

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.	B-4635	1	19

CROSS SECTIONS

LINE	STATION	SHEETS
-L-	14+80 TO 24+00	6-10
-DETL-	11+50 TO 24+00	11-19

**ROADWAY
SUBSURFACE INVESTIGATION**

COUNTY SAMPSON
PROJECT DESCRIPTION BRIDGE NO. 9 ON -L- (US 13)
OVER SOUTH RIVER OVERFLOW

INVENTORY - REVISED

CAUTION NOTICE

THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WERE MADE FOR THE PURPOSE OF STUDY, PLANNING AND DESIGN, AND NOT FOR CONSTRUCTION OR PAY PURPOSES. THE VARIOUS FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA AVAILABLE MAY BE REVIEWED OR INSPECTED IN RALEIGH BY CONTACTING THE N. C. DEPARTMENT OF TRANSPORTATION, GEOTECHNICAL ENGINEERING UNIT AT (919) 707-6850. THE SUBSURFACE PLANS AND REPORTS, FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA ARE NOT PART OF THE CONTRACT.

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

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

- NOTES:
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

C.J. CORNETTE

J.M. EDMONDSON

INVESTIGATED BY T.C. BOTTOMS

DRAWN BY T.C. BOTTOMS

CHECKED BY D.N. ARGENBRIGHT

SUBMITTED BY D.N. ARGENBRIGHT

DATE DECEMBER 2018

REFERENCE: B-4635

PROJECT: 38446



DocuSigned by:

Tyler C. Bottoms

1/3/2019

48A2D3BD08CE446

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



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

JAMES H. TROGDON, III
SECRETARY

December 19, 2018

State Project: 38446.1.2 (B-4635)
F.A. Project: N/A
County: Sampson
Description: Bridge No. 9 on -L- (US 13) over South River Overflow
Subject: Geotechnical Inventory Report - Revised

Project Description

This project begins in Sampson County, 0.3 miles east of the intersection of Godwin-Falcon Road and US 13 (Fayetteville Highway) and extends east along Fayetteville Highway (-L-) for approximately 1,380 feet across South River Overflow. This geotechnical investigation was confined to the areas of proposed construction.

Fieldwork was conducted in June and July of 2018. Hand auger borings and push probes were completed at various offsets along the project corridor. Representative soil samples and Shelby Tubes were collected for visual classification in the field and for laboratory analysis by the Materials and Tests unit.

The following alignments were investigated. Selected cross sections of these alignments are included in this report.

<u>Line</u>	<u>Station(±)</u>
-L-	12+21 to 28+60
-DETL-	10+00 to 26+35

Areas of Special Geotechnical Interest

1) The following sections were found to exhibit seasonal high ground water:

<u>Line</u>	<u>Station(±)</u>
-L-	12+21 to 23+50
-DETL-	10+00 to 23+00

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
GEOTECHNICAL ENGINEERING UNIT
1589 MAIL SERVICE CENTER
RALEIGH NC 27699-1589

TELEPHONE: 919-250-4088
FAX: 919-250-4237
Website: www.ncdot.org/doh

LOCATION:
CENTURY CENTER COMPLEX
ENTRANCE B-2
1020 BIRCH RIDGE DRIVE
RALEIGH NC

2) The following sections contain organic soils which have the potential to cause embankment/subgrade and or slope stability problems during construction:

<u>Line</u>	<u>Station(±)</u>
-L-	12+21 to 22+75
-DETL-	10+00 to 22+48

Physiography and Geology

This project corridor is located within the Coastal Plain Physiographic Province. Topography along the project is nearly flat to gently sloping. Natural ground elevations range from 109± to 125± feet above sea level.

Surficial soils in this area are generally classified as alluvial sediments.

Ground Water

Ground water data was collected in June and July of 2018 while investigating the bridge approach. Ground water elevations ranged from 109± to 113± feet above sea level.

Soils

Soils encountered within this project area have been divided into three categories: Roadway Embankment, Artificial Fill, and alluvial.

Roadway embankment soils were found along the existing Fayetteville Highway corridor. Where encountered it was composed of 1± to 15± feet of loose sand (A-2-4).

Artificial fill soils are composed of up to 3± feet of loose gray and brown sand (A-2-4).

Soils identified as alluvial are composed of 1± to 7± feet of very loose and soft muck and 1± to 6± feet of loose sand (A-2-4, A-3). Organic samples taken within the muck returned organic contents ranging from 21.8% to 36.5%. Moisture samples taken within the muck ranged from 258.5% to 583.8%.

Undisturbed Samples

Undisturbed thin walled Shelby Tube samples were collected at the following locations and submitted for testing:

<u>Sample No.</u>	<u>Station</u>	<u>Depth</u>	<u>Test</u>
ST-1	-L- Sta. 21+00, 80' RT	0.3-2.3	Consolidation/ Triaxial
ST-2	-L- Sta. 18+50, 75' RT	0.2-2.2	Consolidation/ Triaxial

See Sheet 1A For Index of Sheets
See Sheet 1B for Conventional Symbols

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

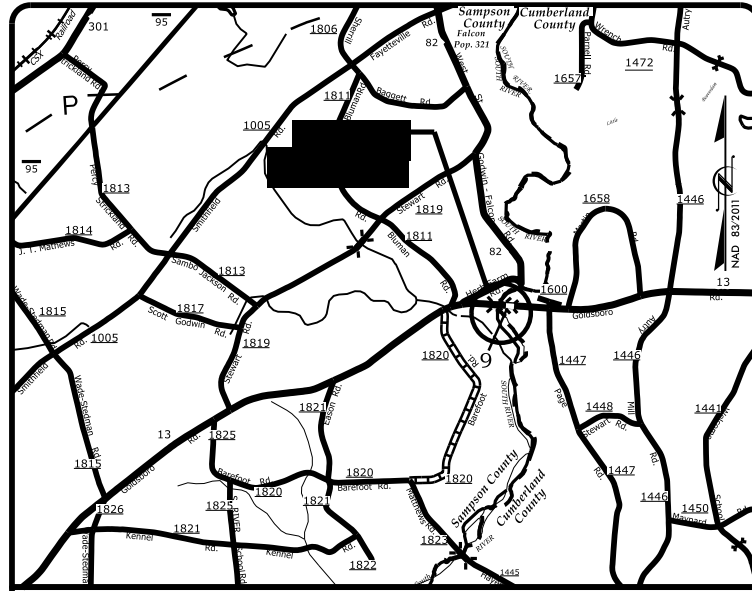
SAMPSON COUNTY

LOCATION: REPLACE BRIDGE #9 OVER SOUTH RIVER OVERFLOW ON US 13

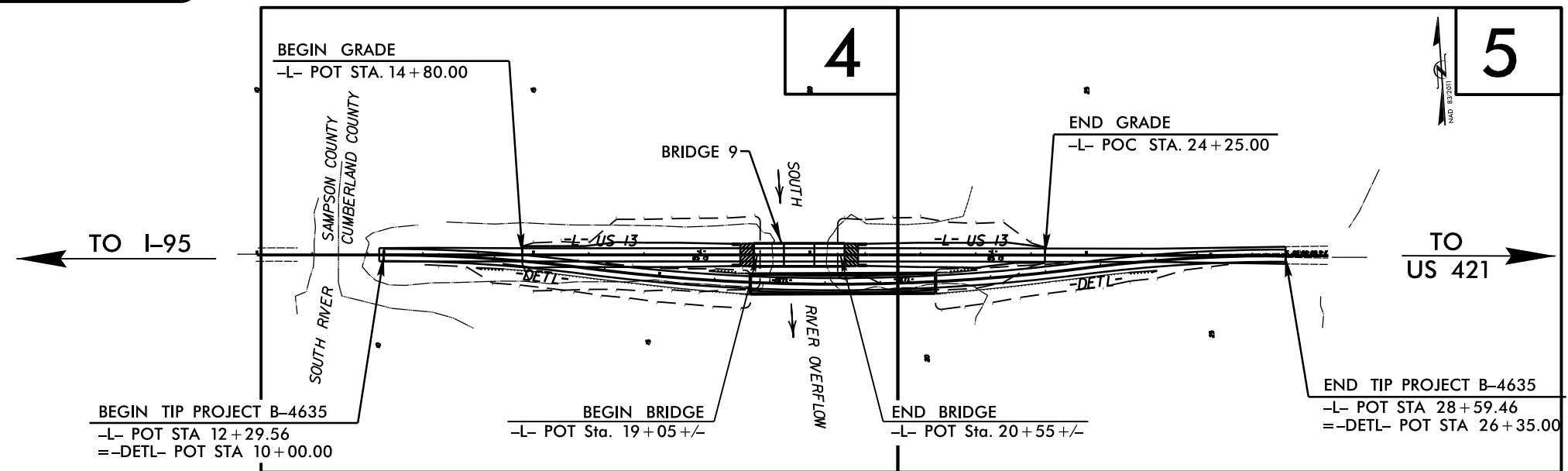
TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4635	3	19
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
38446.1.1		P.E.	
38446.1.2		R/W	
38446.1.3		CONST.	

