

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

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-3826	1	23
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
34983.1.1	STP-1537(2)	PE	
34983.2.2	STP-1537(2)	R/W / UTILITIES	
34983.3.2	STP-1537(5)	CONSTRUCTION	

CONTENTS

LINE	STATION	PLAN	PROFILE
-L-	10+00 TO 99+51	4-10	11-14
-Y-	15+65 TO 25+00	10	15

CROSSECTIONS

-L-	11+00 TO 16+50
-L-	57+00 TO 59+50
-L-	69+00 TO 71+00

SHEETS

16-18
19-21
22-23

ROADWAY SUBSURFACE INVESTIGATION

PROJ. REFERENCE NO. 34983.1.1 (U-3826) F.A. PROJ. STP-1537(2)
COUNTY EDGEcombe
PROJECT DESCRIPTION SR 1537 (DANIEL ST. EXT.) FROM SR 1518 (LOOP RD.) TO US 258/NC 122

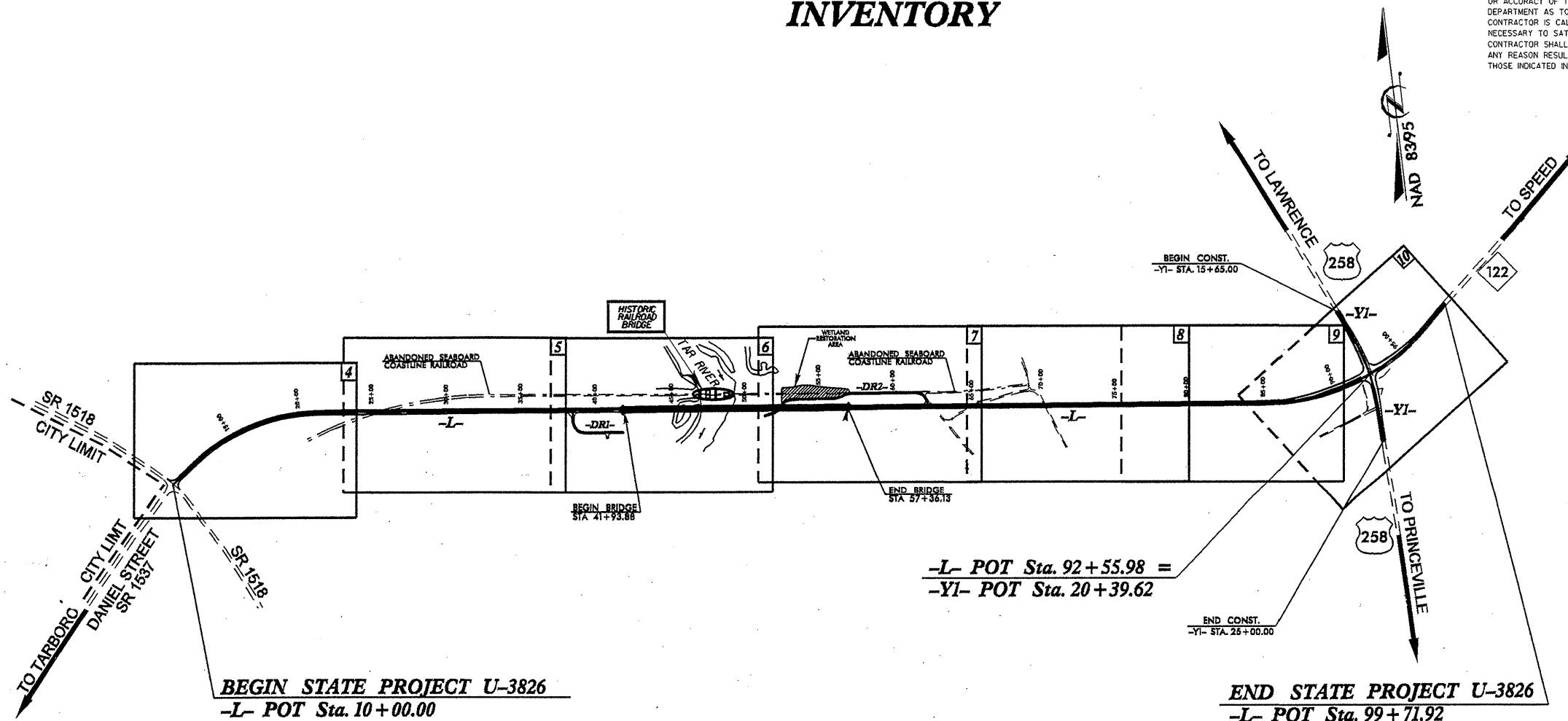
INVENTORY

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.

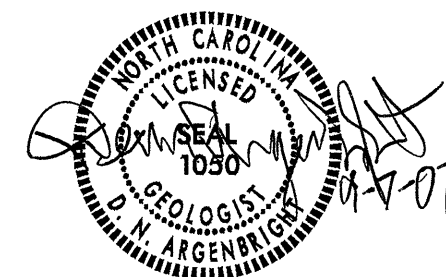
GENERAL SOIL AND ROCK STRATA DESCRIPTIONS AND INDICATED BOUNDARIES ARE BASED ON A GEOTECHNICAL INTERPRETATION OF ALL AVAILABLE SUBSURFACE DATA AND MAY NOT NECESSARILY REFLECT THE ACTUAL SUBSURFACE CONDITIONS BETWEEN BORINGS OR BETWEEN SAMPLED STRATA WITHIN THE BOREHOLE. THE LABORATORY SAMPLE DATA AND THE IN SITU (IN-PLACED) 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.



PERSONNEL
T.C. BOTTOMS
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R. E. SMITH

INVESTIGATED BY F. M. WESCOTT III
CHECKED BY D. N. ARGENBRIGHT
SUBMITTED BY D. N. ARGENBRIGHT
DATE SEPTEMBER, 2007



DRAWN BY: C. M. KENT

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.

CONTRACT: C-202157 ID: U-3826

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

PROJECT REFERENCE NO. U-3826	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
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 THE STANDARD PENETRATION TEST (ASHTO 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 CLAY, MOST WITH INTERBEDDED FINE SAND LAYERS, HEAVY 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. 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, GNEISS, 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 (CP) 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. ADUIFIER - 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	MINERALOGICAL COMPOSITION	WEATHERING	
GENERAL CLASS. GRANULAR MATERIALS (< 35% PASSING #200) SILT-CLAY MATERIALS (> 35% PASSING #200) ORGANIC MATERIALS	MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHENEVER THEY ARE CONSIDERED OF SIGNIFICANCE.	FRESH ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING. ROCK RINGS UNDER HAMMER IF CRYSTALLINE. VERY SLIGHT 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 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 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 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 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 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 DIXES OR STRINGERS. SAPROLITE IS ALSO AN EXAMPLE.	
SOIL LEGEND AND AASHTO CLASSIFICATION	COMPRESSIONIBILITY	GROUND WATER	
GROUP CLASS. A-1, A-2, A-3, A-4, A-5, A-6, A-7	SLIGHTLY COMPRESSIBLE LIQUID LIMIT LESS THAN 31 MODERATELY COMPRESSIBLE LIQUID LIMIT EQUAL TO 31-50 HIGHLY COMPRESSIBLE LIQUID LIMIT GREATER THAN 50	▽ WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING ▽ STATIC WATER LEVEL AFTER 24 HOURS ▽ PW PERCHED WATER, SATURATED ZONE, OR WATER BEARING STRATA ○ SPRING OR SEEP	
PERCENTAGE OF MATERIAL	GROUND WATER	MISCELLANEOUS SYMBOLS	
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	▽ WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING ▽ STATIC WATER LEVEL AFTER 24 HOURS ▽ PW PERCHED WATER, SATURATED ZONE, OR WATER BEARING STRATA ○ SPRING OR SEEP	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	
CONSISTENCY OR DENSENESS	GROUND WATER	ABBREVIATIONS	
PRIMARY SOIL TYPE COMPACTNESS OR CONSISTENCY RANGE OF STANDARD PENETRATION RESISTANCE (N-VALUE) RANGE OF UNCONFINED COMPRESSIVE STRENGTH (TONS/F ²)	▽ WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING ▽ STATIC WATER LEVEL AFTER 24 HOURS ▽ PW PERCHED WATER, SATURATED ZONE, OR WATER BEARING STRATA ○ SPRING OR SEEP	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 SAP. - SAPROLITIC SD. - SAND, SANDY SL. - SILT, SILTY SLI. - SLIGHTLY TCR - TRICONE REFUSAL w - MOISTURE CONTENT v - VERY VST - VANE SHEAR TEST WEA. - WEATHERED γ - UNIT WEIGHT γ _d - DRY UNIT WEIGHT	
TEXTURE OR GRAIN SIZE	GROUND WATER	EQUIPMENT USED ON SUBJECT PROJECT	
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	▽ WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING ▽ STATIC WATER LEVEL AFTER 24 HOURS ▽ PW PERCHED WATER, SATURATED ZONE, OR WATER BEARING STRATA ○ SPRING OR SEEP	DRILL UNITS: <input type="checkbox"/> MOBILE B- <input type="checkbox"/> BK-51 <input checked="" type="checkbox"/> CME-45C <input checked="" type="checkbox"/> CME-45B <input type="checkbox"/> PORTABLE HOIST	
SOIL MOISTURE - CORRELATION OF TERMS	GROUND WATER	ADVANCING TOOLS: <input checked="" type="checkbox"/> CLAY BITS <input checked="" type="checkbox"/> 6" CONTINUOUS FLIGHT AUGER <input type="checkbox"/> 8" HOLLOW AUGERS <input type="checkbox"/> HARD FACED FINGER BITS <input type="checkbox"/> TUNG-CARBIDE INSERTS <input checked="" type="checkbox"/> CASING <input type="checkbox"/> W/ ADVANCER <input checked="" type="checkbox"/> TRICONE 2 5/8" * STEEL TEETH <input type="checkbox"/> TRICONE * TUNG-CARB. <input type="checkbox"/> CORE BIT	
SOIL MOISTURE SCALE (ATTERBERG LIMITS) FIELD MOISTURE DESCRIPTION GUIDE FOR FIELD MOISTURE DESCRIPTION	▽ WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING ▽ STATIC WATER LEVEL AFTER 24 HOURS ▽ PW PERCHED WATER, SATURATED ZONE, OR WATER BEARING STRATA ○ SPRING OR SEEP	HAMMER TYPE: <input checked="" type="checkbox"/> AUTOMATIC <input type="checkbox"/> MANUAL CORE SIZE: <input type="checkbox"/> B- <input type="checkbox"/> N- <input type="checkbox"/> H- HAND TOOLS: <input type="checkbox"/> POST HOLE DIGGER <input checked="" type="checkbox"/> HAND AUGER <input checked="" type="checkbox"/> SOUNDING ROD <input checked="" type="checkbox"/> VANE SHEAR TEST	
LL LIQUID LIMIT - SATURATED - (SAT) USUALLY LIQUID; VERY WET, USUALLY FROM BELOW THE GROUND WATER TABLE PLASTIC RANGE (PI) PL PLASTIC LIMIT - WET - (W) OM OPTIMUM MOISTURE - MOIST - (M) SOLID; AT OR NEAR OPTIMUM MOISTURE SL SHRINKAGE LIMIT - DRY - (D) REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE	▽ WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING ▽ STATIC WATER LEVEL AFTER 24 HOURS ▽ PW PERCHED WATER, SATURATED ZONE, OR WATER BEARING STRATA ○ SPRING OR SEEP	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	
PLASTICITY	GROUND WATER	INDURATION	
PLASTICITY INDEX (PI) DRY STRENGTH NONPLASTIC 0-5 VERY LOW LOW PLASTICITY 6-15 SLIGHT MED. PLASTICITY 16-25 MEDIUM HIGH PLASTICITY 26 OR MORE HIGH	▽ WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING ▽ STATIC WATER LEVEL AFTER 24 HOURS ▽ PW PERCHED WATER, SATURATED ZONE, OR WATER BEARING STRATA ○ SPRING OR SEEP	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.	
COLOR	GROUND WATER	ROCK HARDNESS	
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.	▽ WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING ▽ STATIC WATER LEVEL AFTER 24 HOURS ▽ PW PERCHED WATER, SATURATED ZONE, OR WATER BEARING STRATA ○ SPRING OR SEEP	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.	
	GROUND WATER	FRACURE SPACING	TERMS AND DEFINITIONS
	▽ WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING ▽ STATIC WATER LEVEL AFTER 24 HOURS ▽ PW PERCHED WATER, SATURATED ZONE, OR WATER BEARING STRATA ○ SPRING OR SEEP	BENCH MARK: ELEVATION: FT.	
	GROUND WATER	NOTES: APPROXIMATE LIMITS OF ORGANIC SOILS	

09/08/99

See Sheet 1-A For Index of Sheets
See Sheet 1-B For Symbolology

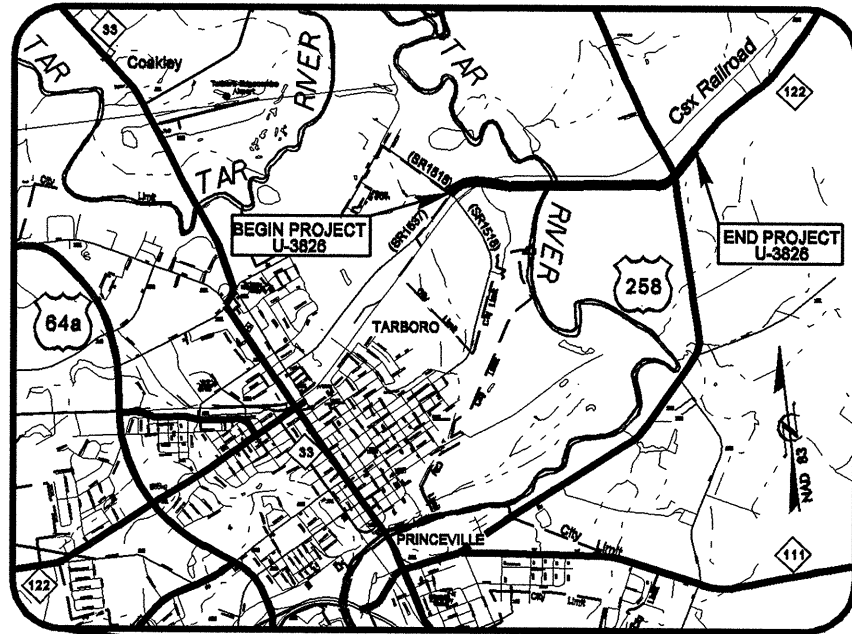
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

