

NOTE: SEE SHEET 2A 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.	U-3459 (34591.1.1)	1	46
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
		P.E.	
		RAW & UTIL.	

CONTENTS

LINE	STATION	PLAN	PROFILE	XSECT
-L-	10+00-12+00	4	14	23 & 24
-L-	12+00-17+00	5	14	24 & 25
-L-	17+00-22+00	6	15	26
-L-	22+00-27+00	7	16	27
-L-	27+00-32+00	8 & 8A	17	27 & 28
-L-	32+00-37+00	9 & 9A	18	29 thru 32
-L-	37+00-40+00	10 & 10A	19	32 & 33
-MAIN I-	8909+00-8914+00	11	20	34
-MAIN I-	8914+00-8919+00	12	21	35 thru 37
-MAIN I-	8919+00-8924+00	13	22	38 & 39
WALL #1		40	41	
WALL #2		42	43	
WALL #3		44	45	
WALL DETAILS		46		

ROADWAY SUBSURFACE INVESTIGATION

PROJ. REFERENCE NO. U-3459 (34591.1.1) F.A. PROJ. NA
COUNTY Rowan
PROJECT DESCRIPTION SR 2541 Grade Separation with the
NC Railroad/Norfolk Southern Corp. Railline

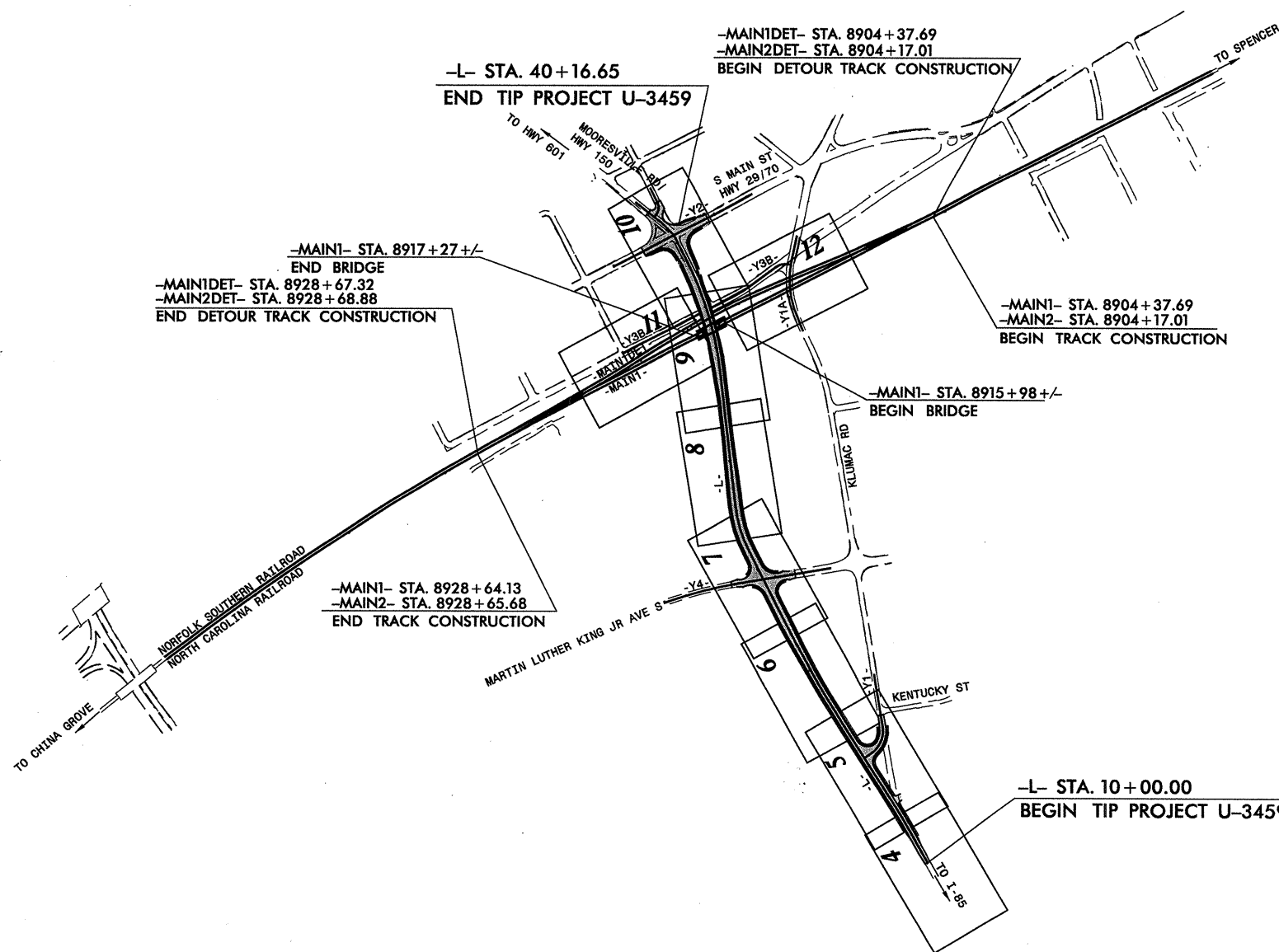
CAUTION NOTICE

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) 250-4088. NEITHER THE SUBSURFACE PLANS AND REPORTS, NOR THE FIELD BORING LOGS, ROCK CORES, OR SOIL TEST DATA ARE PART OF THE CONTRACT.

GENERAL SOIL AND ROCK STRATA DESCRIPTIONS AND INDICATED BOUNDARIES ARE BASED ON A GEOTECHNICAL INTERPRETATION OF ALL AVAILABLE SUBSURFACE DATA AND MAY NOT NECESSARILY REFLECT THE ACTUAL SUBSURFACE CONDITIONS BETWEEN BORINGS OR BETWEEN SAMPLED STRATA WITHIN THE BOREHOLE. THE LABORATORY SAMPLE DATA AND THE IN SITU (IN-PLACE) TEST DATA CAN BE RELIED ON ONLY TO THE DEGREE OF RELIABILITY INHERENT IN THE STANDARD TEST METHOD. THE OBSERVED WATER LEVELS OR SOIL MOISTURE CONDITIONS INDICATED IN THE SUBSURFACE INVESTIGATIONS ARE AS RECORDED AT THE TIME OF THE INVESTIGATION. THESE WATER LEVELS OR SOIL MOISTURE CONDITIONS MAY VARY CONSIDERABLY WITH TIME ACCORDING TO CLIMATIC CONDITIONS INCLUDING TEMPERATURES, PRECIPITATION, AND WIND, AS WELL AS OTHER NON-CLIMATIC FACTORS.

THE BIDDER OR CONTRACTOR IS CAUTIONED THAT DETAILS SHOWN ON THE SUBSURFACE PLANS ARE PRELIMINARY ONLY AND IN MANY CASES THE FINAL DESIGN DETAILS ARE DIFFERENT. FOR BIDDING AND CONSTRUCTION PURPOSES, REFER TO THE CONSTRUCTION PLANS AND DOCUMENTS FOR FINAL DESIGN INFORMATION ON THIS PROJECT. THE DEPARTMENT DOES NOT WARRANT OR GUARANTEE THE SUFFICIENCY OR ACCURACY OF THE INVESTIGATION MADE, NOR THE INTERPRETATIONS MADE, OR OPINION OF THE DEPARTMENT AS TO THE TYPE OF MATERIALS AND CONDITIONS TO BE ENCOUNTERED. THE BIDDER OR CONTRACTOR IS CAUTIONED TO MAKE SUCH INDEPENDENT SUBSURFACE INVESTIGATIONS AS HE DEEMS NECESSARY TO SATISFY HIMSELF AS TO CONDITIONS TO BE ENCOUNTERED ON THIS PROJECT. THE CONTRACTOR SHALL HAVE NO CLAIM FOR ADDITIONAL COMPENSATION OR FOR AN EXTENSION OF TIME FOR ANY REASON RESULTING FROM THE ACTUAL CONDITIONS ENCOUNTERED AT THE SITE DIFFERING FROM THOSE INDICATED IN THE SUBSURFACE INFORMATION.

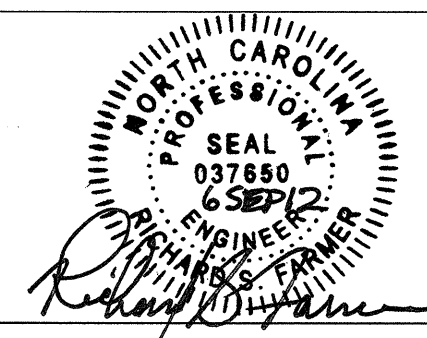
INVENTORY



PERSONNEL

<u>R. DeLost</u>
<u>M. Gragg</u>
<u>F. Woodard</u>
<u>S. Gower</u>

INVESTIGATED BY R. DeLost
CHECKED BY J. Provance
SUBMITTED BY R. Farmer
DATE 8/17/2012



CONTRACT: C203127 ID: U-3459

DRAWN BY: T. RIDEOUT

NOTE - THE INFORMATION CONTAINED HEREIN IS NOT IMPLIED OR GUARANTEED BY THE N.C. DEPARTMENT OF TRANSPORTATION AS BEING ACCURATE NOR IT IS CONSIDERED TO BE PART OF THE PLANS, SPECIFICATIONS, OR CONTRACT FOR THE PROJECT.

NOTE - 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.

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, COMPRESSIBILITY, PERCENTAGE OF MATERIAL, GROUND WATER, MISCELLANEOUS SYMBOLS, ABBREVIATIONS, EQUIPMENT USED ON SUBJECT PROJECT, FRACTURE SPACING, BEDDING, INDURATION, PLASTICITY, and COLOR.

See Sheet 1-A For Index of Sheets

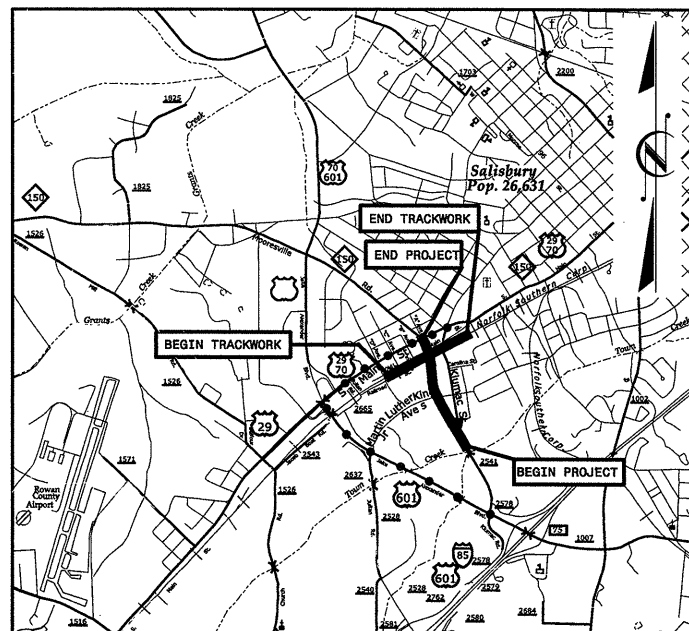
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

ROWAN COUNTY

**LOCATION: PROPOSED SR 2541 (KLUMAC ROAD) GRADE SEPARATION
WITH THE NORTH CAROLINA RAILROAD/NORFOLK SOUTHERN CORPORATION.**

TYPE OF WORK: GRADING, PAVING, DRAINAGE, SIGNALS, STRUCTURE, TRACKWORK, AND UTILITIES

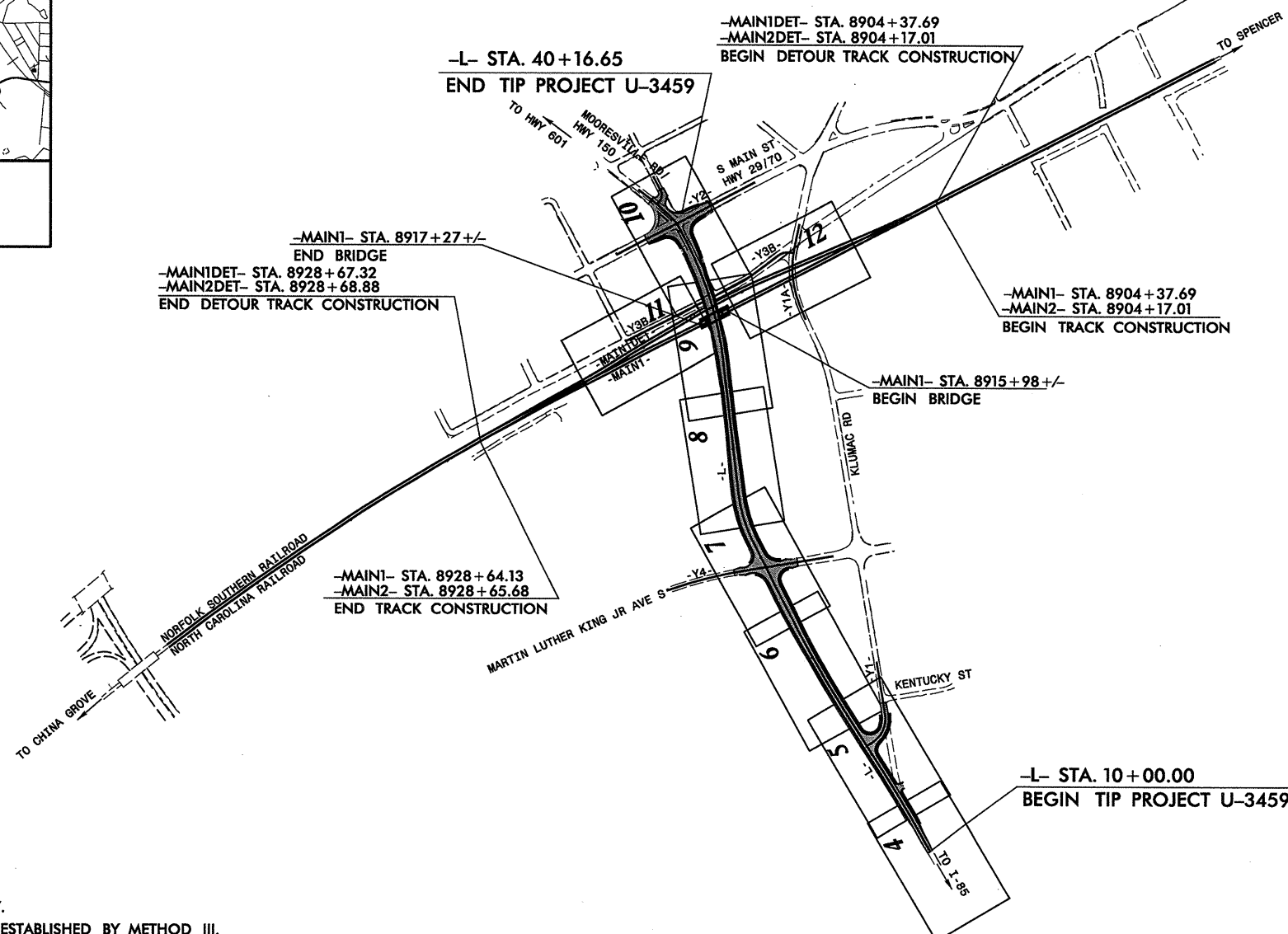
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-3459	2A	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
34951.1.1	STP-2541(4)	P.E.	
43219.2.STRIU3459		R/W	
53500.3.STROI14		UTILITIES	



VICINITY MAP

● — ● OFFSITE DETOUR

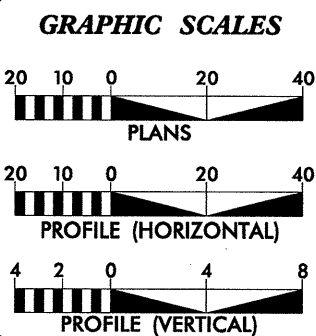
RIGHT-OF-WAY PLANS



NAD 83/
NSRS 2007

THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF SALISBURY.
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.

PROJECT LENGTH
LENGTH ROADWAY T.I.P. PROJECT U-3459 = 0.571 MILES
TOTAL LENGTH T.I.P. PROJECT U-3459 = 0.571 MILES



DESIGN DATA

ADT 2010 =	7,000
ADT 2035 =	10,200
DHV =	10 %
D =	65 %
T =	7 %
V =	40 MPH
* TTST =	2% DUAL 5%
FUNC CLASS =	URBAN COLLECTOR

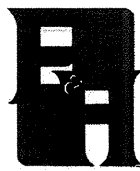
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RAIL DIVISION

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: OCTOBER 31, 2011	LEONARD FLETCHER, PE PROJECT ENGINEER
LETTING DATE: OCTOBER 16, 2012	JIMMY L. TERRY, PE PROJECT DESIGN ENGINEER

PROJECT U-3459 - KLUMAC ROAD	
TITLE SHEET	
LOCATION KLUMAC ROAD (SR 2541) IN SALISBURY, NC	
PLANS PREPARED BY: TGS ENGINEERS SUITE 141 976 WALNUT STREET CARY, NC 27511 PH (919) 319-8850 CORP. LICENSE NO. J C-9275	RAILROAD NORTH CAROLINA RAILROAD/NORFOLK SOUTHERN MILE POST MP 335.2
Florence & Hutcheson CONSULTING ENGINEERS 1121 Douglas Ave., Suite 100 Raleigh, NC 27601 919-972-2122	PLANS PREPARED FOR: NCDOT RAIL DIVISION SANDRA A. STEPNEY, PE SENIOR PROJECT ENGINEER
SHEET 2A OF 46	



September 6, 2012

Sandra A. Stepney, PE, CPM
Engineering and Safety Unit
North Carolina Department of Transportation
862 Capital Boulevard
Raleigh, North Carolina 27603

Reference: **Roadway Inventory Report
Proposed SR 2541 (Klumac Road) Grade Separation
With The North Carolina Railroad/
Norfolk Southern Corporation
Rowan County, North Carolina
Project No. U-3459
F&H Project No. 10271**

Dear Ms. Stepney:

Florence & Hutcheson (F&H) has completed the authorized subsurface investigation and roadway inventory report for the above referenced project in Rowan County, North Carolina, and we submit the following information.

PROJECT DESCRIPTION

This project consists of the construction of a railroad bridge to separate the at-grade intersection of SR 2541 (-L-, Klumac Road) with North Carolina Railroad/Norfolk Southern Corporation railroad line (-MAIN1-) in the town of Salisbury. The proposed bridge will carry two tracks of the NCRR/NS Corp. over the relocated Klumac Road. The project begins south of the intersection of Klumac Road and Kentucky Street and extends north 0.6 miles to intersect with South Main Street (HWY 29/70/150). Three retaining walls are planned for construction as well as a temporary railroad line to carry the two tracks during the construction of the new bridge.

The geotechnical field investigation was conducted between February and April 2012. An F&H drilling crew performed the investigation of the subsurface. An F&H geologist worked with the drilling crew to sample and log the borings. A tracked ATV-mounted CME-45 drilling rig was used during the field investigation. Standard Penetration Tests were performed at regular intervals in the borings. Representative soil samples were collected for visual classification in the field and submitted for laboratory analysis by F&H's soils laboratory.

The following alignments, totaling 0.82 miles, were investigated. Subsurface soil profiles and cross-sections of these alignments are included in this report:

<u>Line</u>	<u>Station</u>
-L-	10+00 to 40+16
-MAIN1-	8909+32.9 to 8922+33.3

AREAS OF SPECIAL GEOTECHNICAL INTEREST

Highly Plastic Soils: Occurrences of highly plastic silts and clays (Plasticity Index greater than 25) are noted below:

<u>Line</u>	<u>Station</u>
-L-	31+00 to 36+00

There is a possibility that areas of high plasticity soils near subgrade may exist elsewhere along the project.

PHYSIOGRAPHY AND GEOLOGY

The project is located in the moderately rolling terrain of the Piedmont Physiographic Province of North Carolina. A mixture of businesses, single-family dwellings, and a concrete plant are located along the project corridor.

Soils are derived from the weathering of the undivided metavolcanic rocks found within the Charlotte Lithotectonic Belt.

SOIL PROPERTIES

Soils encountered at the project site include artificial fill, roadway embankment, alluvial sediments, and residual soils.

Roadway embankment is present along southern portion of the -L- alignment. The embankments range up to 7 feet in height. Where sampled, the embankment soil consists of dry to saturated, very soft silty clay (AASHTO classification A-7-5).

Artificial fill soil occurs primarily in the vicinity of the railroad tracks. The artificial fill ranges in depth from 2.5 to 13 feet, and consists of loose to medium dense gravelly sands (A-1-b, A-2-4) and very soft to very stiff silts and clays (A-5, A-7-5, and A-7-6).

Alluvial soils were encountered mainly along the undeveloped portion of the -L- alignment. These soils varied in depth from 7 to 16 feet and consisted of dry to wet, soft to stiff silty clays (A-7-5).

Residual soils were encountered in every boring on the project. These soils were derived from the in-place weathering of the underlying bedrock. These soils consisted of dry to wet, loose to very dense silty sands and gravels (A-2-4) and very soft to hard, compressible silts, silty clays, and clays (A-4, A-5, A-7-5, and A-7-6). Areas containing the highly plastic soils (Plasticity Indices greater than 25) are listed above in the section "Areas of Special Geotechnical Interest."

ROCK PROPERTIES

Weathered rock and crystalline rock were encountered in only the deep borings performed in the vicinity of the proposed bridge. The weathered rock is derived from the weathering of the undivided metavolcanic rocks found within the Charlotte Lithotectonic Belt. The crystalline rock encountered was identified as gneiss. The weathered rock was encountered at depths ranging from 60 to 86 feet below the ground surface.

GROUNDWATER

Groundwater was not encountered in the borings completed for this project. The subsurface investigation was conducted during the typically wetter Winter/early Spring season of the year. We would expect groundwater to vary in depth across the entire project site. However, based on our investigation, we do not anticipate that groundwater will be a problem during construction on this project.

CLOSURE

Florence & Hutcheson appreciates the opportunity to provide geotechnical services to the Engineering and Safety Unit of the North Carolina Department of Transportation. If you have any questions, comments, or require additional information, please feel free to contact us.

