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STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-5311A	1	137

REFERENCE: R-5311A

PROJECT: 45449

SEE SHEET 3 FOR PLAN SHEET LAYOUT AT TIME OF INVESTIGATION

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LINE	STATION	PLAN	PROFILE
-EL-	310+00 - 355+00	4-7	12-15
-L2-	10+00 - 23+91	7	16
-Y1-	13+75 - 36+85	4,8,9	17,18
-Y2-	35+00 - 65+40	7,10,11	19-21
-Y2LPB-	10+00 - 22+16	7	22
-Y2LPD-	10+00 - 21+11	7	23
-DR1-	10+00 - 11+50	8	24
-DR2-	10+00 - 11+45	9	24
-DET1-	10+00 - 29+11	7,10	25,26

CROSS SECTIONS

LINE	STATION	SHEETS
-EL-	311+00 - 353+50	27 - 45
-L2-	12+00 - 22+50	46 - 55
-Y1-	13+75 - 36+85	56 - 90
-Y2-	35+00 - 63+50	91 - 104
-Y2LPB-	12+54 - 18+50	105 - 110
-Y2LPD-	12+45 - 19+00	111 - 116
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-DR2-	10+00	118
-DET1-	10+00 - 25+00	119 - 131

BORING LOGS 132 - 135

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

ROADWAY SUBSURFACE INVESTIGATION

COUNTY *HERTFORD*

PROJECT DESCRIPTION *WEST OF MODLIN ROAD TO EAST OF NC 11 /SR 1213 (OLD NC 11 ROAD).*

INVENTORY

CAUTION NOTICE

THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WERE MADE FOR THE PURPOSE OF STUDY, PLANNING AND DESIGN, AND NOT FOR CONSTRUCTION OR PAY PURPOSES. THE VARIOUS FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA AVAILABLE MAY BE REVIEWED OR INSPECTED IN RALEIGH BY CONTACTING THE N. C. DEPARTMENT OF TRANSPORTATION, GEOTECHNICAL ENGINEERING UNIT AT (919) 707-6850. THE SUBSURFACE PLANS AND REPORTS, FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA ARE NOT 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 THE 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.

NOTES:
1. THE INFORMATION CONTAINED HEREIN IS NOT IMPLIED OR GUARANTEED BY THE N. C. DEPARTMENT OF TRANSPORTATION AS ACCURATE NOR IS IT CONSIDERED PART OF THE PLANS, SPECIFICATIONS OR CONTRACT FOR THE PROJECT.
2. BY HAVING REQUESTED THIS INFORMATION, THE CONTRACTOR SPECIFICALLY WAIVES ANY CLAIMS FOR INCREASED COMPENSATION OR EXTENSION OF TIME BASED ON DIFFERENCES BETWEEN THE CONDITIONS INDICATED HEREIN AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

PERSONNEL

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C. JONES
C. MYERS
B. HOWEY
R. DeLOST
M. COOGAN
M. MORGAN

INVESTIGATED BY *HDR ENGINEERING, INC. HDR-ICA, MAD, INC*

DRAWN BY *CGM*

CHECKED BY *BDK*

SUBMITTED BY *HDR ENGINEERING, INC.*

DATE *9/2016*

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SIGNATURE DATE

NORTH CAROLINA PROFESSIONAL SEAL 023916 ENGINEER BRIAN D. KEANEY

DocuSigned by:
Brian D Keaney
79CD97E4882C436...

10/31/2016

SIGNATURE DATE

PROJECT REFERENCE NO.	SHEET NO.
R-5311A	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 UNCONSOLIDATED, SEMI-CONSOLIDATED, OR WEATHERED EARTH MATERIALS THAT CAN BE PENETRATED WITH A CONTINUOUS FLIGHT POWER AUGER AND YIELD LESS THAN 100 BLOWS PER FOOT ACCORDING TO THE STANDARD PENETRATION TEST (AASHTO T 206, ASTM D1586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY INCLUDE THE FOLLOWING: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. FOR 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
MATERIAL PASSING #40 LL PI	— 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 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 0.5 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 SL — SHRINKAGE LIMIT	- MOIST - (M)	SOLID; AT OR NEAR OPTIMUM MOISTURE
	- DRY - (D)	REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE

PLASTICITY

	PLASTICITY INDEX (PI)	DRY STRENGTH
NON PLASTIC	0-5	VERY LOW
SLIGHTLY PLASTIC	6-15	SLIGHT
MODERATELY PLASTIC	16-25	MEDIUM
HIGHLY PLASTIC	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.
UNIFORMLY GRADED - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE.
GAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLE SIZES 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 WHEN THEY ARE CONSIDERED OF SIGNIFICANCE.

COMPRESSIBILITY

SLIGHTLY COMPRESSIBLE	LL < 31
MODERATELY COMPRESSIBLE	LL = 31 - 50
HIGHLY COMPRESSIBLE	LL > 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
- SPT / DPT DMT / VST PMT — TEST BORING
- AUGER BORING
- CORE BORING
- MW — MONITORING WELL
- PIEZOMETER INSTALLATION
- SLOPE INDICATOR INSTALLATION
- CONE PENETROMETER TEST
- SOUNDING ROD
- TEST BORING WITH CORE
- SPT N-VALUE

RECOMMENDATION SYMBOLS

- UNDERCUT
- SHALLOW UNDERCUT
- UNCLASSIFIED EXCAVATION - UNSUITABLE WASTE
- UNCLASSIFIED EXCAVATION - ACCEPTABLE DEGRADABLE ROCK
- UNCLASSIFIED EXCAVATION - ACCEPTABLE, BUT NOT TO BE USED IN THE TOP 3 FEET OF EMBANKMENT OR BACKFILL

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

SAMPLE ABBREVIATIONS

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

EQUIPMENT USED ON SUBJECT PROJECT

DRILL UNITS:
- [X] CME-45C
- [ ] CME-55
- [ ] CME-550
- [ ] VANE SHEAR TEST
- [ ] PORTABLE HOIST
- [ ] _____
- [ ] _____

ADVANCING TOOLS:
- [ ] CLAY BITS
- [ ] 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 _____ [ ] -H _____
- [ ] -N _____

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

ROCK DESCRIPTION

HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT REFUSAL IF TESTED. 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, WOULD YIELD SPT N VALUES > 100 BPF*
VERY SEVERE (V SEV.)	ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC ELEMENTS ARE DISCERNIBLE BUT MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK REMAINING. SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE THAT ONLY MINOR VESTIGES OF ORIGINAL ROCK FABRIC REMAIN. *IF TESTED, WOULD YIELD 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 FOOT
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 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, SUCH 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: FEET

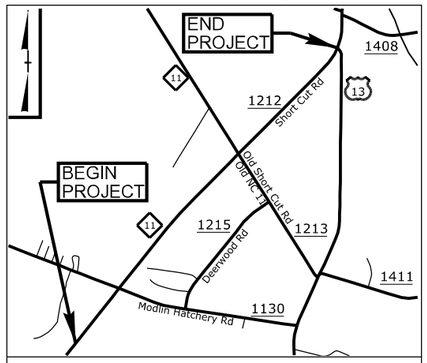
NOTES:

BORING AND GROUND SURFACE ELEVATIONS OBTAINED FROM "53IIA_LS_TIN_150213.TIN" FILE DATED 2/15/13

FIAD- FILLED IMMEDIATELY AFTER DRILLING

DATE: 8-15-14

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



VICINITY MAP

25% PLANS

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

HERTFORD COUNTY

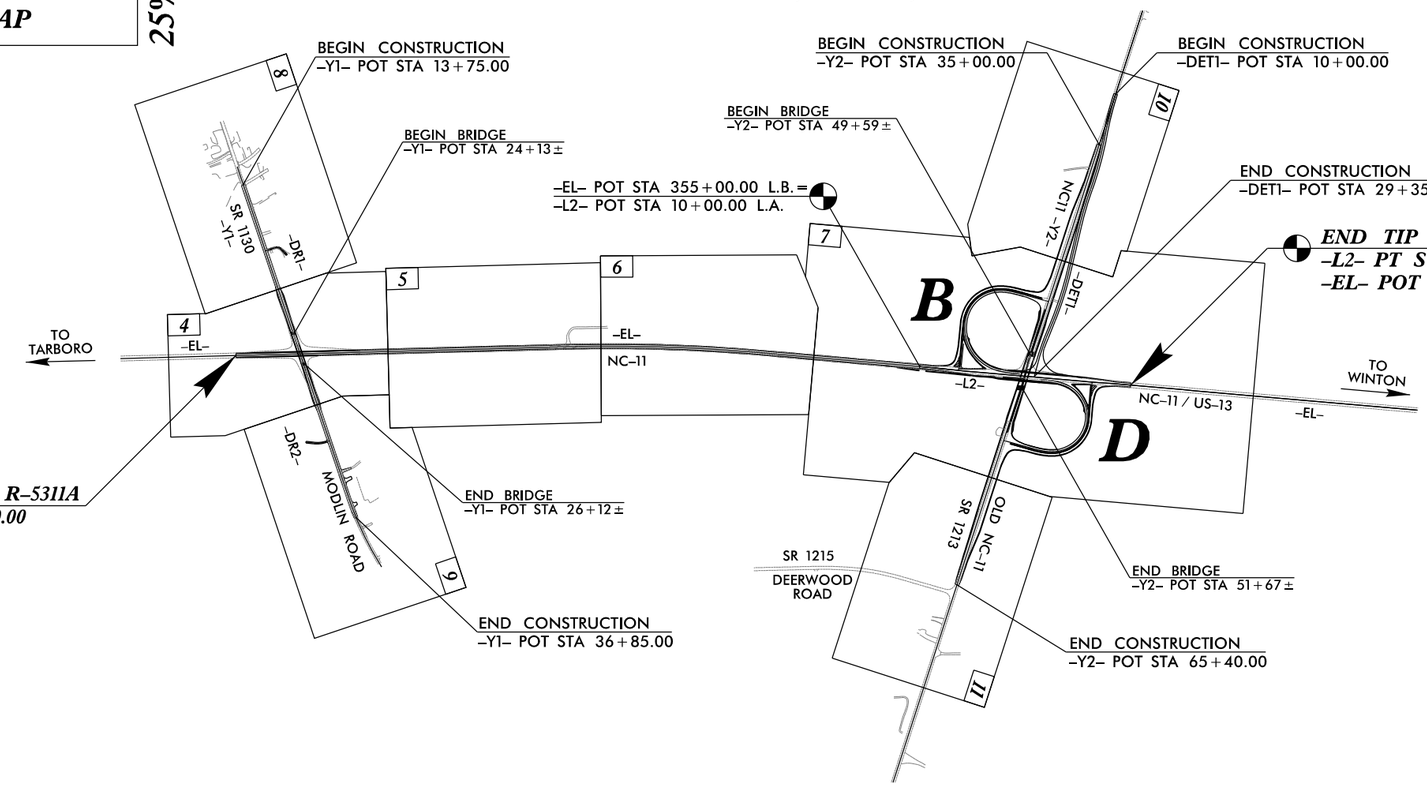
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-5311A	3	137

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
45449.1.2	NHF-0013(37)	P.E.

LOCATION: *WEST OF MODLIN ROAD TO EAST OF NC 11/SR 1213 (OLD NC 11 ROAD). CONSTRUCT GRADE SEPARATION AT SR 1130 (MODLIN ROAD) AND INTERCHANGE AT OLD NC 11/SR 1213 (OLD NC 11 ROAD).*

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

NAD 83/ NSRS 2007



NOTES:

THIS IS A CONTROLLED ACCESS PROJECT WITH ACCESS BEING LIMITED TO INTERCHANGES.

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

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

GRAPHIC SCALES

PLANS: 50 25 0 50 100

PROFILE (HORIZONTAL): 50 25 0 50 100

PROFILE (VERTICAL): 10 5 0 10 20

DESIGN DATA

ADT (2017) = 7,500
ADT (2036) = 10,830
K = 10 %
D = 55 %
T = 26 % *
V = 60 MPH
* TTST = 22% DUAL 4%
FUNC CLASS = ARTERIAL
REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT R-5311A = 1.116 MILES

TOTAL LENGTH TIP PROJECT R-5311A = 1.116 MILES

Prepared for the North Carolina Department of Transportation In the office of:

ICA Engineering
5121 Kingdom Way, Suite 100
Raleigh, NC 27607
NC License No: P-0258

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: JUNE 17, 2016

LETTING DATE: JUNE 20, 2017

DAVID C. WALLER, PE
PROJECT ENGINEER

DENA SNEAD, PE
PROJECT DESIGN ENGINEER

GARY LOVERING, PE
ROADWAY DESIGN - PROJECT ENGINEER

HYDRAULICS ENGINEER

P.E.
SIGNATURE:

ROADWAY DESIGN ENGINEER

P.E.
SIGNATURE:

DIVISION OF HIGHWAYS

STATE OF NORTH CAROLINA

CONTRACT:

$DATE$
$FILE$
$$$USERNAME$$$$

September 22, 2016

STATE PROJECT: 45449.1.2
TIP NUMBER: R-5311A
F.A. PROJECT: NHF-0013(37)
COUNTY: Hertford
DESCRIPTION: West of Modlin Road to East of NC 11 / SR 1213 (Old NC 11 Road)

SUBJECT: Geotechnical Roadway Inventory Report

PROJECT DESCRIPTION

The R-5311A project is an existing alignment designed to help increase the flow of traffic around the town of Ahoskie in eastern North Carolina. The R-5311A project consists of improving the current NC 11 / SR 1213 roadway by resurfacing the current NC 11 from west of Modlin Road to just east of the intersection of SR 1213 (Old NC 11) over existing NC 11. It also includes bridges at the Y lines and associated embankment fill. The bridge at –Y2- involves a new interchange with two loops with small ramp tie ins. The project length is approximately 1.1 miles along NC 11 (-EL-).

The field investigation was conducted in August 2015, using two CME-45C track rigs with automatic hammers. Standard Penetration Tests (SPT) were performed at selected locations. Representative soil samples were collected and forwarded to an approved NCDOT M&T testing facility for soil quality analysis, moisture content, and AASHTO classification. All available test locations are plotted on the plan view and also appear projected into the profiles and selected cross sections.

The following alignments, totaling approximately 3 miles, were investigated

Line	Station			Length (ft)
-EL-	310+00	to	355+00	4500
-L2-	10+00	to	23+91	1,391
-Y1-	13+75	to	36+85	2,310
-Y2-	35+00	to	65+40	3,040
-Y2LPB-	10+00	to	22+16	1,216
-Y2LPD-	10+00	to	21+11	1,111
-DR1-	10+00	to	11+50	150
-DR2-	10+00	to	11+45	145
-DET1-	10+00	To	29+11	1,911
			Total =	15,774 (~3 miles)

Note the original project was longer and involved widening of NC 11. Our investigation was based on that proposed plan set and HDR investigated the site before the updated plans were presented that only involve resurfacing of NC 11. However, the additional borings outside of this revised project scope are presented as boring logs at the end of this Inventory.

PHYSIOGRAPHY AND GEOLOGY

Physiography and Geography

The project is located in the Coastal Plain Physiographic Province. Geologically, it is located in an area mapped as Tertiary Age deposits of the Yorktown Formation described as fossiliferous clay with varying amounts of fine grained sand. The topography is flat and the drainage from the area is very poor. The soils along the project were deposited during periods of fluctuating shoreline.

Soil Properties

Soils encountered on the project site include roadway embankment, artificial fill, and Undivided Coastal Plain sediments.

Roadway embankment soils are present in borings advanced on the shoulders of the existing roadways and typically consists of fine to coarse sand, clayey sand (A-3, A-2-4, A-2-6/7) and silt (A-4). These soils fluctuate from dry to wet in moisture content and range in thickness from a few feet to approximately 7 feet.

Artificial fill soils are present in the upper few feet along existing driveway alignment –DR1- and consist of fine sand (A-2-4).

The Undivided Coastal Plain deposits are present at all boring locations and consist of fine to coarse sand and clayey sand (A-1-b, A-3, A-2-4, A-2-6/7), clay (A-6, A-7-6), and silt (A-4). The consistency of the sands is generally loose to medium dense while the consistency of the clays and silts is generally medium stiff to stiff. The moisture content of the soils in this region vary from dry to saturated.

Groundwater

Groundwater was encountered from the surface to 11 feet below grade, with an average depth of 5 feet below the existing ground surface in the borings advanced at the site. Based on the proposed grades, no special ditches for groundwater are anticipated.

Areas of Special Geotechnical Interest

Much of the main alignment (-EL-) for the project calls for resurfacing of the existing pavement. No construction is expected to occur beneath this section of roadway. Along proposed sections of roadway,

hdrinc.com

555 Fayetteville Street, Suite 900, Raleigh, NC 27601
(919) 232-6600

particularly ditch lines, cohesive soils were found in shallow subsurface areas of the project. Table 1 below shows the locations where this material is found along the project.

Table 1 – Highly Plastic Material along Project

Alignment	Begin Station	End Station
-Y1-	13+75	23+50
-Y1-	14+00	24+00
-Y1-	26+50	36+50
-Y1-	34+00	36+50

Material cohesive in nature was also found within 3 feet of the proposed roadway surface along stations found in Table 2. These soils are known to cause problems such as shrink and swell of the roadway subgrade leading to cracking and heaving of the pavement surface. See the recommendations report for further information.

Table 2 – Potential for Moderately to Highly Plastic Soil Subgrades

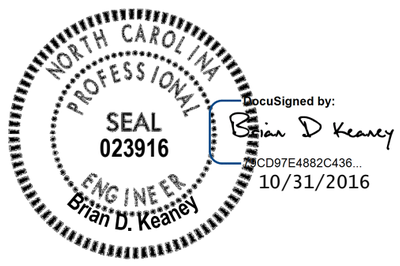
Alignment	Begin Station	End Station
-Y2-	35+00	39+00
-Y2LPB-	12+54	13+52
Y2LPD-	12+45	13+40

Geotechnical Testing

The following undisturbed samples were obtained to determine engineering properties of the soil:

Boring	Sample No.	Depth (ft)	Tests
EL_31452L	ST-1	41.5’ – 43.5’	Consolidation, Class, Moisture
L2_1791L	ST-2	50.0’ – 52.0’	Consolidation, Class, Moisture
L2_1894L	ST-6	14.2’ – 16.2’	CU, Class, Moisture
Y1_2375R	ST-3	11.0’ – 13.0’	Consolidation, Class, Moisture
Y2LPD_2084L	ST-5	19.0’ – 21.0’	CU, Class, Moisture
Y2LPD_2084L	ST-7	34.0’ – 36.0’	Class, Moisture
Y2LPD_2169L	ST-4	19.8’ – 21.8’	Class, Moisture

Sincerely,
HDR ENGINEERING, INC.



Brian D. Keaney, PE
Geotechnical Project Manager

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NC License No: F-0258

PROJECT REFERENCE NO.	SHEET NO.
R-5311A	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ADT 2017 / ADT 2037	-Y1-	1,500 / 2,170
3,770 / 5,580	-L2- NC 11	-L2- SHORT CUT RD 3,770 / 5,580
	-Y1-	1,500 / 2,170

NAD 83/NSRS 2007

MATCHLINE -Y1- STA 21+00
SEE SHEET 8

MICHAEL LEE MORRIS AND WIFE JOY S. MORRIS
PIN#5984-71-9444
DB 718 PG 312

DELANO R. LANG, JR.
PIN#5984-81-2737
DB 153 PG 517
WILL FILE 89-E-13
MB 1PG 588 1/2

BEGIN APPROACH SLAB
-Y1- POT STA 23+97 +/-
BEGIN BRIDGE
-Y1- POT STA 24+13 +/-

BEGIN TIP PROJECT R-5311A
-EL- POT STA 310+00.00

-L- POT STA 95+14.45 =
-Y1- POT STA 25+12.22

-EL- POT STA 314+22.22 =
-Y1- POT STA 25+47.22

SINGLE FACED CONCRETE BARRIER

OVERLAY EXISTING ROAD
-EL- STA 310+00.00 TO 355+00.00

END BRIDGE
-Y1- POT STA 26+12 +/-

END APPROACH SLAB
-Y1- POT STA 26+28 +/-

R5311A-1

EL_30764L
EL_30965R
EL_31114L
EL_31452L
EL_31748L
EL_31847L
EL_31
Y1_2150L
Y1_2375R
Y1_2650R

S 68° 47' 19.9" E

PROP. 47" WW FENCE

CULTIVATED

WOODS

NC HWY 11 - 32' BST

-EL-
N 38° 18' 17.1" E

4' PS

DRAW 250

TYPE B-77

MATCHLINE -EL- STA 320+00
SEE SHEET 5

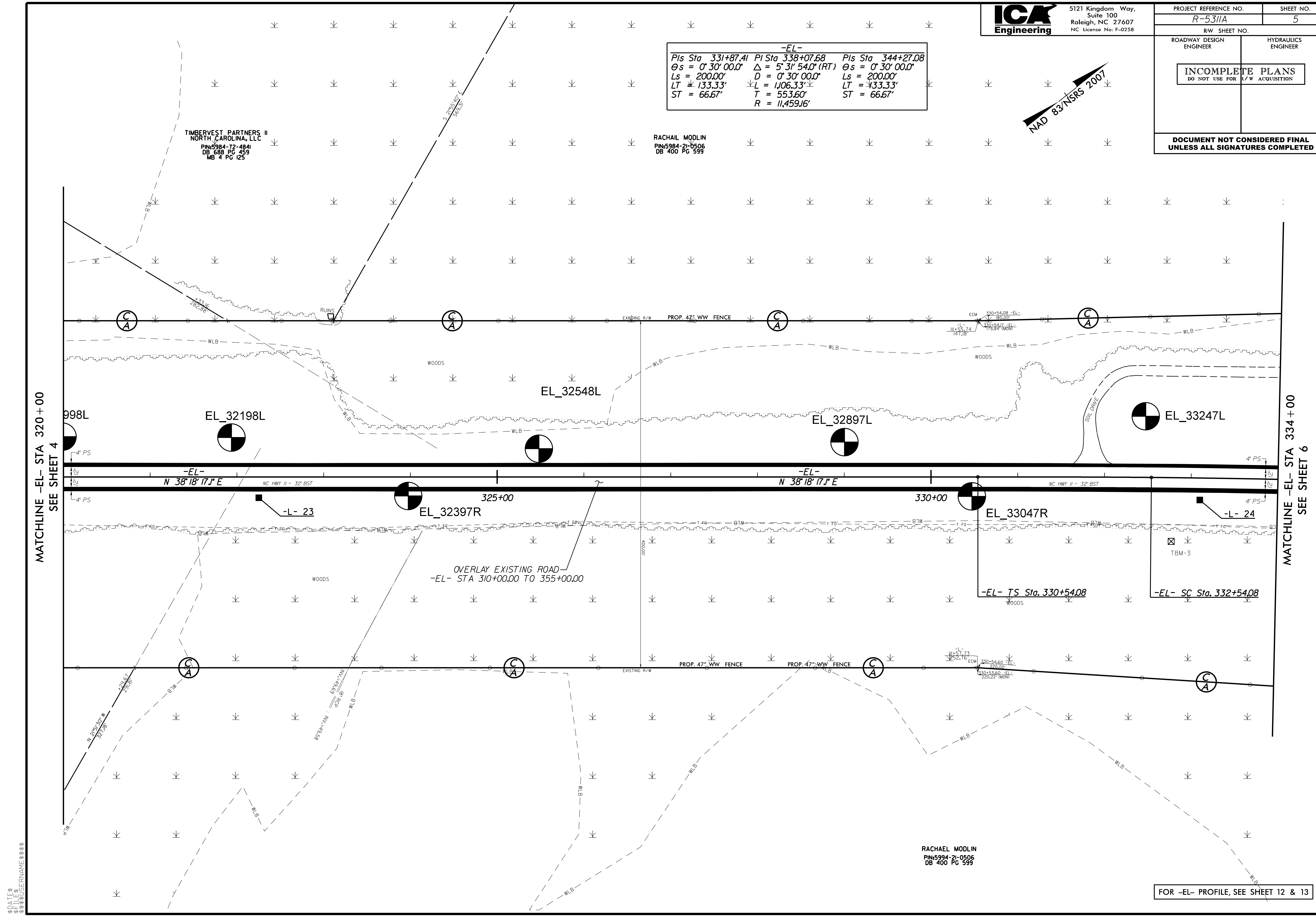
MATCHLINE -Y1- STA 29+00
SEE SHEET 9

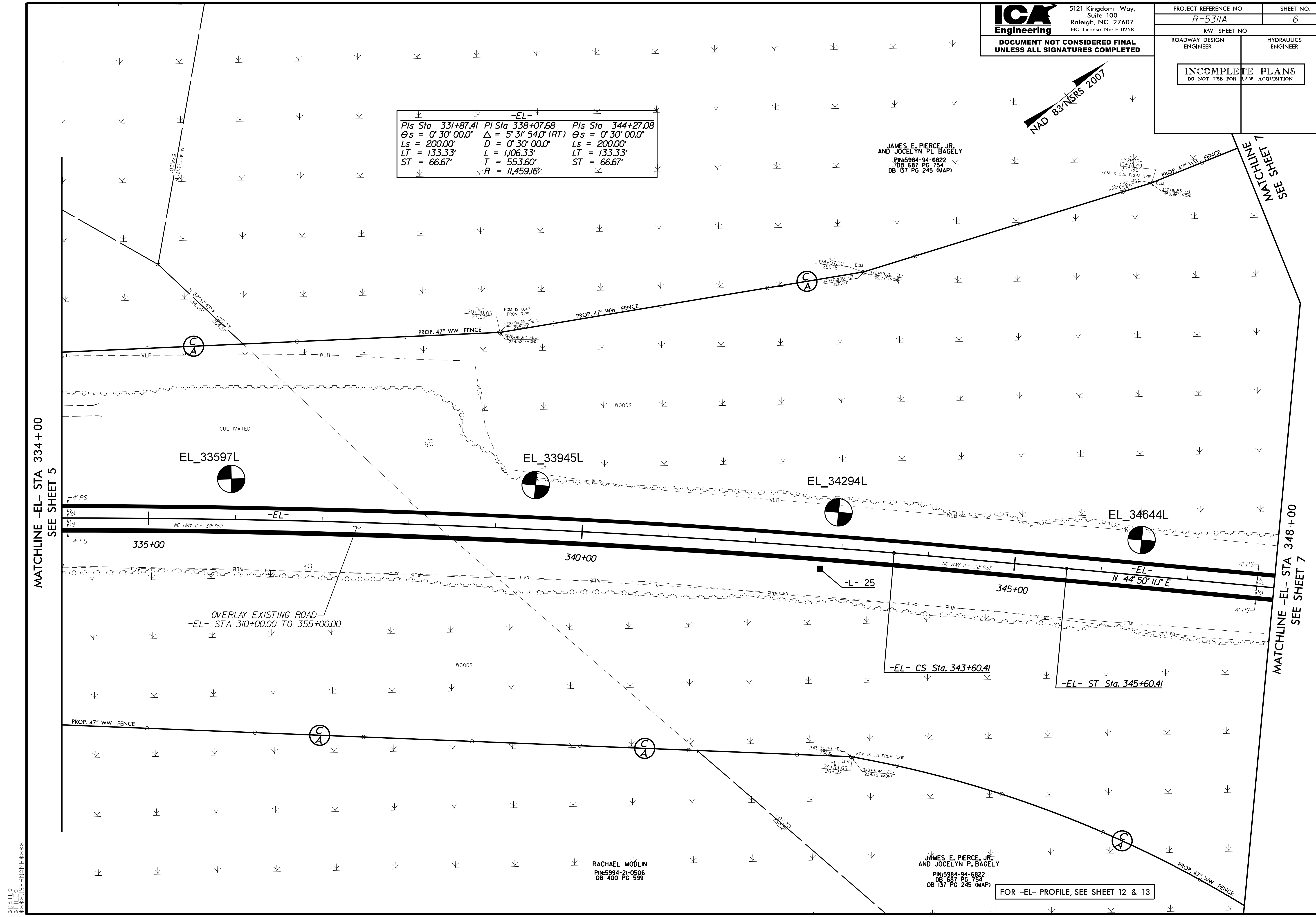
DELANO R. LANG, JR.
PIN#5984-80-2182
WILL FILE 89-E-13
DB 144 PG 68
DB 304 PG 150
DB 389 PG 755 (TRACT 2)
MB 1PG 588 1/2

PAVEMENT REMOVAL

FOR -EL- PROFILE, SEE SHEET 12 & 13
FOR -Y1- PROFILE, SEE SHEET 14 & 15

6/3/2016
$$$$FILE$$$$
$$$$USERNAME$$$$


ICA Engineering
5121 Kingdom Way, Suite 100
Raleigh, NC 27607
NC License No: F-0258
PROJECT REFERENCE NO.
R-5311A
SHEET NO.
5
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
-EL-
PIs Sta 331+87.41
Θs = 0° 30' 00.0"
Ls = 200.00'
LT = 133.33'
ST = 66.67'
PI Sta 338+07.68
Δ = 5° 31' 54.0" (RT)
D = 0° 30' 00.0"
L = 1,106.33'
T = 553.60'
R = 11,459.16'
PIs Sta 344+27.08
Θs = 0° 30' 00.0"
Ls = 200.00'
LT = 133.33'
ST = 66.67'
NAD 83/NSRS 2007
TIMBERVEST PARTNERS II NORTH CAROLINA, LLC
PIN:5984-72-4841
DB 688 PG 459
MB 4 PG 125
RACHAIL MODLIN
PIN:5984-21-0506
DB 400 PG 599
S 21°55'40" E
569.31'
+33.16
282.88'
RUINS
EXISTING R/W
PROP. 47" WW FENCE
ECM
330+54.08 -EL-
180.00'
330+54.17 -EL-
179.84' (MON)
-L-
111+55.74
147.18'
WLB
WOODS
SOIL DRIVE
EL_32548L
998L
EL_32198L
EL_32897L
EL_33247L
4' PS
12'
-EL-
N 38° 18' 17.1" E
NC HWY 11 - 32' BST
325+00
330+00
EL_32397R
EL_33047R
-L- 23
-L- 24
MATCHLINE -EL- STA 320+00
SEE SHEET 4
MATCHLINE -EL- STA 334+00
SEE SHEET 6
T FO
TBM-3
400.00'
OVERLAY EXISTING ROAD
-EL- STA 310+00.00 TO 355+00.00
-EL- TS Sta. 330+54.08
-EL- SC Sta. 332+54.08
+29.67
291.81'
N 21°51'30" W
327.18'
INV.=49.69
18" RCP
INV.=49.58
-L-
111+57.73
252.76'
330+54.60 -EL-
220.00'
330+53.60 -EL-
220.22' (MON)
RACHAEL MODLIN
PIN:5994-21-0506
DB 400 PG 599
FOR -EL- PROFILE, SEE SHEET 12 & 13
$DATE$
$FILE$
$$$USERNAME$$$$


ICA Engineering
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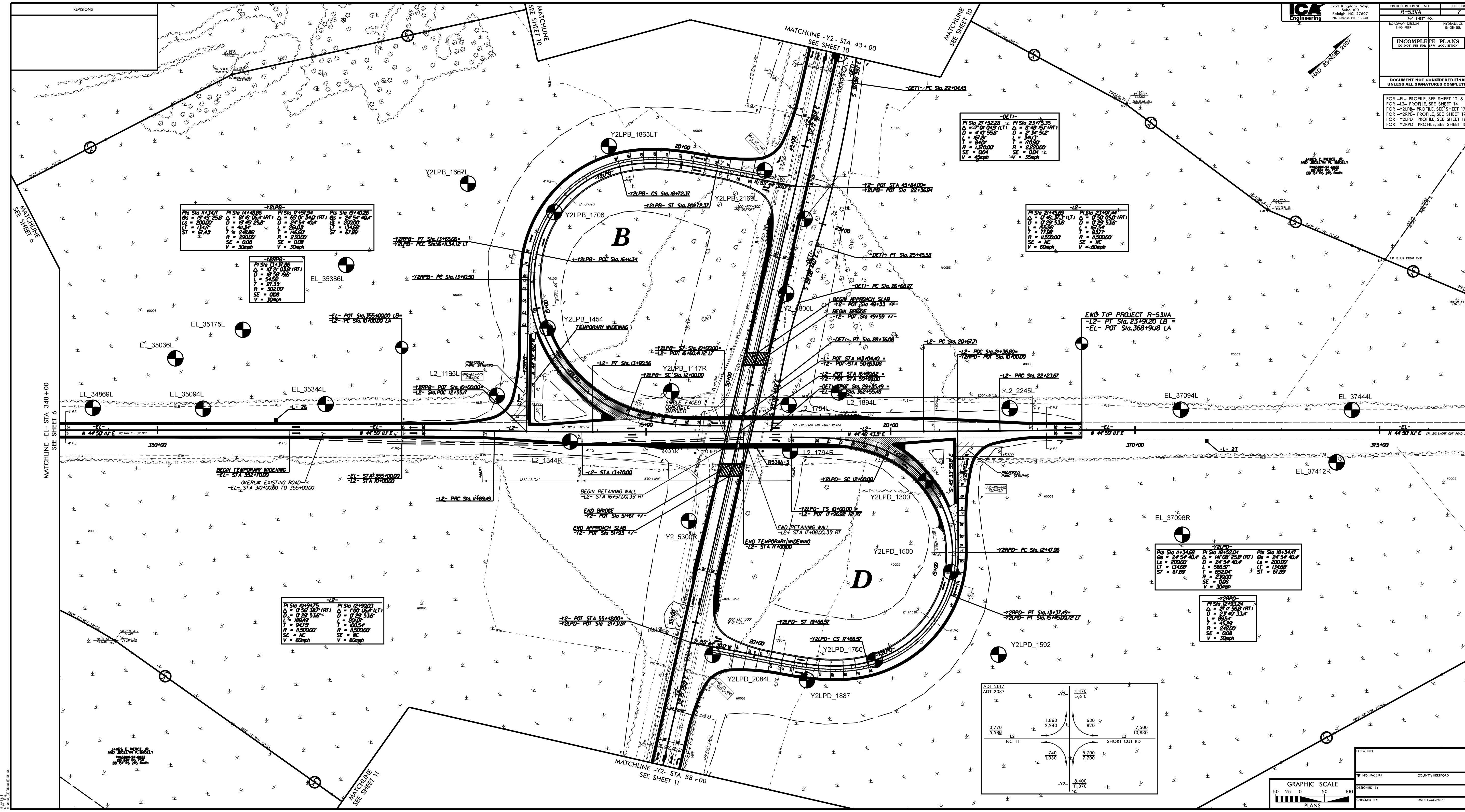
Raleigh, NC 27607
NC License No: F-0258
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
PROJECT REFERENCE NO.
R-5311A
SHEET NO.
6
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
NAD 83/NSRS 2007
-EL-
PIs Sta 331+87.41
θs = 0° 30' 00.0"
Ls = 200.00'
LT = 133.33'
ST = 66.67'
PI Sta 338+07.68
Δ = 5° 31' 54.0" (RT)
D = 0° 30' 00.0"
L = 1,106.33'
T = 553.60'
R = 11,459.16'
PIs Sta 344+27.08
θs = 0° 30' 00.0"
Ls = 200.00'
LT = 133.33'
ST = 66.67'
JAMES E. PIERCE, JR. AND JOCELYN PL BAGELY
PIN:5984-94-6822
DB 687 PG 754
DB 137 PG 245 (MAP)
N 40°23'17" W
574.60'
N 82°37'43" E +05.27
134.06'
264.51'
PROP. 47" WW FENCE
-L- 120+00.05
197.62'
ECM IS 0.47' FROM R/W
338+95.68 -EL-
225.00'
ECM
338+95.62 -EL-
224.52' (MON)
PROP. 47" WW FENCE
-L- 124+07.32
291.28'
ECM
343+00.00 -EL-
320.00'
342+99.80 -EL-
319.77' (MON)
-Y2RPB- 10+78.49
372.89'
ECM IS 0.51' FROM R/W
346+16.66 -EL-
451.57'
ECM
346+16.53 -EL-
450.96' (MON)
PROP. 47" WW FENCE
MATCHLINE SEE SHEET 7
WLB
WOODS
CULTIVATED
EL_33597L
EL_33945L
EL_34294L
EL_34644L
MATCHLINE -EL- STA 334+00
SEE SHEET 5
4' PS
12'
12'
4' PS
-EL-
NC HWY 11 - 32' BST
335+00
340+00
345+00
-L- 25
-EL-
N 44° 50' 11.1" E
4' PS
4' PS
MATCHLINE -EL- STA 348+00
SEE SHEET 7
T FO
OVERLAY EXISTING ROAD
-EL- STA 310+00.00 TO 355+00.00
-EL- CS Sta. 343+60.41
-EL- ST Sta. 345+60.41
WOODS
PROP. 47" WW FENCE
343+30.20 -EL-
238.15'
ECM IS 1.21' FROM R/W
-L- ECM
124+34.65
268.22'
343+31.44 -EL-
239.49' (MON)
+02.70
440.21'
RACHAEL MODLIN
PIN:5994-21-0506
DB 400 PG 599
JAMES E. PIERCE, JR. AND JOCELYN P. BAGELY
PIN:5984-94-6822
DB 687 PG 754
DB 137 PG 245 (MAP)
FOR -EL- PROFILE, SEE SHEET 12 & 13
PROP. 47" WW FENCE
$$$$USERNAME$$$$
$FILE$
$DATE$



REVISIONS
ICA Engineering
5121 Kingdom Way, Suite 100
Raleigh, NC 27607
NC License No: F-0258
PROJECT REFERENCE NO. R-5311A
SHEET NO. 7
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
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DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
FOR -EL- PROFILE, SEE SHEET 12 & 13
FOR -L2- PROFILE, SEE SHEET 14
FOR -Y2LPB- PROFILE, SEE SHEET 17
FOR -Y2RPB- PROFILE, SEE SHEET 17
FOR -Y2LPD- PROFILE, SEE SHEET 18
FOR -Y2RPD- PROFILE, SEE SHEET 18
NAD 83/NSRS 2007
MATCHLINE SEE SHEET 10
MATCHLINE -Y2- STA 43+00 SEE SHEET 10
MATCHLINE SEE SHEET 6
MATCHLINE -EL- STA 348+00 SEE SHEET 6
MATCHLINE -Y2- STA 58+00 SEE SHEET 11
MATCHLINE SEE SHEET 11
PROP. 47" WW FENCE
WOODS
JAMES E. PIERCE, JR. AND JOCELYN P. BAGELY
-Y2LPB-
PIs Sta 11+34.17 Θs = 19° 45' 25.8" Ls = 200.00' LT = 134.17' ST = 67.43'
PI Sta 14+48.86 Δ = 81° 16' 06.4" (RT) D = 19° 45' 25.8" L = 411.34' T = 248.86' R = 290.00' SE = 0.08 V = 30mph
PI Sta 17+57.94 Δ = 65° 01' 34.0" (RT) D = 24° 54' 40.4" L = 261.03' T = 146.60' R = 230.00' SE = 0.08 V = 30mph
PIs Sta 19+40.26 Θs = 24° 54' 40.4" Ls = 200.00' LT = 134.68' ST = 67.89'
-Y2RPB-
PI Sta 13+37.86 Δ = 10° 21' 03.8" (RT) D = 18° 58' 19.6" L = 54.56' T = 27.35' R = 302.00' SE = 0.08 V = 30mph
-DET1-
PI Sta 27+52.28 Δ = 7° 01' 04.9" (LT) D = 4° 10' 55.8" L = 167.81' T = 84.01' R = 1,370.00' SE = 0.04 V = 45mph
PI Sta 23+75.35 Δ = 8° 48' 15.1" (RT) D = 2° 34' 51.2" L = 341.13' T = 170.90' R = 2,220.00' SE = 0.04 V = 35mph
-L2-
PI Sta 21+45.69 Δ = 0° 46' 37.3" (LT) D = 0° 29' 53.6" L = 155.96' T = 77.98' R = 11,500.00' SE = NC V = 60mph
PI Sta 23+07.44 Δ = 0° 50' 05.0" (RT) D = 0° 29' 53.6" L = 167.54' T = 83.77' R = 11,500.00' SE = NC V = 60mph
-L2-
PI Sta 10+94.75 Δ = 0° 56' 38.7" (RT) D = 0° 29' 53.6" L = 189.49' T = 94.75' R = 11,500.00' SE = NC V = 60mph
PI Sta 12+90.03 Δ = 1° 00' 06.4" (LT) D = 0° 29' 53.6" L = 201.07' T = 100.54' R = 11,500.00' SE = NC V = 60mph
-Y2LPD-
PIs Sta 11+34.68 Θs = 24° 54' 40.4" Ls = 200.00' LT = 134.68' ST = 67.89'
PI Sta 18+52.04 Δ = 141° 08' 25.8" (RT) D = 24° 54' 40.4" L = 566.57' T = 652.04' R = 230.00' SE = 0.08 V = 30mph
PIs Sta 18+34.47 Θs = 24° 54' 40.4" Ls = 200.00' LT = 134.68' ST = 67.89'
-Y2RPD-
PI Sta 12+93.24 Δ = 21° 11' 56.8" (RT) D = 23° 40' 33.4" L = 89.54' T = 45.29' R = 242.00' SE = 0.08 V = 30mph
-DET1- PC Sta. 22+04.45
-Y2- POT STA 45+84.00= -Y2LPB- POT Sta 22+36.94
-Y2LPB- CS Sta. 18+72.37
-Y2LPB- ST Sta. 20+72.37
-Y2RPB- PT Sta. 13+65.06= -Y2LPB- PCC Sta. 16+11.34,12' LT
-Y2LPB- PCC Sta. 16+11.34
-Y2RPB- PC Sta. 13+10.50
-DET1- PT Sta. 25+45.58
-DET1- PC Sta. 26+68.27
BEGIN APPROACH SLAB -Y2- POT Sta 49+33 +/-
BEGIN BRIDGE -Y2- POT Sta 49+59 +/-
-DET1- PT Sta. 28+36.08
-L- POT STA 143+04.40 = -Y2- POT STA 50+63.08
-L2- POT STA 16+90.62 = -Y2- POT STA 50+99.00
-DET1- POT Sta. 29+35.49 = -EL- POT Sta. 362+55.48
-EL- POT Sta. 355+00.00 LB= -L2- PC Sta. 10+00.00 LA
TEMPORARY WIDENING
-Y2LPB- ST Sta. 10+00.00= -L2- POT 16+60.41 12' LT
-L2- PT Sta. 13+90.56
-Y2LPB- SC Sta. 12+00.00
SINGLE FACED CONCRETE BARRIER
PROPOSED PAINT STRIPING
-Y2RPB- POT Sta. 10+00.00= -L2- Sta. POC 12+55.17
END TIP PROJECT R-5311A -L2- PT Sta. 23+91.20 LB = -EL- POT Sta. 368+91.18 LA
-L2- PC Sta. 20+67.71
-L2- POC Sta. 21+36.80= -Y2RPD- POT Sta. 10+00.00
-L2- PRC Sta. 22+23.67
N 44° 50' 11.5" E
NC HWY 11 - 32' BST
SR 1212, SHORT CUT ROAD 32' BST
N 44° 46' 43.5" E
350+00
370+00
375+00
-L- 26
-L- 27
BEGIN TEMPORARY WIDENING -EL- STA 352+70.00
OVERLAY EXISTING ROAD -EL- STA 310+00.00 TO 355+00.00
-EL- STA 355+00.00 -L2- STA 10+00.00
-L2- STA 13+70.00
-L2- PRC Sta. 11+89.49
200' TAPER
430' LANE
BEGIN RETAINING WALL -L2- STA 16+57.00, 35' RT
END BRIDGE -Y2- POT Sta 51+67 +/-
END APPROACH SLAB -Y2- POT Sta 51+93 +/-
END RETAINING WALL -L2- STA 17+08.00, 35' RT
END TEMPORARY WIDENING -L2- STA 17+00.00
R5311A-3
-Y2LPD- SC 12+00.00
-Y2LPD- TS 10+00.00 = -L2- POT 17+96.92 12' RT
-Y2RPD- PC Sta. 12+47.96
-Y2RPD- PT Sta. 13+37.49= -Y2LPD- PT Sta. 15+45.00, 12' LT
-Y2- POT STA 55+42.00= -Y2LPD- POT Sta 21+31.97
-Y2LPD- ST 19+66.57
-Y2LPD- CS 17+66.57
S 55° 44' 30.0" W
B
D
Y2LPB_1863LT
Y2LPB_1667L
Y2LPB_1706
Y2LPB_2169L
Y2LPB_1454
Y2LPB_1117R
Y2_4800L
Y2_5300R
L2_1193L
L2_1344R
L2_1791L
L2_1794R
L2_1894L
L2_2245L
EL_35386L
EL_35175L
EL_35036L
EL_34869L
EL_35094L
EL_35344L
EL_37094L
EL_37444L
EL_37412R
EL_37096R
Y2LPD_1300
Y2LPD_1500
Y2LPD_1592
Y2LPD_1750
Y2LPD_2084L
Y2LPD_1887
ADT 2017
ADT 2037
-Y2-
4,470 / 5,610
1,860 / 2,240
630 / 820
3,770 / 5,580
-L2- NC 11
7,500 / 10,830
-L2- SHORT CUT RD
740 / 1,030
5,700 / 7,700
8,400 / 11,070
GRAPHIC SCALE
50 25 0 50 100
PLANS
LOCATION:
TIP NO.: R-5311A
COUNTY: HERTFORD
DESIGNED BY:
CHECKED BY:
DATE: 11-XX-2015

