CONTRACT: C202786 ID: R-3825A

NOTE: SEE SHEET 2A FOR PLAN SHEET LAYOUT AT TIME OF INVESTIGATION

CONTENTS

LINE	STATION	SHEET NUMBERS PLAN	PROFILE	X-SECTS.
-L-	10+00 to 91+00	4-10	-	11-56
-Y2-	12+00 to 15+50	5	-	57-58
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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

ROADWAY SUBSURFACE INVESTIGATION

PROJ. REFERENCE NO. 34552.1.1 (R-3825A) F.A. PROJ. STP-42(4)

COUNTY JOHNSTON

PROJECT DESCRIPTION NC 42 FROM US 70 AT CLAYTON TO 0.26 MI EAST OF SR 1902 (GLEN LAUREL RD)

INVENTORY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-3825A	1	62

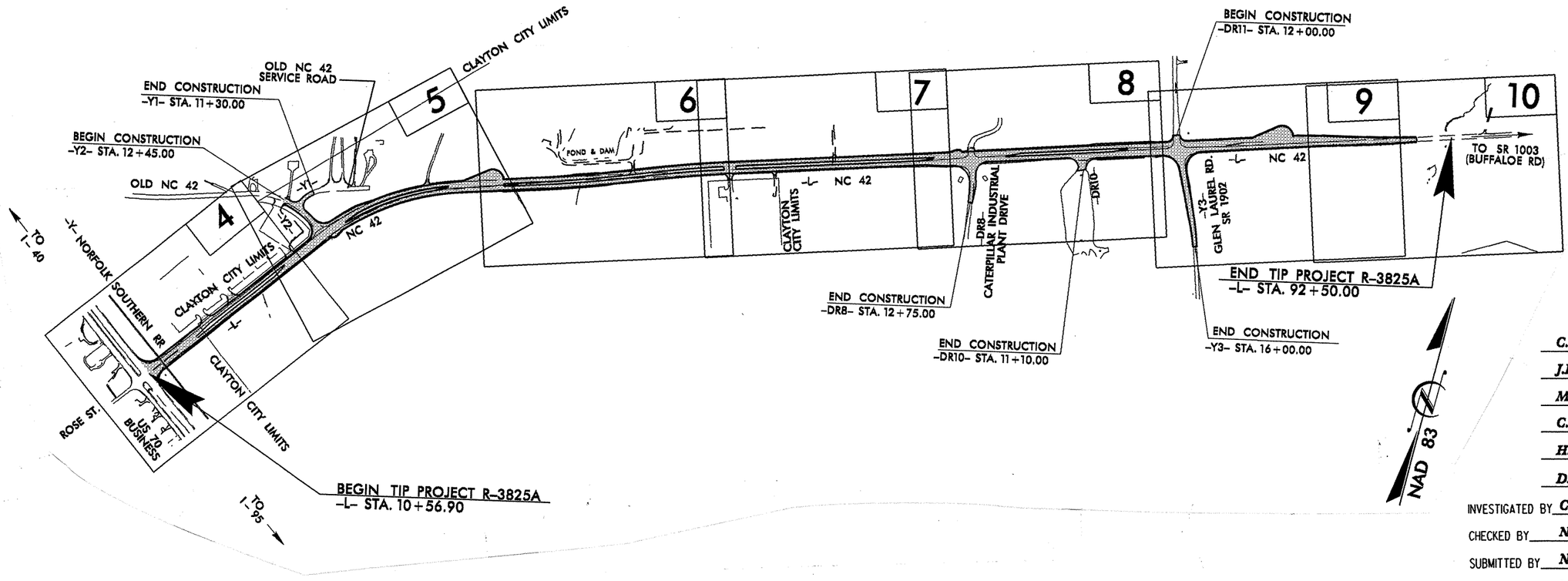
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
34552.1.1	STP-42(4)	P.E.
34552.2.2	STP-42(4)	R/W & UTILITIES
34552.3.2	STP-0042(18)	CONST.

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.



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DATE NOVEMBER 2007

NORTH CAROLINA LICENSED SEAL 1912 GEOLOGIST NEIL T. ROBERSON

11/1/07

DRAWN BY: C.D. CZAJKA & J.R. MATULA

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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.

PROJECT REFERENCE NO.	SHEET NO.
34552.1.1 (R-3825A)	2

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

SUBSURFACE INVESTIGATION

SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

SOIL DESCRIPTION

SOIL IS CONSIDERED TO BE THE UNCONSOLIDATED, SEMI-CONSOLIDATED, OR WEATHERED EARTH MATERIALS THAT CAN BE PENETRATED WITH A CONTINUOUS FLIGHT POWER AUGER, AND YIELD LESS THAN 100 BLOWS PER FOOT ACCORDING TO STANDARD PENETRATION TEST (AASHTO T206, ASTM D-1586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY SHALL INCLUDE: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. EXAMPLE:

VERY STIFF, GRAY, SILTY CLAY, MOIST WITH INTERBEDDED FINE SAND LAYERS, HIGHLY PLASTIC, A-7-6

SOIL LEGEND AND AASHTO CLASSIFICATION

GENERAL CLASS.	GRANULAR MATERIALS (≤ 35% PASSING #200)							SILT-CLAY MATERIALS (> 35% PASSING #200)				ORGANIC MATERIALS		
GROUP CLASS.	A-1		A-3	A-2				A-4	A-5	A-6	A-7 (A-7-5, A-7-6)	A-1, A-2, A-3	A-4, A-5, A-6, A-7	
	A-1-a	A-1-b		A-2-4	A-2-5	A-2-6	A-2-7							
SYMBOL														
% PASSING #10	50 MX											GRANULAR SOILS	SILT-CLAY SOILS	MUCK, PEAT
#40	30 MX	50 MX	51 MN											
#200	15 MX	25 MX	10 MX	35 MX	35 MX	35 MX	35 MX	36 MN	36 MN	36 MN	36 MN			
LIQUID LIMIT	6 MX		NP	40 MX	41 MN	40 MX	41 MN	40 MX	41 MN	40 MX	41 MN	SOILS WITH LITTLE OR MODERATE AMOUNTS OF ORGANIC MATTER		HIGHLY ORGANIC SOILS
PLASTIC INDEX				10 MX	10 MX	11 MN	11 MN	10 MX	10 MX	11 MN	11 MN			
GROUP INDEX	0		0	0		4 MX		8 MX	12 MX	16 MX	No MX			
USUAL TYPES OF MAJOR MATERIALS	STONE FRAGS. GRAVEL, AND SAND		FINE SAND	SILTY OR CLAYEY GRAVEL AND SAND				SILTY SOILS		CLAYEY SOILS				
GEN. RATING AS A SUBGRADE	EXCELLENT TO GOOD							FAIR TO POOR				FAIR TO POOR	POOR	UNSUITABLE

PI OF A-7-5 SUBGROUP IS ≤ LL - 30 ; PI OF A-7-6 SUBGROUP IS > LL - 30

CONSISTENCY OR DENSENESS

PRIMARY SOIL TYPE	COMPACTNESS OR CONSISTENCY	RANGE OF STANDARD PENETRATION RESISTENCE (N-VALUE)	RANGE OF UNCONFINED COMPRESSIVE STRENGTH ($TONS/FT^2$)
GENERALLY GRANULAR MATERIAL (NON-COHESIVE)	VERY LOOSE	<4	N/A
	LOOSE	4 TO 10	
	MEDIUM DENSE	10 TO 30	
	DENSE	30 TO 50	
	VERY DENSE	>50	
GENERALLY SILT-CLAY MATERIAL (COHESIVE)	VERY SOFT	<2	<0.25
	SOFT	2 TO 4	0.25 TO 0.50
	MEDIUM STIFF	4 TO 8	0.5 TO 1.0
	STIFF	8 TO 15	1 TO 2
	VERY STIFF	15 TO 30	2 TO 4
	HARD	>30	>4

TEXTURE OR GRAIN SIZE

U.S. STD. SIEVE SIZE	4	10	40	60	200	270
OPENING (MM)	4.76	2.00	0.42	0.25	0.075	0.053

BOULDER (BLDR.)	COBBLE (COB.)	GRAVEL (GR.)	COARSE SAND (CSE. SD.)	FINE SAND (F SD.)	SILT (SL.)	CLAY (CL.)

GRAIN SIZE	MM	305	75	2.0	0.25	0.05	0.005
	IN.	12	3				

SOIL MOISTURE - CORRELATION OF TERMS

SOIL MOISTURE SCALE (ATTERBERG LIMITS)	FIELD MOISTURE DESCRIPTION	GUIDE FOR FIELD MOISTURE DESCRIPTION
	- SATURATED - (SAT.)	USUALLY LIQUID; VERY WET, USUALLY FROM BELOW THE GROUND WATER TABLE
LL — LIQUID LIMIT		
PLASTIC RANGE (PI)	- WET - (W)	SEMISOLID; REQUIRES DRYING TO ATTAIN OPTIMUM MOISTURE
PL — PLASTIC LIMIT		
OM — OPTIMUM MOISTURE	- MOIST - (M)	SOLID; AT OR NEAR OPTIMUM MOISTURE
SL — SHRINKAGE LIMIT		
	- DRY - (D)	REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE

PLASTICITY

	PLASTICITY INDEX (PI)	DRY STRENGTH
NONPLASTIC	0-5	VERY LOW
LOW PLASTICITY	6-15	SLIGHT
MED. PLASTICITY	16-25	MEDIUM
HIGH PLASTICITY	26 OR MORE	HIGH

COLOR

DESCRIPTIONS MAY INCLUDE COLOR OR COLOR COMBINATIONS (TAN, RED, YELLOW-BROWN, BLUE-GRAY). MODIFIERS SUCH AS LIGHT, DARK, STREAKED, ETC. ARE USED TO DESCRIBE APPEARANCE.

GRADATION

WELL GRADED - INDICATES A GOOD REPRESENTATION OF PARTICLE SIZES FROM FINE TO COARSE.
UNIFORM - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE. (ALSO POORLY GRADED)
GAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLES OF TWO OR MORE SIZES.

ANGULARITY OF GRAINS

THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TERMS: ANGULAR, SUBANGULAR, SUBROUNDED, OR ROUNDED.

MINERALOGICAL COMPOSITION

MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHENEVER THEY ARE CONSIDERED OF SIGNIFICANCE.

COMPRESSIBILITY

SLIGHTLY COMPRESSIBLE	LIQUID LIMIT LESS THAN 31
MODERATELY COMPRESSIBLE	LIQUID LIMIT EQUAL TO 31-50
HIGHLY COMPRESSIBLE	LIQUID LIMIT GREATER THAN 50

PERCENTAGE OF MATERIAL

ORGANIC MATERIAL	GRANULAR SOILS	SILT - CLAY SOILS	OTHER MATERIAL	
TRACE OF ORGANIC MATTER	2 - 3%	3 - 5%	TRACE	1 - 10%
LITTLE ORGANIC MATTER	3 - 5%	5 - 12%	LITTLE	10 - 20%
MODERATELY ORGANIC	5 - 10%	12 - 20%	SOME	20 - 35%
HIGHLY ORGANIC	>10%	>20%	HIGHLY	35% AND ABOVE

GROUND WATER

- WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING
- STATIC WATER LEVEL AFTER 24 HOURS
- PW — PERCHED WATER, SATURATED ZONE, OR WATER BEARING STRATA
- SPRING OR SEEP

MISCELLANEOUS SYMBOLS

- ROADWAY EMBANKMENT (RE) WITH SOIL DESCRIPTION
- SOIL SYMBOL
- ARTIFICIAL FILL (AF) OTHER THAN ROADWAY EMBANKMENT
- INFERRED SOIL BOUNDARY
- INFERRED ROCK LINE
- ALLUVIAL SOIL BOUNDARY
- 25/025 — DIP & DIP DIRECTION OF ROCK STRUCTURES
- SOUNDING ROD
- EPT CPT DPT DMT VST PMT — TEST BORING
- AUGER BORING
- CORE BORING
- MW — MONITORING WELL
- PIEZOMETER INSTALLATION
- SLOPE INDICATOR INSTALLATION
- SPT N-VALUE
- REF — SPT REFUSAL

SAMPLE DESIGNATIONS
- S - BULK SAMPLE
- SS - SPLIT SPOON SAMPLE
- ST - SHELBY TUBE SAMPLE
- RS - ROCK SAMPLE
- RT - RECOMPACTED TRIAXIAL SAMPLE
- CBR - CALIFORNIA BEARING RATIO SAMPLE

ABBREVIATIONS

AR - AUGER REFUSAL
BT - BORING TERMINATED
CL. - CLAY
CPT - CONE PENETRATION TEST
CSE. - COARSE
DMT - DILATOMETER TEST
DPT - DYNAMIC PENETRATION TEST
e - VOID RATIO
F - FINE
FOSS. - FOSSILIFEROUS
FRAC. - FRACTURED, FRACTURES
FRAGS. - FRAGMENTS
HI. - HIGHLY
MED. - MEDIUM
MICA. - MICACEOUS
MOD. - MODERATELY
NP - NON PLASTIC
ORG. - ORGANIC
PMT - PRESSUREMETER TEST
SAP. - SAPROLITIC
SD. - SAND, SANDY
SL. - SILT, SILTY
SLI. - SLIGHTLY
TCR - TRICONE REFUSAL
w - MOISTURE CONTENT
V - VERY
VST - VANE SHEAR TEST
WEA. - WEATHERED
γ - UNIT WEIGHT
γ_d - DRY UNIT WEIGHT

EQUIPMENT USED ON SUBJECT PROJECT

DRILL UNITS:
- [ ] MOBILE B-___
- [ ] BK-51
- [ ] CME-45C
- [X] CME-550
- [ ] PORTABLE HOIST
- [ ] _____
- [ ] _____

ADVANCING TOOLS:
- [ ] CLAY BITS
- [ ] 6" CONTINUOUS FLIGHT AUGER
- [X] 8" HOLLOW AUGERS
- [ ] HARD FACED FINGER BITS
- [ ] TUNG.-CARBIDE INSERTS
- [ ] CASING [ ] W/ ADVANCER
- [ ] TRICONE _____" STEEL TEETH
- [ ] TRICONE _____" TUNG.-CARB.
- [ ] CORE BIT
- [ ] _____

HAMMER TYPE:
- [X] AUTOMATIC
- [ ] MANUAL

CORE SIZE:
- [ ] -B_____
- [ ] -N_____
- [ ] -H_____

HAND TOOLS:
- [ ] POST HOLE DIGGER
- [X] HAND AUGER
- [ ] SOUNDING ROD
- [ ] VANE SHEAR TEST
- [ ] _____

ROCK DESCRIPTION

HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT IF TESTED, WOULD YIELD SPT REFUSAL. AN INFERRED ROCK LINE INDICATES THE LEVEL AT WHICH NON-COASTAL PLAIN MATERIAL WOULD YIELD SPT REFUSAL. SPT REFUSAL IS PENETRATION BY A SPLIT SPOON SAMPLER EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS. IN NON-COASTAL PLAIN MATERIAL, THE TRANSITION BETWEEN SOIL AND ROCK IS OFTEN REPRESENTED BY A ZONE OF WEATHERED ROCK.
ROCK MATERIALS ARE TYPICALLY DIVIDED AS FOLLOWS:

WEATHERED ROCK (WR)	NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT N VALUES > 100 BLOWS PER FOOT IF TESTED.
CRYSTALLINE ROCK (CR)	FINE TO COARSE GRAIN IGNEOUS AND METAMORPHIC ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES GRANITE, GNEISS, GABBRO, SCHIST, ETC.
NON-CRYSTALLINE ROCK (NCR)	FINE TO COARSE GRAIN METAMORPHIC AND NON-COASTAL PLAIN SEDIMENTARY ROCK THAT WOULD YEILD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES PHYLLITE, SLATE, SANDSTONE, ETC.
COASTAL PLAIN SEDIMENTARY ROCK (CP)	COASTAL PLAIN SEDIMENTS CEMENTED INTO ROCK, BUT MAY NOT YIELD SPT REFUSAL. ROCK TYPE INCLUDES LIMESTONE, SANDSTONE, CEMENTED SHELL BEDS, ETC.

WEATHERING

FRESH	ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING. ROCK RINGS UNDER HAMMER IF CRYSTALLINE.
VERY SLIGHT (V SLI.)	ROCK GENERALLY FRESH, JOINTS STAINED, SOME JOINTS MAY SHOW THIN CLAY COATINGS IF OPEN, CRYSTALS ON A BROKEN SPECIMEN FACE SHINE BRIGHTLY. ROCK RINGS UNDER HAMMER BLOWS IF OF A CRYSTALLINE NATURE.
SLIGHT (SLI.)	ROCK GENERALLY FRESH, JOINTS STAINED AND DISCOLORATION EXTENDS INTO ROCK UP TO 1 INCH. OPEN JOINTS MAY CONTAIN CLAY. IN GRANITOID ROCKS SOME OCCASIONAL FELDSPAR CRYSTALS ARE DULL AND DISCOLORED. CRYSTALLINE ROCKS RING UNDER HAMMER BLOWS.
MODERATE (MOD.)	SIGNIFICANT PORTIONS OF ROCK SHOW DISCOLORATION AND WEATHERING EFFECTS. IN GRANITOID ROCKS, MOST FELDSPARS ARE DULL AND DISCOLORED, SOME SHOW CLAY. ROCK HAS DULL SOUND UNDER HAMMER BLOWS AND SHOWS SIGNIFICANT LOSS OF STRENGTH AS COMPARED WITH FRESH ROCK.
MODERATELY SEVERE (MOD. SEV.)	ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. IN GRANITOID ROCKS, ALL FELDSPARS DULL AND DISCOLORED AND A MAJORITY SHOW KAOLINIZATION. ROCK SHOWS SEVERE LOSS OF STRENGTH AND CAN BE EXCAVATED WITH A GEOLOGIST'S PICK. ROCK GIVES 'CLUNK' SOUND WHEN STRUCK. *IF TESTED, WOULD YIELD SPT REFUSAL*
SEVERE (SEV.)	ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC CLEAR AND EVIDENT BUT REDUCED IN STRENGTH TO STRONG SOIL. IN GRANITOID ROCKS ALL FELDSPARS ARE KAOLINIZED TO SOME EXTENT. SOME FRAGMENTS OF STRONG ROCK USUALLY REMAIN. *IF TESTED, YIELDS SPT N VALUES > 100 BPF*
VERY SEVERE (V SEV.)	ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC ELEMENTS ARE DISCERNIBLE BUT THE MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK REMAINING. SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE SUCH THAT ONLY MINOR VESTIGES OF THE ORIGINAL ROCK FABRIC REMAIN. *IF TESTED, YIELDS SPT N VALUES < 100 BPF*
COMPLETE	ROCK REDUCED TO SOIL. ROCK FABRIC NOT DISCERNIBLE, OR DISCERNIBLE ONLY IN SMALL AND SCATTERED CONCENTRATIONS. QUARTZ MAY BE PRESENT AS DIKES OR STRINGERS. SAPROLITE IS ALSO AN EXAMPLE.

ROCK HARDNESS

VERY HARD	CANNOT BE SCRATCHED BY KNIFE OR SHARP PICK. BREAKING OF HAND SPECIMENS REQUIRES SEVERAL HARD BLOWS OF THE GEOLOGIST'S PICK.
HARD	CAN BE SCRATCHED BY KNIFE OR PICK ONLY WITH DIFFICULTY. HARD HAMMER BLOWS REQUIRED TO DETACH HAND SPECIMEN.
MODERATELY HARD	CAN BE SCRATCHED BY KNIFE OR PICK. GOUGES OR GROOVES TO 0.25 INCHES DEEP CAN BE EXCAVATED BY HARD BLOW OF A GEOLOGIST'S PICK. HAND SPECIMENS CAN BE DETACHED BY MODERATE BLOWS.
MEDIUM HARD	CAN BE GROOVED OR GOUGED 0.05 INCHES DEEP BY FIRM PRESSURE OF KNIFE OR PICK POINT. CAN BE EXCAVATED IN SMALL CHIPS TO PEICES 1 INCH MAXIMUM SIZE BY HARD BLOWS OF THE POINT OF A GEOLOGIST'S PICK.
SOFT	CAN BE GROVED OR GOUGED READILY BY KNIFE OR PICK. CAN BE EXCAVATED IN FRAGMENTS FROM CHIPS TO SEVERAL INCHES IN SIZE BY MODERATE BLOWS OF A PICK POINT. SMALL, THIN PIECES CAN BE BROKEN BY FINGER PRESSURE.
VERY SOFT	CAN BE CARVED WITH KNIFE. CAN BE EXCAVATED READILY WITH POINT OF PICK. PIECES 1 INCH OR MORE IN THICKNESS CAN BE BROKEN BY FINGER PRESSURE. CAN BE SCRATCHED READILY BY FINGERNAIL.

FRACTURE SPACING

TERM	SPACING
VERY WIDE	MORE THAN 10 FEET
WIDE	3 TO 10 FEET
MODERATELY CLOSE	1 TO 3 FEET
CLOSE	0.16 TO 1 FEET
VERY CLOSE	LESS THAN 0.16 FEET

BEDDING

TERM	THICKNESS
VERY THICKLY BEDDED	> 4 FEET
THICKLY BEDDED	1.5 - 4 FEET
THINLY BEDDED	0.16 - 1.5 FEET
VERY THINLY BEDDED	0.03 - 0.16 FEET
THICKLY LAMINATED	0.008 - 0.03 FEET
THINLY LAMINATED	< 0.008 FEET

INDURATION

FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF THE MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC.

FRIABLE	RUBBING WITH FINGER FREES NUMEROUS GRAINS; GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE.
MODERATELY INDURATED	GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE; BREAKS EASILY WHEN HIT WITH HAMMER.
INDURATED	GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE; DIFFICULT TO BREAK WITH HAMMER.
EXTREMELY INDURATED	SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE; SAMPLE BREAKS ACROSS GRAINS.

TERMS AND DEFINITIONS

ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER.

AQUIFER - A WATER BEARING FORMATION OR STRATA.

ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND.

ARGILLACEOUS - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS. OR HAVING A NOTABLE PROPORTION OF CLAY IN THEIR COMPOSITION, AS SHALE, SLATE, ETC.

ARTESIAN - GROUND WATER THAT IS UNDER SUFFICIENT PRESSURE TO RISE ABOVE THE LEVEL AT WHICH IT IS ENCOUNTERED, BUT WHICH DOES NOT NECESSARILY RISE TO OR ABOVE THE GROUND SURFACE.

CALCAREOUS (CALC.) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE.

COLLUVIUM - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM OF SLOPE.

CORE RECOVERY (REC.) - TOTAL LENGTH OF ALL MATERIAL RECOVERED IN THE CORE BARREL DIVIDED BY TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE.

DIKE - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT ROCKS OR CUTS MASSIVE ROCK.

DIP - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL.

DIP DIRECTION (DIP AZIMUTH) - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH.

FAULT - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE.

FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES.

FLOAT - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLODGED FROM PARENT MATERIAL.

FLOOD PLAIN (FP) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM.

FORMATION (FM.) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD.

JOINT - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED.

LEDGE - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO ITS LATERAL EXTENT.

LENS - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS.

MOTTLED (MOT.) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS. MOTTLING IN SOILS USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE.

PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE OF AN INTERVENING IMPERVIOUS STRATUM.

RESIDUAL (RES.) SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK.

ROCK QUALITY DESIGNATION (RQD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE.

SAPROLITE (SAP.) - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK.

SILL - AN INTRUSIVE BODY OF IGNEOUS ROCK OF APPROXIMATELY UNIFORM THICKNESS AND RELATIVELY THIN COMPARED WITH ITS LATERAL EXTENT, THAT HAS BEEN EMPLACED PARALLEL TO THE BEDDING OR SCHISTOSITY OF THE INTRUDED ROCKS.

SLICKENSIDE - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT OR SLIP PLANE.

STANDARD PENETRATION TEST (PENETRATION RESISTANCE) (SPT) - NUMBER OF BLOWS (N OR BPF) OF A 140 LB. HAMMER FALLING 30 INCHES REQUIRED TO PRODUCE A PENETRATION OF 1 FOOT INTO SOIL WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS PENETRATION EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS.

STRATA CORE RECOVERY (SREC.) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE.

STRATA ROCK QUALITY DESIGNATION (SRQD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE.

TOPSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.

BENCH MARK:

ELEVATION: FT.

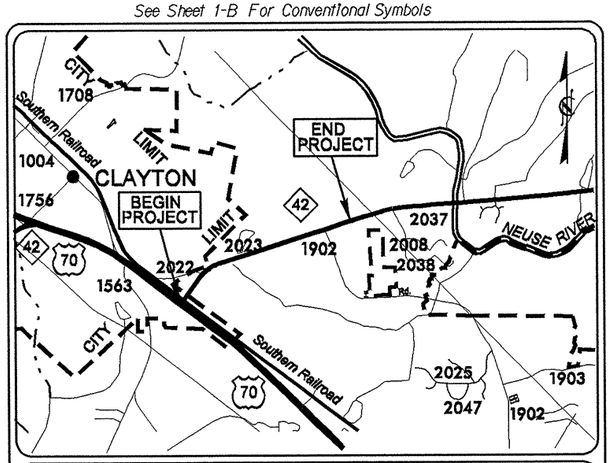
NOTES:

REVISED 02/23/06

9/09/99

CONTRACT: TIP PROJECT: R-3825A

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



VICINITY MAP
NOT TO SCALE

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

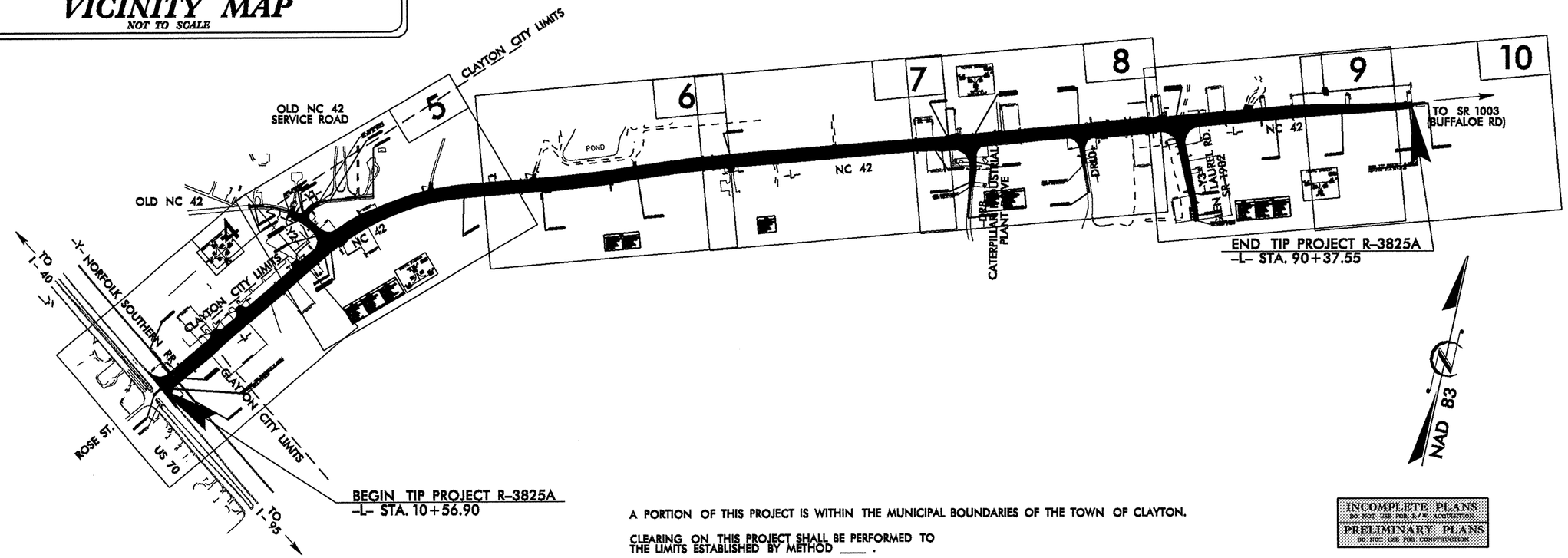
JOHNSTON COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-3825A	2A	62

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
34552.1.1	STP-42(4)	P.E.

