

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

ROADWAY
SUBSURFACE INVESTIGATION

PROJ. REFERENCE NO. 36492.1.2 (U-4444B) F.A. PROJ. STP-210(II)
COUNTY CUMBERLAND
PROJECT DESCRIPTION NC 210 (MURCHISON RD.) FROM BUTNER RD. IN SPRING LAKE TO NC 2487 (BRAGG BLVD.)

INVENTORY

CONTENTS

LINE	STATION	PLAN	PROFILE
-L-	160+00 TO 210+80	4-7	10-11
-Y5-	10+00 TO 16+00.57	4	12
-Y6-	12+51.64 TO 40+17.68	4-5,8	13-14
-Y6A-	10+00 TO 13+65.83	5	12
-Y8-	10+29.48 TO 19+70.24	9	14

STATE	PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	36492.1.2 (U-4444B)	1	14
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
36492.1.2	STP-210(II)	P.E.	
		RW & UTIL.	

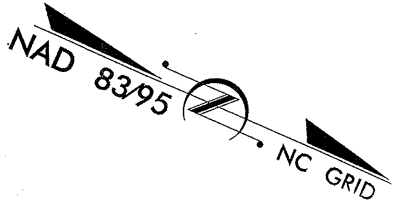
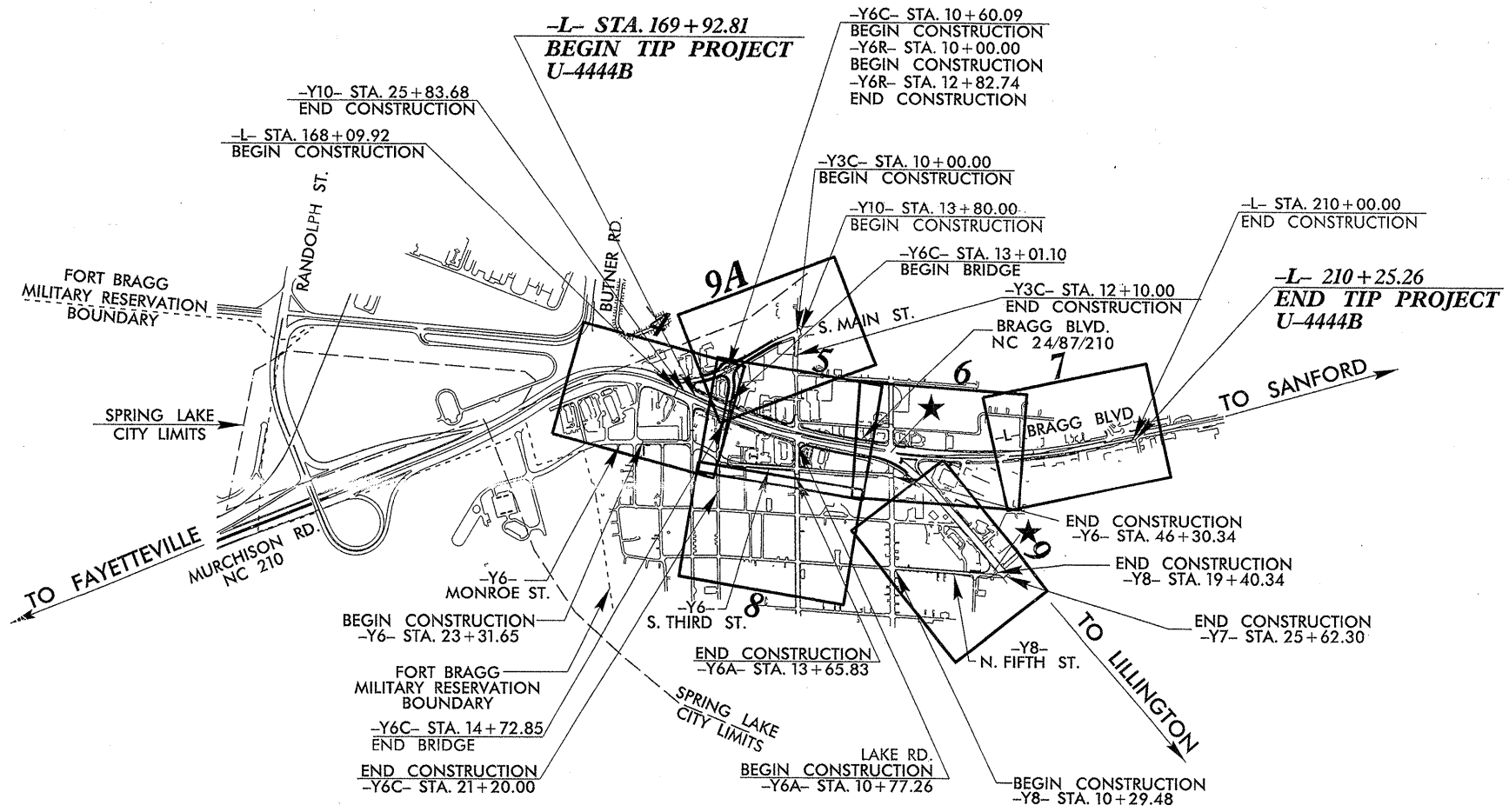
CAUTION NOTICE

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.

CONTRACT: C202826 ID: U-4444B



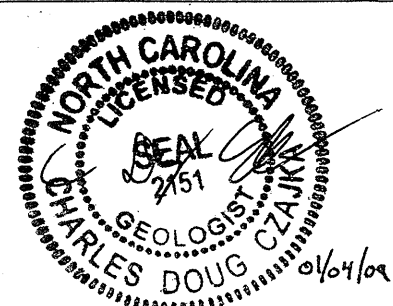
★ PROPOSED SIGNALS

DRAWN BY: C.D. CZAJKA & T.T. WALKER

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.

PERSONNEL
C.D. CZAJKA
J.R. MATULA
INVESTIGATED BY C.D. CZAJKA
CHECKED BY N.T. ROBERSON
SUBMITTED BY N.T. ROBERSON
DATE JANUARY 2009



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

SUBSURFACE INVESTIGATION

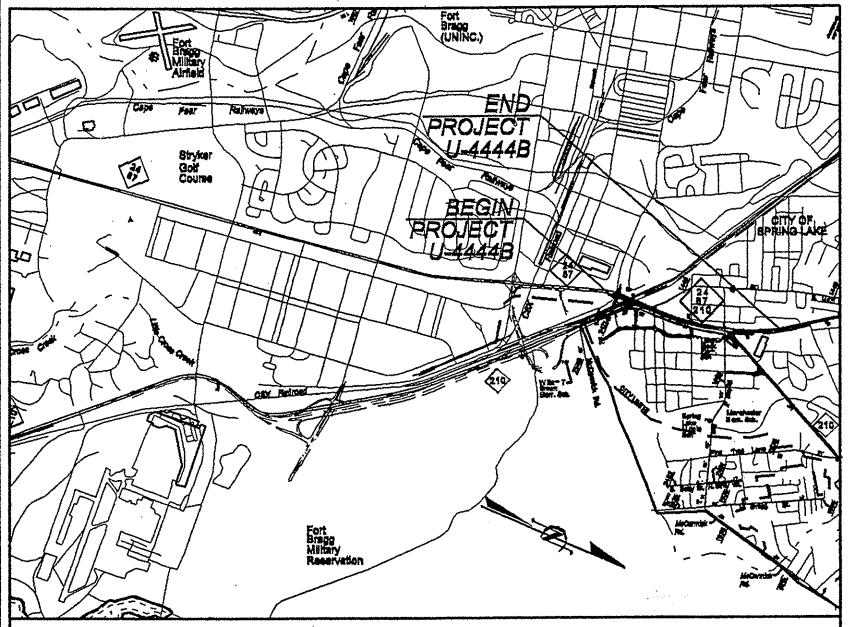
SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

SOIL DESCRIPTION	GRADATION	ROCK DESCRIPTION	TERMS AND DEFINITIONS
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: <i>VERY STIFF, GRAY-SILTY CLAY, MUST WITH INTERBEDDED FINE SAND LAYERS, HARD PLASTIC, A-7-6</i>	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.	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, ONEISS, GABBRO, SCHIST, ETC. NON-CRYSTALLINE ROCK (NCR) - FINE TO COARSE GRAIN METAMORPHIC AND NON-COASTAL PLAIN SEDIMENTARY ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES PHYLLITE, SLATE, SANDSTONE, ETC. COASTAL PLAIN SEDIMENTARY ROCK (CPI) - COASTAL PLAIN SEDIMENTS CEMENTED INTO ROCK, BUT MAY NOT YIELD SPT REFUSAL. ROCK TYPE INCLUDES LIMESTONE, SANDSTONE, CEMENTED SHELL BEDS, ETC.	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.
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-1, A-2, A-3, A-4, A-5, A-6, A-7 SYMBOL [Diagrams showing soil patterns for A-1, A-3, A-2, A-4, A-5, A-6, A-7, A-1, A-2, A-3, A-4, A-5, A-6, A-7] % PASSING: 10, 40, 200 LIQUID LIMIT PLASTIC INDEX: 6 MX, NP, 8, 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, GRANULAR SOILS, SILT-CLAY SOILS, MUCK, PEAT, HIGHLY ORGANIC 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	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 ROADWAY EMBANKMENT (RE) WITH SOIL DESCRIPTION SOIL SYMBOL ARTIFICIAL FILL (AF) OTHER THAN ROADWAY EMBANKMENT INFERRED SOIL BOUNDARY INFERRED ROCK LINE ALLUVIAL SOIL BOUNDARY DIP & DIP DIRECTION OF ROCK STRUCTURES SOUNDING ROD SPT TEST BORING AUGER BORING CORE BORING MONITORING WELL PIEZOMETER INSTALLATION SLOPE INDICATOR INSTALLATION SPT N-VALUE SPT REFUSAL	WEATHERING FRESH ROCK FRESH, CRYSTALLINE 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. <i>IF TESTED, WOULD YIELD SPT REFUSAL</i> 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. <i>IF TESTED, YIELDS SPT N VALUES > 100 BPF</i> 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. <i>IF TESTED, YIELDS SPT N VALUES < 100 BPF</i> 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.	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 DIP & DIP DIRECTION OF ROCK STRUCTURES SOUNDING ROD SPT TEST BORING AUGER BORING CORE BORING MONITORING WELL PIEZOMETER INSTALLATION SLOPE INDICATOR INSTALLATION SPT N-VALUE 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 HL - HIGHLY MED. - MEDIUM MICA - MICACEOUS MOD. - MODERATELY NP - NON PLASTIC ORG. - ORGANIC PMT - PRESSUREMETER TEST SD. - SAND, SANDY SL. - SILT, SILTY SLI. - SLIGHTLY TCR - TRICONE REFUSAL w - MOISTURE CONTENT v - VERY YST - VANE SHEAR TEST WEA. - WEATHERED % - UNIT WEIGHT % - DRY UNIT WEIGHT
TEXTURE OR GRAIN SIZE U.S. STD. SIEVE SIZE OPENING (MM): 4, 10, 40, 60, 200, 270 4.75, 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: 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 LL - LIQUID LIMIT - SATURATED - (SAT.) USUALLY LIQUID; VERY WET, USUALLY FROM BELOW THE GROUND WATER TABLE PL - PLASTIC LIMIT - WET - (W) SEMISOLID; REQUIRES DRYING TO ATTAIN OPTIMUM MOISTURE OM - OPTIMUM MOISTURE - MOIST - (M) SOLID; AT OR NEAR OPTIMUM MOISTURE SL - SHRINKAGE LIMIT - DRY - (D) REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE	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 PIECES 1 INCH MAXIMUM SIZE BY HARD BLOWS OF THE POINT OF A GEOLOGIST'S PICK. SOFT CAN BE GROOVED 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 FINGER NAIL.	EQUIPMENT USED ON SUBJECT PROJECT DRILL UNITS: MOBILE B-51, BK-51, CME-45C, CME-550, PORTABLE HOIST ADVANCING TOOLS: CLAY BITS, 6" CONTINUOUS FLIGHT AUGER, 8" HOLLOW AUGERS, HARD FACED FINGER BITS, TUNG.-CARBIDE INSERTS, CASING w/ ADVANCER, TRICONE * STEEL TEETH, TRICONE * TUNG.-CARB., CORE BIT HAMMER TYPE: AUTOMATIC, MANUAL CORE SIZE: B, N, H HAND TOOLS: POST HOLE DIGGER, HAND AUGER, SOUNDING ROD, VANE SHEAR TEST
PLASTICITY NONPLASTIC 0-5 VERY LOW LOW PLASTICITY 6-15 SLIGHT MED. PLASTICITY 16-25 MEDIUM HIGH PLASTICITY 26 OR MORE HIGH PLASTICITY INDEX (PI) DRY STRENGTH	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.	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.
PLASTICITY NONPLASTIC 0-5 VERY LOW LOW PLASTICITY 6-15 SLIGHT MED. PLASTICITY 16-25 MEDIUM HIGH PLASTICITY 26 OR MORE HIGH PLASTICITY INDEX (PI) DRY STRENGTH			NOTES: BENCH MARK: _____ ELEVATION: _____ FT. _____

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CONTRACT: TIP PROJECT: U-4444B

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



VICINITY MAP FOR STATE PROJECT U-4444B

25% PLANS

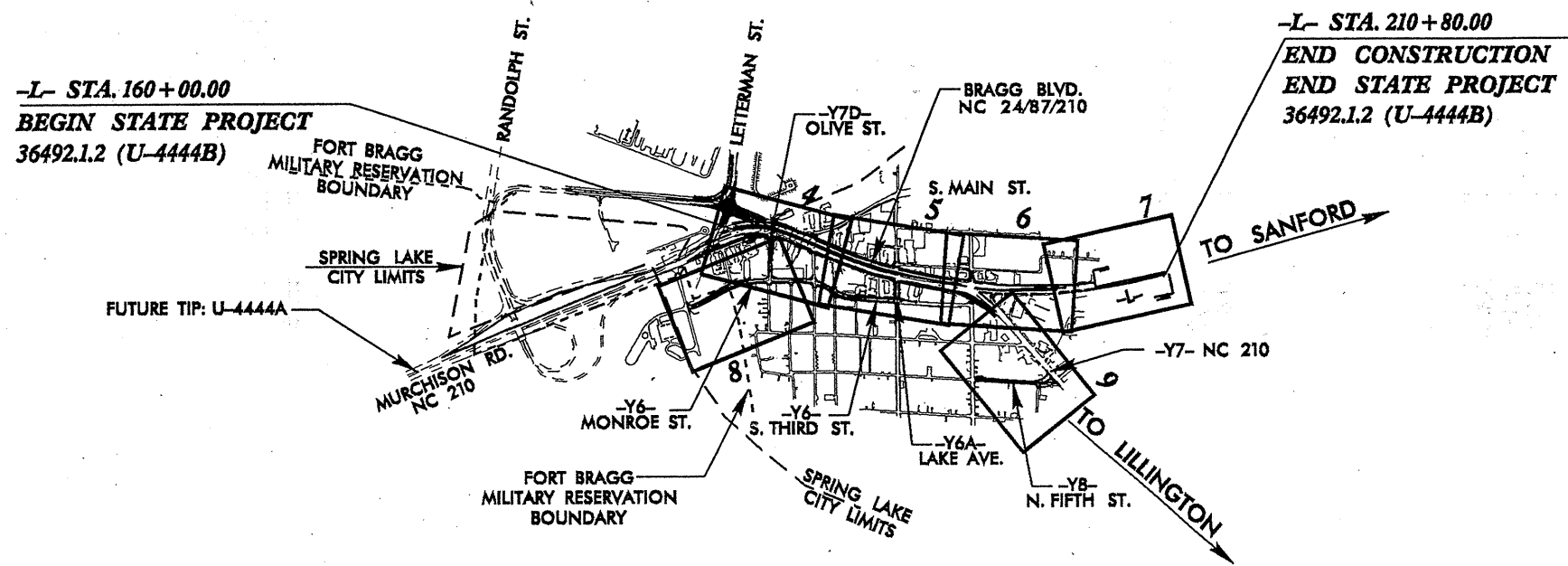
STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS

CUMBERLAND COUNTY

**LOCATION: NC 210 (MURCHISON ROAD) FROM BUTNER RD.
 TO NORTH OF NC 24-87-210 (BRAGG BLVD.) IN SPRING LAKE**

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

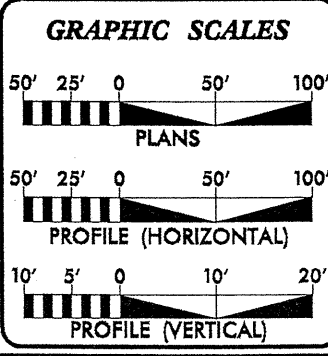
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36492.1.2	STP-210(II)	PE	



PREPARED FOR
 DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 RALEIGH, NC
 PLANS COORDINATED BY:
 Doug Taylor, P.E. - Project Engineer (NCDOT)

METHOD OF CLEARING: Type _____

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



DESIGN DATA

ADT 2005 =	57,400
ADT 2035 =	99,200
DHV =	10%
D =	60%
T =	7% *
V =	40 MPH
* TTST 3%	DUAL 4%
FUNC. CLASS. =	URBAN ARTERIAL

PROJECT LENGTH

TOTAL LENGTH STATE TIP PROJECT U-4444B = 0.962 Miles

THIS IS A PARTIAL CONTROLLED-ACCESS PROJECT
WITH ACCESS BEING LIMITED TO THE POINTS
SHOWN ON PLANS.

Prepared In the Office of:
LOCHNER
H. W. LOCHNER, INC.
2840 PLAZA PLACE, SUITE 202
RALEIGH, NC 27612

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: March 20, 2009	BRIAN K. EASON, PE PROJECT ENGINEER
LETTING DATE: POST YEAR	JEFFREY R. HEXT PROJECT DESIGN ENGINEER


HYDRAULICS ENGINEER

SIGNATURE: _____ P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: _____ P.E.

DIVISION OF HIGHWAYS
 STATE OF NORTH CAROLINA



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 Tippet
SECRETARY

January 4, 2009

STATE PROJECT: 36492.1.2 (U-4444B)
FEDERAL PROJECT: STP-210(11)
COUNTY: Cumberland
DESCRIPTION: NC 210 (Murchison Rd.) from Butner Rd. in Spring Lake to NC 24/87
(Bragg Blvd.)
SUBJECT: Geotechnical Report – Inventory

Project Description

This project consists of widening NC 210 (-L- Sta. 160+00 to Sta. 210+80) from four to six lanes with medians and turn lanes into six to nine lanes with medians and turn lanes.

The geotechnical field investigation was conducted in October of 2008. All borings were advanced using a Hand Auger. 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 1.69 miles, were investigated.

<u>Line</u>	<u>Station</u>
-L-	160+00.00 to 210+80.00
-Y5-	10+00.00 to 16+00.57
-Y6-	12+51.64 to 40+17.68
-Y6A-	10+00.00 to 13+65.83
-Y8-	10+29.48 to 19+70.24

Physiography and Geology

The project is located in the Coastal Plain of North Carolina in the town of Spring Lake. The project corridor entirely of businesses and homes. The terrain is relatively flat. Geologically, the project is located within the Middendorf Formation of the Coastal Plain.

Soil Properties

Soils encountered at the project site include roadway embankment and Coastal Plain soils.

Roadway embankment soils were encountered on the -L- and -Y5- alignments on the project. The existing embankments range from one to three feet. Roadway embankment soils are composed of gray and brown, dry to moist, loose, coarse sand (AASHTO classification of A-1-b).

Coastal Plain soils underlie the majority of the project area. The Coastal Plain soils are primarily granular with good engineering properties. These soils are orange, tan to brown and gray, dry to wet, loose to medium dense, silty to clayey sands (A-2-4, A-2-7). Tan, gray, and orange, dry to moist, medium stiff, sandy silt and sandy clay (A-4, A-6) was encountered in one boring on the -Y6- alignment.

Groundwater

Groundwater on the project was encountered in only one boring located in a fill area. Based on the investigation, groundwater is not anticipated to cause problems during construction.

Prepared by,

C. Doug Czajka
Engineering Geologist

Earthwork Balance Sheet

Volumes in Cubic Yards

PROJECT: U-4444AB/B

COUNTY: Cumberland

DATE: 10-Jul-12

COMPILED BY: BKE (LOCHNER)

SHEET ___ OF ___ SHEETS

STATION	STATION	EXCAVATION				EMBANKMENT				BORROW	WASTE			
		TOTAL UNCLASS.	ROCK	UNDERCUT	UNSUIT. UNCLASS.	SUITABLE UNCLASS.	TOTAL	ROCK	EARTH		EMBANK. +25%	ROCK	SUITABLE	UNSUIT.
SUMMARY #1 PHASE 1														
-L- RT 107+00	125+00	1,778			49	1,729	25,796	25,796	32,245	30,516			49	49
SUMMARY #1	SUBTOTAL	1,778			49	1,729	25,796	25,796	32,245	30,516			49	49
SUMMARY #2 PHASE 1														
-L- RT 125+00	151+50	8,116			500	7,616	20,960	20,960	26,200	18,584			500	500
-Y3- 10+00	10+58.58 (BEGIN BRIDGE)			632			15,473	15,473	19,341	19,341			632	632
-Y3LPD- 13+00	23+50	13,022		38,703		13,022	153,938	153,938	192,423	179,401			38,703	38,703
-Y3RPD M 13+00	16+00	5,618				5,618						5,618		5,618
Y3- 12+77.08 (END BRIDGE)	17+50	35				35	25,226	25,226	31,533	31,498				
-Y3RPB- 14+81 (-L- 125+00)	21+92 (-L- 132+00)	3,954				3,954	6,343	6,343	7,929	3,975				
-Y3RPA 14+50	29+50	10,294				10,294	21,108	21,108	26,385	16,091				
Y3RPAA- 10+00 (-Y3RPA 24+50)	14+59 (Y3RPA 28+50)	652				652	11,173	11,173	13,966	13,314				
	SUBTOTAL	41,691		39,335	500	41,191	254,221	254,221	317,776	282,203		5,618	39,835	45,453
SUMMARY #3 Phase 1														
-Y3- 17+50	32+65	2,344				2,344	32,572	32,572	40,715	38,371				
-Y4- 15+50	37+00	2,578				2,578	1,334	1,334	1,668			911		911
-Y4SRREV- 10+50	25+35	10,183				10,183	8	8	10			10,173		10,173
	SUBTOTAL	15,105				15,105	33,914	33,914	42,393	38,371		11,084		11,084
SUMMARY #4 Phase 1														
-L- LT 151+50	156+50	1,028				1,028	353	353	441			587		587
	SUBTOTAL	1,028				1,028	353	353	441			587		587
SUMMARY #5 Phase 1														
-L- 158+50	163+00	579		1,186		579	28,619	28,619	35,774	35,195			1,186	1,186
	SUBTOTAL	579		1,186		579	28,619	28,619	35,774	35,195			1,186	1,186
SUMMARY #6 Phase 1														
-Y6- 12+52	23+32	339				339	2,010	2,010	2,513	2,174				
-Y6- 23+32	46+00	597				597	8,623	8,623	10,779	10,182				
-Y6C- 11+00	13+01.10 (BEGIN BRIDGE)						8,499	8,499	10,624	10,624				
Y6C- 14+72.85 (END BRIDGE)	17+50.00						9,635	9,635	12,044	12,044				
-Y6C- 18+50	21+00.00	8				8	1,260	1,260	1,575	1,567				
-Y10- 14+00	20+50.00	1				1	11,548	11,548	14,435	14,434				
-Y6R- 10+00	12+82.74						13,890	13,890	17,363	17,363				
-Y10- 22+00	24+50.00						4,288	4,288	5,360	5,360				
-Y10DR3- 10+50	10+75	2				2	67	67	84	82				
-Y3C- 10+50	12+00	29				29						29		29
	SUBTOTAL	976				976	59,820	59,820	74,775	73,828		29		29
SUMMARY #7 Phase 1														
-Y8- 10+50	19+00.00	1,577				1,577	258	258	323			1,255		1,255
	SUBTOTAL	1,577				1,577	258	258	323			1,255		1,255
SUMMARY #8 Phase 2														
-L- LT 107+00	125+00	3,092				3,092	14,436	14,436	18,045	14,953				
	SUBTOTAL	3,092				3,092	14,436	14,436	18,045	14,953				

Earthwork Balance Sheet

Volumes in Cubic Yards

PROJECT: U-4444AB/B

COUNTY: Cumberland

DATE: 10-Jul-12

COMPILED BY: BKE (LOCHNER)

SHEET ___ OF ___ SHEETS

STATION	STATION	EXCAVATION					EMBANKMENT				BORROW	WASTE											
		TOTAL UNCLASS.	ROCK	UNDERCUT	UNSUIT. UNCLASS.	SUITABLE UNCLASS.	TOTAL	ROCK	EARTH	EMBANK. +25%		ROCK	SUITABLE	UNSUIT.	TOTAL								
SUMMARY #9 Phase 2																							
	-L-LT 125+00	151+50					12,317				12,317				24,485		24,485	30,606	18,289				
	SUBTOTAL		12,317				12,317				12,317				24,485		24,485	30,606	18,289				
SUMMARY #10 Phase 2																							
	-L-RT 151+50	158+50					2,033				2,033				1,932		1,932	2,415	382				
	-L-LT 156+50	158+50					39				39				890		890	1,113	1,074				
	SUBTOTAL		2,072				2,072				2,072				2,822		2,822	3,528	1,456				
SUMMARY #11 Phase 2																							
	-L-RT 163+00	169+50					498				498				80		80	100			398		398
	-L- 169+50	193+00					990				990				3,097		3,097	3,871	2,881				
	-Y5- 10+60	15+81					1,091				1,091				186		186	233			859		859
	-Y7- 11+77.77	15+50					101				101				250		250	313	212				
	-Y6A- 11+00	12+50					46				46				35		35	44			2		2
	-Y7A- 10+64.42	12+49.07					12				12				99		99	124	112				
	-Y17- 13+00.00	14+50					101				101				12		12	15			86		86
	SUBTOTAL		2,839				2,839				2,839				3,759		3,759	4,699	3,205		1,345		1,345
SUMMARY #12 Phase 2																							
	-L- 193+00	210+00					1,068				1,068				4,052		4,052	5,065	3,997				
	SUBTOTAL		1,068				1,068				1,068				4,052		4,052	5,065	3,997				
SUMMARY #13 Phase 3																							
	-L-LT 163+00	169+50					786				786				2,601		2,601	3,251	2,465				
	SUBTOTAL		786				786				786				2,601		2,601	3,251	2,465				
SUMMARY #14 Phase 4																							
	-Y3RPB TIE- 10+00	14+50					3,094				3,094				191		191	239			2,855		2,855
	-Y4A- 10+00	18+00					178				178				1,257		1,257	1,571	1,393				
	-Y4B- 10+00	18+00					160				160				1,570		1,570	1,963	1,803				
	SUBTOTAL		3,432				3,432				3,432				3,018		3,018	3,773	3,196		2,855		2,855
SHEET 2 TOTAL			22,514				22,514				22,514				40,737		40,737	50,921	32,607		4,200		4,200
SHEET 1 TOTAL			65,826		40,521	549	65,277				65,277				417,417		417,417	521,771	475,066		18,572	41,070	59,642
SHEET 1&2 TOTAL			88,340		40,521	549	87,791				87,791				458,154		458,154	572,692	507,673		22,772	41,070	63,842
MATERIAL FOR SHOULDER CONSTRUCTION															13,200		13,200	16,500	16,500				
LOSS DUE TO CLEARING & GRUBBING			-5,150				-5,150				-5,150								5,150				
ADDITIONAL UNDERCUT					4,300		4,300				4,300				4,300		4,300	5,375	5,375			4,300	4,300
ROCK WASTE TO REPLACE BORROW																							
ADJUST FOR ROCK WASTE																							
WASTE IN LIEU OF BORROW																			-22,772		-22,772		-22,772
CL III MATERIAL IN LIEU OF BORROW															-44,821		-44,821	-56,026	-56,026				
PROJECT TOTAL			83,190		44,821	549	82,641				82,641				430,833		430,833	538,541	455,901			45,370	45,370
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT																			22,795				
GRAND TOTAL			83,190		44,821	549	82,641				82,641				430,833		430,833	538,541	478,696			45,370	45,370
SAY			83,500		45,000														479,000				

NOTE: EARTHWORK QUANTITIES ARE CALCULATED BY THE ROADWAY DESIGN UNIT. THESE EARTHWORK QUANTITIES ARE BASED IN PART ON SUBSURFACE DATA PROVIDED BY THE GEOTECHNICAL ENGINEERING UNIT.

SHALLOW UNDERCUT = 400 CY

GRADE POINT UNDERCUT = 1,150 CY

EST. DDE = 1950 CUBIC YARDS

CONTIGENCY UNDERCUT = 3,150 CY

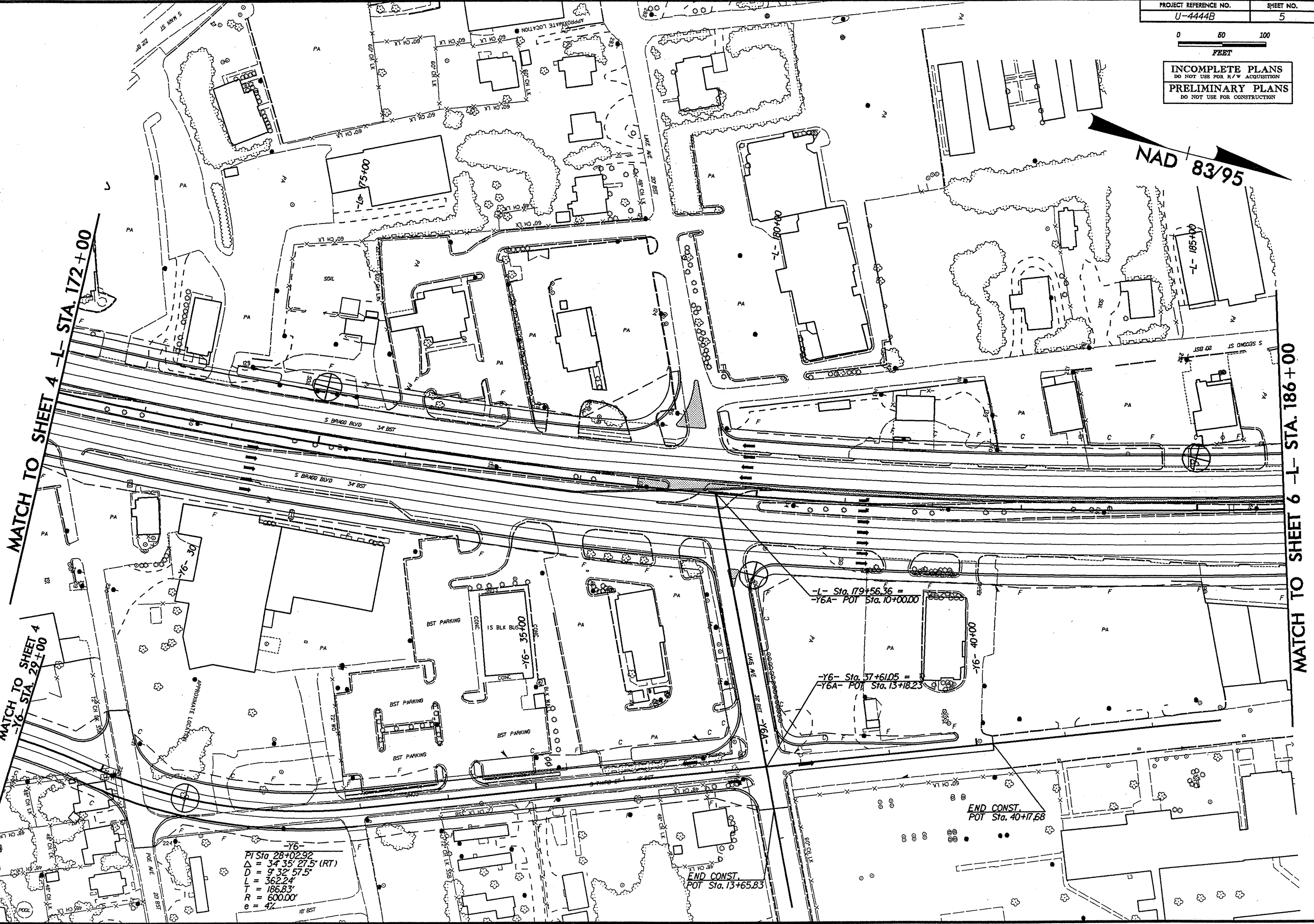
-L-, -Y3-, -Y4-, -Y6-, -Y8- PAVEMENT STRUCTURE VOLUME = 13,600 CY

8/17/99



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

NAD 83/95



MATCH TO SHEET 4 -L- STA. 172+00

MATCH TO SHEET 4 -Y6- STA. 29+00

MATCH TO SHEET 6 -L- STA. 186+00

-Y6-
PI Sta. 28+02.92
Δ = 34° 35' 27.5" (RT)
D = 9° 32' 57.5"
L = 362.24'
R = 186.83'
e = 600.00'
4%

-L- Sta. 179+56.56 =
-Y6A- POT Sta. 10+00.00

-Y6- Sta. 37+61.05 =
-Y6A- POT Sta. 13+18.23

END CONST.
POT Sta. 40+17.68

END CONST.
POT Sta. 13+65.83

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

NAD 83/95

MATCH TO SHEET 5 -L- STA. 186+00

MATCH TO SHEET 7 -L- STA. 199+00

MATCH TO SHEET 9
-Y7- STA. 16+00

-L- Sta. 187+70.14 =
-Y7- P01 Sta. 10+00.00

END CONST.
-Y7- PC Sta. 14+44.60

UNDER CONSTRUCTION

-Y7- 15+00

-L- 195+00

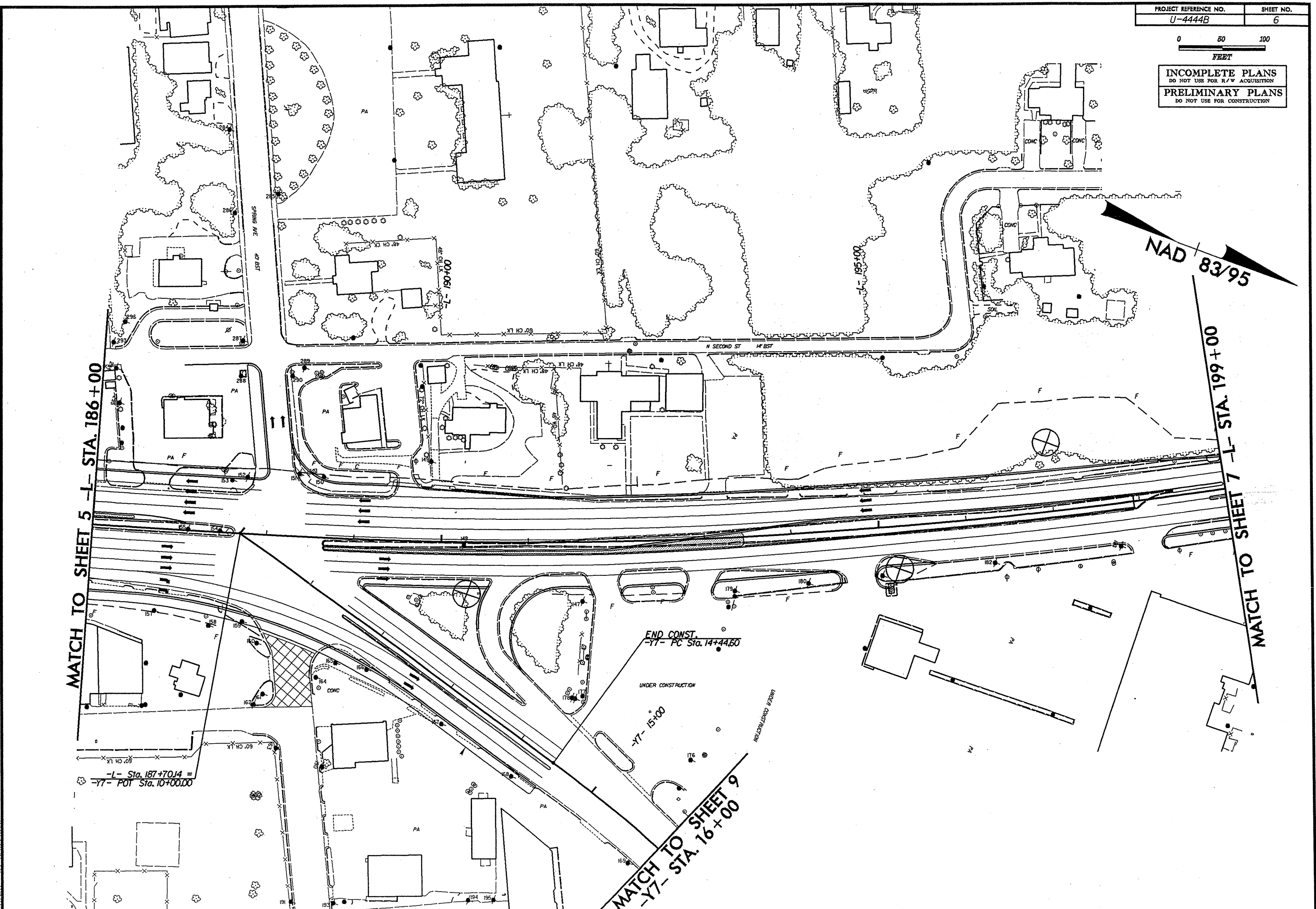
-L- 190+00

N SECOND ST 14' BST

SPRING AVE 40' BST

8/17/99

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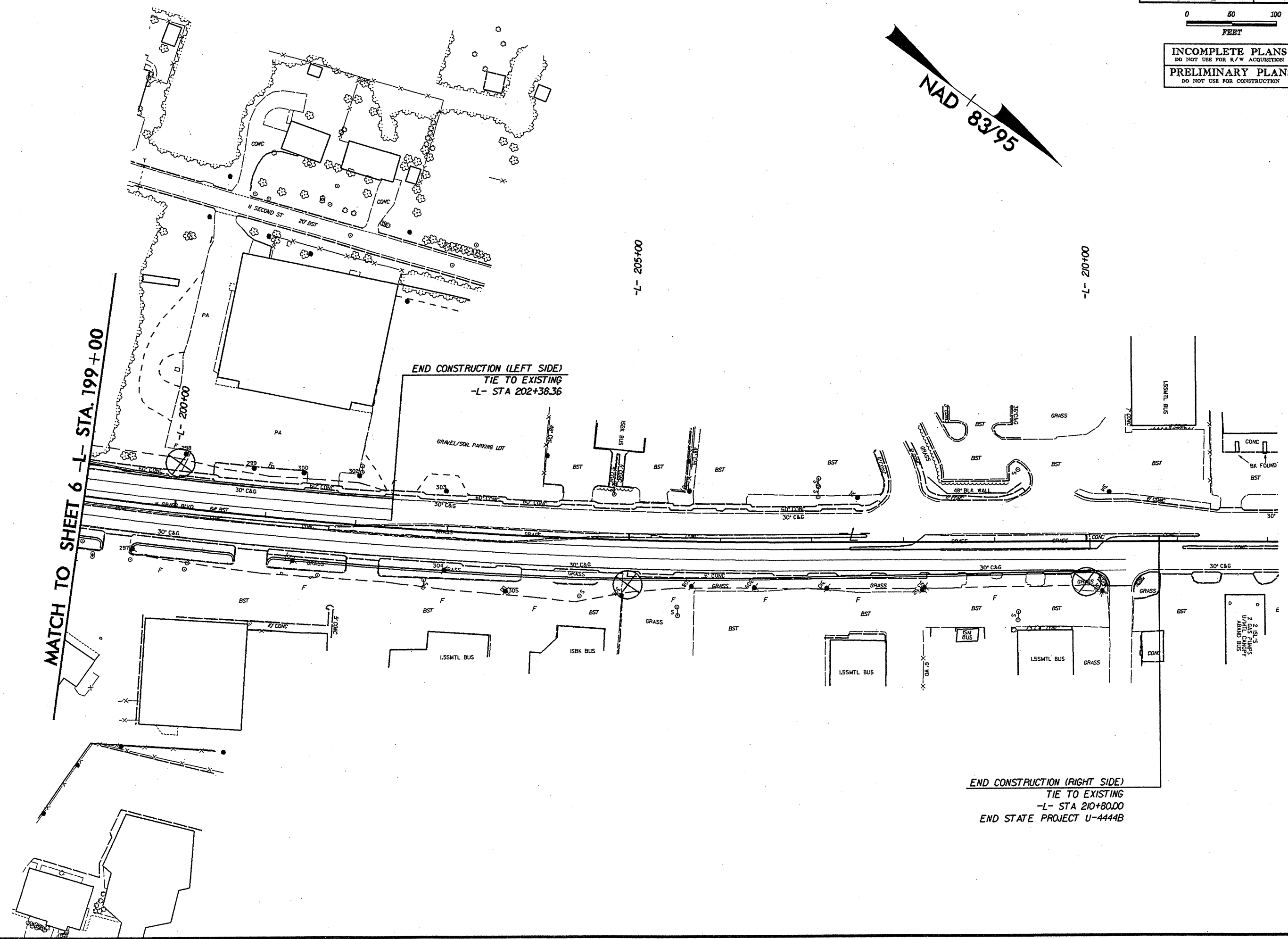
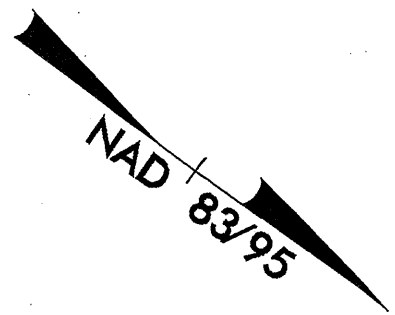
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PROJECT REFERENCE NO. U-4444B	SHEET NO. 7
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INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



