

REFERENCE: R-5600

PROJECT: 34839

SEE SHEET 3 FOR PLAN SHEET LAYOUT
AT TIME OF INVESTIGATION

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LINE	STATION	PLAN	PROFILE
-L-	11+25 - 145+00	4-14	16-22
-Y-	10+38 - 28+50	5, 15	23
-YS-	10+00 - 11+67	5	23
-Y1-	11+00 - 14+54	15	24
-Y2-	10+33 - 13+25	15	24
-Y3-	10+34 - 12+95	5	24
-Y4-	10+30 - 14+21	5	24
-Y5A-	10+11 - 12+50	5	25
-Y5B-	10+00 - 13+12	6	25
-Y6-	12+00 - 15+04	6	25
-Y7-	10+60 - 13+25	6	25
-Y8-	10+38 - 11+10	7	26
-Y9-	11+00 - 15+82	7-8	26
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-Y12-	10+75 - 11+80	8-9	30
-Y13-	10+38 - 11+08	9	27
-Y14-	10+70 - 13+15	10	27
-Y15-	10+10 - 14+68	11	27
-Y16-	10+40 - 12+32	11	27
-Y17-	10+09 - 10+73	11	28
-Y18-	10+25 - 11+87	12	28
-Y19-	10+38 - 11+15	12	28
-Y20-	10+38 - 11+50	12	28
-Y21-	11+60 - 12+71	13	29
-Y22-	10+38 - 12+10	13	29
-Y23-	10+38 - 11+40	13	29
-Y24-	10+33 - 12+20	14	29
-DRI-	11+30 - 12+22	11	30
-DR2-	10+50 - 12+30	11	30
-DRWY1-	10+48 - 11+90	9	30
-DRWY2-	10+50 - 11+25	10	31
-DRWY3-	10+50 - 13+65	10	31
-DRWY4-	10+20 - 12+76	10	31

CROSS SECTIONS

LINE	STATION	SHEETS
-L-	26+00 - 32+00	32 - 37
-L-	34+00 - 36+00	38 - 39
-L-	39+00 - 43+50	40 - 43
-L-	47+00 -50+50	44 - 47
-L-	55+00 - 56+00	48
-L-	60+00 - 61+00	49
-L-	63+50 - 68+00	50 - 52
-L-	70+00	52
-L-	76+00 - 79+50	53 - 55
-L-	88+50 - 109+00	56 - 76
-L-	111+00	76
-L-	116+00 - 120+00	77 - 78
-L-	122+50 - 130+50	78 - 86
-L-	133+50 - 136+50	86 - 88
-L-	141+50	88
-L-	145+50	88
-L-	148+00	89
-L-	149+50	89
-Y-	15+00 - 21+00	90 - 96
-Y-	24+50	97
-Y-	27+00 - 28+50	97 - 98
-Y4-	12+00 - 13+00	99
-Y5B-	11+00 - 13+00	100
-Y6-	12+50 - 15+00	101 - 102
-Y12-	10+75 - 11+80	103 - 105
-Y15-	13+50 - 15+00	106
-Y23-	10+75 - 11+25	107

SUMMARY OF LAB TEST RESULTS 108 - 109

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT
ROADWAY
SUBSURFACE INVESTIGATION

COUNTY JACKSON
PROJECT DESCRIPTION NC 107 IMPROVEMENTS FROM
WEST US 23 BUSINESS TO SOUTH OF NC 116 AND
US 23 BUSINESS FROM SKYLAND DRIVE TO
WEST OF MUNICIPAL DRIVE

INVENTORY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-5600	1	114

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.

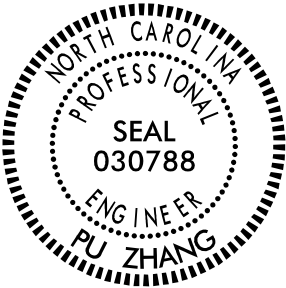
THE BIDDER OR CONTRACTOR IS CAUTIONED THAT DETAILS SHOWN ON THE SUBSURFACE PLANS ARE PRELIMINARY ONLY AND IN MANY CASES THE FINAL DESIGN DETAILS ARE DIFFERENT. FOR BIDDING AND CONSTRUCTION PURPOSES, REFER TO THE CONSTRUCTION PLANS AND DOCUMENTS FOR FINAL DESIGN INFORMATION ON THIS PROJECT. THE DEPARTMENT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

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INVESTIGATED BY	HDR INC
DRAWN BY	P. ZHANG
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SUBMITTED BY	P. ZHANG
DATE	MAY, 2019

NC Engineering F-1253 NC Geology C-247



Paul Zhang 4/18/2024
SIGNATURE DATE

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT
SUBSURFACE INVESTIGATION
SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

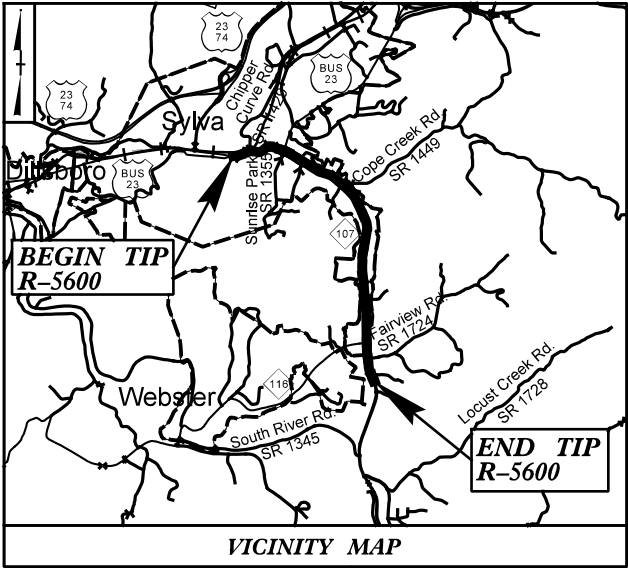
SOIL DESCRIPTION										GRADATION										ROCK DESCRIPTION										TERMS AND DEFINITIONS																			
SOIL IS CONSIDERED UNCONSOLIDATED, SEMI-CONSOLIDATED, OR WEATHERED EARTH MATERIALS THAT CAN BE PENETRATED WITH A CONTINUOUS FLIGHT POWER AUGER AND YIELD LESS THAN 100 BLOWS PER FOOT ACCORDING TO THE STANDARD PENETRATION TEST (AASHTO T 298, 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, <i>VERY STIFF, GRAY, SILTY CLAY, MOIST WITH INTERBEDDED FINE SAND LAYERS, HIGHLY PLASTIC, A-7-6</i>										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.										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:										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 DISLOGGED FROM PARENT MATERIAL. FLOOD PLAIN (FP) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM. FORMATION (FM.) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD. JOINT - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED. LEDGE - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO ITS LATERAL EXTENT. LENS - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS. MOTTLED (MOT.) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS. MOTTLING IN SOILS USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE. PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE OF AN INTERVENING IMPERVIOUS STRATUM. RESIDUAL (RES.) SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK. ROCK QUALITY DESIGNATION (RQD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE. SAPROLITE (SAP.) - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK. SILL - AN INTRUSIVE BODY OF IGNEOUS ROCK OF APPROXIMATELY UNIFORM THICKNESS AND RELATIVELY THIN COMPARED WITH ITS LATERAL EXTENT, THAT HAS BEEN EMPLACED PARALLEL TO THE BEDDING OR SCHISTOSITY OF THE INTRUDED ROCKS. SLICKENSIDE - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT OR SLIP PLANE. STANDARD PENETRATION TEST (PENETRATION RESISTANCE) (SPT) - NUMBER OF BLOWS (N OR BPF) OF A 140 LB. HAMMER FALLING 30 INCHES REQUIRED TO PRODUCE A PENETRATION OF 1 FOOT INTO SOIL WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS PENETRATION EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS. STRATA CORE RECOVERY (SREC.) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE. STRATA ROCK QUALITY DESIGNATION (SROD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE. TOPSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.																			
SOIL LEGEND AND AASHTO CLASSIFICATION										MINERALOGICAL COMPOSITION										WEATHERING																													
GENERAL CLASS. SILT-CLAY MATERIALS (< 35% PASSING #200) ORGANIC MATERIALS										MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHEN THEY ARE CONSIDERED OF SIGNIFICANCE.										FRESH ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING. ROCK RINGS UNDER HAMMER IF CRYSTALLINE.																													
GROUP CLASS. A-1 A-3 A-2 A-2-5 A-2-6 A-2-7 A-4 A-5 A-6 A-7 A-1, A-2 A-3 A-4, A-5 A-6, A-7										SLIGHTLY COMPRESSIBLE MODERATELY COMPRESSIBLE HIGHLY COMPRESSIBLE										CRYSTALLINE ROCK (CR) NON-CRYSTALLINE ROCK (NCR) COASTAL PLAIN SEDIMENTARY ROCK (CP)										VERY SLIGHT (V SLI.) SLIGHT (SLI.) MODERATE (MOD.) MODERATELY SEVERE (MOD. SEV.) SEVERE (SEV.) VERY SEVERE (V SEV.) COMPLETE																			
SYMBOL										PERCENTAGE OF MATERIAL										ROCK TYPE INCLUDES PHYLLITE, SLATE, SANDSTONE, ETC.																													
% PASSING #10 #40 #200										ORGANIC MATERIAL										WEATHERED ROCK (WR)																													
MATERIAL PASSING #40 LL PI										TRACE OF ORGANIC MATTER LITTLE ORGANIC MATTER MODERATELY ORGANIC HIGHLY ORGANIC										FINE TO COARSE GRAIN IGNEOUS AND METAMORPHIC ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES GRANITE, GNEISS, GABBRO, SCHIST, ETC.																													
GROUP INDEX										GROUND WATER										FINE TO COARSE GRAIN METAMORPHIC AND NON-COASTAL PLAIN SEDIMENTARY ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED.																													
USUAL TYPES OF MAJOR MATERIALS										WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING										FINE TO COARSE GRAIN METAMORPHIC AND NON-COASTAL PLAIN SEDIMENTARY ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED.																													
GEN. RATING AS SUBGRADE										STATIC WATER LEVEL AFTER 24 HOURS										FINE TO COARSE GRAIN METAMORPHIC AND NON-COASTAL PLAIN SEDIMENTARY ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED.																													
PI OF A-7-5 SUBGROUP IS < LL - 30; PI OF A-7-6 SUBGROUP IS > LL - 30										PERCHED WATER, SATURATED ZONE, OR WATER BEARING STRATA										FINE TO COARSE GRAIN METAMORPHIC AND NON-COASTAL PLAIN SEDIMENTARY ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED.																													
CONSISTENCY OR DENSENESS										SPRING OR SEEP										FINE TO COARSE GRAIN METAMORPHIC AND NON-COASTAL PLAIN SEDIMENTARY ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED.																													
PRIMARY SOIL TYPE										MISCELLANEOUS SYMBOLS										FINE TO COARSE GRAIN METAMORPHIC AND NON-COASTAL PLAIN SEDIMENTARY ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED.																													
COMPACTNESS OR CONSISTENCY										ROADWAY EMBANKMENT (RE) WITH SOIL DESCRIPTION										FINE TO COARSE GRAIN METAMORPHIC AND NON-COASTAL PLAIN SEDIMENTARY ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED.																													
RANGE OF STANDARD PENETRATION RESISTANCE (N-VALUE)										SOIL SYMBOL										FINE TO COARSE GRAIN METAMORPHIC AND NON-COASTAL PLAIN SEDIMENTARY ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED.																													
RANGE OF UNCONFINED COMPRESSIVE STRENGTH (TONS/FT ²)										ARTIFICIAL FILL (AF) OTHER THAN ROADWAY EMBANKMENT										FINE TO COARSE GRAIN METAMORPHIC AND NON-COASTAL PLAIN SEDIMENTARY ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED.																													
GENERALY GRANULAR MATERIAL (NON-COHESIVE)										INFERRED SOIL BOUNDARY										FINE TO COARSE GRAIN METAMORPHIC AND NON-COASTAL PLAIN SEDIMENTARY ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED.																													
GENERALY SILT-CLAY MATERIAL (COHESIVE)										INFERRED ROCK LINE										FINE TO COARSE GRAIN METAMORPHIC AND NON-COASTAL PLAIN SEDIMENTARY ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED.																													
TEXTURE OR GRAIN SIZE										ALLUVIAL SOIL BOUNDARY										FINE TO COARSE GRAIN METAMORPHIC AND NON-COASTAL PLAIN SEDIMENTARY ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED.																													
U.S. STD. SIEVE SIZE OPENING (MM)										RECOMMENDATION SYMBOLS										FINE TO COARSE GRAIN METAMORPHIC AND NON-COASTAL PLAIN SEDIMENTARY ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED.																													
BOULDER (BLDR.) COBBLE (COB.) GRAVEL (GR.) COARSE SAND (CSE. SD.) FINE SAND (F SD.) SILT (SL.) CLAY (CL.)										ABBREVIATIONS										FINE TO COARSE GRAIN METAMORPHIC AND NON-COASTAL PLAIN SEDIMENTARY ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED.																													
GRAIN SIZE										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 WE. - WEATHERED W - UNIT WEIGHT Wg - DRY UNIT WEIGHT SAMPLE ABBREVIATIONS S - BULK SS - SPLIT SPOON ST - SHELBY TUBE RS - ROCK RT - RECOMPACTED TRIAXIAL CBR - CALIFORNIA BEARING RATIO										VERY HARD HARD MODERATELY HARD MEDIUM HARD SOFT VERY SOFT									
SOIL MOISTURE - CORRELATION OF TERMS										EQUIPMENT USED ON SUBJECT PROJECT										ROCK HARDNESS																													
SOIL MOISTURE SCALE (ATTERBERG LIMITS)										DRILL UNITS: 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 CASING W/ ADVANCER TRICONE STEEL TEETH TRICONE TUNG-CARB. CORE BIT NW CASING										HAMMER TYPE: AUTOMATIC MANUAL CORE SIZE: B H N Q HAND TOOLS: POST HOLE DIGGER HAND AUGER SOUNDING ROD VANE SHEAR TEST										VERY HARD HARD MODERATELY HARD MEDIUM HARD SOFT VERY SOFT									
PLASTICITY																																																	
NON PLASTIC SLIGHTLY PLASTIC MODERATELY PLASTIC HIGHLY PLASTIC																																																	
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.																																																	

09/08/2021

PLOT DRIVER: \$PLTDRVS\$
USER: \$USER\$
FILE: \$PWVARVAULTPATHDESC\$
PENTABLE: \$PENTBL\$
TIME: \$TIME\$
DATE: \$DATE\$

CONTRACT:

TIP PROJECT: R-5600



VICINITY MAP

25% REVIEW PLANS

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

JACKSON COUNTY

LOCATION: SYLVA - N.C. 107 FROM WEST OF U.S. 23 BUSINESS (ASHEVILLE HIGHWAY) TO SOUTH OF N.C. 116 (WEBSTER ROAD) AND U.S. 23 BUS. FROM SKYLAND DRIVE TO WEST OF MUNICIPAL DRIVE

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

END TIP PROJECT R-5600

-Y- STA. 28 + 50.00

END TIP PROJECT R-5600

-L- STA. 149 + 57.42

BEGIN TIP PROJECT R-5600

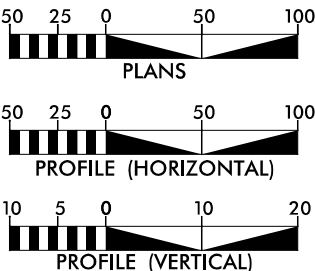
-L- STA. 11 + 20.00

NOTES:
A PORTION OF THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF SYLVA.
CLEARING ON THIS PROJECT SHOULD BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD ____
DESIGN SPEED = 30 MPH FROM -L- STA. 12+00.00 TO 29+50.00
DESIGN SPEED = 40 MPH FROM -L- STA. 29+50.00 TO 123+00.00
DESIGN SPEED = 50 MPH FROM -L- STA. 123+00.00 TO 149+58.00

★ PROPOSED TRAFFIC SIGNAL
☆ UPGRADED TRAFFIC SIGNAL

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES



DESIGN DATA

ADT 2020 = 34,300
ADT 2040 = 40,800
K = 9 %
D = 55 %
T = 5 % *
V = 30 MPH TO 50 MPH
* TTST = 4% DUAL = 3%
FUNC CLASS = ARTERIAL
REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT R-5600 = 2.586 MILES
LENGTH STRUCTURES TIP PROJECT R-5600 = 0.035 MILES
TOTAL LENGTH TIP PROJECT R-5600 = 2.621 MILES



Prepared In the Office of:
HDR Engineering, Inc. of the Carolinas
555 Fayetteville St, Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
JANUARY 6, 2020

LETTING DATE:
DECEMBER 21, 2021

PHILLIP E. ROGERS, PE
PROJECT ENGINEER

ALEXANDER D. SNIDER, PE
PROJECT DESIGN ENGINEER

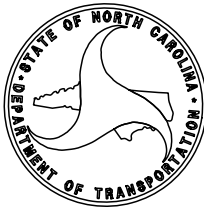
JONATHAN WOODARD, PE
NCDOT CONTACT

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN
ENGINEER

SIGNATURE: P.E.



May 8, 2019

WBS Number:

34839.1.8

TIP Number:

R-5600

COUNTY:

Jackson

DESCRIPTION:

NC 107 Improvements from West US 23 Business to South of NC 116 and US 23 Business from Skyland Drive to West of Municipal Drive

SUBJECT:

Geotechnical Inventory Report

Project Description

The project area lies on the east side of the town of Sylva, NC between Highway 74 and NC 116. This project consists of upgrading N.C. 107 to a four-lane, median divided facility from West US 23 Business to South of NC 116 and US 23 Business from Skyland Drive to West of Municipal Drive for approximately 2.5 miles. Additionally, a two-span bridge over Scott’s Creek, four culverts, and twenty-five retaining walls are included with this project.

The geotechnical field investigation was conducted from August, 2018 to January, 2019. Two drill rigs mounted on a rubber tracked all-terrain carrier and equipped with an automatic hammer (CME 55 and CME 45C) were used to advance borings for the subsurface exploration. Hollow stem auger drilling procedures were used to advance borings to the required depths. Standard Penetration Tests were performed at approximately 2.5-foot to 5.0-foot intervals to termination in selected borings. Representative soil samples were collected for visual classification in the field and selected samples were submitted for laboratory analysis.

The following alignments were explored. Subsurface profiles and/or cross sections of these alignments are included in this report.

Line	Stations (±)
-L-	11+25 – 145+00
-Y-	10+38 – 28+50
-YS-	10+00 – 11+67
-Y1-	11+00 – 14+54
-Y2-	10+33 – 13+25
-Y3-	10+34 – 12+95
-Y4-	10+30 – 14+21
-Y5A-	10+11 – 12+50
-Y5B-	10+00 – 13+12
-Y6-	12+00 – 15+04
-Y7-	10+60 – 13+25
-Y8-	10+38 – 11+10
-Y9-	11+00 – 15+82
-Y10-	10+38 – 13+70
-Y11-	10+12 – 11+05
-Y12-	10+75 – 11+80
-Y13-	10+38 – 11+08
-Y14-	10+70 – 13+15
-Y15-	10+10 – 14+68
-Y16-	10+40 – 12+32
-Y17-	10+09 – 10+73
-Y18-	10+25 – 11+87

-Y19-	10+38 – 11+15
-Y20-	10+38 – 11+50
-Y21-	11+60 – 12+71
-Y22-	10+38 – 12+10
-Y23-	10+38 – 11+40
-Y24-	10+33 – 12+20
-DR1-	11+30 – 12+22
-DR2-	10+50 – 12+30
-DRWY1-	10+48 – 11+90
-DRWY2-	10+50 – 11+25
-DRWY3-	10+50 – 13+65
-DRWY4-	10+20 – 12+76

Areas of Special Geotechnical Interest

- 1)
- Loose/Soft Soils: The following sections contain very soft or very loose, compressible soils (N-value < 4) which have the potential to cause embankment/subgrade and/or slope stability problems during construction.

Line	Stations (±)	Offsets (ft.)
-L-	25+75 – 26+76	LT & RT
-L-	27+67 – 29+50	LT & RT
-L-	34+25 – 35+25	RT
-L-	40+75 – 41+75	RT
-L-	66+50 – 67+25	LT
-L-	69+75 – 70+40	LT
-L-	79+25 – 82+25	RT
-L-	87+25 – 88+75	RT
-L-	90+75 – 91+25	RT
-L-	92+25 – 94+25	LT
-L-	106+25 – 107+75	LT & RT
-L-	112+25 – 119+75	LT & RT
-L-	122+75 – 125+75	LT
-L-	133+75 – 136+25	LT
-L-	140+75 – 142+25	LT
-Y-	16+25 – 16+75	LT & RT
-Y4-	11+75 – 13+25	LT & RT
-Y6-	12+75 – 13+75	LT & RT
-Y15-	13+75 – 14+68	RT

- 2)
- Highly Plastic Soils: The following sections contain highly plastic soils which have the potential to cause embankment/subgrade and/or slope stability problems during construction.

Line	Stations (±)	Offsets (ft.)
-L-	39+25 – 41+25	LT & RT
-L-	102+75 – 103+75	LT

	-L-	112+25 – 113+75	RT
	-L-	129+75 – 130+25	LT

3) Organic Soils: The following areas on the project contained organic matter and wood debris.

<u>Line</u>	<u>Station (±)</u>	<u>Offset (ft)</u>
-L-	135+70	69 LT
-L-	137+40	95 LT
-Y4-	12+45	20 LT – 20 RT

4) Artificial Fill: Artificial fill was encountered at the following locations.

<u>Line</u>	<u>Station (±)</u>	<u>Offset (ft)</u>
-L-	29+50 – 33+00	60 RT
-L-	46+50 – 51+00	50 LT
-L-	88+50 – 102+50	110 LT – 100 RT
-L-	106+00 – 112+00	50 LT – 50 RT
-L-	123+00 – 135+00	120 LT – 50 RT

Several smaller areas of artificial fill are present throughout the project corridor and are related to business developments, gravel and soil driveways, as well as previous construction of utility lines.

5) Crystalline Rock: Crystalline rock was encountered within 6 feet of proposed grade at the following locations:

<u>Line</u>	<u>Station (±)</u>	<u>Offset (ft)</u>
-L-	49+75 – 50+25	LT
-L-	76+50 – 79+50	LT & RT

6) Groundwater: The following areas exhibit a high water table, seasonal high ground water or the potential for groundwater related construction problems:

<u>Line</u>	<u>Station (±)</u>
-L-	72+75 – 74+75
-L-	78+00 – 81+50
-L-	84+50 – 95+50
-L-	97+25 – 97+75
-L-	114+75 – 115+75
-L-	125+75 – 130+25
-Y-	18+25 – 19+25

7) Ponds: Two ponds occur on or within close proximity of right of way on this project. These were noted at the following locations:

<u>Line</u>	<u>Station (±)</u>	<u>Offset (ft)</u>
-L-	98+33 – 99+51	950 LT – 1050 LT
-L-	130+61 – 131+44	577 RT – 807 RT

8) Water Wells: Several water wells were found within or in close proximity to the proposed right of way at the following locations:

<u>Line</u>	<u>Station (±)</u>	<u>Offset (ft)</u>
-L-	66+44	420 LT
-L-	84+62	85 RT
-L-	119+63	86 LT
-Y12-	12+26	23 LT
-DRWY4-	11+51	75 RT

Physiography and Geology

The project is located in the Blue Ridge Physiographic Province. Land use along the project corridor consists of residential, agricultural, commercial businesses and woods. Geologically, the project is located within the Blue Ridge Belt. Bedrock generally consists of rocks from the Coweeta Group (**ZYbn**), consisting of migmatitic Biotite Gneiss interlayered and gradational with biotite-garnet gneiss and amphibolite, with intrusive metamorphosed gabbro and diorite. Scott Creek and its tributaries and a few ditches drain the project towards west and northwest in general.

Soil Properties

Soils encountered at the project site include roadway embankment, artificial fill, alluvial, residual, weathered metamorphic rock and crystalline metamorphic rock.

Roadway Embankment soils were mainly encountered near the intersection of NC 107 SR 1724 (Fairview Road), along the entrance ramp at a local storage unit off SR 1350 (Barnes Street), and associated with existing culverts, consisting of red and brown, soft to medium stiff sandy silt and clay (A-5, A-7-5).

Artificial fill soils were encountered primarily along business developments, gravel and soil driveways, pipes and culverts, and utility easements throughout the site. These soils consist of red, orange, and brown, very soft to very stiff, sandy silt and clay (A-4, A-5, A-6, A-7), and very loose to medium dense, silty and clayey sand and gravel (A-2-4, A-2-6, A-1). The artificial fill is underlain by alluvial or residual soils.

Alluvial deposits are located within the floodplains of Scott Creek, ditches and wetland areas that traverse the project. These soils are primarily brown, red, and gray, very soft to stiff, silt and clay with gravel (A-4, A-5, A-6, A-7), and very loose to medium dense, silty sand and gravel (A-2-4, A-1-b).

Residual soils were encountered throughout the project. These soils consist primarily of red, tan, and brown, very soft to hard silt and clay (A-4, A-5, A-6, A-7), and loose to very dense, silty and clayey sand (A-2-4, A-2-5, A-2-6, A-2-7).

Rock Properties

Weathered rock was encountered during the roadway investigation at elevations ranging from approximately 2181 to 1980 feet. It originates from the underlying metamorphic rock.

Crystalline rock was encountered during the roadway investigation at elevations ranging from approximately 2133 to 1977 feet, and consists of biotite Gneiss, granitic garnet Gneiss, and Schist. Refer to the “Areas of Special Geotechnical Interest” for areas of rock encountered within 6 feet of proposed grade.

Ground Water

Groundwater was encountered in multiple borings and ranges in elevation from approximately 2033 to 2203 feet. Groundwater may fluctuate with seasonal precipitation.

Culvert

Station 64+35 -L-

The proposed structure is an extension of the existing 3 @ 6' x 6' reinforced concrete box culvert (RCBC). Overall length is 200 feet. The proposed culvert has inlet elevation of 2078 feet and outlet of 2076 feet. Natural ground elevations range from 2076± feet at the stream bottom to 2087± feet along the adjacent floodplain. Approximately 9± feet of artificial fill soils consisting of loose to very loose silty sand (A-2-4) was encountered near the ground surface. Alluvial deposits exists at the ground surface or below the artificial fill (where encountered) and extend to depths ranging from 9± to 14± feet below existing grade, consisting of very loose silty sand (A-2-4) and very soft to stiff silt and clay (A-5, A-7-6). Residual soils were encountered near the ground surface or below the alluvial deposits (where encountered) and consist of very soft to stiff silt and clay (A-4, A-7-6) and medium dense silty sand (A-2-4). During this investigation, groundwater was measured at elevation 2080± feet.

Station 135+50 -L-

The proposed structure is an extension of the existing 8' x 8' RCBC. Overall length is 170 feet. The proposed culvert has inlet elevation of 2107 feet and outlet of 2106 feet. Natural ground elevations range from 2106± feet at the stream bottom to 2124± feet along the adjacent floodplain. Alluvial deposits were encountered at the ground surface and extended to depths ranging from 8± to 13± feet below existing grade, consisting of very soft to medium stiff silt and clay (A-4, A-5, A-7-6) and very loose to medium dense silty and clayey sand (A-2-4, A-2-6). Residual soils were encountered below the alluvial deposits and consist of very loose silty sand (A-2-4) and soft to medium stiff silt (A-4, A-5). During this investigation, groundwater was measured at elevation 2108± feet.

Station 12+95 -Y6-

The proposed structure is a 3@ 7' x 7' RCBC. Overall length is 54 feet. The proposed culvert has inlet elevation of 2052 feet and outlet of 2051 feet. Natural ground elevations range from 2052± feet at the stream bottom to 2075± feet along the adjacent floodplain. Residual soils were encountered near the ground surface and consist of very loose silty sand (A-2-4) and very soft to stiff silt and clay (A-4, A-5, A-6, A-7-6). During this investigation, groundwater was measured at elevation 2053± feet.

Station 12+27 -Y4-

The proposed structure is a 3@ 7' x 7' RCBC. Overall length is 45 feet. The proposed culvert has inlet elevation of 2046 feet and outlet of 2045 feet. Natural ground elevations range from 2044± feet at the stream bottom to 2052± feet along the adjacent floodplain. Alluvial deposits were encountered at the ground surface and extended to the boring termination depth of 16± feet below existing grade, consisting of very soft silty clay with wood pieces (A-7-6) and very loose to loose clayey sand (A-2-7). Residual soils were encountered near ground surface (where alluvium was not encountered) and consist of soft to stiff silt and clay (A-5, A-7-6). During this investigation, groundwater was measured at elevation 2048± feet.

Retaining Wall

Wall No. 1, Station 30+25 to 32+30 -L-, 46 ft RT

The maximum wall height of the proposed structure is approximately 3 feet. Overall length is 204 feet. Natural ground elevations range from 2049± to 2053± feet along the proposed wall envelope. Approximately 4 to 8 feet of artificial fill soils consisting of loose to medium dense silty sand and sand with gravel (A-2-4, A-1-a, A-1-b) and medium stiff to very stiff clay (A-6, A-7-6) were encountered near the ground surface. Residual soils were encountered below the artificial fills and consist of soft to very stiff silt and clay (A-4, A-6, A-7-6) and loose silty sand (A-2-4). During this investigation, groundwater was measured at elevation 2041± to 2046± feet.

Wall No. 2, Station 34+50 to 35+40 -L-, 86 to 51 ft RT

The maximum wall height of the proposed structure is approximately 3 feet. Overall length is 94 feet. Natural ground elevations range from 2056± to 2059± feet along the proposed wall envelope. Residual soils were encountered near the ground surface and consist of very soft to medium stiff silt and clay (A-4, A-5, A-6, A-7-6) and very loose to medium dense silty and clayey sand (A-2-4, A-2-6). During this investigation, groundwater was measured at elevation 2047± feet.

Wall No. 3, Station 14+20 to 43+35 -Y6-, 25 to 51 ft RT

The maximum wall height of the proposed structure is approximately 5 feet. Overall length is 127 feet. Natural ground elevations range from 2068± to 2078± feet along the proposed wall envelope. Residual soils were encountered near the ground surface and consist of soft to medium stiff silt and clay (A-4, A-5, A-7-6). During this investigation, groundwater was not encountered.

Wall No. 4, Station 47+00 to 48+77 -L-, 48 ft LT

The maximum wall height of the proposed structure is approximately 15 feet. Overall length is 178 feet. Natural ground elevations range from 2079± to 2095± feet along the proposed wall envelope. Approximately 4 to 20 feet of artificial fill soils consisting of very soft to medium stiff silt and clay (A-4, A-5, A-6) were encountered near the ground surface. Residual soils were encountered below the artificial fills and consist of medium stiff to hard silt (A-4, A-5) and very dense silty sand with rock fragments (A-2-4). During this investigation, groundwater was measured at elevation 2060± to 2069± feet.

Wall No. 5, Station 49+05 to 50+40 -L-, 48 ft LT

The maximum wall height of the proposed structure is approximately 4 feet. Overall length is 127 feet. Natural ground elevation is 2083± feet along the proposed wall envelope. Approximately 4 to 5 feet of artificial fill soils consisting of medium dense silty sand (A-2-4) and stiff clay (A-6) were encountered near the ground surface. Residual soils were encountered near the ground surface or below the artificial fills (where encountered) and consist of medium stiff to stiff silt (A-4) and medium dense to very dense silty sand with rock fragments (A-2-4). Weathered metamorphic rock was encountered under residual soils underlain by crystalline metamorphic rock at some locations. During this investigation, groundwater was not encountered.

Wall No. 6, Station 55+25 to 56+29 -L-, 50 ft LT

The maximum wall height of the proposed structure is approximately 3 feet. Overall length is 111 feet. Natural ground elevations range from 2081± to 2083± feet along the proposed wall envelope. Residual soils were encountered near the ground surface and consist of medium stiff to very stiff silt and clay (A-5, A-6, A-7-6) and medium dense silty sand (A-2-4). During this investigation, groundwater was not encountered.

Wall No. 7, Station 59+85 to 61+29 -L-, 48 ft LT

The maximum wall height of the proposed structure is approximately 5 feet. Overall length is 144 feet. Natural ground elevation is 2084± feet along the proposed wall envelope. Residual soils were encountered near the ground surface and consist of medium stiff to very stiff silt (A-4, A-5) and medium dense to very dense silty sand (A-2-4) with rock fragments. During this investigation, groundwater was measured at elevation 2079± feet.

Wall No. 8, Station 65+40 to 67+84 -L-, 48 ft LT

The maximum wall height of the proposed structure is approximately 4 feet. Overall length is 252 feet. Natural ground elevations range from 2088± to 2092± feet along the proposed wall envelope. Residual soils were encountered near the ground surface and consist of very soft to very stiff silt and clay (A-4, A-5, A-6, A-7-6). During this investigation, groundwater was measured at elevation 2081± to 2086± feet.

Wall No. 9, Station 10+50 to 12+00 -Y12-, 16 ft LT

The maximum wall height of the proposed structure is approximately 9 feet. Overall length is 148 feet. Natural ground elevations range from 2135± to 2140± feet along the proposed wall envelope. Residual soils were encountered near the ground surface and consist of soft to very stiff silt and clay (A-4, A-5, A-7-6) and loose to medium dense silty sand (A-2-4) with rock fragments. Weathered metamorphic rock was encountered under residual soils underlain by crystalline metamorphic rock at some locations. During this investigation, groundwater was measured at elevation 2117± to 2123± feet.

Wall No. 10, Station 10+99 to 11-81 -Y12-, 23 to 32 ft RT

The maximum wall height of the proposed structure is approximately 21 feet. Overall length is 137 feet. Natural ground elevations range from 2110± to 2130± feet along the proposed wall envelope. Residual soils were encountered near the ground surface and consist of soft to hard silt (A-4, A-5) and loose silty sand (A-2-4). Crystalline metamorphic rock was encountered under residual soils at some locations. During this investigation, groundwater was measured at elevation 2108± to 2115± feet.

Wall No. 11, Station 88+65 to 92+10 -L-, 69 to 51 ft RT

The maximum wall height of the proposed structure is approximately 29 feet. Overall length is 367 feet. Natural ground elevations range from 2164± to 2189± feet along the proposed wall envelope. Approximately 7 to 14 feet of artificial fill soils consisting of soft to stiff silt and clay (A-5, A-7-5, A-7-6) were encountered near the ground surface. Residual soils were encountered near the ground surface or below the artificial fills (where encountered) and consist of very soft to hard silt and clay (A-4, A-5, A-6) and very loose to dense silty and clayey sand with rock fragments (A-2-4, A-2-6). Weathered metamorphic rock was encountered under residual soils underlain by crystalline metamorphic rock at some locations. During this investigation, groundwater was measured at elevation 2154± to 2160± feet.

Wall No. 12, Station 91+95 to 98+83 -L-, 50 to 230 ft LT

The maximum wall height of the proposed structure is approximately 18 feet. Overall length is 845 feet. Natural ground elevations range from 2176± to 2217± feet along the proposed wall envelope. Approximately 7 to 9 feet of artificial fill soils consisting of medium stiff to stiff silt and clay (A-5, A-6, A-7-6) were encountered near the ground surface. Residual soils were encountered near the ground surface or below the artificial fills (where encountered) and consist of soft to hard silt and clay (A-4, A-5, A-6, A-7-6) and very loose to loose silty and clayey sand with rock fragments (A-2-4, A-2-6). During this investigation, groundwater was measured at elevation 2159± to 2180± feet.

Wall No. 13, Station 12+50 to 13+25 -DRWY3-, 16 to 7 ft LT

The maximum wall height of the proposed structure is approximately 5 feet. Overall length is 74 feet. Natural ground elevation is 2195± feet along the proposed wall envelope. Approximately 7 to 12 feet of artificial fill soils consisting of soft to stiff silt and clay (A-5, A-6, A-7-6) were encountered near the ground surface. Residual soils were encountered below the artificial fills and consist of medium stiff to stiff silt and clay (A-4, A-5, A-7-6). During this investigation, groundwater was not encountered.

Wall No. 14, Station 95+75 to 96+85 -L-, 62 ft RT

The maximum wall height of the proposed structure is approximately 29 feet. Overall length is 115 feet. Natural ground elevation is 2189± feet along the proposed wall envelope. Approximately 3 to 7 feet of artificial fill soils consisting of soft to stiff silt and clay (A-5, A-6, A-7-6) were encountered near the ground surface. Residual soils were encountered below the artificial fills and consist of medium stiff to very stiff silt and clay (A-5, A-7-6). During this investigation, groundwater was not encountered.

Wall No. 15, Station 99+61 to 103+60 -L-, 175 to 59 ft LT

The maximum wall height of the proposed structure is approximately 24 feet. Overall length is 481 feet. Natural ground elevations range from 2176± to 2208± feet along the proposed wall envelope. Approximately 12 to 22 feet of artificial fill soils consisting of soft to stiff silt and clay (A-4, A-5, A-7-6) were encountered near the ground surface. Residual soils were encountered below the artificial fills (where encountered) and consist of medium stiff to hard silt and clay (A-4, A-5, A-7-6) and loose to very dense silty sand with rock fragments (A-2-4). Weathered metamorphic rock seams were encountered underneath residual soils at some locations. During this investigation, groundwater was measured at elevation 2149± to 2159± feet.

Wall No. 16, Station 103+03 to 104+90 -L-, 64 to 51 ft RT

The maximum wall height of the proposed structure is approximately 6 feet. Overall length is 201 feet. Natural ground elevations range from 2163± to 2174± feet along the proposed wall envelope. Residual soils were encountered near the ground surface and consist of medium stiff to stiff silt and clay (A-4, A-7-6). During this investigation, groundwater was not encountered.

Wall No. 17, Station 106+75 to 107+60 -L-, 48 ft LT

The maximum wall height of the proposed structure is approximately 3 feet. Overall length is 85 feet. Natural ground elevations range from 2144± to 2146± feet along the proposed wall envelope. Approximately 4 to 8 feet of artificial fill soils consisting of soft silt and clay (A-4, A-6, A-7-6) were encountered near the ground surface. Residual soils were encountered below the artificial fills and consist of soft clay (A-6, A-7-6) and very loose to loose silty sand (A-2-4). During this investigation, groundwater was not encountered.

Wall No. 18, Station 108+30 to 109+10 -L-, 48 ft LT

The maximum wall height of the proposed structure is approximately 3 feet. Overall length is 80 feet. Natural ground elevation is 2142± feet along the proposed wall envelope. Approximately 6 to 8 feet of artificial fill soils consisting of medium stiff to stiff silt and clay (A-4, A-6, A-7-6) were encountered near the ground surface. Residual soils were encountered below the artificial fills and consist of very soft to stiff silt and clay (A-5, A-6, A-7-6). During this investigation, groundwater was measured at elevation 2133± feet.

Wall No. 19, Station 115+68 to 116+15 -L-, 46 to 47 ft RT

The maximum wall height of the proposed structure is approximately 3 feet. Overall length is 47 feet. Natural ground elevation is 2131± feet along the proposed wall envelope. Residual soils were encountered near the ground surface and consist of soft to medium stiff clay (A-7-6) and loose silty sand (A-2-4). During this investigation, groundwater was not encountered.

Wall No. 20, Station 123+50 to 130+78 -L-, 50 to 57 ft LT

The maximum wall height of the proposed structure is approximately 13 feet. Overall length is 731 feet. Natural ground elevations range from 2121± to 2133± feet along the proposed wall envelope. Approximately 4 to 10 feet of artificial fill soils consisting of soft to stiff silt and clay (A-4, A-5, A-6, A-7-6) were encountered near the ground surface. Residual soils were encountered below the artificial fills (where encountered) and consist of very soft to stiff silt (A-4, A-5) and very loose to very dense silty sand (A-2-4) with rock fragments. During this investigation, groundwater was measured at elevation 2104± to 2124± feet.

Wall No. 21, Station 133+50 to 134+75 -L-, 48 ft RT

The maximum wall height of the proposed structure is approximately 6 feet. Overall length is 127 feet. Natural ground elevations range from 2115± to 2117± feet along the proposed wall envelope. Approximately 4 to 8 feet of artificial fill soils consisting of loose clayey sand (A-2-6) and soft to medium stiff clay (A-6, A-7-6) were encountered near the ground surface. Residual soils were encountered near the ground surface or below the artificial fills (where encountered) and consist of soft to medium stiff silt and clay (A-4, A-7-6). During this investigation, groundwater was measured at elevation 2107± to 2111± feet.

Wall No. 22, Station 14+84 to 18+20 -Y-, 45 ft RT

The maximum wall height of the proposed structure is approximately 23 feet. Overall length is 334 feet. Natural ground elevations range from 2076± to 2101± feet along the proposed wall envelope. Approximately 4 feet of artificial fill soils consisting of medium stiff silt (A-5) were encountered near the ground surface at the beginning of the proposed wall. Residual soils were encountered near the ground surface or below the artificial fills (where encountered) and consist of medium stiff to hard silt (A-4, A-5) and medium dense silty sand (A-2-4). Weathered metamorphic rock was encountered under residual soils underlain by crystalline metamorphic rock. During this investigation, groundwater was measured at elevation 2046± to 2064± feet.

Wall No. 23, Station 12+00 to 21+00 -Y3-, 17 ft LT to 48 ft RT

The maximum wall height of the proposed structure is approximately 38 feet. Overall length is 361 feet. Natural ground elevations range from 2092± to 2127± feet along the proposed wall envelope. Residual soils were encountered near the ground surface and consist of medium stiff to hard silt and clay (A-4, A-5, A-7-6) and medium dense to very dense sand and silty sand with rock fragments (A-1-b, A-2-4). Weathered metamorphic rock was encountered under residual soils underlain by crystalline metamorphic rock. During this investigation, groundwater was measured at elevation 2083± to 2108± feet.

Wall No. 24, Station 26+85 to 28+50 -Y-, 40 to 34 ft LT

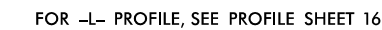
The maximum wall height of the proposed structure is approximately 8 feet. Overall length is 164 feet. Natural ground elevations range from 2133± to 2144± feet along the proposed wall envelope. Residual soils were encountered near the ground surface and consist of medium stiff to hard silt (A-4). Weathered metamorphic rock was encountered under residual soils or near ground surface at some locations. During this investigation, groundwater was not encountered.

Wall No. 25, Station 12+10 to 13+35 -Y-, 19 ft LT

The maximum wall height of the proposed structure is approximately 7 feet. Overall length is 115 feet. Natural ground elevations range from 2156± to 2161± feet along the proposed wall envelope. Approximately 5 feet of roadway embankment soils consisting of medium stiff silty clay (A-7-5) were encountered near the ground surface. Residual soils were encountered below the roadway embankment and consist of very stiff to stiff silt (A-4). During this investigation, groundwater was not encountered.