LOCATION: NC 42 FROM US 70 AT CLAYTON TO

TYPE OF WORK: GRADING, PAVING, DRAINAGE, SIGNALS, AND SIGNING



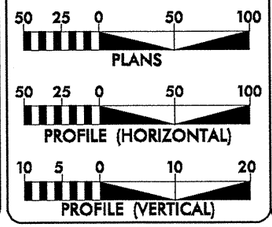
BEGIN TIP PROJECT R-3825A
-L- STA. 10+56.90

A PORTION OF THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF THE TOWN OF CLAYTON.

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

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES



DESIGN DATA

ADT 2009 = 20,200
ADT 2030 = 27,200
DHV = 9 %
D = 65 %
T = 6 % *
V = 50 MPH
* (TTST 2 % + DUAL 4 %)
FUNC. CLASS= RURAL MAJOR COLLECTOR

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT R-3825A = 1.512 MILES
TOTAL LENGTH OF TIP PROJECT R-3825A = 1.512 MILES

Prepared In the Office of:
DIVISION OF HIGHWAYS
1000 Birch Ridge Dr., Raleigh, NC 27610

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: FEBRUARY 15, 2008

LETTING DATE: JULY 21, 2009

GLENN W. MUMFORD, PE
PROJECT ENGINEER

SUSAN C. LANCASTER, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA

P.E.
STATE HIGHWAY DESIGN ENGINEER

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

Michael F. Easley
GOVERNOR

P.O. BOX 25201, RALEIGH, N.C. 27611-5201

Lyndo Tippett
SECRETARY

October 23, 2007

STATE PROJECT: 34552.1.1 (R-3825A)
FEDERAL PROJECT: STP-42(4)
COUNTY: Johnston
DESCRIPTION: NC 42 from US 70 in Clayton to 0.26 miles east of SR 1902 (Glen Laurel Rd.)

SUBJECT: Geotechnical Report – Inventory

Project Description

This project consists of widening NC 42 (-L- Sta. 10+56.9 to Sta. 90+37.55) from two lanes to four lanes with medians and turn lanes. The project begins at the intersection of NC 42 and US 70. The widening generally is proposed along the center of the existing roadway.

The geotechnical field investigation was conducted during August and September of 2007. The majority of the borings were advanced using a hand auger. The Geotechnical Engineering Unit's in house drill crew was also used during the investigation. The Geotechnical Engineering Unit used an ATV-mounted CME-550 with an automatic hammer. Standard Penetration Tests were performed in selected borings and additional borings were advanced using continuous flight augers. Representative soil samples were collected for visual classification in the field and for laboratory analysis by the Materials and Tests Unit.

The following alignments, totaling 1.68 miles, were investigated. Subsurface cross-sections of these alignments are included in this report.

Line	Station		
-L-	10+56.9	to	90+37.55
-Y2-	12+45	to	15+34.76
-Y3-	10+00	to	16+00

Areas of Special Geotechnical Interest

1) Highly Plastic Clay Soils: Occurrences of highly plastic clay soil (Plasticity Index 26 or greater) are noted below:

Alignment	Station	Offset
-L-	70+00	35 LT
-L-	74+00	30 LT
-L-	77+50	25 LT
-L-	83+00	60 RT
-Y3-	15+00	32 LT

Physiography and Geology

The project is located in the Coastal Plain and Eastern Piedmont area of North Carolina. A mixture of businesses and wooded areas are located along the project corridor. The terrain is relatively flat. Geologically, the project is located within Coastal Plain and the Eastern Slate Belt. Non Coastal Plain soils are derived from the weathering of the underlying bedrock, which is composed of biotite gneiss and schist.

Soil Properties

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

Roadway embankment soil occurs in several locations on the project. The existing embankments generally range from one to twelve feet. Roadway embankment soils are composed of dry to moist, soft to medium stiff, sandy and silty clay (AASHTO classification of A-6 and A-7-5).

Artificial fill soil occurs in two areas of the project. One area is located near all the businesses at the beginning of the project, right of -L- Sta. 12+00 to 23+50. The fill consists of brown to tan, loose, dry to moist, silty sand (A-2-4), and orange-brown, dry, medium stiff, sandy clay (A-6). The second area is the dam located on the Aventis CropScience property, left of -L- Sta. 38+25 to 43+00. The soil consists of dark to light gray, moist, loose, silty sand (A-2-4). The alignment was shifted to the south after the time of investigation to avoid impacting the dam.

Alluvial soils occur in an old stream channel which crosses the -L- alignment beneath the existing roadway embankment at -L- Sta. 36+00 as well as in a small wetland area right of -L- Sta. 34+00 to 41+50. The alluvial soils consist primarily of black to light gray, moist to wet, loose, coarse, fine and silty sand (A-1-b, A-3, A-2-4). Minor amounts of black to gray, moist, medium stiff, sandy silt (A-4) and light gray, moist, medium stiff, silty clay (A-7-6) are also present.

The coastal plain soils underlie the majority of the project area. These soils consist primarily of orange-brown, dry to moist, medium stiff, sandy and silty clay (A-6, A-7-5). Significant amounts of orange to orange-brown, dry, medium dense to dense, clayey sand (A-2-7) are also present.

The residual soils are derived from the in-place weathering of the underlying biotite gneiss and schist, and occur towards the end of the project. These soils consist of orange and red to dark red, dry to moist, medium stiff to very stiff, silty clay (A-7-5) and white, brown and orange, dry to wet, soft to very stiff, sandy silt (A-4).

Rock Properties

Weathered rock and crystalline rock were not encountered within this project.

Groundwater

Groundwater was only encountered in one boring at -L- Sta. 74+00. Groundwater at this boring location was 14.9' below the surface. Based on this investigation, groundwater is not anticipated to cause problems during construction.

Prepared by,

C. Doug Sk

Doug Czajka
Engineering Geologist

EARTHWORK BALANCE SHEET

Volumes in Cubic Yards

PROJECT: R-3825A COUNTY Johnston DATE: 8/11/2011 SHEET 3B OF 62 SHEETS

LINE	STATION	STATION	TOTAL EXCAV. (UNCL.)	ROCK EXCAV.	UNDERCUT	UNSUIT. EXCAV.	SUITABLE EXCAV.	TOTAL EMB.	ROCK EMB.	EARTH EMB.	EMBANK. +25%	BORROW	SUITABLE WASTE	UNSUIT. WASTE	TOTAL WASTE
-L- lt.	44+50.00	74+50.00	900	0	0	0	900	13,293	0	13,293	16,616	15,716	0	0	0
-L- lt.	75+00.00	90+37.55	5,316	0	0	0	5,316	3,010	0	3,010	3,763	0	1,553	0	1,553
-L- rt.	10+56.90	41+00.00	8,733	0	0	0	8,733	5,453	0	5,453	6,816	0	1,917	0	1,917
-L- rt.	41+50.00	47+00.00	703	0	0	0	703	495	0	495	619	0	84	0	84
		SUBTOTAL:	15,652	0	0	0	15,652	22,251	0	22,251	27,814	15,716	3,554	0	3,554
-L- lt.	10+56.90	44+50.00	5,400	0	0	0	5,400	1,582	0	1,582	1,978	0	3,422	0	3,422
-Y1-	10+12.00	11+30.00	1	0	0	0	1	48	0	48	60	59	0	0	0
-Y2-	12+45.00	15+34.76	311	0	0	0	311	480	0	480	600	289	0	0	0
		SUBTOTAL:	5,712	0	0	0	5,712	2,110	0	2,110	2,638	348	3,422	0	3,422
-L- rt.	47+50.00	70+50.00	2,734	0	0	0	2,734	1,017	0	1,017	1,271	0	1,463	0	1,463
-L- rt.	71+00.00	90+37.55	7,589	0	0	0	7,589	3,746	0	3,746	4,683	0	2,906	0	2,906
-L- med.	14+00.00	45+00.00	397	0	0	0	397	1,473	0	1,473	1,841	1,444	0	0	0
-Y3-	10+33.07	16+00.00	519	0	0	149	370	444	0	444	555	185	0	149	149
-DR8-	10+32.79	12+75.00	231	0	0	0	231	121	0	121	151	0	80	0	80
		SUBTOTAL:	11,470	0	0	149	11,321	6,801	0	6,801	8,501	1,629	4,449	149	4,598
		PROJECT SUBTOTAL:	32,834	0	0	149	32,685	31,162	0	31,162	38,953	17,693	11,425	149	11,574
WASTE IN LIEU OF BORROW												-8,605	-8,605	0	-8,605
LOSS DUE TO CLEARING AND GRUBBING			-1,000				-1,000					1,000			
SHOULDER MATERIAL								5,625		5,625	7,031	7,031			
		PROJECT TOTAL:	31,834	0	0	149	31,685	36,787	0	36,787	45,984	17,119	2,820	149	2,969
5% TO REPLACE TOPSOIL ON BORROW PIT												856			
		GRAND TOTAL:	31,834	0	0	149	31,685	36,787	0	36,787	45,984	17,975	2,820	149	2969
		SAY:	31,900									18,000			

computed by: scl 12/22/11 checked by: SAT 1/10/12

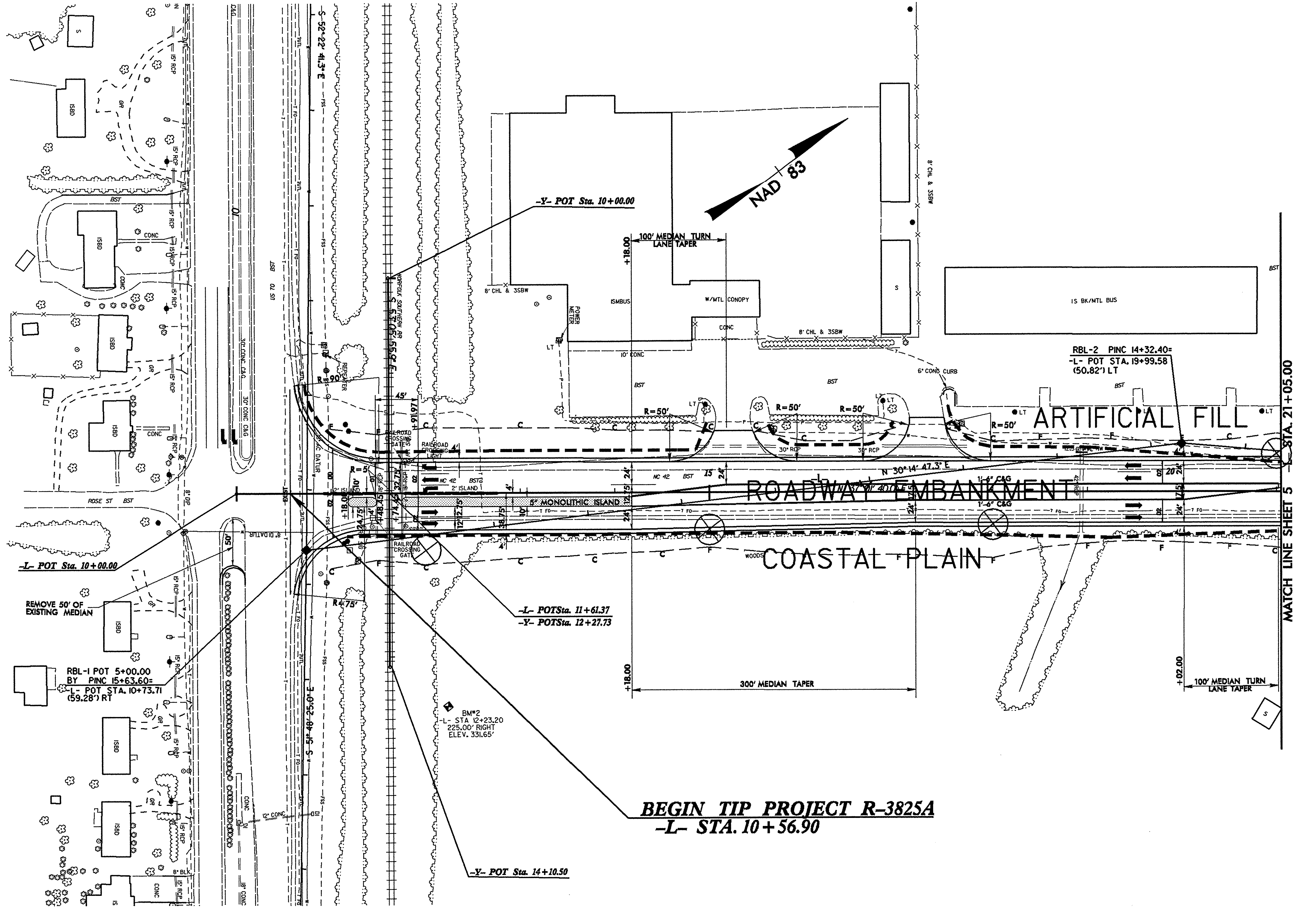
"EARTHWORK QUANTITIES ARE CALCULATED BY THE ROADWAY DESIGN UNIT. THESE EARTHWORK QUANTITIES ARE BASED IN PART ON SUBSTANCE DATA PROVIDED BY THE GEOTECHNICAL ENGINEERING UNIT."

PROJECT REFERENCE NO.	SHEET NO.
R-3825A	4

7/2/99

REVISIONS

090407 SCL DESIGN REVISION: SHIFTED -L- ALIGNMENT SOUTH TO AVOID IMPACTS TO THE POND DAM LOCATED ON THE AVENTIS CROPSCIENCE PROPERTY. ADJUSTED SLOPE STAKES DUE TO CHANGE IN GRADE.



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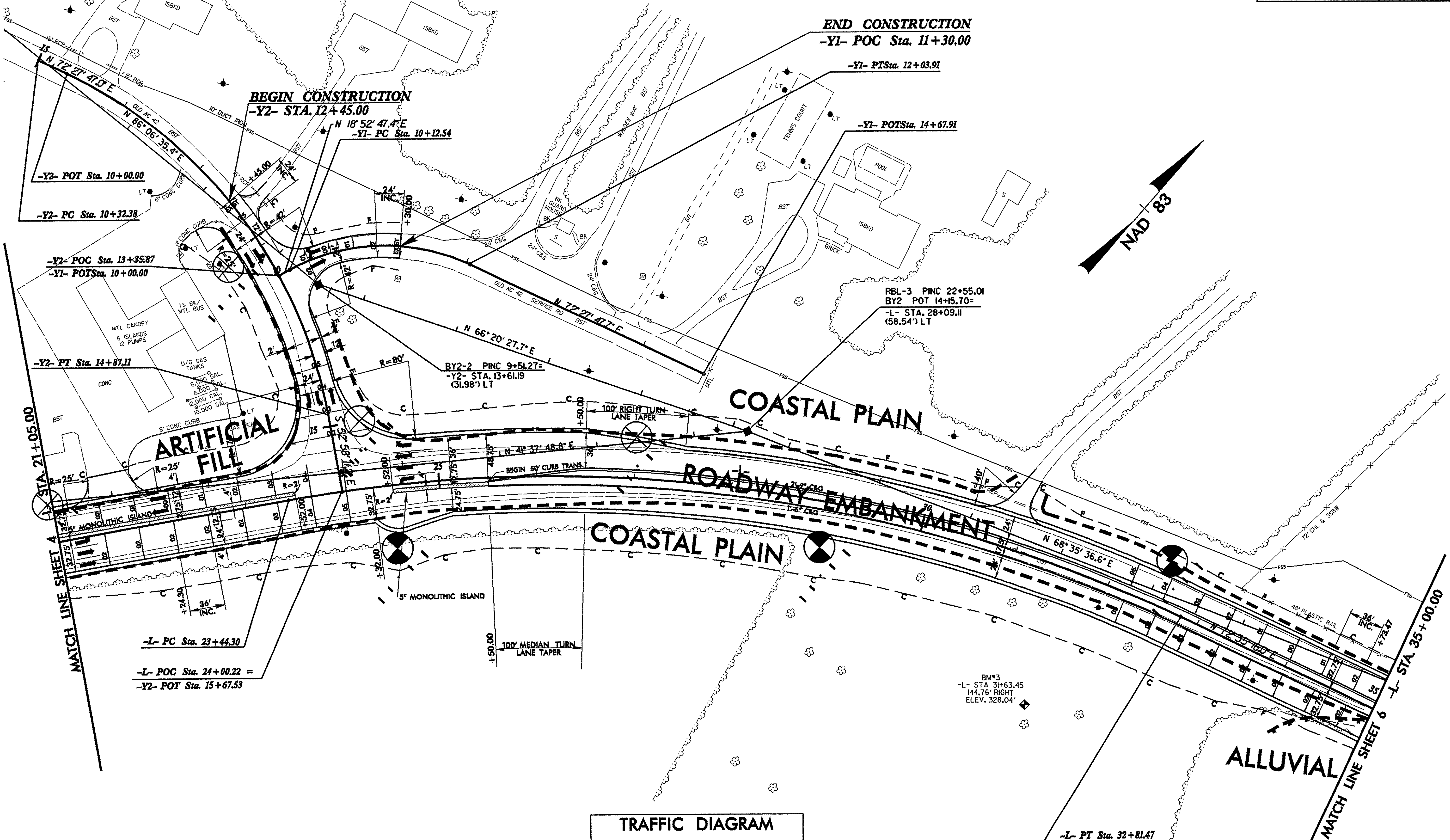
jrmatula AT BEJ22417

PROJECT REFERENCE NO.	SHEET NO.
R-3825A	5



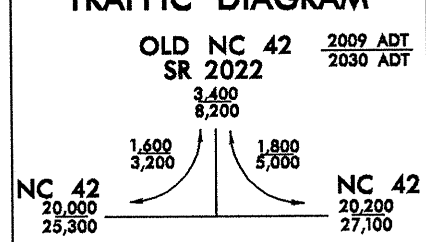
REVISIONS

090407 SCL DESIGN REVISION: SHIFTED -L- ALIGNMENT SOUTH TO AVOID IMPACTS TO THE POND DAM LOCATED ON THE AVENTIS CROPSCIENCE PROPERTY. ADJUSTED SLOPE STAKES DUE TO CHANGE IN GRADE.

7/2/99

-L-	-Y2-	-Y1-
PI Sta 28+28.53	PI Sta 12+78.64	PI Sta 11+15.87
Δ = 35° 33' 36.0" (RT)	Δ = 54° 34' 01.8" (RT)	Δ = 53° 35' 00.3" (RT)
D = 3° 47' 39.9"	D = 12° 00' 00.0"	D = 28° 00' 00.0"
L = 937.17'	L = 454.73'	L = 191.37'
T = 484.23'	T = 246.26'	T = 103.33'
R = 1,510.00'	R = 477.46'	R = 204.63'
SE = 0.05	SE = 0.05	SE = SEE PLANS
INC = 36'	INC = 24'	INC = 24'
RUNOFF = 180'	RUNOFF = SEE PLANS	RUNOFF = SEE PLANS

TRAFFIC DIAGRAM



DRIVEWAY RADII ARE 20' UNLESS OTHERWISE NOTED
FOR -L- PROFILE SEE SHEET 11
FOR -Y1 - PROFILE SEE SHEET 14
FOR -Y2- PROFILE SEE SHEET 14

01-NOV-2007 07:52
geo_rdwy\cadd_geotech\planprof\r3825a_geo_inv_005.dgn

PROJECT REFERENCE NO.	SHEET NO.
R-3825A	6

REVISIONS

090407 SCL DESIGN REVISION: SHIFTED -L- ALIGNMENT SOUTH TO AVOID IMPACTS TO THE POND DAM LOCATED ON THE AVENTIS CROPSCIENCE PROPERTY. ADJUSTED SLOPE STAKES DUE TO CHANGE IN GRADE.

7/2/99

NAD 83

MATCH LINE SHEET 5 -L- STA. 35+00.00

MATCH LINE SHEET 7 -L- STA. 47+85.00

RBL-39 PINC 31+54.20=
-L- STA. 36+95.77
(45.05') LT

BL-6 PINC 37+55.61=
-L- STA. 42+93.85
(23.94') RT

ISBKBUS

STONE

POND

ISFBUS

CONC

ARTIFICIAL FILL

COASTAL PLAIN

ROADWAY EMBANKMENT

ALLUVIAL

COASTAL PLAIN

48" PLASTIC RAIL

48" CONC PIPE CULVERT

-L- STA. 37+00.00 LT.
BEGIN 50' CURB TRANS.

N 77° 35' 16" E

N 77° 24' 43" E

N 39° 49' 05" E

NC 42 BST

CAT-1

+50.00

+62.59

-L- PC Sta. 37+51.73

-L- PRC Sta. 43+31.51

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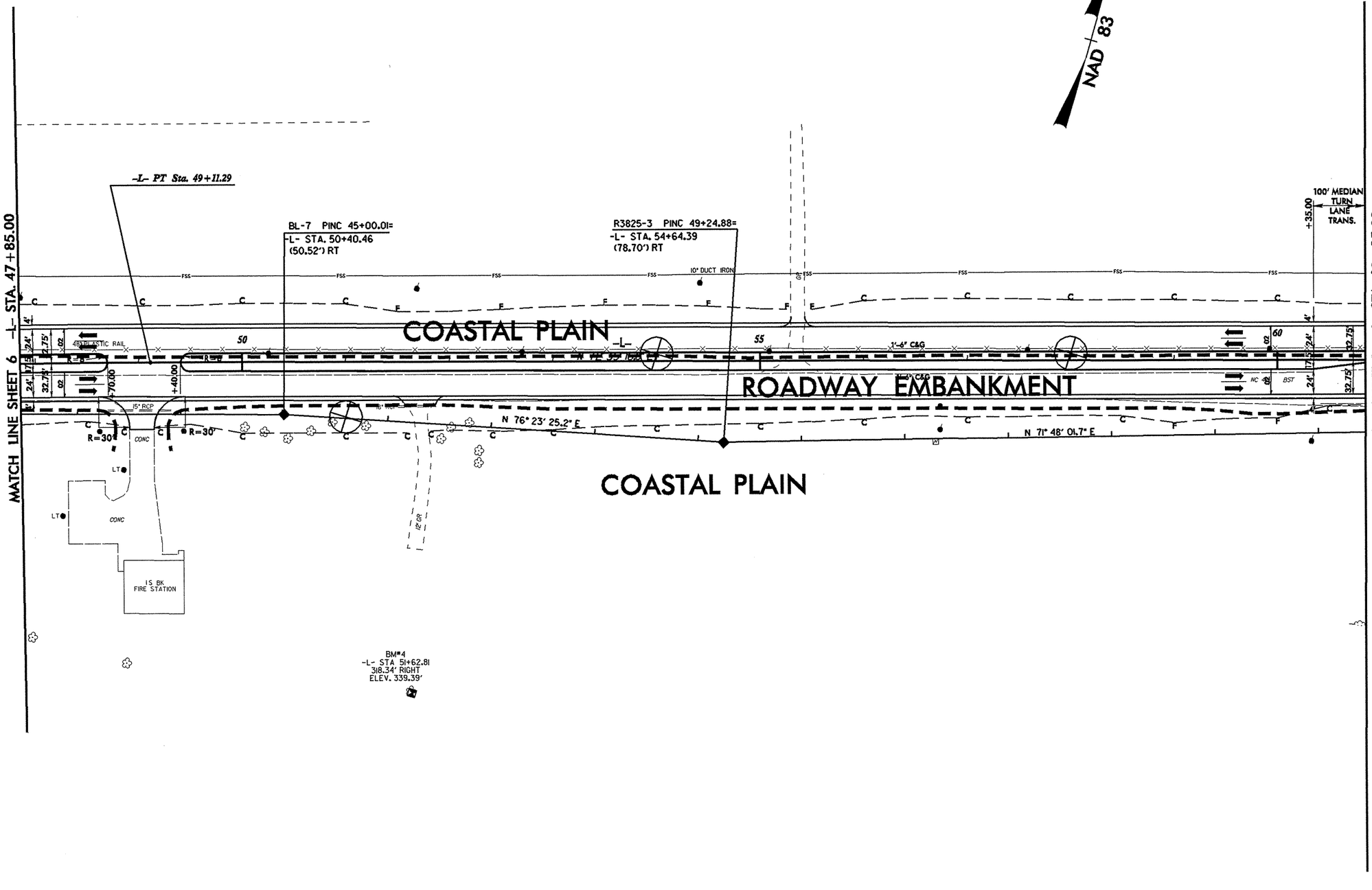
jrmeade AT GE22417

PROJECT REFERENCE NO.	SHEET NO.
R-3825A	7

REVISIONS

090407 SCL DESIGN REVISION: SHIFTED -L- ALIGNMENT SOUTH TO AVOID IMPACTS TO THE POND DAM LOCATED ON THE AVENTIS CROPSCIENCE PROPERTY. ADJUSTED SLOPE STAKES DUE TO CHANGE IN GRADE.

7/2/99



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PROJECT REFERENCE NO.	SHEET NO.
R-3825A	8

REVISIONS

DR0407 SCL DESIGN REVISION: SHIFTED -L- ALIGNMENT SOUTH TO AVOID IMPACTS TO THE POND DAM LOCATED ON THE AVENTIS CROPSCIENCE PROPERTY. ADJUSTED SLOPE STAKES DUE TO CHANGE IN GRADE.

7/2/99

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jrmatula
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NAD 83

-L- PT Sta. 62+35.55

-L- POT Sta. 63+62.83
-DR8- POTSta. 10+00.00

-L- POT Sta. 70+17.47
-DR10- POTSta. 10+00.00

MATCH LINE SHEET 7 -L- STA. 60+85.00

MATCH LINE SHEET 9 -L- STA. 73+15.00

COASTAL PLAIN

ROADWAY EMBANKMENT

COASTAL PLAIN

50' TAPER

100' MEDIAN TURN LANE TAPER

100' MEDIAN TURN LANE TRANS.

48" PLASTIC RAIL

48" WOODEN RAIL

GATE

10" DUCT IRON

5" MONOLITHIC ISLAND

100' RT. TURN LANE TRANSITION

-L- PC Sta. 61+17.66

-DR8- PCSta. 11+27.73

RBL-38
PINC 56+05.94=
-L- STA. 61+45.30
(69.36') RT

RBL-8 PINC 63+65.49=
-L- STA. 69+04.48
(56.56') RT

100' TRANSITION

-DR8- PTSta. 12+48.47

END CONSTRUCTION
-DR8- STA. 12+75.00

END CONSTRUCTION
-DR10- STA. 12+00.00

-DR8- POTSta. 14+65.18

-DR10- POTSta. 13+71.57

S 14° 48' 27" E

S 7° 53' 06.1" E

S 22° 11' 06.8" E

N 12° 11' 35.0" E

N 67° 45' 55.3" E

72" CMP

1'-4" CMG

GRAU 350

36" CMP & 3SBW

PROJECT REFERENCE NO.	SHEET NO.
R-3825A	9

REVISIONS

090407 SCL DESIGN REVISION: SHIFTED -L- ALIGNMENT SOUTH TO AVOID IMPACTS TO THE POND DAM LOCATED ON THE AVENTIS CROPSCIENCE PROPERTY. ADJUSTED SLOPE STAKES DUE TO CHANGE IN GRADE.

7/2/9

RBL-9 PINC 71+12.13
BY5 POT 5+00.00=
-L- STA. 76+48.79
(2.38') LT

-L- POT Sta. 76+01.35
-Y3- POTSta. 10+00.00

50' TAPER

100' MEDIAN TURN LANE TAPER

5" MONOLITHIC ISLAND

COASTAL PLAIN

RESIDUAL

ROADWAY EMBANKMENT

720' TRANSITION LT. & RT.

