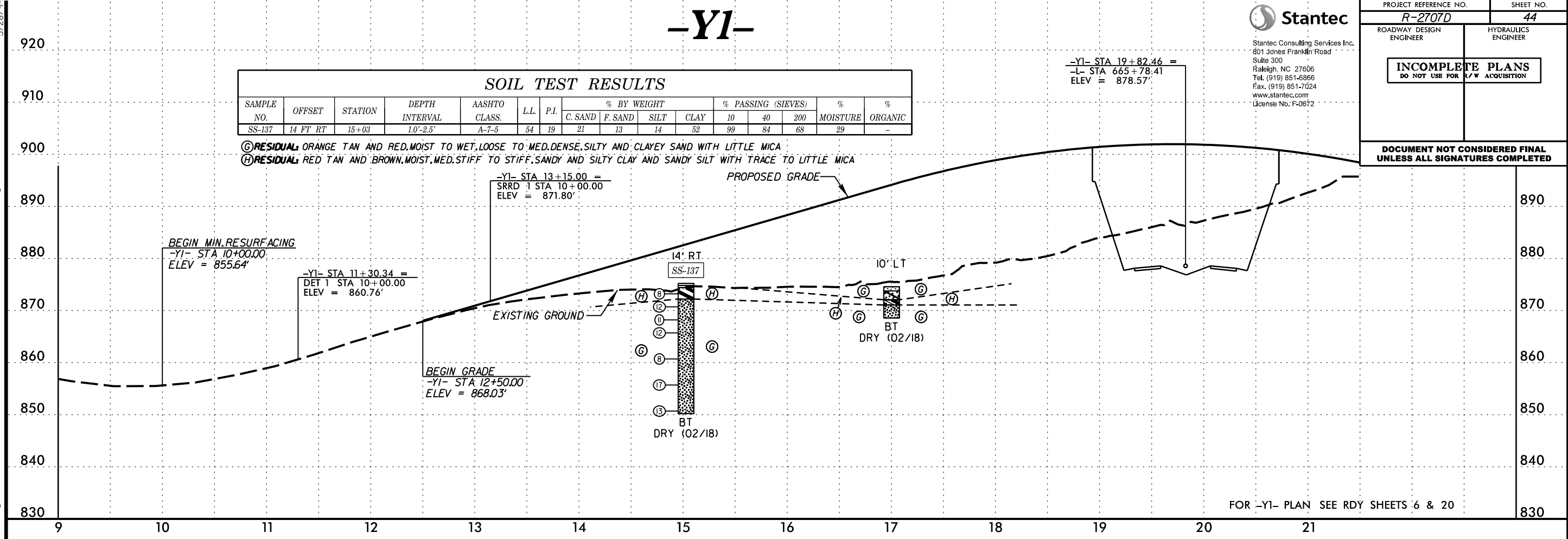
END GRADE
 RAMP D STA 32+50.00 BK =
 BEGIN RESURFACING
 -Y5- EBL STA 32+50.00' AHD
 ELEV. = 776.57' (SEE SHEET NO. 41)



5/28/09
R2707D&E_Shelby_Bjorass\R2707D_NCDOT_Electronic_File_Tree\Geotech\InvestigationDesign\R2707_GEO_RDWY\CADD_GEO\TECH\Plan\Prof\R2707D_GEO_PEL_PSH2.dgn
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PROJECT REFERENCE NO. R-2707D	SHEET NO. 44
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



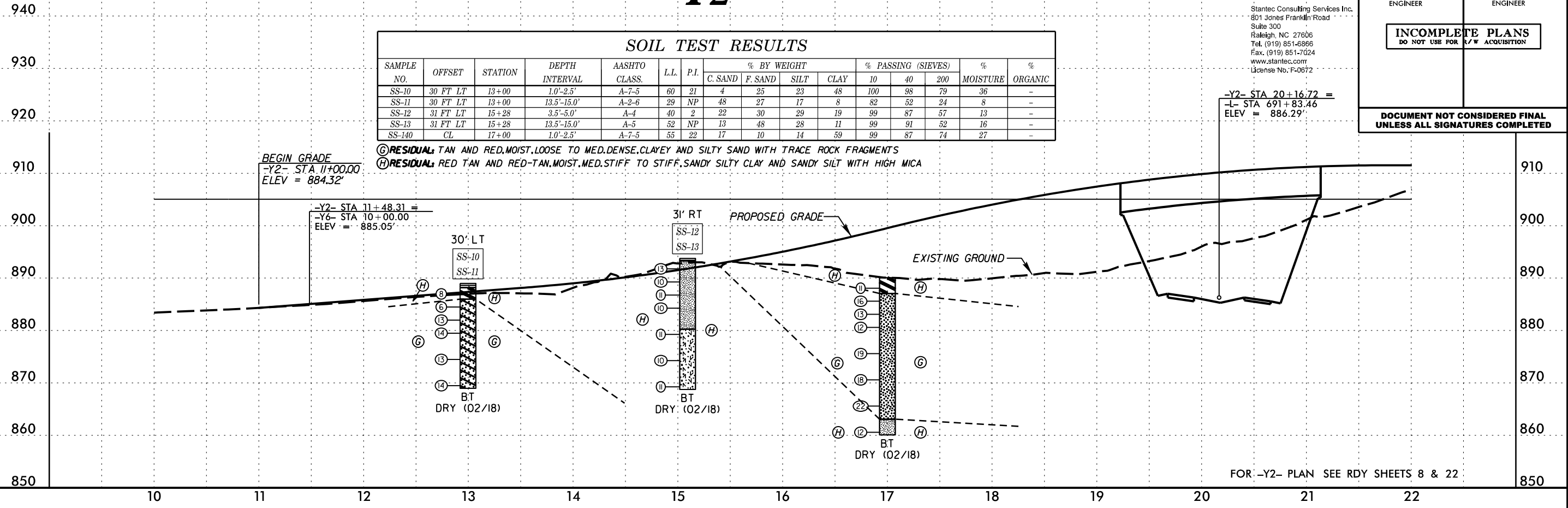
5/28/09
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 PE: NOV 2008 11/21
 PL: 10/2008 10/21

-Y2-

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PROJECT REFERENCE NO. R-2707D		SHEET NO. 45	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION			
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			

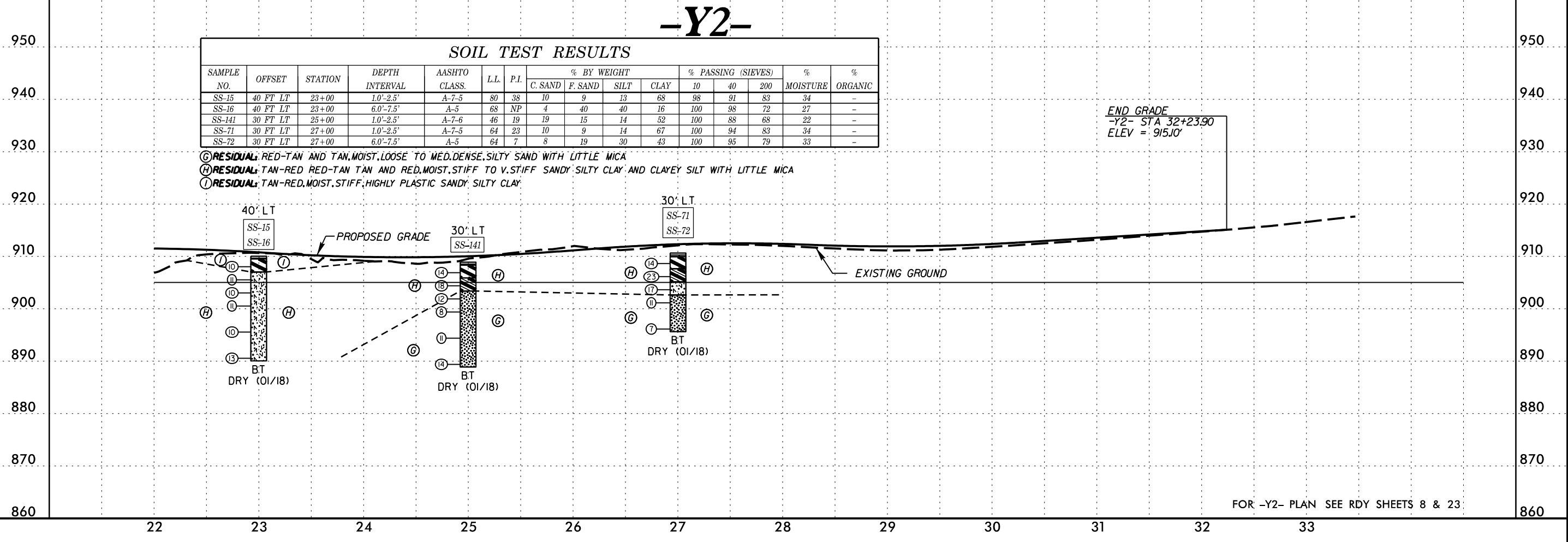
SOIL TEST RESULTS																
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC	
							C. SAND	F. SAND	SILT	CLAY	10	40	200			
SS-10	30 FT LT	13+00	1.0'-2.5'	A-7-5	60	21	4	25	23	48	100	98	79	36	-	
SS-11	30 FT LT	13+00	13.5'-15.0'	A-2-6	29	NP	48	27	17	8	82	52	24	8	-	
SS-12	31 FT LT	15+28	3.5'-5.0'	A-4	40	2	22	30	29	19	99	87	57	13	-	
SS-13	31 FT LT	15+28	13.5'-15.0'	A-5	52	NP	13	48	28	11	99	91	52	16	-	
SS-140	CL	17+00	1.0'-2.5'	A-7-5	55	22	17	10	14	59	99	87	74	27	-	



FOR -Y2- PLAN SEE RDY SHEETS 8 & 22

-Y2-

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-15	40 FT LT	23+00	1.0'-2.5'	A-7-5	80	38	10	9	13	68	98	91	83	34	-	
SS-16	40 FT LT	23+00	6.0'-7.5'	A-5	68	NP	4	40	40	16	100	98	72	27	-	
SS-141	30 FT LT	25+00	1.0'-2.5'	A-7-6	46	19	19	15	14	52	100	88	68	22	-	
SS-71	30 FT LT	27+00	1.0'-2.5'	A-7-5	64	23	10	9	14	67	100	94	83	34	-	
SS-72	30 FT LT	27+00	6.0'-7.5'	A-5	64	7	8	19	30	43	100	95	79	33	-	



FOR -Y2- PLAN SEE RDY SHEETS 8 & 23

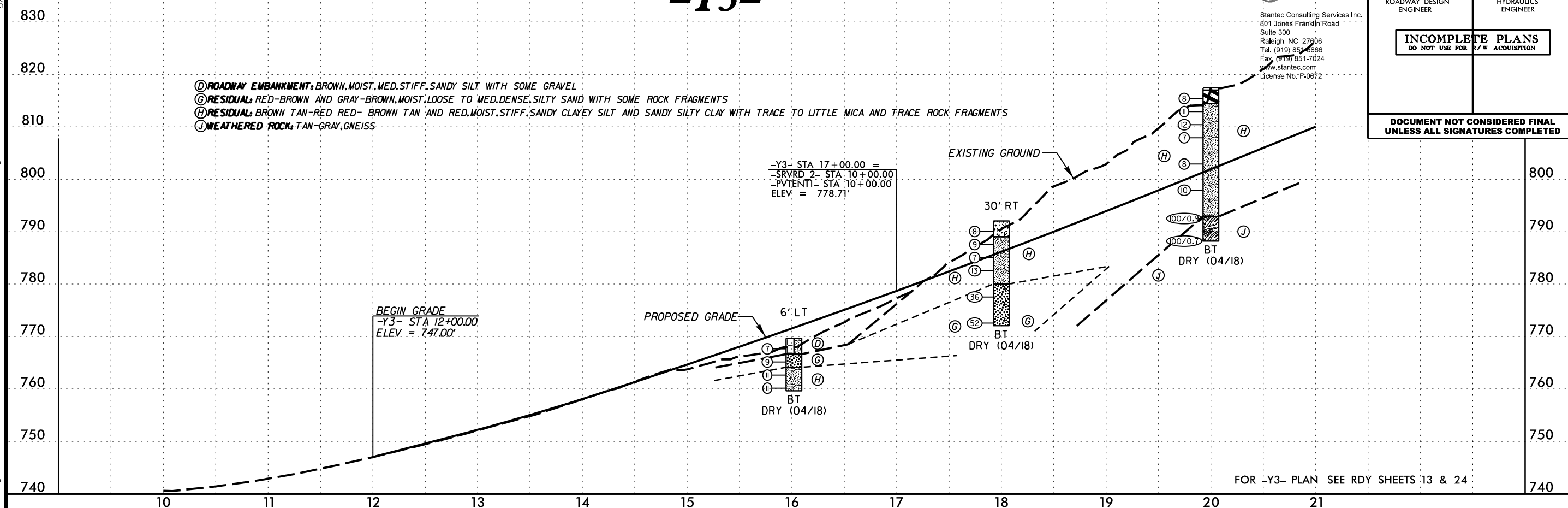
-Y3-



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PROJECT REFERENCE NO. <i>R-2707D</i>	SHEET NO. 46
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

- Ⓓ **ROADWAY EMBANKMENT:** BROWN, MOIST, MED. STIFF, SANDY SILT WITH SOME GRAVEL
- Ⓒ **RESIDUAL:** RED-BROWN AND GRAY-BROWN, MOIST, LOOSE TO MED. DENSE, SILTY SAND WITH SOME ROCK FRAGMENTS
- Ⓗ **RESIDUAL:** BROWN TAN-RED, RED-BROWN TAN AND RED, MOIST, STIFF, SANDY CLAYEY SILT AND SANDY SILTY CLAY WITH TRACE TO LITTLE MICA AND TRACE ROCK FRAGMENTS
- Ⓙ **WEATHERED ROCK:** TAN-GRAY, GNEISS



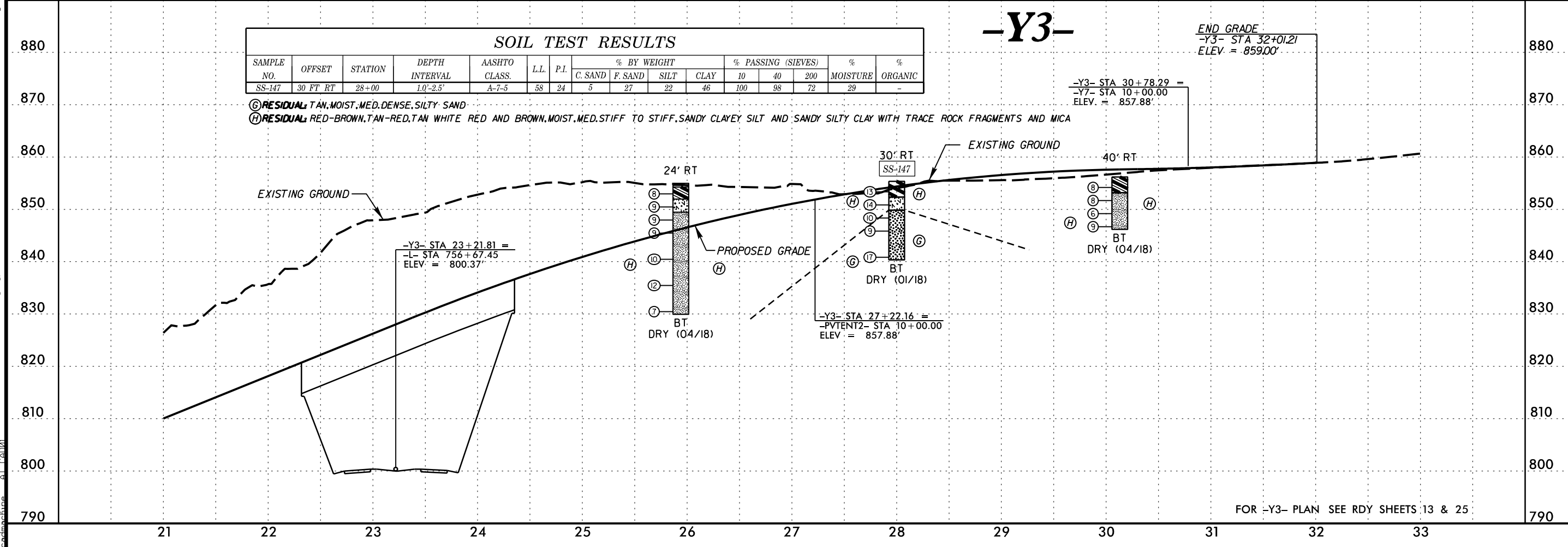
FOR -Y3- PLAN SEE RDY SHEETS 13 & 24

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-147	30 FT RT	28+00	1.0'-2.5'	A-7-5	58	24	5	27	22	46	100	98	72	29	-

- Ⓒ **RESIDUAL:** TAN, MOIST, MED. DENSE, SILTY SAND
- Ⓗ **RESIDUAL:** RED-BROWN, TAN-RED, TAN WHITE RED AND BROWN, MOIST, MED. STIFF TO STIFF, SANDY CLAYEY SILT AND SANDY SILTY CLAY WITH TRACE ROCK FRAGMENTS AND MICA

-Y3-



FOR -Y3- PLAN SEE RDY SHEETS 13 & 25

5/28/09
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-Y4-

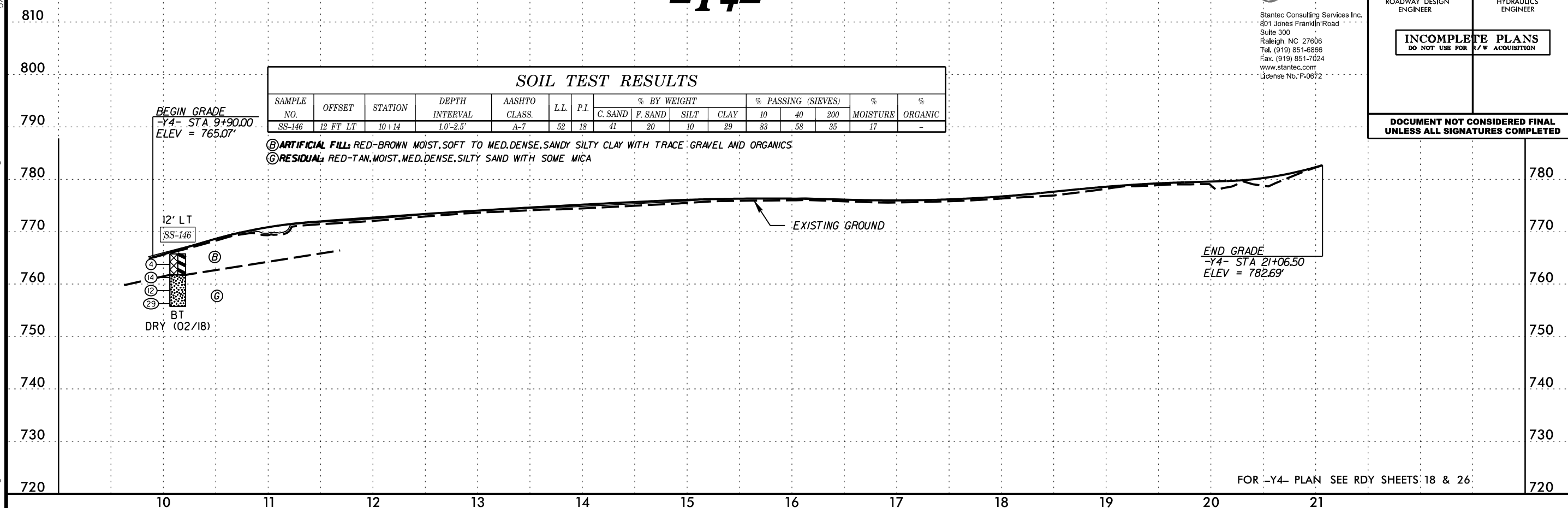


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PROJECT REFERENCE NO. <i>R-2707D</i>		SHEET NO. <i>47</i>	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION			
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			

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-146	12 FT LT	10+14	1.0'-2.5'	A-7	52	18	41	20	10	29	83	58	35	17	-

(B) ARTIFICIAL FILL: RED-BROWN MOIST, SOFT TO MED. DENSE, SANDY SILTY CLAY WITH TRACE GRAVEL AND ORGANICS
(C) RESIDUAL: RED-TAN, MOIST, MED. DENSE, SILTY SAND WITH SOME MICA



FOR -Y4- PLAN SEE RDY SHEETS 18 & 26

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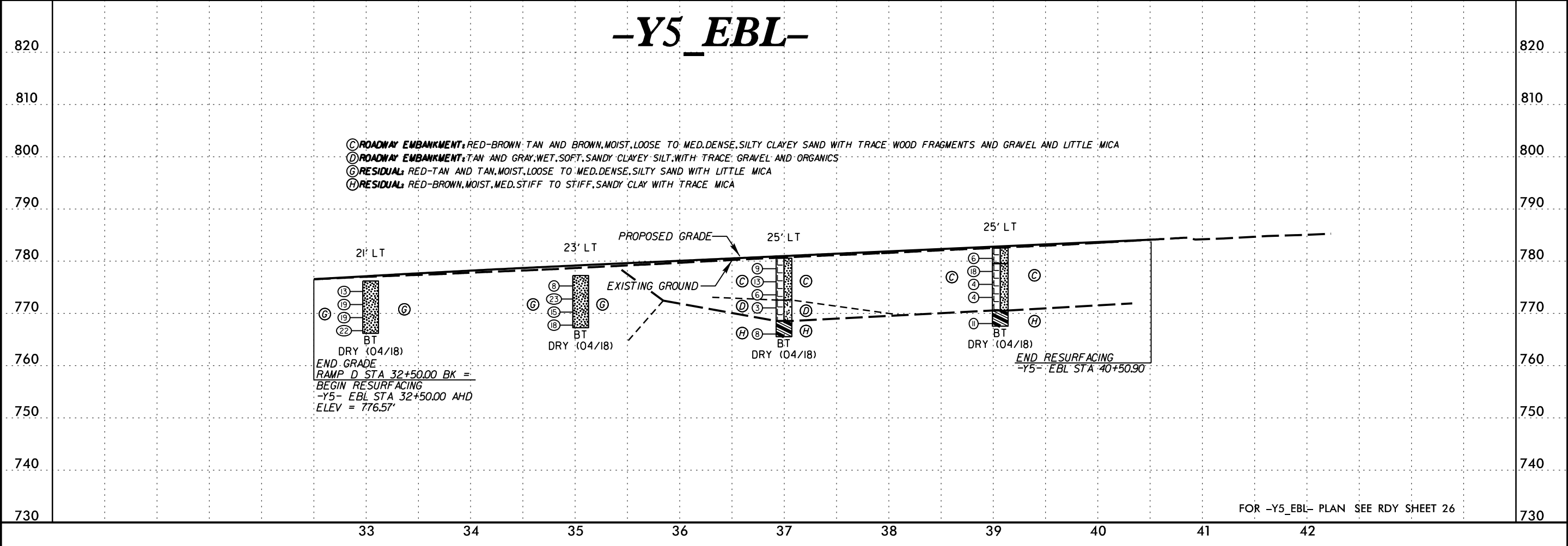
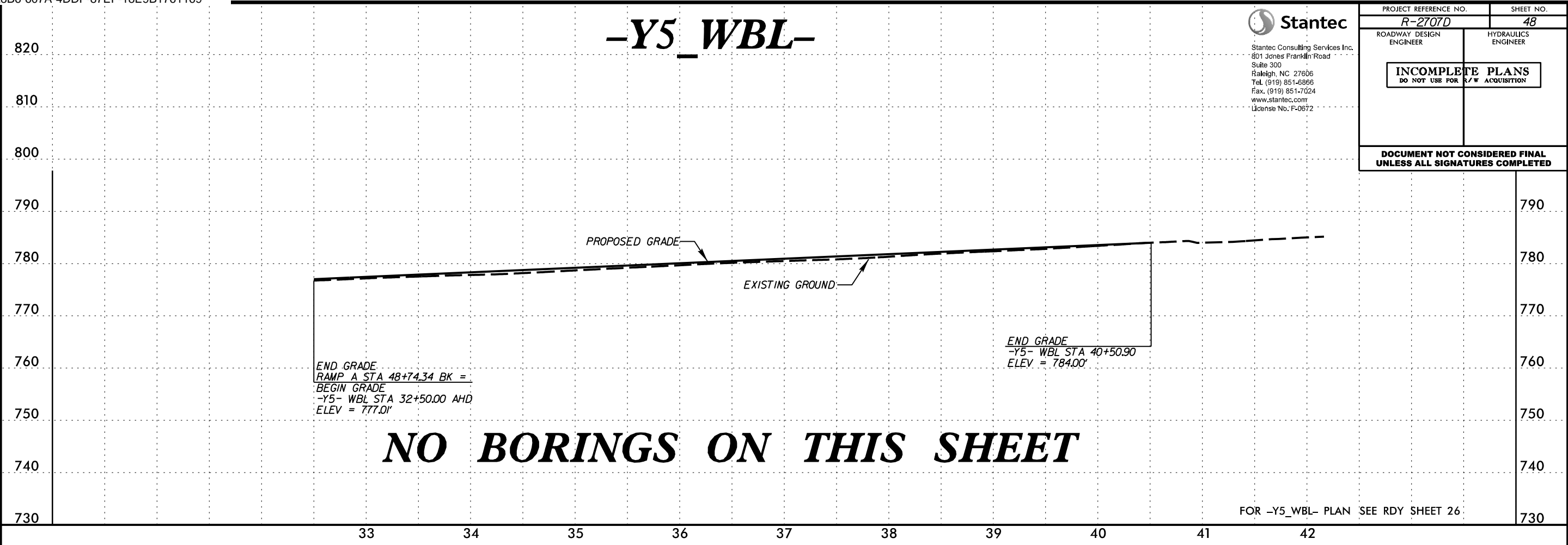
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5/28/99

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PROJECT REFERENCE NO. R-2707D	SHEET NO. 48
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



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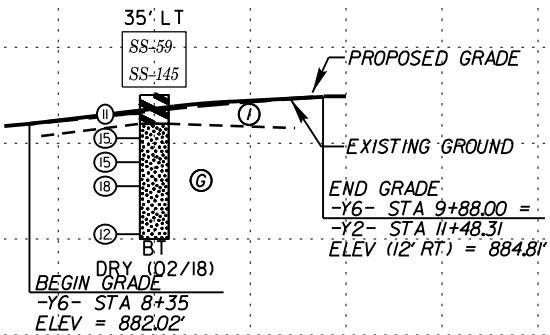
-Y6-


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PROJECT REFERENCE NO. <i>R-2707D</i>	SHEET NO. 49
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR A/C W/ ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

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-59	35 FT LT	9+00	1.0'-2.5'	A-7-5	70	33	14	10	12	64	98	87	76	34	-
SS-145	35 FT LT	9+00	3.5'-5.0'	A-2-4	37	9	53	20	12	15	82	49	25	19	-

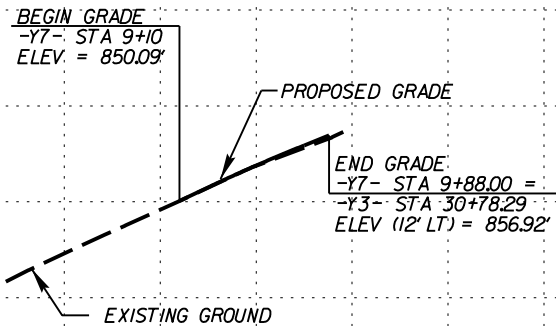
- Ⓒ **RESIDUAL** RED AND TAN, MOIST, MED. DENSE, SILTY SAND WITH TRACE MICA
- Ⓓ **RESIDUAL** TAN-RED, MOIST, STIFF, HIGHLY PLASTIC SANDY SILTY CLAY



FOR -Y6- PLAN SEE RDY SHEET 22

-Y7-

NO BORINGS ON THIS SHEET



FOR -Y7- PLAN SEE RDY SHEET 25

-SRVRD 1-

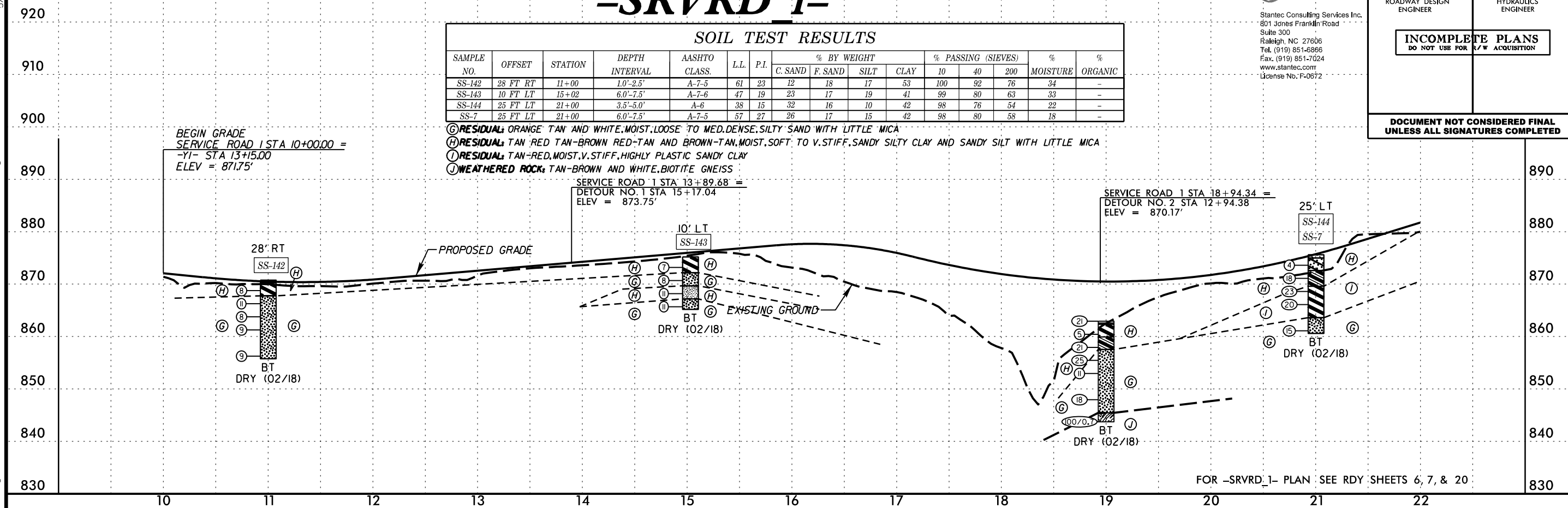


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PROJECT REFERENCE NO. R-2707D	SHEET NO. 50
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

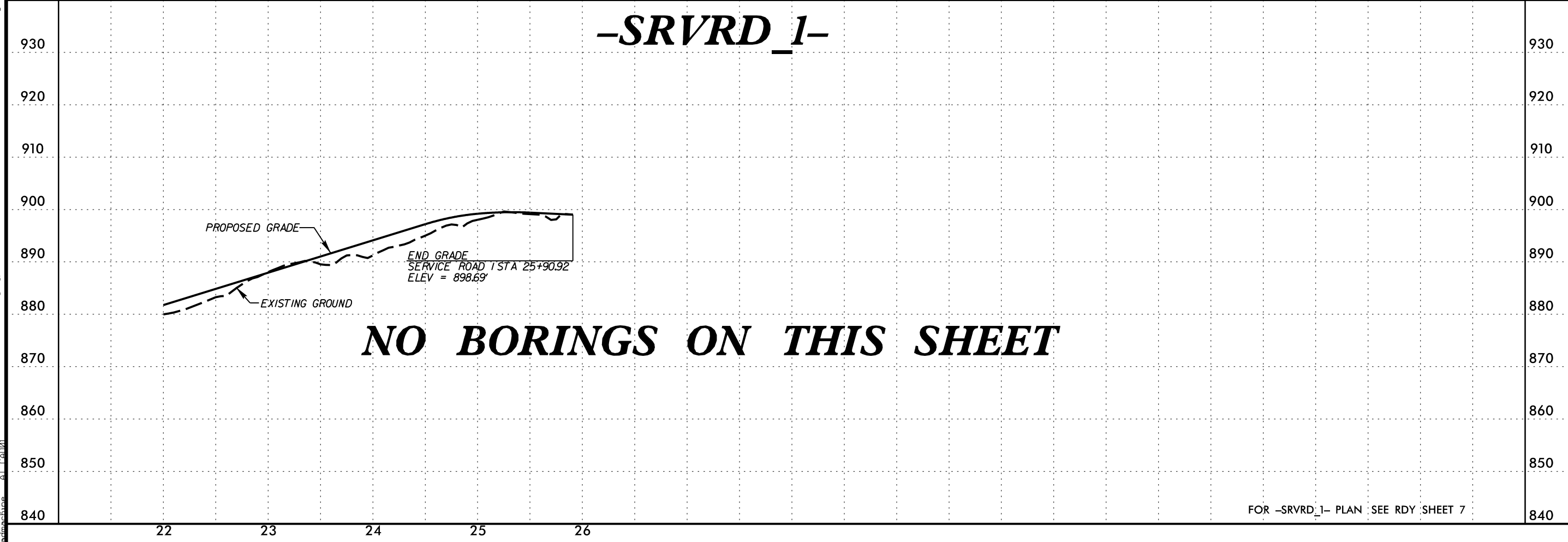
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	LL	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-142	28 FT RT	11+00	1.0'-2.5'	A-7-5	61	23	12	18	17	53	100	92	76	34	-
SS-143	10 FT LT	15+02	6.0'-7.5'	A-7-6	47	19	23	17	19	41	99	80	63	33	-
SS-144	25 FT LT	21+00	3.5'-5.0'	A-6	38	15	32	16	10	42	98	76	54	22	-
SS-7	25 FT LT	21+00	6.0'-7.5'	A-7-5	57	27	26	17	15	42	98	80	58	18	-

- (G) RESIDUAL: ORANGE-TAN AND WHITE, MOIST, LOOSE TO MED. DENSE, SILTY SAND WITH LITTLE MICA
- (H) RESIDUAL: TAN-RED TAN-BROWN RED-TAN AND BROWN-TAN, MOIST, SOFT TO V. STIFF, SANDY SILTY CLAY AND SANDY SILT WITH LITTLE MICA
- (I) RESIDUAL: TAN-RED, MOIST, V. STIFF, HIGHLY PLASTIC SANDY CLAY
- (J) WEATHERED ROCK: TAN-BROWN AND WHITE, BIOTITE GNEISS



FOR -SRVRD_1- PLAN SEE RDY SHEETS 6, 7, & 20

-SRVRD 1-



FOR -SRVRD_1- PLAN SEE RDY SHEET 7

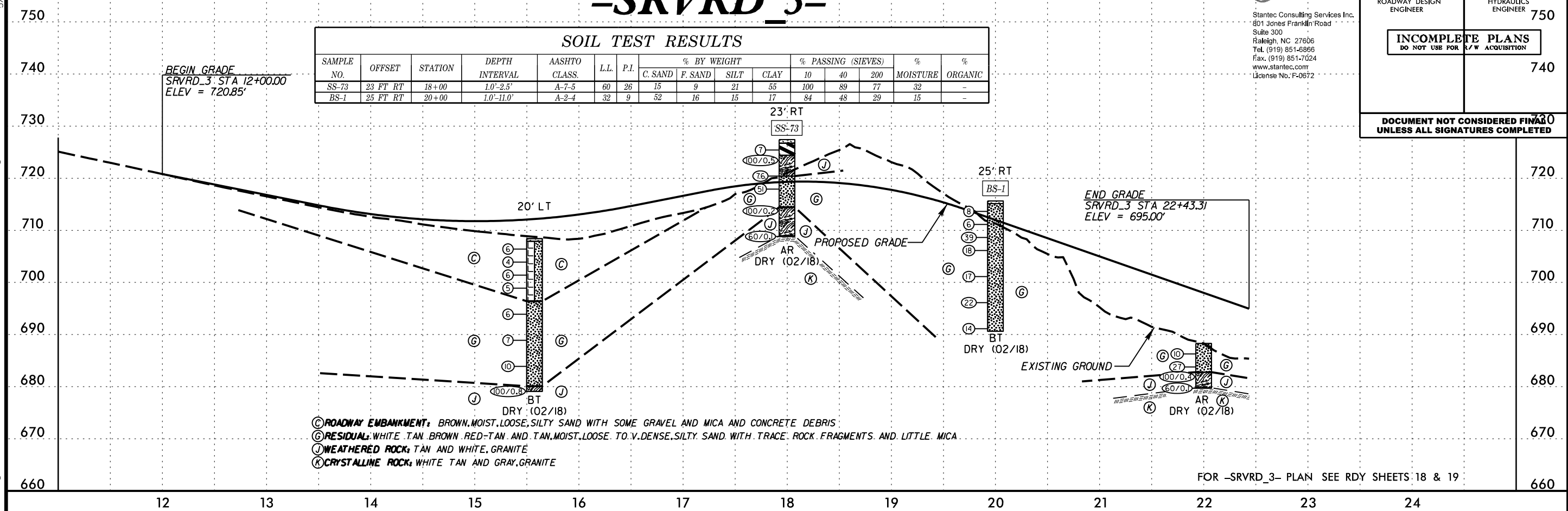
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-SRVRD 3-

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PROJECT REFERENCE NO. R-2707D	SHEET NO. 51
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR ACQUISITION	
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DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

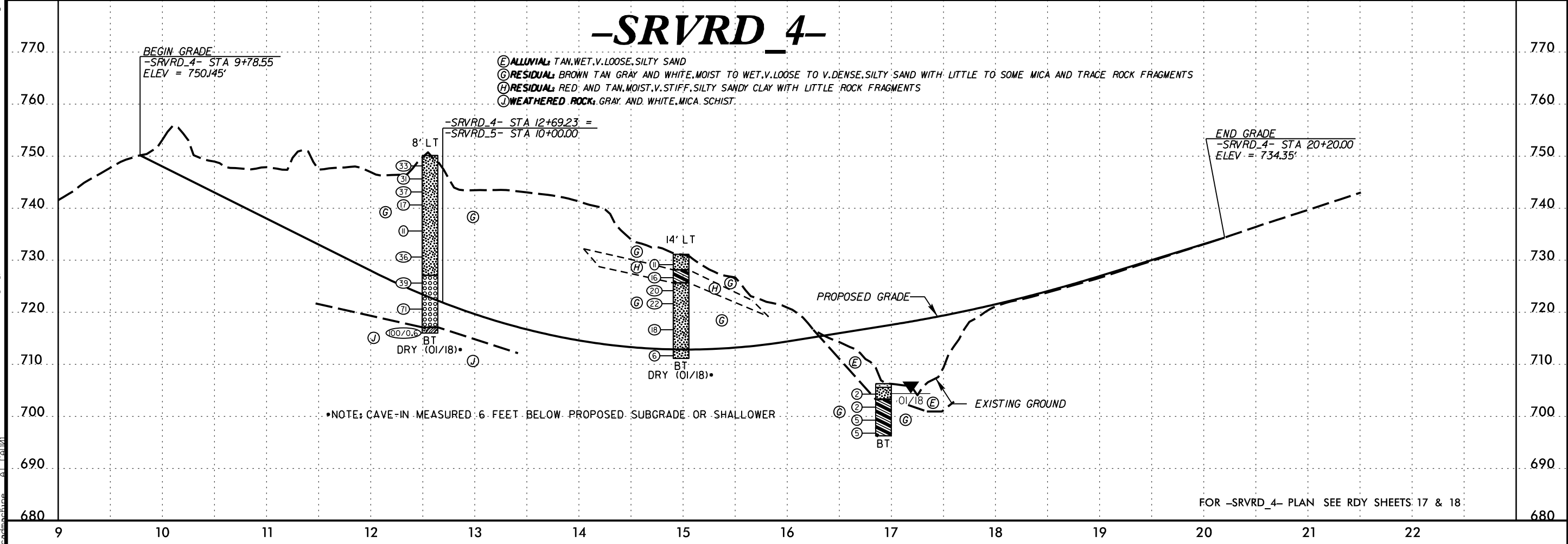
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							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-73	23 FT RT	18+00	1.0'-2.5'	A-7-5	60	26	15	9	21	55	100	89	77	32	-
BS-1	25 FT RT	20+00	1.0'-11.0'	A-2-4	32	9	52	16	15	17	84	48	29	15	-



FOR -SRVRD_3- PLAN SEE RDY SHEETS 18 & 19

-SRVRD 4-

- (E) ALLUVIAL: TAN, WET, V. LOOSE, SILTY SAND
- (G) RESIDUAL: BROWN, TAN, GRAY AND WHITE, MOIST TO WET, V. LOOSE TO V. DENSE, SILTY SAND WITH LITTLE TO SOME MICA AND TRACE ROCK FRAGMENTS
- (H) RESIDUAL: RED AND TAN, MOIST, V. STIFF, SILTY SANDY CLAY WITH LITTLE ROCK FRAGMENTS
- (J) WEATHERED ROCK: GRAY AND WHITE, MICA, SCHIST.



