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REFERENCE: R-5759

PROJECT: 44691

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

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

ROADWAY SUBSURFACE INVESTIGATION

COUNTY *WILKES*

PROJECT DESCRIPTION *WIDENING OF NC 115 (STATESVILLE ROAD) FROM US 421 TO 2ND STREET*

INVENTORY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-5759	1	

CONTENTS

LINE	STATION	PLAN
-L-	9+85 - 178+44	4 - 18
-Y1-	10+00 - 13+36	5
-Y2-	10+00 - 25+92	19, 5
-Y3-	10+50 - 15+00	6
-Y4-	10+00 - 14+75	6
-Y5-	10+00 - 11+50	7
-Y6_REV-	15+00 - 18+50	8
-Y7-	10+00 - 14+75	9
-Y8-	10+00 - 12+25	10
-Y9-	12+25 - 15+00	11
-Y10-	10+25 - 17+00	12
-Y11-	10+00 - 15+50	11 - 12
-Y12-	10+00 - 12+50	13
-Y13-	10+00 - 12+25	14
-Y14-	10+09 - 17+26	14 - 15
-Y15-	10+00 - 14+25	15
-LPB-	10+90 - 13+12	4
-RPB-	15+20 - 17+88	4
-LPD-	11+25 - 14+14	5
-RPD-	11+50 - 15+11	5
-C1-	10+00 - 15+50	4
-C2-	10+00 - 15+50	5
-C3-	10+00 - 15+50	6 - 7
-C4-	10+00 - 14+71	11 - 12
-DRW1-	10+00 - 12+25	4
-DRW2-	10+00 - 11+52	5
-DRW4_REV-	10+00 - 11+84	8
-DRW5-	10+15 - 12+00	10
-DRW6-	10+00 - 12+00	10
-DRW7-	10+25 - 12+04	13
-DRW8-	10+75 - 13+50	10
-DRW9-	10+00 - 12+25	12
-DRW10-	10+15 - 11+29	13

CROSS SECTIONS

LINE	STATION	SHEETS
-L-	9+00 - 177+50	19 - 170
-Y1-	10+50 - 13+25	171 - 174
-Y2-	15+00 - 25+00	175 - 178
-Y3-	11+50 - 13+75	179
-Y4-	10+75 - 13+00	180 - 185
-Y5-	10+75	186
-Y6_REV-	14+75 - 18+00	187 - 194
-Y7-	12+50	195
-Y8-	10+50 - 12+00	196
-Y9-	13+00 - 14+25	197
-Y10-	10+00 - 16+50	198 - 204
-Y11-	11+25 - 14+50	205 - 211
-Y12-	10+25 - 12+50	212 - 218
-Y13-	10+50 - 12+00	219 - 222
-Y14-	12+75 - 16+50	223 - 232
-Y15-	10+75	233
-LPB-	10+50 - 12+25	234 - 236
-RPB-	15+25 - 17+00	237 - 240
-LPD-	11+00 - 14+00	241 - 245
-RPD-	11+75 - 15+00	246 - 251
-C1-	10+00 - 15+49.77	252 - 262
-C2-	10+00 - 15+49.75	263 - 269
-C3-	12+75	270 - 271
-C4-	10+00 - 13+25	272 - 275
-DRW1-	10+25 - 12+25	276 - 279
-DRW2-	10+25 - 11+25	280
-DRW4_REV-	10+00 - 11+75	281 - 284
-DRW5-	10+50 - 11+25	285 - 286
-DRW6-	10+75 - 11+50	287
-DRW7-	10+50 - 11+50	288
-DRW8-	11+25 - 12+75	289
-DRW9-	11+25	290
-DRW10-	10+75	291

APPENDICES

APPENDIX	TITLE	SHEETS
A	LABORATORY TEST RESULTS	293 - 313
B	ADDITIONAL BORING LOGS	315

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.

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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 PERFORM INDEPENDENT SUBSURFACE INVESTIGATIONS AND MAKE INTERPRETATIONS AS NECESSARY TO CONFIRM CONDITIONS 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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PROJECT REFERENCE NO.	SHEET NO.
R-5759	2

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

SUBSURFACE INVESTIGATION

SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

SOIL DESCRIPTION

SOIL IS CONSIDERED UNCONSOLIDATED, SEMI-CONSOLIDATED, OR WEATHERED EARTH MATERIALS THAT CAN BE PENETRATED WITH A CONTINUOUS FLIGHT POWER AUGER AND YIELD LESS THAN 100 BLOWS PER FOOT ACCORDING TO THE STANDARD PENETRATION TEST (AASHTO T 206, ASTM D1586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY INCLUDE THE FOLLOWING: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. FOR EXAMPLE,
VERY STIFF, GRAY, SILTY CLAY, MOIST WITH INTERBEDDED FINE SAND LAYERS, HIGHLY PLASTIC, A-7-6

SOIL LEGEND AND AASHTO CLASSIFICATION

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

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

CONSISTENCY OR DENSENESS

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

TEXTURE OR GRAIN SIZE

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

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

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

SOIL MOISTURE - CORRELATION OF TERMS

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

PLASTICITY

	PLASTICITY INDEX (PI)	DRY STRENGTH
NON PLASTIC	0-5	VERY LOW
SLIGHTLY PLASTIC	6-15	SLIGHT
MODERATELY PLASTIC	16-25	MEDIUM
HIGHLY PLASTIC	26 OR MORE	HIGH

COLOR

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

GRADATION

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

ANGULARITY OF GRAINS

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

MINERALOGICAL COMPOSITION

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

COMPRESSIBILITY

SLIGHTLY COMPRESSIBLE	LL < 31
MODERATELY COMPRESSIBLE	LL = 31 - 50
HIGHLY COMPRESSIBLE	LL > 50

PERCENTAGE OF MATERIAL

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

GROUND WATER

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

MISCELLANEOUS SYMBOLS

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

RECOMMENDATION SYMBOLS

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

ABBREVIATIONS

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

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

EQUIPMENT USED ON SUBJECT PROJECT

DRILL UNITS:
- [ ] CME-45C
- [ ] CME-55
- [ ] CME-550
- [ ] VANE SHEAR TEST
- [ ] PORTABLE HOIST
- [X] CME 45B (TER1974)
- [X] DIEDRICH D-50 (TER373)

ADVANCING TOOLS:
- [ ] CLAY BITS
- [ ] 6" CONTINUOUS FLIGHT AUGER
- [ ] 8" HOLLOW AUGERS
- [ ] HARD FACED FINGER BITS
- [ ] TUNG.-CARBIDE INSERTS
- [ ] CASING [ ] W/ ADVANCER
- [ ] TRICONE ____" STEEL TEETH
- [X] TRICONE 2⅛" TUNG.-CARB.
- [X] 2¼" HOLLOW STEM AUGERS
- [X] 3¼" HOLLOW STEM AUGERS

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

CORE SIZE:
- [ ] -B _____
- [ ] -H _____
- [ ] -N _____

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

ROCK DESCRIPTION

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

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

WEATHERING

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

ROCK HARDNESS

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

FRACTURE SPACING

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

BEDDING

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

INDURATION

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

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

TERMS AND DEFINITIONS

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

AQUIFER - A WATER BEARING FORMATION OR STRATA.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

BENCH MARK: TOP OF BORING ELEVATIONS ESTIMATED USING PROVIDED PROJECT TIN FILE: (R-5759_merged TIN.tin) DATED 06/18/2020
ELEVATION: N/A FEET

NOTES:
FIAD - FILLED IMMEDIATELY AFTER DRILLING
HAR - HAND AUGER REFUSAL

TEST LOCATION - PAVEMENT CORE WITH DCP AND AUGER PROBE

Docusign Envelope ID: E990BE04-BB3B-4762-8C73-1AB5FE077DDE

See Sheet 1B For Conventional Symbols

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

WILKES COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-5759	2A	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
44691.1.1		PE
44691.2.1		R/W
44691.2.2		UTIL

LOCATION: WIDENING OF NC 115 (STATESVILLE ROAD) FROM US 421 TO 2ND STREET

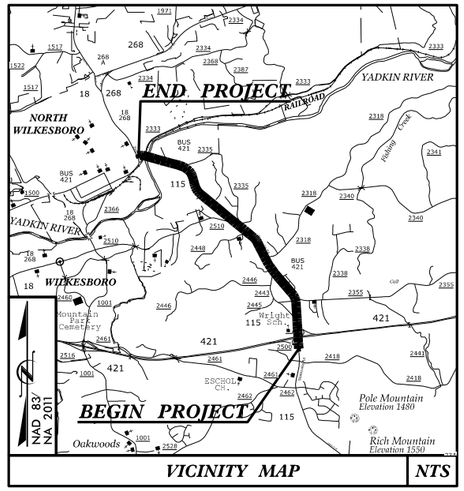
TYPE OF WORK: GRADING, PAVING, CURB AND GUTTER, AND DRAINAGE

DESIGN CRITERIA EXCEPTIONS

–L– STA. 124+05 TO 137+75 GRADE IS 7.22% WHILE DESIGN CRITERIA MAX IS 7.00%
–Y3– STA. 12+06.00 TO 13+48.42 MIN HORIZONTAL RADIUS IS 144 WHILE DESIGN CRITERIA IS 485
–Y14– STA. 10+45 TO 16+15 GRADE IS 17.15% WHILE DESIGN CRITERIA IS MAX 15%

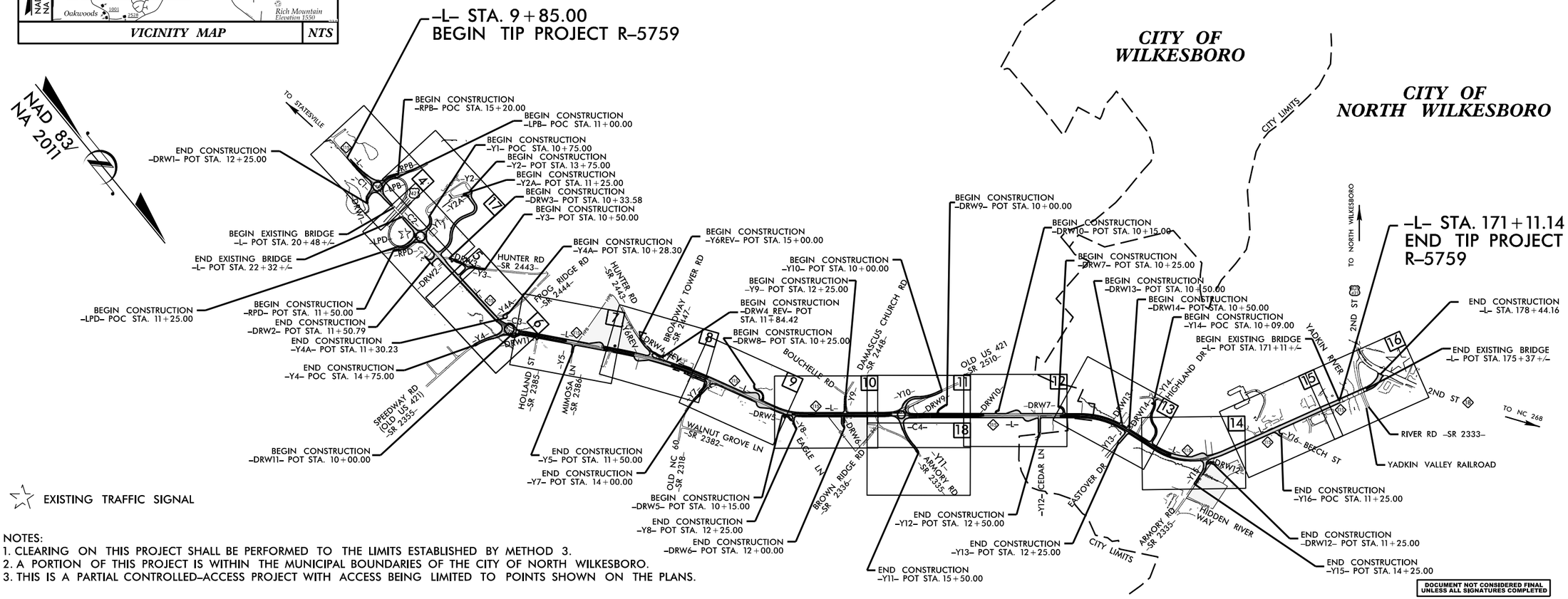
TIP PROJECT: R-5759

CONTRACT:



VICINITY MAP NTS

ROW SUBMITTAL



NOTES:
1. CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD 3.
2. A PORTION OF THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF THE CITY OF NORTH WILKESBORO.
3. THIS IS A PARTIAL CONTROLLED–ACCESS PROJECT WITH ACCESS BEING LIMITED TO POINTS SHOWN ON THE PLANS.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES

50 25 0 50 100 PLANS

50 25 0 50 100 PROFILE (HORIZONTAL)

10 5 0 10 20 PROFILE (VERTICAL)

DESIGN DATA

ADT 2018 = 9,100
ADT 2040 = 11,200
K = 10 %
D = 55 %
T = 8 % *
V = 50 MPH
* TTST = 4% DUAL 4%
FUNC CLASS = MINOR ARTERIAL
REGIONAL TIER

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT R–5759 = 3.078 MILES
LENGTH OF EXISTING STRUCTURE TIP PROJECT R–5759 = 0.115 MILES
TOTAL LENGTH OF TIP PROJECT R–5759 = 3.193 MILES
TOTAL LENGTH BASED ON –L– CENTERLINE

Prepared in the Office of:
HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554

FOR NCDOT DIVISION 11

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: FEBRUARY 22, 2022

LETTING DATE: JUNE 18, 2024

DOUGLAS WHEATLEY, PE
PROJECT ENGINEER

THORNE KING, EI
PROJECT DESIGN ENGINEER

RAMIE SHAW, PE
NCDOT PROJECT TEAM LEAD

HYDRAULICS ENGINEER
SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER
SIGNATURE: P.E.

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

14-AUG-2024 09:28
N:\Projects\2018\7018531\R5759\R5759_GEO_RDWY_modifier\CADD_ORIGINAL\R5759 _CADD 11_10_2023\R5759_
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Date: August 16, 2024

WBS Number: 44691.1.1
TIP Number: R-5759
County: Wilkes
Description: Widening of NC 115 (Statesville Road) from US 421 to 2nd Street

Subject: Roadway Geotechnical Report - Inventory

Project Description

The project is located along NC 115 (Statesville Road) -L- from US 421 to NC 18 (2nd Street) east of Wilkesboro in Wilkes County, North Carolina. A portion of this project is within the municipal boundaries of the City of North Wilkesboro. The total length of the project along -L- is 3.193 miles including the bridge crossing at US 421 and will consist of widening NC 115 (Statesville Road) and upgrading existing intersections along the alignment. Statesville Road (-L-) currently consists of two to four-lane sections along the proposed widening alignment. The construction will also include four new roundabouts (-C1-, -C2-, -C3-, and -C4-). In addition, four retaining walls are proposed along the length of NC 115 (Statesville Road). The project corridor is in an urban residential setting and much of the surrounding land is developed. An elementary school is located directly north off US 421. The project will require maximum cut depths of about 58 feet and maximum fill placement depths of about 21 feet.

The geotechnical subsurface investigation was performed from July to September of 2020. The site was investigated with a total of one-hundred and thirty-three (133) standard penetration test (SPT) borings and forty (40) hand auger borings. The hand auger borings were performed at locations that could not be easily accessed by the drill rig. Additionally, eight (8) auger probes, performed during the pavement design investigation are included in this report. The hand auger borings and auger probes were advanced to depths of 1 to 15 feet beneath the ground surface. Hand auger borings DRW1_1150, L_5850RT, L_7100 and L_7386 were terminated upon hand auger refusal at depths of 1.0 to 8.5 feet in very stiff soils or an obstruction. Standard penetration test (SPT) borings were advanced using both a Diedrich D-50 and CME-45B rotary drill rigs equipped with recently calibrated automatic hammers. SPT borings were advanced utilizing hollow stem auger drilling techniques to depths of 9.2 to 94.6 feet beneath the surface.

Representative soil samples were collected in the field for visual classification and selected samples were submitted for laboratory analysis by Terracon's soil testing laboratory. One Shelby tube sample (ST-1) was obtained near the proposed retaining wall structure RWAL4 on -L- for consolidation testing. Three bulk samples were collected of representative soil samples to perform compaction moisture–density curves and California Bearing Ratio (CBR) testing to evaluate subgrade support values to be used in pavement design. Laboratory testing was performed in accordance with the AASHTO Soil Classification System.

The following alignments were investigated by soil testing and visual reconnaissance:

Alignment	Stations(±)
-L-	9+85 to 178+44
-Y1-	10+00 to 13+36
-Y2-	10+00 to 25+92
-Y3-	10+50 to 15+00
-Y4-	10+00 to 14+75
-Y5-	10+00 to 11+50
-Y6_REV-	15+00 to 18+50
-Y7-	10+00 to 14+75
-Y8-	10+00 to 12+25
-Y9-	12+25 to 15+00
-Y10-	10+25 to 17+00
-Y11-	10+00 to 15+50
-Y12-	10+00 to 12+50
-Y13-	10+00 to 12+25
-Y14-	10+09 to 17+26
-Y15-	10+00 to 14+25
-LPB-	10+90 to 13+12
-RPB-	15+20 to 17+88
-LPD-	11+25 to 14+14
-RPD-	11+50 to 15+11
-C1-	10+00 to 15+50
-C2-	10+00 to 15+50
-C3-	10+00 to 15+50
-C4-	10+00 to 14+71
-DRW1-	10+00 to 12+25
-DRW2-	10+00 to 11+52
-DRW4_REV-	10+00 to 11+84
-DRW5-	10+15 to 12+00
-DRW6-	10+00 to 12+00
-DRW7-	10+25 to 12+04
-DRW8-	10+75 to 13+50
-DRW9-	10+00 to 12+25
-DRW10-	10+00 to 11+29

Physiography and Geology

The site is located within the western Piedmont physiographic province just east of Wilkesboro, North Carolina. Topography in the area is rolling to moderately steep. The Piedmont Province is characterized by gently to steeply sloping topography with well-rounded hills and along rolling ridges with a northeast-southwest trend dissected by a moderate to well developed (mature) dendritic-type drainage system consisting of drainage swales, hollows, tributaries, streams and rivers. The existing elevations along the investigated corridor range

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from approximately 956 feet to 1,205 feet. The Yadkin River is located near the end of the -L- alignment flowing north under NC 115 (Statesville Road).

Geologically, the site is located within the Cat Square terranes. As mapped on the North Carolina Geologic Map 1985, the underlying rock formations at this site consist of metamorphic rocks. Based on the recovered rock samples, previous mapping and our knowledge of the local geology, the parent rock is interpreted to be gneiss, granite, and mica schist. These rocks typically weather in an irregular pattern with deep residual soils overlying saprolite to bedrock. The typical residual profile consists of finer grain clays and silts near the ground surface which gradually transition to coarser and denser material with depth and contain varying amounts of mica.

Soil Properties

Soils encountered during this investigation are separated into four categories based on their origin. The soils encountered consist of roadway embankment fill, artificial fill, alluvial soils, and residual soil and rock materials.

Roadway embankment soils were encountered along the existing roadway with up to about 24 feet along NC 115 (Statesville Road) before Eastover Drive. The roadway embankment soils appear to be reworked near-by residual soils. The remaining fill depths extend to about 1 foot to at least 16 feet beneath the ground surface or to termination depths of the borings. The roadway embankment soils consist of slightly plastic to highly plastic, soft to stiff, moist to wet, silty clay (A-7-6, A-7-5) and non-plastic, soft to stiff, moist, sandy silt (A-4) with trace of gravel and wood debris. The plasticity indices of the clayey soils range from 19 to 26 with 66 to 69 percent passing the #200 sieve and natural moisture contents of 14 to 26 percent based on laboratory testing. Layers of loose to medium dense, moist to dry, silty fine to coarse sand (A-2-4) with trace of gravel were also encountered within the roadway embankments.

Artificial fill soils encountered were generally associated with gravel fill at entrance driveways adjacent to the roadway pavements.

Alluvial soils are present adjacent to Fishing Creek on -Y4- and along an unnamed jurisdictional stream at the north end of -L- where the alignment connects to -Y13- as indicated by the alluvial boundary area shown on the plan sheets. Approximately 4 to 16 feet alluvial soils are present below the ground surface adjacent to Fishing Creek and the unnamed jurisdictional stream. These soils consist primarily of slightly plastic, soft to very stiff, moist to saturated, sandy to silty clay (A-6, A-7-5) with trace of wood fragments and organics and non-plastic, very soft to medium stiff, wet to saturated, fine sandy to clayey silt (A-4, A-5). Layers of loose to medium dense, wet, silty fine to coarse sand (A-2-4) were also encountered within the alluvial materials. No laboratory testing was performed on the alluvial soils

Residual soils are present at the surface along the south, east and west boundaries of the project and beneath the roadway embankment soils and asphalt pavement sections. Residual soils underlie the embankment fill, and alluvial soils in the remaining portions of the project. The residual soils have weathered irregularly ranging in depths from less than a foot to greater than boring termination depths of 83 feet. The residual soils can be generalized as slightly to highly plastic, very soft to hard, dry to wet, sandy to silty clay (A-6, A-7-6, A-7-5) with trace of mica underlain by non-plastic to slightly plastic, soft to hard, dry to saturated, sandy to clayey silts (A-4, A-5) with varying amounts of mica and sands consisting loose to very dense silty to clayey fine to coarse sands (A-2-4, A-2-6). The plasticity indices of the clayey soils range from 11 to 34 with 38 to 90 percent passing the #200 sieve and natural moisture contents of 9 to 44 percent based on laboratory testing. The highly plastic residual soils are indicated on the attached cross section graphics.

Rock Properties

Weathered rock was encountered during the roadway investigation. It originates from the underlying crystalline rock (gneiss, granite, and mica schist). Weathered rock is present at depths of 3.5 feet to 83.0 feet beneath the ground surface, on alignments -L-, -Y4-, and -Y14-, at elevations of approximately 986 to 1,134 feet.

Crystalline rock was encountered during the roadway investigation and consists of gneiss, granite, and mica schist. Refer to the “Areas of Geotechnical Interest” for areas of rock which may impact grading operations. Crystalline rock is present at depths of 13.0 feet to 94.6 feet beneath the ground surface, on alignments -L- and -Y14-, at elevations of approximately 975 to 1,019 feet. Outcrops of crystalline rock were observed during drilling operations on the west side of the -L- alignment.

Groundwater

In general, the corridor drains to the Yadkin River and a few unnamed jurisdictional streams. In these areas groundwater was encountered at depths as shallow as at the surface to 32 feet below the existing ground surface, approximately elevations 964 to 1,174 feet. Other areas were dry to depths of 55.9 feet after 24-hours from completion of drilling.

The depth of groundwater, beneath the ground surface, will fluctuate with seasonal precipitation and may occur at higher levels at other times of the year above less permeable clayey soils.

Areas of Special Geotechnical Interest

1) Plastic Soils – Highly plastic soils occur throughout the upland portions of the project and may impact grading at the following locations:

Alignment	Stations(±)
-L-	9+85 to 16+00
-L-	18+25 to 20+48
-L-	22+31 to 29+75
-L-	31+25 to 33+75
-L-	40+25 to 44+75
-L-	57+25 to 63+25
-L-	65+25 to 67+75
-L-	96+25 to 102+75
-L-	104+75 to 108+25
-L-	117+25 to 120+25
-L-	121+75 to 123+25

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Alignment	Stations(±)
-L-	124+75 to 126+25
-L-	127+25 to 129+25
-L-	156+25 to 171+10
-Y1-	10+00 to 13+36
-Y6_REV-	15+00 to 18+50
-Y10-	10+25 to 13+15
-Y11-	12+10 to 14+15
-Y12-	10+00 to 12+50
-LPB-	10+90 to 11+65
-RPB-	15+20 to 16+15
-LPD-	11+25 to 14+14
-RPD-	11+50 to 15+11
-C1-	10+35 to 14+65
-C2-	10+00 to 15+50
-C4-	13+10 to 13+65
-DRW1-	10+00 to 12+25
-DRW4_REV-	10+00 to 11+84

A discussion of these plastic soils is located above in the section titled “Soil Properties”.

2) Soft Wet Alluvial Soils- Soft wet near surface soils which have the potential to cause embankment stability/settlement problems occur through the following sections:

Alignment	Station (±)
-L-	132+60 to 137+20
-Y4-	10+10 to 12+20
-Y13-	10+40 to 11+70

A discussion of these soft, wet, alluvial near-surface soils is located above in the section titled “Soil Properties”.

3) Crystalline Rock- Crystalline rock was encountered within 6 feet of the exiting ground surface at the following location.

Alignment	Station (±)
-L-	140+75 to 141+25

4) Groundwater- High water tables, seasonal high ground water, as well as potential perched groundwater were encountered at the following locations.

Alignment	Station (±)
-L-	41+50 to 43+50
-L-	46+25 to 47+50
-L-	99+00 to 103+00
-L-	122+00 to 123+00
-L-	132+75 to 137+25
-L-	140+00 to 142+25
-L-	154+75 to 163+75
-Y4-	10+25 to 12+20
-Y13-	10+40 to 11+80

5) Groundwater Wells – Groundwater wells within the roadway right-of-way should be properly abandoned at the following location:

Alignment	Stations (±)	Offset (ft.)
-L-	58+34	73 RT

BULK SAMPLES

The following bulk samples were taken for tests to determine the engineering properties of the soil for compaction and pavement subgrade support.

Samples No.	Location	Depth	Test
CBR-1	28+00 -L- 19’ RT	1.0 – 3.0	Proctor and CBR
CBR-2	93+00 -L- 21’ RT	1.0 – 3.0	Proctor and CBR
CBR-3	154+00 -L- 36’ LT	1.0 – 3.0	Proctor and CBR

UNDISTURBED SAMPLES

The following “Shelby” tube sample was taken to provide consolidation data.

Sample No.	Location	Depth (ft.)	Test
ST-1	133+00 -L- 105’ LT	3.0 – 5.2	Consolidation

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PROJECT REFERENCE NO.	SHEET NO.
R-5759	3C

Sincerely,
Terracon Consultants, Inc.

Signed by:
Matthew Hartman
3F24E48299B5429...
Matthew L. Hartman, P.G.
Project Geologist

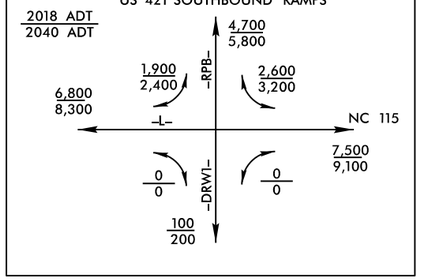
DocuSigned by:
Abner Riggs
C2F6ACA84D274B1...
Abner F. Riggs, Jr. P.E.
Senior Geotechnical Engineer

Docusign Envelope ID: E990BE04-BB3B-4762-8C73-1AB5FE077DDE

-L-		-DRW1-	-LPB-	-RPB-		-C1-
PI Sta 7+49.59	PI Sta 13+21.80	PI Sta 11+65.61	PI Sta 11+33.57	PI Sta 11+87.20	PI Sta 16+47.34	PI Sta Undefined
Δ = 2° 55' 57.7" (LT)	Δ = 15° 32' 23.7" (LT)	Δ = 51° 02' 41.8" (LT)	Δ = 75° 59' 11.6" (LT)	Δ = 21° 30' 01" (RT)	Δ = 30° 43' 28" (LT)	Δ = 360° 00' 00.0" (LT)
D = 1° 38' 13.3"	D = 5° 35' 23.4"	D = 47° 44' 47.3"	D = 33° 30' 22.7"	D = 5° 48' 39"	D = 18° 28' 57.0"	D = 65° 28' 51.2"
L = 179.15'	L = 278.00'	L = 106.91'	L = 226.78'	L = 370.00'	L = 166.24'	L = 274.89'
T = 89.59'	T = 139.86'	T = 57.29'	T = 133.57'	T = 187.20'	T = 85.17'	T = Undefined
R = 3,500.00'	R = 1,025.00'	R = 120.00'	R = 171.00'	R = 986.00'	R = 310.00'	R = 87.50'
SE = EXISTING	SE = 6%	SE = 2%	SE = 8%	SE = 8%	SE = 6%	SE = 2%
RO = SEE PLANS	RO = 156.00'	RO = 32.00'	RO = 144.00'	RO = 144.00'	RO = 108.00'	RO = SEE PLANS
V = 40 MPH	V = 40 MPH	V = 20 MPH	V = 25 MPH	V = 60 MPH	V = 60 MPH	V = 35 MPH

INTERSECTION OF -L- (NC 115), -RPB- (US 421 SOUTHBOUND RAMPS), AND -RPD- (US 421 NORTHBOUND RAMPS)

US 421 SOUTHBOUND RAMPS



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343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554

PROJECT REFERENCE NO.	SHEET NO.
R-5759	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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CONCRETE ISLAND

NAD 83/ NA 2011

MATCHLINE -RPB- STA. 14+00.00 SEE SHEET 17

MATCHLINE -L- STA. 21+00.00 SEE SHEET 5

REVISIONS

03-17-2022	HYDRO REVISED SPECIAL LATERAL BASE DITCH.THIS CHANGE REQUIRED MORE CONSTRUCTION EASEMENT ONTO PARCEL 3.
05-25-2022	PUE AND TCE REVISED ON PARCEL 3.TCE AND DUE UPDATED DUE TO EC DEVICE RELOCATION.TCE REDUCED ON PARCEL 5.DTK
06-14-2022	TCE REVISED ON PARCEL 5.JMP
08-16-2023	PARCEL 2 WAS SPLIT INTO 2 AND 2A.PARCEL 2A AND PUE AND ROW ADDED.PARCEL 2 PUE AND ROW ADJUSTED.DTK

8/17/99

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$$$$USERNAME$$$$

BEGIN TIP PROJECT R-5759
-L- Sta. 9+85.00

FLYNN HARROLD DB 1080 PG 378

JANET AND JAMES HARTLEY DB 118 PG 121

FLYNN HARROLD DB 1365 PG 210

BETTY JO BROOKSHIRE BLACKBURN DB 801 PG 254 TAX MAP

DAVID ALAN HALE DB 829 PG 85

BUMGARNER SERVICES,INC DB 1255 PG 216

JOHNSON OIL AND TRACTOR, INC DB 520 PG 497

BRUSHY MOUNTAIN HOLDINGS, LLC DB 1352 PG PG 187

JENNIFER ROBERTS DB 1279 PG 453

ROBERT E. ASHLEY
LINDA K. ASHLEY CALL
JAMES M. ASHLEY
DB 937 PG 408

-L- PC Sta. 6+60.00
-L- POT Sta. 9+00.00
-L- PT Sta. 8+39.15
-L- PC Sta. 11+81.94
-L- POT Sta. 15+13.50=
-C1- POC Sta. 12+11.93
-RPB- PC Sta. 15+62.17
S 63° 21' 07.5" E
BEGIN CONSTRUCTION -RPB- Sta. 15+20.00
BEGIN CONSTRUCTION -LPB- Sta. 10+90.00
-LPB- PC Sta. 10+00.00
-LPB- PT Sta. 12+26.78
-RPB- PT Sta. 17+28.41
N 86° 29' 30.0" E
-C1- POC Sta. 10+76.56=
-RPB- POT Sta. 17+87.67
-LPB- POT Sta. 13+93.70
-C1- POC Sta. 10+51.58=
-LPB- POT Sta. 13+11.58
-C1- PC Sta. 10+00.00=
-C1- PT Sta. 15+49.78
BEGIN EXISTING BRIDGE -L- Sta. 20+48 +/-
-L- PT Sta. 14+59.94
-L- PI Sta. 16+63.10
-C1- POC Sta.13+47.33=
-DRW1- POT Sta. 10+00.00
-L- POT Sta. 17+43.30=
-C1- POC Sta. 14+63.91
N 72° 50' 04.0" E
-DRW1- PC Sta. 11+08.31
-DRW1- PT Sta. 12+15.22
END CONSTRUCTION -DRW1- Sta. 12+25.00
N 21° 41' 22.2" E
-DRW1- POT Sta. 12+43.53
N 2° 58' 06.3" W
N 3° 30' 30.0" W
N 78° 59' 30.0" E
N 85° 41' 37" W 494.66'
S 17° 31' 04" W 212.64'
S 08° 28' 14" E 65.41'
N 88° 42' 17" W 176.46'
S 86° 47' 54" W 118.79'
S 86° 47' 54" W 176.38'
N 89° 40' 27" W 465.90'
S 00° 30' 23" E 64.63'
N 88° 53' 53" W 150.08'
S 88° 05' 14" E 155.20'
N 85° 41' 37" W 165.54'

RPB_1525 15+25 -RPB- 36' LT
RPB_1700 17+00 -RPB- 40' RT
RPB_1700 DECEL RTL RT 17+00 -RPB- 19' RT
L_1300 13+00 -L- 40' LT
L_1500 15+00 -L- 20' LT
L_1775 17+75 -L- 60' LT
L_1950 19+50 -L- 35' LT
L_1150 RT LN 11+50 -L- 8' RT
L_1100 11+00 -L- 27' RT RESIDUAL
DRW1_1018 10+18 -DRW1- 16' RT
DRW1_1150 11+50 -DRW1- 16' LT
RESIDUAL

END GRADE = 10.00' -L- 12.00' LT

NOTE:
1. ALL DRIVEWAY RADII ARE 20' UNLESS NOTED ON PLANS.
2. ALL OUTSIDE CURB & GUTTER ARE 2'-6" UNLESS OTHERWISE NOTED.
3. ALL ISLANDS ARE KEYED-IN 5" MONOLITHIC CONCRETE ISLANDS UNLESS OTHERWISE NOTED.
4. FOR ROUNDABOUT DIMENSIONS, SEE DETAIL SHEET 2B-1.

FOR -L- PROFILE, SEE SHEET 19
FOR -RPB- PROFILE, SEE SHEET 25
FOR -LPB- PROFILE, SEE SHEET 25
FOR -C1- PROFILE, SEE SHEET 26
FOR -DRW1- PROFILE, SEE SHEET 26

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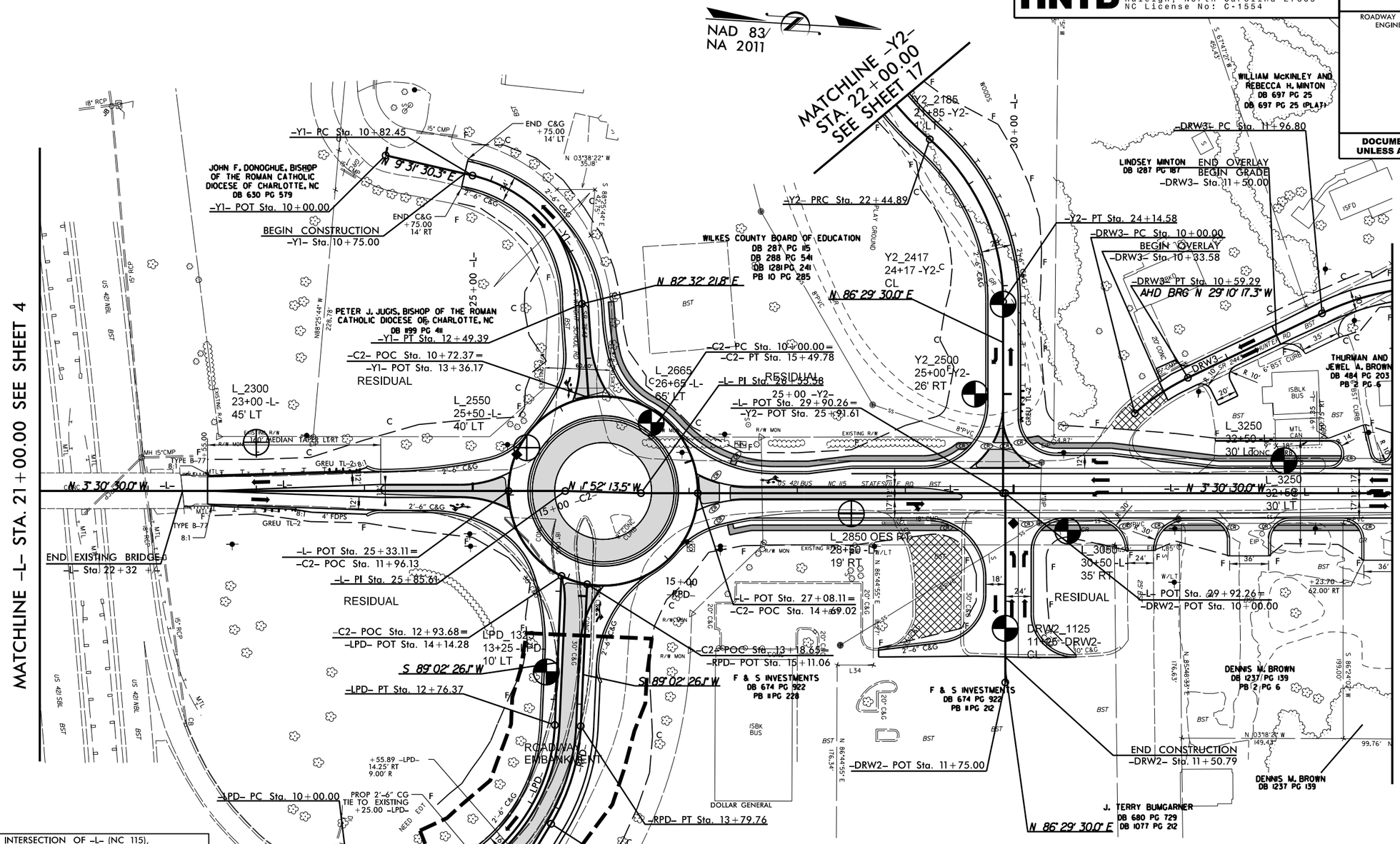
PROJECT REFERENCE NO.	SHEET NO.
R-5759	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

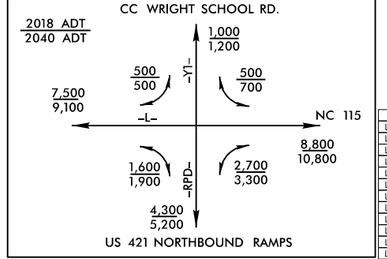
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS

5-25-2022	PUE ADDED ON PARCEL 8.TCE UPDATED ON PARCEL 8.PUE ADDED ON PARCEL 9.
	PUE WAS REPLACED WITH DUE ON PARCEL 15.DUE WAS REVISED AND TCE WAS REMOVED ON PARCEL 16.DTK
12-02-2022	PROPERTY LINE CHANGED FOR PARCEL 8 THAT REDUCED TCE ON PARCEL 9 AND INCREASED TCE ON PARCEL 8. DMW
08-08-2023	ROW ADDED TO PARCEL 9.PUE, POETCE AND DUE REMOVED ON PARCEL 11.DTK



INTERSECTION OF -L- (NC 115), -Y1- (SR 2543 – CC WRIGHT SCHOOL RD.), AND -RPD- (US 421 NORTHBOUND RAMPS)



LINE TABLE		
LINE	BEARING	DISTANCE
L23	S45°30'37" E	32.16'
L24	S00°52'59" E	35.35'
L25	S70°19'11" E	45.06'
L26	S05°07'05" E	61.38'
L27	S71°53'14" E	22.68'
L28	S25°17'08" E	106.33'
L29	S18°52'23" W	57.08'
L30	S17°59'15" E	34.94'
L31	S11°28'43" W	33.57'
L32	S23°07'56" W	40.78'
L33	S10°01'25" W	10.20'
L34	S03°15'05" E	33.25'

NOTE:
1. ALL DRIVEWAY RADII ARE 20' UNLESS NOTED ON PLANS.
2. ALL OUTSIDE CURB & GUTTER ARE 2'-6" UNLESS OTHERWISE NOTED.
3. ALL ISLANDS ARE KEYED-IN 5" MONOLITHIC CONCRETE ISLANDS UNLESS OTHERWISE NOTED.
4. FOR ROUNDABOUT DIMENSIONS, SEE DETAIL SHEET 2B-2.

-Y2-

PI Sta 20+91.12
Δ = 68° 03' 16.6" (LT)
D = 19° 05' 54.9"
L = 356.33'
T = 202.56'
R = 300.00'
SE = 4%
R0 = 80.00'
V = 25 MPH

PI Sta 23+35.22
Δ = 48° 36' 43.1" (RT)
D = 28° 38' 52.4"
L = 169.69'
T = 90.33'
R = 200.00'
SE = 4%
R0 = 80.00'
V = 25 MPH

-DRW3-

PI Sta 10+29.85
Δ = 16° 24' 40.9" (RT)
D = 27° 40' 52.0"
L = 59.29'
T = 29.85'
R = 206.99'
SE = EXISTING
R0 = SEE PLANS
V = 25 MPH

PI Sta 12+69.69
Δ = 32° 30' 33.1" (RT)
D = 22° 55' 05.9"
L = 141.85'
T = 72.89'
R = 250.00'
SE = EXISTING
R0 = SEE PLANS
V = 30 MPH

-Y1-

PI Sta 11+79.41
Δ = 73° 00' 51.6" (RT)
D = 43° 44' 14.1"
L = 166.94'
T = 96.96'
R = 131.00'
SE = 2%
R0 = 32.00'
V = 20 MPH

-RPD-

PI Sta 13+33.11
Δ = 28° 45' 14.7" (LT)
D = 30° 09' 20.4"
L = 95.35'
T = 48.70'
R = 190.00'
SE = 8%
R0 = 144.00'
V = 60 MPH

-LPD-

PI Sta 11+82.40
Δ = 95° 23' 21.6" (LT)
D = 34° 30' 55.9"
L = 276.37'
T = 182.40'
R = 166.00'
SE = 8%
R0 = 144.00'
V = 25 MPH

-C2-

PI Sta Undefined
Δ = 360° 00' 00.0" (LT)
D = 65° 28' 51.2"
L = 274.89'
T = Undefined
R = 87.50'
SE = 2%
R0 = SEE PLANS
V = 35 MPH

CONCRETE SIDEWALK
CONCRETE ISLAND
PAVEMENT REMOVAL

FOR -L- PROFILE, SEE SHEET 19
FOR -RPD- PROFILE, SEE SHEET 27
FOR -LPD- PROFILE, SEE SHEET 27
FOR -C2- PROFILE, SEE SHEET 28
FOR -Y1- PROFILE, SEE SHEET 28
FOR -Y2- PROFILE, SEE SHEET 29
FOR -DRW2- PROFILE, SEE SHEET 30
FOR -DRW3- PROFILE, SEE SHEET 30

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PROJECT REFERENCE NO.	SHEET NO.
R-5759	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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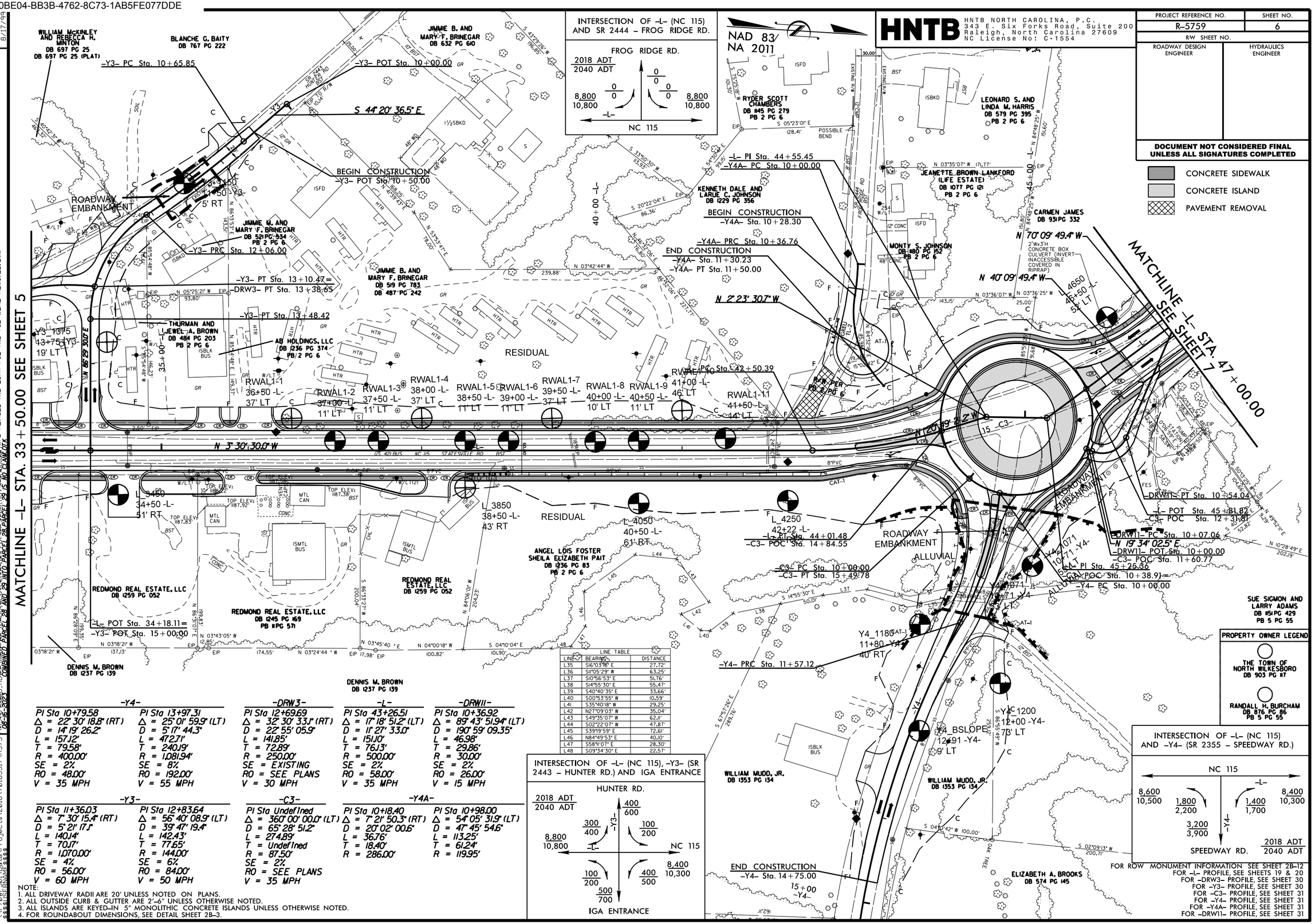
CONCRETE SIDEWALK
CONCRETE ISLAND
PAVEMENT REMOVAL

REVISIONS

03-17-2022	REMOVED ~ ON PARCEL 26 AND RELEASED FOR PURCHASE.DTK
05-25-2022	PDE WAS REPLACED WITH DUE ON PARCEL 16 AND PARCEL 20.PUE WAS REVISED ON PARCEL 33.DTK
10-28-2022	PUE REMOVED ON PARCEL 26 REPLACED WITH AUE. AUE ADDED ON PARCEL 25 & 27. DMW
12-02-2022	AUE REVISED ON PARCEL 25-27.DMW
04-05-2023	AUE REMOVED AND PUE UNDERGROUND ON PARCEL 33 ON PARCEL 34 AUE WAS REVISED AND BOTH PUE AND TCE WERE REMOVED.DMW
08-16-2023	COMMENT PARCEL 28 AND 29 INTO PARCEL 28.PARCEL 29 IS NO CLAIM.DTK



LINE TABLE		
LINE	BEARING	DISTANCE
L35	S16°03'16" E	27.72'
L36	S11°05'29" W	63.25'
L37	S10°56'53" E	51.76'
L38	S14°55'30" E	55.47'
L39	S40°40'35" E	33.66'
L40	S00°53'55" W	10.59'
L41	S35°40'18" W	29.25'
L42	N27°09'03" W	35.04'
L43	S49°35'07" W	62.11'
L44	S02°22'07" W	47.87'
L45	S39°19'59" E	72.61'
L46	N84°49'53" E	40.10'
L47	S58°11'07" E	28.30'
L48	S09°34'30" E	22.57'

-Y4-

PI Sta 10+79.58	PI Sta 13+97.31
Δ = 22° 30' 18.8" (RT)	Δ = 25° 01' 59.9" (LT)
D = 14° 19' 26.2"	D = 5° 17' 44.3"
L = 157.12'	L = 472.71'
T = 79.58'	T = 240.19'
R = 400.00'	R = 1,081.94'
SE = 2%	SE = 8%
RO = 48.00'	RO = 192.00'
V = 35 MPH	V = 55 MPH

-DRW3-

PI Sta 12+69.69	PI Sta 43+26.51	PI Sta 10+36.92
Δ = 32° 30' 33.1" (RT)	Δ = 17° 18' 51.2" (LT)	Δ = 89° 43' 51.94" (LT)
D = 22° 55' 05.9"	D = 11° 27' 33.0"	D = 190° 59' 09.35"
L = 141.85'	L = 151.10'	L = 46.98'
T = 72.89'	T = 76.13'	T = 29.86'
R = 250.00'	R = 500.00'	R = 30.00'
SE = EXISTING	SE = 2%	SE = 2%
RO = SEE PLANS	RO = 58.00'	RO = 26.00'
V = 30 MPH	V = 35 MPH	V = 15 MPH

-Y3-

PI Sta 11+36.03	PI Sta 12+83.64
Δ = 7° 30' 15.4" (RT)	Δ = 56° 40' 08.9" (LT)
D = 5° 21' 17.1"	D = 39° 47' 19.4"
L = 140.14'	L = 142.43'
T = 70.17'	T = 77.65'
R = 1,070.00'	R = 144.00'
SE = 4%	SE = 6%
RO = 56.00'	RO = 84.00'
V = 60 MPH	V = 50 MPH

-C3-

PI Sta Undefined
Δ = 360° 00' 00.0" (LT)
D = 65° 28' 51.2"
L = 274.89'
T = Undefined
R = 87.50'
SE = 2%
RO = SEE PLANS
V = 35 MPH

-Y4A-

PI Sta 10+18.40	PI Sta 10+98.00
Δ = 7° 21' 50.3" (RT)	Δ = 54° 05' 31.9" (LT)
D = 20° 02' 00.6"	D = 47° 45' 54.6"
L = 36.76'	L = 113.25'
T = 18.40'	T = 61.24'
R = 286.00'	R = 119.95'

NOTE:
1. ALL DRIVEWAY RADII ARE 20' UNLESS NOTED ON PLANS.
2. ALL OUTSIDE CURB & GUTTER ARE 2'-6" UNLESS OTHERWISE NOTED.
3. ALL ISLANDS ARE KEYED-IN 5" MONOLITHIC CONCRETE ISLANDS UNLESS OTHERWISE NOTED.
4. FOR ROUNDABOUT DIMENSIONS, SEE DETAIL SHEET 2B-3.

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PROJECT REFERENCE NO.	SHEET NO.
R-5759	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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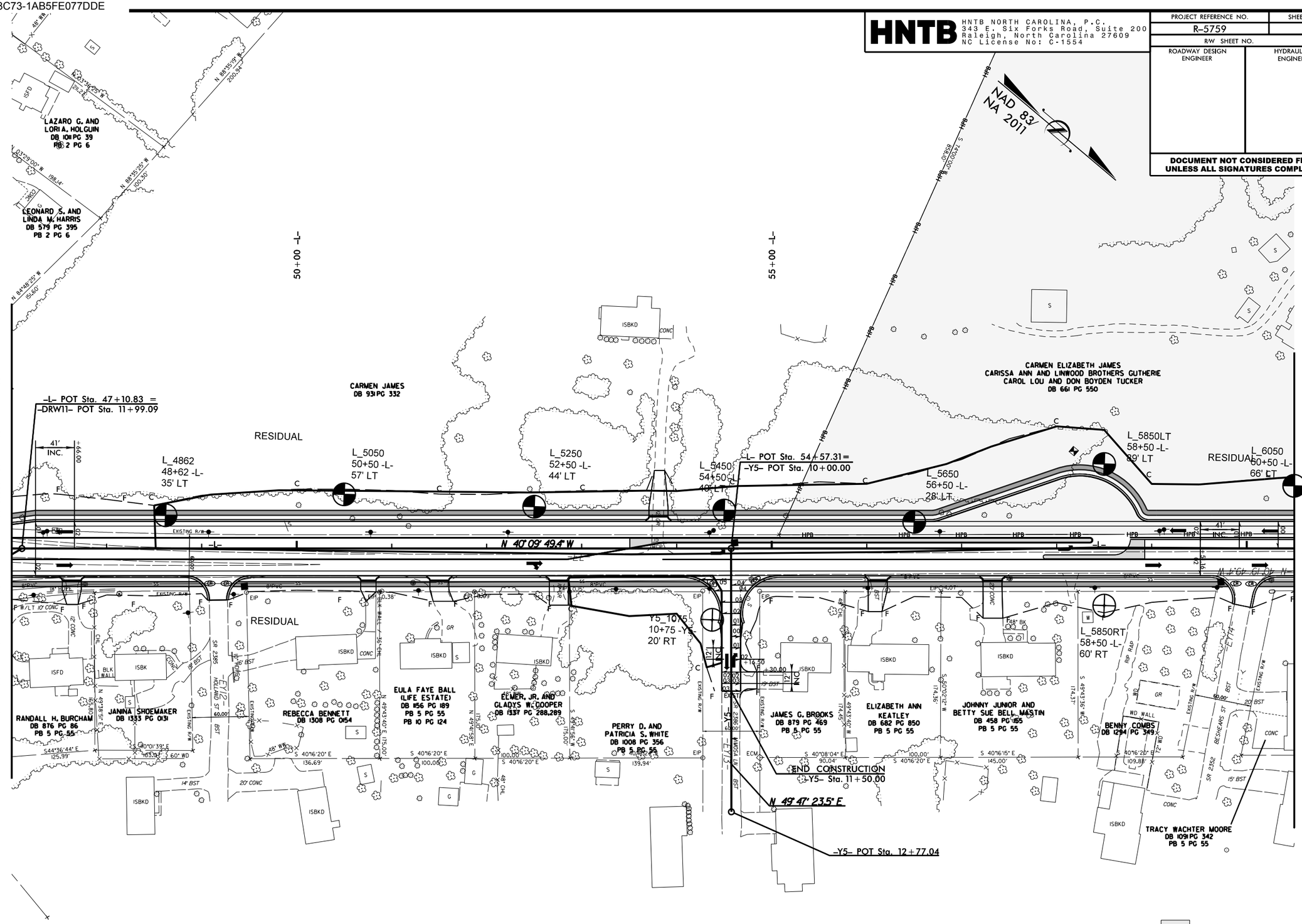

NOTE:
1. ALL DRIVEWAY RADII ARE 20' UNLESS NOTED ON PLANS.
2. ALL OUTSIDE CURB & GUTTER ARE 2'-6" UNLESS OTHERWISE NOTED.
3. ALL ISLANDS ARE KEYED-IN 5" MONOLITHIC CONCRETE ISLANDS UNLESS OTHERWISE NOTED.

FOR -L- PROFILE, SEE SHEET 20
FOR -Y5- PROFILE, SEE SHEET 32

REVISIONS

03-17-2022	DUE HAS BEEN ADDED ON PARCEL 44. DUE REPLACED PDE. JWP
05-25-2022	TCE REVISED ON PARCEL 35 & 36. DMW
10-28-2022	TCE ON PARCEL 42 REVISED. DTK

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PROJECT REFERENCE NO.	SHEET NO.
R-5759	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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HPB
CONCRETE SIDEWALK
CONCRETE ISLAND
PAVEMENT REMOVAL

NAD 83/NA 2011

INTERSECTION OF -L- (NC 115) AND -Y6- (SR 2443 - HUNTER RD.)

HUNTER RD.
2018 ADT 2040 ADT
400 / 500
0 / 0
400 / 500
8,400 / 10,300
8,800 / 10,800
-Y6-
-L-
NC 115

-L-
PI Sta 68+51.79
Δ = 13° 36' 51.6" (RT)
D = 0° 53' 42.9"
L = 1,520.74'
T = 763.97'
R = 6,400.00'
SE = 2%
RO = 82.00'
V = 50 MPH

-DRW4_REV-
PI Sta 10+42.20
Δ = 44° 26' 05.4" (RT)
D = 57° 17' 44.8"
L = 77.55'
T = 40.84'
R = 100.00'

PI Sta 11+11.03
Δ = 18° 14' 53.8" (LT)
D = 28° 38' 52.4"
L = 63.70'
T = 32.12'
R = 200.00'

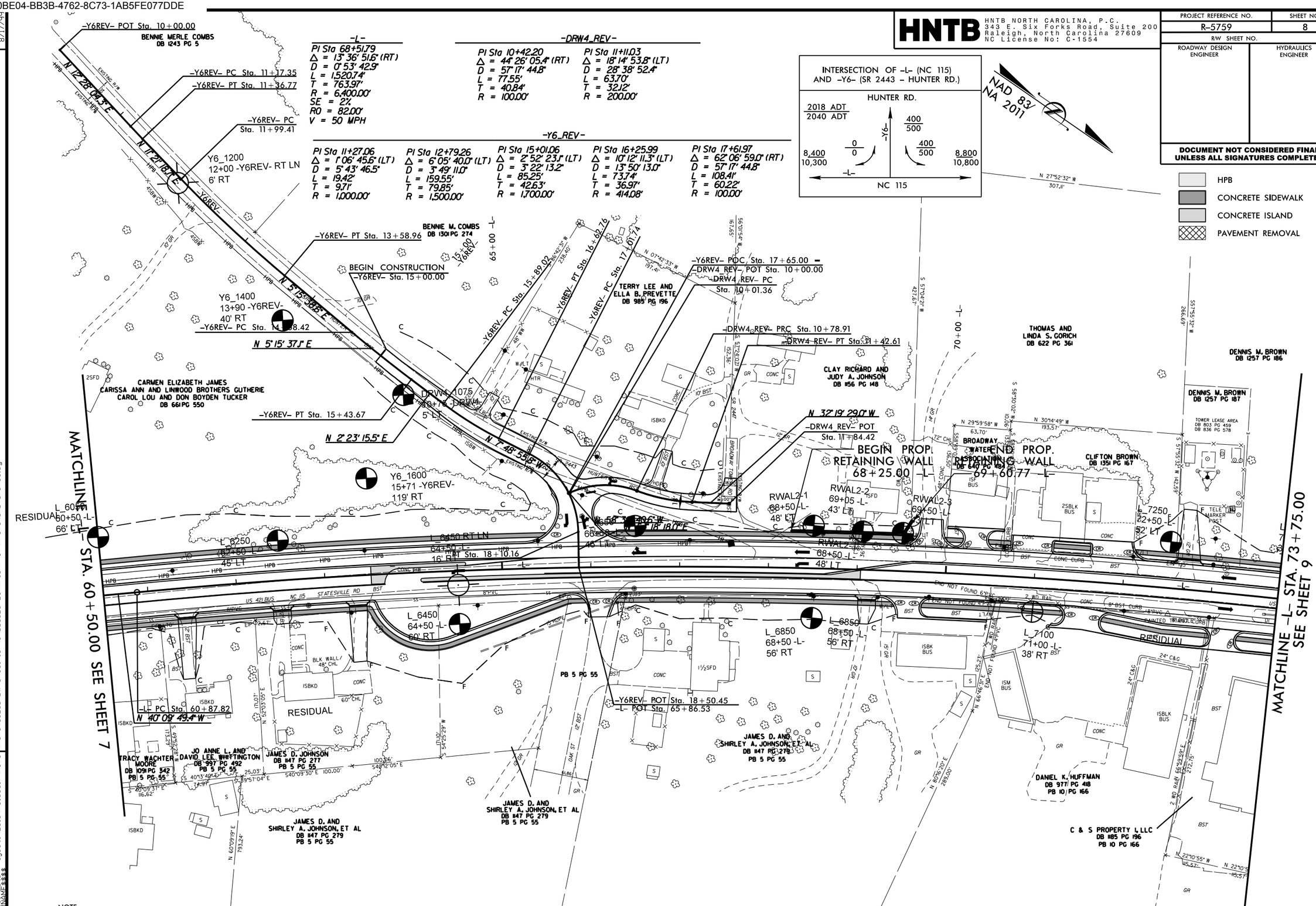
-Y6_REV-
PI Sta 11+27.06
Δ = 1° 06' 45.6" (LT)
D = 5° 43' 46.5"
L = 19.42'
T = 9.71'
R = 1,000.00'

PI Sta 12+79.26
Δ = 6° 05' 40.0" (LT)
D = 3° 49' 11.0"
L = 159.55'
T = 79.85'
R = 1,500.00'

PI Sta 15+01.06
Δ = 2° 52' 23.1" (LT)
D = 3° 22' 13.2"
L = 85.25'
T = 42.63'
R = 1,700.00'

PI Sta 16+25.99
Δ = 10° 12' 11.3" (LT)
D = 13° 50' 13.0"
L = 73.74'
T = 36.97'
R = 414.08'

PI Sta 17+61.97
Δ = 62° 06' 59.0" (RT)
D = 57° 17' 44.8"
L = 108.41'
T = 60.22'
R = 100.00'



NOTE:
1. ALL DRIVEWAY RADII ARE 20' UNLESS NOTED ON PLANS.
2. ALL OUTSIDE CURB & GUTTER ARE 2'-6" UNLESS OTHERWISE NOTED.
3. ALL ISLANDS ARE KEYED-IN 5" MONOLITHIC CONCRETE ISLANDS UNLESS OTHERWISE NOTED.
4. -DRW4- LT TURN ISD WILL NEED FURTHER INVESTIGATION

FOR -L- PROFILE, SEE SHEETS 20 & 21
FOR -Y6REV- PROFILE, SEE SHEET 32
FOR -DRW4_REV- PROFILE, SEE SHEET 33
FOR INTERSECTION DETAIL AT -L-, -Y6REV-, & -DRW4_REV-, SEE SHEET 2B-6

REVISIONS

03-17-2022	PUE ON PARCEL 50 WAS NOT ENDED.UPDATED TO TIE TO PROPERTY LINE.JMP
05-25-2022	TCE REVISED ON PARCEL 46 AND 48.PDE.DUE.AND TCE REVISED ON PARCEL 49.DWN
08-16-2023	COMBINED PARCEL 57 AND 58 INTO PARCEL 57.PARCEL 58 IS NO CLAIM.PARCEL 49 ADJUSTED TCE ADDED EXISTING ROW BETWEEN PARCELS 59 AND 60.REMOVED ROW AND PDE CLAWS ON OAK ST AROUND STRUCTURE 08II.PARCEL 49 TCE ADJUSTED.UPDATED SURVEY RESULTED IN NEW PARCEL 154.AND THE ADDITION OF

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PROJECT REFERENCE NO.	SHEET NO.
R-5759	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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CONCRETE SIDEWALK
CONCRETE ISLAND

-L-

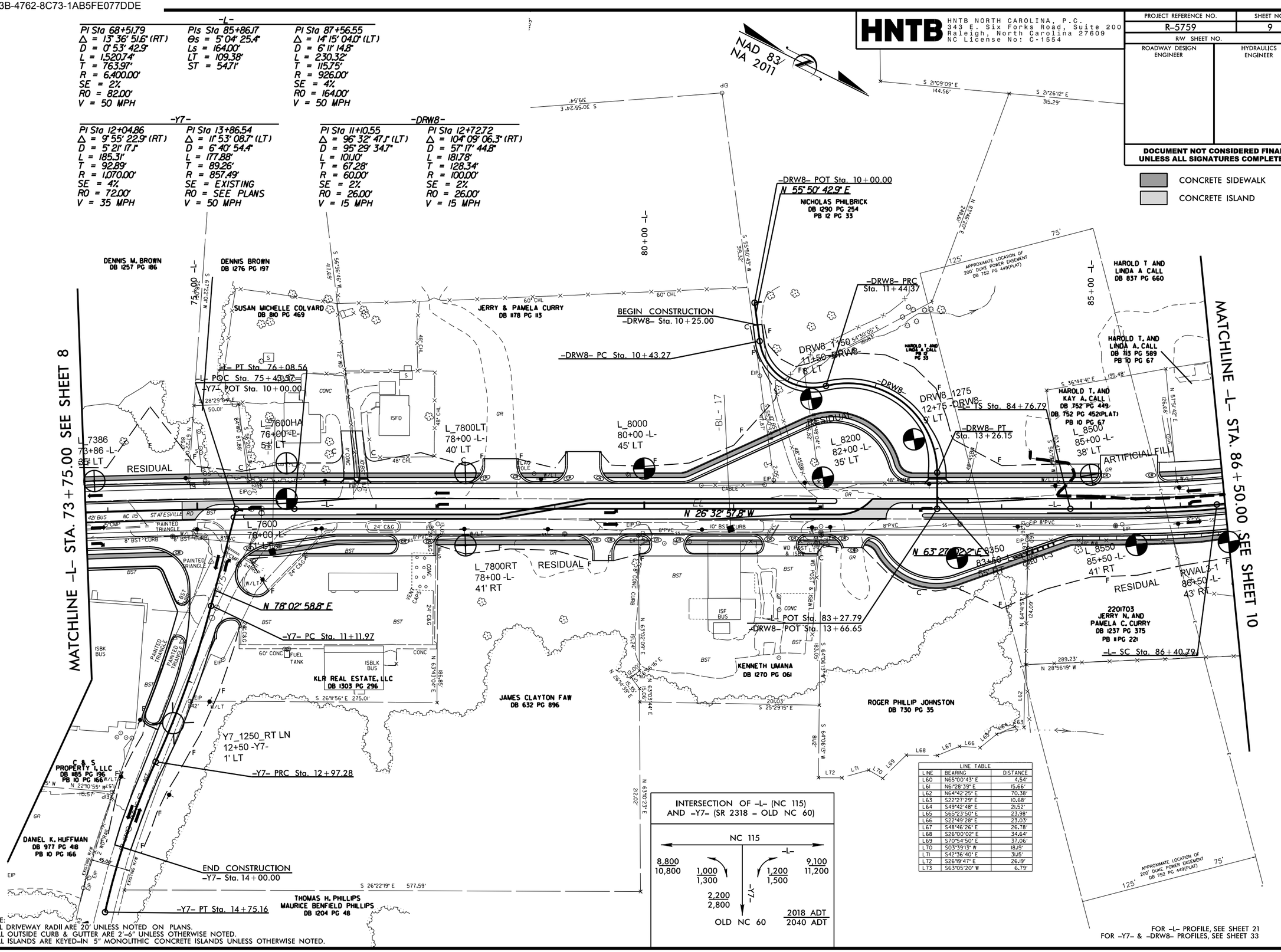
PI Sta 68+51.79	PIs Sta 85+86.17	PI Sta 87+56.55
Δ = 13° 36' 51.6" (RT)	θs = 5° 04' 25.4"	Δ = 14° 15' 04.0" (LT)
D = 0° 53' 42.9"	Ls = 164.00'	D = 6° 11' 14.8"
L = 1,520.74'	LT = 109.38'	L = 230.32'
T = 763.97'	ST = 54.71'	T = 115.75'
R = 6,400.00'		R = 926.00'
SE = 2%		SE = 4%
R0 = 82.00'		R0 = 164.00'
V = 50 MPH		V = 50 MPH

-Y7-

PI Sta 12+04.86	PI Sta 13+86.54
Δ = 9° 55' 22.9" (RT)	Δ = 11° 53' 08.7" (LT)
D = 5° 21' 17.1"	D = 6° 40' 54.4"
L = 185.31'	L = 177.88'
T = 92.89'	T = 89.26'
R = 1,070.00'	R = 857.49'
SE = 4%	SE = EXISTING
R0 = 72.00'	R0 = SEE PLANS
V = 35 MPH	V = 50 MPH

-DRW8-

PI Sta 11+10.55	PI Sta 12+72.72
Δ = 96° 32' 47.1" (LT)	Δ = 104° 09' 06.3" (RT)
D = 95° 29' 34.7"	D = 57° 17' 44.8"
L = 101.10'	L = 181.78'
T = 67.28'	T = 128.34'
R = 60.00'	R = 100.00'
SE = 2%	SE = 2%
R0 = 26.00'	R0 = 26.00'
V = 15 MPH	V = 15 MPH



INTERSECTION OF -L- (NC 115) AND -Y7- (SR 2318 - OLD NC 60)

LINE TABLE		
LINE	BEARING	DISTANCE
L60	N65°00'43" E	4.54'
L61	N61°28'39" E	15.66'
L62	N64°42'25" E	70.38'
L63	S22°27'29" E	10.68'
L64	S49°42'48" E	21.52'
L65	S65°23'50" E	23.98'
L66	S22°49'28" E	23.03'
L67	S48°46'26" E	26.78'
L68	S26°00'02" E	34.64'
L69	S70°54'50" E	37.06'
L70	S03°39'13" W	18.19'
L71	S42°36'40" E	31.15'
L72	S26°19'47" E	26.19'
L73	S63°05'20" W	6.79'

NOTE:
1. ALL DRIVEWAY RADII ARE 20' UNLESS NOTED ON PLANS.
2. ALL OUTSIDE CURB & GUTTER ARE 2'-6" UNLESS OTHERWISE NOTED.
3. ALL ISLANDS ARE KEYED-IN 5" MONOLITHIC CONCRETE ISLANDS UNLESS OTHERWISE NOTED.

FOR -L- PROFILE, SEE SHEET 21
FOR -Y7- & -DRW8- PROFILES, SEE SHEET 33

REVISIONS

03-17-2022	PUE ON PARCEL 64 HAS BEEN UPDATED. ORIGINAL PUE WAS REVISED.
10-28-2022	PUE ADJUSTED ON PARCEL 63 & 64. AUE ADDED ON PARCEL 63 & 64. DT'K
01-17-2023	TCE ADJUSTED ON PARCEL 70 AROUND NEW DRIVEWAY OFF -L- STA.79+32 LT. DT'K
08-16-2023	ROW, PARCEL 71 WAS DIVIDED INTO PARCEL 71 AND PARCEL 71A. DT'K

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PROJECT REFERENCE NO.	SHEET NO.
R-5759	10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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REVISIONS	
03-17-2022	PUE ON PARCEL 73 & 74 WAS ON BUILDINGS.THIS HAS BEEN UPDATED AND NOW NO LONGER IMPACTS THE BUILDINGS.THE * ON 73 AND 74 WAS REMOVED AS THEY ARE RELEASED FOR PURCHASE.
03-18-2022	PARCEL NUMBERS REVISED.PARCEL 72 CORRECTED TO 73.PARCEL 73 CORRECTED TO 73A
03-25-2022	REVISED TCE ADDED ON PARCEL 87 AND 88
03-16-2022	TCE REDUCED ON PARCEL 88.DTK
01-19-2023	TCE ADDED ON PARCEL 87.NEW DRIVEWAY FOR PARCEL.DTK
08-16-2023	COMBINED PARCELS 87 AND 88 INTO 87.PARCEL 88 IS NO CLAIM.DTK

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C:\PROJECTS\R-5759 OLD FORK RD OVER I-95 BRIDGE REPLACEMENT\Data\Projects\2018\70185317\R5759_SHEET_RW_01.dgn
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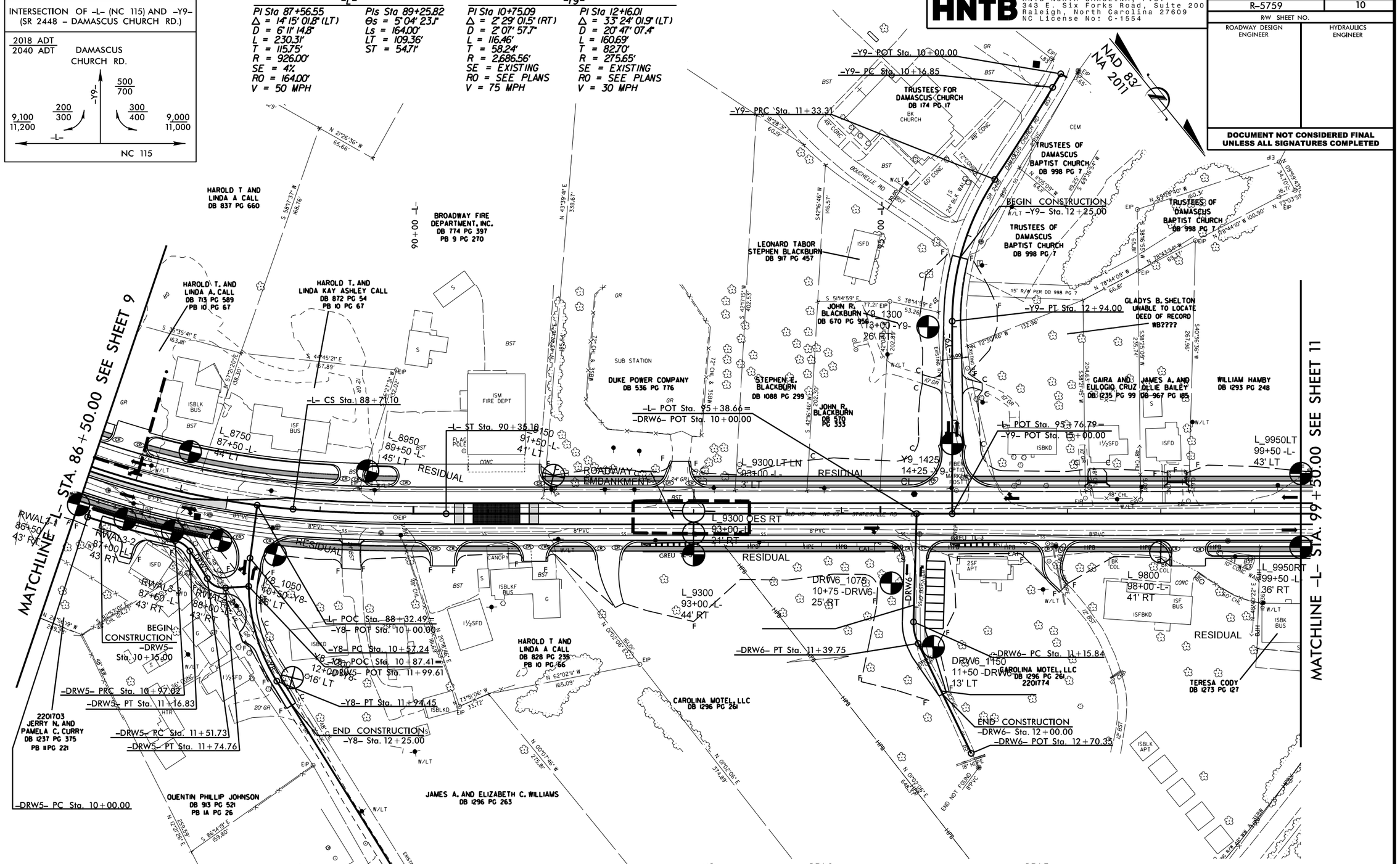

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NC License No: C-1554

PROJECT REFERENCE NO.	SHEET NO.
R-5759	11
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

-L-

PI Sta 102+19.43	PI Sta 107+58.11
Δ = 5° 00' 00.0" (LT)	Δ = 1° 42' 48.0" (RT)
D = 2° 51' 53.2"	D = 0° 57' 17.7"
L = 174.53'	L = 179.42'
T = 87.32'	T = 89.72'
R = 2,000.00'	R = 6,000.00'
SE = 3%	SE = 2%
R0 = 105.00'	R0 = 70.00'
V = 45 MPH	V = 45 MPH

-Y10-

PI Sta 12+61.89	PI Sta 15+89.25
Δ = 25° 22' 13.1" (RT)	Δ = 85° 32' 52.0" (LT)
D = 8° 29' 17.7"	D = 29° 22' 56.8"
L = 298.89'	L = 291.15'
T = 151.93'	T = 180.41'
R = 675.00'	R = 195.00'
SE = 6%	SE = 6%
R0 = 102.00'	R0 = 102.00'
V = 35 MPH	V = 20 MPH

-Y11-

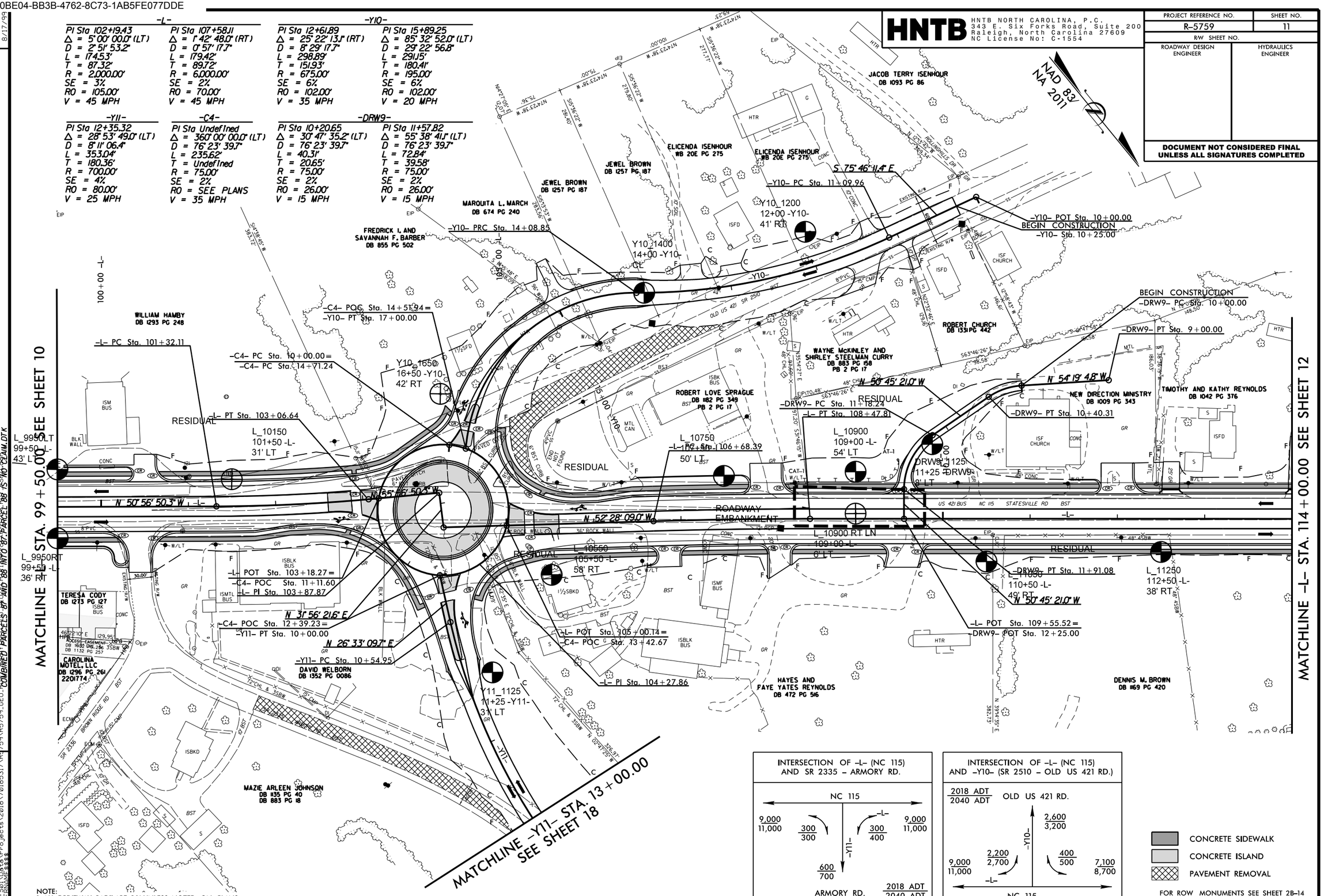
PI Sta 12+35.32
Δ = 28° 53' 49.0" (LT)
D = 8° 11' 06.4"
L = 353.04'
T = 180.36'
R = 700.00'
SE = 4%
R0 = 80.00'
V = 25 MPH

-C4-

PI Sta Undefined
Δ = 360° 00' 00.0" (LT)
D = 76° 23' 39.7"
L = 235.62'
T = Undefined
R = 75.00'
SE = 2%
R0 = SEE PLANS
V = 35 MPH

-DRW9-

PI Sta 10+20.65	PI Sta 11+57.82
Δ = 30° 47' 35.2" (LT)	Δ = 55° 38' 41.1" (LT)
D = 76° 23' 39.7"	D = 76° 23' 39.7"
L = 40.31'	L = 72.84'
T = 20.65'	T = 39.58'
R = 75.00'	R = 75.00'
SE = 2%	SE = 2%
R0 = 26.00'	R0 = 26.00'
V = 15 MPH	V = 15 MPH



INTERSECTION OF -L- (NC 115) AND SR 2335 - ARMORY RD.

INTERSECTION OF -L- (NC 115) AND -Y10- (SR 2510 - OLD US 421 RD.)

CONCRETE SIDEWALK
CONCRETE ISLAND
PAVEMENT REMOVAL

FOR ROW MONUMENTS SEE SHEET 2B-14
FOR -L- PROFILE, SEE SHEET 22
FOR -Y10- AND -Y11- PROFILES, SEE SHEET 36
FOR -C4- AND -DRW9- PROFILES, SEE SHEET 37

NOTE:
1. ALL DRIVEWAY RADII ARE 20' UNLESS NOTED ON PLANS.
2. ALL OUTSIDE CURB & GUTTER ARE 2'-6" UNLESS OTHERWISE NOTED.
3. ALL ISLANDS ARE KEYED-IN 5" MONOLITHIC CONCRETE ISLANDS UNLESS OTHERWISE NOTED.
4. FOR ROUNDABOUT DIMENSIONS, SEE DETAIL SHEET 2B-4.

REVISIONS

03-17-2022	THE * ON PARCELS 95 & 97-99 HAS BEEN REMOVED AS THESE PARCELS ARE RELEASED FOR PURCHASE. ON PARCEL 99 THE PUE WAS REVISED.
05-25-2022	PUE ADDED ON PARCEL 99. PUE REVISED ON PARCEL 92 AND 93. DTK
08-16-2023	PARCEL 94 DIVIDED INTO PARCEL 94 AND 94A. PARCEL 94 ADJUSTED ROW. PARCEL 94A ADDED ROW AND TCE.
8/17/99	COMBINED PARCELS 87 AND 88 INTO 87. PARCEL 88 IS NO LONGER. DTK

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PROJECT REFERENCE NO.	SHEET NO.
R-5759	12
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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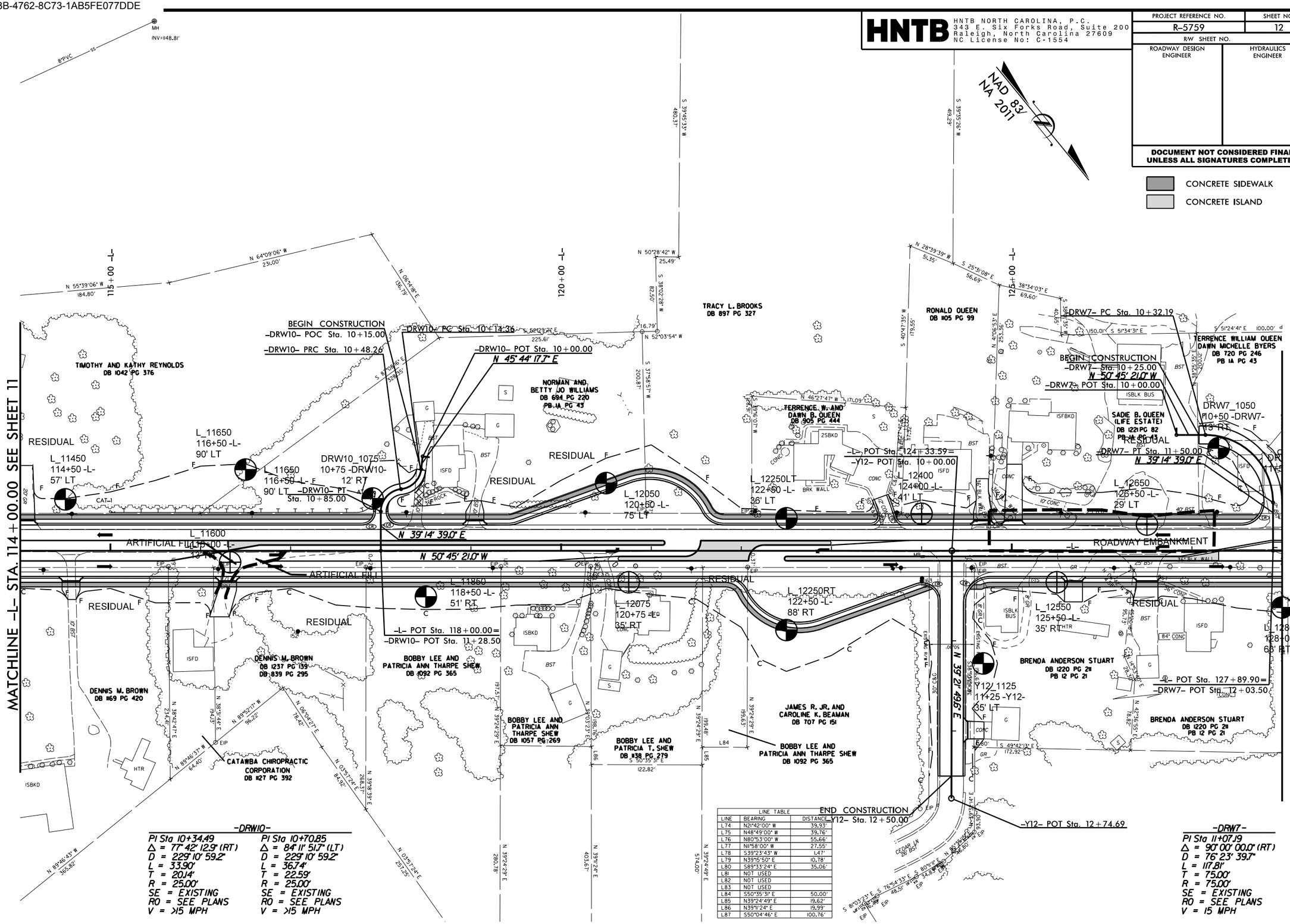
CONCRETE SIDEWALK
CONCRETE ISLAND



LINE TABLE		
LINE	BEARING	DISTANCE
L74	N21°42'00" W	39.93'
L75	N48°49'00" W	39.76'
L76	N80°53'00" W	55.66'
L77	N1°58'00" W	27.55'
L78	S39°23'43" W	1.47'
L79	N39°15'50" E	10.78'
L80	S89°33'24" E	35.06'
L81	NOT USED	
L82	NOT USED	
L83	NOT USED	
L84	S50°35'31" E	50.00'
L85	N39°24'49" E	19.62'
L86	N39°11'24" E	19.99'
L87	S50°04'46" E	100.76'

NOTE:
1. ALL DRIVEWAY RADII ARE 20' UNLESS NOTED ON PLANS.
2. ALL OUTSIDE CURB & GUTTER ARE 2'-6" UNLESS OTHERWISE NOTED.
3. ALL ISLANDS ARE KEYED-IN 5" MONOLITHIC CONCRETE ISLANDS UNLESS OTHERWISE NOTED.

FOR -L- PROFILE, SEE SHEETS 22 & 23
FOR -Y12- PROFILE, SEE SHEET 37
FOR -DRW7- PROFILE, SEE SHEET 37
FOR -DRW10- PROFILE, SEE SHEET 38

REVISIONS
05-25-2022 PUE REVISED ON PARCELS 93,110,111,112,113,114,115, AND 116.DTK
10-28-2022 PUE REVISED ON PARCEL 113.DTK
08-16-2023 PARCEL 117C DIVIDED INTO 117A AND 117B ADJUSTED.PARCEL 117A ROW,PUE,& TCE ADDED.DTK

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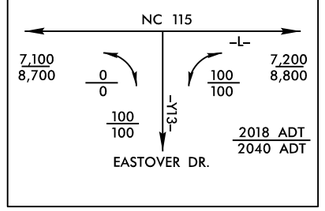
PROJECT REFERENCE NO.	SHEET NO.
R-5759	13
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

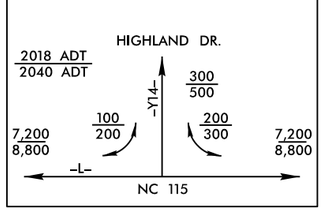
NOTE:
1. ALL DRIVEWAY RADII ARE 20' UNLESS NOTED ON PLANS.
2. ALL OUTSIDE CURB & GUTTER ARE 2'-6" UNLESS OTHERWISE NOTED.
3. ALL ISLANDS ARE KEYED-IN 5" MONOLITHIC CONCRETE ISLANDS UNLESS OTHERWISE NOTED.
4. -Y13- RT TURN ISD WILL NEED FURTHER INVESTIGATION.
5. -Y14- RT TURN ISD WILL NEED FURTHER INVESTIGATION.

NAD 83/ NA 2011

INTERSECTION OF -L- (NC 115) AND -Y13- (EASTOVER DR.)



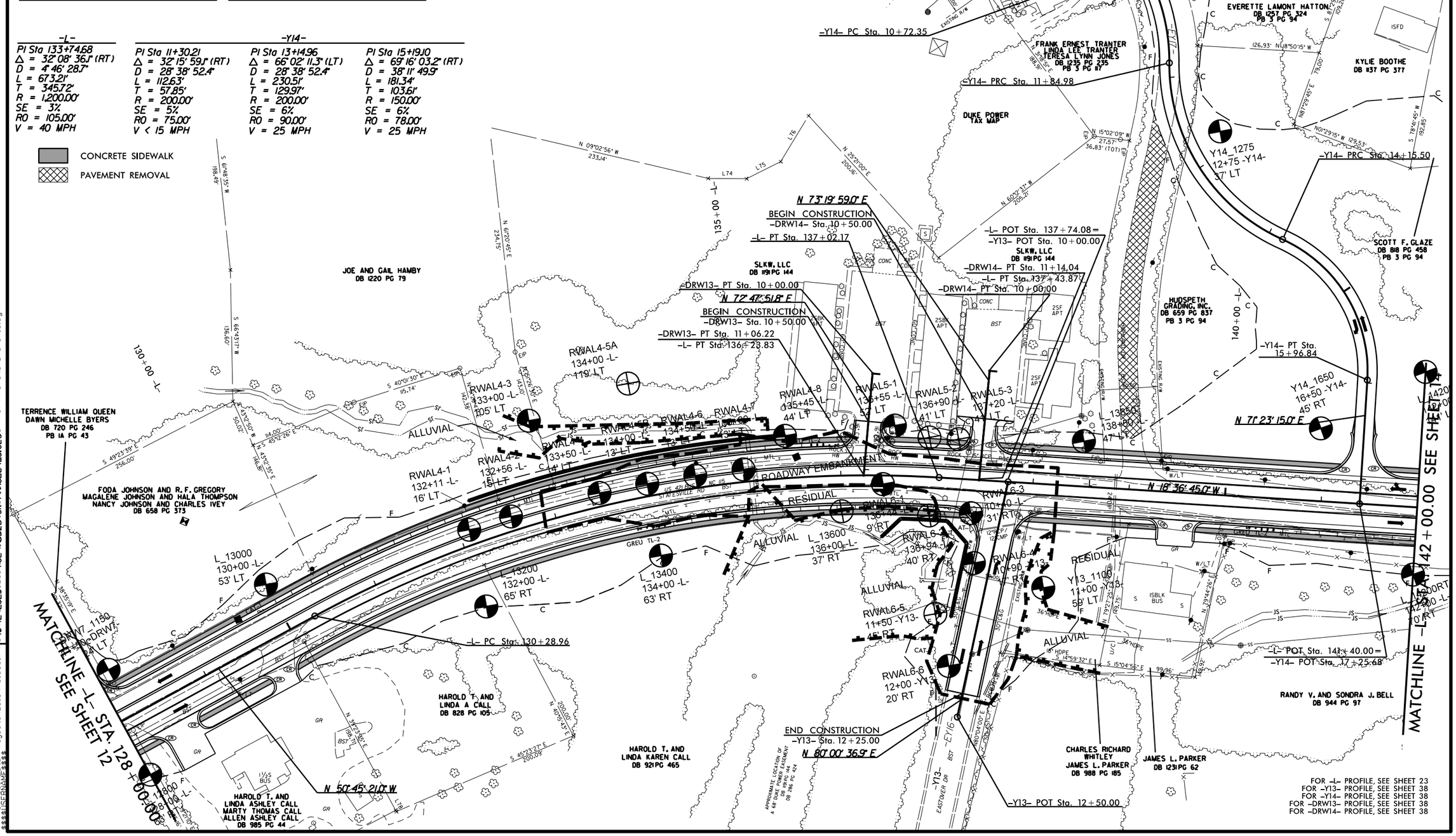
INTERSECTION OF -L- (NC 115) AND -Y14- (HIGHLAND DR.)



-L-	-Y14-		
PI Sta 133+74.68	PI Sta 11+30.21	PI Sta 13+14.96	PI Sta 15+19.10
Δ = 32° 08' 36.1" (RT)	Δ = 32° 15' 59.1" (RT)	Δ = 66° 02' 11.3" (LT)	Δ = 69° 16' 03.2" (RT)
D = 4° 46' 28.7"	D = 28° 38' 52.4"	D = 28° 38' 52.4"	D = 38° 11' 49.9"
L = 673.21'	L = 112.63'	L = 230.51'	L = 181.34'
T = 345.72'	T = 57.85'	T = 129.97'	T = 103.61'
R = 1,200.00'	R = 200.00'	R = 200.00'	R = 150.00'
SE = 3%	SE = 5%	SE = 6%	SE = 6%
R0 = 105.00'	R0 = 75.00'	R0 = 90.00'	R0 = 78.00'
V = 40 MPH	V < 15 MPH	V = 25 MPH	V = 25 MPH

CONCRETE SIDEWALK

PAVEMENT REMOVAL



FOR -L- PROFILE, SEE SHEET 23
FOR -Y13- PROFILE, SEE SHEET 38
FOR -Y14- PROFILE, SEE SHEET 38
FOR -DRW13- PROFILE, SEE SHEET 38
FOR -DRW14- PROFILE, SEE SHEET 38

REVISIONS

05-25-2022	PUE REVISED AND TCE REMOVED ON PARCEL 126.
08-16-2023	PARCEL 117 DIVIDED INTO 117A AND 117. PARCEL 117 PUE, ROW, & TCE ADJUSTED. PARCEL 117A ROW, PUE, & TCE ADDED. PARCEL 123 AND 124 COMBINED INTO PARCEL 123. PARCEL 124 IS NO CLAIM. DTK

8/17/99

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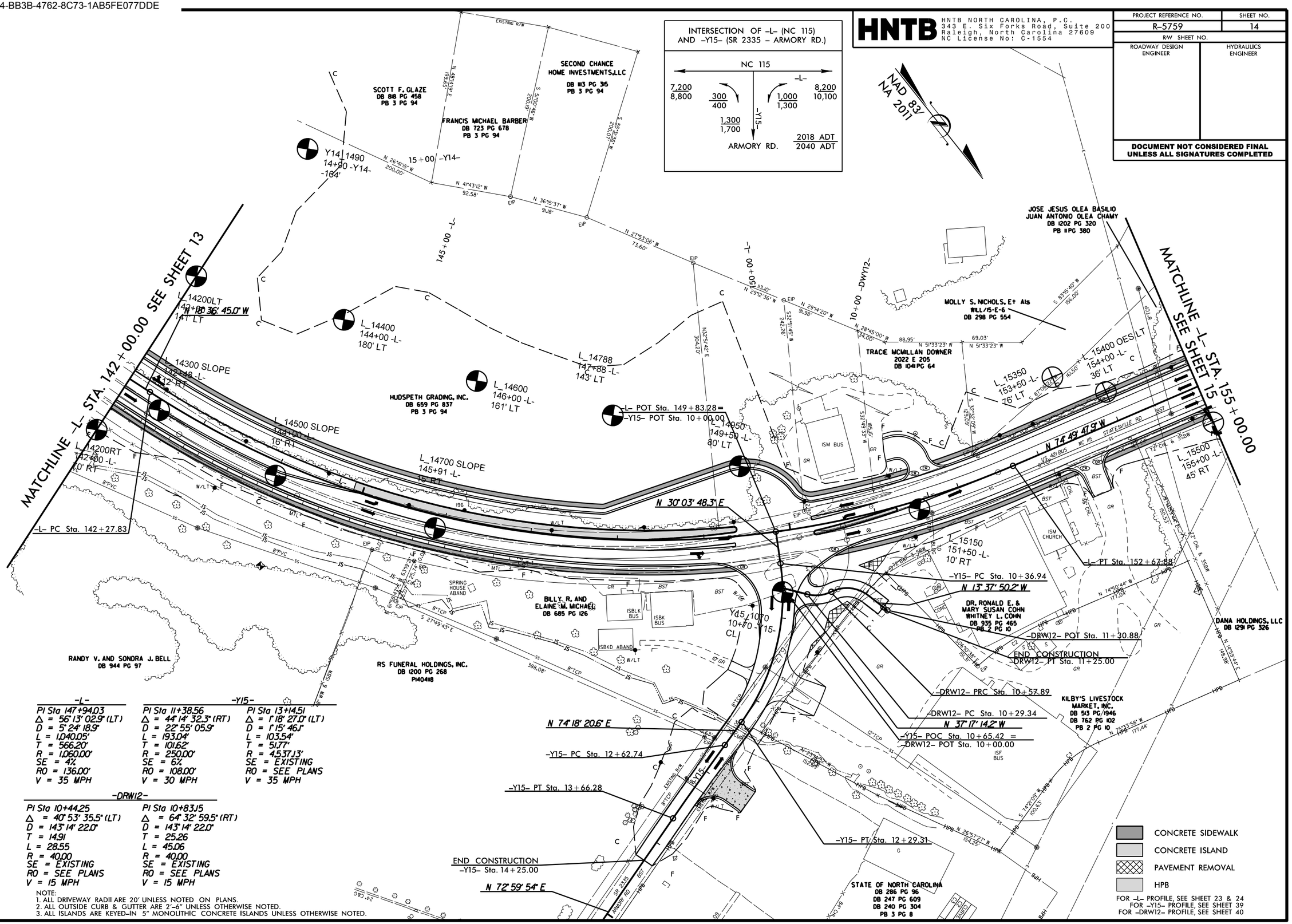
PROJECT REFERENCE NO.	SHEET NO.
R-5759	14
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS

03-17-2022	ON PARCEL 122 ADDITIONAL EASEMENT IS NEEDED FOR DRAINAGE RIP RAP UPDATE.
05-25-2022	PDE REVISED AND TCE REDUCED ON PARCELS 136 AND 137.TCE REVISED ON PARCEL 144.PUE REVISED ON PARCEL 143. PDE MONUMENT REVISED ON PARCEL 142.REVISED PDE AND PUE TO DUE ON PARCEL 138.DTK COMBINED PARCEL 134,135,136 INTO PARCEL 134, PARCEL 135 & 136 NO CLAIM.DTK



-L-

PI Sta 147+94.03	
Δ = 56° 13' 02.9" (LT)	
D = 5° 24' 18.9"	
L = 1,040.05'	
T = 566.20'	
R = 1,060.00'	
SE = 4%	
RO = 136.00'	
V = 35 MPH	

-Y15-

PI Sta 11+38.56	PI Sta 13+14.51
Δ = 44° 14' 32.3" (RT)	Δ = 1° 18' 27.0" (LT)
D = 22° 55' 05.9"	D = 1° 15' 46.1"
L = 193.04'	L = 103.54'
T = 101.62'	T = 51.77'
R = 250.00'	R = 4,537.13'
SE = 6%	SE = EXISTING
RO = 108.00'	RO = SEE PLANS
V = 30 MPH	V = 35 MPH

-DRW12-

PI Sta 10+44.25	PI Sta 10+83.15
Δ = 40° 53' 35.5" (LT)	Δ = 64° 32' 59.5" (RT)
D = 143° 14' 22.0"	D = 143° 14' 22.0"
T = 14.91	T = 25.26
L = 28.55	L = 45.06
R = 40.00	R = 40.00
SE = EXISTING	SE = EXISTING
RO = SEE PLANS	RO = SEE PLANS
V = 15 MPH	V = 15 MPH

NOTE:
1. ALL DRIVEWAY RADII ARE 20' UNLESS NOTED ON PLANS.
2. ALL OUTSIDE CURB & GUTTER ARE 2'-6" UNLESS OTHERWISE NOTED.
3. ALL ISLANDS ARE KEYED-IN 5" MONOLITHIC CONCRETE ISLANDS UNLESS OTHERWISE NOTED.

