STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-5018A *	1	55

WBS NO.	F.A. PROJ. NO.	DESCRIPTION
41431.1.1		P.E.
41431.2.1		R/W
41431.3.2		CONST.

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. *41431.1.1 (U-5018)* F.A. PROJ. *STP-0043 (8)*

COUNTY *PITT*

PROJECT DESCRIPTION *NC 43 FROM US 264 TO NC 11 (MEMORIAL DRIVE)*

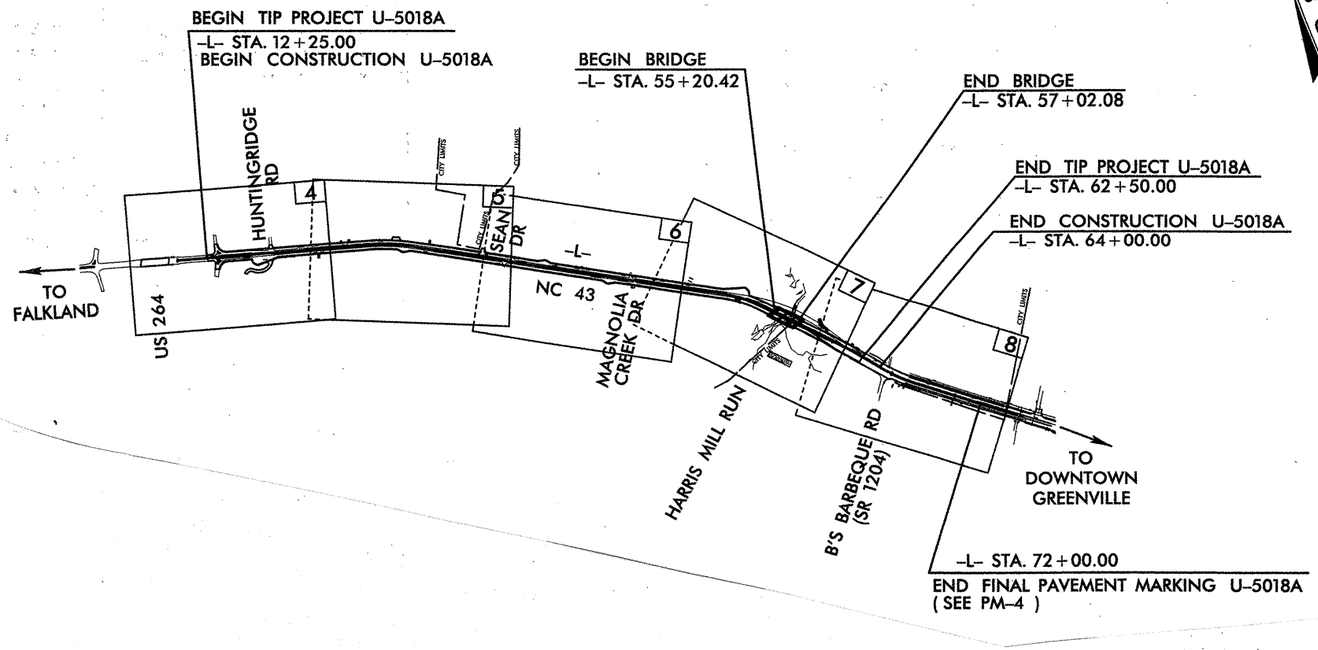
INVENTORY

*ID: U-5018A **

CONTRACT: C201904

CONTENTS

CROSS SECTIONS



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.

PERSONNEL

TCB

JRS

RES

S&ME

INVESTIGATED BY *TC BOTTOMS*

CHECKED BY *DN ARGENBRIGHT*

SUBMITTED BY *DN ARGENBRIGHT*

DATE *AUGUST, 2008*

NORTH CAROLINA LICENSED SEAL 2007 GEOLOGIST JOSEPH L. STONE

* This inventory is for U-5018, which includes U-5018A and U-5018B sections. Please refer to the respective portions for your needs.

DRAWN BY: *T.C. BOTTOMS, C.P. TURNER*

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.

PROJECT REFERENCE NO.	SHEET NO.
U-5018	2

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

SUBSURFACE INVESTIGATION

SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

SOIL DESCRIPTION

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

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

SOIL LEGEND AND AASHTO CLASSIFICATION

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

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

CONSISTENCY OR DENSENESS

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

TEXTURE OR GRAIN SIZE

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

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

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

SOIL MOISTURE - CORRELATION OF TERMS

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

PLASTICITY

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

COLOR

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

GRADATION

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

ANGULARITY OF GRAINS

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

MINERALOGICAL COMPOSITION

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

COMPRESSIBILITY

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

PERCENTAGE OF MATERIAL

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

GROUND WATER

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

MISCELLANEOUS SYMBOLS

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

SAMPLE DESIGNATIONS

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

ABBREVIATIONS

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

EQUIPMENT USED ON SUBJECT PROJECT

DRILL UNITS:
- [ ] MOBILE B-___
- [ ] BK-51
- [ ] CME-45B
- [ ] CME-550
- [ ] PORTABLE HOIST
- [X] DIEDRICH D-50
- [ ] _____

ADVANCING TOOLS:
- [ ] CLAY BITS
- [X] 6" CONTINUOUS FLIGHT AUGER
- [ ] 8" HOLLOW AUGERS
- [ ] HARD FACED FINGER BITS
- [ ] TUNG.-CARBIDE INSERTS
- [X] CASING [ ] W/ ADVANCER
- [X] TRICONE 2 15/16 " STEEL TEETH
- [ ] TRICONE _____ " TUNG.-CARB.
- [ ] CORE BIT
- [ ] _____

HAMMER TYPE:
- [X] AUTOMATIC [ ] MANUAL

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

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

ROCK DESCRIPTION

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

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

WEATHERING

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

ROCK HARDNESS

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

FRACTURE SPACING

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

BEDDING

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

INDURATION

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

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

TERMS AND DEFINITIONS

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

AQUIFER - A WATER BEARING FORMATION OR STRATA.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

BENCH MARK:

ELEVATION: FT.

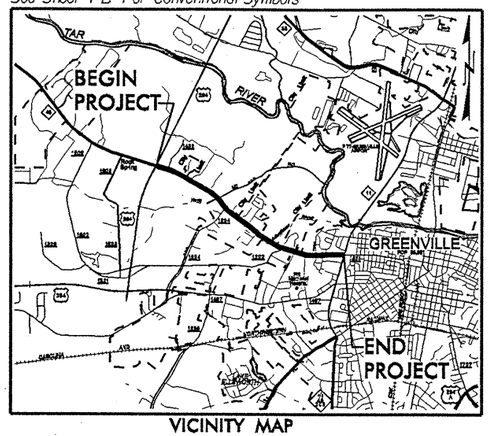
NOTES:

REVISED 02/23/06

TIP PROJECT: U-5018

CONTRACT: C201904

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



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

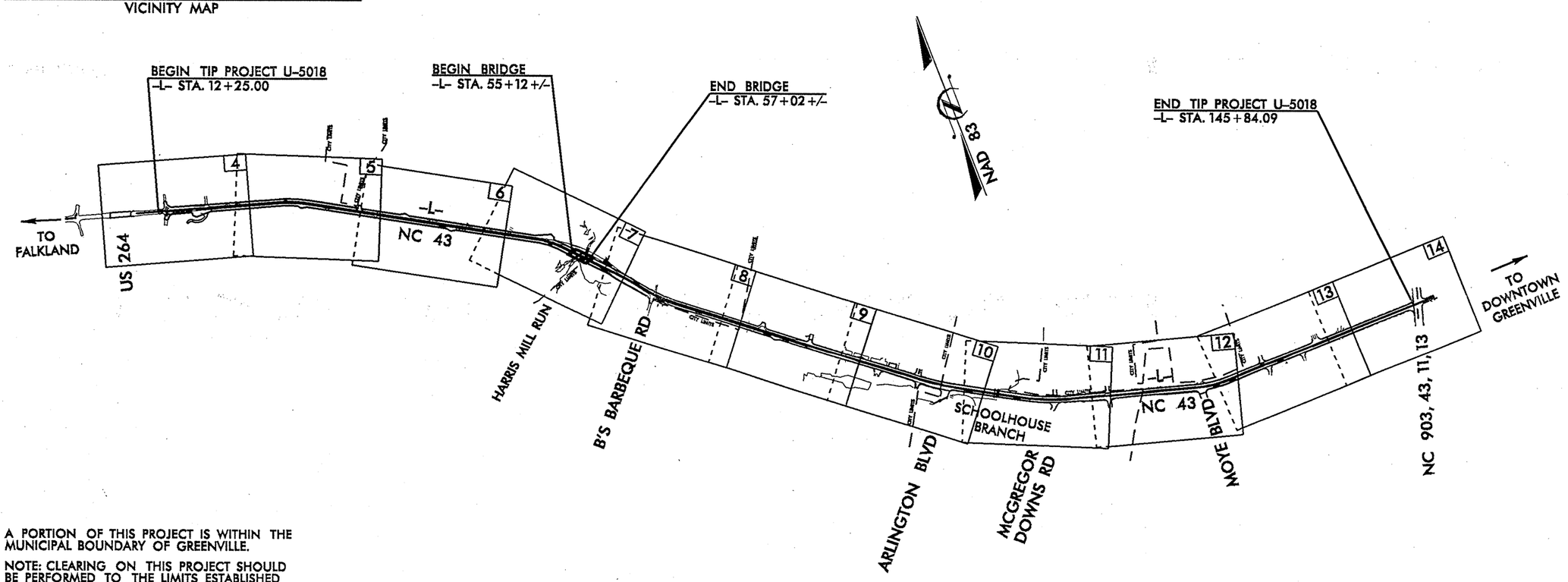
PITT COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-5018	2A	

WBS NO.	F.A. PROJ. NO.	DESCRIPTION
41431.1.1	STP-0043(8)	P.E.
41431.3.1	STP-0043(8)	CONST.

LOCATION: NC 43 FROM US 264 TO NC 11

TYPE OF WORK: GRADING, PAVING, DRAINAGE, AND STRUCTURE



A PORTION OF THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARY OF GREENVILLE.

NOTE: CLEARING ON THIS PROJECT SHOULD BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2007 = 19,700
ADT 2029 = 40,600
DHV = 10 %
D = 50 %
T = 6 % *
V = 50 MPH
(* TTST 2 % + DUAL 4 %)

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT U-5018 = 2.494 MILES
LENGTH STRUCTURE TIP PROJECT U-5018 = 0.036 MILES
TOTAL LENGTH TIP PROJECT U-5018 = 2.530 MILES

Prepared In the Office of:
MULKEY
ENGINEERS & CONSULTANTS
FOR
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: ??????

LETTING DATE: AUGUST 19, 2008

TIM JORDAN, PE
PROJECT ENGINEER

JEFF RECK, PE
HYDRAULICS ENGINEER

NCDOT CONTACT: JOHN ROUSE

HYDRAULICS ENGINEER

P.E.
SIGNATURE:

ROADWAY DESIGN ENGINEER

P.E.
SIGNATURE:

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

P.E.
STATE HIGHWAY DESIGN ENGINEER

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

August 11, 2008

STATE PROJECT: 41431.1.1 (U-5018)
F.A. PROJECT: STP-0043 (8)
COUNTY: Pitt

DESCRIPTION: NC 43 from US 264 to NC 11 (Memorial Drive)

SUBJECT: Geotechnical Inventory

Project Description

The project area lies just west of the city of Greenville along existing NC 43, beginning east of the intersection of US 264 Bypass and NC 43, (Sta. 12+25), and extending eastward approximately 2.5 miles to the intersection of NC 43 and NC 11 (Sta. 145+84.) This project consists primarily of the widening of existing NC 43 from two lanes to four, with medians and turn lanes. This will be accomplished through the addition of a new travel lane to the north and south of existing NC 43 from Sta. 12+25 to Sta. 80+00. NC 43 will be realigned to the south from Sta. 51+00 to 63+50 to accommodate the bridge construction. Additionally, slight widening and resurfacing is proposed from Sta. 80+00 to Sta. 145+84. Limited subsurface information was collected from station 80+00 to 145+84 due to the scope of proposed construction.

The geotechnical field investigation was completed from April to June of 2008. Borings were advanced with a track mounted Diedrich D-50 drill machine with an automatic hammer. Standard penetration tests were performed in selected borings. Hand auger borings were also completed. Representative soil samples were collected for visual classification in the field and for laboratory analysis by the Materials and Tests Unit.

The following alignment was investigated. Subsurface profiles and selected cross sections of this alignment are included in this report.

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

TELEPHONE: 919-250-4088
Fax: 919-250-4237

Website: www.ncdot.org./doh

LOCATION:
CENTURY CENTER COMPLEX
ENTRANCE B-2
1020 BIRCH RIDGE DRIVE
RALEIGH NC 27610

Line	Station (±)
-L-	12+25 to 145+84

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:

Line	Station (±)
-L-	13+50 to 59+75
-L-	62+75 to 65+25
-L-	67+25 to 68+75
-L-	71+25 to 73+75
-L-	77+75 to 82+00

2) The following sections were found to exhibit seasonal high ground water, or the potential for ground water related construction problems:

Line	Station (±)
-L-	13+75 to 18+25
-L-	20+25 to 21+00
-L-	27+50 to 37+50
-L-	39+50 to 53+00
-L-	54+50 to 57+00
-L-	65+50 to 82+00

Physiography and Geology

This project corridor is located within the Coastal Plain Physiographic Province. Topography along the project varies from nearly flat to moderately sloping and generally exhibits adequate surface drainage. Elevations ranged from 55± to 90± feet in upland areas to 20± to 55± feet in the flood plains. Surface waters from this area flow southeast into the various tributaries of Harris Mill Run, and ultimately into the Tar River.

Surficial soils in this area are generally derived from alluvial deposition and the weathering of existing formational material. Alluvial soils are restricted to areas in and around Harris Mill Run. These soils were not encountered during this roadway investigation. The upland sections are composed primarily of oxidized formational soils. These surface units are underlain by the Pliocene marine deposits of the Yorktown Formation and Cretaceous deposits of the Peedee Formation.

Ground Water

Ground water data was collected during April, May, June and August 2008, during a time of below normal precipitation. Ground water elevations ranged from 50± to 73± feet in upland areas to 18± to 50± feet in the flood plains.

Soils

Soils within this project area have been divided into three categories, upland soils, formational soils, and roadway embankment soils.

Upland soils within this project area have been derived from weathering of the underlying formational material. These soils are characterized by various degrees of oxidation, and primarily consist of 2± or more feet of soft to stiff sandy silt and sandy clayey silt (A-4). These units typically have greater than 50 percent passing the no. 200 sieve and exhibit non-plastic to low plastic characteristics. These soils have a natural moisture content of about 34 percent. Alternating with these silt rich horizons are 1± to 8 or more feet of soft to stiff sandy clay and silty clay (A-6, A-7-6). These soils generally have more than 50 percent passing the no. 200 sieve and exhibit low to medium plastic characteristics. These cohesive units have a natural moisture content of 14 to 38 percent. Scattered within these silty and clayey units, localized sand rich horizons have been identified. Typically, these units consist of 1± to 8 or more feet of loose to medium dense sand and silty sand (A-2-4, A-3).

Formational soils encountered belong to the Pliocene age Yorktown Formation and Cretaceous age Peedee Formation. The Yorktown Formation is composed of 15 or more feet of medium dense silty sand (A-2-4), and 5 or more feet of medium dense sandy silt (A-4) layers. The Peedee Formation is composed of 15 or more feet of stiff to very stiff sandy silt and silty clay (A-4, A-7-6). The cohesive units found within this formation have greater than 50 percent passing the no. 200 sieve and exhibit low to medium plasticity indices.

Roadway Embankment material was generally encountered along existing NC 43 and consists of 1± to 7± feet of medium stiff sandy and silty clay (A-6, A-7-6) and 2± feet of loose silty sand (A-2-4).

Respectfully Submitted,

Tyler Bottoms
Engineering Geologist I

PROJECT NO. : U-5018A

COUNTY: PITT

EARTHWORK BALANCE SHEET

LOCATION	EVCAVATION					EMBANKMENT				BORROW	WASTE			
	TOTAL UNCLASS. EXCAVATION	ROCK	UNDERCUT	UNSUITABLE UNCLASS.	SUITABLE UNCLASS.	TOTAL EMBANKMENT	ROCK	EARTH EMBANKMENT	EMBANKMENT PLUS 25%		ROCK	SUITABLE	UNSUITABLE	TOTAL
-L-														
12+25.00 TO 42+00.00	13367		19209	7150	6217	3230		3230	4038			2179	26359	28538
42+00.00 TO 55+20.42	7088		8516	3833	3255	11653		11653	14566	11311			12349	12349
57+02.08 TO 62+50.00	3940		275	117	3823	5479		5479	6849	3026			392	392
TOTAL	24395		28000	11100	13295	20362		20362	25453	14337		2179	39100	41279
WASTE TO REPLACE BORROW										-2179		-2179		-2179
EST. SHOULDER MATERIAL						2535		2535	3169	3169				
ADDITIONAL UNDERCUT			2400										2400	2400
SHALLOW UNDERCUT PORTION			-150										-150	-150
PROJECT TOTAL	24395		30250	11100	13295	22897		22897	28622	15327			41350	41350
5% TO REPLACE BORROW										767				
GRAND TOTAL	24395		30250							16094				
SAY	24700		30250							16300				

EST. DDE = 5205 CY

EST. FABRIC FOR SOIL STABILIZATION = 30,650 SY

EST. SELECT GRANULAR MATERIAL = 30,650 CY

EST. CLASS IV SUBGRADE STAB. = 250 TON

EST. SHALLOW UNDERCUT = 150 TON

EMBANKMENT DOES NOT INCLUDE BACKFILL FOR UNDERCUT.

SELECT GRANULAR MATERIAL WILL BE USED TO BACKFILL UNDERCUT AS PER GEOTECHNICAL REPORT DATED APRIL 2, 2009.

EARTHWORK QUANTITIES ARE CALCULATED BY HIGHWAY DIVISION 2. THESE EARTHWORK QUANTITIES ARE BASED IN PART ON SUBSURFACE DATA PROVIDED BY THE GEOTECHNICAL ENGINEERING UNIT.

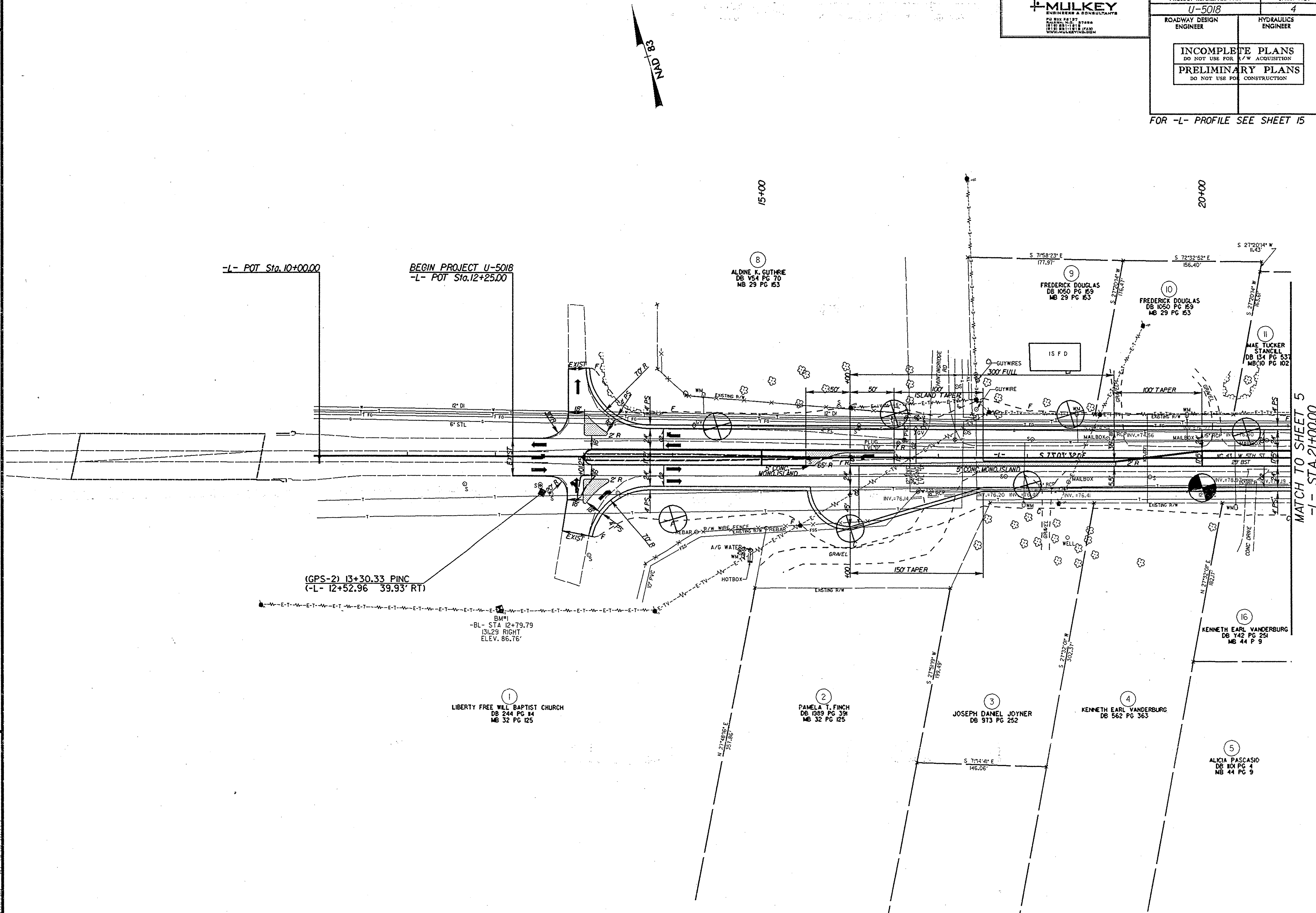
MULKEY ENGINEERS & CONSULTANTS

PROJECT REFERENCE NO.	SHEET NO.
U-5018	4
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

FOR -L- PROFILE SEE SHEET 15



REVISIONS

5/28/99

PROJECT REFERENCE NO.	SHEET NO.
U-5018	5

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

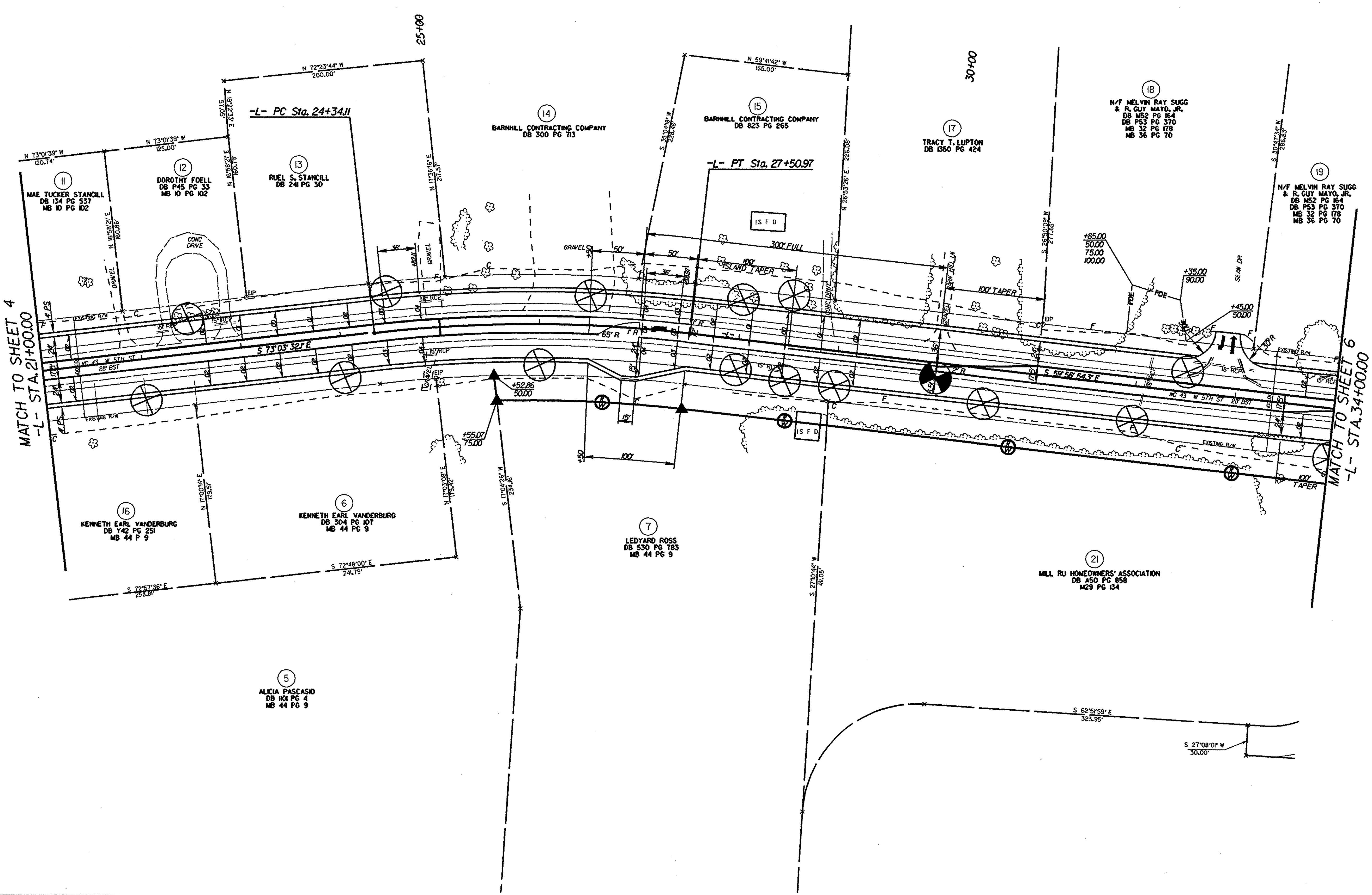
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

MULKEY ENGINEERS & CONSULTANTS

FOR -L- PROFILE SEE SHEET 15

-L-
PI Sta 25+93.23
Δ = 13°06' 37.8" (RT)
D = 4°08' 15.5"
L = 316.86'
T = 159.12'
R = 1,384.74'
SE = .04
RO = 144'

NAD 83



MATCH TO SHEET 4
-L- STA. 21+00.00
MATCH TO SHEET 6
-L- STA. 34+00.00
-L- PC Sta. 24+34.11
-L- PT Sta. 27+50.97
25+00
30+00
S 73°03' 32.1" E
S 59°56' 54.3" E
MAE TUCKER STANCILL
DB 134 PG 537
MB 10 PG 102
DOROTHY FOELL
DB P45 PG 33
MB 10 PG 102
RUEL S. STANCILL
DB 241 PG 30
BARNHILL CONTRACTING COMPANY
DB 300 PG 713
BARNHILL CONTRACTING COMPANY
DB 823 PG 265
TRACY T. LUPTON
DB 1350 PG 424
N/F MELVIN RAY SUGG
& R. GUY MAYO, JR.
DB M52 PG 164
DB P53 PG 370
MB 32 PG 178
MB 36 PG 70
KENNETH EARL VANDERBURG
DB Y42 PG 251
MB 44 P 9
KENNETH EARL VANDERBURG
DB 304 PG 107
MB 44 PG 9
LEDYARD ROSS
DB 530 PG 783
MB 44 PG 9
MILL RU HOMEOWNERS' ASSOCIATION
DB A50 PG 858
M29 PG 134
ALICIA PASCASIO
DB 1101 PG 4
MB 44 PG 9
300' FULL
100' ISLAND TAPER
100' TAPER

REVISIONS

5/28/99

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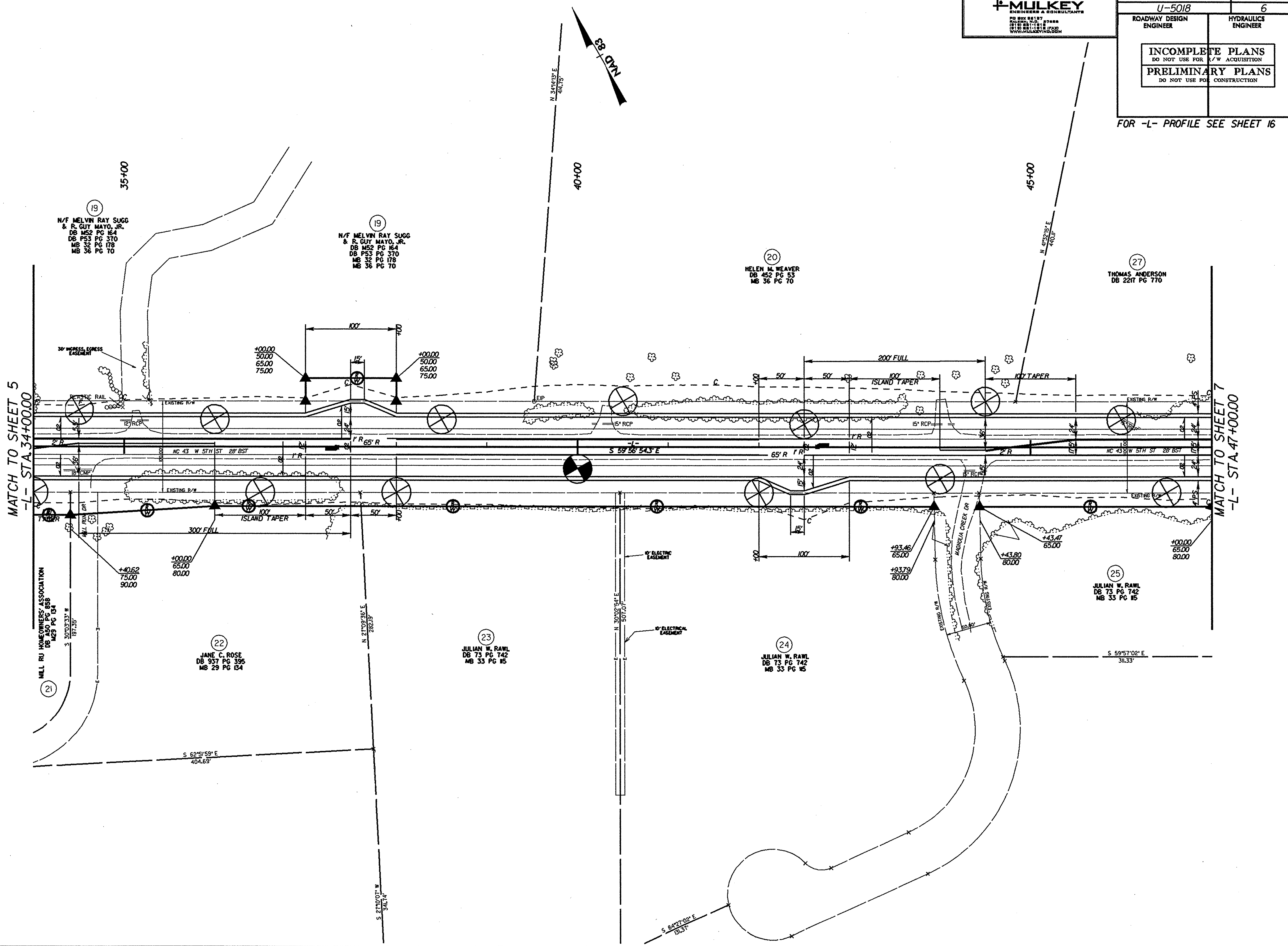
MULKEY ENGINEERS & CONSULTANTS

PROJECT REFERENCE NO.	SHEET NO.
U-5018	6
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

FOR -L- PROFILE SEE SHEET 16



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REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
U-5018	7
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

MULKEY ENGINEERS & CONSULTANTS

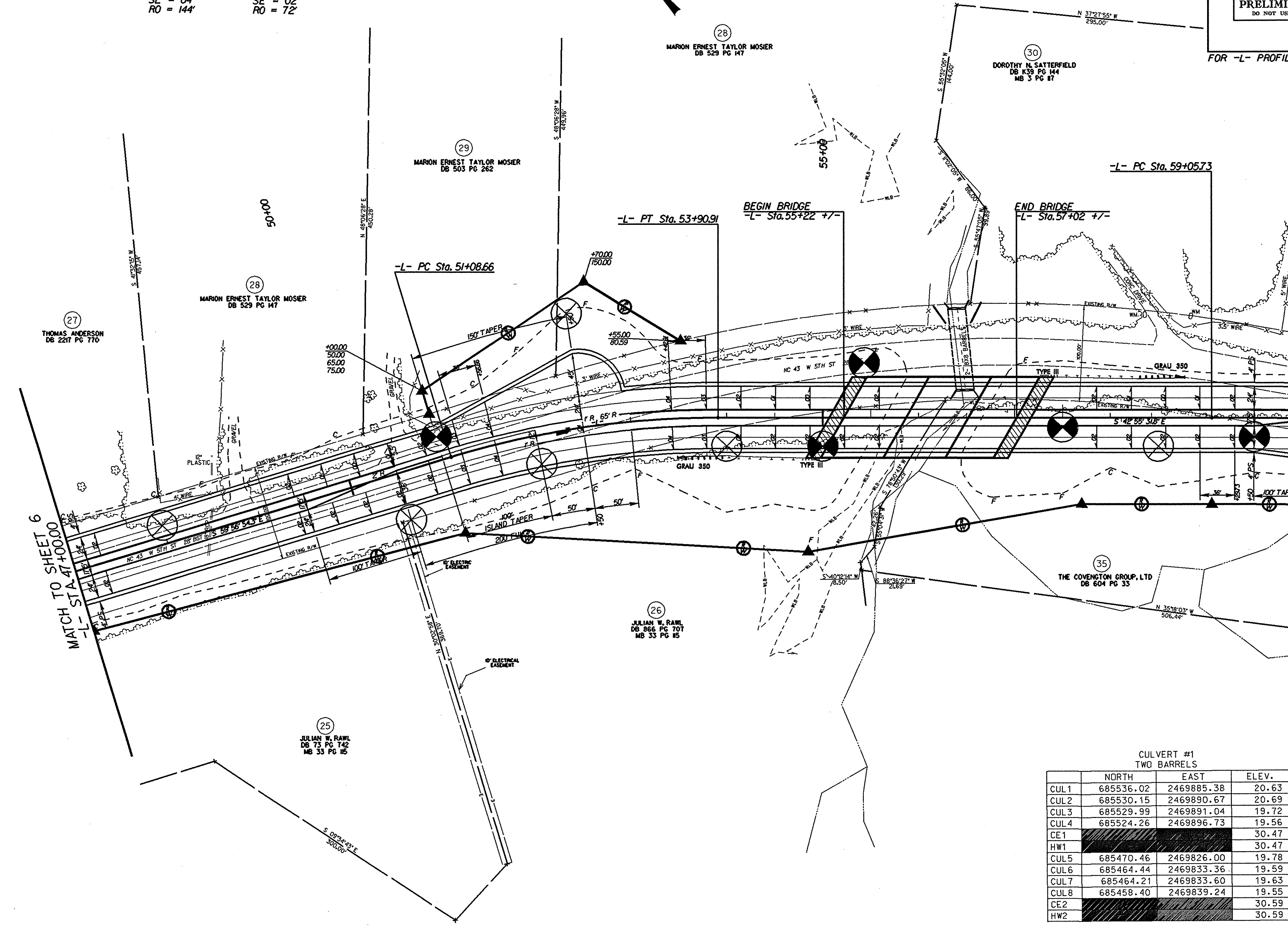
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

FOR -L- PROFILE SEE SHEET 16

-L-

PI Sta 52+50.83	PI Sta 61+27.90
Δ = 17° 01' 22.4" (RT)	Δ = 5° 09' 00.9" (RT)
D = 6° 01' 52.1"	D = 1° 09' 35.4"
L = 282.25'	L = 444.05'
T = 142.17'	T = 222.17'
R = 950.00'	R = 4,940.00'
SE = .04	SE = .02
RO = 144'	RO = 72'



NAD 83
MARION ERNEST TAYLOR MOSIER
DB 529 PG 147
DOROTHY N. SATTERFIELD
DB K39 PG 144
MB 3 PG 17
MARION ERNEST TAYLOR MOSIER
DB 503 PG 262
THOMAS ANDERSON
DB 2217 PG 770
-L- PC Sta. 51+08.66
-L- PT Sta. 53+90.91
BEGIN BRIDGE
-L- Sta. 55+22 +/-
END BRIDGE
-L- Sta. 57+02 +/-
-L- PC Sta. 59+05.73
50+00
55+00
NC 43 W 5TH ST
GRAU 350
TYPE III
150' TAPER
ISLAND TAPER
100' TAPER
200' FULL
10' ELECTRIC EASEMENT
10' ELECTRICAL EASEMENT
THE COVENGTON GROUP, LTD
DB 604 PG 33
JULIAN W. RAWL
DB 866 PG 707
MB 33 PG 15
JULIAN W. RAWL
DB 73 PG 742
MB 33 PG 115
MATCH TO SHEET 6
-L- STA. 47+00.00
MATCH TO SHEET 8
-L- STA. 60+00.00

CULVERT #1
TWO BARRELS

	NORTH	EAST	ELEV.
CUL1	685536.02	2469885.38	20.63
CUL2	685530.15	2469890.67	20.69
CUL3	685529.99	2469891.04	19.72
CUL4	685524.26	2469896.73	19.56
CE1			30.47
HW1			30.47
CUL5	685470.46	2469826.00	19.78
CUL6	685464.44	2469833.36	19.59
CUL7	685464.21	2469833.60	19.63
CUL8	685458.40	2469839.24	19.55
CE2			30.59
HW2			30.59

REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
U-5018	8
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

MULKEY ENGINEERS & CONSULTANTS

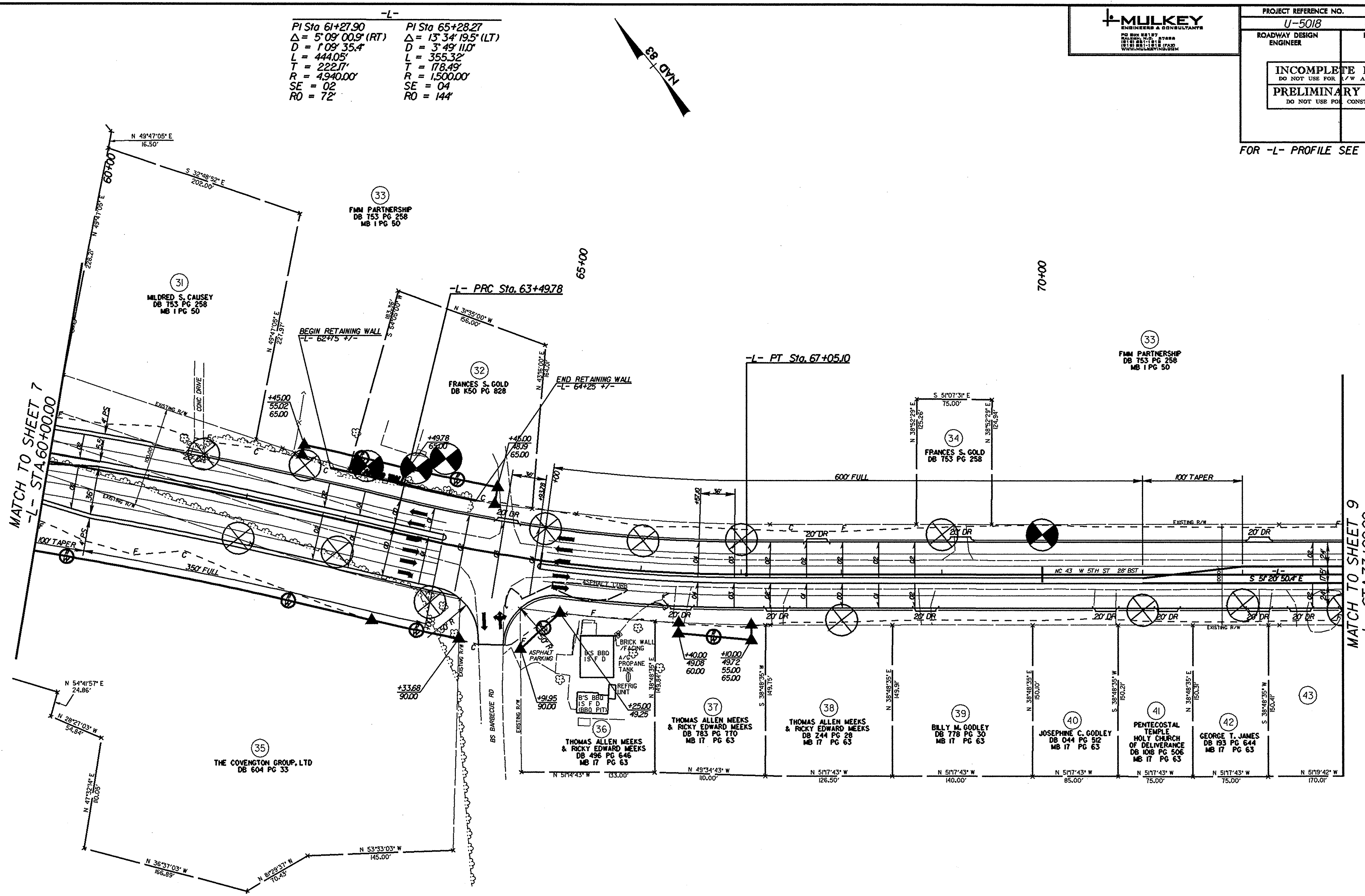
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

FOR -L- PROFILE SEE SHEET 17

-L-

PI Sta 61+27.90	PI Sta 65+28.27
Δ = 5° 09' 00.9" (RT)	Δ = 13° 34' 19.5" (LT)
D = 1° 09' 35.4"	D = 3° 49' 11.0"
L = 444.05'	L = 355.32'
T = 222.17'	T = 178.49'
R = 4,940.00'	R = 1,500.00'
SE = .02	SE = .04
RO = 72'	RO = 144'



NAD 83
MATCH TO SHEET 7
-L- STA.60+00.00
MATCH TO SHEET 9
-L- STA.73+00.00
60+00
65+00
70+00
-L- PRC Sta. 63+49.78
-L- PT Sta. 67+05.10
BEGIN RETAINING WALL
-L- 62+75 +/-
END RETAINING WALL
-L- 64+25 +/-
33
FMM PARTNERSHIP
DB 753 PG 258
MB 1 PG 50
31
MILDRED S. CAUSEY
DB 753 PG 258
MB 1 PG 50
32
FRANCES S. GOLD
DB K50 PG 828
34
FRANCES S. GOLD
DB 753 PG 258
35
THE COVENGTON GROUP, LTD
DB 604 PG 33
36
THOMAS ALLEN MEEKS
& RICKY EDWARD MEEKS
DB 496 PG 646
MB 17 PG 63
37
THOMAS ALLEN MEEKS
& RICKY EDWARD MEEKS
DB 783 PG 770
MB 17 PG 63
38
THOMAS ALLEN MEEKS
& RICKY EDWARD MEEKS
DB Z44 PG 28
MB 17 PG 63
39
BILLY M. GODLEY
DB 778 PG 30
MB 17 PG 63
40
JOSEPHINE C. GODLEY
DB 044 PG 512
MB 17 PG 63
41
PENTECOSTAL TEMPLE
HOLY CHURCH
OF DELIVERANCE
DB 1018 PG 506
MB 17 PG 63
42
GEORGE T. JAMES
DB 193 PG 644
MB 17 PG 63
43
600' FULL
100' TAPER
350' FULL
20' DR
NC 43 W 5TH ST 28' BST
S 51°20' 50.4" E
EXISTING R/W
BS BARBECUE RD
ASPHALT PARKING
B'S BBQ
BRICK WALL /FACING
A/C
PROPANE TANK
REFRIG UNIT
ASPHALT CURB
CONC DRIVE
N 49°47'05" E
16.50'
S 32°48'52" E
202.00'
N 31°35'00" W
156.00'
N 54°41'57" E
24.86'
N 28°21'03" W
54.84'
N 36°37'03" W
166.89'
N 53°33'03" W
145.00'
S 51°07'31" E
75.00'
N 49°34'43" W
110.00'
N 51°17'43" W
126.50'
N 51°17'43" W
140.00'
N 51°17'43" W
85.00'
N 51°17'43" W
75.00'
N 51°17'43" W
75.00'
N 51°19'42" W
170.01'
+45.00
55.02
65.00
+49.78
65.00
+45.00
48.19
65.00
+33.68
90.00
+91.95
90.00
+25.00
49.25
+40.00
49.08
60.00
+10.00
49.72
55.00
65.00

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REVISIONS

5/28/99

REVISIONS

MULKEY
ENGINEERS & CONSULTANTS
PO BOX 96127
RALEIGH, NC 27624
(919) 851-1815
(919) 851-1818 (FAX)
WWW.MULKEYINC.COM

PROJECT REFERENCE NO.	SHEET NO.
U-5018	9
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

FOR -L- PROFILE SEE SHEET 17

NAD 83

MATCH TO SHEET 8
-L- STA 73+00.00

MATCH TO SHEET 10
-L- STA 86+00.00

75+00 80+00 85+00

(46) THE CITY OF GREENVILLE
DB 551 PG 421
MB 44 PG 87

(47) ROSE HILL ENTERPRISES, LLC
DB 869 PG 59
MB 31 PG 122

(48) ROSE HILL ENTERPRISES, LLC
DB 869 PG 59
MB 31 PG 122

(49) GREENVILLE DIALYSIS ASSOCIATES, LLC
DB 1973 PG 337
MB 40 PG 56

(50) EASTERN NEPHROLOGY REALTY COMPANY, LLC
DB 856 PG 329
MB 40 PG 56

(51) NSR COMPANY, LLC
DB 880 PG 555
MB 25 PG 127
MB 40 PG 56

(33) FMM PARTNERSHIP
DB 753 PG 258
MB 1 PG 50

(44) PENTECOSTAL TEMPLE HOLY CHURCH OF DELIVERANCE
DB 604 PG 513
MB 34 PG 150
MB 51 PG 42

(45) CHARLES D. WOODARD
DB 129 PG 752
MB 34 PG 150

(59) STATE OF NORTH CAROLINA
DB 1417 PG 458
MB 58 PG 150

(60) STATE OF NORTH CAROLINA
DB 836 PG 390
MB 51 PG 42

-BL-109 75+32.94 PINC
(-L- 74+30.53 22.92' LT)

BM#7
-BL- STA 75+92.38
66.07 RIGHT
ELEV. 35.80'

BM#8
-BL- STA 85+12.53
5.56 RIGHT
ELEV. 34.06'

(GPS-3) 82+88.29 PINC
(-L- 81+83.01 42.83' RT)

END GRADE
BEGIN OVERLAY
-L- Sta. 81+00

SPECIAL DITCH SEE DETAIL B
TAIL BASE DITCH SEE DETAIL C EST. 75 CY DDE EST. 11 TON RIP RAP EST. 11 SY FIL FAB
TOE PROTECTION SEE DETAIL E EST. 11 LF PSRM EST. 11 SY FIL FAB.
SPECIAL DITCH SEE DETAIL B

200' FULL ISLAND TAPER 100' TAPER
100' TAPER 250' FULL ISLAND TAPER

S 51°20'50" E
65' R
-L-

N 51°20'44" W 174.92'
N 33°55'09" E 200.48'
N 33°55'09" E 233.82'
S 33°55'01" W 200.62'
S 33°55'01" W 485.00'
S 33°36'27" W 100.00'
N 51°20'05" W 100.00'
S 33°36'09" W 50.59'
N 51°19'42" W 170.01'
S 33°31'08" W 125.00'
N 51°19'29" W 75.00'
S 33°31'08" W 100.00'
S 51°19'29" E 365.06'
S 33°36'35" W 125.00'
N 34°38'20" E 798.30'
S 11°51'00" W 60.51'

DETAIL B
SPECIAL BASE DITCH
(Not to Scale)
Natural Ground, 3:1, D, B, Fill Slope
Min. D = 1 Ft.
B = 2 Ft.
-L- STA. 74+10 TO 76+00 LT

DETAIL C
TAIL BASE DITCH
(Not to Scale)
Natural Ground, 3:1, D, B, 3:1, Natural Ground
Min. D = 1 Ft.
B = 2 Ft.
-L- STA. 74+88 LT

DETAIL E
TOE PROTECTION
(Not to Scale)
Natural Ground, d, 3:1, Fill Slope
d = 1Ft.
Type of Liner= PSRM
-L- STA. 78+10 TO 79+30 LT

PROJECT REFERENCE NO.	SHEET NO.
U-5018	10
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

MULKEY ENGINEERS & CONSULTANTS

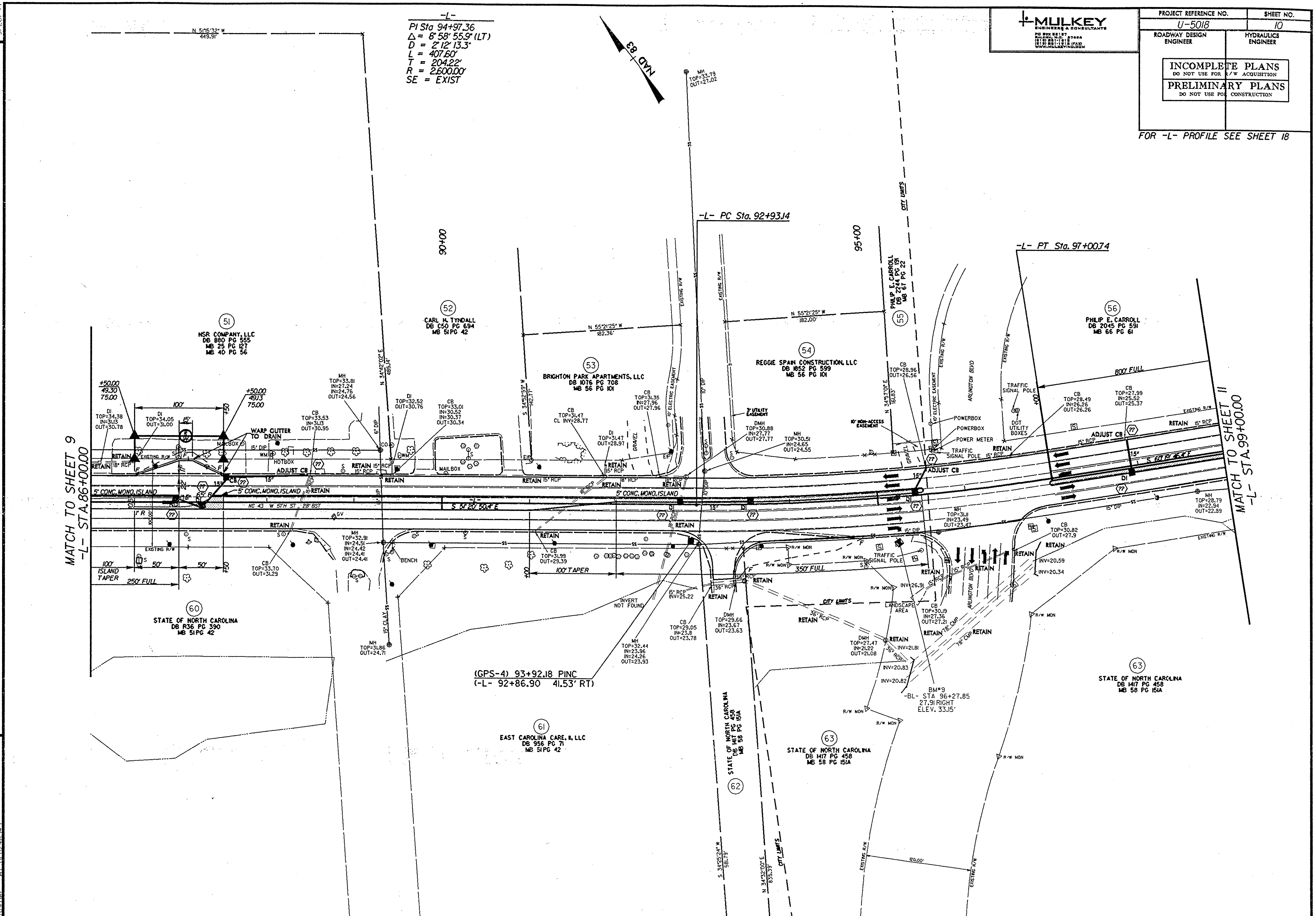
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

FOR -L- PROFILE SEE SHEET 18

REVISIONS

5/28/99



-L-
PI Sta 94+97.36
Δ = 8° 58' 55.9" (LT)
D = 2° 12' 13.3"
L = 407.80'
T = 204.22'
R = 2,600.00'
SE = EXIST
NAD 83
MATCH TO SHEET 9
-L- STA.86+00.00
MATCH TO SHEET 11
-L- STA.99+00.00
-L- PC Sta. 92+93.14
-L- PT Sta. 97+00.74
90+00
95+00
CITY LIMITS
NSR COMPANY, LLC
DB 880 PG 555
MB 25 PG 127
MB 40 PG 56
CARL H. TYNDALL
DB C50 PG 694
MB 51 PG 42
BRIGHTON PARK APARTMENTS, LLC
DB 1076 PG 708
MB 56 PG 101
REGGIE SPAIN CONSTRUCTION, LLC
DB 1852 PG 599
MB 56 PG 101
PHILIP E. CARROLL
DB 2244 PG 191
MB 67 PG 22
PHILIP E. CARROLL
DB 2045 PG 591
MB 66 PG 61
STATE OF NORTH CAROLINA
DB R36 PG 390
MB 51 PG 42
EAST CAROLINA CARE, II, LLC
DB 956 PG 71
MB 51 PG 42
STATE OF NORTH CAROLINA
DB 1417 PG 458
MB 58 PG 151A
NC 43 W 5TH ST
5' CONC. MONO. ISLAND
ARLINGTON BLVD
100' ISLAND TAPER
250' FULL
100' TAPER
350' FULL
800' FULL
(GPS-4) 93+92.18 PINC
(-L- 92+86.90 41.53' RT)
BM#9
-BL- STA 96+27.85
27.91 RIGHT
ELEV. 33.15'
WARP GUTTER TO DRAIN
TRAFFIC SIGNAL POLE
DOT UTILITY BOXES
POWERBOX
POWER METER
10' NON-ACCESS EASEMENT
LANDSCAPE AREA
INVERT NOT FOUND
ADJUST CB
RETAIN

PROJECT REFERENCE NO.	SHEET NO.
U-5018	11
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