1'-6" C&G

N 76° 14' 24.6" E

N72°29'35.3"E

MATCH LINE SHEET 8 -L- STA. 73+15.00

MATCH LINE SHEET 10 -L- STA. 85+00.00

BM#5
-L- STA 77+17.24
171.85' RIGHT
ELEV. 320.77'

S 20° 29' 55" E

S 25° 44' 38.2" E

S 17° 26' 10.1" E

-BY5-1 8+29.09 PINC=
-Y3- STA. 13+31.86
(15.86') LT

150' TRANSITION RT.

350' TRANSITION LT.

-Y3- PCSta. 14+35.72

-Y3- PTSta. 15+75.16

END CONSTRUCTION
-Y3- POTSta. 16+00.00

BL-10 PINC 77+30.86 LB
BL-10 PINC 76+73.64 LA=
-L- STA. 82+66.38
(39.98') RT

-L- PC Sta. 82+08.55

NAD 83

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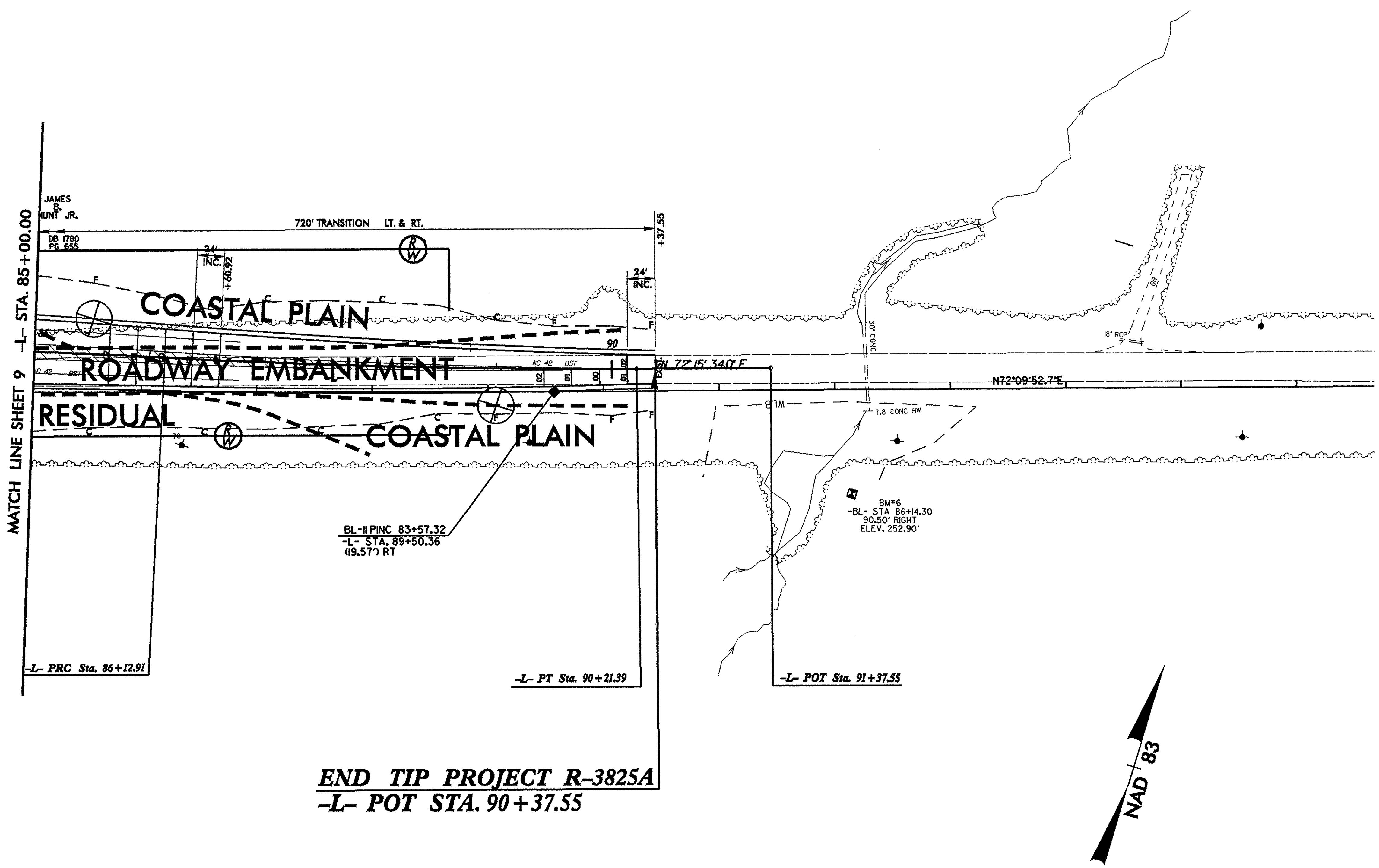
PROJECT REFERENCE NO.	SHEET NO.
R-3825A	10



END TIP PROJECT R-3825A
-L- POT STA. 90+37.55

REVISIONS

D90407 SCL DESIGN REVISION: SHIFTED -L- ALIGNMENT SOUTH TO AVOID IMPACTS TO THE POND DAM LOCATED ON THE AVENTIS CROPSCIENCE PROPERTY. ADJUSTED SLOPE STAKES DUE TO CHANGE IN GRADE.

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jrmatula AT GEJ22141?

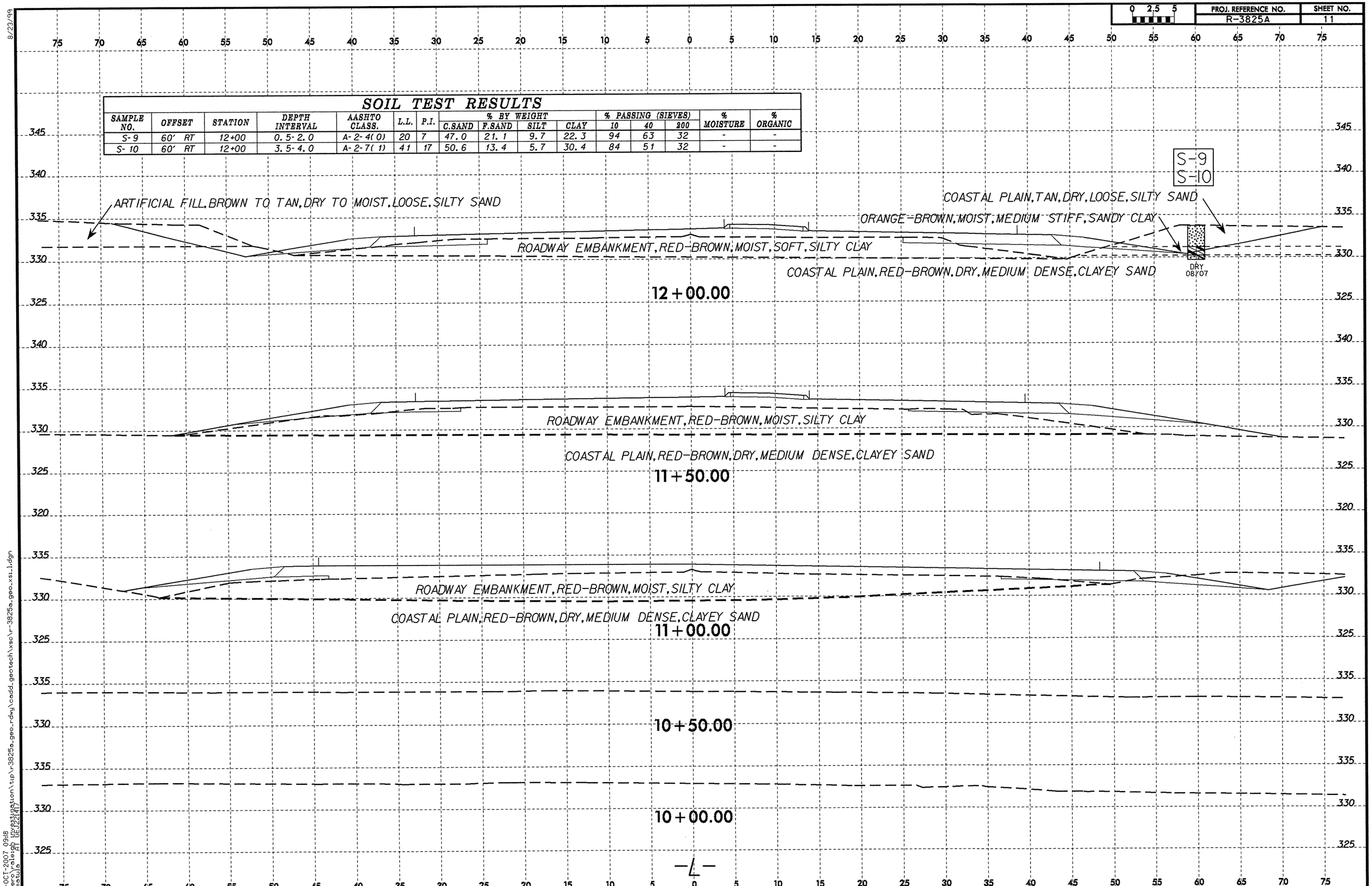
7/2/9?

8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	R-3825A	11

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-9	60' RT	12+00	0.5-2.0	A-2-4(0)	20	7	47.0	21.1	9.7	22.3	94	63	32	-	-
S-10	60' RT	12+00	3.5-4.0	A-2-7(1)	41	17	50.6	13.4	5.7	30.4	84	51	32	-	-



0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	R-3825A	12

ARTIFICIAL FILL, BROWN TO TAN, DRY TO MOIST, LOOSE, SILTY SAND

ROADWAY EMBANKMENT, RED-BROWN, MOIST, SOFT, SILTY CLAY

COASTAL PLAIN, BROWN TO ORANGE-BROWN, MOIST, SOFT TO MEDIUM STIFF, SANDY CLAY

14+00.00

ARTIFICIAL FILL, BROWN TO TAN, DRY TO MOIST, LOOSE, SILTY SAND

ROADWAY EMBANKMENT, RED-BROWN, MOIST, SOFT, SILTY CLAY

COASTAL PLAIN, BROWN TO ORANGE-BROWN, MOIST, SOFT TO MEDIUM STIFF, SANDY CLAY

13+50.00

ARTIFICIAL FILL, BROWN TO TAN, DRY TO MOIST, LOOSE, SILTY SAND

ROADWAY EMBANKMENT, RED-BROWN, MOIST, SOFT, SILTY CLAY

COASTAL PLAIN, BROWN TO ORANGE-BROWN, MOIST, SOFT TO MEDIUM STIFF, SANDY CLAY

13+00.00

ARTIFICIAL FILL, BROWN TO TAN, DRY TO MOIST, LOOSE SILTY SAND

ROADWAY EMBANKMENT, RED-BROWN, MOIST, SOFT, SILTY CLAY

COASTAL PLAIN, TAN, DRY, LOOSE, SILTY SAND

COASTAL PLAIN, ORANGE-BROWN, MOIST, MEDIUM STIFF, SANDY CLAY

RED-BROWN, DRY, MEDIUM DENSE, CLAYEY SAND

12+50.00

8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	R-3825A	13

ARTIFICIAL FILL, BROWN TO TAN, DRY TO MOIST, LOOSE, SILTY SAND

ROADWAY EMBANKMENT, RED-BROWN, MOIST, SOFT, SILTY CLAY

COASTAL PLAIN, BROWN TO ORANGE, MOIST, SOFT TO MEDIUM STIFF, SANDY CLAY

16+00.00

ROADWAY EMBANKMENT, RED-BROWN, MOIST, SOFT, SILTY CLAY

COASTAL PLAIN, BROWN TO ORANGE, MOIST, SOFT TO MEDIUM STIFF, SANDY CLAY

15+50.00

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		
S-11	39' RT	15+00	1.0-2.5	A-6(5)	38	15	33.6	17.6	6.3	42.5	100	80	51	-	-

S-11

DRY 08/07

ROADWAY EMBANKMENT, RED-BROWN, MOIST, SOFT, SILTY CLAY

COASTAL PLAIN, BROWN TO ORANGE, MOIST, SOFT TO MEDIUM STIFF, SANDY CLAY

15+00.00

ARTIFICIAL FILL, BROWN TO TAN, DRY TO MOIST, LOOSE, SILTY SAND

ROADWAY EMBANKMENT, RED-BROWN, MOIST, SOFT, SILTY CLAY

COASTAL PLAIN, BROWN TO ORANGE-BROWN, MOIST, SOFT TO MEDIUM STIFF, SANDY CLAY

14+50.00

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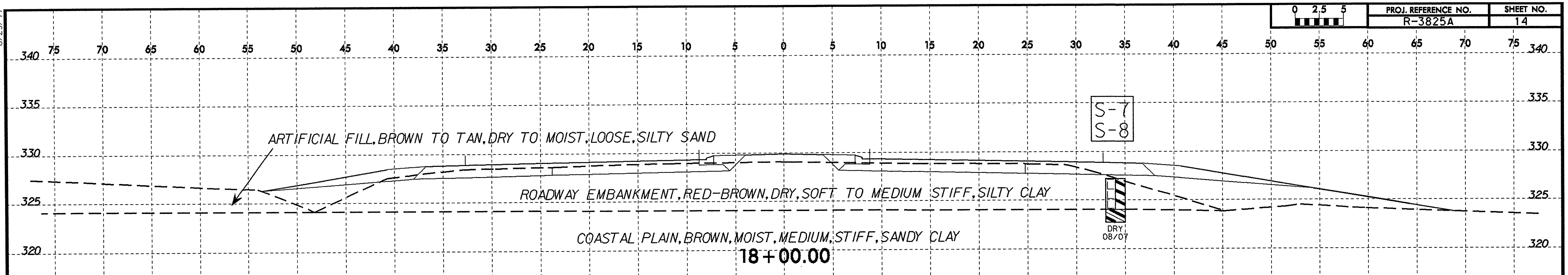
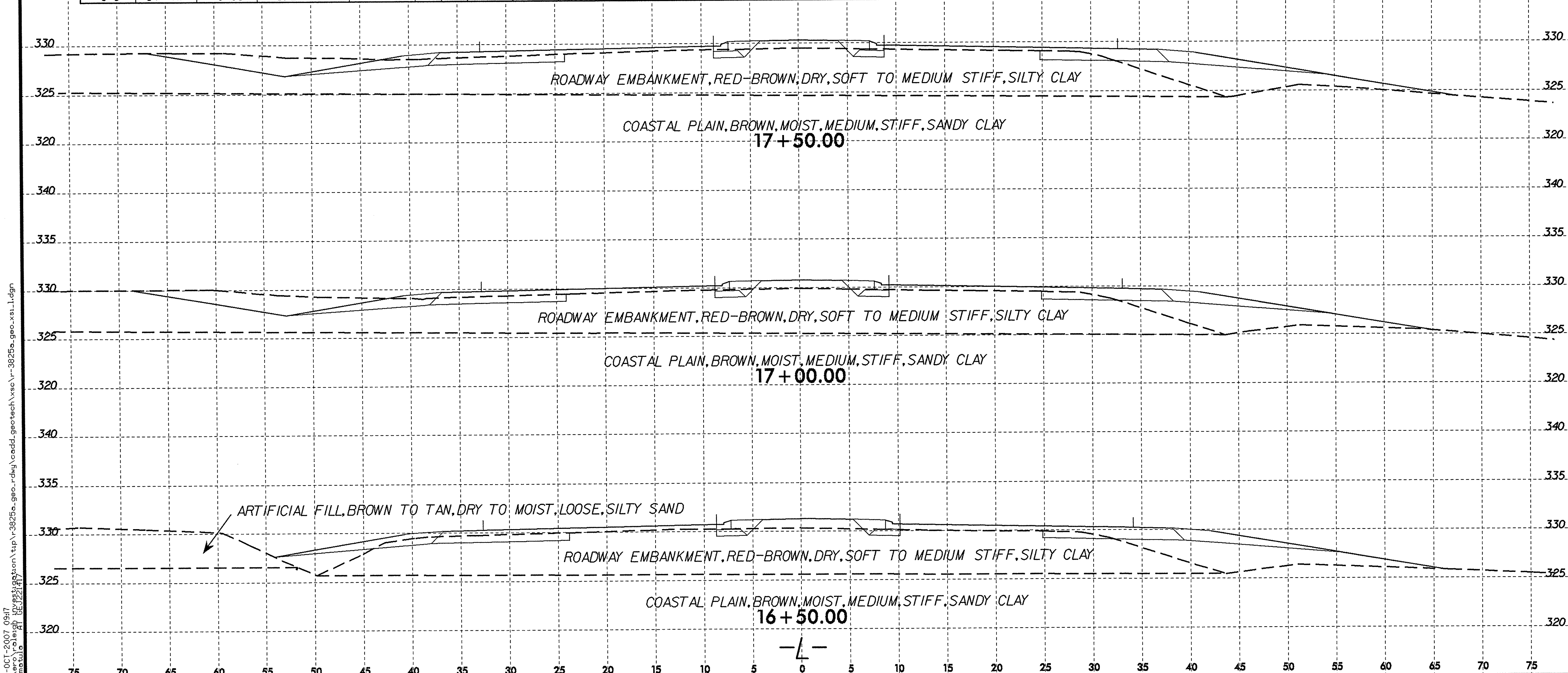
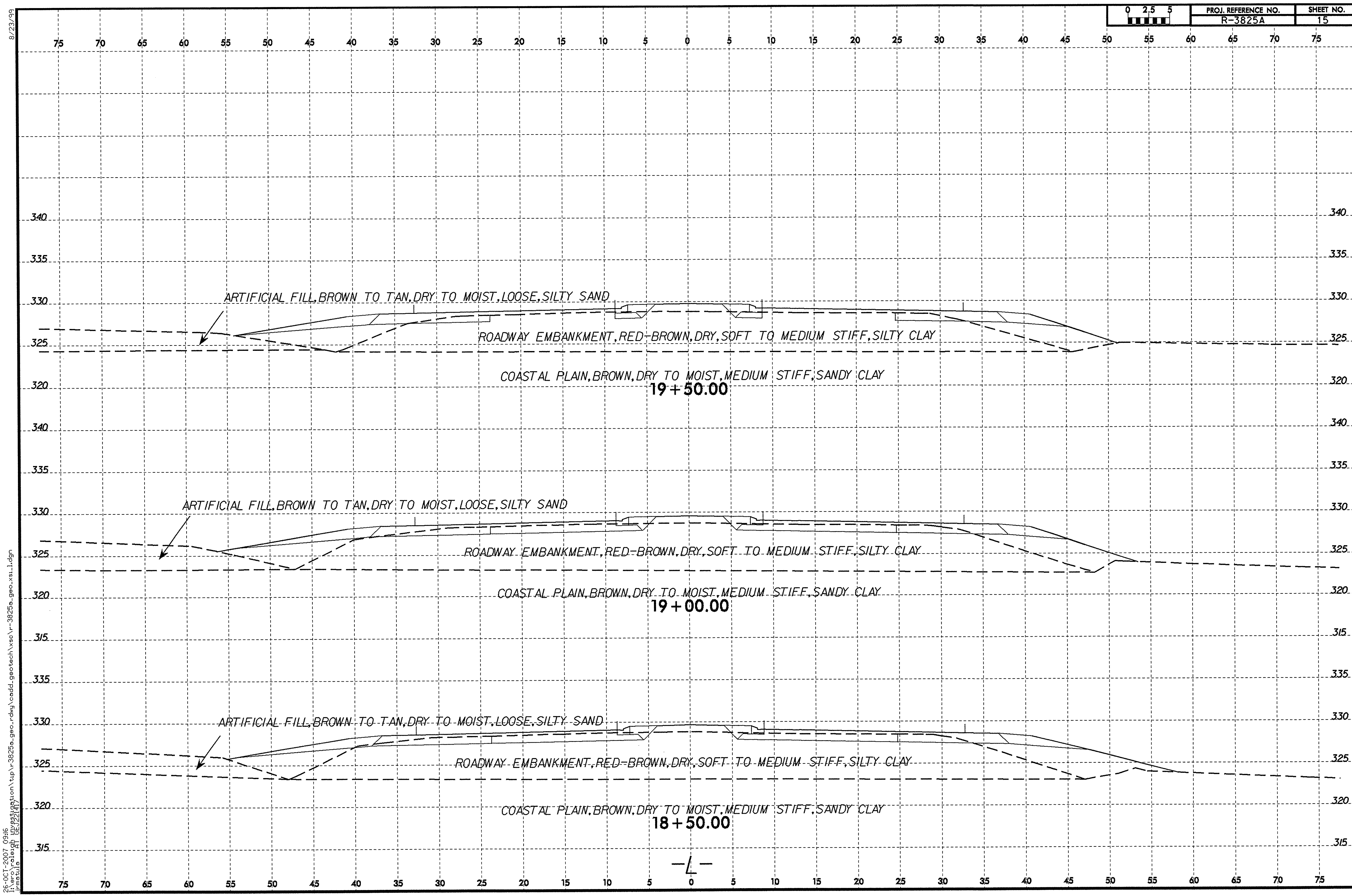


SOIL TEST RESULTS

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-7	34' RT	18+00	0.0-3.2	A-7-6(15)	54	25	11.9	16.8	10.5	60.7	86	80	64	-	-
S-8	34' RT	18+00	3.2-4.5	A-6(5)	35	16	29.1	21.7	6.7	42.5	100	84	51	-	-





PROJ. REFERENCE NO.
R-3825A
SHEET NO.
15
ARTIFICIAL FILL, BROWN TO TAN, DRY TO MOIST, LOOSE, SILTY SAND
ROADWAY EMBANKMENT, RED-BROWN, DRY, SOFT TO MEDIUM STIFF, SILTY CLAY
COASTAL PLAIN, BROWN, DRY TO MOIST, MEDIUM STIFF, SANDY CLAY
19+50.00
ARTIFICIAL FILL, BROWN TO TAN, DRY TO MOIST, LOOSE, SILTY SAND
ROADWAY EMBANKMENT, RED-BROWN, DRY, SOFT TO MEDIUM STIFF, SILTY CLAY
COASTAL PLAIN, BROWN, DRY TO MOIST, MEDIUM STIFF, SANDY CLAY
19+00.00
ARTIFICIAL FILL, BROWN TO TAN, DRY TO MOIST, LOOSE, SILTY SAND
ROADWAY EMBANKMENT, RED-BROWN, DRY, SOFT TO MEDIUM STIFF, SILTY CLAY
COASTAL PLAIN, BROWN, DRY TO MOIST, MEDIUM STIFF, SANDY CLAY
18+50.00
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PROJ. REFERENCE NO.	SHEET NO.
R-3825A	16

0 2.5 5

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-6	40' LT	21+00	0.0-1.2	A-2-4(0)	16	4	41.1	34.4	8.3	16.2	99	78	28	-	-

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

340 335 330 325 320

ROADWAY EMBANKMENT, RED-BROWN, DRY, SOFT TO MEDIUM STIFF, SILTY CLAY

COASTAL PLAIN, BROWN, DRY, MEDIUM STIFF, SANDY CLAY

21+50.00

ARTIFICIAL FILL, BROWN TO TAN, DRY TO MOIST, LOOSE, SILTY SAND

S-6

DRY
08/07

ROADWAY EMBANKMENT, RED-BROWN, DRY, SOFT TO MEDIUM STIFF, SILTY CLAY

COASTAL PLAIN, BROWN, DRY, MEDIUM STIFF, SANDY CLAY

21+00.00

ARTIFICIAL FILL, BROWN TO TAN, DRY TO MOIST, LOOSE, SILTY SAND

ROADWAY EMBANKMENT, RED-BROWN, DRY, SOFT TO MEDIUM STIFF, SILTY CLAY

COASTAL PLAIN, BROWN, DRY, MEDIUM STIFF, SANDY CLAY

20+50.00

ARTIFICIAL FILL, BROWN TO TAN, DRY TO MOIST, LOOSE, SILTY SAND

ROADWAY EMBANKMENT, RED-BROWN, DRY, SOFT TO MEDIUM STIFF, SILTY CLAY

COASTAL PLAIN, BROWN, DRY, MEDIUM STIFF, SANDY CLAY

20+00.00

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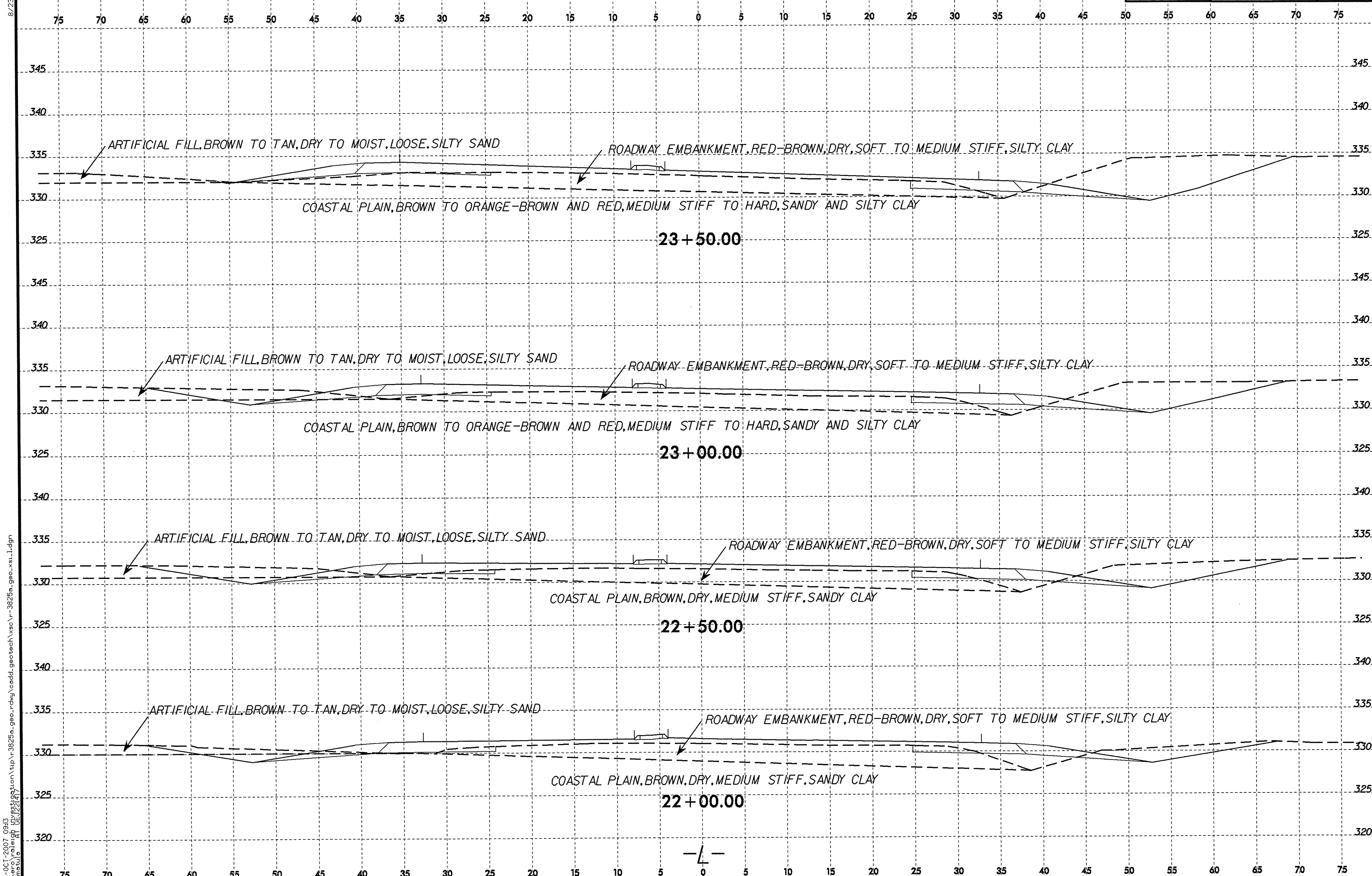
75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	R-3825A	17



