

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

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2612B	1	40

CONTENTS

LINE	STATION	PLAN	PROFILE	XSECT
-DRI-	10+27 - 11+56	8	18	NONE
-DR2-	10+00 - 11-00	9	18	NONE
-L-	47+68 - 85+30	4-6	NONE	NONE
-Y-	17+35 - 65+40	6-10	13-14	19-29
-Y1-	12+00 - 35+00	8, 11	17	NONE
-Y2-	10+00 - 12+50	9	17	NONE
-Y3-	10+00 - 11+50	10	17	NONE
-Y4-	11+00 - 21+30	6, 8	17	30-31
-Y5-	10+00 - 12+00	8	17	NONE
-Y6-	11+95 - 12+90	4	17	NONE
-Y7-	10+00 - 17+10	4	18	NONE
-Y8-	11+20 - 12+15	5	18	NONE
-Y9-	11+00 - 16+00	12	18	32-37
-YRPA-	10+00 - 26+65	6	15	NONE
-YLPA-	10+00 - 20+98	6	15	NONE
-YRPD-	10+00 - 25+95	6	16	NONE
-YLPA-	10+00 - 19+00	6	16	NONE

ROADWAY
SUBSURFACE INVESTIGATION

PROJ. REFERENCE NO. 34483.1.1 (R-2612B) F.A. PROJ. CMNHS-0421(41)
COUNTY GUILFORD
PROJECT DESCRIPTION US 421 AT SR 3418 (NEELLEY ROAD) SOUTH OF GREENSBORO

INVENTORY REPORT

CAUTION NOTICE

THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WERE MADE FOR THE PURPOSE OF STUDY, PLANNING, AND DESIGN, AND NOT FOR CONSTRUCTION OR PAY PURPOSES. THE VARIOUS FIELD BORING LOGS, ROCK CORES, AND SOIL TEST DATA AVAILABLE MAY BE REVIEWED OR INSPECTED IN RALEIGH BY CONTACTING THE N. C. DEPARTMENT OF TRANSPORTATION, GEOTECHNICAL ENGINEERING UNIT AT (919) 250-4088. NEITHER THE SUBSURFACE PLANS AND REPORTS, NOR THE FIELD BORING LOGS, ROCK CORES, OR SOIL TEST DATA ARE PART OF THE CONTRACT.

GENERAL SOIL AND ROCK STRATA DESCRIPTIONS AND INDICATED BOUNDARIES ARE BASED ON A GEOTECHNICAL INTERPRETATION OF ALL AVAILABLE SUBSURFACE DATA AND MAY NOT NECESSARILY REFLECT THE ACTUAL SUBSURFACE CONDITIONS BETWEEN BORINGS OR BETWEEN SAMPLED STRATA WITHIN THE BOREHOLE. THE LABORATORY SAMPLE DATA AND THE IN SITU ON-PLACED TEST DATA CAN BE RELED ON ONLY TO THE DEGREE OF RELIABILITY INHERENT IN THE STANDARD TEST METHOD. THE OBSERVED WATER LEVELS OR SOIL MOISTURE CONDITIONS INDICATED IN THE SUBSURFACE INVESTIGATIONS ARE AS RECORDED AT THE TIME OF THE INVESTIGATION. THESE WATER LEVELS OR SOIL MOISTURE CONDITIONS MAY VARY CONSIDERABLY WITH TIME ACCORDING TO CLIMATIC CONDITIONS INCLUDING TEMPERATURES, PRECIPITATION, AND WIND, AS WELL AS OTHER NON-CLIMATIC FACTORS.

THE BIDDER OR CONTRACTOR IS CAUTIONED THAT DETAILS SHOWN ON THE SUBSURFACE PLANS ARE PRELIMINARY ONLY AND IN MANY CASES THE FINAL DESIGN DETAILS ARE DIFFERENT. FOR BIDDING AND CONSTRUCTION PURPOSES, REFER TO THE CONSTRUCTION PLANS AND DOCUMENTS FOR FINAL DESIGN INFORMATION ON THIS PROJECT. THE DEPARTMENT DOES NOT WARRANT OR GUARANTEE THE SUFFICIENCY OR ACCURACY OF THE INVESTIGATION MADE, NOR THE INTERPRETATIONS MADE, OR OPINION OF THE DEPARTMENT AS TO THE TYPE OF MATERIALS AND CONDITIONS TO BE ENCOUNTERED. THE BIDDER OR CONTRACTOR IS CAUTIONED TO MAKE SUCH INDEPENDENT SUBSURFACE INVESTIGATIONS AS HE DEEMS NECESSARY TO SATISFY HIMSELF AS TO CONDITIONS TO BE ENCOUNTERED ON THIS PROJECT. THE CONTRACTOR SHALL HAVE NO CLAIM FOR ADDITIONAL COMPENSATION OR FOR AN EXTENSION OF TIME FOR ANY REASON RESULTING FROM THE ACTUAL CONDITIONS ENCOUNTERED AT THE SITE DIFFERING FROM THOSE INDICATED IN THE SUBSURFACE INFORMATION.

TIP: R-2612B

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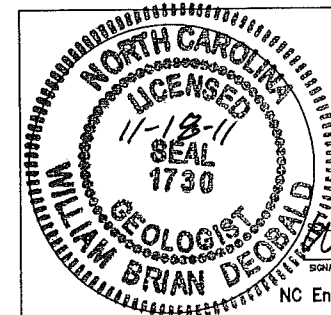
J. HOWARD

INVESTIGATED BY AMEC E&I, Inc.

CHECKED BY S. JOHNSON

SUBMITTED BY B. DEOBALD

DATE 11-18-2011



amec

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

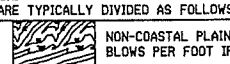
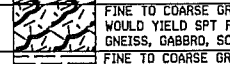
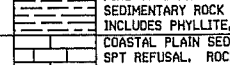
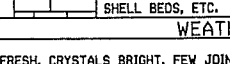
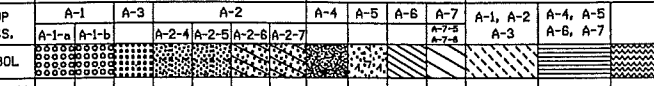
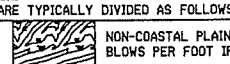
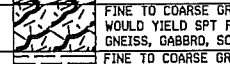
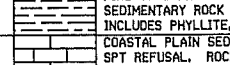
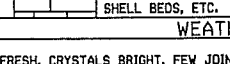















NOTE - BY HAVING REQUESTED THIS INFORMATION THE CONTRACTOR SPECIFICALLY WAIVES ANY CLAIMS FOR INCREASED COMPENSATION OR EXTENSION OF TIME BASED ON DIFFERENCES BETWEEN THE CONDITIONS INDICATED HEREIN AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

DRAWN BY: R. RAHIE

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

SUBSURFACE INVESTIGATION

SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

SOIL DESCRIPTION	GRADATION	ROCK DESCRIPTION	TERMS AND DEFINITIONS
SOIL IS CONSIDERED TO BE THE UNCONSOLIDATED, SEMI-CONSOLIDATED, OR WEATHERED EARTH MATERIALS THAT CAN BE PENETRATED WITH A CONTINUOUS FLIGHT POWER AUGER, AND YIELD LESS THAN 100 BLOWS PER FOOT ACCORDING TO STANDARD PENETRATION TEST (AASHTO T208, ASTM D-1586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY SHALL INCLUDE: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. EXAMPLE: <i>VERY STIFF, GRAY, SILTY CLAY, MOST WITH INTERBEDDED FINE SAND LAYERS, HIGH PLASTIC, A-7-6</i>	WELL GRADED - INDICATES A GOOD REPRESENTATION OF PARTICLE SIZES FROM FINE TO COARSE. UNIFORM - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE. (ALSO POORLY GRADED) GAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLES OF TWO OR MORE SIZES. ANGULARITY OF GRAINS THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TERMS: ANGULAR, SUBANGULAR, SUBROUNDED, OR ROUNDED.	HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT IF TESTED, WOULD YIELD SPT REFUSAL. AN INFERRED ROCK LINE INDICATES THE LEVEL AT WHICH NON-COASTAL PLAIN MATERIAL WOULD YIELD SPT REFUSAL. SPT REFUSAL IS PENETRATION BY A SPLIT SPOON SAMPLER EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS. IN NON-COASTAL PLAIN MATERIAL, THE TRANSITION BETWEEN SOIL AND ROCK IS OFTEN REPRESENTED BY A ZONE OF WEATHERED ROCK. ROCK MATERIALS ARE TYPICALLY DIVIDED AS FOLLOWS:  NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT N VALUES > 100 BLOWS PER FOOT IF TESTED.  CRYSTALLINE ROCK (CR) FINE TO COARSE GRAIN IGNEOUS AND METAMORPHIC ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES GRANITE, GNEISS, GABBRO, SCHIST, ETC.  NON-CRYSTALLINE ROCK (NCR) FINE TO COARSE GRAIN METAMORPHIC AND NON-COASTAL PLAIN SEDIMENTARY ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES PHYLLITE, SLATE, SANDSTONE, ETC.  COASTAL PLAIN SEDIMENTARY ROCK (CP) COASTAL PLAIN SEDIMENTS CEMENTED INTO ROCK, BUT MAY NOT YIELD SPT REFUSAL. ROCK TYPE INCLUDES LIMESTONE, SANDSTONE, CEMENTED SHELL BEDS, ETC.	ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER. AQUIFER - A WATER BEARING FORMATION OR STRATA. ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND. AROLLACEOUS - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING A NOTABLE PROPORTION OF CLAY IN THEIR COMPOSITION, AS SHALE, SLATE, ETC. ARTESIAN - GROUND WATER THAT IS UNDER SUFFICIENT PRESSURE TO RISE ABOVE THE LEVEL AT WHICH IT IS ENCOUNTERED, BUT WHICH DOES NOT NECESSARILY RISE TO OR ABOVE THE GROUND SURFACE. CALCAREOUS (CALC.) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE. COLLUVIUM - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM OF SLOPE. CORE RECOVERY (REC) - TOTAL LENGTH OF ALL MATERIAL RECOVERED IN THE CORE BARREL DIVIDED BY TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE. DIKE - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT ROCKS OR CUTS MASSIVE ROCK. DIP - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL. DIP DIRECTION (DIP AZIMUTH) - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH. FAULT - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE. FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES. FLOAT - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLODGED FROM PARENT MATERIAL. FLOOD PLAIN (FP) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM. FORMATION (FM) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD. JOINT - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED. LEDGE - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO ITS LATERAL EXTENT. LENS - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS. MOTTLED (MOT.) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS. MOTTLING IN SOILS USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE. PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE OF AN INTERVENING IMPERVIOUS STRATUM. RESIDUAL (RES.) SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK. ROCK QUALITY DESIGNATION (RQD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE. SAPROLITE (SAP.) - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK. SILL - AN INTRUSIVE BODY OF IGNEOUS ROCK OF APPROXIMATELY UNIFORM THICKNESS AND RELATIVELY THIN COMPARED WITH ITS LATERAL EXTENT, THAT HAS BEEN EMPLACED PARALLEL TO THE BEDDING OR SCHISTOSITY OF THE INTRUDED ROCKS. SLICKENSIDE - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT OR SLIP PLANE. STANDARD PENETRATION TEST (PENETRATION RESISTANCE) (SPT) - NUMBER OF BLOWS (IN OR BPF) OF A 140 LB. HAMMER FALLING 30 INCHES REQUIRED TO PRODUCE A PENETRATION OF 1 FOOT INTO SOIL WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS PENETRATION EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS. STRATA CORE RECOVERY (SREC) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE. STRATA ROCK QUALITY DESIGNATION (SRQD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE. TOPSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.
SOIL LEGEND AND AASHTO CLASSIFICATION GENERAL CLASS. GRANULAR MATERIALS (≤ 35% PASSING #200) SILT-CLAY MATERIALS (> 35% PASSING #200) ORGANIC MATERIALS GROUP CLASS. A-1, A-3, A-2, A-4, A-5, A-6, A-7, A-1, A-2, A-3, A-4, A-5, A-6, A-7 SYMBOL 	MINERALOGICAL COMPOSITION MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHENEVER THEY ARE CONSIDERED OF SIGNIFICANCE. COMPRESSIBILITY SLIGHTLY COMPRESSIBLE LIQUID LIMIT LESS THAN 31 MODERATELY COMPRESSIBLE LIQUID LIMIT EQUAL TO 31-50 HIGHLY COMPRESSIBLE LIQUID LIMIT GREATER THAN 50 PERCENTAGE OF MATERIAL ORGANIC MATERIAL GRANULAR SILT-CLAY 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	WEATHERING FRESH ROCK FRESH, CRYSTALLINE BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING. ROCK RINGS UNDER HAMMER IF CRYSTALLINE. VERY SLIGHT (V SL.) 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 (SL.) ROCK GENERALLY FRESH, JOINTS STAINED AND DISCOLORATION EXTENDS INTO ROCK UP TO 1 INCH. OPEN JOINTS MAY CONTAIN CLAY. IN GRANITOID ROCKS SOME OCCASIONAL FELDSPAR CRYSTALS ARE DULL AND DISCOLORED. CRYSTALLINE ROCKS RING UNDER HAMMER BLOWS. MODERATE (MOD.) SIGNIFICANT PORTIONS OF ROCK SHOW DISCOLORATION AND WEATHERING EFFECTS. IN GRANITOID ROCKS, MOST FELDSPARS ARE DULL AND DISCOLORED, SOME SHOW CLAY. ROCK HAS DULL SOUND UNDER HAMMER BLOWS AND SHOWS SIGNIFICANT LOSS OF STRENGTH AS COMPARED WITH FRESH ROCK. MODERATELY SEVERE (MOD. SEV.) ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. IN GRANITOID ROCKS, ALL FELDSPARS DULL AND DISCOLORED AND A MAJORITY SHOW KAOLINIZATION. ROCK SHOWS SEVERE LOSS OF STRENGTH AND CAN BE EXCAVATED WITH A GEOLOGIST'S PICK. ROCK GIVES 'CLUNK' SOUND WHEN STRUCK. <i>IF TESTED, WOULD YIELD SPT REFUSAL</i> SEVERE (SEV.) ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC CLEAR AND EVIDENT BUT REDUCED IN STRENGTH TO STRONG SOIL. IN GRANITOID ROCKS ALL FELDSPARS ARE KAOLINIZED TO SOME EXTENT. SOME FRAGMENTS OF STRONG ROCK USUALLY REMAIN. <i>IF TESTED, YIELDS SPT N VALUES < 100 BPF</i> VERY SEVERE (V SEV.) ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC ELEMENTS ARE DISCERNIBLE BUT THE MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK REMAINING. SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE SUCH THAT ONLY MINOR VESTIGES OF THE ORIGINAL ROCK FABRIC REMAIN. <i>IF TESTED, YIELDS SPT N VALUES < 100 BPF</i> COMPLETE ROCK REDUCED TO SOIL. ROCK FABRIC NOT DISCERNIBLE, OR DISCERNIBLE ONLY IN SMALL AND SCATTERED CONCENTRATIONS. QUARTZ MAY BE PRESENT AS DIKES OR STRINGERS. SAPROLITE IS ALSO AN EXAMPLE.	WEATHERED ROCK (WR)  CRYSTALLINE ROCK (CR)  NON-CRYSTALLINE ROCK (NCR)  COASTAL PLAIN SEDIMENTARY ROCK (CP) 
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 MM 305 75 2.0 0.25 0.05 0.005 SIZE IN. 12 3	MISCELLANEOUS SYMBOLS  ROADWAY EMBANKMENT (RE) WITH SOIL DESCRIPTION  SOIL SYMBOL  ARTIFICIAL FILL (AF) OTHER THAN ROADWAY EMBANKMENT  INFERRED SOIL BOUNDARY  INFERRED ROCK LINE  ALLUVIAL SOIL BOUNDARY  DIP & DIP DIRECTION OF ROCK STRUCTURES  SPT TEST BORING  AUGER BORING  CORE BORING  MONITORING WELL  PIEZOMETER INSTALLATION  SLOPE INDICATOR INSTALLATION  CONE PENETROMETER TEST  SOUNDING ROD	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 GROOVED OR GOUGED READILY BY KNIFE OR PICK. CAN BE EXCAVATED IN FRAGMENTS FROM CHIPS TO SEVERAL INCHES IN SIZE BY MODERATE BLOWS OF A PICK POINT. SMALL, THIN PIECES CAN BE BROKEN BY FINGER PRESSURE. VERY SOFT CAN BE CARVED WITH KNIFE. CAN BE EXCAVATED READILY WITH POINT OF PICK. PIECES 1 INCH OR MORE IN THICKNESS CAN BE BROKEN BY FINGER PRESSURE. CAN BE SCRATCHED READILY BY FINGER NAIL.	ABBEVIATIONS 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 UNIT WEIGHT DRY UNIT WEIGHT SAMPLE ABBREVIATIONS S - BULK SS - SPLIT SPOON ST - SHELBY TUBE RS - ROCK RT - RECOMPACTED TRIAXIAL CBR - CALIFORNIA BEARING RATIO
CONSISTENCY OR DENSENESS PRIMARY SOIL TYPE COMPACTNESS OR CONSISTENCY RANGE OF STANDARD PENETRATION RESISTANCE (N-VALUE) RANGE OF UNCONFINED COMPRESSIVE STRENGTH (TONS/FT ²) GENERALLY GRANULAR MATERIAL (NON-COHESIVE) VERY LOOSE LOOSE 4 TO 10 MEDIUM DENSE DENSE 10 TO 30 30 TO 50 VERY DENSE >50 N/A GENERALLY SILT-CLAY MATERIAL (COHESIVE) VERY SOFT SOFT MEDIUM STIFF STIFF VERY STIFF HARD <2 2 TO 4 4 TO 8 8 TO 15 15 TO 30 >30 <0.25 0.25 TO 0.50 0.5 TO 1.0 1 TO 2 2 TO 4 >4	EQUIPMENT USED ON SUBJECT PROJECT DRILL UNITS: <input type="checkbox"/> MOBILE B- <input type="checkbox"/> BK-51 <input checked="" type="checkbox"/> CME-45C <input checked="" type="checkbox"/> CME-55LC <input type="checkbox"/> PORTABLE HOIST ADVANCING TOOLS: <input type="checkbox"/> CLAY BITS <input type="checkbox"/> 6" CONTINUOUS FLIGHT AUGER <input type="checkbox"/> 8" HOLLOW AUGERS <input type="checkbox"/> HARD FACED FINGER BITS <input type="checkbox"/> TUNG-CARBIDE INSERTS <input checked="" type="checkbox"/> CASING <input type="checkbox"/> w/ ADVANCER <input checked="" type="checkbox"/> TRICONE 2 7/8" STEEL TEETH <input type="checkbox"/> TRICONE ' TUNG-CARB. <input type="checkbox"/> CORE BIT <input checked="" type="checkbox"/> 6 1/4" O.D. HSA HAMMER TYPE: <input checked="" type="checkbox"/> AUTOMATIC <input type="checkbox"/> MANUAL CORE SIZE: <input type="checkbox"/> -B <input checked="" type="checkbox"/> -N Q <input type="checkbox"/> -H HAND TOOLS: <input type="checkbox"/> POST HOLE DIGGER <input checked="" type="checkbox"/> HAND AUGER <input type="checkbox"/> SOUNDING ROD <input type="checkbox"/> VANE SHEAR TEST	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 GROOVED OR GOUGED READILY BY KNIFE OR PICK. CAN BE EXCAVATED IN FRAGMENTS FROM CHIPS TO SEVERAL INCHES IN SIZE BY MODERATE BLOWS OF A PICK POINT. SMALL, THIN PIECES CAN BE BROKEN BY FINGER PRESSURE. VERY SOFT CAN BE CARVED WITH KNIFE. CAN BE EXCAVATED READILY WITH POINT OF PICK. PIECES 1 INCH OR MORE IN THICKNESS CAN BE BROKEN BY FINGER PRESSURE. CAN BE SCRATCHED READILY BY FINGER NAIL.	FRACATURE SPACING TERM SPACING VERY WIDE MORE THAN 10 FEET WIDE 3 TO 10 FEET MODERATELY CLOSE 1 TO 3 FEET CLOSE 0.16 TO 1 FEET VERY CLOSE LESS THAN 0.16 FEET BEDDING TERM THICKNESS VERY THICKLY BEDDED > 4 FEET THICKLY BEDDED 1.5 - 4 FEET THINLY BEDDED 0.16 - 1.5 FEET VERY THINLY BEDDED 0.03 - 0.16 FEET THICKLY LAMINATED 0.008 - 0.03 FEET THINLY LAMINATED < 0.008 FEET
SOIL MOISTURE - CORRELATION OF TERMS SOIL MOISTURE SCALE (ATTERBERG LIMITS) FIELD MOISTURE DESCRIPTION GUIDE FOR FIELD MOISTURE DESCRIPTION LL - LIQUID LIMIT - SATURATED - (SAT.) USUALLY LIQUID; VERY WET, USUALLY FROM BELOW THE GROUND WATER TABLE PL - PLASTIC LIMIT - WET - (W) SEMISOLID; REQUIRES DRYING TO ATTAIN OPTIMUM MOISTURE OM - OPTIMUM MOISTURE - MOIST - (M) SOLID; AT OR NEAR OPTIMUM MOISTURE SL - SHRINKAGE LIMIT - DRY - (D) REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE	PLASTICITY PLASTICITY INDEX (PI) DRY STRENGTH NONPLASTIC 0-5 VERY LOW LOW PLASTICITY 6-15 SLIGHT MED. PLASTICITY 16-25 MEDIUM HIGH PLASTICITY 26 OR MORE HIGH	INDURATION FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF THE MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC. FRIABLE RUBBING WITH FINGER FREES NUMEROUS GRAINS; GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE. MODERATELY INDURATED GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE; BREAKS EASILY WHEN HIT WITH HAMMER. INDURATED GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE; DIFFICULT TO BREAK WITH HAMMER. EXTREMELY INDURATED SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE; SAMPLE BREAKS ACROSS GRAINS.	NOTES: F.I.A.D - FILLED IMMEDIATELY AFTER DRILLING C.I. - CAVED IN w - WATER SUPPLY WELL
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.			BENCH MARK: _____ ELEVATION: _____ FT.