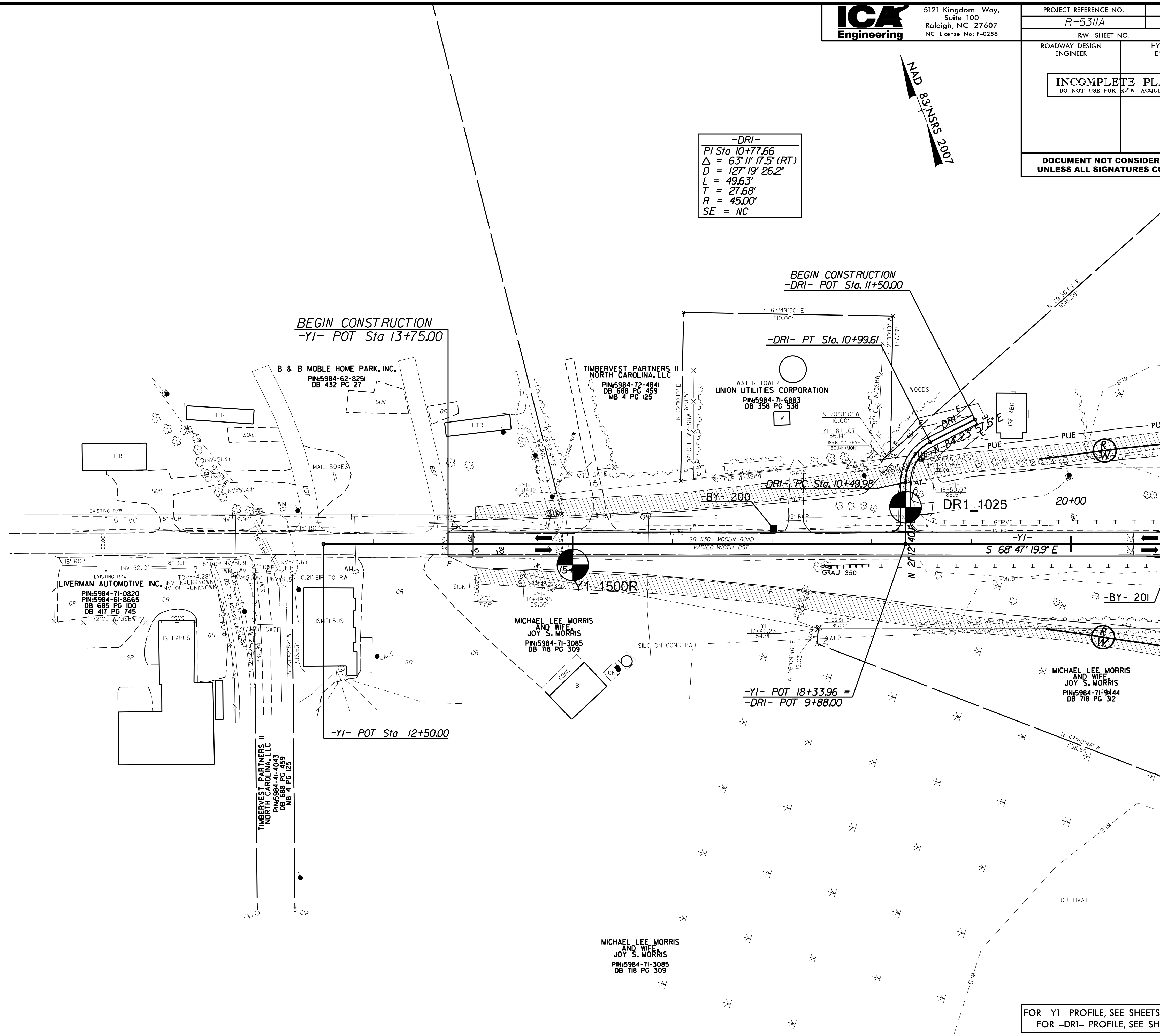
ICA Engineering
5121 Kingdom Way,
Suite 100
Raleigh, NC 27607
NC License No: F-0258

PROJECT REFERENCE NO.	SHEET NO.
R-5311A	8
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



FOR -Y1- PROFILE, SEE SHEETS 14 & 15
FOR -DR1- PROFILE, SEE SHEET 19

$DATE$
$FILE$
$$$$USERNAME$$$$

ICA Engineering
5121 Kingdom Way, Suite 100
Raleigh, NC 27607
NC License No: F-0258

PROJECT REFERENCE NO.	SHEET NO.
R-5311A	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/NSRS 2007

MATCHLINE -Y1- STA 29+00
SEE SHEET 4

DELANO R. LANG, JR.
PIN:5984-80-2182
DB 389 PG 755??
WILL FILE 89-E-13
MB 1PG 588 1/2

CULTIVATED

CARLTON R. AMBROSE AND WIFE THERESA AMBROSE
PIN:5984-91-3324
DB 642 PG 231
MB 5 PG 6

RACHAEL MODLIN
PIN:5994-21-0506
DB 400 PG 599

WILLIAM B. WYNN, JR., ET UX
PIN:5984-91-6048
DB 747 PG 316

JAMES A. JENKINS
PIN:5984-91-7056
DB 645 PG 380

END CONSTRUCTION
-Y1- POT Sta 36+85.00

-Y1- POT 31+50.00 =
-DR2- POT 9+88.00

-Y1- PC Sta. 35+47.40

-Y1- PT Sta. 39+77.58

-Y1- POT Sta. 40+50.30

-DR2- PC Sta. 10+06.43

-DR2- PT Sta. 10+93.31

-DR2- POT Sta. 11+44.56
END CONSTRUCTION

SR 1130 MODLIN ROAD
VARIED WIDTH BST

Y1_2900L
Y1_3400L
Y1_3600R
DR2_1010
R53IIA-2

-DR2-
PI Sta 10+50.57
△ = 24° 53' 18.1" (RT)
D = 28° 38' 52.4"
L = 86.88'
T = 44.13'
R = 200.00'
SE = NC

-Y1-
PI Sta 37+63.30
△ = 12° 08' 29.8" (LT)
D = 2° 49' 20.8"
L = 430.18'
T = 215.90'
R = 2,030.00'

DELANO R. LANG, JR.
PIN:5984-80-2182
WILL FILE 89-E-13
DB 144 PG 68
DB 304 PG 150
DB 389 PG 755 (TRACT 2)
MB 1PG 588 1/2

RACHAEL MODLIN
PIN:5983-99-6758
DB 375 PG 342

EIP (AXLE)

FOR -Y1- PROFILE, SEE SHEETS 14 & 15
FOR -DR2- PROFILE, SEE SHEET 19

$DATE$
$FILE$
$$$$USERNAME$$$$

-DET1-		
PI Sta 17+75.24	PI Sta 14+66.97	PI Sta 11+43.30
Δ = 6° 36' 54.7" (LT)	Δ = 9° 18' 37.1" (RT)	Δ = 7° 23' 11.5" (LT)
D = 2° 34' 51.2"	D = 2° 34' 51.2"	D = 2° 34' 51.2"
L = 256.31'	L = 360.74'	L = 286.20'
T = 128.30'	T = 180.77'	T = 143.30'
R = 2,220.00'	R = 2,220.00'	R = 2,220.00'
SE = 0.04	SE = 0.04	SE = 0.04
V = 45mph	V = 45mph	V = 45mph

ICA Engineering
5121 Kingdom Way, Suite 100
Raleigh, NC 27607
NC License No: F-0258

PROJECT REFERENCE NO.	SHEET NO.
R-5311A	10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/NSRS 2007

MATCHLINE -Y2- STA 43+00
SEE SHEET 7

MATCHLINE SEE SHEET 7

JAMES E. PIERCE, JR.
AND JOCELYN PL BAGELY
PIN#5984-94-6822
DB 687 PG 754
DB 137 PG 245 (MAP)

FAITH HALL PAIGE HEIRS
PIN#5994-07-9850
DB 160 PG 20
MB 2 PG 175

BEGIN CONSTRUCTION
-Y2- POT Sta 35+00.00

-DET1- PC Sta. 10+00.00 =
-Y2- POT Sta. 31+50.00

-DET1- PRC Sta. 12+86.20

-DET1- PRC Sta. 15+46.94

-DET1- PT Sta. 19+03.26

525' MEDIAN TRANSITION

50' TAPER

200' TAPER

475' FULL LANE

PROP. 47" WW FENCE

DET1_1300

DET1_1500

DET1_1700

DET1_1900

DET1_2100

Y2_3200L

Y2_3500R

Y2_3700R

Y2_4100R

DET_1000R

-LI- 36

R53IIA-4

TBM-4

-DET1-
S 36° 56' 59.1" E

-Y2-
S 32° 15' 29.9" E

NC HWY 11 - 24' BST

EXISTING R/W

WOODS

TV FO

WLB

BTM

CAT-1

GRAU 350

TV F/O SPLICE BOX

EIP 1.76' FROM R/W

ECM IS 0.50' FROM R/W

FAITH HALL PAIGE HEIRS
PIN#5994-07-9850
DB 160 PG 20
MB 2 PG 175

STEPHANIE HOLLEY COTTON
PIN#5994-06-4216
DB 354 PG 92
DB 363 PG 84
WILL 83-E-129
PC 1SLIDE 11TA

S 63°20'48" W
444.97'

S 63°14'20" W
394.08'

N 67°36'43" E
394.00'

N 32°59'17" E
1445.13'

FOR -Y2- PROFILE, SEE SHEETS 15 & 16

$DATE$
$FILE$
$$$USERNAME$$$$

ICA Engineering
5121 Kingdom Way, Suite 100
Raleigh, NC 27607
NC License No: F-0258

PROJECT REFERENCE NO.	SHEET NO.
R-5311A	11
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

MATCHLINE -Y2- STA 58+00
SEE SHEET 7

MATCHLINE
SEE SHEET 7

NAD 83/NSRS 2007

END CONSTRUCTION
-Y2- POT Sta 65+40.00

PRESTON WOOD MANUFACTURED HOMES, INC.
PIN:5994-33-8637
DB 699 PG 544
PC 1 SLIDE 170C
(PRIVATE ROAD)

JAMES E. PIERCE, JR. AND JOCELYN 'PL' BAGELY
PIN:5984-94-6822
DB 687 PG 754
DB 137 PG 245 (MAP)

JESSE J. MELTON, JR. AND WIFE, MARGARET M. MELTON
PIN:5994-23-7730
DB 709 PG 115
PC 1 SLIDE 170C
(LOT 43)

JESSE J. MELTON, JR. AND WIFE, MARGARET M. MELTON
PIN:5994-23-5596
DB 709 PG 115
PC 1 SLIDE 170C
(LOT 42)

PRESTON WOOD MANUFACTURED HOMES, INC.
PIN:5994-33-3296
DB 699 PG 544
PC 1 SLIDE 162 D
PC 1 SLIDE 162E

PATRICIA H. FOSTER
PIN:5994-23-4351
DB 623 PG 296
PC 1 SLIDE 160C
(LOT 2)

PATRICIA H. FOSTER
PIN:5994-23-5153
DB 623 PG 296
PC 1 SLIDE 160C
(LOT 3)

JAMELIA HALL ROBINSON AND HUSBAND, LANDIS ROBINSON, JR.
PIN:5994-23-3530
DB 742 PG 614
PC 1 SLIDE 160C
(LOT 1)

RACHAEL MODLIN
PIN:5994-21-0506
DB 400 PG 599
MP 3 PG 65

-LI- 37
-LI- 38
-Y2-
Y2_6350L
Y2_6150R
Y2_5900R
TBM-9
S 32°15'29.9" E
475' FULL LANE
200' TAPER
50' TAPER
525' MEDIAN TRANSITION
PROP. 47' WW FENCE
EXISTING R/W
SR 1213, OLD NC 11
24' BST
GRAU 350
60+00
65+00
70+00
WOODS
ISFD
SOIL DRIVE
SR 1205, DEERWOOD ROAD 22' BST
-BYI- 203
FOR -Y2- PROFILE, SEE SHEETS 15 & 16

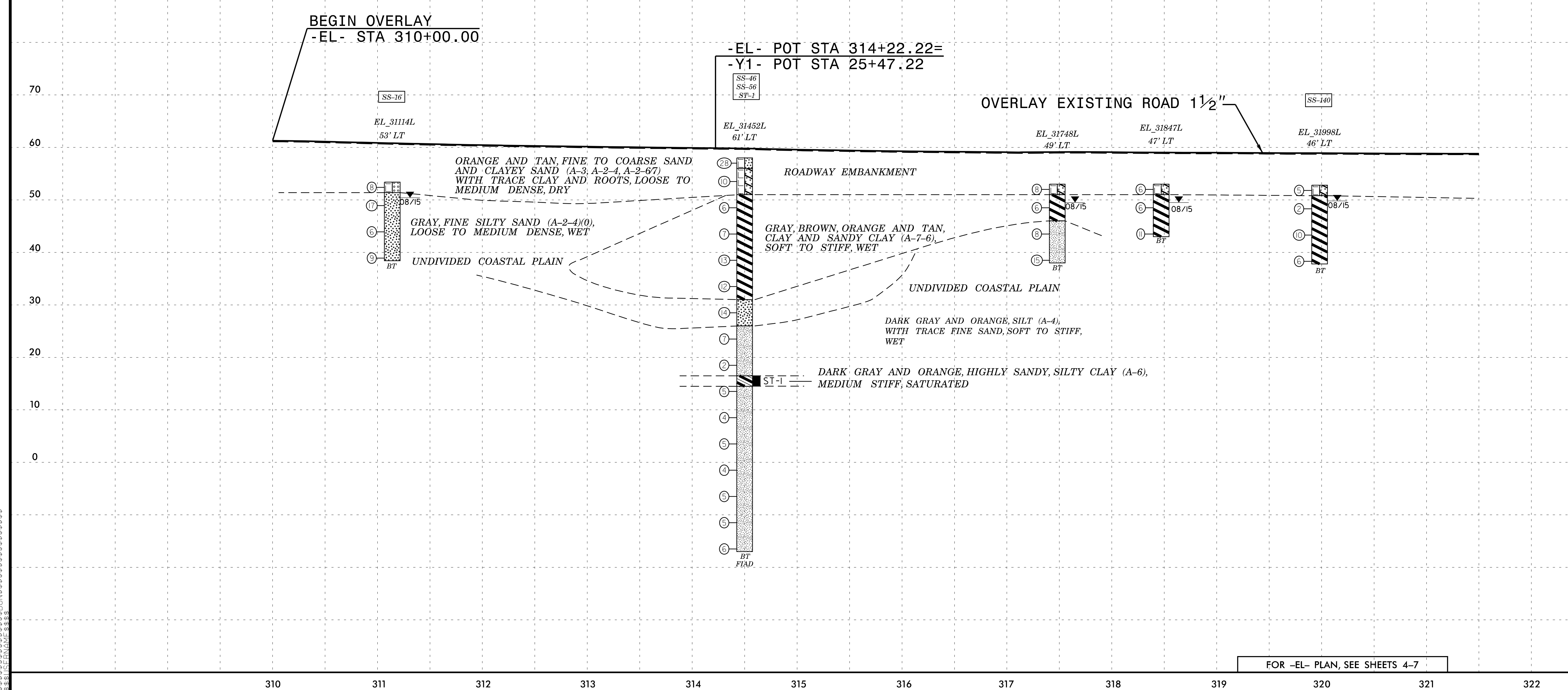
$DATE$
$FILE$
$$$$USERNAME$$$$

5/14/99

-EL-

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-16	53' LT	311+14	8.5'-10.0'	A-2-4(0)	27	NP	30.6	56.3	3.1	9.9	99.9	90.4	16.0	26	
SS-46	61' LT	314+52	18.5'-20.0'	A-7-6(13)	42	23	13.7	24	22	40.1	99.8	94.2	66.5	27	
SS-56	61' LT	314+52	68.5'-70.0'	A-4(4)	33	8	1.8	50.5	35.4	12.2	99.9	98.3	65.9	39	
ST-1	61' LT	314+52	41.5'-43.5'	A-6(8)	39	13	0	47.3	33.6	19.1	100.0	100.0	67.6	45	
SS-140	46' LT	319+98	3.5'-5.0'	A-7-6(32)	56	31	0.4	12	31.1	56.5	100.0	99.8	92.1	36	



FOR -EL- PLAN, SEE SHEETS 4-7

$$$$$$SYSTIME$$$$$
$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$
$$$$$$USERNAME$$$$$

5/14/99

–EL–

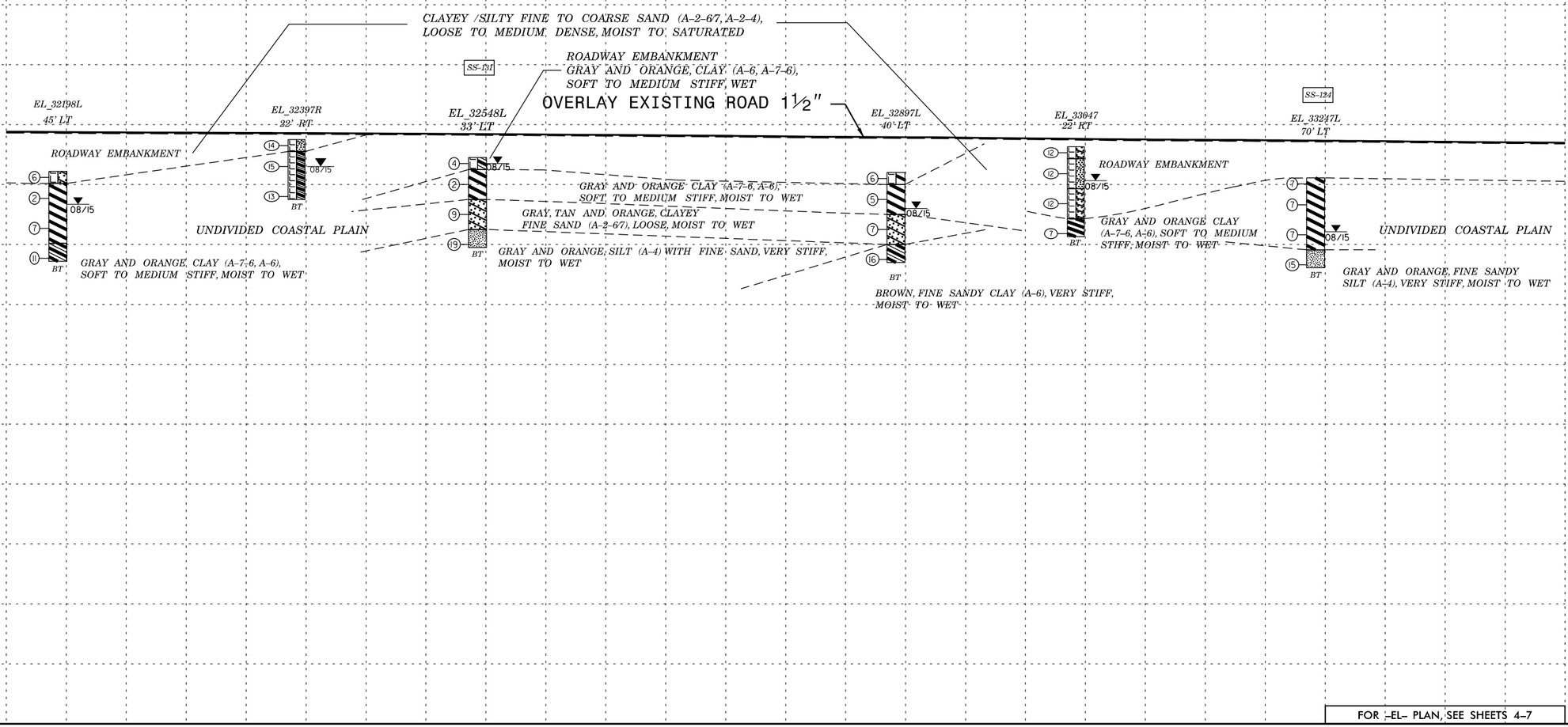
PROJECT REFERENCE NO.	SHEET NO.
R-5311A	13
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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-131	33' LT	325+48	0.0'-1.5'	A-6(12)	36	14	3.5	15	48.1	33.4	100.0	98.7	85.8	29	
SS-124	70' LT	332+47	8.5'-10.0'	A-7-6(27)	50	30	3	14.4	41.4	41.2	100.0	98.0	86.3	28	



FOR –EL– PLAN, SEE SHEETS 4–7

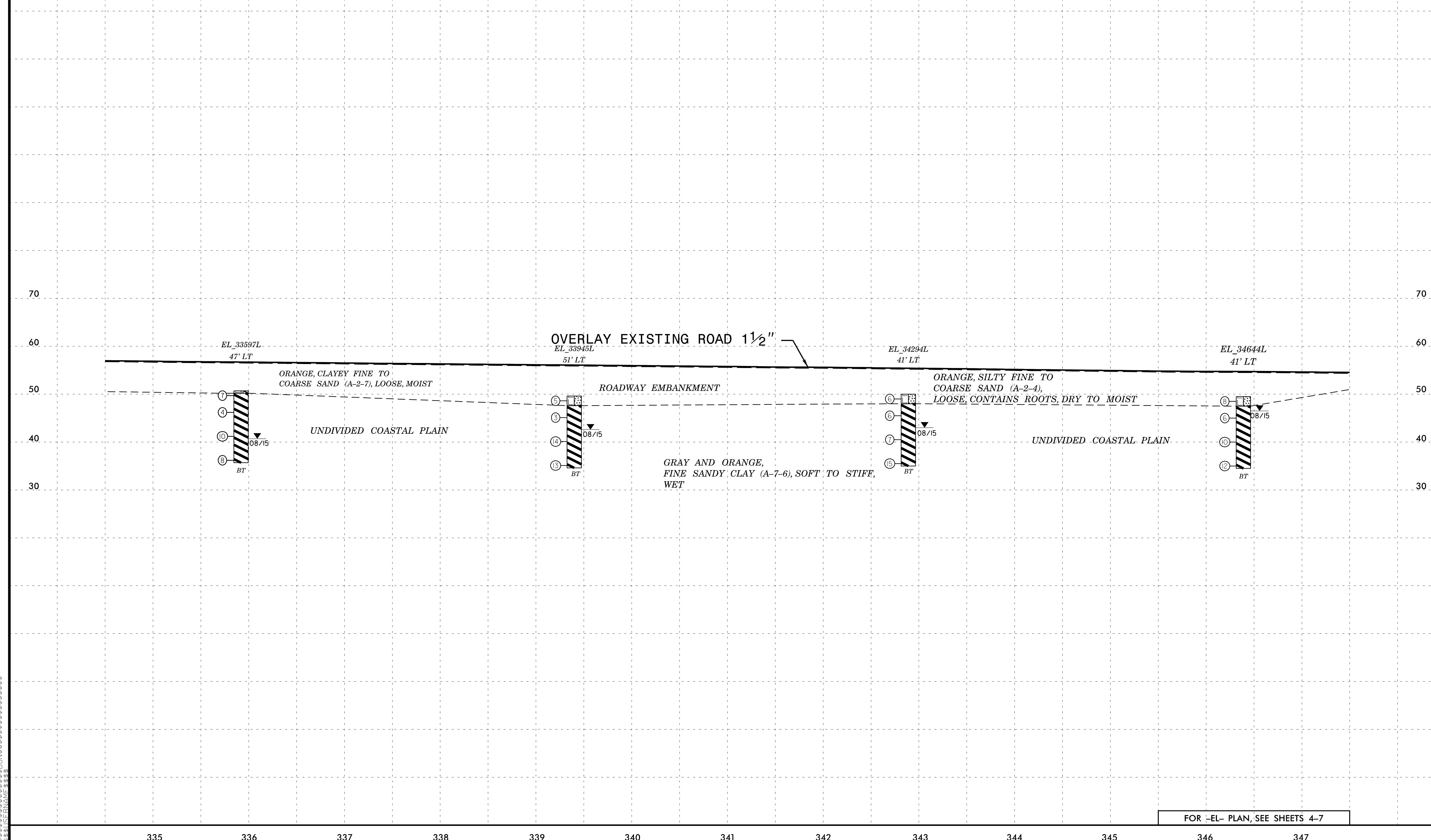
$$$$SYSTIME$$$$
$$$$USERNAME$$$$

-EL-

PROJECT REFERENCE NO.	SHEET NO.
R-5311A	14
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



–EL–

PROJECT REFERENCE NO.	SHEET NO.
R-5311A	15

ROADWAY DESIGN ENGINEER

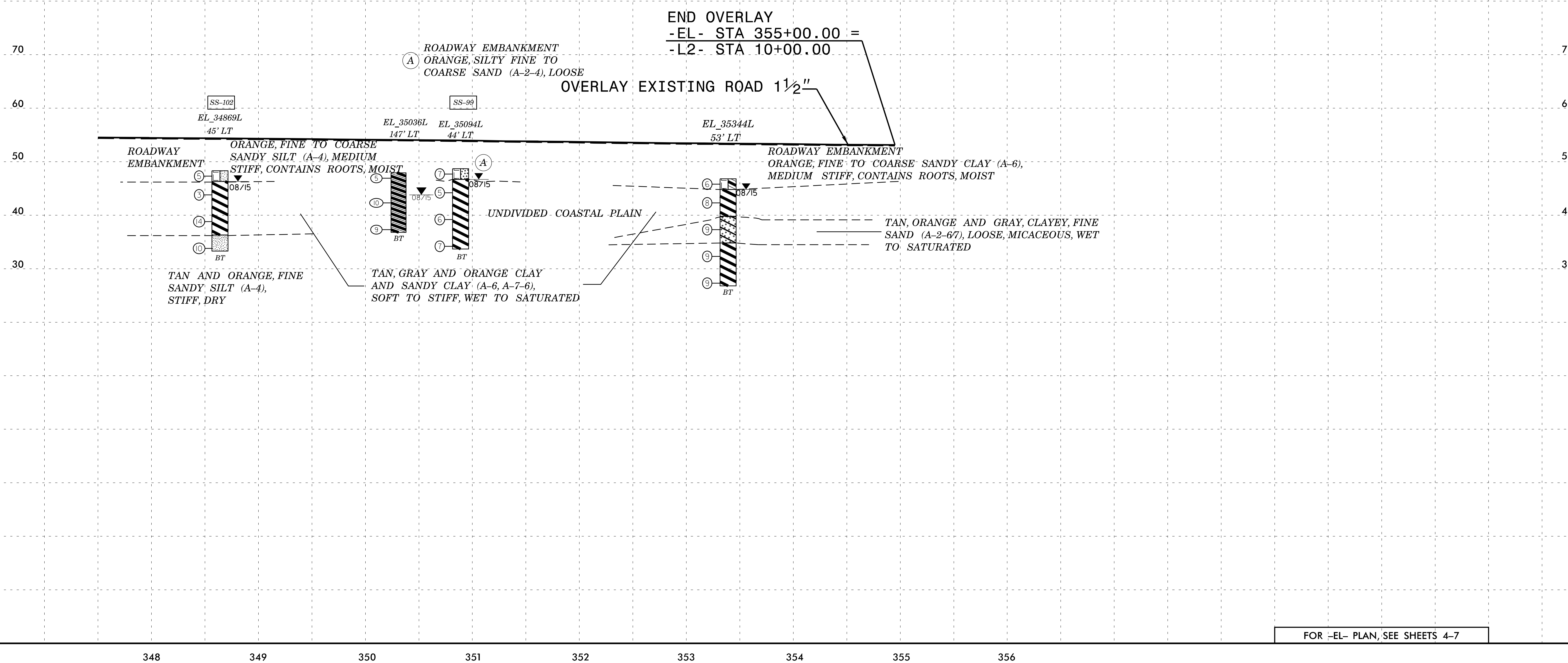
HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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-102	45' LT	348+69	0.0'-1.5'	A-4(0)	29	9	33.7	33.2	10.8	21.4	100.0	80.4	38.4	23	
SS-99	44' LT	350+94	3.5'-5.0'	A-7-6(35)	59	34	5.1	6	33.3	55.6	100.0	97.1	90.8	26	



FOR –EL– PLAN, SEE SHEETS 4–7

$$$$$$SYSTIME$$$$$ $$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$ $$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
R-5311A	16

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

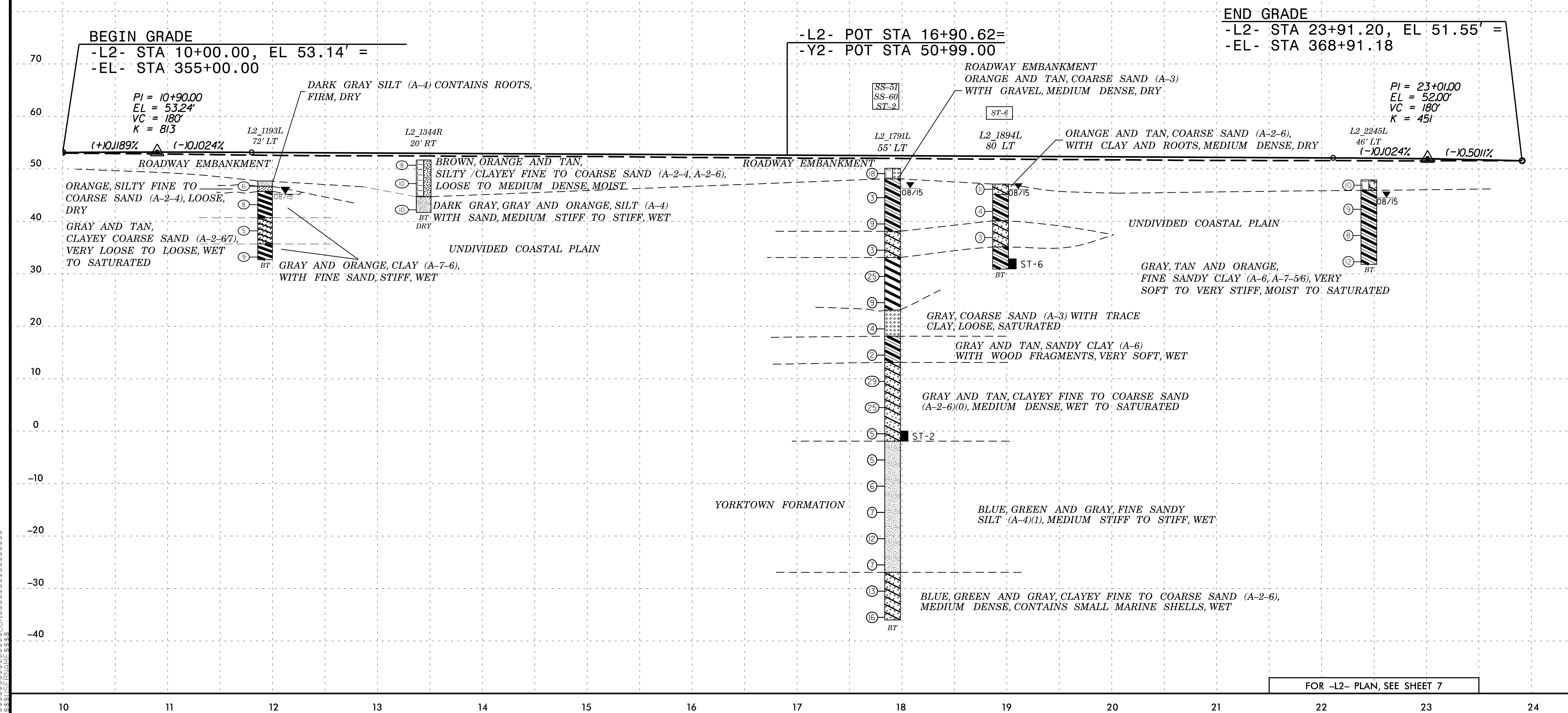
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

-L2-

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-51	55' LT	17+91	19.6'-21.1'	A-7-5(12)	47	17	15.4	24.4	52.1	8.1	100.0	89.2	68.8	28	
SS-60	55' LT	17+91	64.4'-66.1'	A-4(1)	29	7	7.8	56.9	26.1	9.2	100.0	98.9	48.7	42	
ST-2	55' LT	17+88	50.0'-52.0'	A-2-6(0)	31	15	75.8	11.1	5.0	8.1	98.8	31.7	14.6	37	
ST-6	80' LT	18+94	14.2'-16.2'	A-6(3)	32	17	38.5	20.7	13.9	26.9	99.5	84.4	44.1	36	



FOR -L2- PLAN, SEE SHEET 7

-Y1-

PROJECT REFERENCE NO.	SHEET NO.
R-5311A	17

ROADWAY DESIGN ENGINEER

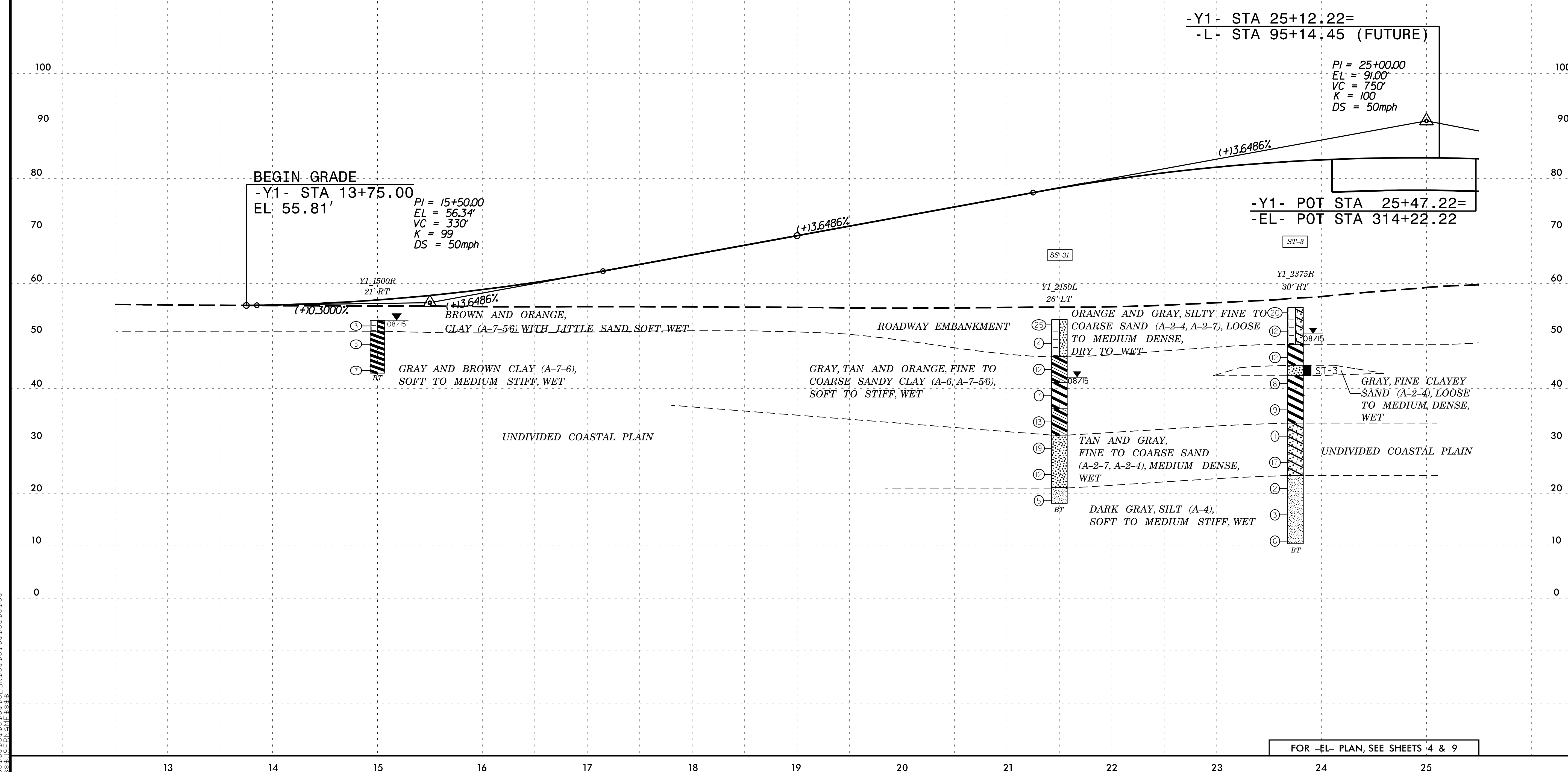
HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-31	26' LT	21+50	23.5'-25.0'	A-2-4(0)	20	NP	66.8	24	5.4	2.5	98.7	62.4	10.0	18	
ST-3	30' RT	23+75	11.0'-13.0'	A-2-4(0)	27	8	5.0	69.0	12.6	13.4	100.0	99.6	35.1	24	



FOR -EL- PLAN, SEE SHEETS 4 & 9

5/14/99

$$$$$$SYSTIME$$$$$
$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

5/14/99

–Y1–

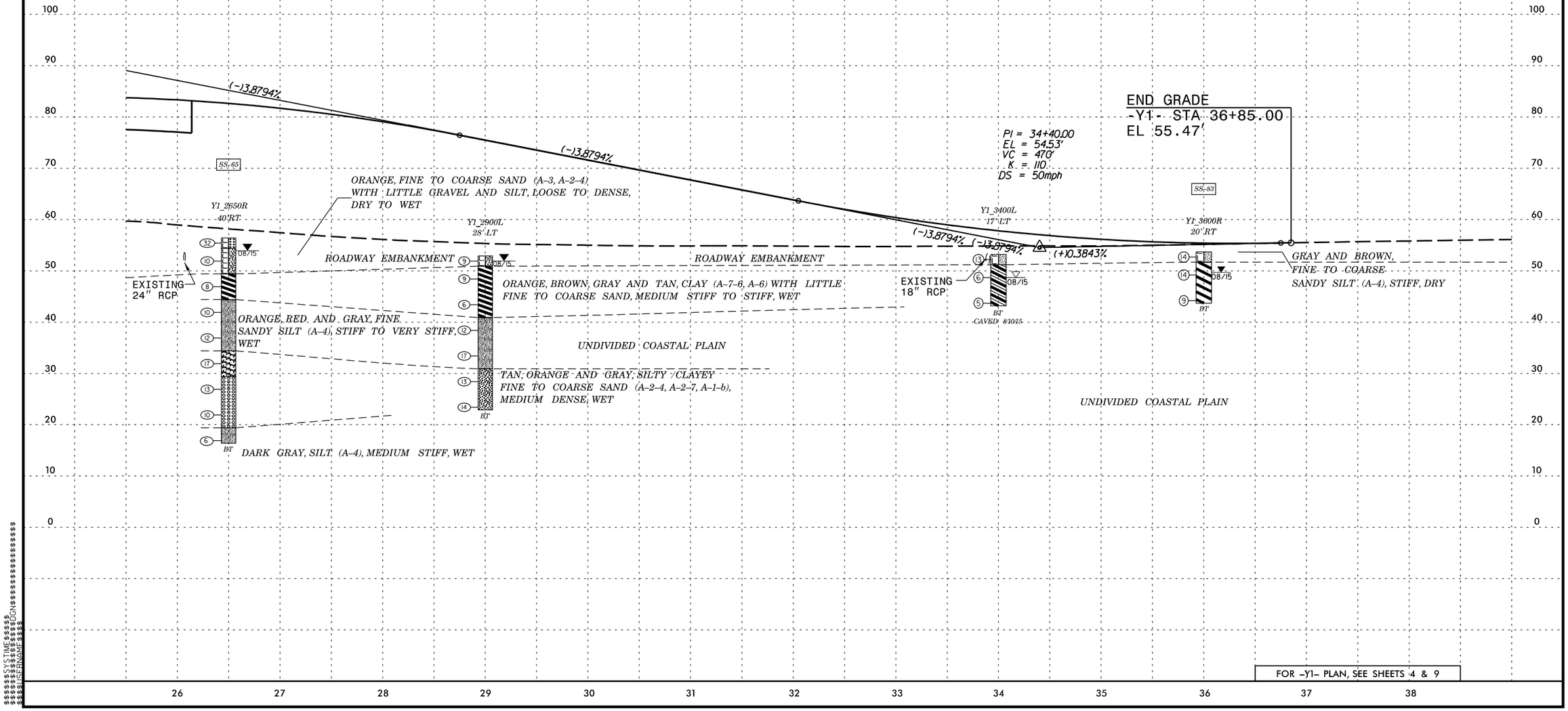
PROJECT REFERENCE NO.	SHEET NO.
R-5311A	18
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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-65	40' RT	26+50	33.5'-35.0'	A-1-b(0)	22	NP	58.5	15.5	5.2	2	81.2	40.3	8.9	18	
SS-83	20' RT	36+00	3.5'-5.0'	A-7-6(32)	57	34	.04	19.8	30.1	49.7	100.0	99.9	87.2	26	