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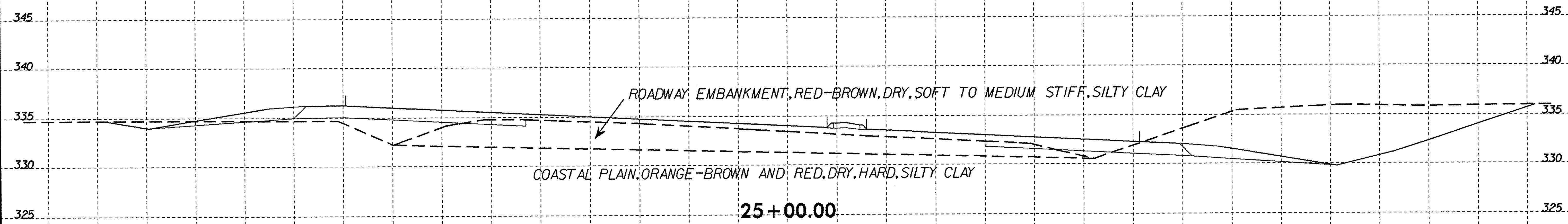
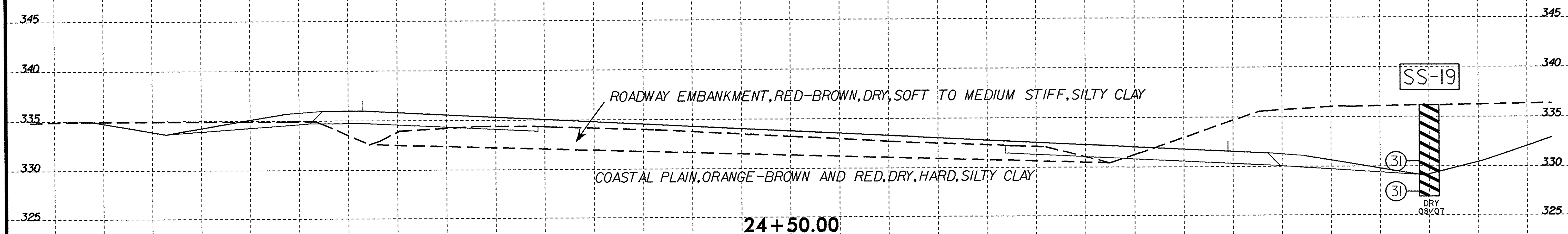
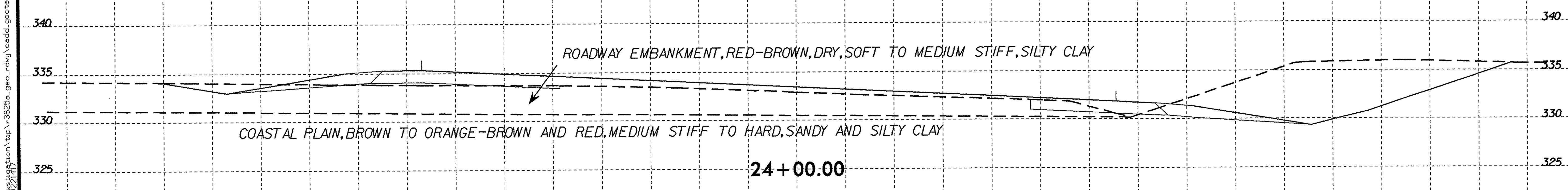
SOIL TEST RESULTS

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- 19	65' RT	24+50	4.7-6.2	A-7-6(9)	46	23	26.5	21.9	5.1	46.6	100	88	54	-	-







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0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	R-3825A	19

S-12

ROADWAY EMBANKMENT, RED-BROWN, MOIST, SOFT, SILTY CLAY

COASTAL PLAIN, TAN TO ORANGE-BROWN, MOIST, MEDIUM STIFF, SANDY CLAY

DRY
08/07

27+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		
S-12	42' LT	27+00	3.0-4.5	A-6(2)	35	15	37.9	26.9	6.9	28.3	100	80	38	-	-

ROADWAY EMBANKMENT, RED-BROWN, DRY TO MOIST, SOFT TO MEDIUM STIFF, SILTY CLAY

COASTAL PLAIN, TAN TO ORANGE-BROWN AND RED, DRY TO MOIST, MEDIUM STIFF TO HARD, SANDY AND SILTY CLAY

26+50.00

ROADWAY EMBANKMENT, RED-BROWN, DRY TO MOIST, SOFT TO MEDIUM STIFF, SILTY CLAY

COASTAL PLAIN, TAN TO ORANGE-BROWN AND RED, DRY TO MOIST, MEDIUM STIFF TO HARD, SANDY AND SILTY CLAY

26+00.00

ROADWAY EMBANKMENT, RED-BROWN, DRY TO MOIST, SOFT TO MEDIUM STIFF, SILTY CLAY

COASTAL PLAIN, TAN TO ORANGE-BROWN AND RED, DRY TO MOIST, MEDIUM STIFF TO HARD, SANDY AND SILTY CLAY

25+50.00

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	R-3825A	20

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

345 340 335 330 325 320

ROADWAY EMBANKMENT, RED-BROWN, MOIST, SOFT, SILTY CLAY

COASTAL PLAIN, ORANGE AND RED, DRY, VERY STIFF, SILTY CLAY

COASTAL PLAIN, PINK AND ORANGE, MOIST, DENSE, CLAYEY SAND

28+50.00

345 340 335 330 325 320

ROADWAY EMBANKMENT, RED-BROWN, MOIST, SOFT, SILTY CLAY

COASTAL PLAIN, ORANGE-BROWN AND RED, DRY, VERY STIFF, SILTY CLAY

PINK AND ORANGE, MOIST, DENSE, CLAYEY SAND

28+00.00

345 340 335 330 325 320

ROADWAY EMBANKMENT, RED-BROWN, MOIST, SOFT, SILTY CLAY

COASTAL PLAIN, TAN TO ORANGE-BROWN, MOIST, MEDIUM STIFF, SANDY CLAY

27+50.00

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0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
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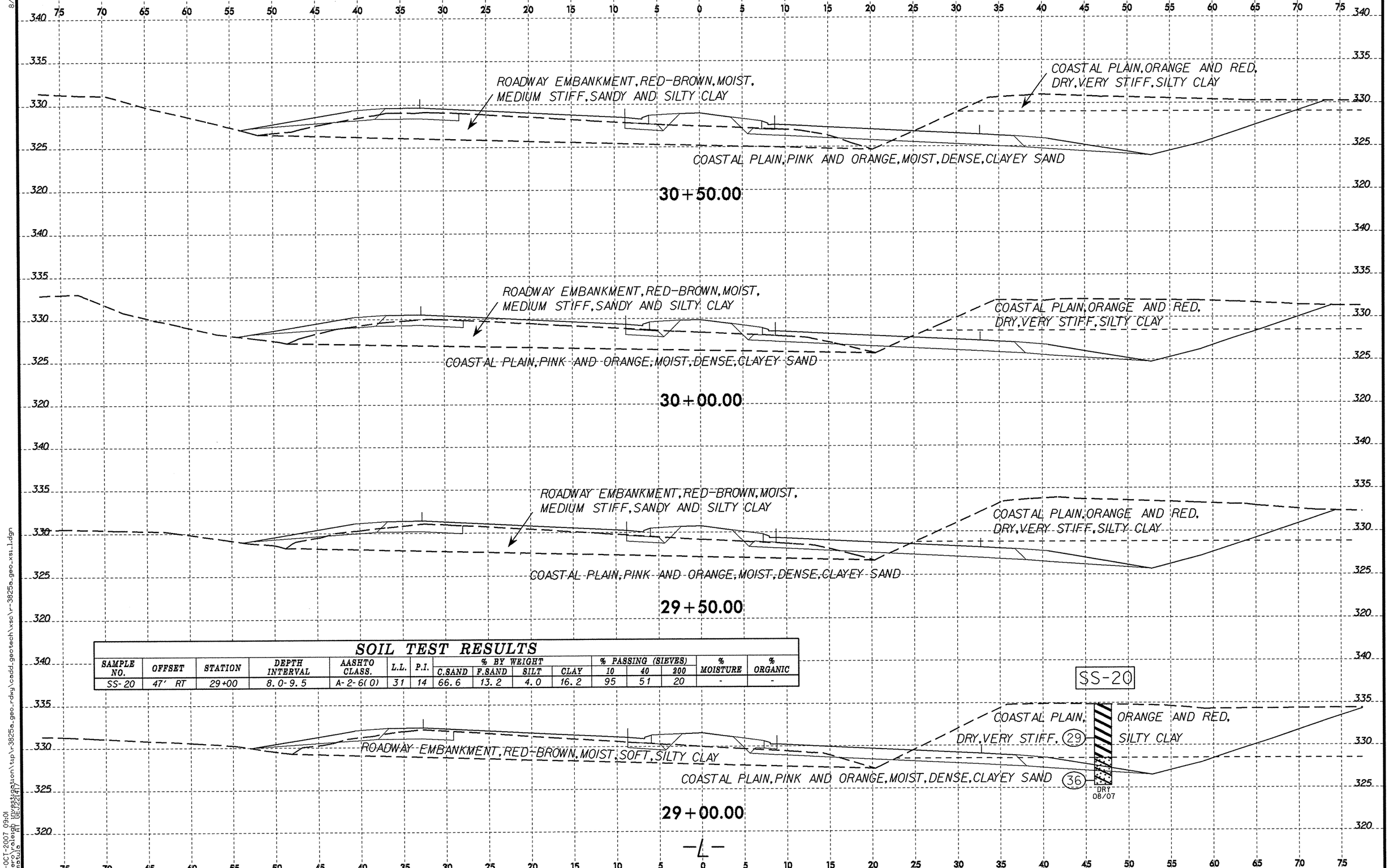
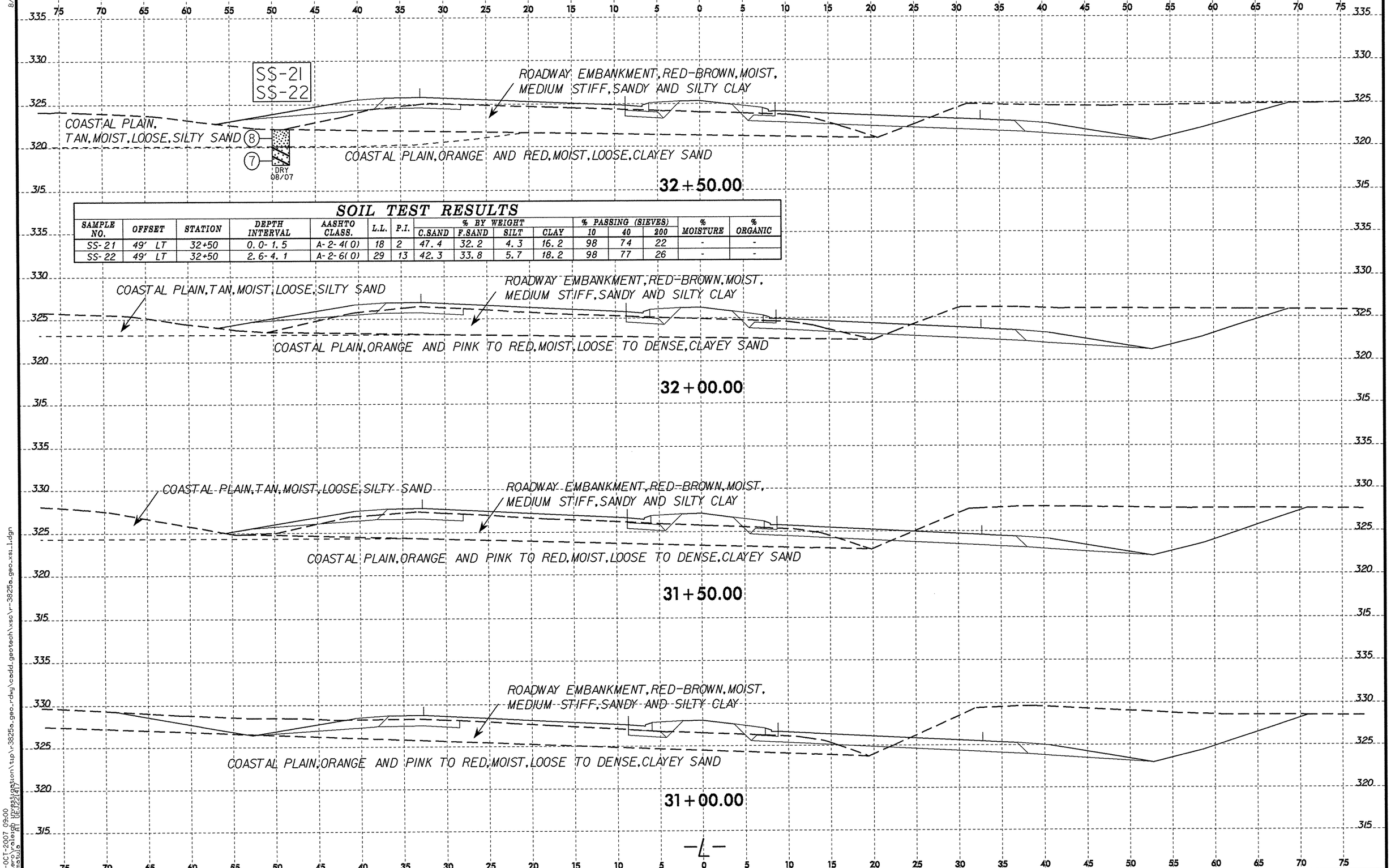


SOIL TEST RESULTS

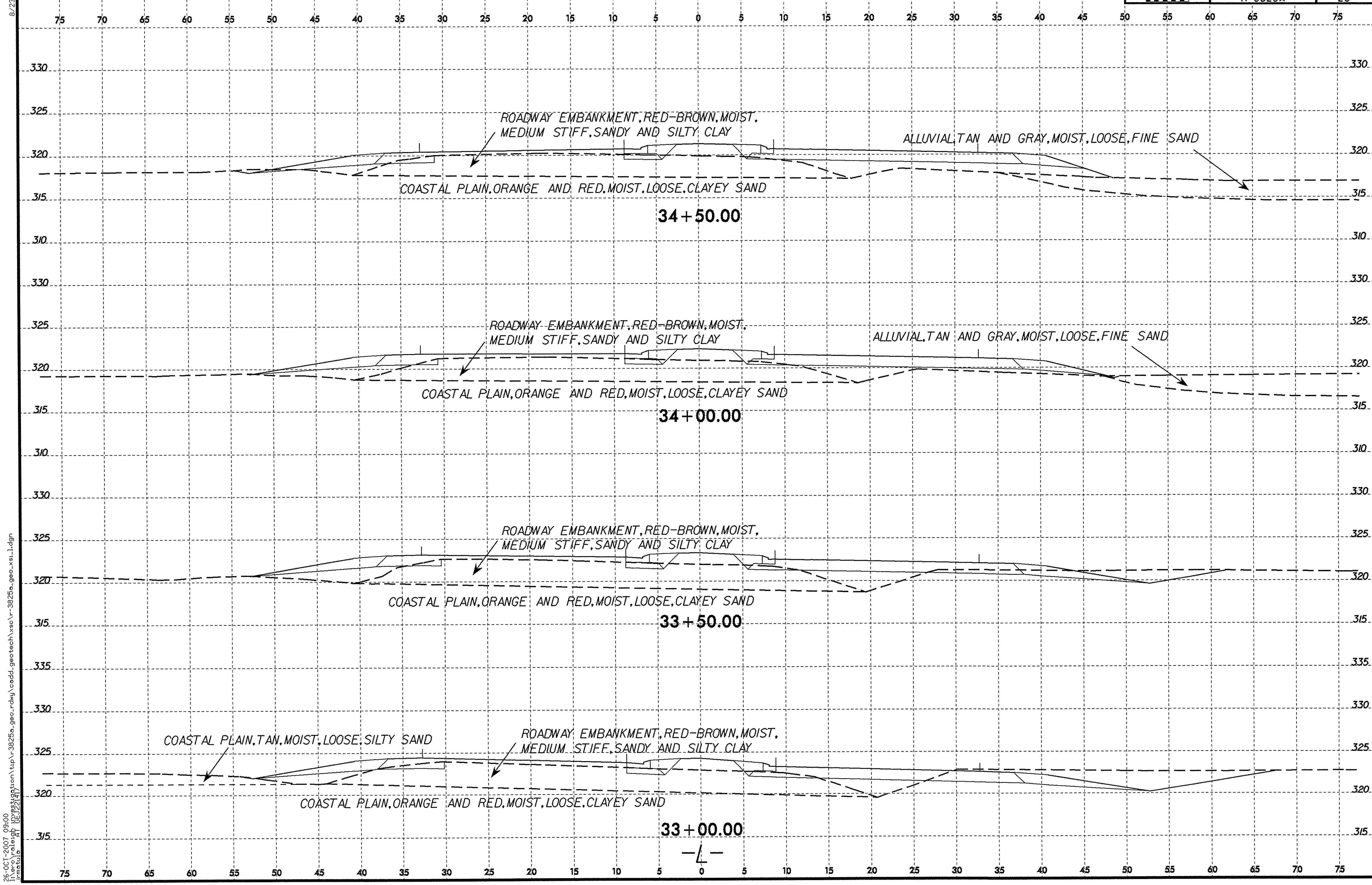
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
SS-20	47' RT	29+00	8.0-9.5	A-2-6(0)	31	14	66.6	13.2	4.0	16.2	95	51	20	-	-



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-21	49' LT	32+50	0.0-1.5	A-2-4(0)	18	2	47.4	32.2	4.3	16.2	98	74	22	-	-
SS-22	49' LT	32+50	2.6-4.1	A-2-6(0)	29	13	42.3	33.8	5.7	18.2	98	77	26	-	-

PROJ. REFERENCE NO.	SHEET NO.
R-3825A	23



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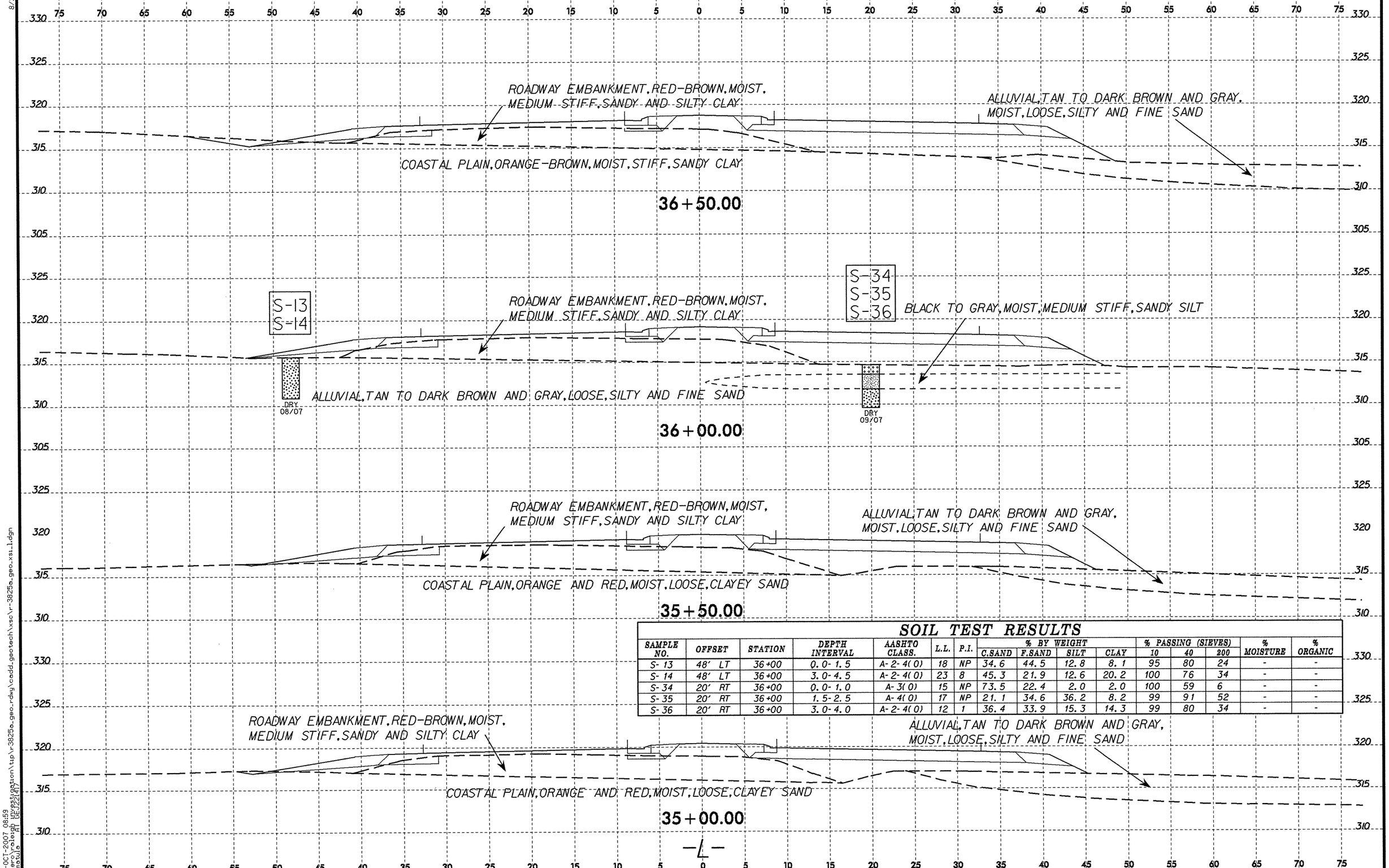
0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	R-3825A	24



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		
S-13	48' LT	36+00	0.0-1.5	A-2-4(0)	18	NP	34.6	44.5	12.8	8.1	95	80	24	-	-
S-14	48' LT	36+00	3.0-4.5	A-2-4(0)	23	8	45.3	21.9	12.6	20.2	100	76	34	-	-
S-34	20' RT	36+00	0.0-1.0	A-3(0)	15	NP	73.5	22.4	2.0	2.0	100	59	6	-	-
S-35	20' RT	36+00	1.5-2.5	A-4(0)	17	NP	21.1	34.6	36.2	8.2	99	91	52	-	-
S-36	20' RT	36+00	3.0-4.0	A-2-4(0)	12	1	36.4	33.9	15.3	14.3	99	80	34	-	-

8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	R-3825A	25

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

325
320
315
310
305

ROADWAY EMBANKMENT, RED-BROWN, MOIST, MEDIUM STIFF, SANDY AND SILTY CLAY

COASTAL PLAIN, ORANGE-BROWN, MOIST, MEDIUM STIFF, SANDY CLAY

ALLUVIAL, DARK GRAY TO GRAY, MOIST, LOOSE, FINE SAND

DRY
09/07

38+00.00

ROADWAY EMBANKMENT, RED-BROWN, MOIST, MEDIUM STIFF, SANDY AND SILTY CLAY

COASTAL PLAIN, ORANGE-BROWN, MOIST, MEDIUM STIFF, SANDY CLAY

ALLUVIAL DARK GRAY TO GRAY, MOIST, LOOSE, FINE SAND

37+50.00

ROADWAY EMBANKMENT, RED-BROWN, MOIST, MEDIUM STIFF, SANDY AND SILTY CLAY

COASTAL PLAIN, ORANGE-BROWN, MOIST, MEDIUM STIFF, SANDY CLAY

ALLUVIAL DARK GRAY TO GRAY, MOIST, LOOSE, FINE SAND

37+00.00

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75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

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jmoore

PROJ. REFERENCE NO.	SHEET NO.
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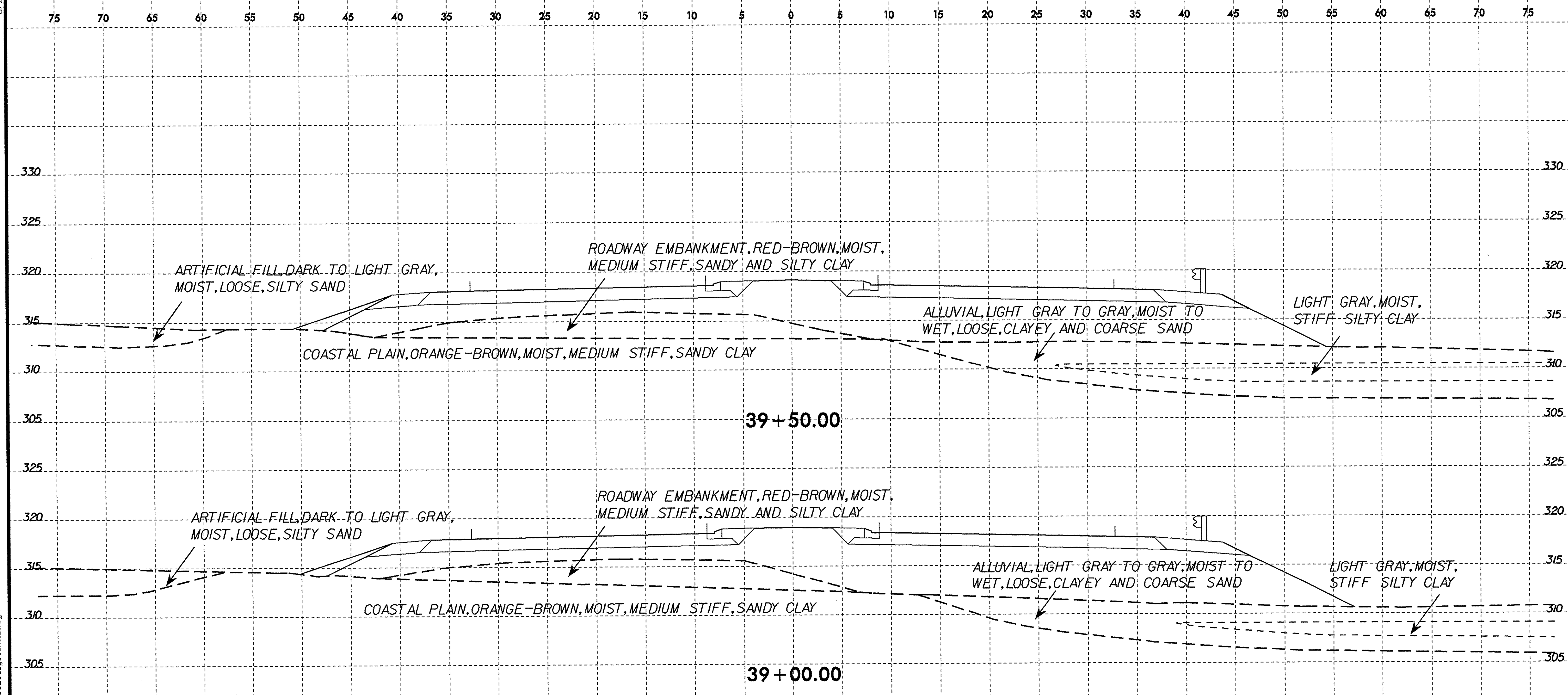
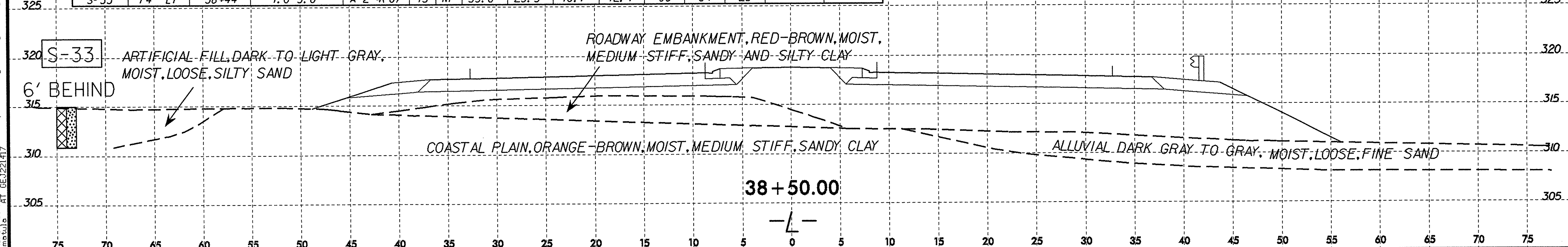