EDGECOMBE COUNTY

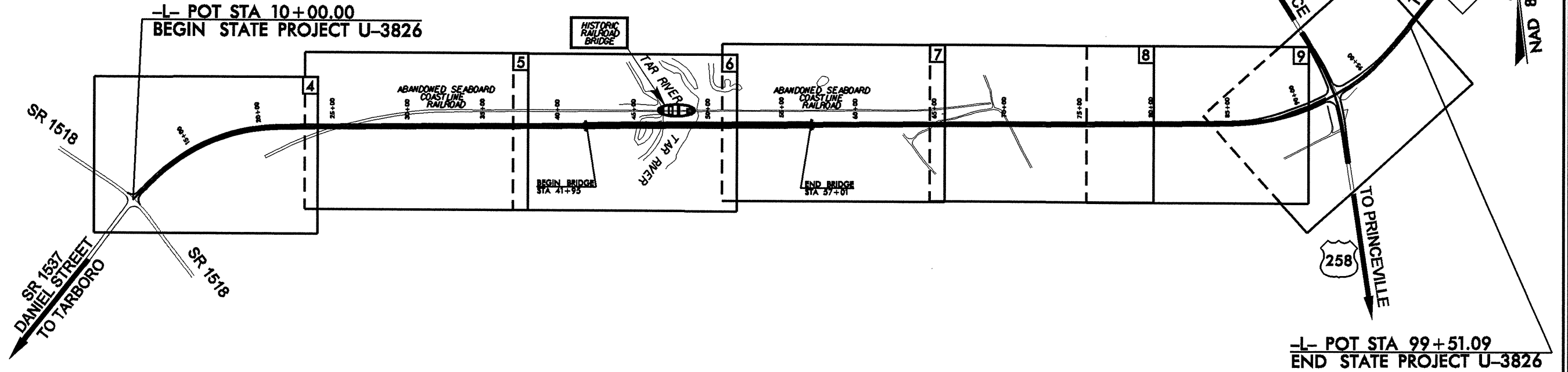
LOCATION: SR 1537 (DANIEL ST. EXTENSION) FROM SR 1518
TO US 258 / NC 122

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-3826	2A	23
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
34983.1.1	STP-1537(2)	PE	



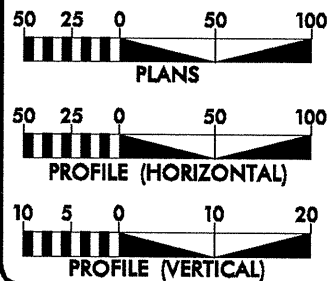
VICINITY MAP



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

CONTRACT:

GRAPHIC SCALES



DESIGN DATA

ADT 2005 = 3,600
ADT 2025 = 5,600
DHV = 12 %
D = 60 %
T = 11 % *
V = 60 MPH
* TTST 8 DUAL 3
FUNC CLASS
RURAL MAJOR COLLECTOR

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT U-3826 = 1.410 miles
TOTAL LENGTH OF STRUCTURES TIP PROJECT U-3826 = 0.285 miles
TOTAL LENGTH TIP PROJECT U-3826 = 1.695 miles

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

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
MARCH 16, 2007

LETTING DATE:
APRIL 21, 2009

J. S. GOODNIGHT
PROJECT ENGINEER

S. D. KENDALL
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

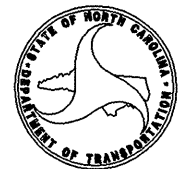
SIGNATURE: _____ P.E.

ROADWAY DESIGN

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

SIGNATURE: _____ P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA



STATE HIGHWAY DESIGN ENGINEER

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

June 14, 2007

STATE PROJECT: 34983.1.1 U-3826
F. A. PROJECT: STP-1537(2)
COUNTY: Edgecombe
DESCRIPTION: SR 1537 (Daniel St. Ext.) from SR 1518 (Loop Rd.) to US 258/NC 122

SUBJECT: Geotechnical Report – Inventory

Project Description

The project consists of constructing a two lane facility along a new location. The project begins at the end of existing SR 1537 and proceeds 1.7 miles in an easterly direction to US 258/NC 122. The geotechnical investigation of subsurface conditions was confined to the corridor of proposed new construction.

The following base line were investigated for this project:

<u>Line</u>	<u>Station(±)</u>
-L-	10+00 to 99+51
-Y-	15+65 to 25+00

Areas of Special Geotechnical Interest

1) The following sections contain cohesive soils which have the potential to cause embankment stability and/or long term settlement problems:

<u>Line</u>	<u>Station (±)</u>
-L-	10+65 to 16+50
-L-	27+35 to 30+60
-L-	39+20 to 40+80
-L-	61+10 to 95+00

MAILING ADDRESS:
EASTERN REGIONAL OFFICE
GEOTECHNICAL ENGINEERING UNIT
1570 MAIL SERVICE CENTER
RALEIGH NC 27699-1570

TELEPHONE: 919-662-4710
FAX: 919-662-3095

WEBSITE: WWW.DOH.DOT.STATE.NC.US

LOCATION:

3301 JONES SAUSAGE RD., SUITE 100
GARNER, NC 27529-9489

-Y- 15+65 to 25+00

2) The following section contain relatively soft organic soils which have the potential for subgrade problems during construction:

<u>Line</u>	<u>Station(±)</u>
-L-	56+75 to 57+25
-L-	57+80 to 59+15

Physiography, Geology and Ground Water

The project is located in the Coastal Plain Physiographic Province. Topography at the site is nearly flat to moderately sloping. Elevations along the proposed new location range from 30± to 55± feet.

The geology of the project consists of Recent age coastal plain sediments overlying marine deposits of the Cretaceous age Cape Fear Formation. The project lies within the Tar River Basin. Drainage along the project is provided by the Tar River. Surface drainage is generally good in areas with moderate relief and fair to poor in low lying portions of the project.

Ground water data was collected primarily from April 2006 to September 2006 during above average rainfall conditions. Typically, ground water levels were measured at depths of 2± to 12± feet below the natural ground surface. Ground water levels should fall 6± feet or more during dry summer conditions.

Soils

Soils encountered during this investigation are separated into four major categories based on origin and occurrence. The categories are surficial soils, Cretaceous age Cape Fear Formation, organic deposits, artificial fill and roadway embankment soils.

Surficial soils are found in the top 3 to 6 feet of the soil profile. Typically, they consist of very loose to medium dense sand (A-2-4, A-3) interlayered with silt/clay (A-4, A-6) soils 1 to 5 feet thick. Moisture content of tested cohesive samples ranged from 11 to 20 percent. The granular material generally exhibits good to excellent engineering properties. The cohesive soils generally exhibit fair to poor engineering properties.

Soils of the Cretaceous age Cape Fear Formation soils underlie the surficial soils at elevations ranging from 9± to 20± feet. These deposits typically consist of medium dense to dense sand (A-1-b, A-2-4, A-3) and very stiff to hard clayey sandy silt (A-4). The granular

soils typically exhibit good to excellent engineering properties. The cohesive soils generally exhibit fair to poor engineering properties.

Organic deposits were found along the project from station 56+75± to 57+25± and 57+80± to 59+15±. Soils within the areas consisted of very soft to soft muck. Organic contents of tested samples were 11 percent. Moisture contents of tested organic samples ranged from 32 to 37 percent. These soils have poor engineering properties and have the potential to cause subgrade stability problems or embankment stability/settlement problems.

Roadway Embankment soil are present in the embankment of the existing roadway along US 258/NC 122. These soils consist of up to 3± feet of loose sand (A-2-4). Artificial fill is found along a soils road from station 54+50± to 59+50±. This material ranges from 1± to 2± feet thick and is predominantly loose sand (A-2-4).

Prepared by:

A handwritten signature in black ink, appearing to read "Fred M. Wescott III". The signature is stylized and cursive.

Fred M Wescott III
Project Geological Engineer

EARTHWORK BALANCE SHEET Aggregate Base Course Design

PROJECT U-3826

TIP # U-3826

Calc. by: lc
Checked by: sk

COUNTY Edgecombe

Volumes in Cubic Yards
DIVISION: 4


DATE

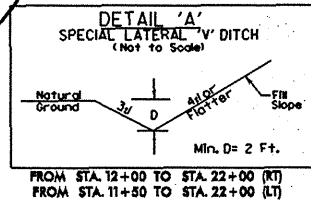
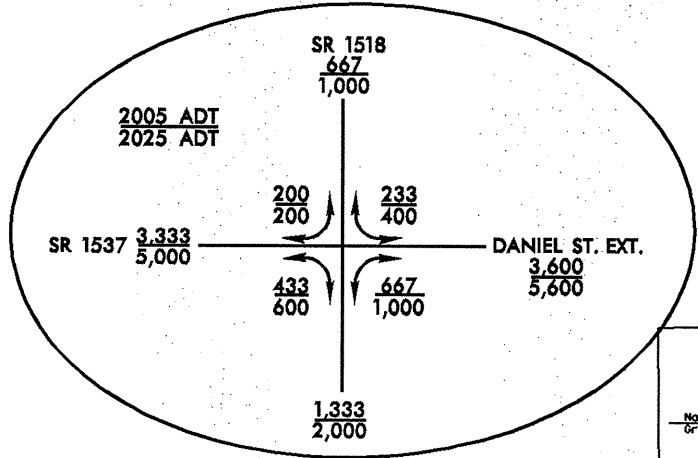
9/24/2009

36
SHEET OF 23 SHEETS

LINE	STATION	STATION	TOTAL EXCAV. (UNCL.)	ROCK EXCAV.	UNDERCUT EXCAV.	UNSUIT. EXCAV.	SUITABLE EXCAV.	TOTAL EMB.	ROCK EMB.	UNDERCUT EMB.	EARTH EMB.	EMBANK. 25%	BORROW	UNSUITABLE WASTE	SUITABLE WASTE	TOTAL WASTE
	SUMMARY	No. 1														
L	10+08.76	38+00	4,459	0	532	0	4,459	73,476	0	0	73,476	91,845	87,386	532	0	532
TOTAL	SUMMARY	No.1	4,459	0	532	0	4,459	73,476	0	0	73,476	91,845	87,386	532	0	532
	SUMMARY	No. 2														
L	38+00	41+95	0	0	0	0	0	38,785	0	0	38,785	48,481	48,481	0	0	0
DR1	10+12	14+57.68	0	0	0	0	0	6,700	0	0	6,700	8,375	8,375	0	0	0
TOTAL	SUMMARY	No.1	0	0	0	0	0	45,485	0	0	45,485	56,856	56,856	0	0	0
	SUMMARY	No.3														
L	57+35	87+00	7,065	0	1,196	0	7,065	27,403	0	0	27,403	34,254	27,189	1,196	0	1,196
DR2, REMOVE RR	5+42.80	17+20.60	12,977	0	0	0	12,977	1,737	0	0	1,737	2,171	0	0	10,806	10,806
TOTAL	SUMMARY	No.3	20,042	0	1,196	0	20,042	29,140	0	0	29,140	36,425	27,189	1,196	10,806	12,002
	SUMMARY	No. 4														
L	87+00	99+71.92	3,046	0	0	0	3,046	3,755	0	0	3,755	4,694	1,648	0	0	0
Y1	15+65	25+00	253	0	0	0	253	1,234	0	0	1,234	1,542	1,289	0	0	0
TOTAL	SUMMARY	No. 4	3,299	0	0	0	3,299	4,989	0	0	4,989	6,236	2,937	0	0	0
	SUMMARY	No. 5														
TEMPNC122	10+25	17+51.45	5	0	0	0	5	842	0	0	842	1,053	1,048	0	0	0
TOTAL	SUMMARY	No. 5	5	0	0	0	5	842	0	0	842	1,053	1,048	0	0	0
	SUMMARY	No. 6														
REMOVE TEMPNC122	10+25		400	0	0	0	400	0	0	0	0	0	0	400	0	400
TOTAL	SUMMARY	No. 6	400	0	0	0	400	0	0	0	0	0	0	400	0	400
SUMMARY TOTALS			28,205	0	1,728	0	28,205	153,932	0	0	153,932	192,415	175,416	2,128	10,806	12,934
Shoulder Material			0	0	0	0	0	3,600	0	0	3,600	4,500	4,500	0	0	0
Waste in Lieu of Borrow													-10,806		-10,806	-10,806
ADDITIONAL UNDERCUT (per Geo.Letter 10/17/2007)					100											
PROJECT TOTALS			28,205	0	1,828	0	28,205	157,532	0	0	157,532	196,915	169,110	2,128	0	2,128
5% to Replace Topsoil at Borrow Pit													8,456			
PROJECT GRAND TOTAL			28,205	0	1,828	0	28,205	157,532	0	0	157,532	196,915	177,566	2,128	0	2,128
SAY			28,300		1,900								177,700			0
Alternate Pavement Design (B25.0B)																
SUMMARY TOTALS			28,205	0	1,728	0	28,205	153,932	0	0	153,932	192,415	175,416.00	2,128	10,806	12,934
ADJ. FOR ALT. PAV'T DESIGN			-1,226	0	0	0	-1,226	157,532			4,925	6,156	6,156.00	0	-1,226	-1,226
Waste in Lieu of Borrow													-9,580.00	0	-9,580	-9,580
ADDITIONAL UNDERCUT (per Geo.Letter 10/17/2007)					100											
PROJECT GRAND TOTAL			26,979	0	1,828	0	28,205	311,464	0	0	158,857	198,571	171,992	2,128	0	2,128
5% to Replace Topsoil at Borrow Pit												8,600				
PROJECT GRAND TOTAL			26,979	0	1,828	0	28,205	311,464	0	0	158,857	198,571	180,591	2,128	0	2,128
SAY			27,100		1,900							180,700				
DRAINAGE DITCH EXCAVATION			9,600	CY												

* 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.

PROJECT REFERENCE NO. U-3826	SHEET NO. 4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	
PRELIMINARY PLANS DO NOT USE FOR ACQUISITION FOR CONSTRUCTION	



-BL- 22 PINC 23+77.72=
 -L- STA 21+25.22 (LT)

-L- CS Sta. 20+02.38

-L- ST Sta. 22+52.38

DA=1.34 Ac
 Req'd Length= 134'
 Prop'd Length= 1050'

PROPOSED SPECIAL LATERAL 'V' DITCH
 SEE DETAIL 'A'

DA=1.62 Ac
 Req'd Length= 162'
 Prop'd Length= 1100'

PROPOSED SPECIAL LATERAL 'V' DITCH
 SEE DETAIL 'A'

-L- SC Sta. 13+00.43

PROPOSED SPECIAL LATERAL 'V' DITCH
 STA 11+50 TO 22+00 -L- (RT)
 SEE DETAIL 'A'

-BL- P3 PINC 13+00.31=
 -BY- PINC 25+57.13
 (U3826-P3) =

-L- STA 10+30.81 (RT)

PROPOSED SPECIAL LATERAL 'V' DITCH
 STA 12+00 TO 22+00 -L- (RT)
 SEE DETAIL 'A'

-L- TS Sta. 10+50.43

-L- POT Sta. 10+00.00


Ptc Sta 12+77.19	Pl Sta 16+61.66	Plc Sta 20+85.79
$\Delta = 5' 58' 15.0"$	$\Delta = 33' 20' 32.1"$ (RT)	$\Theta_s = 5' 58' 15.0"$
$L_s = 250.00'$	$D = 4' 45' 00.0"$	$L_s = 250.00'$
$LT = 166.76'$	$L = 701.94'$	$LT = 166.76'$
$ST = 83.42'$	$T = 361.22'$	$ST = 83.42'$
	$R = 1,206.23'$	
	$E_{max} = 6\%$	