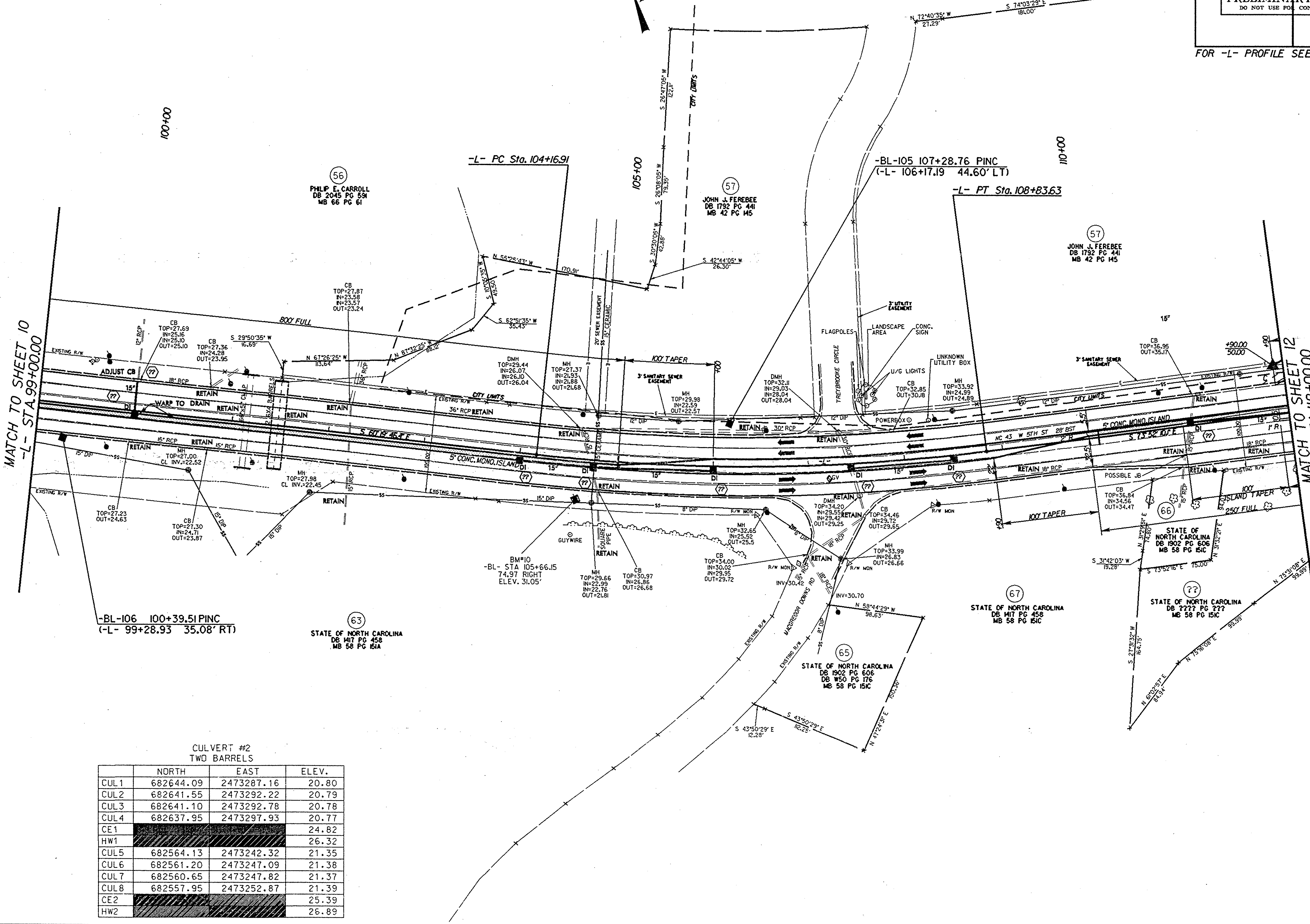
MULKEY ENGINEERS & CONSULTANTS

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

FOR -L- PROFILE SEE SHEET 18

-L-
PI Sta 106+51.36
Δ = 13° 32' 23.7" (LT)
D = 2° 54' 03.8"
L = 466.72'
T = 234.45'
R = 1,975.00'
SE = EXIST



CULVERT #2
TWO BARRELS

	NORTH	EAST	ELEV.
CUL1	682644.09	2473287.16	20.80
CUL2	682641.55	2473292.22	20.79
CUL3	682641.10	2473292.78	20.78
CUL4	682637.95	2473297.93	20.77
CE1			24.82
HW1			26.32
CUL5	682564.13	2473242.32	21.35
CUL6	682561.20	2473247.09	21.38
CUL7	682560.65	2473247.82	21.37
CUL8	682557.95	2473252.87	21.39
CE2			25.39
HW2			26.89

REVISIONS

5/28/99

PROJECT REFERENCE NO.	SHEET NO.
U-5018	12
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

MULKEY ENGINEERS & CONSULTANTS

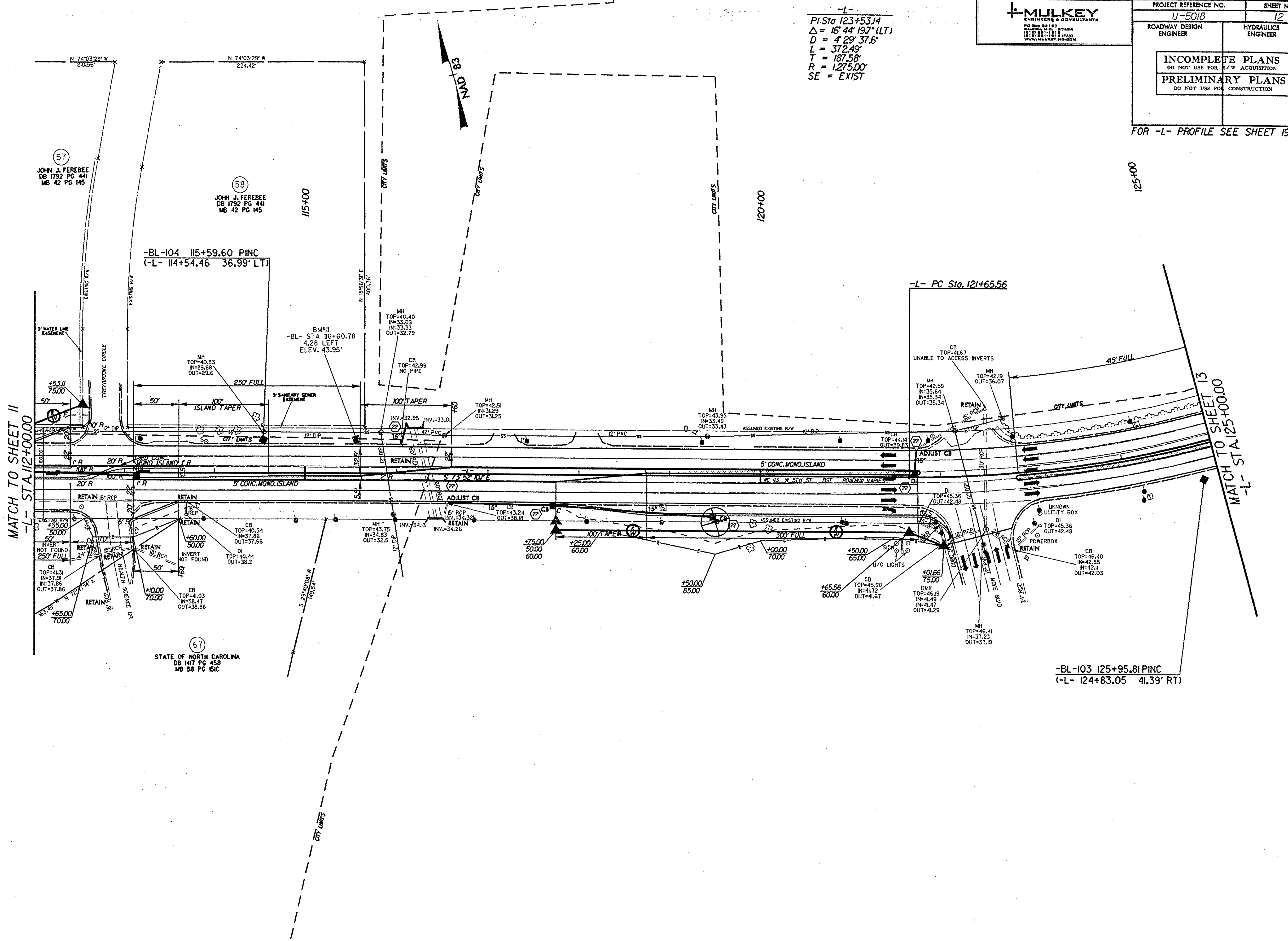
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

FOR -L- PROFILE SEE SHEET 19

REVISIONS

5/28/99



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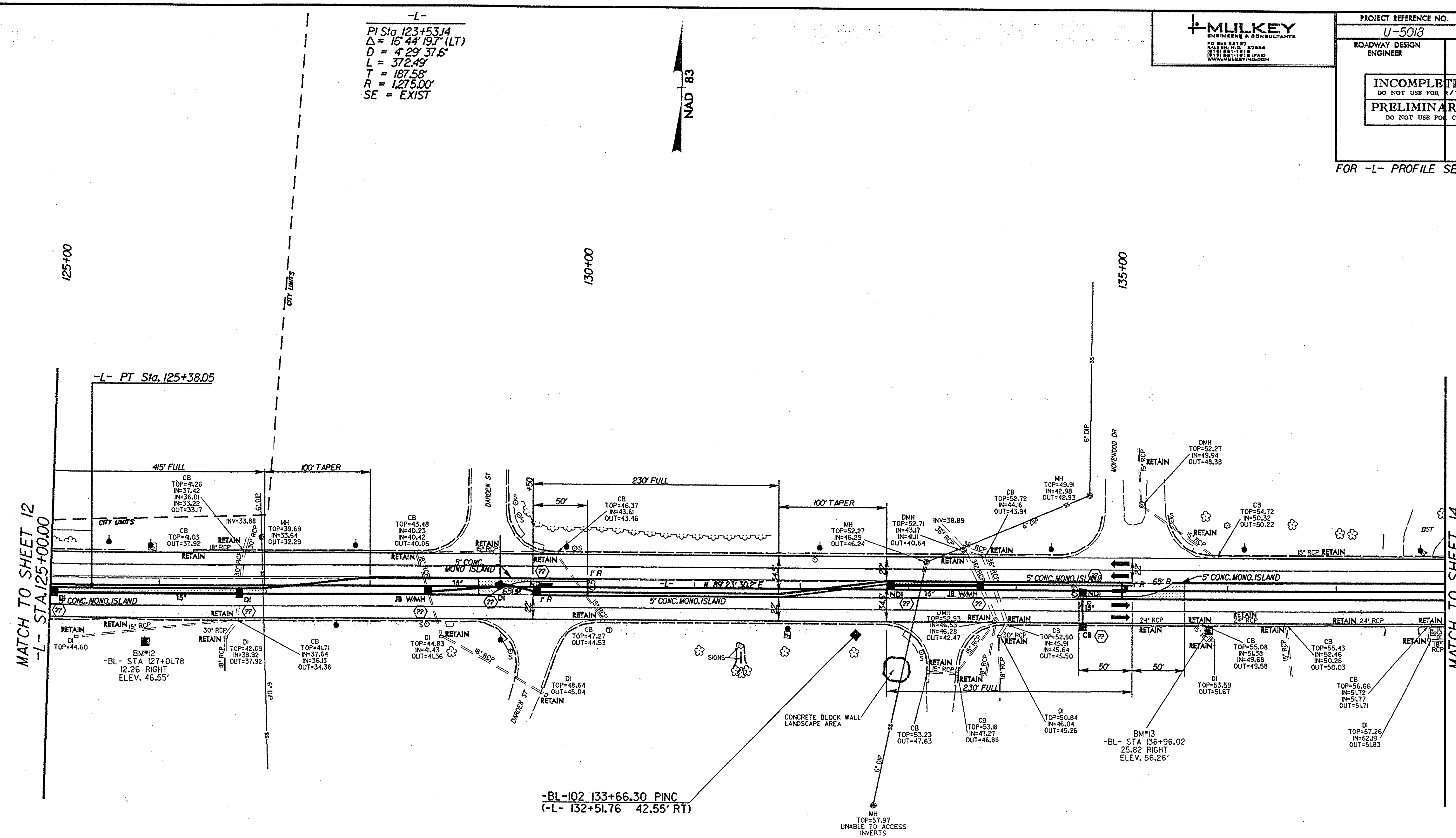
MULKEY ENGINEERS & CONSULTANTS

PROJECT REFERENCE NO.	SHEET NO.
U-5018	13
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

FOR -L- PROFILE SEE SHEET 19



REVISIONS
5/28/99

NAD 83

MULKEY
ENGINEERS & CONSULTANTS
PO BOX 52187
RALEIGH, N.C. 27612
(919) 851-1815
(919) 851-1818 (FAX)
WWW.MULKEYINC.COM

PROJECT REFERENCE NO.	SHEET NO.
U-5018	14
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

FOR -L- PROFILE SEE SHEET 20

140+00

145+00

(GPS-5) 141+80.36 PINC
(-L- 140+62.40 35.87' LT)

(GPS-6) 148+74.64 POT
(-L- 147+56.32 36.75' LT)

END PROJECT U-5018
-L- Sta. 145+84.09

-L- POT Sta. 148+15.53

MATCH TO SHEET 13
-L- STA.138+00.00

CB TOP=56.89 OUT=53.41
15" RCP RETAIN
WM
JB WMH
15"
N 89° 23' 30" E
DI
NC 43 W 5TH ST 28' BST
5' CONC. MONO. ISLAND
15" RCP RETAIN
18" RCP RETAIN
15" RCP RETAIN
DI TOP=57.47 IN=54.71 OUT=52.39
DI TOP=57.59 OUT=55.1
CB TOP=57.34 IN=54.89 OUT=54.75
45° RCP
100' TAPER
550' FULL
CB TOP=59.67 IN=57.69 OUT=57.6
DI TOP=59.09 IN=56.77 OUT=56.68
DI TOP=59.68 IN=57.06 OUT=56.98
DI TOP=60.32 OUT=57.53
CB TOP=57.58 IN=54.48 OUT=54.31
MH TOP=58.98 IN=51.97 IN=51.97 OUT=51.88
CB TOP=59.18 OUT=56.07
RETAIN
6" CERAMIC
GUYWIRE
TELEPHONE VAULT
UKNOWN UTILITY BOX
CB TOP=56.56 OUT=54.58
MH TOP=50.96 IN=40.8 IN=39.3 IN=38.98 OUT=38.94
6"DIP
8"SS
MH TOP=53.72 IN=41.76 OUT=41.74
NC 903/US 5 MEMORIAL DR
BST
DMH TOP=58.81 IN=54.36 IN=54.31 OUT=54.11
DI TOP=59.42 UNABLE TO ACCESS INVERTS
18" RCP RETAIN
DI TOP=50.96 IN=34.31
48" CMP
15" CMP
CB TOP=52.57 OUT=49.51
CB TOP=53.07 OUT=48.93
DMH TOP=52.77 IN=43.01 IN=37.69 IN=37.62 IN=45.33 IN=41.12 OUT=37.12
18" RCP
18" CMP
48" CMP
MH TOP=55.88 IN=42.68 IN=47.86 OUT=41.93
DI TOP=52.43 IN=38.38 OUT=38.37
MH TOP=55.35 OUT=50.76
GV
BM#13
-BL-6 TO - S 62°00'09" E 126.56'
ELEV. 54.20'

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PROJECT REFERENCE NO.	SHEET NO.
U-5018	15
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

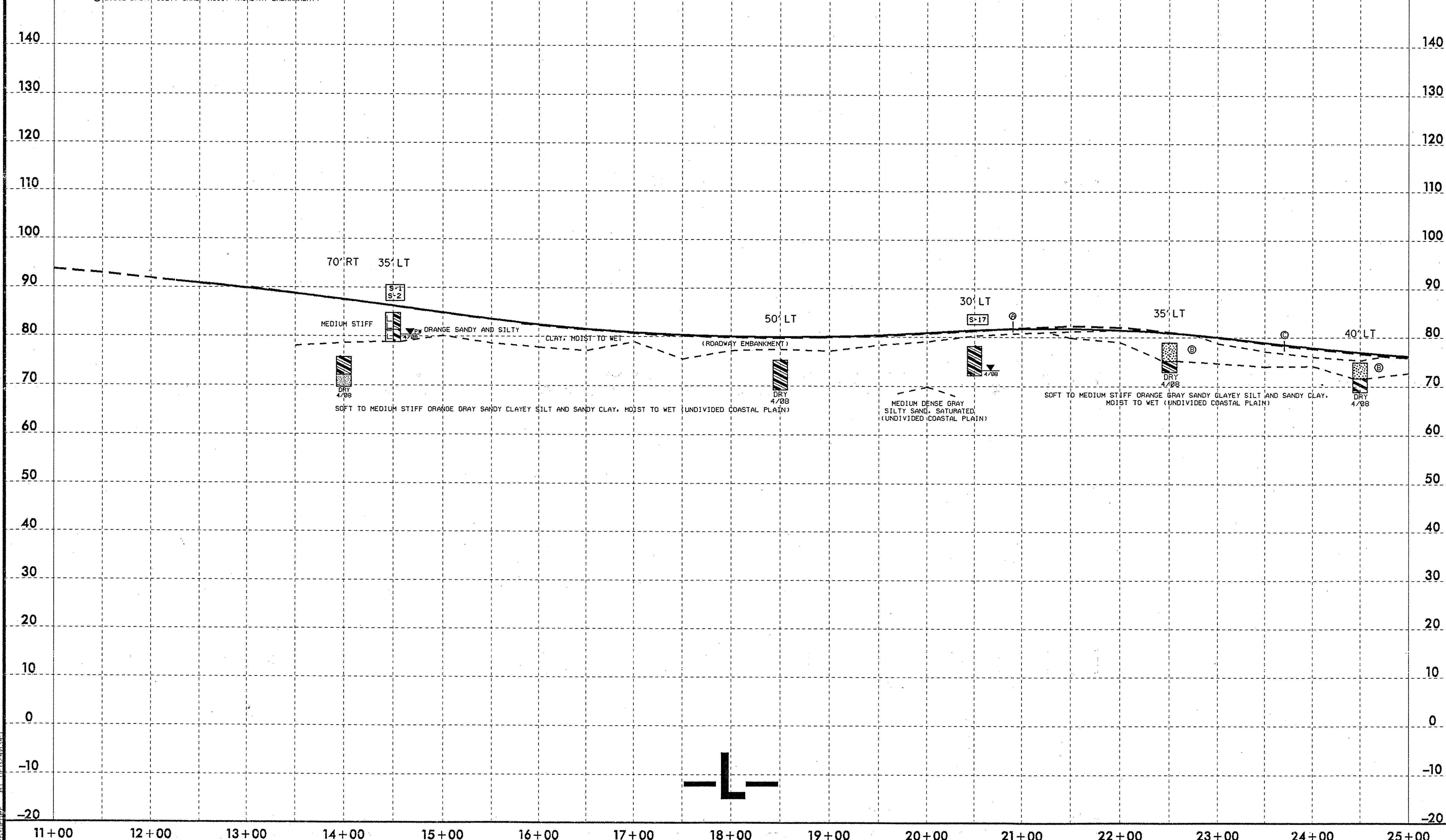
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
S-1	35 LT	14+50	1.00-3.50	A-6(1)	30	12	5.1	58.1	6.1	30.7	100	98	39	18.2	-
S-2	35 LT	14+50	3.50-6.00	A-7-6(34)	64	43	7.2	19.0	24.7	49.1	100	96	77		-
S-17	30 LT	20+50	1.00-4.80	A-6(1)	31	11	4.9	59.5	4.9	30.7	100	98	38		-

Ⓐ MEDIUM STIFF ORANGE SANDY AND SILTY CLAY, MOIST (ROADWAY EMBANKMENT)
Ⓑ LOOSE BROWN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)
Ⓒ LOOSE BROWN SILTY SAND, MOIST (ROADWAY EMBANKMENT)



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PROJECT REFERENCE NO.	SHEET NO.
U-5018	16

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

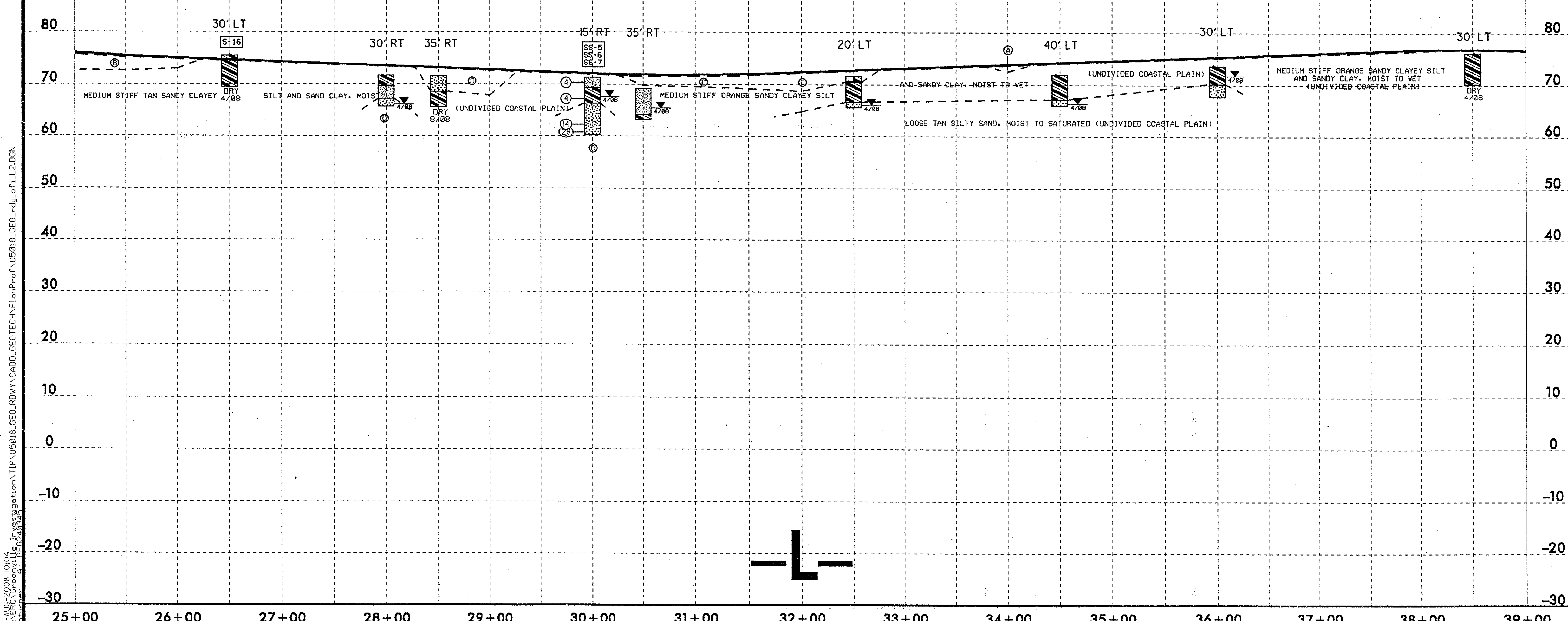
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-5	15' RT	30+00	1.00-1.50	A-4(0)	19	5	3.8	54.8	21.1	20.2	100	99	46	-	-
SS-6	15' RT	30+00	3.10-4.60	A-6(5)	33	20	6.3	50.6	12.8	30.3	100	99	46	21.4	-
SS-7	15' RT	30+00	8.10-9.60	A-2-4(0)	23	5	23.1	56.6	2.1	18.2	100	97	22	-	-
S-16	30' LT	26+50	1.00-6.00	A-6(2)	33	17	12.3	51.5	7.6	28.6	100	97	39	-	-

Ⓐ MEDIUM STIFF ORANGE SANDY CLAY, MOIST (ROADWAY EMBANKMENT)
Ⓑ LOOSE BROWN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)
Ⓒ MEDIUM STIFF TAN CLAYEY SANDY SILT, MOIST (ROADWAY EMBANKMENT)
Ⓓ LOOSE TO MEDIUM DENSE TAN SILTY SAND, MOIST TO SATURATED (UNDIVIDED COASTAL PLAIN)



PROJECT REFERENCE NO.	SHEET NO.
U-5018	17
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

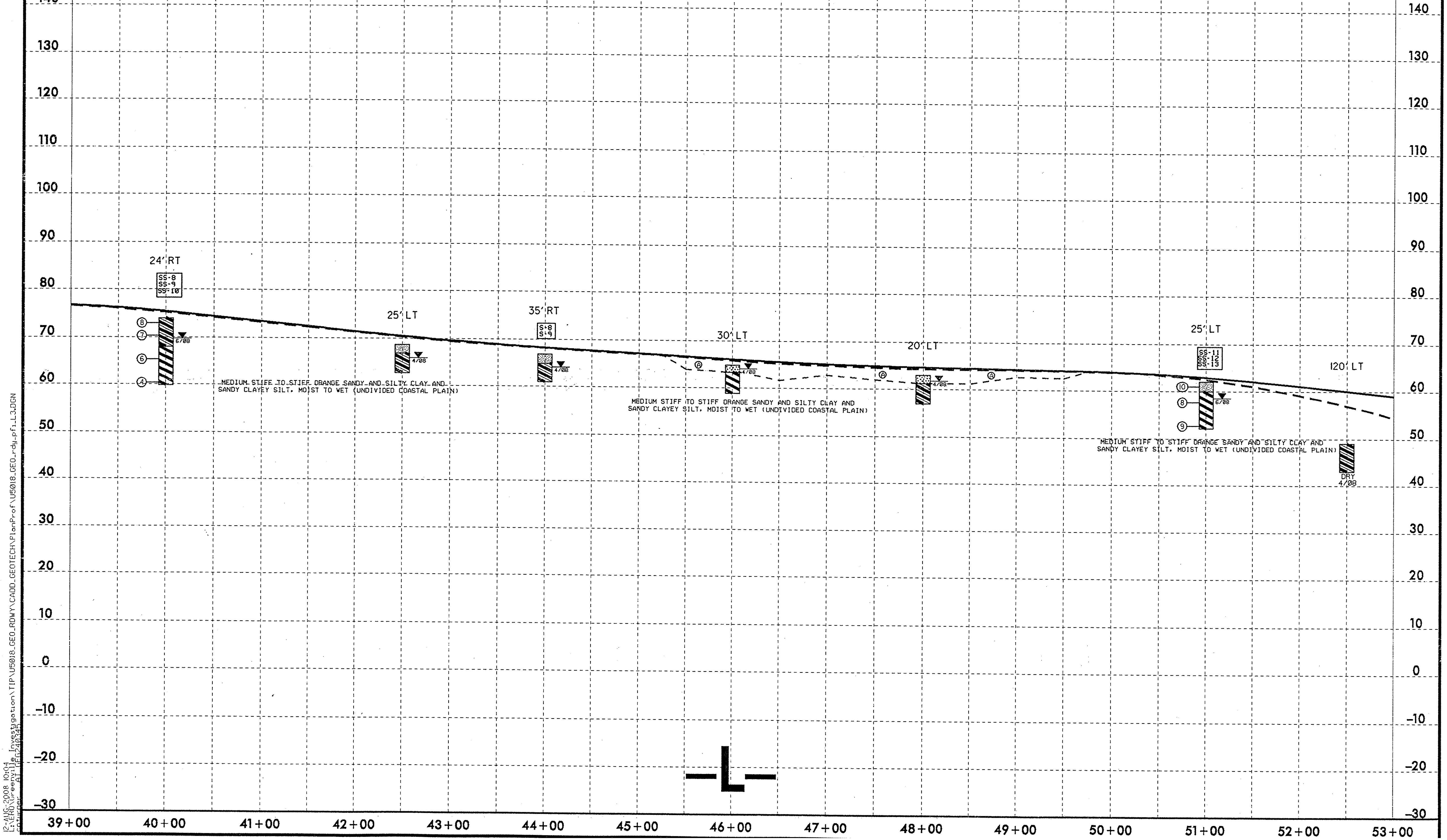
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-8	24' RT	40+00	1.00-1.50	A-6(1)	29	14	2.4	64.9	10.4	22.2	100	99	36	-	-
SS-9	24' RT	40+00	2.70-4.20	A-6(3)	35	18	0.4	61.1	8.2	30.3	100	100	40	26.5	-
SS-10	24' RT	40+00	7.70-9.20	A-7-6(67)	87	60	1.0	5.1	23.2	70.8	100	100	96	-	-
SS-11	25' LT	51+00	1.00-1.50	A-4(0)	22	7	4.3	59.3	16.1	20.3	100	99	42	-	-
SS-12	25' LT	51+00	3.30-4.80	A-7-6(54)	76	48	0.2	5.7	27.1	67.0	100	100	96	-	-
SS-13	25' LT	51+00	8.30-9.80	A-7-6(22)	49	27	3.9	17.3	24.1	54.8	100	99	81	-	-
S-8	35' RT	44+00	1.00-2.00	A-4(0)	20	5	1.6	55.0	18.8	24.5	100	100	48	-	-
S-9	35' RT	44+00	2.00-4.50	A-6(4)	38	20	2.9	58.5	8.0	30.7	100	100	42	-	-

(A) LOOSE TAN SILTY SAND, MOIST TO SATURATED (UNDIVIDED COASTAL PLAIN)



PROJECT REFERENCE NO.	SHEET NO.
U-5018	18
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

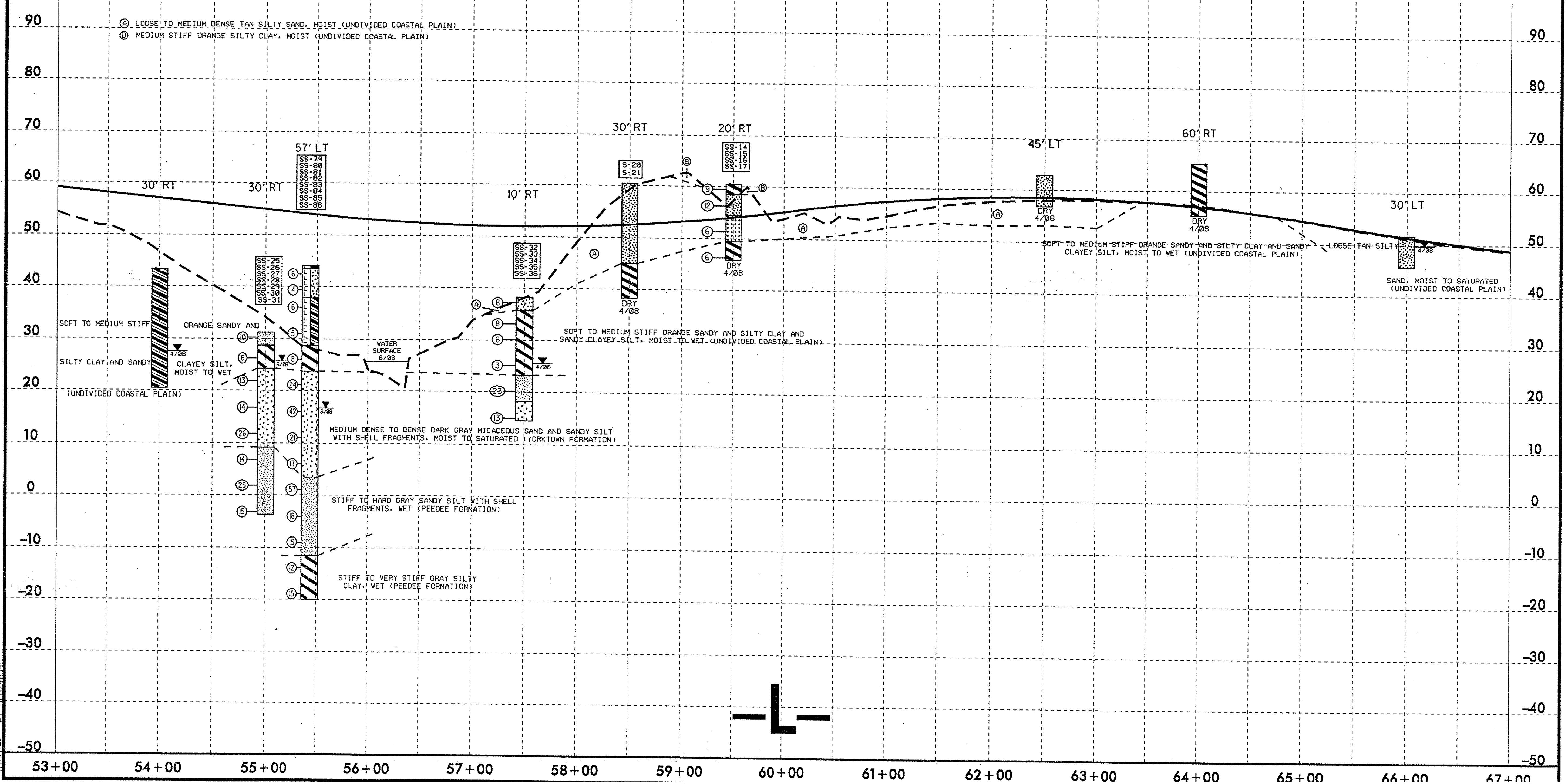
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-14	20 RT	59+50	1.00-1.50	A-7-6(23)	54	26	3.0	18.9	19.2	58.9	100	99	81	-	-
SS-15	20 RT	59+50	3.10-4.60	A-2-4(0)	18	NP	18.1	63.6	4.2	14.2	100	96	19	-	-
SS-16	20 RT	59+50	8.10-9.60	A-3(0)	18	NP	19.3	71.0	1.6	8.1	100	98	10	-	-
SS-17	20 RT	59+50	13.10-14.60	A-7-6(28)	59	31	0.8	20.3	22.0	56.9	100	100	82	-	-
SS-25	30' RT	55+00	1.00-1.50	A-4(0)	23	5	4.4	54.2	19.1	22.2	100	99	46	-	-
SS-26	30' RT	55+00	4.00-5.50	A-7-6(32)	60	34	2.2	15.0	28.2	54.6	100	98	86	-	-
SS-27	30' RT	55+00	8.40-9.90	A-2-4(0)	18	4	50.6	24.2	16.2	9.1	98	78	26	-	-
SS-28	30' RT	55+00	13.40-14.90	A-2-4(0)	18	NP	65.0	23.5	4.4	7.1	94	61	12	-	-
SS-29	30' RT	55+00	18.40-19.90	A-2-4(0)	27	4	0.4	72.0	15.5	12.1	100	100	35	-	-
SS-30	30' RT	55+00	23.40-24.90	A-4(2)	31	7	2.6	64.5	14.7	18.2	100	98	52	34	-
SS-31	30' RT	55+00	28.40-29.90	A-4(1)	29	5	0.2	70.2	17.5	12.1	100	100	59	-	-
SS-79	57' LT	55+43	1.00-2.00	A-2-4(0)	18	2	6.9	63.5	11.2	18.3	98	95	93	-	-
SS-80	57' LT	55+43	7.10-8.60	A-6(4)	35	18	7.7	51.9	9.8	30.5	100	98	43	-	-
SS-81	57' LT	55+43	17.10-18.60	A-7-6(23)	53	26	3.5	18.5	21.0	57.0	100	98	81	-	-
SS-82	57' LT	55+43	22.10-23.60	A-2-4(0)	25	8	52.7	28.5	4.5	14.3	77	52	16	-	-
SS-83	57' LT	55+43	32.10-33.60	A-2-4(0)	29	3	1.8	75.2	6.7	16.3	99	98	33	-	-
SS-84	57' LT	55+43	42.10-43.60	A-4(0)	26	NP	0.8	82.6	10.5	6.1	98	97	37	-	-
SS-85	57' LT	55+43	47.10-48.60	A-4(4)	33	6	1.4	60.7	17.5	20.4	100	99	70	-	-
SS-86	57' LT	55+43	57.10-58.60	A-7-6(47)	43	25	2.6	45.2	17.5	34.6	100	99	73	-	-
SS-32	10' RT	57+50	1.00-1.50	A-2-4(0)	18	NP	12.9	62.7	16.3	8.1	100	98	27	-	-
SS-33	10' RT	57+50	4.00-5.50	A-7-6(36)	65	42	1.4	20.4	23.6	54.6	100	99	81	30	-
SS-34	10' RT	57+50	12.10-13.60	A-7-6(23)	50	29	8.9	15.4	35.3	40.4	100	96	78	-	-
SS-35	10' RT	57+50	17.10-18.60	A-4(0)	16	2	46.3	24.0	20.6	9.1	98	82	60	-	-
SS-36	10' RT	57+50	22.10-23.60	A-2-4(0)	21	NP	57.9	26.5	6.5	9.1	90	61	16	-	-
S-20	30 RT	58+50	1.00-15.50	A-2-4(0)	21	NP	21.2	61.7	2.9	14.3	100	97	18	-	-
S-21	30 RT	58+50	15.50-22.20	A-7-6(22)	54	26	1.4	23.3	20.0	55.2	100	100	78	34.3	-

(A) LOOSE TO MEDIUM DENSE TAN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)
(B) MEDIUM STIFF ORANGE SILTY CLAY, MOIST (UNDIVIDED COASTAL PLAIN)



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PROJECT REFERENCE NO.	SHEET NO.
U-5018	19

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

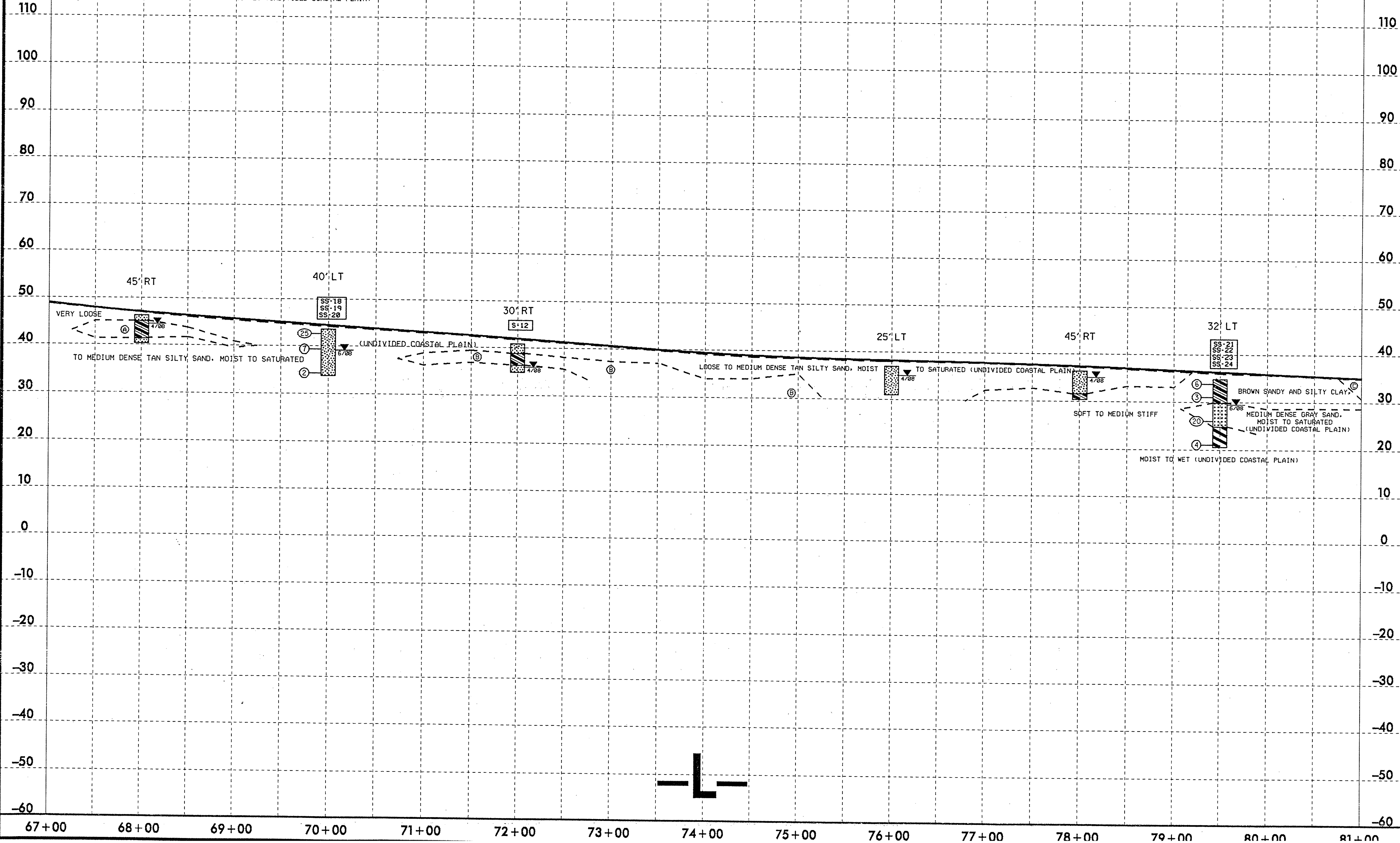
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
S-12	30 RT	72+00	2.00-4.50	A-6(2)	24	11	2.7	55.8	10.8	30.7	100	100	45	21.1	-
SS-18	40 LT	70+00	1.00-1.50	A-2-4(0)	20	2	2.8	71.9	7.0	18.3	100	100	28	-	-
~~SS-19~~	~~40 LT~~	~~70+00~~	~~3.30-4.80~~	~~A-2-4(0)~~	~~20~~	~~NP~~	~~2.5~~	~~84.8~~	~~3.5~~	~~12.2~~	~~100~~	~~100~~	~~17~~	~~-~~	~~-~~
SS-20	40 LT	70+00	8.30-9.80	A-2-4(0)	21	NP	1.3	73.4	6.0	19.3	100	100	29	-	-
SS-21	32 LT	79+50	1.00-1.50	A-6(5)	31	14	2.4	47.9	17.2	32.5	100	100	54	14.8	-
SS-22	32 LT	79+50	2.80-4.30	A-6(4)	28	13	2.6	47.9	19.0	30.5	100	100	55	-	-
SS-23	32 LT	79+50	7.80-9.30	A-3(0)	16	NP	46.2	49.5	2.2	2.0	100	80	6	-	-
SS-24	32 LT	79+50	12.80-14.30	A-7-6(14)	42	15	1.0	21.7	36.6	40.6	100	99	85	-	-

Ⓐ MEDIUM STIFF TAN SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)
Ⓑ MEDIUM STIFF TAN SANDY CLAY, MOIST (UNDIVIDED COASTAL PLAIN)
Ⓒ SOFT BROWN CLAYEY SANDY SILT, MOIST TO WET (UNDIVIDED COASTAL PLAIN)



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PROJECT REFERENCE NO.	SHEET NO.
U-5018	20

ROADWAY DESIGN ENGINEER

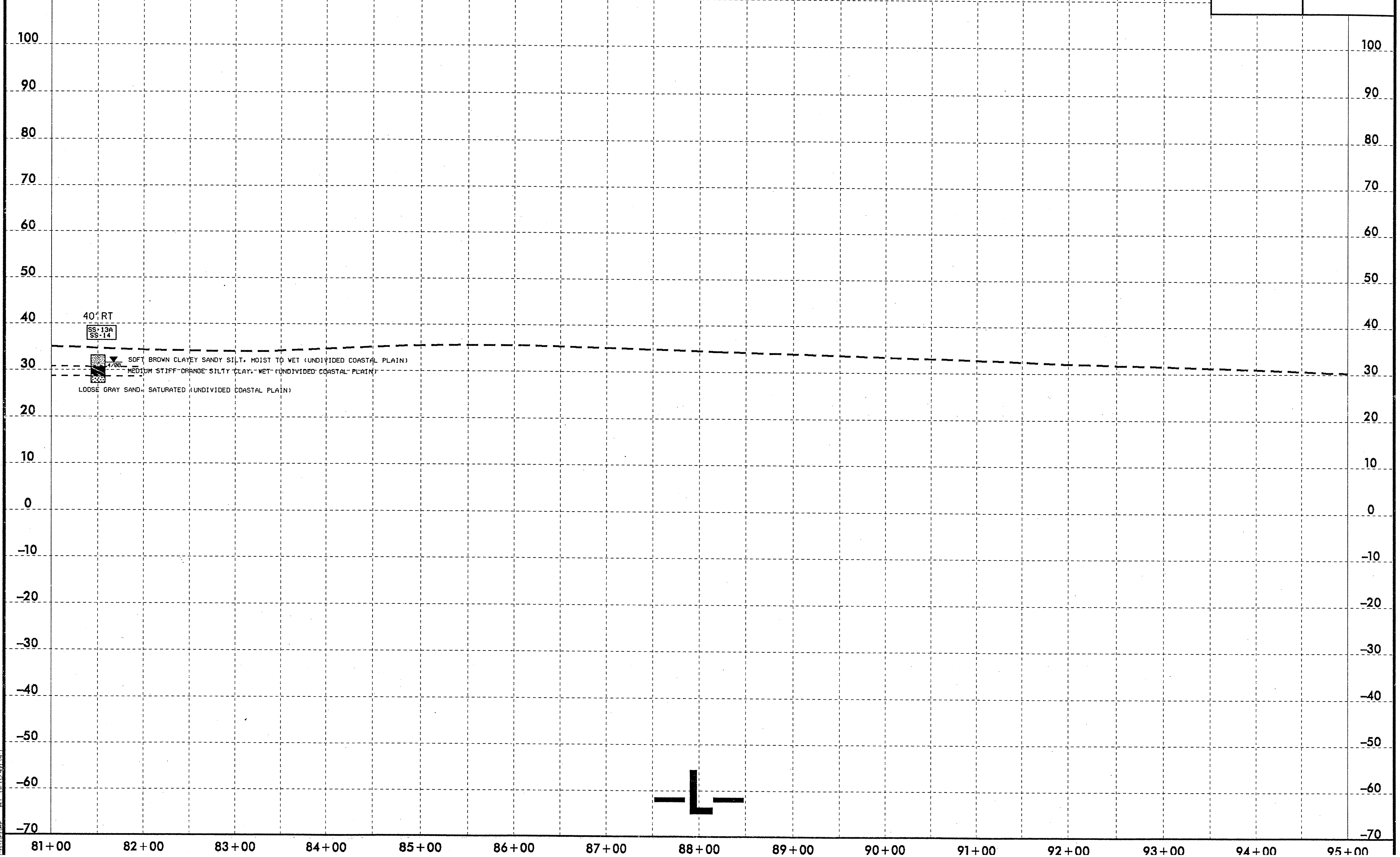
HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
S-13A	40' RT	81+50	1.00-2.50	A-4(0)	18	3	3.9	44.8	30.9	20.4	100	99	59	-	-
S-14	40' RT	81+50	2.50-4.50	A-7-6(20)	44	28	1.8	25.4	23.7	49.1	99	98	76	-	-



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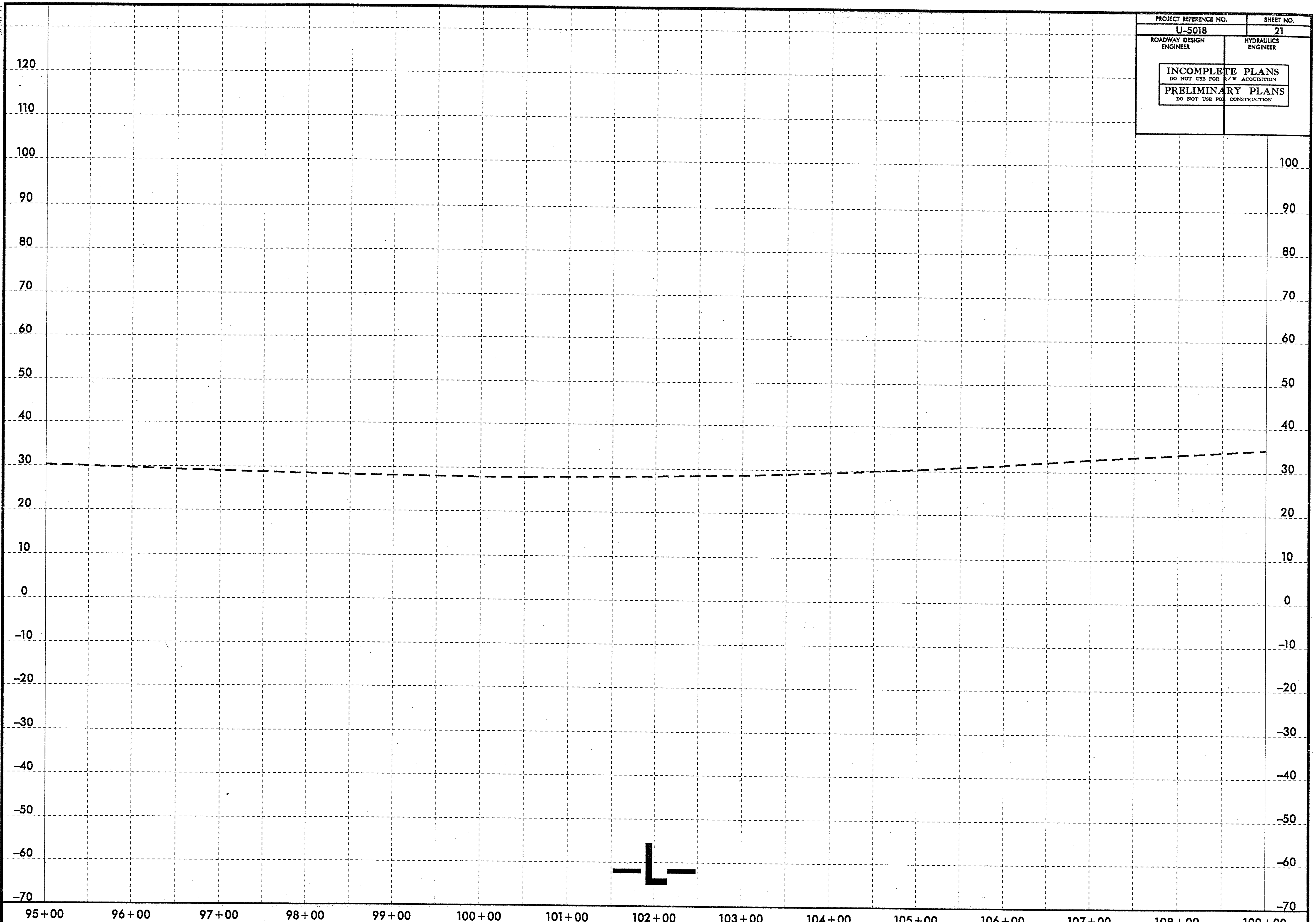
PROJECT REFERENCE NO.	SHEET NO.
U-5018	21
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



5/14/99

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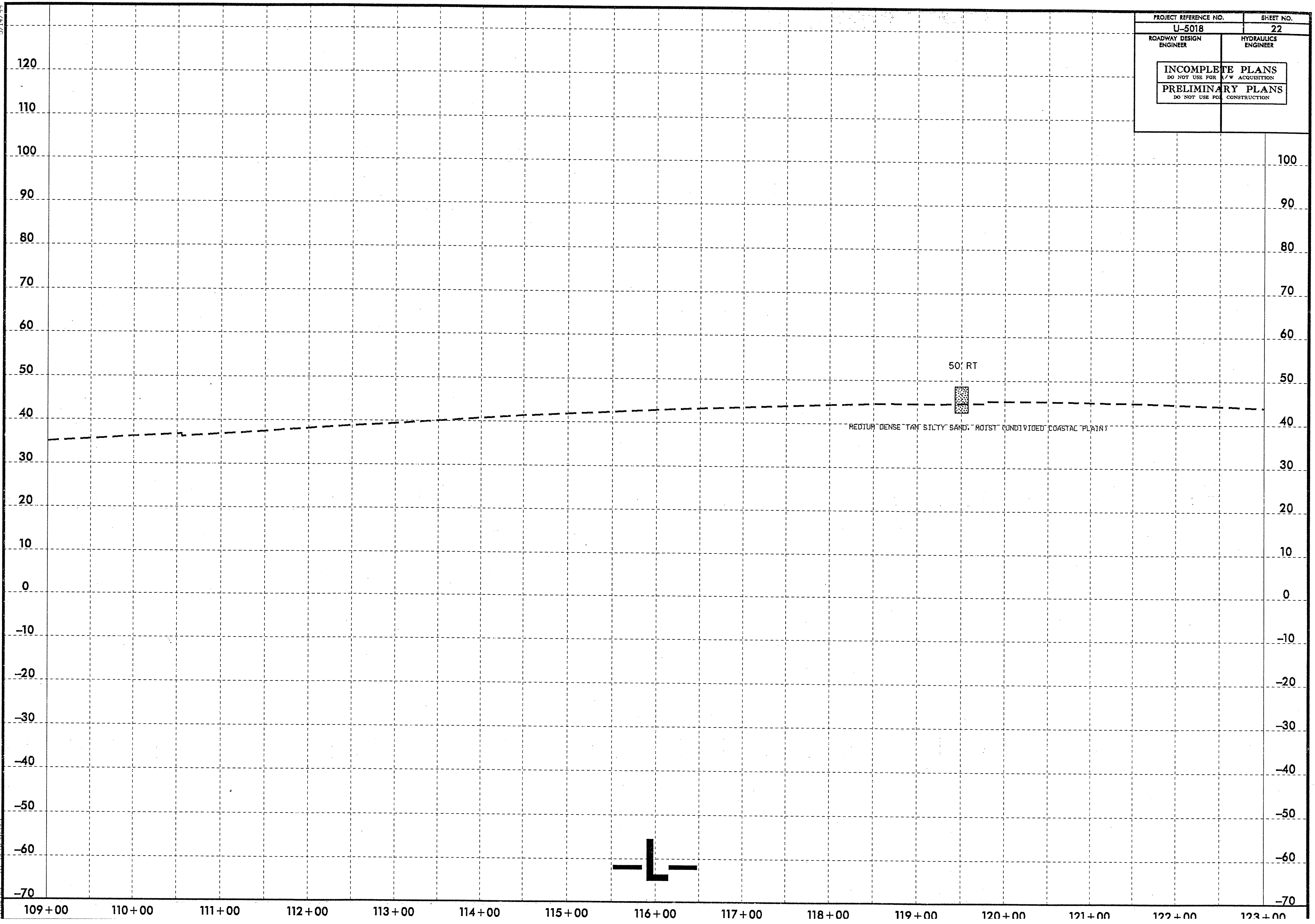
coturner AT GEO240345

PROJECT REFERENCE NO.	SHEET NO.
U-5018	22
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