FOR -SRVRD_4- PLAN SEE RDY SHEETS 17 & 18

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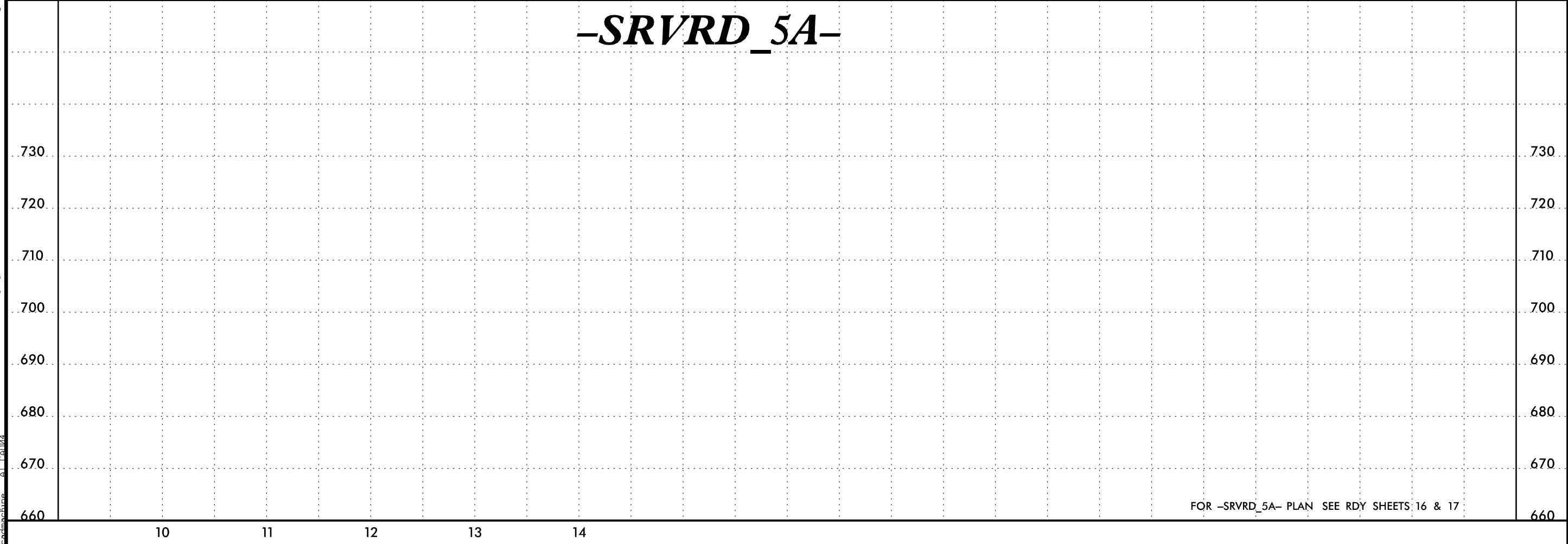
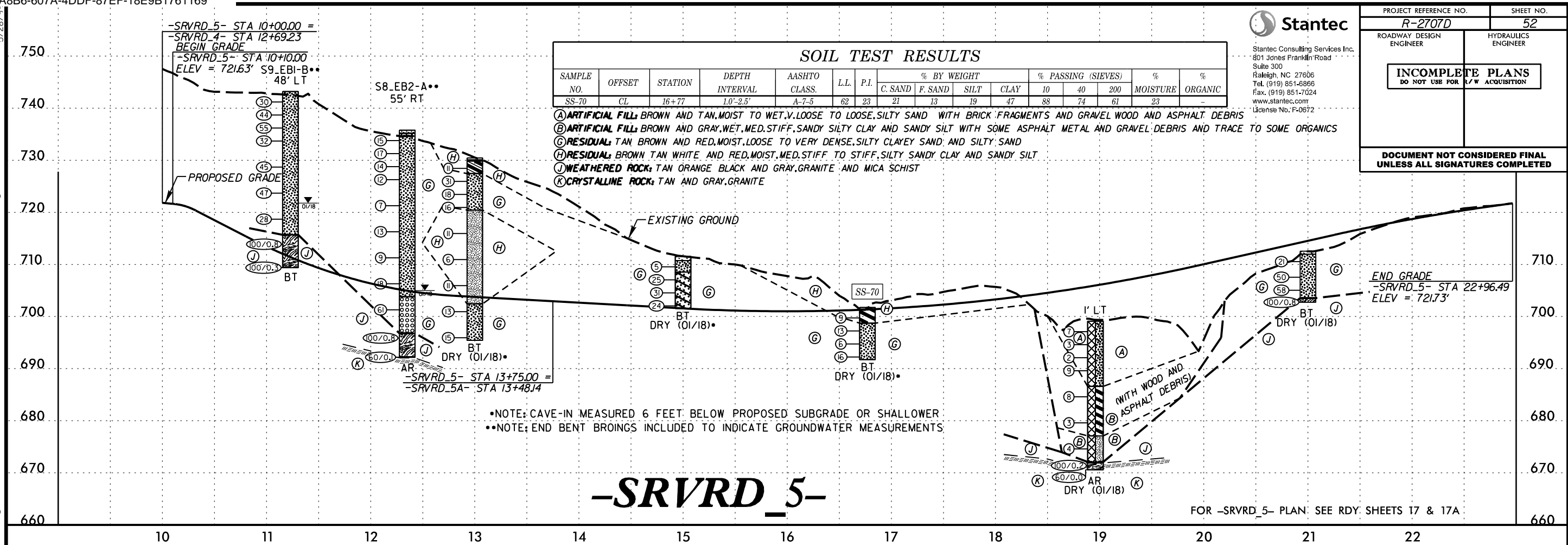
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 17/017053.00

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PROJECT REFERENCE NO. R-2707D	SHEET NO. 52
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

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			
SS-70	CL	16+77	1.0'-2.5'	A-7-5	62	23	21	13	19	47	88	74	61	23	-

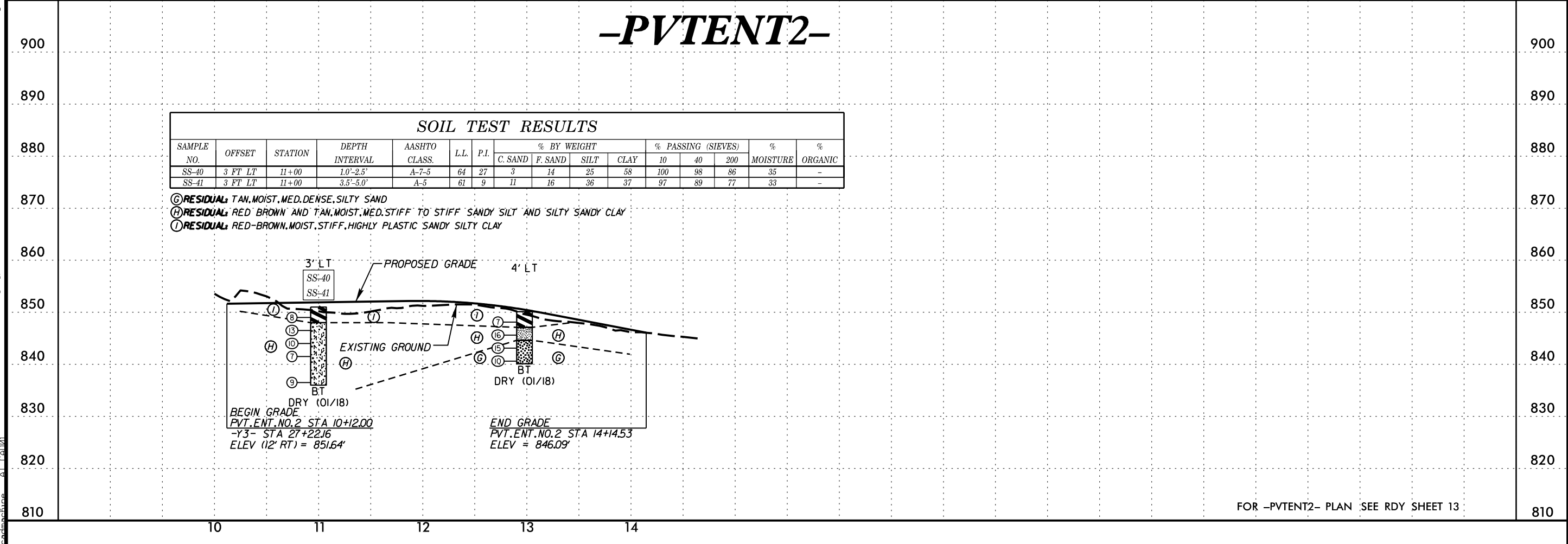
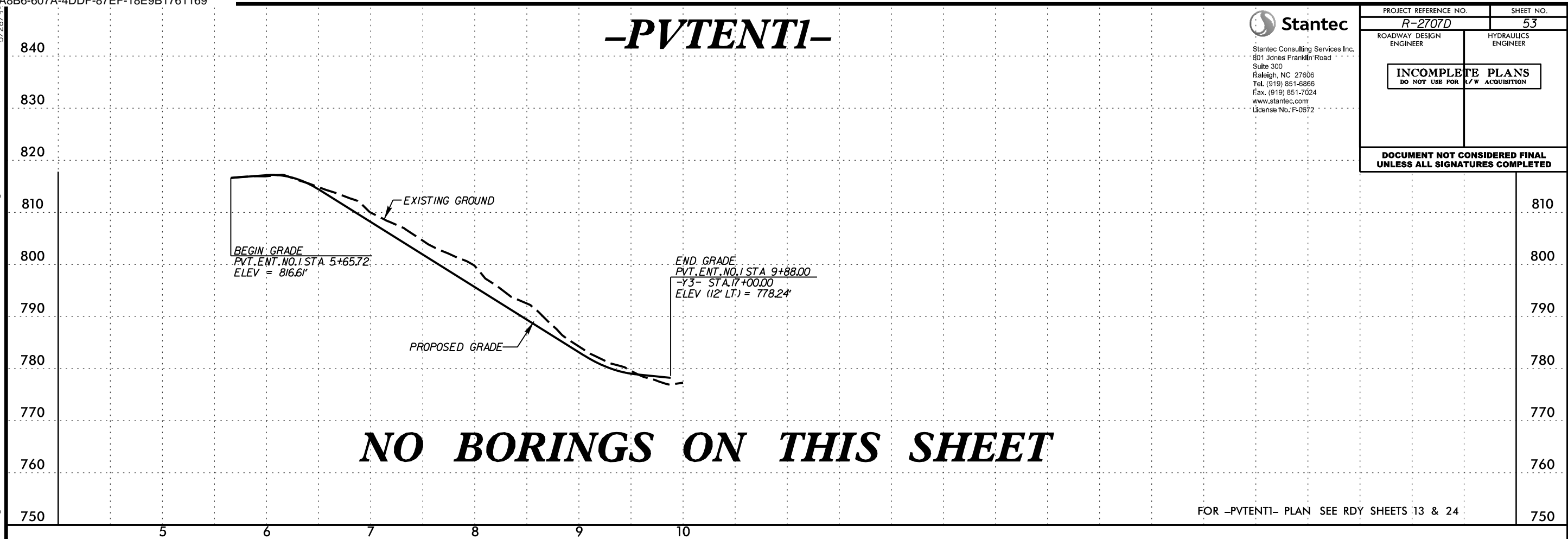
- (A) ARTIFICIAL FILL: BROWN AND TAN, MOIST TO WET, V. LOOSE TO LOOSE, SILTY SAND WITH BRICK FRAGMENTS AND GRAVEL WOOD AND ASPHALT DEBRIS
- (B) ARTIFICIAL FILL: BROWN AND GRAY, WET, MED. STIFF, SANDY SILTY CLAY AND SANDY SILT WITH SOME ASPHALT METAL AND GRAVEL DEBRIS AND TRACE TO SOME ORGANICS
- (C) RESIDUAL: TAN BROWN AND RED, MOIST, LOOSE TO VERY DENSE, SILTY CLAYEY SAND AND SILTY SAND
- (H) RESIDUAL: BROWN TAN WHITE AND RED, MOIST, MED. STIFF TO STIFF, SILTY SANDY CLAY AND SANDY SILT
- (J) WEATHERED ROCK: TAN ORANGE BLACK AND GRAY, GRANITE AND MICA SCHIST
- (K) CRYSTALLINE ROCK: TAN AND GRAY, GRANITE



5/28/09
 R2707D_GEO_PEL_PSH3.dgn
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PROJECT REFERENCE NO. <i>R-2707D</i>	SHEET NO. 53
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
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R2707D\GIS\053.00 Stantec R2707D&E Shelby Bypass\R2707_NCDOT_Electronic.File.Tree\Geotech\InvestigationDesign\R2707_GEO_RDWY\CADD_GEO\TECH\Plan\Prof\R2707D_GEO_PEL_PSH3.dgn

-PVTENT4-



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PROJECT REFERENCE NO. <i>R-2707D</i>	SHEET NO. 54
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

780
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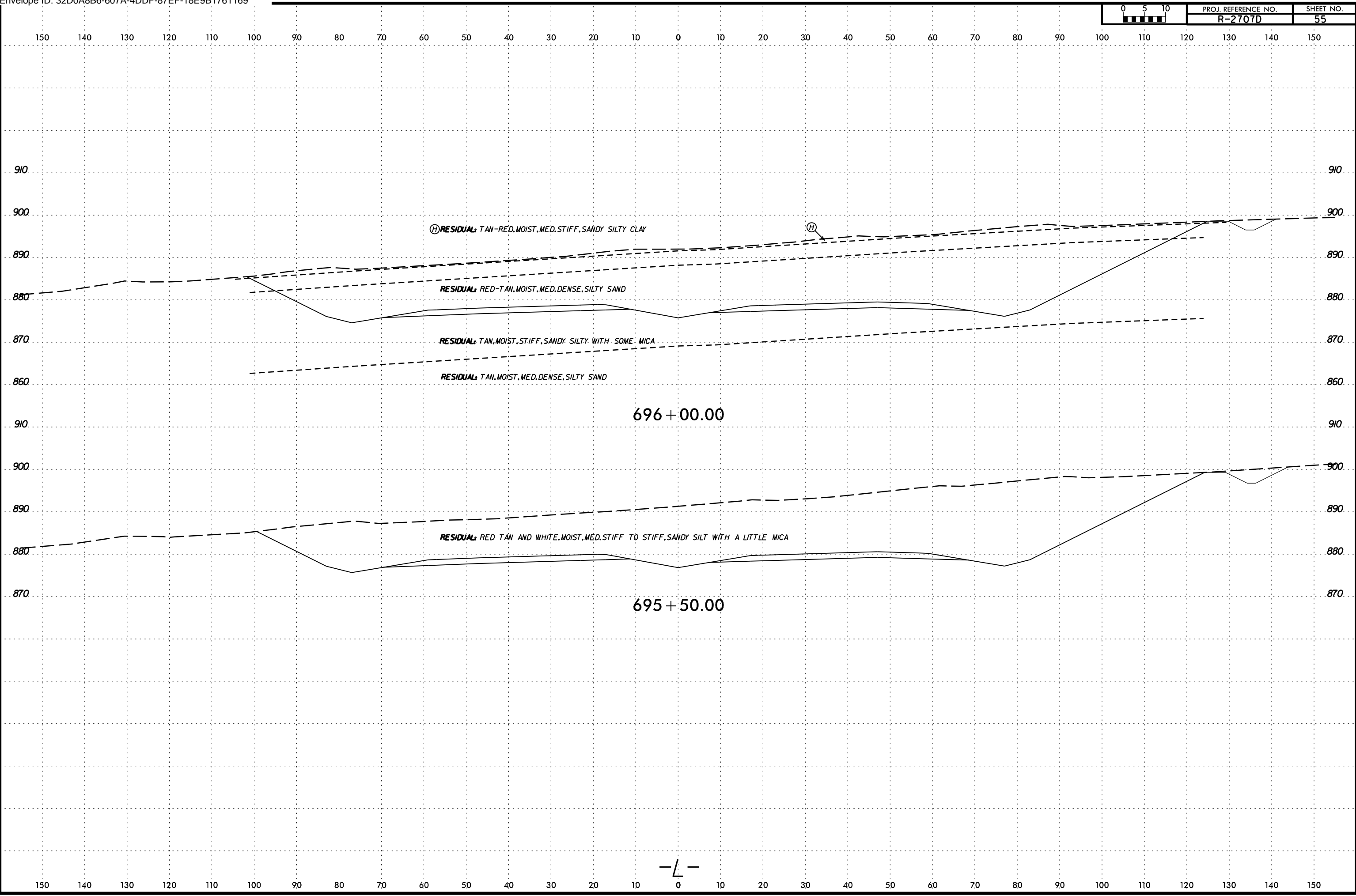
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FOR -PVTENT4- PLAN SEE RDY SHEET 18 & 19

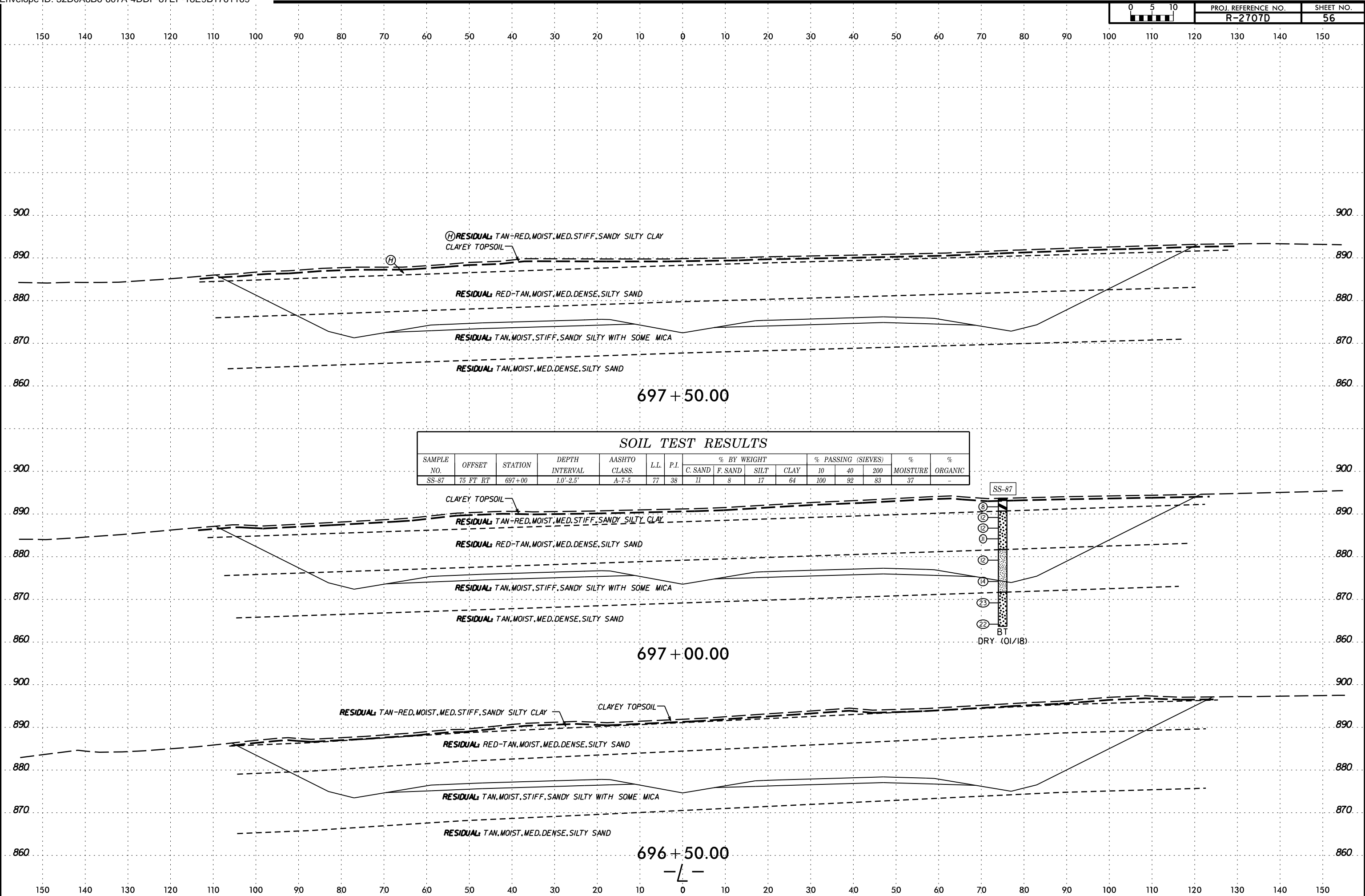
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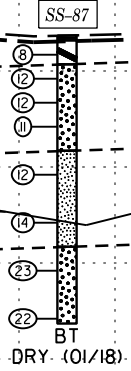
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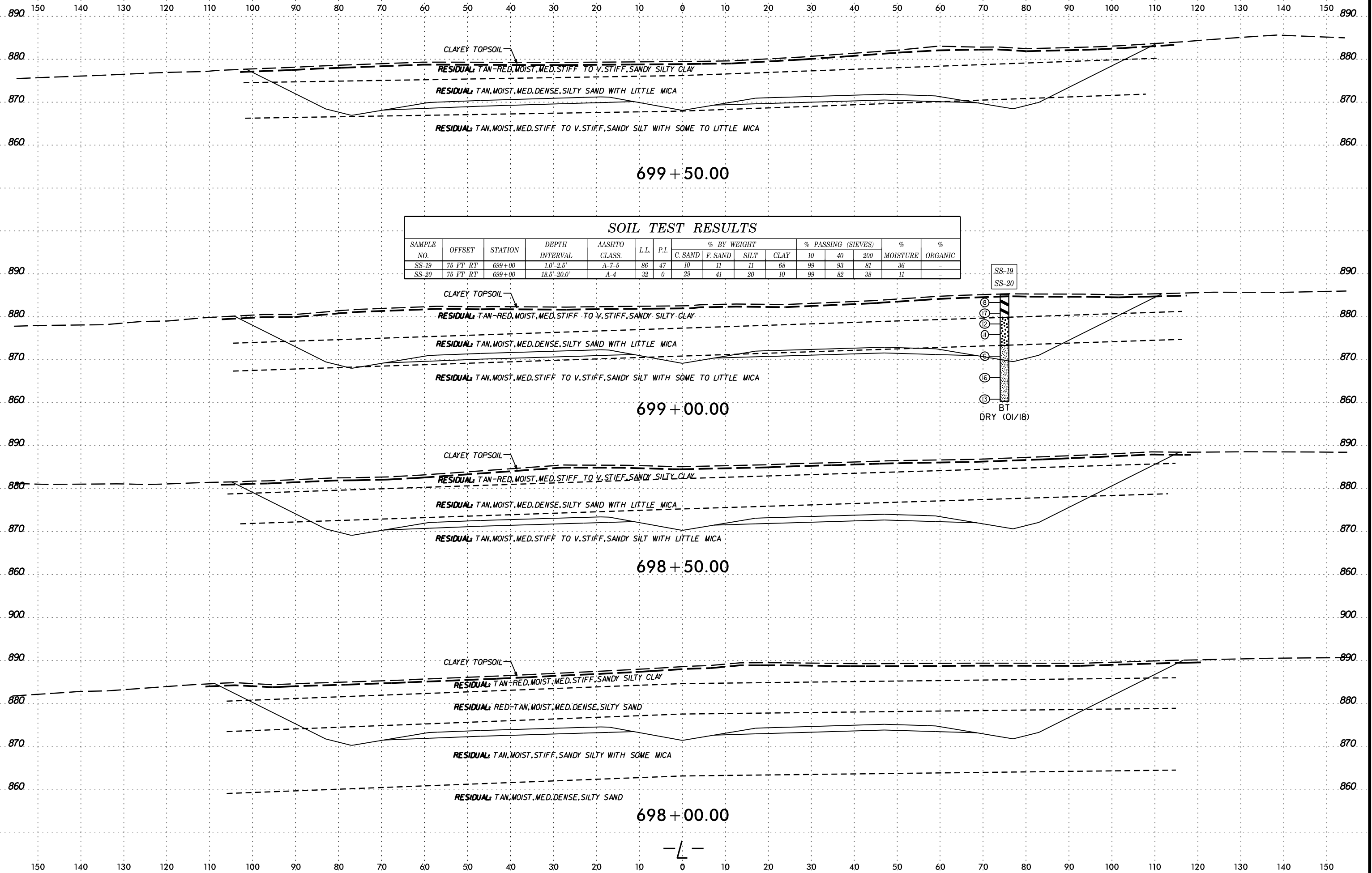
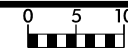


SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	LL.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-87	75 FT RT	697+00	1.0'-2.5'	A-7-5	77	38	11	8	17	64	100	92	83	37	-

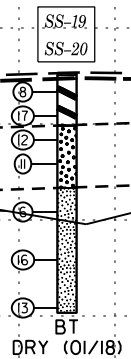


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 cadmachine AT CAD01

6/23/16



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-19	75 FT RT	699+00	1.0'-2.5'	A-7-5	86	47	10	11	11	68	99	93	81	36	-
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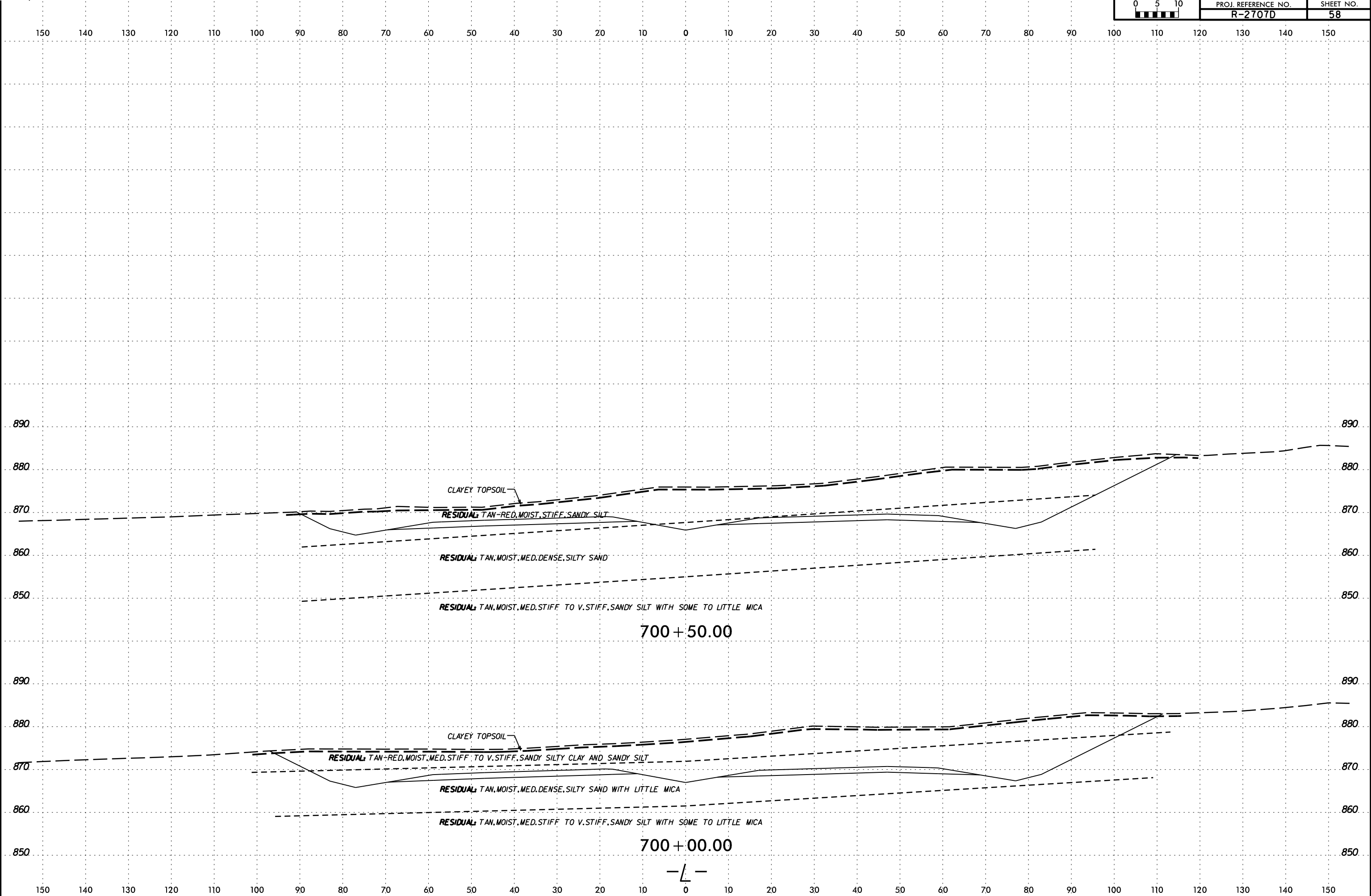
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 cadmac@stn.com

6/23/16

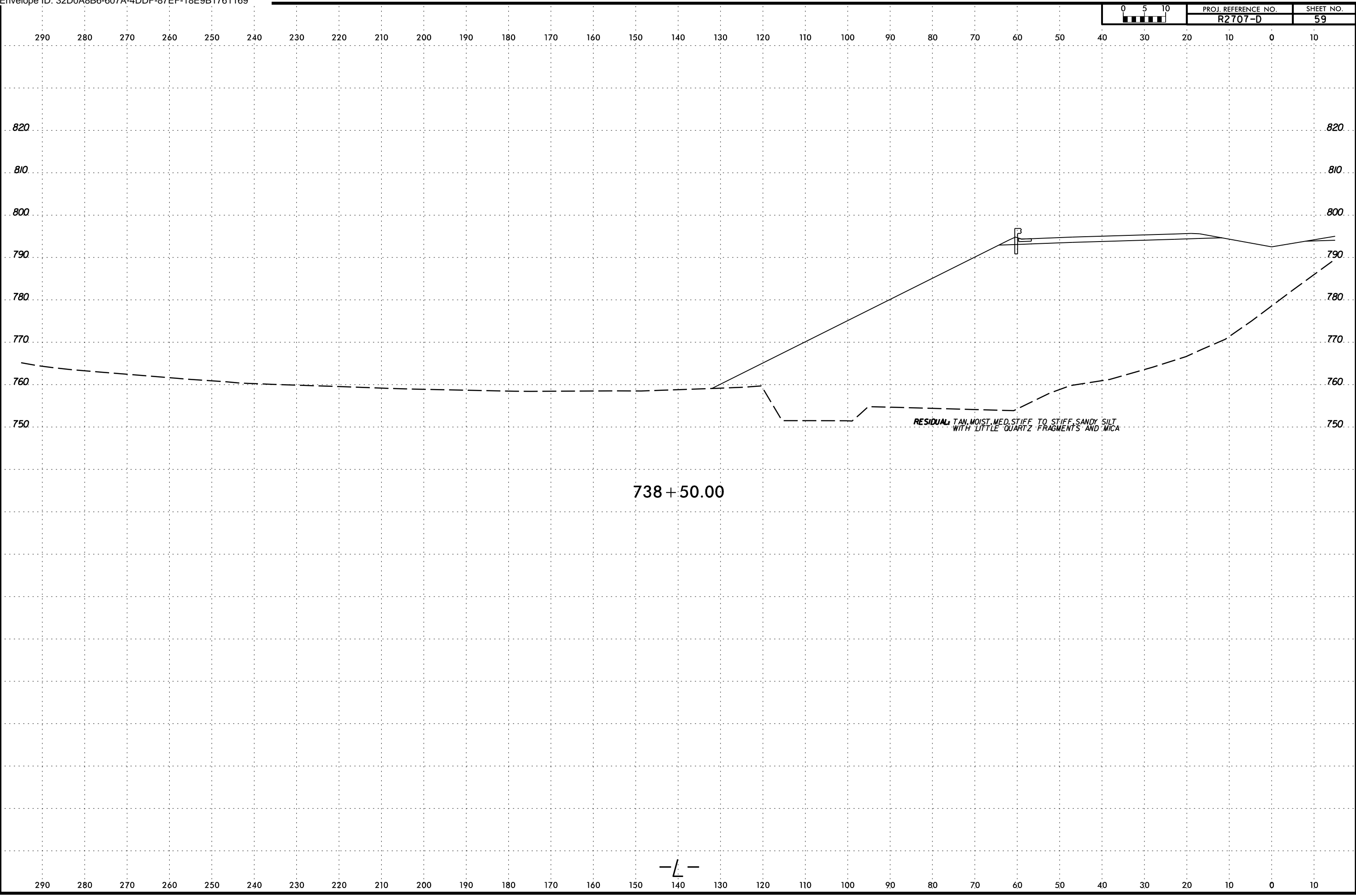


PROJ. REFERENCE NO.	SHEET NO.
R-2707D	58

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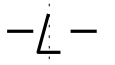


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738+50.00

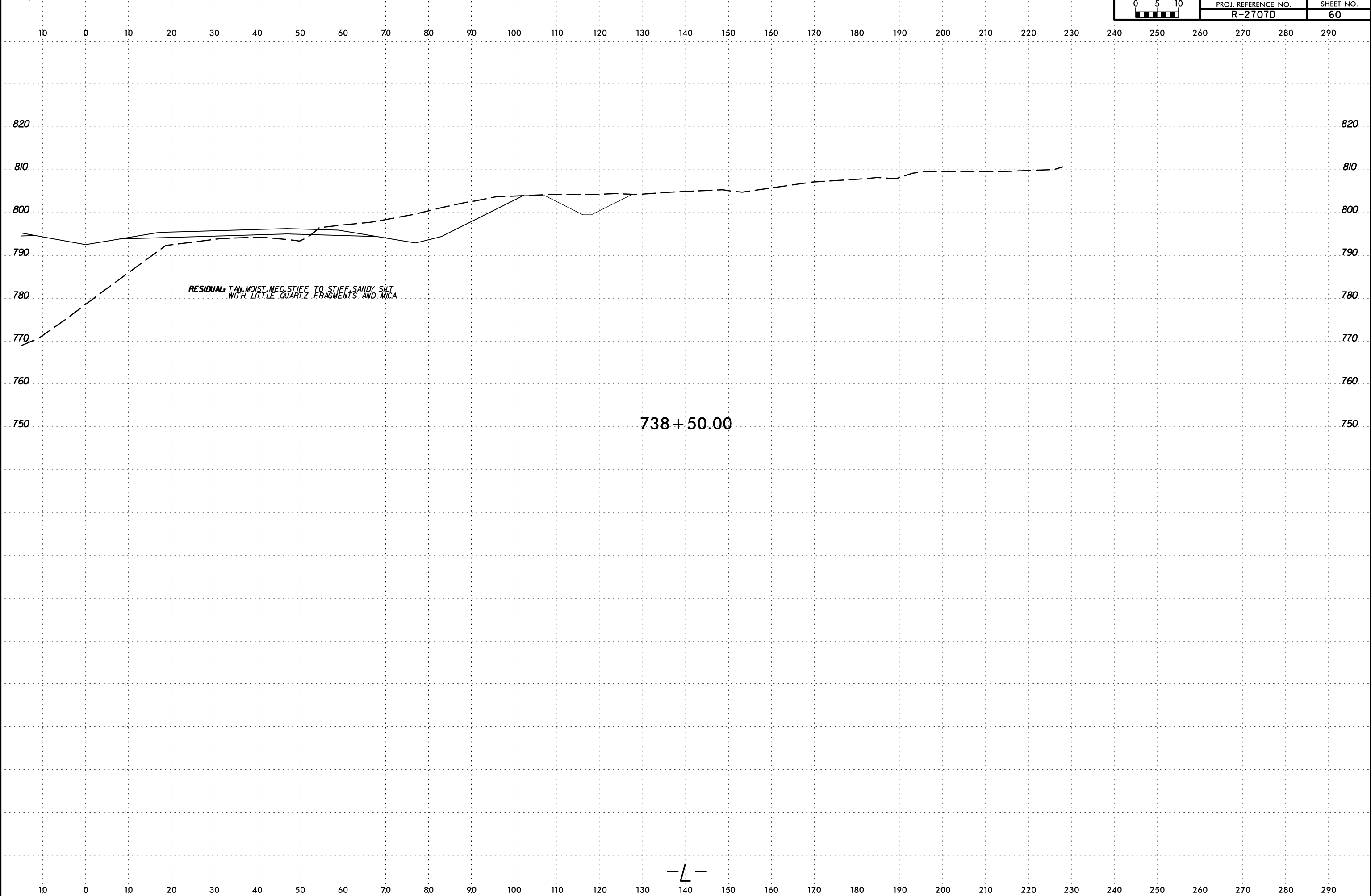
RESIDUAL TAN, MOIST, MED. STIFF TO STIFF SANDY SILT WITH LITTLE QUARTZ FRAGMENTS AND MICA





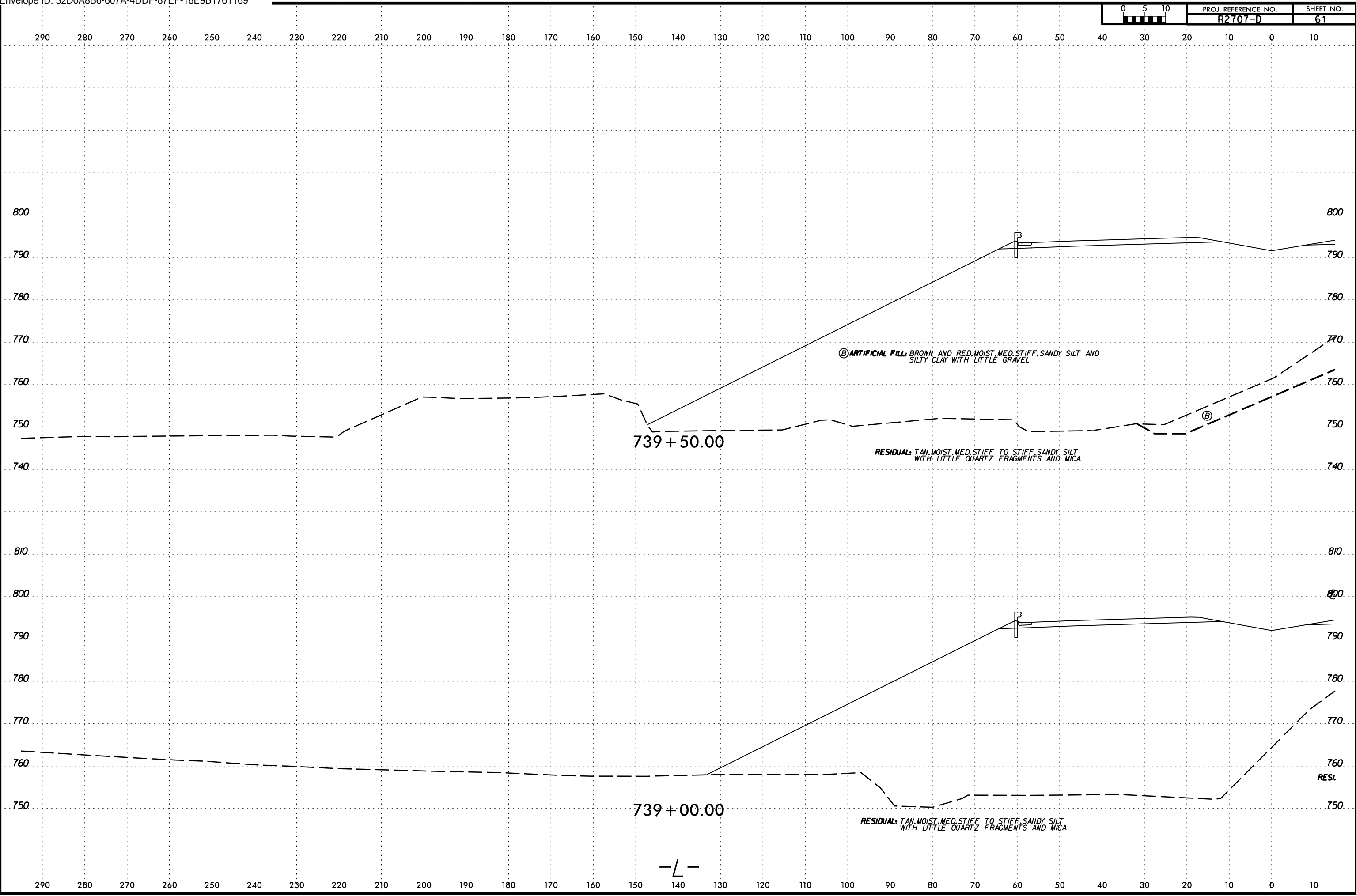
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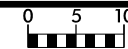
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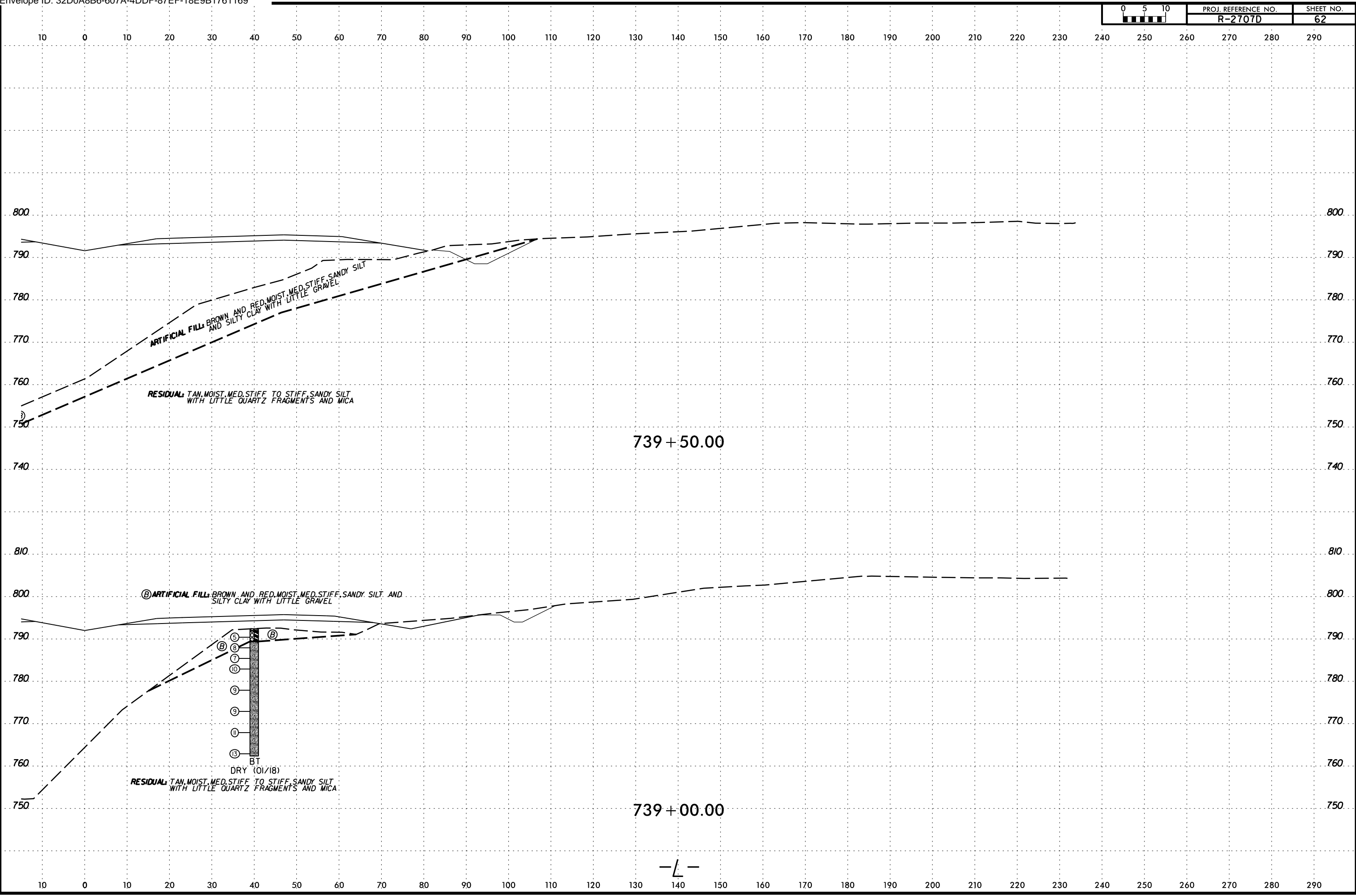
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6/23/16
6/23/16