SOIL TEST RESULTS

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-33	74' LT	38+44	1.0-3.0	A-2-4(0)	13	NP	53.6	23.5	10.7	12.1	98	61	25	-	-



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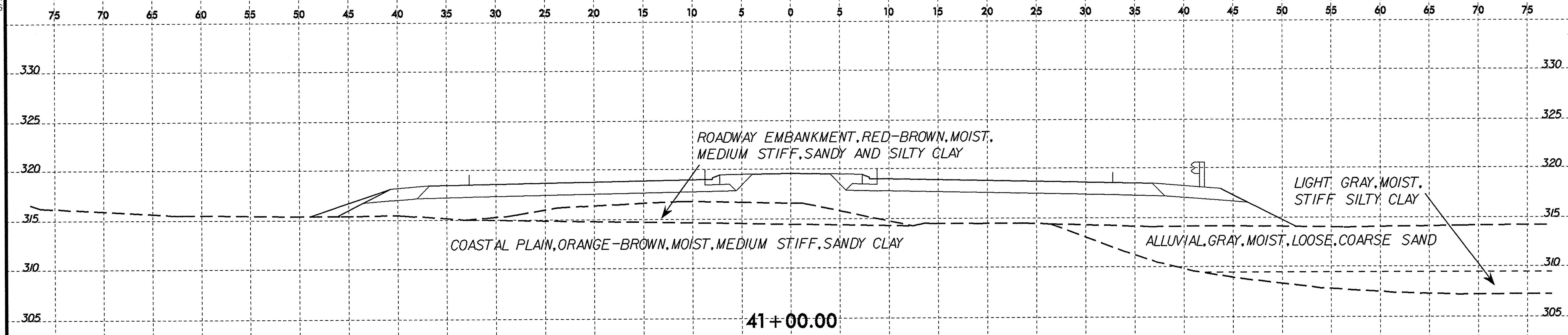
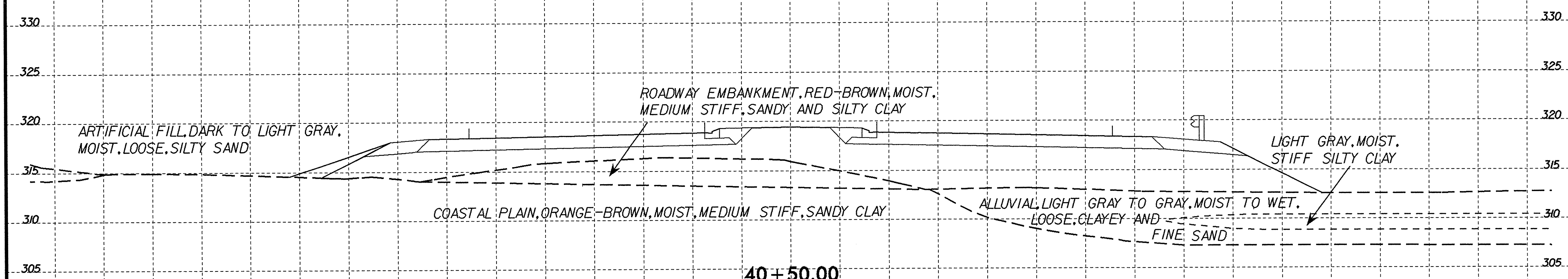
R-3825A	27



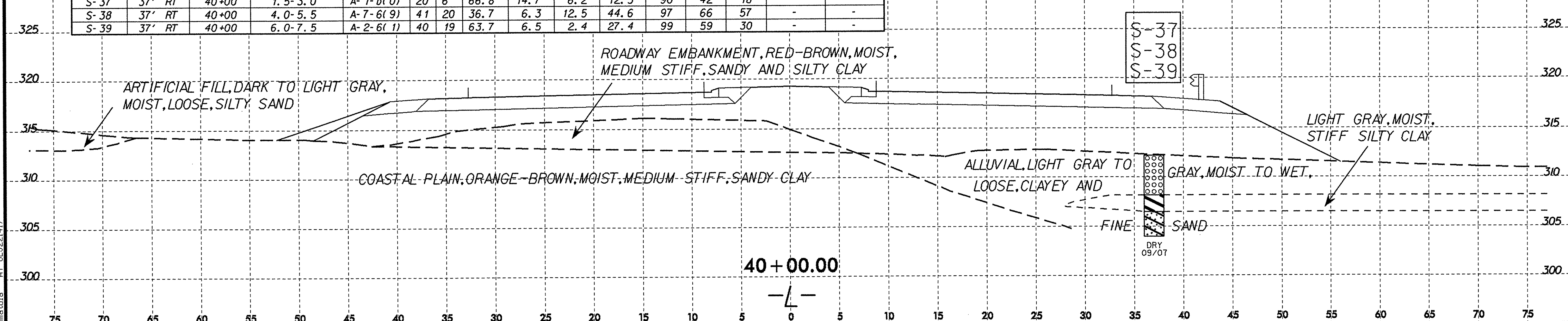
41+00.00



40+50.00

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		
S-37	37' RT	40+00	1.5-3.0	A-1-b(0)	20	6	66.8	14.7	6.2	12.3	90	42	18	-	-
S-38	37' RT	40+00	4.0-5.5	A-7-6(9)	41	20	36.7	6.3	12.5	44.6	97	66	57	-	-
S-39	37' RT	40+00	6.0-7.5	A-2-6(1)	40	19	63.7	6.5	2.4	27.4	99	59	30	-	-



40+00.00

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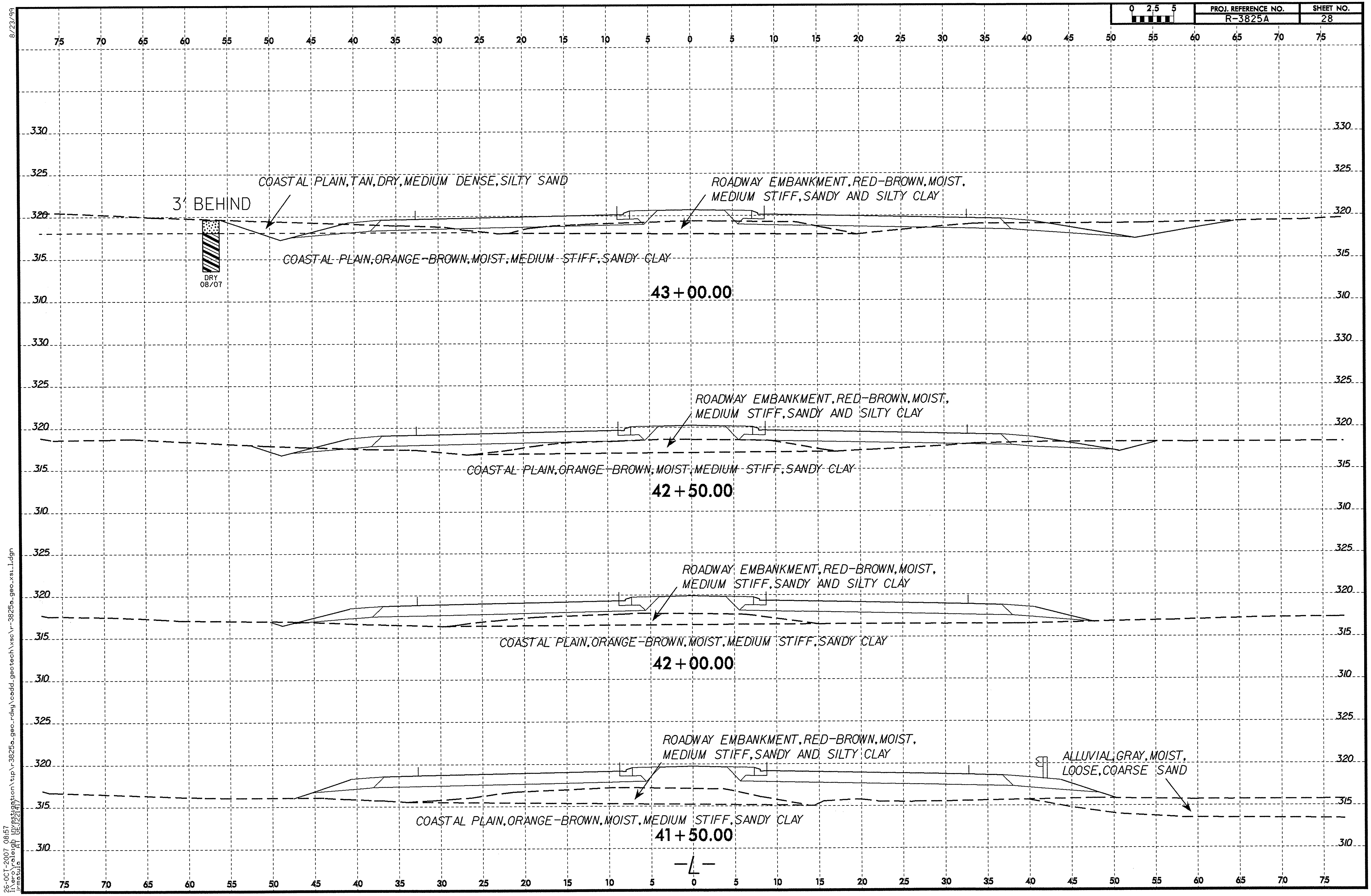
PROJ. REFERENCE NO.
R-3825A
SHEET NO.
28
0 2.5 5
8/23/99
COASTAL PLAIN, TAN, DRY, MEDIUM DENSE, SILTY SAND
3' BEHIND
DRY 08/07
ROADWAY EMBANKMENT, RED-BROWN, MOIST, MEDIUM STIFF, SANDY AND SILTY CLAY
COASTAL PLAIN, ORANGE-BROWN, MOIST, MEDIUM STIFF, SANDY CLAY
43+00.00
ROADWAY EMBANKMENT, RED-BROWN, MOIST, MEDIUM STIFF, SANDY AND SILTY CLAY
COASTAL PLAIN, ORANGE-BROWN, MOIST, MEDIUM STIFF, SANDY CLAY
42+50.00
ROADWAY EMBANKMENT, RED-BROWN, MOIST, MEDIUM STIFF, SANDY AND SILTY CLAY
COASTAL PLAIN, ORANGE-BROWN, MOIST, MEDIUM STIFF, SANDY CLAY
42+00.00
ROADWAY EMBANKMENT, RED-BROWN, MOIST, MEDIUM STIFF, SANDY AND SILTY CLAY
ALLUVIAL, GRAY, MOIST, LOOSE, COARSE SAND
COASTAL PLAIN, ORANGE-BROWN, MOIST, MEDIUM STIFF, SANDY CLAY
41+50.00
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0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	R-3825A	29

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

335 330 325 320 315

ROADWAY EMBANKMENT, RED-BROWN, MOIST, MEDIUM STIFF, SANDY AND SILTY CLAY

COASTAL PLAIN, ORANGE-BROWN, DRY TO MOIST, MEDIUM STIFF, SANDY CLAY

45+00.00

330 325 320 315

ROADWAY EMBANKMENT, RED-BROWN, MOIST, MEDIUM STIFF, SANDY AND SILTY CLAY

COASTAL PLAIN, ORANGE-BROWN, DRY TO MOIST, MEDIUM STIFF, SANDY CLAY

44+50.00

330 325 320 315

ROADWAY EMBANKMENT, RED-BROWN, MOIST, MEDIUM STIFF, SANDY AND SILTY CLAY

COASTAL PLAIN, ORANGE-BROWN, DRY TO MOIST, MEDIUM STIFF, SANDY CLAY

44+00.00

330 325 320 315

COASTAL PLAIN, TAN, DRY, MEDIUM DENSE, SILTY SAND

ROADWAY EMBANKMENT, RED-BROWN, MOIST, MEDIUM STIFF, SANDY AND SILTY CLAY

COASTAL PLAIN, ORANGE-BROWN, DRY, MEDIUM STIFF, SANDY CLAY

DRY
09/07

43+50.00

310

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75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

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8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	R-3825A	30

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

340 335 330 325 320 315

ROADWAY EMBANKMENT, RED-BROWN, MOIST, MEDIUM STIFF, SANDY AND SILTY CLAY

COASTAL PLAIN, ORANGE-BROWN, DRY TO MOIST, MEDIUM STIFF, SANDY CLAY

DRY 08/07

47+00.00

340 335 330 325 320 315

ROADWAY EMBANKMENT, RED-BROWN, MOIST, MEDIUM STIFF, SANDY AND SILTY CLAY

COASTAL PLAIN, ORANGE-BROWN, DRY TO MOIST, MEDIUM STIFF, SANDY CLAY

46+50.00

330 325 320 315

ROADWAY EMBANKMENT, RED-BROWN, MOIST, MEDIUM STIFF, SANDY AND SILTY CLAY

COASTAL PLAIN, ORANGE-BROWN, DRY TO MOIST, MEDIUM STIFF, SANDY CLAY

46+00.00

330 325 320 315

ROADWAY EMBANKMENT, RED-BROWN, MOIST, MEDIUM STIFF, SANDY AND SILTY CLAY

COASTAL PLAIN, ORANGE-BROWN, DRY TO MOIST, MEDIUM STIFF, SANDY CLAY

45+50.00

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jmatula

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0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	R-3825A	31

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

340 335 330 325 320

ROADWAY EMBANKMENT, RED-BROWN, MOIST, MEDIUM STIFF, SANDY AND SILTY CLAY

COASTAL PLAIN, BROWN TO ORANGE-BROWN, DRY TO MOIST, MEDIUM STIFF, SANDY CLAY

49+00.00

ROADWAY EMBANKMENT, RED-BROWN, MOIST, MEDIUM STIFF, SANDY AND SILTY CLAY

COASTAL PLAIN, ORANGE-BROWN, DRY TO MOIST, MEDIUM STIFF, SANDY CLAY

48+50.00

ROADWAY EMBANKMENT, RED-BROWN, MOIST, MEDIUM STIFF, SANDY AND SILTY CLAY

COASTAL PLAIN, ORANGE-BROWN, DRY TO MOIST, MEDIUM STIFF, SANDY CLAY

48+00.00

ROADWAY EMBANKMENT, RED-BROWN, MOIST, MEDIUM STIFF, SANDY AND SILTY CLAY

COASTAL PLAIN, ORANGE-BROWN, DRY TO MOIST, MEDIUM STIFF, SANDY CLAY

47+50.00

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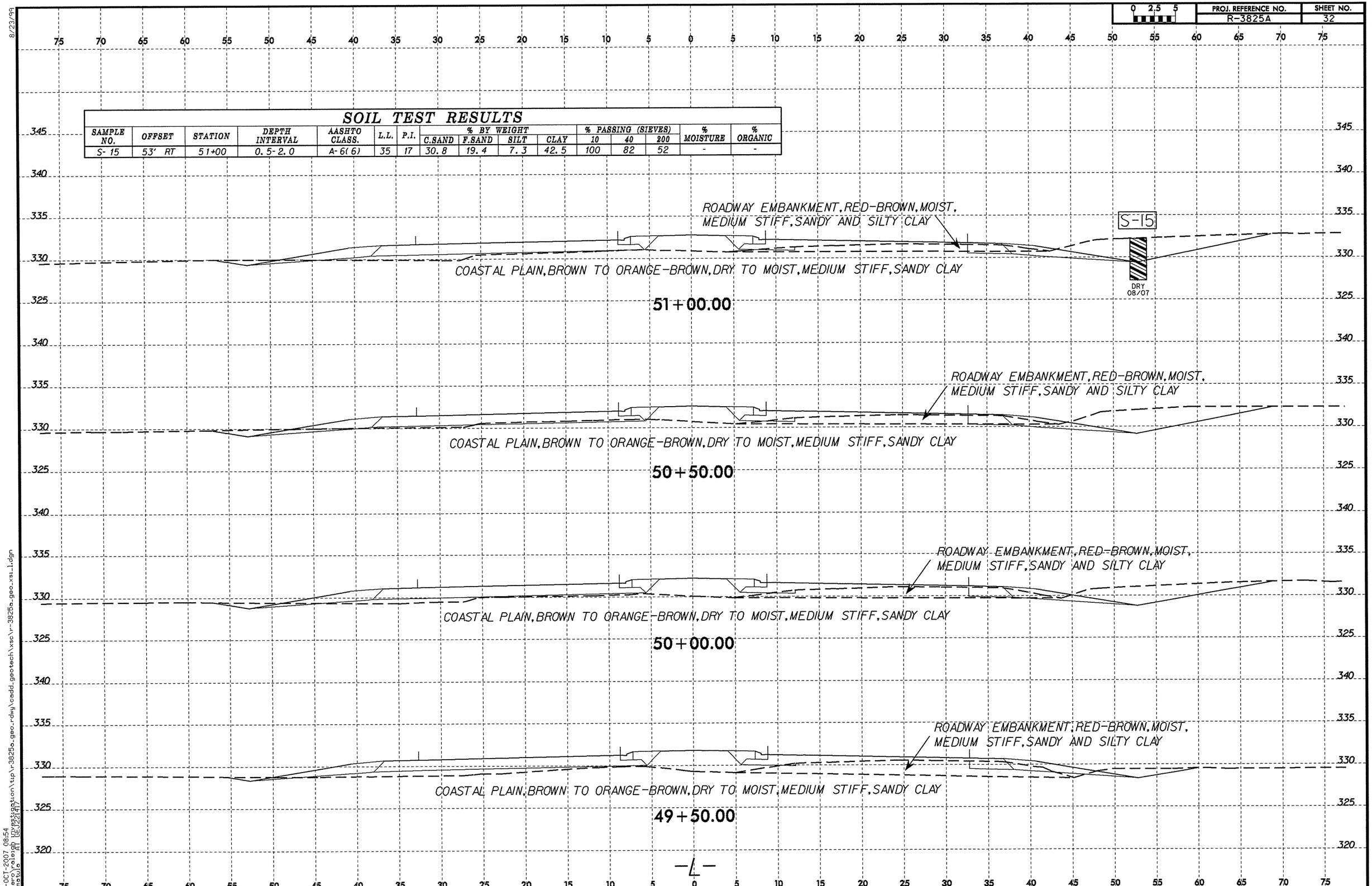
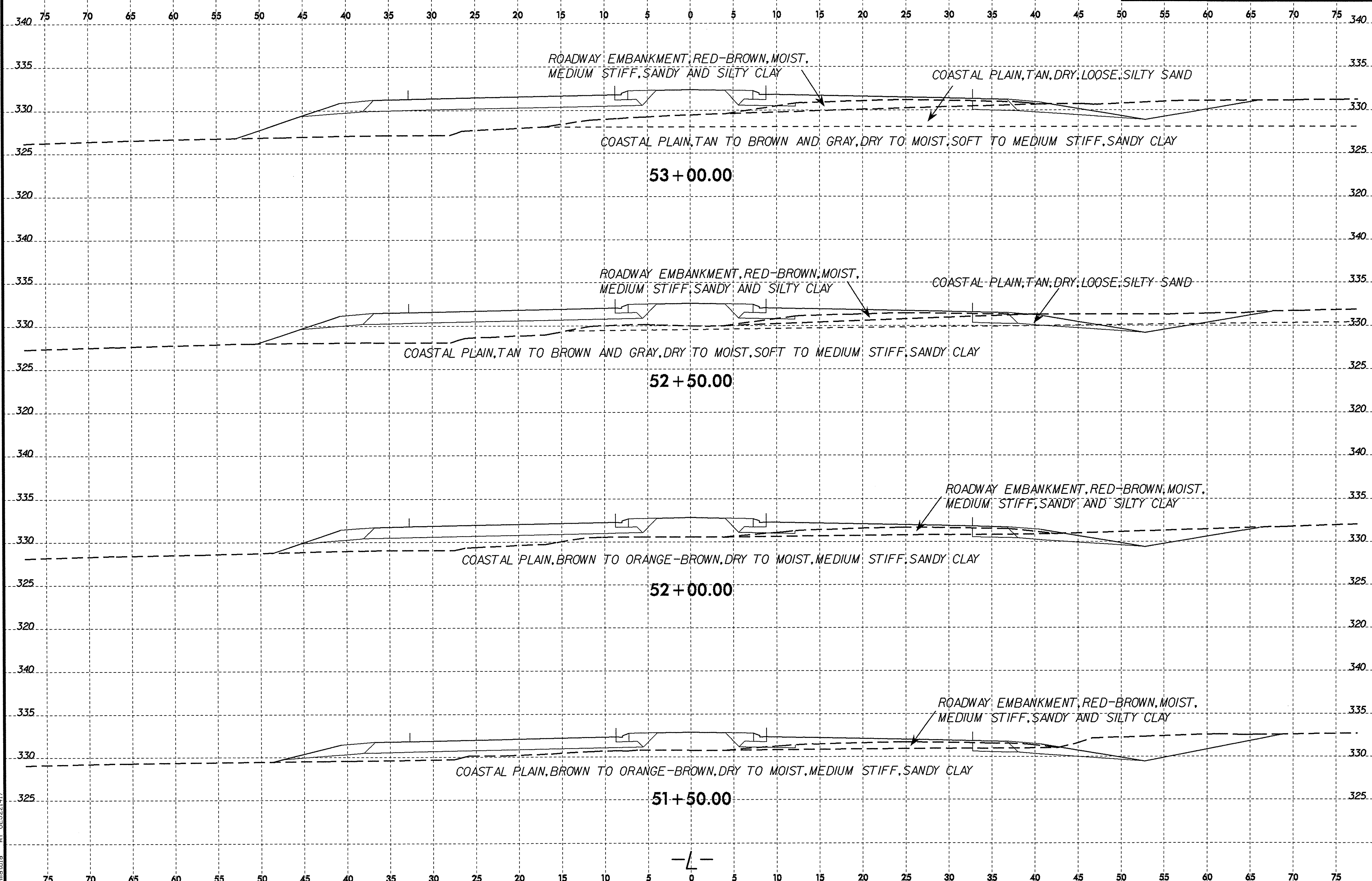
0 2,5 5	PROJ. REFERENCE NO.	SHEET NO.
	R-3825A	32

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-15	53' RT	51+00	0.5-2.0	A-6(6)	35	17	30.8	19.4	7.3	42.5	100	82	52	-	-



PROJ. REFERENCE NO.	SHEET NO.
R-3825A	33



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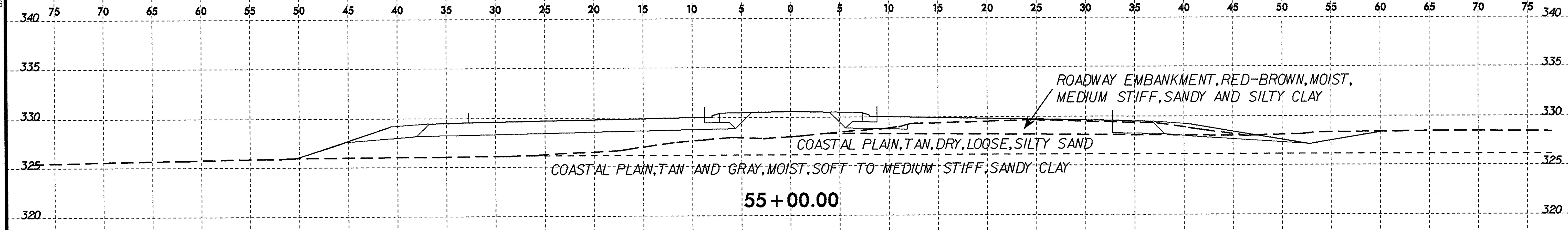
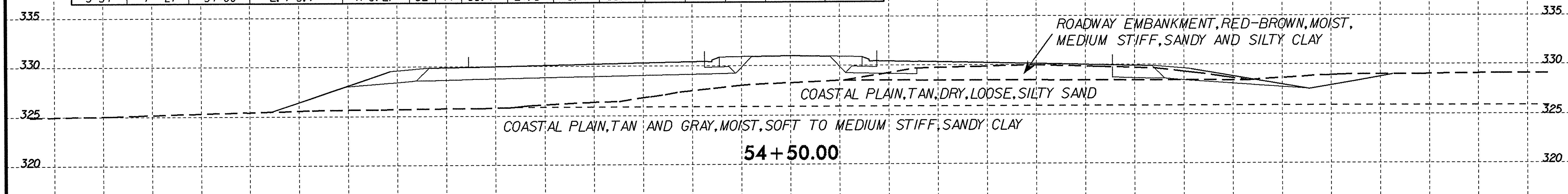
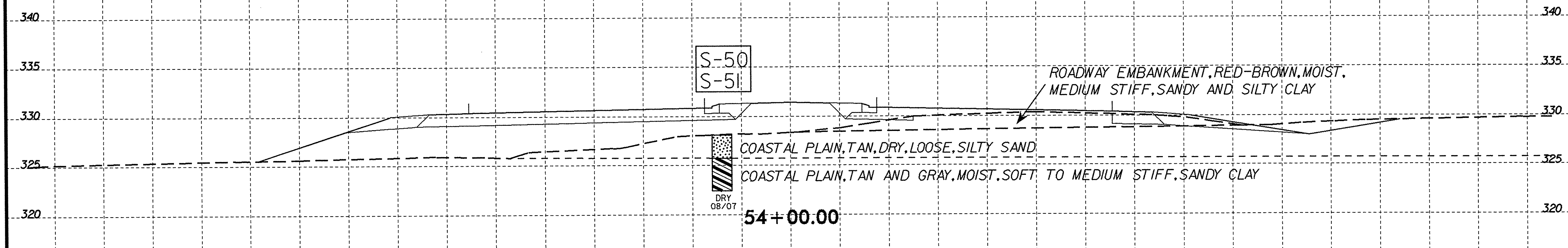
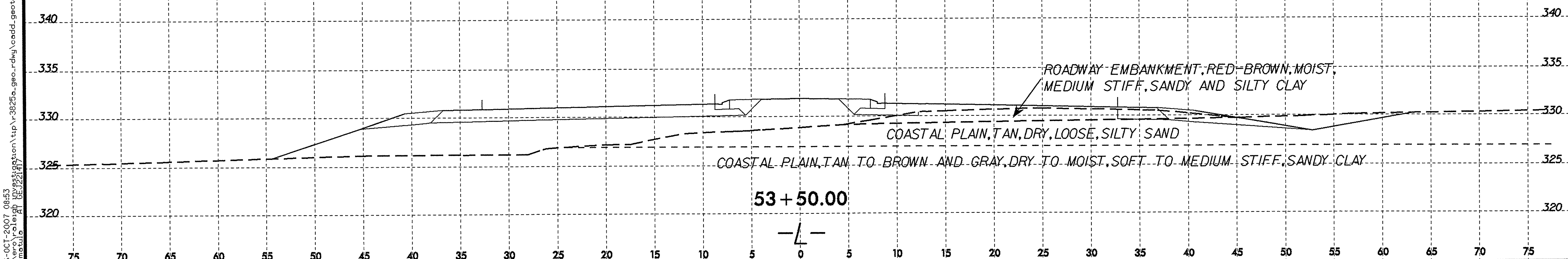


SOIL TEST RESULTS

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-50	7' LT	54+00	0.0-2.4	A-2-4(0)	11	NP	47.6	33.4	10.9	8.1	99	71	23	-	-
S-51	7' LT	54+00	2.4-5.7	A-6(2)	32	14	35.4	21.5	6.7	36.4	93	74	43	-	-







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0 2,5 5	PROJ. REFERENCE NO.	SHEET NO.
	R-3825A	35