END CONSTRUCTION (LEFT SIDE)
TIE TO EXISTING
-L- STA 202+38.36

END CONSTRUCTION (RIGHT SIDE)
TIE TO EXISTING
-L- STA 210+80.00
END STATE PROJECT U-4444B

8/17/95

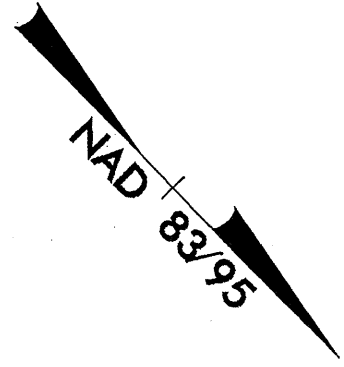
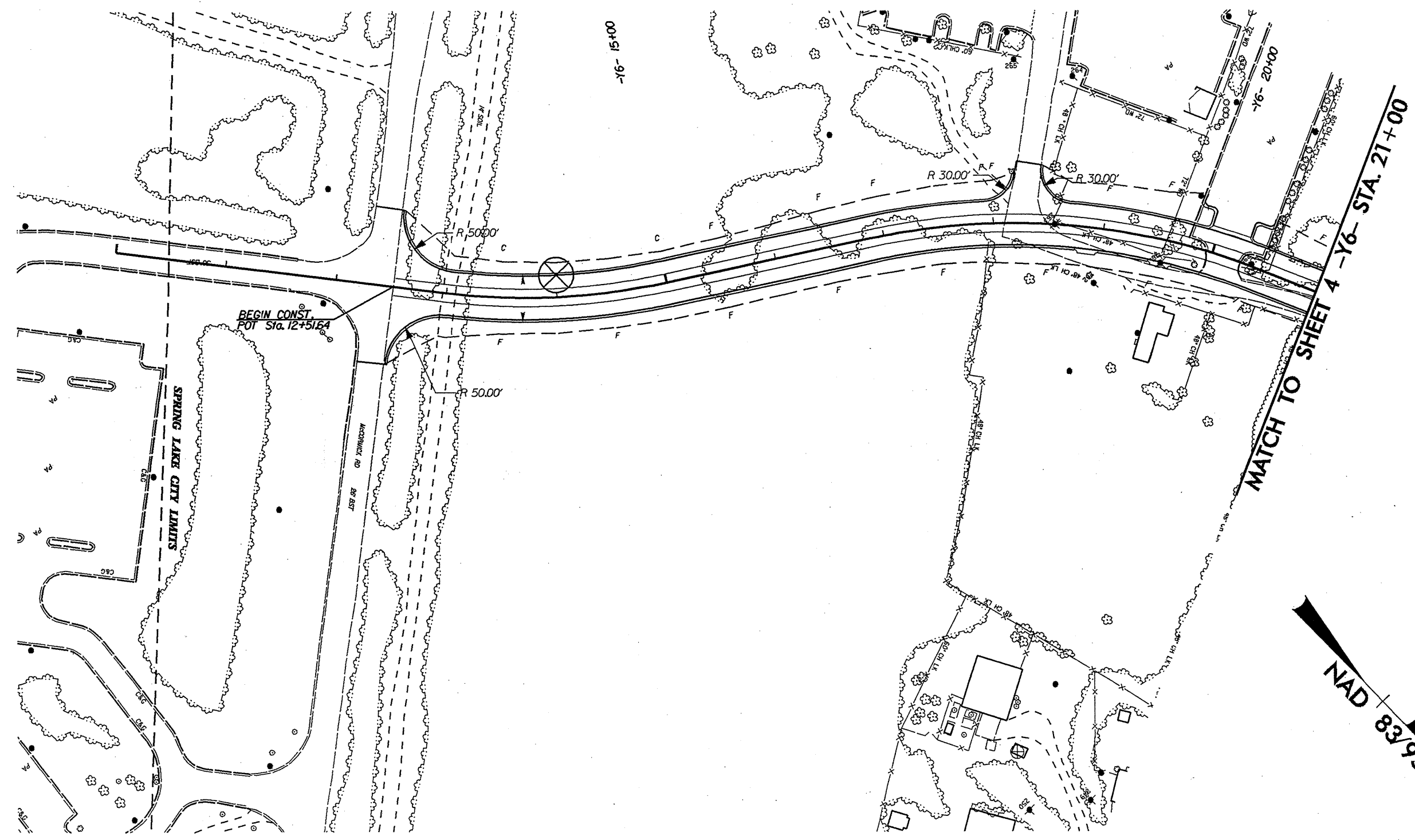
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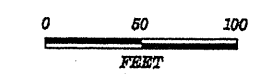
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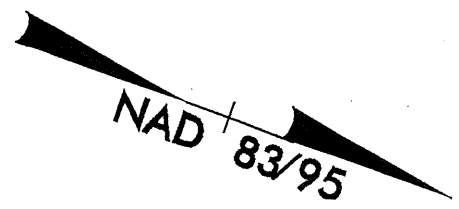
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





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



MATCH TO SHEET 6
-Y7- STA. 16+00

-Y7- 20+00

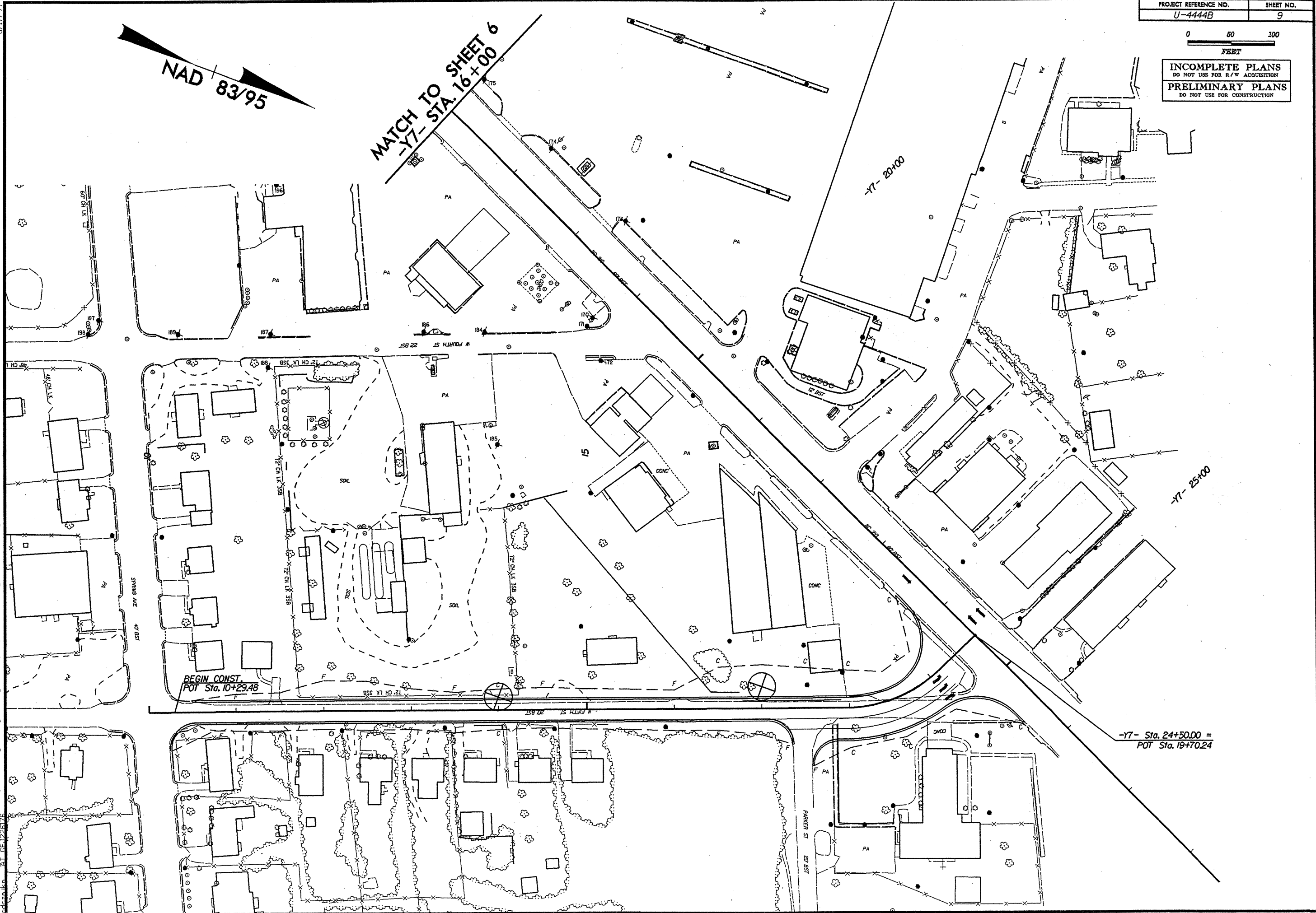
-Y7- 25+00

-Y7- Sta. 24+50.00 =
POT Sta. 19+70.24

BEGIN CONST.
POT Sta. 10+29.48

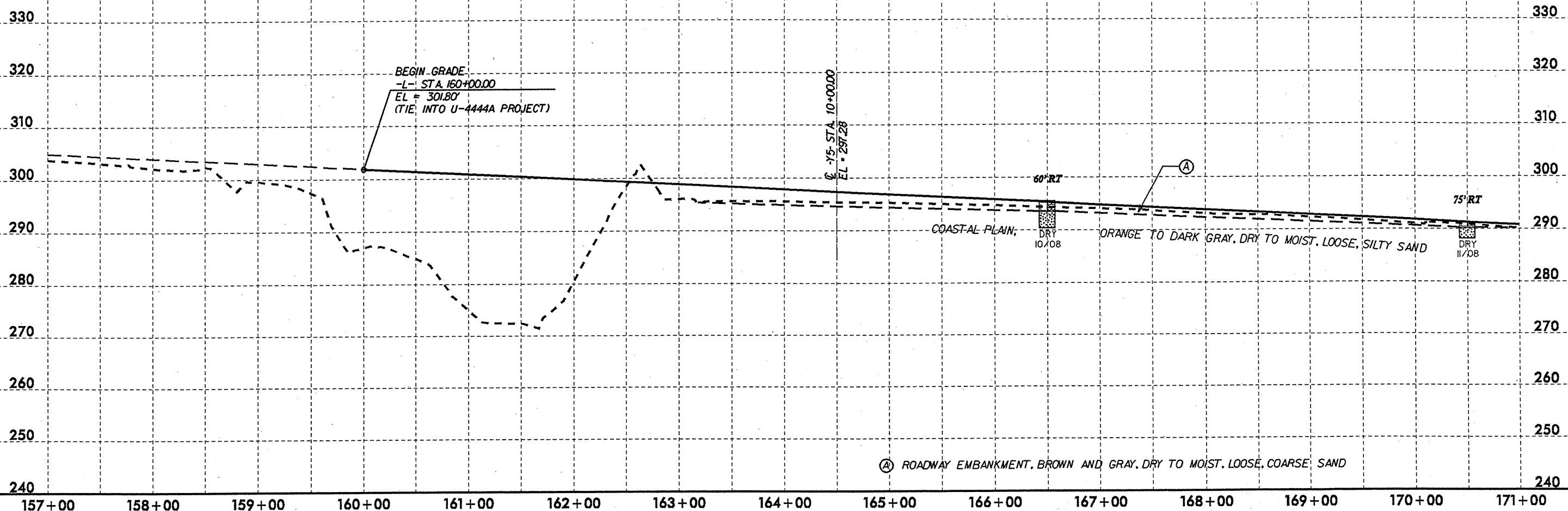
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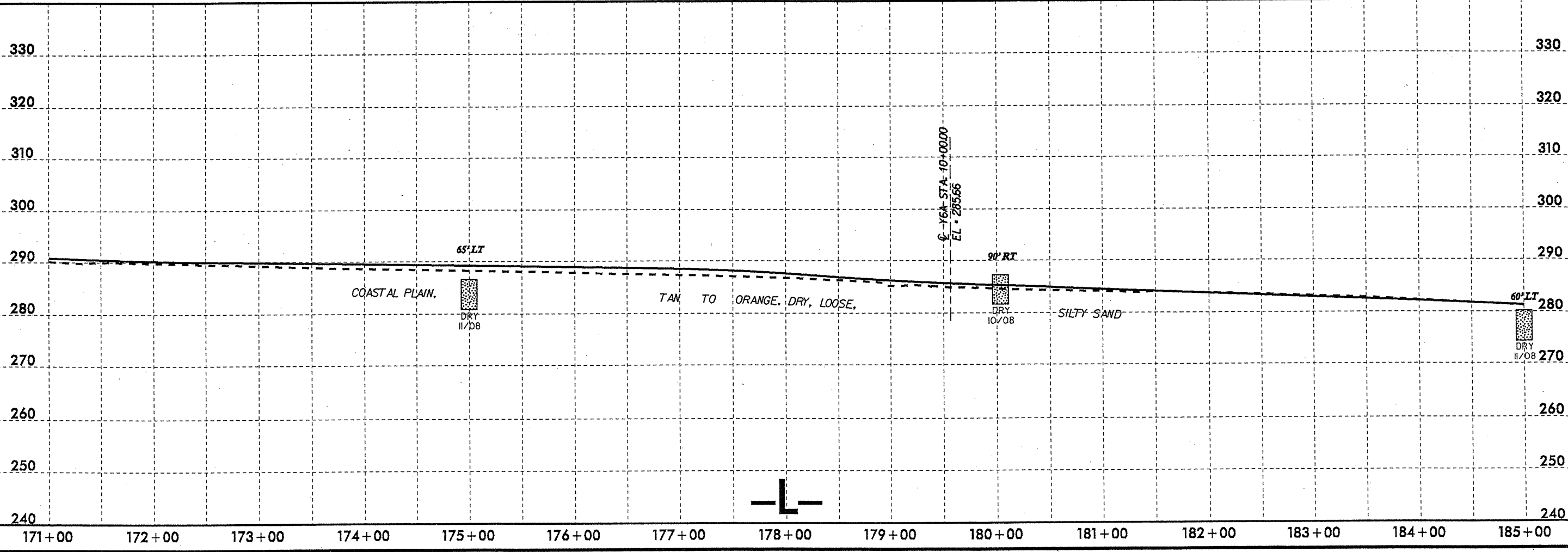


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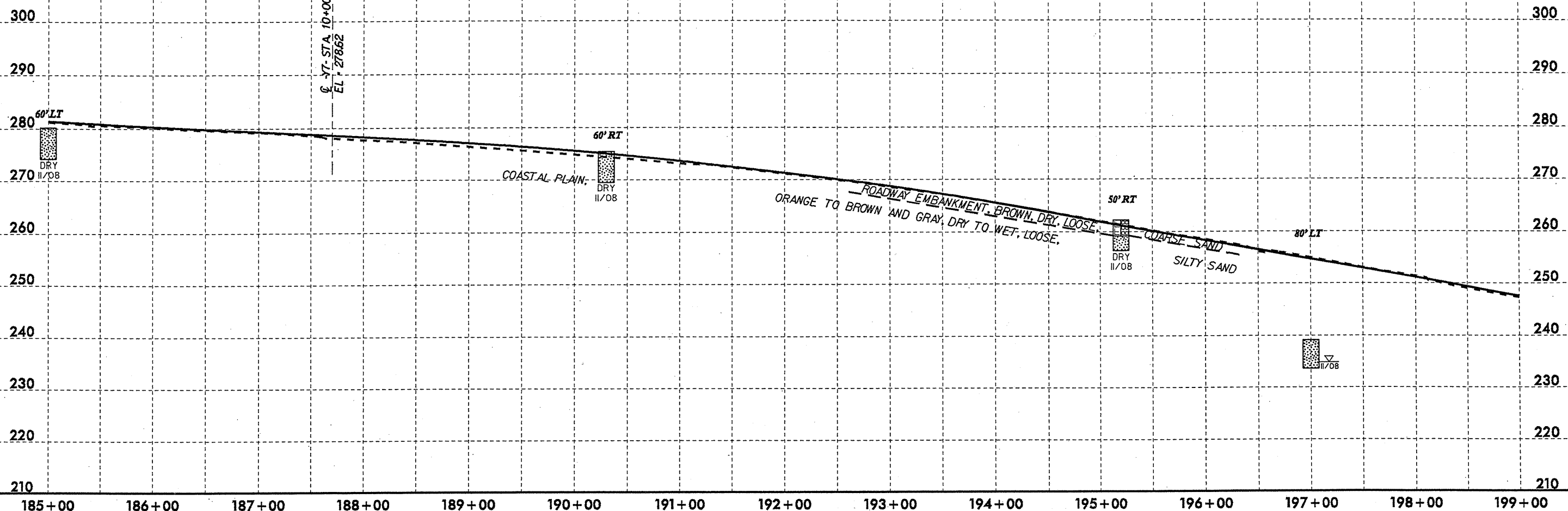
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U-4444B	10



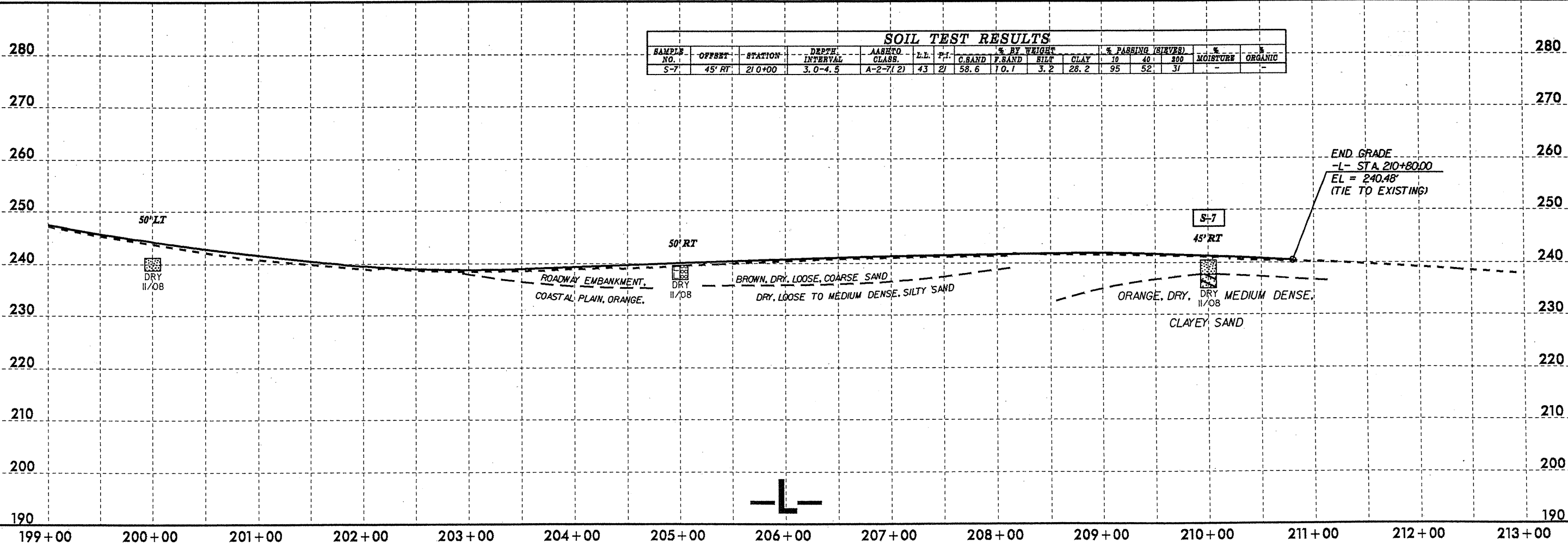
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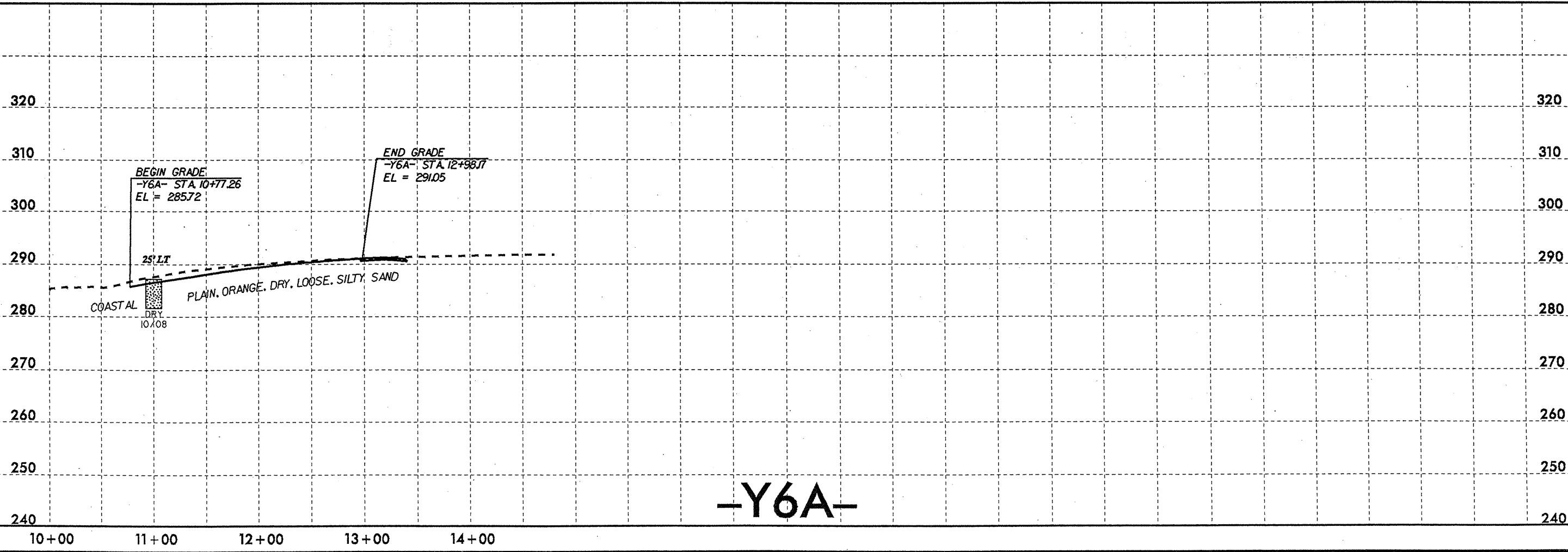
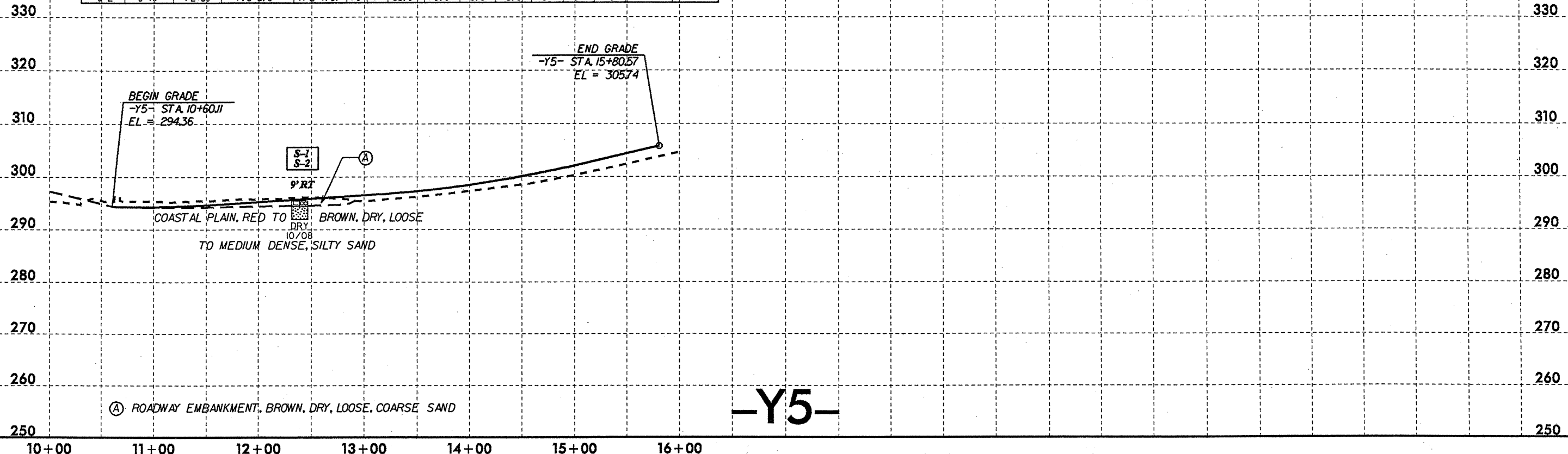
SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
S-7	45' RT	210+00	3.0-4.5	A-2-7(2)	43	21	58.6	10.1	3.2	28.2	95	52	31	-	-



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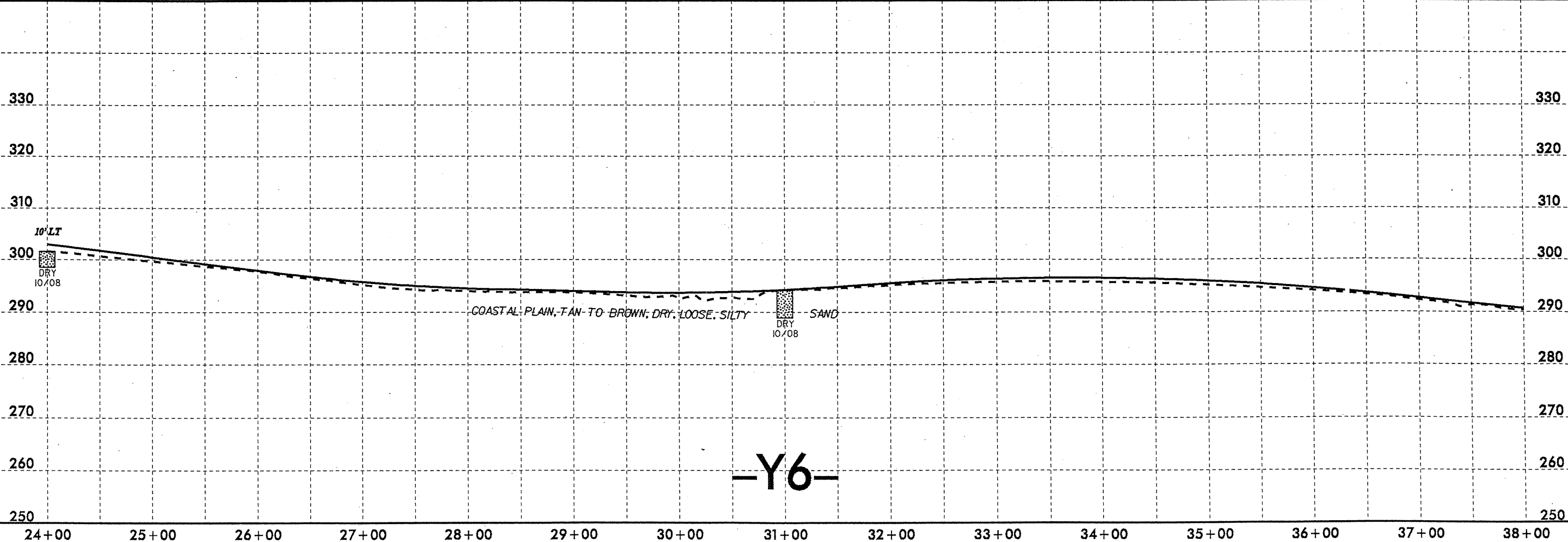
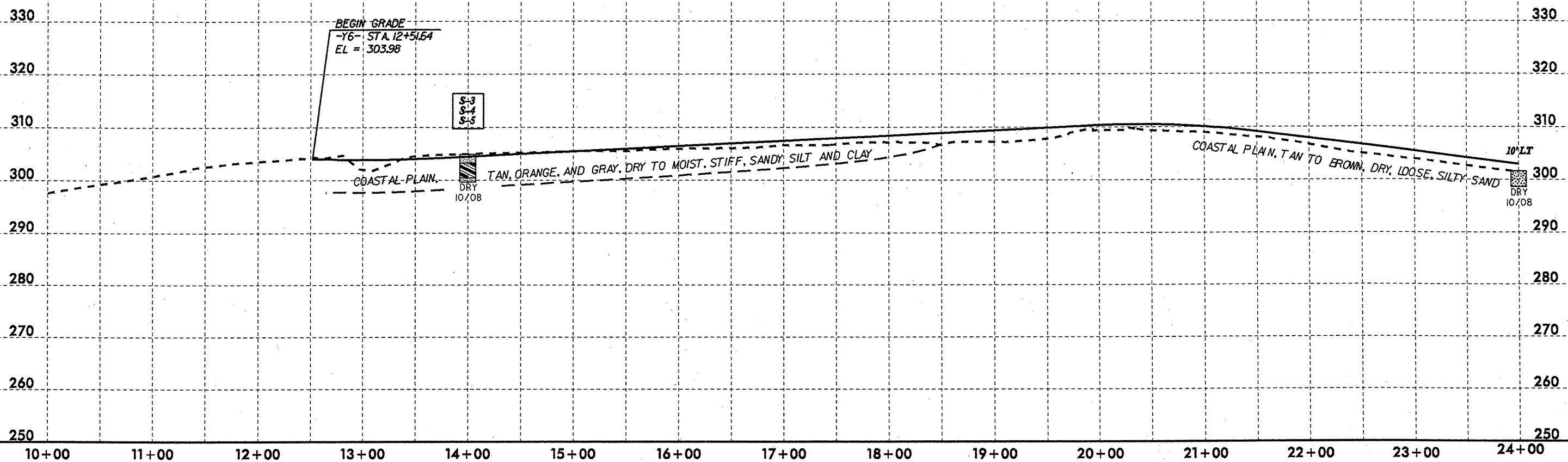
SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	LABRTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							G.SAND	F.SAND	SILT	CLAY	10	40	800		
S-1	9' RT	12+39	0.0-1.0	A-1-b(0)	15	NP	65.6	24.9	2.3	7.1	89	50	10	-	-
S-2	9' RT	12+39	1.5-3.0	A-2-4(0)	18	4	63.9	19.9	0.9	15.3	91	54	16	-	-



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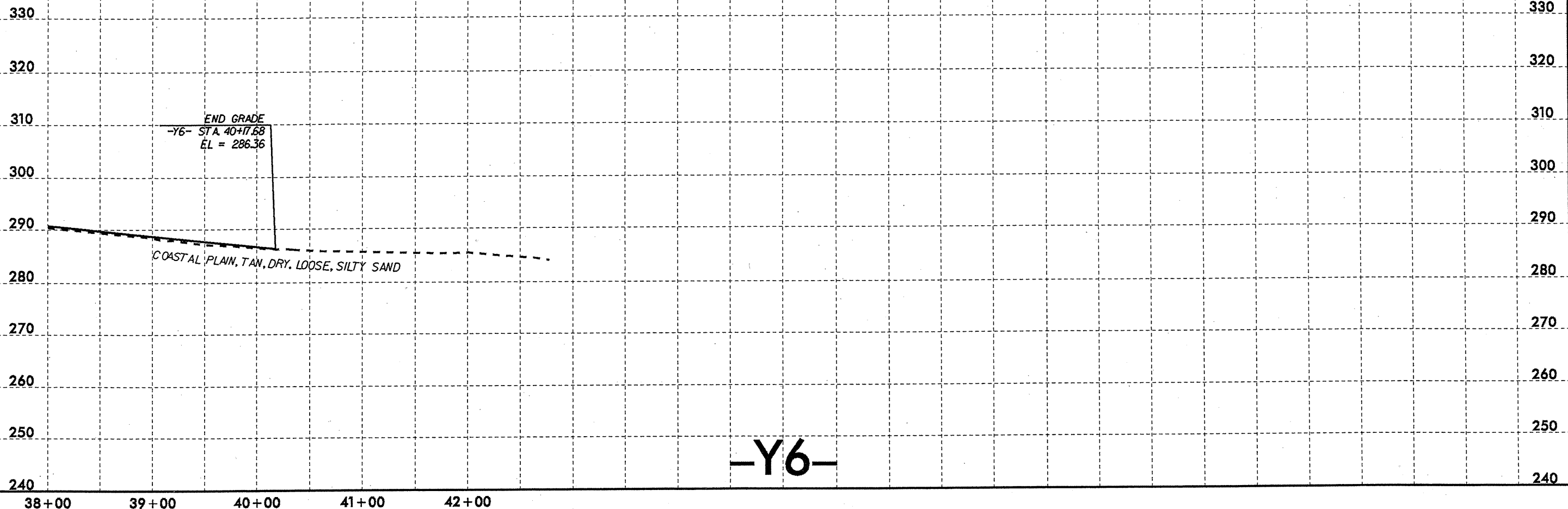
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SOIL TEST RESULTS														
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.L.	% BY WEIGHT				% PASSING (SIEVES)		% MOISTURE	% ORGANIC
							G. SAND	F. SAND	SILT	CLAY	10	40		
S-3	20' LT	14+00	0.5-1.5	A-4(0)	13	3	22.4	33.2	22.7	22.4	100	89	52	-
S-4	20' LT	14+00	2.0-3.5	A-6(8)	30	15	12.6	24.4	24.3	38.7	100	93	69	-
S-5	20' LT	14+00	4.5-5.3	A-4(0)	21	6	21.8	38.7	19.2	20.3	100	88	49	-



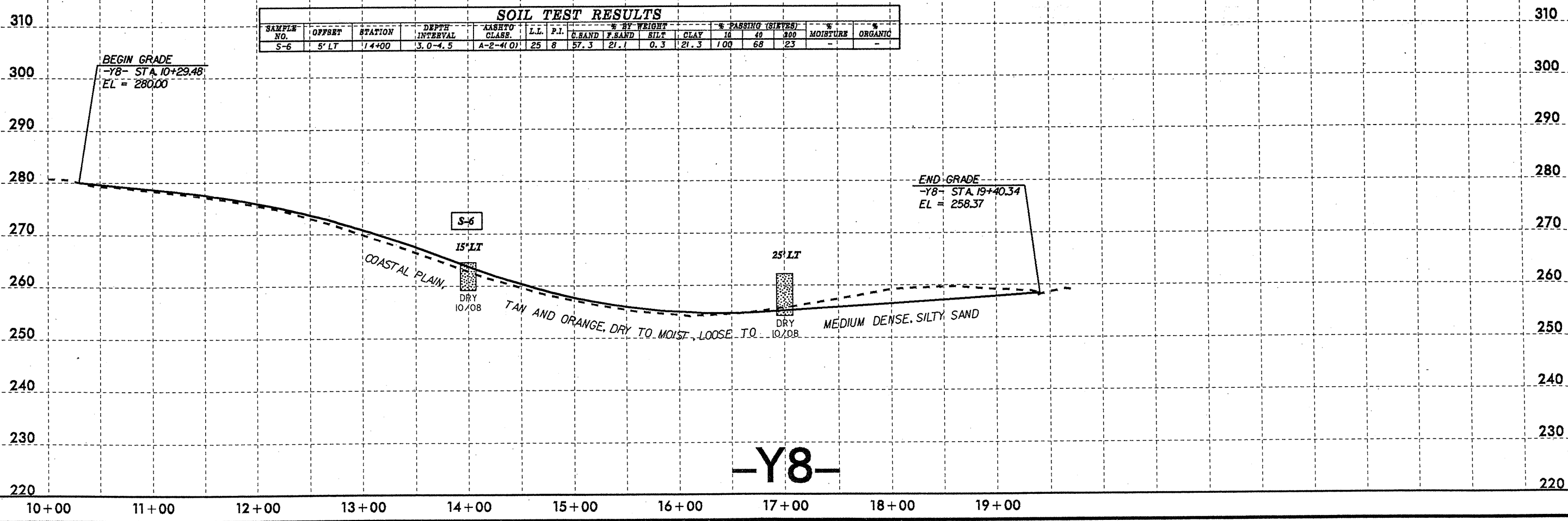
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-Y6-

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	% BY WEIGHT					% PASSING (SIEVES)			% MOISTURE	% ORGANIC	
					L.L.	P.I.	C.SAND	F.SAND	SILT	CLAY	10	40			200
S-6	5' LT	14+00	3.0-4.5	A-2-4(0)	25	8	57.3	21.1	0.3	21.3	100	68	23	-	-



-Y8-

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CONTRACT: C202826 ID: U-4444AB

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.	36492.1.2	1	49
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
36492.1.2	STP-210(11)	P.E.	
		RW & UTIL.	