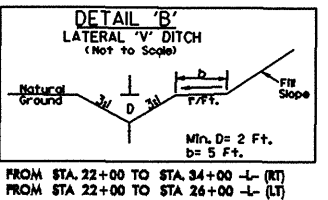
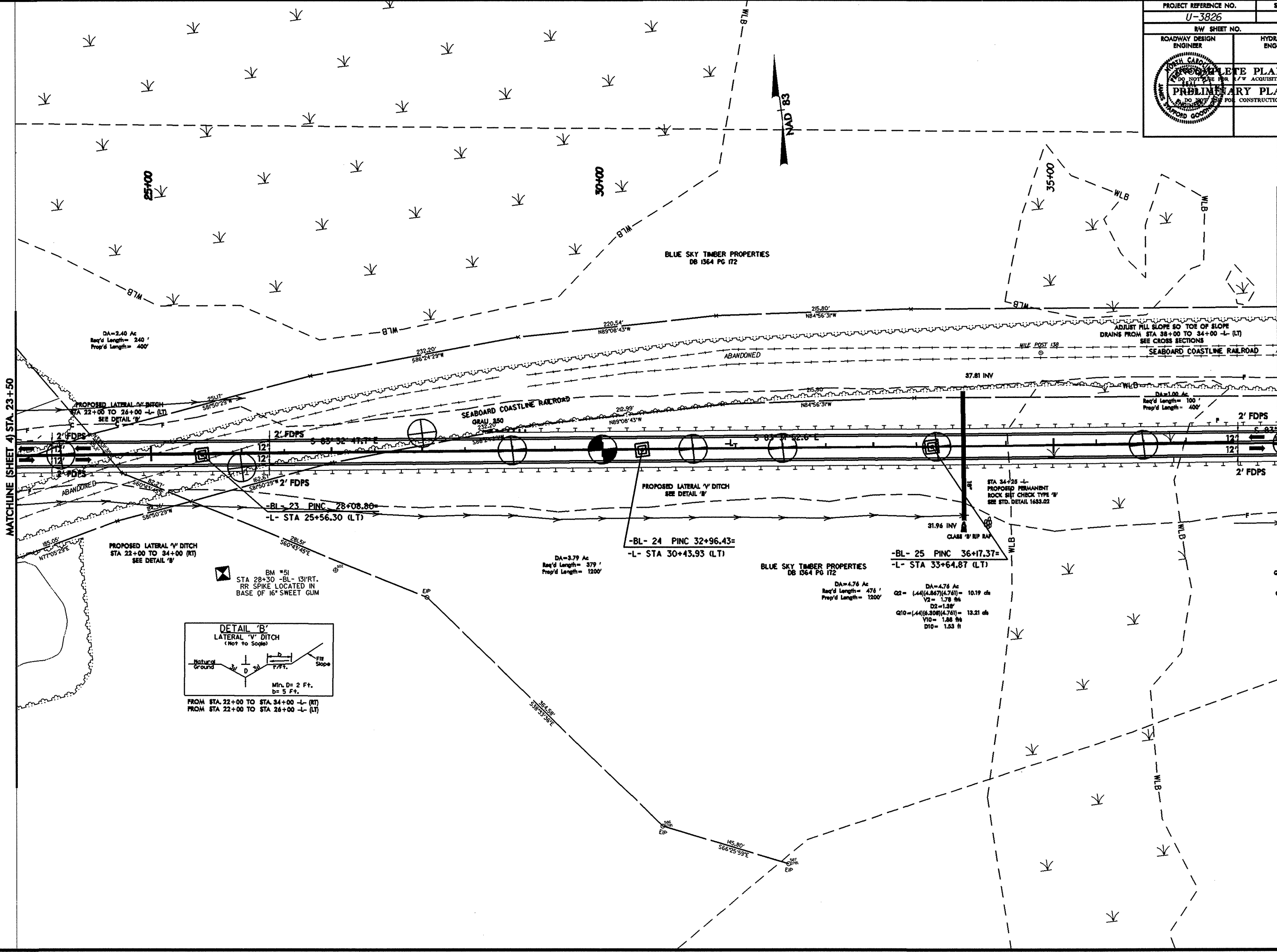
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MATCHLINE (SHEET 5) STA. 23+50

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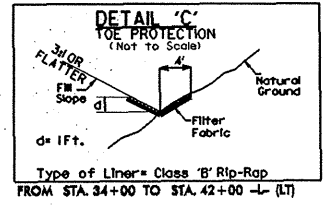
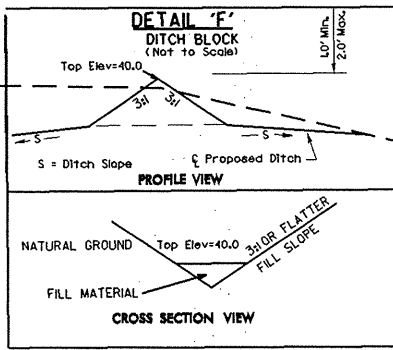
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RWY SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
			
COMPLETE PLANS DO NOT USE FOR ACQUISITION PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION			



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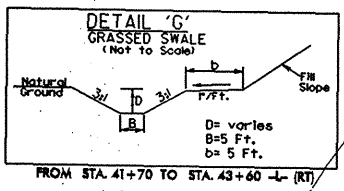
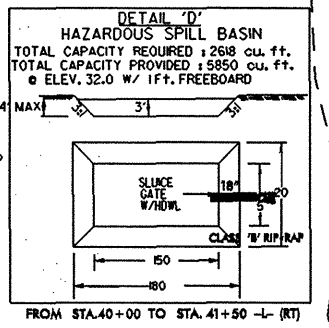
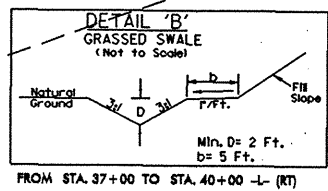
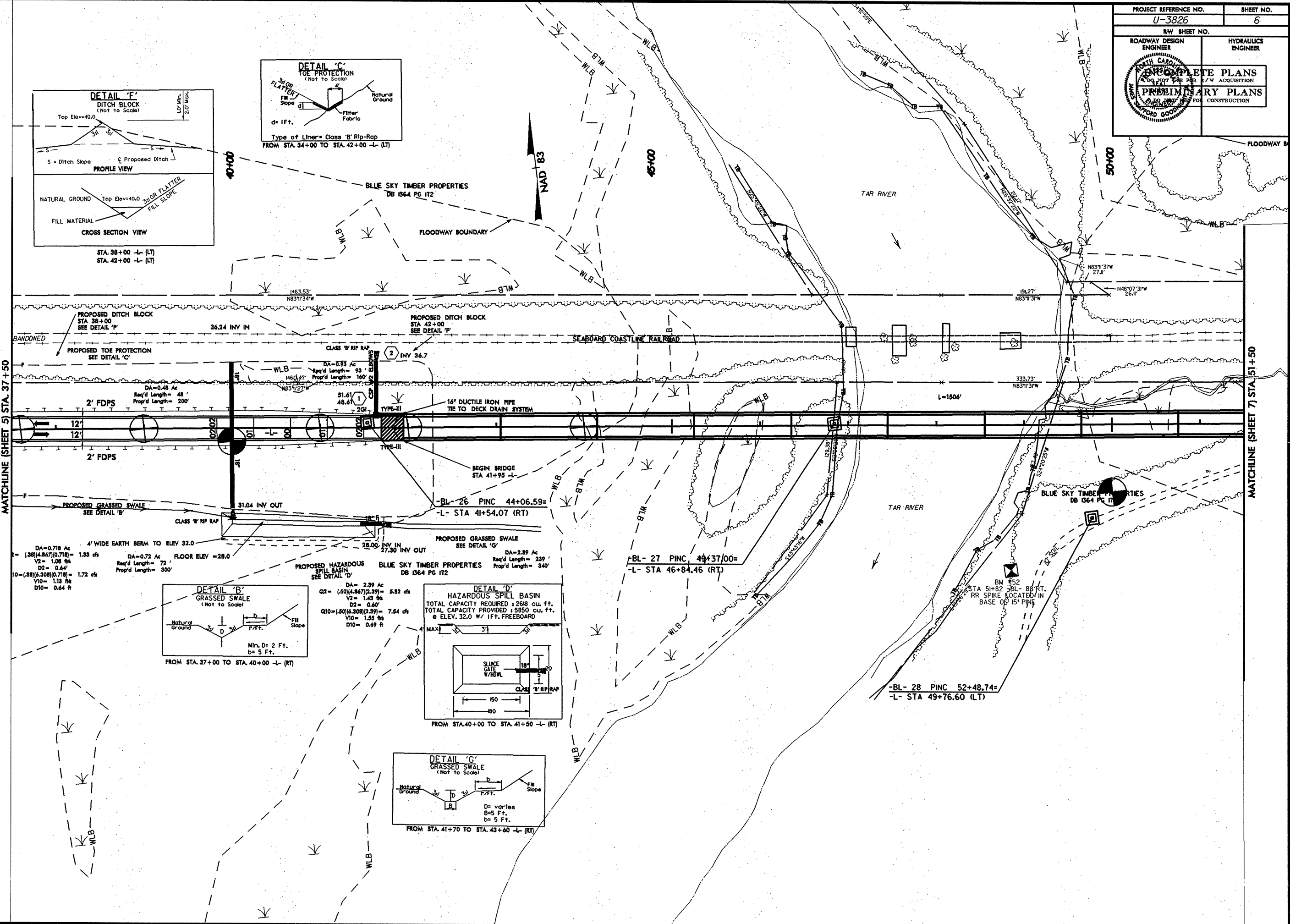
MATCHLINE (SHEET 4) STA. 23+50

MATCHLINE (SHEET 6) STA. 37+50



MATCHLINE (SHEET 5) STA. 37+50

MATCHLINE (SHEET 7) STA. 51+50



DA=0.718 Ac
Q1=(.38)(4.847)(0.718)= 1.33 cfs
V2= 1.06 ft/s
D2= 0.44'
Q10=(.38)(6.308)(0.718)= 1.72 cfs
V10= 1.33 ft/s
D10= 0.64 ft

DA=0.72 Ac
Q2=(.50)(4.847)(2.39)= 5.82 cfs
V2= 1.43 ft/s
D2= 0.60'
Q10=(.50)(6.308)(2.39)= 7.54 cfs
V10= 1.55 ft/s
D10= 0.69 ft

DA=2.39 Ac
Q2=(.50)(4.847)(2.39)= 5.82 cfs
V2= 1.43 ft/s
D2= 0.60'
Q10=(.50)(6.308)(2.39)= 7.54 cfs
V10= 1.55 ft/s
D10= 0.69 ft

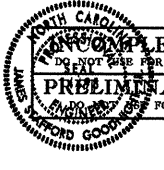
DA=2.39 Ac
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V2= 1.43 ft/s
D2= 0.60'
Q10=(.50)(6.308)(2.39)= 7.54 cfs
V10= 1.55 ft/s
D10= 0.69 ft

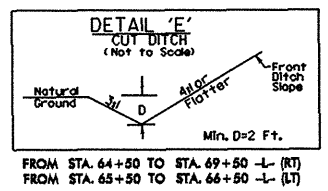
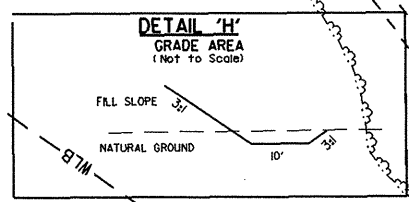
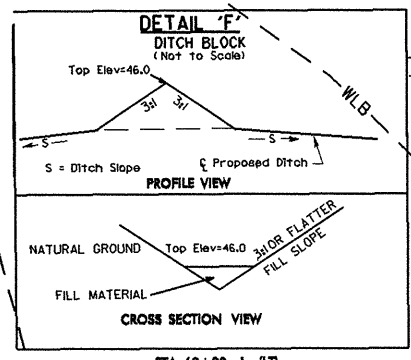
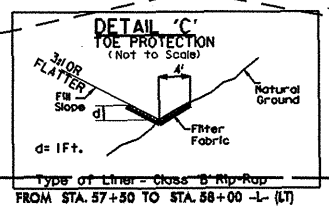
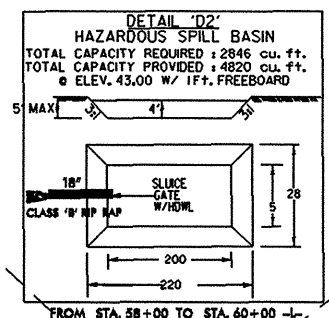
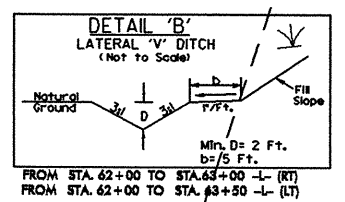
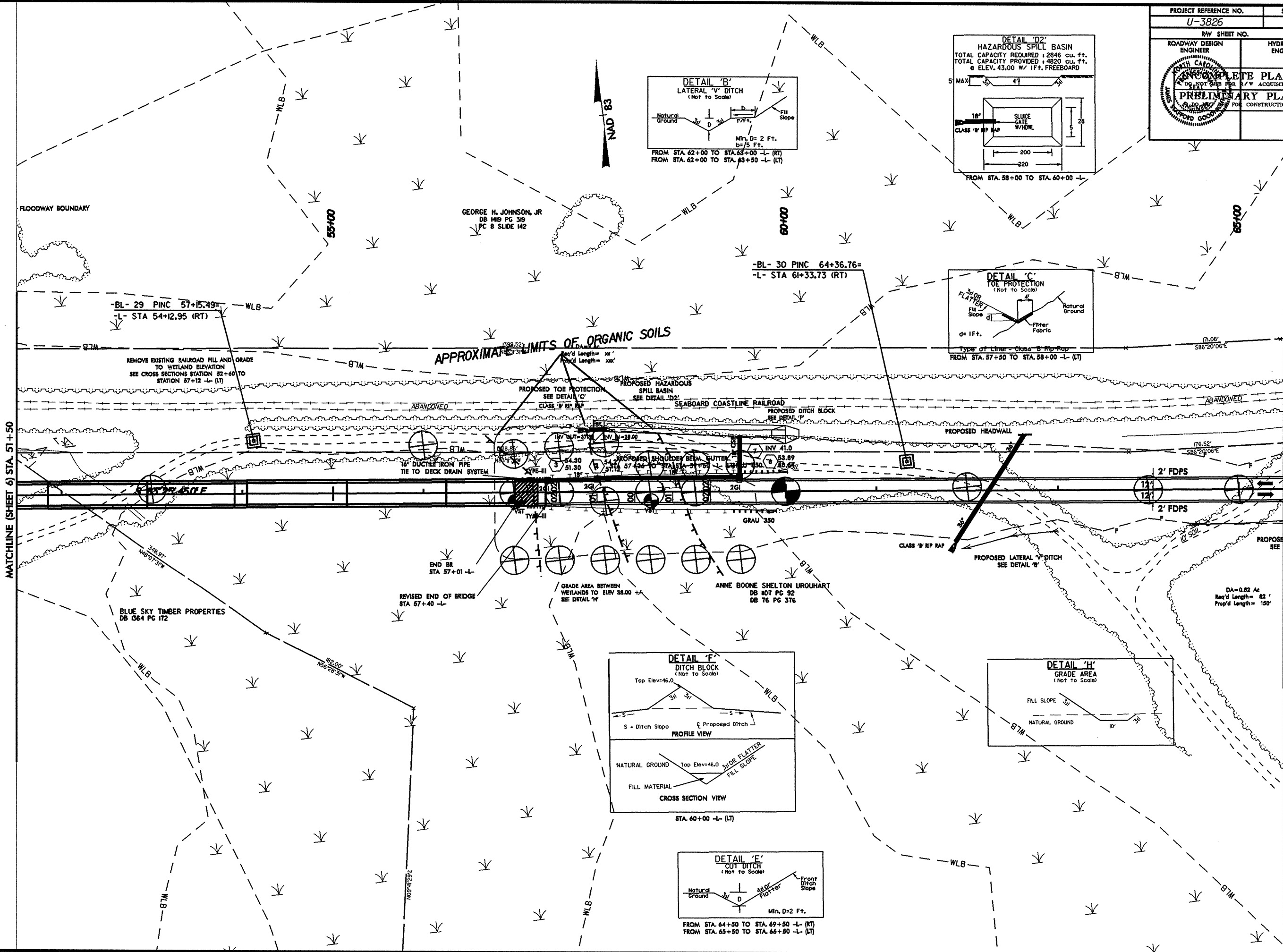
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Project: U3826