FOR –Y1– PLAN, SEE SHEETS 4 & 9

5/14/99

–Y2–

PROJECT REFERENCE NO.	SHEET NO.
R-5311A	19
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

BEGIN GRADE
-Y2- STA 35+00.00
EL 52.24'

PI = 39+00.00
EL = 53.44'
VC = 400'
K = 137
DS = 60mph

ROADWAY EMBANKMENT
GRAY AND TAN FINE SANDY CLAY (A-6) WITH ROOTS, MEDIUM STIFF, MOIST

Y2_3500R
28' RT

Y2_3700R
20' RT

(+)0.3000%

(+)0.3000%

(+)3.2226%

08/15

08/15

BT

BT

CAVED, 8/10/15

TAN AND GRAY, CLAYEY FINE SAND (A-2-6), VERY LOOSE TO MEDIUM DENSE, SATURATED

GRAY AND TAN, FINE SANDY CLAY (A-6), MEDIUM STIFF TO STIFF, MOIST

70
60
50
40
30

35 36 37 38 39 40

FOR –Y2– PLAN, SEE SHEETS 7,10 & 11

$$$$SYSTIME$$$$
$$$$SESSION$$$$
$$$$CFRAME$$$$

5/14/99

–Y2–

PROJECT REFERENCE NO.	SHEET NO.
R-5311A	20
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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-106	28' LT	43+00	14.4'-15.9'	A-2-4(0)	21	NP	60.4	26.3	7.2	6	99.9	84.0	15.4	21	

PI = 50+50.00
EL = 90.50'
VC = 1,240'
K = 189
DS = 60mph

-Y2- STA 45+84.00=
-Y2LPB- STA 22+36.94

(+)3.2226%

(+)3.2226%

(-)3.3301%

-Y2- STA 50+63.08=
-L- STA 143+04.40 (FUTURE)

-Y2- POT STA 50+
-L2- POT STA 16+

ROADWAY EMBANKMENT
TAN AND GRAY, FINE SANDY CLAY (A-6), WITH ROOTS, STIFF, MOIST

SS-106

Y2_4100R
30' RT

Y2_4300L
28' LT

Y2_4800L
30' LT

08/15

TAN, GRAY, AND PINK, FINE SANDY CLAY (A-6), STIFF, MOIST

BT

ROADWAY EMBANKMENT

TAN, GRAY AND WHITE, CLAYEY /SILTY FINE TO COARSE SAND (A-2-6, A-2-4), VERY LOOSE TO LOOSE, MOIST

UNDIVIDED COASTAL PLAIN

BLUE, GREEN AND GRAY, CLAYEY /SILTY FINE TO COARSE SAND (A-2-6), VERY LOOSE TO MEDIUM DENSE, MICACEOUS, MOIST TO SATURATED

TAN AND ORANGE, CLAYEY FINE TO COARSE SAND (A-2-6), LOOSE, MOIST

ROADWAY EMBANKMENT

BLUE, GREEN, TAN AND GRAY, FINE SANDY CLAY (A-6), MEDIUM STIFF TO VERY STIFF, MOIST TO SATURATED

UNDIVIDED COASTAL PLAIN

GRAY, TAN, BLUE AND GREEN, FINE TO COARSE SANDY, CLAY (A-6), STIFF TO VERY STIFF, MOIST TO WET

BLUE, GREEN AND GRAY, SILTY /CLAYEY FINE TO COARSE SAND (A-2-6, A-2-4), LOOSE TO MEDIUM DENSE, WET

FOR –Y2– PLAN, SEE SHEETS 7, 10 & 11

100 90 80 70 60 50 40 30 20 10 0

40 41 42 43 44 45 46 47 48 49 50 51 52

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
R-5311A	21
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

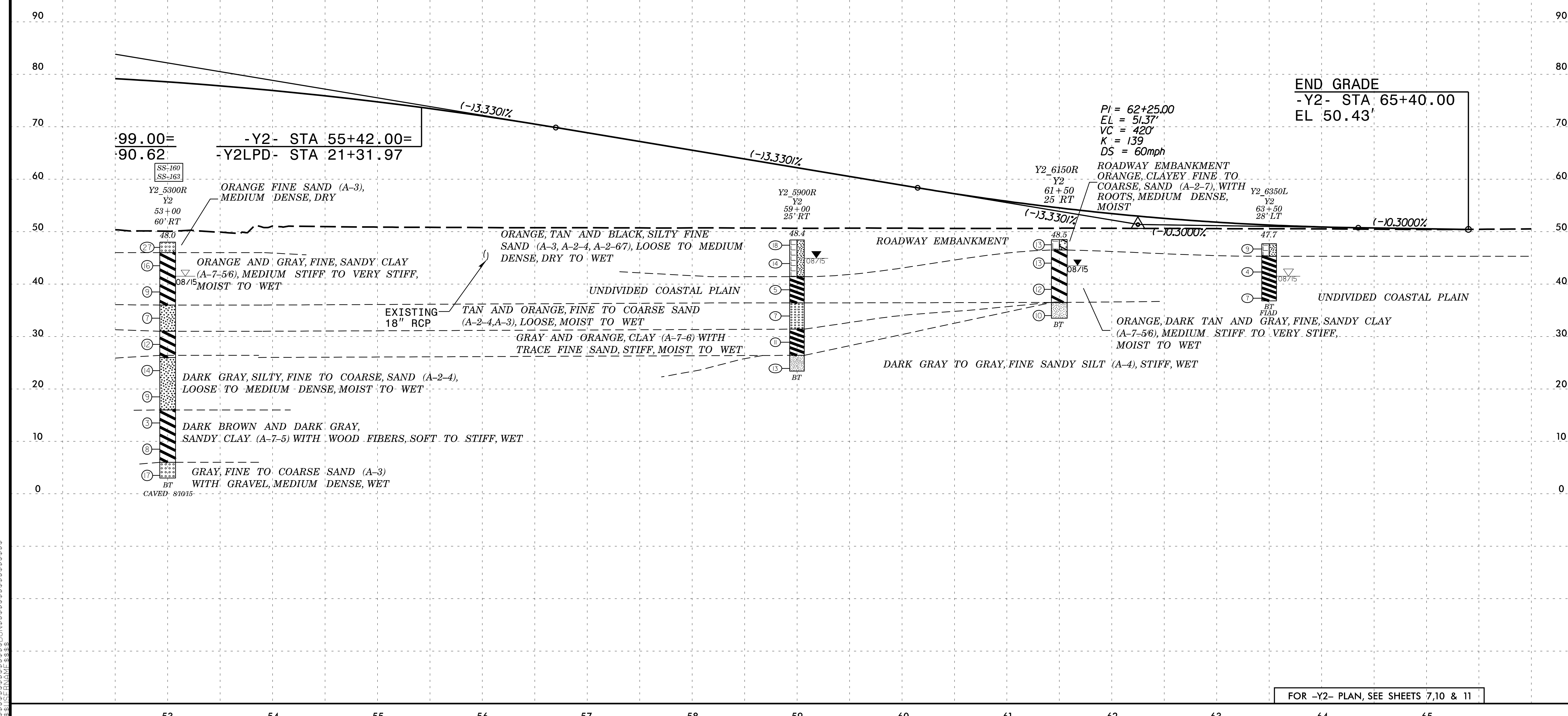
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

-Y2-

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-160	60' RT	53+00	13.5'-15.0'	A-2-4(0)	18	NP	36.2	42.8	11	10	100.0	63.8	25.3	24	
SS-163	60' RT	53+00	33.5'-35.0'	A-7-5(24)	62	28	20.3	4.5	59.8	15.4	100.0	82.1	76.0	76	



FOR -Y2- PLAN, SEE SHEETS 7,10 & 11

$$$$$$SYSTIME$$$$$ $$$$$$$DGN$$$$$$$$$$$$$$$$ $$$$$$USERNAME$$$$$

5/14/99

–Y2LPB–

PROJECT REFERENCE NO.	SHEET NO.
R-5311A	22
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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–87	66' RT	11+17	8.5'–10.0'	A–2–4(0)	20	NP	1.4	73.9	17.0	7.8	100.0	98.6	24.7	27	
SS–88	66' RT	11+17	13.5'–15.0'	A–7–6(40)	65	38	1.0	7.8	46.3	10.4	100.0	98.9	91.1	34	
ST–4	20' LT	21+69	19.8'–21.8'	A–7–6(33)	63	35	4.2	16.4	38.8	40.6	100.0	99.0	83.4	33	

(A) RED AND BROWN, FINE TO COARSE SANDY SILT (A–4) WITH ROOTS, STIFF, DRY

(B) TAN AND ORANGE, CLAYEY FINE SAND (A–2–6) WITH ROOTS, LOOSE, MOIST

BEGIN GRADE
-Y2LPB- STA 10+00.00=
EOT -L2- STA 16+60.41, 12' LT
EL 52.42'

END GRADE
-Y2LPB- STA 22+16.18=
EOT -Y2- STA 45+84.72, 20.75' RT
EL 74.46'

PI = 11+20.00
EL = 52.52'
VC = 90'
K = 52
DS = 40mph

H.P. -Y2LPB-
STA 10+79.38
EL 52.49'
SS–87
SS–88

PI = 13+50.00
EL = 48.70'
VC = 230'
K = 39
DS = 30mph

PI = 15+65.00
EL = 57.97'
VC = 90'
K = 51
DS = 40mph

(+)0.0851%
(–)1.6631%
(–)1.6631%
(+)4.3147%
(+)4.3147%
(+)2.5318%

Y2LPB_1117R
66' RT
Y2LPB_1454
11' RT
Y2LPB_1706
℄
Y2LPB_1863L
46' LT
Y2LPB_2169L
20' LT

ROADWAY EMBANKMENT

UNDIVIDED COASTAL PLAIN

TAN, GRAY, BLUE AND GREEN, FINE TO COARSE SANDY CLAY (A–6, A–7–6), SOFT TO VERY STIFF, MICACEOUS, MOIST

TAN AND GRAY, CLAYEY /SILTY FINE TO COARSE SAND (A–2–6, A–2–4), LOOSE, MICACEOUS, MOIST TO SATURATED

TAN, GRAY, BLUE AND GREEN, FINE SANDY CLAY (A–6, A–7–6), SOFT TO VERY STIFF, WET TO SATURATED

TAN, GRAY, BLUE AND GREEN, FINE TO COARSE SANDY CLAY (A–6, A–7–6), SOFT TO VERY STIFF, MICACEOUS, MOIST

ST–4

TAN AND ORANGE, CLAYEY FINE SAND (A–2–6) WITH GRAVEL, LOOSE, MOIST

TAN AND GRAY, CLAYEY FINE TO COARSE SAND (A–2–6), LOOSE TO MEDIUM DENSE, MICACEOUS, MOIST TO SATURATED

TAN, GRAY, BLUE AND GREEN, FINE SANDY CLAY (A–6, A–7–6), SOFT TO VERY STIFF, WET TO SATURATED

MULTI–COLORED, COARSE SAND AND GRAVEL (A–1–B), LOOSE, MOIST TO WET

08/15

BT

CAVED (8/15)

FOR –Y2LPB– PLAN, SEE SHEET 7

90 80 70 60 50 40 30 20 10 0

10 11 12 13 14 15 16 17 18 19 20 21 22 23

$$$$USERNAME$$$$ $$$$SYSTIME$$$$ $$$$DGN$$$$

5/14/99

–Y2LPD–

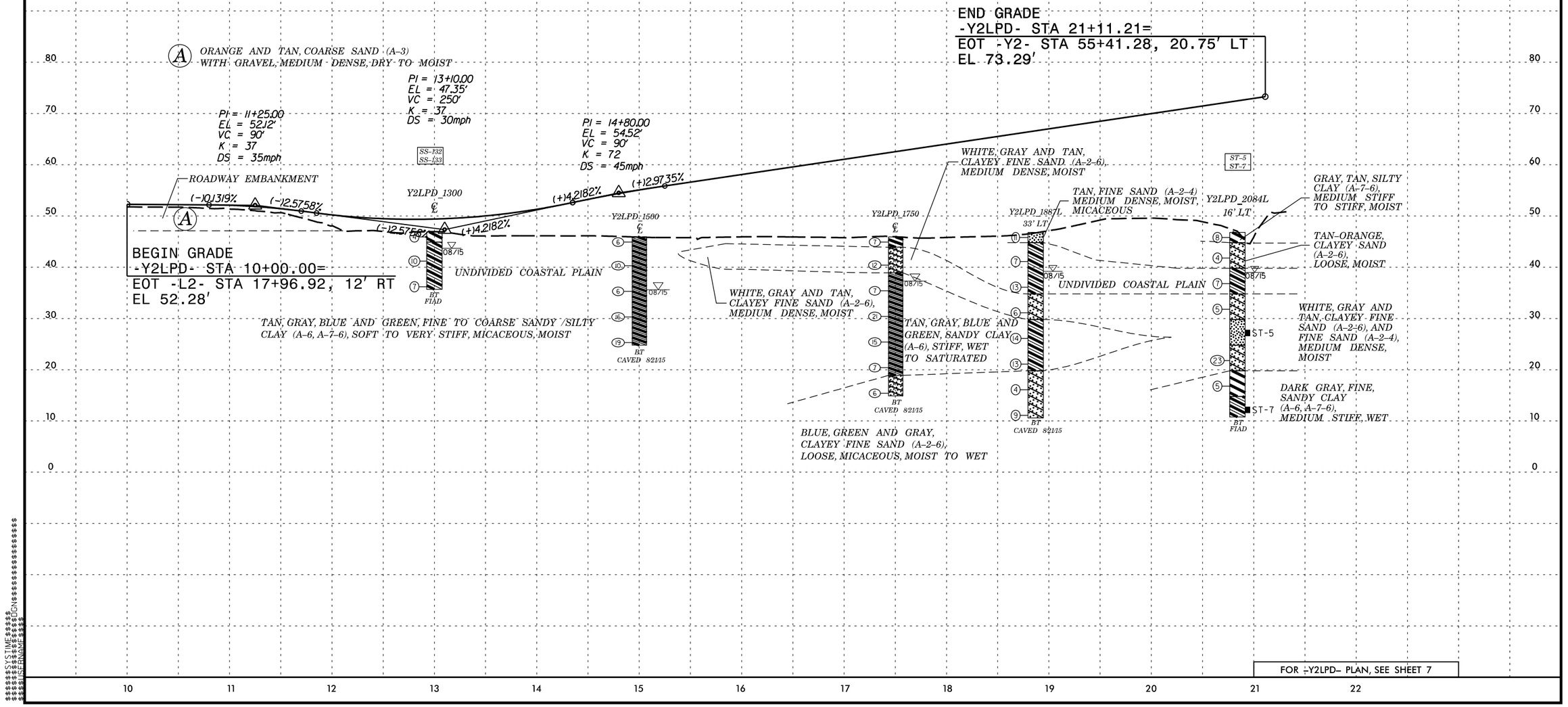
PROJECT REFERENCE NO.	SHEET NO.
R-5311A	23
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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-132	CL	13+00	0.0'-1.5'	A-7-6(14)	41	20	8	19.8	33.6	38.6	100.0	97.6	75.8	37	
SS-133	CL	13+00	4.7'-6.2'	A-6(1)	29	11	23.5	41	19.1	16.4	100.0	95.7	41.5	28	
ST-5	16' LT	20+84	19.0'-21.0'	A-2-4(0)	NP	NP	9.9	79.7	6.2	4.2	100.0	99.8	12.8	29	
ST-7	16' LT	20+84	34.0'-36.0'	A-6(10)	34	15	3.6	30.1	33.7	32.6	99.9	98.8	75.9	27	



FOR –Y2LPD– PLAN, SEE SHEET 7

$$$$USERNAME$$$$ $$$$SYSTIME$$$$ $$$$DGN$$$$

5/14/99

–DR1–

–DR2–

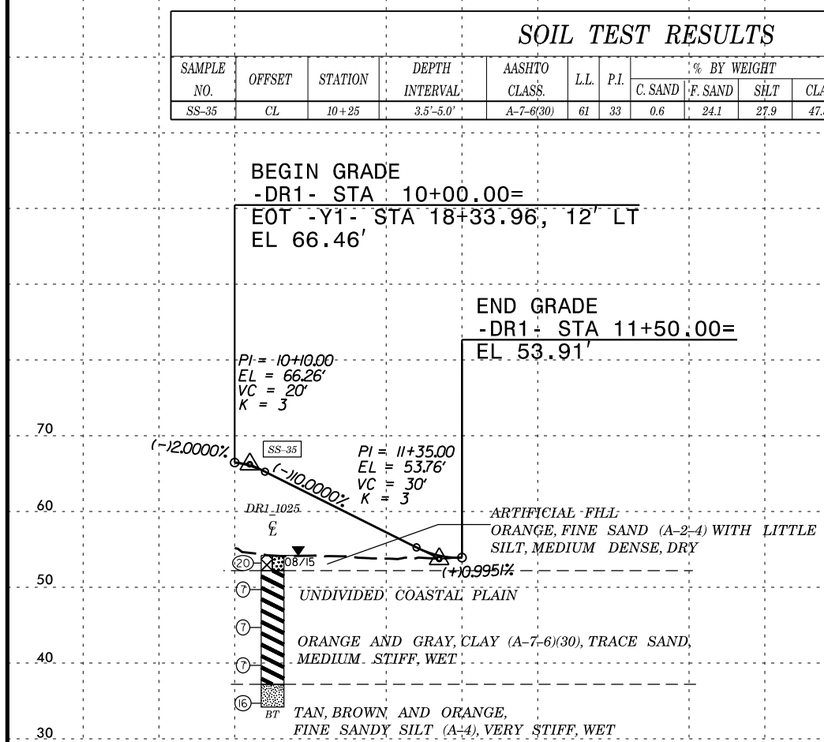
PROJECT REFERENCE NO.	SHEET NO.
R-5311A	24
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

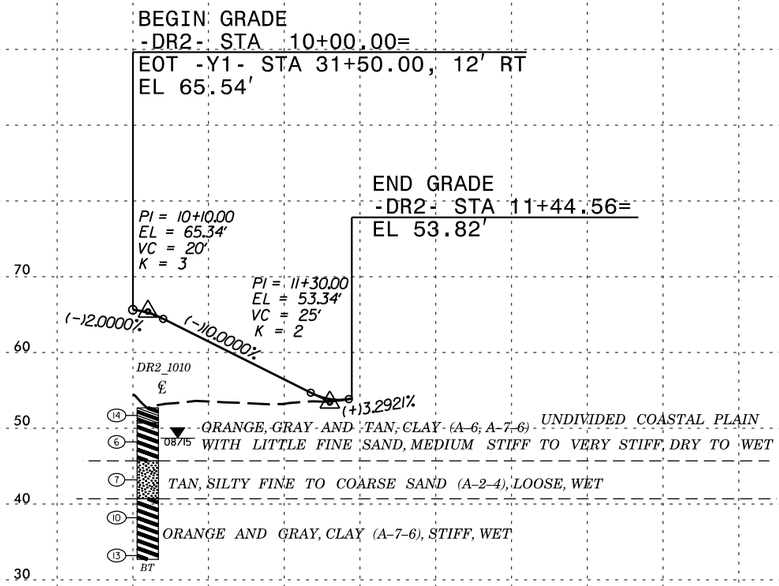
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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-35	CL	10+25	3.5'-5.0'	A-7-6(30)	61	33	0.6	24.1	27.9	47.3	99.9	99.7	83.5	32	





FOR –DR1– PLAN, SEE SHEET 8

FOR –DR2– PLAN, SEE SHEET 9

10 11 12 10 11 12

$$$$SYSTIME$$$$
$$$$USERNAME$$$$

5/14/99

–DET1–

PROJECT REFERENCE NO.	SHEET NO.
R-5311A	25
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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-85	CL	13+00	9.2'-10.7'	A-2-4(0)	25	NP	1.1	81	7.7	10	99.8	99.6	23.1	30	
SS-75	CL	19+00	4.1'-5.6'	A-6(3)	35	17	4.9	58	9.2	27.9	100.0	99.9	42.4	21	

BEGIN GRADE
-DET1- STA 10+00.00=
-Y2- STA 31+50.00, EL 51.91'

PI = 10+85.00
EL = 52.17'
VC = 133'
K = 219
DS = 65mph

PI = 12+35.00
EL = 51.72'
VC = 150'
K = 211
DS = 75mph

PI = 14+49.00
EL = 52.59'
VC = 165'
K = 232
DS = 65mph

PI = 16+85.00
EL = 51.88'
VC = 150'
K = 3476
DS = 80mph

PI = 19+35.00
EL = 51.02'
VC = 140'
K = 217
DS = 75mph

Ⓐ ROADWAY EMBANKMENT
TAN AND ORANGE, CLAYEY FINE SAND (A-2-6) WITH ROOTS, LOOSE, MOIST

SS-85

SS-75

DET1_1000R 26' RT (+)0.3059%

(-)0.3024%

DET1_1300 ℄ (+)0.4082%

DET1_1500 ℄ (-)0.3008%

DET1_1700 ℄ (-)0.3440%

DET1_1900R 10' RT

5/13 5/13

DET1_2100R 28' RT (+)0.3000% (+)0.3000%

UNDIVIDED COASTAL PLAIN
TAN AND GRAY, FINE SANDY CLAY (A-6) WITH ROOTS, MEDIUM STIFF TO VERY STIFF, MOIST

TAN AND GRAY, FINE TO COARSE SAND AND CLAYEY SAND (A-2-6, A-2-4), VERY LOOSE TO LOOSE, MICACEOUS, MOIST TO SATURATED

UNDIVIDED COASTAL PLAIN

TAN AND GRAY, FINE SANDY CLAY (A-6) WITH ROOTS, MEDIUM STIFF TO STIFF, MOIST

TAN AND WHITE, SILTY COARSE SAND (A-2-4), LOOSE, MICACEOUS, SATURATED

08/15 BT

FOR –DET1– PLAN, SEE SHEETS 7 AND 10

$$$$CXTIME$$$$
$$$$CONFIGNAME$$$$
$$$$USERNAME$$$$

5/14/99

–DET1–

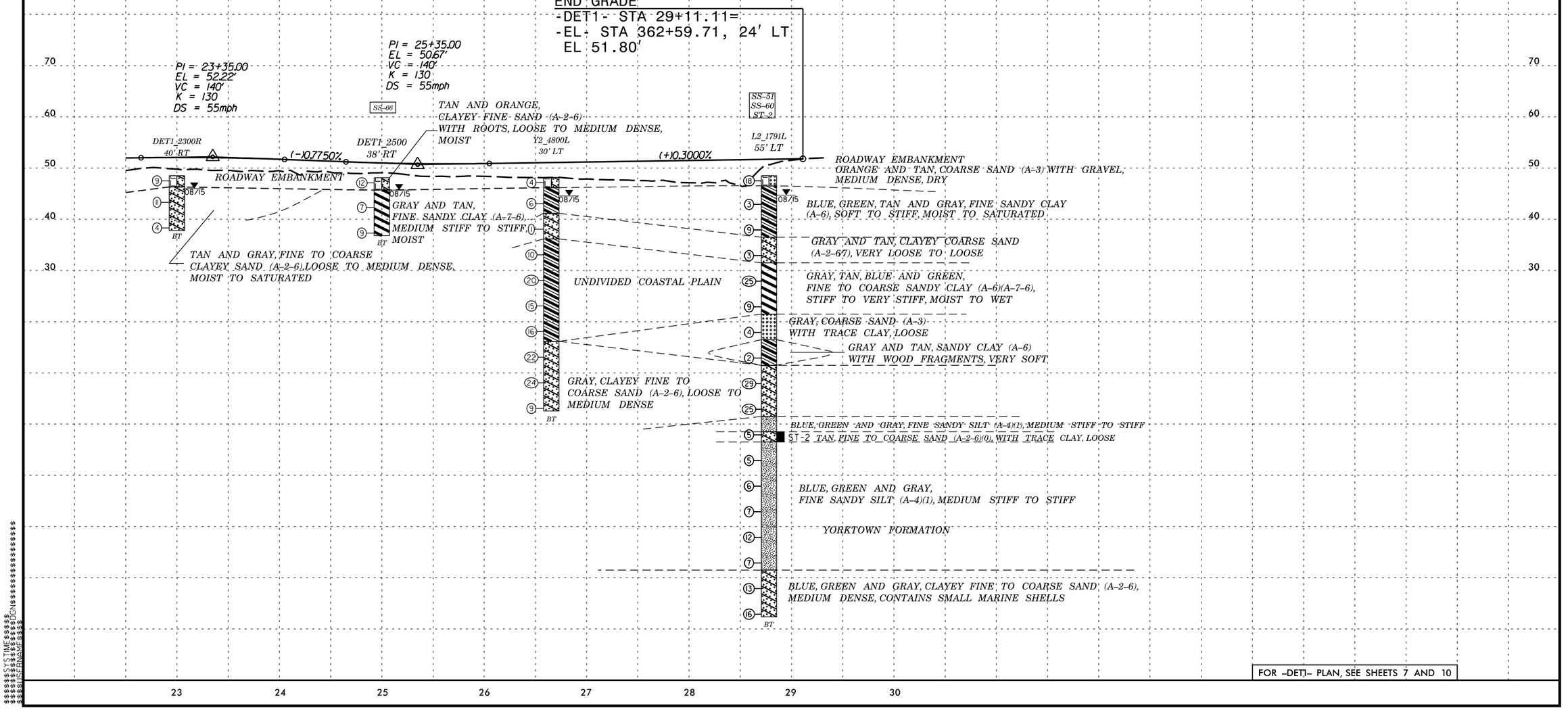
PROJECT REFERENCE NO.	SHEET NO.
R-5311A	26
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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-51	-55	17+91	19.6'-21.1'	A-7-5(12)	47	17	15.4	24.4	52.1	8.1	100.0	89.2	68.8	28	
ST-2	-55	17+91	50'-52'	A-2-6(0)	31	15	75.8	11.1	5.0	8.2	98.8	31.7	14.6	37	
SS-60	-55	17+91	64.3'-66.1'	A-4(1)	29	7	7.8	56.9	26.1	9.2	100.0	98.9	48.7	42	
SS-66	CL	25+00	4.8'-6.3'	A-7-6(26)	57	30	1.6	23.1	25.8	49.3	99.8	99.3	81.0	33	



FOR –DET1– PLAN, SEE SHEETS 7 AND 10

$$$$USERNAME$$$$
$$$$SYSTIME$$$$

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5311A	27

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-16	53' LT	311+14	8.5'-10.0'	A-2-4(0)	27	NP	30.6	56.3	3.1	9.9	99.9	90.4	16.0	26	

Ⓑ ROADWAY EMBANKMENT
ORANGE, FINE TO COARSE SAND (A-3)
WITH TRACE CLAY AND ROOTS, LOOSE, DRY

SS-16
EL. 31114L
311+14

Ø8/15

UNDIVIDED COASTAL PLAIN
GRAY, FINE SILTY SAND (A-2-4)(0), LOOSE TO MEDIUM DENSE, WET

BT

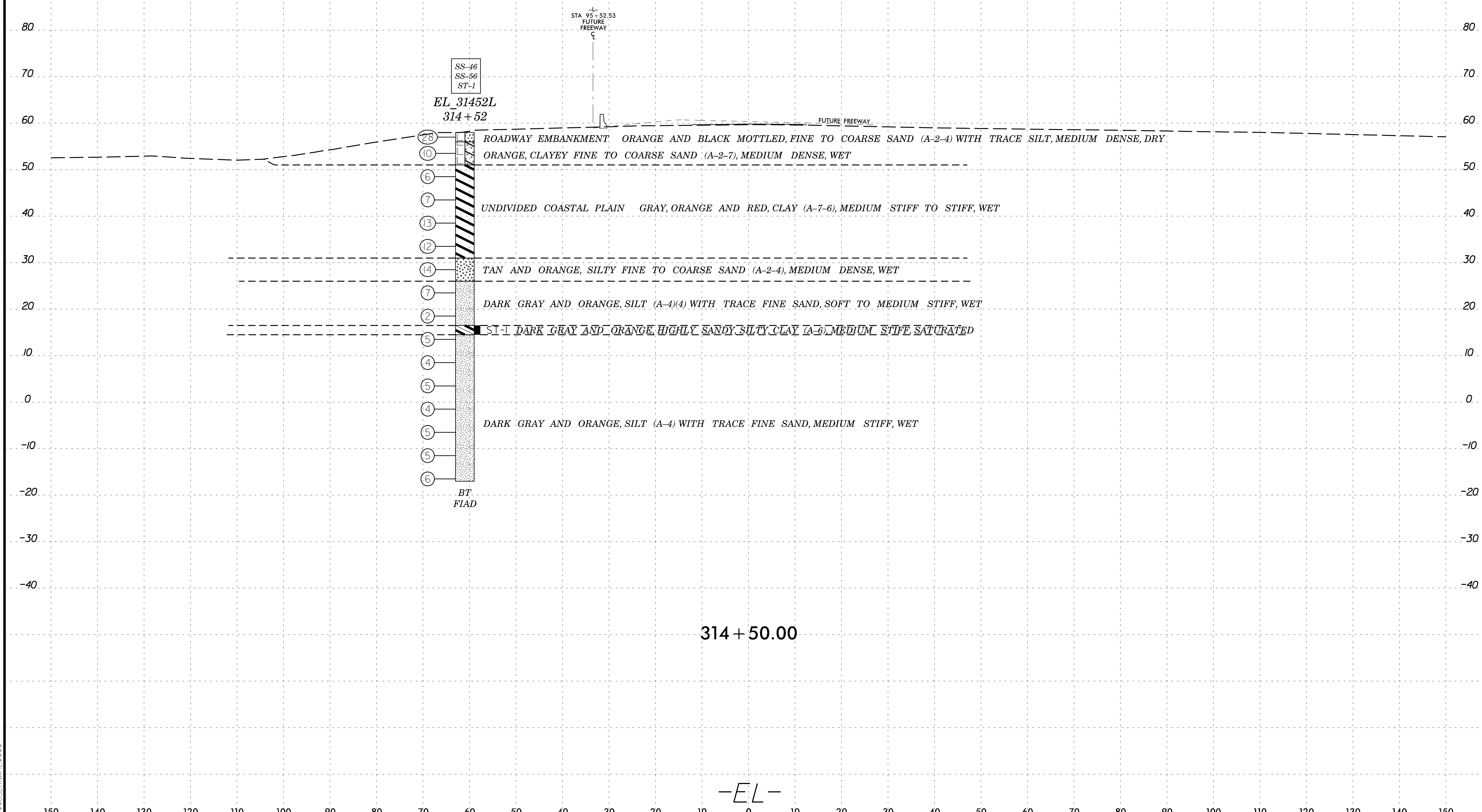
311+00.00

-EL-

$$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$$$USERNAME$$$$

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-46	61' LT	314+52	18.5'-20.0'	A-7-6(13)	42	23	13.7	24	22	40.1	99.8	94.2	66.5	27	
SS-56	61' LT	314+52	68.5'-70.0'	A-4(4)	33	8	1.8	50.5	35.4	12.2	99.9	98.3	65.9	39	
ST-1	61' LT	314+52	41.5'-43.5'	A-6(8)	39	13	0	47.3	33.6	19.1	100.0	100.0	67.6	45	



8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5311A	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

80 70 60 50 40 30 20 10 0 -10 -20 -30 -40

EL_31748L
317+48

(8) (6) (8) (15)

ROADWAY EMBANKMENT ORANGE, FINE TO COARSE CLAYEY SAND (A-2-6/7), LOOSE, MOIST

Ø8/15

UNDIVIDED COASTAL PLAIN DARK GRAY, CLAY (A-7-6), MEDIUM STIFF, MOIST

GRAY, SILT (A-4) WITH ROOTS, STIFF, MOIST

BT

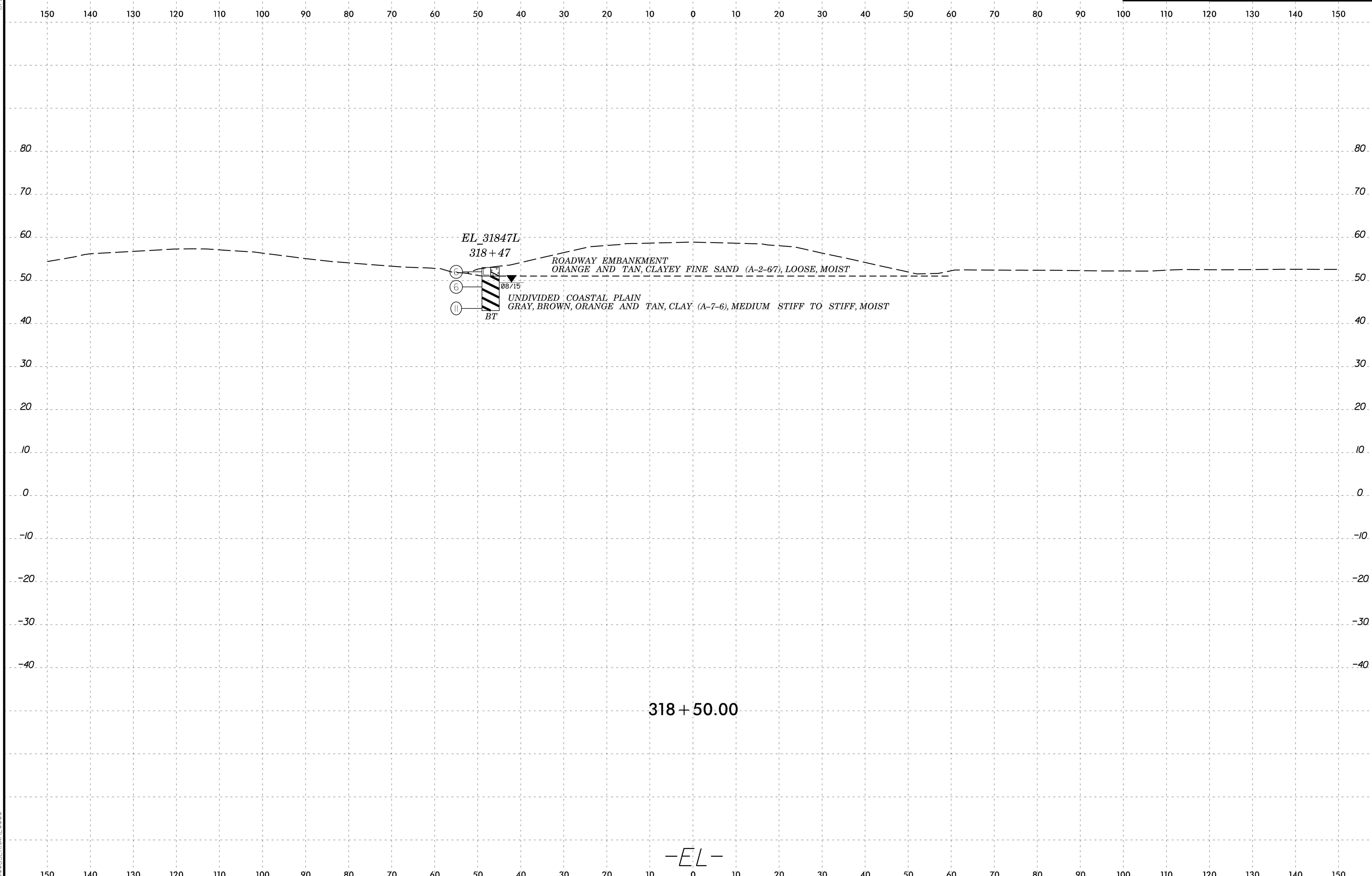
317+50.00

-EL-

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

$$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$$$USERNAME$$$$

PROJ. REFERENCE NO.	SHEET NO.
R-5311A	30



8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5311A	31

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				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-140	46' LT	319+98	3.5'-5.0'	A-7-6(32)	56	31	0.4	12	31.1	56.5	100.0	99.8	92.1	36	

80 70 60 50 40 30

Ⓐ ROADWAY EMBANKMENT
ORANGE, CLAYEY FINE TO COARSE SAND (A-2-6/7), LOOSE, MOIST

SS-140
EL_31998L
319+98

5 2 10 6 BT

08/15

Ⓐ

UNDIVIDED COASTAL PLAIN GRAY AND ORANGE, FINE TO COARSE SANDY CLAY (A-7-6)(32), VERY SOFT TO STIFF, MOIST TO WET

320+00.00

-EL-

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

$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5311A	32

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

EL 32198L
321+98

6
2
7
11

Ø8/15

ROADWAY EMBANKMENT ORANGE, CLAYEY FINE TO COARSE SAND (A-2-67), LOOSE, WET

UNDIVIDED COASTAL PLAIN DARK BLUE, GRAY, AND ORANGE, CLAY (A-7-6), VERY SOFT TO MEDIUM STIFF, MOIST TO WET

GRAY AND ORANGE, CLAY (A-6) WITH TRACE FINE SAND, STIFF, MOIST

BT

322+00.00

-EL-

60

50

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

$$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5311A	33

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 30 20 10 0 -10 -20 -30 -40 -50

Ⓒ *ROADWAY EMBANKMENT*
ORANGE, SILTY FINE TO COARSE SAND (A-2-4), MEDIUM DENSE, DRY

EL 32397R
323+97

Ⓒ 14 15 13 Ø8/15 BT

ROADWAY EMBANKMENT
RED, FINE TO COARSE SANDY CLAY (A-6), STIFF, MOIST

324+00.00

-EL-

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

$$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5311A	34

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-131	33' LT.	325+48	0'-1.5'	A-6(12)	36	14	3.5	15	48.1	33.4	100.0	98.7	85.8	29	

Ⓓ ROADWAY EMBANKMENT
GRAY AND ORANGE, CLAY (A-6)(12) WITH LITTLE FINE SAND, SOFT, WET

SS-131
EL_32548L
325+48

Ⓓ

4 Ø8/15

2 GRAY AND ORANGE, CLAY (A-7-6), VERY SOFT, WET

9 TAN AND ORANGE, CLAYEY FINE SAND (A-2-67), LOOSE, WET

19 GRAY AND ORANGE, SILT (A-4) WITH FINE SAND, VERY STIFF, WET

BT

325+50.00

-EL-

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 30 20 10 0 -10 -20 -30 -40 -50

$$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5311A	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

80 70 60 50 40 30 20 10 0 -10 -20 -30 -40 -50

(E) *ROADWAY EMBANKMENT*
ORANGE AND RED, FINE TO COARSE SANDY CLAY (A-7-6), MEDIUM STIFF, CONTAINS ROOTS, MOIST

EL. 32897L
328+97

(6)
(5) *UNDIVIDED COASTAL PLAIN GRAY AND ORANGE, CLAY (A-7-6), WITH TRACE SAND, MEDIUM STIFF, MOIST*
Ø8.45
(7) *GRAY, CLAYEY FINE TO COARSE SAND (A-2-6), LOOSE, MOIST*
(16) *BROWN, FINE SANDY CLAY (A-6), VERY STIFF, MOIST*
BT

329+00.00

-EL-

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

$$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$$USERNAME$$$$

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5311A	36

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 30 20 10 0 -10 -20 -30 -40 -50

Ⓐ *ROADWAY EMBANKMENT ORANGE, CLAYEY FINE TO MEDIUM SAND (A-2-67), MEDIUM DENSE, MOIST*

EL. 33047
330+47

Ⓐ 12
12
12
7

08/15

ORANGE AND RED, CLAYEY, SILTY FINE TO COARSE SAND (A-2-67) (A-2-4), MEDIUM DENSE, CONTAINS ROOTS, MOIST TO WET

UNDIVIDED COASTAL PLAIN GRAY AND ORANGE, CLAY (A-7-6), MEDIUM STIFF, MOIST

BT

330+50.00

-EL-

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

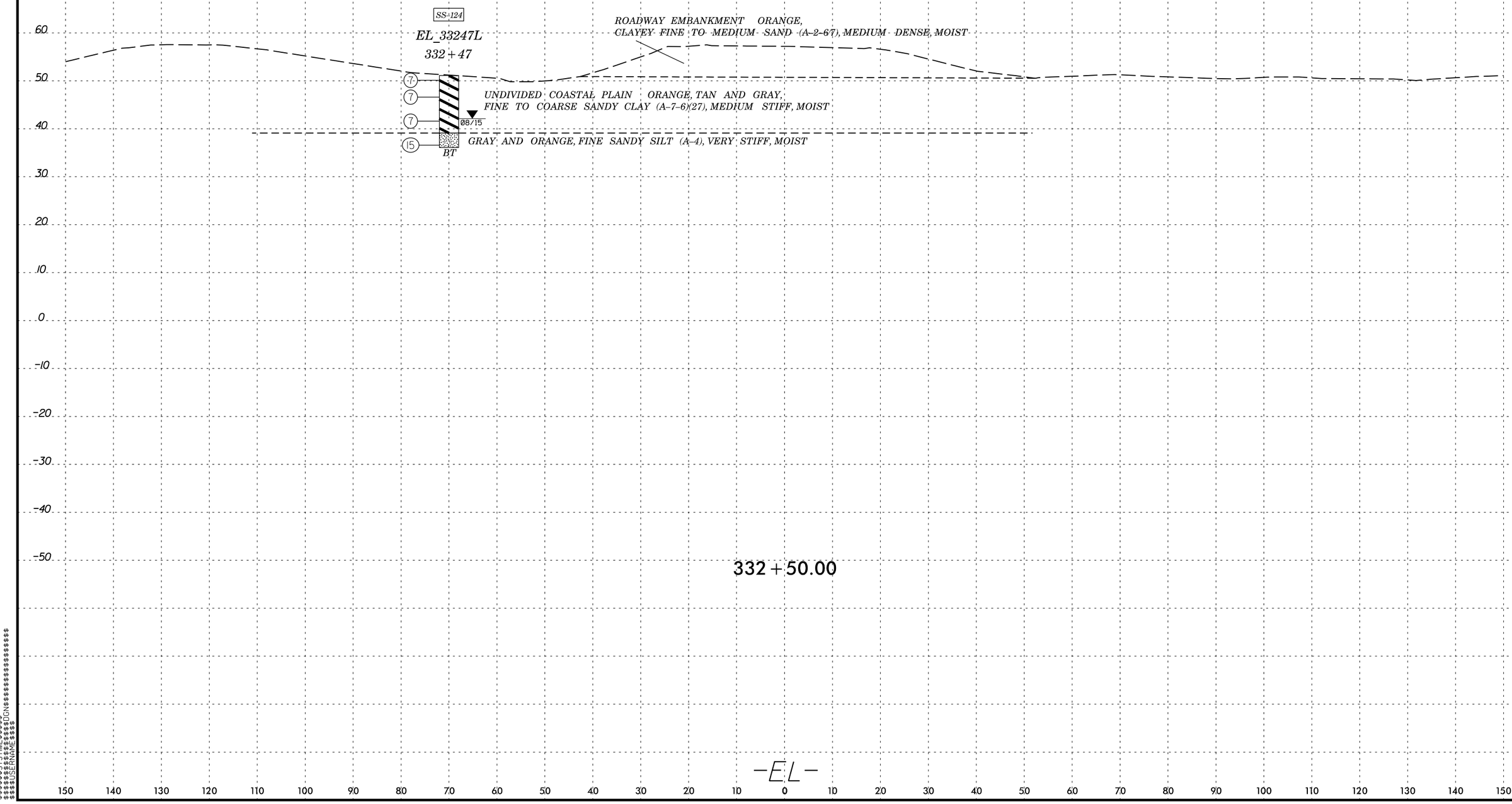
$$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5311A	37