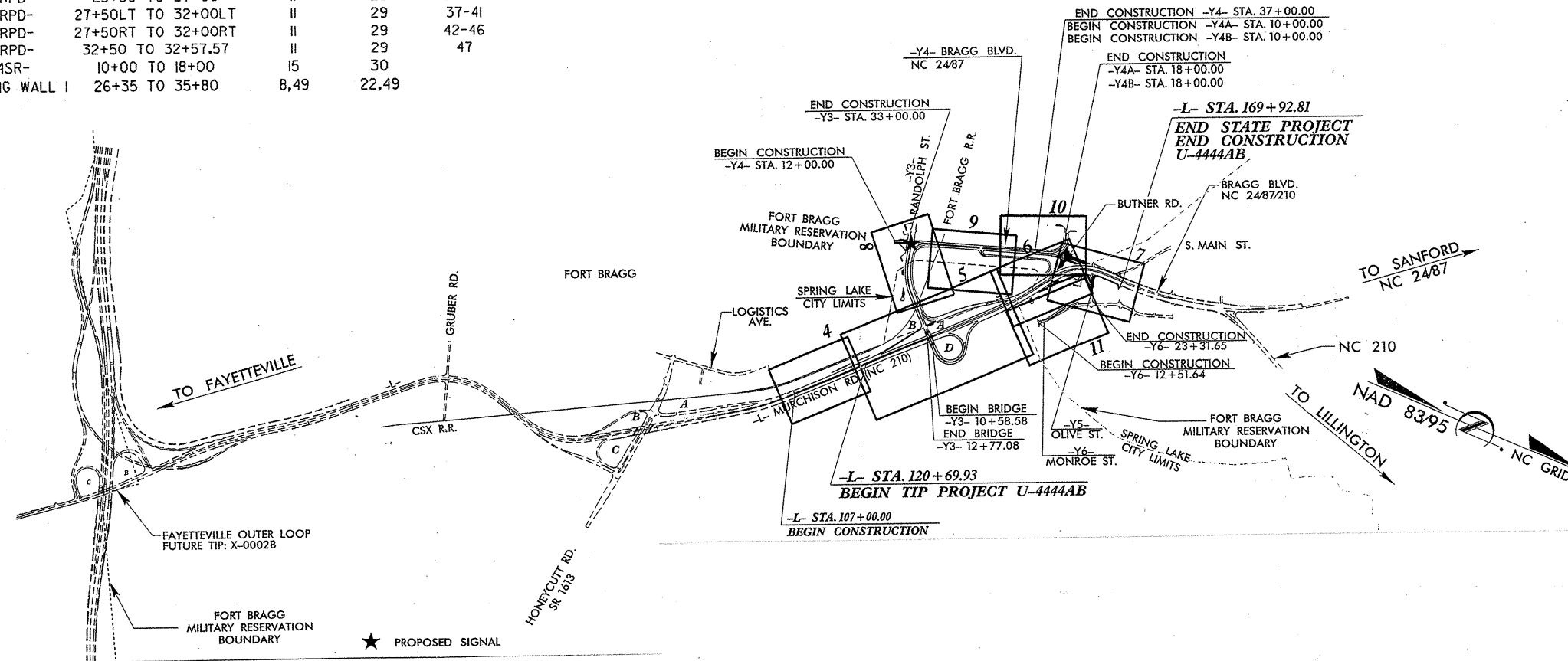
CONTENTS

LINE	STATION	PLAN	PROFILE	XSECT
-L-	24+06.77 TO 124+50	4-11	16-19	
-L-	124+50 TO 127+50	11	19-20	31-32
-L-	127+50 TO 158+00	11-12	20-21	
-L-	158+00 TO 160+00	12	21	33-34
-Y2-	13+00 TO 39+00	8,13	22-23	
-Y2RPA-	10+00 TO 35+36.45	8-10	24	
-Y2RPB-	10+00 TO 27+25.91	7-8	25	
-Y2LPC-	10+00 TO 19+82.58	8	23	
-Y2RPC-	10+00 TO 27+73.95	7-8	26	
-Y3-	10+00 TO 10+50	11	27	48
-Y3-	10+50 TO 33+00	11,14	27	
-Y3RPA-	10+00 TO 31+33.85	11-12	28	
-Y3RPAA-	10+00 TO 15+04.24	11		
-Y3RPB-	10+00 TO 14+30.6	11		
-Y3RPB-	14+30.6 TO 17+34.87	11		31-32
-Y3RPB-	17+34.87 TO 22+75.14	11		
-Y3LPD-	10+00 TO 18+55.15	11	30	
-Y3LPD-	18+55.15	11	30	36
-Y3LPD-	18+96.57 TO 23+59.88	11	30	41-47
-Y3RPD-	10+00 TO 25+50	11	29	
-Y3RPD-	25+50 TO 27+00	11	29	35-36
-Y3RPD-	27+50LT TO 32+00LT	11	29	37-41
-Y3RPD-	27+50RT TO 32+00RT	11	29	42-46
-Y3RPD-	32+50 TO 32+57.57	11	29	47
-Y4SR-	10+00 TO 18+00	15	30	
RETAINING WALL I	26+35 TO 35+80	8,49	22,49	

ROADWAY SUBSURFACE INVESTIGATION

PROJ. REFERENCE NO. 36492.1.2 (U-4444AA&AB) F.A. PROJ. STP-210(11)
 COUNTY CUMBERLAND
 PROJECT DESCRIPTION NC 210 (MURCHISON RD.) FROM
FAYETTEVILLE OUTER LOOP (X-0002B) TO BUTNER RD. IN
SPRING LAKE

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 (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.

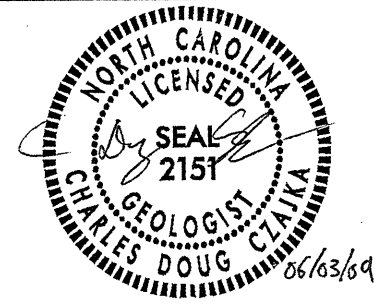
THE BIDDER OR CONTRACTOR IS CAUTIONED THAT DETAILS SHOWN ON THE SUBSURFACE PLANS ARE PRELIMINARY ONLY AND IN MANY CASES THE FINAL DESIGN DETAILS ARE DIFFERENT. FOR BIDDING AND CONSTRUCTION PURPOSES, REFER TO THE CONSTRUCTION PLANS AND DOCUMENTS FOR FINAL DESIGN INFORMATION ON THIS PROJECT. THE DEPARTMENT 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.

SUBTEC PERSONNEL
R.L. BUNKER
S.I. BUTREJ

NC DOT PERSONNEL
C.D. CZAJKA
J.R. MATULA
N.D. MOHS

INVESTIGATED BY **G.D. CZAJKA**
 CHECKED BY **N.T. ROBERSON**
 SUBMITTED BY **N.T. ROBERSON**
 DATE **DECEMBER 2008**

This inventory is for U-4444A, which includes U-4444AA and U-4444AB. Please refer to the respective portions for your needs.



DRAWN BY: **C.D. CZAJKA & T.T. WALKER**

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

NOTE - BY HAVING REQUESTED THIS INFORMATION THE CONTRACTOR SPECIFICALLY WAIVES ANY CLAIMS FOR INCREASED COMPENSATION OR EXTENSION OF TIME BASED ON DIFFERENCES BETWEEN THE CONDITIONS INDICATED HEREIN AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

PROJECT REFERENCE NO. 36492.I.2 (U-4444A)	SHEET NO. 2
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SUBSURFACE INVESTIGATION

SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

SOIL DESCRIPTION		GRADATION		ROCK DESCRIPTION		TERMS AND DEFINITIONS																																																																																																																																																																																		
<p>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. EXAMPLES:</p> <p style="font-size: small;">VERY STIFF, GRM, SFTY CLM, MUST WITH INTERBEDDED FINE SAND LAYERS, HMBY PLASTIC, A-7-6</p>		<p>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.</p> <p style="text-align: center;">ANGULARITY OF GRAINS</p> <p>THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TERMS: ANGULAR, SUBANGULAR, SUBROUNDED, OR ROUNDED.</p>		<p>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:</p>		<p>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 (SROD) - 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.</p>																																																																																																																																																																																		
<p style="text-align: center;">SOIL LEGEND AND AASHTO CLASSIFICATION</p> <table border="1" style="width: 100%; border-collapse: collapse; font-size: x-small;"> <tr> <th rowspan="2">GENERAL CLASS.</th> <th colspan="7">GRANULAR MATERIALS (≤ 35% PASSING #200)</th> <th colspan="7">SILT-CLAY MATERIALS (> 35% PASSING #200)</th> <th colspan="3">ORGANIC MATERIALS</th> </tr> <tr> <th>A-1</th><th>A-1-b</th><th>A-3</th><th>A-2-4</th><th>A-2-5</th><th>A-2-6</th><th>A-2-7</th> <th>A-4</th><th>A-5</th><th>A-6</th><th>A-7</th> <th>A-1, A-2</th><th>A-3</th><th>A-4, A-5</th><th>A-6, A-7</th> <th>A-1, A-2</th><th>A-3</th><th>A-4, A-5</th> </tr> <tr> <td>SYMBOL</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td> <td></td><td></td><td></td><td></td> <td></td><td></td><td></td><td></td> <td></td><td></td><td></td> </tr> <tr> <td>% PASSING</td> <td>10</td><td>10</td><td>10</td><td>10</td><td>10</td><td>10</td><td>10</td> <td>10</td><td>10</td><td>10</td><td>10</td> <td>10</td><td>10</td><td>10</td><td>10</td> <td>10</td><td>10</td><td>10</td> </tr> <tr> <td>LIQUID LIMIT</td> <td>50</td><td>50</td><td>50</td><td>50</td><td>50</td><td>50</td><td>50</td> <td>50</td><td>50</td><td>50</td><td>50</td> <td>50</td><td>50</td><td>50</td><td>50</td> <td>50</td><td>50</td><td>50</td> </tr> <tr> <td>PLASTIC INDEX</td> <td>6</td><td>6</td><td>6</td><td>6</td><td>6</td><td>6</td><td>6</td> <td>6</td><td>6</td><td>6</td><td>6</td> <td>6</td><td>6</td><td>6</td><td>6</td> <td>6</td><td>6</td><td>6</td> </tr> <tr> <td>GROUP INDEX</td> <td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td> <td>0</td><td>0</td><td>0</td><td>0</td> <td>0</td><td>0</td><td>0</td><td>0</td> <td>0</td><td>0</td><td>0</td> </tr> <tr> <td>USUAL TYPES OF MAJOR MATERIALS</td> <td>STONE FRAGS, GRAVEL, AND SAND</td><td>FINE SAND</td><td>SILT OR CLAYEY GRAVEL AND SAND</td><td>SILT OR CLAYEY GRAVEL AND SAND</td><td>SILT OR CLAYEY GRAVEL AND SAND</td><td>SILT OR CLAYEY GRAVEL AND SAND</td><td>SILT OR CLAYEY GRAVEL AND SAND</td> <td>SILT OR CLAYEY GRAVEL AND SAND</td><td>SILT OR CLAYEY GRAVEL AND SAND</td><td>SILT OR CLAYEY GRAVEL AND SAND</td><td>SILT OR CLAYEY GRAVEL AND SAND</td> <td>SILT OR CLAYEY GRAVEL AND SAND</td><td>SILT OR CLAYEY GRAVEL AND SAND</td><td>SILT OR CLAYEY GRAVEL AND SAND</td><td>SILT OR CLAYEY GRAVEL AND SAND</td> <td>SILT OR CLAYEY GRAVEL AND SAND</td><td>SILT OR CLAYEY GRAVEL AND SAND</td><td>SILT OR CLAYEY GRAVEL AND SAND</td> </tr> <tr> <td>GENERAL RATING AS A SUBGRADE</td> <td colspan="7">EXCELLENT TO GOOD</td> <td colspan="4">FAIR TO POOR</td> <td colspan="3">FAIR TO POOR</td> <td colspan="3">POOR</td> <td colspan="3">UNSATURATED</td> </tr> </table> <p style="font-size: x-small;">PI OF A-7-5 SUBGROUP IS ≤ LL - 30 ; PI OF A-7-6 SUBGROUP IS > LL - 30</p>		GENERAL CLASS.	GRANULAR MATERIALS (≤ 35% PASSING #200)							SILT-CLAY MATERIALS (> 35% PASSING #200)							ORGANIC MATERIALS			A-1	A-1-b	A-3	A-2-4	A-2-5	A-2-6	A-2-7	A-4	A-5	A-6	A-7	A-1, A-2	A-3	A-4, A-5	A-6, A-7	A-1, A-2	A-3	A-4, A-5	SYMBOL																			% PASSING	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	LIQUID LIMIT	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	PLASTIC INDEX	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	GROUP INDEX	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	USUAL TYPES OF MAJOR MATERIALS	STONE FRAGS, GRAVEL, AND SAND	FINE SAND	SILT OR CLAYEY GRAVEL AND SAND	SILT OR CLAYEY GRAVEL AND SAND	SILT OR CLAYEY GRAVEL AND SAND	SILT OR CLAYEY GRAVEL AND SAND	SILT OR CLAYEY GRAVEL AND SAND	SILT OR CLAYEY GRAVEL AND SAND	SILT OR CLAYEY GRAVEL AND SAND	SILT OR CLAYEY GRAVEL AND SAND	SILT OR CLAYEY GRAVEL AND SAND	SILT OR CLAYEY GRAVEL AND SAND	SILT OR CLAYEY GRAVEL AND SAND	SILT OR CLAYEY GRAVEL AND SAND	SILT OR CLAYEY GRAVEL AND SAND	SILT OR CLAYEY GRAVEL AND SAND	SILT OR CLAYEY GRAVEL AND SAND	SILT OR CLAYEY GRAVEL AND SAND	GENERAL RATING AS A SUBGRADE	EXCELLENT TO GOOD							FAIR TO POOR				FAIR TO POOR			POOR			UNSATURATED			<p style="text-align: center;">MINERALOGICAL COMPOSITION</p> <p>MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHENEVER THEY ARE CONSIDERED OF SIGNIFICANCE.</p>		<p style="text-align: center;">COMPRESSIBILITY</p> <p>SLIGHTLY COMPRESSIBLE LIQUID LIMIT LESS THAN 31 MODERATELY COMPRESSIBLE LIQUID LIMIT EQUAL TO 31-50 HIGHLY COMPRESSIBLE LIQUID LIMIT GREATER THAN 50</p>		<p style="text-align: center;">WEATHERED ROCK (WR)</p> <p>NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT N VALUES > 100 BLOWS PER FOOT IF TESTED.</p>		<p style="text-align: center;">CRYSTALLINE ROCK (CR)</p> <p>FINE TO COARSE GRAIN IGNEOUS AND METAMORPHIC ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES GRANITE, GNEISS, GABBRO, SCHIST, ETC.</p>		<p style="text-align: center;">NON-CRYSTALLINE ROCK (NCR)</p> <p>FINE TO COARSE GRAIN METAMORPHIC AND NON-COASTAL PLAIN SEDIMENTARY ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES PHYLLITE, SLATE, SANDSTONE, ETC.</p>		<p style="text-align: center;">COASTAL PLAIN SEDIMENTARY ROCK (CP)</p> <p>COASTAL PLAIN SEDIMENTS CEMENTED INTO ROCK, BUT MAY NOT YIELD SPT REFUSAL. ROCK TYPE INCLUDES LIMESTONE, SANDSTONE, CEMENTED SHELL BEDS, ETC.</p>	
GENERAL CLASS.	GRANULAR MATERIALS (≤ 35% PASSING #200)							SILT-CLAY MATERIALS (> 35% PASSING #200)							ORGANIC MATERIALS																																																																																																																																																																									
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USUAL TYPES OF MAJOR MATERIALS	STONE FRAGS, GRAVEL, AND SAND	FINE SAND	SILT OR CLAYEY GRAVEL AND SAND	SILT OR CLAYEY GRAVEL AND SAND	SILT OR CLAYEY GRAVEL AND SAND	SILT OR CLAYEY GRAVEL AND SAND	SILT OR CLAYEY GRAVEL AND SAND	SILT OR CLAYEY GRAVEL AND SAND	SILT OR CLAYEY GRAVEL AND SAND	SILT OR CLAYEY GRAVEL AND SAND	SILT OR CLAYEY GRAVEL AND SAND	SILT OR CLAYEY GRAVEL AND SAND	SILT OR CLAYEY GRAVEL AND SAND	SILT OR CLAYEY GRAVEL AND SAND	SILT OR CLAYEY GRAVEL AND SAND	SILT OR CLAYEY GRAVEL AND SAND	SILT OR CLAYEY GRAVEL AND SAND	SILT OR CLAYEY GRAVEL AND SAND																																																																																																																																																																						
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VERY CLOSE	LESS THAN 0.16 FEET	THICKLY LAMINATED	0.008 - 0.03 FEET																																																																																																																																																																																					
		THINLY LAMINATED	< 0.008 FEET																																																																																																																																																																																					
<p style="text-align: center;">PLASTICITY</p> <table border="1" style="width: 100%; border-collapse: collapse; font-size: x-small;"> <tr> <th>NONPLASTIC</th> <th>PLASTICITY INDEX (PI)</th> <th>DRY STRENGTH</th> </tr> <tr> <td>LOW PLASTICITY</td> <td>0-5</td> <td>VERY LOW</td> </tr> <tr> <td>MED. PLASTICITY</td> <td>6-15</td> <td>SLIGHT</td> </tr> <tr> <td>HIGH PLASTICITY</td> <td>16-25</td> <td>MEDIUM</td> </tr> <tr> <td></td> <td>26 OR MORE</td> <td>HIGH</td> </tr> </table>		NONPLASTIC	PLASTICITY INDEX (PI)	DRY STRENGTH	LOW PLASTICITY	0-5	VERY LOW	MED. PLASTICITY	6-15	SLIGHT	HIGH PLASTICITY	16-25	MEDIUM		26 OR MORE	HIGH	<p style="text-align: center;">COLOR</p> <p>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.</p>		<p style="text-align: center;">BENCH MARK:</p> <p style="text-align: right;">ELEVATION: _____ FT.</p> <p>NOTES:</p>																																																																																																																																																																					
NONPLASTIC	PLASTICITY INDEX (PI)	DRY STRENGTH																																																																																																																																																																																						
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See Sheet 1-A For Index of Sheets
See Sheet 1-B For Conventional Symbols

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

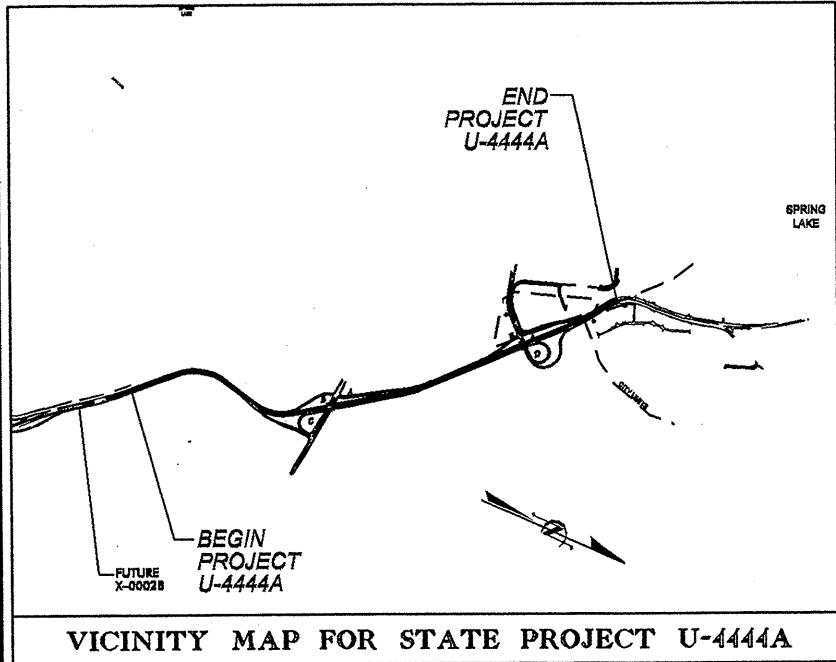
CUMBERLAND COUNTY

LOCATION: NC 210 (MURCHISON ROAD) FROM FAYETTEVILLE OUTER LOOP
TO BUTNER RD.

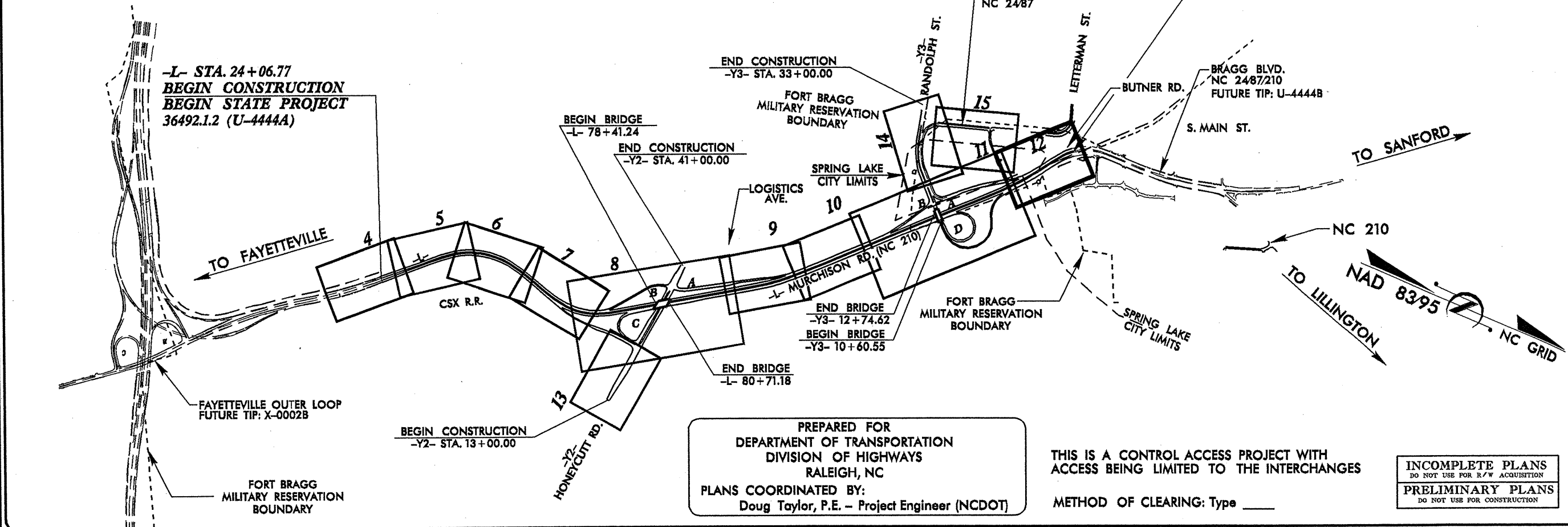
TYPE OF WORK: GRADING, DRAINAGE, PAVING, SIGNALS, AND STRUCTURES

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-4444A	2A	49
STATE PROJ. NO.	P.A. PROJ. NO.	DESCRIPTION	
36492.1.2	STP-210(II)	PE	

TIP PROJECT: U-4444A



25% PLANS

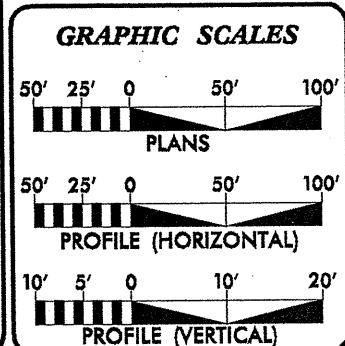


PREPARED FOR
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, NC
PLANS COORDINATED BY:
Doug Taylor, P.E. - Project Engineer (NCDOT)

THIS IS A CONTROL ACCESS PROJECT WITH
ACCESS BEING LIMITED TO THE INTERCHANGES
METHOD OF CLEARING: Type _____

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

CONTRACT:



DESIGN DATA

ADT 2005 =	45,400
ADT 2035 =	77,000
DHV =	11 %
D =	55 %
T =	6 % *
V =	60 MPH
* TTST 2% DUAL 4%	
FUNC. CLASS. =	URBAN FREEWAY

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT U-4444A =	2.530 Miles
LENGTH STRUCTURES TIP PROJECT U-4444A =	0.044 Miles
TOTAL LENGTH STATE TIP PROJECT U-4444A =	2.574 Miles

Prepared In the Office of:
LOCHNER
H. W. LOCHNER, INC.
2840 PLAZA PLACE, SUITE 202
RALEIGH, NC 27612

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
March 20, 2009

LETTING DATE:
September 15, 2009

BRIAN K. EASON, PE
PROJECT ENGINEER

JEFFREY R. HEXT
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: _____ P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: _____ P.E.

**DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA**

STATE HIGHWAY DESIGN ENGINEER

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AT 05/26/07



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

Michael F. Easley
GOVERNOR

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

Lyndo Tippet
SECRETARY

December 10, 2008

STATE PROJECT: 36492.1.2 (U-4444A)
FEDERAL PROJECT: STP-210(11)
COUNTY: Cumberland
DESCRIPTION: NC 210 (Murchison Rd.) from the Fayetteville Outer Loop (X-0002B) to Butner Rd. in Spring Lake
SUBJECT: Geotechnical Report – Inventory

Project Description

This project consists of widening NC 210 (-L- Sta. 24+06.77 to Sta. 160+00.00) from four lanes with medians and turn lanes to six lanes with medians, turn lanes and grade separated interchanges. The project includes a realignment of Randolph St. to a new grade-separated interchange with Murchison Rd.

The geotechnical field investigation was conducted from August to October of 2008. The majority of the borings were advanced using a Dietrich D-50 Track Mounted Drill Rig with manual hammer provided by Subtec Engineering. Standard Penetration Tests were performed in selected borings and additional borings were advanced using continuous flight augers. Hand augers and sounding rods were also conducted along the project to supplement the drill rig borings. 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 6.45 miles, were investigated.

Line	Station
-L-	24+06.77 to 160+00
-Y2-	13+00 to 41+00
-Y2RPA-	10+00 to 35+36.45
-Y2RPB-	10+00 to 27+25.91
-Y2LPC-	10+00 to 19+82.58
-Y2RPC-	10+00 to 27+73.95
-Y3-	10+00 to 33+00
-Y3RPA-	10+00 to 31+33.85
-Y3RPAA-	10+00 to 15+04.24
-Y3RPB-	10+00 to 22+75.14

-Y3LPD-	10+00 to 23+59.88
-Y3RPD-	10+00 to 32+57.57
-Y4SR	10+00 to 18+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-	60+00	90 RT
-L-	63+50	140 RT
-L-	78+41	CL
-L-	80+71	CL
-L-	85+50	60 RT
-L-	126+00	130 LT
-Y2RPB-	20+50	CL
-Y3-	12+75	CL
-Y3RPD-	17+00	20 LT
-Y3RPD-	31+50	35 LT
-Y3RPA-	28+00	70 LT

- 2) Highly Organic Soils: Occurrences of highly organic soil (greater than 20% organic material in silt and clay) are noted below:

Line	Station
-Y3-	10+00 to 10+25
-Y3LPD-	18+59 to 23+59.88
-Y3RPD-	26+65 to 32+57.57

- 3) Artificial Fill Soils: Artificial fill was encountered at the following location:

Alignment	Station	Offset
-L-	159+46	18 LT

Physiography and Geology

The project is located in the Coastal Plain of North Carolina on the Fort Bragg Military Reservation. The project corridor consists almost entirely of wooded areas with a few businesses at the end of the project. The terrain is relatively flat. Geologically, the project is located within the Middendorf Formation of the Coastal Plain.

Soil Properties

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

Roadway embankment soils occur beneath the existing -L- and -Y2- alignments on the project. The existing embankments generally range from one to ten feet. Roadway embankment soils are composed of

tan to orange, dry to moist, medium dense to dense, coarse and silty sand (AASHTO classification of A-1-b and A-2-4) as well as gray to orange, moist, medium stiff to very stiff, sandy clay (A-6).

Artificial fill soil was encountered at the end of the project. The area of artificial fill is located at the intersection of NC 210 (Murchison Rd.) and NC 87 (Bragg Blvd.). The fill consists of red-brown, medium dense, dry, coarse sand (A-1-b), gravel, and construction debris including concrete.

The alluvial soils consist primarily of gray and brown, moist to saturated, loose to medium dense, fine to clayey sand (A-3, A-2-4, A-2-6). Alluvial soils encountered in the swamp along -Y3LPD- and -Y3RPD- include gray to black, wet to saturated, very soft to soft, medium plastic, muck (A-7-6, A-5) as well as gray, moist to wet, very soft to medium stiff, highly plastic, silty clay (A-7-6).

Coastal plain soils underlie the majority of the project area. The coastal plain soils are primarily granular soils with good engineering properties. These soils are orange, gray and white, dry to wet, loose to dense, coarse to clayey sands (A-1-b, A-3, A-2-4, and A-2-5). Gray, moist, medium stiff to hard, sandy and silty clay (A-7-6, A-6) was also encountered at depths of 7' to 42' from the existing ground surface.

Groundwater

Groundwater on the project was encountered primarily in borings that contained alluvial soils. Groundwater in these areas was generally shallow, ranging from surface water to 4.9' below the ground surface.

Prepared by,



C. Doug Czajka
Engineering Geologist

Earthwork Balance Sheet

Volumes in Cubic Yards

PROJECT: U-4444AB/B

COUNTY: Cumberland

DATE: 10-Jul-12

COMPILED BY: BKE (LOCHNER)

SHEET ___ OF ___ SHEETS

STATION	STATION	EXCAVATION					EMBANKMENT				BORROW	WASTE			
		TOTAL UNCLASS.	ROCK	UNDERCUT	UNSUIT. UNCLASS.	SUITABLE UNCLASS.	TOTAL	ROCK	EARTH	EMBANK. +25%		ROCK	SUITABLE	UNSUIT.	TOTAL
SUMMARY #1 PHASE 1															
-L- RT 107+00	125+00	1,778			49	1,729	25,796		25,796	32,245	30,516			49	49
SUMMARY #1	SUBTOTAL	1,778			49	1,729	25,796		25,796	32,245	30,516			49	49
SUMMARY #2 PHASE 1															
-L- RT 125+00	151+50	8,116			500	7,616	20,960		20,960	26,200	18,584			500	500
-Y3- 10+00	10+58.58 (BEGIN BRIDGE)			632			15,473		15,473	19,341	19,341			632	632
-Y3LPD- 13+00	23+50	13,022		38,703		13,022	153,938		153,938	192,423	179,401			38,703	38,703
-Y3RPD M 13+00	16+00	5,618				5,618						5,618			5,618
Y3- 12+77.08 (END BRIDGE)	17+50	35				35	25,226		25,226	31,533	31,498				
-Y3RPB- 14+81 (-L- 125+00)	21+92 (-L- 132+00)	3,954				3,954	6,343		6,343	7,929	3,975				
-Y3RPA 14+50	29+50	10,294				10,294	21,108		21,108	26,385	16,091				
Y3RPAA- 10+00 (-Y3RPA 24+50)	14+59 (Y3RPA 28+50)	652				652	11,173		11,173	13,966	13,314				
	SUBTOTAL	41,691		39,335	500	41,191	254,221		254,221	317,776	282,203		5,618	39,835	45,453
SUMMARY #3 Phase 1															
-Y3- 17+50	32+65	2,344				2,344	32,572		32,572	40,715	38,371				
-Y4- 15+50	37+00	2,578				2,578	1,334		1,334	1,668		911		911	
-Y4SRREV- 10+50	25+35	10,183				10,183	8		8	10		10,173		10,173	
	SUBTOTAL	15,105				15,105	33,914		33,914	42,393	38,371		11,084		11,084
SUMMARY #4 Phase 1															
-L- LT 151+50	156+50	1,028				1,028	353		353	441			587		587
	SUBTOTAL	1,028				1,028	353		353	441			587		587
SUMMARY #5 Phase 1															
-L- 158+50	163+00	579		1,186		579	28,619		28,619	35,774	35,195			1,186	1,186
	SUBTOTAL	579		1,186		579	28,619		28,619	35,774	35,195			1,186	1,186
SUMMARY #6 Phase 1															
-Y6- 12+52	23+32	339				339	2,010		2,010	2,513	2,174				
-Y6- 23+32	46+00	597				597	8,623		8,623	10,779	10,182				
-Y6C- 11+00	13+01.10 (BEGIN BRIDGE)						8,499		8,499	10,624	10,624				
Y6C- 14+72.85 (END BRIDGE)	17+50.00						9,635		9,635	12,044	12,044				
-Y6C- 18+50	21+00.00	8				8	1,260		1,260	1,575	1,567				
-Y10- 14+00	20+50.00	1				1	11,548		11,548	14,435	14,434				
-Y6R- 10+00	12+82.74						13,890		13,890	17,363	17,363				
-Y10- 22+00	24+50.00						4,288		4,288	5,360	5,360				
-Y10DR3- 10+50	10+75	2				2	67		67	84	82				
-Y3C- 10+50	12+00	29				29						29		29	
	SUBTOTAL	976				976	59,820		59,820	74,775	73,828		29		29
SUMMARY #7 Phase 1															
-Y8- 10+50	19+00.00	1,577				1,577	258		258	323			1,255		1,255
	SUBTOTAL	1,577				1,577	258		258	323			1,255		1,255
SUMMARY #8 Phase 2															
-L- LT 107+00	125+00	3,092				3,092	14,436		14,436	18,045	14,953				
	SUBTOTAL	3,092				3,092	14,436		14,436	18,045	14,953				

Earthwork Balance Sheet

Volumes in Cubic Yards

PROJECT: U-4444AB/B

COUNTY: Cumberland

DATE: 10-Jul-12

COMPILED BY: BKE (LOCHNER)

SHEET ___ OF ___ SHEETS

STATION	STATION	EXCAVATION					EMBANKMENT				BORROW	WASTE						
		TOTAL UNCLASS.	ROCK	UNDERCUT	UNSUIT. UNCLASS.	SUITABLE UNCLASS.	TOTAL	ROCK	EARTH	EMBANK. +25%		ROCK	SUITABLE	UNSUIT.	TOTAL			
SUMMARY #9 Phase 2																		
-L-LT 125+00	151+50	12,317				12,317	24,485		24,485	30,606	18,289							
SUBTOTAL		12,317				12,317	24,485		24,485	30,606	18,289							
SUMMARY #10 Phase 2																		
-L-RT 151+50	158+50	2,033				2,033	1,932		1,932	2,415	382							
-L-LT 156+50	158+50	39				39	890		890	1,113	1,074							
SUBTOTAL		2,072				2,072	2,822		2,822	3,528	1,456							
SUMMARY #11 Phase 2																		
-L-RT 163+00	169+50	498				498	80		80	100				398			398	
-L- 169+50	193+00	990				990	3,097		3,097	3,871	2,881							
-Y5- 10+60	15+81	1,091				1,091	186		186	233				859			859	
-Y7- 11+77.77	15+50	101				101	250		250	313	212							
-Y6A- 11+00	12+50	46				46	35		35	44				2			2	
-Y7A- 10+64.42	12+49.07	12				12	99		99	124	112							
-Y17- 13+00.00	14+50	101				101	12		12	15				86			86	
SUBTOTAL		2,839				2,839	3,759		3,759	4,699	3,205			1,345			1,345	
SUMMARY #12 Phase 2																		
-L- 193+00	210+00	1,068				1,068	4,052		4,052	5,065	3,997							
SUBTOTAL		1,068				1,068	4,052		4,052	5,065	3,997							
SUMMARY #13 Phase 3																		
-L-LT 163+00	169+50	786				786	2,601		2,601	3,251	2,465							
SUBTOTAL		786				786	2,601		2,601	3,251	2,465							
SUMMARY #14 Phase 4																		
-Y3RPB TIE- 10+00	14+50	3,094				3,094	191		191	239				2,855			2,855	
-Y4A- 10+00	18+00	178				178	1,257		1,257	1,571	1,393							
-Y4B- 10+00	18+00	160				160	1,570		1,570	1,963	1,803							
SUBTOTAL		3,432				3,432	3,018		3,018	3,773	3,196			2,855			2,855	
SHEET 2 TOTAL		22,514				22,514	40,737		40,737	50,921	32,607			4,200			4,200	
SHEET 1 TOTAL		65,826		40,521	549	65,277	417,417		417,417	521,771	475,066			18,572	41,070		59,642	
SHEET 1&2 TOTAL		88,340		40,521	549	87,791	458,154		458,154	572,692	507,673			22,772	41,070		63,842	
MATERIAL FOR SHOULDER CONSTRUCTION							13,200		13,200	16,500	16,500							
LOSS DUE TO CLEARING & GRUBBING		-5,150				-5,150					5,150							
ADDITIONAL UNDERCUT				4,300			4,300		4,300	5,375	5,375				4,300		4,300	
ROCK WASTE TO REPLACE BORROW																		
ADJUST FOR ROCK WASTE																		
WASTE IN LIEU OF BORROW											-22,772			-22,772				-22,772
CL III MATERIAL IN LIEU OF BORROW							-44,821		-44,821	-56,026	-56,026							
PROJECT TOTAL		83,190		44,821	549	82,641	430,833		430,833	538,541	455,901				45,370		45,370	
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT											22,795							
GRAND TOTAL		83,190		44,821	549	82,641	430,833		430,833	538,541	478,696				45,370		45,370	
SAY		83,500		45,000							479,000							

NOTE: EARTHWORK QUANTITIES ARE CALCULATED BY THE ROADWAY DESIGN UNIT. THESE EARTHWORK QUANTITIES ARE BASED IN PART ON SUBSURFACE DATA PROVIDED BY THE GEOTECHNICAL ENGINEERING UNIT.