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PROJECT REFERENCE NO.	SHEET NO.
R-5759	15
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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REVISIONS

8/17/99

05-25-2022 PUE AND TCE REVISED ON PARCEL 144. TCE. PDE AND DUE REVISED ON PARCEL 146. PUE WAS REMOVED AND TCE REVISED ON PARCELS 147 & 148. DMW
12-02-2022 PROPERTY LINE CHANGED FOR PARCEL 148. DMW
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PROJECT REFERENCE NO.	SHEET NO.
R-5759	16
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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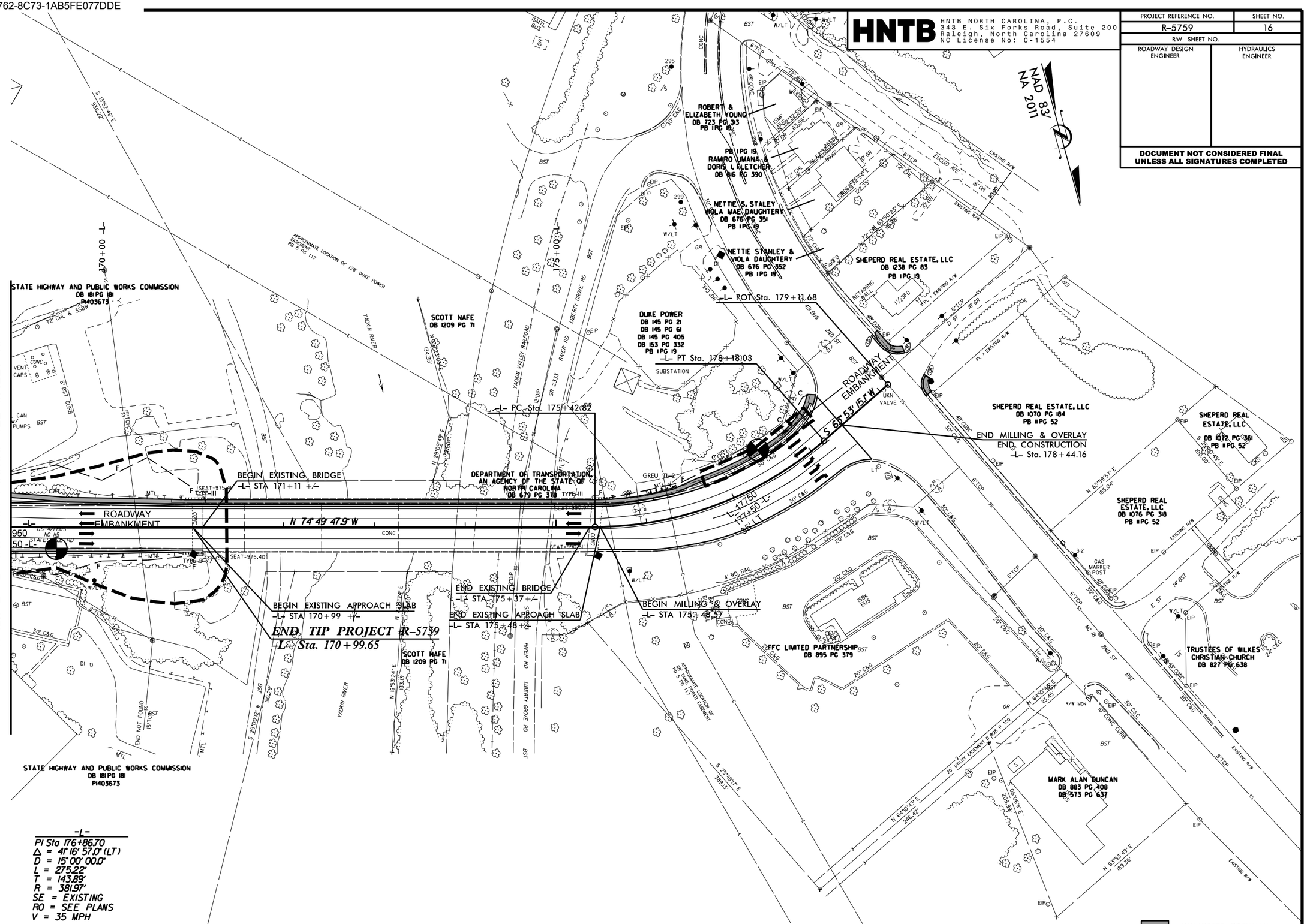

NOTE:
1. ALL DRIVEWAY RADII ARE 20' UNLESS NOTED ON PLANS.
2. ALL OUTSIDE CURB & GUTTER ARE 2'-6" UNLESS OTHERWISE NOTED.
3. ALL ISLANDS ARE KEYED-IN 5" MONOLITHIC CONCRETE ISLANDS UNLESS OTHERWISE NOTED.

FOR -L- PROFILE, SEE SHEET 24

REVISIONS

8/17/99

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PROJECT REFERENCE NO.	SHEET NO.
R-5759	17
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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REVISIONS

8/17/99

03-17-2022 ON PARCEL 3 CONSTRUCTION EASEMENT WAS ADDED AROUND DRAINAGE BASE DITCH.

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-Y2-

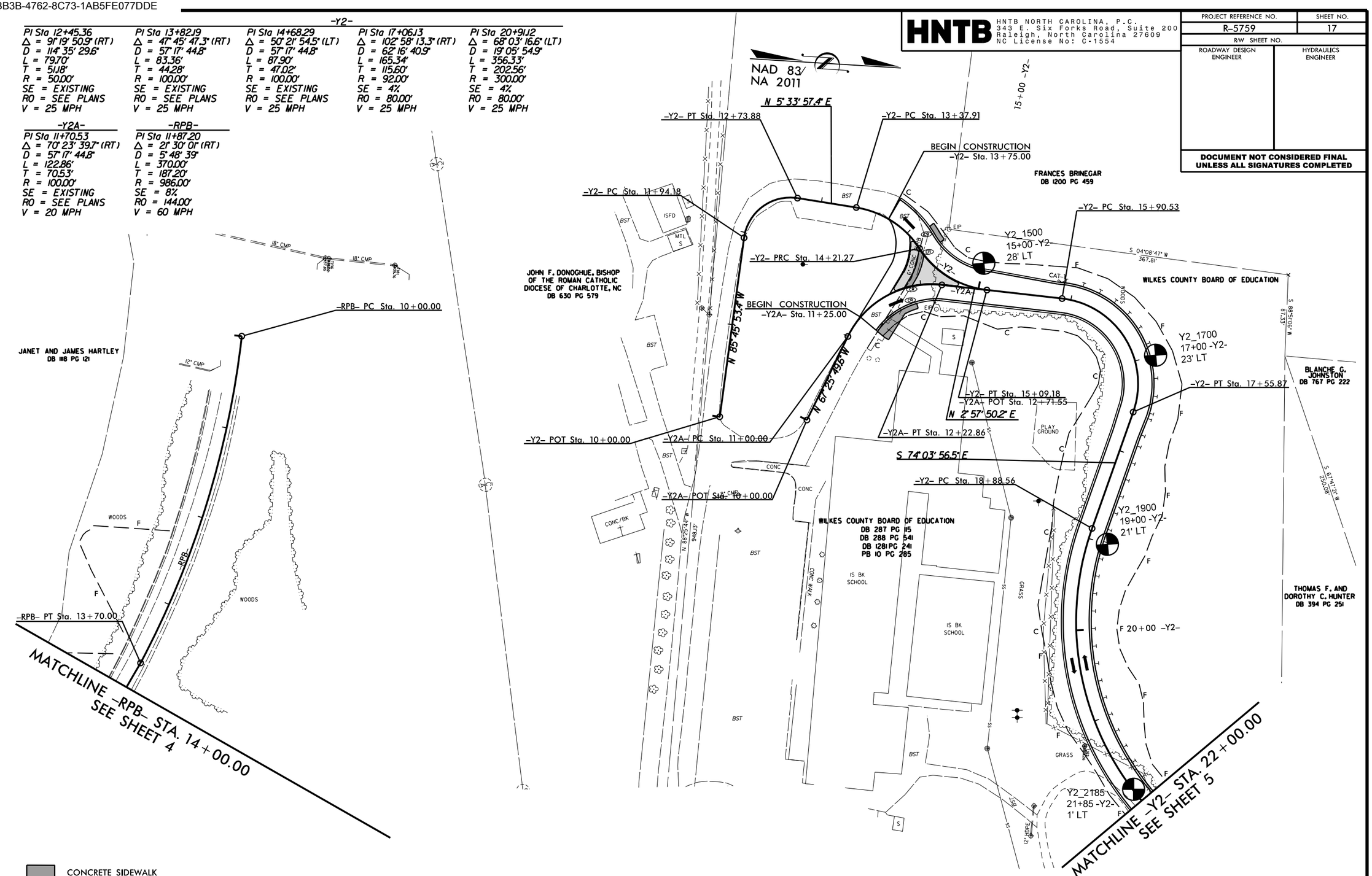
PI Sta 12+45.36	PI Sta 13+82.19	PI Sta 14+68.29	PI Sta 17+06.13	PI Sta 20+91.12
Δ = 91° 19' 50.9" (RT)	Δ = 47° 45' 47.3" (RT)	Δ = 50° 21' 54.5" (LT)	Δ = 102° 58' 13.3" (RT)	Δ = 68° 03' 16.6" (LT)
D = 114° 35' 29.6"	D = 57° 17' 44.8"	D = 57° 17' 44.8"	D = 62° 16' 40.9"	D = 19° 05' 54.9"
L = 79.70'	L = 83.36'	L = 87.90'	L = 165.34'	L = 356.33'
T = 51.18'	T = 44.28'	T = 47.02'	T = 115.60'	T = 202.56'
R = 50.00'	R = 100.00'	R = 100.00'	R = 92.00'	R = 300.00'
SE = EXISTING	SE = EXISTING	SE = EXISTING	SE = 4%	SE = 4%
RO = SEE PLANS	RO = SEE PLANS	RO = SEE PLANS	RO = 80.00'	RO = 80.00'
V = 25 MPH	V = 25 MPH	V = 25 MPH	V = 25 MPH	V = 25 MPH

-Y2A-

PI Sta 11+70.53
Δ = 70° 23' 39.7" (RT)
D = 57° 17' 44.8"
L = 122.86'
T = 70.53'
R = 100.00'
SE = EXISTING
RO = SEE PLANS
V = 20 MPH

-RPB-

PI Sta 11+87.20
Δ = 21° 30' 01" (RT)
D = 5° 48' 39"
L = 370.00'
T = 187.20'
R = 986.00'
SE = 8%
RO = 144.00'
V = 60 MPH



CONCRETE SIDEWALK

CONCRETE ISLAND

FOR -RPB- PROFILE, SEE SHEET 25
FOR -Y2- PROFILE, SEE SHEET 29

NOTE:
1. ALL DRIVEWAY RADII ARE 20' UNLESS NOTED ON PLANS.
2. ALL OUTSIDE CURB & GUTTER ARE 2'-6" UNLESS OTHERWISE NOTED.
3. ALL ISLANDS ARE KEYED-IN 5" MONOLITHIC CONCRETE ISLANDS UNLESS OTHERWISE NOTED.

FOR -RPB- PROFILE, SEE SHEET 25
FOR -Y2- PROFILE, SEE SHEET 29
FOR -Y2A- PROFILE, SEE SHEET 29

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PROJECT REFERENCE NO.	SHEET NO.
R-5759	18
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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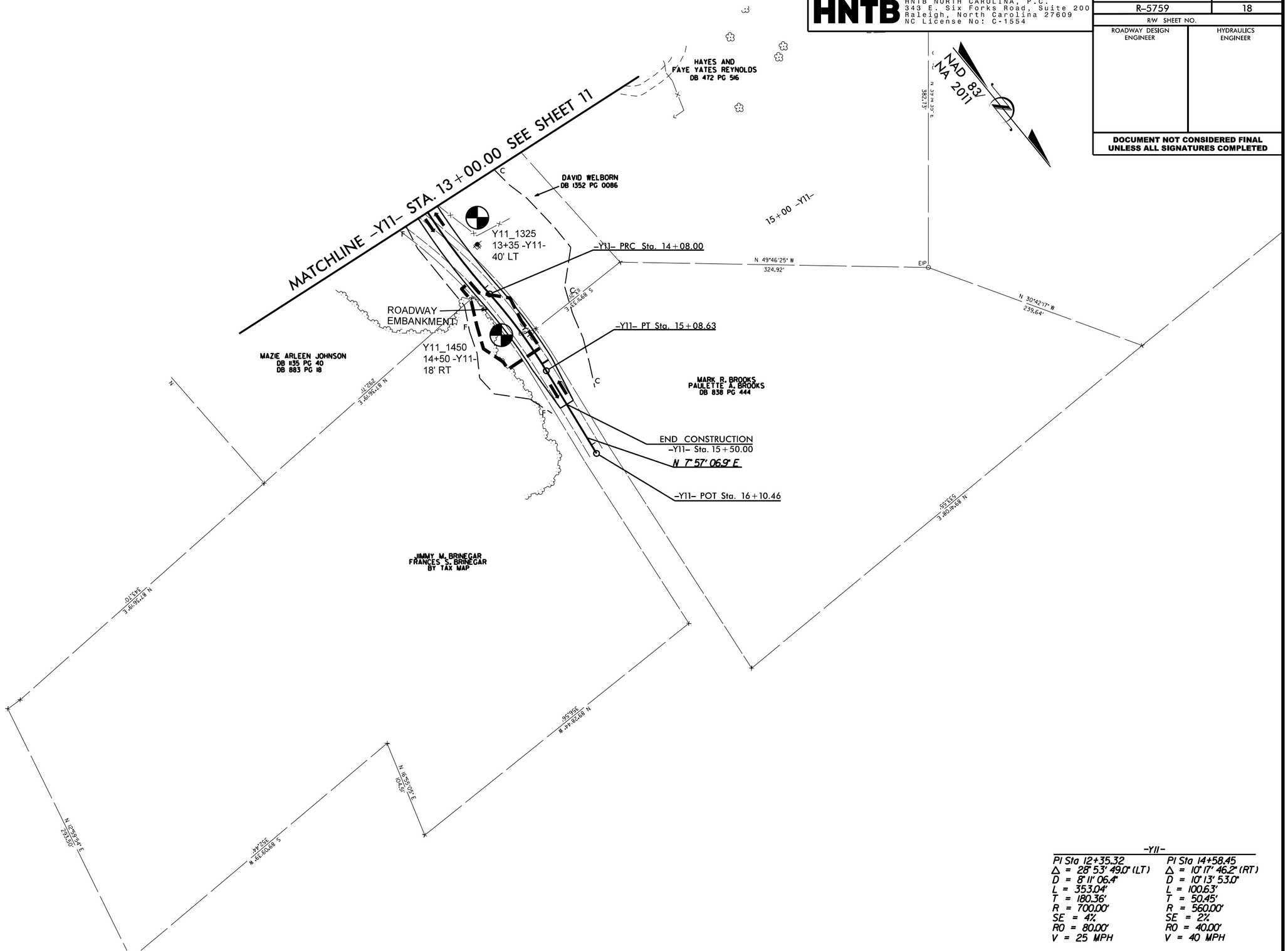

-Y11-	
PI Sta 12+35.32	PI Sta 14+58.45
Δ = 28° 53' 49.0" (LT)	Δ = 10° 17' 46.2" (RT)
D = 8° 11' 06.4"	D = 10° 13' 53.0"
L = 353.04'	L = 100.63'
T = 180.36'	T = 50.45'
R = 700.00'	R = 560.00'
SE = 4%	SE = 2%
RO = 80.00'	RO = 40.00'
V = 25 MPH	V = 40 MPH

NOTE:
1. ALL DRIVEWAY RADII ARE 20' UNLESS NOTED ON PLANS.
2. ALL OUTSIDE CURB & GUTTER ARE 2'-6" UNLESS OTHERWISE NOTED.
3. ALL ISLANDS ARE KEYED-IN 5" MONOLITHIC CONCRETE ISLANDS UNLESS OTHERWISE NOTED.

FOR -Y11- PROFILE, SEE SHEET 36

REVISIONS

8/17/99

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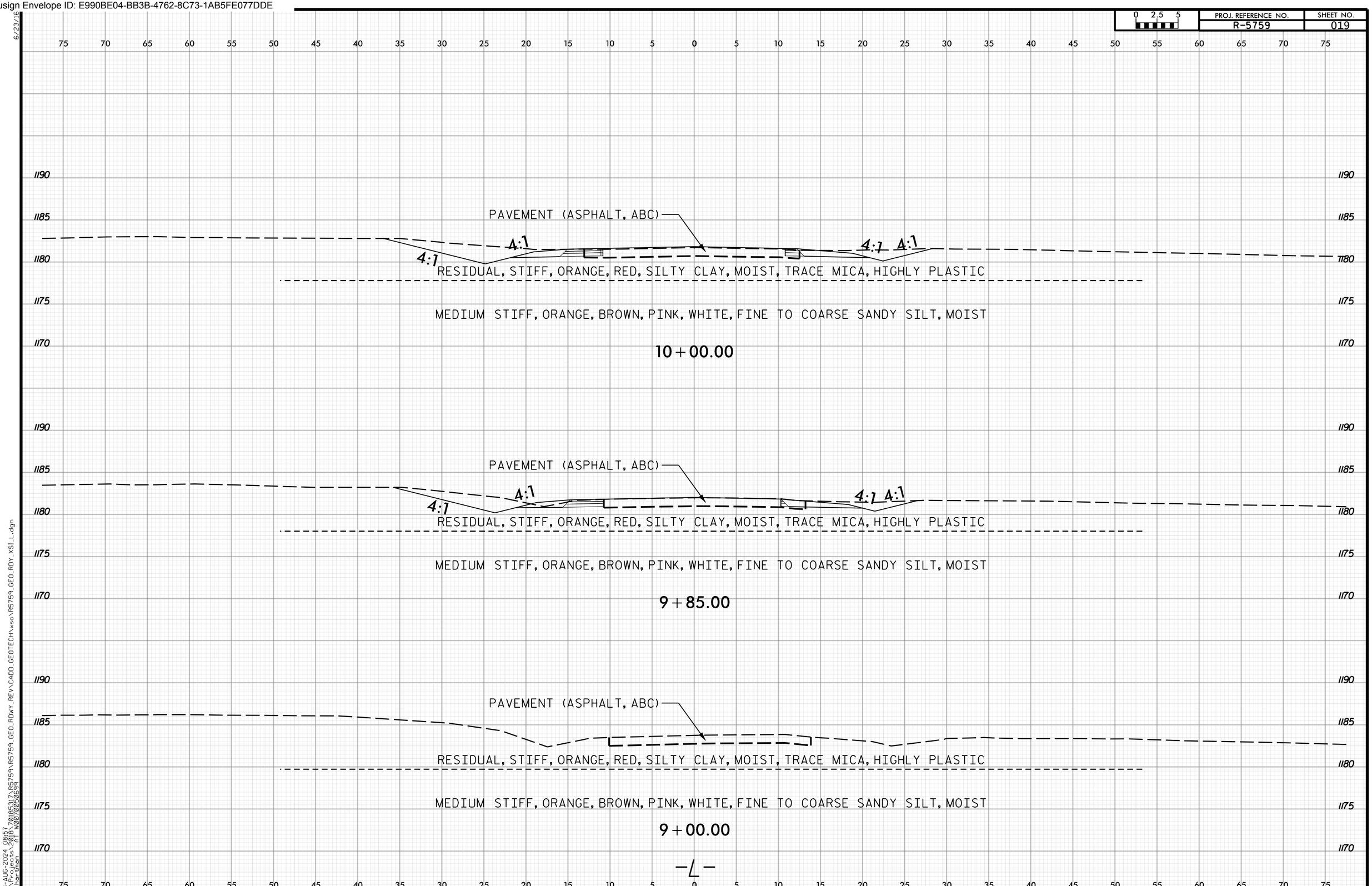

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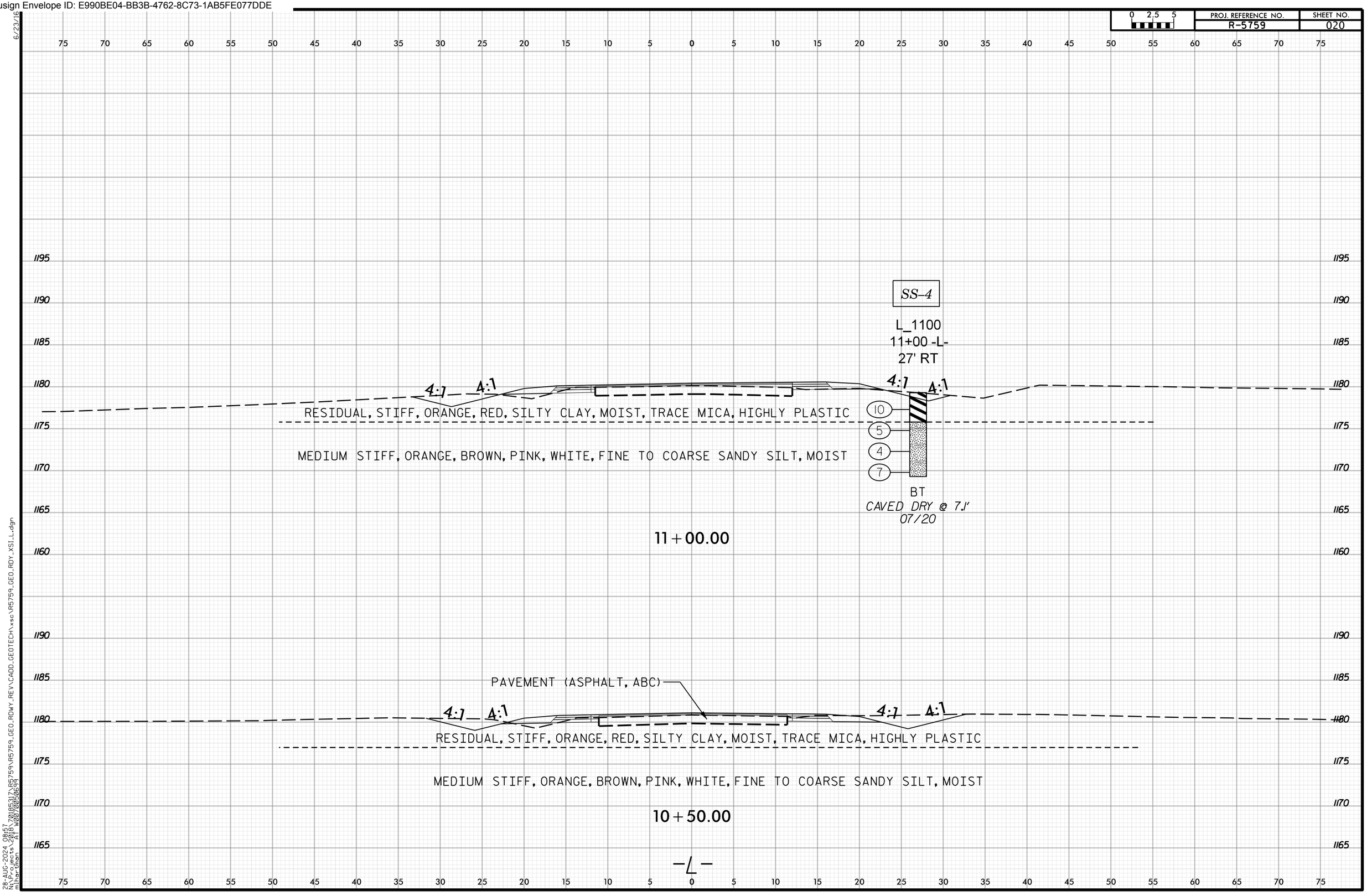

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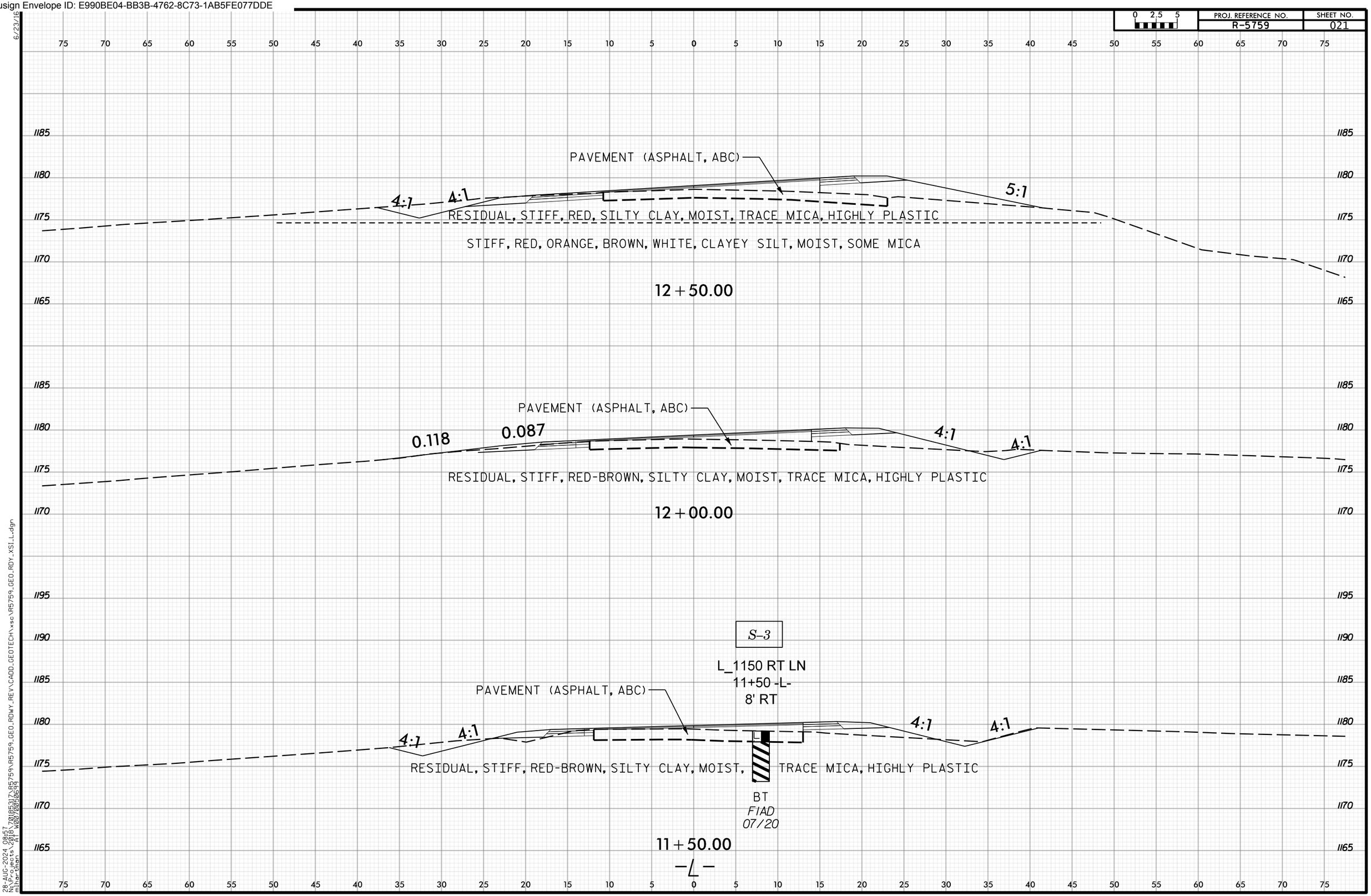

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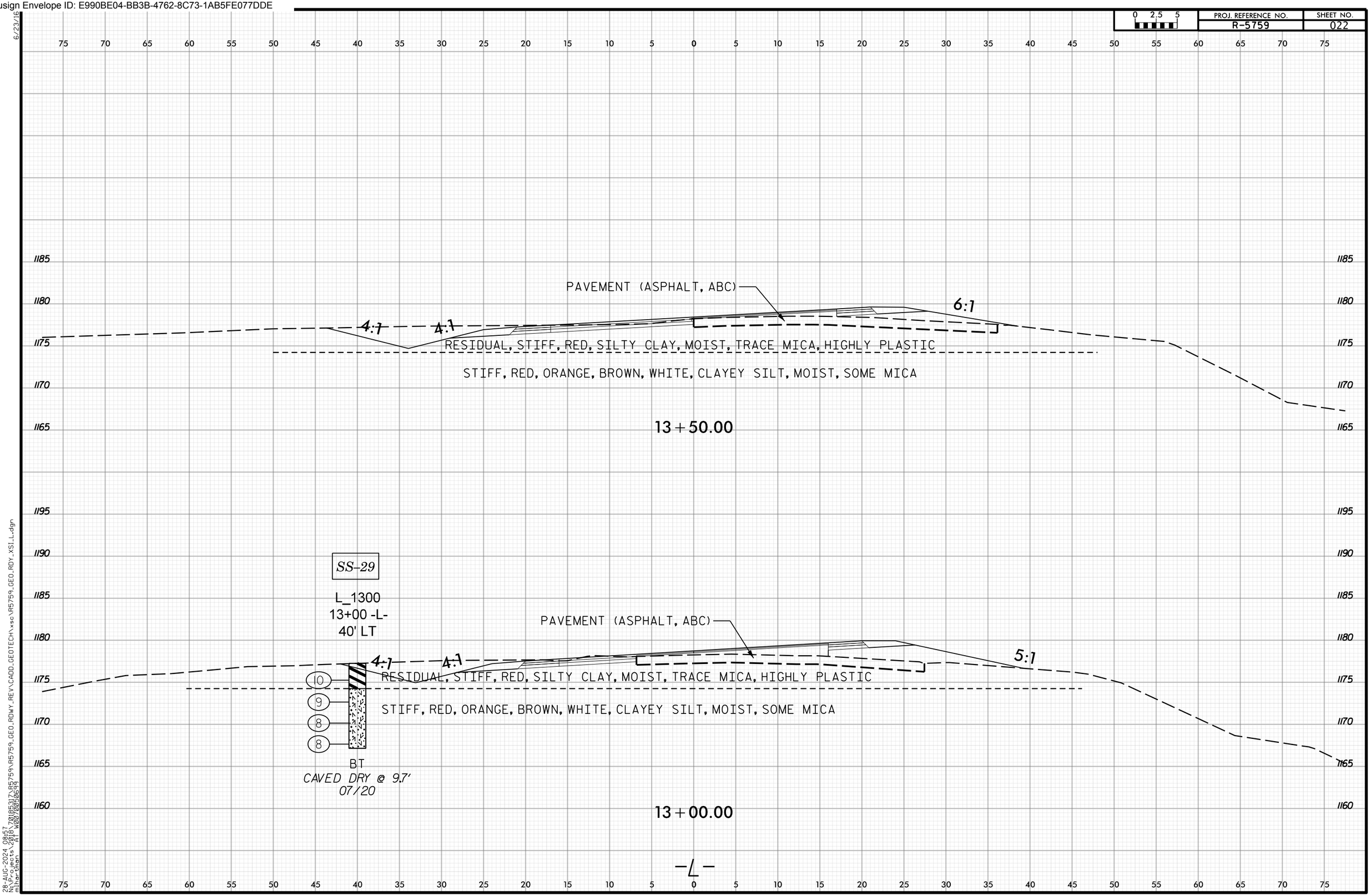

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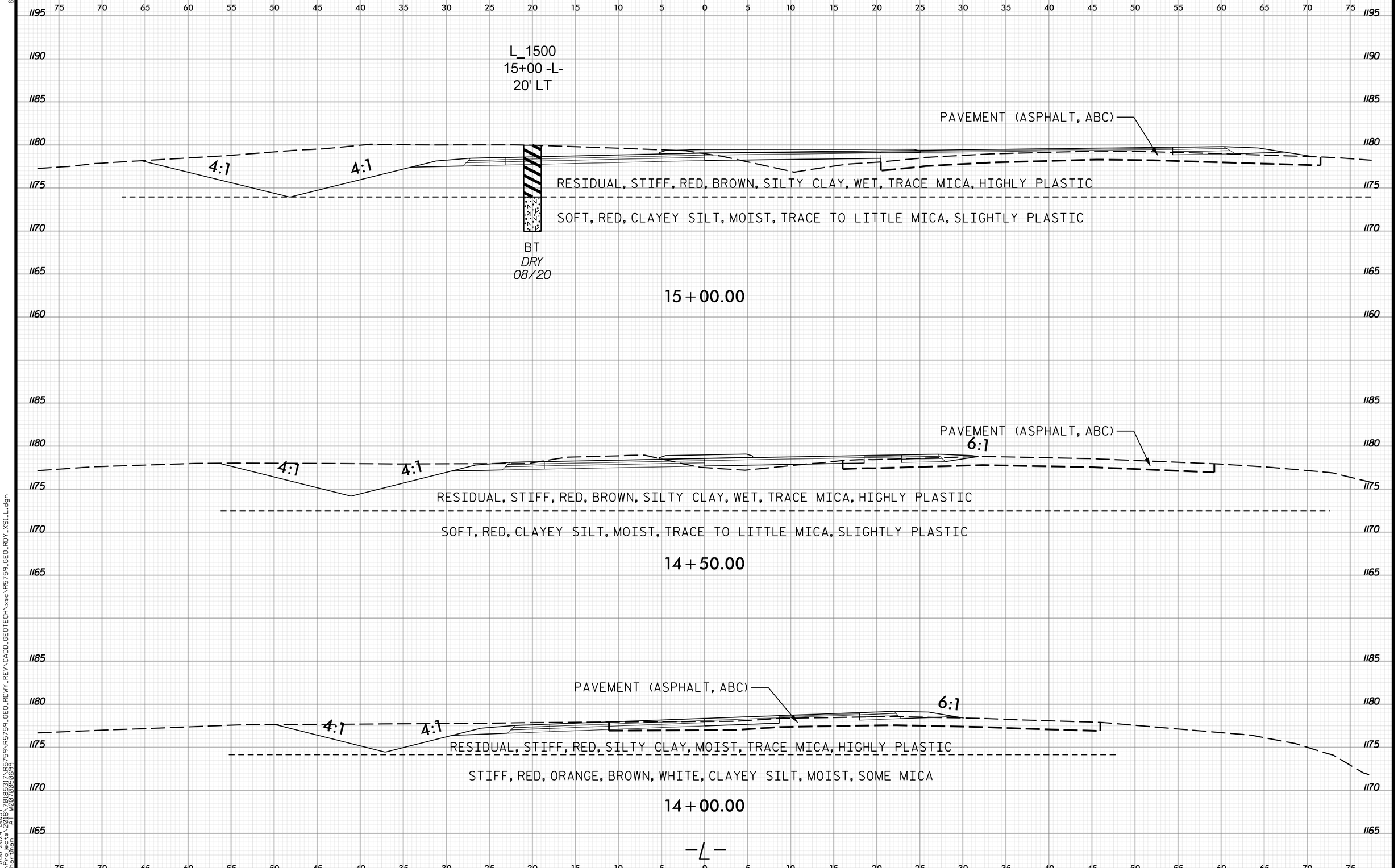

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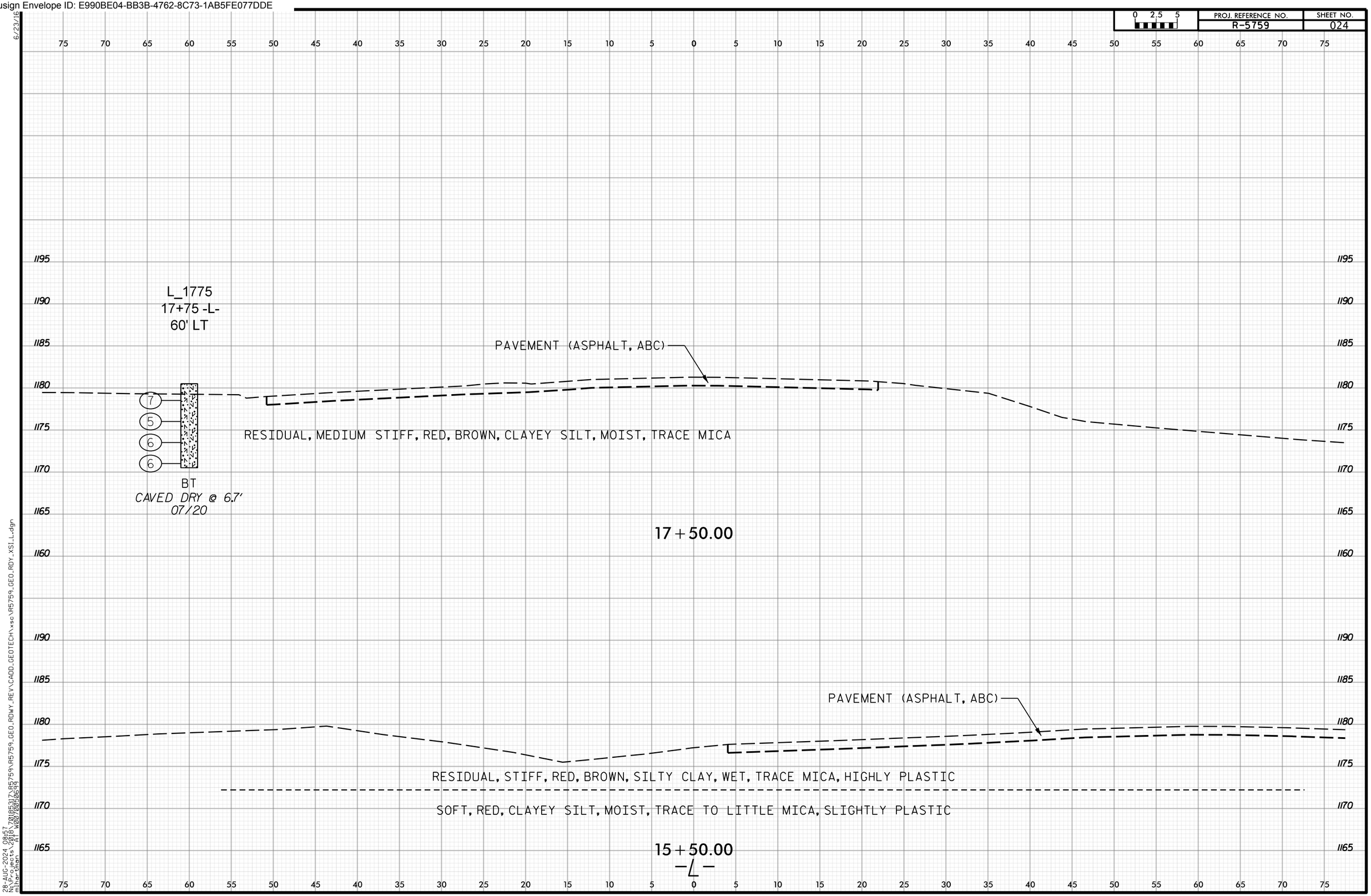

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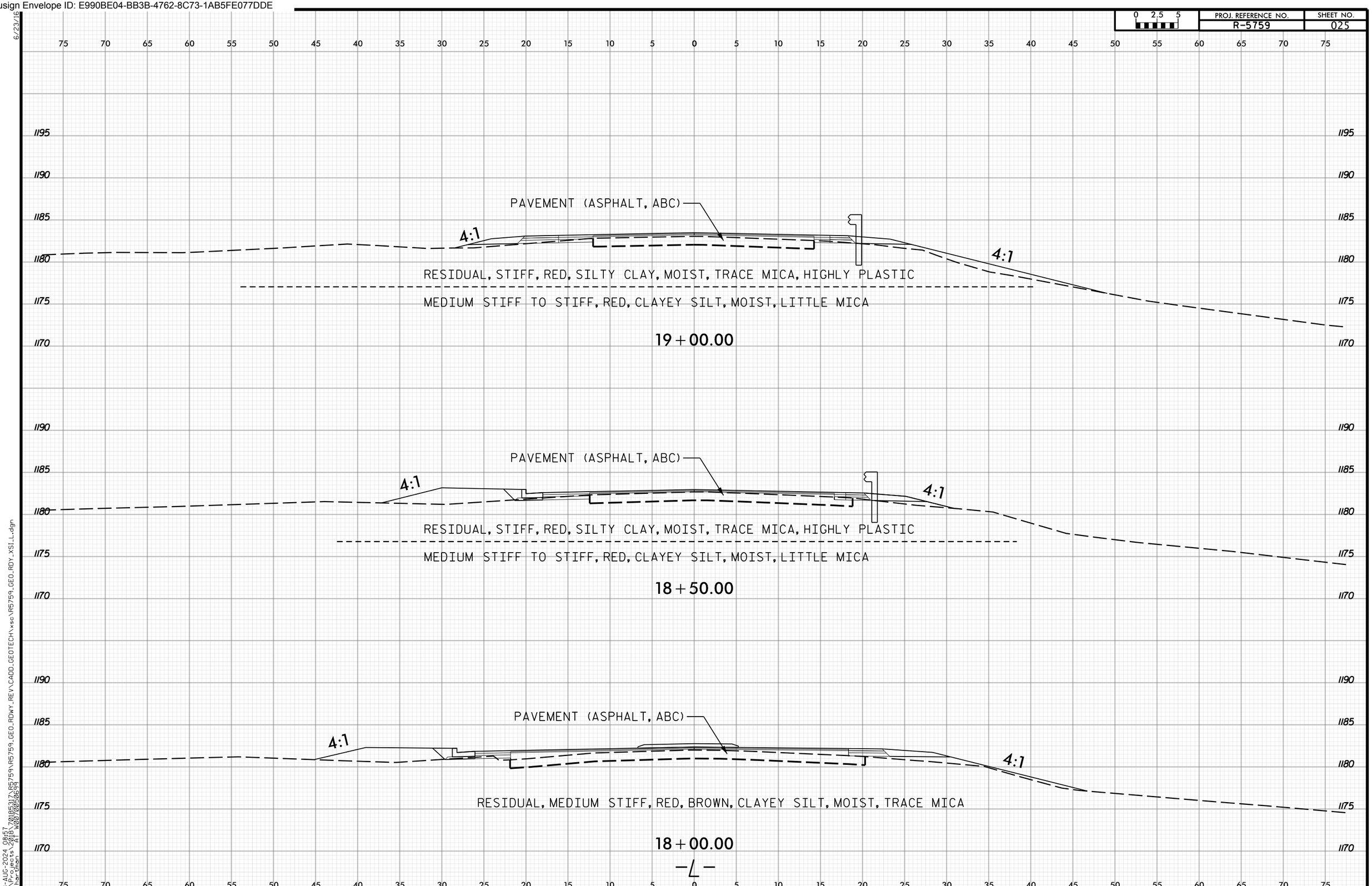

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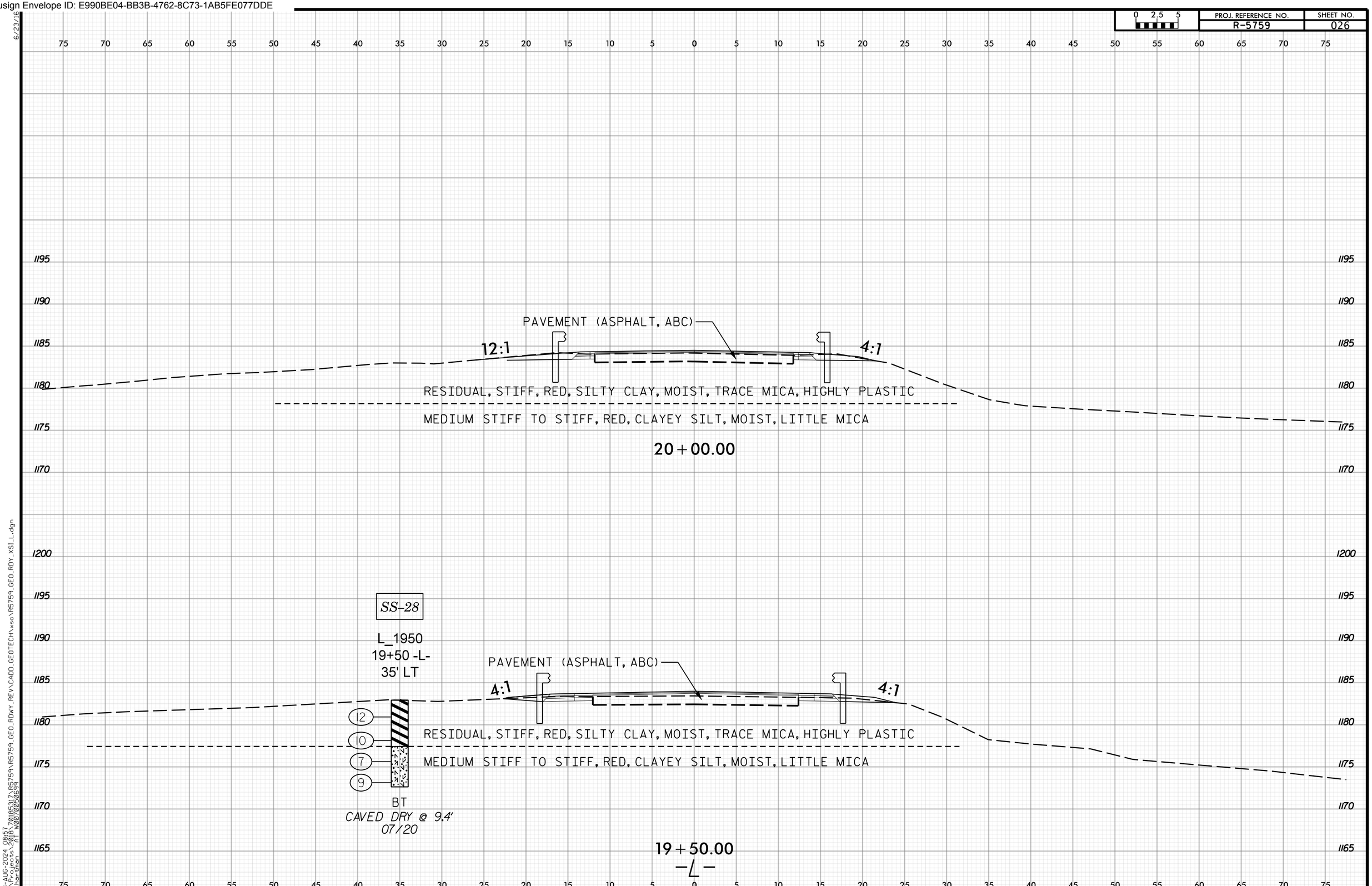

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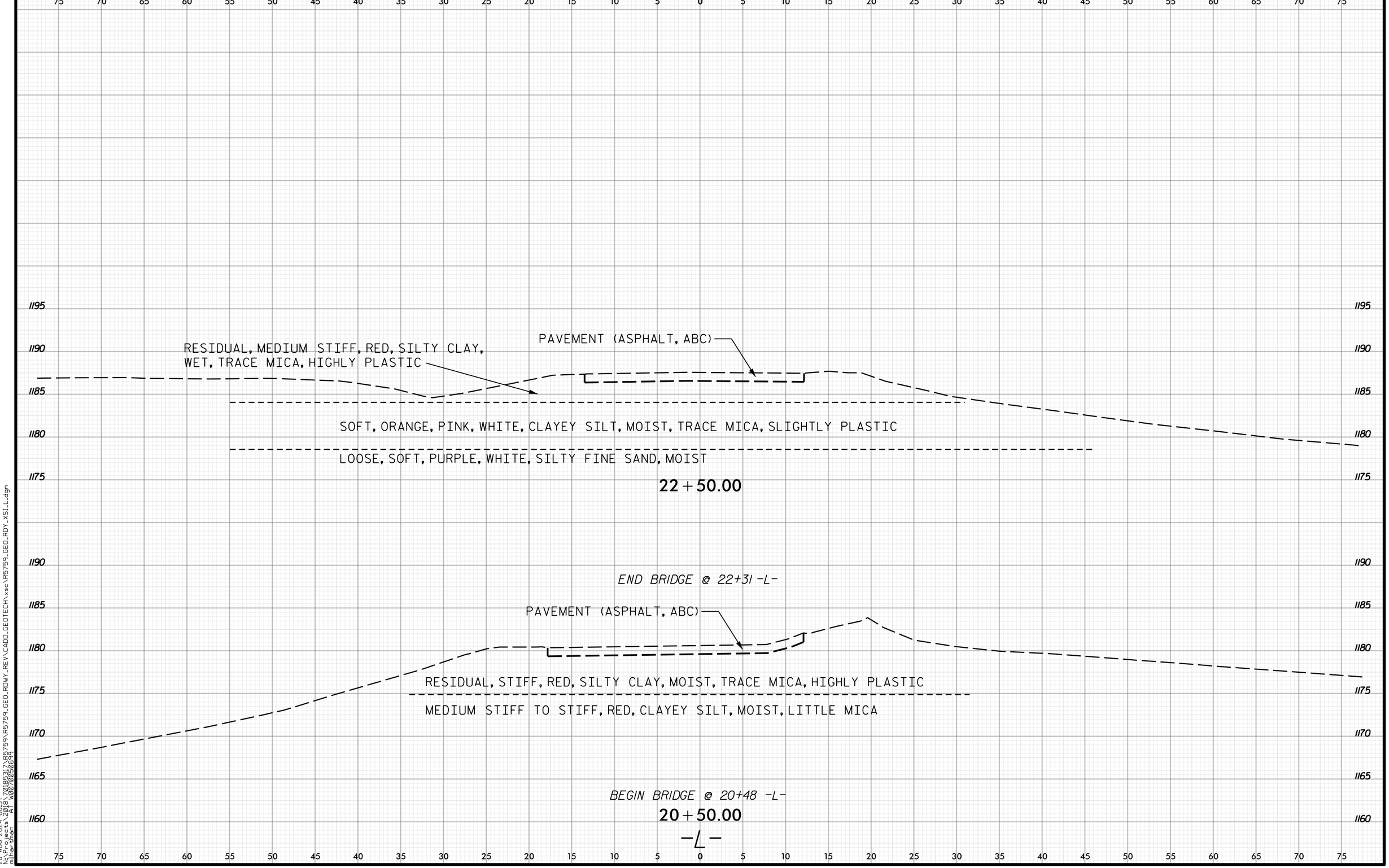

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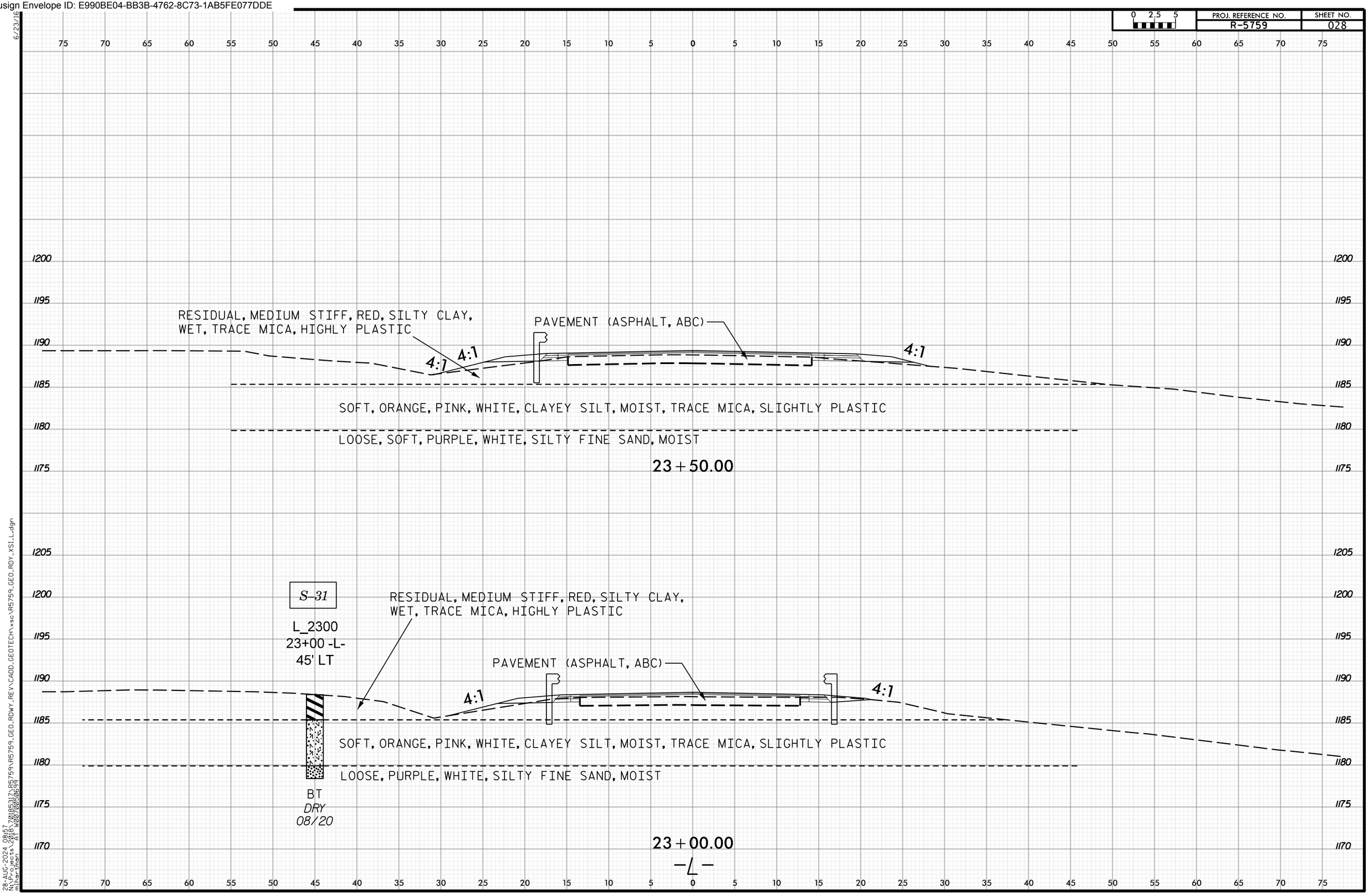

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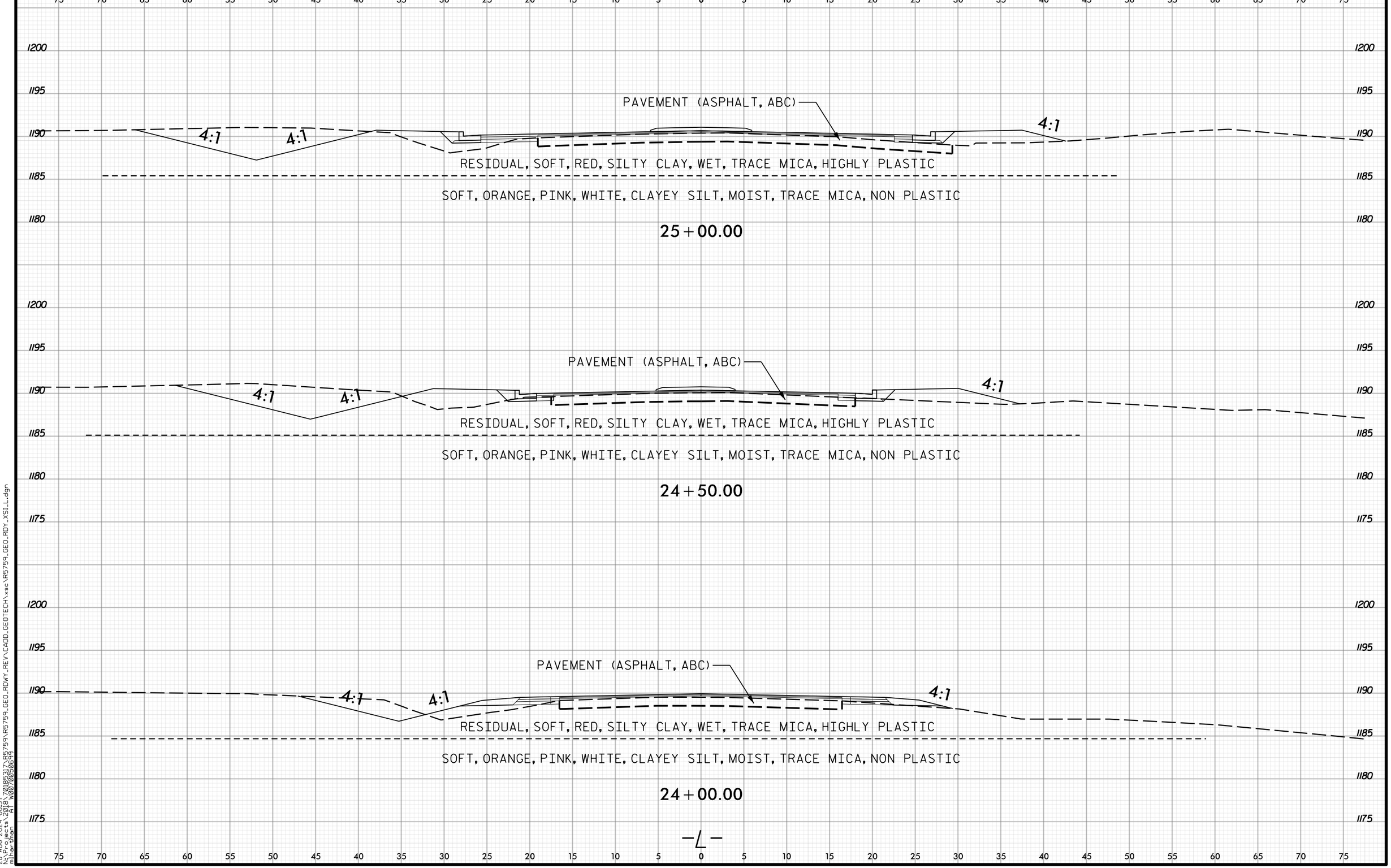

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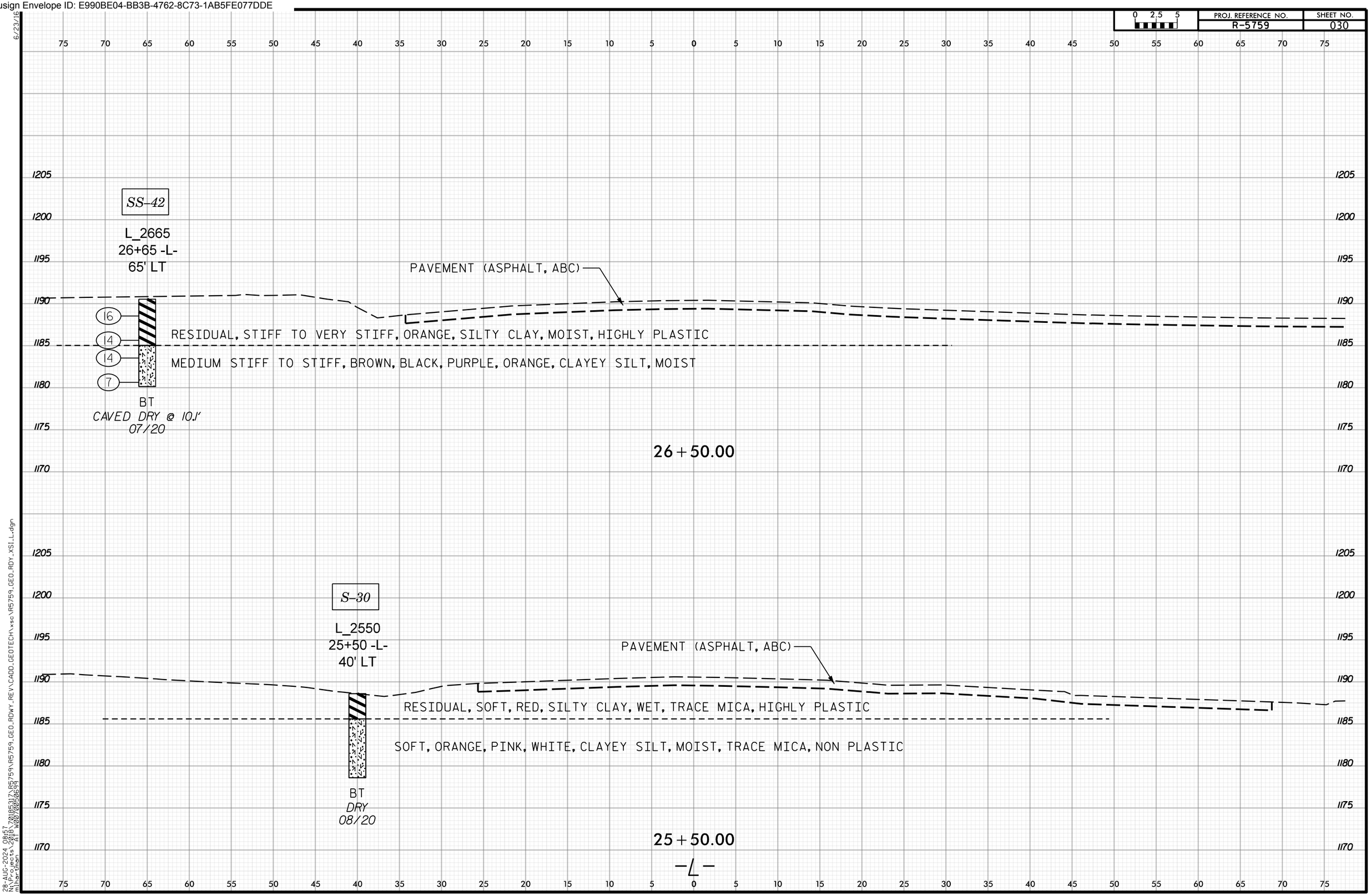

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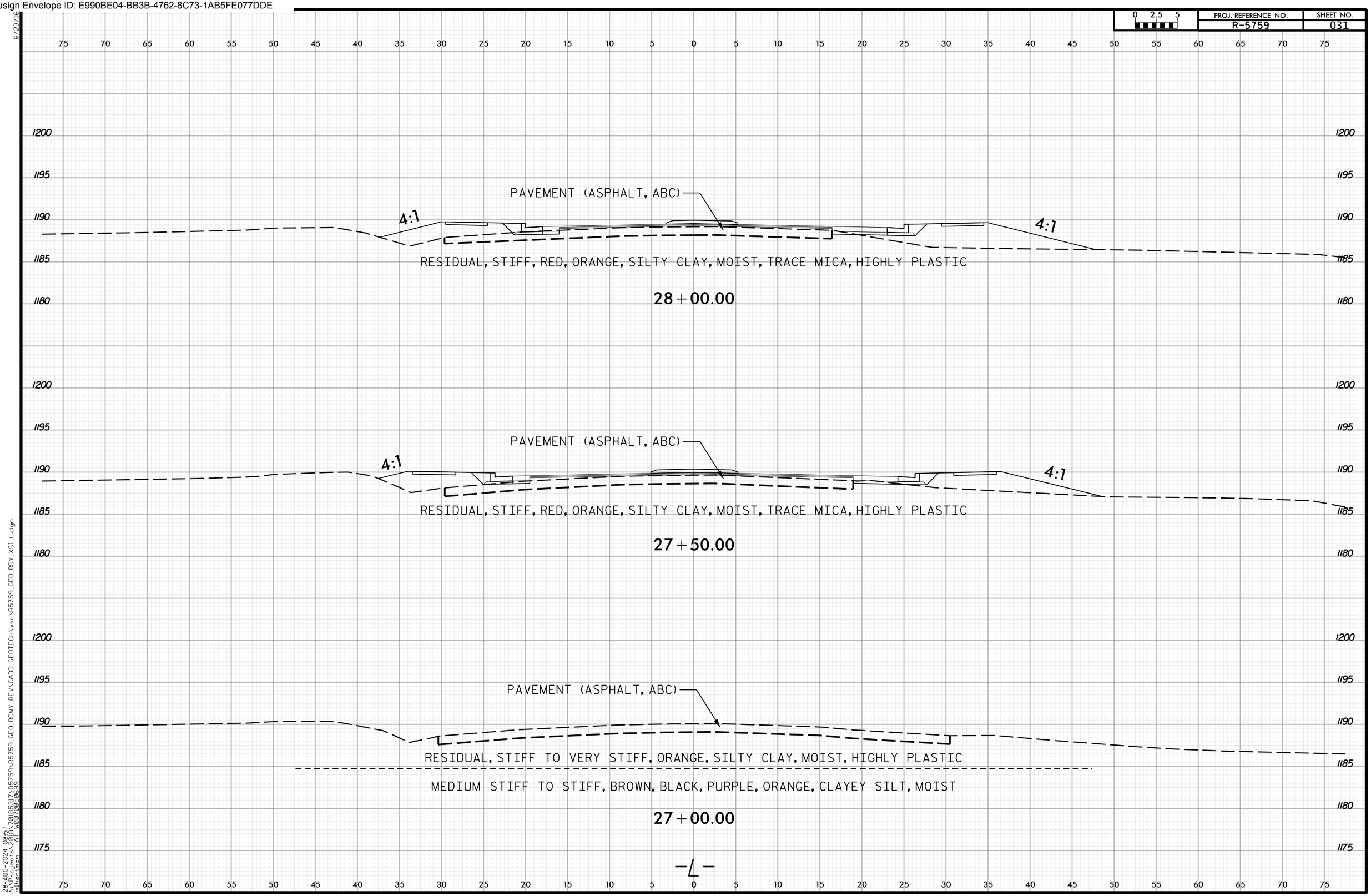

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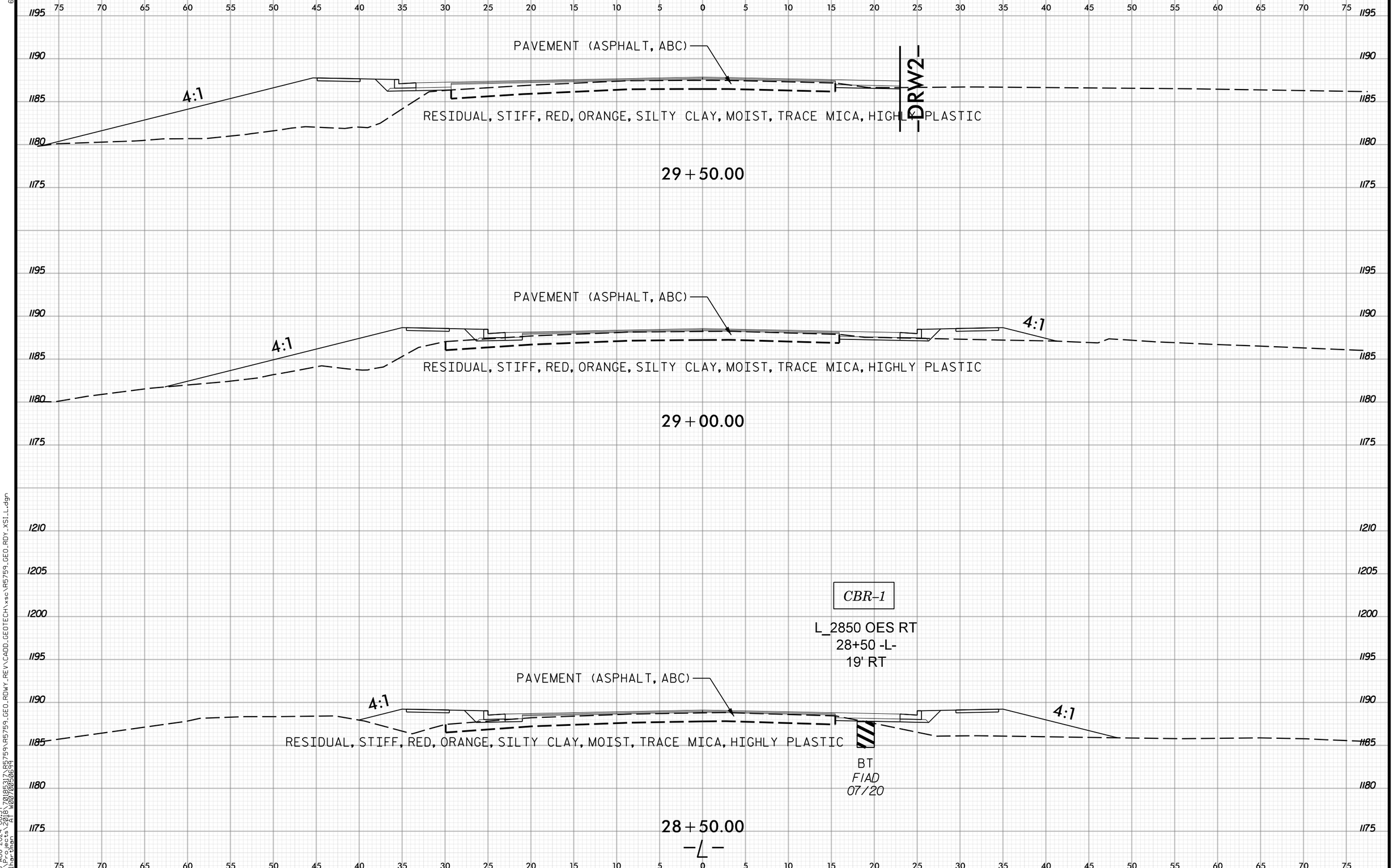

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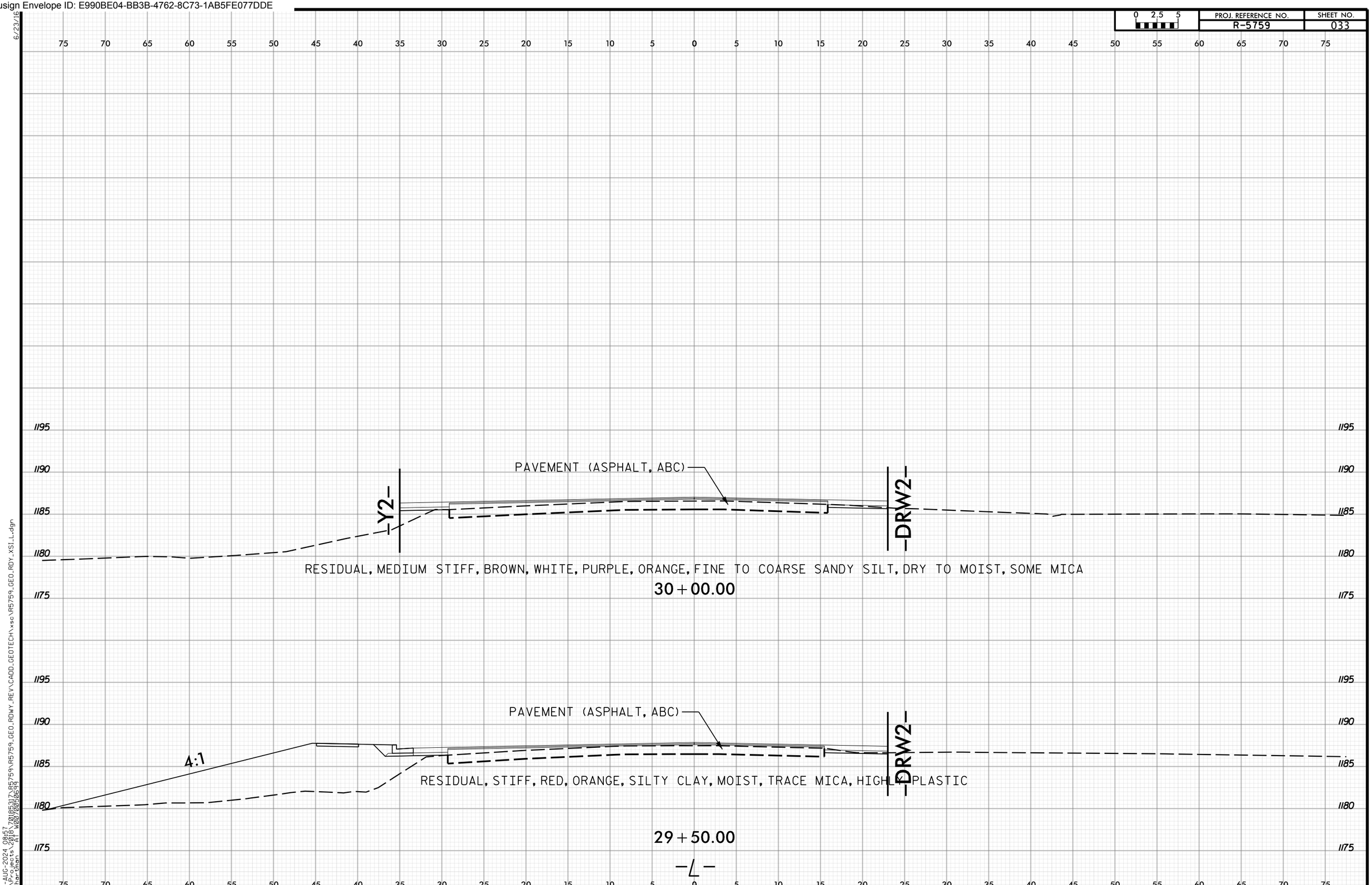

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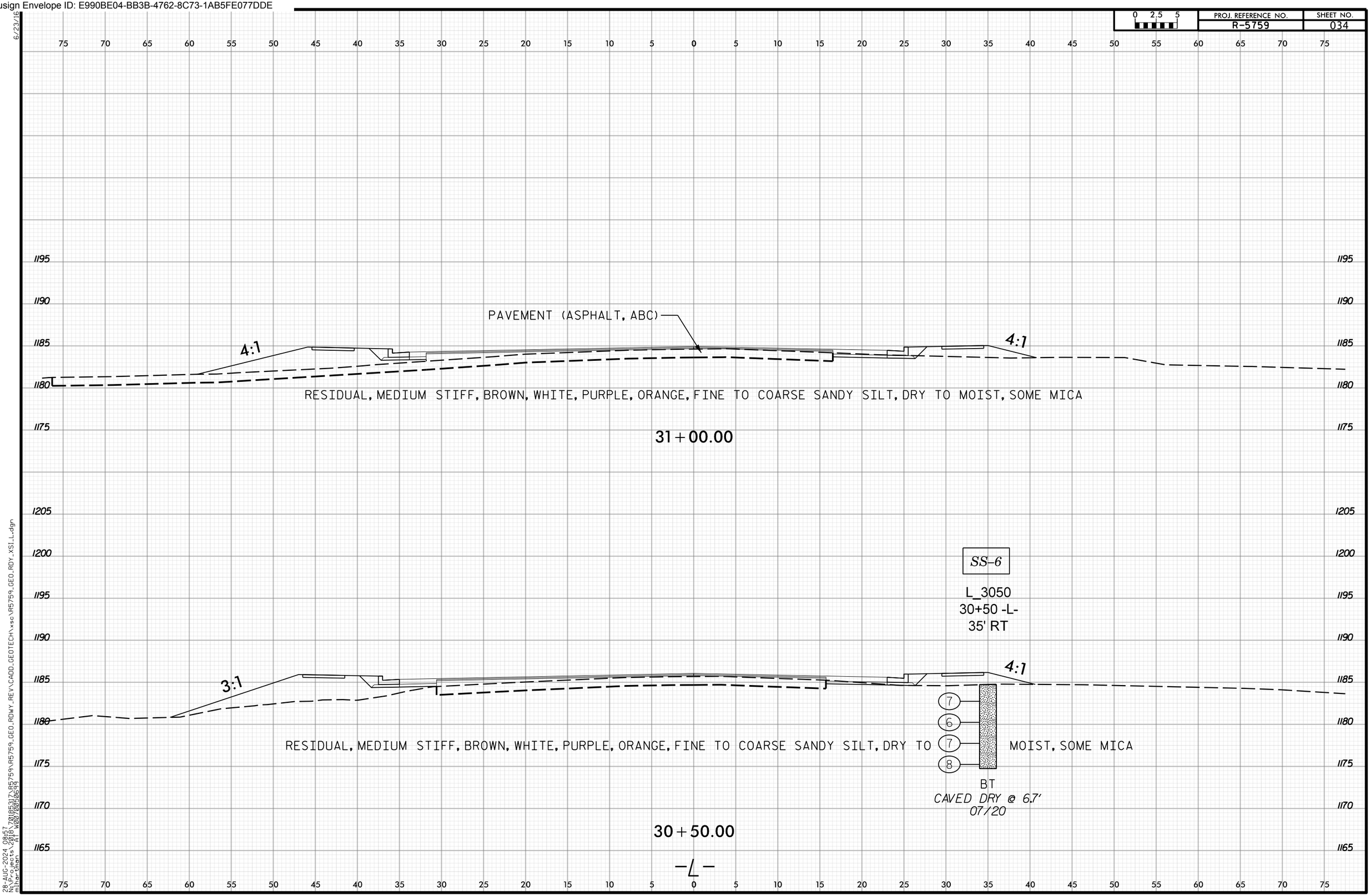

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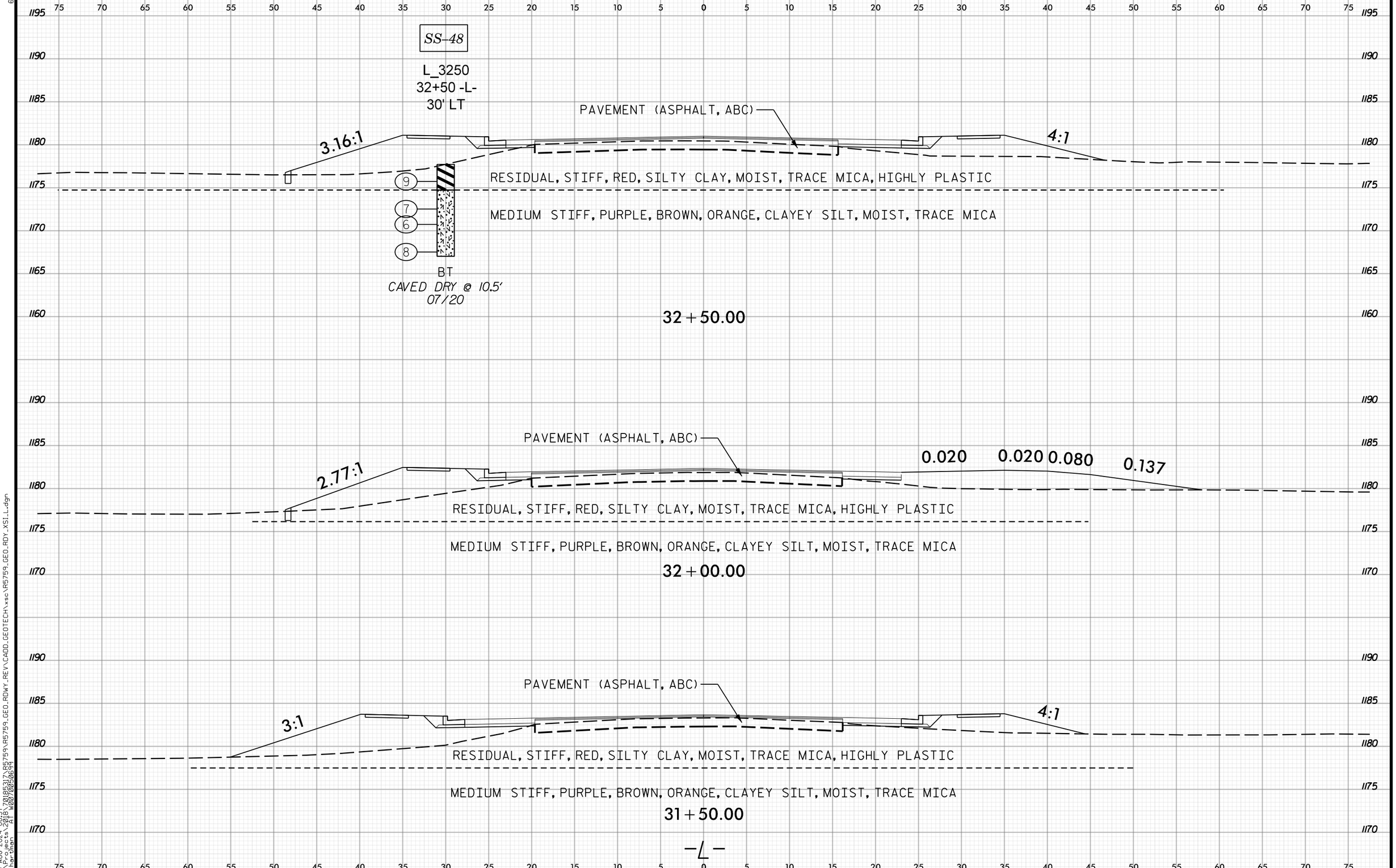

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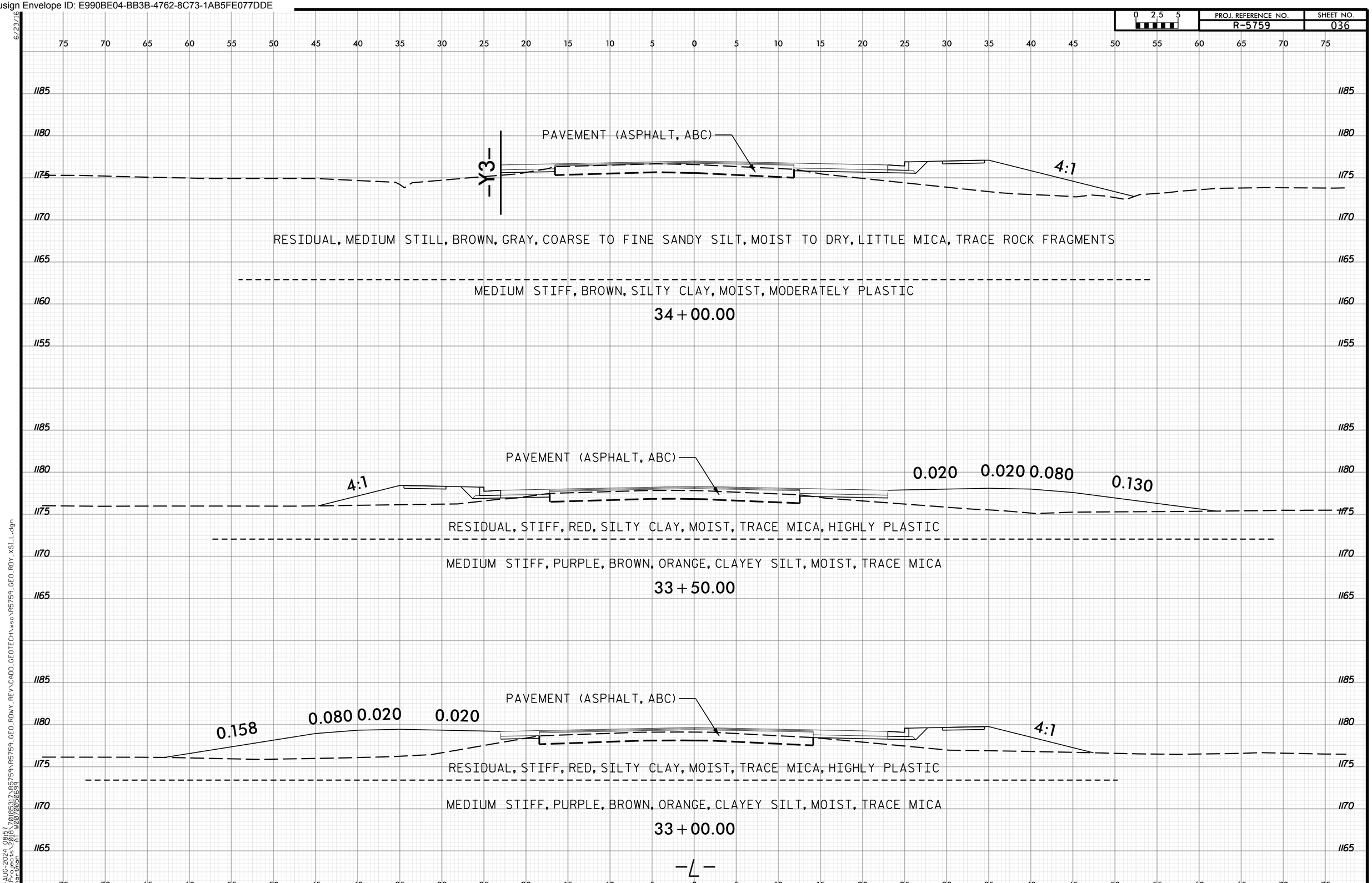

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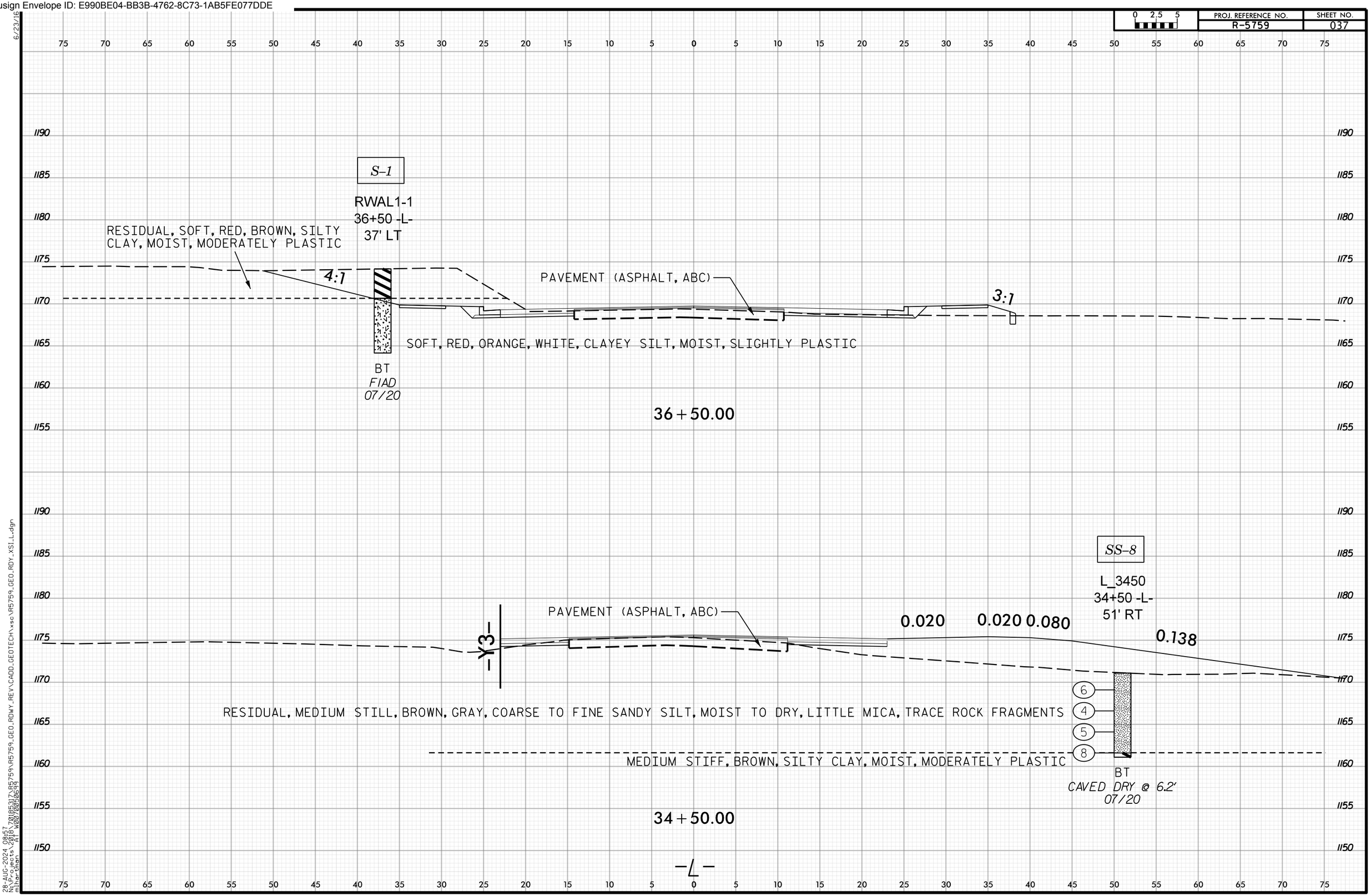

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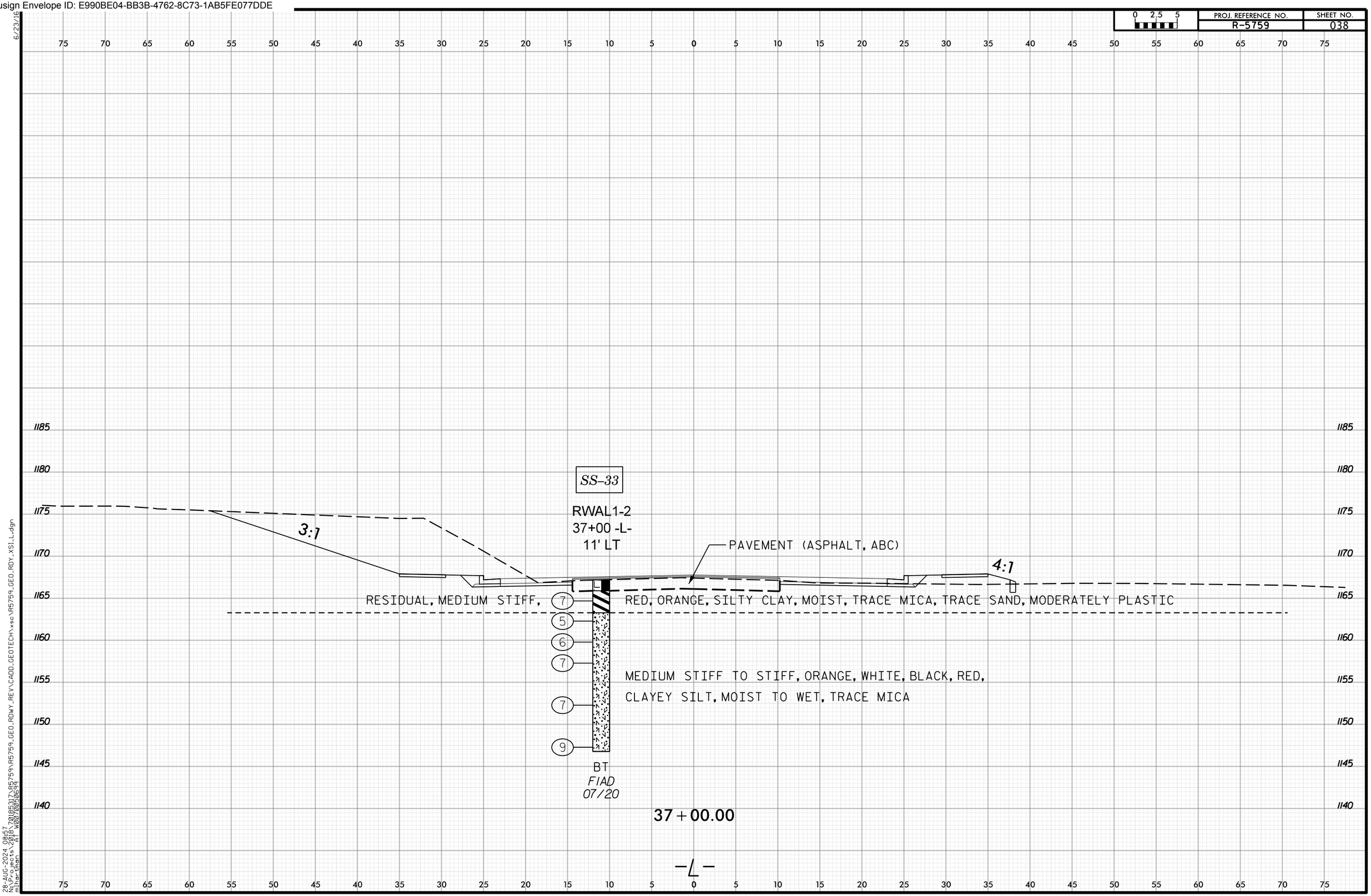

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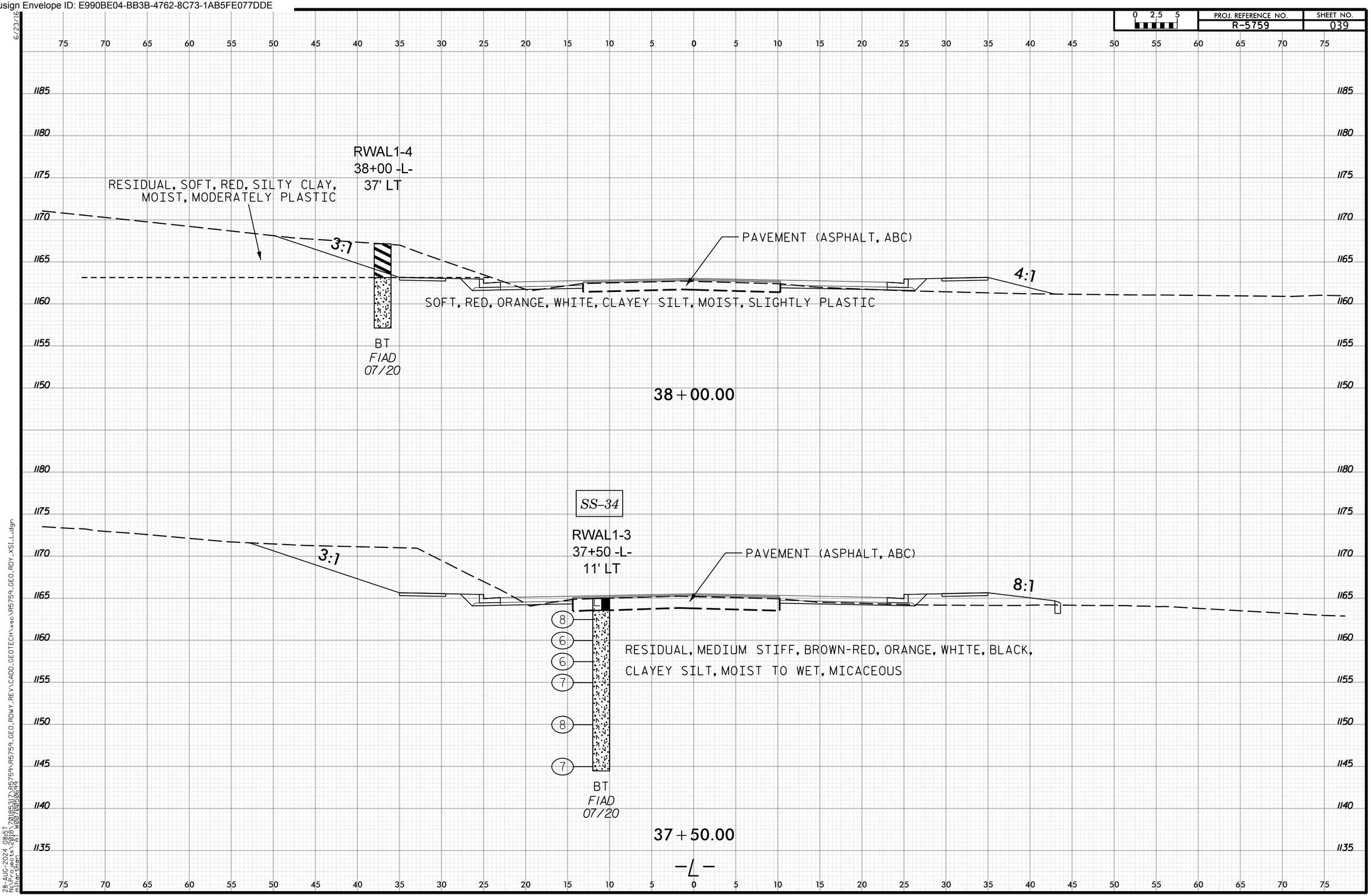