5/14/99

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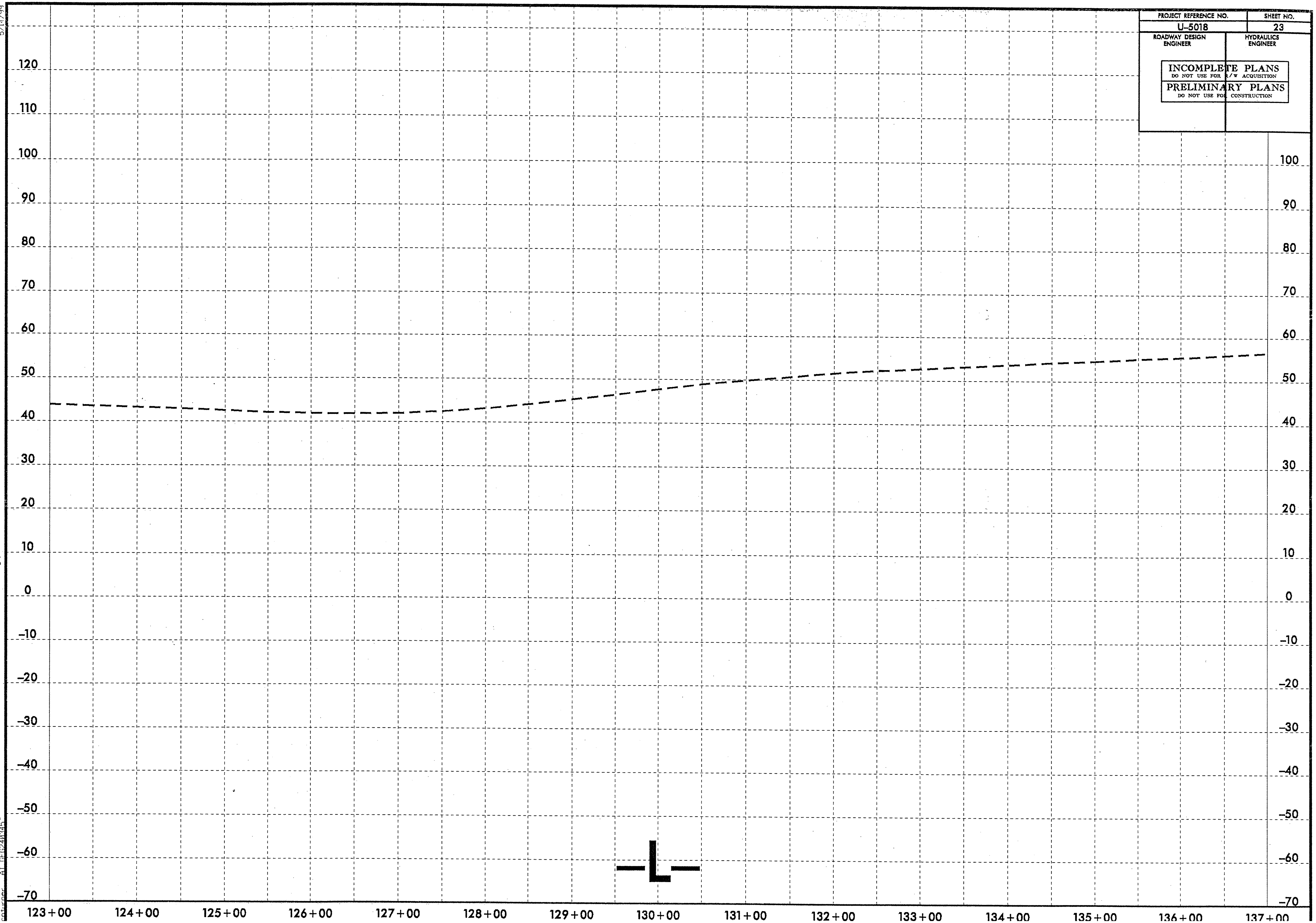
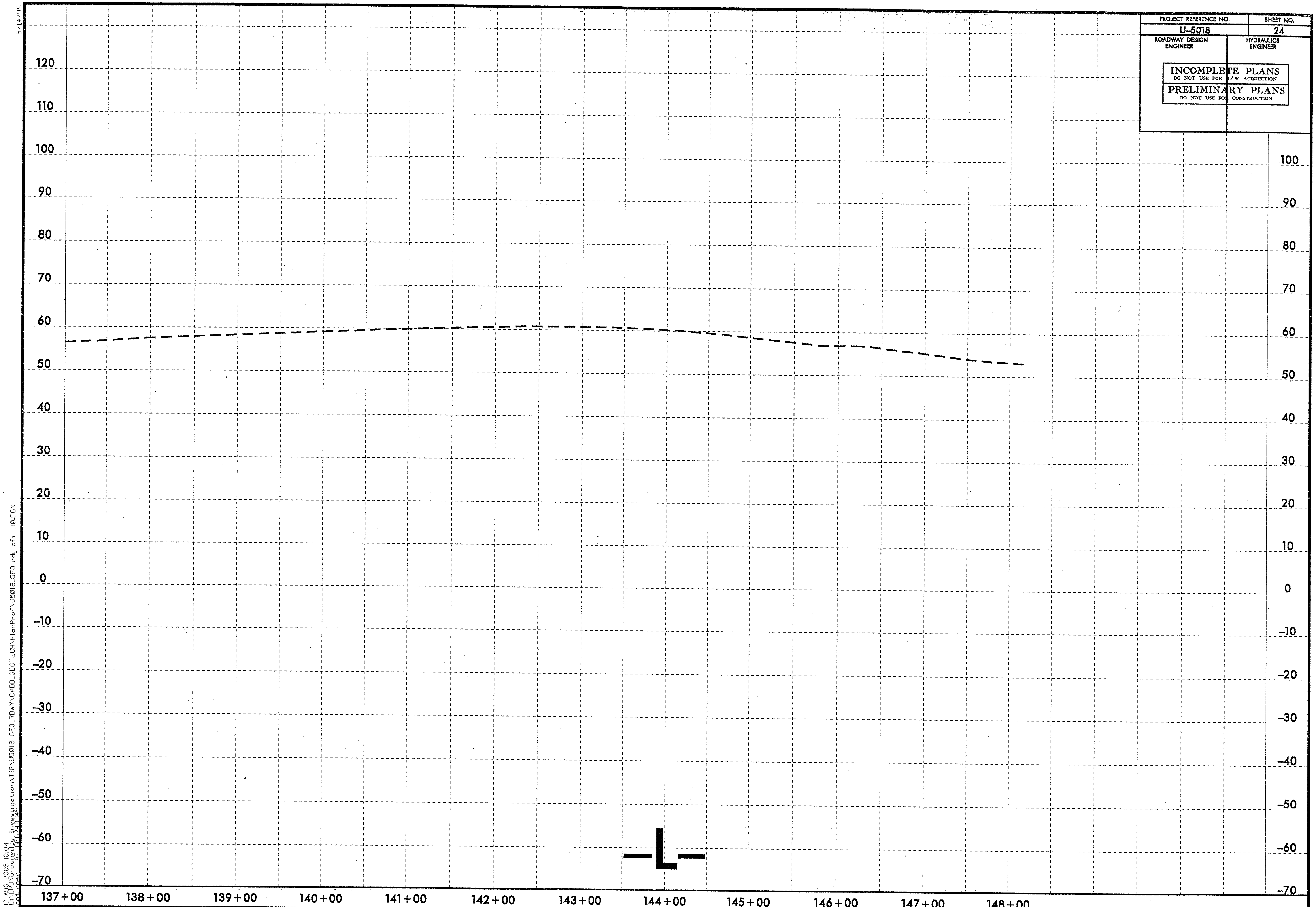
coturner AT GEG240345

PROJECT REFERENCE NO.	SHEET NO.
U-5018	23
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION




PROJECT REFERENCE NO.
U-5018
SHEET NO.
24
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
120
110
100
90
80
70
60
50
40
30
20
10
0
-10
-20
-30
-40
-50
-60
-70
-L-
137+00
138+00
139+00
140+00
141+00
142+00
143+00
144+00
145+00
146+00
147+00
148+00

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) #10	#40	#200	% MOISTURE	% ORGANIC
S-1	35 LT	14+50	1.00-3.50	A-6(11)	39	12	5.1	58.1	6.4	30.7	100	98	89	18.2	-
S-2	35 LT	14+50	3.50-6.00	A-7-6(34)	64	43	7.2	19.0	24.7	49.1	100	96	77	-	-

MEDIUM STIFF ORANGE SANDY AND SILTY CLAY, MOIST TO WET (ROADWAY EMBANKMENT)

SOFT TO MEDIUM STIFF ORANGE SANDY CLAYEY SILT AND SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

15+00.00

S-1
S-2

PW 4/08

MEDIUM STIFF ORANGE SANDY AND SILTY CLAY, MOIST TO WET (ROADWAY EMBANKMENT)

SOFT TO MEDIUM STIFF ORANGE SANDY CLAYEY SILT AND SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

14+50.00

MEDIUM STIFF ORANGE SANDY AND SILTY CLAY, MOIST (ROADWAY EMBANKMENT)

SOFT TO MEDIUM STIFF ORANGE SANDY CLAYEY SILT AND SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

14+00.00

DRY 4/08

MEDIUM STIFF ORANGE SANDY AND SILTY CLAY, MOIST (ROADWAY EMBANKMENT)

MEDIUM STIFF ORANGE SANDY CLAY, MOIST (UNDIVIDED COASTAL PLAIN)

13+50.00

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

100 90 80 70 60

Ⓐ MEDIUM STIFF ORANGE SANDY AND SILTY CLAY, MOIST (ROADWAY EMBANKMENT)

SOFT TO MEDIUM STIFF ORANGE SANDY CLAYEY SILT AND SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

17+00.00

90 80 70 60

Ⓐ LOOSE BROWN SILTY SAND, MOIST TO SATURATED (ALLUVIAL)

MEDIUM STIFF ORANGE SANDY AND SILTY CLAY, MOIST (ROADWAY EMBANKMENT)

SOFT TO MEDIUM STIFF ORANGE SANDY CLAYEY SILT AND SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

4/08

16+50.00

90 80 70 60

Ⓐ LOOSE BROWN SILTY SAND, MOIST TO SATURATED (ALLUVIAL)

MEDIUM STIFF ORANGE SANDY AND SILTY CLAY, MOIST (ROADWAY EMBANKMENT)

SOFT TO MEDIUM STIFF ORANGE SANDY CLAYEY SILT AND SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

DRY
4/08

16+00.00

100 90 80 70

MEDIUM STIFF ORANGE SANDY AND SILTY CLAY, MOIST (ROADWAY EMBANKMENT)

SOFT TO MEDIUM STIFF ORANGE SANDY CLAYEY SILT AND SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

15+50.00

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

Ⓐ MEDIUM STIFF ORANGE SANDY AND SILTY CLAY, MOIST (ROADWAY EMBANKMENT)

SOFT TO MEDIUM STIFF ORANGE SANDY CLAYEY SILT AND SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

19+00.00

Ⓐ MEDIUM STIFF ORANGE SANDY AND SILTY CLAY, MOIST (ROADWAY EMBANKMENT)

DRY 4/08

SOFT TO MEDIUM STIFF ORANGE SANDY CLAY, MOIST (UNDIVIDED COASTAL PLAIN)

18+50.00

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
S-3	30 RT	18+00	1.00-6.00	A-6(5)	36	22	4.3	54.0	7.0	34.8	98	97	43	-	

Ⓐ MEDIUM STIFF ORANGE SANDY AND SILTY CLAY, MOIST (ROADWAY EMBANKMENT)

S-3

4/08

SOFT TO MEDIUM STIFF ORANGE SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

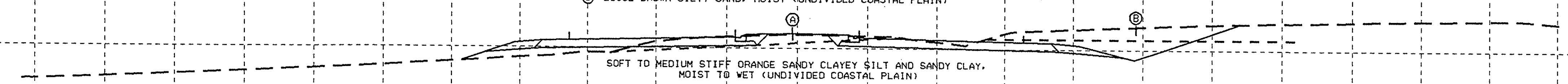
18+00.00

MEDIUM STIFF ORANGE SANDY AND SILTY CLAY, MOIST (ROADWAY EMBANKMENT)

SOFT TO MEDIUM STIFF ORANGE SANDY CLAYEY SILT AND SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

17+50.00

Ⓐ MEDIUM STIFF ORANGE SANDY AND SILTY CLAY, MOIST (ROADWAY EMBANKMENT)
Ⓑ LOOSE BROWN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)

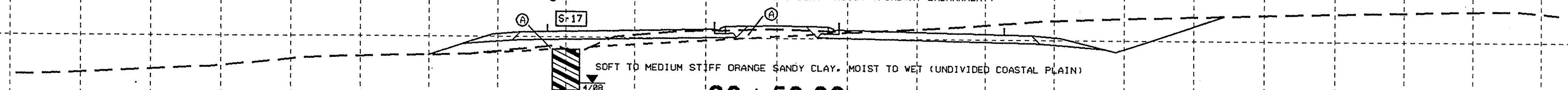


21+00.00

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
S-17	30 LT	20+50	1.00-4.80	A-6(1)	31	11	4.9	59.5	4.9	30.7	100	98	38	-	-

Ⓐ MEDIUM STIFF ORANGE SANDY AND SILTY CLAY, MOIST (ROADWAY EMBANKMENT)

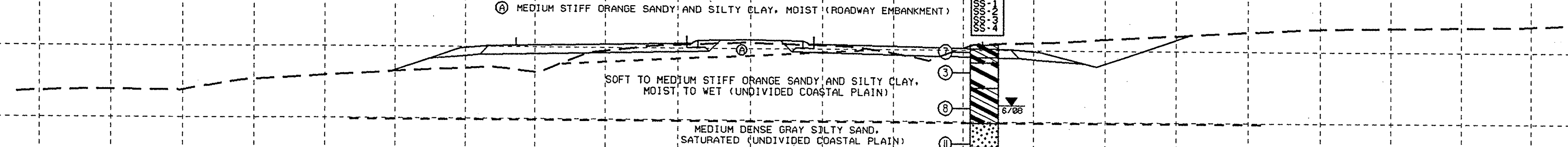


20+50.00

SOIL TEST RESULTS

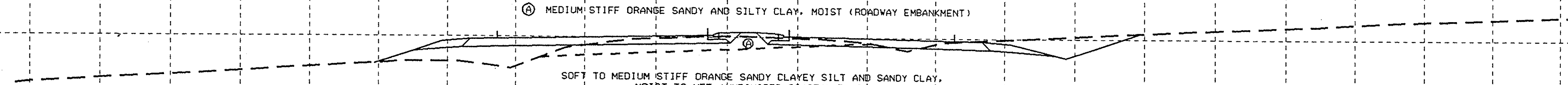
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-1	33 RT	20+00	1.00-1.50	A-6(6)	40	22	5.9	51.8	8.0	34.4	99	97	45	-	-
SS-2	33 RT	20+00	2.90-4.40	A-7-6(5)	41	22	5.5	52.4	5.8	36.4	100	99	44	25.2	-
SS-3	33 RT	20+00	7.90-9.40	A-6(3)	37	19	8.1	54.8	8.8	28.3	100	98	39	-	-
SS-4	33 RT	20+00	12.90-14.40	A-2-4(0)	22	NP	16.6	70.6	5.4	6.1	100	97	20	-	-

Ⓐ MEDIUM STIFF ORANGE SANDY AND SILTY CLAY, MOIST (ROADWAY EMBANKMENT)



20+00.00

Ⓐ MEDIUM STIFF ORANGE SANDY AND SILTY CLAY, MOIST (ROADWAY EMBANKMENT)



19+50.00

-L-

8/23/99

PROJ. REFERENCE NO.	SHEET NO.
U-5018	29

0 5 10

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

100 90 80 70 60 50 40 30 20 10

Ⓐ LOOSE BROWN SILTY SAND, MOIST (ROADWAY EMBANKMENT)

LOOSE BROWN SILTY SAND, MOIST (ALLUVIAL)

SOFT TO MEDIUM STIFF ORANGE SANDY CLAYEY SILT AND SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

23+00.00

LOOSE BROWN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)

SOFT TO MEDIUM STIFF ORANGE SANDY CLAY, MOIST (UNDIVIDED COASTAL PLAIN)

DRY
4/08

22+50.00

Ⓐ LOOSE BROWN SILTY SAND, MOIST (ROADWAY EMBANKMENT)

Ⓑ LOOSE BROWN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)

MEDIUM STIFF ORANGE SANDY CLAY, MOIST (UNDIVIDED COASTAL PLAIN)

DRY
4/08

22+00.00

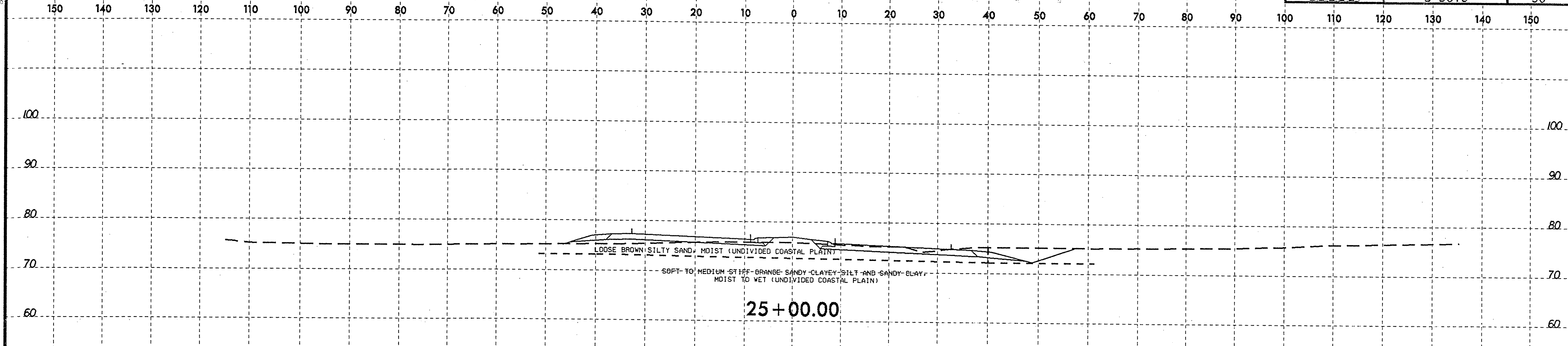
Ⓐ LOOSE BROWN SILTY SAND, MOIST (ROADWAY EMBANKMENT)

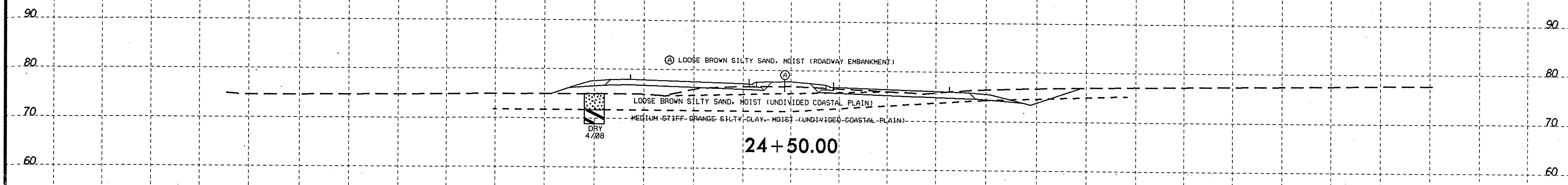
Ⓑ LOOSE BROWN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)

SOFT TO MEDIUM STIFF ORANGE SANDY CLAYEY SILT AND SANDY CLAY.

21+50.00

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

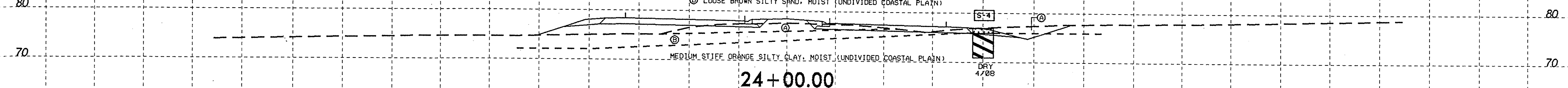


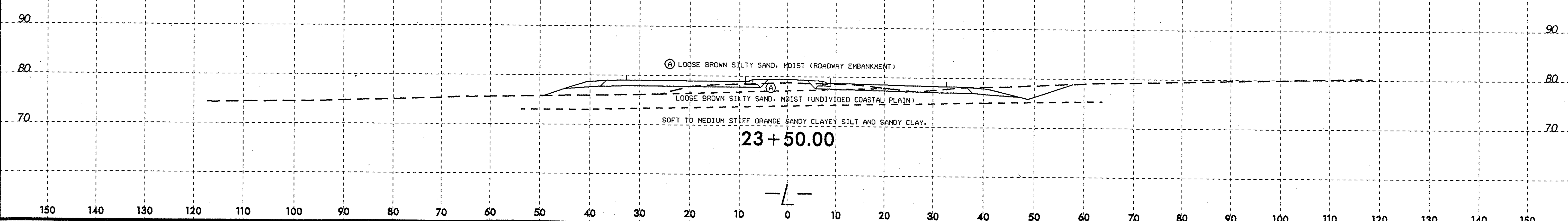


SOIL TEST RESULTS

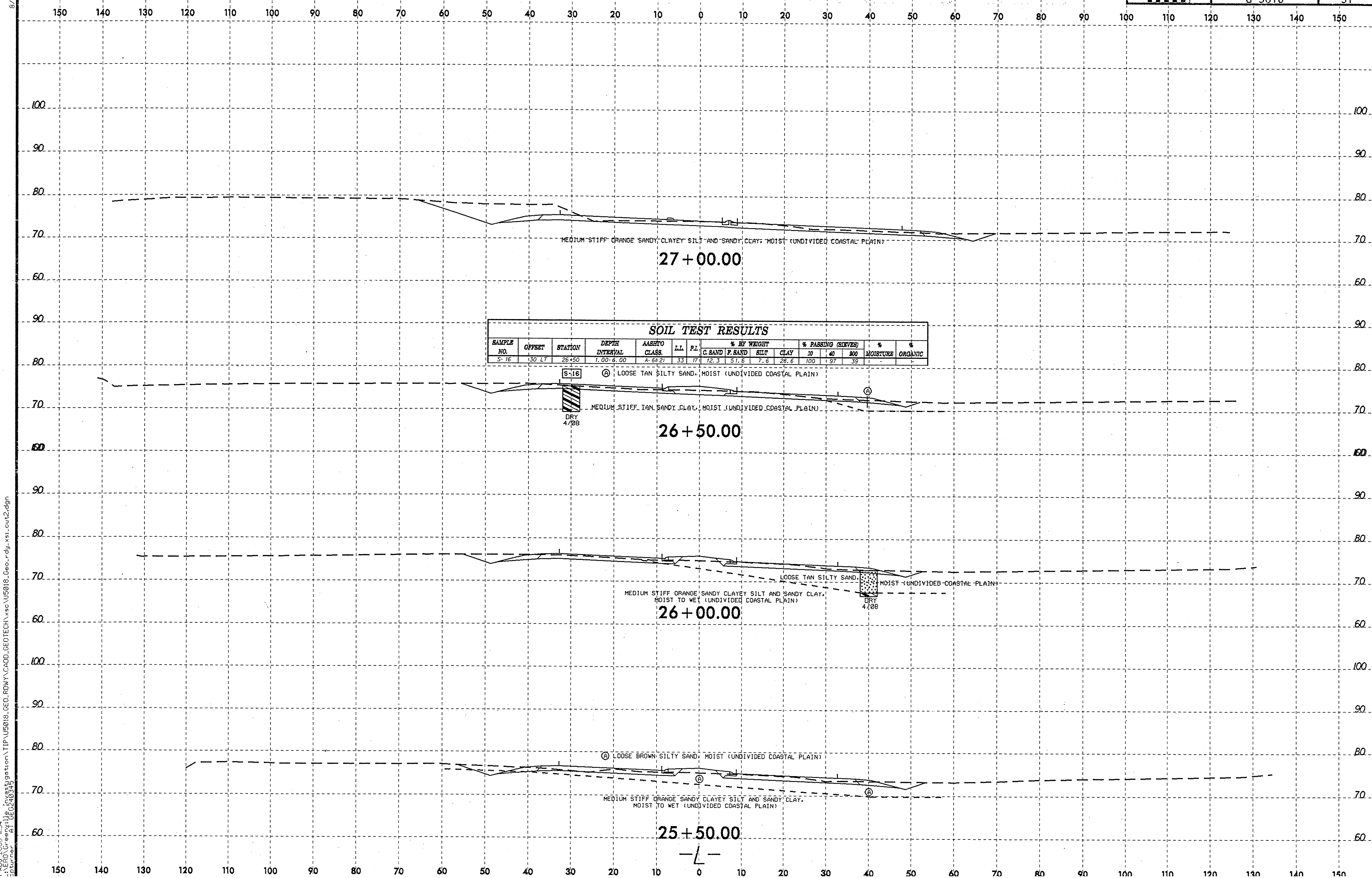
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-4	40 RT	24+00	1.00-6.00	A-7-6(17)	57	37	1.8	45.4	5.7	47.0	100	100	55	25.2	-

Ⓐ LOOSE BROWN SILTY SAND, MOIST (ROADWAY EMBANKMENT)
Ⓑ LOOSE BROWN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)





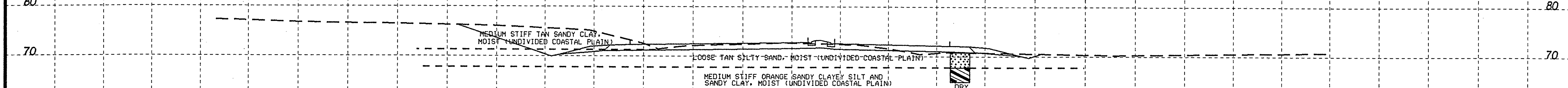
PROJ. REFERENCE NO.	SHEET NO.
U-5018	31



MEDIUM STIFF ORANGE SANDY CLAYEY SILT AND SANDY CLAY, MOIST (UNDIVIDED COASTAL PLAIN)
27+00.00
S-16
Ⓐ LOOSE TAN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)
MEDIUM STIFF TAN SANDY CLAY, MOIST (UNDIVIDED COASTAL PLAIN)
DRY 4/08
26+50.00
LOOSE TAN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)
MEDIUM STIFF ORANGE SANDY CLAYEY SILT AND SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)
DRY 4/08
26+00.00
Ⓐ LOOSE BROWN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)
MEDIUM STIFF ORANGE SANDY CLAYEY SILT AND SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)
25+50.00
-L-

SOIL TEST RESULTS

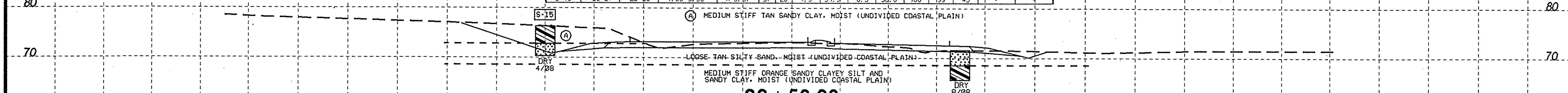
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	% BY WEIGHT F. SAND	% BY WEIGHT SILT	% BY WEIGHT CLAY	% PASSING (SIEVES) 10	% PASSING (SIEVES) 40	% PASSING (SIEVES) 200	% MOISTURE	% ORGANIC
S-16	30 LT	26+50	1.00-6.00	A-6(12)	33	17	12.3	51.6	7.6	28.6	100	97	39	-	-



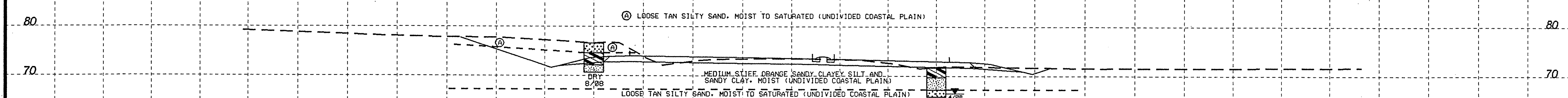
29+00.00

SOIL TEST RESULTS

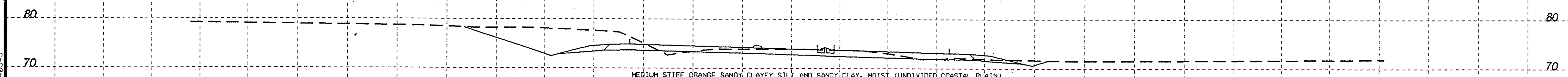
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
S-15	50 LT	28+50	1.00-3.50	A-6(6)	37	20	4.9	51.9	6.3	36.8	100	99	45	-	-



28+50.00



28+00.00



27+50.00

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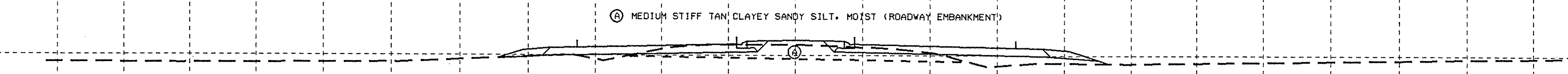
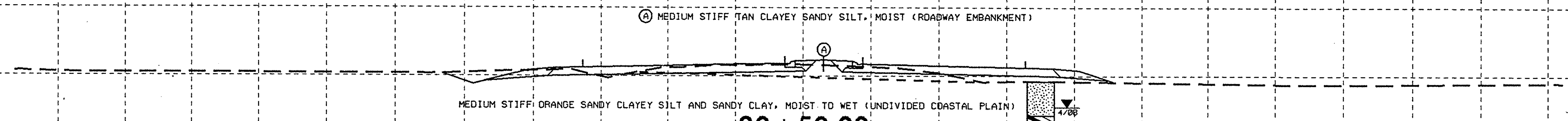
PROJ. REFERENCE NO.	SHEET NO.
U-5018	33



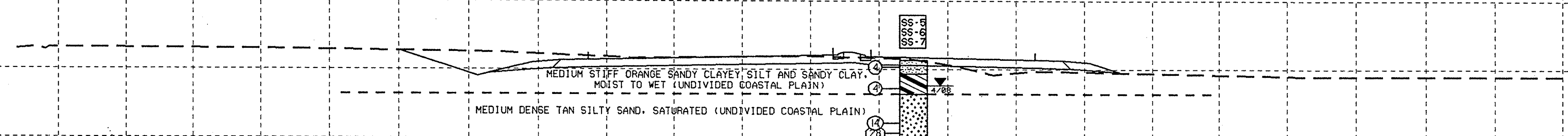
31+00.00



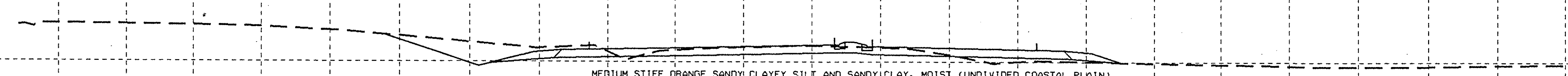
30+50.00

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-5	15' RT	30+00	1.00-1.50	A-4(0)	19	5	3.8	54.8	21.1	20.2	100	99	46	-	-
SS-6	15' RT	30+00	3.10-4.60	A-6(5)	33	20	6.3	50.6	12.8	30.3	100	99	46	21.4	-
SS-7	15' RT	30+00	8.10-9.60	A-2-4(0)	23	5	23.1	56.6	2.1	18.2	100	97	22	-	-



30+00.00



29+50.00

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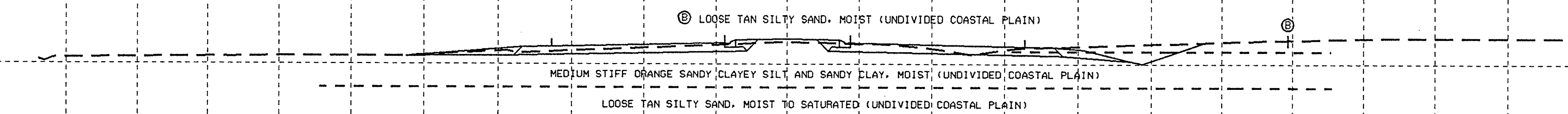
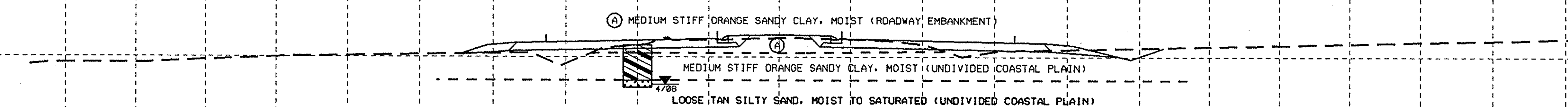
PROJ. REFERENCE NO.	SHEET NO.
U-5018	34



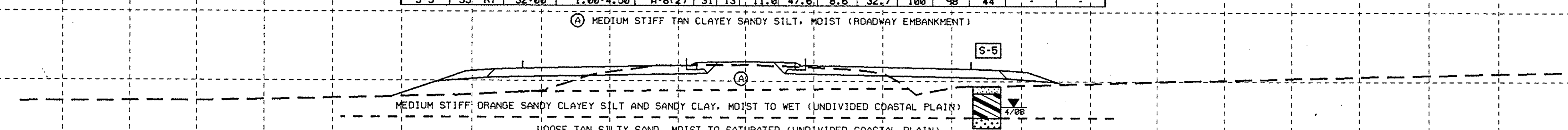
33+00.00



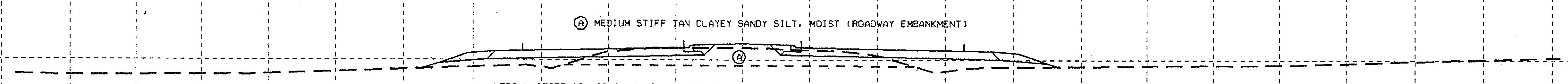
32+50.00

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-5	35' RT	32+00	1.00-4.50	A-6(2)	31	13	11.0	47.6	8.6	32.7	100	98	44	-	-



32+00.00



31+50.00

-L-

11-AUG-2008 11:55
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cpturner AT DEG240345

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-5018	35

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

100 90 80 70 60

Ⓑ LOOSE TAN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)

MEDIUM STIFF ORANGE SANDY CLAYEY SILT AND SANDY CLAY, MOIST (UNDIVIDED COASTAL PLAIN)

LOOSE TAN SILTY SAND, MOIST TO SATURATED (UNDIVIDED COASTAL PLAIN)

35+00.00

Ⓑ LOOSE TAN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)

MEDIUM STIFF ORANGE SANDY CLAY, MOIST (UNDIVIDED COASTAL PLAIN)

4/08

LOOSE TAN SILTY SAND, MOIST TO SATURATED (UNDIVIDED COASTAL PLAIN)

34+50.00

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	LL	PI	% BY WEIGHT C. SAND	% BY WEIGHT F. SAND	% BY WEIGHT SILT	% BY WEIGHT CLAY	% PASSING (SIEVES) 10	% PASSING (SIEVES) 40	% PASSING (SIEVES) 200	% MOISTURE	% ORGANIC
S-6	50' RT	34+00	1.00-6.00	A-6(5)	40	22	3.3	56.4	5.5	34.8	100	100	43	-	-

Ⓐ MEDIUM STIFF ORANGE SANDY CLAY, MOIST (ROADWAY EMBANKMENT)

Ⓑ LOOSE TAN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)

S-6

MEDIUM STIFF ORANGE SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

4/08

LOOSE TAN SILTY SAND, SATURATED (UNDIVIDED COASTAL PLAIN)

34+00.00

Ⓑ LOOSE TAN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)

MEDIUM STIFF ORANGE SANDY CLAYEY SILT AND SANDY CLAY, MOIST (UNDIVIDED COASTAL PLAIN)

LOOSE TAN SILTY SAND, MOIST TO SATURATED (UNDIVIDED COASTAL PLAIN)

33+50.00

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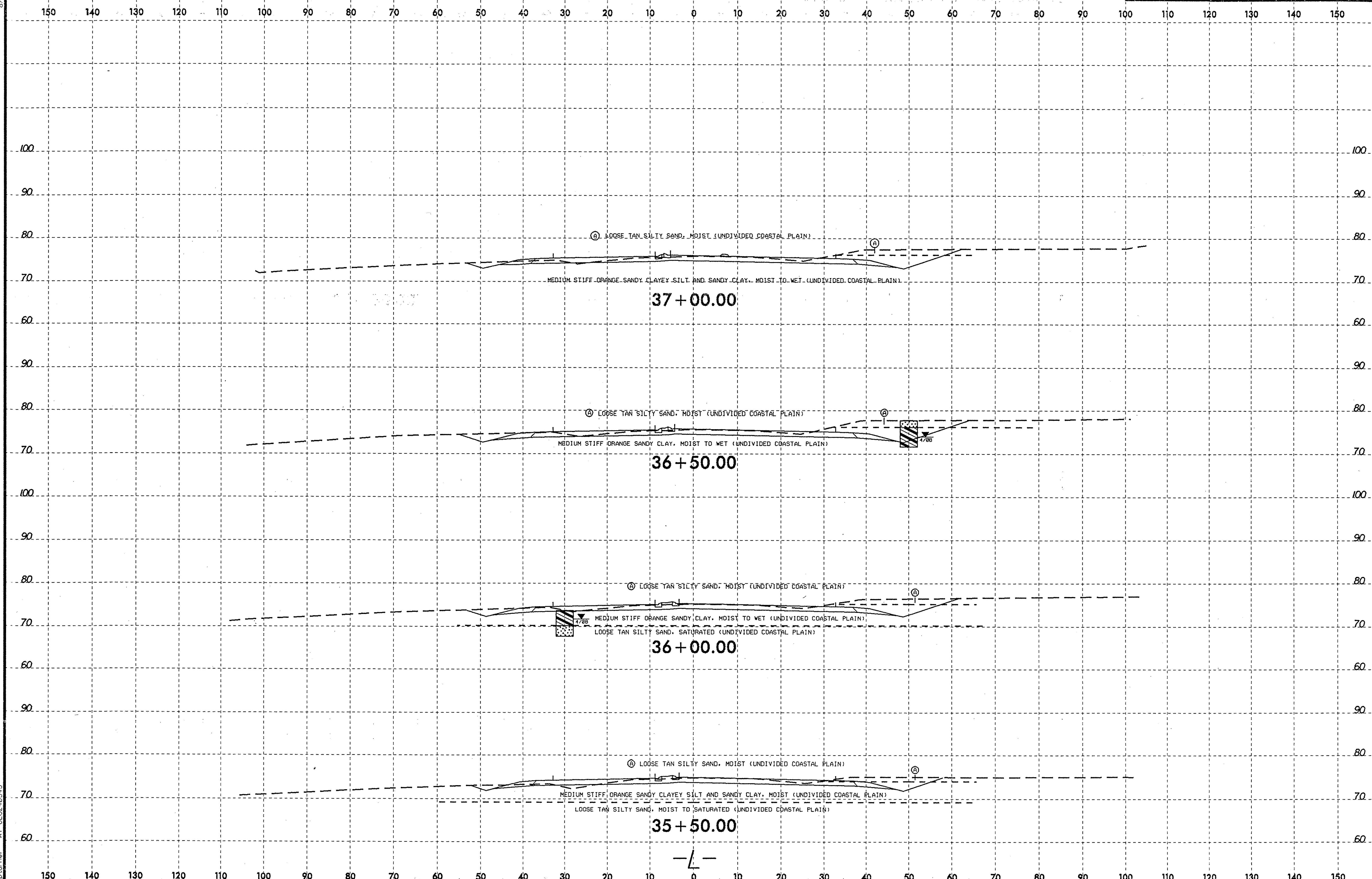
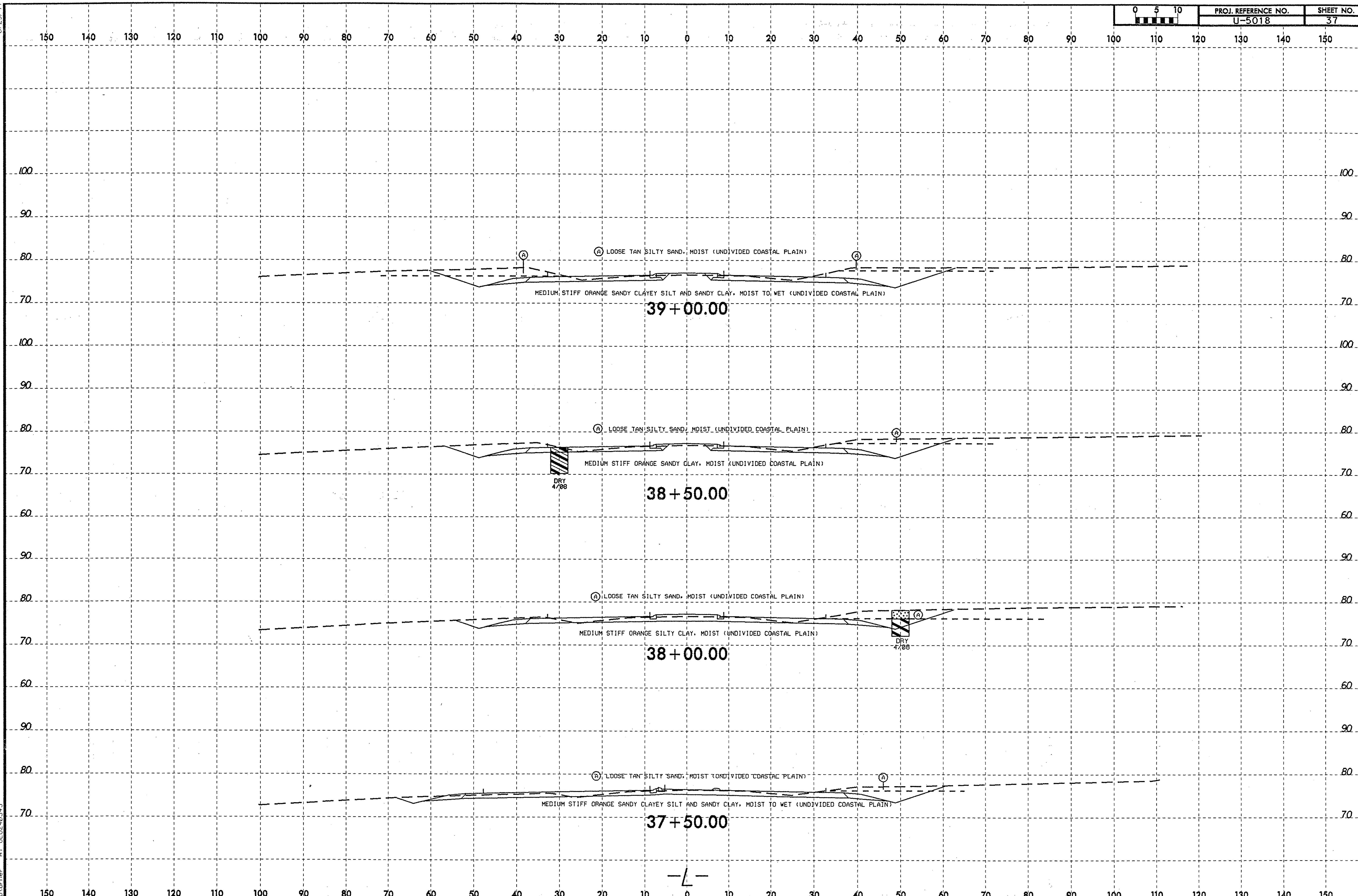
PROJ. REFERENCE NO.	SHEET NO.
U-5018	36



PROJ. REFERENCE NO.	SHEET NO.
U-5018	37



0 5 10
(A) LOOSE TAN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)
MEDIUM STIFF ORANGE SANDY CLAYEY SILT AND SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)
39+00.00
(A) LOOSE TAN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)
MEDIUM STIFF ORANGE SANDY CLAY, MOIST (UNDIVIDED COASTAL PLAIN)
DRY
4/08
38+50.00
(A) LOOSE TAN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)
MEDIUM STIFF ORANGE SANDY SILTY CLAY, MOIST (UNDIVIDED COASTAL PLAIN)
DRY
4/08
38+00.00
(A) LOOSE TAN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)
MEDIUM STIFF ORANGE SANDY CLAYEY SILT AND SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)
37+50.00
-L-

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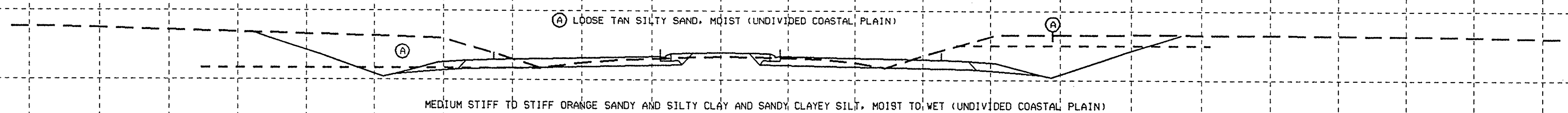
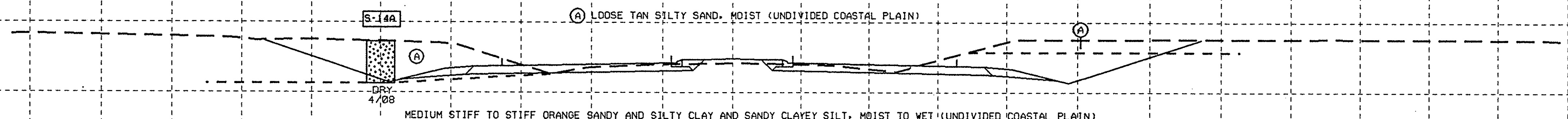
PROJ. REFERENCE NO.	SHEET NO.
U-5018	38



41+00.00

SOIL TEST RESULTS

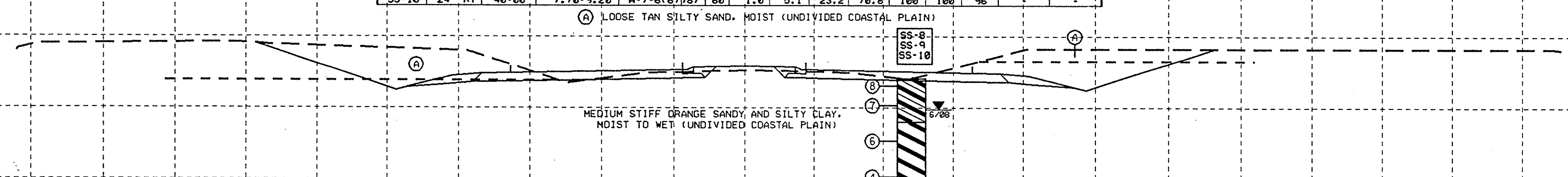
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
S-14A	50' LT	40-50	1.00-6.00	A-2-4(0)	28	9	0.2	68.1	5.1	26.6	100	100	34	-	-



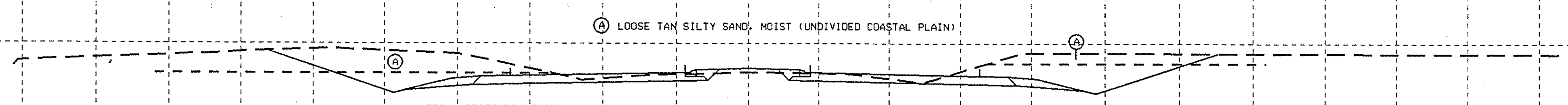
40+50.00

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-8	24' RT	40-00	1.00-1.50	A-6(1)	29	14	2.4	64.9	10.4	22.2	100	99	36	-	-
SS-9	24' RT	40-00	2.70-4.20	A-6(3)	35	18	0.4	61.1	8.2	30.3	100	100	40	26.5	-
SS-10	24' RT	40-00	7.70-9.20	A-7-6(67)	87	60	1.0	5.1	23.2	70.8	100	100	96	-	-



40+00.00



39+50.00

-L-

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-5018	39

Ⓐ LOOSE TAN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)

MEDIUM STIFF TO STIFF ORANGE SANDY AND SILTY CLAY AND SANDY CLAYEY SILT, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

43+50.00

Ⓐ LOOSE TAN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)

MEDIUM STIFF TO STIFF ORANGE SANDY AND SILTY CLAY AND SANDY CLAYEY SILT, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

43+00.00

Ⓐ LOOSE TAN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)

4/08

MEDIUM STIFF ORANGE SANDY CLAYEY SILT AND SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

42+50.00

Ⓐ LOOSE TAN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)

MEDIUM STIFF TAN SANDY CLAY, MOIST (UNDIVIDED COASTAL PLAIN)

DRY
4/08

42+00.00

Ⓐ LOOSE TANSILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)

MEDIUM STIFF TO STIFF ORANGE SANDY AND SILTY CLAY AND SANDY CLAYEY SILT, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

41+50.00

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0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-5018	40

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

90 80 70 60 50

Ⓐ LOOSE TAN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)

MEDIUM STIFF TO STIFF ORANGE SANDY AND SILTY CLAY AND SANDY CLAYEY SILT, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

45+50.00

80 70 60 50

Ⓐ LOOSE TAN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)

MEDIUM STIFF TO STIFF ORANGE SANDY AND SILTY CLAY AND SANDY CLAYEY SILT, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

45+00.00

90 80 70 60

Ⓐ LOOSE TAN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)

4/00

MEDIUM STIFF ORANGE SILTY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

44+50.00

90 80 70 60

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	LL	PI	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	#200	% MOISTURE	% ORGANIC
S-8	35' RT	44+00	1.00-2.00	A-4(0)	20	5	1.6	55.0	18.8	24.5	100	100	48	-	-
S-9	35' RT	44+00	2.00-4.50	A-6(4)	38	20	2.9	58.5	8.0	30.7	100	100	42	-	-

Ⓐ LOOSE TAN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)

S-8
S-9

4/00

MEDIUM STIFF ORANGE SANDY CLAYEY SILT AND SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

44+00.00

80 70 60

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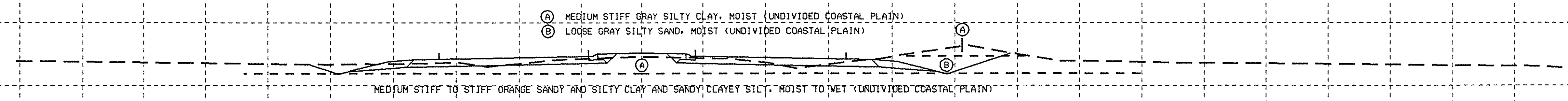
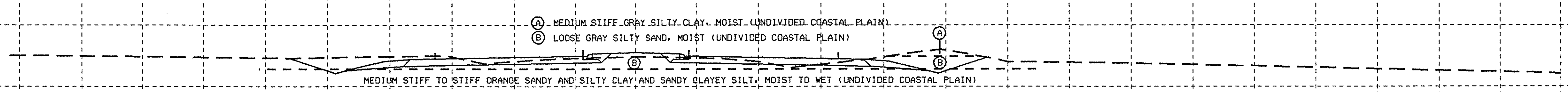


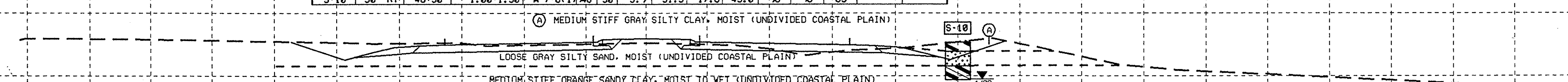
47 + 50.00



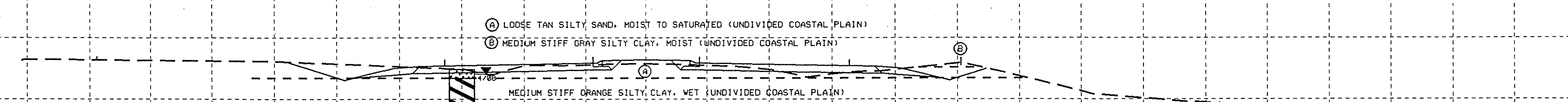
47 + 00.00

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-10	50' RT	46+50	1.00-1.50	A-7-6(17)	46	30	5.9	31.5	17.6	45.0	98	96	65	-	-



46 + 50.00



46 + 00.00

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0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-5018	42

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

90 80 70 60 50

(A) LOOSE TAN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)

MEDIUM STIFF TO STIFF ORANGE SANDY AND SILTY CLAY AND SANDY CLAYEY SILT, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

49+50.00

80 70 60 50

(A) LOOSE TAN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)

MEDIUM STIFF TO STIFF ORANGE SANDY AND SILTY CLAY AND SANDY CLAYEY SILT, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

49+00.00

80 70 60 50

(A) LOOSE TAN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)

MEDIUM STIFF TO STIFF ORANGE SANDY AND SILTY CLAY AND SANDY CLAYEY SILT, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

48+50.00

80 70 60 50

(A) LOOSE TAN SILTY SAND, MOIST TO SATURATED (UNDIVIDED COASTAL PLAIN)

▼ 4/98

MEDIUM STIFF ORANGE SANDY CLAY, WET (UNDIVIDED COASTAL PLAIN)

48+00.00

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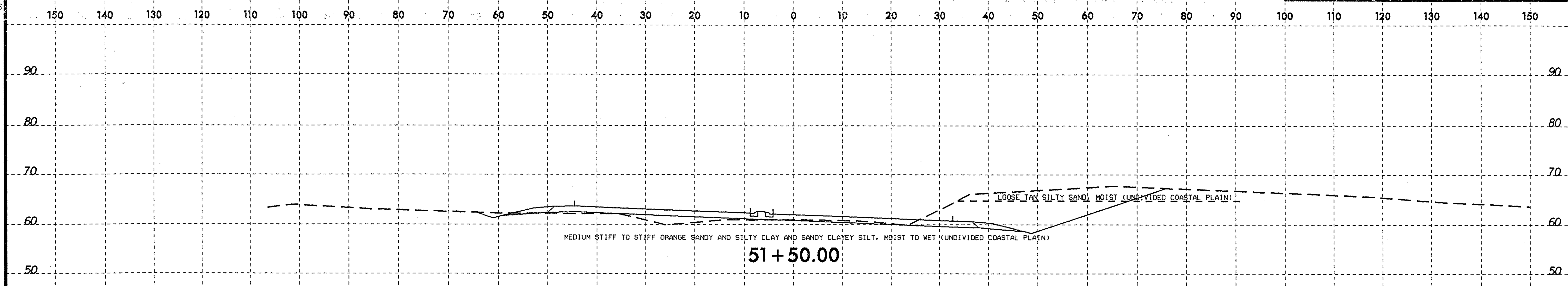
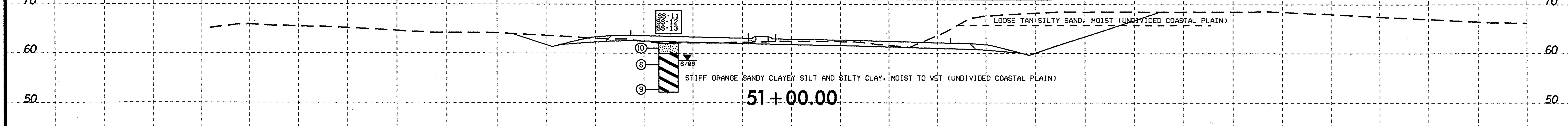
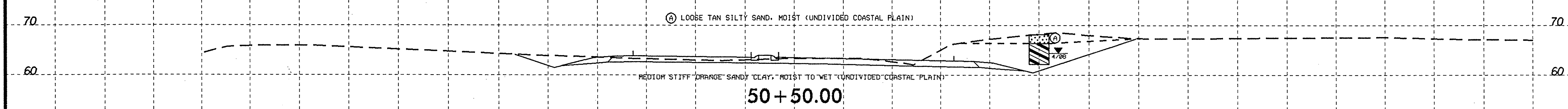
PROJ. REFERENCE NO.	SHEET NO.
U-5018	43

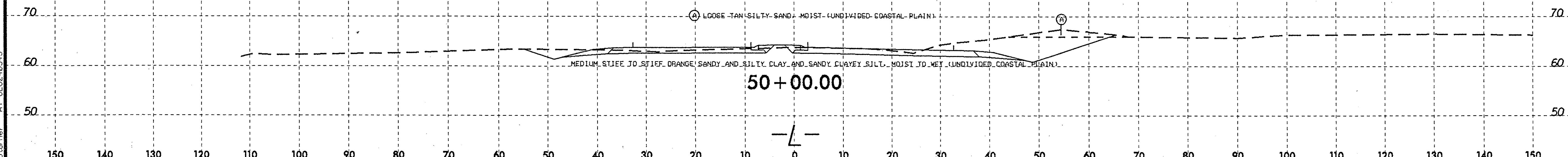


SOIL TEST RESULTS

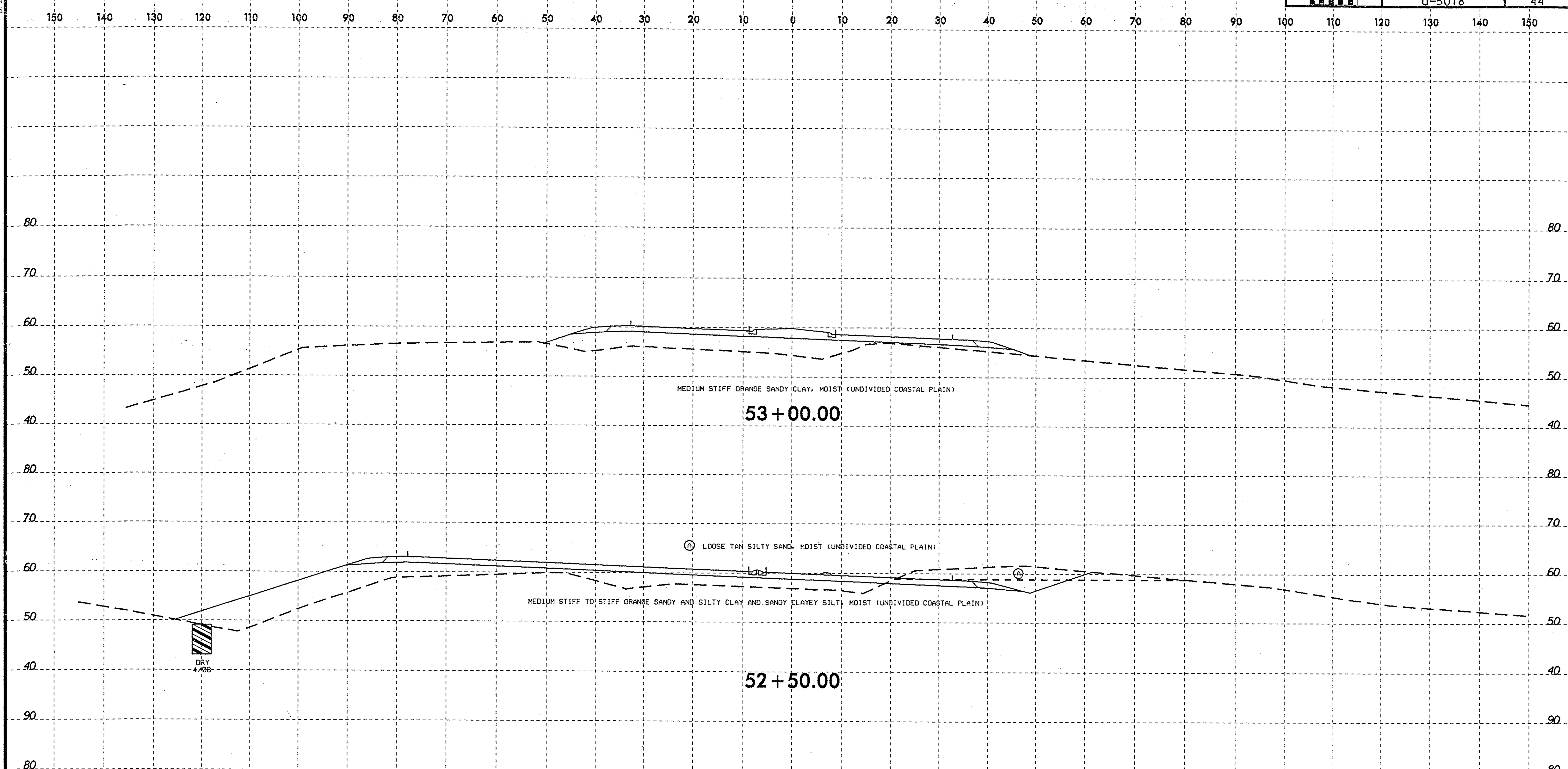
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-11	25' LT	51+00	1.00-1.50	A-4(0)	22	7	4.3	59.3	16.1	20.3	100	99	42	-	-
SS-12	25' LT	51+00	3.30-4.80	A-7-6(54)	76	48	0.2	5.7	27.1	67.0	100	100	96	-	-
SS-13	25' LT	51+00	8.30-9.80	A-7-6(22)	49	27	3.9	17.3	24.1	54.8	100	99	81	-	-