Prepared By,
HDR Engineering, Inc., of the Carolinas

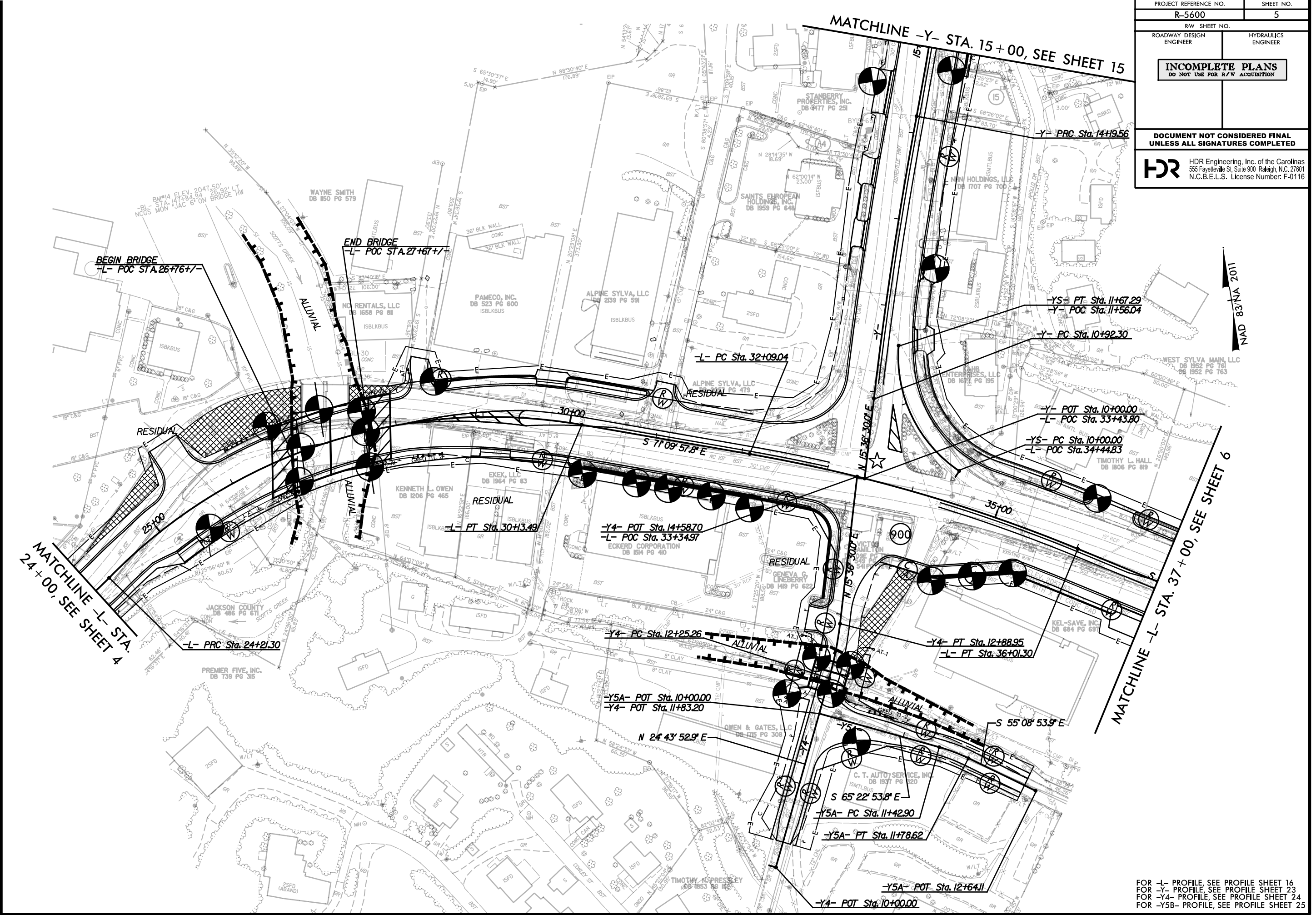
Pu Zhang, P.E.
Senior Geotechnical Project Manager



PROJECT REFERENCE NO.	SHEET NO.
R-5600	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	

HDR

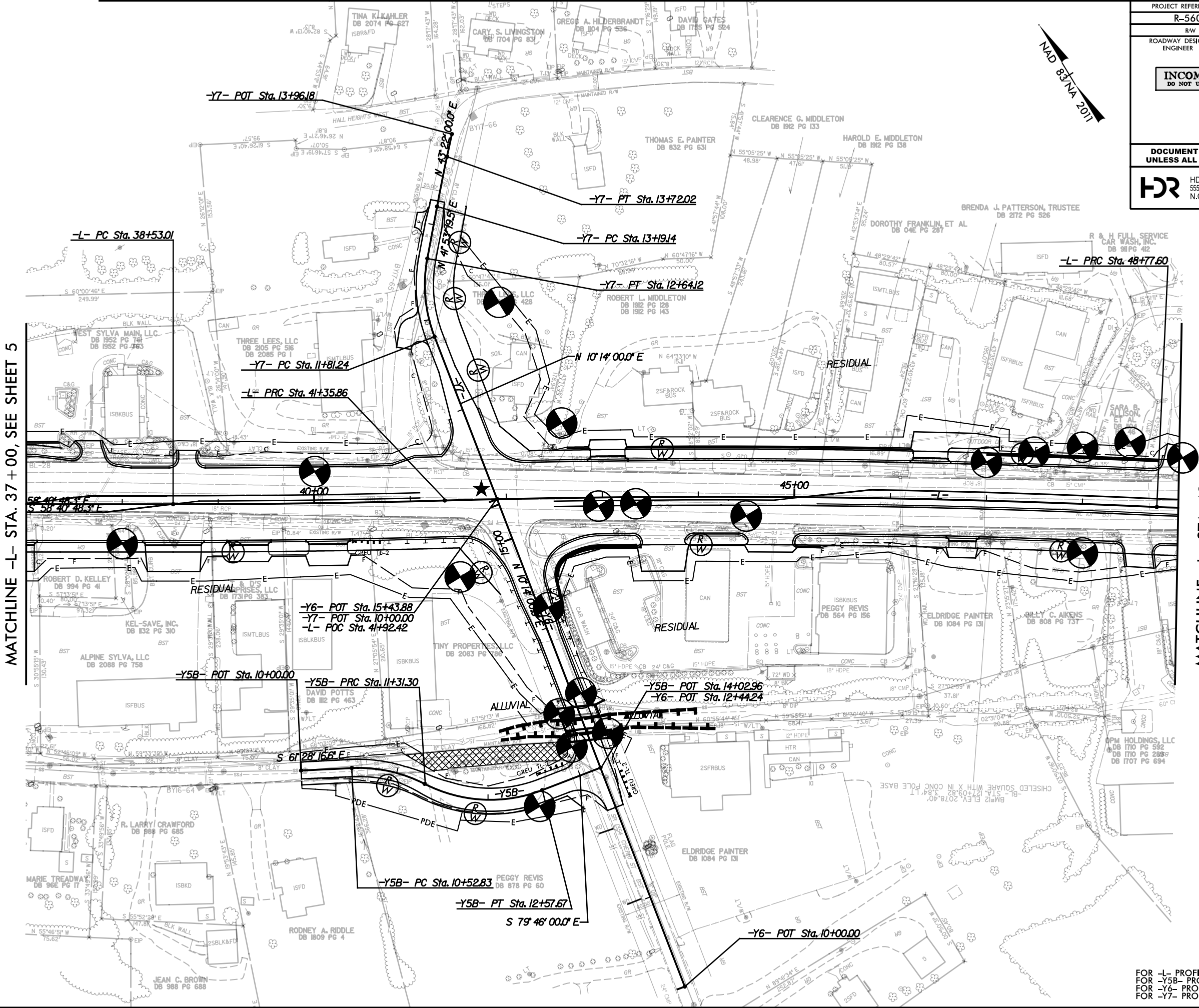
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 555 Fayetteville St., Suite 900 Raleigh, N.C. 27601
 N.C.B.E.L.S. License Number: F-0116



PROJECT REFERENCE NO. R-5600		SHEET NO. 5	
RW SHEET NO.		HYDRAULICS ENGINEER	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
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PLOT DRIVER: \$PLTDVRS\$
USER: \$USER\$
FILE: \$PVARVALLTPATHDESC\$
PENTABLE: \$PENTBLS\$
TIME: \$TIME\$
DATE: \$DATE\$

FOR -L- PROFILE, SEE PROFILE SHEET 16
FOR -Y- PROFILE, SEE PROFILE SHEET 23
FOR -Y4- PROFILE, SEE PROFILE SHEET 24
FOR -Y5B- PROFILE, SEE PROFILE SHEET 25



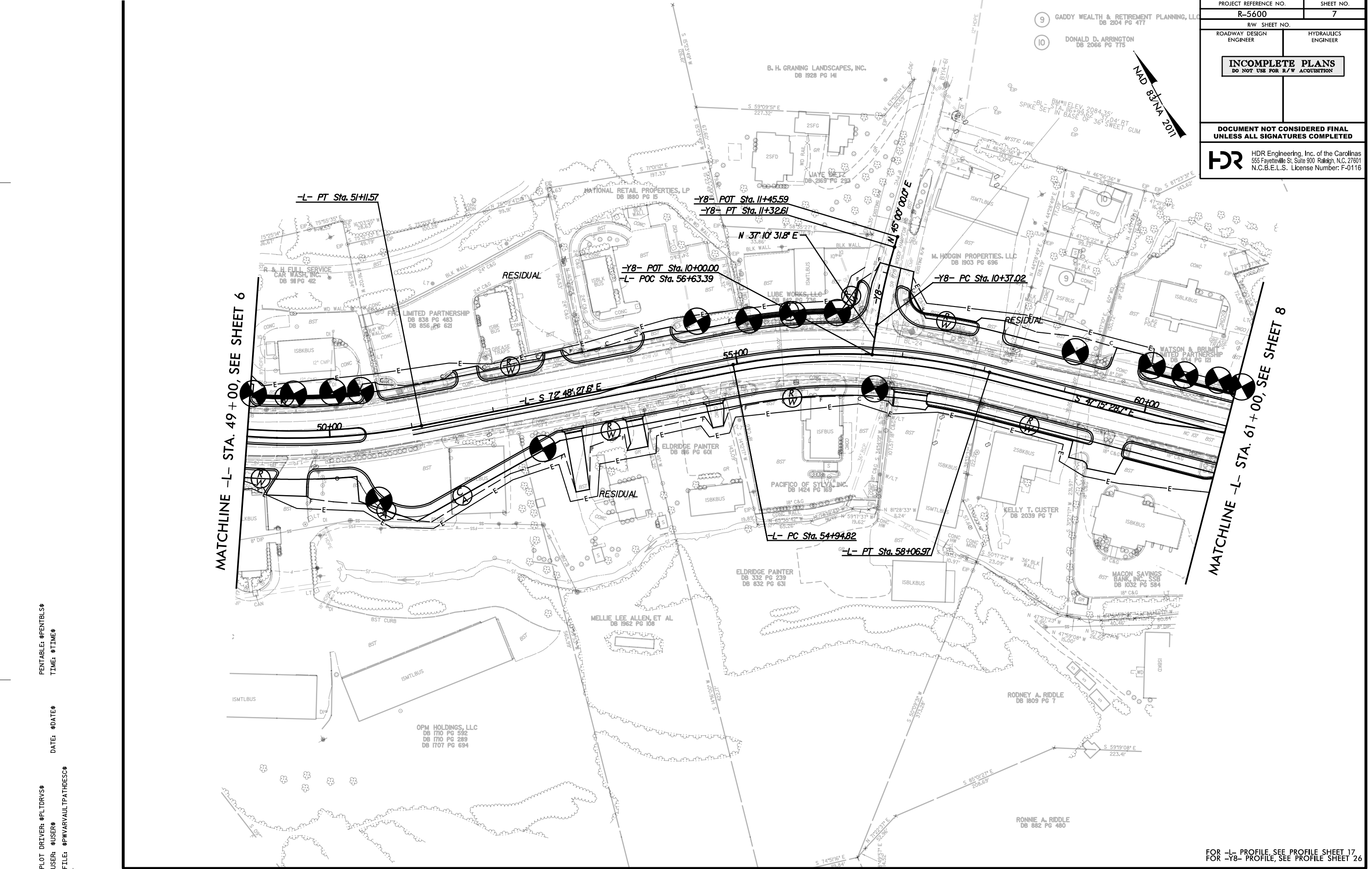
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MATCHLINE -L- STA. 37+00, SEE SHEET 5

MATCHLINE -L- STA. 49+00, SEE SHEET 7

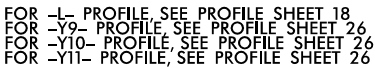
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FOR -L- PROFILE, SEE PROFILE SHEET 17
FOR -Y5B- PROFILE, SEE PROFILE SHEET 25
FOR -Y6- PROFILE, SEE PROFILE SHEET 25
FOR -Y7- PROFILE, SEE PROFILE SHEET 25



PROJECT REFERENCE NO. R-5600		SHEET NO. 7	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION			
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
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PLOT DRIVER: \$PLTDVRS\$
USER: \$USER\$
FILE: \$PVARVALLTPATHDESC\$
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DATE: \$DATE\$



PROJECT REFERENCE NO.	SHEET NO.
R-5600	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS

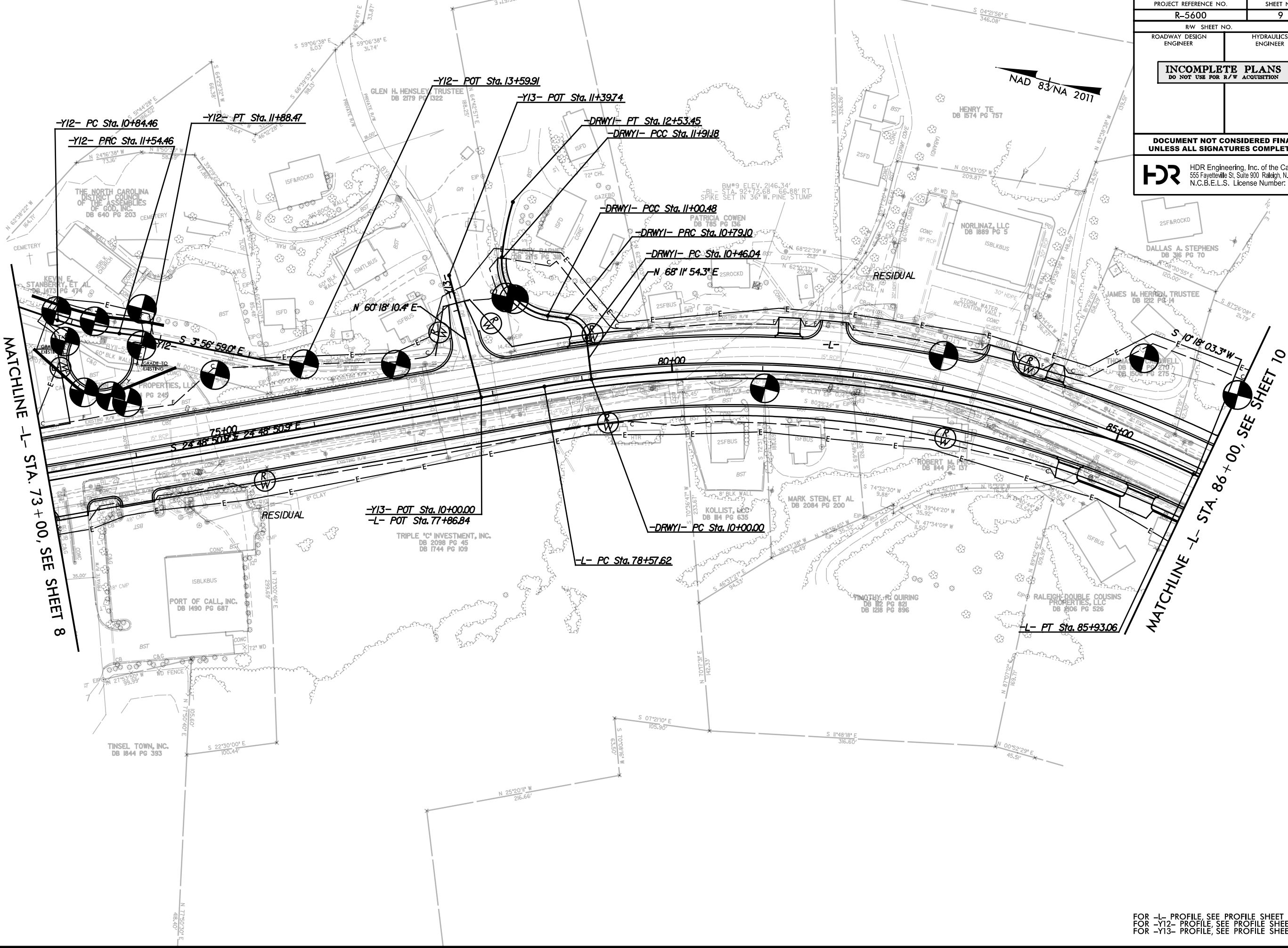
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL
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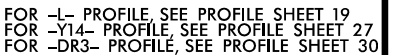
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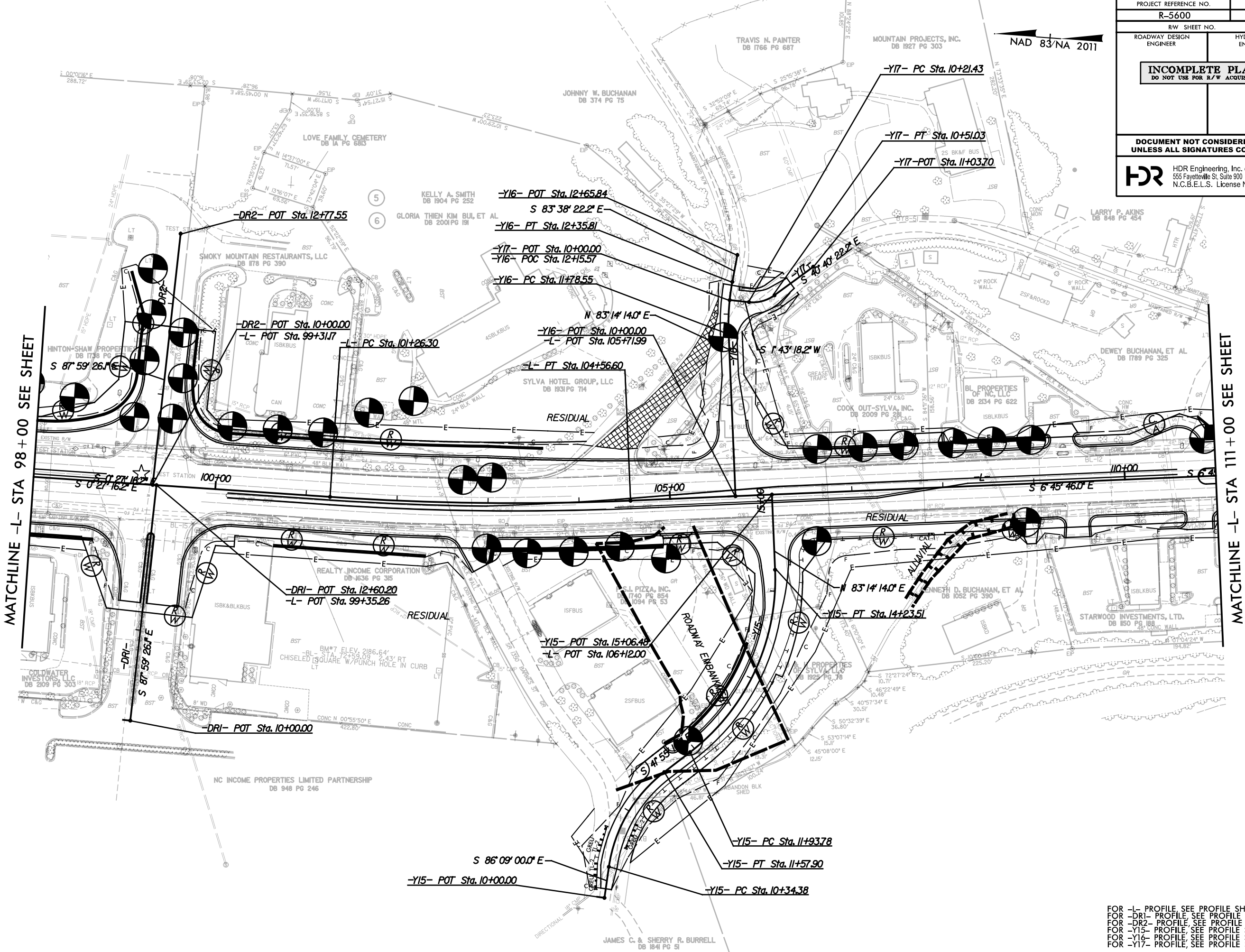


PROJECT REFERENCE NO.		SHEET NO.	
R-5600		9	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION			
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
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PLOT DRIVER: \$PLTDVRS\$
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TIME: \$TIME\$
DATE: \$DATE\$

FOR -L- PROFILE, SEE PROFILE SHEET 18
FOR -Y12- PROFILE, SEE PROFILE SHEET 30
FOR -Y13- PROFILE, SEE PROFILE SHEET 27



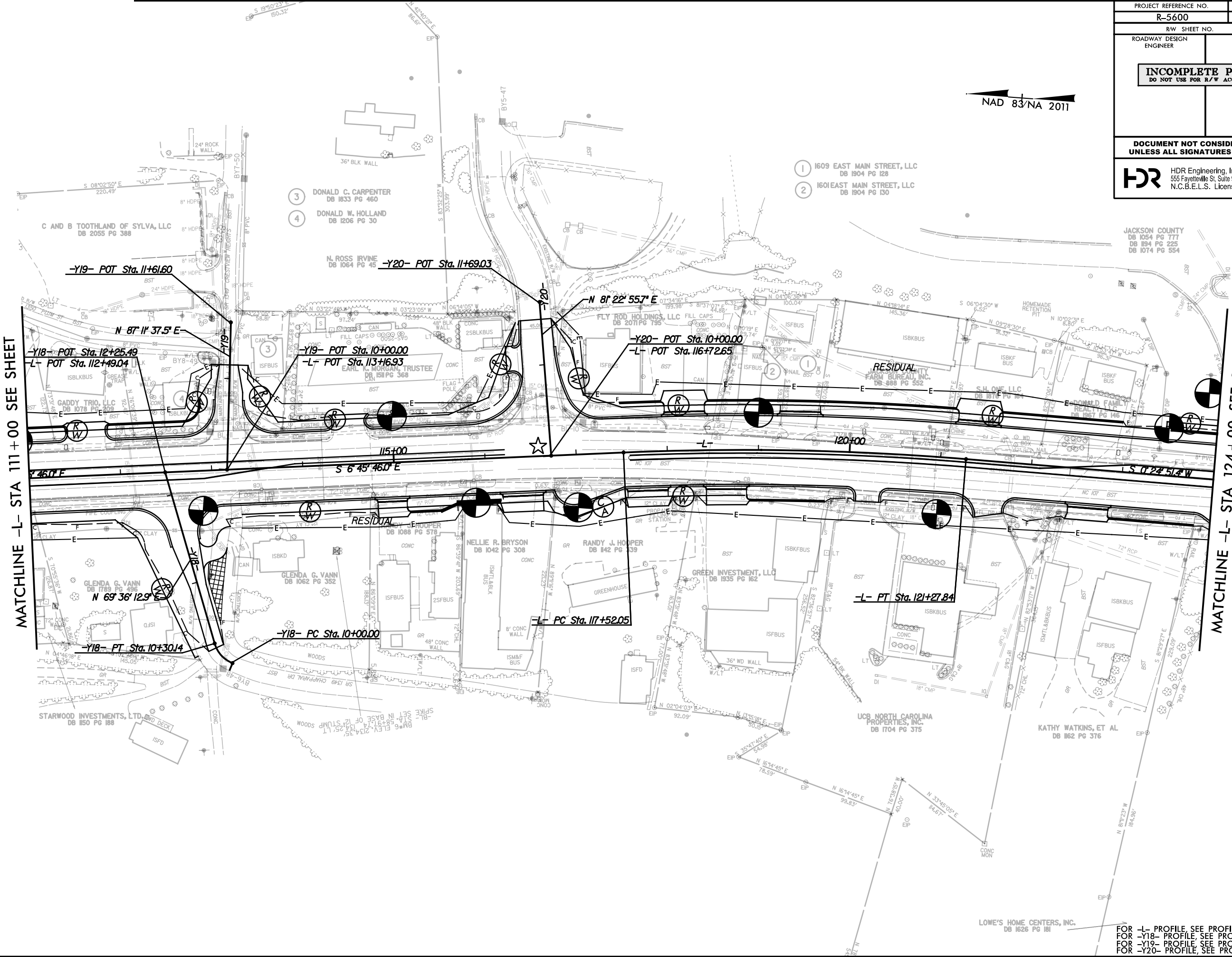


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R-5600		11	
R/W SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION			
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
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PLOT DRIVER: \$PLTDVRS\$
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FOR -L- PROFILE, SEE PROFILE SHEET 19
FOR -DRI- PROFILE, SEE PROFILE SHEET 30
FOR -DR2- PROFILE, SEE PROFILE SHEET 30
FOR -Y15- PROFILE, SEE PROFILE SHEET 27
FOR -Y16- PROFILE, SEE PROFILE SHEET 27
FOR -Y17- PROFILE, SEE PROFILE SHEET 28

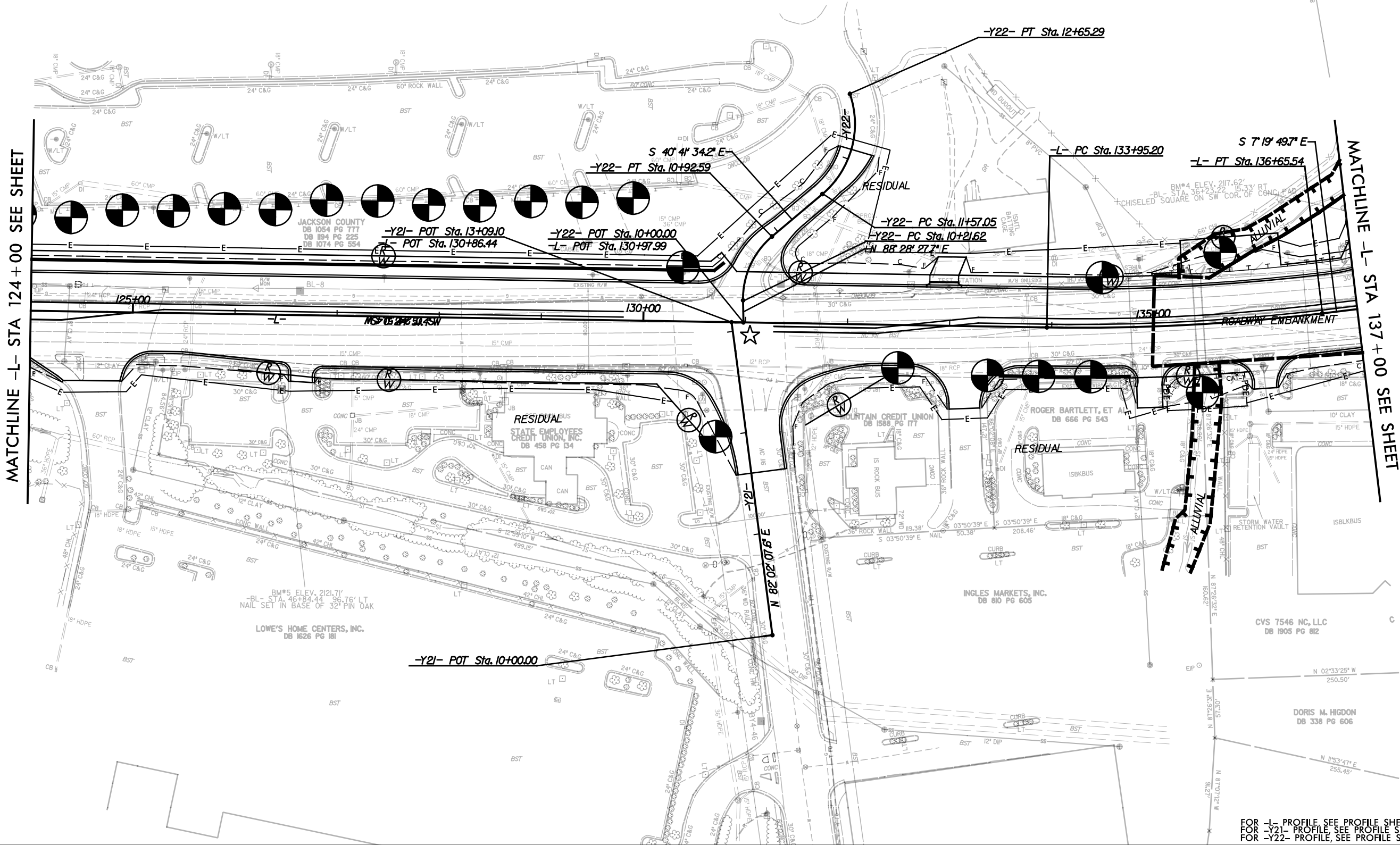
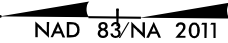
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R-5600		12	
R/W SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION			
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
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FOR -L- PROFILE, SEE PROFILE SHEET 20
FOR -Y18- PROFILE, SEE PROFILE SHEET 28
FOR -Y19- PROFILE, SEE PROFILE SHEET 28
FOR -Y20- PROFILE, SEE PROFILE SHEET 28

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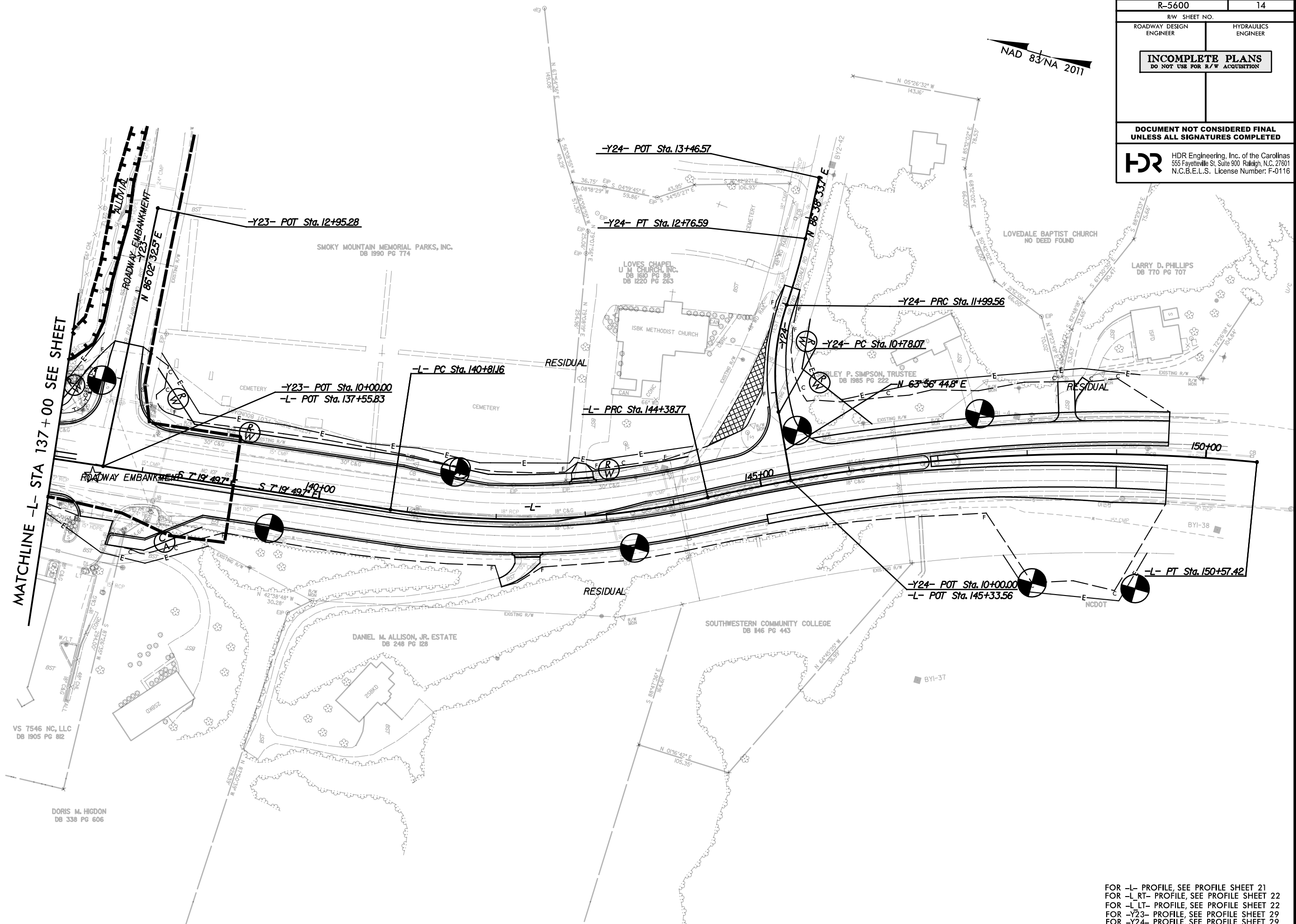
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R/W SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION			
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
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FOR -L- PROFILE, SEE PROFILE SHEET 20
FOR -Y21- PROFILE, SEE PROFILE SHEET 29
FOR -Y22- PROFILE, SEE PROFILE SHEET 29

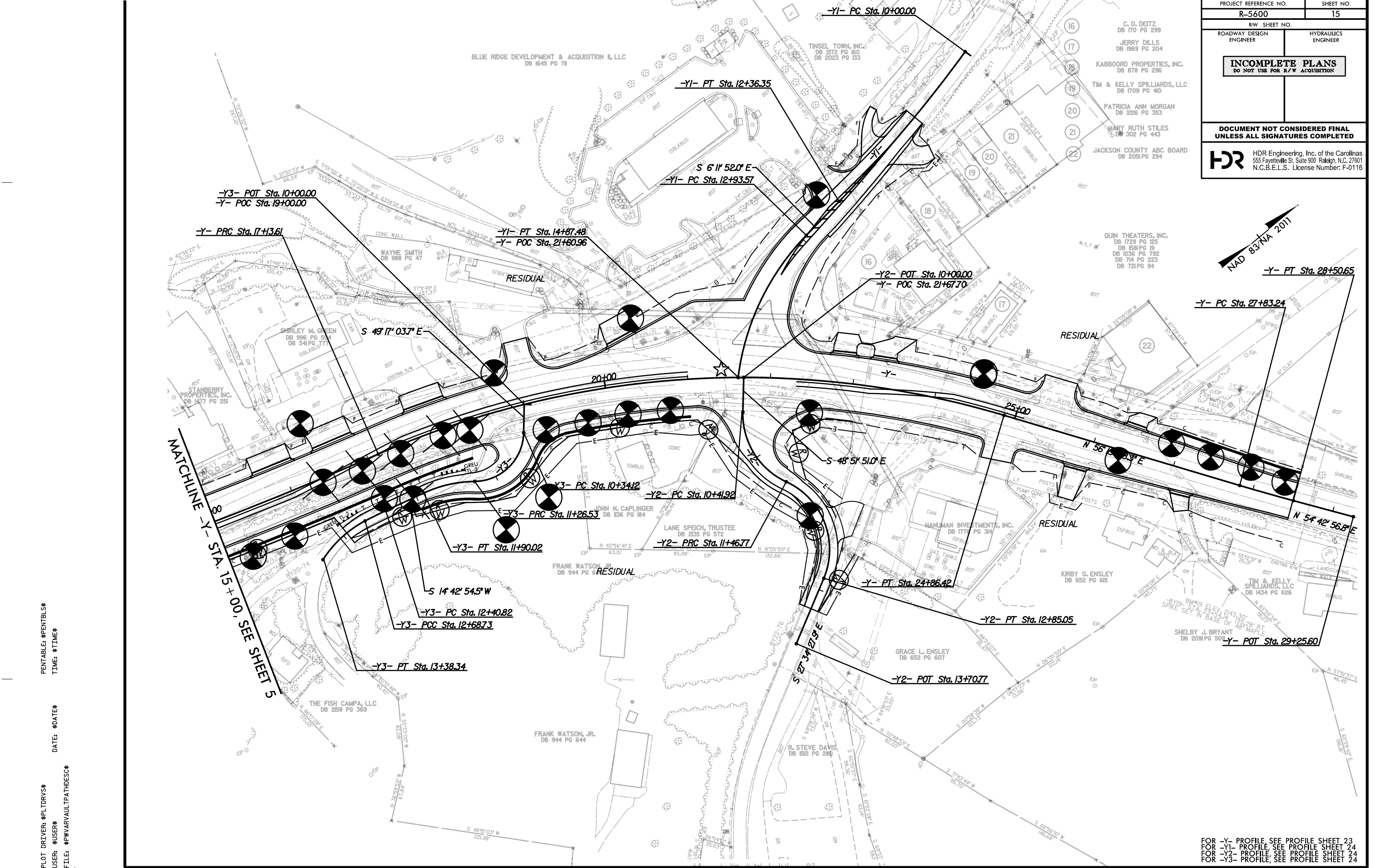
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PROJECT REFERENCE NO.		SHEET NO.	
R-5600		14	
R/W SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION			
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
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FOR -L- PROFILE, SEE PROFILE SHEET 21
FOR -L RT- PROFILE, SEE PROFILE SHEET 22
FOR -L LT- PROFILE, SEE PROFILE SHEET 22
FOR -Y23- PROFILE, SEE PROFILE SHEET 29
FOR -Y24- PROFILE, SEE PROFILE SHEET 29

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PROJECT REFERENCE NO. R-5600		SHEET NO. 15	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION			
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
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PLOT DRIVER: \$PLTDVRS\$
USER: \$USER\$
FILE: \$PVARVALLTPATHDESC\$
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TIME: \$TIME\$
DATE: \$DATE\$

FOR -Y- PROFILE, SEE PROFILE SHEET 23
FOR -Y1- PROFILE, SEE PROFILE SHEET 24
FOR -Y2- PROFILE, SEE PROFILE SHEET 24
FOR -Y3- PROFILE, SEE PROFILE SHEET 24



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PROJECT REFERENCE NO.

R-5600

SHEET NO.

17

ROADWAY DESIGN ENGINEER

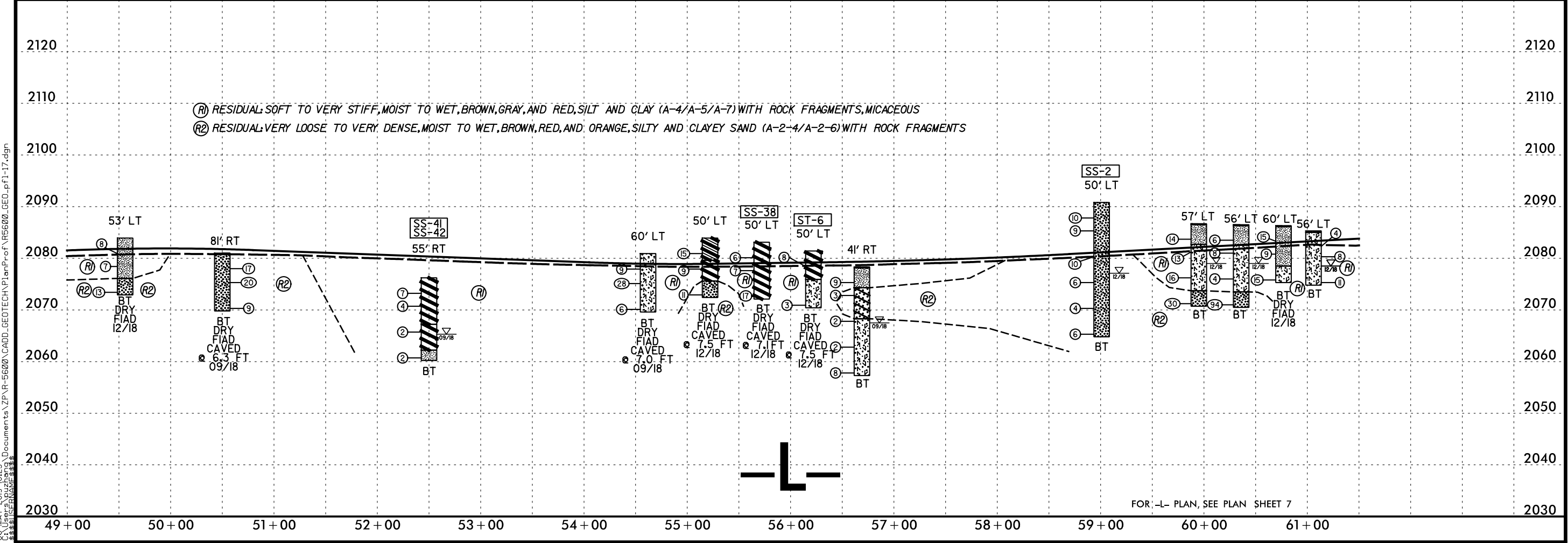
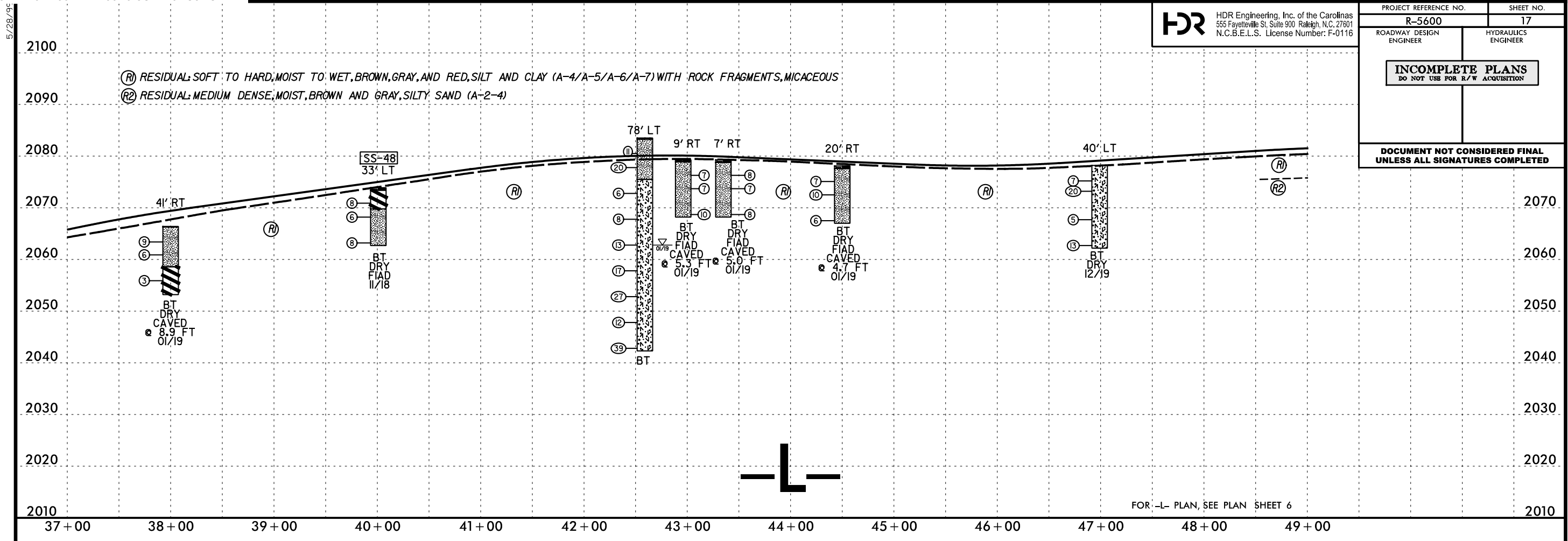
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INCOMPLETE PLANS

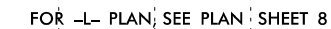
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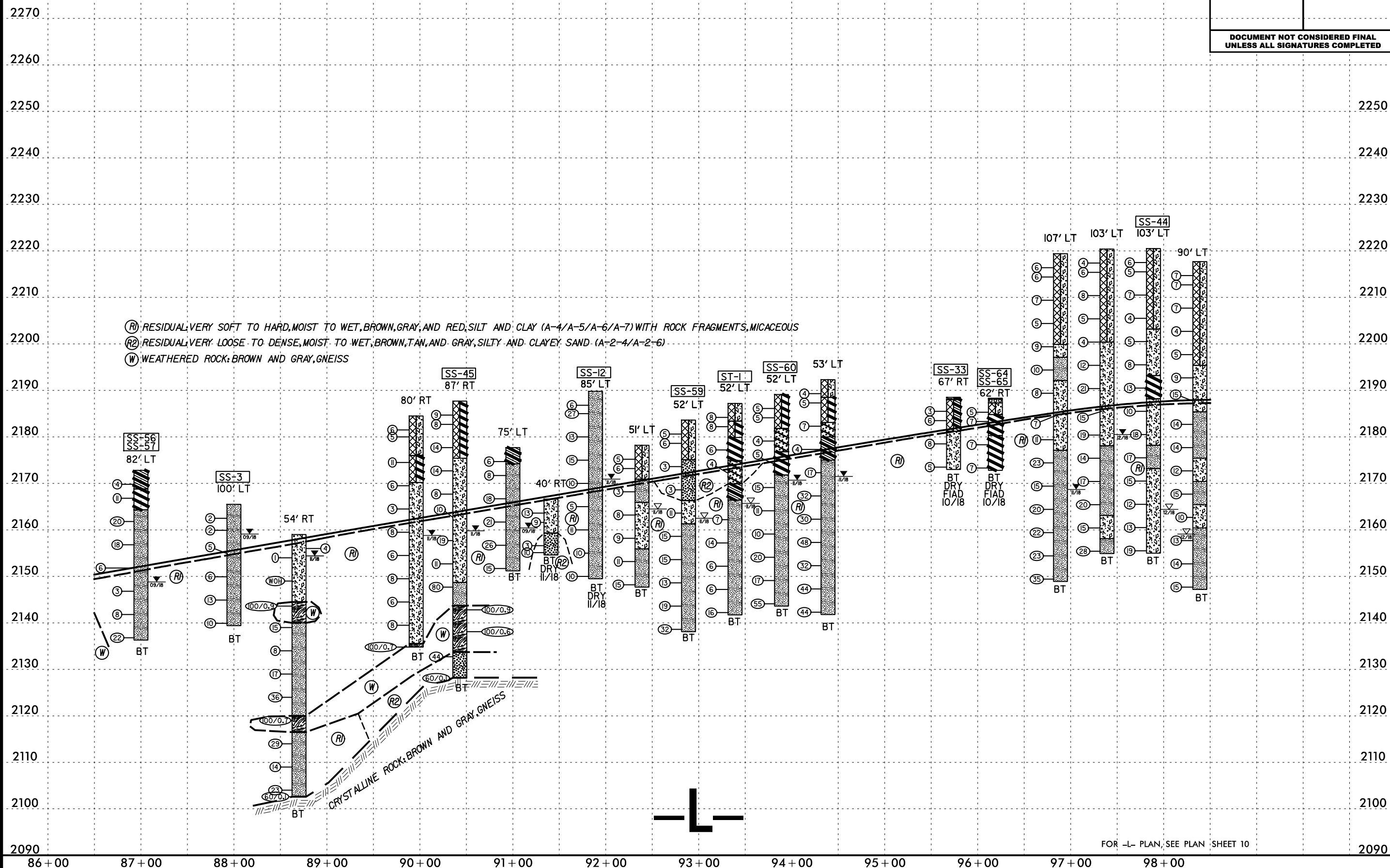
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UNLESS ALL SIGNATURES COMPLETED



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\$\$\$\$\$ IS STANDARD \$\$\$







FOR -L- PLAN, SEE PLAN SHEET 11

5/28/96



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PROJECT REFERENCE NO.

R-5600

ROADWAY DESIGN ENGINEER

SHEET NO.

