



PROJECT: 43463.1.1 TIP: R-5023C COUNTY: ONSLOW

DESCRIPTION: _____

SITE DESCRIPTION: NC 53 ST SR 1109 (HOLLY SHELTER RD.)

MEMORANDUM TO: Mr. John L. Pilipchuk, L.G., P.E., State Geotechnical Engineer

- Transmitted Pages** Color Photos in Product
- 15 Right of Way Recommendations
 - Roadway Inventory Written Report Only
 - Requested by: Roadway Design Division (Name: Amanda Glynn)
 - 19 Roadway Design Recommendations
 - Plans Waiting Period Provisions
 - Requested by: Roadway Design Division (Name: Amanda Glynn)
 - Bridge Inventory Plans
 - Requested by: Structures Management Division (Name: _____)
 - Foundation Design Recommendations Stream Crossing Waiting Period Provisions
 - Requested by: Structures Management Division (Name: _____)
 - Retaining Wall Inventory
 - Distribute to: Structures Management Division (Name: _____)
 - Retaining Wall Recommendations/Design Plans Provisions
 - Distribute to: Structures Management Division (Name: _____)
 - Temporary Shoring Recommendations Plans Provisions
 - Requested by: Structures Management Work Zone Traffic Control
 - Roadway Design Division (Name: _____)
 - Pavement Design Investigation Provisions
 - Design-Build Project
 - Metal Pole Investigation
 - PDEA Report
 - 1 Project Productivity Summary Report
 - Copy for HQ project file
 - Other _____

Remarks/Special Distribution Instructions: Distributed by ERO

Digital files posted to S Drive by: M. R. H. Date: 8-8-14

Transmitted by: [Signature] Date: 8-6-14 Office: Greenville

Transmitted by: [Signature] Date: 8-7-14 Office: ERO

Reviewed by: _____ Date: _____ Office: _____

Received by: _____ Date: _____ Office: _____

Distributed by: _____ Date: _____ Duplicate Copy of Recommendations Requested for Regional Office



TIP	R-5023C
WBS Element	43463.1.1
MMS Task No.	9000000 21601
Network	
Fieldwork Activity Element	

Field Office	Greenville FO
Project Geologist	JL STONE
Area Geologist Transmittal Date	

Commute

GEU personnel stayed in hotel for most of field work? (Yes/No)	yes
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Expenses

Expenses (hotel, meals, phone) for Project Geologist and crew	661.68
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Non-Road Features

Length (feet) of Non-Road Features (culverts, pipes, walls, channel changes, etc.), that were investigated AND included in the ROADWAY Inventory Report.	
Miles	

Borings (count)

"Line" Borings: borings located along roadway alignments, and/or on constant offset lines to roadway alignments. Usually, these borings are shown in rdwy profiles.	
"Offset" Borings: borings variably offset from a roadway alignment, typically to delineate rock or unsuitable materials. Usually, these borings are shown in rdwy cross sections.	6
Other Borings: borings for non-road features (eg culverts, pipes, walls, channel changes) that are included in the ROADWAY Inventory Report.	
Total Borings	6

Footage

	In-House Drillers	Consultant Drillers	Combined
Power Auger without tests			
Power Auger with tests (eg SPT)			
Rotary with tests (eg SPT)			
Core (Coastal Plain)			
Core (non-Coastal Plain)			
Other (eg DCP, CPT, hand auger, bridge rods)	36.0		36.0
Total Footage	36.0		36.0

Samples (count)

Bulk Quality (S)	5
SPT Quality (SS)	
California Bearing Ratio (CBR)	
Recompacted Triaxial (RT)	
Shelby Tube (ST, SST)	
Rock (RS)	
Other: org	4
Total Samples	9

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.	R-5023C	1	14
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
		P.E.	
		RW & UTIL.	

CONTENTS

LINE	STATION	PLAN	PROFILE
-EL-	23+06 TO 36+34	4	5
-YI-	13+92 TO 15+94	4	6

ROADWAY
SUBSURFACE INVESTIGATION

PROJ. REFERENCE NO. 43463.1.1 (R-5023C) F.A. PROJ. STP-0053(8)
COUNTY ONSLow
PROJECT DESCRIPTION NC 53 AT SR 1109 (HOLLY SHELTER ROAD)

CROSS SECTIONS

LINE	STATION	SHEET
-EL-	23+00 TO 37+00	7-14

INVENTORY

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 1939 TOTTENHAM, 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.

CONTRACT: ID: R-5023C

PERSONNEL

J.D. GEMPERLINE

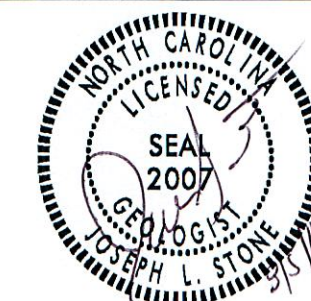
R.E. SMITH

INVESTIGATED BY J.L. STONE

CHECKED BY D.N. ARGENBRIGHT

SUBMITTED BY D.N. ARGENBRIGHT

DATE AUGUST 2014



DRAWN BY: J.L. STONE

NOTE - THE INFORMATION CONTAINED HEREIN IS NOT IMPLIED OR GUARANTEED BY THE N.C. DEPARTMENT OF TRANSPORTATION AS BEING ACCURATE NOR IS IT 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.