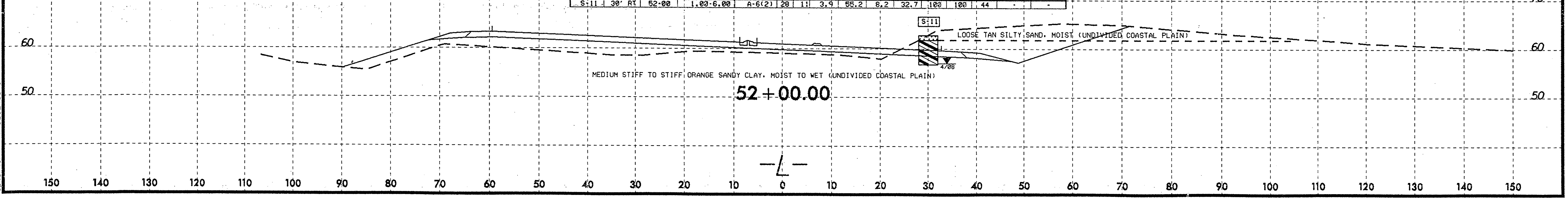




PROJ. REFERENCE NO.	SHEET NO.
U-5018	44



SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
S-11	30' RT	52-00	1.00-6.00	A-6(2)	28	11	3.9	55.2	8.2	32.7	100	100	44	-	-



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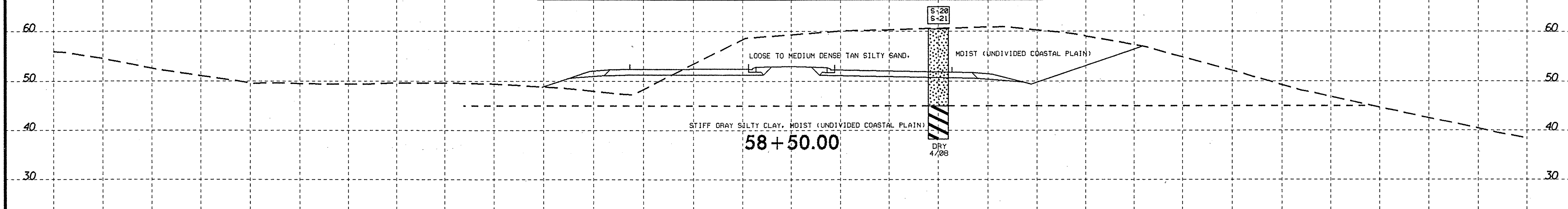
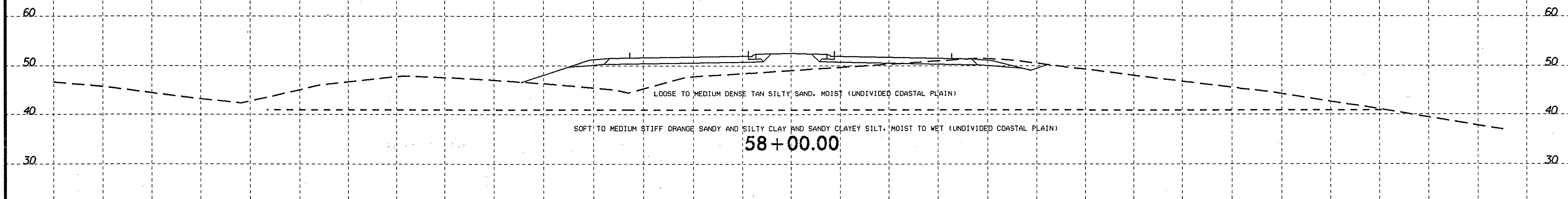
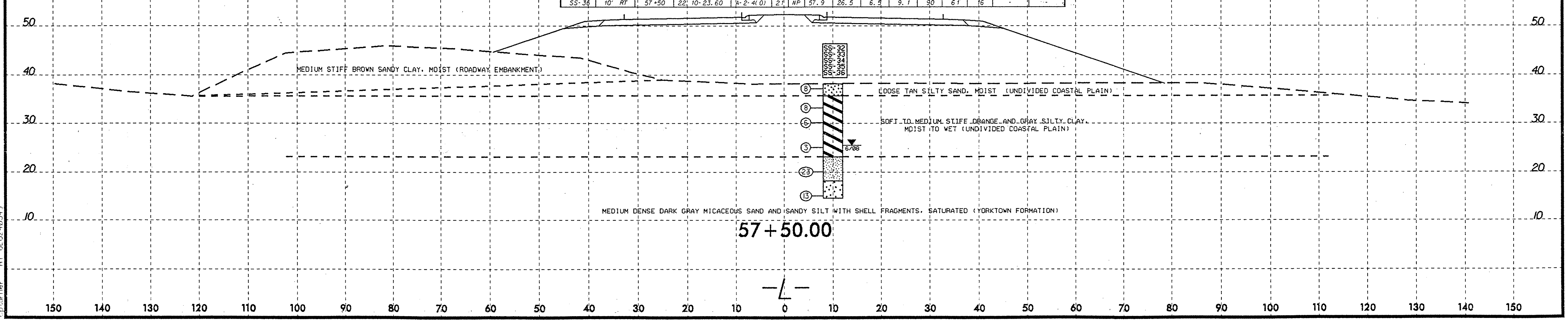
PROJ. REFERENCE NO.	SHEET NO.
U-5018	45

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-20	30' RT	58+50	1.00-15.50	A-2-4(0)	21	NP	21.2	61.7	2.9	14.3	100	97	18	-	-
S-21	30' RT	58+50	15.50-22.20	A-7-6(22)	54	26	1.4	23.3	20.0	55.2	100	100	78	-	-





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-32	10' RT	57+50	1.00-1.50	A-2-4(0)	18	NP	12.9	62.7	16.3	8.1	100	98	27	-	-
SS-33	10' RT	57+50	4.00-5.50	A-7-6(36)	65	42	1.4	20.4	23.6	54.6	100	99	81	30	-
SS-34	10' RT	57+50	12.10-13.60	A-7-6(23)	50	29	8.9	15.4	35.3	40.4	100	96	78	-	-
SS-35	10' RT	57+50	17.10-18.60	A-4(0)	16	2	46.3	24.0	20.6	9.1	98	82	60	-	-
SS-36	10' RT	57+50	22.10-23.60	A-2-4(0)	21	NP	57.9	26.5	6.5	9.1	90	61	16	-	-



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	U-5018	46

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80 70 60 50 40 90 80 70

LOOSE TO MEDIUM DENSE TAN SILTY SANDMOIST (UNDIVIDED COASTAL PLAIN)

MEDIUM STIFF GRAY AND ORANGE MOTTLED SILTY CLAY, MOIST (UNDIVIDED COASTAL PLAIN)

60+00.00

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			%	%
							C. SAND	F. SAND	SILT	CLAY	10	40	200	MOISTURE	ORGANIC
SS-14	20' RT	59+50	1.00-1.50	A-7-6(23)	54	26	3.0	18.9	19.2	58.9	100	99	81	-	-
SS-15	20' RT	59+50	3.10-4.60	A-2-4(0)	18	NP	18.1	63.6	4.2	14.2	100	96	19	-	-
SS-16	20' RT	59+50	8.10-9.60	A-3(0)	18	NP	19.3	71.0	1.6	8.1	100	98	10	-	-
SS-17	20' RT	59+50	13.10-14.60	A-7-6(28)	59	31	0.8	20.3	22.0	56.9	100	100	82	-	-

Ⓐ MEDIUM STIFF ORANGE SILTY CLAY, MOIST (ALLUVIAL)

SS-14
SS-15
SS-16
SS-17

Ⓐ
⑨
⑫
⑥
⑥

LOOSE TO MEDIUM DENSE TAN SAND AND SILTY SAND, MOIST

(UNDIVIDED COASTAL PLAIN)

MEDIUM STIFF GRAY AND ORANGE MOTTLED SILTY CLAY, MOIST (UNDIVIDED COASTAL PLAIN)

DRY
4-10-8

59+50.00

Ⓐ MEDIUM STIFF ORANGE SILTY CLAY, MOIST (UNDIVIDED COASTAL PLAIN)

Ⓐ

LOOSE TO MEDIUM DENSE TAN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)

SOFT TO MEDIUM STIFF ORANGE SANDY AND SILTY CLAY AND SANDY CLAYEY SILT, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

59+00.00

80 70 60 50 40 30 80 70 60 50 40 30

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

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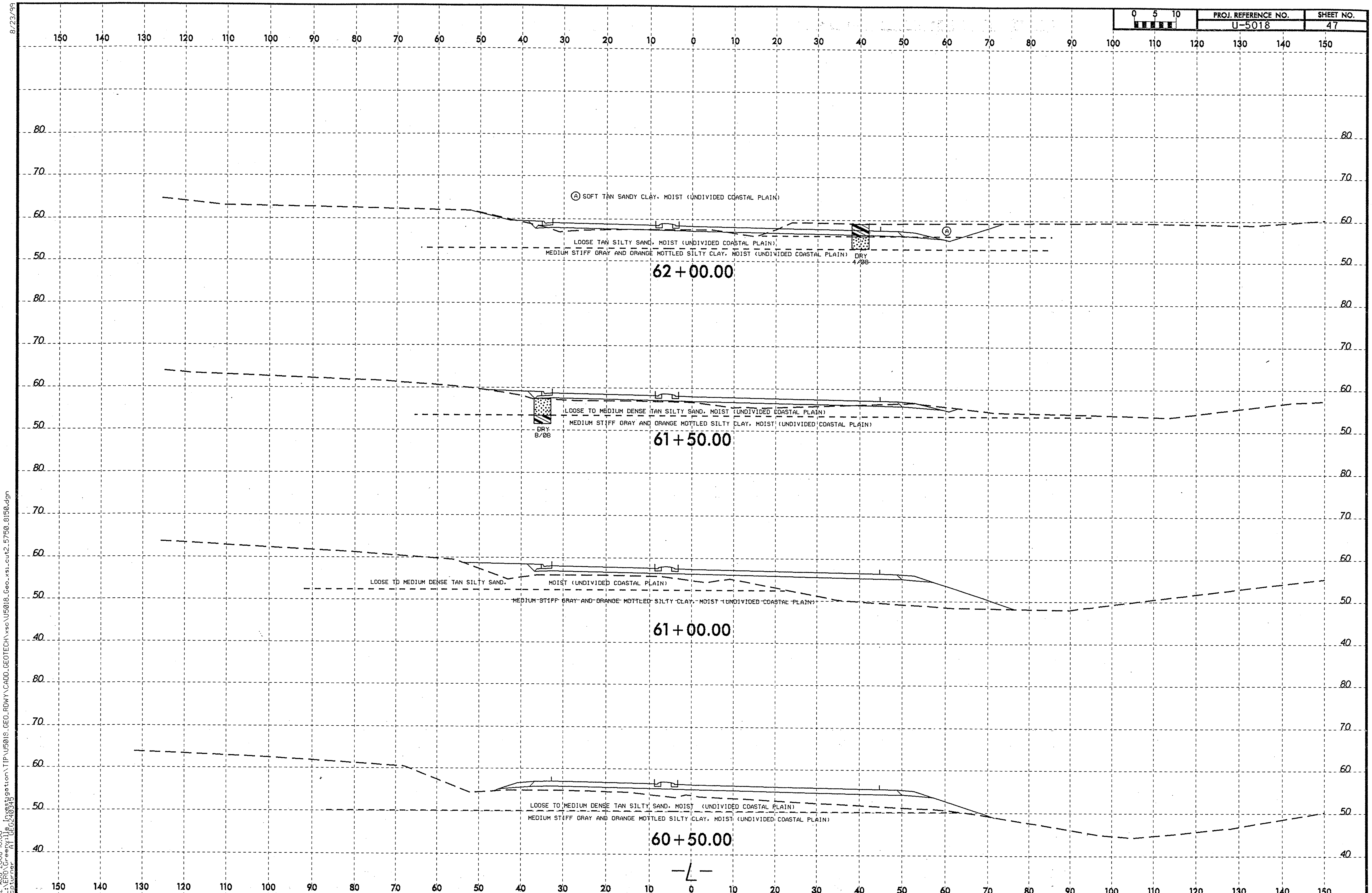

PROJ. REFERENCE NO.
U-5018
SHEET NO.
47
(A) SOFT TAN SANDY CLAY, MOIST (UNDIVIDED COASTAL PLAIN)
LOOSE TAN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)
MEDIUM STIFF GRAY AND ORANGE MOTTLED SILTY CLAY, MOIST (UNDIVIDED COASTAL PLAIN)
DRY 4/08
62+00.00
LOOSE TO MEDIUM DENSE TAN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)
MEDIUM STIFF GRAY AND ORANGE MOTTLED SILTY CLAY, MOIST (UNDIVIDED COASTAL PLAIN)
DRY 8/08
61+50.00
LOOSE TO MEDIUM DENSE TAN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)
MEDIUM STIFF GRAY AND ORANGE MOTTLED SILTY CLAY, MOIST (UNDIVIDED COASTAL PLAIN)
61+00.00
LOOSE TO MEDIUM DENSE TAN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)
MEDIUM STIFF GRAY AND ORANGE MOTTLED SILTY CLAY, MOIST (UNDIVIDED COASTAL PLAIN)
60+50.00
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8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-5018	48

63+58
67' LT

(A) LOOSE BROWN CLAYEY SAND, MOIST (UNDIVIDED COASTAL PLAIN)

MEDIUM STIFF TO STIFF TAN CLAYEY SANDY SILT, MOIST (UNDIVIDED COASTAL PLAIN)

(A)
(5)
(5)
(8)
(4)
(4)

DRY
3/08

SOFT TO MEDIUM STIFF ORANGE AND GRAY SANDY AND SILTY CLAY, MOIST (UNDIVIDED COASTAL PLAIN)

63+50.00

63+10
58' LT

(A) LOOSE BROWN CLAYEY SAND, MOIST (UNDIVIDED COASTAL PLAIN)

MEDIUM STIFF TO STIFF TAN CLAYEY SANDY SILT, MOIST (UNDIVIDED COASTAL PLAIN)

(A)
(5)
(5)
(8)
(4)
(3)

DRY
3/08

LOOSE TAN SAND, MOIST (UNDIVIDED COASTAL PLAIN)

MEDIUM STIFF TO STIFF TAN CLAYEY SANDY SILT, MOIST (UNDIVIDED COASTAL PLAIN)

DRY
8/08

SOFT TO MEDIUM STIFF ORANGE AND GRAY SANDY CLAY, MOIST (UNDIVIDED COASTAL PLAIN)

63+00.00

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	LL	PI	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) #10	#40	#200	% MOISTURE	% ORGANIC
S-13	45' LT	62+50	1.00-6.00	A-2-4(0)	21	2	16.2	64.4	3.1	16.4	94	92	19	-	-

S-13

DRY
4/08

SOFT TAN SANDY CLAY, MOIST (UNDIVIDED COASTAL PLAIN)

LOOSE TAN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)

62+50.00

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LOOSE TAN SILTY SAND, MOIST TO SATURATED (UNDIVIDED COASTAL PLAIN)

65+50.00

Ⓐ LOOSE TAN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)

DRY 8/08

SOFT TO MEDIUM STIFF ORANGE AND GRAY SANDY AND SILTY CLAY, MOIST (UNDIVIDED COASTAL PLAIN)

65+00.00

SOFT TO MEDIUM STIFF ORANGE AND GRAY SANDY AND SILTY CLAY, MOIST (UNDIVIDED COASTAL PLAIN)

64+50.00

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-36	83' LT	63+86	1.0-1.6	A-2-4(0)	23	6	15.7	51.6	4.4	28.3	100	94	35		
SS-37	83' LT	63+86	6.6-8.1	A-4(0)	28	5	37.1	27.6	4.9	30.3	100	69	37		
SS-38	83' LT	63+86	13.6-15.1	A-6(6)	30	28	4.2	30.4	9.1	36.3	100	99	48		
S-22	60' RT	64+00	1.00-10.00	A-7-6(48)	70	44	0.4	5.1	39.0	55.4	99	99	94		

Ⓐ LOOSE BROWN CLAYEY SAND, MOIST (UNDIVIDED COASTAL PLAIN)

63+86
83' LT.
SS-36
SS-37
SS-38

MEDIUM STIFF TO STIFF TAN CLAYEY SANDY SILT, MOIST (UNDIVIDED COASTAL PLAIN)

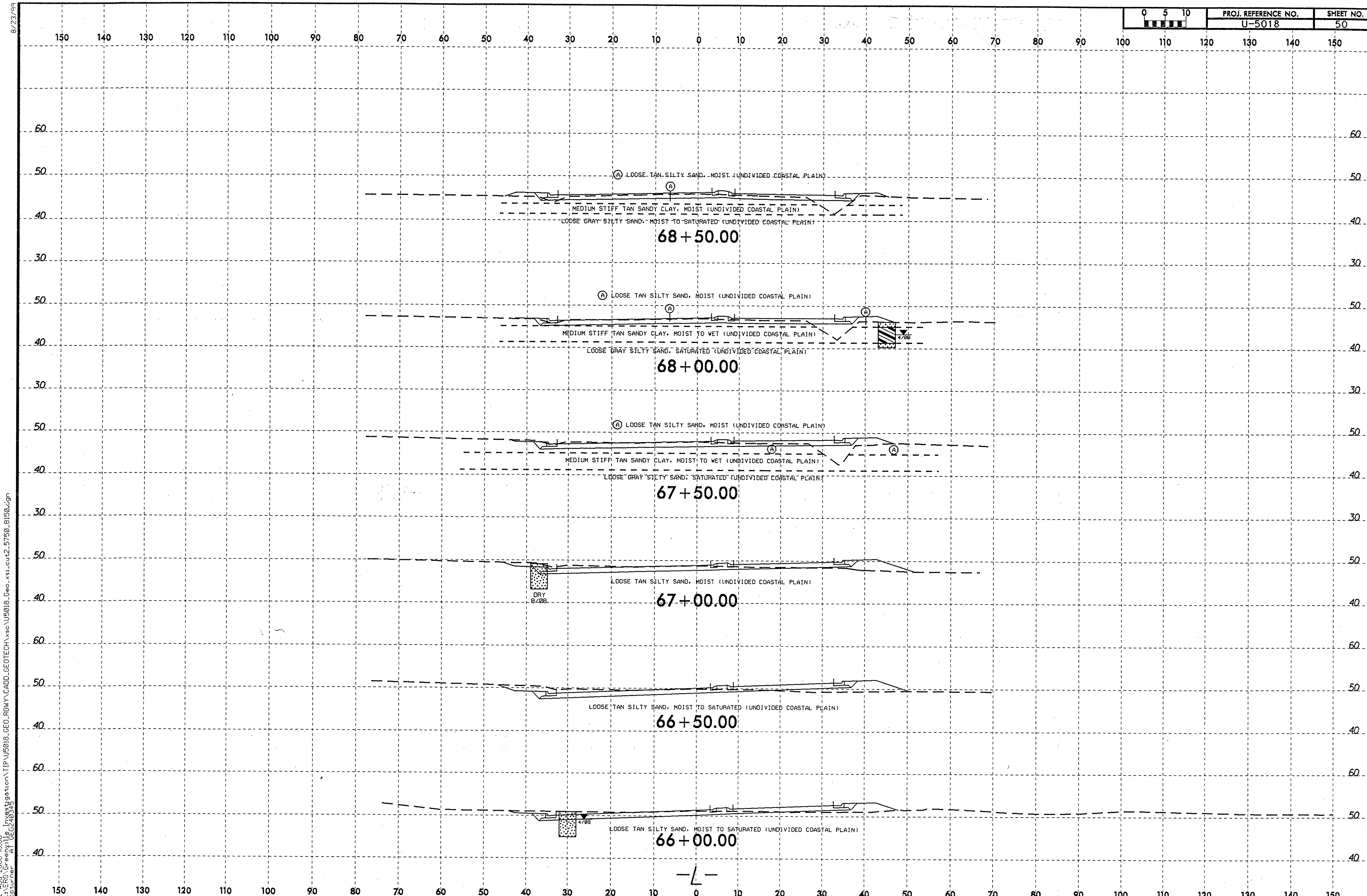
DRY 3/08

S-22

DRY 4/08

64+00.00

—L—



PROJ. REFERENCE NO.
U-5018
SHEET NO.
50
0 5 10
Ⓐ LOOSE TAN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)
MEDIUM STIFF TAN SANDY CLAY, MOIST (UNDIVIDED COASTAL PLAIN)
LOOSE GRAY SILTY SAND, MOIST TO SATURATED (UNDIVIDED COASTAL PLAIN)
68+50.00
Ⓐ LOOSE TAN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)
MEDIUM STIFF TAN SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)
LOOSE GRAY SILTY SAND, SATURATED (UNDIVIDED COASTAL PLAIN)
4/08
68+00.00
Ⓐ LOOSE TAN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)
MEDIUM STIFF TAN SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)
LOOSE GRAY SILTY SAND, SATURATED (UNDIVIDED COASTAL PLAIN)
67+50.00
LOOSE TAN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)
DRY
8/08
67+00.00
LOOSE TAN SILTY SAND, MOIST TO SATURATED (UNDIVIDED COASTAL PLAIN)
66+50.00
LOOSE TAN SILTY SAND, MOIST TO SATURATED (UNDIVIDED COASTAL PLAIN)
4/08
66+00.00
-L-

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0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-5018	51

Ⓐ LOOSE TAN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)

MEDIUM STIFF TAN SANDY CLAY, MOIST (UNDIVIDED COASTAL PLAIN)

LOOSE GRAY SILTY SAND, MOIST TO SATURATED (UNDIVIDED COASTAL PLAIN)

71+50.00

VERY LOOSE TO MEDIUM DENSE TAN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)

MEDIUM STIFF TAN SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

6/08

71+00.00

VERY LOOSE TO MEDIUM DENSE TAN SILTY SAND, MOIST TO SATURATED (UNDIVIDED COASTAL PLAIN)

70+50.00

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	LL	PI	% BY WEIGHT C. SAND	% BY WEIGHT F. SAND	% BY WEIGHT SILT	% BY WEIGHT CLAY	% PASSING (SIEVES) 10	% PASSING (SIEVES) 40	% PASSING (SIEVES) 200	% MOISTURE	% ORGANIC
SS-18	40 LT	170+00	1.00-1.50	A-2-4(0)	20	2	2.8	71.9	7.0	18.3	100	100	28	-	-
SS-19	40 LT	170+00	3.30-4.80	A-2-4(0)	20	NP	2.5	81.8	3.5	12.2	100	100	17	-	-
SS-20	40 LT	170+00	8.30-9.80	A-2-4(0)	21	NP	1.3	73.4	6.0	19.3	100	100	29	-	-

SS-18
SS-19
SS-20

25
7
2

6/08

VERY LOOSE TO MEDIUM DENSE TAN SILTY SAND, MOIST TO SATURATED (UNDIVIDED COASTAL PLAIN)

70+00.00

VERY LOOSE TO MEDIUM DENSE TAN SILTY SAND, MOIST TO SATURATED (UNDIVIDED COASTAL PLAIN)

69+50.00

8/08

VERY LOOSE TO MEDIUM DENSE TAN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)

MEDIUM STIFF TAN SANDY CLAY, MOIST (UNDIVIDED COASTAL PLAIN)

VERY LOOSE TO MEDIUM DENSE TAN SILTY SAND, MOIST TO SATURATED (UNDIVIDED COASTAL PLAIN)

69+00.00

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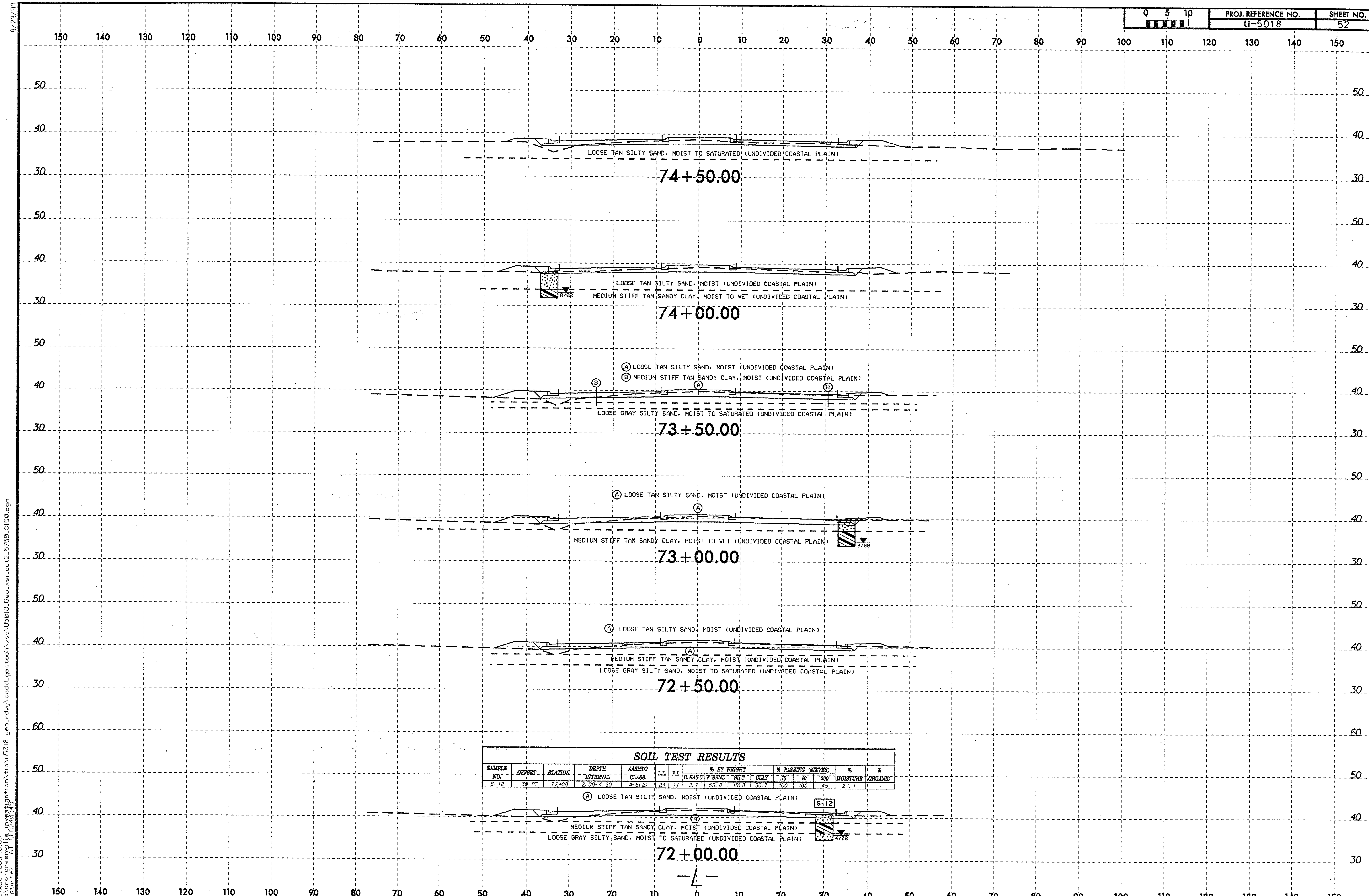
PROJ. REFERENCE NO.	SHEET NO.
U-5018	52


LOOSE TAN SILTY SAND, MOIST TO SATURATED (UNDIVIDED COASTAL PLAIN)
74+50.00
LOOSE TAN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)
MEDIUM STIFF TAN SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)
74+00.00
(A) LOOSE TAN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)
(B) MEDIUM STIFF TAN SANDY CLAY, MOIST (UNDIVIDED COASTAL PLAIN)
LOOSE GRAY SILTY SAND, MOIST TO SATURATED (UNDIVIDED COASTAL PLAIN)
73+50.00
(A) LOOSE TAN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)
MEDIUM STIFF TAN SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)
73+00.00
(A) LOOSE TAN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)
MEDIUM STIFF TAN SANDY CLAY, MOIST (UNDIVIDED COASTAL PLAIN)
LOOSE GRAY SILTY SAND, MOIST TO SATURATED (UNDIVIDED COASTAL PLAIN)
72+50.00
(A) LOOSE TAN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)
S-12
MEDIUM STIFF TAN SANDY CLAY, MOIST (UNDIVIDED COASTAL PLAIN)
LOOSE GRAY SILTY SAND, MOIST TO SATURATED (UNDIVIDED COASTAL PLAIN)
72+00.00
-L-

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
S-12	30 RT	72+00	2.00-4.50	A-6(2)	24	11	2.7	55.8	10.8	30.7	100	100	45	21.1	-

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0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-5018	53

LOOSE TAN SILTY SAND, MOIST TO SATURATED (UNDIVIDED COASTAL PLAIN)

77+50.00

LOOSE TAN SILTY SAND, MOIST TO SATURATED (UNDIVIDED COASTAL PLAIN)

8/08

MEDIUM STIFF TAN SANDY CLAY, MOIST (UNDIVIDED COASTAL PLAIN)

77+00.00

LOOSE TAN SILTY SAND, MOIST TO SATURATED (UNDIVIDED COASTAL PLAIN)

76+50.00

4/05

LOOSE TAN SILTY SAND, MOIST TO SATURATED (UNDIVIDED COASTAL PLAIN)

76+00.00

LOOSE TAN SILTY SAND, MOIST TO SATURATED (UNDIVIDED COASTAL PLAIN)

75+50.00

LOOSE TAN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)

MEDIUM STIFF TAN SANDY CLAY, MOIST (UNDIVIDED COASTAL PLAIN)

-DRY-
8/08

75+00.00

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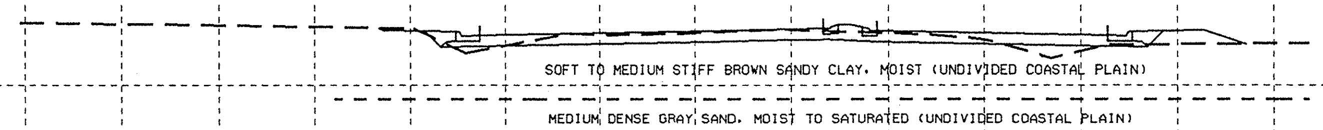
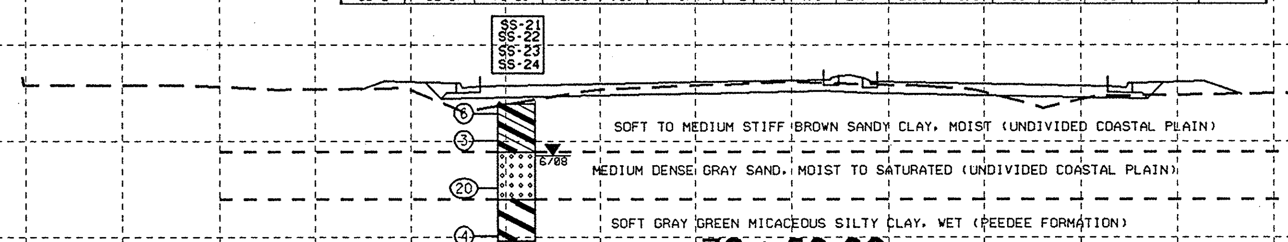


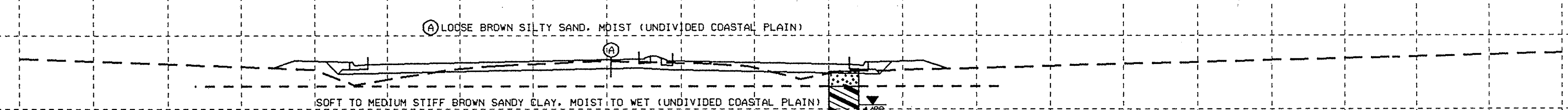
80+00.00

SOIL TEST RESULTS

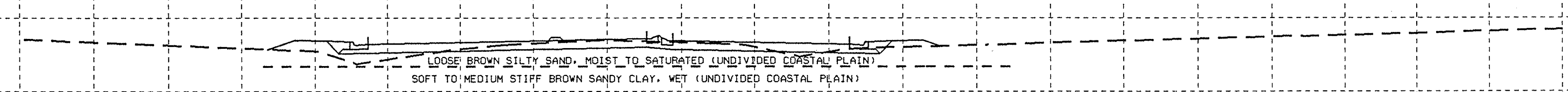
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-21	32 LT	79+50	1.00-2.50	A-6(6)	37	14	2.4	47.9	17.2	32.5	100	100	54	14.8	-
SS-22	32 LT	79+50	2.80-4.30	A-6(4)	28	13	2.6	47.9	19.0	30.5	100	100	55	-	-
SS-23	32 LT	79+50	7.80-9.30	A-3(0)	16	NP	46.2	49.5	2.2	2.0	100	80	6	-	-
SS-24	32 LT	79+50	12.80-14.30	A-7-6(14)	42	15	1.0	21.7	36.6	40.6	100	99	85	-	-



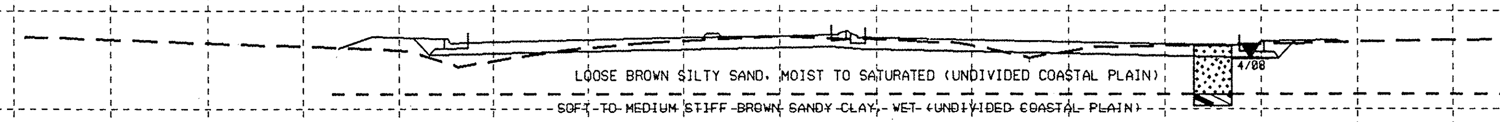
79+50.00



79+00.00



78+50.00



78+00.00

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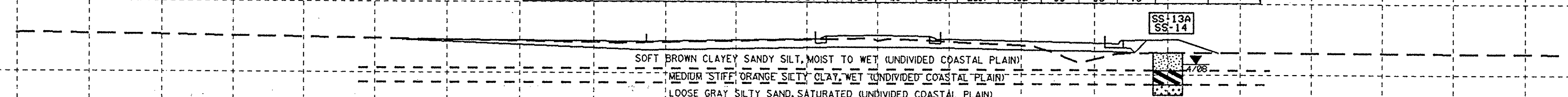
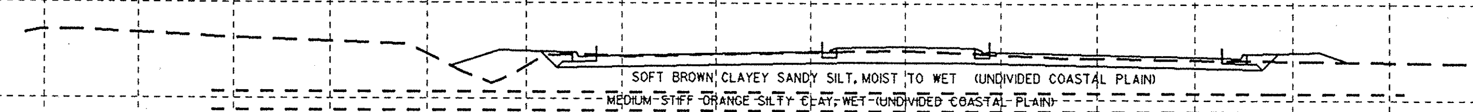
PROJ. REFERENCE NO.	SHEET NO.
U-5018	55

SOIL TEST RESULTS

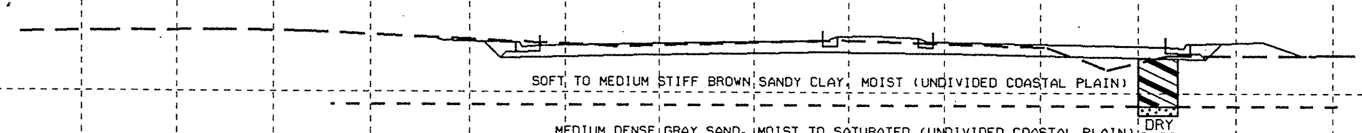
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	% BY WEIGHT F. SAND	% BY WEIGHT SILT	% BY WEIGHT CLAY	% PASSING (SIEVES) 10	% PASSING (SIEVES) 40	% PASSING (SIEVES) 200	% MOISTURE	% ORGANIC
S-13A	40' RT	81+50	1.00-2.50	A-4(0)	18	3	3.9	44.8	30.9	20.4	100	99	59	-	-
S-14	40' RT	81+50	2.50-4.50	A-7-6(20)	44	28	1.8	25.4	23.7	49.1	99	98	76	-	-



81+50.00



81+00.00



80+50.00

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CONTRACT: ID: U-5018

NOTE: SEE SHEET 3 FOR PLAN SHEET LAYOUT AT TIME OF INVESTIGATION

CONTENTS

LINE	STATION	PLAN	PROFILE
-L-	12+25 TO 145+84	4-14	15-24

CROSS SECTIONS

LINE	STATION	SHEET NO.
-L-	13+50 TO 53+00	25-44
-L-	57+50 TO 81+50	45-55

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

ROADWAY SUBSURFACE INVESTIGATION

PROJ. REFERENCE NO. 41431.1.1 (U-5018) F.A. PROJ. STP-0043 (8)

COUNTY PITT

PROJECT DESCRIPTION NC 43 FROM US 264 TO NC 11 (MEMORIAL DRIVE)

RECOMMENDATIONS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-5018	1	55

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
41431.1.1 (U-5018)	STP-0043 (8)	P.E.
		R/W & 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.

PERSONNEL

TCB

JRS

RES

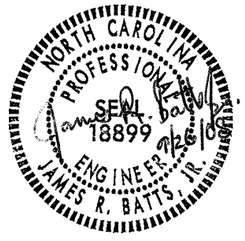
S&ME

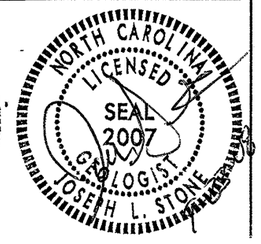
INVESTIGATED BY TC BOTTOMS

CHECKED BY DN ARGENBRIGHT

SUBMITTED BY DN ARGENBRIGHT

DATE SEPTEMBER, 2008





DRAWN BY: T.C. BOTTOMS, C.P. TURNER

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.

PROJECT REFERENCE NO.	SHEET NO.
U-5018	2

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

SUBSURFACE INVESTIGATION

SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

SOIL DESCRIPTION

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

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

SOIL LEGEND AND AASHTO CLASSIFICATION

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

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

CONSISTENCY OR DENSENESS

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

TEXTURE OR GRAIN SIZE

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

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

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

SOIL MOISTURE - CORRELATION OF TERMS

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

PLASTICITY

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

COLOR

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

GRADATION

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

ANGULARITY OF GRAINS

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

MINERALOGICAL COMPOSITION

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

COMPRESSIBILITY

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

PERCENTAGE OF MATERIAL

ORGANIC MATERIAL	GRANULAR SOILS	SILT - CLAY SOILS
TRACE OF ORGANIC MATTER	2 - 3%	3 - 5%
LITTLE ORGANIC MATTER	3 - 5%	5 - 12%
MODERATELY ORGANIC	5 - 10%	12 - 20%
HIGHLY ORGANIC	>10%	>20%

OTHER MATERIAL	
TRACE	1 - 10%
LITTLE	10 - 20%
SOME	20 - 35%
HIGHLY	35% AND ABOVE

GROUND WATER

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

MISCELLANEOUS SYMBOLS

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

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

ABBREVIATIONS

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

EQUIPMENT USED ON SUBJECT PROJECT

DRILL UNITS:
- [ ] MOBILE B-___
- [ ] BK-51
- [ ] CME-45B
- [ ] CME-550
- [ ] PORTABLE HOIST
- [X] DIEDRICH D-50
- [ ] _____

ADVANCING TOOLS:
- [ ] CLAY BITS
- [X] 6" CONTINUOUS FLIGHT AUGER
- [ ] 8" HOLLOW AUGERS
- [ ] HARD FACED FINGER BITS
- [ ] TUNG.-CARBIDE INSERTS
- [X] CASING [ ] W/ ADVANCER
- [X] TRICONE 2 15/16 " STEEL TEETH
- [ ] TRICONE _____ " TUNG.-CARB.
- [ ] CORE BIT
- [ ] _____

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

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

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

ROCK DESCRIPTION

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

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

WEATHERING

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

ROCK HARDNESS

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

FRACTURE SPACING

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

BEDDING

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

INDURATION

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

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

TERMS AND DEFINITIONS

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

AQUIFER - A WATER BEARING FORMATION OR STRATA.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

BENCH MARK:

ELEVATION: FT.

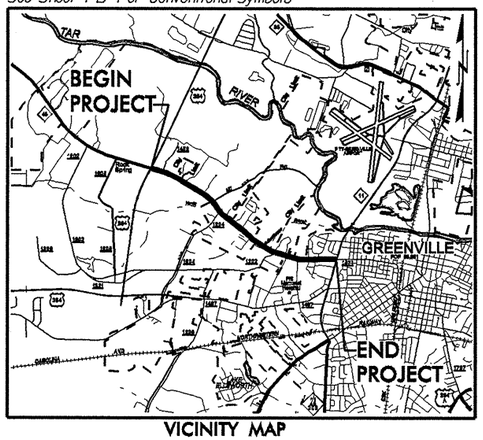
NOTES:

REVISED 02/23/06

TIP PROJECT: U-5018

CONTRACT: C201904

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



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

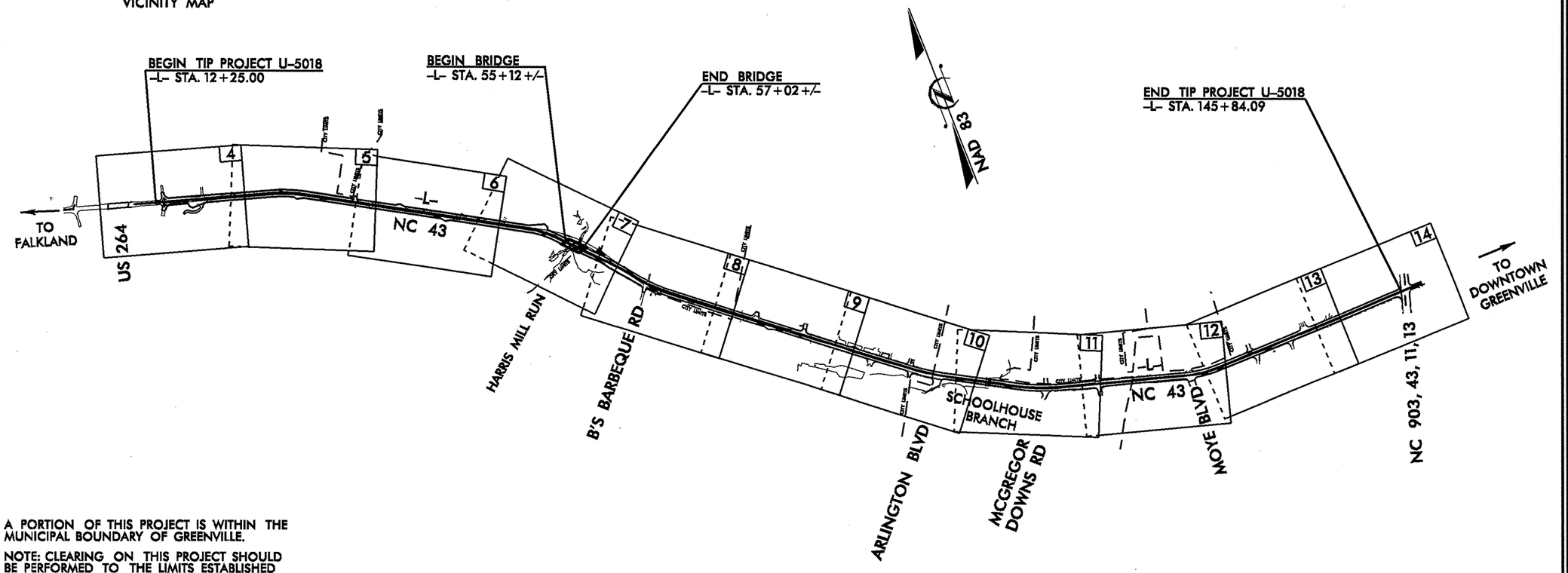
PITT COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-5018	3	

WBS NO.	F.A. PROJ. NO.	DESCRIPTION
41431.1.1	STP-0043(9)	P.E.
41431.3.1	STP-0043(9)	CONST.

LOCATION: NC 43 FROM US 264 TO NC 11

TYPE OF WORK: GRADING, PAVING, DRAINAGE, AND STRUCTURE



A PORTION OF THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARY OF GREENVILLE.

NOTE: CLEARING ON THIS PROJECT SHOULD BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2007 = 19,700
ADT 2029 = 40,600
DHV = 10 %
D = 50 %
T = 6 % *
V = 50 MPH
(* TTST 2 % + DUAL 4 %)

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT U-5018 = 2.494 MILES
LENGTH STRUCTURE TIP PROJECT U-5018 = 0.036 MILES
TOTAL LENGTH TIP PROJECT U-5018 = 2.530 MILES

Prepared In the Office of:
MULKEY
ENGINEERS & CONSULTANTS
FOR
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: ??????

LETTING DATE: AUGUST 19, 2008

TIM JORDAN, PE
PROJECT ENGINEER

JEFF RECK, PE
HYDRAULICS ENGINEER

NCDOT CONTACT: JOHN ROUSE

HYDRAULICS ENGINEER

P.E.
SIGNATURE:

ROADWAY DESIGN ENGINEER

P.E.
SIGNATURE:

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

P.E.
STATE HIGHWAY DESIGN ENGINEER

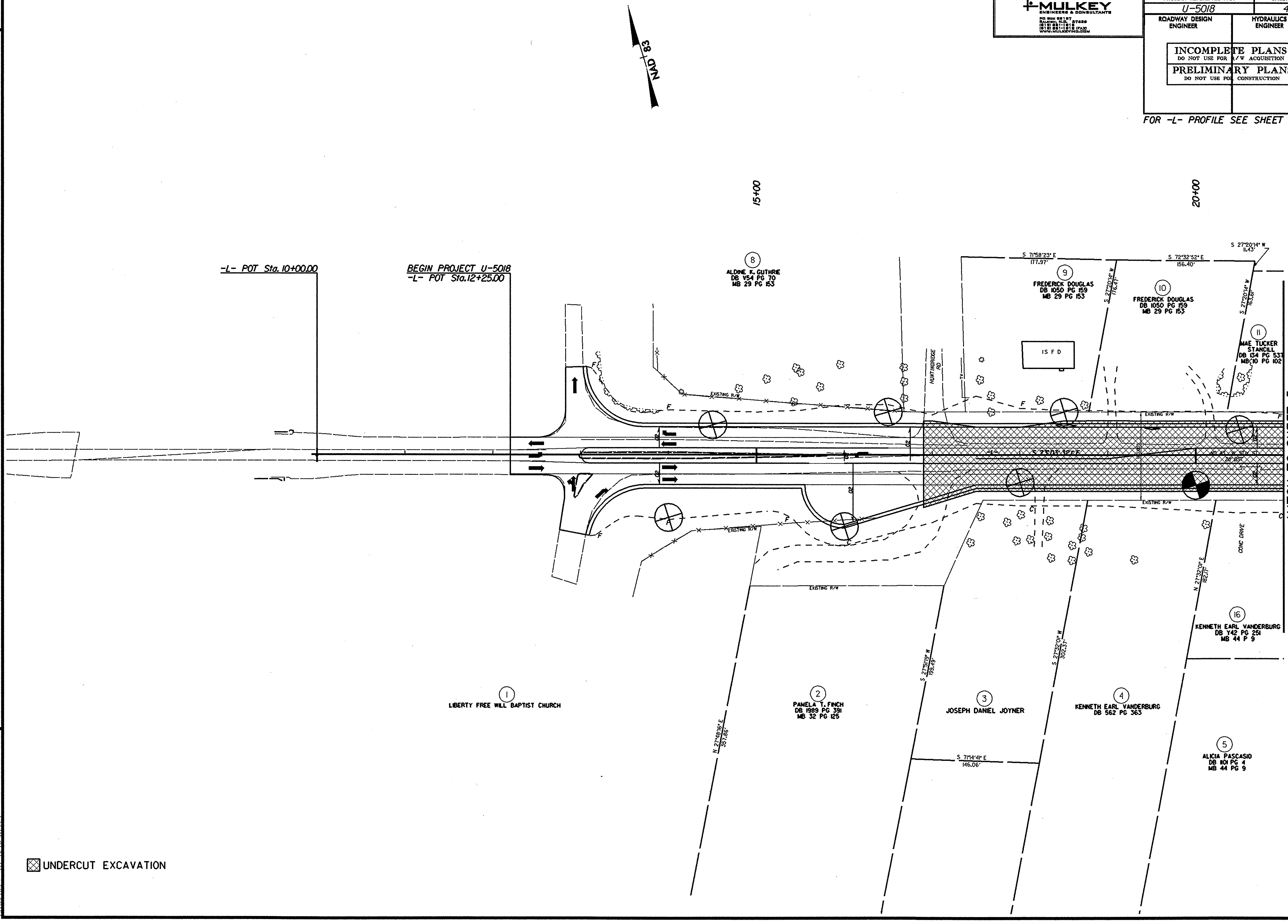
PROJECT REFERENCE NO.	SHEET NO.
U-5018	4
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

MULKEY ENGINEERS & CONSULTANTS

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

FOR -L- PROFILE SEE SHEET 15



NAD 83
15+00
20+00
-L- POT Sta. 10+00.00
BEGIN PROJECT U-5018
-L- POT Sta. 12+25.00
ALDINE K. GUTHRIE
DB V54 PG 70
MB 29 PG 153
FREDERICK DOUGLAS
DB 1050 PG 159
MB 29 PG 153
MAE TUCKER STANCILL
DB 134 PG 537
MB 10 PG 102
ISFD
HUNTINGRIDGE RD
EXISTING R/W
MATCH TO SHEET 5
-L- STA. 21+00.00
CONC DRIVE
KENNETH EARL VANDERBURG
DB Y42 PG 251
MB 44 P 9
LIBERTY FREE WILL BAPTIST CHURCH
PAMELA T. FINCH
DB 1989 PG 391
MB 32 PG 125
JOSEPH DANIEL JOYNER
KENNETH EARL VANDERBURG
DB 562 PG 363
ALICIA PASCASIO
DB 1101 PG 4
MB 44 PG 9

UNDERCUT EXCAVATION

REVISIONS

5/28/99

18-SEP-2008 07:30
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5/28/99

REVISIONS

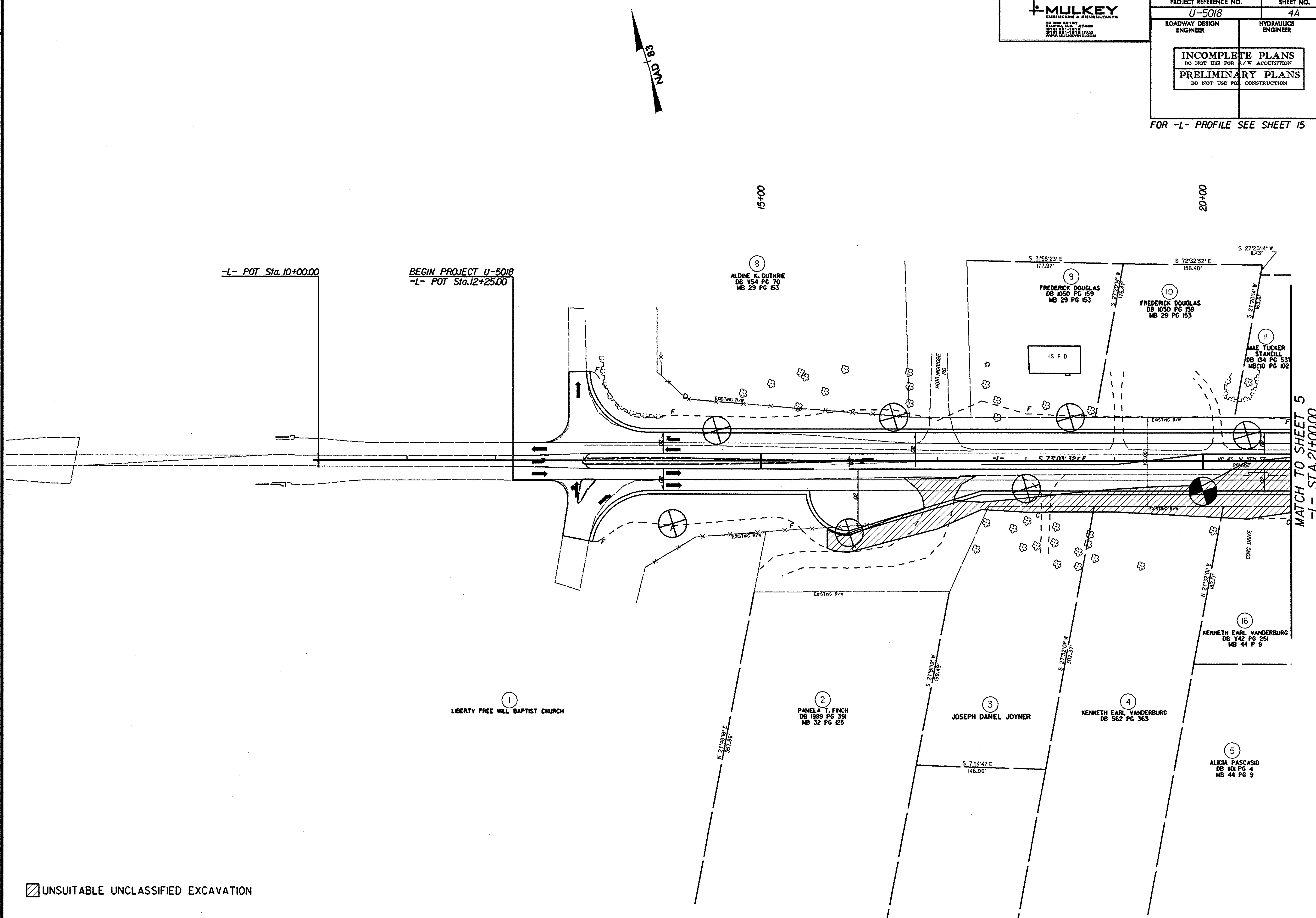
MULKEY ENGINEERS & CONSULTANTS

PROJECT REFERENCE NO.	SHEET NO.
U-5018	4A
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION

FOR -L- PROFILE SEE SHEET 15



NAD 83
15+00
20+00
-L- POT Sta. 10+00.00
BEGIN PROJECT U-5018
-L- POT Sta.12+25.00
ALDINE K. GUTHRIE
DB V54 PG 70
MB 29 PG 153
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DB 1050 PG 159
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DB 1989 PG 391
MB 32 PG 125
JOSEPH DANIEL JOYNER
KENNETH EARL VANDERBURG
DB 562 PG 363
ALICIA PASCASIO
DB 801 PG 4
MB 44 PG 9
UNSUITABLE UNCLASSIFIED EXCAVATION

18-SEP-2008 07:30
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PROJECT REFERENCE NO.	SHEET NO.
U-5018	5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