SHALLOW UNDERCUT = 400 CY

GRADE POINT UNDERCUT = 1,150 CY

EST. DDE = 1950 CUBIC YARDS

CONTINGENCY UNDERCUT = 3,150 CY

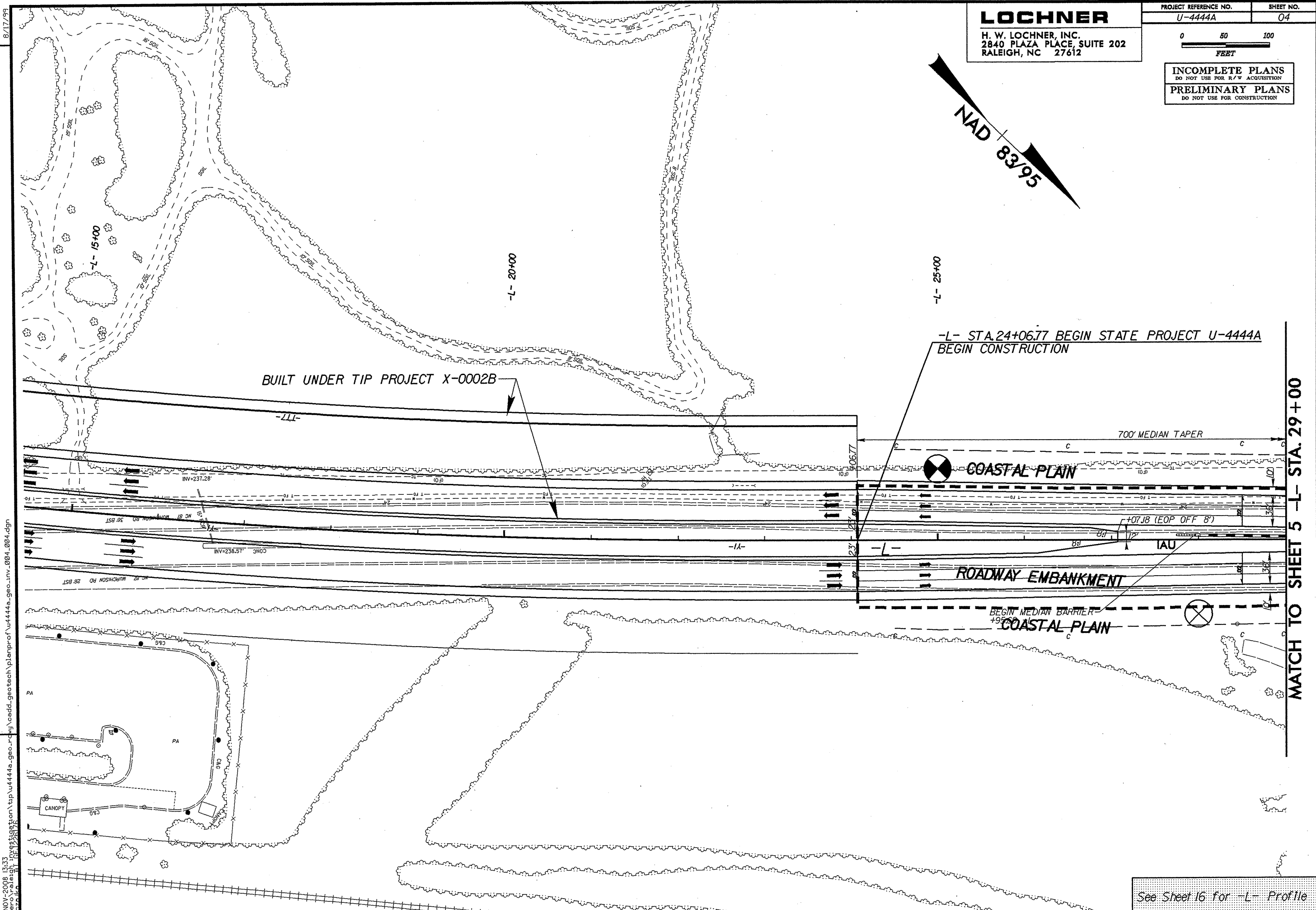
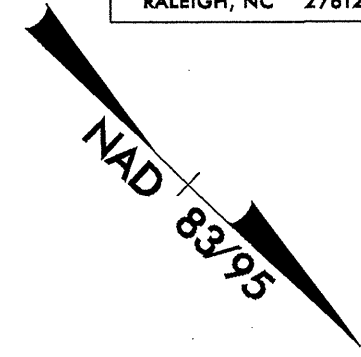
-L-, -Y3-, -Y4-, -Y6-, -Y8- PAVEMENT STRUCTURE VOLUME = 13,600 CY

LOCHNER
 H. W. LOCHNER, INC.
 2840 PLAZA PLACE, SUITE 202
 RALEIGH, NC 27612

PROJECT REFERENCE NO. U-4444A	SHEET NO. 04
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INCOMPLETE PLANS
 DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
 DO NOT USE FOR CONSTRUCTION



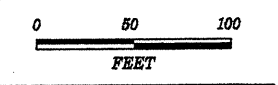
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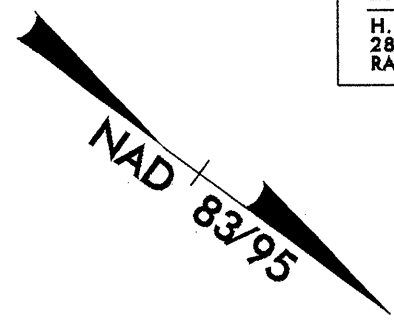
See Sheet 16 for -L- Profile

LOCHNER
 H. W. LOCHNER, INC.
 2840 PLAZA PLACE, SUITE 202
 RALEIGH, NC 27612

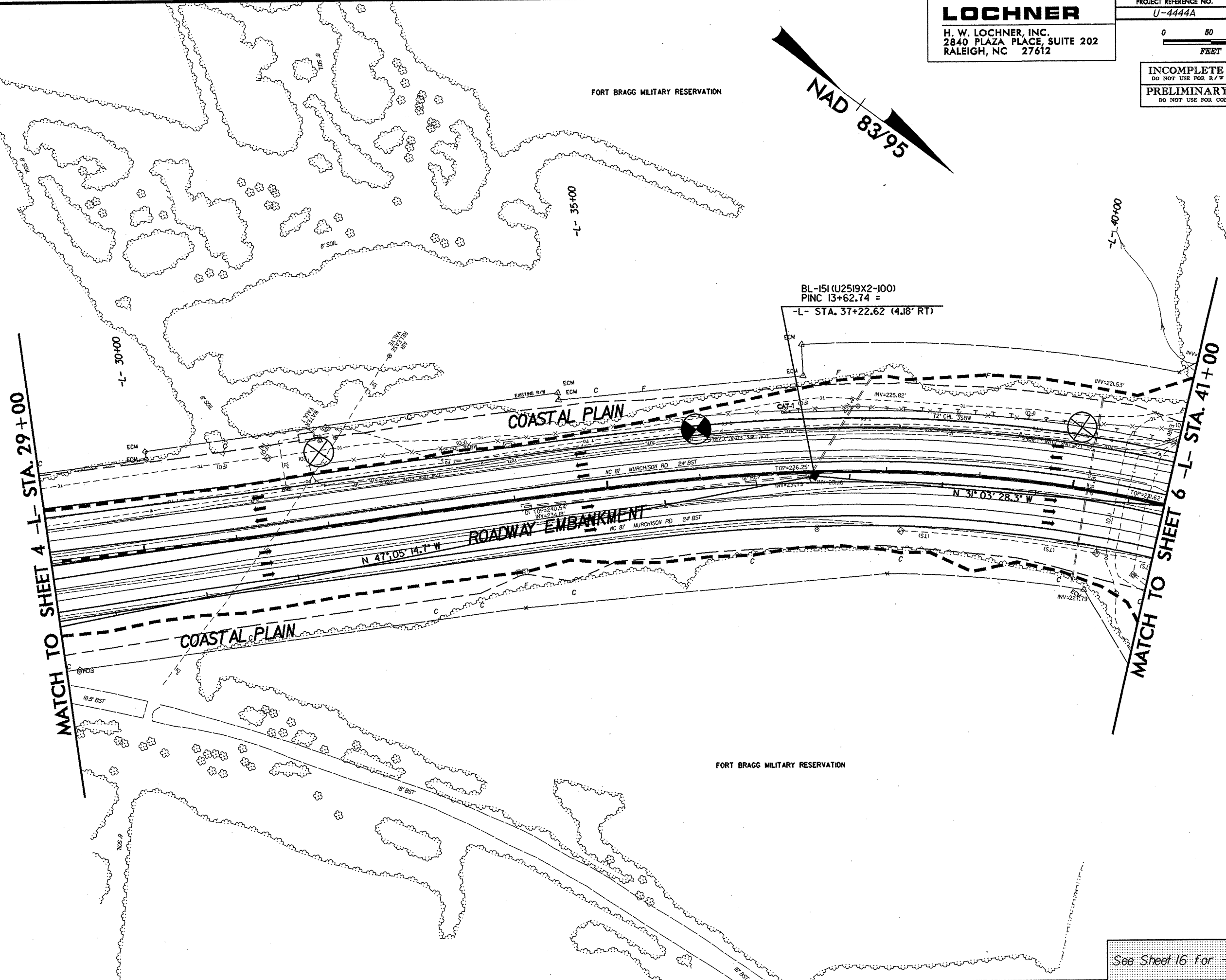
PROJECT REFERENCE NO.	SHEET NO.
U-4444A	05



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



FORT BRAGG MILITARY RESERVATION



MATCH TO SHEET 4 -L- STA. 29+00

MATCH TO SHEET 6 -L- STA. 41+00

BL-151 (U2519X2-100)
 PINC 13+62.74 =
 -L- STA. 37+22.62 (4.18' RT)

COASTAL PLAN

COASTAL PLAN

ROADWAY EMBANKMENT

FORT BRAGG MILITARY RESERVATION

See Sheet 16 for -L- Profile

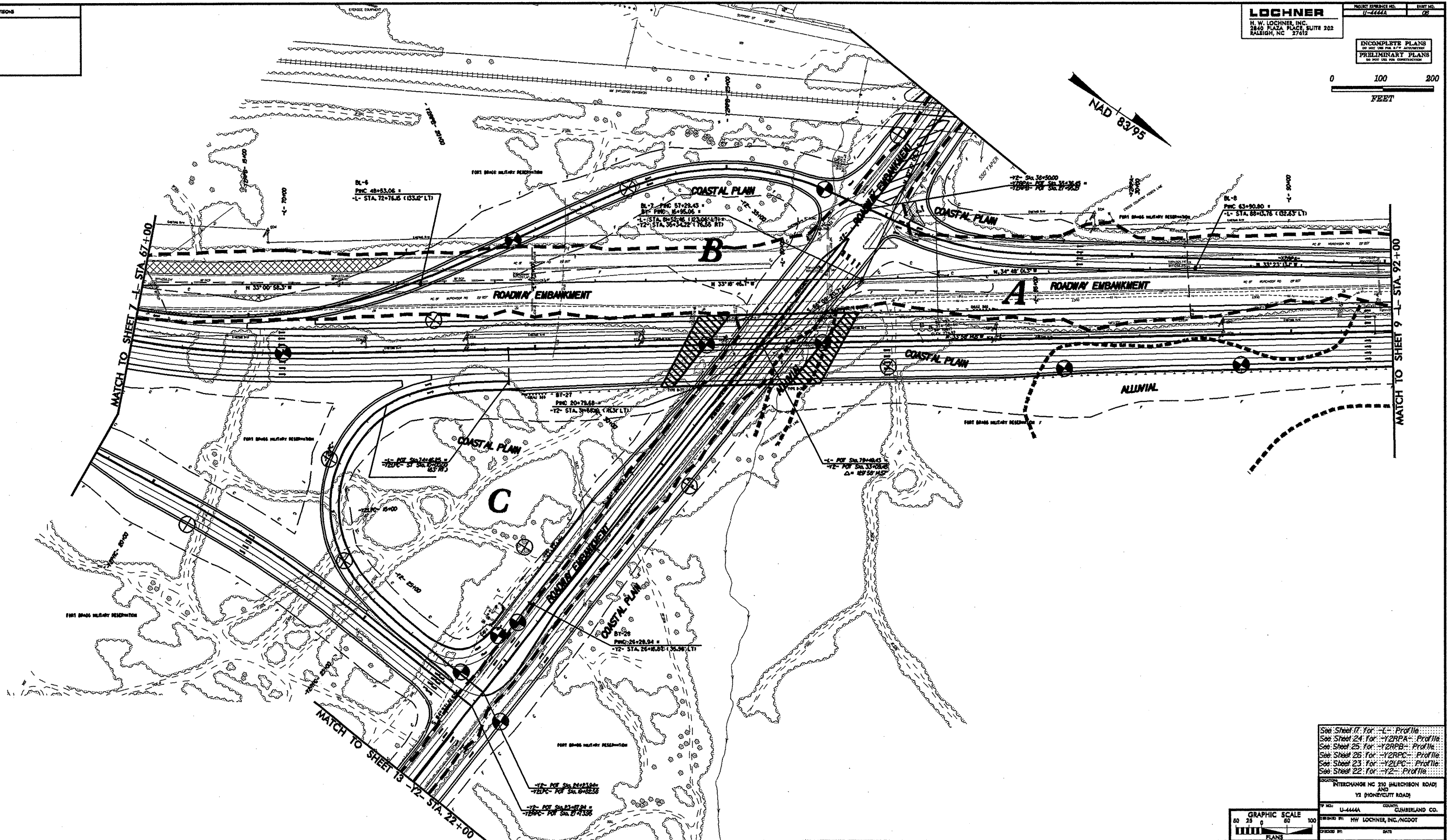
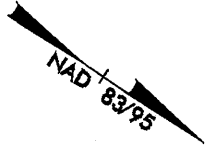
REVISIONS

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LOCHNER
 H. W. LOCHNER, INC.
 2840 BLAZA PLACE, SUITE 202
 RALEIGH, NC 27612

PROJECT NUMBER: U-4444
 SHEET NO. 08

INCOMPLETE PLANS
 PRELIMINARY PLANS
 FOR THE USE OF THE CONTRACTOR



REVISIONS

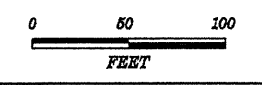
See Sheet 17 for -L- Profile
 See Sheet 24 for -Y2RPA- Profile
 See Sheet 25 for -Y2RPB- Profile
 See Sheet 26 for -Y2RPC- Profile
 See Sheet 23 for -Y2LPC- Profile
 See Sheet 22 for -Y2- Profile

GRAPHIC SCALE
 0 25 50 100
 FEET

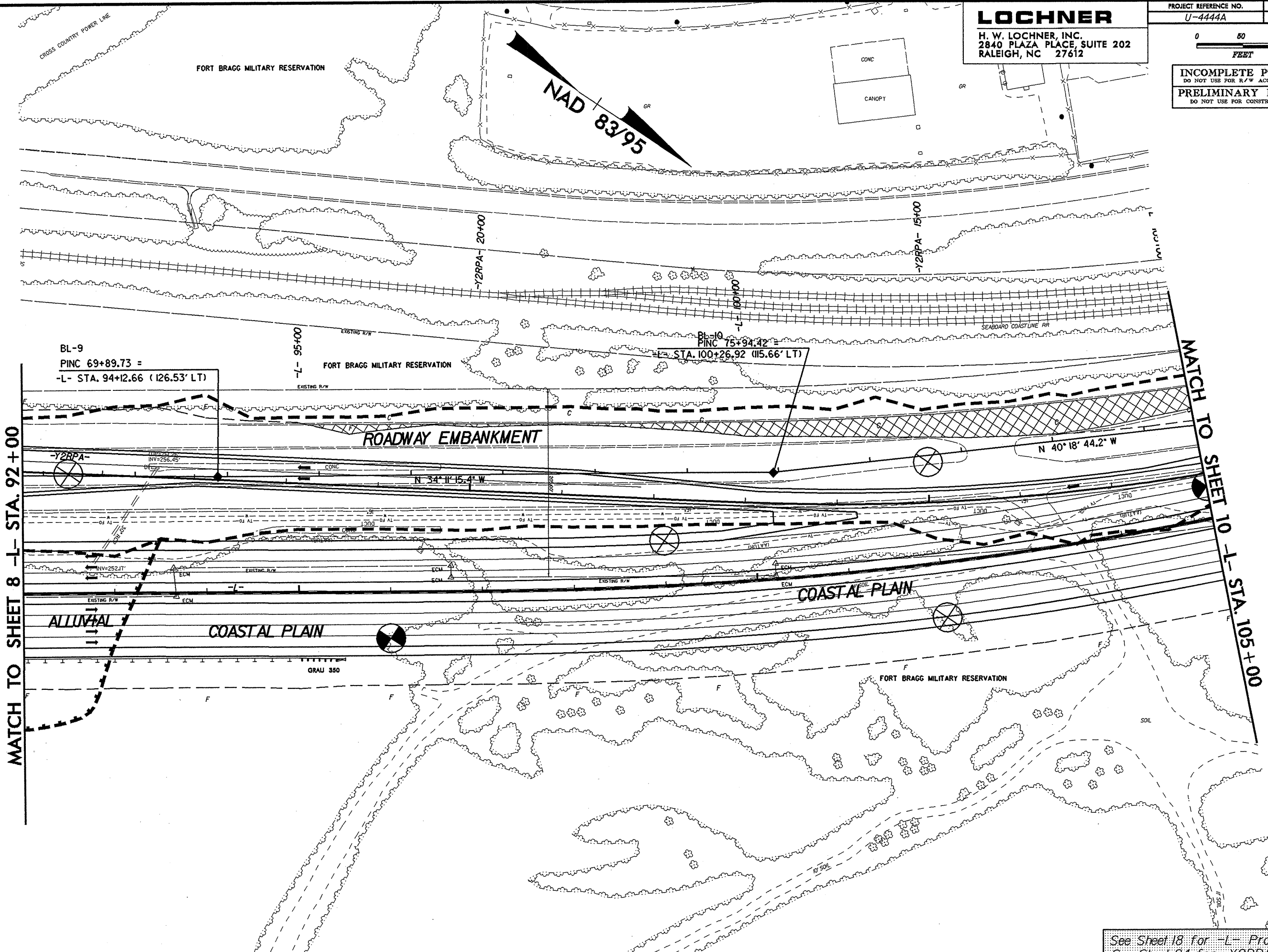
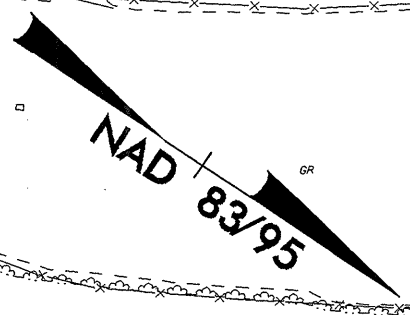
PROJECT: INTERCHANGE NC 210 (HUNTERSON ROAD) AND Y2 (HONEYCUTT ROAD)
 COUNTY: CUMBERLAND CO.
 DRAWN BY: HW LOCHNER, INC./MCDOT
 CHECKED BY: DWT

LOCHNER
 H. W. LOCHNER, INC.
 2840 PLAZA PLACE, SUITE 202
 RALEIGH, NC 27612

PROJECT REFERENCE NO.	SHEET NO.
U-4444A	09



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



MATCH TO SHEET 8 -L- STA. 92+00

MATCH TO SHEET 10 -L- STA. 105+00

REVISIONS

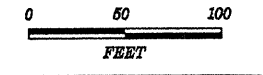
8/17/99

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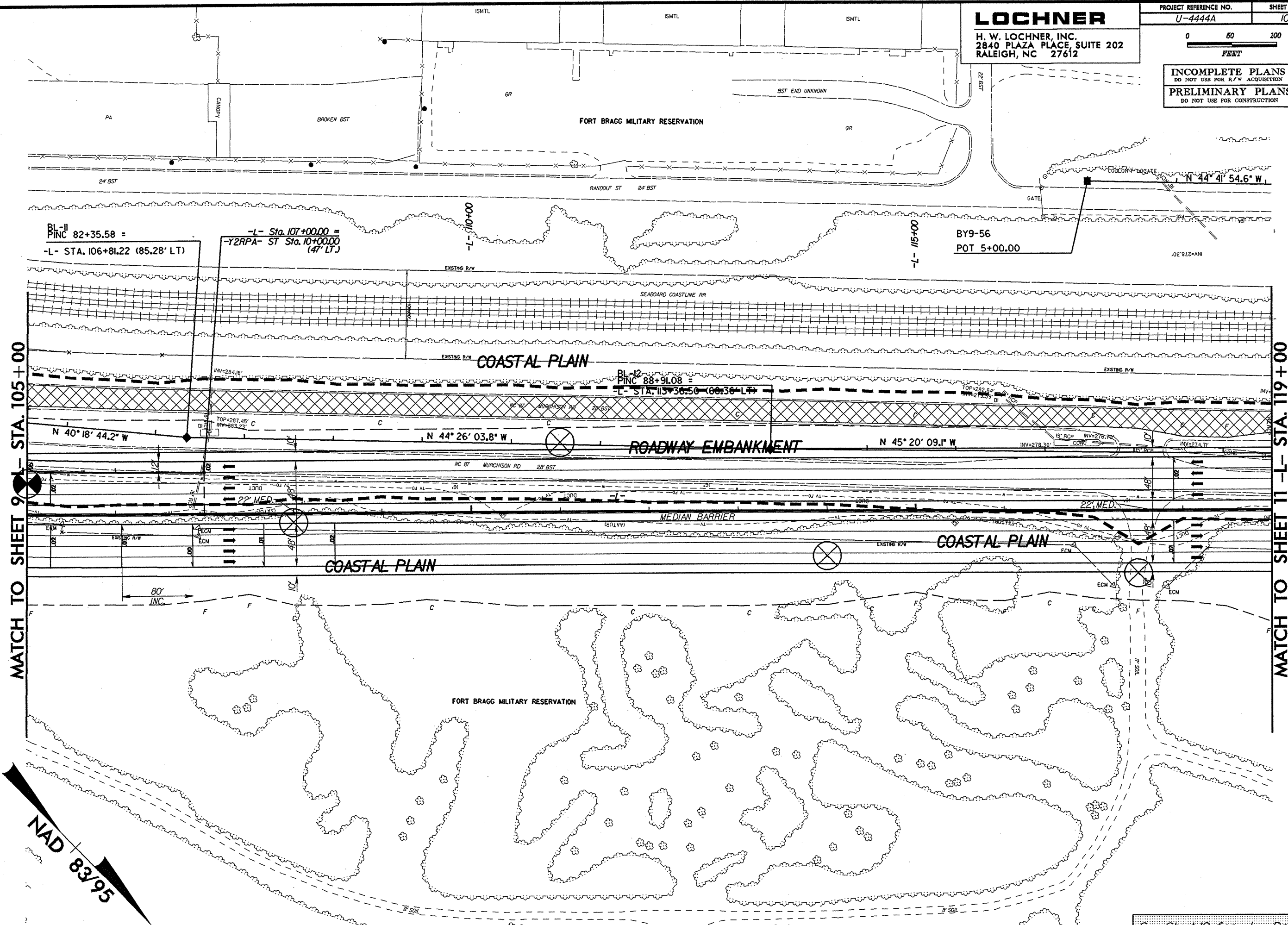
See Sheet 18 for -L- Profile
 See Sheet 24 for -Y2RPA- Profile

LOCHNER
 H. W. LOCHNER, INC.
 2840 PLAZA PLACE, SUITE 202
 RALEIGH, NC 27612

PROJECT REFERENCE NO. U-4444A SHEET NO. 10



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



MATCH TO SHEET 9 -L- STA. 105 + 00

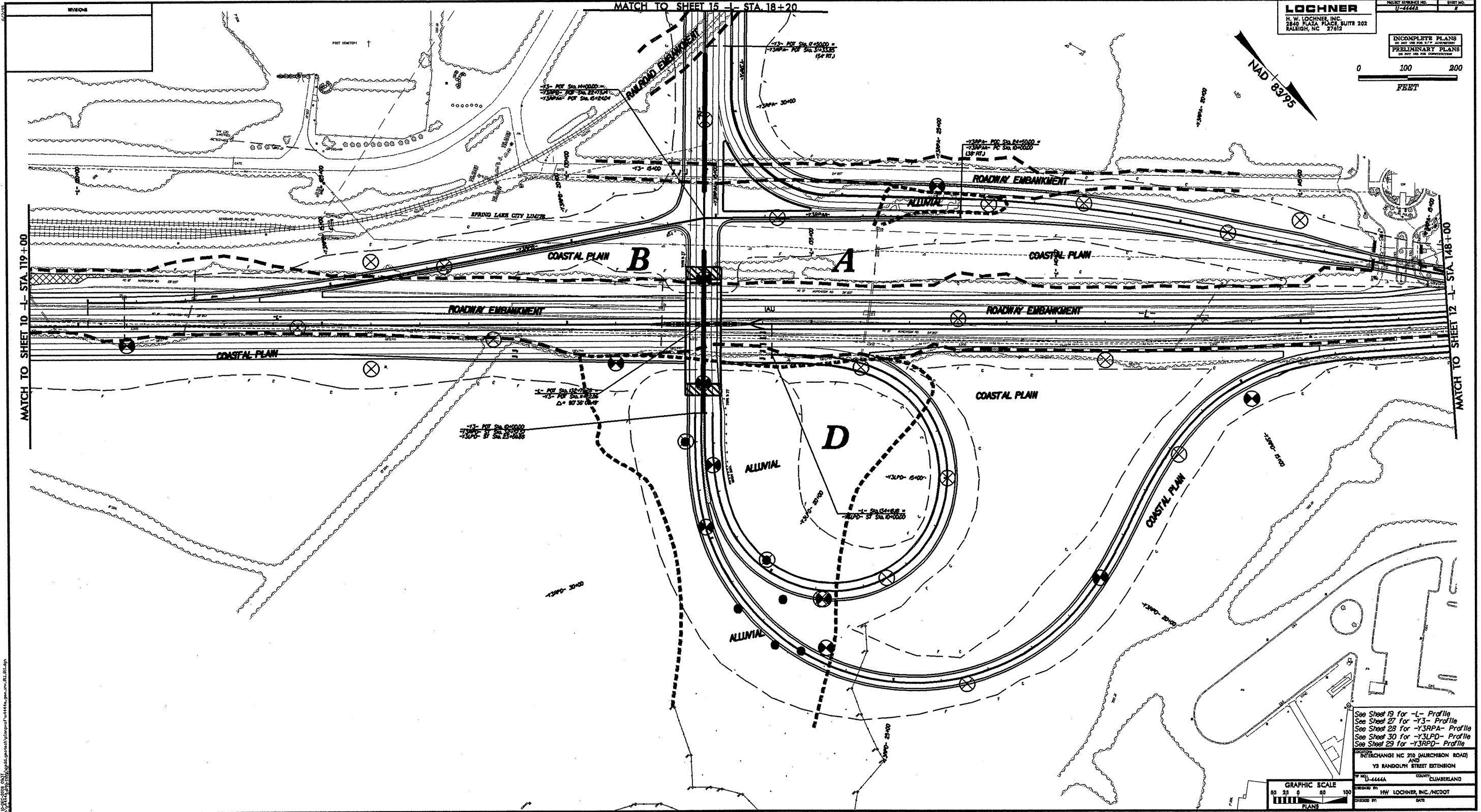
MATCH TO SHEET 11 -L- STA. 119 + 00

REVISIONS

8/17/99

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See Sheet 19 for -L- Profile



LOCHNER
 H. W. LOCHNER, INC.
 2140 PLAZA PLACE, SUITE 202
 RALEIGH, NC 27612

PROJECT NUMBER: 12-4444A
 SHEET NO.: 7

INCOMPLETE PLANS
 DO NOT USE FOR CONSTRUCTION
 PRELIMINARY PLANS
 DO NOT USE FOR CONSTRUCTION

0 100 200
 FEET

See Sheet 19 for -L- Profile
 See Sheet 27 for -Y3- Profile
 See Sheet 28 for -Y3RPA- Profile
 See Sheet 30 for -Y3LPD- Profile
 See Sheet 29 for -Y3RPD- Profile

INTERCHANGE NC 210 (MURKINSON ROAD)
 AND
 Y3 RANDOLPH STREET EXTENSION
 COUNTY: CLIMBERLAND

GRAPHIC SCALE
 50 25 0 50 100
 FEET

DESIGNED BY: HW LOCHNER, INC./NCDOT
 CHECKED BY: GKS

LOCHNER

H. W. LOCHNER, INC.
2840 PLAZA PLACE, SUITE 202
RALEIGH, NC 27612

PROJECT REFERENCE NO.

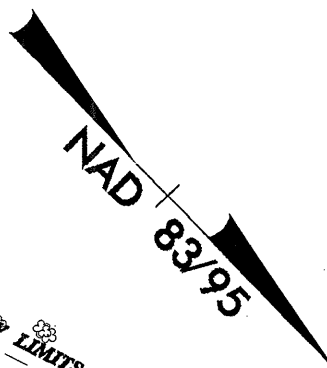
U-4444A

SHEET NO.

12



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



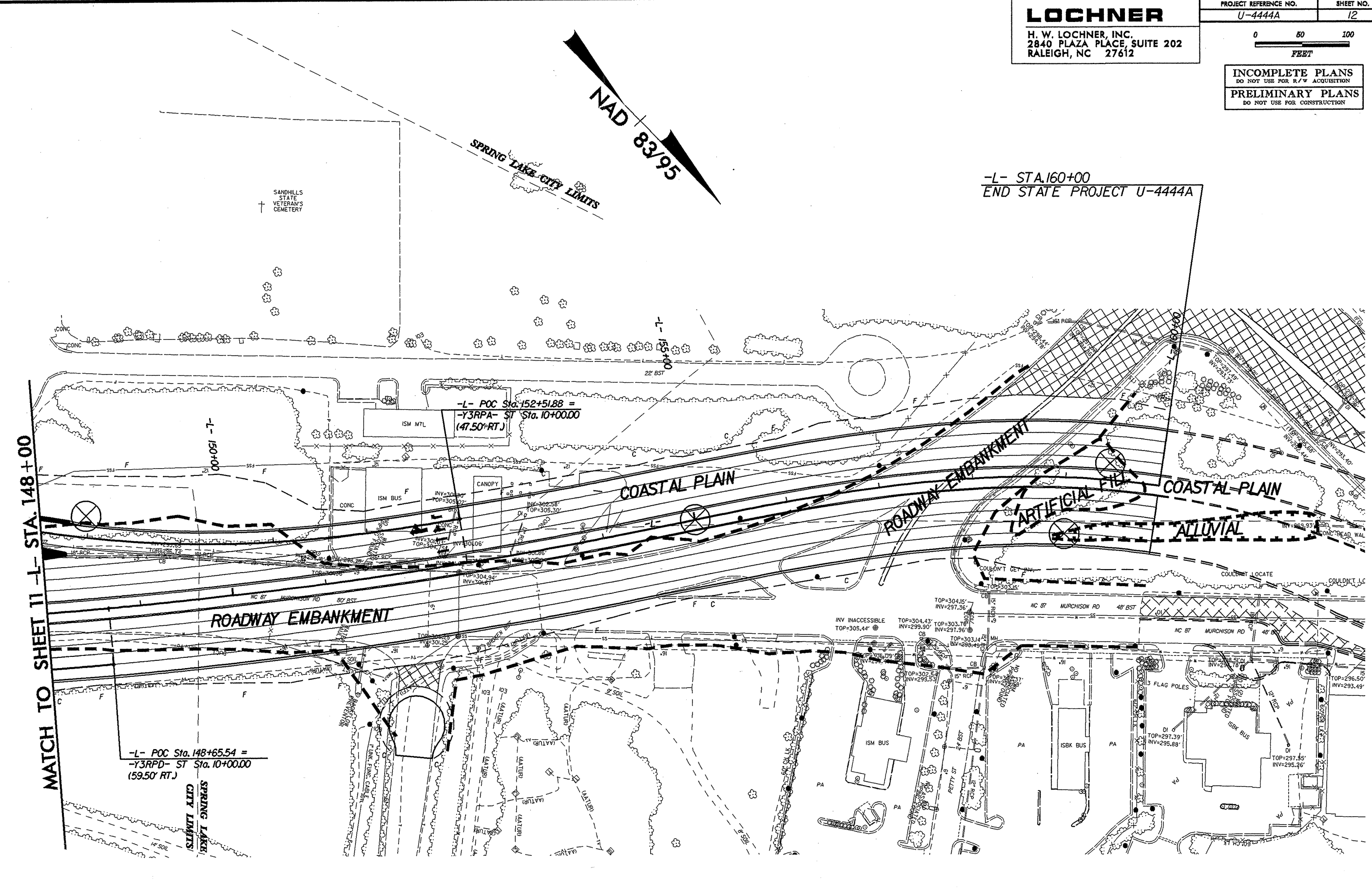
SPRING LAKE CITY LIMITS

-L- STA.160+00
END STATE PROJECT U-4444A

MATCH TO SHEET 11 -L- STA. 148+00

-L- POC Sta. 148+65.54 =
-Y3RPD- ST Sta. 10+00.00
(59.50' RT.)

-L- POC Sta. 152+51.88 =
-Y3RPA- ST Sta. 10+00.00
(47.50' RT.)