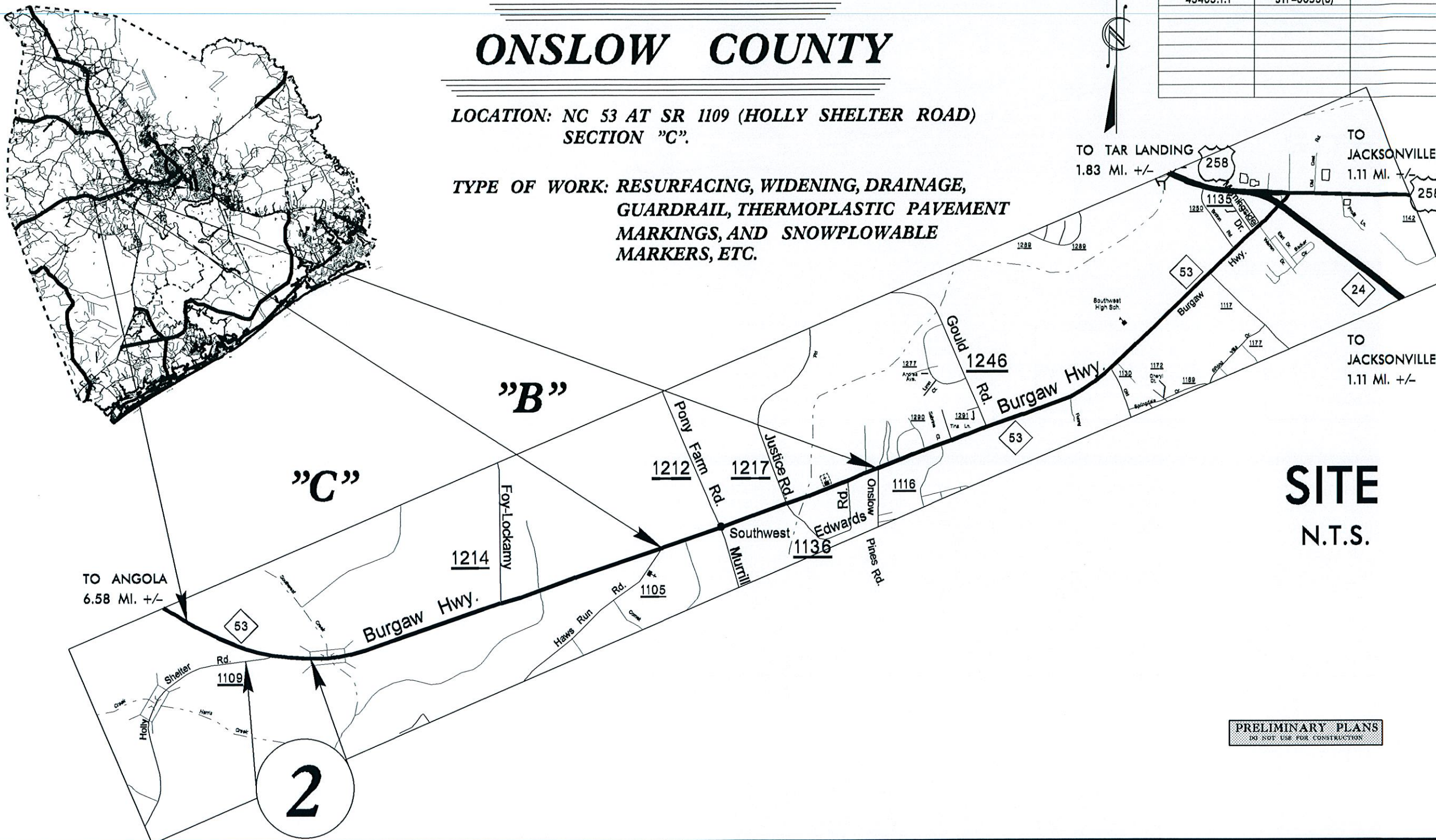
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

ONSLOW COUNTY

LOCATION: NC 53 AT SR 1109 (HOLLY SHELTER ROAD)
SECTION "C".

TYPE OF WORK: RESURFACING, WIDENING, DRAINAGE,
GUARDRAIL, THERMOPLASTIC PAVEMENT
MARKINGS, AND SNOWPLOWABLE
MARKERS, ETC.

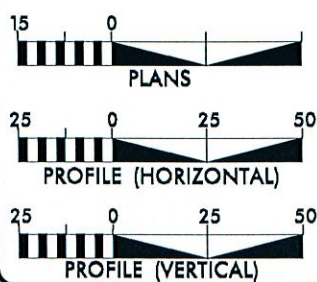
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	WBS: 43463.1.1	2A	14
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
43463.1.1	STP-0053(B)		



SITE
N.T.S.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES



DESIGN DATA

ADT =
 ADT =
 DHV = %
 D = %
 T = % *
 V = MPH
 * TTST DUAL

PROJECT LENGTH

MAP NO. 2 = 0.15 MILES (WBS NO. 43463.1.1)

Prepared In the Office of:
DIVISION OF HIGHWAYS

124 Division Dr., Wilmington, NC 28401

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:

LETTING DATE:

HYDRAULICS ENGINEER

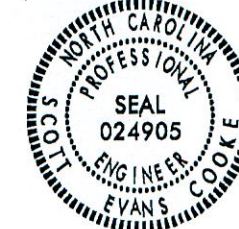
SIGNATURE: _____ P.E.

ROADWAY DESIGN
TECHNICIAN
DNL

SIGNATURE: _____

SIGNATURE: _____

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA



DIVISION DESIGN ENGINEER

TIP PROJECT: R-5023C

CONTRACT: C-XXXXX



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAT MCCRORY
GOVERNOR

ANTHONY J. TATA.
SECRETARY

August 6, 2014

STATE PROJECT: 43463.1.1 (R-5023C)
F.A. PROJECT: STP-0053(8)
COUNTY: Onslow
DESCRIPTION: NC 53 at SR 1109 (Holly Shelter Rd.)
SUBJECT: Geotechnical Inventory Report

Project Description

This project begins on NC 53, approximately 400 feet west of the existing NC 53 / SR 1109 intersection and extends 1,300± feet east along NC 53. This geotechnical investigation was confined to the areas of proposed construction.

Fieldwork was conducted in April 2014. Hand auger borings were completed at various offsets along the project corridor. Representative soil samples were collected for visual classification in the field and for laboratory analysis by the Materials and Tests Unit.

The following alignments were investigated. Subsurface profiles and selected cross sections of these alignments are included in this report.

<u>Line</u>	<u>Station(±)</u>
-EL-	23+06 to 36+34
-Y1-	13+92 to 15+94

Areas of Special Geotechnical Interest

- 1) The entire project was found to exhibit seasonal high ground water.
- 2) The following sections contain cohesive soils which have the potential to cause embankment/subgrade and or slope stability problems during construction.

<u>Line</u>	<u>Station(±)</u>
-EL-	23+06 to 29+92
-Y1-	13+92 to 15+94

- 3) The following sections contain organic soils that have the potential to cause embankment/subgrade and or slope stability problems during construction.

<u>Line</u>	<u>Station(±)</u>
-EL-	23+06 to 27+40
-EL-	28+83 to 36+34
-Y1-	13+92 to 15+94

Physiography and Geology

This project corridor is located within the Coastal Plain Physiographic Province. Topography along the project is nearly flat to gently sloping. Ground elevations ranged from 18± to 43± feet above sea level.

Surficial soils in this area are generally classified as undivided coastal plain sediments.

Ground Water

Ground water data was collected in April 2014, during a time of normal precipitation. Ground water elevations ranged from 26± to 38 ± feet above sea level.

Soils

Soils encountered within this project area have been divided into two categories, undivided coastal plain soils and roadway embankment.

Soils identified as undivided coastal plain are composed of 1± to 3± feet of medium stiff sandy silt (A-4), 1± to 2± feet of very soft muck, 6 or more feet of loose sand (A-2-4, A-3) and 1± to 3± feet of loose sand (A-2-4) with trace to moderate organics. Organic samples taken within these soils returned organic percentages ranging from 2% to 6%.

Roadway embankment soils were found within the existing NC 53 and SR 1109 embankment. Where encountered it is composed of 1± to 3± feet of loose sand (A-2-4, A-3).