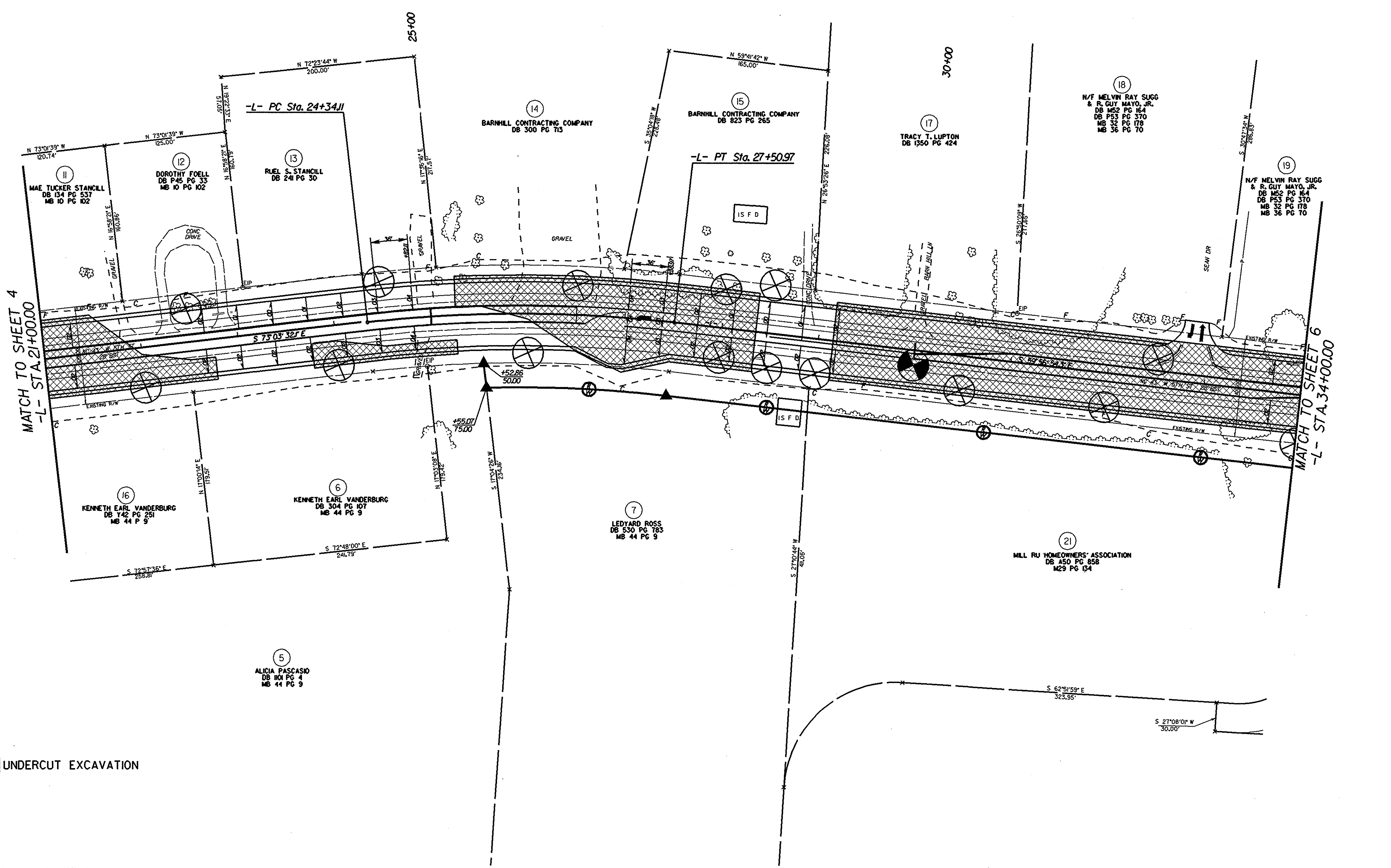
MULKEY ENGINEERS & CONSULTANTS

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

FOR -L- PROFILE SEE SHEET 15

-L-
PI Sta 25+93.23
Δ = 13° 06' 37.8" (RT)
D = 4° 08' 15.5"
L = 316.86'
T = 159.12'
R = 1,384.74'
SE = .04
RO = 144'



NAD 83
MATCH TO SHEET 4
-L- STA. 21+00.00
MATCH TO SHEET 6
-L- STA. 34+00.00
25+00
30+00
-L- PC Sta. 24+34.11
-L- PT Sta. 27+50.97
MAE TUCKER STANCILL
DB 134 PG 537
MB 10 PG 102
DOROTHY FOELL
DB P45 PG 33
MB 10 PG 102
RUEL S. STANCILL
DB 241 PG 30
BARNHILL CONTRACTING COMPANY
DB 300 PG 713
BARNHILL CONTRACTING COMPANY
DB 823 PG 265
TRACY T. LUPTON
DB 1350 PG 424
N/F MELVIN RAY SUGG
& R. GUY MAYO, JR.
DB M52 PG 164
DB P53 PG 370
MB 32 PG 178
MB 36 PG 70
KENNETH EARL VANDERBURG
DB Y42 PG 251
MB 44 P 9
KENNETH EARL VANDERBURG
DB 304 PG 107
MB 44 PG 9
LEDYARD ROSS
DB 530 PG 783
MB 44 PG 9
MILL RU HOMEOWNERS' ASSOCIATION
DB A50 PG 858
M29 PG 134
ALICIA PASCASIO
DB 1101 PG 4
MB 44 PG 9
S 73°03' 32.1" E
S 62°51'59" E
323.95'
S 27°08'01" W
30.00'

UNDERCUT EXCAVATION

REVISIONS

5/28/99

18-SEP-2008 07:30
...\ROADWAY\CADD_GEOTECH\PlanProf\U5018_geo_rdy_psh5_uc.dgn

PROJECT REFERENCE NO.	SHEET NO.
U-5018	5A
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

MULKEY ENGINEERS & CONSULTANTS

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

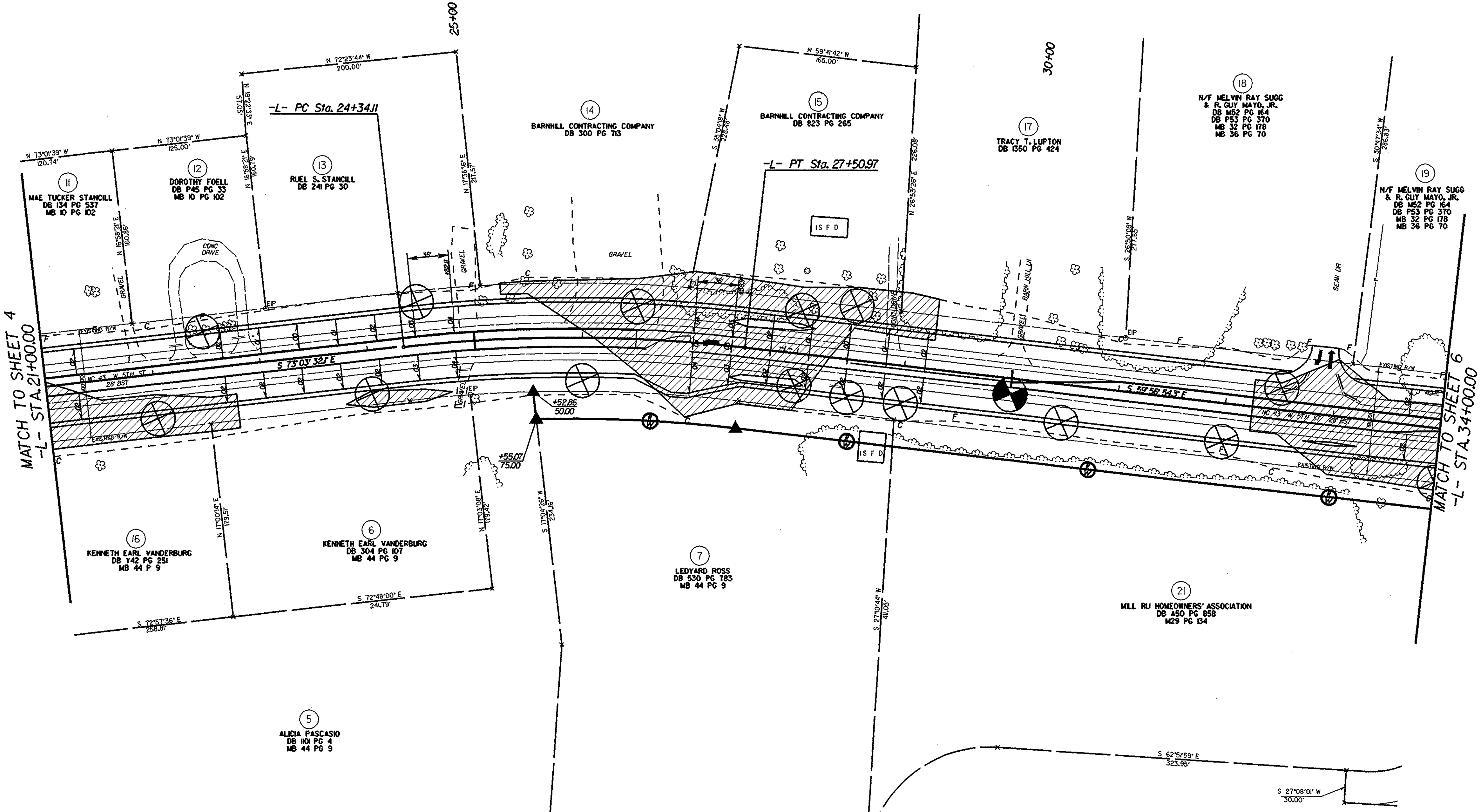
5/28/99

REVISIONS

-L-
PI Sta 25+93.23
Δ = 13° 06' 37.8" (RT)
D = 4° 08' 15.5"
L = 316.86'
T = 159.12'
R = 1,384.74'
SE = .04
RO = 144'

NAD 83

FOR -L- PROFILE SEE SHEET 15



25+00
30+00
-L- PC Sta. 24+34.11
-L- PT Sta. 27+50.97
MATCH TO SHEET 4 -L- STA. 21+00.00
MATCH TO SHEET 6 -L- STA. 34+00.00
S 73°03' 32.1" E
S 59°56' 54.3" E
NC 43 W 5TH ST
MAE TUCKER STANCILL DB 134 PG 537 MB 10 PG 102
DOROTHY FOELL DB P45 PG 33 MB 10 PG 102
RUEL S. STANCILL DB 241 PG 30
BARNHILL CONTRACTING COMPANY DB 300 PG 713
BARNHILL CONTRACTING COMPANY DB 823 PG 265
TRACY T. LUPTON DB 1350 PG 424
N/F MELVIN RAY SUGG & R. GUY MAYO, JR. DB M52 PG 164 DB P53 PG 370 MB 32 PG 178 MB 36 PG 70
N/F MELVIN RAY SUGG & R. GUY MAYO, JR. DB M52 PG 164 DB P53 PG 370 MB 32 PG 178 MB 36 PG 70
KENNETH EARL VANDERBURG DB Y42 PG 251 MB 44 P 9
KENNETH EARL VANDERBURG DB 304 PG 107 MB 44 PG 9
LEDYARD ROSS DB 530 PG 783 MB 44 PG 9
MILL RU HOMEOWNERS' ASSOCIATION DB A50 PG 858 M29 PG 134
ALICIA PASCASIO DB 1101 PG 4 MB 44 PG 9
1 S F D
GRAVEL
CONC DRIVE

UNSUITABLE UNCLASSIFIED EXCAVATION

04-NOV-2008 09:08
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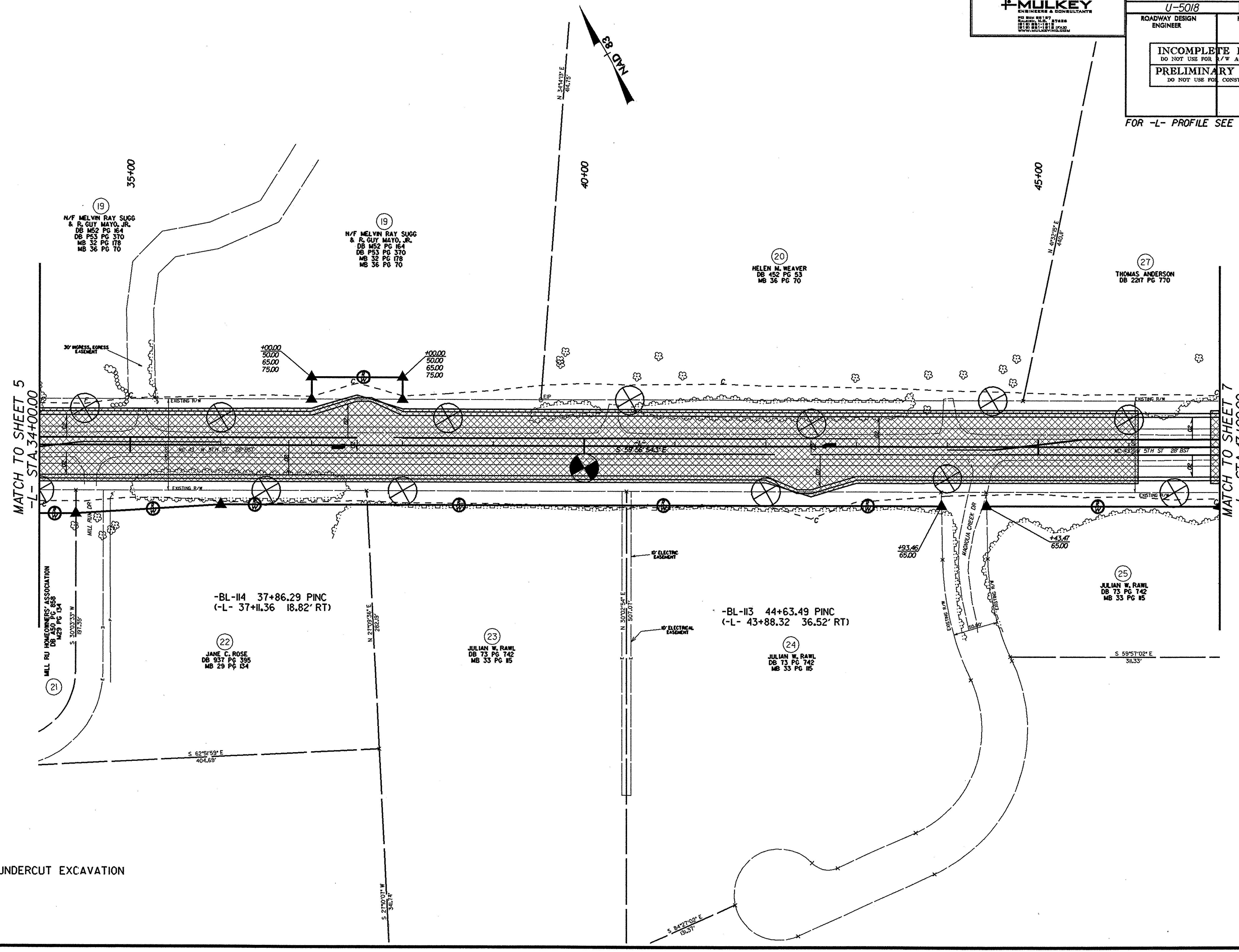
PROJECT REFERENCE NO.	SHEET NO.
U-5018	6
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

MULKEY ENGINEERS & CONSULTANTS

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

FOR -L- PROFILE SEE SHEET 16



NAD 83
35+00
40+00
45+00
N 34°14'13" E 414.75'
N 41°32'15" E 440.11'
19
N/F MELVIN RAY SUGG & R. GUY MAYO, JR. DB M52 PG 164 DB P53 PG 370 MB 32 PG 178 MB 36 PG 70
20
HELEN M. WEAVER DB 452 PG 53 MB 36 PG 70
27
THOMAS ANDERSON DB 2217 PG 770
30' INGRESS, EGRESS EASEMENT
+00.00 50.00 65.00 75.00
EXISTING R/W
MATCH TO SHEET 5 -L- STA 34+00.00
MATCH TO SHEET 7 -L- STA 47+00.00
MILL RUN DR
MAGNOLIA CREEK DR
+93.46 65.00
+43.47 65.00
-BL-114 37+86.29 PINC (-L- 37+11.36 18.82' RT)
-BL-113 44+63.49 PINC (-L- 43+88.32 36.52' RT)
10' ELECTRIC EASEMENT
10' ELECTRICAL EASEMENT
21
MILL RU HOMEOWNERS' ASSOCIATION DB A50 PG 858 M29 PG 134
S 30°03'33" W 197.35'
22
JANE C. ROSE DB 937 PG 395 MB 29 PG 134
N 27°09'36" E 282.19'
23
JULIAN W. RAWL DB 73 PG 742 MB 33 PG 115
N 30°02'54" E 507.07'
24
JULIAN W. RAWL DB 73 PG 742 MB 33 PG 115
25
JULIAN W. RAWL DB 73 PG 742 MB 33 PG 115
S 59°57'02" E 31.33'
S 62°51'59" E 404.69'
S 27°10'07" W 341.11'
S 84°27'02" E 131.37'

UNDERCUT EXCAVATION

REVISIONS

5/28/99

18-SEP-2008 07:30
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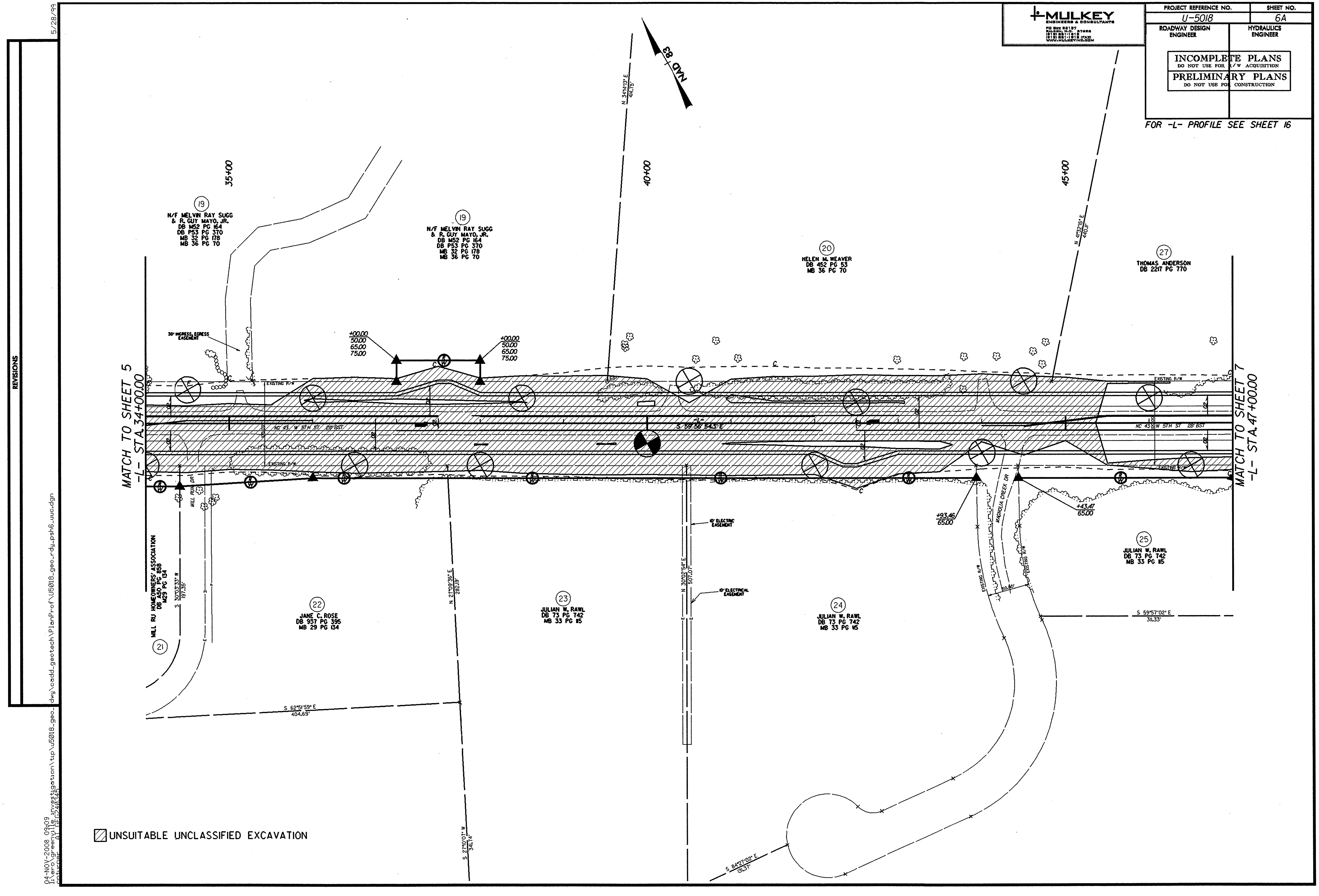


MULKEY ENGINEERS & CONSULTANTS
PROJECT REFERENCE NO.
SHEET NO.
U-5018
6A
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
FOR -L- PROFILE SEE SHEET 16
NAD 83
REVISIONS
5/28/99
35+00
40+00
45+00
N/F MELVIN RAY SUGG & R. GUY MAYO, JR. DB M52 PG 164 DB P53 PG 370 MB 32 PG 178 MB 36 PG 70
HELEN M. WEAVER DB 452 PG 53 MB 36 PG 70
THOMAS ANDERSON DB 2217 PG 770
30' INGRESS, EGRESS EASEMENT
MATCH TO SHEET 5 -L- STA. 34+00.00
MATCH TO SHEET 7 -L- STA. 47+00.00
NC 43 W 5TH ST 28' BST
S 59°58'54.3" E
EXISTING R/W
MILL RUN DR
MAGNOLIA CREEK DR
10' ELECTRIC EASEMENT
10' ELECTRICAL EASEMENT
MILL RUN HOMEOWNERS' ASSOCIATION DB A50 PG 858 M29 PG 134
JANE C. ROSE DB 937 PG 395 MB 29 PG 134
JULIAN W. RAWL DB 73 PG 742 MB 33 PG 115
S 62°51'59" E 404.69'
S 59°57'02" E
S 84°27'02" E
UNSUITABLE UNCLASSIFIED EXCAVATION
04-NOV-2008 09:09

PROJECT REFERENCE NO.	SHEET NO.
U-5018	7
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

MULKEY ENGINEERS & CONSULTANTS

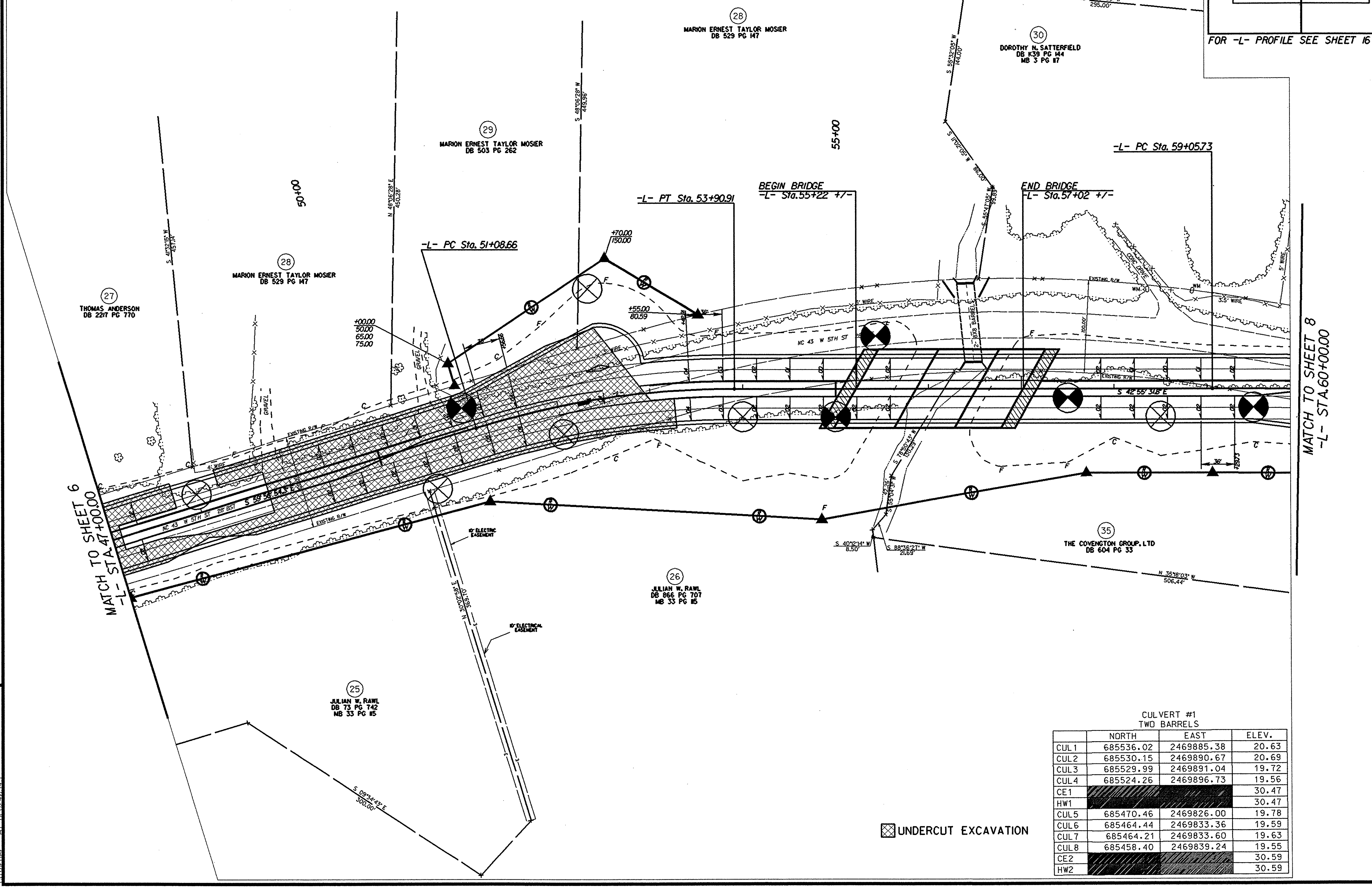
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION

FOR -L- PROFILE SEE SHEET 16

-L-

PI Sta 52+50.83	PI Sta 61+27.90
Δ = 17° 01' 22.4" (RT)	Δ = 5° 09' 00.9" (RT)
D = 6° 01' 52.1"	D = 1° 09' 35.4"
L = 282.25'	L = 444.05'
T = 142.17'	T = 222.17'
R = 950.00'	R = 4,940.00'
SE = 04	SE = 02
RO = 144'	RO = 72'



NAD 83
28
MARION ERNEST TAYLOR MOSIER
DB 529 PG 147
29
MARION ERNEST TAYLOR MOSIER
DB 503 PG 262
30
DOROTHY N. SATTERFIELD
DB K39 PG 144
MB 3 PG 117
27
THOMAS ANDERSON
DB 2217 PG 770
26
JULIAN W. RAWL
DB 866 PG 707
MB 33 PG 115
25
JULIAN W. RAWL
DB 73 PG 742
MB 33 PG 115
35
THE COVENGTON GROUP, LTD
DB 604 PG 33
50+00
55+00
-L- PC Sta. 51+08.66
-L- PT Sta. 53+90.91
BEGIN BRIDGE
-L- Sta.55+22 +/-
END BRIDGE
-L- Sta.57+02 +/-
-L- PC Sta. 59+05.73
NC 43 W 5TH ST
S 42°55'31.8" E
MATCH TO SHEET 6
-L- STA 47+00.00
MATCH TO SHEET 8
-L- STA.60+00.00
10' ELECTRIC EASEMENT
10' ELECTRICAL EASEMENT

UNDERCUT EXCAVATION

CULVERT #1
TWO BARRELS

	NORTH	EAST	ELEV.
CUL1	685536.02	2469885.38	20.63
CUL2	685530.15	2469890.67	20.69
CUL3	685529.99	2469891.04	19.72
CUL4	685524.26	2469896.73	19.56
CE1	[redacted]	[redacted]	30.47
HW1	[redacted]	[redacted]	30.47
CUL5	685470.46	2469826.00	19.78
CUL6	685464.44	2469833.36	19.59
CUL7	685464.21	2469833.60	19.63
CUL8	685458.40	2469839.24	19.55
CE2	[redacted]	[redacted]	30.59
HW2	[redacted]	[redacted]	30.59

REVISIONS

5/28/99

PROJECT REFERENCE NO.	SHEET NO.
U-5018	7A

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

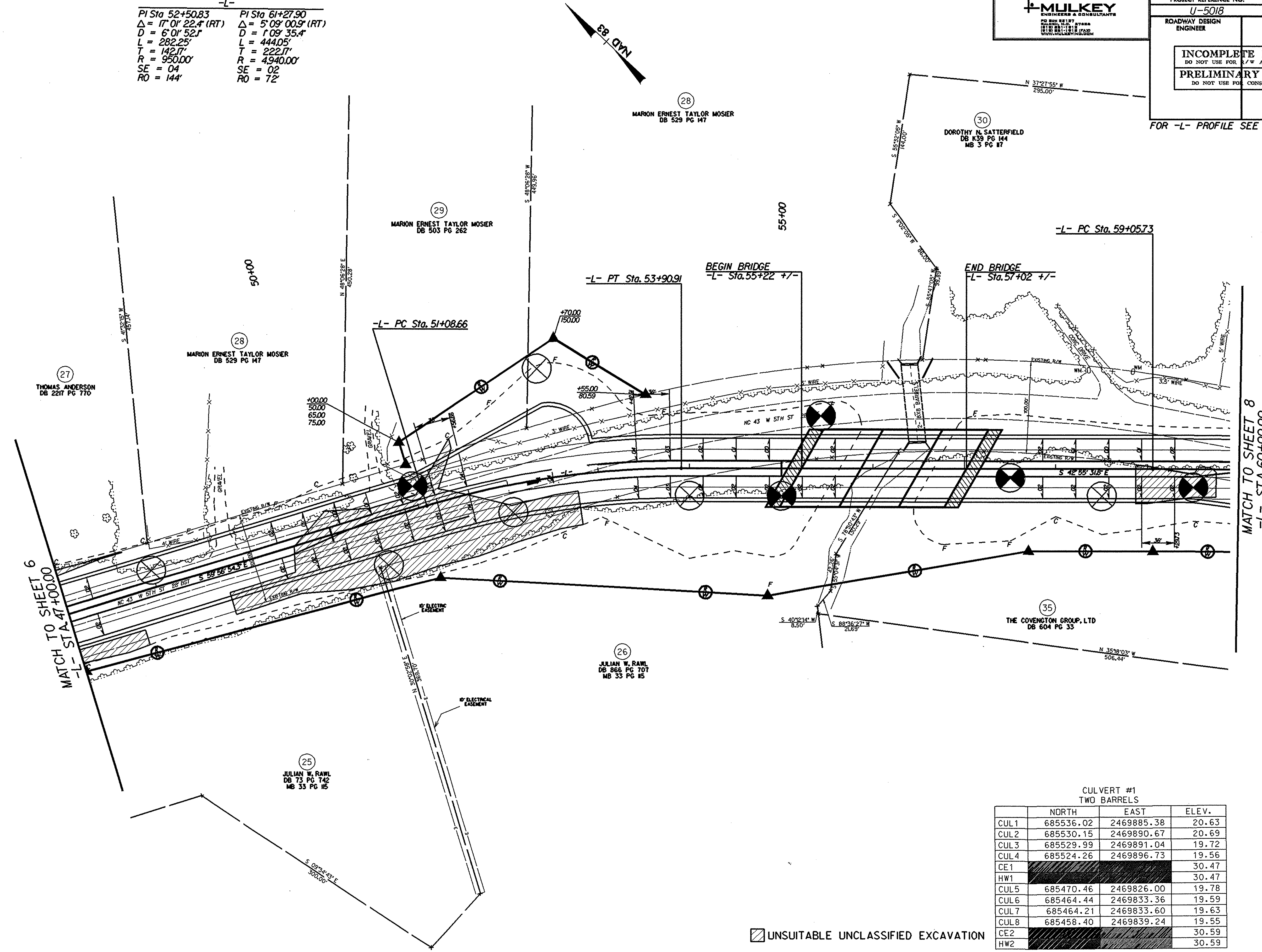
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

FOR -L- PROFILE SEE SHEET 16

MULKEY ENGINEERS & CONSULTANTS
WWW.MULKEYINC.COM

-L-

PI Sta 52+50.83	PI Sta 61+27.90
Δ = 17° 01' 22.4" (RT)	Δ = 5° 09' 00.9" (RT)
D = 6° 01' 52.1"	D = 1° 09' 35.4"
L = 282.25'	L = 444.05'
T = 142.17'	T = 222.17'
R = 950.00'	R = 4,940.00'
SE = .04	SE = .02
RO = 144'	RO = 72'



NAD 83
-L- PC Sta. 51+08.66
-L- PT Sta. 53+90.91
BEGIN BRIDGE
-L- Sta. 55+22 +/-
END BRIDGE
-L- Sta. 57+02 +/-
-L- PC Sta. 59+05.73
50+00
55+00
MATCH TO SHEET 6
-L- STA 47+00.00
MATCH TO SHEET 8
-L- STA 60+00.00
THOMAS ANDERSON
DB 2217 PG 770
MARION ERNEST TAYLOR MOSIER
DB 529 PG 147
MARION ERNEST TAYLOR MOSIER
DB 503 PG 262
DOROTHY N. SATTERFIELD
DB K39 PG 144
MB 3 PG 117
THE COVENGTON GROUP, LTD
DB 604 PG 33
JULIAN W. RAWL
DB 866 PG 707
MB 33 PG 115
JULIAN W. RAWL
DB 73 PG 742
MB 33 PG 115
NC 43 W 5TH ST
S 59°56'54.5" E
S 42°55'31.6" E
N 37°27'55" W
295.00'
N 35°18'03" W
506.44'
S 09°54'43" E
300.00'
10' ELECTRIC EASEMENT
10' ELECTRICAL EASEMENT

CULVERT #1
TWO BARRELS

	NORTH	EAST	ELEV.
CUL1	685536.02	2469885.38	20.63
CUL2	685530.15	2469890.67	20.69
CUL3	685529.99	2469891.04	19.72
CUL4	685524.26	2469896.73	19.56
CE1			30.47
HW1			30.47
CUL5	685470.46	2469826.00	19.78
CUL6	685464.44	2469833.36	19.59
CUL7	685464.21	2469833.60	19.63
CUL8	685458.40	2469839.24	19.55
CE2			30.59
HW2			30.59

UNSUITABLE UNCLASSIFIED EXCAVATION

REVISIONS

5/28/99

5/28/99

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
U-5018	8
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

MULKEY ENGINEERS & CONSULTANTS
WWW.MULKEYINC.COM

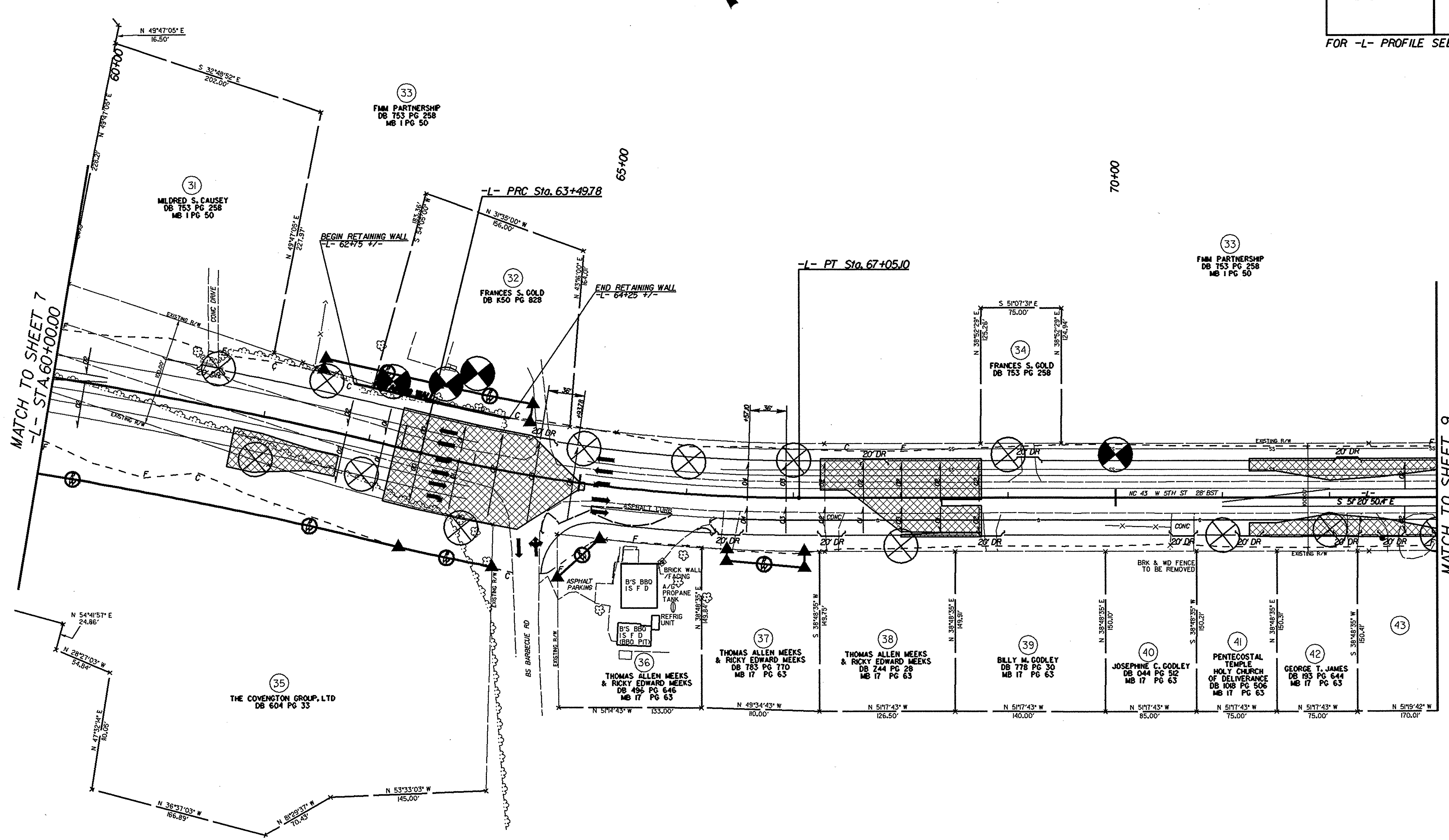
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

FOR -L- PROFILE SEE SHEET 17

-L-

PI Sta 61+27.90	PI Sta 65+28.27
Δ = 5° 09' 00.9" (RT)	Δ = 13° 34' 19.5" (LT)
D = 1° 09' 35.4"	D = 3° 49' 11.0"
L = 444.05'	L = 355.32'
T = 222.17'	T = 178.49'
R = 4,940.00'	R = 1,500.00'
SE = .02	SE = .04
RO = 72'	RO = 144'



UNDERCUT EXCAVATION

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-L-	
PI Sta 61+27.90	PI Sta 65+28.27
Δ = 5°09'00.9" (RT)	Δ = 13°34'19.5" (LT)
D = 1°09'35.4"	D = 3°49'11.0"
L = 444.05'	L = 355.32'
T = 222.17'	T = 178.49'
R = 4,940.00'	R = 1,500.00'
SE = 02	SE = 04
RO = 72'	RO = 144'

MAD 83

MULKEY
ENGINEERS & CONSULTANTS
PO Box 98197
Raleigh, NC 27624
(919) 851-1818
(919) 851-1816 (FAX)
WWW.MULKEYINC.COM

PROJECT REFERENCE NO.	SHEET NO.
U-5018	8A
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

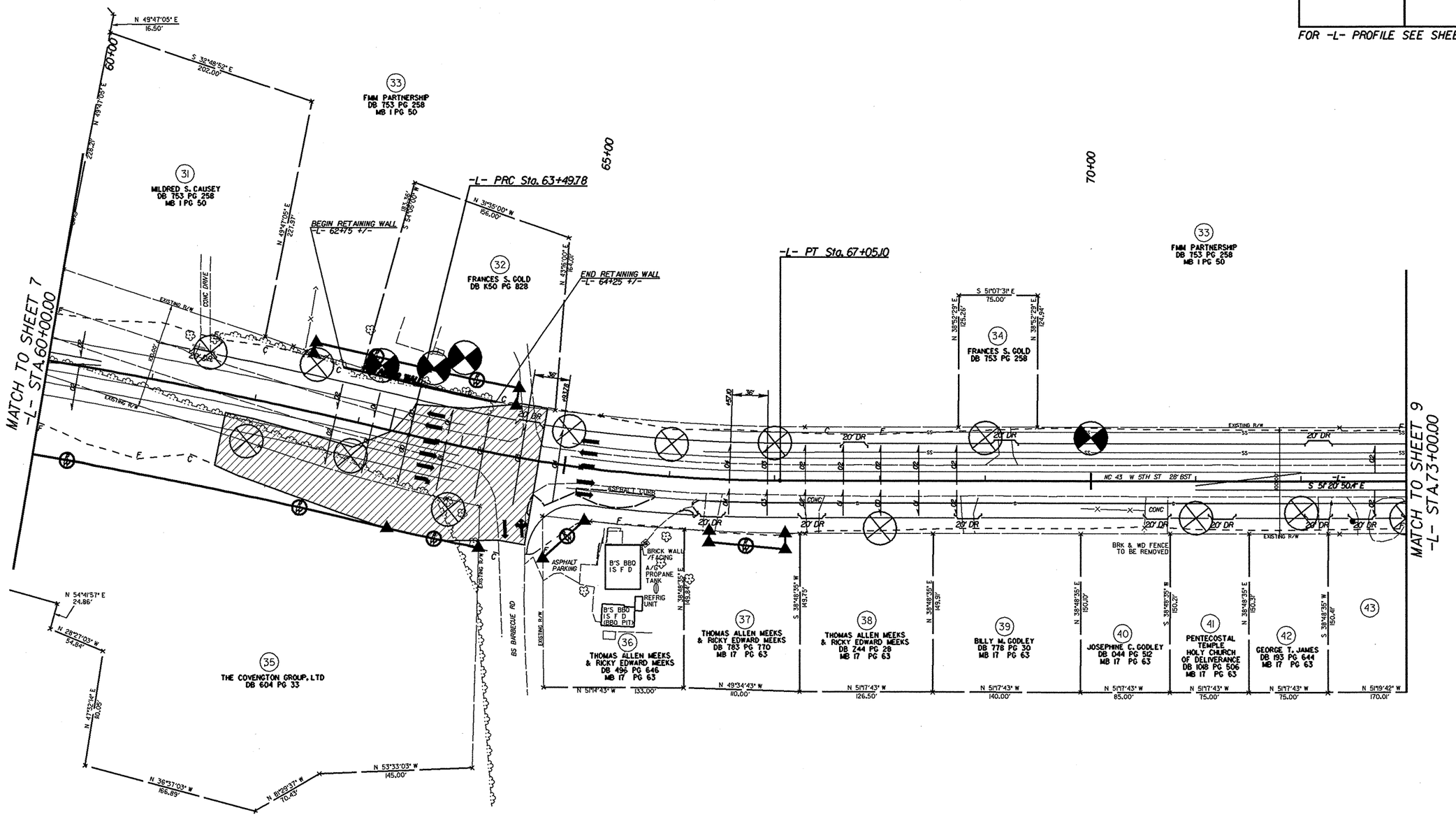
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

FOR -L- PROFILE SEE SHEET 17

5/28/99

REVISIONS



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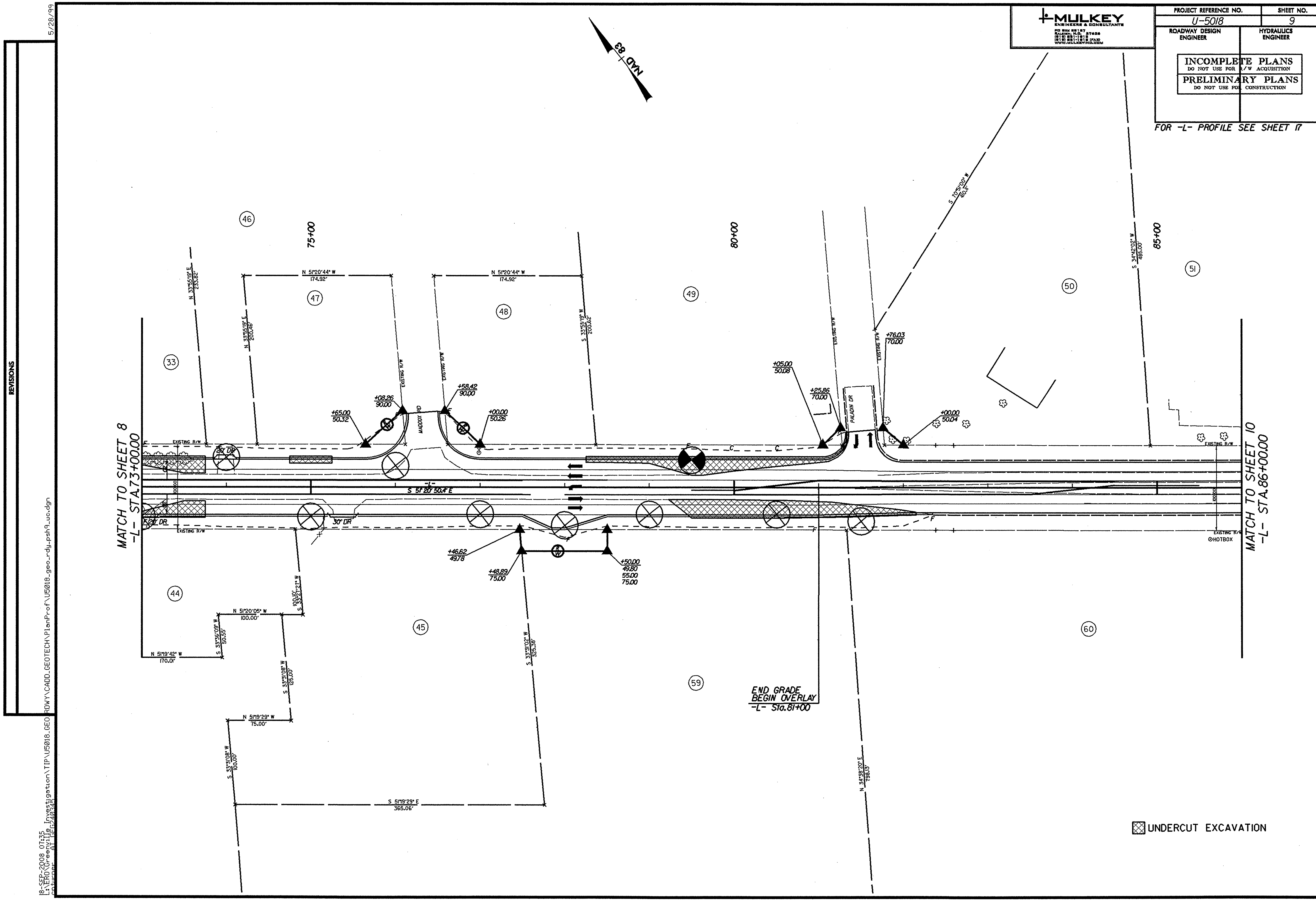


MULKEY
ENGINEERS & CONSULTANTS
PROJECT REFERENCE NO.
U-5018
SHEET NO.
9
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
FOR -L- PROFILE SEE SHEET 17
NAD 83
MATCH TO SHEET 8
-L- STA.73+00.00
MATCH TO SHEET 10
-L- STA.86+00.00
75+00
80+00
85+00
S 51°20'50.4" E
END GRADE
BEGIN OVERLAY
-L- Sta.81+00
MADDOX RD
PALADIN DR
EXISTING R/W
UNDERCUT EXCAVATION
REVISIONS
5/28/99

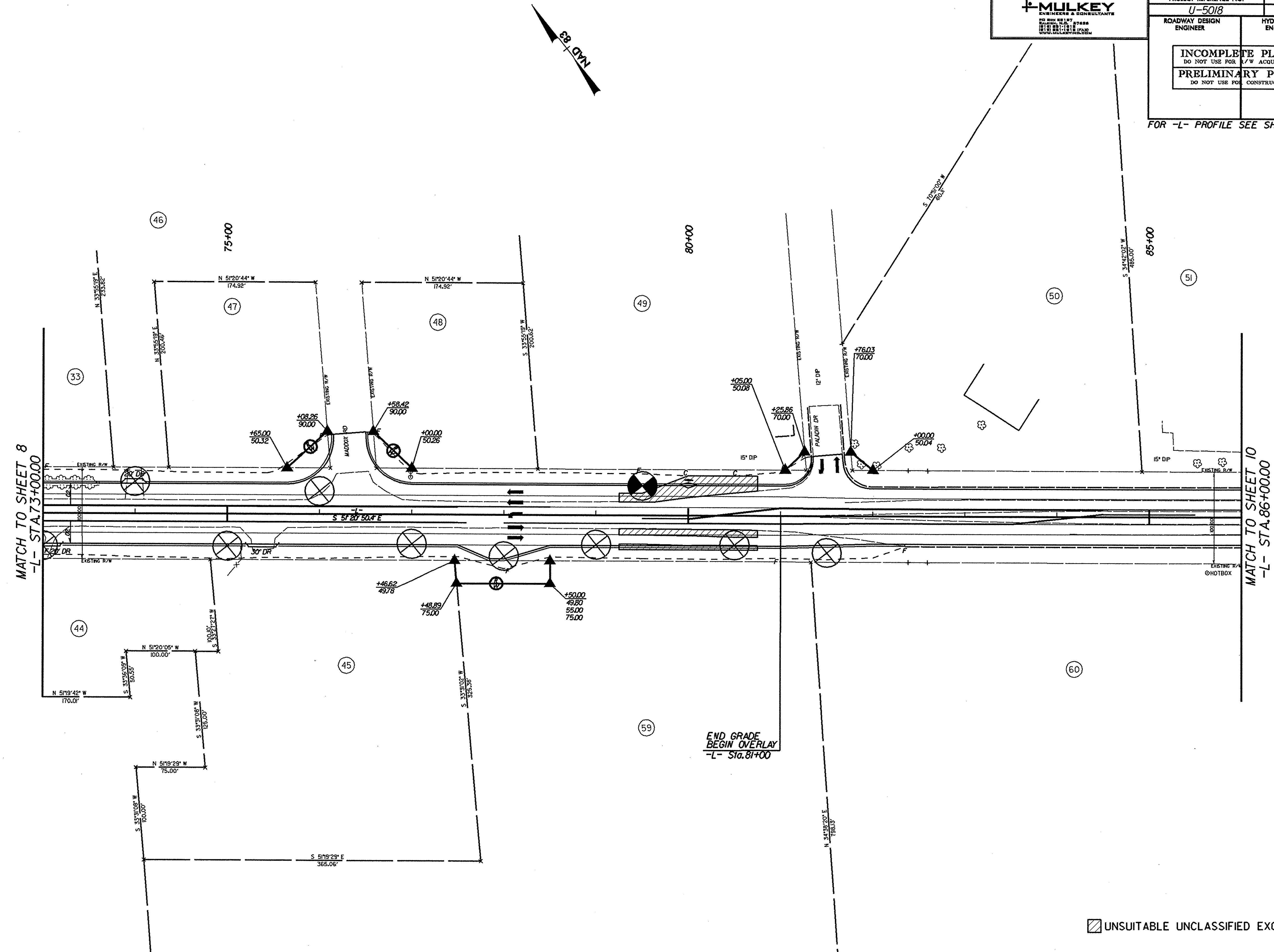
PROJECT REFERENCE NO.	SHEET NO.
U-5018	9A
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

MULKEY ENGINEERS & CONSULTANTS

INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION

FOR -L- PROFILE SEE SHEET 17



UNSUITABLE UNCLASSIFIED EXCAVATION

REVISIONS

5/28/99

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MULKEY
ENGINEERS & CONSULTANTS
PO Box 90187
Raleigh, NC 27675
(919) 851-1818
(919) 851-1819 (FAX)
www.mulkeyinc.com

PROJECT REFERENCE NO.	SHEET NO.
U-5018	10
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

FOR -L- PROFILE SEE SHEET 18

5/28/99

REVISIONS

-L-
PI Sta 94+97.36
Δ = 8°58'55.9" (LT)
D = 2°12'13.3"
L = 407.60'
T = 204.22'
R = 2,600.00'
SE = EXIST

NAD 83

N 51°55'32" W
449.91'

MATCH TO SHEET 9
-L- STA.86+00.00

90+00

95+00

-L- PC Sta. 92+93.14

-L- PT Sta. 97+00.74

MATCH TO SHEET 11
-L- STA.99+00.00

CITY LIMITS

(51) NSR COMPANY, LLC
DB 880 PG 555
MB 25 PG 121
MB 40 PG 56

(52) CARL H. TYNDALL
DB C50 PG 694
MB 51PG 42

(53) BRIGHTON PARK APARTMENTS, LLC
DB 1076 PG 708
MB 56 PG 101

(54) REGGIE SPAIN CONSTRUCTION, LLC
DB 1852 PG 599
MB 56 PG 101

(55) PHILIP E. CARROLL
DB 2249 PG 18
MB 61 PG 22

(56) PHILIP E. CARROLL
DB 2045 PG 591
MB 66 PG 61

(60) STATE OF NORTH CAROLINA
DB R36 PG 390
MB 51PG 42

(61) EAST CAROLINA CARE, II, LLC
DB 956 PG 71
MB 51PG 42

(62) STATE OF NORTH CAROLINA
DB 1417 PG 458
MB 58 PG 151A

(63) STATE OF NORTH CAROLINA
DB 1417 PG 458
MB 58 PG 151A

(63) STATE OF NORTH CAROLINA
DB 1417 PG 458
MB 58 PG 151A

+50.00 49.30 75.00
+50.00 49.3 75.00
WARP GUTTER TO DRAIN
15" DIP
18" RCP
EXISTING R/W
CB
DI
NDI
MH TOP=33.81 IN=27.24 IN=24.76 OUT=24.56
6" DIP
N 34°42'02" E 485.41'
MH TOP=33.79 OUT=27.02
S 34°52'59" W 142.77'
10' ELECTRIC EASEMENT
GRAVEL
EIP
RIP RAP
MH TOP=30.51 IN=24.65 OUT=24.55
3' UTILITY EASEMENT
10' NON-ACCESS EASEMENT
N 34°57'01" E 161.83'
ARLINGTON BLVD
S 61°18'45" E
MH TOP=28.79 IN=22.94 OUT=22.89
MH TOP=31.11 IN=23.49 OUT=23.47
NC 43 W 5TH ST 28' BST
S 5°20'30" E
GV
MH TOP=32.91 IN=24.51 IN=24.42 IN=24.41 OUT=24.41
MH TOP=31.86 OUT=24.71
INVERT NOT FOUND
MH TOP=32.44 IN=23.96 IN=24.26 OUT=23.93
(GPS-4) 93+92.18 PINC
(-L- 92+86.90 41.53' RT)
S 34°25'24" W 58.19'
N 34°32'00" E 635.39'
120.00'
R/W MON

18-SEP-2008 07:25
C:\Documents and Settings\jmcgee\Local Settings\Temporary Internet Files\OLKB\U5018.GEO_RDWY_CADD_GEOTECH_PlanProf_U5018_geo_rdy_psh10.dgn