25% PLANS



VICINITY MAP



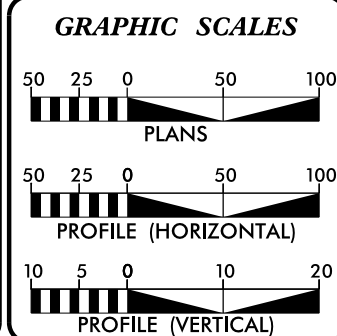
TIP PROJECT: B-4635

CONTRACT:

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY MODIFIED METHOD III.

NCDOT CONTACT: TIERRE PETERSON, PE

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



DESIGN DATA

ADT 2019 =	4,184
ADT 2039 =	6,104
K =	9 %
D =	60 %
T =	19 % *
V =	60 MPH
* TTST =	14 DUAL 5
FUNC CLASS =	MINOR ARTERIAL
REGIONAL TIER	

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4635 =	0.281 MILES
LENGTH STRUCTURE TIP PROJECT B-4635 =	0.028 MILES
TOTAL LENGTH TIP PROJECT B-4635 =	0.309 MILES

PLANS PREPARED FOR NCDOT BY:

Dewberry
2610 WYCLIFF ROAD
SUITE 410
RALEIGH, NC 27607
PHONE: 919.881.9939
NC COA No. F-0929

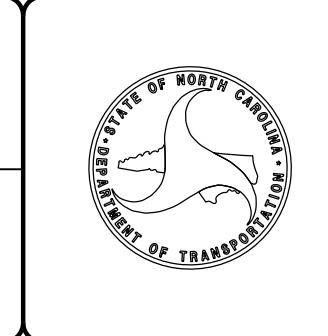
RIGHT OF WAY DATE: AUGUST 15, 2018	DENNIS J. MORY, P.E. PROJECT ENGINEER
LETTING DATE: AUGUST 21, 2019	ANNE MARIE PRIETO, P.E. PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: _____ P.E.

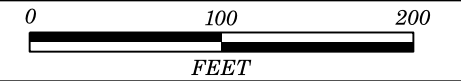
ROADWAY DESIGN ENGINEER

SIGNATURE: _____ P.E.



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SITE PLAN



10
-L- POT Sta. 10+00.00

15

20

BEGIN PROJECT B-4635
BEGIN RESURFACING
-L- POT Sta. 12+21.07

END RESURFACING
BEGIN GRADE
-L- POT Sta. 14+80.00

BEGIN BRIDGE -L-
POT Sta. 18+98.00+/-

END BRIDGE -L-
POT Sta. 20+63.00+/-

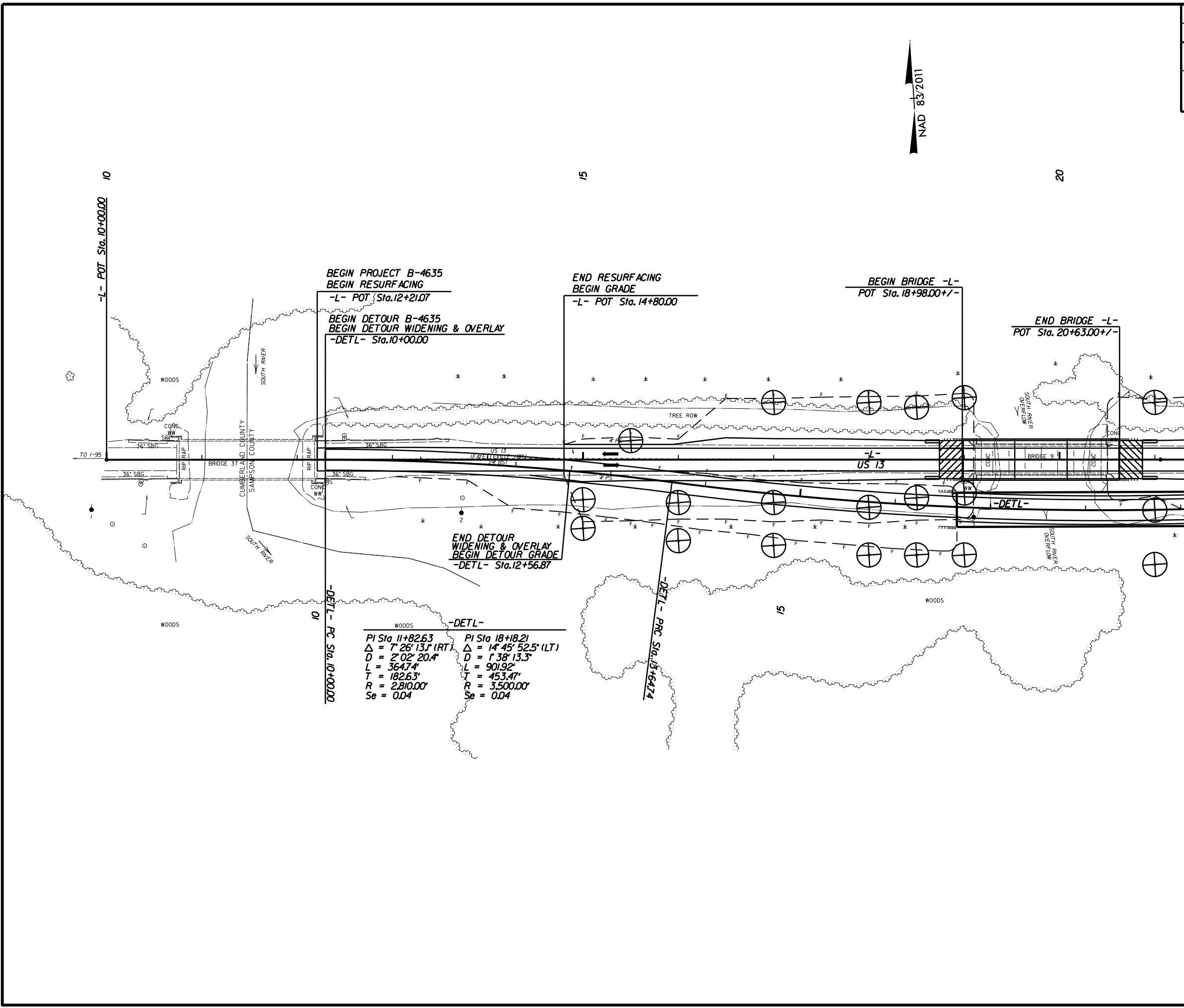
BEGIN DETOUR B-4635
BEGIN DETOUR WIDENING & OVERLAY
-DETL- Sta. 10+00.00

END DETOUR
WIDENING & OVERLAY
BEGIN DETOUR GRADE
-DETL- Sta. 12+56.87

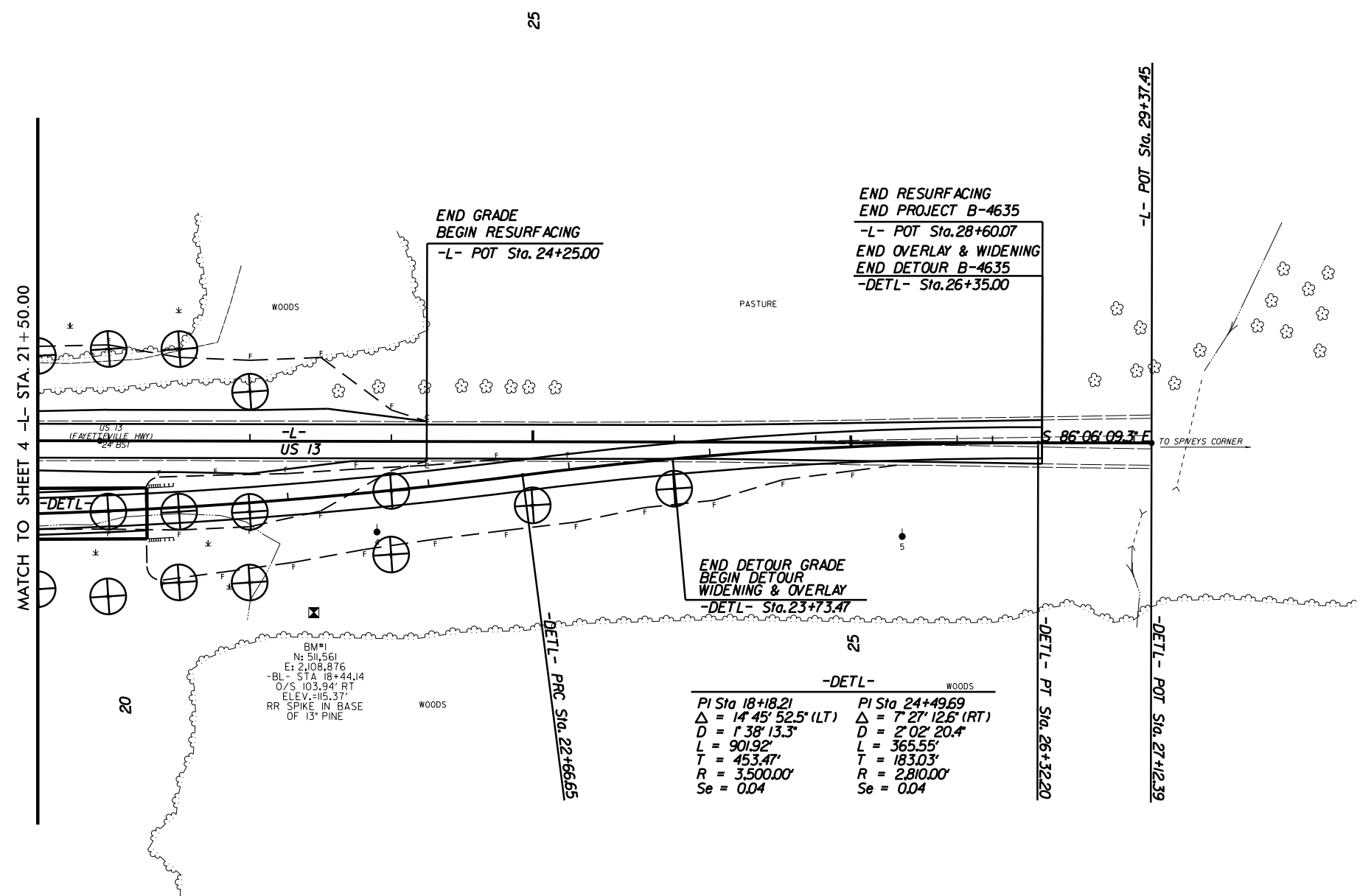
WOODS -DETL-	
PI Sta 11+82.63	PI Sta 18+18.21
$\Delta = 7^{\circ} 26' 13.1''$ (RT)	$\Delta = 14^{\circ} 45' 52.5''$ (LT)
$D = 2^{\circ} 02' 20.4''$	$D = 1^{\circ} 38' 13.3''$
$L = 364.74'$	$L = 901.92'$
$T = 182.63'$	$T = 453.47'$
$R = 2,810.00'$	$R = 3,500.00'$
$S_e = 0.04$	$S_e = 0.04$