09/08/99

TIP PROJECT: R-2612B

CONTRACT:

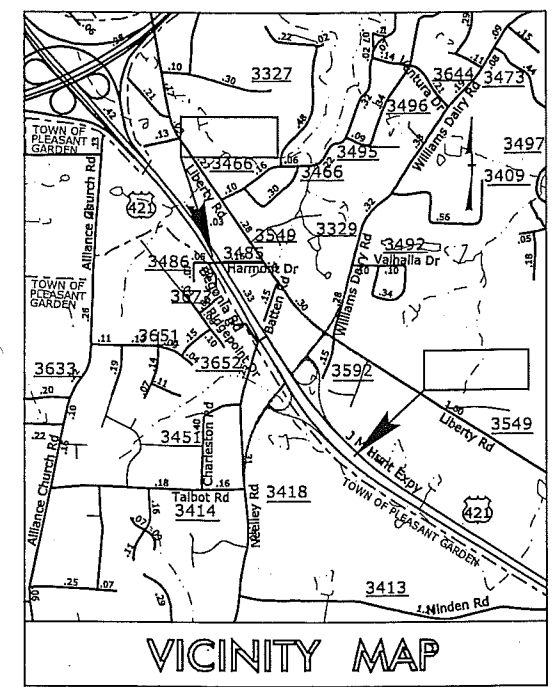
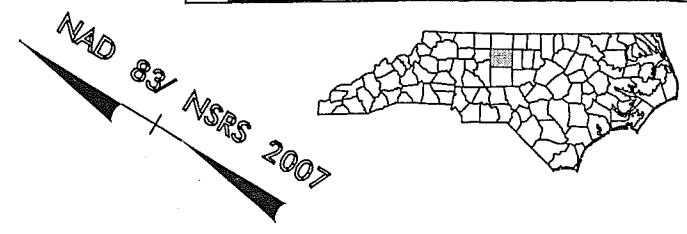
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

GUILFORD COUNTY

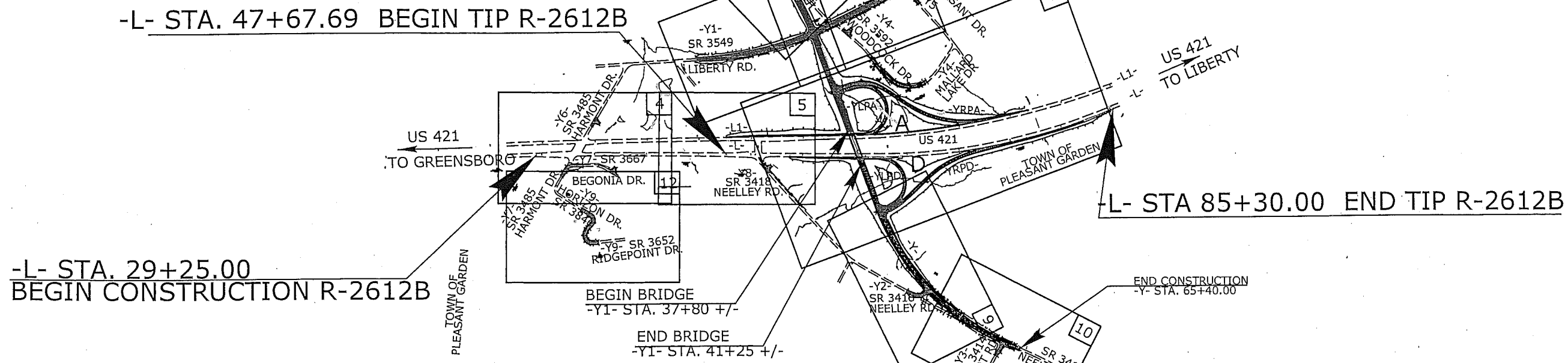
LOCATION: US 421 AT SR 3418 (NEELLEY RD.)
SOUTH OF GREENSBORO

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2612B	2A	-
STATE PROJ. NO.	R.A. PROJ. NO.	DESCRIPTION	
34483.1.1	CMNHS-0421(41)	PE	

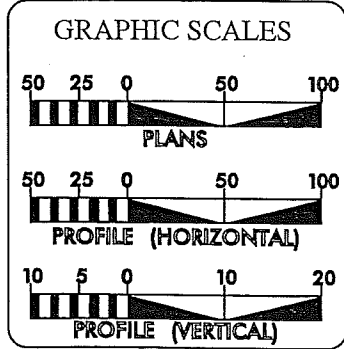


25% PLANS



THIS PROJECT IS WITHIN THE MUNICIPAL LIMITS OF THE TOWN OF PLEASANT GARDEN.
THIS PROJECT HAS FULL AND PARTIAL CONTROLLED ACCESS.
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD ____.
DESIGN EXCEPTIONS FOR -Y- VERTICAL ALIGNMENT
AND VERTICAL STOPPING SIGHT DISTANCE ARE REQUIRED.

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



DESIGN DATA

ADT 2014 =	34,067
ADT 2034 =	51,733
DHV =	11 %
D =	70 %
T =	17 % *
V =	70 MPH
* (TTST 12 + DUAL 5)	
FUNC CLASS =	FREWAY
STATEWIDE TIER	

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT R-2612B	=	0.713 MI
LENGTH STRUCTURES TIP PROJECT R-2612B	=	0.713 MI
TOTAL LENGTH TIP PROJECT R-2612B	=	0.713 MI

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

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
JUNE 14, 2012

LETTING DATE:
JUNE 17, 2014

K. ZAK HAMIDI, PE
PROJECT ENGINEER

TATIA L. WHITE, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE HIGHWAY DESIGN ENGINEER P.E.

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



November 18, 2011

STATE PROJECT: 34483.1.1 (R-2612B)
 F.A. NUMBER: CMNHS-0421(41)
 COUNTY: Guilford
 DESCRIPTION: US 421 at SR 3418 (Neelley Road) South of Greensboro
 SUBJECT: Geotechnical Inventory

Project Description

The project area is located near the intersection of Neelley Road and US 421, approximately one-mile south of I-85 near Greensboro, North Carolina. The project consists of a proposed 0.9 mile roadway (-Y-) connecting Neelley Road west of US 421 to Williams Dairy Road east of US 421. The proposed alignment will pass over and connect to US 421 via a new interchange. The interchange will consist of a ramps (-YRPA-, -YRPD-) and loops (-YLPA-, -YLPD-) connecting to the northbound and southbound lanes of US 421.

The geotechnical field investigation was completed in September of 2011. Borings were advanced with an ATV-mounted (track) CME 45C drill rig equipped with an automatic hammer. Standard Penetration Tests were performed at selected locations. Additional borings were advanced with a hand auger to supplement the Standard Penetration Test borings. Representative soil samples were collected for visual classification in the field and selected samples were submitted for laboratory analysis by the AMEC soils laboratory.

The following alignments, totalling 1.6 miles, were investigated. Subsurface profiles and/or cross sections of these alignments are included in this report.

<u>Line</u>	<u>Stations(±)</u>
-Y-	17+93 to 65+00
-YRPA-	12+00 to 24+80
-YRPD-	11+00 to 24+00
-YLPA-	12+00 to 16+50
-YLPD-	12+12 to 18+00
-Y4-	18+00 to 20+00
-Y9-	12+00 to 15+50

Areas of Special Geotechnical Interest

1) High Plastic Clays: Highly plastic clays (PI > 25) were encountered on the project at the following locations:

<u>Line</u>	<u>Stations(±)</u>
-Y-	17+93 to 28+00

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 Durham, North Carolina 27703
 Tel (919) 381-9900
 Fax (919) 381-9901
 Licensure: NC Engineering F-0653 NC Geology C-247

-Y-	55+00 to 65+00
-YRPD-	11+00 to 14+00
-YLPA-	12+50 to 13+50
-YLPD-	17+00 to 18+50
-Y4-	18+00 to 20+00
-Y9-	12+00 to 15+50

2) Crystalline Rock: The crystalline rock encountered at the project site consists of meta-granite, and was encountered at the following locations:

<u>Line</u>	<u>Stations(±)</u>
-Y-	38+20 to 44+20
-YRPA-	24+00 to 25+50
-YRPD-	17+00 to 21+00
-YLPA-	13+00 to 13+50
-YLPD-	12+00 to 14+00

3) Ponds/Surface Water: One pond is located within the proposed right of way at the following locations:

<u>Line</u>	<u>Stations(±)</u>
-YRPA-	19+50 to 21+00
-YLPA-	14+30 to 16+00

A creek, exhibiting very little flow at the time of the investigation, crosses the proposed right of way at the following locations:

<u>Line</u>	<u>Station(±)</u>
-Y-	44+00
-YRPD-	21+00
-YLPD-	14+50

4) Water Wells: Water wells were found within the construction limits at the following locations:

<u>Line</u>	<u>Station(±)</u>	<u>Offset(ft)</u>
-Y-	52+25	10 RT
-Y-	53+18	3 LT
-YRPA-	22+43	50RT
-Y4-	15+85	50RT
-Y4-	19+48	20RT

5) Artificial Fill: Artificial fill was identified at the following locations:

<u>Line</u>	<u>Station(±)</u>	<u>Assumed Purpose</u>
-Y-	24+00	Related to landscaping
-Y-	28+46	Related to buried utilities
-Y-	53+00	Related to septic drain field

-Y-	57+00	Related to landscaping
-YRPA-	20+50	Related to landscaping/pond construction
-YLPA-	14+20	Pond dam

6) Alluvial Soils: Alluvial soils were identified at the following locations:

<u>Line</u>	<u>Stations(±)</u>
-YRPA-	19+50 to 21+00
-YLPA-	12+80 to 13+80
-YLPA-	14+30 to 16+00

Physiography and Geology

The project is located in the central Piedmont Physiographic Province. The topography along the project is nearly flat to gently sloping. Surface drainage is generally from the beginning and end of the project toward the central area around US 421. Elevations range from 800± to 810± feet in upland areas to 750± to 760± feet in a lowland area located along the western side of US 421. The proposed right of way crosses single family residential properties at the beginning and end of the project. The proposed centrally located interchange at US 421 is generally within a wooded area.

Geologically, the project is located within the Carolina Slate Belt. Bedrock in the area consists of metamorphosed granitic rock. Surficial soils in the area are generally derived from in-place weathering of the bedrock or from alluvial deposition.

Soil Properties

Soils encountered during this investigation are separated into four categories based on origin, including roadway embankment, artificial fill, alluvial and residual soils.

Roadway embankment soils were identified in borings completed along US 421. These soils consist of medium dense, dry, tan and gray, silty, fine to coarse sand (A-2-4); and stiff to very stiff, dry to moist, tan, orange and gray, sandy silt and sandy clay (A-4, A-6). These soils are similar in appearance to the residual soils encountered in the vicinity of US 421. A thin layer of roadway embankment fill should be expected where the proposed alignment -Y- ties in to existing Neelley Road and Williams Dairy Road. These soils were not sampled during this investigation.

Artificial fill soils are present at the locations listed above. With the exception of the pond dam, the fill materials appear to be small isolated areas of residual soil previously disturbed by

landscaping and utility trenching activities. Artificial fill consists of loose to medium dense, dry, tan, silty sand (A-2-4); and stiff to very stiff, moist, sandy silt and sandy clay (A-4, A-6).

Alluvial soils were identified in a drainage feature located between US 421 and the base of the pond dam on alignment -YLPA-. Alluvial soils consist of medium dense, dry, tan, silty sand (A-2-4); and medium stiff to stiff, moist, gray, sandy clay (A-6, A-7-6). Small amounts of alluvial soils occur in the pond. The pond alluvium consists of brown and gray, moderately organic silt (A-4) with trace amounts of sand, gravel, leaves and roots.

Residual soils comprise the majority of the soils identified along the investigated proposed alignments. Residual soils consist of loose to very dense, dry to saturated, tan, orange and gray, silty fine to coarse sand, locally with trace quantities or thinly bedded layers of rock fragments (A-2-4, A-1-b); and medium stiff to hard, dry to saturated, tan, orange and gray, sandy and clayey silt and sandy and silty clay (A-4, A-6, A-7-5, A-7-6). Laboratory testing of selected clay samples determined plastic indices from 13 to 49. At depth, the residual soils may retain the relict fabric of the bedrock.

Rock Properties

Weathered rock and crystalline rock was encountered primarily in the central area of the project in the vicinity of the proposed interchange at US 421. The weathered rock is derived from the underlying metamorphosed granite bedrock and was encountered at depths ranging from 3 to 27 feet below ground surface. Crystalline rock occurs in the areas listed above. Crystalline bedrock consists of dark gray to greenish gray, moderately severely weathered to fresh, moderately hard to very hard, closely to moderately closely fractured, meta-granite.

Groundwater

Groundwater information was limited as many borings either did not penetrate the water table or caved-in above the water table immediately after drilling. Groundwater was found to be nearest the ground surface in the lowland area along the western side of US 421. Where encountered, depths to groundwater ranged from 4.2 to 22.7 feet below ground surface.

Ponds

One pond occurs in a fill section on the proposed right of way. The locations are listed above. A pond survey was completed as part of this investigation. A Preconstruction Pond Sediment Survey Report (Gladden Pond) will be provided as a note to file found within the supportive documents for this report. The pond contains a relatively small amount of moderately organic silt underlain by sandy clay.