21

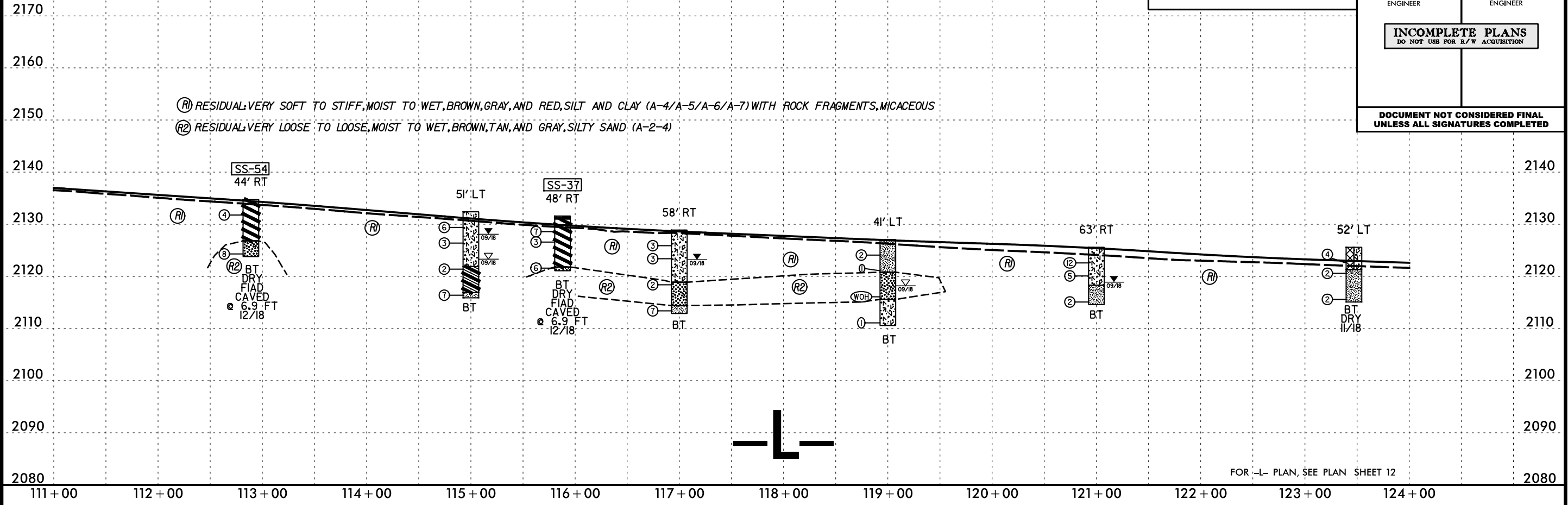
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INCOMPLETE PLANS

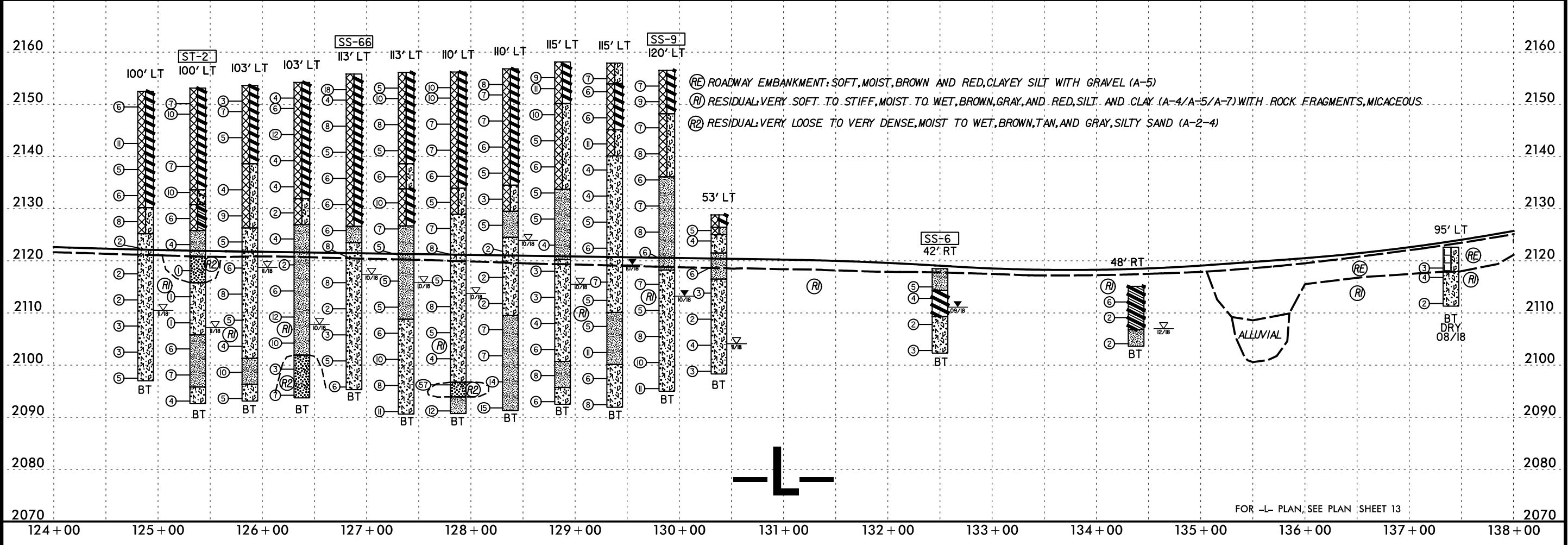
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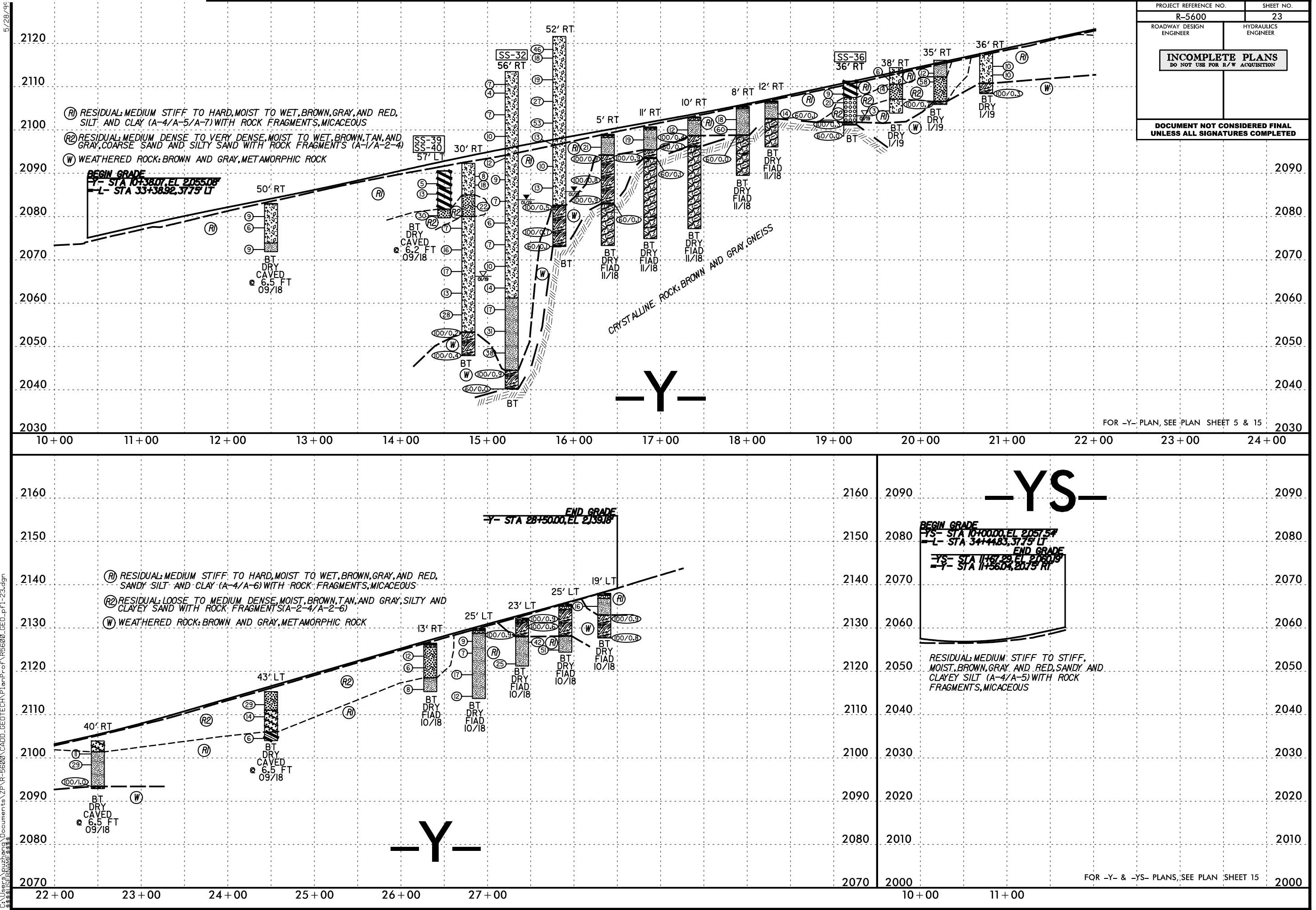
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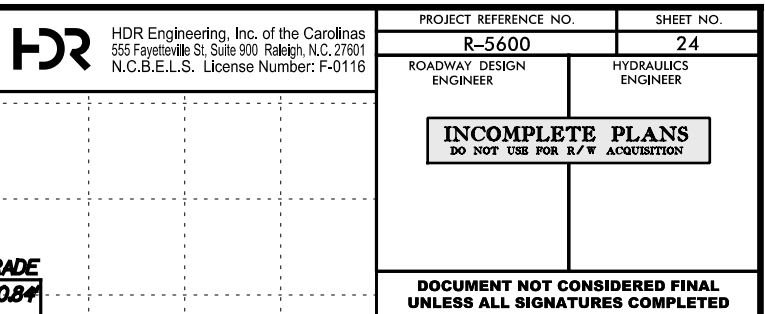


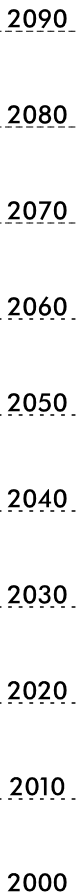
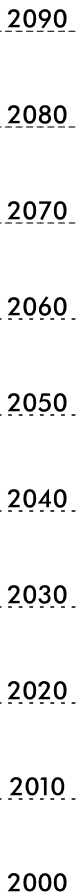
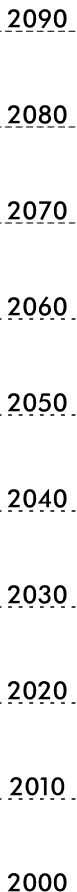
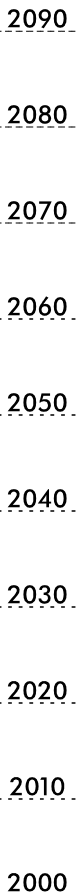
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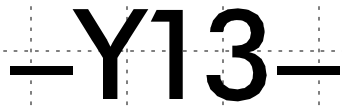






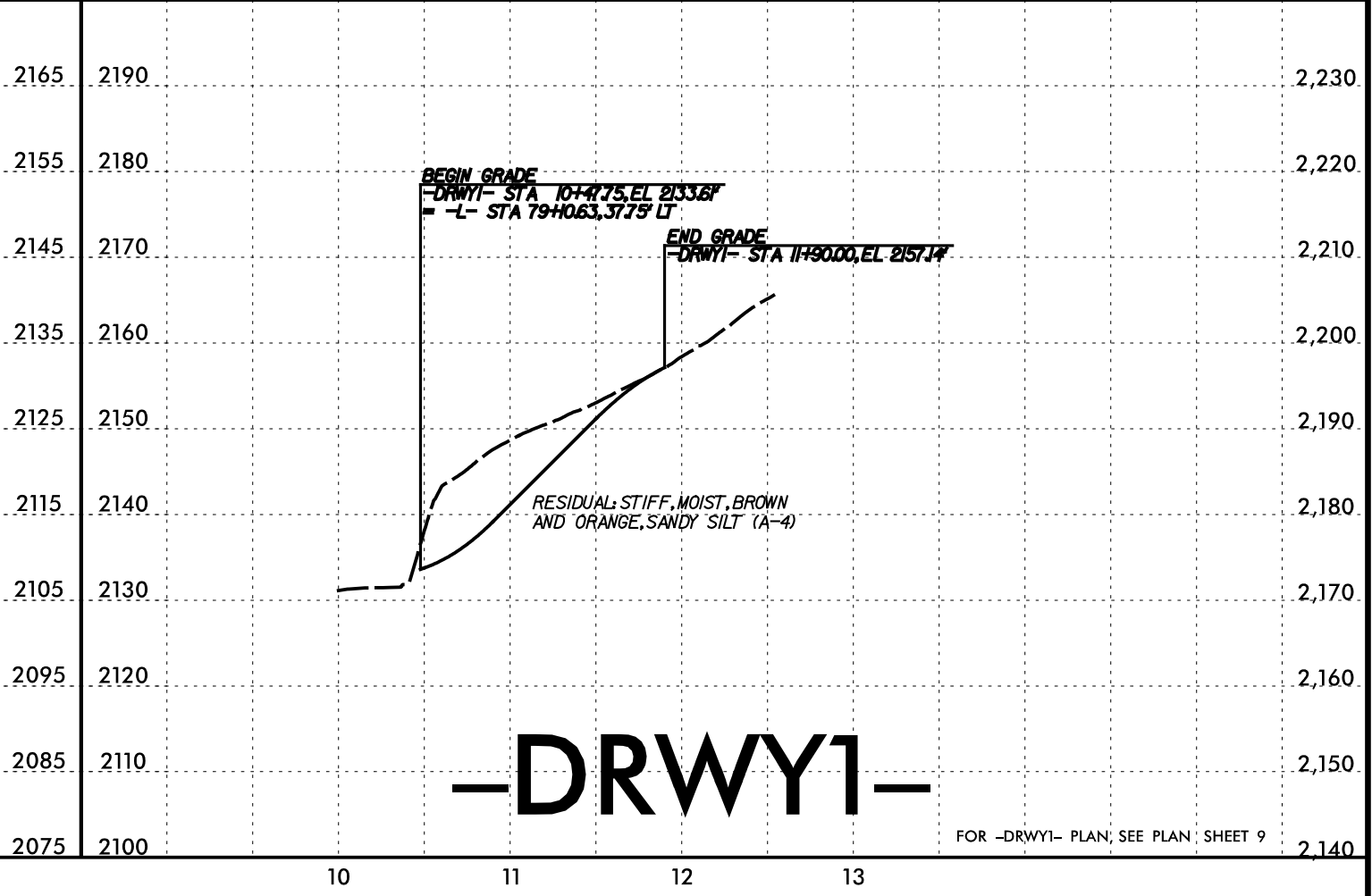
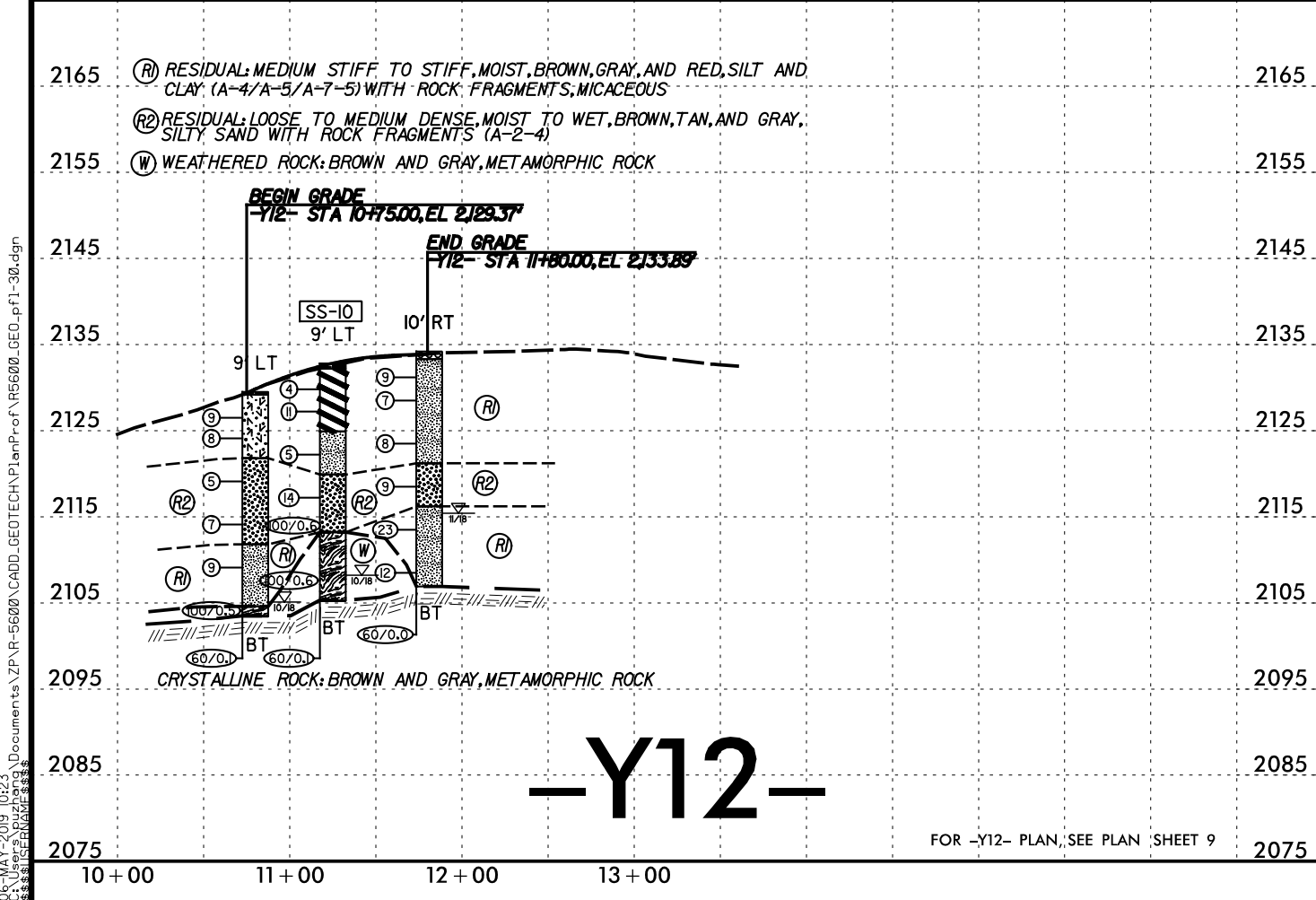










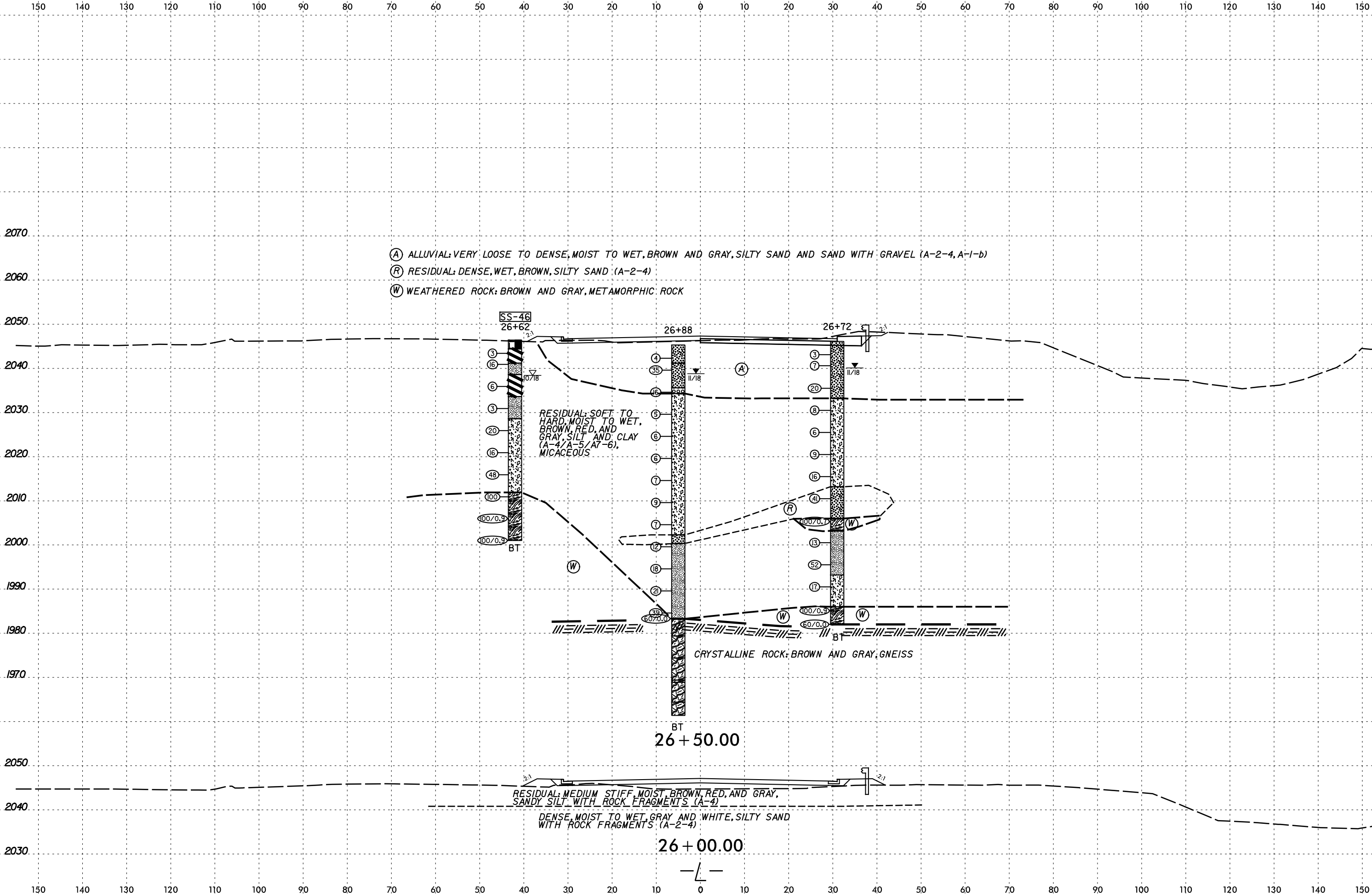




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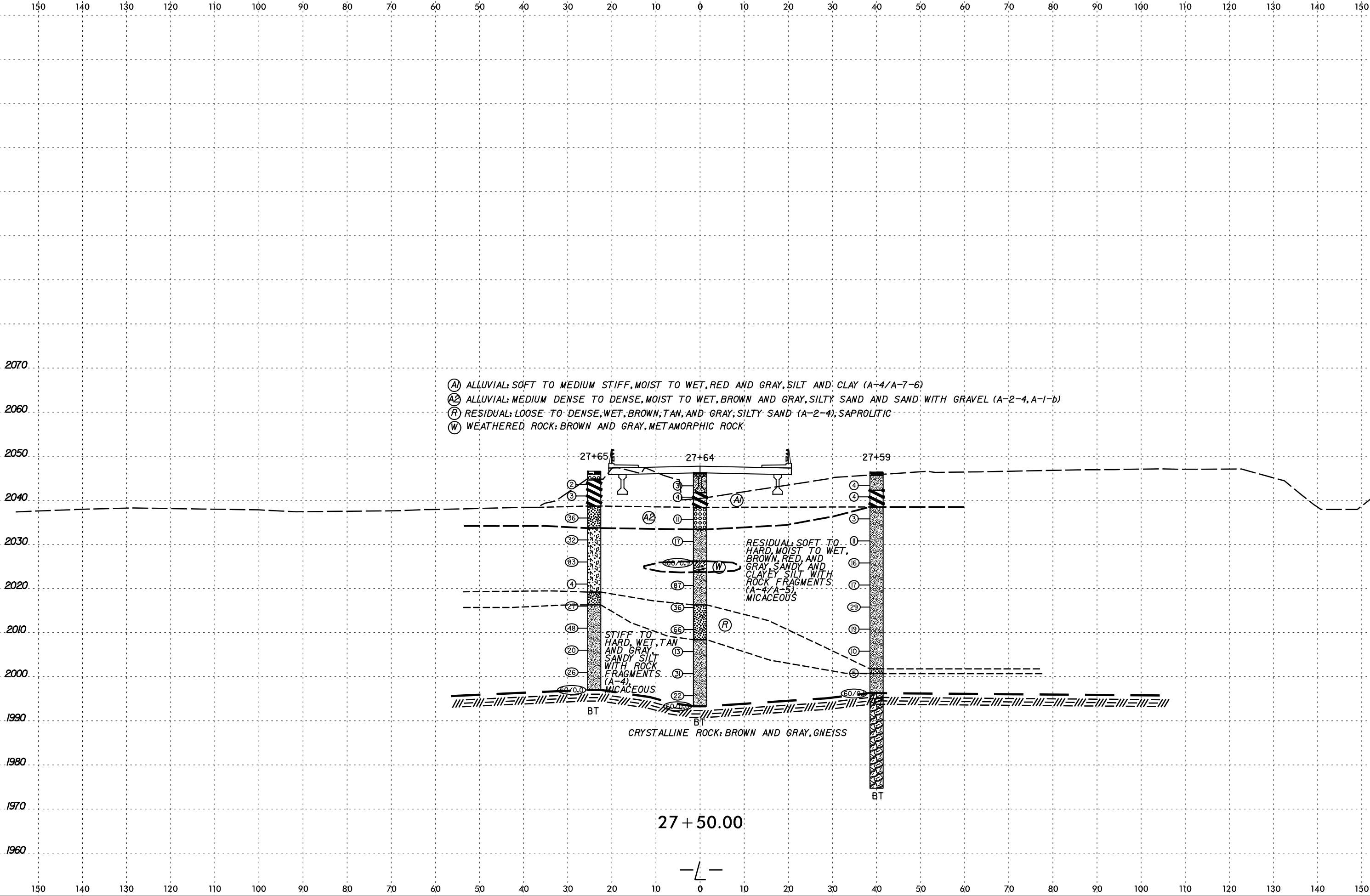




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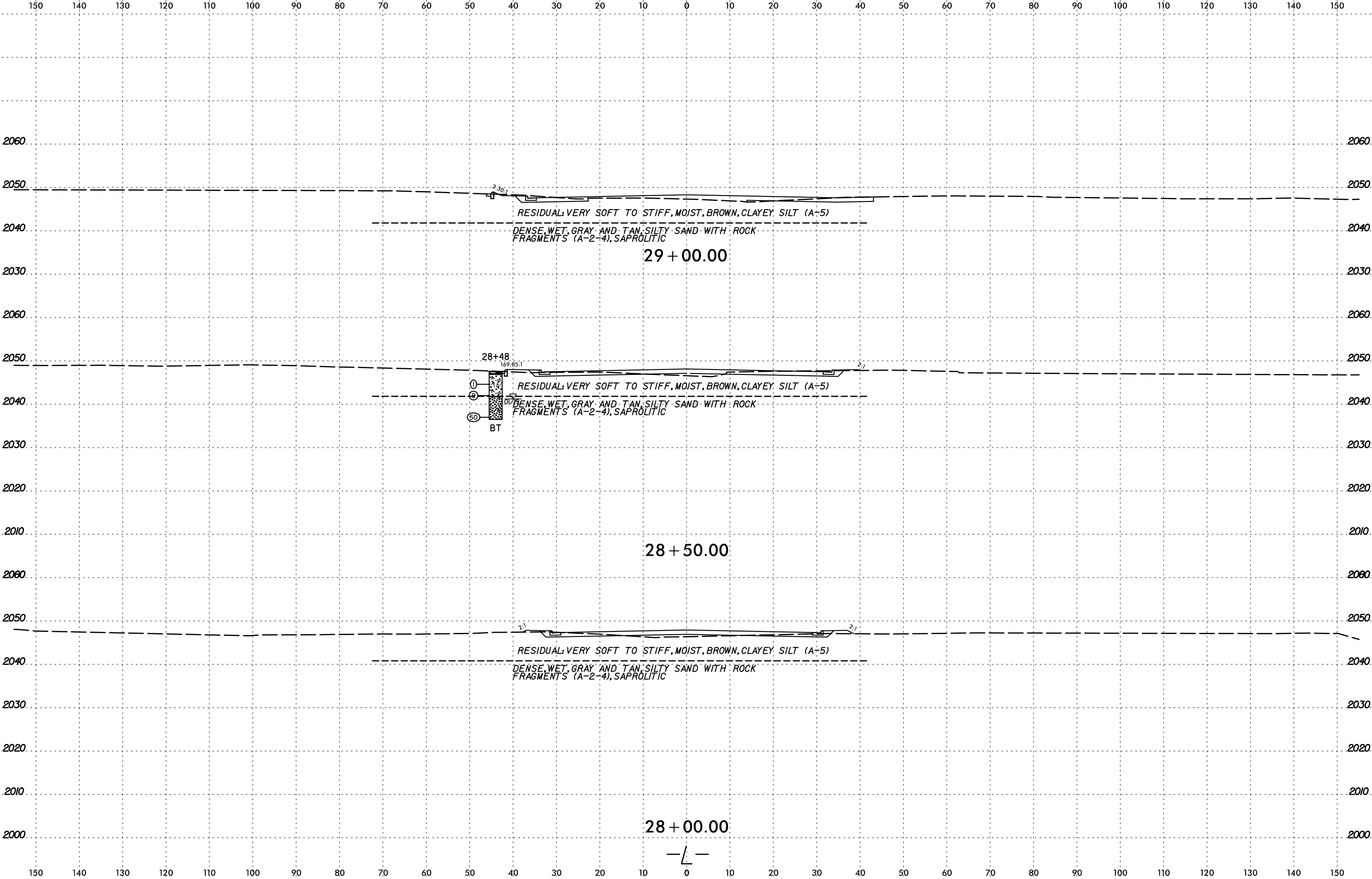


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R-5600	34



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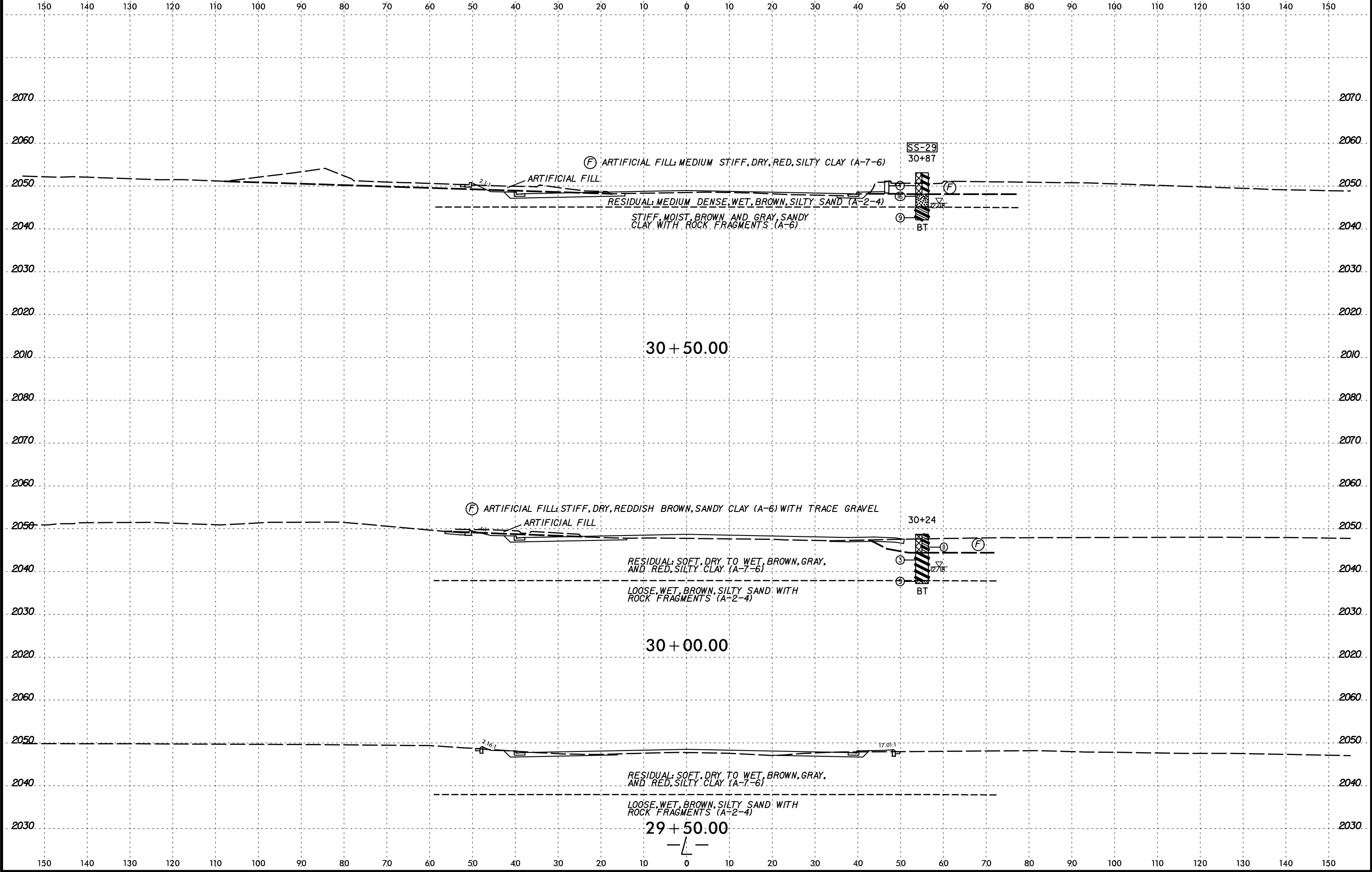


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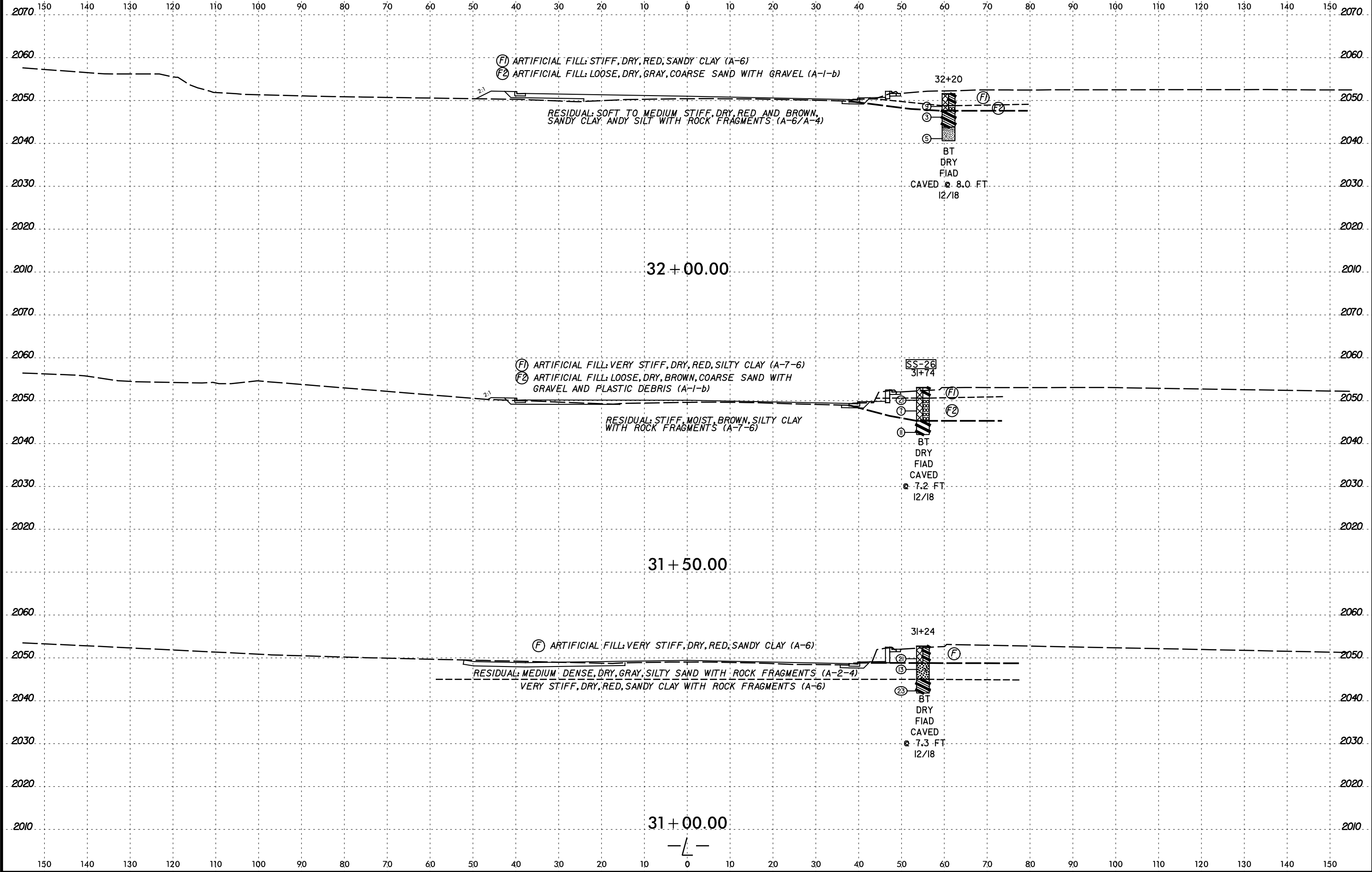
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6/23/16



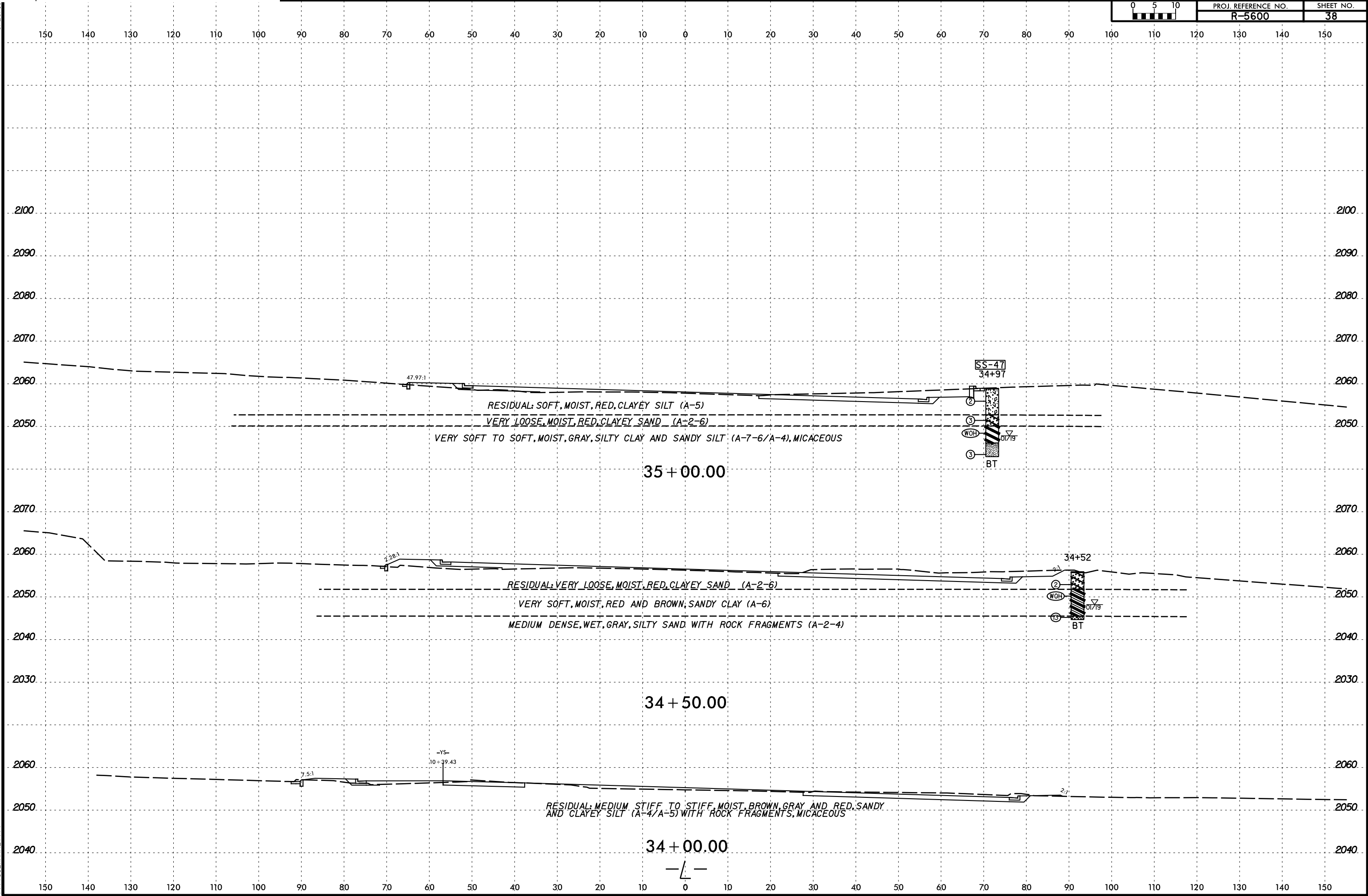
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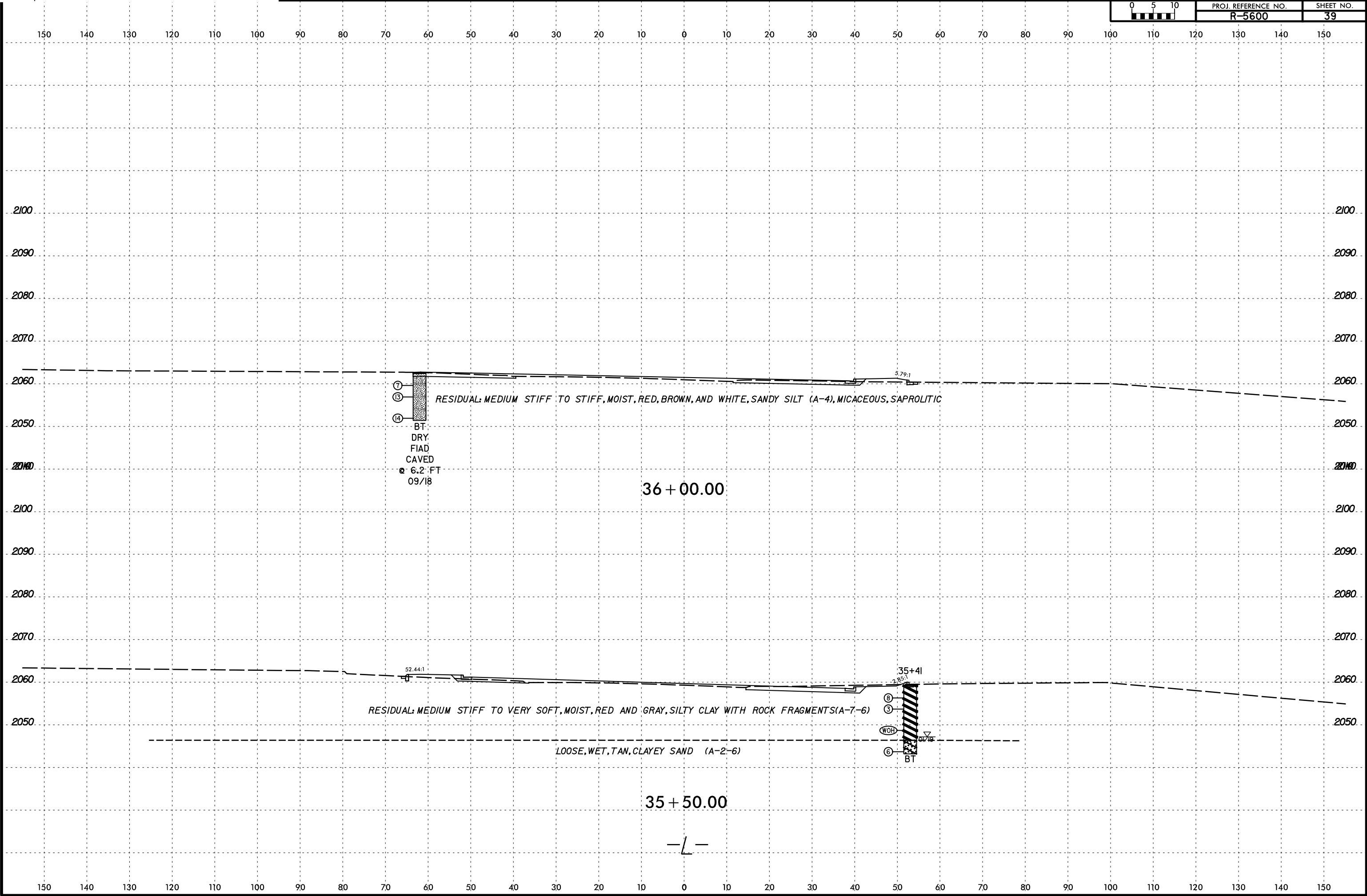
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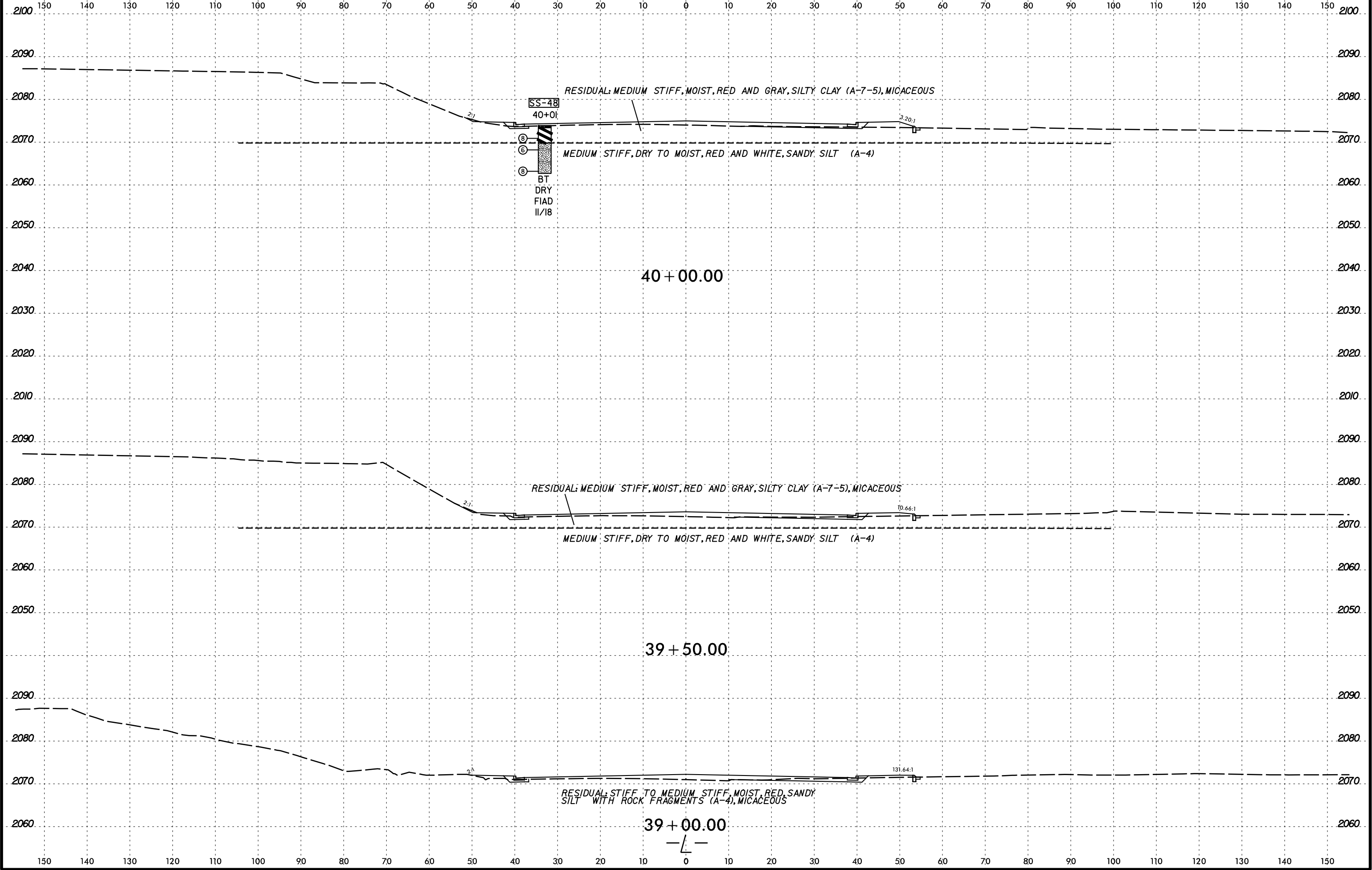


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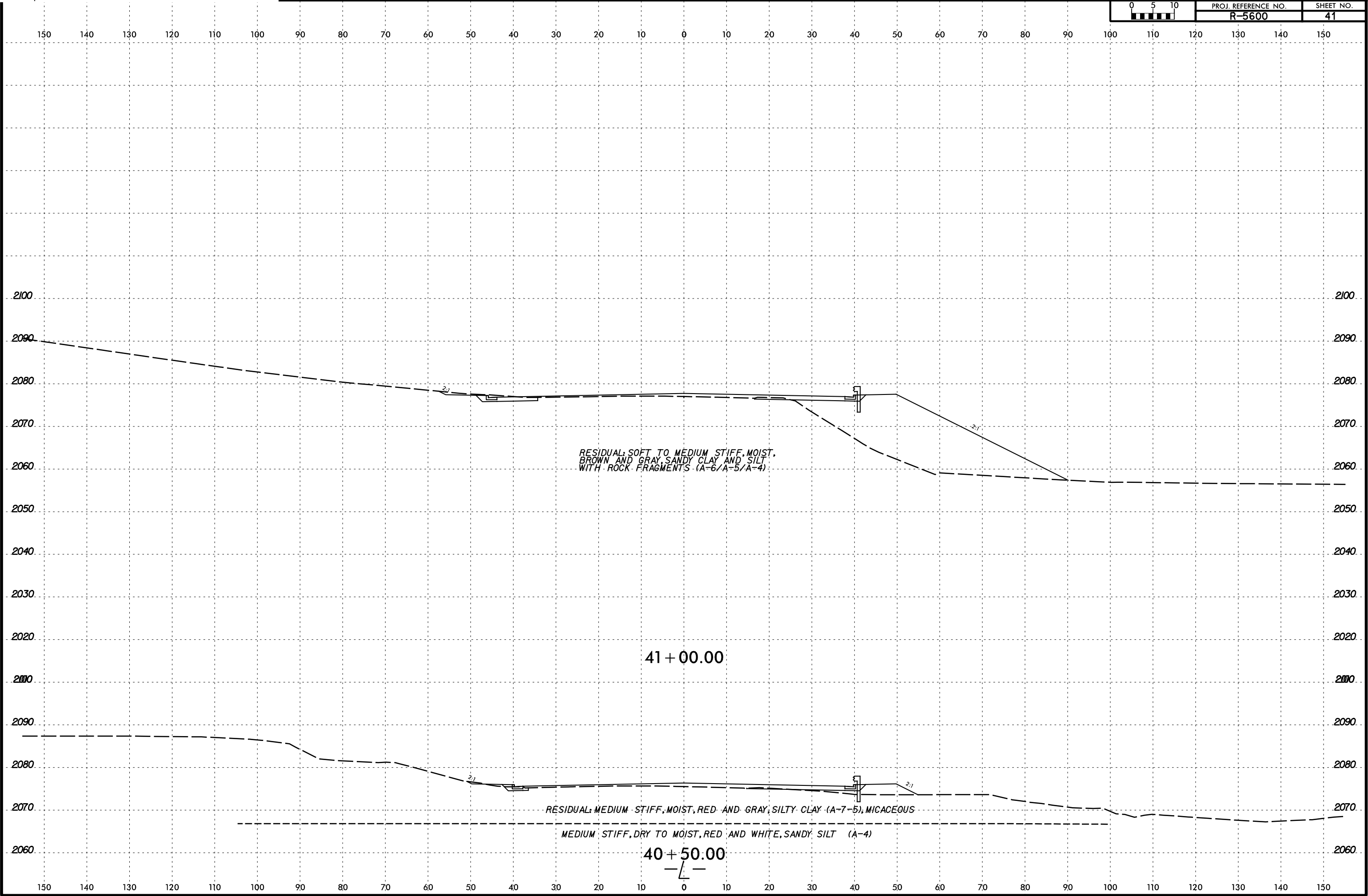