-DETL- PRC Sta. 13+6474

MATCH TO SHEET 5 -L- STA. 21+50.00



NAD 83/2011



END GRADE
BEGIN RESURFACING
-L- POT Sta. 24+25.00

END RESURFACING
END PROJECT B-4635
-L- POT Sta. 28+60.07
END OVERLAY & WIDENING
END DETOUR B-4635
-DETL- Sta. 26+35.00

END DETOUR GRADE
BEGIN DETOUR
WIDENING & OVERLAY
-DETL- Sta. 23+73.47

-DETL-	
PI Sta 18+18.21	PI Sta 24+49.69
$\Delta = 14^\circ 45' 52.5" (LT)$	$\Delta = 7^\circ 27' 12.6" (RT)$
$D = 1^\circ 38' 13.3"$	$D = 2^\circ 02' 20.4"$
$L = 901.92'$	$L = 365.55'$
$T = 453.47'$	$T = 183.03'$
$R = 3,500.00'$	$R = 2,810.00'$
$Se = 0.04$	$Se = 0.04$

BM#1
N: 511.561
E: 2,108.876
-BL- STA 18+44.14
O/S 103.94' RT
ELEV. = 115.37'
RR SPIKE IN BASE
OF 13' PINE

MATCH TO SHEET 4 -L- STA. 21+50.00

20

25

25

WOODS

PASTURE