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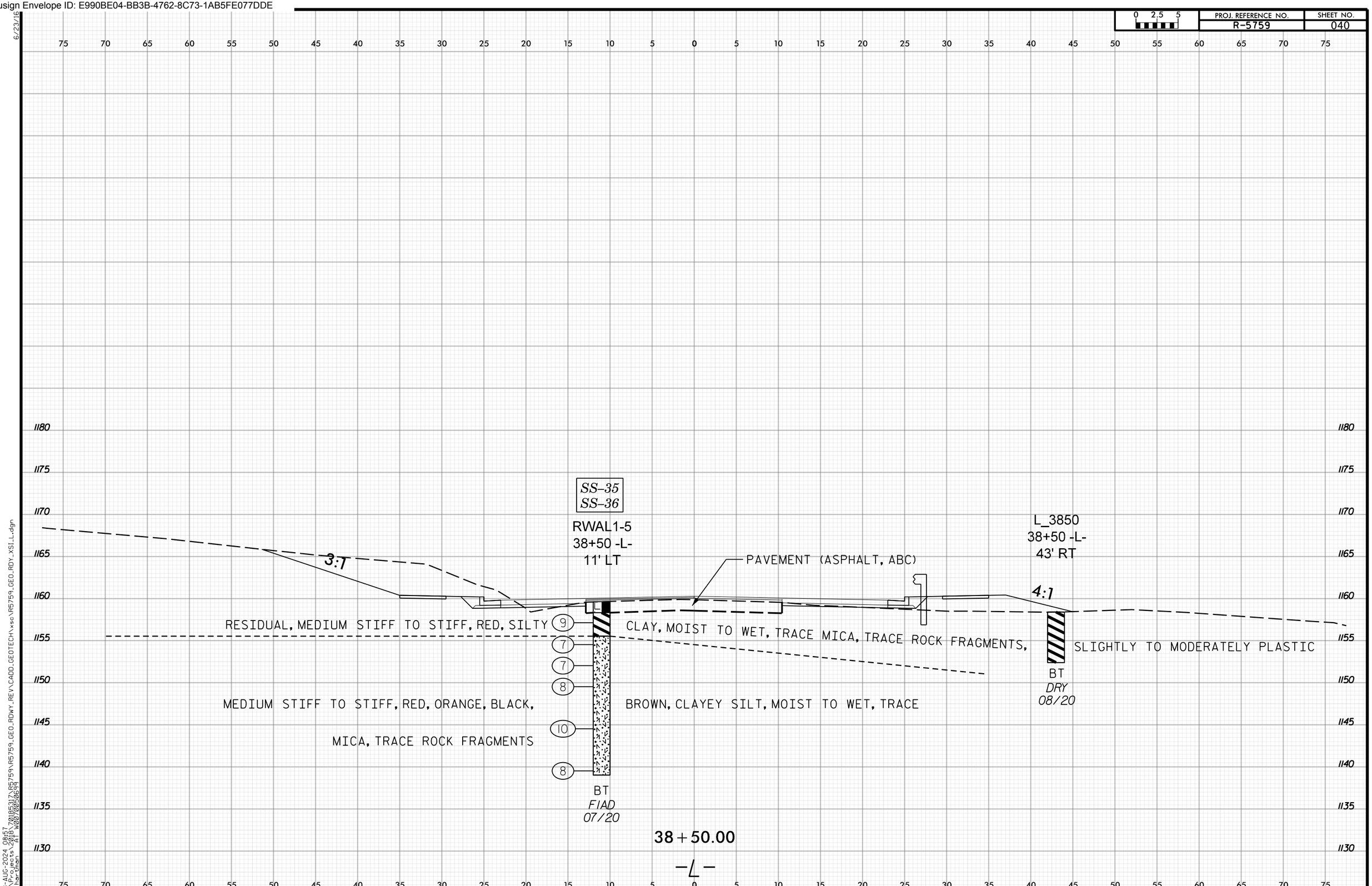

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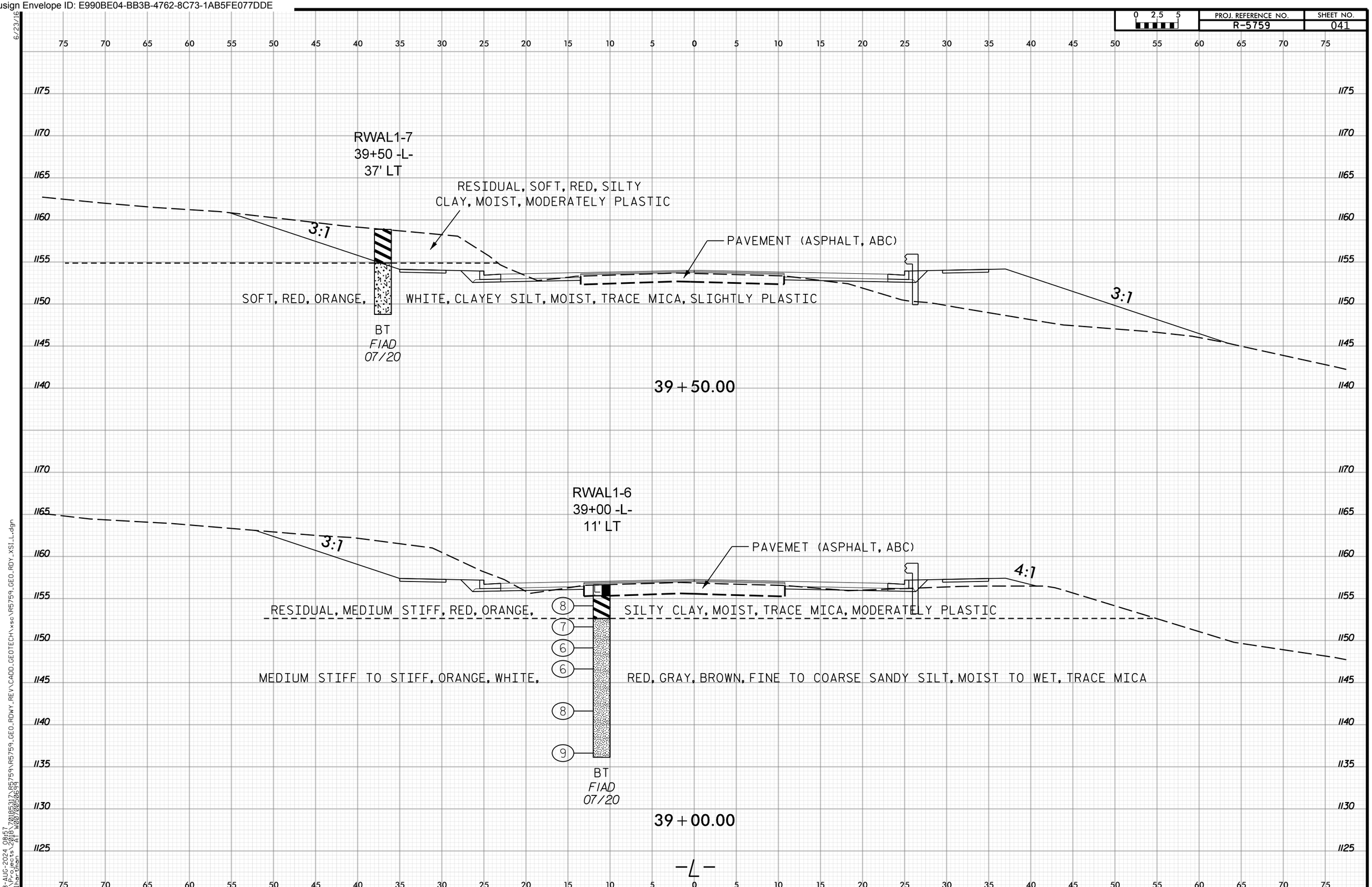

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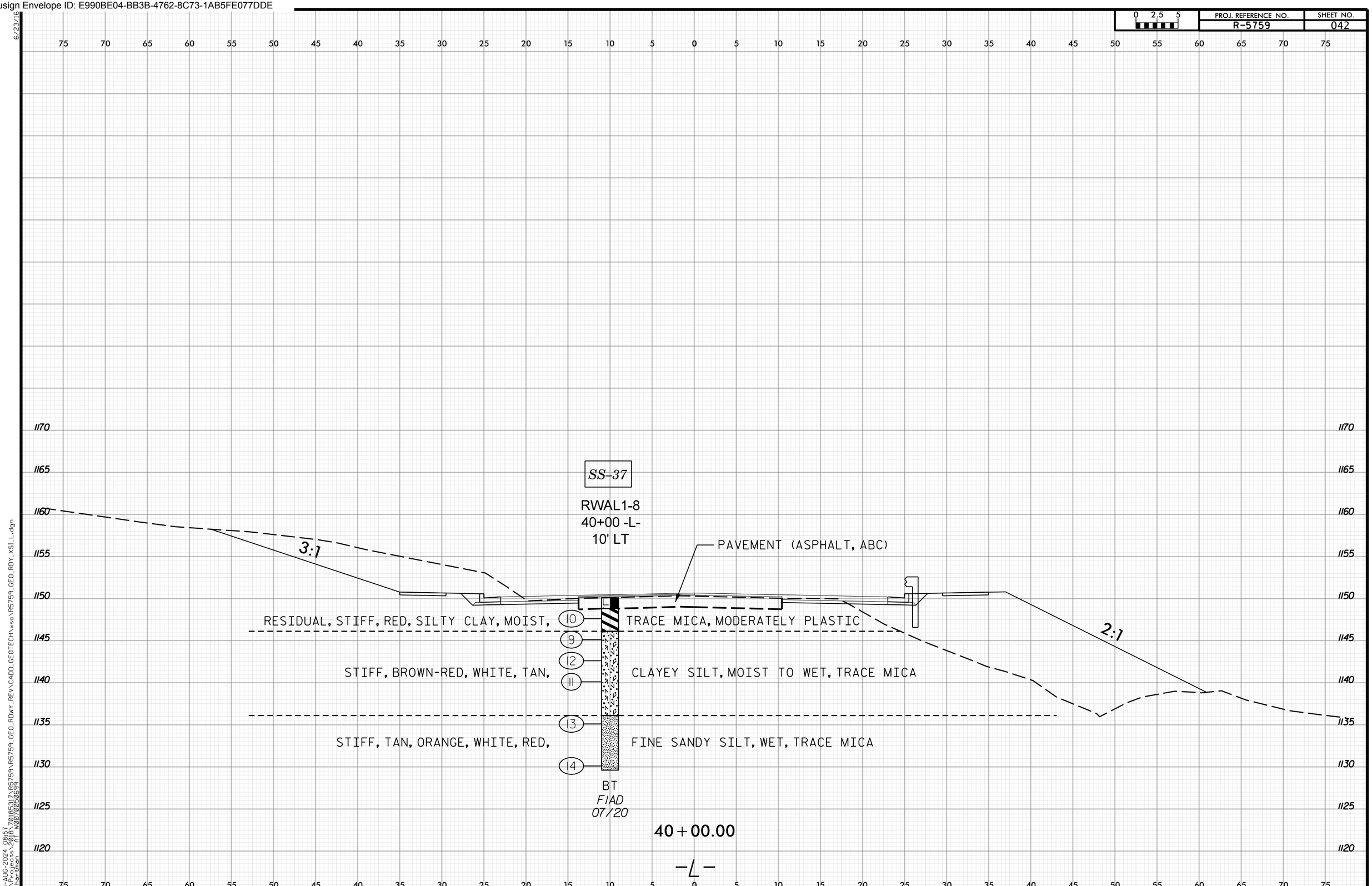

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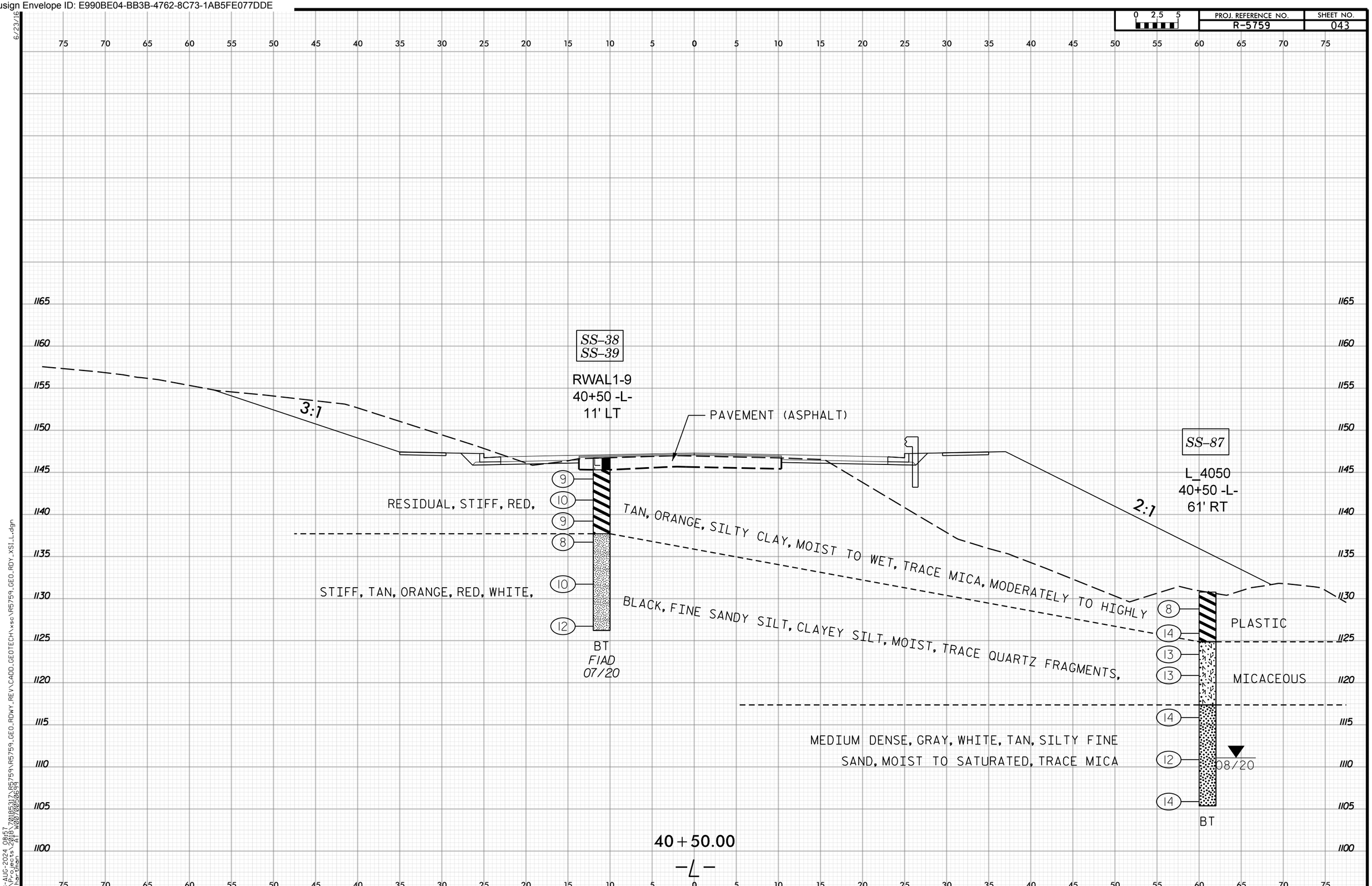

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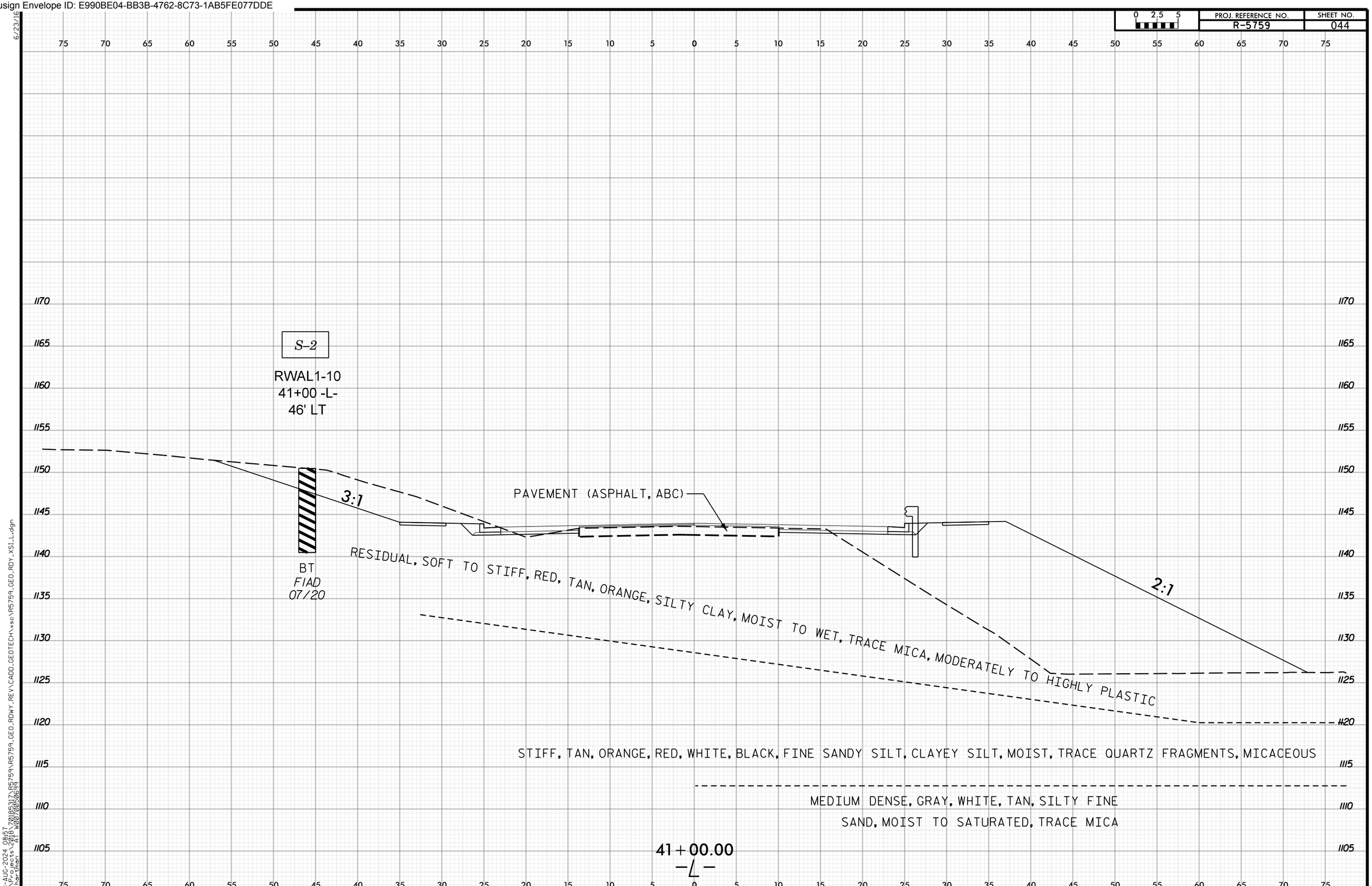

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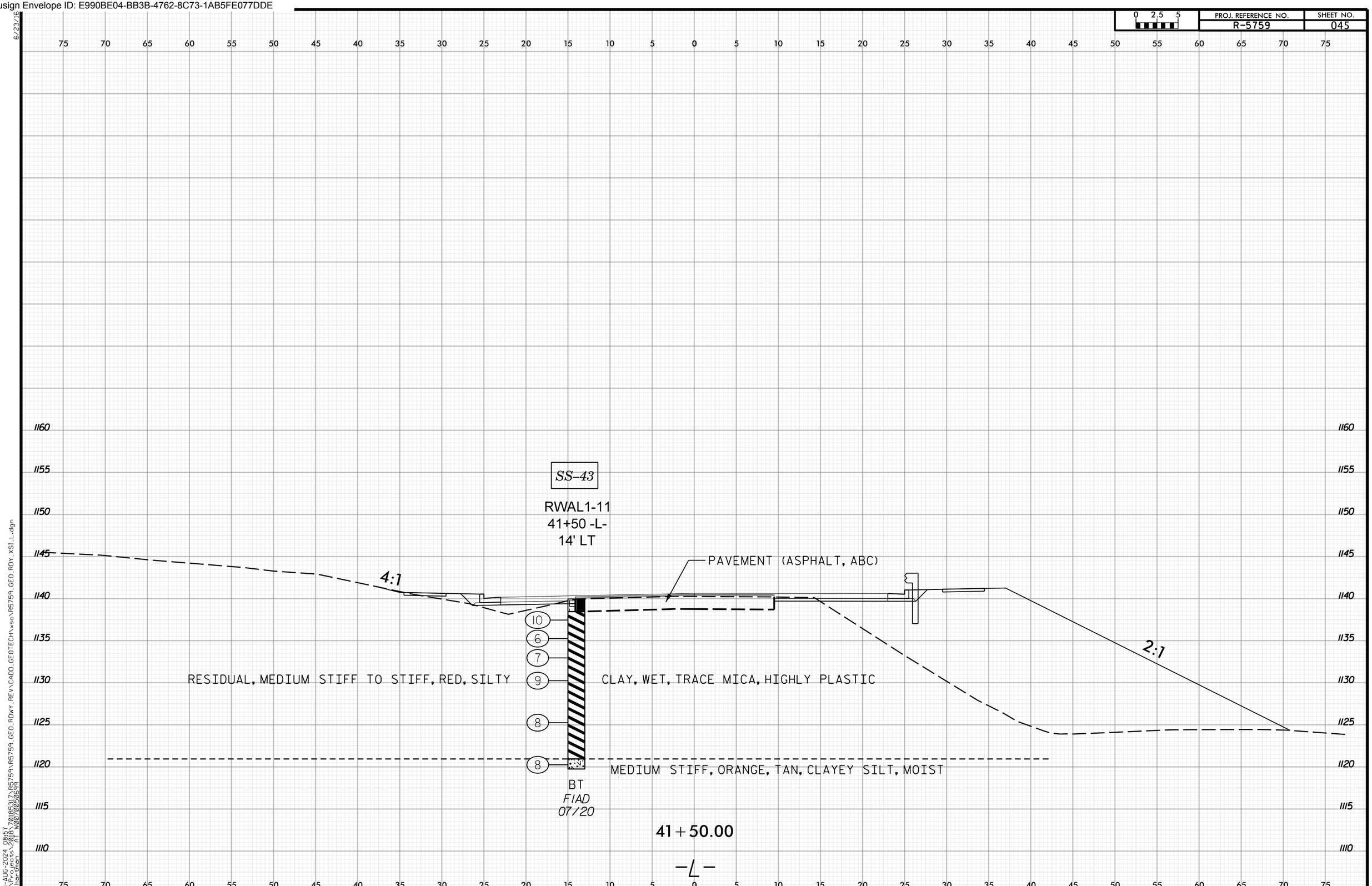

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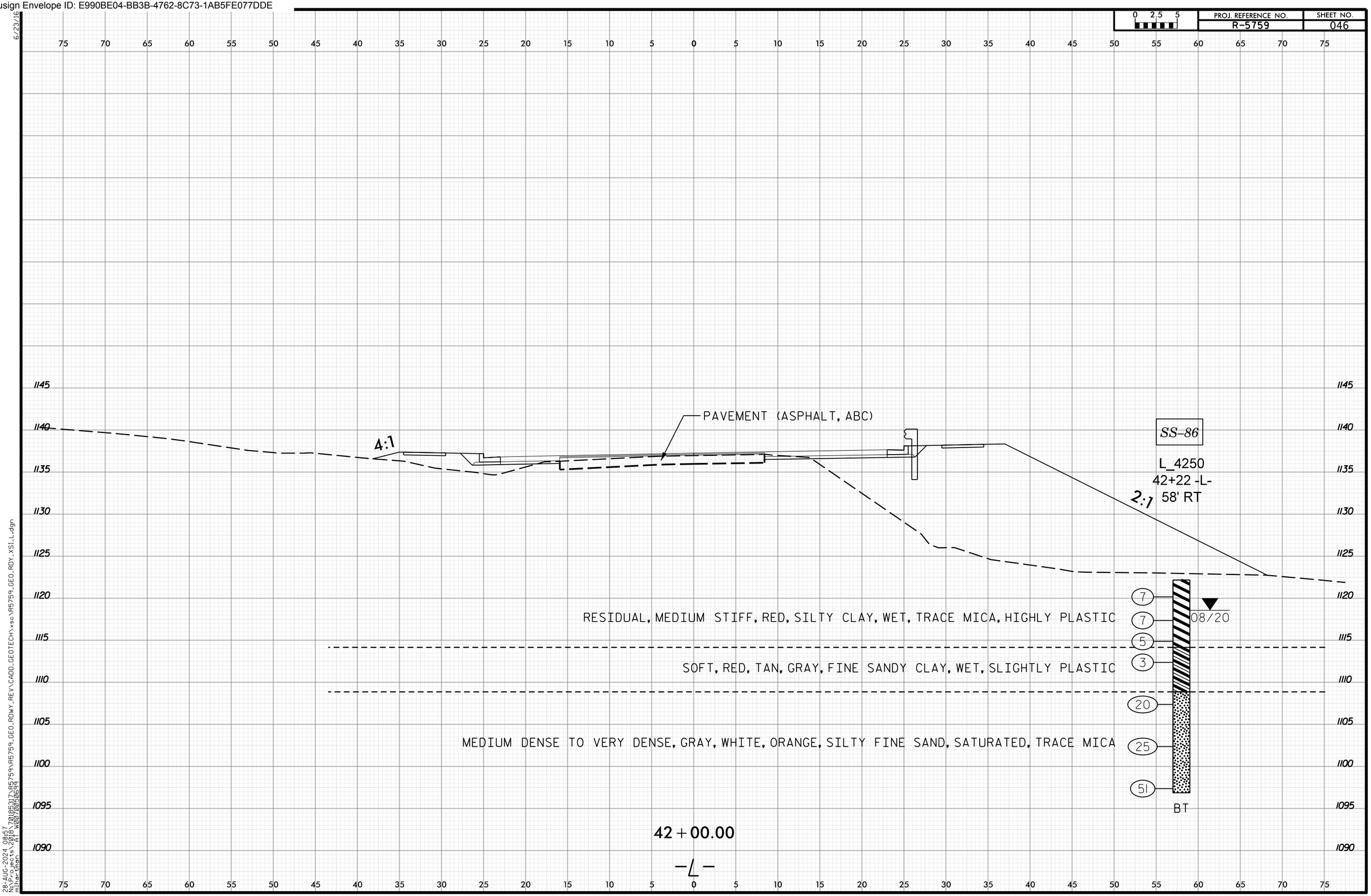

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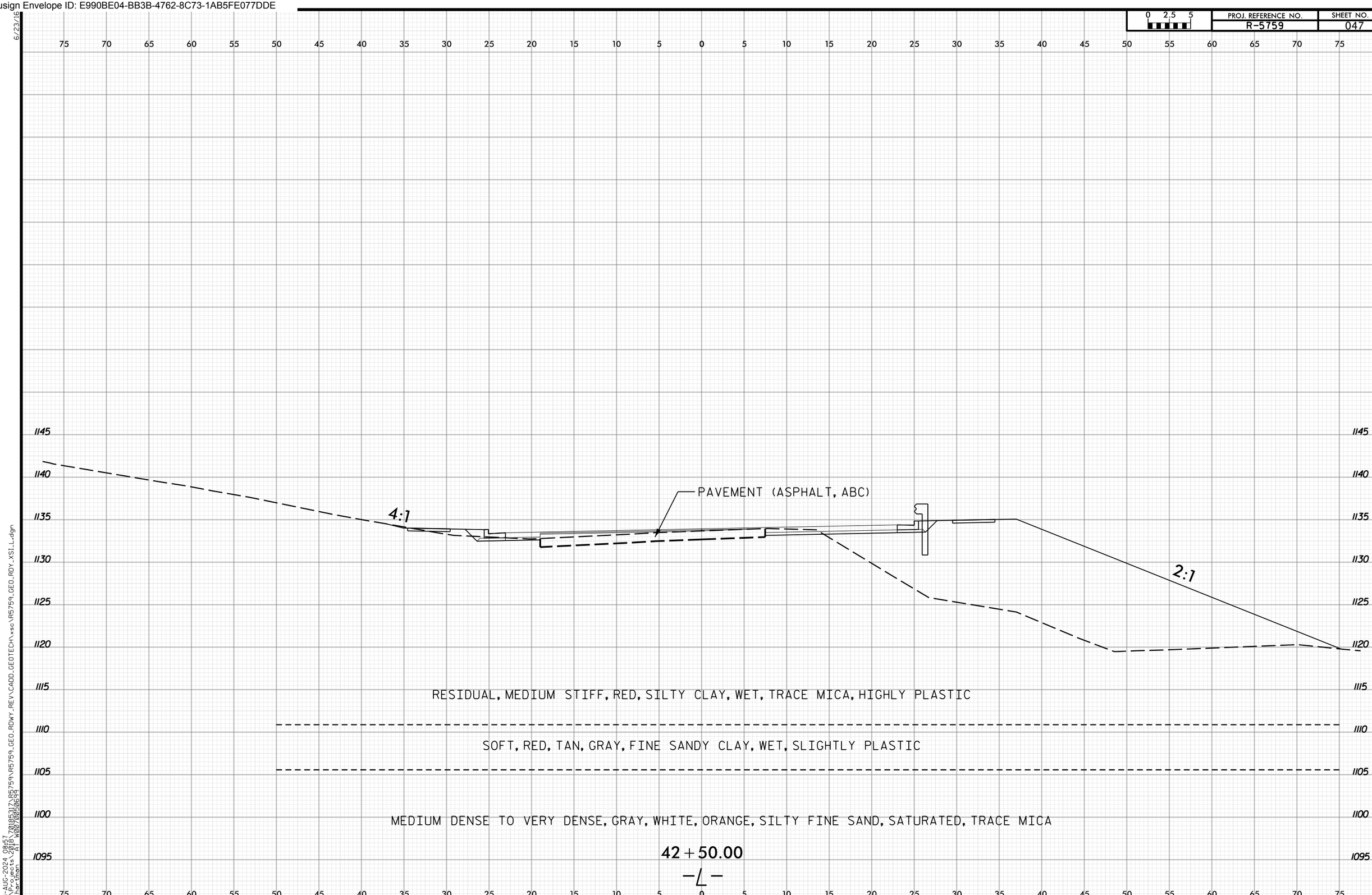

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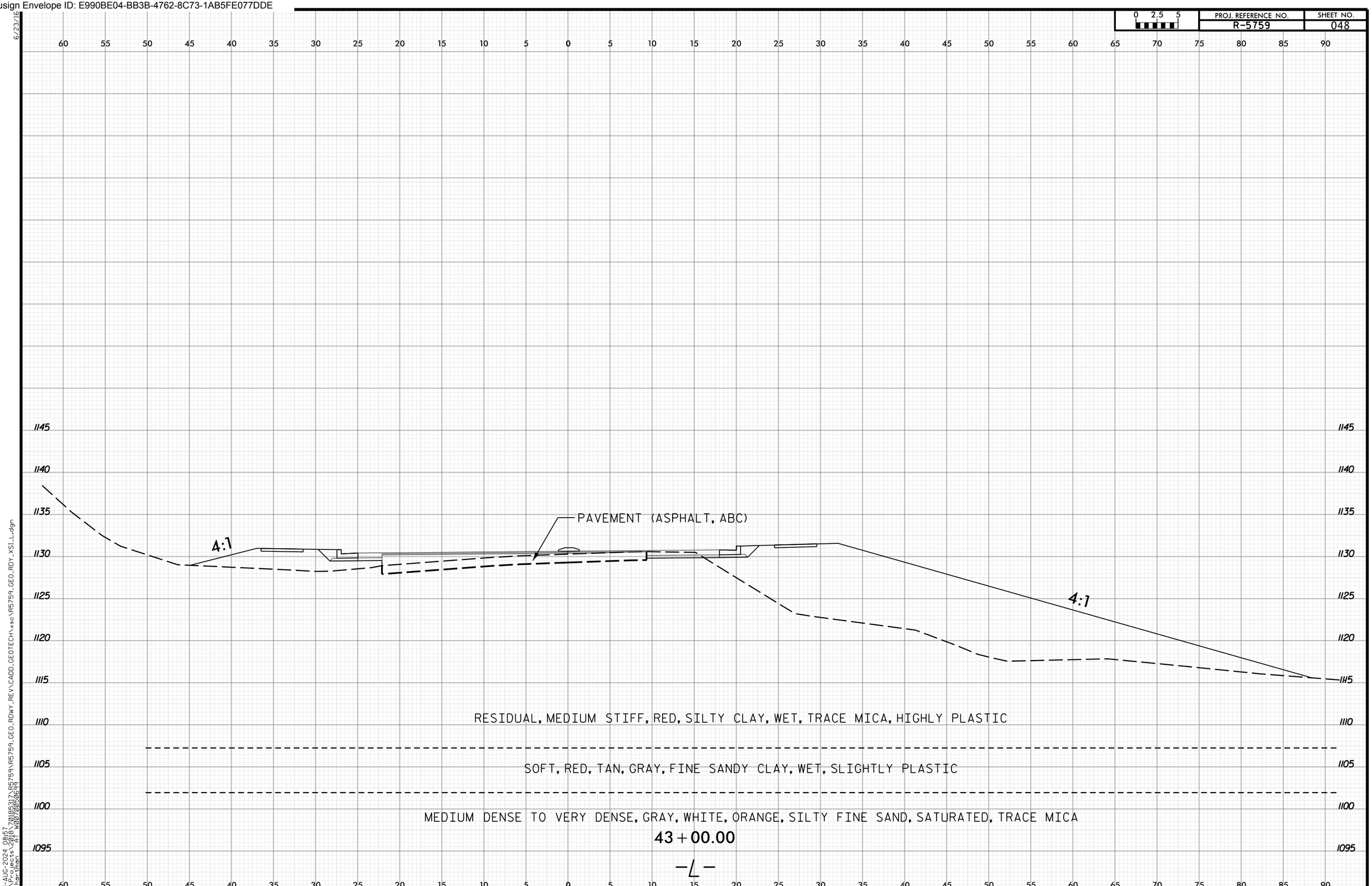

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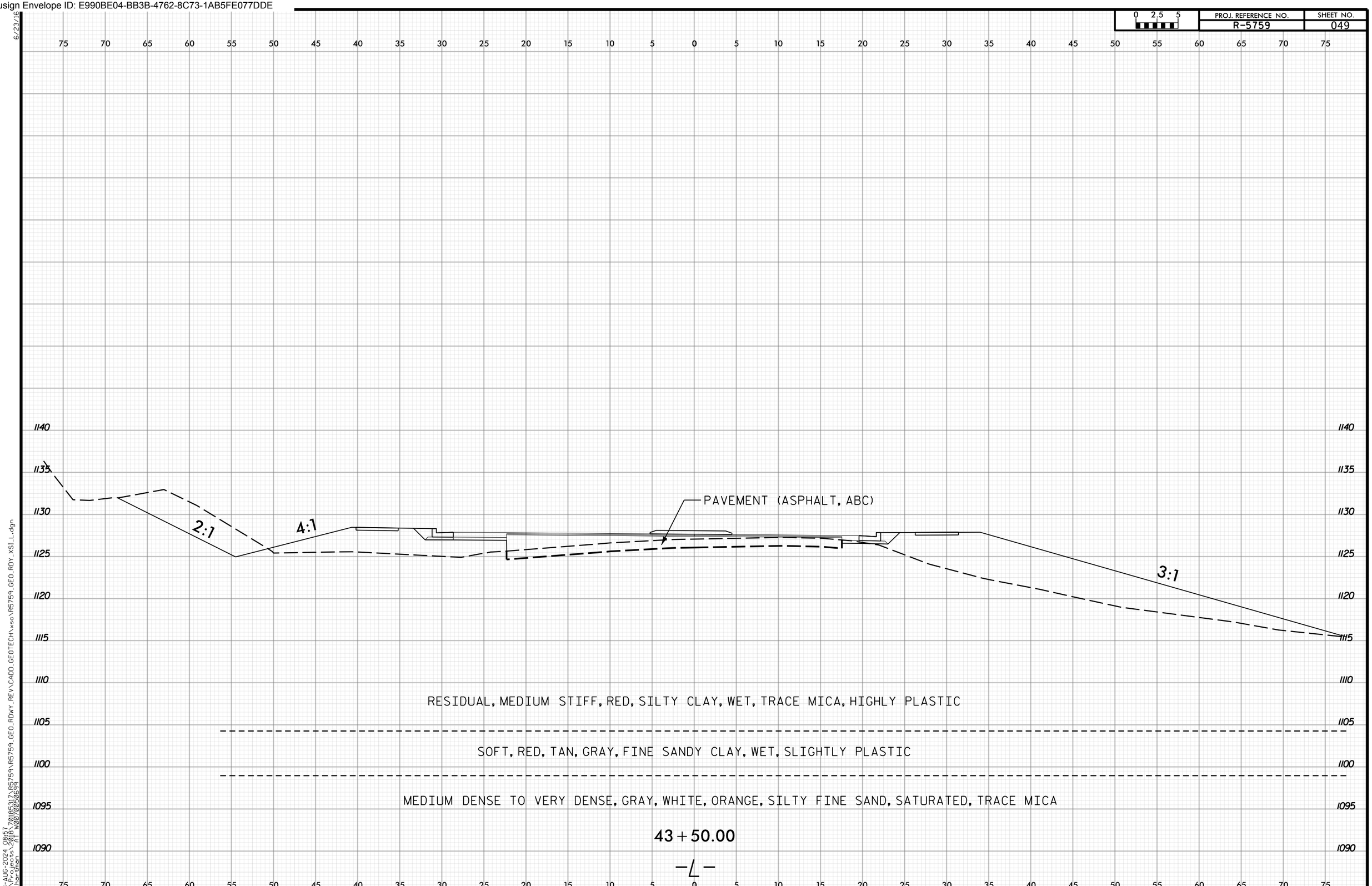

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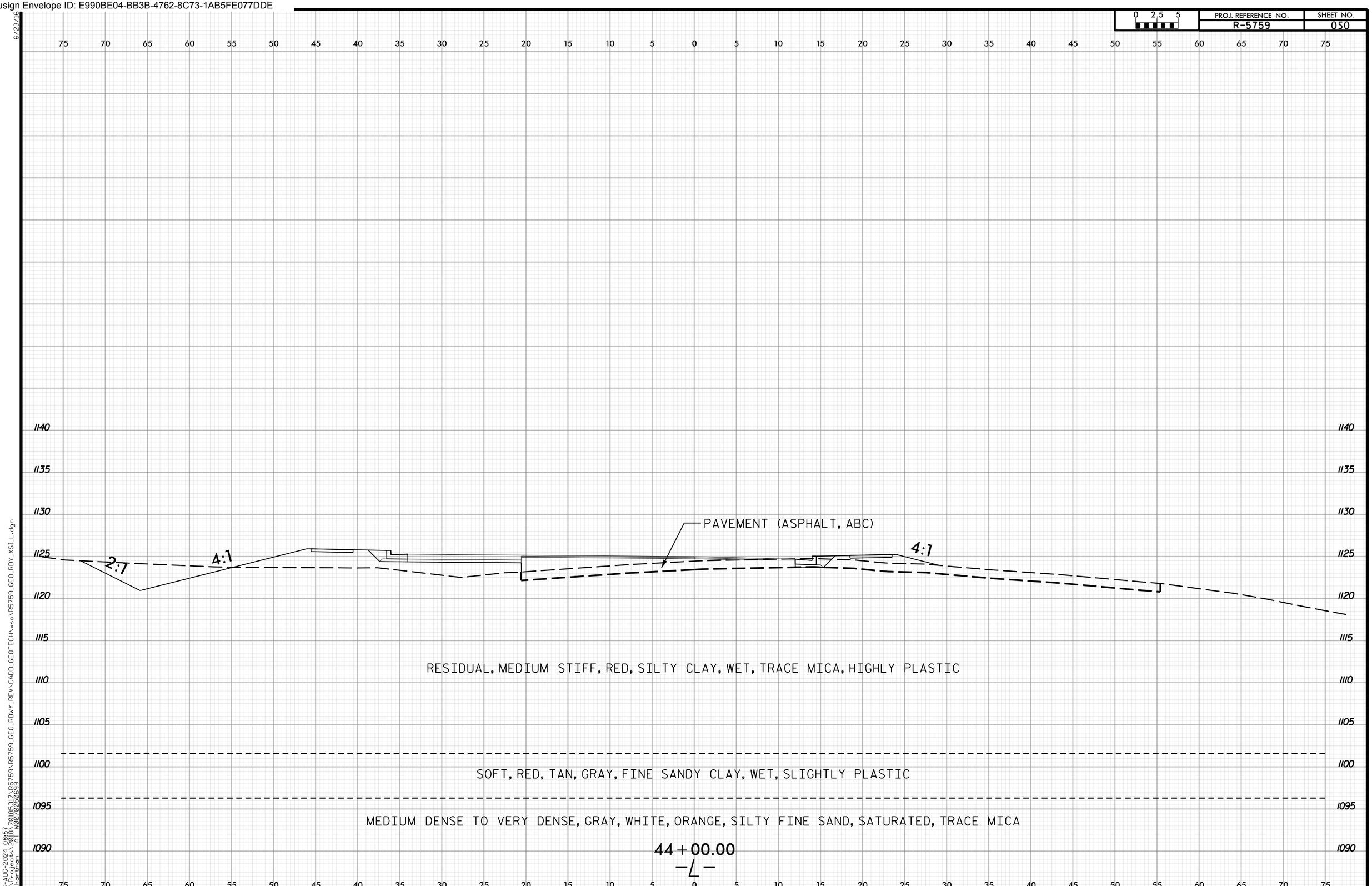

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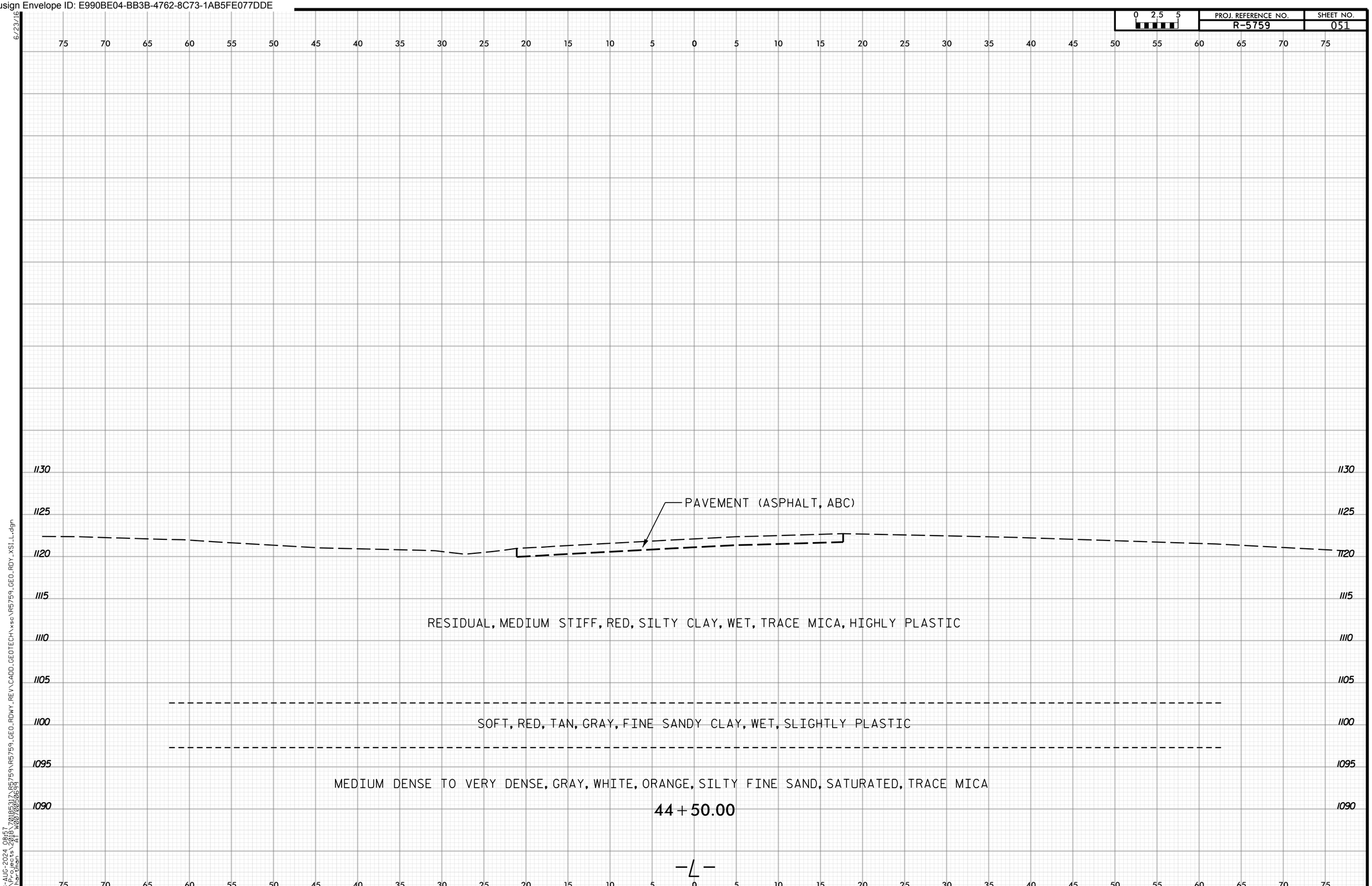

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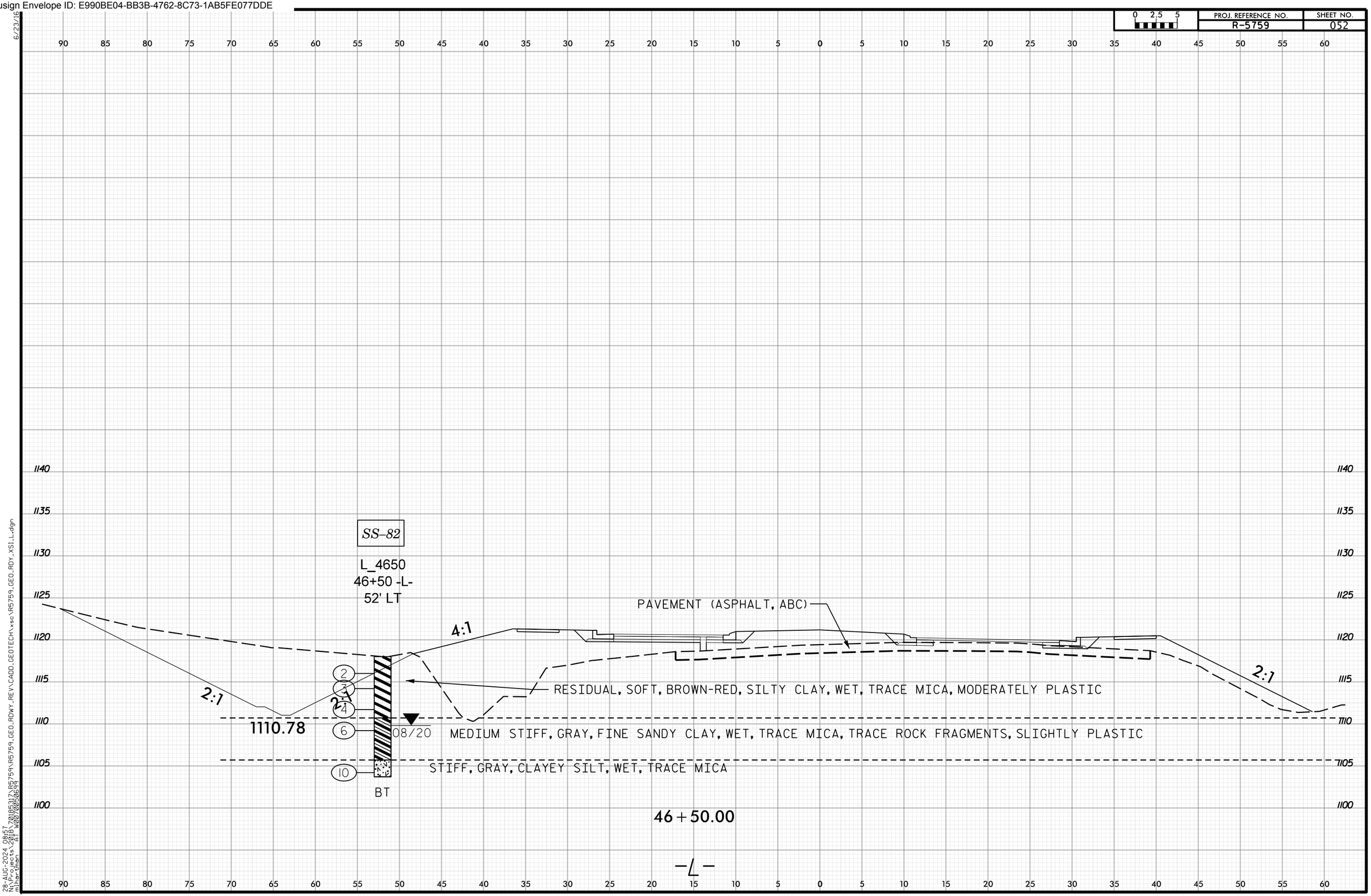

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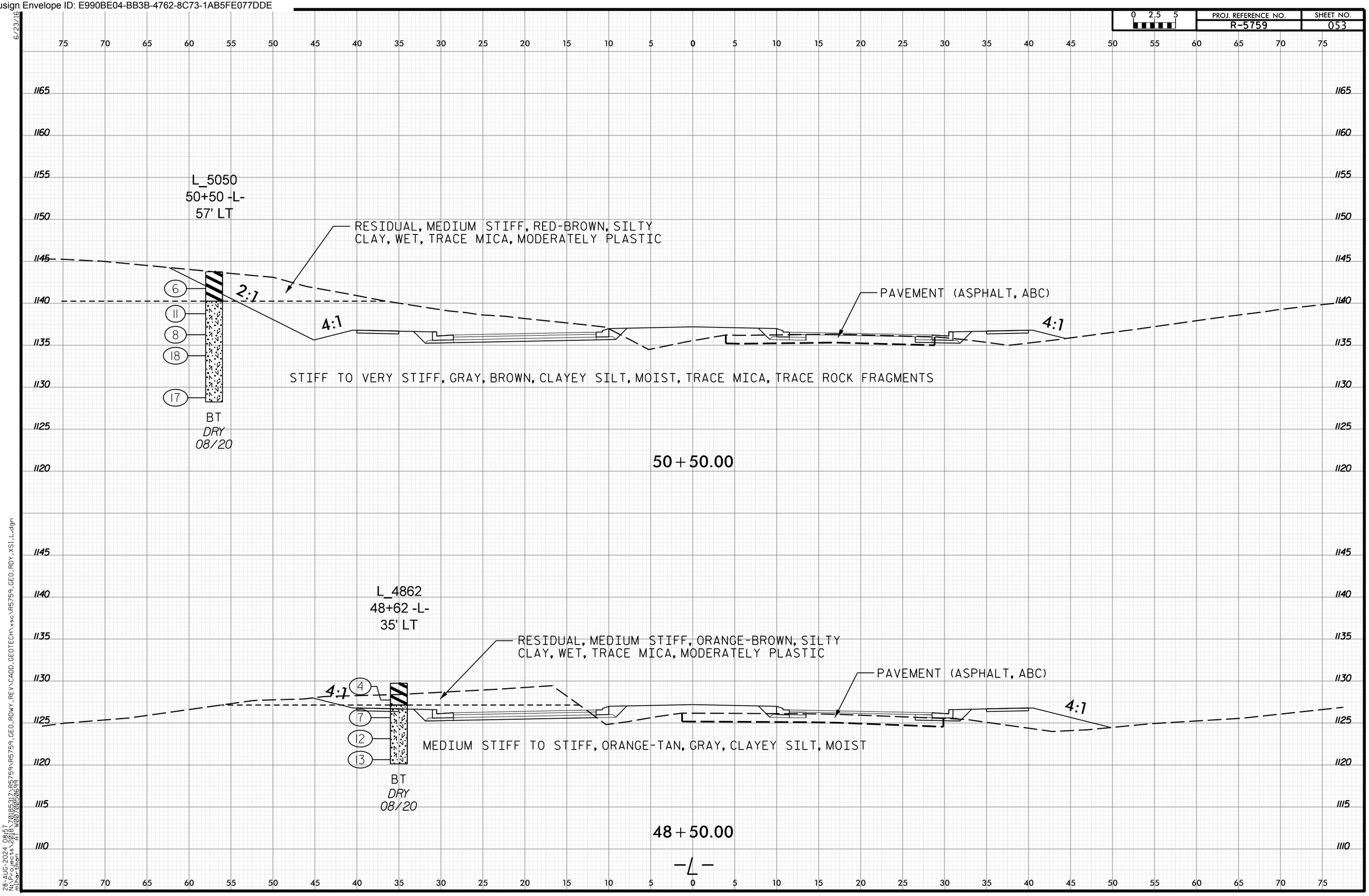

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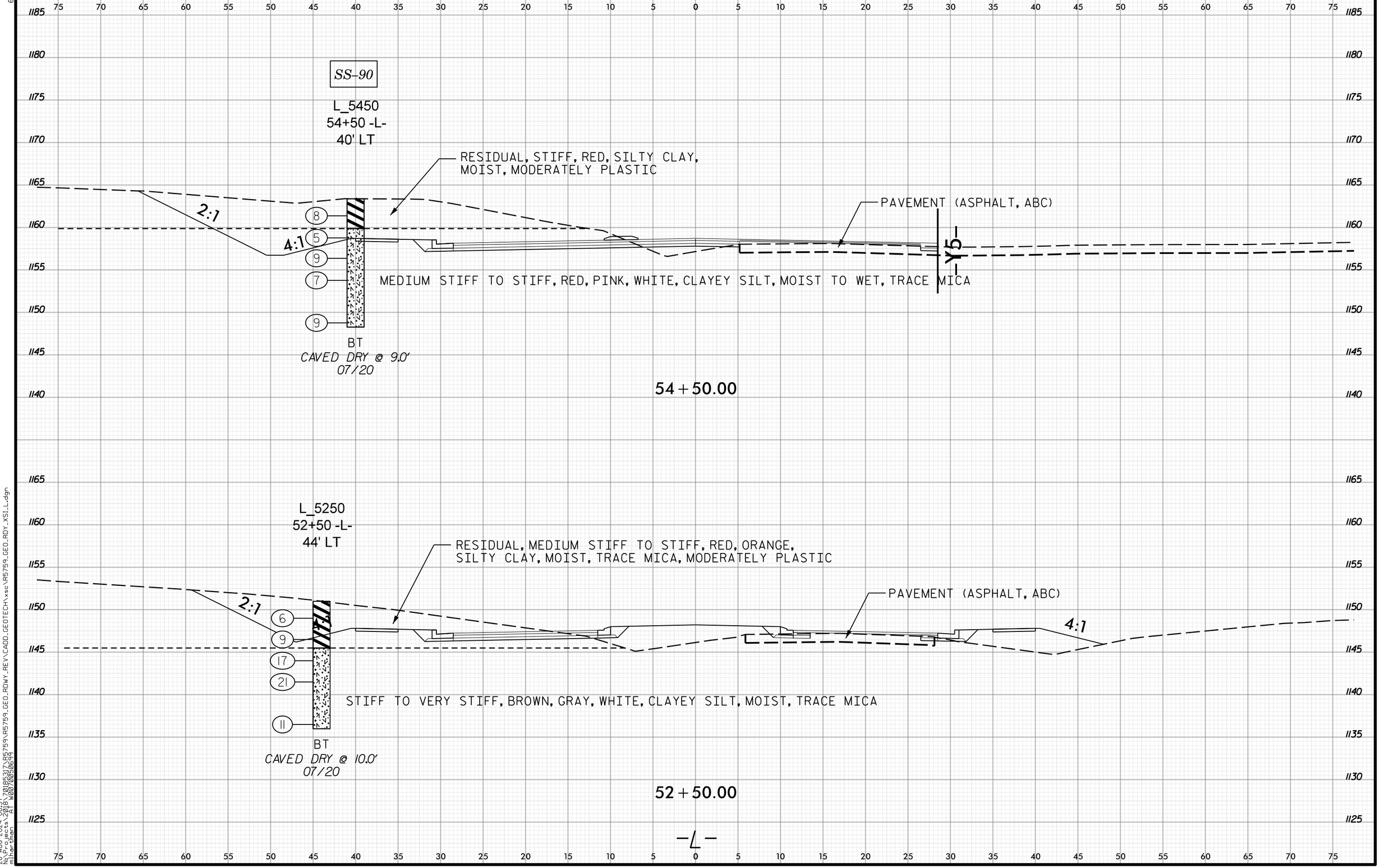
PROJ. REFERENCE NO. R-5759 | SHEET NO. 054



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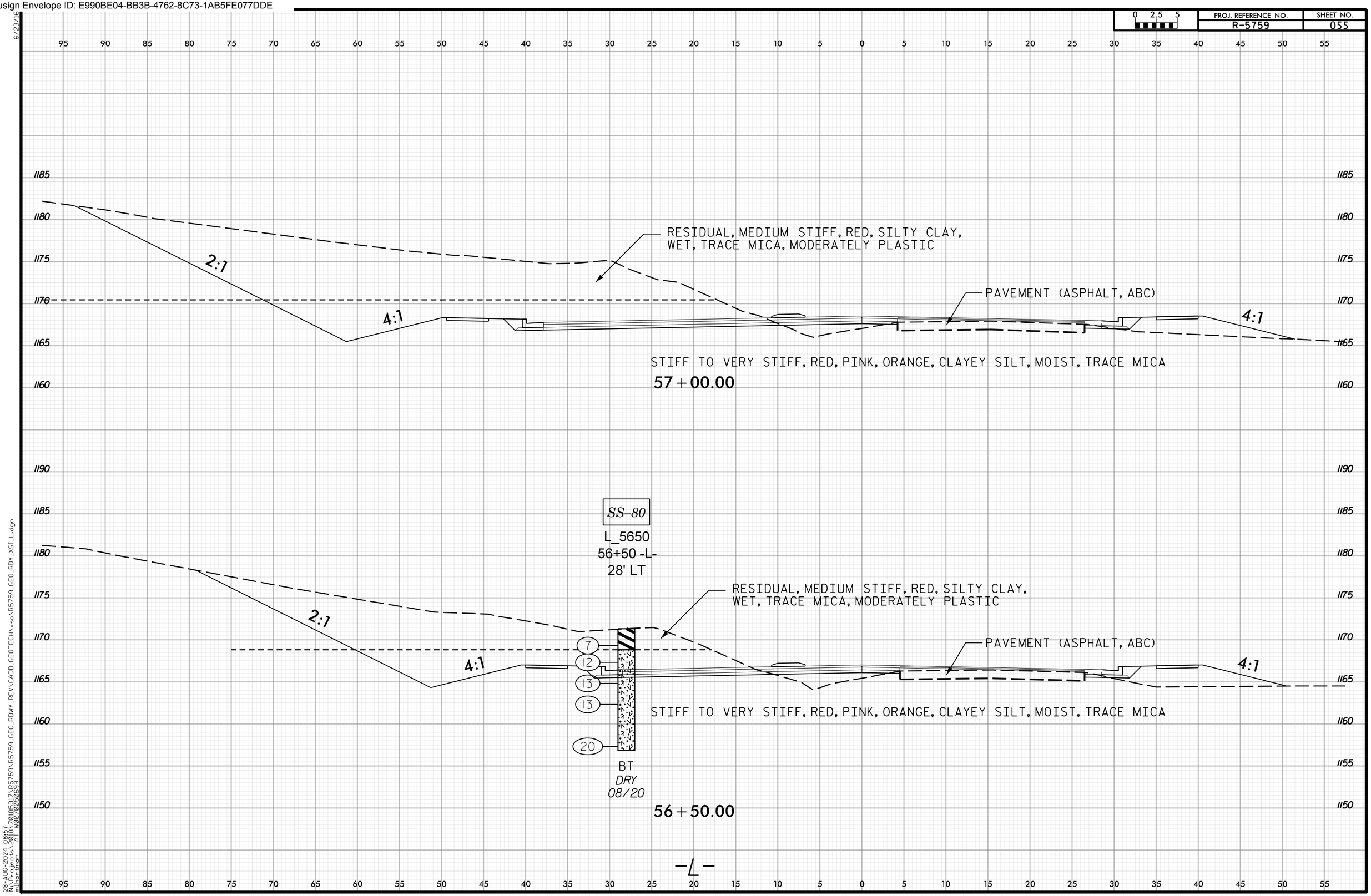

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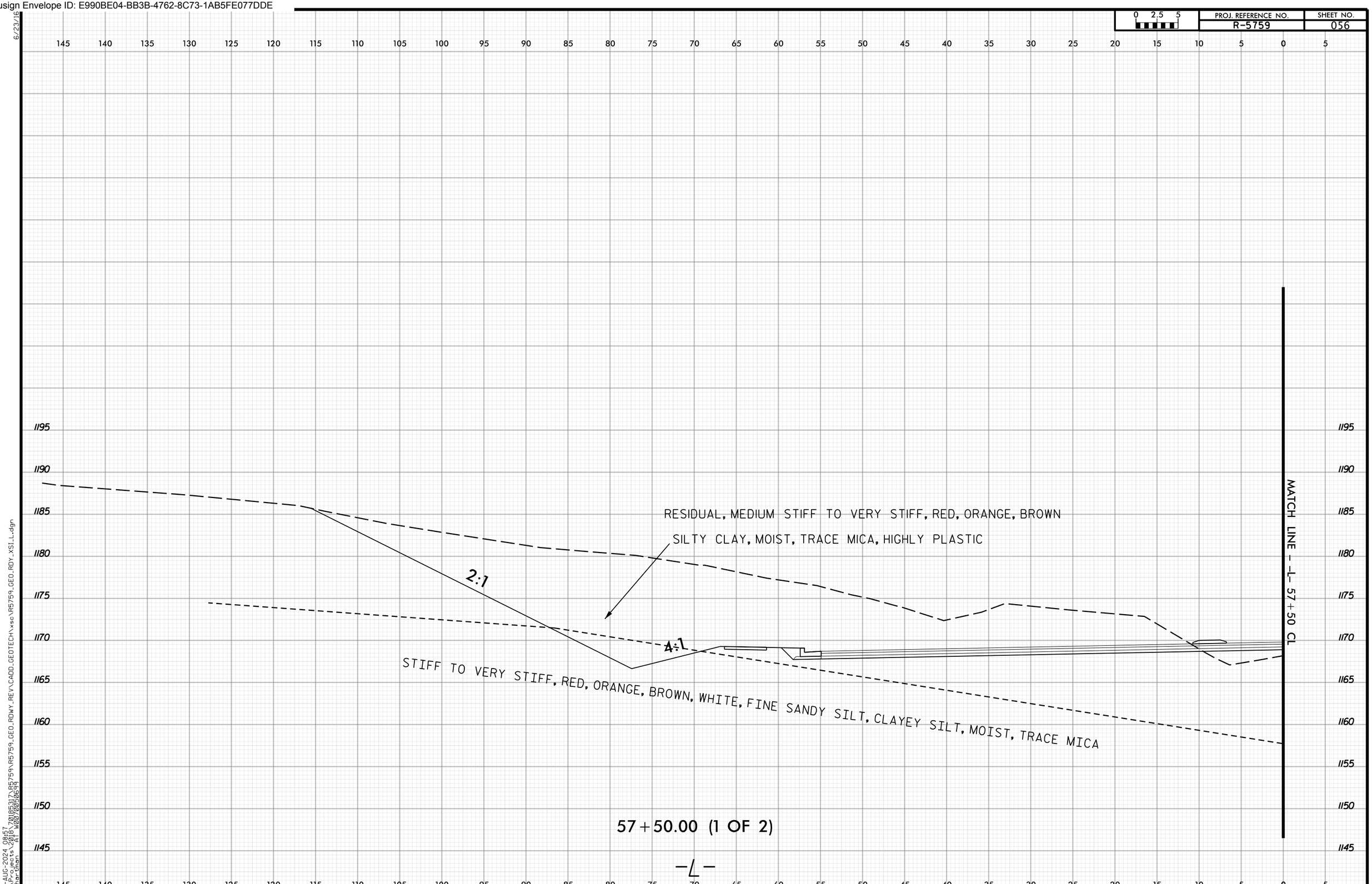

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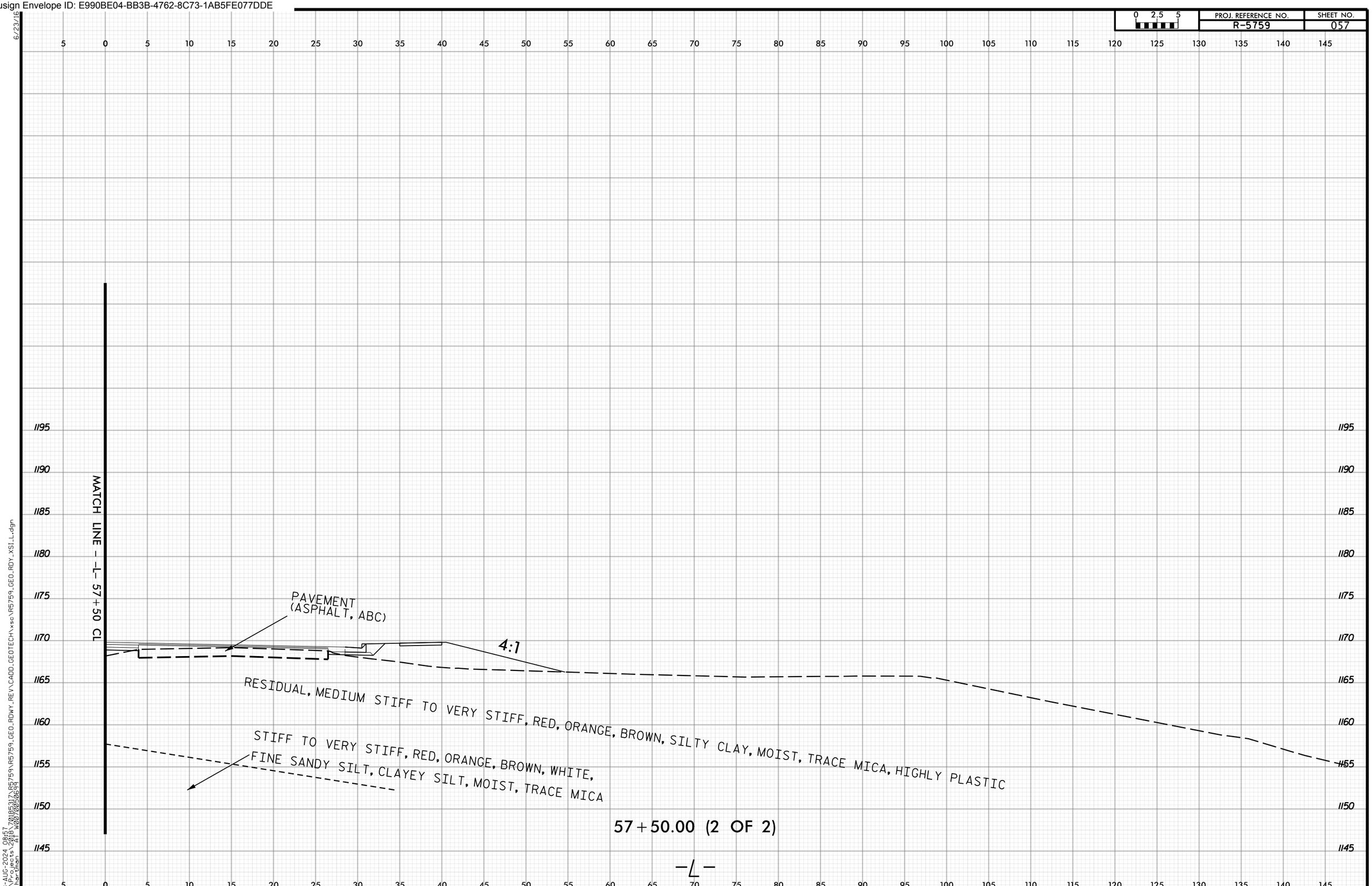
R-5759	057



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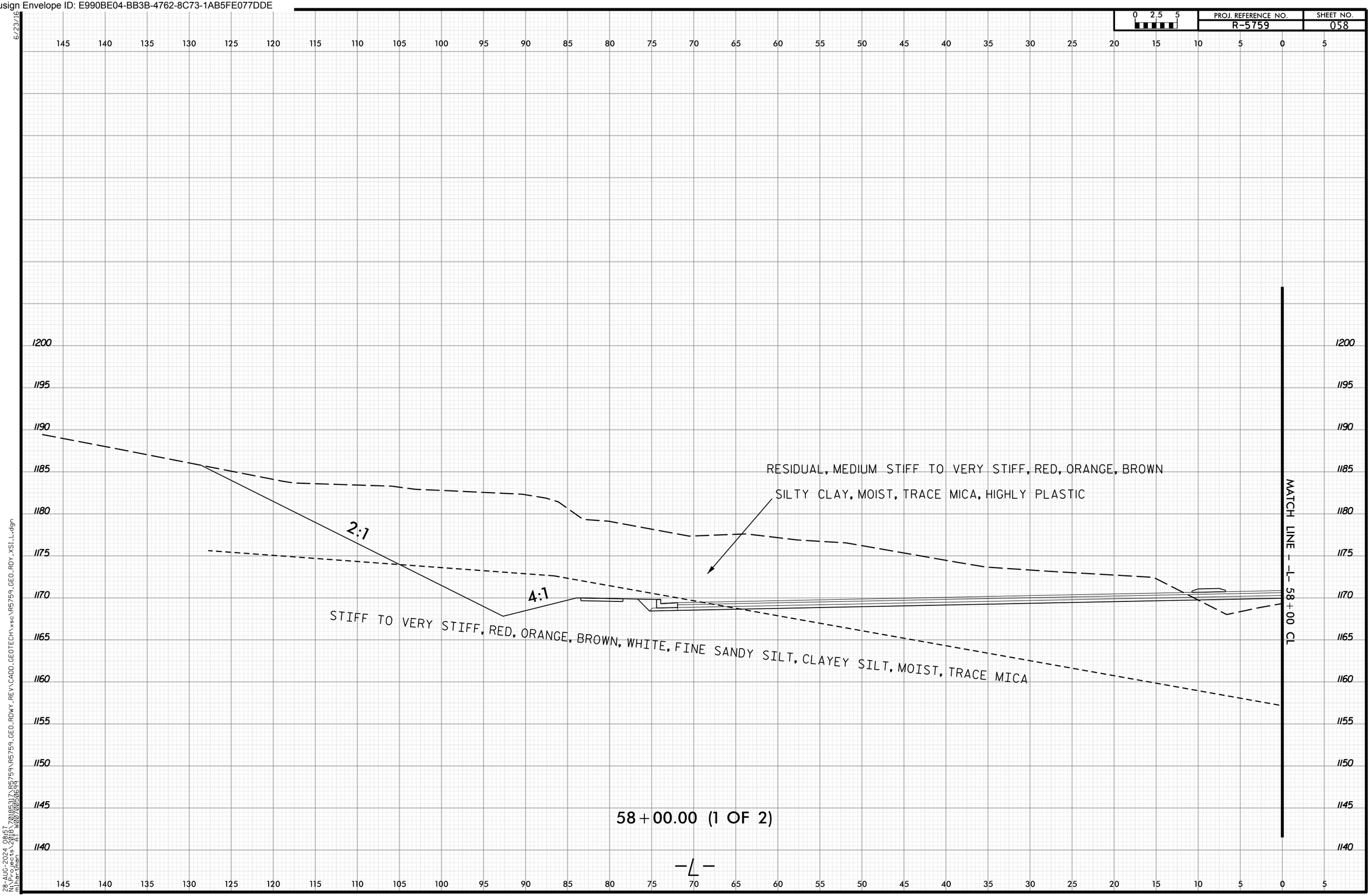

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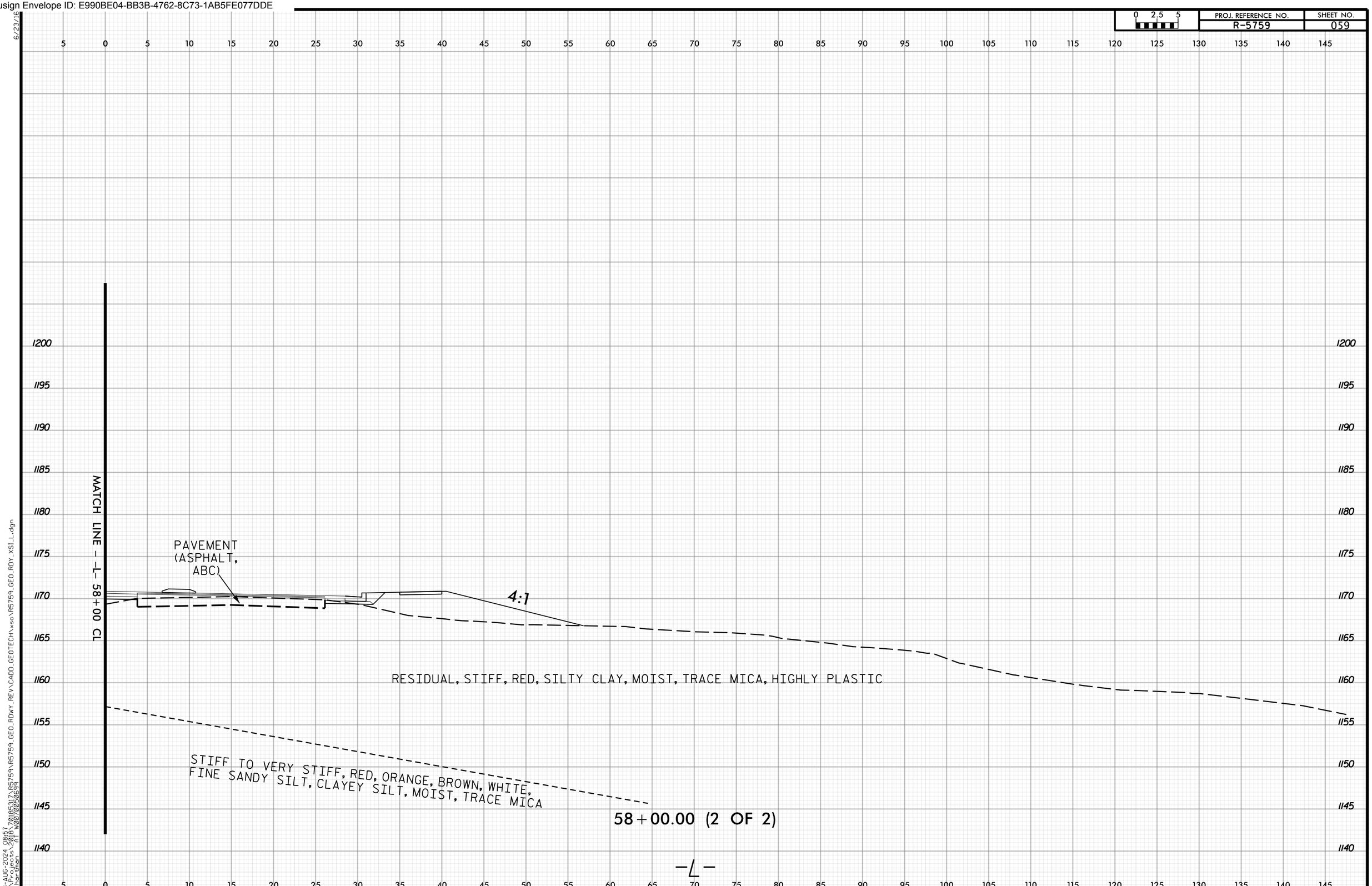

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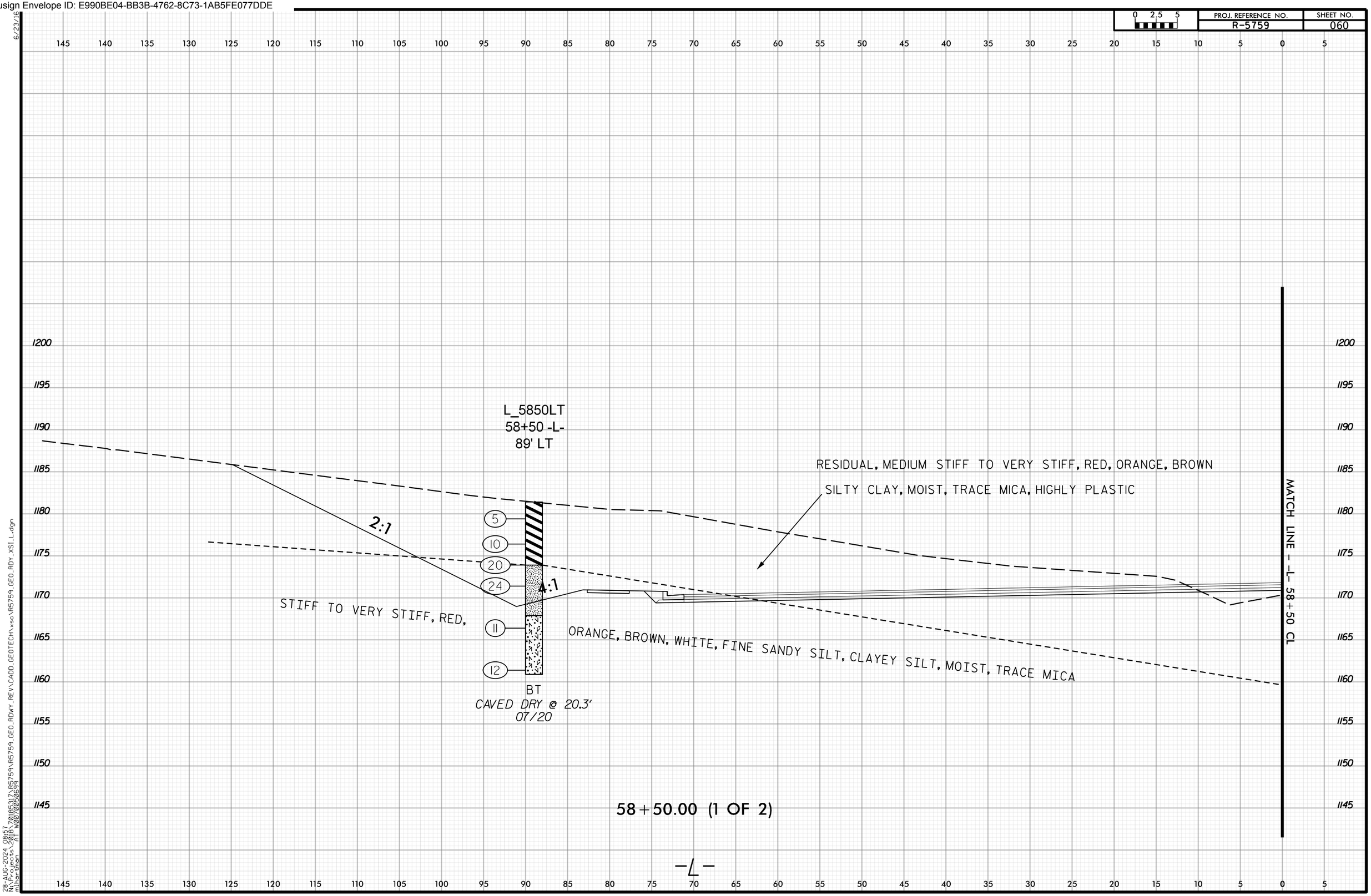

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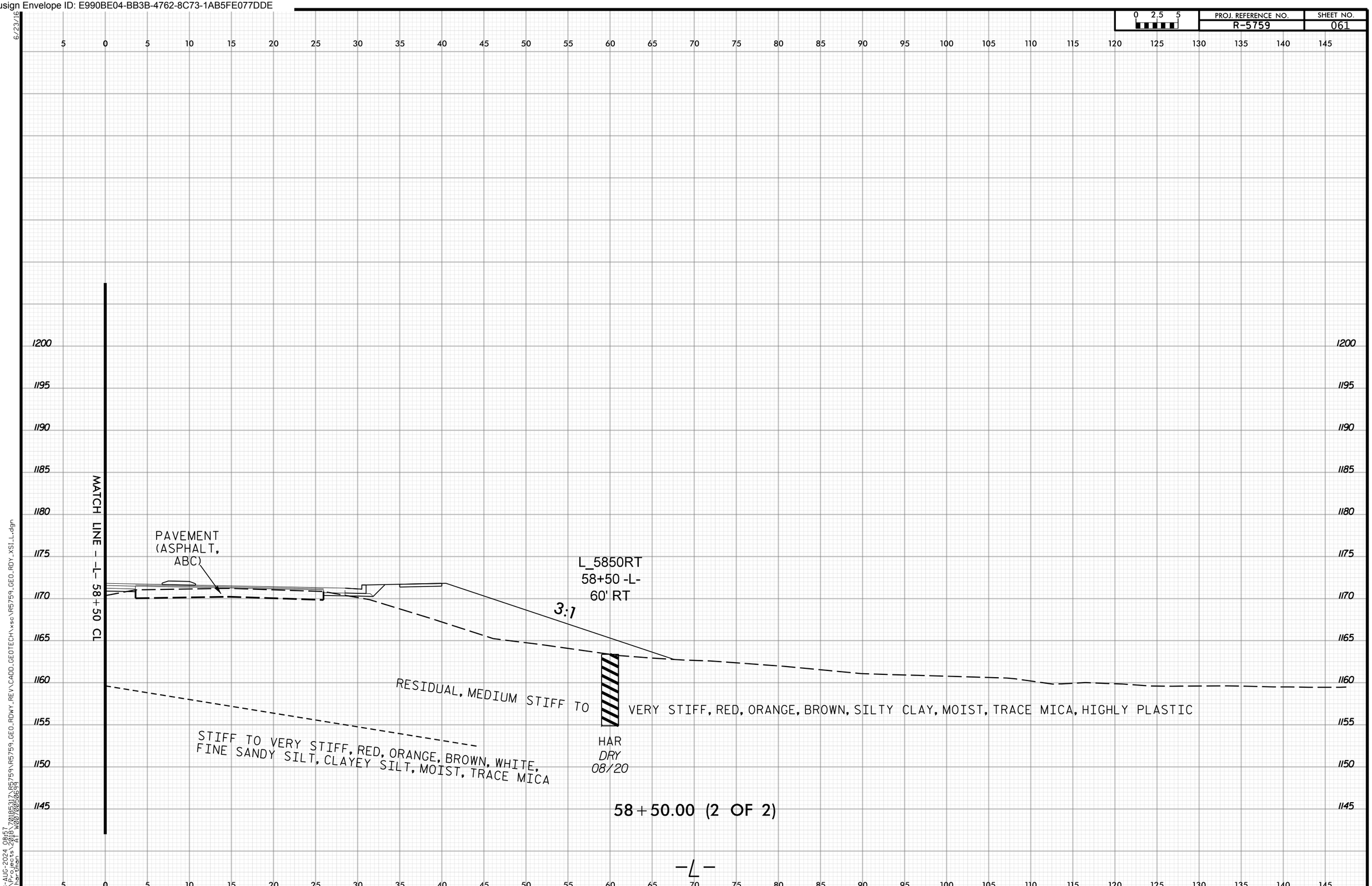

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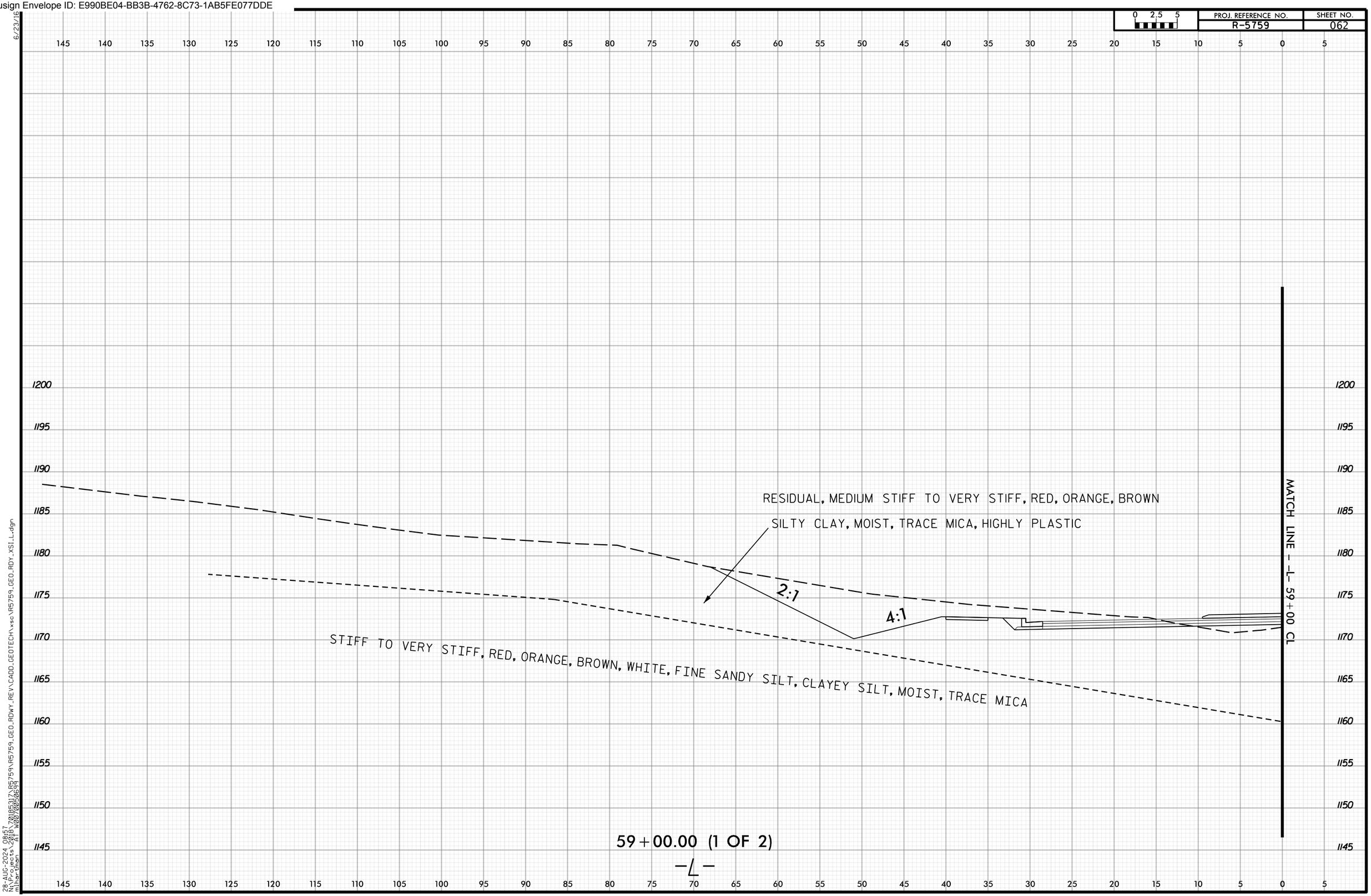

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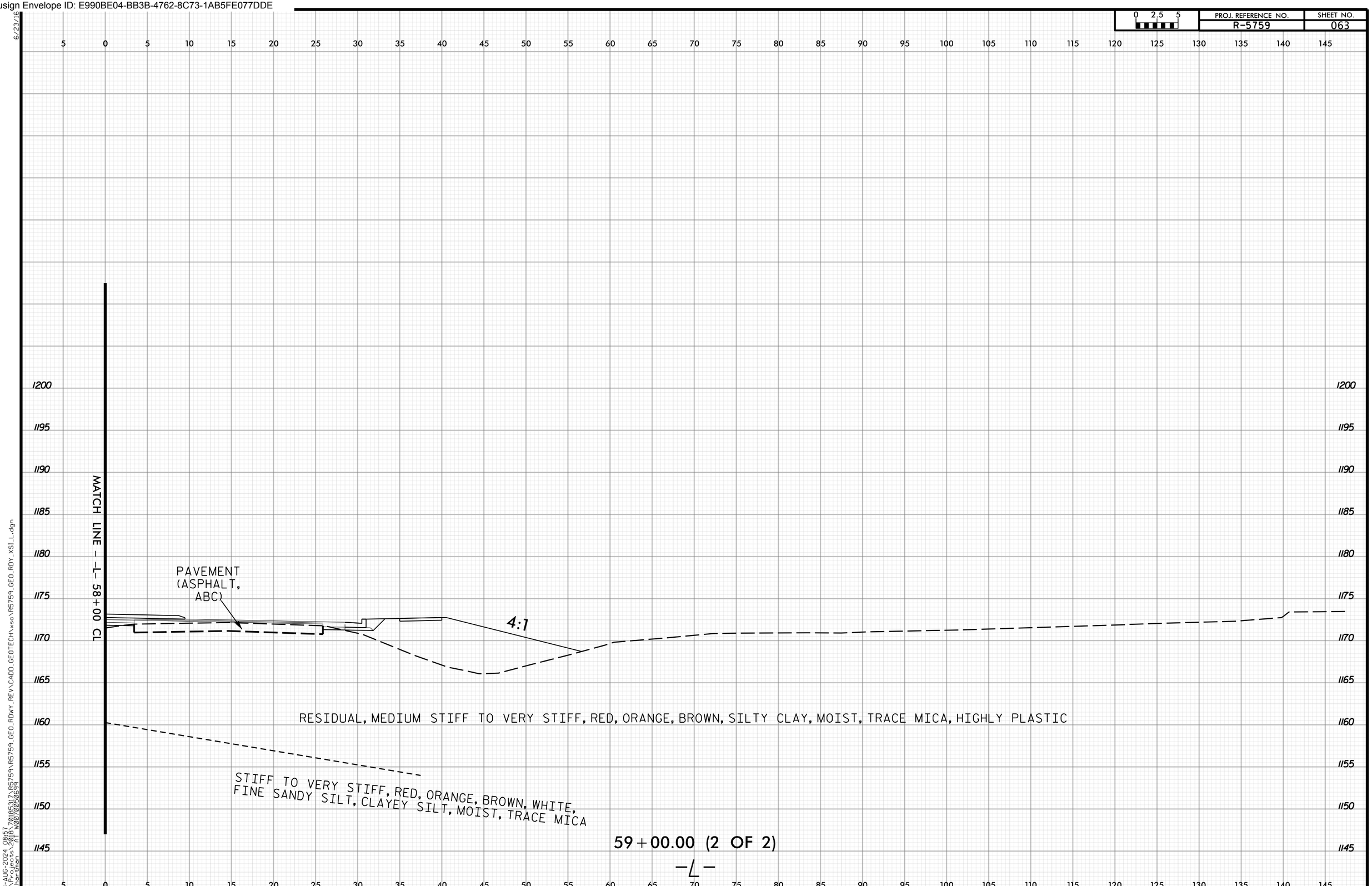

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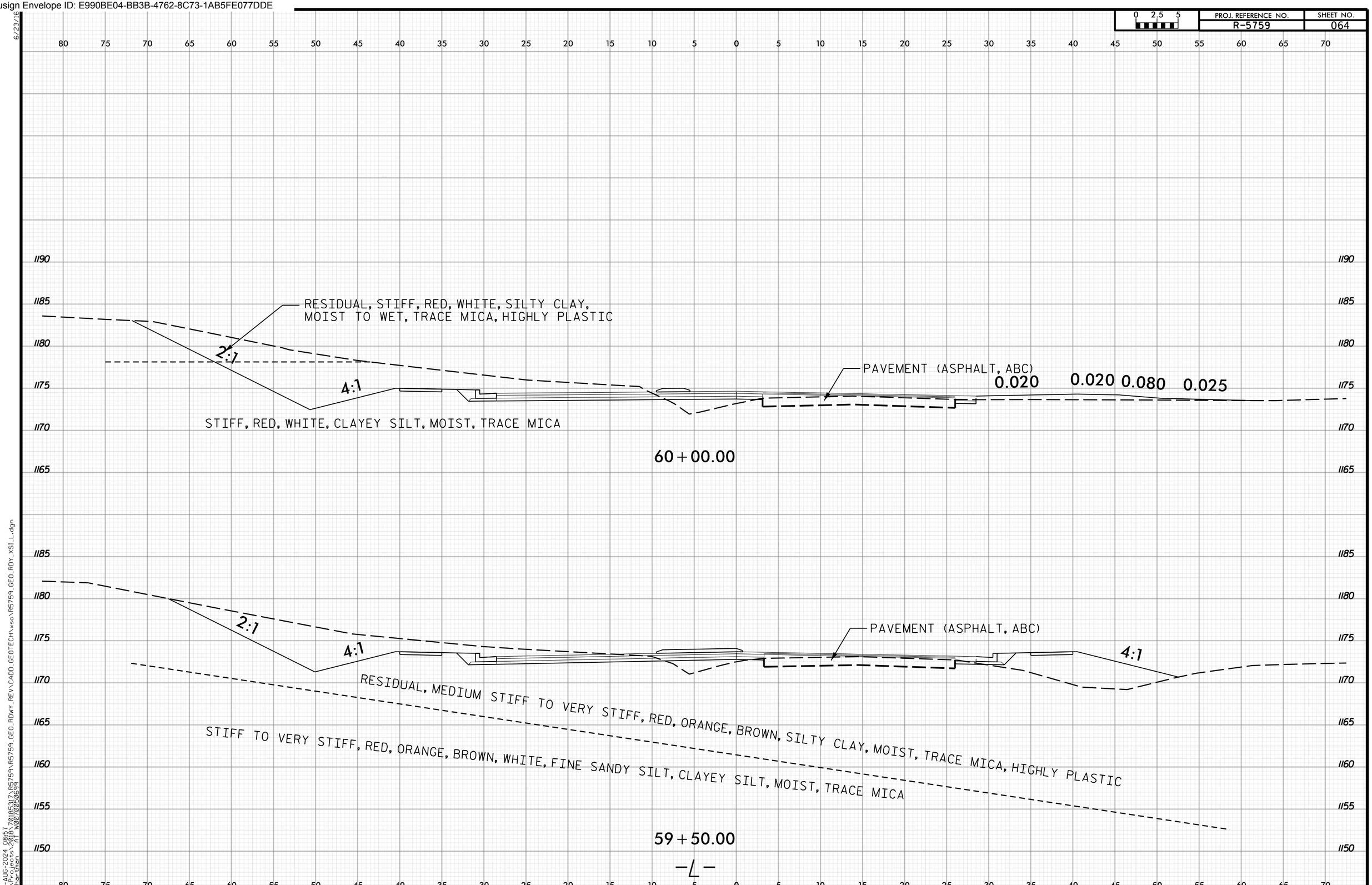

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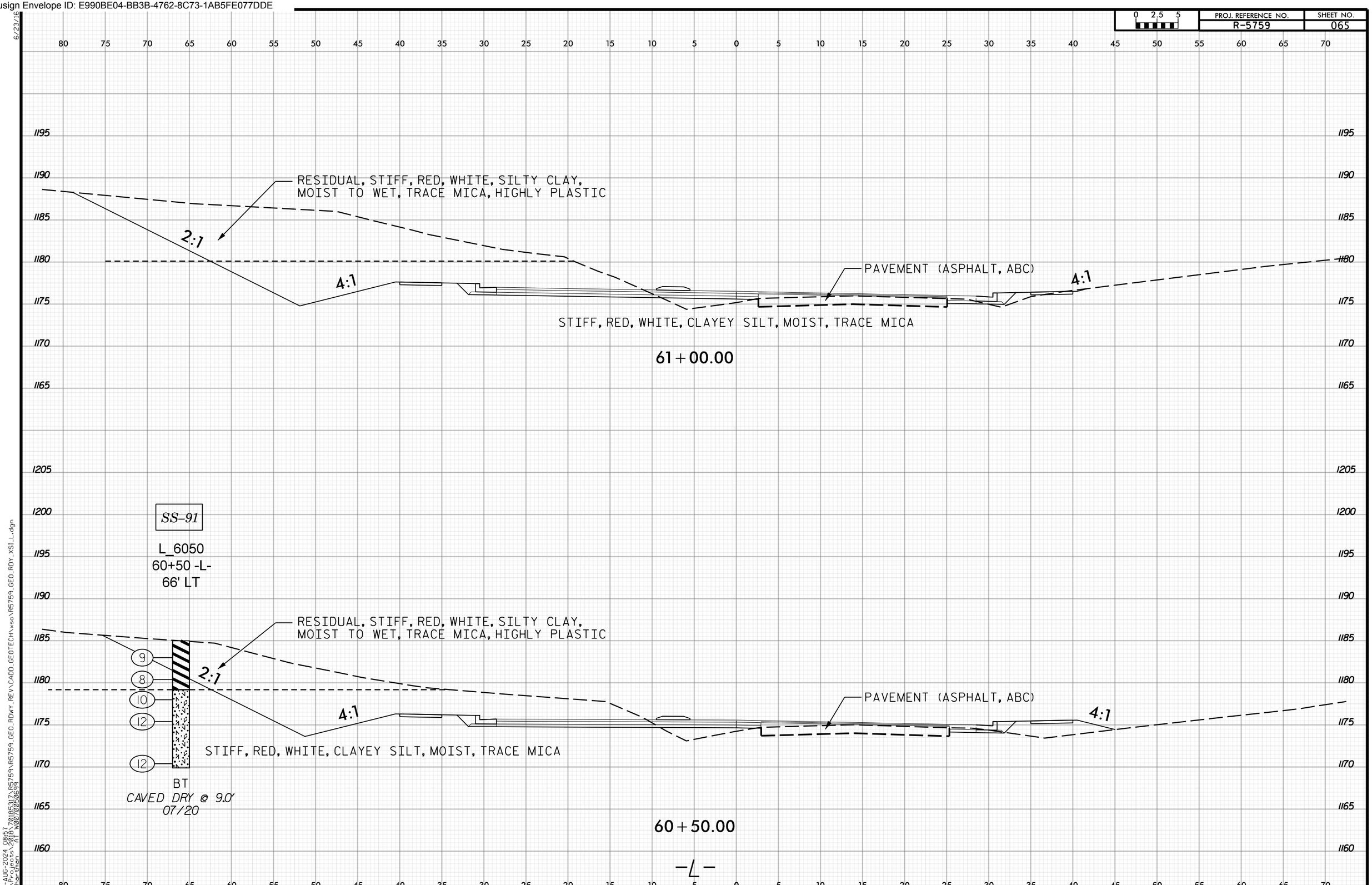