Sincerely,

FLORENCE & HUTCHESON – CONSULTING ENGINEERS


Richard S. Farmer, P.E.
Senior Geotechnical Engineer



U-3459
Sheet 3B

PROJECT: U-3459

COUNTY: Rowan

Volumes in Cubic Yards
DATE: August 31, 2012

COMPILED BY: BAW

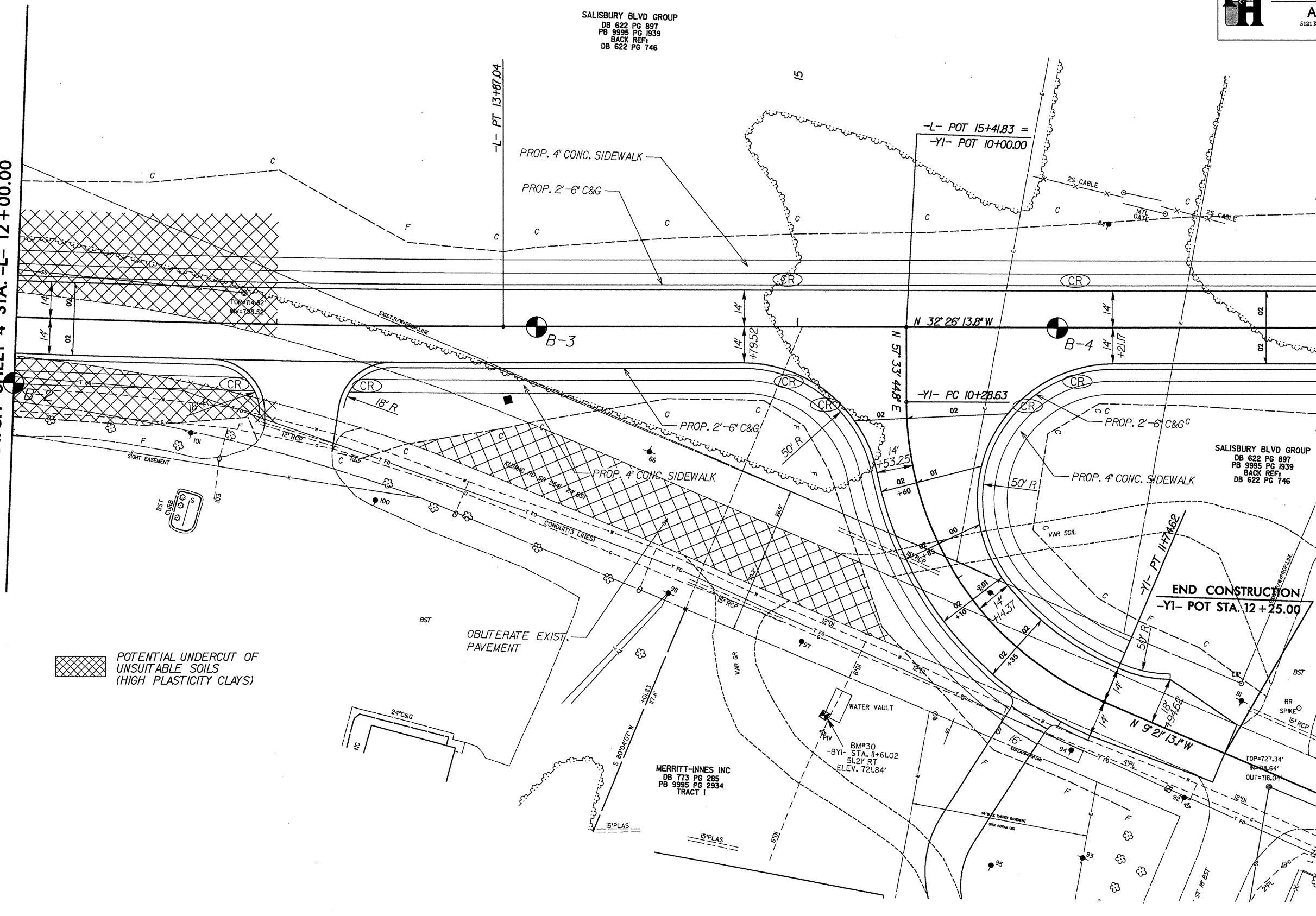
SHEET 1 OF 1 SHEET

STATION	STATION	EXCAVATION				EMBANKMENT				BORROW	WASTE				
		TOTAL UNCLASS.	ROCK	UNDERCUT	UNSUIT. UNCLASS.	SUITABLE UNCLASS.	TOTAL	ROCK	EARTH		EMBANK. +20%	ROCK	SUITABLE	UNSUIT.	TOTAL
DETOUR TRACK CONSTRUCTION															
-Main2Det- 8903+83.98	-Main2Det- 8904+50.00									109					
-Main1Det- 8904+50.00	-Main1Det- 8929+00.00	749		185		749		12,174	12,174	14,609	13,860		185	185	
-Main1Det- 8929+00.00	-Main2Det- 8929+42.73	3				3		1	1	1		2		2	
SUBTOTAL #1		752		185		752		12,266	12,266	14,719	13,969		2	185	187
ROADWAY CONSTRUCTION															
-L- 10+50.00	31+00.00	3,237		964		3,237		21,914	21,914	26,297	23,060			964	964
*CONTAMINATED SOIL REMOVED BY OTHERS		-400				-400							-400		-400
-Y1- 10+14.00	12+25.00	401				401		193	193	232			169	169	
-Y4- 13+05.00	14+26.96	7				7		316	316	379	372				
-Y4- 14+68.84	15+90.00	20				20		227	227	272	252				
SUBTOTAL #2		3,265		964		3,265		22,650	22,650	27,180	23,684		-231	964	733
-L- 31+00.00	40+12.00	22,312		2,210		22,312		2,371	2,371	2,845			19,467	2,210	21,677
*CONTAMINATED SOIL REMOVED BY OTHERS		-2,600				-2,600							-2,600		-2,600
-Y2- 11+45.00	14+65.00	178				178		14	14	17			161	161	
SUBTOTAL #3		19,890		2,210		19,890		2,385	2,385	2,862			17,028	2,210	19,238
MAIN TRACK CONSTRUCTION															
-Main1- 8904+37.69	8915+87.44 (Begin Br.)	1,477				1,477		408	408	490			987	987	
Main1- 8917+34.13 (End Br.)	8928+90.78	1,419				1,419		386	386	463			956	956	
SUBTOTAL #4		2,896				2,896		794	794	953			1,943		1,943
DETOUR TRACK REMOVAL															
-Main1- 8909+00	-Main1- 8922+50	12,987				12,987		266	266	319			12,668	12,668	
SUBTOTAL #5		12,987				12,987		266	266	319			12,668		12,668
TOTAL DETOUR CONSTRUCTION		752		185		752		12,266	12,266	14,719	13,969		2	185	187
WASTE IN LIEU OF BORROW											-2		-2		-2
TOTAL CONSTRUCTION (SUBTOTAL #2 THRU #4)		26,051		3,174		26,051		25,829	25,829	30,995	23,684		18,740	3,174	21,914
ADDITIONAL UNDERCUT				1,000				1,000	1,000	1,200	1,200			1,000	1,000
LOSS DUE TO CLEARING & GRUBBING															
WASTE IN LIEU OF BORROW											-18,740		-18,740		-18,740
TOTAL DETOUR REMOVAL		12,987				12,987		266	266	319			12,668		12,668
PROJECT TOTAL		39,790		4,359		39,790		39,361	39,361	47,233	20,111		12,668	4,359	17,027
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT											1,006				
GRAND TOTAL		39,790		4,359		39,790		39,361	39,361	47,233	21,117		12,668	4,359	17,027
SAY		39,800		4,400							21,200				

* CONTINGENCY QUANTITY

MATCH SHEET 4 STA. -L- 12+00.00

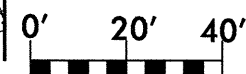
MATCH SHEET 6 STA -L- 17+00.00



POTENTIAL UNDERCUT OF UNSUITABLE SOILS (HIGH PLASTICITY CLAYS)

OBLITERATE EXIST. PAVEMENT

END CONSTRUCTION
 -YI- POT STA. 12+25.00



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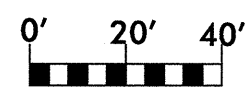
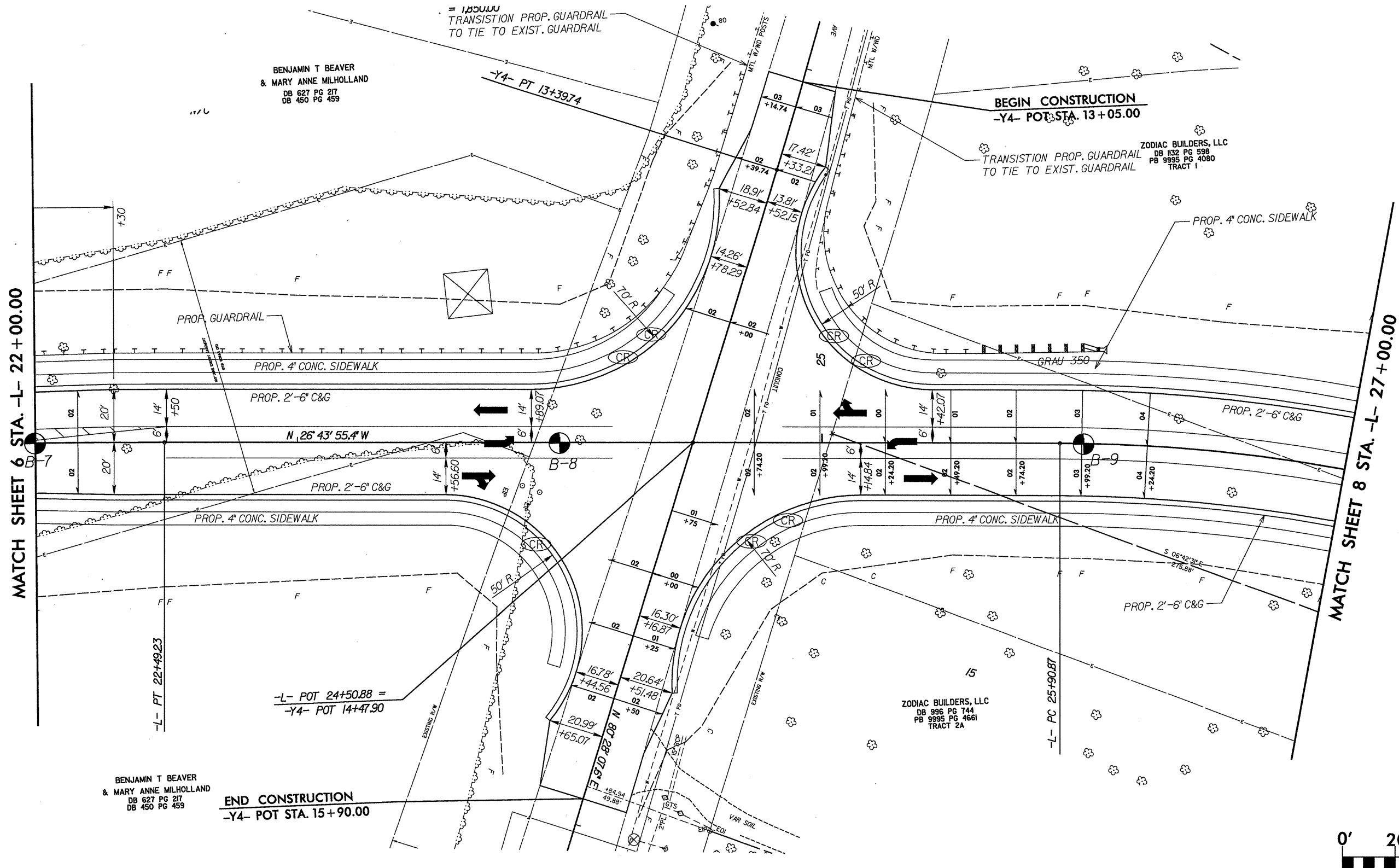
Florence & Hutcheson 6/3/12

NO.	BY	DATE	REVISION

PRELIMINARY PLANS
 DO NOT USE FOR CONSTRUCTION

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RAIL DIVISION
 PREPARED BY: **ENGINEERING & SAFETY BRANCH**
 MAIL: 1556 MAIL SERVICE CENTER RALEIGH, NC 27699-1556
 DELIVERY: 660 CAPITAL BOULEVARD RALEIGH, NC 27603
 PHONE: (919) 715-8803 FAX: (919) 715-8804

PROJECT	U-3459 - KLUMAC ROAD		
TITLE	PLAN - -L- LINE STA. 12+00 - STA. 17+00		
LOCATION	KLUMAC ROAD (SR 2541) IN SALISBURY, NC		
DSN BY	RSF	RAILROAD	NORTH CAROLINA RAILROAD/NORFOLK SOUTHERN
DWN BY	TAR	VAL SEC	MILE POST
CHK BY	JSP	DATE	8/17/12
SCALE			
SHEET 5 OF 46			



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Florence & Hutcheson 6/31/2012

NO.	BY	DATE	REVISION

PRELIMINARY PLANS
 DO NOT USE FOR CONSTRUCTION

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RAIL DIVISION

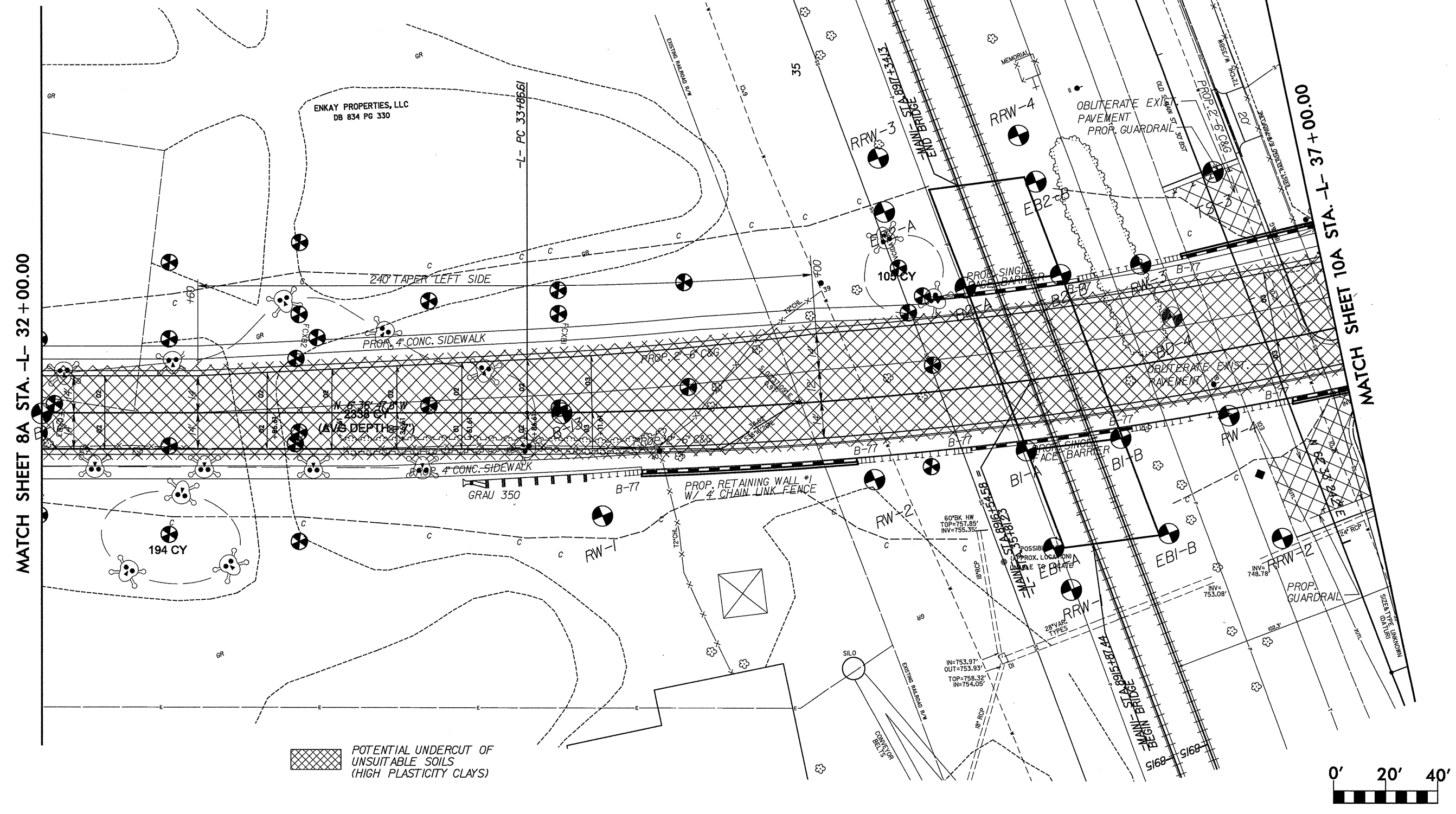
PREPARED BY: **ENGINEERING & SAFETY BRANCH**

MAIL: 1526 MAIL SERVICE CENTER RALEIGH, NC 27699-1526
 DELIVERY: 960 CAPITAL BOULEVARD RALEIGH, NC 27603
 PHONE: (919) 715-8803 FAX: (919) 715-8804


PROJECT	U-3459 - KLUMAC ROAD		
TITLE	PLAN - -L- LINE STA. 22+00 - STA. 27+00		
LOCATION	KLUMAC ROAD (SR 2541) IN SALISBURY, NC		
DGN BY	RSF	RAILROAD	NORTH CAROLINA RAILROAD/NORFOLK SOUTHERN
DWN BY	TAR	VAL SEC	MILE POST
CHK BY	JSP	DATE	8/17/12
SCALE			
SHEET 7 OF 46			

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Florence & Hutcheson\31r2012

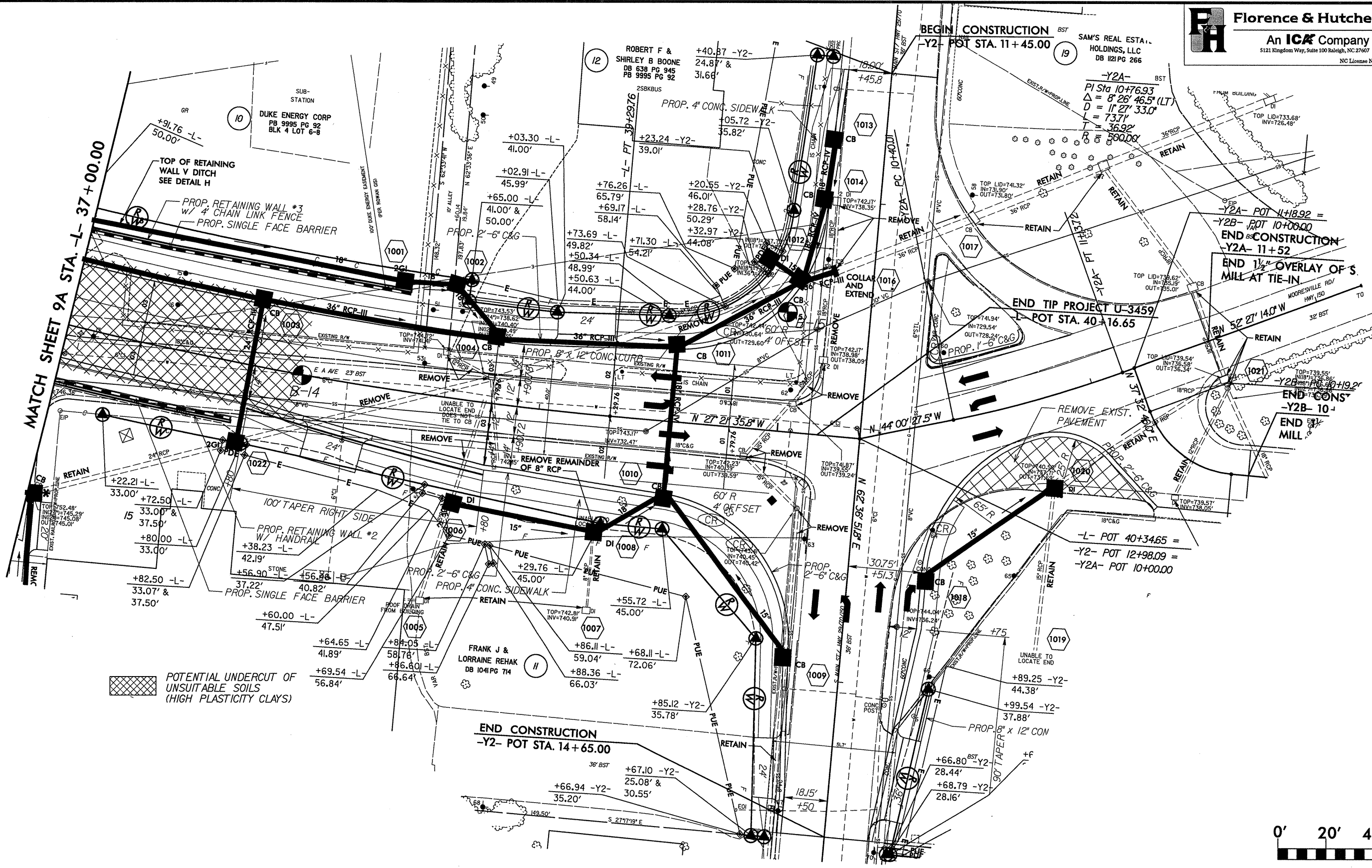


NO.	BY	DATE	REVISION


PRELIMINARY PLANS
 DO NOT USE FOR CONSTRUCTION

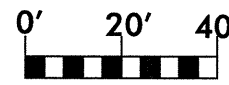
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RAIL DIVISION
 PREPARED BY:
ENGINEERING & SAFETY BRANCH
MAIL: 1556 MAIL SERVICE CENTER RALEIGH, NC 27609-1536 DELIVERY: 860 CAPITAL BOULEVARD RALEIGH, NC 27603 PHONE: (919) 715-8803 FAX: (919) 715-8804

PROJECT U-3459 - KLUMAC ROAD		TITLE PLAN - -L- LINE	
LOCATION KLUMAC ROAD (SR 2541) IN SALISBURY, NC		STA. 32+00 - 37+00	
DGN BY RSF	RAILROAD NORTH CAROLINA RAILROAD/NORFOLK SOUTHERN	MILE POST	
DWN BY TAR	VAL SEC		
CHK BY JSP	DATE 8/17/12	SCALE	SHEET 9A OF 46



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Florence & Hutcheson 6/31/2012