PROJECT REFERENCE NO. U-3826	SHEET NO. 7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER KATH CALDWELL	HYDRAULICS ENGINEER
	
COMPLETE PLANS DO NOT USE FOR R/W ACQUISITION PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



MATCHLINE (SHEET 6) STA. 51+50

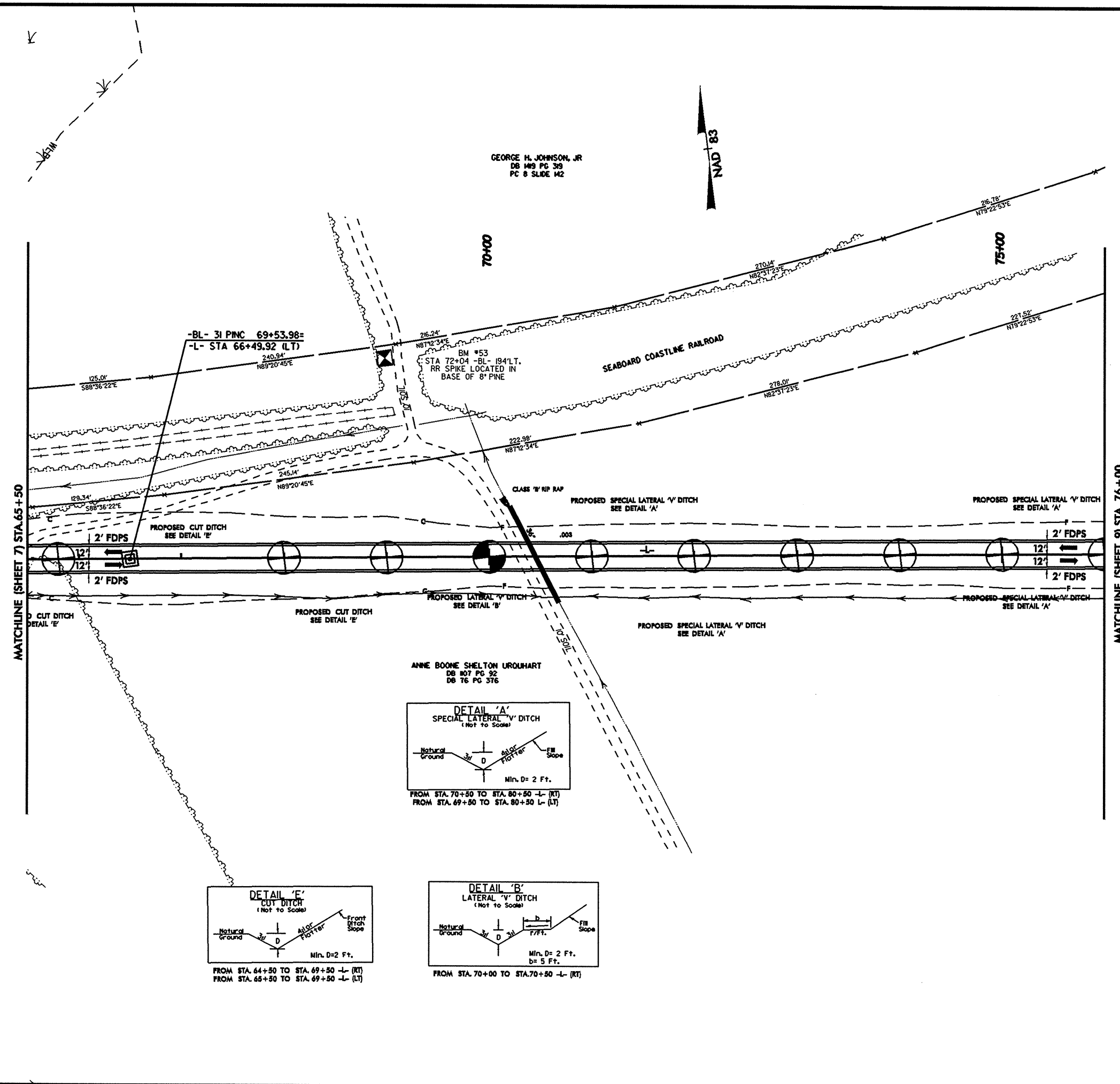
MATCHLINE (SHEET 8) STA. 65+50

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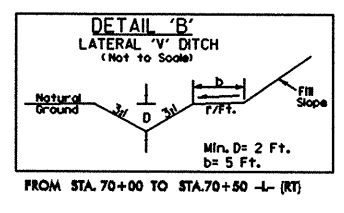
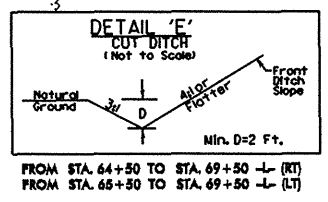
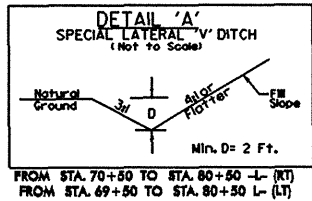
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RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS NOT FOR CONSTRUCTION	



GEORGE H. JOHNSON, JR.
 DB 149 PG 33
 PC 8 SLIDE M2

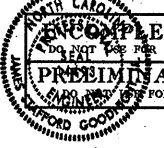
BM #53
 STA 72+04 -BL- 194'LT.
 RR SPIKE LOCATED IN
 BASE OF 8" PINE

ANNE BOONE SHELTON UROUHART
 DB 107 PG 92
 DB 76 PG 376

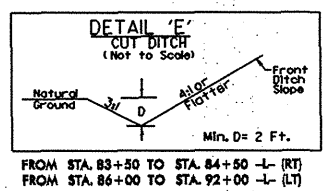
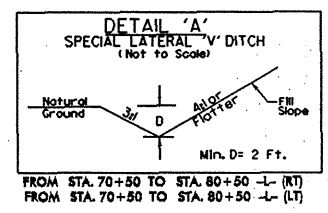
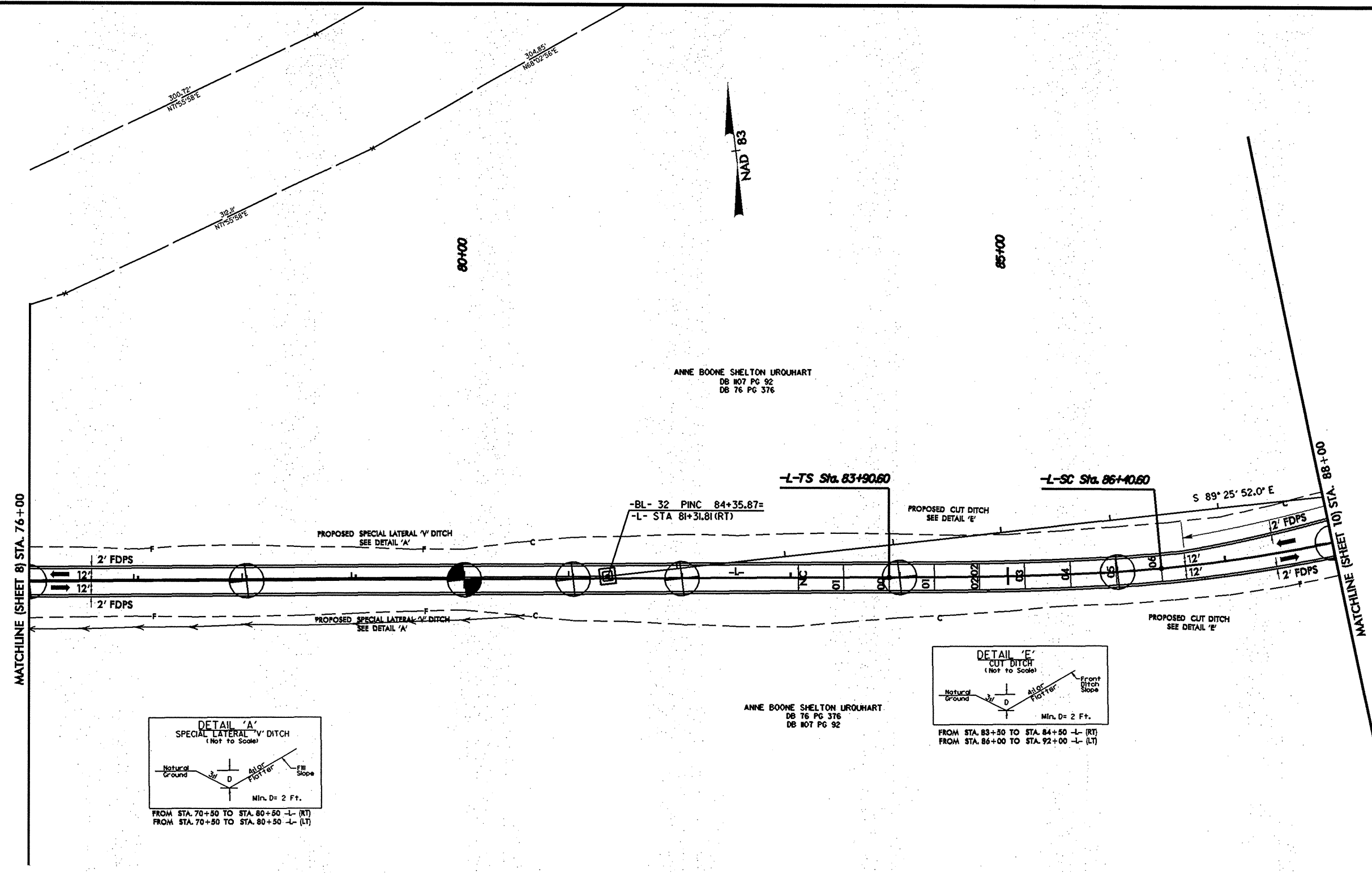


MATCHLINE (SHEET 7) STA. 65+50

MATCHLINE (SHEET 9) STA. 76+00

PROJECT REFERENCE NO. U-3826	SHEET NO. 9
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	
PRELIMINARY PLANS <small>DO NOT USE FOR ACQUISITION</small> PRELIMINARY PLANS <small>FOR CONSTRUCTION</small>	

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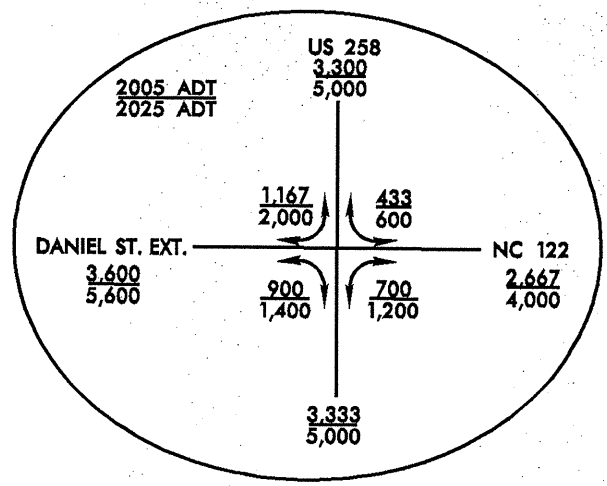


ANNE BOONE SHELTON UROUHART
 DB 807 PG 92
 DB 76 PG 376

ANNE BOONE SHELTON UROUHART
 DB 76 PG 376
 DB 807 PG 92

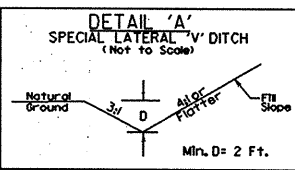
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 8/17/99

PROJECT REFERENCE NO. U-3826	SHEET NO. 10
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR ACQUISITION PRELIMINARY PLANS NOT FOR CONSTRUCTION	



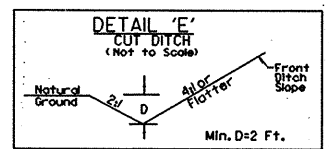
PIs Sta 85+57.33 $\Theta_s = 5'00''00.0''$ $L_s = 250.00'$ $LT = 1667.3'$ $ST = 83.39'$	PI Sta 91+60.81 $\Delta = 39'55''11.0'' (LT)$ $D = 4'00''00.0''$ $L = 997.99'$ $T = 520.2'$ $R = 1,432.39'$ $E_{max} = 6\%$	PIs Sta 97+21.99 $\Theta_s = 5'00''00.0''$ $L_s = 250.00'$ $LT = 1667.3'$ $ST = 83.39'$
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PIs Sta 18+09.21 $\Theta_s = 5'58''14.9''$ $L_s = 250.00'$ $LT = 1667.6'$ $ST = 83.42'$	PI Sta 20+07.58 $\Delta = 17'54''13.9'' (RT)$ $D = 4'45''00.0''$ $L = 229.58'$ $T = 115.13'$ $R = 1,206.23'$ $E_{max} = 6\%$	PIs Sta 22+05.43 $\Theta_s = 5'58''14.9''$ $L_s = 250.00'$ $LT = 1667.6'$ $ST = 83.42'$
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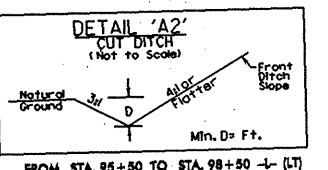


FROM STA. 85+00 TO STA. 92+00 -L- (RT)
 FROM STA. 93+00 TO STA. 95+50 -L- (RT)
 FROM STA. 16+00 TO STA. 19+50 -Y1- (RT)
 FROM STA. 93+50 TO STA. 95+50 -L- (LT)
 FROM STA. 22+50 TO STA. 23+50 -Y1- (LT)

-BL- PINC 95+96.15=
 -BY1- PINC 20+22.36=
 (BL- 33)=
 -L- STA 92+76.69 (LT)=
 -Y1- STA 21+18.50 (RT)