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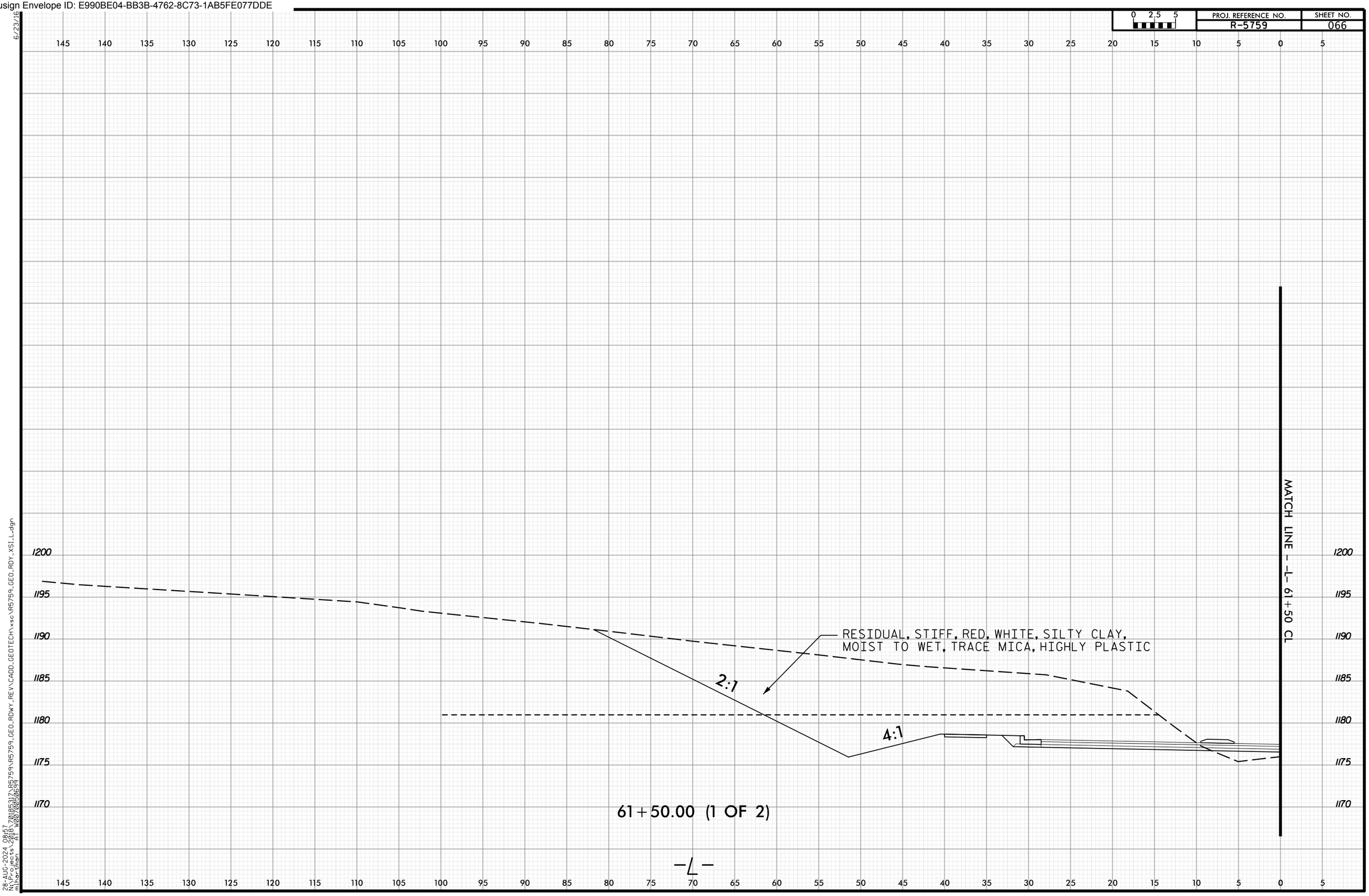

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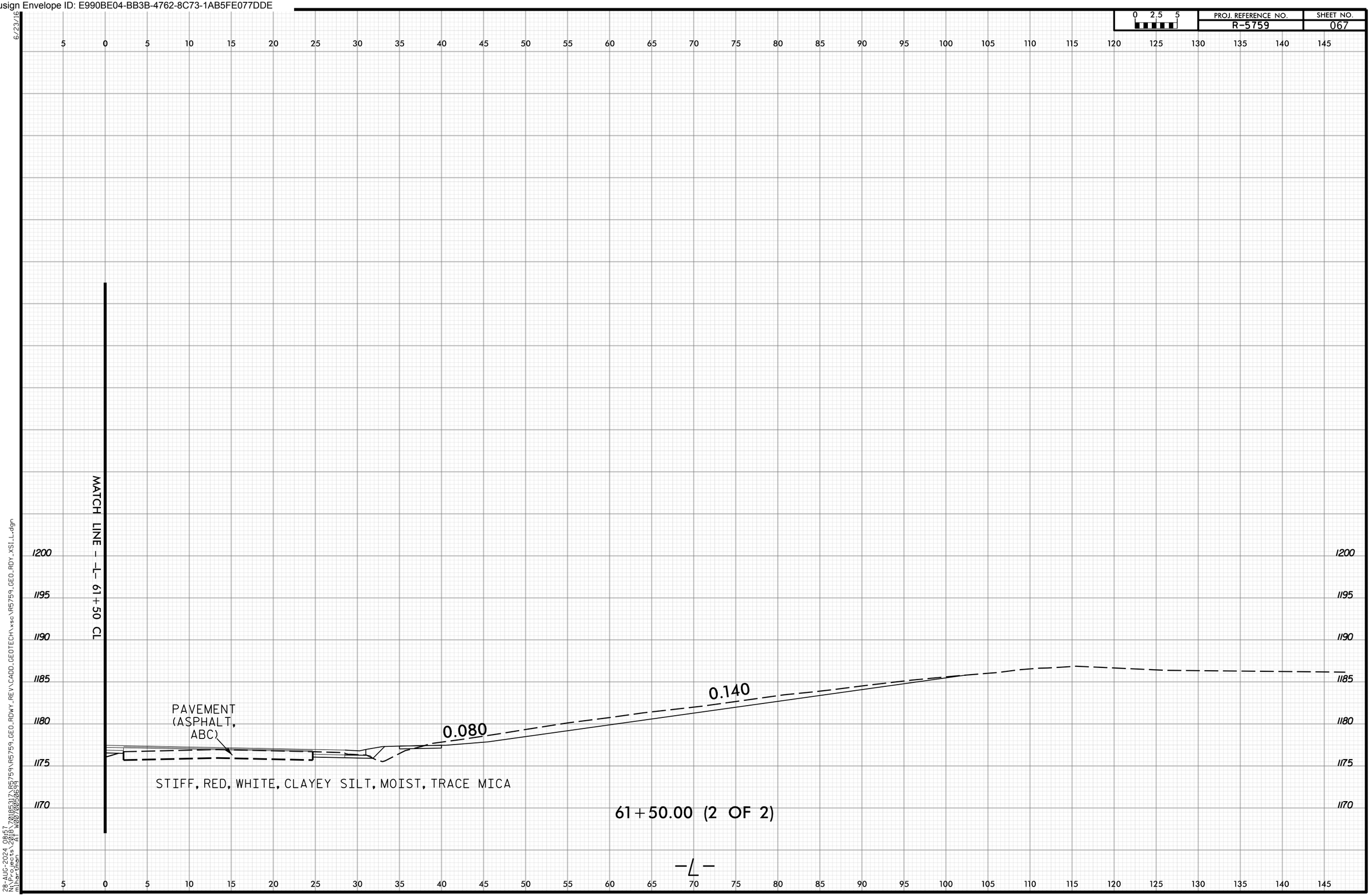

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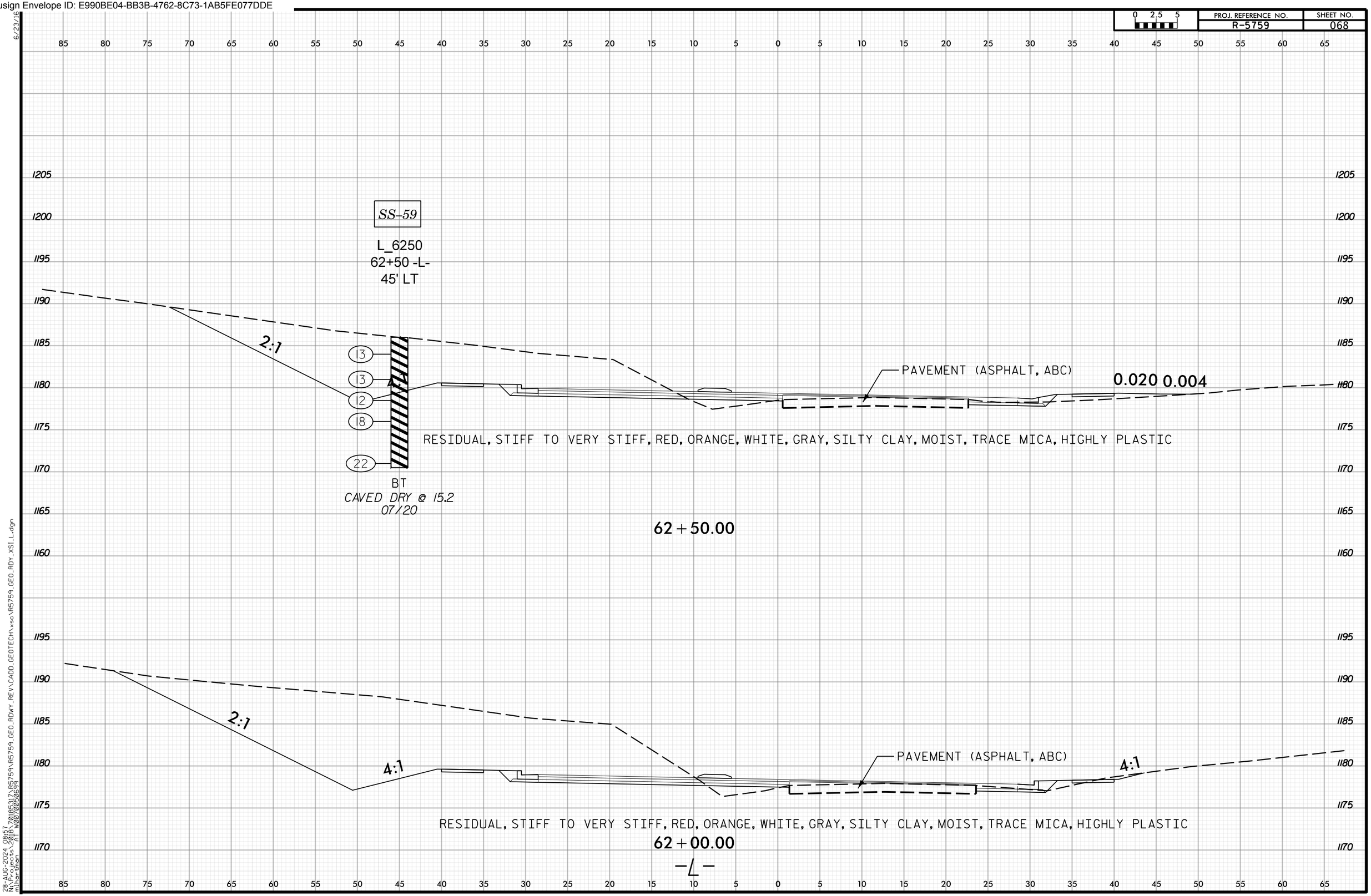

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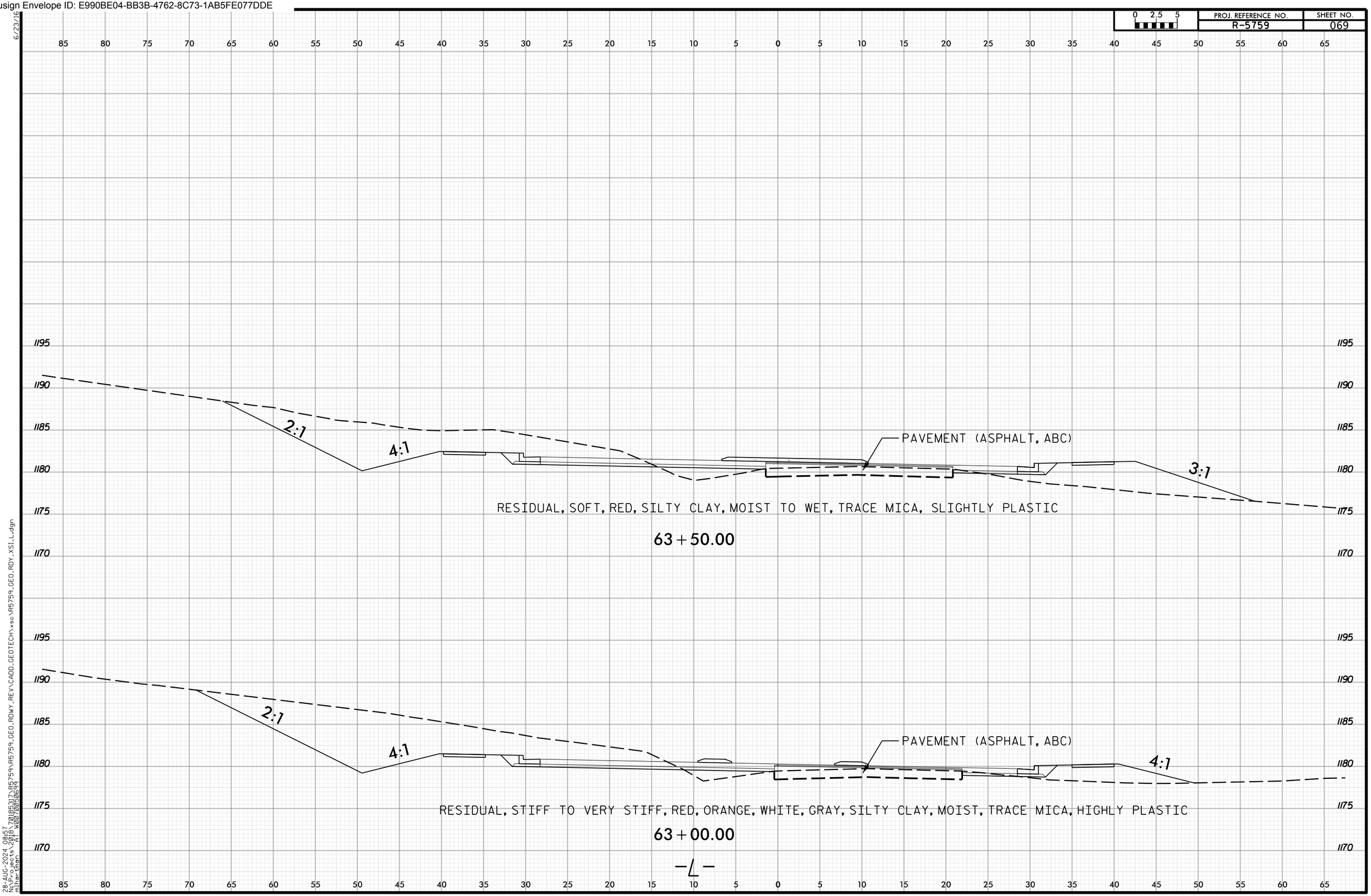

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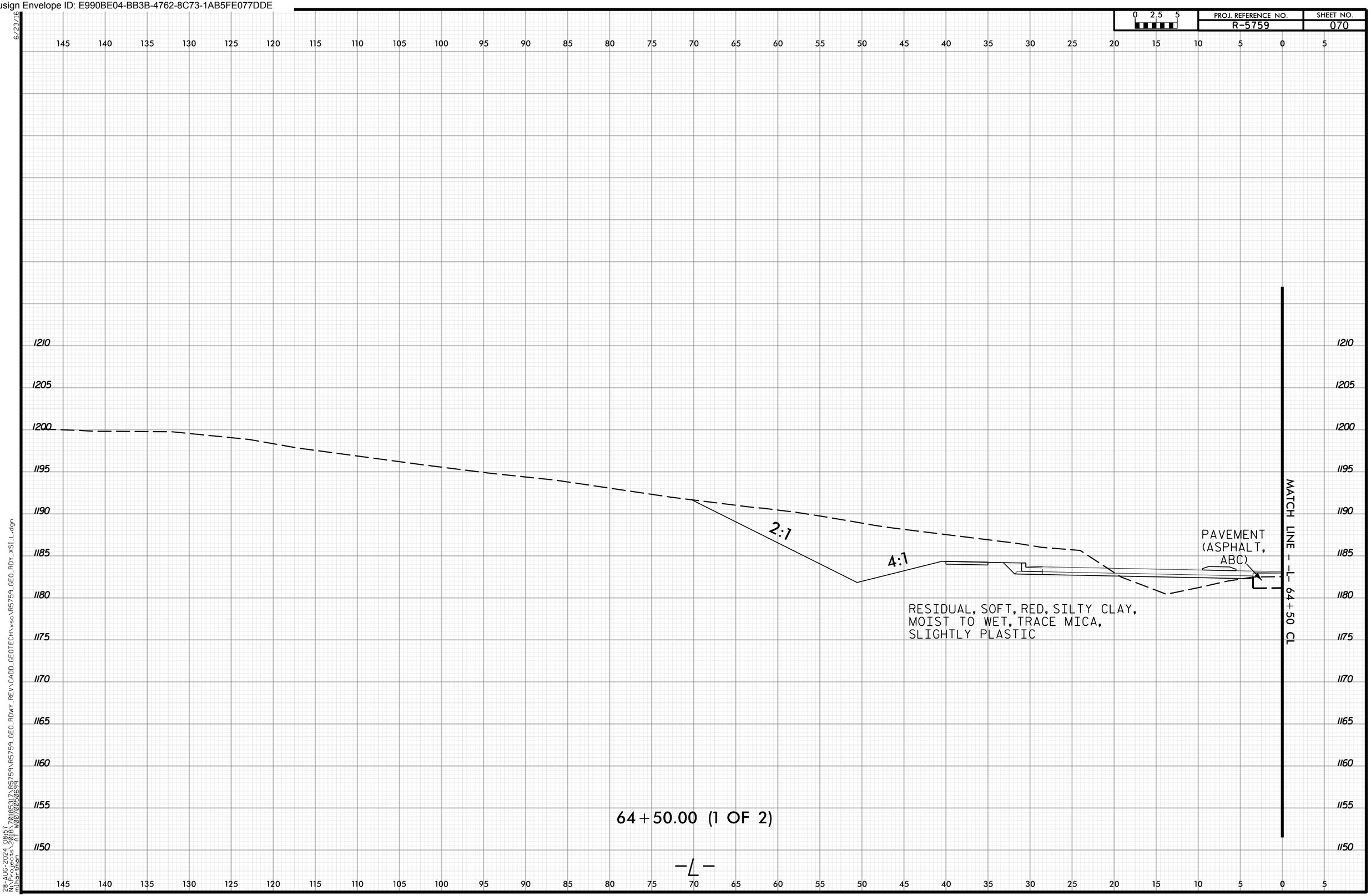

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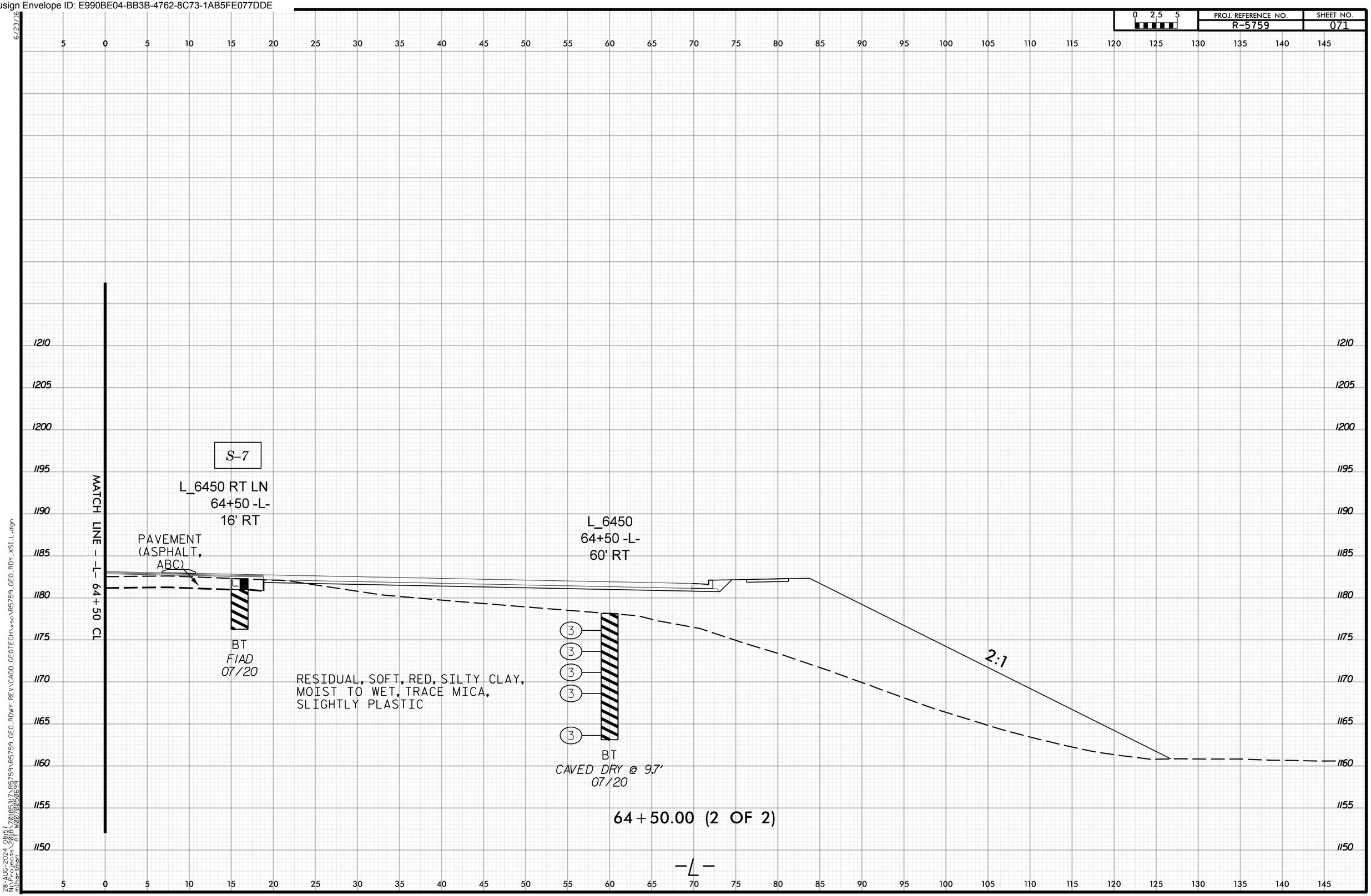

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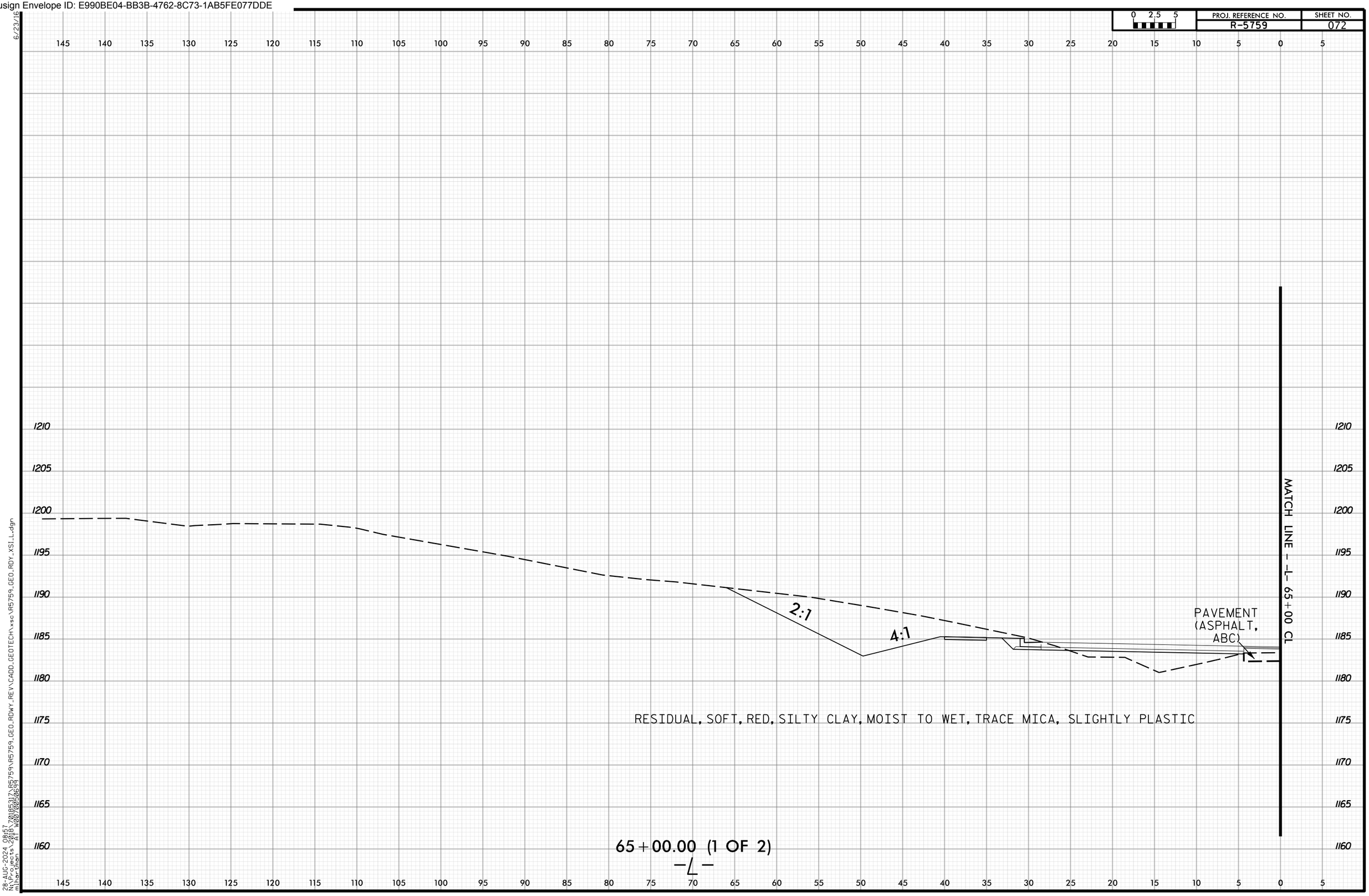

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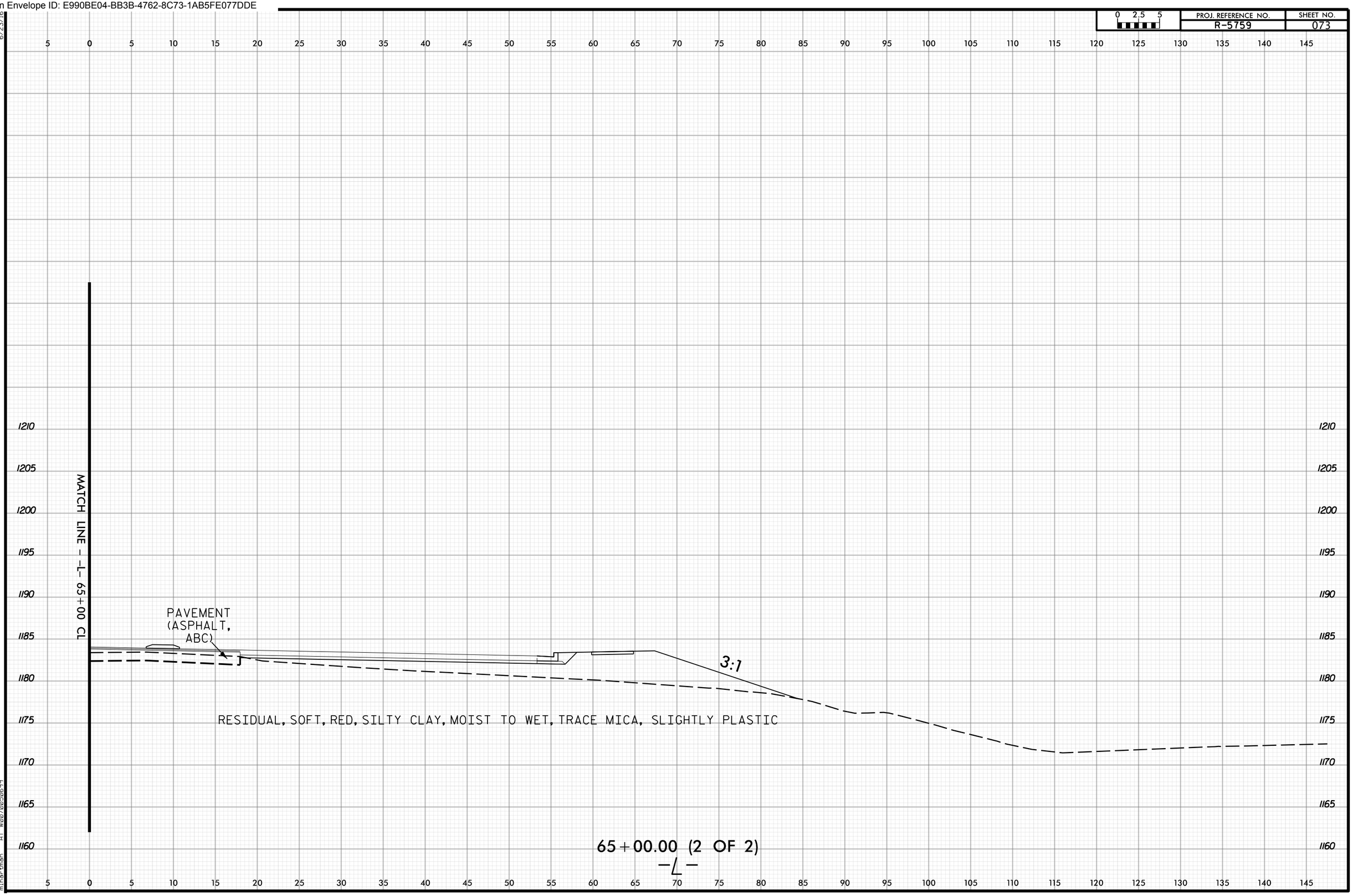

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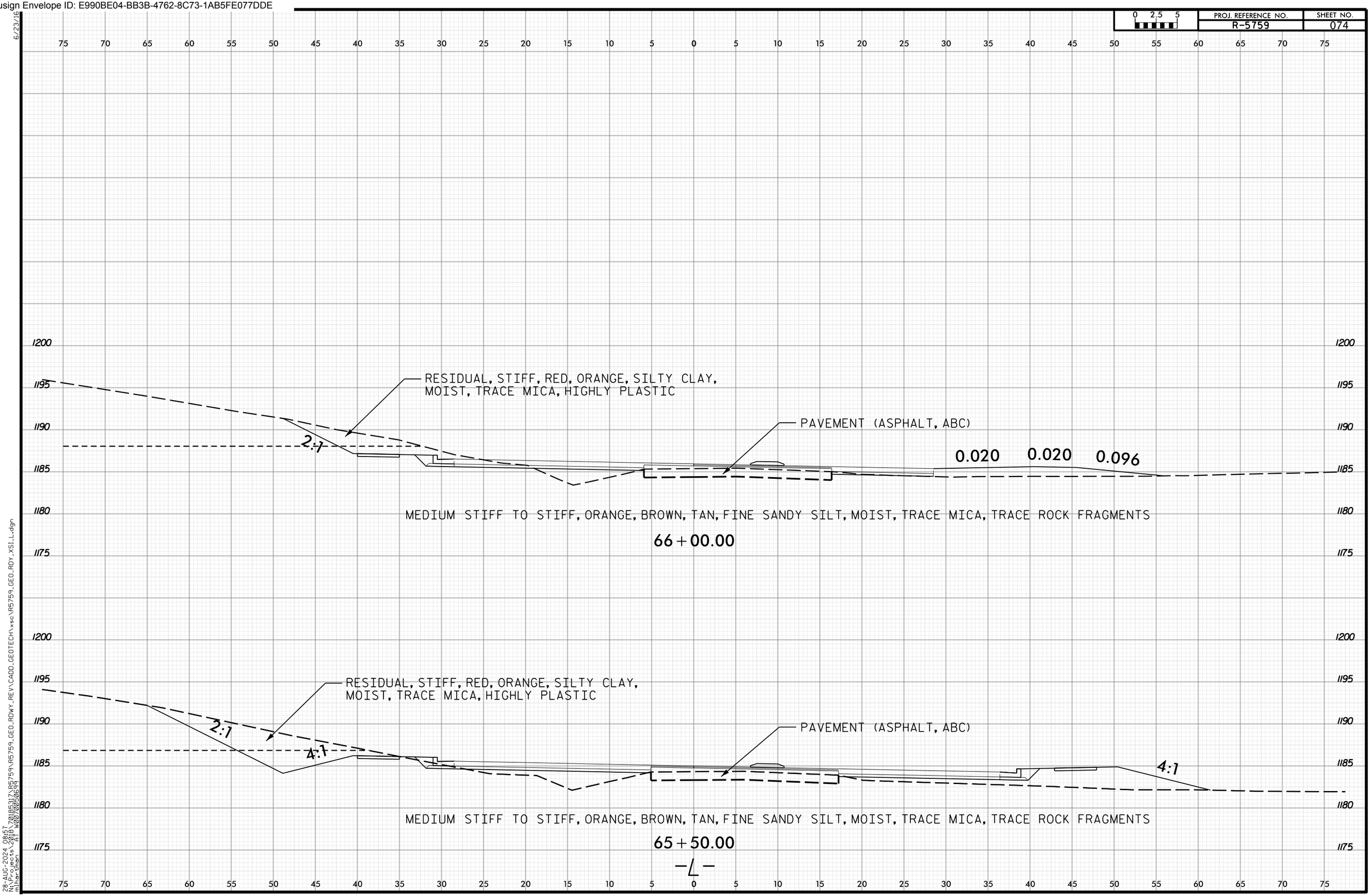

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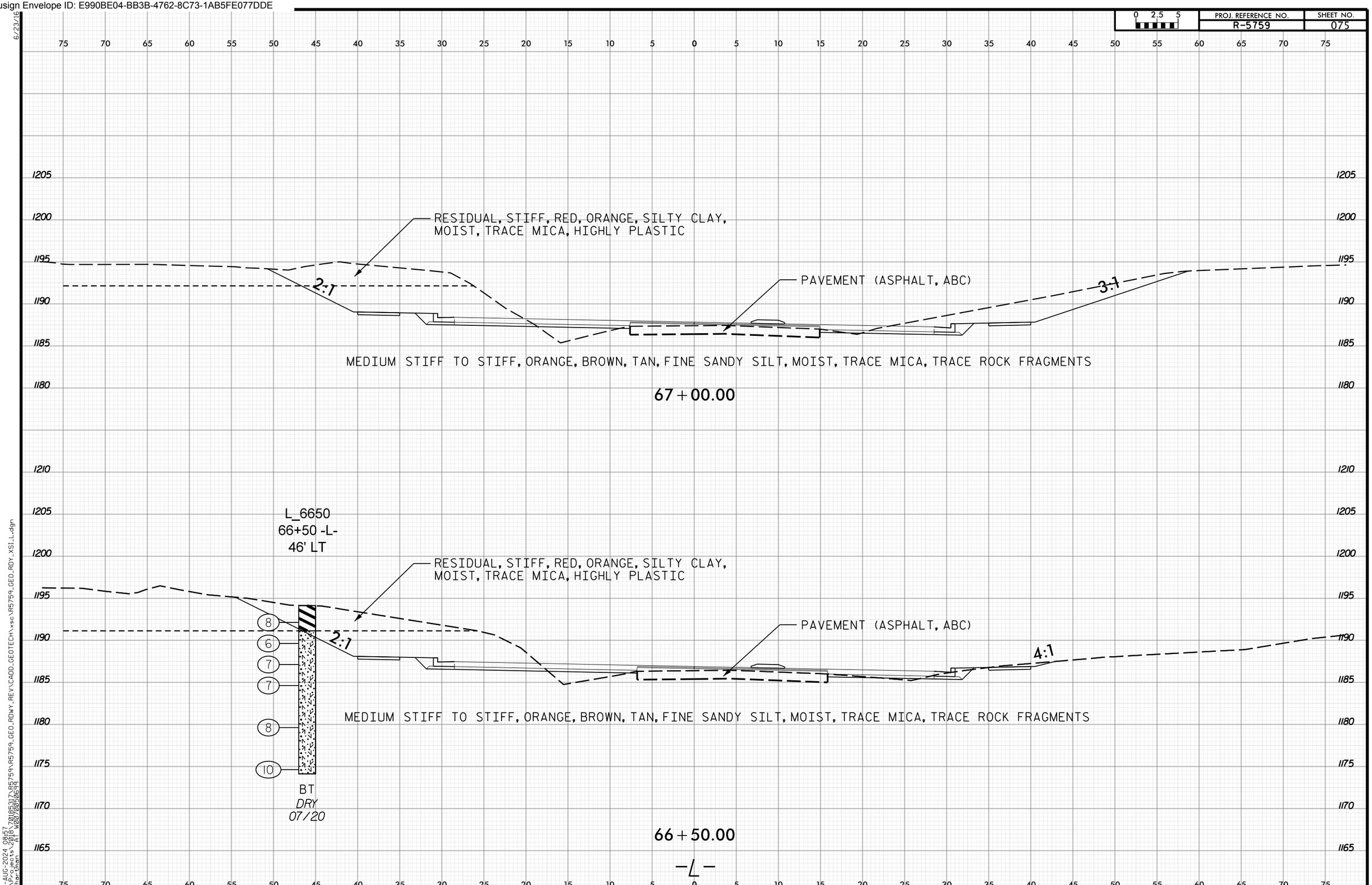

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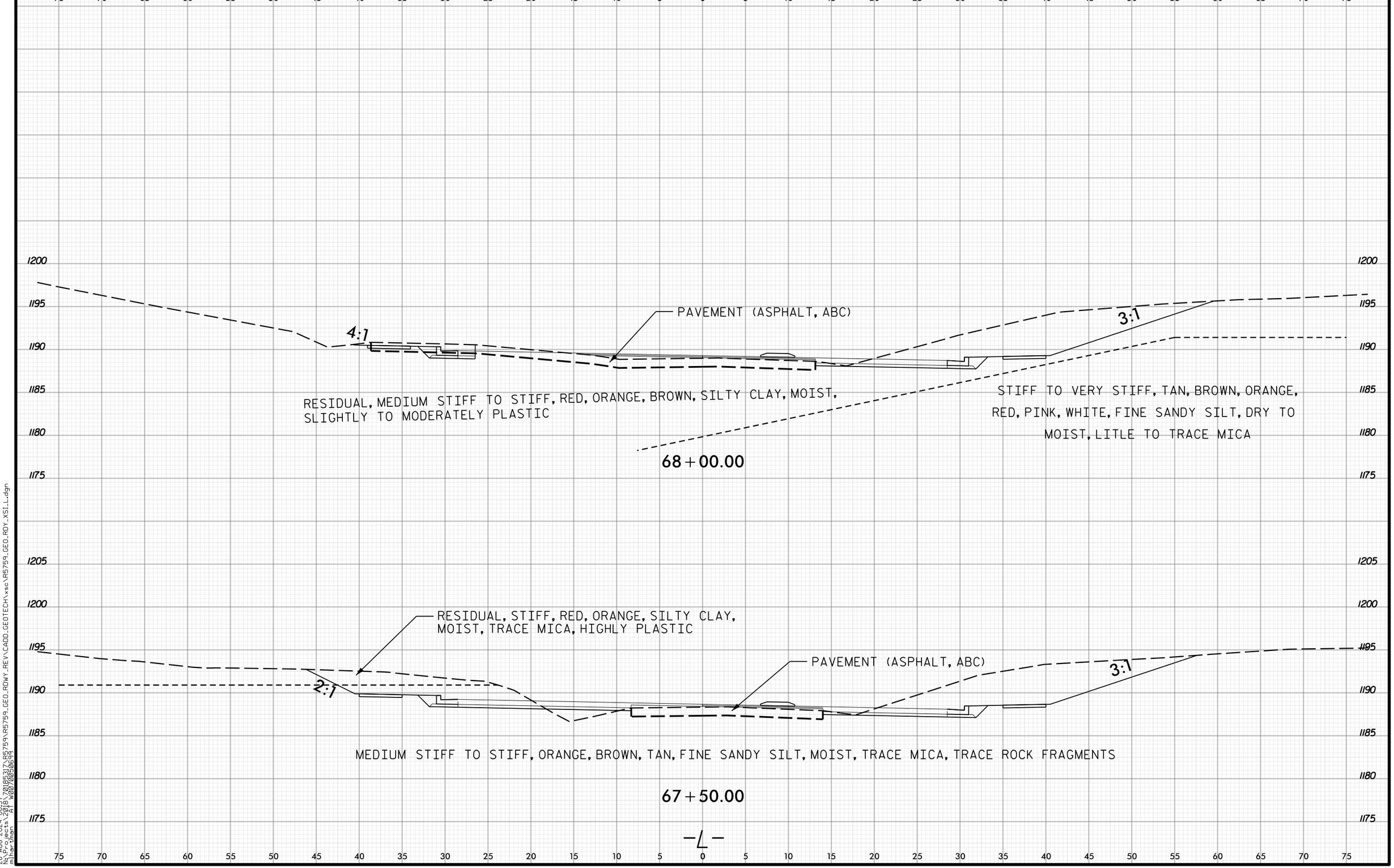

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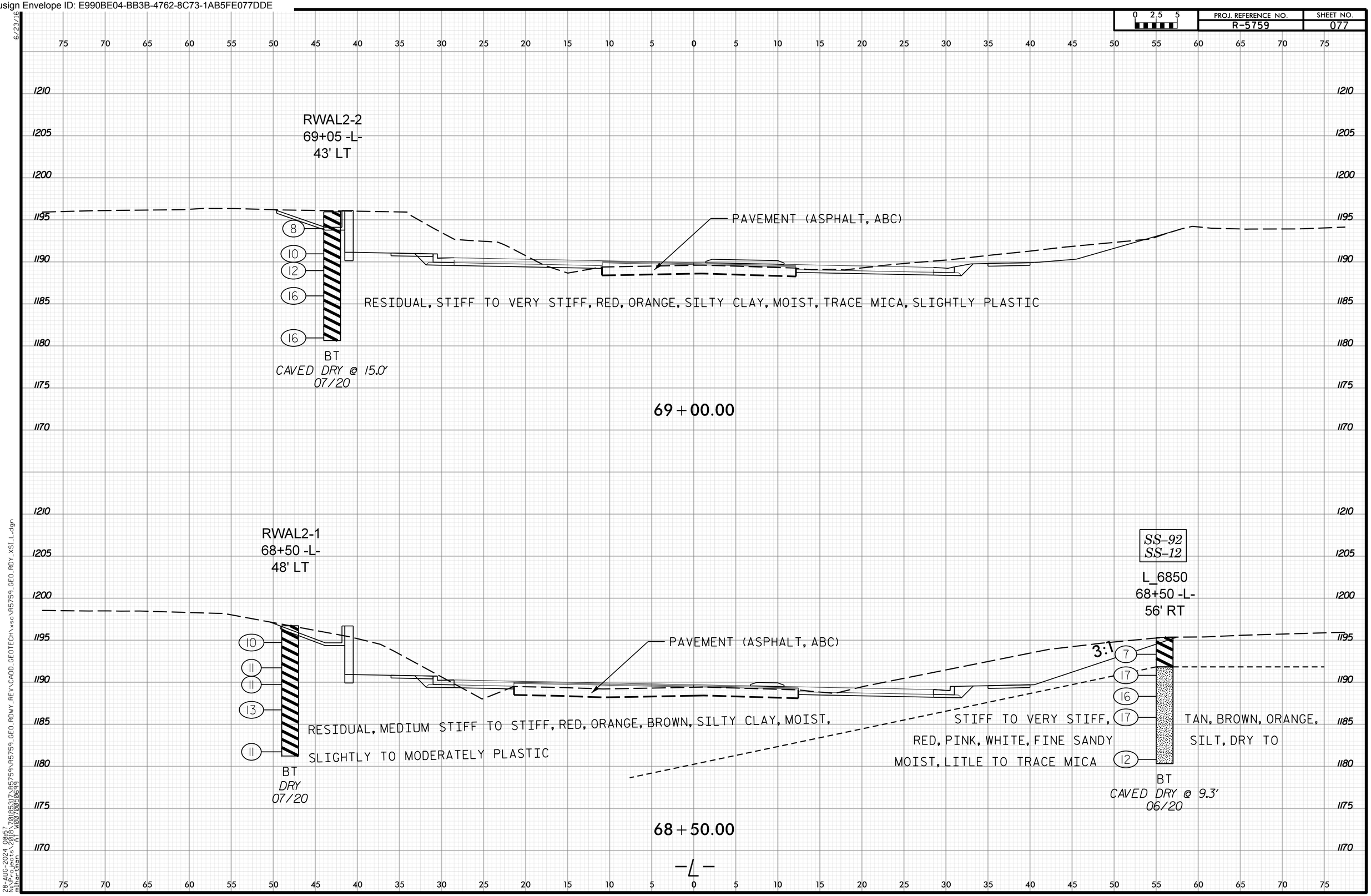

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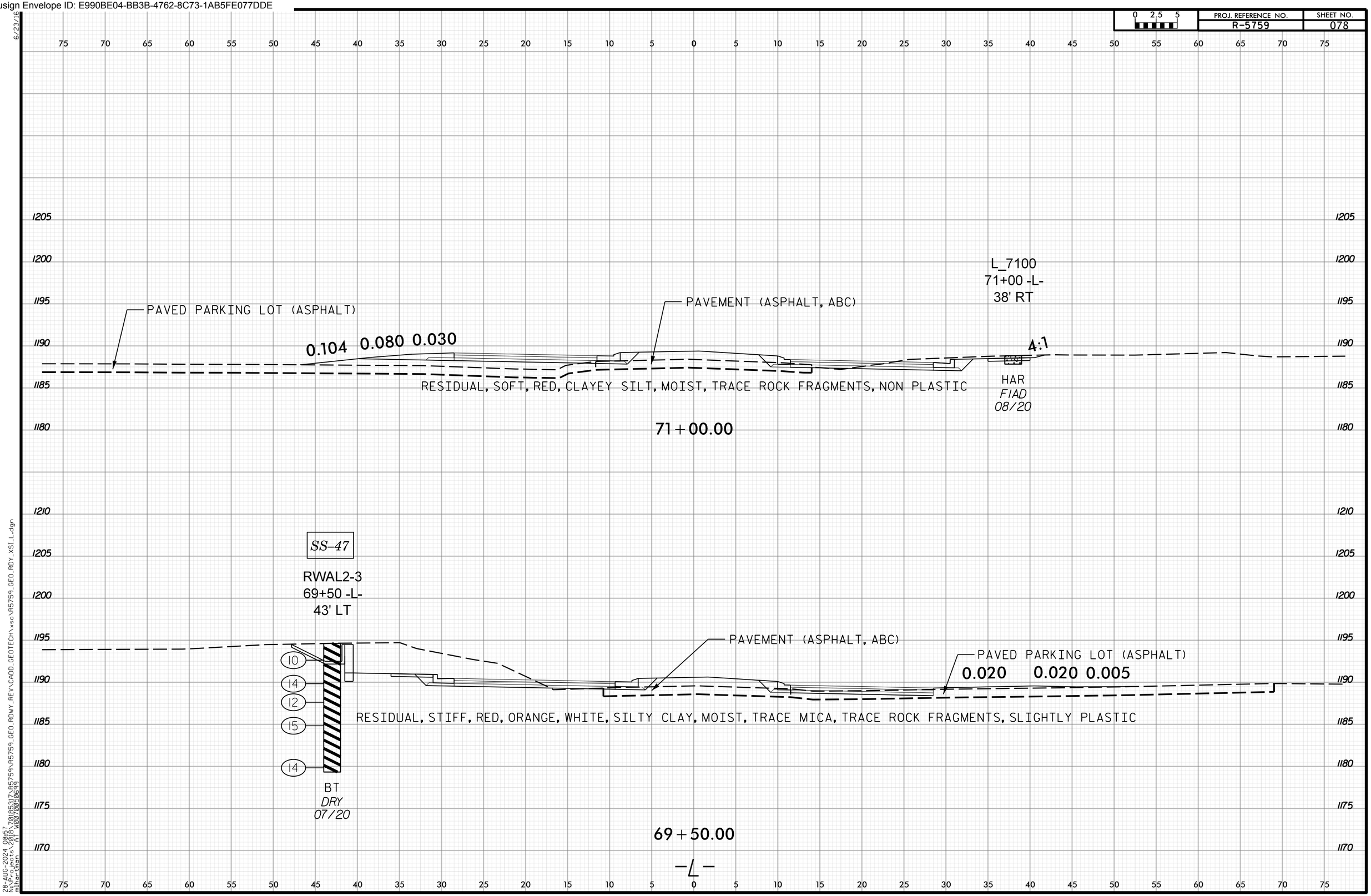

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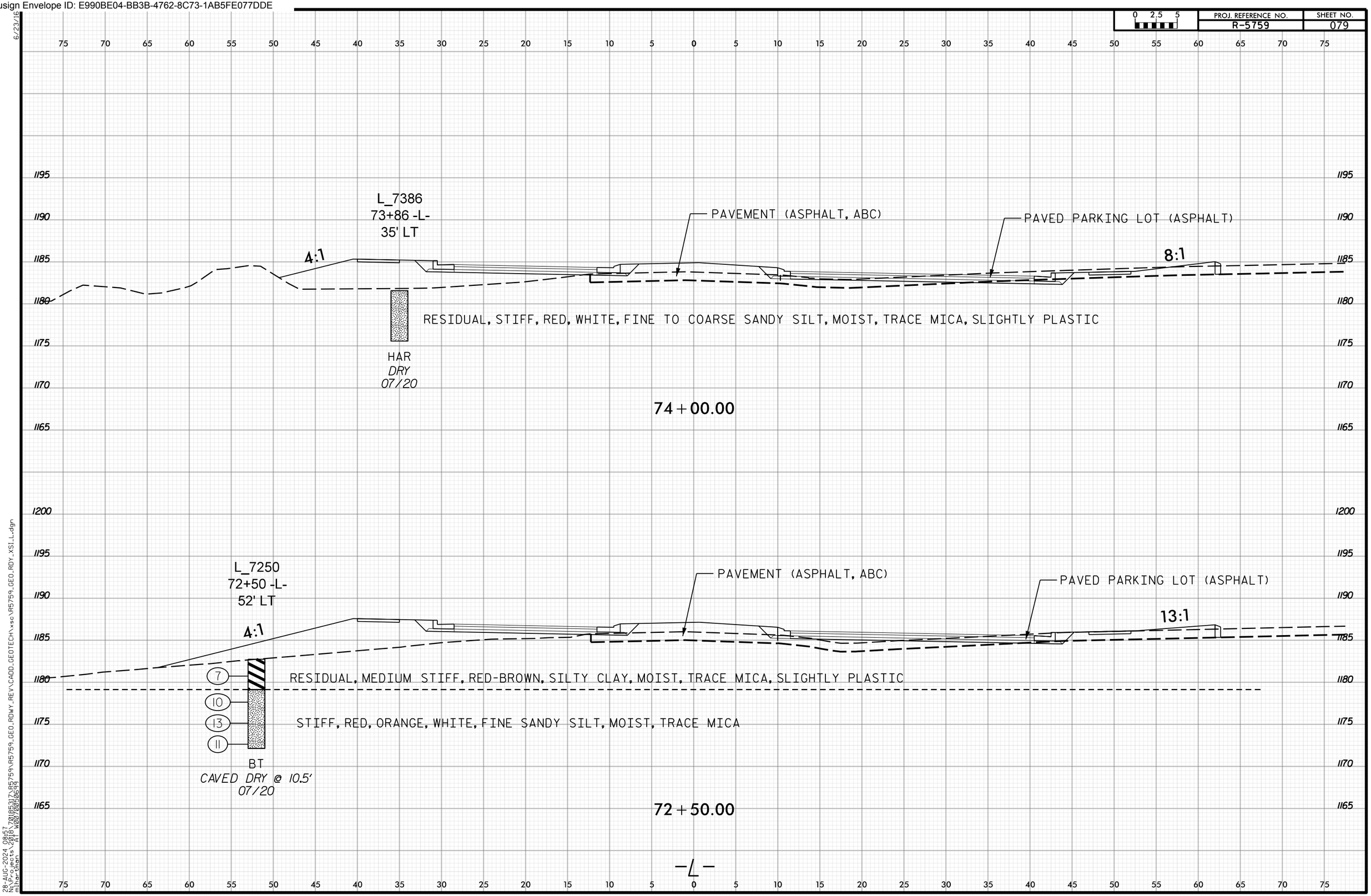

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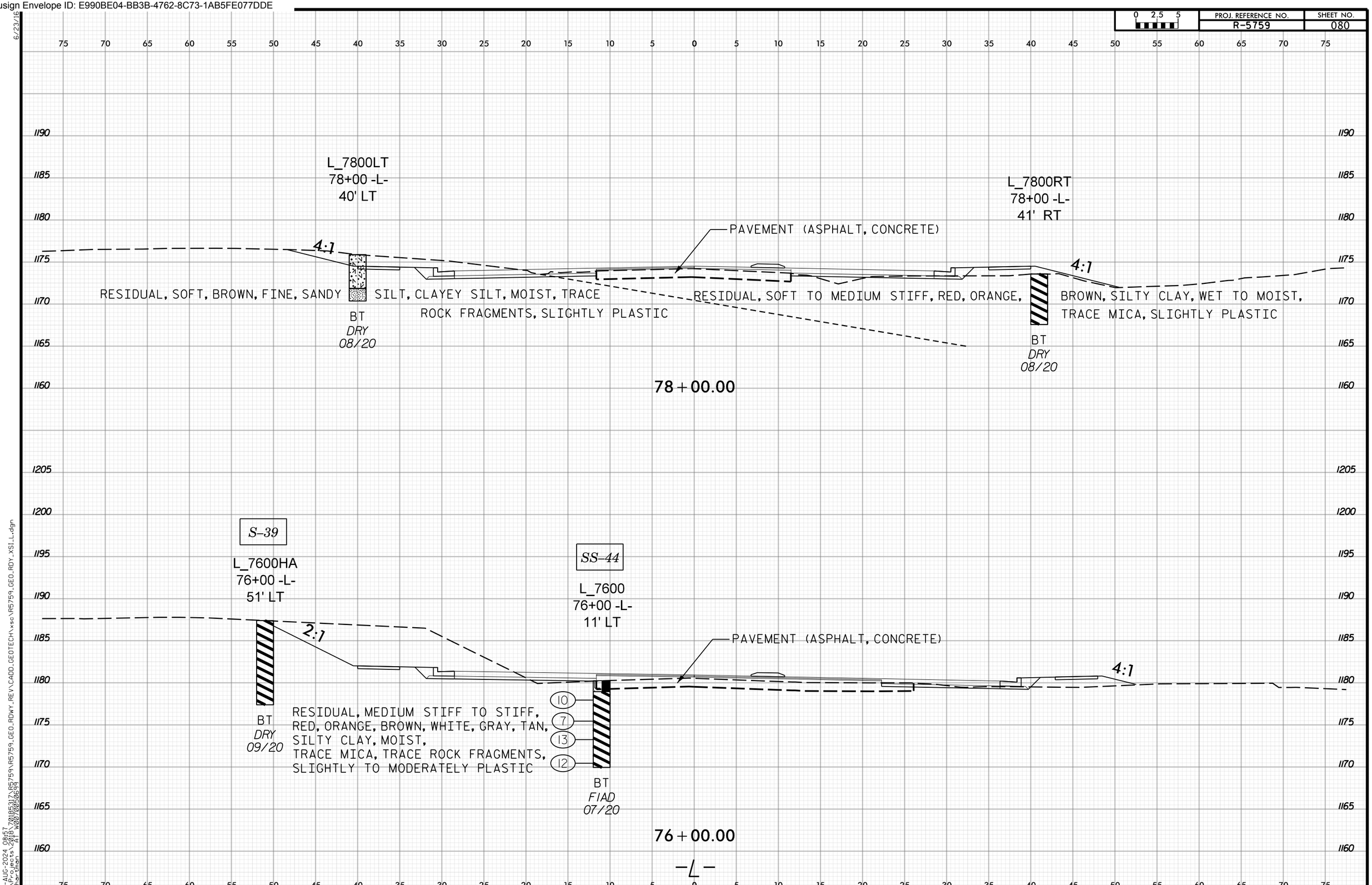

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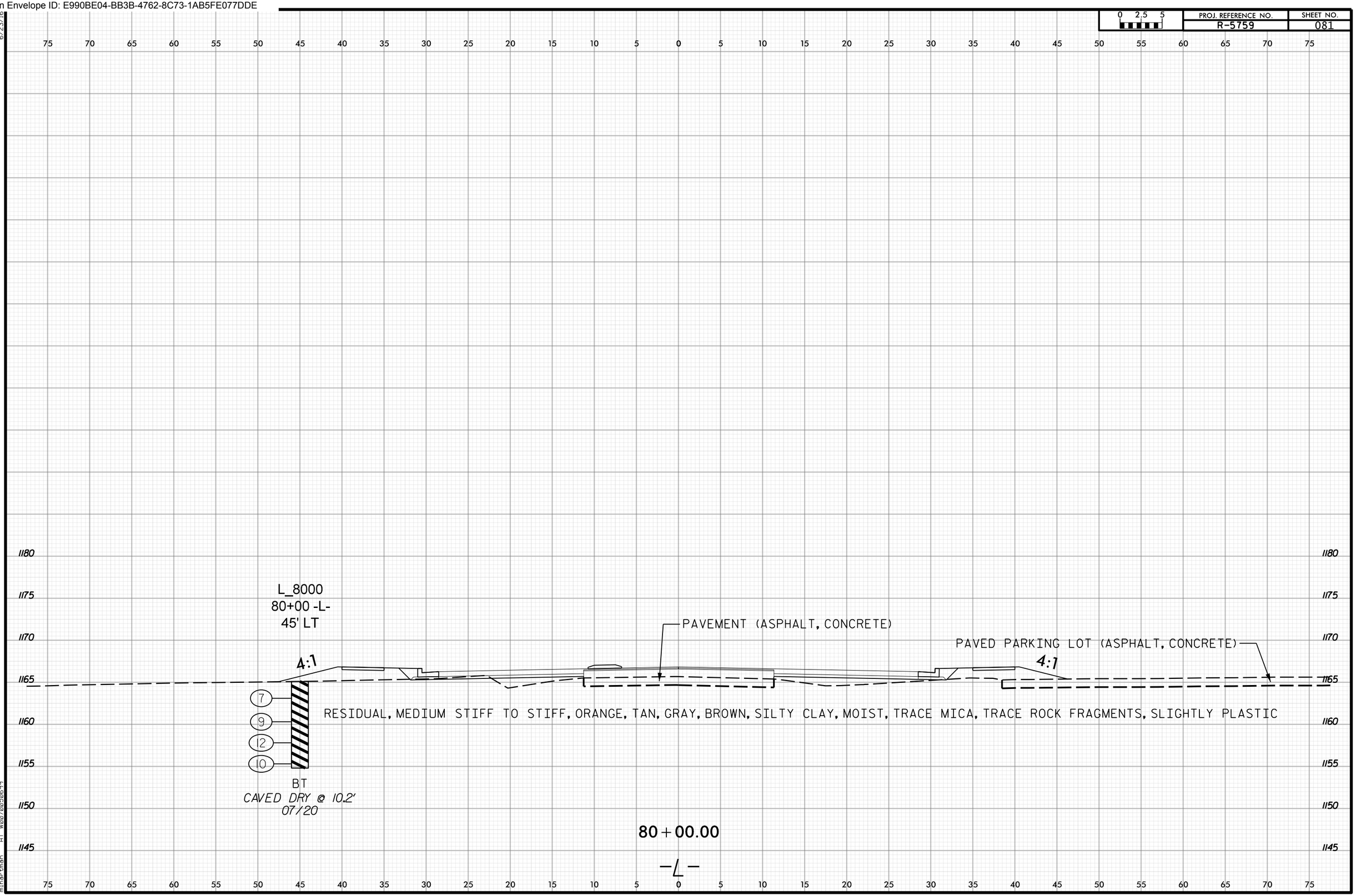

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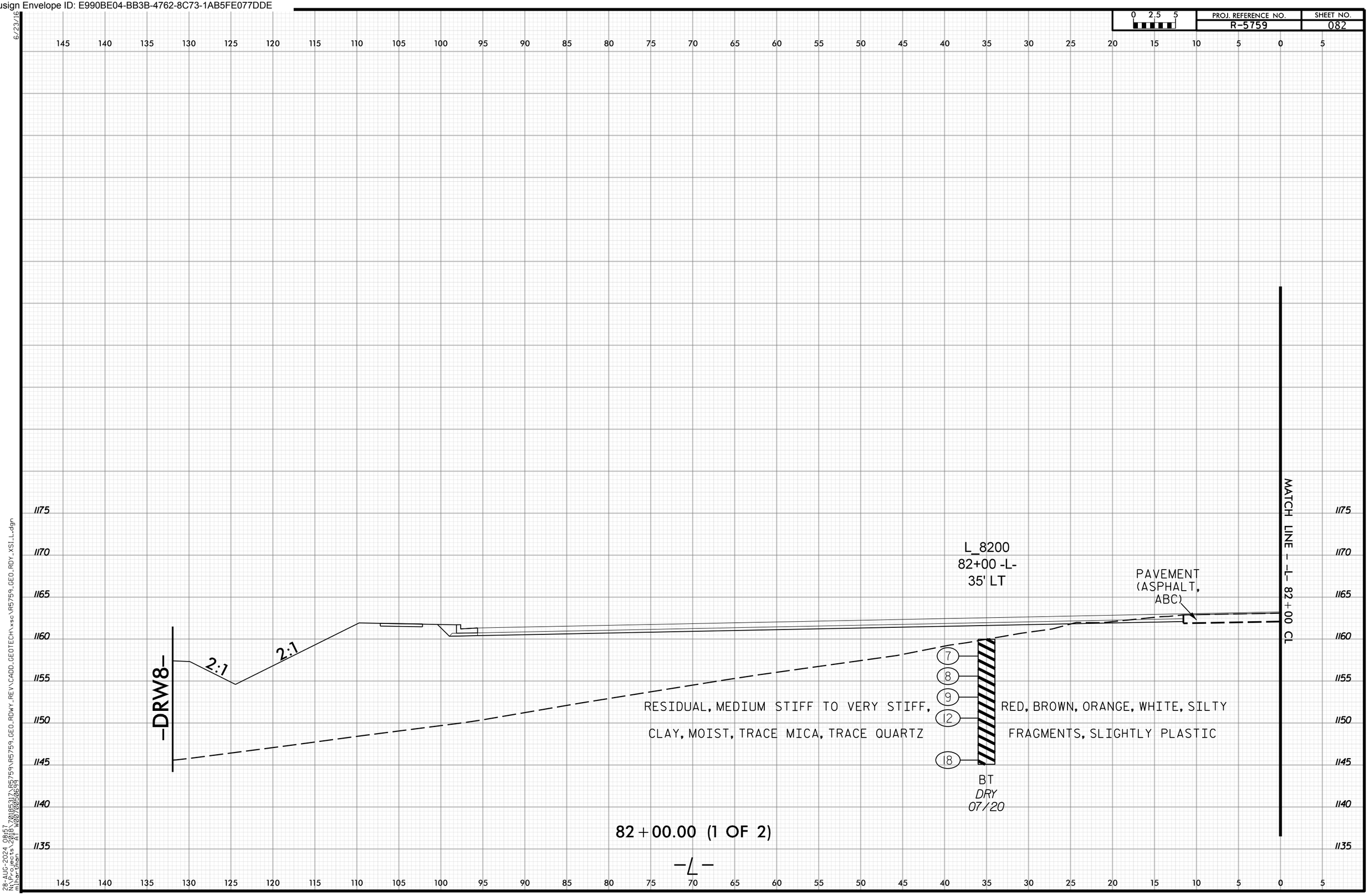

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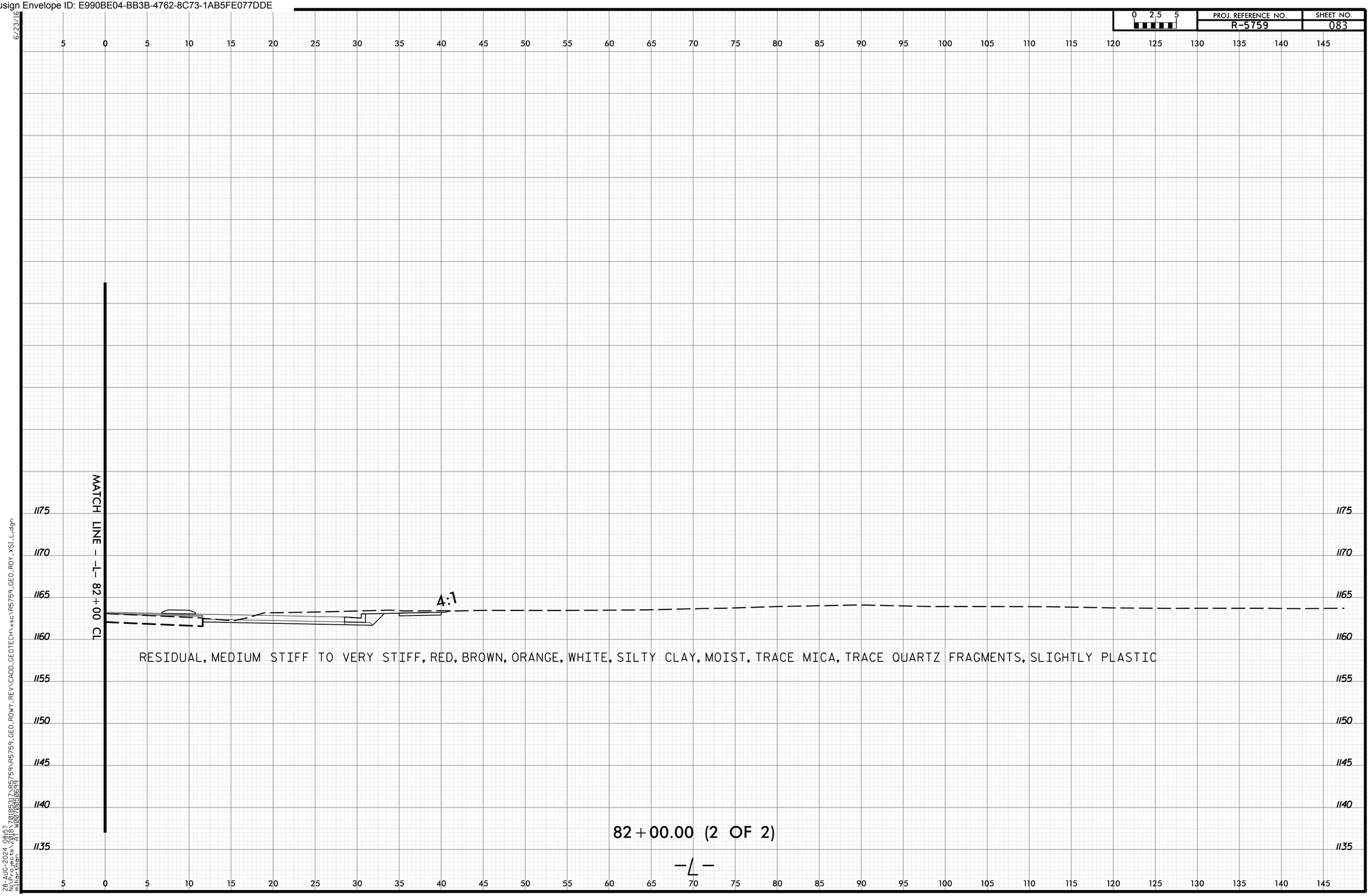

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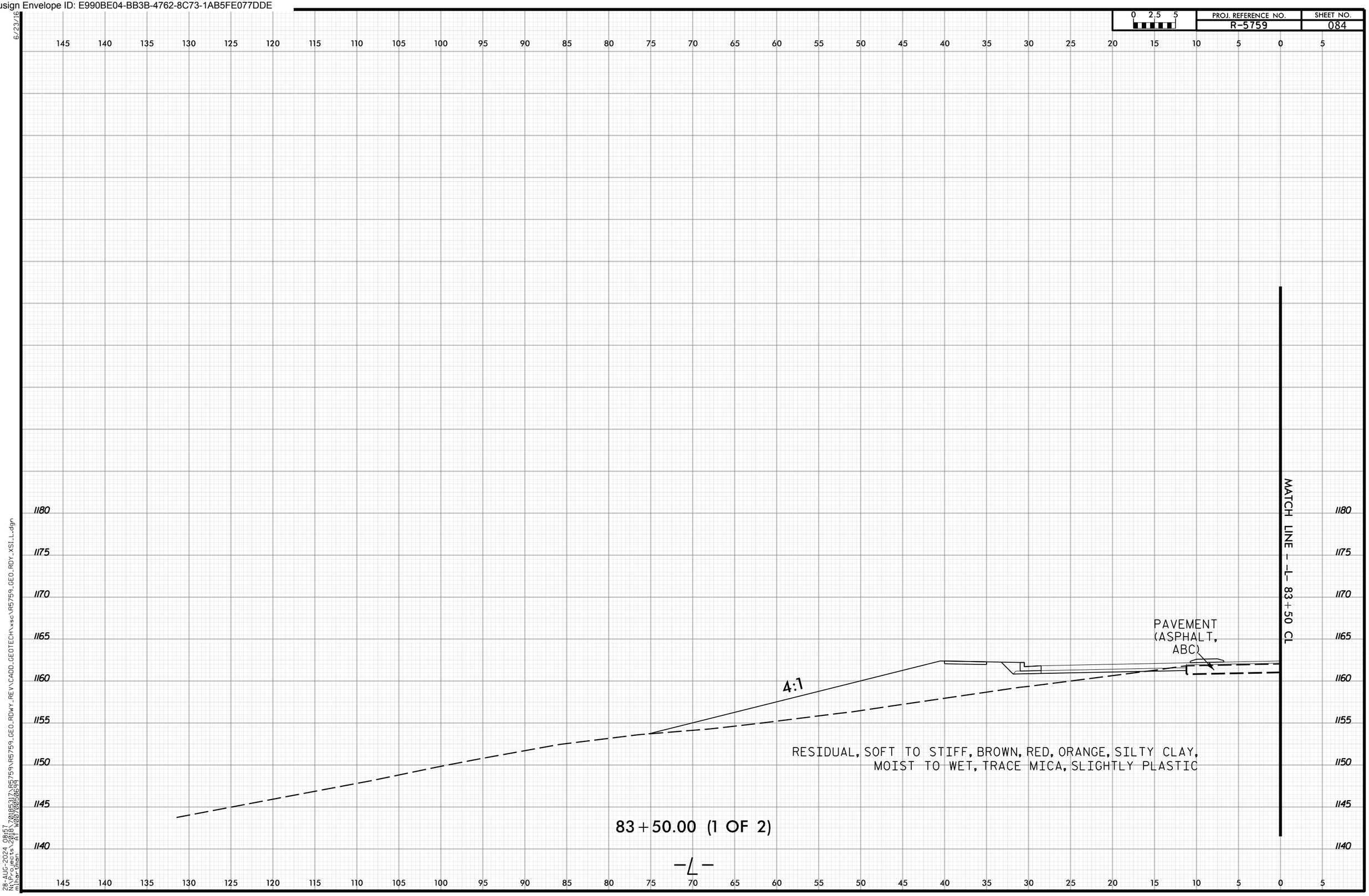

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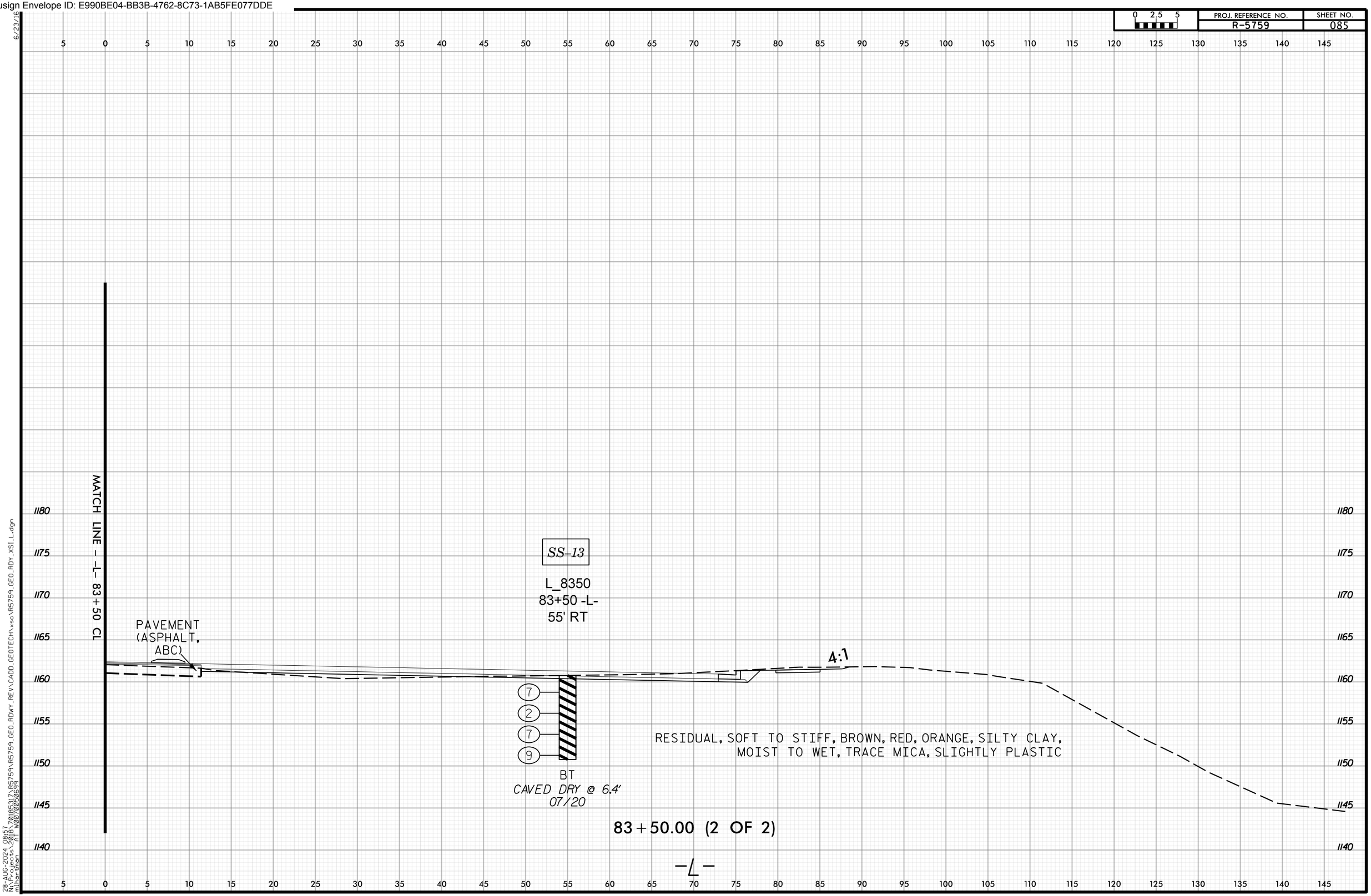

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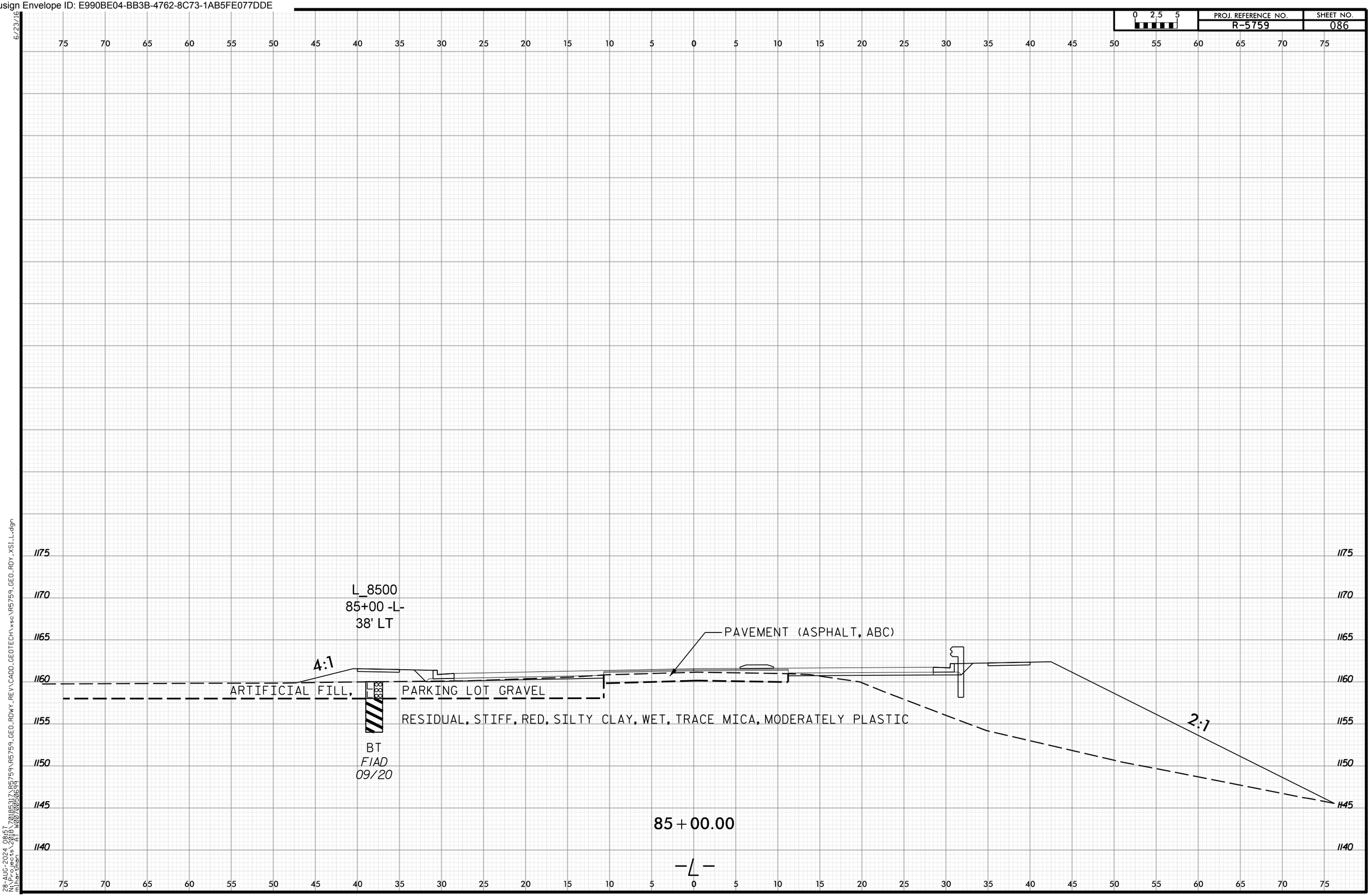

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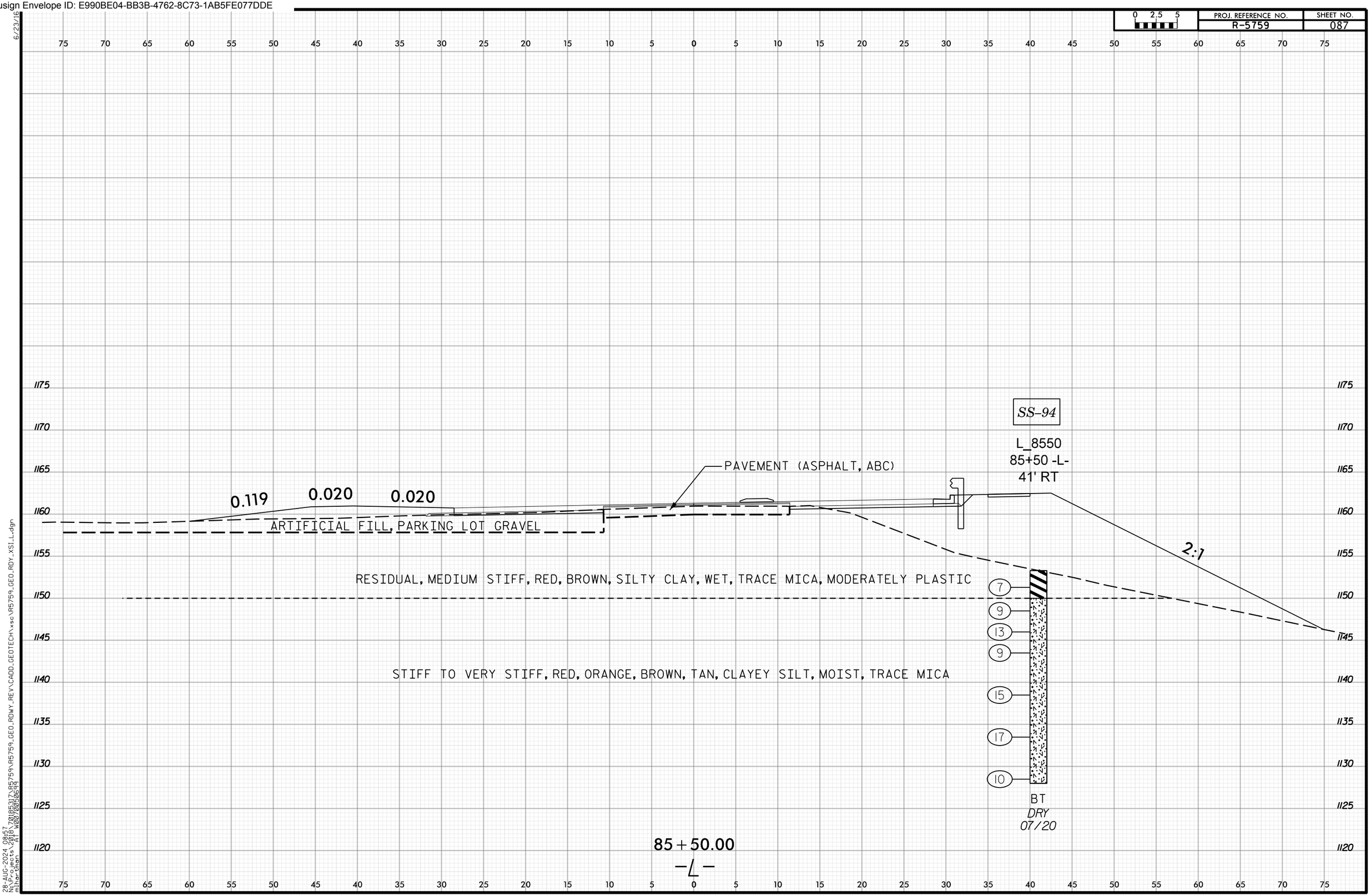

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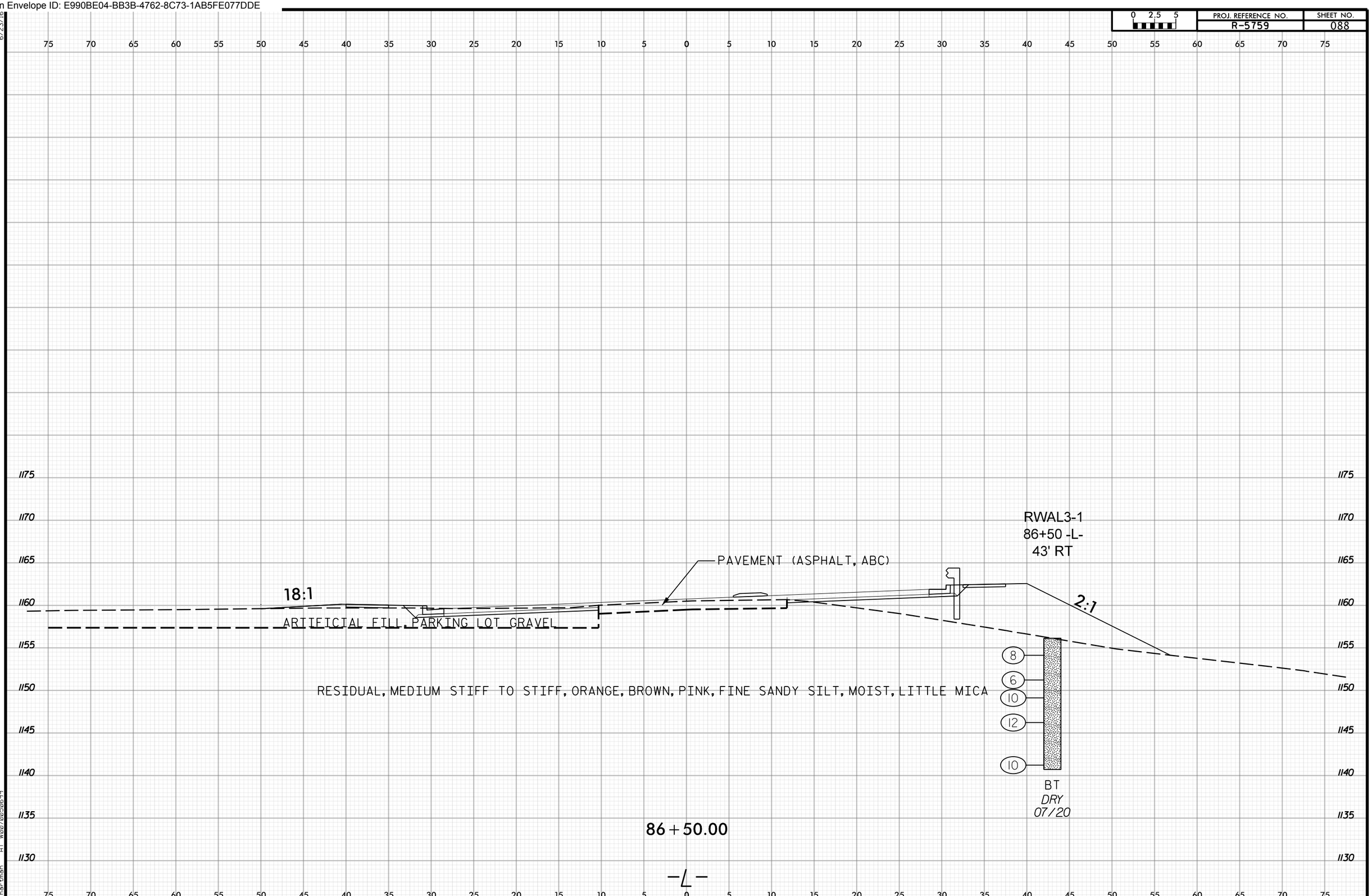

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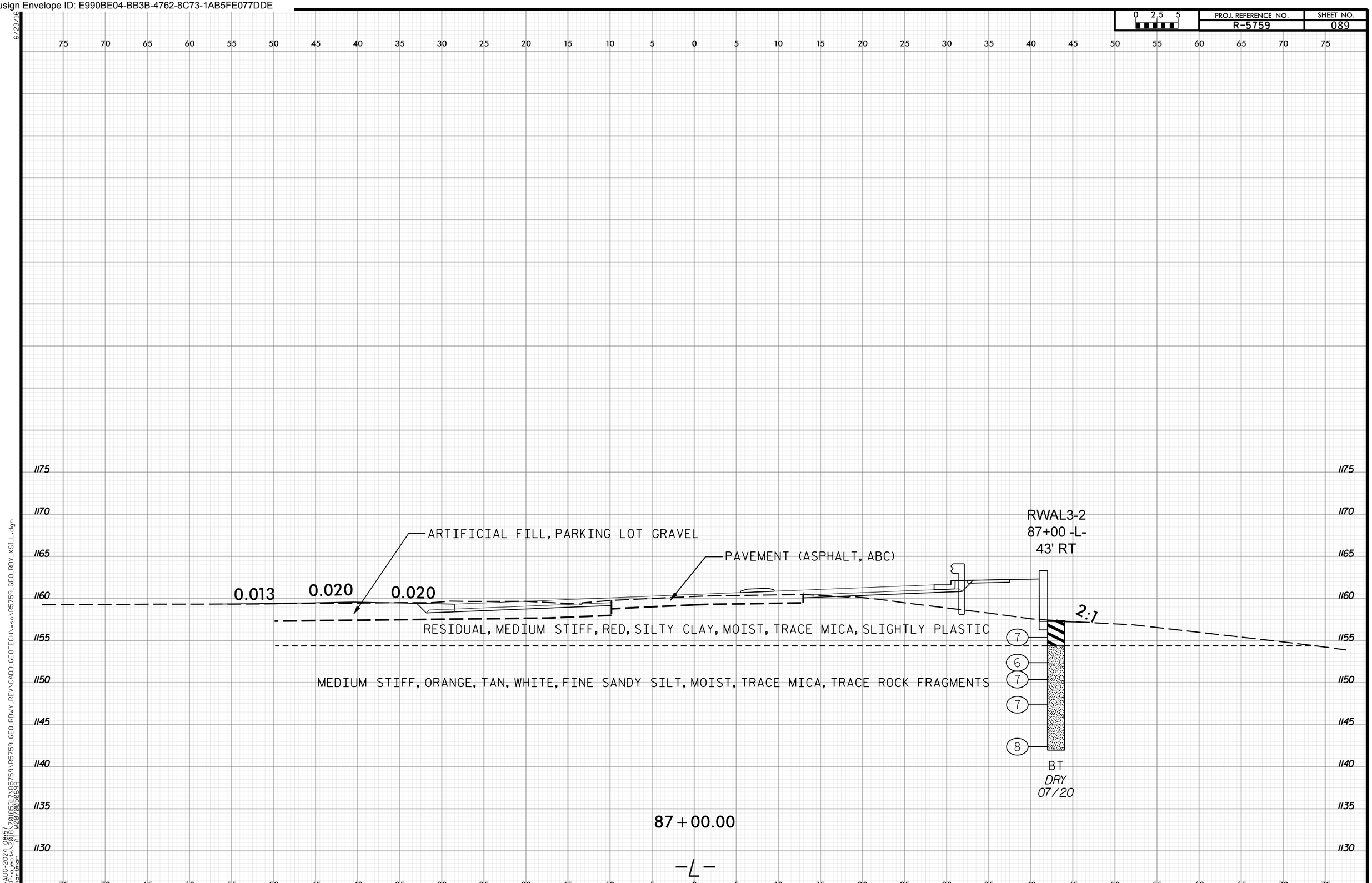

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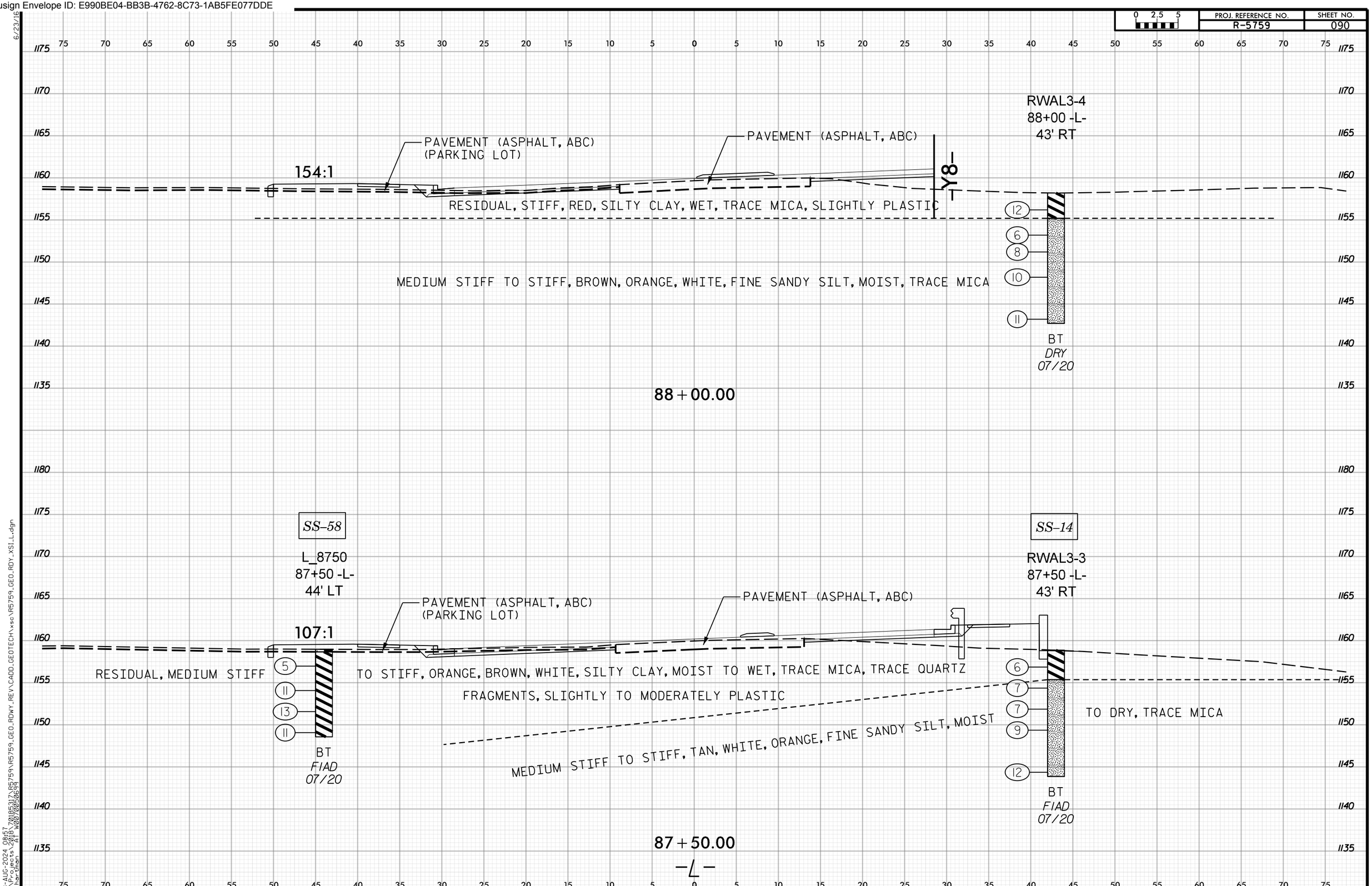

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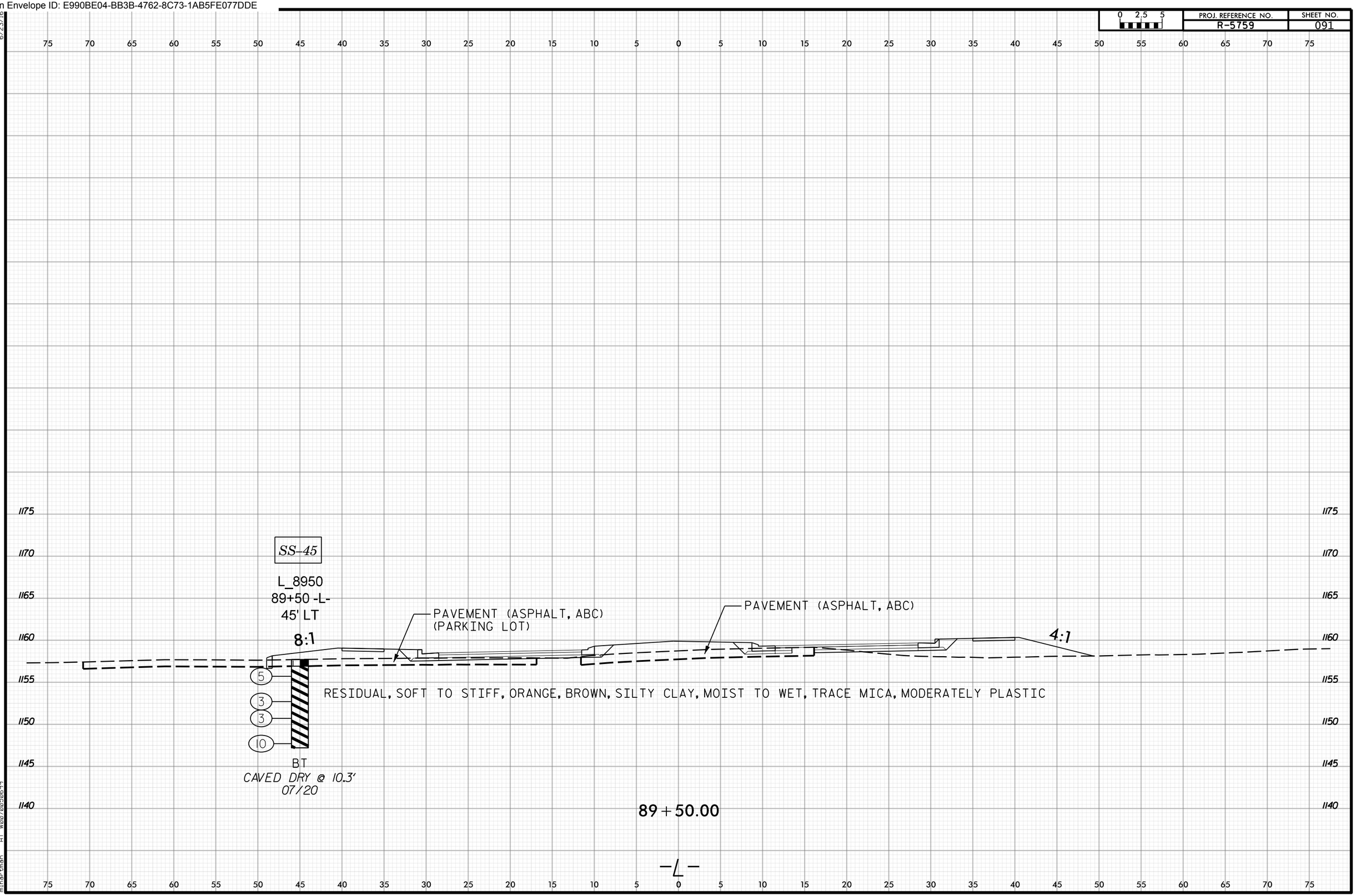