ARTIFICIAL FILL: BROWN AND RED MOIST MED. STIFF SANDY SILT AND SILTY CLAY WITH LITTLE GRAVEL

RESIDUAL: TAN MOIST MED. STIFF TO STIFF SANDY SILT WITH LITTLE QUARTZ FRAGMENTS AND MICA

739+50.00

ARTIFICIAL FILL: BROWN AND RED MOIST MED. STIFF SANDY SILT AND SILTY CLAY WITH LITTLE GRAVEL

RESIDUAL: TAN MOIST MED. STIFF TO STIFF SANDY SILT WITH LITTLE QUARTZ FRAGMENTS AND MICA

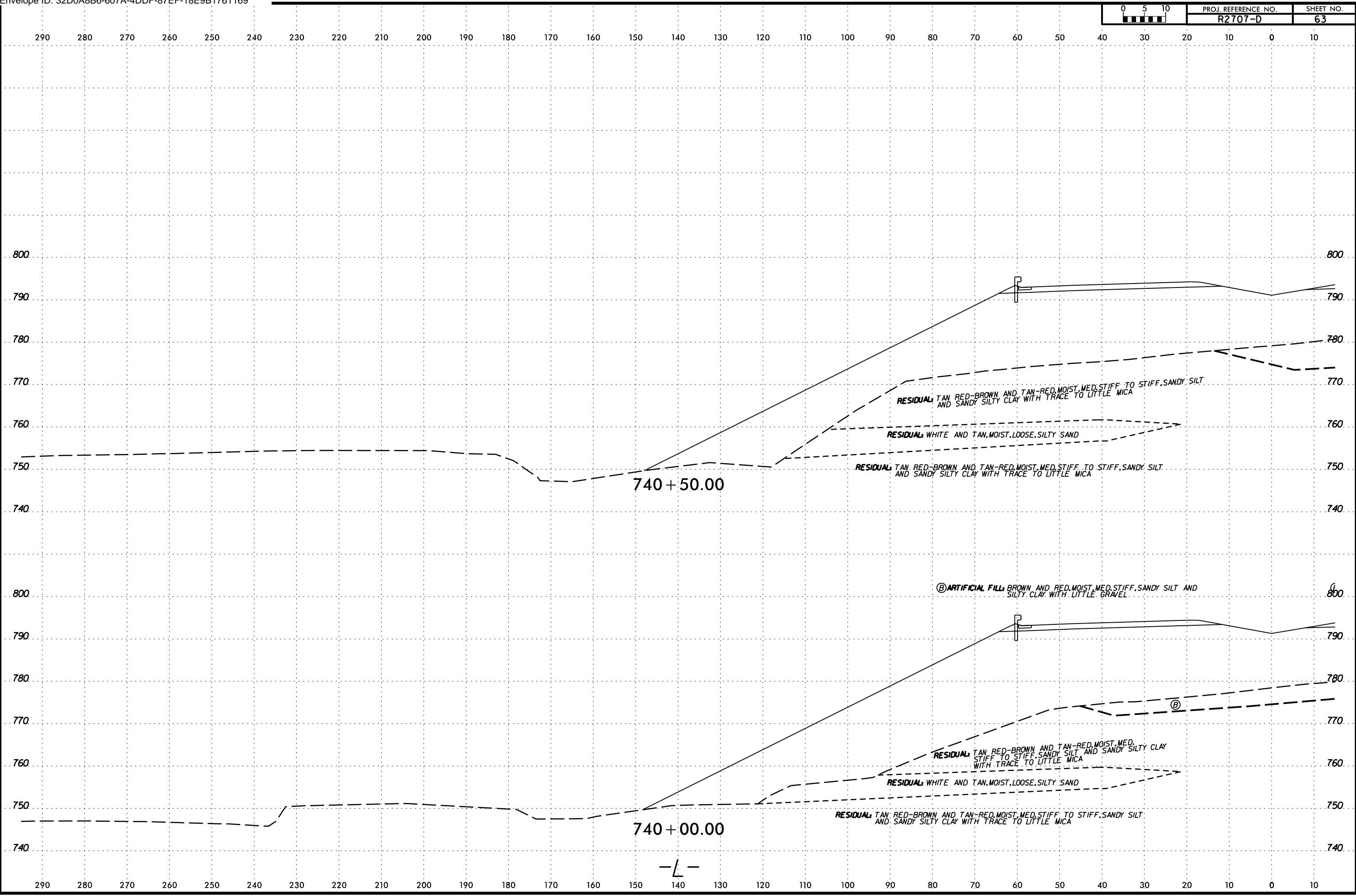
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DRY (01/18)

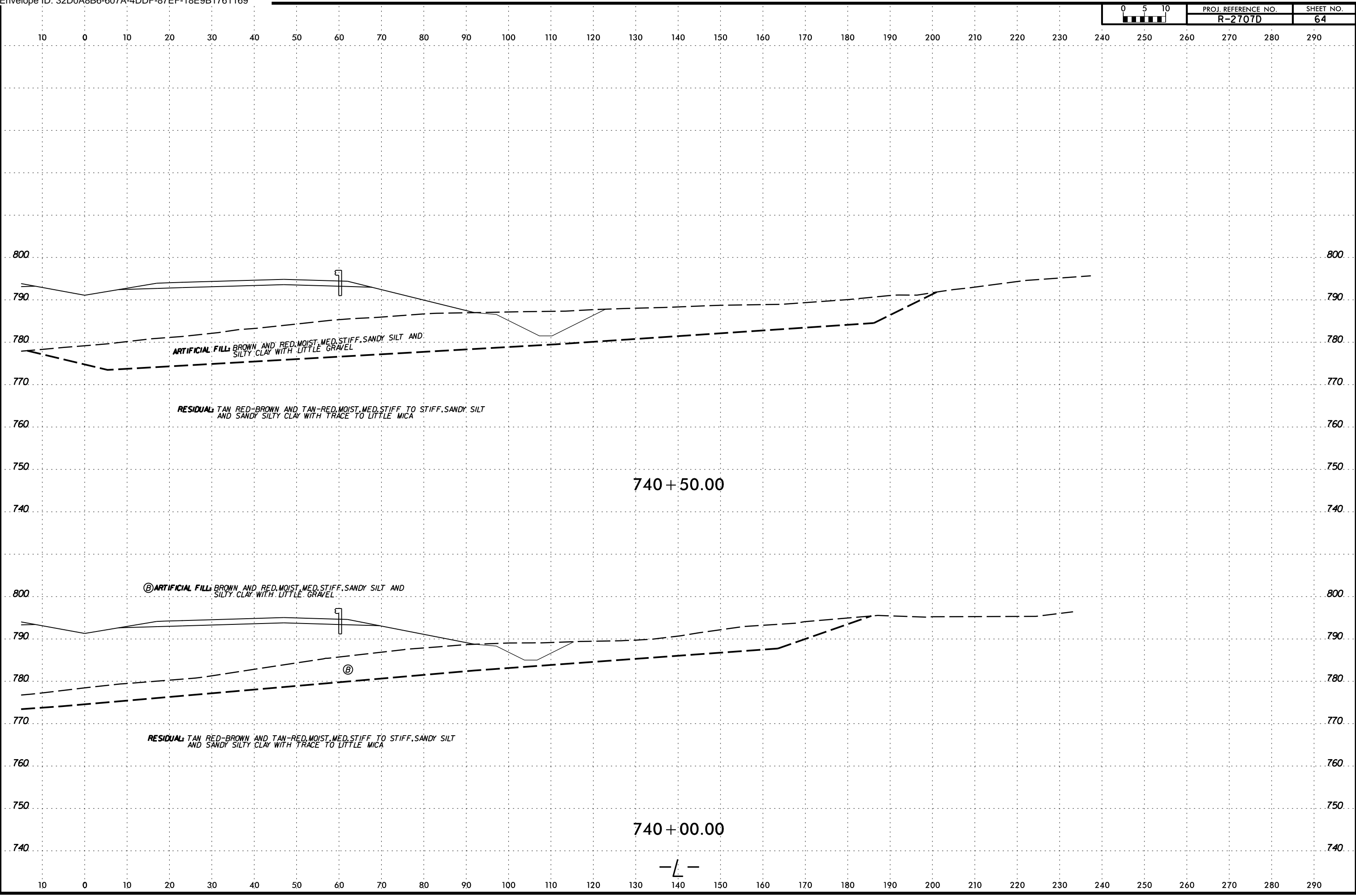
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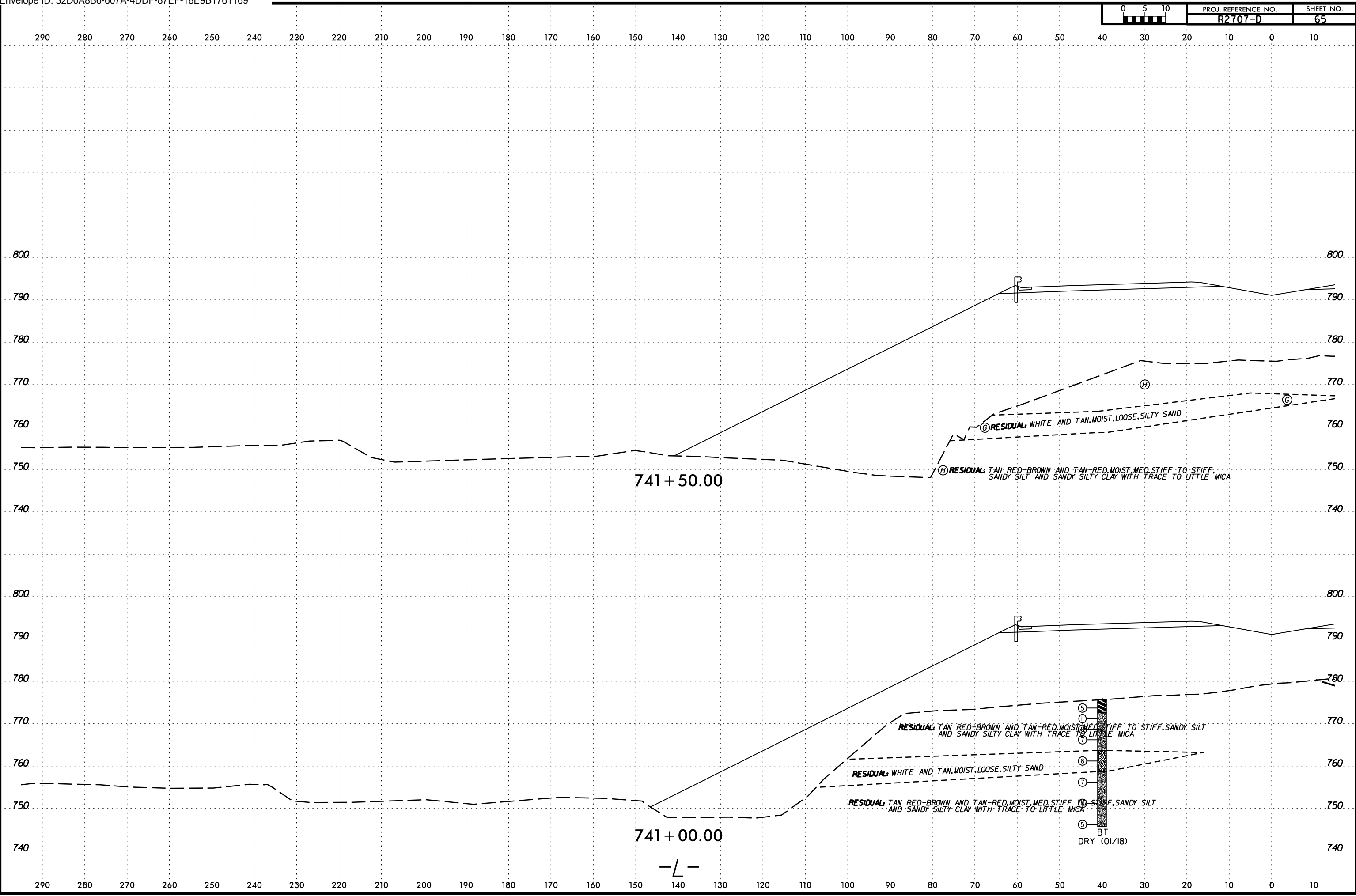


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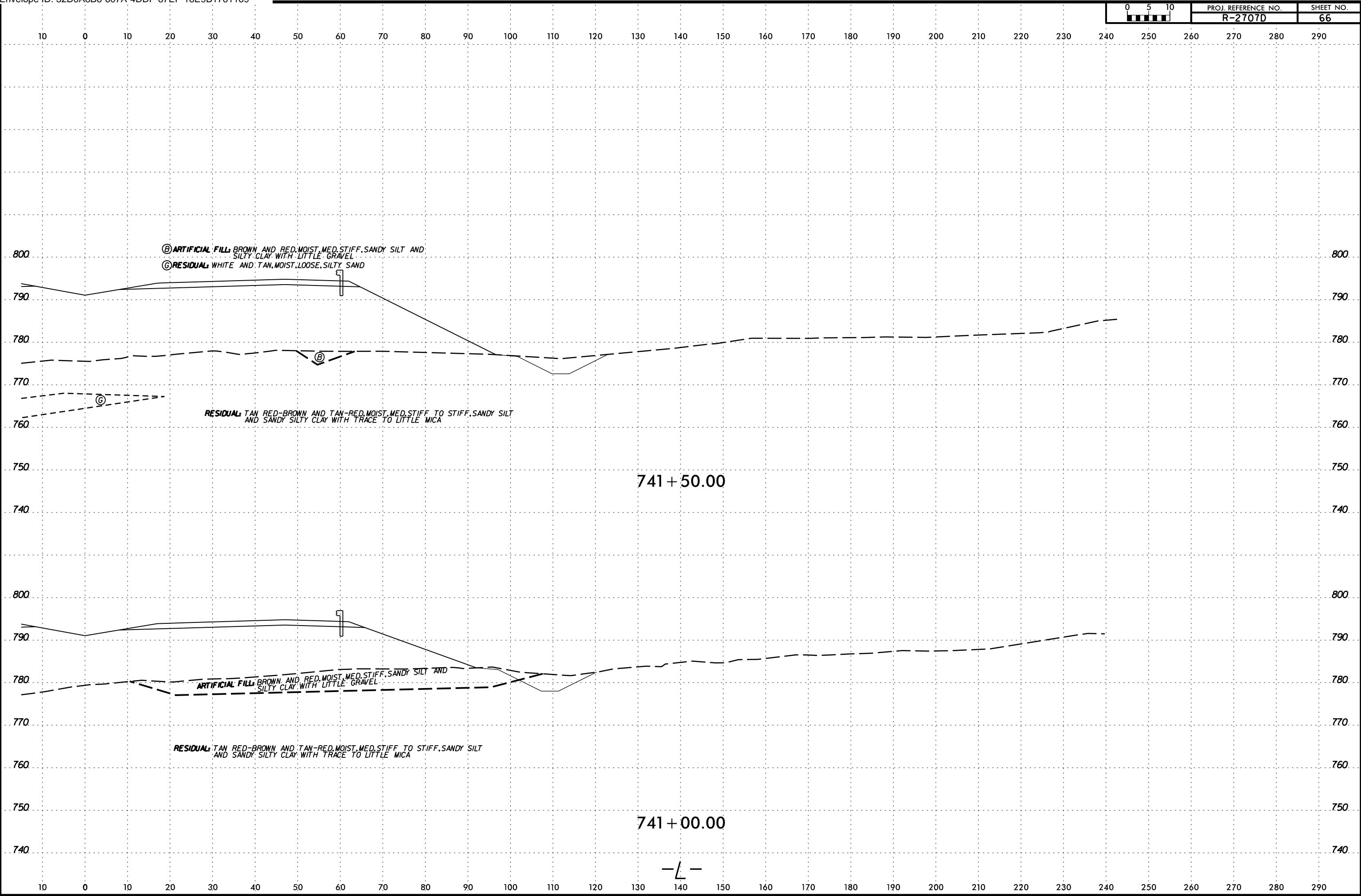
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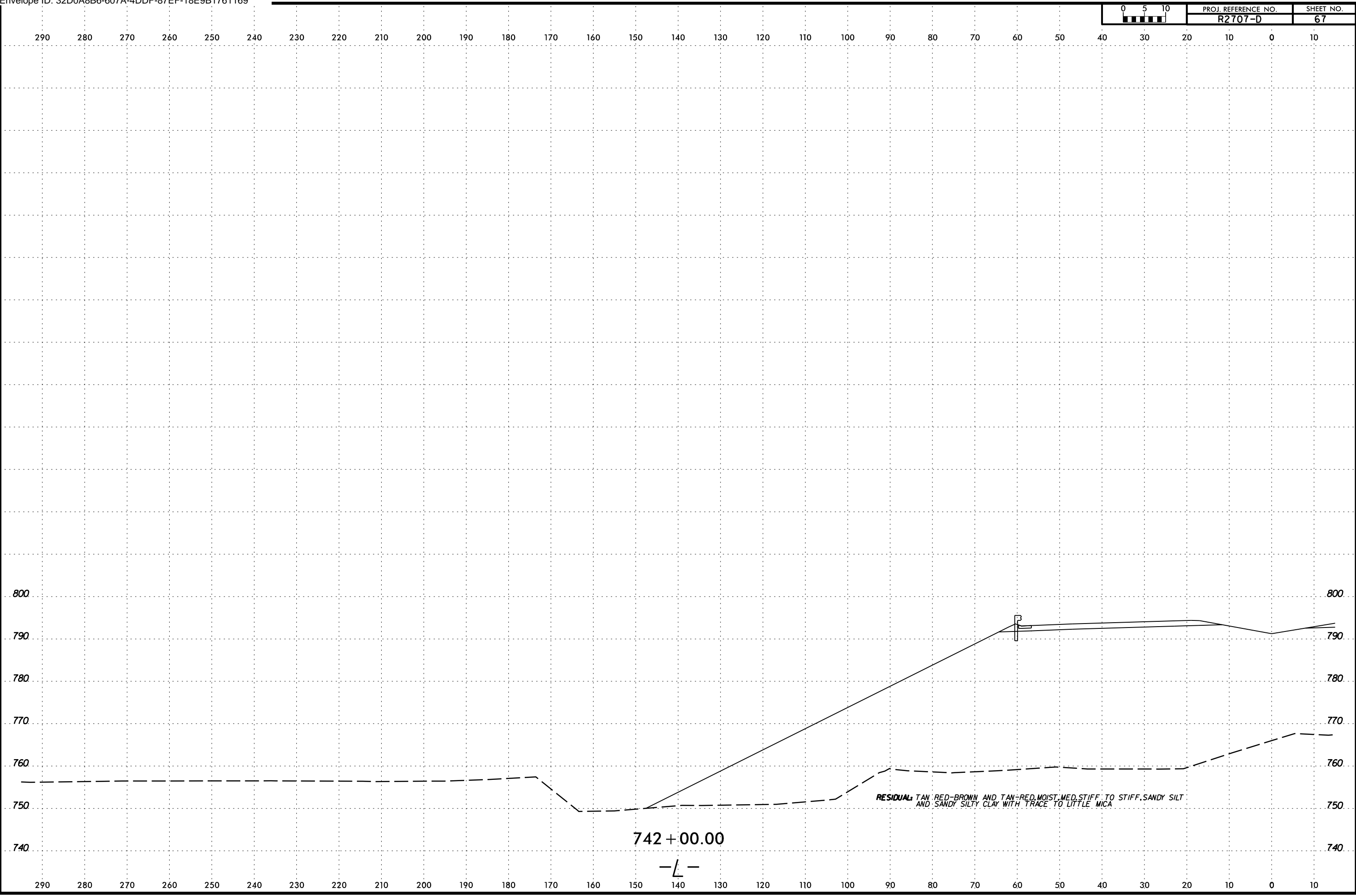




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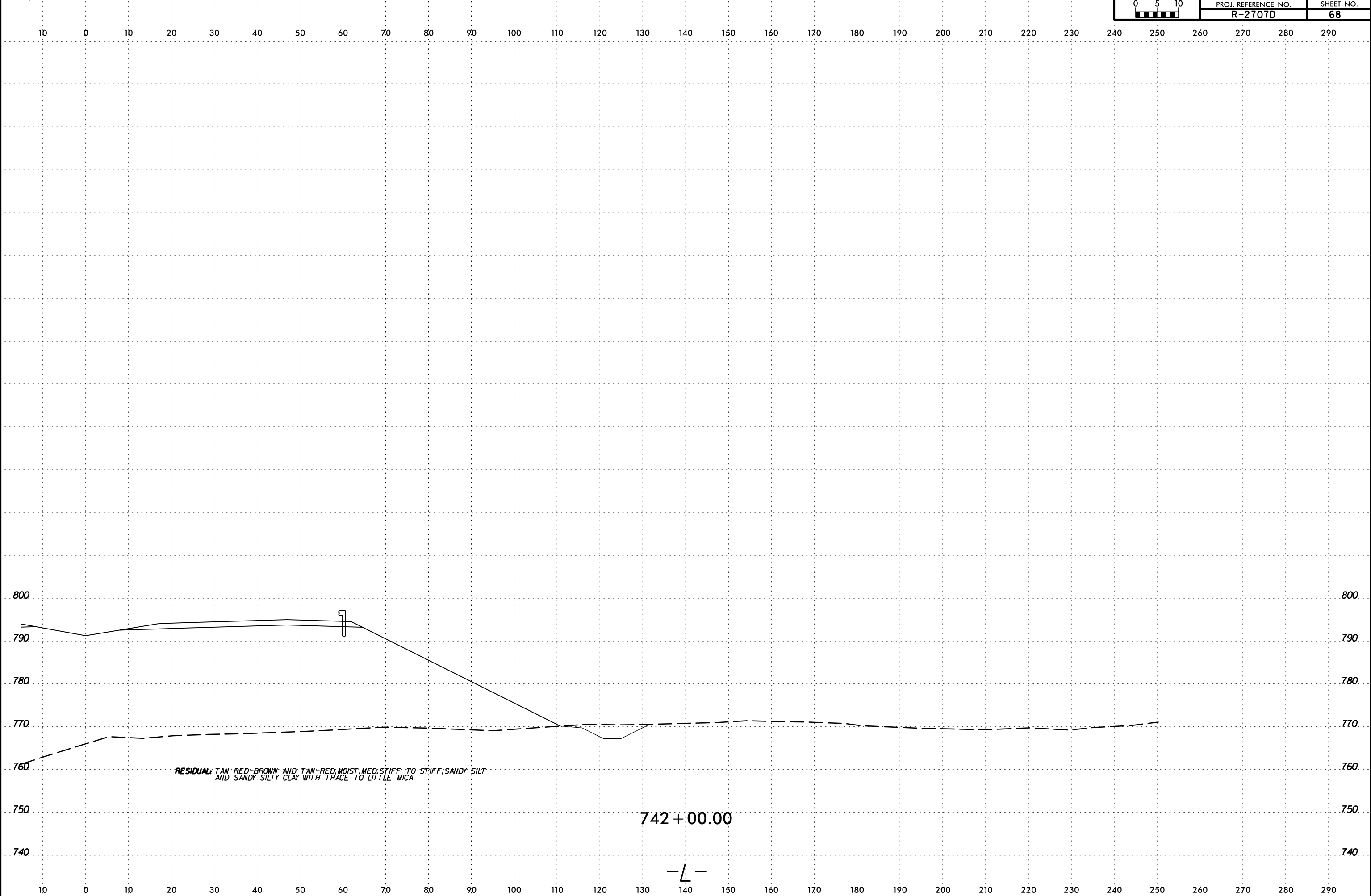
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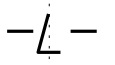
PROJ. REFERENCE NO.	SHEET NO.
R-2707D	68

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09-AUG-2018 14:31
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RESIDUAL TAN RED-BROWN AND TAN-RED MOIST MED. STIFF TO STIFF SANDY SILT AND SANDY SILTY CLAY WITH TRACE TO LITTLE MICA

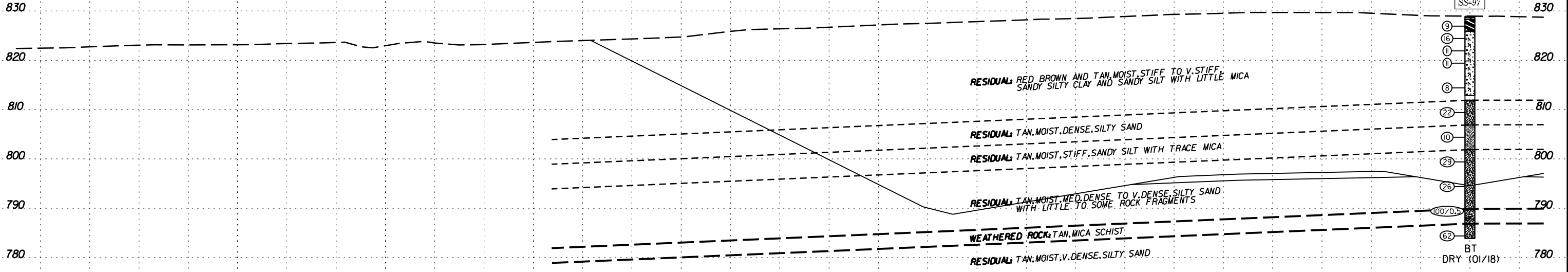
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SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	LL	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-95	CL	747+00	1.0'-2.5'	A-7-5	61	22	6	27	14	53	96	94	70	34	-
SS-96	CL	747+00	8.5'-10.0'	A-5	44	6	8	51	23	18	100	98	52	18	-
SS-97	CL	747+00	23.5'-25.0'	A-5	42	2	6	44	38	12	100	98	65	19	-

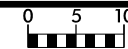


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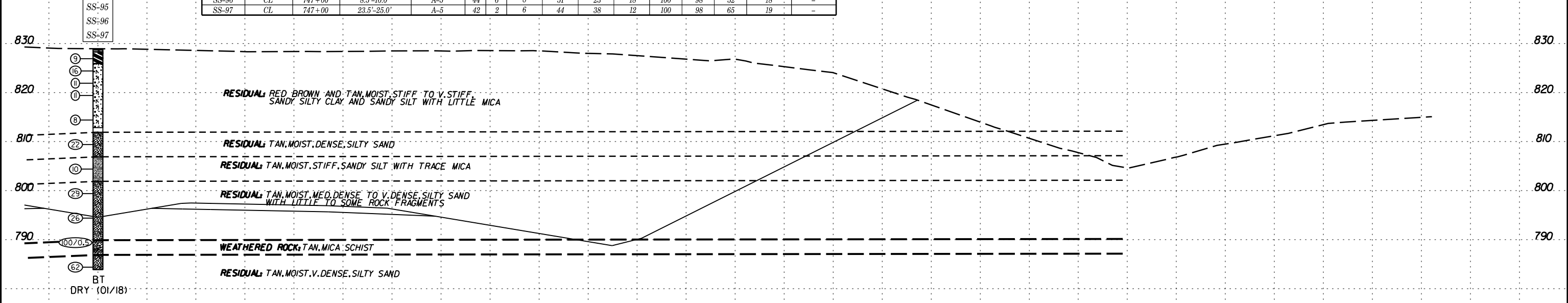
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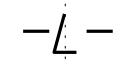
SOIL TEST RESULTS															
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							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-95	CL	747+00	1.0'-2.5'	A-7-5	61	22	6	27	14	53	96	94	70	34	-
SS-96	CL	747+00	8.5'-10.0'	A-5	44	6	8	51	23	18	100	98	52	18	-
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747+00.00

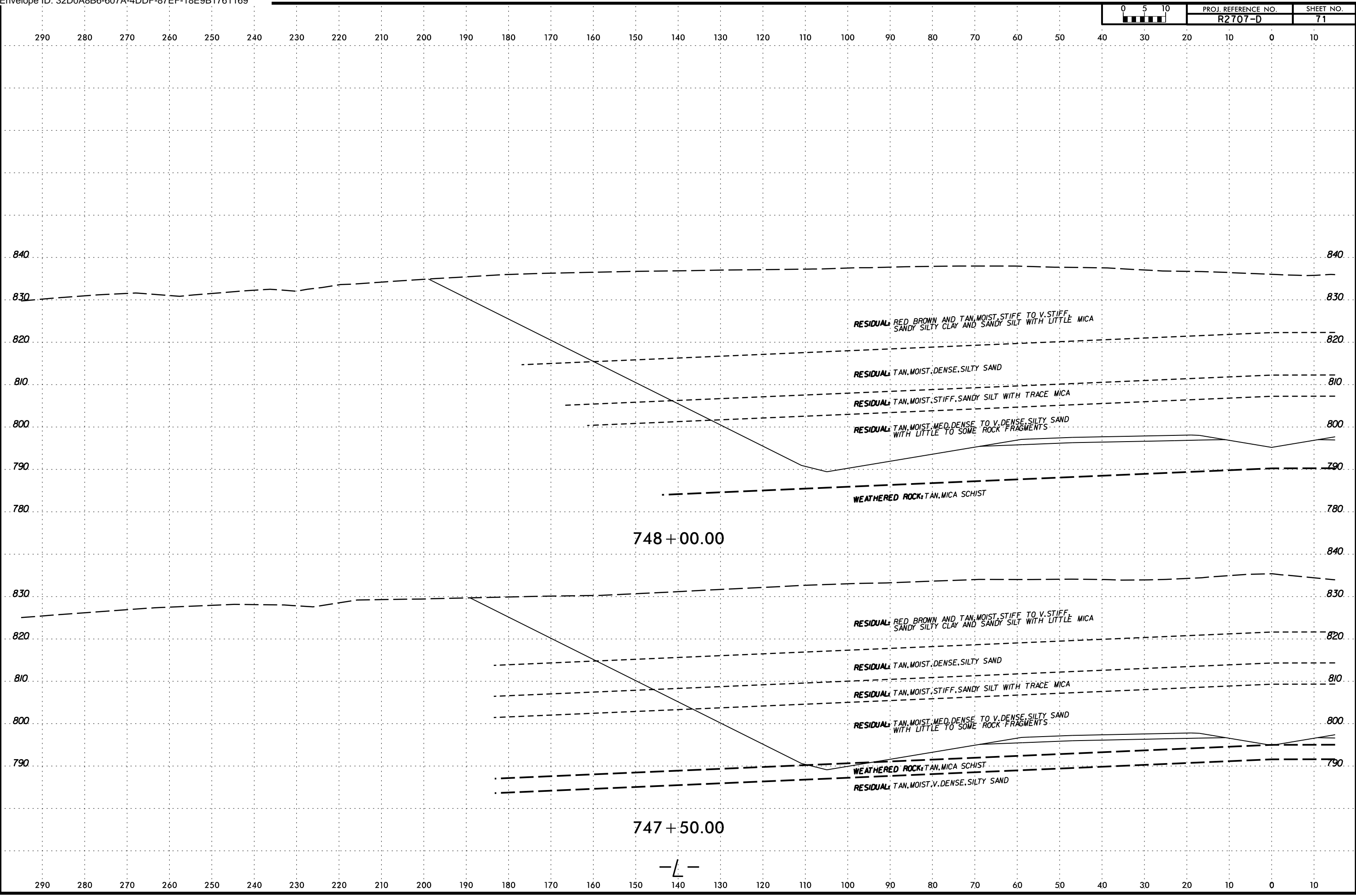
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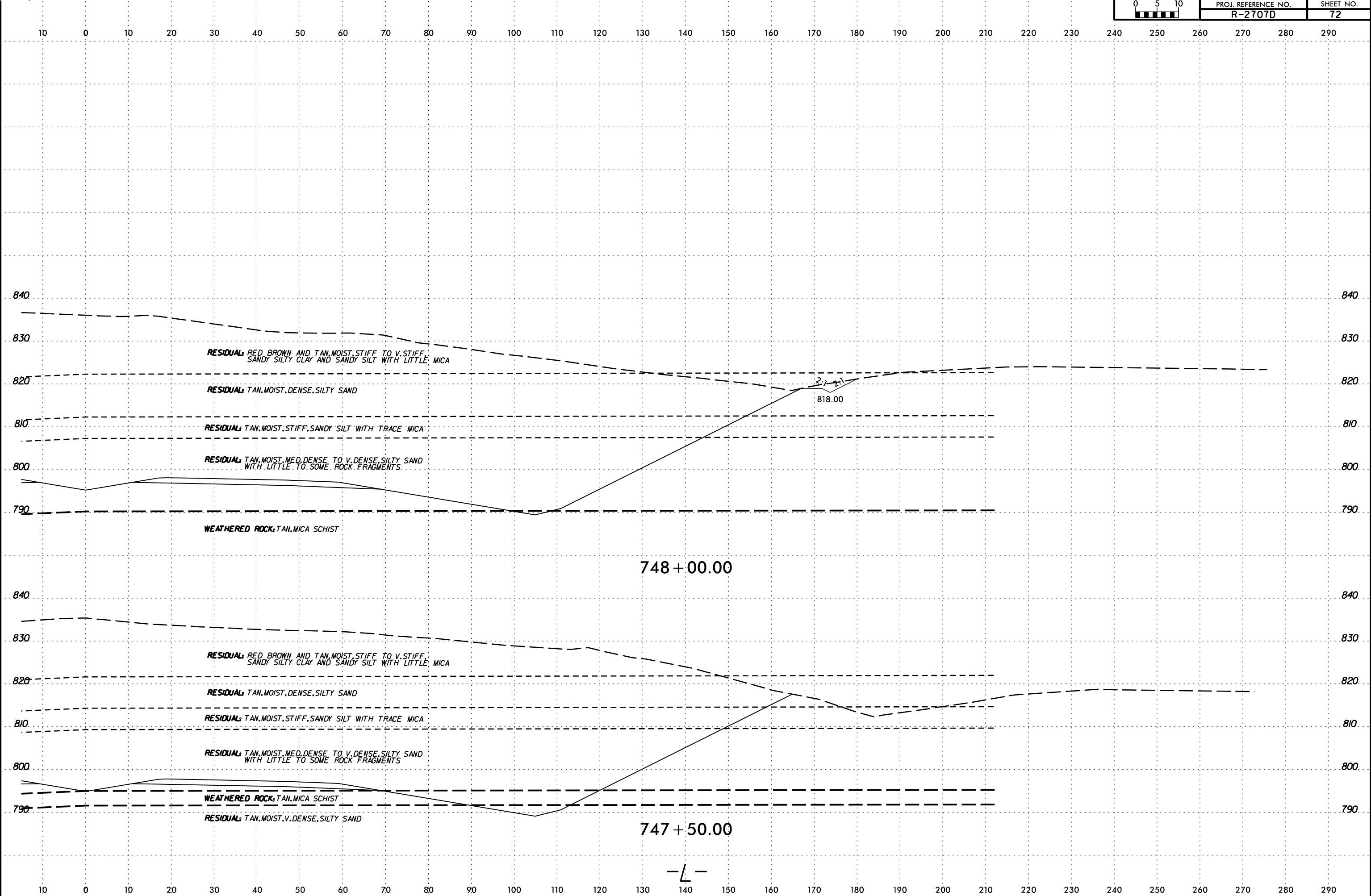
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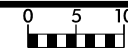




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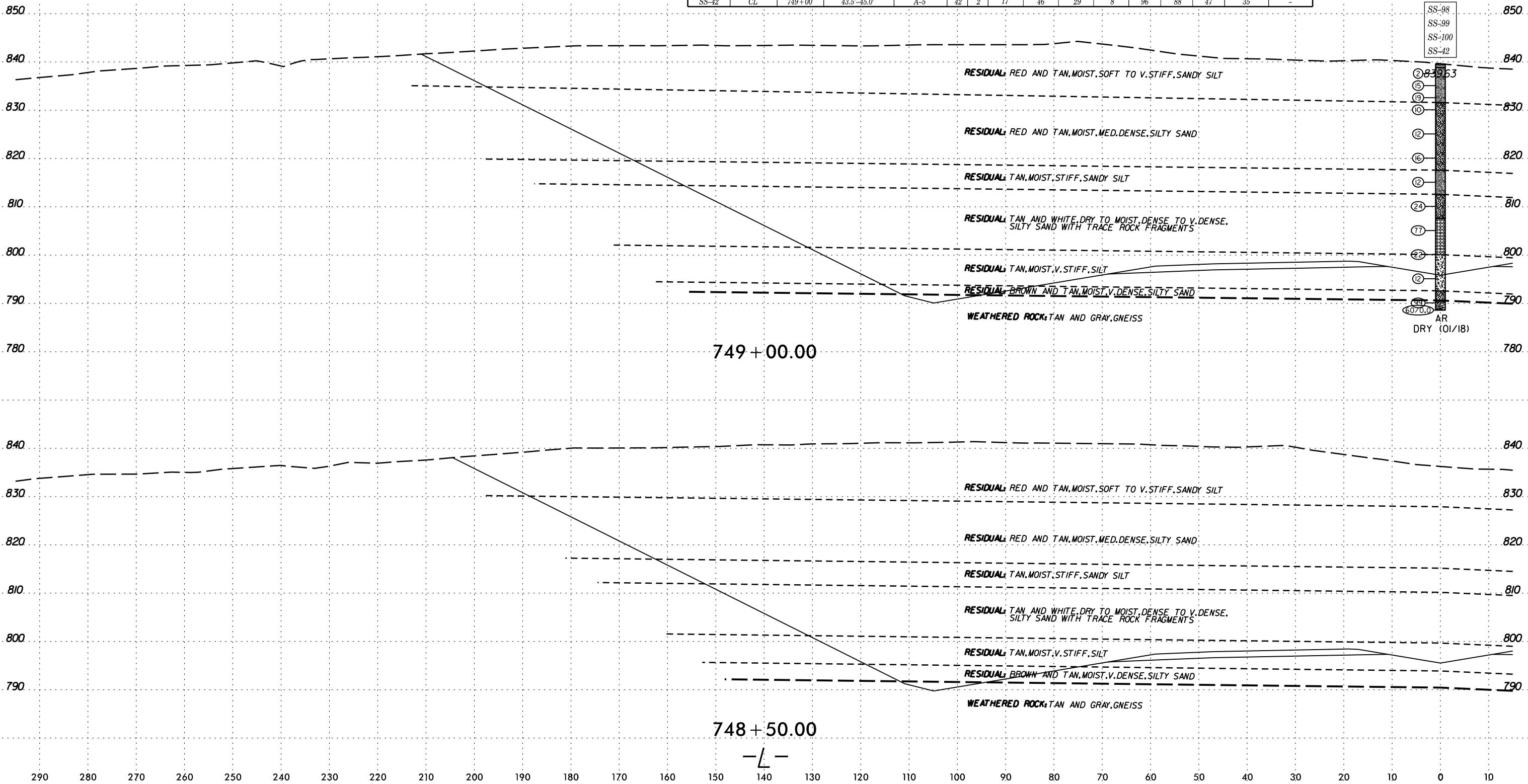