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

TELEPHONE: 919-707-6850
FAX: 919-250-4237

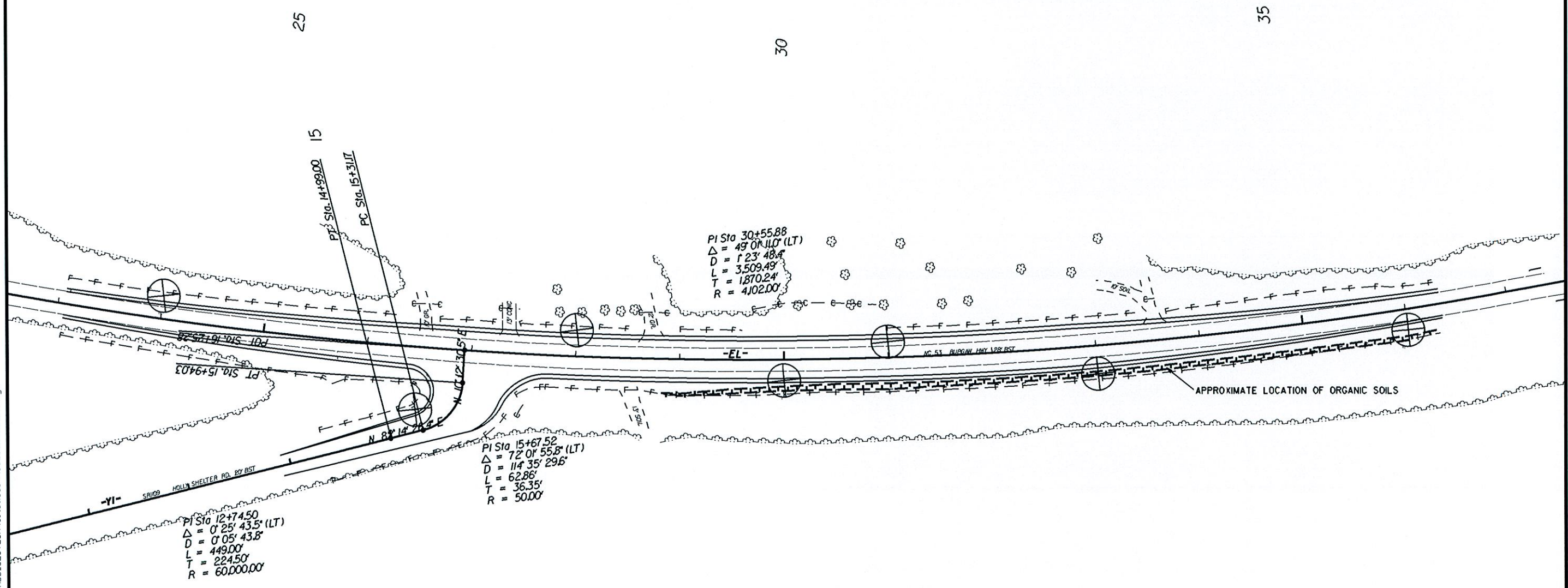
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LOCATION:
CENTURY CENTER COMPLEX
ENTRANCE B-2
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RALEIGH NC

8/17/99

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PROJECT REFERENCE NO. R-5023C	SHEET NO. 4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

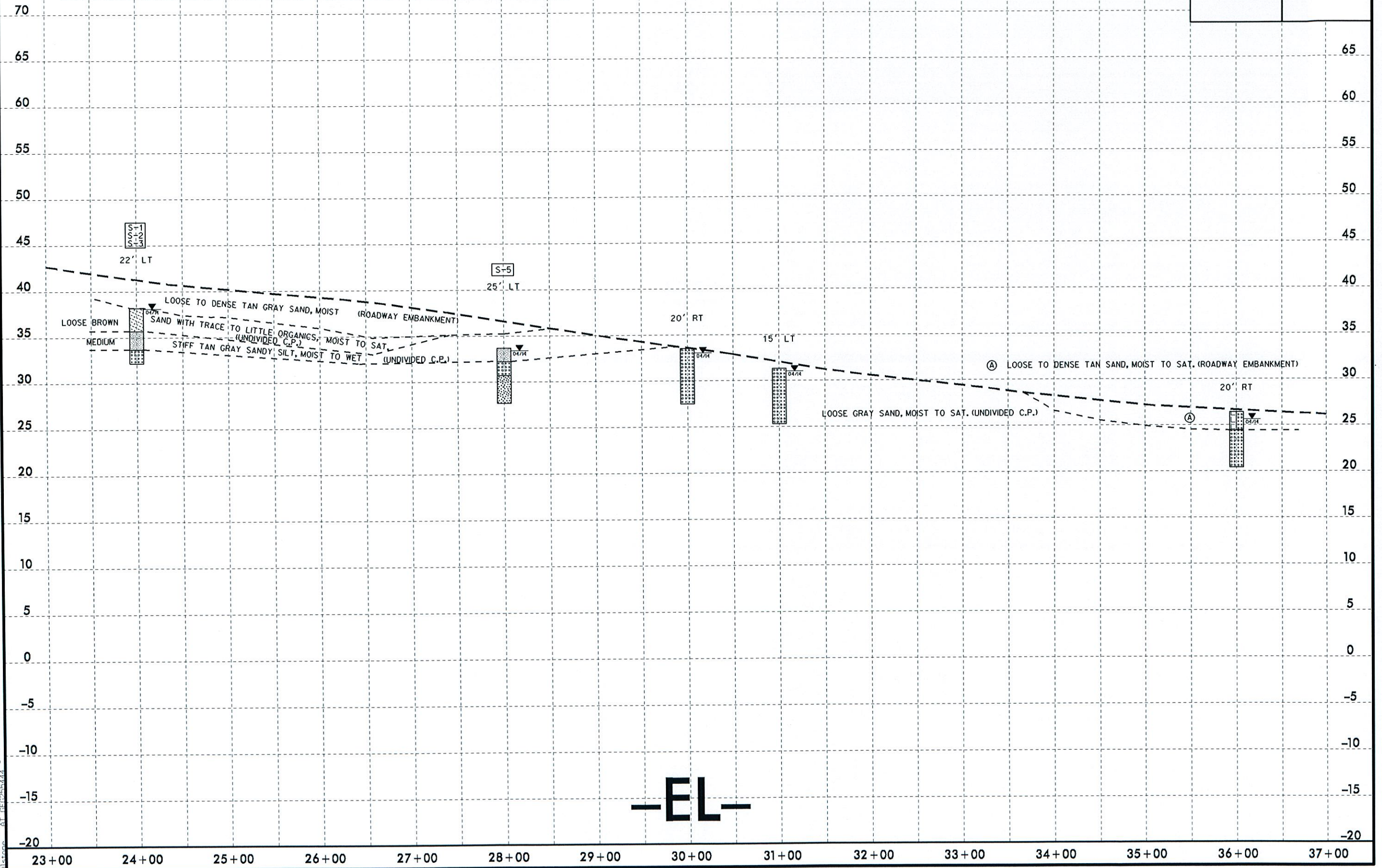


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PROJECT REFERENCE NO. R-5023C	SHEET NO. 5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

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	22 LT	24+00	0.0-1.0	A-2-4(0)	34	NP	15.5	69.9	12.6	2.0	97	92	19	-	4.3
S-2	22 LT	24+00	1.0-2.5	A-2-4(0)	27	NP	13.2	75.9	8.8	2.0	100	96	18	-	2.4
S-3	22 LT	24+00	2.5-4.5	A-4(0)	20	5	13.1	90.6	16.1	20.2	99	92	41	-	-
S-5	25 LT	28+00	0.0-1.5	A-4(3)	27	9	1.6	48.5	25.6	24.3	100	100	59	-	-