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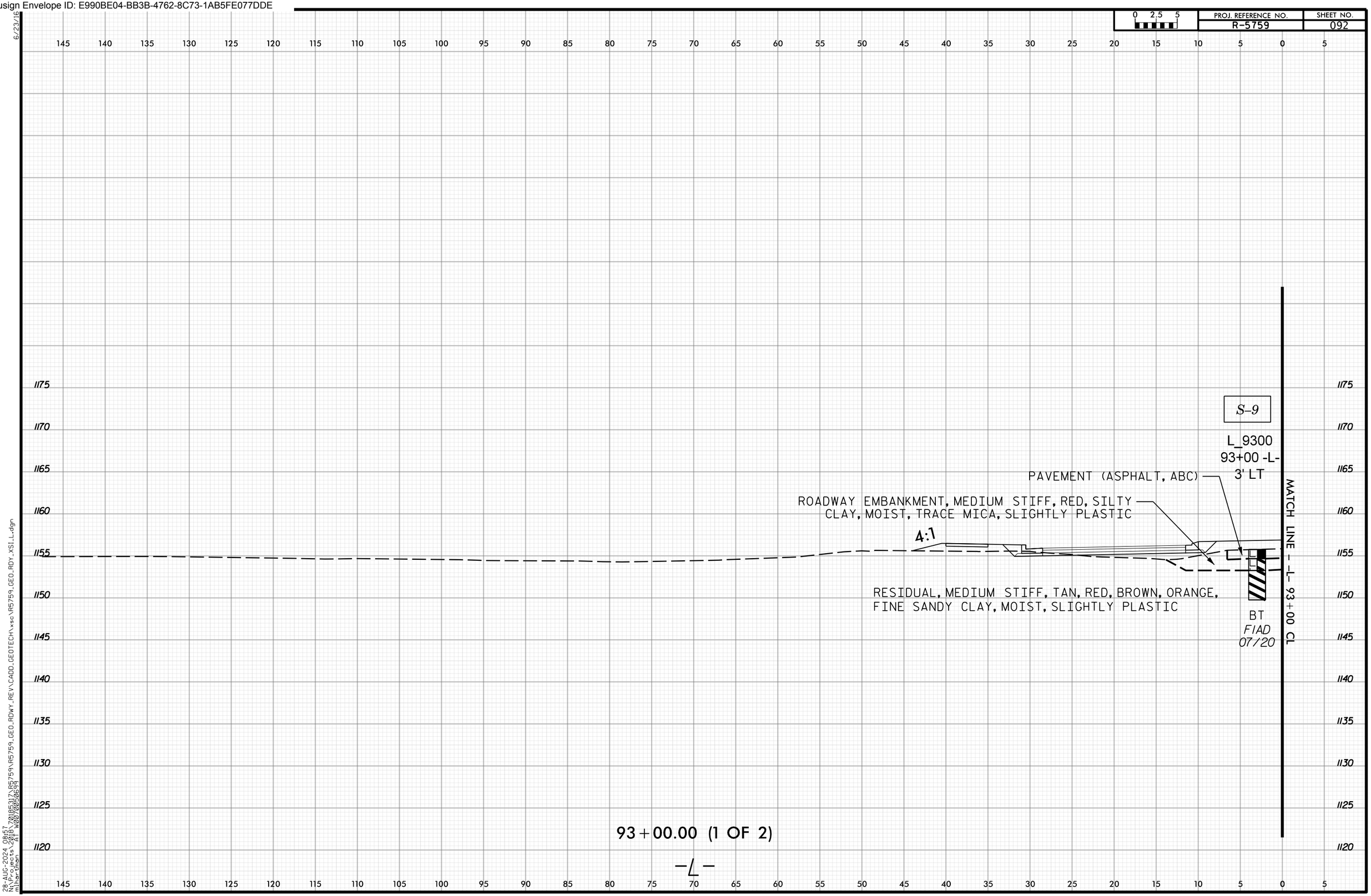

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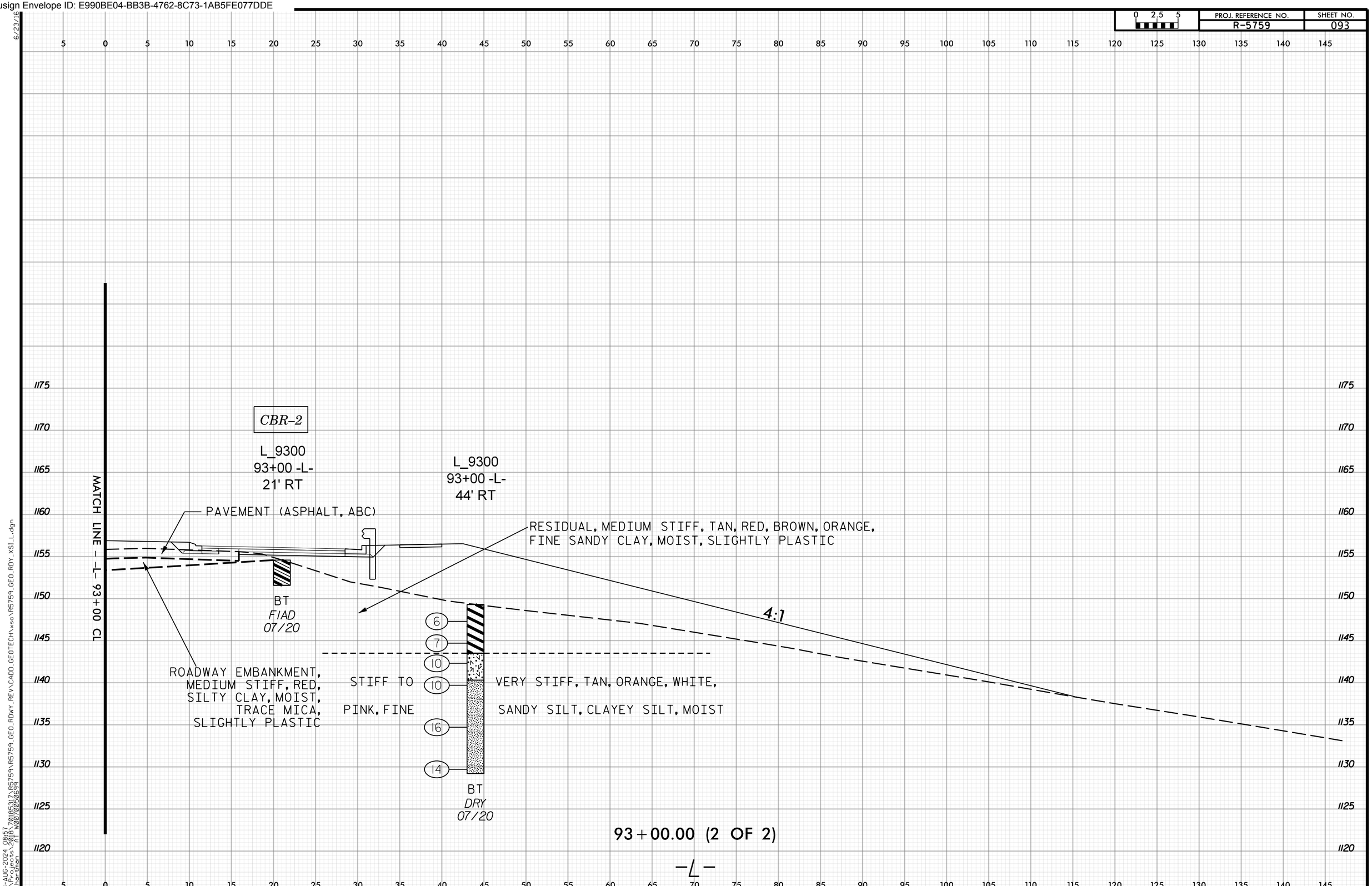

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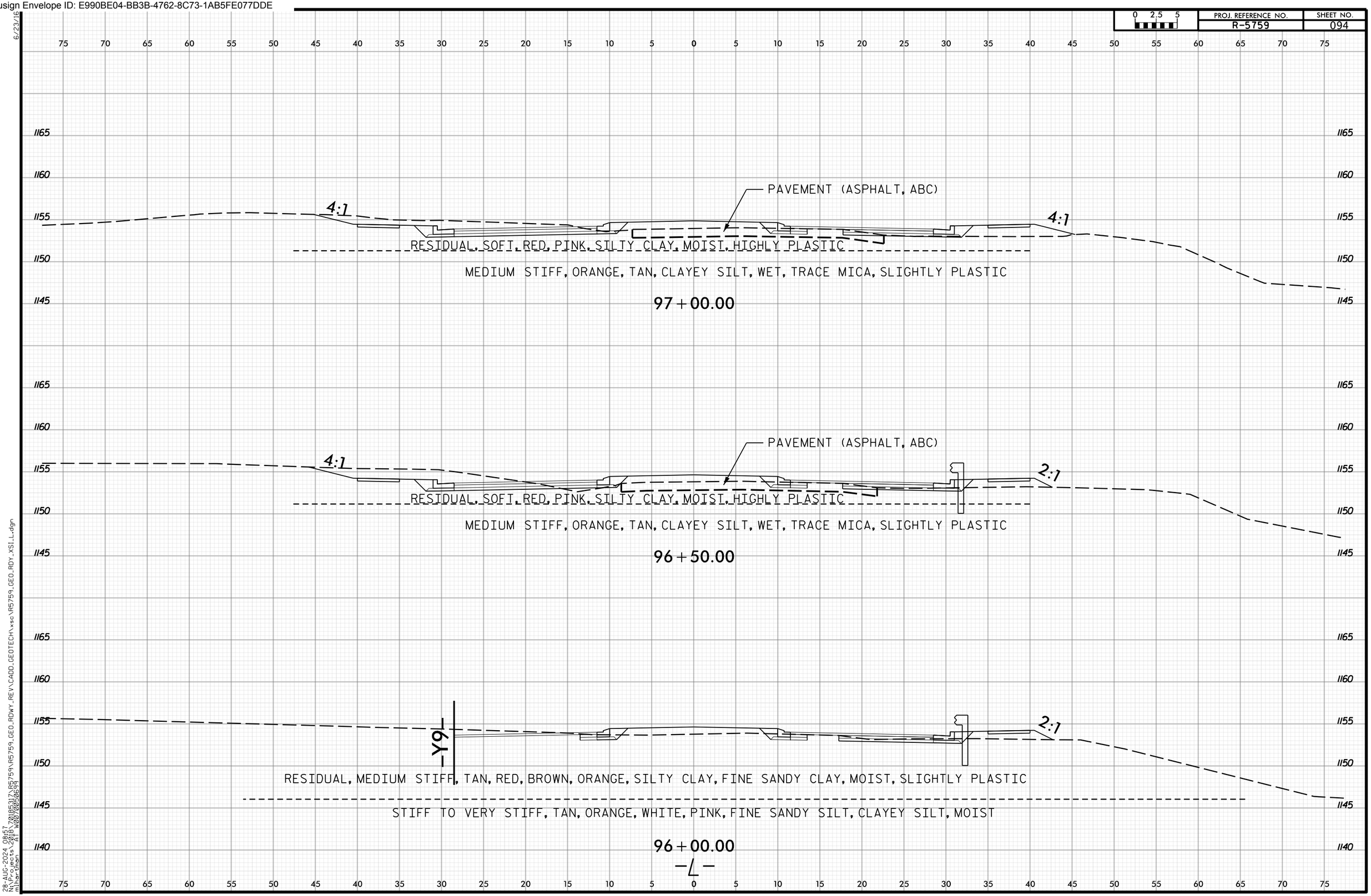

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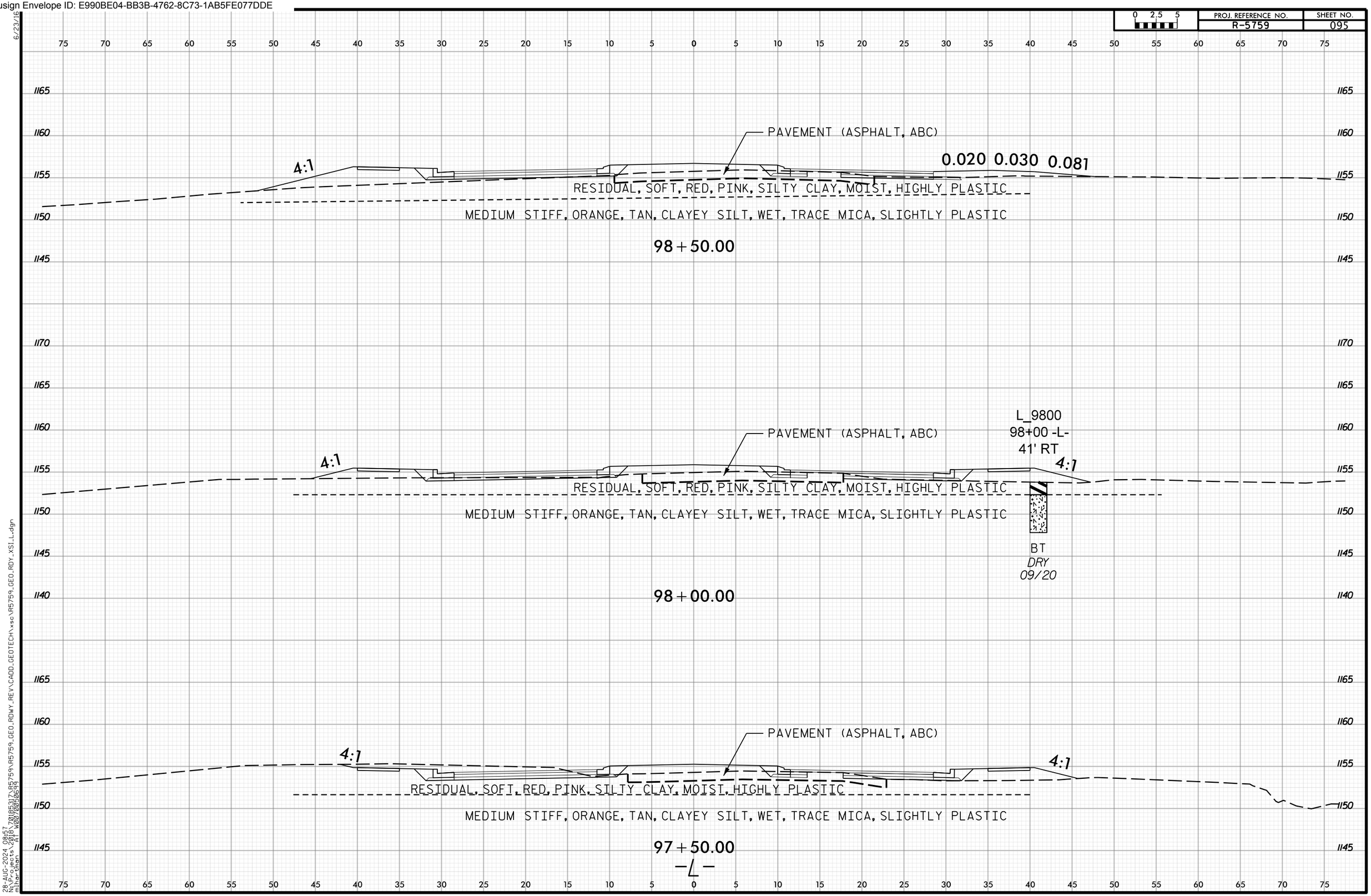

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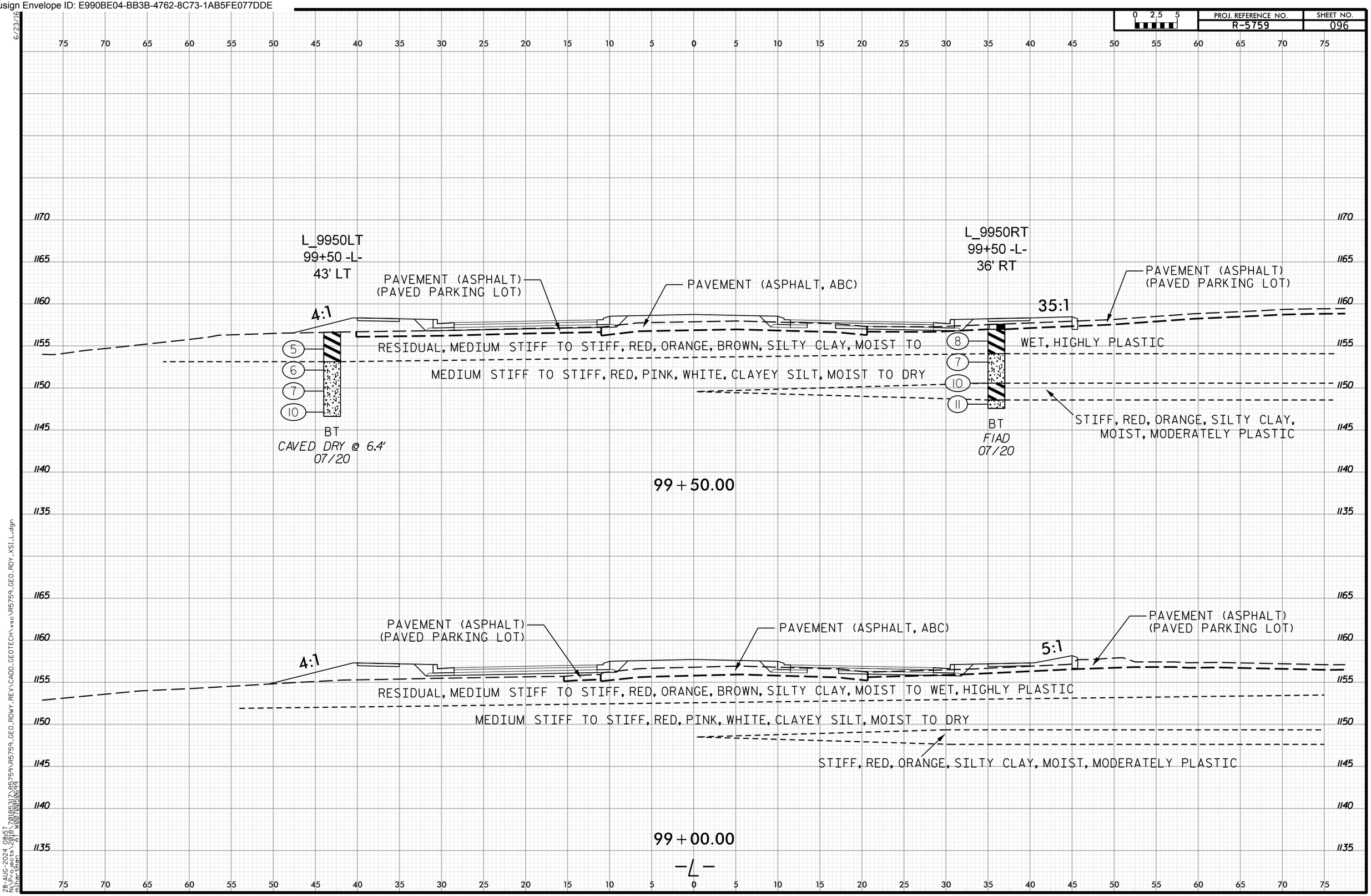

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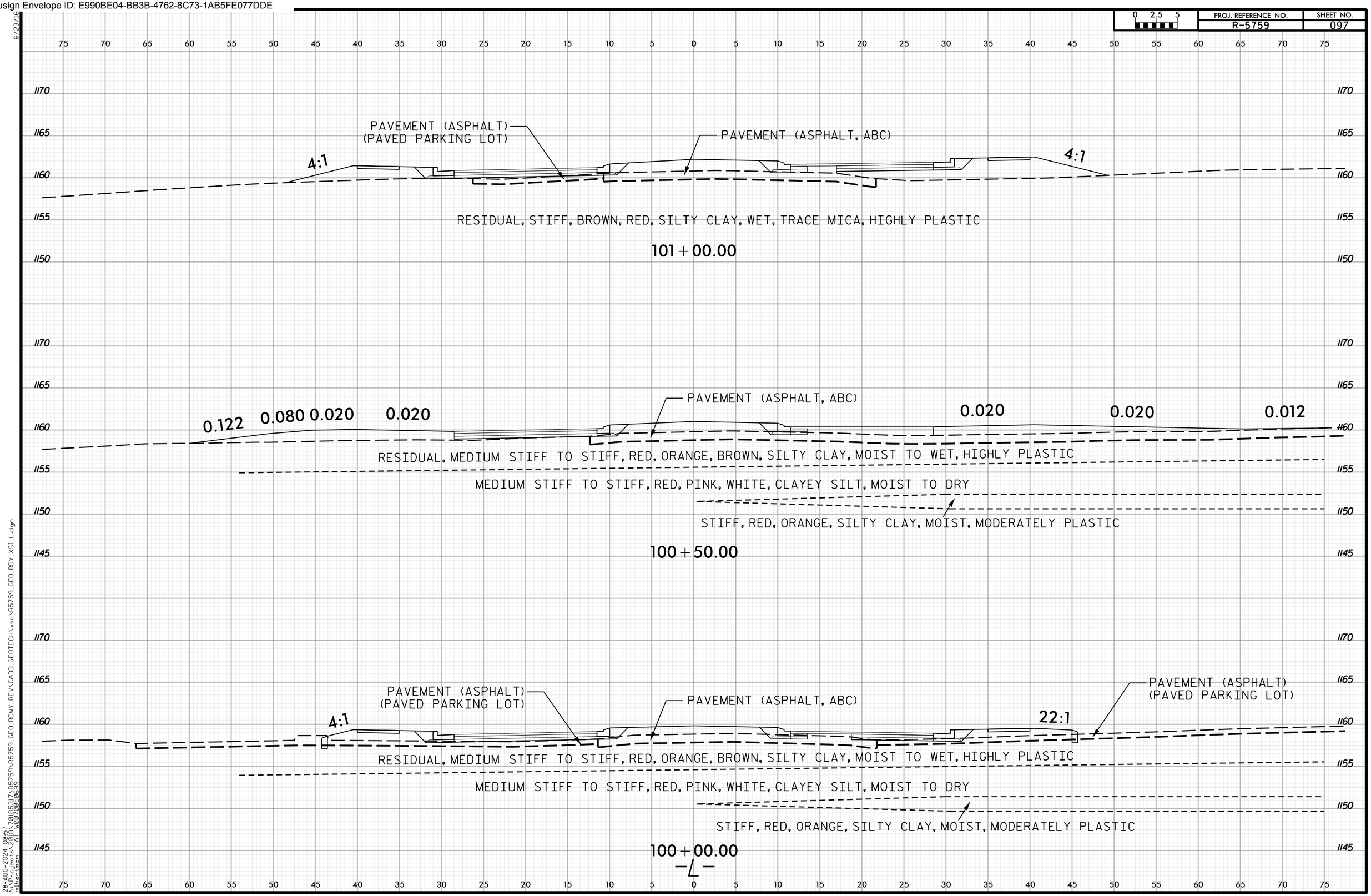

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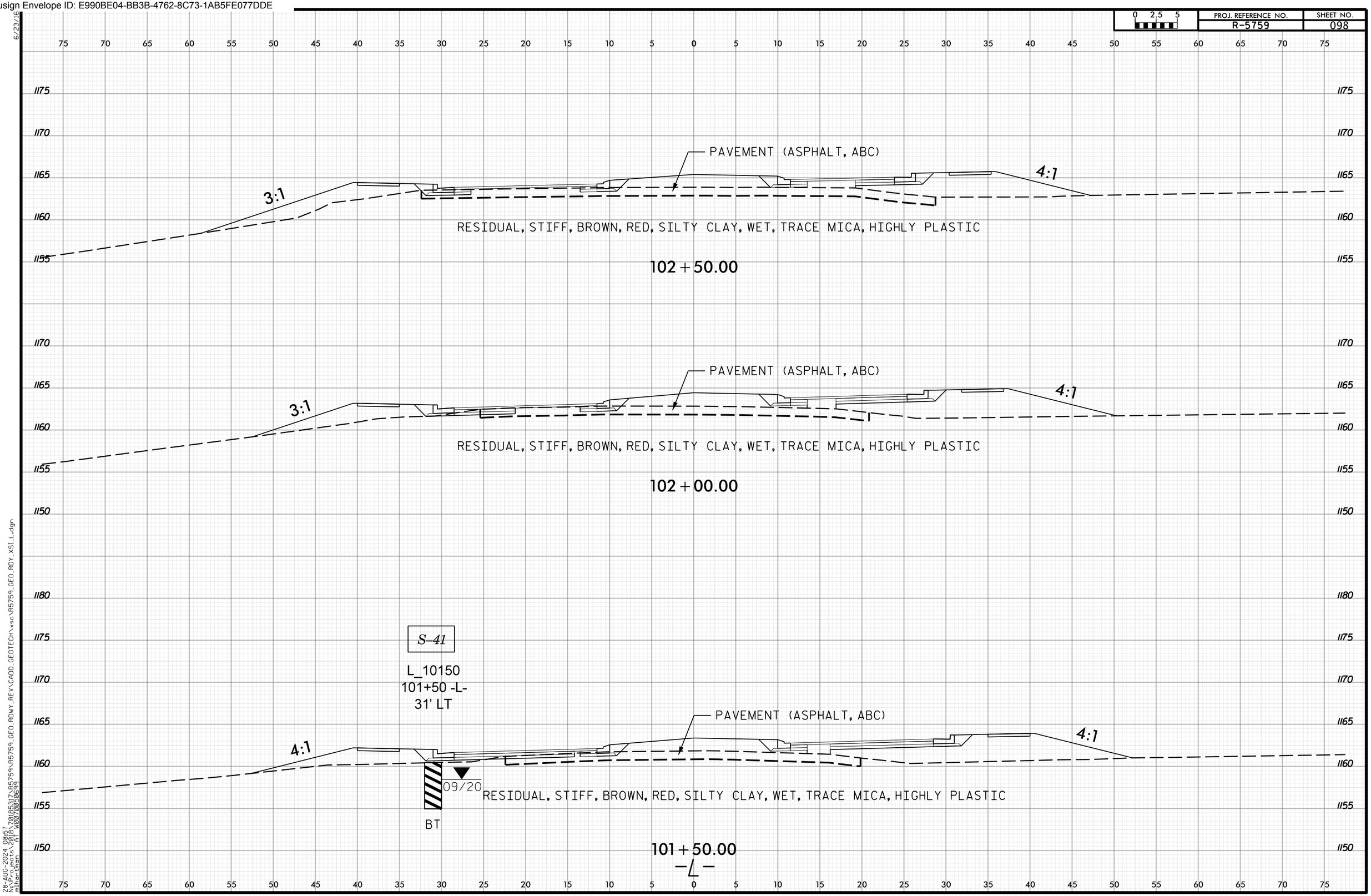

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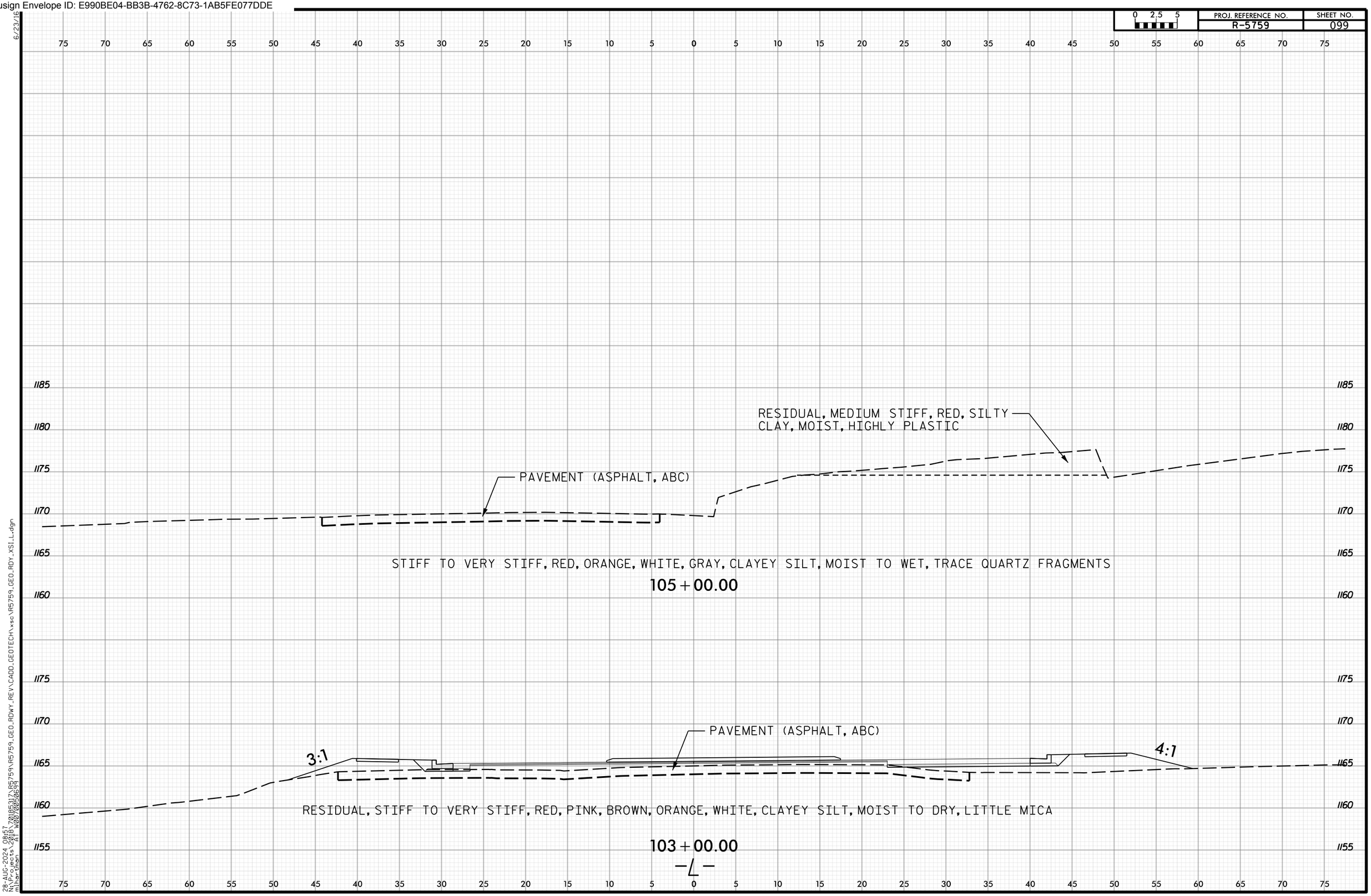

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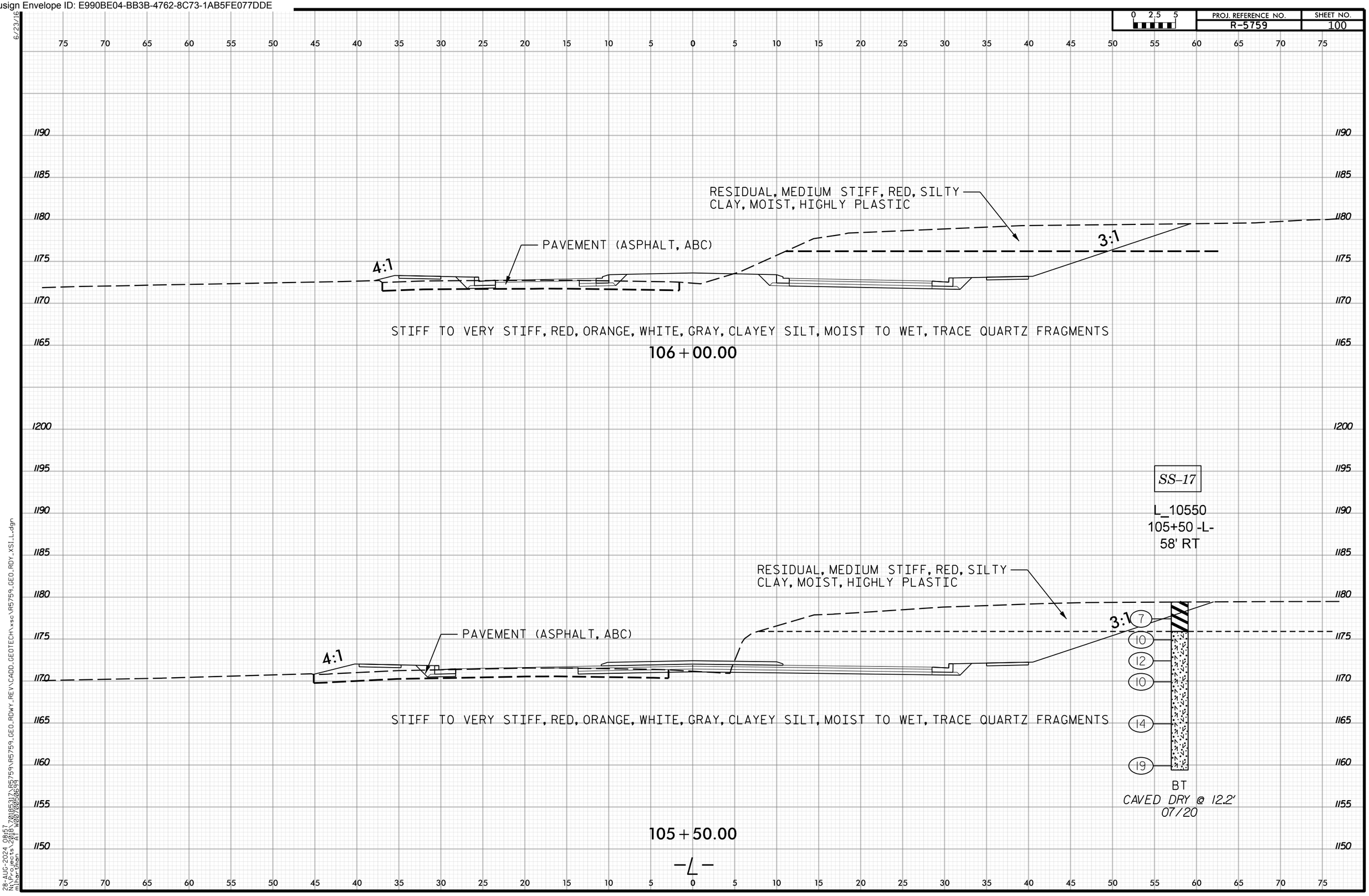

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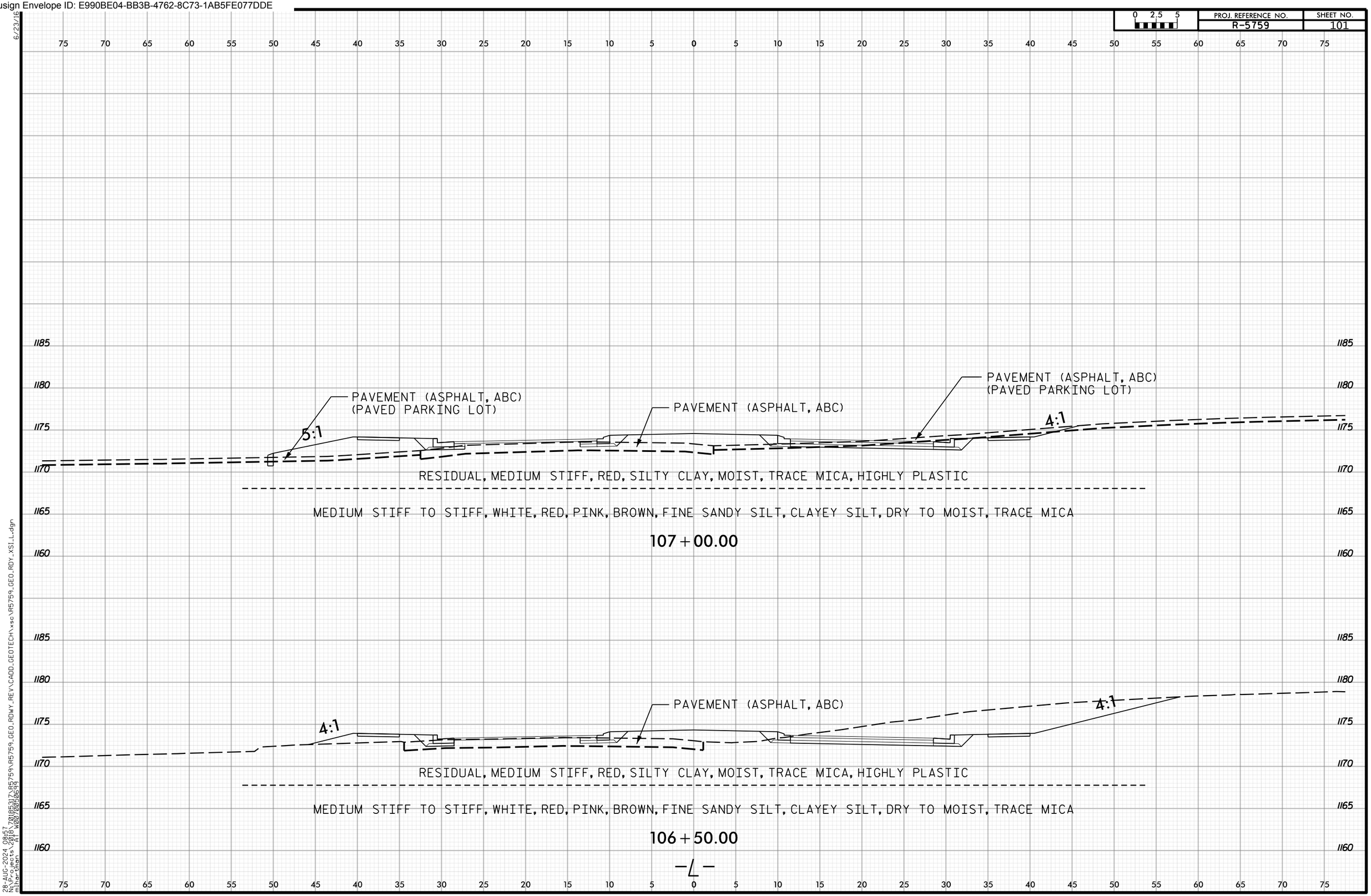

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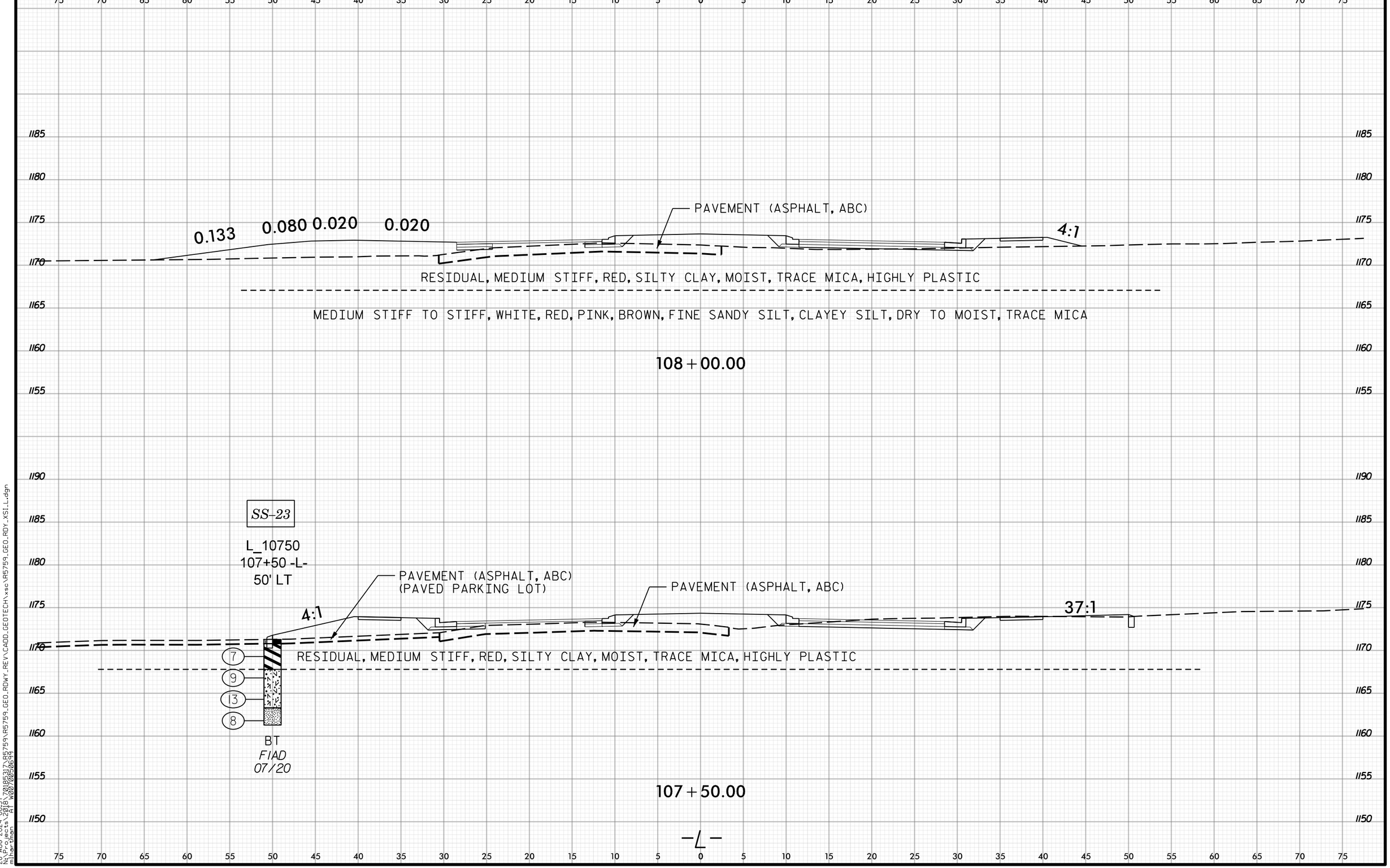

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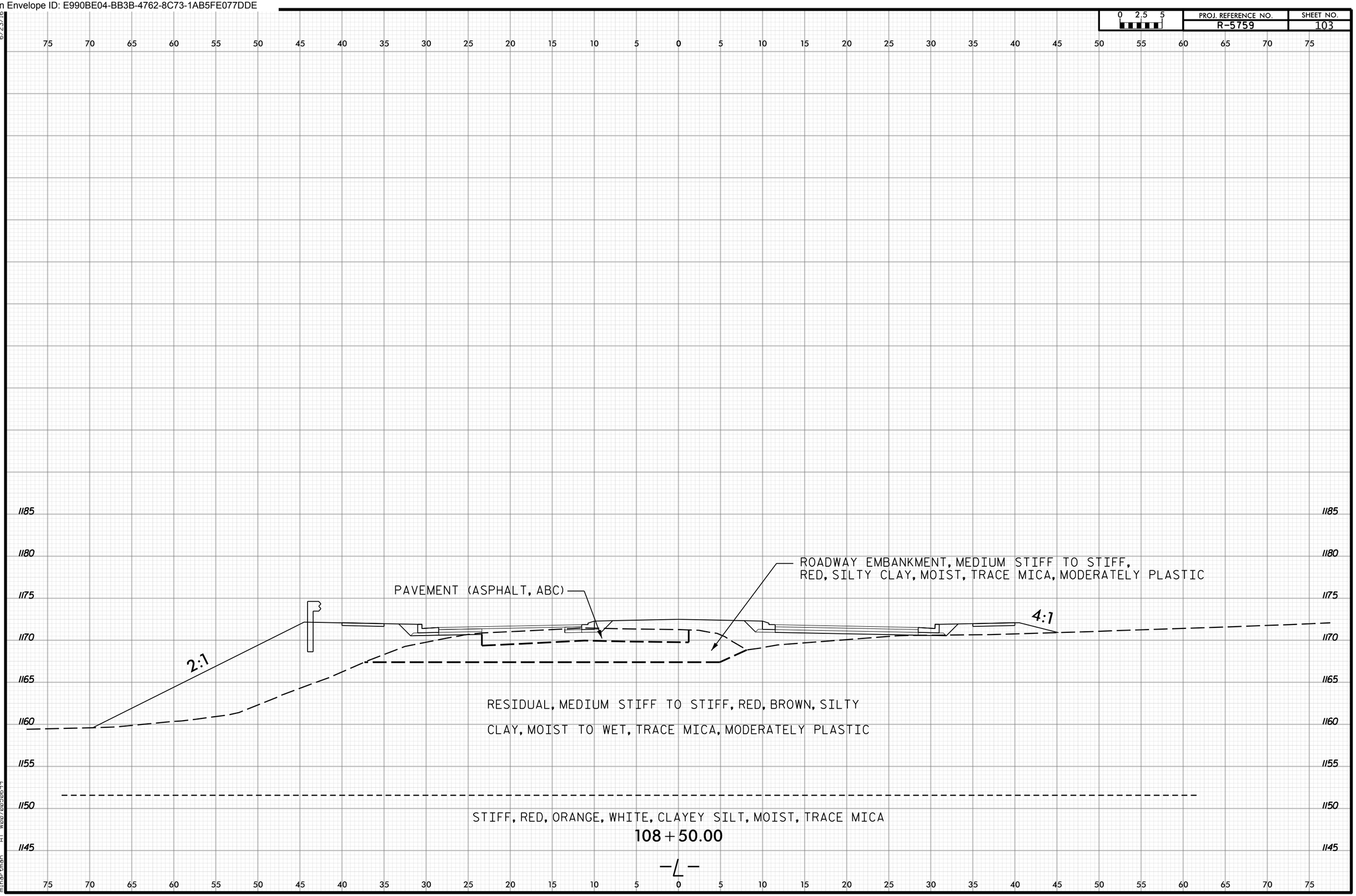

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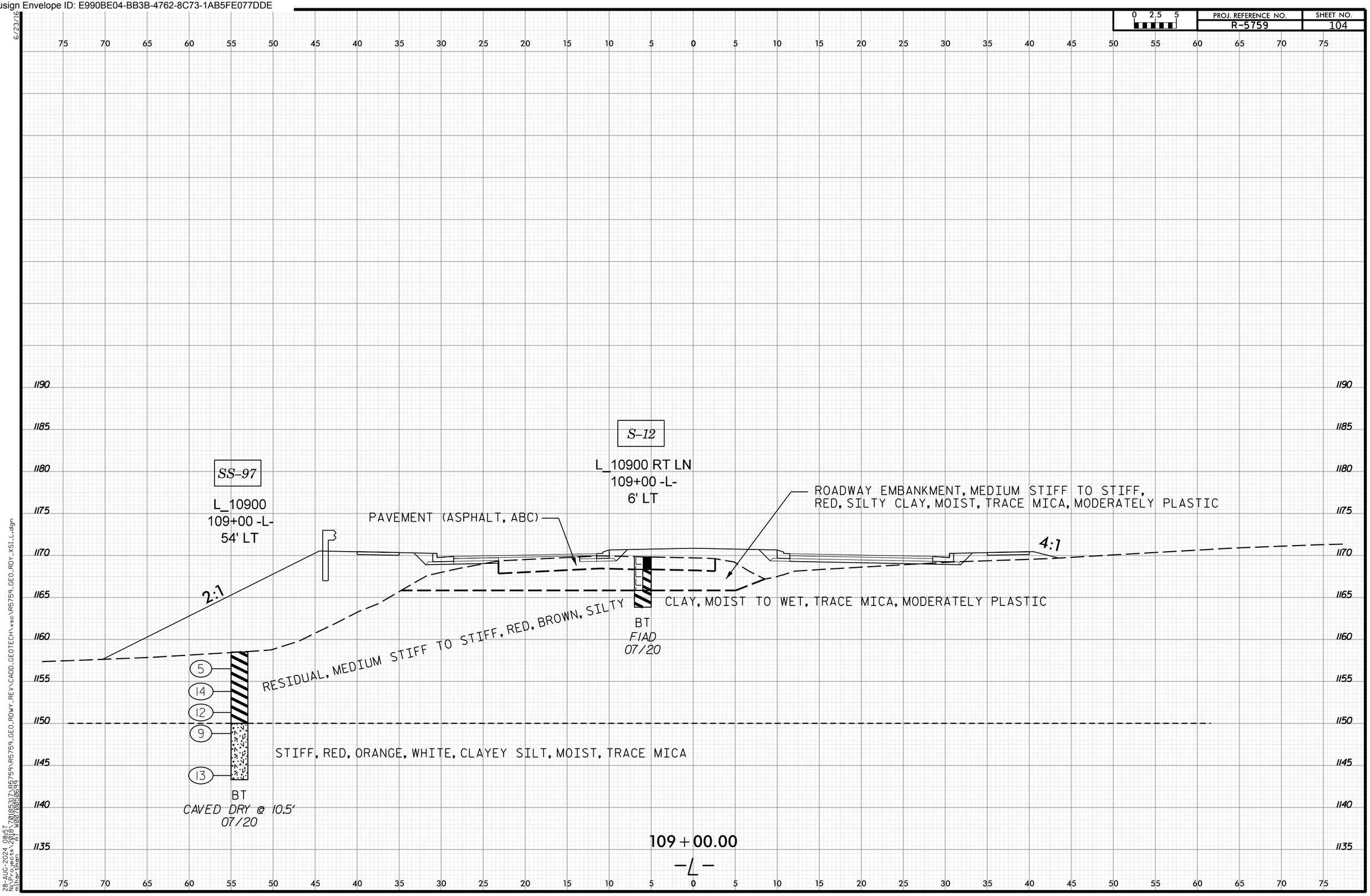

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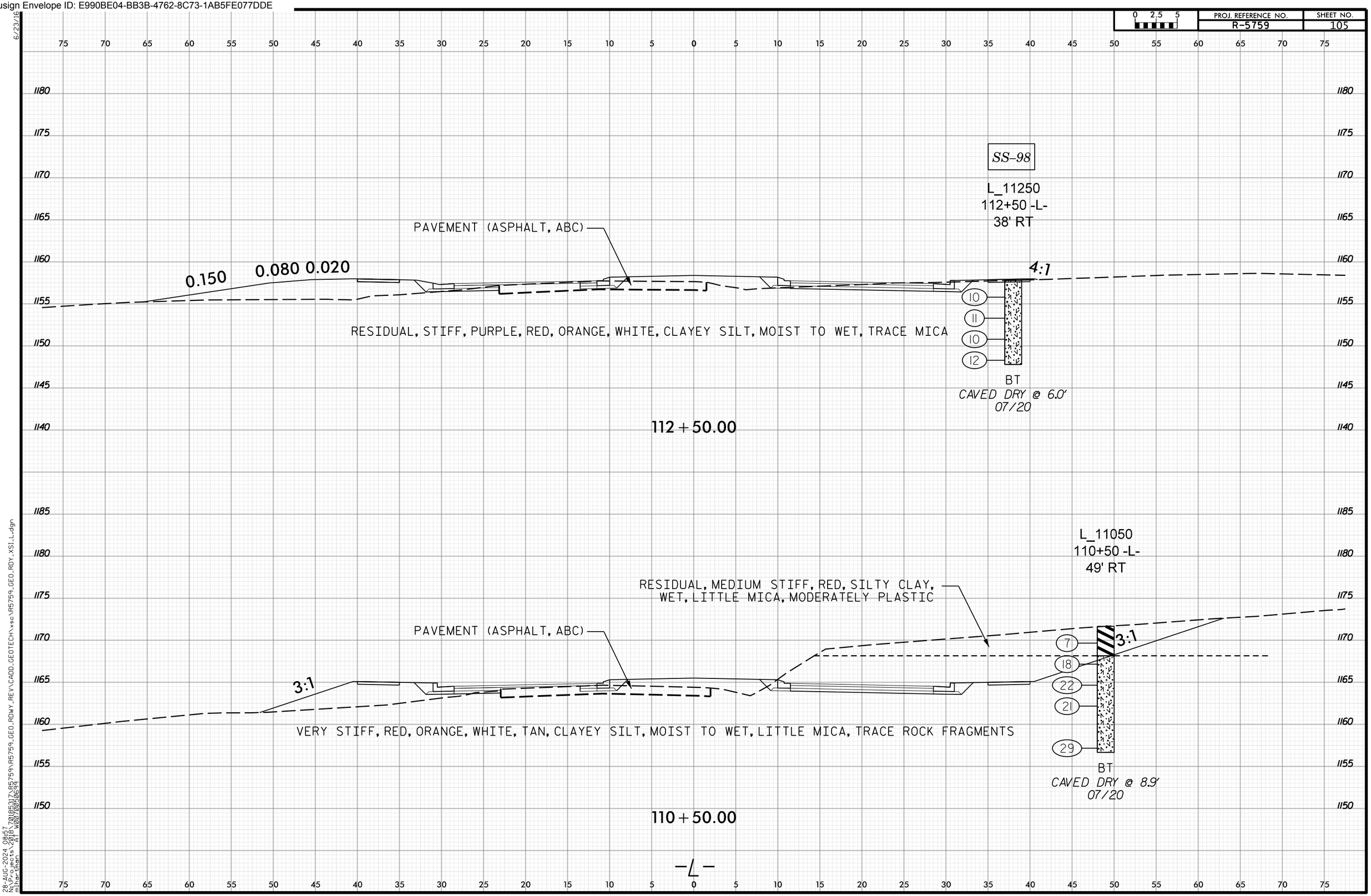

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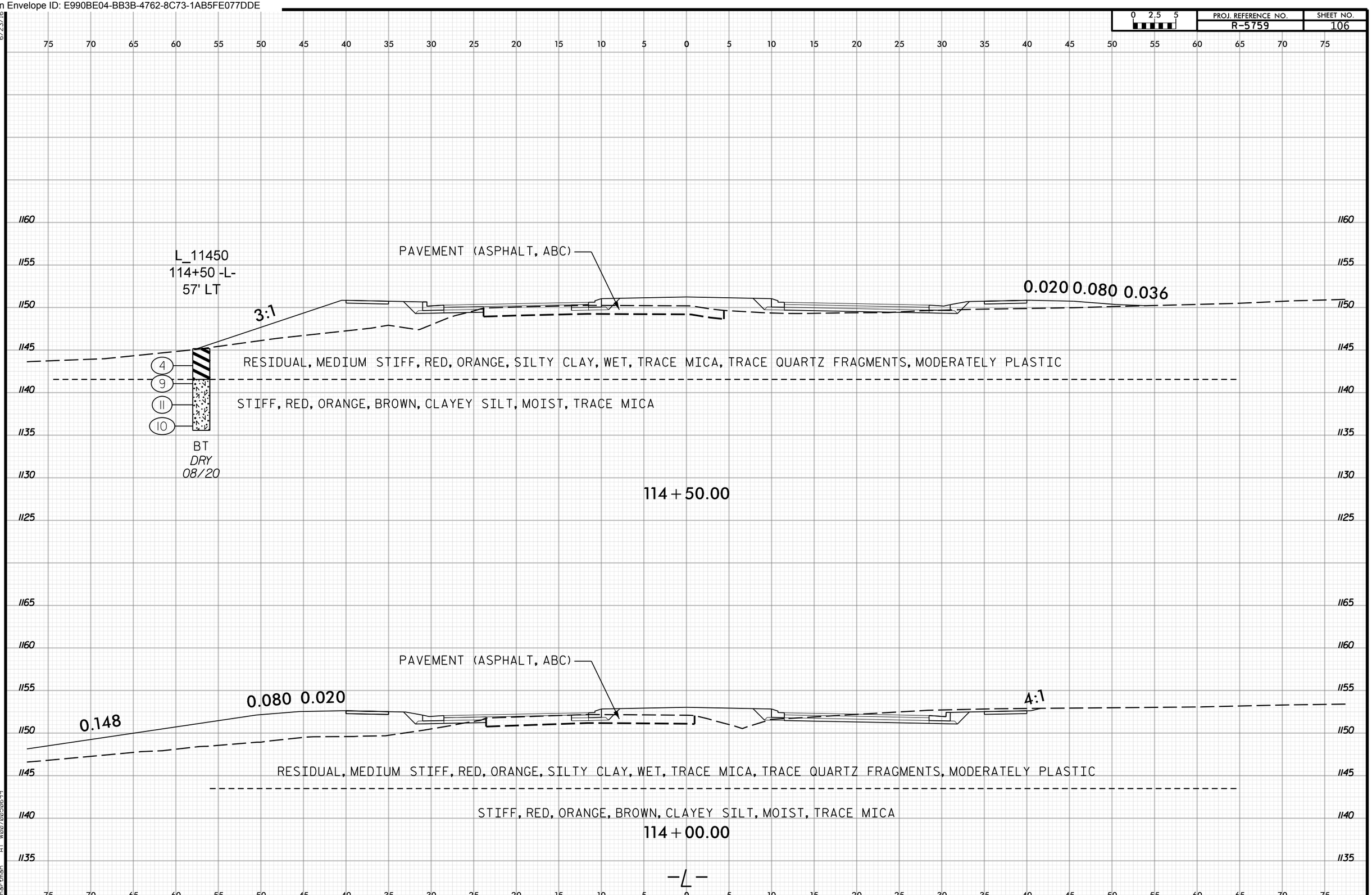

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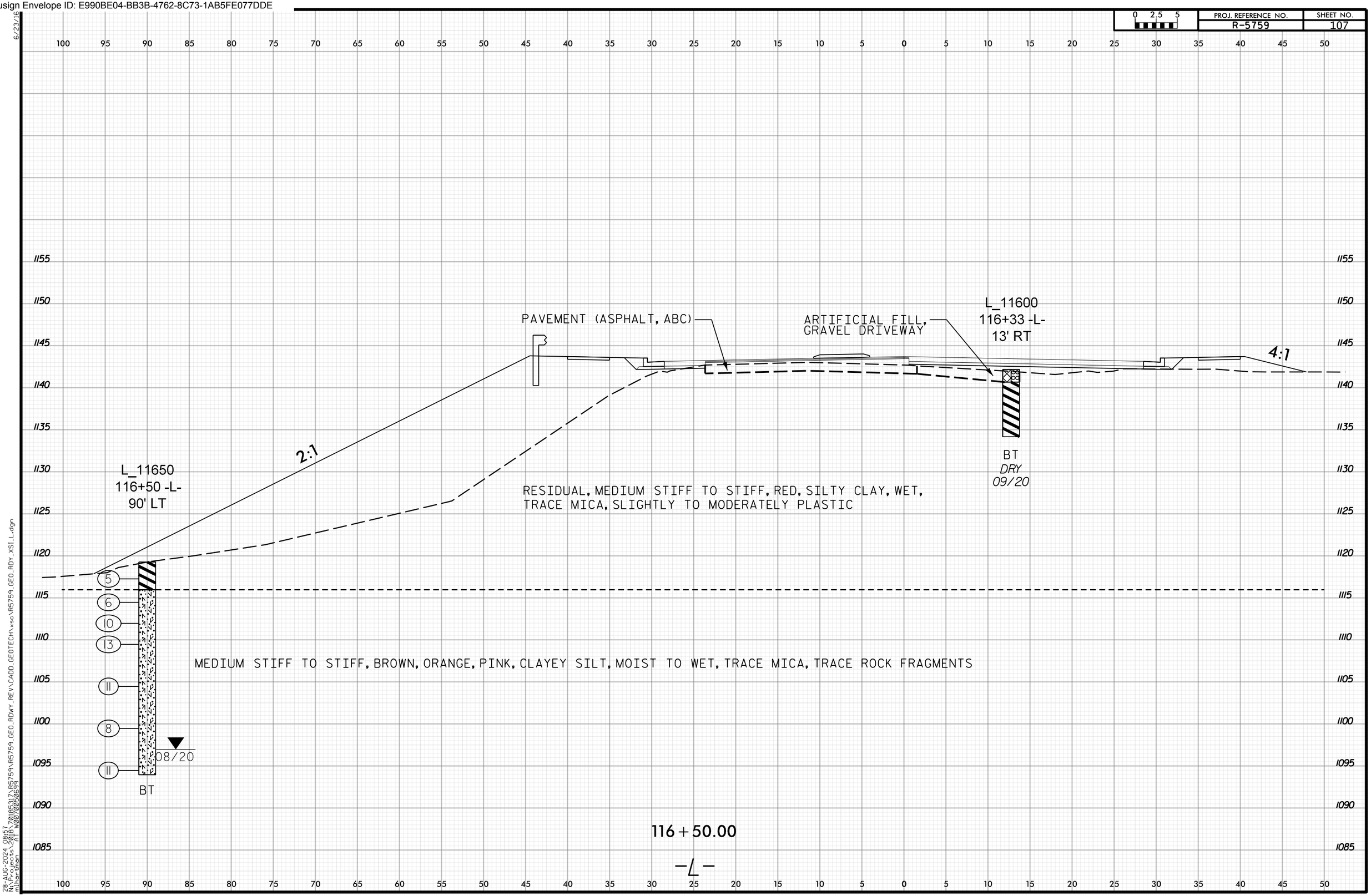

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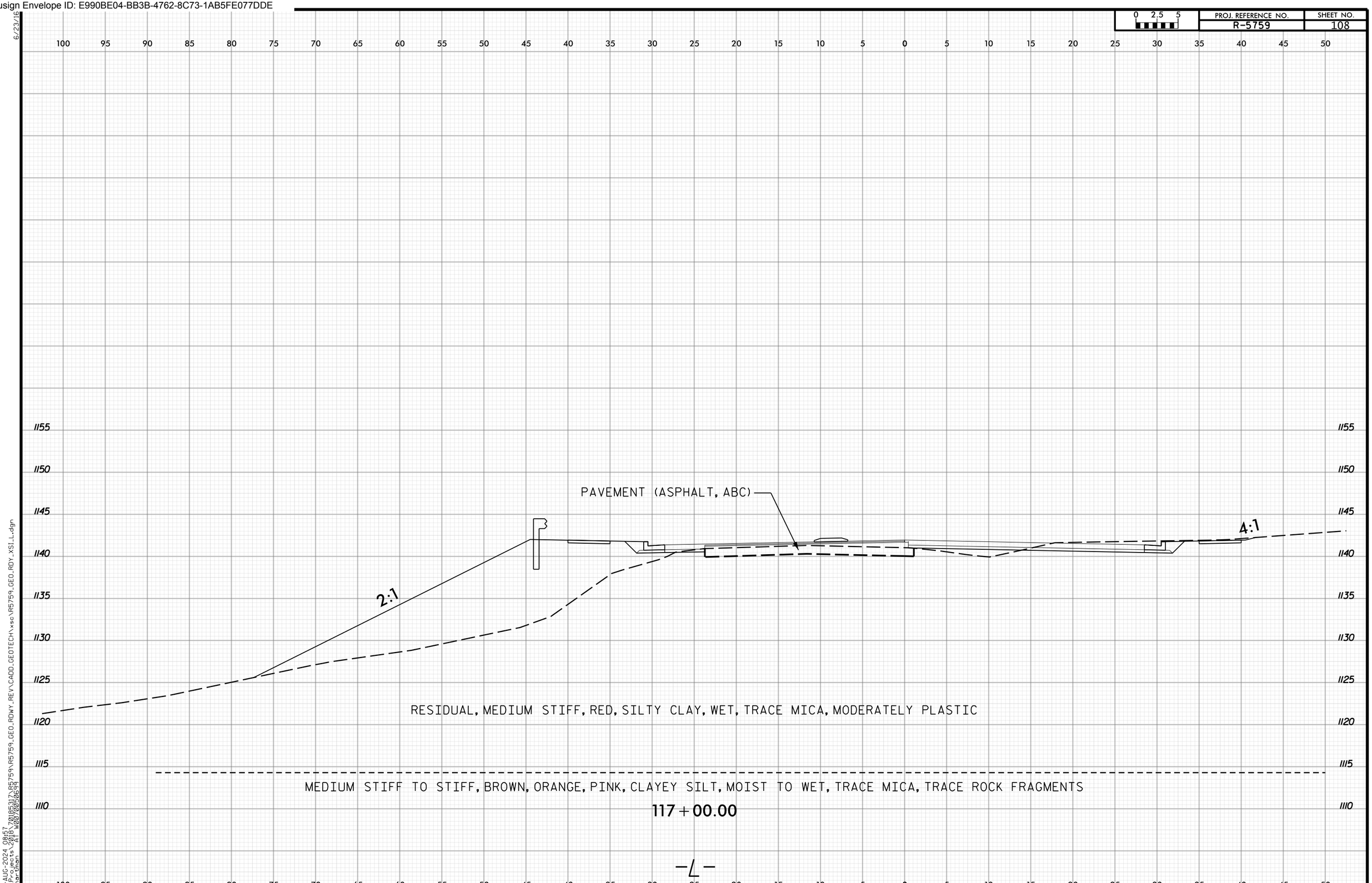

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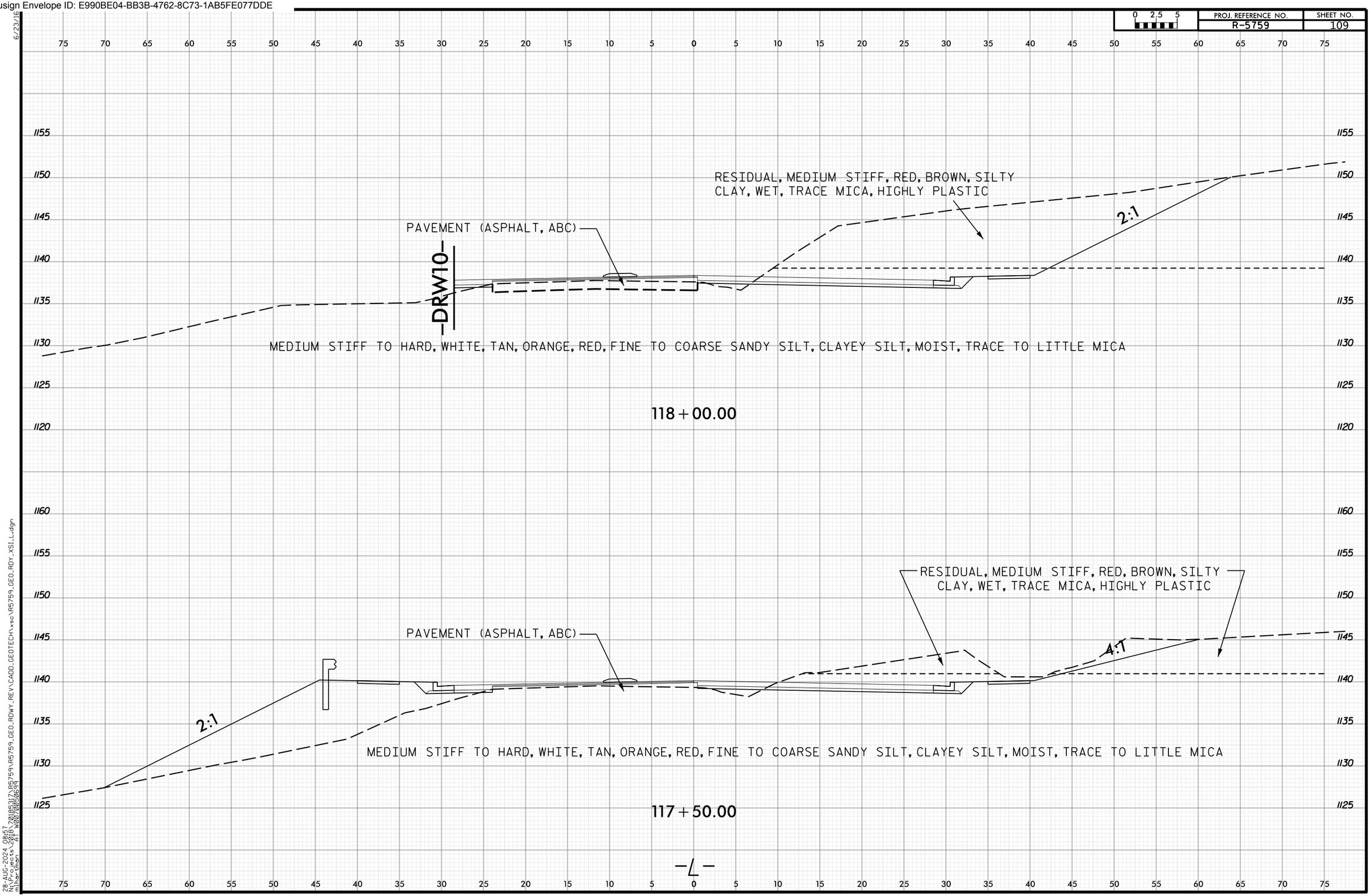

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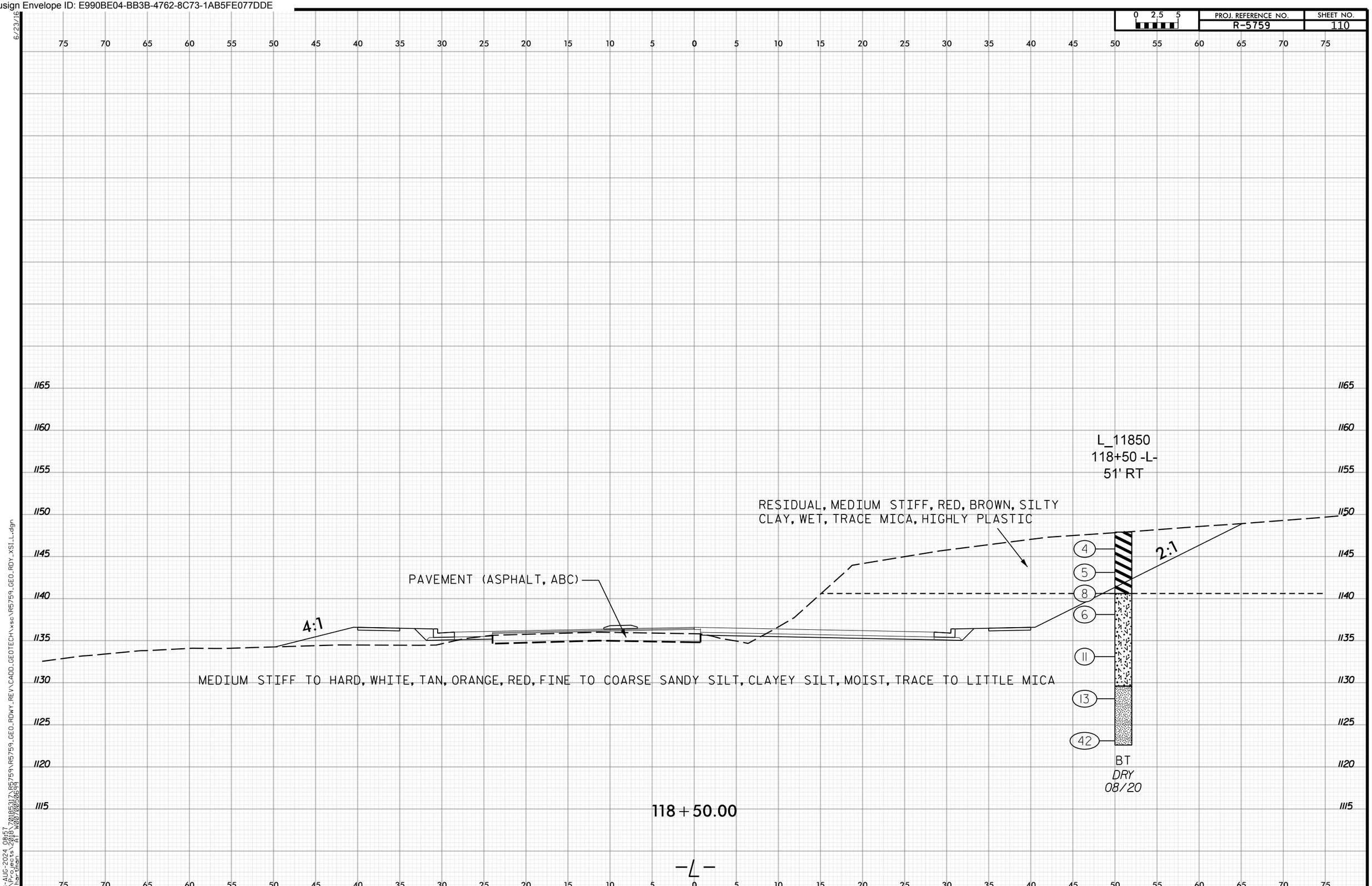

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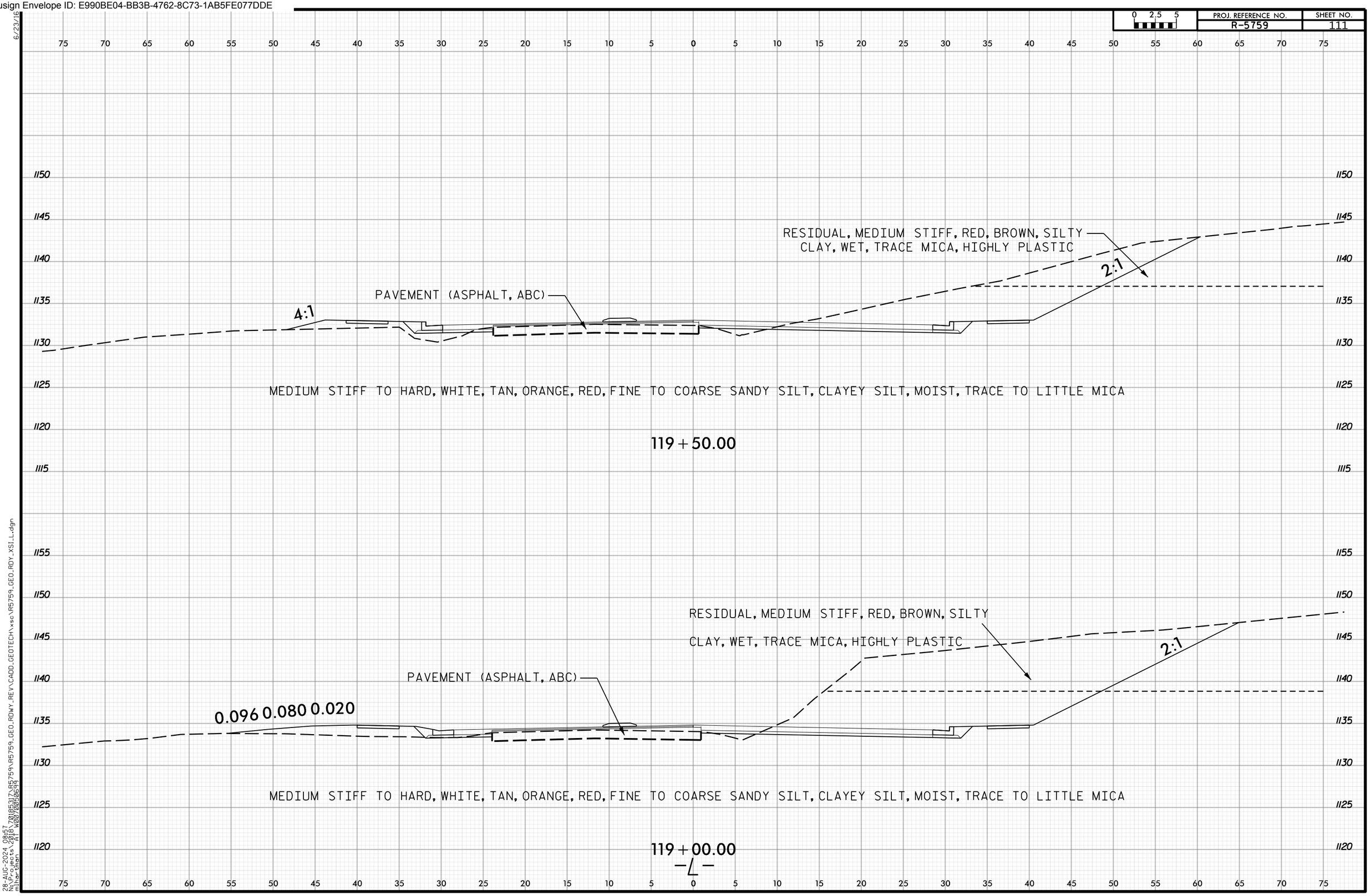

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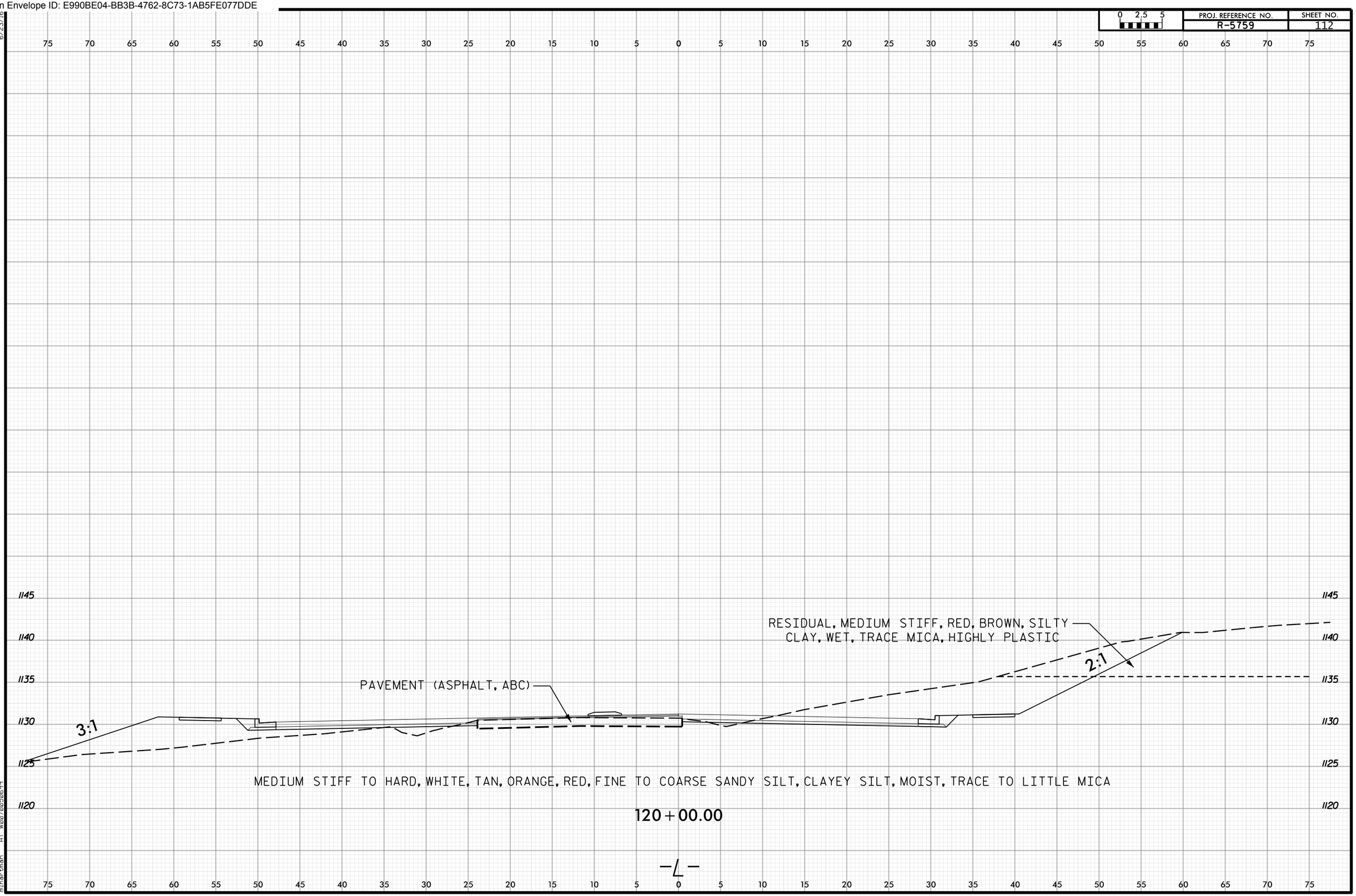

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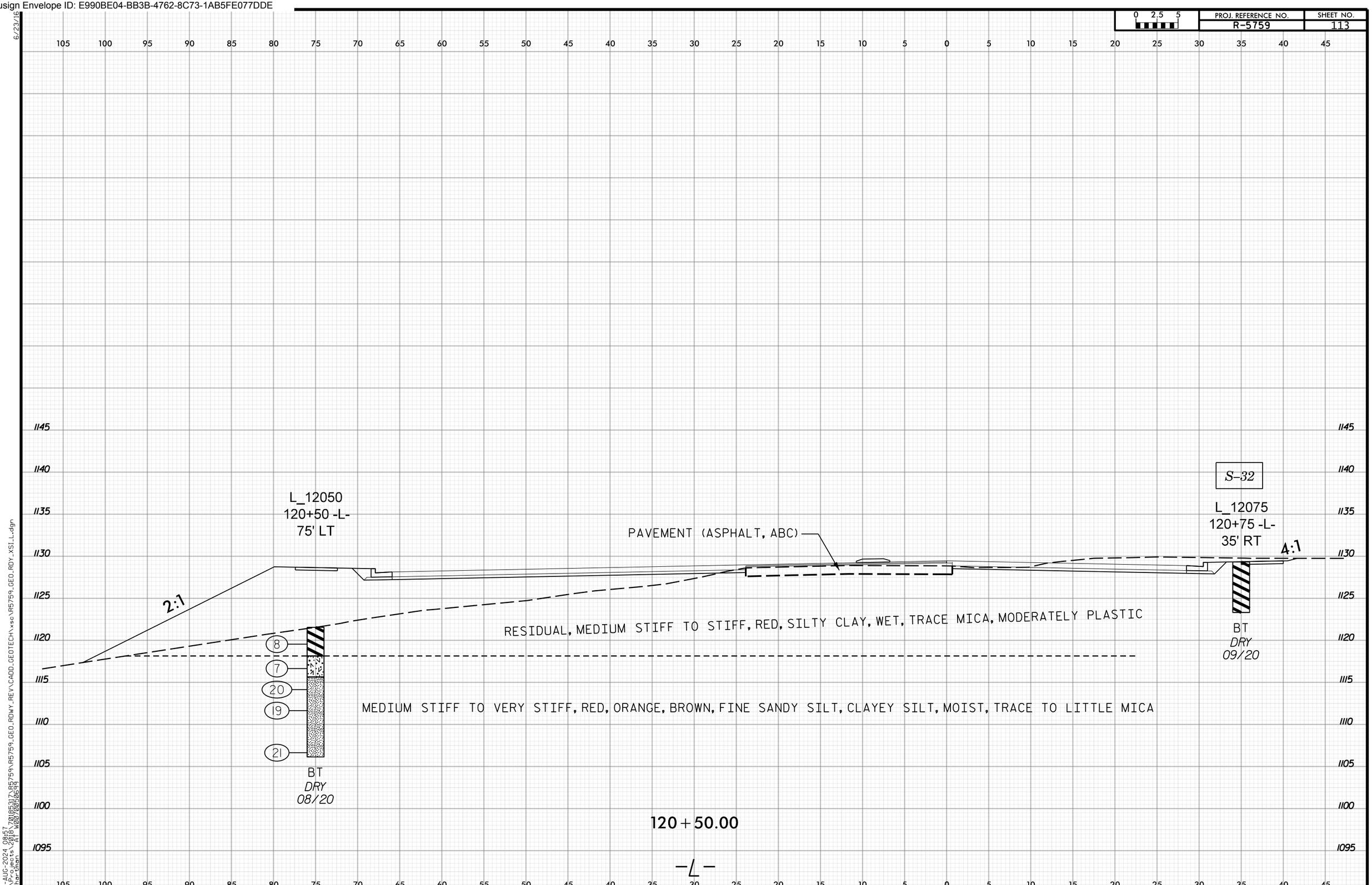

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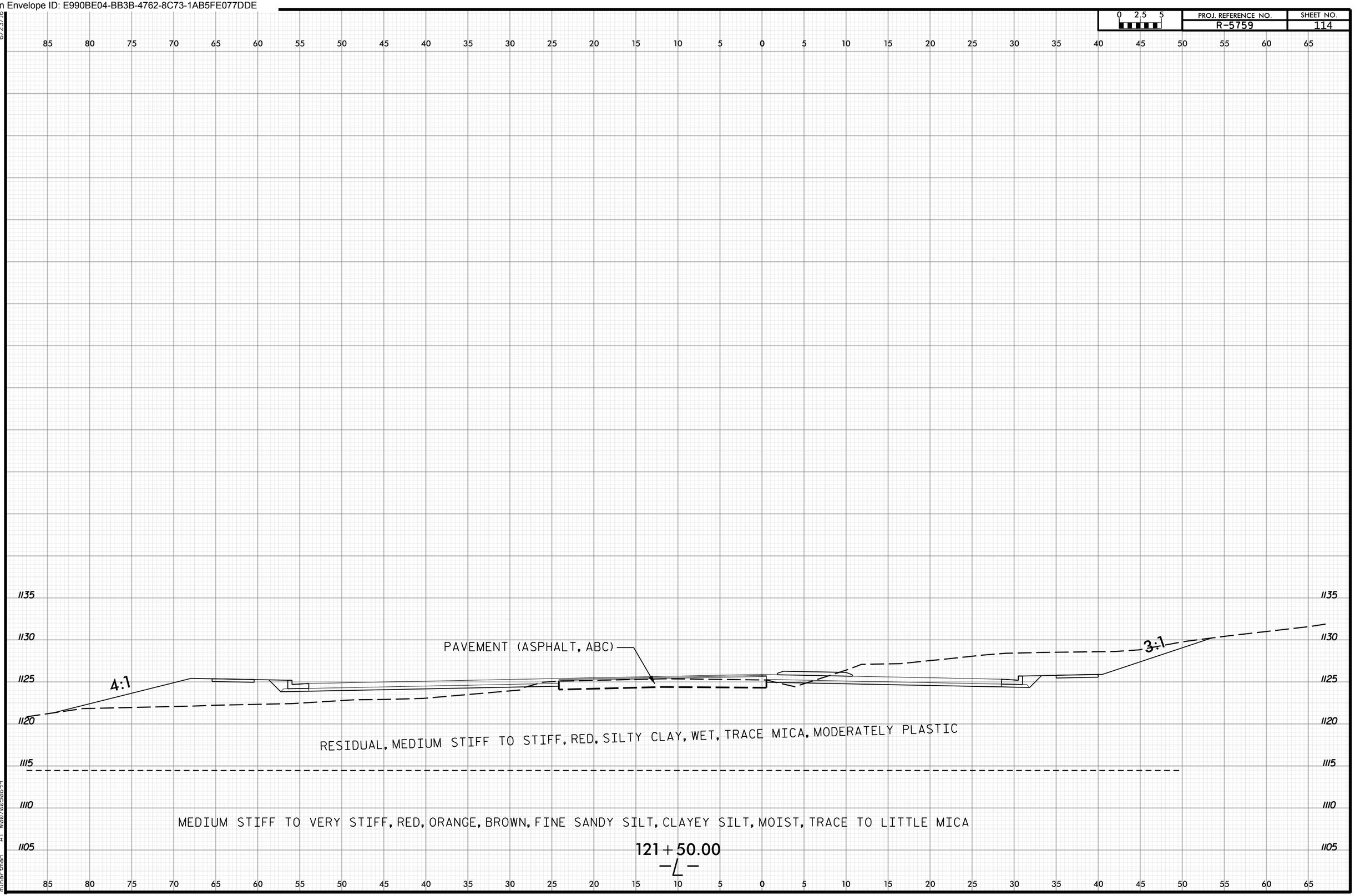

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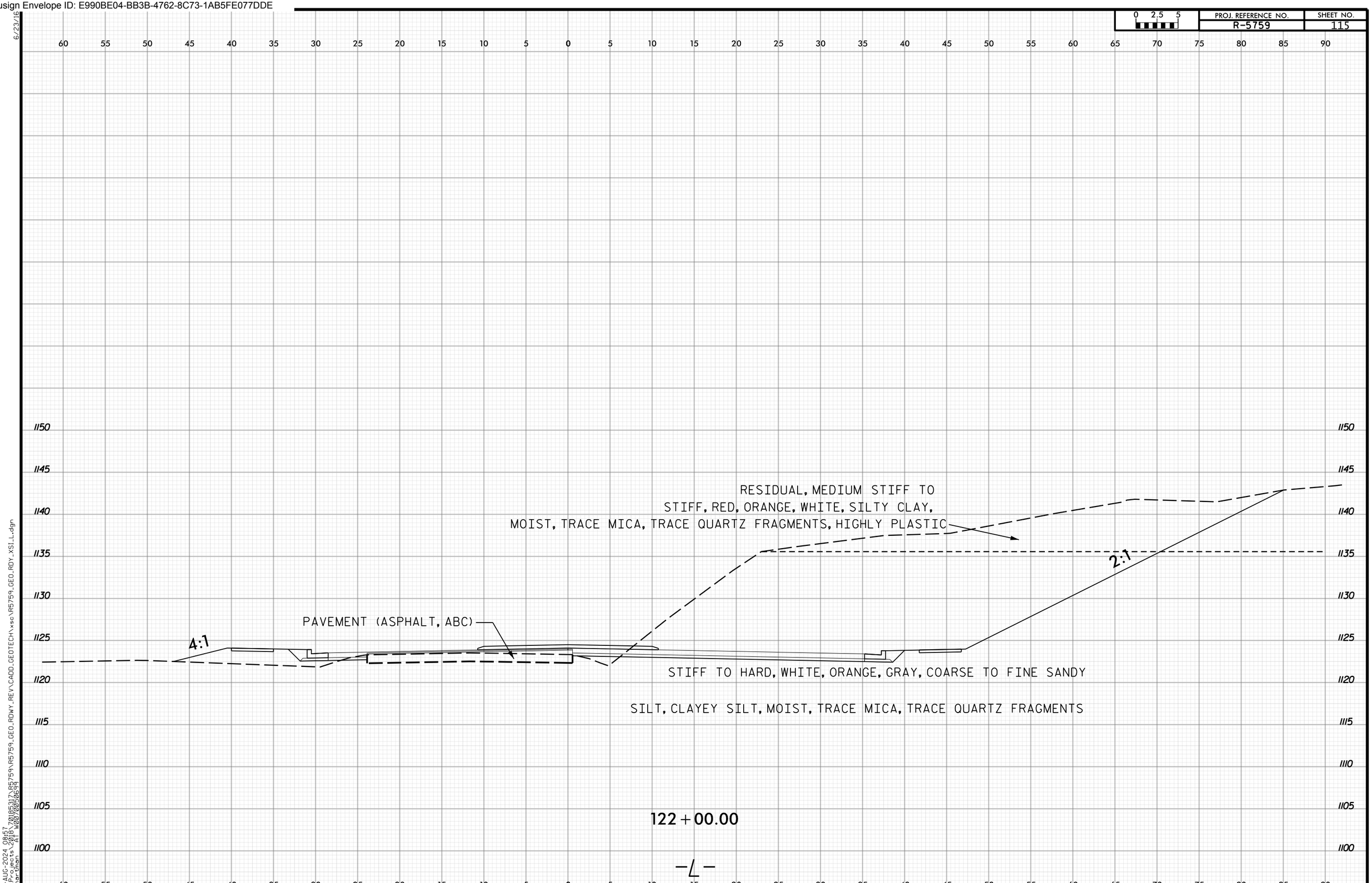

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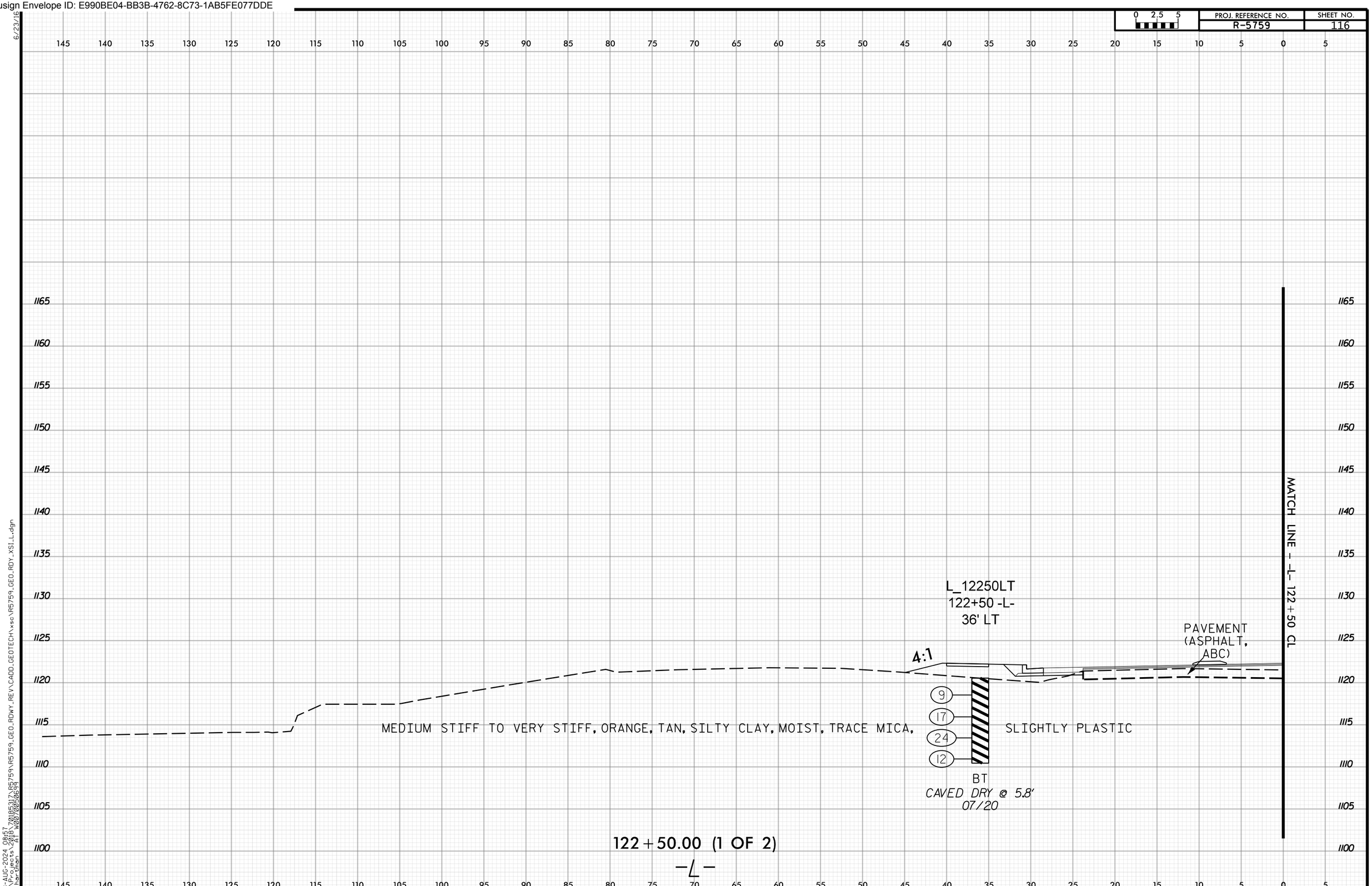

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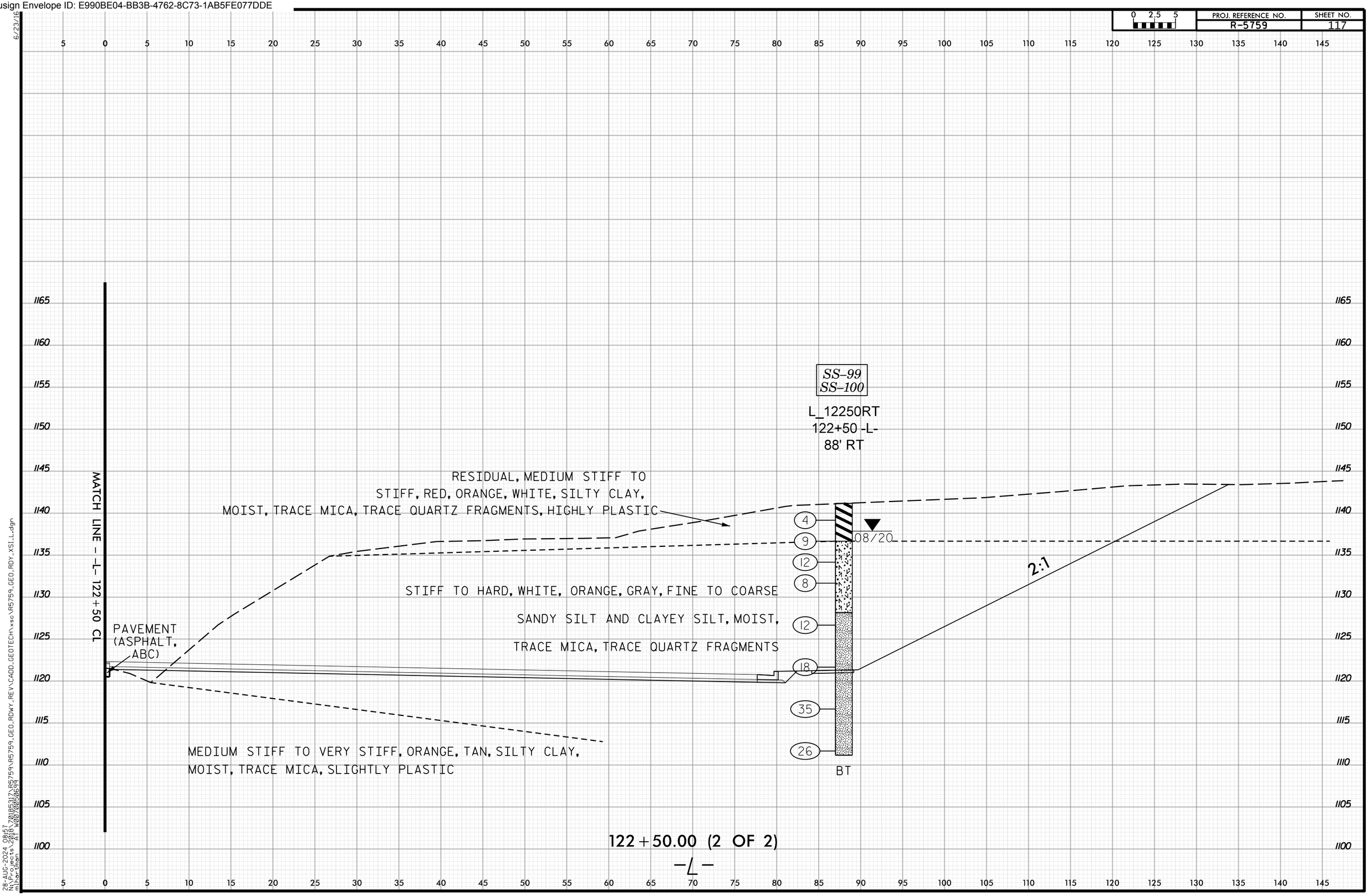