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-124	70' LT	332+47	8.5'-10.0'	A-7-6(27)	50	30	3	14.4	41.4	41.2	100.0	98.0	86.3	28	



$$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5311A	38

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 30 20 10 0 -10 -20 -30 -40 -50

Ⓐ ROADWAY EMBANKMENT
ORANGE, CLAYEY FINE TO MEDIUM SAND (A-2-7), LOOSE, MOIST

EL 33597L
335+97

Ⓐ

7
4
10
8

GRAY AND ORANGE, FINE SANDY CLAY (A-7-6), SOFT TO STIFF, MOIST TO WET

08/15

BT

336+00.00

-EL-

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

$$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5311A	39

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

70 60 50 40 30 20 10 0 -10 -20 -30 -40 -50

EL_33945L

339+45

Ⓒ ROADWAY EMBANKMENT
ORANGE, SILTY, FINE TO COARSE SAND (A-2-4), LOOSE, CONTAINS ROOTS, MOIST

Ⓒ

5
3
14
13

08/15

UNDIVIDED COASTAL PLAIN
GRAY AND ORANGE, FINE SANDY, CLAY (A-7-6), SOFT TO STIFF, MOIST

BT

339+50.00

-EL-

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

$$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5311A	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

70 60 50 40 30 20 10 0 -10 -20 -30 -40 -50

EL_34294L
342+94

ROADWAY EMBANKMENT
ORANGE, SILTY FINE TO COARSE SAND
(A-2-4); LOOSE; CONTAINS ROOTS; DRY

6
6
7
15
08/15
BT

GRAY, CLAY (A-7-6), MEDIUM STIFF TO VERY STIFF, MOIST

343+00.00

-EL-

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

$$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5311A	41

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

70 60 50 40 30 20 10 0 -10 -20 -30 -40 -50

EL_34644L
346+44

ROADWAY EMBANKMENT

ORANGE, SILTY FINE TO COARSE SAND
(A-2-4), LOOSE, CONTAINS ROOTS, DRY

8
6
10
12
08/15
BT

UNDIVIDED COASTAL PLAIN
GRAY AND ORANGE, CLAY (A-7-6), MEDIUM STIFF TO STIFF, MOIST

346+50.00

-EL-

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

$$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

8/23/99

PROJ. REFERENCE NO.	SHEET NO.
R-5311A	42

0 5 10

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-102	91' LT	348+69	0.0'-1.5'	A-4(0)	29	9	33.7	33.2	10.8	21.4	100.0	80.4	38.4	23	

SS-102

EL 34869L

348+69

5
3
14
10

Ø8/15

BT

(F) ROADWAY EMBANKMENT
ORANGE, FINE TO COARSE SANDY SILT (A-4)(0), MEDIUM STIFF, CONTAINS ROOTS, MOIST

(F) GRAY, ORANGE AND TAN, CLAY (A-7-6), SOFT TO STIFF, MOIST

TAN AND ORANGE, FINE SANDY SILT (A-4), STIFF, DRY

348+50.00

-EL-

$$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5311A	43

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

70 60 50 40 30 20 10 0 -10 -20 -30 -40 -50

EL 35036L
350+36

5
10
9
08/15
BT

UNDIVIDED COASTAL PLAIN TAN AND GRAY, SANDY CLAY (A-6), CONTAINS WOODS FRAGMENTS, MEDIUM STIFF TO STIFF, MOIST

ROADWAY EMBANKMENT ORANGE, SILTY FINE TO COARSE SAND (A-2-4), MOIST

350+50.00

-EL-

$$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

8/23/99

PROJ. REFERENCE NO.	SHEET NO.
R-5311A	44

0 5 10

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-99	44' LT	350+94	3.5'-5.0'	A-7-6(35)	59	34	5.1	6	33.3	55.6	100.0	97.1	90.8	26	

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

70 60 50 40 30 20 10 0 -10 -20 -30 -40 -50

SS-99

EL 35094L
350+94

ROADWAY EMBANKMENT ORANGE, SILTY FINE TO COARSE SAND (A-2-4), LOOSE, DRY

7
5
6
7

Ø8/15

BT

GRAY AND ORANGE, CLAY (A-7-6)(35), MEDIUM STIFF, MOIST

351+00.00

-EL-

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

$$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5311A	45

EL_35344L
353+44

ROADWAY EMBANKMENT
ORANGE AND RED, FINE TO COARSE SANDY CLAY (A-6), MEDIUM STIFF, CONTAINS ROOTS, MOIST

0.02
4:1

6 Ø8/15

8 GRAY AND ORANGE, CLAY (A-7-6), STIFF, MOIST TO WET

9 GRAY, CLAYEY FINE SAND (A-2-7), LOOSE, WET

9 ORANGE AND GRAY, CLAY (A-7-6), STIFF, WET

9 BT

353+50.00

-EL-

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

70 60 50 40 30 20 10 0 -10 -20 -30 -40 -50

$$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5311A	46

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

70 60 50 40 30 20 10 0 -10 -20 -30 -40 -50

(C) *ORANGE, SILTY FINE TO COARSE SAND (A-2-4), LOOSE, WET*

(F) *UNDIVIDED COASTAL PLAIN : DARK GRAY, SILT (A-4) WITH SAND, LOOSE, CONTAINS ROOTS, DRY*

ROADWAY EMBANKMENT
BROWN AND ORANGE, SILTY FINE TO COARSE SAND (A-2-4), LOOSE TO MEDIUM DENSE, MOIST

S.P. 1
-L2- STA 12+00.00
-Y2RPB- STA 10+52.00
EL 50.74'

L2_1193L
11+93

9:1 0.020 0.020 4:1
52'58
EP

(C) (F) (12) (8) (5) (9)
Ø8/15
BT

GRAY AND ORANGE, CLAY (A-7-6), WITH FINE SAND, STIFF, WET

GRAY AND ORANGE, CLAYEY FINE TO COARSE SAND (A-2-7), LOOSE, WET

GRAY AND ORANGE, CLAY (A-7-6), STIFF, WET

12+00.00

-L2-

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

$$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5311A	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 30 20 10 0 -10 -20 -30 -40 -50

ROADWAY EMBANKMENT
BROWN AND ORANGE, SILTY FINE TO COARSE SAND (A-2-4), LOOSE TO MEDIUM DENSE, MOIST

L2_1344R
13 + 44

4:1 0.020' 52.46 0.020' 3:1

EP EP

8 10 10

UNDIVIDED COASTAL PLAIN GRAY AND ORANGE, FINE SANDY SILT (A-4), STIFF, WET

BT
DRY

13 + 50.00

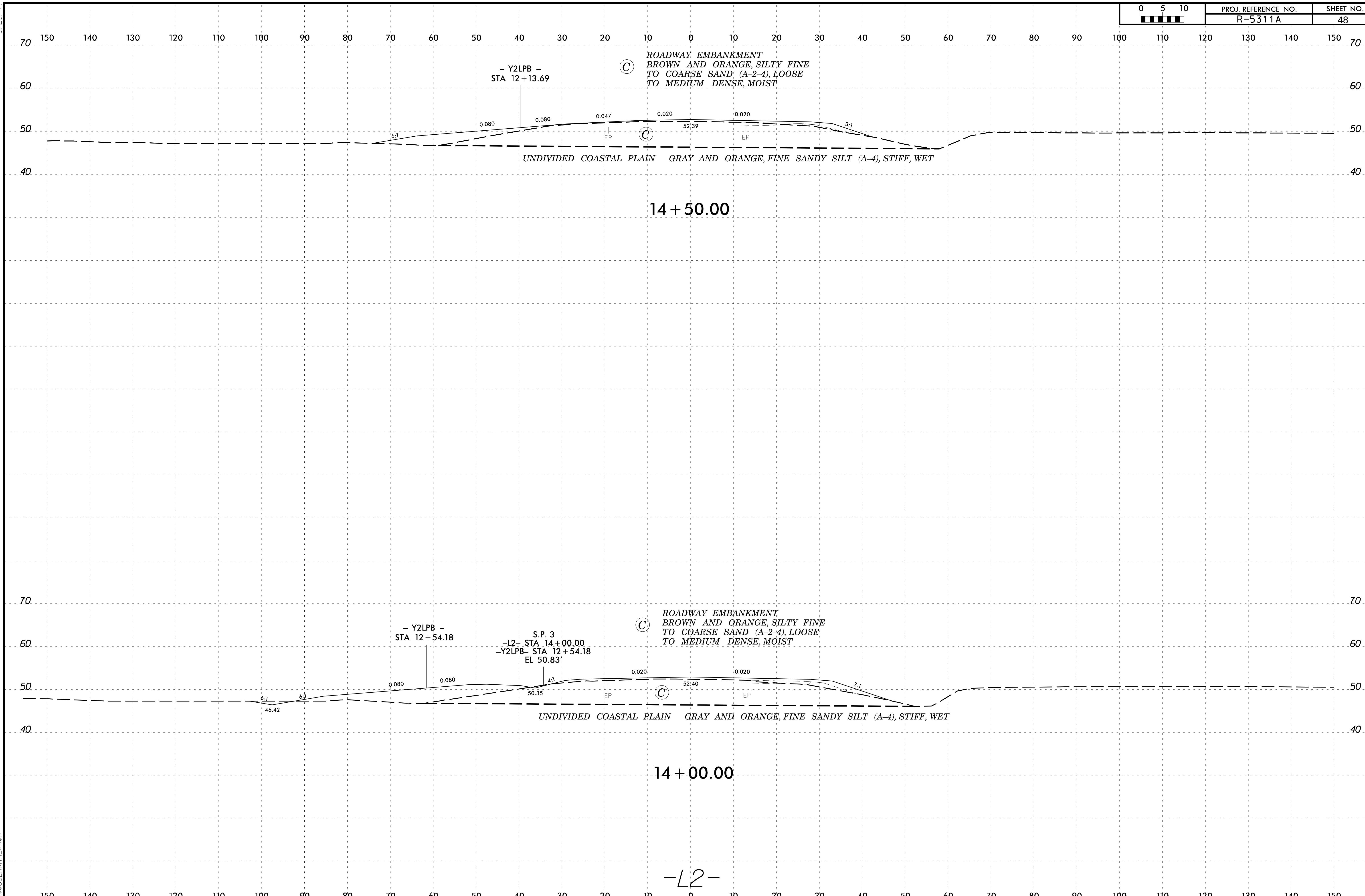
-L2-

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

$$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

PROJ. REFERENCE NO. R-5311A

SHEET NO. 48

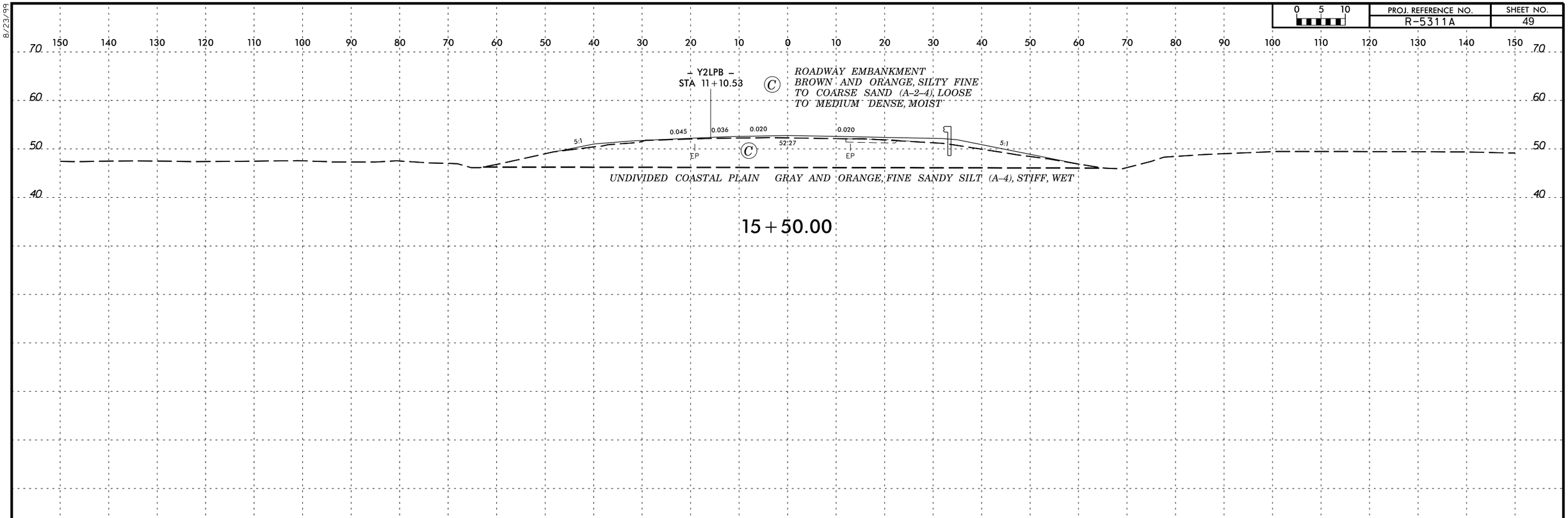


8/23/99

$$$$$$SYSTIME$$$$$ $$$$$$DGN$$$$$$$$$$$$$$$$$ $$$$USERNAME$$$$

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5311A	49



$$$$$$SYSTIME$$$$$
$$$$$$SCALE$$$$$$
$$$$$$DESIGNATION$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5311A	50

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

70
60
50
40

– Y2LPB –
STA 10+60.41

Ⓒ ROADWAY EMBANKMENT
BROWN AND ORANGE, SILTY FINE TO COARSE SAND (A-2-4), LOOSE TO MEDIUM DENSE, MOIST

0.024 0.013 0.020 0.020

52.18

6:1 6:1 6:1 6:1

EP EP

49.84

Ⓒ UNDIVIDED COASTAL PLAIN GRAY AND ORANGE, FINE, SANDY SILT (A-4), STIFF, WET

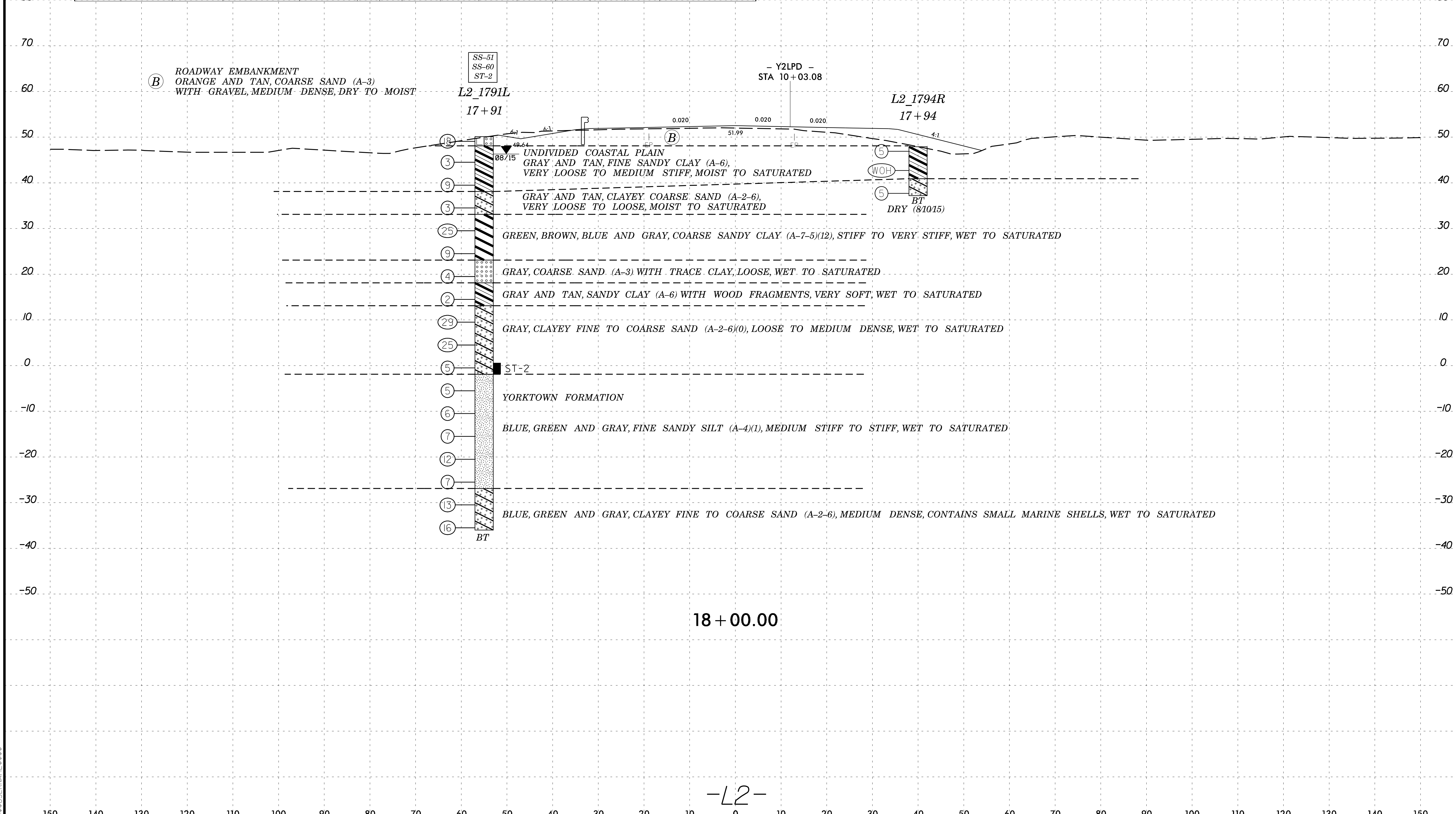
16+00.00

-L2-

$$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

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-51	55' LT	17+91	19.6'-21.1'	A-7-5(12)	47	17	15.4	24.4	52.1	8.1	100.0	89.2	68.8	28	
SS-60	55' LT	17+91	64.4'-66.1'	A-4(1)	29	7	7.8	56.9	26.1	9.2	100.0	98.9	48.7	42	
ST-2	55' LT	17+88	50.0'-52.0'	A-2-6(0)	31	15	75.8	11.1	5.0	8.0	98.8	31.7	14.6	37	



8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5311A	52

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
ST-6	80' LT	18+94	14.2-16.2	A-6(3)	32	17	38.5	20.7	13.9	26.9	99.5	84.4	44.1	36	

(A) UNDIVIDED COASTAL PLAIN
ORANGE AND TAN, COARSE SAND (A-2-6)
WITH CLAY AND ROOTS, MEDIUM DENSE, DRY
ROADWAY EMBANKMENT

(B) ORANGE AND TAN, COARSE SAND (A-3)
WITH GRAVEL, MEDIUM DENSE, DRY TO MOIST

ST-6

L2_1894L
18+94

– Y2LPD –
STA 11+03.22

6:1 0.020 0.020 0.026 0.043 5:1
51.84
EP EP
(B) (A)

Ø8.45

UNDIVIDED COASTAL PLAIN GRAY AND TAN, SANDY CLAY (A-6), SOFT, MOIST

GRAY AND TAN, CLAYEY FINE SAND (A-2-6), VERY LOOSE, WET

GRAY AND TAN, SANDY CLAY (A-6), SOFT, WET

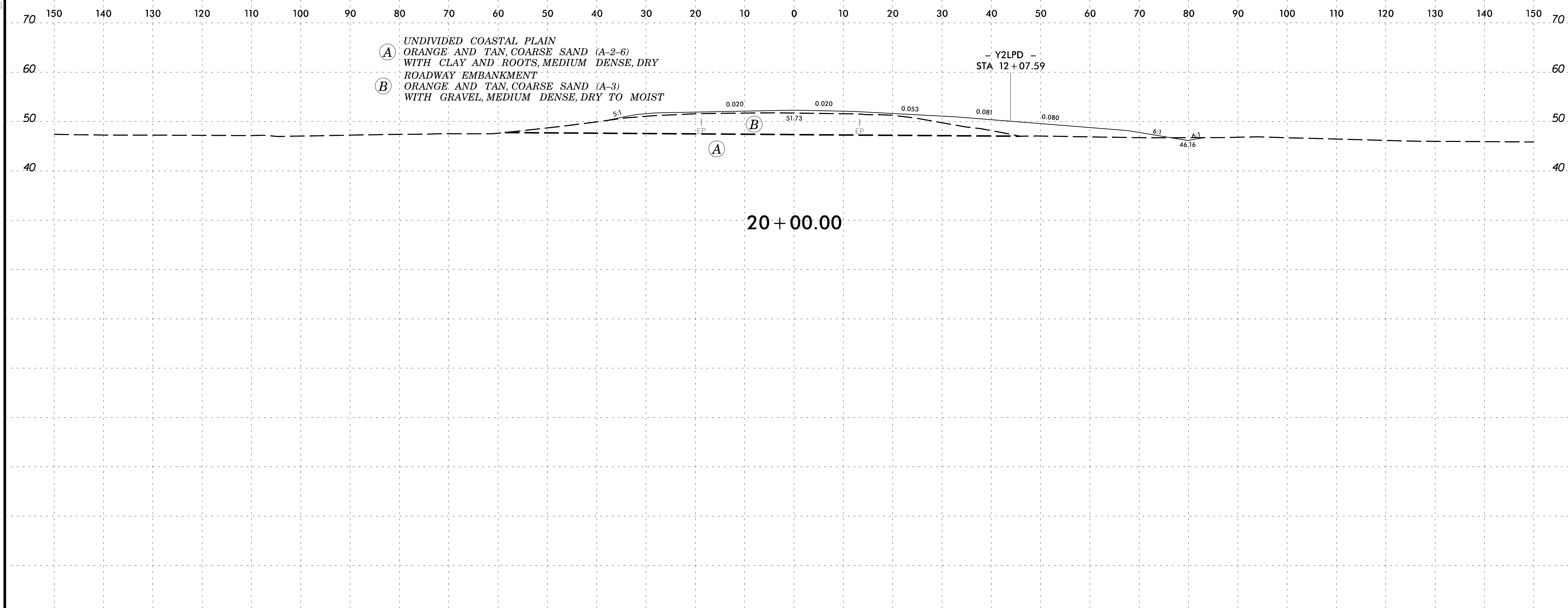
BT

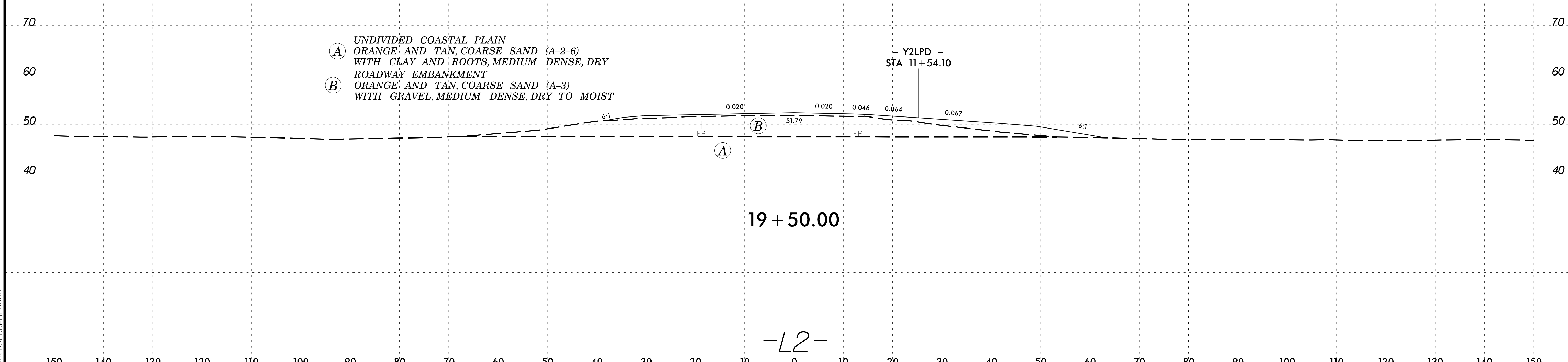
19+00.00

-L2-

$$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

8/23/99





-L2-

$$$$$SYSTIME$$$$$
$$$$$$$$$DGN$$$$$$$$$$$$$$$$$
$$$$$USERNAME$$$$

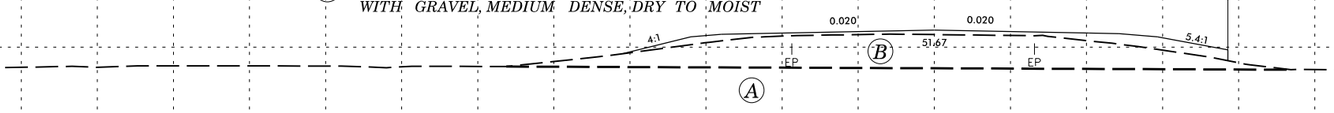
8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5311A	54

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

70
60
50
40

Ⓐ *UNDIVIDED COASTAL PLAIN*
ORANGE AND TAN, COARSE SAND (A-2-6)
WITH CLAY AND ROOTS, MEDIUM DENSE, DRY
ROADWAY EMBANKMENT
Ⓑ *ORANGE AND TAN, COARSE SAND (A-3)*
WITH GRAVEL, MEDIUM DENSE, DRY TO MOIST



S.P. 4
-L2- STA 20+50.00
-Y2LPD- STA 12+45.00
EL 49.65'

20+50.00

-L2-

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

$$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

8/23/99

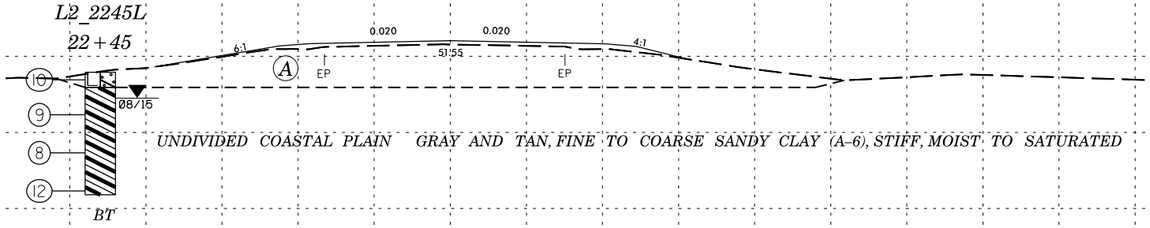
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5311A	55

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

70 60 50 40 30 20 10 0 -10 -20 -30 -40 -50

(A) *ROADWAY EMBANKMENT*
TAN, ORANGE AND GRAY, CLAYEY COARSE SAND
(A-2-6), MEDIUM DENSE, MICACEOUS, MOIST

L2_2245L
22 + 45



UNDIVIDED COASTAL PLAIN GRAY AND TAN, FINE TO COARSE SANDY CLAY (A-6), STIFF, MOIST TO SATURATED

22 + 50.00

-L2-

$$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5311A	56

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

(E) *ROADWAY EMBANKMENT*
BROWN AND ORANGE, CLAY (A-7-5/6) WITH LITTLE SAND, WET

60

50

0.020 0.010

3:1 3:1 3:1 3:1 3:1 3:1

52.97 EP (E) 55.77 EP 52.98

UNDIVIDED COASTAL PLAIN
GRAY AND BROWN, CLAY (A-7-6), WET

14 + 00.00

—Y/—

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

$$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

8/23/99

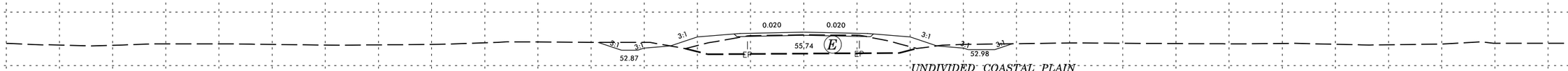
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5311A	57

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

Ⓔ ROADWAY EMBANKMENT
BROWN AND ORANGE, CLAY (A-7-5/6) WITH LITTLE SAND, WET

60

50



UNDIVIDED COASTAL PLAIN
GRAY AND BROWN, CLAY (A-7-6), WET

60

50

14+50.00

-Y/-

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

$$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

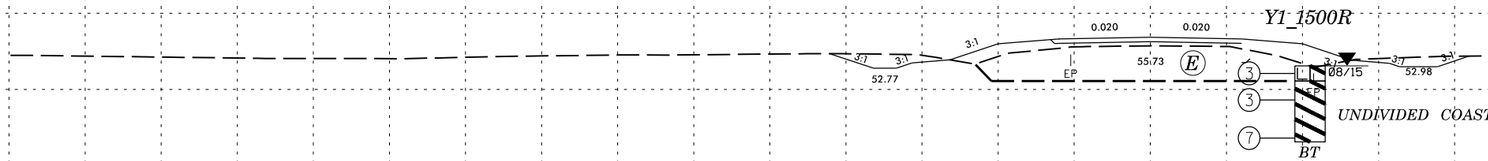
8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5311A	58

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 30 20 10 0 -10 -20 -30 -40

(E) *ROADWAY EMBANKMENT*
BROWN AND ORANGE, CLAY (A-7-5/6) WITH LITTLE SAND, SOFT, WET



UNDIVIDED COASTAL PLAIN GRAY AND BROWN, CLAY (A-7-6), SOFT TO MEDIUM STIFF, WET

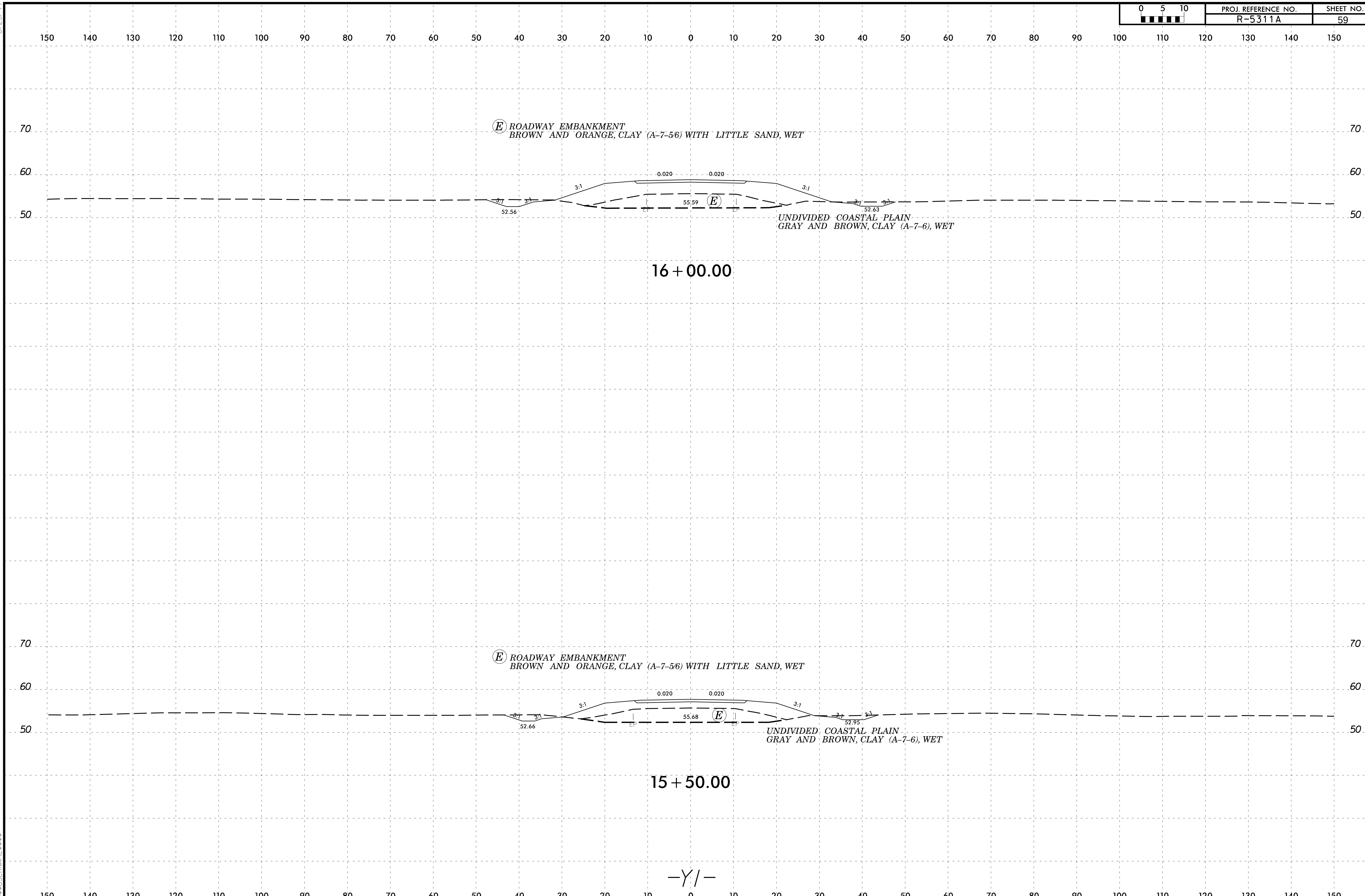
15+00.00

-Y/-

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

$$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

PROJ. REFERENCE NO.	SHEET NO.
R-5311A	59



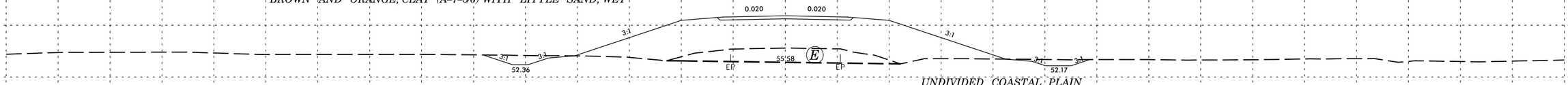
8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5311A	60

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

70
60
50

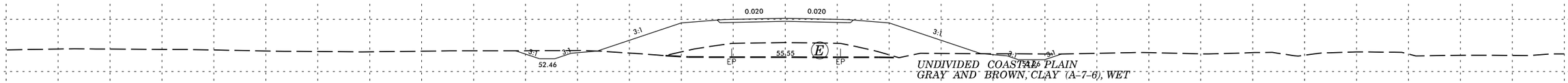
(E) *ROADWAY EMBANKMENT*
BROWN AND ORANGE, CLAY (A–7–5/6) WITH LITTLE SAND, WET



UNDIVIDED COASTAL PLAIN
GRAY AND BROWN, CLAY (A–7–6), WET

17 + 00.00

(E) *ROADWAY EMBANKMENT*
BROWN AND ORANGE, CLAY (A–7–5/6) WITH LITTLE SAND, WET



UNDIVIDED COASTAL PLAIN
GRAY AND BROWN, CLAY (A–7–6), WET

16 + 50.00

–Y/–

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

$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

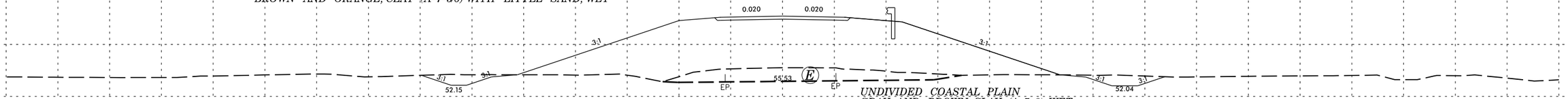
8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5311A	61

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

70
60
50

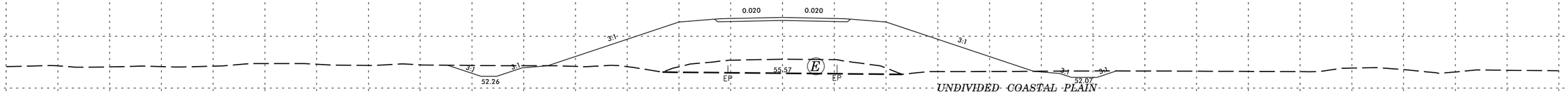
(E) *ROADWAY EMBANKMENT*
BROWN AND ORANGE, CLAY (A-7-5/6) WITH LITTLE SAND, WET



UNDIVIDED COASTAL PLAIN
GRAY AND BROWN, CLAY (A-7-6), WET

18+00.00

(E) *ROADWAY EMBANKMENT*
BROWN AND ORANGE, CLAY (A-7-5/6) WITH LITTLE SAND, WET



UNDIVIDED COASTAL PLAIN
GRAY AND BROWN, CLAY (A-7-6), WET

17+50.00

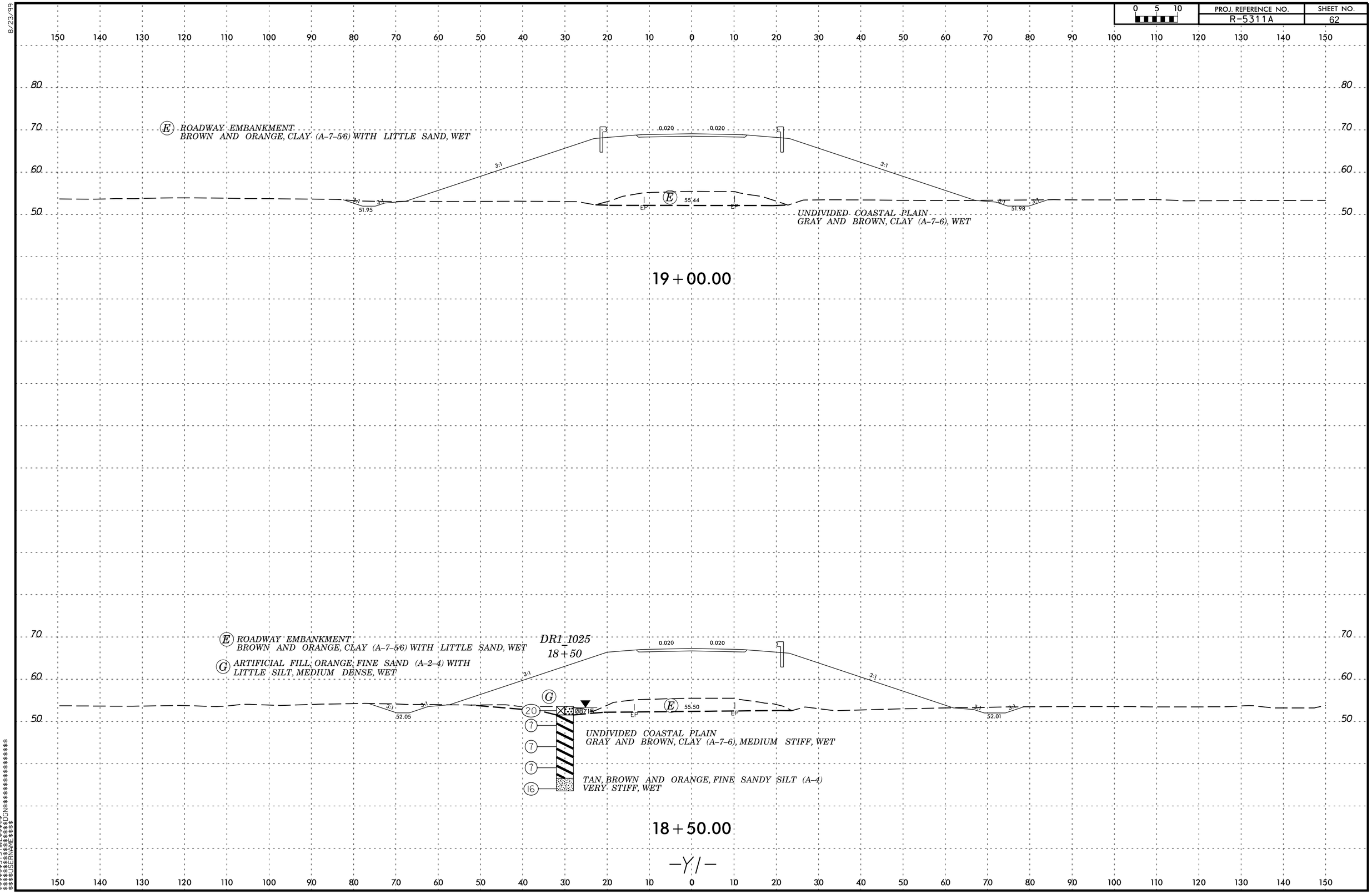
—Y/—

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

$$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

8/23/99

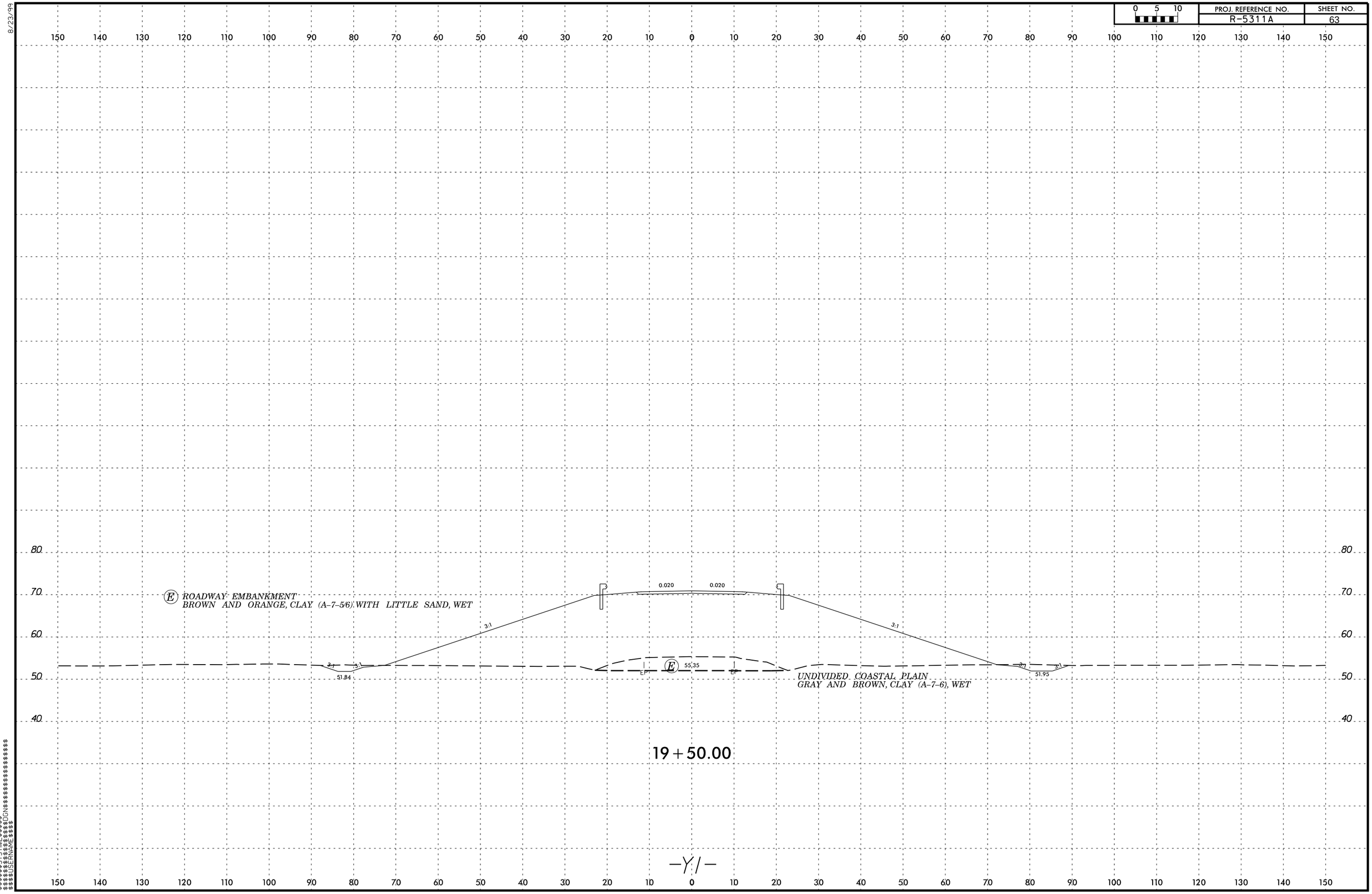
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5311A	62