NO.	BY	DATE	REVISION

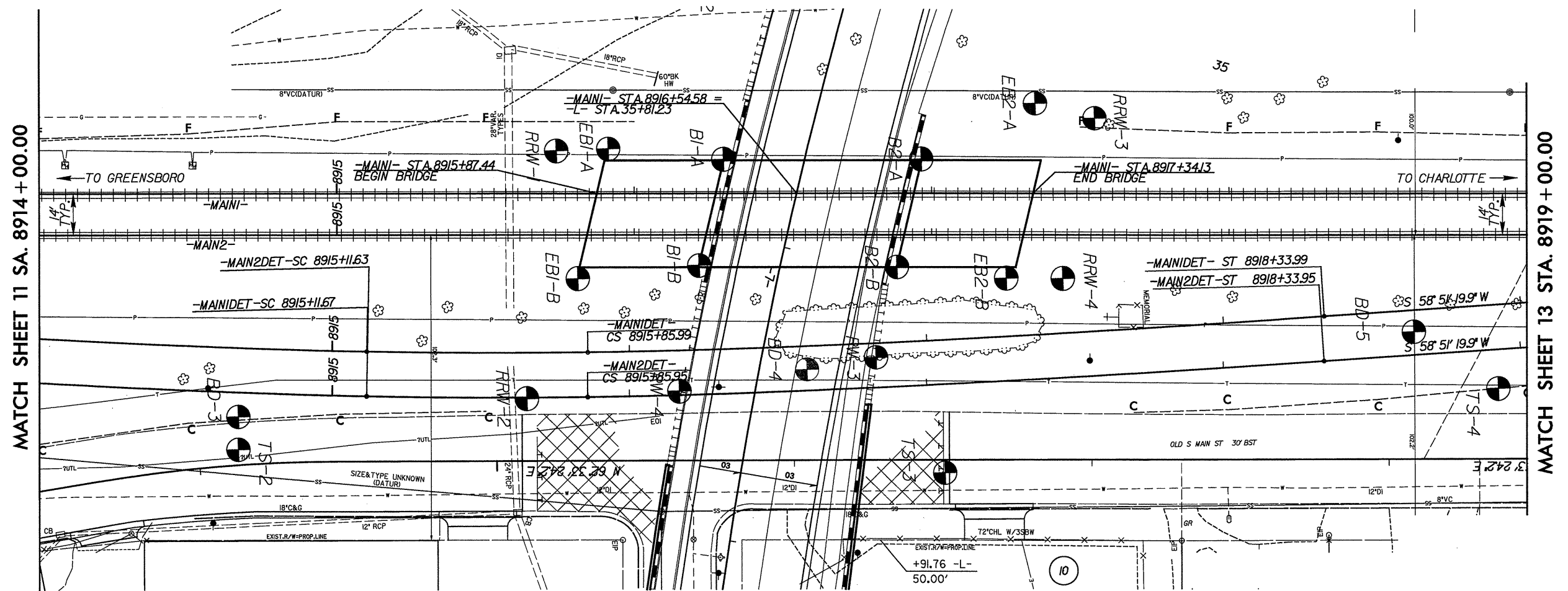
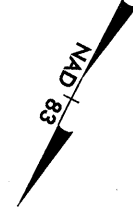
PRELIMINARY PLANS
 DO NOT USE FOR CONSTRUCTION

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RAIL DIVISION

PREPARED BY:
ENGINEERING & SAFETY BRANCH

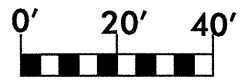
1536 MAIL SERVICE CENTER DELIVERY: 960 CAPITAL BOULEVARD PHONE: (919) 715-8803
 RALEIGH, NC 27699-1536 RALEIGH, NC 27603 FAX: (919) 715-8804

PROJECT TITLE	U-3459 - KLUMAC ROAD		
LOCATION	KLUMAC ROAD (SR 2541) IN SALISBURY, NC		
DGN BY	RSF	RAILROAD	NORTH CAROLINA RAILROAD/NORFOLK SOUTHERN
DWN BY	TAR	VAL SEC	
CHK BY	JSP	DATE	8/17/12
SCALE			
MILE POST			SHEET 10A OF 46



MATCH SHEET 11 STA. 8914+00.00

MATCH SHEET 13 STA. 8919+00.00



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 Florence & Hutcheson 8/31/2012

NO.	BY	DATE	REVISION

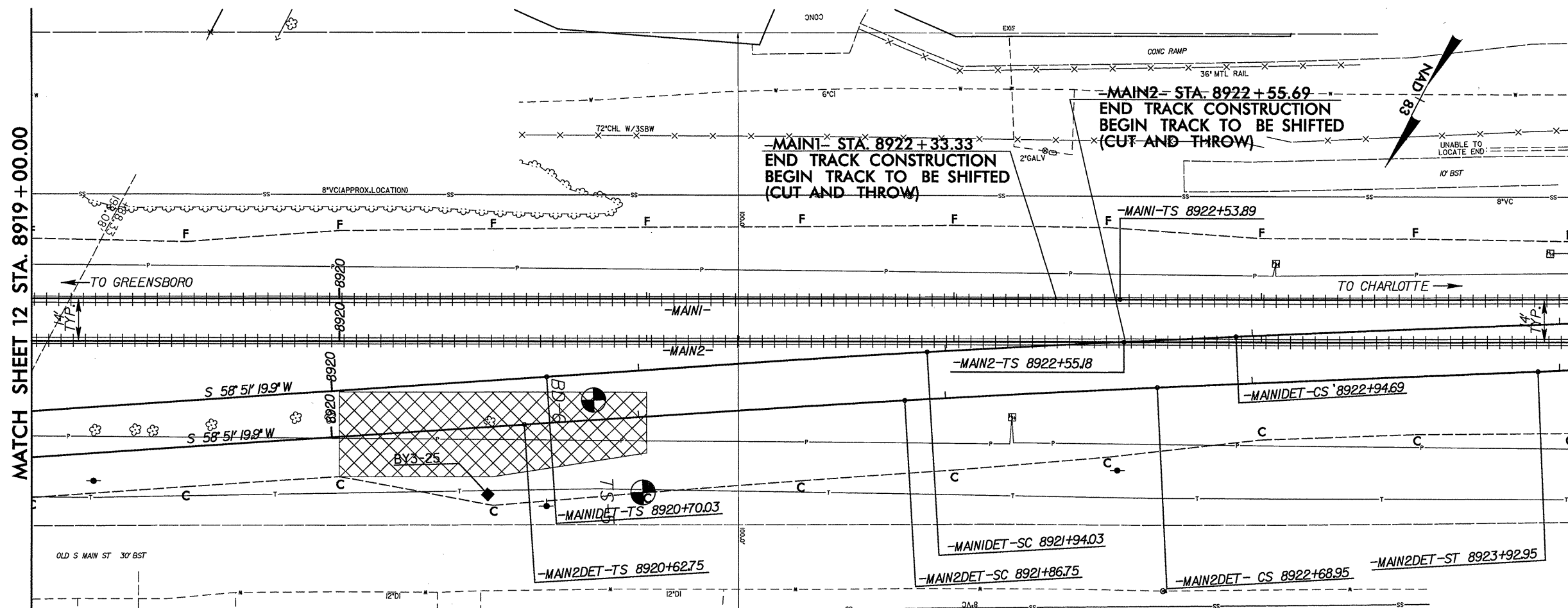
PRELIMINARY PLANS
 DO NOT USE FOR CONSTRUCTION

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RAIL DIVISION

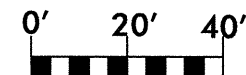
PREPARED BY: **ENGINEERING & SAFETY BRANCH**

MAIL: 1556 MAIL SERVICE CENTER RALEIGH, NC 27689-1556
 DELIVERY: 960 CAPITAL BOULEVARD RALEIGH, NC 27603
 PHONE: (919) 715-8803 FAX: (919) 715-8804

PROJECT	U-3459 - KLUMAC ROAD		
TITLE	PLAN - MAINLINE & MAINLINE DETOUR STA. 8914+00 - STA. 8919+00		
LOCATION	KLUMAC ROAD (SR 2541) IN SALISBURY, NC		
DGN BY	RSF	RAILROAD	NORTH CAROLINA RAILROAD/NORFOLK SOUTHERN
DWN BY	TAR	VAL SEC	
CHK BY	JSP	DATE	8/17/12
		SCALE	
		MILE POST	
			SHEET 12 OF 46




 POTENTIAL UNDERCUT OF UNSUITABLE SOILS (HIGH PLASTICITY CLAYS)



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Florence & Hutcheson\31r2012

NO.	BY	DATE	REVISION


PRELIMINARY PLANS
 DO NOT USE FOR CONSTRUCTION

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RAIL DIVISION

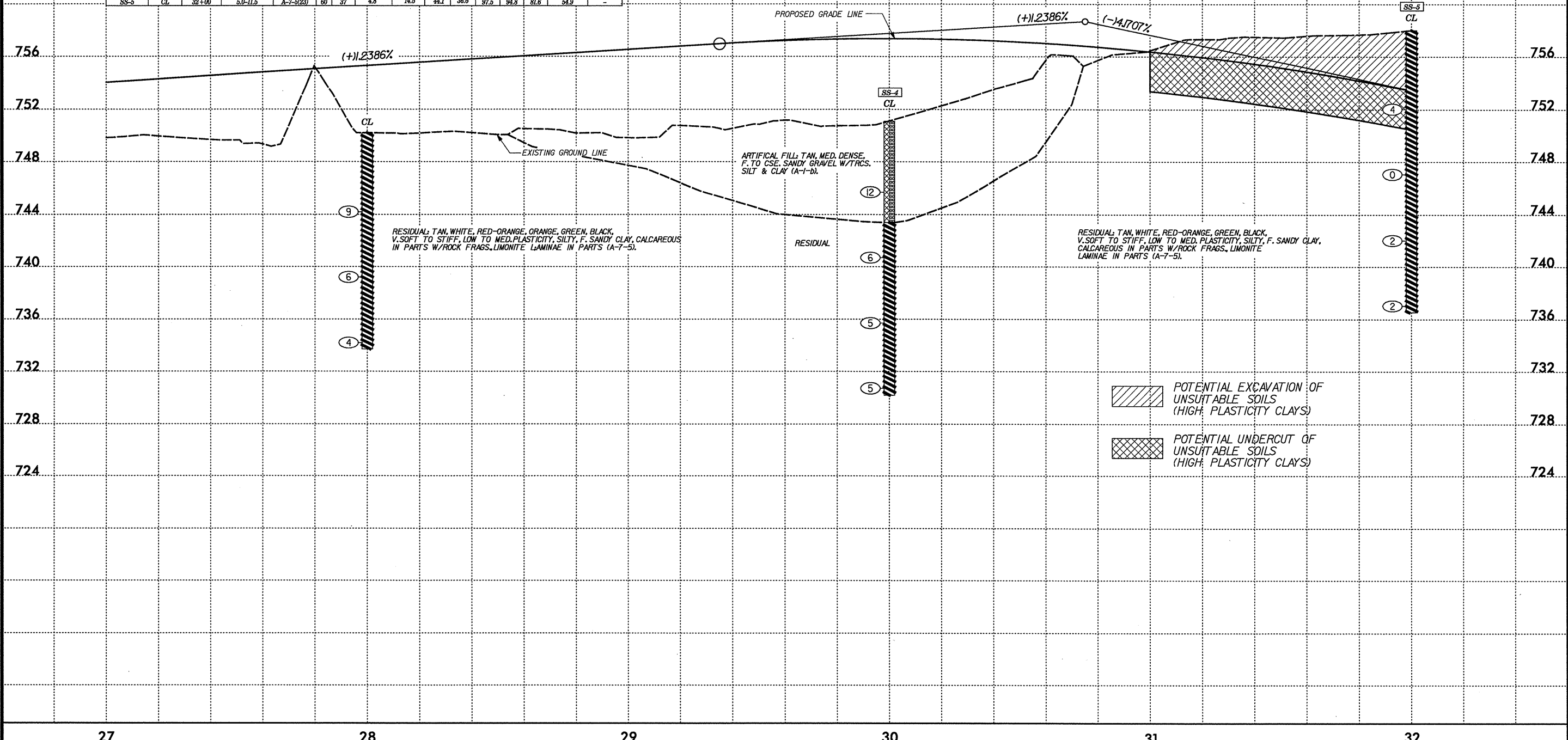
PREPARED BY: **ENGINEERING & SAFETY BRANCH**

MAIL: 1556 MAIL SERVICE CENTER RALEIGH, NC 27699-4536
 DELIVERY: 960 CAPITAL BOULEVARD RALEIGH, NC 27603
 PHONE: (919) 715-8803 FAX: (919) 715-8804

PROJECT	U-3459 - KLUMAC ROAD		
TITLE	PLAN - MAINLINE & MAINLINE DETOUR STA. 8919+00 - STA. 8924+00		
LOCATION	KLUMAC ROAD (SR 2541) IN SALISBURY, NC		
DSN BY	RSF	RAILROAD	NORTH CAROLINA RAILROAD/NORFOLK SOUTHERN
DWN BY	TAR	VAL SEC	MILE POST
CHK BY	JSP	DATE	8/17/12
SCALE		SHEET 13 OF 46	

SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.L.I.	% BY WEIGHT				% PASSING SIEVES			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-4	CL	30+00	4.4-5.9	A-1-b(0)	84	84	45.7	34.3	20.1	8.9	46.4	28.9	15.2	11.5	-
SS-5	CL	32+00	5.0-11.5	A-7-5(23)	60	37	4.8	14.5	44.1	36.6	97.5	94.8	81.6	54.9	-

PI = 30+75.00
 EL = 758.70'
 VC = 280'
 K = 52



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Florence & Hutcheson 8/31/2012

NO.	BY	DATE	REVISION

PRELIMINARY PLANS
 DO NOT USE FOR CONSTRUCTION

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RAIL DIVISION

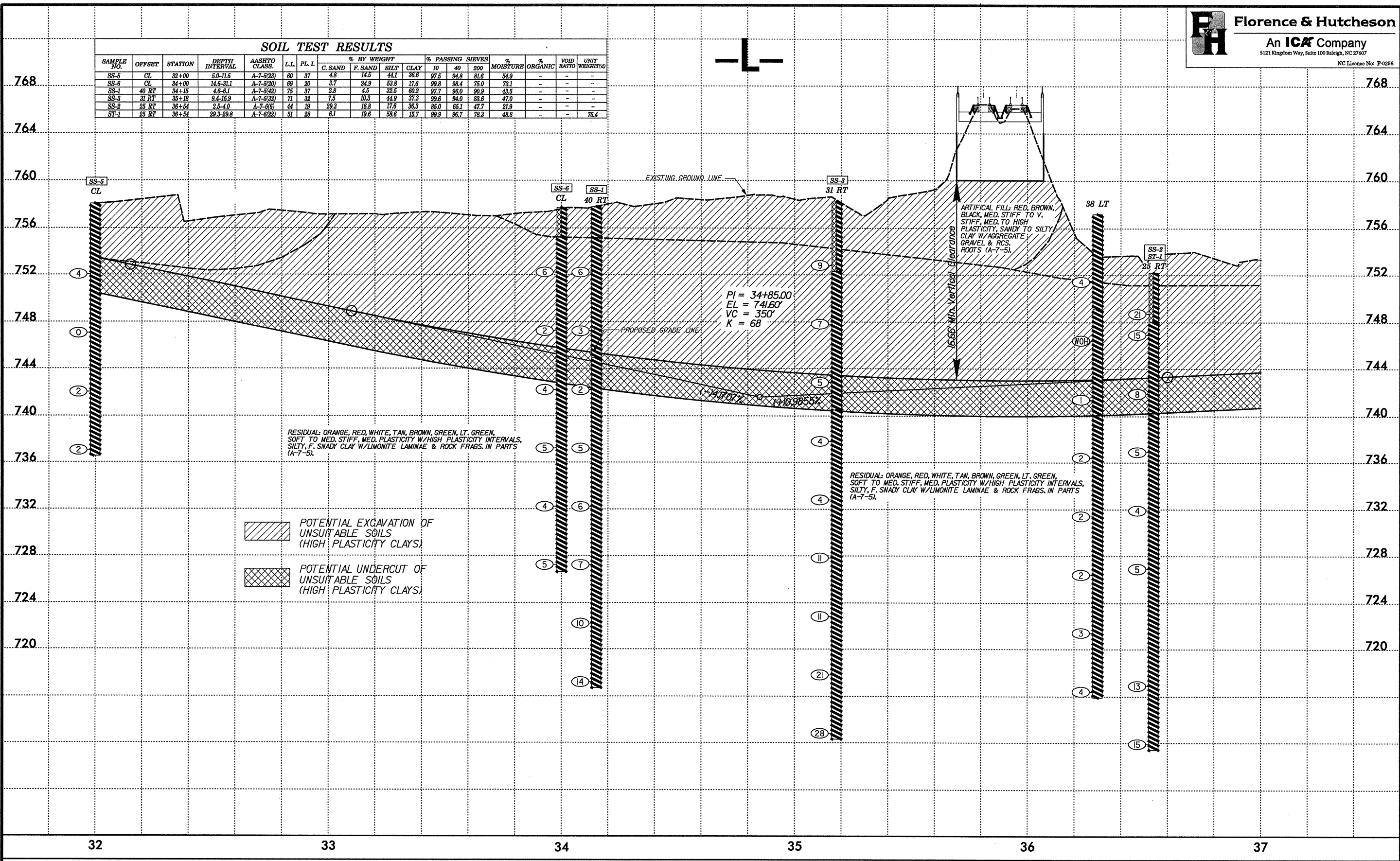
PROJECT	U-3459 - KLUMAC ROAD		
TITLE	-L- PROFILE STA. 27+00 TO STA. 32+00		
LOCATION	KLUMAC ROAD (SR 2541) IN SALISBURY, NC		
DGN BY	RSF	RAILROAD	NORTH CAROLINA RAILROAD/NORFOLK SOUTHERN
DWN BY	TAR	VAL SEC	
CHK BY	JSP	DATE	8/17/12
SCALE			
SHEET 17 OF 46			

0302DEL_P12

SOIL TEST RESULTS																	
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.L.I.	% BY WEIGHT				% PASSING SIEVES			% MOISTURE	% ORGANIC	VOID RATIO	UNIT WEIGHT(γ)
							C. SAND	F. SAND	SILT	CLAY	10	40	200				
SS-5	CL	32+00	5.0-11.5	A-7.5(23)	80	37	4.3	14.5	44.1	36.6	97.5	94.8	81.6	54.9	-	-	-
SS-6	CL	34+00	14.5-31.1	A-7.5(20)	89	20	3.7	24.9	53.8	17.6	99.8	98.4	75.0	73.1	-	-	-
SS-1	40 RT	34+15	4.5-6.1	A-7.5(42)	75	37	2.8	4.5	32.5	60.2	97.7	95.0	90.9	43.5	-	-	-
SS-3	31 RT	35+18	9.4-15.9	A-7.5(32)	71	32	7.5	10.3	44.9	37.3	99.6	94.0	83.6	47.0	-	-	-
SS-2	25 RT	36+54	2.5-4.0	A-7.5(6)	44	19	29.3	16.8	17.6	36.3	85.0	65.1	47.7	21.9	-	-	-
ST-1	25 RT	36+54	29.3-29.8	A-7.5(22)	51	28	6.1	19.6	58.6	15.7	99.9	96.7	78.3	48.8	-	-	75.4

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1/22/02



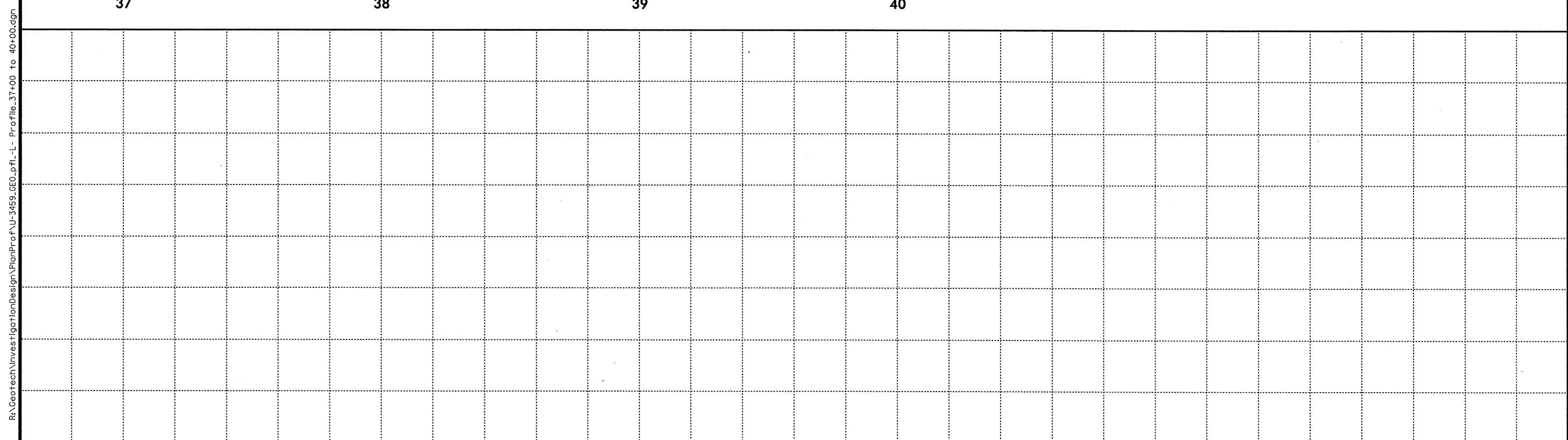
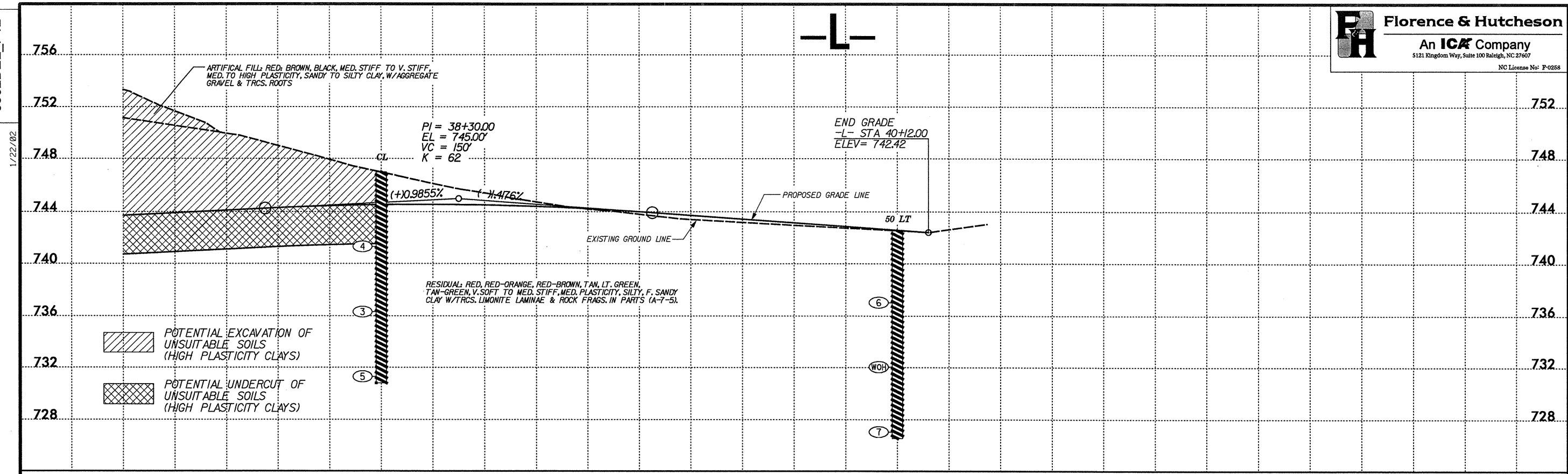
NO.	BY	DATE	REVISION

PRELIMINARY PLANS
 DO NOT USE FOR CONSTRUCTION

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RAIL DIVISION

PROJECT	U-3459 - KLUMAC ROAD		
TITLE	-L- PROFILE STA. 32+00 TO STA. 37+00		
LOCATION	KLUMAC ROAD (SR 2541) IN SALISBURY, NC		
DGN BY	RSF	RAILROAD	NORTH CAROLINA RAILROAD/NORFOLK SOUTHERN
DWN BY	TAR	VAL SEC	MILE POST
CHK BY	JSP	DATE	8/17/12
SCALE			
SHEET 18 OF 46			