REVISIONS

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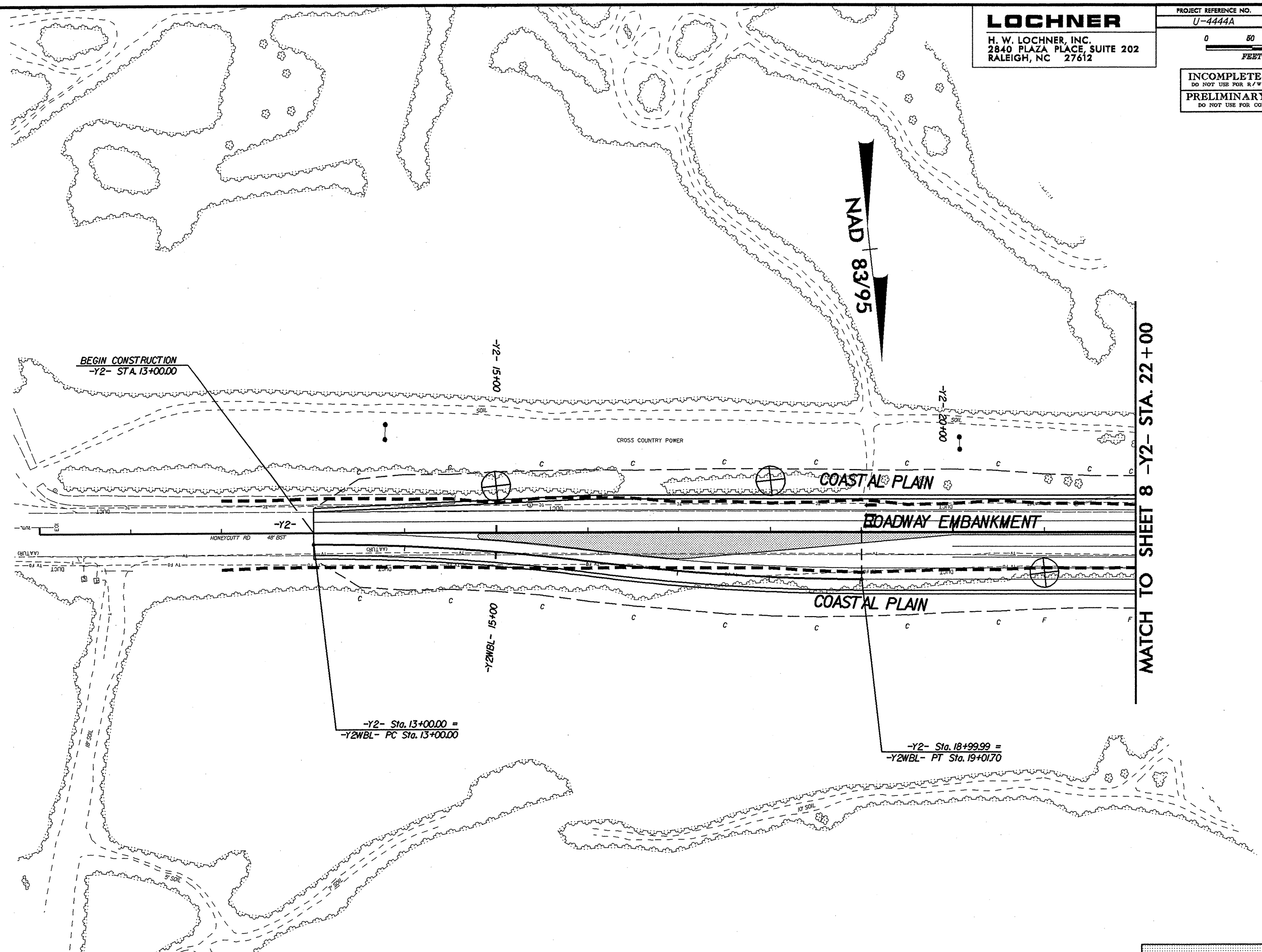
See Sheet 20 for -L- Profile
See Sheet 28 for -Y3RPA- Profile

LOCHNER
 H. W. LOCHNER, INC.
 2840 PLAZA PLACE, SUITE 202
 RALEIGH, NC 27612

PROJECT REFERENCE NO.	SHEET NO.
U-4444A	13



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



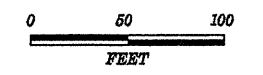
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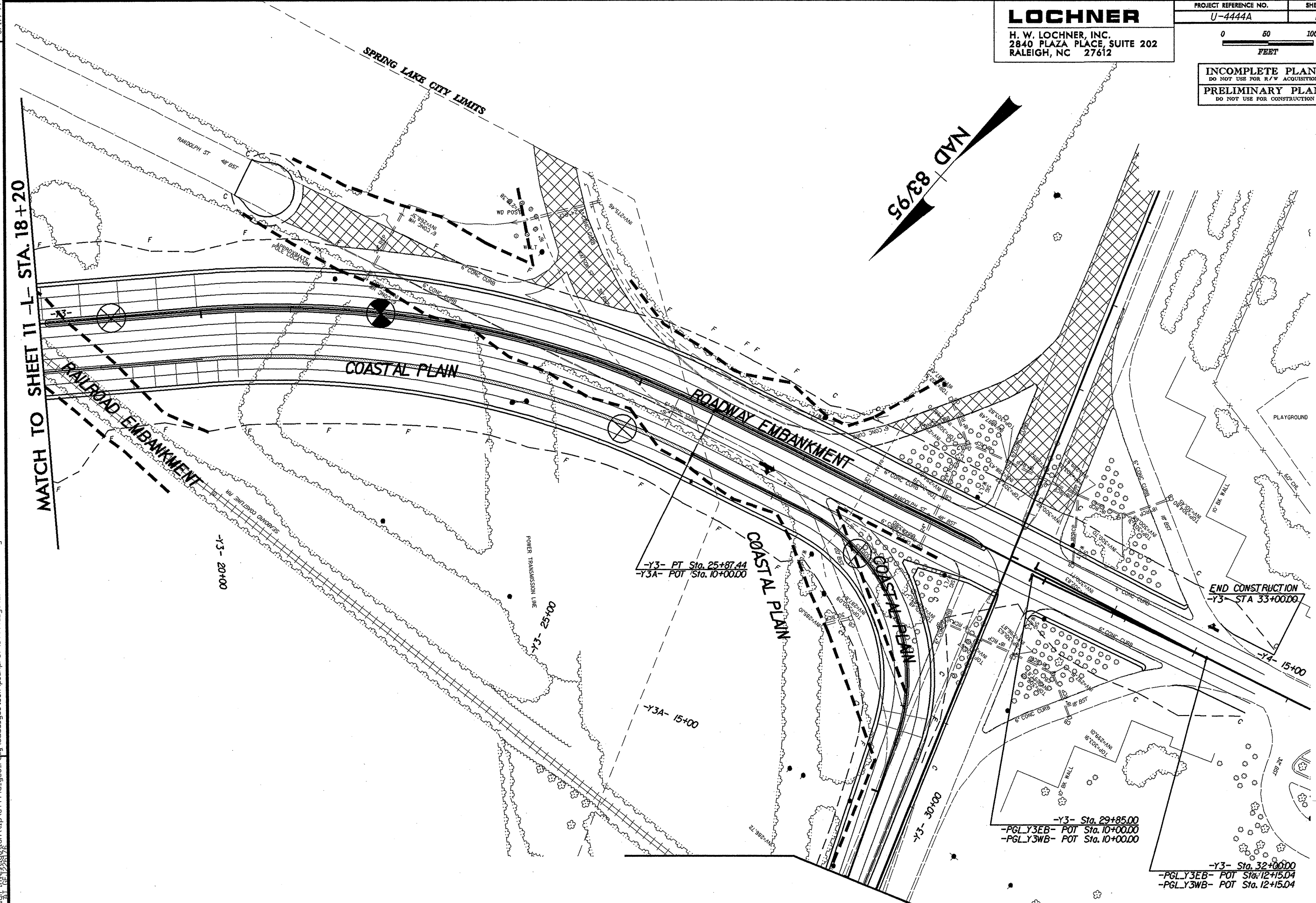
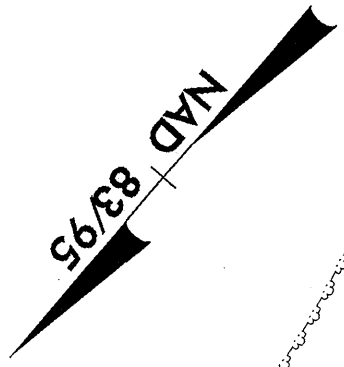
See Sheet 22 for -Y2- Profile.

LOCHNER
 H. W. LOCHNER, INC.
 2840 PLAZA PLACE SUITE 202
 RALEIGH, NC 27612

PROJECT REFERENCE NO.	SHEET NO.
U-4444A	14



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



MATCH TO SHEET II - L- STA. 18+20

REVISIONS

8/17/99

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-Y3- PT Sta. 25+87.44
 -Y3A- POT Sta. 10+00.00

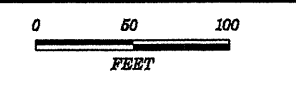
-Y3- Sta. 29+85.00
 -PGL_Y3EB- POT Sta. 10+00.00
 -PGL_Y3WB- POT Sta. 10+00.00

-Y3- Sta. 32+00.00
 -PGL_Y3EB- POT Sta. 12+15.04
 -PGL_Y3WB- POT Sta. 12+15.04

See Sheet 27 for -Y3- Profile

LOCHNER
 H. W. LOCHNER, INC.
 2840 PLAZA PLACE, SUITE 202
 RALEIGH, NC 27612

PROJECT REFERENCE NO.	SHEET NO.
U-4444A	15

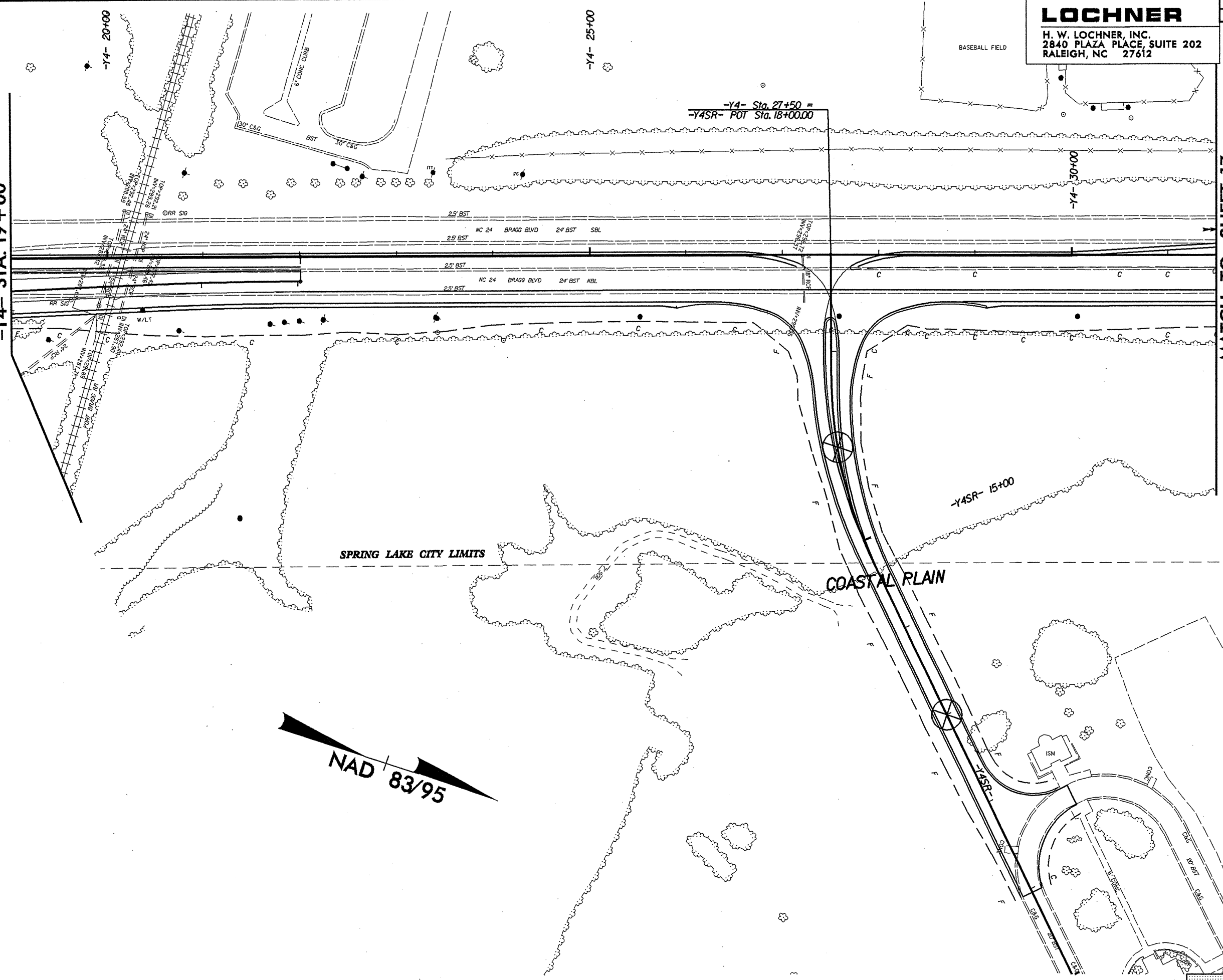


INCOMPLETE PLANS
 DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
 DO NOT USE FOR CONSTRUCTION

8/17/99

MATCH TO SHEET 15
 -Y4- STA. 19+00

MATCH TO SHEET 17
 -Y4- STA. 31+50

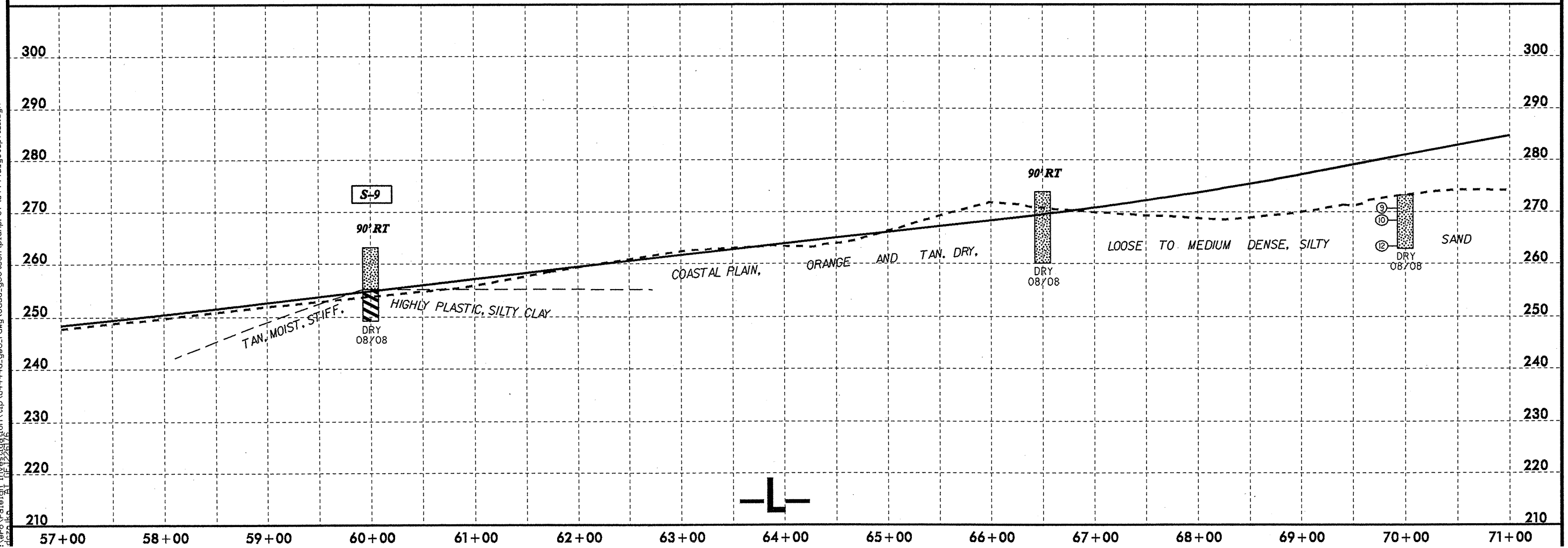
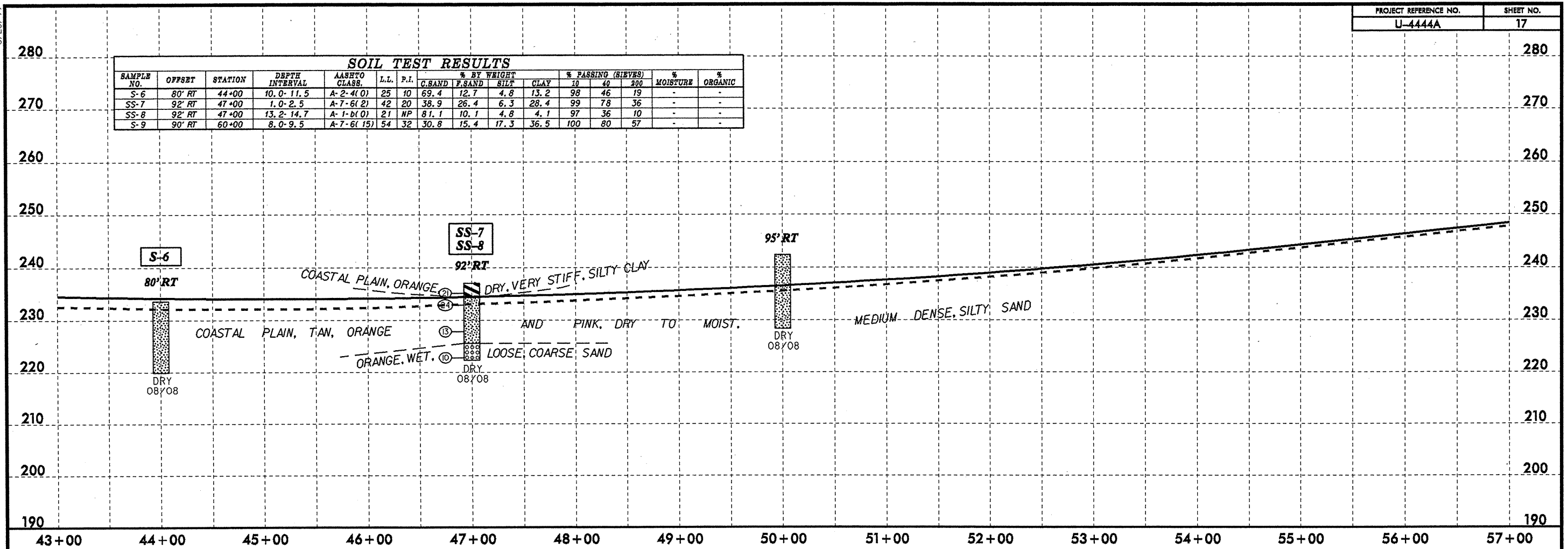


REVISIONS

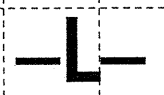
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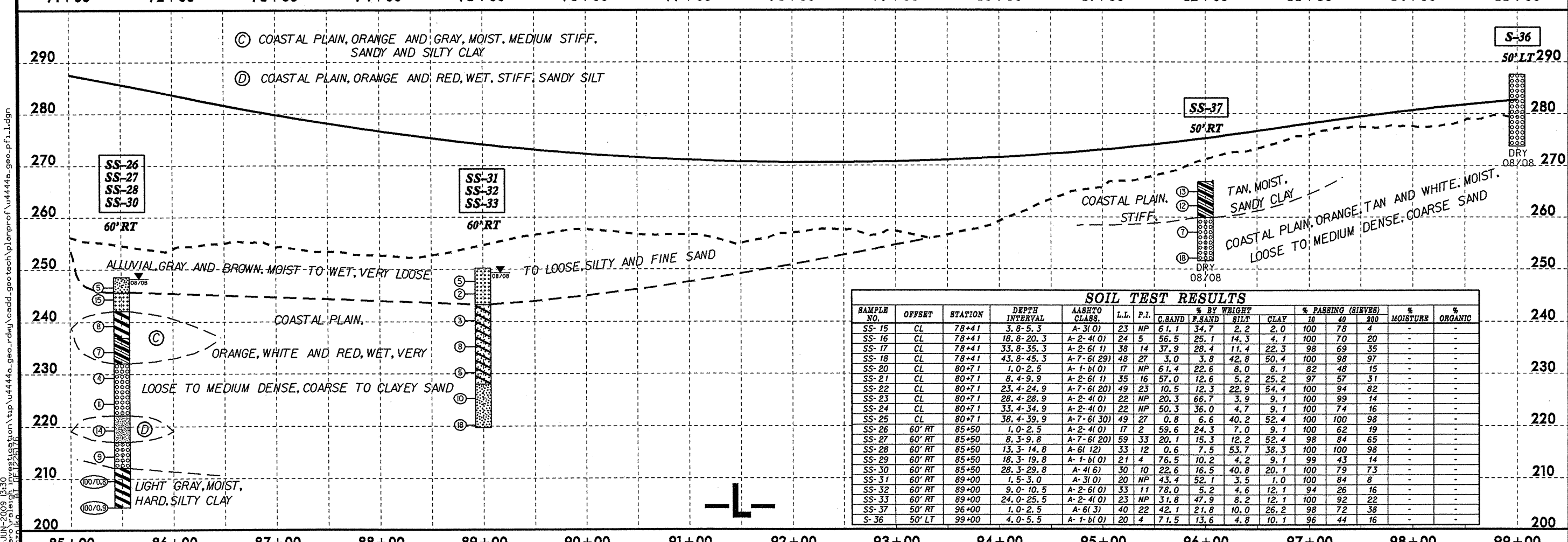
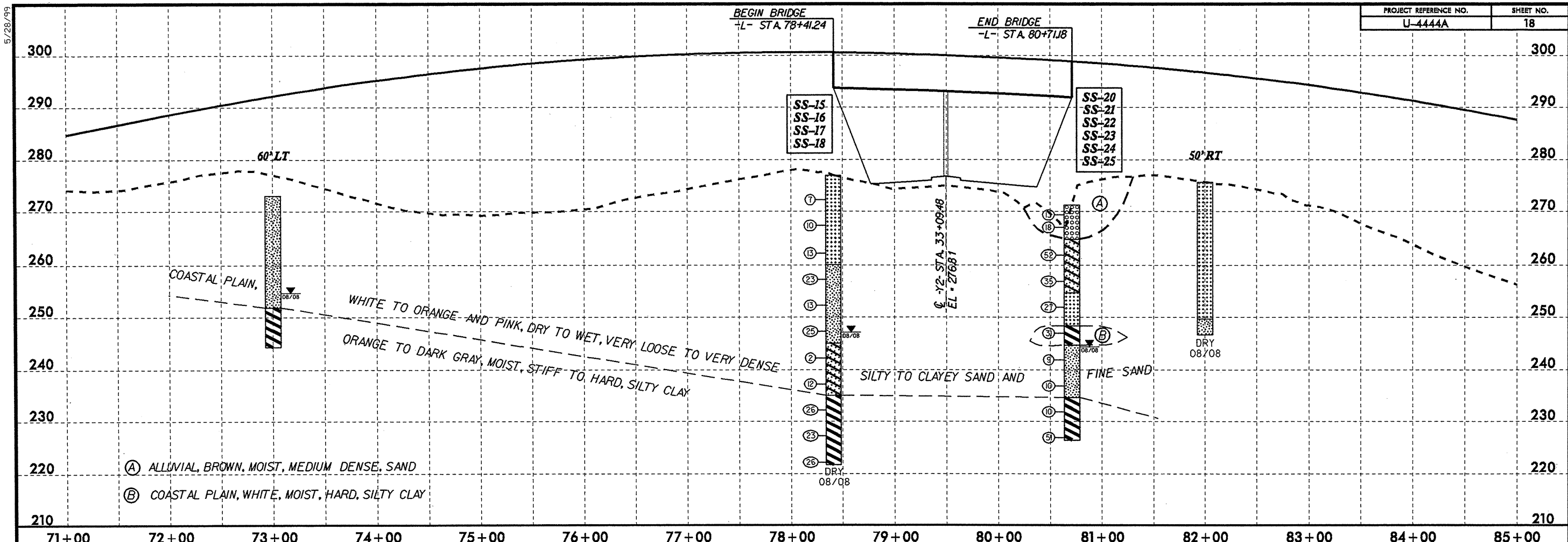
See Sheet 30 for -Y4SR- Profile

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	80' RT	44+00	10.0-11.5	A-2-(4) (0)	25	10	69.4	12.7	4.8	13.2	98	46	19	-	-
SS-7	92' RT	47+00	1.0-2.5	A-7-6(2)	42	20	38.9	26.4	6.3	28.4	99	78	36	-	-
SS-8	92' RT	47+00	13.2-14.7	A-1-b(0)	21	NP	81.1	10.1	4.8	4.1	97	36	10	-	-
S-9	90' RT	60+00	8.0-9.5	A-7-6(15)	54	32	30.8	15.4	17.3	36.5	100	80	57	-	-



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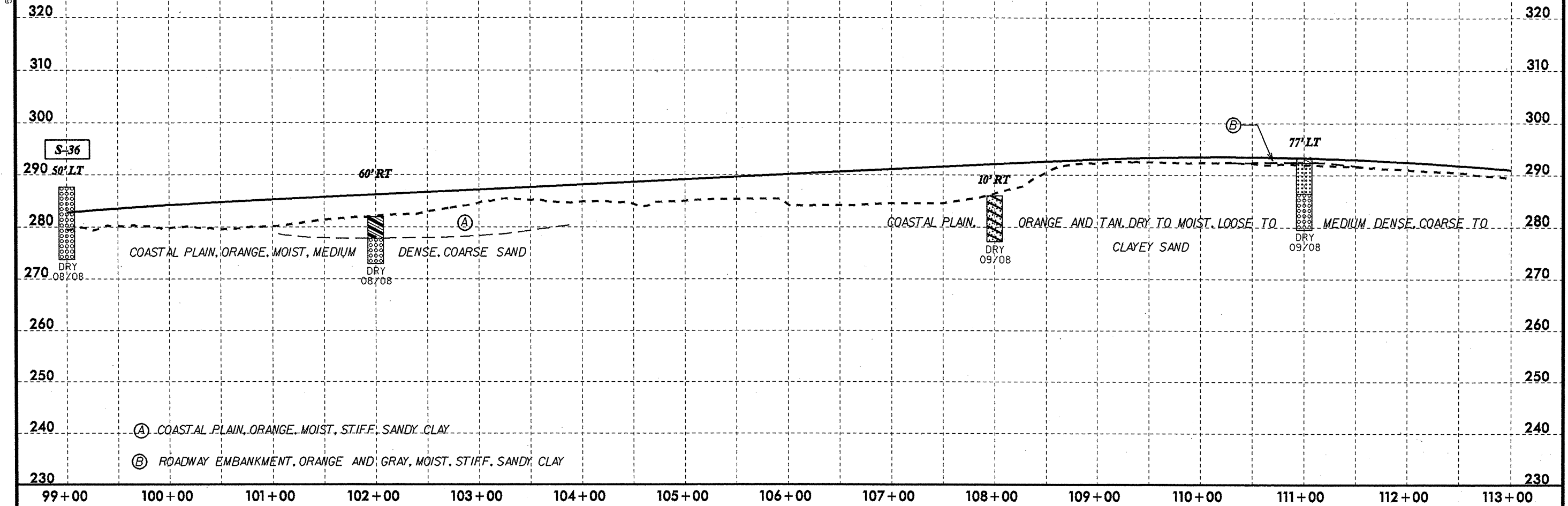


SOIL TEST RESULTS

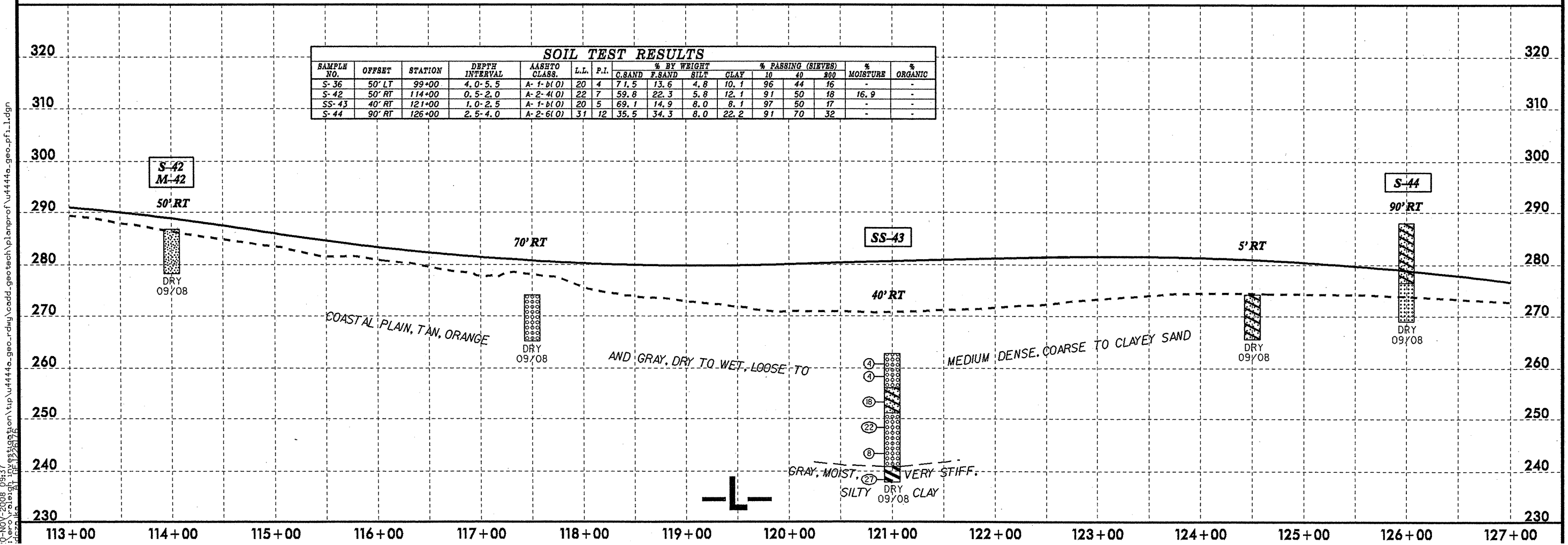
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-15	CL	78+41	3.8-5.3	A-3(0)	23	NP	61.1	34.7	2.2	2.0	100	78	4	-	-
SS-16	CL	78+41	18.8-20.3	A-2-4(0)	24	5	56.5	25.1	14.3	4.1	100	70	20	-	-
SS-17	CL	78+41	33.8-35.3	A-2-6(1)	38	14	37.9	28.4	11.4	22.3	98	69	35	-	-
SS-18	CL	78+41	43.8-45.3	A-7-6(29)	48	27	3.0	3.8	42.8	50.4	100	98	97	-	-
SS-20	CL	80+71	1.0-2.5	A-1-b(0)	17	NP	61.4	22.6	8.0	8.1	82	48	15	-	-
SS-21	CL	80+71	8.4-9.9	A-2-6(1)	35	16	57.0	12.6	5.2	25.2	97	57	31	-	-
SS-22	CL	80+71	23.4-24.9	A-7-6(20)	49	23	10.5	12.3	22.9	54.4	100	94	82	-	-
SS-23	CL	80+71	28.4-28.9	A-2-4(0)	22	NP	20.3	66.7	3.9	9.1	100	99	14	-	-
SS-24	CL	80+71	33.4-34.9	A-2-4(0)	22	NP	50.3	36.0	4.7	9.1	100	74	16	-	-
SS-25	CL	80+71	38.4-39.9	A-7-6(30)	49	27	0.8	6.6	40.2	52.4	100	98	-	-	-
SS-26	60' RT	85+50	1.0-2.5	A-2-4(0)	17	2	59.6	24.3	7.0	9.1	100	62	19	-	-
SS-27	60' RT	85+50	8.3-9.8	A-7-6(20)	59	33	20.1	15.3	12.2	52.4	98	84	65	-	-
SS-28	60' RT	85+50	13.3-14.8	A-6(12)	33	12	0.6	7.5	53.7	38.3	100	100	98	-	-
SS-29	60' RT	85+50	18.3-19.8	A-1-b(0)	21	4	76.5	10.2	4.2	9.1	99	43	14	-	-
SS-30	60' RT	85+50	28.3-29.8	A-4(6)	30	10	22.6	16.5	40.8	20.1	100	79	73	-	-
SS-31	60' RT	89+00	1.5-3.0	A-3(0)	20	NP	43.4	52.1	3.5	1.0	100	84	8	-	-
SS-32	60' RT	89+00	9.0-10.5	A-2-6(0)	33	11	78.0	5.2	4.6	12.1	94	26	16	-	-
SS-33	60' RT	89+00	24.0-25.5	A-2-4(0)	23	NP	31.8	47.9	8.2	12.1	100	92	22	-	-
SS-37	50' RT	96+00	1.0-2.5	A-6(3)	40	22	42.1	21.8	10.0	26.2	98	72	38	-	-
S-36	50' LT	99+00	4.0-5.5	A-1-b(0)	20	4	71.5	13.6	4.8	10.1	96	44	16	-	-

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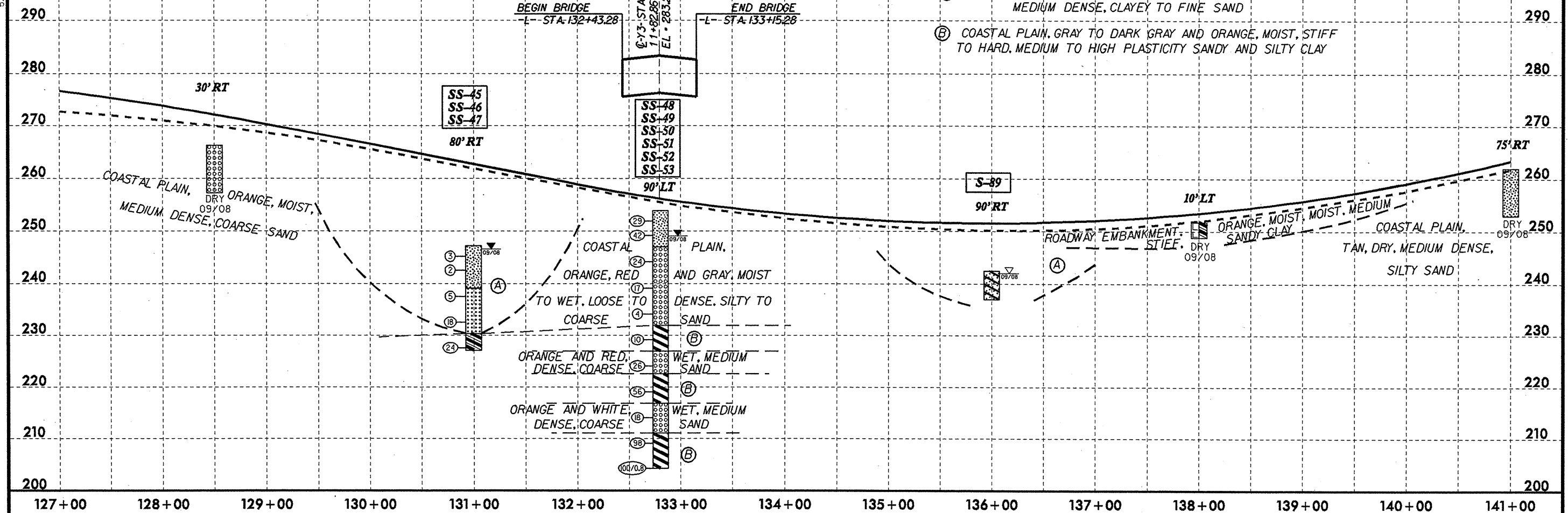


SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	ASTM CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							G.SAND	F.SAND	SILT	CLAY	10	40	200		
S-36	50' LT	99+00	4.0-5.5	A-1-b(O)	20	4	71.5	13.6	4.8	10.1	96	44	16	-	-
S-42	50' RT	114+00	0.5-2.0	A-2-4(O)	22	7	59.8	22.3	5.8	12.1	91	50	18	16.9	-
SS-43	40' RT	121+00	1.0-2.5	A-1-b(O)	20	5	69.1	14.9	8.0	8.1	97	50	17	-	-
S-44	90' RT	126+00	2.5-4.0	A-2-6(O)	31	12	35.5	34.3	8.0	22.2	91	70	32	-	-