$$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

8/23/99

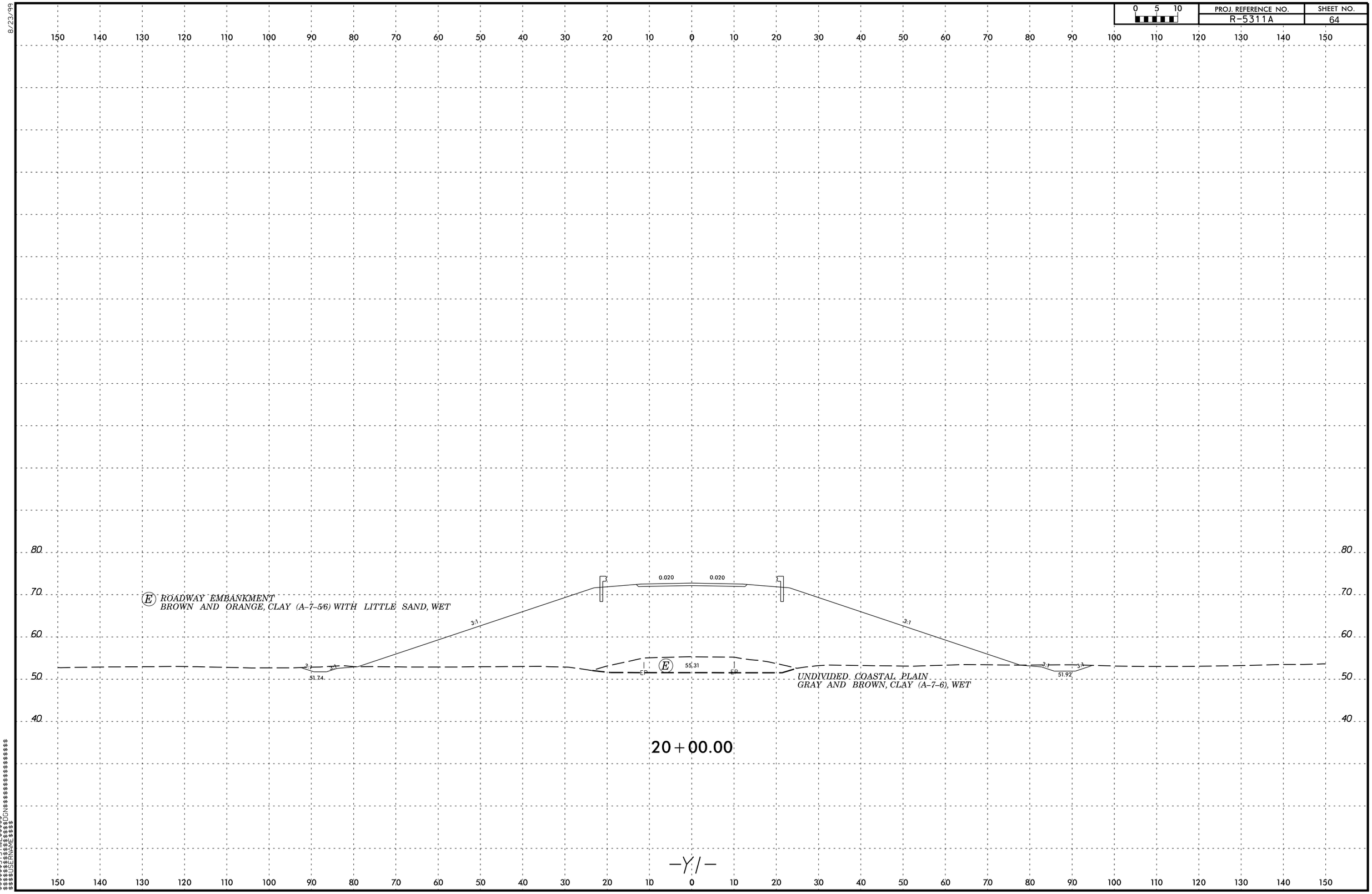
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5311A	63



$$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

8/23/99

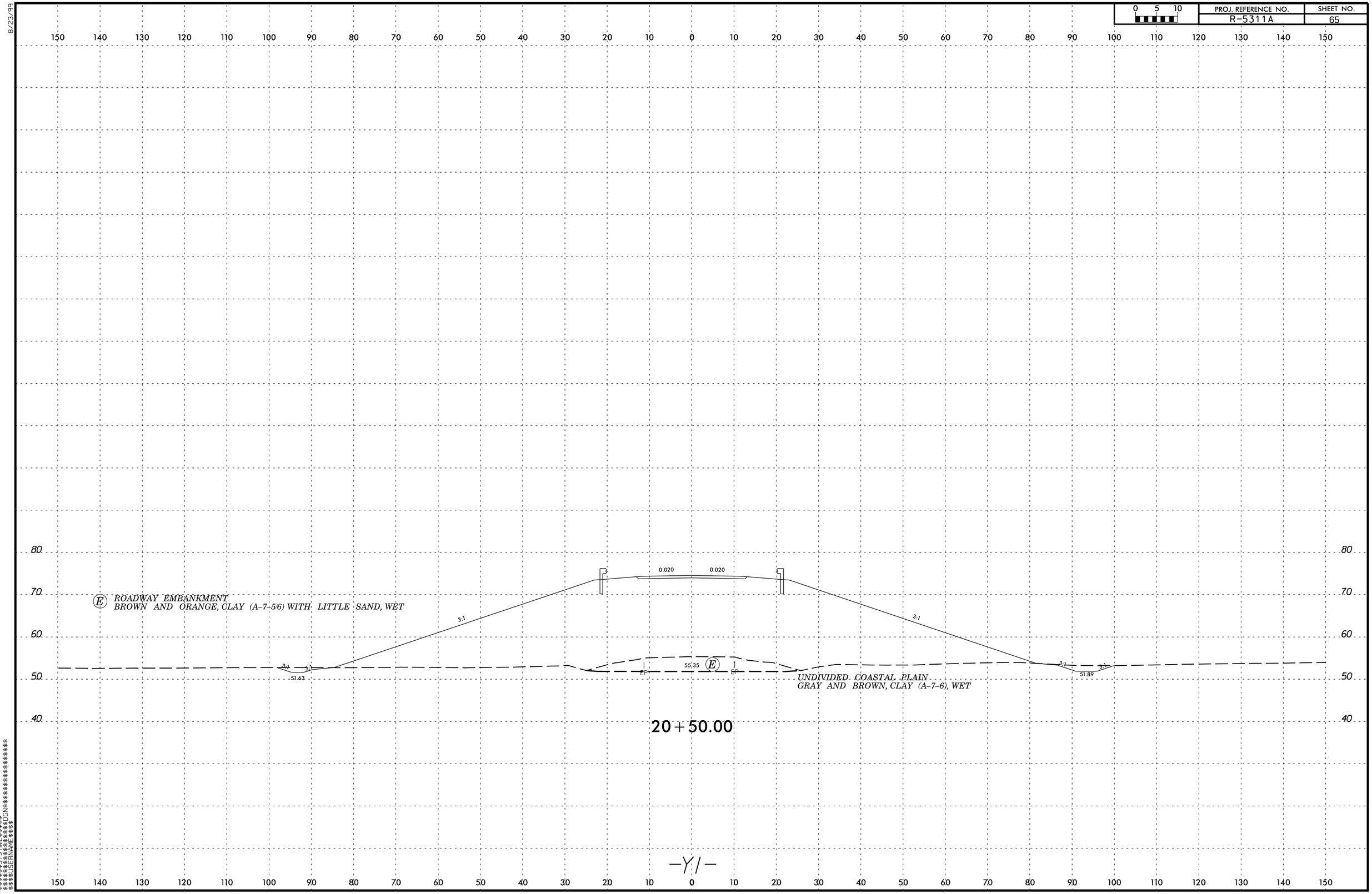
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5311A	64



$$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5311A	65



$$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5311A	66

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

0.020 0.020

3:1 3:1 3:1 3:1

Ⓔ ROADWAY EMBANKMENT
BROWN AND ORANGE, CLAY (A-7-5/6) WITH LITTLE SAND, WET

51.52 55.43 51.86

EP EP

UNDIVIDED COASTAL PLAIN
GRAY AND BROWN, CLAY (A-7-6), WET

21+00.00

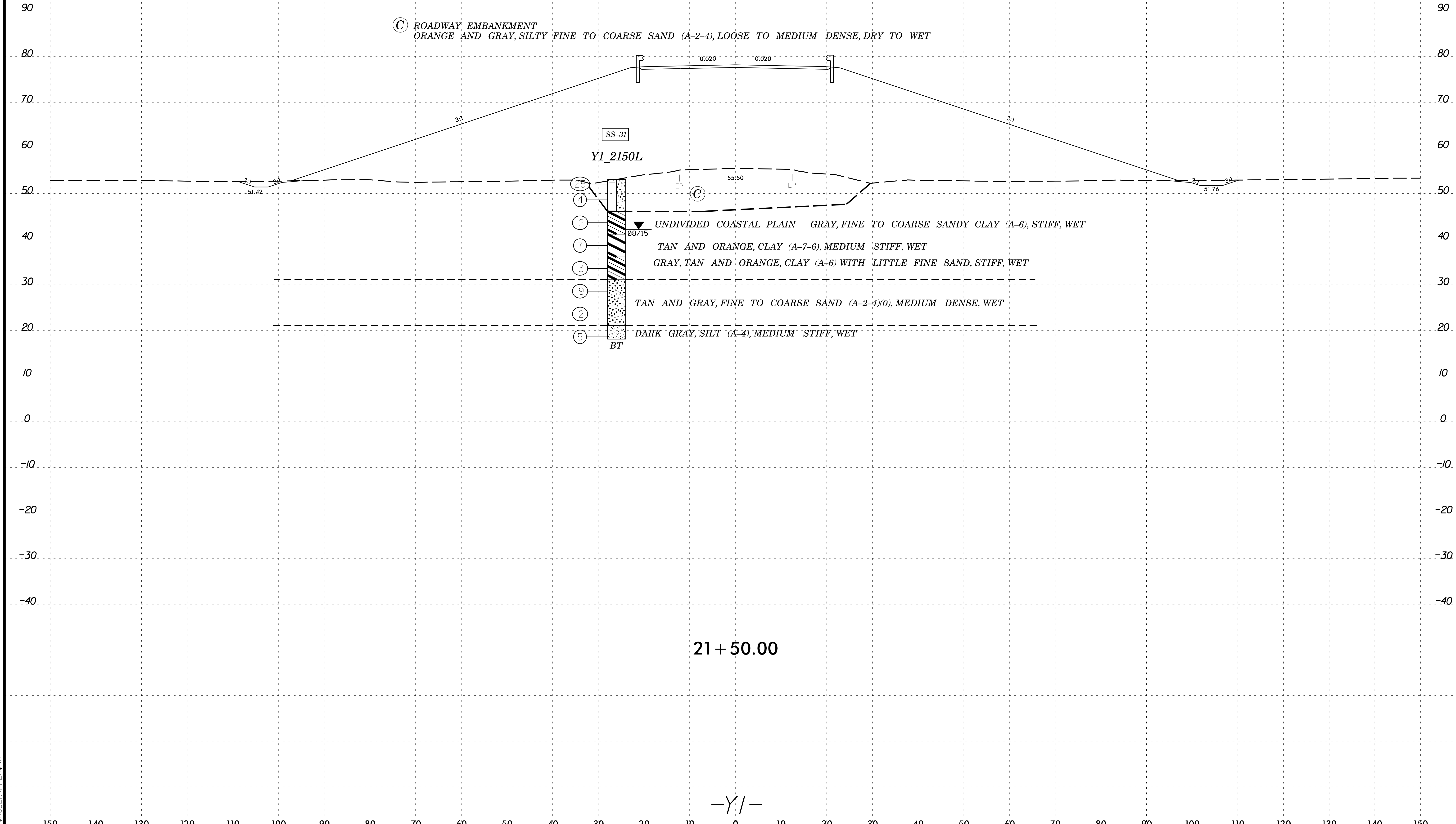
-Y/-

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

$$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

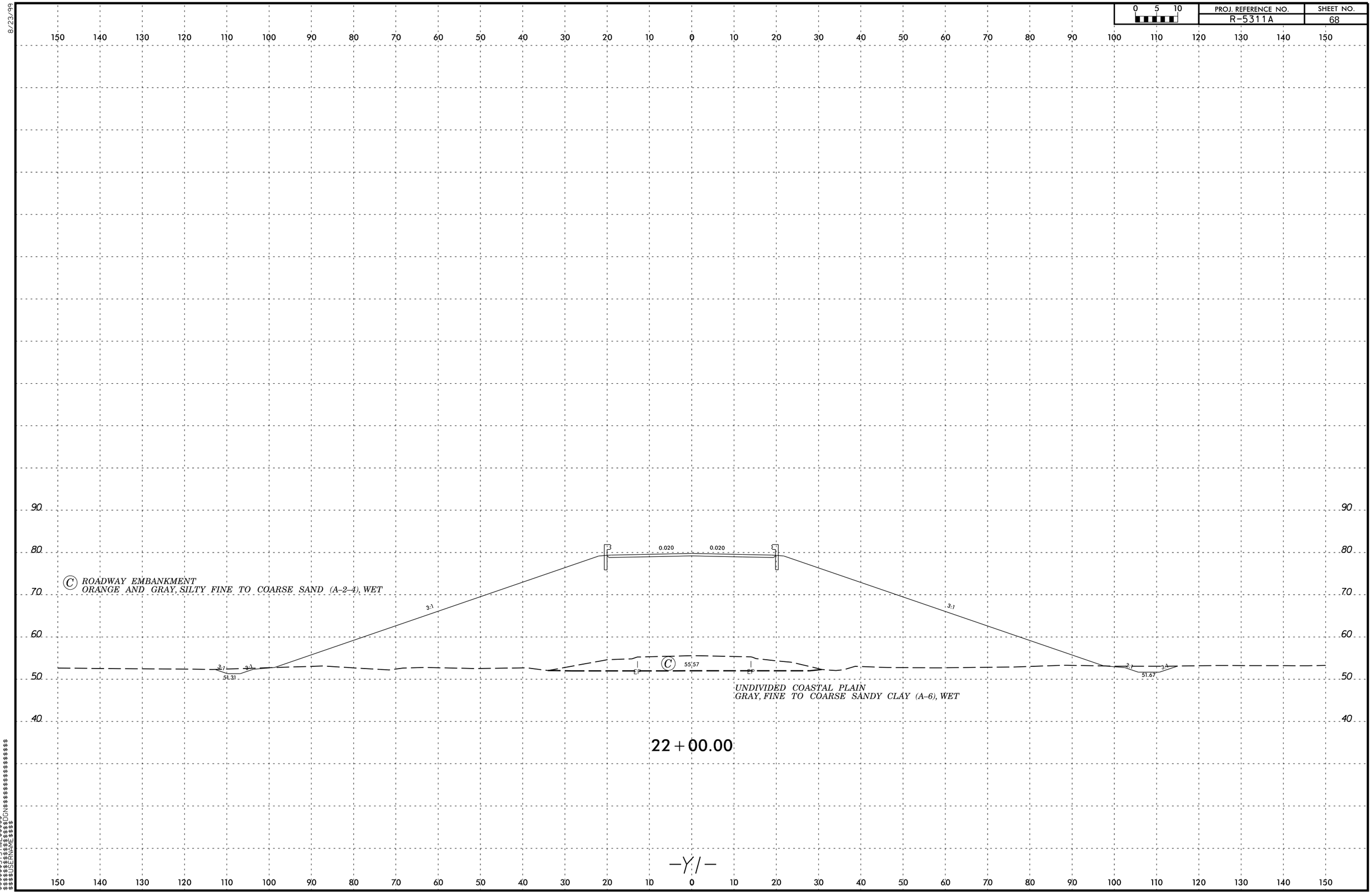
SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS–31	31' LT	21+50	23.5'–25.0'	A–2–4(0)	20	NP	66.8	24	5.4	2.5	98.7	62.4	10.0	18	



8/23/99

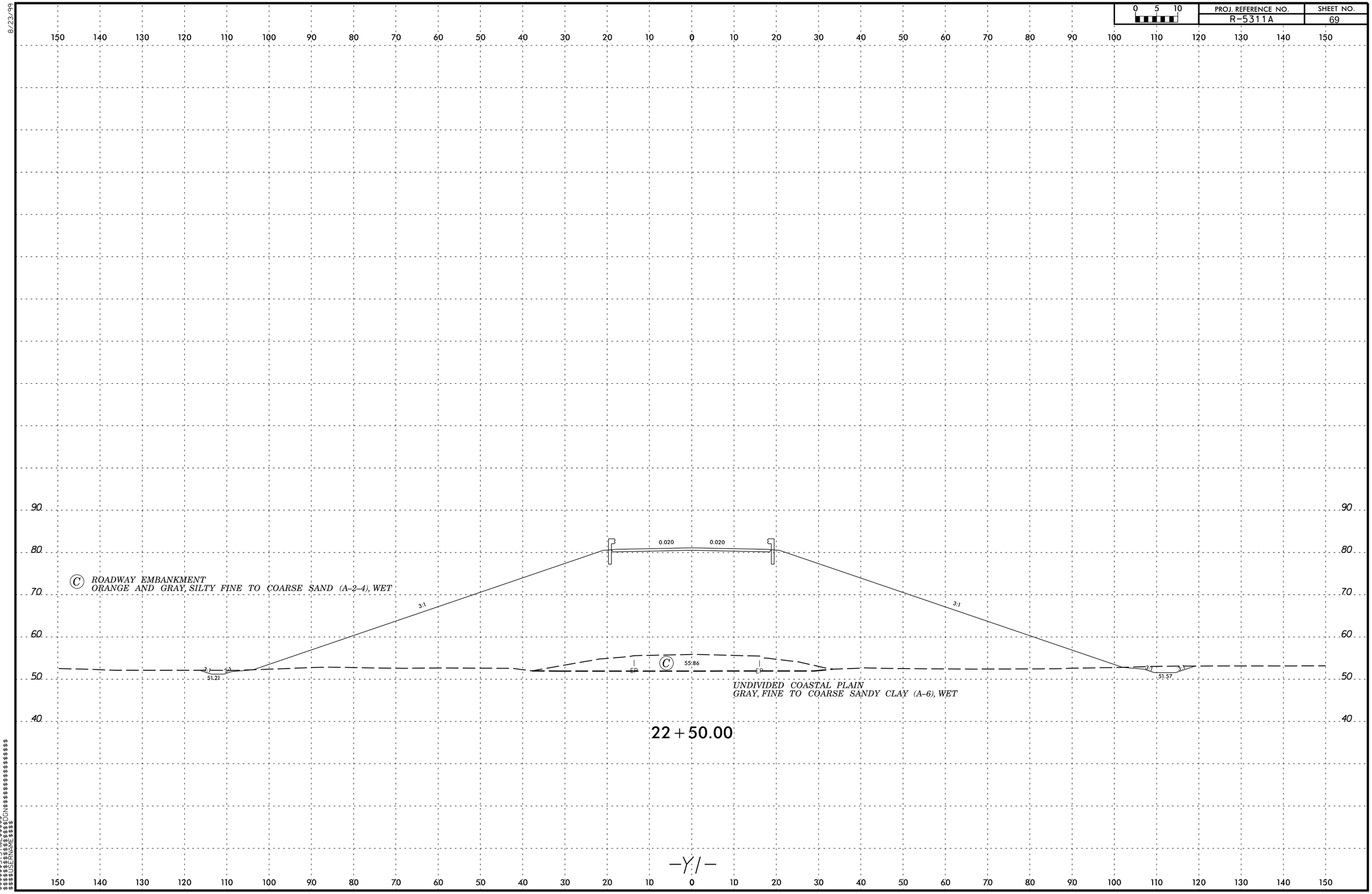
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5311A	68



$$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$$$USERNAME$$$$

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5311A	69



$$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5311A	70

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
40

0.020 0.020

Ⓐ ROADWAY EMBANKMENT
ORANGE, CLAYEY FINE TO COARSE SAND (A-2-7), DRY

3:1 3:1 3:1 3:1

51.20 51.48

EP Ⓐ 56.33 EP

UNDIVIDED COASTAL PLAIN
GRAY, CLAY (A-7-6), WET

23+00.00

-Y/-

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

$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

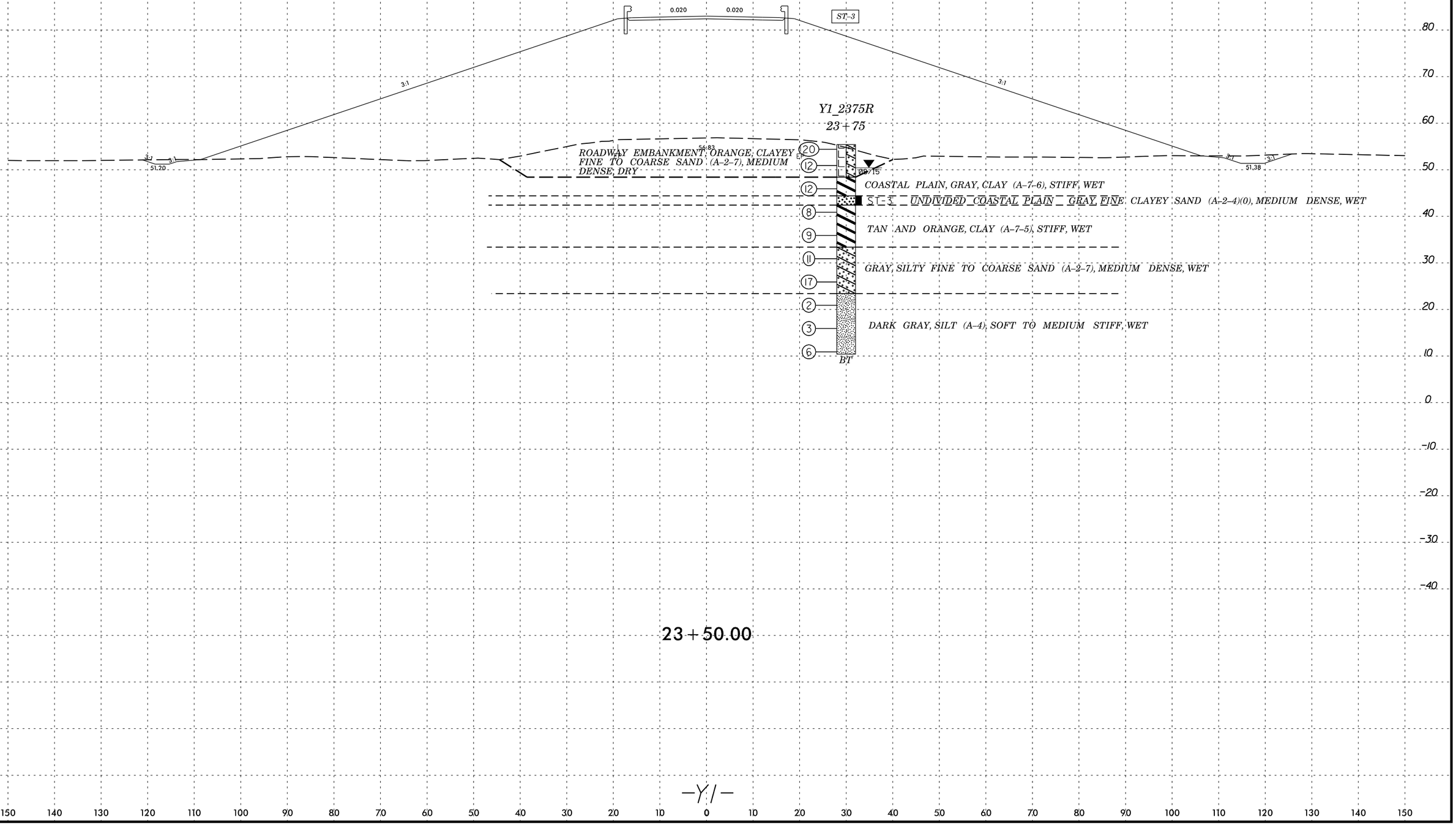
8/23/99

PROJ. REFERENCE NO.	SHEET NO.
R-5311A	71

0 5 10

SOIL TEST RESULTS

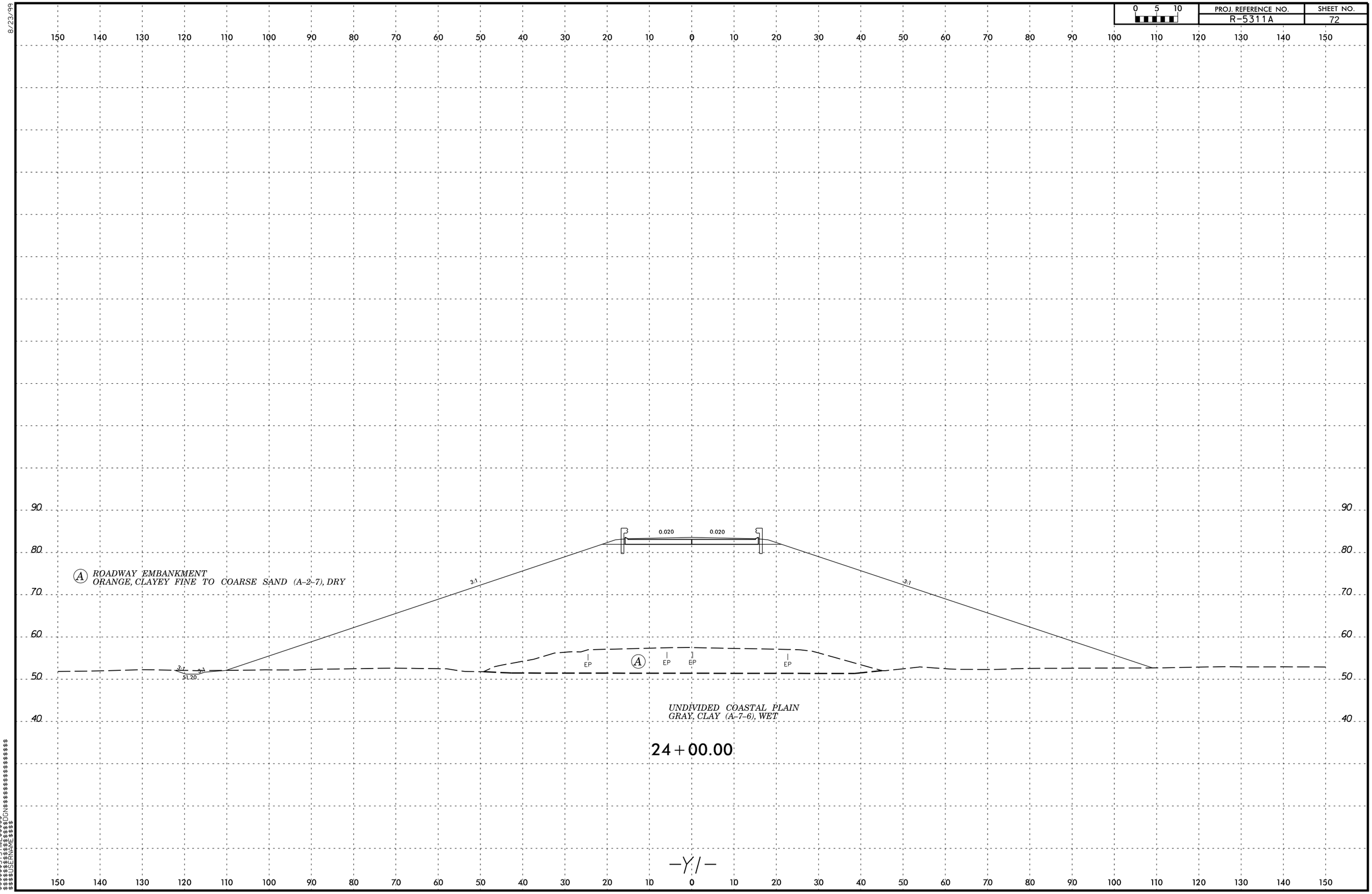
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
ST-3	30' RT	23+75	11.0'-13.0'	A-2-4(0)	27	8	5.0	69.0	12.6	13.4	100.0	99.6	35.1	24	



$$$$$$$SYSTIME$$$$$
$$$$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$
$$$$$$USERNAME$$$$

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5311A	72

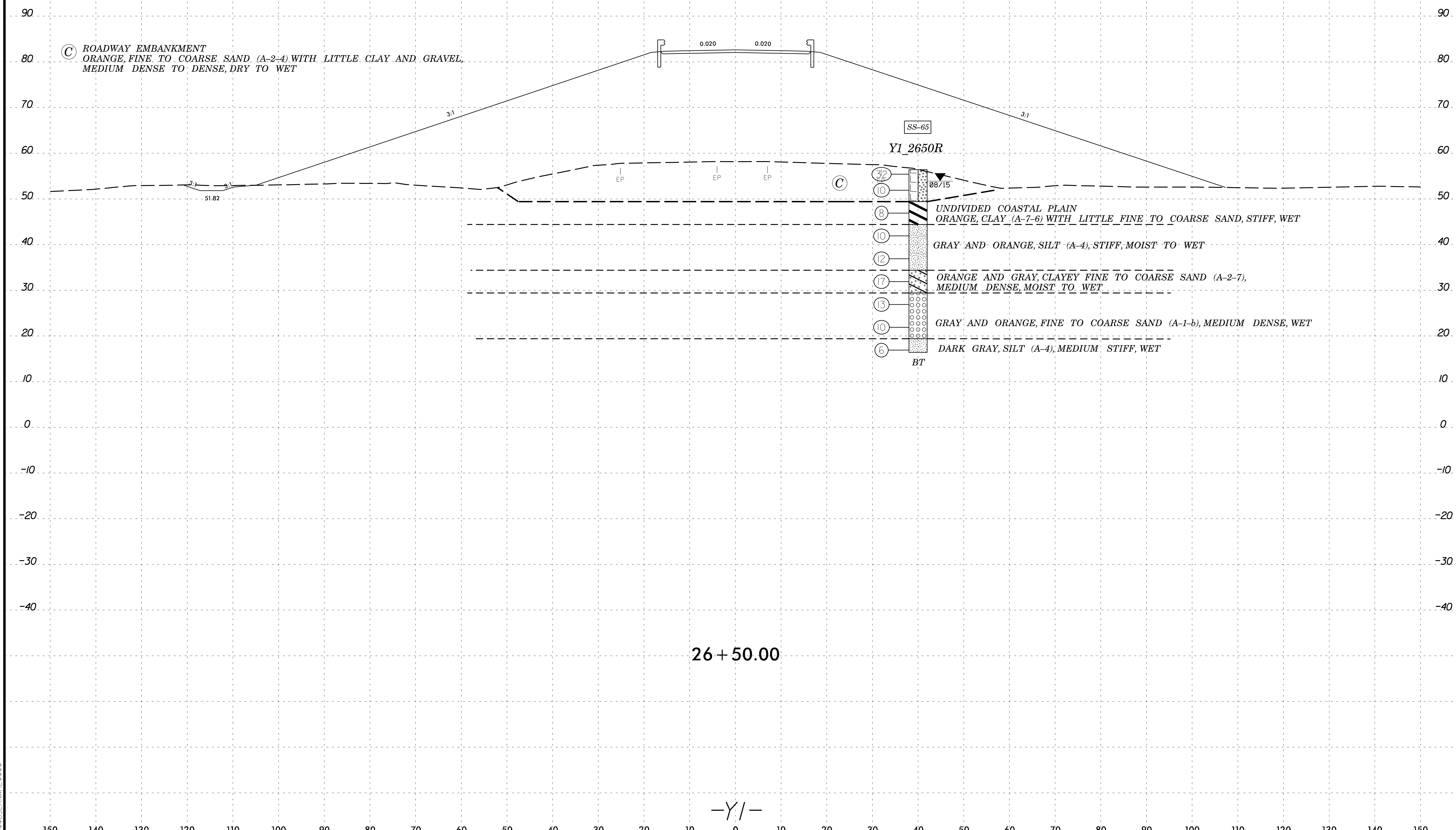


$$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

PROJ. REFERENCE NO.	SHEET NO.
R-5311A	73

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-65	40' RT	26+50	33.5'-35.0'	A-1-b(0)	22	NP	58.5	15.5	5.2	2	81.2	40.3	8.9	18	



8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5311A	74

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
40

0.020 0.020

Ⓒ *ROADWAY EMBANKMENT*
ORANGE FINE TO COARSE SAND (A-2-4), DRY

3:1 3:1 3:1 3:1

2:1 2:1
51.78

EP EP EP EP
57.45
Ⓒ

UNDIVIDED COASTAL PLAIN
ORANGE, CLAY (A-7-6), WET

27+00.00

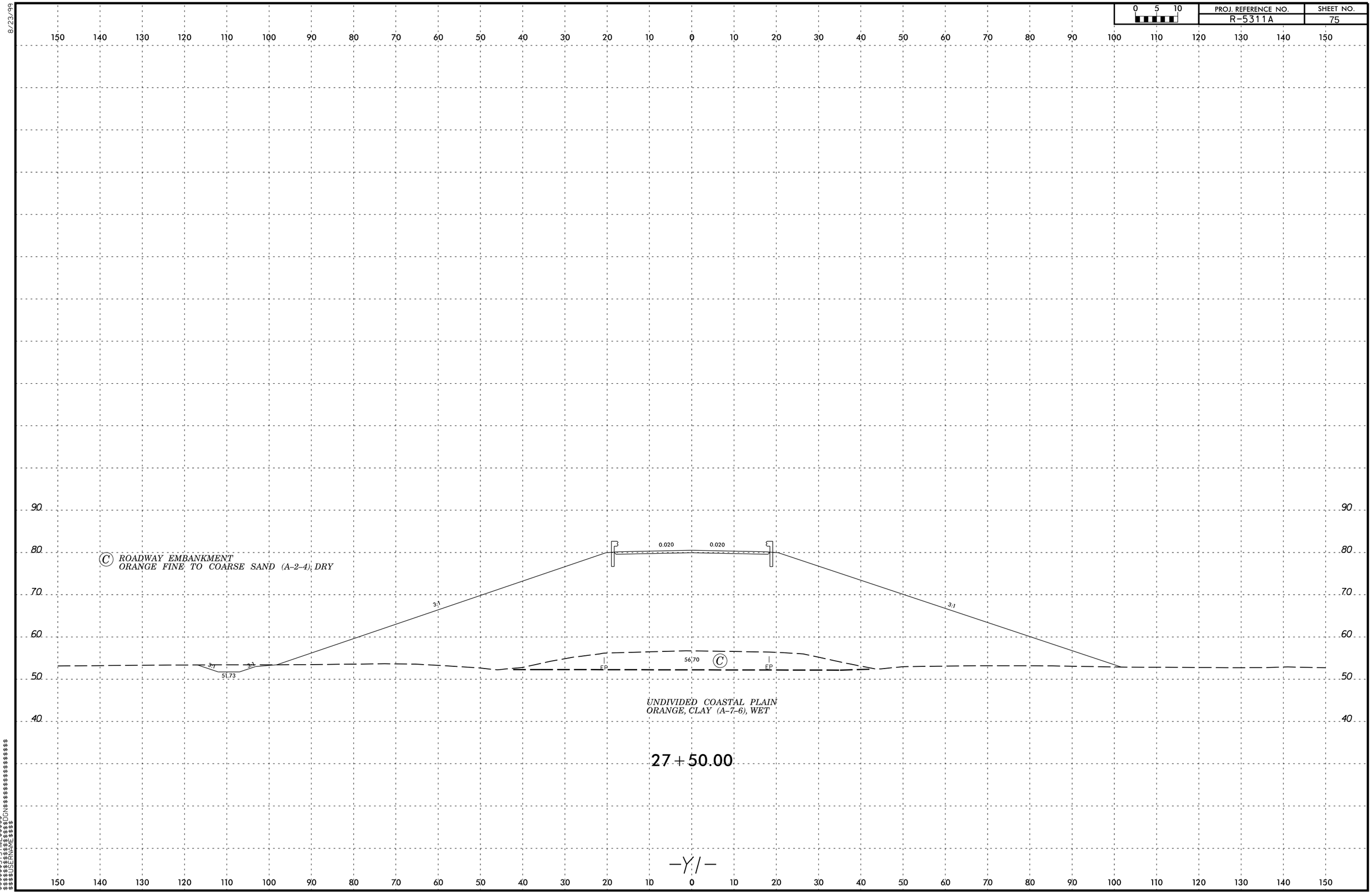
—Y/—

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

$$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

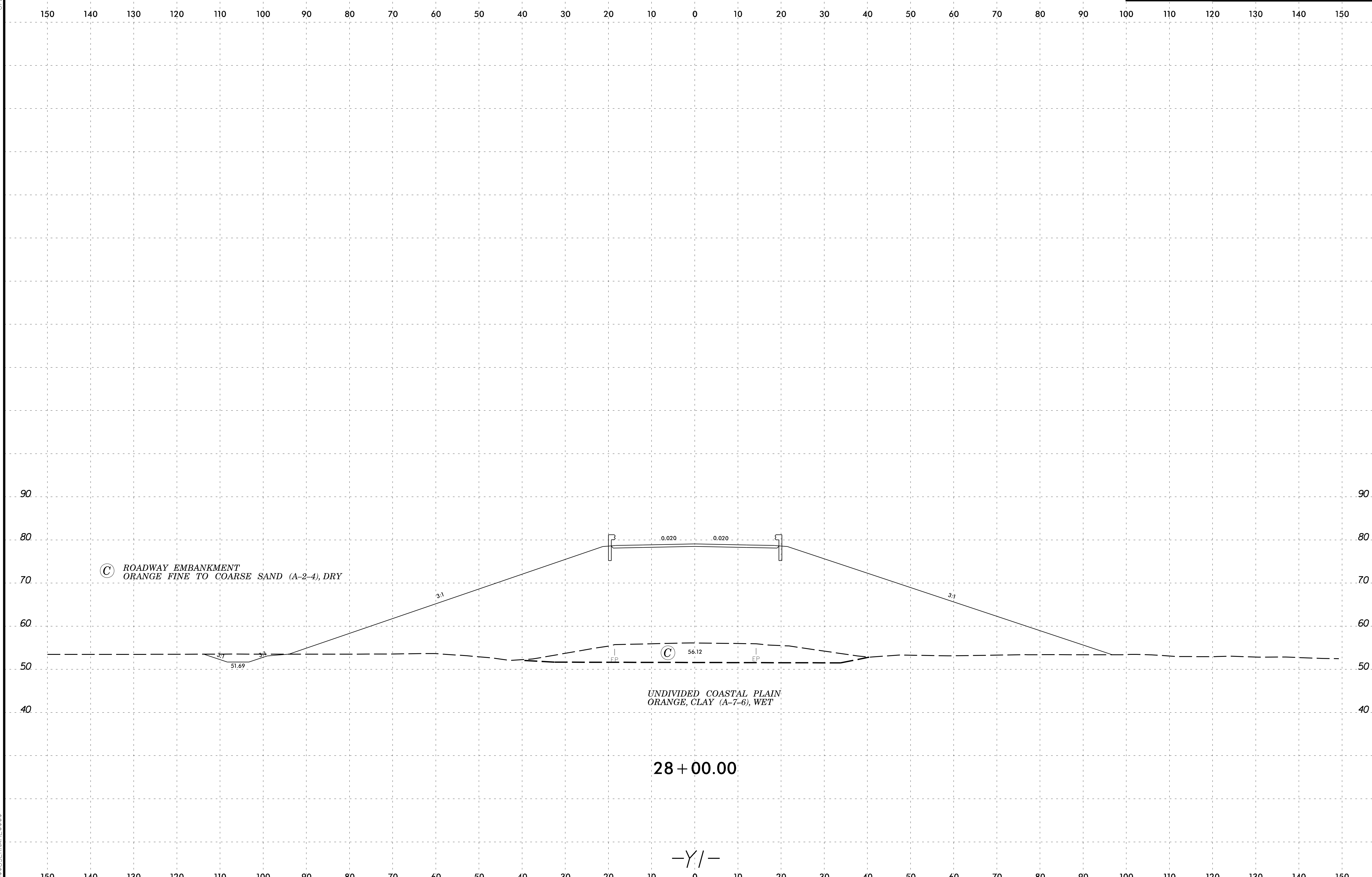
8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5311A	75