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NO.	BY	DATE	REVISION

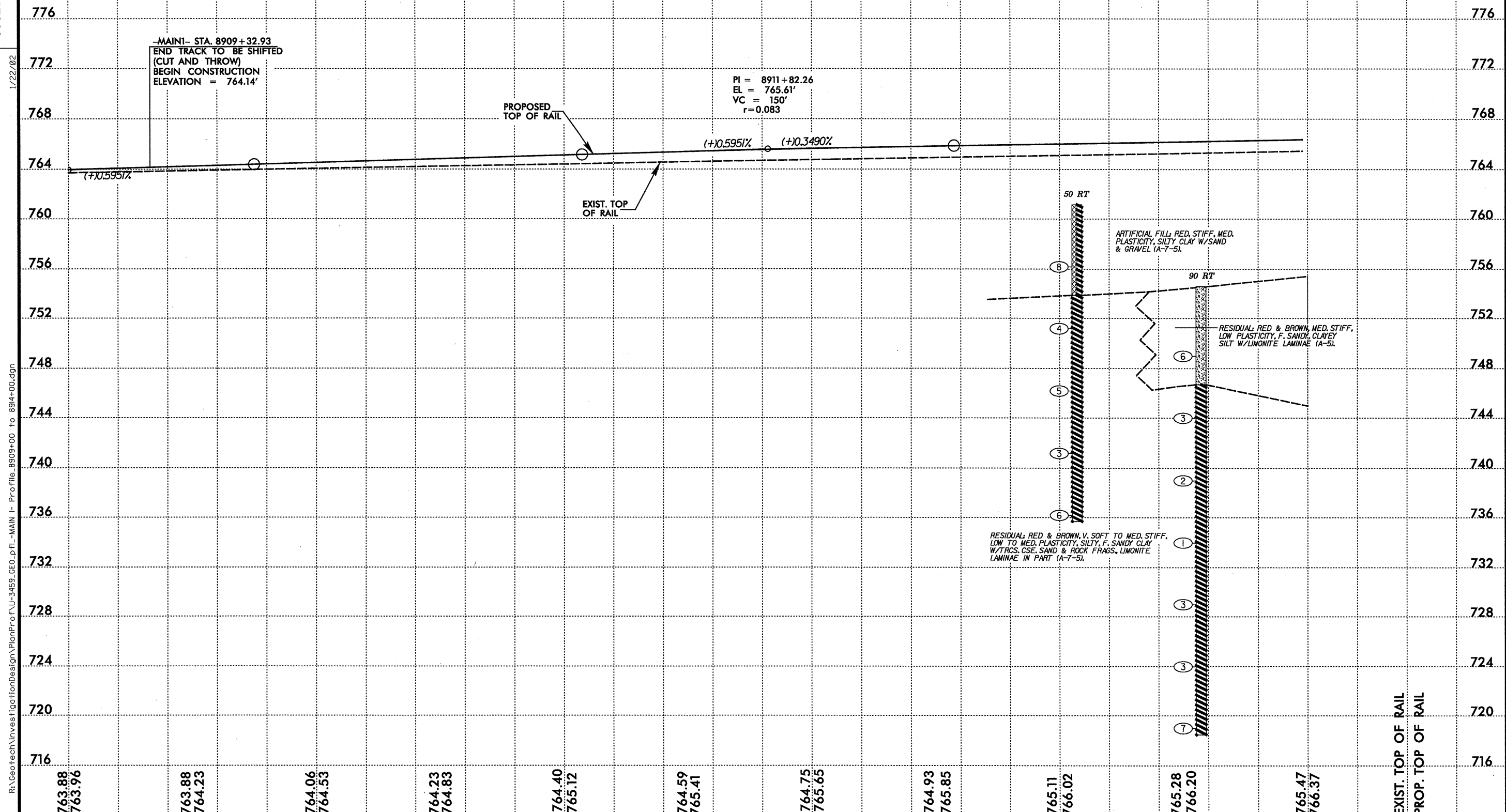
PRELIMINARY PLANS
 DO NOT USE FOR CONSTRUCTION



PROJECT		U-3459 - KLUMAC ROAD	
TITLE		-L- PROFILE STA. 37+00 TO STA. 40+00	
LOCATION	KLUMAC ROAD (SR 2541) IN SALISBURY, NC	RAILROAD	NORTH CAROLINA RAILROAD/NORFOLK SOUTHERN
DGN BY	RSF	VAL SEC	
DWN BY	TAR		
CHK BY	JSP	DATE	8/17/12
SCALE			MILE POST
			SHEET 19 OF 46

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 Florence & Hutcheson\3192012

-MAIN1-



763.88	763.96	763.88	764.23	764.06	764.53	764.23	764.83	764.40	765.12	764.59	765.41	764.75	765.65	764.93	765.85	765.11	766.02	765.28	766.20	765.47	766.37		
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NO.	BY	DATE	REVISION

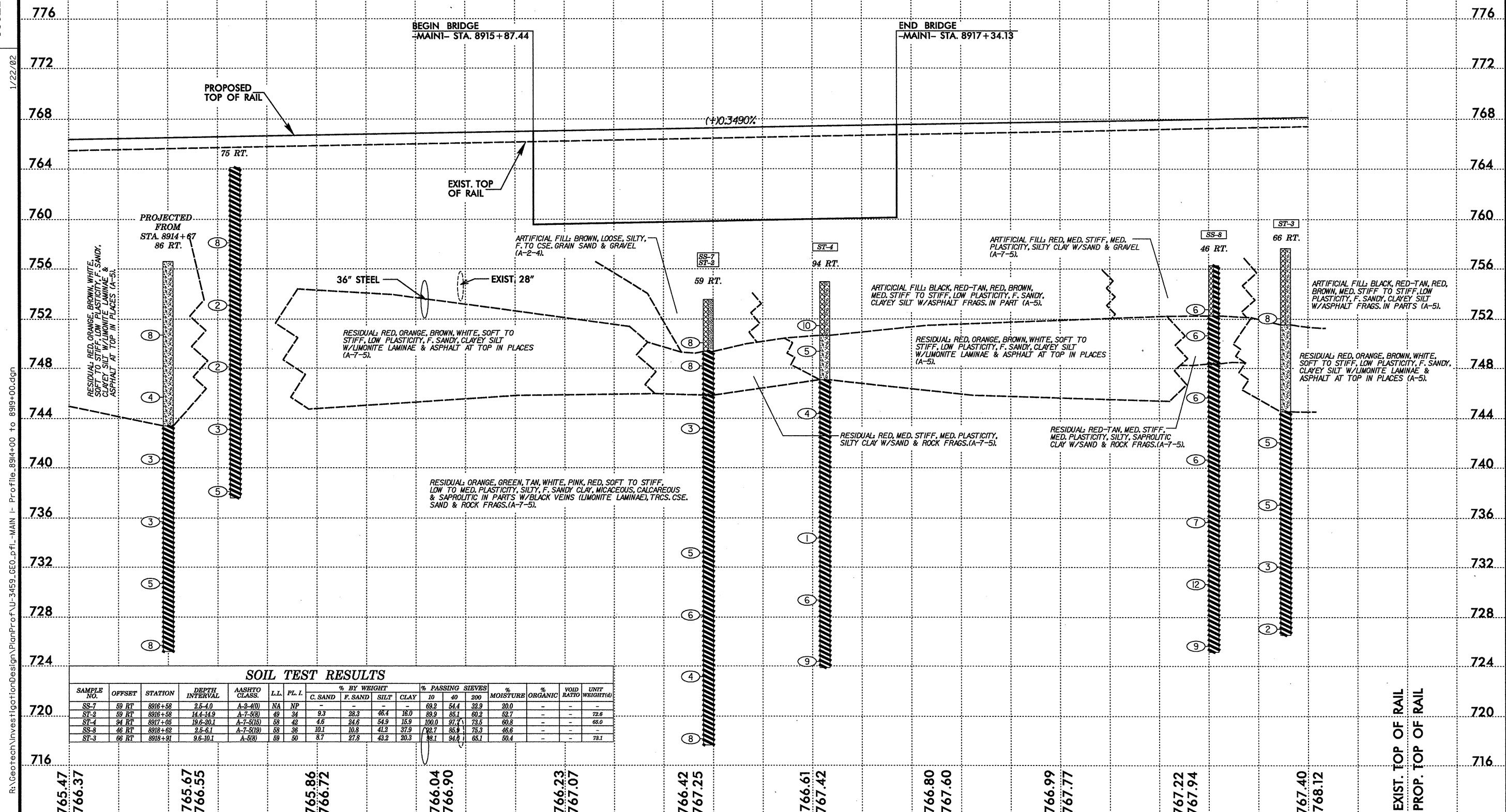
PRELIMINARY PLANS
 DO NOT USE FOR CONSTRUCTION



PROJECT	U-3459 - KLUMAC ROAD		
TITLE	-MAIN 1- PROFILE STA. 8909+00 TO STA. 8914+00		
LOCATION	KLUMAC ROAD (SR 2541) IN SALISBURY, NC		
DGN BY	RSF	RAILROAD	NORTH CAROLINA RAILROAD/NORFOLK SOUTHERN
DWN BY	TAR	VAL SEC	
CHK BY	JSP	DATE	8/17/12
		SCALE	
		MILE POST	MP 335.2
			SHEET 20 OF 46

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 1/22/02
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-MAIN1-

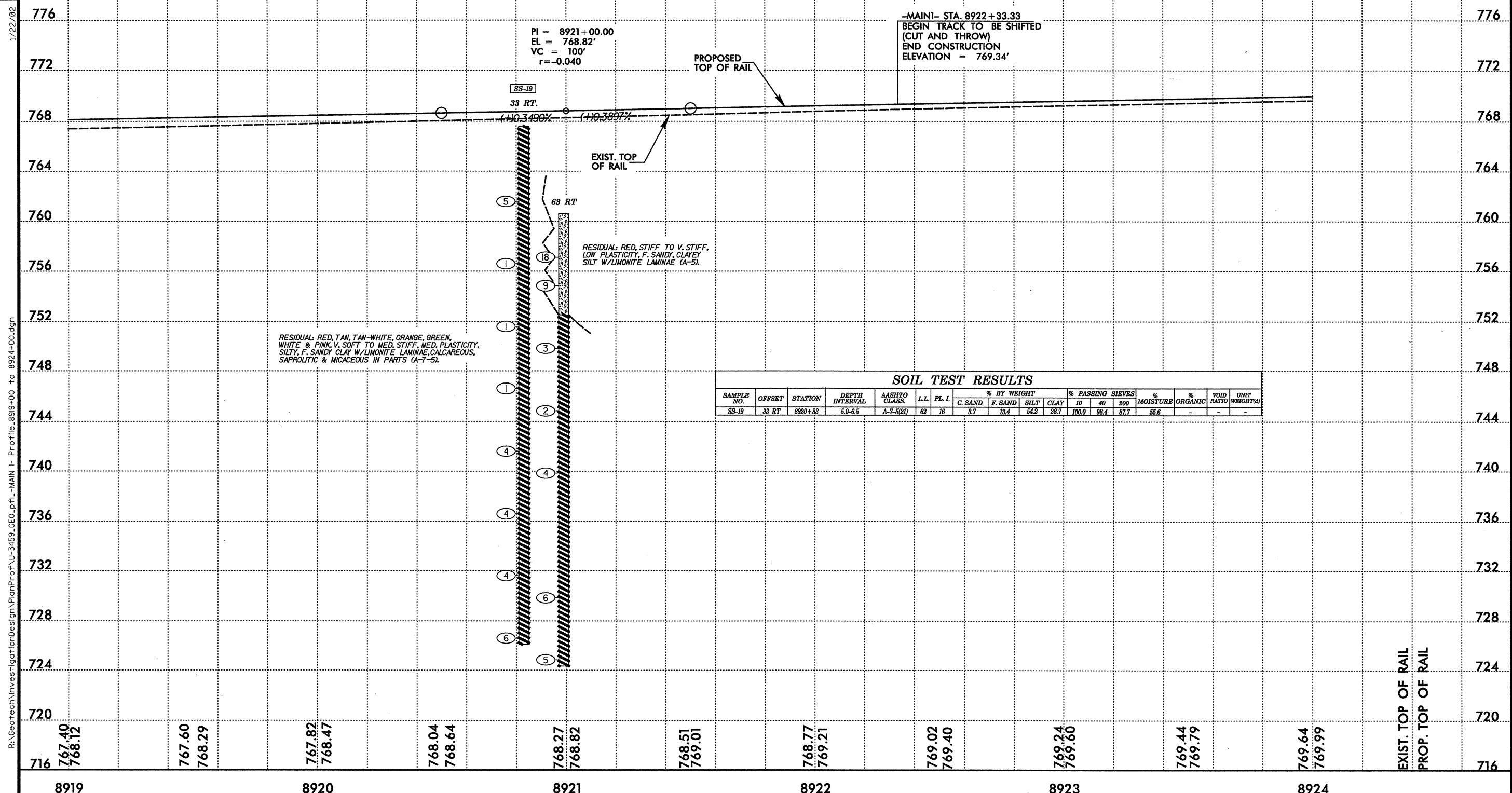


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8914		8915		8916		8917		8918		8919											

<p>NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RAIL DIVISION</p>	<p>PROJECT: U-3459 - KLUMAC ROAD</p> <p>TITLE: -MAIN 1- PROFILE STA. 8914+00 TO STA. 8919+00</p> <p>LOCATION: KLUMAC ROAD (SR 2541) IN SALISBURY, NC</p> <p>DGN BY: RSF RAILROAD: NORTH CAROLINA RAILROAD/NORFOLK SOUTHERN MILE POST: MP 335.2</p> <p>OWN BY: TAR VAL SEC: DATE: 8/17/12 SCALE: SHEET 21 OF 46</p>
<p>PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION</p>	

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 1/22/02
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-MAIN1-



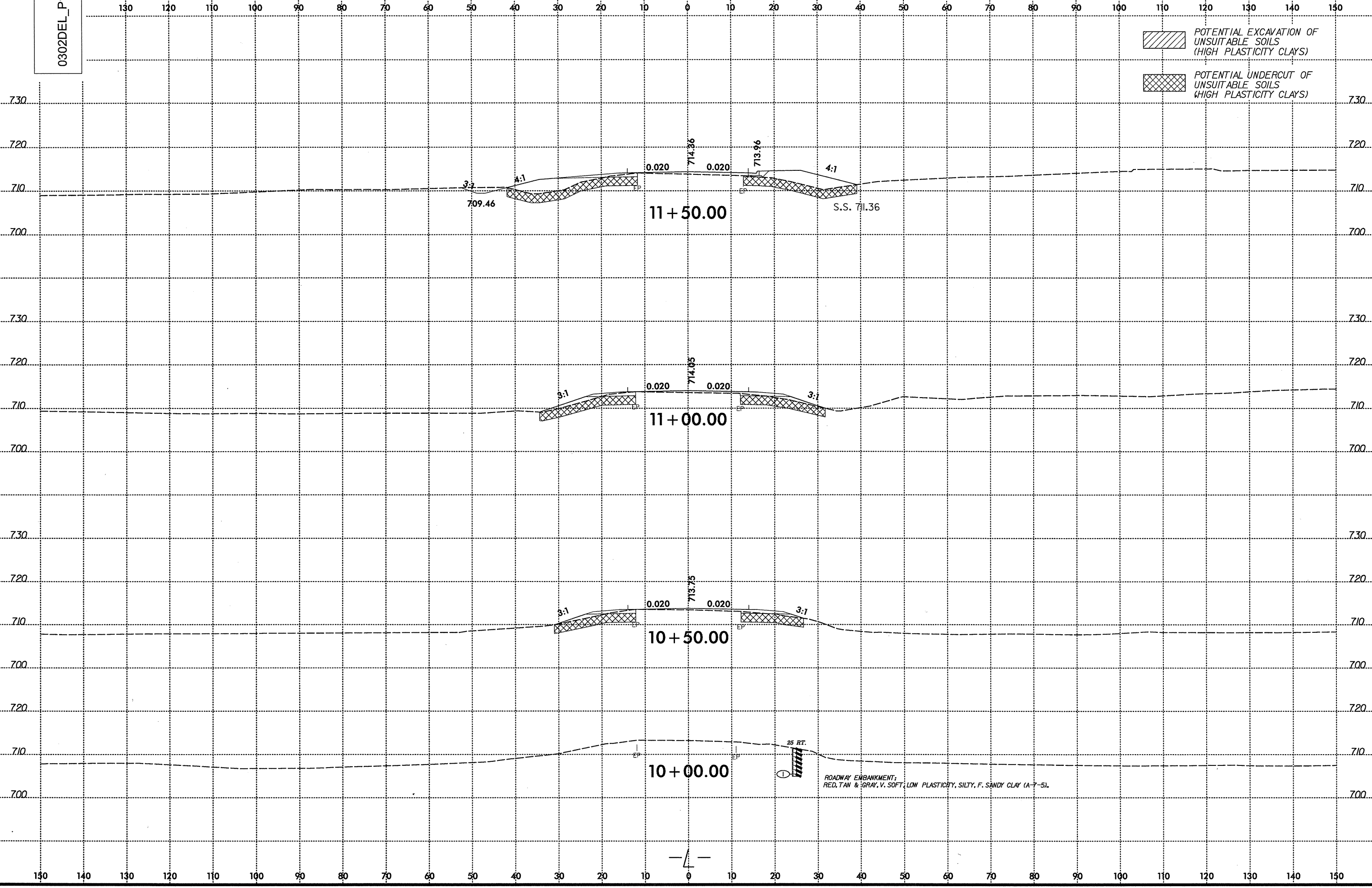
<p>PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION</p>		<p>NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RAIL DIVISION</p>		<p>PROJECT U-3459 - KLUMAC ROAD TITLE -MAIN 1- PROFILE STA. 8919+00 TO STA. 8924+00</p>	
<p>NO. BY DATE REVISION</p>		<p>LOCATION KLUMAC ROAD (SR 2541) IN SALISBURY, NC</p>		<p>DGN BY RSF RAILROAD NORTH CAROLINA RAILROAD/NORFOLK SOUTHERN MILE POST</p>	
		<p>DWN BY TAR VAL SEC</p>		<p>CHK BY JSP DATE 8/17/12 SCALE SHEET 22 OF 46</p>	

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 Florence & Hutcheson 8/17/2012

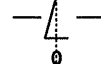
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PROJ. REFERENCE NO.	SHEET NO.
U-3459	23



8/31/2012
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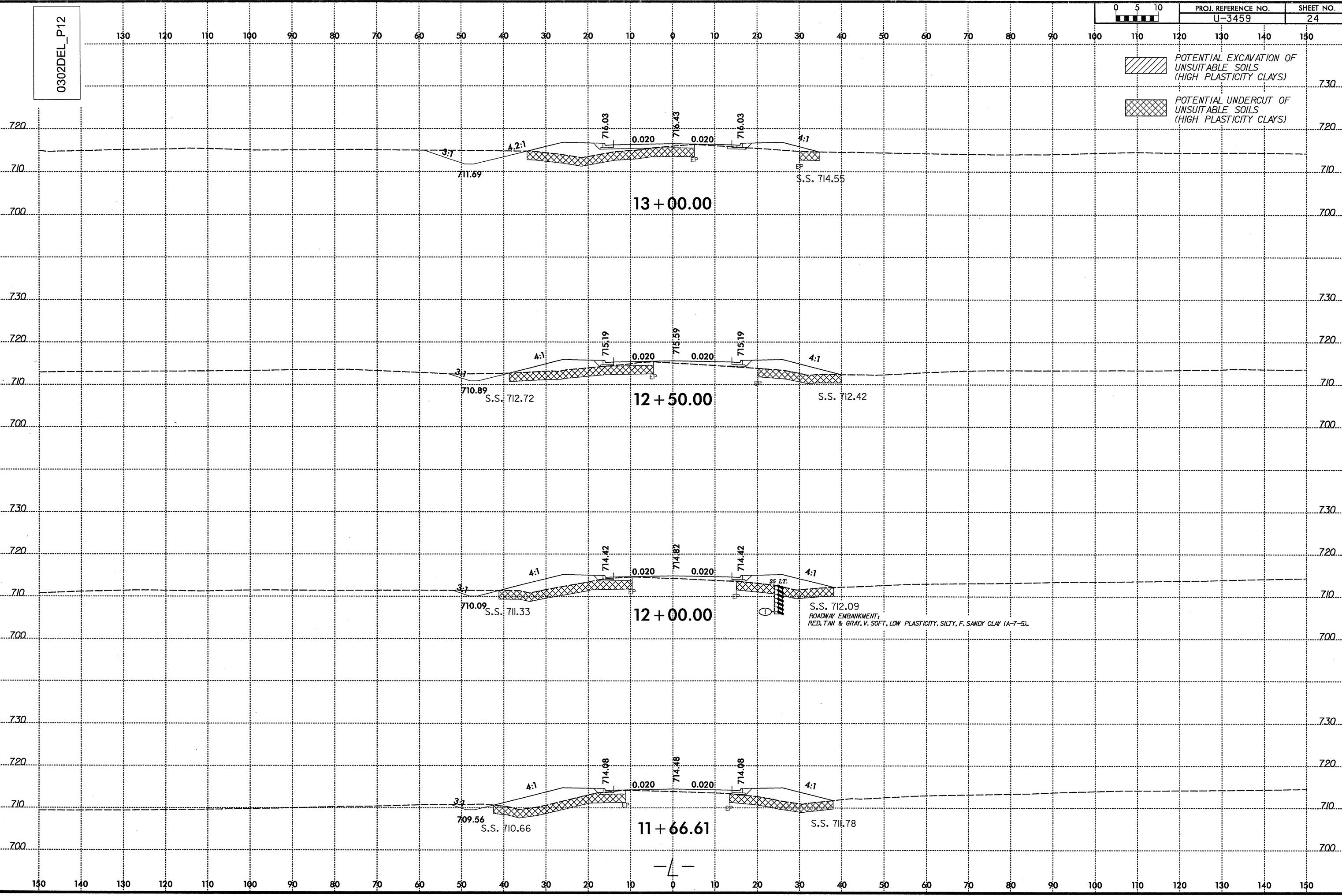


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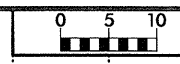
PROJ. REFERENCE NO. U-3459 SHEET NO. 24

POTENTIAL EXCAVATION OF UNSUITABLE SOILS (HIGH PLASTICITY CLAYS)
POTENTIAL UNDERCUT OF UNSUITABLE SOILS (HIGH PLASTICITY CLAYS)



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Florence & Hutchison, Inc.