PROJECT REFERENCE NO.	SHEET NO.
U-5018	11

MULKEY ENGINEERS & CONSULTANTS

ROADWAY DESIGN ENGINEER

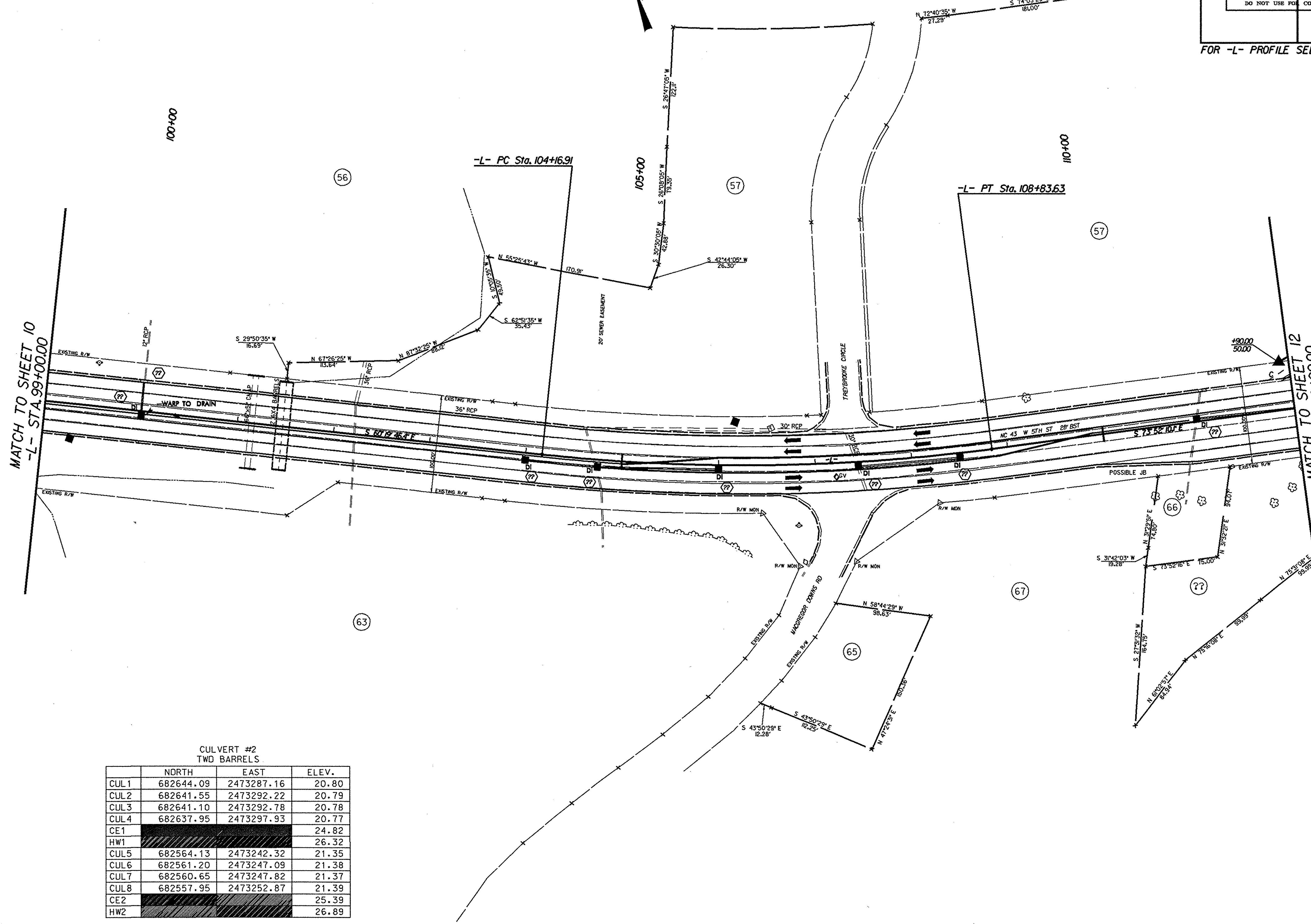
HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

FOR -L- PROFILE SEE SHEET 18

-L-
PI Sta 106+51.36
Δ = 13° 32' 23.7" (LT)
D = 2° 54' 03.8"
L = 466.72'
T = 234.45'
R = 1,975.00'
SE = EXIST



CULVERT #2
TWO BARRELS

	NORTH	EAST	ELEV.
CUL1	682644.09	2473287.16	20.80
CUL2	682641.55	2473292.22	20.79
CUL3	682641.10	2473292.78	20.78
CUL4	682637.95	2473297.93	20.77
CE1			24.82
HW1			26.32
CUL5	682564.13	2473242.32	21.35
CUL6	682561.20	2473247.09	21.38
CUL7	682560.65	2473247.82	21.37
CUL8	682557.95	2473252.87	21.39
CE2			25.39
HW2			26.89

REVISIONS

5/28/99

8-SEP-2008 07:25
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PROJECT REFERENCE NO.	SHEET NO.
U-5018	12
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

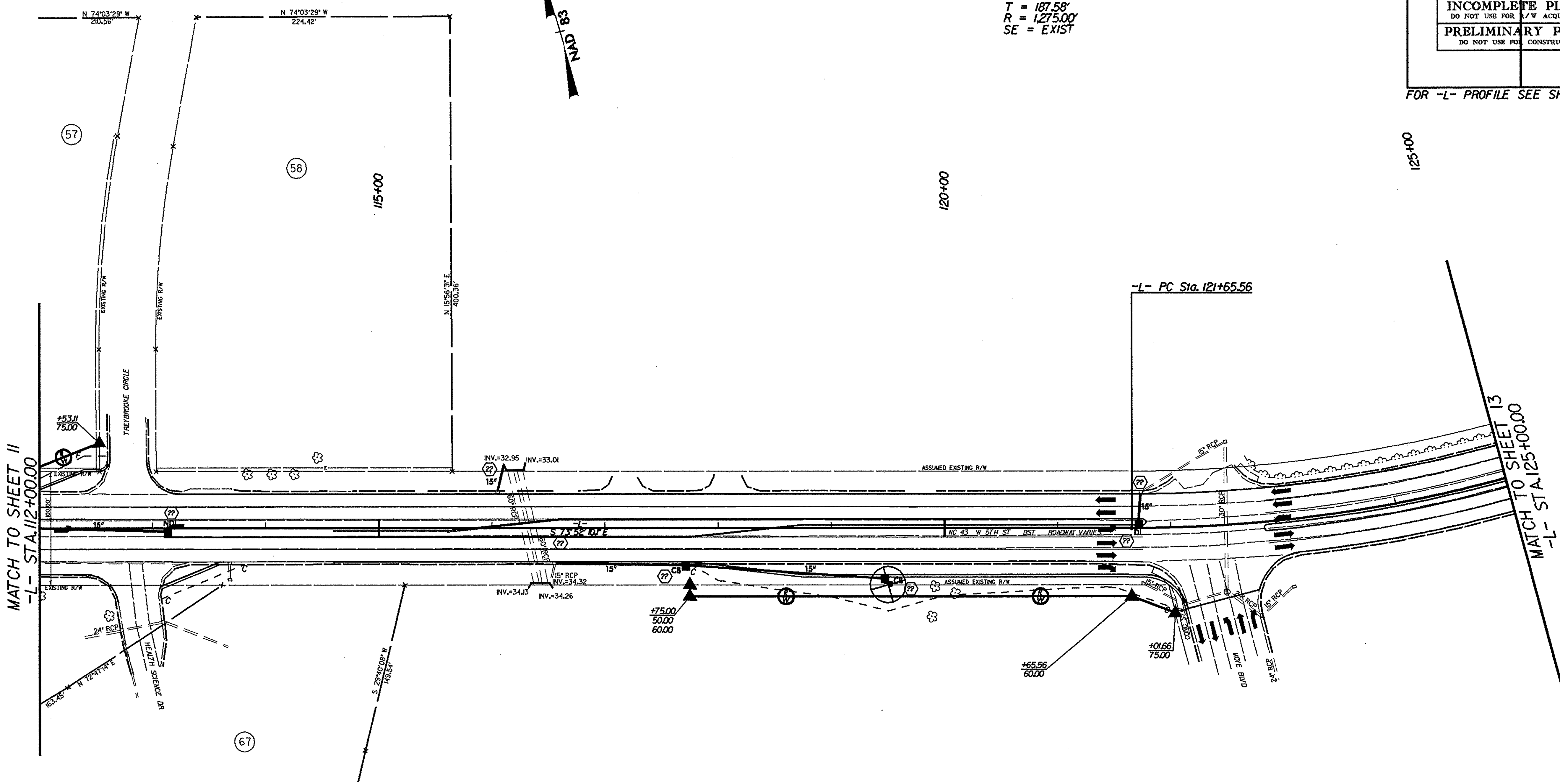
MULKEY ENGINEERS & CONSULTANTS

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

FOR -L- PROFILE SEE SHEET 19

-L-
PI Sta 123+53.14
Δ = 16° 44' 19.7" (LT)
D = 4° 29' 37.6"
L = 372.49'
T = 187.58'
R = 1,275.00'
SE = EXIST



NAD 83
N 74°03'29" W 210.56'
N 74°03'29" W 224.42'
N 15°56'31" E 400.36'
57
58
67
115+00
120+00
125+00
EXISTING R/W
TREYBROOKE CIRCLE
-L- PC Sta. 121+65.56
ASSUMED EXISTING R/W
INV.=32.95
INV.=33.01
INV.=34.13
INV.=34.32
INV.=34.26
15" RCP
24" RCP
-L- S 73°52'10.0" E
NC 43 W 5TH ST BST ROADWAY VARIES
+53.11 75.00
+75.00 50.00 60.00
+65.56 60.00
+01.66 75.00
HEALTH SCIENCE DR
S 29°40'08" W 149.54'
N 12°47'14" E 163.45'
MATCH TO SHEET 11 -L- STA.112+00.00
MATCH TO SHEET 13 -L- STA.125+00.00

REVISIONS

5/28/99

18-SEP-2008 07:25
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MULKEY ENGINEERS & CONSULTANTS

PROJECT REFERENCE NO.	SHEET NO.
U-5018	13

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

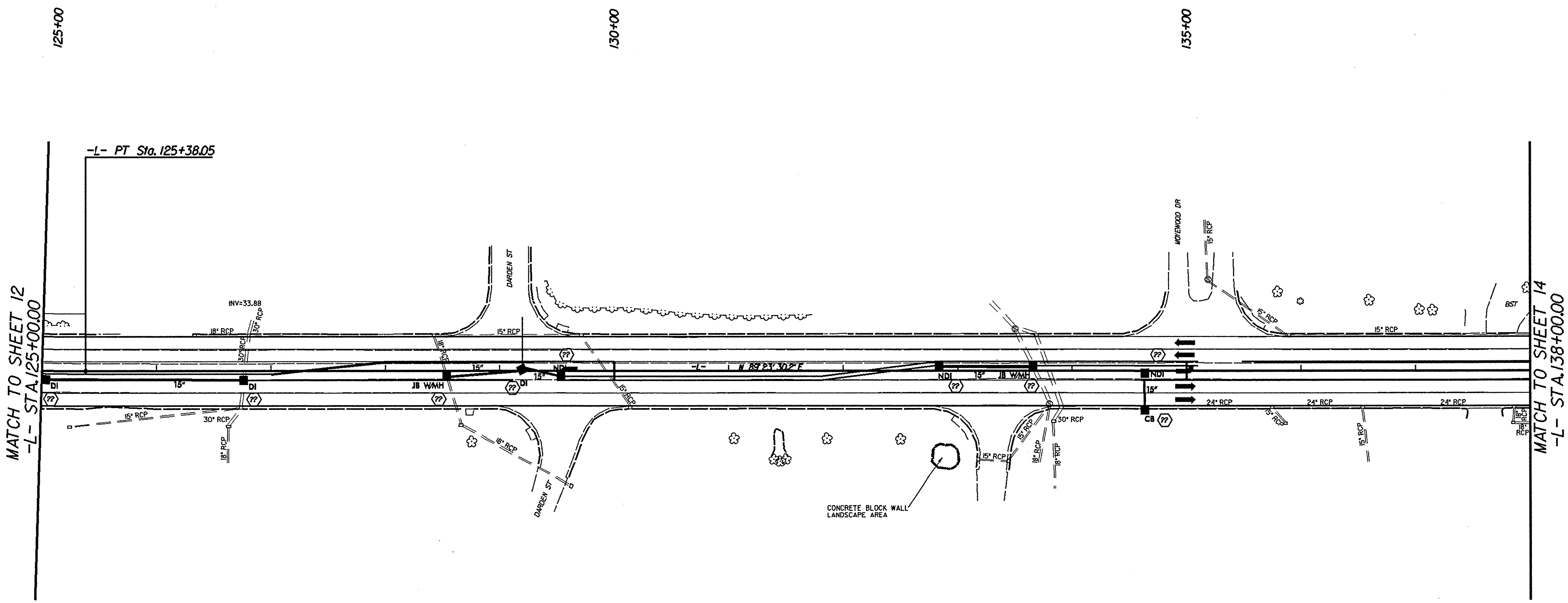
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

FOR -L- PROFILE SEE SHEET 19

-L-
PI Sta 123+53.14
Δ = 16° 44' 19.7" (LT)
D = 4° 29' 37.6"
L = 372.49'
T = 187.58'
R = 1,275.00'
SE = EXIST

NAD 83



REVISIONS

5/28/99

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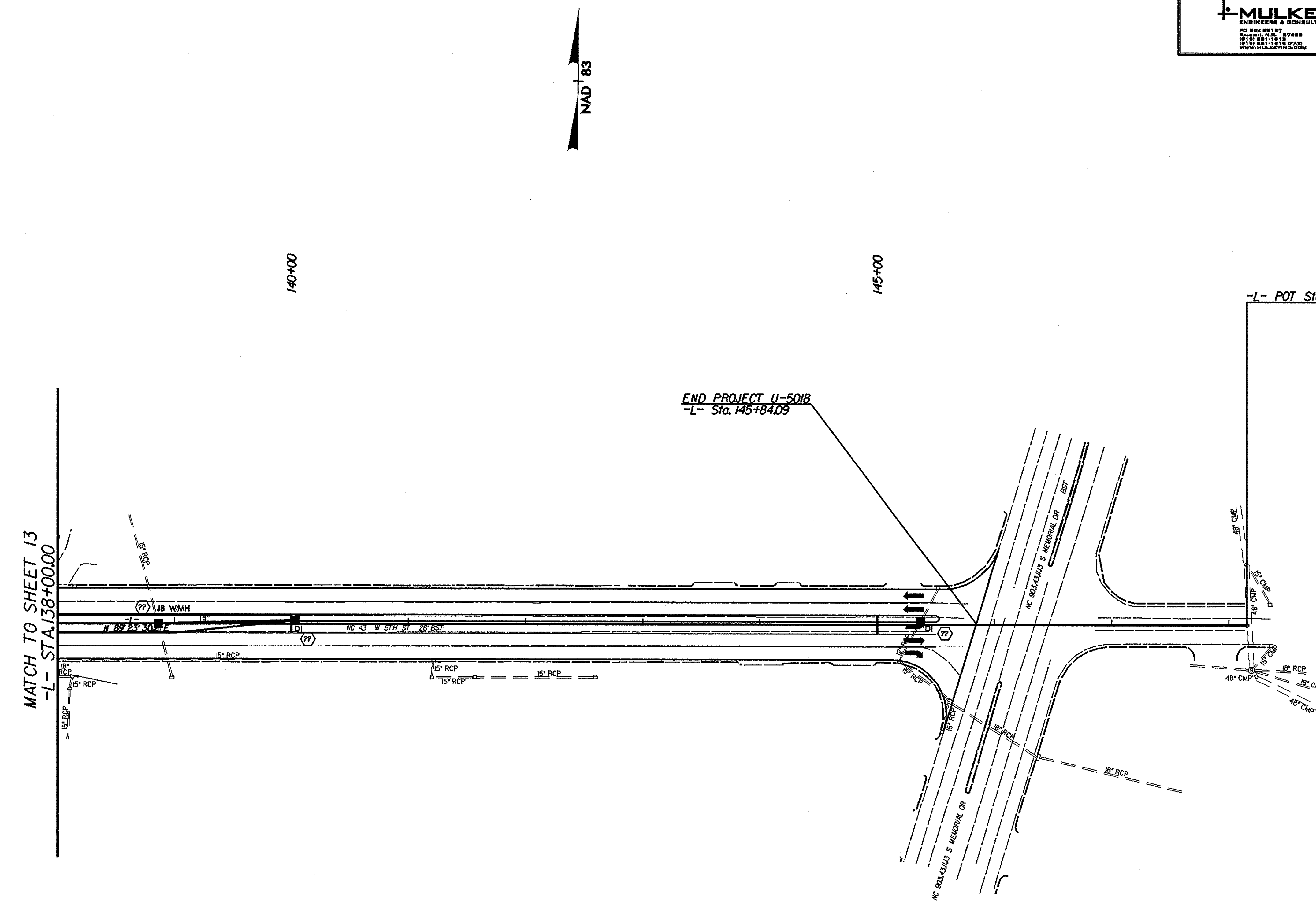
MULKEY ENGINEERS & CONSULTANTS

PROJECT REFERENCE NO.	SHEET NO.
U-5018	14
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

FOR -L- PROFILE SEE SHEET 20



REVISIONS

5/28/99

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PROJECT REFERENCE NO.	SHEET NO.
U-5018	15

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

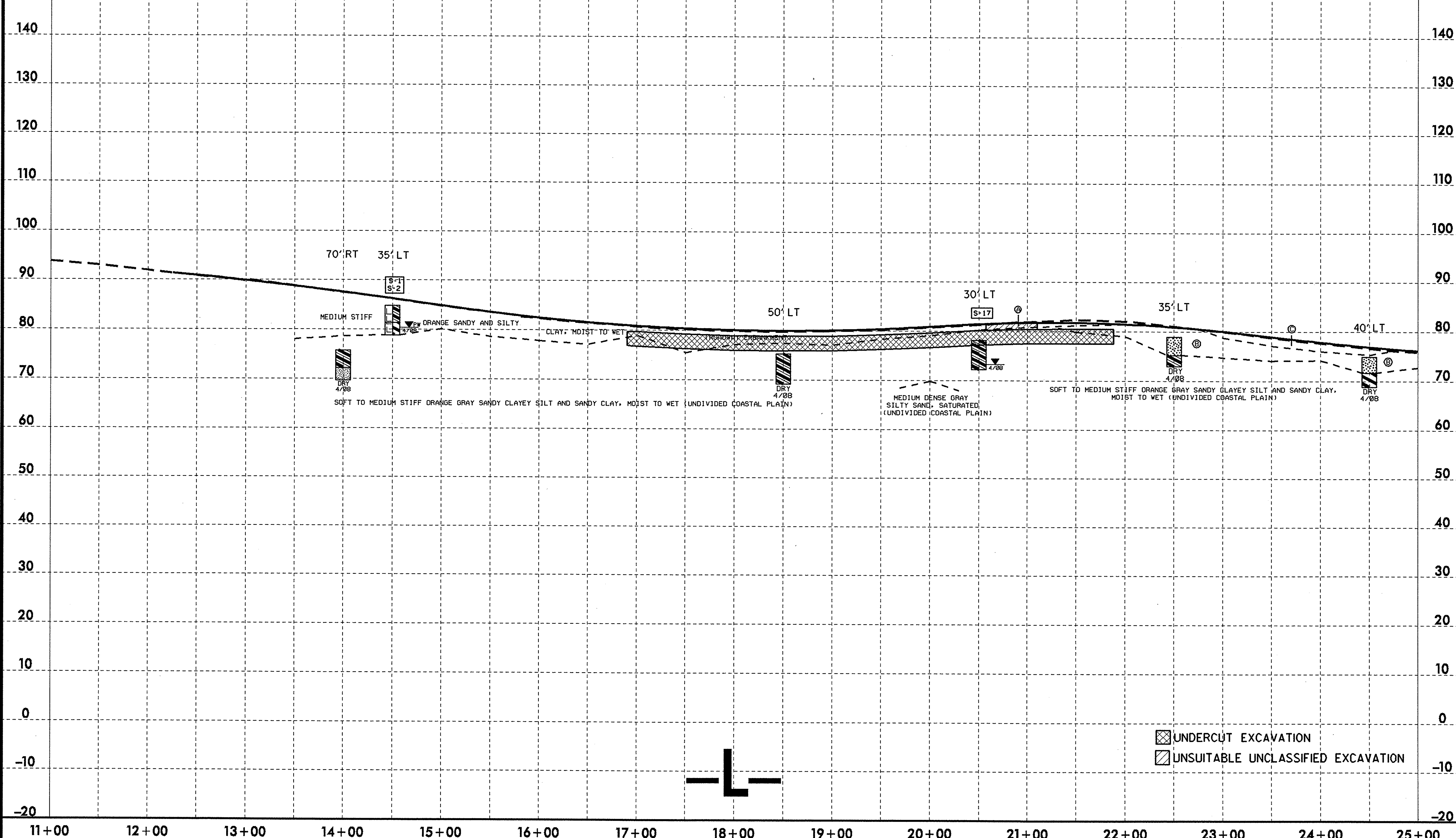
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-1	35 LT	14+50	1.00-3.50	A-6(1)	30	12	5.1	58.1	6.1	30.7	100	98	39	18.2	-
S-2	35 LT	14+50	3.50-6.00	A-7-6(34)	64	43	7.2	19.0	24.7	49.1	100	96	77	[illegible]	-
S-17	30 LT	20+50	1.00-4.80	A-6(1)	31	11	4.9	59.5	4.9	30.7	100	98	38	-	-

Ⓐ MEDIUM STIFF ORANGE SANDY AND SILTY CLAY, MOIST (ROADWAY EMBANKMENT)
Ⓑ LOOSE BROWN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)
Ⓒ LOOSE BROWN SILTY SAND, MOIST (ROADWAY EMBANKMENT)



70' RT
35' LT
S-1
S-2
MEDIUM STIFF ORANGE SANDY AND SILTY CLAY, MOIST TO WET
PW
4/08
(ROADWAY EMBANKMENT)
50' LT
30' LT
S-17
35' LT
40' LT
DRY 4/08
SOFT TO MEDIUM STIFF ORANGE GRAY SANDY CLAYEY SILT AND SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)
MEDIUM DENSE GRAY SILTY SAND, SATURATED (UNDIVIDED COASTAL PLAIN)
SOFT TO MEDIUM STIFF ORANGE GRAY SANDY CLAYEY SILT AND SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)
UNDERCUT EXCAVATION
UNSUITABLE UNCLASSIFIED EXCAVATION
-L-
11+00
12+00
13+00
14+00
15+00
16+00
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25+00

PROJECT REFERENCE NO.	SHEET NO.
U-5018	16

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

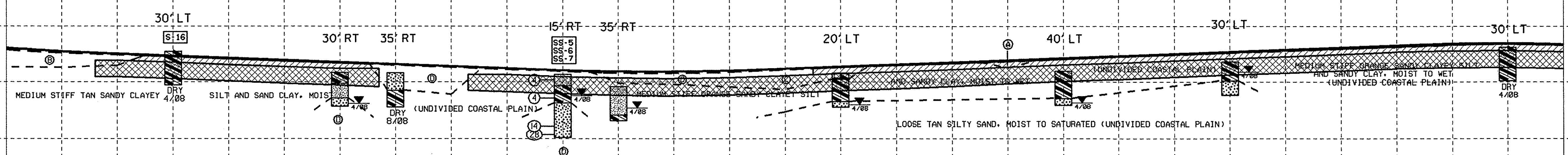
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-5	15' RT	30+00	1.00-1.50	A-4(0)	19	5	3.8	54.8	21.1	20.2	100	99	46	-	-
SS-6	15' RT	30+00	3.10-4.60	A-6(5)	33	20	6.3	50.6	12.8	30.3	100	99	46	21.4	-
SS-7	15' RT	30+00	8.10-9.60	A-2-4(0)	23	5	23.1	56.6	2.1	18.2	100	97	22	-	-
S-16	30' LT	26+50	1.00-6.00	A-6(2)	33	17	12.3	51.5	7.6	28.6	100	97	39	-	-

(A) MEDIUM STIFF ORANGE SANDY CLAY, MOIST (ROADWAY EMBANKMENT)
(B) LOOSE BROWN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)
(C) MEDIUM STIFF TAN CLAYEY SANDY SILT, MOIST (ROADWAY EMBANKMENT)
(D) LOOSE TO MEDIUM DENSE TAN SILTY SAND, MOIST TO SATURATED (UNDIVIDED COASTAL PLAIN)



160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 -10 -20 -30

25+00 26+00 27+00 28+00 29+00 30+00 31+00 32+00 33+00 34+00 35+00 36+00 37+00 38+00 39+00

UNDERCUT EXCAVATION

UNSUITABLE UNCLASSIFIED EXCAVATION

-L-

5/14/99

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5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-5018	17
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

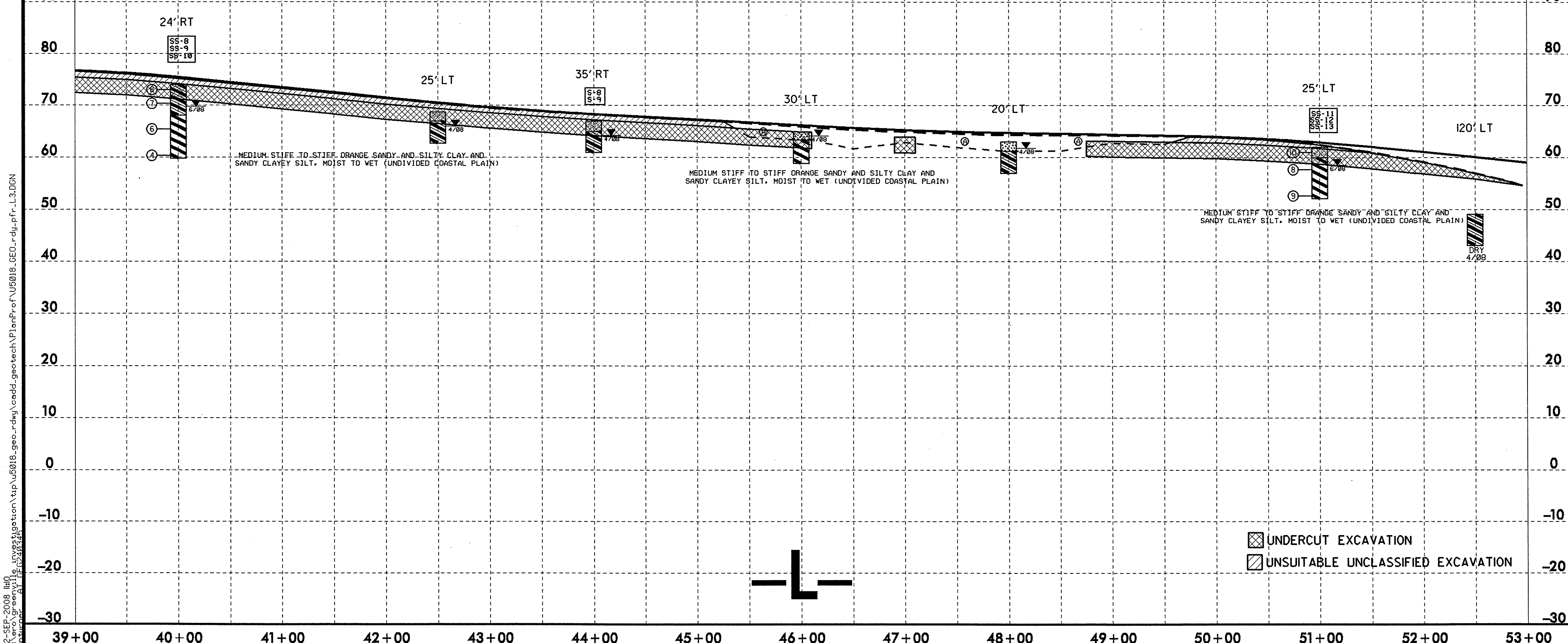
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-8	24' RT	40+00	1.00-1.50	A-6(1)	29	14	2.4	64.9	10.4	22.2	100	99	36	-	-
SS-9	24' RT	40+00	2.70-4.20	A-6(3)	35	18	0.4	61.1	8.2	30.3	100	100	40	26.5	-
SS-10	24' RT	40+00	7.70-9.20	A-7-6(67)	87	60	1.0	5.1	23.2	70.8	100	100	96	-	-
SS-11	25' LT	51+00	1.00-1.50	A-4(0)	22	7	4.3	59.3	16.1	20.3	100	99	42	-	-
SS-12	25' LT	51+00	3.30-4.80	A-7-6(54)	76	48	0.2	5.7	27.1	67.0	100	100	96	-	-
SS-13	25' LT	51+00	8.30-9.80	A-7-6(22)	49	27	3.9	17.3	24.1	54.8	100	99	81	-	-
S-8	35' RT	44+00	1.00-2.00	A-4(0)	20	5	1.6	55.0	18.8	24.5	100	100	48	-	-
S-9	35' RT	44+00	2.00-4.50	A-6(4)	38	20	2.9	58.5	8.0	30.7	100	100	42	-	-

Ⓐ LOOSE TAN SILTY SAND, MOIST TO SATURATED (UNDIVIDED COASTAL PLAIN)



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coturner AT GEG240345

PROJECT REFERENCE NO.	SHEET NO.
U-5018	18

ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER

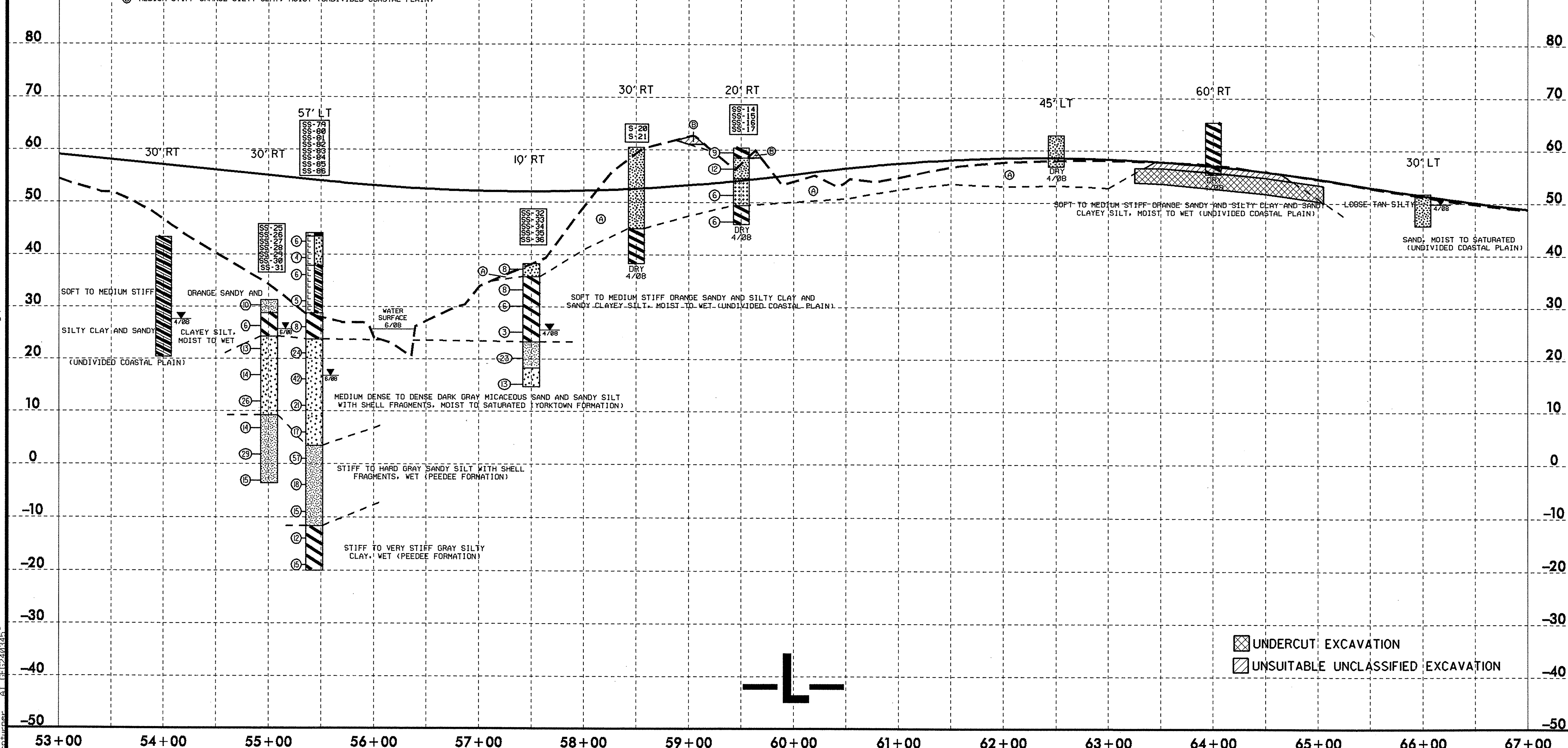
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-14	20 RT	59+50	1.00-1.50	A-7-6(23)	54	26	3.0	18.9	19.2	58.9	100	99	81	-	-
SS-15	20 RT	59+50	3.10-4.60	A-2-4(0)	18	NP	18.1	63.6	4.2	14.2	100	96	19	-	-
SS-16	20 RT	59+50	8.10-9.60	A-3(0)	18	NP	19.3	71.0	1.6	8.1	100	98	10	-	-
SS-17	20 RT	59+50	13.10-14.60	A-7-6(28)	59	31	0.8	20.3	22.0	56.9	100	100	82	-	-
SS-25	30' RT	55+00	1.00-1.50	A-4(0)	23	5	4.4	54.2	19.1	22.2	100	99	46	-	-
SS-26	30' RT	55+00	4.00-5.50	A-7-6(32)	60	34	2.2	15.0	28.2	54.6	100	98	86	-	-
SS-27	30' RT	55+00	8.40-9.90	A-2-4(0)	18	4	50.6	24.2	16.2	9.1	98	78	26	-	-
SS-28	30' RT	55+00	13.40-14.90	A-2-4(0)	18	NP	65.0	23.5	4.4	7.1	94	61	12	-	-
SS-29	30' RT	55+00	18.40-19.90	A-2-4(0)	27	4	0.4	72.0	15.5	12.1	100	100	35	-	-
SS-30	30' RT	55+00	23.40-24.90	A-4(2)	31	7	2.6	64.5	14.7	18.2	100	98	52	34	-
SS-31	30' RT	55+00	28.40-29.90	A-4(1)	29	5	0.2	70.2	17.5	12.1	100	100	59	-	-
SS-79	57' LT	55+43	1.00-2.00	A-2-4(0)	18	2	6.9	63.5	11.2	18.3	98	95	93	-	-
SS-80	57' LT	55+43	7.10-8.60	A-6(4)	35	18	7.7	51.9	9.8	30.5	100	98	43	-	-
SS-81	57' LT	55+43	17.10-18.60	A-7-6(23)	53	26	3.5	18.5	21.0	57.0	100	98	81	-	-
SS-82	57' LT	55+43	22.10-23.60	A-2-4(0)	25	8	52.7	28.5	4.5	14.3	77	52	16	-	-
SS-83	57' LT	55+43	32.10-33.60	A-2-4(0)	29	3	1.8	75.2	6.7	16.3	99	98	33	-	-
SS-84	57' LT	55+43	42.10-43.60	A-4(0)	26	NP	0.8	82.6	10.5	6.1	98	97	37	-	-
SS-85	57' LT	55+43	47.10-48.60	A-4(4)	33	6	1.4	60.7	17.5	20.4	100	99	70	-	-
SS-86	57' LT	55+43	57.10-58.60	A-7-6(17)	43	25	2.6	45.2	17.5	34.6	100	99	73	-	-
SS-32	10' RT	57+50	1.00-1.50	A-2-4(0)	18	NP	12.9	62.7	16.3	8.1	100	98	27	-	-
SS-33	10' RT	57+50	4.00-5.50	A-7-6(36)	65	42	1.4	20.4	23.6	54.6	100	99	81	30	-
SS-34	10' RT	57+50	12.10-13.60	A-7-6(23)	50	29	8.9	15.4	35.3	40.4	100	96	78	-	-
SS-35	10' RT	57+50	17.10-18.60	A-4(0)	16	2	46.3	24.0	20.6	9.1	98	82	60	-	-
SS-36	10' RT	57+50	22.10-23.60	A-2-4(0)	21	NP	57.9	26.5	6.5	9.1	90	61	16	-	-
S-20	30 RT	58+50	1.00-15.50	A-2-4(0)	21	NP	21.2	61.7	2.9	14.3	100	97	18	-	-
S-21	30 RT	58+50	15.50-22.20	A-7-6(22)	54	26	1.4	23.3	20.0	55.2	100	100	78	34.3	-

(A) LOOSE TO MEDIUM DENSE TAN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)
(B) MEDIUM STIFF ORANGE SILTY CLAY, MOIST (UNDIVIDED COASTAL PLAIN)



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PROJECT REFERENCE NO.	SHEET NO.
U-5018	19

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

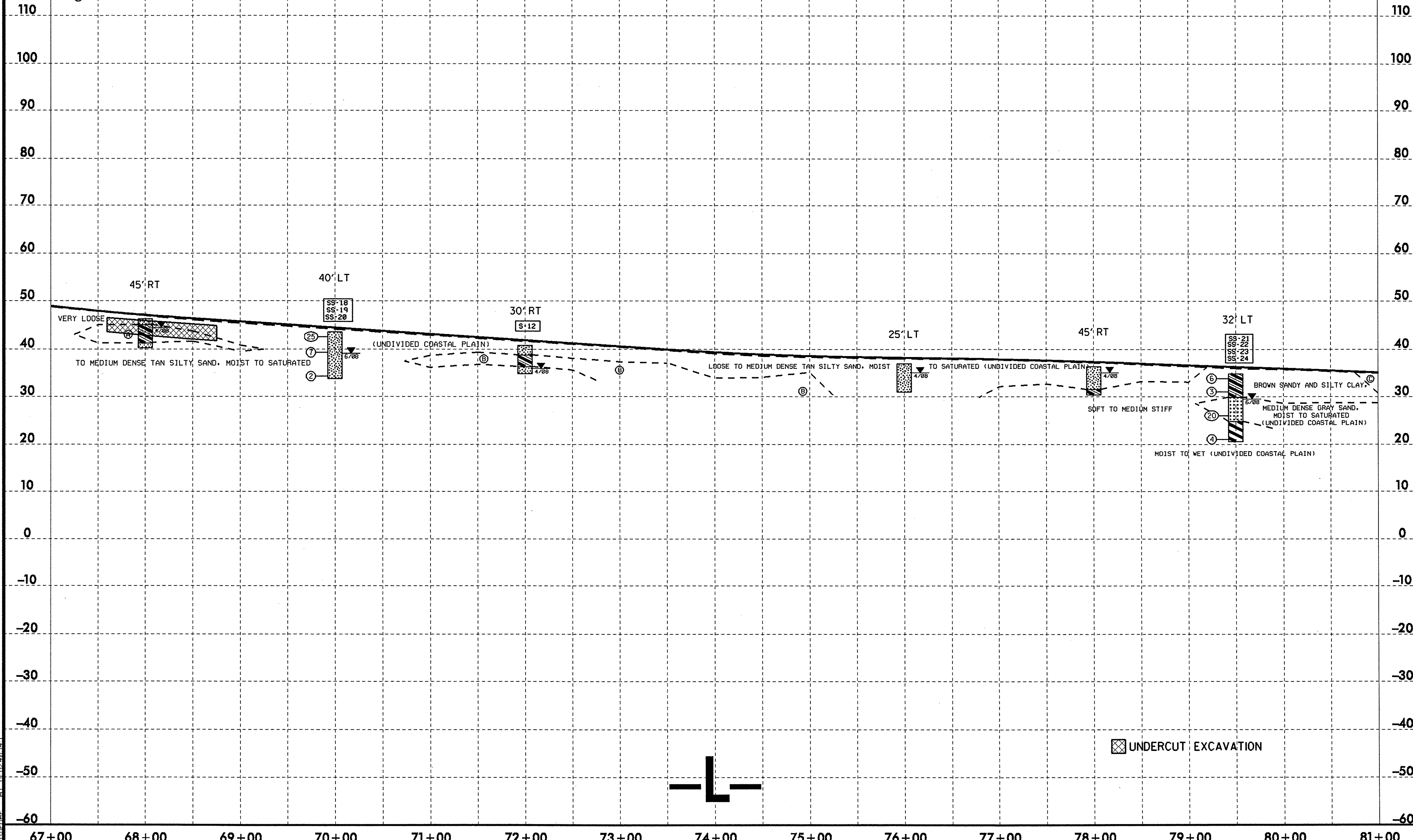
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION

SOIL TEST RESULTS

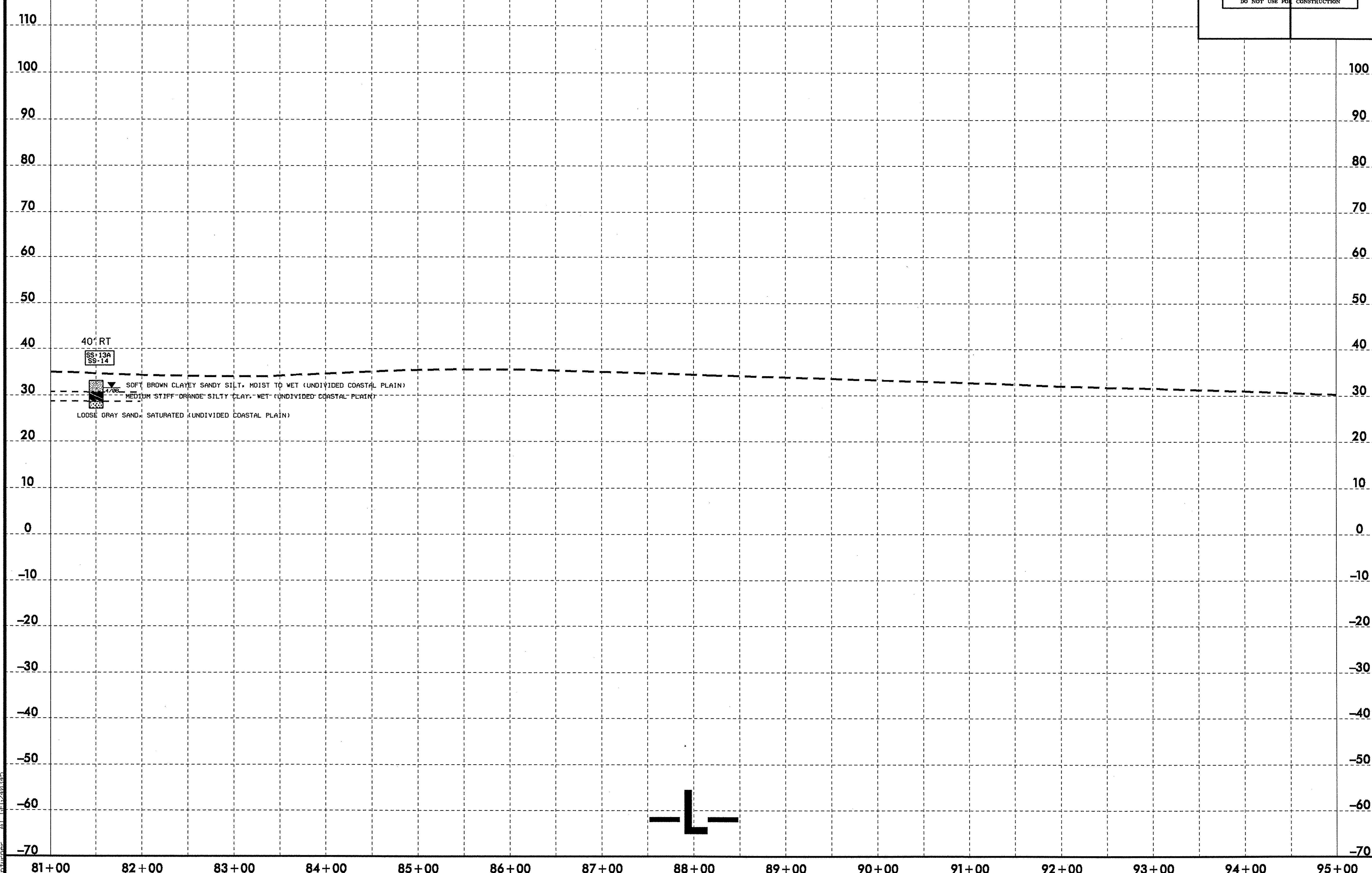
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-12	30 RT	72+00	2.00-4.50	A-6(2)	24	11	2.7	55.8	10.8	30.7	100	100	45	21.1	-
SS-18	40 LT	70+00	1.00-1.50	A-2-4(0)	20	21	2.8	71.9	7.0	18.3	100	100	28	-	-
~~SS-19~~	~~40 LT~~	~~70+00~~	~~3.30-4.80~~	~~A-2-4(0)~~	~~20~~	~~NP~~	~~2.5~~	~~81.8~~	~~3.5~~	~~12.2~~	~~100~~	~~100~~	~~17~~	-	-
SS-20	40 LT	70+00	8.30-9.80	A-2-4(0)	21	NP	1.3	73.4	6.0	19.3	100	100	29	-	-
SS-21	32 LT	79+50	1.00-1.50	A-6(5)	31	14	2.4	47.9	17.2	32.5	100	100	54	14.8	-
SS-22	32 LT	79+50	2.80-4.30	A-6(4)	28	18	2.6	47.9	19.0	30.5	100	100	55	-	-
SS-23	32 LT	79+50	7.80-9.30	A-3(0)	16	NP	46.2	49.5	2.2	2.0	100	80	6	-	-
SS-24	32 LT	79+50	12.80-14.30	A-7-6(14)	42	15	1.0	21.7	36.6	40.6	100	99	85	-	-

(A) MEDIUM STIFF TAN SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)
(B) MEDIUM STIFF TAN SANDY CLAY, MOIST (UNDIVIDED COASTAL PLAIN)
(C) SOFT BROWN CLAYEY SANDY SILT, MOIST TO WET (UNDIVIDED COASTAL PLAIN)



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-13A	40' RT	81+50	1.00-2.50	A-4(0)	18	3	3.9	44.8	30.9	20.4	100	99	59	-	-
S-14	40' RT	81+50	2.50-4.50	A-7-6(20)	44	28	1.8	25.4	23.7	49.1	99	98	76	-	-

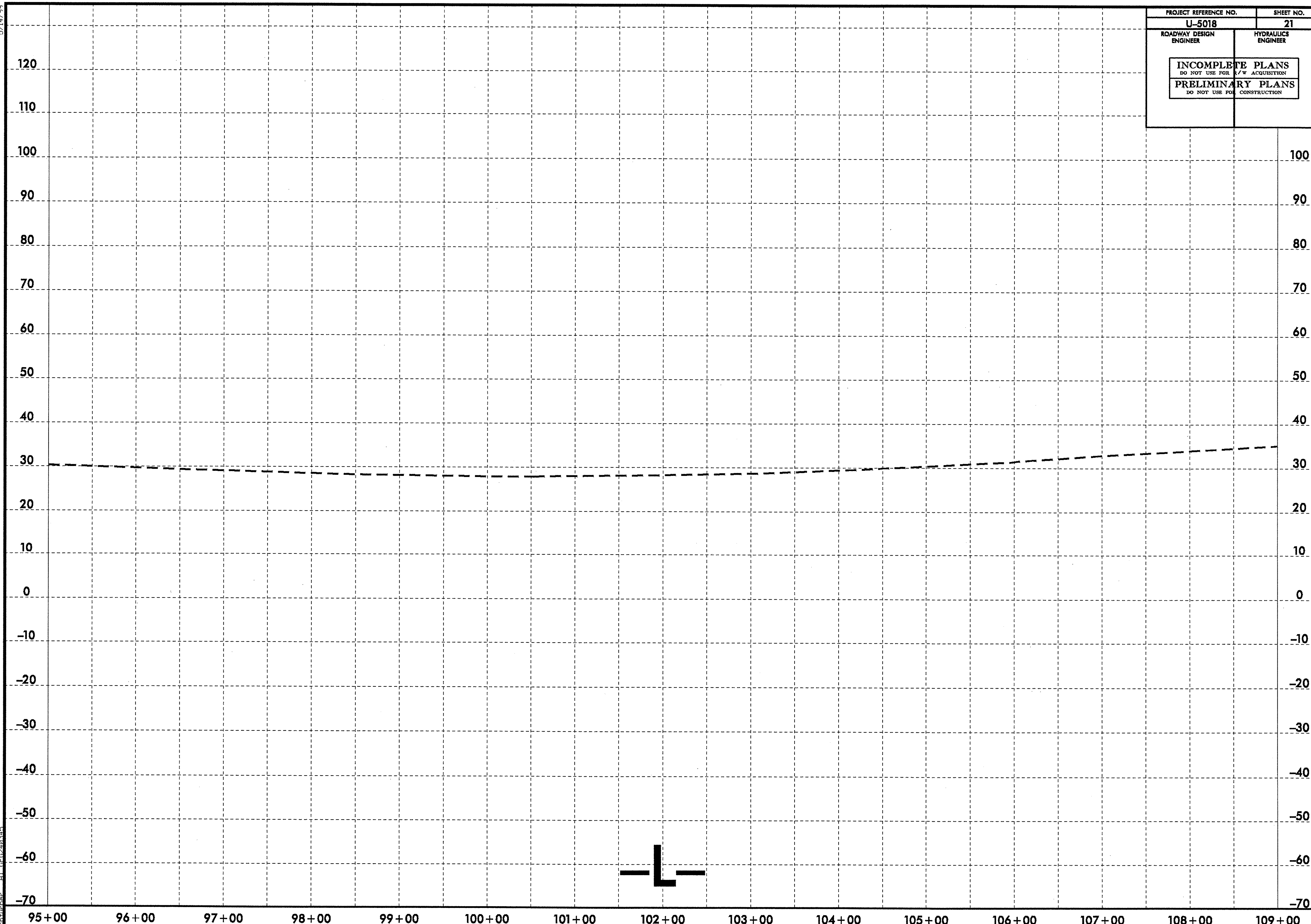


PROJECT REFERENCE NO.	SHEET NO.
U-5018	21

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



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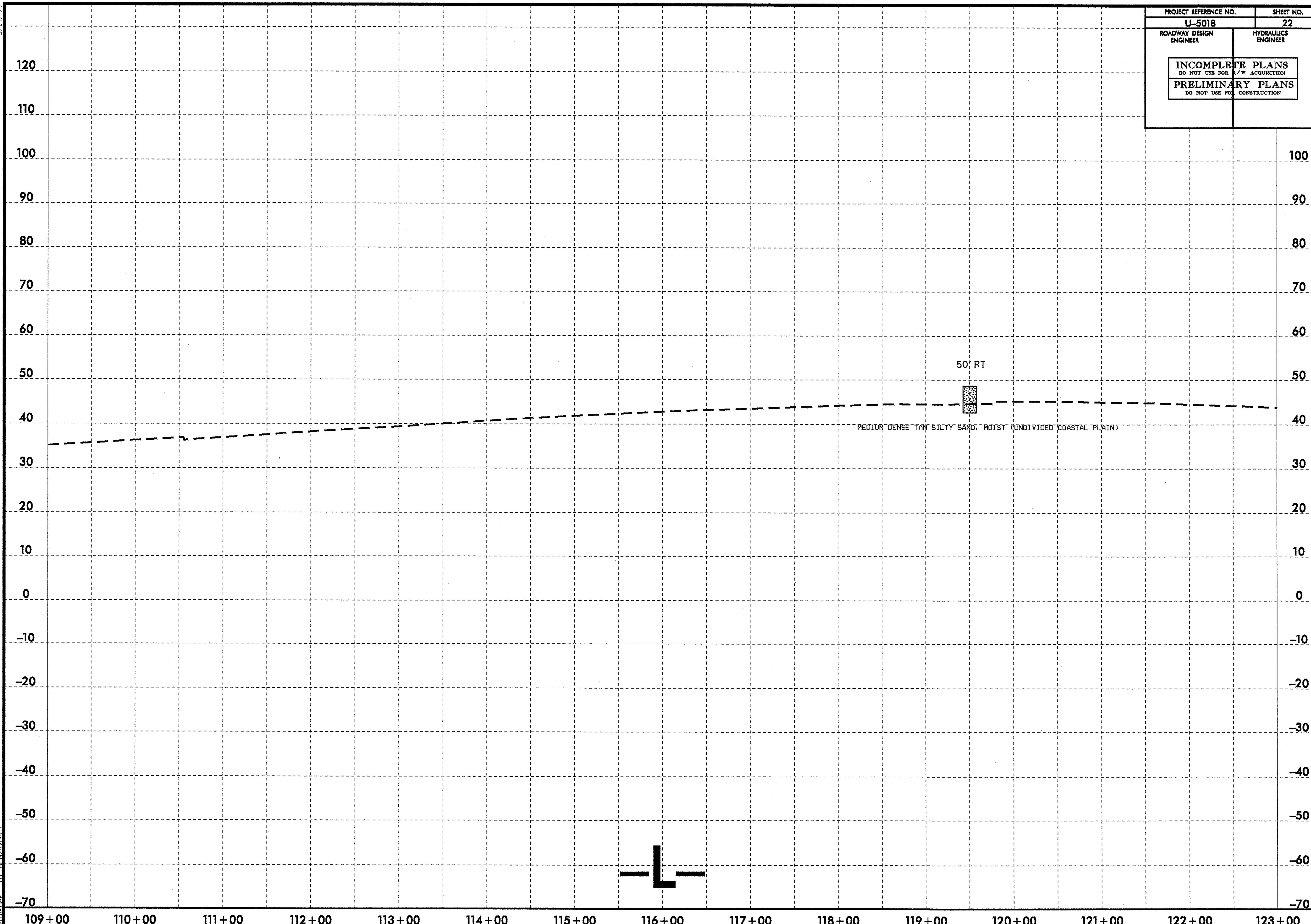
PROJECT REFERENCE NO.	SHEET NO.
U-5018	22

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



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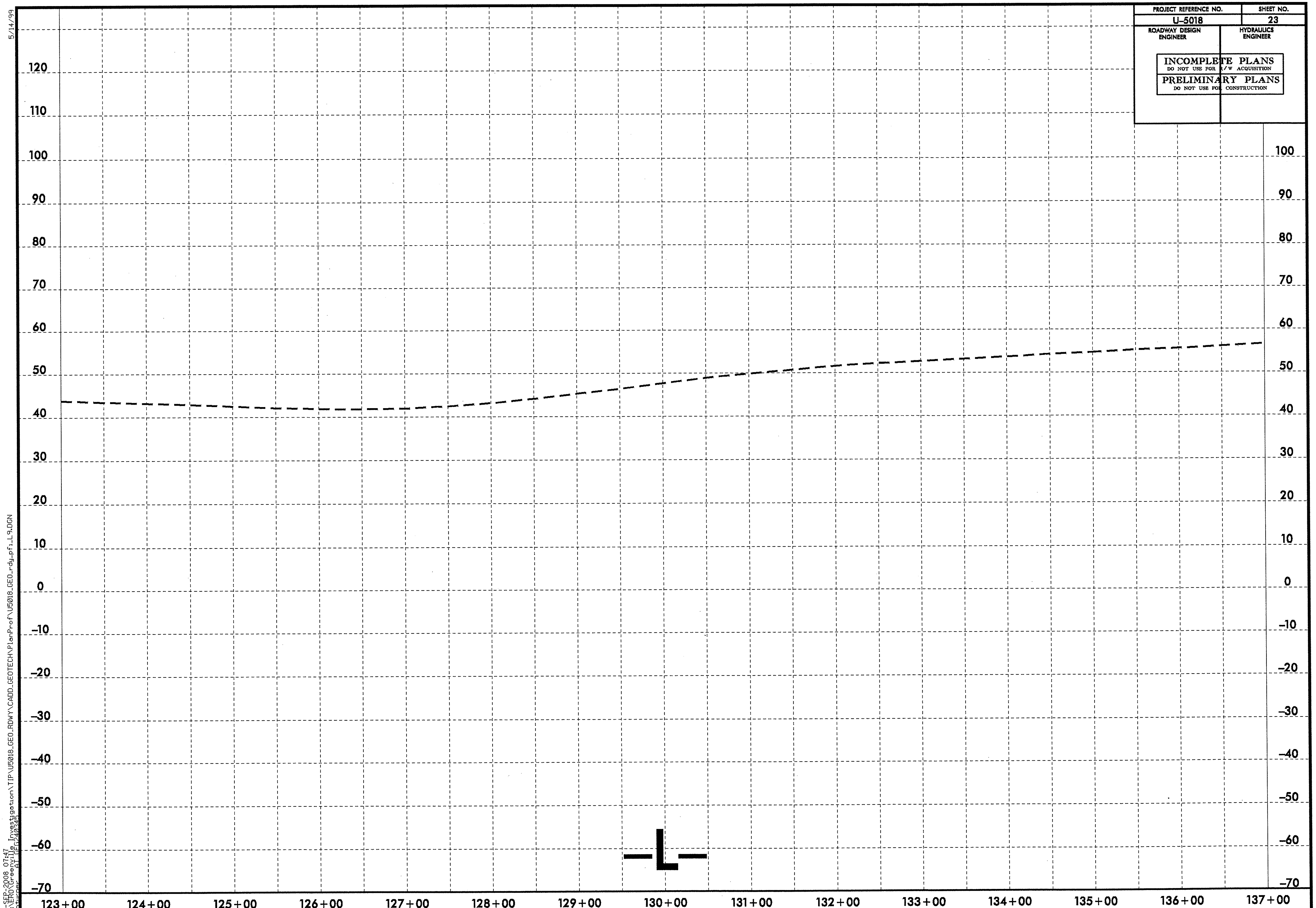
PROJECT REFERENCE NO.	SHEET NO.
U-5018	23
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