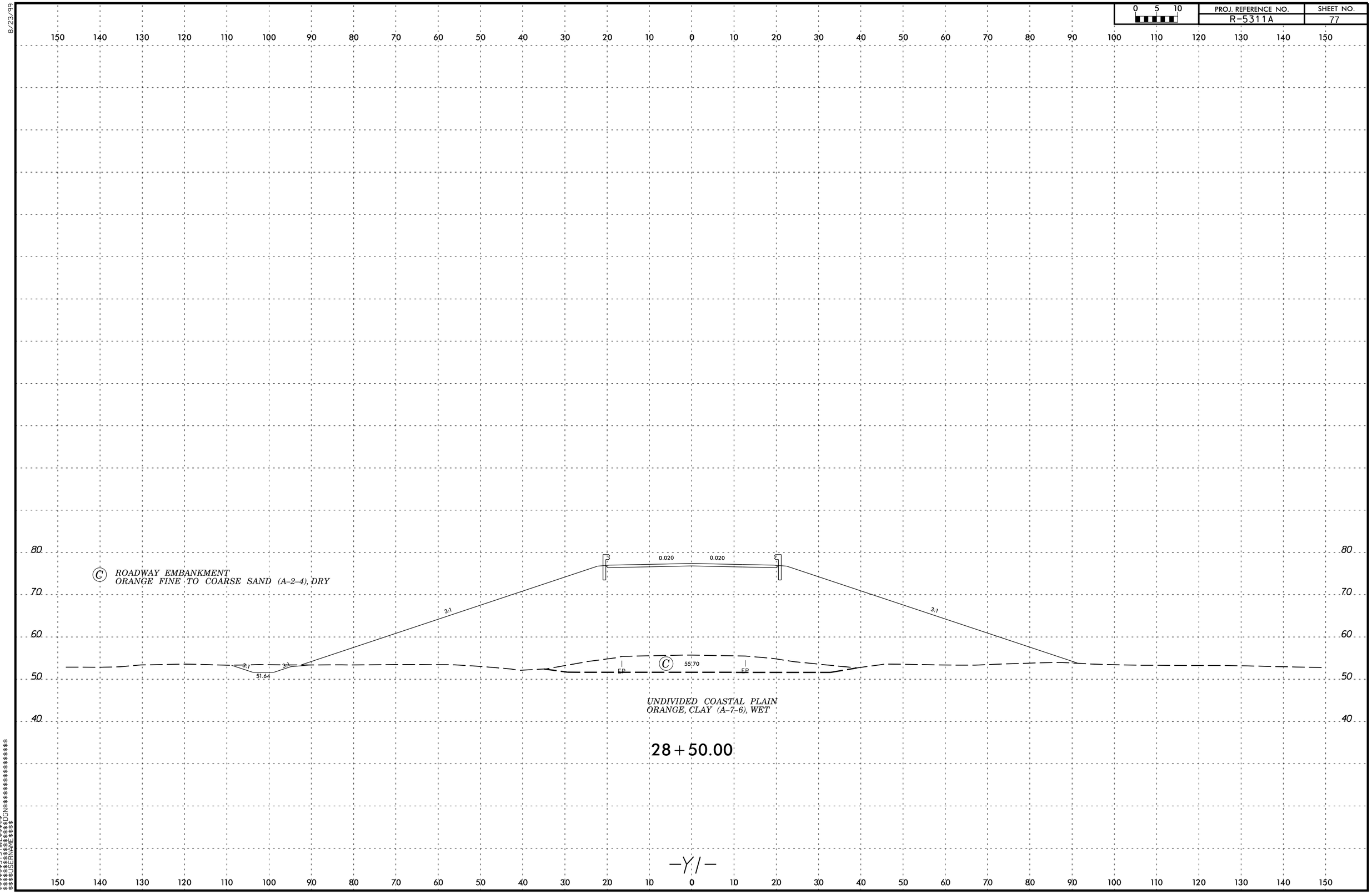
$$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$$$USERNAME$$$$

PROJ. REFERENCE NO.	SHEET NO.
R-5311A	76



8/23/99

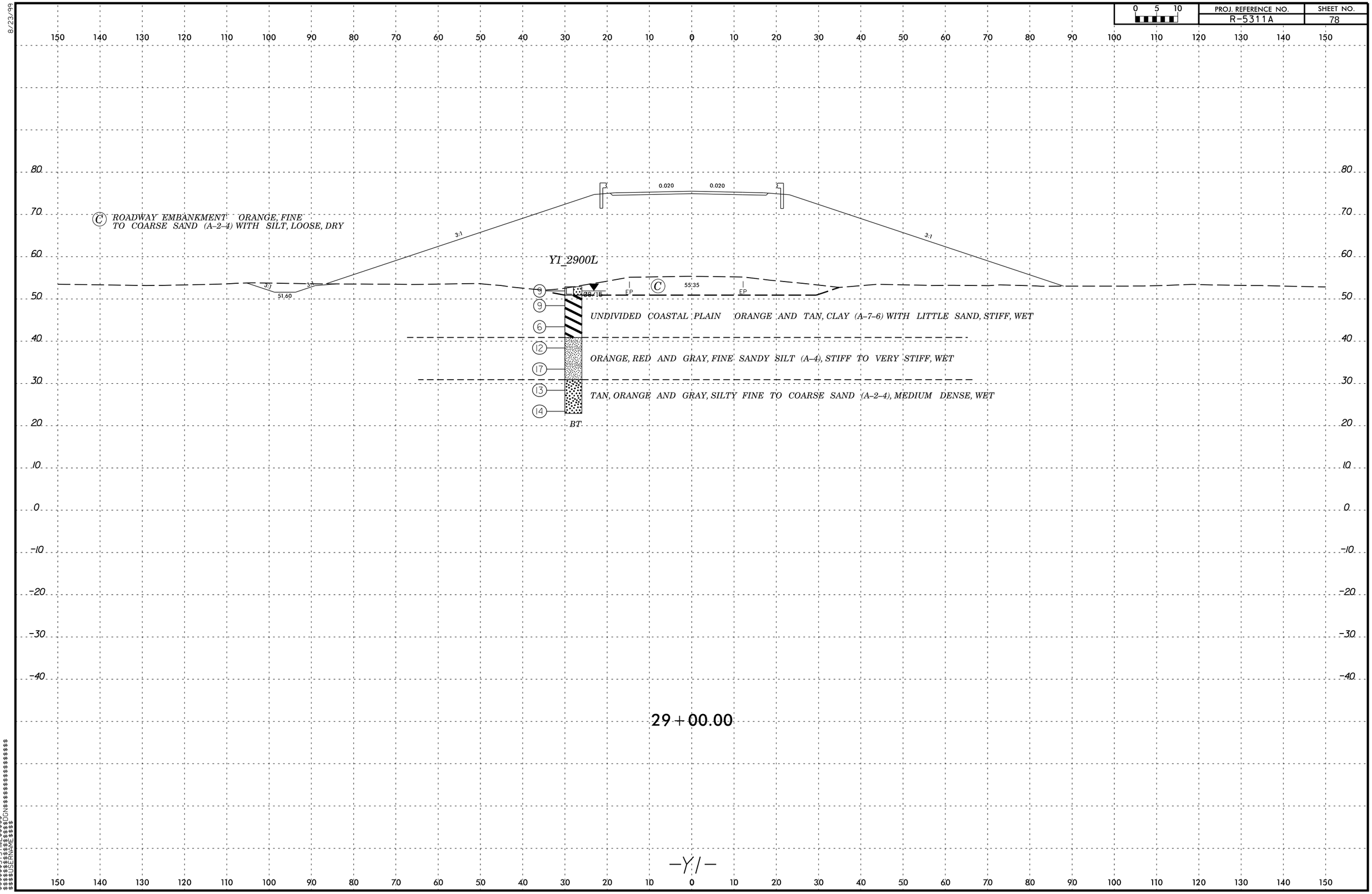
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5311A	77



$$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5311A	78

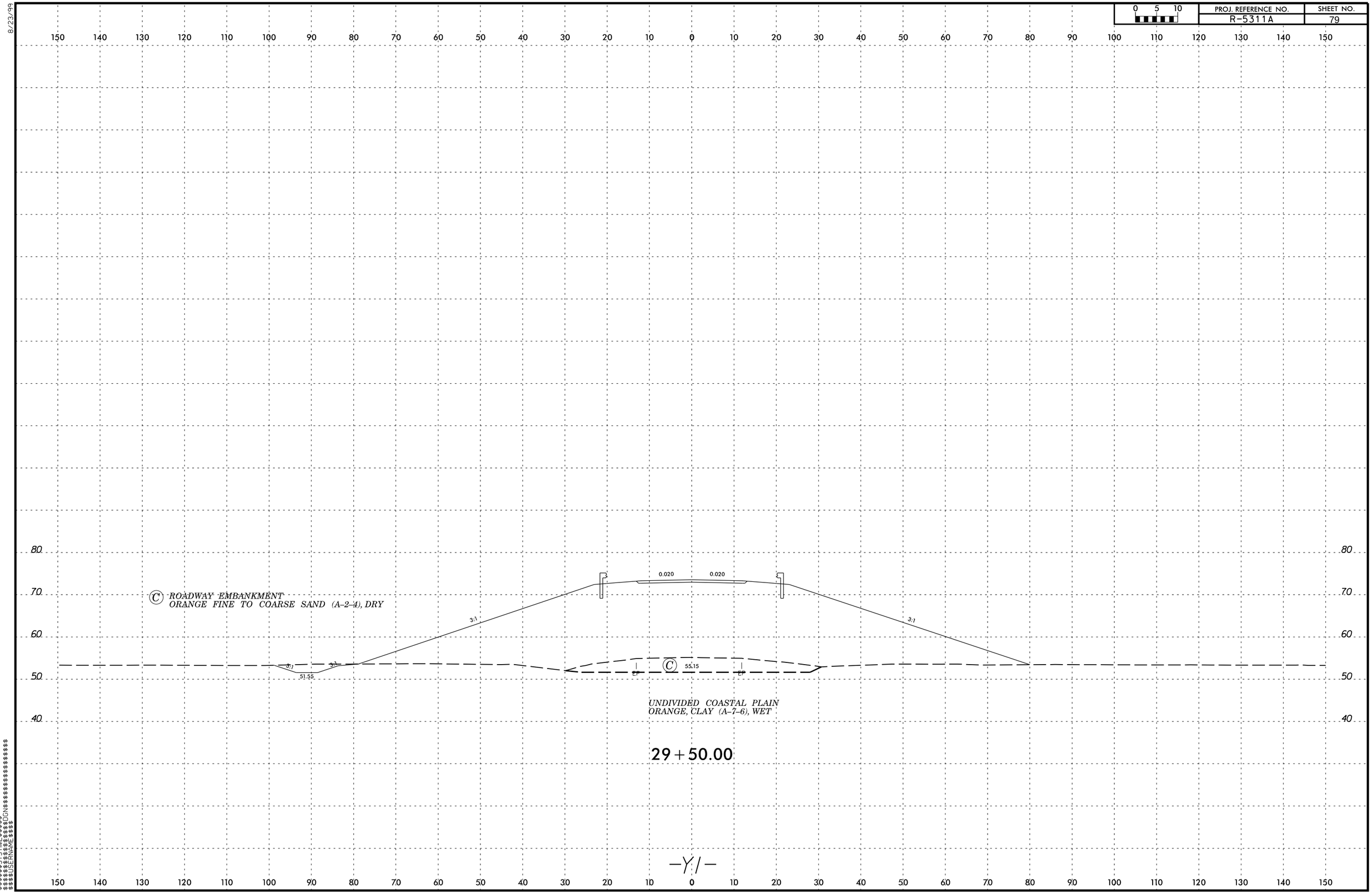


$$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

8/23/99

0 5 10

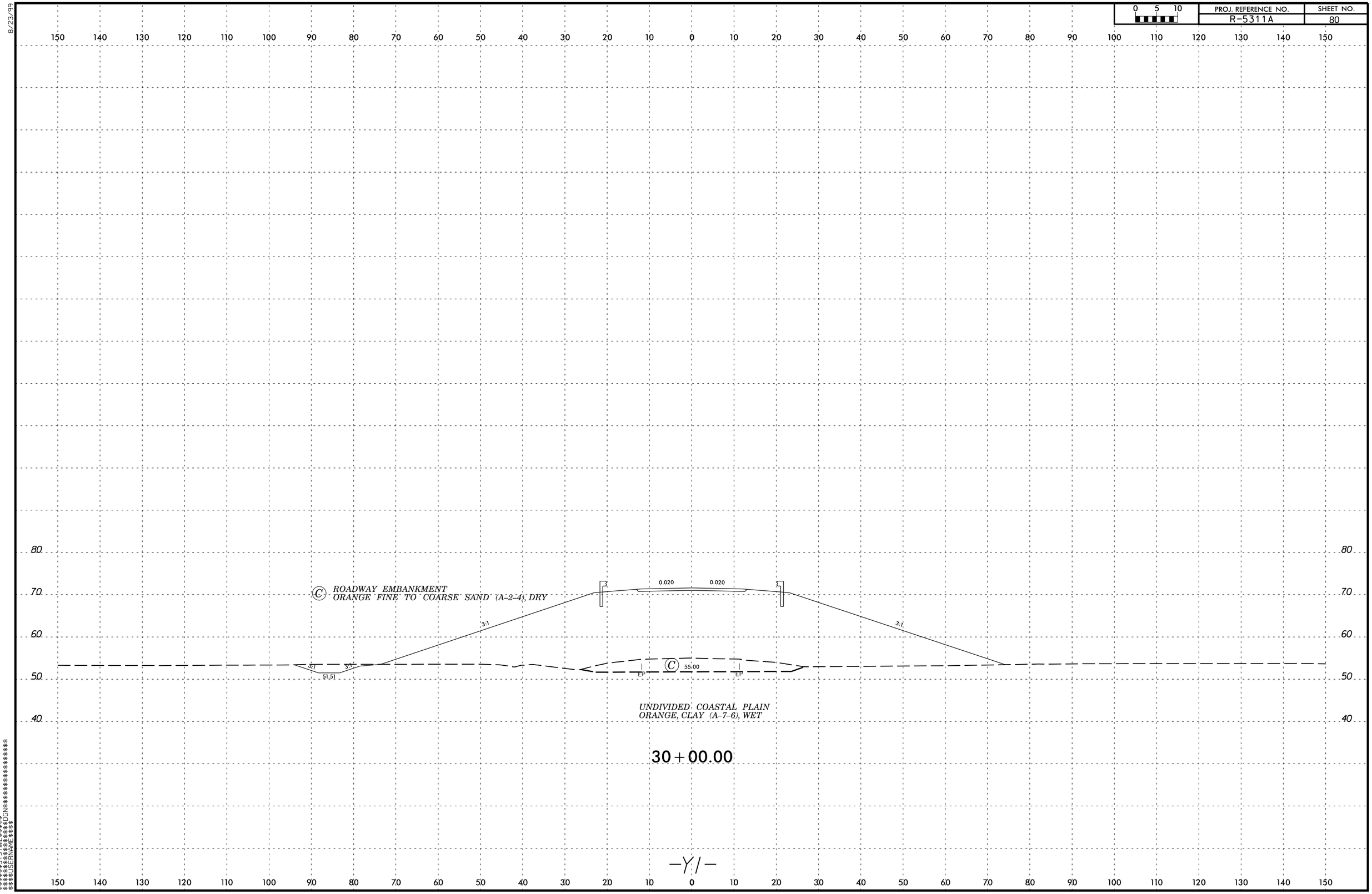
PROJ. REFERENCE NO.	SHEET NO.
R-5311A	79



$$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

8/23/99

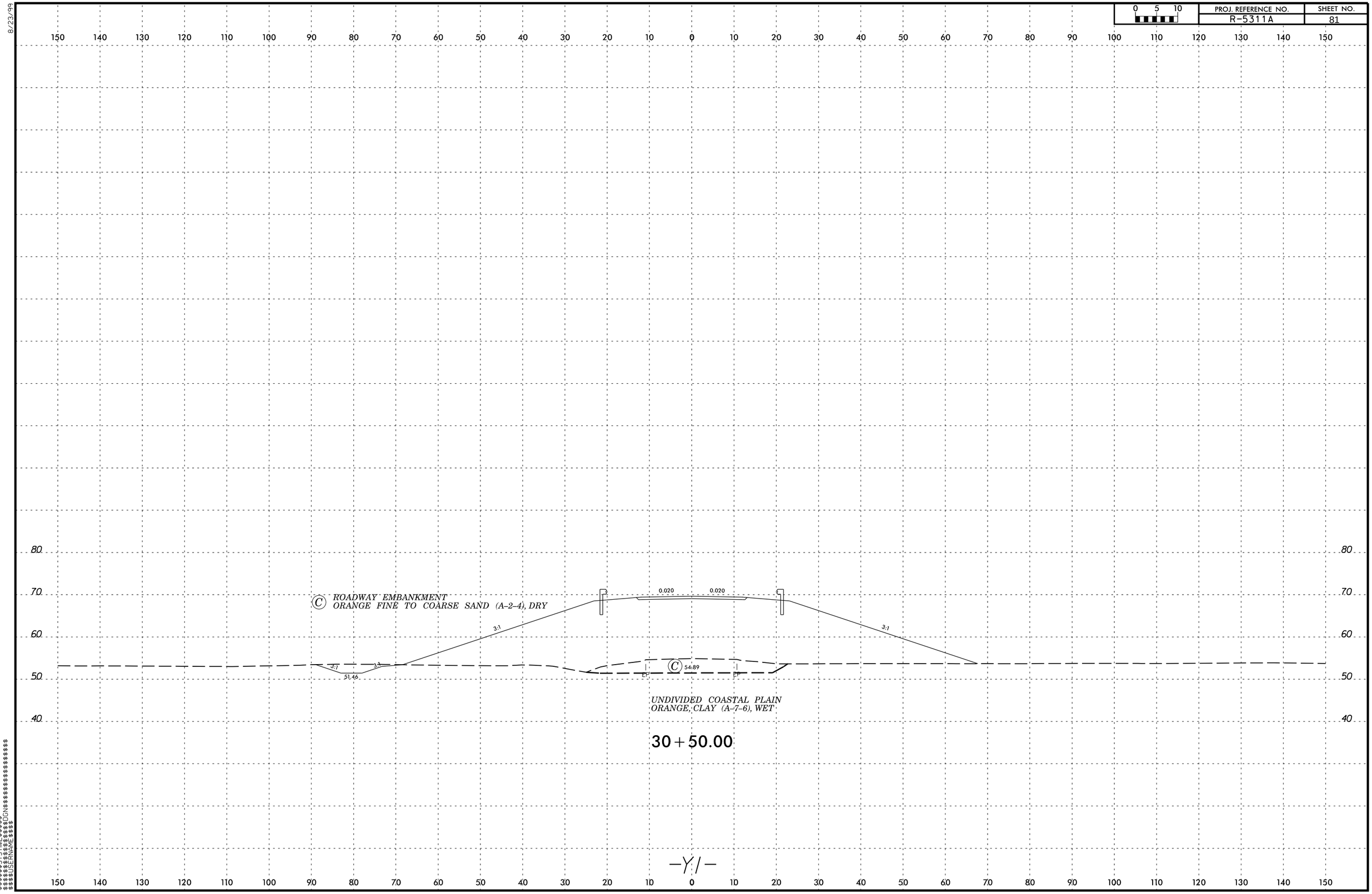
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5311A	80



$$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$$USERNAME$$$$

8/23/99

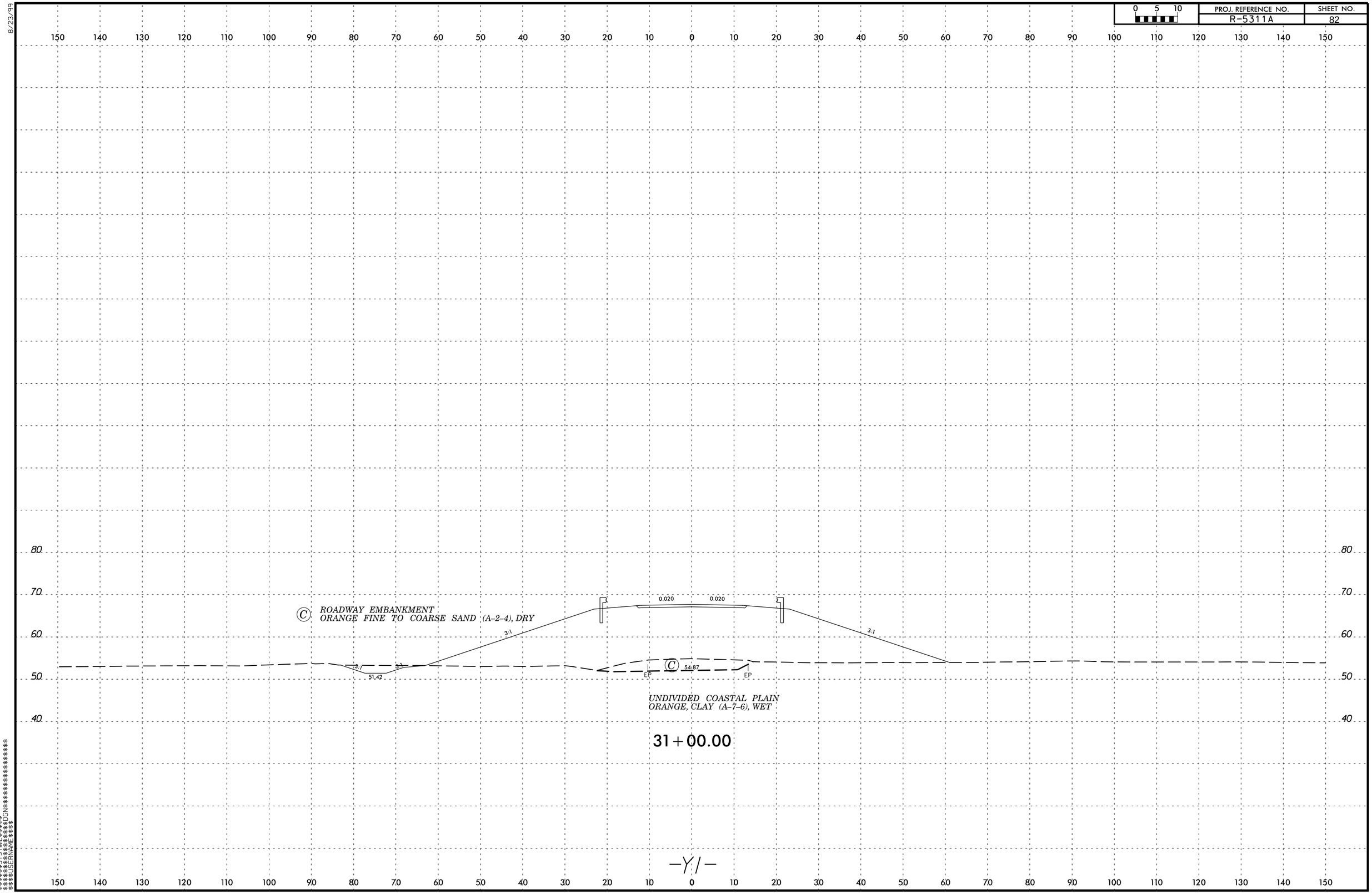
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5311A	81



$$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

8/23/99

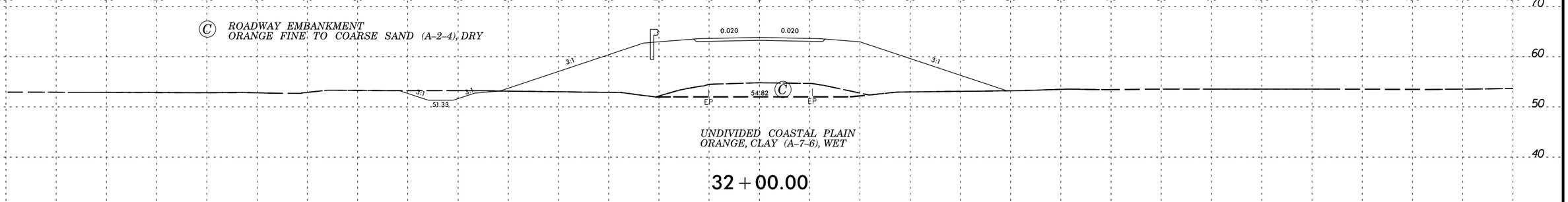
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5311A	82

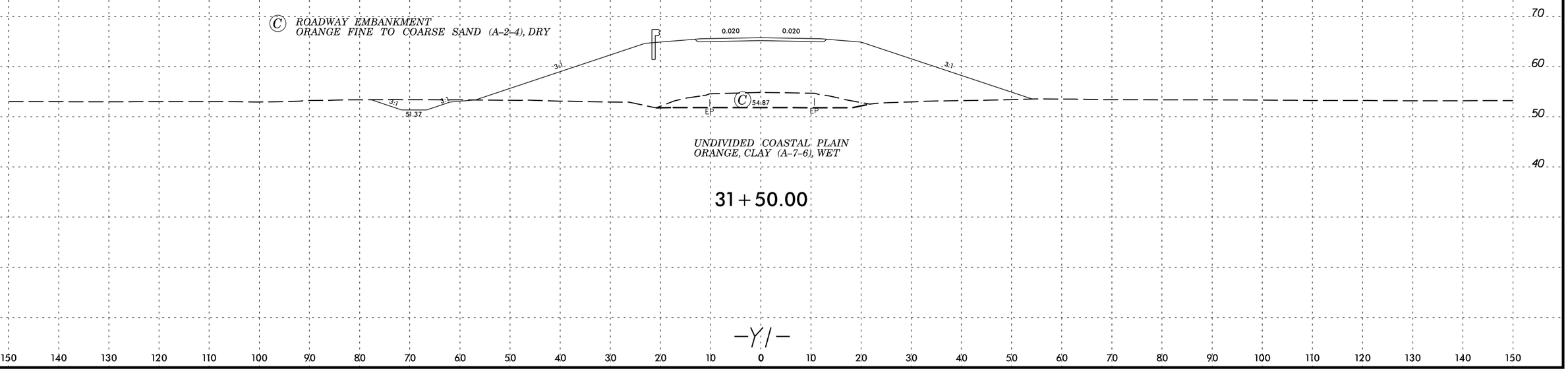


$$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

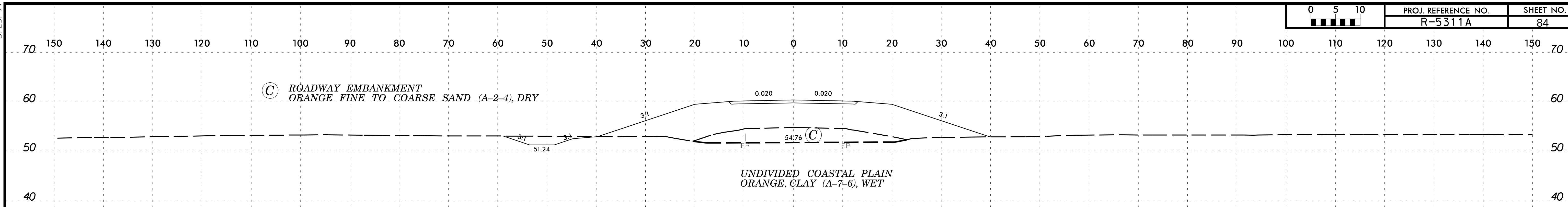
0 5 10

PROJ. REFERENCE NO.	SHEET NO.
R-5311A	83

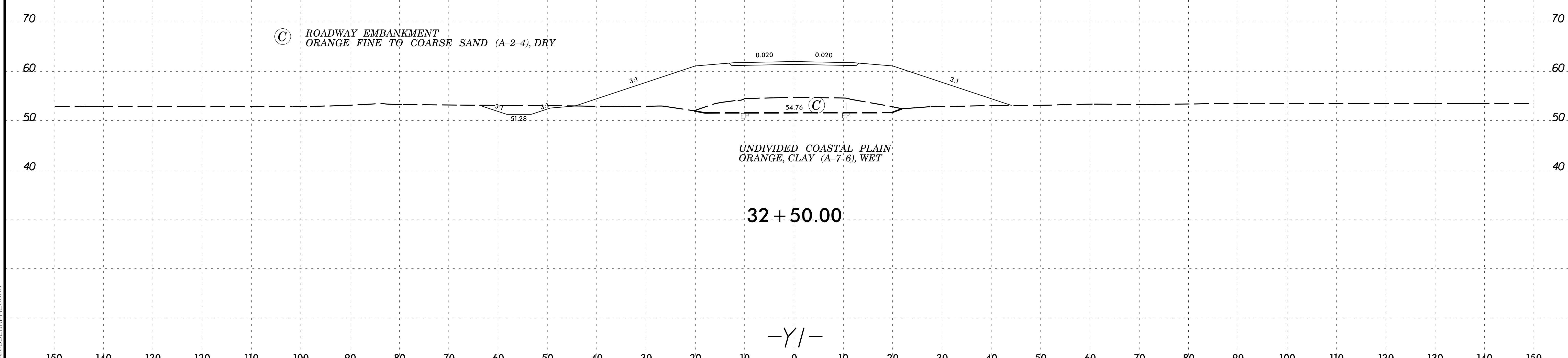




—Y/—



33 + 00.00



32 + 50.00

-Y1-

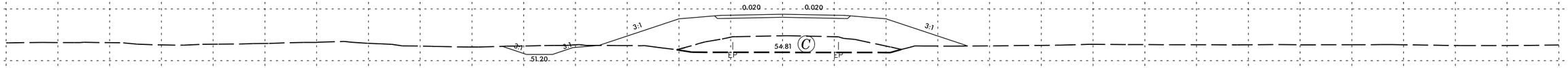
8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5311A	85

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

70
60
50
40

Ⓒ ROADWAY EMBANKMENT
ORANGE FINE TO COARSE SAND (A-2-4), DRY



UNDIVIDED COASTAL PLAIN
ORANGE, CLAY (A-7-6), WET

33 + 50.00

-Y1-

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

$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5311A	86

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 30 20 10 0 -10 -20 -30 -40

(F) *ROADWAY EMBANKMENT*
GRAY AND BROWN, FINE TO COARSE SANDY SILT (A-4), STIFF, DRY.

Y1_3400L

0.020 0.020

3:1 3:1 3:1 3:1 3:1 3:1

51.268 51.425

(13) (6) (5)

(F) 54.86

EP EP

Ø8/15

BT

CAVED (8/10/15)

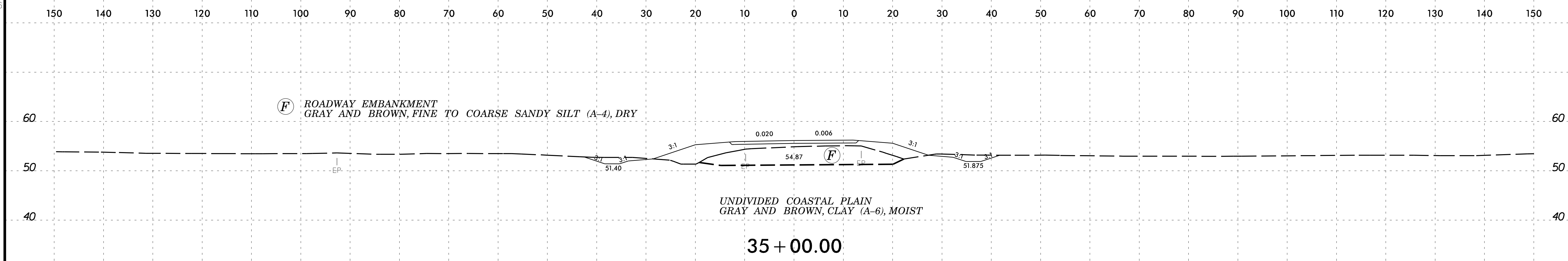
UNDIVIDED COASTAL PLAIN
GRAY AND BROWN, CLAY (A-6) WITH LITTLE FINE SAND, MEDIUM STIFF, MOIST

34+00.00

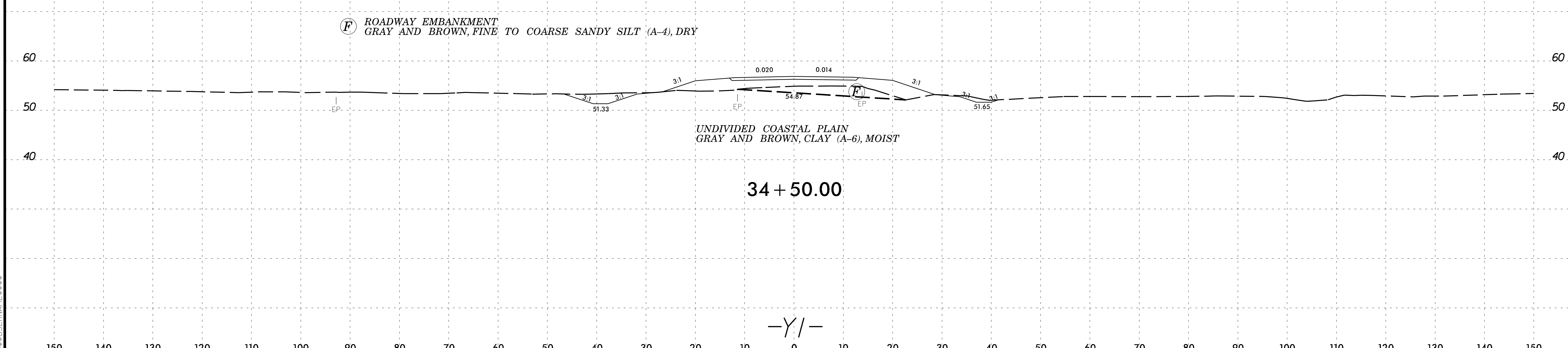
-Y/-

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

$$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$$USERNAME$$$$



ROADWAY EMBANKMENT
GRAY AND BROWN, FINE TO COARSE SANDY SILT (A–4), DRY
0.020
0.006
3:1
54.87
51.40
51.875
EP
UNDIVIDED COASTAL PLAIN
GRAY AND BROWN, CLAY (A–6), MOIST
35+00.00



ROADWAY EMBANKMENT
GRAY AND BROWN, FINE TO COARSE SANDY SILT (A–4), DRY
0.020
0.014
3:1
54.87
51.33
51.65
EP
UNDIVIDED COASTAL PLAIN
GRAY AND BROWN, CLAY (A–6), MOIST
34+50.00
-Y1-

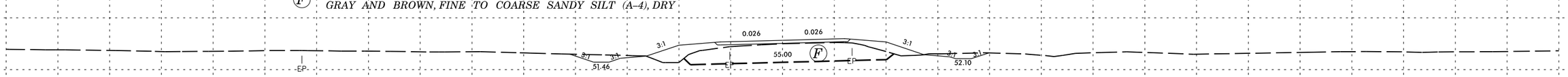
8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5311A	88

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

Ⓕ *ROADWAY EMBANKMENT*
GRAY AND BROWN, FINE TO COARSE SANDY SILT (A–4), DRY

60 50 40



UNDIVIDED COASTAL PLAIN
GRAY AND BROWN, CLAY (A–6), MOIST

35+50.00

–Y/–

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

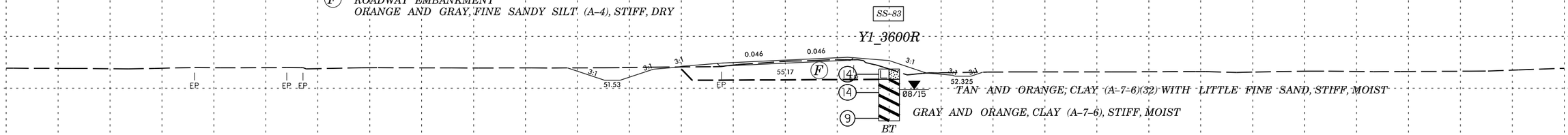
$$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5311A	89

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-83	20' RT	36+00	3.5'-5.0'	A-7-6(32)	57	34	0.4	19.8	30.1	49.7	100.0	99.9	87.2	26	

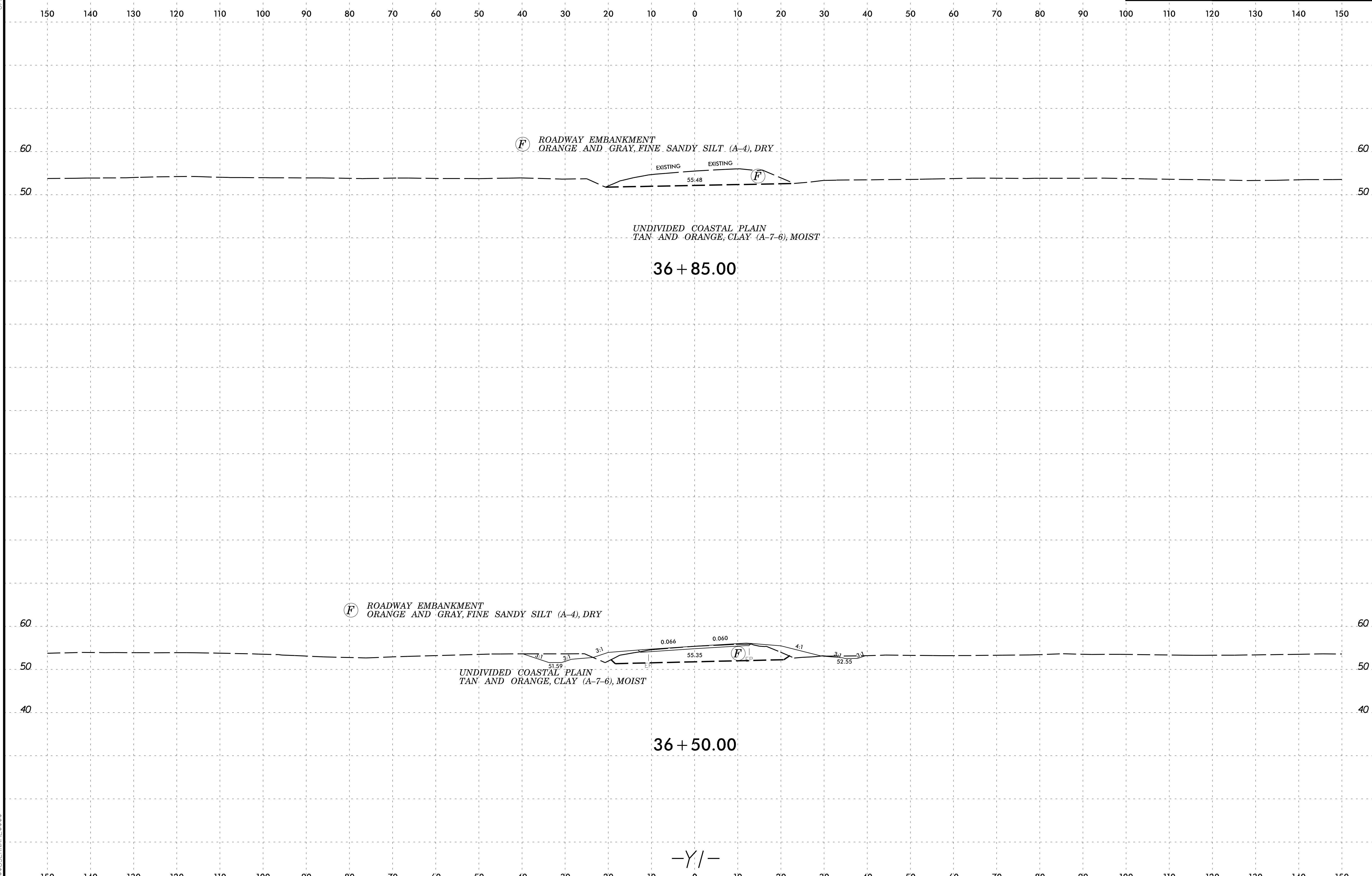


36+00.00

—Y/—

$$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$$USERNAME$$$$

PROJ. REFERENCE NO.	SHEET NO.
R-5311A	90



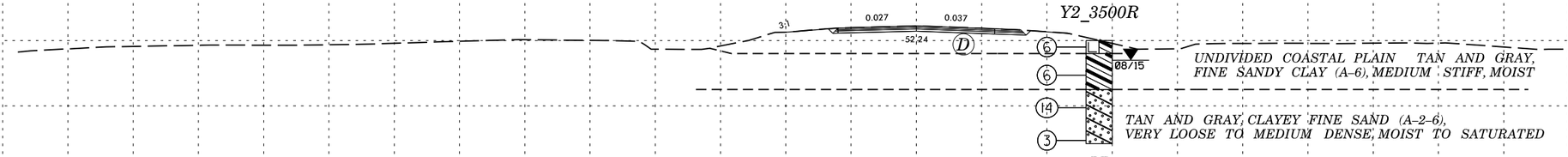
8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5311A	91

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 30 20 10 0 -10 -20 -30 -40 -50

(D) *ROADWAY EMBANKMENT*
TAN AND GRAY FINE SANDY CLAY (A-6),
MEDIUM STIFF, MOIST



35+00.00

-Y2-

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

$$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5311A	92

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

Ⓓ *ROADWAY EMBANKMENT*
TAN AND GRAY FINE SANDY CLAY (A-6), MOIST

60
50
40

3:1 0.020 0.020 3:1
52.41 Ⓓ

UNDIVIDED COASTAL PLAIN TAN AND GRAY, FINE SANDY CLAY (A-6), MOIST

TAN AND GRAY, CLAYEY FINE SAND (A-2-6), MOIST

36 + 00.00

Ⓓ *ROADWAY EMBANKMENT*
TAN AND GRAY FINE SANDY CLAY (A-6), MOIST

60
50
40

3:1 0.020 0.020 3:1
52.37 Ⓓ

UNDIVIDED COASTAL PLAIN TAN AND GRAY, FINE SANDY CLAY (A-6), MOIST

TAN AND GRAY, CLAYEY FINE SAND (A-2-6), MOIST

35 + 50.00

-Y2-

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

$$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5311A	93

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

Ⓓ *ROADWAY EMBANKMENT*
TAN AND GRAY FINE SANDY CLAY (A-6), MOIST

60 50 40

3:1 0.020 0.020 3:1

52.41 Ⓓ

UNDIVIDED COASTAL PLAIN TAN AND GRAY, FINE SANDY CLAY (A-6), MOIST.