Prepared by,

Wm B. Deobald

William B. Deobald, L.G.
Senior Geologist

Earthwork Balance Sheet

Volumes in Cubic Yards

PROJECT: R-2612B

COUNTY: Guilford

DATE: 3/6/2014

COMPILED BY: TEM

CHAIN	STATION	STATION	EXCAVATION				EMBANKMENT				BORROW	WASTE				
			TOTAL UNCLASS.	ROCK	UNDERCUT	UNSUIT. UNCLASS.	SUITABLE UNCLASS.	TOTAL	ROCK	EARTH		EMBANK. (+)20%	ROCK	SUITABLE	UNSUIT.	TOTAL
LEFT																
L1	47+61.37	64+00.00	2,412				2,412	1,472		1,472	1,766			646		646
L1	68+87.68	69+93.30	52				52							52		52
L1	72+50.00	76+77.16	556				556	13		13	16			540		540
YLPA	10+00.00	17+07.03	215				215	15,337		15,337	18,404	18,189				
YRPA	10+00.00	26+32.09	22,500				22,500	56,784		56,784	68,141	45,641				
Y	17+35.00	28+02.31	11,720		2,688	1,339	10,381	2,961		2,961	3,553			6,828	4,027	10,855
Y	28+23.92	37+99.00 (BEG. BR.)	184				184	119,644		119,644	143,573	143,389				
Y1	13+20.00	35+00.00	4,467				4,467	1,880		1,880	2,256			2,211		2,211
Y4	11+00.00	11+70.00	152				152	1		1	1			151		151
Y4	14+50.00	21+35.00	420		368	251	169	825		825	990	821			619	619
Y5	10+12.69	12+00.00	7				7	46		46	55	48				
Y6	11+95.00	12+90.00	2				2	95		95	114	112				
DR1	10+27.00	11+35.46	641				641							641		641
SUBTOTALS:			43,328		3,056	1,590	41,738	199,058		199,058	238,869	208,200		11,069	4,646	15,715
RIGHT																
L	53+70.00	61+50.00	719				719	1,883		1,883	2,260	1,541				
L	63+04.75	71+00.00	410				410	7		7	8			402		402
L	76+50.00	85+30.00	321				321	934		934	1,121	800				
YLPD	10+00.00	16+66.97	86				86	40,229		40,229	48,275	48,189				
YRPD	10+00.00	25+73.89	178				178	76,274		76,274	91,529	91,351				
Y	41+14.50 (END BR.)	65+40.00	4,313		1,204	2,864	1,449	144,582		144,582	173,498	172,049			4,068	4,068
Y2	10+20.75	12+50.00	116				116	621		621	745	629				
Y3	10+13.09	11+50.00	97				97	28		28	34			63		63
Y7	11+00.00	13+50.00	201				201	59		59	71			130		130
Y7	16+00.00	16+92.51	5				5	140		140	168	163				
Y8	11+50.00	12+15.00	9				9	16		16	19	10				
Y9	11+00.00	16+00.00	281		761	223	58	1,077		1,077	1,292	1,234			984	984
DR2	10+11.01	11+00.00	14				14	92		92	110	96				
SUBTOTALS:			6,750		1,965	3,087	3,663	265,942		265,942	319,130	316,062		595	5,052	5,647

NOTES:

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

Earthwork Balance Sheet

Volumes in Cubic Yards

PROJECT: R-2612B

COUNTY: Guilford

DATE: 3/6/2014

COMPILED BY: TEM

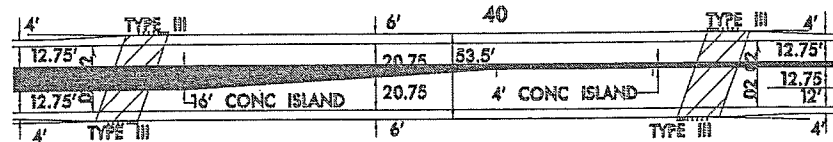
CHAIN	STATION	STATION	EXCAVATION				EMBANKMENT				BORROW	WASTE				
			TOTAL UNCLASS.	ROCK	UNDERCUT	UNSUIT. UNCLASS.	SUITABLE UNCLASS.	TOTAL	ROCK	EARTH		EMBANK. (+)20%	ROCK	SUITABLE	UNSUIT.	TOTAL
SHEET 1 TOTALS:			50,078		5,021	4,677	45,401	465,000		465,000	557,999	524,262		11,664	9,698	21,362
LOSS DUE TO CLEARING AND GRUBBING:			-2,000				-2,000				2,000					
EARTH WASTE TO REPLACE BORROW:											-11,664		-11,664		-11,664	
ADDITIONAL UNDERCUT:					2,000			2,000		2,000	2,400	2,400			2,000	2,000
GRADE POINT UNDERCUT:					150			150		150	180	180			150	150
MATERIAL FOR SHOULDER CONSTRUCTION:								2,340		2,340	2,808	2,808				
PROJECT TOTALS:			48,078		7,171	4,677	43,401	469,490		469,490	563,387	519,986			11,848	11,848
EST. 5% TO REPLACE TOP SOIL ON BORROW PITS:											25,999					
GRAND TOTALS:			48,078		7,171	4,677	43,401	469,490		469,490	563,387	545,985			11,848	11,848
SAY:			48,200		7,250						546,100					

SHALLOW UNDERCUT BY STATIONS:	1,000 CY	PER GEOTECH RECOMMENDATIONS DATED NOVEMBER 20, 2013
SHALLOW UNDERCUT CONTINGENCY:	300 CY	
TOTAL SHALLOW UNDERCUT:	1,300 CY	
CLASS IV SUBGRADE STABILIZATION:	2,600 TON	
SELECT GRANULAR MATERIAL:	2,500 CY	
DDE:	2,060 CY	
PAVEMENT STRUCTURE VOLUME:	5,056 CY	

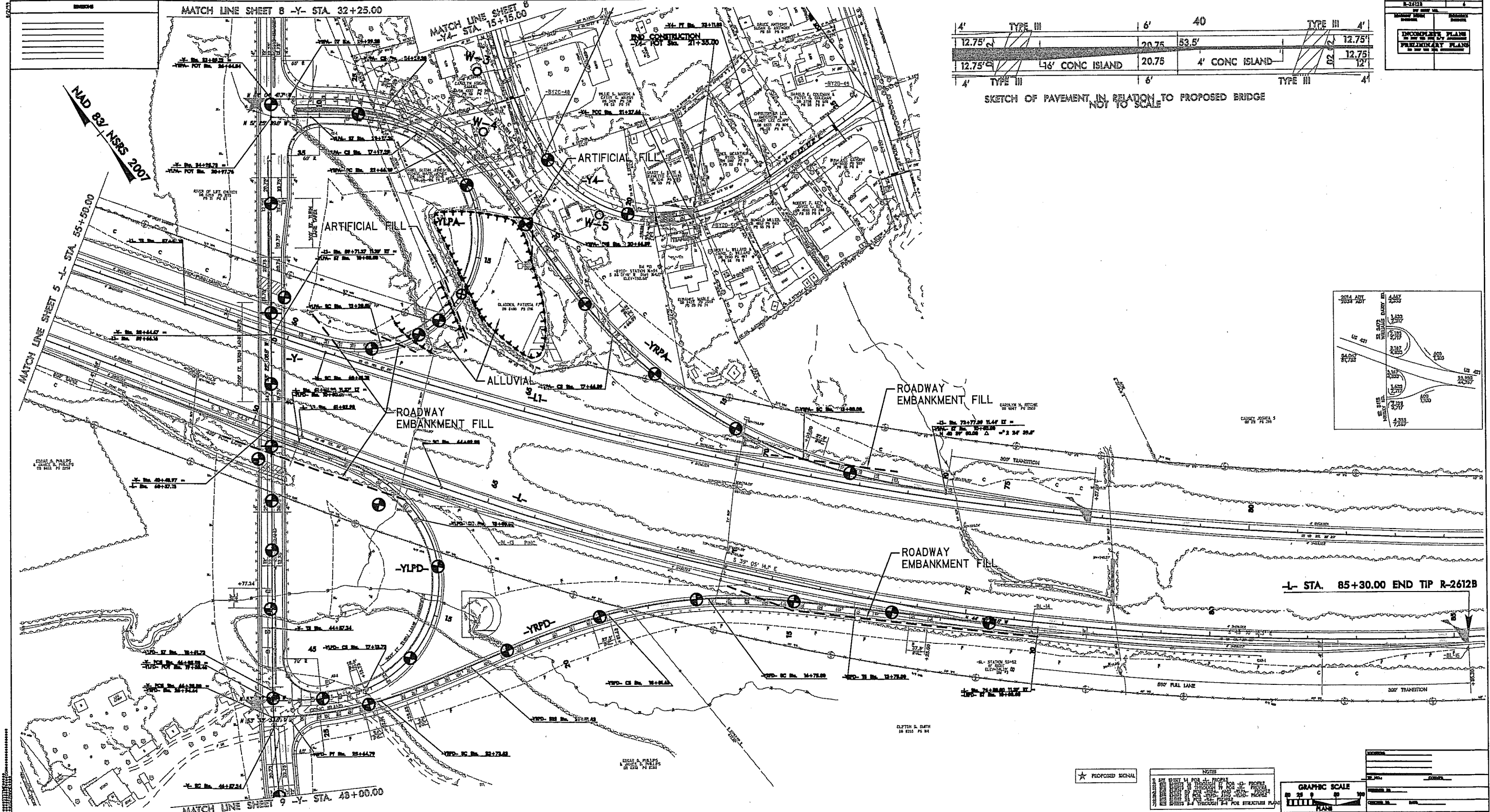
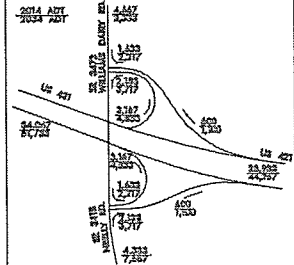
NOTES:

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

PROJECT NUMBER	DATE
R-2612B	4
DESIGNED BY	DATE
INCOMPLETE PLANS	DATE
PRELIMINARY PLANS	DATE



SKETCH OF PAVEMENT IN RELATION TO PROPOSED BRIDGE
NOT TO SCALE



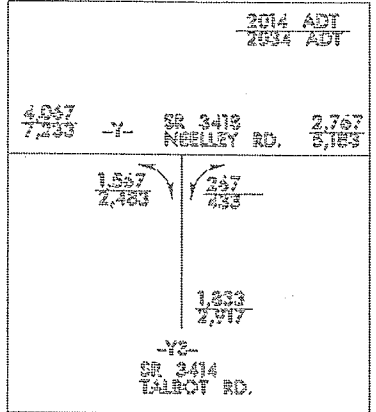
NAD 82/ NRS 2007

★ PROPOSED SIGNAL

NOTES
1. ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED.
2. SEE STRUCTURE PLAN FOR DETAILS THROUGH 24' FOR STRUCTURE PLAN.



DATE	BY
DATE	BY



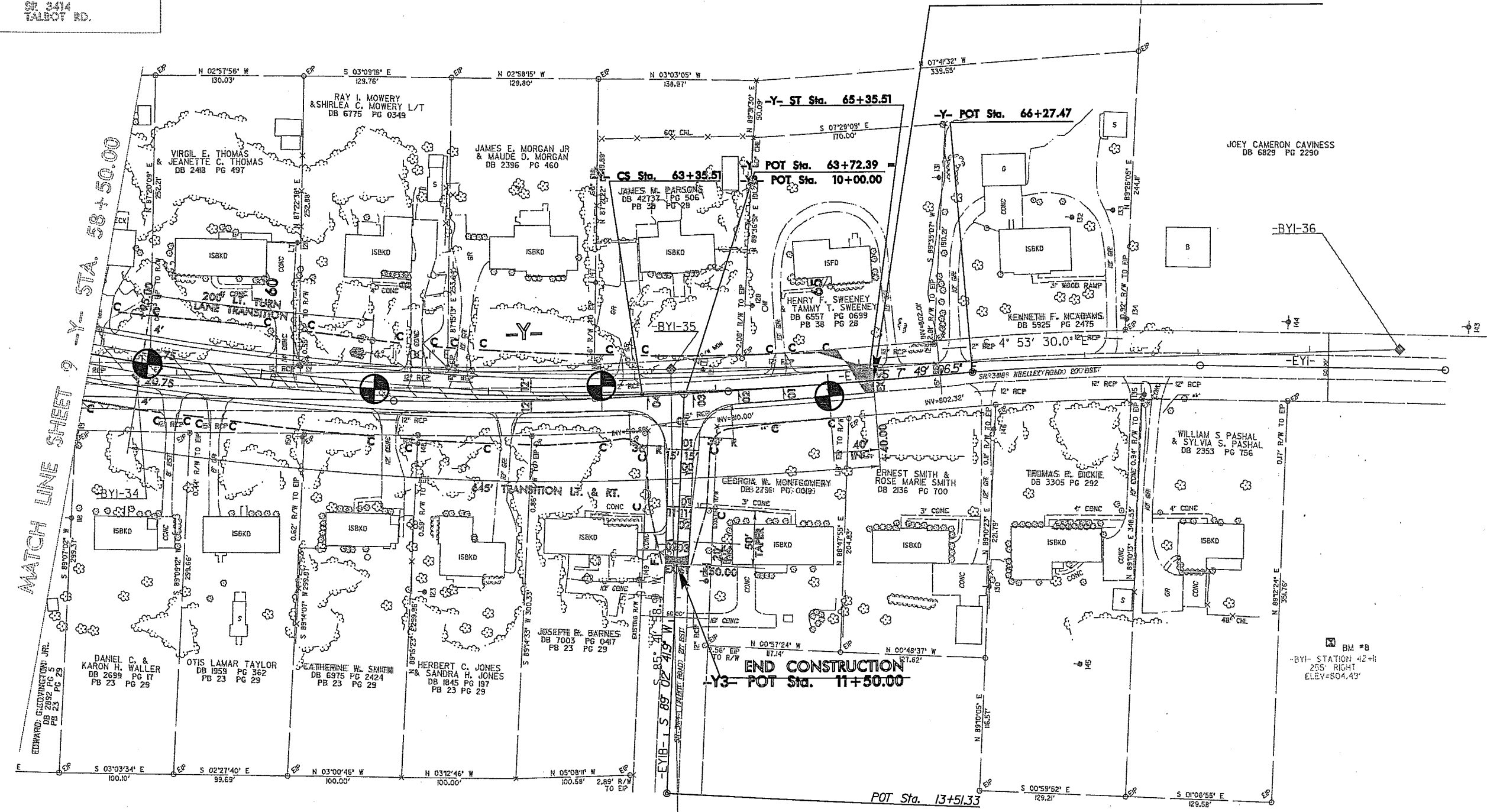
-Y-

PI Sta 55+34.65 Pls Sta 64+02.19
 $\Delta = 41' 16" 10.0'$ (LT) $\Theta_s = 2' 27" 32.6'$
 $D = 2' 27" 32.6'$ $L_s = 200.00'$
 $L = 1678.27'$ $LT = 133.35'$
 $T = 877.40'$ $ST = 66.68'$
 $R = 2,330.00'$
 $SE = 0.05$
 $RO = \text{SEE PLANS}$
 $DS = 60 \text{ MPH}$

EDGAR G. PHILLIPS
& JANICE B. PHILLIPS
DB 6932 PG 2288

NAD 83/ NSRS 2007

END BEGIN CONSTRUCTION -Y- POT Sta. 65+40.00



BM #8
-BYI- STATION 42+11
255' RIGHT
ELEV=804.43'