0302DEL_P12



PROJ. REFERENCE NO.
U-3459

SHEET NO.
25

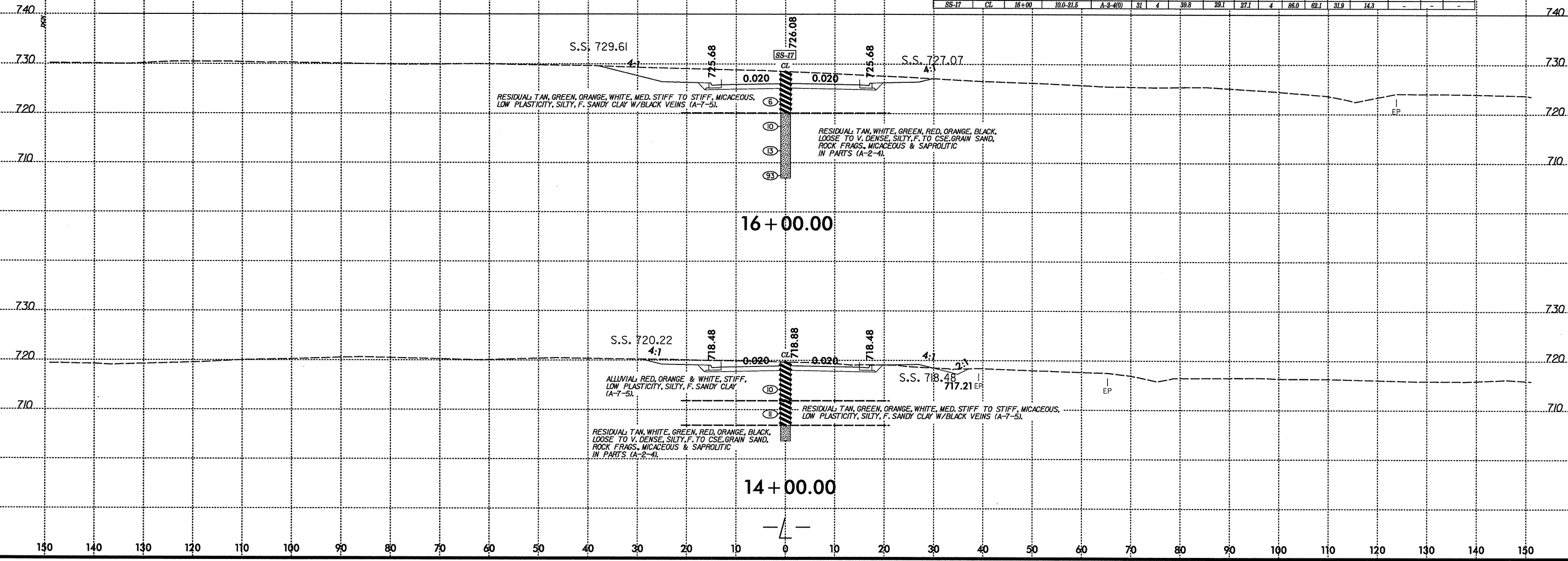
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POTENTIAL EXCAVATION OF UNSUITABLE SOILS (HIGH PLASTICITY CLAYS)

POTENTIAL UNDERCUT OF UNSUITABLE SOILS (HIGH PLASTICITY CLAYS)

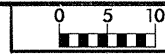
SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.L.	% BY WEIGHT				% PASSING SIEVES			% MOISTURE	% ORGANIC	VOID RATIO	UNIT WEIGHT(g)
							C. SAND	F. SAND	SILT	CLAY	10	40	200				
SS-17	CL	16+00	10.0-21.5	A-2-4(0)	31	4	39.3	29.1	27.1	4	86.0	62.1	31.9	14.3	-	-	-



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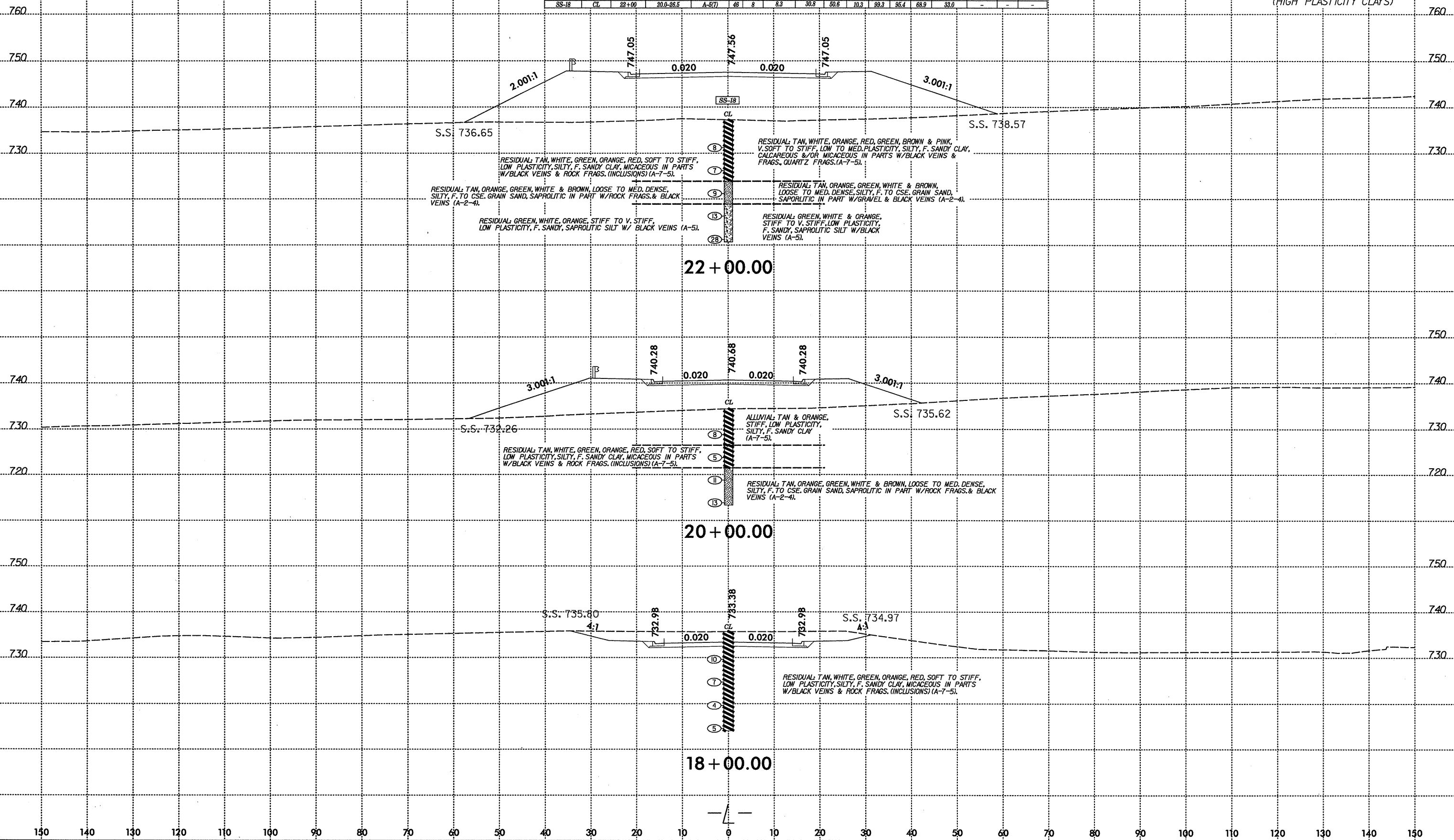
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SOIL TEST RESULTS																	
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	LL	PL I	% BY WEIGHT				% PASSING SIEVES			% MOISTURE	% ORGANIC	VOID RATIO	UNIT WEIGHT(γ)
							C. SAND	F. SAND	SILT	CLAY	10	40	200				
SS-18	CL	22+00	20.0-26.5	A-5(7)	46	8	8.3	30.2	50.6	10.3	99.3	95.4	68.9	33.0	-	-	-

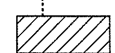

POTENTIAL EXCAVATION OF UNSUITABLE SOILS (HIGH PLASTICITY CLAYS)

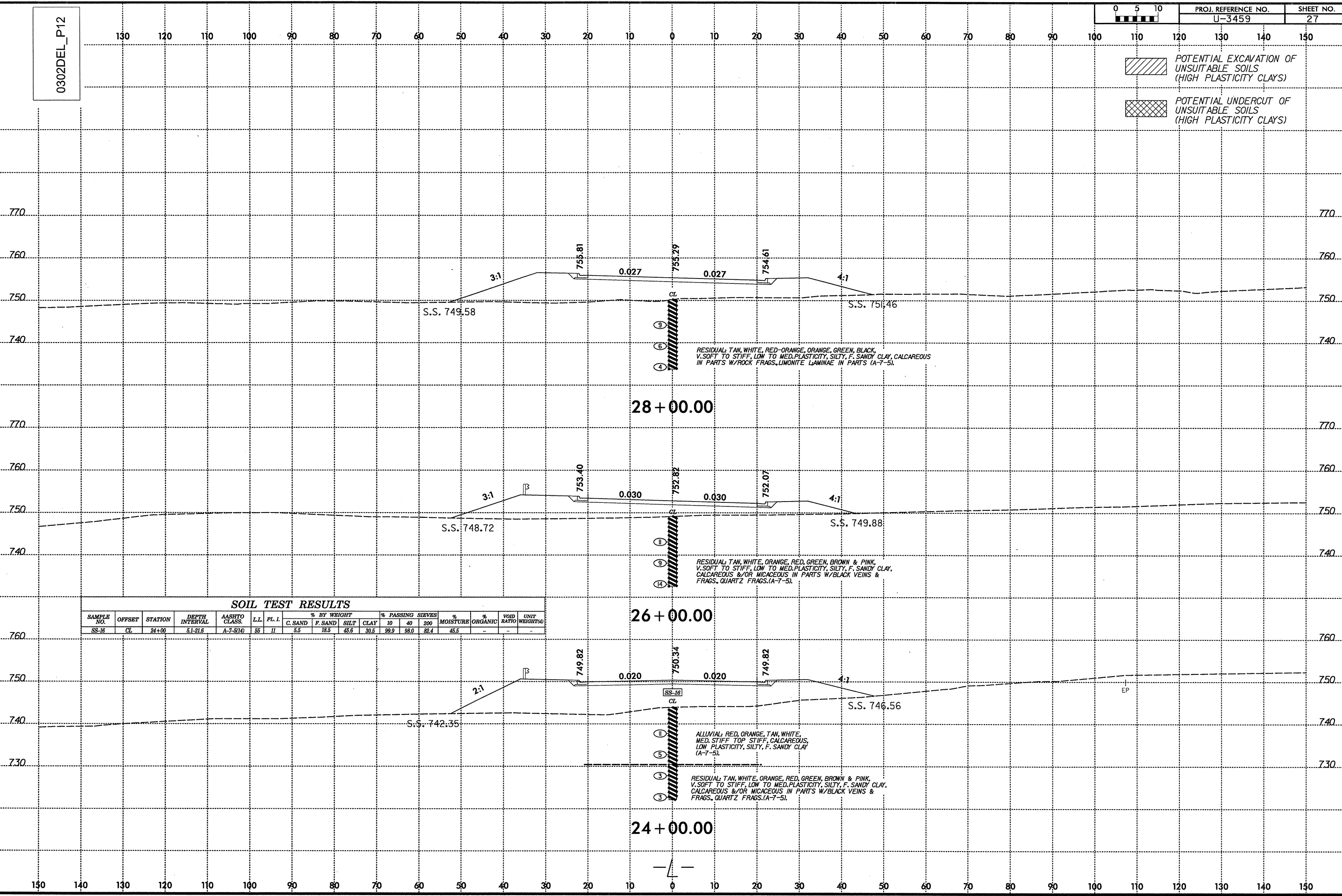
POTENTIAL UNDERCUT OF UNSUITABLE SOILS (HIGH PLASTICITY CLAYS)



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 POTENTIAL EXCAVATION OF UNSUITABLE SOILS (HIGH PLASTICITY CLAYS)
 POTENTIAL UNDERCUT OF UNSUITABLE SOILS (HIGH PLASTICITY CLAYS)

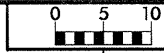


SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.L.I.	% BY WEIGHT				% PASSING SIEVES			% MOISTURE	% ORGANIC	VOID RATIO	UNIT WEIGHT (pcf)
							C. SAND	F. SAND	SILT	CLAY	10	40	200				
SS-16	CL	24+00	5.1-21.6	A-7-5(14)	55	11	5.5	18.5	45.6	30.5	99.9	98.0	82.4	45.5	-	-	-

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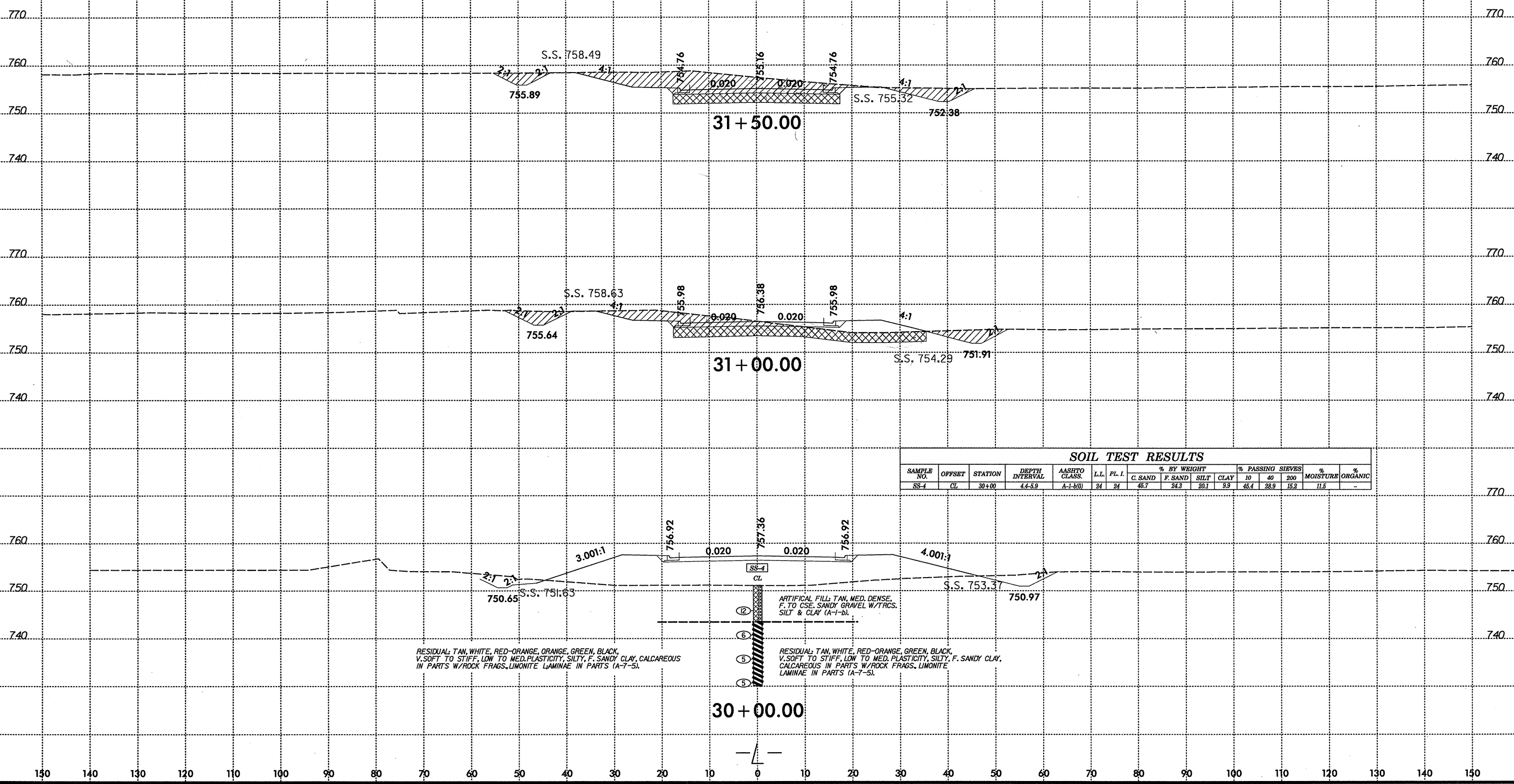


PROJ. REFERENCE NO.
U-3459

SHEET NO.
28

POTENTIAL EXCAVATION OF UNSUITABLE SOILS (HIGH PLASTICITY CLAYS)

POTENTIAL UNDERCUT OF UNSUITABLE SOILS (HIGH PLASTICITY CLAYS)



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	LL	PL	% BY WEIGHT				% PASSING SIEVES			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-4	CL	30+00	4.4-5.9	A-1-B(0)	24	24	46.7	24.3	20.1	9.9	45.4	28.9	15.2	11.5	-

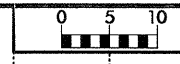
RESIDUAL: TAN, WHITE, RED-ORANGE, ORANGE, GREEN, BLACK, V. SOFT TO STIFF, LOW TO MED. PLASTICITY, SILTY, F. SANDY CLAY, CALCAREOUS IN PARTS W/ROCK FRAGS., LIMONITE LAMINAE IN PARTS (A-7-5).

ARTIFICIAL FILL: TAN, MED. DENSE, F. TO CSE. SANDY GRAVEL W/TRCS. SILT & CLAY (A-1-B).

RESIDUAL: TAN, WHITE, RED-ORANGE, GREEN, BLACK, V. SOFT TO STIFF, LOW TO MED. PLASTICITY, SILTY, F. SANDY CLAY, CALCAREOUS IN PARTS W/ROCK FRAGS., LIMONITE LAMINAE IN PARTS (A-7-5).

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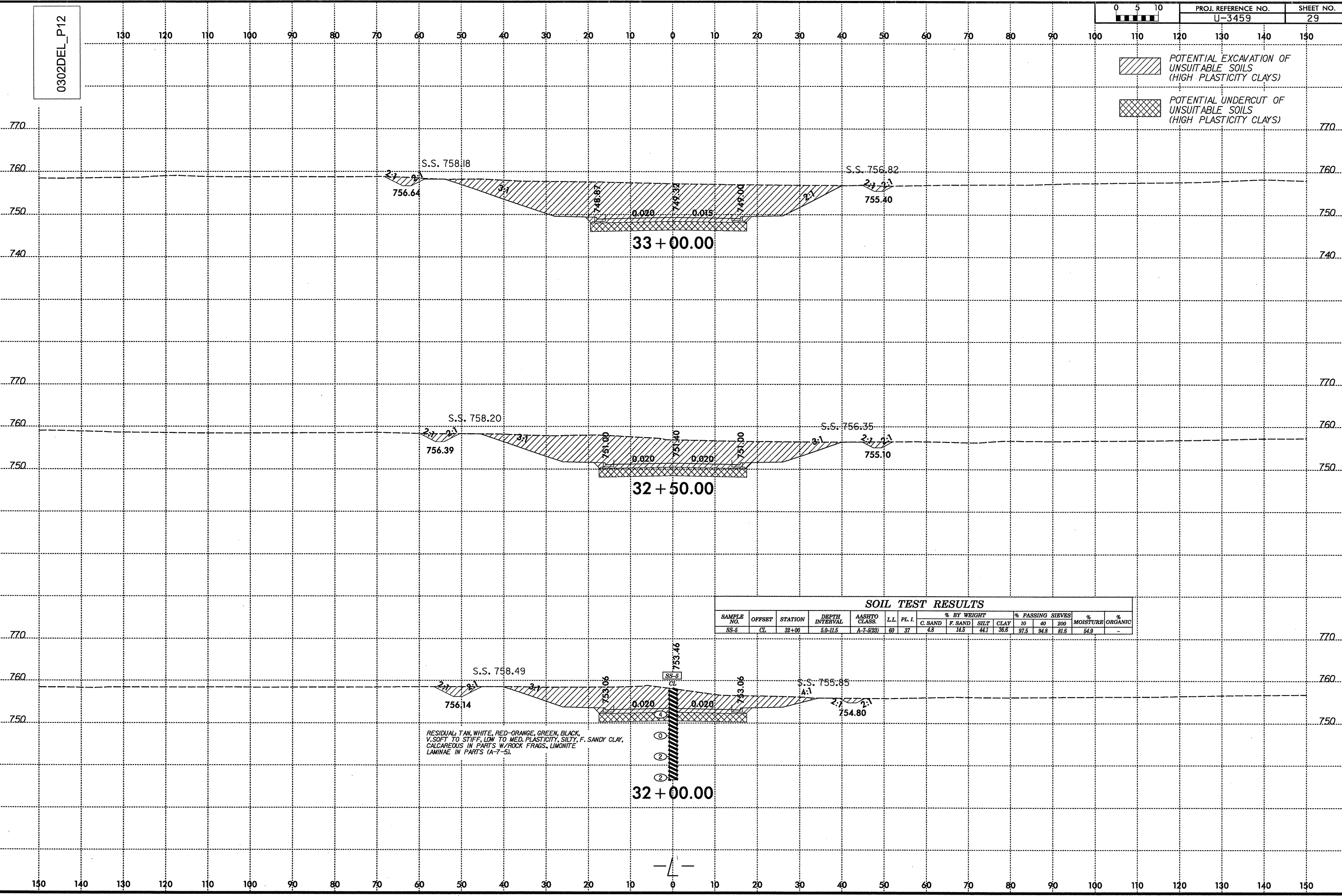


PROJ. REFERENCE NO.
U-3459

SHEET NO.
29

POTENTIAL EXCAVATION OF UNSUITABLE SOILS (HIGH PLASTICITY CLAYS)

POTENTIAL UNDERCUT OF UNSUITABLE SOILS (HIGH PLASTICITY CLAYS)



SOIL TEST RESULTS

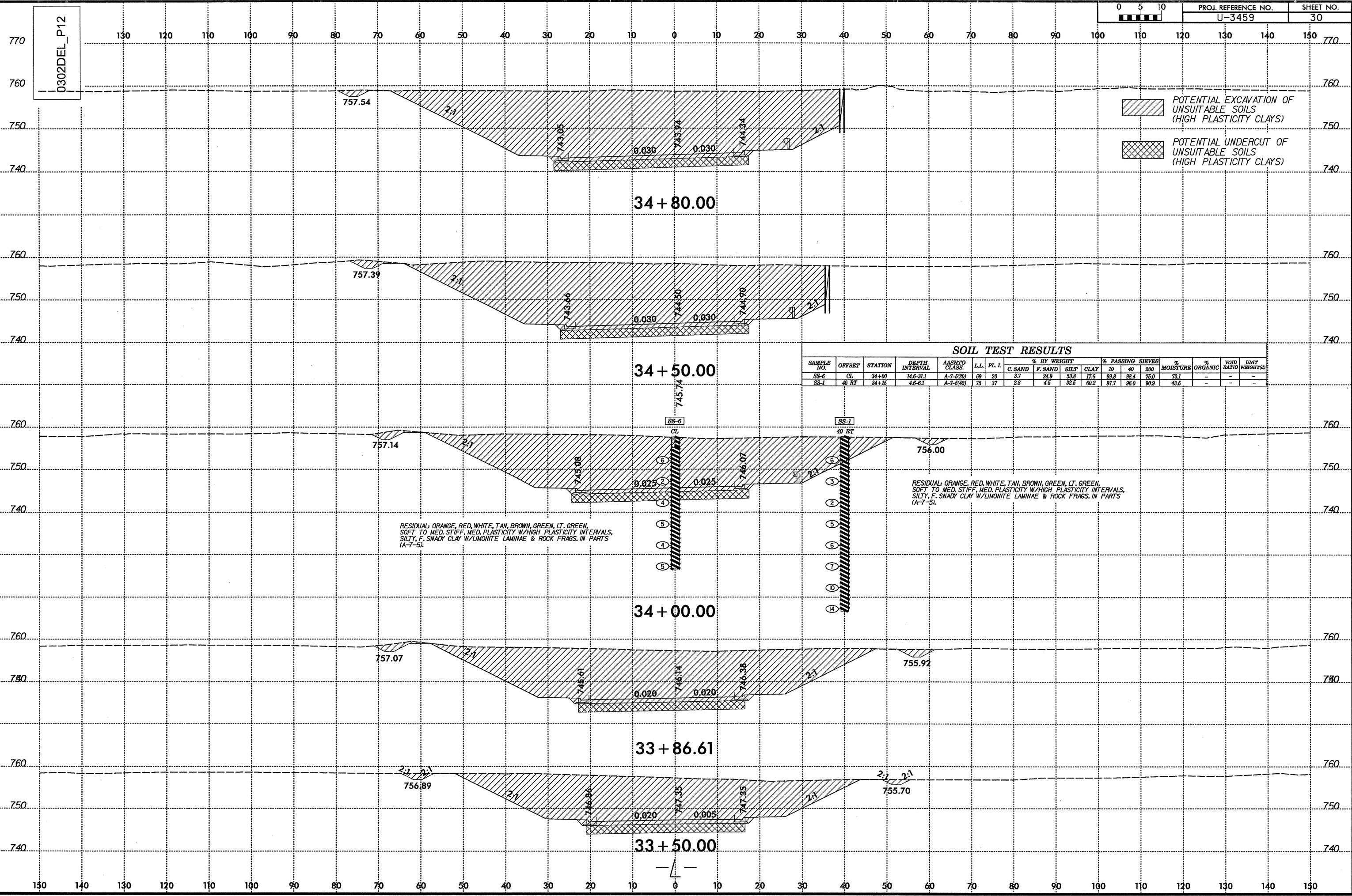
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.L.I.	% BY WEIGHT				% PASSING SIEVES			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-5	CL	32+00	5.0-11.5	A-7-5(23)	60	37	4.8	14.5	44.1	36.6	97.5	94.8	81.6	64.9	-

RESIDUAL TAN, WHITE, RED-ORANGE, GREEN, BLACK, V. SOFT TO STIFF, LOW TO MED. PLASTICITY, SILTY, F. SANDY CLAY, CALCAREOUS IN PARTS W/ ROCK FRAGS, LIMONITE LAMINAE IN PARTS (A-7-5).