WOODS

US 13
(FAYETTEVILLE HWY)
24' BSI

-L-
US 13

S 86°06'09.3" E
TO SPWEYS CORNER

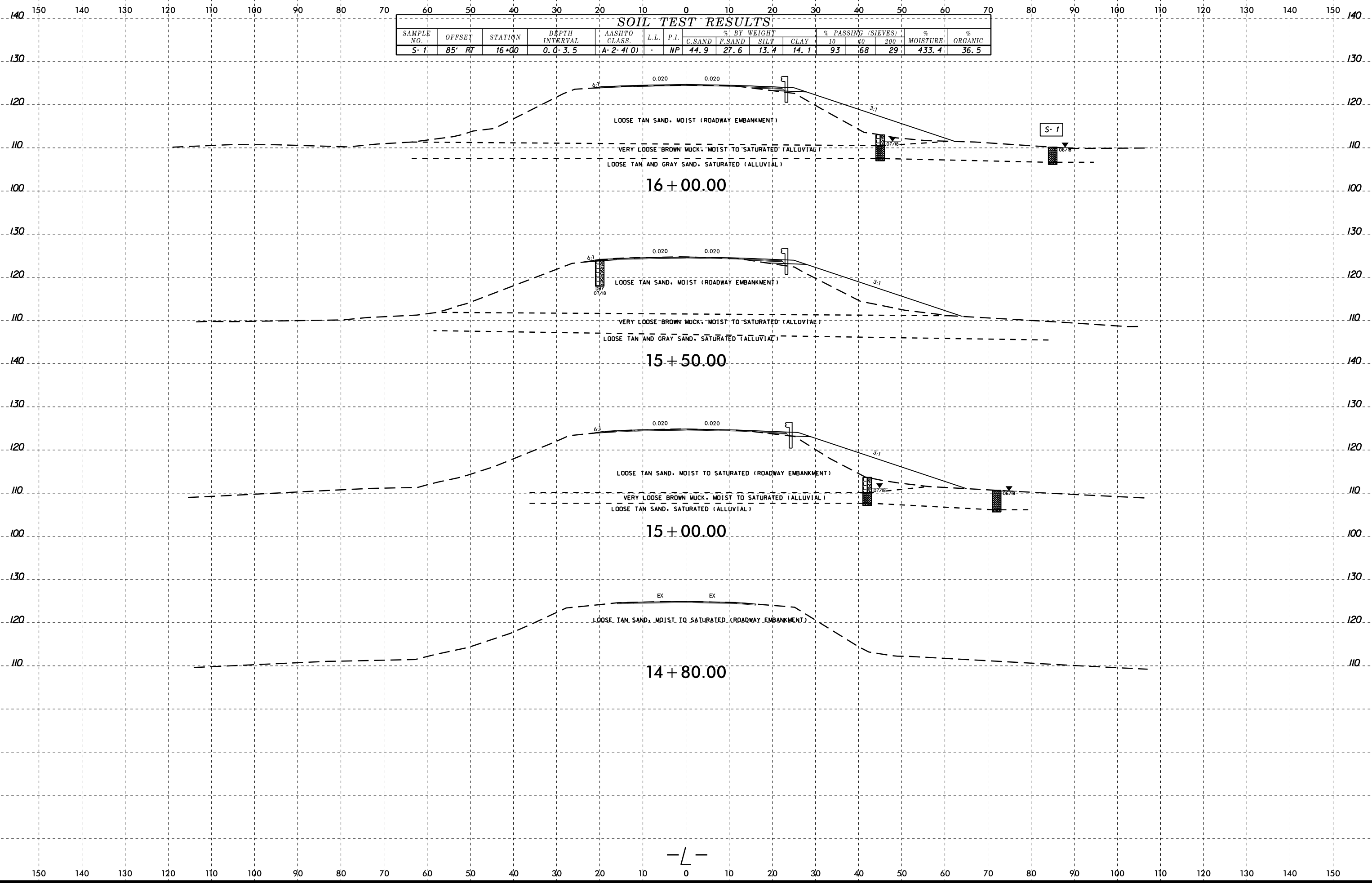
-DETL- PRC Sta. 22+66.65

-DETL- PT Sta. 26+32.20

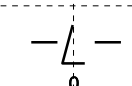
-L- POT Sta. 29+37.45

-DETL- POT Sta. 27+12.39

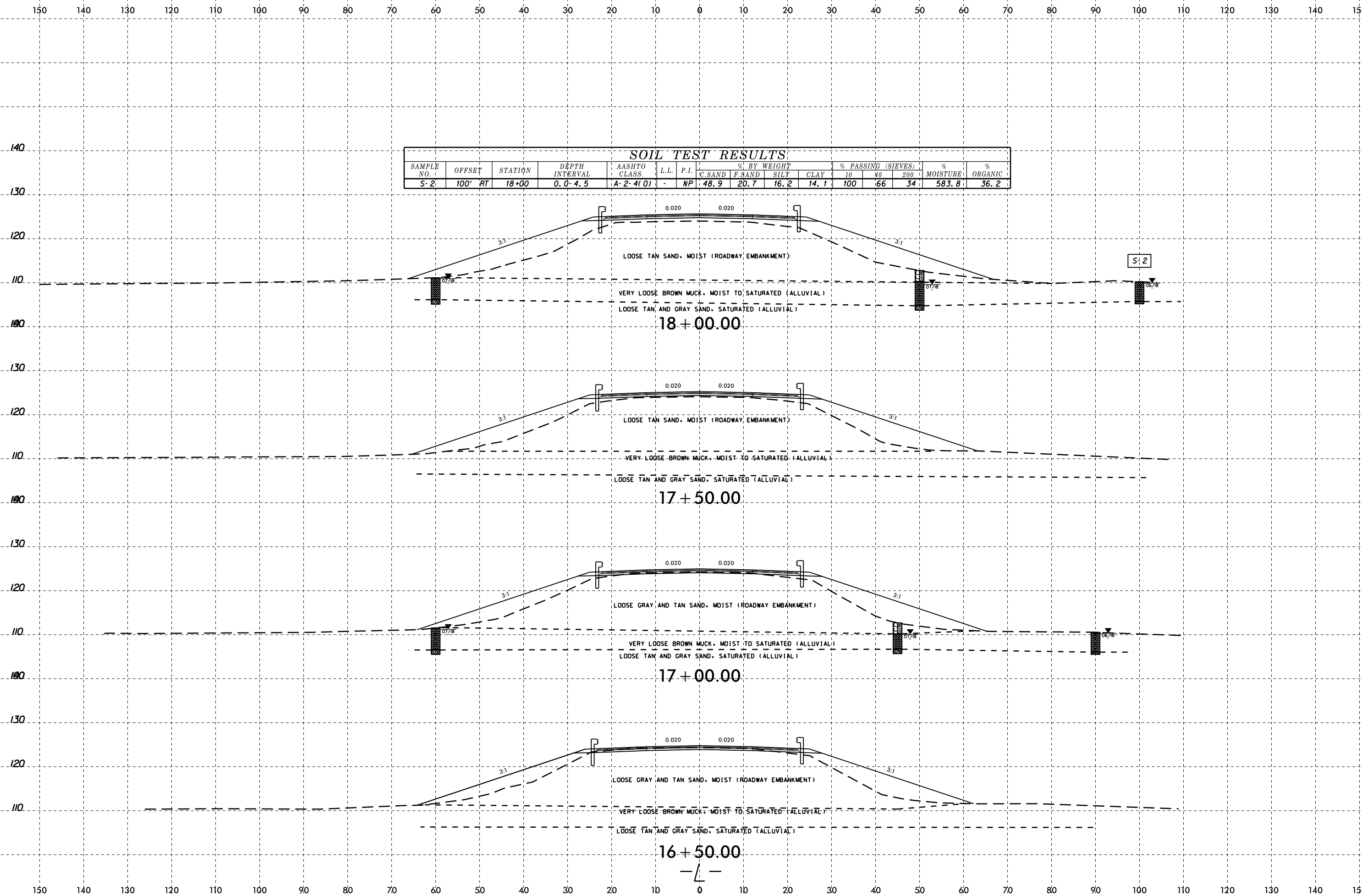
SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
S-1	85' RT	16+00	0.0-3.5	A-2-4(0)	-	NP	44.9	27.6	13.4	14.1	93	68	29	433.4	36.5



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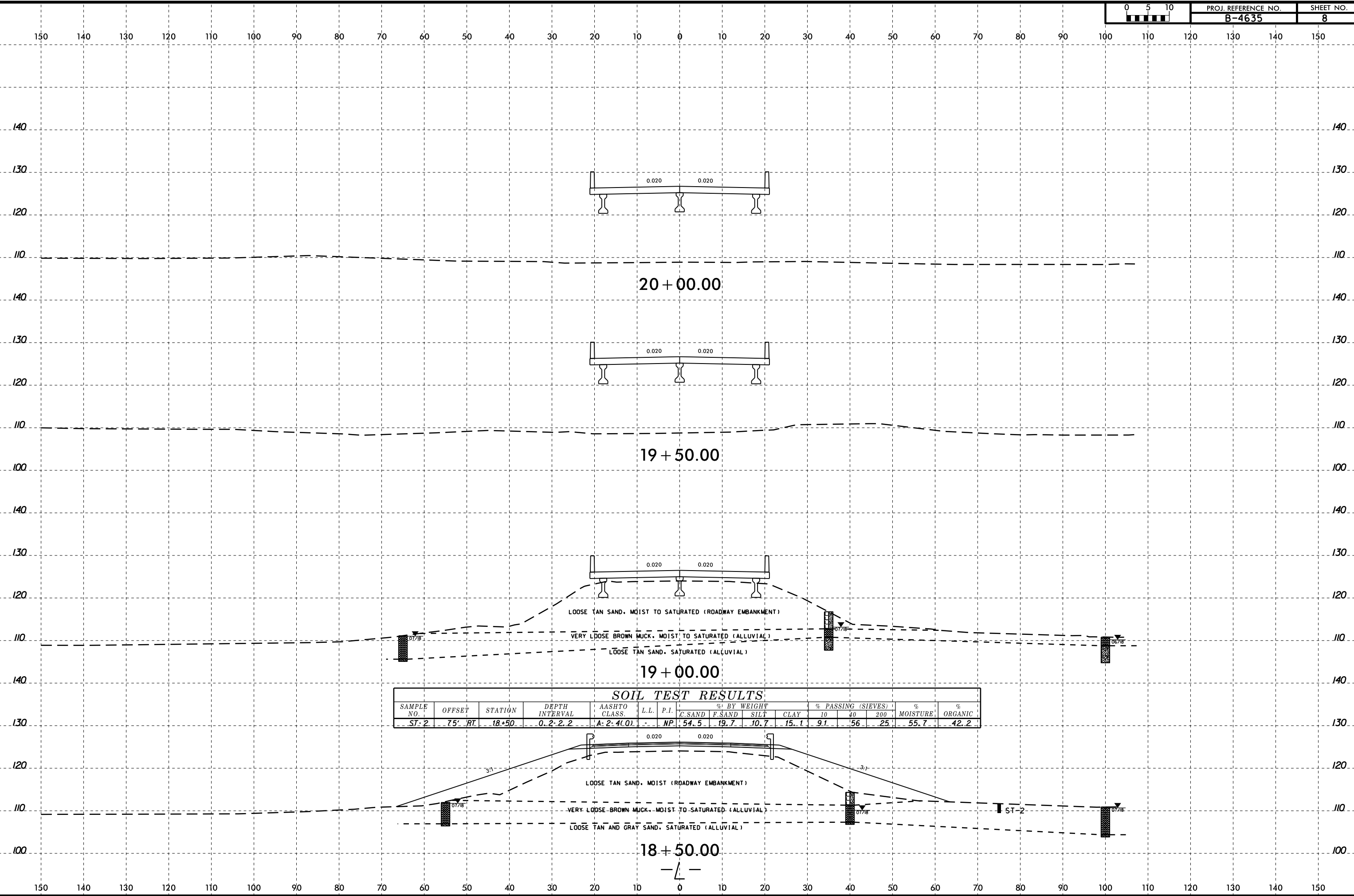


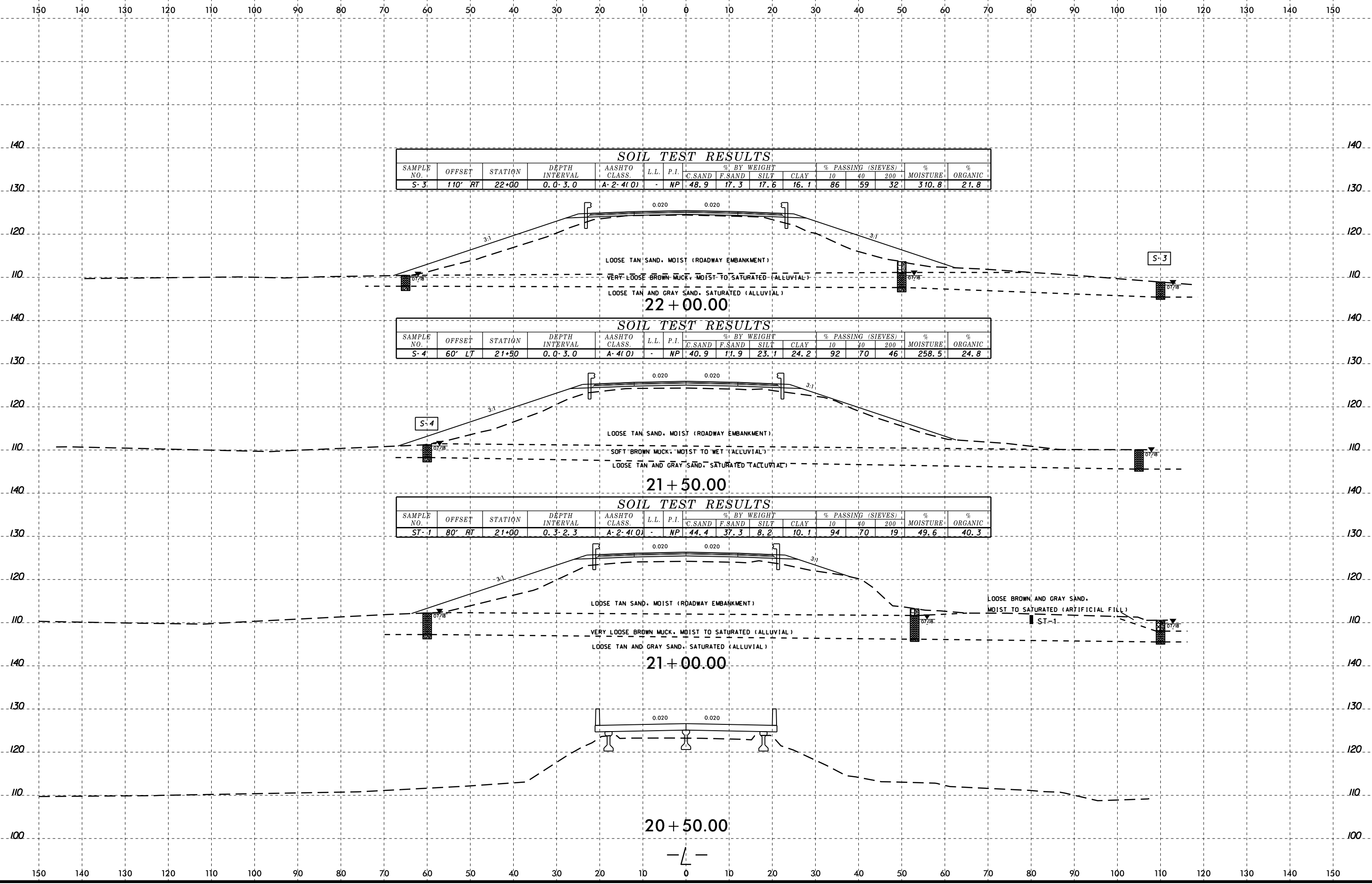
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							C. SAND	F. SAND	SILT	CLAY	10	#40	200		
S-2	100' RT	18+00	0.0-4.5	A-2-4(0)	-	NP	48.9	20.7	16.2	14.1	100	66	34	583.8	36.2