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SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-98	CL	749+00	1.0'-2.5'	A-4	20	5	11	30	9	50	99	94	63	21	-
SS-99	CL	749+00	6.0'-7.5'	A-4	38	2	18	54	7	21	98	87	55	15	-
SS-100	CL	749+00	23.5'-25.0'	A-4	39	NP	7	53	27	13	100	99	53	25	-
SS-42	CL	749+00	43.5'-45.0'	A-5	42	2	17	46	29	8	96	88	47	35	-

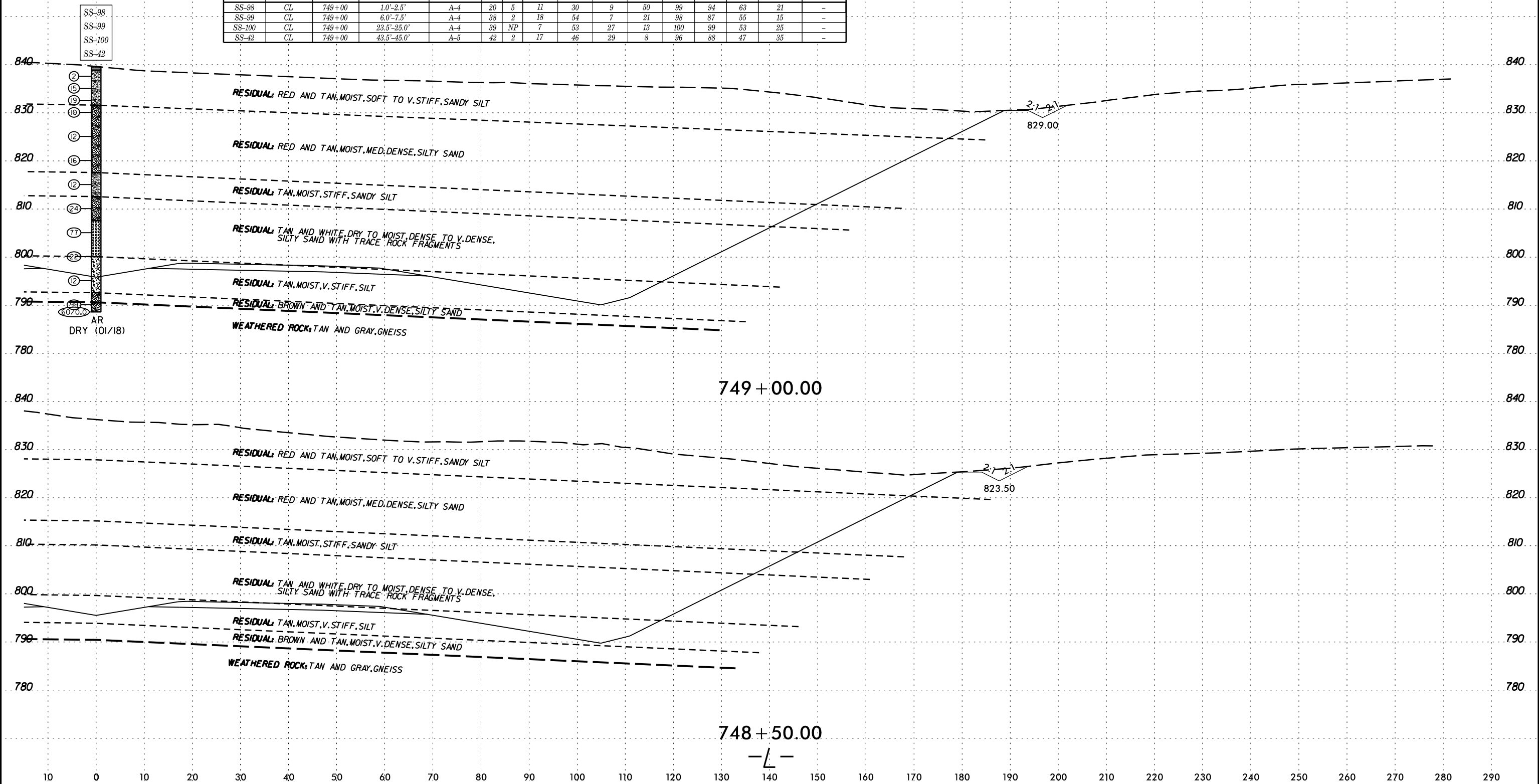


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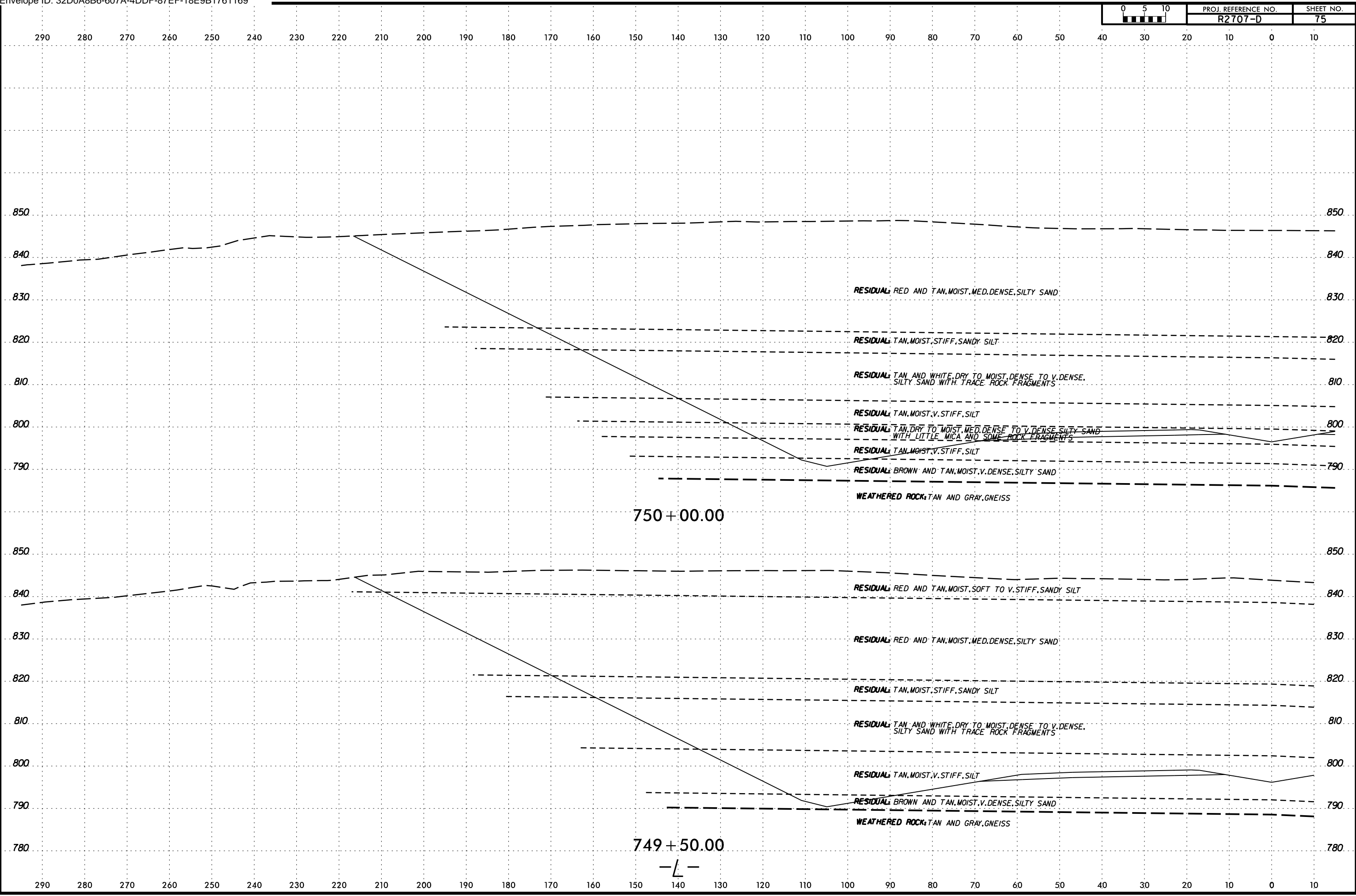
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							C. SAND	F. SAND	SILT	CLAY	10	40	200		
							SS-98	CL	749+00	1.0'-2.5'	A-4	20	5		
SS-99	CL	749+00	6.0'-7.5'	A-4	38	2	18	54	7	21	98	87	55	15	-
SS-100	CL	749+00	23.5'-25.0'	A-4	39	NP	7	53	27	13	100	99	53	25	-
SS-42	CL	749+00	43.5'-45.0'	A-5	42	2	17	46	29	8	96	88	47	35	-



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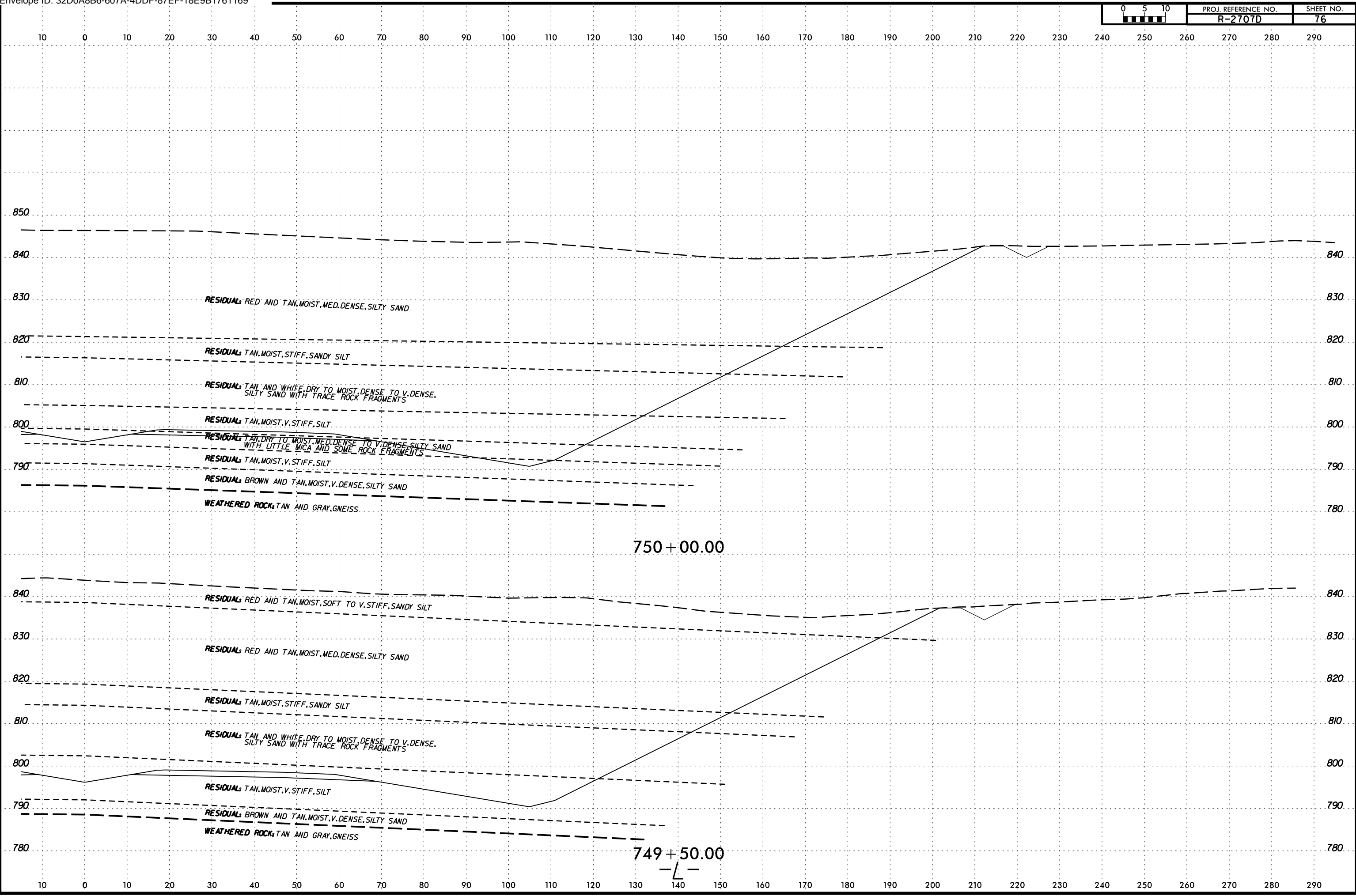
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749+50.00





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6/23/16
cadd\cadd



RESIDUAL: RED AND TAN, MOIST, MED. DENSE, SILTY SAND

RESIDUAL: TAN, MOIST, STIFF, SANDY SILT

RESIDUAL: TAN AND WHITE DRY TO MOIST, DENSE TO V. DENSE, SILTY SAND WITH TRACE ROCK FRAGMENTS

RESIDUAL: TAN, MOIST, V. STIFF, SILT

RESIDUAL: TAN, DRY TO MOIST, MED. DENSE TO V. DENSE, SILTY SAND WITH LITTLE MICA AND SOME ROCK FRAGMENTS

RESIDUAL: TAN, MOIST, V. STIFF, SILT

RESIDUAL: BROWN AND TAN, MOIST, V. DENSE, SILTY SAND

WEATHERED ROCK: TAN AND GRAY, GNEISS

750+00.00

RESIDUAL: RED AND TAN, MOIST, SOFT TO V. STIFF, SANDY SILT

RESIDUAL: RED AND TAN, MOIST, MED. DENSE, SILTY SAND

RESIDUAL: TAN, MOIST, STIFF, SANDY SILT

RESIDUAL: TAN AND WHITE DRY TO MOIST, DENSE TO V. DENSE, SILTY SAND WITH TRACE ROCK FRAGMENTS

RESIDUAL: TAN, MOIST, V. STIFF, SILT

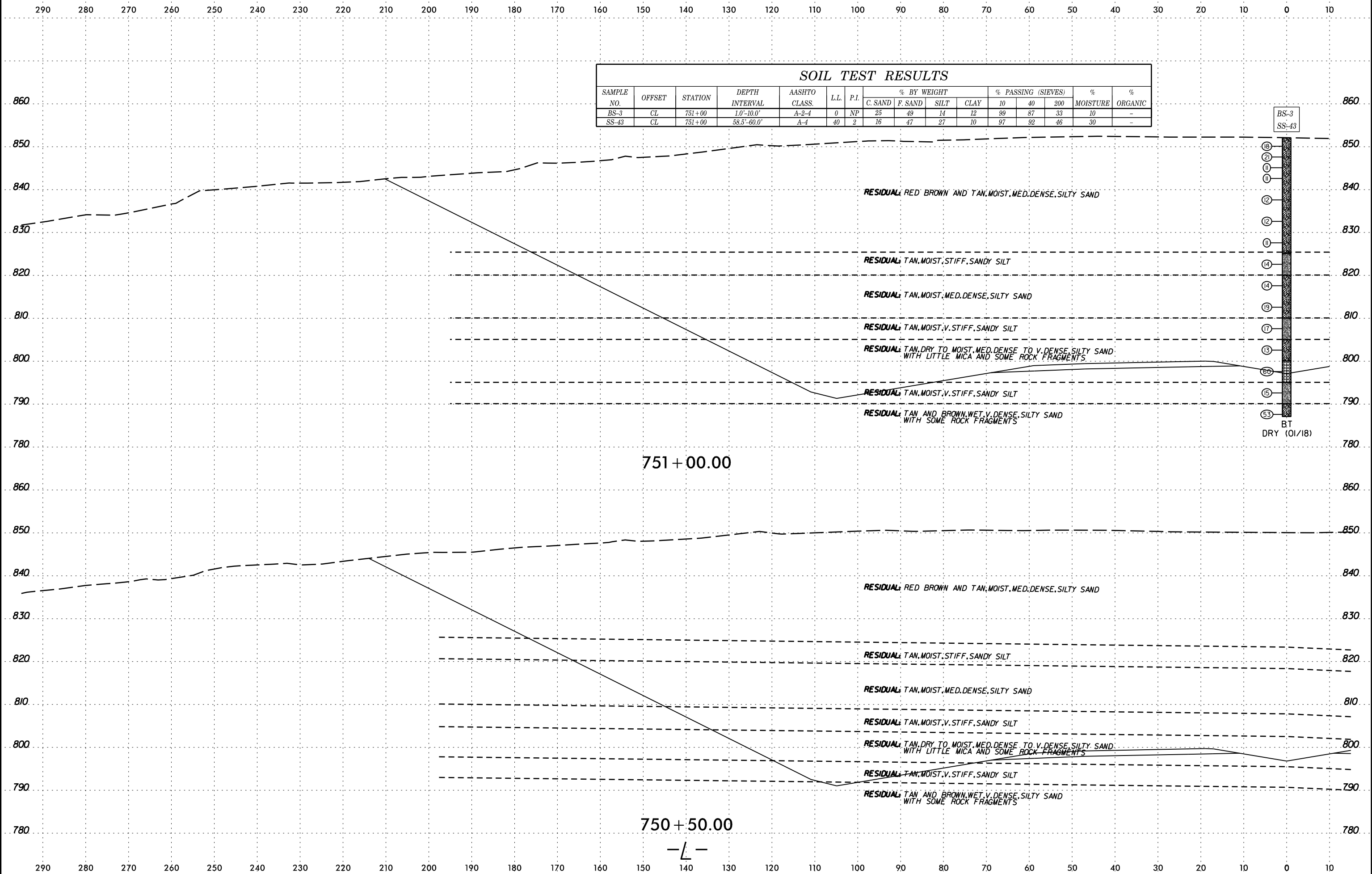
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WEATHERED ROCK: TAN AND GRAY, GNEISS

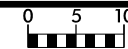
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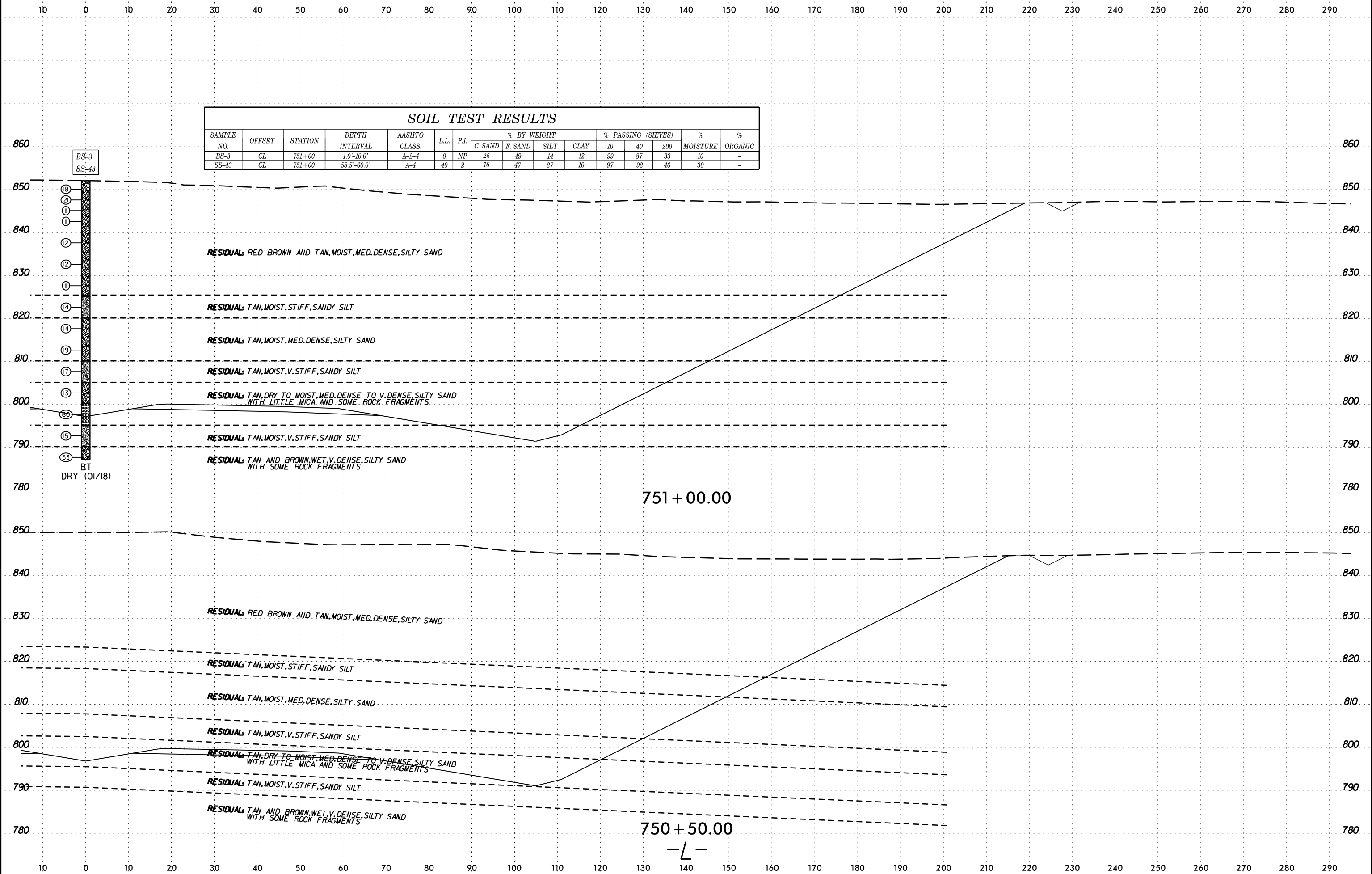
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SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
BS-3	CL	751+00	1.0'-10.0'	A-2-4	0	NP	25	49	14	12	99	87	33	10	-
SS-43	CL	751+00	58.5'-60.0'	A-4	40	2	16	47	27	10	97	92	46	30	-



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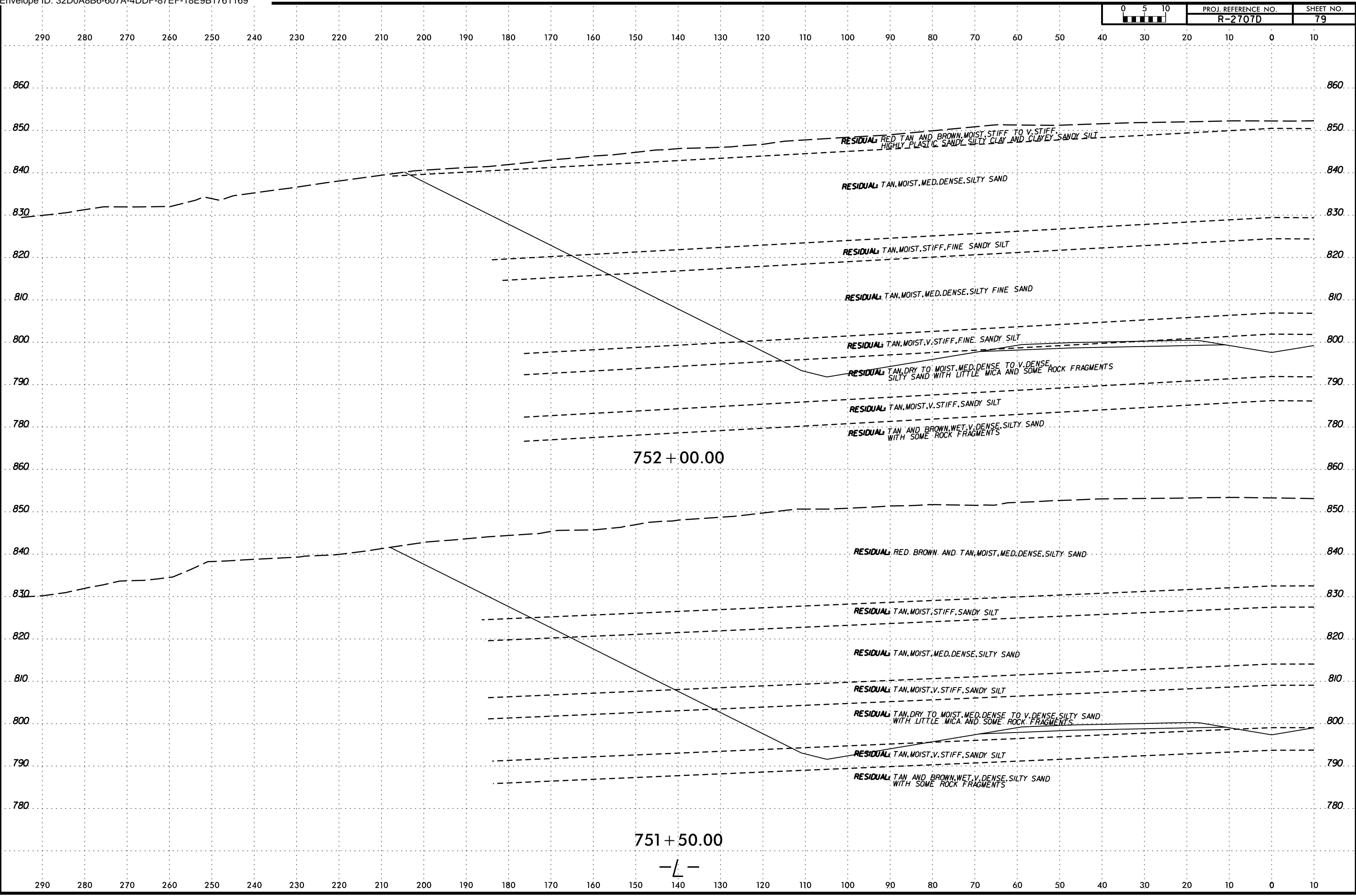
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SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
BS-3	CL	751+00	1.0'-10.0'	A-2-4	0	NP	25	49	14	12	99	87	33	10	-
SS-43	CL	751+00	58.5'-60.0'	A-4	40	2	16	47	27	10	97	92	46	30	-



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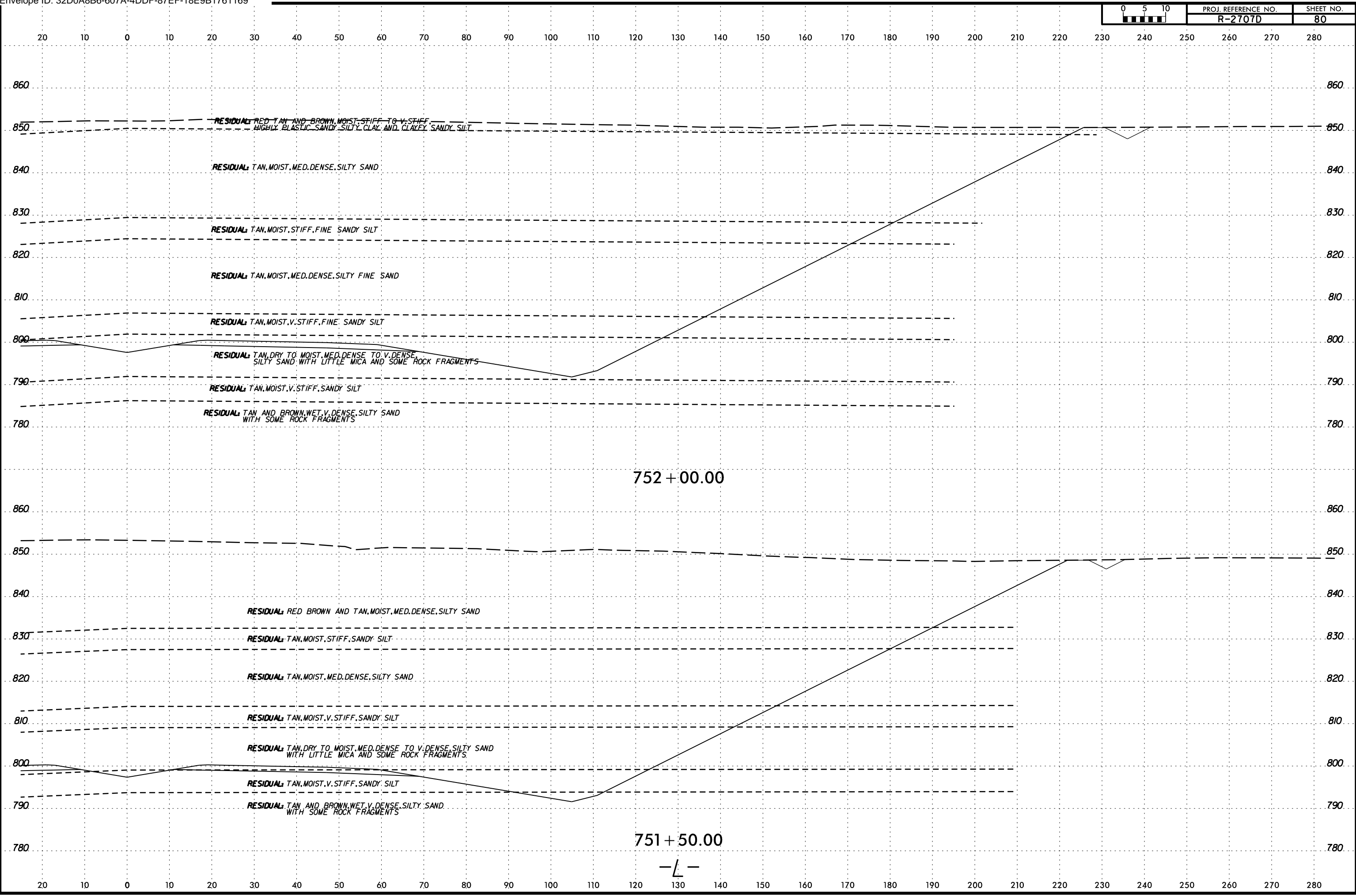
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6/23/16
6/23/16



RESIDUAL RED TAN AND BROWN MOIST STIFF TO V. STIFF
HIGHLY PLASTIC SANDY SILTY CLAY AND CLAYEY SANDY SILT

RESIDUAL TAN MOIST MED DENSE SILTY SAND

RESIDUAL TAN MOIST STIFF FINE SANDY SILT

RESIDUAL TAN MOIST MED DENSE SILTY FINE SAND

RESIDUAL TAN MOIST V. STIFF FINE SANDY SILT

RESIDUAL TAN DRY TO MOIST MED DENSE TO V. DENSE
SILTY SAND WITH LITTLE MICA AND SOME ROCK FRAGMENTS

RESIDUAL TAN MOIST V. STIFF SANDY SILT

RESIDUAL TAN AND BROWN WET V. DENSE SILTY SAND
WITH SOME ROCK FRAGMENTS

752 + 00.00

RESIDUAL RED BROWN AND TAN MOIST MED DENSE SILTY SAND

RESIDUAL TAN MOIST STIFF SANDY SILT

RESIDUAL TAN MOIST MED DENSE SILTY SAND

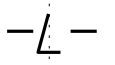
RESIDUAL TAN MOIST V. STIFF SANDY SILT

RESIDUAL TAN DRY TO MOIST MED DENSE TO V. DENSE SILTY SAND
WITH LITTLE MICA AND SOME ROCK FRAGMENTS

RESIDUAL TAN MOIST V. STIFF SANDY SILT

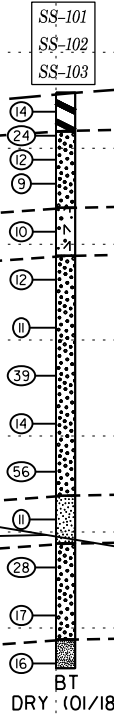
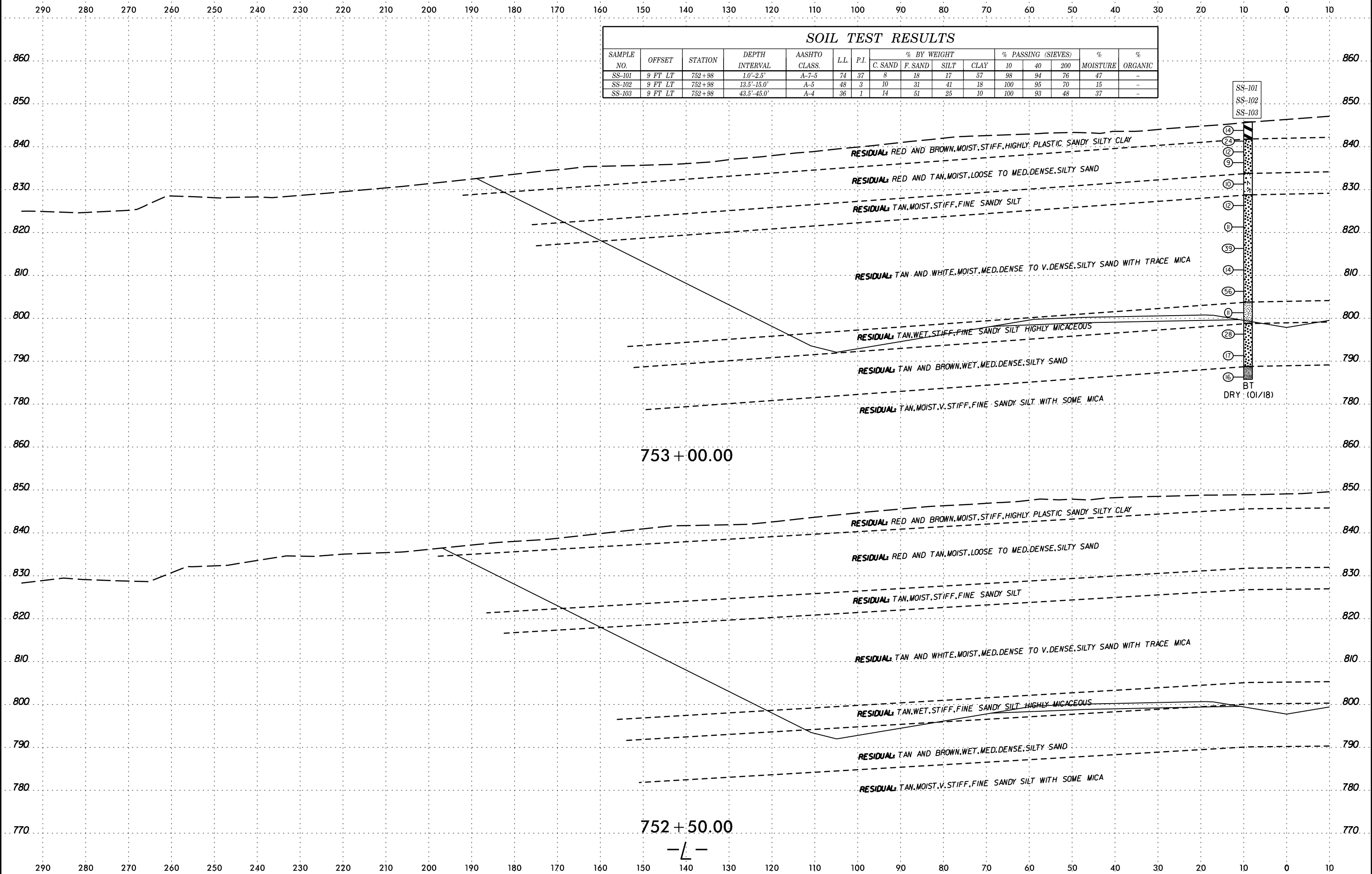
RESIDUAL TAN AND BROWN WET V. DENSE SILTY SAND
WITH SOME ROCK FRAGMENTS

751 + 50.00



SOIL TEST RESULTS

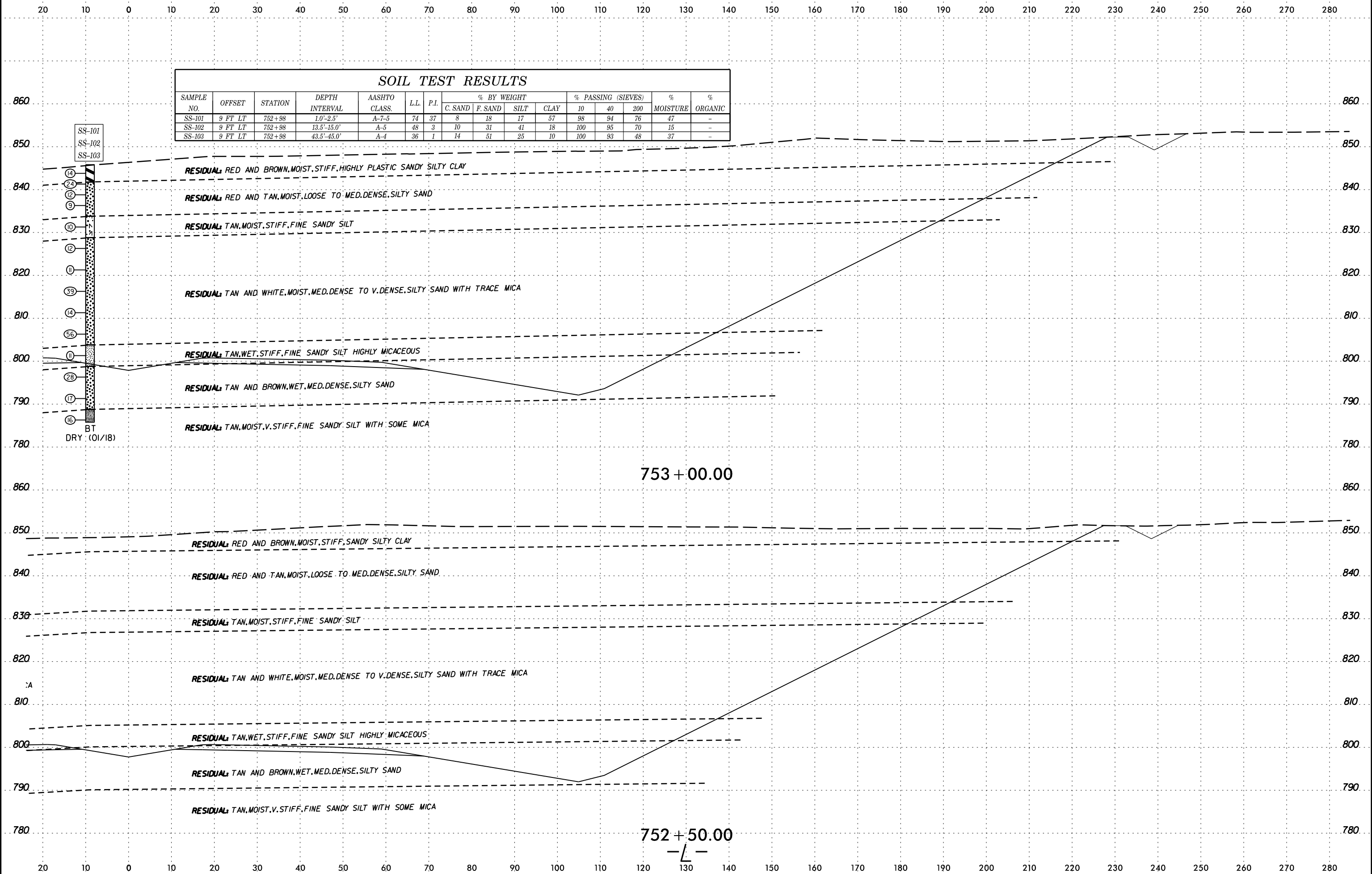
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							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-101	9 FT LT	752+98	1.0'-2.5'	A-7-5	74	37	8	18	17	57	98	94	76	47	-
SS-102	9 FT LT	752+98	13.5'-15.0'	A-5	48	3	10	31	41	18	100	95	70	15	-
SS-103	9 FT LT	752+98	43.5'-45.0'	A-4	36	1	14	51	25	10	100	93	48	37	-