TAN AND GRAY, CLAYEY FINE SAND (A-2-6), MOIST

36 + 50.00

-Y2-

$$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$$USERNAME$$$$

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5311A	94

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 30 20 10 0 -10 -20 -30 -40 -50

(D) *ROADWAY EMBANKMENT,*
GRAY AND TAN, FINE, SANDY CLAY (A-6), WITH ROOTS, MEDIUM STIFF, MOIST

Y2_3700R

0.020 0.020 3:1 3:1 52'31 (D) (6) Ø8/15

(9) *UNDIVIDED COASTAL PLAIN GRAY AND TAN, FINE SANDY CLAY (A-6), MEDIUM STIFF TO STIFF, MOIST*

(5) *GRAY, CLAYEY FINE TO COARSE SAND (A-2-6), LOOSE, SATURATED*

BT
CAVED (8/10/15)

37+00.00

-Y2-

$$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

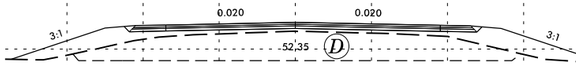
8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5311A	95

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

Ⓓ ROADWAY EMBANKMENT,
GRAY AND TAN, FINE, SANDY CLAY (A-6), WITH ROOTS, MOIST

60
50
40



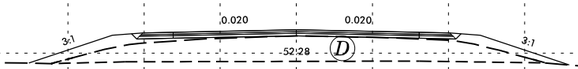
UNDIVIDED COASTAL PLAIN GRAY AND TAN, FINE SANDY CLAY (A-6), MOIST

GRAY, CLAYEY FINE TO COARSE SAND (A-2-6), SATURATED

38+00.00

Ⓓ ROADWAY EMBANKMENT,
GRAY AND TAN, FINE, SANDY CLAY (A-6), WITH ROOTS, MOIST

60
50
40



UNDIVIDED COASTAL PLAIN GRAY AND TAN, FINE SANDY CLAY (A-6), MOIST

GRAY, CLAYEY FINE TO COARSE SAND (A-2-6), SATURATED

37+50.00

-Y2-

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

$$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

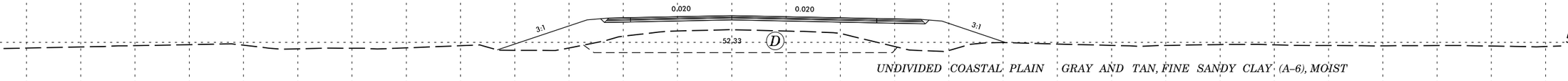
8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5311A	96

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

(D) *ROADWAY EMBANKMENT,*
GRAY AND TAN, FINE, SANDY CLAY (A–6), WITH ROOTS, MOIST

60
50
40



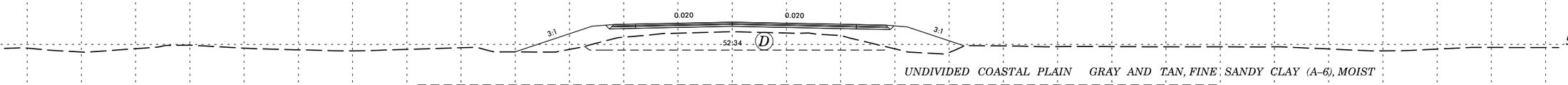
UNDIVIDED COASTAL PLAIN GRAY AND TAN, FINE SANDY CLAY (A–6), MOIST

GRAY, CLAYEY FINE TO COARSE SAND (A–2–6), SATURATED

39 + 00.00

(D) *ROADWAY EMBANKMENT,*
GRAY AND TAN, FINE, SANDY CLAY (A–6), WITH ROOTS, MOIST

60
50
40



UNDIVIDED COASTAL PLAIN GRAY AND TAN, FINE SANDY CLAY (A–6), MOIST

GRAY, CLAYEY FINE TO COARSE SAND (A–2–6), SATURATED

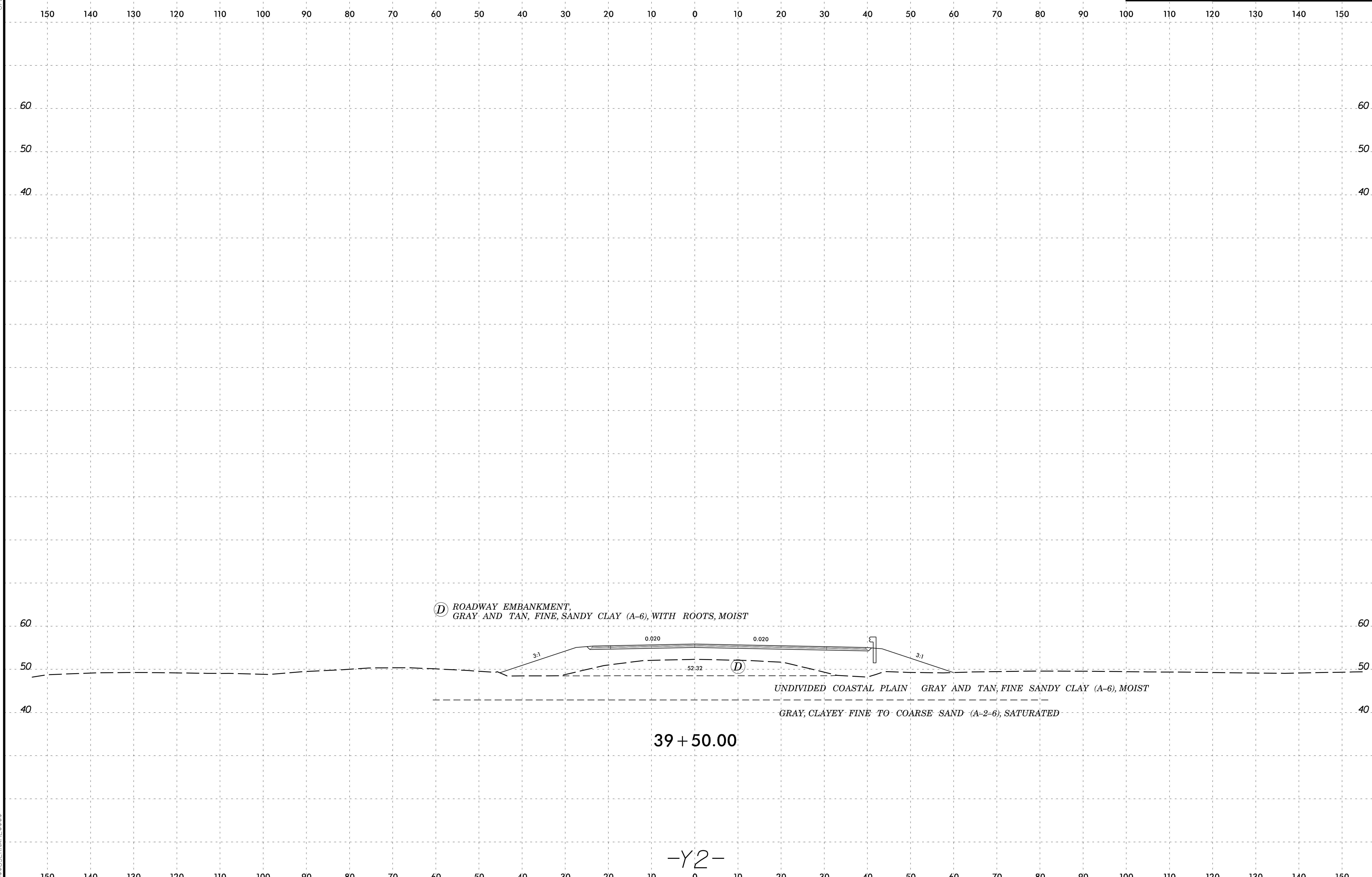
38 + 50.00

$$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

-Y2-

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.
R-5311A	97



8/23/99
$$$$$SYSTIME$$$$$
$$$$$$$$$DGN$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

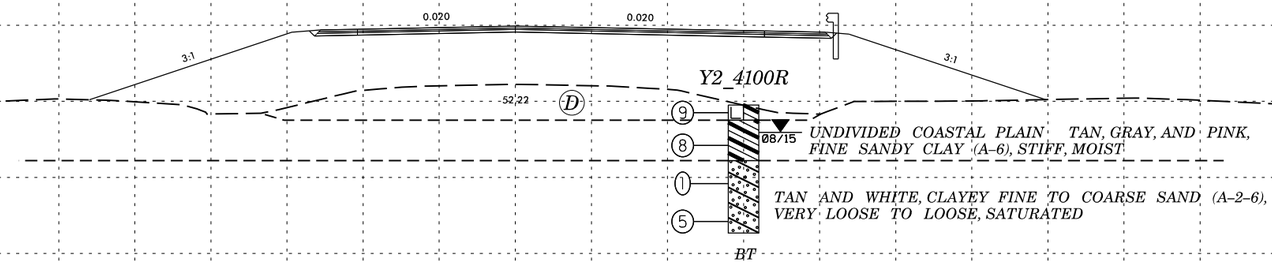
8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5311A	98

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

70 60 50 40 30 20 10 0 -10 -20 -30 -40 -50

(D) *ROADWAY EMBANKMENT,*
TAN AND GRAY, FINE, SANDY CLAY (A-6), WITH ROOTS, STIFF, MOIST



UNDIVIDED COASTAL PLAIN TAN, GRAY, AND PINK, FINE SANDY CLAY (A-6), STIFF, MOIST

TAN AND WHITE, CLAYEY FINE TO COARSE SAND (A-2-6), VERY LOOSE TO LOOSE, SATURATED

41+00.00

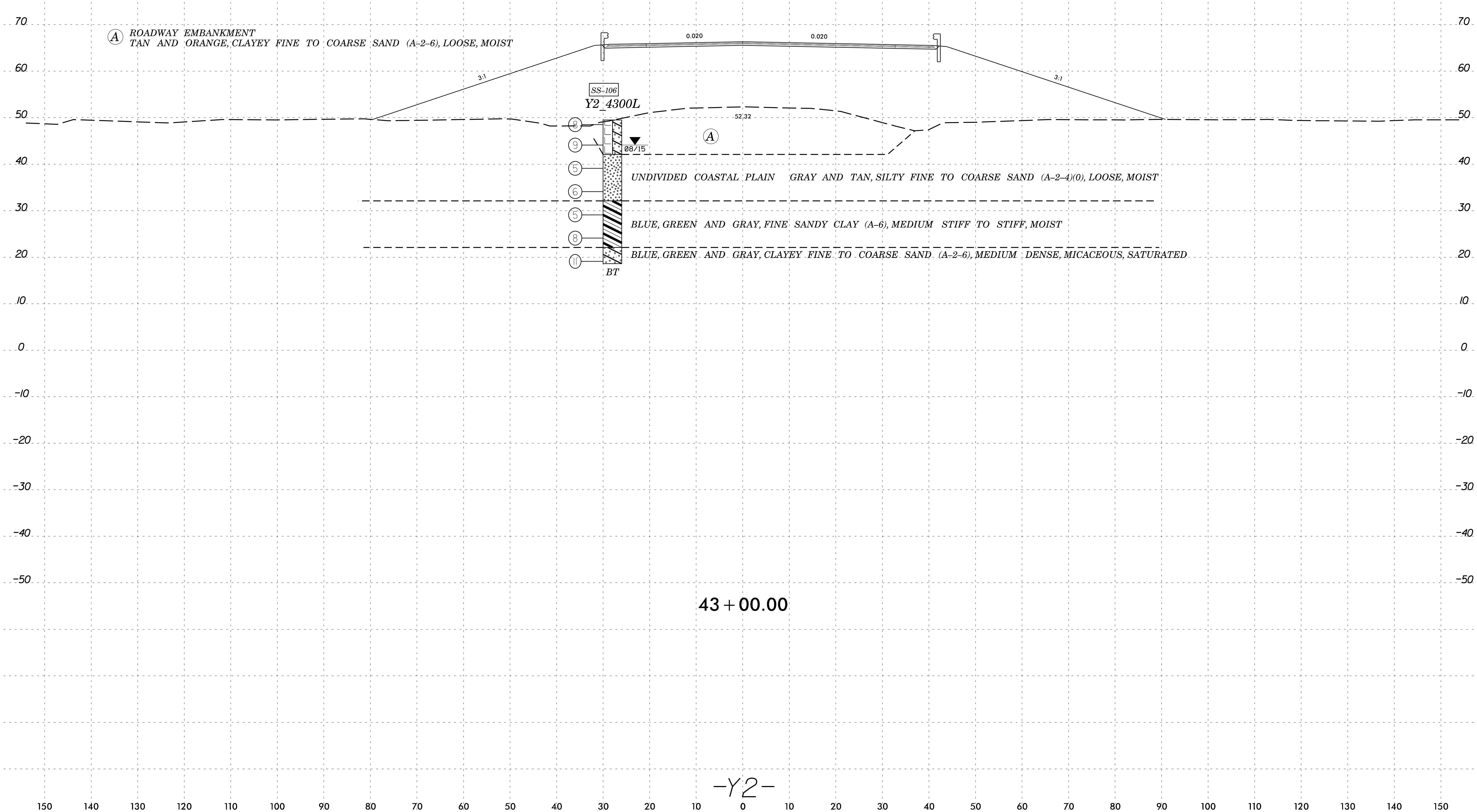
-Y2-

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

$$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

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-106	35' LT	43+00	14.4'-15.9'	A-2-4(0)	21	NP	60.4	26.3	7.2	6	99.9	84.0	15.4	21	



8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5311A	100

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 40 30 20 10 0 -10 -20 -30 -40 -50

(A) *ROADWAY EMBANKMENT*
TAN AND ORANGE, CLAYEY COARSE SAND (A-2-6), LOOSE, MOIST

0.020 0.020

3:1 4:1

Y2_4800L

(A) 51.95

4 6 Ø8/15 *UNDIVIDED COASTAL PLAIN GRAY AND TAN, FINE SANDY CLAY (A-6), MEDIUM STIFF, MOIST*

1 *GRAY AND TAN, CLAYEY FINE SAND (A-2-6), VERY LOOSE, SATURATED*

10 20 15 16 *GRAY, TAN, BLUE AND GREEN, FINE TO COARSE SANDY CLAY (A-6), STIFF TO VERY STIFF, MOIST TO WET*

22 24 *BLUE, GREEN AND GRAY, COARSE SAND (A-2-6) WITH CLAY, LOOSE TO MEDIUM DENSE, WET*

9 *BT*

48+00.00

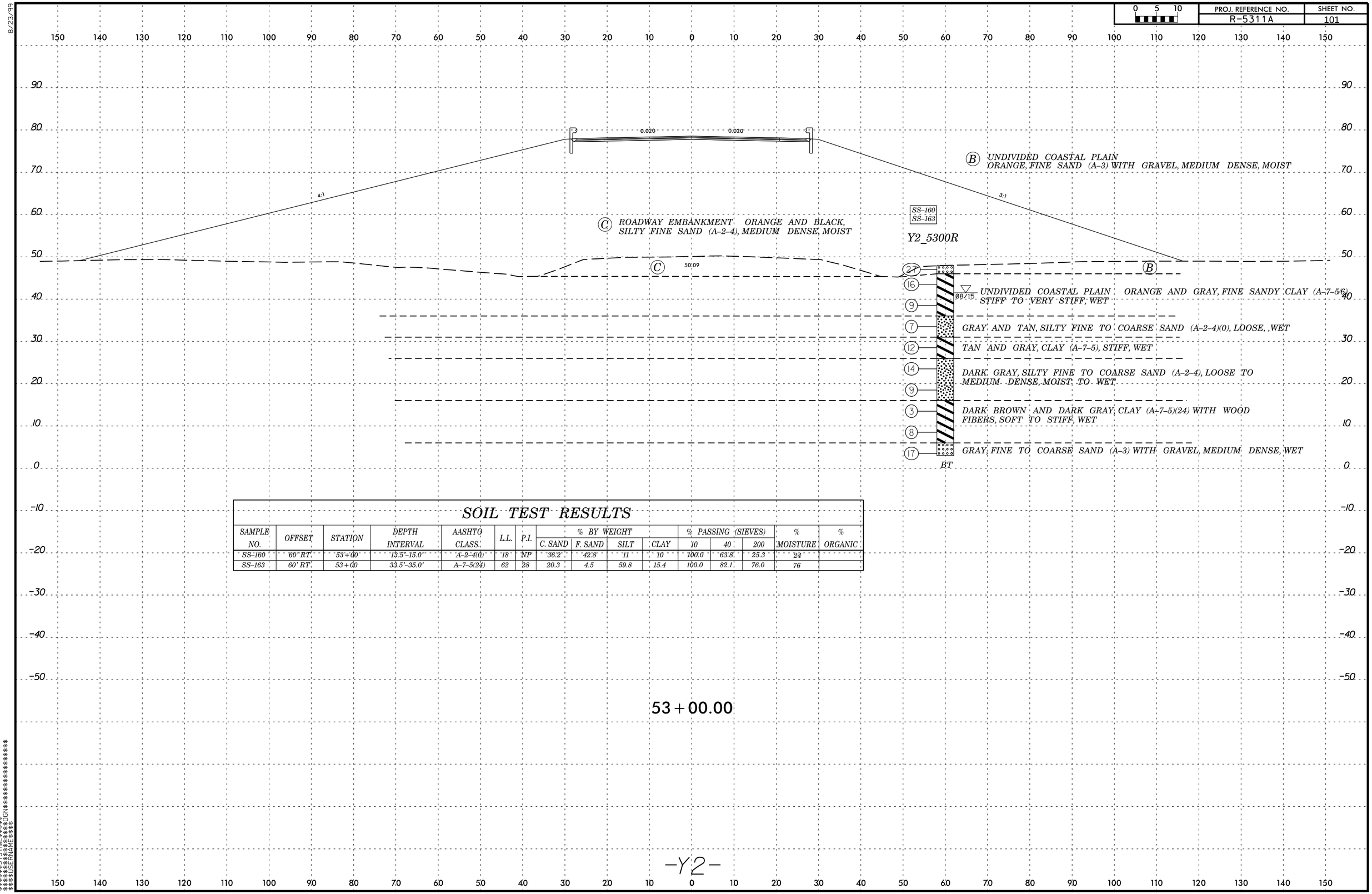
-Y2-

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

$$$$$$$$SYSTIME$$$$$
$$$$$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$$$USERNAME$$$$

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5311A	101



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-160	60' RT.	53+00	13.5'-15.0'	A-2-4(0)	18	NP	36.2	42.8	11	10	100.0	63.8	25.3	24	
SS-163	60' RT.	53+00	33.5'-35.0'	A-7-5(24)	62	28	20.3	4.5	59.8	15.4	100.0	82.1	76.0	76	

53+00.00

-Y2-

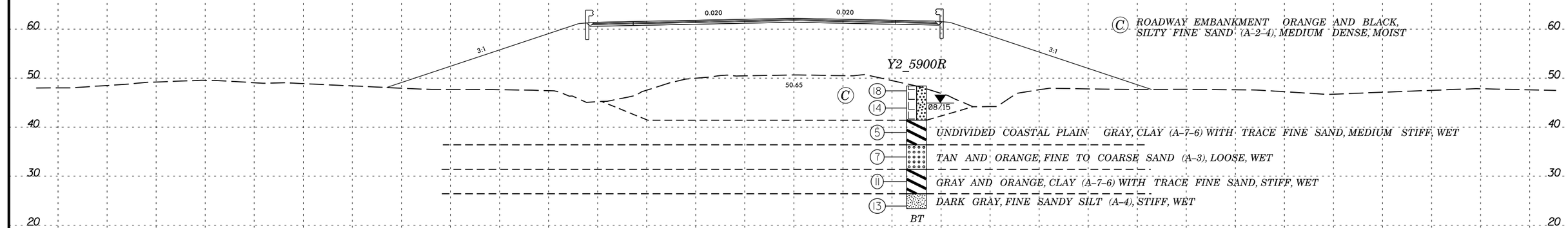
$$$$$$$SYSTIME$$$$$
$$$$$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$$USERNAME$$$$

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5311A	102

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

70 60 50 40 30 20 10 0 -10 -20 -30 -40 -50



Ⓒ ROADWAY EMBANKMENT ORANGE AND BLACK, SILTY FINE SAND (A-2-4), MEDIUM DENSE, MOIST

UNDIVIDED COASTAL PLAIN GRAY, CLAY (A-7-6) WITH TRACE FINE SAND, MEDIUM STIFF, WET

TAN AND ORANGE, FINE TO COARSE SAND (A-3), LOOSE, WET

GRAY AND ORANGE, CLAY (A-7-6) WITH TRACE FINE SAND, STIFF, WET

DARK GRAY, FINE SANDY SILT (A-4), STIFF, WET

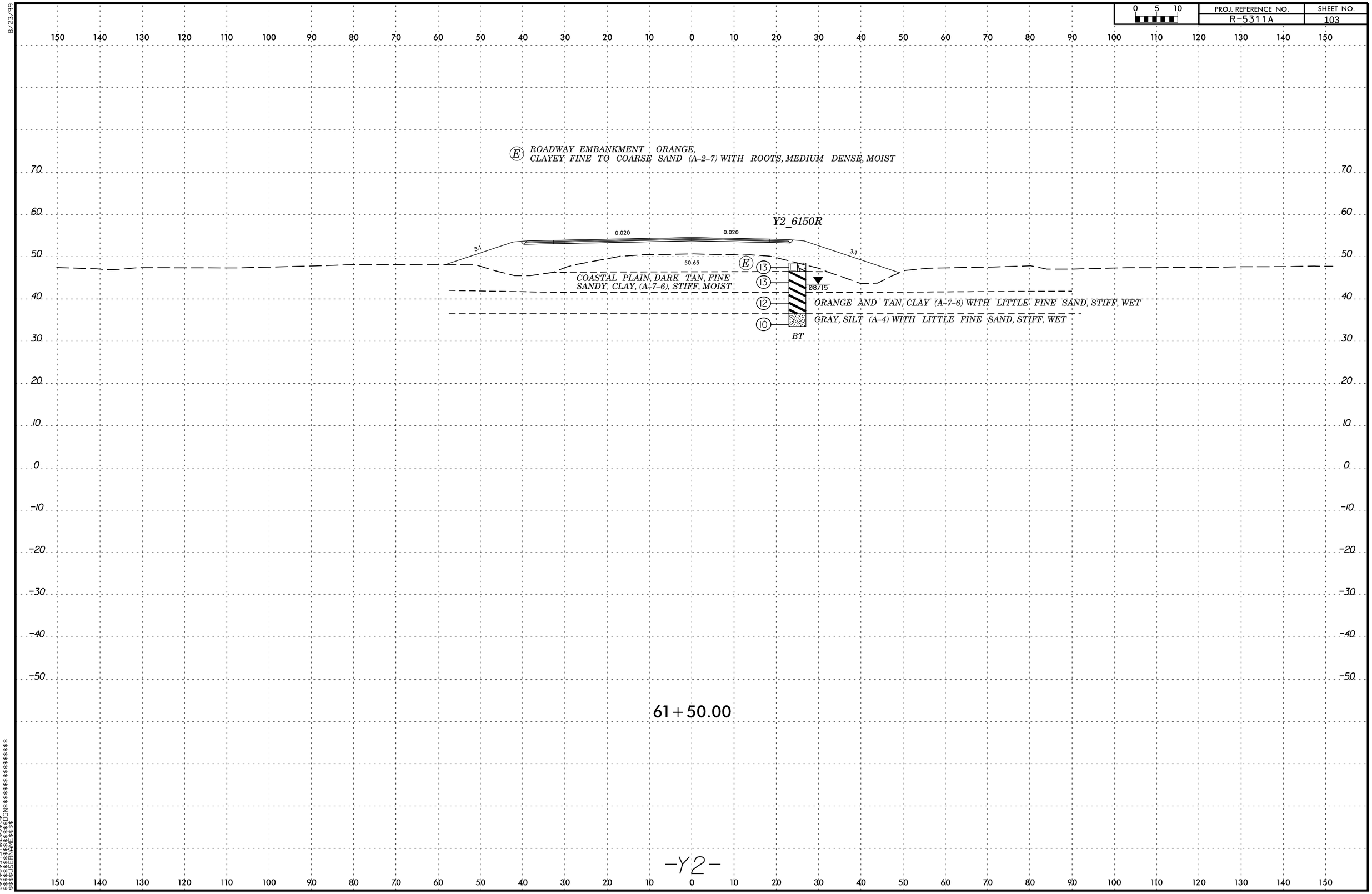
59+00.00

-Y2-

$$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5311A	103



$$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

8/23/99

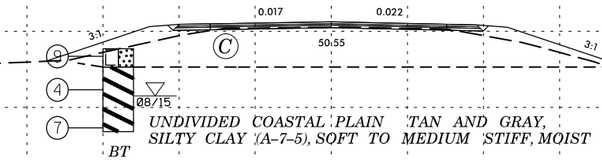
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5311A	104

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

70 60 50 40 30 20 10 0 -10 -20 -30 -40 -50

Ⓒ ROADWAY EMBANKMENT TAN AND ORANGE, SILTY FINE SAND (A-2-4) WITH ROOTS, LOOSE, MOIST

Y2_6350L



UNDIVIDED COASTAL PLAIN TAN AND GRAY, SILTY CLAY (A-7-5), SOFT TO MEDIUM STIFF, MOIST

63+50.00

-Y2-

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

$$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5311A	105

S.P. 1
–L2– STA 12+00.00
–Y2RPB– STA 10+52.00
EL 50.74'

S.P. 2
–L2– STA 12+50.00
–Y2RPB– STA 10+52.00
EL 52.51'

– Y2RPB –
STA 10+52.00

Ⓓ UNDIVIDED COASTAL PLAIN
TAN AND GRAY, SANDY CLAY (A–6), MEDIUM STIFF TO STIFF, MOIST

4:1
0.020
0.020
TEMP WIDENING
4:1

UNDIVIDED COASTAL PLAIN
ORANGE AND GRAY, SANDY SILT (A–4), STIFF , WET

36.67:1
4:1
0.080
0.080
6:1
4:1
Ⓓ
47.31
46.16

TAN AND GRAY, CLAYEY FINE TO COARSE SAND (A–2–6), LOOSE, MICACEOUS, SATURATED

BLUE, GREEN AND GRAY, FINE SANDY CLAY (A–6), STIFF, MICACEOUS, MOIST

13+00.00

Ⓓ UNDIVIDED COASTAL PLAIN
TAN AND GRAY, SANDY CLAY (A–6), MEDIUM STIFF TO STIFF, MOIST

0.080
0.080
6:1
4:1
Ⓓ
46.89
46.42

TAN AND GRAY, CLAYEY FINE TO COARSE SAND (A–2–6), LOOSE, MICACEOUS, SATURATED

BLUE, GREEN AND GRAY, FINE SANDY CLAY (A–6), STIFF, MICACEOUS, MOIST

12+54.18

–Y2LPB–

$$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5311A	106

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

70
60
50
40

– Y2RPB –
STA 10+88.00

(D) *UNDIVIDED COASTAL PLAIN*
TAN AND GRAY, SANDY CLAY (A–6), MEDIUM STIFF TO STIFF, MOIST

0.020 0.020 TEMP WIDENING 0.080 0.080

4:1 4:1 4:1 6:1 4:1

(D) 47:47 46.53

TAN AND GRAY, CLAYEY FINE TO COARSE SAND (A–2–6), LOOSE, MICACEOUS, SATURATED

BLUE, GREEN AND GRAY, FINE SANDY CLAY. (A–6), STIFF, MICACEOUS, MOIST

13+52.00

–Y2LPB–

$$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$$USERNAME$$$$

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5311A	107

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

Ⓓ *UNDIVIDED COASTAL PLAIN*
TAN AND GRAY, SANDY CLAY (A–6), MEDIUM STIFF TO STIFF, MOIST

– Y2RPB –
STA 11+45.00

S.P. 7
–Y2LPB– STA 14+00.00
–Y2RPB– STA 11+45.00
EL. 50.75'

0.020 0.020 4:1 4.20:1 TEMP. WIDENING 0.080 0.080 6:1

47.37

Ⓓ

TAN AND GRAY, CLAYEY FINE TO COARSE SAND (A–2–6), LOOSE, MICACEOUS, SATURATED

BLUE, GREEN AND GRAY, FINE SANDY CLAY (A–6), STIFF, MICACEOUS, MOIST

14+00.00

–Y2LPB–

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

$$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$$USERNAME$$$$

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5311A	108

S.P. 8
–Y2LPB– STA 14+50.00
–Y2RPB– STA 11+97.00
EL 53.84'

– Y2RPB –
STA 11+97.00

Y2LPB_1454
14+54

4:1

0.020

0.080

0.080

TEMP WIDENING

47.41

Ø8/15

UNDIVIDED COASTAL PLAIN TAN AND GRAY, SANDY CLAY (A-6), MEDIUM STIFF TO STIFF, MOIST

TAN AND GRAY, CLAYEY FINE TO COARSE SAND (A-2-6), LOOSE, MICACEOUS, SATURATED

BLUE, GREEN AND GRAY, FINE SANDY CLAY (A-6), STIFF, MICACEOUS, MOIST

BT

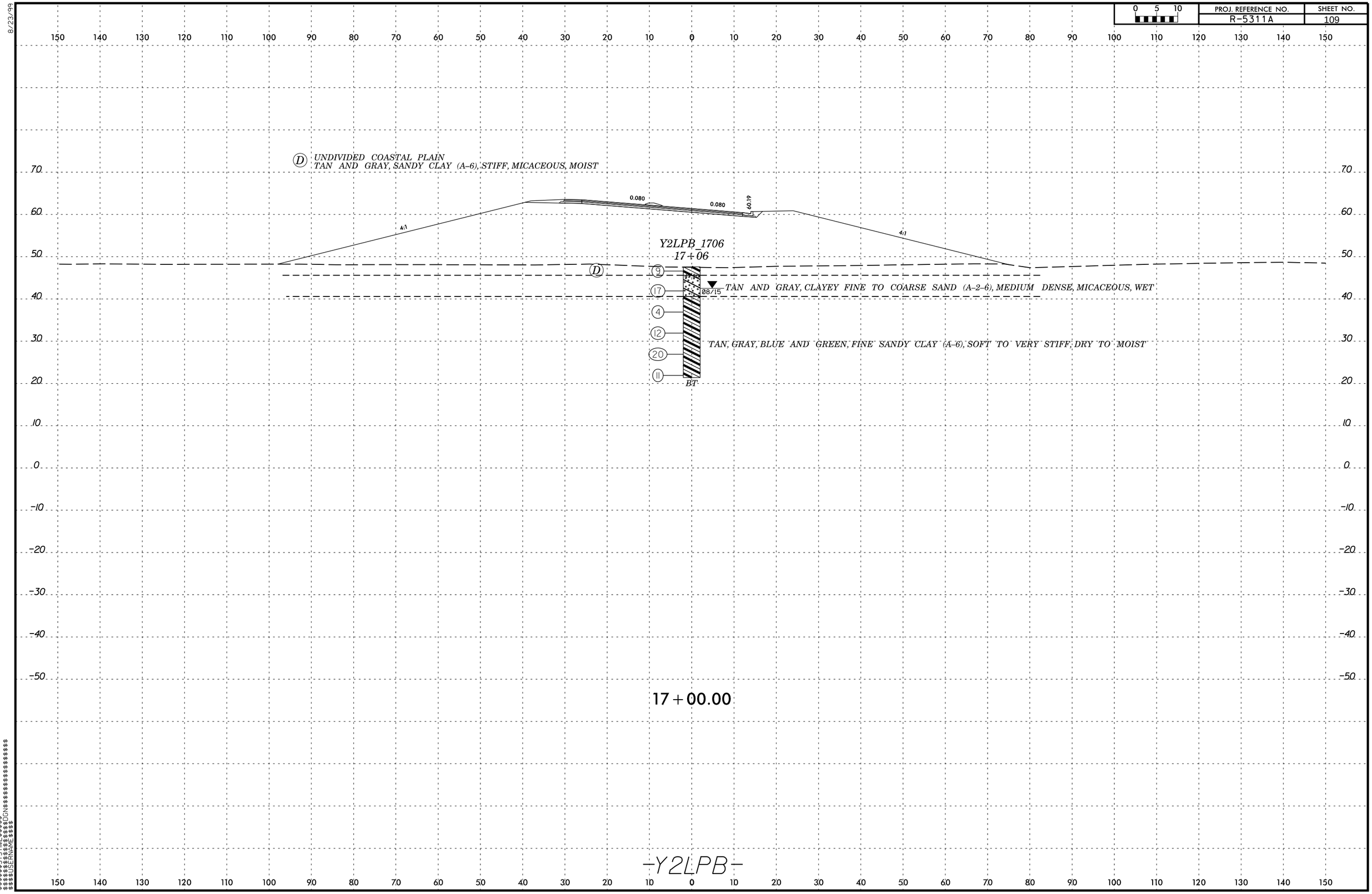
14+50.00

–Y2LPB–

$$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

8/23/99

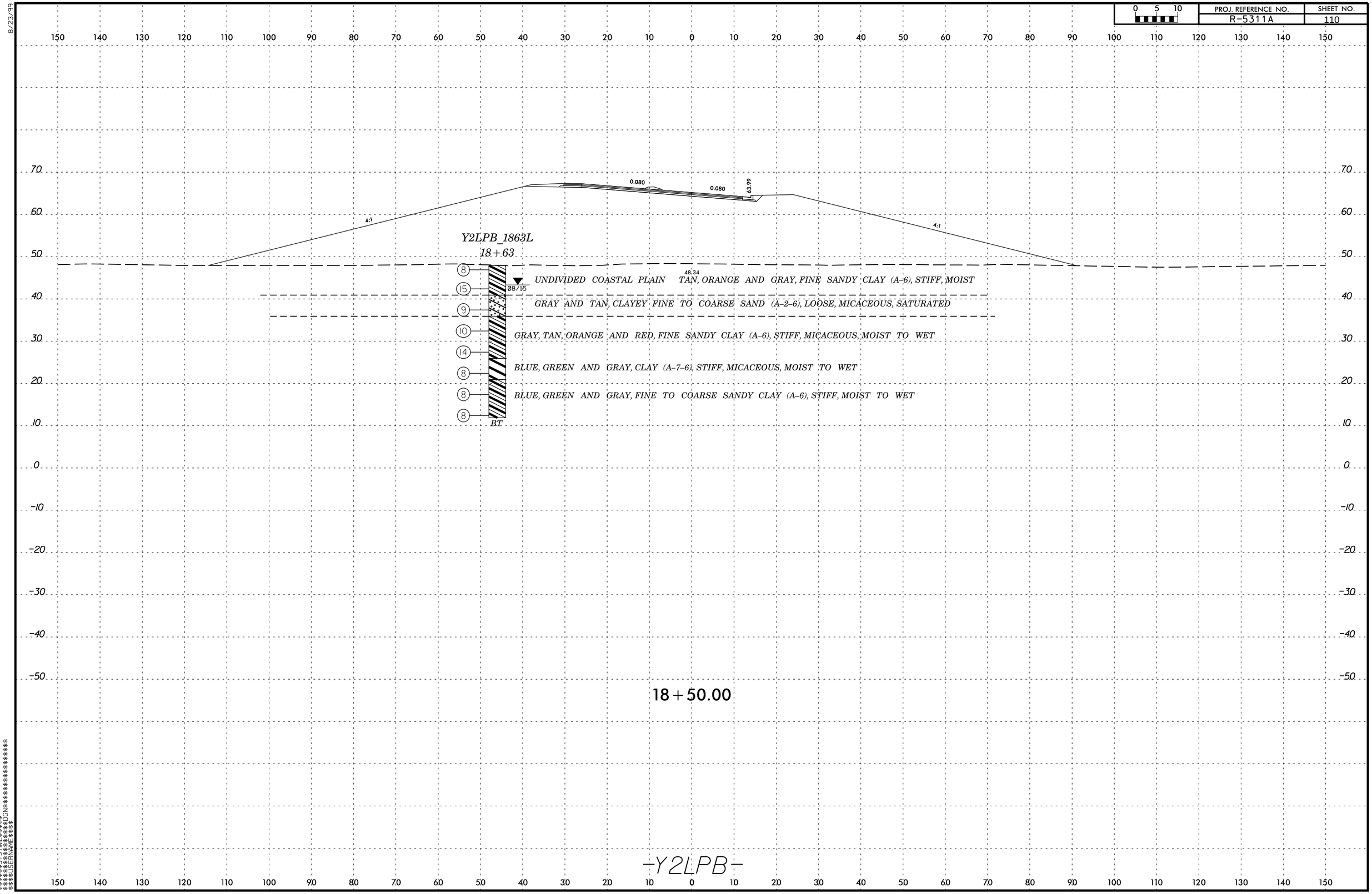
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5311A	109



$$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5311A	110



$$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

8/23/99

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
R-5311A	111

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

S.P. 6
–Y2RPD– STA 10+38.00
–L2– STA 22+00.00
EL 50.46'

S.P. 5
–Y2RPD– STA 10+38.00
–L2– STA 21+50.00
EL 51.47'

– Y2RPD –
STA 10+38.00

S.P. 4
–Y2LPD– STA 12+45.00
–L2– STA 20+50.00
EL 49.65'

6:1
0.018
0.013
4:1
7.75:1
0.080
0.080
6:1
4:1
47.06
45.60

UNDIVIDED COASTAL PLAIN
GRAY AND TAN, FINE SANDY CLAY (A–7–6) WITH ROOTS

UNDIVIDED COASTAL PLAIN
GRAY AND TAN, FINE SANDY CLAY (A–7–6) WITH ROOTS

12+45.00

–Y2LPD–

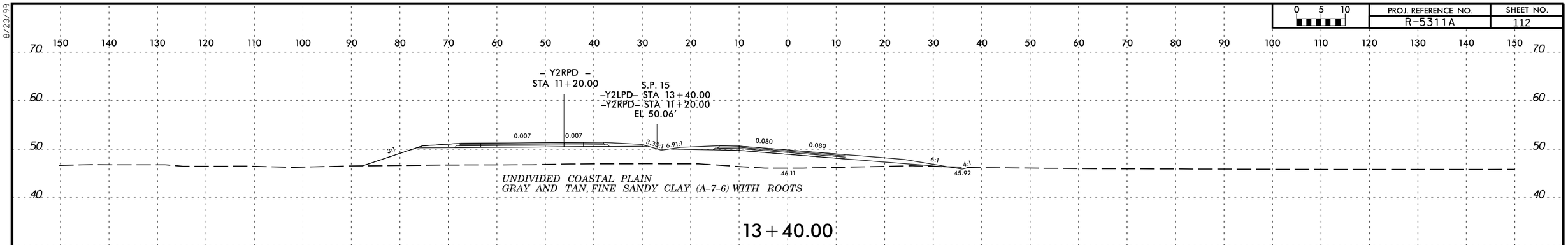
80 70 60 50 40

200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100

$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5311A	112



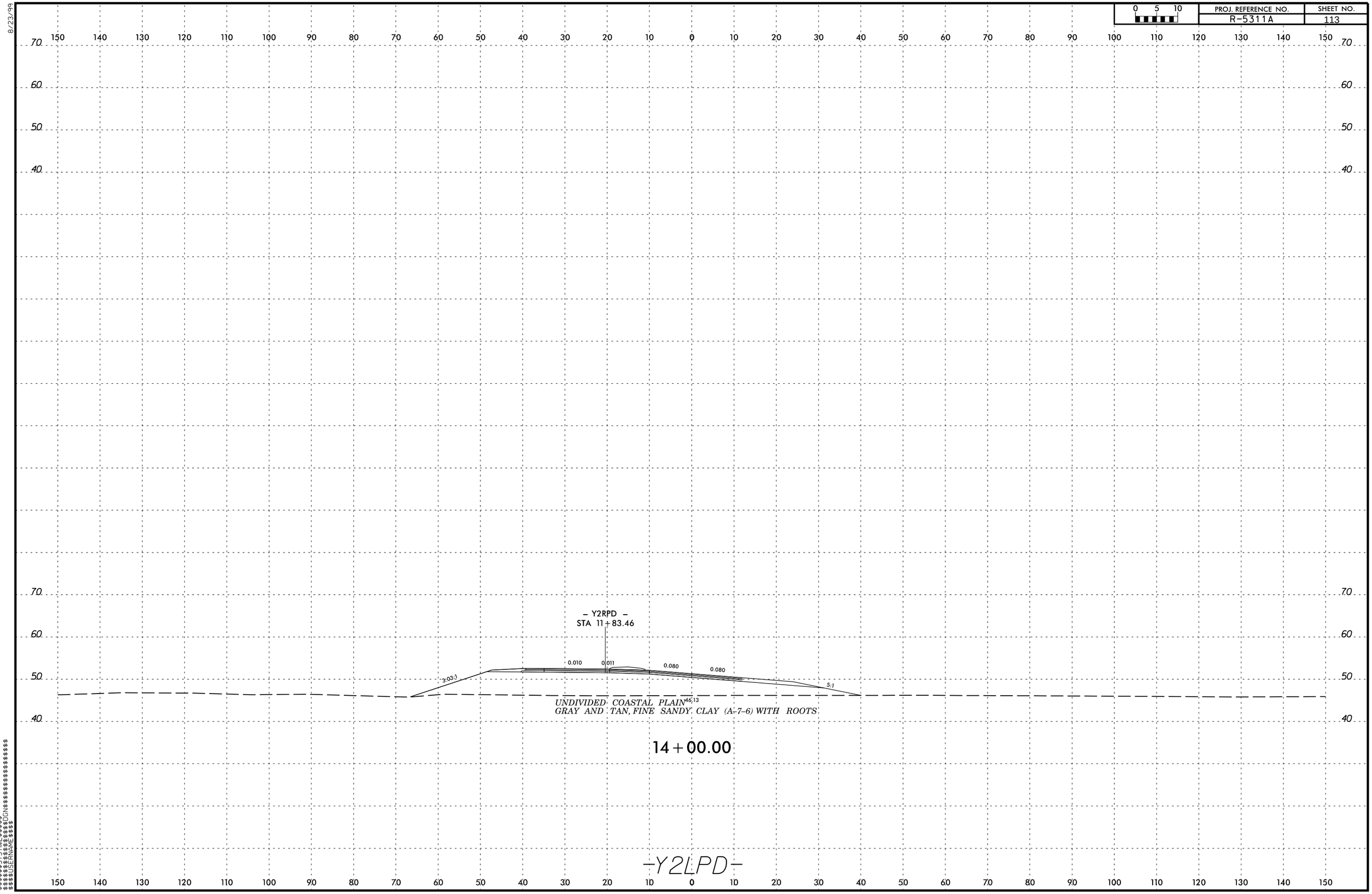
SOIL TEST RESULTS

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-132	CL	13+00	0.0'-1.5'	A-7-6(14)	41	20	8	19.8	33.6	38.6	100.0	97.6	75.8	37	
SS-133	CL	13+00	4.7'-6.2'	A-6(1)	29	11	23.5	41	19.1	16.4	100.0	95.7	41.5	28	

$$$$$$$SYSTIME$$$$$
$$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$$
$$$$$USERNAME$$$$