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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		
S-3	110' RT	22+00	0.0-3.0	A-2-4(0)	-	NP	48.9	17.3	17.6	16.1	86	59	32	310.8	21.8

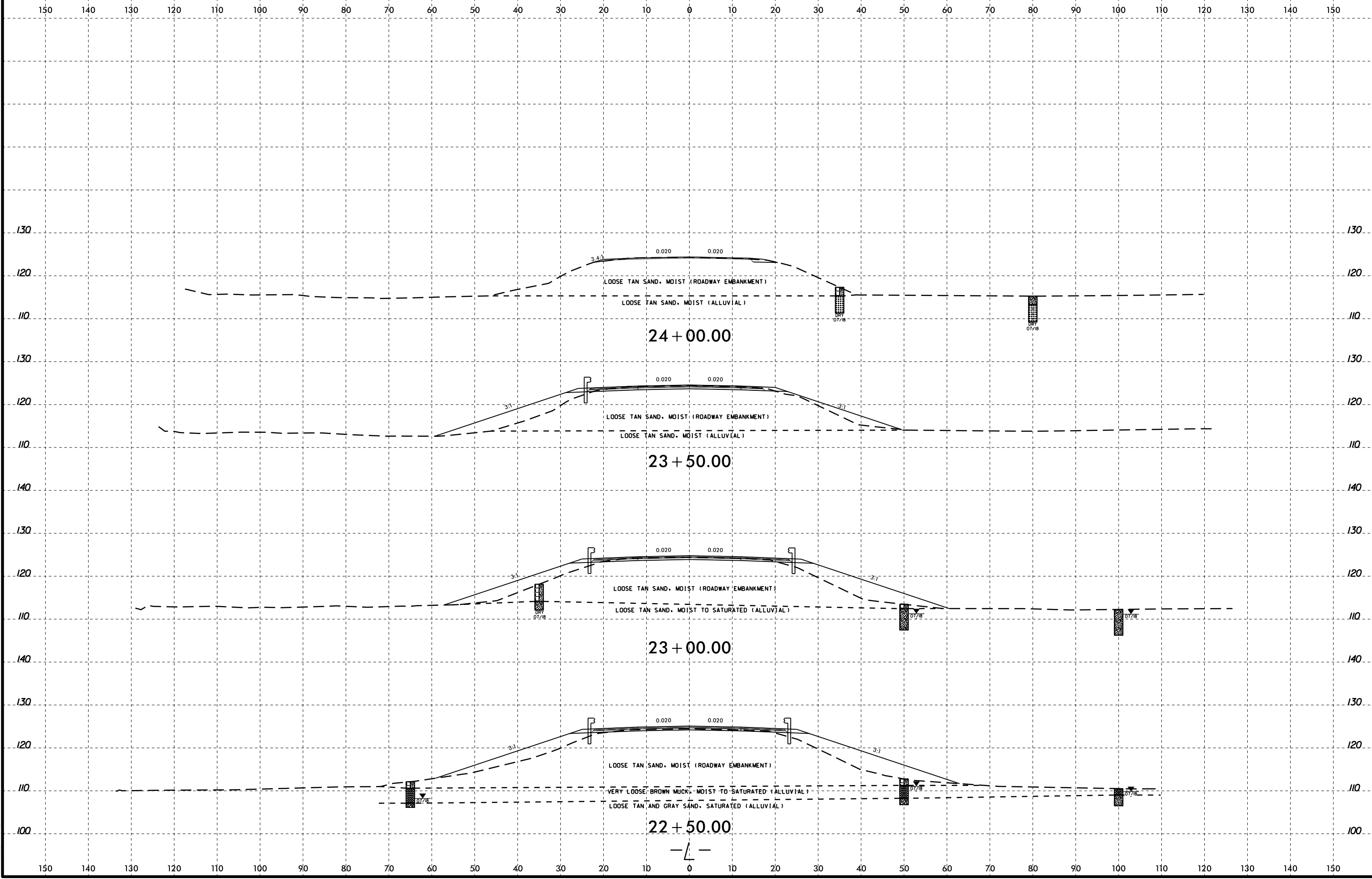
SOIL TEST RESULTS

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							C.SAND	F.SAND	SILT	CLAY	10	40	200		
S-4	60' LT	21+50	0.0-3.0	A-4(0)	-	NP	40.9	11.9	23.1	24.2	92	70	46	258.5	24.8

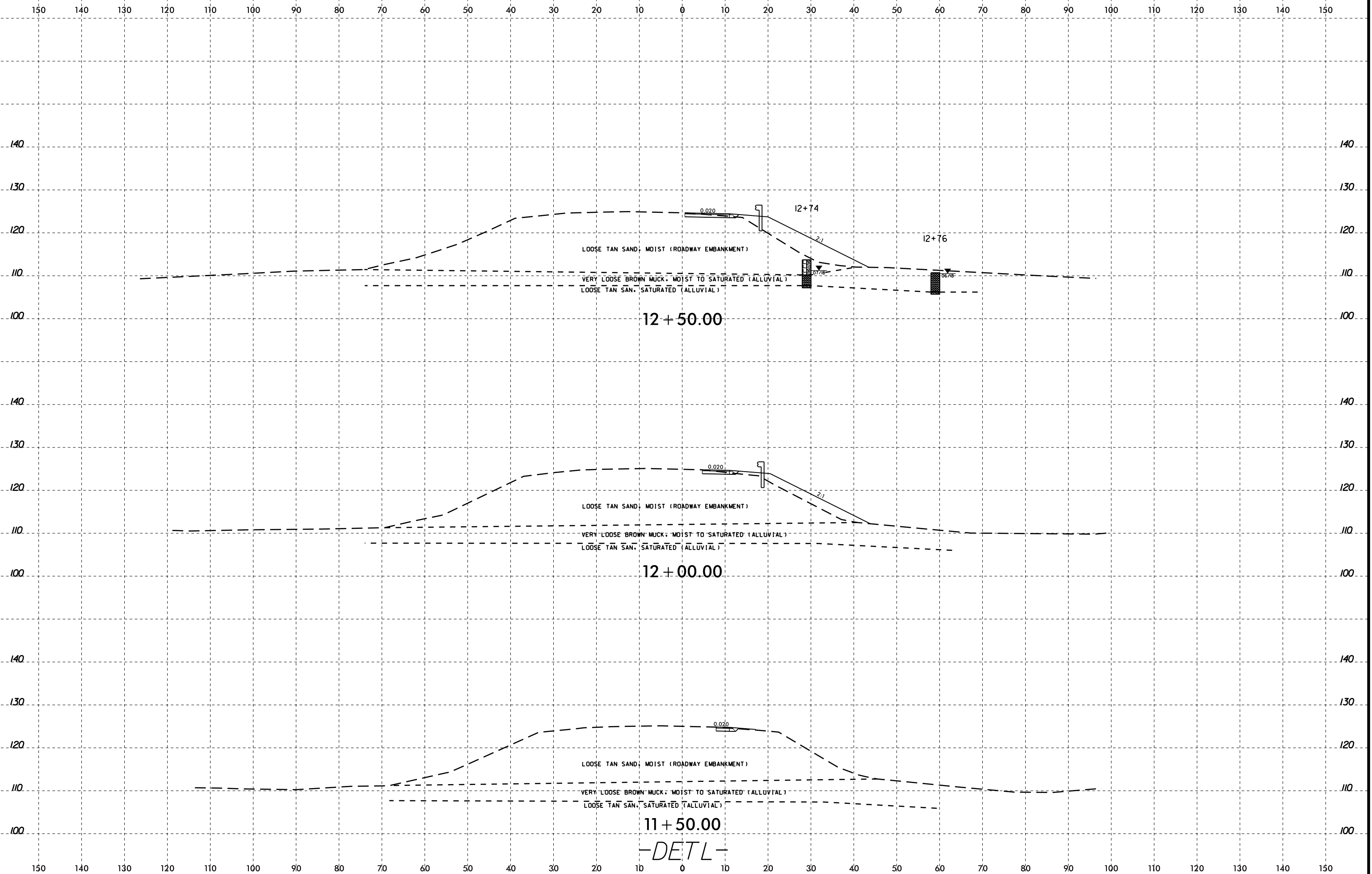
SOIL TEST RESULTS

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							C.SAND	F.SAND	SILT	CLAY	10	40	200		
ST-1	80' RT	21+00	0.3-2.3	A-2-4(0)	-	NP	44.4	37.3	8.2	10.1	94	70	19	49.6	40.3