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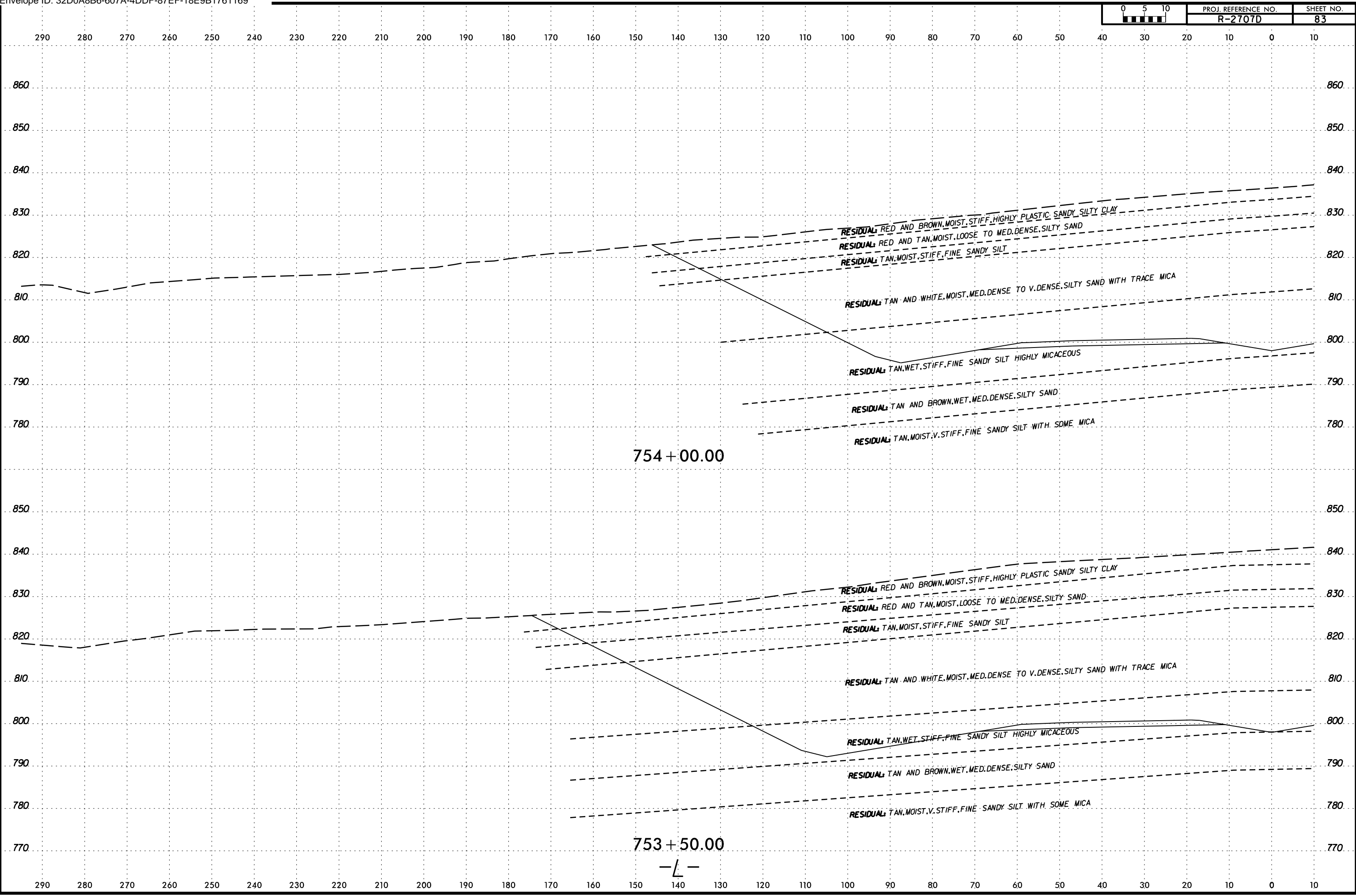
SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-101	9 FT LT	752+98	1.0'-2.5'	A-7-5	74	37	8	18	17	57	98	94	76	47	-
SS-102	9 FT LT	752+98	13.5'-15.0'	A-5	48	3	10	31	41	18	100	95	70	15	-
SS-103	9 FT LT	752+98	43.5'-45.0'	A-4	36	1	14	51	25	10	100	93	48	37	-



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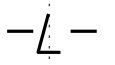


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CAD



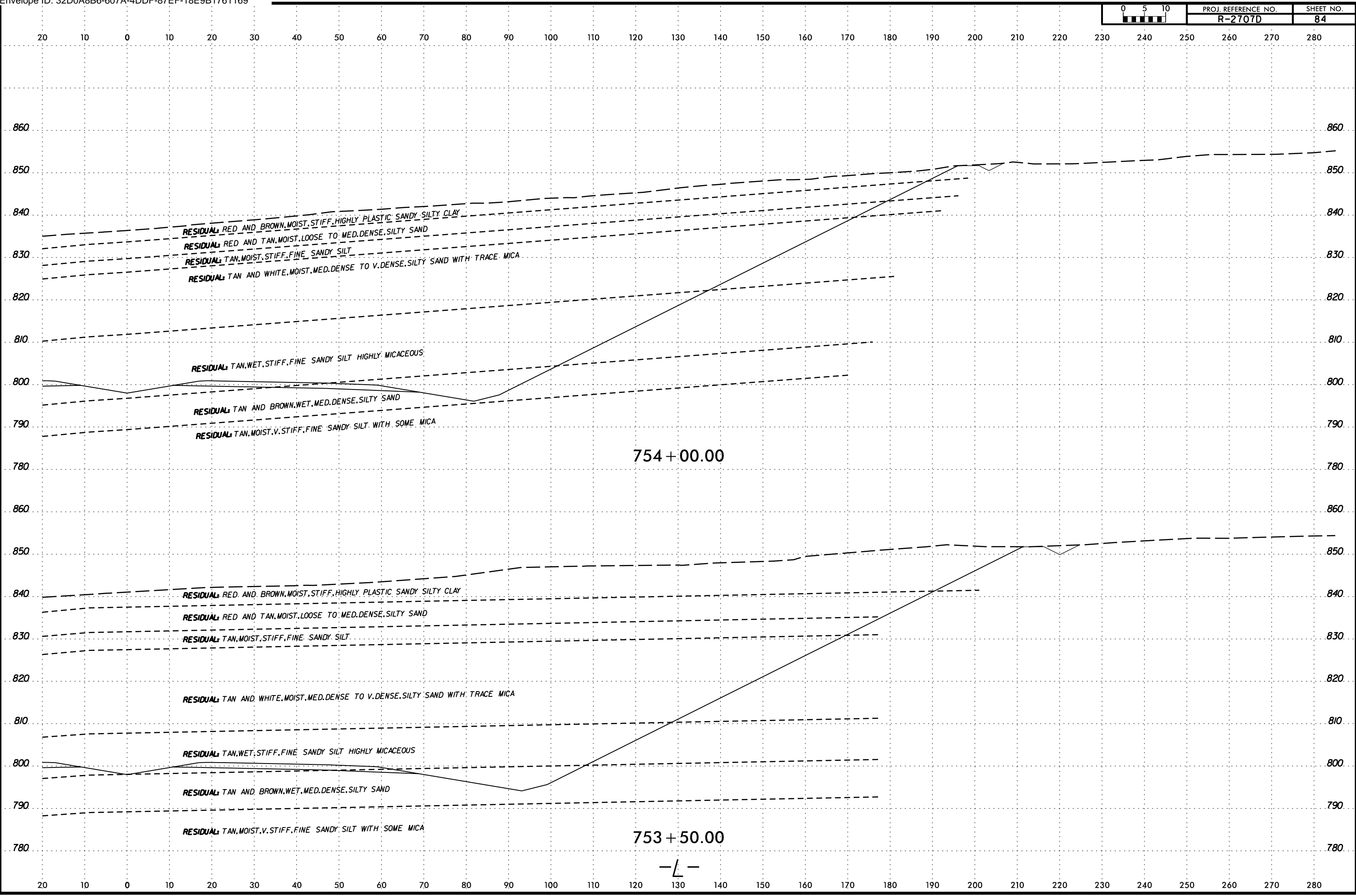
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753+50.00





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cadd\cadd



RESIDUAL RED AND BROWN, MOIST, STIFF, HIGHLY PLASTIC SANDY SILTY CLAY
RESIDUAL RED AND TAN, MOIST, LOOSE TO MED. DENSE, SILTY SAND
RESIDUAL TAN, MOIST, STIFF, FINE SANDY SILT
RESIDUAL TAN AND WHITE, MOIST, MED. DENSE TO V. DENSE, SILTY SAND WITH TRACE MICA

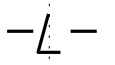
RESIDUAL TAN, WET, STIFF, FINE SANDY SILT HIGHLY MICACEOUS
RESIDUAL TAN AND BROWN, WET, MED. DENSE, SILTY SAND
RESIDUAL TAN, MOIST, V. STIFF, FINE SANDY SILT WITH SOME MICA

754+00.00

RESIDUAL RED AND BROWN, MOIST, STIFF, HIGHLY PLASTIC SANDY SILTY CLAY
RESIDUAL RED AND TAN, MOIST, LOOSE TO MED. DENSE, SILTY SAND
RESIDUAL TAN, MOIST, STIFF, FINE SANDY SILT
RESIDUAL TAN AND WHITE, MOIST, MED. DENSE TO V. DENSE, SILTY SAND WITH TRACE MICA

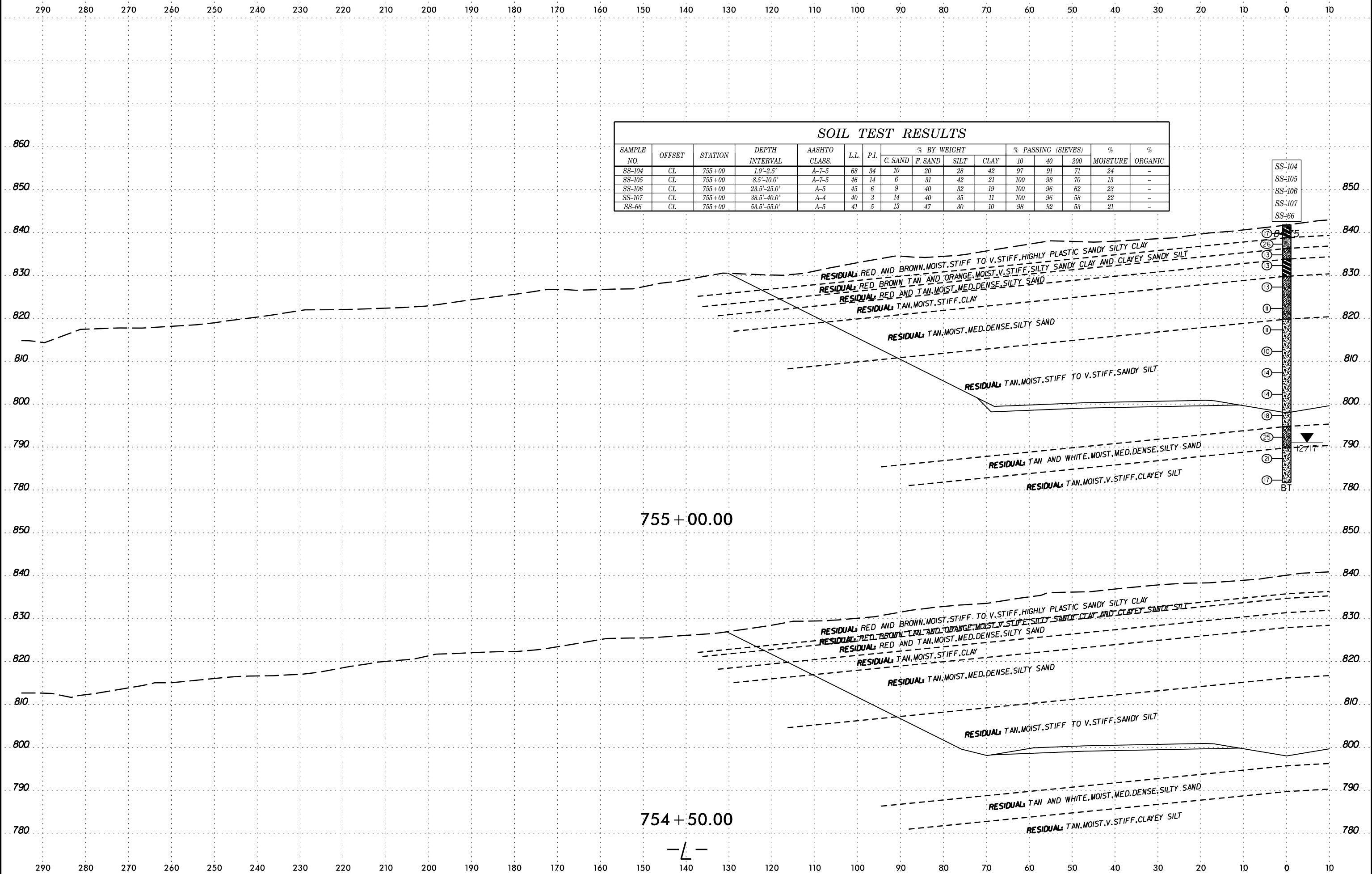
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RESIDUAL TAN AND BROWN, WET, MED. DENSE, SILTY SAND
RESIDUAL TAN, MOIST, V. STIFF, FINE SANDY SILT WITH SOME MICA

753+50.00

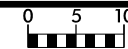




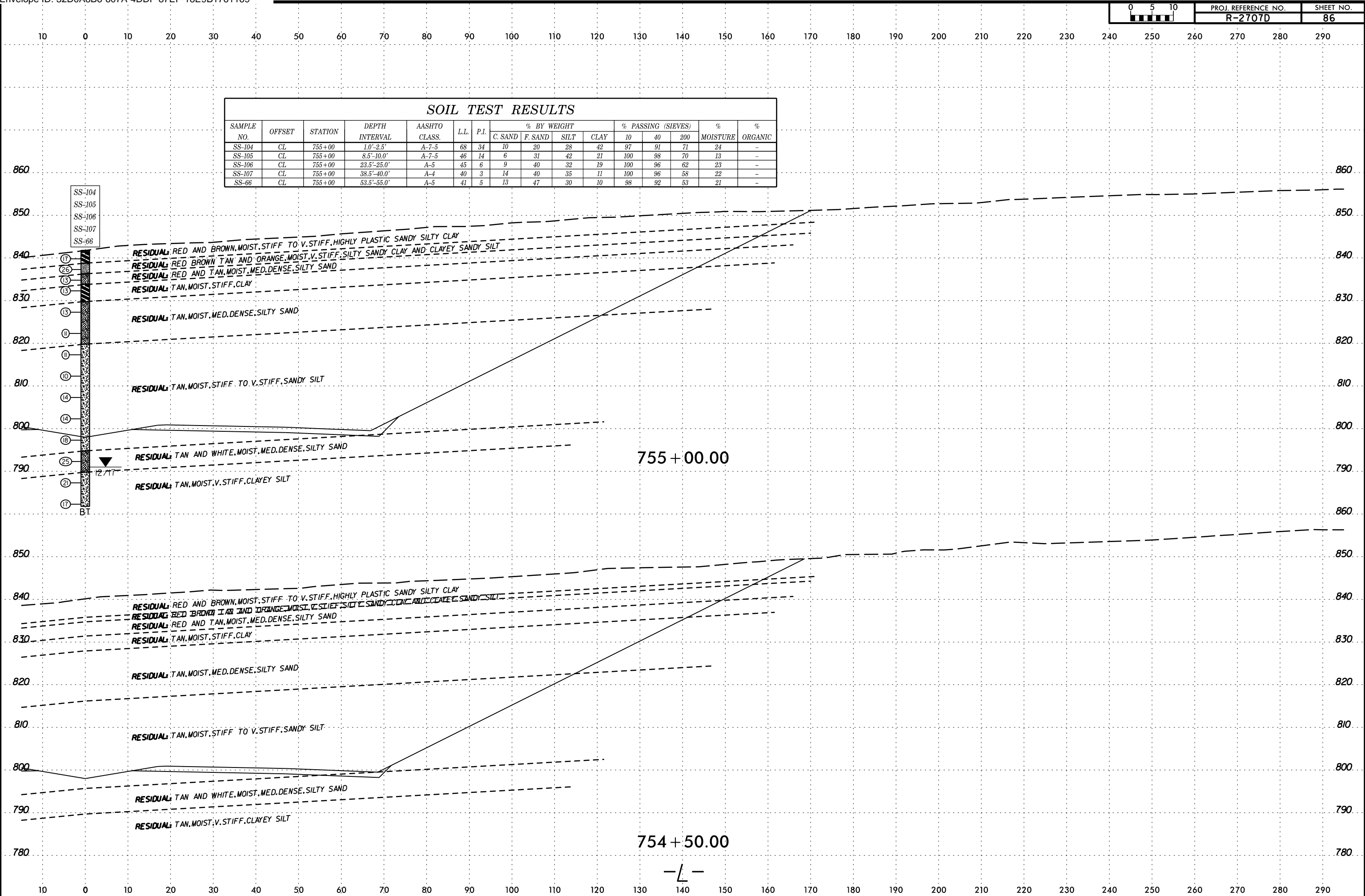
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							C. SAND	F. SAND	SILT	CLAY	10	40	200		
							SS-104	CL	755+00	1.0'-2.5'	A-7-5	68	34		
SS-105	CL	755+00	8.5'-10.0'	A-7-5	46	14	6	31	42	21	100	98	70	13	-
SS-106	CL	755+00	23.5'-25.0'	A-5	45	6	9	40	32	19	100	96	62	23	-
SS-107	CL	755+00	38.5'-40.0'	A-4	40	3	14	40	35	11	100	96	58	22	-
SS-66	CL	755+00	53.5'-55.0'	A-5	41	5	13	47	30	10	98	92	53	21	-



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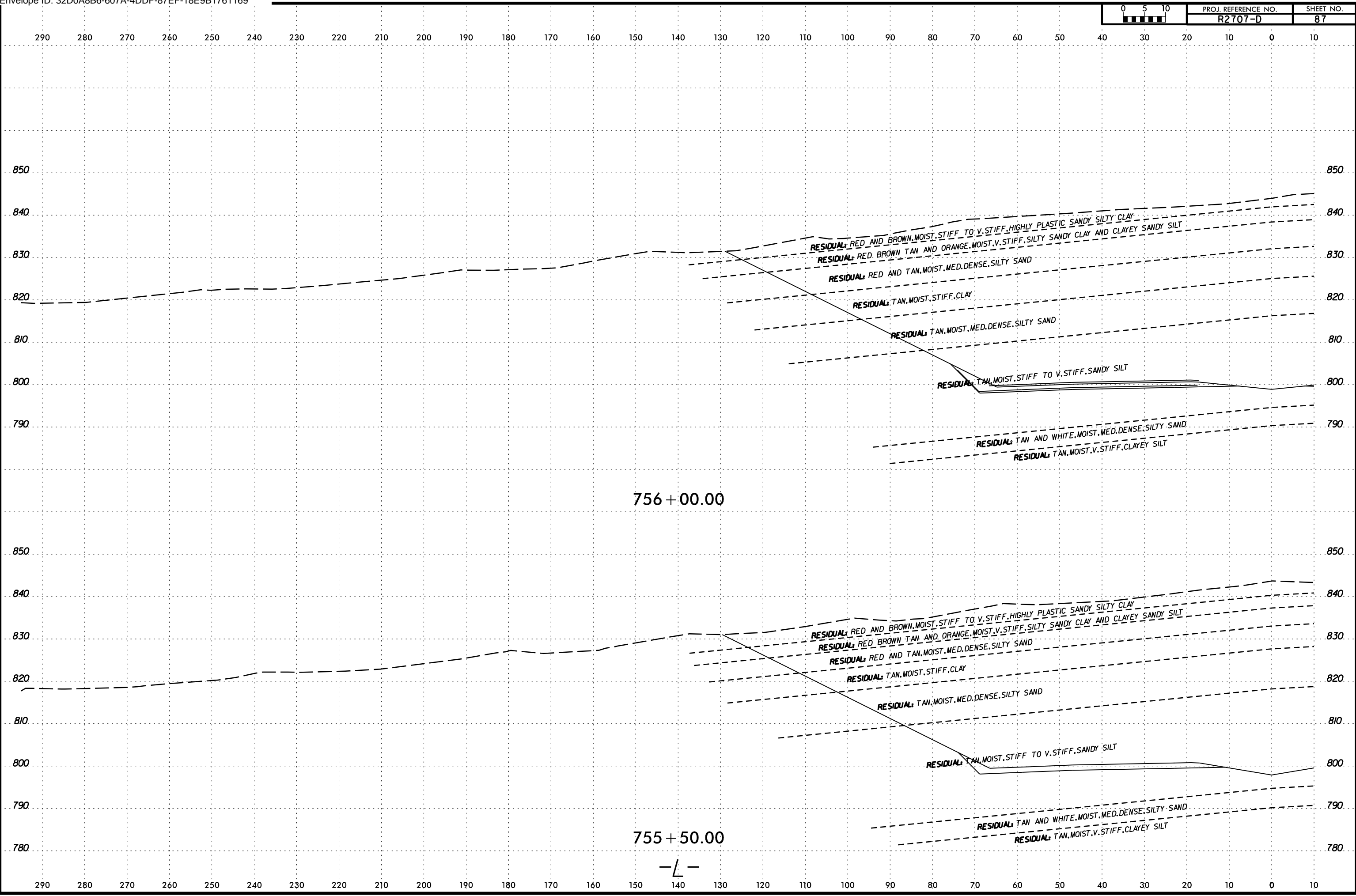


SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-104	CL	755+00	1.0'-2.5'	A-7-5	68	34	10	20	28	42	97	91	71	24	-
SS-105	CL	755+00	8.5'-10.0'	A-7-5	46	14	6	31	42	21	100	98	70	13	-
SS-106	CL	755+00	23.5'-25.0'	A-5	45	6	9	40	32	19	100	96	62	23	-
SS-107	CL	755+00	38.5'-40.0'	A-4	40	3	14	40	35	11	100	96	58	22	-
SS-66	CL	755+00	53.5'-55.0'	A-5	41	5	13	47	30	10	98	92	53	21	-



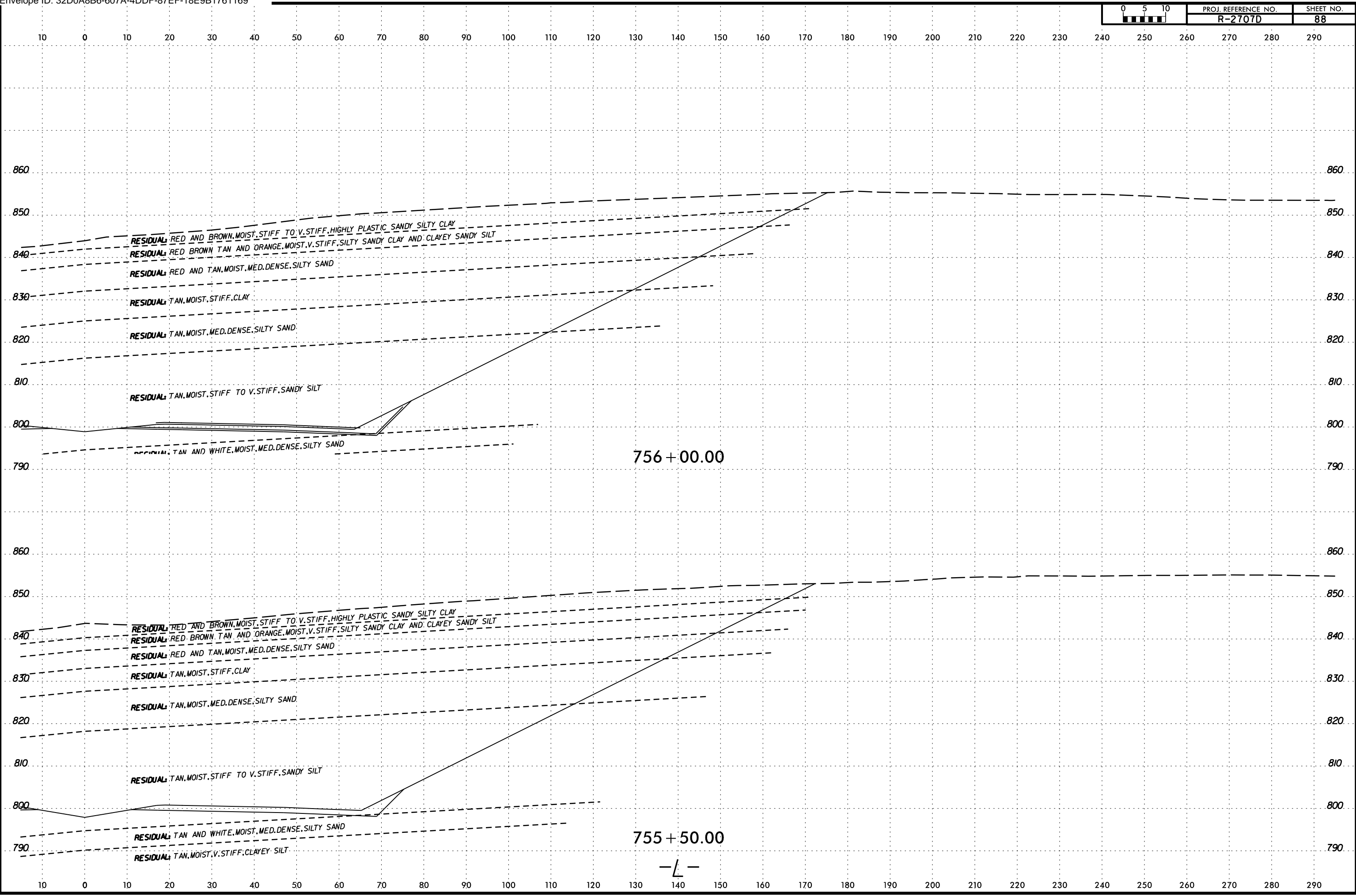
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RESIDUAL RED AND BROWN, MOIST, STIFF TO V. STIFF, HIGHLY PLASTIC SANDY SILTY CLAY
RESIDUAL RED BROWN TAN AND ORANGE, MOIST, V. STIFF, SILTY SANDY CLAY AND CLAYEY SANDY SILT

RESIDUAL RED AND TAN, MOIST, MED. DENSE, SILTY SAND

RESIDUAL TAN, MOIST, STIFF, CLAY

RESIDUAL TAN, MOIST, MED. DENSE, SILTY SAND

RESIDUAL TAN, MOIST, STIFF TO V. STIFF, SANDY SILT

RESIDUAL TAN AND WHITE, MOIST, MED. DENSE, SILTY SAND

756+00.00

RESIDUAL RED AND BROWN, MOIST, STIFF TO V. STIFF, HIGHLY PLASTIC SANDY SILTY CLAY
RESIDUAL RED BROWN TAN AND ORANGE, MOIST, V. STIFF, SILTY SANDY CLAY AND CLAYEY SANDY SILT

RESIDUAL RED AND TAN, MOIST, MED. DENSE, SILTY SAND

RESIDUAL TAN, MOIST, STIFF, CLAY

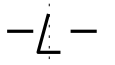
RESIDUAL TAN, MOIST, MED. DENSE, SILTY SAND

RESIDUAL TAN, MOIST, STIFF TO V. STIFF, SANDY SILT

RESIDUAL TAN AND WHITE, MOIST, MED. DENSE, SILTY SAND

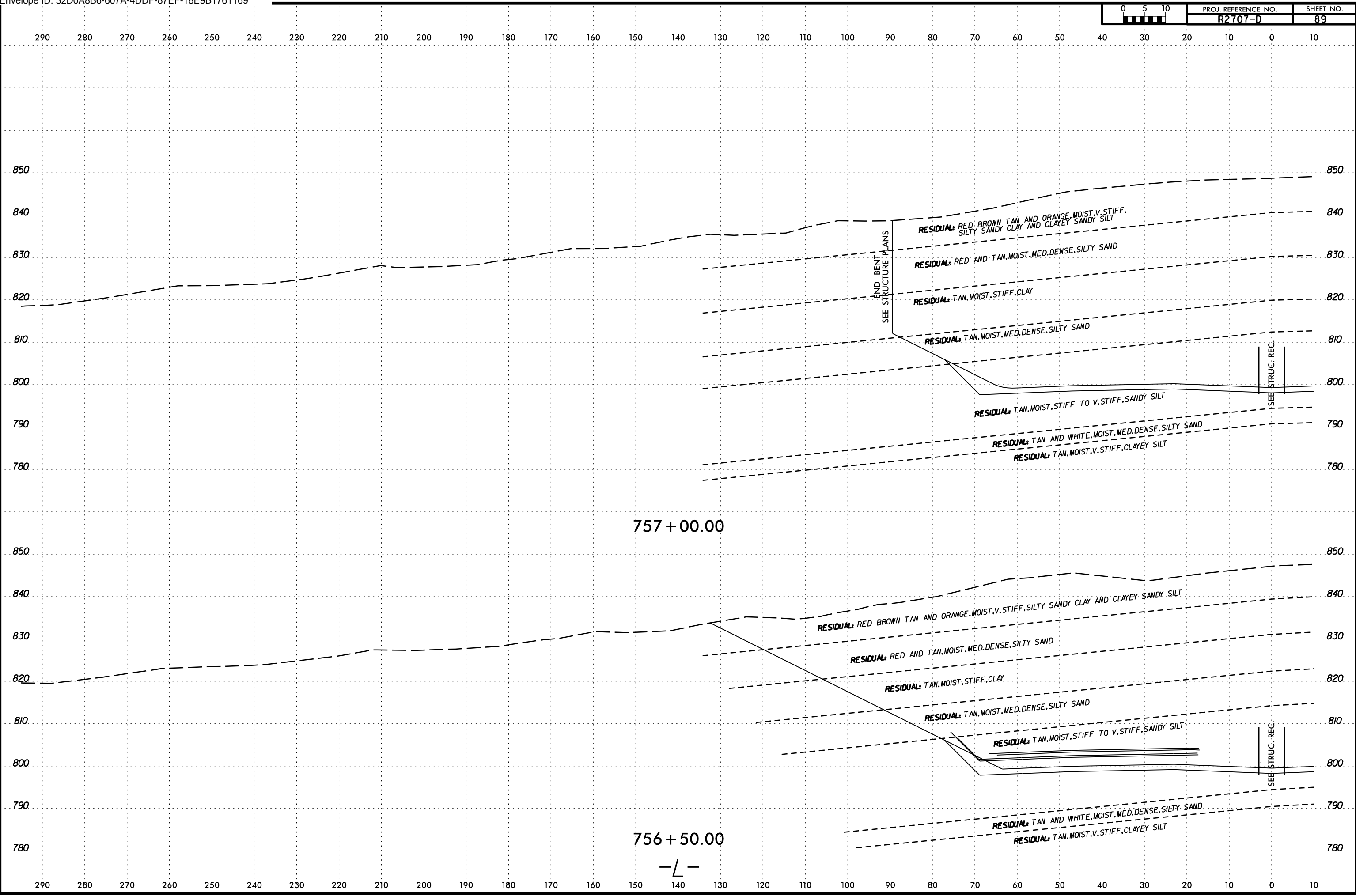
RESIDUAL TAN, MOIST, V. STIFF, CLAYEY SILT

755+50.00





6/23/16
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757 + 00.00

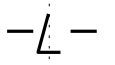
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- RESIDUAL: RED BROWN TAN AND ORANGE, MOIST, V. STIFF, SILTY SANDY CLAY AND CLAYEY SANDY SILT
- RESIDUAL: RED AND TAN, MOIST, MED. DENSE, SILTY SAND
- RESIDUAL: TAN, MOIST, STIFF, CLAY
- RESIDUAL: TAN, MOIST, MED. DENSE, SILTY SAND
- RESIDUAL: TAN, MOIST, STIFF TO V. STIFF, SANDY SILT
- RESIDUAL: TAN AND WHITE, MOIST, MED. DENSE, SILTY SAND
- RESIDUAL: TAN, MOIST, V. STIFF, CLAYEY SILT

END BENT
SEE STRUCTURE PLANS

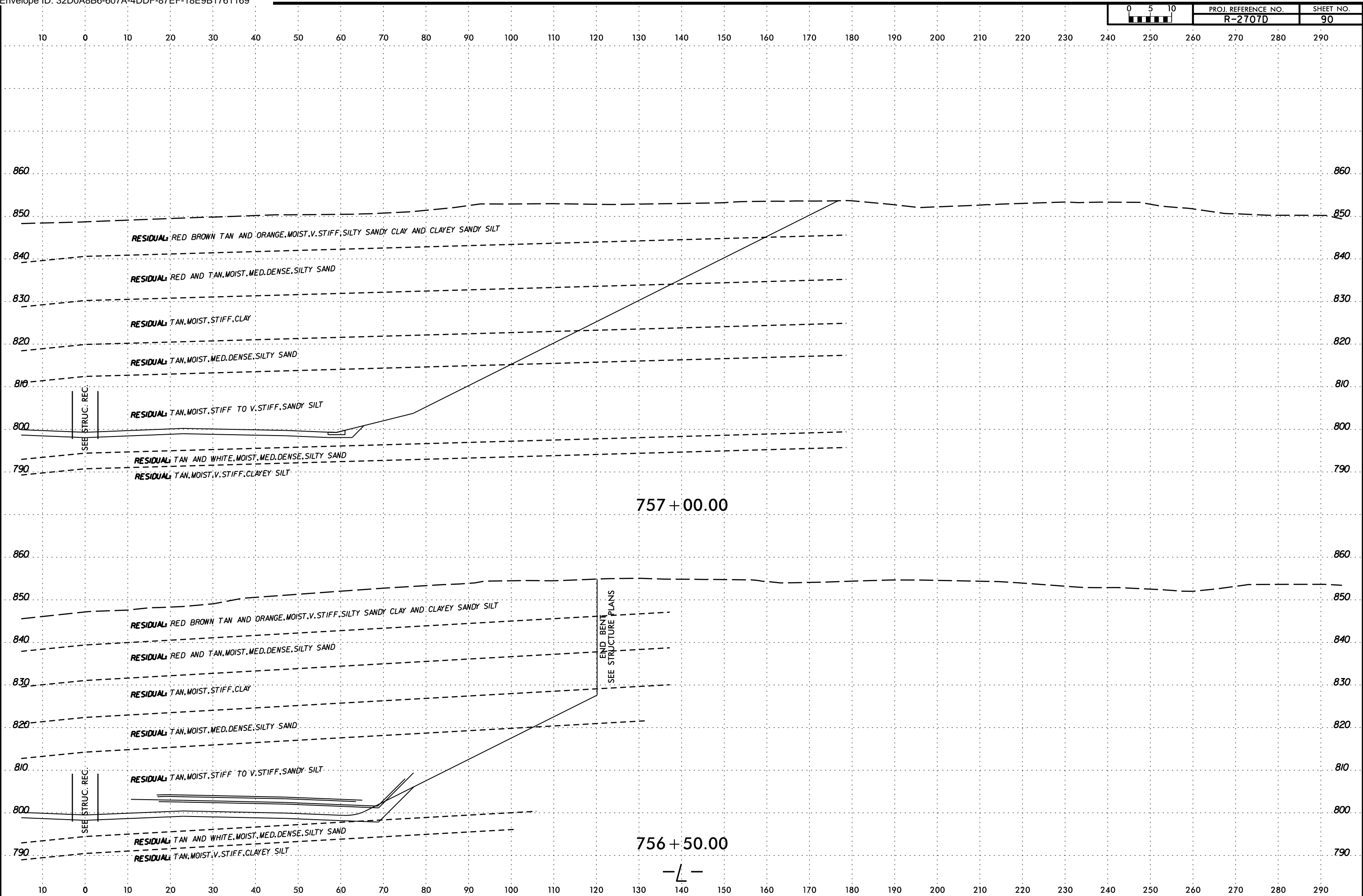
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SEE STRUC. REC.



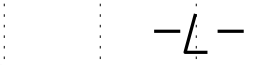


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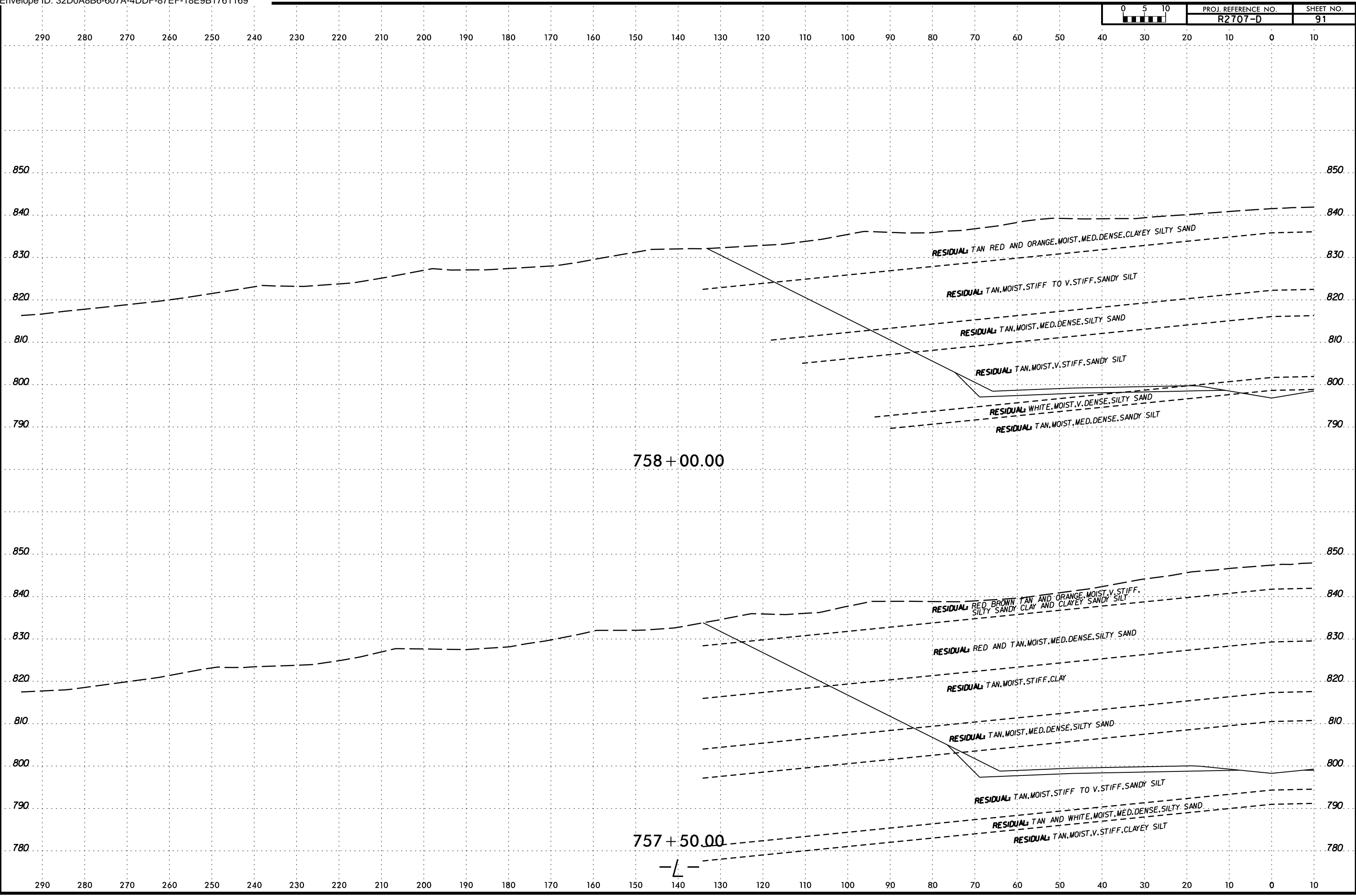


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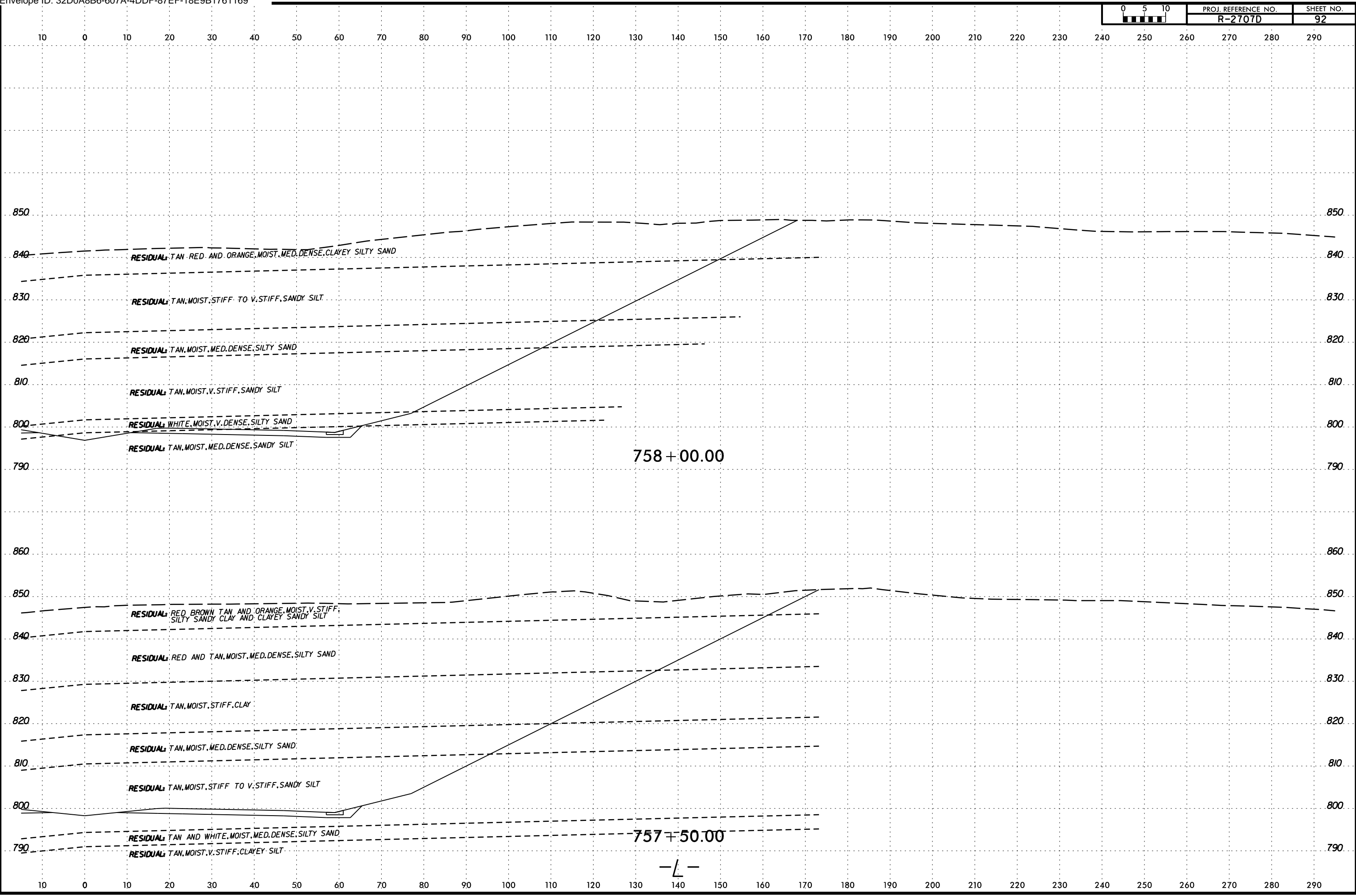