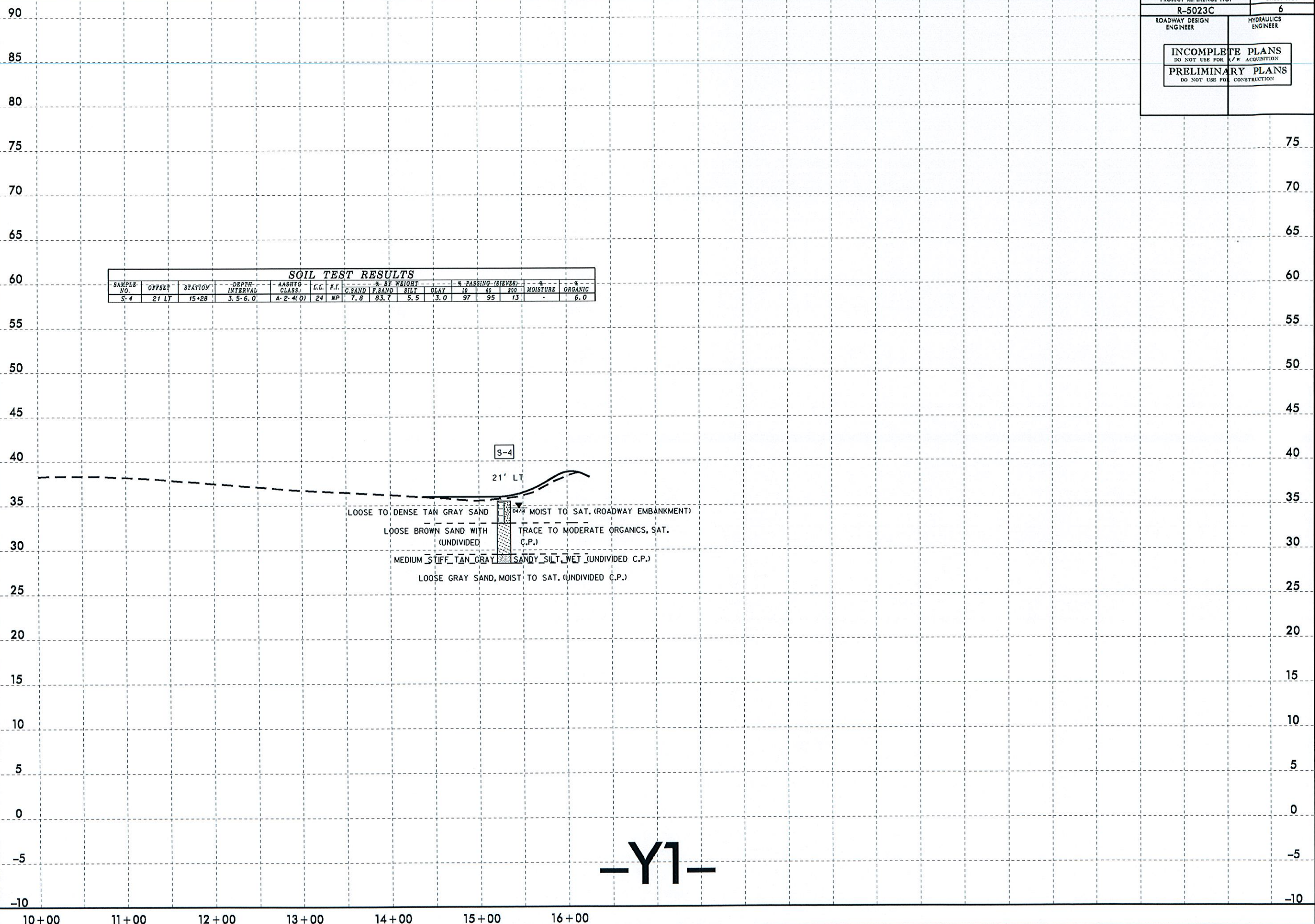


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PROJECT REFERENCE NO. R-5023C	SHEET NO. 6
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR ACQUISITION PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