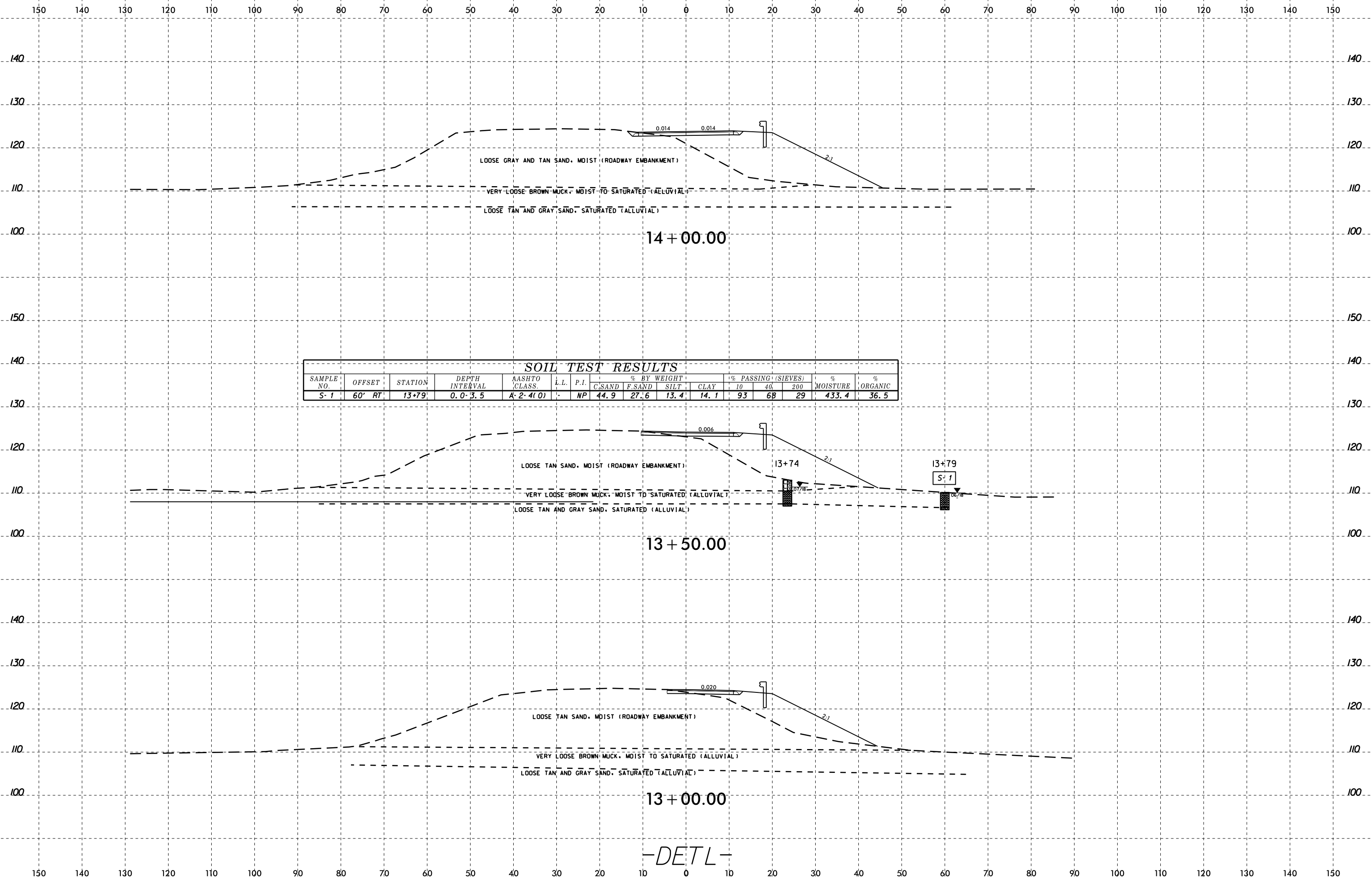
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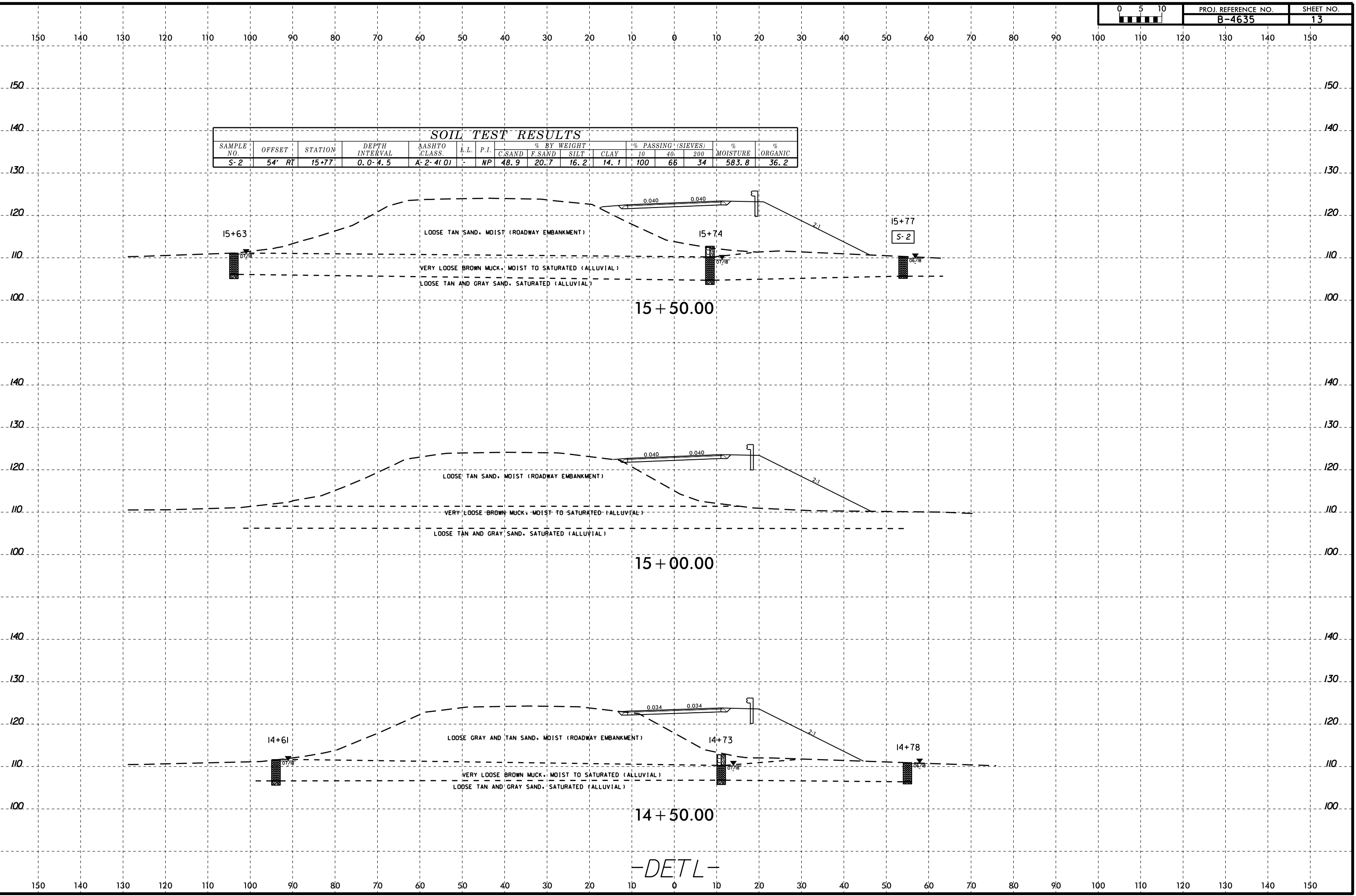