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757+50.00



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RESIDUAL: TAN-RED AND ORANGE, MOIST, MED. DENSE, CLAYEY SILTY SAND

RESIDUAL: TAN, MOIST, STIFF TO V. STIFF, SANDY SILT

RESIDUAL: TAN, MOIST, MED. DENSE, SILTY SAND

RESIDUAL: TAN, MOIST, V. STIFF, SANDY SILT

RESIDUAL: WHITE, MOIST, V. DENSE, SILTY SAND

RESIDUAL: TAN, MOIST, MED. DENSE, SANDY SILT

758+00.00

RESIDUAL: RED BROWN TAN AND ORANGE, MOIST, V. STIFF, SILTY SANDY CLAY AND CLAYEY SANDY SILT

RESIDUAL: RED AND TAN, MOIST, MED. DENSE, SILTY SAND

RESIDUAL: TAN, MOIST, STIFF, CLAY

RESIDUAL: TAN, MOIST, MED. DENSE, SILTY SAND

RESIDUAL: TAN, MOIST, STIFF TO V. STIFF, SANDY SILT

RESIDUAL: TAN AND WHITE, MOIST, MED. DENSE, SILTY SAND

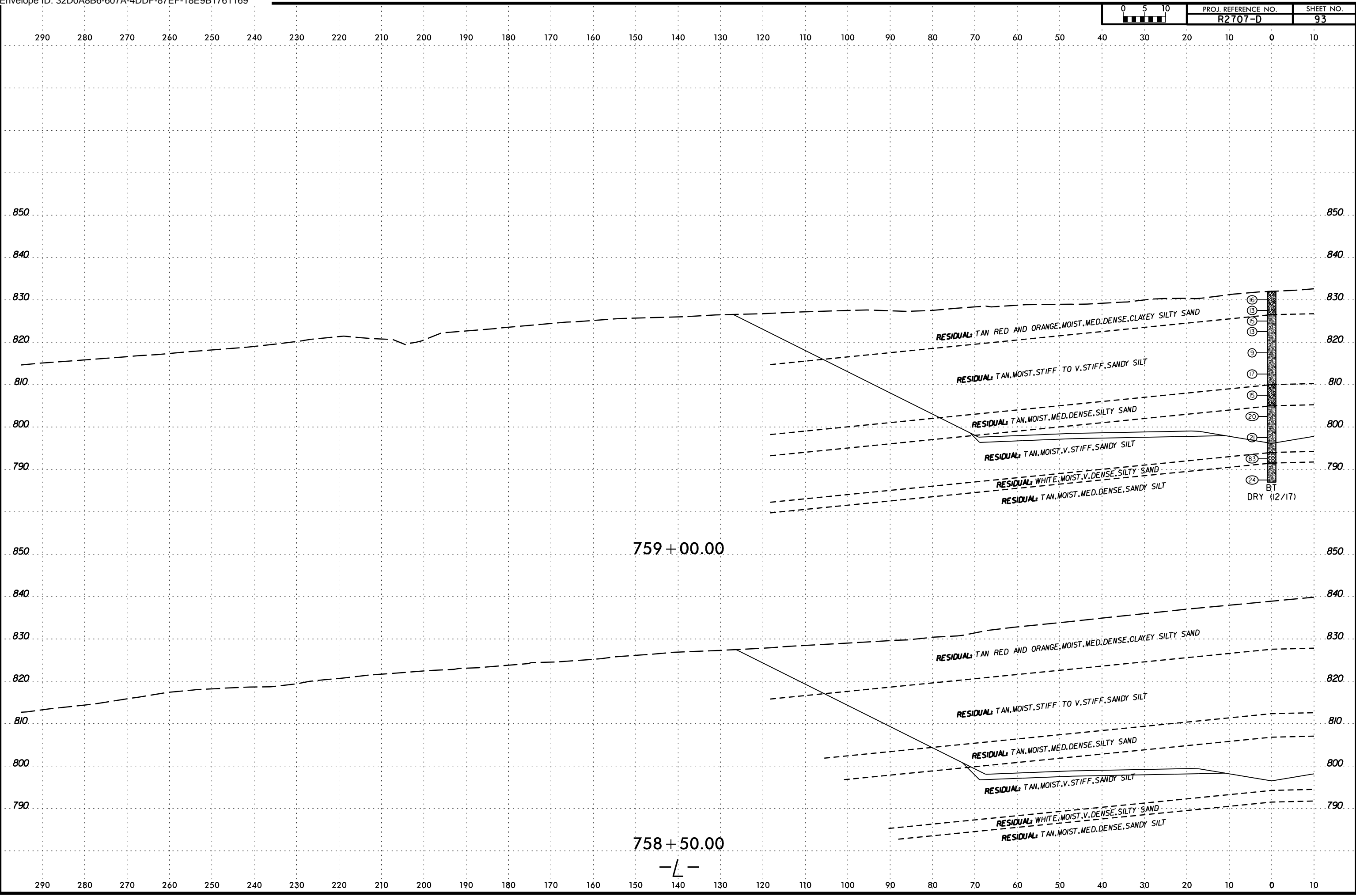
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757+50.00



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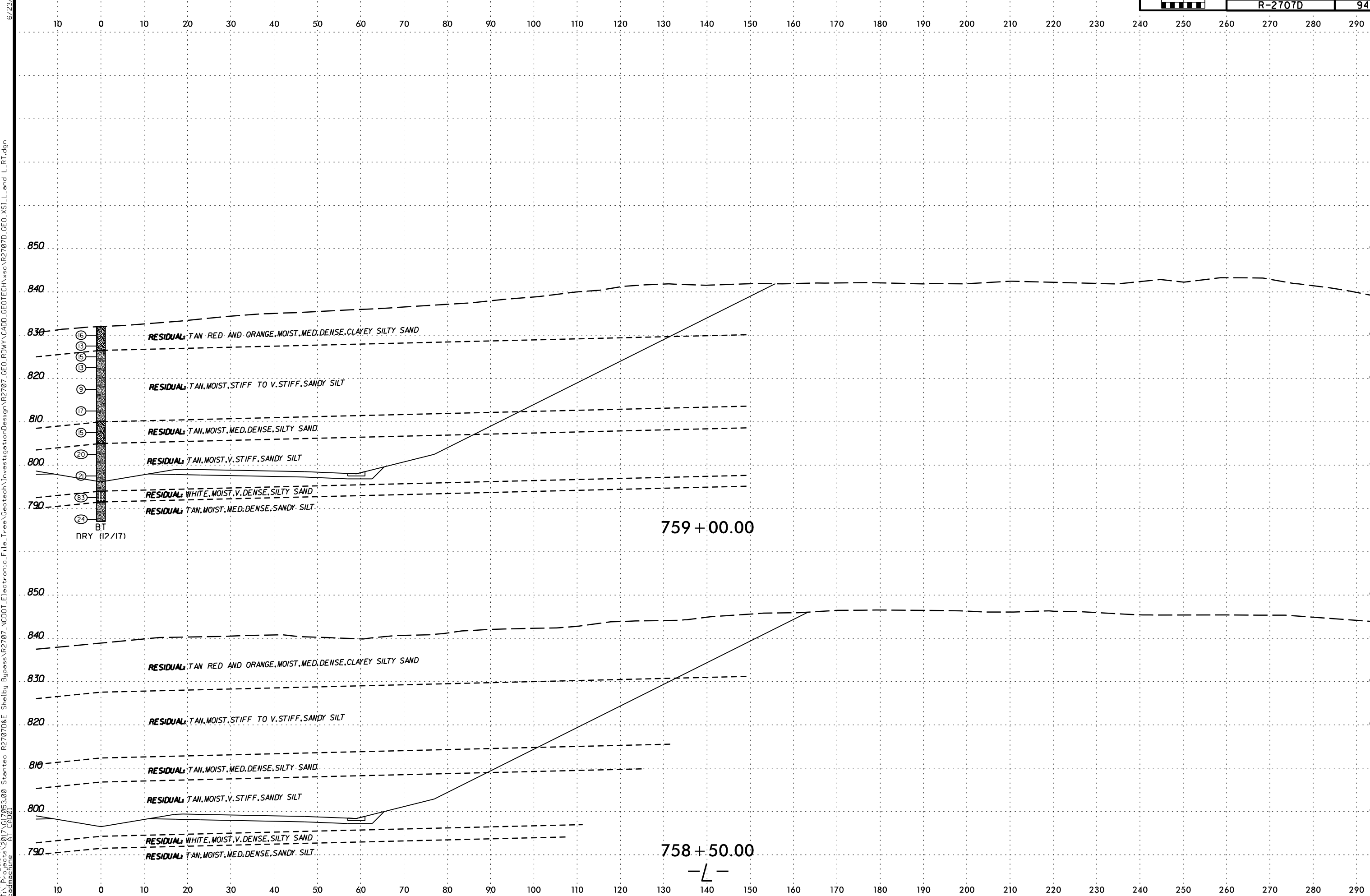
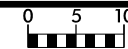
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759+00.00

758+50.00

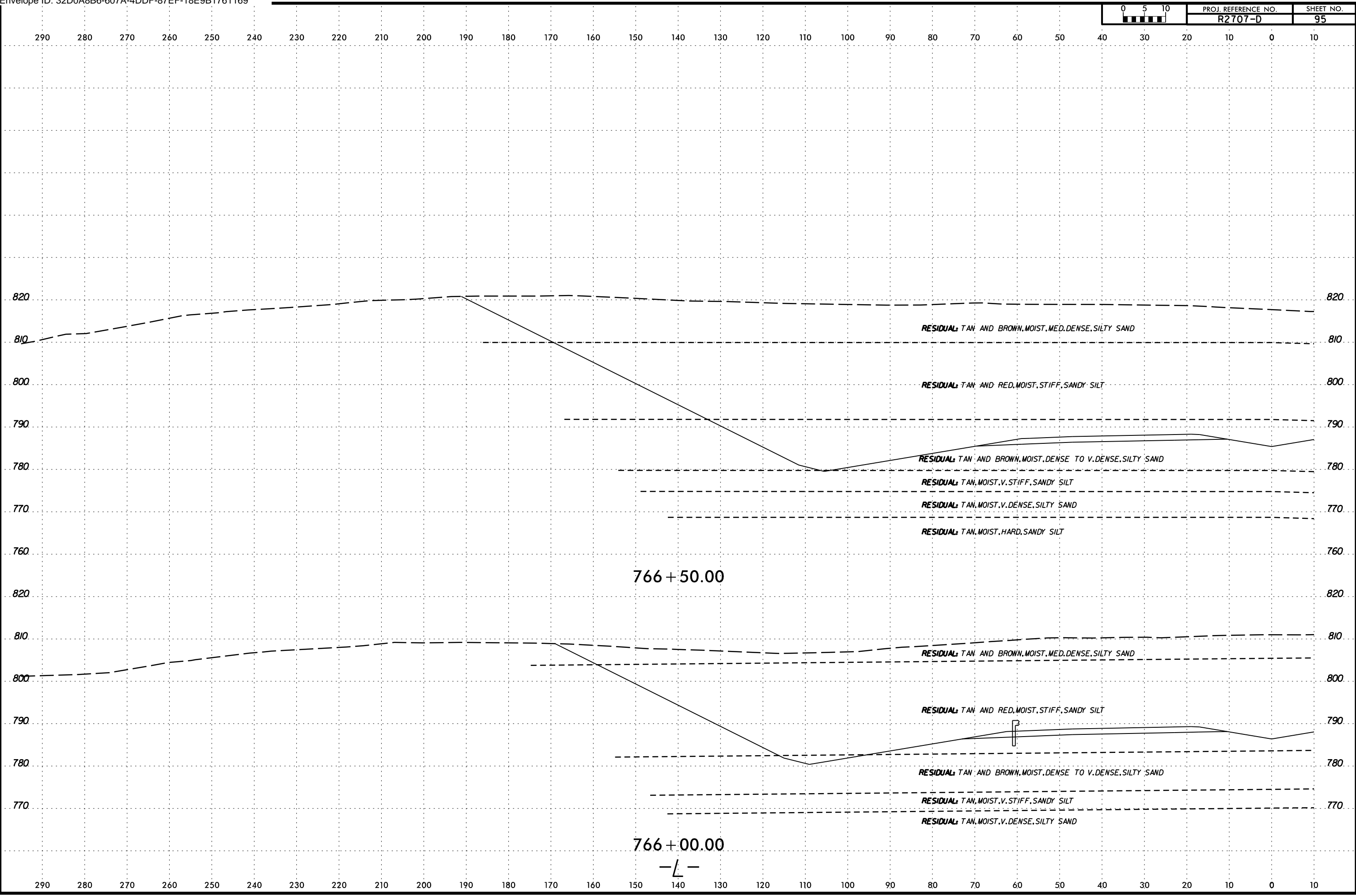
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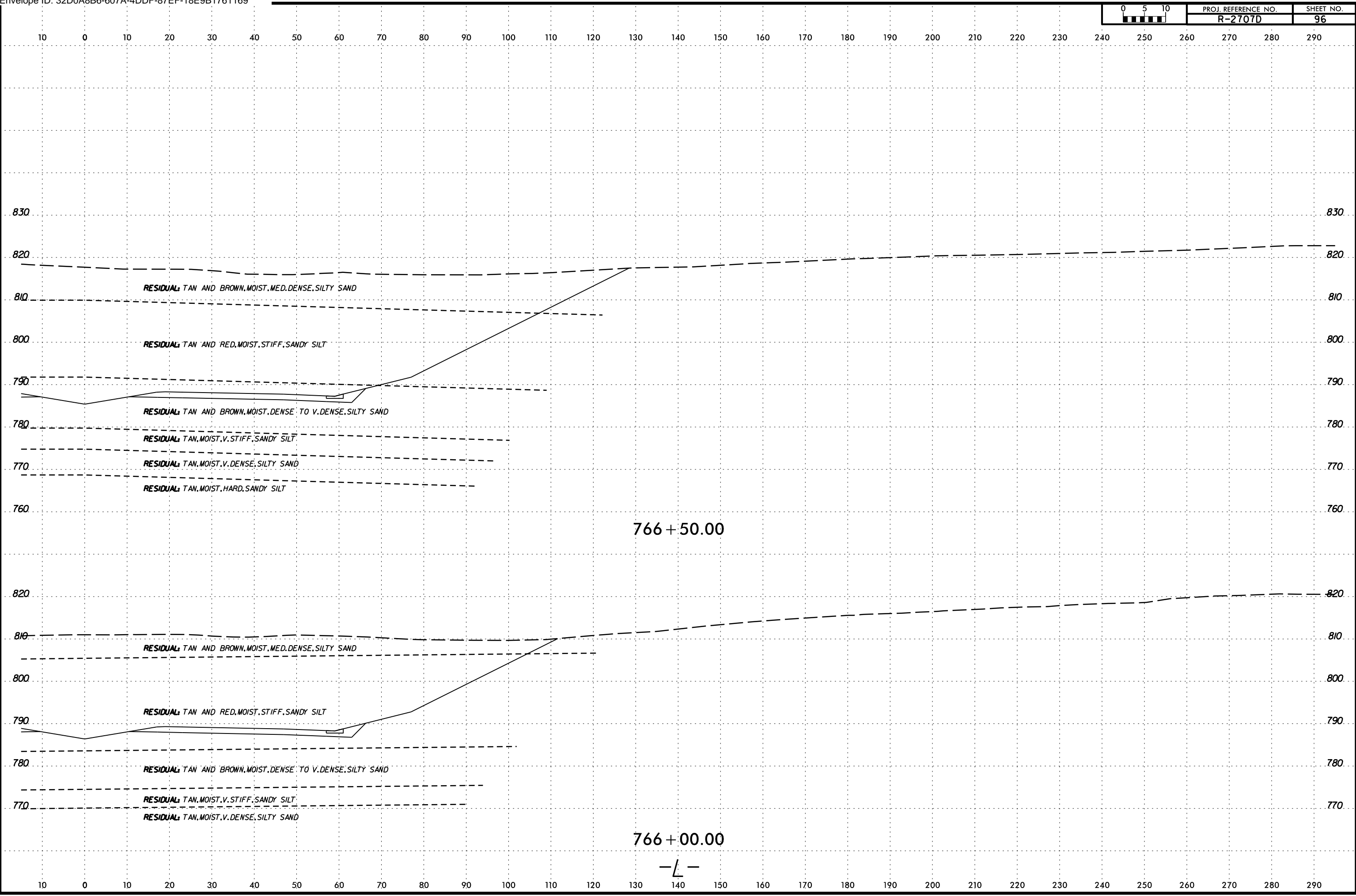


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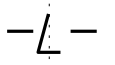


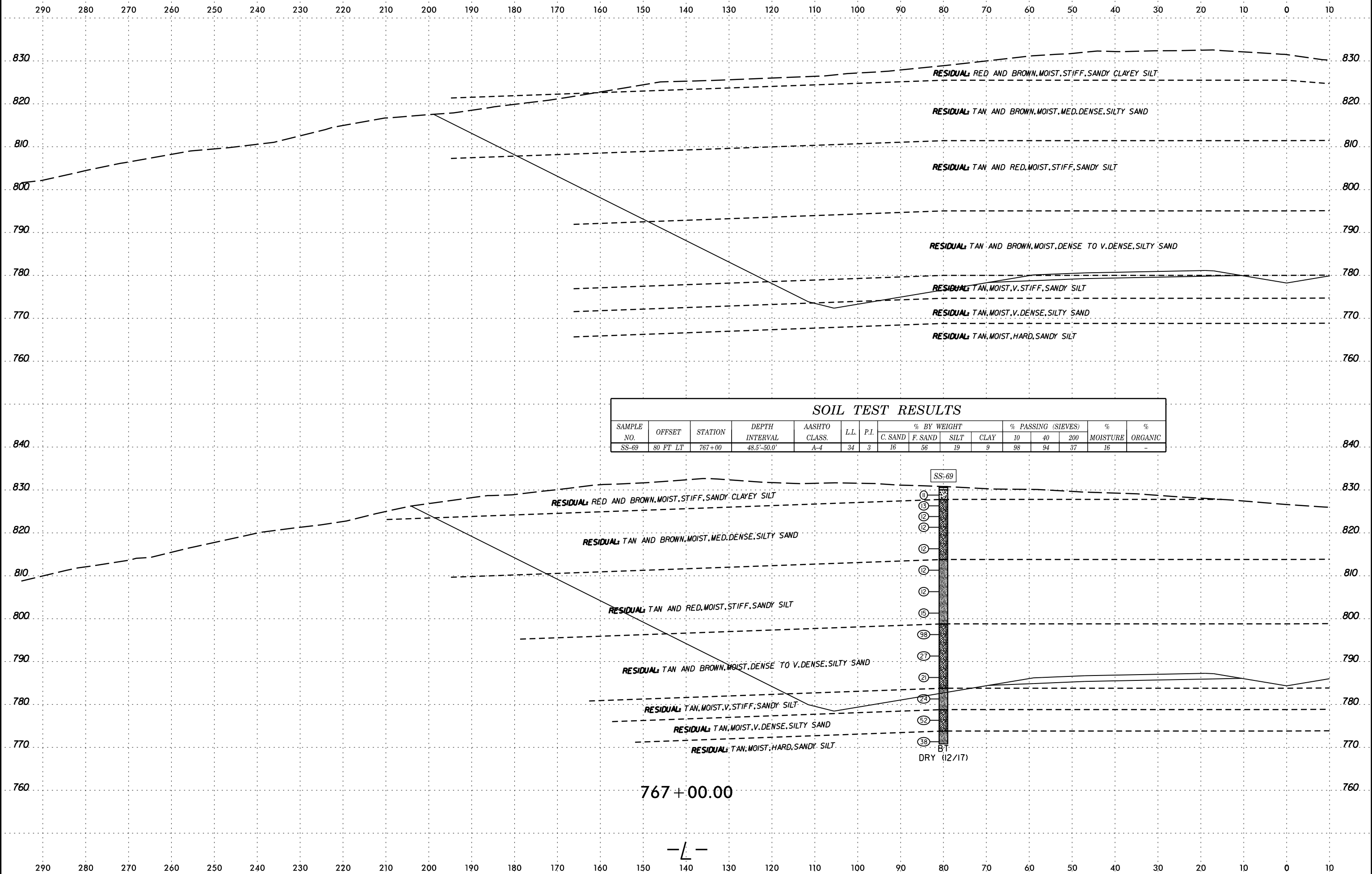
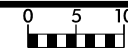
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766+50.00

766+00.00





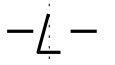
SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-69	80 FT LT	767+00	48.5'-50.0'	A-4	34	3	16	56	19	9	98	94	37	16	-

SS-69

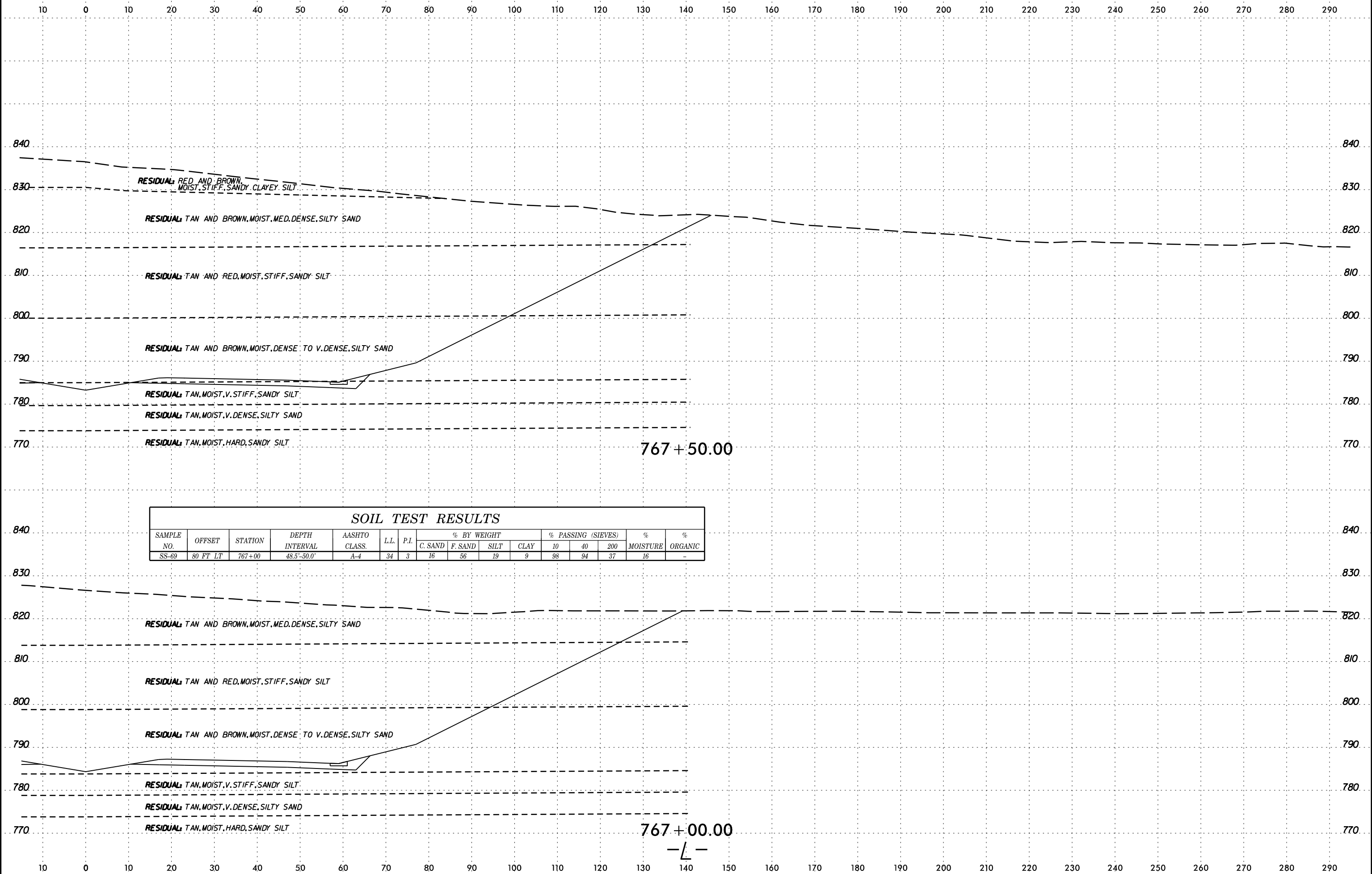
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- (2)
- (24)
- (52)
- (38)

BT
DRY (12/17)

767+00.00

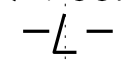


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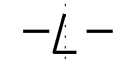
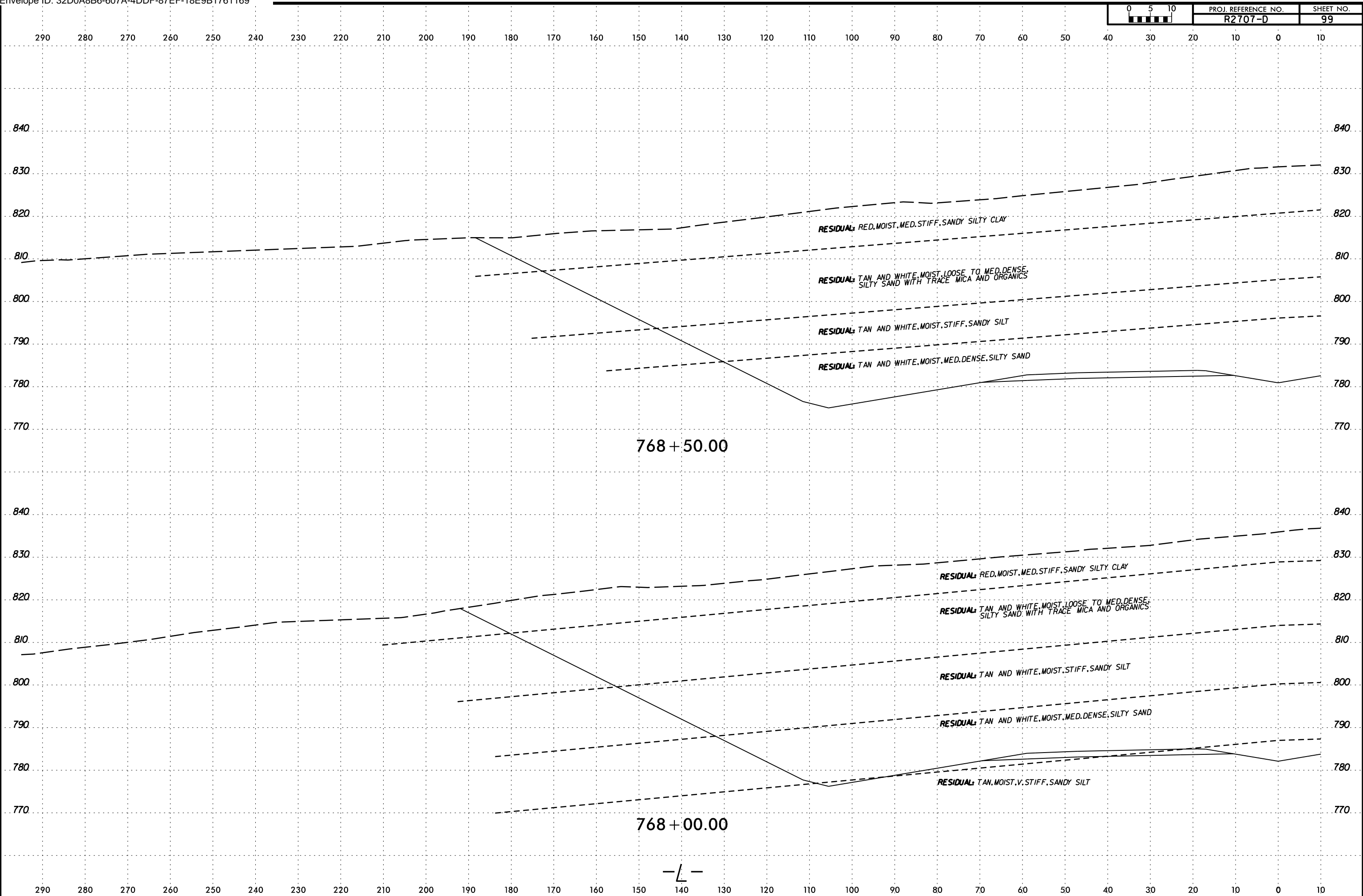
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767 + 00.00



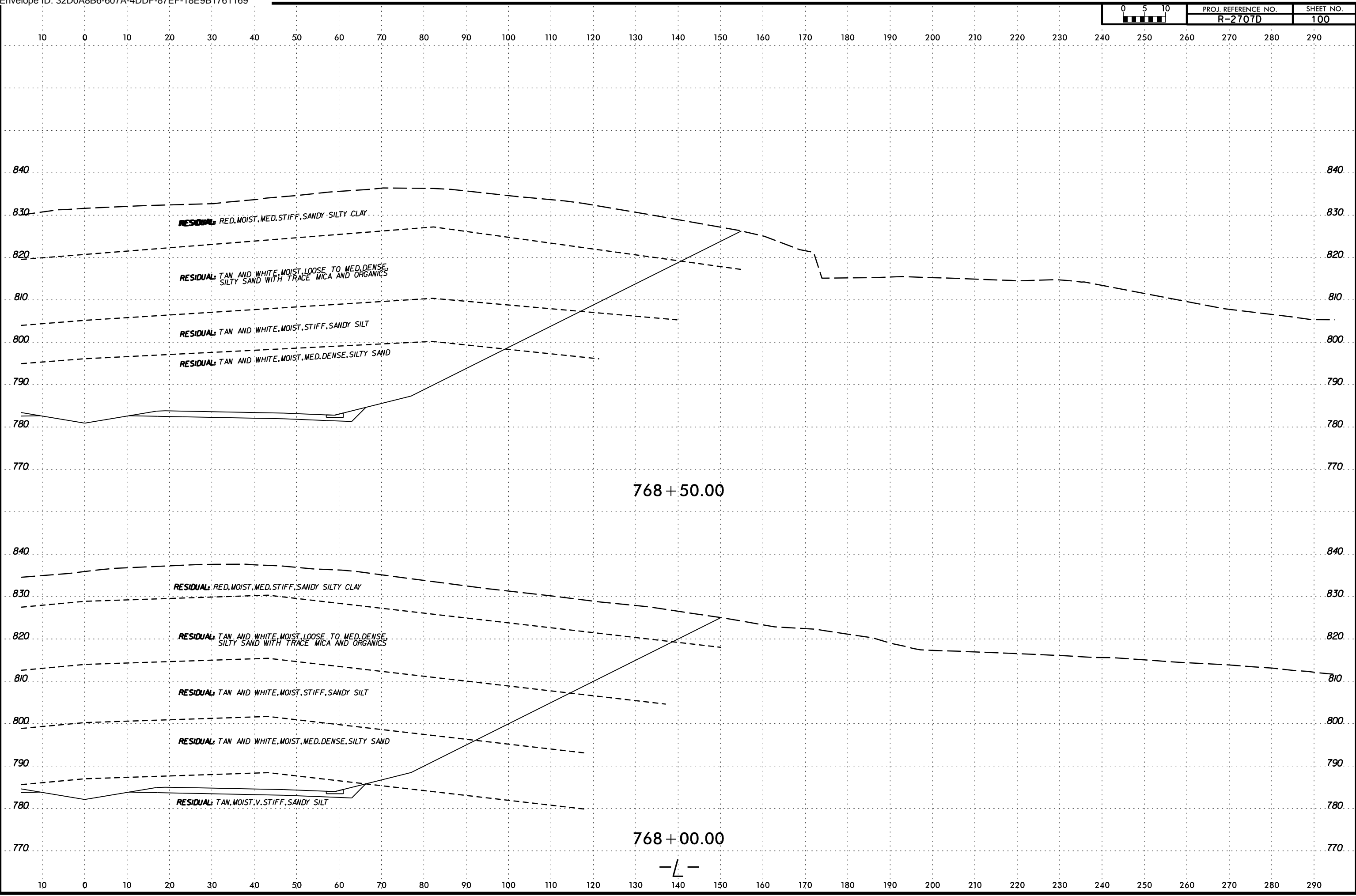
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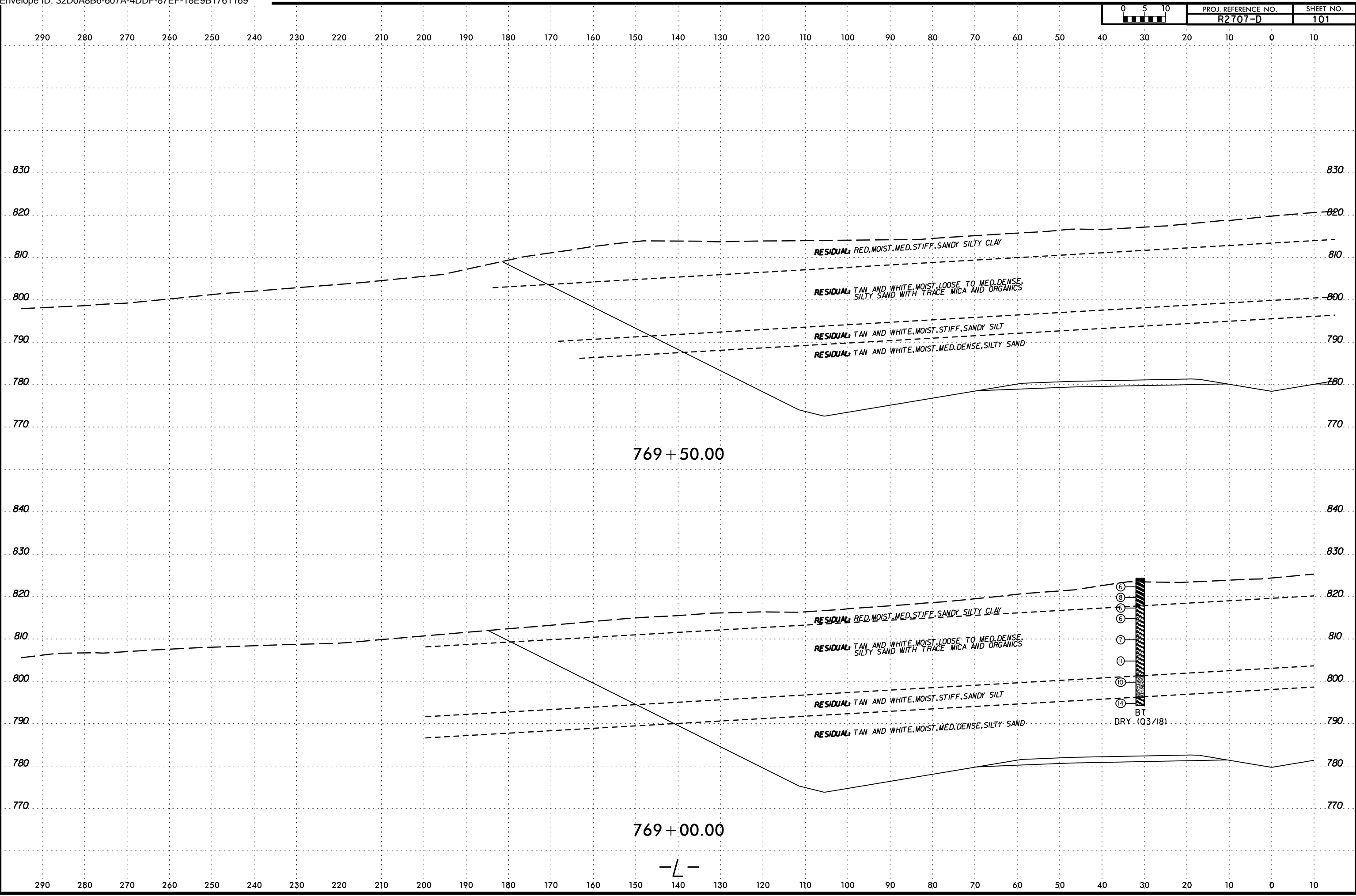




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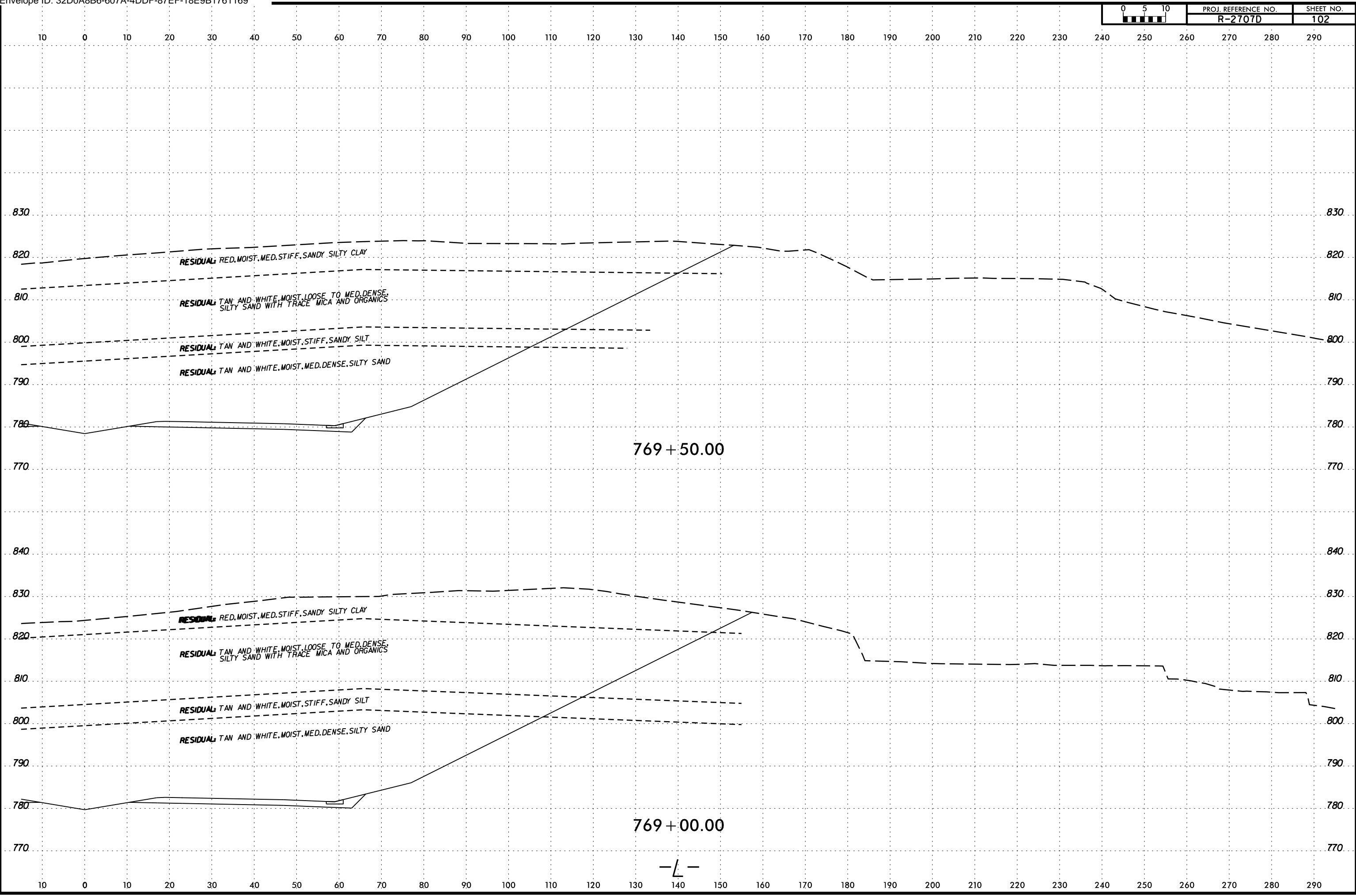