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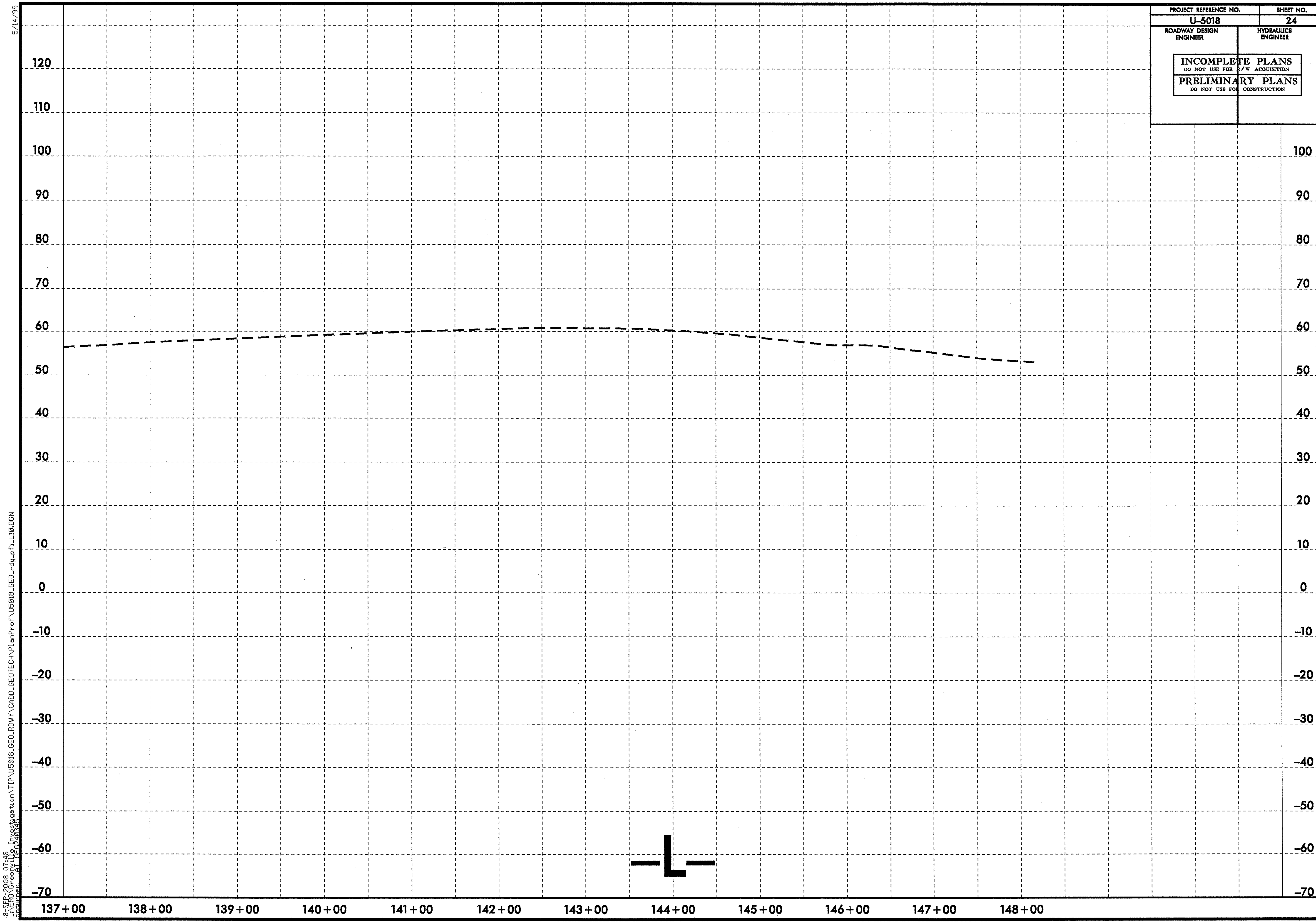
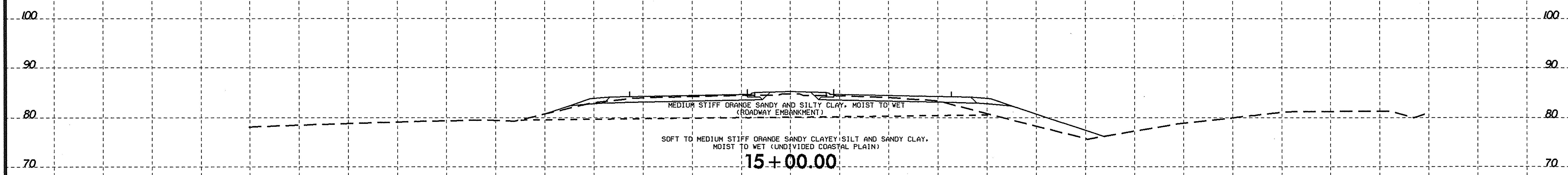
PROJECT REFERENCE NO.	SHEET NO.
U-5018	24
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

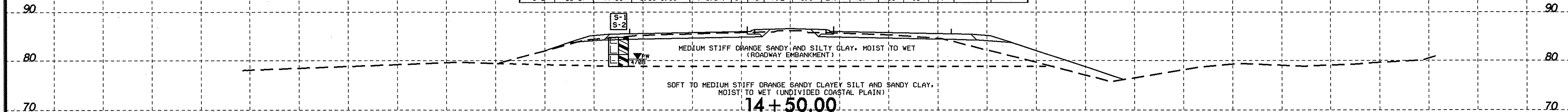
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

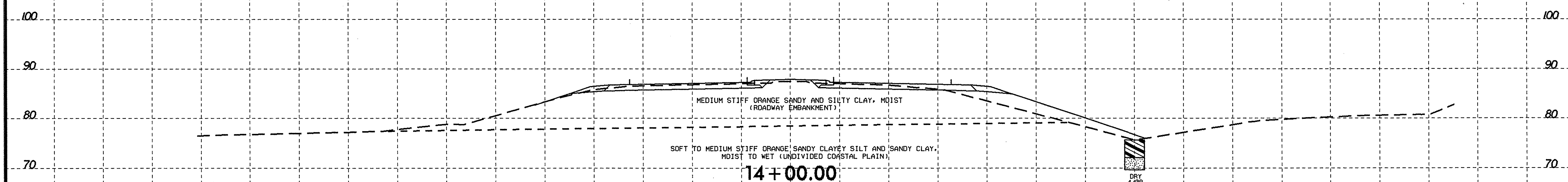


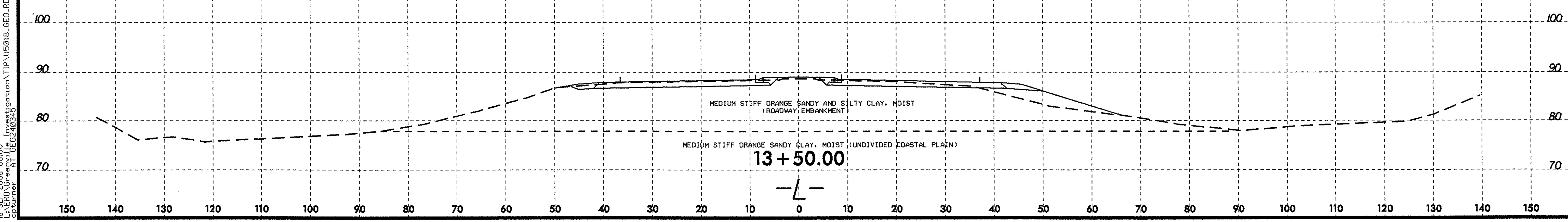


SOIL TEST RESULTS

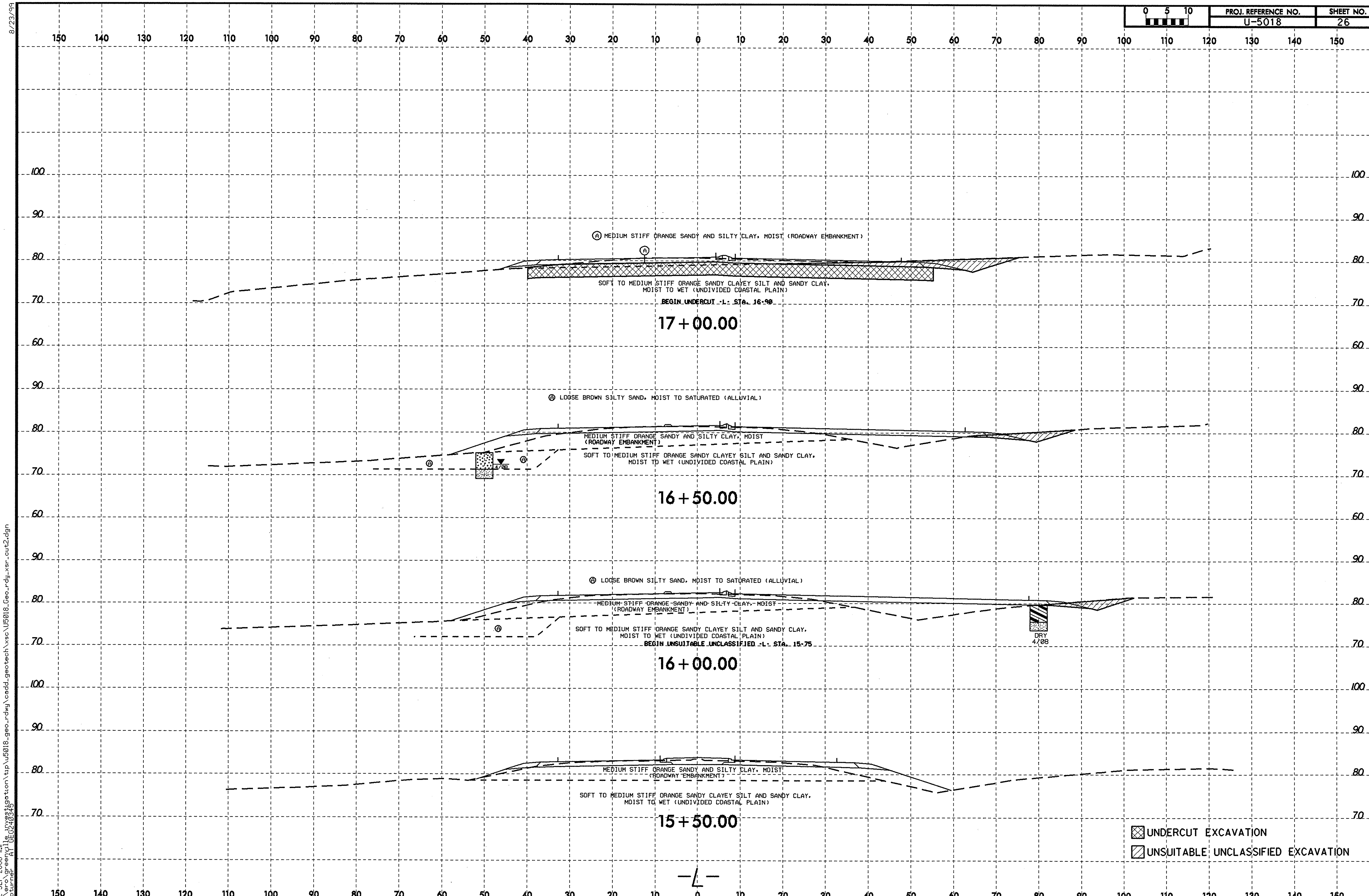
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
S-1	35 LT	14+50	1.00-3.50	A-6(1)	30	12	5.1	58.1	6.1	30.7	100	98	39	18.2	-
S-2	35 LT	14+50	3.50-6.00	A-7-6(34)	64	43	7.2	19.0	24.7	49.1	100	96	77	-	-







PROJ. REFERENCE NO.	SHEET NO.
U-5018	26



0 5 10
Ⓐ MEDIUM STIFF ORANGE SANDY AND SILTY CLAY, MOIST (ROADWAY EMBANKMENT)
SOFT TO MEDIUM STIFF ORANGE SANDY CLAYEY SILT AND SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)
BEGIN UNDERCUT -L- STA. 16+90
17+00.00
Ⓐ LOOSE BROWN SILTY SAND, MOIST TO SATURATED (ALLUVIAL)
MEDIUM STIFF ORANGE SANDY AND SILTY CLAY, MOIST (ROADWAY EMBANKMENT)
SOFT TO MEDIUM STIFF ORANGE SANDY CLAYEY SILT AND SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)
4/08
16+50.00
Ⓐ LOOSE BROWN SILTY SAND, MOIST TO SATURATED (ALLUVIAL)
MEDIUM STIFF ORANGE SANDY AND SILTY CLAY, MOIST (ROADWAY EMBANKMENT)
SOFT TO MEDIUM STIFF ORANGE SANDY CLAYEY SILT AND SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)
BEGIN UNSUITABLE UNCLASSIFIED -L- STA. 15+75
DRY 4/08
16+00.00
MEDIUM STIFF ORANGE SANDY AND SILTY CLAY, MOIST (ROADWAY EMBANKMENT)
SOFT TO MEDIUM STIFF ORANGE SANDY CLAYEY SILT AND SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)
15+50.00
UNDERCUT EXCAVATION
UNSUITABLE UNCLASSIFIED EXCAVATION
-L-

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	U-5018	27

Ⓐ MEDIUM STIFF ORANGE SANDY AND SILTY CLAY, MOIST (ROADWAY EMBANKMENT)

SOFT TO MEDIUM STIFF ORANGE SANDY CLAYEY SILT AND SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

19+00.00

Ⓐ MEDIUM STIFF ORANGE SANDY AND SILTY CLAY, MOIST (ROADWAY EMBANKMENT)

SOFT TO MEDIUM STIFF ORANGE SANDY CLAY, MOIST (UNDIVIDED COASTAL PLAIN)

DRY
4/08

18+50.00

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-3	130 RT	18+00	1.00-6.00	A-6(15)	36	22	4.3	54.0	7.0	34.8	98	97	43	-	-

Ⓐ MEDIUM STIFF ORANGE SANDY AND SILTY CLAY, MOIST (ROADWAY EMBANKMENT)

S-3

4/08

SOFT TO MEDIUM STIFF ORANGE SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

18+00.00

MEDIUM STIFF ORANGE SANDY AND SILTY CLAY, MOIST (ROADWAY EMBANKMENT)

SOFT TO MEDIUM STIFF ORANGE SANDY CLAYEY SILT AND SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

17+50.00

UNDERCUT EXCAVATION

UNSUITABLE UNCLASSIFIED EXCAVATION

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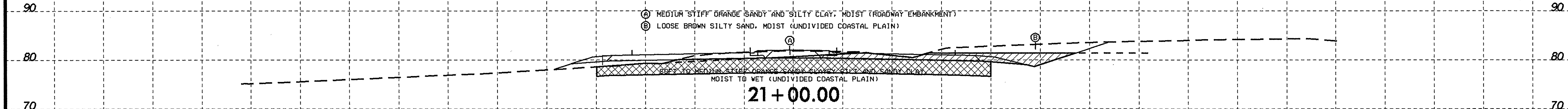
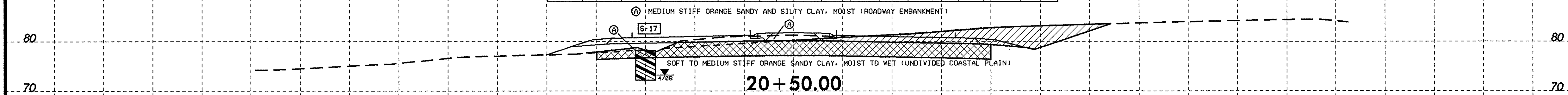
	U-5018	28



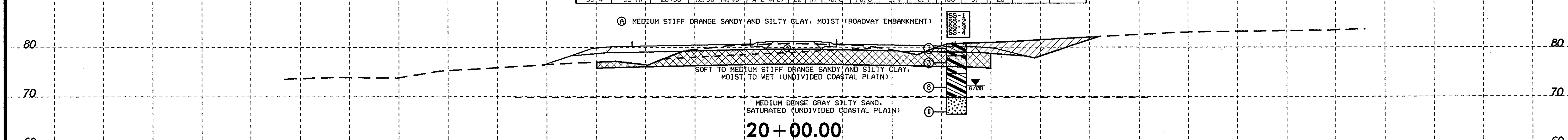
SOIL TEST RESULTS

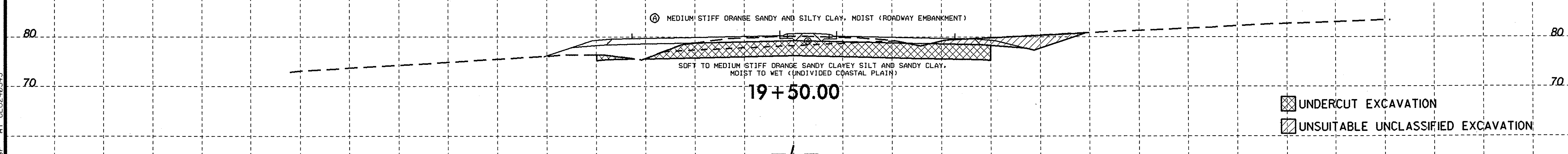
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-17	30 LT	20+50	1.00-4.80	A-6(1)	31	11	4.9	59.5	4.9	30.7	100	98	38	-	-



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-1	33 RT	20+00	1.00-1.50	A-6(6)	40	22	5.9	51.8	8.0	34.4	99	97	45	-	-
SS-2	33 RT	20+00	2.90-4.40	A-7-6(5)	41	22	5.5	52.4	5.8	36.4	100	99	44	25.2	-
SS-3	33 RT	20+00	7.90-9.40	A-6(3)	37	19	8.1	54.8	8.8	28.3	100	98	39	-	-
~~SS-4~~	~~33 RT~~	~~20+00~~	~~12.90-14.40~~	~~A-2-4(0)~~	~~22~~	~~NP~~	~~16.6~~	~~70.6~~	~~5.4~~	~~8.1~~	~~100~~	~~97~~	~~20~~	~~-~~	~~-~~





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	U-5018	29

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

100 90 80 70 100 90 80 70 60 100 90 80 70 100 90 80 70

Ⓐ LOOSE BROWN SILTY SAND, MOIST (ROADWAY EMBANKMENT)

LOOSE BROWN SILTY SAND, MOIST (ALLUVIAL)

SOFT TO MEDIUM STIFF ORANGE SANDY CLAYEY SILT AND SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

23+00.00

END UNDERCUT -L- STA. 22+75
END UNSUITABLE UNCLASSIFIED -L- STA. 22+75

LOOSE BROWN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)

DRY
4/08

SOFT TO MEDIUM STIFF ORANGE SANDY CLAY, MOIST (UNDIVIDED COASTAL PLAIN)

22+50.00

Ⓐ LOOSE BROWN SILTY SAND, MOIST (ROADWAY EMBANKMENT)
Ⓑ LOOSE BROWN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)

MEDIUM STIFF ORANGE SANDY CLAY, MOIST (UNDIVIDED COASTAL PLAIN)

DRY
4/08

22+00.00

Ⓐ LOOSE BROWN SILTY SAND, MOIST (ROADWAY EMBANKMENT)
Ⓑ LOOSE BROWN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)

SOFT TO MEDIUM STIFF ORANGE SANDY CLAYEY SILT AND SANDY CLAY,

21+50.00

-L-

UNDERCUT EXCAVATION

UNSUITABLE UNCLASSIFIED EXCAVATION

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0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-5018	30

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

100 90 80 70 60

LOOSE BROWN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)

SOFT TO MEDIUM STIFF ORANGE SANDY CLAYEY SILT AND SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

25+00.00

90 80 70 60

END UNSUITABLE UNCLASSIFIED -L- STA. 24+75

Ⓐ LOOSE BROWN SILTY SAND, MOIST (ROADWAY EMBANKMENT)

LOOSE BROWN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)

MEDIUM STIFF ORANGE SILTY CLAY, MOIST (UNDIVIDED COASTAL PLAIN)

DRY
4/08

24+50.00

100 90 80 70 60

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	LL	PI	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-4	40 RT	24+00	1.00+6.00	A-7-6(17)	57	37	1.8	49.4	5.7	47.0	100	100	55	25.2	-

Ⓐ LOOSE BROWN SILTY SAND, MOIST (ROADWAY EMBANKMENT)
Ⓑ LOOSE BROWN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)

S-4

MEDIUM STIFF ORANGE SILTY CLAY, MOIST (UNDIVIDED COASTAL PLAIN)

DRY
4/08

BEGIN UNDERCUT -L- STA. 23+75
BEGIN UNSUITABLE UNCLASSIFIED -L- STA. 23+75

24+00.00

100 90 80 70 60

Ⓐ LOOSE BROWN SILTY SAND, MOIST (ROADWAY EMBANKMENT)

LOOSE BROWN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)

SOFT TO MEDIUM STIFF ORANGE SANDY CLAYEY SILT AND SANDY CLAY.

23+50.00

UNDERCUT EXCAVATION

UNSUITABLE UNCLASSIFIED EXCAVATION

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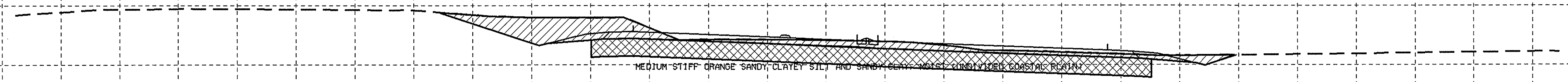
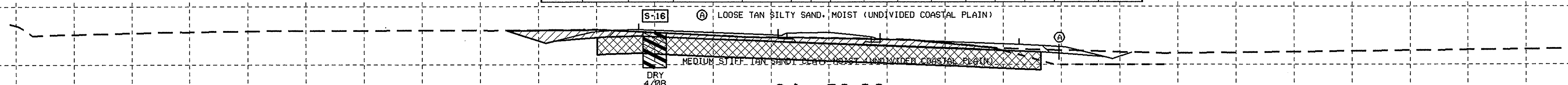


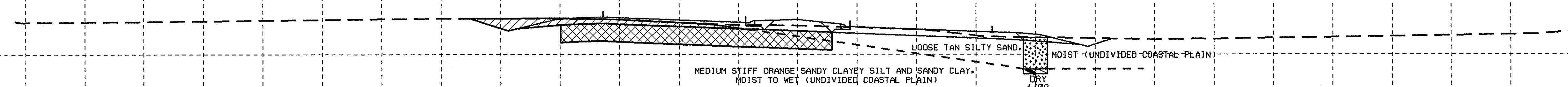
27+00.00

SOIL TEST RESULTS

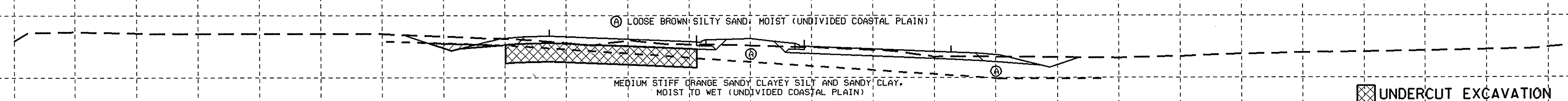
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
S-16	30 LT	26+50	1.00-6.00	A-6(2)	33	17	12.3	51.6	7.6	28.6	100	97	39	-	-



26+50.00



26+00.00



25+50.00

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UNDERCUT EXCAVATION

UNSUITABLE UNCLASSIFIED EXCAVATION

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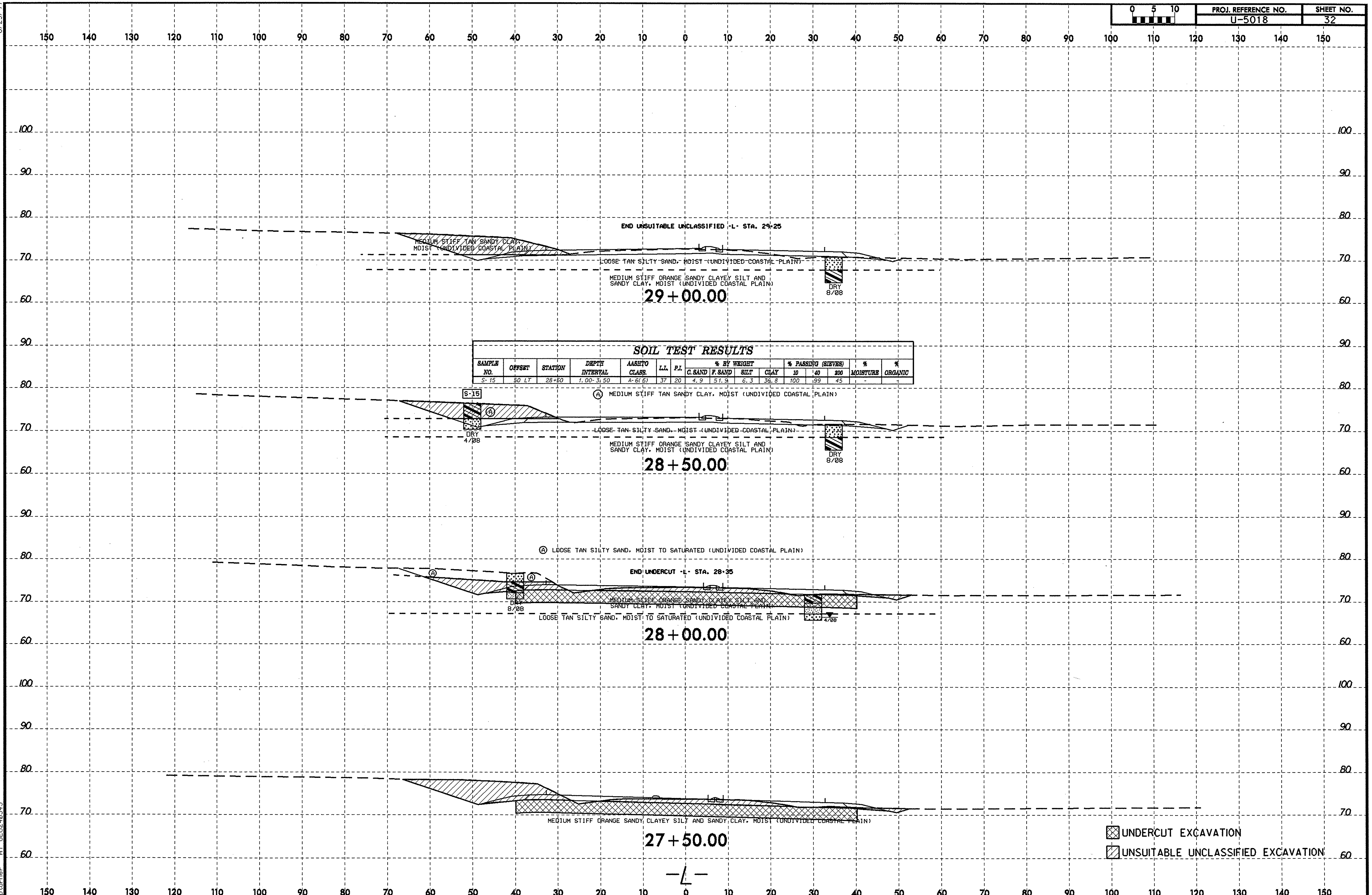

END UNSUITABLE UNCLASSIFIED -L- STA. 29+25
MEDIUM STIFF TAN SANDY CLAY, MOIST (UNDIVIDED COASTAL PLAIN)
LOOSE TAN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)
MEDIUM STIFF ORANGE SANDY CLAYEY SILT AND SANDY CLAY, MOIST (UNDIVIDED COASTAL PLAIN)
DRY 8/08
29+00.00
S-15
(A) MEDIUM STIFF TAN SANDY CLAY, MOIST (UNDIVIDED COASTAL PLAIN)
DRY 4/08
LOOSE TAN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)
MEDIUM STIFF ORANGE SANDY CLAYEY SILT AND SANDY CLAY, MOIST (UNDIVIDED COASTAL PLAIN)
DRY 8/08
28+50.00
(A) LOOSE TAN SILTY SAND, MOIST TO SATURATED (UNDIVIDED COASTAL PLAIN)
END UNDERCUT -L- STA. 28+35
DRY 8/08
MEDIUM STIFF ORANGE SANDY CLAYEY SILT AND SANDY CLAY, MOIST (UNDIVIDED COASTAL PLAIN)
LOOSE TAN SILTY SAND, MOIST TO SATURATED (UNDIVIDED COASTAL PLAIN)
4/08
28+00.00
MEDIUM STIFF ORANGE SANDY CLAYEY SILT AND SANDY CLAY, MOIST (UNDIVIDED COASTAL PLAIN)
27+50.00
-L-
UNDERCUT EXCAVATION
UNSUITABLE UNCLASSIFIED EXCAVATION

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-15	50 LT	28+50	1.00-3.50	A-6(6)	37	20	4.9	51.9	6.3	36.8	100	99	45	-	-

8/23/99

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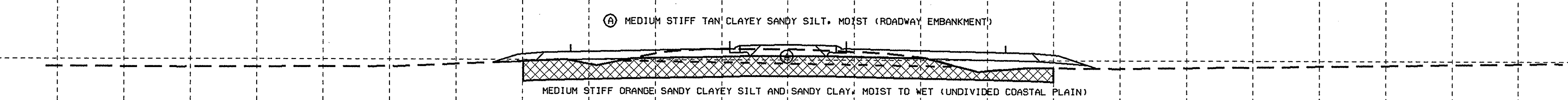
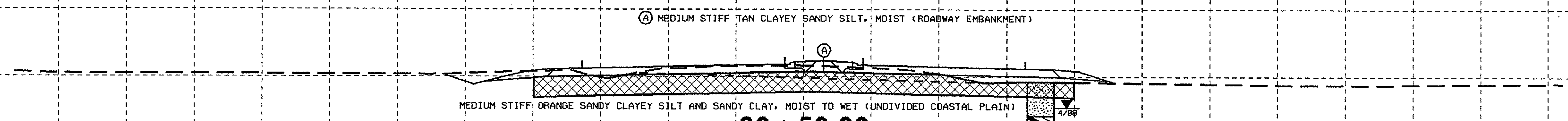
PROJ. REFERENCE NO.	SHEET NO.
U-5018	33



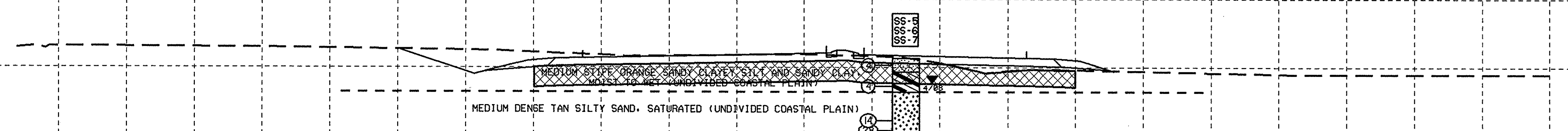
31+00.00



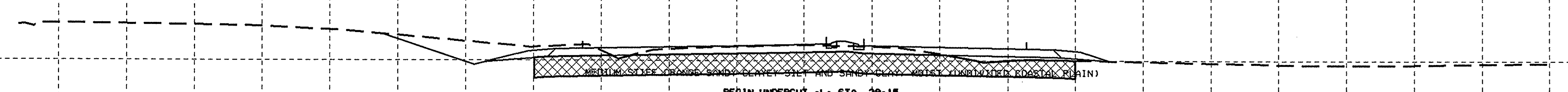
30+50.00

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-5	15' RT	30+00	1.00-1.50	A-4(0)	19	5	3.8	54.8	21.1	20.2	100	99	46	-	-
SS-6	15' RT	30+00	3.10-4.60	A-6(5)	33	20	6.3	50.6	12.8	30.3	100	99	46	21.4	-
SS-7	15' RT	30+00	8.10-9.60	A-2-4(0)	23	5	23.1	56.6	2.1	18.2	100	97	22	-	-



30+00.00



29+50.00

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UNDERCUT EXCAVATION

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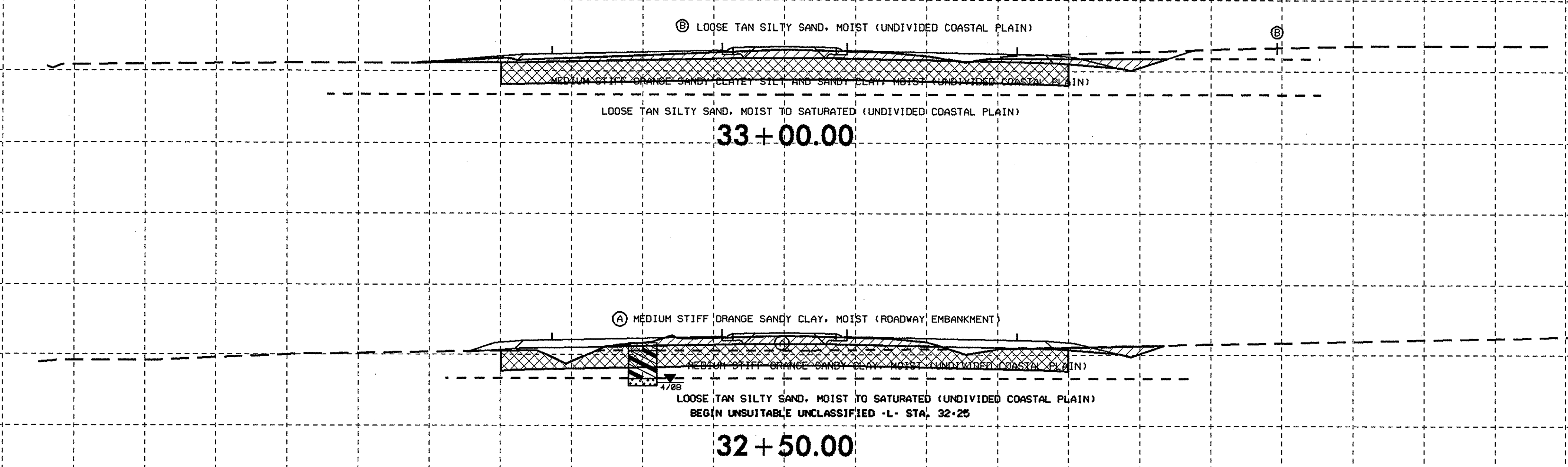
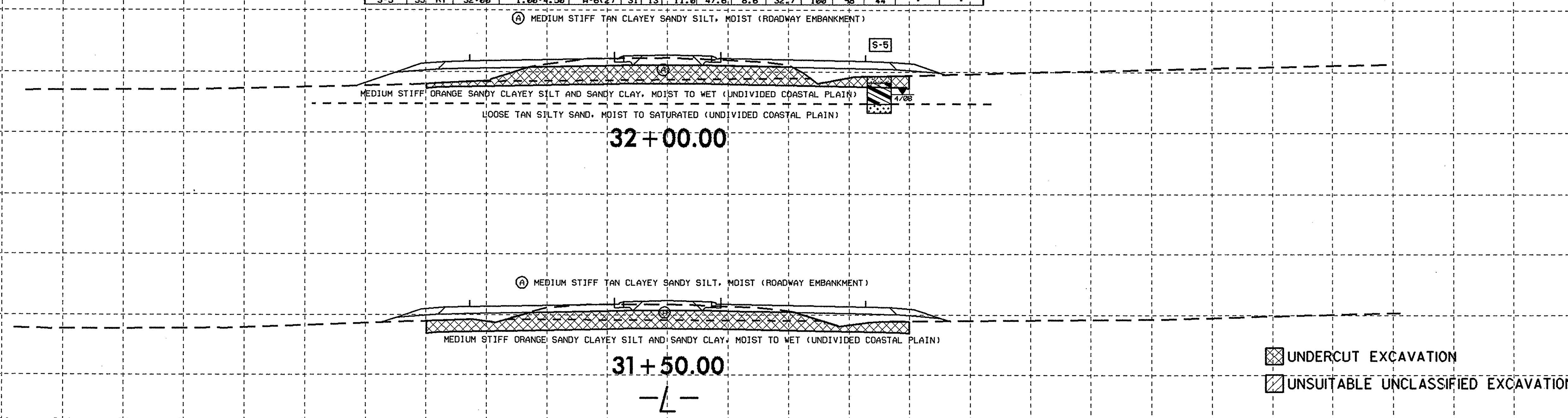
PROJ. REFERENCE NO.	SHEET NO.
U-5018	34



Ⓑ LOOSE TAN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)
MEDIUM STIFF ORANGE SANDY CLAYEY SILT AND SANDY CLAY, MOIST (UNDIVIDED COASTAL PLAIN)
LOOSE TAN SILTY SAND, MOIST TO SATURATED (UNDIVIDED COASTAL PLAIN)
33+00.00
Ⓐ MEDIUM STIFF ORANGE SANDY CLAY, MOIST (ROADWAY EMBANKMENT)
MEDIUM STIFF ORANGE SANDY CLAY, MOIST (UNDIVIDED COASTAL PLAIN)
4/08
LOOSE TAN SILTY SAND, MOIST TO SATURATED (UNDIVIDED COASTAL PLAIN)
BEGIN UNSUITABLE UNCLASSIFIED -L- STA. 32+25
32+50.00

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-5	35' RT	32+00	1.00-4.50	A-6(2)	31	13	11.0	47.6	8.6	32.7	100	98	44	-	-



Ⓐ MEDIUM STIFF TAN CLAYEY SANDY SILT, MOIST (ROADWAY EMBANKMENT)
S-5
4/08
MEDIUM STIFF ORANGE SANDY CLAYEY SILT AND SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)
LOOSE TAN SILTY SAND, MOIST TO SATURATED (UNDIVIDED COASTAL PLAIN)
32+00.00
Ⓐ MEDIUM STIFF TAN CLAYEY SANDY SILT, MOIST (ROADWAY EMBANKMENT)
MEDIUM STIFF ORANGE SANDY CLAYEY SILT AND SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)
31+50.00
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UNDERCUT EXCAVATION
UNSUITABLE UNCLASSIFIED EXCAVATION

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Ⓑ LOOSE TAN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)

MEDIUM STIFF ORANGE SANDY CLAYEY SILT AND SANDY CLAY, MOIST (UNDIVIDED COASTAL PLAIN)

LOOSE TAN SILTY SAND, MOIST TO SATURATED (UNDIVIDED COASTAL PLAIN)

35+00.00

Ⓑ LOOSE TAN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)

MEDIUM STIFF ORANGE SANDY CLAY, MOIST (UNDIVIDED COASTAL PLAIN)

4/08

LOOSE TAN SILTY SAND, MOIST TO SATURATED (UNDIVIDED COASTAL PLAIN)

34+50.00

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	LL	PI	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-6	50' RT	34+00	1.00-6.00	A-6(5)	40	22	3.3	56.4	5.5	34.8	100	100	43		-

Ⓐ MEDIUM STIFF ORANGE SANDY CLAY, MOIST (ROADWAY EMBANKMENT)

Ⓑ LOOSE TAN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)

S-6

MEDIUM STIFF ORANGE SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

4/08

LOOSE TAN SILTY SAND, SATURATED (UNDIVIDED COASTAL PLAIN)

34+00.00

Ⓑ LOOSE TAN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)

MEDIUM STIFF ORANGE SANDY CLAYEY SILT AND SANDY CLAY, MOIST (UNDIVIDED COASTAL PLAIN)

LOOSE TAN SILTY SAND, MOIST TO SATURATED (UNDIVIDED COASTAL PLAIN)

33+50.00

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UNDERCUT EXCAVATION

UNSUITABLE UNCLASSIFIED EXCAVATION

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0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-5018	36

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100 90 80 70 60 90 80 70 100 90 80 70 60 90 80 70 60

Ⓐ LOOSE TAN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)

MEDIUM STIFF ORANGE SANDY CLAYEY SILT AND SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

37+00.00

Ⓐ LOOSE TAN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)

MEDIUM STIFF ORANGE SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

1/08

36+50.00

Ⓐ LOOSE TAN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)

1/08 MEDIUM STIFF ORANGE SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

LOOSE TAN SILTY SAND, SATURATED (UNDIVIDED COASTAL PLAIN)

36+00.00

Ⓐ LOOSE TAN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)

MEDIUM STIFF ORANGE SANDY CLAYEY SILT AND SANDY CLAY, MOIST (UNDIVIDED COASTAL PLAIN)

LOOSE TAN SILTY SAND, MOIST TO SATURATED (UNDIVIDED COASTAL PLAIN)

35+50.00

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UNDERCUT EXCAVATION

UNSUITABLE UNCLASSIFIED EXCAVATION

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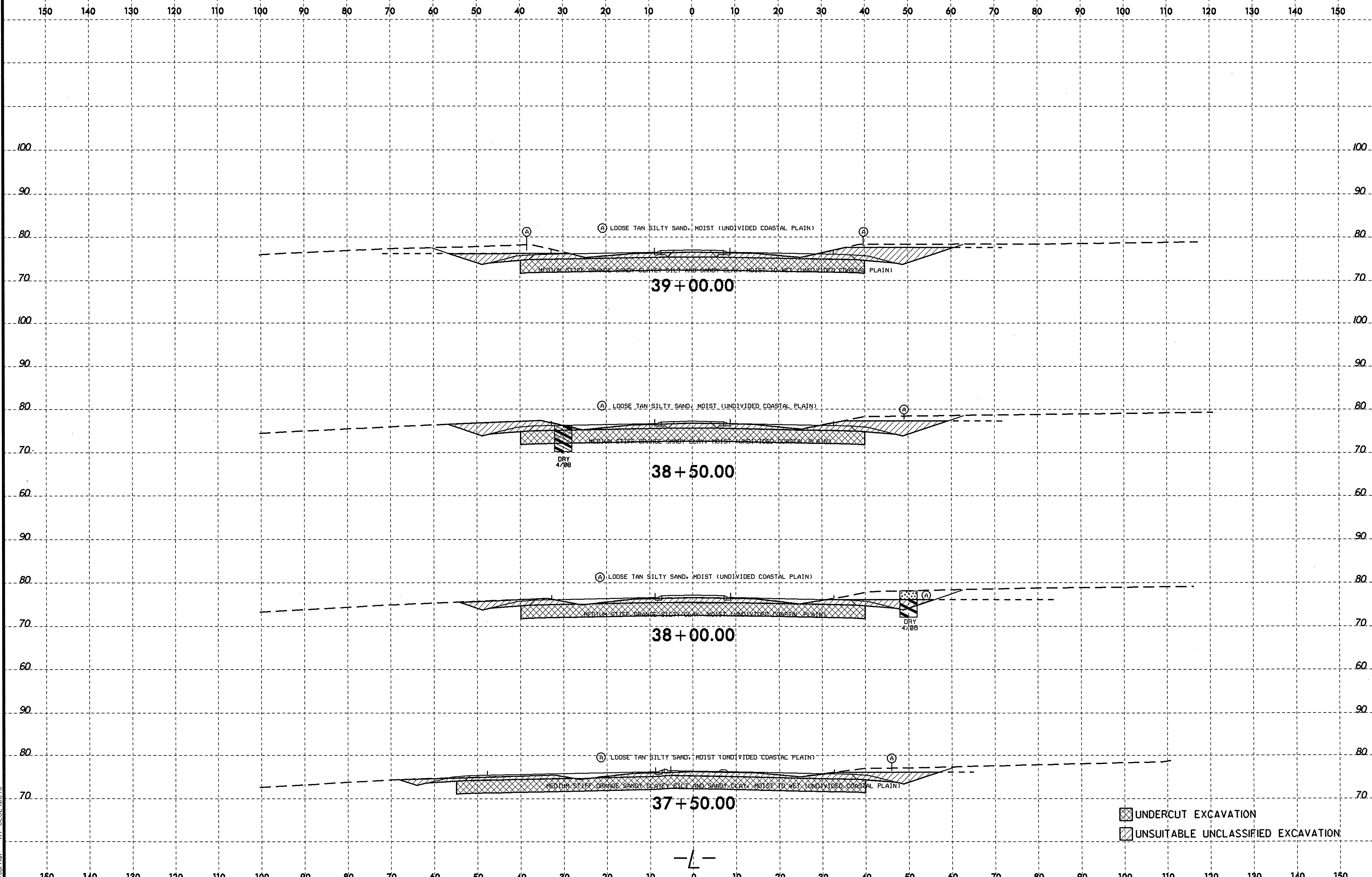
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-5018	37



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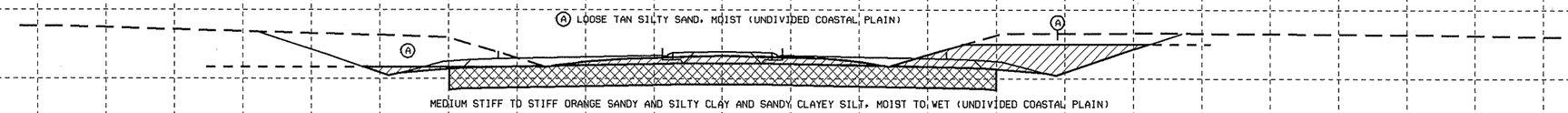
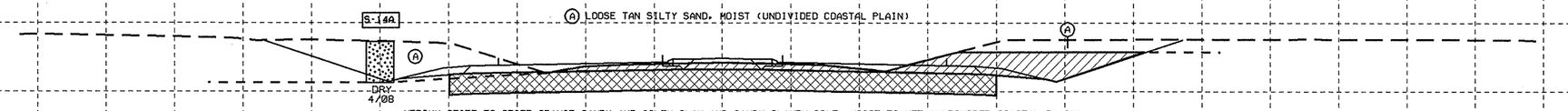
PROJ. REFERENCE NO.	SHEET NO.
U-5018	38



41+00.00

SOIL TEST RESULTS

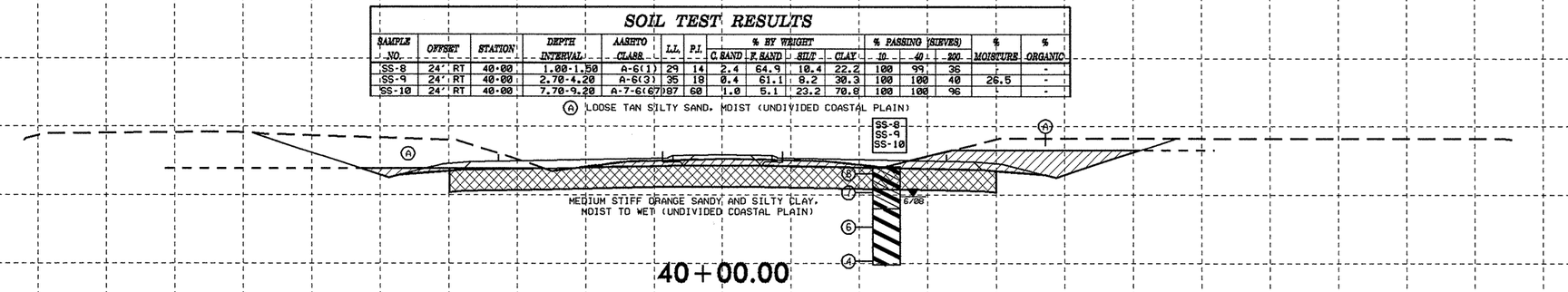
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
S-14A	50' LT	40+50	1.00-6.00	A-2-4(0)	28	9	0.2	68.1	5.1	26.6	100	100	34	-	-



40+50.00

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-8	24' RT	40+00	1.00-1.50	A-6(1)	29	14	2.4	64.9	10.4	22.2	100	99	36		-
SS-9	24' RT	40+00	2.70-4.20	A-6(3)	35	18	0.4	61.1	8.2	30.3	100	100	40	26.5	-
SS-10	24' RT	40+00	7.70-9.20	A-7-6(67)	87	60	1.0	5.1	23.2	70.8	100	100	96		-



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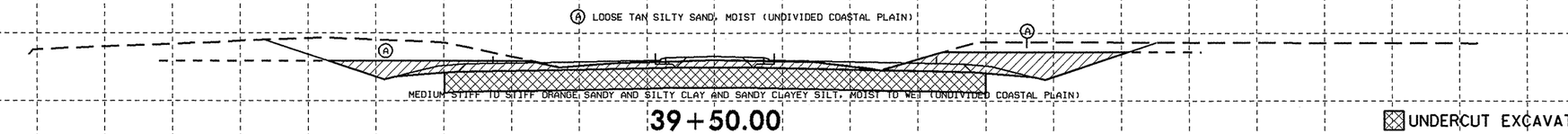

39+50.00

UNDERCUT EXCAVATION

UNSUITABLE UNCLASSIFIED EXCAVATION

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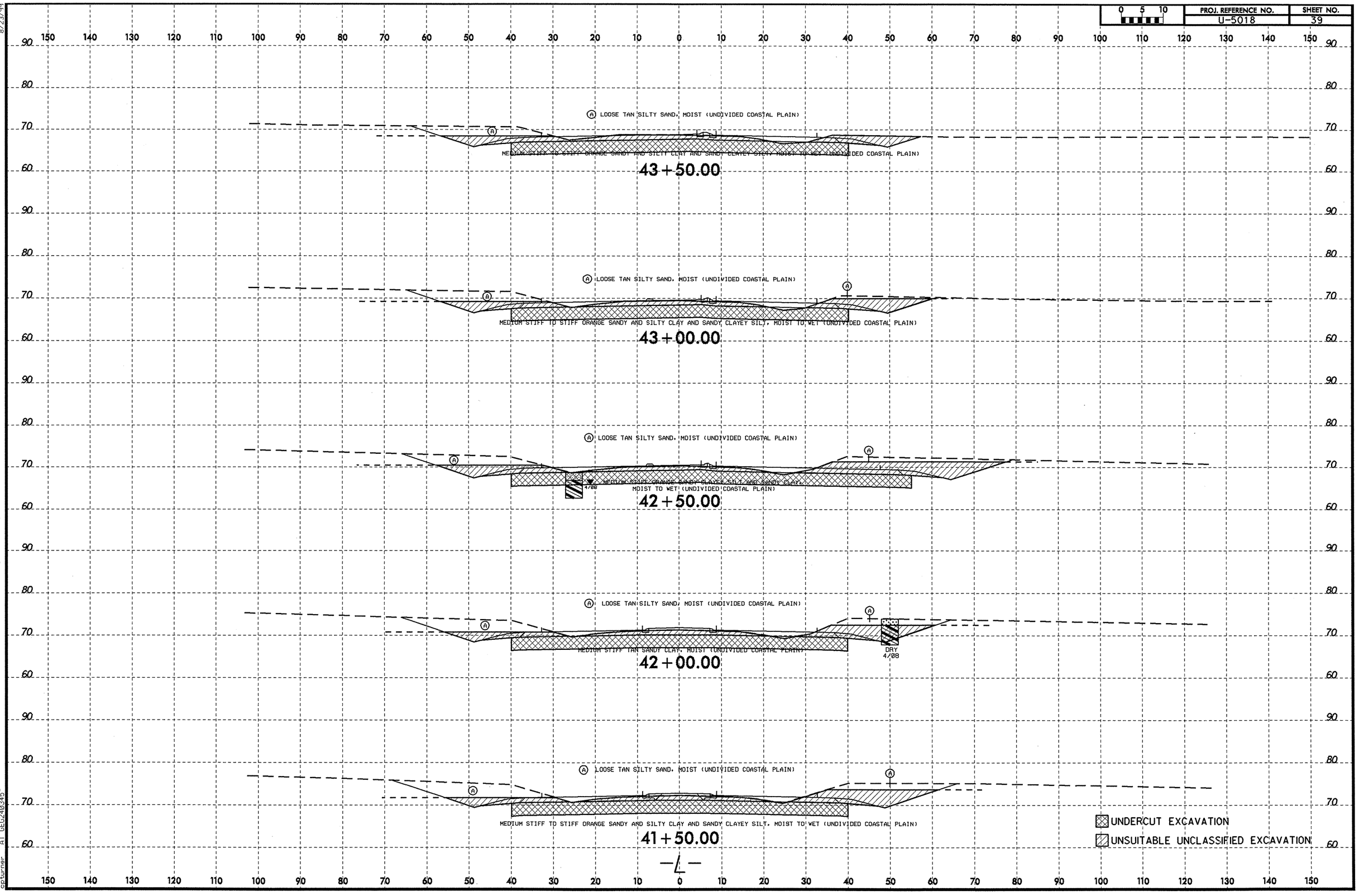
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-5018	39



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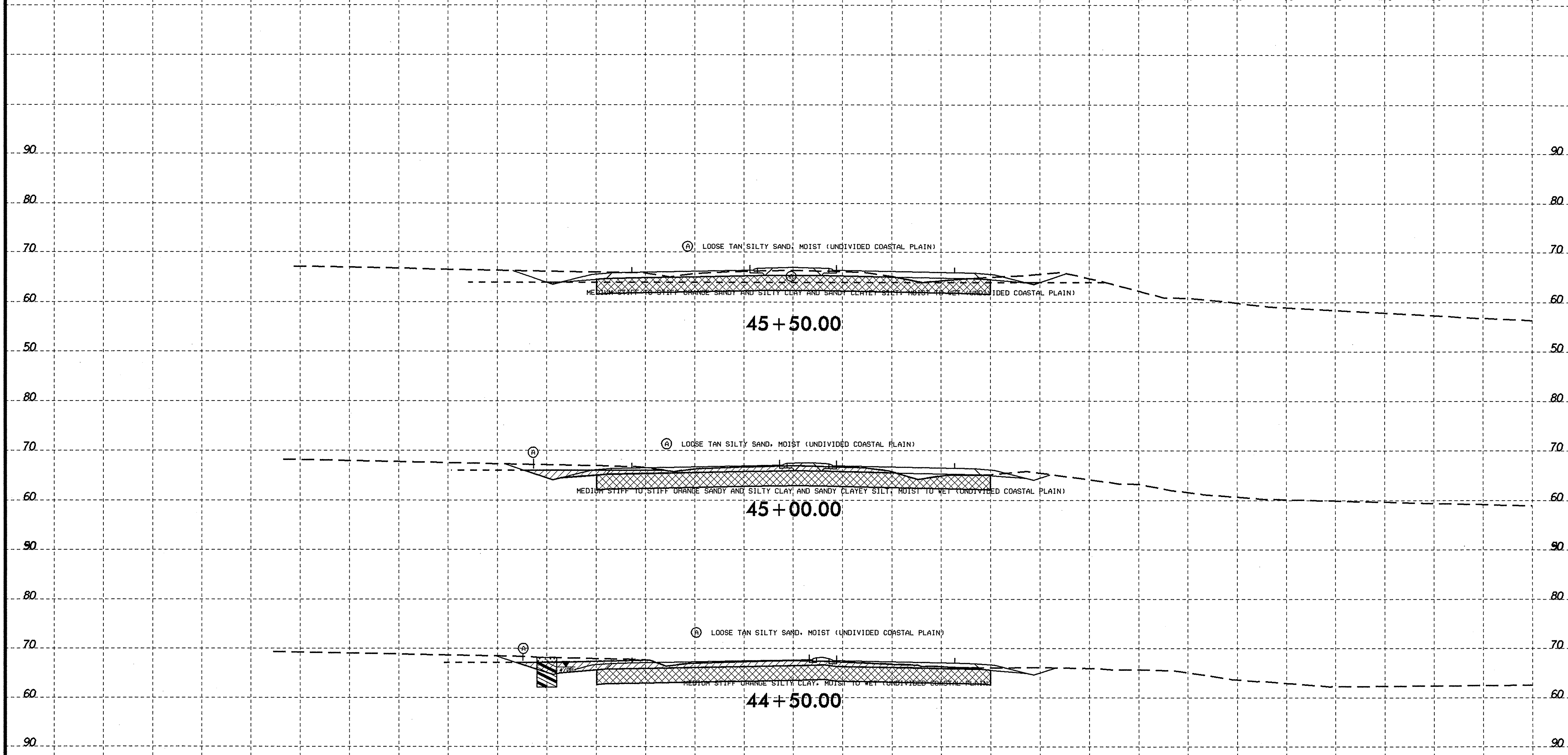
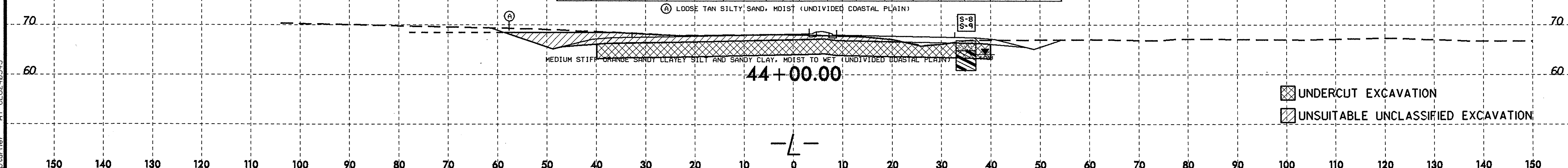
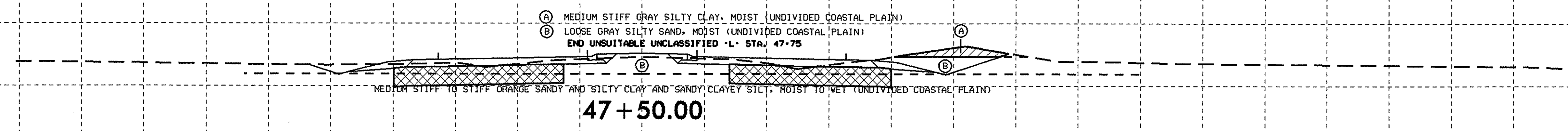