NOTES

- 1) SEE SHEET 17 FOR -Y- PROFILE
- 2) SEE SHEET 23 FOR -Y- PROFILE
- 3) DRIVEWAY RADI ARE 10' UNLESS OTHERWISE NOTED

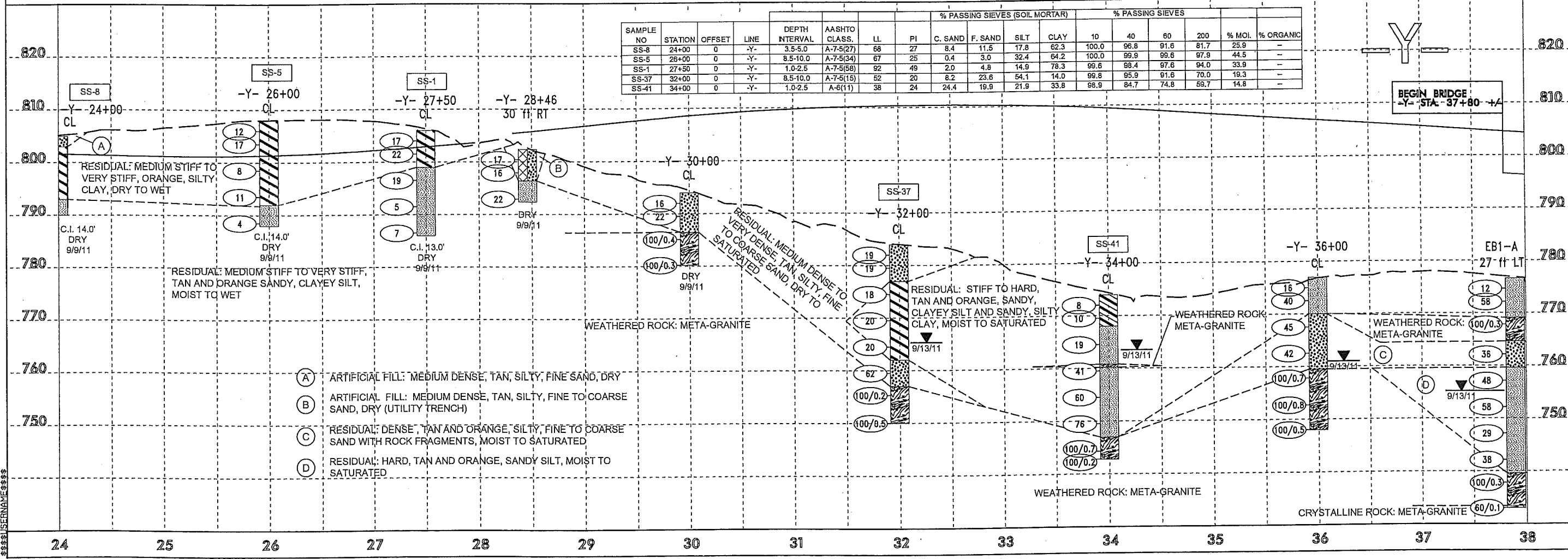
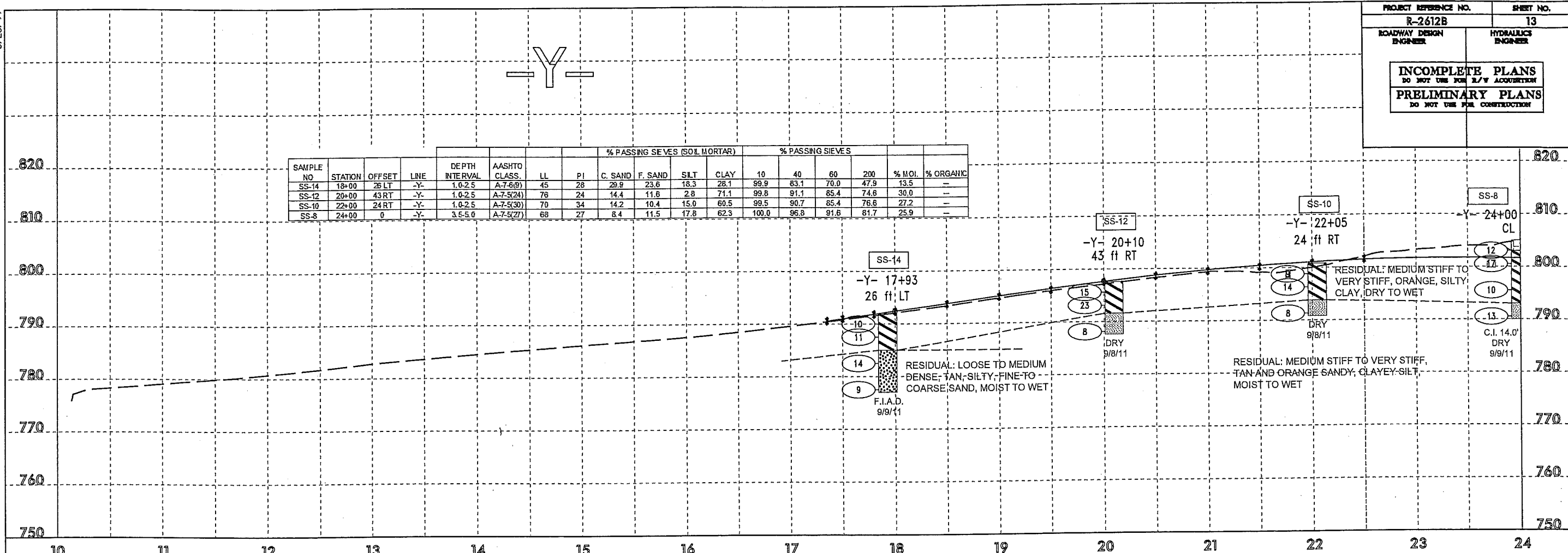
B/17/99

REVISIONS

 SYSTEMS

5/28/99

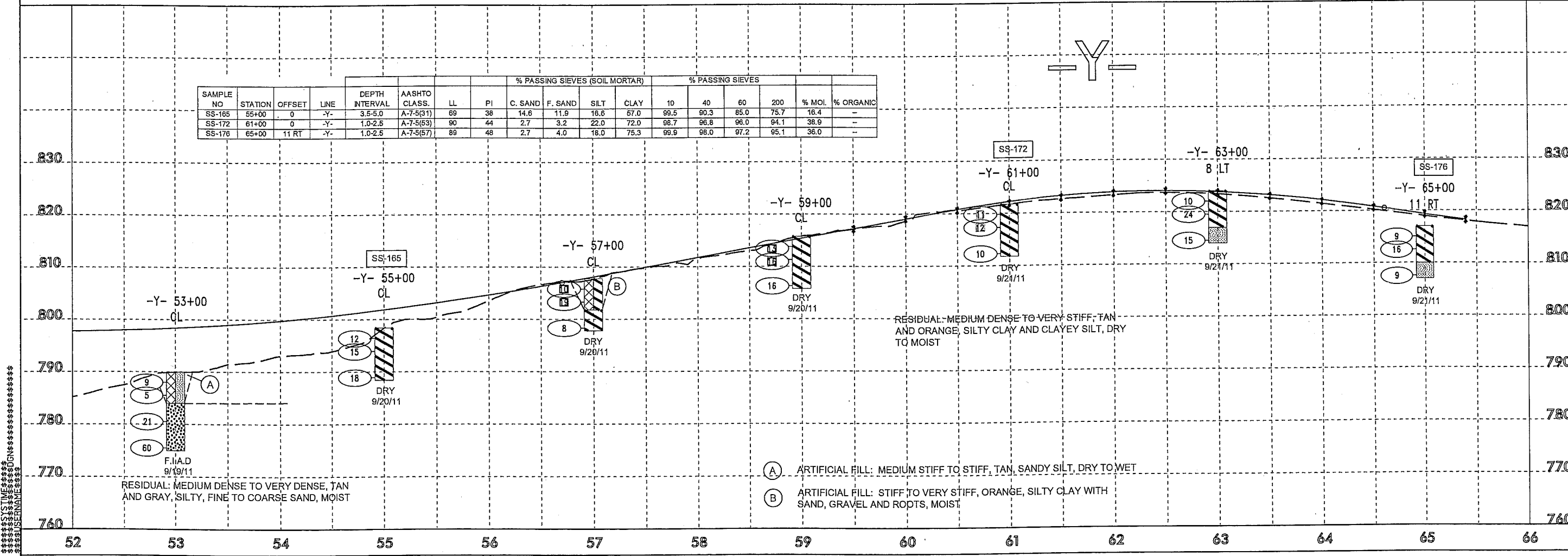
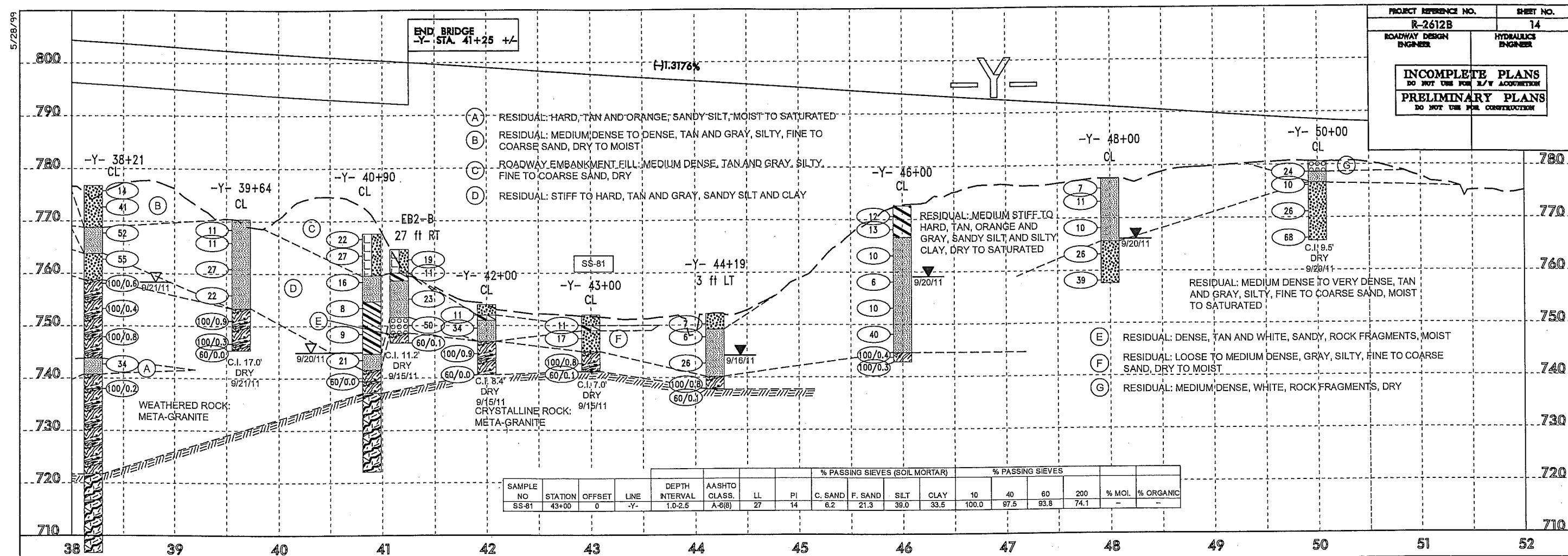
PROJECT REFERENCE NO. R-2612B	SHEET NO. 13
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



 ALL DIMENSIONS SHOWN ARE IN FEET AND INCHES
 UNLESS OTHERWISE SPECIFIED

5/28/99

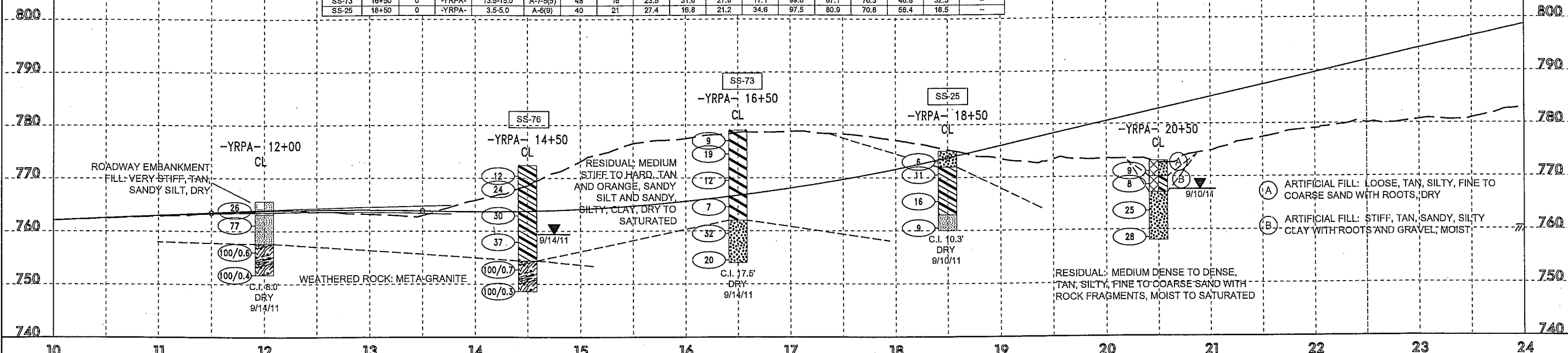
PROJECT REFERENCE NO. R-2612B	SHEET NO. 14
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR A/V ADJUSTMENT PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



5/28/99

-YRPA-

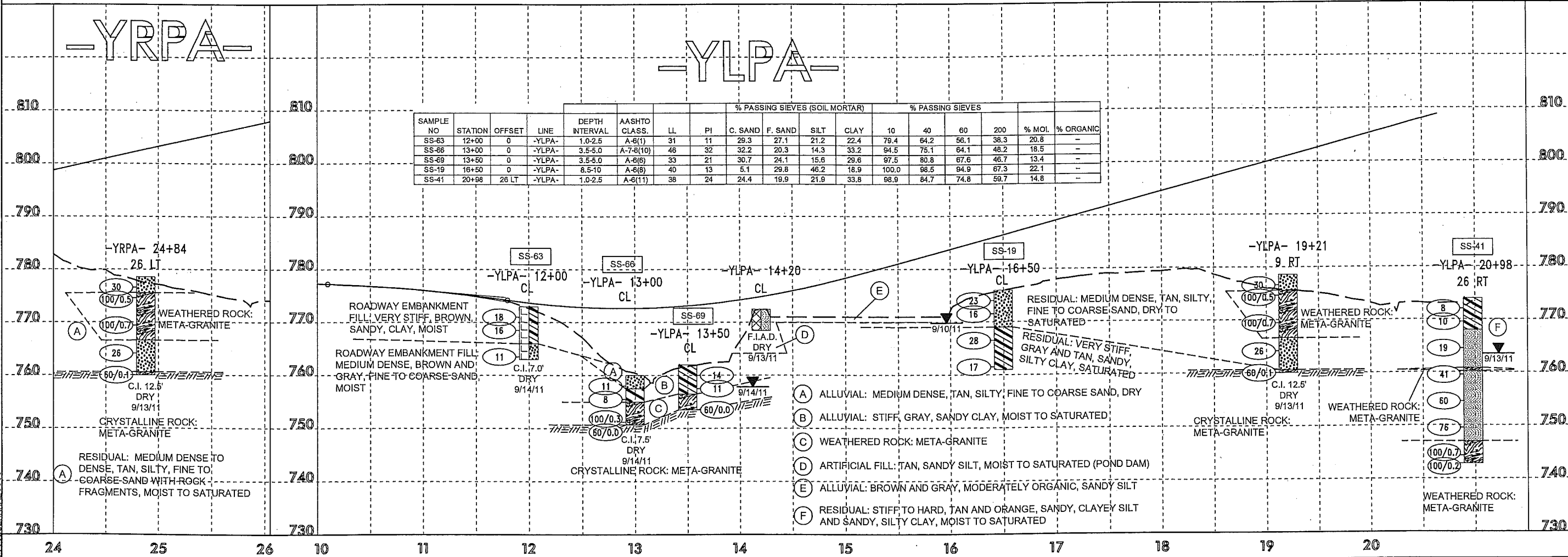
SAMPLE NO	STATION	OFFSET	LINE	DEPTH INTERVAL	AASHTO CLASS.	LL	PI	% PASSING SIEVES (SOIL MORTAR)				% PASSING SIEVES				% MOL.	% ORGANIC
								C. SAND	F. SAND	SILT	CLAY	10	40	60	200		
SS-76	14+50	0	-YRPA-	8.5-10.0	A-8(8)	37	15	6.4	31.2	49.1	13.3	100.0	97.7	93.6	65.6	15.0	-
SS-73	16+50	0	-YRPA-	13.5-15.0	A-7.5(5)	48	16	23.5	31.6	27.8	17.1	99.8	87.1	76.3	46.8	32.3	-
SS-25	18+50	0	-YRPA-	3.5-5.0	A-8(9)	40	21	27.4	16.8	21.2	34.6	97.5	80.9	70.8	56.4	18.5	-



-YRPA-

-YLPA-

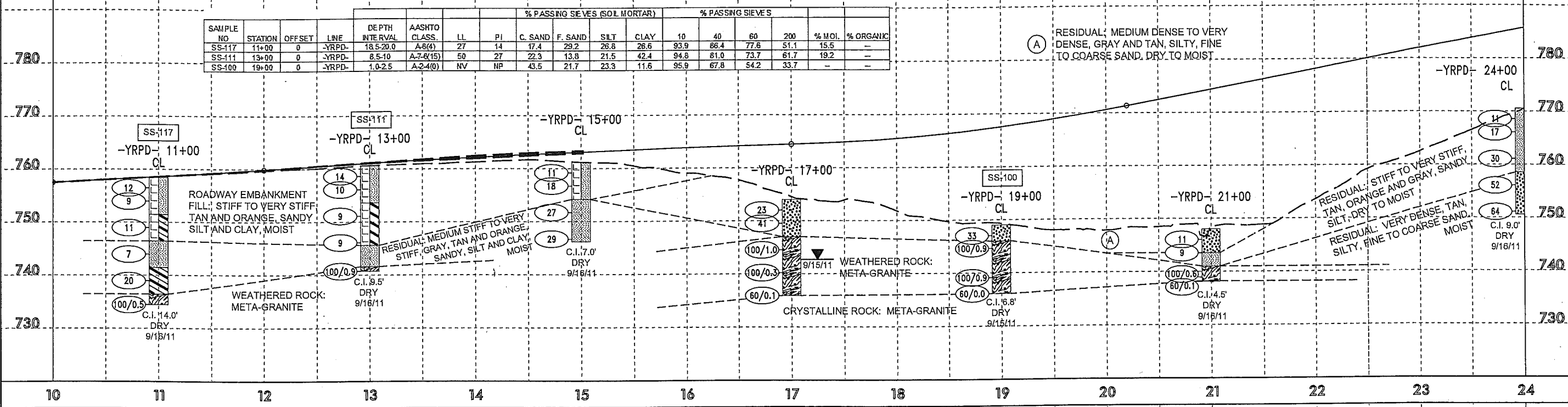
SAMPLE NO	STATION	OFFSET	LINE	DEPTH INTERVAL	AASHTO CLASS.	LL	PI	% PASSING SIEVES (SOIL MORTAR)				% PASSING SIEVES				% MOL.	% ORGANIC
								C. SAND	F. SAND	SILT	CLAY	10	40	60	200		
SS-63	12+00	0	-YLPA-	1.0-2.5	A-6(1)	31	11	29.3	27.1	21.2	22.4	79.4	64.2	56.1	38.3	20.8	-
SS-66	13+00	0	-YLPA-	3.5-5.0	A-7.6(10)	46	32	32.2	20.3	14.3	33.2	64.5	75.1	64.1	48.2	18.5	-
SS-69	13+50	0	-YLPA-	3.5-5.0	A-8(6)	33	21	30.7	24.1	15.6	29.6	97.5	80.8	67.6	46.7	13.4	-
SS-19	16+50	0	-YLPA-	8.5-10	A-8(8)	40	13	5.1	29.8	46.2	18.9	100.0	98.5	94.9	67.3	22.1	-
SS-41	20+98	26 LT	-YLPA-	1.0-2.5	A-6(11)	38	24	24.4	19.9	21.9	33.8	98.9	84.7	74.8	59.7	14.8	-