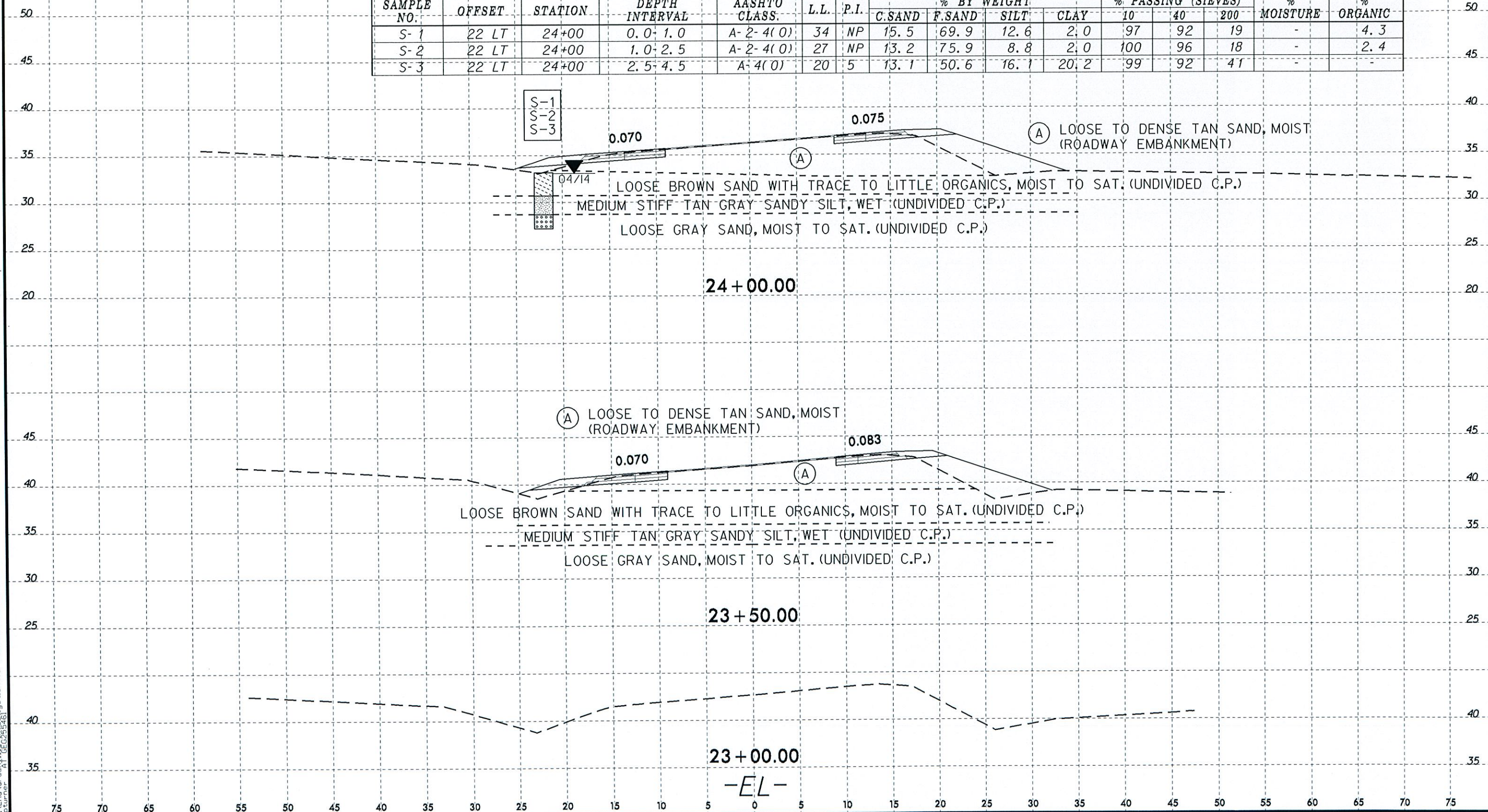


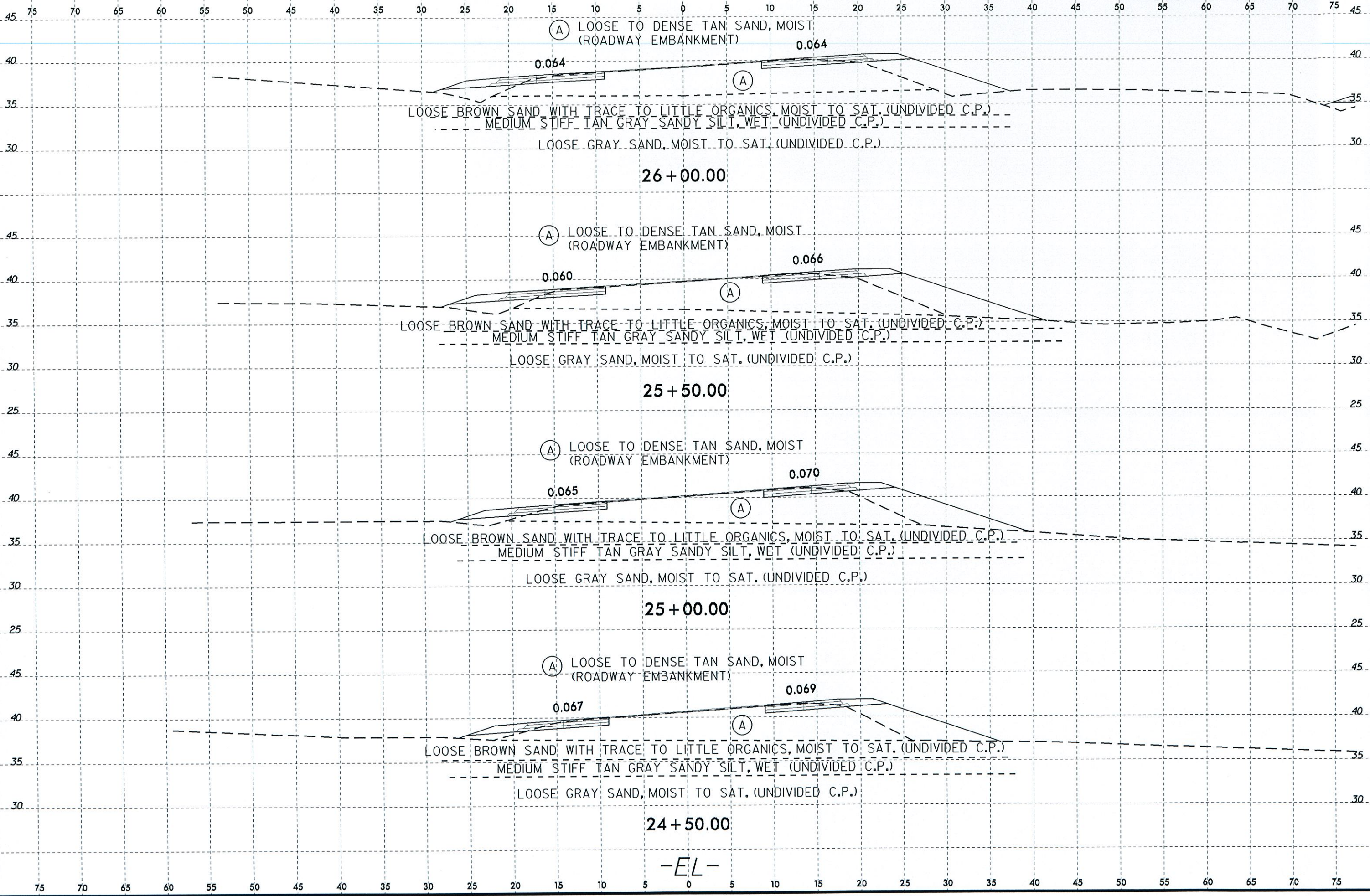
SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.L.	% BY WEIGHT				% PASSING (SIEVES)			MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
S-4	21 LT	15+28	3.5-6.0	A-2-4(0)	24	NP	7.8	83.7	5.5	3.0	97	95	13	-	6.0

-Y1-

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	22 LT	24+00	0.0-1.0	A-2-4(0)	34	NP	15.5	69.9	12.6	2.0	97	92	19	-	4.3
S-2	22 LT	24+00	1.0-2.5	A-2-4(0)	27	NP	13.2	75.9	8.8	2.0	100	96	18	-	2.4
S-3	22 LT	24+00	2.5-4.5	A-4(0)	20	5	13.1	50.6	16.1	20.2	99	92	41	-	-