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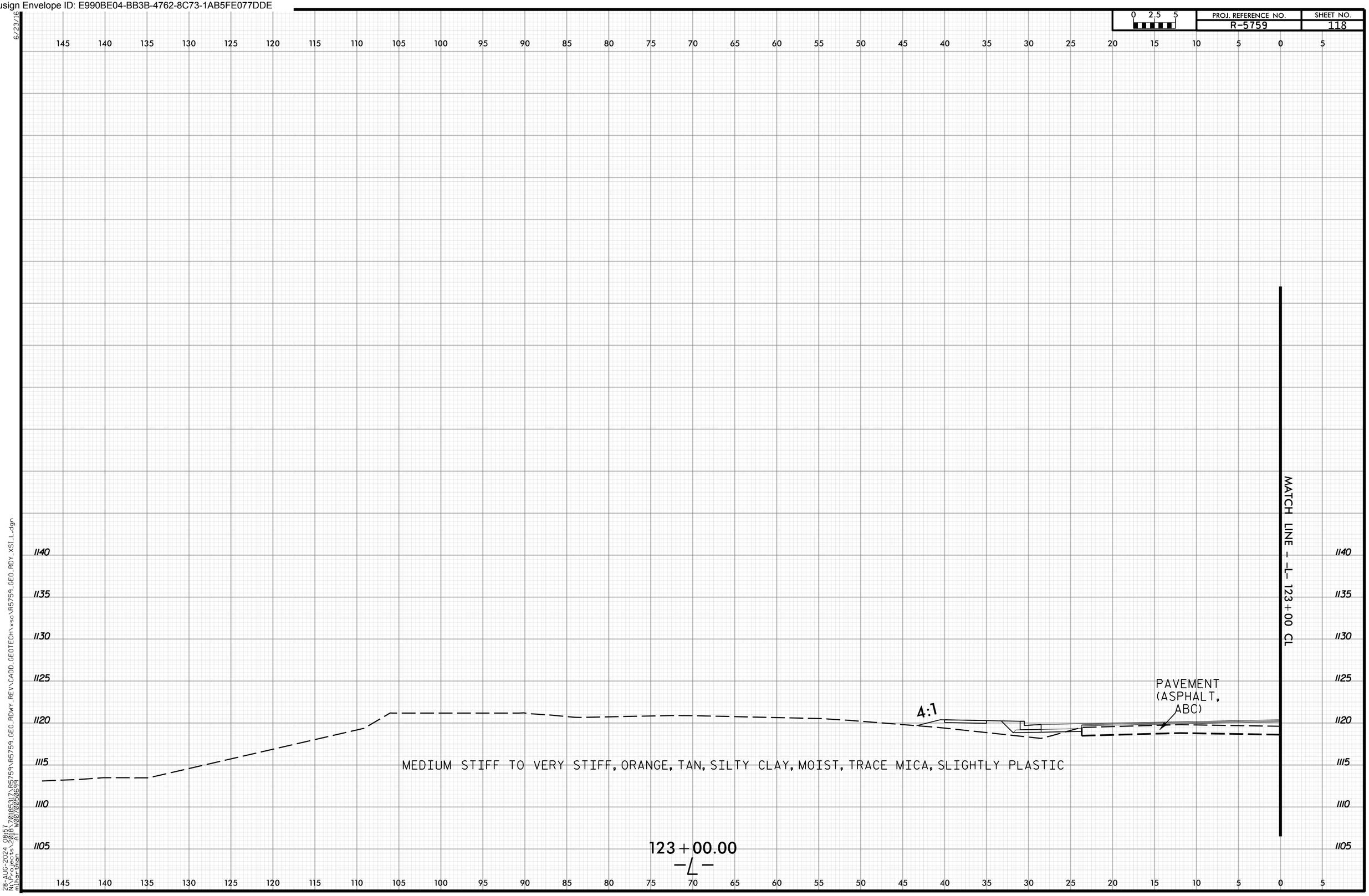

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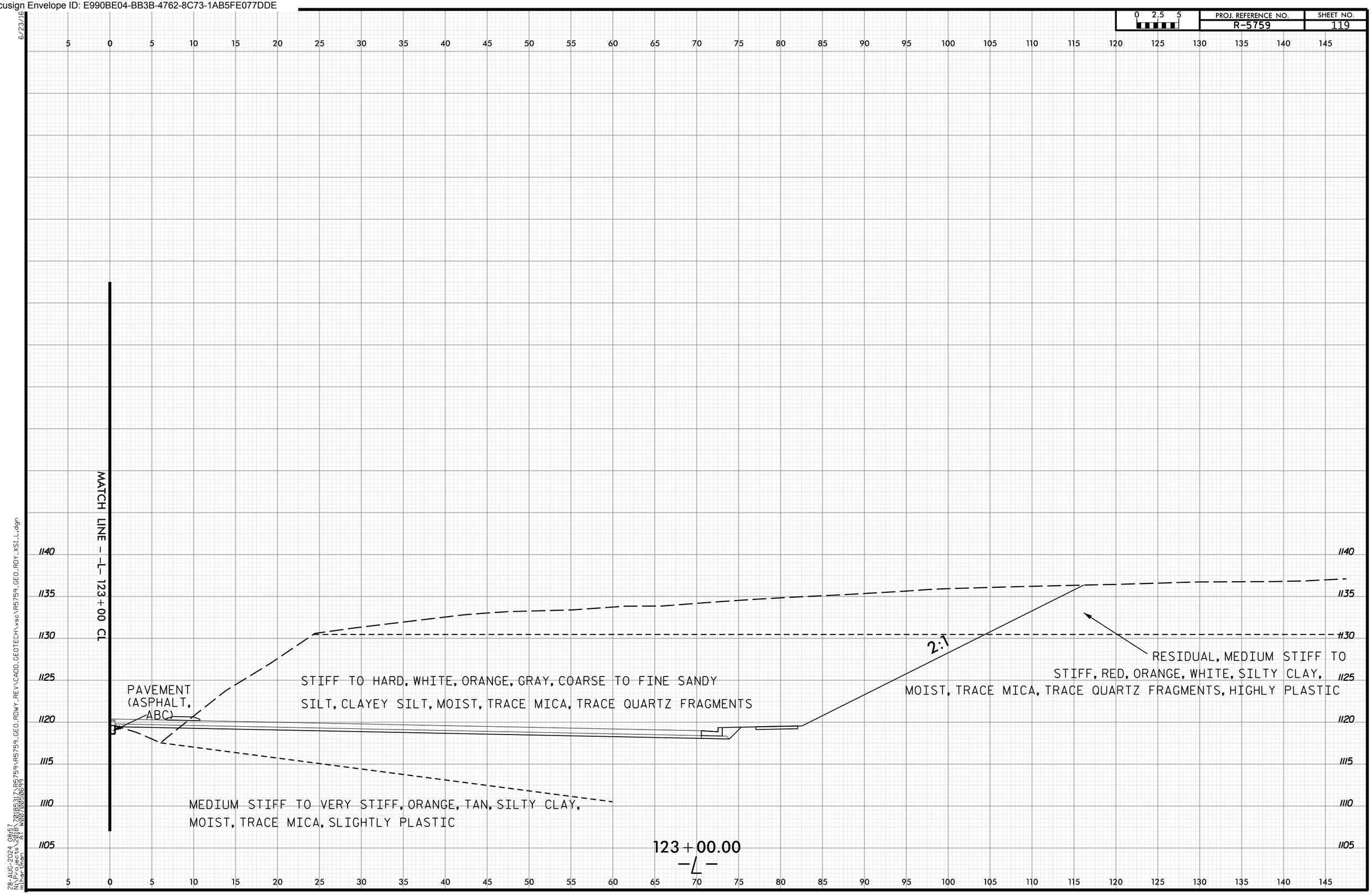

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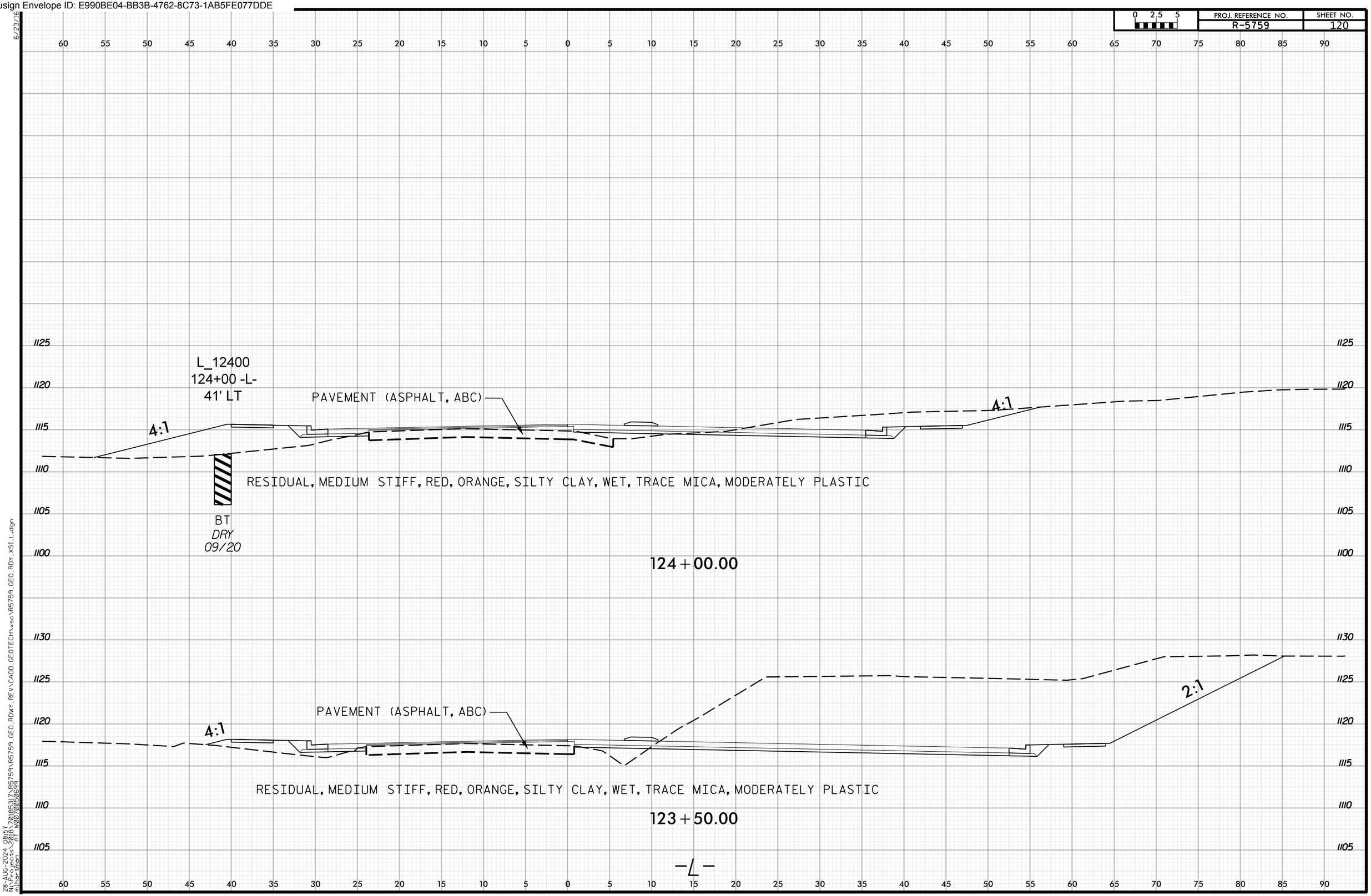

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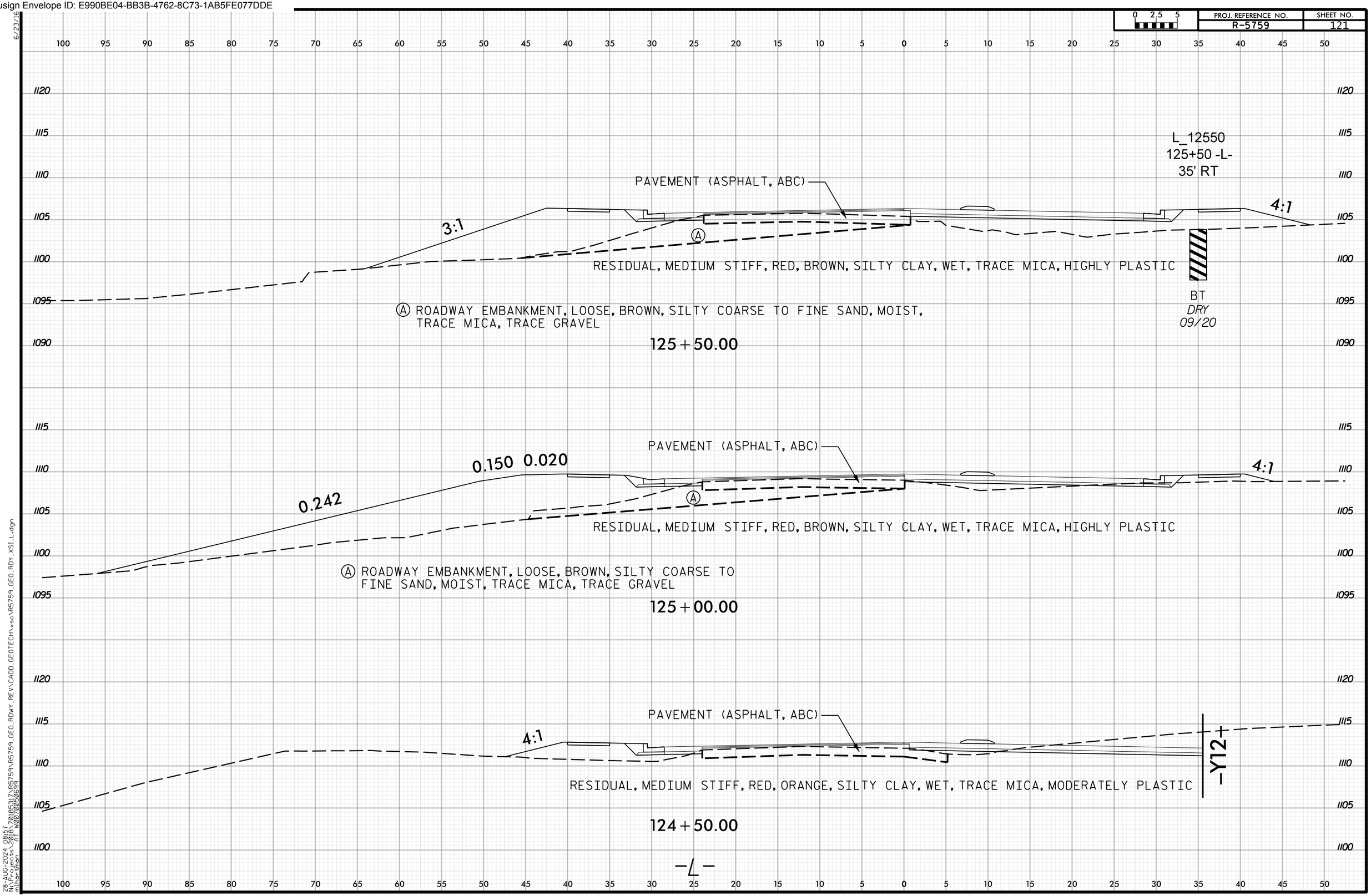

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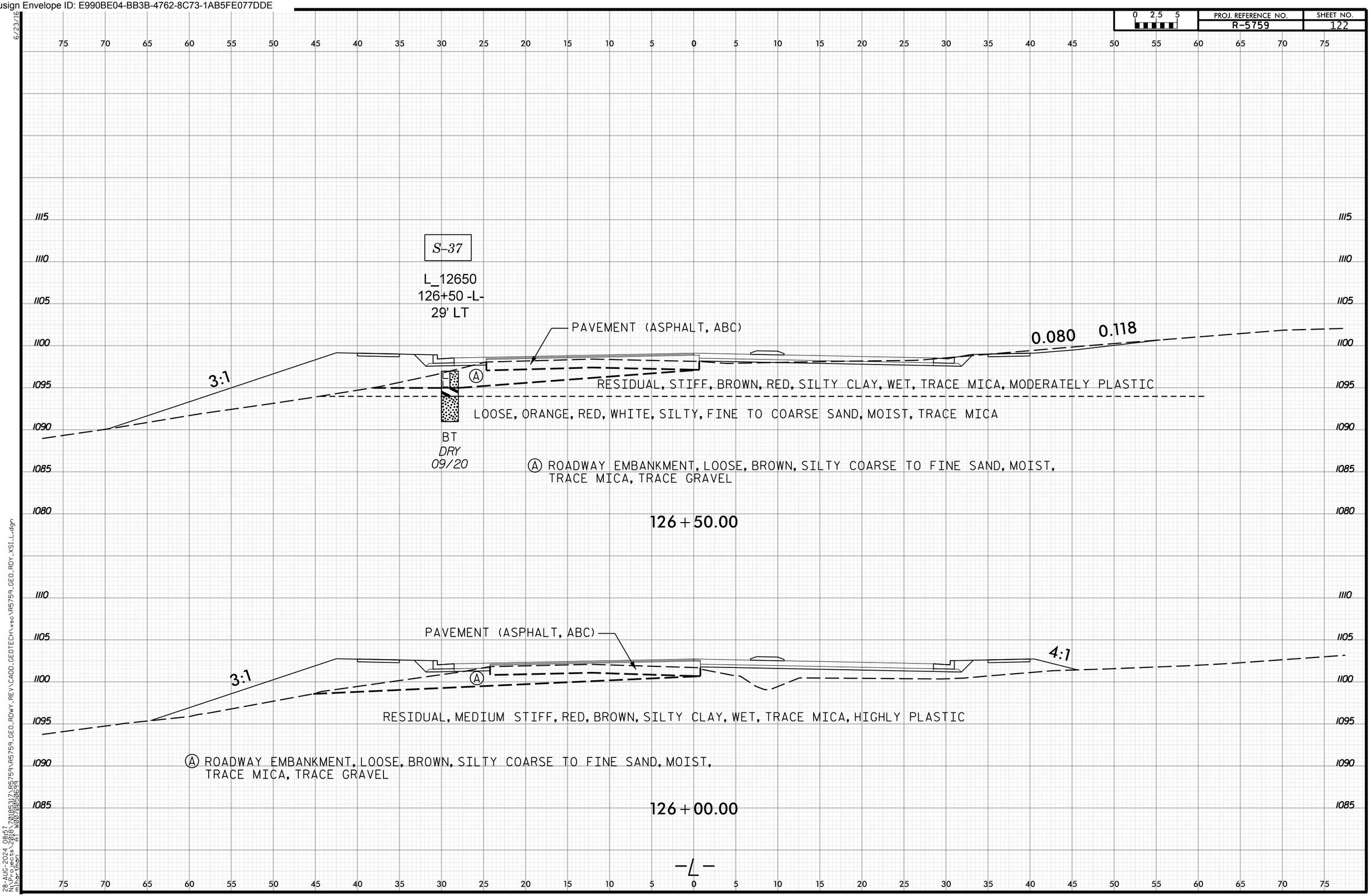

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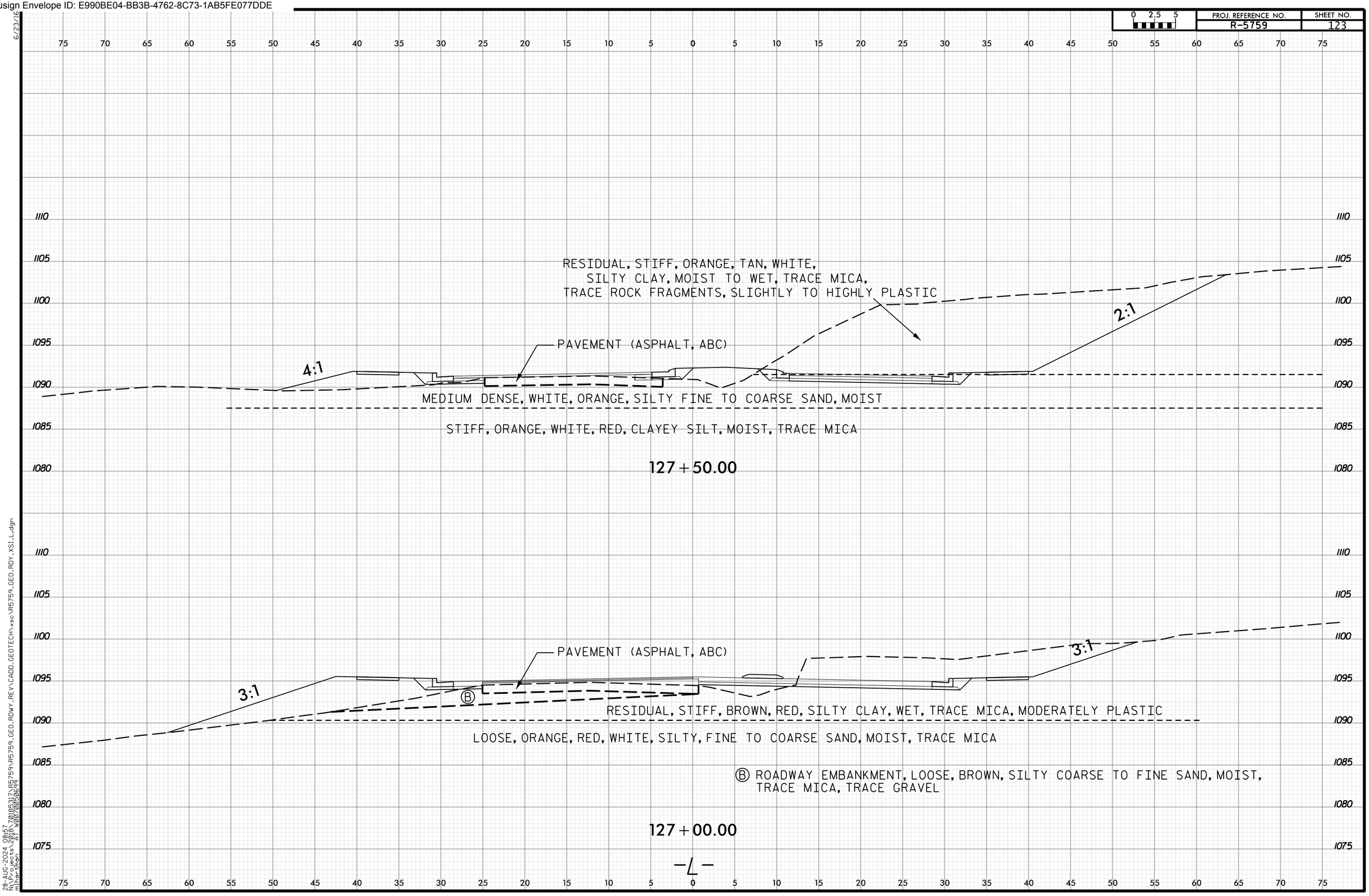

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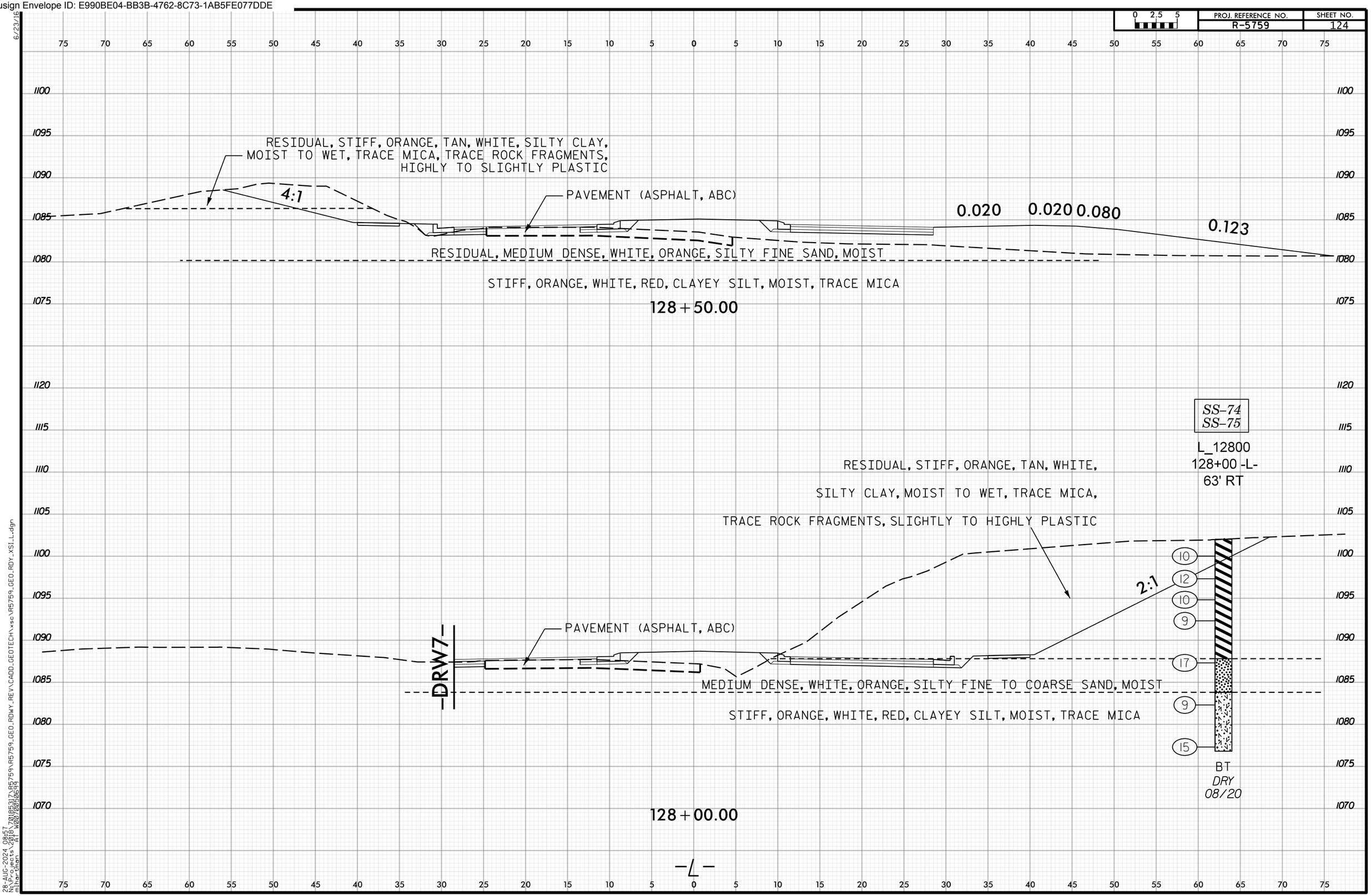

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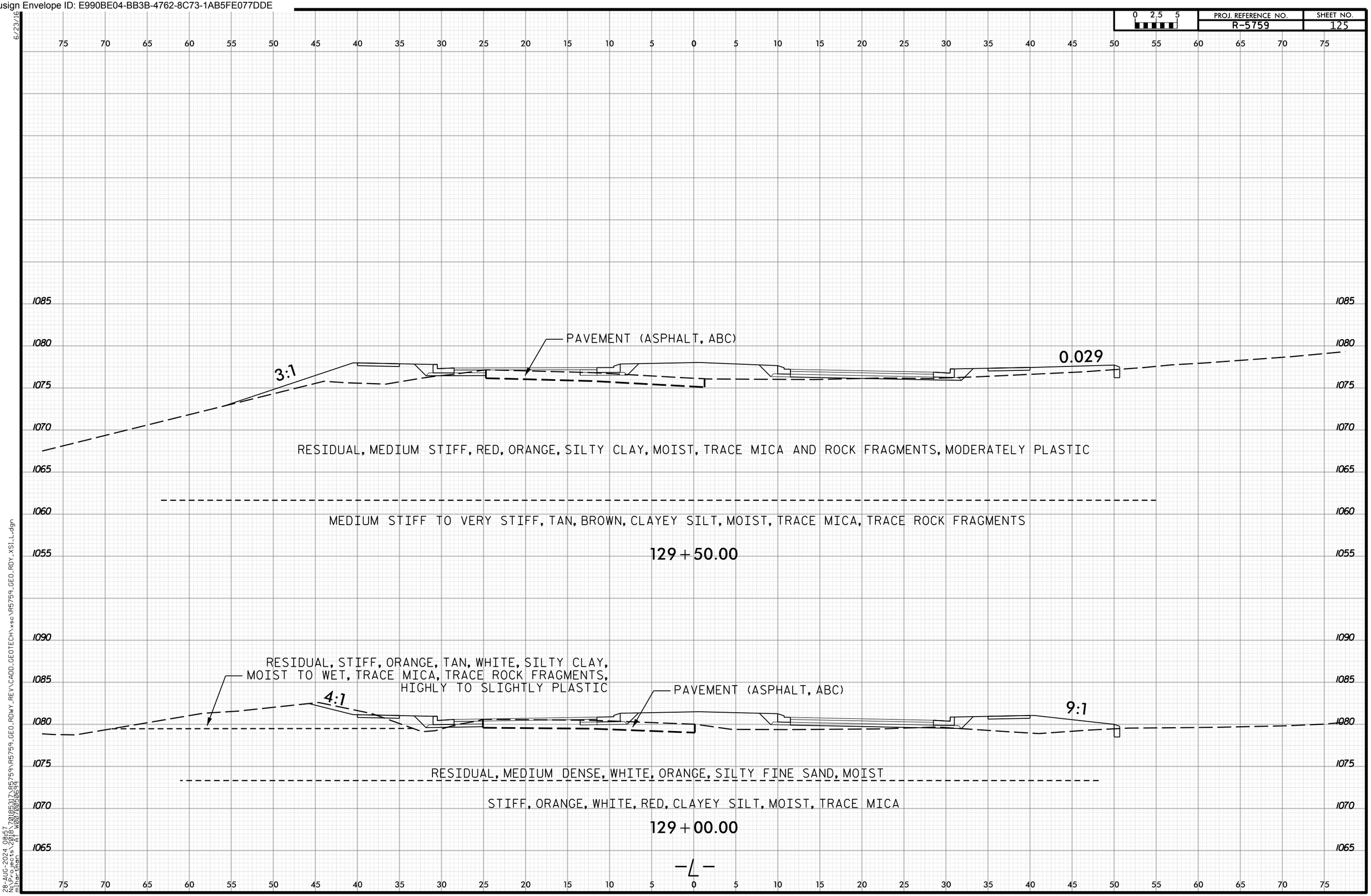

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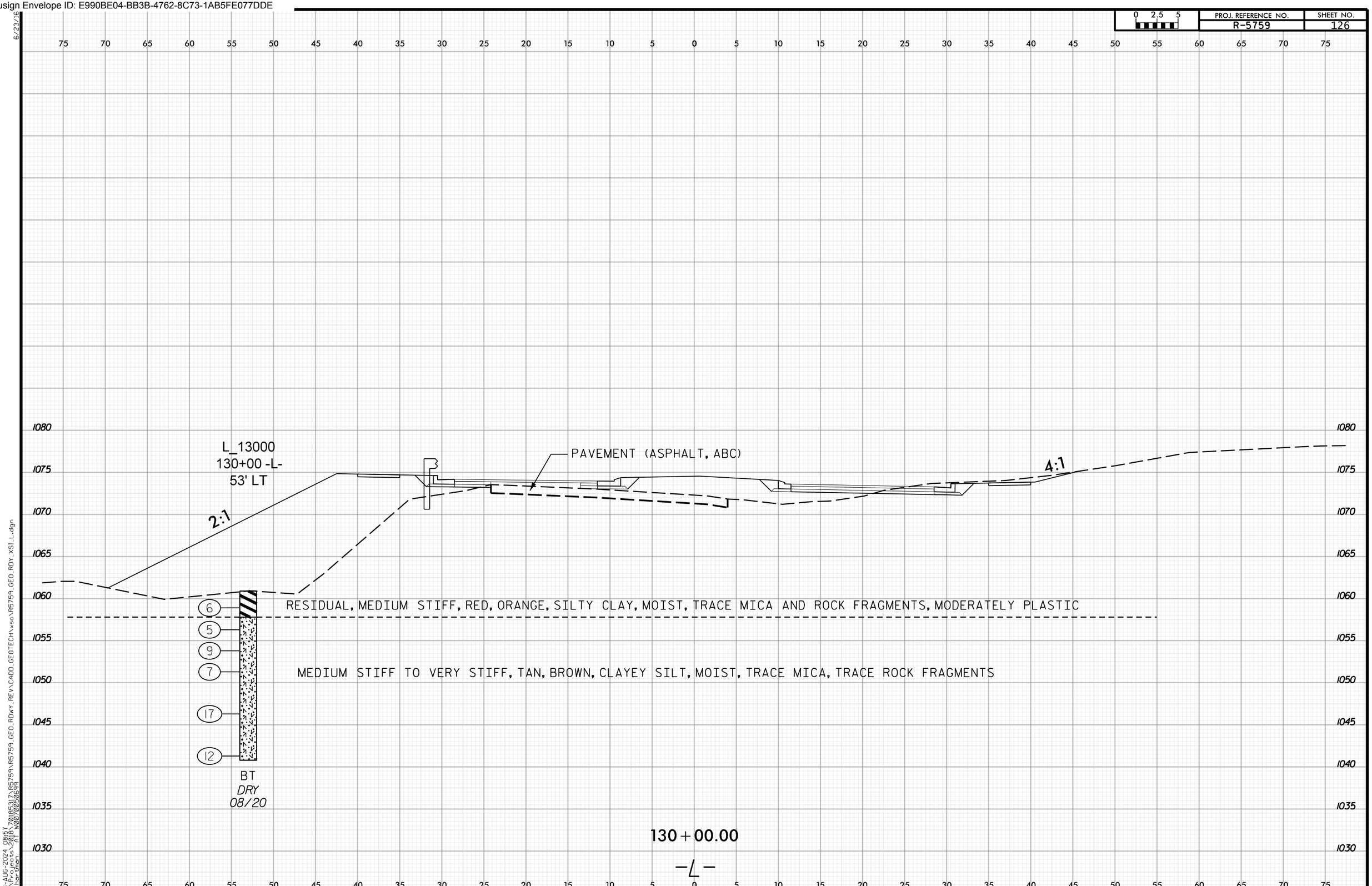

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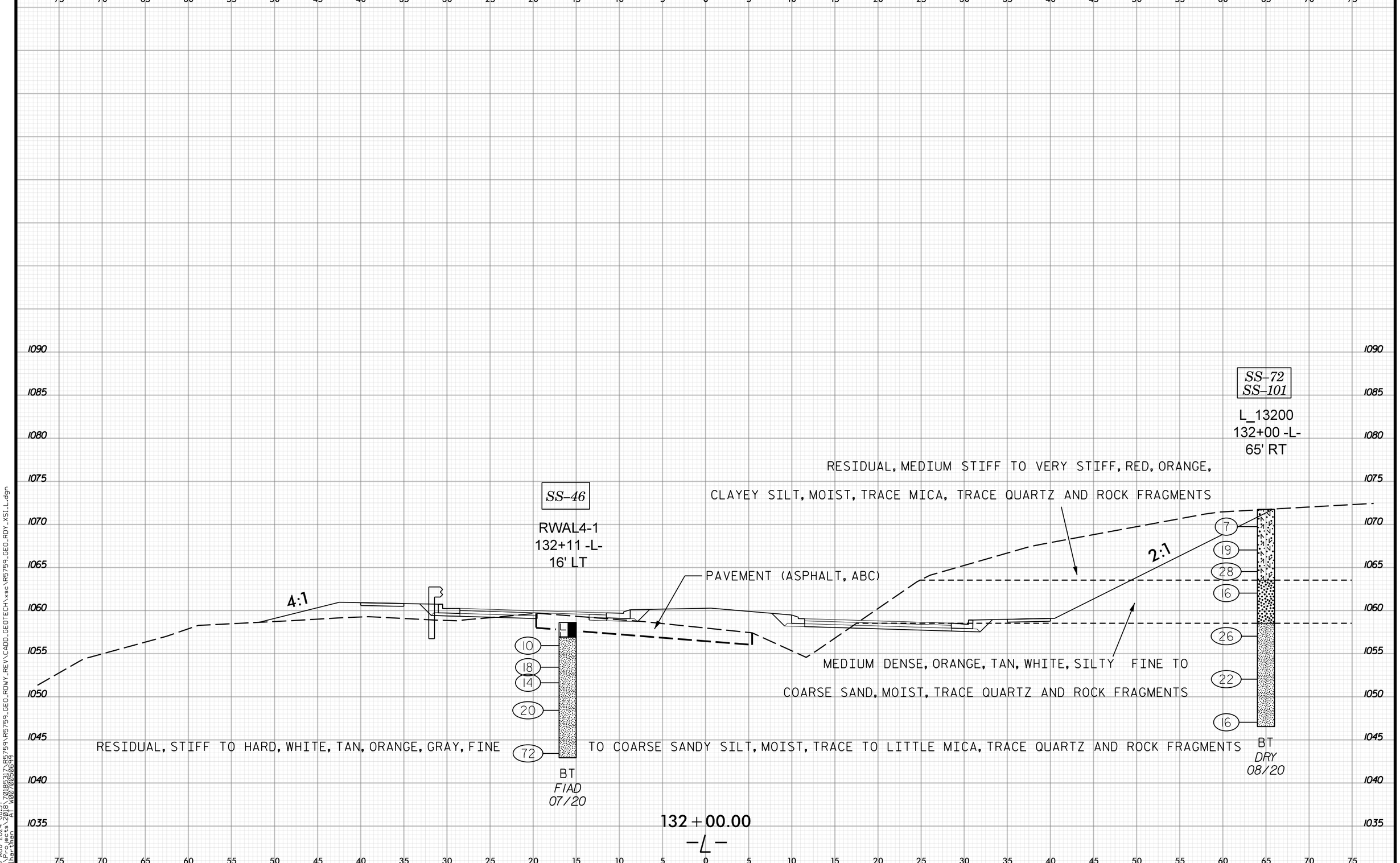

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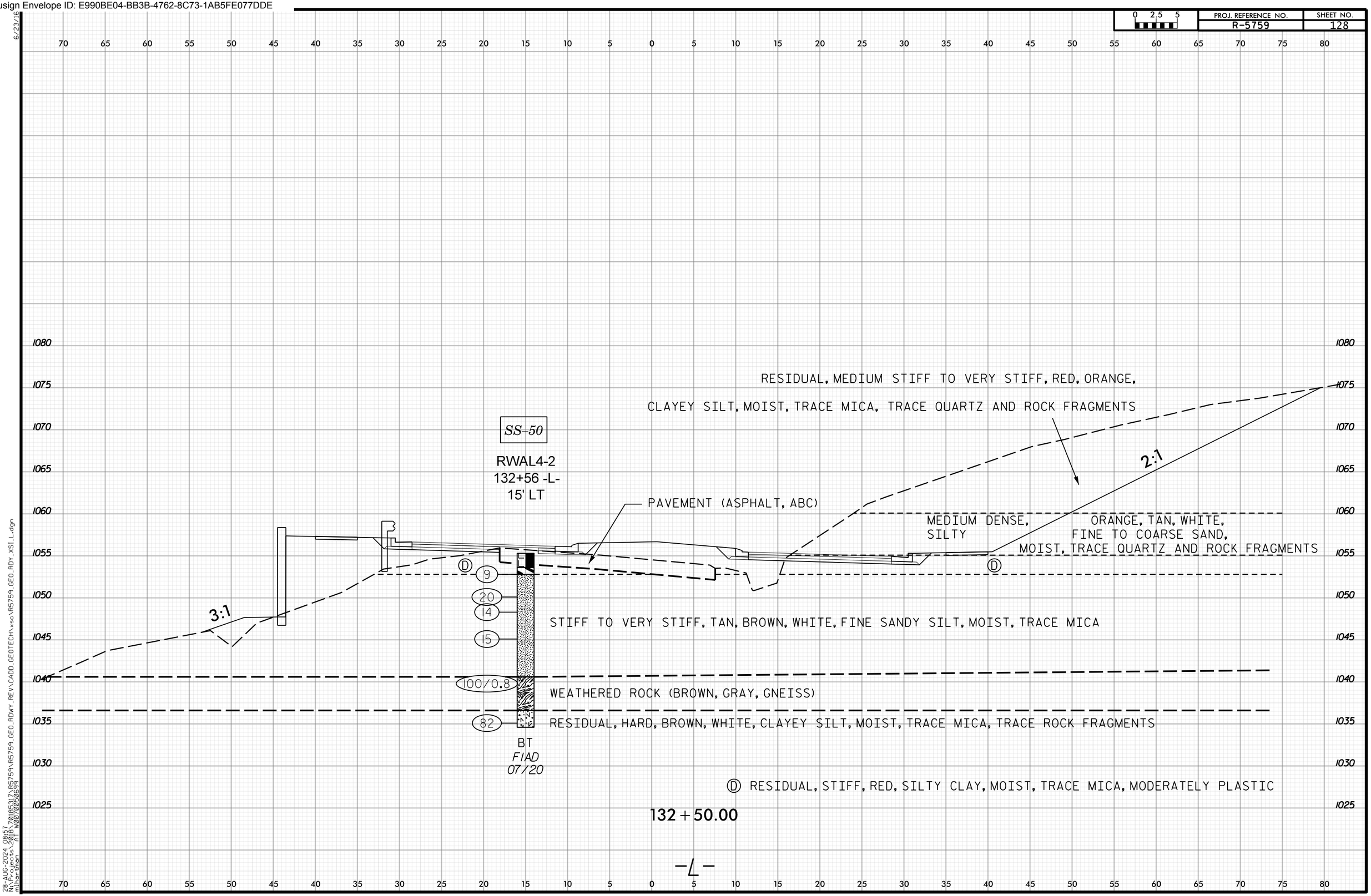

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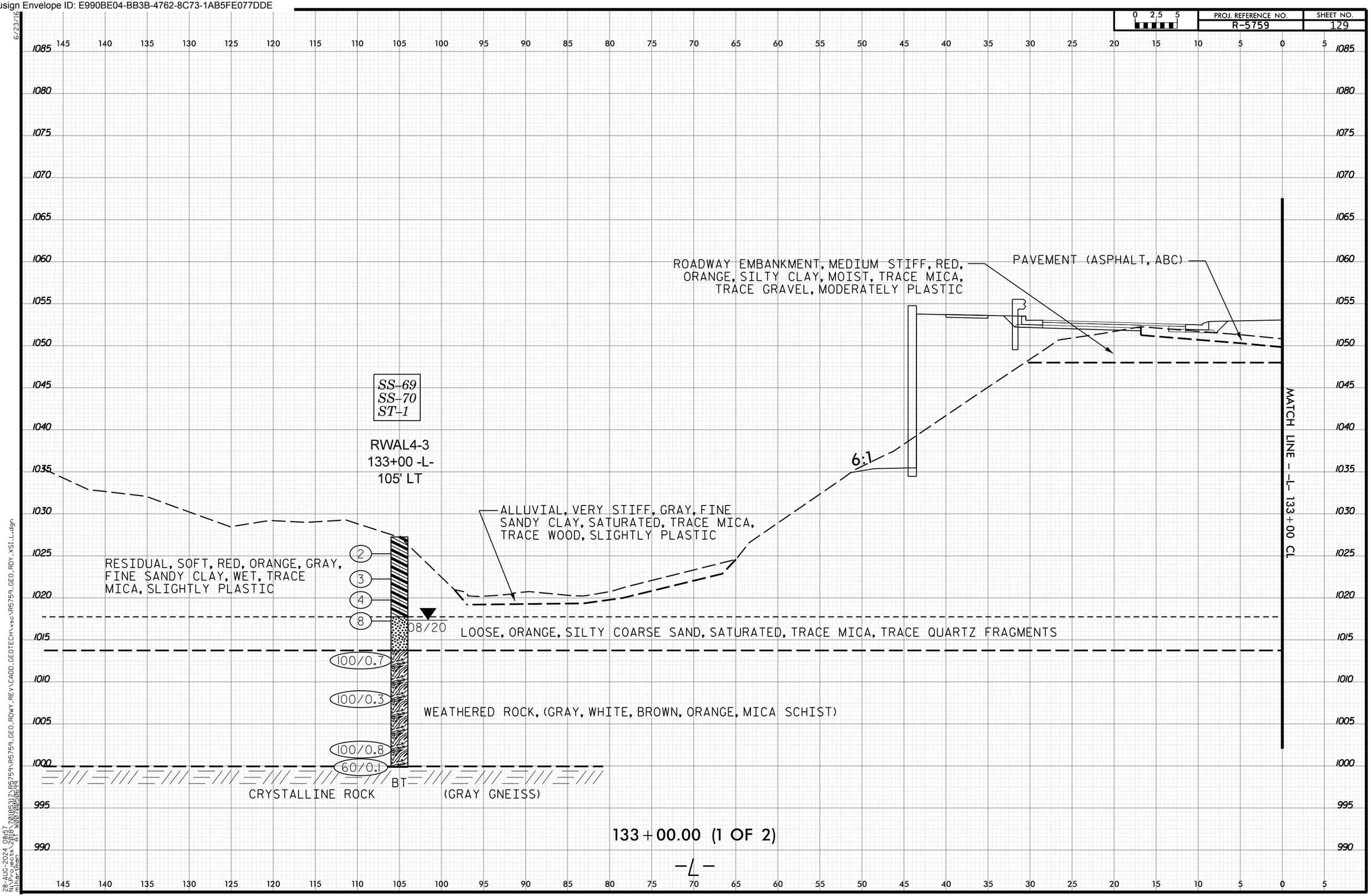

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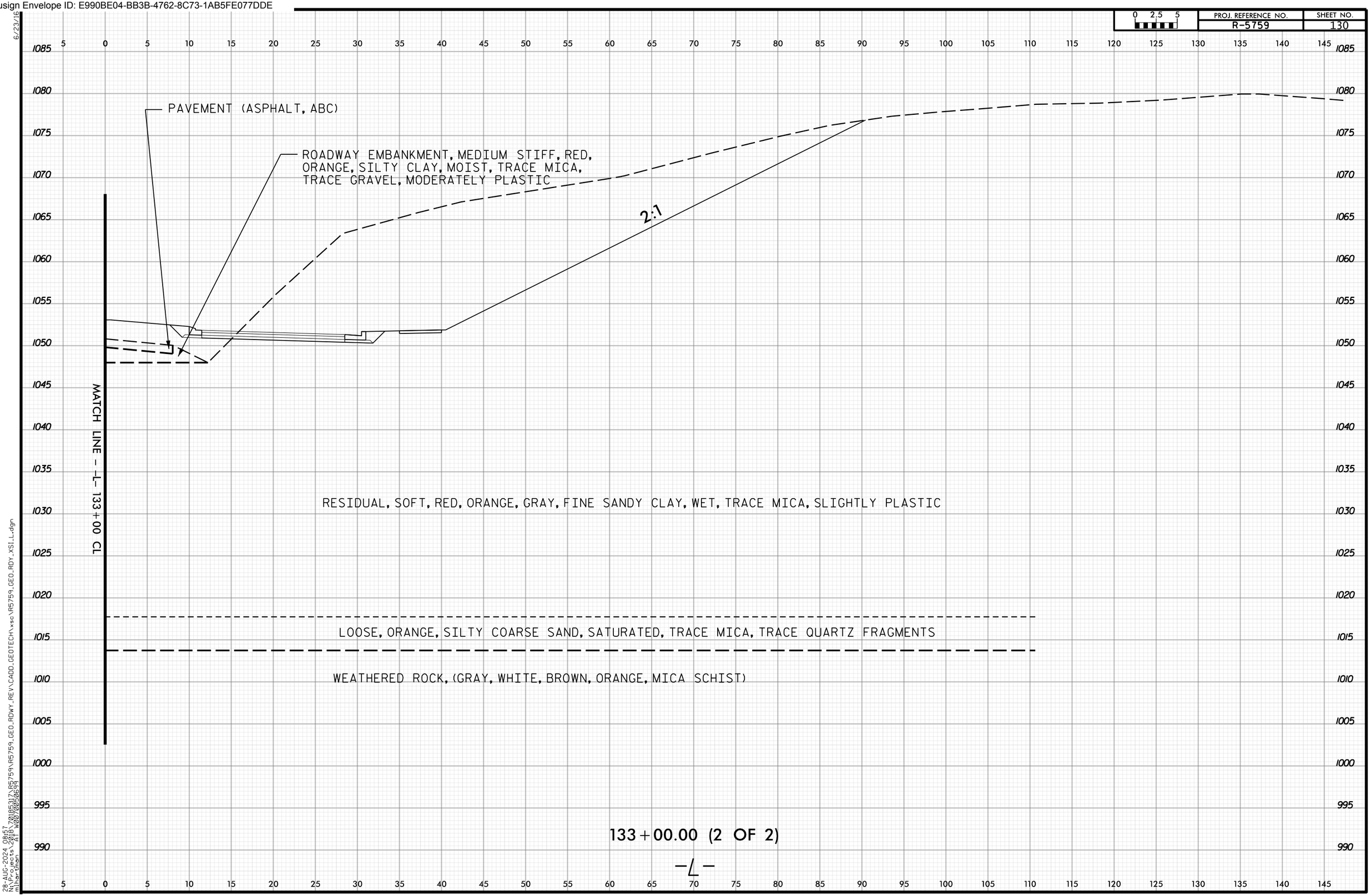

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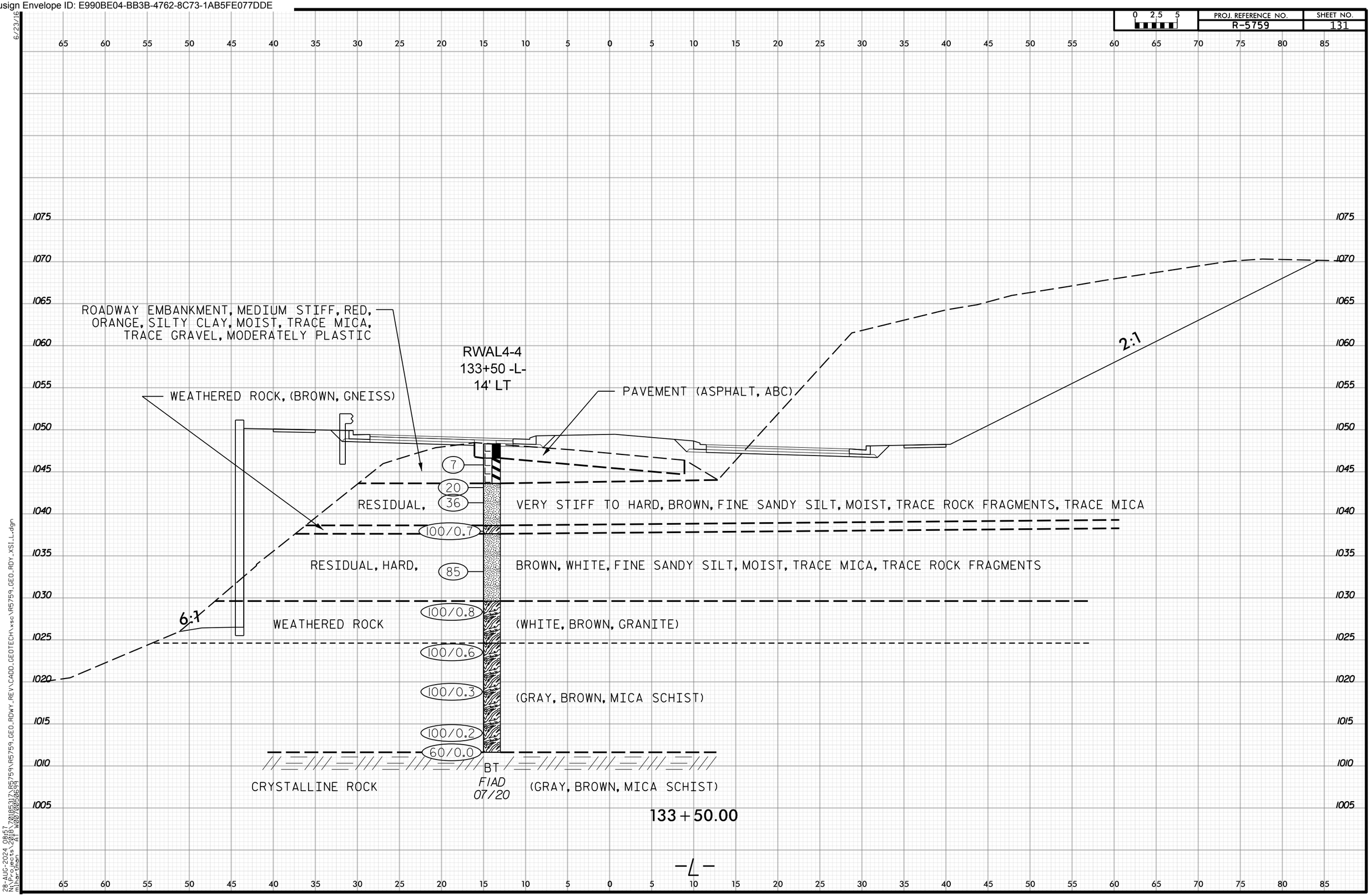

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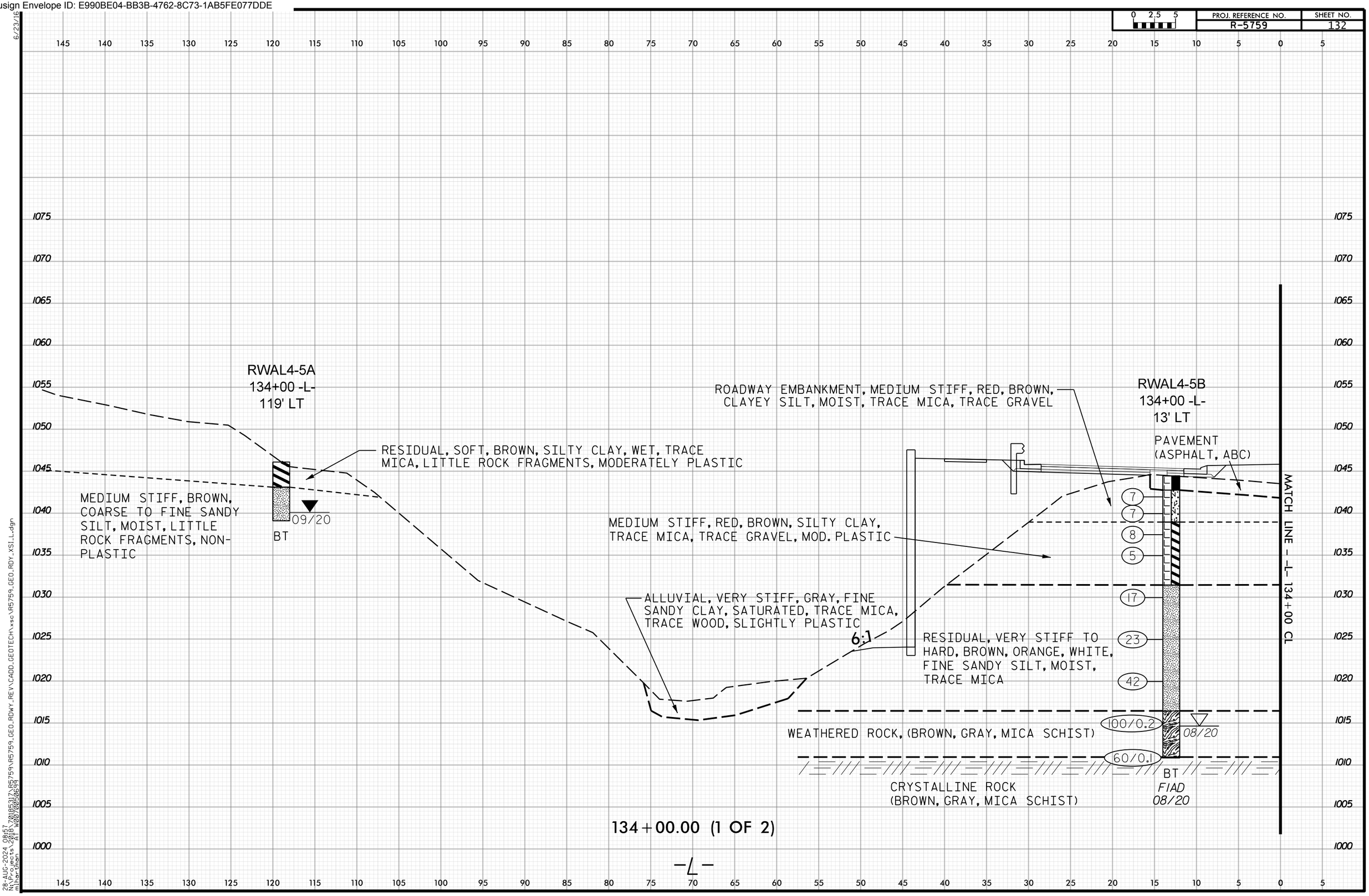

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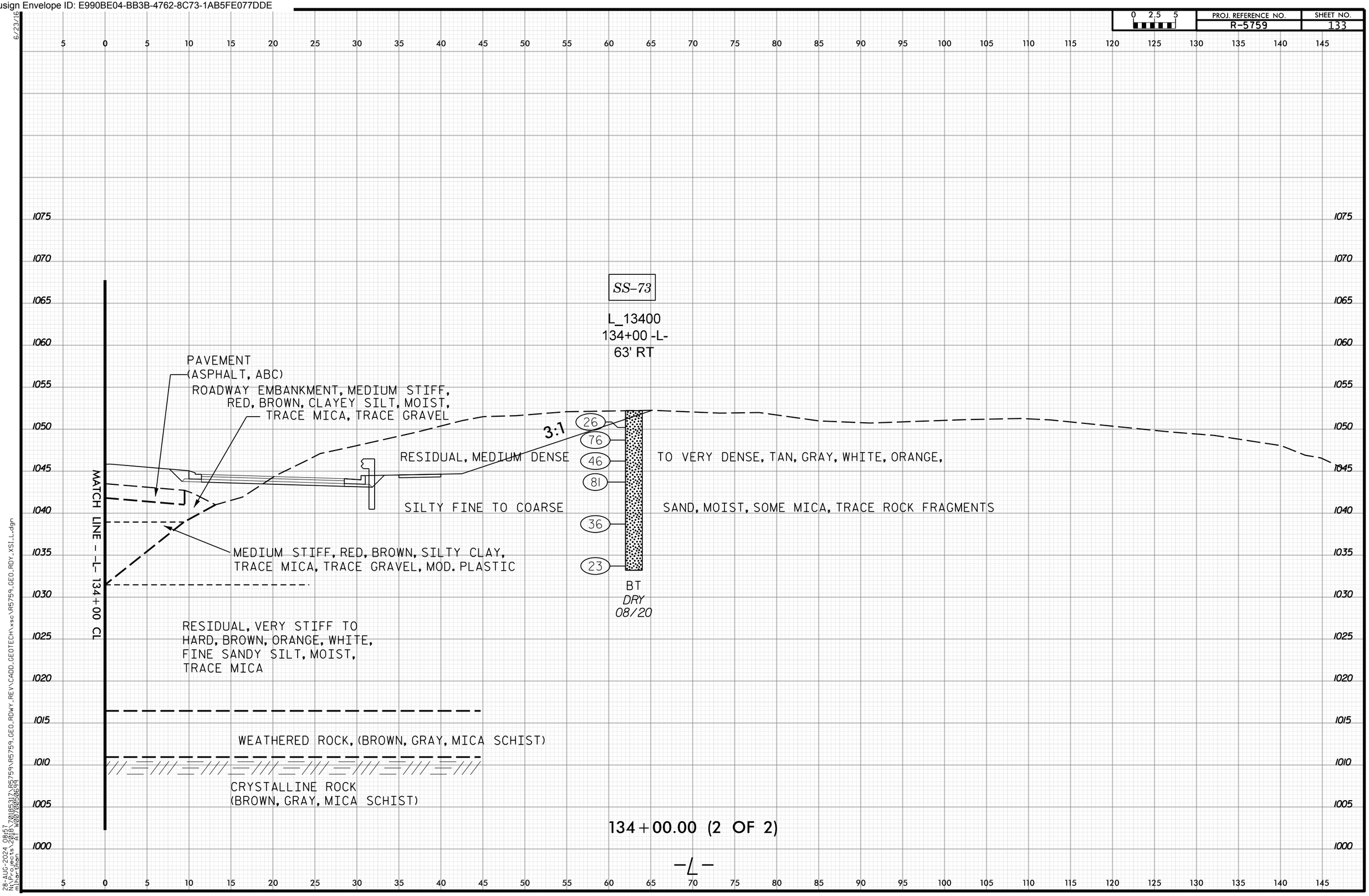

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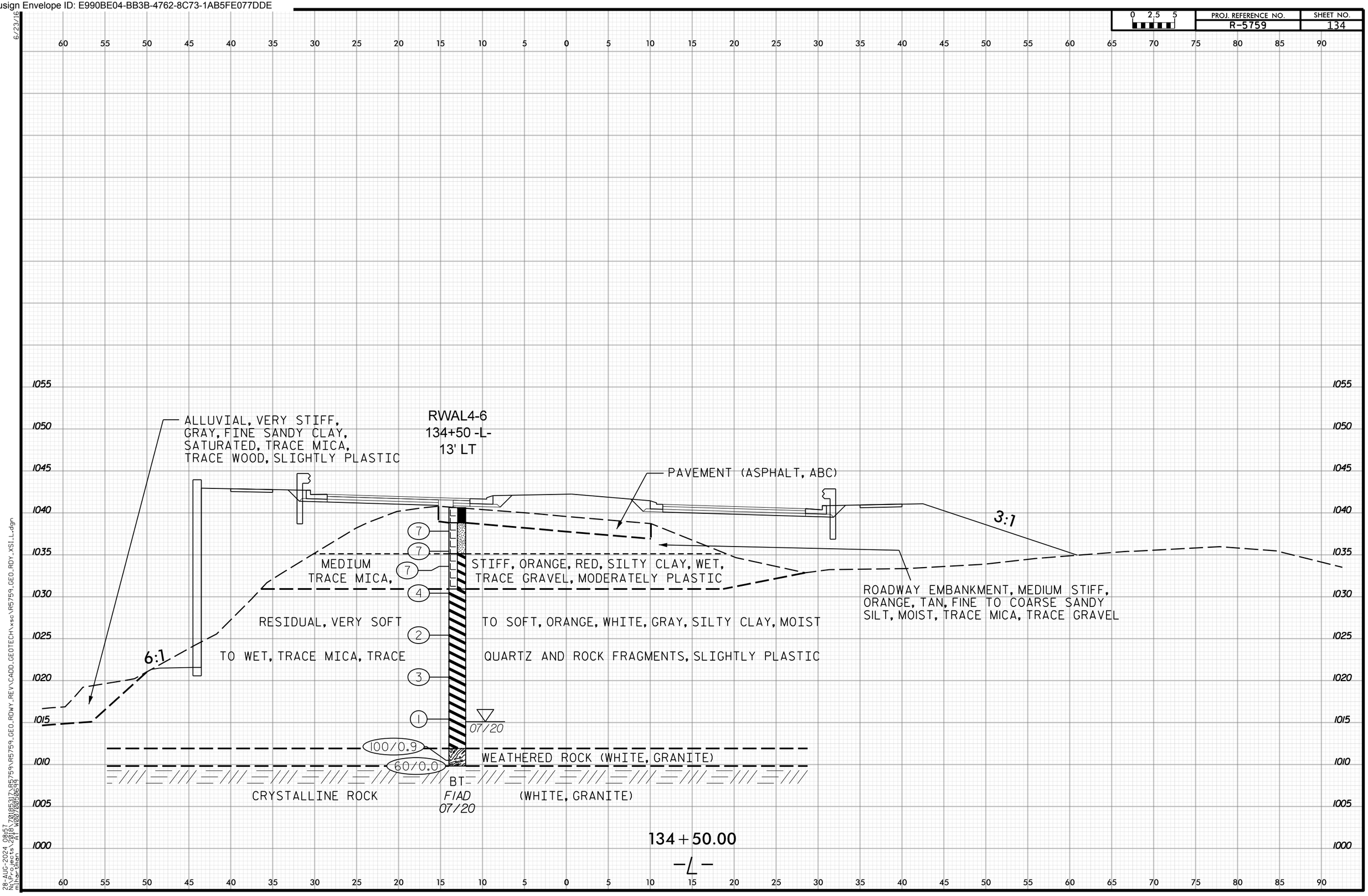

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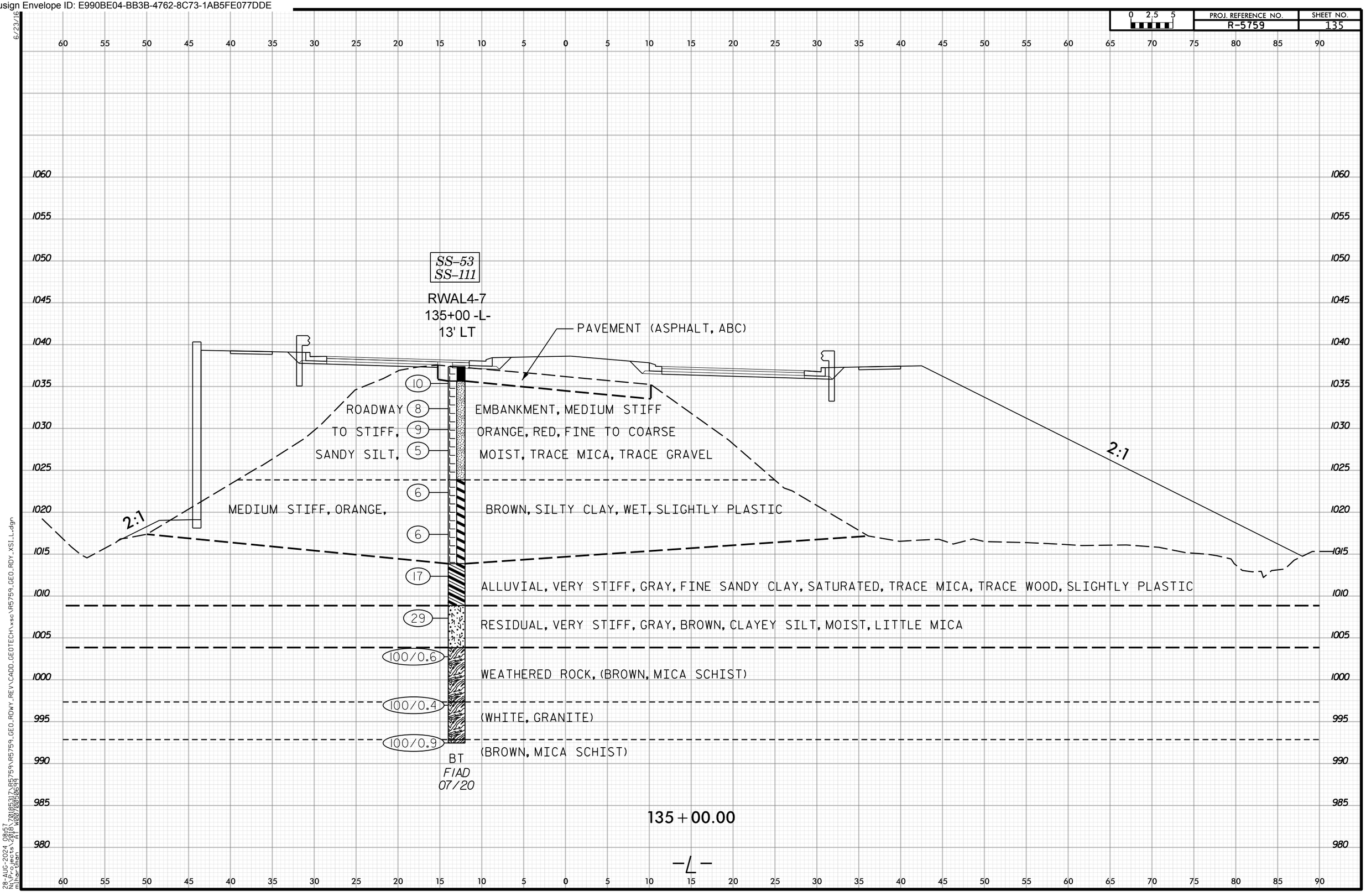

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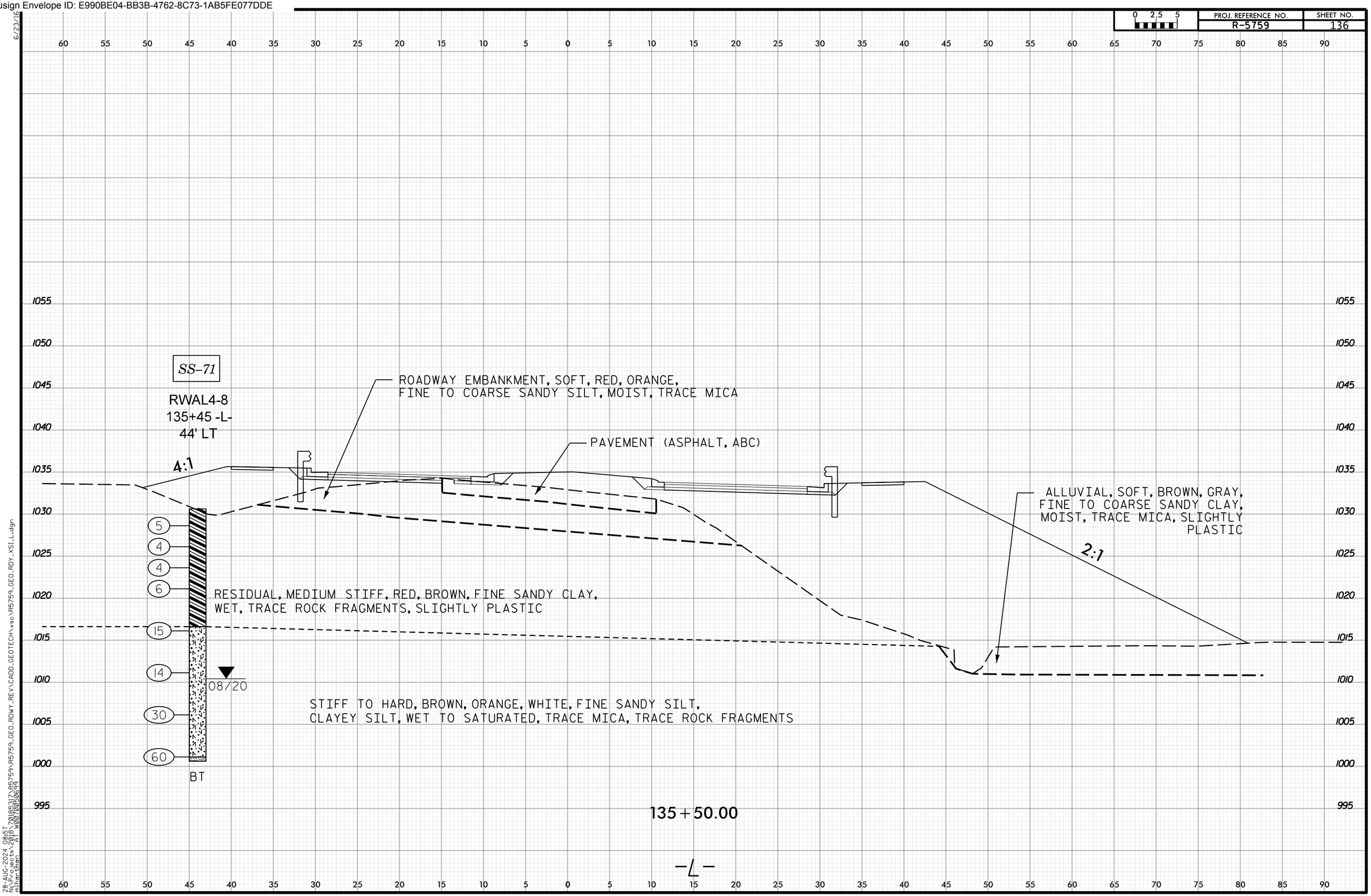

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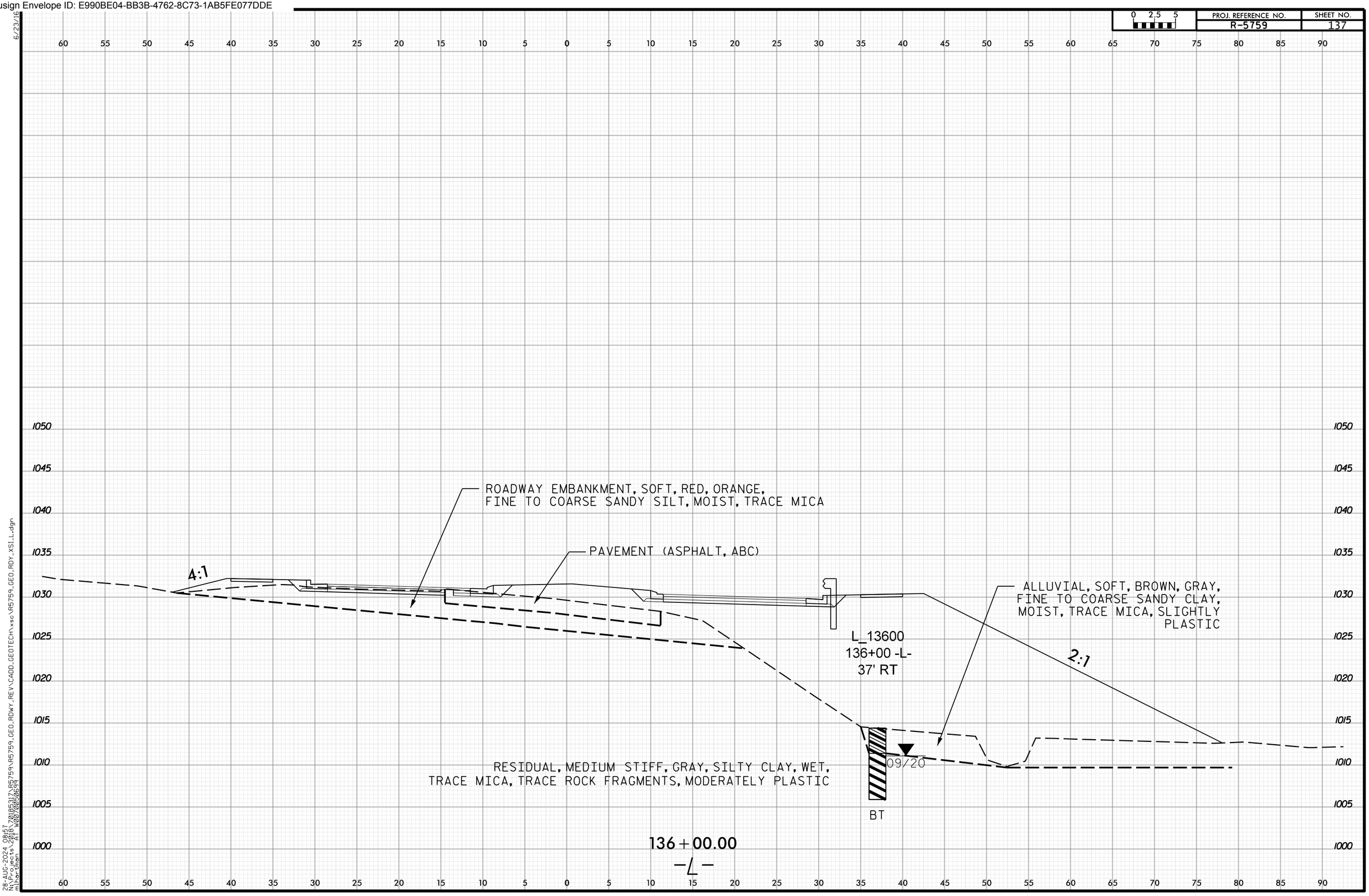

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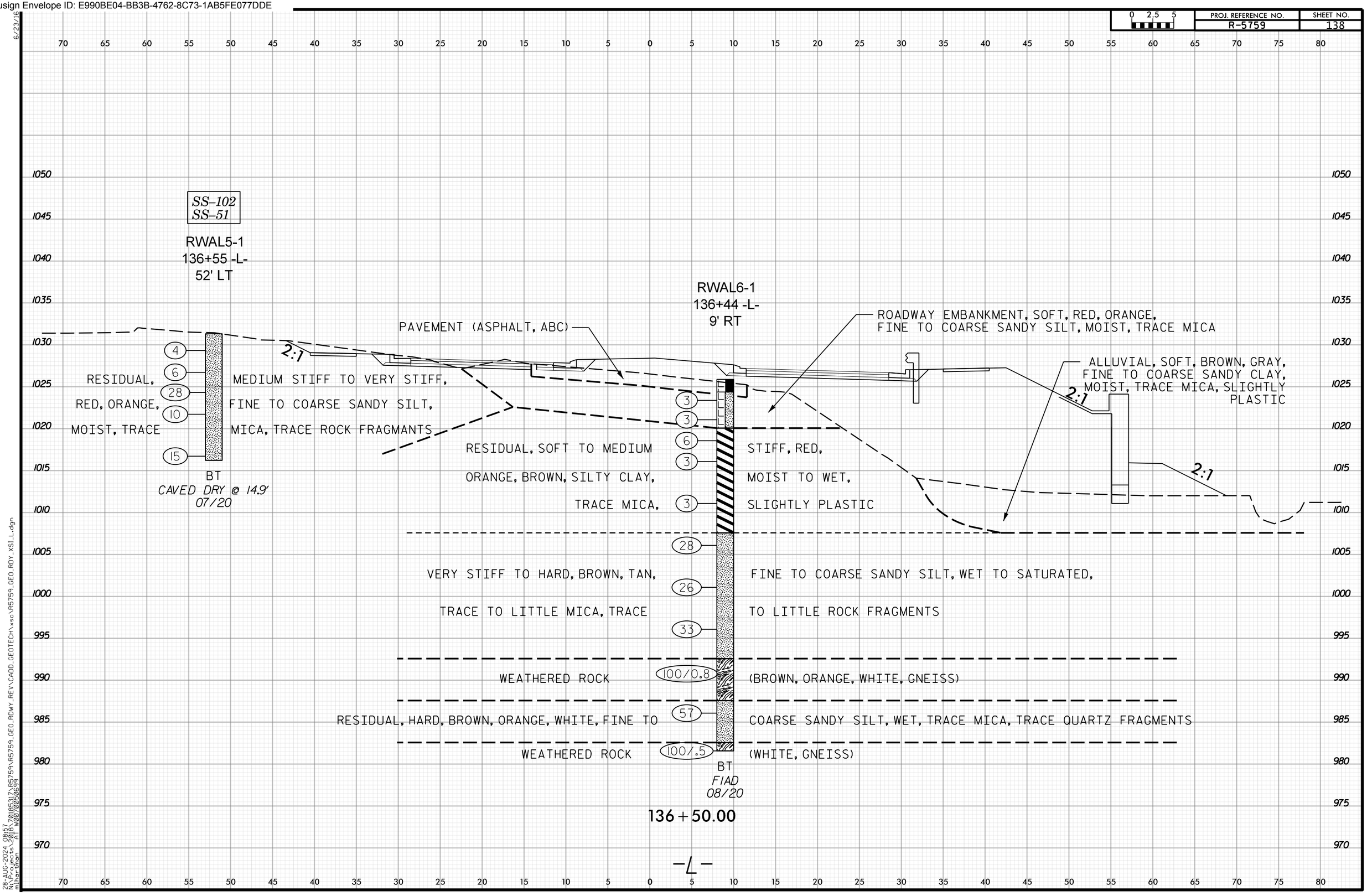

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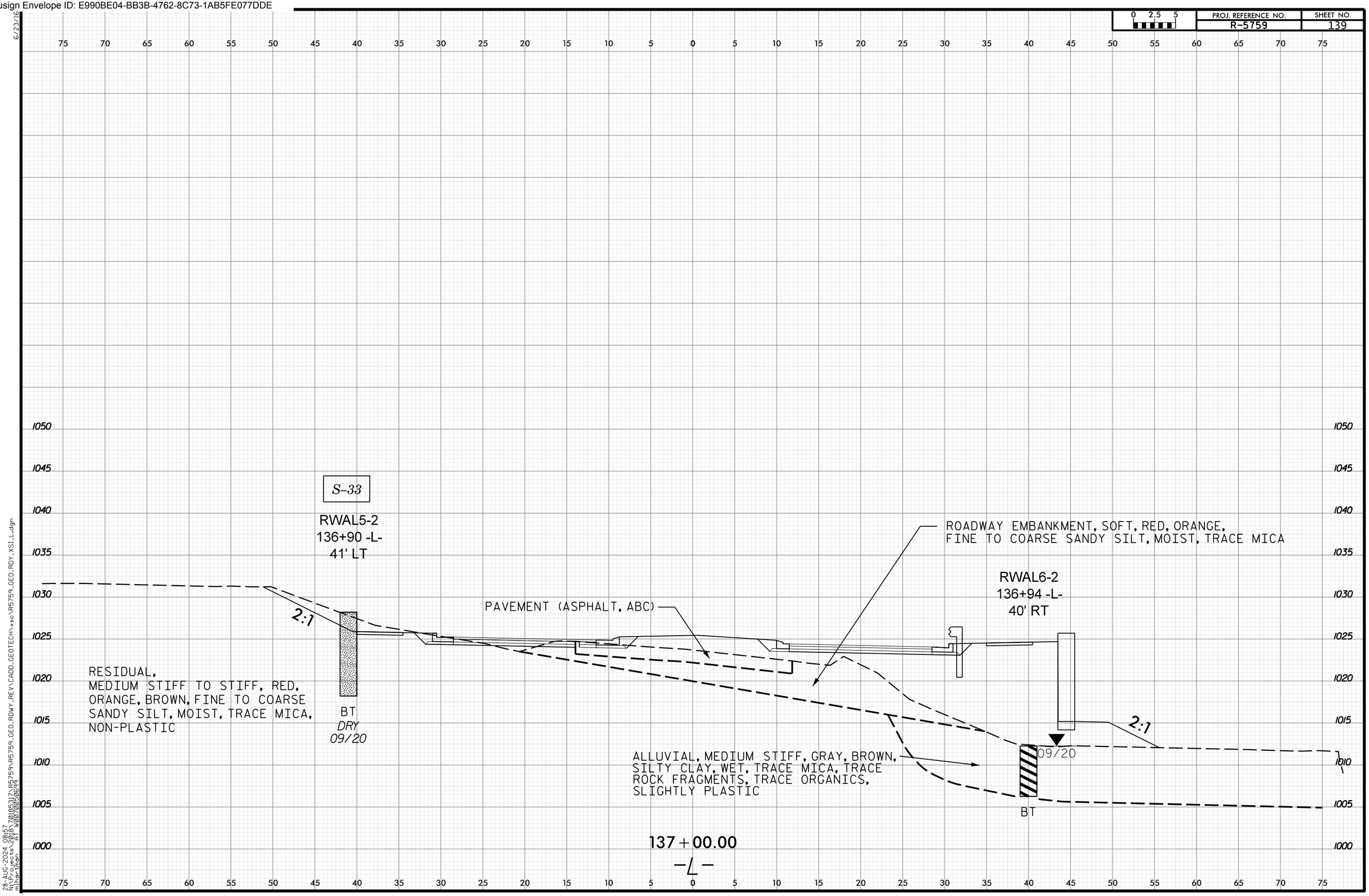

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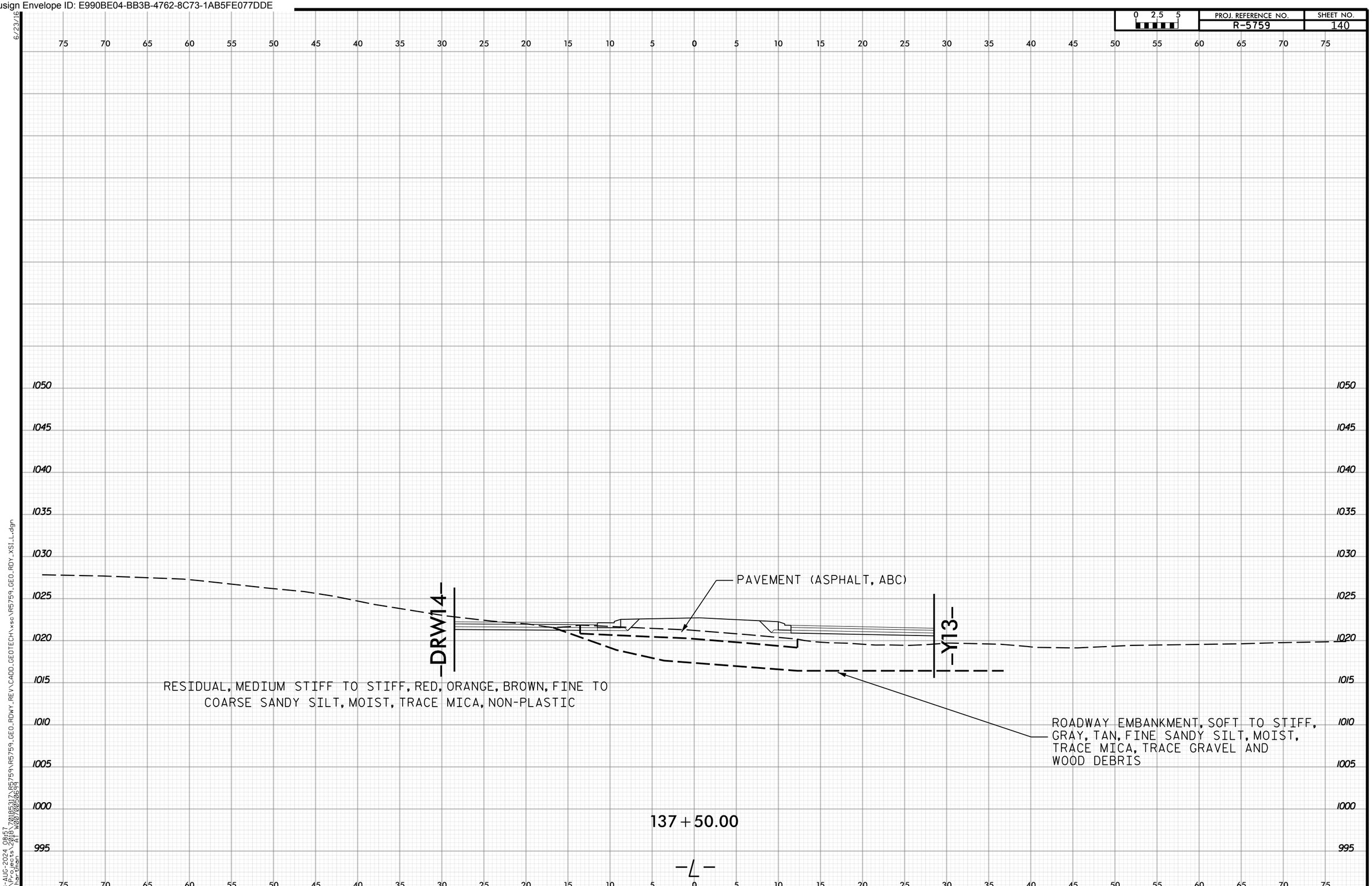

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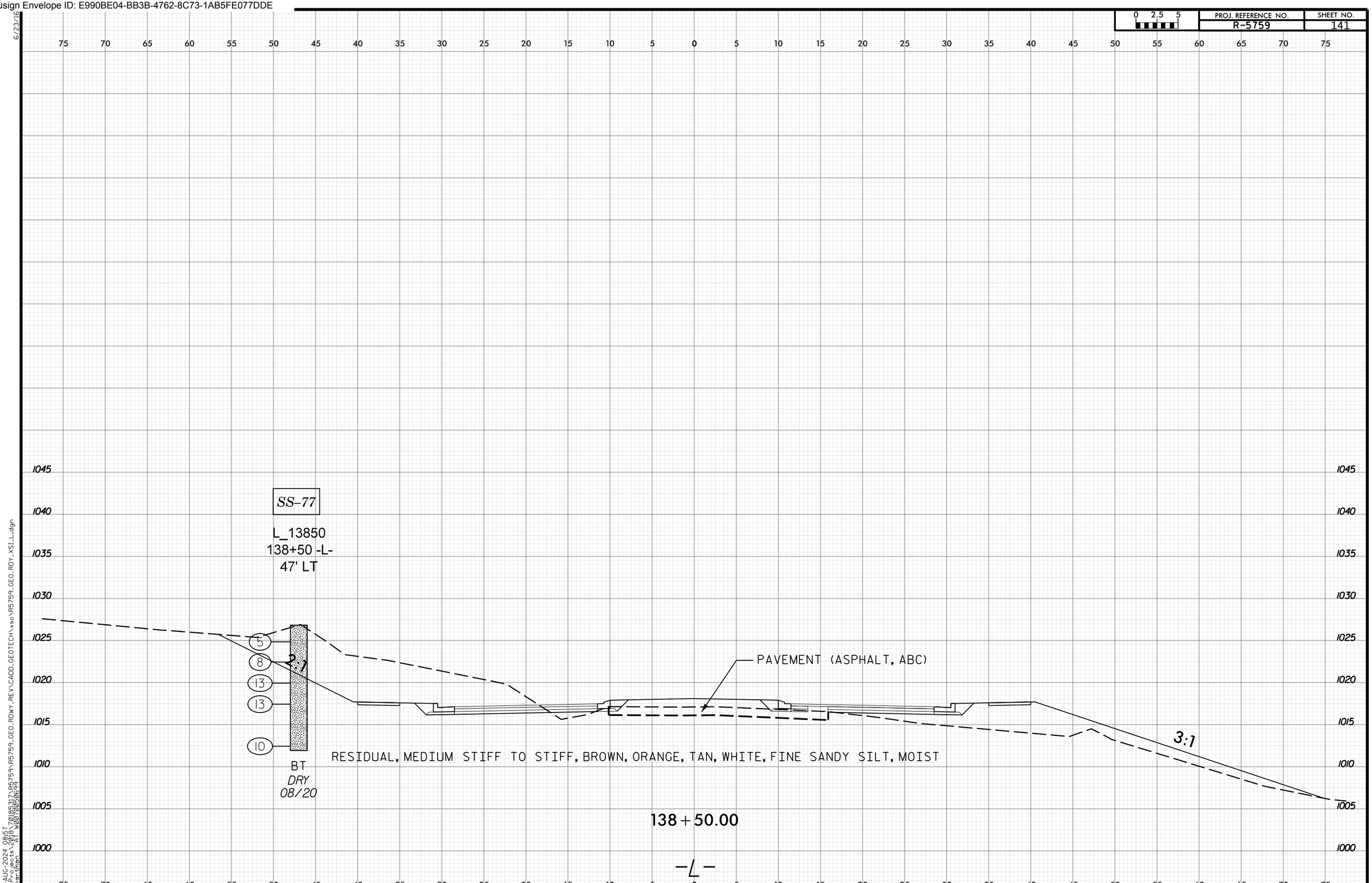

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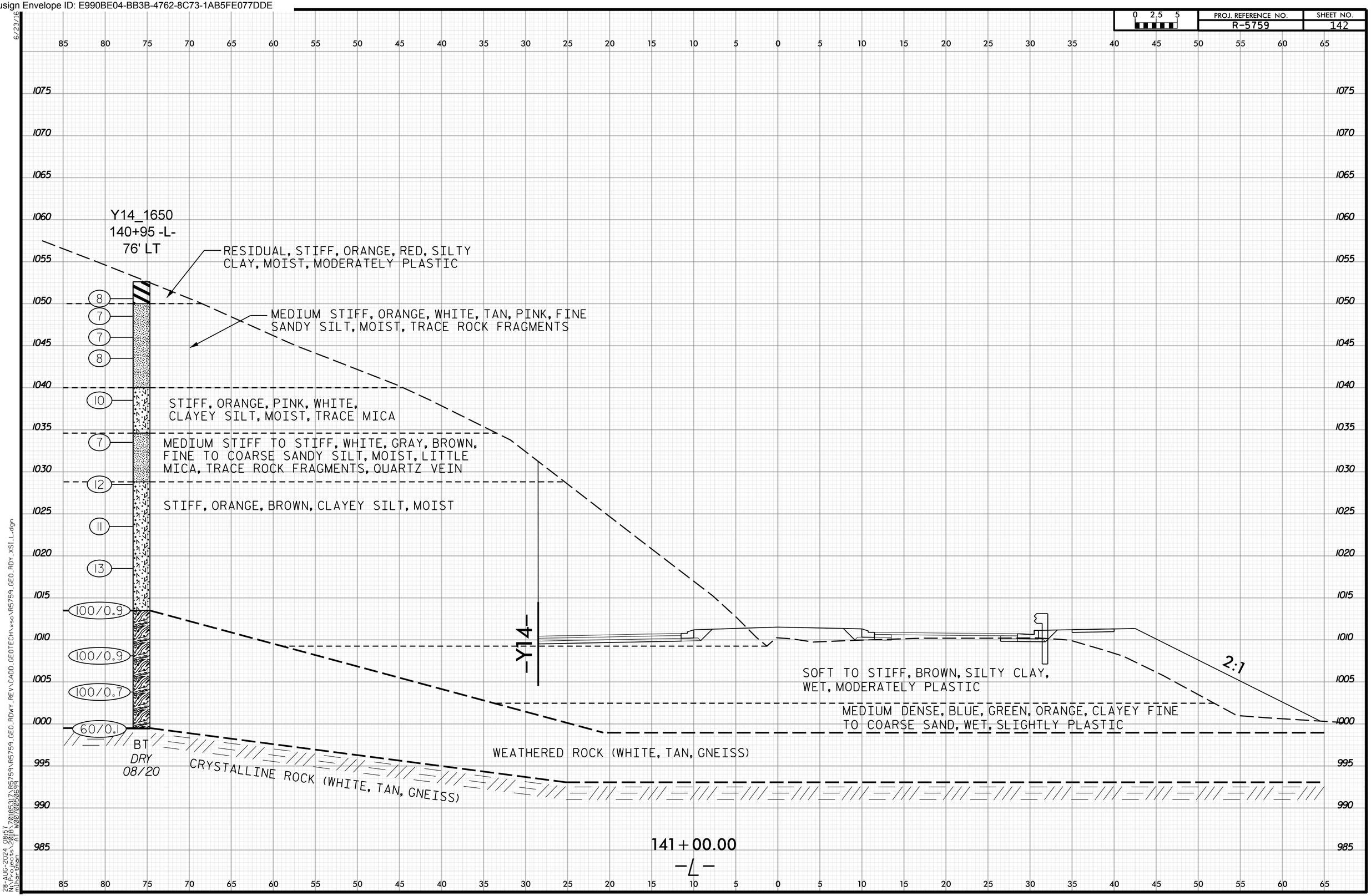

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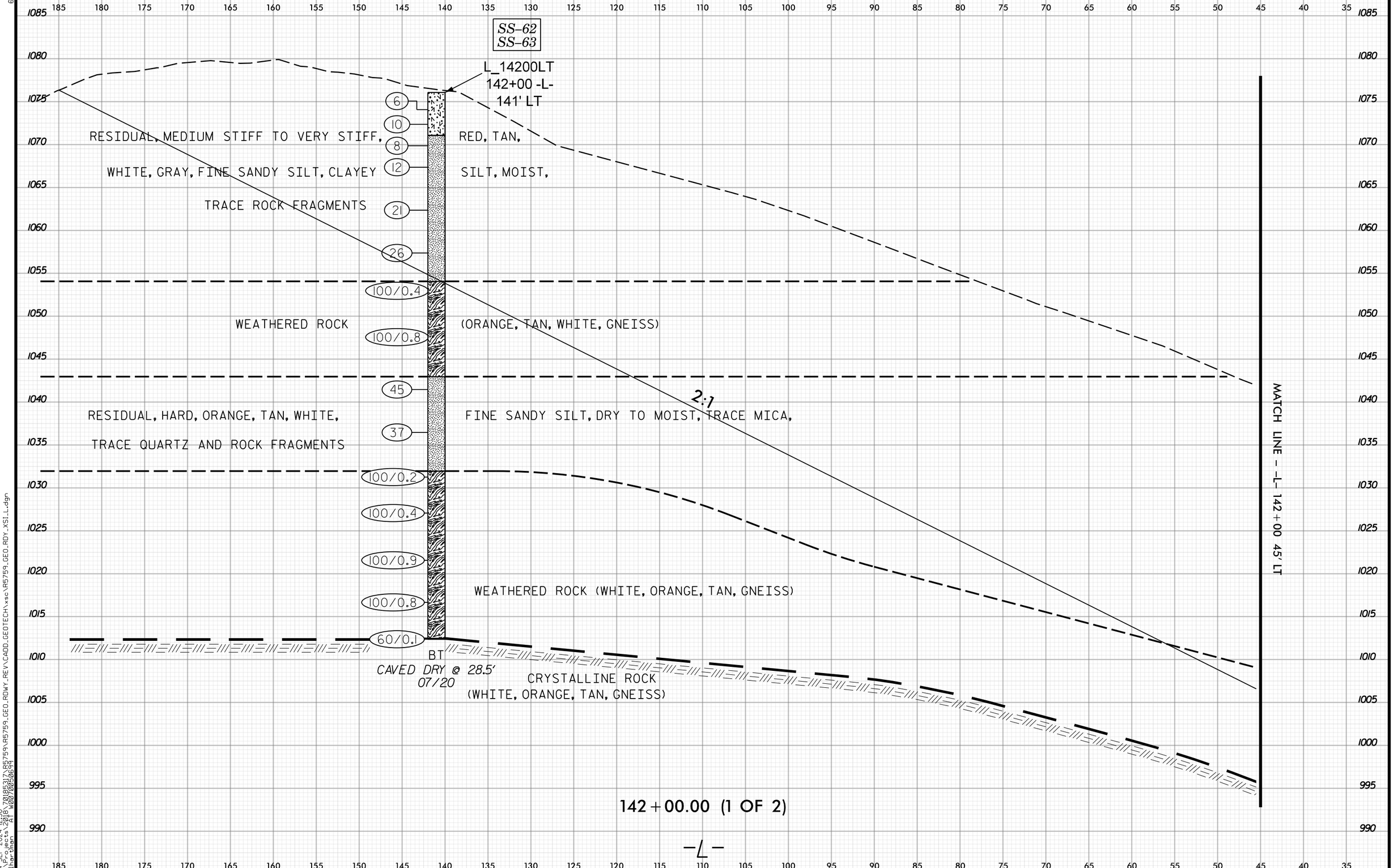