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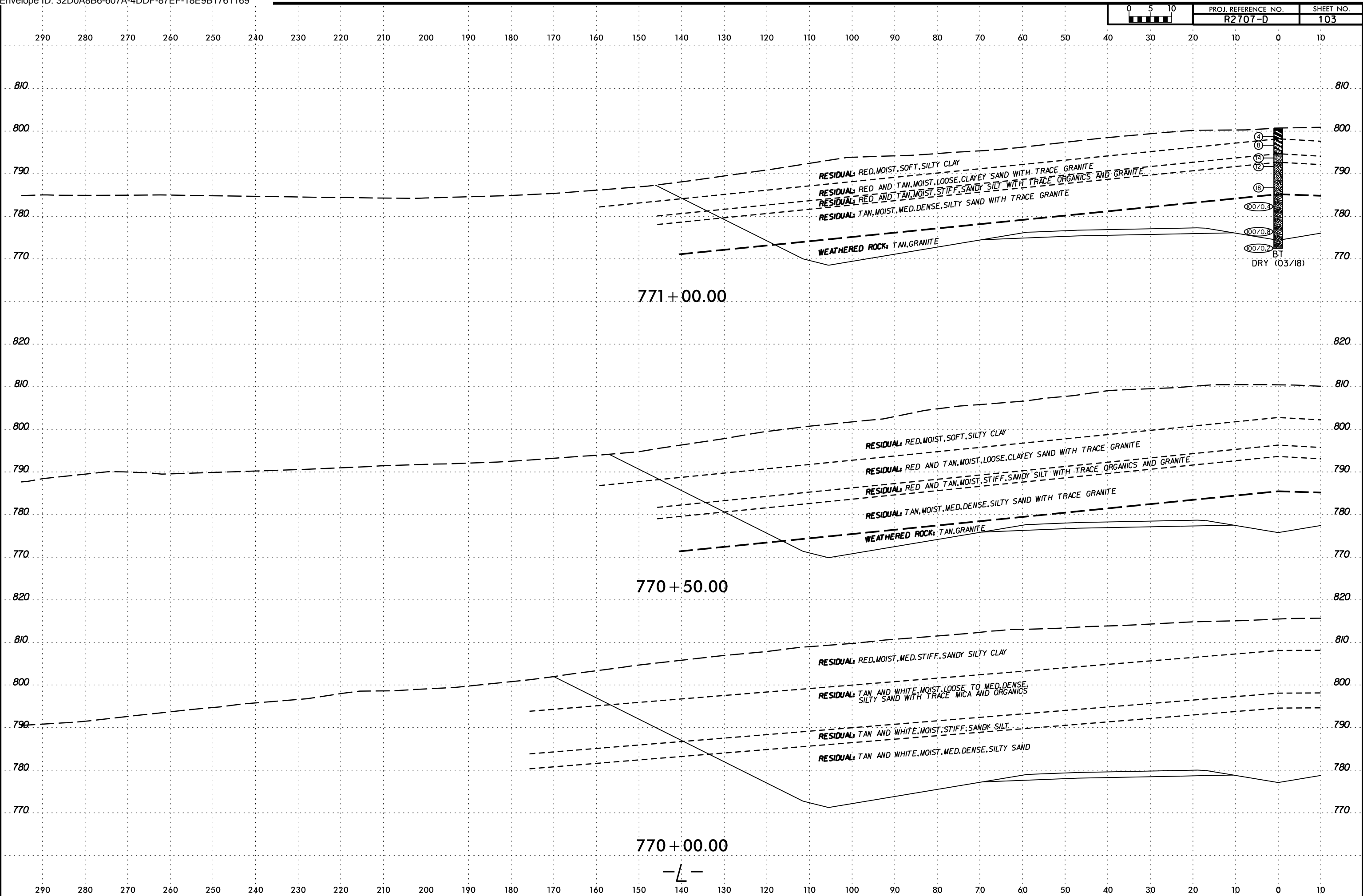


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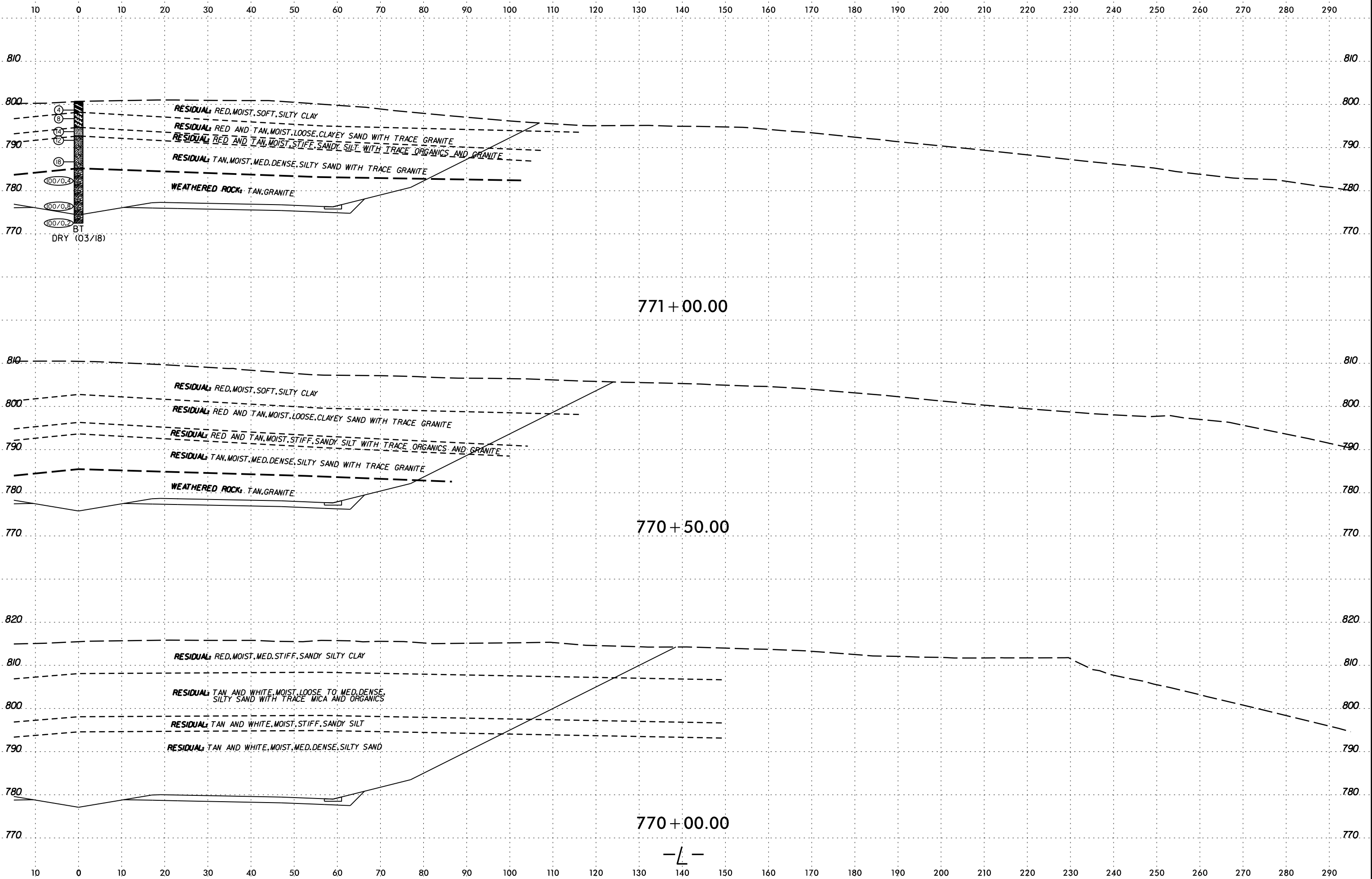


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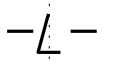
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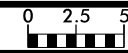


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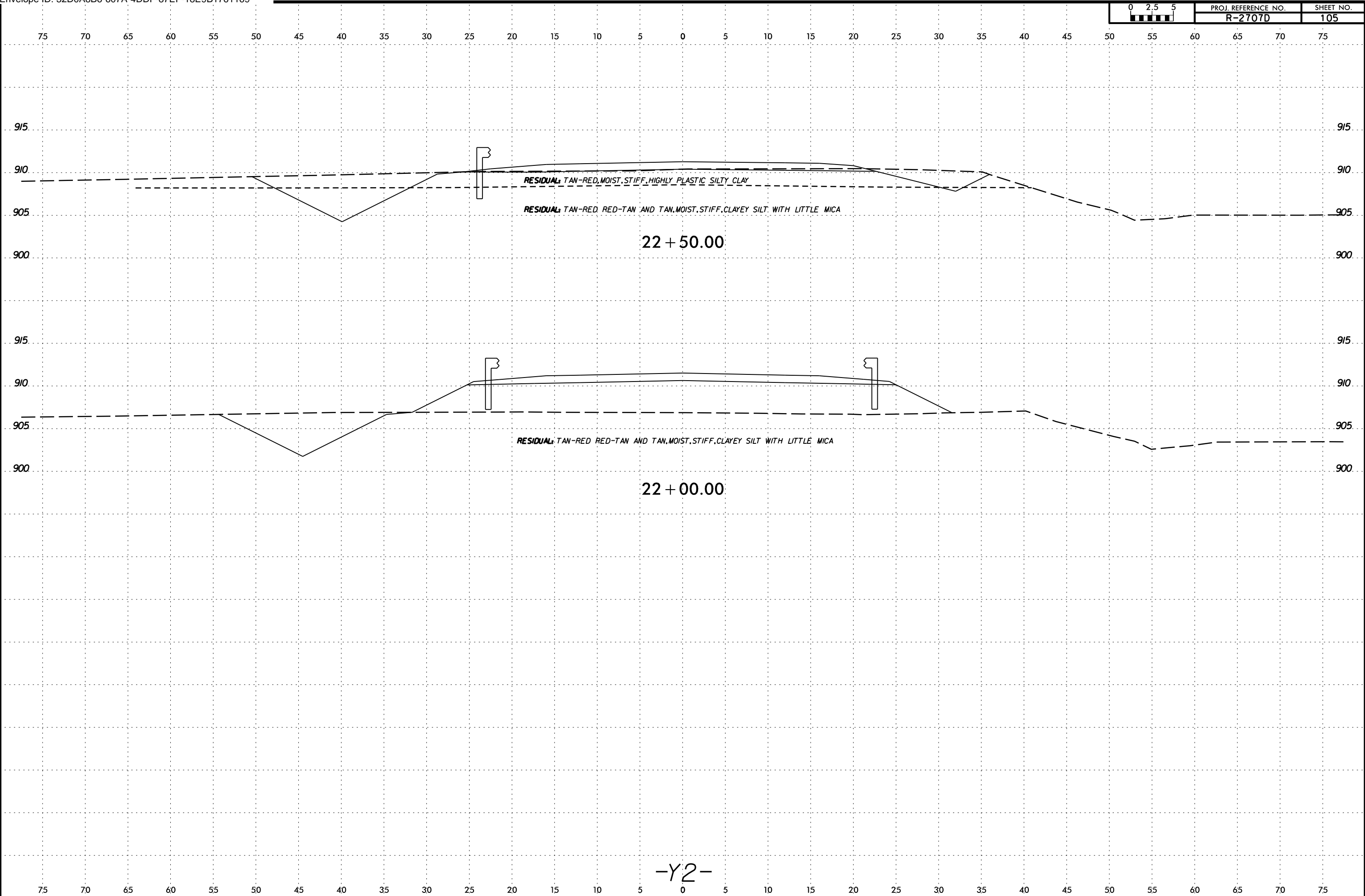
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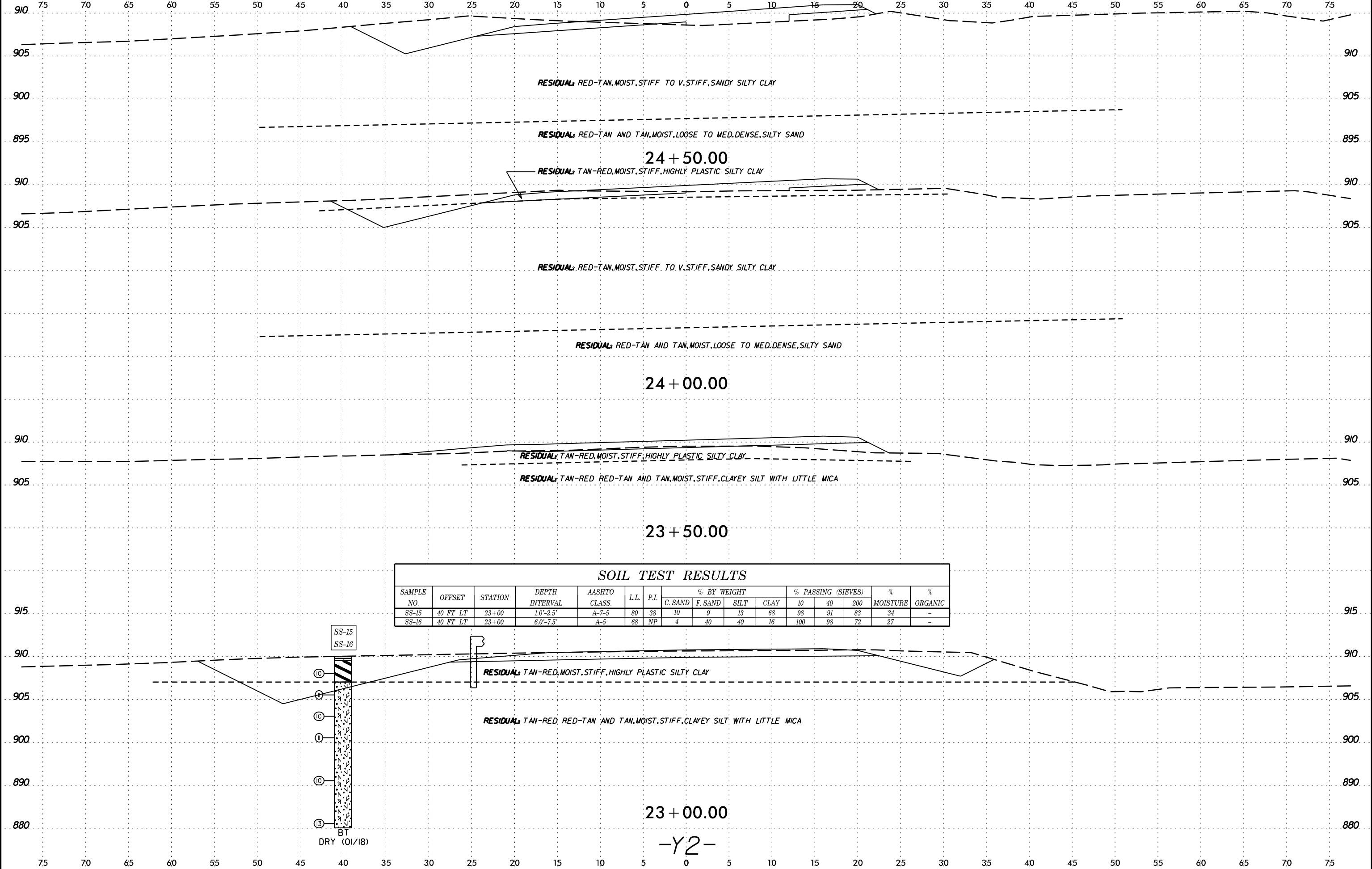
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6/23/16
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cadd\cadd





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-15	40 FT LT	23+00	1.0'-2.5'	A-7-5	80	38	10	9	13	68	98	91	83	34	-	
SS-16	40 FT LT	23+00	6.0'-7.5'	A-5	68	NP	4	40	40	16	100	98	72	27	-	

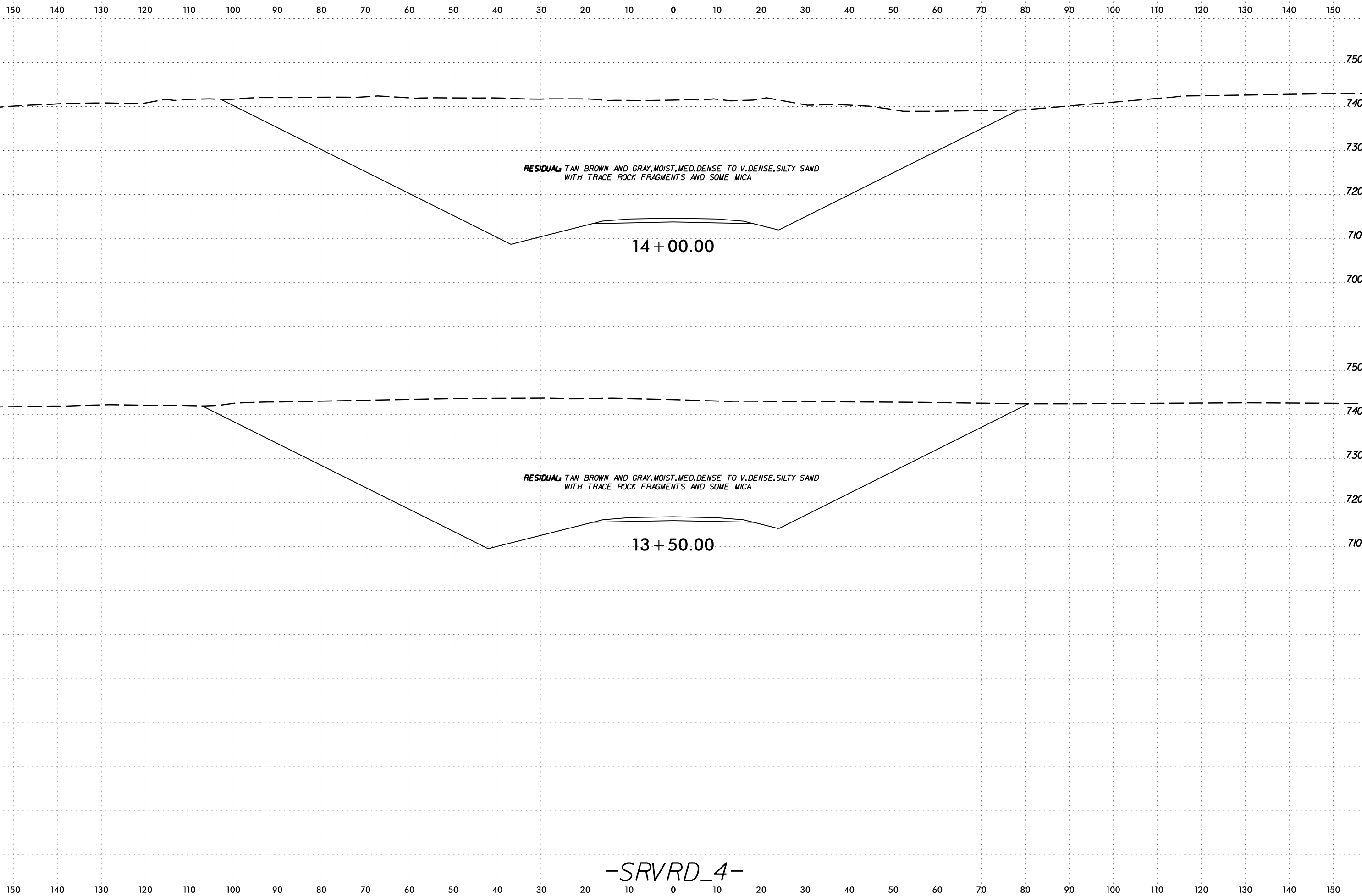
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 cadmachine AI CAD01

6/23/16

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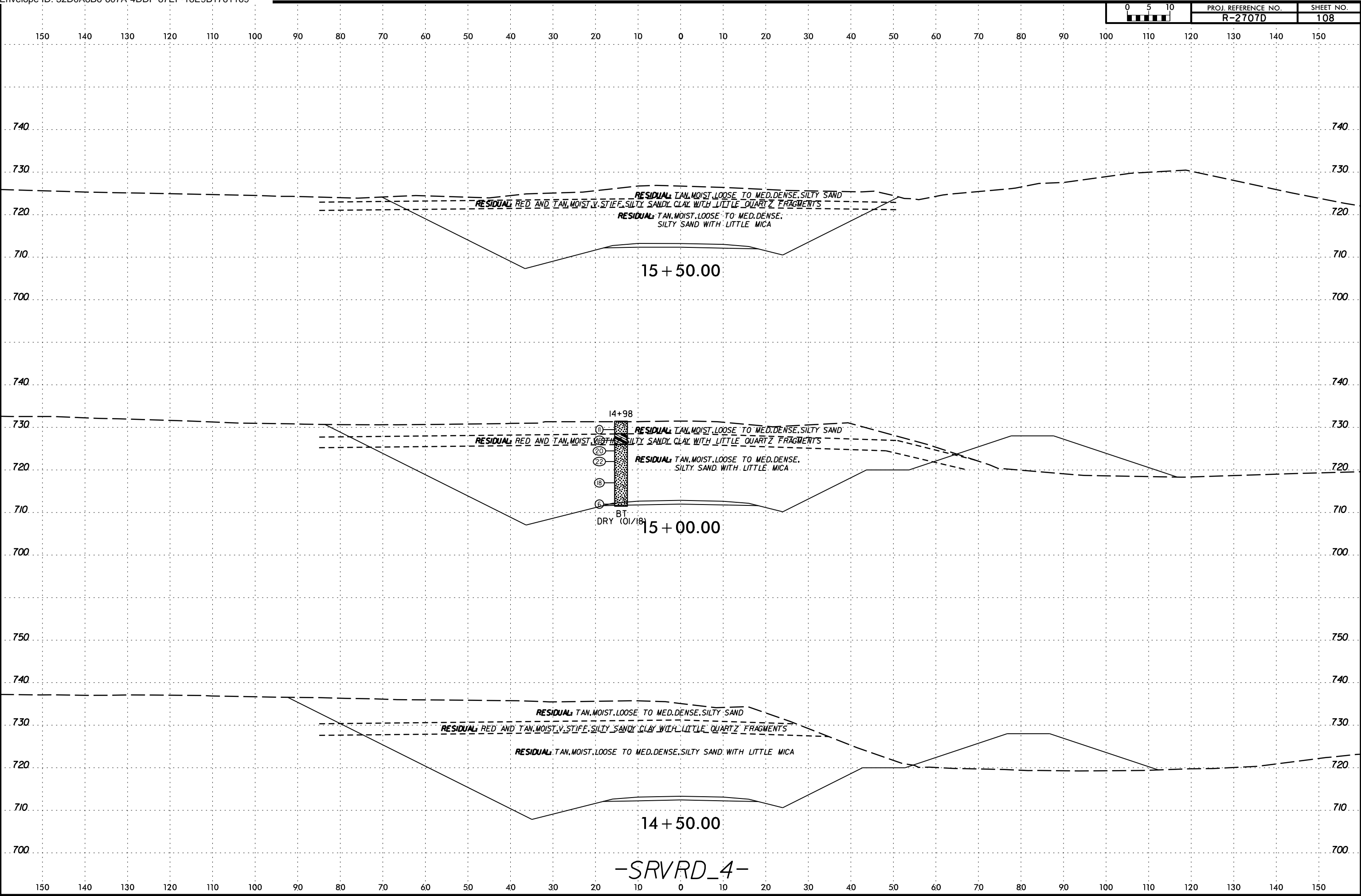
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-SRVVD_4-



6/23/16
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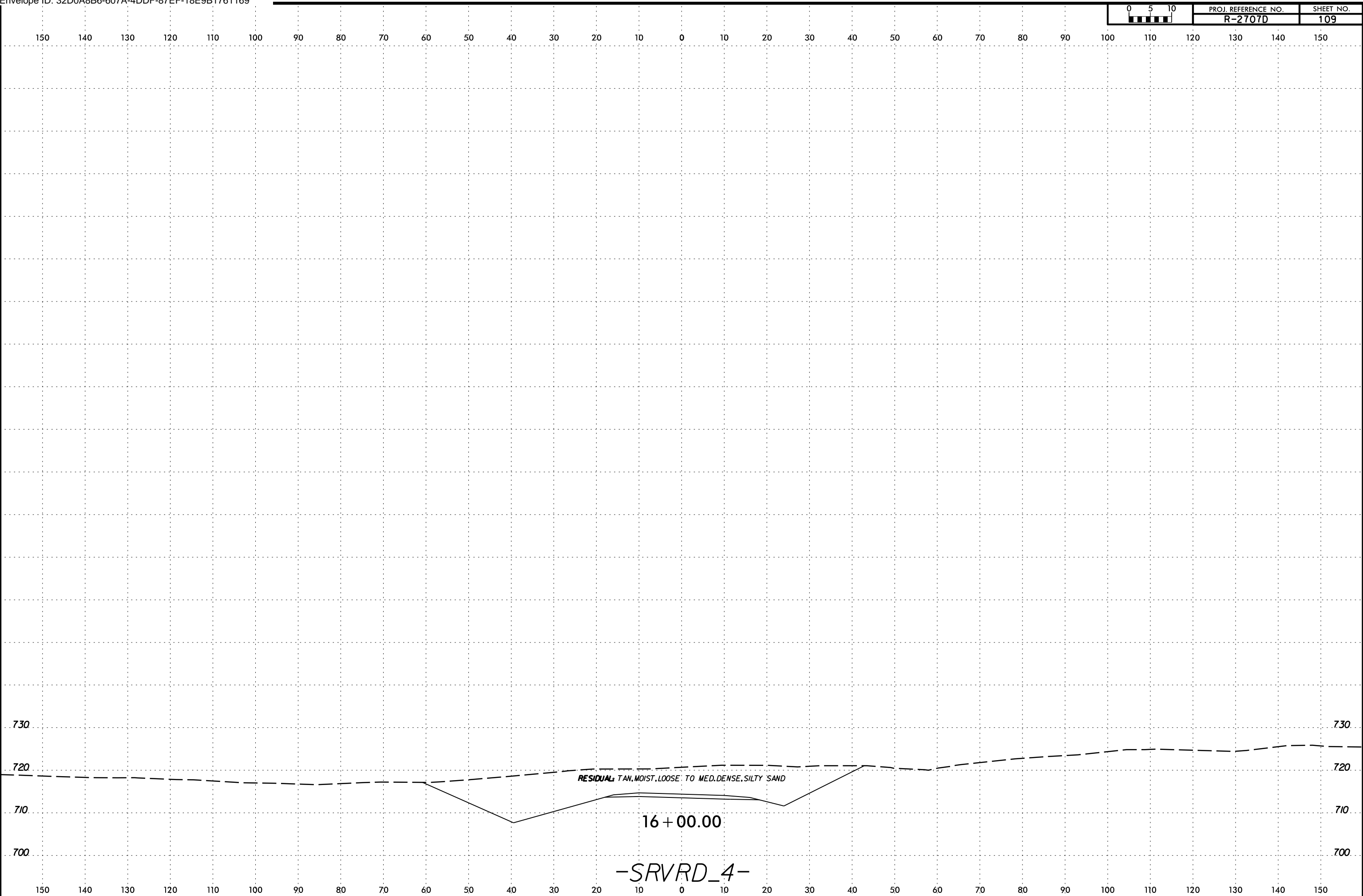


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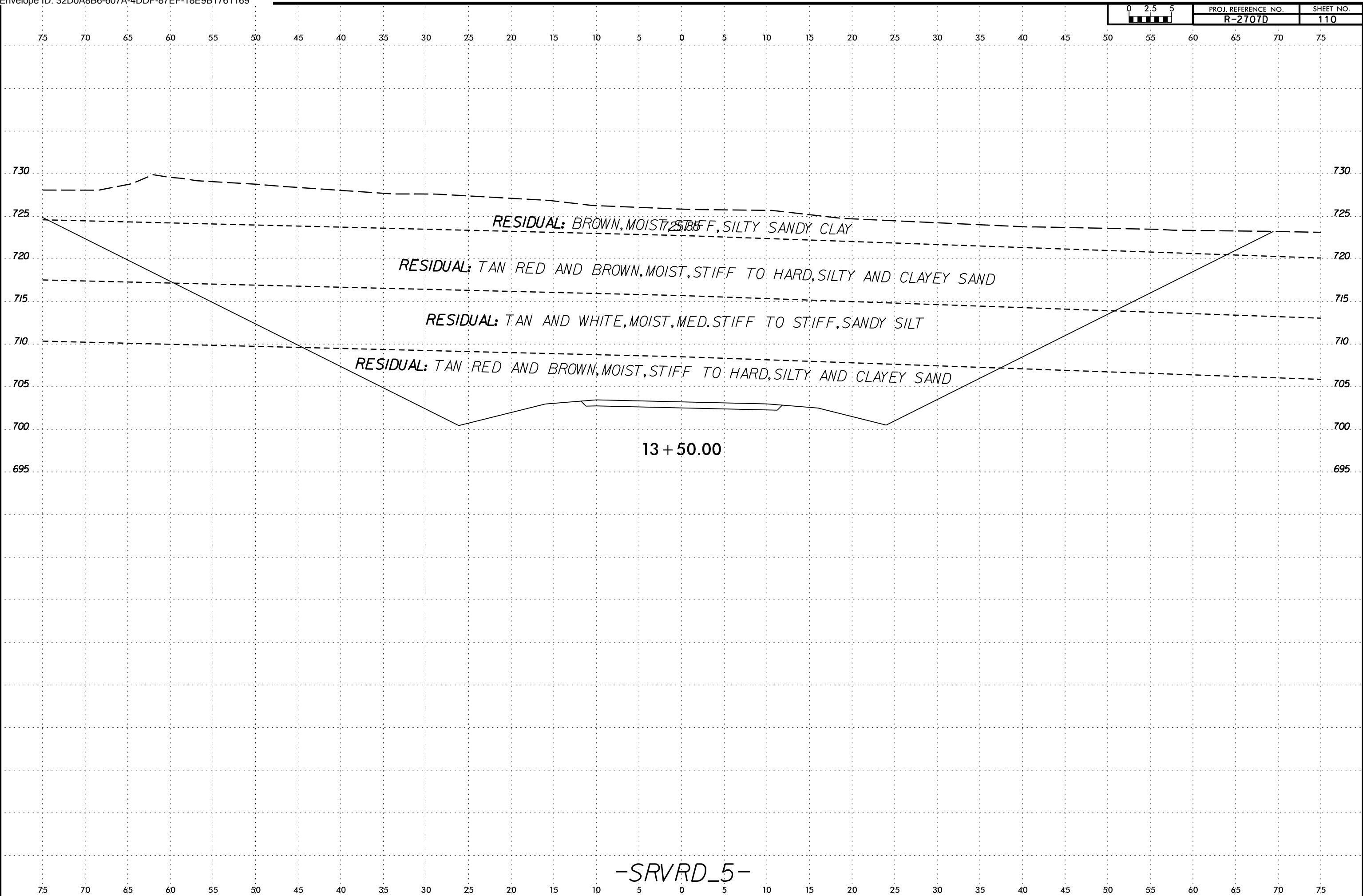
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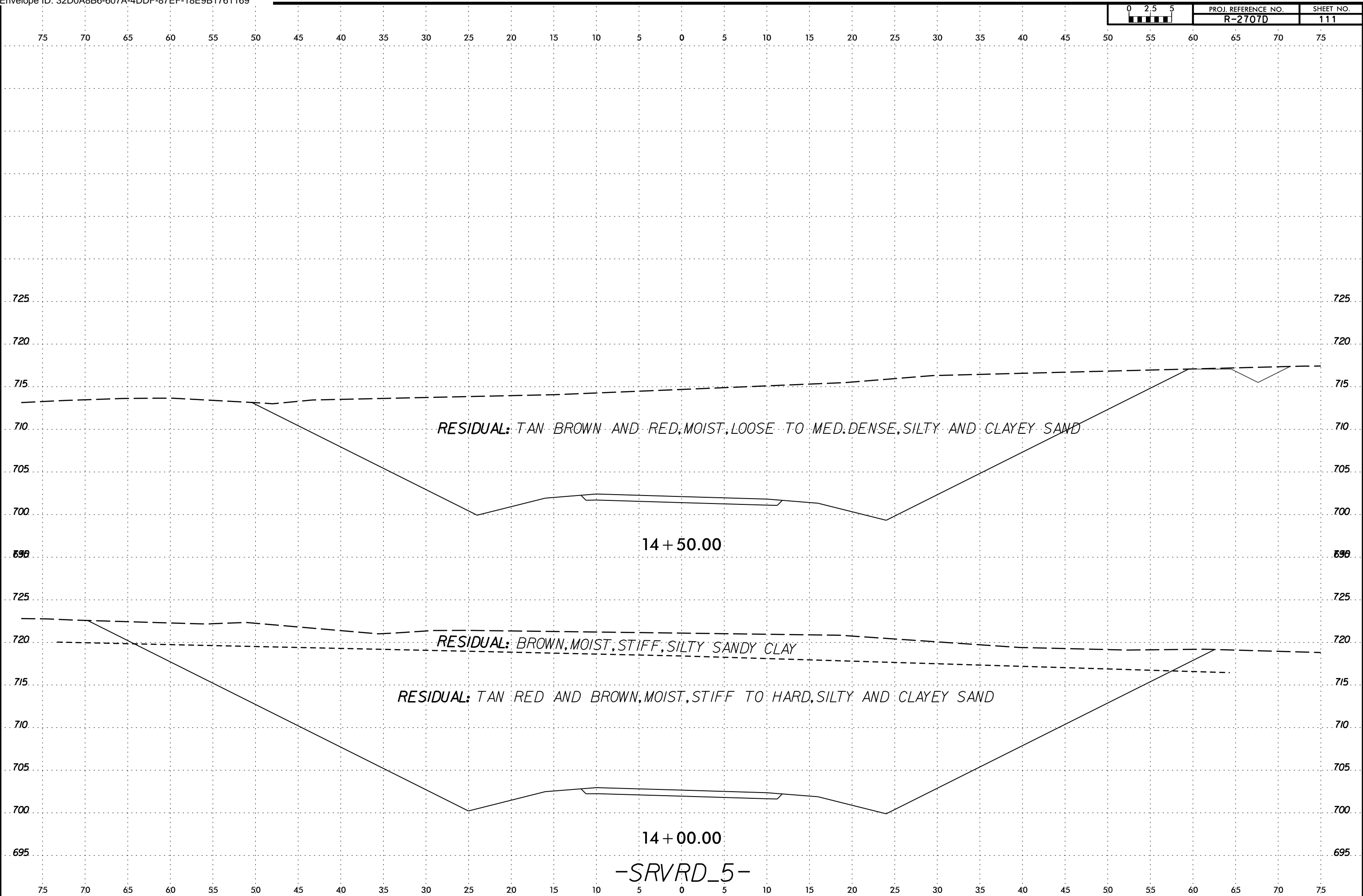
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-SRVRD_5-



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6/23/16
6/23/16



RESIDUAL: TAN BROWN AND RED, MOIST, LOOSE TO MED. DENSE, SILTY AND CLAYEY SAND

14 + 50.00

RESIDUAL: BROWN, MOIST, STIFF, SILTY SANDY CLAY

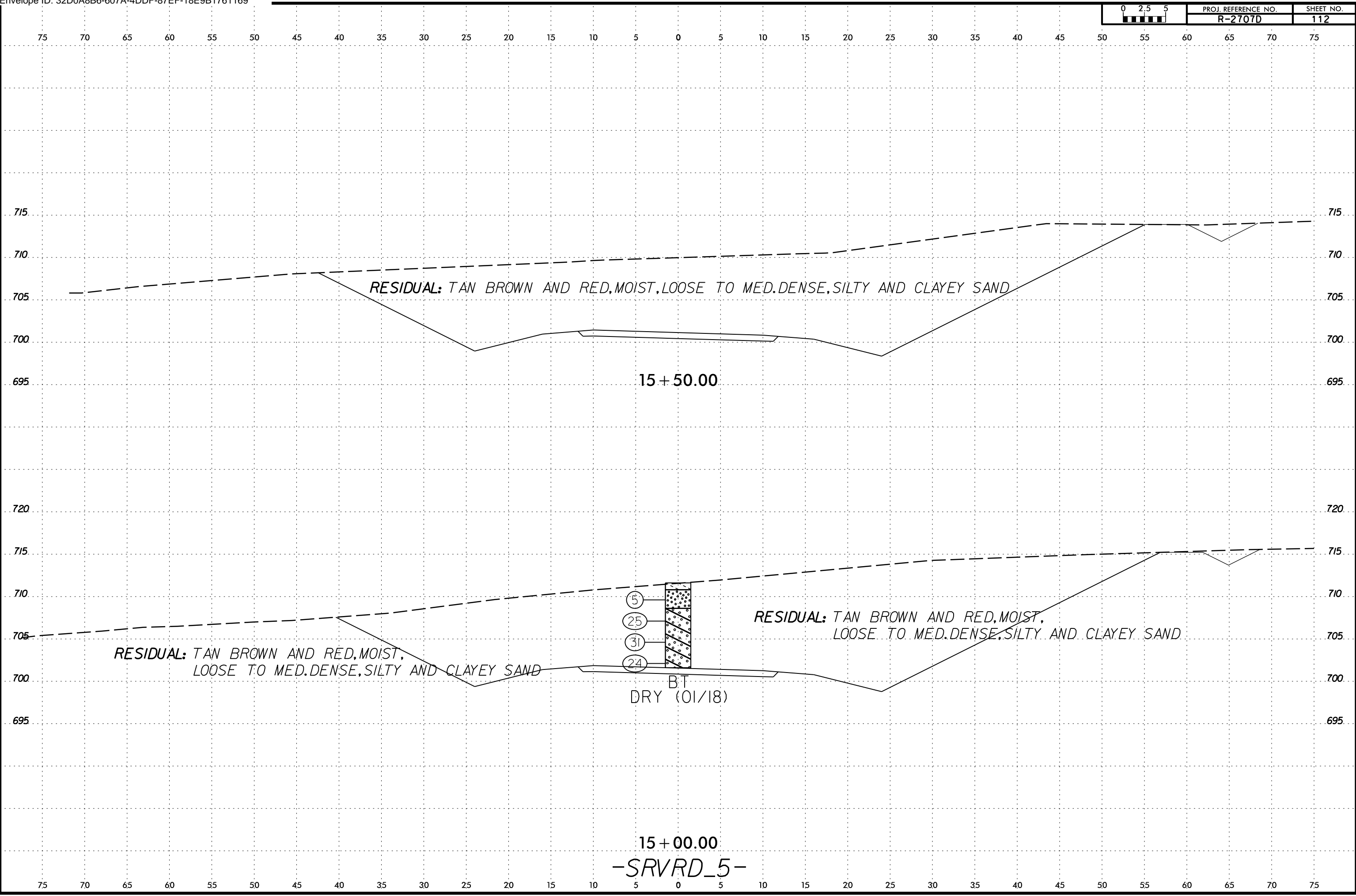
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14 + 00.00

-SRVRD_5-



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13-NOV-2018 09:40
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RESIDUAL: TAN BROWN AND RED, MOIST, LOOSE TO MED. DENSE, SILTY AND CLAYEY SAND

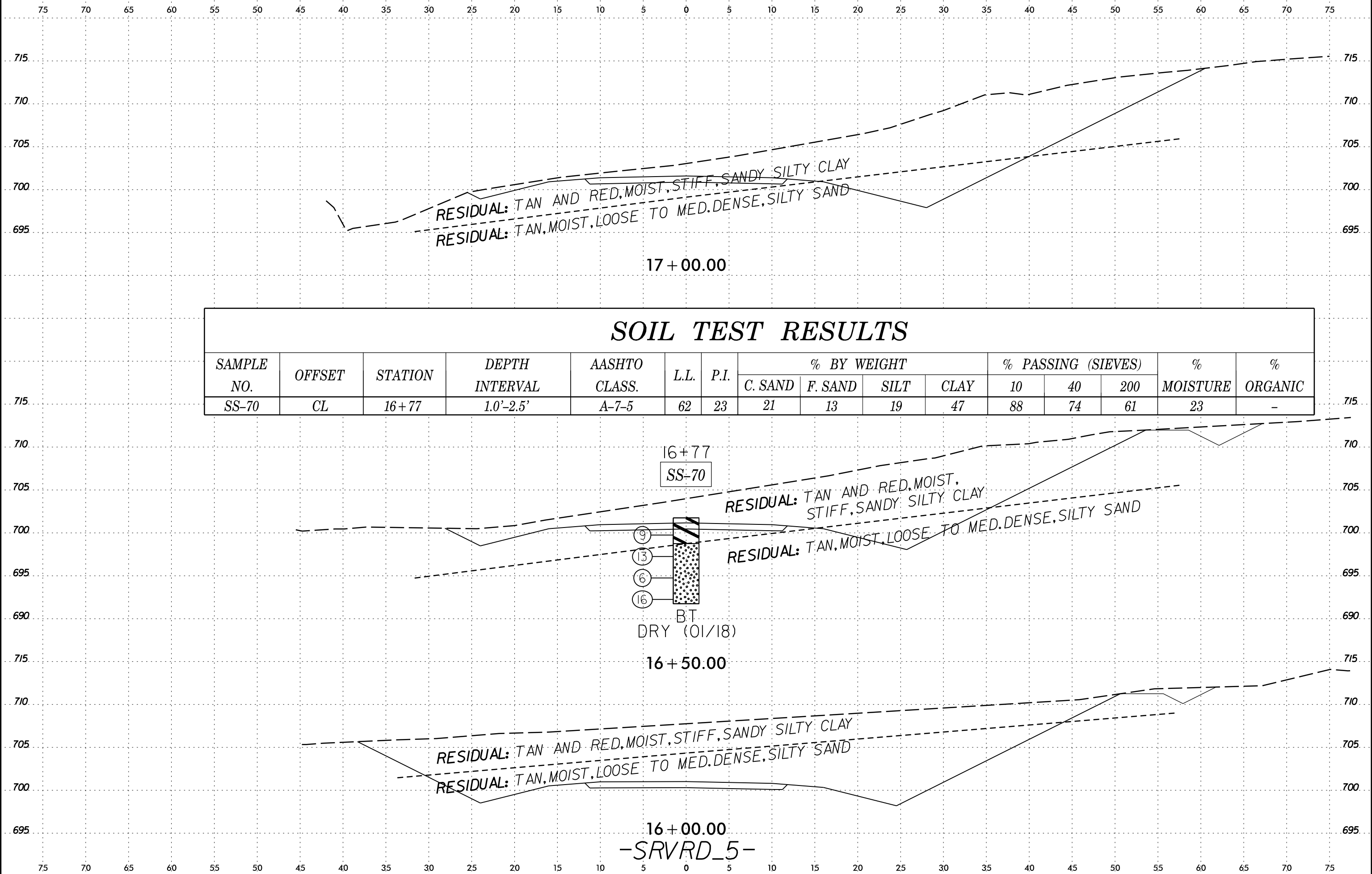
15 + 50.00

RESIDUAL: TAN BROWN AND RED, MOIST,
LOOSE TO MED. DENSE, SILTY AND CLAYEY SAND

RESIDUAL: TAN BROWN AND RED, MOIST,
LOOSE TO MED. DENSE, SILTY AND CLAYEY SAND

BT
DRY (01/18)