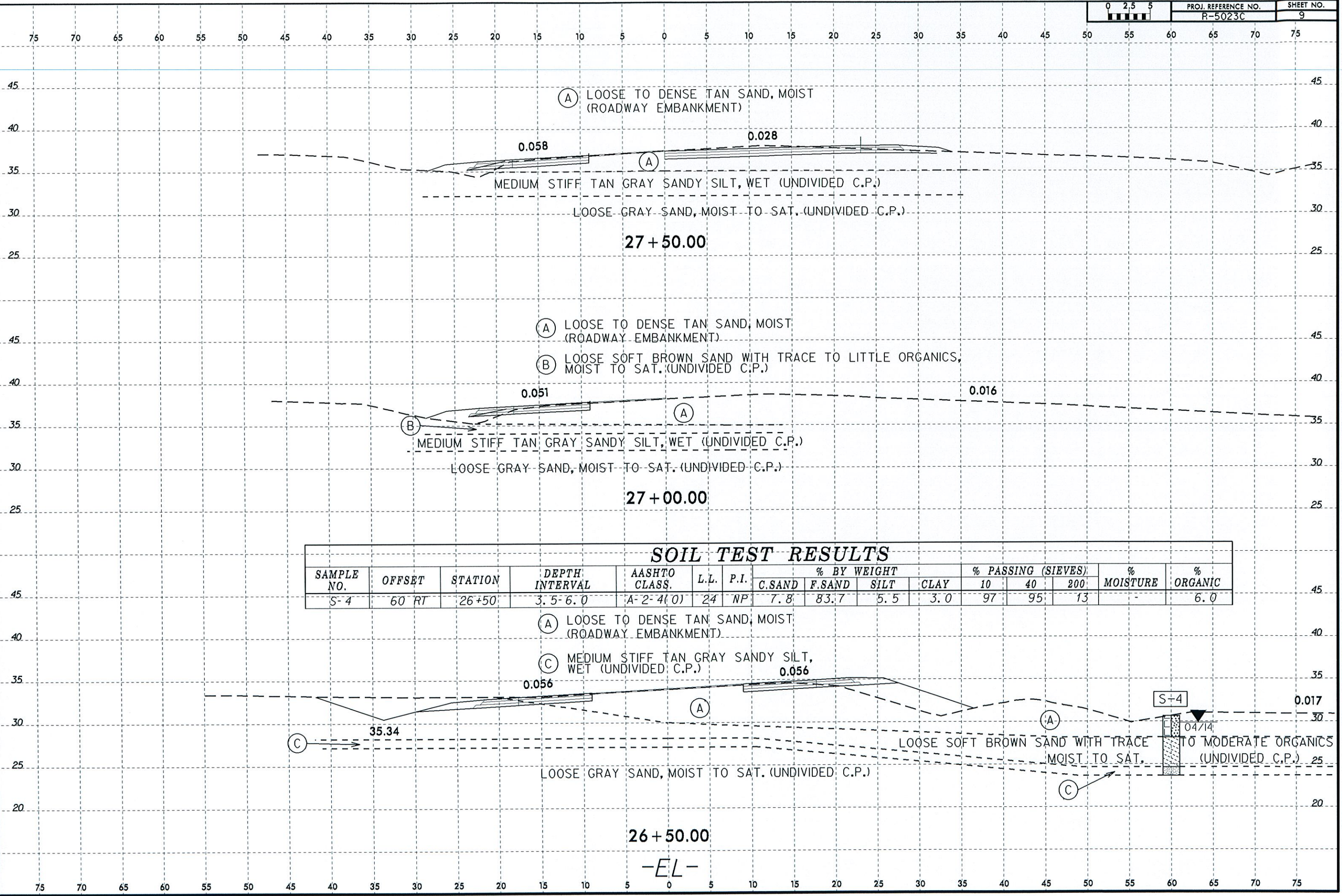




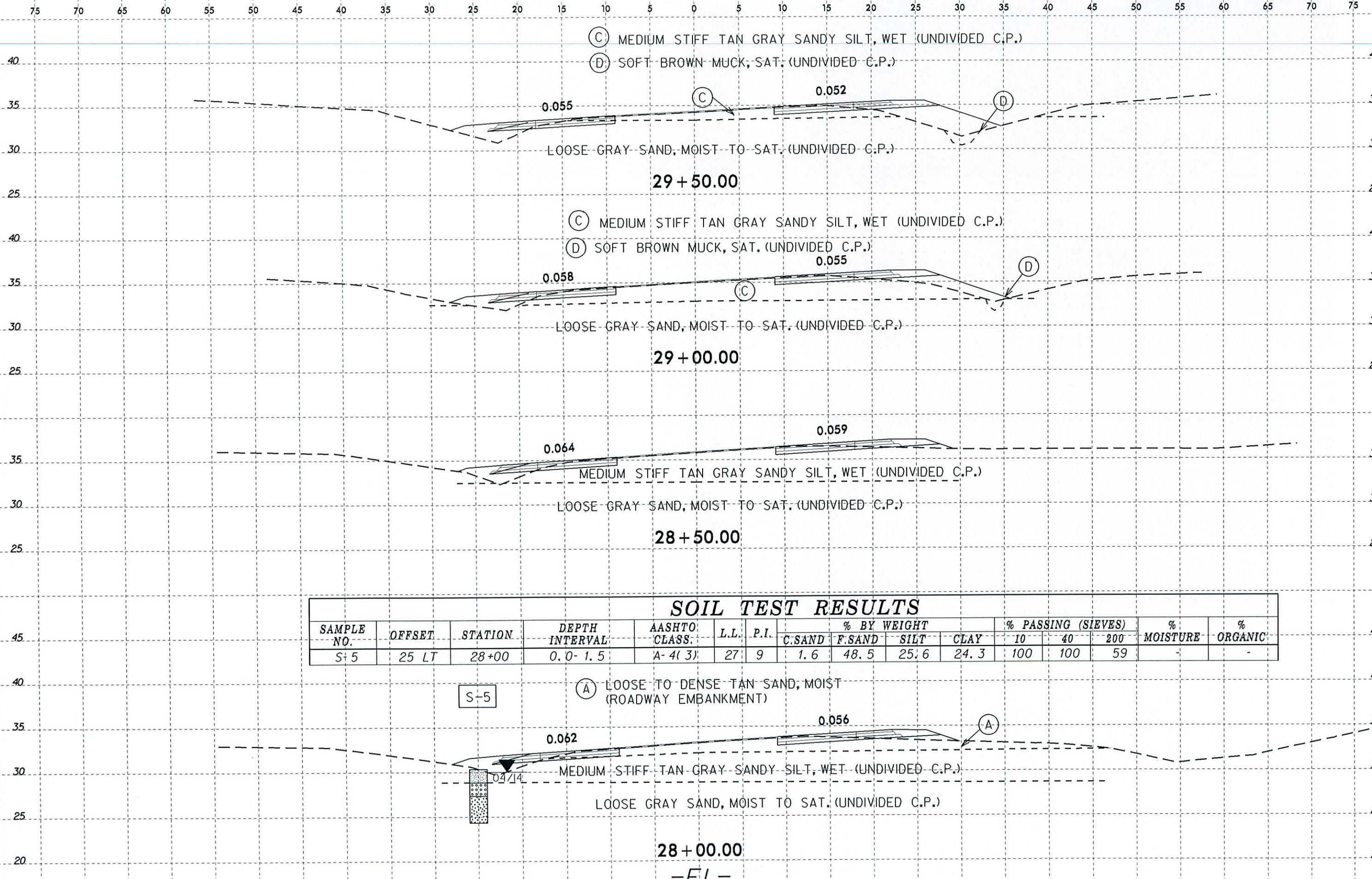
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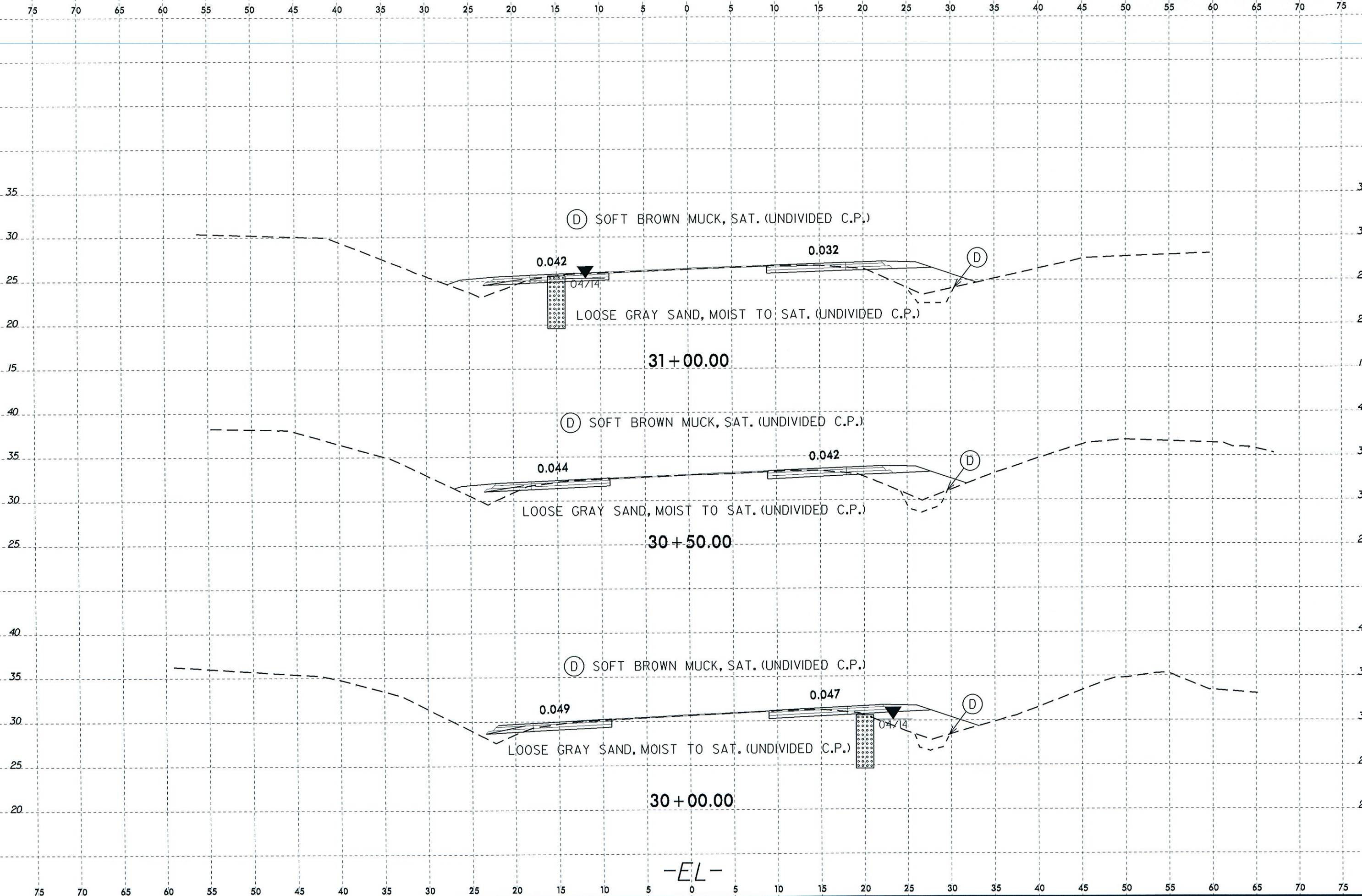