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POTENTIAL EXCAVATION OF UNSUITABLE SOILS (HIGH PLASTICITY CLAYS)
 POTENTIAL UNDERCUT OF UNSUITABLE SOILS (HIGH PLASTICITY CLAYS)

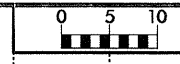
SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.L.	% BY WEIGHT				% PASSING SIEVES			% MOISTURE	% ORGANIC	VOID RATIO	UNIT WEIGHT(G)
							C. SAND	F. SAND	SILT	CLAY	10	40	200				
SS-6	CL	34+00	14.6-31.1	A-7-5(20)	69	20	3.7	24.9	53.8	17.6	99.8	98.4	75.0	73.1	-	-	-
SS-1	40 RT	34+15	4.6-6.1	A-7-5(42)	75	37	2.8	4.6	32.5	60.2	97.7	96.0	90.9	43.6	-	-	-

RESIDUAL: ORANGE, RED, WHITE, TAN, BROWN, GREEN, LT. GREEN, SOFT TO MED. STIFF, MED. PLASTICITY W/HIGH PLASTICITY INTERVALS, SILTY, F. SNADY CLAY W/LIMONITE LAMINAE & ROCK FRAGS. IN PARTS (A-7-5).

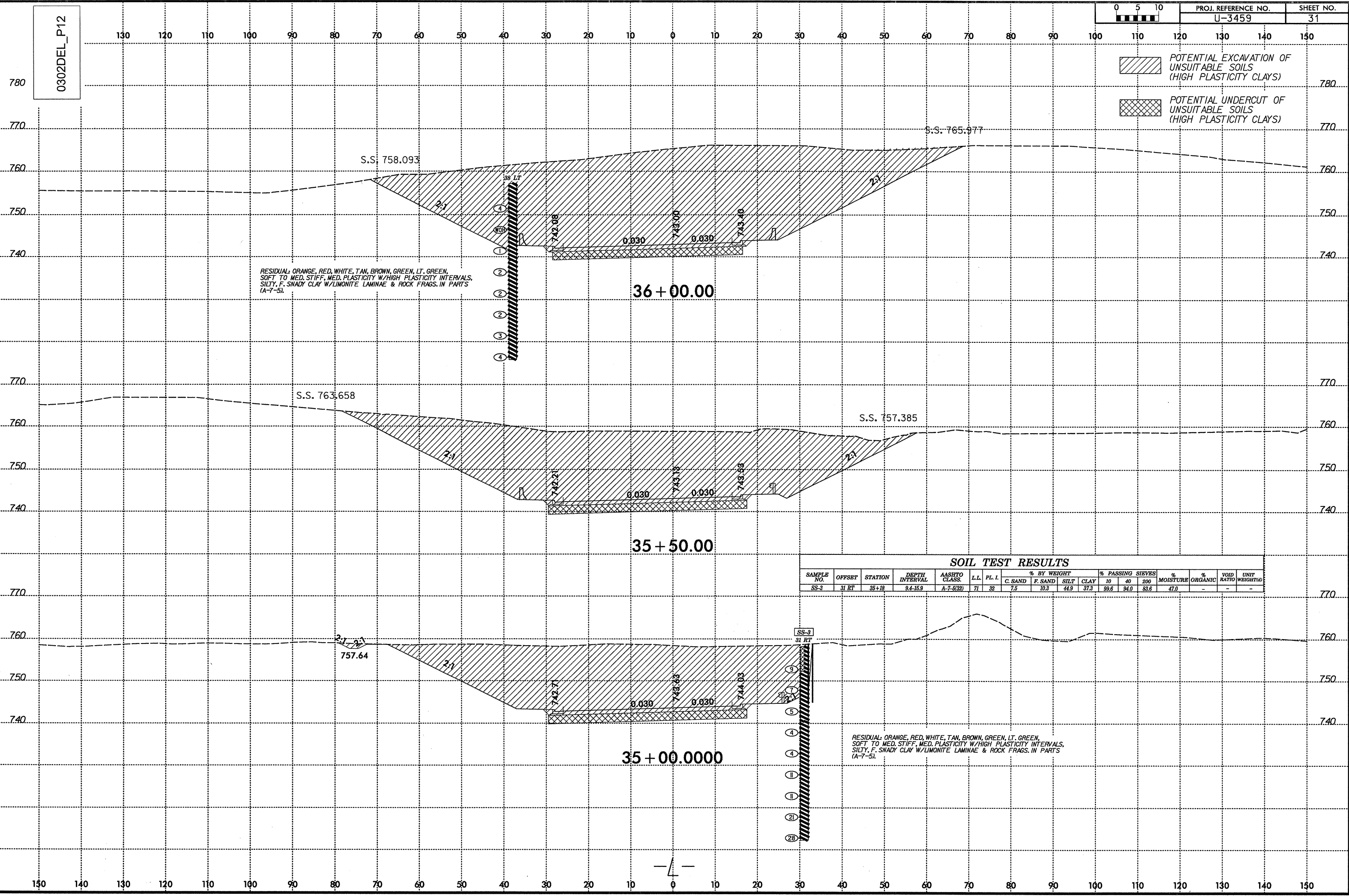
RESIDUAL: ORANGE, RED, WHITE, TAN, BROWN, GREEN, LT. GREEN, SOFT TO MED. STIFF, MED. PLASTICITY W/HIGH PLASTICITY INTERVALS, SILTY, F. SNADY CLAY W/LIMONITE LAMINAE & ROCK FRAGS. IN PARTS (A-7-5).

0302DEL_P12



PROJ. REFERENCE NO.
U-3459

SHEET NO.
31



RESIDUAL: ORANGE, RED, WHITE, TAN, BROWN, GREEN, LT. GREEN,
SOFT TO MED. STIFF, MED. PLASTICITY W/HIGH PLASTICITY INTERVALS,
SILTY, F. SNADY CLAY W/LIMONITE LAMINAE & ROCK FRAGS. IN PARTS
(A-7-5).

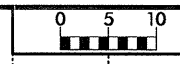
SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.L.	% BY WEIGHT				% PASSING SIEVES		% MOISTURE	% ORGANIC	VOID RATIO	UNIT WEIGHT(G)
							C. SAND	F. SAND	SILT	CLAY	10	40				
SS-3	31 RT	35+18	9.4-16.9	A-7-5(32)	71	32	7.5	10.3	44.9	37.3	98.6	94.0	83.6	47.0	-	-

RESIDUAL: ORANGE, RED, WHITE, TAN, BROWN, GREEN, LT. GREEN,
SOFT TO MED. STIFF, MED. PLASTICITY W/HIGH PLASTICITY INTERVALS,
SILTY, F. SNADY CLAY W/LIMONITE LAMINAE & ROCK FRAGS. IN PARTS
(A-7-5).

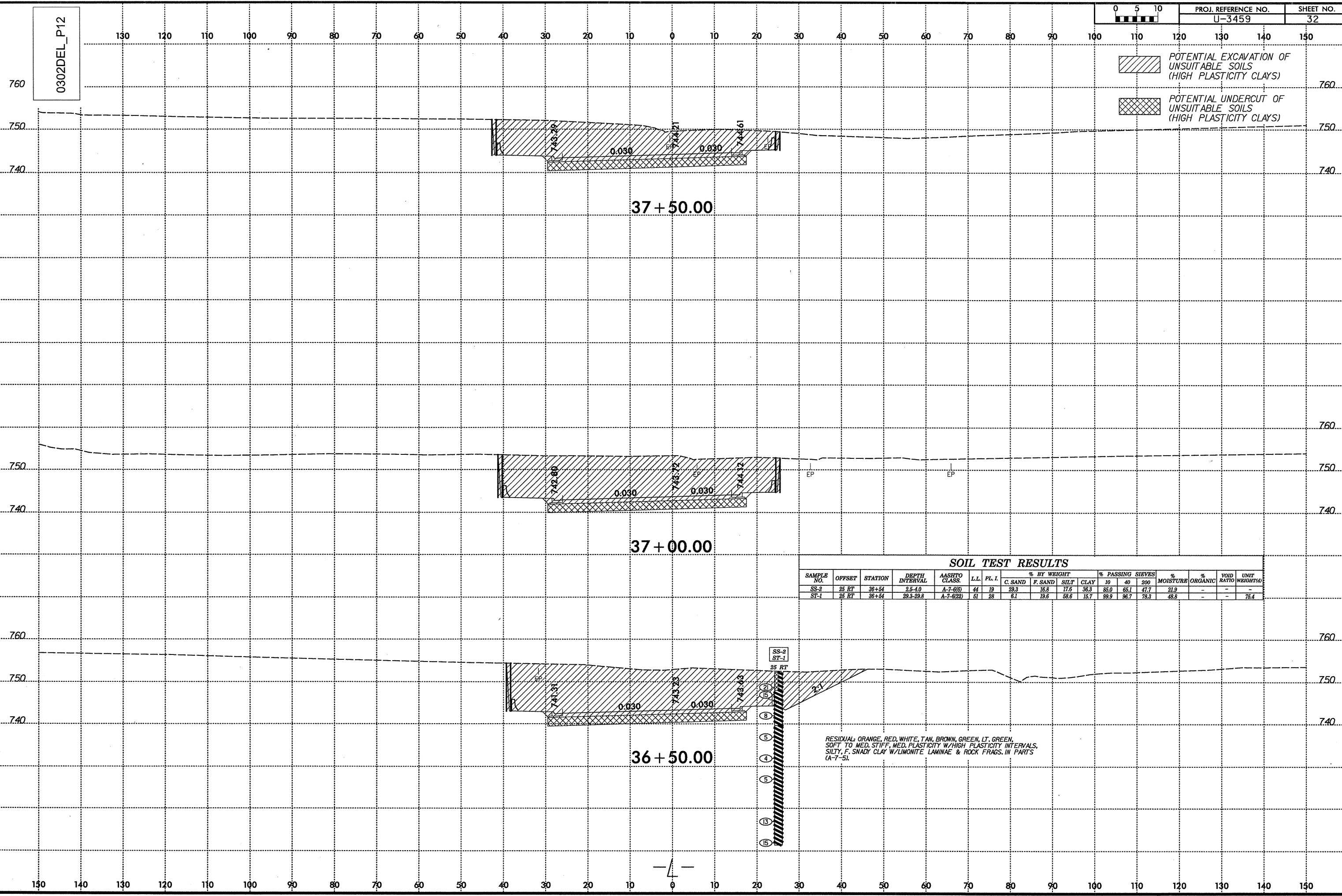
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Florence & Hutchison, Inc.

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PROJ. REFERENCE NO.
U-3459

SHEET NO.
32



POTENTIAL EXCAVATION OF UNSUITABLE SOILS (HIGH PLASTICITY CLAYS)

POTENTIAL UNDERCUT OF UNSUITABLE SOILS (HIGH PLASTICITY CLAYS)

SOIL TEST RESULTS

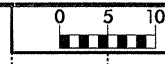
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	LL	PL. I.	% BY WEIGHT				% PASSING SIEVES			% MOISTURE	% ORGANIC	VOID RATIO	UNIT WEIGHT(g)
							C. SAND	F. SAND	SILT	CLAY	10	40	200				
SS-2	25 RT	36+54	2.5-4.0	A-7-6(6)	44	19	28.3	16.3	17.6	36.3	85.0	65.1	47.7	21.9	-	-	-
ST-1	25 RT	36+54	29.3-29.8	A-7-6(22)	61	28	6.1	19.6	58.6	15.7	99.9	96.7	78.3	48.6	-	-	75.4

- SS-2
- ST-1
- 25 RT
- (A)
- (B)
- (C)
- (D)
- (E)
- (F)
- (G)
- (H)
- (I)
- (J)
- (K)
- (L)
- (M)
- (N)
- (O)
- (P)
- (Q)
- (R)
- (S)
- (T)
- (U)
- (V)
- (W)
- (X)
- (Y)
- (Z)

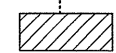
RESIDUAL- ORANGE, RED, WHITE, TAN, BROWN, GREEN, LT. GREEN, SOFT TO MED. STIFF, MED. PLASTICITY W/HIGH PLASTICITY INTERVALS, SILTY, F. SNADY CLAY W/LIMONITE LAMINAE & ROCK FRAGS. IN PARTS (A-7-5).


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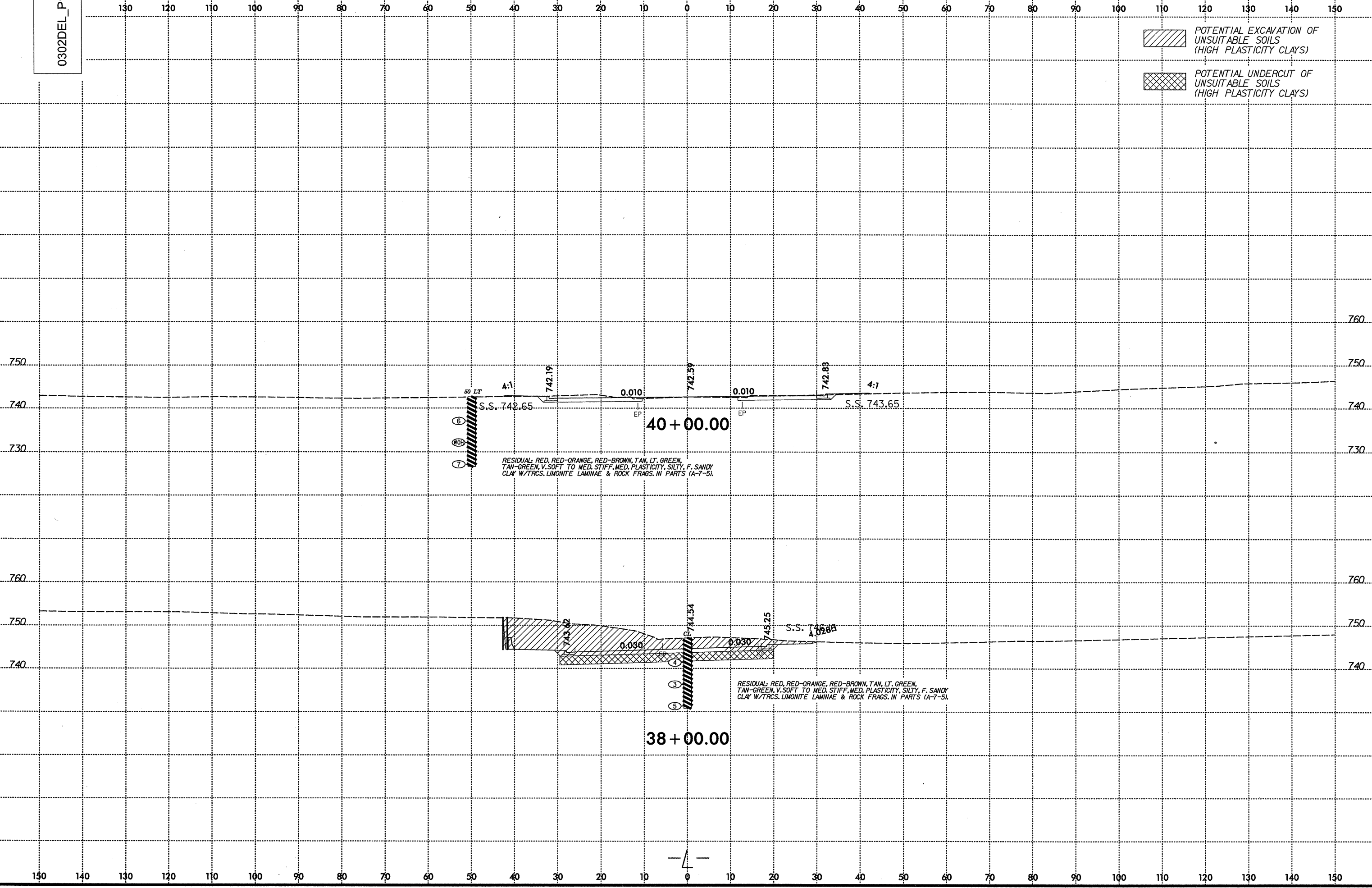
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PROJ. REFERENCE NO. U-3459 SHEET NO. 33

 POTENTIAL EXCAVATION OF UNSUITABLE SOILS (HIGH PLASTICITY CLAYS)

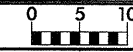
 POTENTIAL UNDERCUT OF UNSUITABLE SOILS (HIGH PLASTICITY CLAYS)



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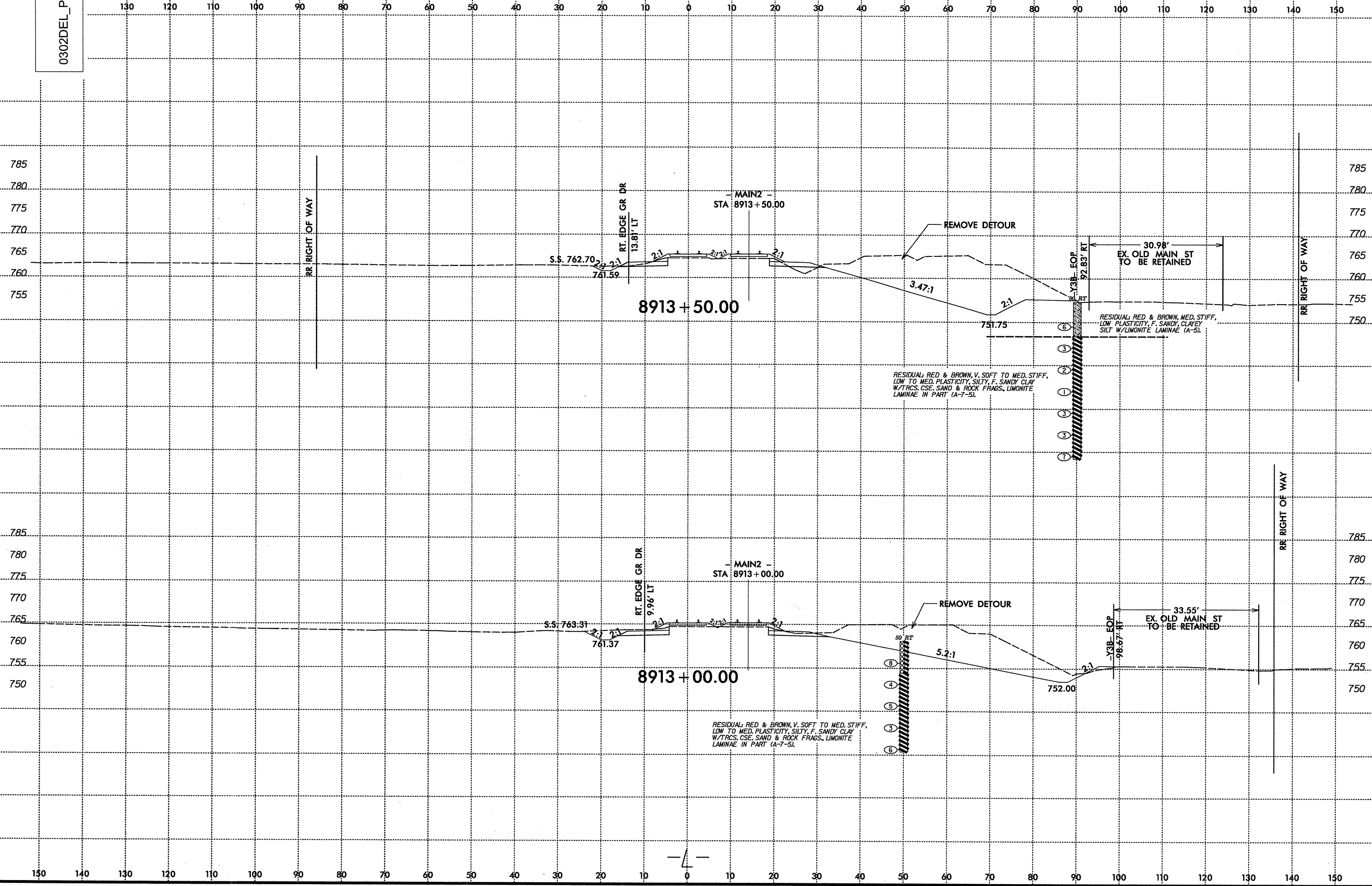
-L-

0302DEL_P12



PROJ. REFERENCE NO.
U-3459

SHEET NO.
34



8913 + 50.00

MAIN2
STA 8913 + 50.00

S.S. 762.70
761.59

RT. EDGE GR DR
13.81' LT

3.47:1

2:1

30.98'
EX. OLD MAIN ST
TO BE RETAINED

Y3B EOP
92.83' RT

RESIDUAL: RED & BROWN, MED. STIFF,
LOW PLASTICITY, F. SANDY, CLAYEY
SILT W/LIMONITE LAMINAE (A-5).