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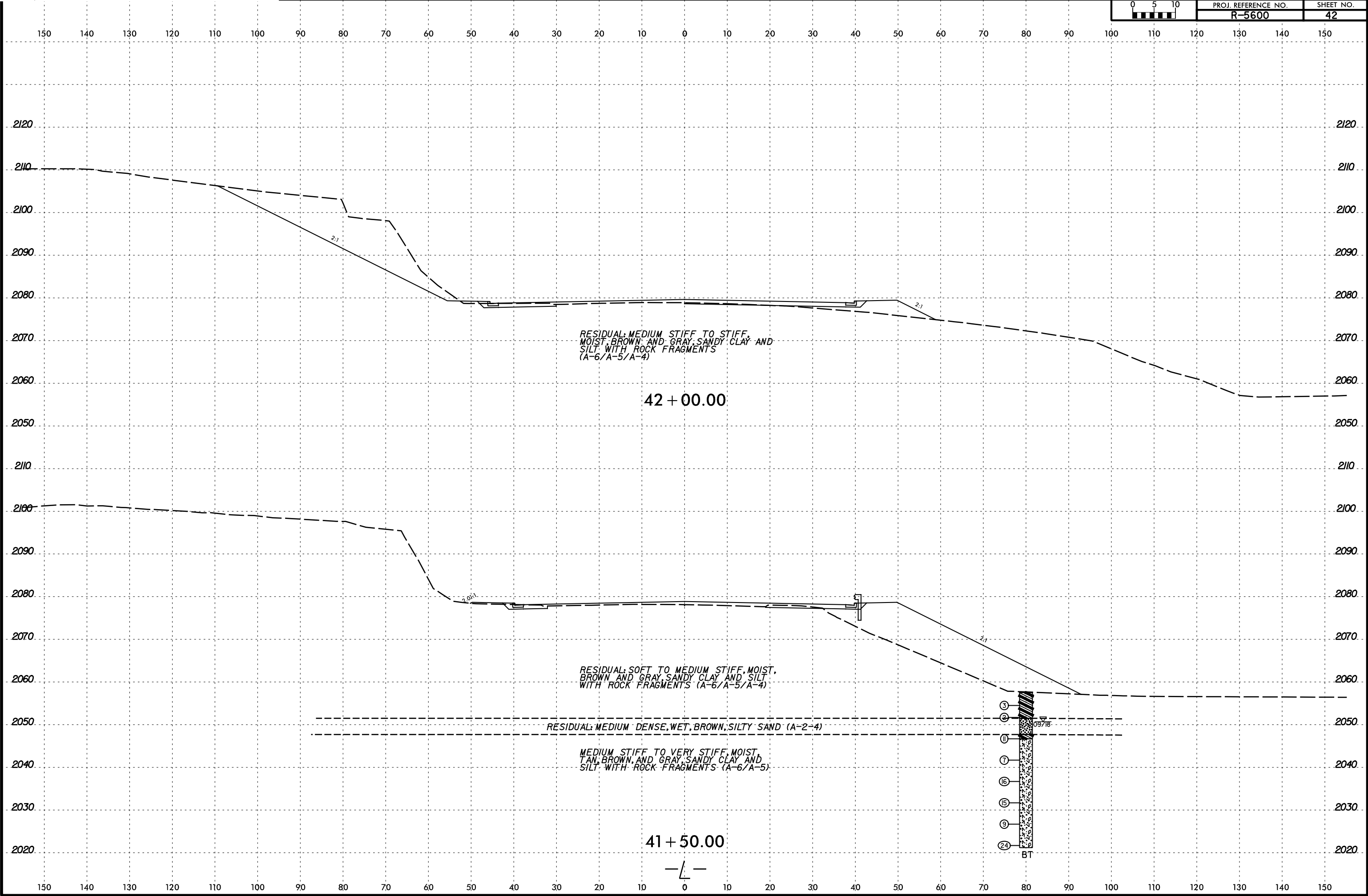
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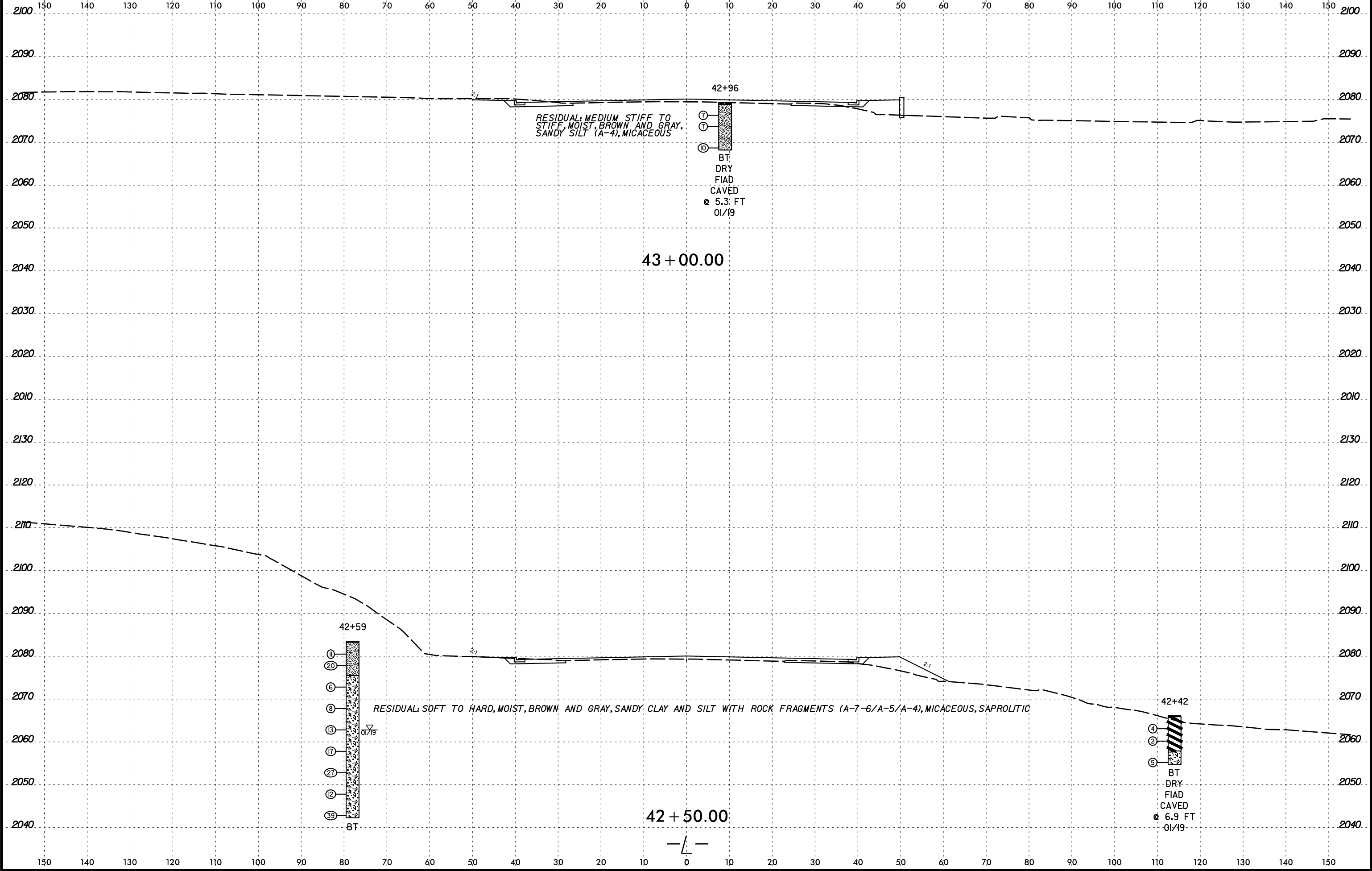
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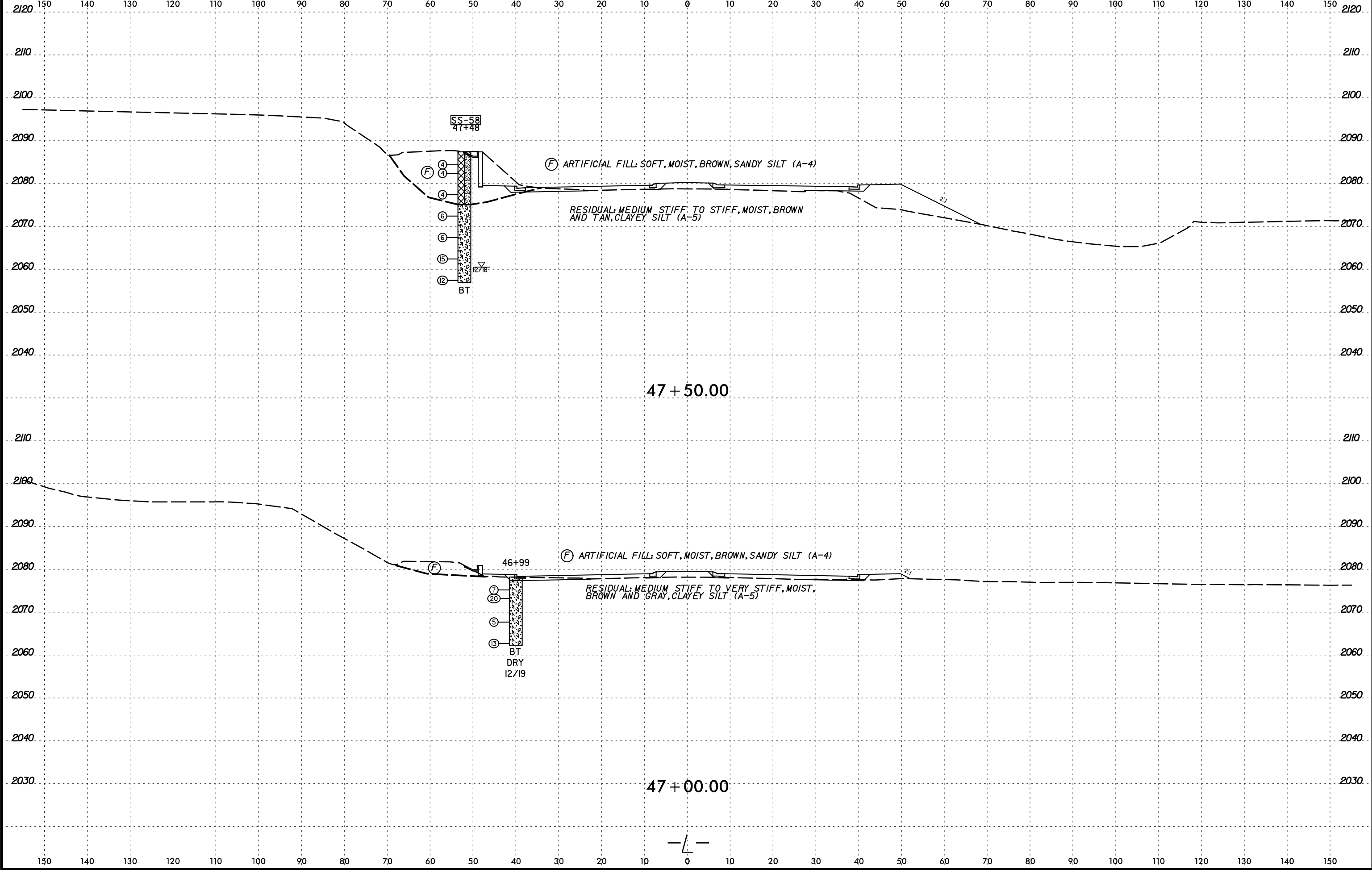
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6/23/16



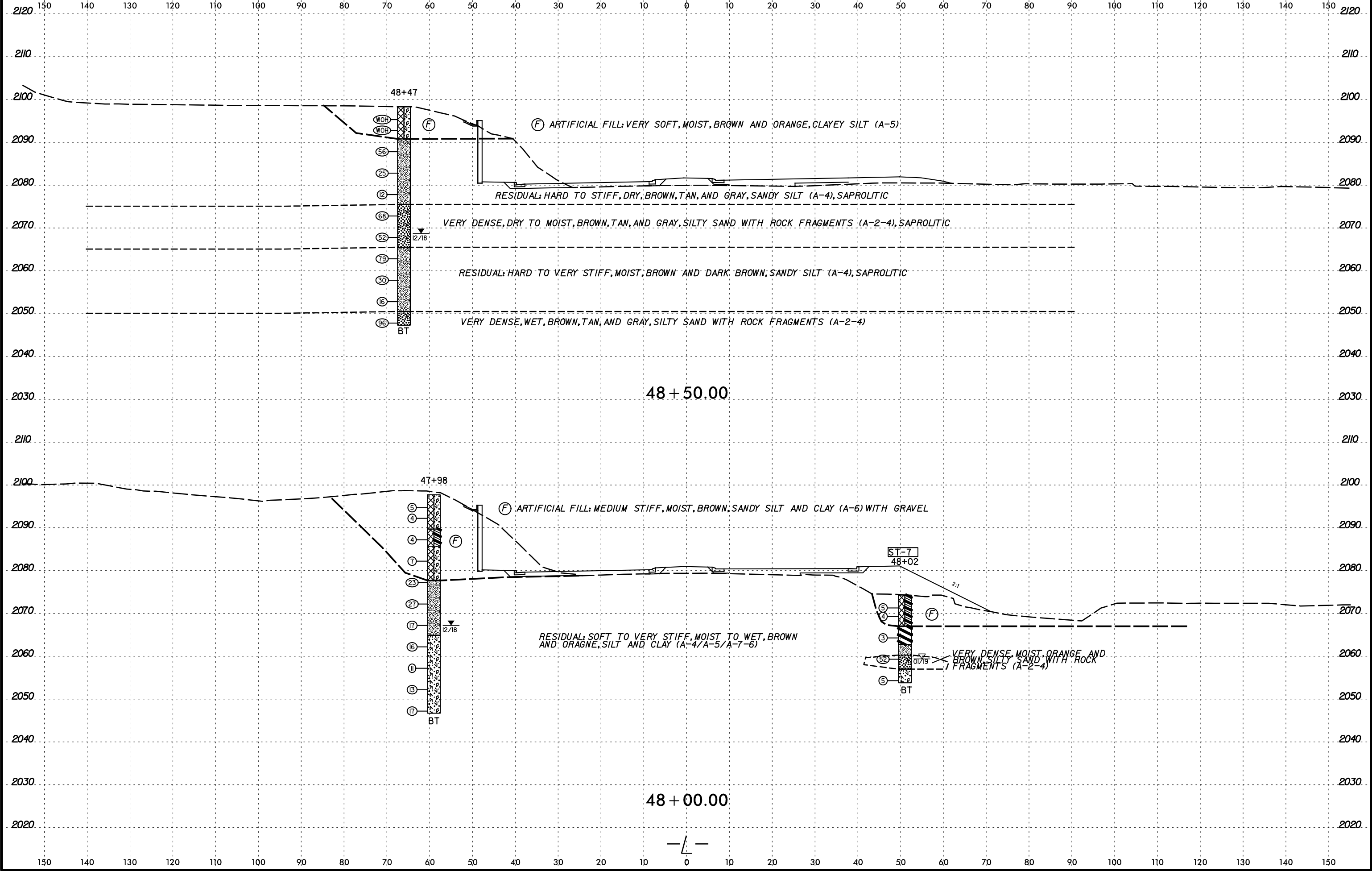
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6/23/16



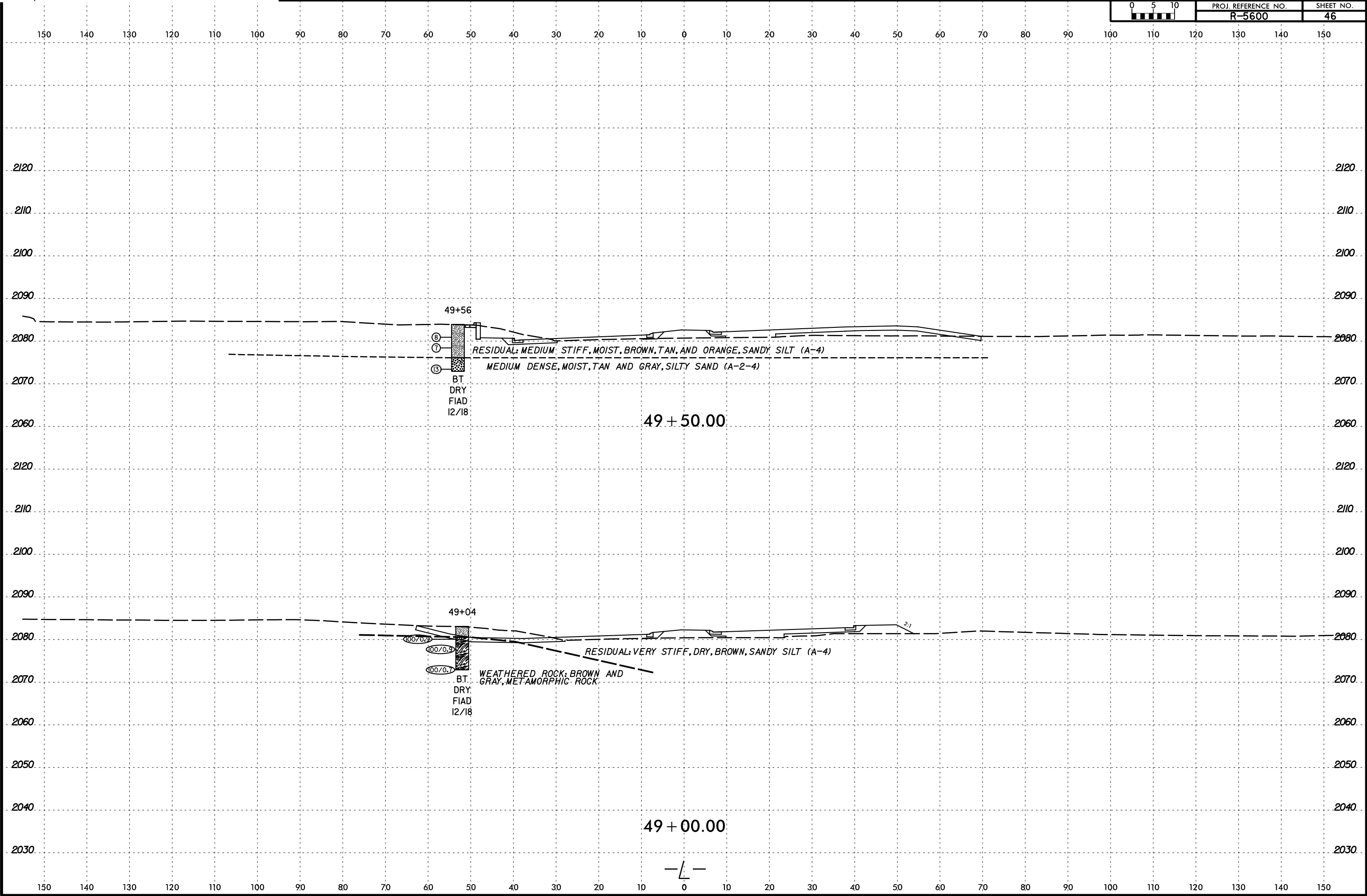
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6/23/16



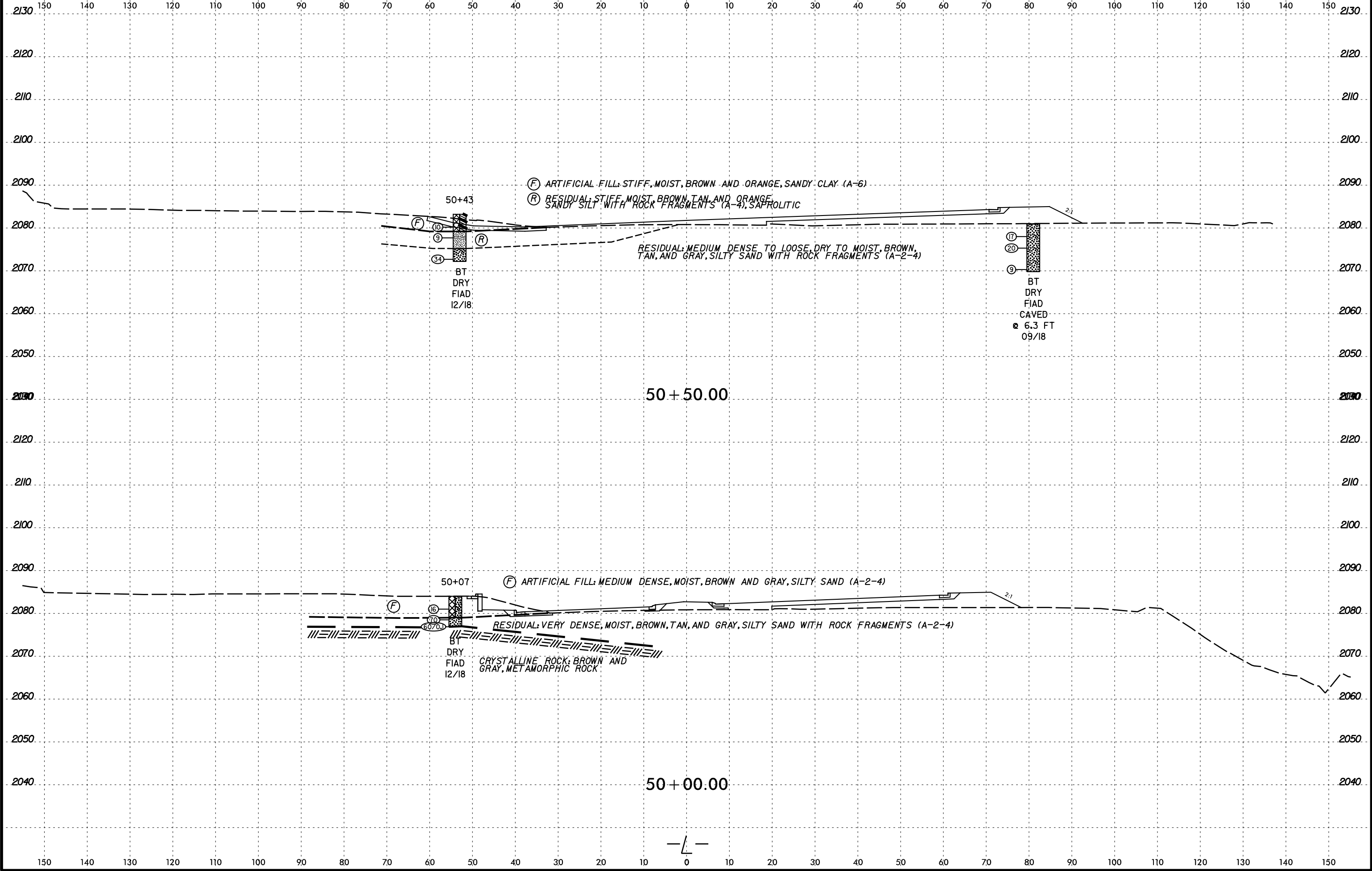
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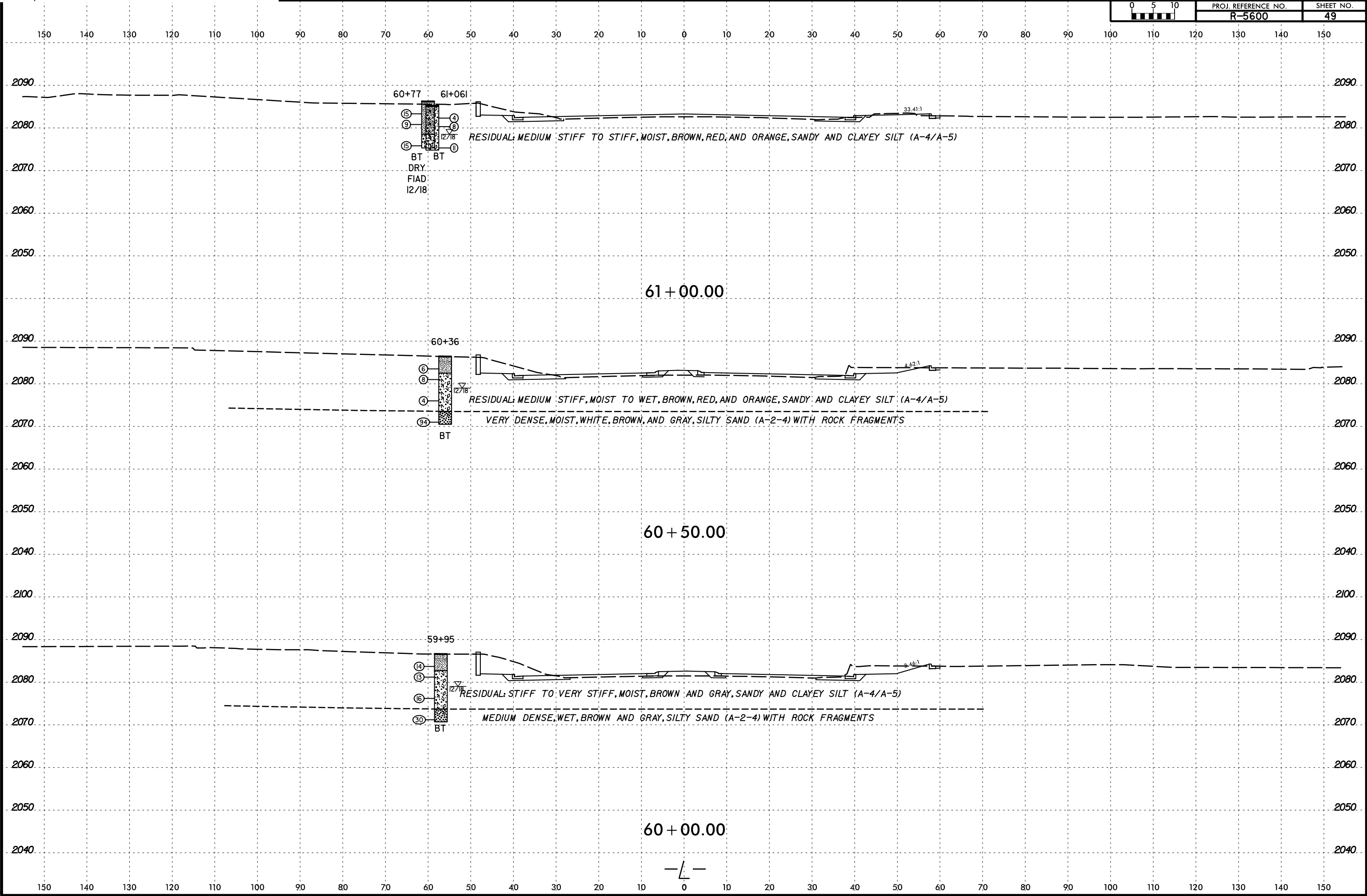




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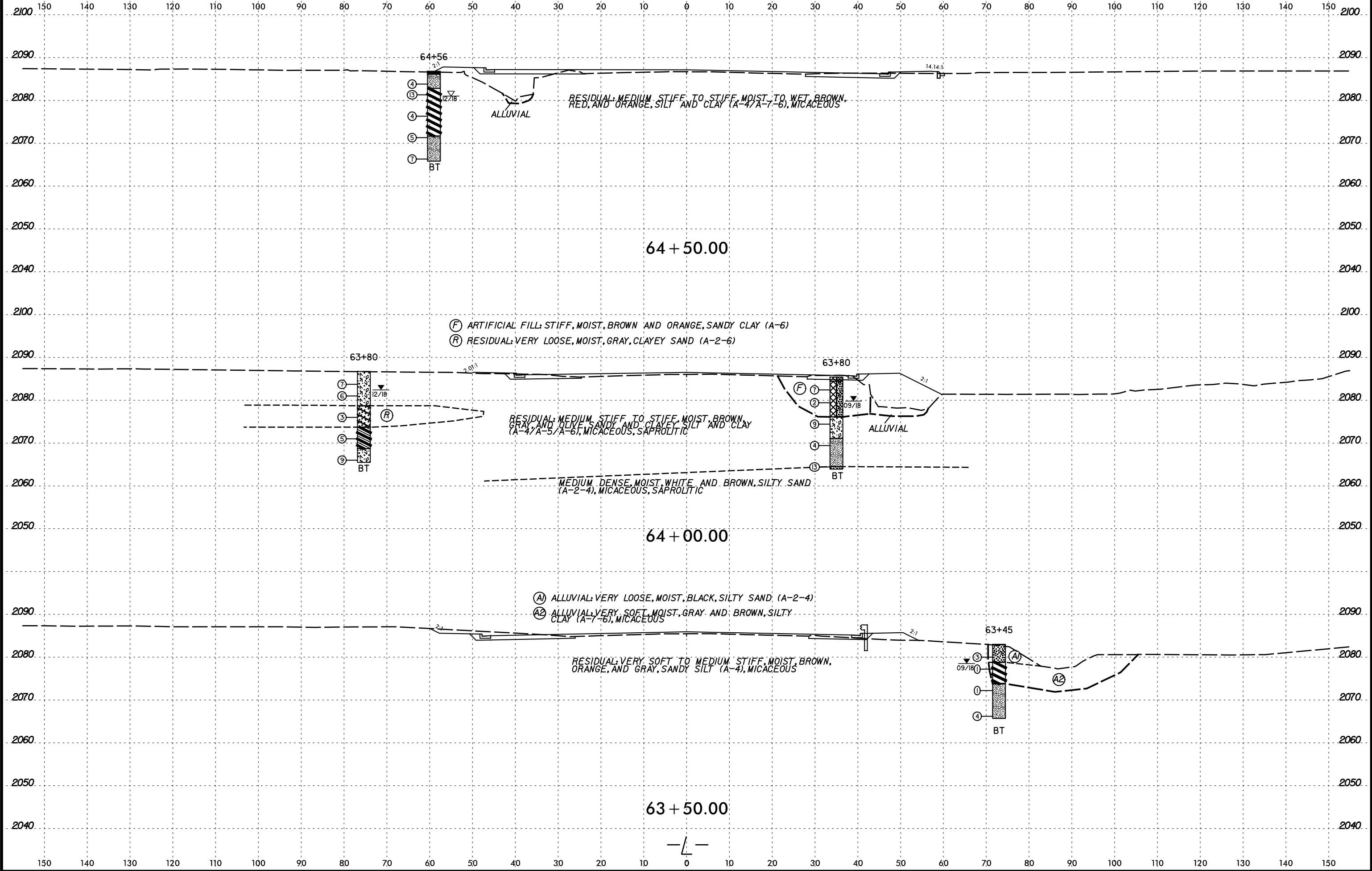
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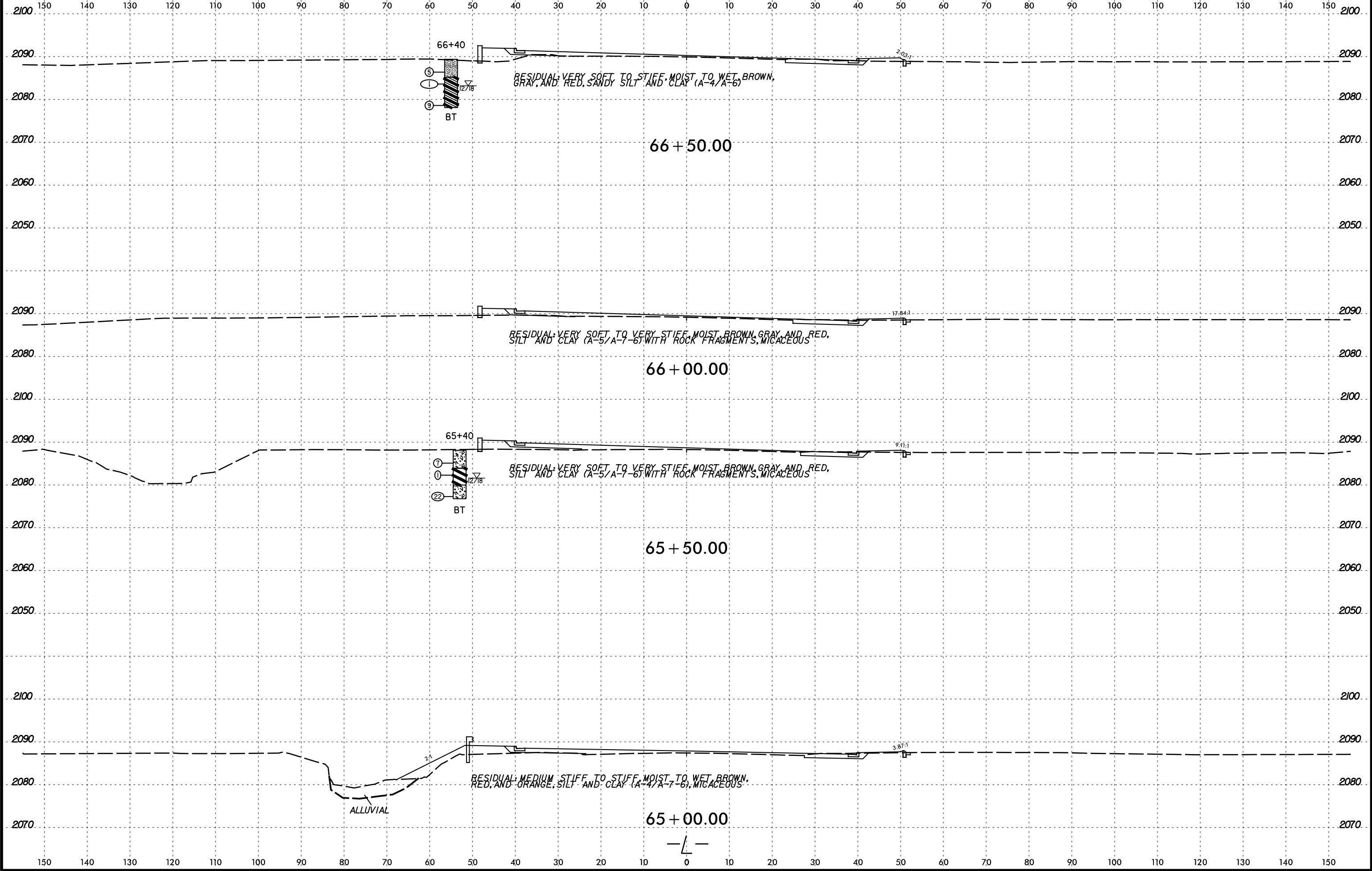
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6/23/16

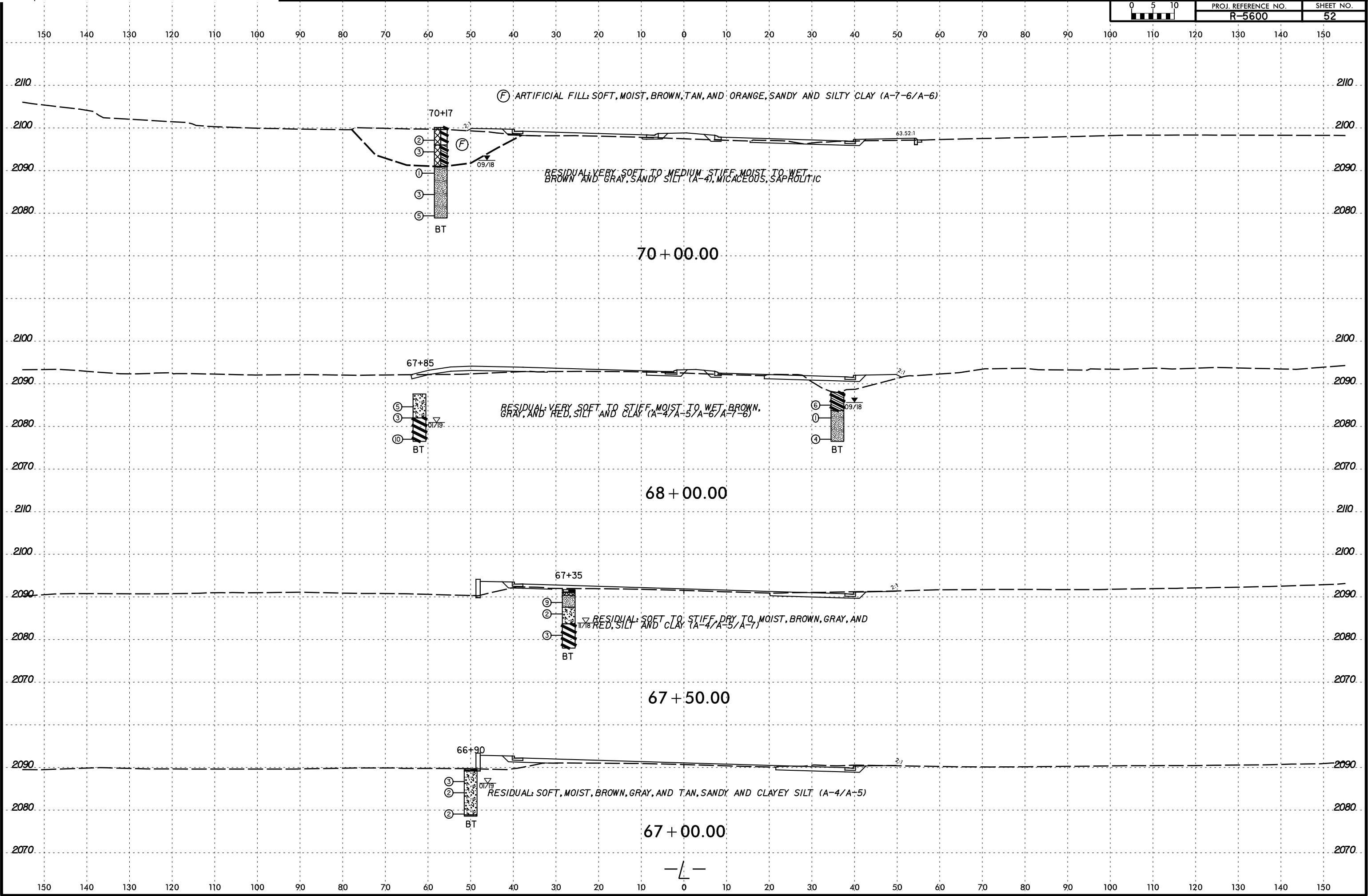


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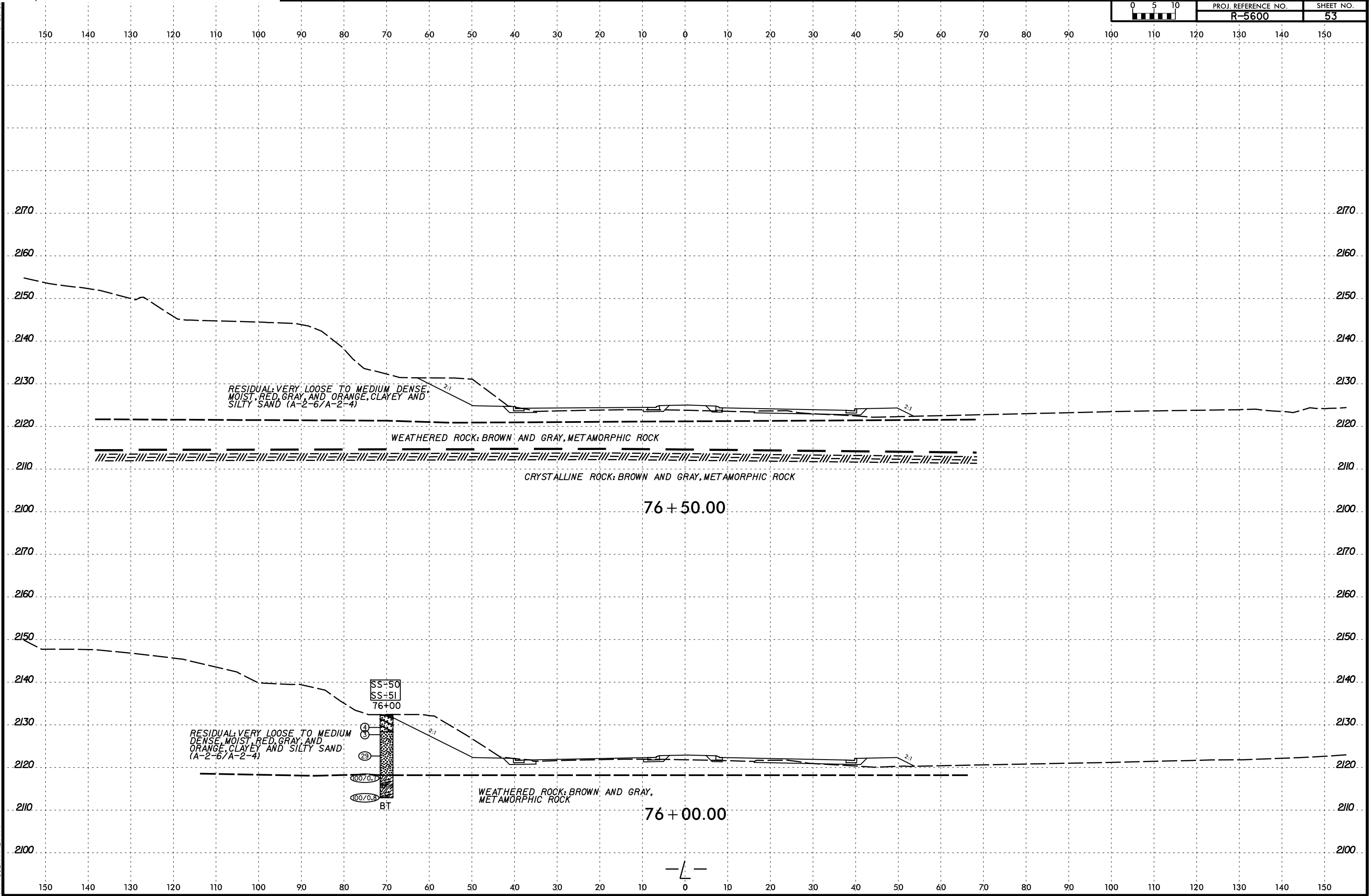
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6/23/16

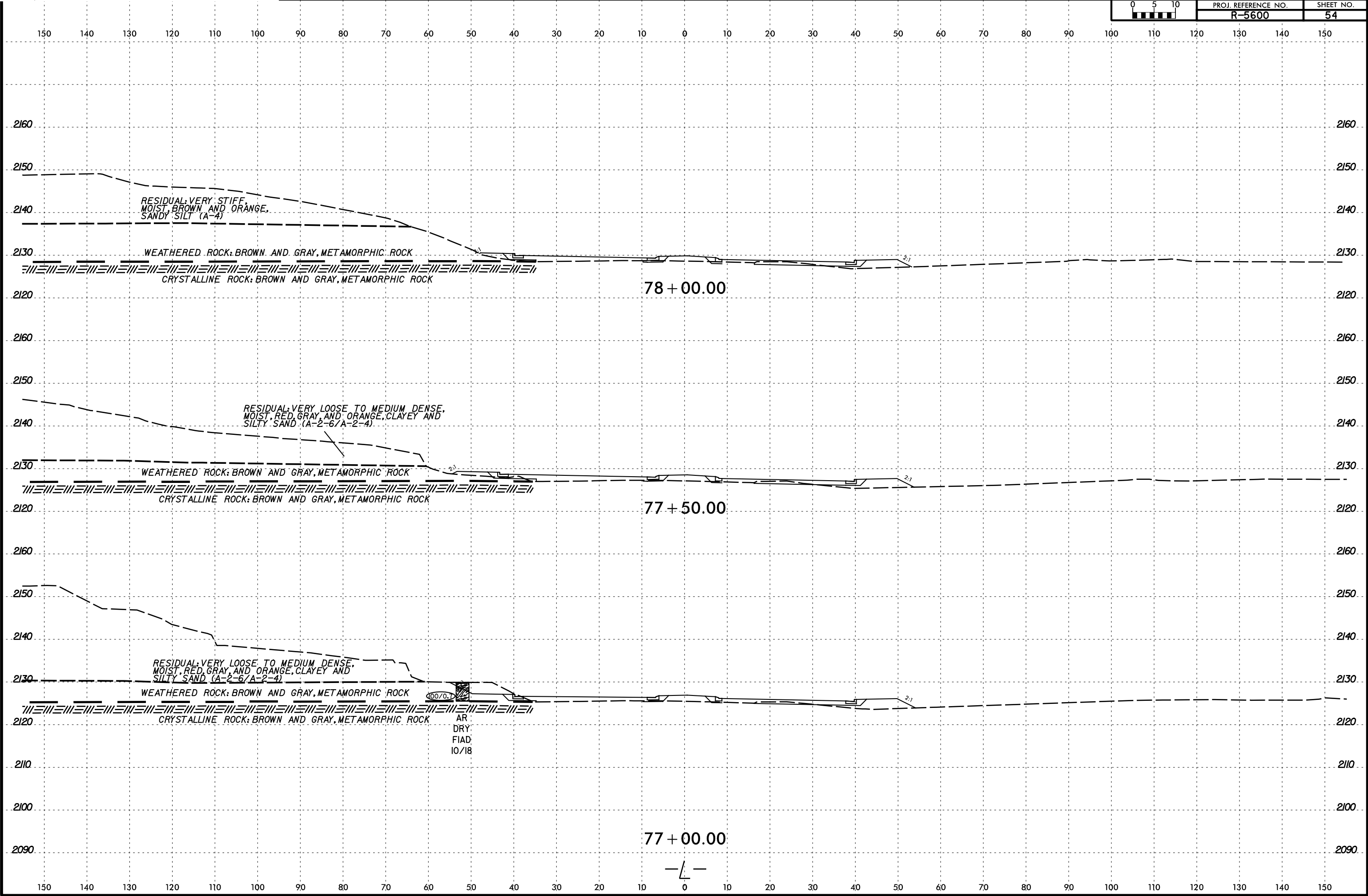
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6/23/16