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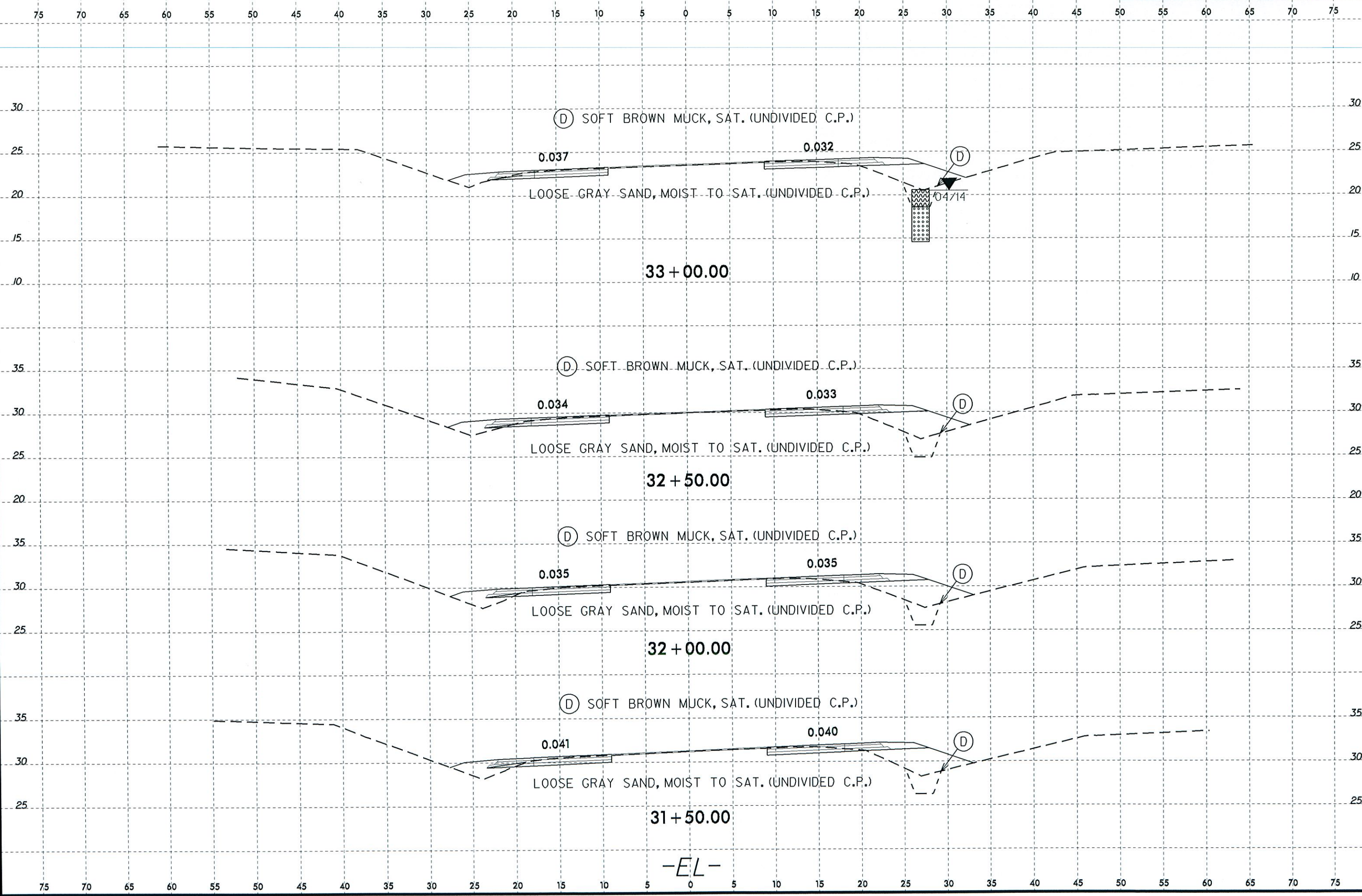
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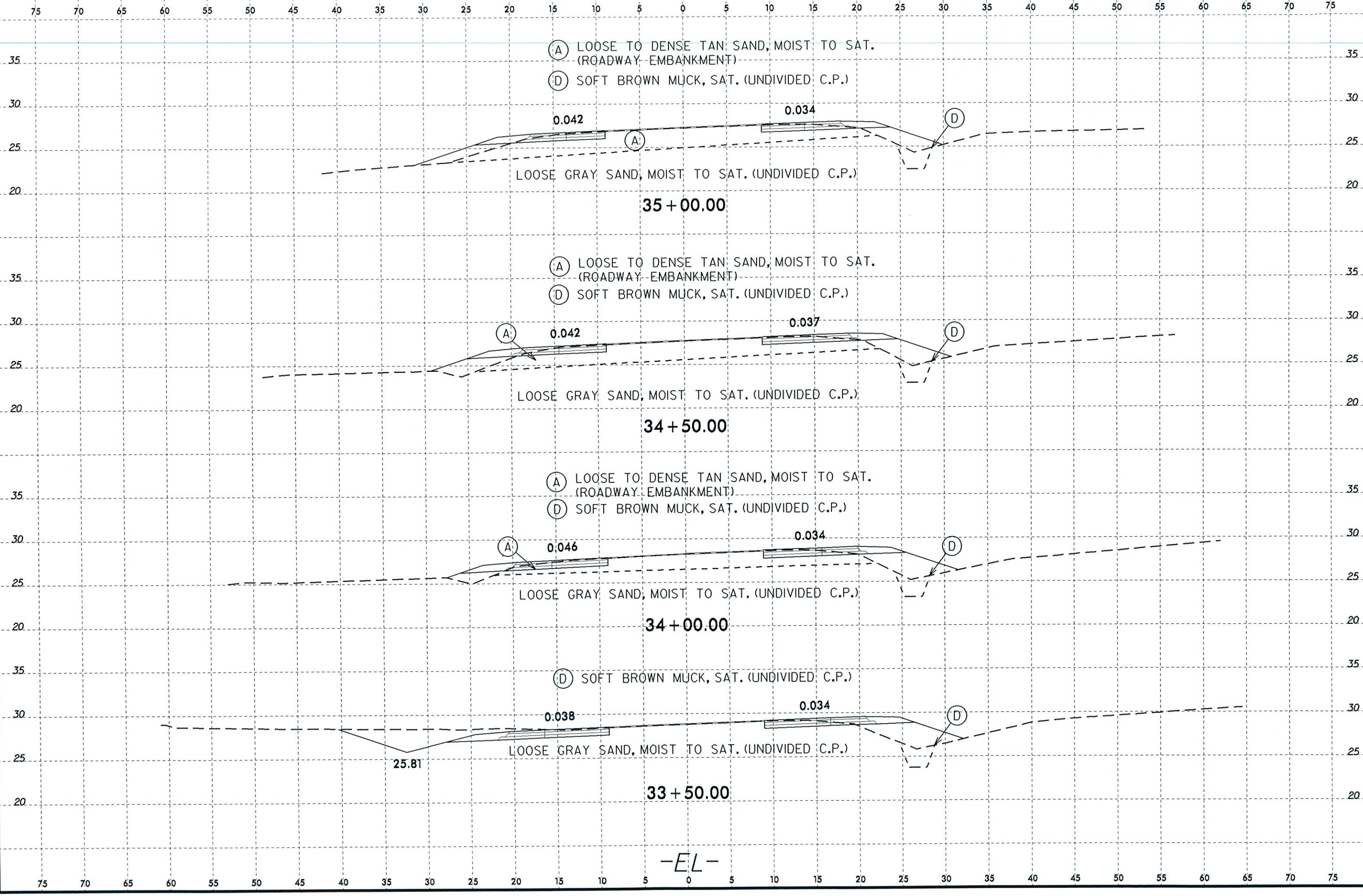