 SYSTEMS

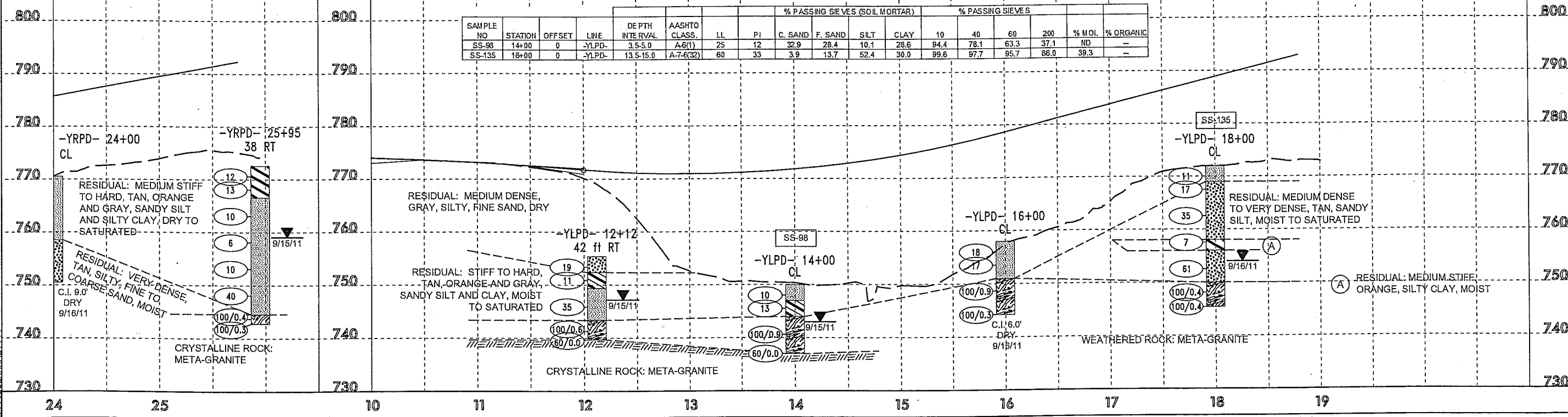
5/28/99

-YRPD-



-YRPD-

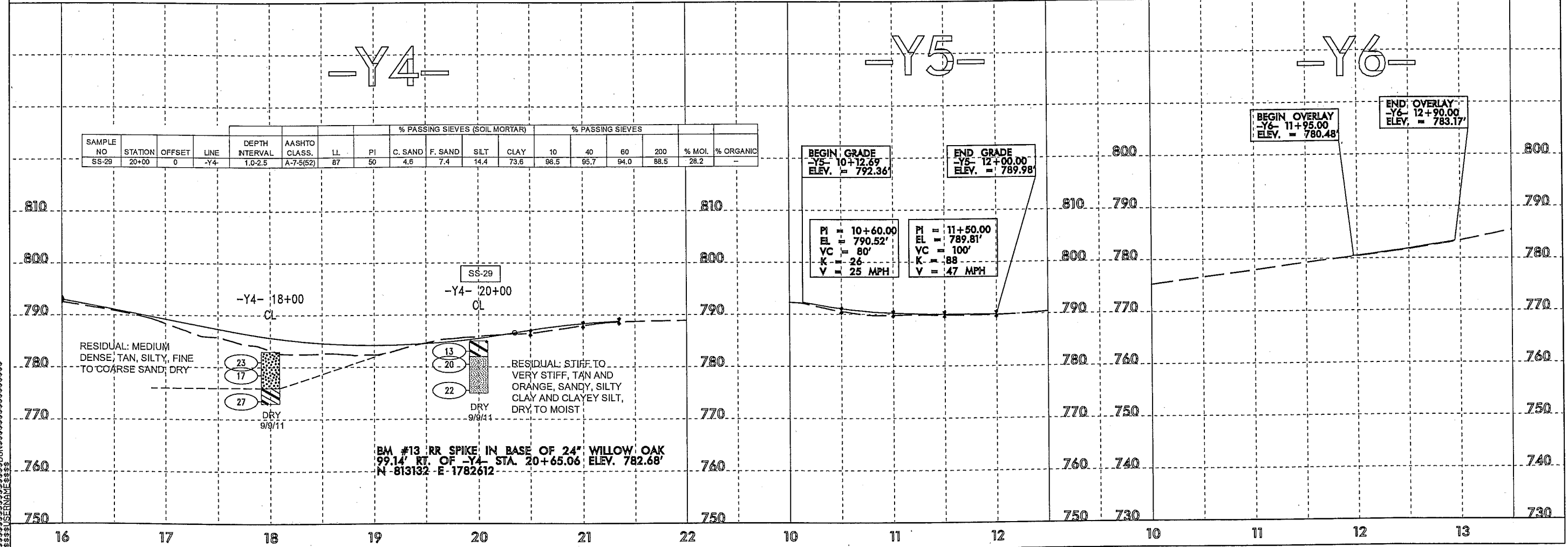
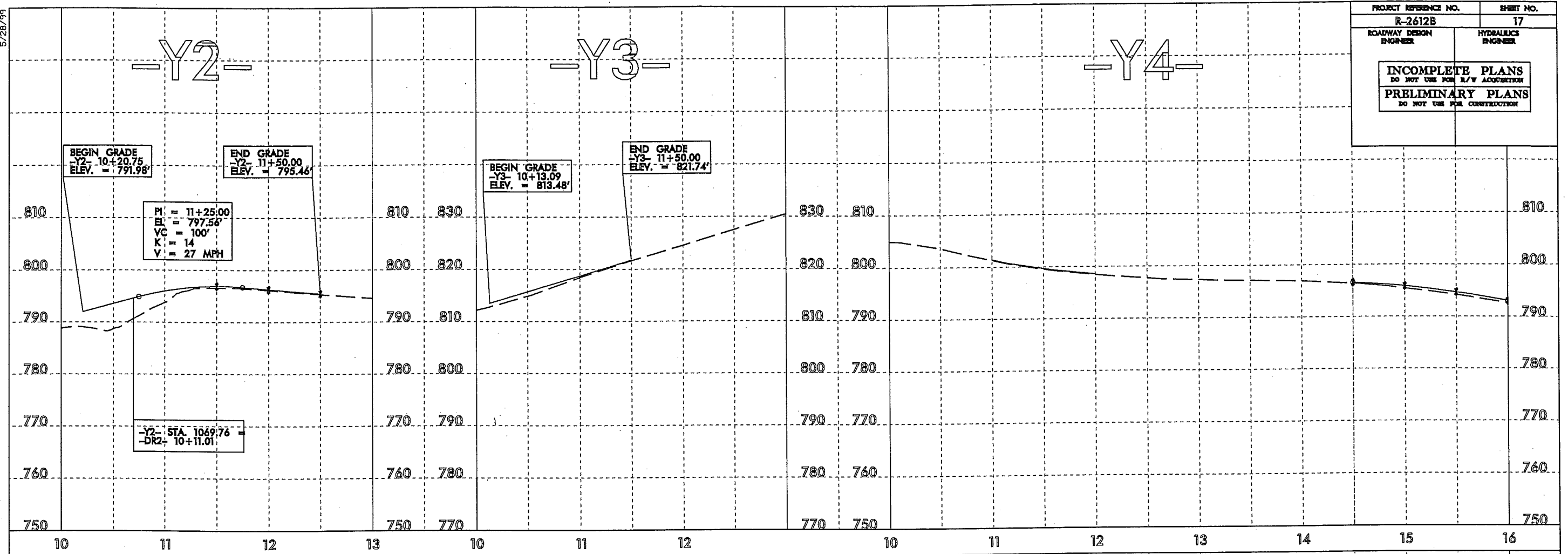
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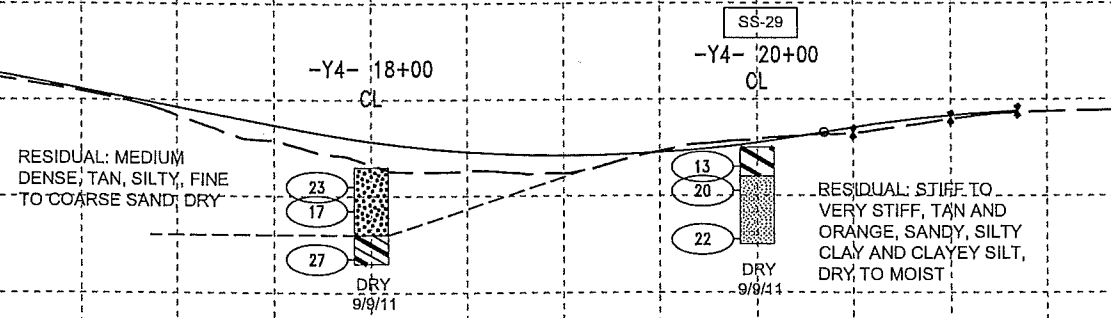
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 *****DGN*****
 *****DGN*****

5/28/99

PROJECT REFERENCE NO. R-2612B	SHEET NO. 17
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

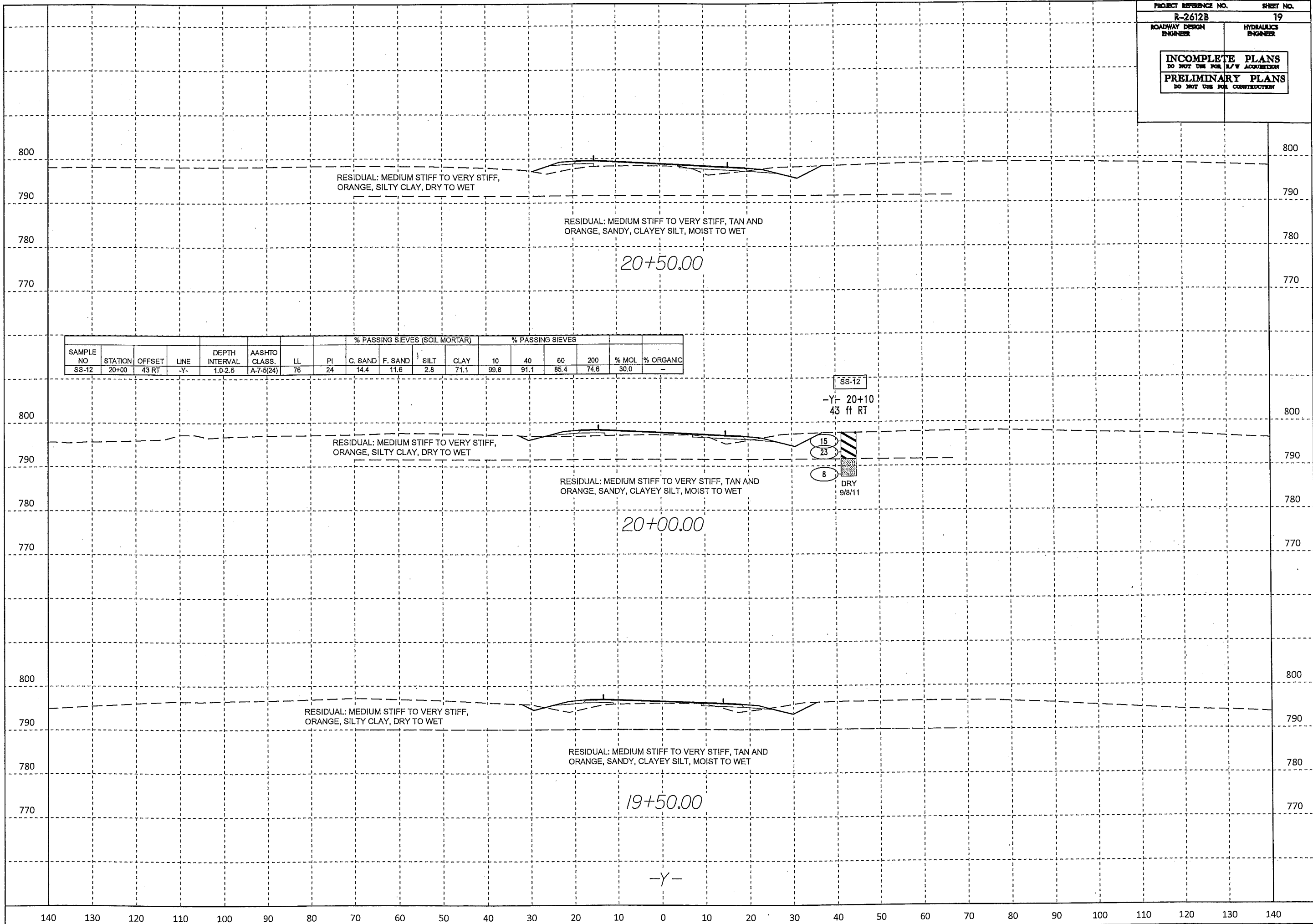


SAMPLE NO	STATION	OFFSET	LINE	DEPTH INTERVAL	AASHTO CLASS.	LL	PI	% PASSING SIEVES (SOIL MORTAR)				% PASSING SIEVES				% MOI.	% ORGANIC
								C. SAND	F. SAND	SILT	CLAY	10	40	60	200		
SS-29	20+00	0	-Y4	1.0-2.5	A-7-5(52)	87	50	4.6	7.4	14.4	73.6	98.5	95.7	94.0	88.5	28.2	-



BM #13 RR SPIKE IN BASE OF 24" WILLOW OAK
 99.14' RT. OF -Y4 STA. 20+65.06 ELEV. 782.68'
 N-813132 - E-1782612

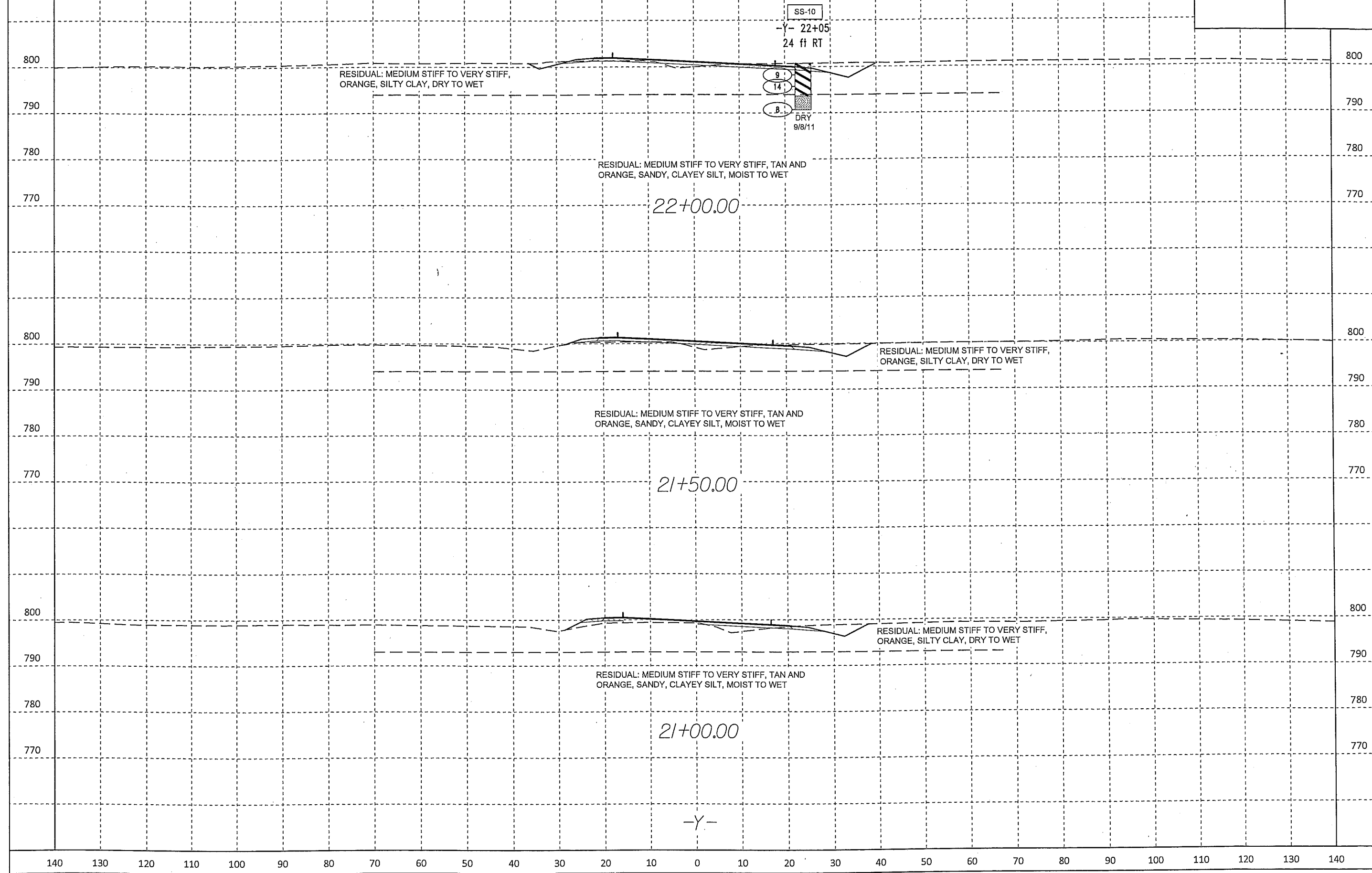
*****SYTIME*****
 *****SDGN*****
 *****SERIAL*****