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

340 335 330 325 320

ROADWAY EMBANKMENT, RED-BROWN, MOIST, MEDIUM STIFF, SANDY AND SILTY CLAY

COASTAL PLAIN, TAN, DRY, LOOSE, SILTY SAND

TAN AND GRAY, MOIST, SOFT TO MEDIUM STIFF, SANDY CLAY

57+00.00

ROADWAY EMBANKMENT, RED-BROWN, MOIST, MEDIUM STIFF, SANDY AND SILTY CLAY

COASTAL PLAIN, TAN, DRY, LOOSE, SILTY SAND

TAN AND GRAY, MOIST, SOFT TO MEDIUM STIFF, SANDY CLAY

56+50.00

ROADWAY EMBANKMENT, RED-BROWN, MOIST, MEDIUM STIFF, SANDY AND SILTY CLAY

COASTAL PLAIN, TAN, DRY, LOOSE, SILTY SAND

TAN AND GRAY, MOIST, SOFT TO MEDIUM STIFF, SANDY CLAY

56+00.00

ROADWAY EMBANKMENT, RED-BROWN, MOIST, MEDIUM STIFF, SANDY AND SILTY CLAY

COASTAL PLAIN, TAN, DRY, LOOSE, SILTY SAND

COASTAL PLAIN, TAN AND GRAY, MOIST, SOFT TO MEDIUM STIFF, SANDY CLAY

55+50.00

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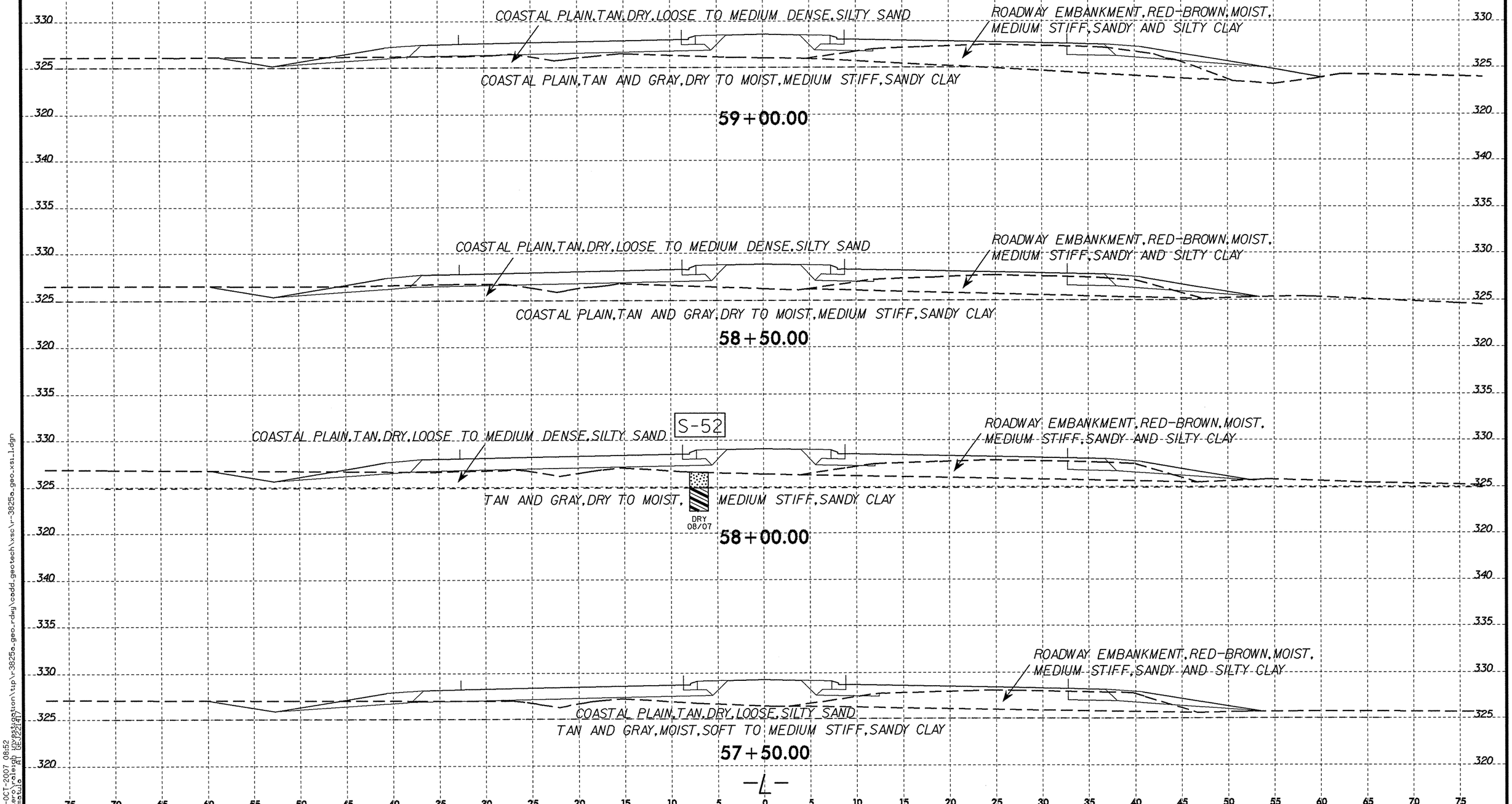
0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	R-3825A	36

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-52	7' LT	58+00	1.0-1.7	A-2-4(0)	17	4	42.5	25.1	14.2	18.2	90	66	32	-	-



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0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	R-3825A	37

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

340 335 330 325 320

ROADWAY EMBANKMENT, RED-BROWN, MOIST, MEDIUM STIFF, SANDY AND SILTY CLAY

COASTAL PLAIN, TAN TO ORANGE-BROWN AND GRAY, DRY TO MOIST, MEDIUM STIFF, SANDY CLAY

61+00.00

ROADWAY EMBANKMENT, RED-BROWN, MOIST, MEDIUM STIFF, SANDY AND SILTY CLAY

COASTAL PLAIN, TAN TO ORANGE-BROWN AND GRAY, DRY TO MOIST, MEDIUM STIFF, SANDY CLAY

60+50.00

ROADWAY EMBANKMENT, RED-BROWN, MOIST, MEDIUM STIFF, SANDY AND SILTY CLAY

COASTAL PLAIN, TAN, DRY, LOOSE TO MEDIUM DENSE, SILTY SAND

COASTAL PLAIN, TAN AND GRAY, DRY TO MOIST, MEDIUM STIFF, SANDY CLAY

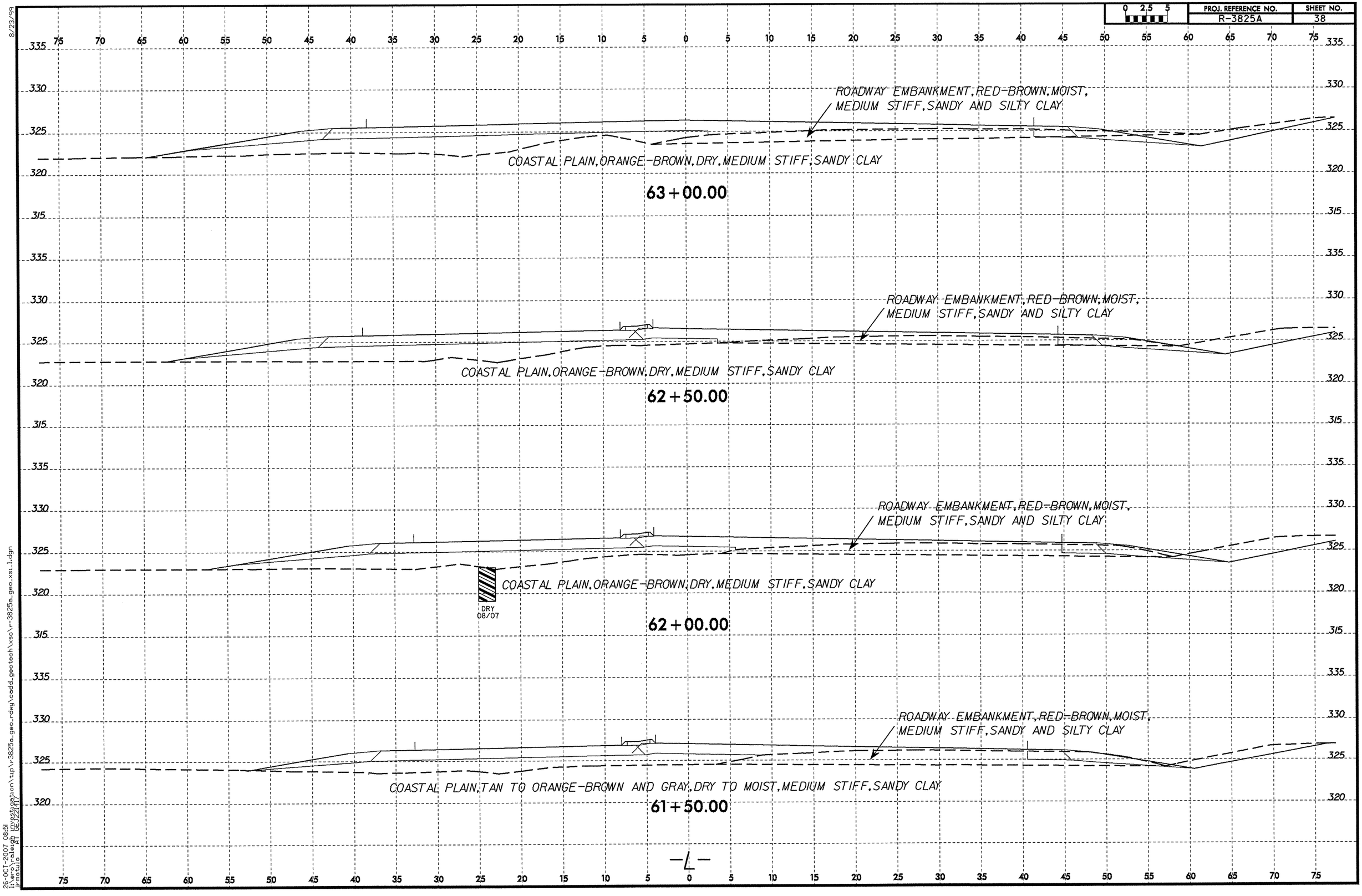
60+00.00

ROADWAY EMBANKMENT, RED-BROWN, MOIST, MEDIUM STIFF, SANDY AND SILTY CLAY

COASTAL PLAIN, TAN TO ORANGE-BROWN AND GRAY, DRY TO MOIST, MEDIUM STIFF, SANDY CLAY

59+50.00

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	R-3825A	38



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0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	R-3825A	39

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

335 330 325 320 315

ROADWAY EMBANKMENT, RED-BROWN, MOIST, MEDIUM STIFF, SANDY AND SILTY CLAY

COASTAL PLAIN, ORANGE-BROWN, DRY, MEDIUM STIFF, SANDY CLAY

65+00.00

335 330 325 320 315

ROADWAY EMBANKMENT, RED-BROWN, MOIST, MEDIUM STIFF, SANDY AND SILTY CLAY

COASTAL PLAIN, ORANGE-BROWN, DRY, MEDIUM STIFF, SANDY CLAY

64+50.00

330 325 320 315

ROADWAY EMBANKMENT, RED-BROWN, MOIST, MEDIUM STIFF, SANDY AND SILTY CLAY

COASTAL PLAIN, ORANGE-BROWN, DRY, MEDIUM STIFF, SANDY CLAY

64+00.00

330 325 320 315

ROADWAY EMBANKMENT, RED-BROWN, MOIST, MEDIUM STIFF, SANDY AND SILTY CLAY

COASTAL PLAIN, ORANGE-BROWN, DRY, MEDIUM STIFF, SANDY CLAY

63+50.00

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

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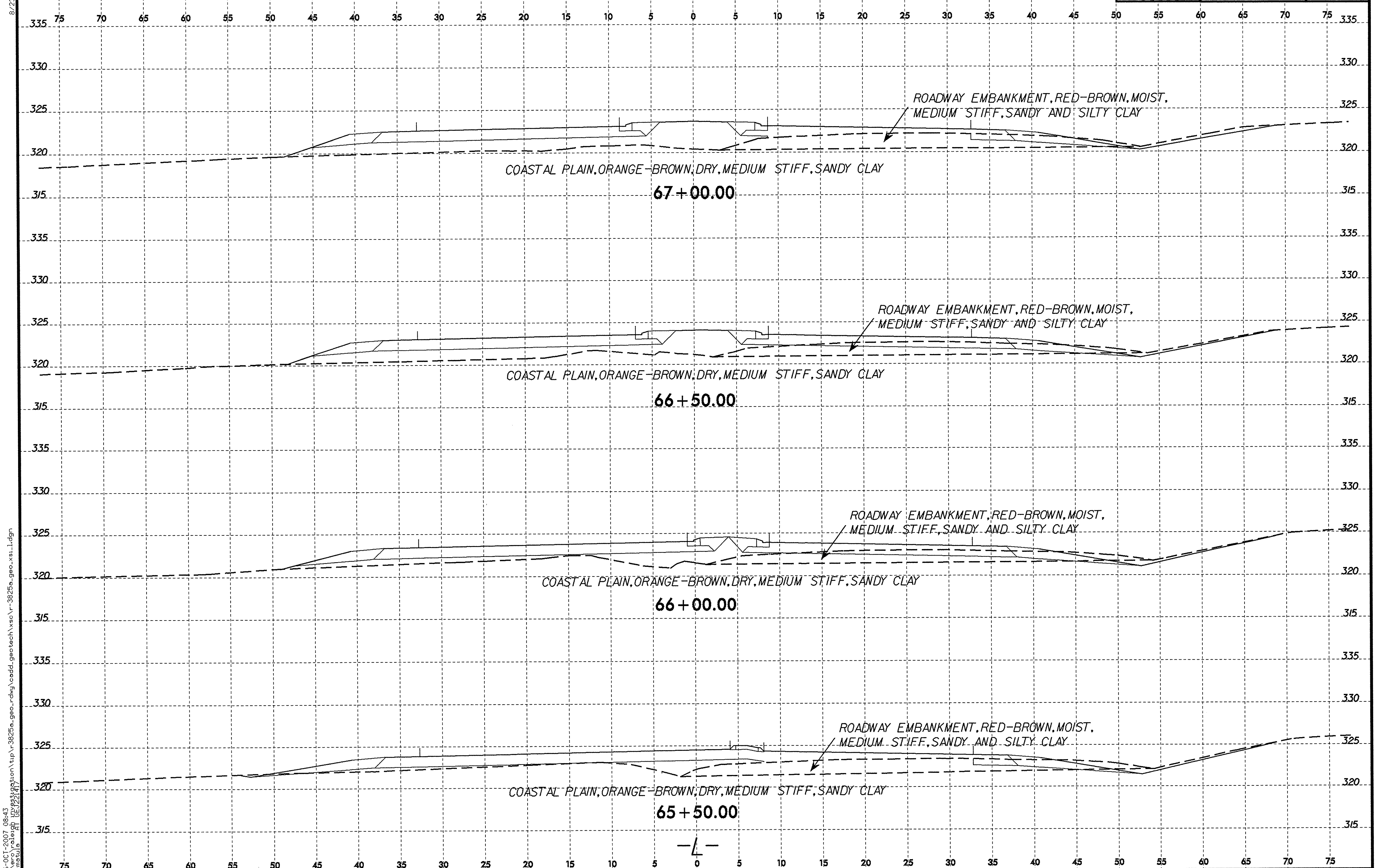
PROJ. REFERENCE NO.	SHEET NO.
R-3825A	40



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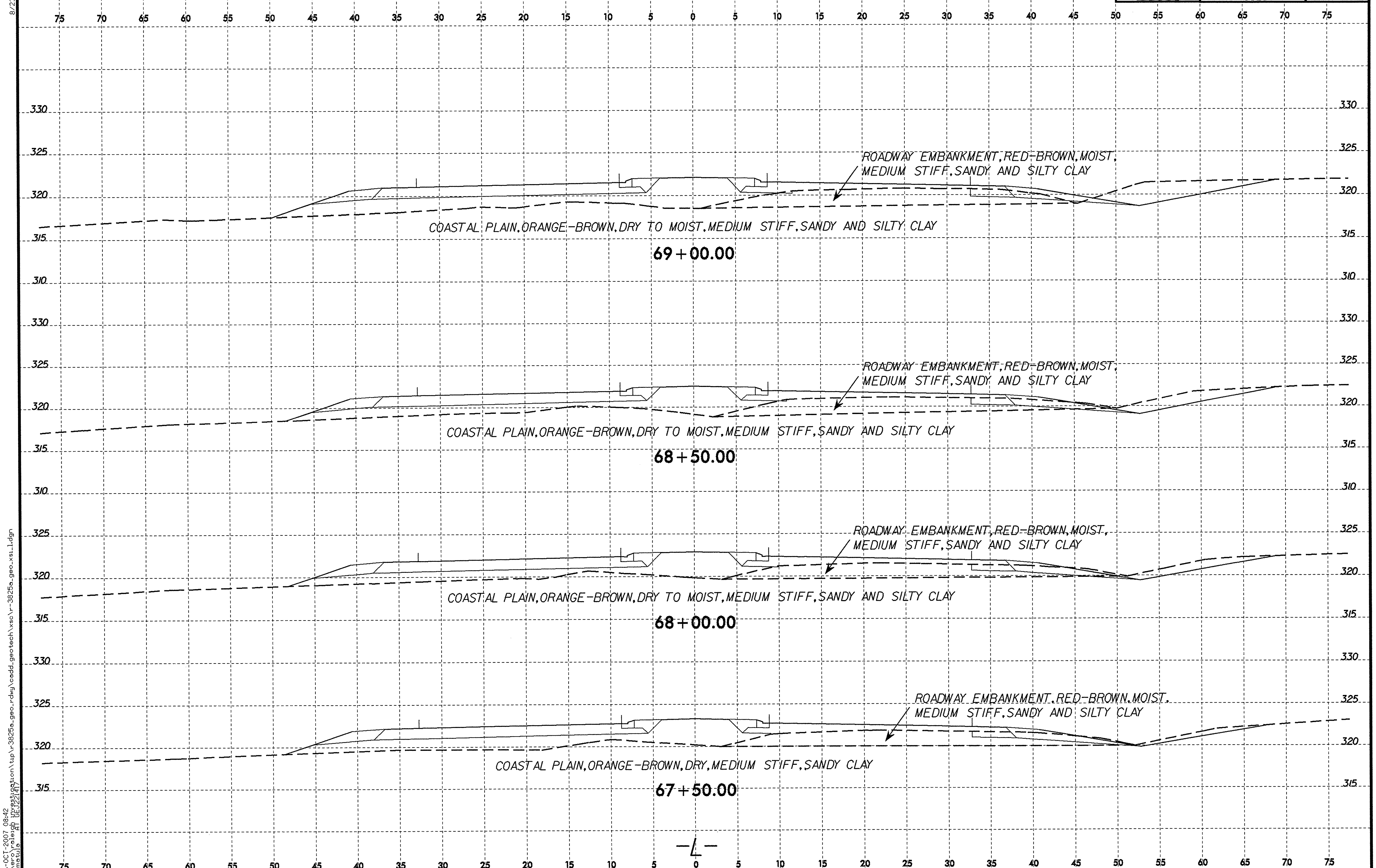
0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	R-3825A	41



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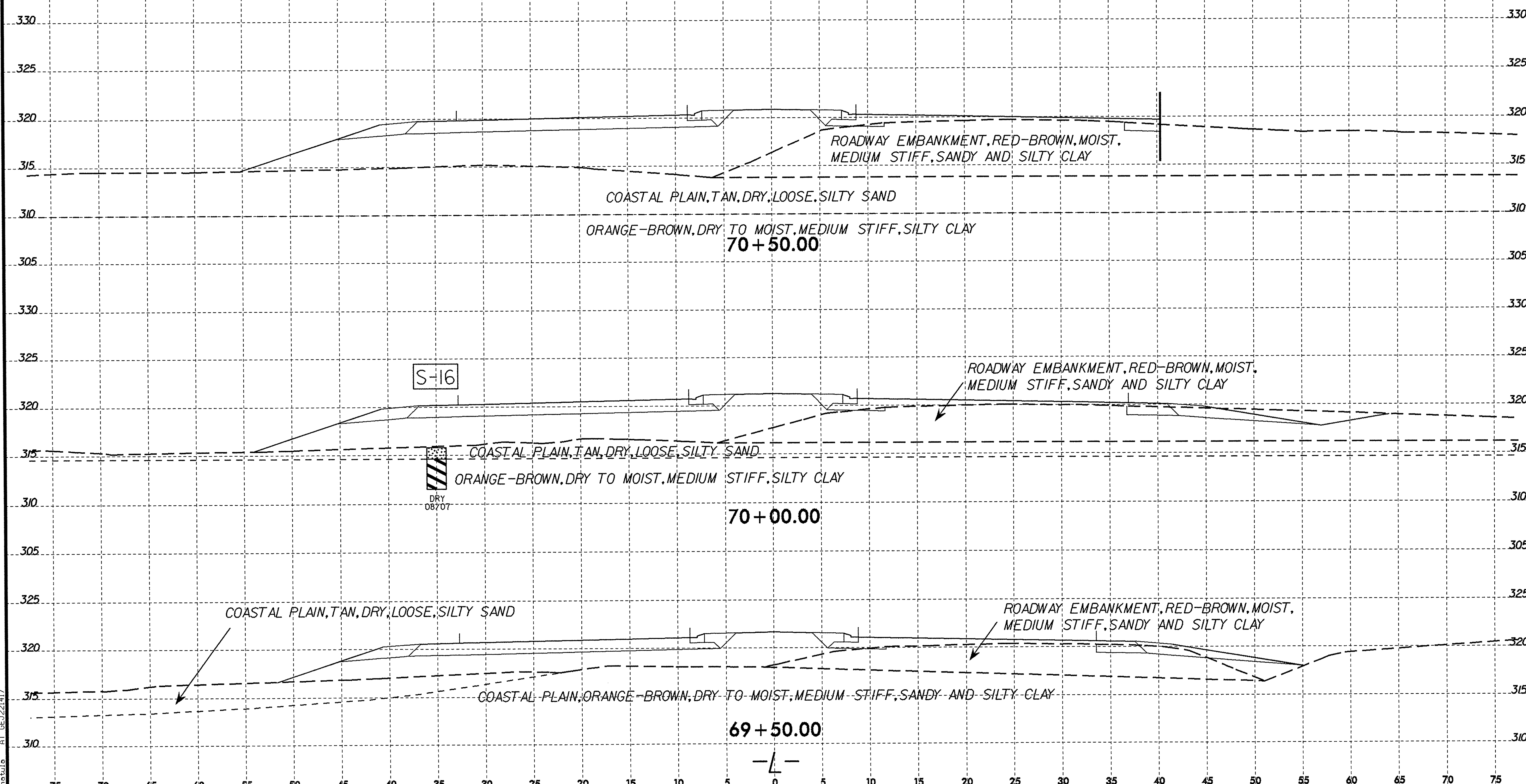
PROJ. REFERENCE NO.	SHEET NO.
R-3825A	42

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S- 16	35' LT	70+00	1.5-3.0	A-7-6(12)	51	30	31.0	16.8	3.6	48.6	99	79	53	-	-



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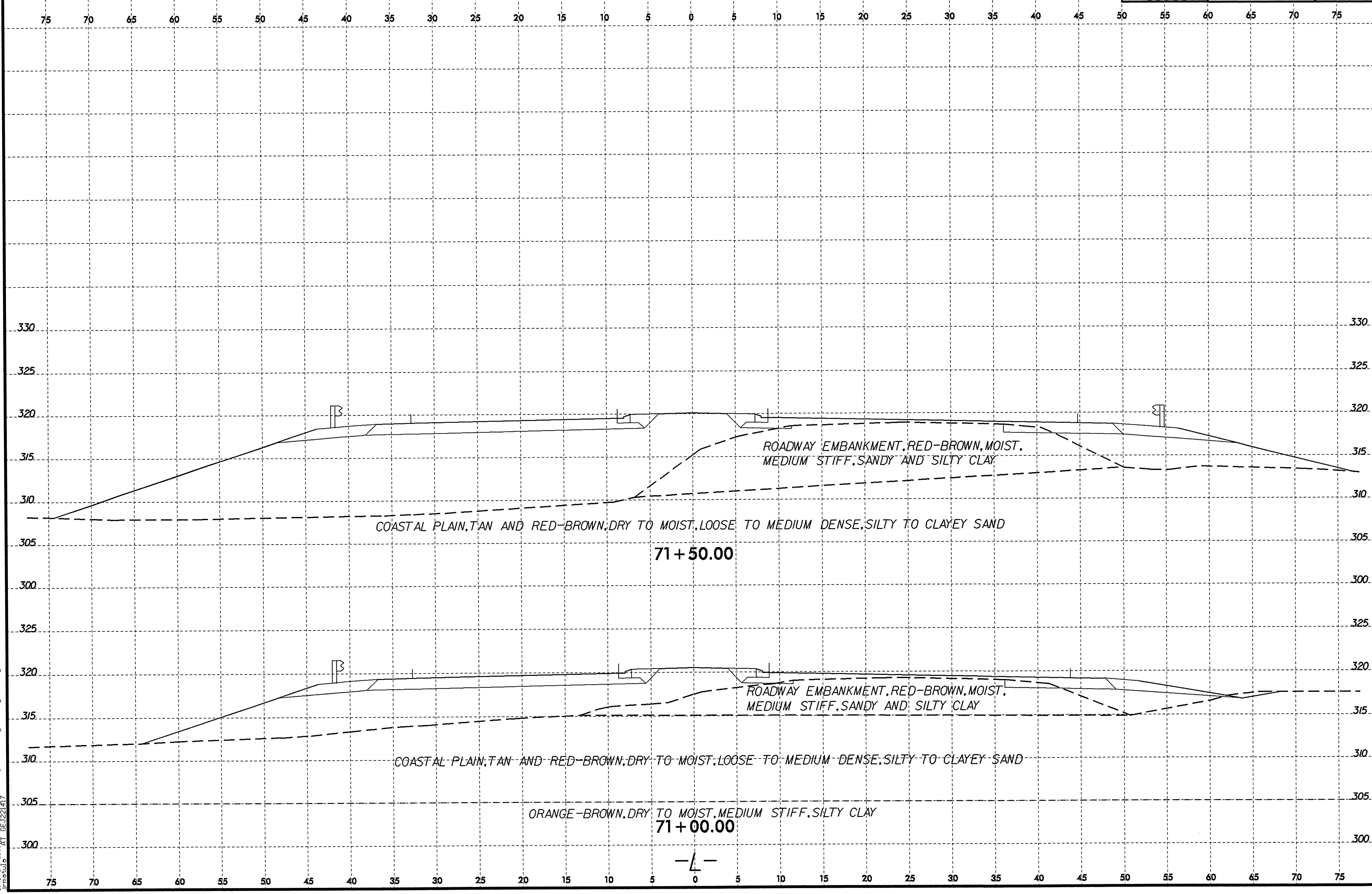
PROJ. REFERENCE NO.	SHEET NO.
R-3825A	43