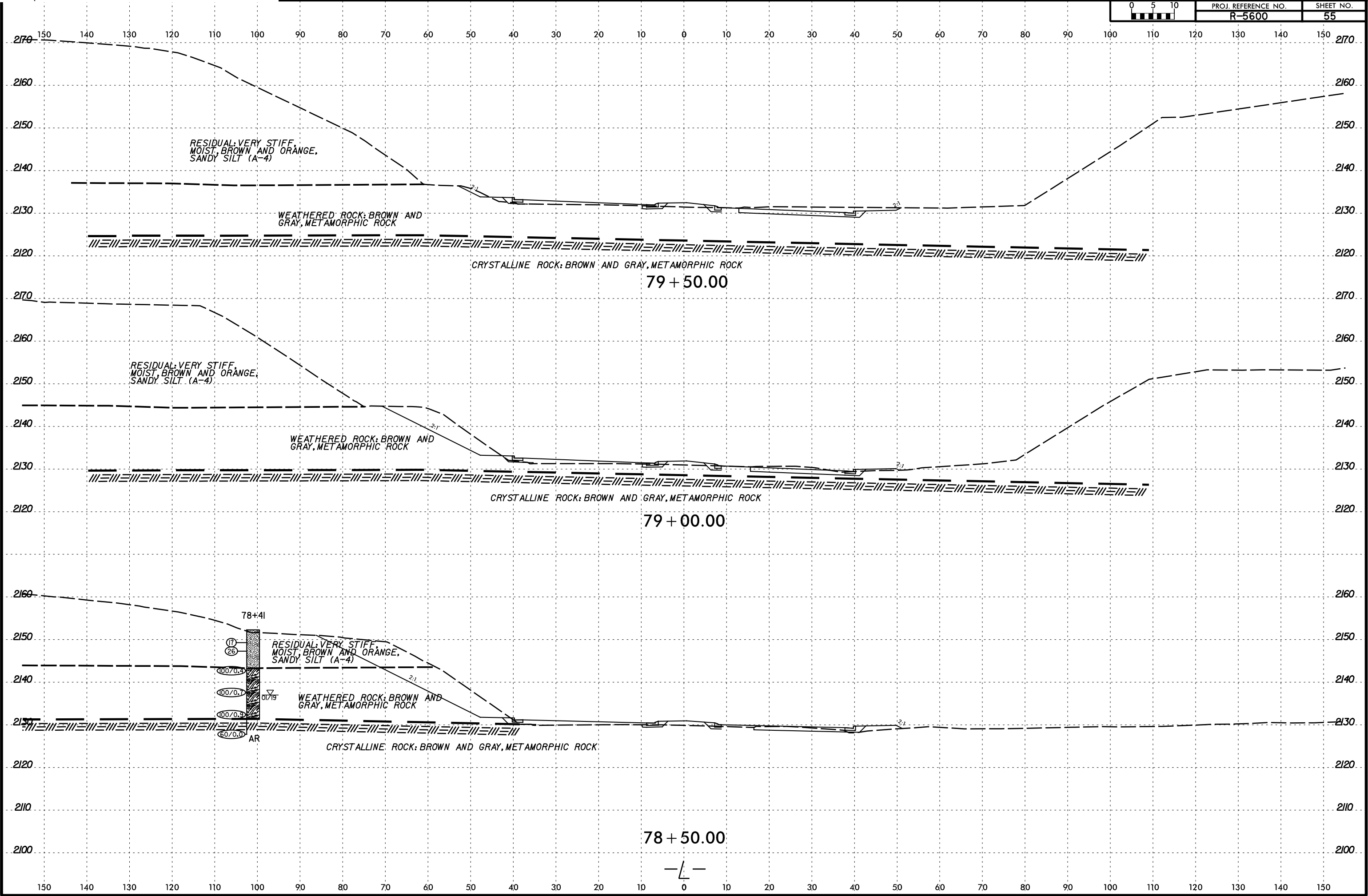


PROJ. REFERENCE NO.	SHEET NO.
R-5600	54



6/23/16

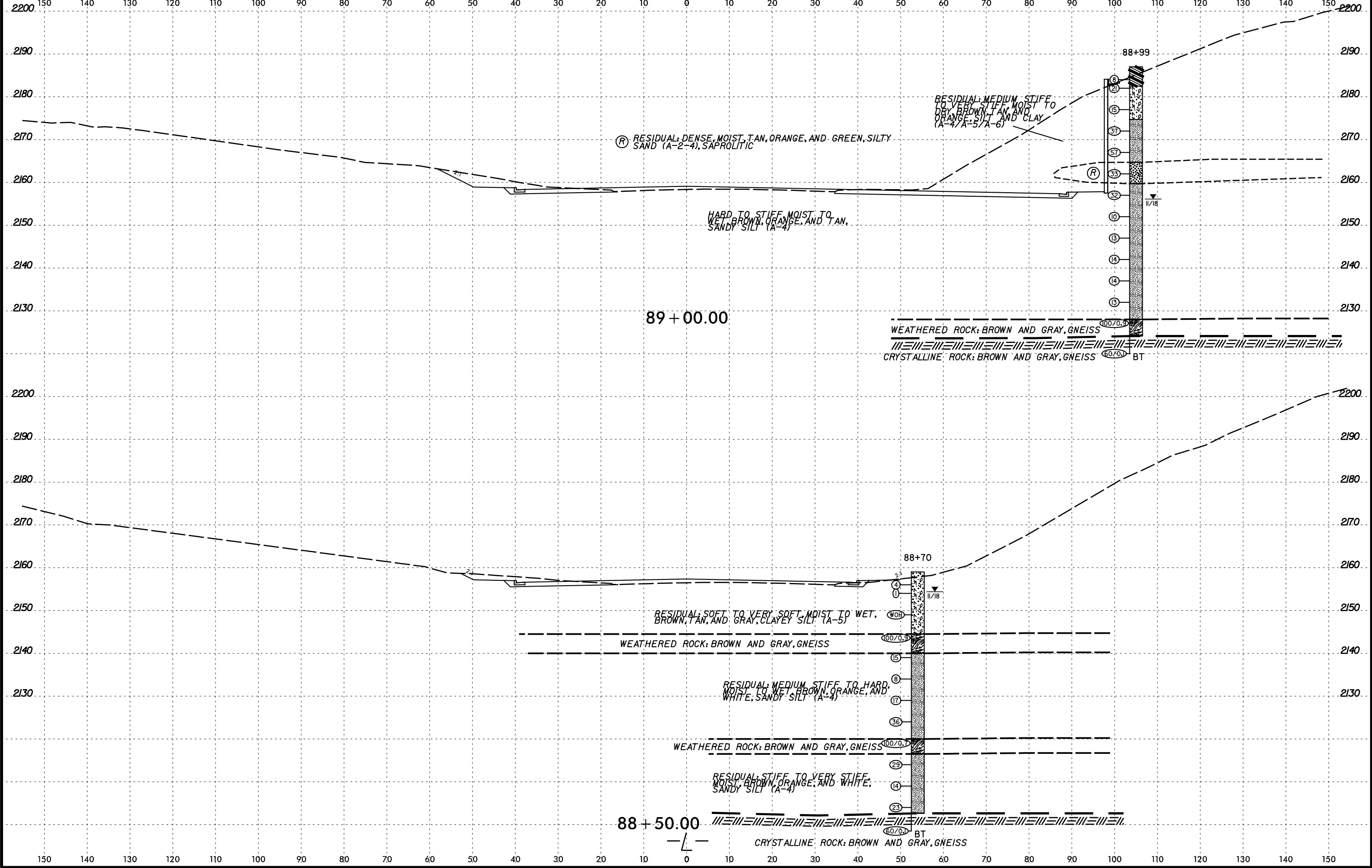
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R-5600	55



6/23/16



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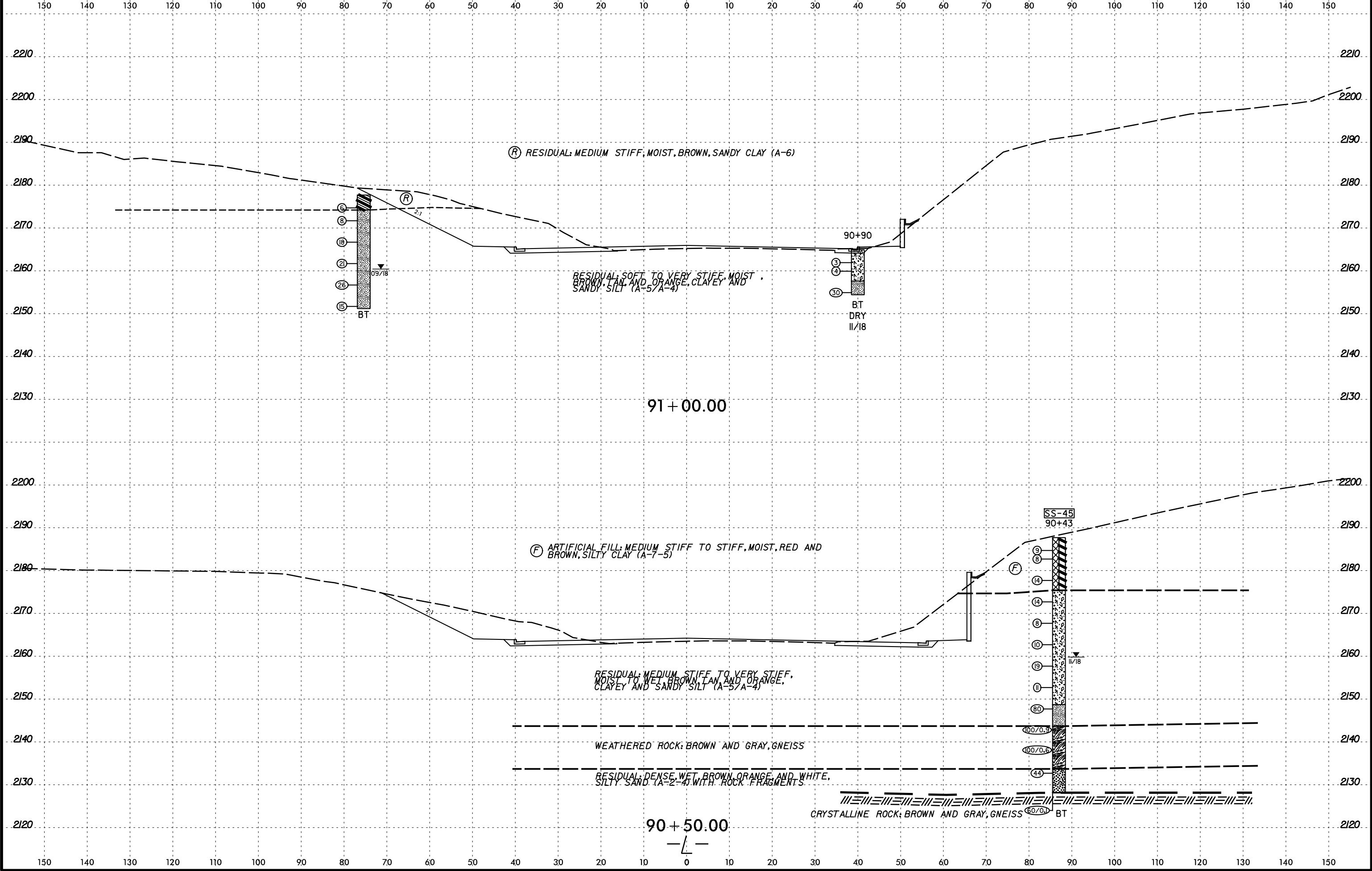




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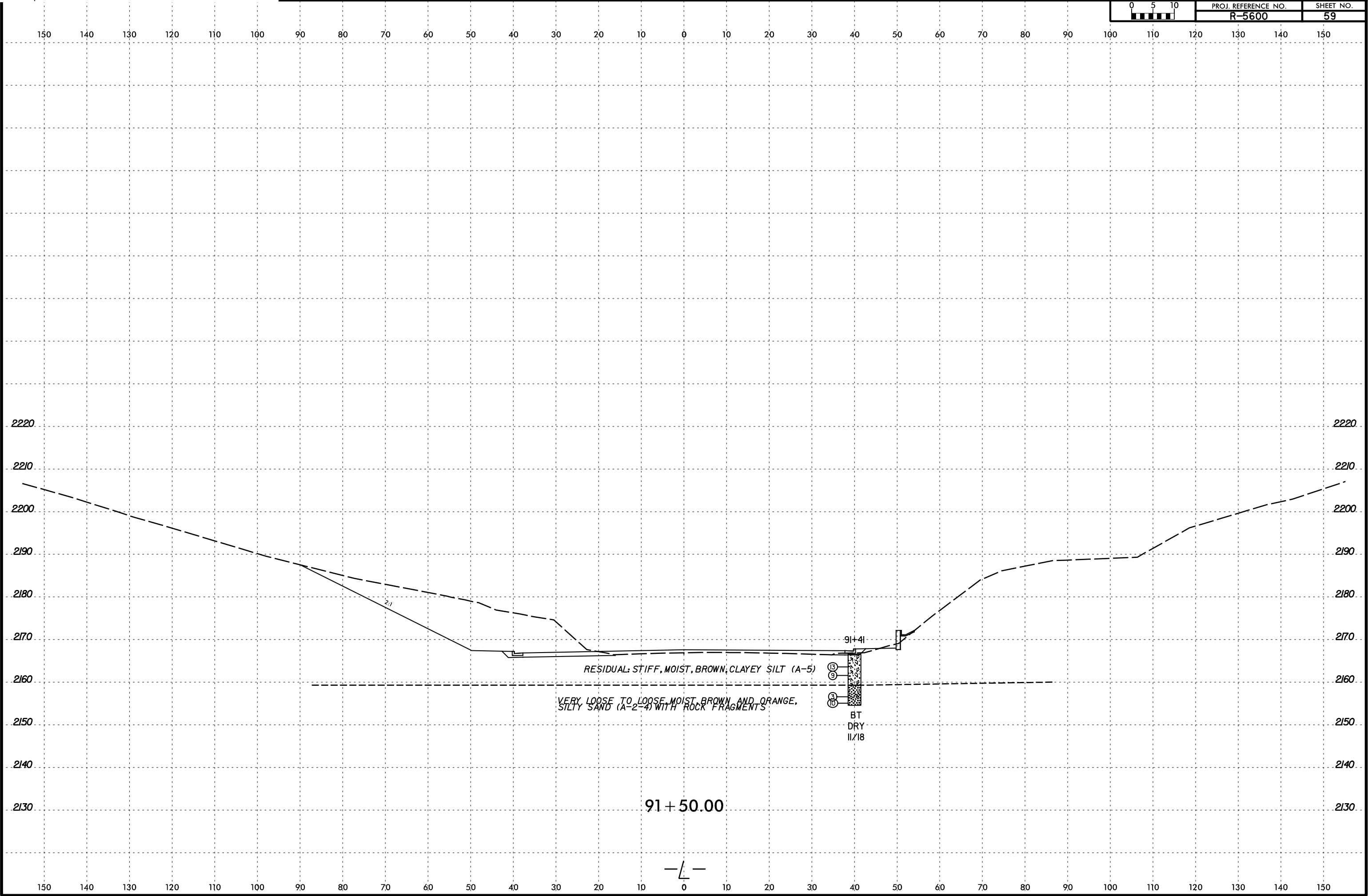


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R-5600	58



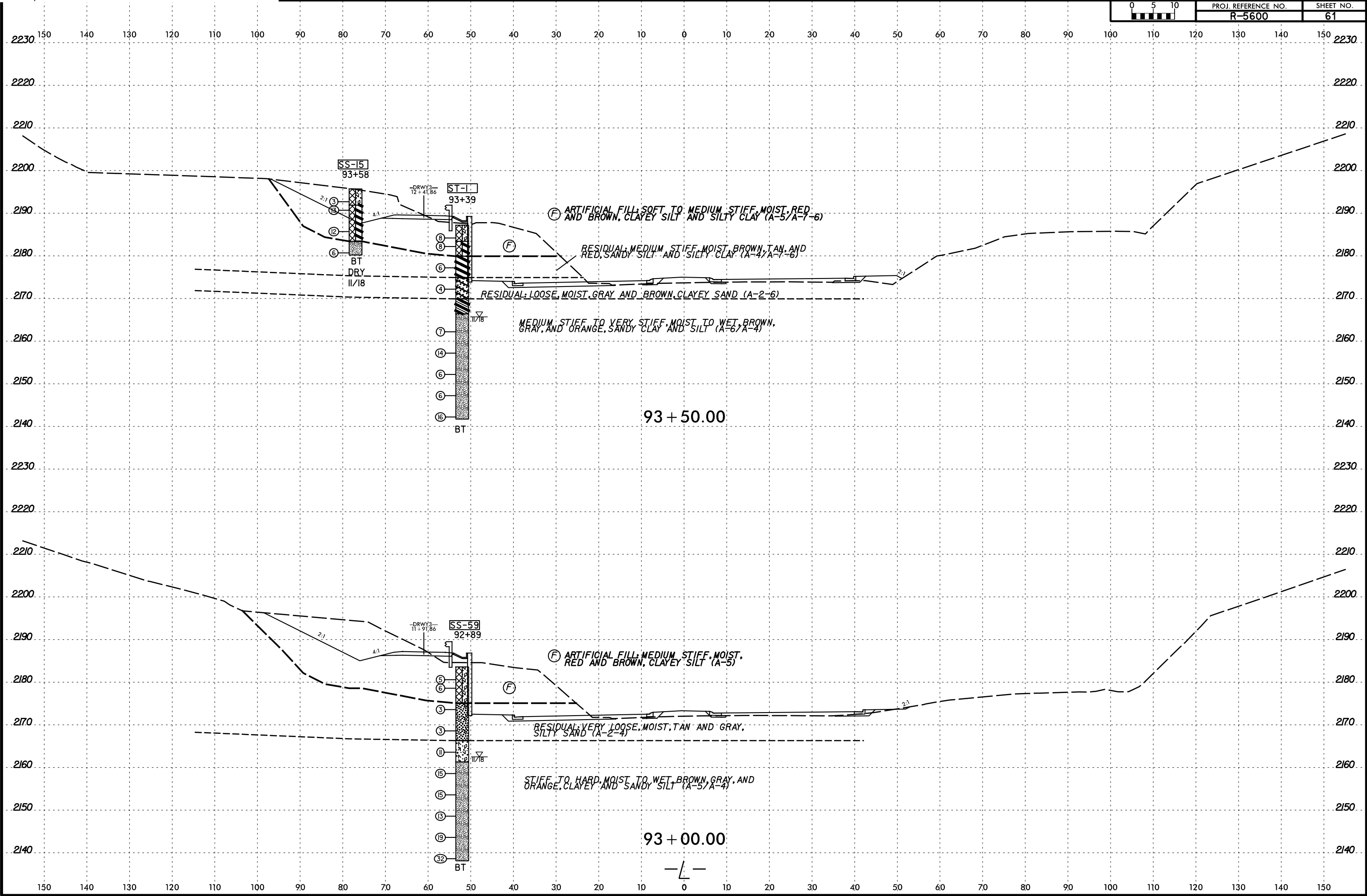
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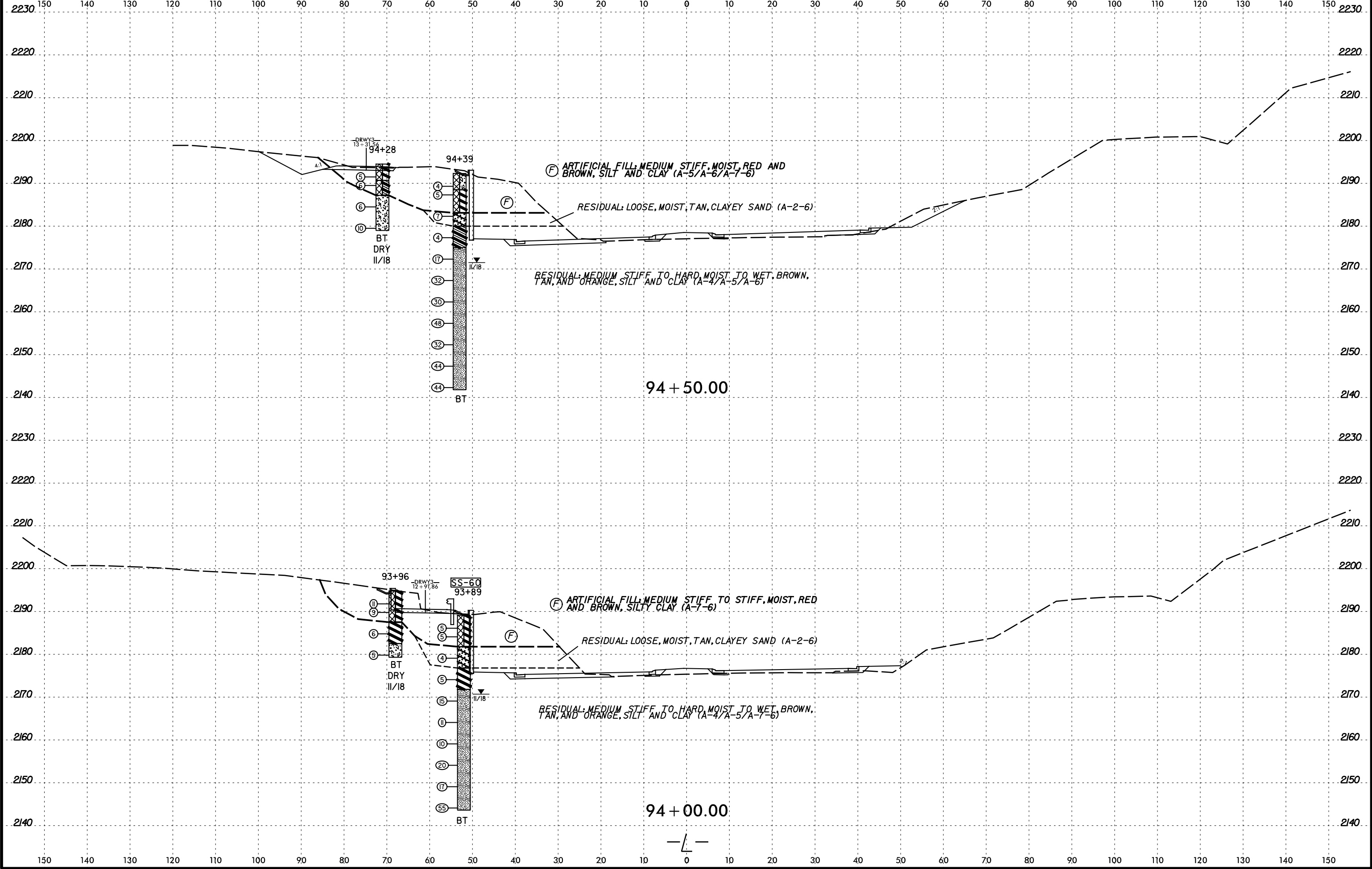
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6/23/16

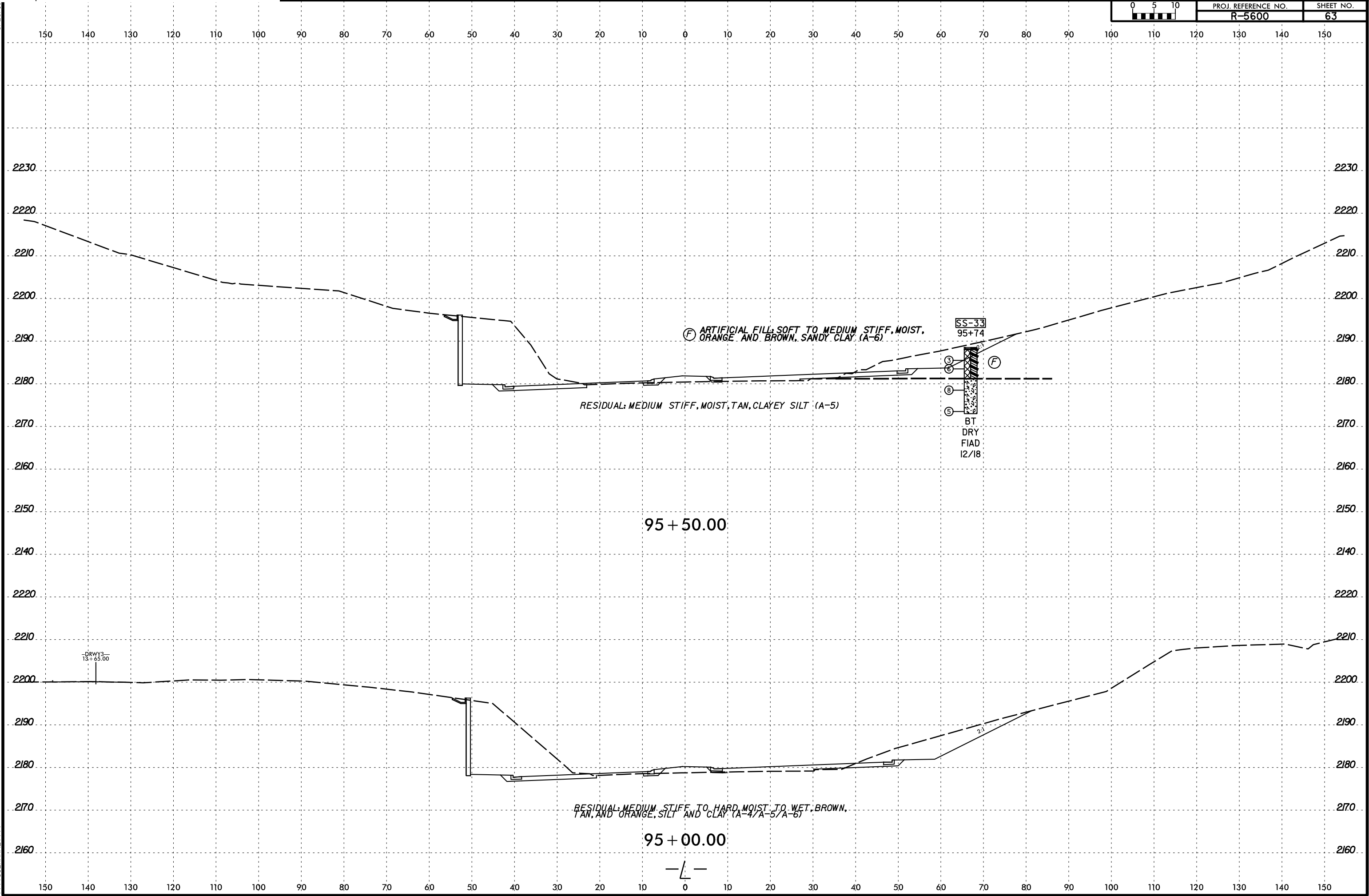


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6/23/16

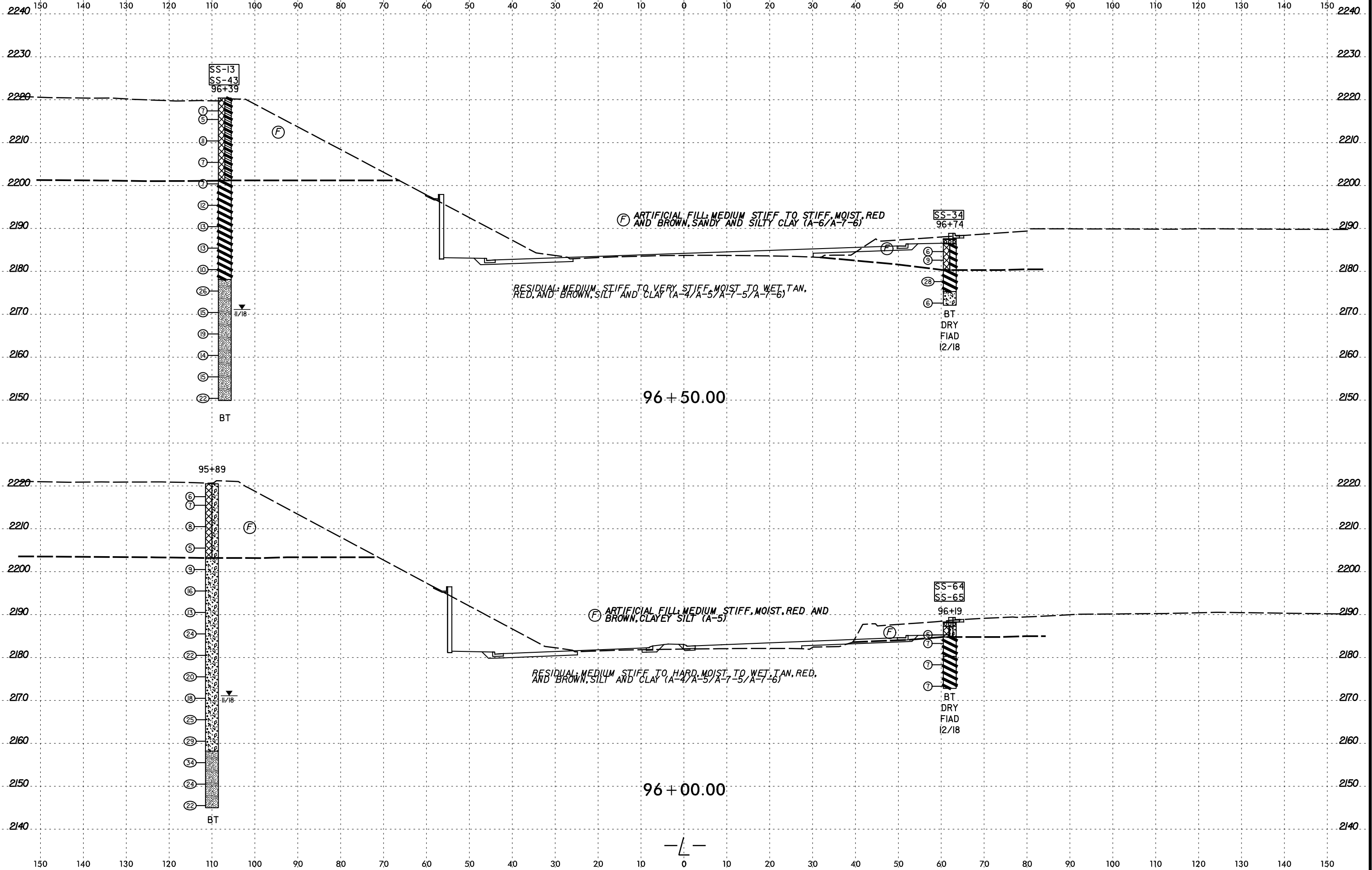
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	R-5600	63



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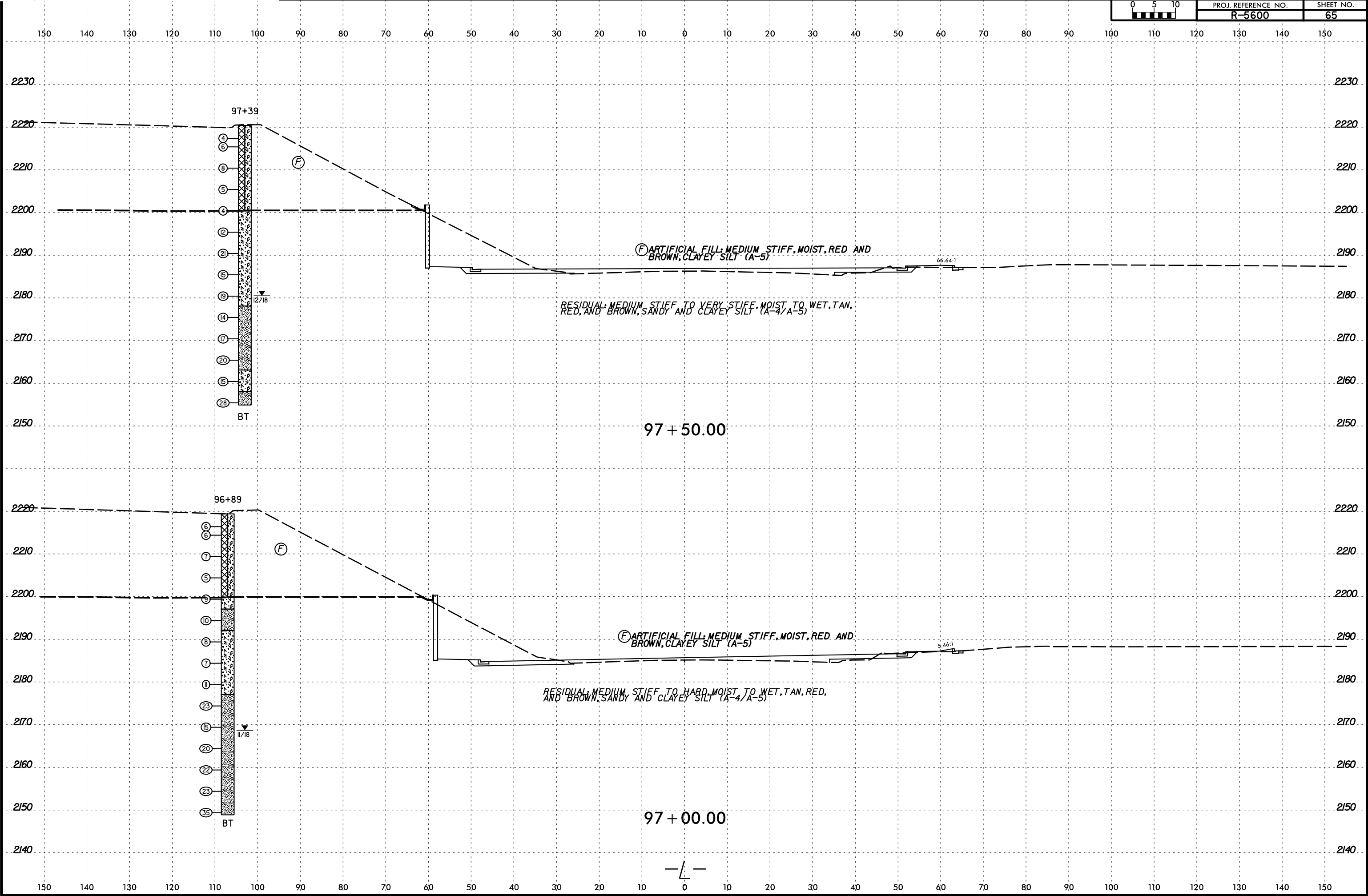
PROJ. REFERENCE NO.	SHEET NO.
R-5600	64



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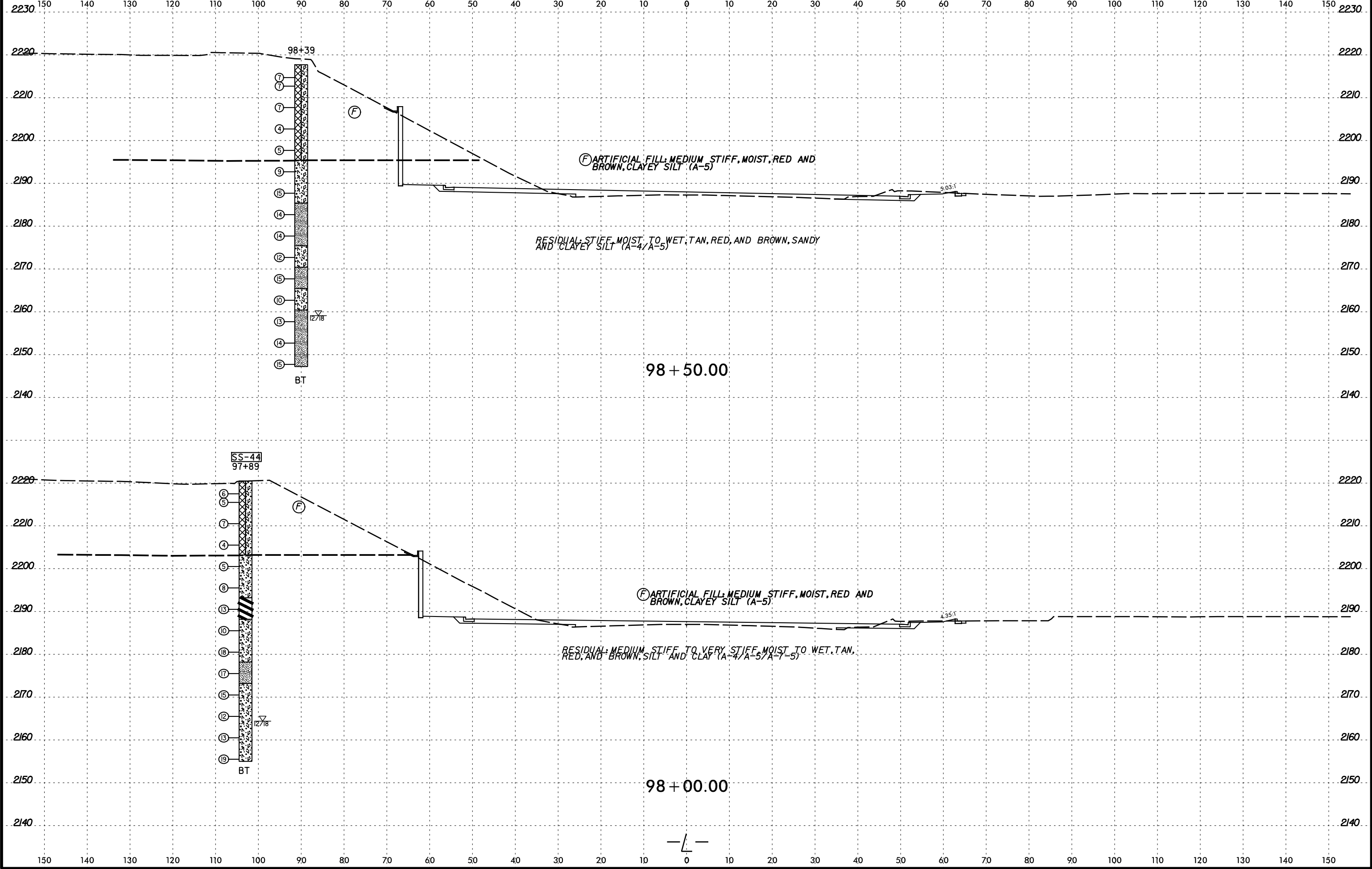
PROJ. REFERENCE NO.	SHEET NO.
R-5600	65



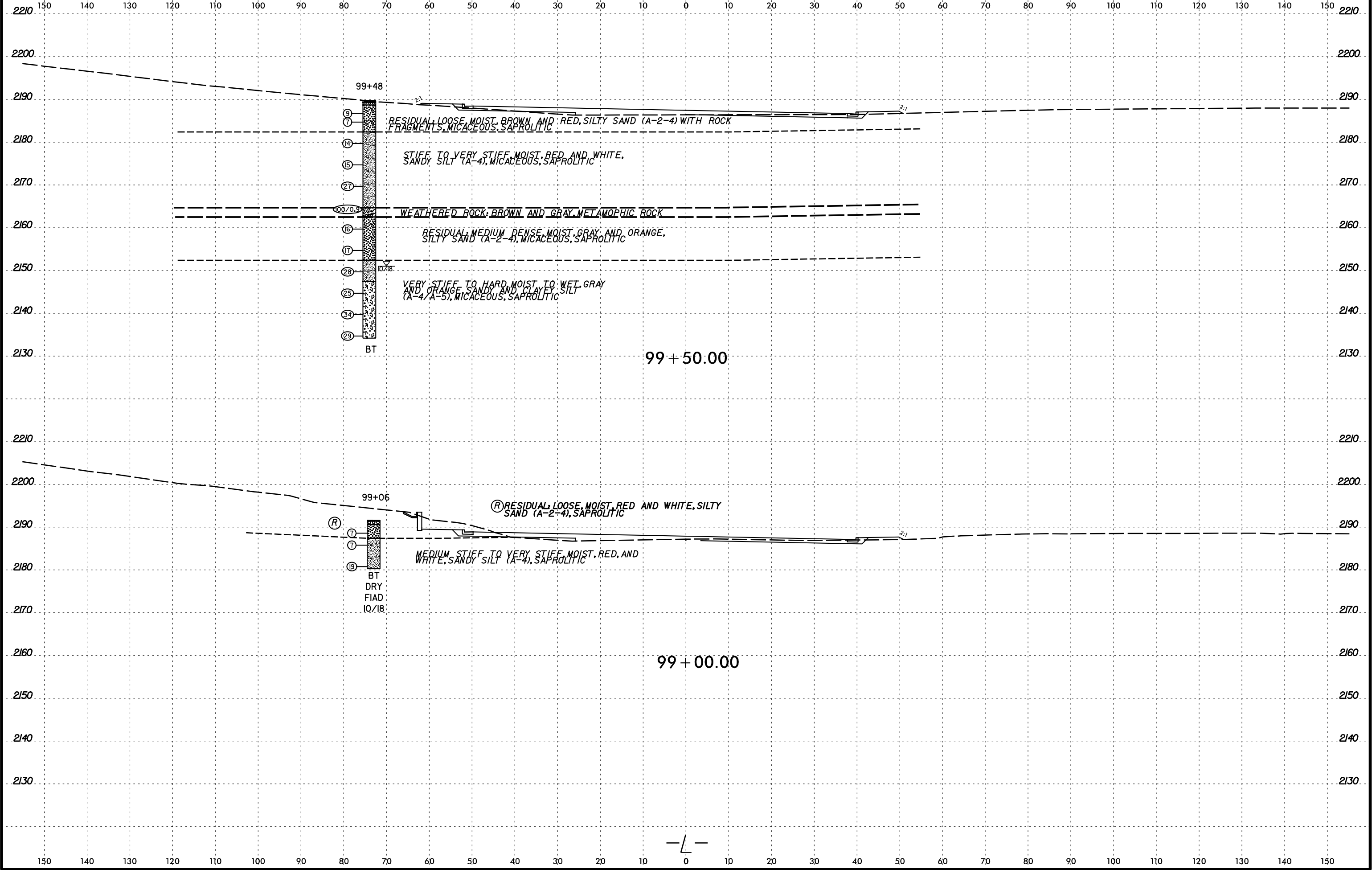
6/23/16



PROJ. REFERENCE NO.	SHEET NO.
R-5600	66



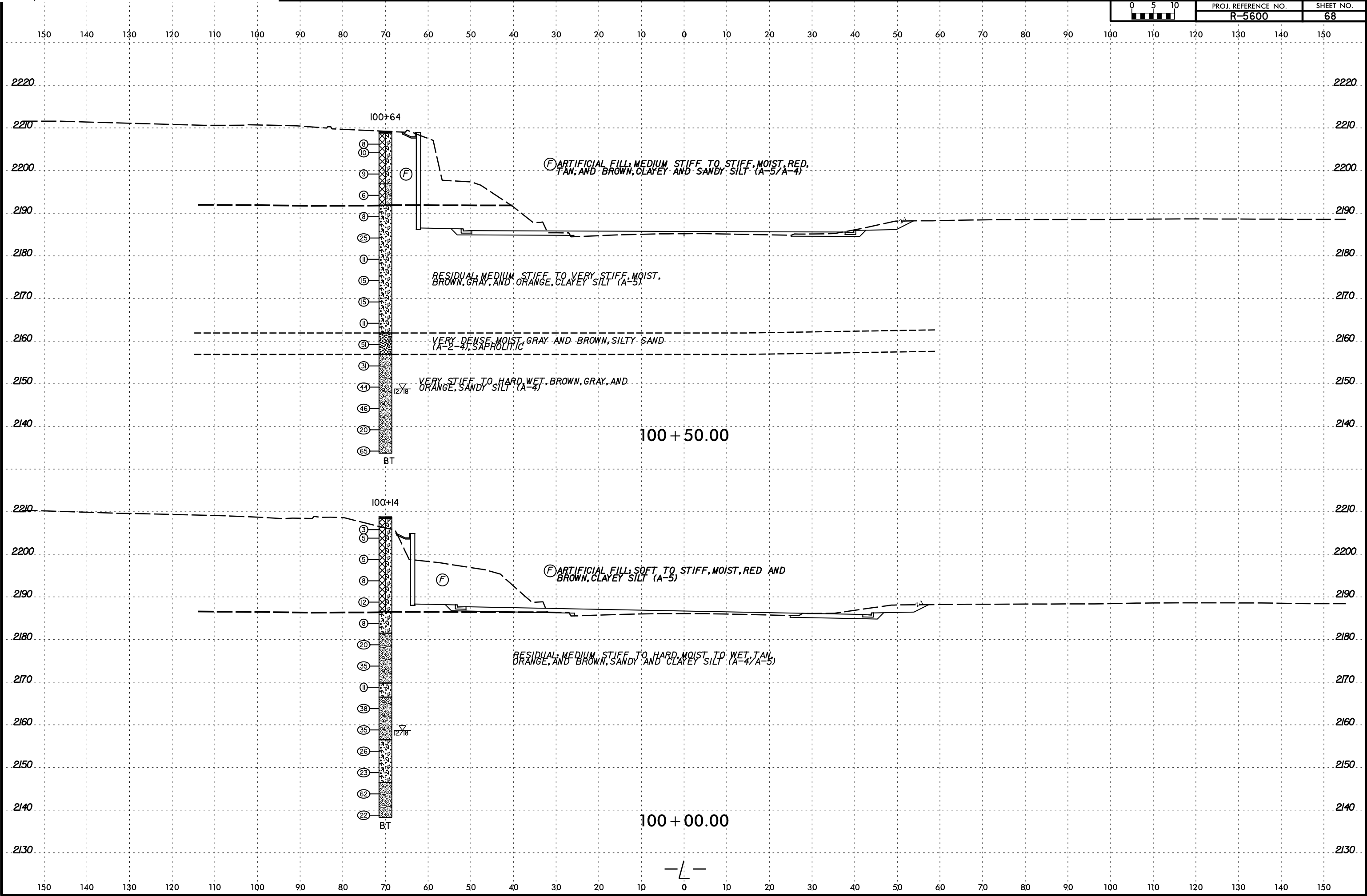
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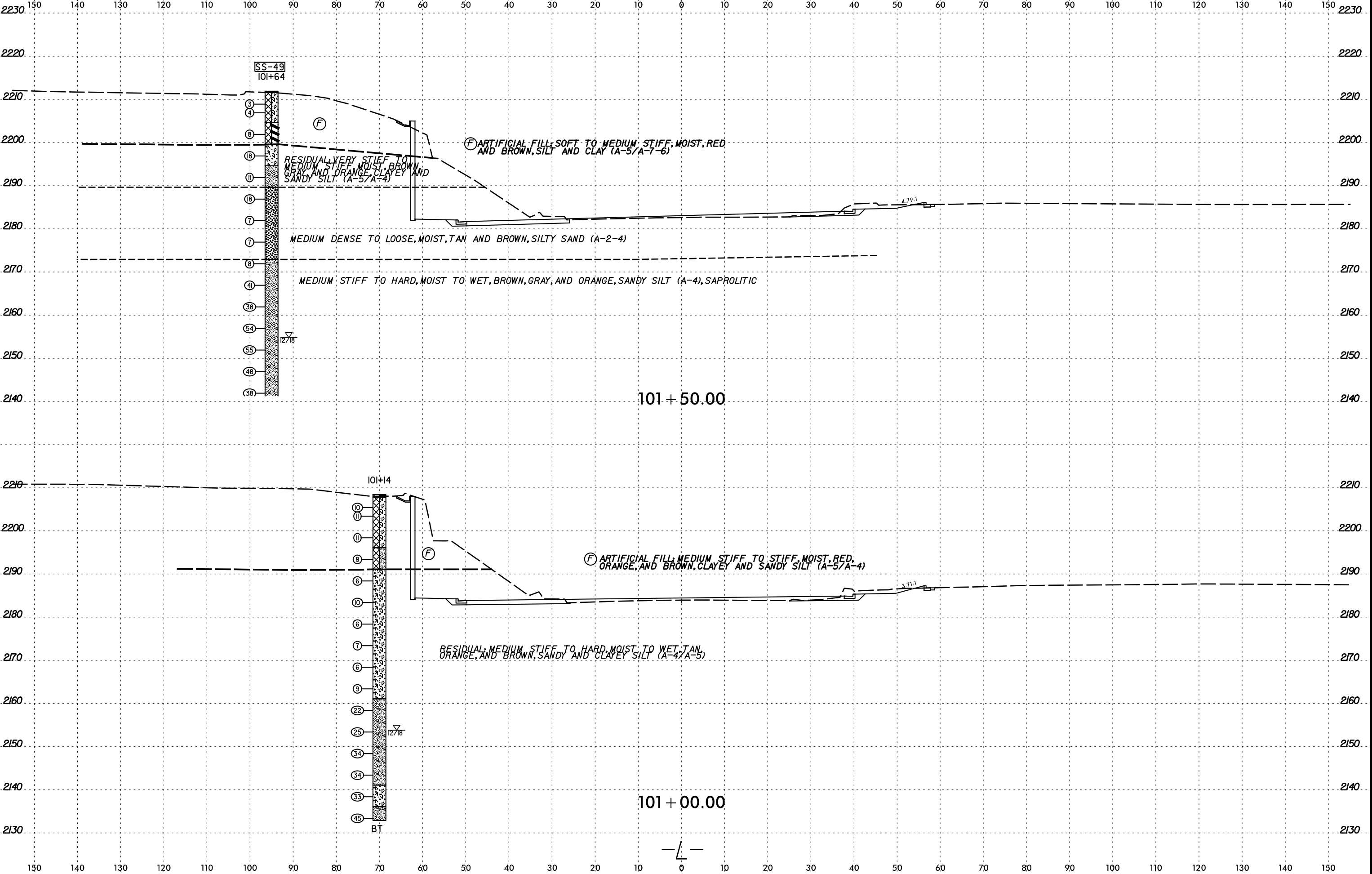
PROJ. REFERENCE NO.	SHEET NO.
R-5600	68