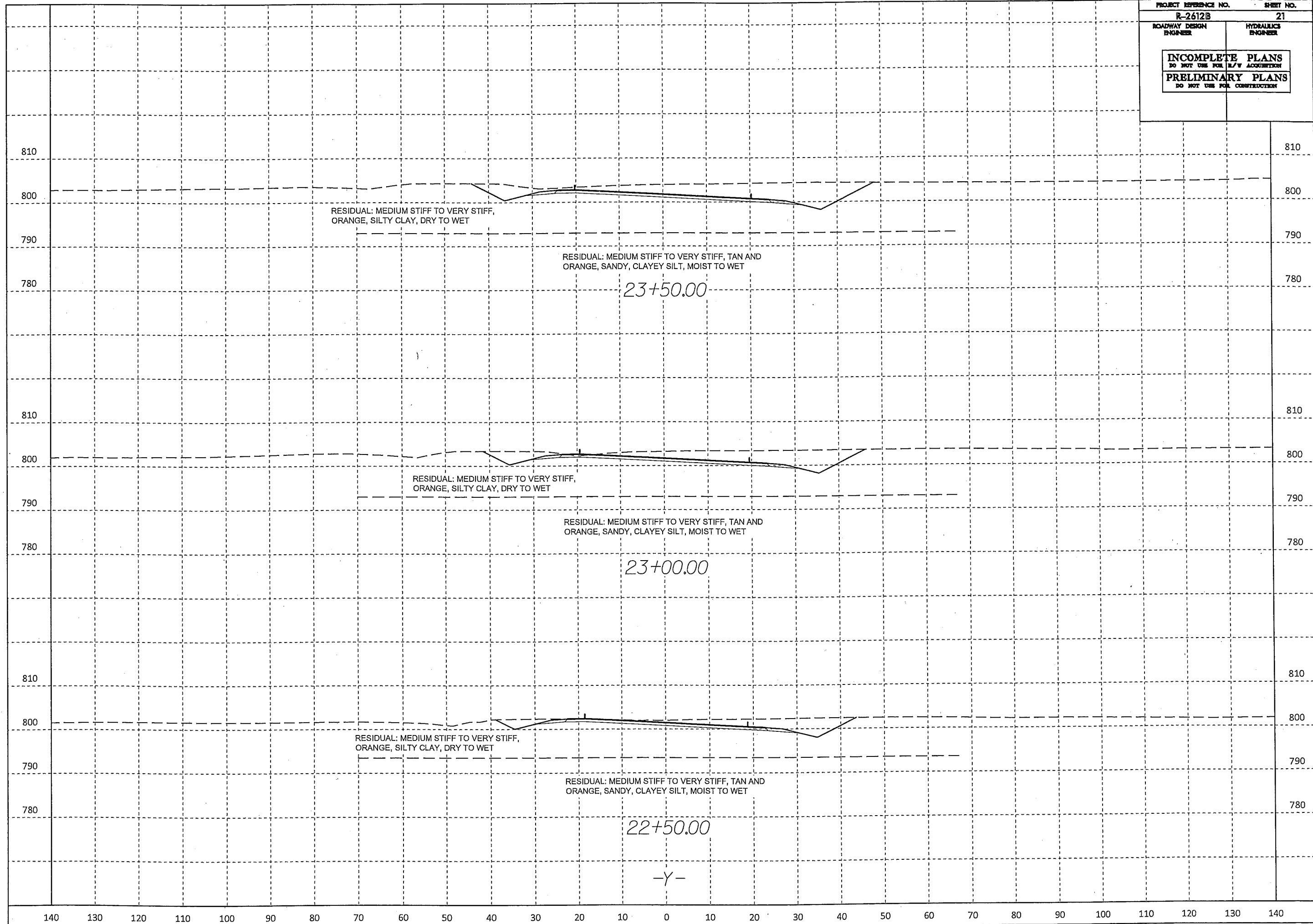


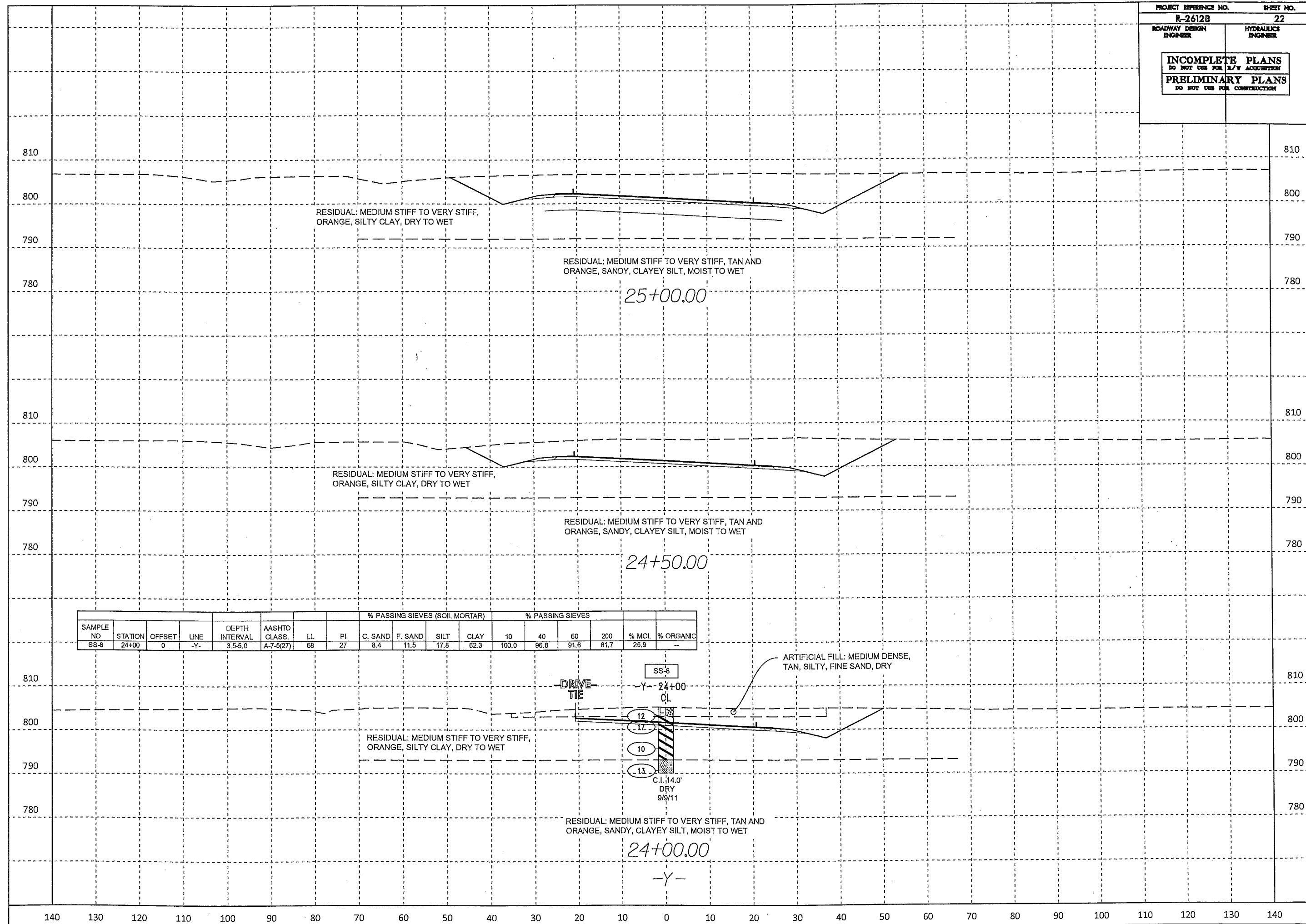
SAMPLE NO	STATION	OFFSET	LINE	DEPTH INTERVAL	AASHTO CLASS.	LL	PI	% PASSING SIEVES (SOIL MORTAR)				% PASSING SIEVES				% MOL	% ORGANIC
								C. SAND	F. SAND	SILT	CLAY	10	40	60	200		
SS-12	20+00	43 RT	-Y-	1.0-2.5	A-7.5(24)	76	24	14.4	11.6	2.8	71.1	99.8	91.1	85.4	74.6	30.0	-

SS-12
 -Y- 20+10
 43 ft RT
 15
 23
 8
 DRY
 9/8/11

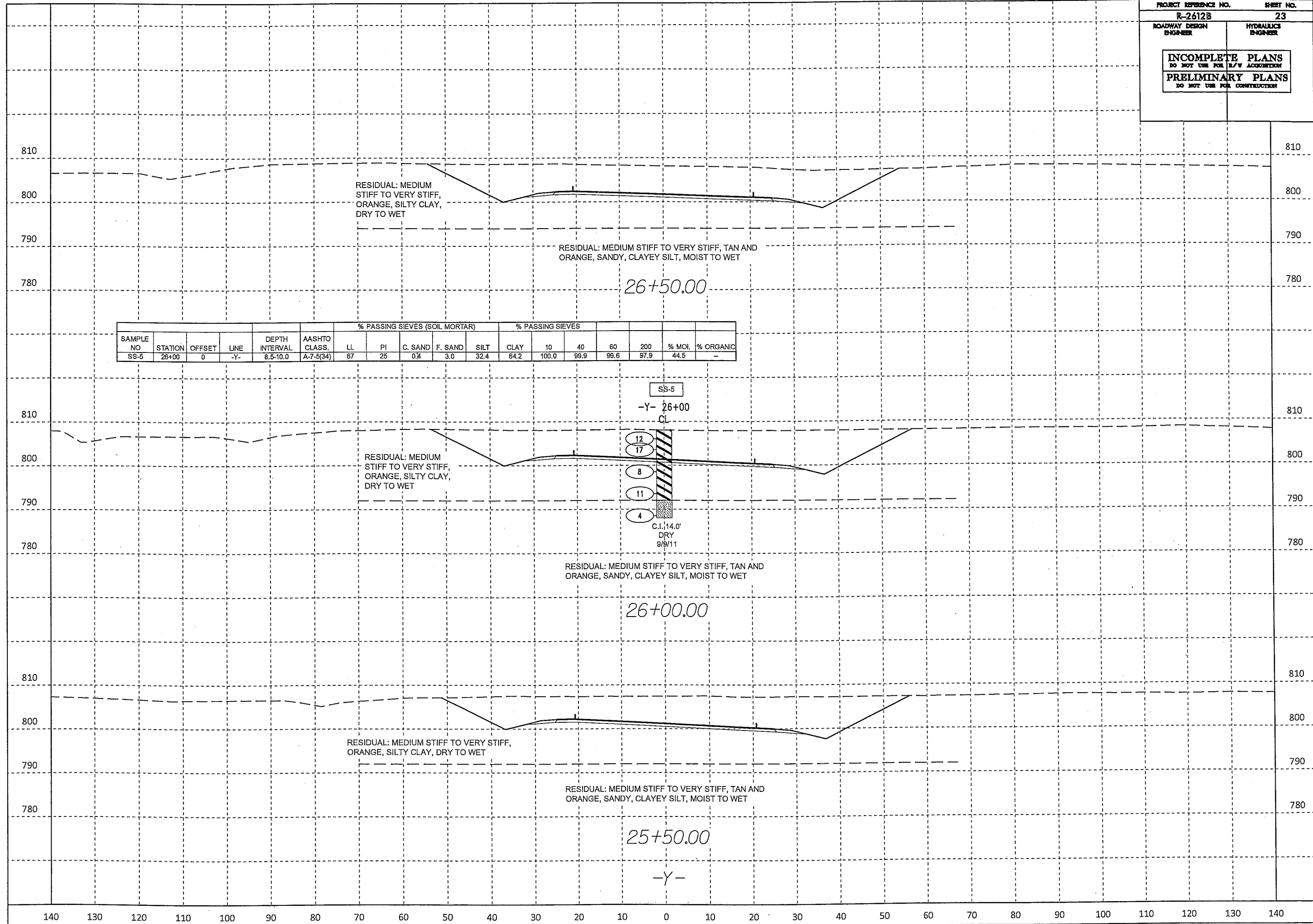
SAMPLE NO	STATION	OFFSET	LINE	DEPTH INTERVAL	AASHTO CLASS.	LL	PI	% PASSING SIEVES (SOIL MORTAR)				% PASSING SIEVES				% MOI	% ORGANIC
								C. SAND	F. SAND	SILT	CLAY	10	40	60	200		
SS-10	22+00	24 RT	-Y-	1.0-2.5	A-7-5(30)	70	34	14.2	10.4	15.0	60.5	99.5	90.7	85.4	76.6	27.2	-

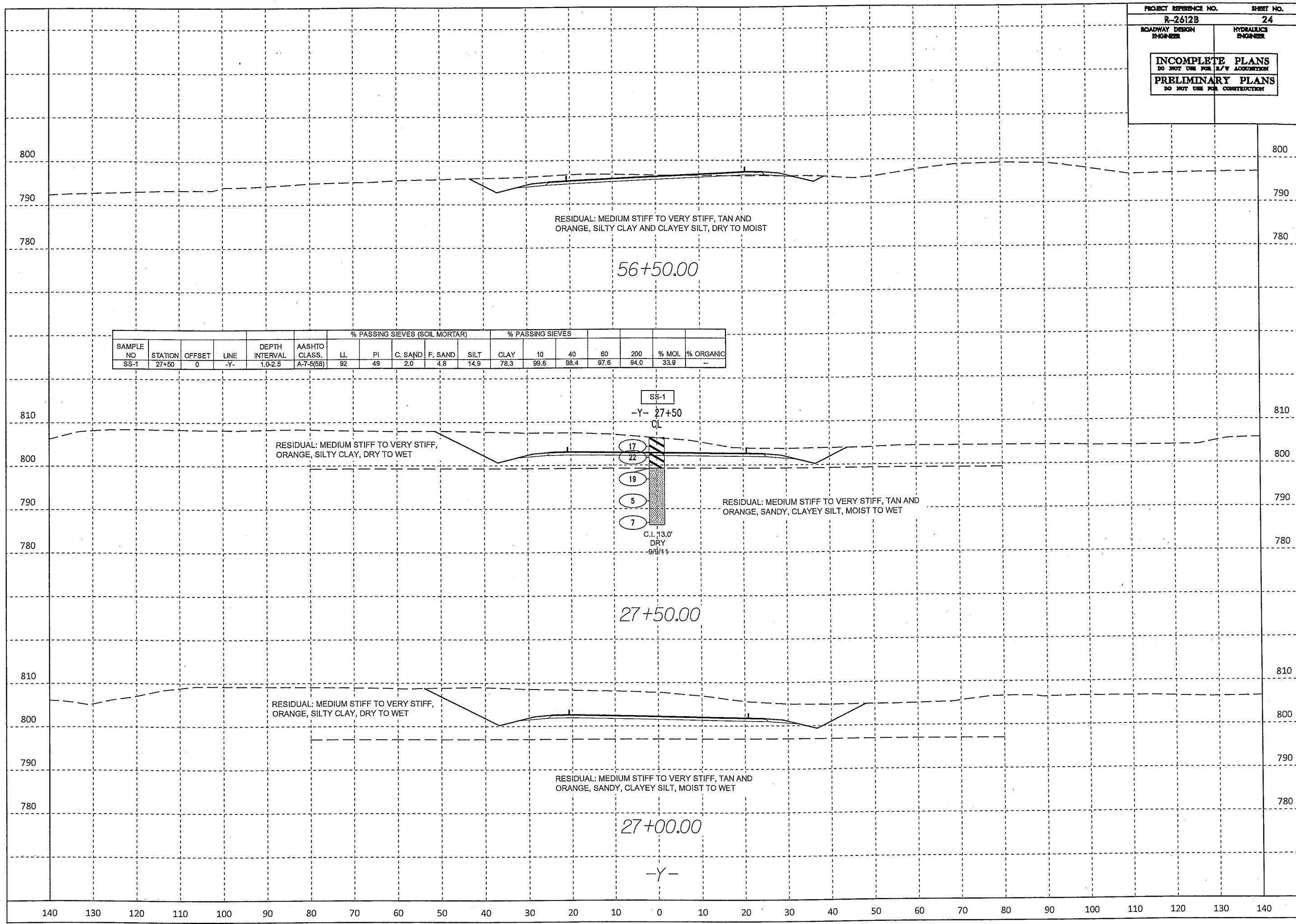






SAMPLE NO	STATION	OFFSET	LINE	DEPTH INTERVAL	AASHTO CLASS.	LL	PI	% PASSING SIEVES (SOIL MORTAR)				% PASSING SIEVES				% MOL.	% ORGANIC
								C. SAND	F. SAND	SILT	CLAY	10	40	60	200		
SS-8	24+00	0	-Y-	3.5-5.0	A-7.5(27)	68	27	8.4	11.5	17.8	62.3	100.0	96.8	91.6	81.7	25.9	-





SAMPLE NO	STATION	OFFSET	LINE	DEPTH INTERVAL	AASHTO CLASS.	% PASSING SIEVES (SOIL MORTAR)					% PASSING SIEVES					% MOL.	% ORGANIC
						LL	PI	C. SAND	F. SAND	SILT	CLAY	10	40	60	200		
SS-1	27+50	0	-Y-	1.0-2.5	A-7.5(58)	92	49	2.0	4.8	14.9	78.3	99.6	98.4	97.6	94.0	33.9	-