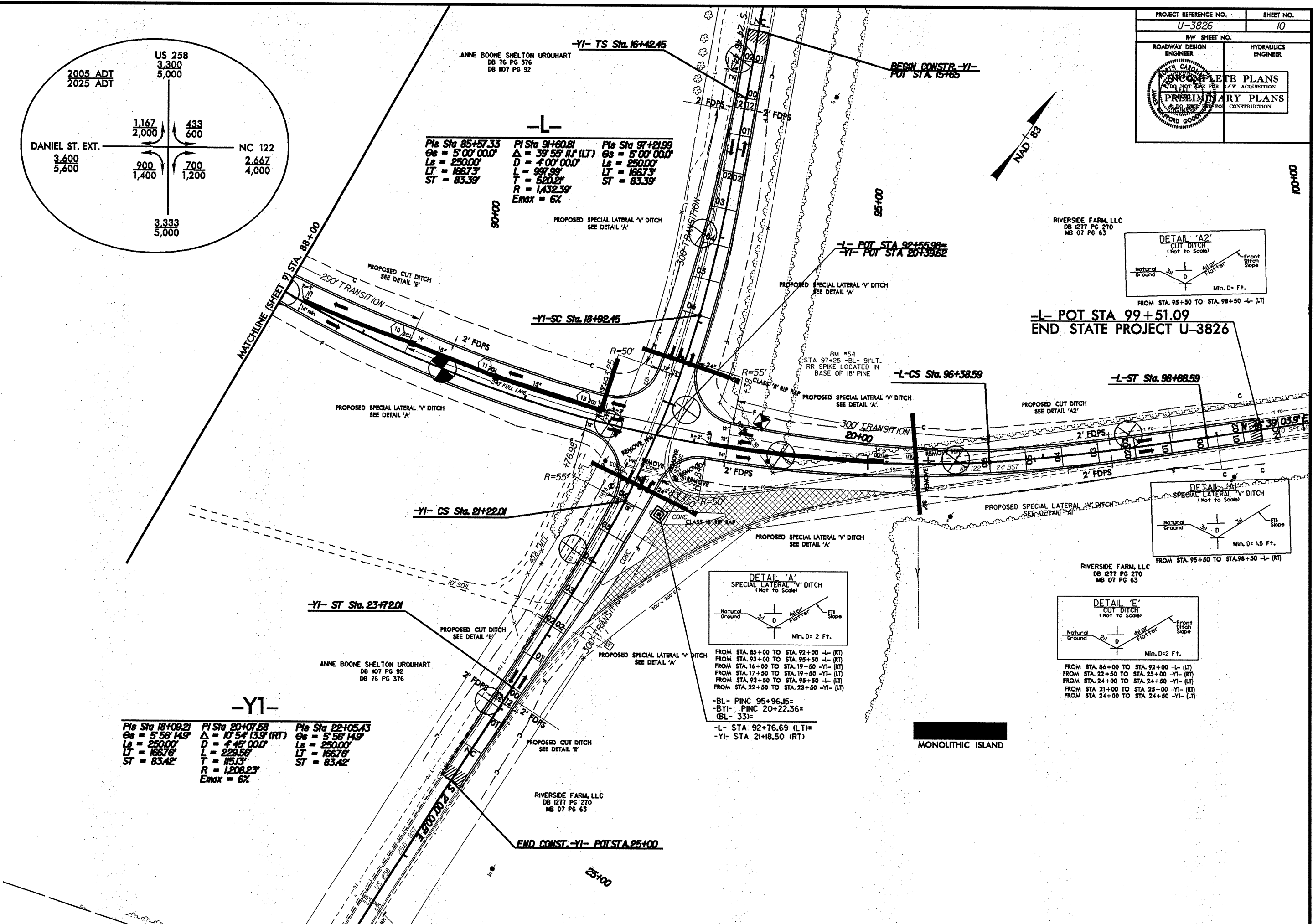


FROM STA. 84+00 TO STA. 92+00 -L- (LT)
 FROM STA. 22+50 TO STA. 25+00 -Y1- (RT)
 FROM STA. 24+00 TO STA. 24+50 -Y1- (LT)
 FROM STA. 21+00 TO STA. 25+00 -Y1- (RT)
 FROM STA. 24+00 TO STA. 24+50 -Y1- (LT)



FROM STA. 95+50 TO STA. 98+50 -L- (LT)

-L- POT STA 99+51.09
END STATE PROJECT U-3826

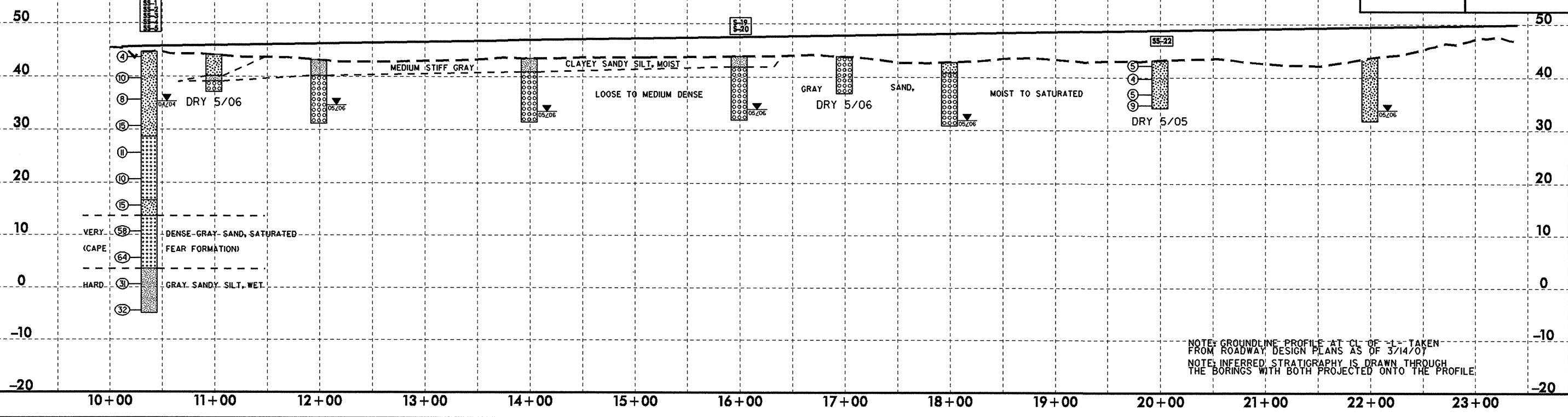


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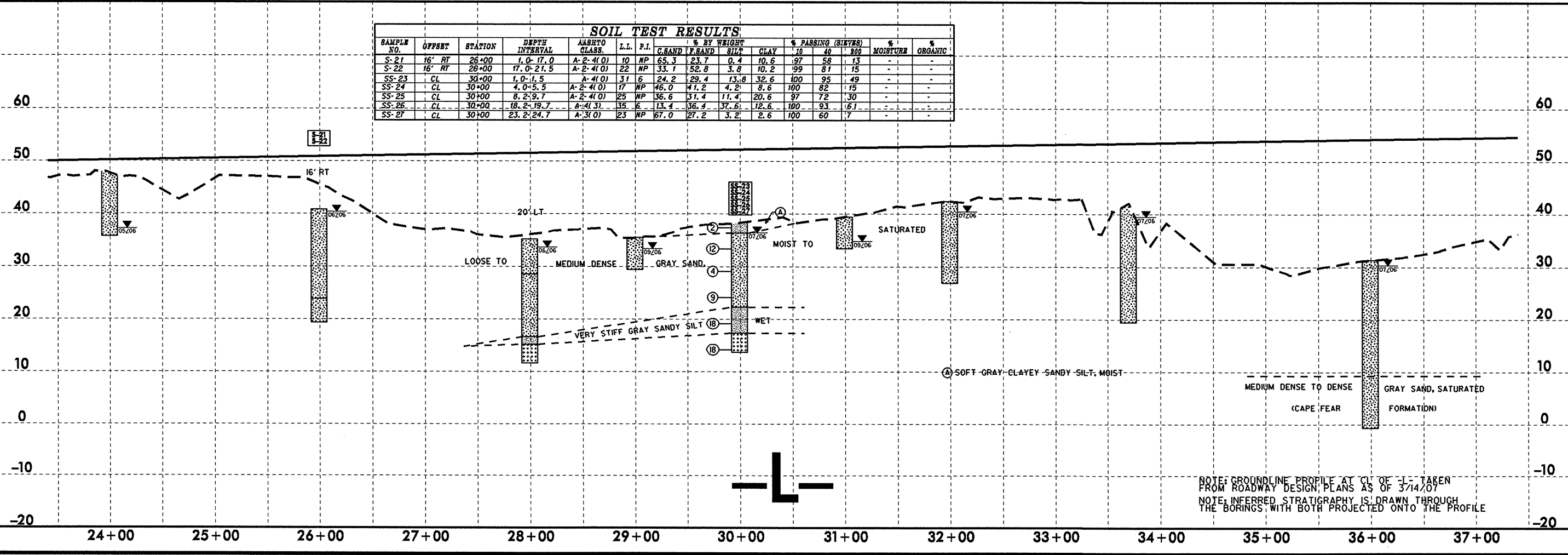
PROJECT REFERENCE NO. U-3826	SHEET NO. 11
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
SS-1	CL	10+38	4.0-5.5	A-2-4(0)	18	NP	48.1	38.9	8.6	4.4	100	89	15	-	-
SS-2	CL	10+38	18.0-19.5	A-3(0)	19	NP	70.1	24.8	4.6	0.4	100	73	6	-	-
SS-3	CL	10+38	28.0-29.5	A-2-4(0)	29	NP	10.4	70.5	8.6	10.4	100	98	29	-	-
SS-4	CL	10+38	33.0-34.5	A-3(0)	17	NP	58.9	33.3	5.4	2.4	99	80	9	-	-
SS-5	CL	10+38	43.0-44.5	A-4(0)	35	NP	10.6	34.1	38.9	16.4	100	94	65	-	-
S-19	CL	16+00	1.0-2.0	A-4(2)	26	9	14.6	39.6	23.3	22.5	100	93	51	12.1	-
S-20	CL	16+00	2.0-12.0	A-1-B(0)	17	NP	74.6	15.2	7.9	2.2	73	30	8	-	-
SS-22	CL	20+00	1.0-1.5	A-2-4(0)	22	NP	39.4	47.5	3.4	9.7	100	86	16	-	-



NOTE: GROUNDLINE PROFILE AT CL OF "L" TAKEN FROM ROADWAY DESIGN PLANS AS OF 3/14/07
 NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE PROFILE

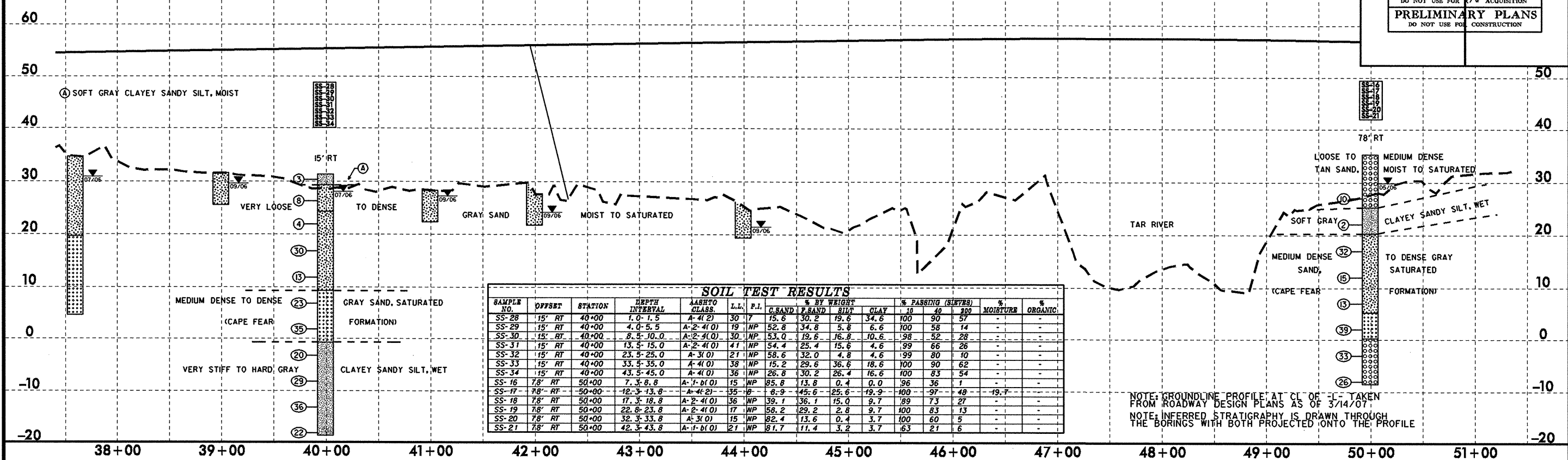
SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
S-21	16' RT	26+00	1.0-17.0	A-2-4(0)	10	NP	65.3	23.7	0.4	10.6	97	58	13	-	-
S-22	16' RT	26+00	17.0-21.5	A-2-4(0)	22	NP	33.1	52.8	3.8	10.2	99	81	15	-	-
SS-23	CL	30+00	1.0-1.5	A-4(0)	31	6	24.2	29.4	13.8	32.6	100	95	49	-	-
SS-24	CL	30+00	4.0-5.5	A-2-4(0)	17	NP	46.0	41.2	4.2	8.6	100	82	15	-	-
SS-25	CL	30+00	8.2-9.7	A-2-4(0)	25	NP	36.6	31.4	11.4	20.6	97	72	30	-	-
SS-26	CL	30+00	18.2-19.7	A-4(3)	35	6	13.4	36.4	37.6	12.6	100	93	16.1	-	-
SS-27	CL	30+00	23.2-24.7	A-3(0)	23	NP	67.0	27.2	3.2	2.6	100	60	17	-	-



NOTE: GROUNDLINE PROFILE AT CL OF "L" TAKEN FROM ROADWAY DESIGN PLANS AS OF 3/14/07
 NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE PROFILE

5/28/99

PROJECT REFERENCE NO. U-3826	SHEET NO. 12
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR ACQUISITION	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
SS-28	15' RT	40+00	1.0-1.5	A-4(2)	30	7	15.6	30.2	19.6	34.6	100	90	57	-	-
SS-29	15' RT	40+00	4.0-5.5	A-2-4(0)	19	NP	52.8	34.8	5.8	6.6	100	58	14	-	-
SS-30	15' RT	40+00	8.5-10.0	A-2-4(0)	30	NP	53.0	19.6	16.8	10.6	98	52	28	-	-
SS-31	15' RT	40+00	13.5-15.0	A-2-4(0)	41	NP	54.4	25.4	15.6	4.6	99	66	26	-	-
SS-32	15' RT	40+00	23.5-25.0	A-3(0)	21	NP	58.6	32.0	4.8	4.6	99	80	10	-	-
SS-33	15' RT	40+00	33.5-35.0	A-4(0)	38	NP	15.2	29.6	36.6	18.6	100	90	62	-	-
SS-34	15' RT	40+00	43.5-45.0	A-4(0)	36	NP	26.8	30.2	26.4	16.6	100	83	54	-	-
SS-16	7.8' RT	50+00	7.3-8.8	A-1-b(0)	15	NP	85.8	13.8	0.4	0.0	96	36	1	-	-
SS-17	7.8' RT	50+00	12.3-13.8	A-4(2)	35	NP	8.9	45.6	25.6	19.9	100	97	48	-	-
SS-18	7.8' RT	50+00	17.3-18.8	A-2-4(0)	36	NP	39.1	36.1	15.0	9.7	89	73	27	-	-
SS-19	7.8' RT	50+00	22.8-23.8	A-2-4(0)	17	NP	58.2	29.2	2.8	9.7	100	83	13	-	-
SS-20	7.8' RT	50+00	32.3-33.8	A-3(0)	15	NP	82.4	13.6	0.4	3.7	100	60	5	-	-
SS-21	7.8' RT	50+00	42.3-43.8	A-1-b(0)	21	NP	81.7	11.4	3.2	3.7	63	21	6	-	-

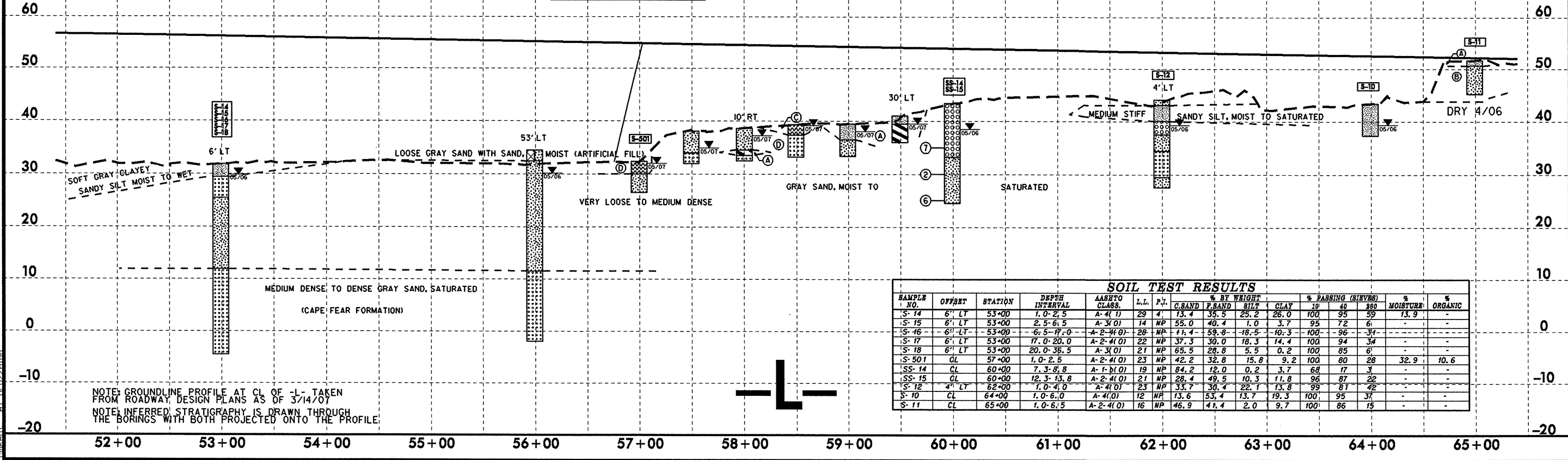
NOTE: GROUNDLINE PROFILE AT CL OF L- TAKEN FROM ROADWAY DESIGN PLANS AS OF 3/14/07
 NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE PROFILE