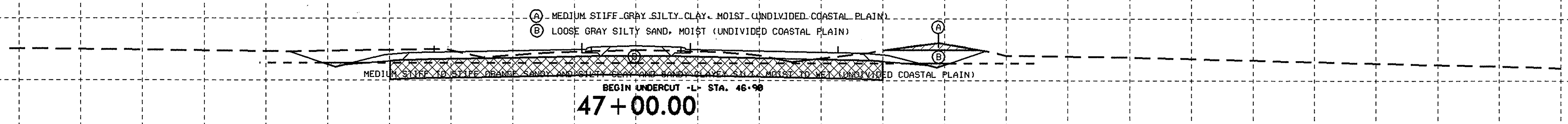
SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-8	35' RT	44+00	1.00-2.00	A-4(0)	20	5	1.6	55.0	18.8	24.5	100	100	48	-	-
S-9	35' RT	44+00	2.00-4.50	A-6(4)	38	20	2.9	58.5	8.0	30.7	100	100	42	-	-



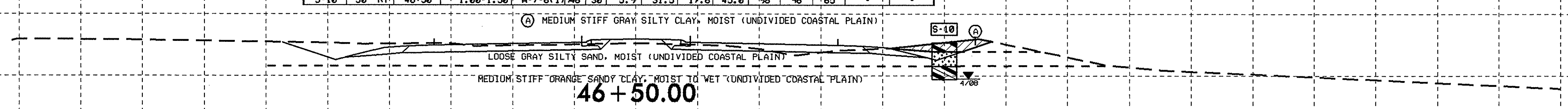
PROJ. REFERENCE NO.	SHEET NO.
U-5018	41

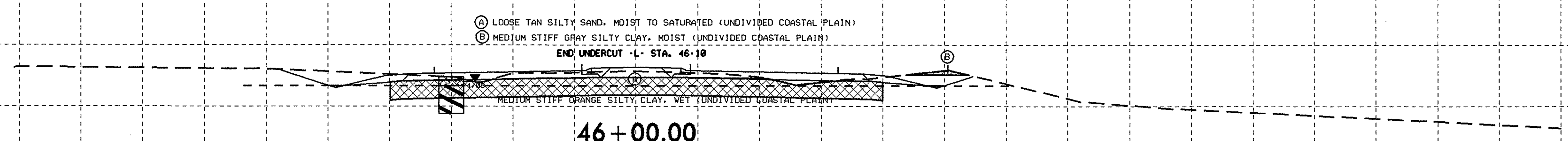




SOIL TEST RESULTS

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-10	50' RT	46+50	1.00-1.50	A-7-6(17)	46	30	5.9	31.5	17.6	45.0	98	96	65	-	-





UNDERCUT EXCAVATION
UNSUITABLE UNCLASSIFIED EXCAVATION

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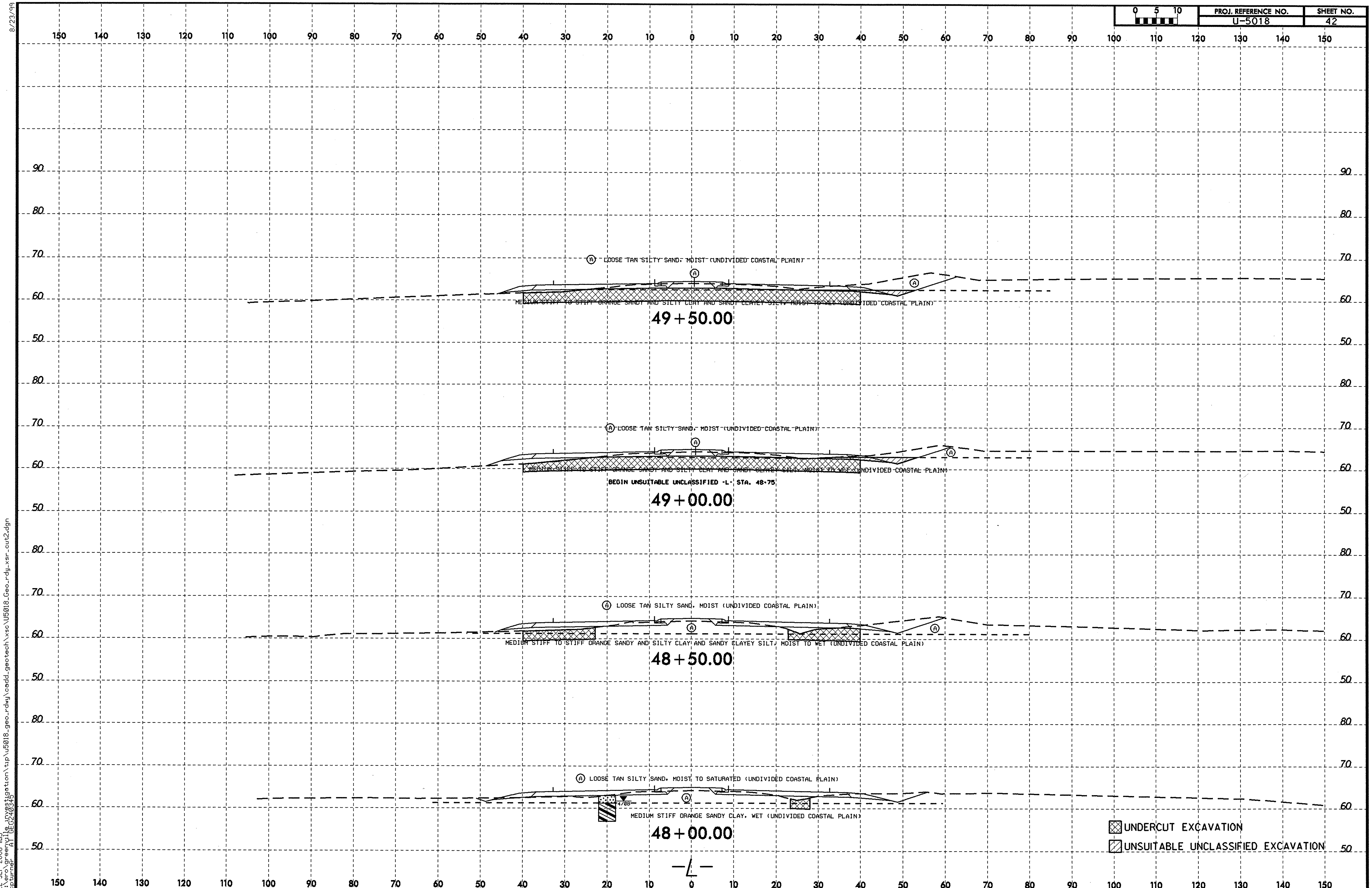
PROJ. REFERENCE NO.	SHEET NO.
U-5018	42



0 5 10
(A) LOOSE TAN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)
MEDIUM STIFF TO STIFF ORANGE SANDY AND SILTY CLAY AND SANDY CLAYEY SILT, MOIST TO WET (UNDIVIDED COASTAL PLAIN)
49+50.00
(A) LOOSE TAN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)
MEDIUM STIFF TO STIFF ORANGE SANDY AND SILTY CLAY AND SANDY CLAYEY SILT, MOIST TO WET (UNDIVIDED COASTAL PLAIN)
BEGIN UNSUITABLE UNCLASSIFIED -L- STA. 48+75
49+00.00
(A) LOOSE TAN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)
MEDIUM STIFF TO STIFF ORANGE SANDY AND SILTY CLAY AND SANDY CLAYEY SILT, MOIST TO WET (UNDIVIDED COASTAL PLAIN)
48+50.00
(A) LOOSE TAN SILTY SAND, MOIST TO SATURATED (UNDIVIDED COASTAL PLAIN)
MEDIUM STIFF ORANGE SANDY CLAY, WET (UNDIVIDED COASTAL PLAIN)
48+00.00
UNDERCUT EXCAVATION
UNSUITABLE UNCLASSIFIED EXCAVATION
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8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-5018	43

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90 80 70 60 50

LOOSE TAN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)

MEDIUM STIFF TO STIFF ORANGE SANDY AND SILTY CLAY AND SANDY CLAYEY SILT, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

51+50.00

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-11	25' LT	51+00	1.00-1.50	A-4(0)	22	7	4.3	59.3	16.1	20.3	100	99	42	-	-
SS-12	25' LT	51+00	3.30-4.80	A-7-6(54)	76	48	0.2	5.7	27.1	67.0	100	100	96	-	-
SS-13	25' LT	51+00	8.30-9.80	A-7-6(22)	49	27	3.9	17.3	24.1	54.8	100	99	81	-	-

SS-11
SS-12
SS-13

10
8
9
6/06

LOOSE TAN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)

STIFF ORANGE SANDY CLAYEY SILT AND SILTY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

51+00.00

(A) LOOSE TAN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)

A
4/06

MEDIUM STIFF ORANGE SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

50+50.00

(A) LOOSE TAN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)

A

MEDIUM STIFF TO STIFF ORANGE SANDY AND SILTY CLAY AND SANDY CLAYEY SILT, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

50+00.00

UNDERCUT EXCAVATION

UNSUITABLE UNCLASSIFIED EXCAVATION

—L—

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

PROJ. REFERENCE NO.	SHEET NO.
U-5018	44

END UNDERCUT -L- STA. 53+25

MEDIUM STIFF ORANGE SANDY CLAY, MOIST (UNDIVIDED COASTAL PLAIN)

53+00.00

(A) LOOSE TAN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)

END UNSUITABLE UNCLASSIFIED -L- STA. 52+75

MEDIUM STIFF TO STIFF ORANGE SANDY AND SILTY CLAY AND SANDY CLAYEY SILT, MOIST (UNDIVIDED COASTAL PLAIN)

DRY
1/08

52+50.00

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	LL	PI	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
S-11	30' RT	52+00	1.00-6.00	A-6(2)	28	11	3.9	55.2	8.2	32.7	100	100	44	-	-

S-11

LOOSE TAN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)

MEDIUM STIFF TO STIFF ORANGE SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

52+00.00

UNDERCUT EXCAVATION

UNSUITABLE UNCLASSIFIED EXCAVATION

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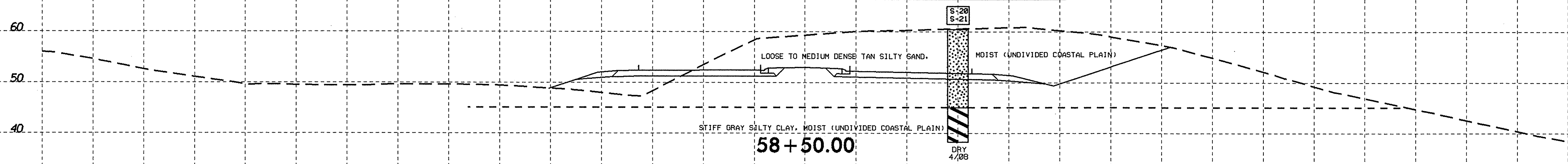
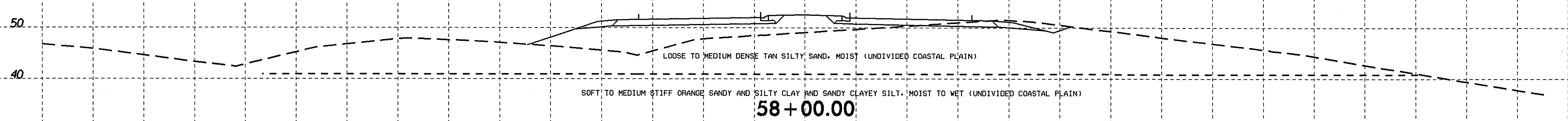
PROJ. REFERENCE NO.	SHEET NO.
U-5018	45

SOIL TEST RESULTS

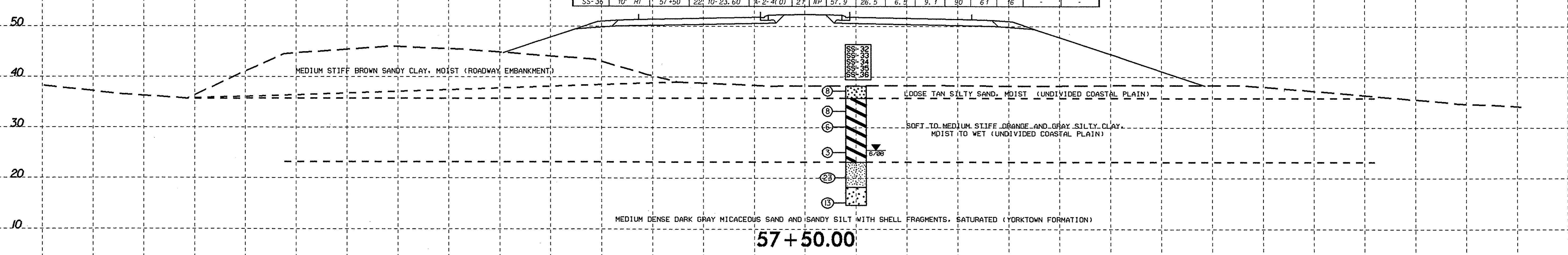
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
S-20	30' RT	58-50	1.00-15.50	A-2-4(0)	21	NP	21.2	61.7	2.9	14.3	100	97	18	-	-
S-21	30' RT	58-50	15.50-22.20	A-7-6(22)	54	26	1.4	23.3	20.0	55.2	100	100	78	-	-





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-32	10' RT	57+50	1.00-1.50	A-2-4(0)	18	NP	12.9	62.7	16.3	8.1	100	98	27	-	-
SS-33	10' RT	57+50	4.00-5.50	A-7-6(36)	65	42	1.4	20.4	23.6	54.6	100	99	81	30	-
SS-34	10' RT	57+50	12.10-13.60	A-7-6(23)	50	29	8.9	15.4	35.3	40.4	100	96	78	-	-
SS-35	10' RT	57+50	17.10-18.60	A-4(0)	16	2	46.3	24.0	20.6	9.1	98	82	60	-	-
SS-36	10' RT	57+50	22.10-23.60	A-2-4(0)	21	NP	57.9	26.5	6.5	9.1	90	61	16	-	-



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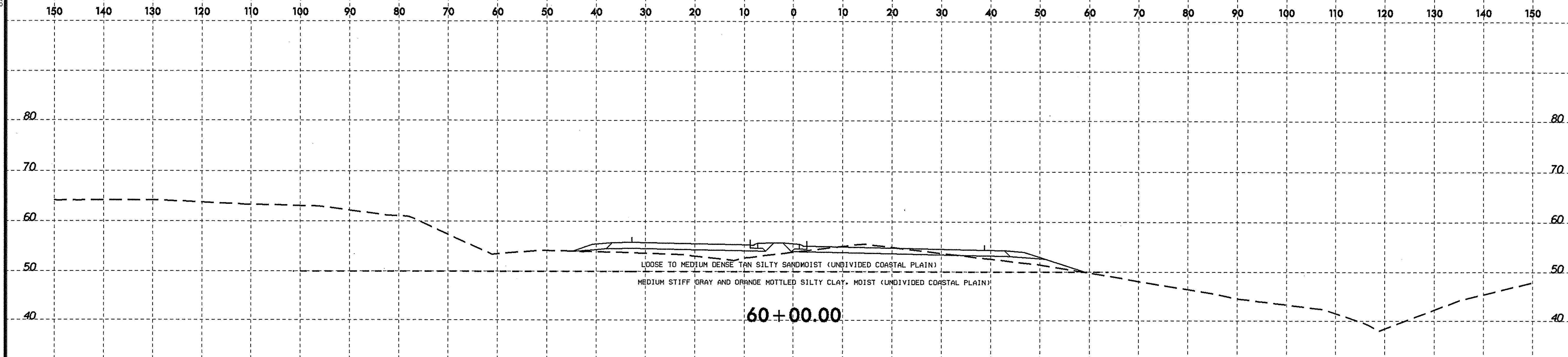
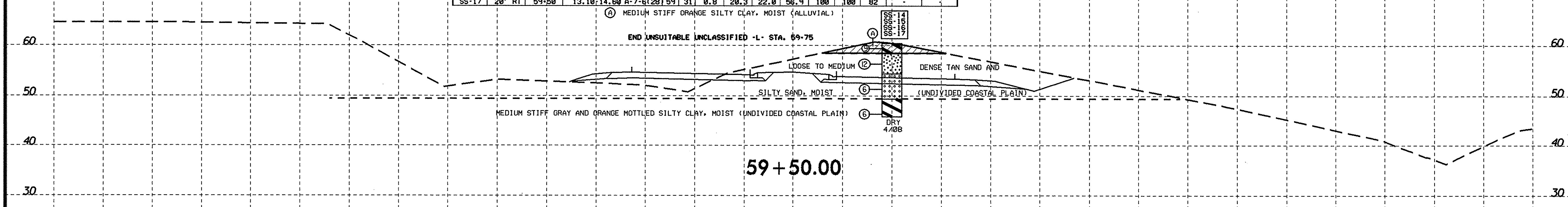
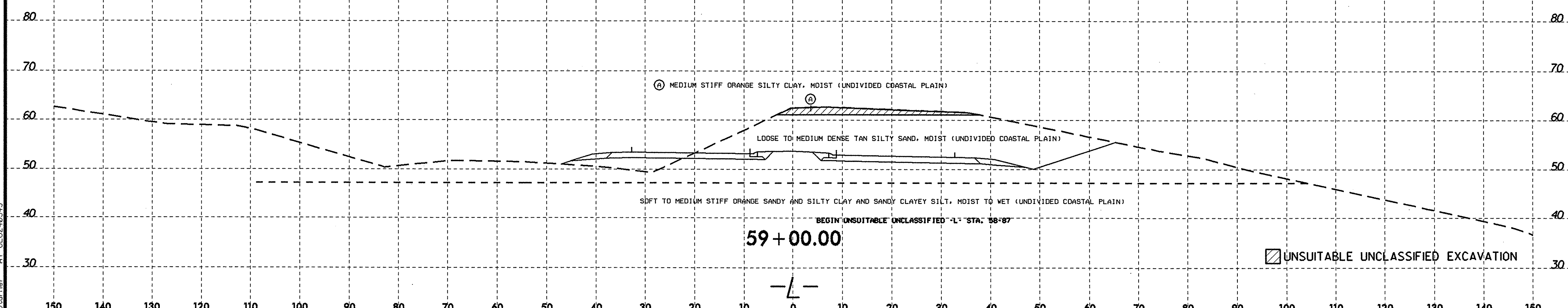


SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-14	20' RT	59+50	1.00-1.50	A-7-6(23)	54	26	3.0	18.9	19.2	58.9	100	99	81	-	-
SS-15	20' RT	59+50	3.10-4.60	A-2-4(0)	18	NP	18.1	63.6	4.2	14.2	100	96	19	-	-
SS-16	20' RT	59+50	8.10-9.60	A-3(0)	18	NP	19.3	71.0	1.6	8.1	100	98	10	-	-
SS-17	20' RT	59+50	13.10-14.60	A-7-6(28)	59	31	0.8	20.3	22.0	56.9	100	100	82	-	-





8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-5018	47

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

80 70 60 50 40

Ⓐ SOFT TAN SANDY CLAY, MOIST (UNDIVIDED COASTAL PLAIN)

LOOSE TAN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)

MEDIUM STIFF GRAY AND ORANGE MOTTLED SILTY CLAY, MOIST (UNDIVIDED COASTAL PLAIN)

DRY
4/08

BEGIN UNDERCUT -L- STA. 61+75

BEGIN UNSUITABLE UNCLASSIFIED -L- STA. 61+75

62+00.00

LOOSE TO MEDIUM DENSE TAN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)

MEDIUM STIFF GRAY AND ORANGE MOTTLED SILTY CLAY, MOIST (UNDIVIDED COASTAL PLAIN)

DRY
8/08

61+50.00

LOOSE TO MEDIUM DENSE TAN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)

MEDIUM STIFF GRAY AND ORANGE MOTTLED SILTY CLAY, MOIST (UNDIVIDED COASTAL PLAIN)

61+00.00

LOOSE TO MEDIUM DENSE TAN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)

MEDIUM STIFF GRAY AND ORANGE MOTTLED SILTY CLAY, MOIST (UNDIVIDED COASTAL PLAIN)

60+50.00

-L-

UNSUITABLE UNCLASSIFIED EXCAVATION

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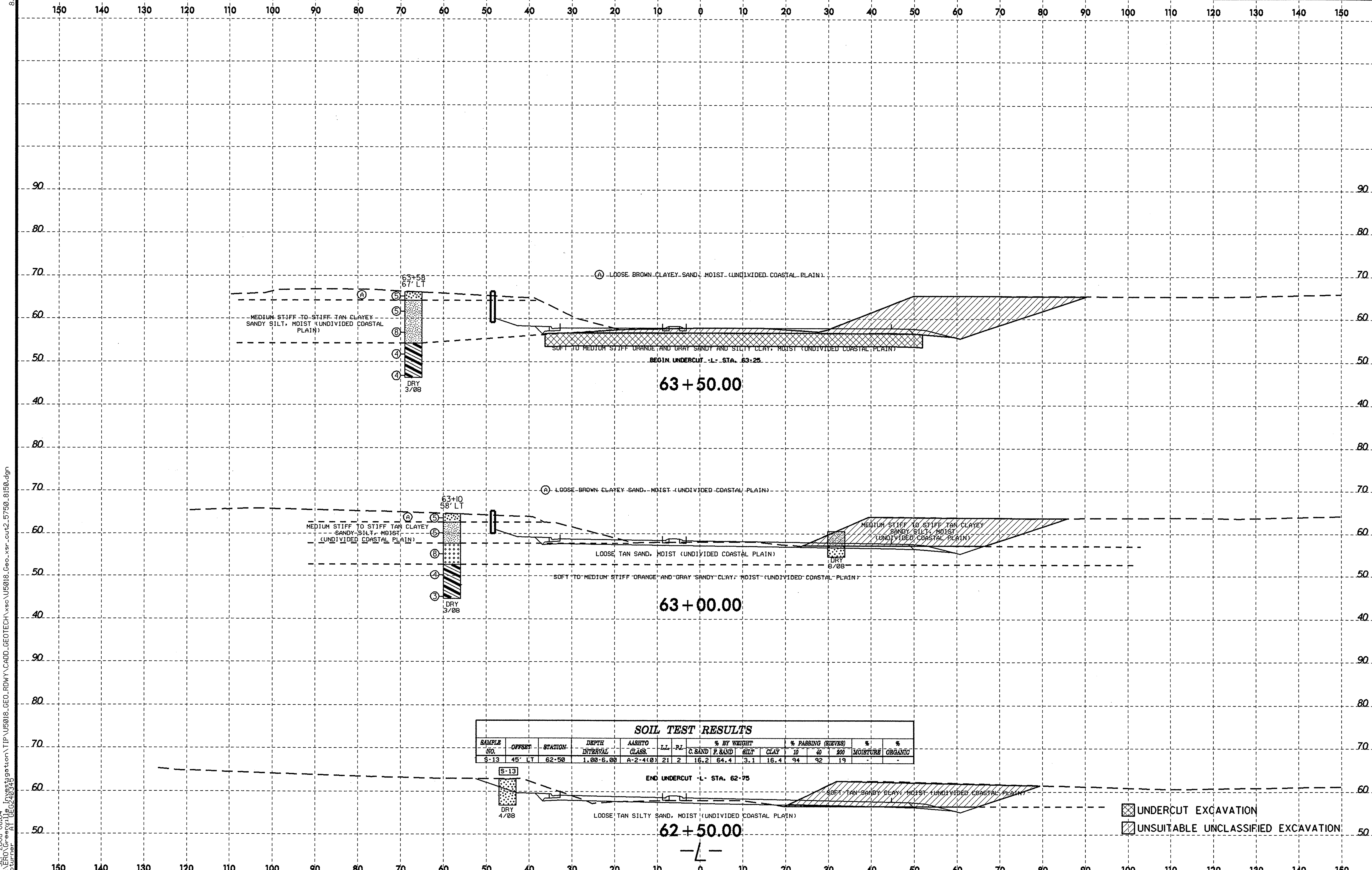
PROJ. REFERENCE NO.	SHEET NO.
U-5018	48



A LOOSE BROWN CLAYEY SAND, MOIST (UNDIVIDED COASTAL PLAIN)
63+58
67' LT
MEDIUM STIFF TO STIFF TAN CLAYEY SANDY SILT, MOIST (UNDIVIDED COASTAL PLAIN)
SOFT TO MEDIUM STIFF ORANGE AND GRAY SANDY AND SILTY CLAY, MOIST (UNDIVIDED COASTAL PLAIN)
BEGIN UNDERCUT -L- STA. 63+25
DRY
3/08
63+50.00
A LOOSE BROWN CLAYEY SAND, MOIST (UNDIVIDED COASTAL PLAIN)
63+10
58' LT
MEDIUM STIFF TO STIFF TAN CLAYEY SANDY SILT, MOIST (UNDIVIDED COASTAL PLAIN)
LOOSE TAN SAND, MOIST (UNDIVIDED COASTAL PLAIN)
SOFT TO MEDIUM STIFF ORANGE AND GRAY SANDY CLAY, MOIST (UNDIVIDED COASTAL PLAIN)
DRY
3/08
DRY
6/08
63+00.00
S-13
END UNDERCUT -L- STA. 62+75
SOFT TAN SANDY CLAY, MOIST (UNDIVIDED COASTAL PLAIN)
LOOSE TAN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)
DRY
4/08
62+50.00
-L-
UNDERCUT EXCAVATION
UNSUITABLE UNCLASSIFIED EXCAVATION

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-13	45' LT	62+50	1.00-6.00	A-2-4(0)	21	2	16.2	64.4	3.1	16.4	94	92	19	-	-

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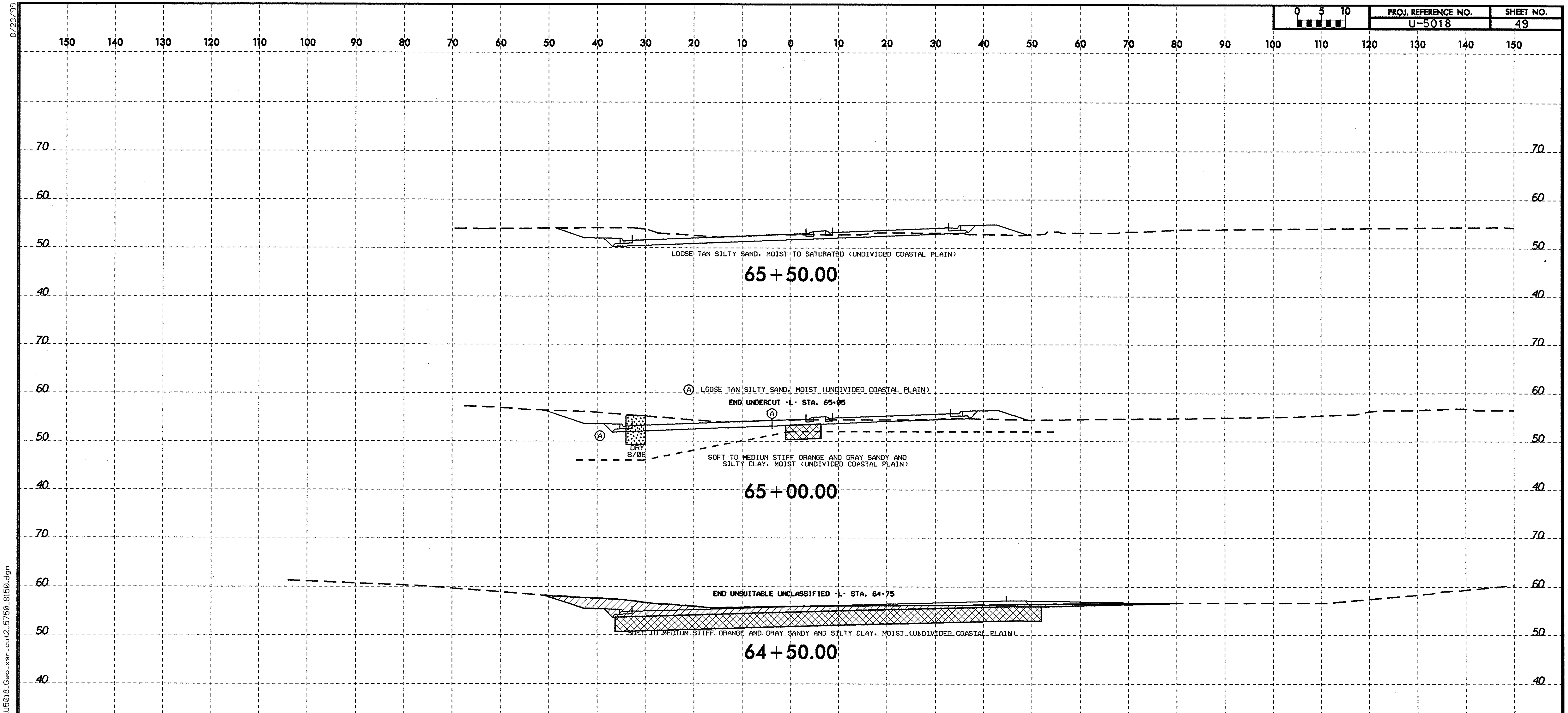
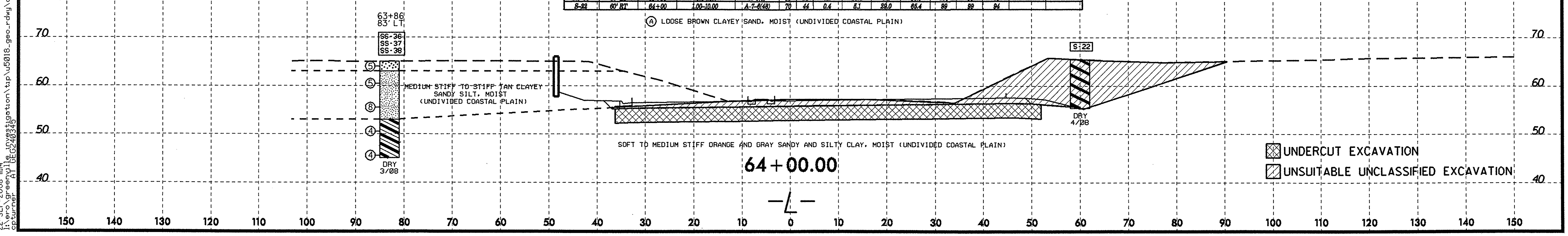
PROJ. REFERENCE NO.	SHEET NO.
U-5018	49



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	% BY WEIGHT F. SAND	% BY WEIGHT SILT	% BY WEIGHT CLAY	% PASSING (SIEVES) 10	% PASSING (SIEVES) 40	% PASSING (SIEVES) 200	% MOISTURE	% ORGANIC
SS-36	83' LT	63+86	1.0-1.5	A-2-4(0)	23	6	15.7	51.6	4.4	28.2	100	94	35		
SS-37	83' LT	63+86	3.6-5.1	A-4(0)	28	3	37.1	27.6	5.0	30.2	100	89	37		
SS-38	83' LT	63+86	13.6-15.1	A-6(6)	30	23	4.2	50.4	9.1	36.3	100	99	48		
S-22	60' RT	64+00	1.00-10.00	A-7-6(48)	70	44	0.4	5.1	29.0	65.4	99	99	94		



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(A) LOOSE TAN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)

END UNDERCUT -L- STA. 68+75

MEDIUM STIFF TAN SANDY CLAY, MOIST (UNDIVIDED COASTAL PLAIN)

LOOSE GRAY SILTY SAND, MOIST TO SATURATED (UNDIVIDED COASTAL PLAIN)

68+50.00

(A) LOOSE TAN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)

MEDIUM STIFF TAN SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

4/08

LOOSE GRAY SILTY SAND, SATURATED (UNDIVIDED COASTAL PLAIN)

68+00.00

(A) LOOSE TAN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)

MEDIUM STIFF TAN SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

LOOSE GRAY SILTY SAND, SATURATED (UNDIVIDED COASTAL PLAIN)

BEGIN UNDERCUT -L- STA. 67+25

67+50.00

LOOSE TAN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)

DRY
8/08

67+00.00

LOOSE TAN SILTY SAND, MOIST TO SATURATED (UNDIVIDED COASTAL PLAIN)

66+50.00

4/08

LOOSE TAN SILTY SAND, MOIST TO SATURATED (UNDIVIDED COASTAL PLAIN)

66+00.00

UNDERCUT EXCAVATION

-L-

8/23/99

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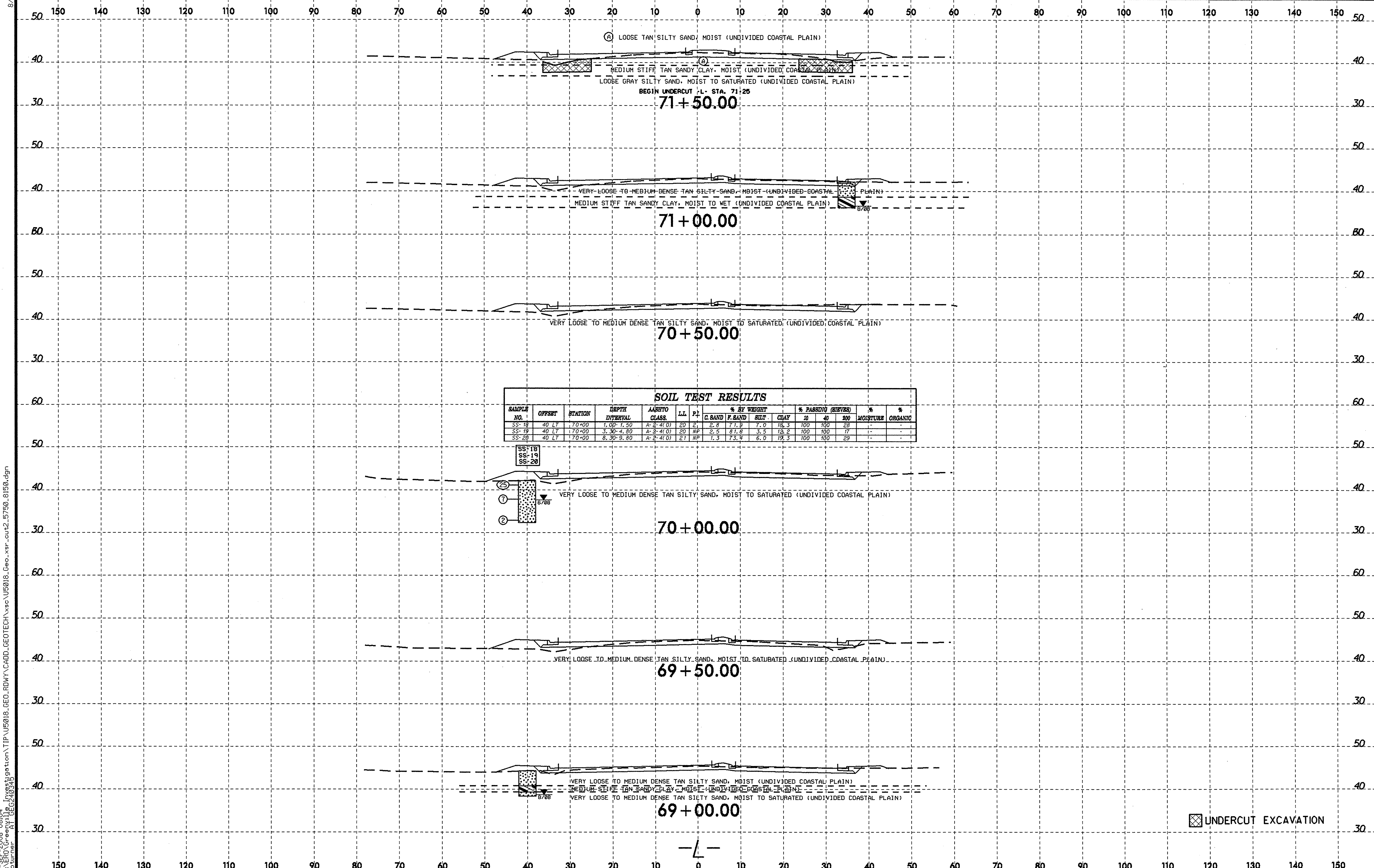
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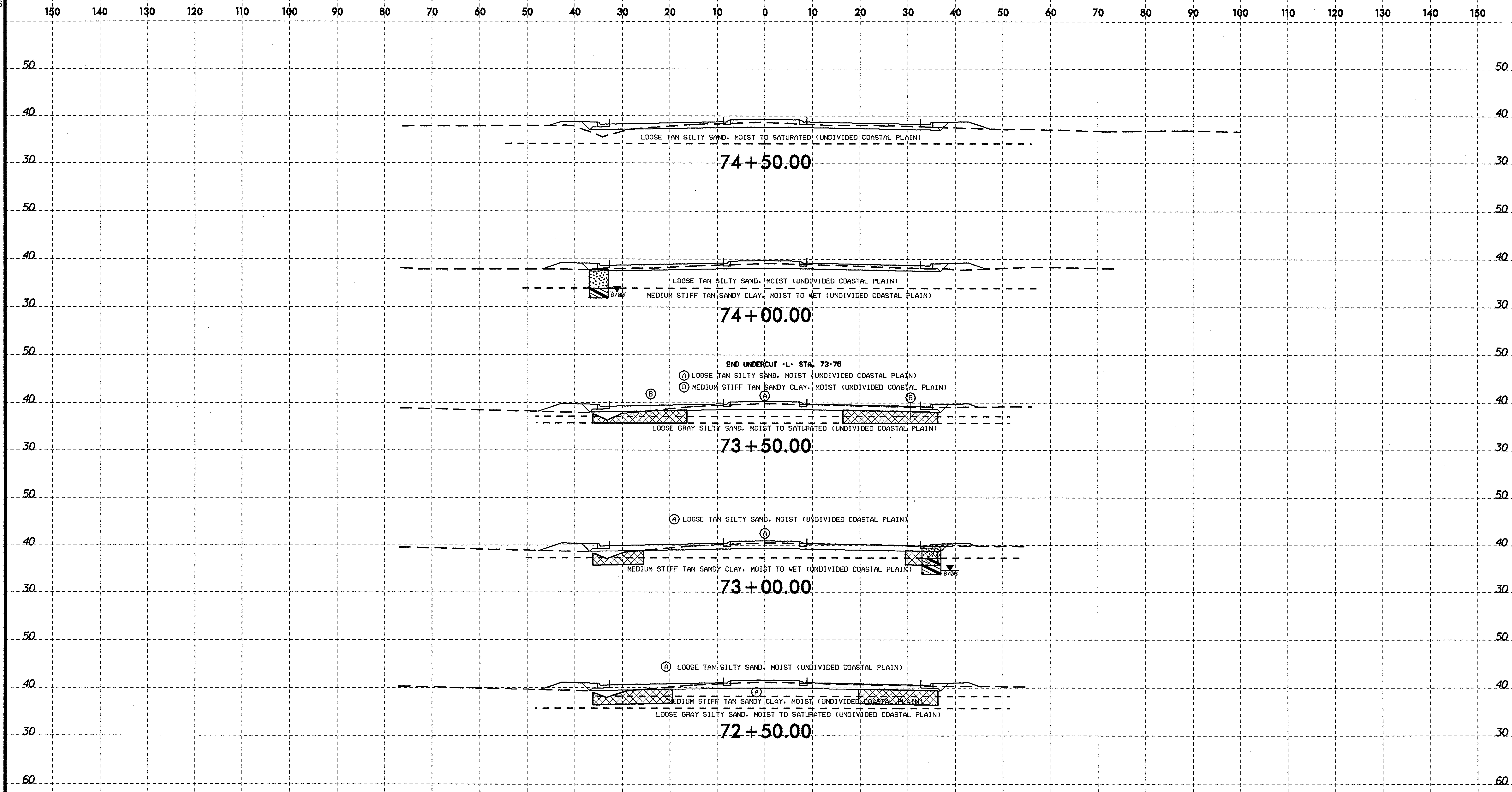
(A) LOOSE TAN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)
MEDIUM STIFF TAN SANDY CLAY, MOIST (UNDIVIDED COASTAL PLAIN)
LOOSE GRAY SILTY SAND, MOIST TO SATURATED (UNDIVIDED COASTAL PLAIN)
BEGIN UNDERCUT -L- STA. 71+25
71+50.00
VERY LOOSE TO MEDIUM DENSE TAN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)
MEDIUM STIFF TAN SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)
71+00.00
VERY LOOSE TO MEDIUM DENSE TAN SILTY SAND, MOIST TO SATURATED (UNDIVIDED COASTAL PLAIN)
70+50.00
SS-18
SS-19
SS-20
VERY LOOSE TO MEDIUM DENSE TAN SILTY SAND, MOIST TO SATURATED (UNDIVIDED COASTAL PLAIN)
70+00.00
VERY LOOSE TO MEDIUM DENSE TAN SILTY SAND, MOIST TO SATURATED (UNDIVIDED COASTAL PLAIN)
69+50.00
VERY LOOSE TO MEDIUM DENSE TAN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)
MEDIUM STIFF TAN SANDY CLAY, MOIST (UNDIVIDED COASTAL PLAIN)
VERY LOOSE TO MEDIUM DENSE TAN SILTY SAND, MOIST TO SATURATED (UNDIVIDED COASTAL PLAIN)
69+00.00
-L-
UNDERCUT EXCAVATION

SOIL TEST RESULTS

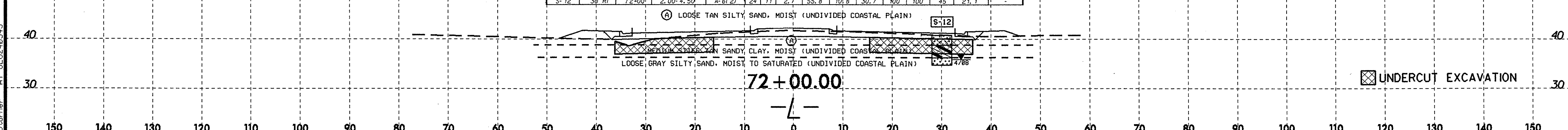
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-18	40 LT	70+00	1.00-1.50	A-2-4(0)	20	2	2.8	71.9	7.0	18.3	100	100	28	-	-
SS-19	40 LT	70+00	3.30-4.80	A-2-4(0)	20	NP	2.5	81.8	3.5	12.2	100	100	17	-	-
SS-20	40 LT	70+00	8.30-9.80	A-2-4(0)	21	NP	1.3	73.4	6.0	19.3	100	100	29	-	-



LOOSE TAN SILTY SAND, MOIST TO SATURATED (UNDIVIDED COASTAL PLAIN)
74+50.00
LOOSE TAN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)
MEDIUM STIFF TAN SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)
74+00.00
END UNDERCUT -L- STA. 73+75
(A) LOOSE TAN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)
(B) MEDIUM STIFF TAN SANDY CLAY, MOIST (UNDIVIDED COASTAL PLAIN)
LOOSE GRAY SILTY SAND, MOIST TO SATURATED (UNDIVIDED COASTAL PLAIN)
73+50.00
(A) LOOSE TAN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)
MEDIUM STIFF TAN SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)
73+00.00
(A) LOOSE TAN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)
MEDIUM STIFF TAN SANDY CLAY, MOIST (UNDIVIDED COASTAL PLAIN)
LOOSE GRAY SILTY SAND, MOIST TO SATURATED (UNDIVIDED COASTAL PLAIN)
72+50.00

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	% BY WEIGHT F. SAND	% BY WEIGHT SILT	% BY WEIGHT CLAY	% PASSING (SIEVES) 10	% PASSING (SIEVES) 40	% PASSING (SIEVES) 200	% MOISTURE	% ORGANIC
S-12	30 RT	72+00	2.00-4.50	A-6(2)	24	11	2.7	55.8	10.8	30.7	100	100	45	21.1	-



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8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-5018	53

LOOSE TAN SILTY SAND, MOIST TO SATURATED (UNDIVIDED COASTAL PLAIN)

77+50.00

LOOSE TAN SILTY SAND, MOIST TO SATURATED (UNDIVIDED COASTAL PLAIN)

8/08

MEDIUM STIFF TAN SANDY CLAY, MOIST (UNDIVIDED COASTAL PLAIN)

77+00.00

LOOSE TAN SILTY SAND, MOIST TO SATURATED (UNDIVIDED COASTAL PLAIN)

76+50.00

4/08

LOOSE TAN SILTY SAND, MOIST TO SATURATED (UNDIVIDED COASTAL PLAIN)

76+00.00

LOOSE TAN SILTY SAND, MOIST TO SATURATED (UNDIVIDED COASTAL PLAIN)

75+50.00

END UNDERCUT -L- STA. 75+25

LOOSE TAN SILTY SAND, MOIST (UNDIVIDED COASTAL PLAIN)

MEDIUM STIFF TAN SANDY CLAY, MOIST (UNDIVIDED COASTAL PLAIN

BEGIN UNDERCUT -L- STA. 74+75

75+00.00

DRY

8/08

UNDERCUT EXCAVATION

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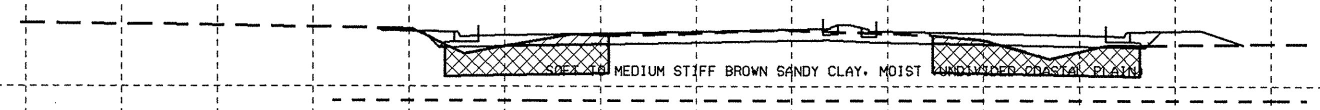
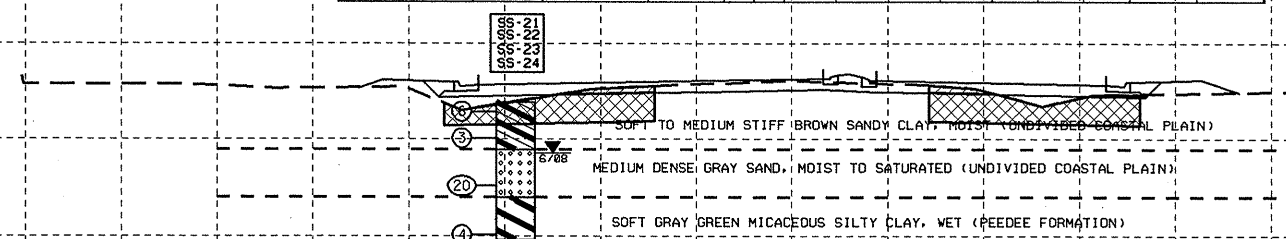
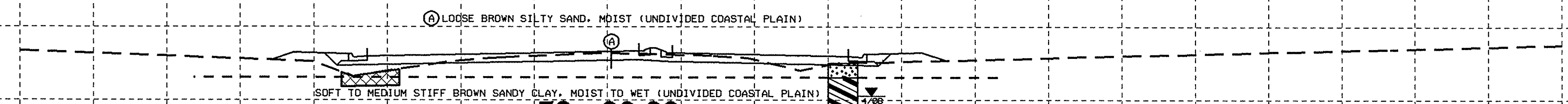
PROJ. REFERENCE NO.	SHEET NO.
U-5018	54

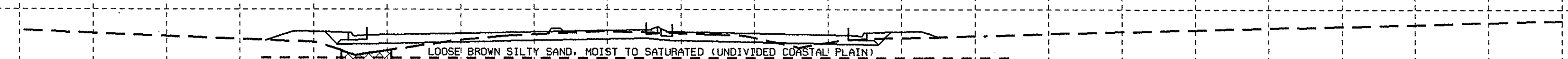


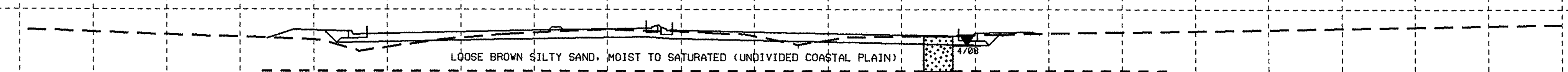
SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-21	32 LT	79+50	1.00-2.50	A-6(6)	31	14	2.4	47.9	17.2	32.5	100	100	54	14.8	-
SS-22	32 LT	79+50	2.80-4.30	A-6(4)	28	13	2.6	47.9	19.0	30.5	100	100	55	-	-
SS-23	32 LT	79+50	7.80-9.30	A-3(0)	16	NP	46.2	49.5	2.2	2.0	100	80	6	-	-
SS-24	32 LT	79+50	12.80-14.30	A-7-6(14)	42	15	1.0	21.7	36.6	40.6	100	99	85	-	-









UNDERCUT EXCAVATION

UNSUITABLE UNCLASSIFIED EXCAVATION

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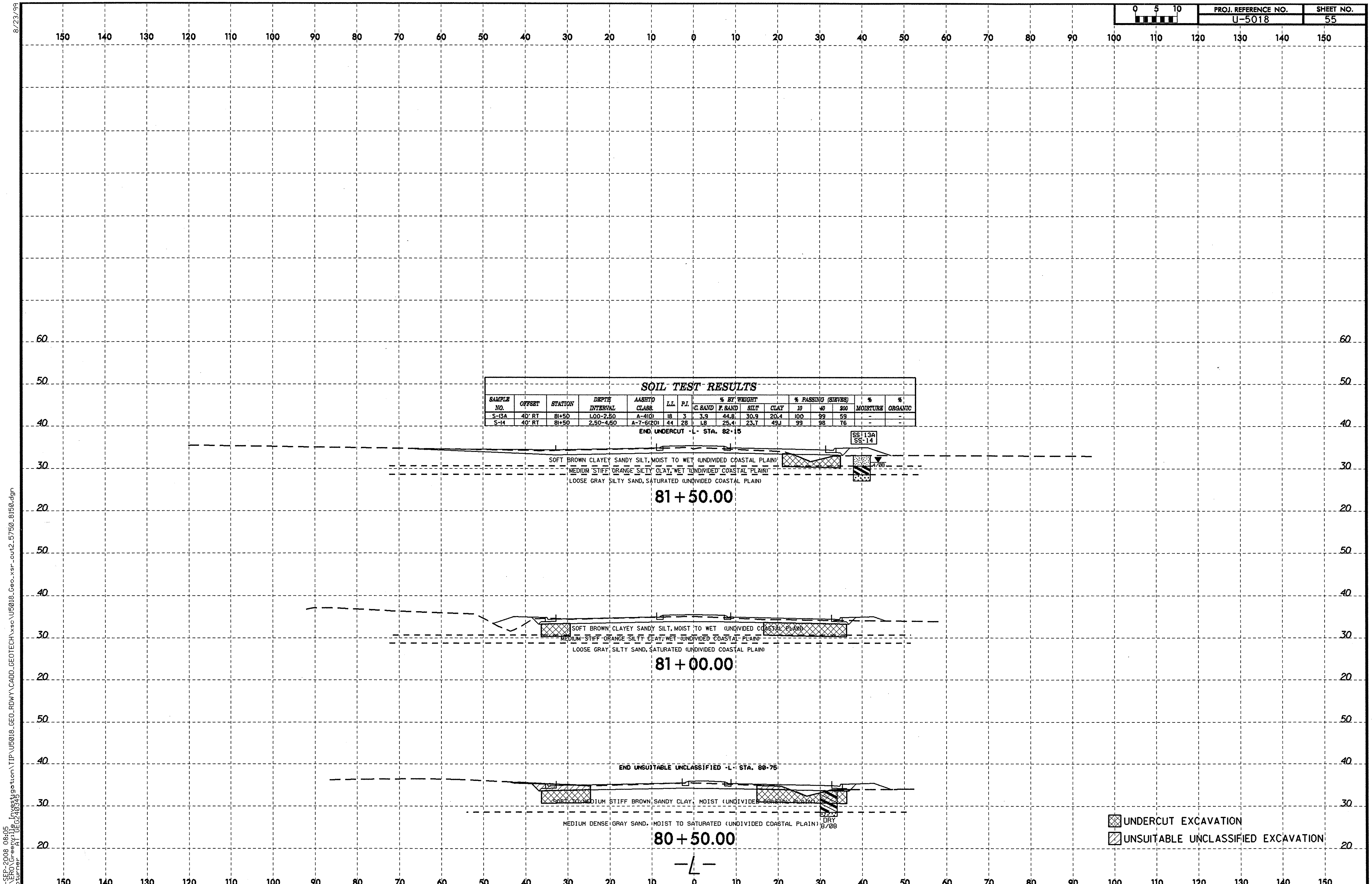
cpturner AT GEO240345

PROJ. REFERENCE NO.	SHEET NO.
U-5018	55

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-13A	40' RT	81+50	1.00-2.50	A-4(0)	18	3	3.9	44.8	30.9	20.4	100	99	59	-	-
S-14	40' RT	81+50	2.50-4.50	A-7-6(20)	44	28	1.8	25.4	23.7	49.1	99	98	76	-	-



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150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150
60
50
40
30
20
END UNDERCUT -L- STA. 82+15
SS-13A
SS-14
4/08
SOFT BROWN CLAYEY SANDY SILT, MOIST TO WET (UNDIVIDED COASTAL PLAIN)
MEDIUM STIFF ORANGE SILTY CLAY, WET (UNDIVIDED COASTAL PLAIN)
LOOSE GRAY SILTY SAND, SATURATED (UNDIVIDED COASTAL PLAIN)
81+50.00
SOFT BROWN CLAYEY SANDY SILT, MOIST TO WET (UNDIVIDED COASTAL PLAIN)
MEDIUM STIFF ORANGE SILTY CLAY, WET (UNDIVIDED COASTAL PLAIN)
LOOSE GRAY SILTY SAND, SATURATED (UNDIVIDED COASTAL PLAIN)
81+00.00
END UNSUITABLE UNCLASSIFIED -L- STA. 80+75
SOFT TO MEDIUM STIFF BROWN SANDY CLAY, MOIST (UNDIVIDED COASTAL PLAIN)
MEDIUM DENSE GRAY SAND, MOIST TO SATURATED (UNDIVIDED COASTAL PLAIN)
DRY
8/08
80+50.00
-L-
UNDERCUT EXCAVATION
UNSUITABLE UNCLASSIFIED EXCAVATION

8/23/99

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