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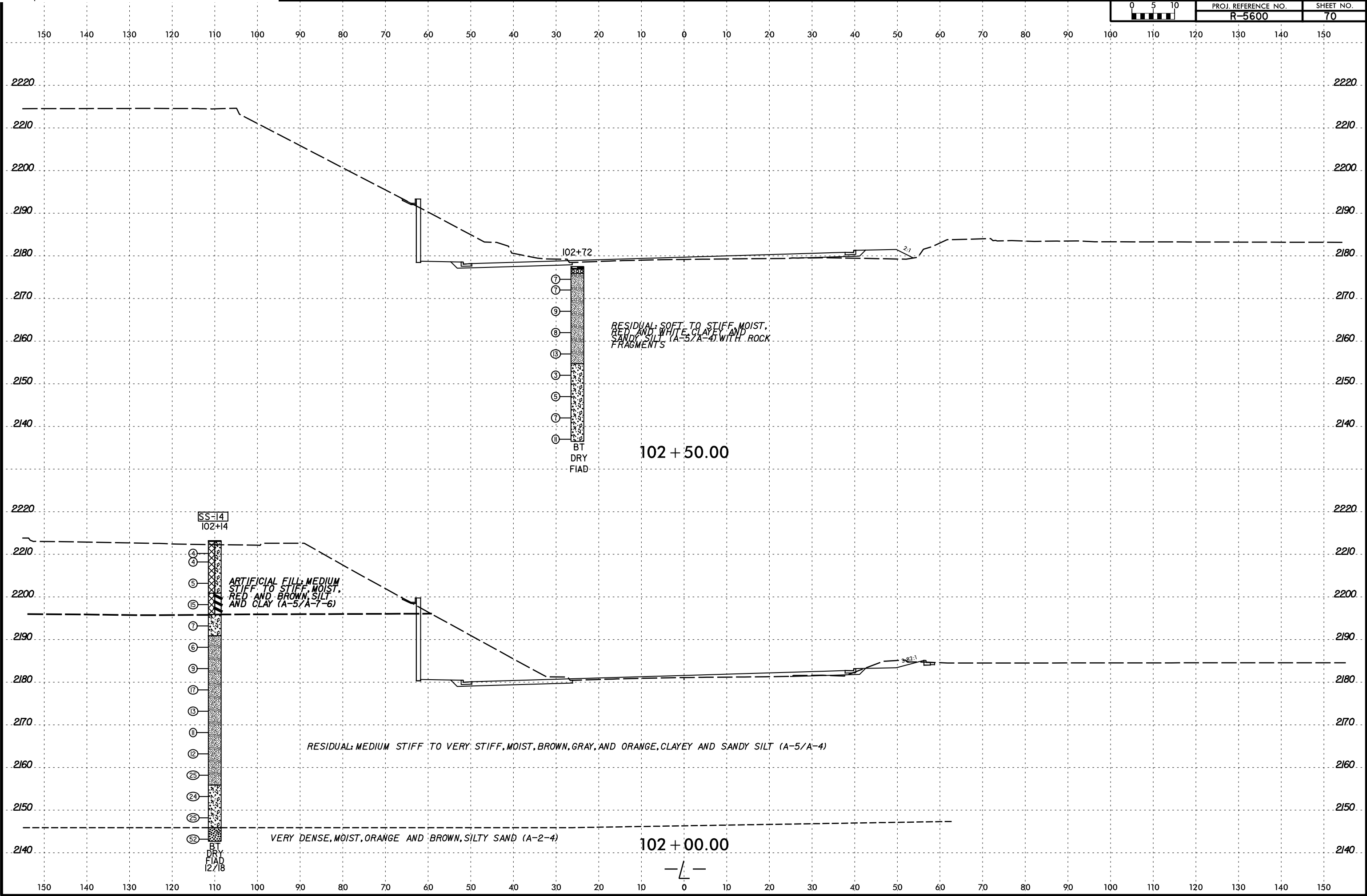
PROJ. REFERENCE NO.	SHEET NO.
R-5600	69



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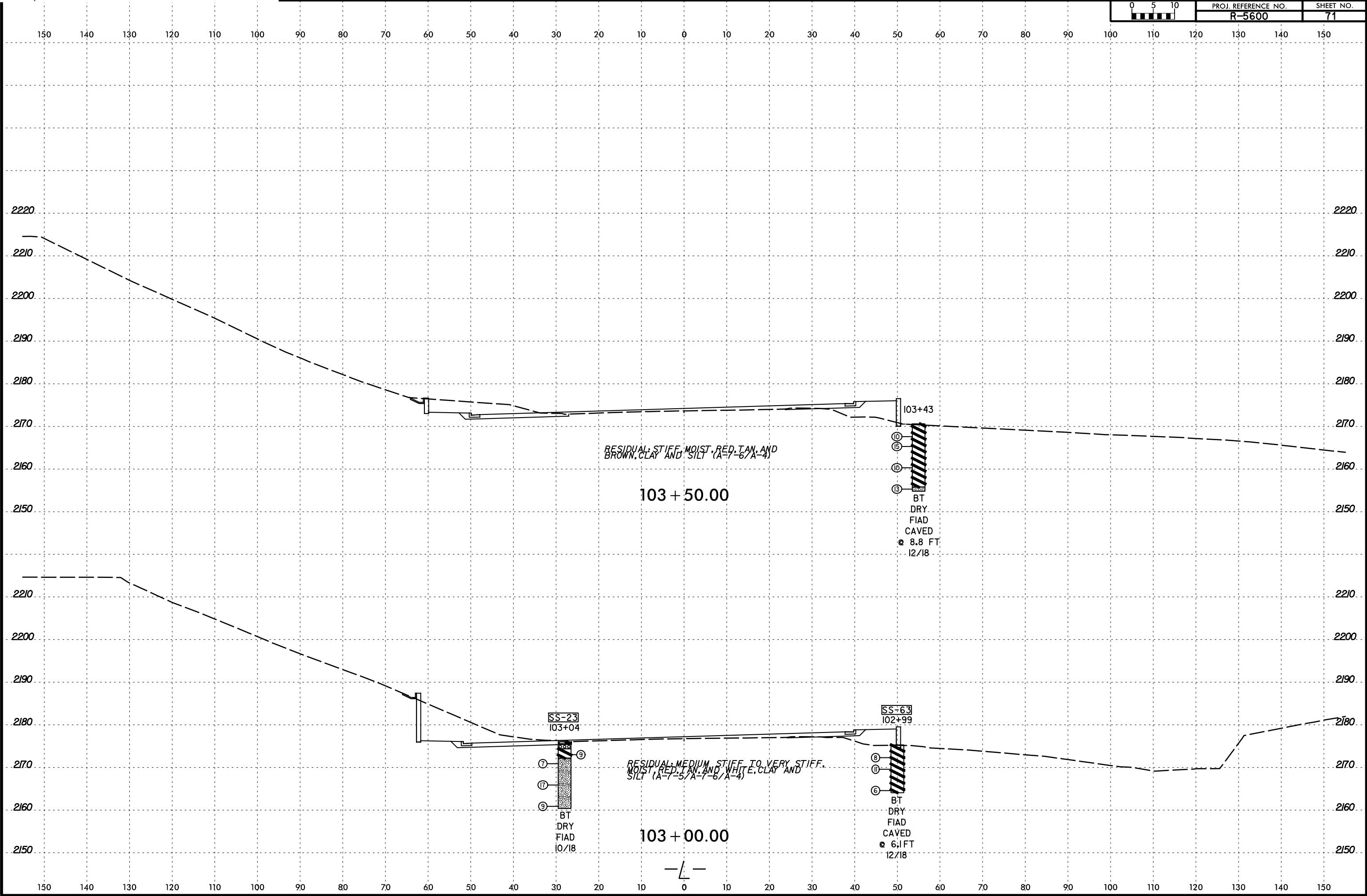
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R-5600	70



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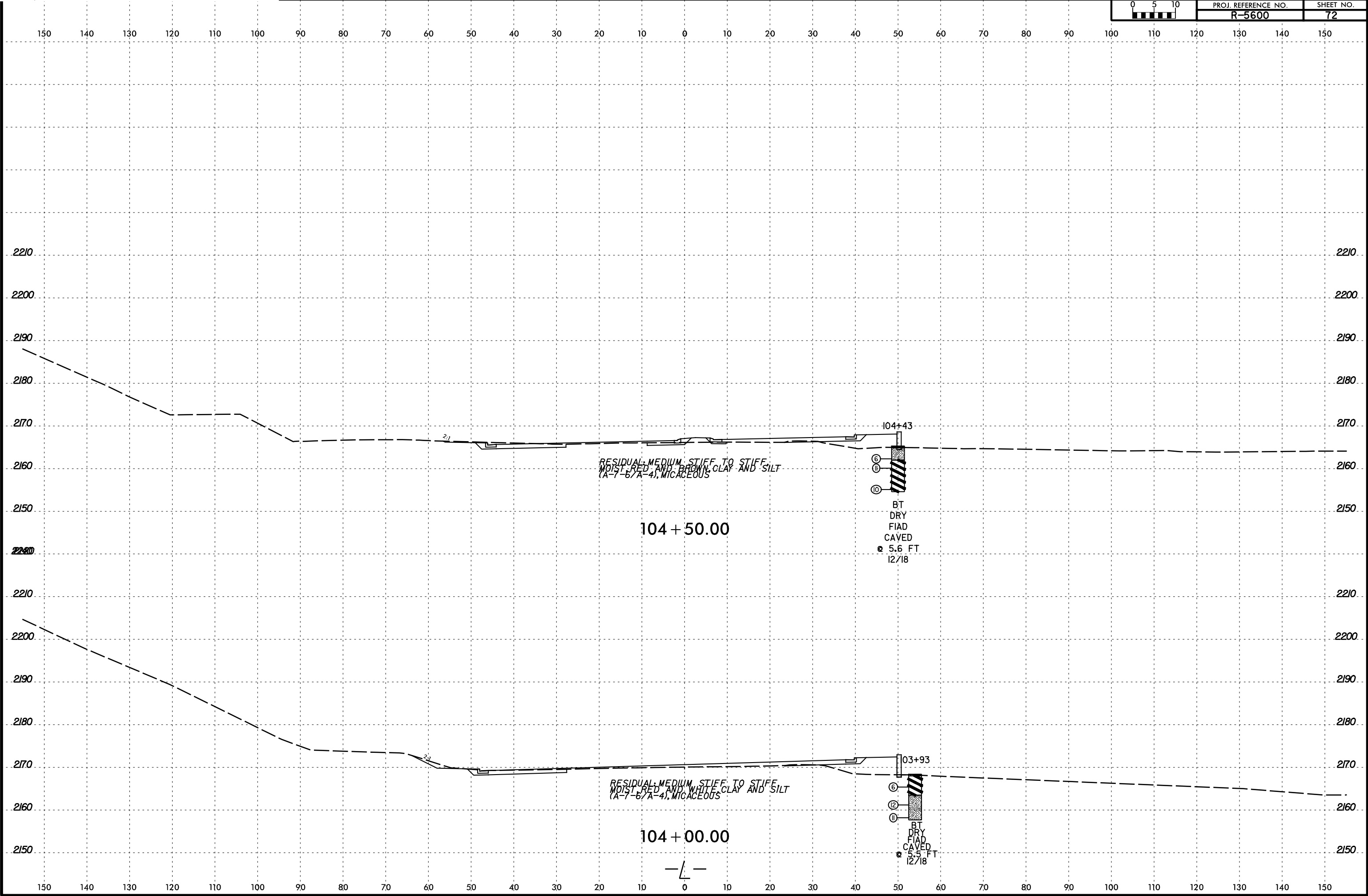
PROJ. REFERENCE NO.	SHEET NO.
R-5600	71



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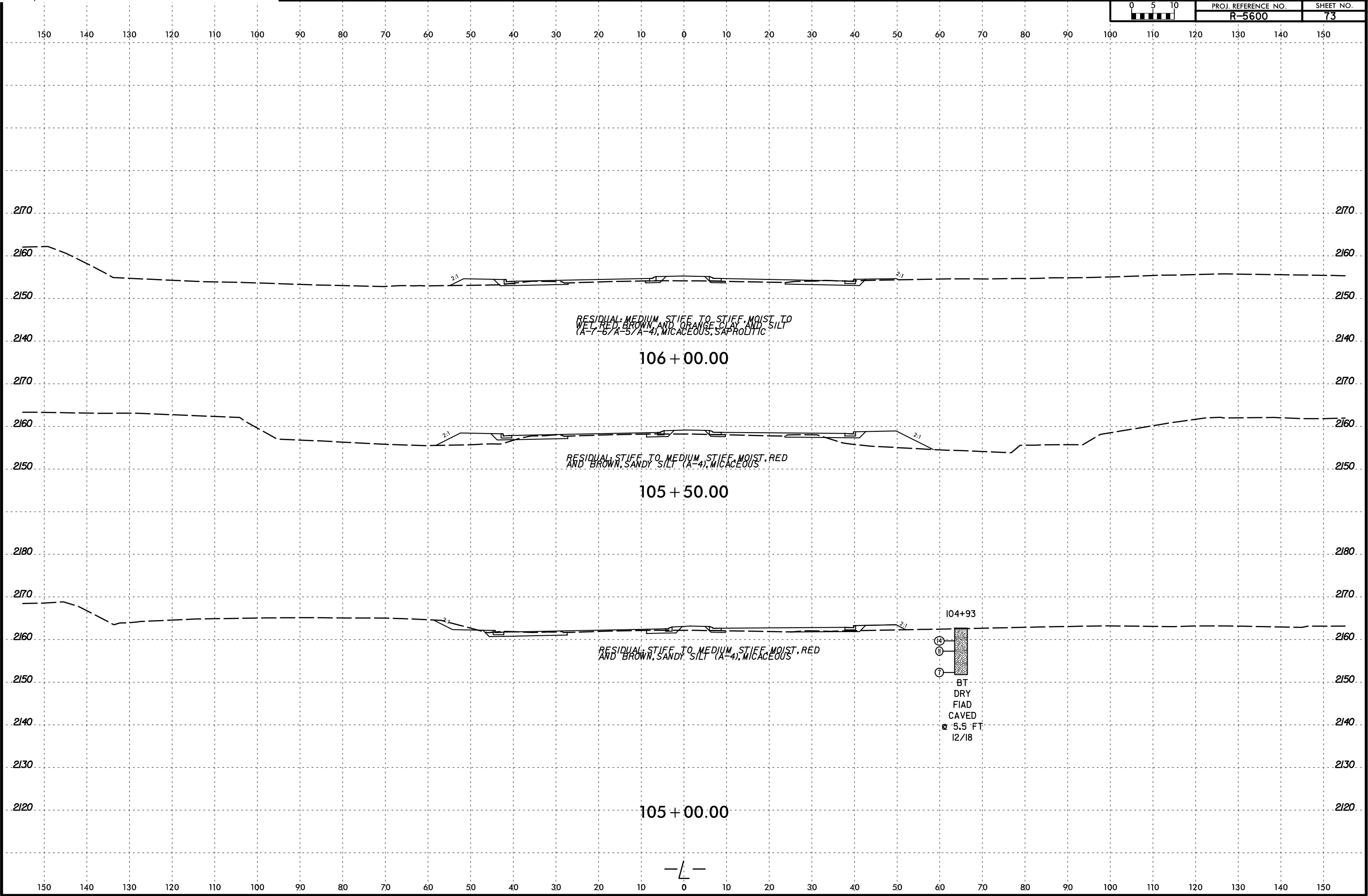


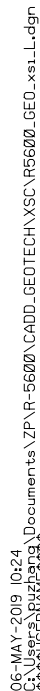
PROJ. REFERENCE NO.	SHEET NO.
R-5600	72



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0	5	10	PROJ. REFERENCE NO.	SHEET NO.
			R-5600	73



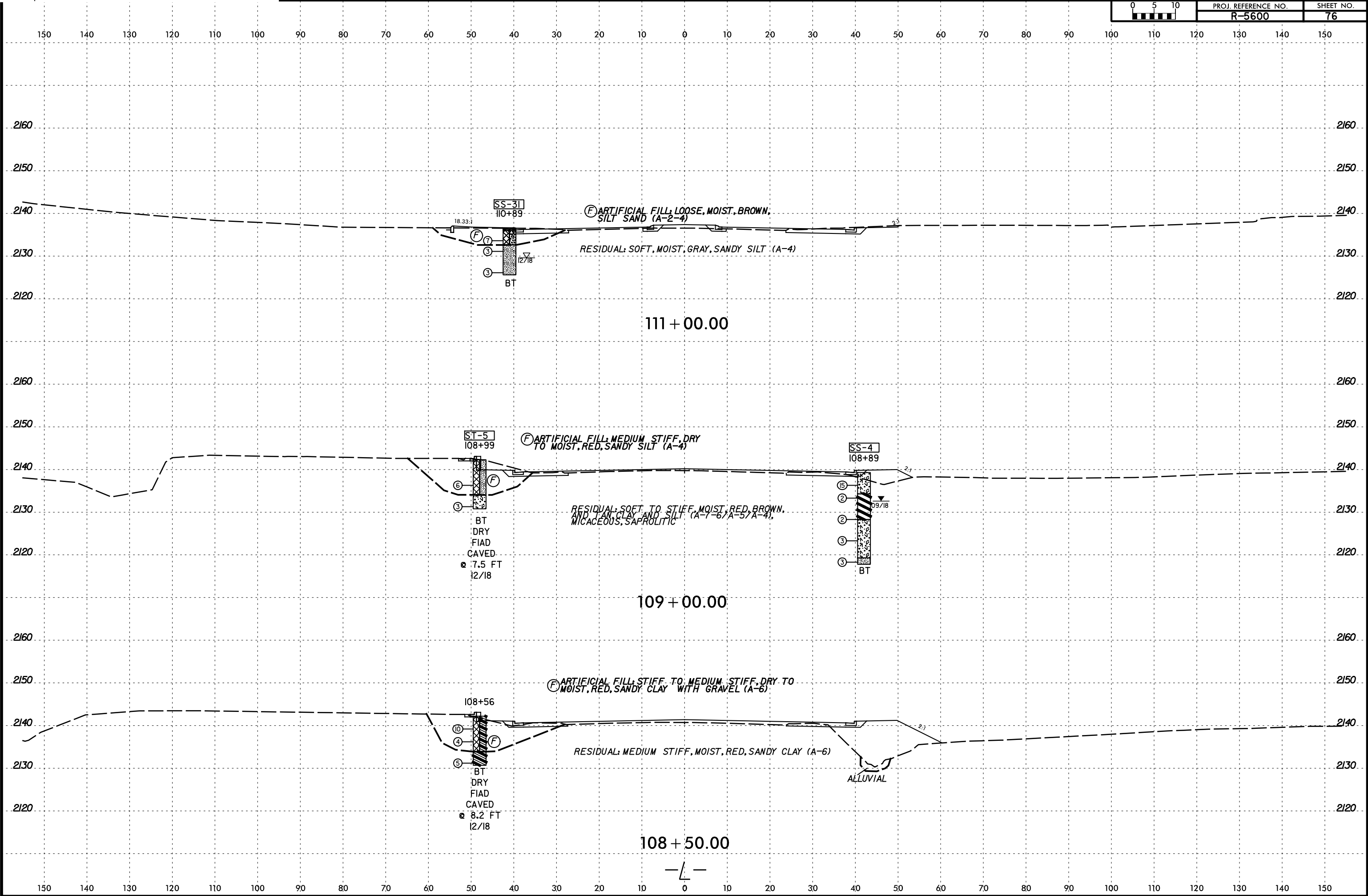




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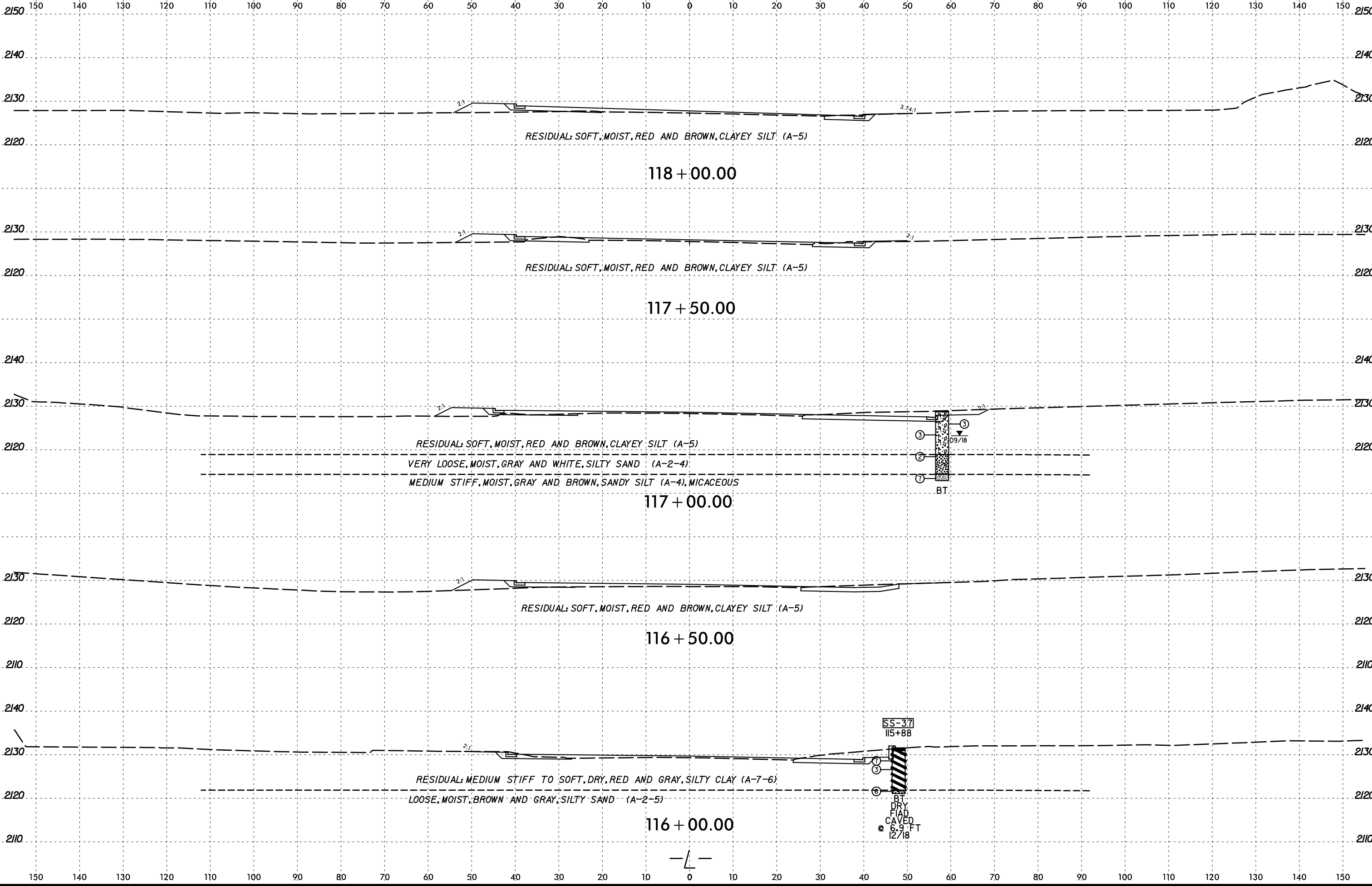
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R-5600	76



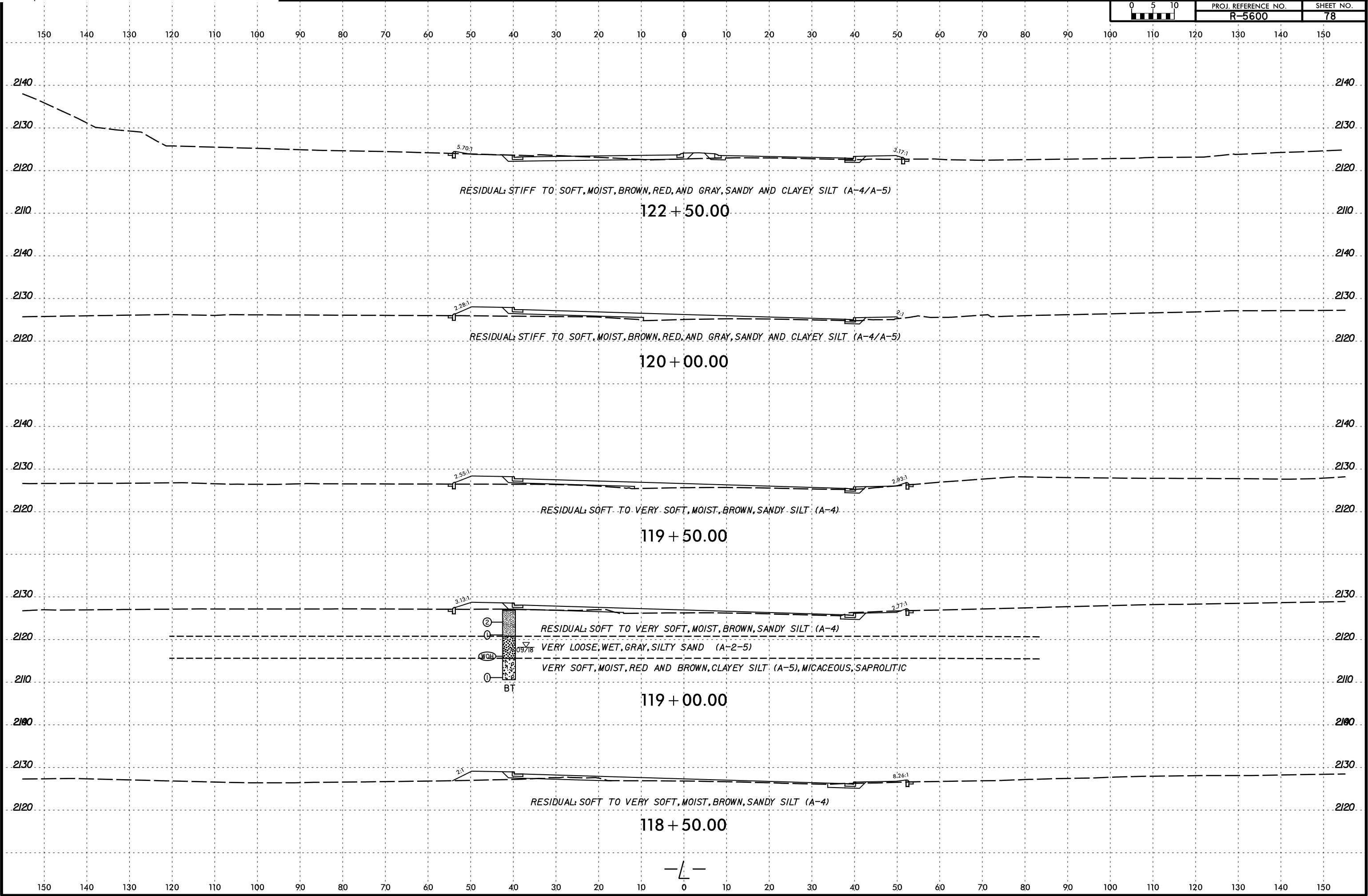
6/23/16



PROJ. REFERENCE NO.	SHEET NO.
R-5600	77



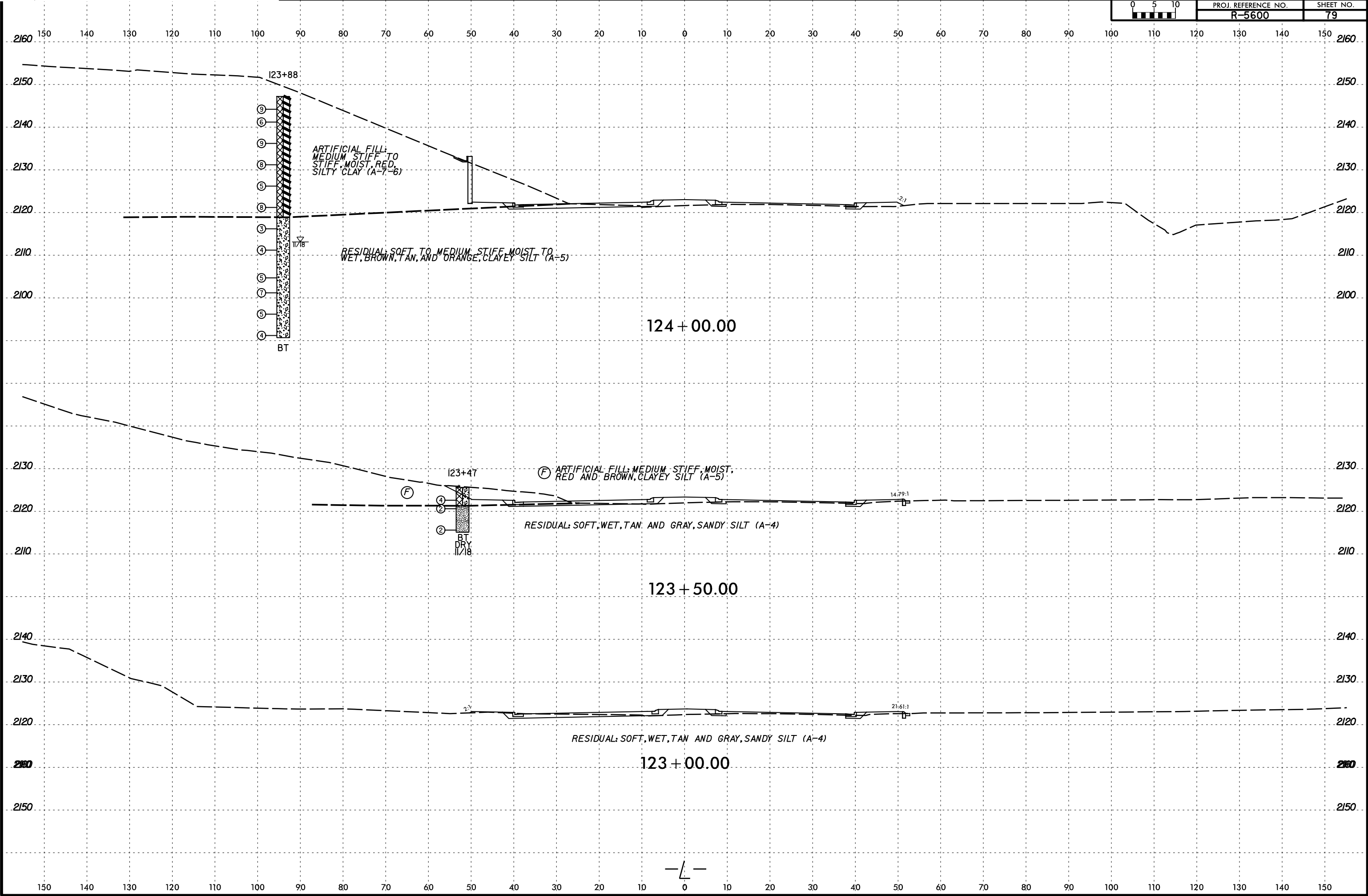
6/23/16



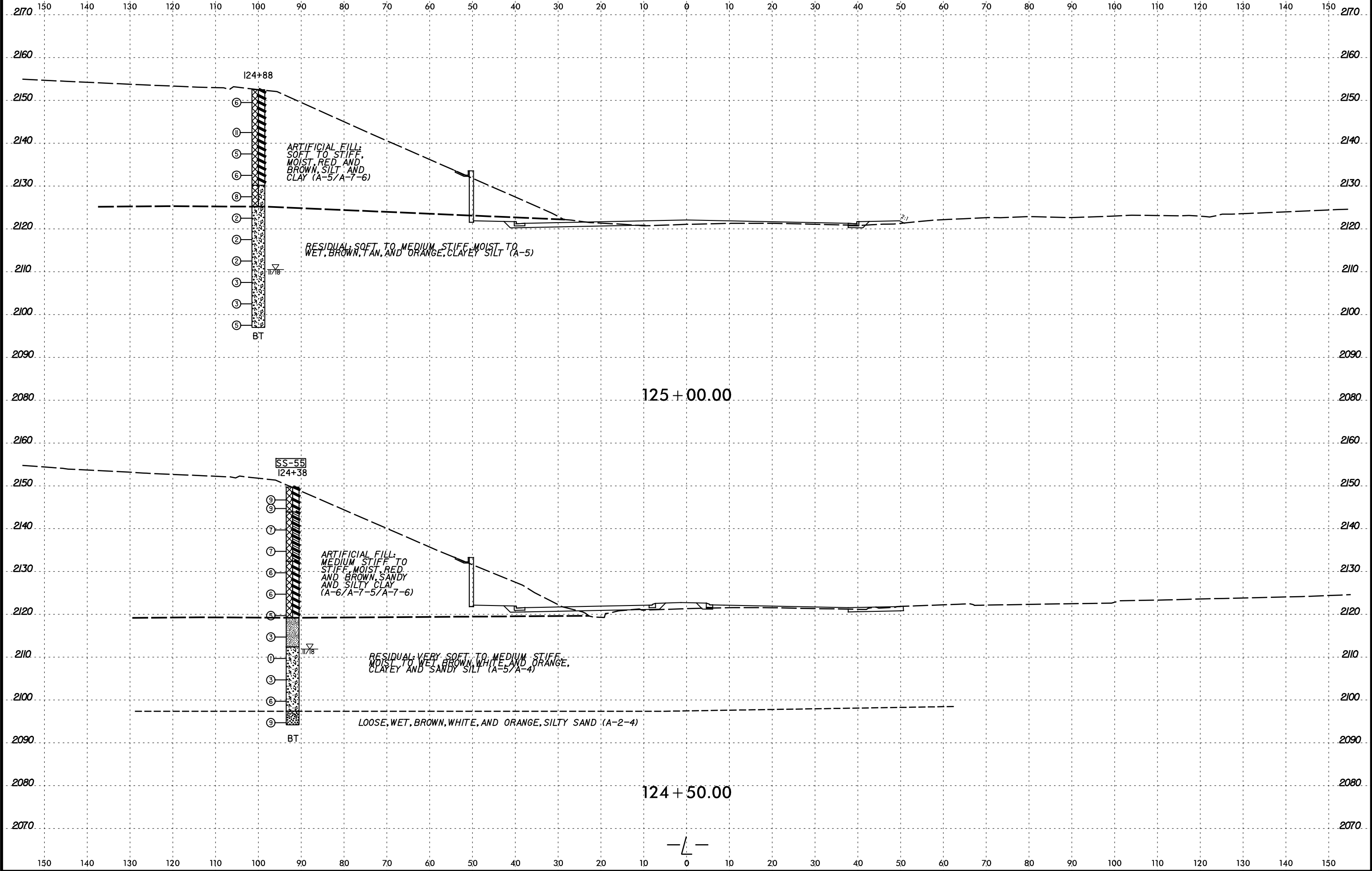
6/23/16



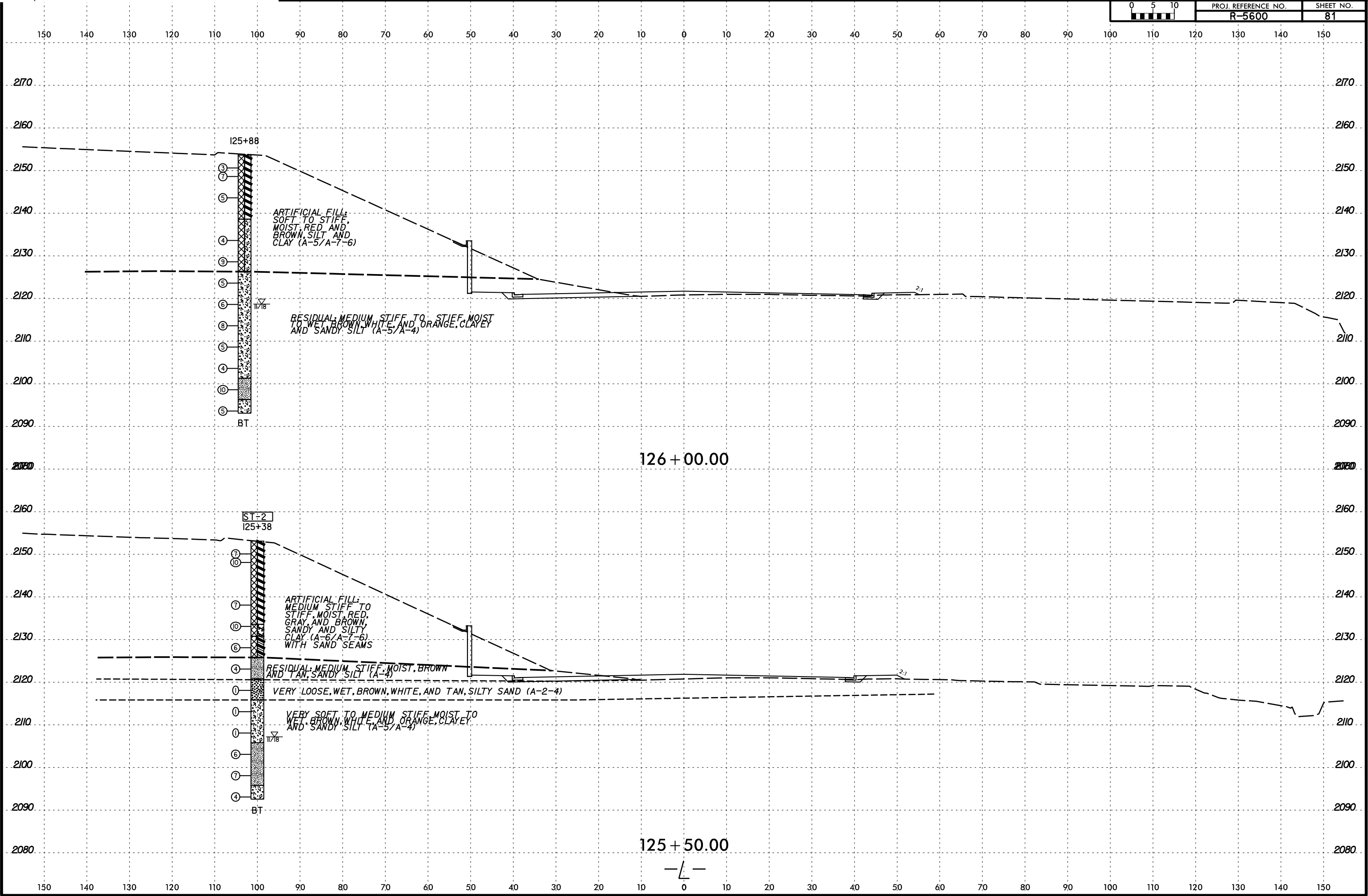
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R-5600	79



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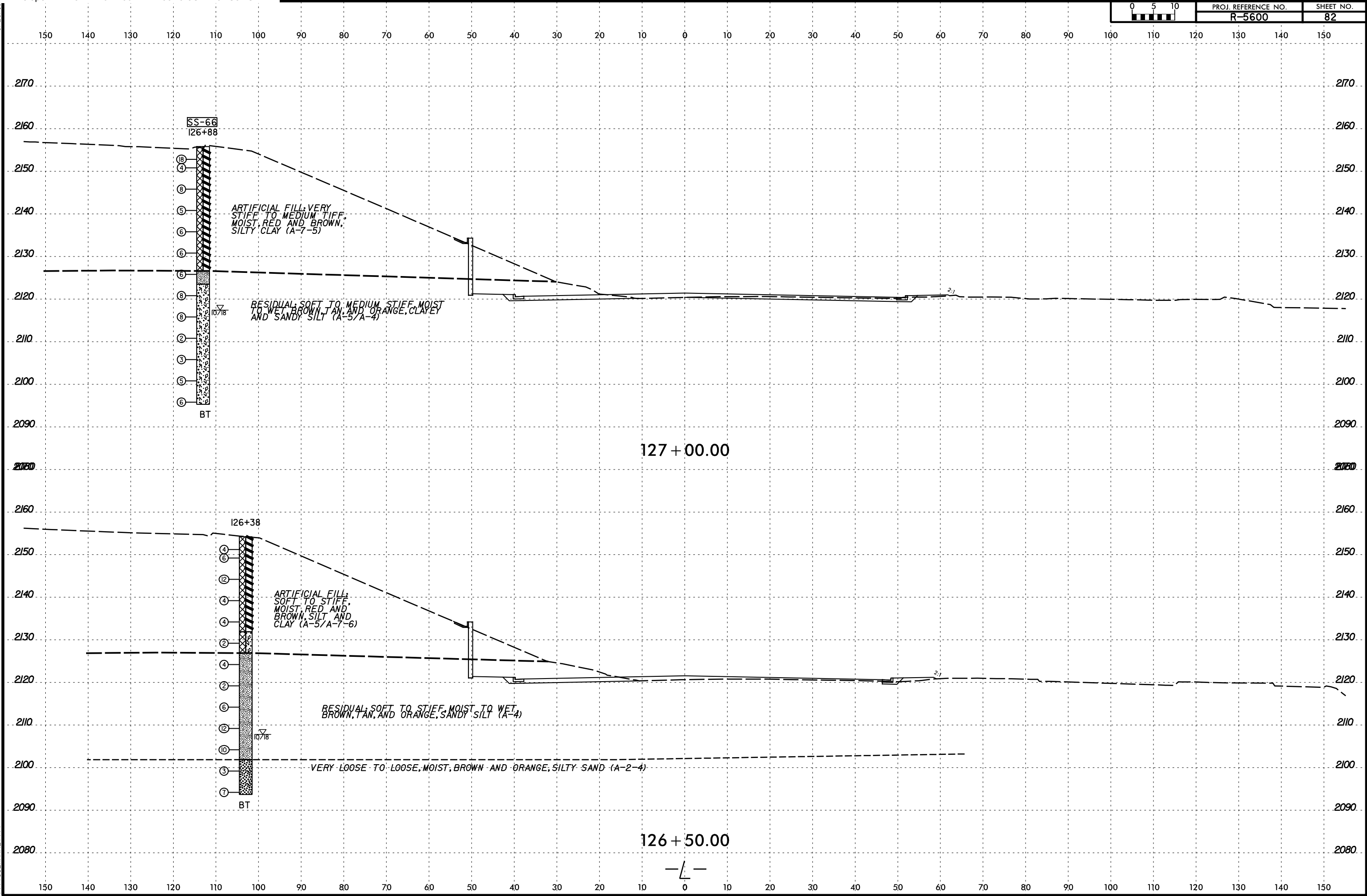
6/23/16