15 + 00.00
-SRVRD_5-



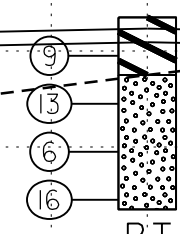
RESIDUAL: TAN AND RED, MOIST, STIFF, SANDY SILTY CLAY
 RESIDUAL: TAN, MOIST, LOOSE TO MED. DENSE, SILTY SAND

17 + 00.00

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-70	CL	16+77	1.0'-2.5'	A-7-5	62	23	21	13	19	47	88	74	61	23	-

16 + 77
 SS-70



BT
 DRY (01/18)

16 + 50.00

RESIDUAL: TAN AND RED, MOIST, STIFF, SANDY SILTY CLAY
 RESIDUAL: TAN, MOIST, LOOSE TO MED. DENSE, SILTY SAND

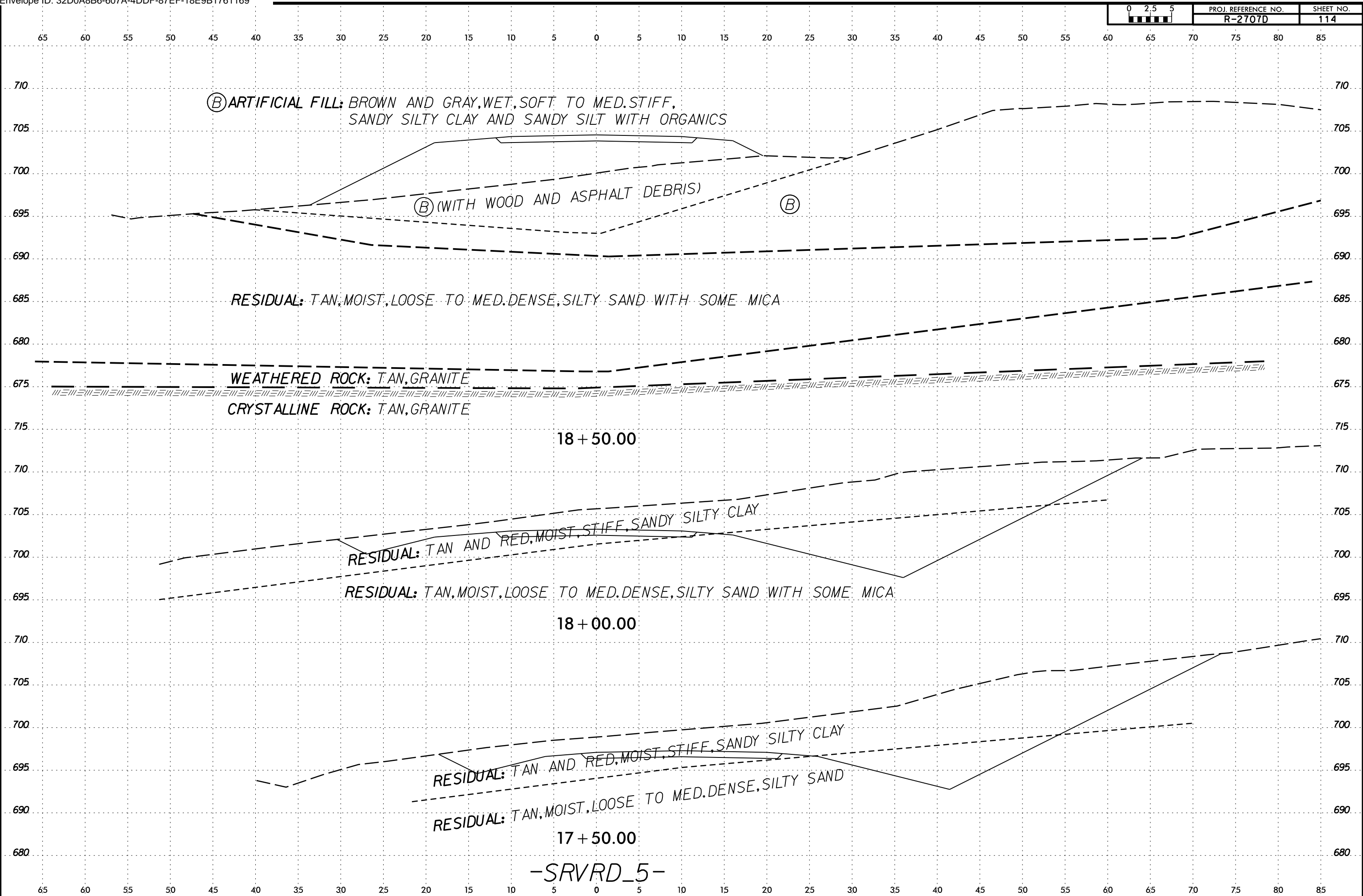
RESIDUAL: TAN AND RED, MOIST, STIFF, SANDY SILTY CLAY
 RESIDUAL: TAN, MOIST, LOOSE TO MED. DENSE, SILTY SAND

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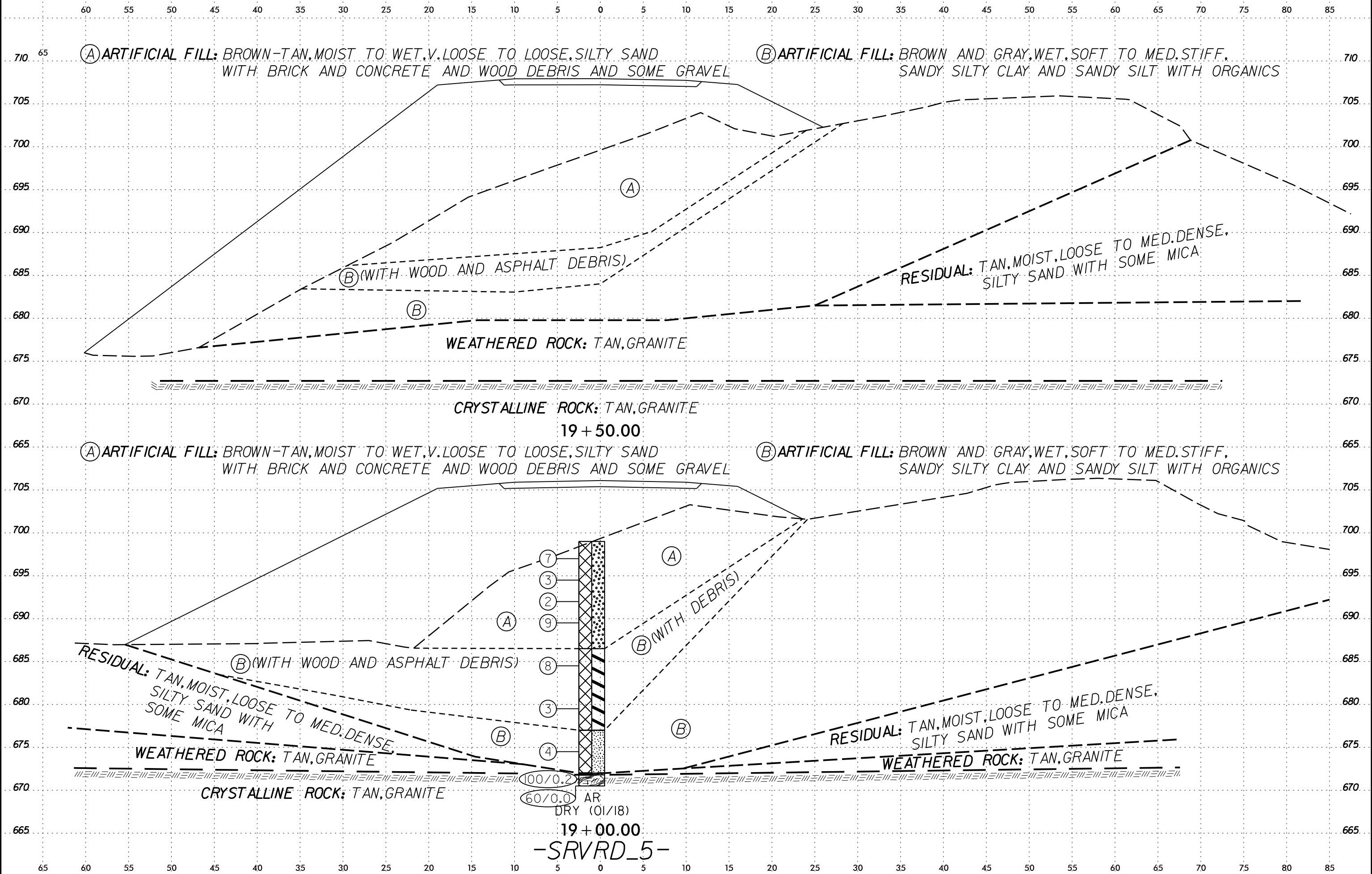


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05-NOV-2018 10:43
geotechnical



(A) ARTIFICIAL FILL: BROWN-TAN, MOIST TO WET, V. LOOSE TO LOOSE, SILTY SAND WITH BRICK AND CONCRETE AND WOOD DEBRIS AND SOME GRAVEL

(B) ARTIFICIAL FILL: BROWN AND GRAY, WET, SOFT TO MED. STIFF, SANDY SILTY CLAY AND SANDY SILT WITH ORGANICS

(B) (WITH WOOD AND ASPHALT DEBRIS)

RESIDUAL: TAN, MOIST, LOOSE TO MED. DENSE, SILTY SAND WITH SOME MICA

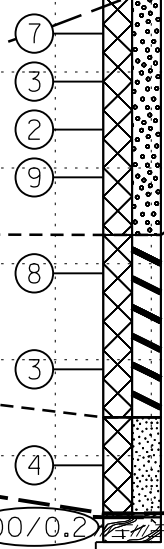
WEATHERED ROCK: TAN, GRANITE

CRYSTALLINE ROCK: TAN, GRANITE

19 + 50.00

(A) ARTIFICIAL FILL: BROWN-TAN, MOIST TO WET, V. LOOSE TO LOOSE, SILTY SAND WITH BRICK AND CONCRETE AND WOOD DEBRIS AND SOME GRAVEL

(B) ARTIFICIAL FILL: BROWN AND GRAY, WET, SOFT TO MED. STIFF, SANDY SILTY CLAY AND SANDY SILT WITH ORGANICS



AR DRY (01/18)

19 + 00.00

-SRVRD_5-

RESIDUAL: TAN, MOIST, LOOSE TO MED. DENSE, SILTY SAND WITH SOME MICA

RESIDUAL: TAN, MOIST, LOOSE TO MED. DENSE, SILTY SAND WITH SOME MICA

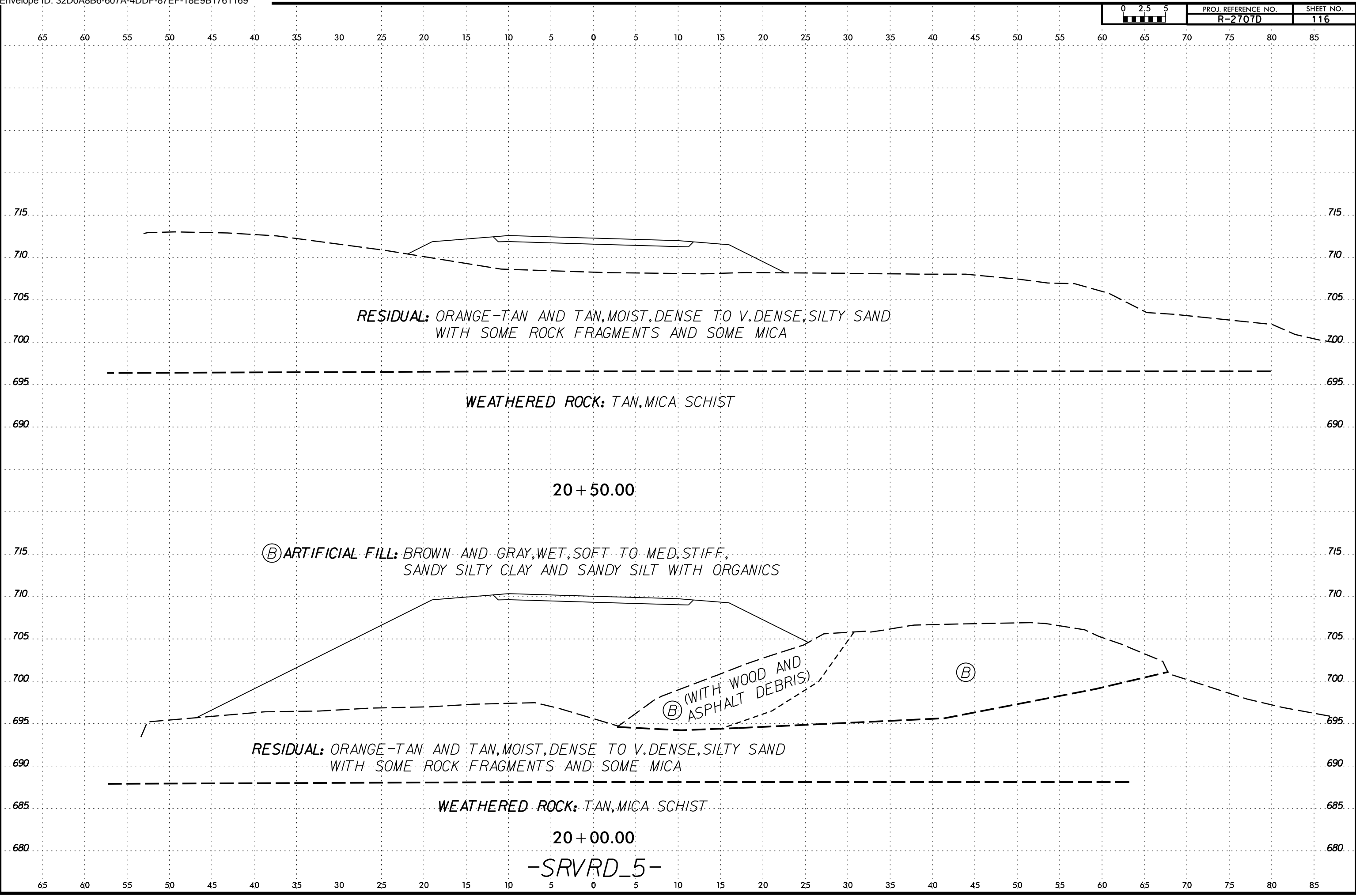
WEATHERED ROCK: TAN, GRANITE

WEATHERED ROCK: TAN, GRANITE

CRYSTALLINE ROCK: TAN, GRANITE



6/23/16
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RESIDUAL: ORANGE-TAN AND TAN, MOIST, DENSE TO V. DENSE, SILTY SAND WITH SOME ROCK FRAGMENTS AND SOME MICA

WEATHERED ROCK: TAN, MICA SCHIST

20 + 50.00

(B) ARTIFICIAL FILL: BROWN AND GRAY, WET, SOFT TO MED. STIFF, SANDY SILTY CLAY AND SANDY SILT WITH ORGANICS

(B) (WITH WOOD AND ASPHALT DEBRIS)

RESIDUAL: ORANGE-TAN AND TAN, MOIST, DENSE TO V. DENSE, SILTY SAND WITH SOME ROCK FRAGMENTS AND SOME MICA

WEATHERED ROCK: TAN, MICA SCHIST

20 + 00.00

-SRVRD_5-

REFERENCE: R-2707D

PROJECT: 34497

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

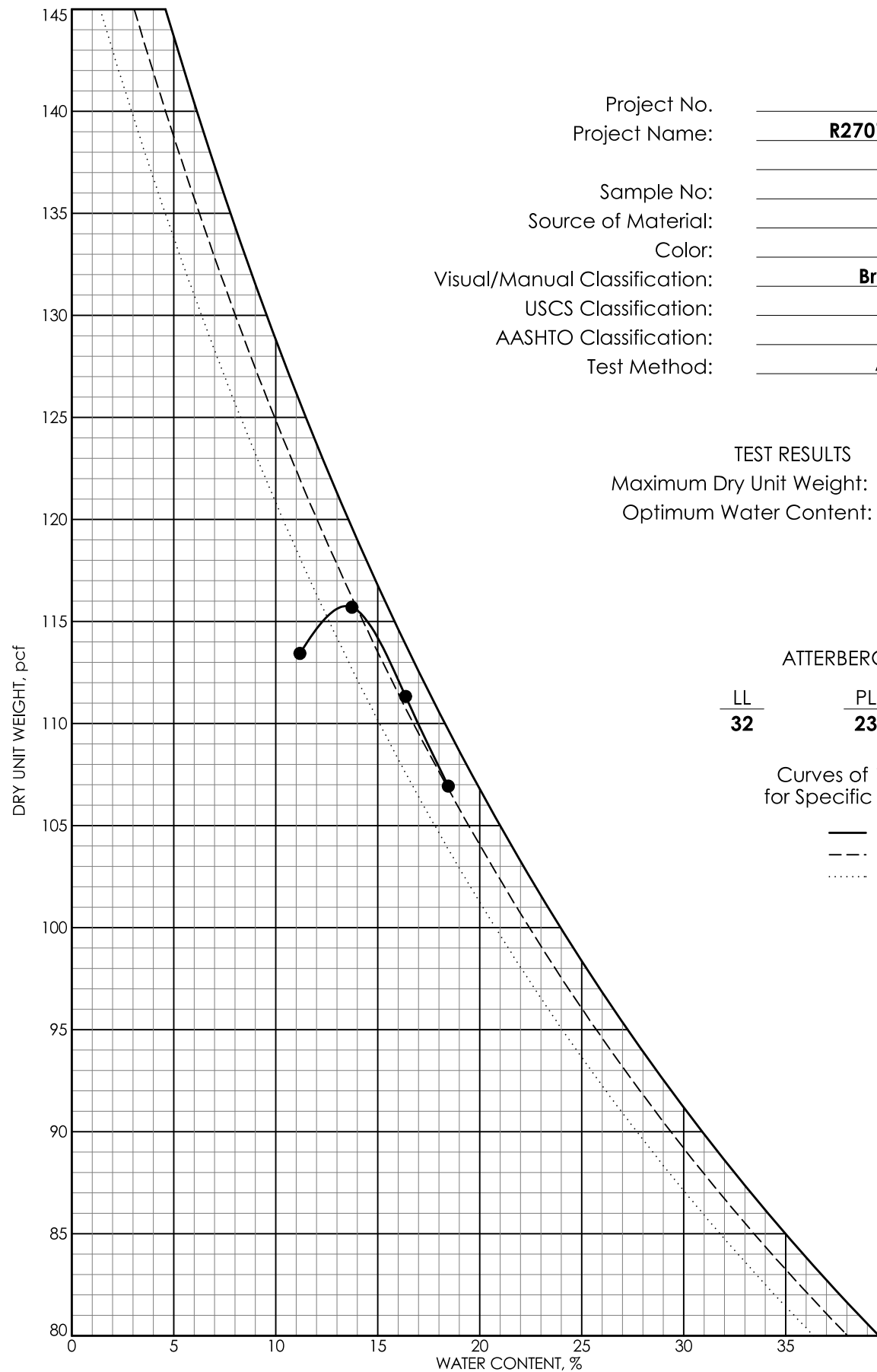


1210 TRINITY ROAD, SUITE 110
CARY, NC 27513

PHONE: 919.871.0800
www.falconengineers.com

LABORATORY COMPACTION TEST RESULTS

5/20/2018



Project No.	G17053.00
Project Name:	R2707D Shelby Bypass
Sample No:	BS-1
Source of Material:	B-363
Color:	Brown
Visual/Manual Classification:	Brown Silty Sand
USCS Classification:	
AASHTO Classification:	
Test Method:	AASHTO T-99

TEST RESULTS
 Maximum Dry Unit Weight: **115.8 PCF**
 Optimum Water Content: **13.5 %**

ATTERBERG LIMITS

LL	PL	PI
32	23	9

Curves of 100% Saturation for Specific Gravity Equal to:

- 2.6
- - - 2.5
- 2.4

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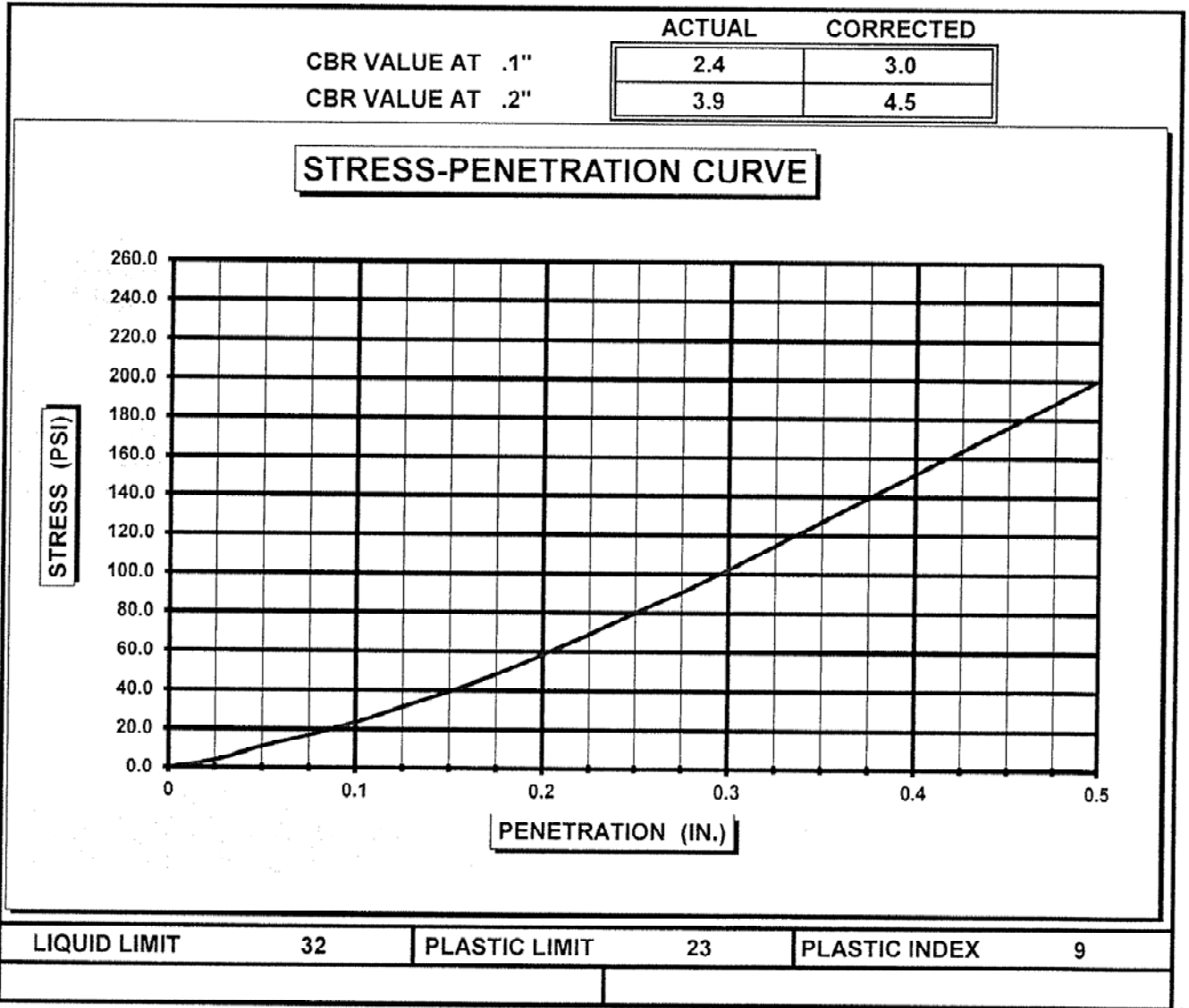
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CBR (CALIFORNIA BEARING RATIO) OF LABORATORY COMPACTED SOIL

AASHTO T-193 | ASTM D-1883

PROJECT #:	G17053.00	DATE:	5/14/2018
PROJECT NAME:	Shelby By Pass		
BORING:	B-363	SAMPLE:	Bulk1
		DEPTH:	1-11'

SOIL DESCRIPTION: Brown Silty Sand			
COMPACTION METHOD	ASTM D1883	SOAK	96 HRS.
MAXIMUM DRY DENSITY	116.2 PCF	STRAIN RATE	.05 IN / MIN.
OPTIMUM MOISTURE CONTENT	14.5%	LOAD CELL	6000
TEST DATA		SURCHARGE WEIGHT	
DRY DENSITY	114.7 PCF	SURCHARGE PER SQUARE FOOT	51 lbs/sq.ft.
MOISTURE CONTENT	14.3%	FINAL MOISTURE CONTENT	N/A
PERCENT COMPACTION	98.7%	SWELL	0.00%



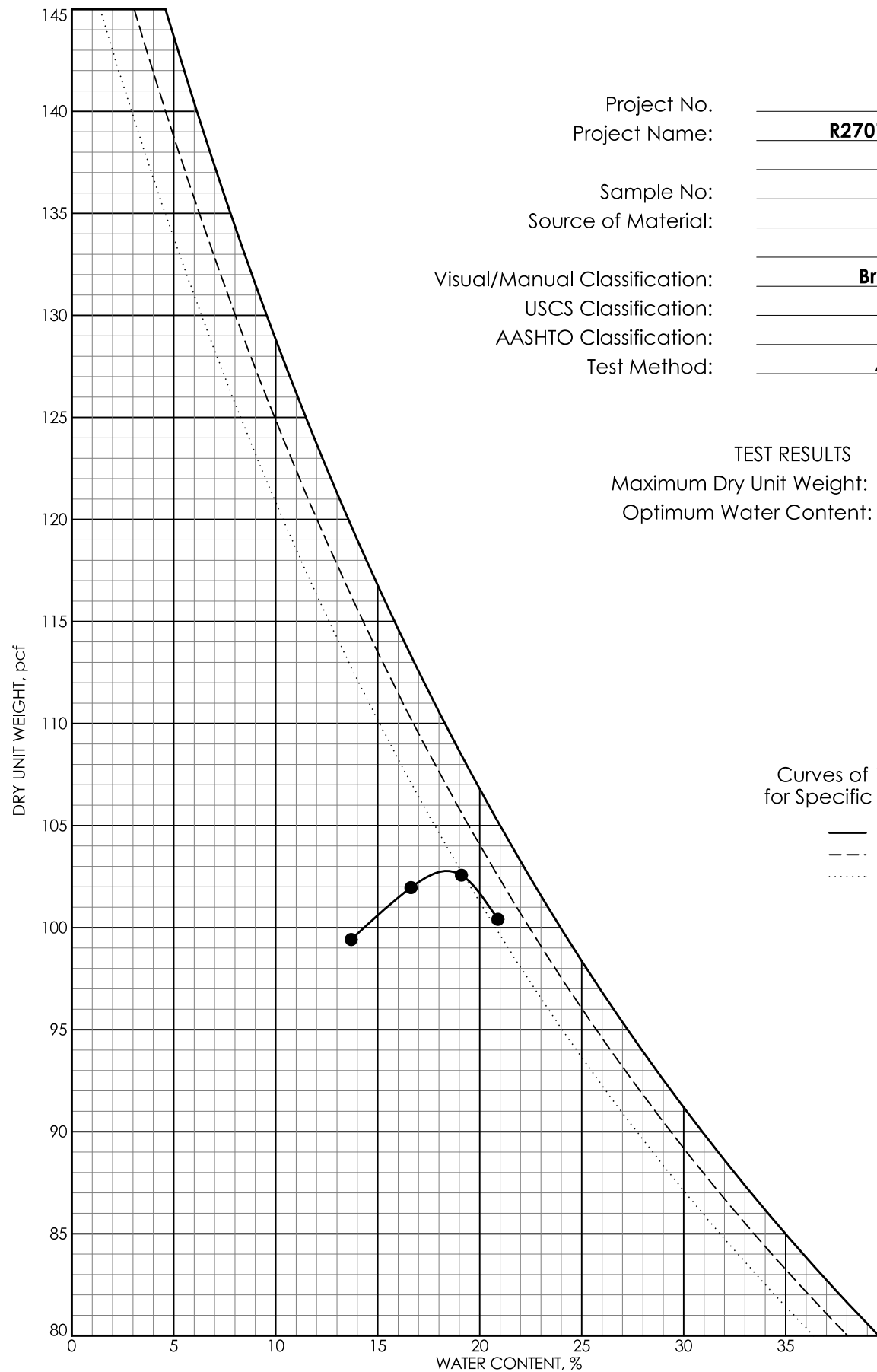


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LABORATORY COMPACTION TEST RESULTS

5/20/2018



Project No: G17053.00
 Project Name: R2707D Shelby Bypass
 Sample No: BS-2
 Source of Material: B-210
 Visual/Manual Classification: Brown Sandy Silt
 USCS Classification: _____
 AASHTO Classification: _____
 Test Method: AASHTO T-99

TEST RESULTS
 Maximum Dry Unit Weight: 102.8 PCF
 Optimum Water Content: 18.3 %

Curves of 100% Saturation
for Specific Gravity Equal to:
 — 2.6
 - - - 2.5
 ···· 2.4

FALCON ENGINEERING

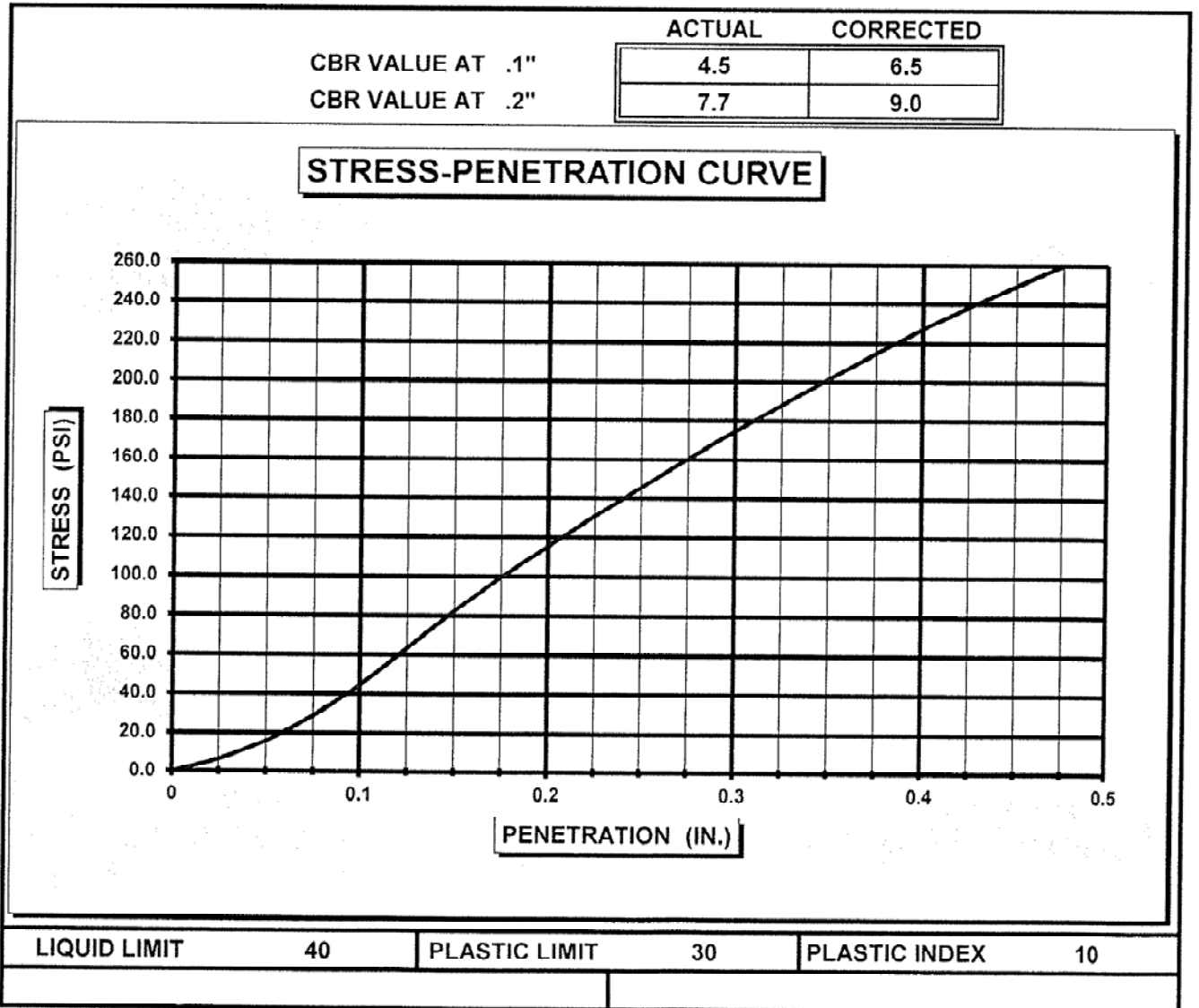
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CBR (CALIFORNIA BEARING RATIO) OF LABORATORY COMPACTED SOIL

AASHTO T-193 \ ASTM D-1883

PROJECT #: G17053.00 DATE: 5/14/2018
 PROJECT NAME: Shelby By Pass
 BORING: B-210 SAMPLE: Bulk-2 DEPTH: 1-10'

SOIL DESCRIPTION: <u>Brown Sandy Silt</u>			
COMPACTION METHOD	ASTM D1883	SOAK	96 HRS.
MAXIMUM DRY DENSITY	103.2 PCF	STRAIN RATE	.05 IN / MIN.
OPTIMUM MOISTURE CONTENT	18.5%	LOAD CELL	6000
TEST DATA		SURCHARGE WEIGHT	
DRY DENSITY	101.5 PCF	SURCHARGE PER SQUARE FOOT	51 lbs/sq.ft.
MOISTURE CONTENT	18.3%	FINAL MOISTURE CONTENT	N/A
PERCENT COMPACTION	98.4%	SWELL	0.00%



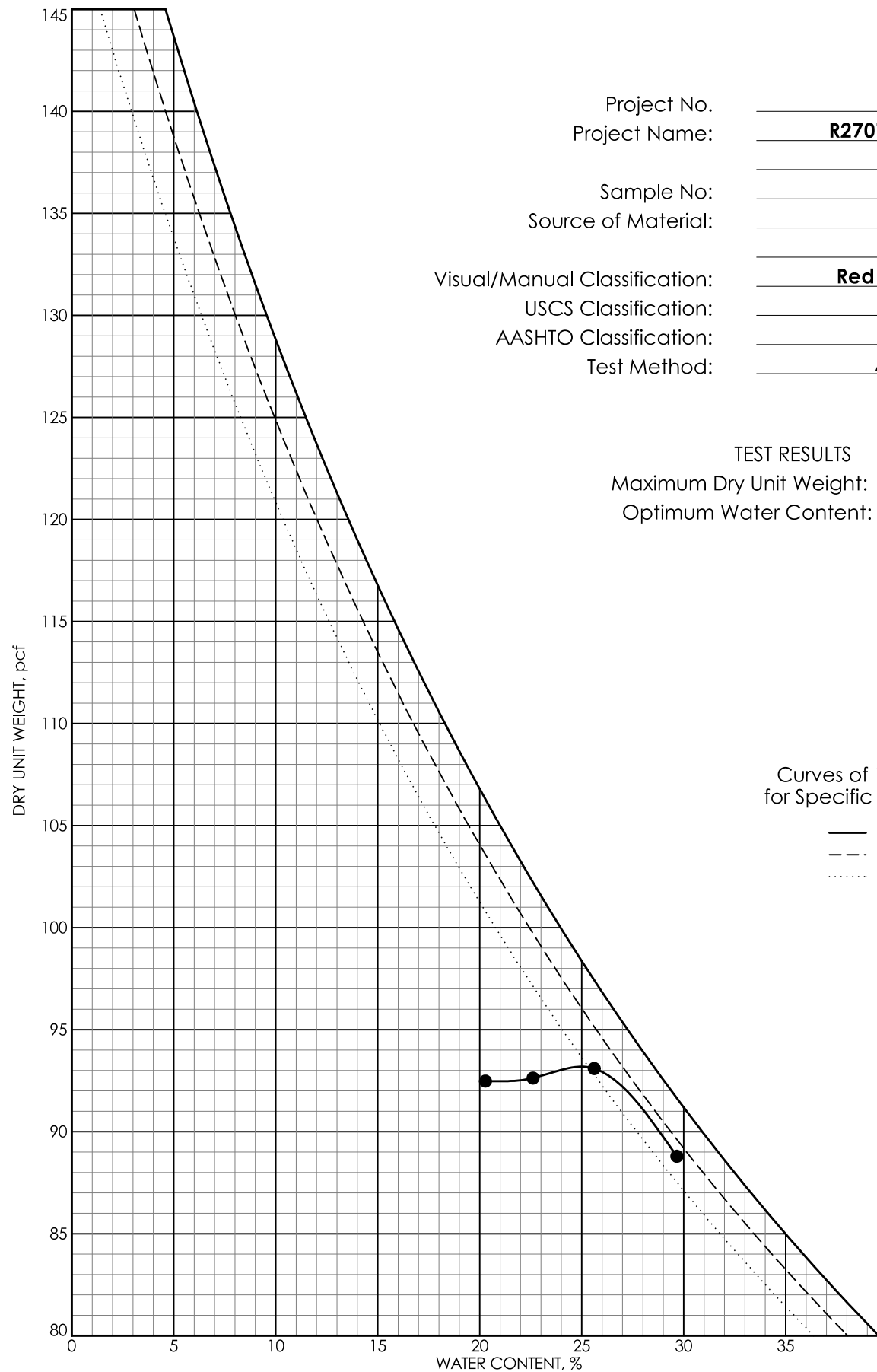


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LABORATORY COMPACTION TEST RESULTS

5/20/2018



Project No. G17053.00
 Project Name: R2707D Shelby Bypass
 Sample No: BS-3
 Source of Material: B-58
 Visual/Manual Classification: Red Brown Silty Sand
 USCS Classification: _____
 AASHTO Classification: _____
 Test Method: AASHTO T-99

TEST RESULTS
 Maximum Dry Unit Weight: 93.2 PCF
 Optimum Water Content: 25.0 %

Curves of 100% Saturation
for Specific Gravity Equal to:
 — 2.6
 - - - 2.5
 . . . 2.4

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CBR (CALIFORNIA BEARING RATIO) OF LABORATORY COMPACTED SOIL

AASHTO T-193 | ASTM D-1883

PROJECT #: G17053.00 DATE: 5/14/2018
 PROJECT NAME: Shelby By Pass
 BORING: B-58 SAMPLE: Bulk-3 DEPTH: 1-10'

SOIL DESCRIPTION: <u>Red Brown Silty Sand</u>			
COMPACTION METHOD	ASTM D1883	SOAK	96 HRS.
MAXIMUM DRY DENSITY	93.5 PCF	STRAIN RATE	.05 IN / MIN.
OPTIMUM MOISTURE CONTENT	25.5%	LOAD CELL	6000
TEST DATA		SURCHARGE WEIGHT	
DRY DENSITY	92.4 PCF	SURCHARGE PER SQUARE FOOT	51 lbs/sq.ft.
MOISTURE CONTENT	25.4%	FINAL MOISTURE CONTENT	N/A
PERCENT COMPACTION	98.8%	SWELL	0.00%