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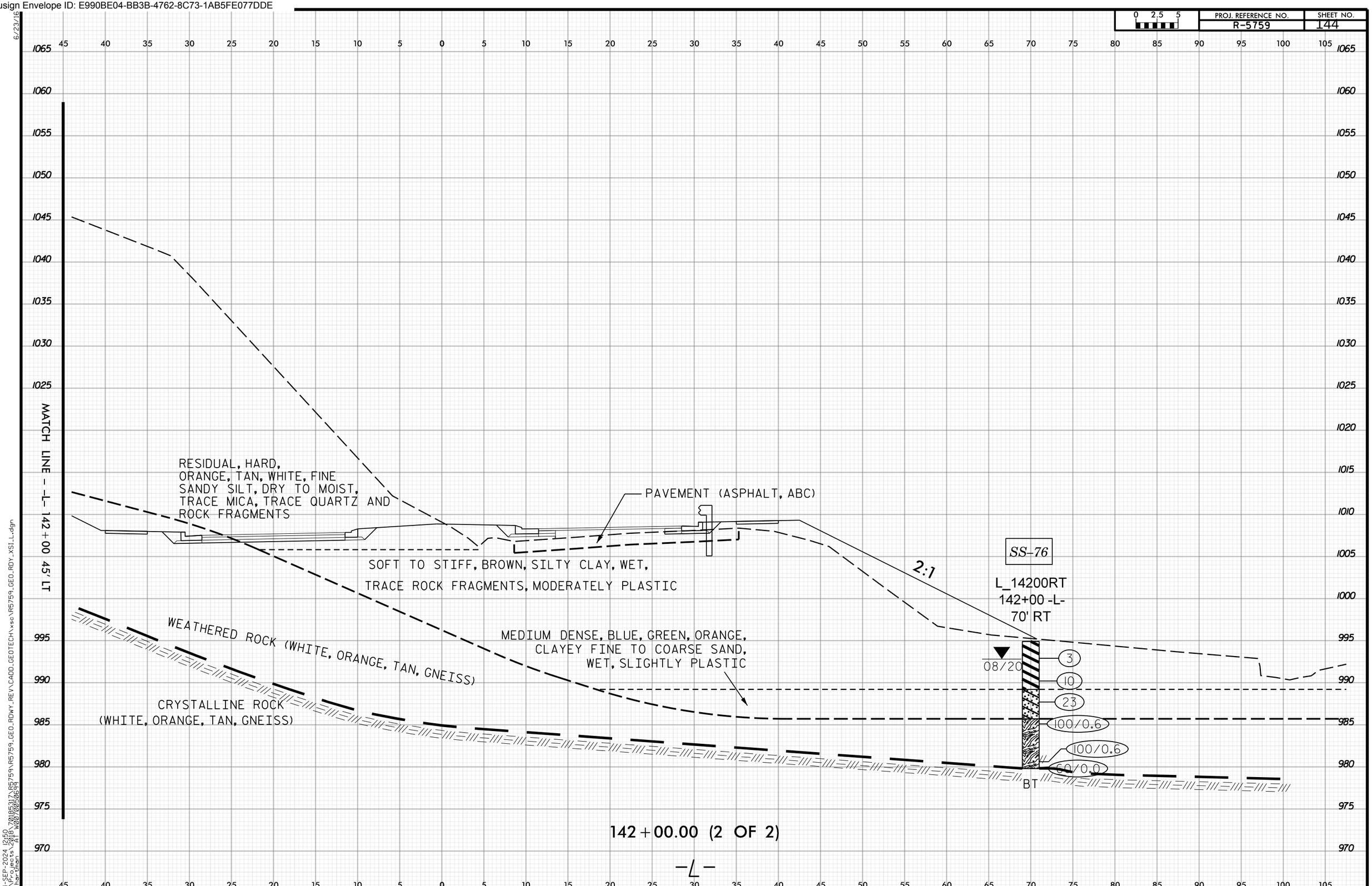

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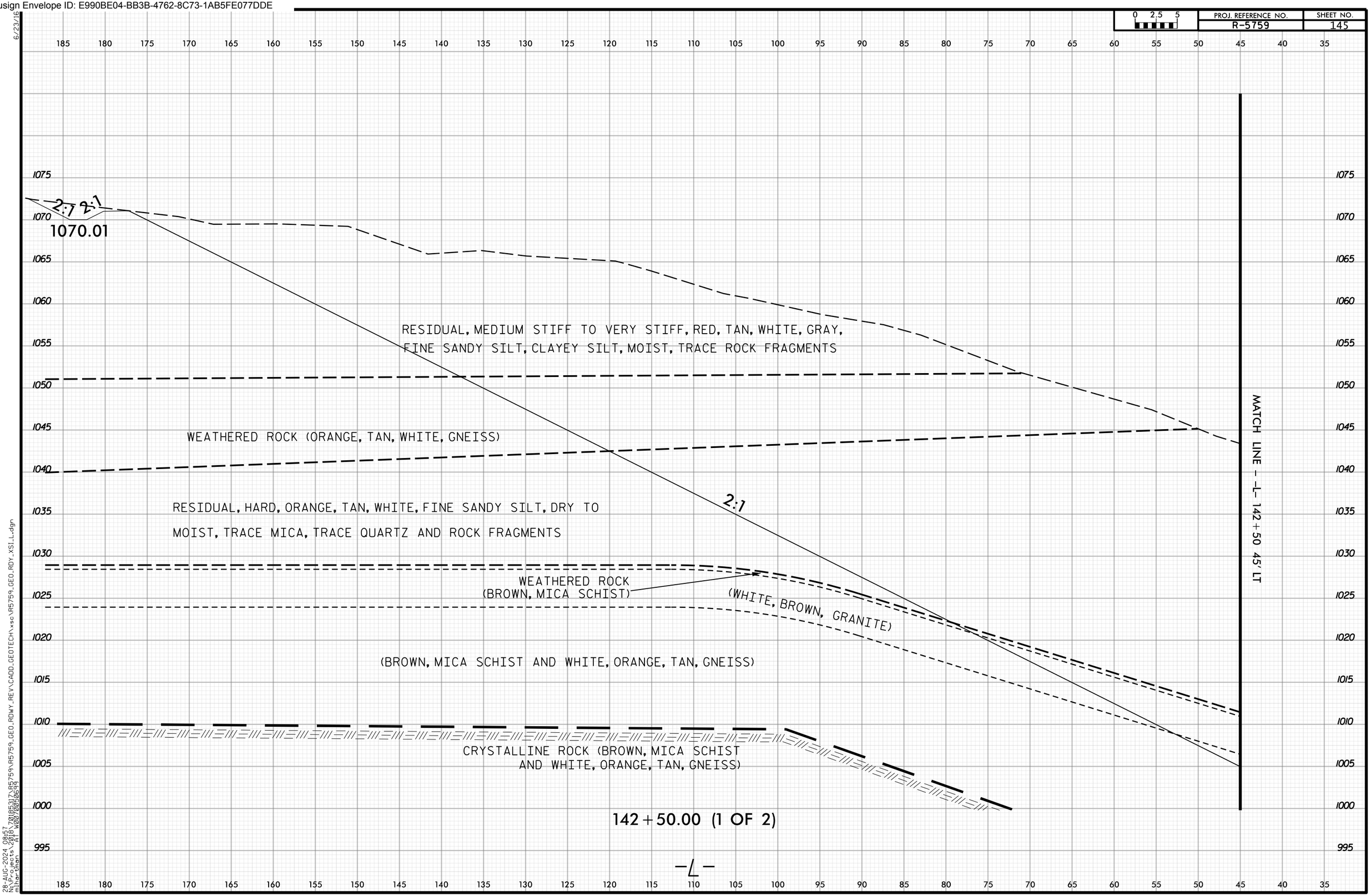

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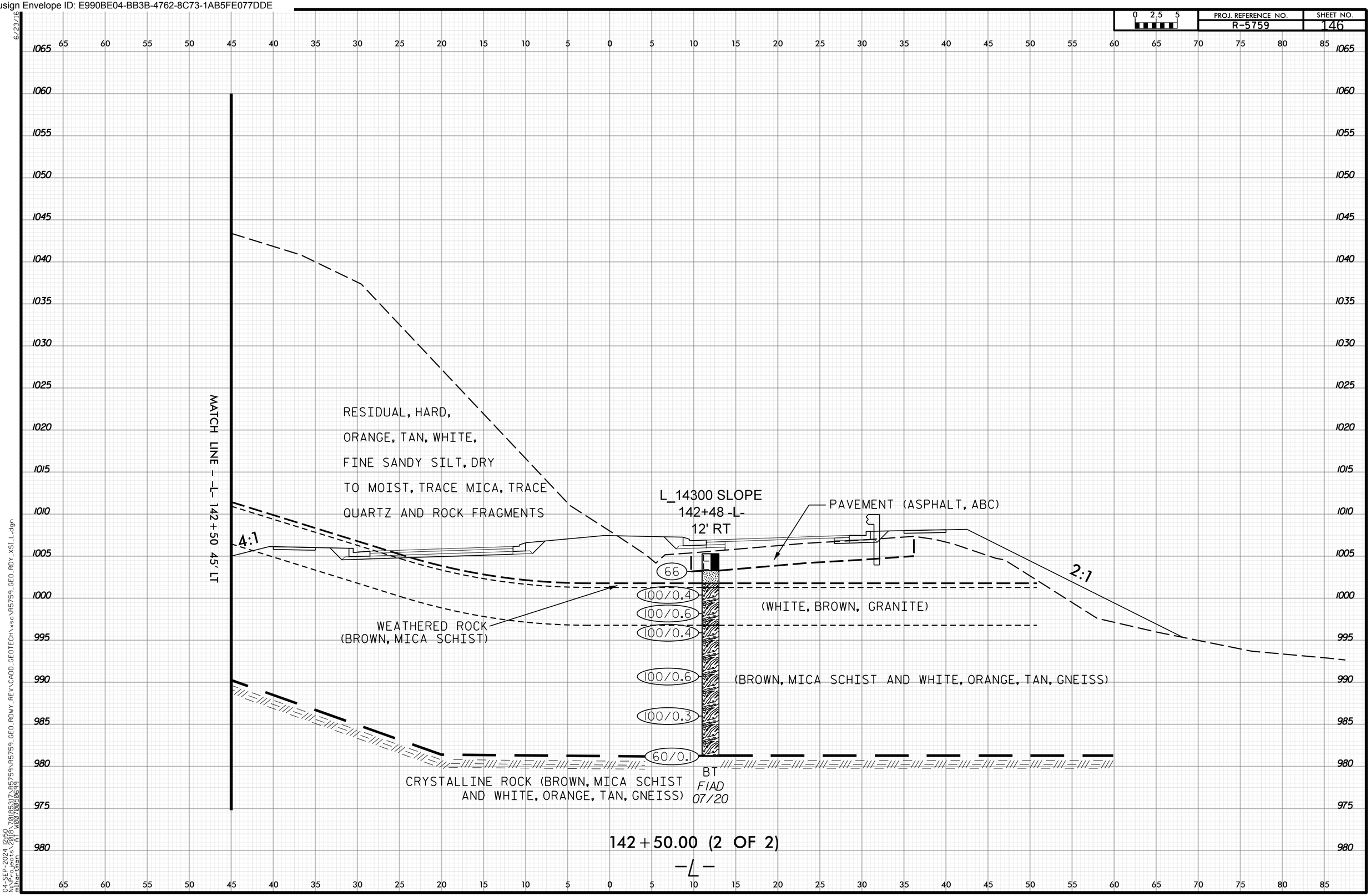
PROJ. REFERENCE NO. R-5759 | SHEET NO. 146



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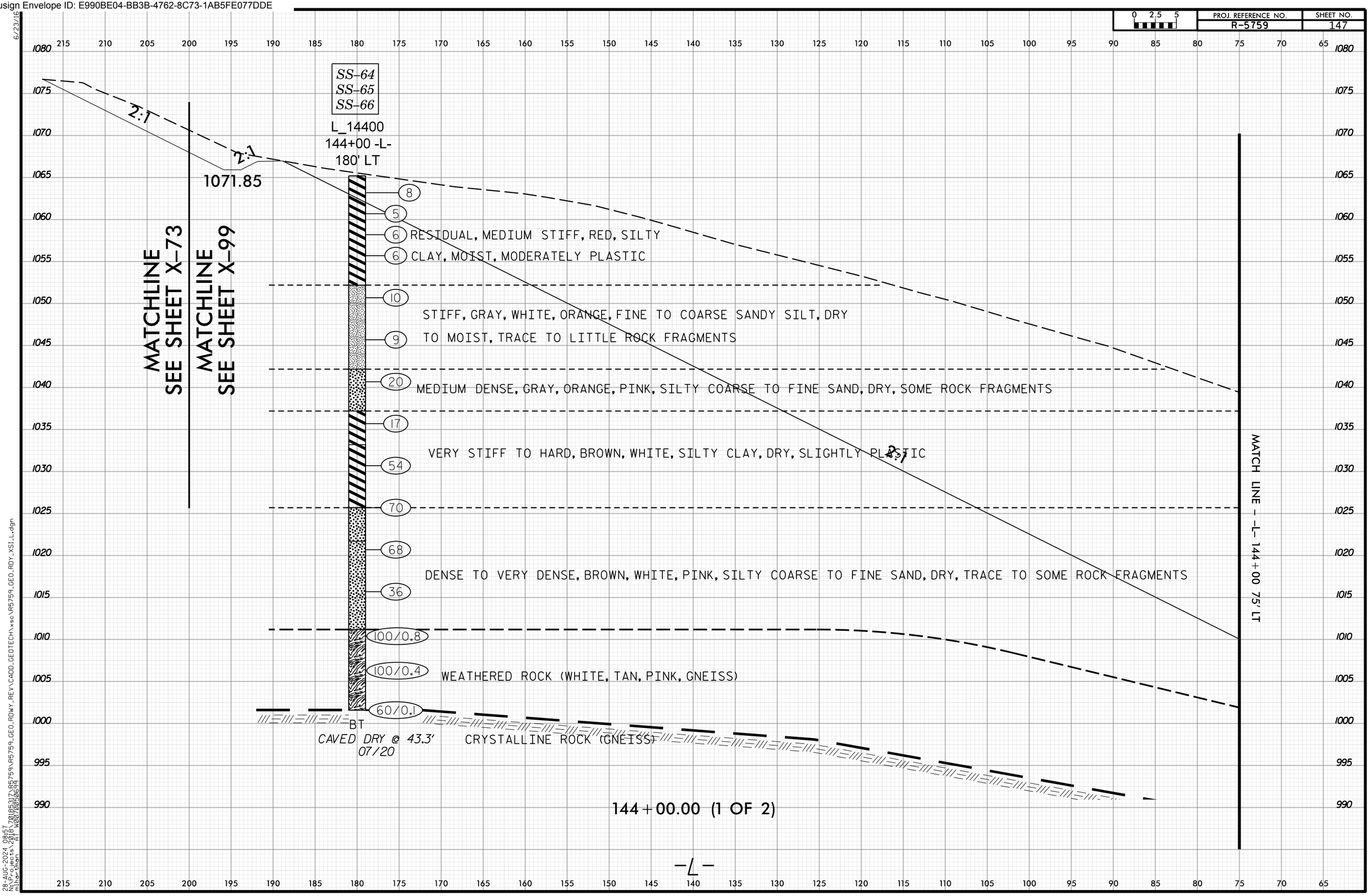

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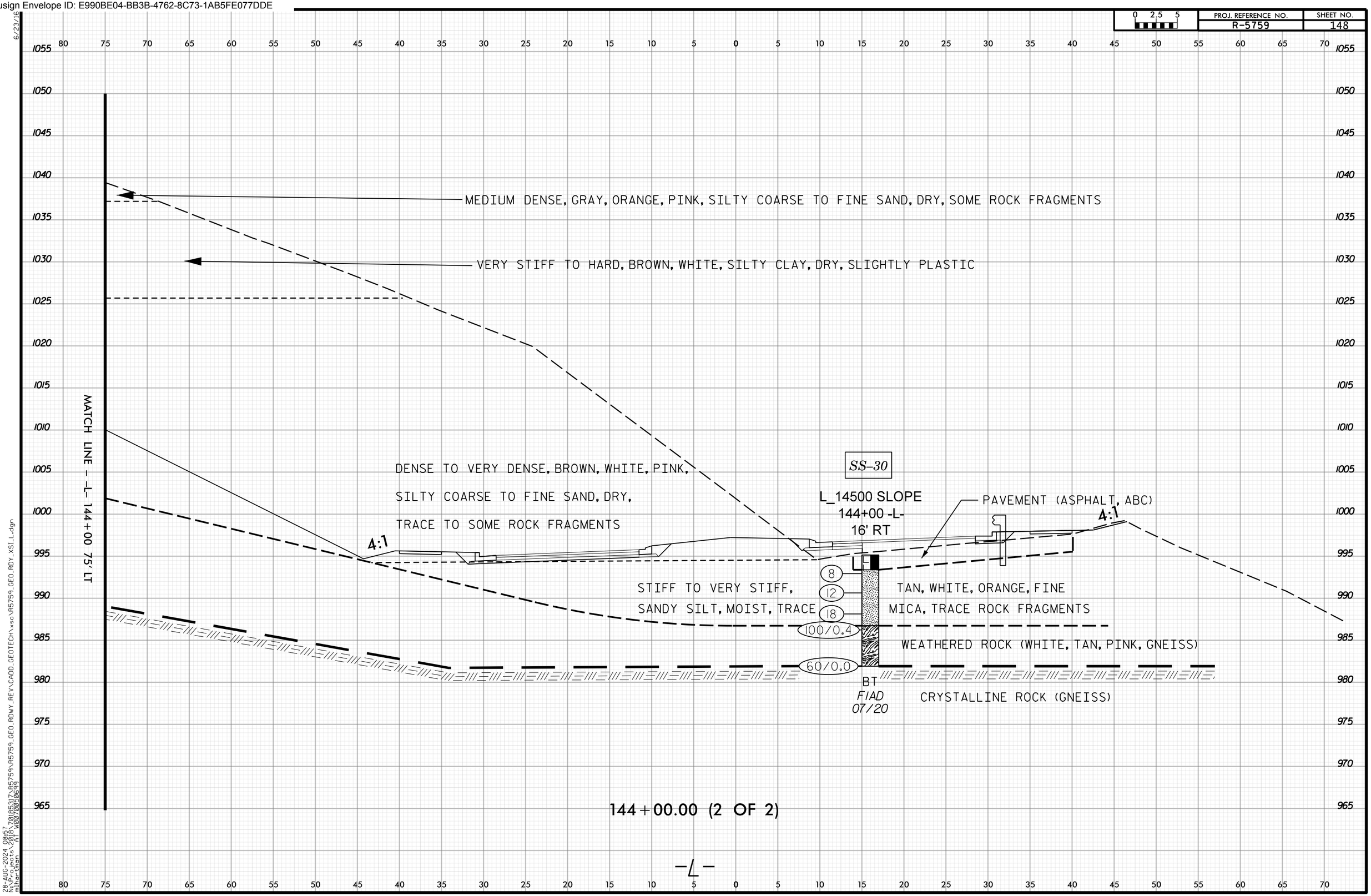

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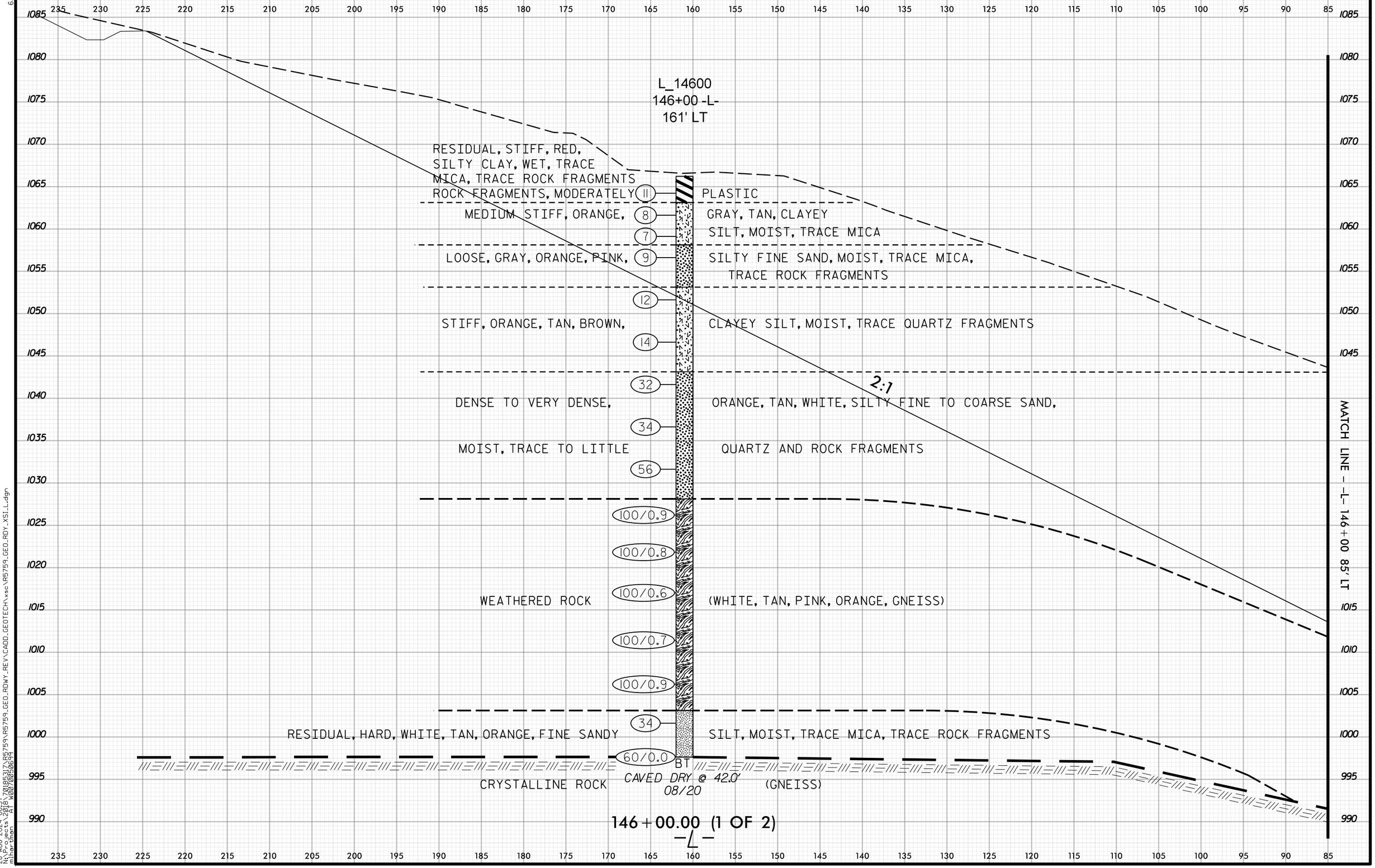

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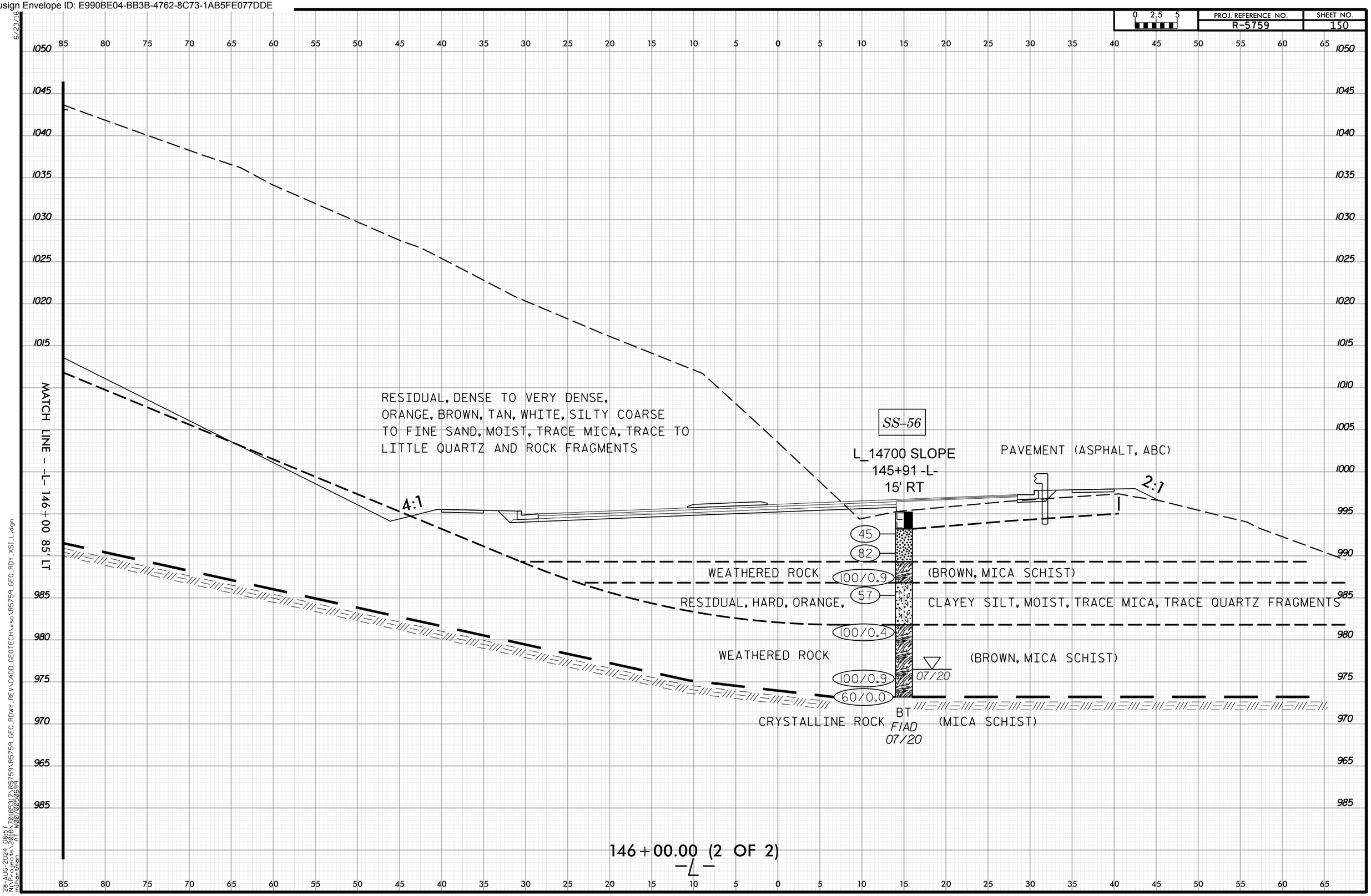

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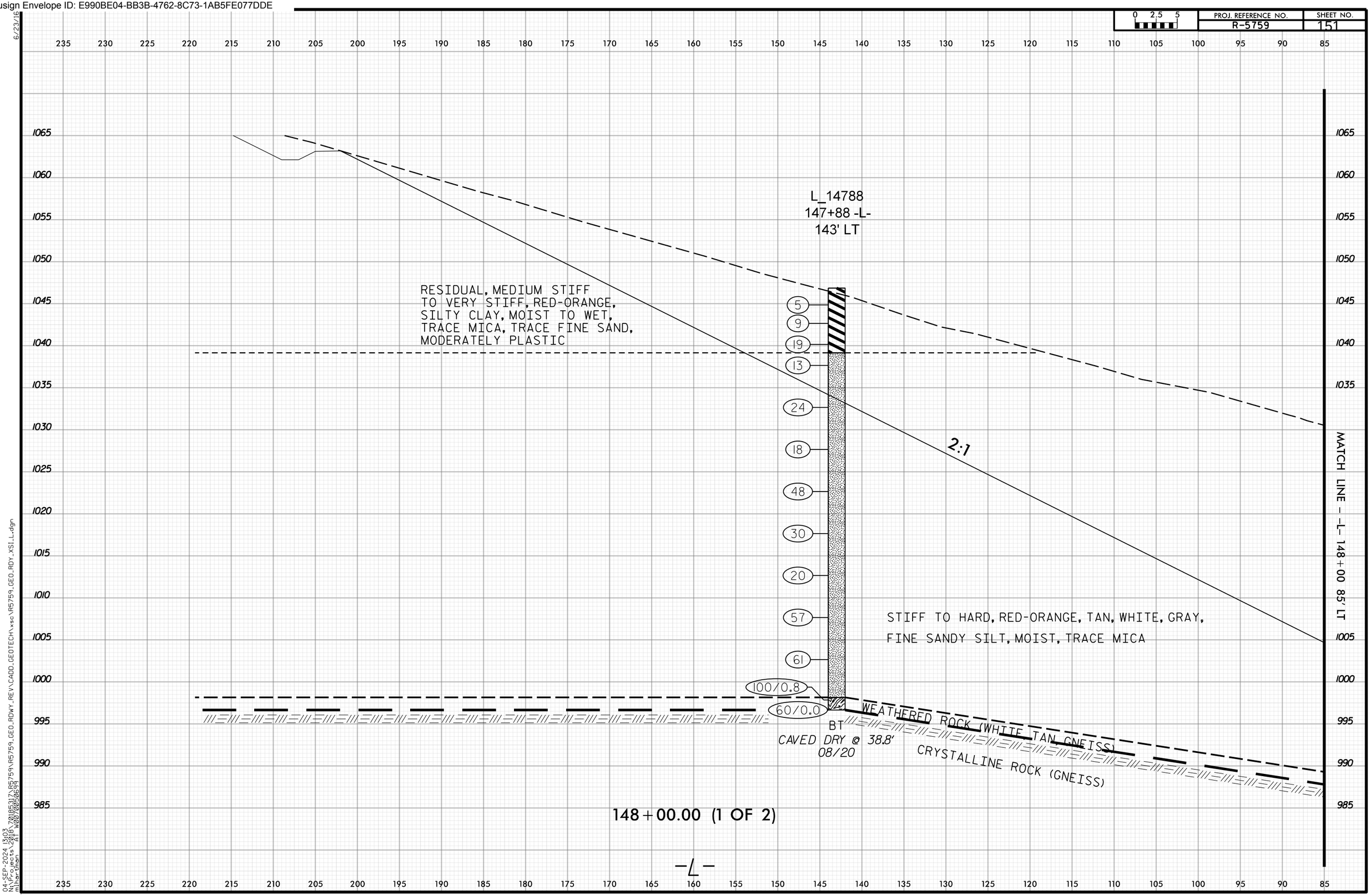

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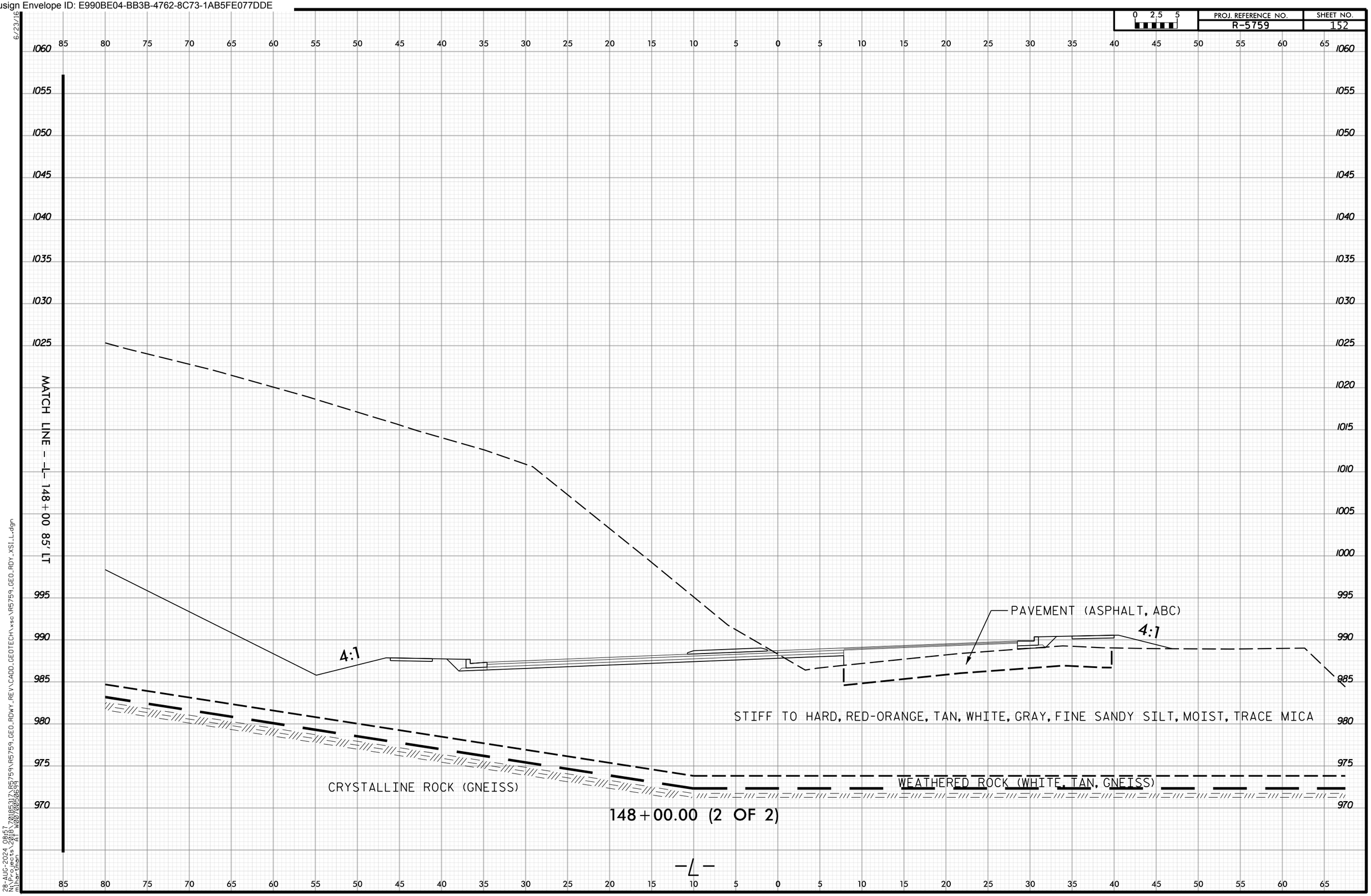

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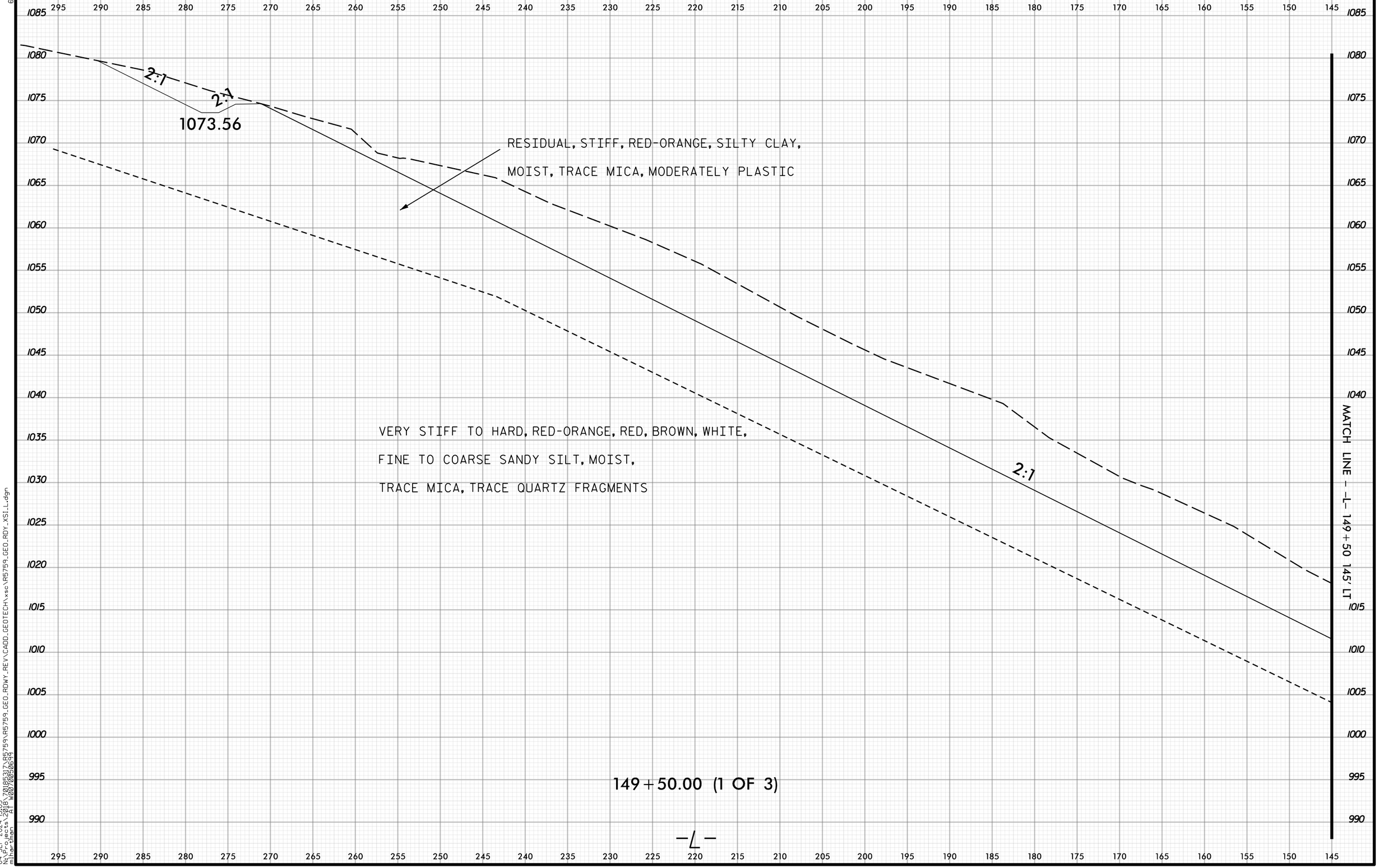

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mihartman AT W0070050699

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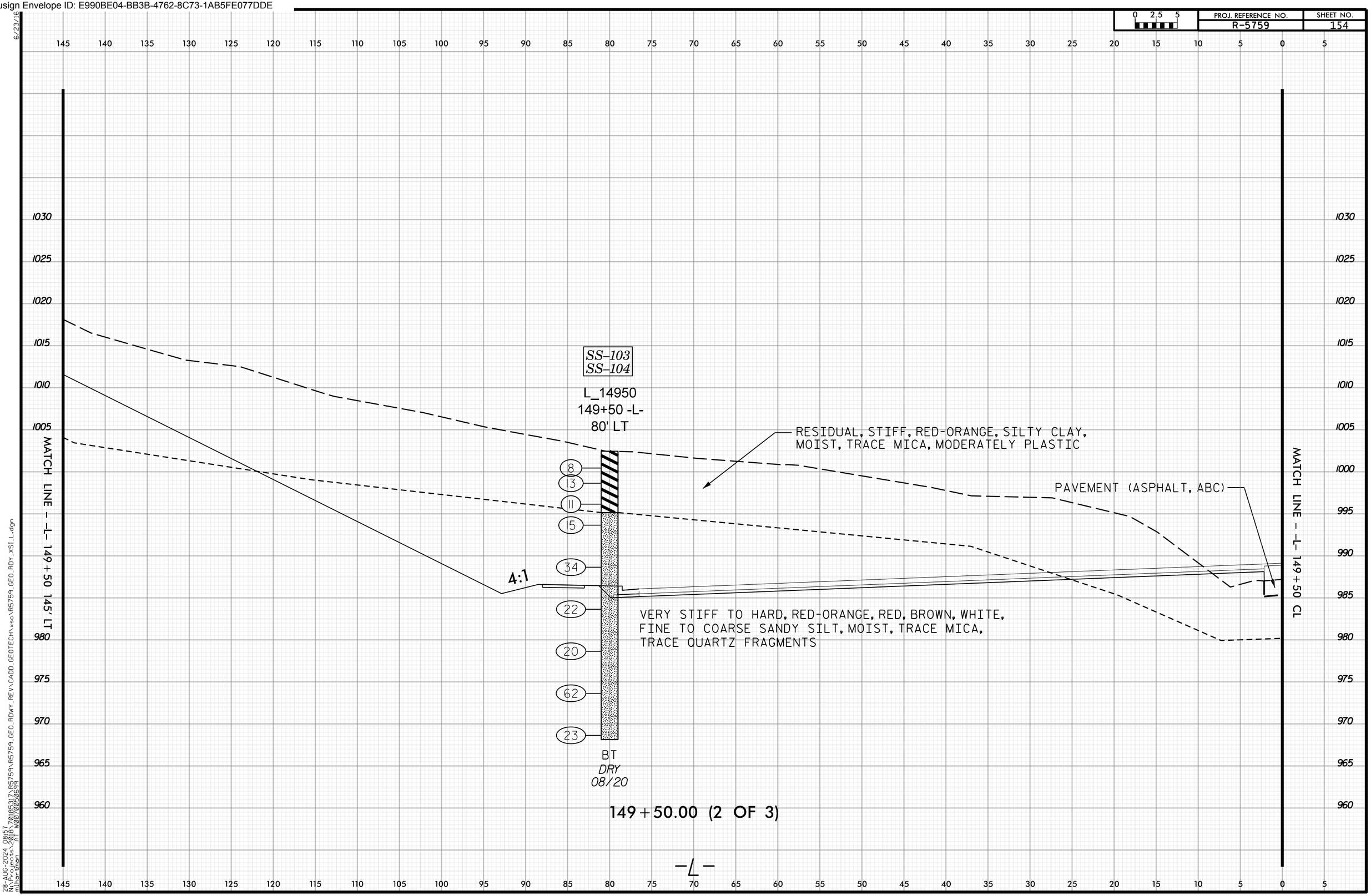

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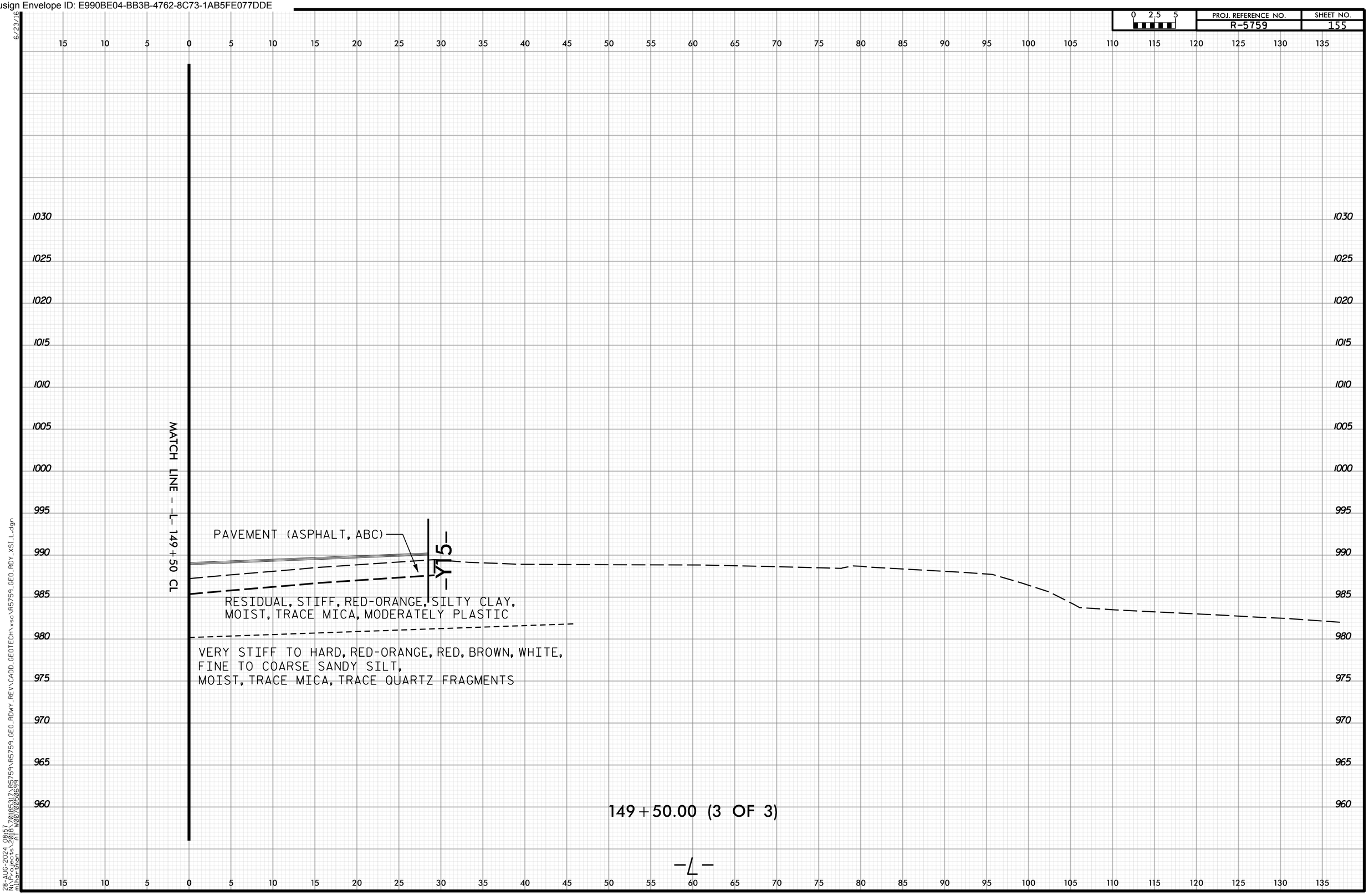

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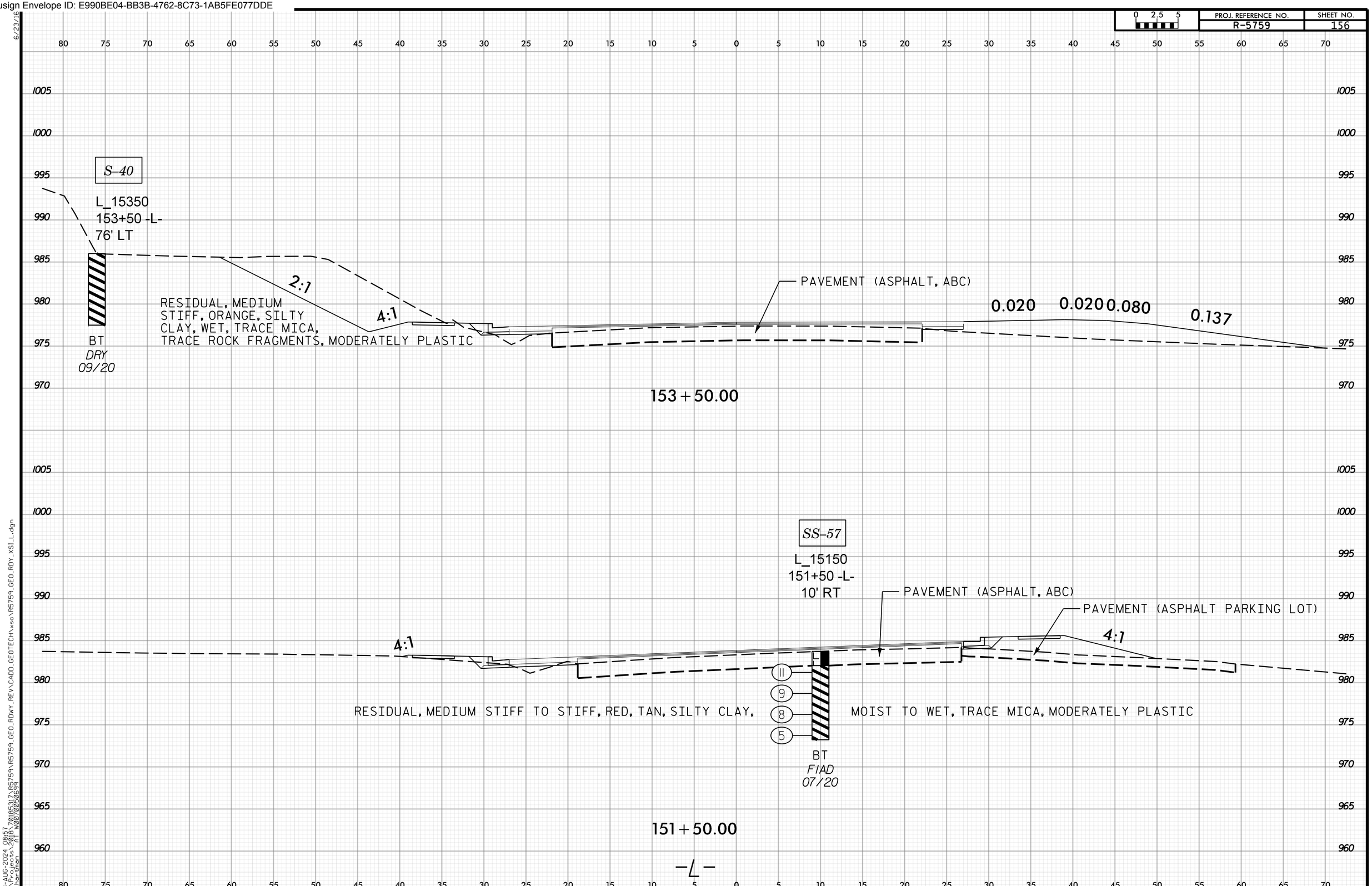

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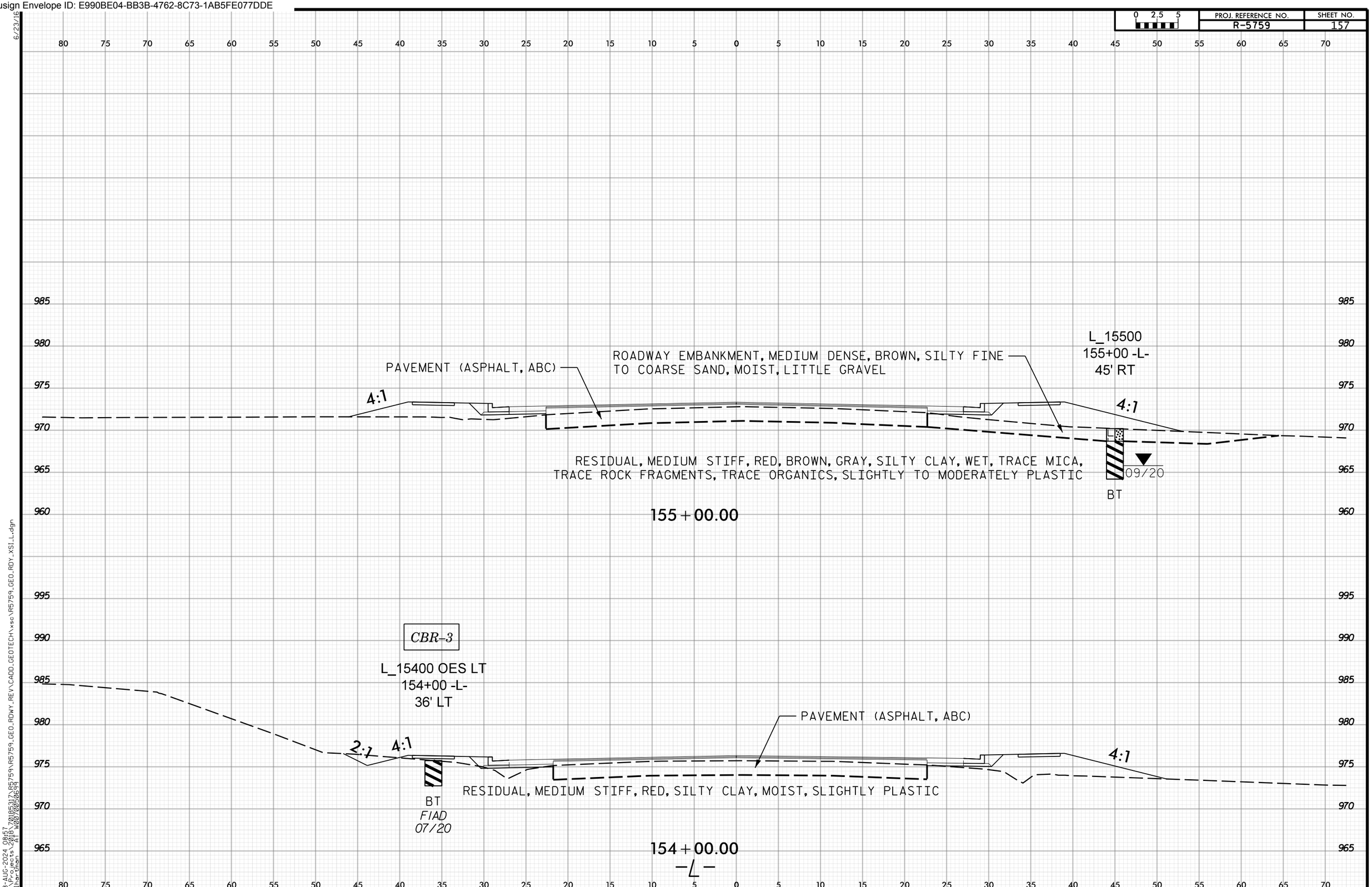

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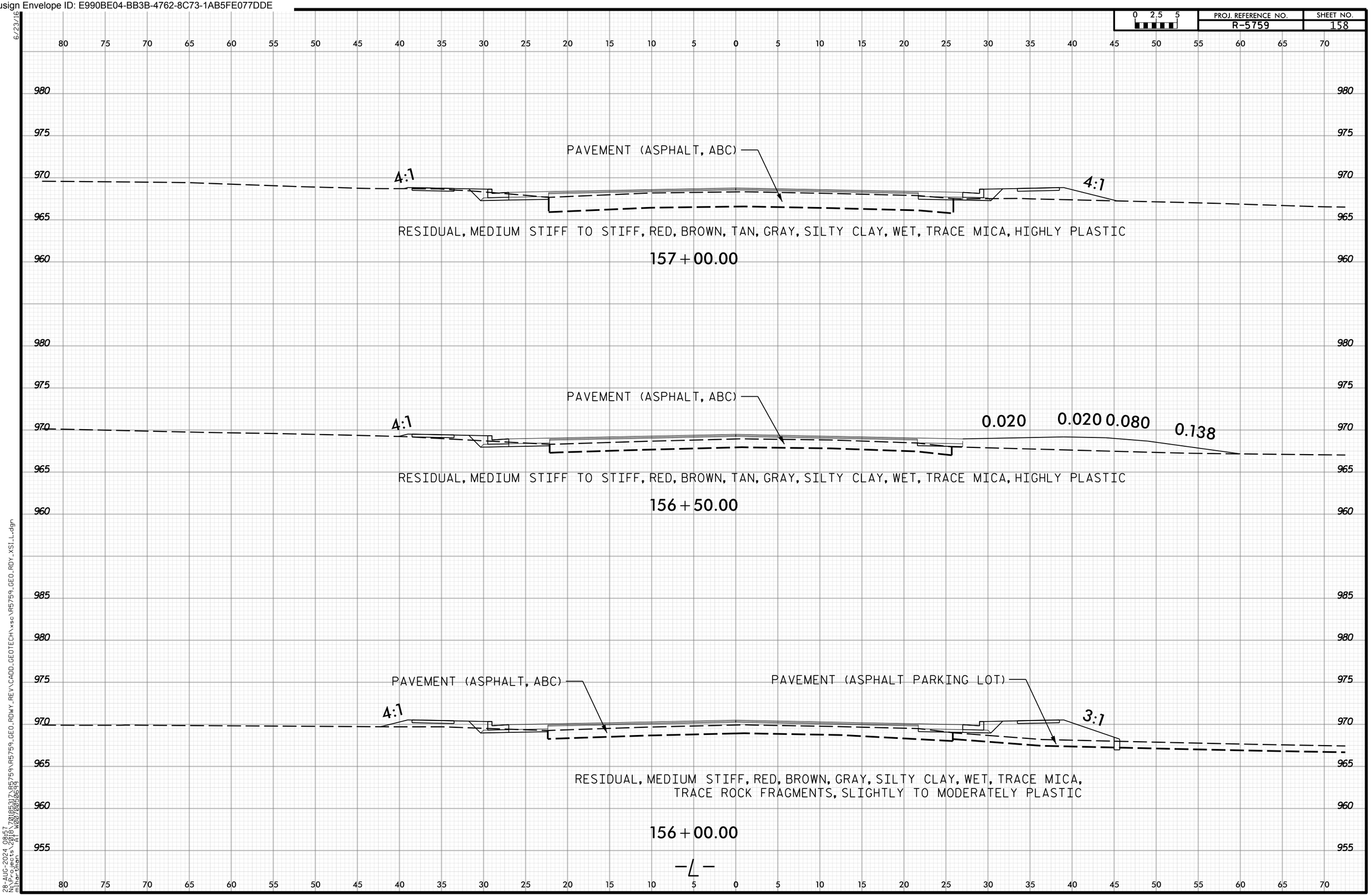

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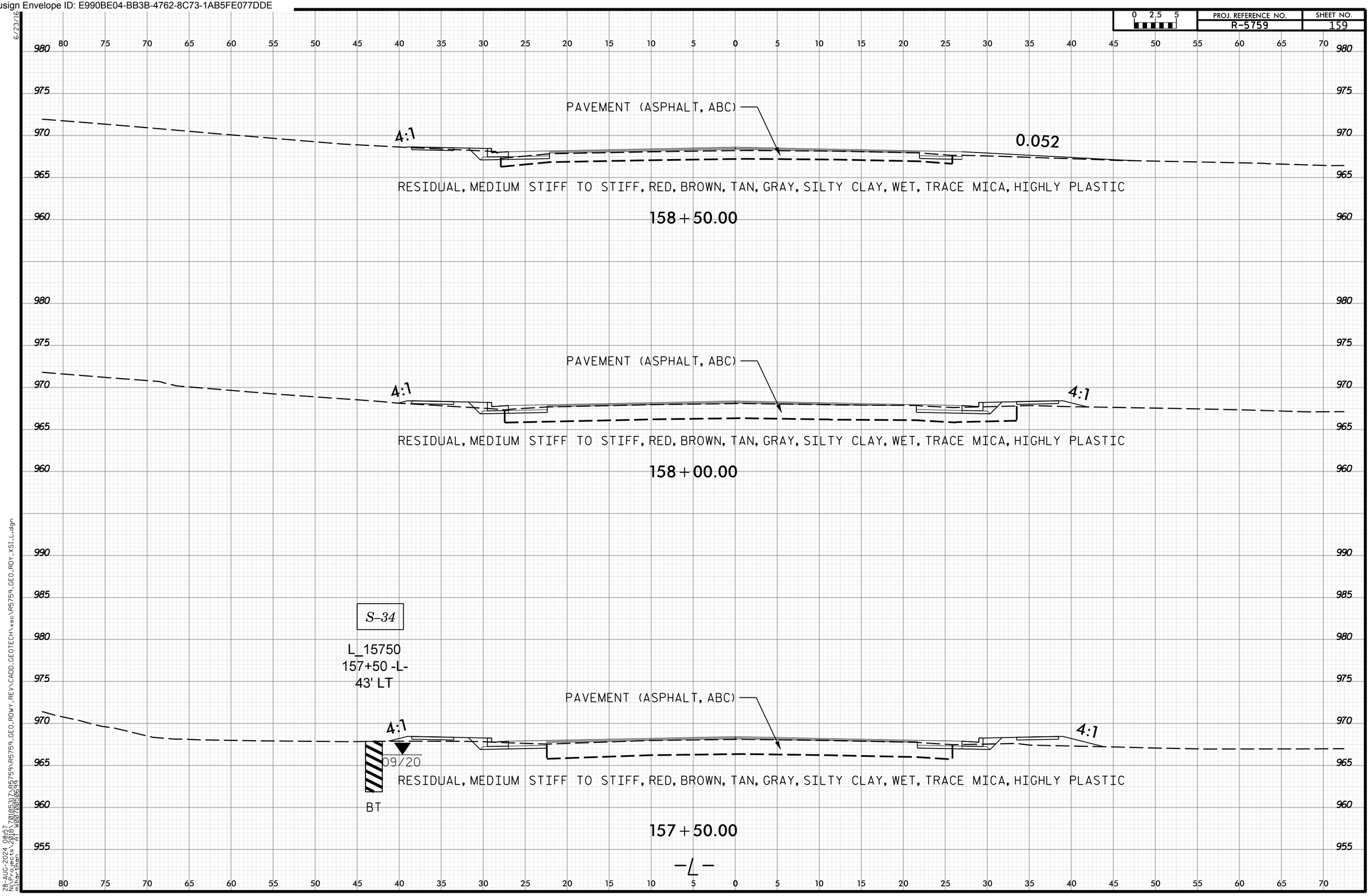

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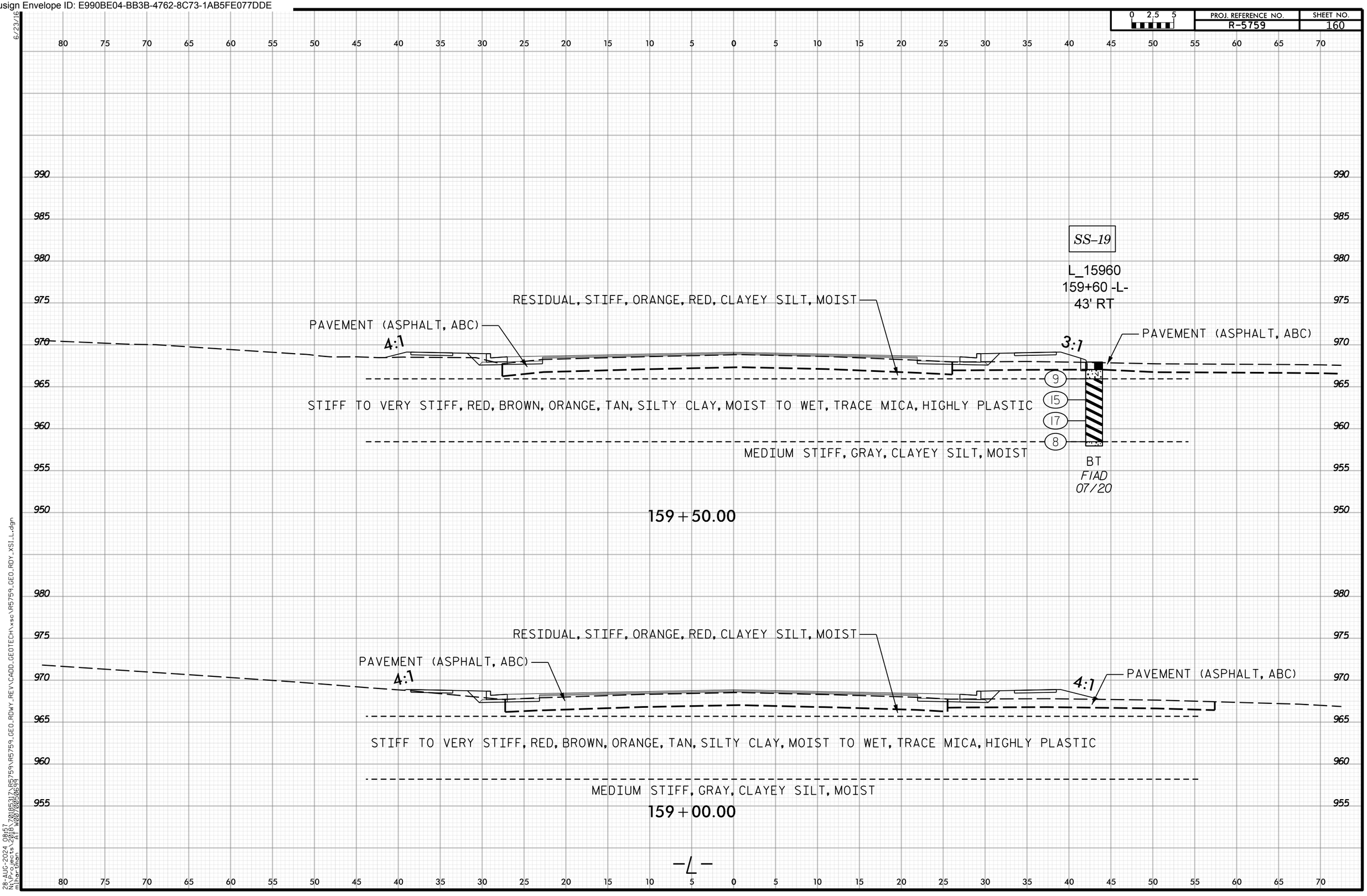

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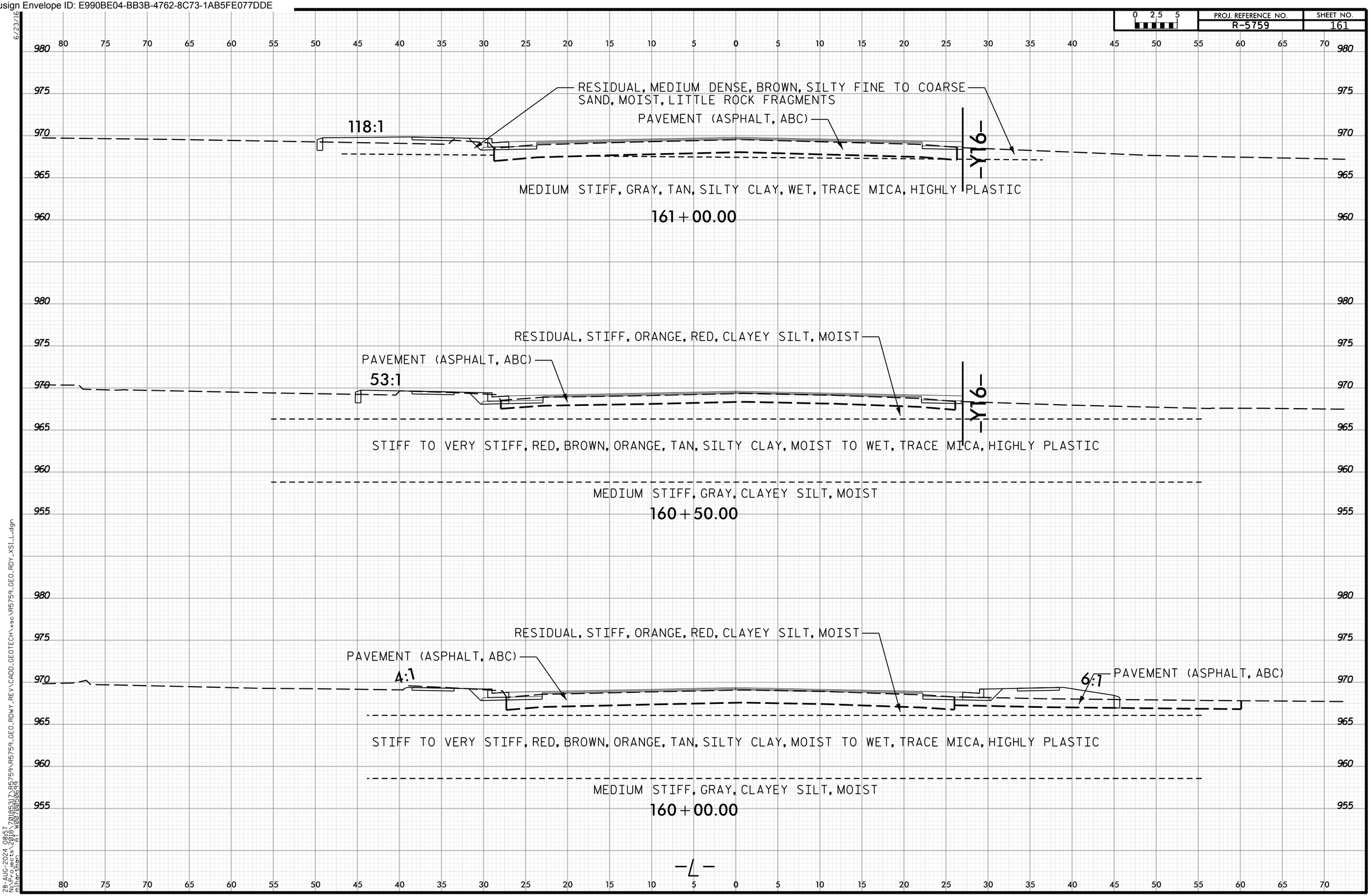

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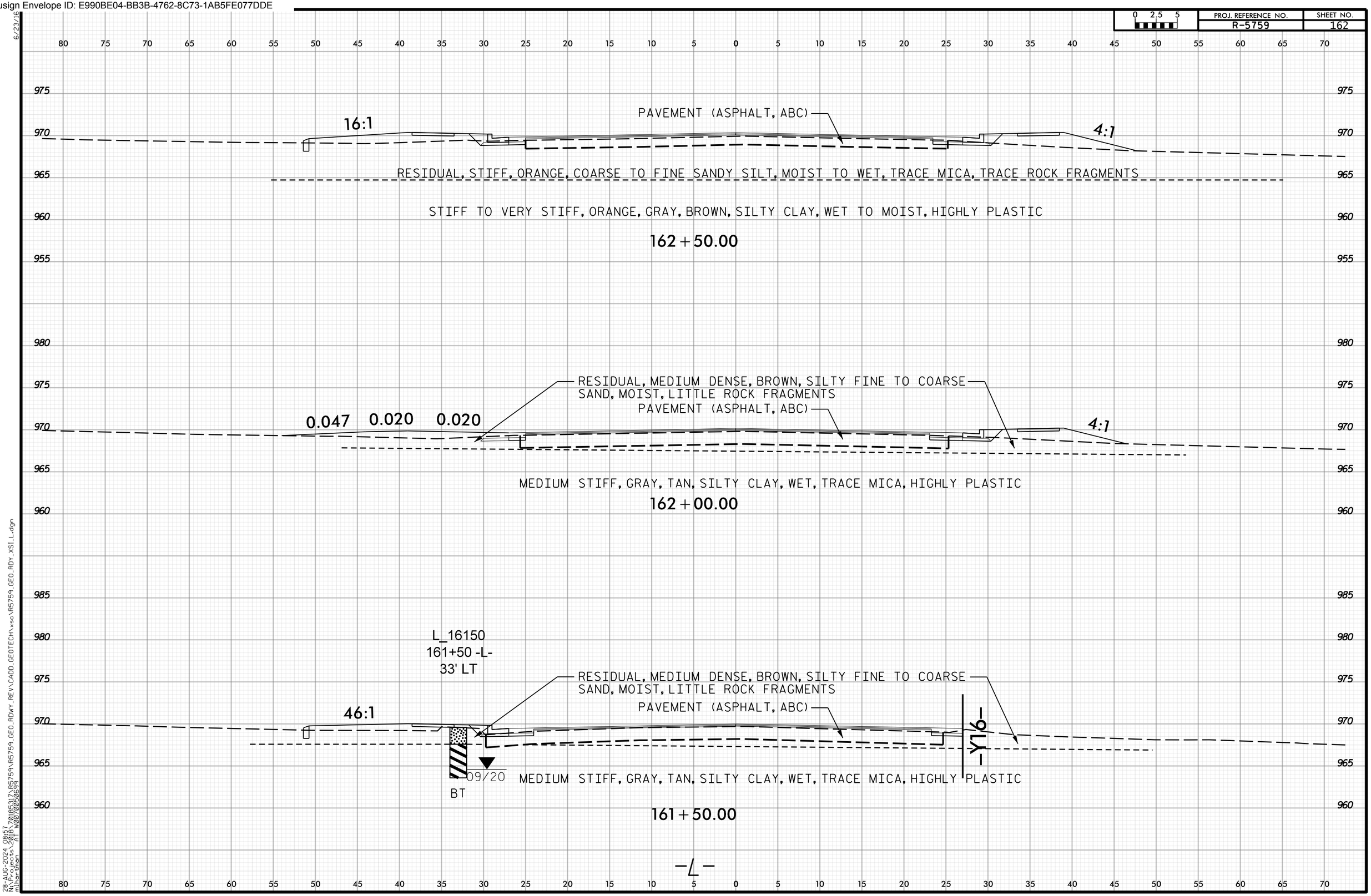

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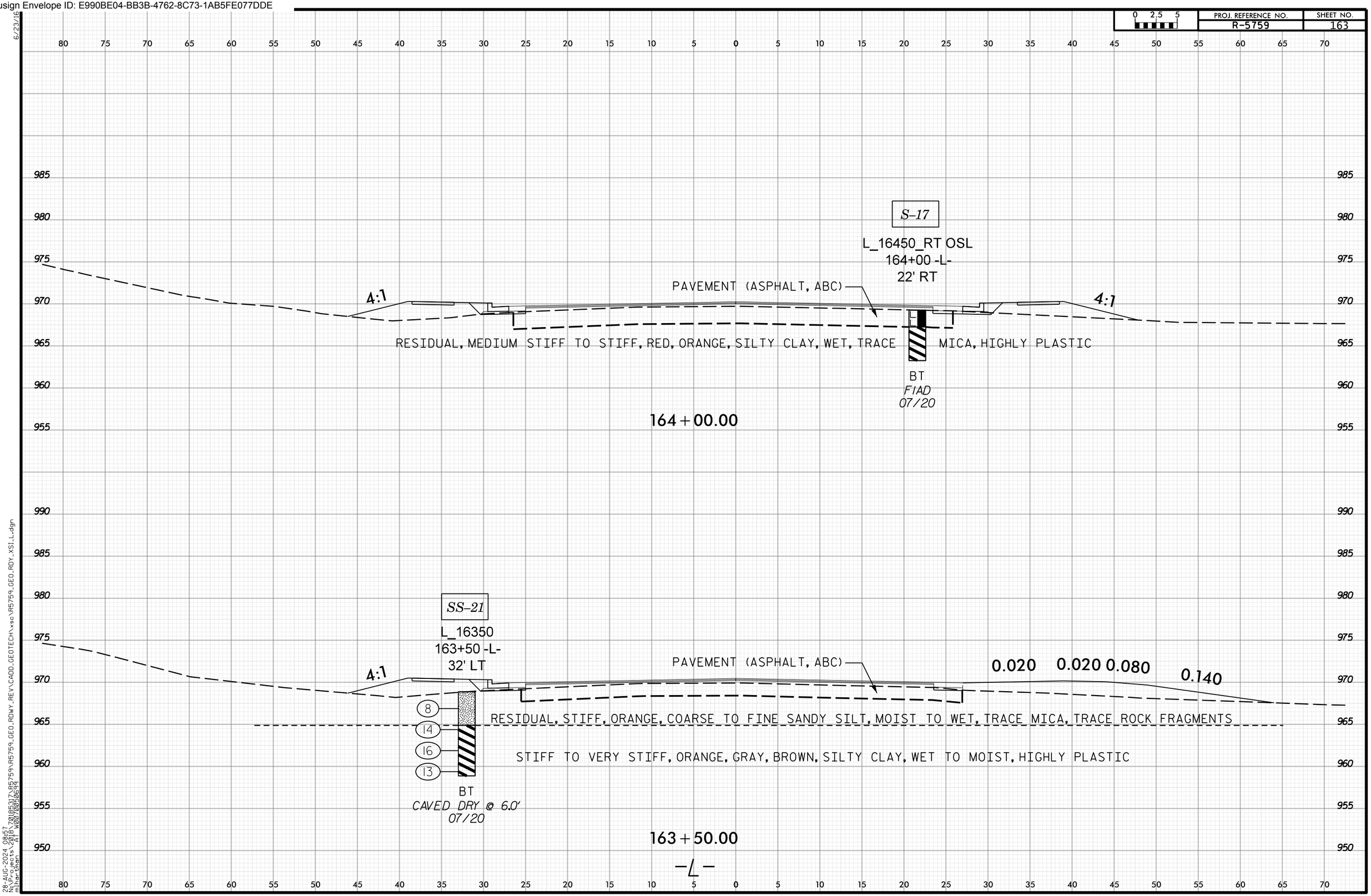

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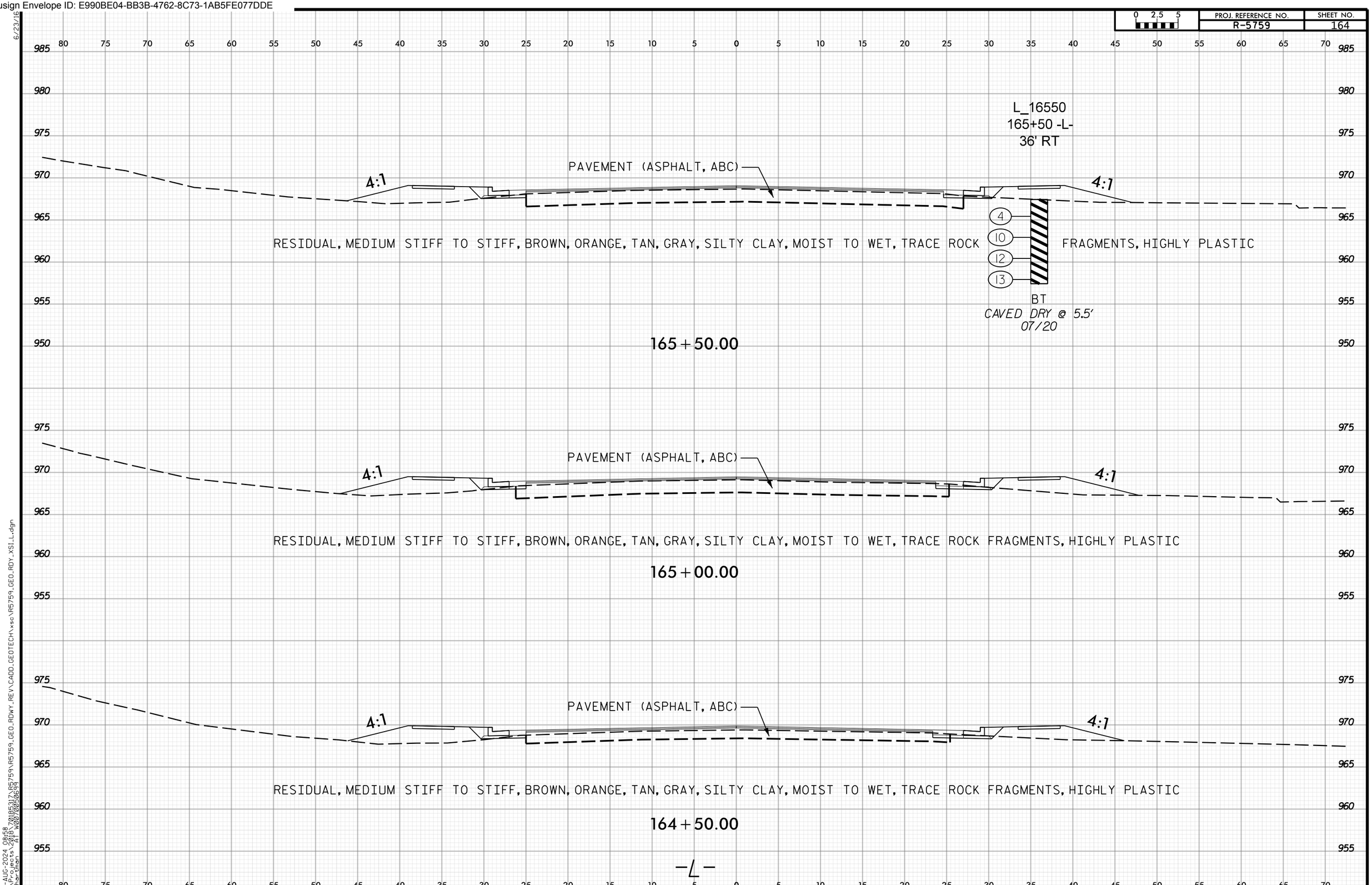

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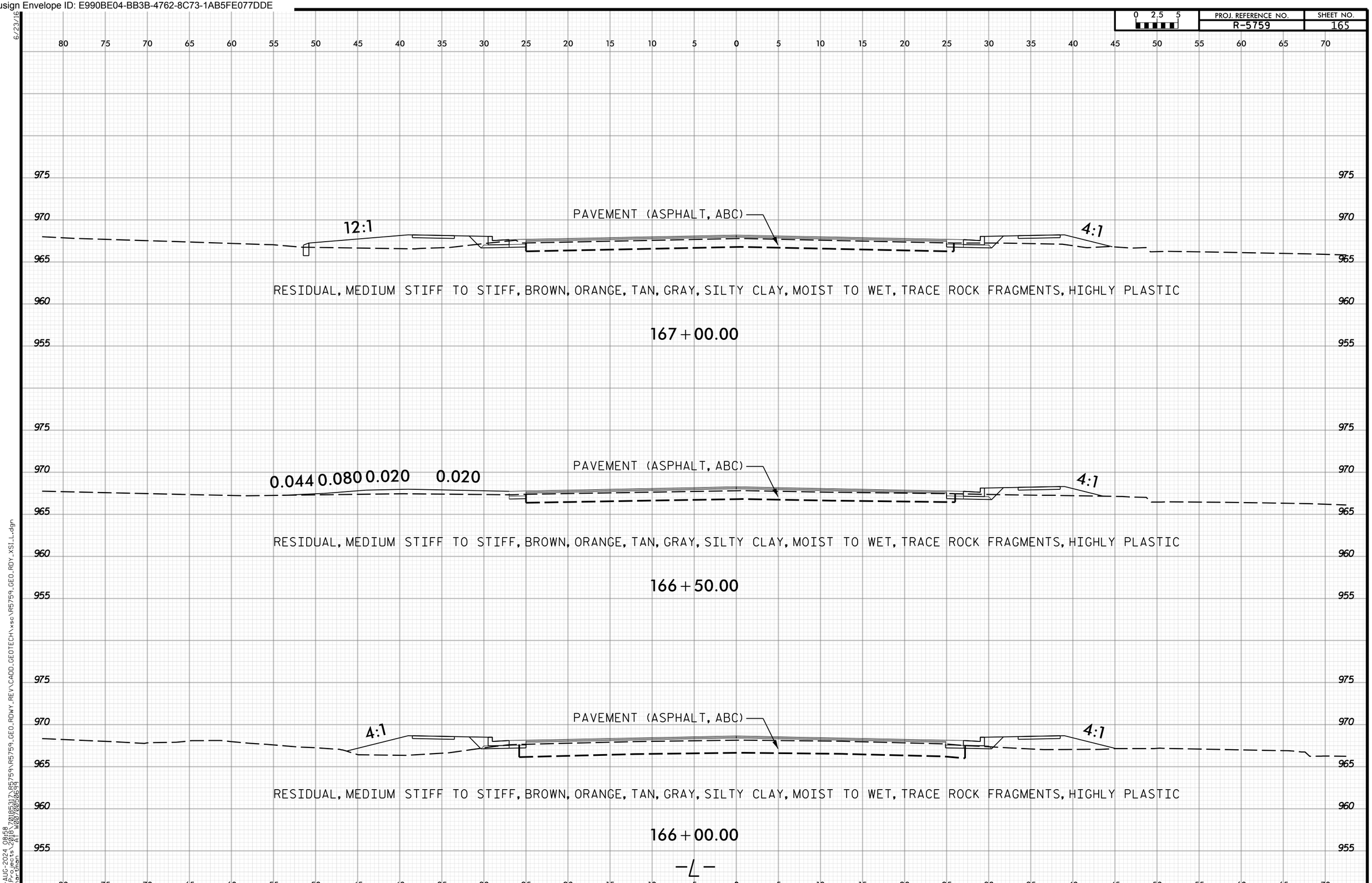

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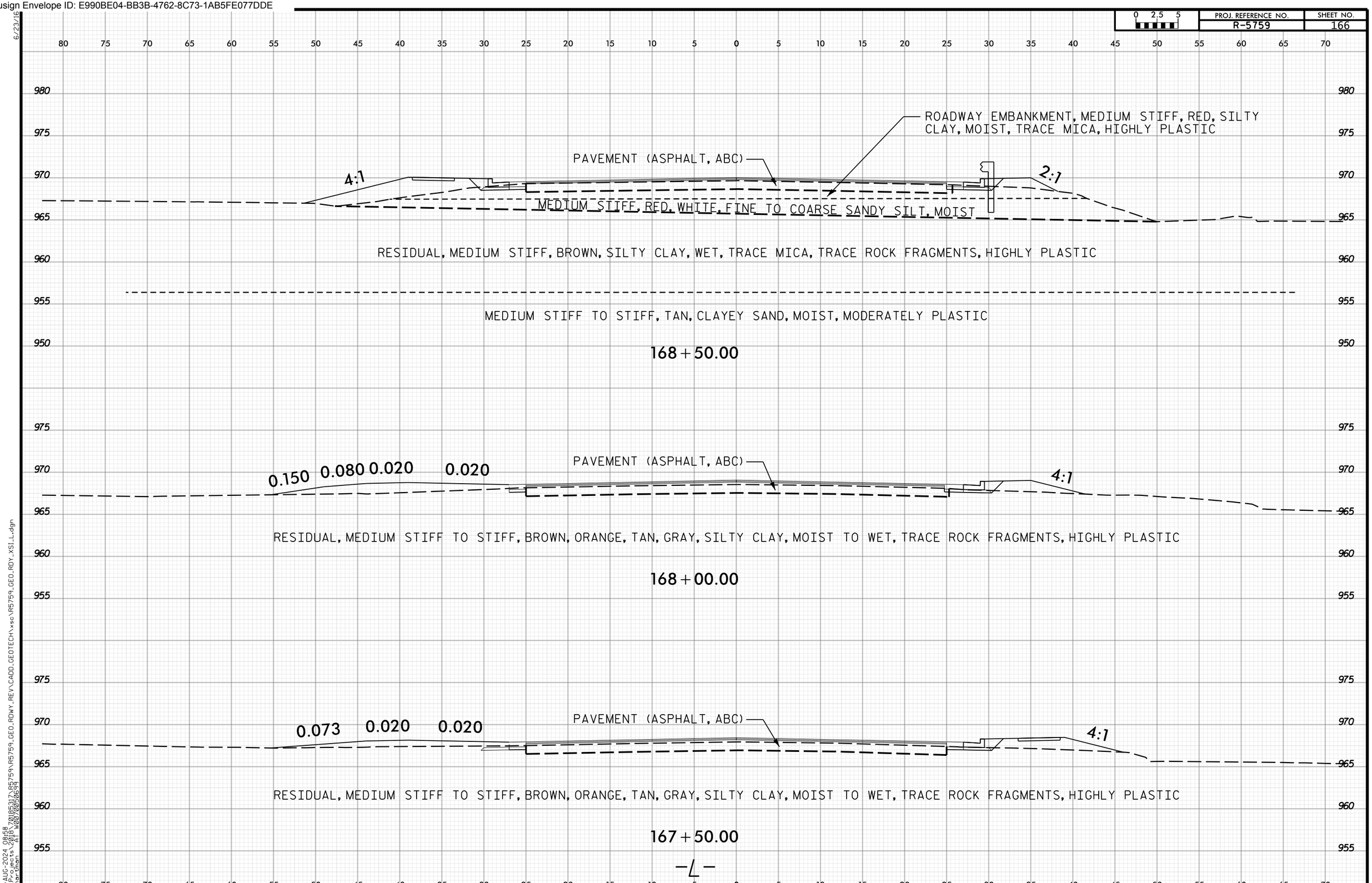

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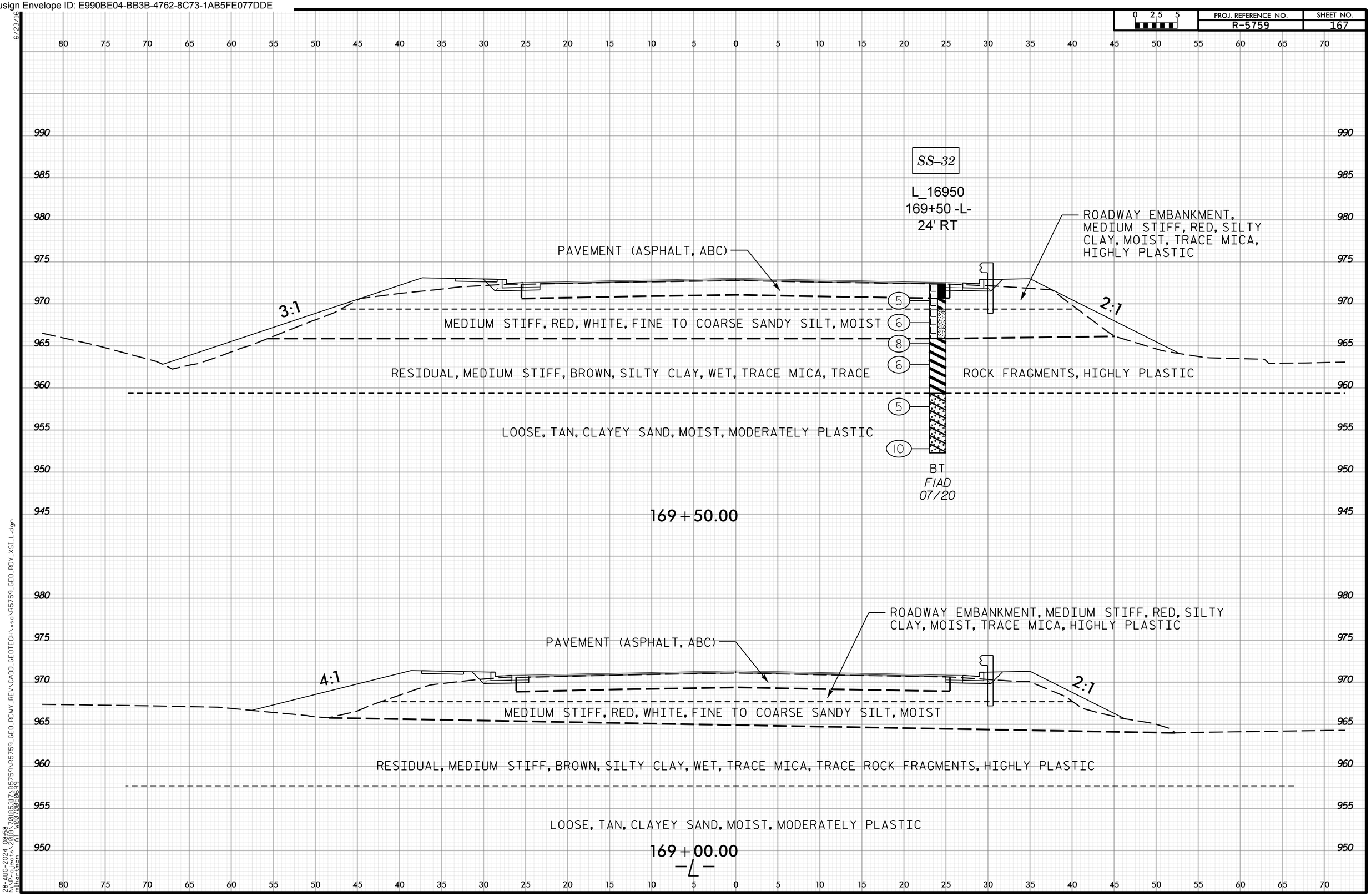

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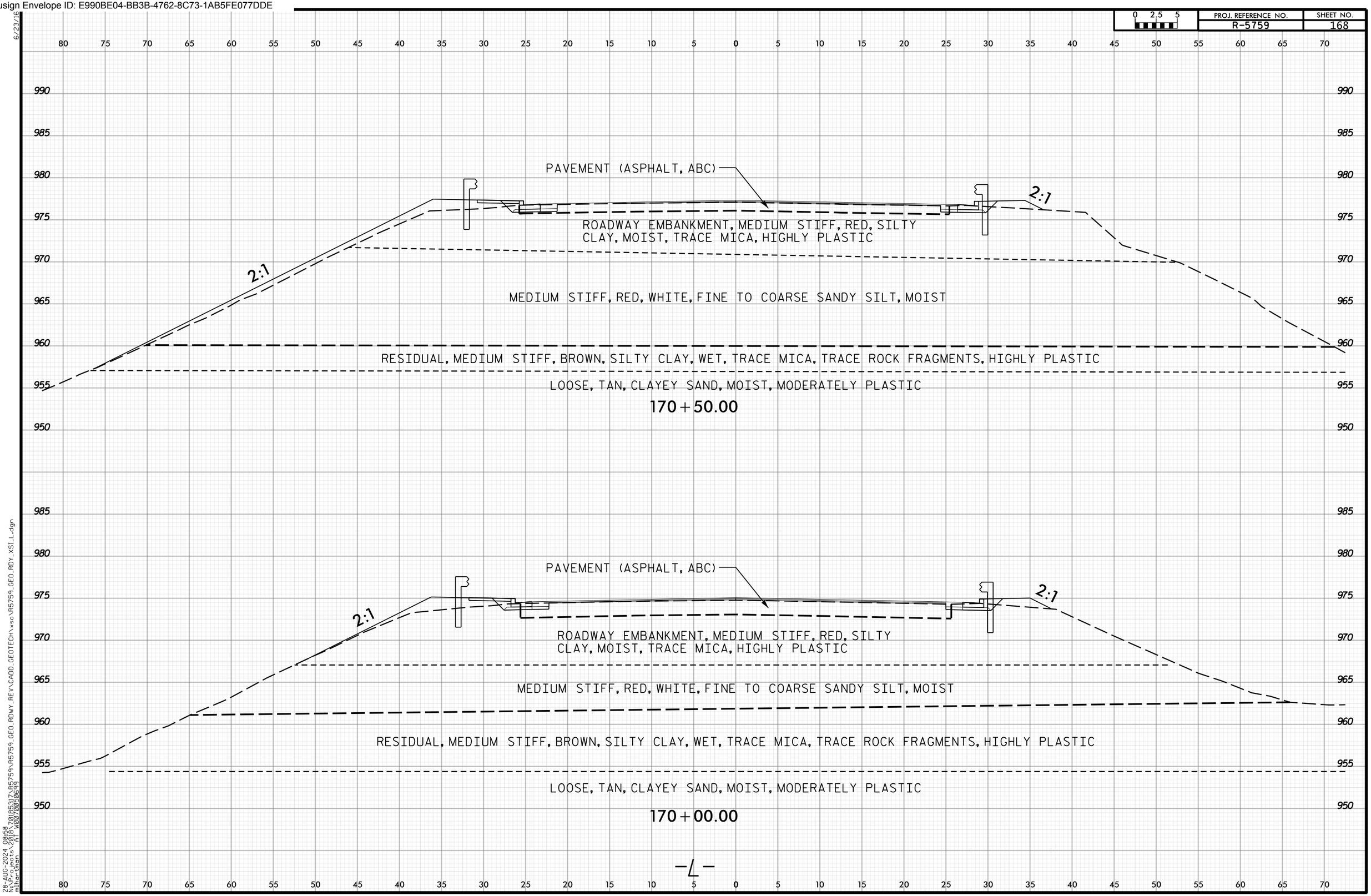

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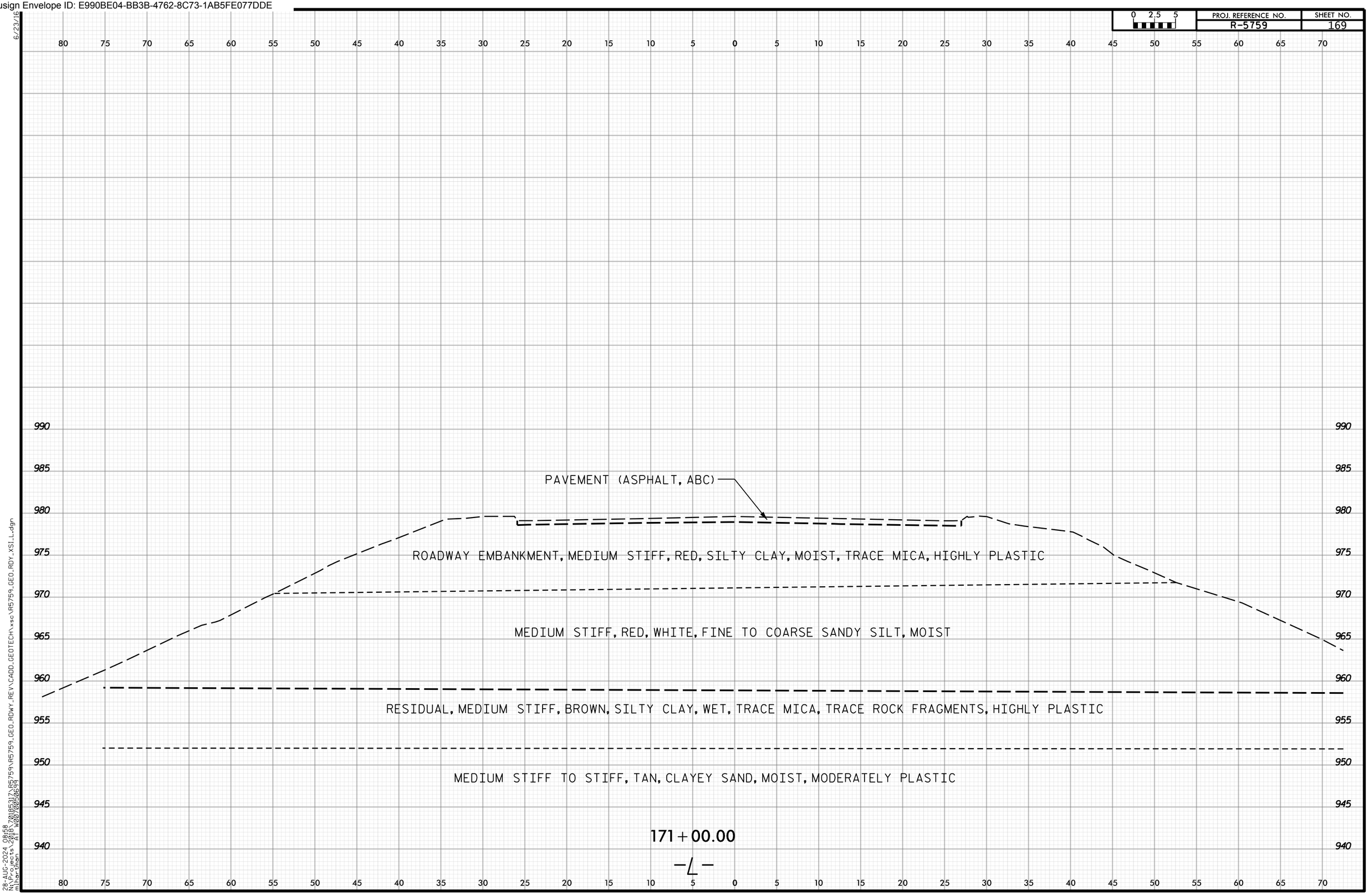