VANE SHEAR TESTS

STATION	OFFSET	DEPTH	(psf)
57+00	10' RT	1	376
57+00	10' RT	2	426
58+50	10' RT	1	759
58+50	10' RT	2	722

- Ⓐ SOFT BROWN SANDY SILT AND SILTY CLAY, MOIST TO SATURATED
- Ⓑ LOOSE TAN BROWN SAND, MOIST
- Ⓒ LOOSE TAN BROWN SAND, MOIST (ARTIFICIAL FILL)
- Ⓓ SOFT BROWN MUCK, MOIST TO WET

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SOIL TEST RESULTS

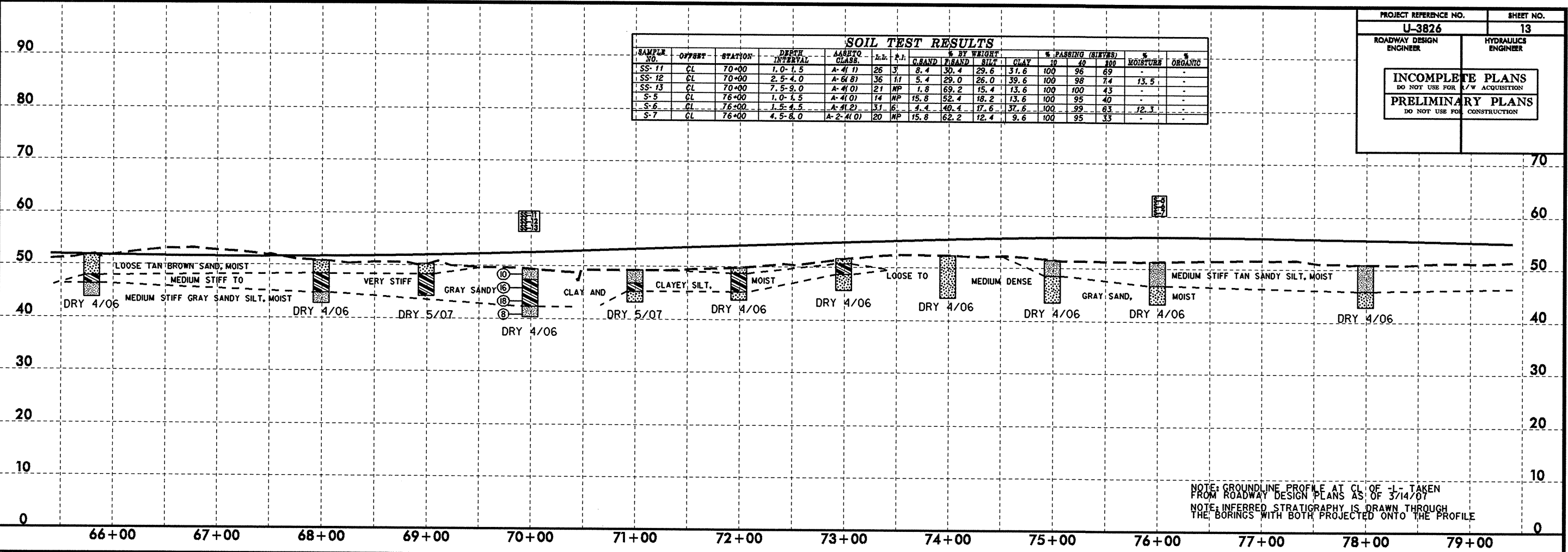
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
S-14	6' LT	53+00	1.0-2.5	A-4(1)	29	4	13.4	35.5	25.2	26.0	100	95	59	73.9	-
S-15	6' LT	53+00	2.5-6.5	A-3(0)	14	NP	55.0	40.4	1.0	3.7	95	72	6	-	-
S-16	6' LT	53+00	6.5-11.0	A-2-4(0)	28	NP	11.4	59.8	18.5	10.3	100	96	31	-	-
S-17	6' LT	53+00	17.0-20.0	A-2-4(0)	22	NP	37.3	30.0	18.3	14.4	100	94	34	-	-
S-18	6' LT	53+00	20.0-36.5	A-3(0)	21	NP	65.5	28.8	5.5	0.2	100	85	6	-	-
S-501	CL	57+00	1.0-2.5	A-2-4(0)	23	NP	42.2	32.8	15.8	9.2	100	80	28	32.9	10.6
SS-14	CL	60+00	7.3-8.8	A-1-b(0)	19	NP	84.2	12.0	0.2	3.7	68	17	3	-	-
SS-15	CL	60+00	12.3-13.8	A-2-4(0)	21	NP	28.4	49.5	10.3	11.8	96	87	22	-	-
S-12	4' LT	62+00	1.0-4.0	A-4(0)	23	NP	33.7	30.4	22.1	13.8	99	81	42	-	-
S-10	CL	64+00	1.0-6.0	A-4(0)	12	NP	13.6	53.4	13.7	19.3	100	95	37	-	-
S-11	CL	65+00	1.0-6.5	A-2-4(0)	16	NP	46.9	41.4	2.0	9.7	100	86	15	-	-

NOTE: GROUNDLINE PROFILE AT CL OF L- TAKEN FROM ROADWAY DESIGN PLANS AS OF 3/14/07
 NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE PROFILE

5/28/99

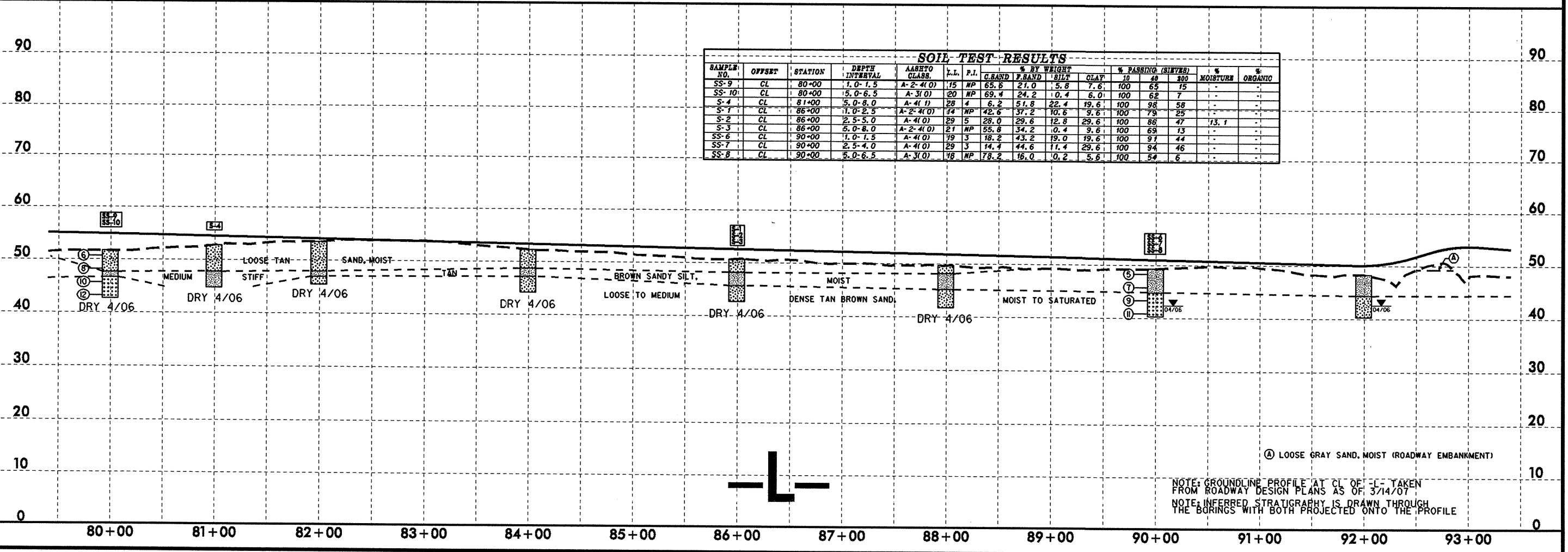
PROJECT REFERENCE NO. U-3826	SHEET NO. 13
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	ASTM CLASS.	L.L.	P.I.	% BY WEIGHT			% PASSING (SIEVES)			% MOISTURE	% ORGANIC	
							CLAY	SAND	SILT	10	40	200			
SS-11	CL	70+00	1.0-1.5	A-4(1)	26	3	8.4	30.4	29.6	31.6	100	96	69	-	-
SS-12	CL	70+00	2.5-4.0	A-6(B)	36	11	5.4	29.0	26.0	39.6	100	98	74	13.5	-
SS-13	CL	70+00	7.5-9.0	A-4(1)	21	NP	1.8	69.2	15.4	13.6	100	100	43	-	-
S-5	CL	76+00	1.0-1.5	A-4(1)	14	NP	15.8	52.4	18.2	13.6	100	95	40	-	-
S-6	CL	76+00	1.5-4.5	A-4(2)	31	6	4.4	40.4	17.6	37.8	100	99	63	12.3	-
S-7	CL	76+00	4.5-8.0	A-2-4(1)	20	NP	15.8	62.2	12.4	9.6	100	95	33	-	-



NOTE: GROUNDLINE PROFILE AT CL OF -L- TAKEN FROM ROADWAY DESIGN PLANS AS OF 3/14/07
 NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE PROFILE

SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	ASTM CLASS.	L.L.	P.I.	% BY WEIGHT			% PASSING (SIEVES)			% MOISTURE	% ORGANIC	
							CLAY	SAND	SILT	10	40	200			
SS-9	CL	80+00	1.0-1.5	A-2-4(1)	15	NP	65.6	21.0	15.8	7.6	100	65	75	-	-
SS-10	CL	80+00	5.0-6.5	A-3(1)	20	NP	69.4	24.2	0.4	6.0	100	62	7	-	-
S-4	CL	81+00	5.0-8.0	A-4(1)	28	4	6.2	51.8	22.4	19.6	100	98	58	-	-
S-1	CL	86+00	1.0-2.5	A-2-4(1)	14	NP	42.6	37.2	10.6	9.6	100	73	25	-	-
S-2	CL	86+00	2.5-5.0	A-4(1)	29	5	28.0	29.6	12.8	29.6	100	86	47	13.1	-
S-3	CL	86+00	5.0-8.0	A-2-4(1)	21	NP	55.8	34.2	0.4	9.6	100	69	13	-	-
SS-6	CL	90+00	1.0-1.5	A-4(1)	19	3	18.2	43.2	19.0	19.6	100	91	44	-	-
SS-7	CL	90+00	2.5-4.0	A-4(1)	29	3	14.4	44.6	11.4	29.6	100	94	46	-	-
SS-8	CL	90+00	5.0-6.5	A-3(1)	18	NP	78.2	16.0	0.2	5.6	100	54	6	-	-



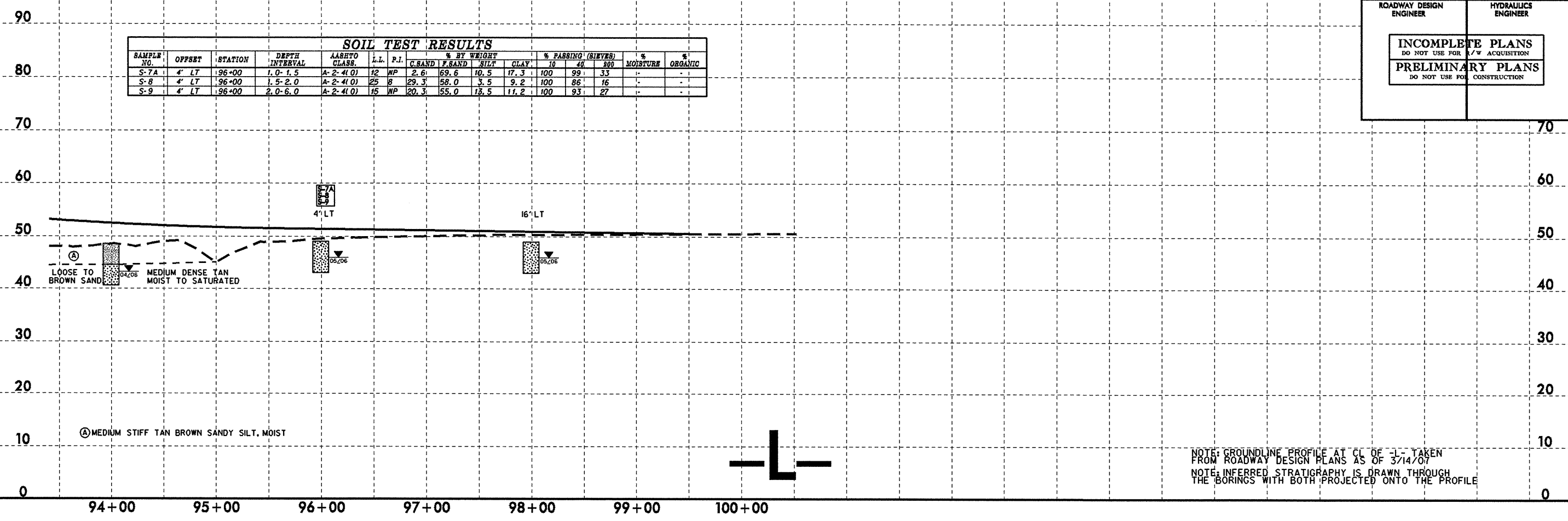
NOTE: GROUNDLINE PROFILE AT CL OF -L- TAKEN FROM ROADWAY DESIGN PLANS AS OF 3/14/07
 NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE PROFILE

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PROJECT REFERENCE NO.		SHEET NO.	
U-3826		14	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION		PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

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-7A	4' LT	96+00	1.0-1.5	A-2-4(0)	12	WP	2.6	69.6	10.5	17.3	100	99	33	-	-
S-8	4' LT	96+00	1.5-2.0	A-2-4(0)	25	8	29.3	58.0	3.5	9.2	100	86	16	-	-
S-9	4' LT	96+00	2.0-6.0	A-2-4(0)	15	WP	20.3	55.0	13.5	11.2	100	93	27	-	-