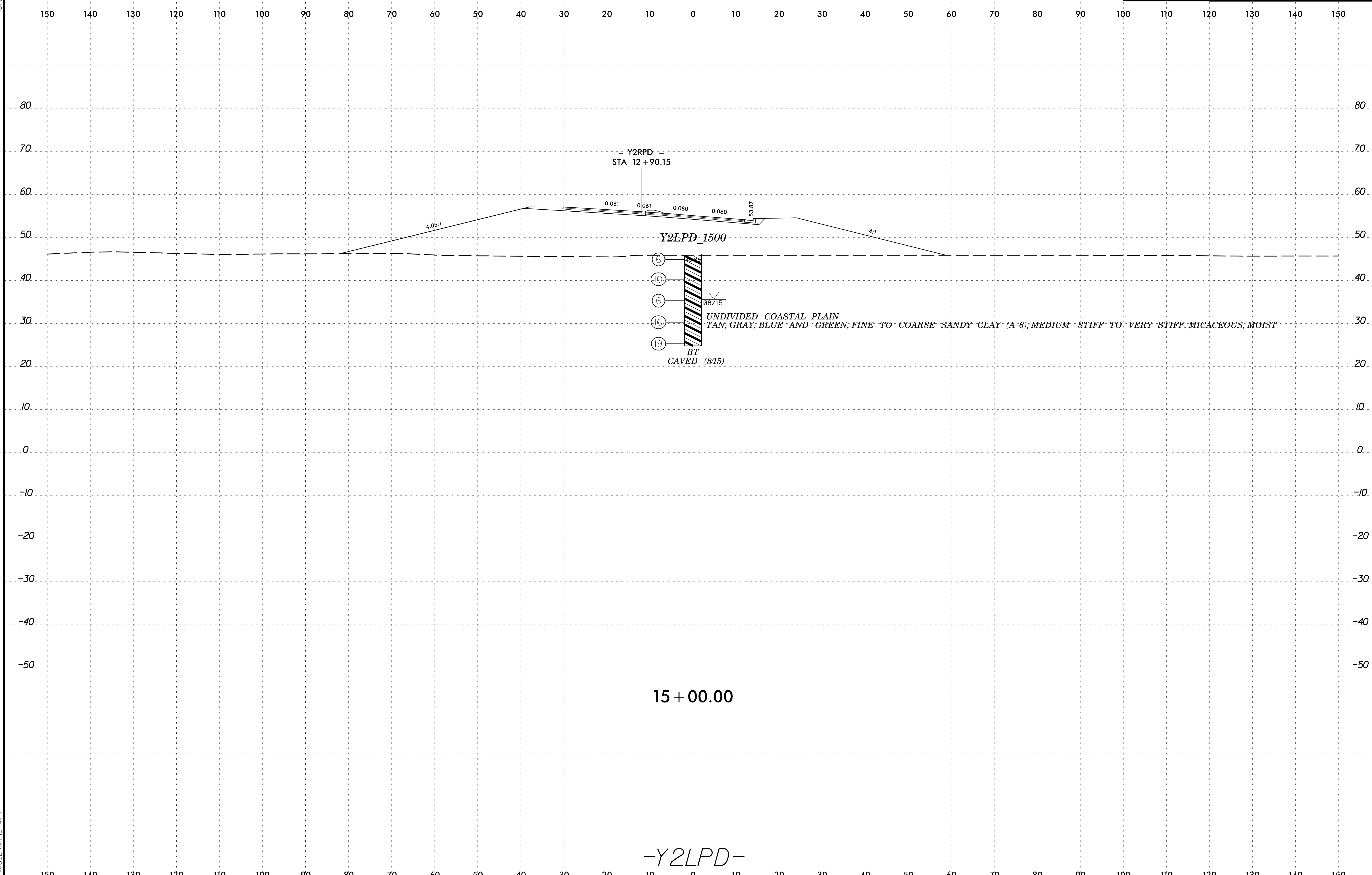
8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5311A	113



$$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

PROJ. REFERENCE NO.	SHEET NO.
R-5311A	114

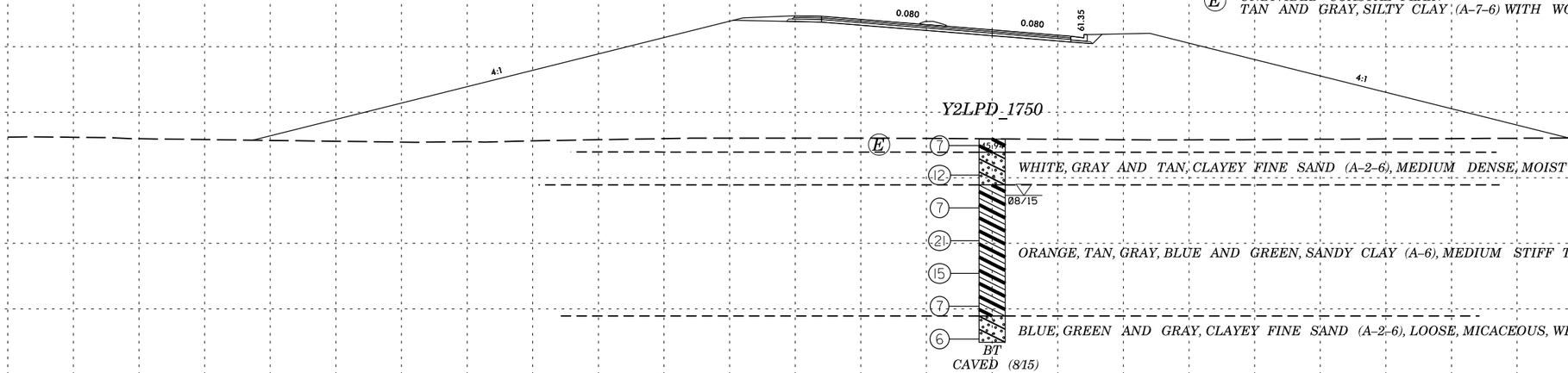


8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5311A	115

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

70 60 50 40 30 20 10 0 -10 -20 -30 -40 -50



(E) *UNDIVIDED COASTAL PLAIN*
TAN AND GRAY, SILTY CLAY (A-7-6) WITH WOOD, MEDIUM STIFF, MOIST

WHITE, GRAY AND TAN, CLAYEY FINE SAND (A-2-6), MEDIUM DENSE, MOIST

ORANGE, TAN, GRAY, BLUE AND GREEN, SANDY CLAY (A-6), MEDIUM STIFF TO VERY STIFF, MOIST

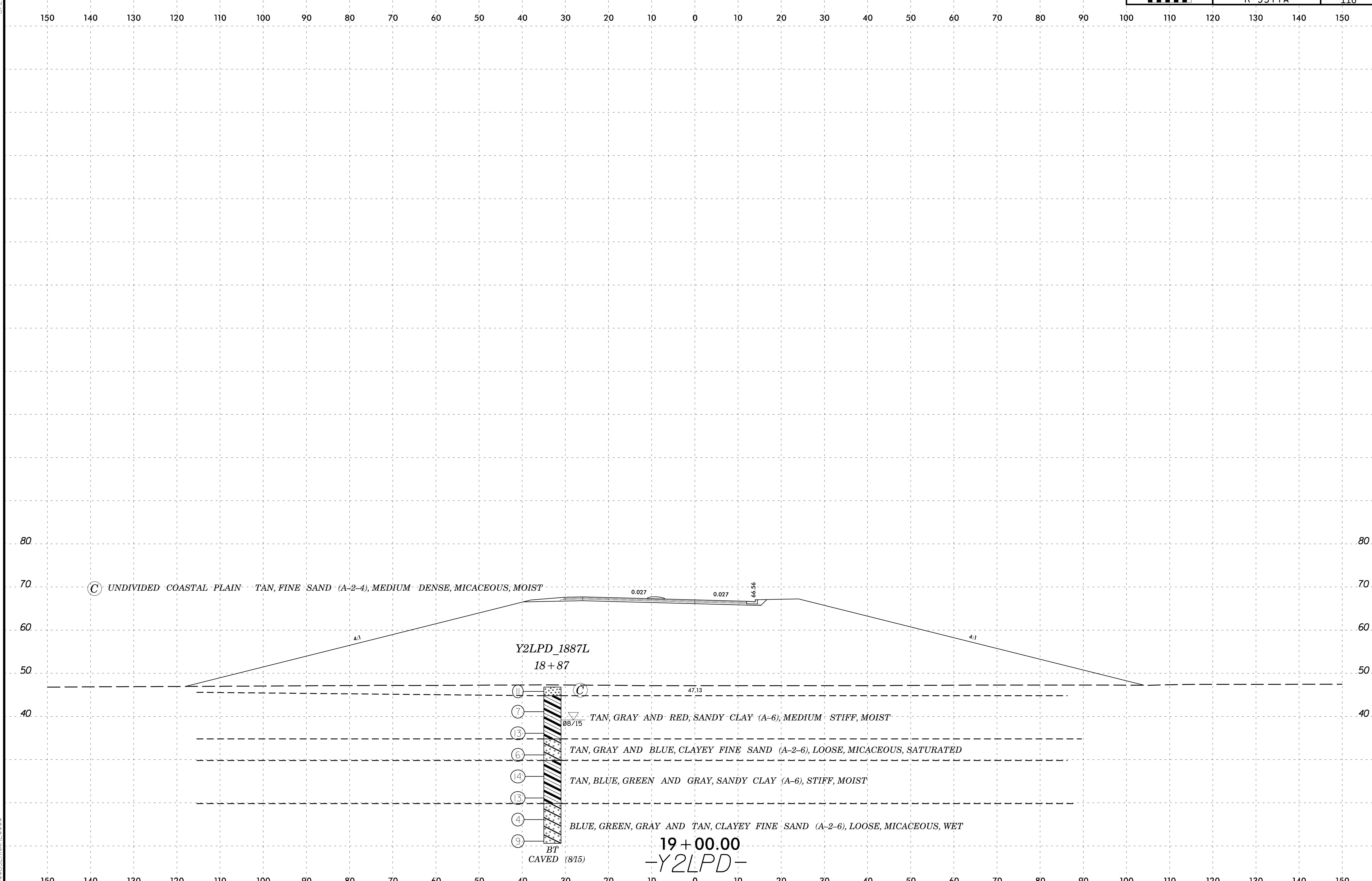
BLUE, GREEN AND GRAY, CLAYEY FINE SAND (A-2-6), LOOSE, MICACEOUS, WET

17+50.00

-Y2LPD-

$$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

PROJ. REFERENCE NO.	SHEET NO.
R-5311A	116



8/23/99

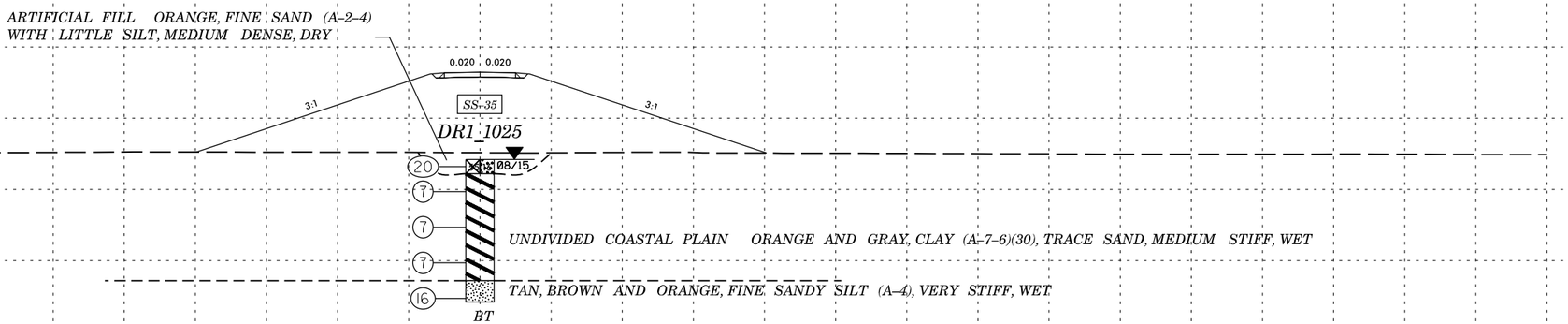
$$$$$$SYSTIME$$$$$
$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$$$USERNAME$$$$$

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5311A	117

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-35	CL	10+25	3.5'-5.0'	A-7-6(30)	61	33	0.6	24.1	27.9	47.3	99.9	99.7	83.5	32	



10+00.00

-DR1-

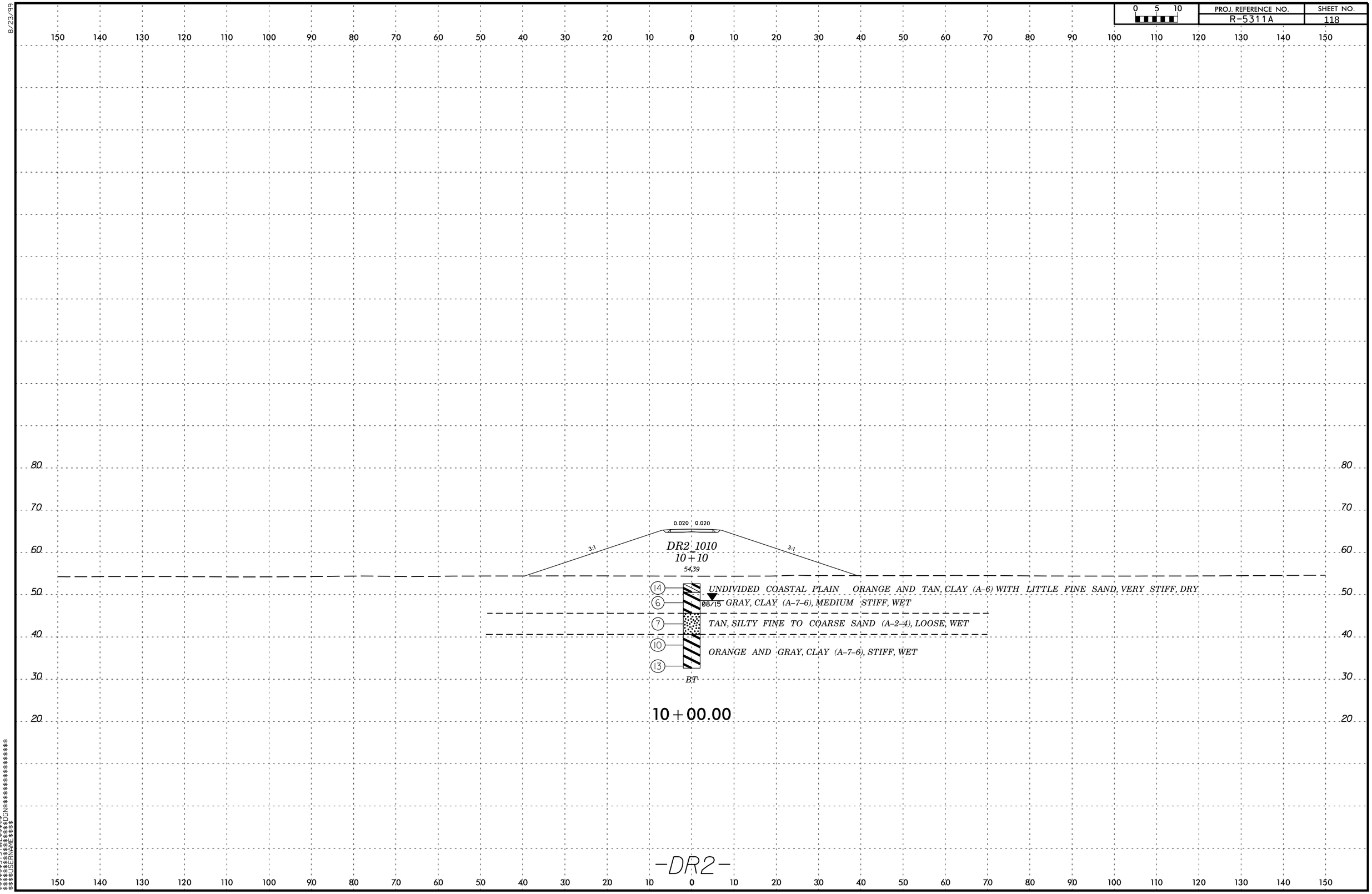
70 60 50

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

$$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5311A	118



$$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

8/23/99

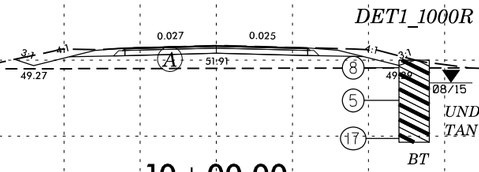
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5311A	119

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
30

Ⓐ ROADWAY EMBANKMENT
TAN AND ORANGE, CLAYEY FINE SAND (A-2-6) WITH ROOTS, LOOSE, MOIST

DET1_1000R



UNDIVIDED COASTAL PLAIN
TAN AND GRAY, FINE SANDY CLAY (A-6), STIFF, MOIST

10+00.00

-DET1-

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

$$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

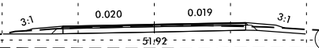
8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5311A	120

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

Ⓐ *ROADWAY EMBANKMENT*
TAN AND ORANGE, CLAYEY FINE SAND (A-2-6) WITH ROOTS, LOOSE, MOIST

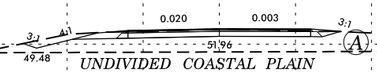


UNDIVIDED COASTAL PLAIN
TAN AND GRAY, FINE SANDY CLAY (A-6), MOIST

11+00.00

60
50
40

Ⓐ *ROADWAY EMBANKMENT*
TAN AND ORANGE, CLAYEY FINE SAND (A-2-6) WITH ROOTS, LOOSE, MOIST



UNDIVIDED COASTAL PLAIN
TAN AND GRAY, FINE SANDY CLAY (A-6), MOIST

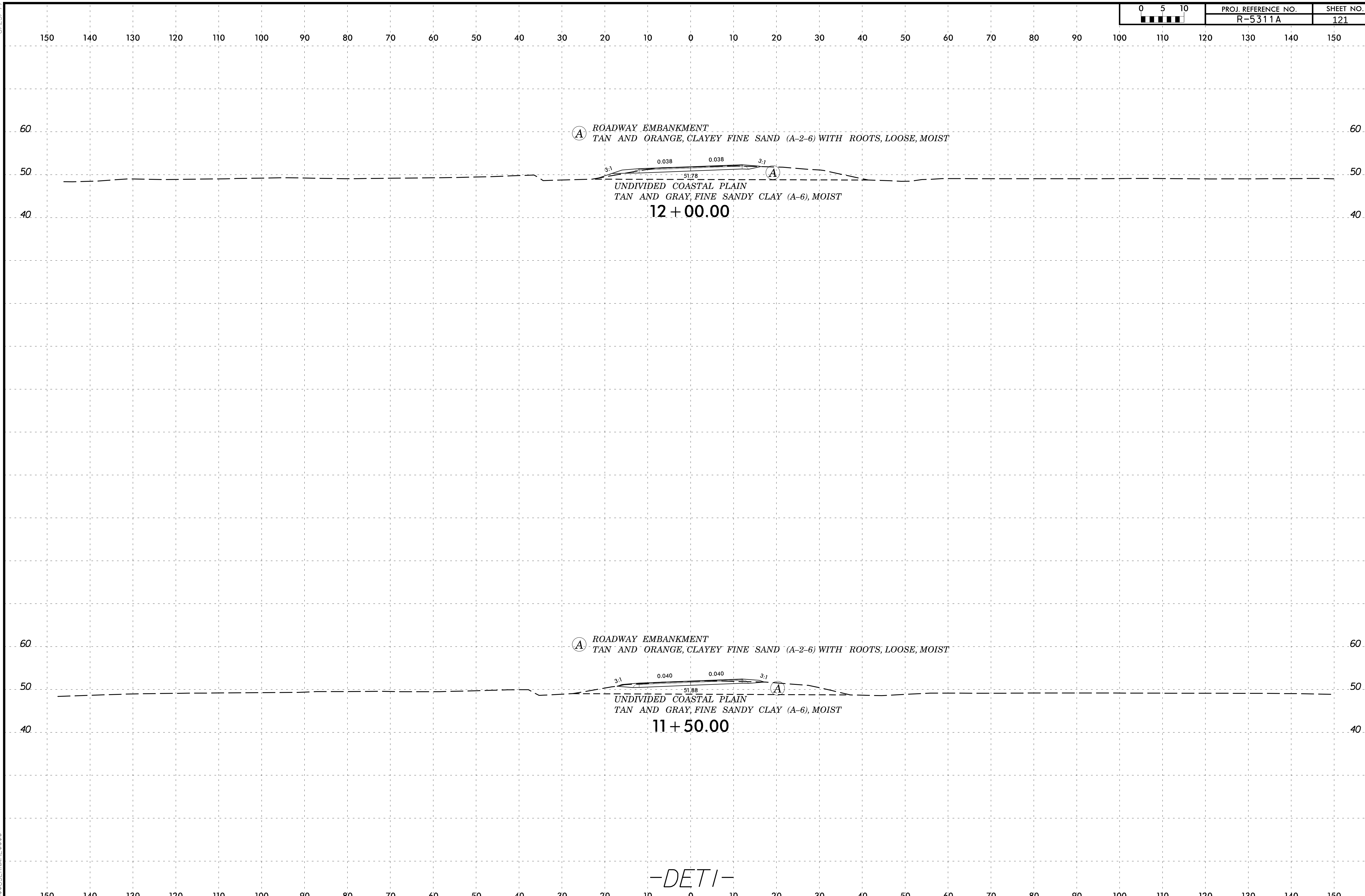
10+50.00

-DET I-

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

$$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

PROJ. REFERENCE NO.	SHEET NO.
R-5311A	121



8/23/99

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
R-5311A	122

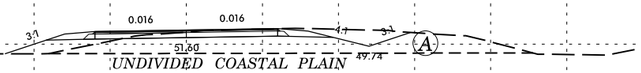
150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

60

50

40

Ⓐ ROADWAY EMBANKMENT
TAN AND ORANGE, CLAYEY FINE SAND (A-2-6) WITH ROOTS, LOOSE, MOIST



UNDIVIDED COASTAL PLAIN
TAN AND GRAY, FINE SANDY CLAY (A-6), MOIST

12 + 50.00

-DET1-

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

$$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5311A	123

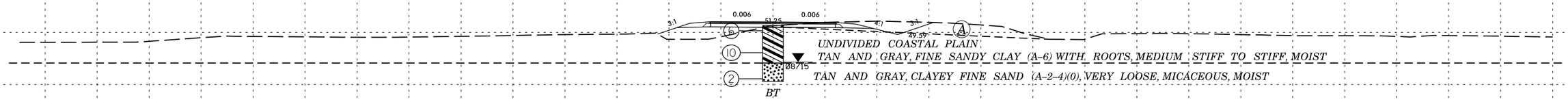
SOIL TEST RESULTS

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-85	CL	13+00	9.2'-10.7'	A-2-4(0)	25	NP	1.1	81	7.7	10	99.8	99.6	23.1	30	

(A) ROADWAY EMBANKMENT
TAN AND ORANGE, CLAYEY FINE SAND (A-2-6) WITH ROOTS, LOOSE, MOIST

SS-85

DET1_1300



UNDIVIDED COASTAL PLAIN
TAN AND GRAY, FINE SANDY CLAY (A-6) WITH ROOTS, MEDIUM STIFF TO STIFF, MOIST

TAN AND GRAY, CLAYEY FINE SAND (A-2-4)(0), VERY LOOSE, MICACEOUS, MOIST

13+00.00

-DET1-

$$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

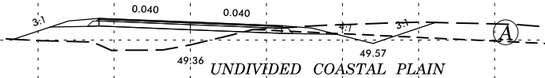
8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5311A	124

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

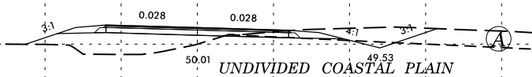
(A) *ROADWAY EMBANKMENT*
TAN AND ORANGE, CLAYEY FINE SAND (A-2-6) WITH ROOTS, LOOSE, MOIST



UNDIVIDED COASTAL PLAIN
TAN AND GRAY, FINE SANDY CLAY (A-6), MOIST

14+00.00

(A) *ROADWAY EMBANKMENT*
TAN AND ORANGE, CLAYEY FINE SAND (A-2-6) WITH ROOTS, LOOSE, MOIST



UNDIVIDED COASTAL PLAIN
TAN AND GRAY, FINE SANDY CLAY (A-6), MOIST

13+50.00

-DET I-

$$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

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

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5311A	125

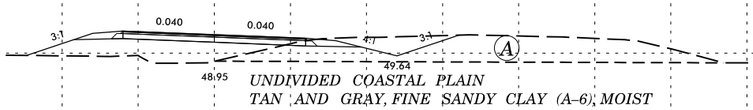
150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

60

50

40

(A) ROADWAY EMBANKMENT
TAN AND ORANGE, CLAYEY FINE SAND (A-2-6) WITH ROOTS, LOOSE, MOIST



UNDIVIDED COASTAL PLAIN
TAN AND GRAY, FINE SANDY CLAY (A-6), MOIST

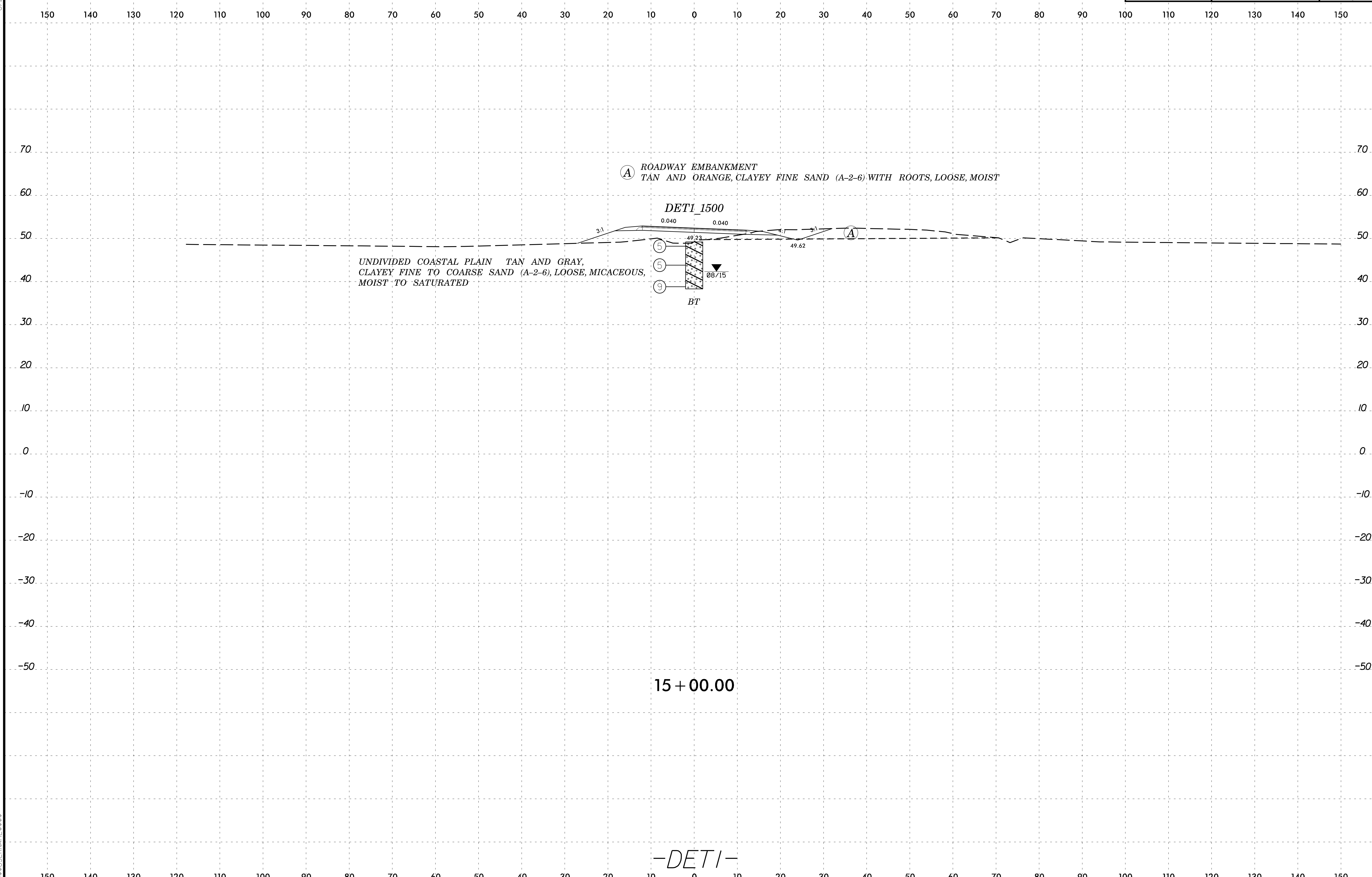
14+50.00

-DET1-

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

$$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

PROJ. REFERENCE NO.	SHEET NO.
R-5311A	126



8/23/99

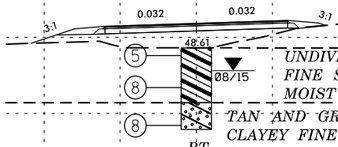
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5311A	127

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

70 60 50 40 30 20 10 0 -10 -20 -30 -40 -50

(A) *ROADWAY EMBANKMENT*
TAN AND ORANGE, CLAYEY FINE SAND (A-2-6) WITH ROOTS, LOOSE, MOIST

DET1_1700



UNDIVIDED COASTAL PLAIN TAN AND GRAY, FINE SANDY CLAY (A-6), MEDIUM STIFF TO STIFF, MOIST

TAN AND GRAY, CLAYEY FINE TO COARSE SAND (A-2-6), LOOSE, MICACEOUS, SATURATED

17+00.00

-DET1-

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

$$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5311A	128

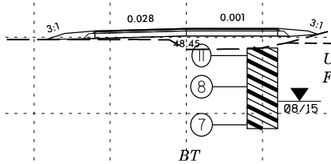
SOIL TEST RESULTS

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-75	10' RT	19+00	4.1'-5.6'	A-6(3)	35	17	4.9	58	9.2	27.9	100.0	99.9	42.4	21	

(A) ROADWAY EMBANKMENT
TAN AND ORANGE, CLAYEY FINE SAND (A-2-6) WITH ROOTS, LOOSE, MOIST

SS-75

DET1_1900



UNDIVIDED COASTAL PLAIN TAN AND GRAY;
FINE SANDY CLAY (A-6)(3) WITH ROOTS, MEDIUM STIFF TO STIFF, MOIST

19+00.00

-DET1-

$$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5311A	129

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

70 60 50 40 30 20 10 0 -10 -20 -30 -40 -50

(A) *ROADWAY EMBANKMENT*
TAN AND ORANGE, CLAYEY FINE SAND (A-2-6) WITH ROOTS, LOOSE, MOIST

DET1_2100

3:1 0.020 0.020 3:1

49.49

Ø8/15

UNDIVIDED COASTAL PLAIN GRAY AND TAN,
FINE SANDY CLAY (A-6) WITH ROOTS, STIFF, MOIST

TAN AND WHITE,
SILTY COARSE SAND (A-2-4), VERY LOOSE, MICACEOUS, SATURATED

BT

21+00.00

-DET1-

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

$$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5311A	130

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

70 60 50 40 30 20 10 0 -10 -20 -30 -40 -50

(A) *ROADWAY EMBANKMENT*
TAN AND ORANGE, CLAYEY FINE SAND (A-2-6) WITH ROOTS, LOOSE, MOIST

DET1_2300R

3:1 0.040 0.040 3:1
4% 4%

UNDIVIDED COASTAL PLAIN
TAN AND GRAY, CLAYEY FINE TO COARSE SAND (A-2-6),
LOOSE TO MEDIUM DENSE, WET TO SATURATED

(9) (11) (4) Ø8/15 (A)

BT

23+00.00

-DET1-

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

$$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5311A	131

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-66	CL	25+00	4.8'-6.3'	A-7-6(26)	57	30	1.6	23.1	25.8	49.3	99.8	99.3	81.0	33	

(A) ROADWAY EMBANKMENT
TAN AND ORANGE, CLAYEY FINE SAND (A-2-6)
WITH GRAVEL, MEDIUM DENSE, MOIST

SS-66

DET1_2500

3:1 0.040 0.040 3:1

49:08

(12) (7) (9)

Ø8/15

(A)

UNDIVIDED COASTAL PLAIN
GRAY AND TAN, FINE SANDY CLAY (A-6), MEDIUM STIFF TO STIFF, MOIST

BT

25+00.00

-DET1-

$$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 45449.1.2	**TIP** R-5311A	**COUNTY** HERTFORD	**GEOLOGIST** R. DeLost	
SITE DESCRIPTION US 13/NC 11 from NC 11/NC 561 Intersection near Ahoskie to US 13/158/NC 45 Intersection near Winton				**GROUND WTR (ft)**
BORING NO. EL_37094L	**STATION** 370+94	**OFFSET** 42 ft LT	**ALIGNMENT** -EL-	**0 HR.** 6.7
COLLAR ELEV. 48.7 ft	**TOTAL DEPTH** 16.0 ft	**NORTHING** 945,638	**EASTING** 2,592,178	**24 HR.** 2.0
DRILL RIG/HAMMER EFF./DATE ICA0404 CME-45C 90% 08/25/2014		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER M. Morgan	**START DATE** 08/05/15	**COMP. DATE** 08/05/15	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
50										ELEV. (ft) DEPTH (ft)
	48.7	0.0	6	9	7	16		M		48.7 GROUND SURFACE 0.0
										ROADWAY EMBANKMENT
45										46.7 Tan, orange and red, silty coarse SAND (A-2-4), medium dense 2.0
	44.2	4.5	1	3	4	7		M		**COASTAL PLAIN**
										Gray and tan, fine sandy CLAY (A-6), medium stiff
40										41.7 7.0
	39.2	9.5	3	3	3	6		Sat.		Gray and tan, clayey fine SAND (A-2-6), loose to medium dense, slightly micaceous
35										
	34.2	14.5	4	6	7	13		M		32.7 16.0
										Boring Terminated at Elevation 32.7 ft IN SAND (COASTAL PLAIN)

WBS 45449.1.2	**TIP** R-5311A	**COUNTY** HERTFORD	**GEOLOGIST** R. DeLost	
SITE DESCRIPTION US 13/NC 11 from NC 11/NC 561 Intersection near Ahoskie to US 13/158/NC 45 Intersection near Winton				**GROUND WTR (ft)**
BORING NO. EL_37096R	**STATION** 370+96	**OFFSET** 213 ft LT	**ALIGNMENT** -EL-	**0 HR.** Dry
COLLAR ELEV. 46.7 ft	**TOTAL DEPTH** 16.2 ft	**NORTHING** 945,460	**EASTING** 2,592,362	**24 HR.** 5.1
DRILL RIG/HAMMER EFF./DATE ICA0404 CME-45C 90% 08/25/2014		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER M. Morgan	**START DATE** 08/18/15	**COMP. DATE** 08/18/15	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
50										
	46.7	0.0	3	4	4	8		M		46.7 GROUND SURFACE 0.0
45										**COASTAL PLAIN**
	42.0	4.7	4	5	6	11		M		44.7 Tan and gray, sandy CLAY (A-6), stiff 2.0
40										Tan and gray, clayey fine SAND (A-2-6), medium dense
	37.0	9.7	3	3	4	7		M		39.7 7.0
35										Tan, gray, blue and green, fine sandy CLAY (A-6), medium stiff to very stiff, micaceous
	32.0	14.7	5	7	10	17		M		30.5 16.2
										Boring Terminated at Elevation 30.5 ft IN CLAY (COASTAL PLAIN)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 45449.1.2	**TIP** R-5311A	**COUNTY** HERTFORD	**GEOLOGIST** R. DeLost	
SITE DESCRIPTION US 13/NC 11 from NC 11/NC 561 Intersection near Ahoskie to US 13/158/NC 45 Intersection near Winton				**GROUND WTR (ft)**
BORING NO. EL_37412R	**STATION** 374+12	**OFFSET** 46 ft RT	**ALIGNMENT** -EL-	**0 HR.** 3.8
COLLAR ELEV. 48.0 ft	**TOTAL DEPTH** 16.0 ft	**NORTHING** 945,788	**EASTING** 2,592,479	**24 HR.** 2.9
DRILL RIG/HAMMER EFF./DATE ICA0404 CME-45C 90% 08/25/2014		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER M. Morgan	**START DATE** 08/09/15	**COMP. DATE** 08/09/15	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
										ELEV. (ft) DEPTH (ft)
50										
	48.0	0.0	2	3	5	8		M		48.0 GROUND SURFACE 0.0 **COASTAL PLAIN** Gray and tan, fine sandy CLAY (A-6) with roots, stiff
45	43.5	4.5	5	6	7	13		M		41.0 7.0
40	38.5	9.5	3	3	4	7		22%		Gray, white and tan, clayey fine to coarse SAND (A-2-4)(0), loose
35	33.5	14.5	3	5	7	12		M		36.0 12.0 32.0 16.0 Gray and tan, fine sandy CLAY (A-6), stiff Boring Terminated at Elevation 32.0 ft IN CLAY (COASTAL PLAIN)

WBS 45449.1.2	**TIP** R-5311A	**COUNTY** HERTFORD	**GEOLOGIST** R. DeLost	
SITE DESCRIPTION US 13/NC 11 from NC 11/NC 561 Intersection near Ahoskie to US 13/158/NC 45 Intersection near Winton				**GROUND WTR (ft)**
BORING NO. EL_37444L	**STATION** 374+44	**OFFSET** 41 ft LT	**ALIGNMENT** -EL-	**0 HR.** 7.6
COLLAR ELEV. 49.0 ft	**TOTAL DEPTH** 16.0 ft	**NORTHING** 945,886	**EASTING** 2,592,425	**24 HR.** 7.6
DRILL RIG/HAMMER EFF./DATE ICA0404 CME-45C 90% 08/25/2014		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER M. Morgan	**START DATE** 08/05/15	**COMP. DATE** 08/05/15	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
50										
	49.0	0.0	4	5	4	9		D		49.0 GROUND SURFACE 0.0 **ROADWAY EMBANKMENT**
45	44.5	4.5	3	5	8	13		22%		47.0 2.0 Red, tan and orange, clayey fine SAND (A-2-6), loose **COASTAL PLAIN** Gray and tan, fine to coarse sandy CLAY (A-6)(6), stiff, slightly micaceous
40	39.5	9.5	2	3	4	7		Sat.		
35	34.5	14.5	1	3	7	10		W		33.0 16.0 Boring Terminated at Elevation 33.0 ft IN SAND (COASTAL PLAIN)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 45449.1.2	**TIP** R-5311A	**COUNTY** HERTFORD	**GEOLOGIST** R. DeLost	
SITE DESCRIPTION US 13/NC 11 from NC 11/NC 561 Intersection near Ahoskie to US 13/158/NC 45 Intersection near Winton				**GROUND WTR (ft)**
BORING NO. Y2_3200L	**STATION** 32+00	**OFFSET** 32 ft LT	**ALIGNMENT** -Y2-	**0 HR.** 7.6
COLLAR ELEV. 48.9 ft	**TOTAL DEPTH** 11.0 ft	**NORTHING** 946,589	**EASTING** 2,590,587	**24 HR.** 2.0
DRILL RIG/HAMMER EFF./DATE ICA0404 CME-45C 90% 08/25/2014		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER M. Morgan	**START DATE** 08/07/15	**COMP. DATE** 08/07/15	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
										ELEV. (ft) DEPTH (ft)
50										
	48.9	0.0	3	3	5	8		M		48.9 GROUND SURFACE 0.0
										ROADWAY EMBANKMENT
										Tan and orange, clayey fine SAND (A-2-6), loose, micaceous
										46.4 2.5
45										**COASTAL PLAIN**
	44.4	4.5	1	2	1	3		M		Tan and gray, fine sandy CLAY (A-6), medium stiff
										41.4 7.5
40										
	39.4	9.5	4	6	8	14		W		Tan and gray, clayey fine SAND (A-2-6), medium dense
										37.9 11.0
										Boring Terminated at Elevation 37.9 ft IN SAND (COASTAL PLAIN)

WBS 45449.1.2	**TIP** R-5311A	**COUNTY** HERTFORD	**GEOLOGIST** R. DeLost	
SITE DESCRIPTION US 13/NC 11 from NC 11/NC 561 Intersection near Ahoskie to US 13/158/NC 45 Intersection near Winton				**GROUND WTR (ft)**
BORING NO. Y2LPB_1677L	**STATION** 16+77	**OFFSET** 182 ft LT	**ALIGNMENT** -Y2LPB-	**0 HR.** 12.1
COLLAR ELEV. 48.7 ft	**TOTAL DEPTH** 31.3 ft	**NORTHING** 944,930	**EASTING** 2,590,822	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE ICA0404 CME-45C 90% 08/25/2014		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER M. Morgan	**START DATE** 08/21/15	**COMP. DATE** 08/21/15	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
										ELEV. (ft) DEPTH (ft)
50										
	48.7	0.0	2	1	2	3		M		48.7 GROUND SURFACE 0.0
										COASTAL PLAIN
										Tan, gray, blue and green, fine sandy CLAY (A-6), soft to very stiff, micaceous
45										
	43.9	4.8	4	7	7	14		M		
40										
	38.9	9.8	2	3	3	6		M		
35										
	33.9	14.8	2	4	5	9		M		
30										
	28.9	19.8	4	9	10	19		M		
25										25.4 23.3
	23.9	24.8	2	2	5	7		Sat.		Blue, green and gray, fine to coarse SAND (A-2-6), loose, micaceous
										20.4 28.3
20										
	18.9	29.8	2	2	3	5		W		17.4 Blue, green and gray, sandy CLAY (A-6), medium stiff, micaceous 31.3
										Boring Terminated at Elevation 17.4 ft IN CLAY (COASTAL PLAIN)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 45449.1.2	**TIP** R-5311A	**COUNTY** HERTFORD	**GEOLOGIST** R. DeLost	
SITE DESCRIPTION US 13/NC 11 from NC 11/NC 561 Intersection near Ahoskie to US 13/158/NC 45 Intersection near Winton				**GROUND WTR (ft)**
BORING NO. Y2LPD_1592L	**STATION** 15+92	**OFFSET** 155 ft LT	**ALIGNMENT** -Y2LPD-	**0 HR.** 11.6
COLLAR ELEV. 46.6 ft	**TOTAL DEPTH** 31.2 ft	**NORTHING** 945,020	**EASTING** 2,592,271	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE ICA0404 CME-45C 90% 08/25/2014		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER M. Morgan	**START DATE** 08/20/15	**COMP. DATE** 08/20/15	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
										ELEV. (ft) DEPTH (ft)
50										
	46.6	0.0								46.6 GROUND SURFACE 0.0
45			3	3	5	8		M		**COASTAL PLAIN**
										44.6 Tan and gray, silty CLAY (A-7-6), stiff 2.0
	41.9	4.7								
40			3	6	7	13		M		Gray, clayey fine SAND (A-2-6), medium dense, micaceous
										39.6 7.0
	36.9	9.7								
35			3	4	5	9		M		Tan, gray, blue and green, sandy CLAY (A-6), medium stiff to very stiff
	31.9	14.7								
30			9	10	11	21		M		
	26.9	19.7								
25			4	6	7	13		M		
	21.9	24.7								
20			4	4	5	9		M		
	16.9	29.7								
			WOH	2	3	5		M		15.4 31.2
										Boring Terminated at Elevation 15.4 ft IN CLAY (COASTAL PLAIN)