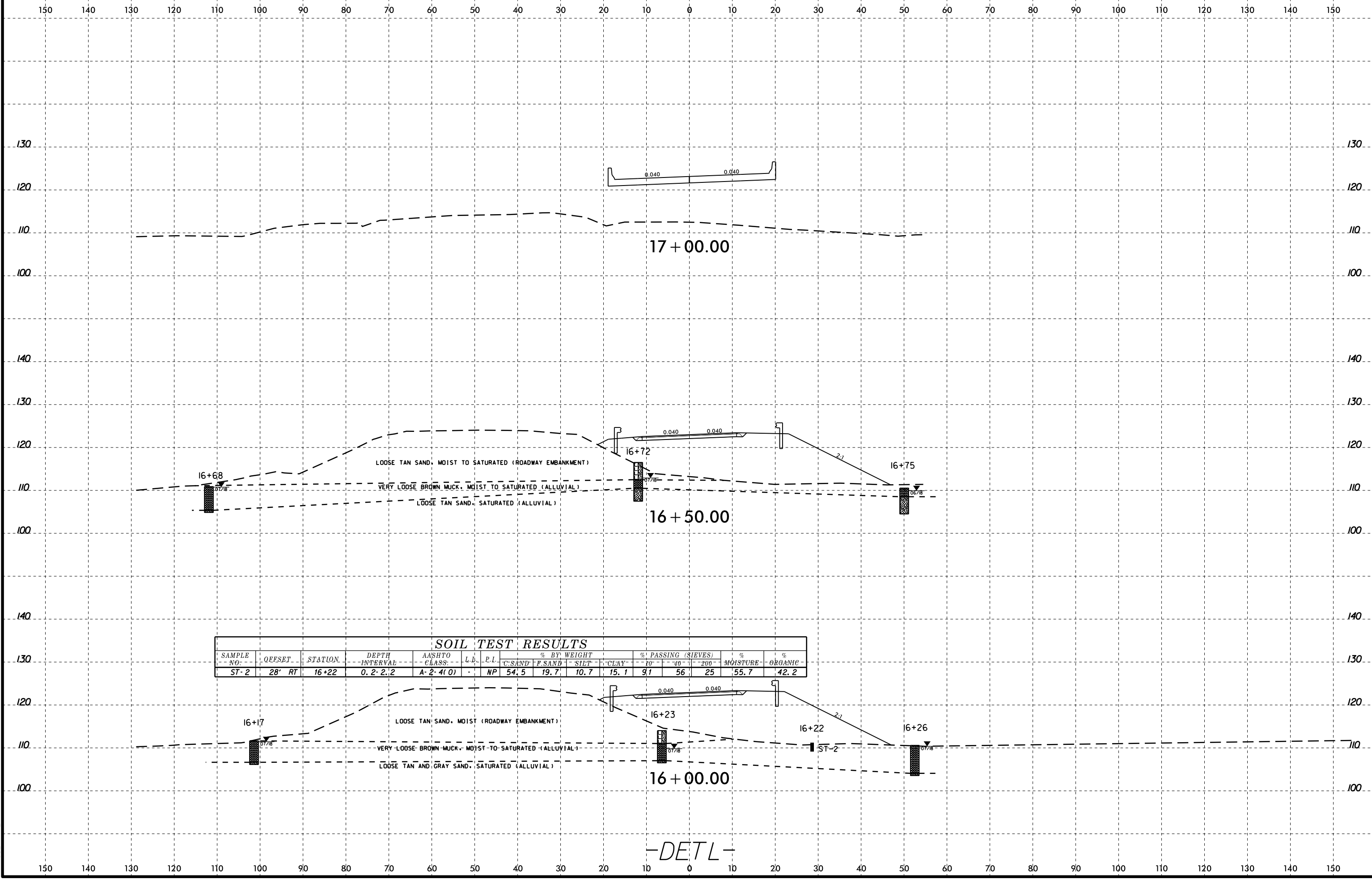
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-DETL-

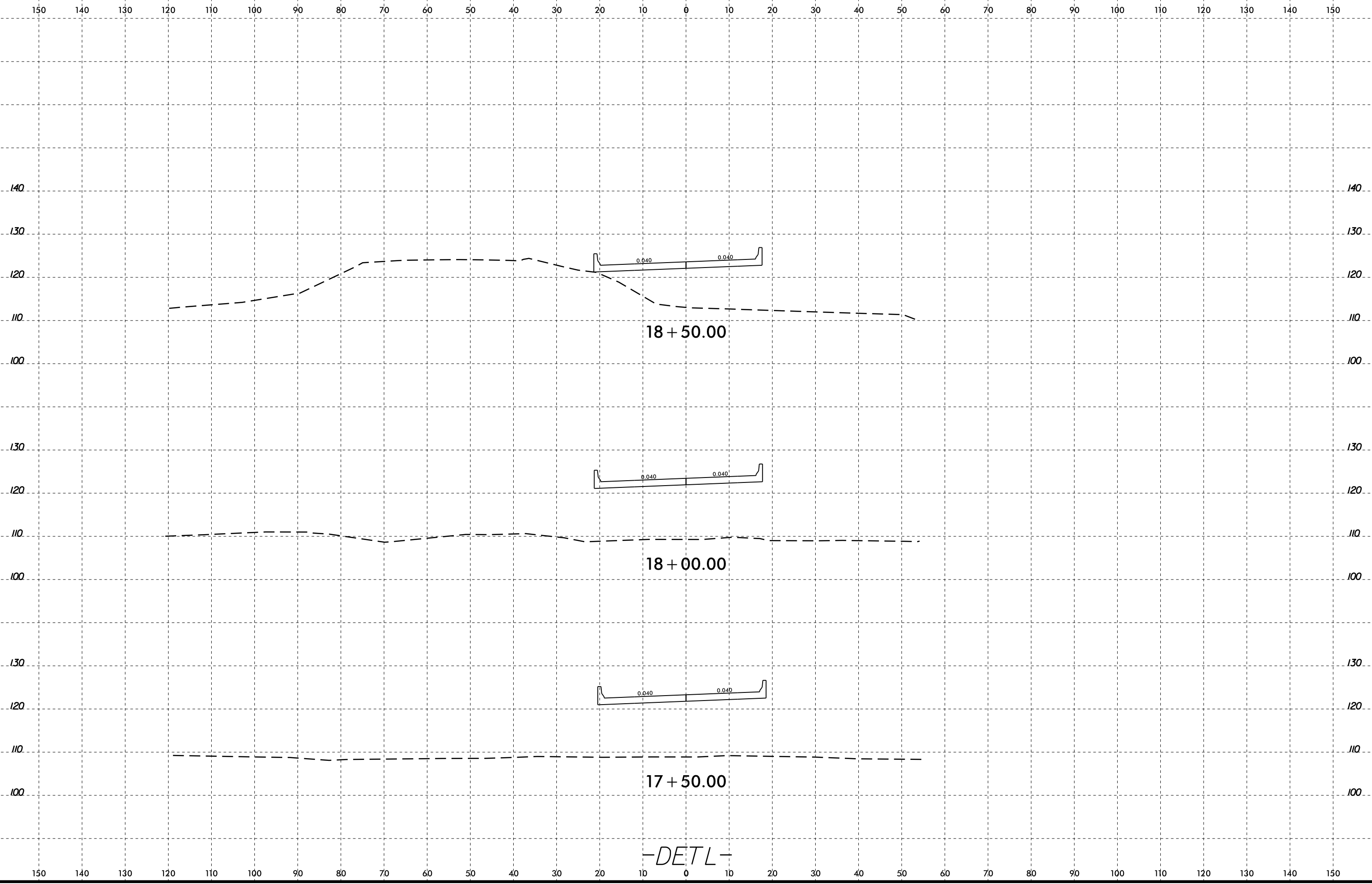
SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
S-2	54' RT	15+77	0.0-4.5	A-2-4(0)	-	NP	48.9	20.7	16.2	14.1	100	66	34	583.8	36.2





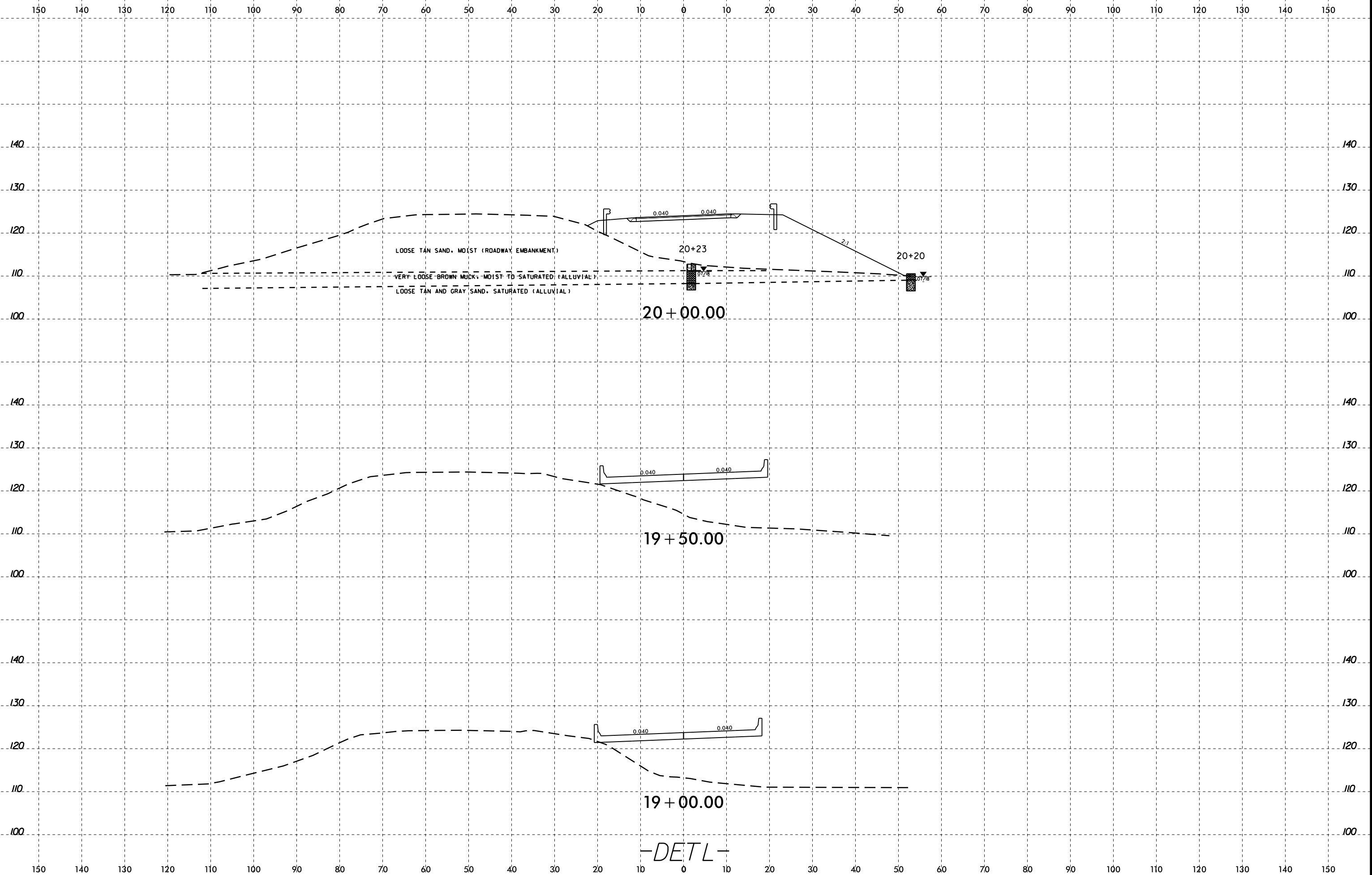
SOIL TEST RESULTS																
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.L.	% BY WEIGHT				% PASSING (SIEVES)				% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	#10	#40	#200			
ST-2	28' RT	16+22	0.2-2.2	A-2-4(0)	-	NP	54.5	19.7	10.7	15.1	9.1	56	25	55.7	42.2	