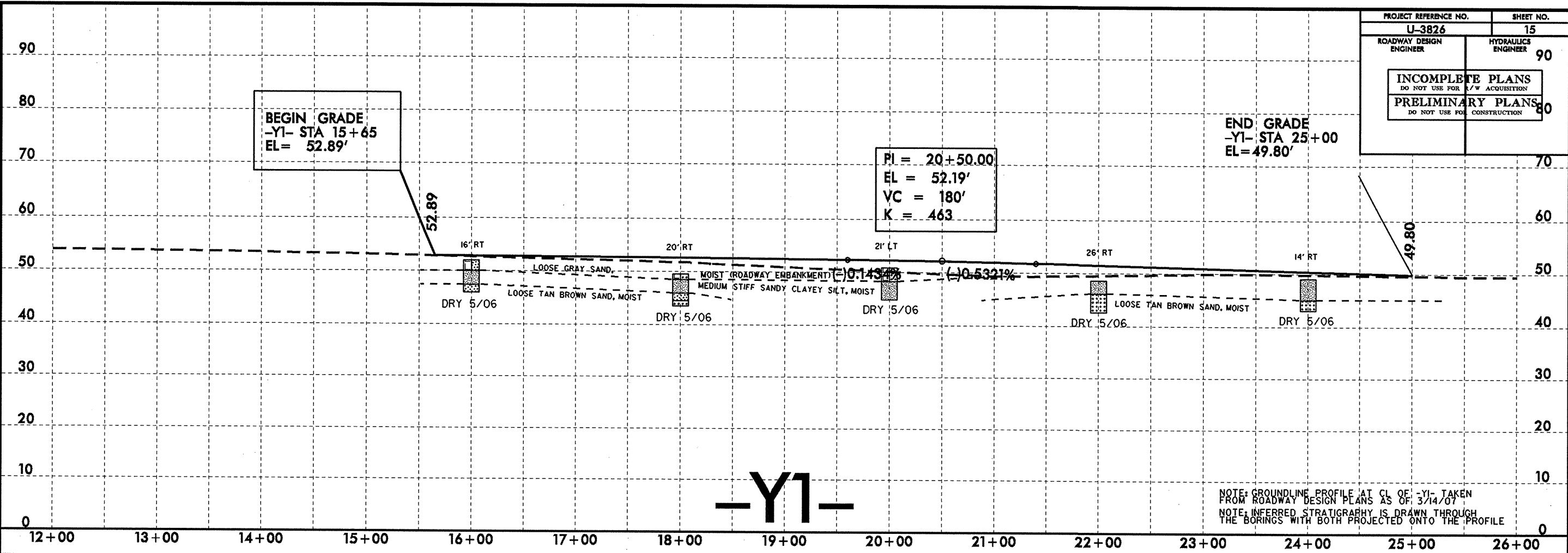


NOTE: GROUNDLINE PROFILE AT CL OF L- TAKEN FROM ROADWAY DESIGN PLANS AS OF 3/14/07
 NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE PROFILE

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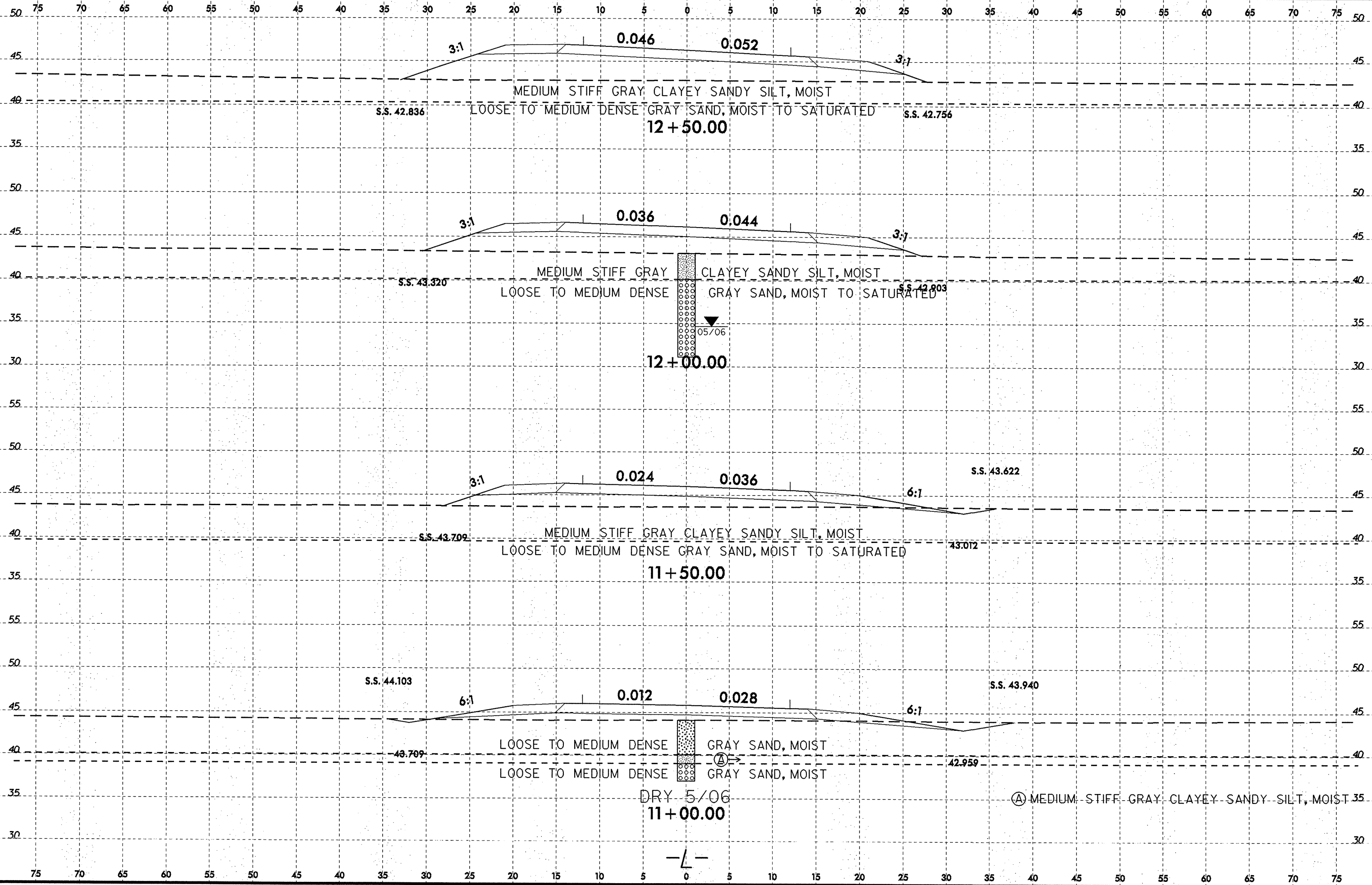
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PROJECT REFERENCE NO.		SHEET NO.
U-3826		15
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
		90
INCOMPLETE PLANS DO NOT USE FOR ACQUISITION		80
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION		