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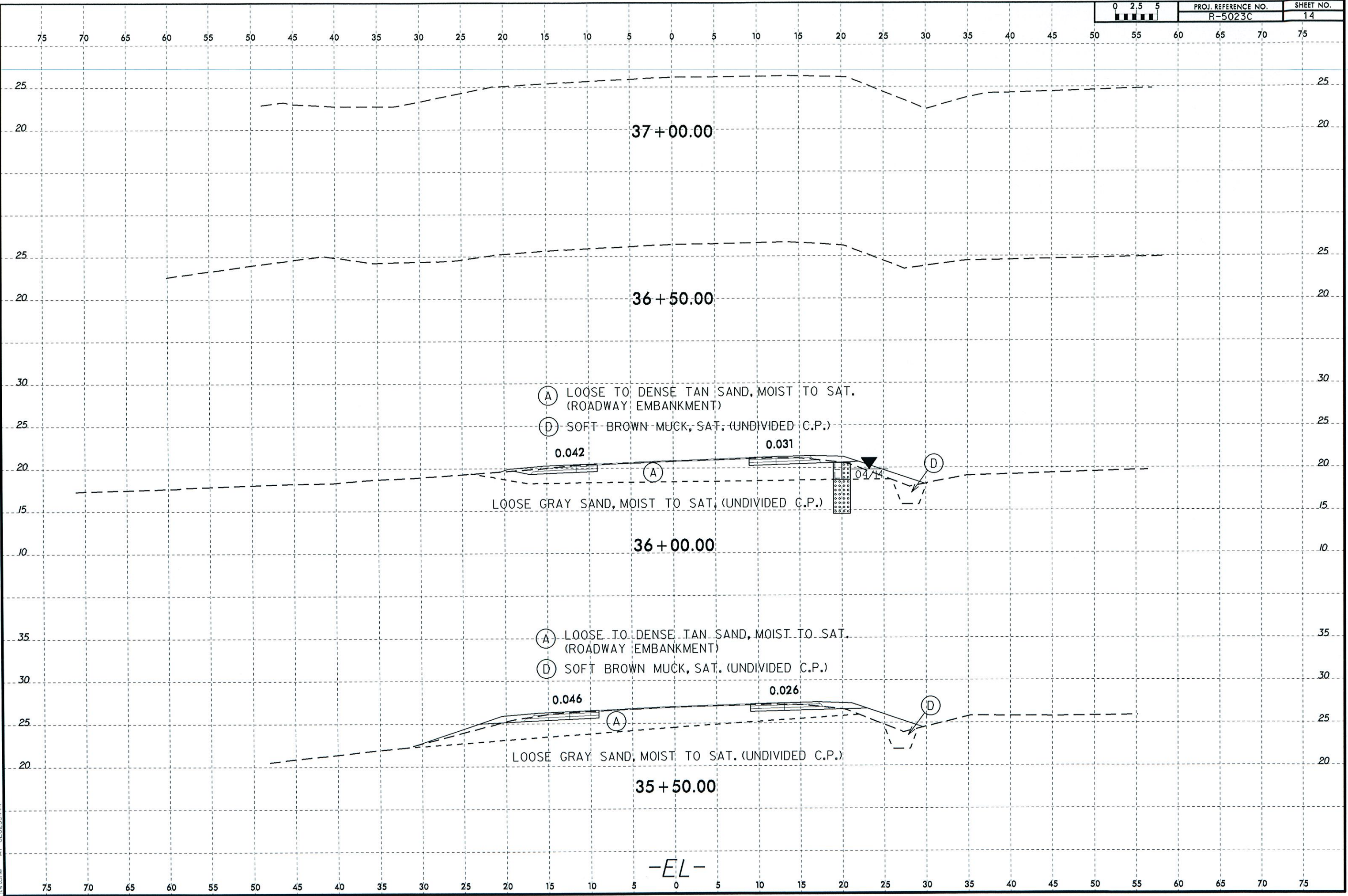
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(A) LOOSE TO DENSE TAN SAND, MOIST TO SAT.
(ROADWAY EMBANKMENT)

(D) SOFT BROWN MUCK, SAT. (UNDIVIDED C.P.)

LOOSE GRAY SAND, MOIST TO SAT. (UNDIVIDED C.P.)

(A) LOOSE TO DENSE TAN SAND, MOIST TO SAT.
(ROADWAY EMBANKMENT)

(D) SOFT BROWN MUCK, SAT. (UNDIVIDED C.P.)

LOOSE GRAY SAND, MOIST TO SAT. (UNDIVIDED C.P.)

-EL-