56+50.00

27+50.00

27+00.00

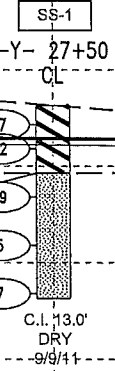
-Y-

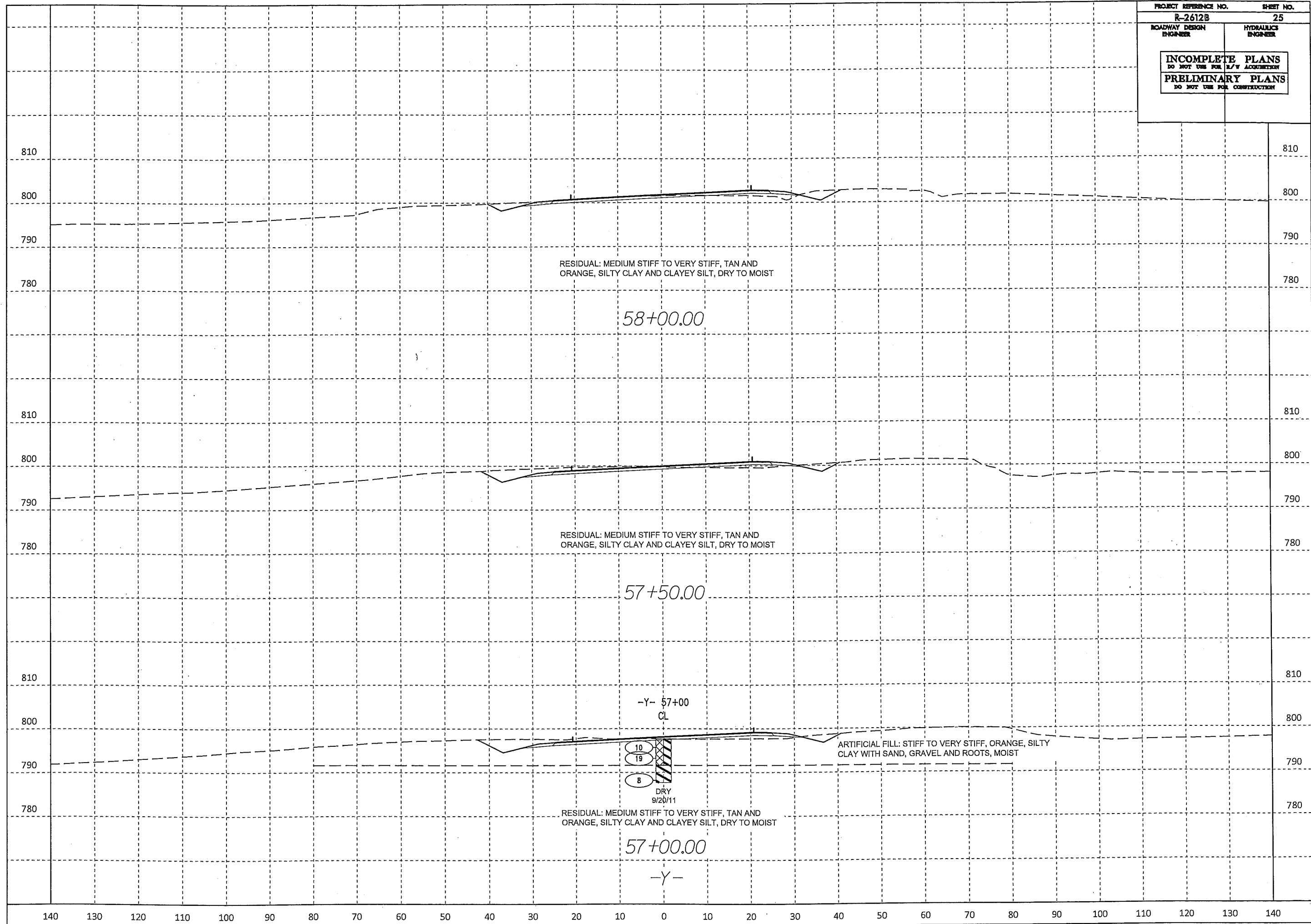
RESIDUAL: MEDIUM STIFF TO VERY STIFF, ORANGE, SILTY CLAY, DRY TO WET

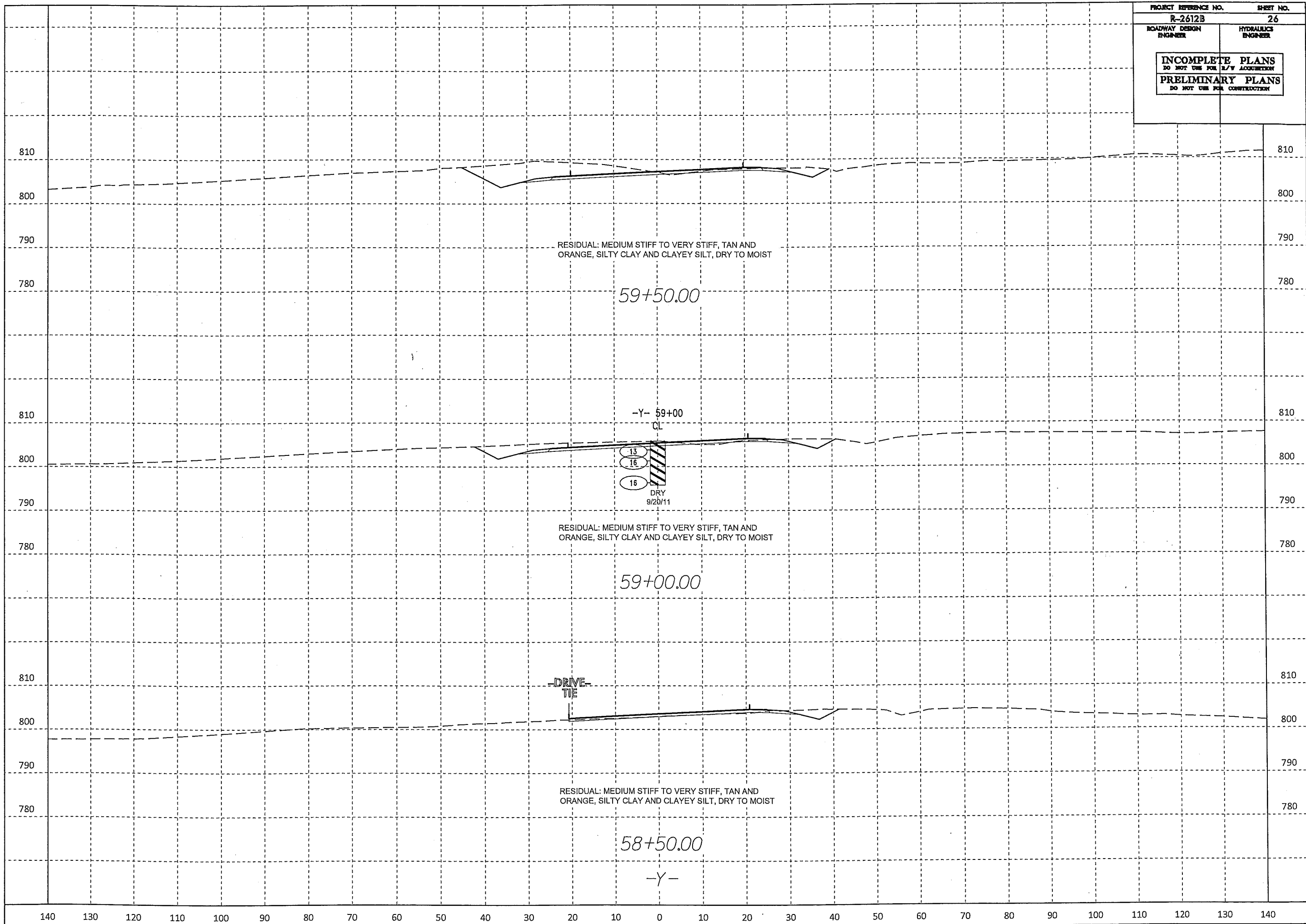
RESIDUAL: MEDIUM STIFF TO VERY STIFF, TAN AND ORANGE, SANDY, CLAYEY SILT, MOIST TO WET

RESIDUAL: MEDIUM STIFF TO VERY STIFF, ORANGE, SILTY CLAY, DRY TO WET

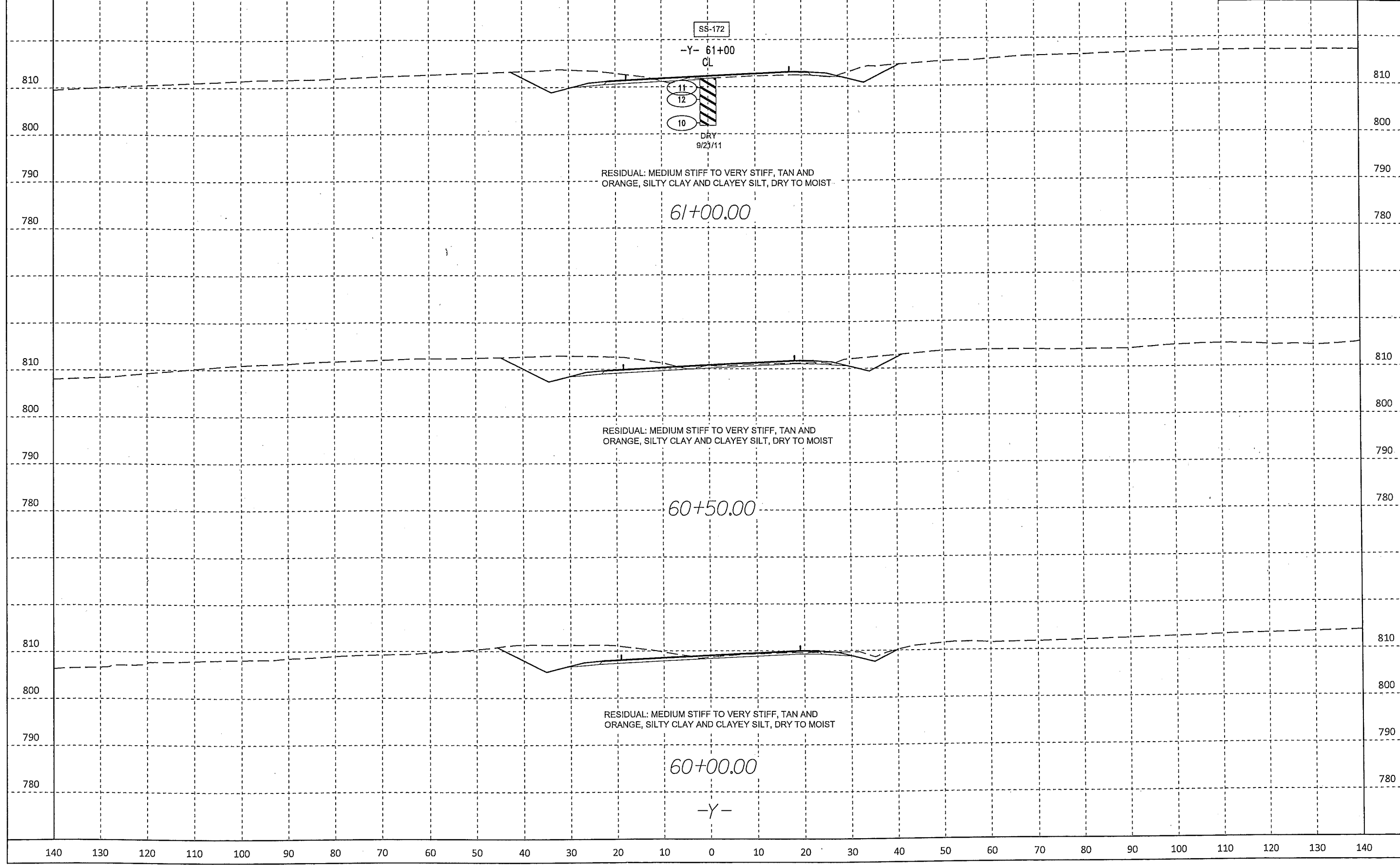
RESIDUAL: MEDIUM STIFF TO VERY STIFF, TAN AND ORANGE, SANDY, CLAYEY SILT, MOIST TO WET