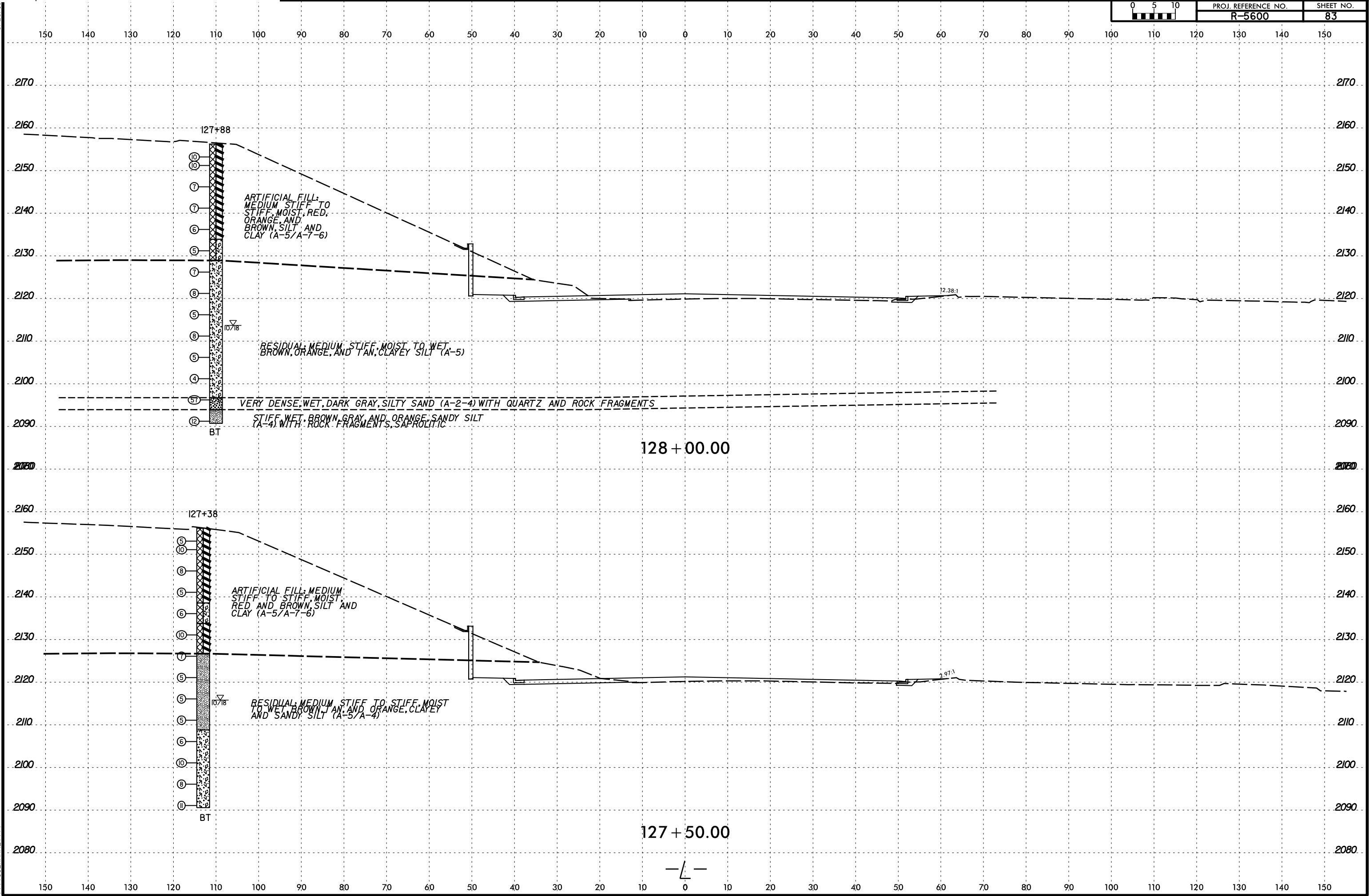
6/23/16



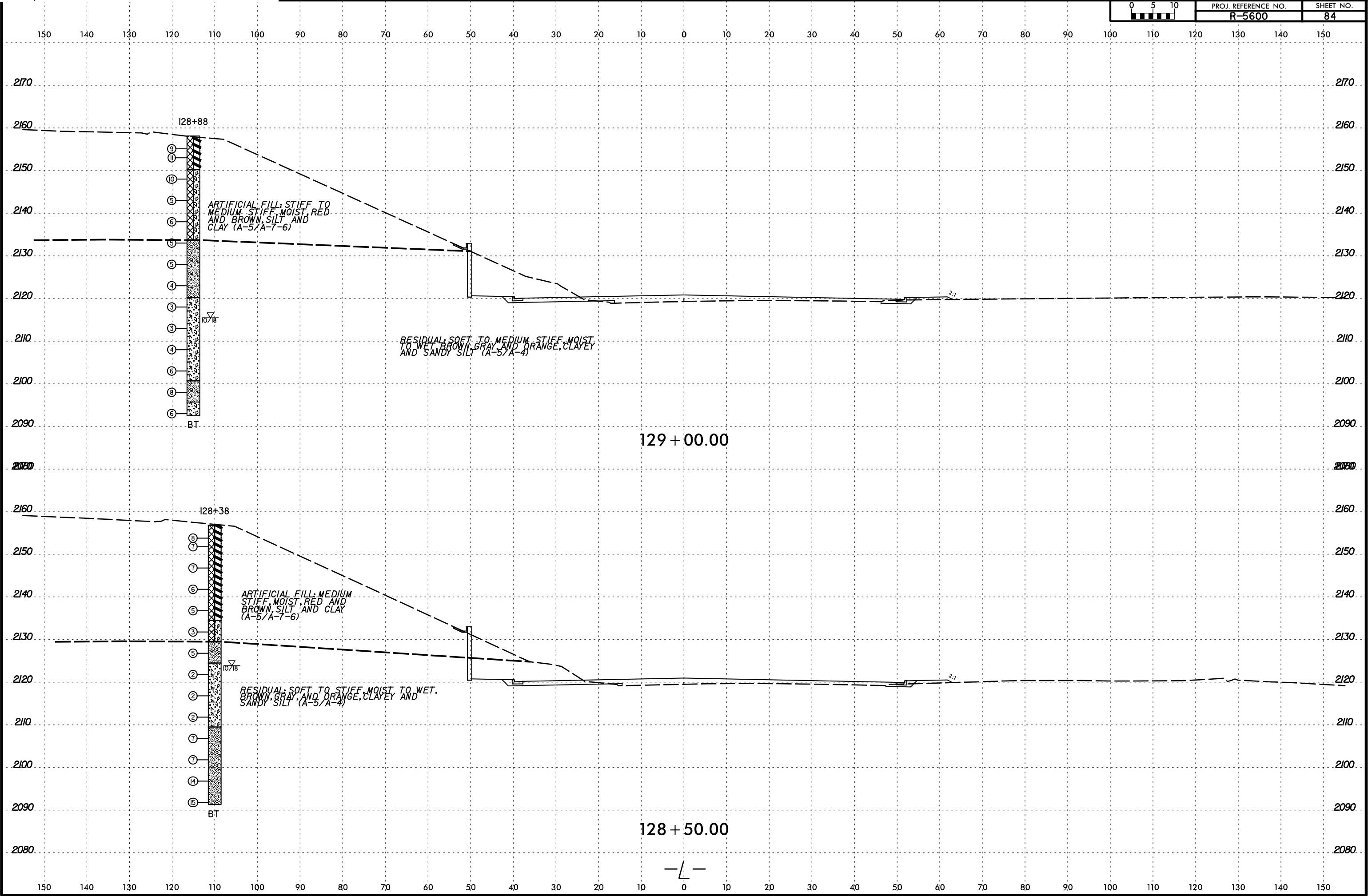
PROJ. REFERENCE NO.	SHEET NO.
R-5600	82



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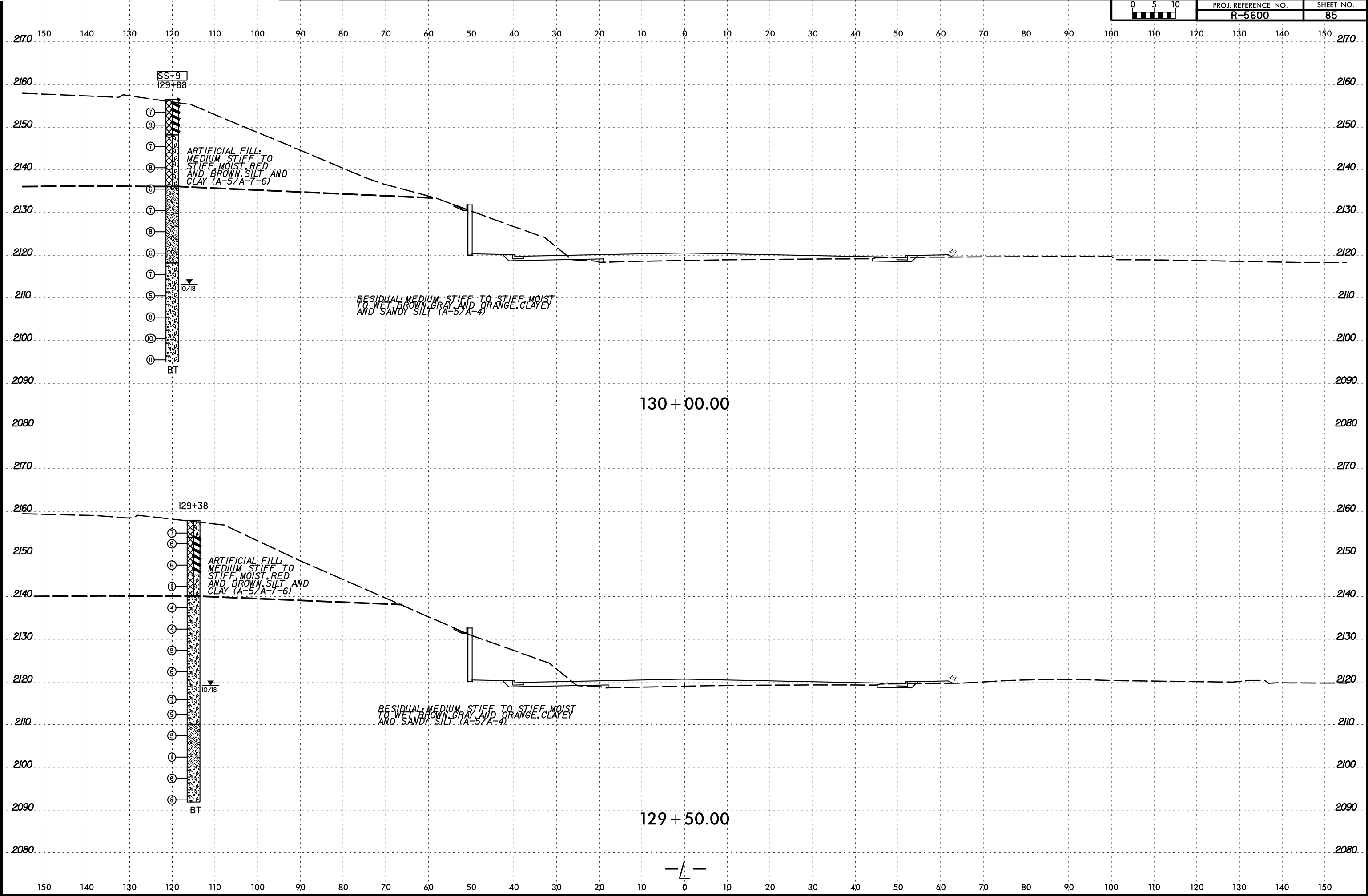
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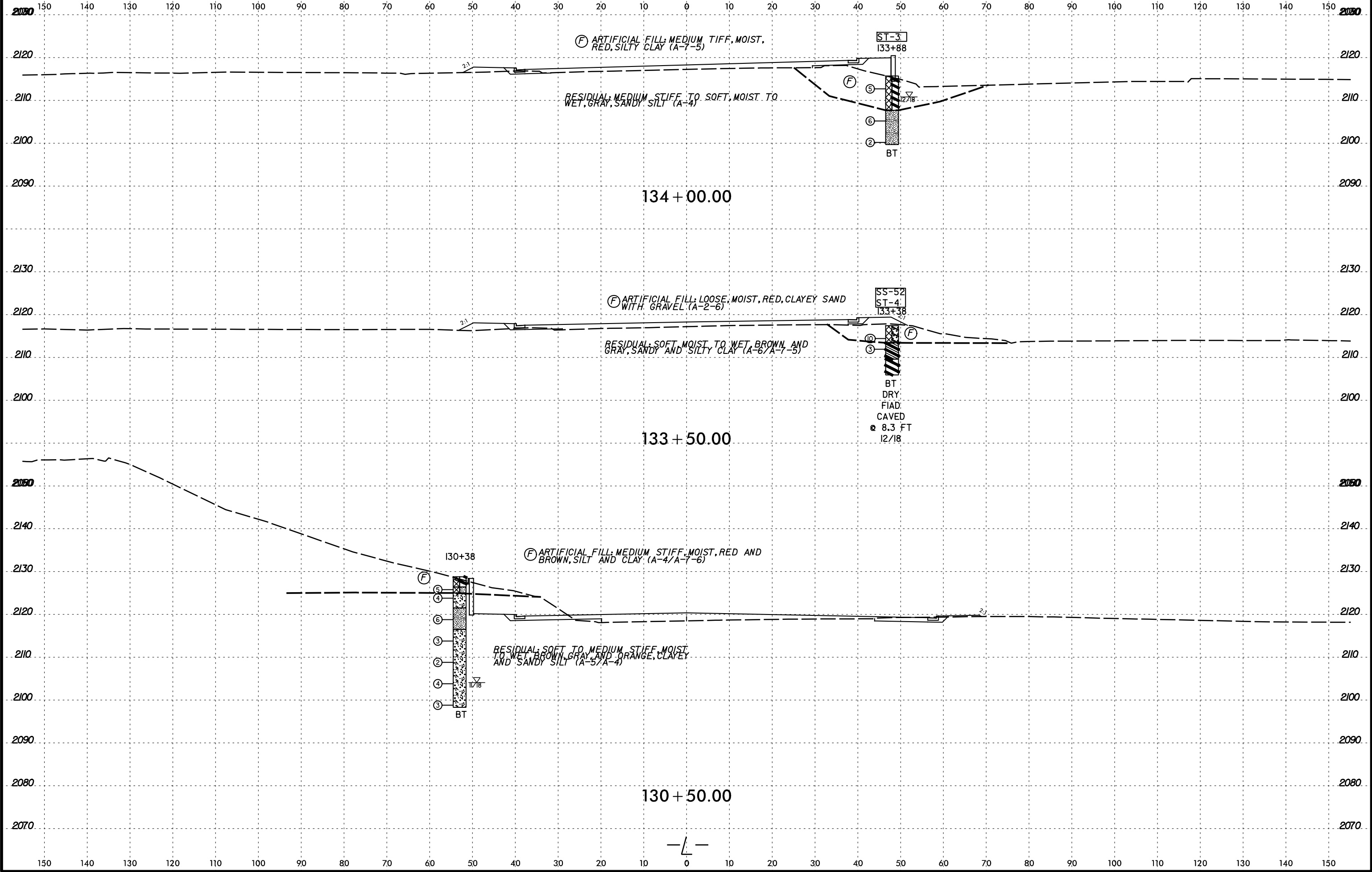
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R-5600	85

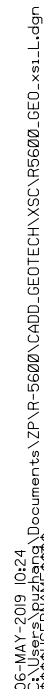


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PROJ. REFERENCE NO.	SHEET NO.
R-5600	86

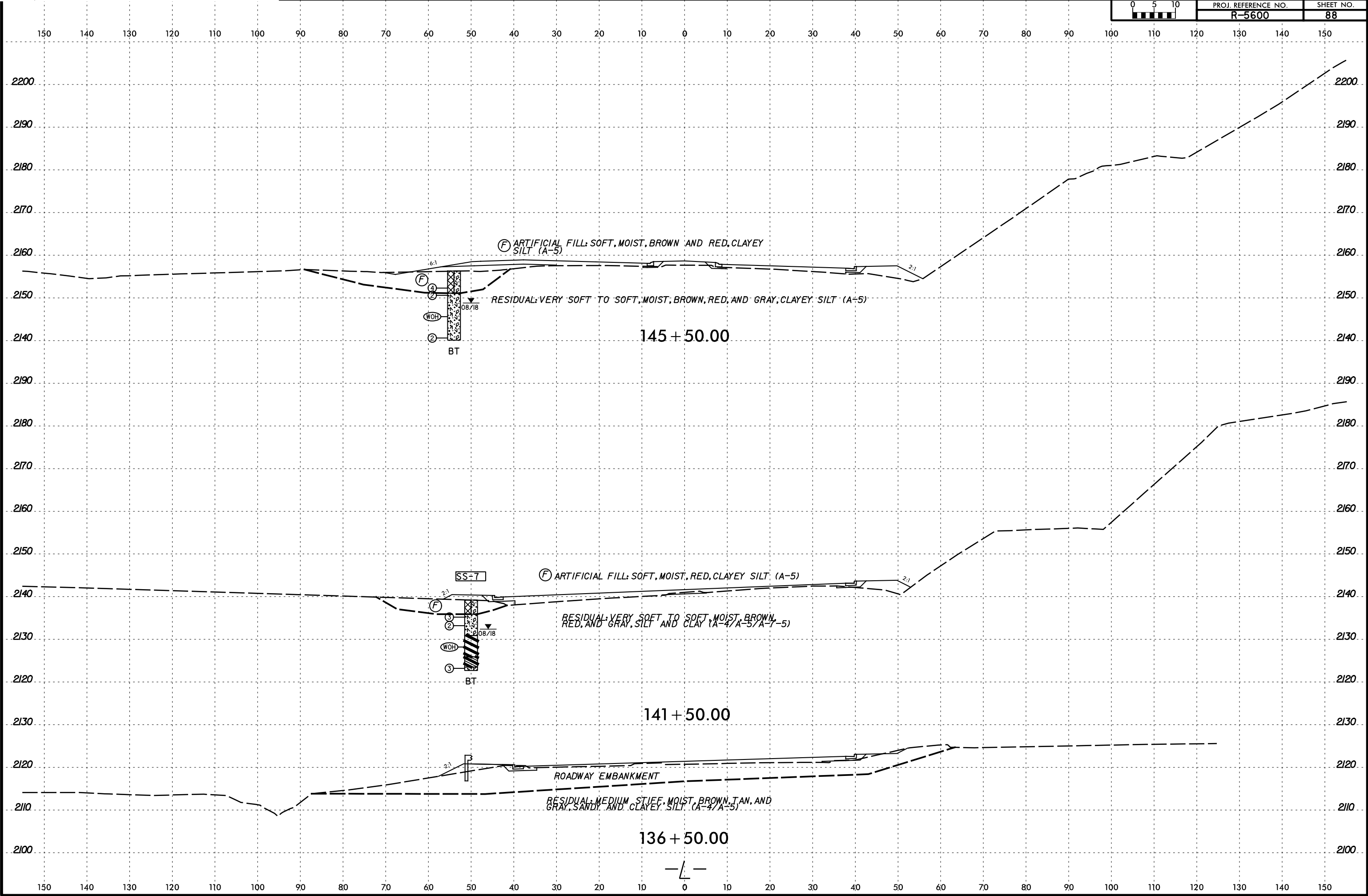


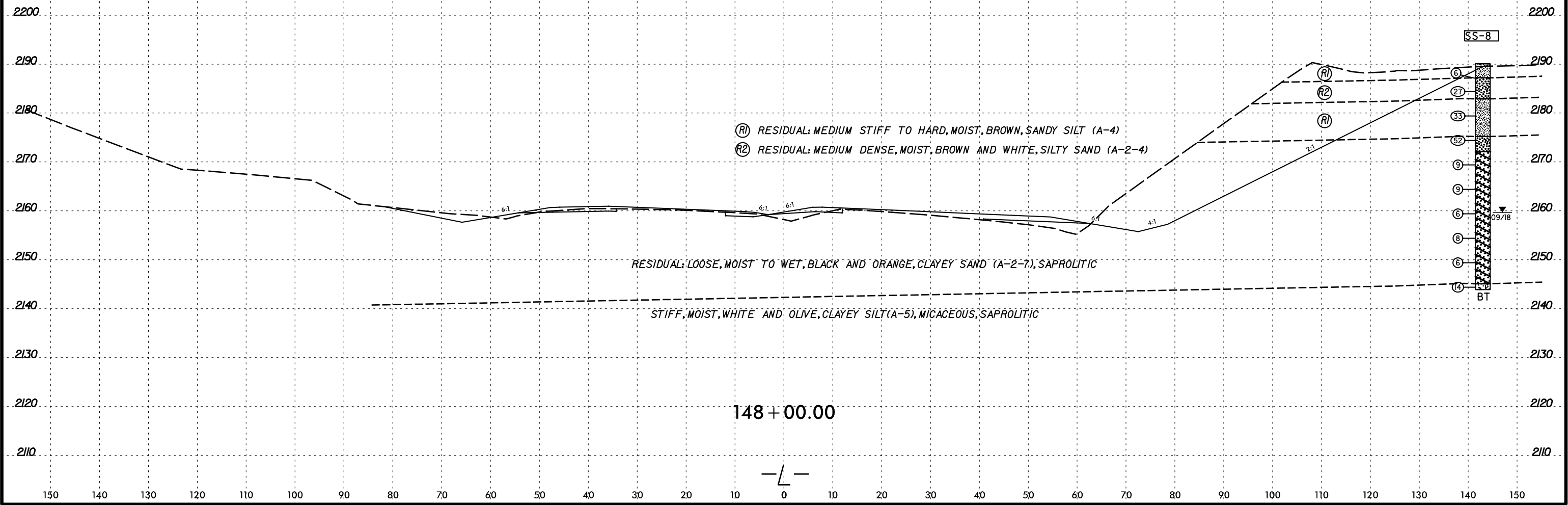
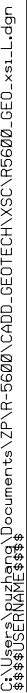


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PROJ. REFERENCE NO.	SHEET NO.
R-5600	88

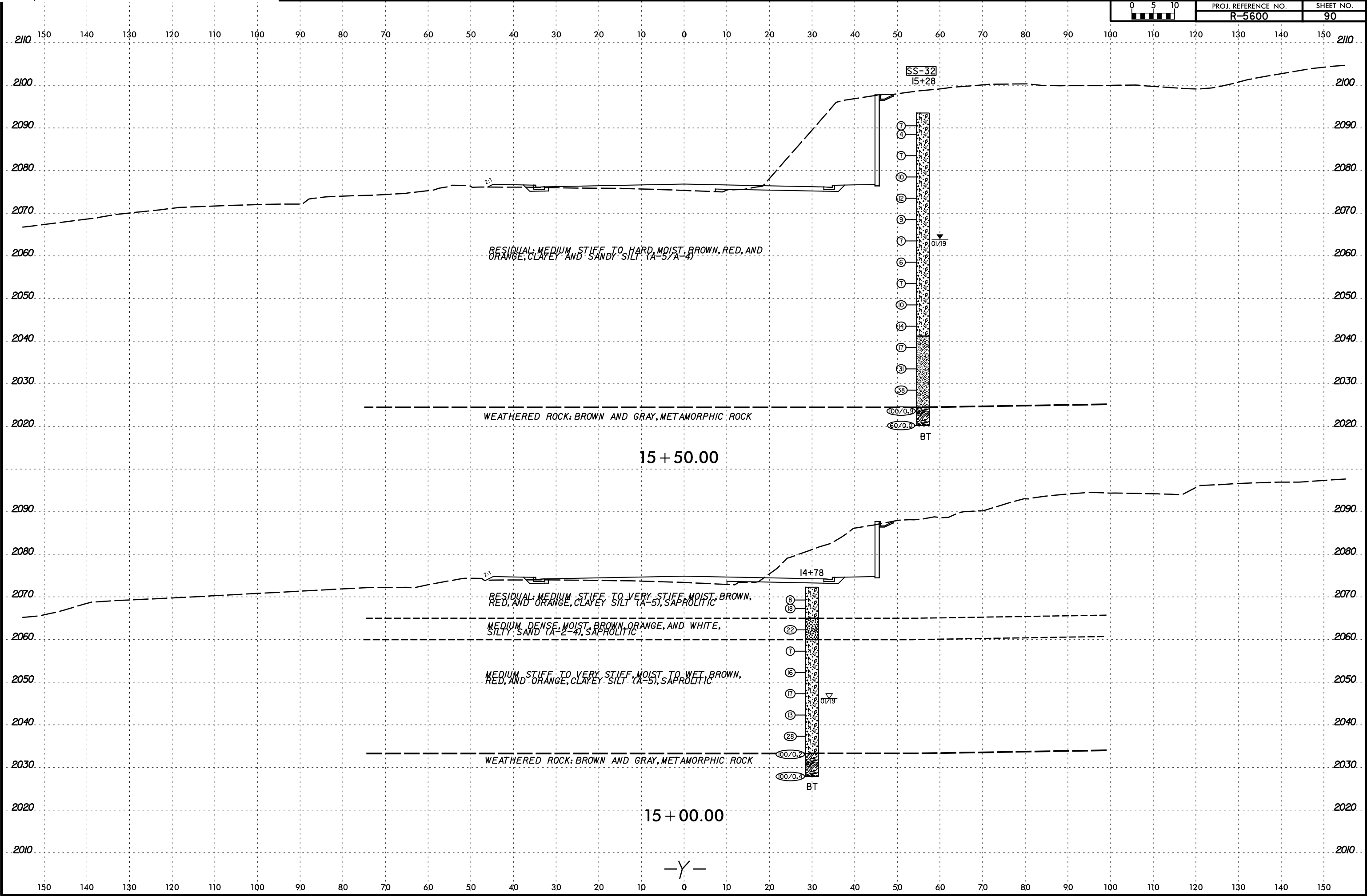




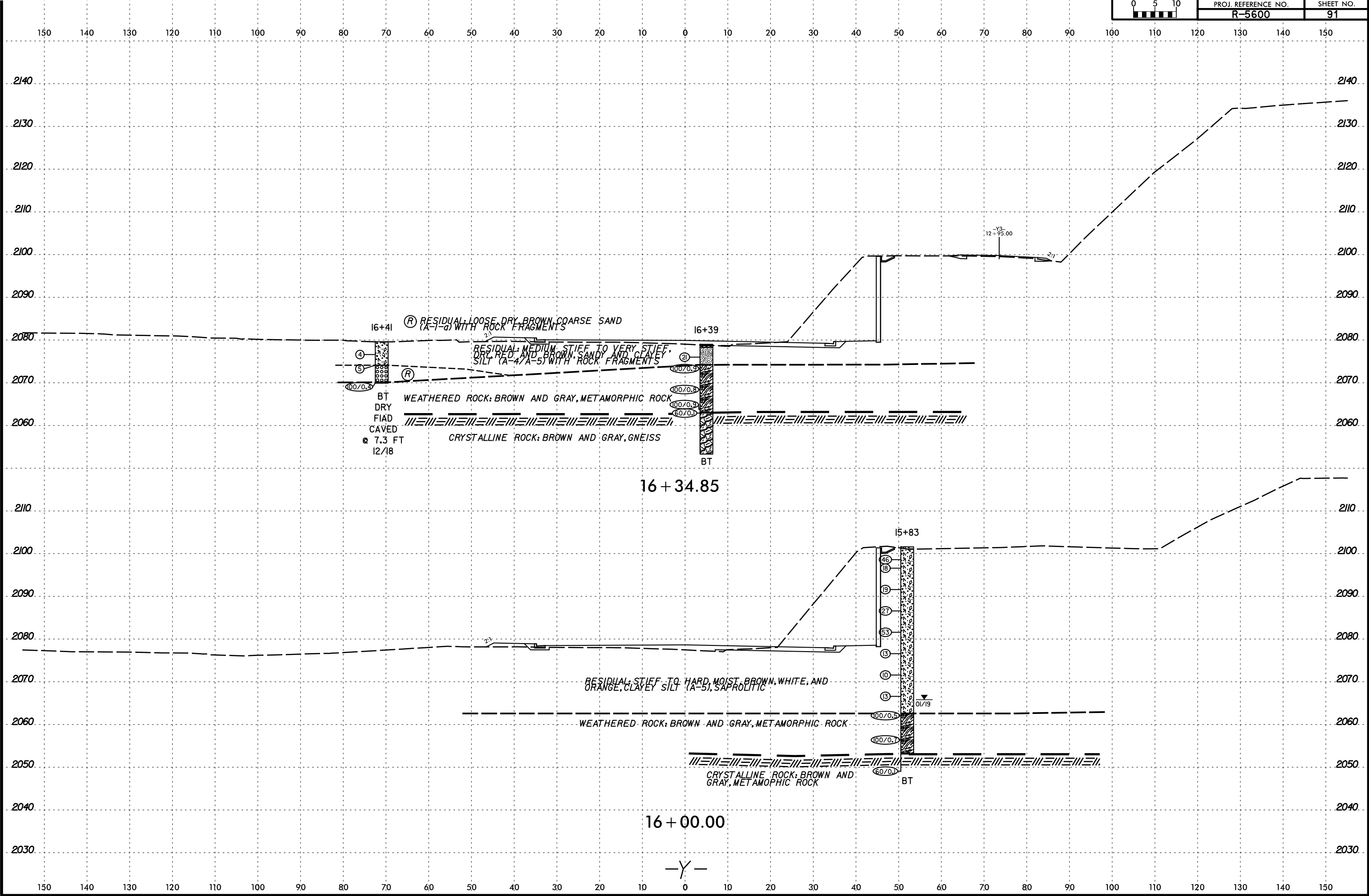
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PROJ. REFERENCE NO.	SHEET NO.
R-5600	90



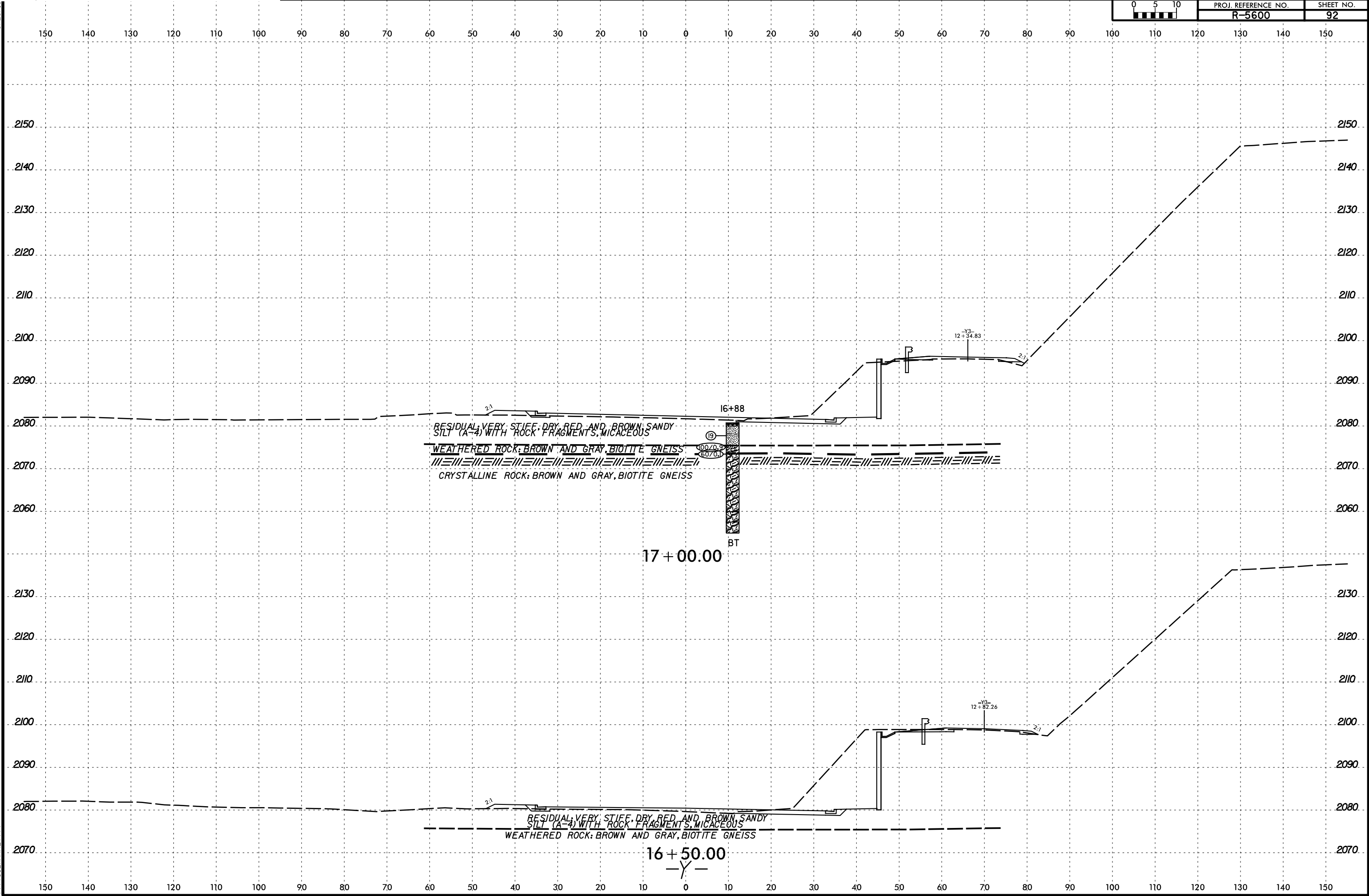
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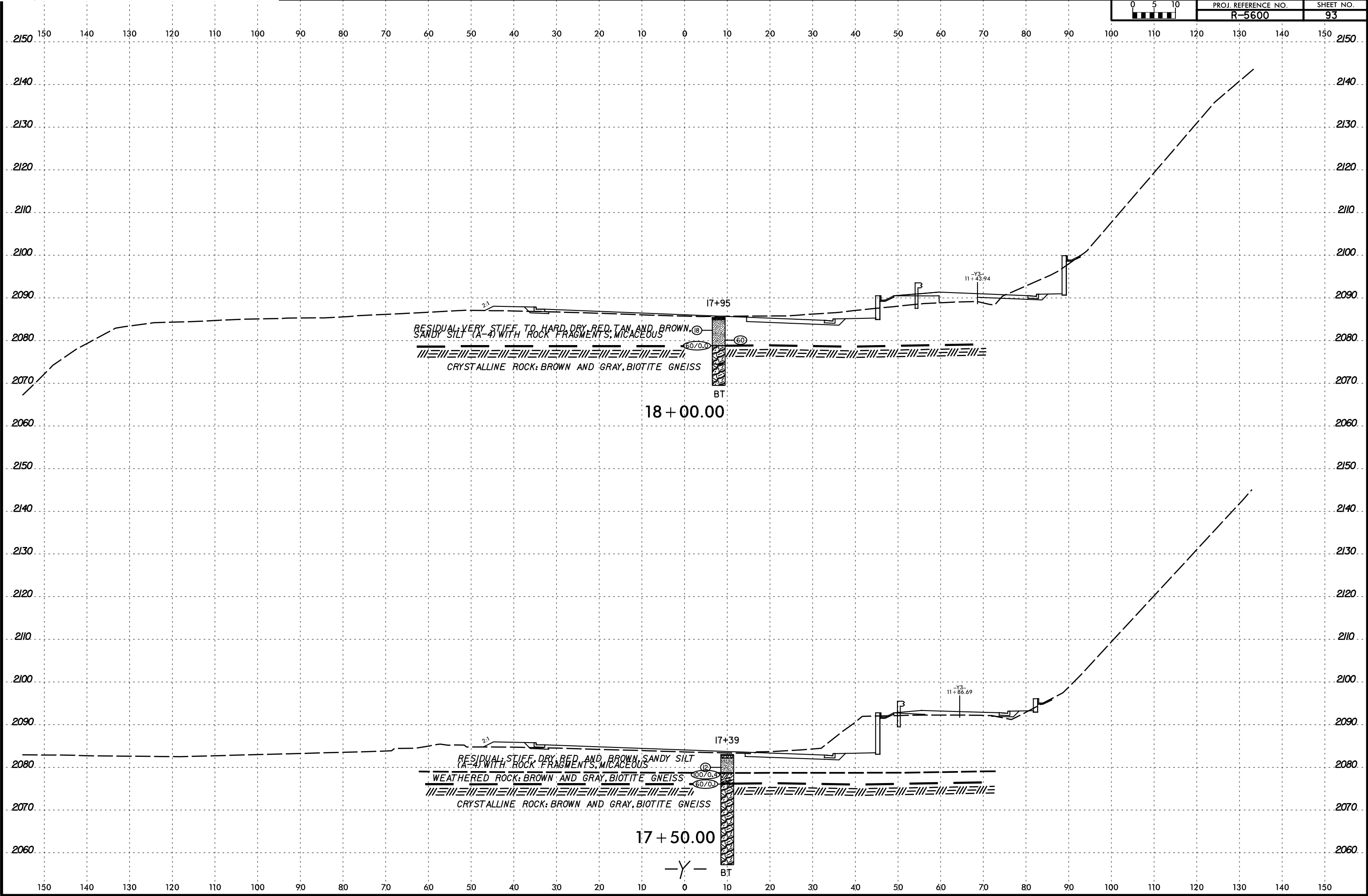
PROJ. REFERENCE NO.	SHEET NO.
R-5600	92



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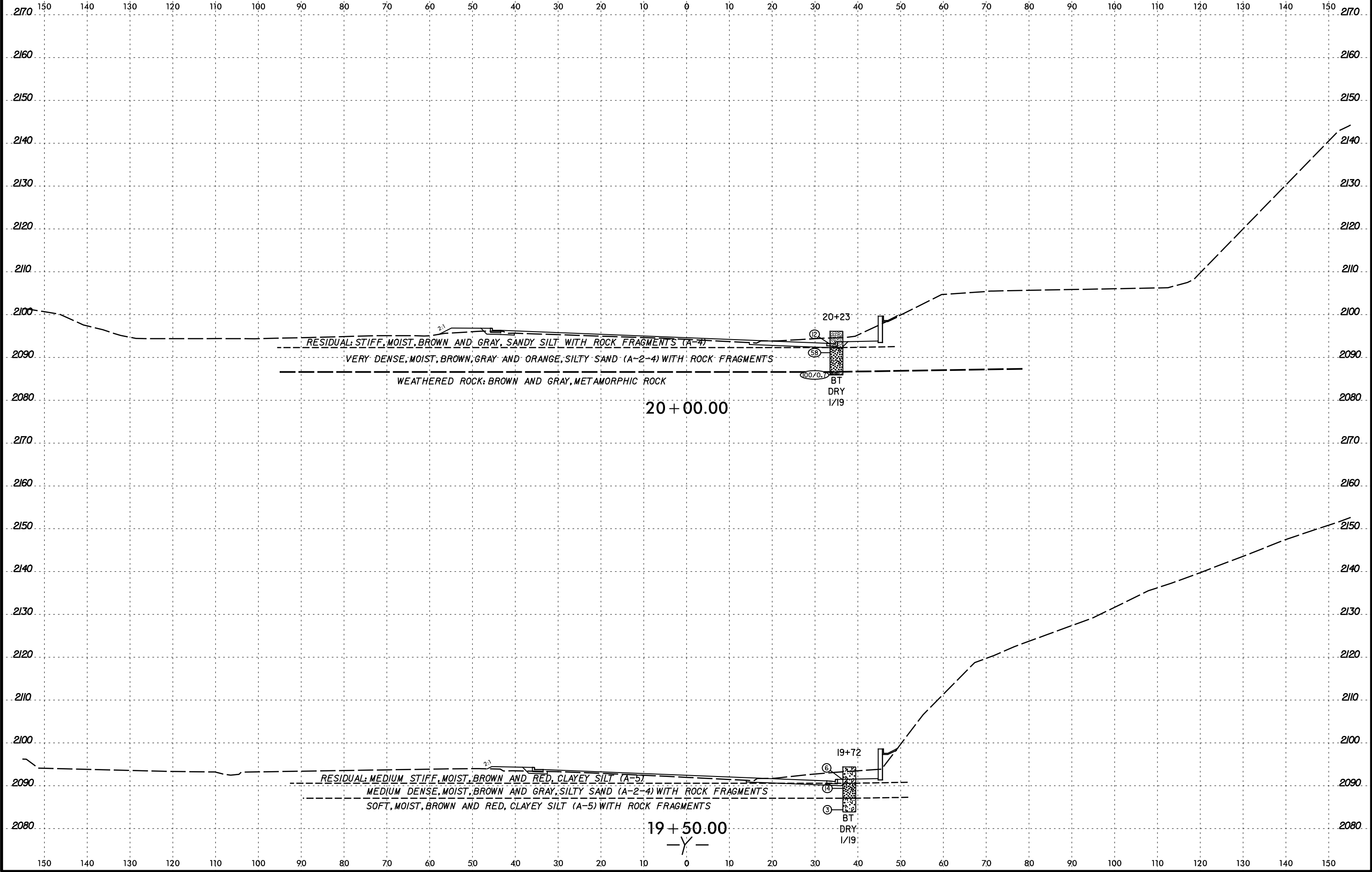
PROJ. REFERENCE NO.	SHEET NO.
R-5600	93





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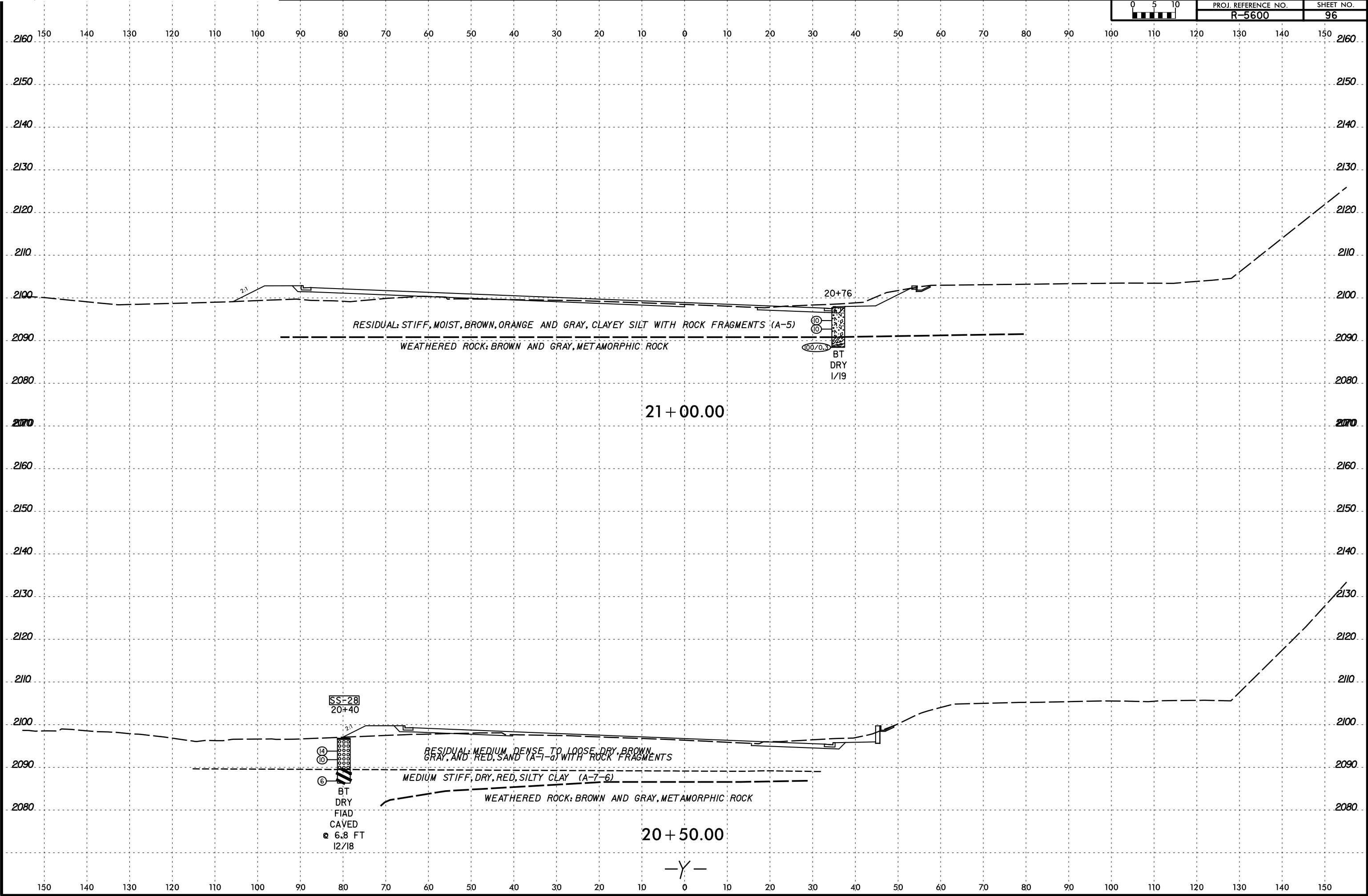
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	R-5600	95



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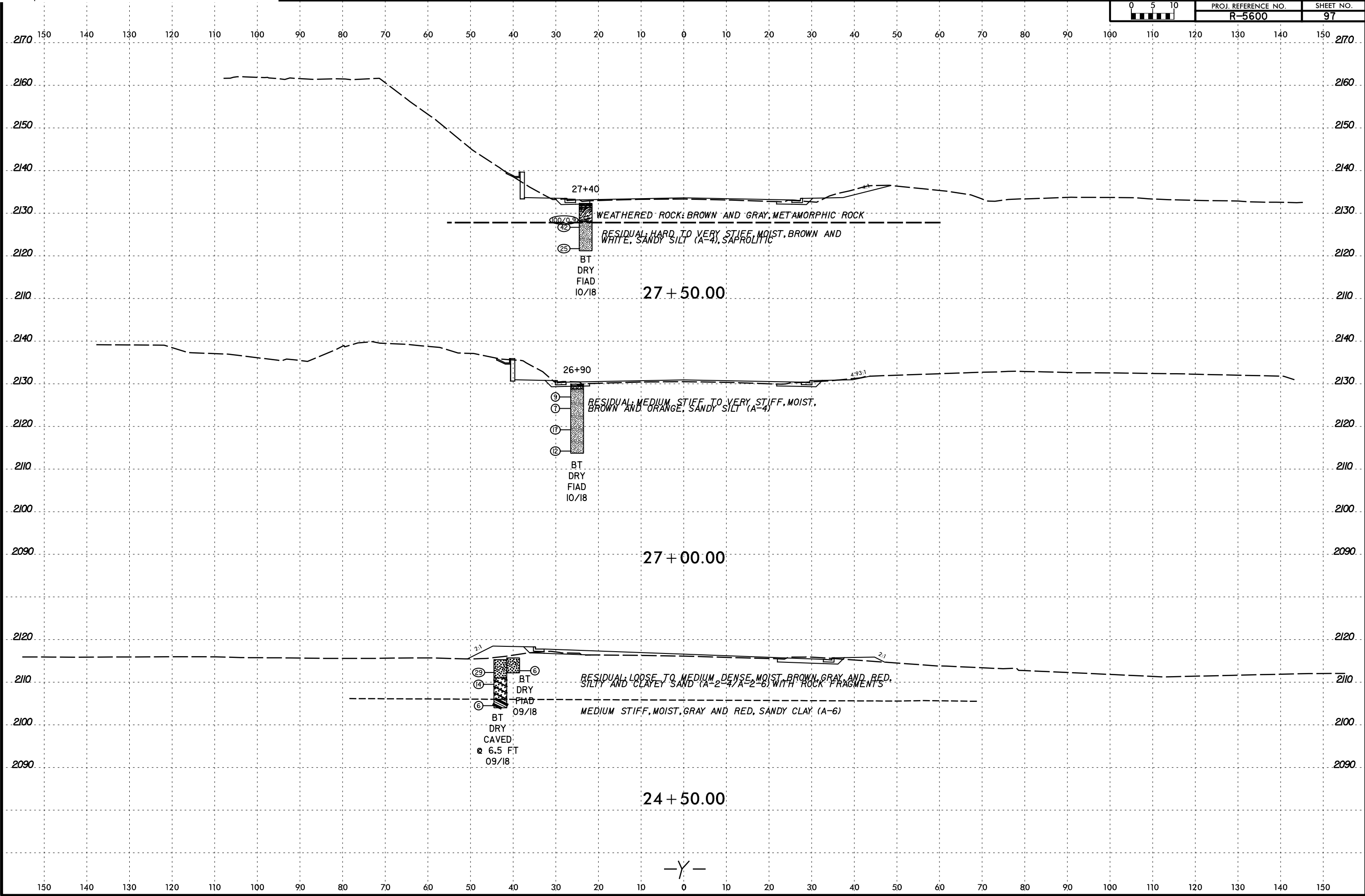
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R-5600	96



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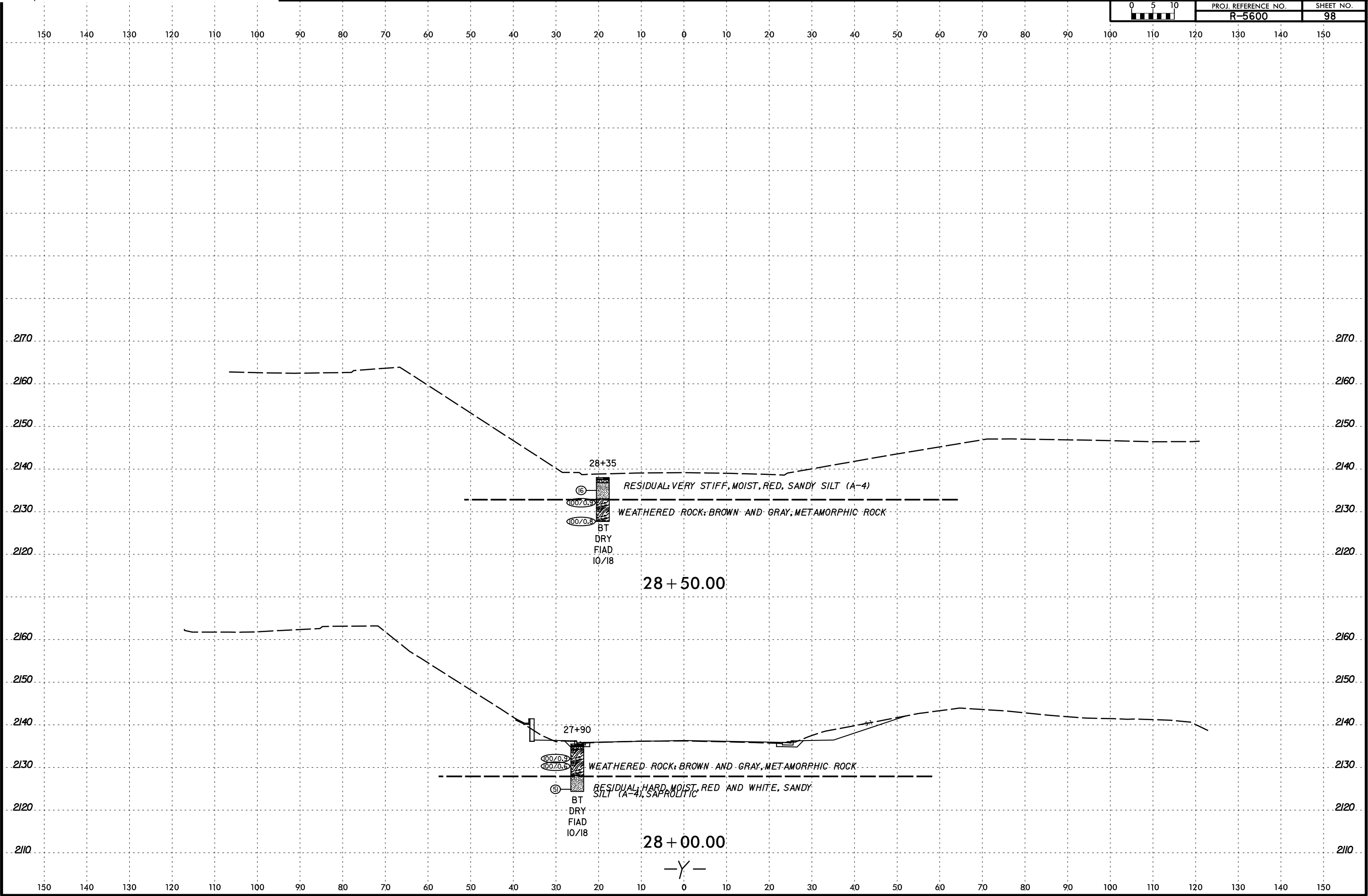