RESIDUAL: RED & BROWN, V. SOFT TO MED. STIFF,
LOW TO MED. PLASTICITY, SILTY, F. SANDY CLAY
W/TRCS. CSE. SAND & ROCK FRAGS., LIMONITE
LAMINAE IN PART (A-7-5).

- 6
- 3
- 2
- 1
- 5
- 3
- 7

8913 + 00.00

MAIN2
STA 8913 + 00.00

S.S. 763.31
761.37

RT. EDGE GR DR
9.96' LT

5.2:1

2:1

33.55'
EX. OLD MAIN ST
TO BE RETAINED

Y3B EOP
98.67' RT

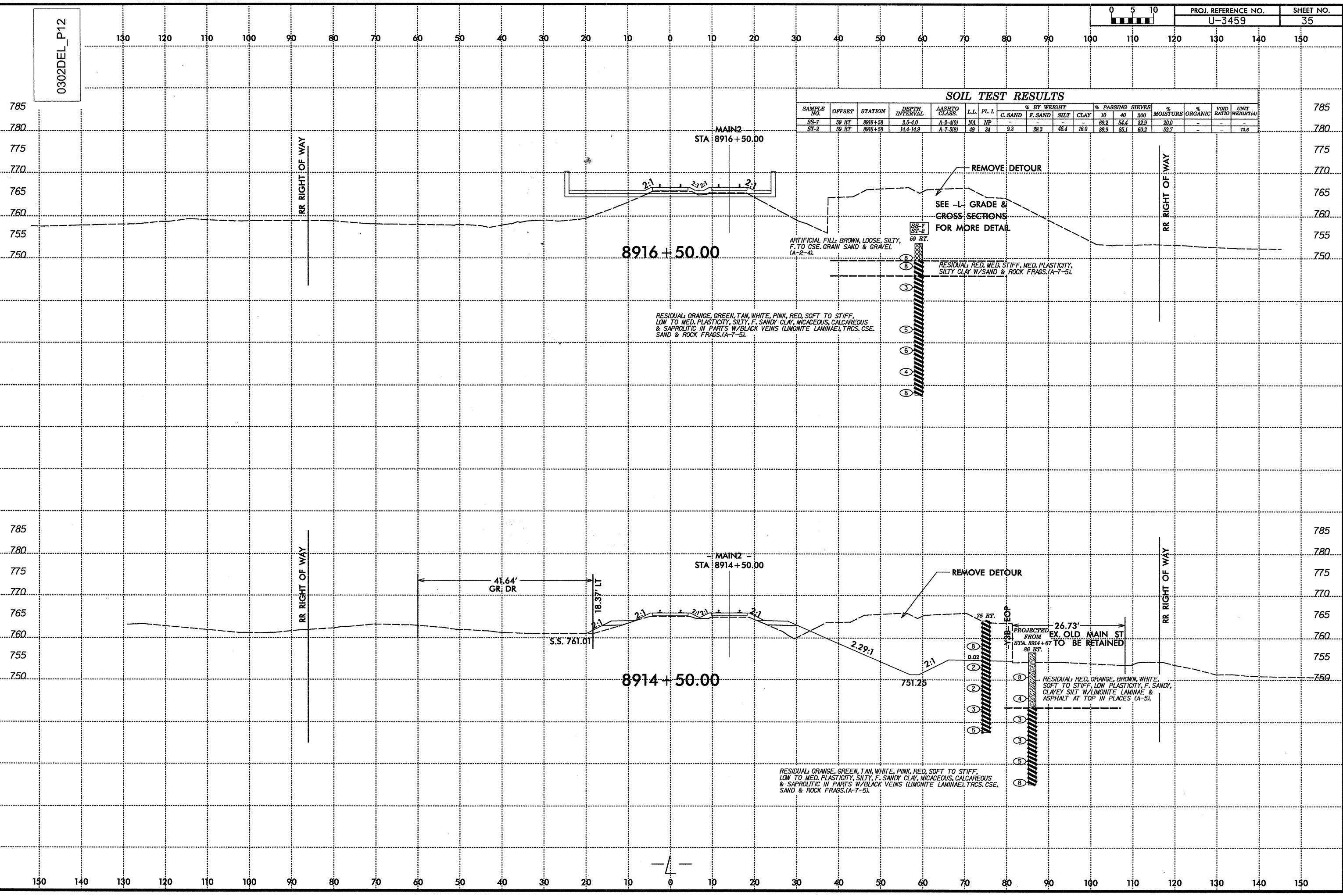
RESIDUAL: RED & BROWN, V. SOFT TO MED. STIFF,
LOW TO MED. PLASTICITY, SILTY, F. SANDY CLAY
W/TRCS. CSE. SAND & ROCK FRAGS., LIMONITE
LAMINAE IN PART (A-7-5).

- 8
- 4
- 5
- 3
- 6

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Florence & Hutcheson, Inc.

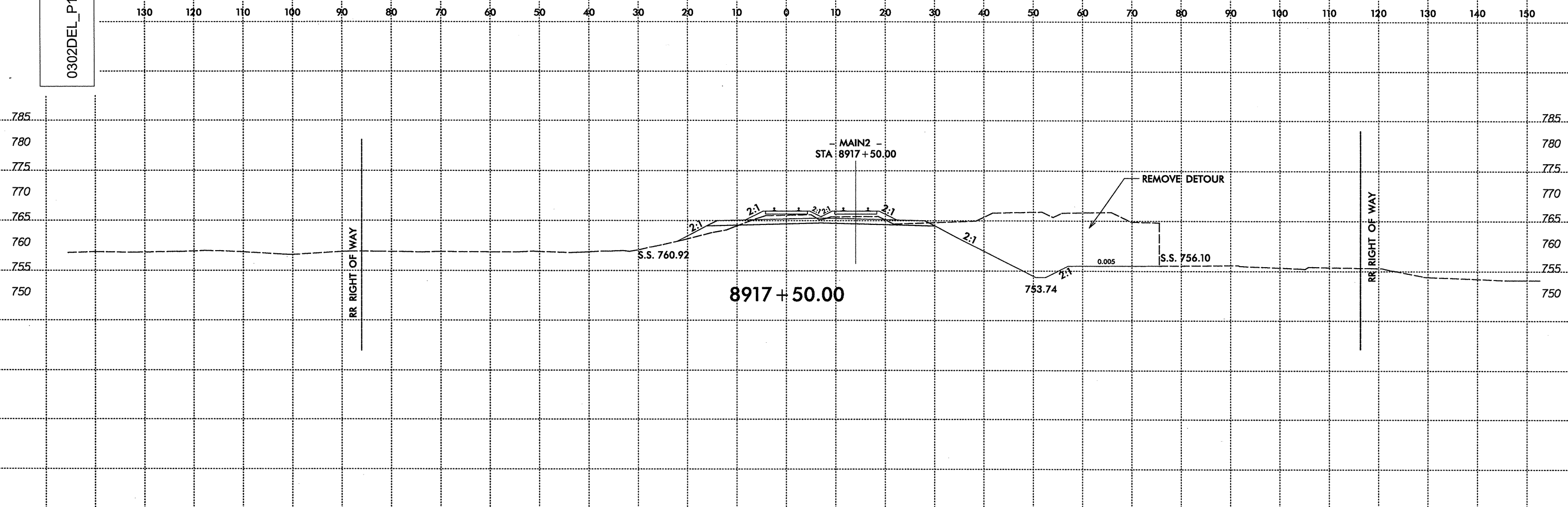
0302DEL_P12

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.L.I.	% BY WEIGHT				% PASSING SIEVES		% MOISTURE	% ORGANIC	VOID RATIO	UNIT WEIGHT(γ)
							C. SAND	F. SAND	SILT	CLAY	10	40				
SS-7	59 RT	8916+58	2.5-4.0	A-2-4(0)	NA	NP	-	-	-	-	69.2	54.4	32.9	20.0	-	-
ST-2	59 RT	8916+58	14.4-14.9	A-7-5(0)	49	34	9.3	28.3	46.4	16.0	89.9	85.1	60.2	62.7	-	72.6



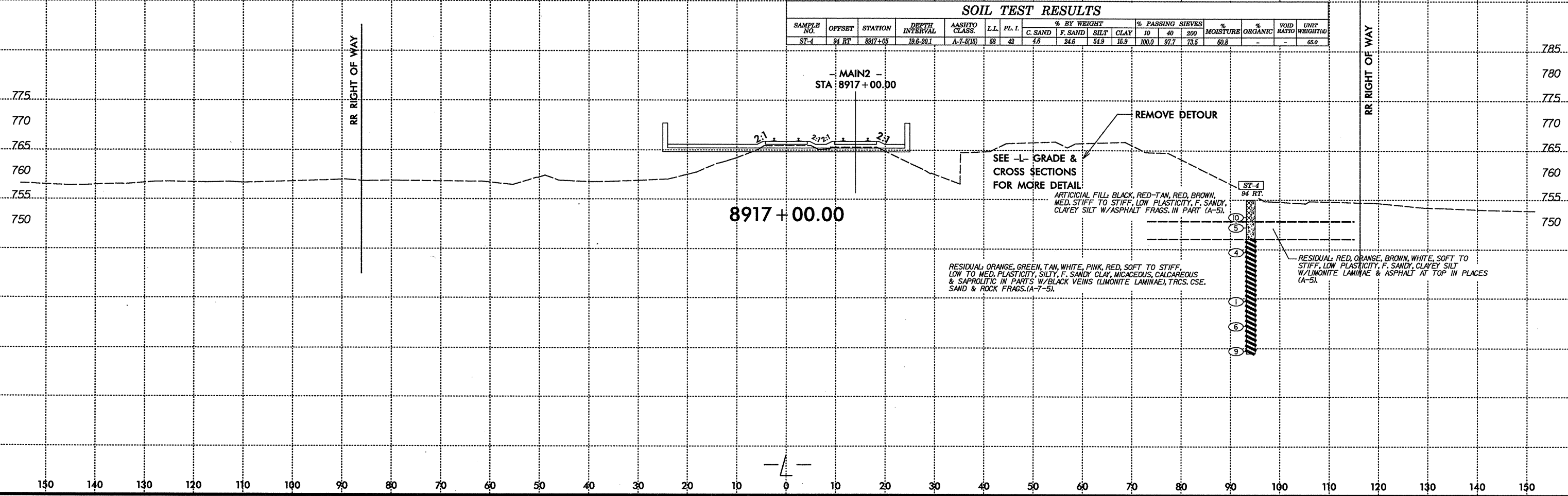
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 J. Stetson & Associates, Inc.

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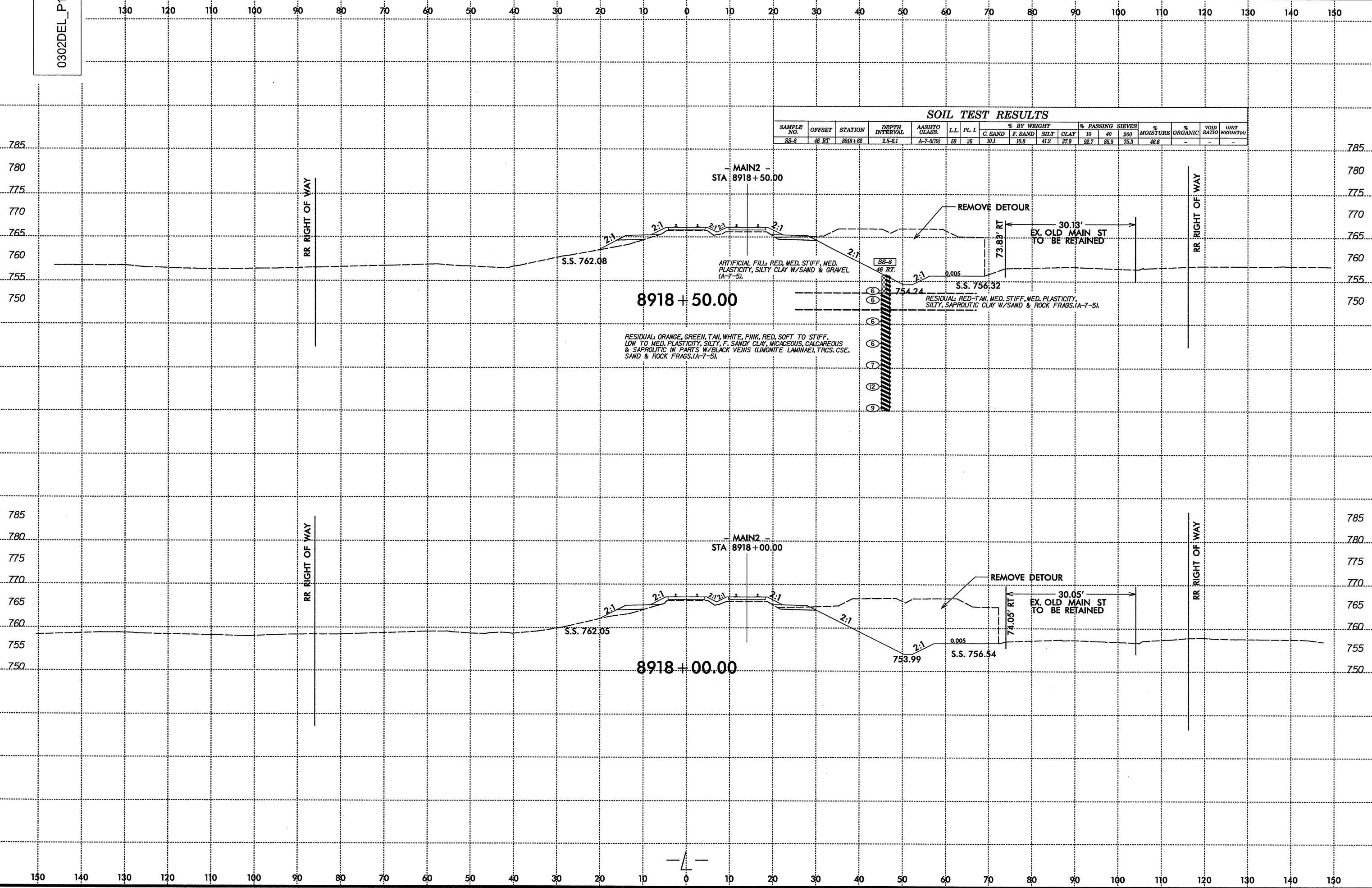
SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.L.I.	% BY WEIGHT				% PASSING SIEVES			% MOISTURE	% ORGANIC	VOID RATIO	UNIT WEIGHT(g)
							C. SAND	F. SAND	SILT	CLAY	10	40	200				
ST-4	94 RT	8917+05	19.6-30.1	A-7-6(15)	58	42	4.6	24.6	54.9	15.9	100.0	97.7	73.5	60.8	-	-	68.0



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SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	ASTM CLASS	LL	PL	% BY WEIGHT				% PASSING SIEVES			% MOISTURE	% ORGANIC	VOID RATIO	UNIT WEIGHT
							C. SAND	F. SAND	SILT	CLAY	10	40	200				
SS-8	46 RT	8918+62	2.5-6.1	A-7-5(19)	58	36	10.1	10.8	41.3	37.3	92.7	85.9	75.3	46.6	-	-	-

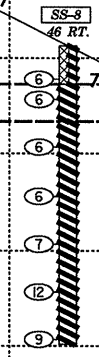
- MAIN2 -
STA 8918+50.00

8918+50.00

RESIDUAL: ORANGE, GREEN, TAN, WHITE, PINK, RED, SOFT TO STIFF, LOW TO MED. PLASTICITY, SILTY, F. SANDY CLAY, MICACEOUS, CALCAREOUS & SAPROLITIC IN PARTS W/BLACK VEINS (LIMONITE LAMINAE), TRCS. CSE. SAND & ROCK FRAGS. (A-7-5).

ARTIFICIAL FILL: RED, MED. STIFF, MED. PLASTICITY, SILTY CLAY W/SAND & GRAVEL (A-7-5).

RESIDUAL: RED-TAN, MED. STIFF, MED. PLASTICITY, SILTY, SAPROLITIC CLAY W/SAND & ROCK FRAGS. (A-7-5).



RR RIGHT OF WAY

RR RIGHT OF WAY

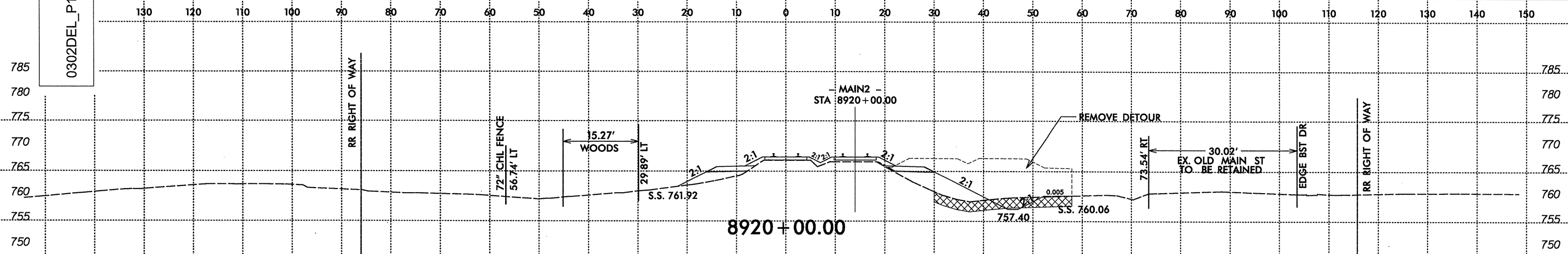
RR RIGHT OF WAY

RR RIGHT OF WAY

- MAIN2 -
STA 8918+00.00

8918+00.00

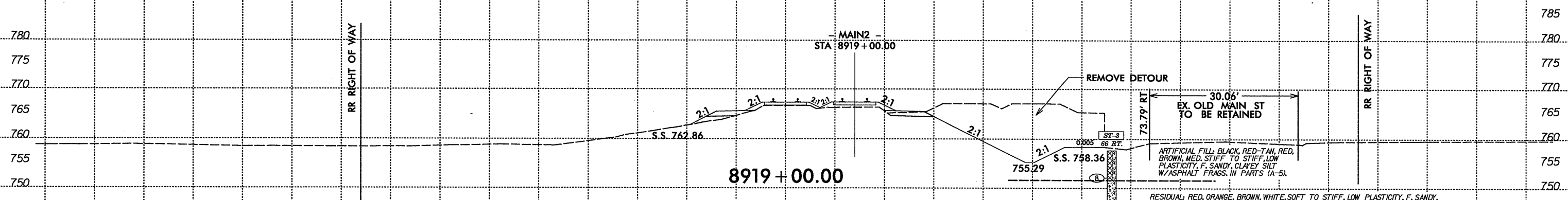
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POTENTIAL EXCAVATION OF UNSUITABLE SOILS (HIGH PLASTICITY CLAYS)
 POTENTIAL UNDERCUT OF UNSUITABLE SOILS (HIGH PLASTICITY CLAYS)

SOIL TEST RESULTS

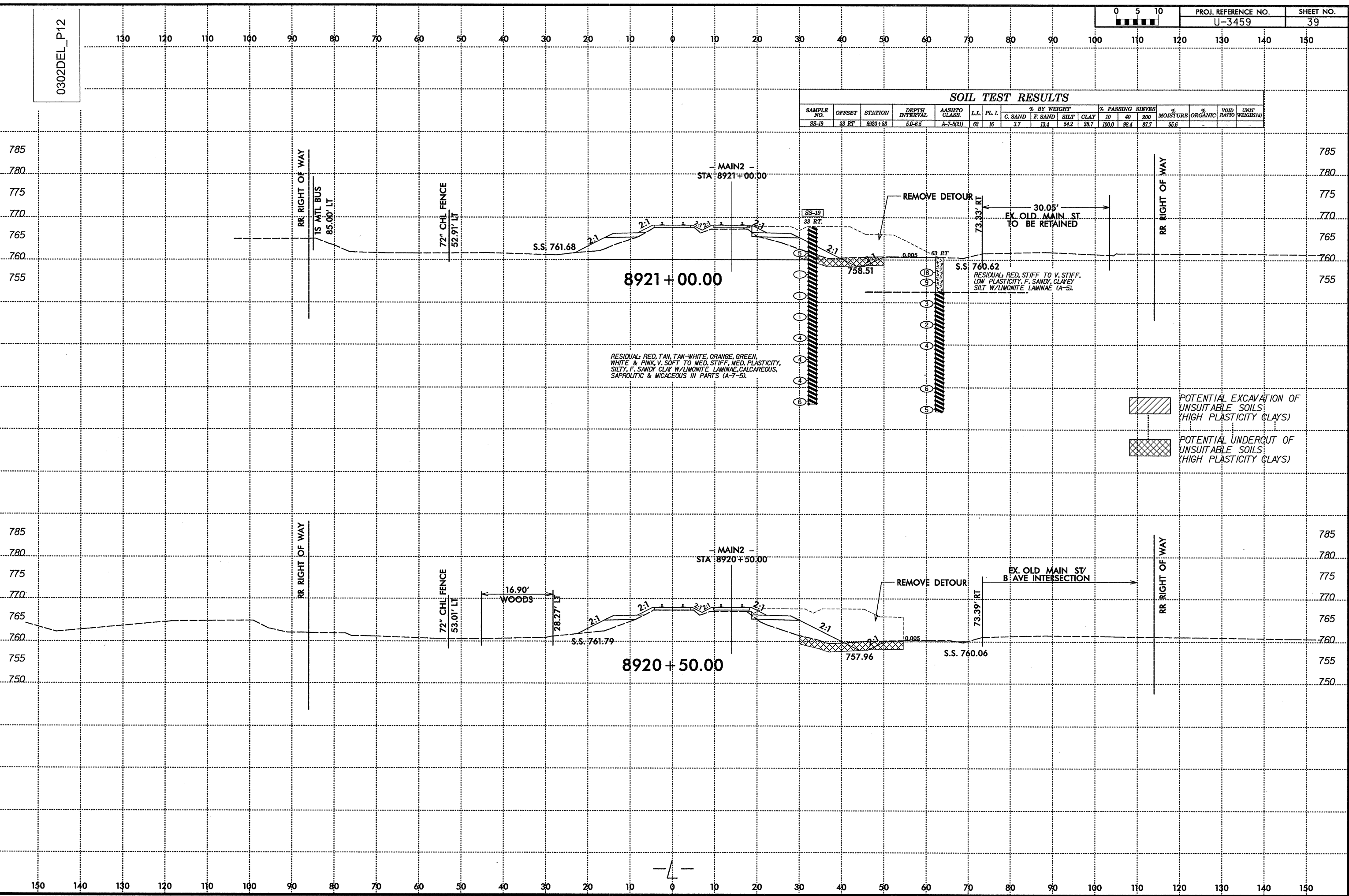
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.L.I.	% BY WEIGHT				% PASSING SIEVES			% MOISTURE	% ORGANIC	VOID RATIO	UNIT WEIGHT (pcf)
							C. SAND	F. SAND	SILT	CLAY	10	40	200				
ST-3	66 RT	8918+91	9.6-10.1	A-5(8)	69	60	27.8	43.2	20.3	98.1	94.0	65.1	60.4	-	-	78.1	



ARTIFICIAL FILL: BLACK, RED-TAN, RED, BROWN, MED. STIFF TO STIFF, LOW PLASTICITY, F. SANDY, CLAYEY SILT W/ ASPHALT FRAGS. IN PARTS (A-5).
 RESIDUAL: RED, ORANGE, BROWN, WHITE, SOFT TO STIFF, LOW PLASTICITY, F. SANDY, CLAYEY SILT W/ LIMONITE LAMINAE & ASPHALT AT TOP IN PLACES (A-5).