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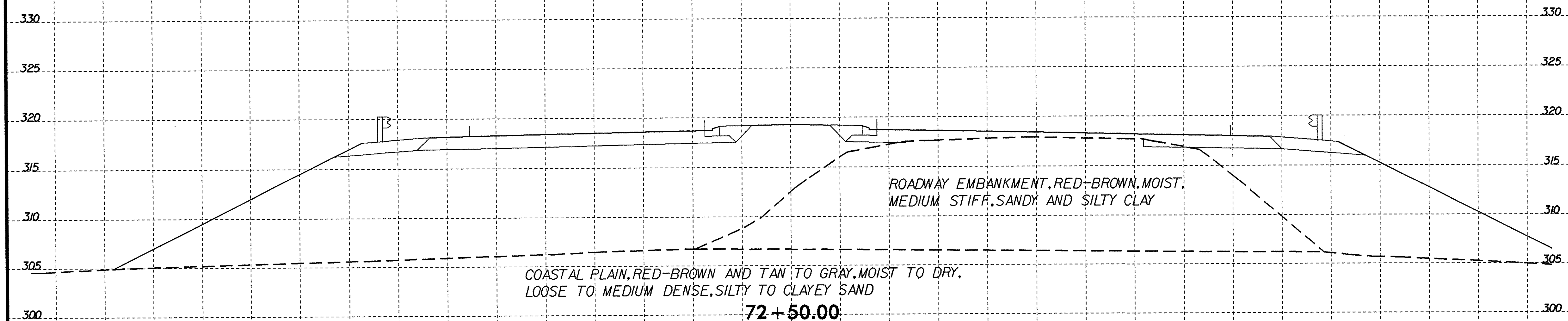
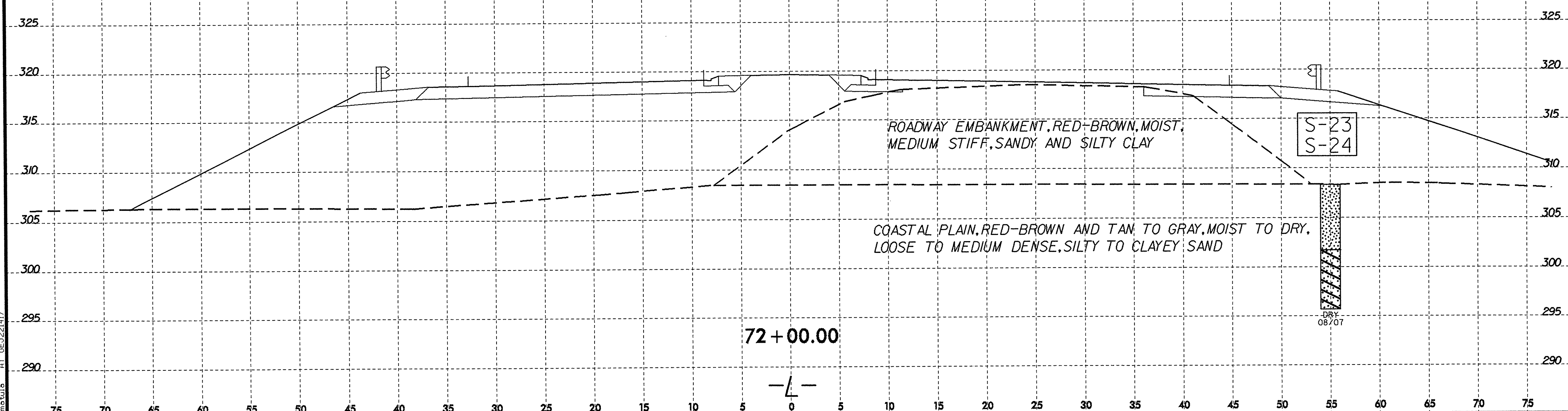
SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	% BY WEIGHT F.SAND	% BY WEIGHT SILT	% BY WEIGHT CLAY	% PASSING (SIEVES) 10	% PASSING (SIEVES) 40	% PASSING (SIEVES) 200	% MOISTURE	% ORGANIC
S-23	55' RT	72+00	2.0-3.5	A-2-4(0)	23	7	50.2	25.5	4.0	20.2	94	67	25	-	-
S-24	55' RT	72+00	8.0-9.5	A-2-6(0)	28	12	54.3	16.8	8.7	20.2	33	19	10	-	-



72+50.00



72+00.00

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0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	R-3825A	45

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

330 325 320 315 310 305 300 295

ROADWAY EMBANKMENT, RED-BROWN, MOIST, MEDIUM STIFF, SANDY AND SILTY CLAY

COASTAL PLAIN, RED-BROWN AND TAN TO GRAY, MOIST TO DRY, LOOSE TO MEDIUM DENSE, SILTY TO CLAYEY SAND

73+50.00

330 325 320 315 310 305 300 295

ROADWAY EMBANKMENT, RED-BROWN, MOIST, MEDIUM STIFF, SANDY AND SILTY CLAY

COASTAL PLAIN, RED-BROWN AND TAN TO GRAY, MOIST TO DRY, LOOSE TO MEDIUM DENSE, SILTY TO CLAYEY SAND

73+00.00

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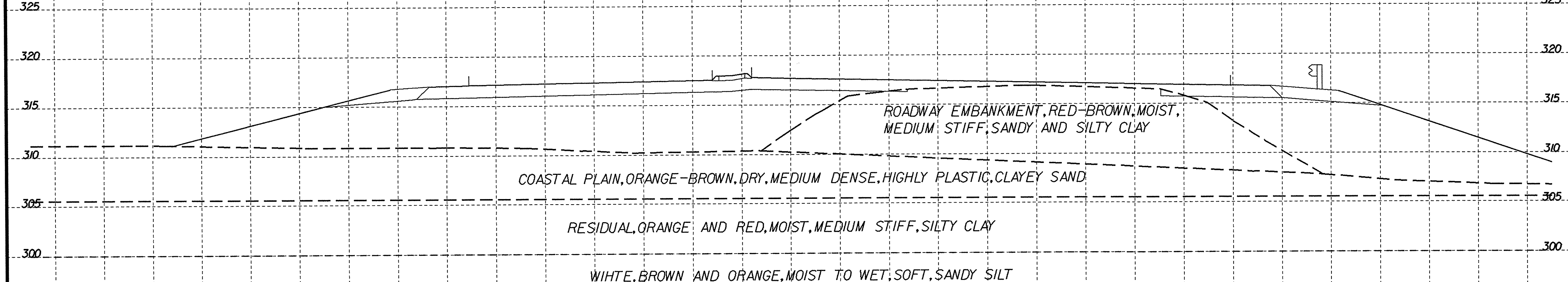
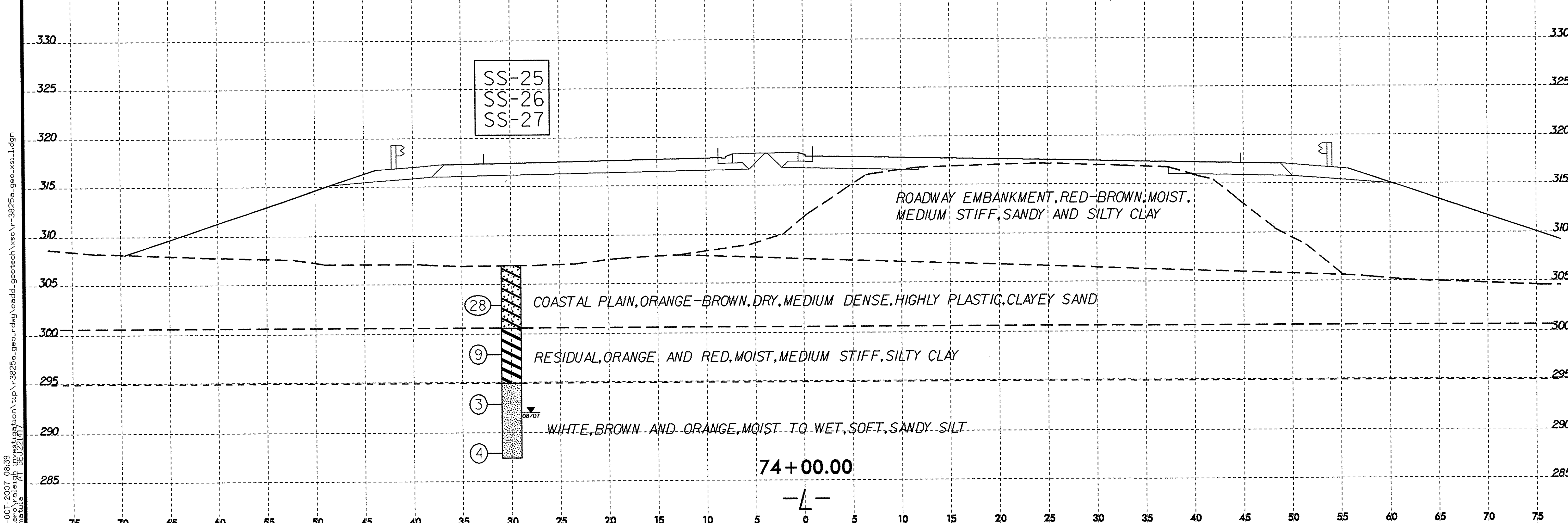
SOIL TEST RESULTS

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-25	30' LT	74+00	3.0-4.5	A-2-7(4)	58	31	34.0	12.6	8.9	44.5	59	43	33	-	-
SS-26	30' LT	74+00	8.0-9.5	A-7-5(22)	69	29	16.4	21.7	25.5	36.4	100	85	69	-	-
SS-27	30' LT	74+00	13.6-14.5	A-4(4)	32	6	7.7	39.5	36.6	16.2	100	95	72	-	-



74+50.00



74+00.00

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0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	R-3825A	47

ROADWAY EMBANKMENT, RED-BROWN, MOIST, MEDIUM STIFF, SANDY AND SILTY CLAY

RESIDUAL, DARK RED AND ORANGE, DRY TO MOIST, MEDIUM TO VERY STIFF, HIGHLY PLASTIC, SILTY CLAY

76+50.00

ROADWAY EMBANKMENT, RED-BROWN, MOIST, MEDIUM STIFF, SANDY AND SILTY CLAY

RESIDUAL, DARK RED AND ORANGE, DRY TO MOIST, MEDIUM TO VERY STIFF, HIGHLY PLASTIC, SILTY CLAY

76+00.00

ROADWAY EMBANKMENT, RED-BROWN, MOIST, MEDIUM STIFF, SANDY AND SILTY CLAY

RESIDUAL, DARK RED AND ORANGE, DRY TO MOIST, MEDIUM TO VERY STIFF, HIGHLY PLASTIC, SILTY CLAY

WIHTE, BROWN AND ORANGE, MOIST TO WET, SOFT, SANDY SILT

75+50.00

COASTAL PLAIN, ORANGE-BROWN, DRY, MEDIUM DENSE, HIGHLY PLASTIC, CLAYEY SAND

ROADWAY EMBANKMENT, RED-BROWN, MOIST, MEDIUM STIFF, SANDY AND SILTY CLAY

RESIDUAL, ORANGE AND RED, MOIST, MEDIUM STIFF, SILTY CLAY

WIHTE, BROWN AND ORANGE, MOIST TO WET, SOFT, SANDY SILT

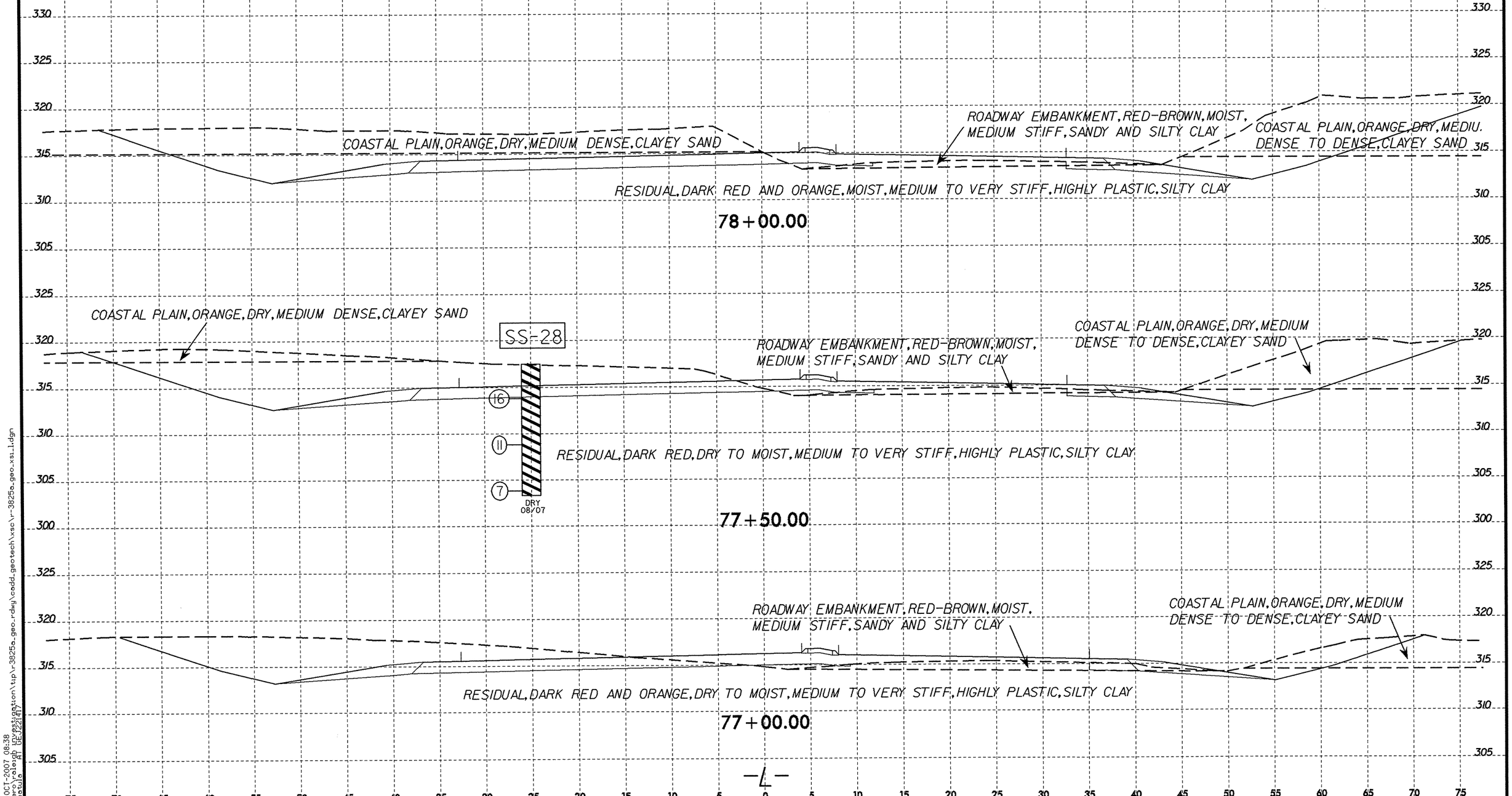
75+00.00

PROJ. REFERENCE NO.	SHEET NO.
R-3825A	48

0 2.5 5

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-28	25' LT	77+50	2.7-4.2	A-7-5(35)	71	28	0.6	9.9	36.8	52.6	100	100	93	-	-



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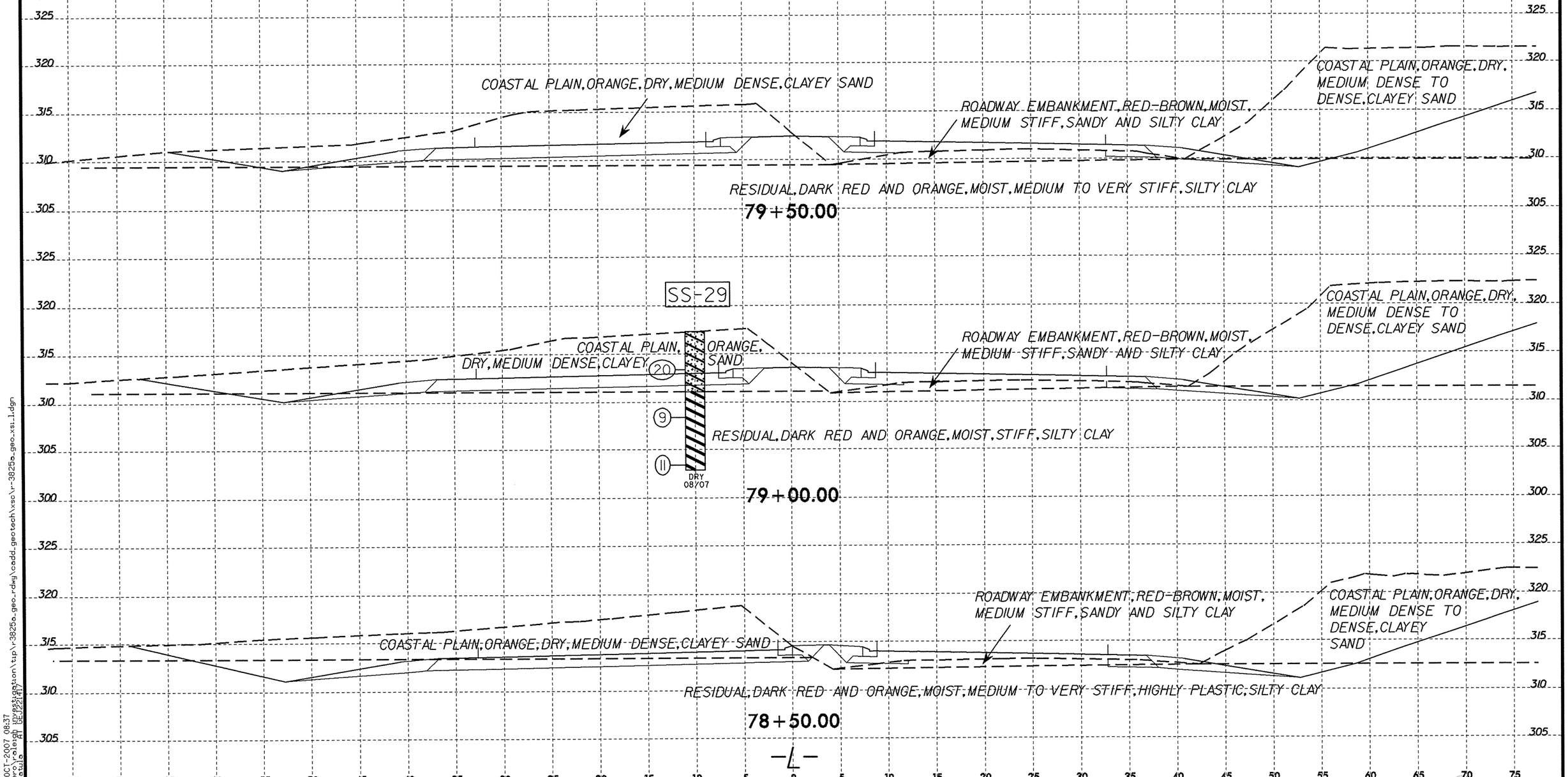
0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	R-3825A	49

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-29	10' LT	79+00	2.9-4.4	A-2-7(1)	46	16	46.4	15.8	5.5	32.4	70	44	29	-	-



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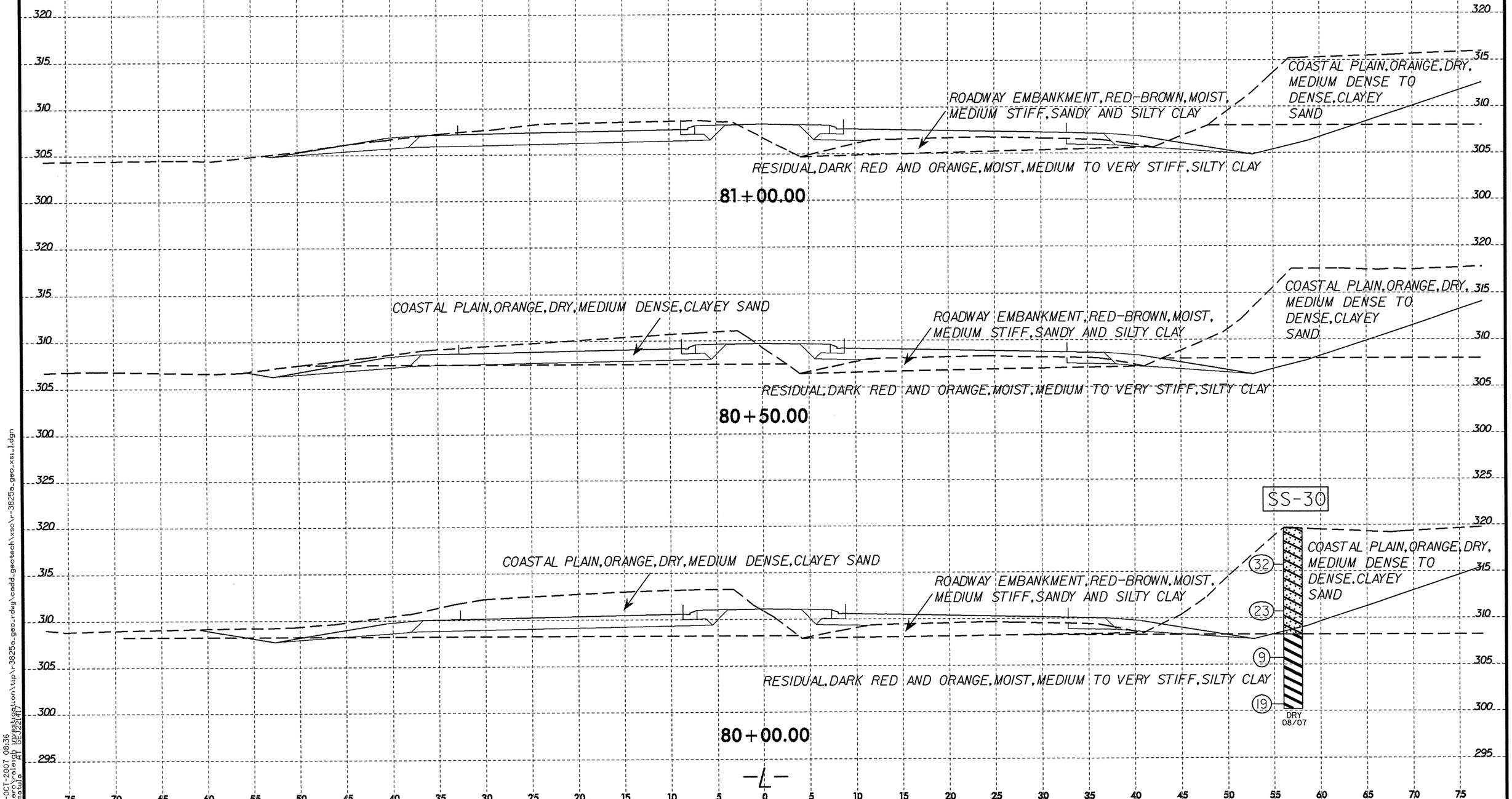
0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	R-3825A	50

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-30	57' RT	80+00	12.9-14.4	A-7-5(13)	63	13	1.0	43.9	32.8	22.3	100	100	70	-	-



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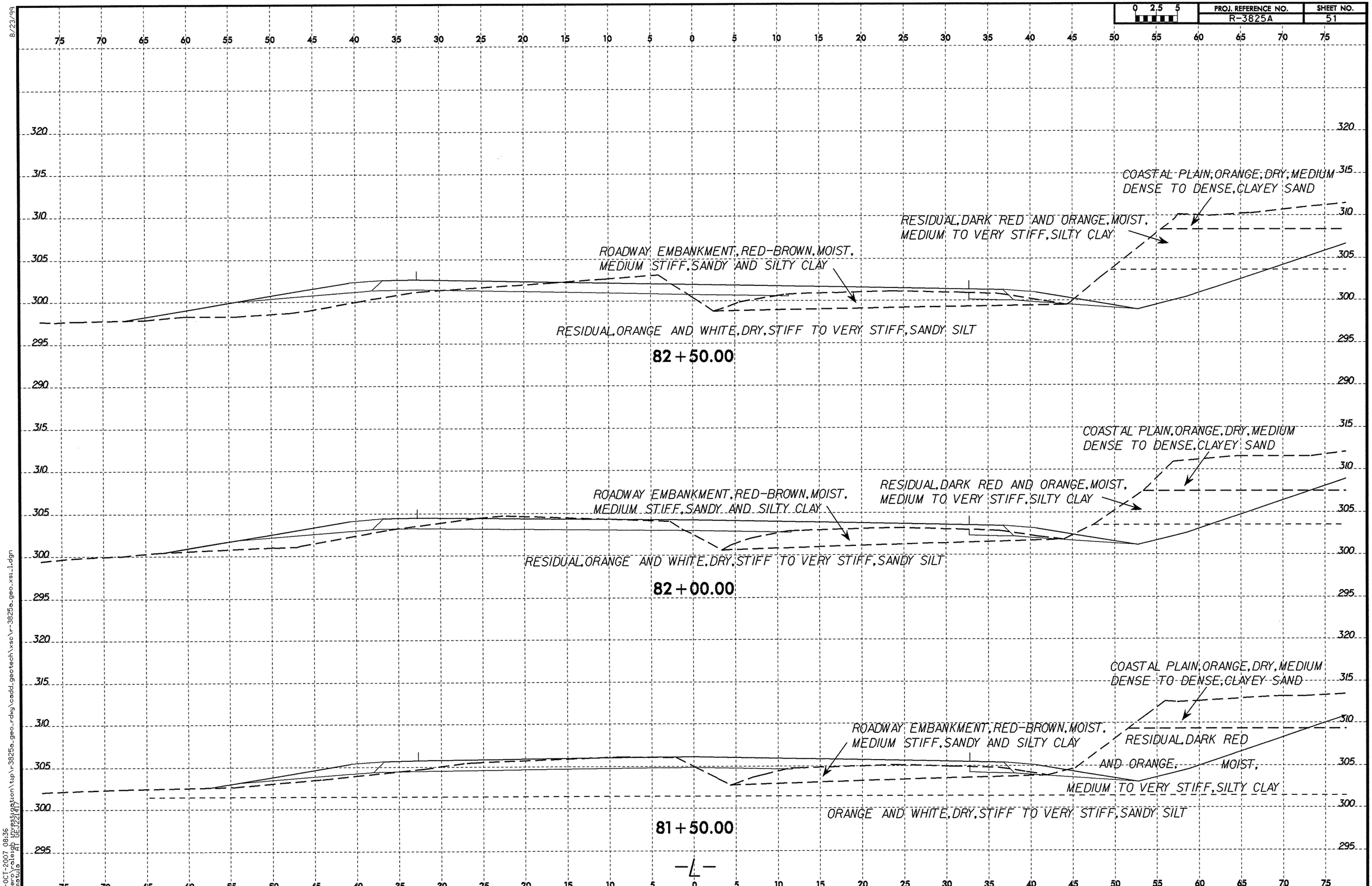
0 2,5 5	PROJ. REFERENCE NO.	SHEET NO.
	R-3825A	51