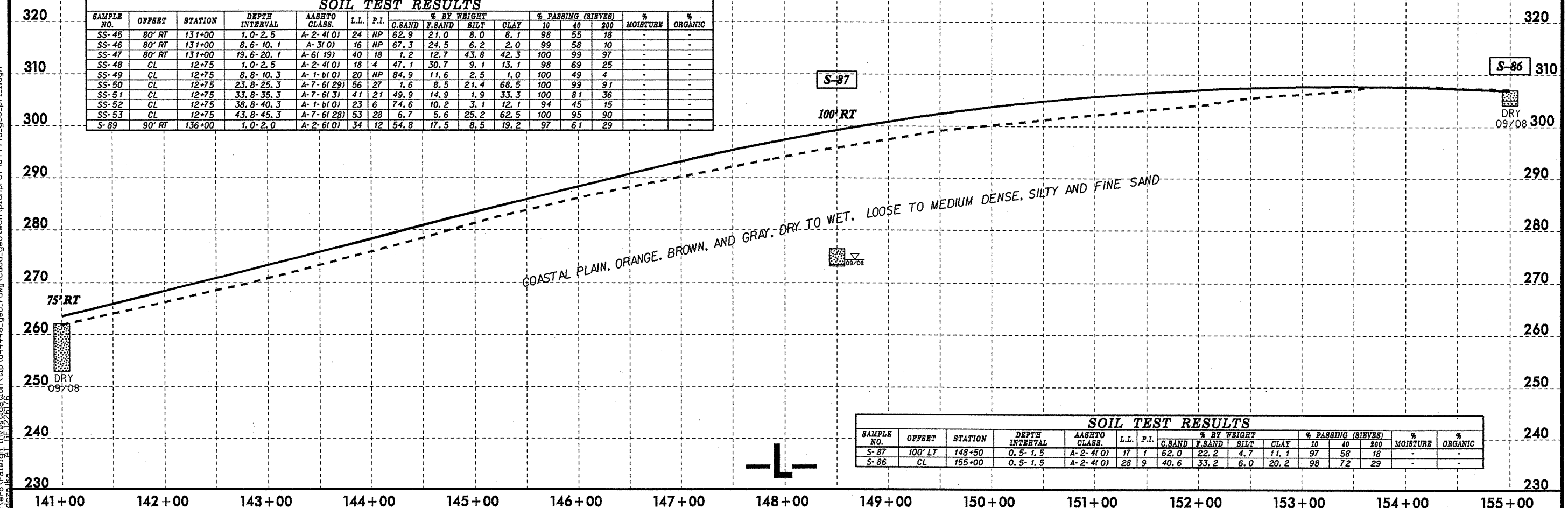


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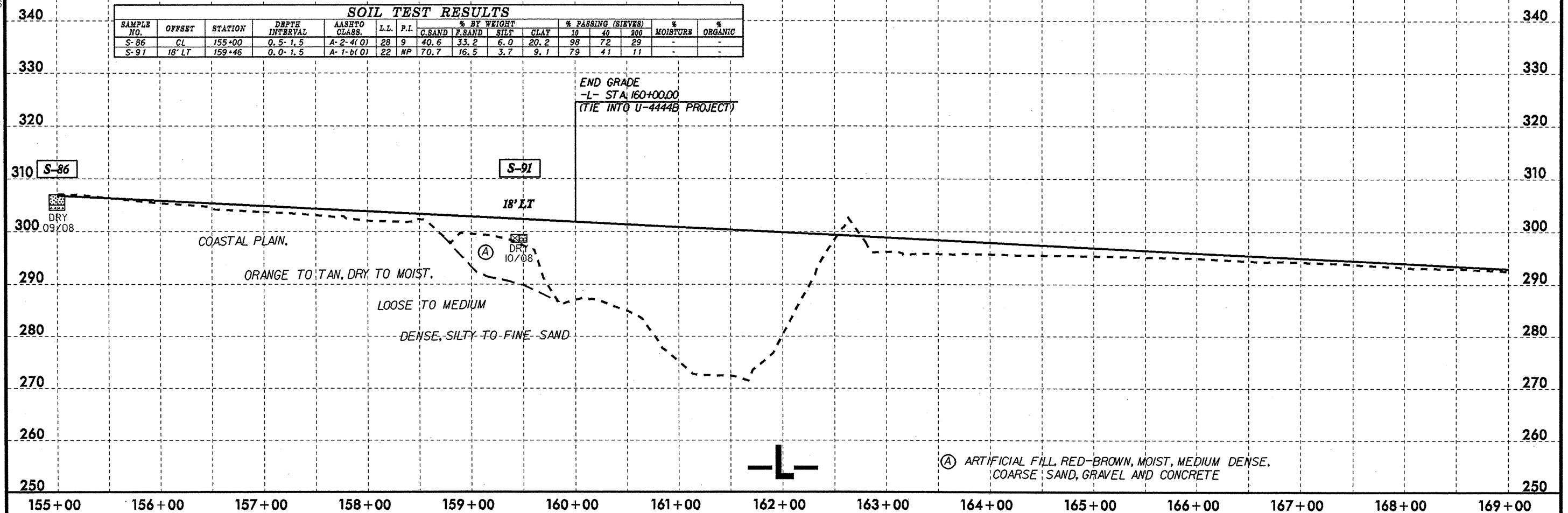
SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
SS-45	80' RT	131+00	1.0-2.5	A-2-4(0)	24	NP	62.9	21.0	8.0	8.1	98	55	18	-	-
SS-46	80' RT	131+00	8.6-10.1	A-3(0)	16	NP	67.3	24.5	6.2	2.0	99	58	10	-	-
SS-47	80' RT	131+00	19.6-20.1	A-6(19)	40	18	1.2	12.7	43.8	42.3	100	99	97	-	-
SS-48	CL	12+75	1.0-2.5	A-2-4(0)	18	4	47.1	30.7	9.1	13.1	98	69	25	-	-
SS-49	CL	12+75	8.8-10.3	A-1-b(0)	20	NP	84.9	11.6	2.5	1.0	100	49	4	-	-
SS-50	CL	12+75	23.8-25.3	A-7-6(29)	56	27	1.6	8.5	21.4	68.5	100	99	91	-	-
SS-51	CL	12+75	33.8-35.3	A-7-6(3)	41	21	49.9	14.9	1.9	33.3	100	81	36	-	-
SS-52	CL	12+75	38.8-40.3	A-1-b(0)	23	6	74.6	10.2	3.1	12.1	94	45	15	-	-
SS-53	CL	12+75	43.8-45.3	A-7-6(28)	53	28	6.7	5.6	25.2	62.5	100	95	90	-	-
S-89	90' RT	136+00	1.0-2.0	A-2-6(0)	34	12	54.8	17.5	8.5	19.2	97	61	29	-	-



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-87	100' LT	148+50	0.5-1.5	A-2-4(0)	17	1	62.0	22.2	4.7	11.1	97	58	18	-	-
S-86	CL	155+00	0.5-1.5	A-2-4(0)	28	9	40.6	33.2	6.0	20.2	98	72	29	-	-

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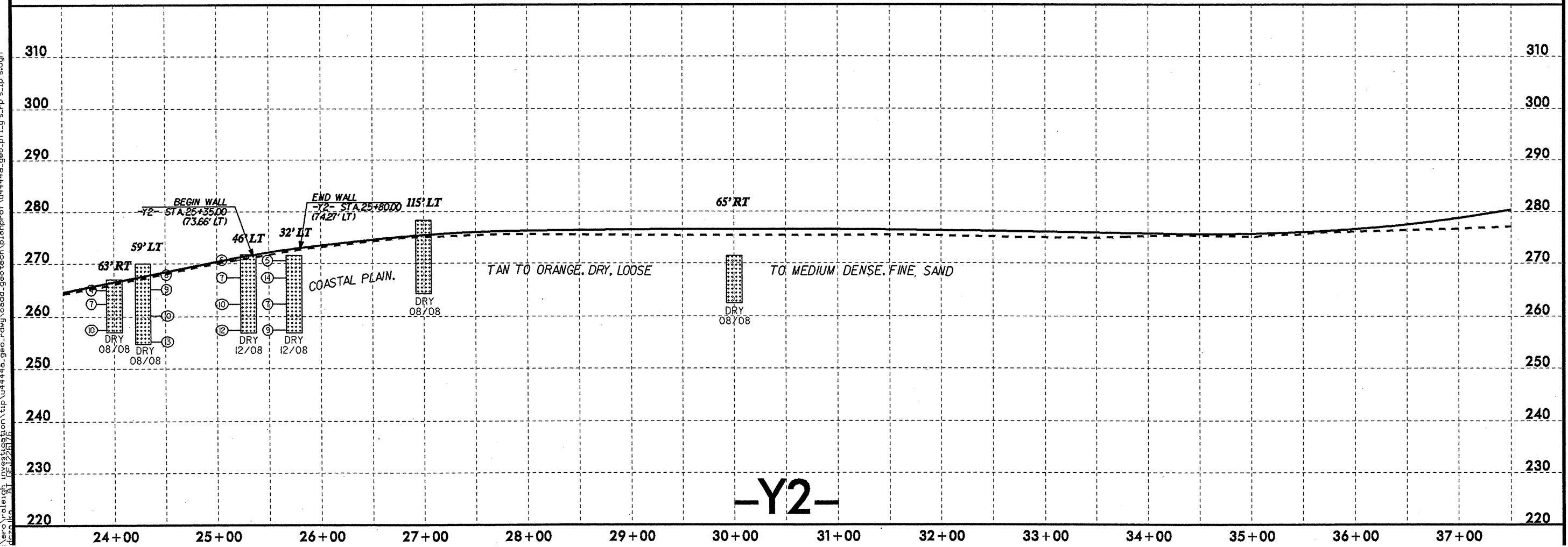
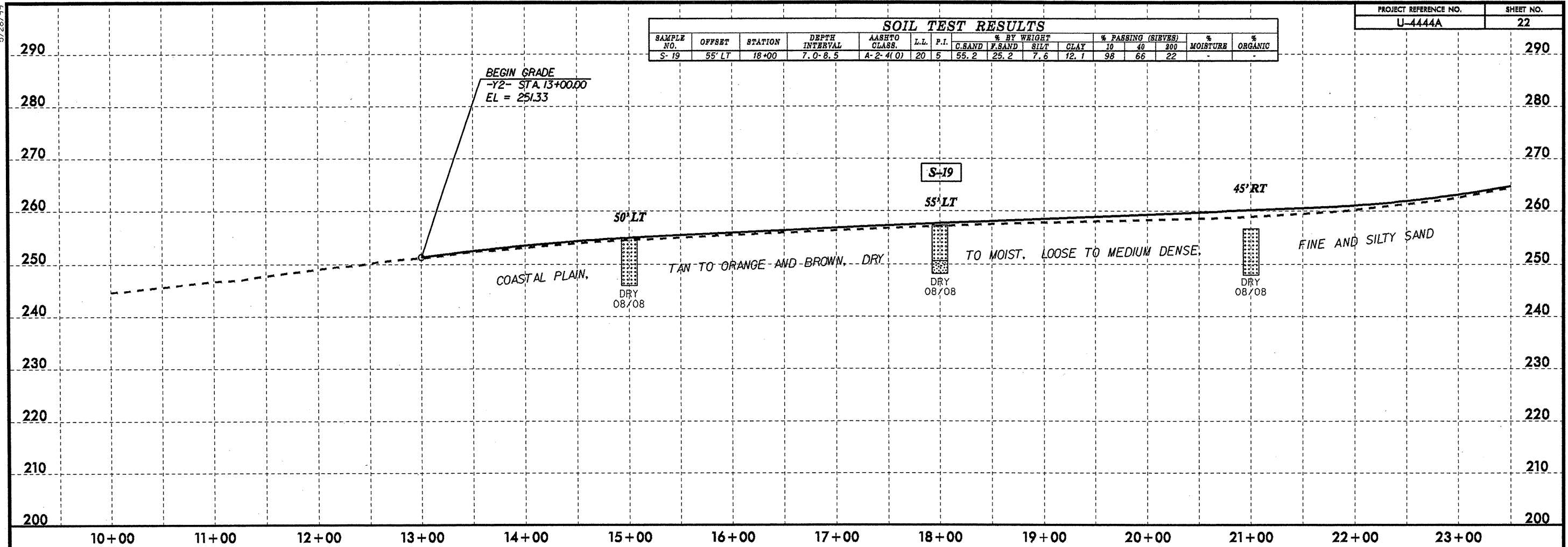
SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	ASTM CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
S-86	CL	155+00	0.5-1.5	A-2-4(0)	28	9	40.6	33.2	6.0	20.2	98	72	29	-	-
S-91	18' LT	159+46	0.0-1.5	A-1-b(0)	22	NP	70.7	16.5	3.7	9.1	79	41	11	-	-



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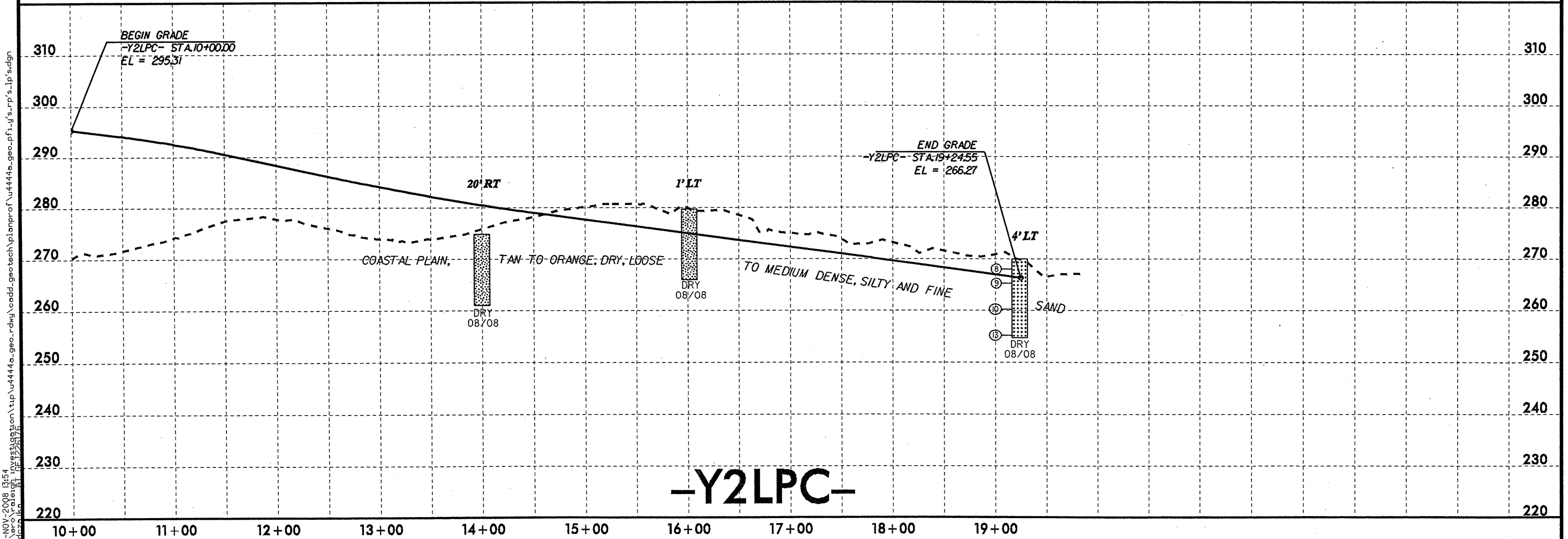
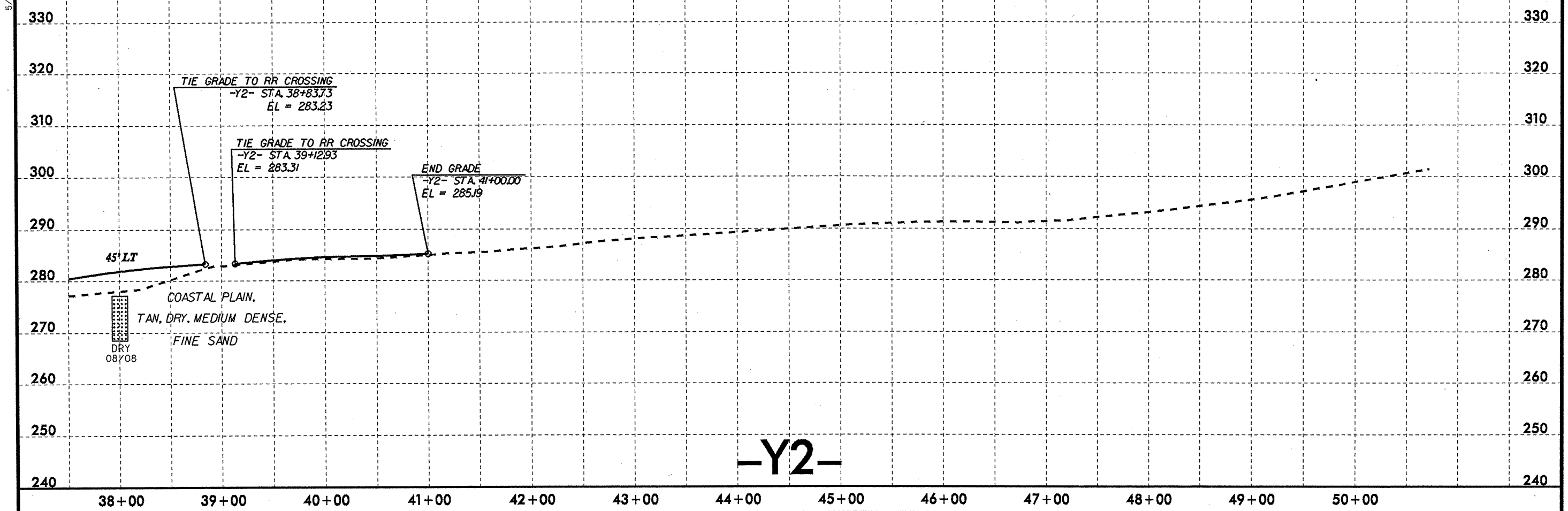
SOIL TEST RESULTS														
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)		% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40		
S-19	55' LT	18+00	7.0-8.5	A-2-4(0)	20	5	55.2	25.2	7.6	12.1	98	66	22	



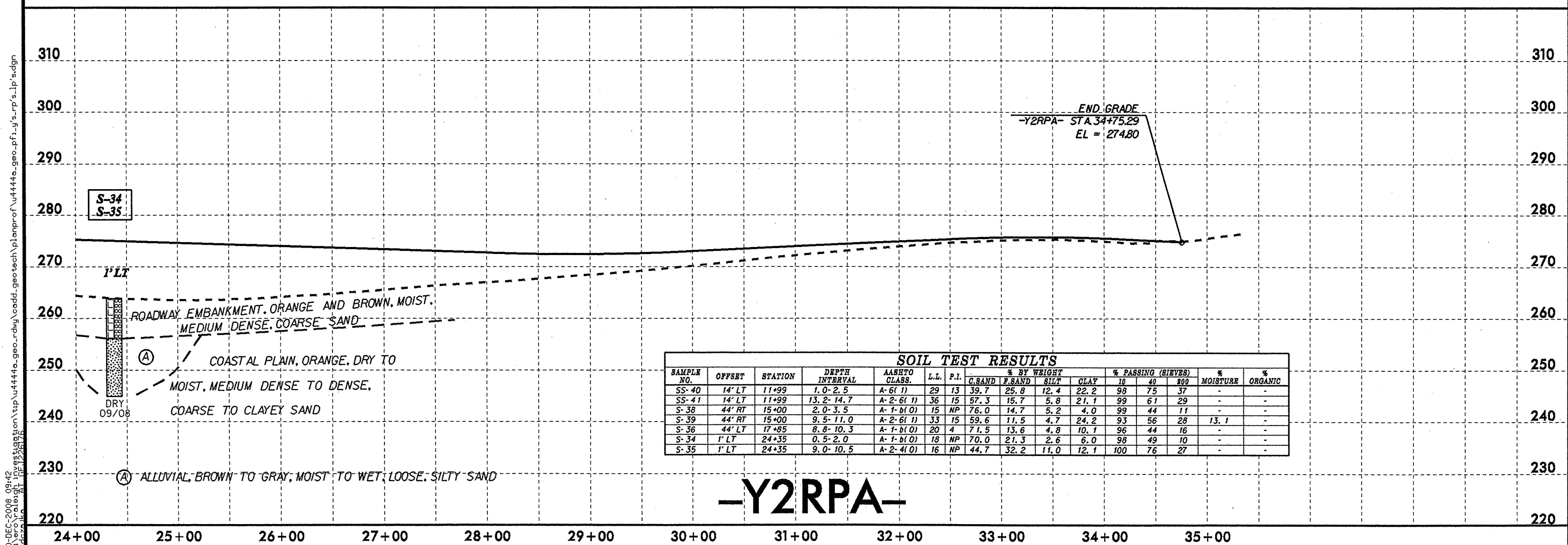
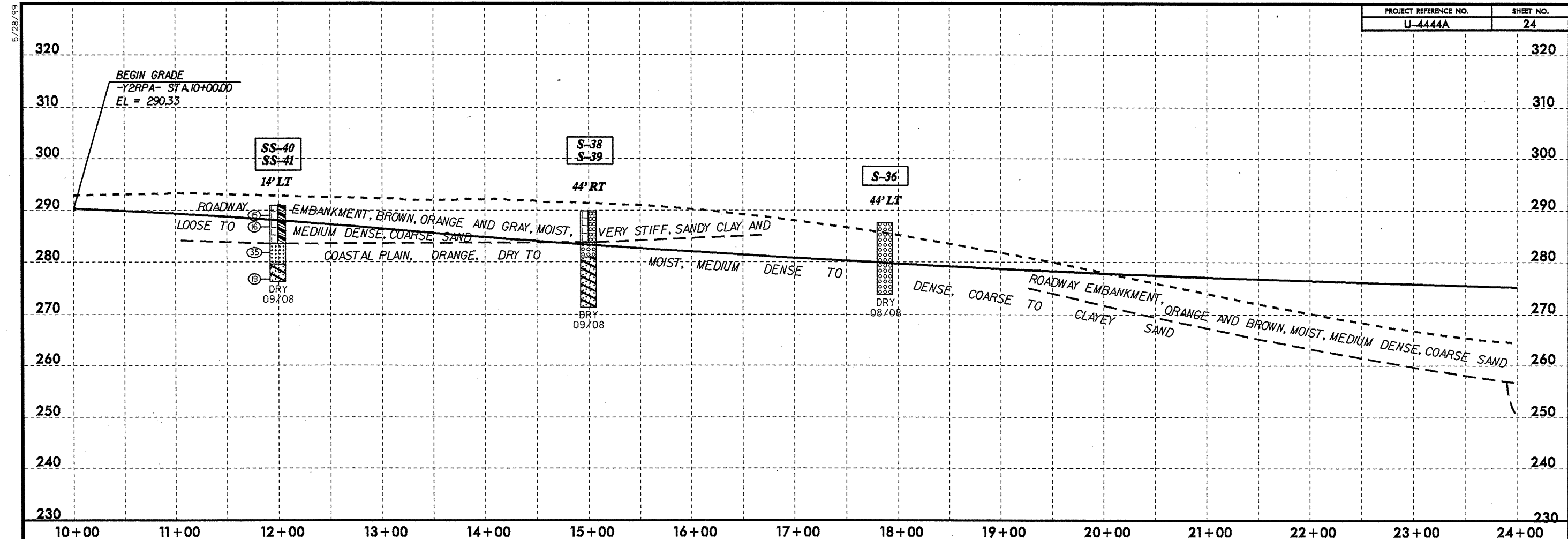
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5/28/99



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SOIL TEST RESULTS

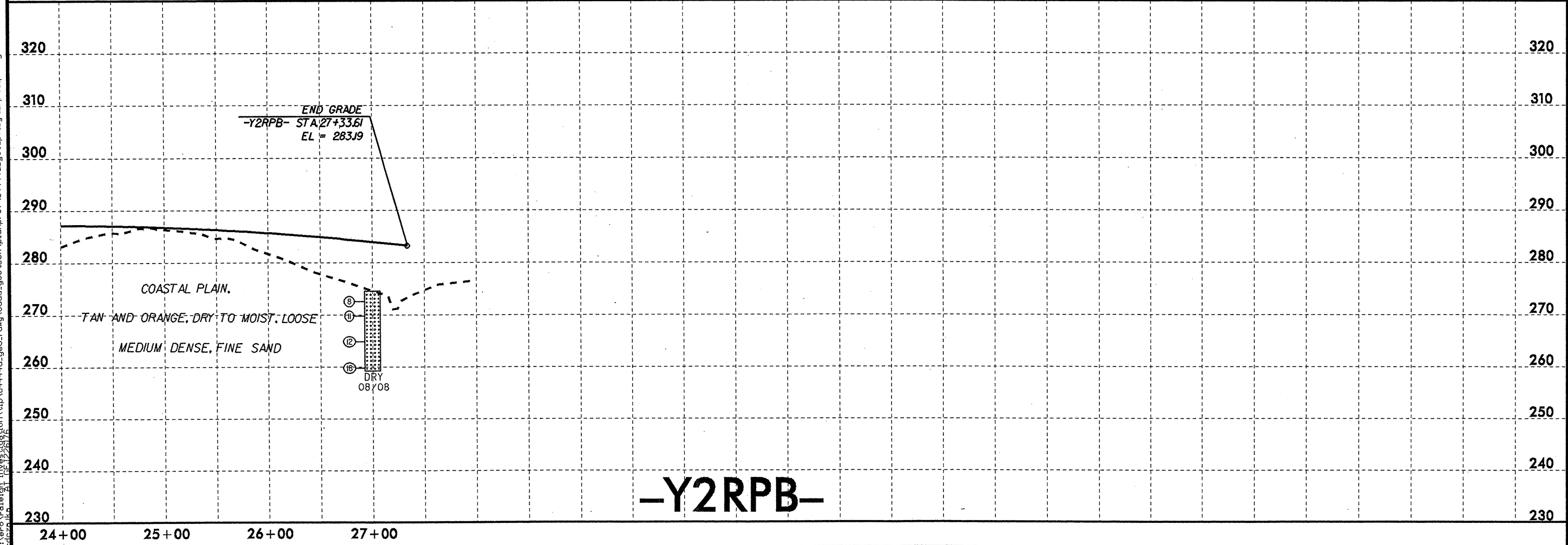
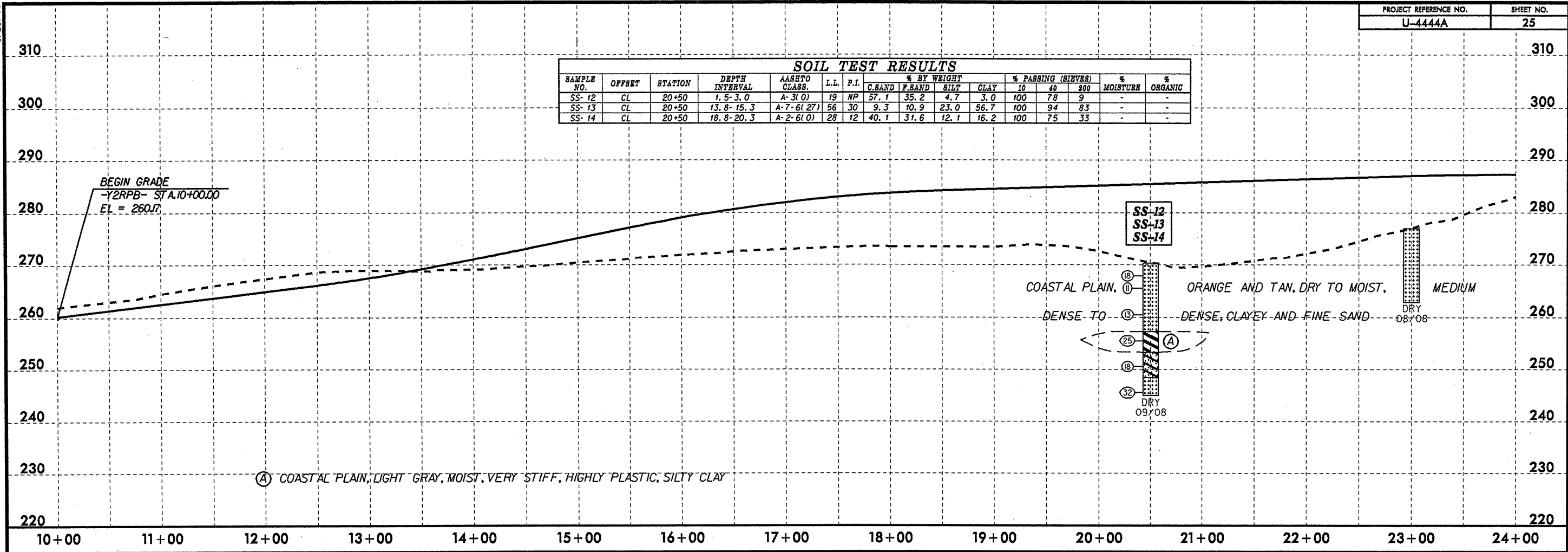
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
SS-40	14' LT	11+99	1.0-2.5	A-6(1)	29	13	39.7	25.8	12.4	22.2	98	75	37	-	-
SS-41	14' LT	11+99	13.2-14.7	A-2-6(1)	36	15	57.3	15.7	5.8	21.1	99	61	29	-	-
S-38	44' RT	15+00	2.0-3.5	A-1-b(0)	15	NP	76.0	14.7	5.2	4.0	99	44	11	-	-
S-39	44' RT	15+00	9.5-11.0	A-2-6(1)	33	15	59.6	11.5	4.7	24.2	93	56	28	13.1	-
S-36	44' LT	17+85	8.8-10.3	A-1-b(0)	20	4	71.5	13.6	4.8	10.1	96	44	16	-	-
S-34	1' LT	24+35	0.5-2.0	A-1-b(0)	18	NP	70.0	21.3	2.6	6.0	98	49	10	-	-
S-35	1' LT	24+35	9.0-10.5	A-2-4(0)	16	NP	44.7	32.2	11.0	12.1	100	76	27	-	-

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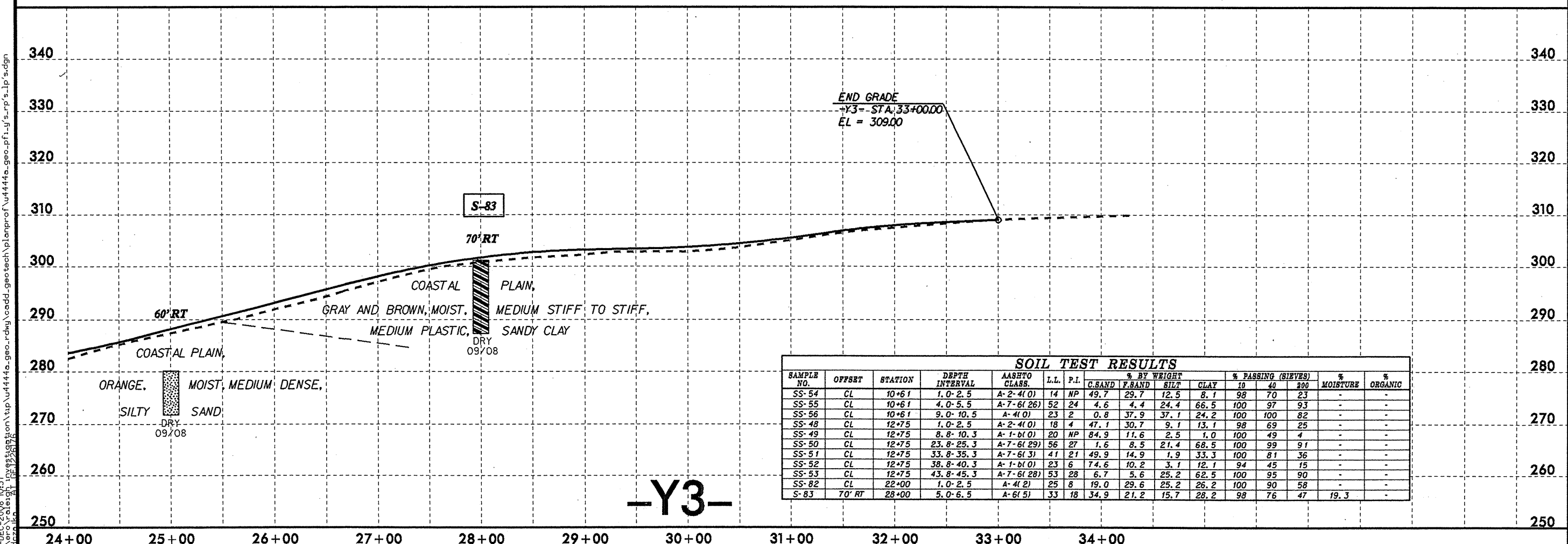
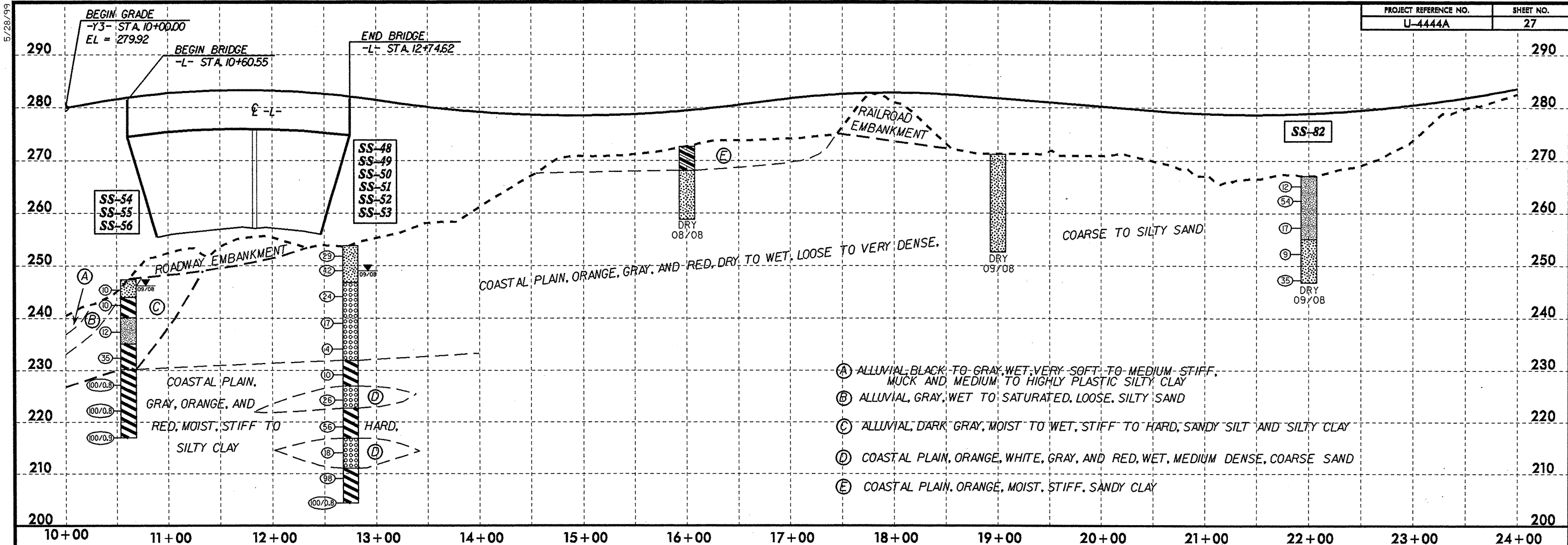
SOIL TEST RESULTS

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-12	CL	20+50	1.5-3.0	A-3(0)	19	NP	57.1	35.2	4.7	3.0	100	78	9	-	-
SS-13	CL	20+50	13.8-15.3	A-7-6(27)	56	30	9.3	10.9	23.0	56.7	100	94	83	-	-
SS-14	CL	20+50	18.8-20.3	A-2-6(0)	28	12	40.1	31.6	12.1	16.2	100	75	33	-	-



-Y2RPB-

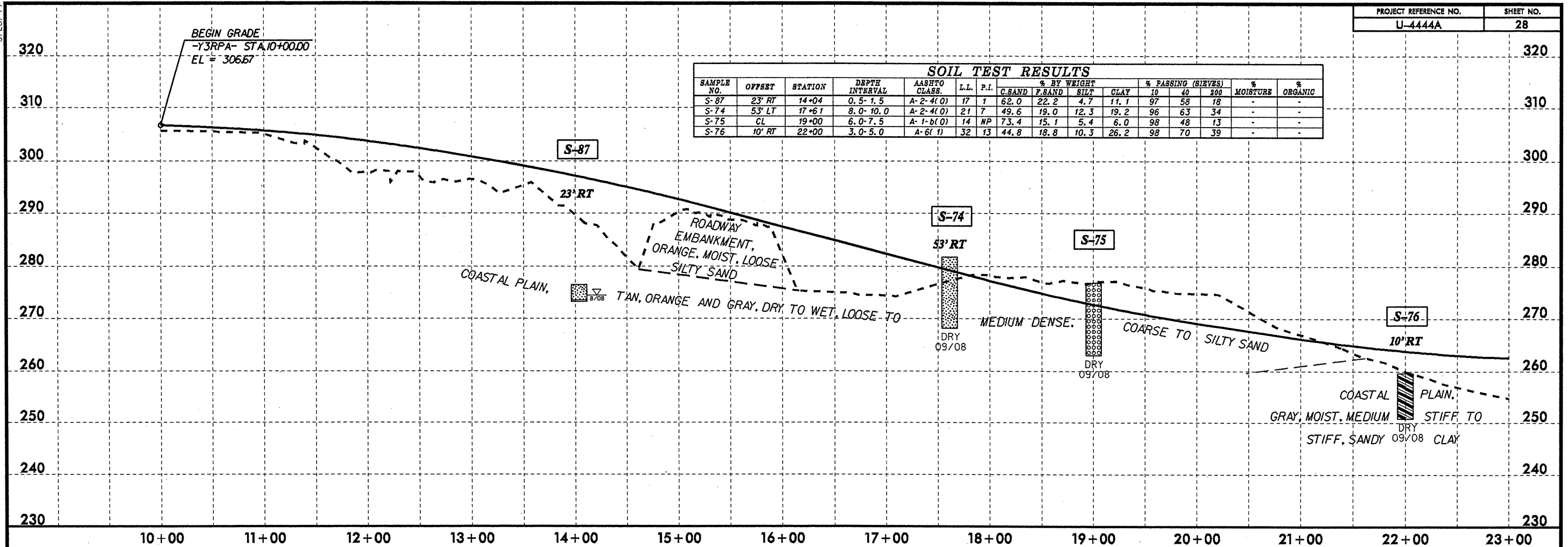
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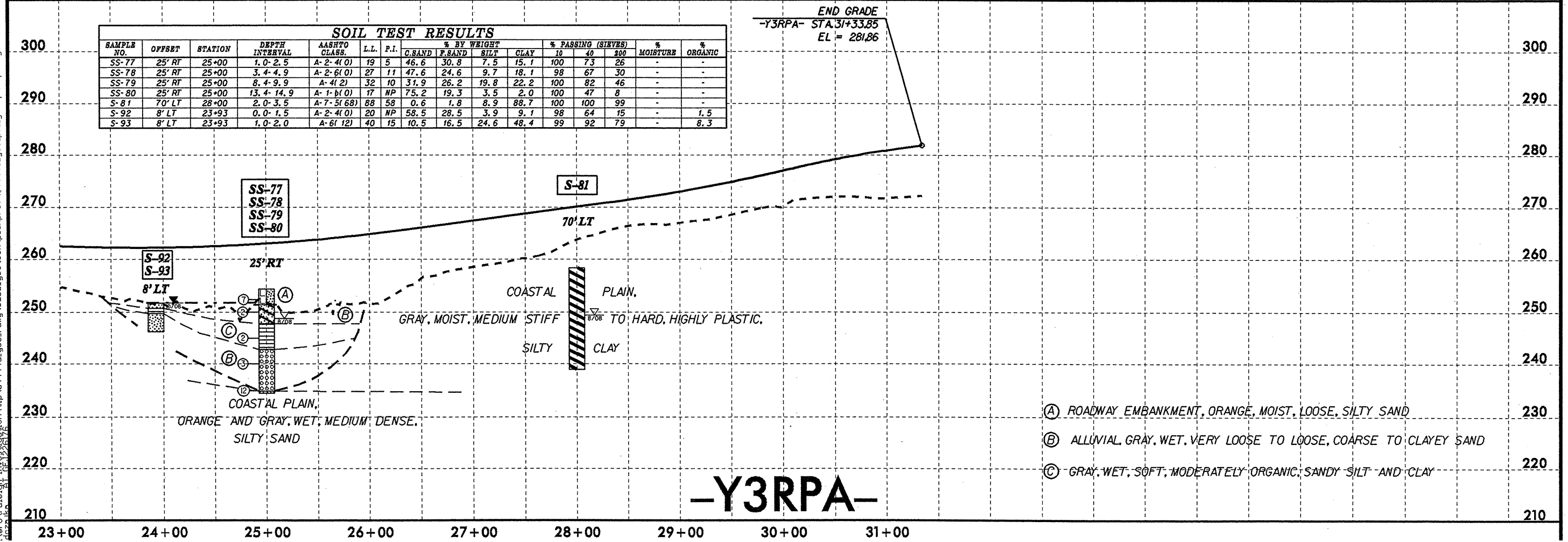
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SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
S-87	23' RT	14+04	0.5-1.5	A-2-4(0)	17	1	62.0	22.2	4.7	11.1	97	58	18	-	-
S-74	53' LT	17+61	8.0-10.0	A-2-4(0)	21	7	49.6	19.0	12.3	19.2	96	63	34	-	-
S-75	CL	19+00	6.0-7.5	A-1-b(0)	14	NP	73.4	15.1	5.4	6.0	98	48	13	-	-
S-76	10' RT	22+00	3.0-5.0	A-6(1)	32	13	44.8	18.8	10.3	26.2	98	70	39	-	-