PROJ. REFERENCE NO.	SHEET NO.
R-5600	97



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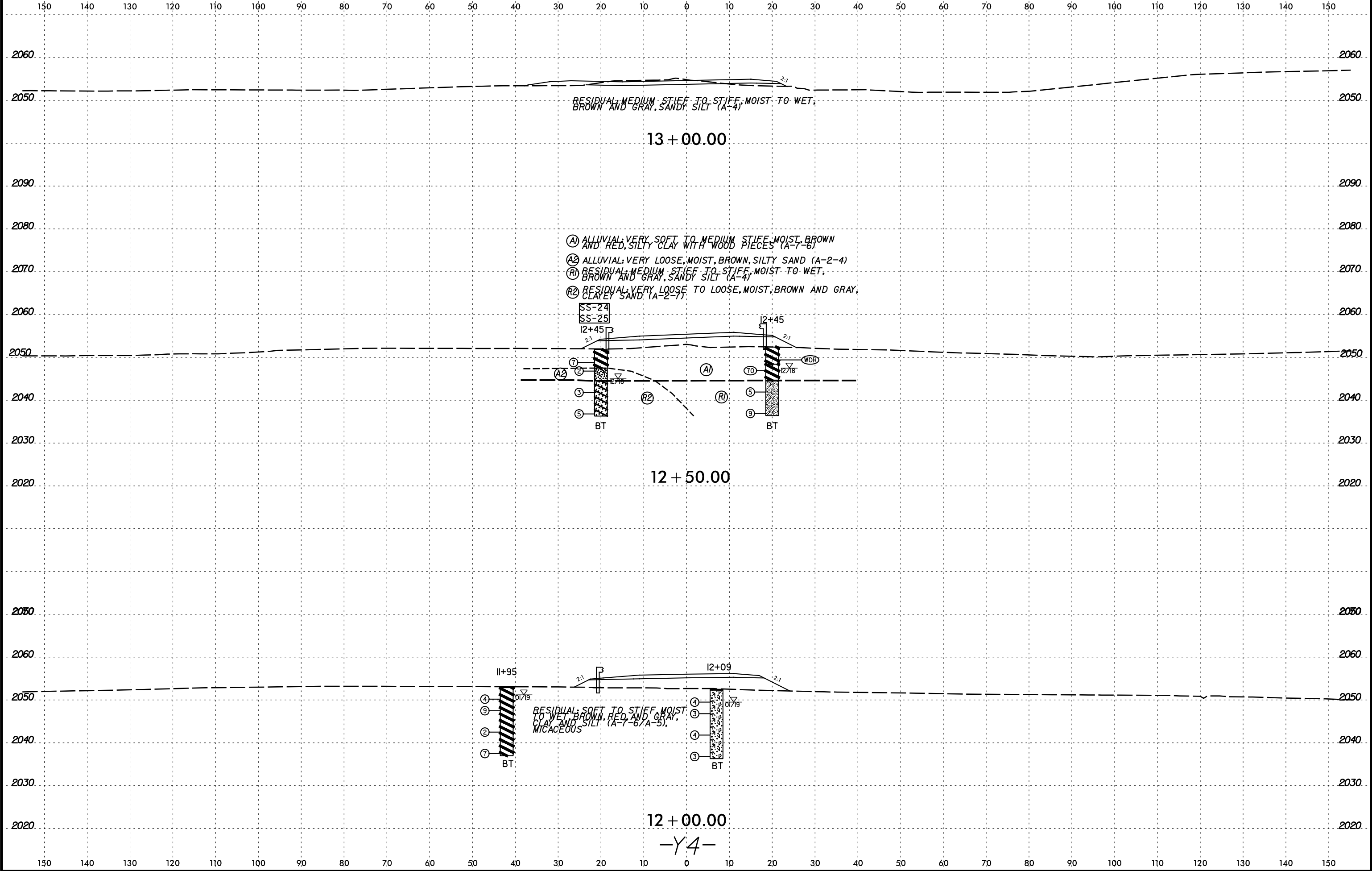
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			R-5600	98



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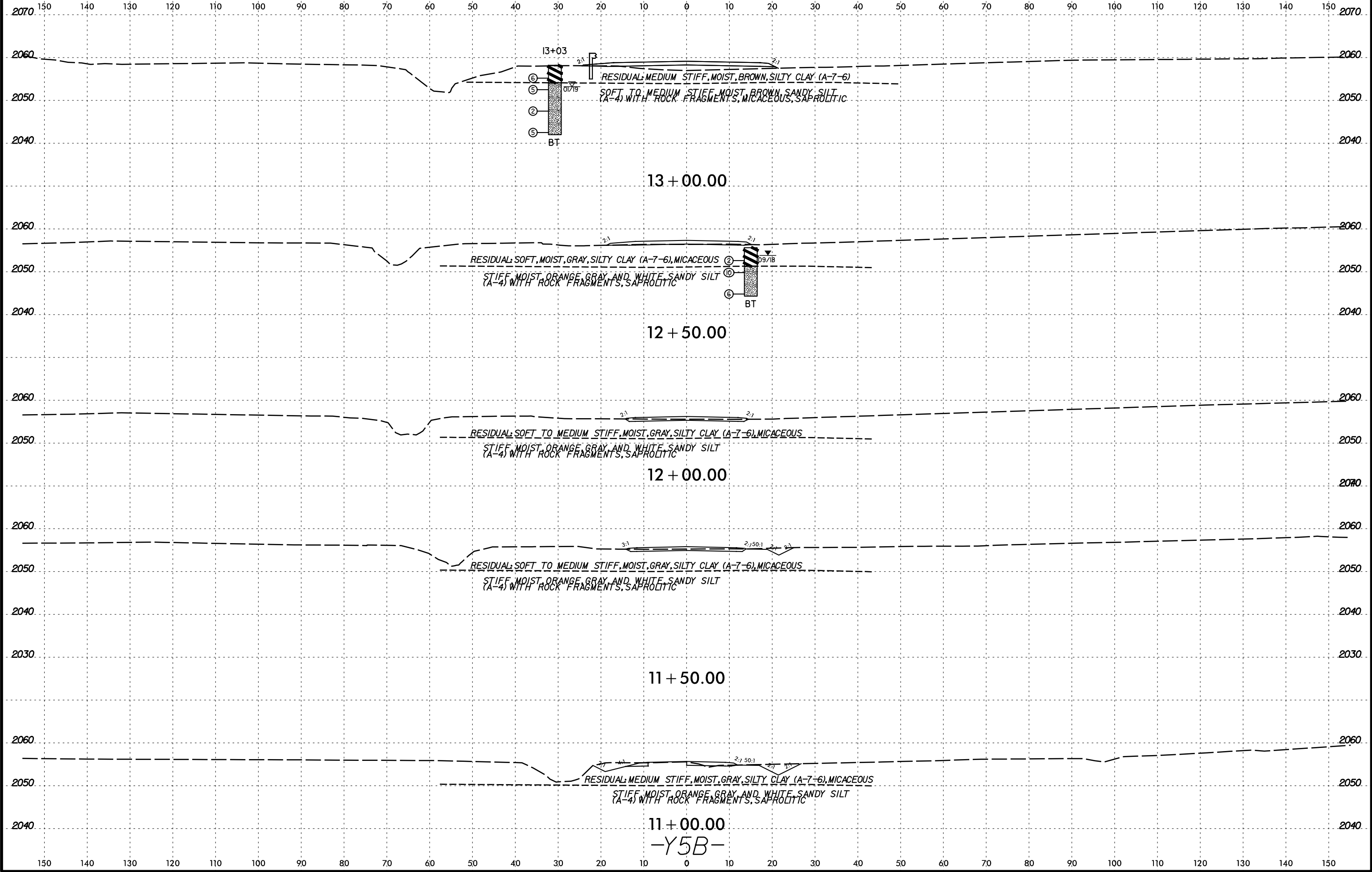
PROJ. REFERENCE NO.	SHEET NO.
R-5600	99



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PROJ. REFERENCE NO.	SHEET NO.
R-5600	100

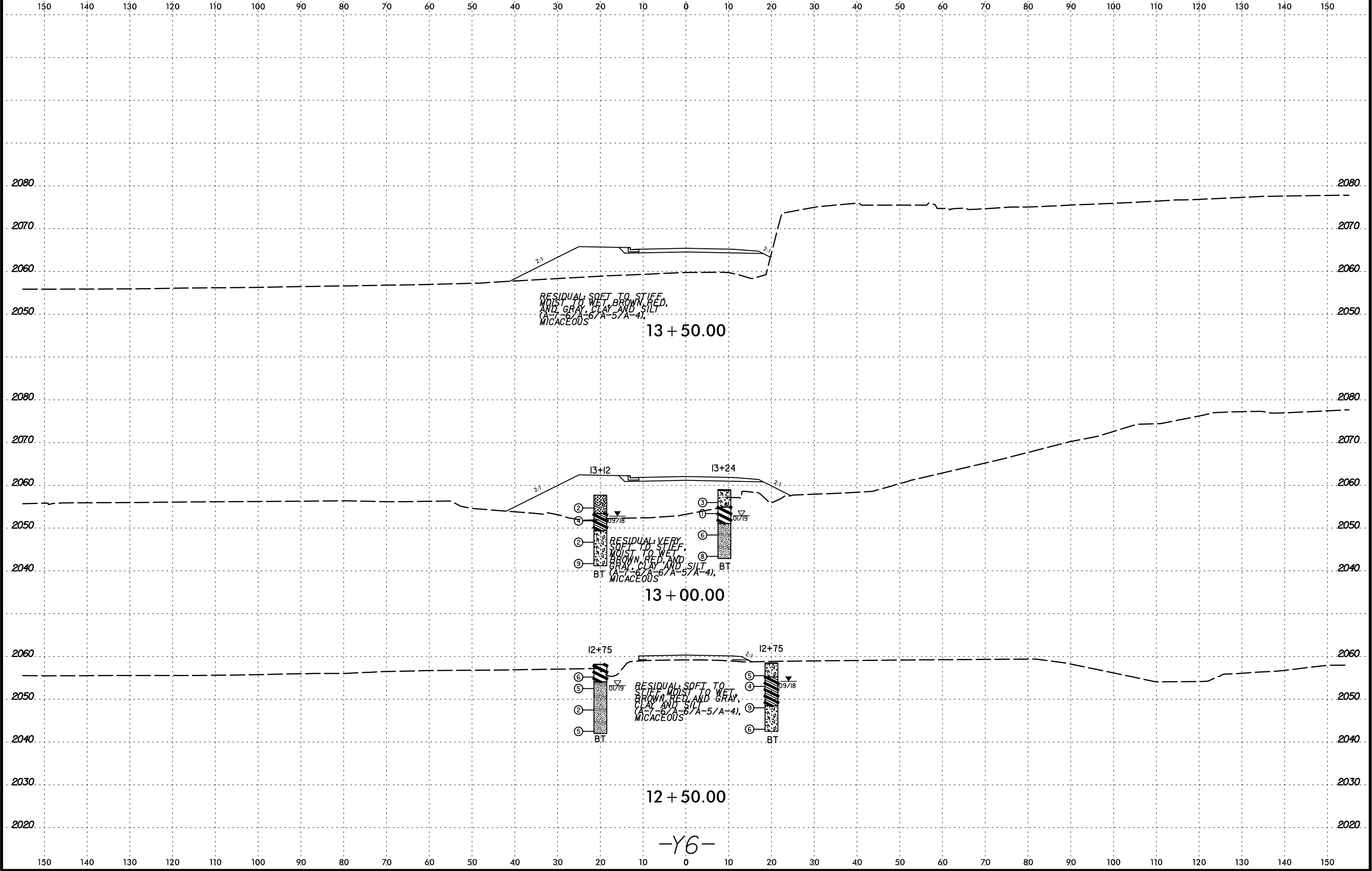


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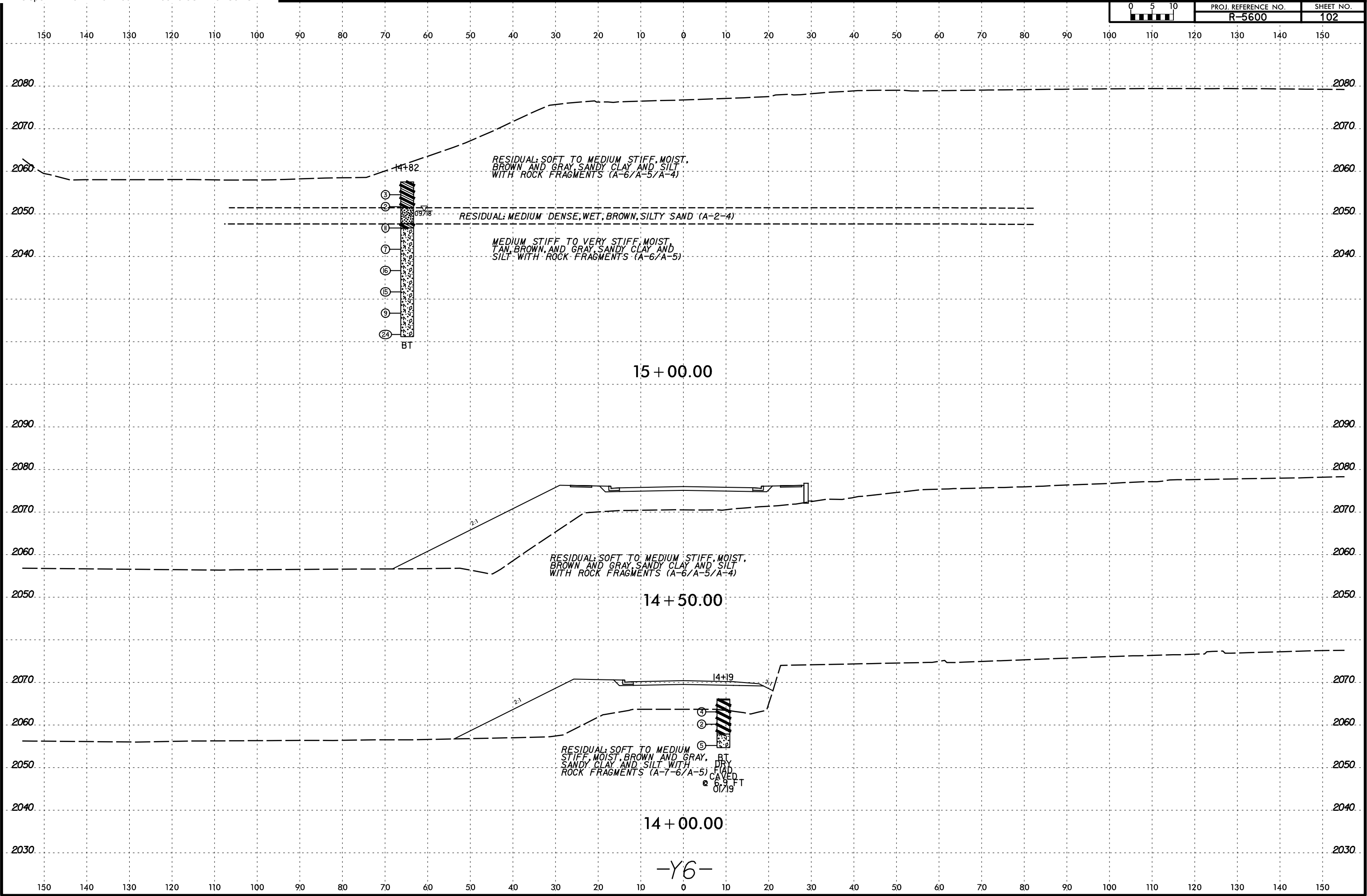


PROJ. REFERENCE NO.
R-5600

SHEET NO.
101



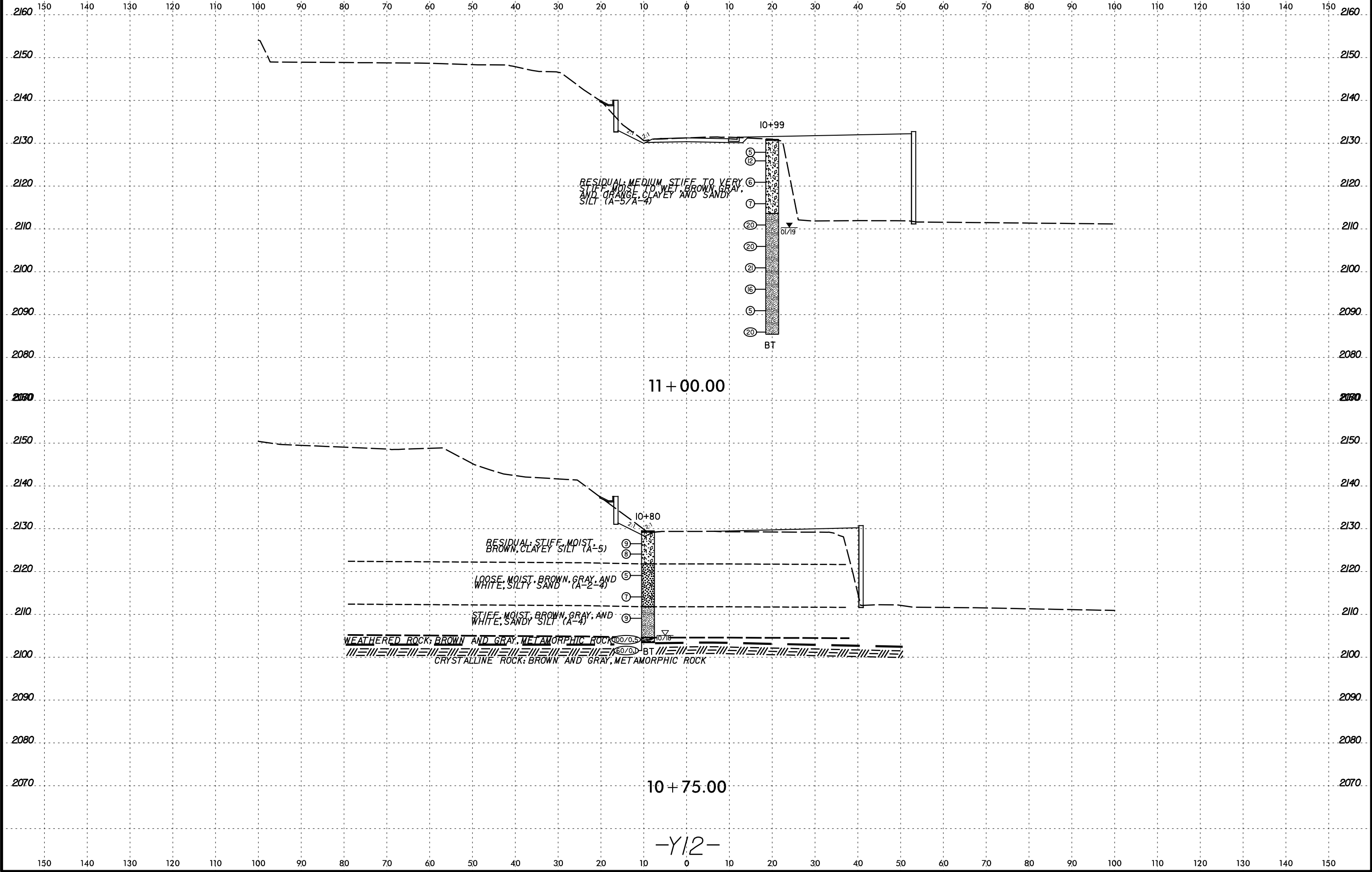
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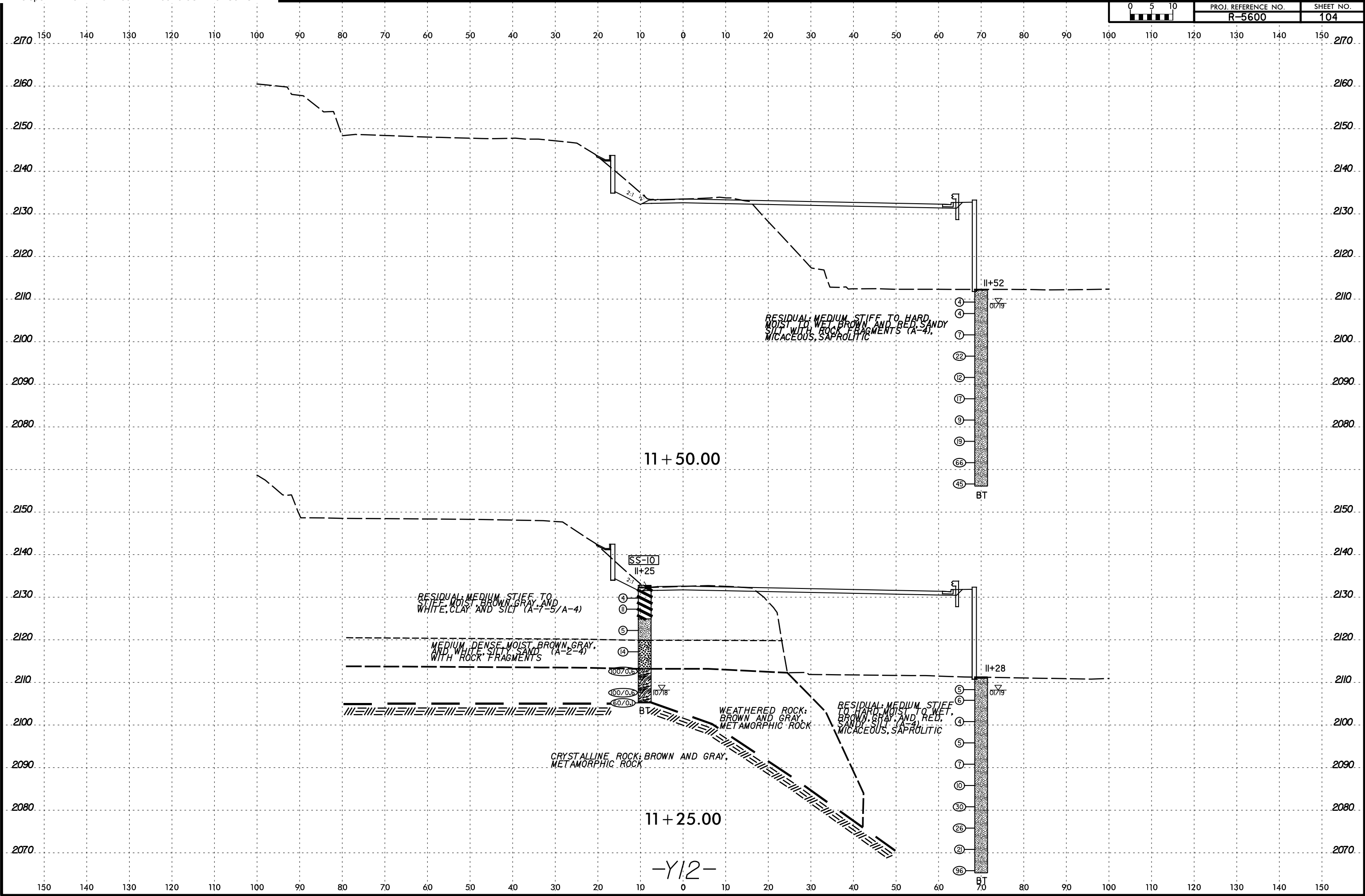
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R-5600	103



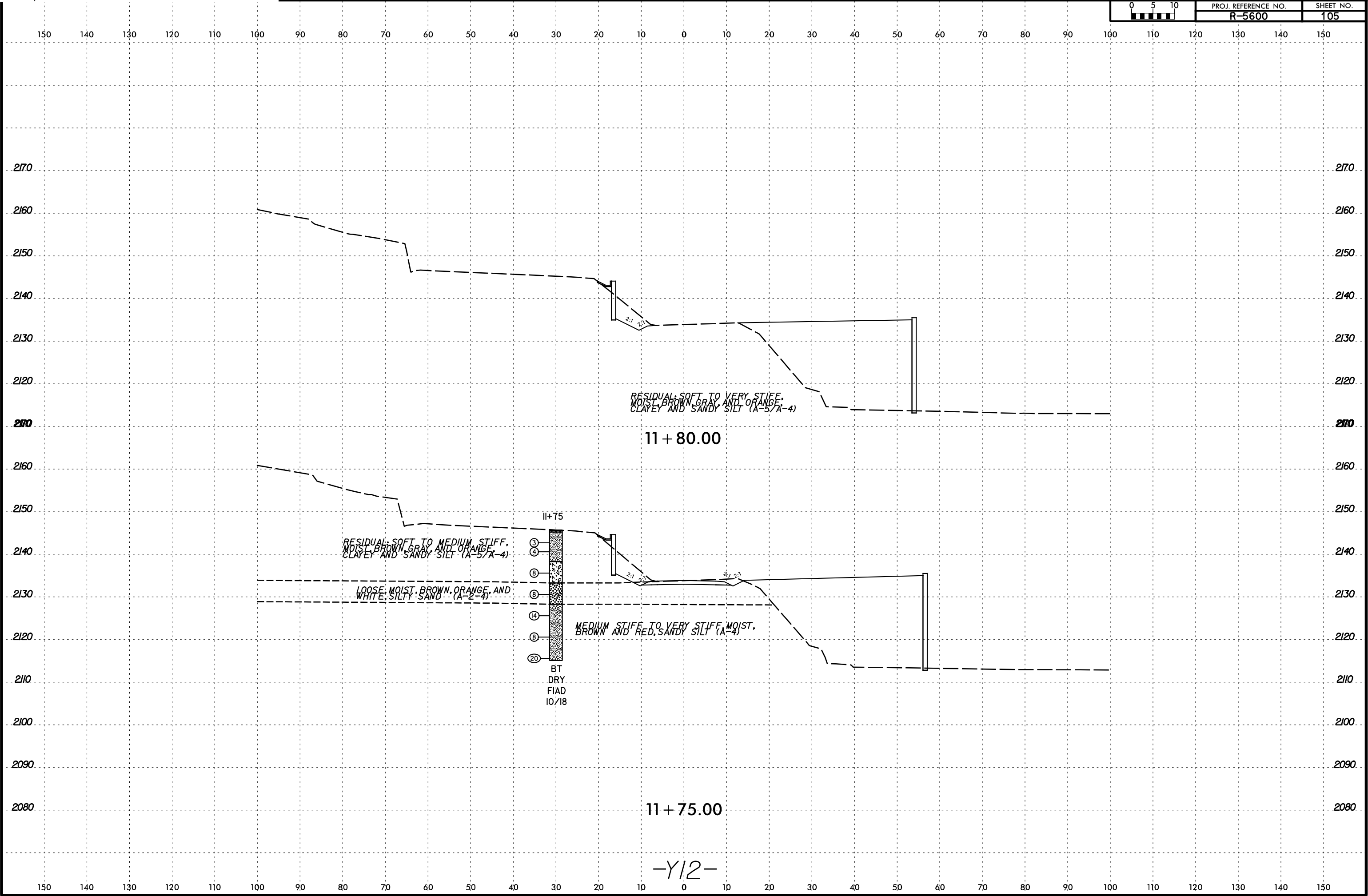
6/23/16



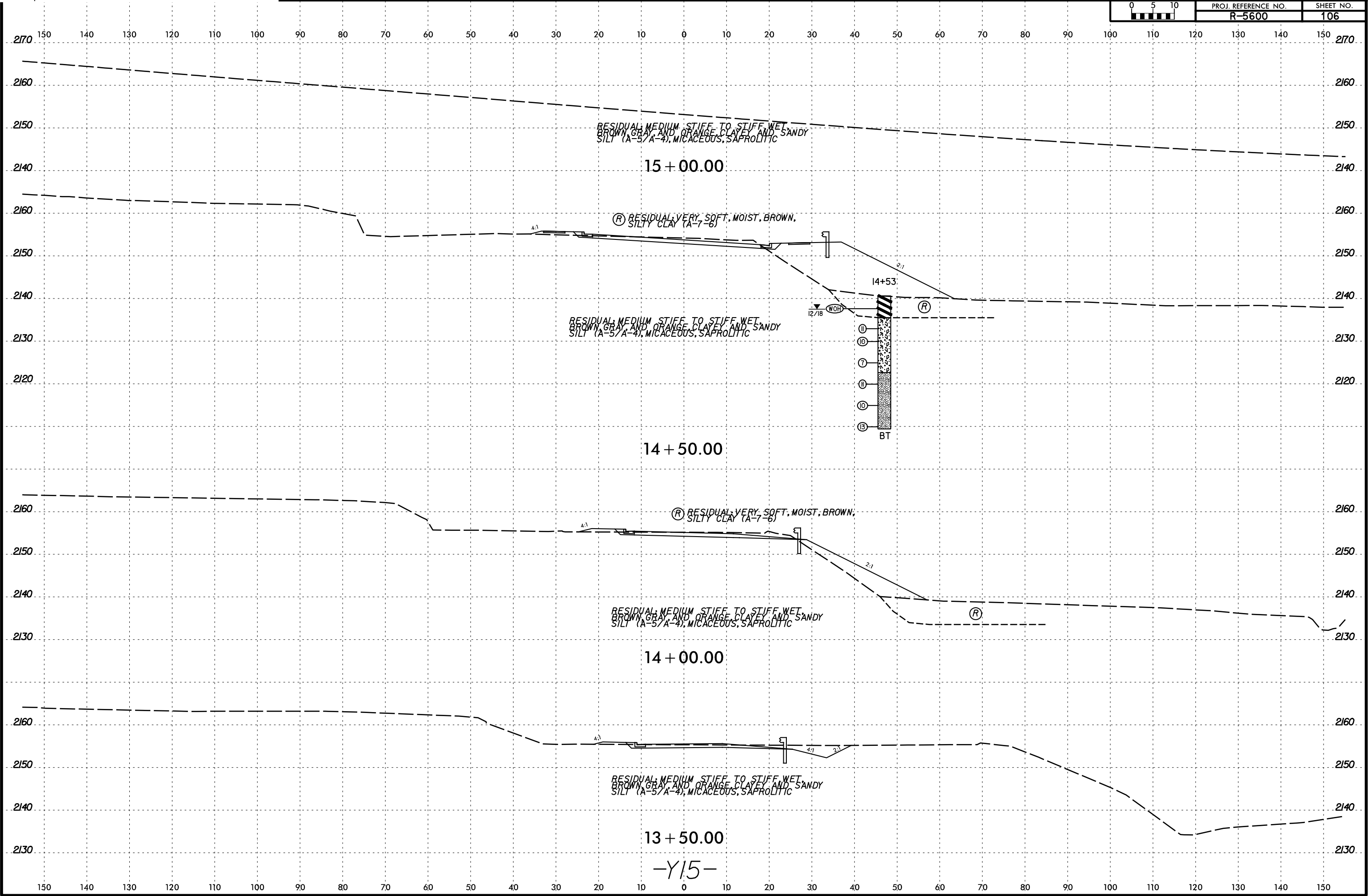
PROJ. REFERENCE NO.	SHEET NO.
R-5600	104



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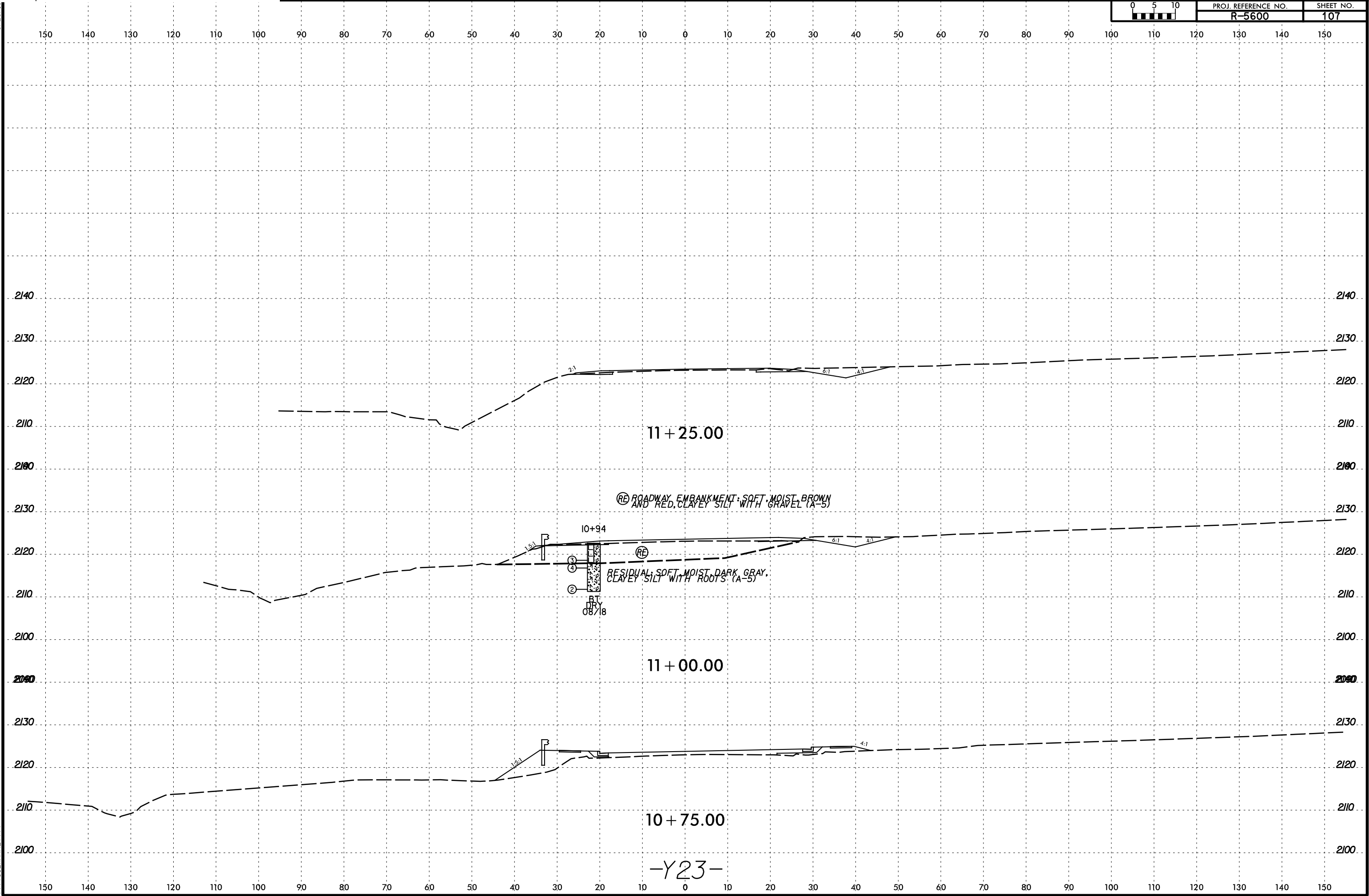


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0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5600	107



-Y23-

SOIL TEST RESULTS																	
SAMPLE NO.	STATION	OFFSET	LINE	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT					% PASSING SIEVES			% Moisture	% ORGANIC
								Gravel	C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-46	26+62	42' LT	-L-	2.0-3.5	A-7-6 (4)	42	14	11.2	17.0	25.1	24.2	22.5	88.8	80.0	48.1	28.2	-
SS-29	30+87	61' RT	-L-	4.5-6.0	A-2-4 (0)	32	6	37.6	20.2	16.5	15.6	10.1	62.4	48.1	28.4	27.2	-
SS-26	31+74	61' RT	-L-	2.0-3.5	A-1-b (0)	29	6	41.2	22.4	15.9	12.8	7.7	58.8	42.3	23.3	19.4	-
SS-47	34+97	72' RT	-L-	2.0-3.5	A-5 (3)	44	9	12.3	18.9	20.0	26.8	22.0	87.7	75.9	50.4	27.6	-
SS-48	40+01	33' LT	-L-	2.0-3.5	A-7-5 (17)	65	30	12.4	14.2	14.0	27.0	32.4	87.6	78.2	60.3	34.3	-
SS-58	47+48	52' LT	-L-	9.0-10.5	A-4 (3)	35	10	1	23.2	27.4	32.4	16.0	99.0	84.9	49.9	27.5	-
ST-7	48+02	51' RT	-L-	10.5-12.4	A-4 (1)	34	7	0.6	23.2	34.6	25.5	16.1	99.4	86.8	46.9	8.1	-
SS-41	52+50	55' RT	-L-	2.0-3.5	A-7-6 (6)	49	19	15	17.8	19.6	21.7	25.9	85.0	74.3	49.0	21.9	-
SS-42	52+50	55' RT	-L-	9.5-11.0	A-7-5 (3)	44	13	4.6	8.5	51.7	26.4	8.8	95.4	92.6	43.0	47.1	-
SS-38	55+72	50' LT	-L-	4.5-6.0	A-7-6 (11)	46	21	1.8	18.1	20.0	20.3	39.8	98.2	88.8	60.6	19.4	-
ST-6	56+22	50' LT	-L-	4.5-6.5	A-5 (2)	42	9	0	15.0	49.6	26.3	9.1	100.0	94.2	43.8	20.3	-
SS-2	59+01	50' LT	-L-	4.5-6.0	A-2-4 (0)	35	3	1.8	29.3	44.7	21.2	3.0	98.2	83.7	27.8	15.2	-
SS-50	76+00	70' LT	-L-	2.0-3.5	A-2-6 (1)	34	14	13.2	34.7	33.9	17.2	1.0	86.8	66.9	22.5	23.6	-
SS-51	76+00	70' LT	-L-	3.7-5.2	A-2-4 (0)	36	NP	0.4	28.3	53.4	12.8	5.1	99.6	86.3	21.4	20.5	-
SS-18	81+03	19' RT	-L-	2.0-3.5	A-2-5 (0)	45	6	15.4	30.6	21.5	21.1	11.4	84.6	63.8	34.1	33.3	-
SS-56	87+00	82' LT	-L-	2.0-3.5	A-6 (3)	38	16	4.1	31.9	23.9	15.7	24.4	95.9	75.6	43.1	17.3	-
SS-57	87+00	82' LT	-L-	4.0-5.5	A-7-5 (7)	47	15	1.9	24.6	17.6	25.2	30.7	98.1	82.4	56.9	20.1	-
SS-3	88+00	100' LT	-L-	4.6-6.1	A-4 (0)	34	8	6.4	34.7	20.8	19.1	19.0	93.6	71.5	40.8	26.6	-
SS-53	89+49	96' RT	-L-	4.0-5.5	A-7-5 (15)	54	22	0.2	16.2	16.9	31.3	35.4	99.8	90.4	67.6	24.6	-
SS-45	90+43	87' RT	-L-	4.0-5.5	A-7-5 (12)	50	20	0.4	21.4	15.3	18.5	44.4	99.6	86.3	63.2	33.2	-
SS-61	91+89	40' RT	-L-	2.0-3.5	A-7-6 (3)	42	15	21	24.1	13.8	22.1	19.0	79.0	61.5	42.0	26.1	-
SS-62	91+89	40' RT	-L-	4.0-5.5	A-7-6 (9)	43	18	4.2	20.3	17.5	25.8	32.2	95.8	82.6	60.5	22.6	-
SS-12	91+89	85' LT	-L-	18.8-20.3	A-4 (0)	30	NP	0.5	24.9	44.5	27.0	3.1	99.5	84.5	35.6	20.8	-
SS-59	92+89	52' LT	-L-	14.0-15.5	A-2-4 (0)	32	5	2.6	42.1	27.7	7.0	20.6	97.4	69.4	29.8	23.7	-
ST-1	93+39	52' LT	-L-	19.0-20.8	A-6 (1)	40	13	0.4	34.0	36.4	5.7	23.5	99.6	79.1	35.5	32.8	-
SS-60	93+89	52' LT	-L-	14.0-15.5	A-7-6 (8)	51	24	1.1	29.6	22.7	4.9	41.7	98.9	80.9	47.9	22.1	-
SS-33	95+74	67' RT	-L-	2.0-3.5	A-6 (5)	35	15	1	30.1	18.6	27.3	23.0	99.0	80.0	52.6	28.1	-
SS-64	96+19	62' RT	-L-	4.0-5.5	A-7-5 (15)	53	19	1.2	16.4	9.6	17.6	55.2	98.8	88.3	73.0	31.2	-
SS-65	96+19	62' RT	-L-	9.0-10.5	A-7-6 (10)	48	19	1.1	23.6	17.4	35.0	22.9	98.9	84.3	60.5	32.6	-
SS-13	96+39	107' LT	-L-	2.0-3.5	A-6 (0)	38	11	0	35.2	36.0	21.7	7.1	100.0	79.9	35.1	15.9	-
SS-43	96+39	107' LT	-L-	29.0-30.5	A-7-5 (0)	42	11	0	31.1	36.5	29.3	3.1	100.0	83.5	36.1	15.1	-
SS-34	96+74	62' RT	-L-	2.0-3.5	A-7-6 (14)	46	20	0.4	16.4	12.4	26.6	44.2	99.6	89.6	72.6	34.9	-
SS-44	97+89	103' LT	-L-	29.0-30.5	A-7-5 (6)	47	14	0.3	27.0	18.3	16.2	38.2	99.7	83.5	55.2	23.9	-
SS-49	101+64	95' LT	-L-	29.0-30.5	A-2-4 (0)	37	6	0	42.0	29.2	24.7	4.1	100.0	74.9	31.3	13.4	-
SS-14	102+14	110' LT	-L-	14.0-15.5	A-7-6 (9)	43	22	1	25.7	21.2	21.0	31.1	99.0	84.1	55.0	23.5	-
SS-63	102+99	50' RT	-L-	2.0-3.5	A-7-5 (9)	46	15	1.5	19.4	15.1	8.5	55.5	98.5	87.3	64.7	26.0	-
SS-23	103+04	28' LT	-L-	2.0-3.5	A-7-6 (14)	55	26	2	22.1	19.5	20.6	35.8	98.0	85.4	59.3	23.9	-
SS-27	106+64	48' LT	-L-	5.0-6.5	A-6 (6)	38	14	0.6	23.3	21.7	29.3	25.1	99.4	85.9	57.4	28.3	-

SOIL TEST RESULTS																	
SAMPLE NO.	STATION	OFFSET	LINE	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT					% PASSING SIEVES			% Moisture	% ORGANIC
								Gravel	C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-22	107+14	48' LT	-L-	2.0-3.5	A-7-6 (8)	47	20	1.1	23.2	22.6	36.0	17.1	98.9	85.5	54.4	25.7	-
SS-35	108+13	48' LT	-L-	10.0-11.5	A-7-5 (6)	56	13	0	13.8	42.0	40.1	4.1	100.0	90.2	51.6	29.9	-
ST-5	108+99	48' LT	-L-	2.0-4.0	A-4 (3)	37	7	0.1	16.6	32.4	39.8	11.1	99.9	90.8	57.5	22.0	-
SS-4	109+00	42' RT	-L-	5.0-6.5	A-7-6 (4)	43	14	13.8	17.3	25.2	34.9	8.8	86.2	76.3	47.5	36.9	-
SS-31	110+89	41' LT	-L-	2.0-3.5	A-2-4 (0)	27	1	7.2	40.1	23.0	28.0	1.7	92.8	59.2	33.3	23.7	-
SS-54	112+89	44' RT	-L-	2.0-3.5	A-7-6 (13)	53	25	0.1	25.7	16.7	28.6	28.9	99.9	83.6	58.2	27.1	-
SS-37	115+88	48' RT	-L-	2.0-3.5	A-7-6 (5)	45	18	7.5	30.6	16.0	33.7	12.2	92.5	71.4	46.5	14.6	-
SS-5	119+00	41' LT	-L-	10.0-11.5	A-2-5 (0)	47	10	10.9	30.9	28.2	24.5	5.5	89.1	70.2	33.8	63.7	-
SS-55	124+38	92' LT	-L-	24.0-25.5	A-7-5 (11)	50	16	7.2	12.9	14.0	28.4	37.5	92.8	86.0	66.3	24.5	-
ST-2	125+38	100' LT	-L-	9.0-10.7	A-7-5 (12)	50	20	7	13.9	18.6	19.5	41.0	93.0	85.2	63.5	32.2	-
SS-66	126+88	113' LT	-L-	24.0-25.5	A-7-5 (16)	54	20	0.2	12.4	14.4	15.9	57.1	99.8	93.2	73.7	20.7	-
SS-9	129+88	120' LT	-L-	5.0-6.5	A-7-5 (7)	59	28	5.2	27.4	28.7	25.9	12.8	94.8	78.3	42.4	22.8	-
SS-6	132+50	42' RT	-L-	4.7-6.2	A-7-6 (13)	47	19	1.3	13.3	20.0	16.6	48.8	98.7	92.1	68.1	19.4	-
SS-52	133+38	48' RT	-L-	2.0-3.5	A-2-6 (0)	39	11	22.4	25.5	21.6	24.2	6.3	77.6	61.8	31.8	25.6	-
ST-4	133+38	48' RT	-L-	9.5-11.5	A-7-5 (4)	48	15	2.6	28.7	25.6	26.3	16.8	97.4	81.9	45.8	62.0	-
ST-3	133+88	48' RT	-L-	4.5-6.5	A-7-5 (5)	45	14	1.4	24.4	28.0	22.7	23.5	98.6	83.2	50.7	30.8	-
SS-7	141+50	50' LT	-L-	10.0-11.5	A-7-5 (2)	56	12	2.7	28.1	32.6	29.6	7.0	97.3	82.2	40.7	21.8	-
SS-8	148+00	143' RT	-L-	24.7-26.2	A-2-7 (1)	48	17	31.5	20.5	20.7	20.9	6.4	68.5	54.6	31.7	38.1	-
SS-39	14+50	57' LT	-Y-	2.0-3.5	A-7-6 (12)	45	19	3.9	13.4	15.3	24.3	43.1	96.1	88.5	68.0	23.0	-
SS-40	14+50	57' LT	-Y-	4.4-5.9	A-7-5 (12)	50	16	5.1	14.4	14.2	23.8	42.5	94.9	85.4	68.7	25.8	-
SS-32	15+28	56' RT	-Y-	9.0-10.5	A-5 (0)	45	7	0.7	26.0	36.5	23.7	13.1	99.3	86.0	39.9	25.5	-
SS-36	19+19	36' RT	-Y-	2.0-3.5	A-7-6 (6)	46	20	13.1	19.5	23.9	20.8	22.7	86.9	75.5	47.0	17.4	-
SS-28	20+40	80' LT	-Y-	4.0-5.5	A-1-a (0)	24	4	60	16.7	10.2	9.3	3.8	40.0	27.3	14.7	30.5	-
SS-30	12+50	25' RT	-Y1-	4.0-5.5	A-2-4 (0)	35	6	29.1	26.2	19.6	20.0	5.1	70.9	51.8	28.7	15.7	-
SS-24	12+45	20' LT	-														