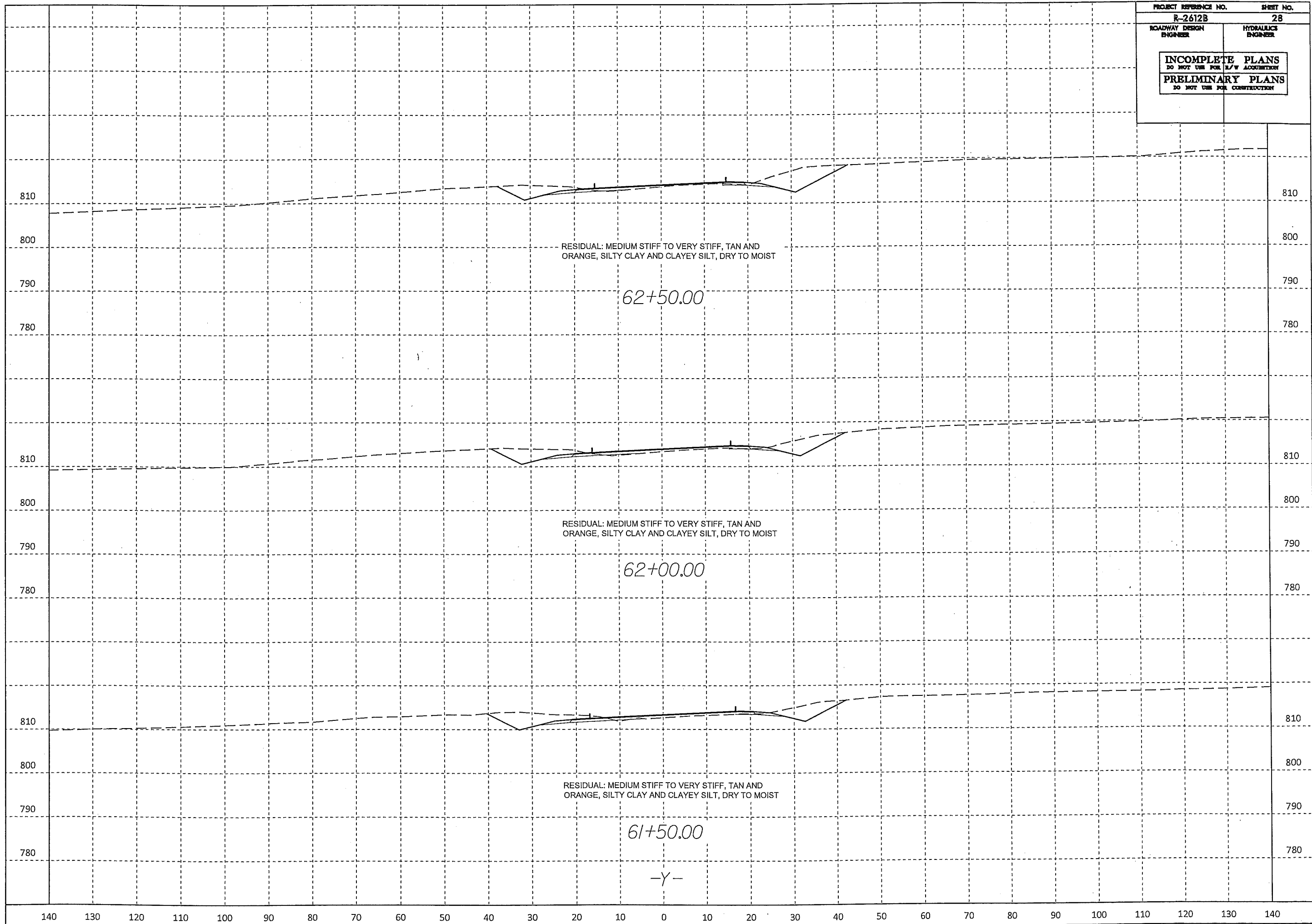


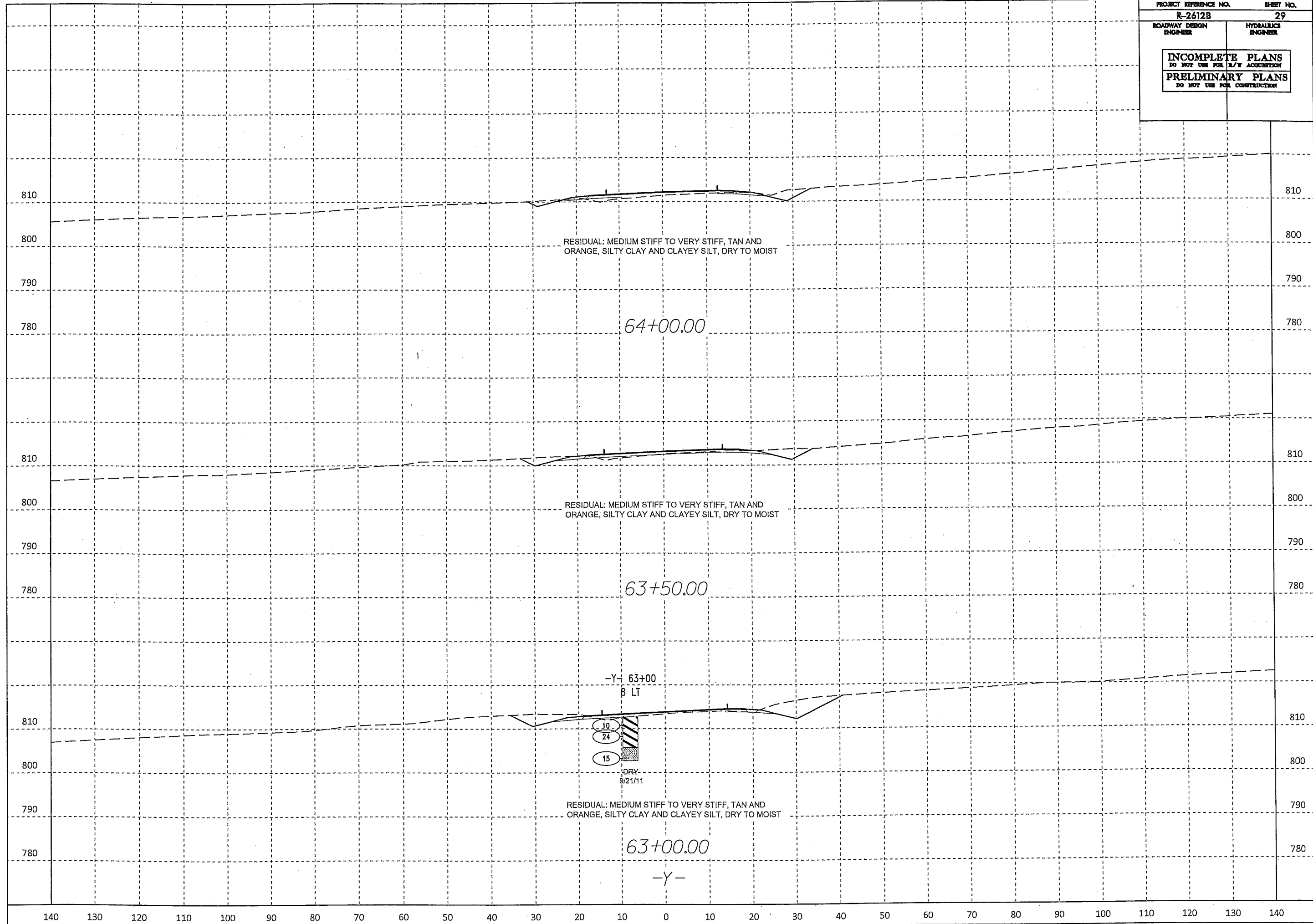




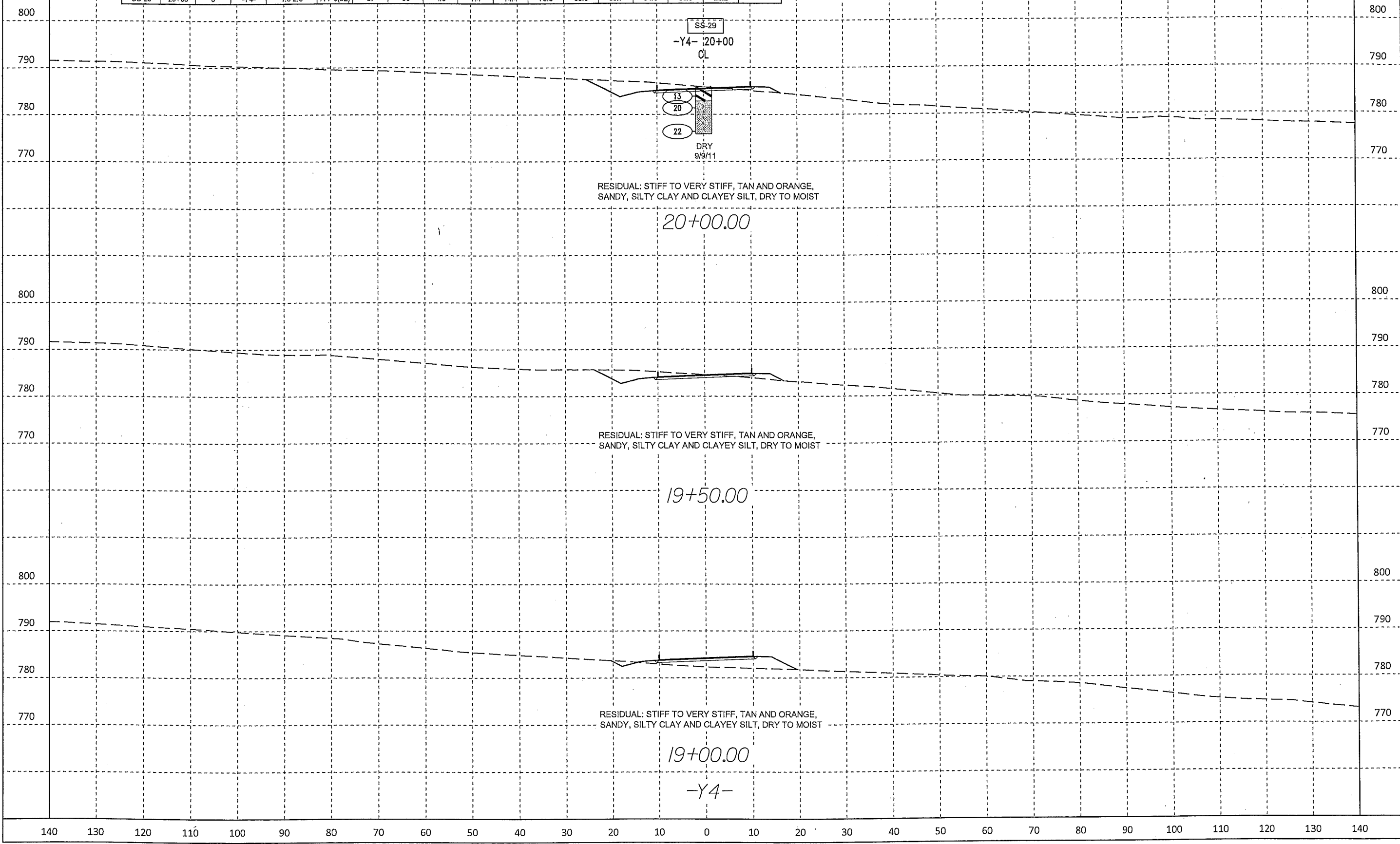
SAMPLE NO	STATION	OFFSET	LINE	DEPTH INTERVAL	AASHTO CLASS.	LL	PI	% PASSING SIEVES (SOIL MORTAR)				% PASSING SIEVES				% MOL.	% ORGANIC
								C. SAND	F. SAND	SILT	CLAY	10	40	60	200		
SS-172	61+00	0	-Y-	1.0-2.5	A-7-5(53)	90	44	2.7	3.2	22.0	72.0	98.7	96.8	96.0	94.1	38.9	-

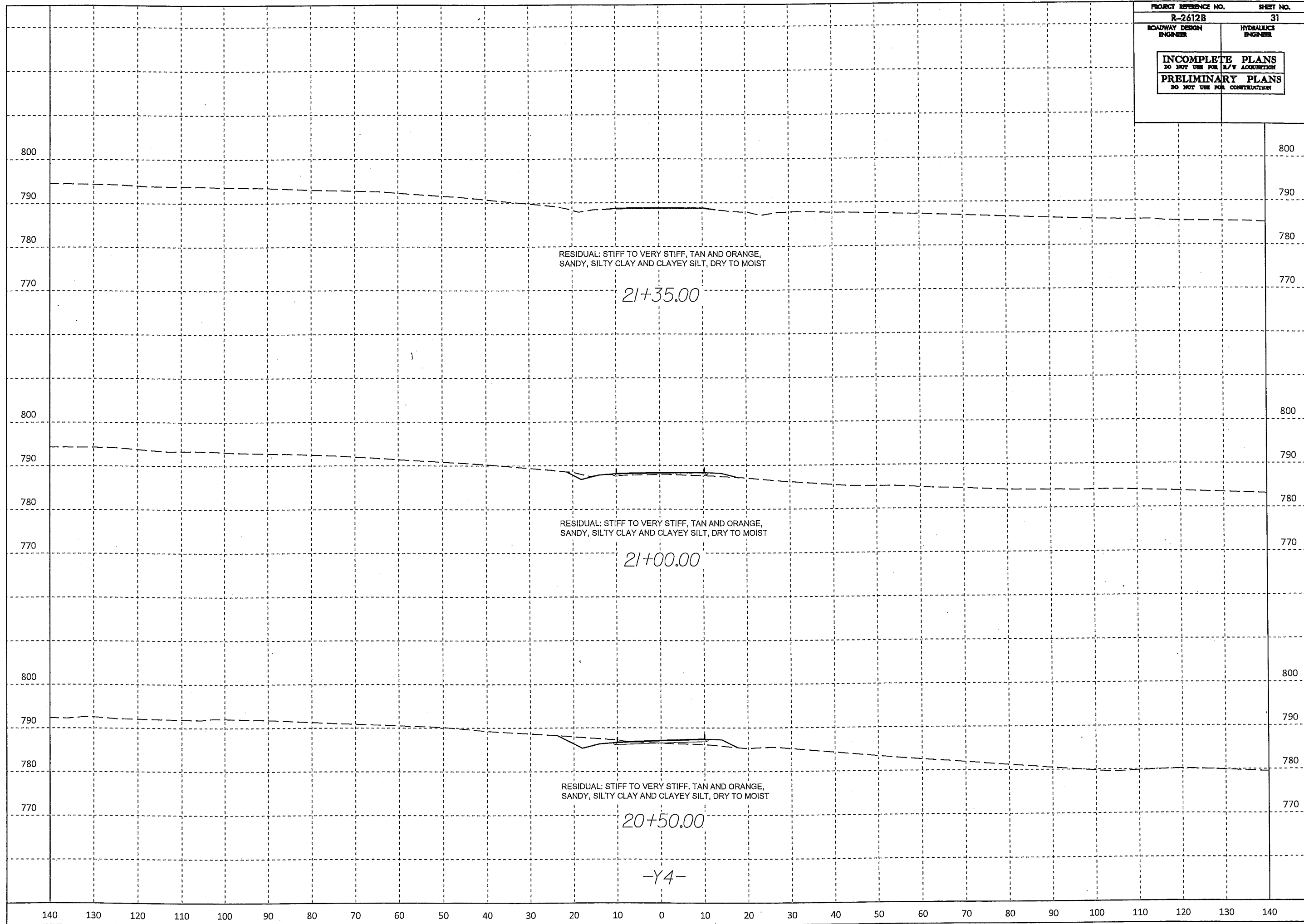


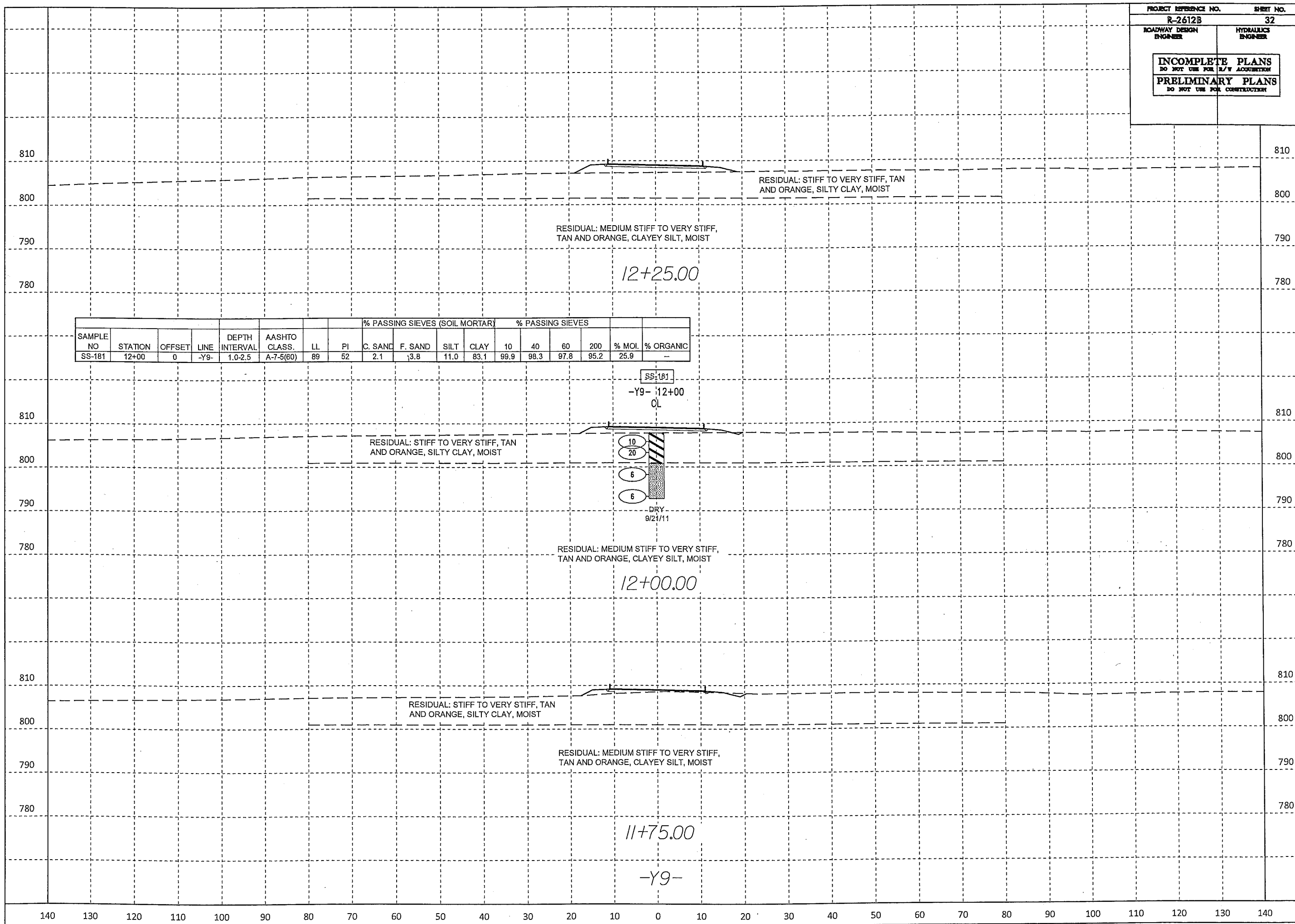


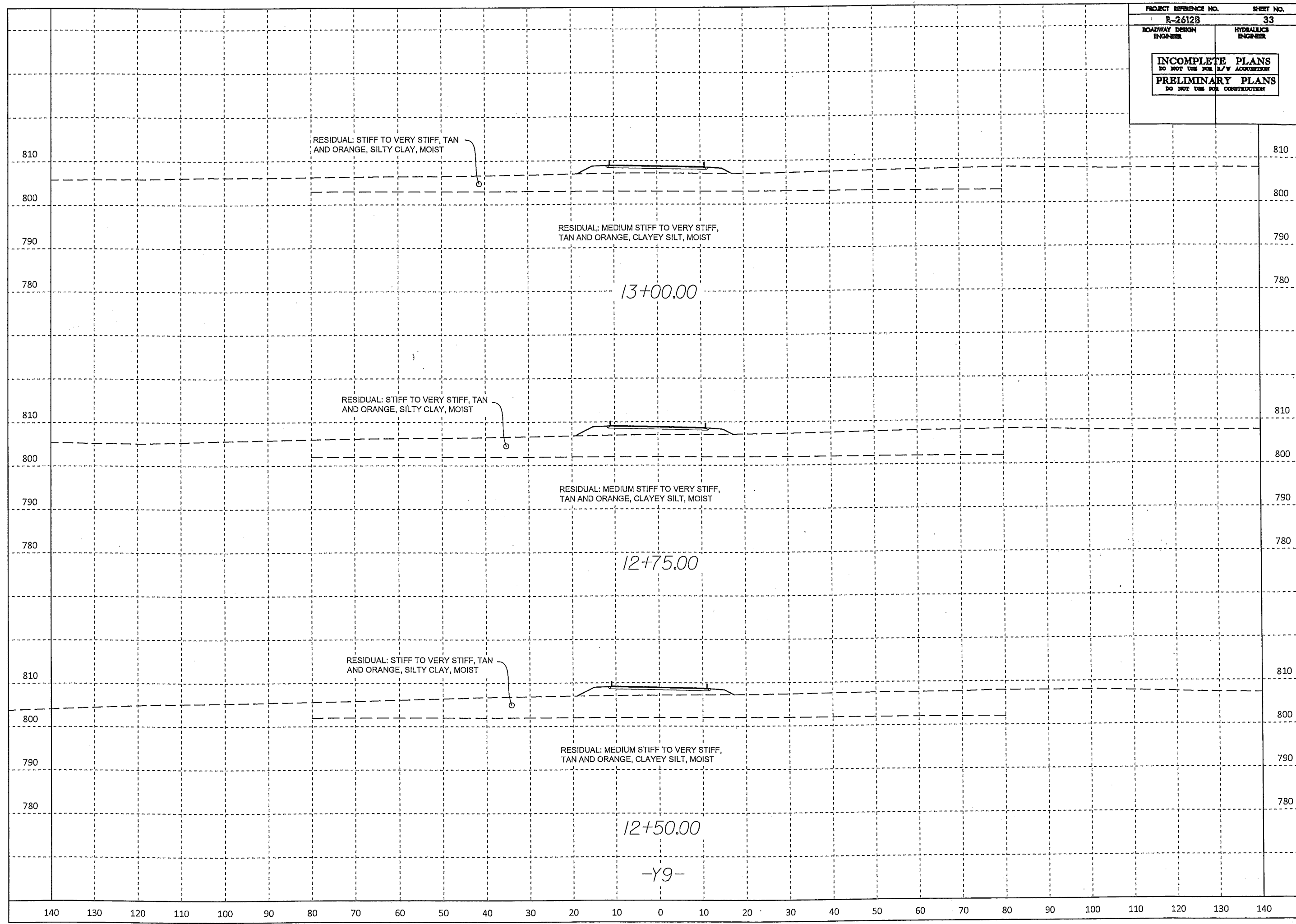


SAMPLE NO	STATION	OFFSET	LINE	DEPTH INTERVAL	AASHTO CLASS.	LL	PI	% PASSING SIEVES (SOIL MORTAR)				% PASSING SIEVES				% MOL.	% ORGANIC
								C. SAND	F. SAND	SILT	CLAY	10	40	60	200		
SS-29	20+00	0	-Y4-	1.0-2.5	A-7-5(62)	87	50	4.6	7.4	14.4	73.6	98.5	95.7	94.0	88.5	28.2	-









RESIDUAL: STIFF TO VERY STIFF, TAN AND ORANGE, SILTY CLAY, MOIST

RESIDUAL: MEDIUM STIFF TO VERY STIFF, TAN AND ORANGE, CLAYEY SILT, MOIST

13+00.00

RESIDUAL: STIFF TO VERY STIFF, TAN AND ORANGE, SILTY CLAY, MOIST

RESIDUAL: MEDIUM STIFF TO VERY STIFF, TAN AND ORANGE, CLAYEY SILT, MOIST

12+75.00

RESIDUAL: STIFF TO VERY STIFF, TAN AND ORANGE, SILTY CLAY, MOIST

RESIDUAL: MEDIUM STIFF TO VERY STIFF, TAN AND ORANGE, CLAYEY SILT, MOIST

12+50.00