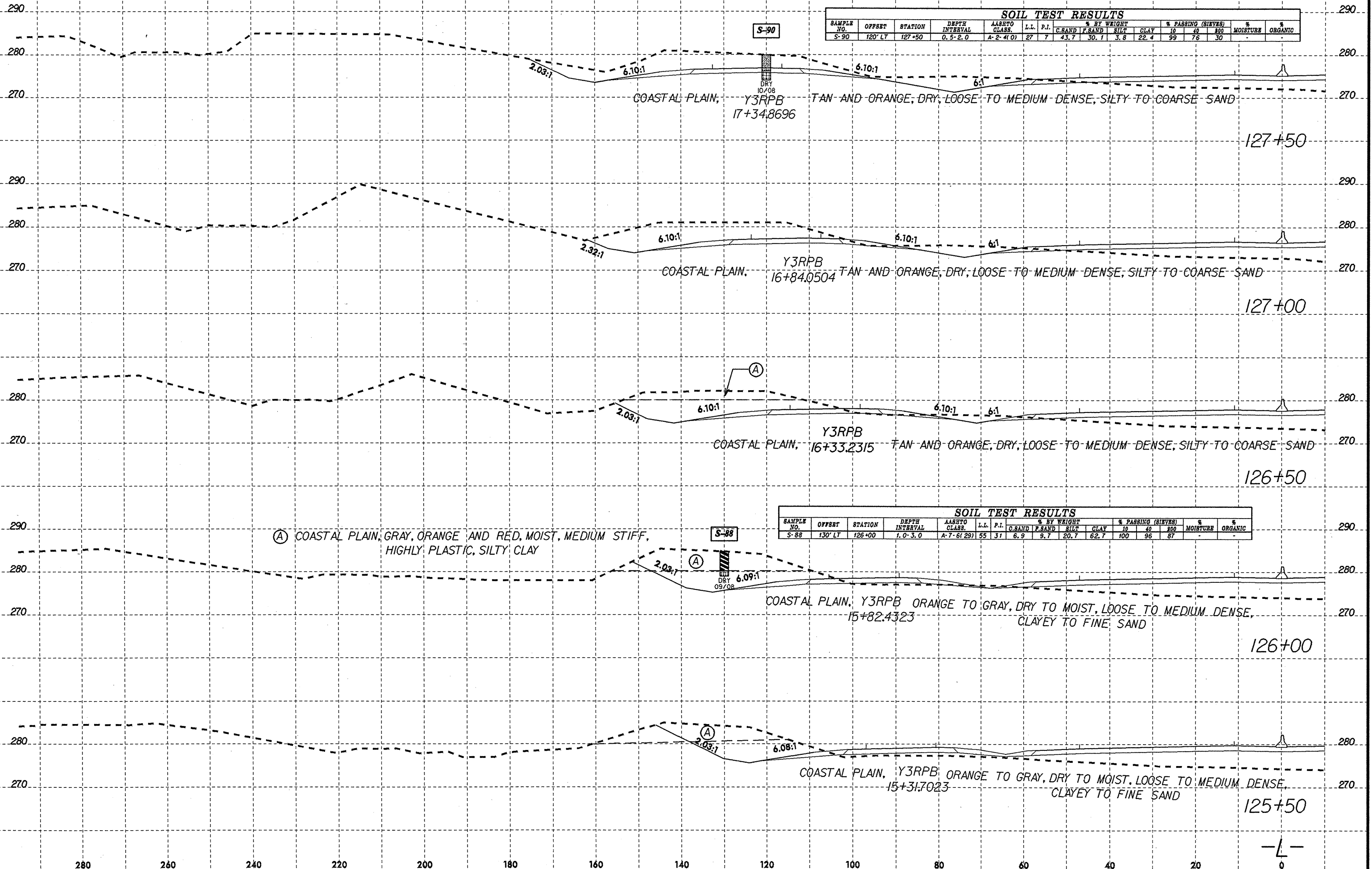
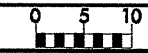
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							G.SAND	F.SAND	SILT	CLAY	10	40	200		
SS-77	25' RT	25+00	1.0-2.5	A-2-4(0)	19	5	46.6	30.8	7.5	15.1	100	73	26	-	-
SS-78	25' RT	25+00	3.4-4.9	A-2-6(0)	27	11	47.6	24.6	9.7	18.1	98	67	30	-	-
SS-79	25' RT	25+00	8.4-9.9	A-4(2)	32	10	31.9	26.2	19.8	22.2	100	82	46	-	-
SS-80	25' RT	25+00	13.4-14.9	A-1-b(0)	17	NP	75.2	19.3	3.5	2.0	100	47	8	-	-
S-81	70' LT	28+00	2.0-3.5	A-7-5(68)	88	58	0.6	1.8	8.9	88.7	100	100	99	-	-
S-92	8' LT	23+93	0.0-1.5	A-2-4(0)	20	NP	58.5	28.5	3.9	9.1	98	64	15	-	1.5
S-93	8' LT	23+93	1.0-2.0	A-6(12)	40	15	10.5	16.5	24.6	48.4	99	92	79	-	8.3



- (A) ROADWAY EMBANKMENT, ORANGE, MOIST, LOOSE, SILTY SAND
- (B) ALLUVIAL, GRAY, WET, VERY LOOSE TO LOOSE, COARSE TO CLAYEY SAND
- (C) GRAY, WET, SOFT, MODERATELY ORGANIC, SANDY SILT AND CLAY

-Y3RPA-

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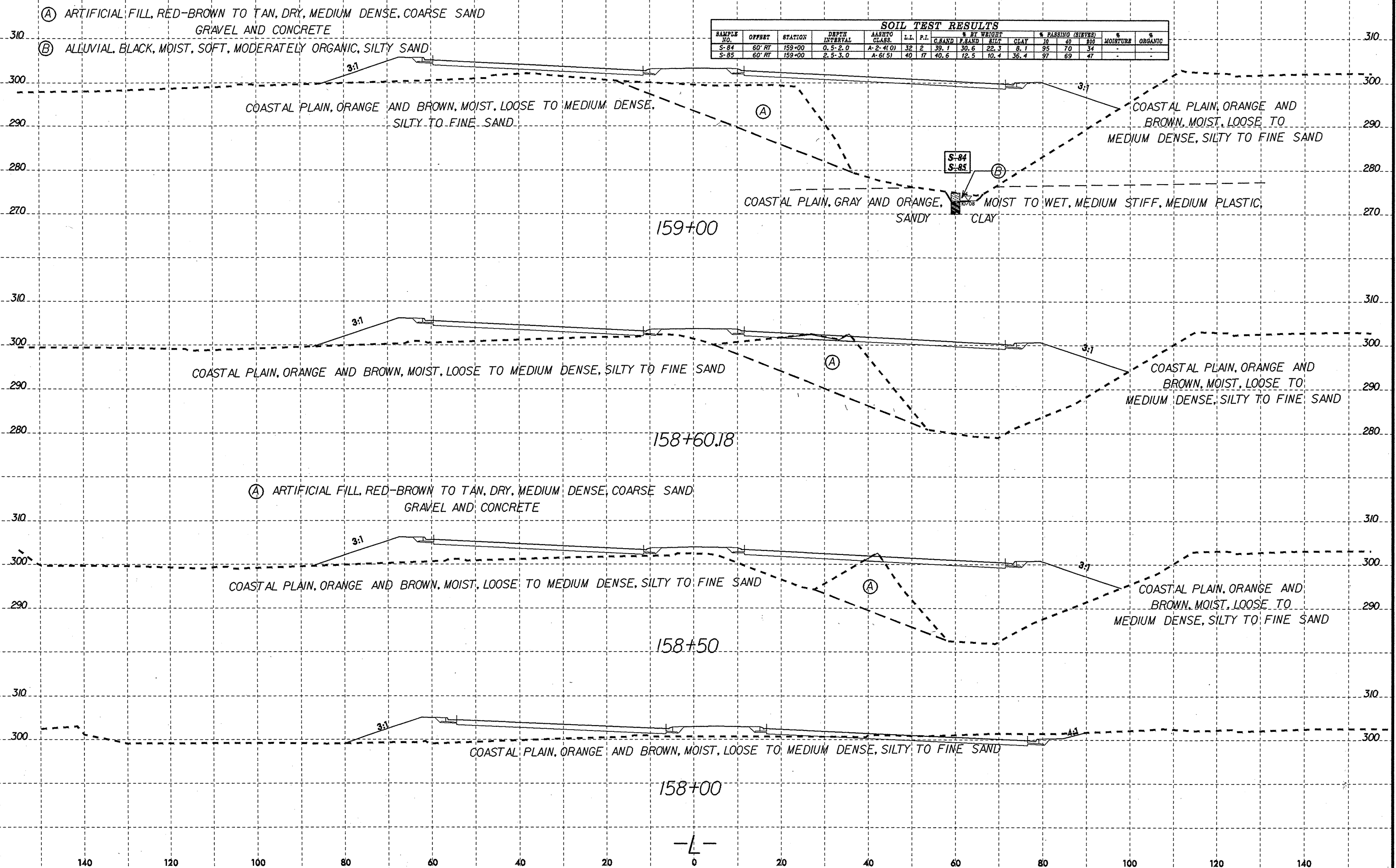


SOIL TEST RESULTS														
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	ASHFTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)		% MOISTURE	% ORGANIC
							C.BAND	F.BAND	SILT	CLAY	#10	#40		
S-90	120' LT	127+50	0.5'-2.0'	A-2-4(0)	27	7	43.7	30.1	3.8	22.4	99	76	30	-

SOIL TEST RESULTS														
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	ASHFTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)		% MOISTURE	% ORGANIC
							C.BAND	F.BAND	SILT	CLAY	#10	#40		
S-88	130' LT	126+00	1.0'-3.0'	A-7-6(29)	55	31	6.9	9.7	20.7	62.7	100	96	87	-

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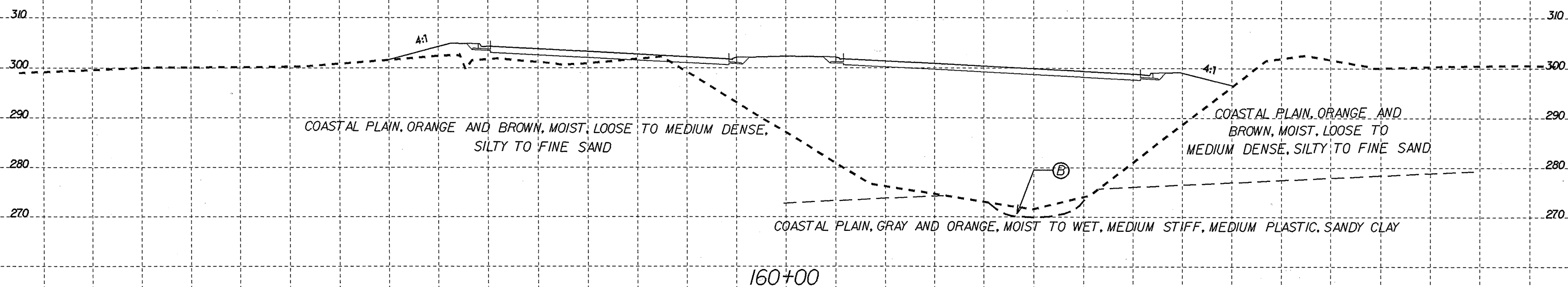
SOIL TEST RESULTS															
SAMPLE NO.	OFFBRT	STATION	DEPTH INTERVAL	AASHTO CLASS	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							GRAVEL	SAND	SILT	CLAY	10	40	200		
S-84	60' RT	159+00	0.5-2.0	A-2-4(0)	32	2	39.1	30.6	22.3	8.1	95	70	34	-	-
S-85	60' RT	159+00	2.5-3.0	A-6(5)	40	17	40.6	12.5	10.4	36.4	97	69	47	-	-



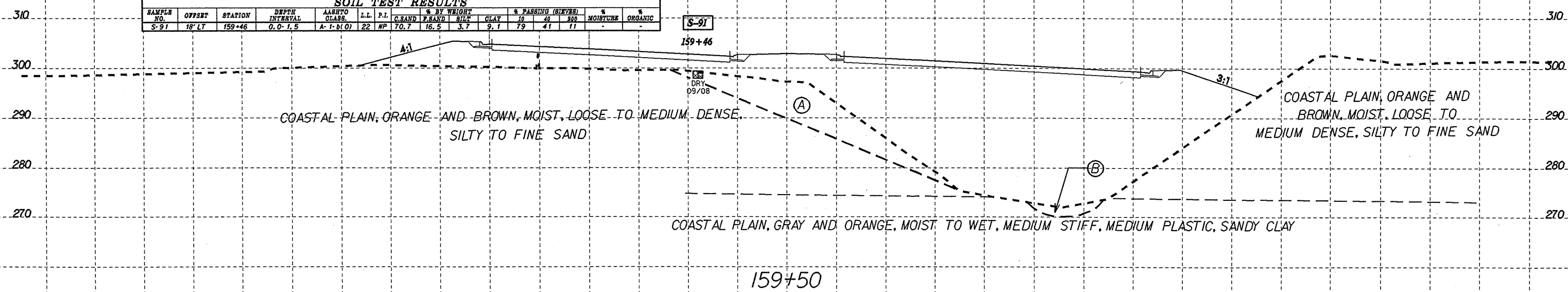
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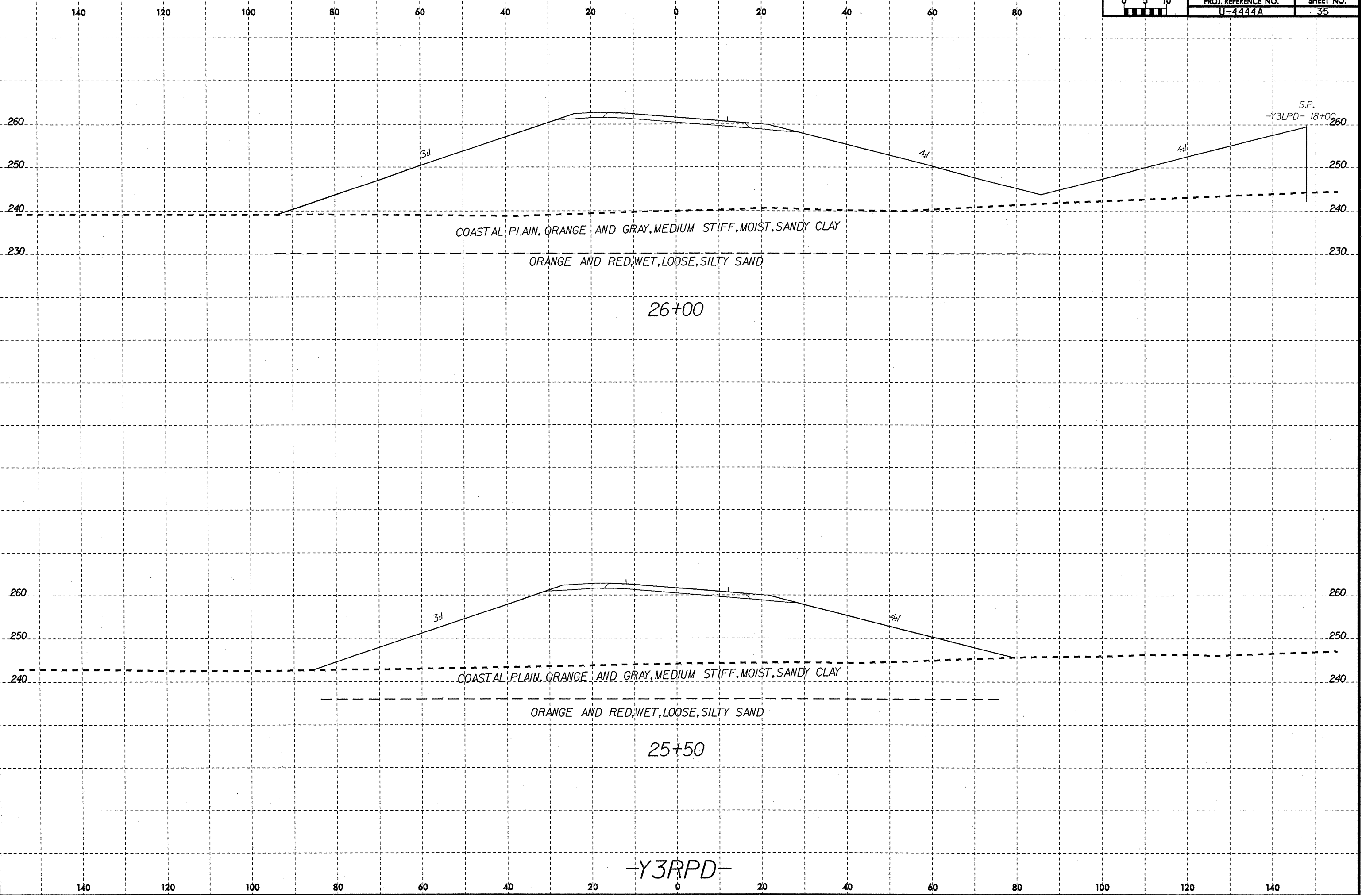
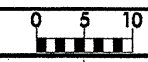
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- (A) ARTIFICIAL FILL, RED-BROWN TO TAN, DRY, MEDIUM DENSE, COARSE SAND GRAVEL AND CONCRETE
- (B) ALLUVIAL, BLACK, MOIST, SOFT, MODERATELY ORGANIC, SILTY SAND



SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	ASHTO CLASS	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
S-91	18' LT	159+46	0.0-1.5	A-1-B(0)	22	NP	C. SAND	F. SAND	SILT	CLAY	10	40	200		
							70.7	16.5	3.7	9.1	79	41	11		





COASTAL PLAIN, ORANGE AND GRAY, MEDIUM STIFF, MOIST, SANDY CLAY
ORANGE AND RED, WET, LOOSE, SILTY SAND

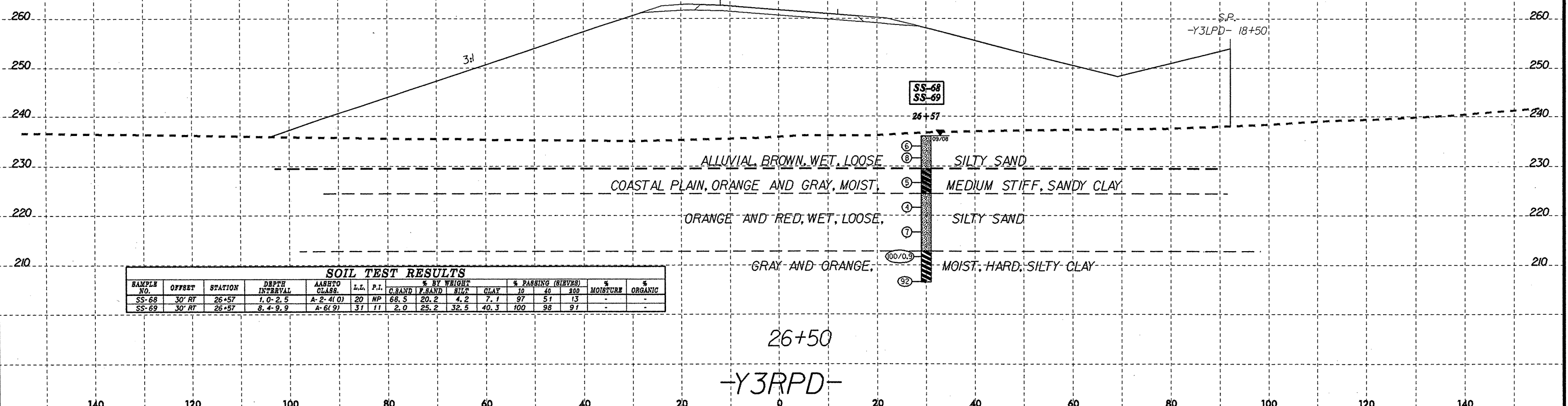
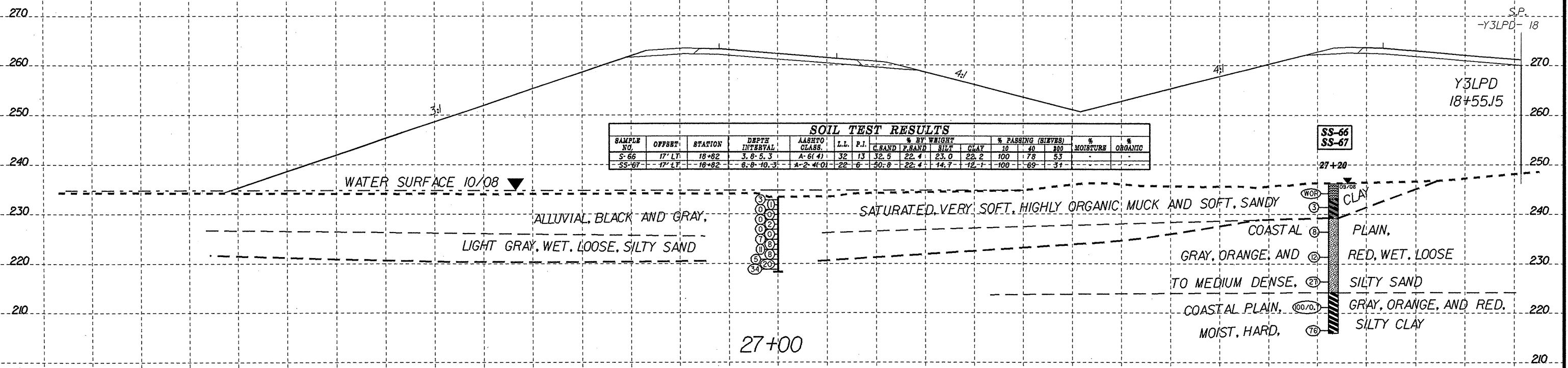
26+00

COASTAL PLAIN, ORANGE AND GRAY, MEDIUM STIFF, MOIST, SANDY CLAY
ORANGE AND RED, WET, LOOSE, SILTY SAND

25+50

-Y3RPD-

B/23/99



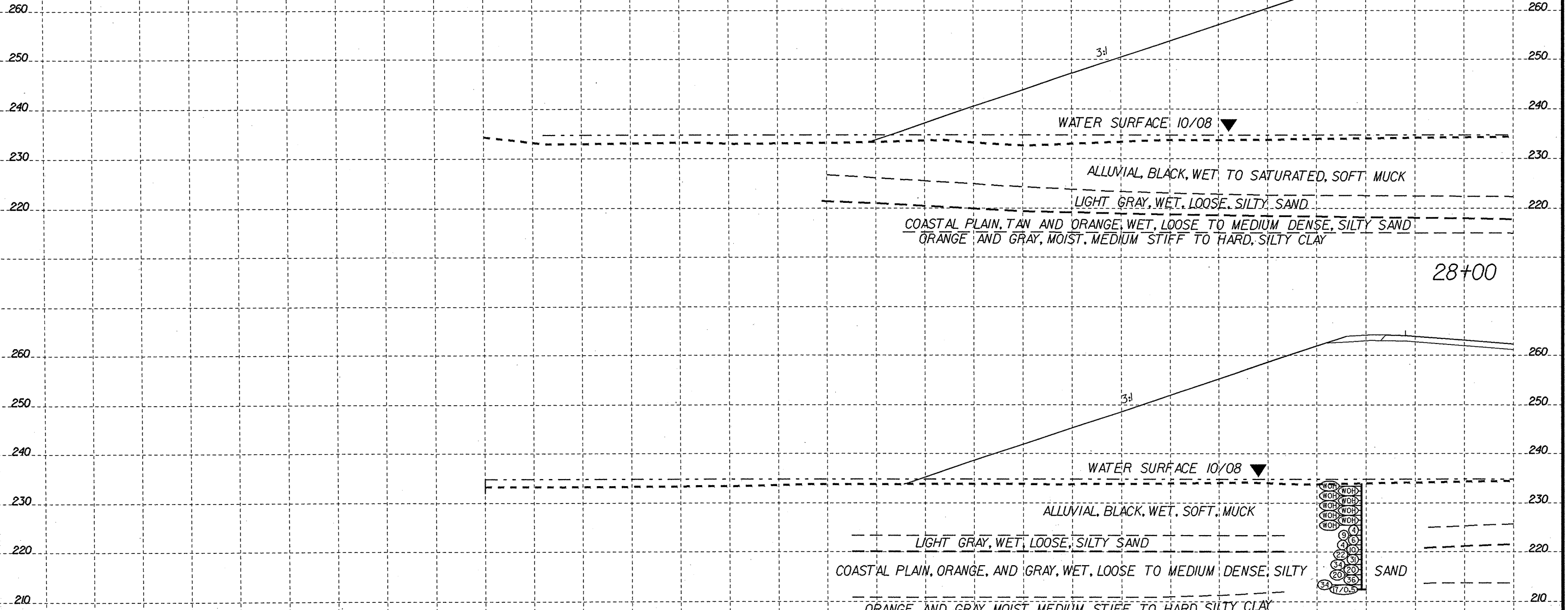
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8/23/98

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PROJ. REFERENCE NO. U-4444A SHEET NO. 37



WATER SURFACE 10/08 ▼

ALLUVIAL, BLACK, WET TO SATURATED, SOFT MUCK

LIGHT GRAY, WET, LOOSE, SILTY SAND

COASTAL PLAIN, TAN AND ORANGE, WET, LOOSE TO MEDIUM DENSE, SILTY SAND
ORANGE AND GRAY, MOIST, MEDIUM STIFF TO HARD, SILTY CLAY

28+00

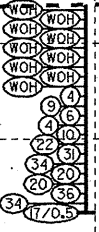
WATER SURFACE 10/08 ▼

ALLUVIAL, BLACK, WET, SOFT, MUCK

LIGHT GRAY, WET, LOOSE, SILTY SAND

COASTAL PLAIN, ORANGE, AND GRAY, WET, LOOSE TO MEDIUM DENSE, SILTY

ORANGE AND GRAY, MOIST, MEDIUM STIFF TO HARD, SILTY CLAY



SAND

27+50

-Y3RPD-

280 260 240 220 200 180 160 140 120 100 80 60 40 20 0

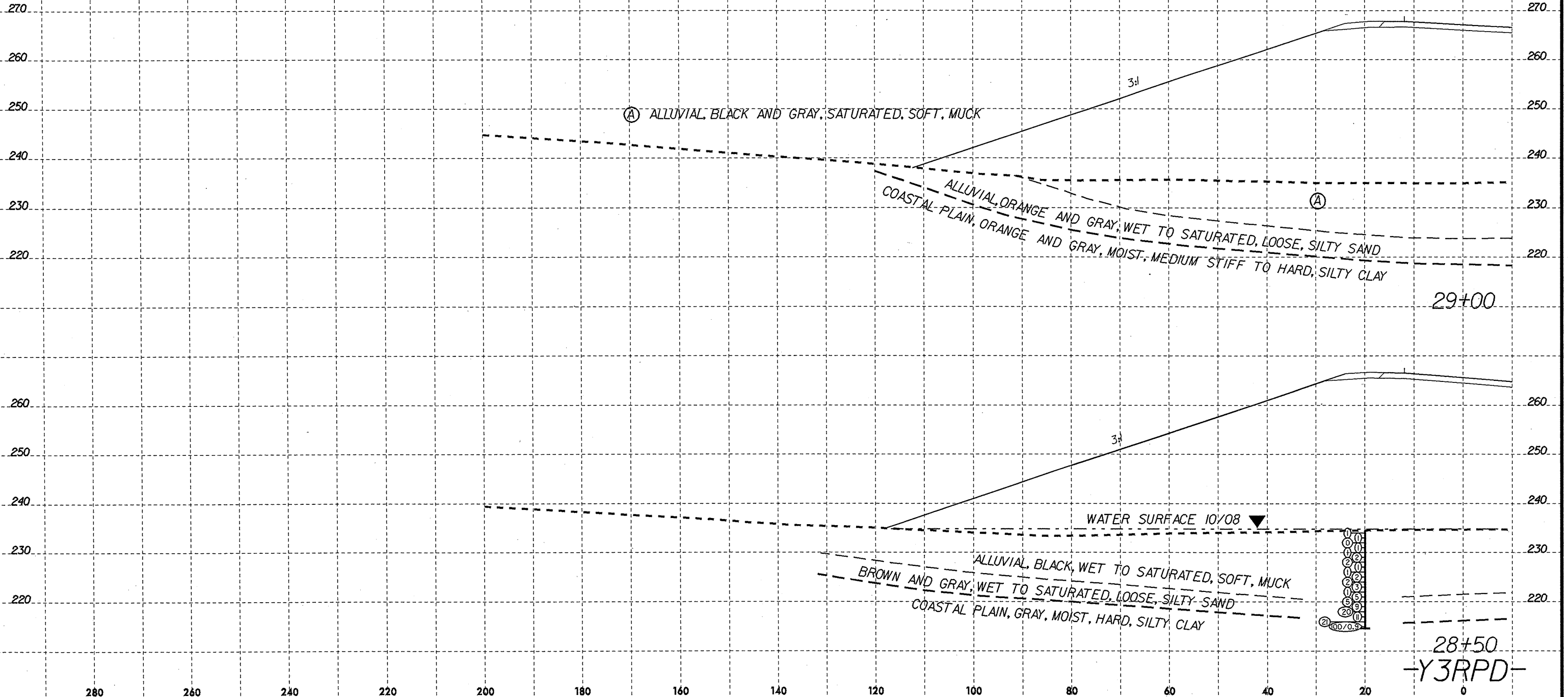
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8/23/98

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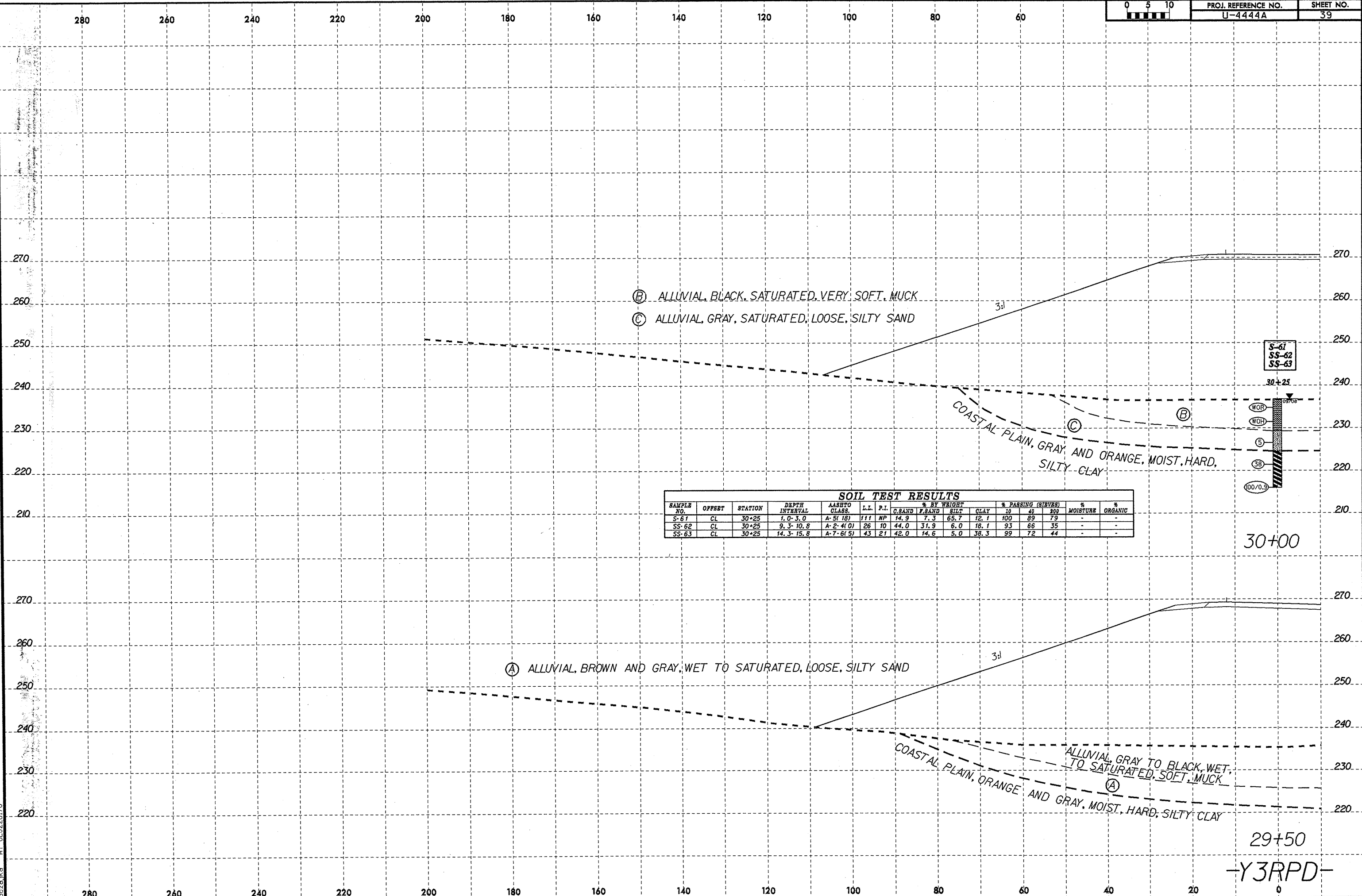


PROJ. REFERENCE NO. U-4444A SHEET NO. 38



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8/23/99



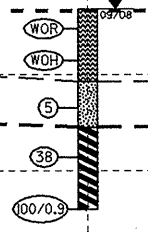
ⓑ ALLUVIAL, BLACK, SATURATED, VERY SOFT, MUCK
 ⓒ ALLUVIAL, GRAY, SATURATED, LOOSE, SILTY SAND

COASTAL PLAIN, GRAY AND ORANGE, MOIST, HARD, SILTY CLAY

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-61	CL	30+25	1.0-3.0	A-5(18)	111	NP	14.9	7.3	65.7	12.1	100	89	79	-	-
SS-62	CL	30+25	9.3-10.8	A-2(41)	26	10	44.0	31.9	6.0	18.1	93	66	35	-	-
SS-63	CL	30+25	14.3-15.8	A-7(61)	43	21	42.0	14.6	5.0	38.3	99	72	44	-	-