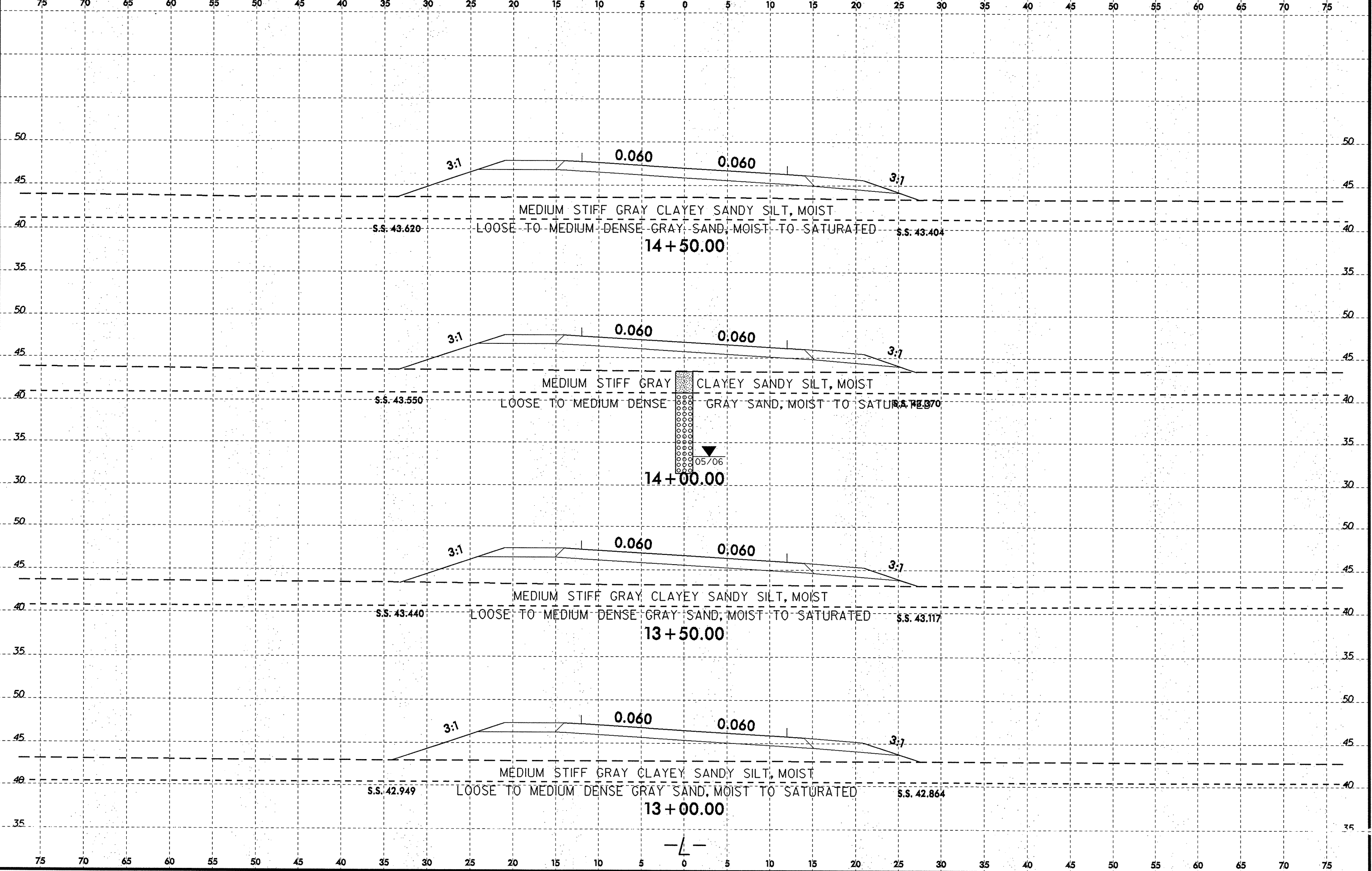
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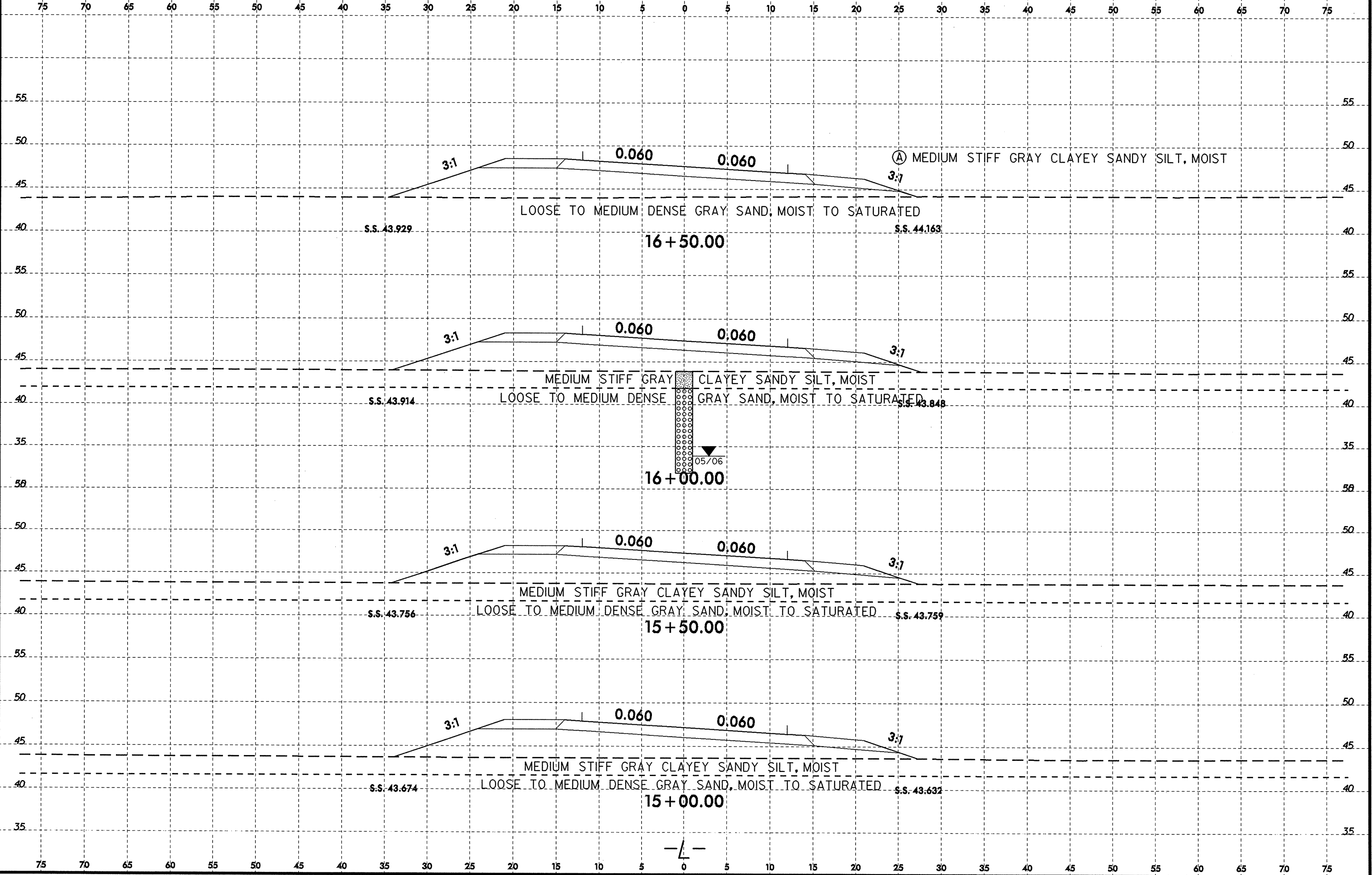
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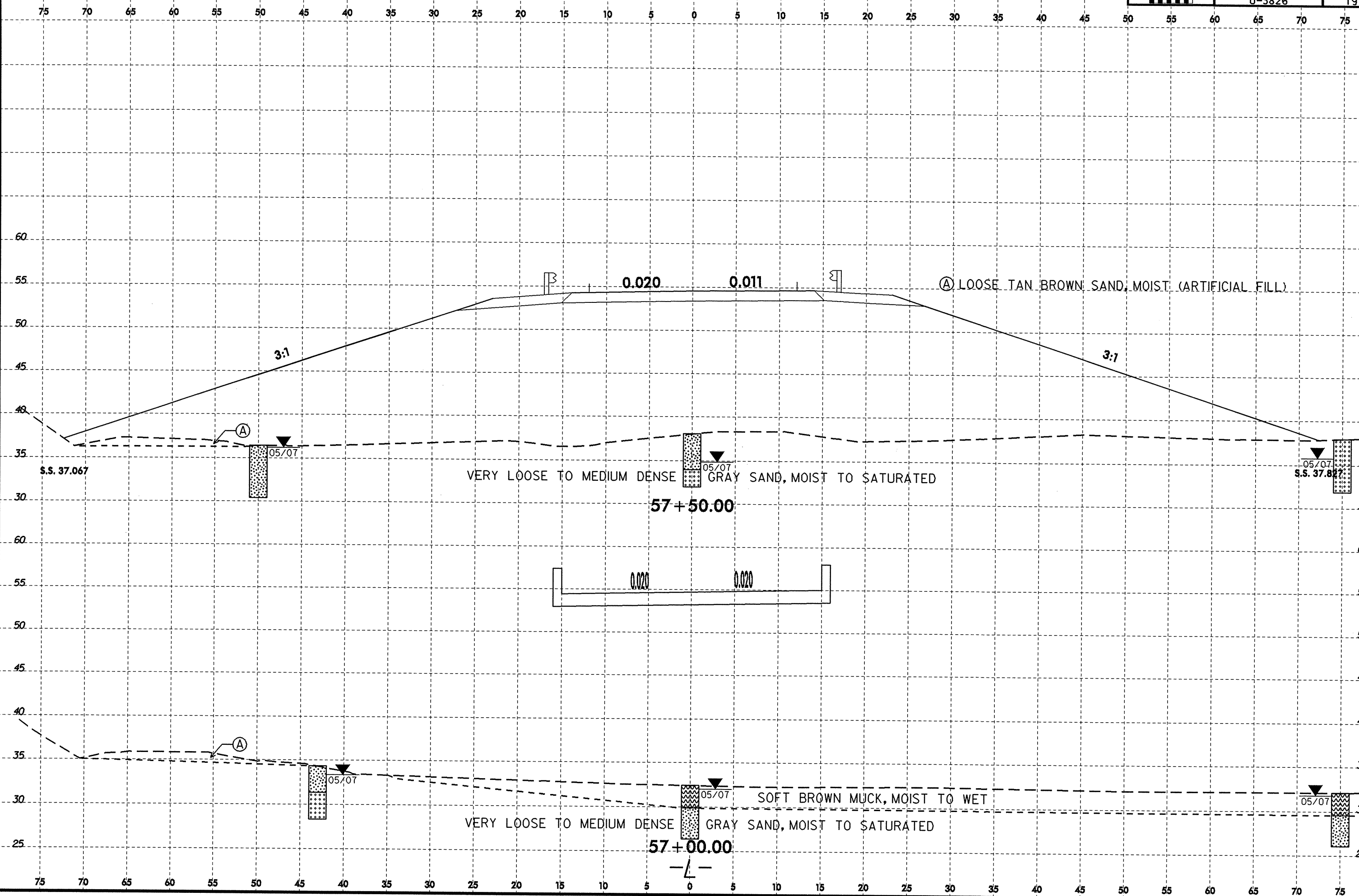
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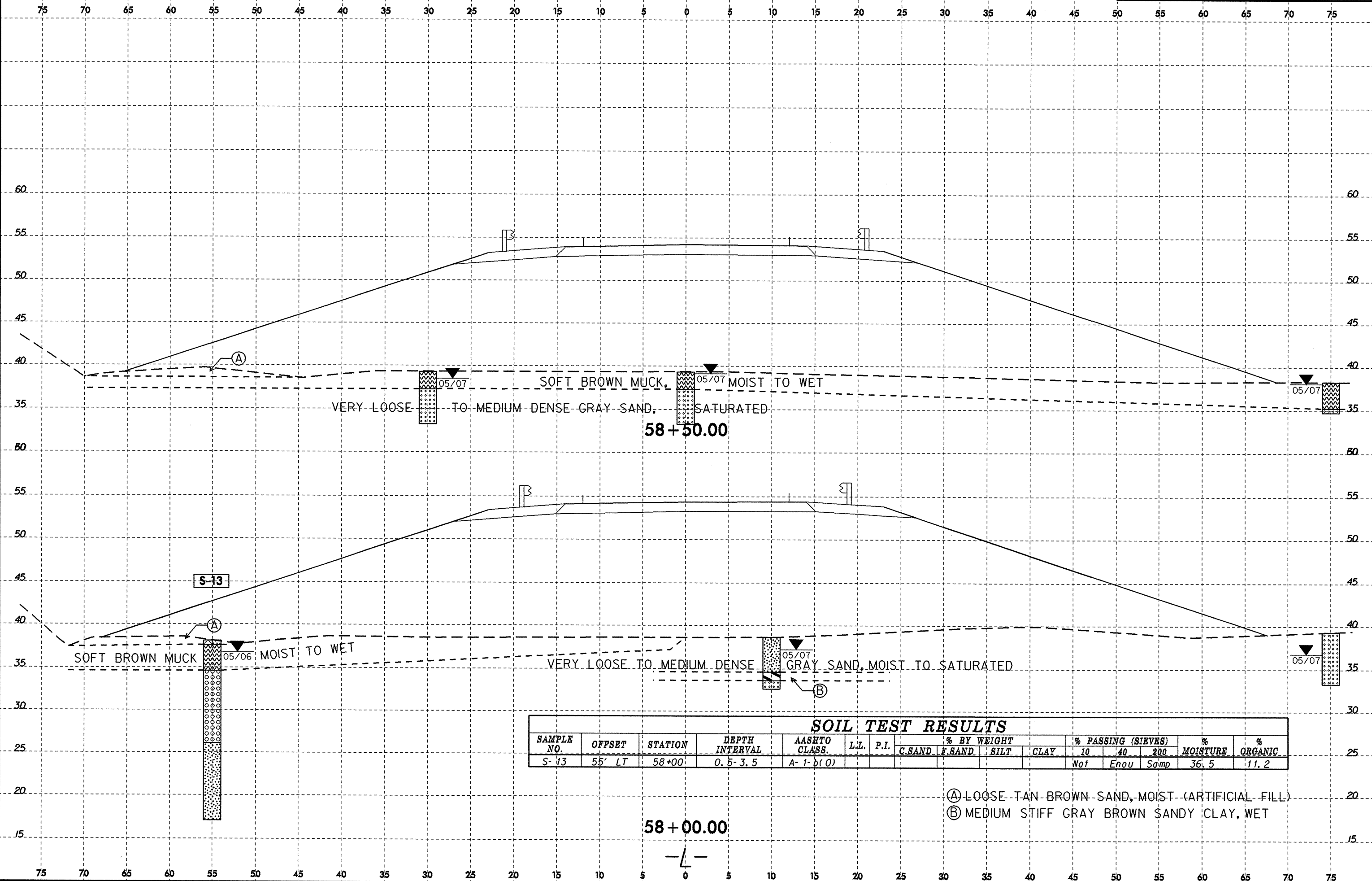
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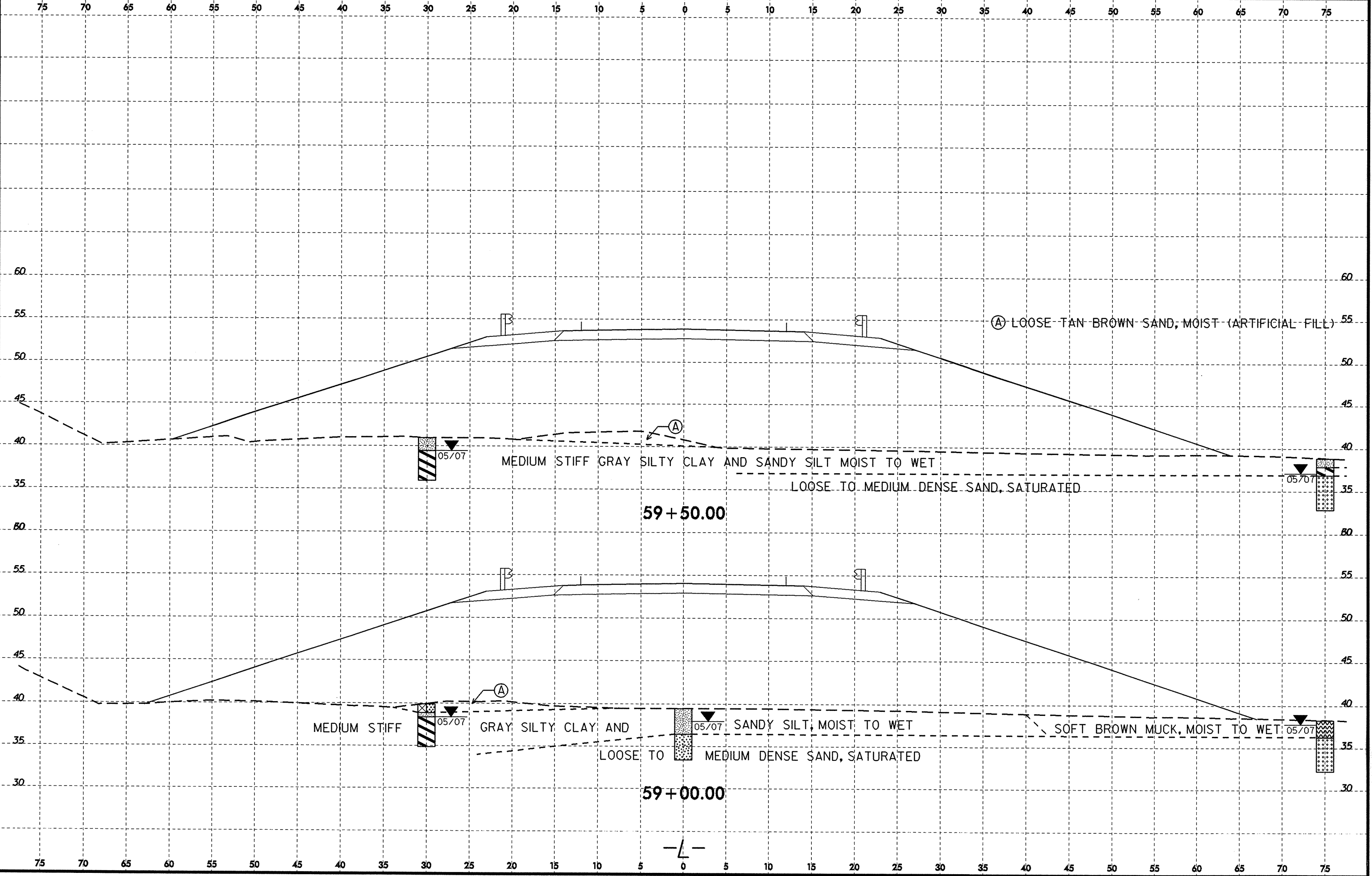
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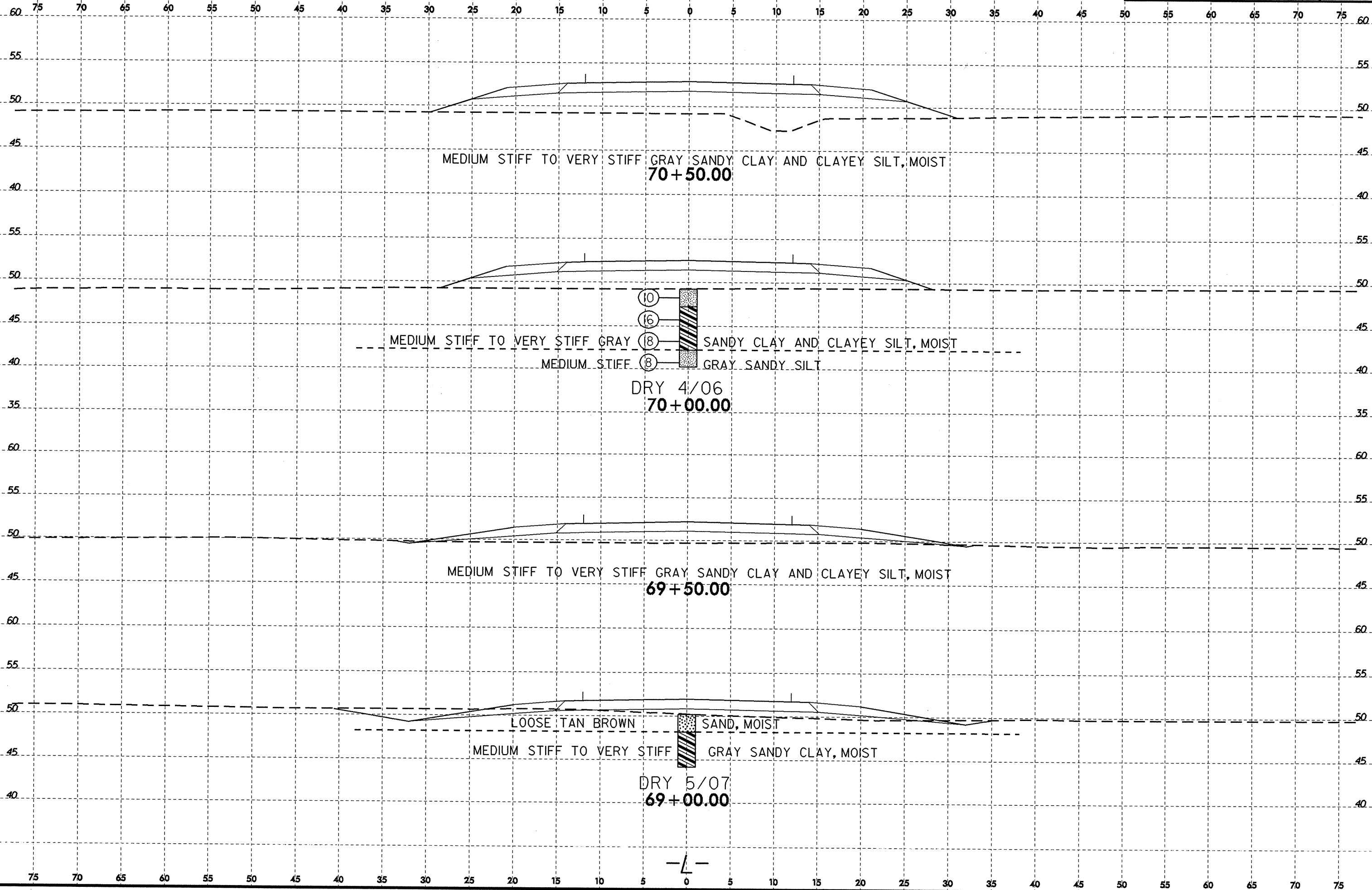


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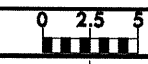
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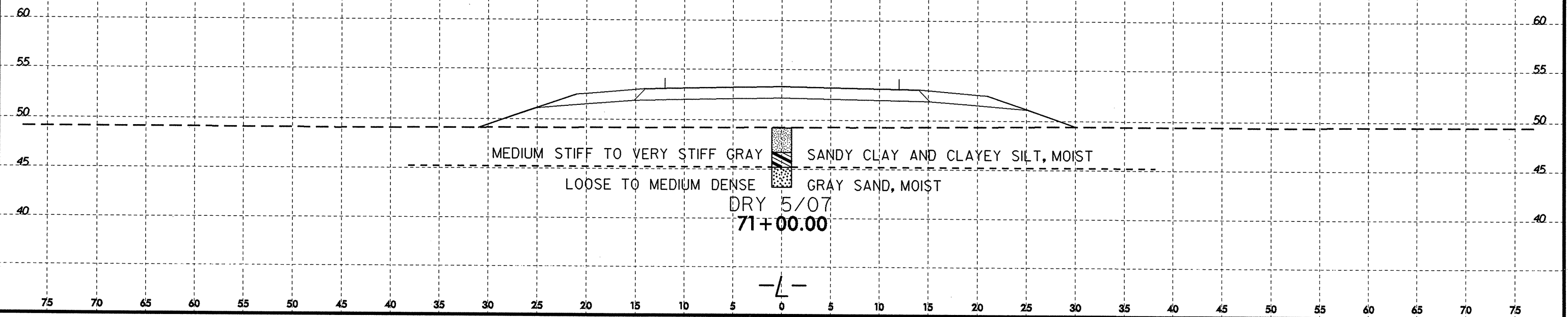
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PROJ. REFERENCE NO.
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