RESIDUAL: ORANGE, GREEN, TAN, WHITE, PINK, RED, SOFT TO STIFF, LOW TO MED. PLASTICITY, SILTY, F. SANDY CLAY, MICACEOUS, CALCAREOUS & SAPROLITIC IN PARTS W/ BLACK VEINS (LIMONITE LAMINAE, TRCS, CSE. SAND & ROCK FRAGS. (A-7-5).

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SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.L.	% BY WEIGHT				% PASSING SIEVES			% MOISTURE	% ORGANIC	VOID RATIO	UNIT WEIGHT (pcf)
							C. SAND	F. SAND	SILT	CLAY	10	40	200				
SS-19	33 RT	8920+83	6.0-6.5	A-7-5(2)	62	16	3.7	13.4	54.2	28.7	100.0	98.4	87.7	65.6	-	-	

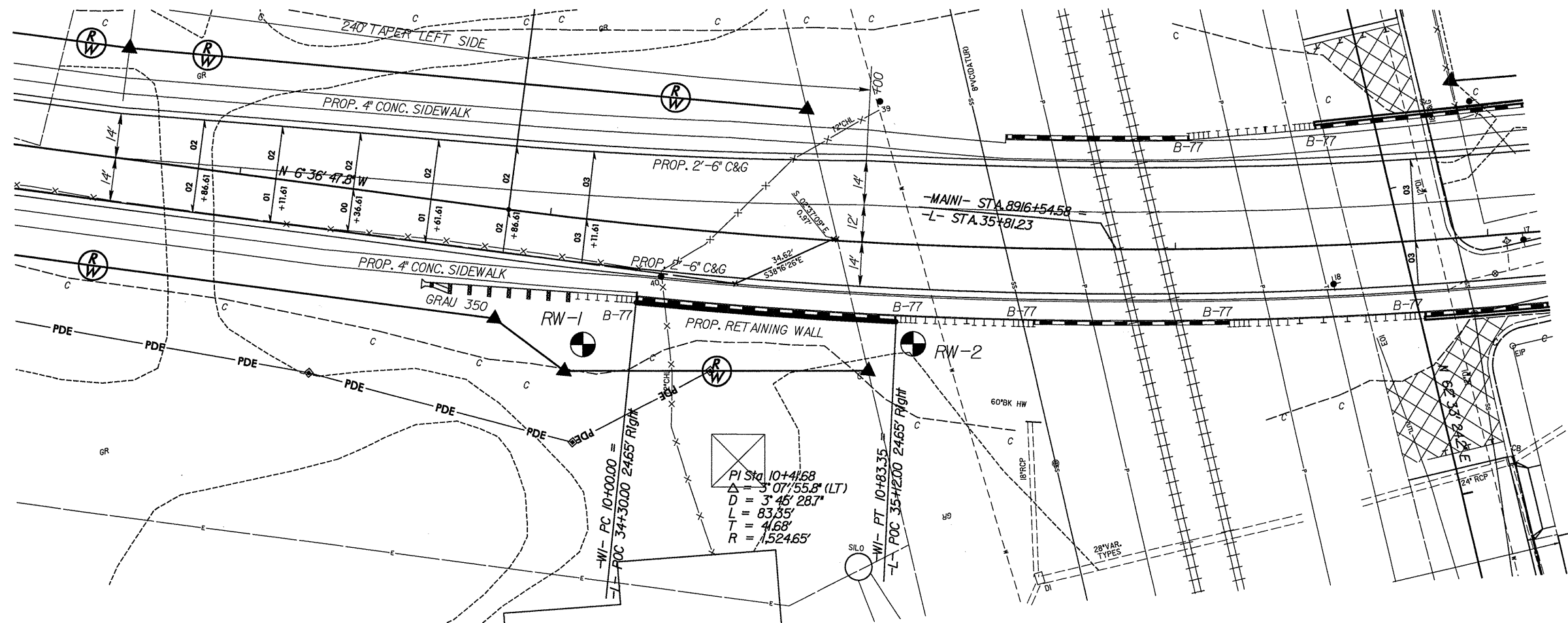
RESIDUAL: RED, TAN, TAN-WHITE, ORANGE, GREEN, WHITE & PINK, V. SOFT TO MED. STIFF, MED. PLASTICITY, SILTY, F. SANDY CLAY W/LIMONITE LAMINAE, CALICAREOUS, SAPROLITIC & MICACEOUS IN PARTS (A-7-5).

POTENTIAL EXCAVATION OF UNSUITABLE SOILS (HIGH PLASTICITY CLAYS)

POTENTIAL UNDERCUT OF UNSUITABLE SOILS (HIGH PLASTICITY CLAYS)

NOTES

- FOR SOLDIER PILE RETAINING WALLS, SEE SOLDIER PILE RETAINING WALLS PROVISION.
- FOR SINGLE-FACED PRECAST CONCRETE BARRIER, SEE ROADWAY PLANS AND SECTION 857 OF THE STANDARD SPECIFICATIONS.
- A FENCE IS REQUIRED ON TOP OF RETAINING WALL NO. 1. CONTRACTOR SHALL PROVIDE DETAILS FOR FENCE ATTACHMENT.
- DRILLED-IN PILES ARE REQUIRED FOR RETAINING WALL NO. 1.
- BEFORE BEGINNING SOLDIER PILE WALL DESIGN FOR RETAINING WALL NO. 1, SURVEY WALL LOCATION AND SUBMIT A REVISED WALL PROFILE VIEW (WALL ENVELOPE) FOR REVIEW. DO NOT START WALL DESIGN OR CONSTRUCTION UNTIL THE REVISED WALL ENVELOPE IS ACCEPTED.
- DESIGN RETAINING WALL NO. 1 FOR THE FOLLOWING:
 - MINIMUM DESIGN LIFE = 100 YEARS
 - IN-SITU ASSUMED MATERIAL PARAMETERS
 - UNIT WEIGHT, $\gamma = 120$ PCF
 - FRICTION ANGLE, $\phi = 28$ DEGREES
 - COHESION, $c = 0$ PSF



NAD 83/NSRS 2007

FOR -L- PROFILE SEE SHEET 15
 FOR -MAIN1- PROFILE SEE SHEET
 FOR -MAIN2- PROFILE SEE SHEET

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Florence & Hutcheson 8/31/2012

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11

NO.	BY	DATE	REVISION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RAIL DIVISION

PREPARED BY: **ENGINEERING & SAFETY BRANCH**

MAIL: 1256 MAIL SERVICE CENTER, RALEIGH, NC 27699-1556
 DELIVERY: 680 CAPITAL BOULEVARD, RALEIGH, NC 27603
 PHONE: (919) 715-8803
 FAX: (919) 715-8804

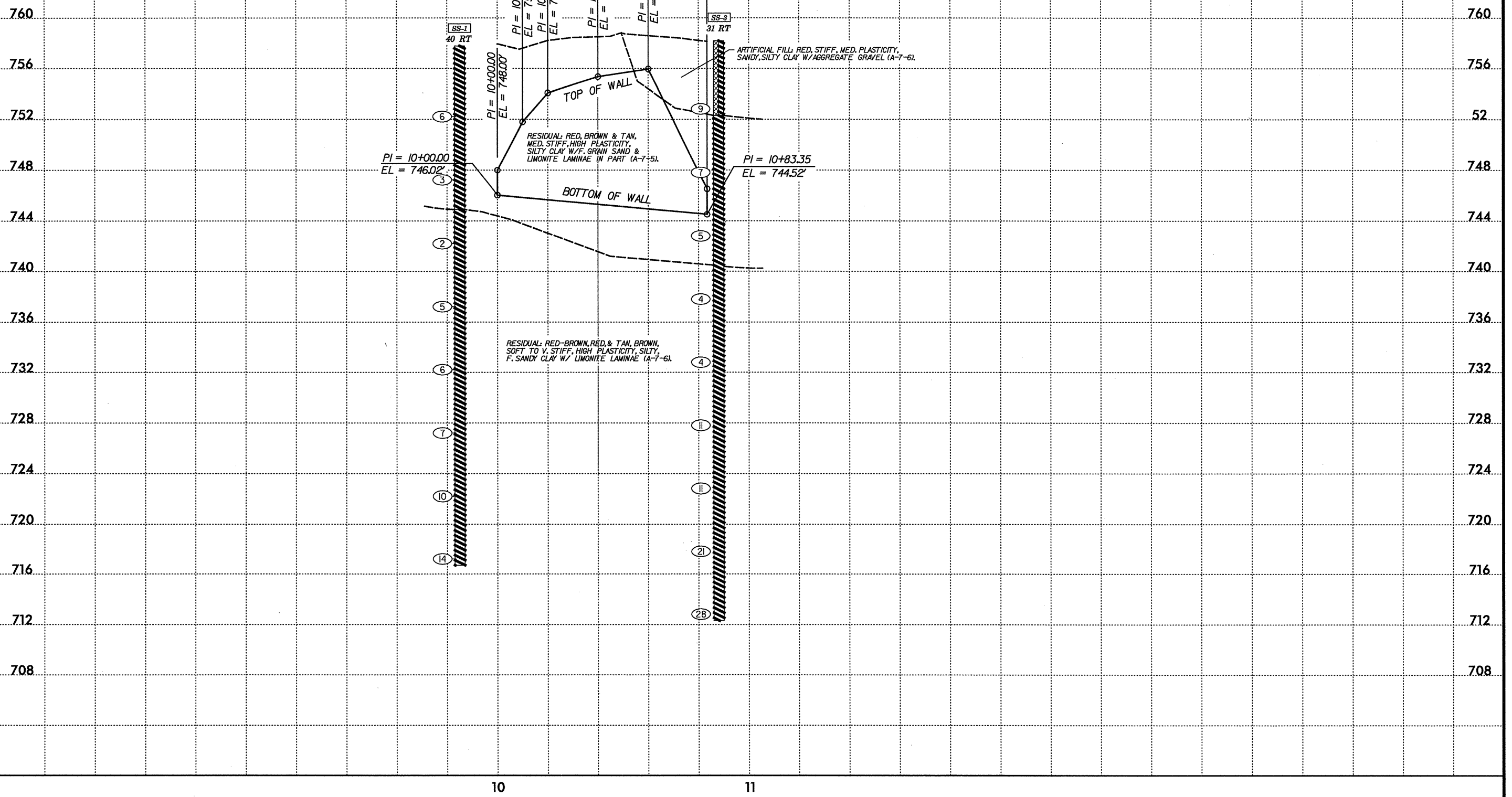
PROJECT: U-3459 - KLUMAC ROAD		TITLE: PLAN RETAINING WALL 1	
LOCATION: KLUMAC ROAD (SR 2541) IN SALISBURY, NC	DGN BY: RSF	RAILROAD: NORTH CAROLINA RAILROAD/NORFOLK SOUTHERN	MILE POST:
DWN BY: TAR	VAL SEC:	CHK BY: JSP	DATE: 8/17/12
SCALE:		SHEET 40 OF 46	

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1/22/02

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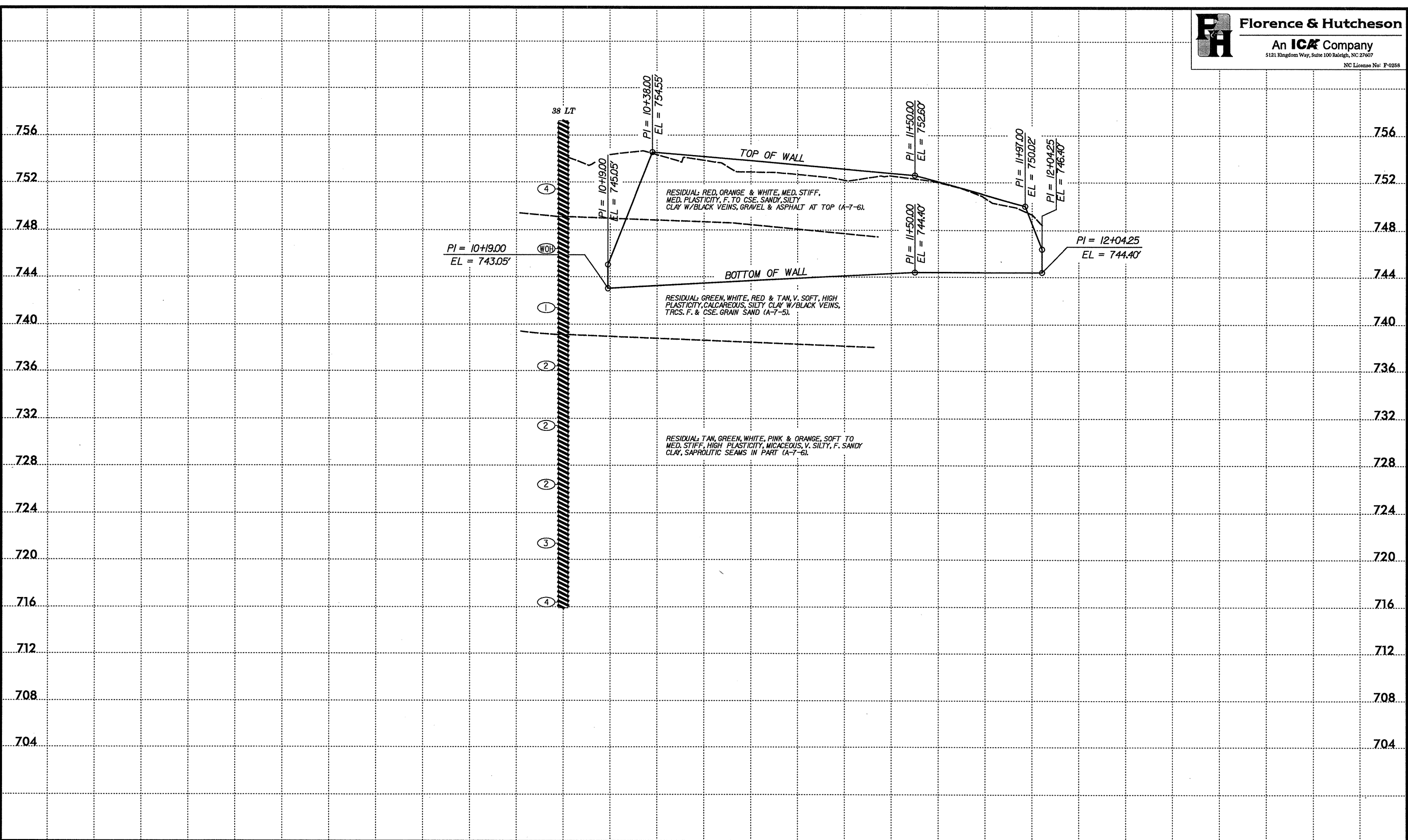
NO.	BY	DATE	REVISION

PROJECT U-3459 - KLUMAC ROAD		TITLE	
PROFILE		RETAINING WALL 1	
LOCATION	KLUMAC ROAD (SR 2541) IN SALISBURY, NC	RAILROAD	NORTH CAROLINA RAILROAD/NORFOLK SOUTHERN
DGN BY	RSF	VAL SEC	MILE POST
DWN BY	TAR	DATE	8/17/12
CHK BY	JSP	SCALE	
			SHEET 41 OF 46

1/22/02

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Florence & Hutcheson 8/31/2012



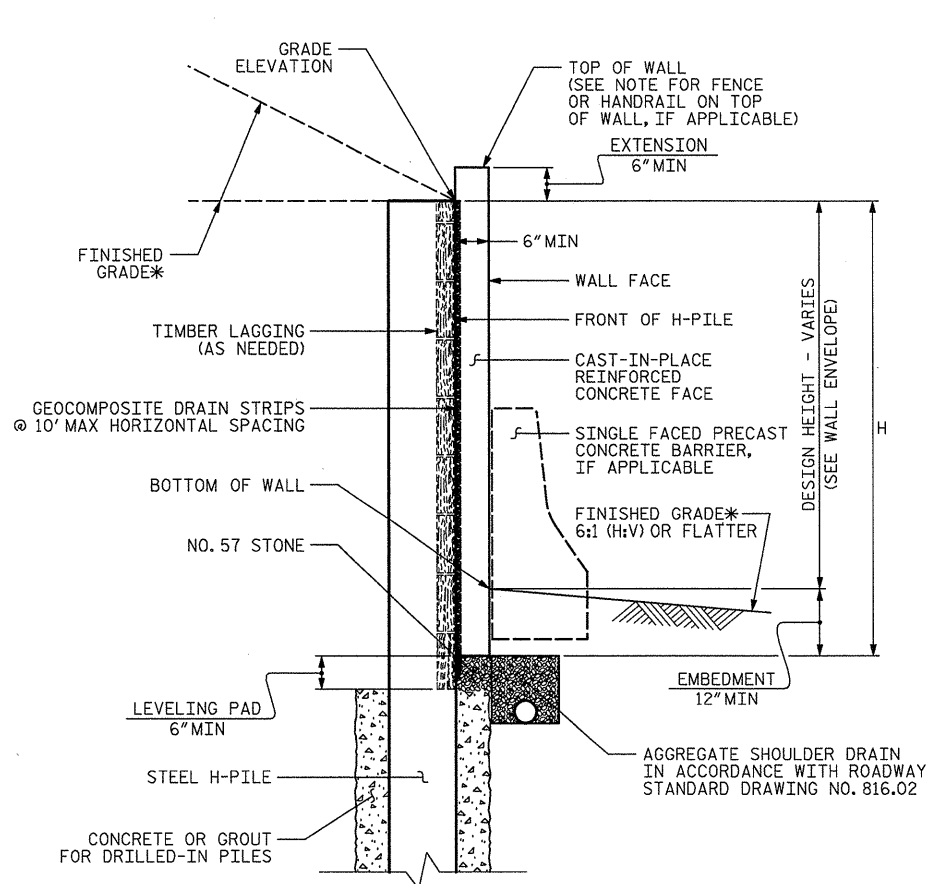
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NO.	BY	DATE	REVISION


NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RAIL DIVISION

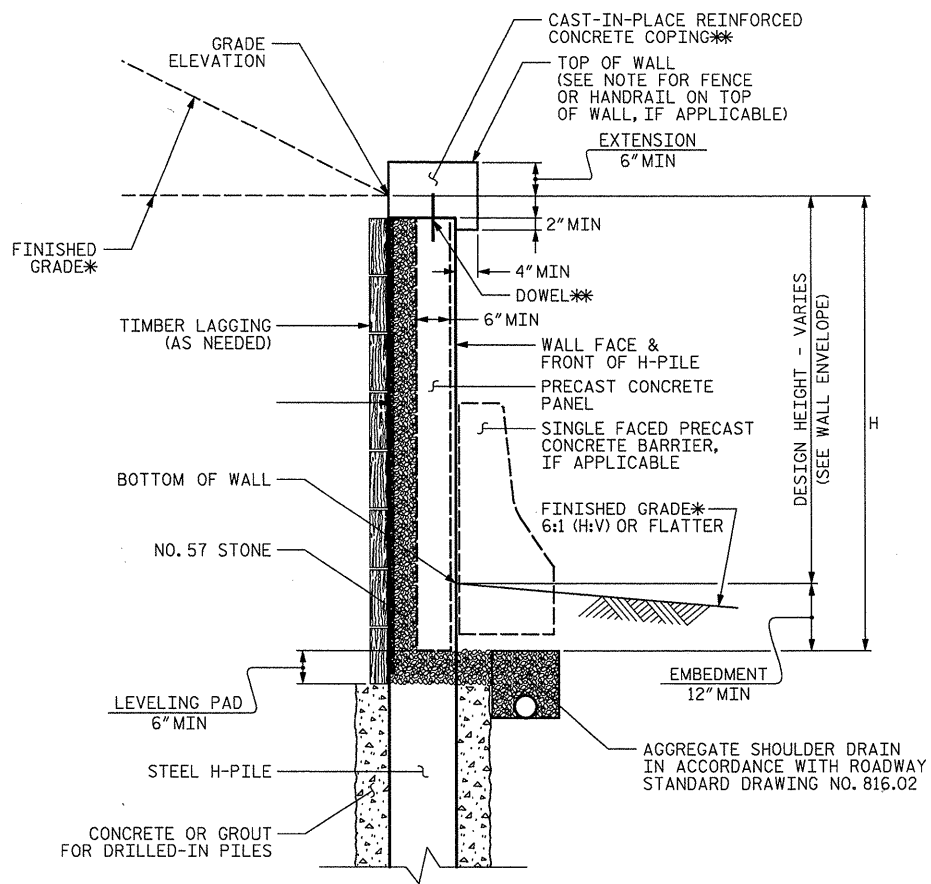
PRELIMINARY PLANS
 DO NOT USE FOR CONSTRUCTION

PROJECT		U-3459 - KLUMAC ROAD	
TITLE			
PROFILE RETAINING WALL 3			
LOCATION	KLUMAC ROAD (SR 2541) IN SALISBURY, NC		
DGN BY	RSF	RAILROAD	NORTH CAROLINA RAILROAD/NORFOLK SOUTHERN
DWN BY	TAR	VAL SEC	MILE POST
CHK BY	JSP	DATE	8/17/12
SCALE		SHEET 45 OF 46	



**SOLDIER PILE WALL WITH
 CAST-IN-PLACE FACE - TYPICAL SECTION**

*SEE ROADWAY PLANS FOR FINISHED GRADE AND DITCH DETAILS.



**SOLDIER PILE WALL WITH
 PRECAST PANEL - TYPICAL SECTION**

*SEE ROADWAY PLANS FOR FINISHED GRADE AND DITCH DETAILS.
 **AT THE CONTRACTOR'S OPTION, EXTEND COPING DOWN BACK OF PANELS AT LEAST 2" INSTEAD OF USING DOWELS.

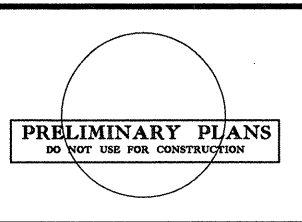
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Florence & Hutcheson 8/31/2012

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11

NO.	BY	DATE	REVISION



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

RAIL DIVISION

PREPARED BY: **ENGINEERING & SAFETY BRANCH**

MAIL: MAIL SERVICE CENTER RALEIGH, NC 27699-1556
 DELIVERY: 250 CAPITAL BOULEVARD RALEIGH, NC 27603
 PHONE: (919) 715-8903 FAX: (919) 715-8904

PROJECT U-3459 - KLUMAC ROAD		TITLE	
RETAINING WALL DETAILS			
LOCATION KLUMAC ROAD (SR 2541) IN SALISBURY, NC			
DGN BY	RSF	RAILROAD	NORTH CAROLINA RAILROAD/NORFOLK SOUTHERN
DWN BY	TAR	VAL SEC	MILE POST
CHK BY	JSP	DATE	8/17/12
SCALE			SHEET 46 OF 46