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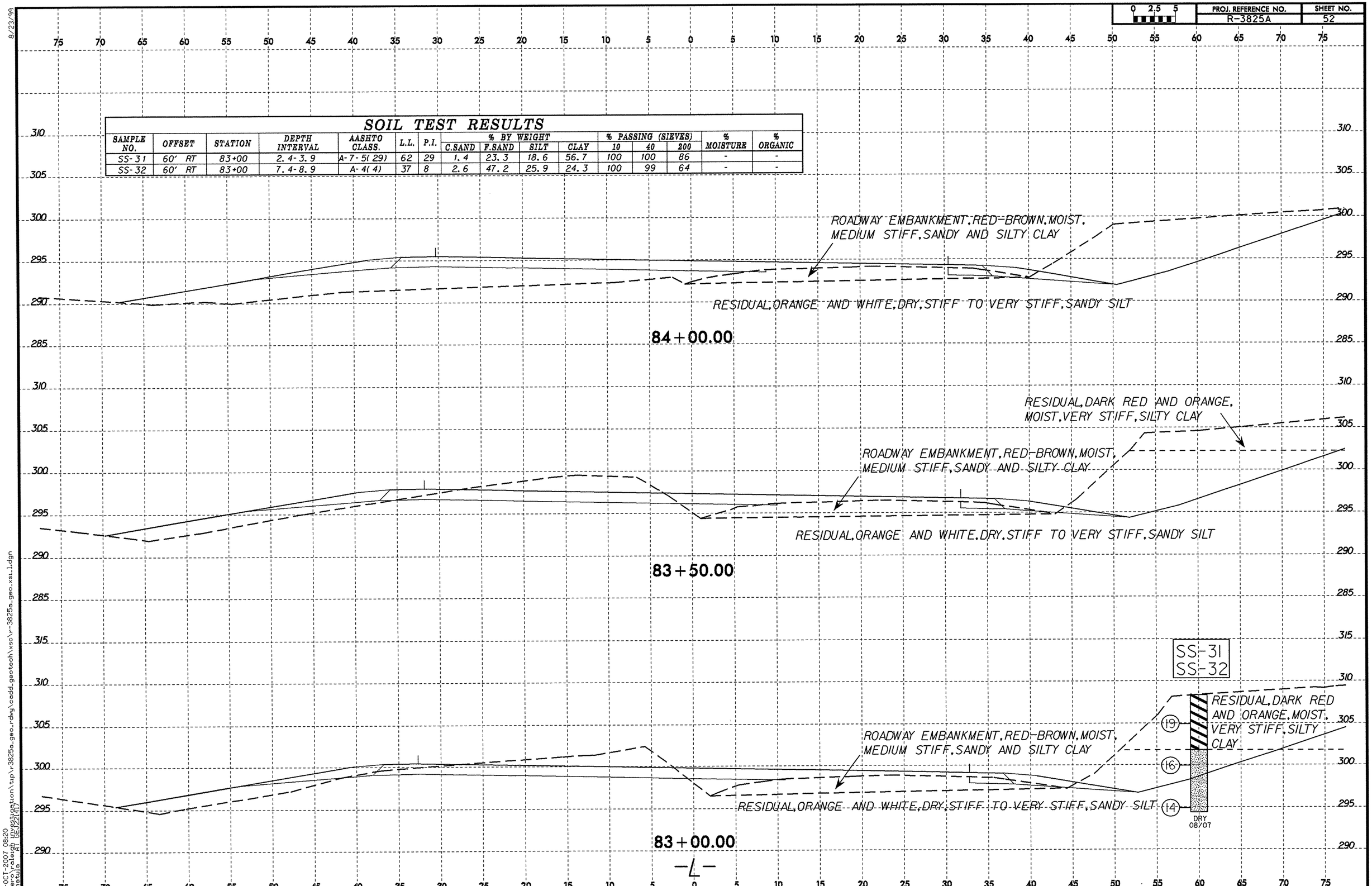
0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	R-3825A	52

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-31	60' RT	83+00	2.4-3.9	A-7-5(29)	62	29	1.4	23.3	18.6	56.7	100	100	86	-	-
SS-32	60' RT	83+00	7.4-8.9	A-4(4)	37	8	2.6	47.2	25.9	24.3	100	99	64	-	-



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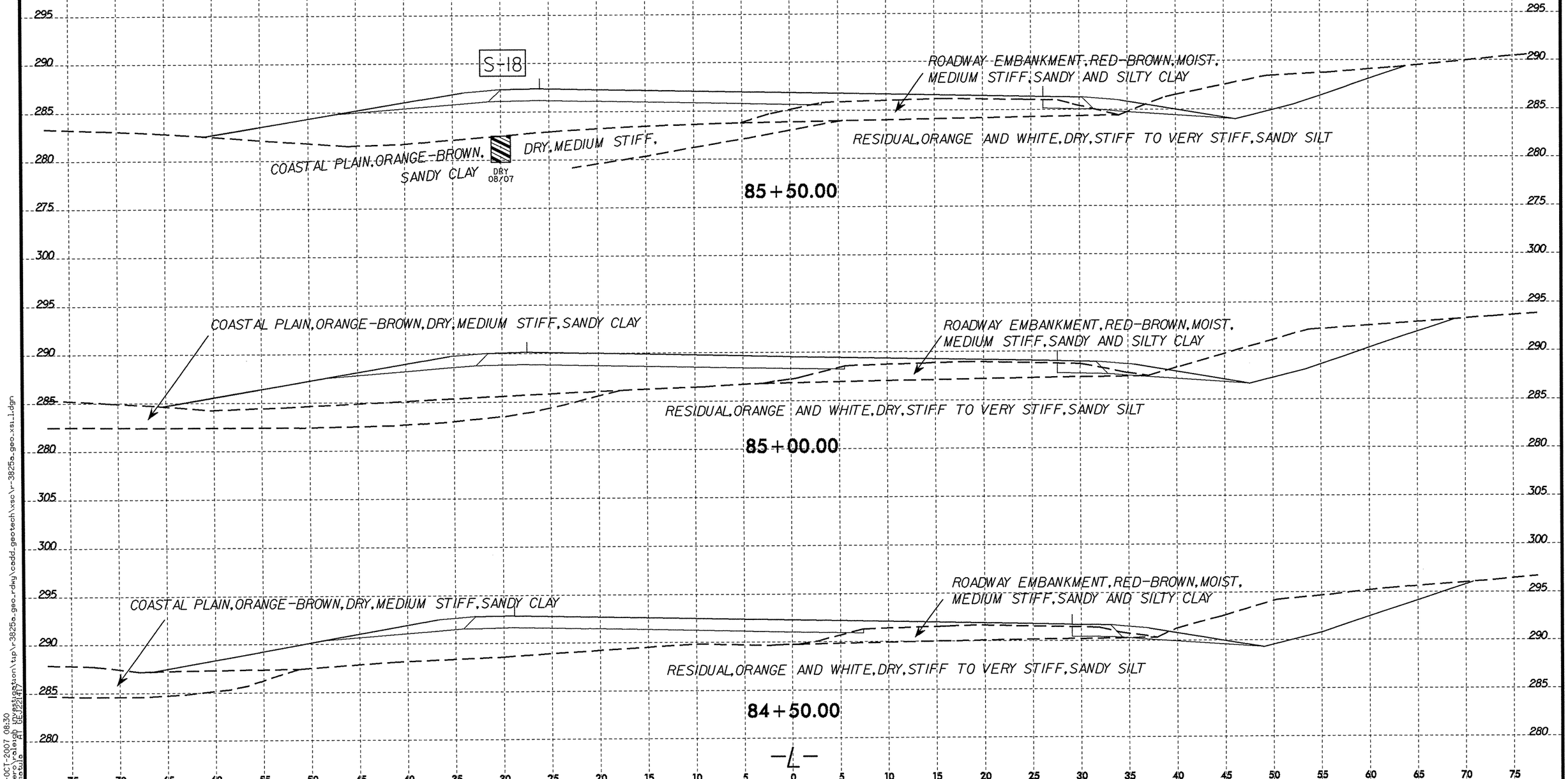
0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	R-3825A	53

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-18	20' LT	85+50	1.0-2.5	A-6(1)	31	13	37.4	23.1	17.2	22.3	91	69	39	-	-



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0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	R-3825A	54

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

285 280 275 270 265

ROADWAY EMBANKMENT, RED-BROWN, MOIST, MEDIUM STIFF, SANDY AND SILTY CLAY

COASTAL PLAIN, ORANGE TO BROWN AND GRAY, DRY, MEDIUM STIFF, SANDY CLAY

87+50.00

285 280 275 270 265

ROADWAY EMBANKMENT, RED-BROWN, MOIST, MEDIUM STIFF, SANDY AND SILTY CLAY

COASTAL PLAIN, ORANGE-BROWN, DRY, MEDIUM STIFF, SANDY CLAY

RESIDUAL, ORANGE AND WHITE, DRY, STIFF TO VERY STIFF, SANDY SILT

87+00.00

285 280 275 270 265

ROADWAY EMBANKMENT, RED-BROWN, MOIST, MEDIUM STIFF, SANDY AND SILTY CLAY

COASTAL PLAIN, ORANGE-BROWN, DRY, MEDIUM STIFF, SANDY CLAY

RESIDUAL, ORANGE AND WHITE, DRY, STIFF TO VERY STIFF, SANDY SILT

86+50.00

290 285 280 275 270

ROADWAY EMBANKMENT, RED-BROWN, MOIST, MEDIUM STIFF, SANDY AND SILTY CLAY

COASTAL PLAIN, ORANGE-BROWN, DRY, MEDIUM STIFF, SANDY CLAY

RESIDUAL, ORANGE AND WHITE, DRY, STIFF TO VERY STIFF, SANDY SILT

86+00.00

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270 265 260 255 275

ROADWAY EMBANKMENT, RED-BROWN, MOIST, MEDIUM STIFF, SANDY AND SILTY CLAY

COASTAL PLAIN, BROWN AND GRAY, DRY, MEDIUM STIFF, SANDY CLAY

89+50.00

270 265 260 280 275

ROADWAY EMBANKMENT, RED-BROWN, MOIST, MEDIUM STIFF, SANDY AND SILTY CLAY

COASTAL PLAIN, BROWN AND GRAY, DRY, MEDIUM STIFF, SANDY CLAY

DRY 08/07

89+00.00

275 270 265 280

ROADWAY EMBANKMENT, RED-BROWN, MOIST, MEDIUM STIFF, SANDY AND SILTY CLAY

COASTAL PLAIN, ORANGE TO BROWN AND GRAY, DRY, MEDIUM STIFF, SANDY CLAY

88+50.00

280 275 270 265

ROADWAY EMBANKMENT, RED-BROWN, MOIST, MEDIUM STIFF, SANDY AND SILTY CLAY

COASTAL PLAIN, ORANGE TO BROWN AND GRAY, DRY, MEDIUM STIFF, SANDY CLAY

88+00.00

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75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

265 260 255 250

91+00.00

265 260 255 250

90+50.00

265 260 255 250

ROADWAY EMBANKMENT, RED-BROWN, MOIST, MEDIUM STIFF, SANDY AND SILTY CLAY

COASTAL PLAIN, BROWN AND GRAY, DRY, MEDIUM STIFF, SANDY CLAY

90+37.55

265 260 255 250

ROADWAY EMBANKMENT, RED-BROWN, MOIST, MEDIUM STIFF, SANDY AND SILTY CLAY

COASTAL PLAIN, BROWN AND GRAY, DRY, MEDIUM STIFF, SANDY CLAY

90+00.00

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PROJ. REFERENCE NO.	SHEET NO.
R-3825A	57

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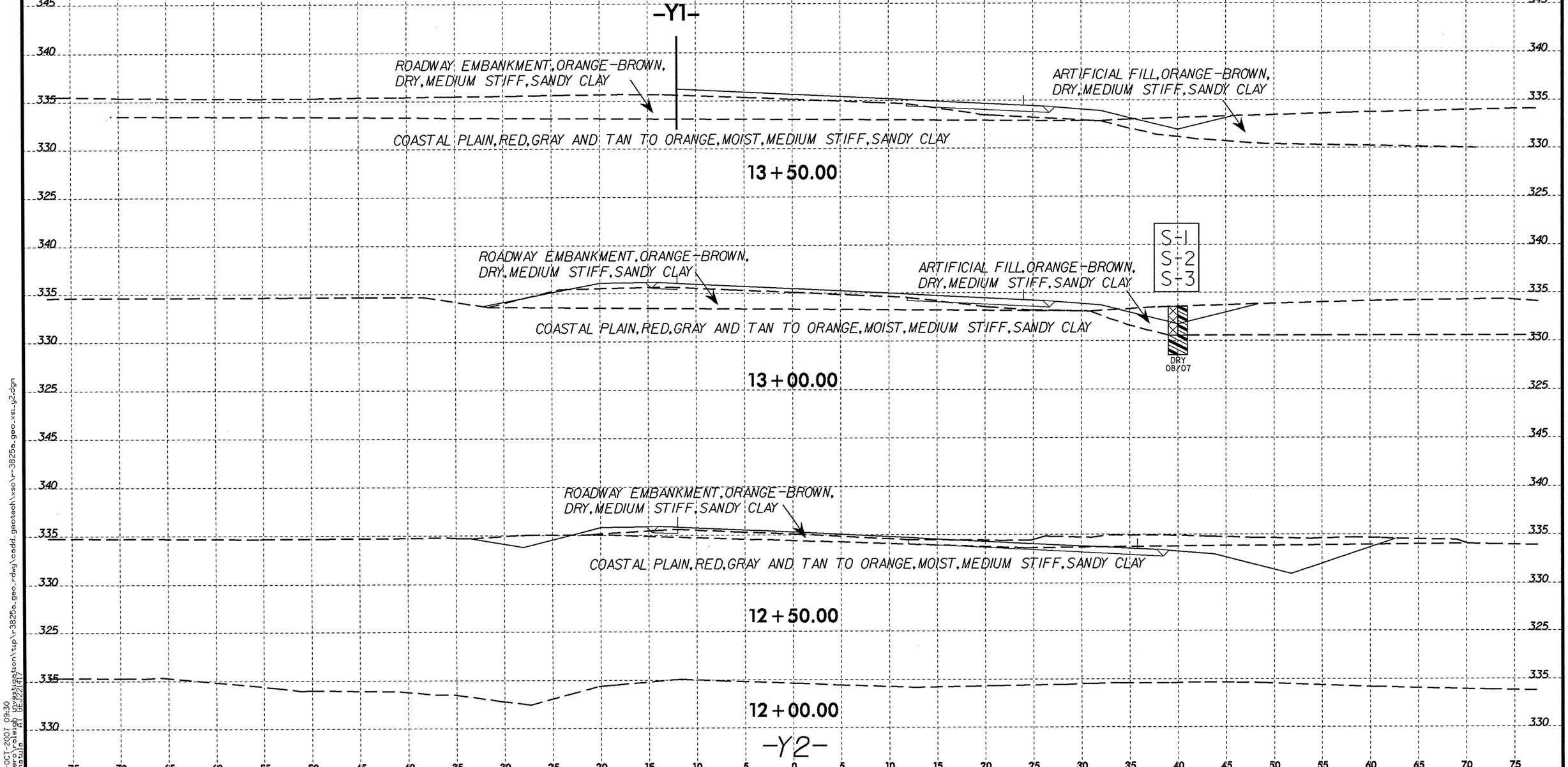
SOIL TEST RESULTS

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-1	40' RT	13+00	0.0-3.0	A-6(3)	30	14	27.5	28.9	9.1	34.4	97	84	45	-	-
S-2	40' RT	13+00	3.0-3.5	A-6(3)	28	17	31.8	28.9	10.9	28.3	99	83	42	-	-
S-3	40' RT	13+00	3.5-5.0	A-6(4)	35	16	29.8	25.1	6.7	38.5	98	85	47	-	-



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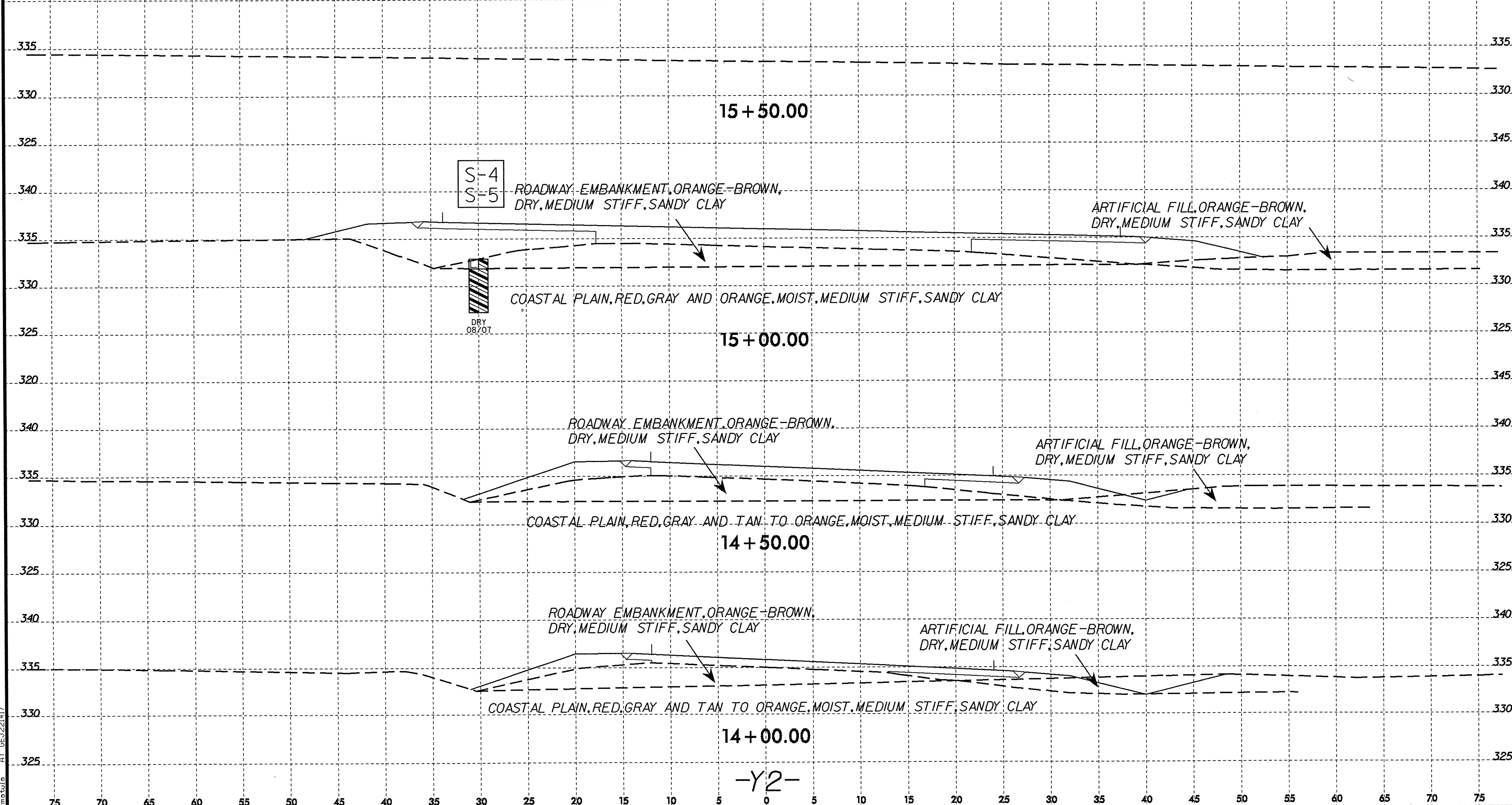
SOIL TEST RESULTS

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-4	30' LT	15+00	0.0-6.0	A-6(2)	28	13	35.8	25.5	10.3	28.3	100	81	41	-	-
S-5	30' LT	15+00	4.2-5.6	A-6(3)	39	14	29.4	26.9	9.3	34.4	96	83	45	-	-



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0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	R-3825A	59

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

325
320
315
310
305

ROADWAY EMBANKMENT, RED-BROWN, MOIST, MEDIUM STIFF, SILTY AND SANDY CLAY

RESIDUAL, RED TO ORANGE BROWN, DRY, MEDIUM STIFF, SILTY CLAY

11+50.00

ROADWAY EMBANKMENT, RED-BROWN, MOIST, MEDIUM STIFF, SILTY AND SANDY CLAY

RESIDUAL, RED TO ORANGE BROWN, DRY, MEDIUM STIFF, SILTY CLAY

11+00.00

10+50.00

10+00.00

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	R-3825A	60

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

320 315 310 305 300

ROADWAY EMBANKMENT, RED-BROWN, MOIST, MEDIUM STIFF, SILTY AND SANDY CLAY

RESIDUAL, RED TO ORANGE BROWN, DRY, MEDIUM STIFF, SILTY CLAY

13+50.00

320 315 310 305

ROADWAY EMBANKMENT, RED-BROWN, MOIST, MEDIUM STIFF, SILTY AND SANDY CLAY

RESIDUAL, RED TO ORANGE BROWN, DRY, MEDIUM STIFF, SILTY CLAY

13+00.00

320 315 310 305

ROADWAY EMBANKMENT, RED-BROWN, MOIST, MEDIUM STIFF, SILTY AND SANDY CLAY

RESIDUAL, RED TO ORANGE BROWN, DRY, MEDIUM STIFF, SILTY CLAY

12+50.00

320 315 310 305

ROADWAY EMBANKMENT, RED-BROWN, MOIST, MEDIUM STIFF, SILTY AND SANDY CLAY

RESIDUAL, RED TO ORANGE BROWN, DRY, MEDIUM STIFF, SILTY CLAY

12+00.00

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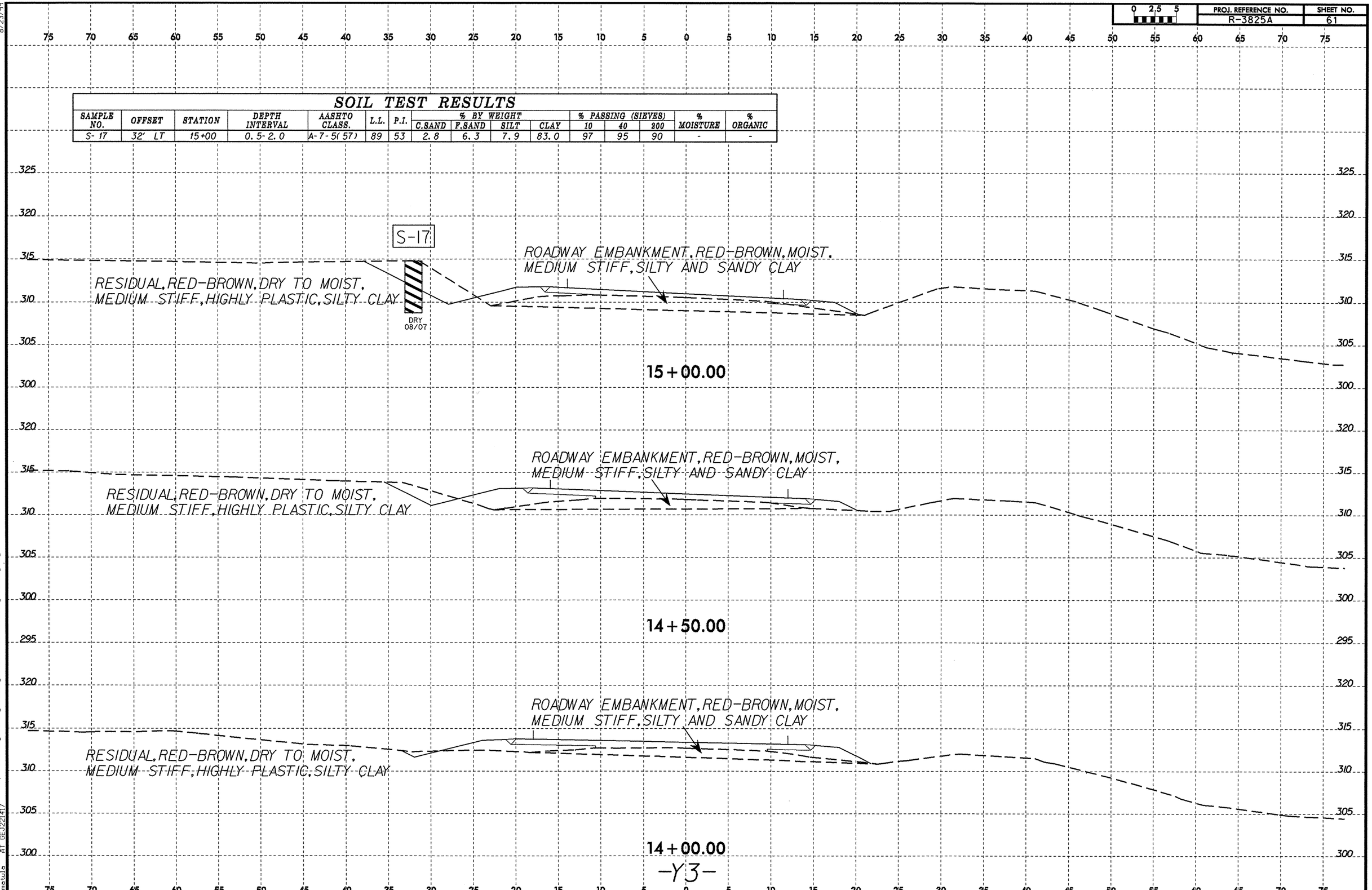
R-3825A	61

0 2.5 5

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-17	32' LT	15+00	0.5-2.0	A-7-5(57)	89	53	2.8	6.3	7.9	83.0	97	95	90	-	-



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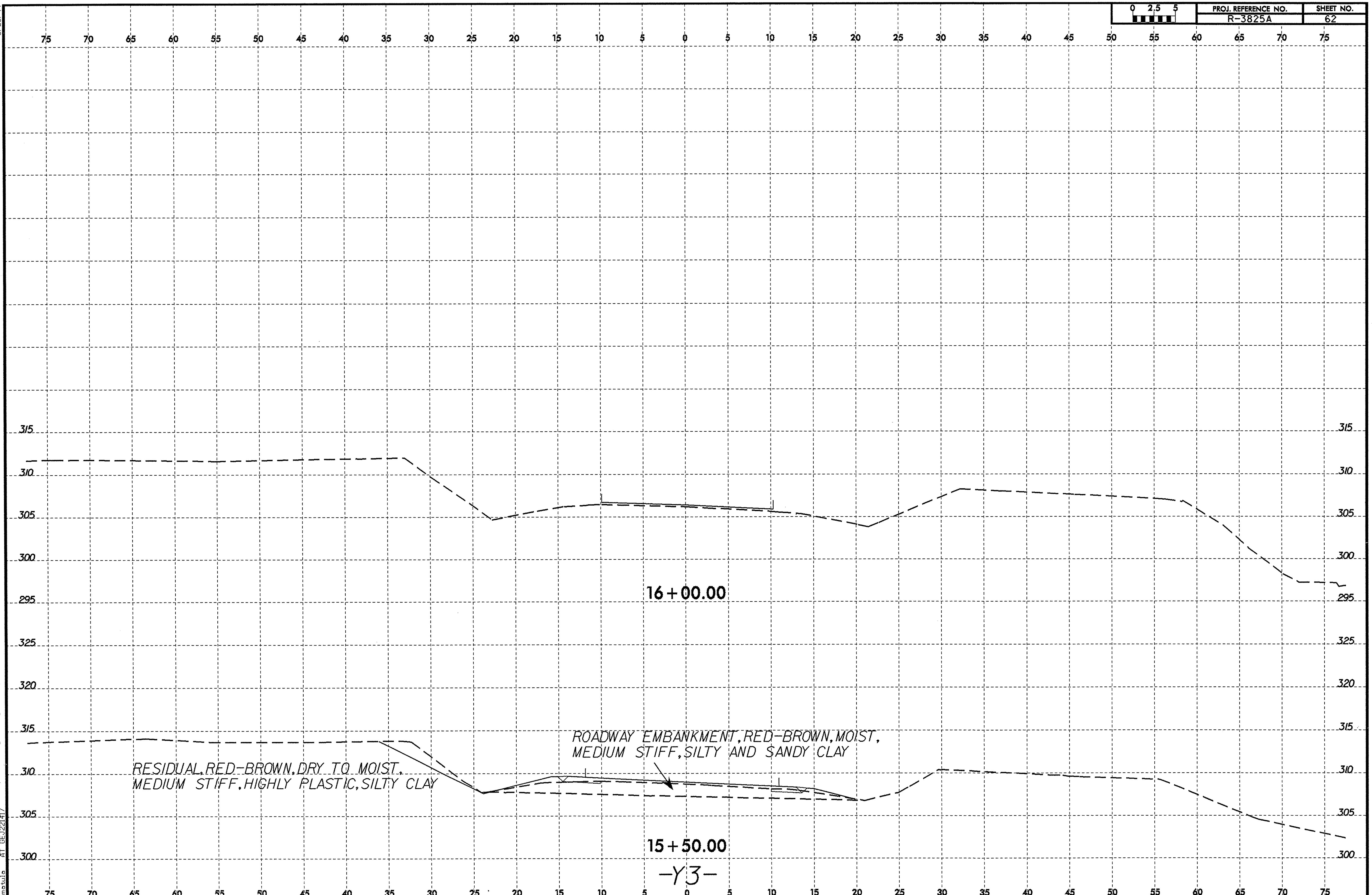

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