S-61
SS-62
SS-63

30+25



30+00

Ⓐ ALLUVIAL, BROWN AND GRAY, WET TO SATURATED, LOOSE, SILTY SAND

COASTAL PLAIN, ORANGE AND GRAY, MOIST, HARD, SILTY CLAY
 ALLUVIAL, GRAY TO BLACK, WET TO SATURATED, SOFT, MUCK

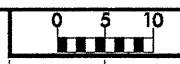
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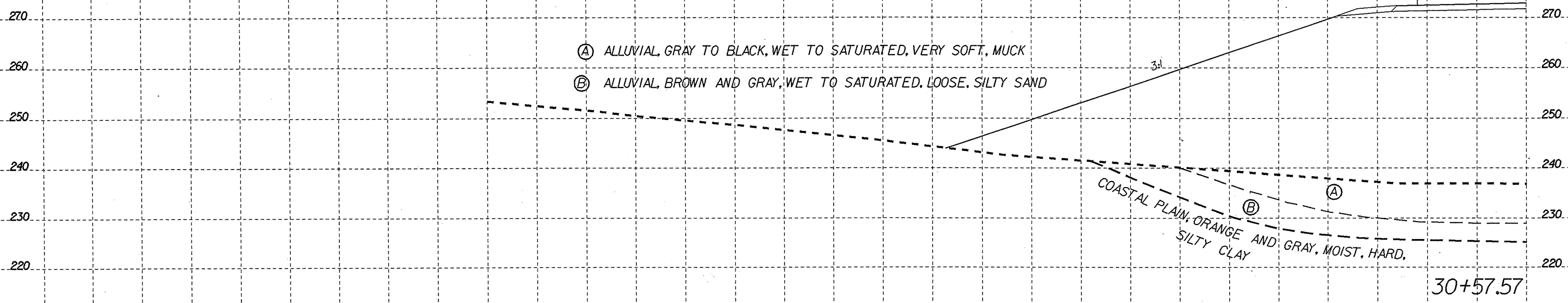
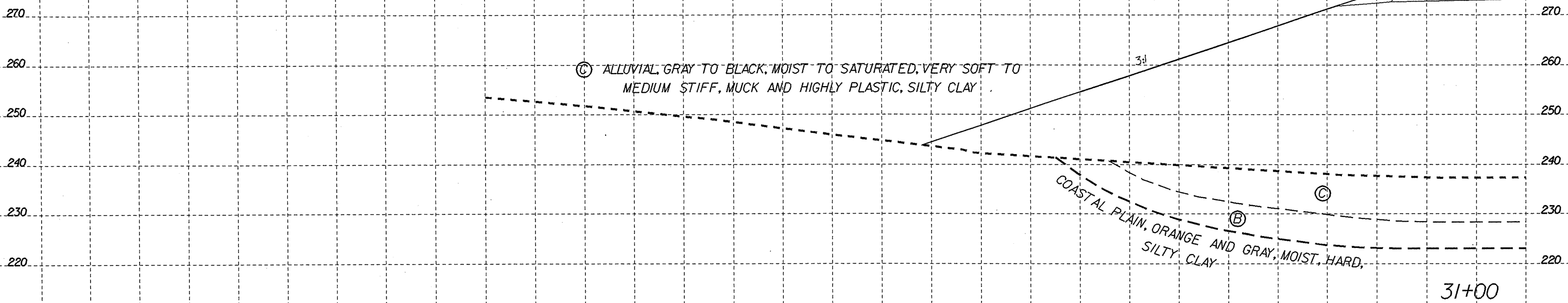
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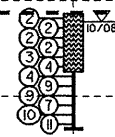
SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
S-94	20' LT	32+00	1.0-2.5	A-7-S(19)	100	21	31.3	6.9	23.6	38.6	100	75	63	-	44.3

(A) ALLUVIAL, GRAY TO BLACK, MOIST TO SATURATED, VERY SOFT TO MEDIUM STIFF, MUCK AND HIGHLY PLASTIC, SILTY CLAY

ALLUVIAL, BROWN AND GRAY, WET, LOOSE, SILTY SAND
COASTAL PLAIN, ORANGE AND GRAY, MOIST, HARD, SILTY CLAY

ALLUVIAL, GRAY, MOIST TO WET, VERY SOFT TO MEDIUM STIFF, MEDIUM TO HIGHLY PLASTIC SILTY CLAY
ALLUVIAL, GRAY, WET, LOOSE, SILTY SAND
COASTAL PLAIN, ORANGE AND GRAY, MOIST, HARD, SILTY CLAY

S-94



32+00

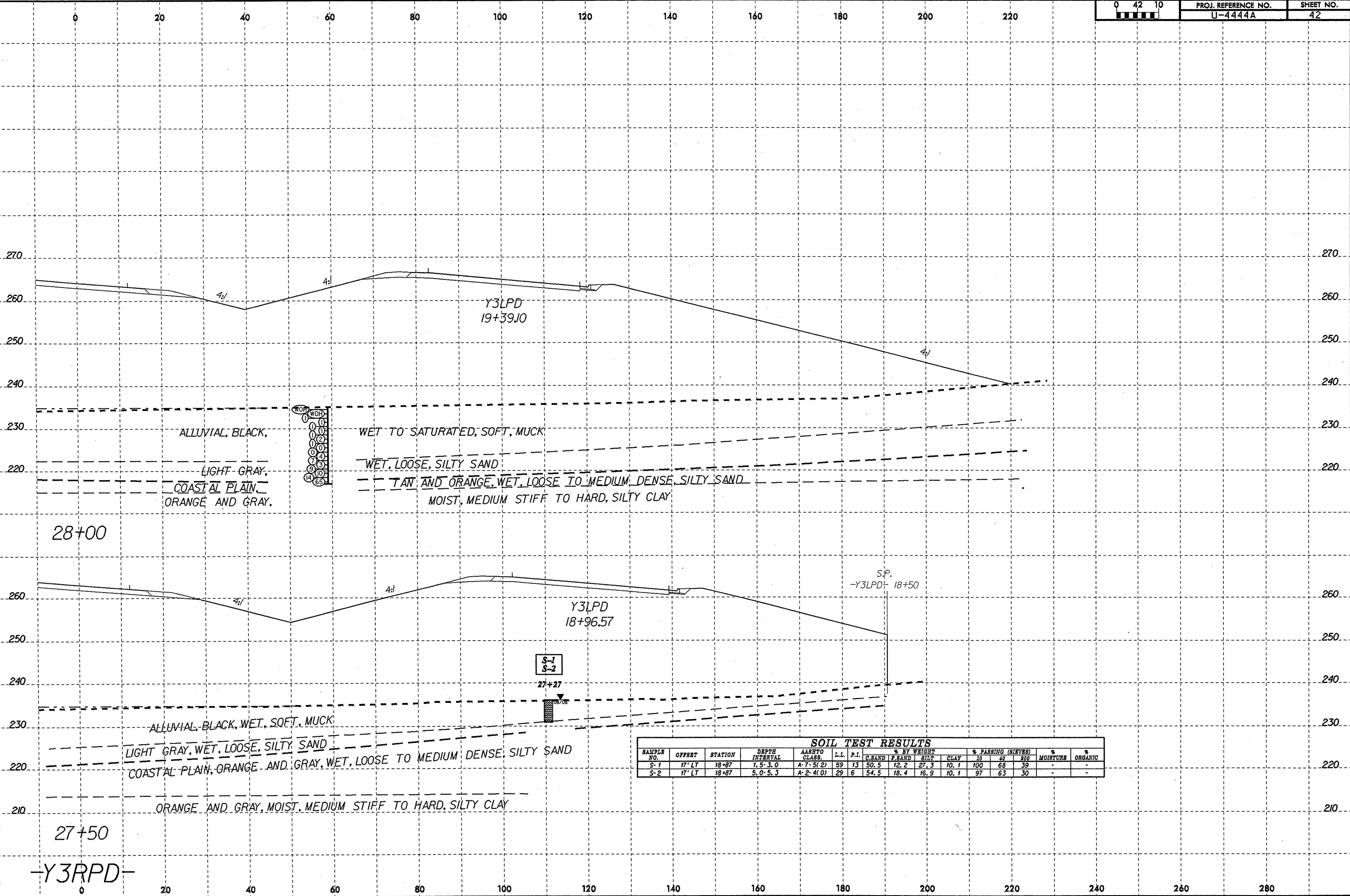
31+50

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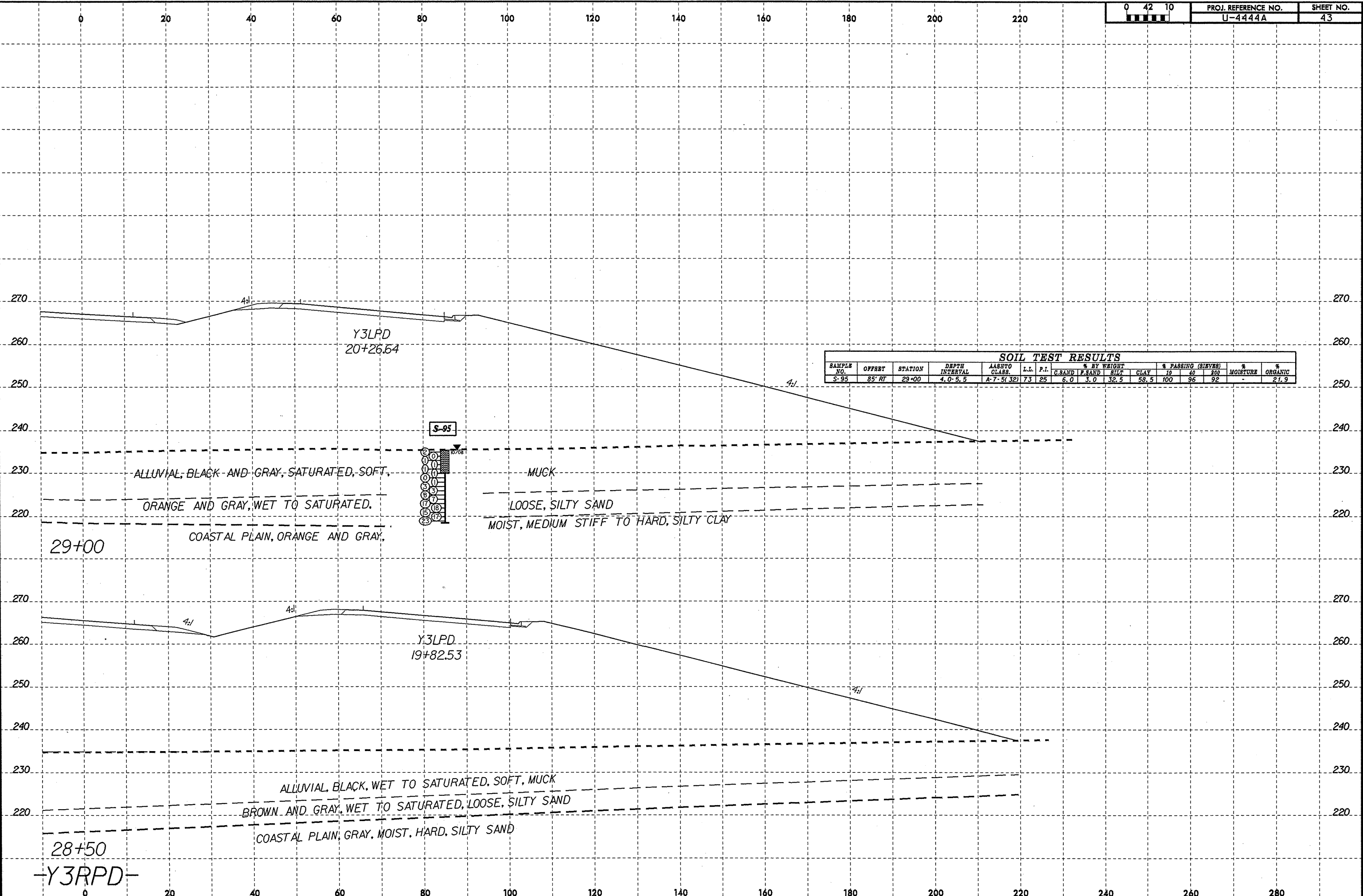
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SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT			% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40		
S-1	17' LT	18+87	1.5-3.0	A-7-5(2)	59	13	50.5	12.2	27.3	10.1	100	68	39	-
S-2	17' LT	18+87	5.0-5.3	A-2-4(1)	29	6	54.5	18.4	16.9	10.1	97	63	30	-

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28+50
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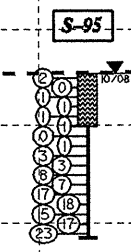
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 BROWN AND GRAY, WET TO SATURATED, LOOSE, SILTY SAND
 COASTAL PLAIN, GRAY, MOIST, HARD, SILTY SAND

29+00

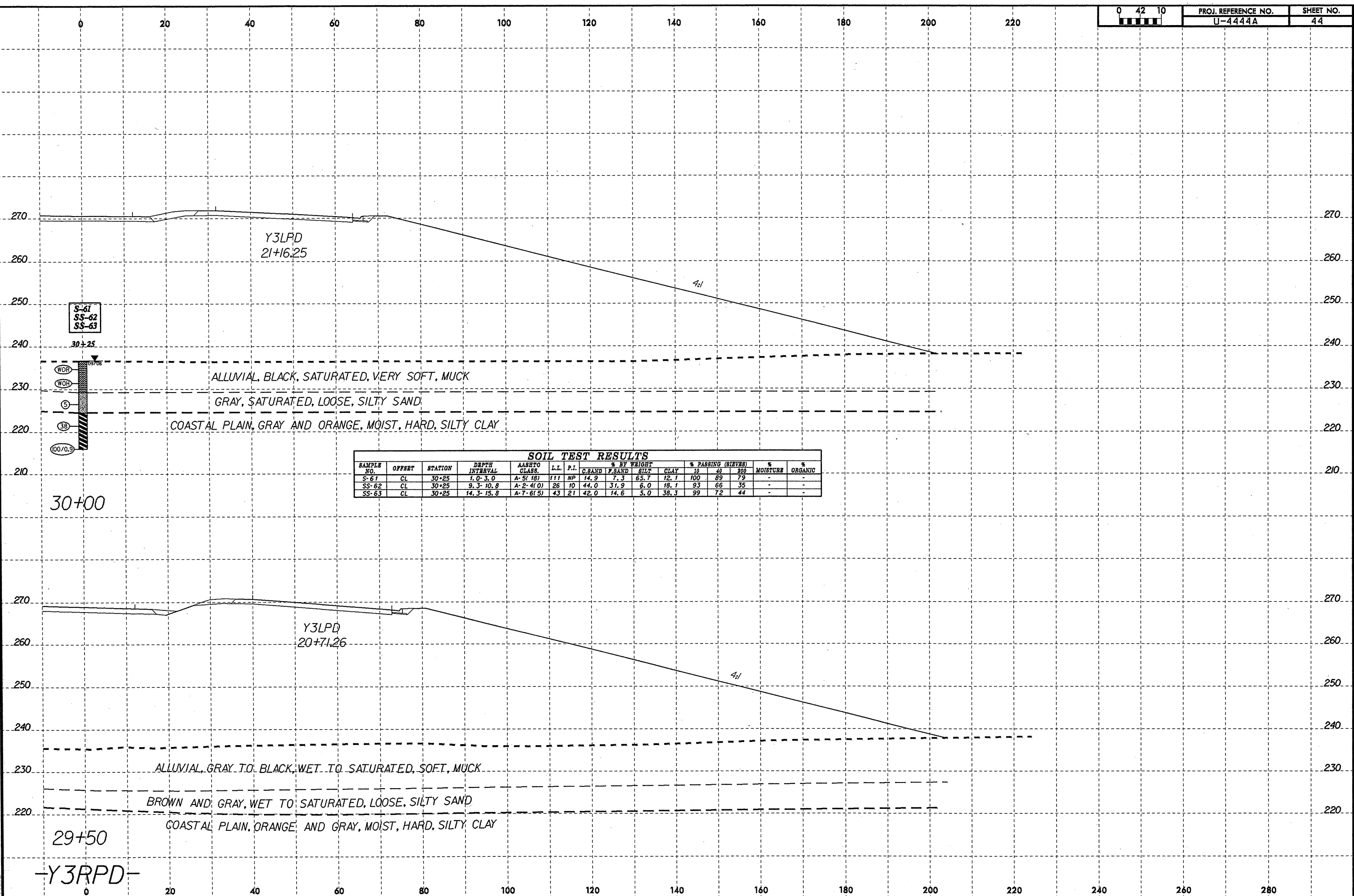
ALLUVIAL, BLACK AND GRAY, SATURATED, SOFT,
 ORANGE AND GRAY, WET TO SATURATED,
 COASTAL PLAIN, ORANGE AND GRAY,

MUCK
 LOOSE, SILTY SAND
 MOIST, MEDIUM STIFF TO HARD, SILTY CLAY

Y3LPD
20+26.54



Y3LPD
19+82.53



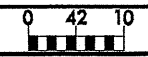
SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT			% PASSING (SIEVES)			% MOISTURE	% ORGANIC	
							C.SAND	F.SAND	SILT	30	40	200			
S-61	CL	30+25	1.0-3.0	A-5(18)	111	HP	14.9	7.3	65.7	12.1	100	89	79	-	-
SS-62	CL	30+25	9.3-10.8	A-2(10)	26	10	44.0	31.9	6.0	18.1	93	66	35	-	-
SS-63	CL	30+25	14.3-15.8	A-7(6.5)	43	21	42.0	14.6	3.0	36.3	99	72	44	-	-

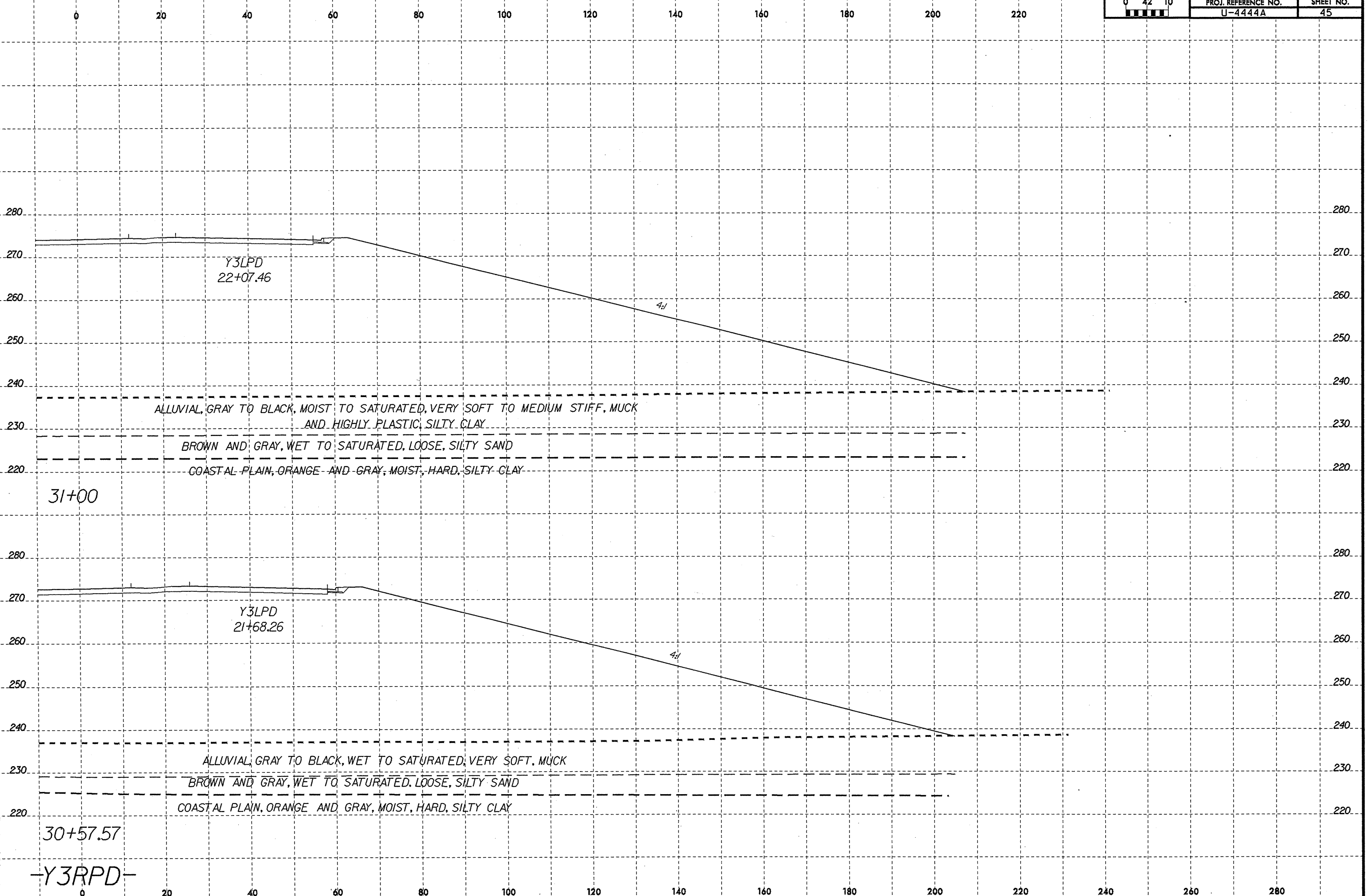
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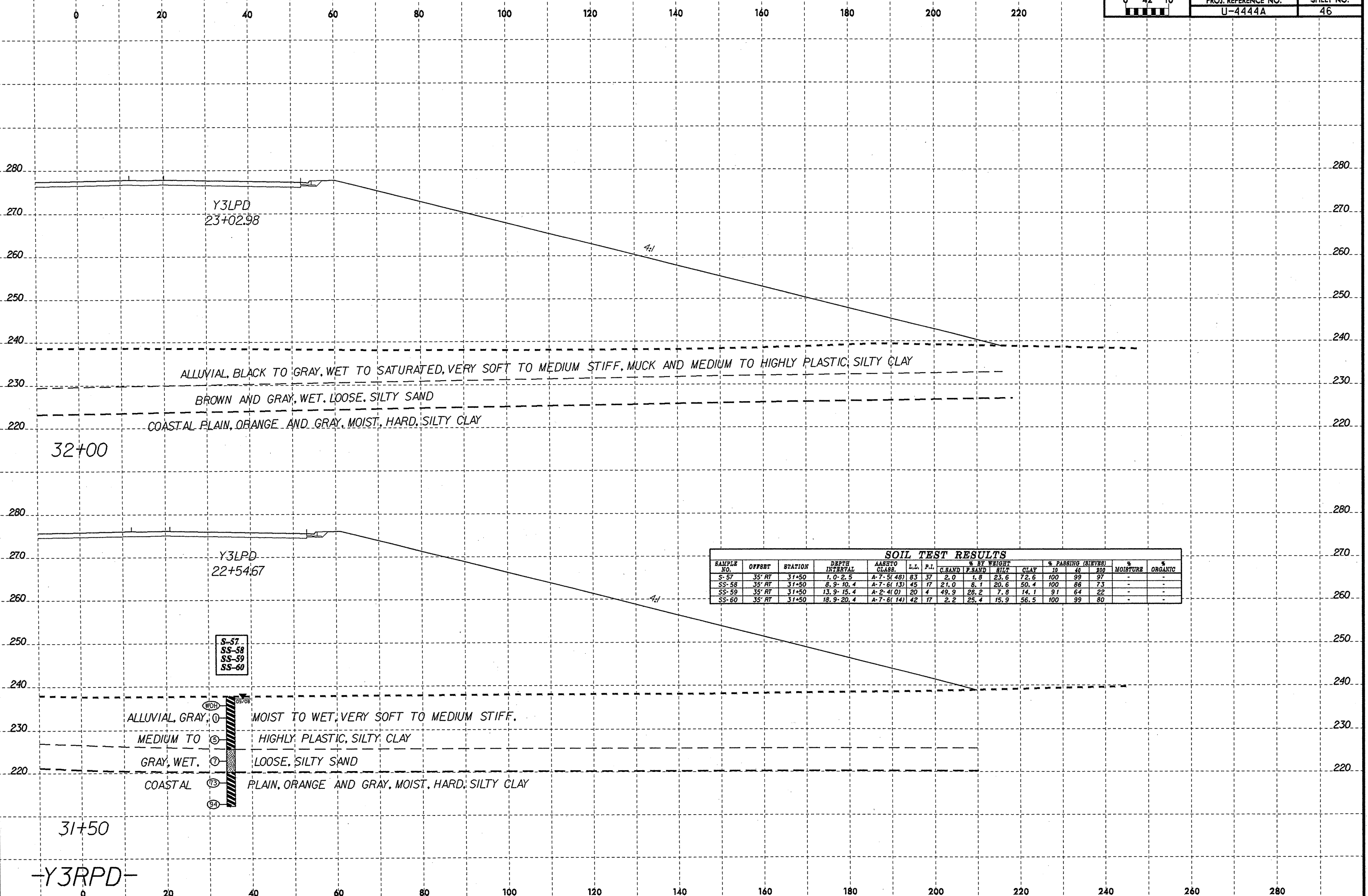
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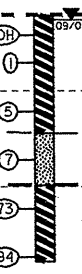
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SHEET NO.
46



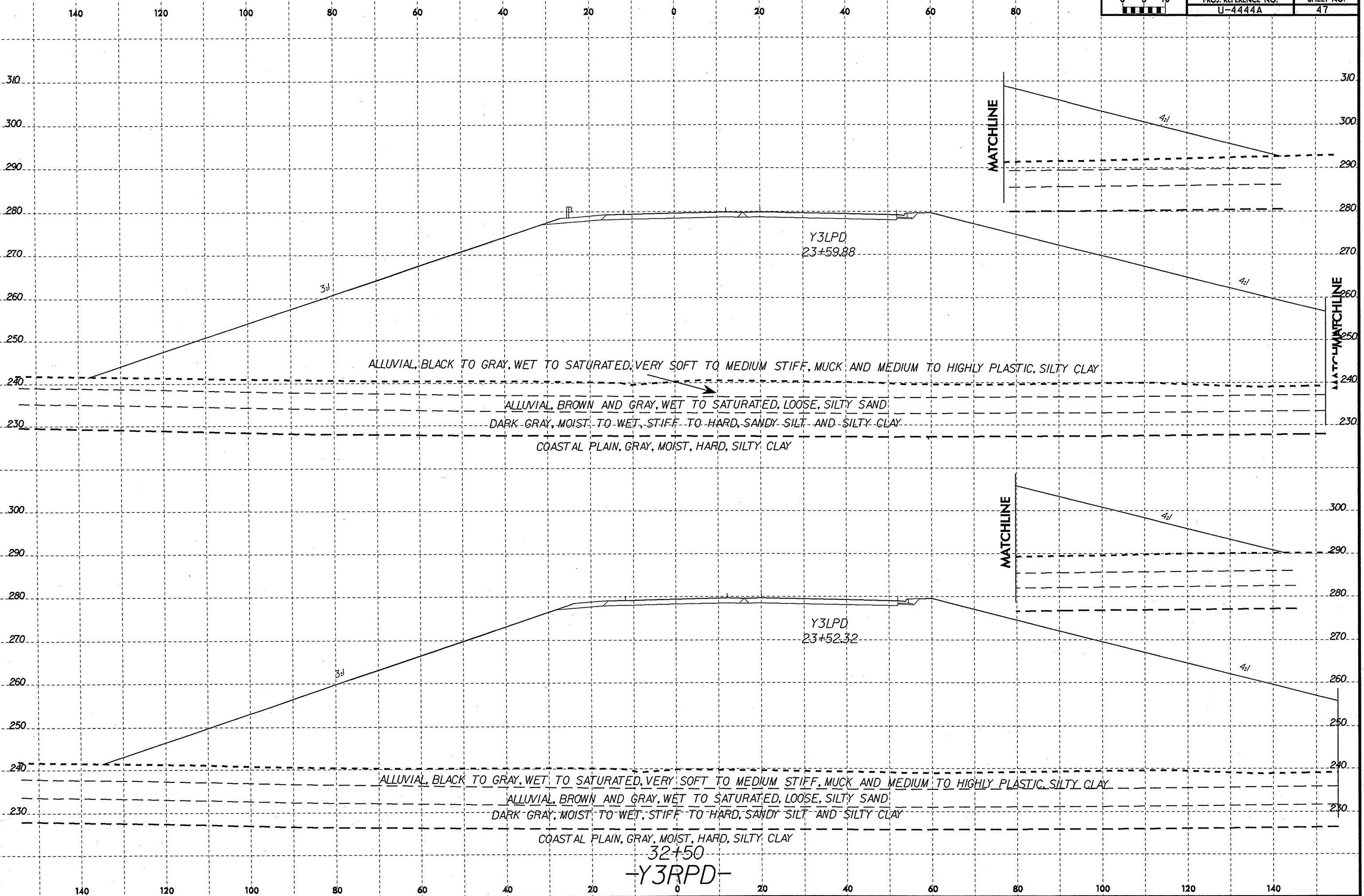
SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	ASTM CLASS	L.L.	P.L.	% BY WEIGHT				% PASSING (SIEVES)		% MOISTURE	% ORGANIC	
							C.SAND	F.SAND	SILT	CLAY	10	200			
S-57	35' RT	31+50	1.0-2.5	A-7-5(48)	83	37	2.0	1.8	23.6	72.6	100	99	97	-	-
SS-58	35' RT	31+50	8.9-10.4	A-7-6(13)	45	17	21.0	8.1	20.6	50.4	100	86	73	-	-
SS-59	35' RT	31+50	13.9-15.4	A-2-4(0)	20	4	49.9	28.2	7.8	14.1	91	64	22	-	-
SS-60	35' RT	31+50	18.9-20.4	A-7-6(14)	42	17	2.2	25.4	15.9	56.5	100	99	80	-	-

S-57
SS-58
SS-59
SS-60

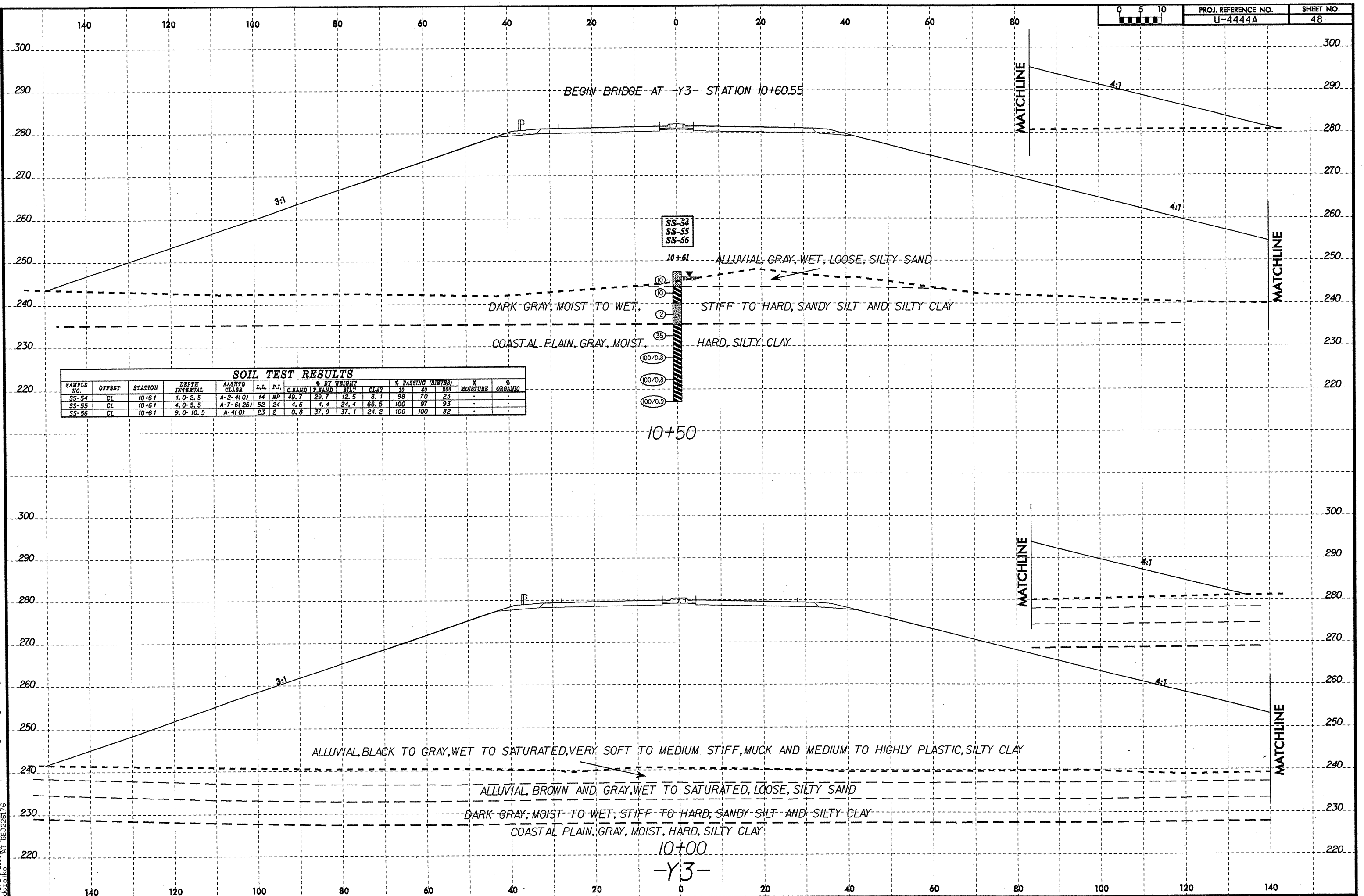


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pzzzjka

8/23/99



24-NOV-2008 08:34
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BEGIN BRIDGE AT Y3 STATION 10+60.55

MATCHLINE

MATCHLINE

MATCHLINE

MATCHLINE

SS-54
SS-55
SS-56

10+61

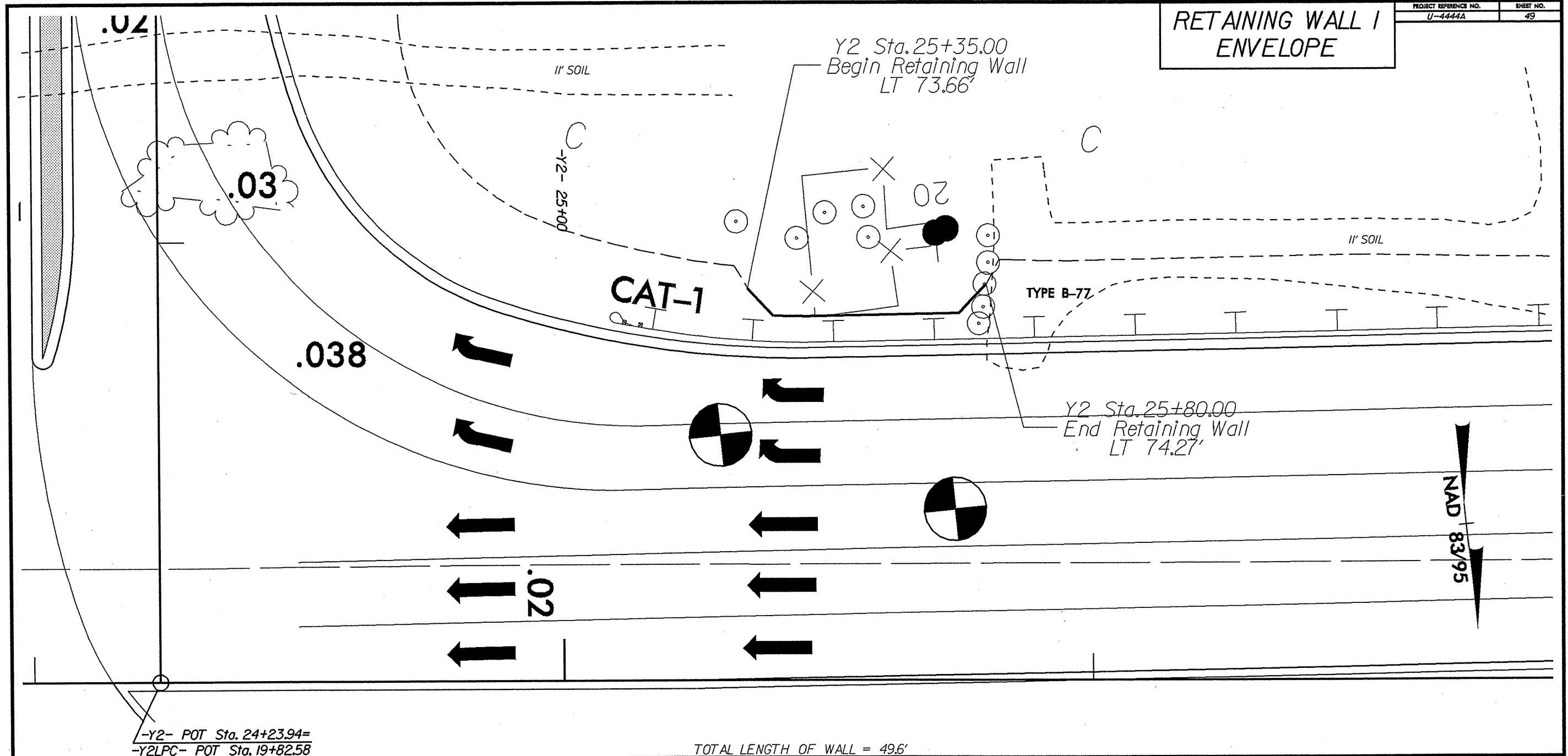
10+50

10+00
-Y3-

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							G. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-54	CL	10+61	1.0-2.5	A-2-4(0)	14	NP	49.7	29.7	12.5	8.1	98	70	23	-	-
SS-55	CL	10+61	4.0-5.5	A-7-6(26)	52	24	4.6	4.4	24.4	66.5	100	97	93	-	-
SS-56	CL	10+61	9.0-10.5	A-4(0)	23	2	0.8	37.9	37.1	24.2	100	100	82	-	-

RETAINING WALL I ENVELOPE



-Y2- POT Sta. 24+23.94=
-Y2LPC- POT Sta. 19+82.58

TOTAL LENGTH OF WALL = 49.6'