-DETL-

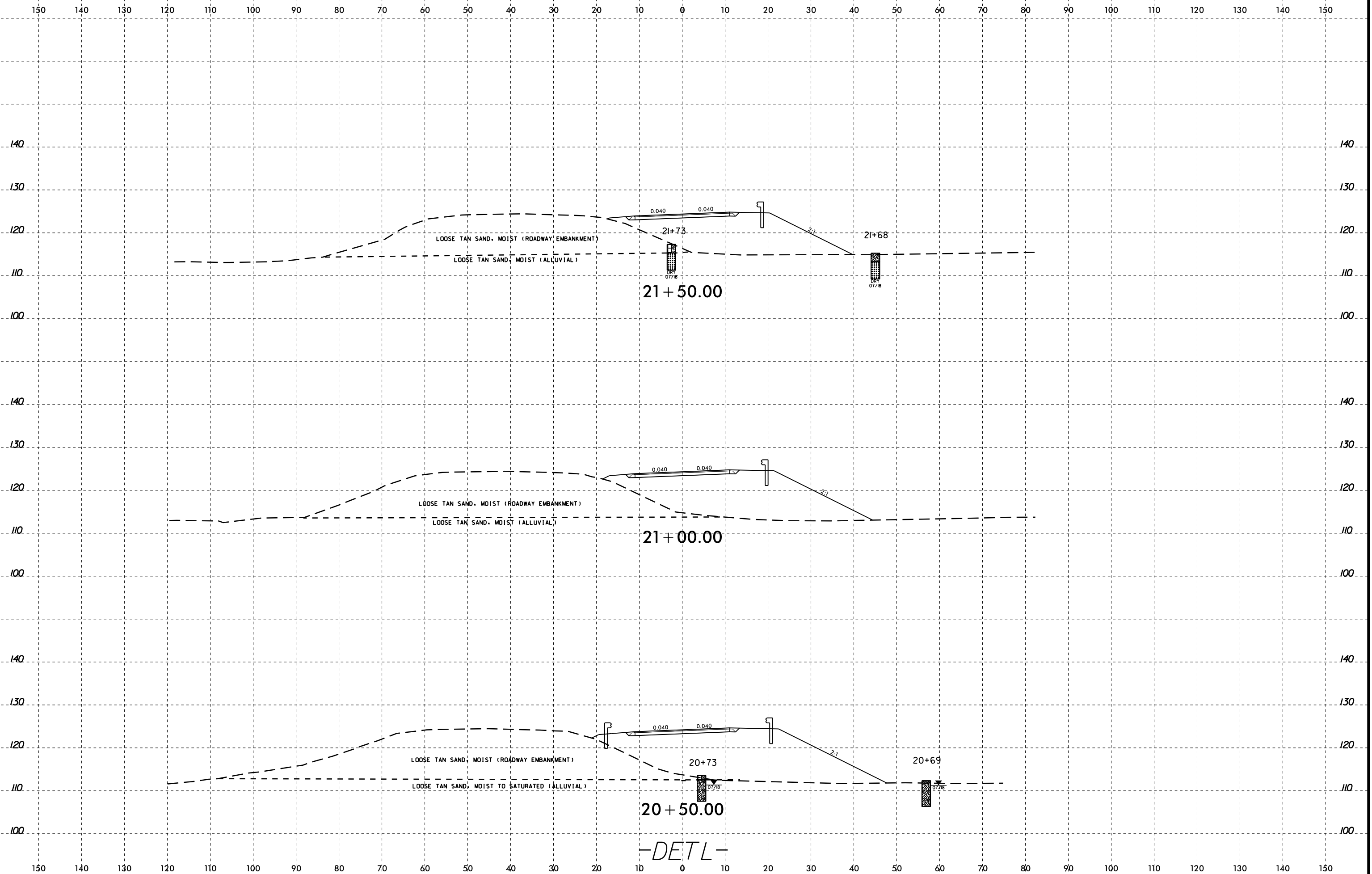


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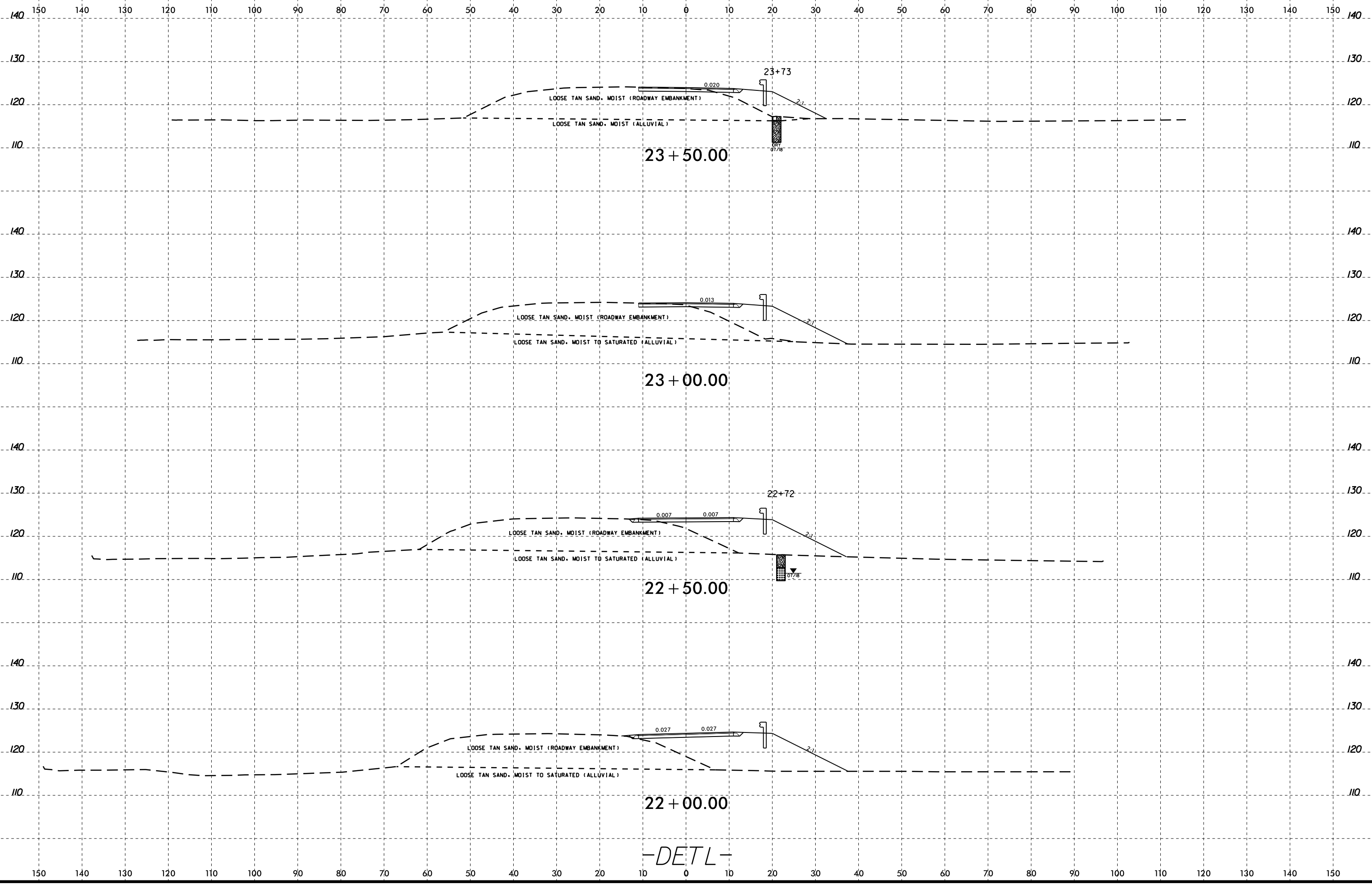
-DETL-



-DETL-



-DETL-



-DETL-



150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