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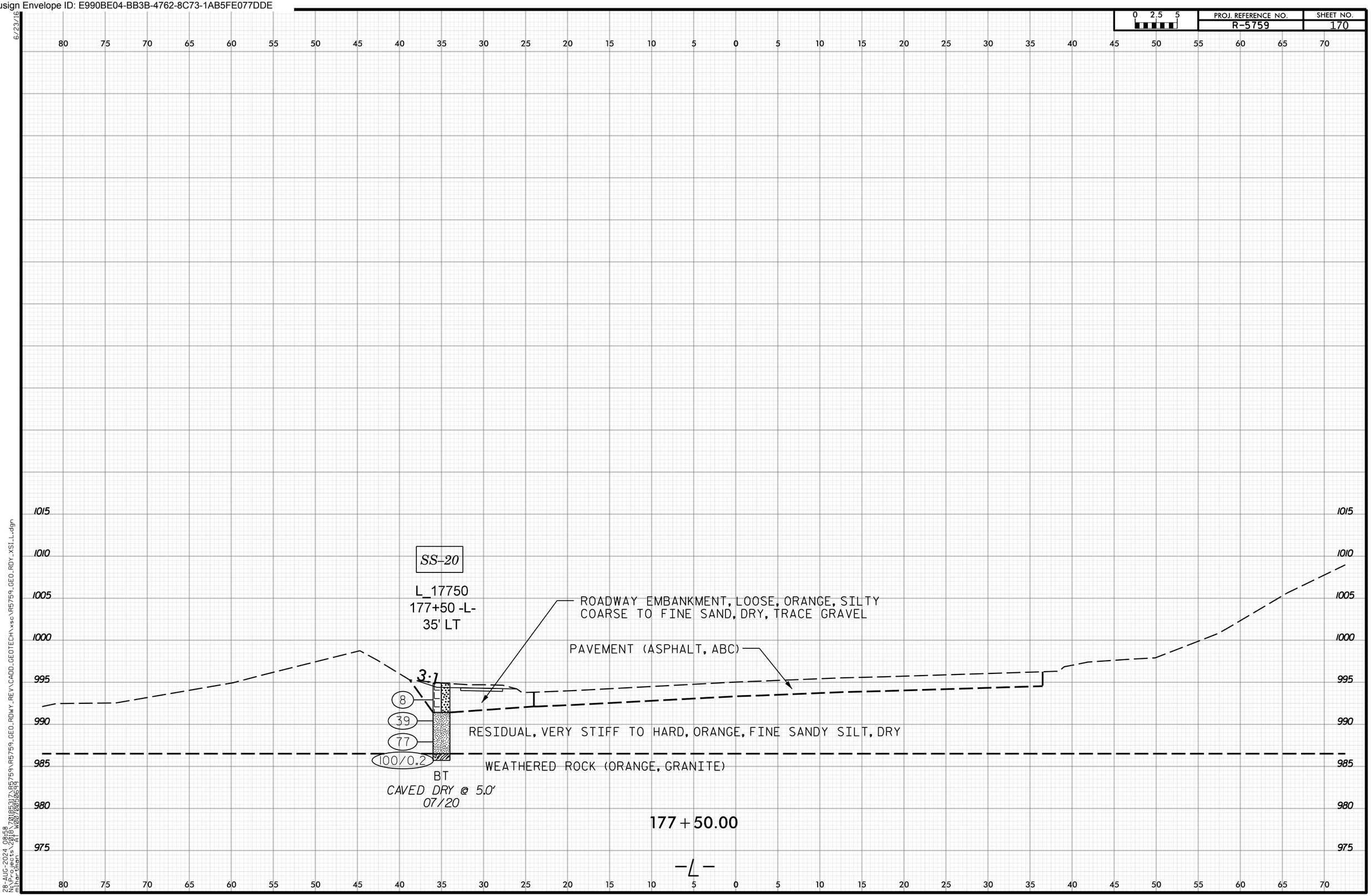

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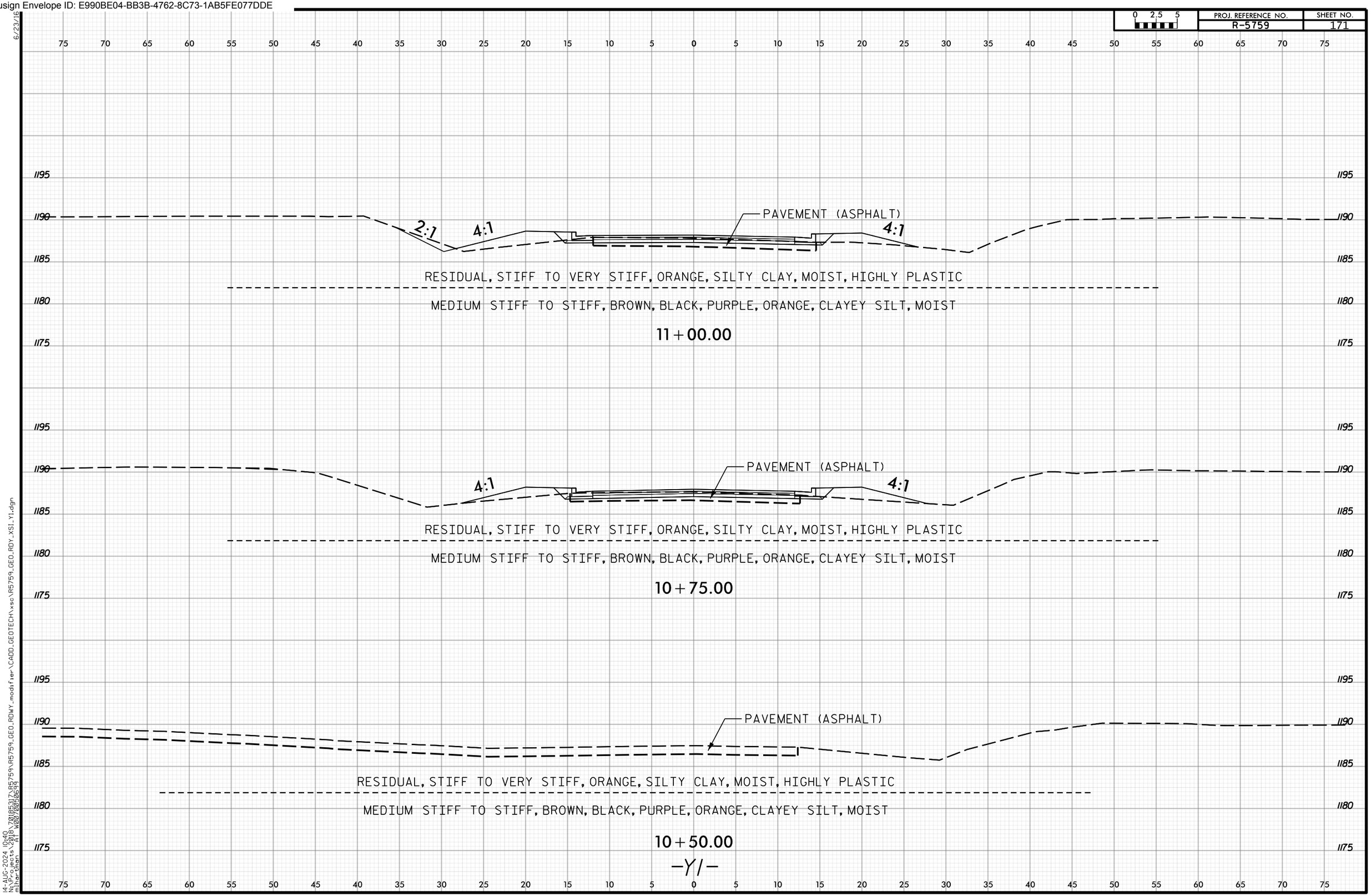

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6/23/16

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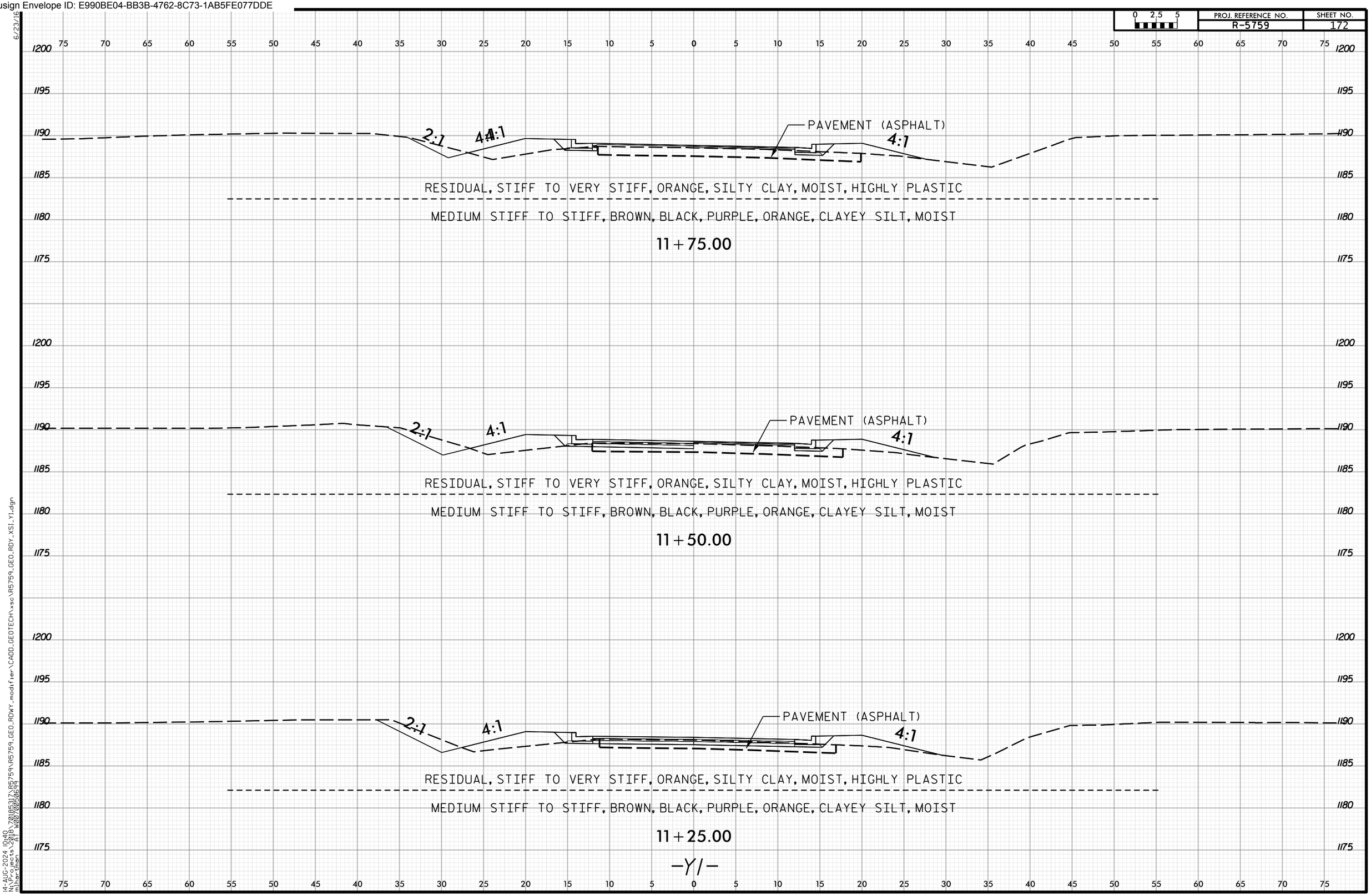
R-5759	172



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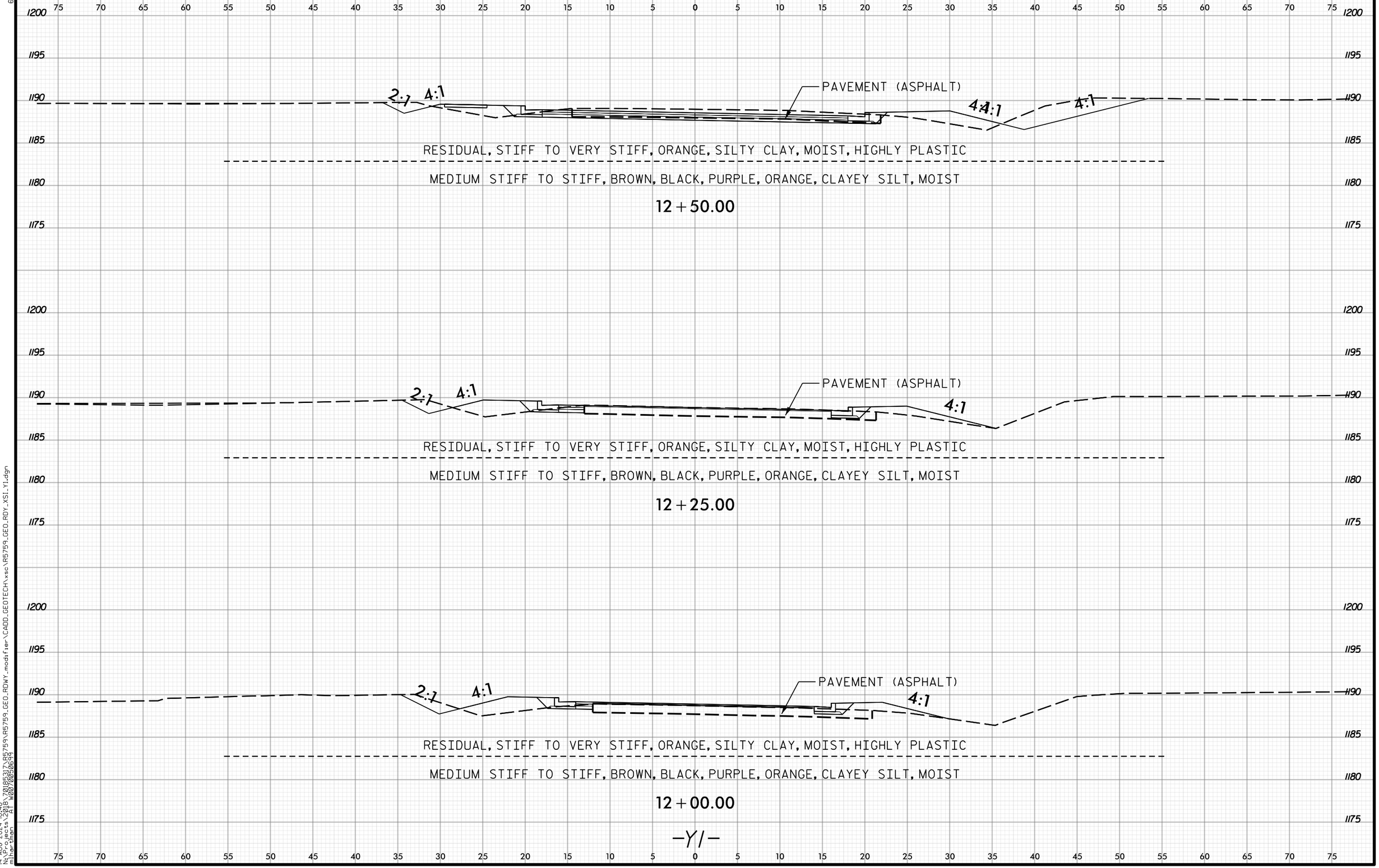
PROJ. REFERENCE NO.	SHEET NO.
R-5759	173



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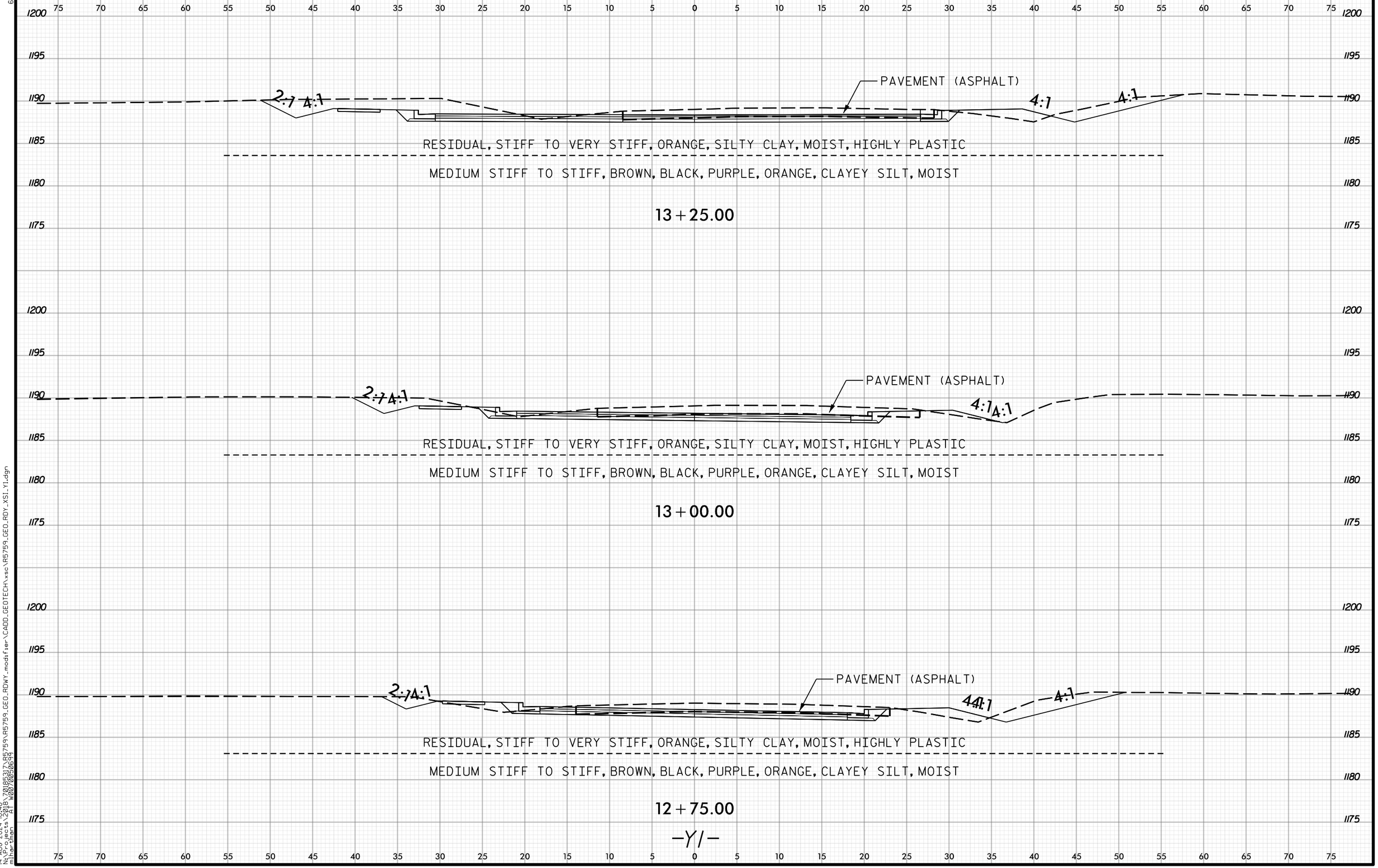

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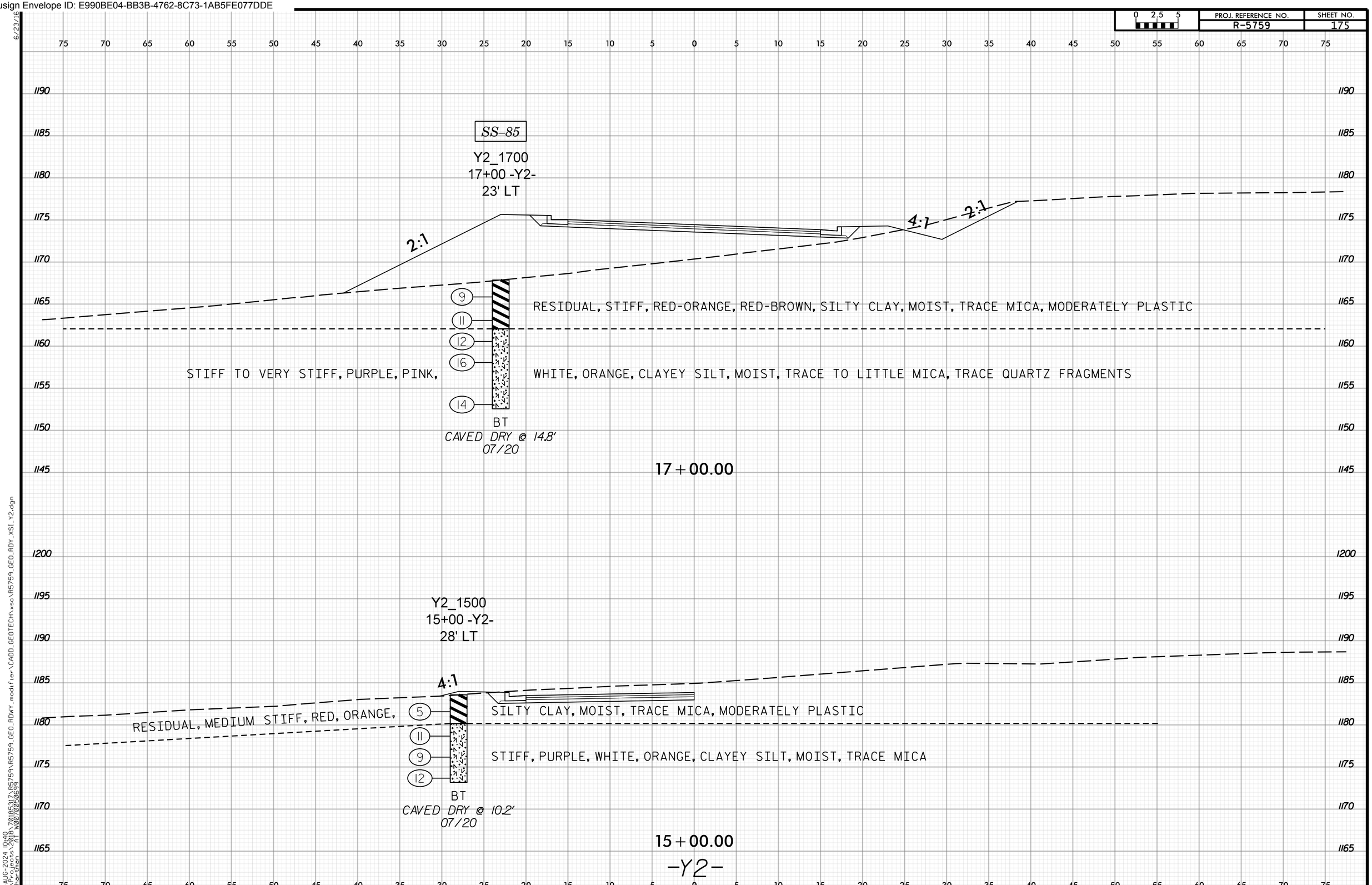

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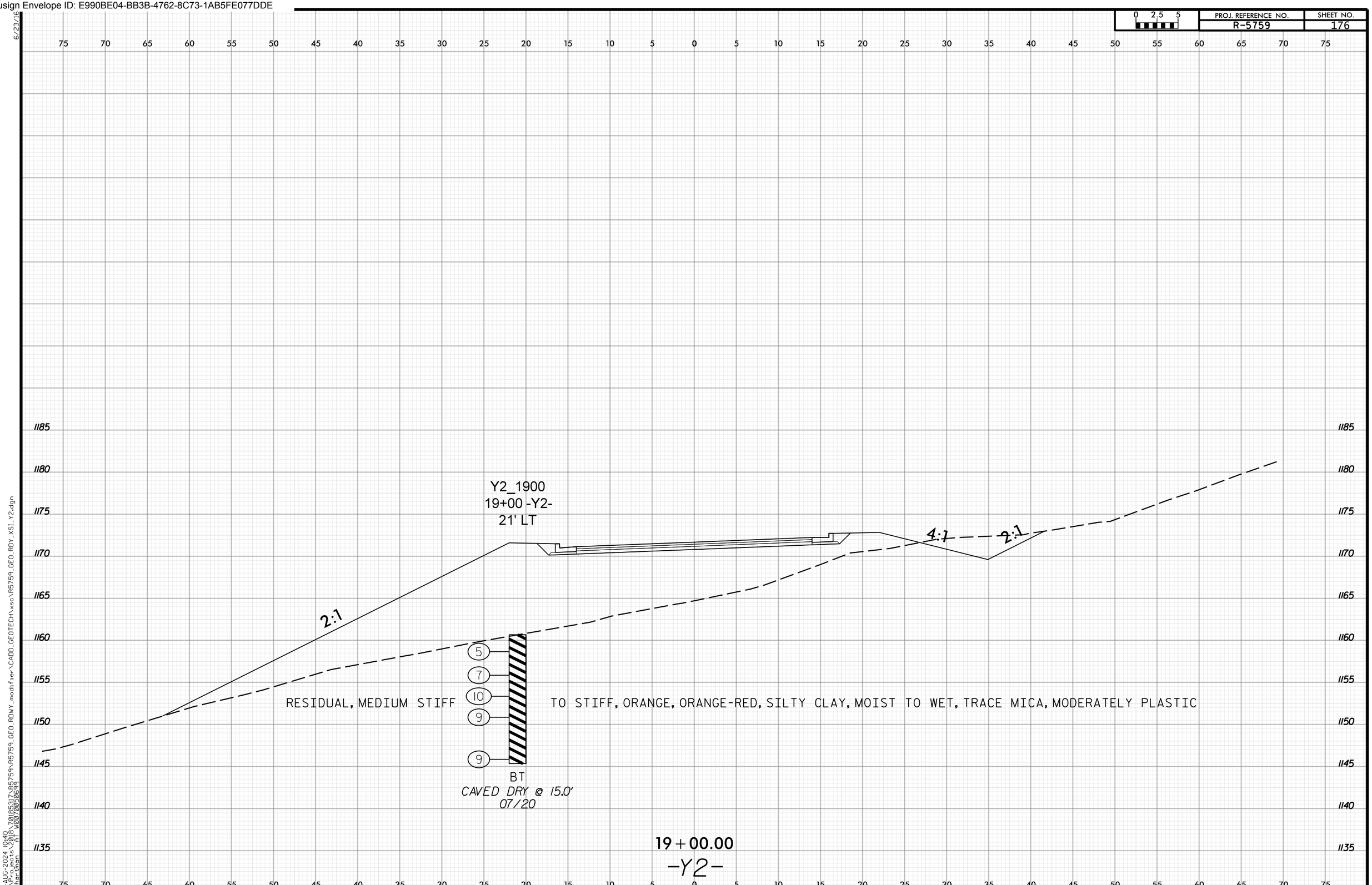
PROJ. REFERENCE NO. R-5759 | SHEET NO. 176



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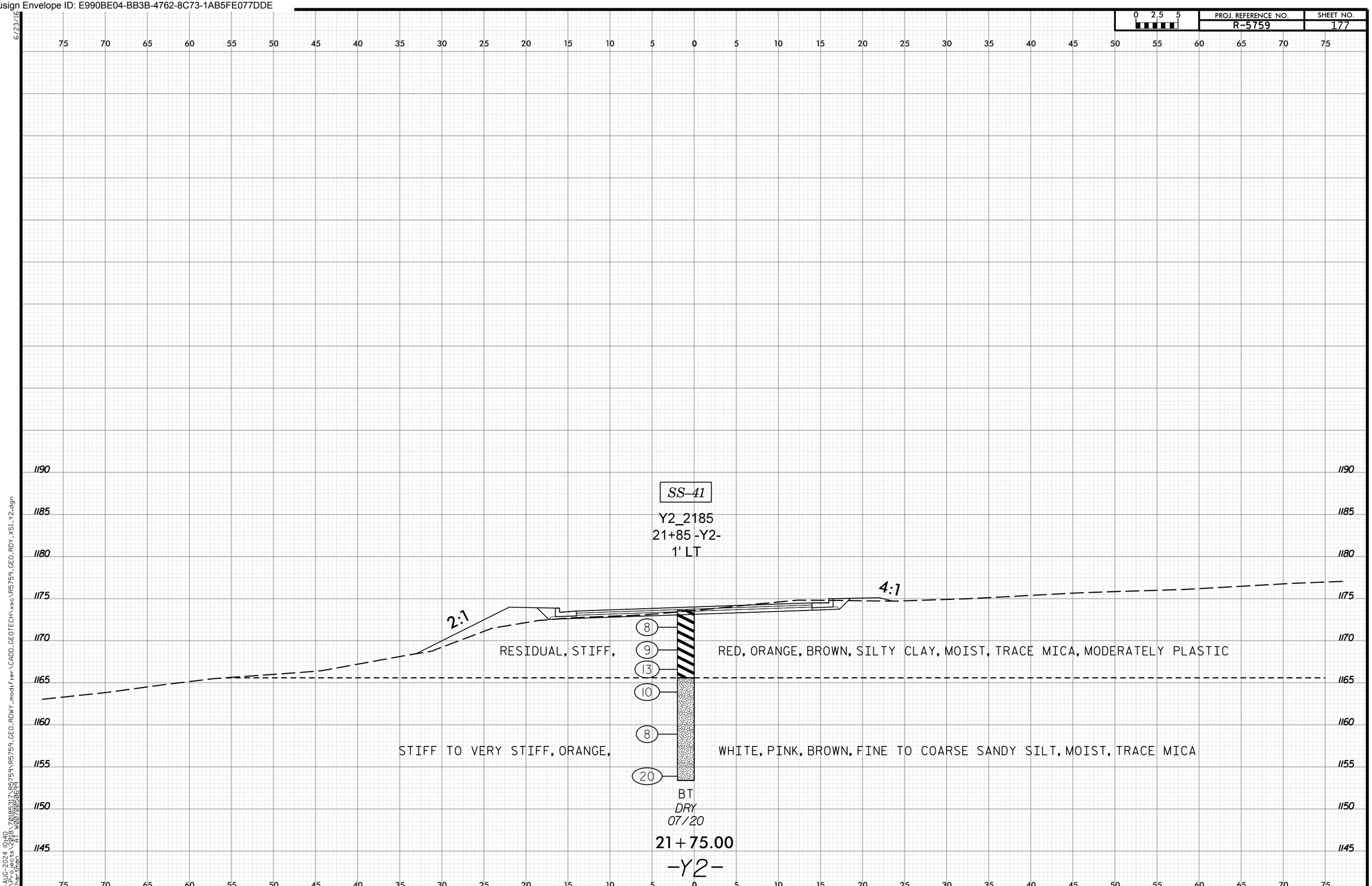

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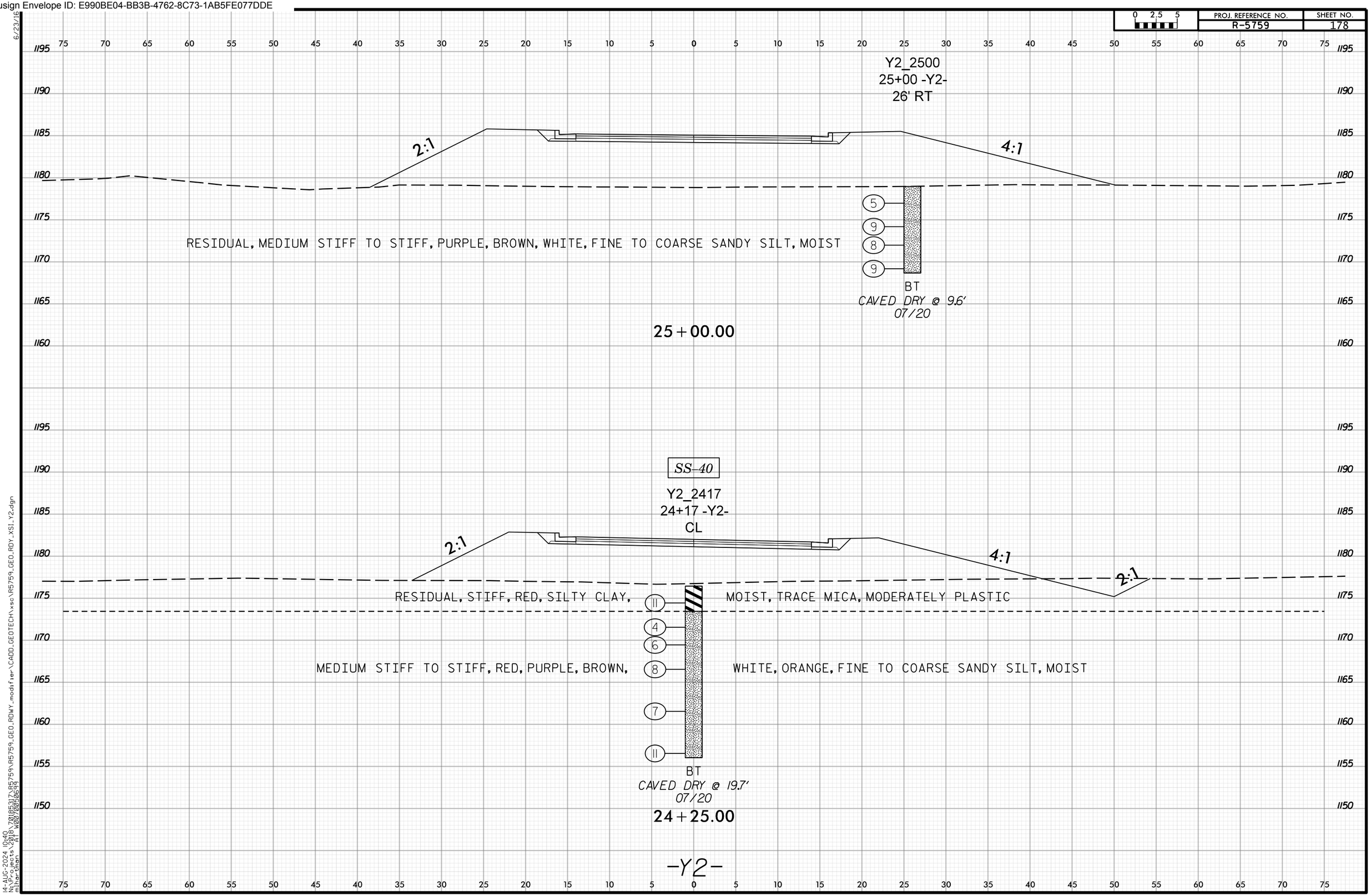

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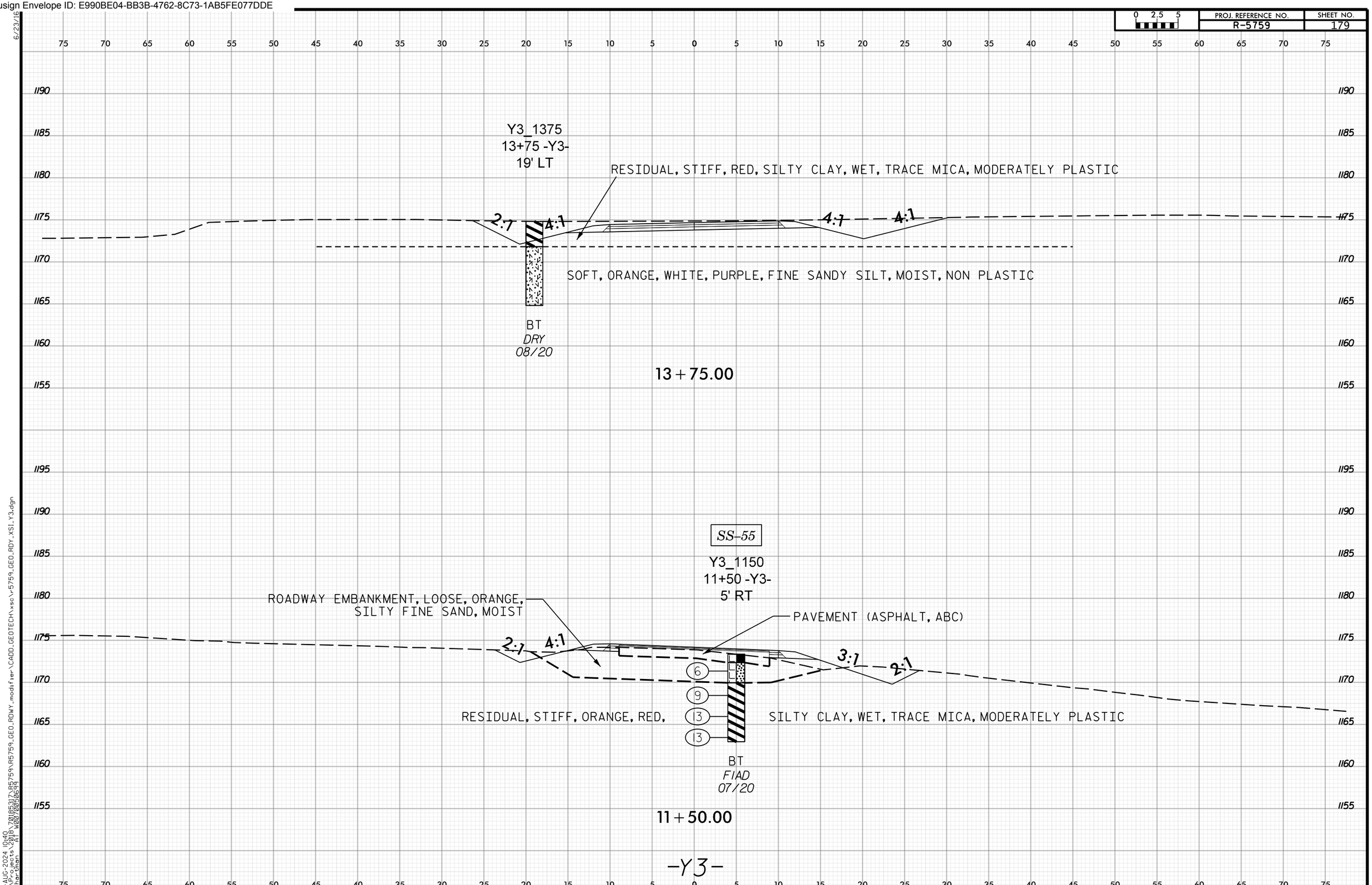

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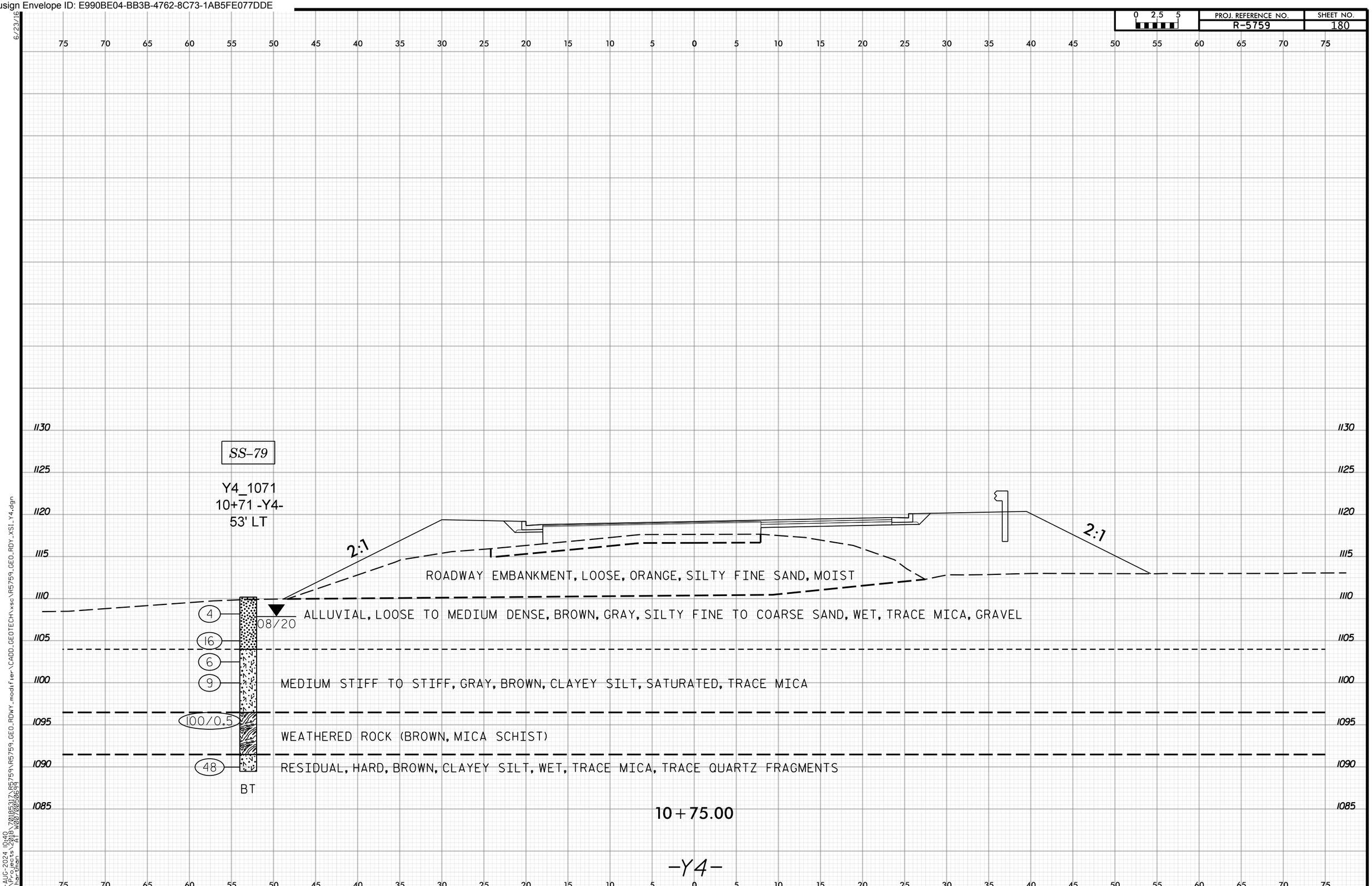

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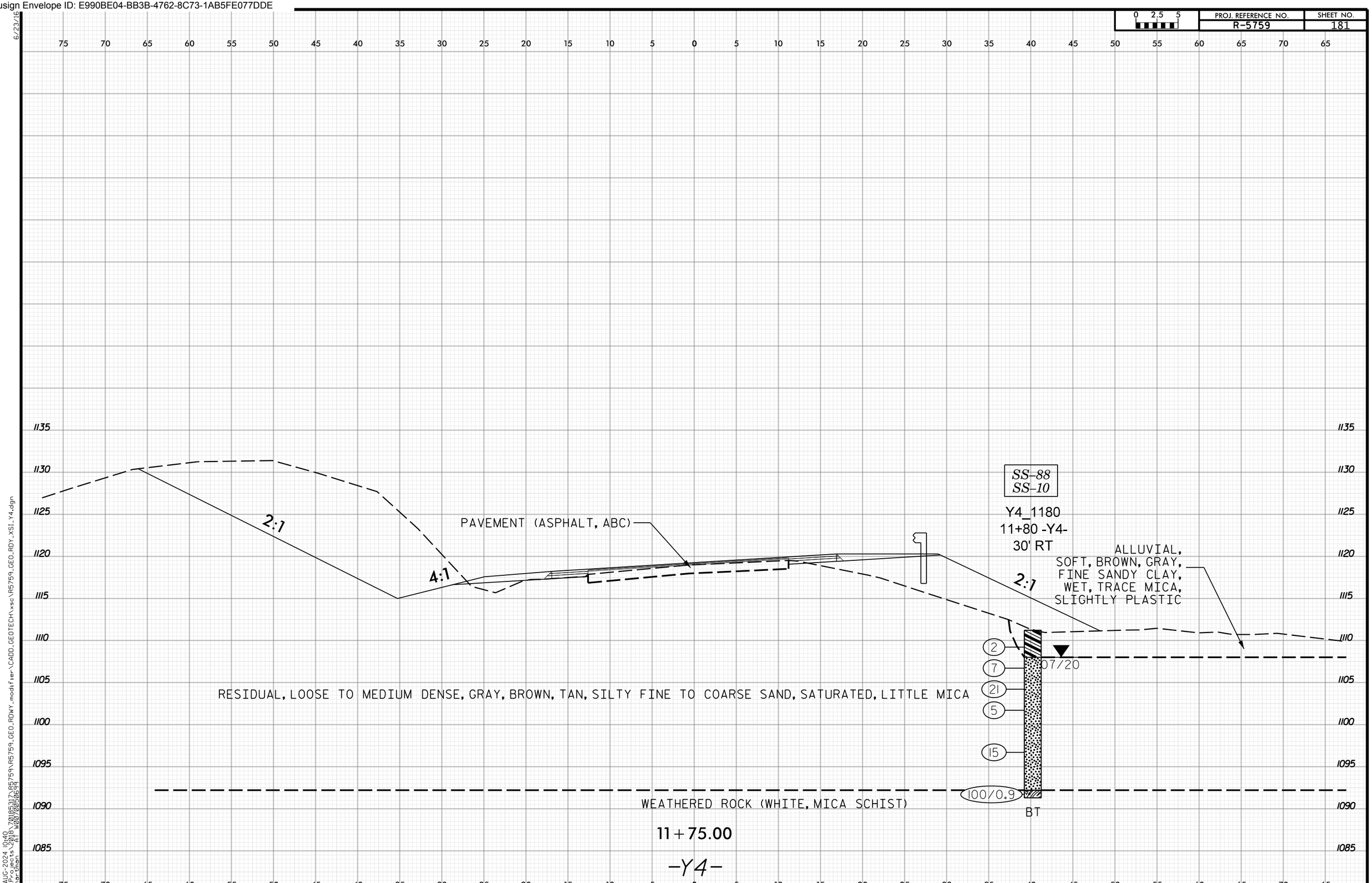

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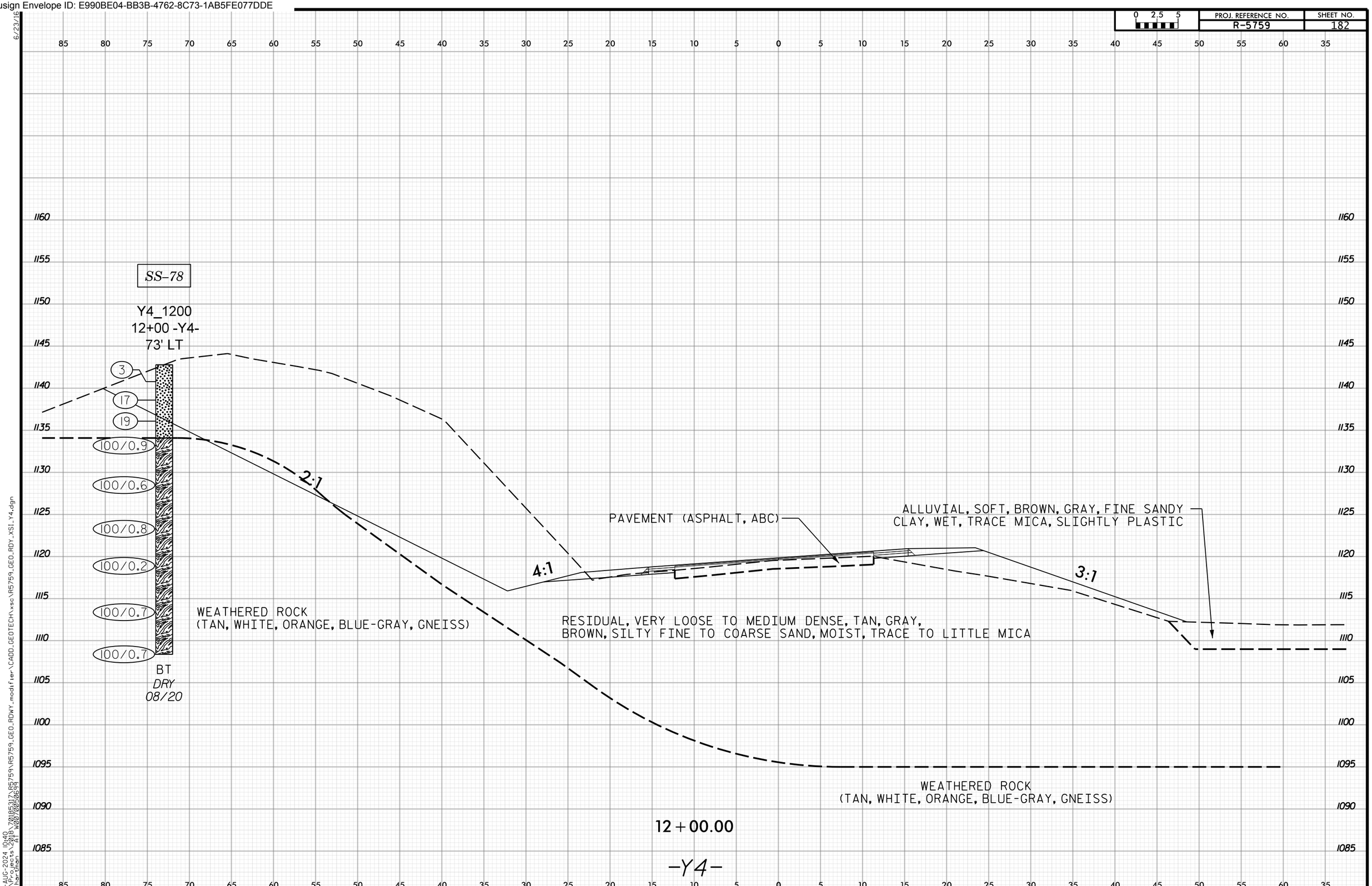

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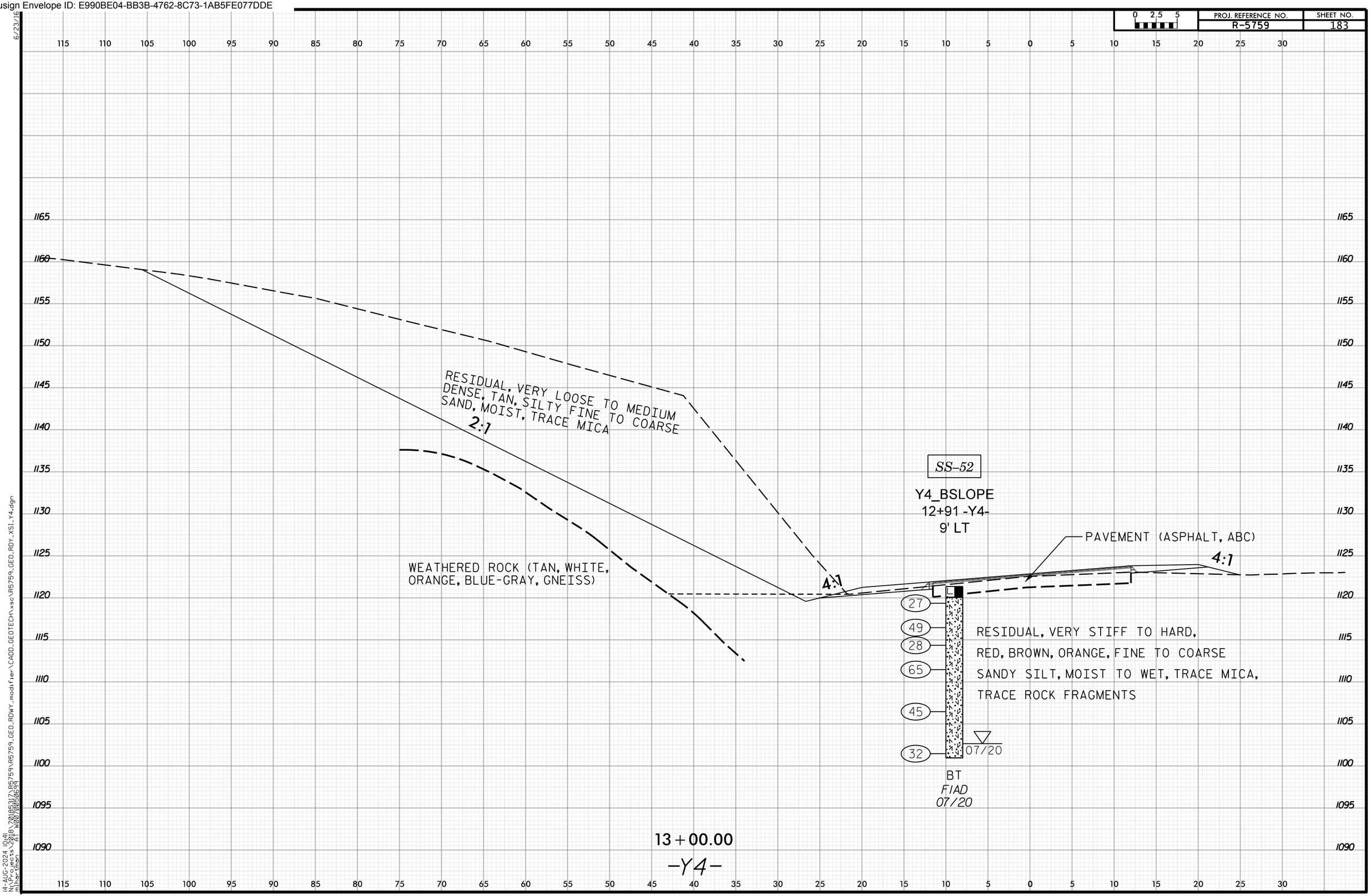

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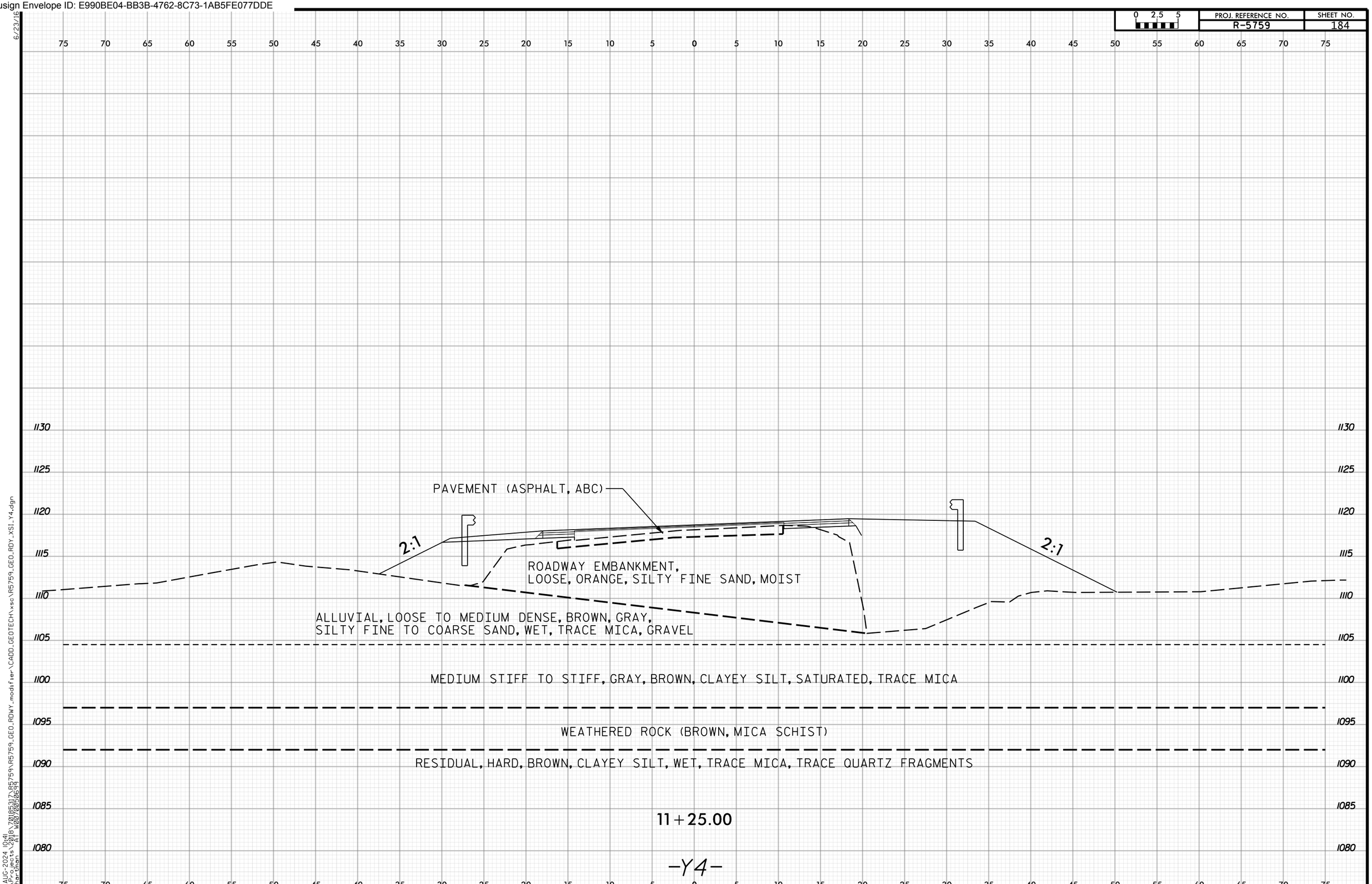

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Docusign Envelope ID: E990BE04-BB3B-4762-8C73-1AB5FE077DDE

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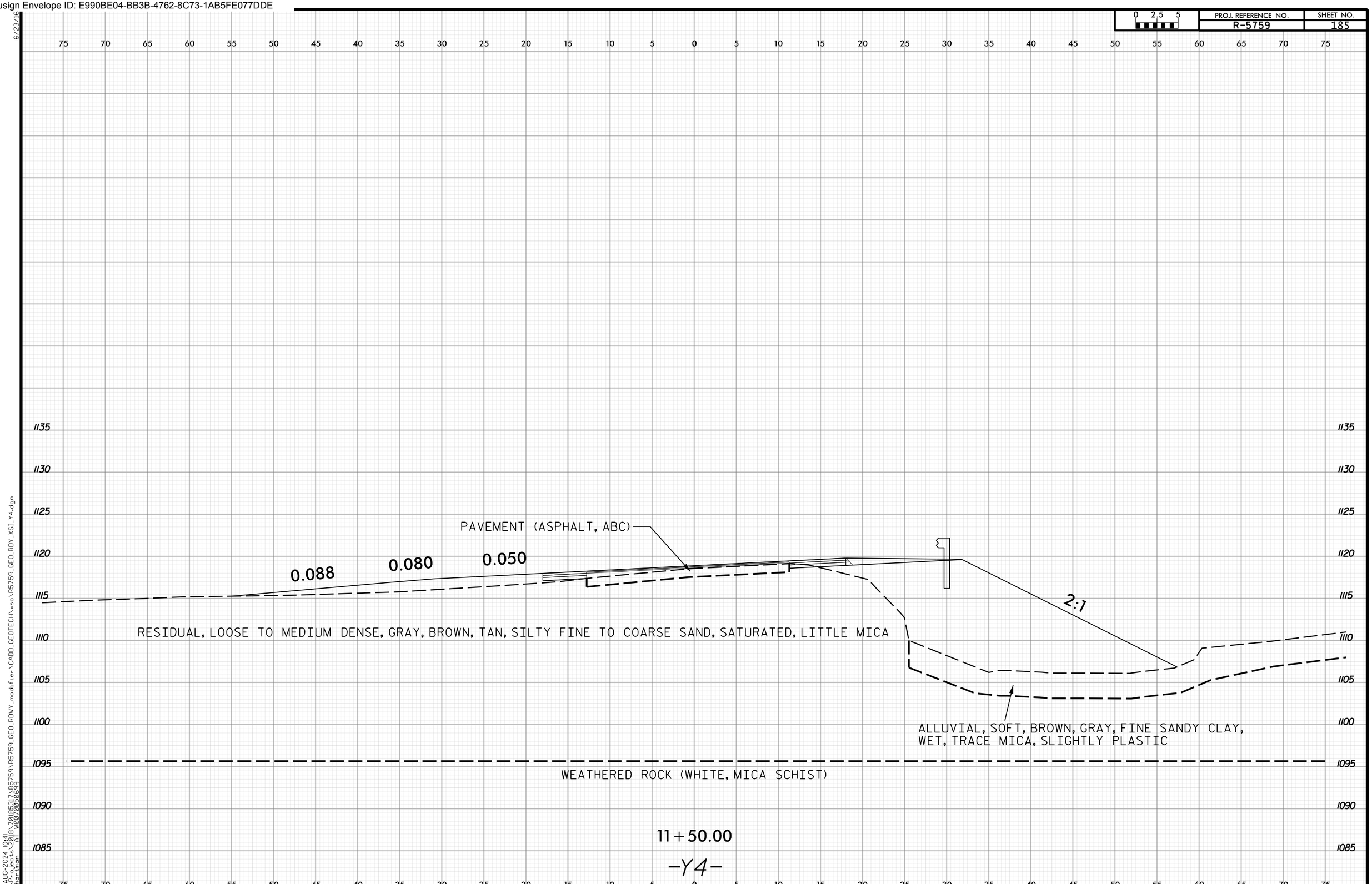
0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	R-5759	185



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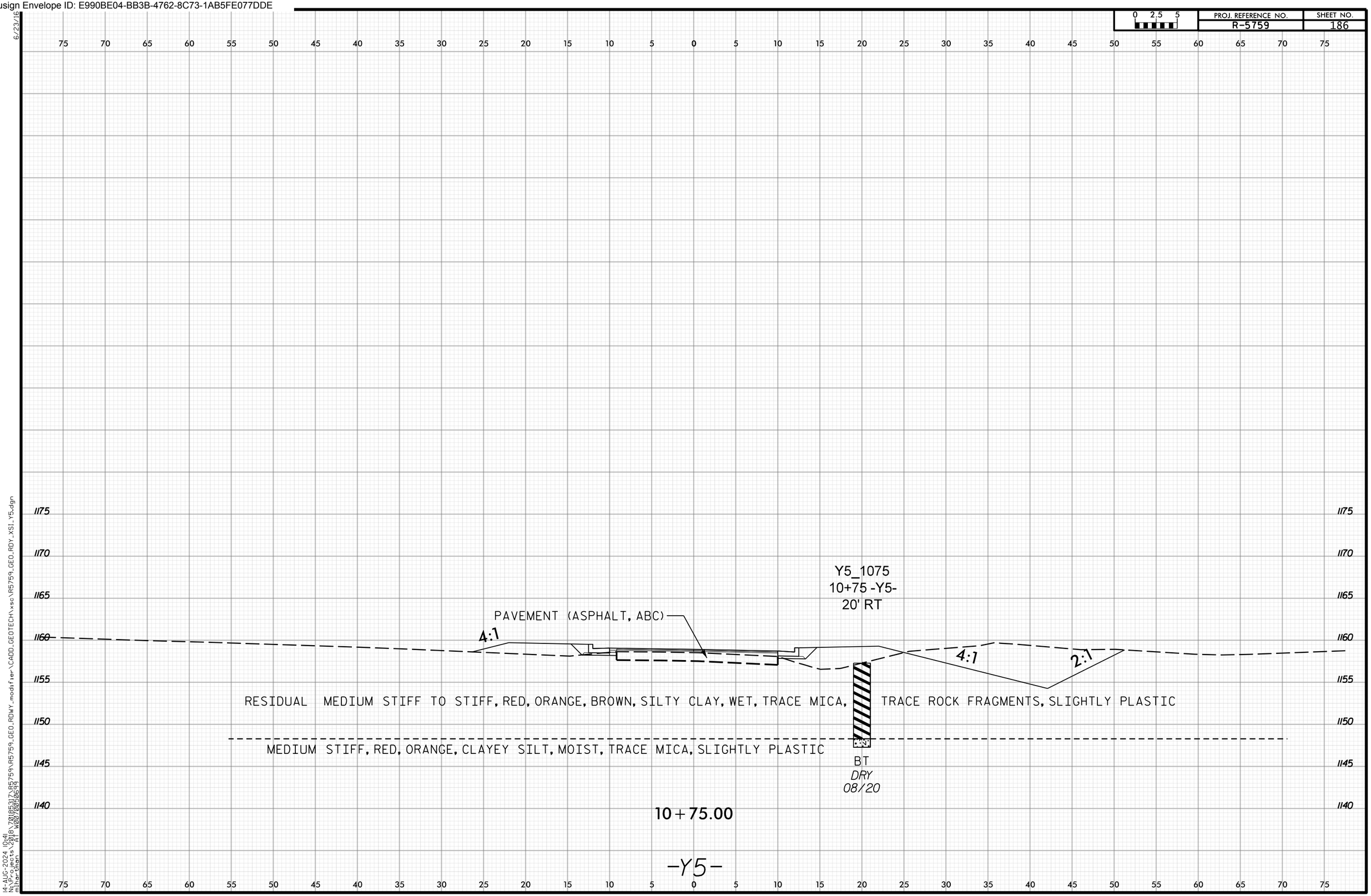

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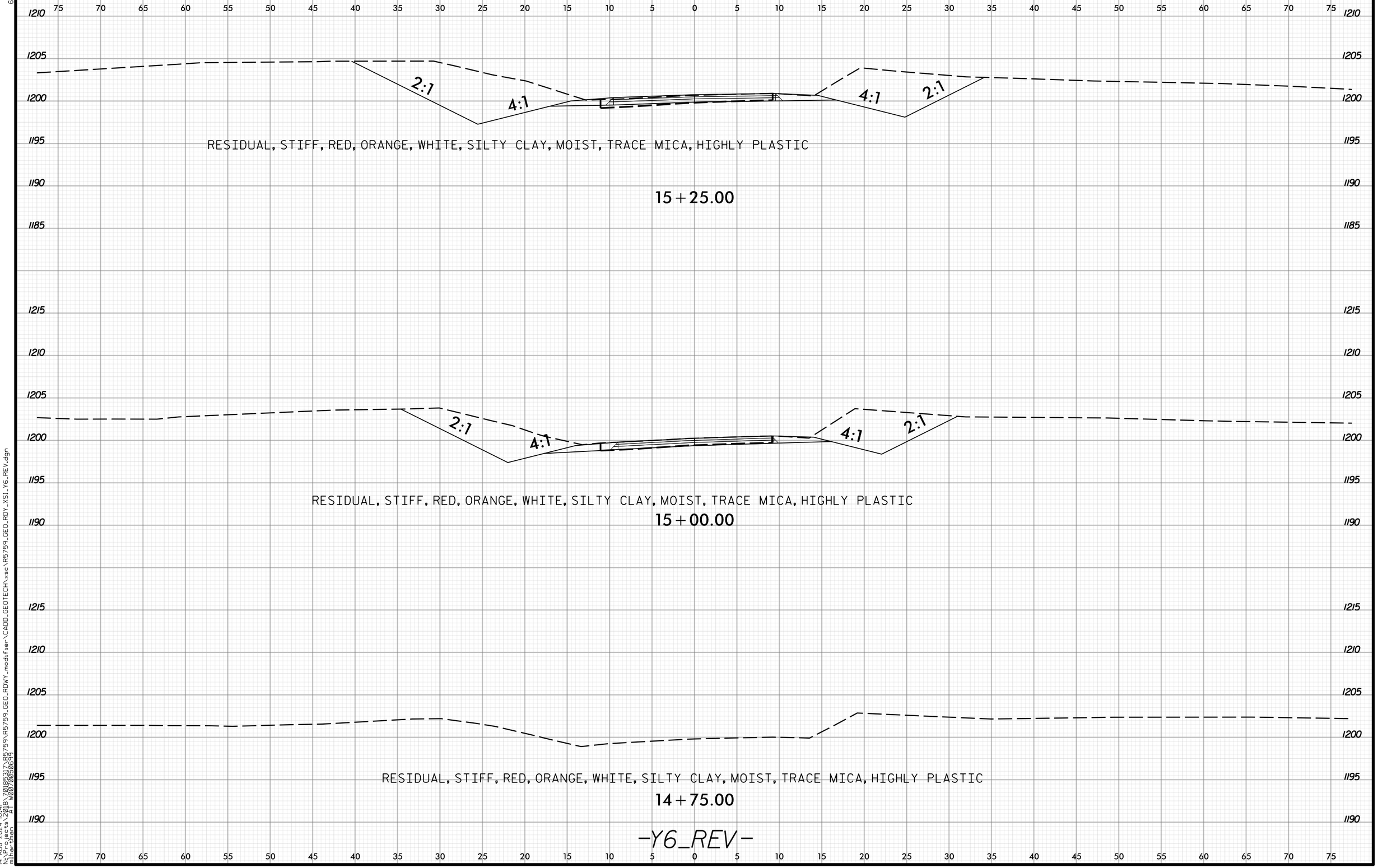

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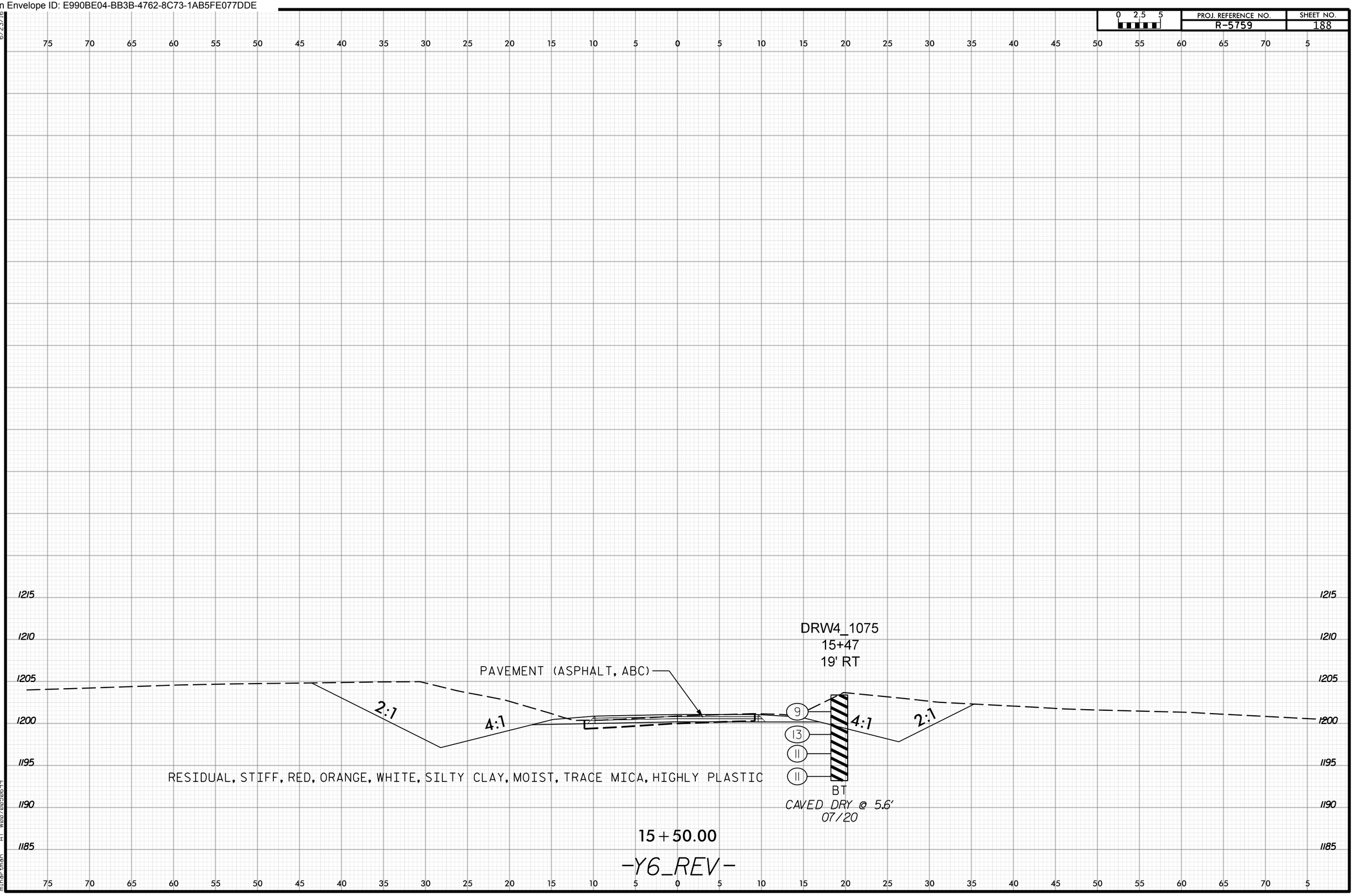

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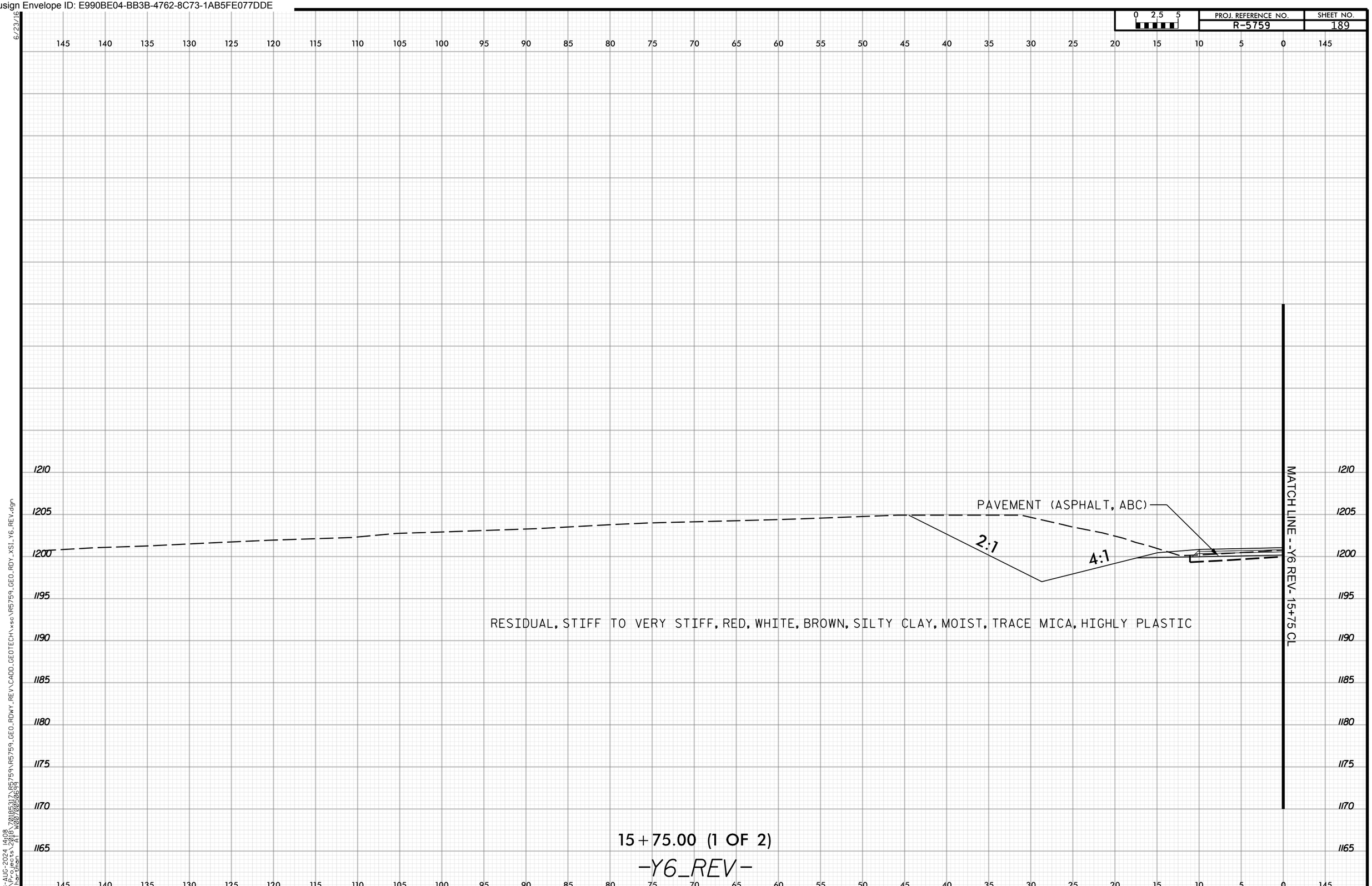

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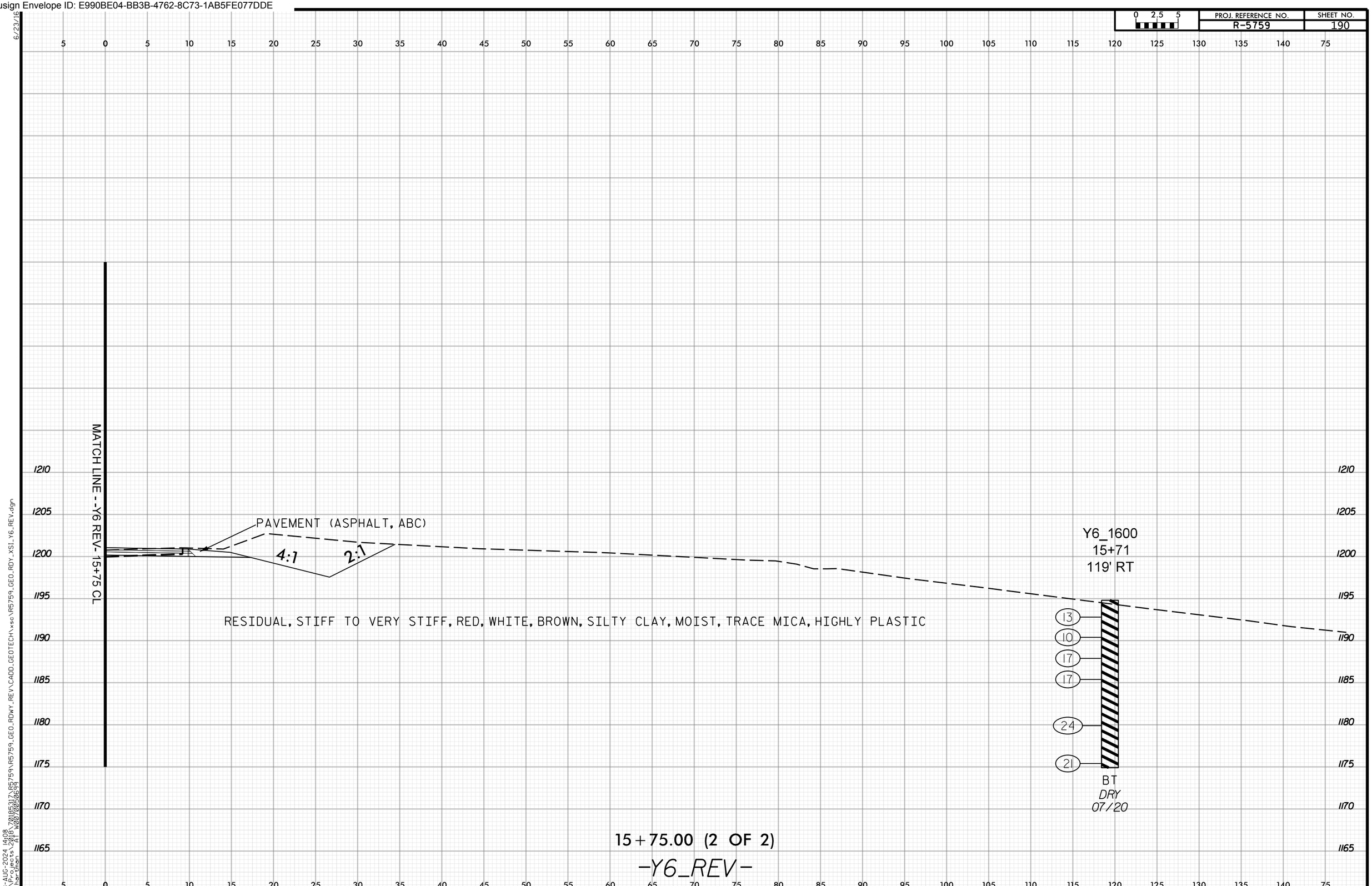

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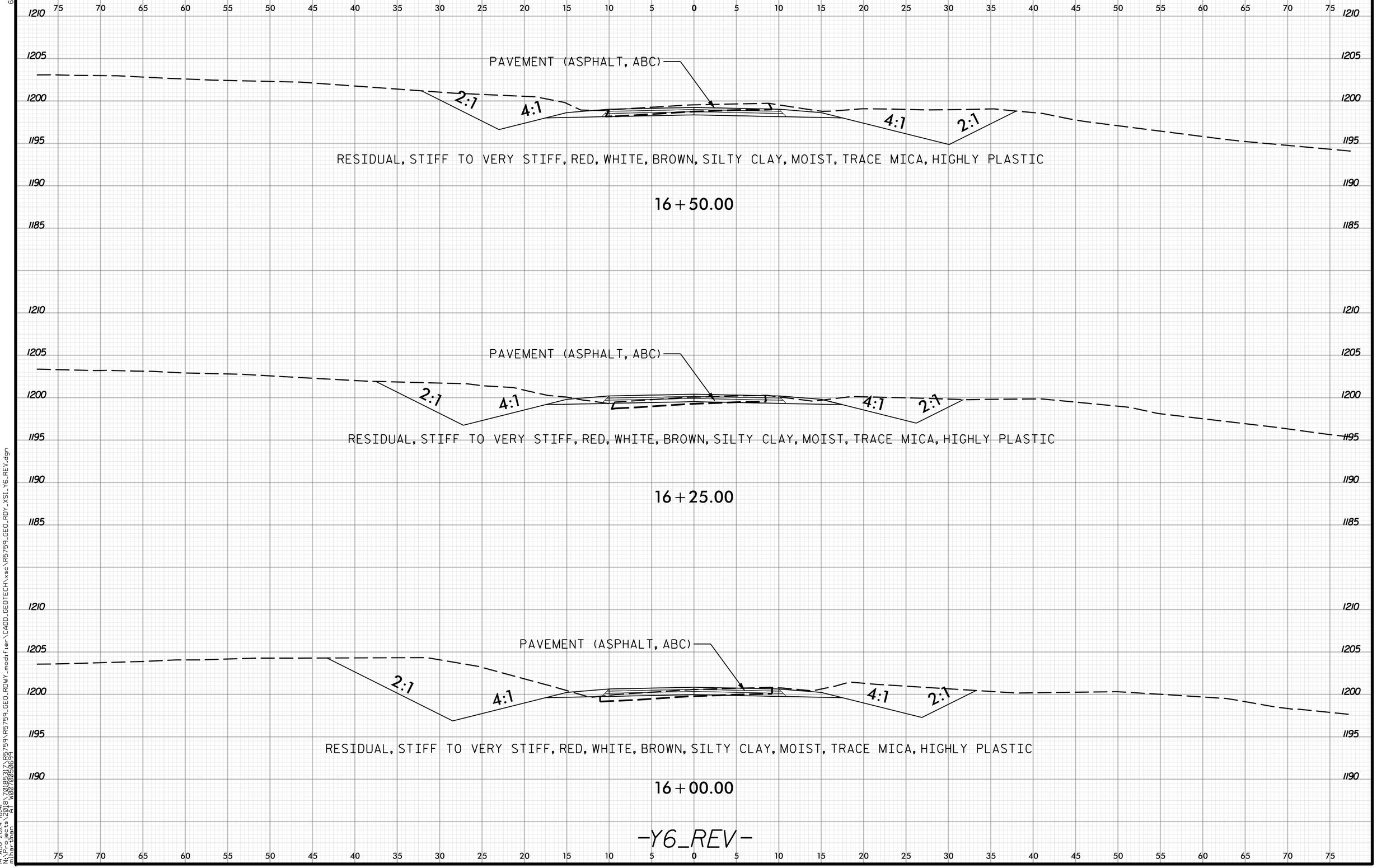

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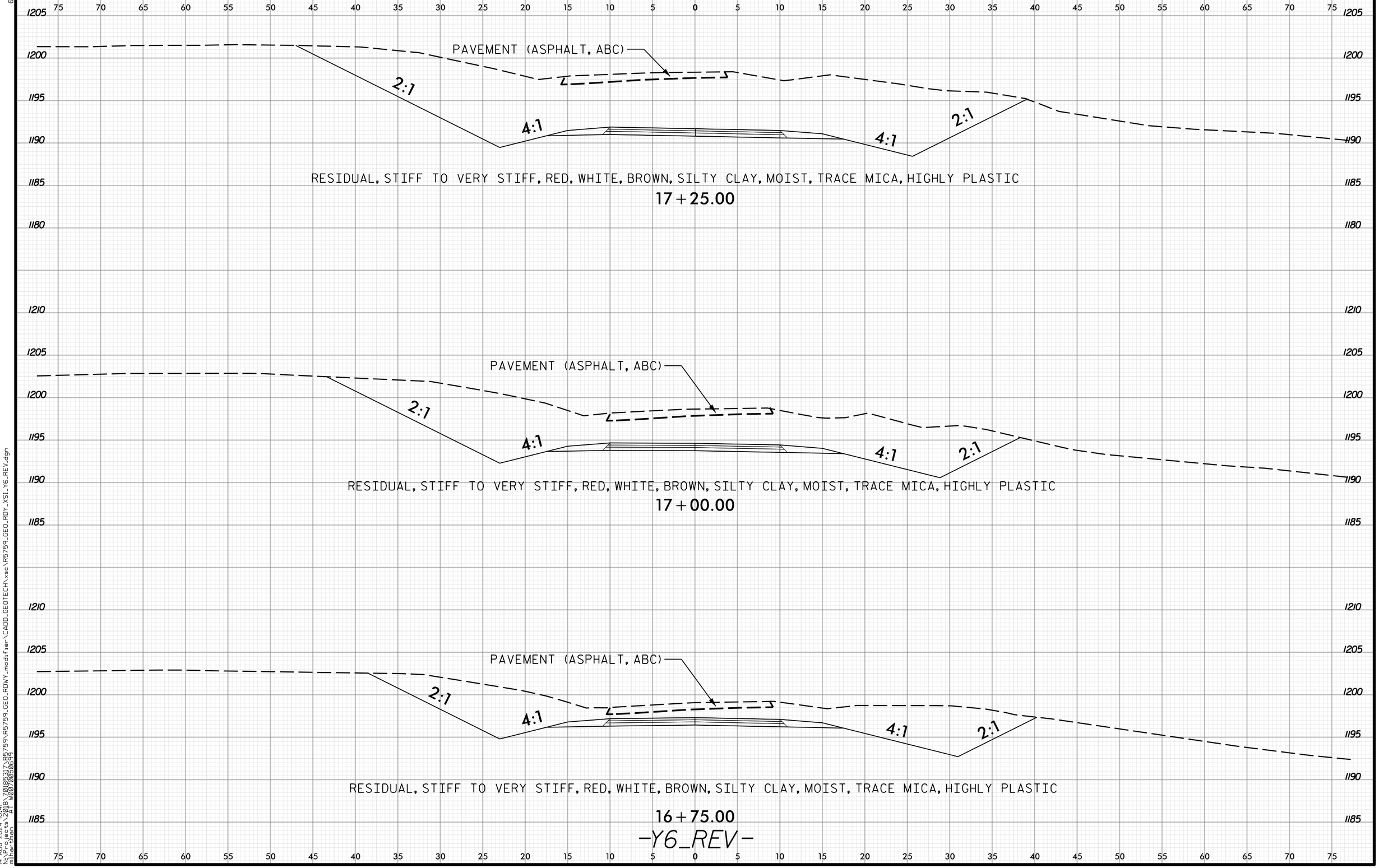

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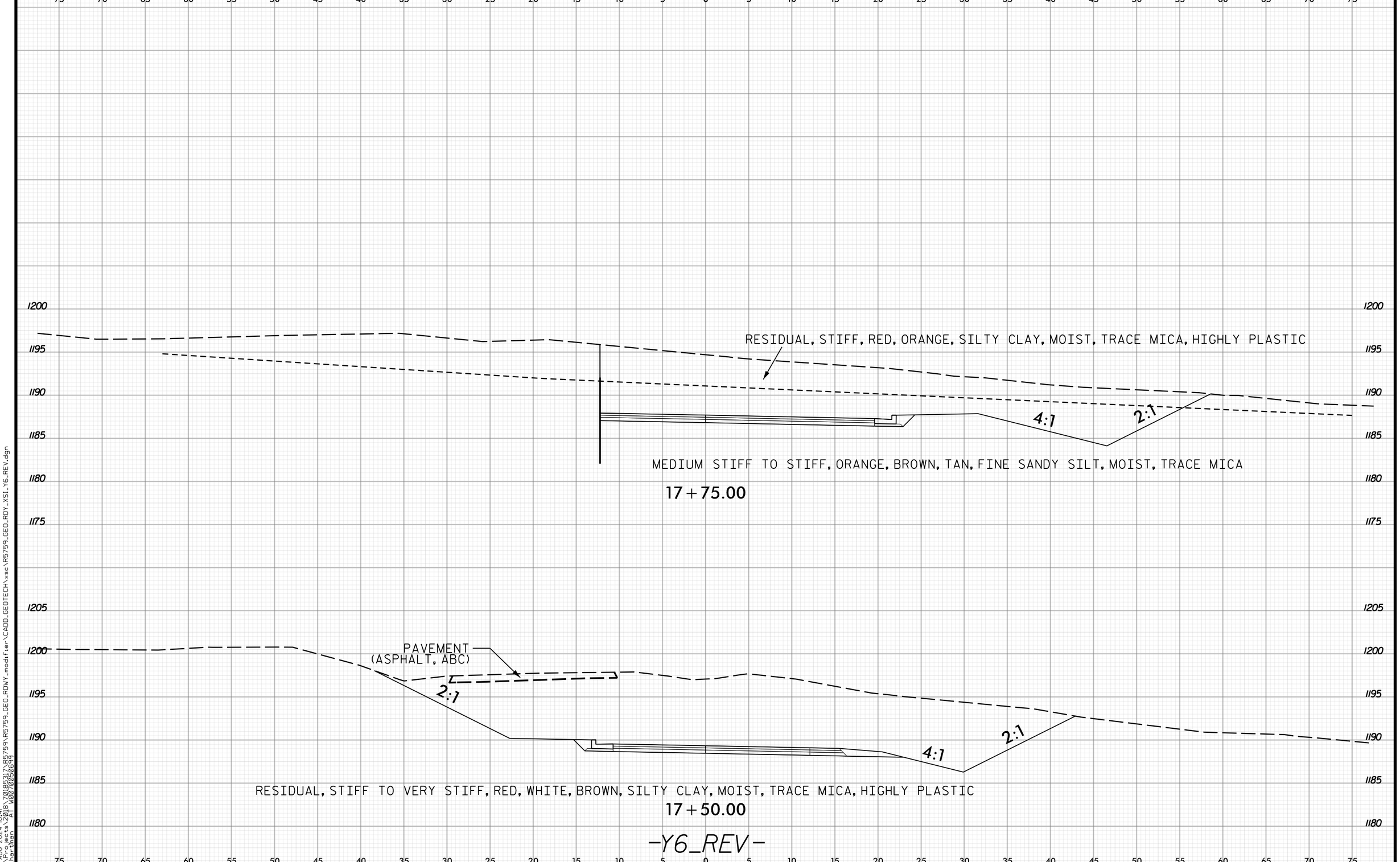

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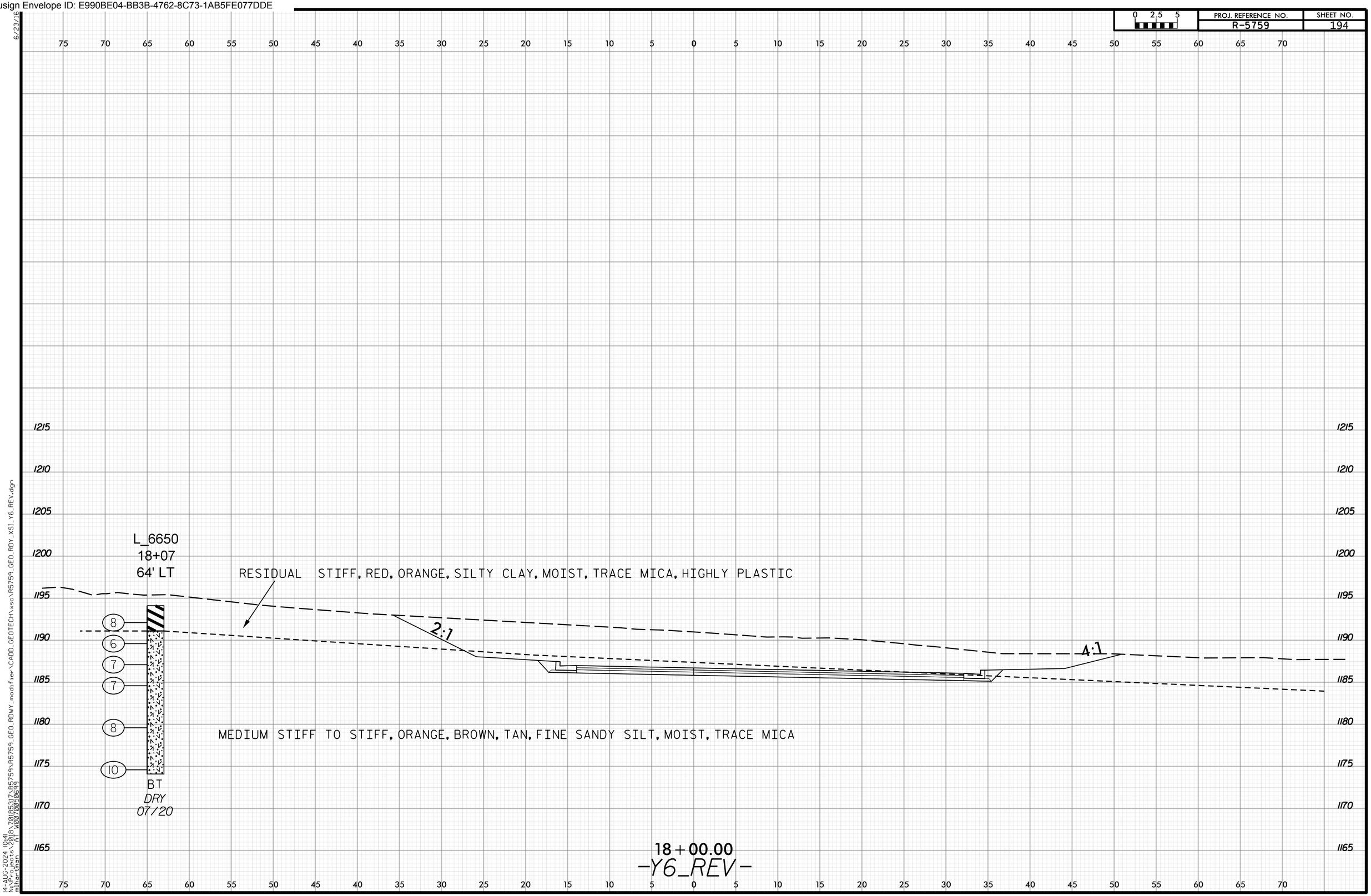

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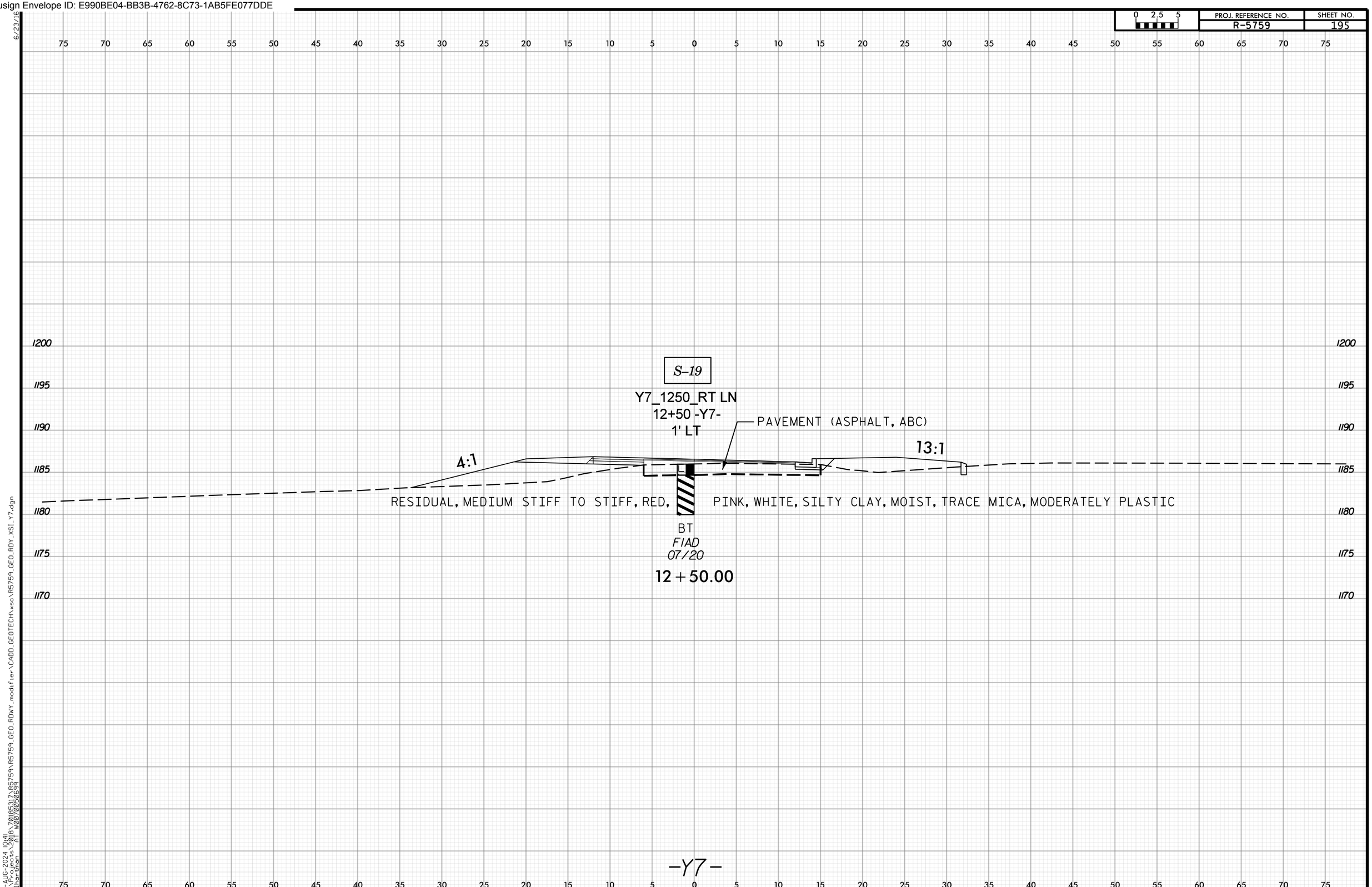

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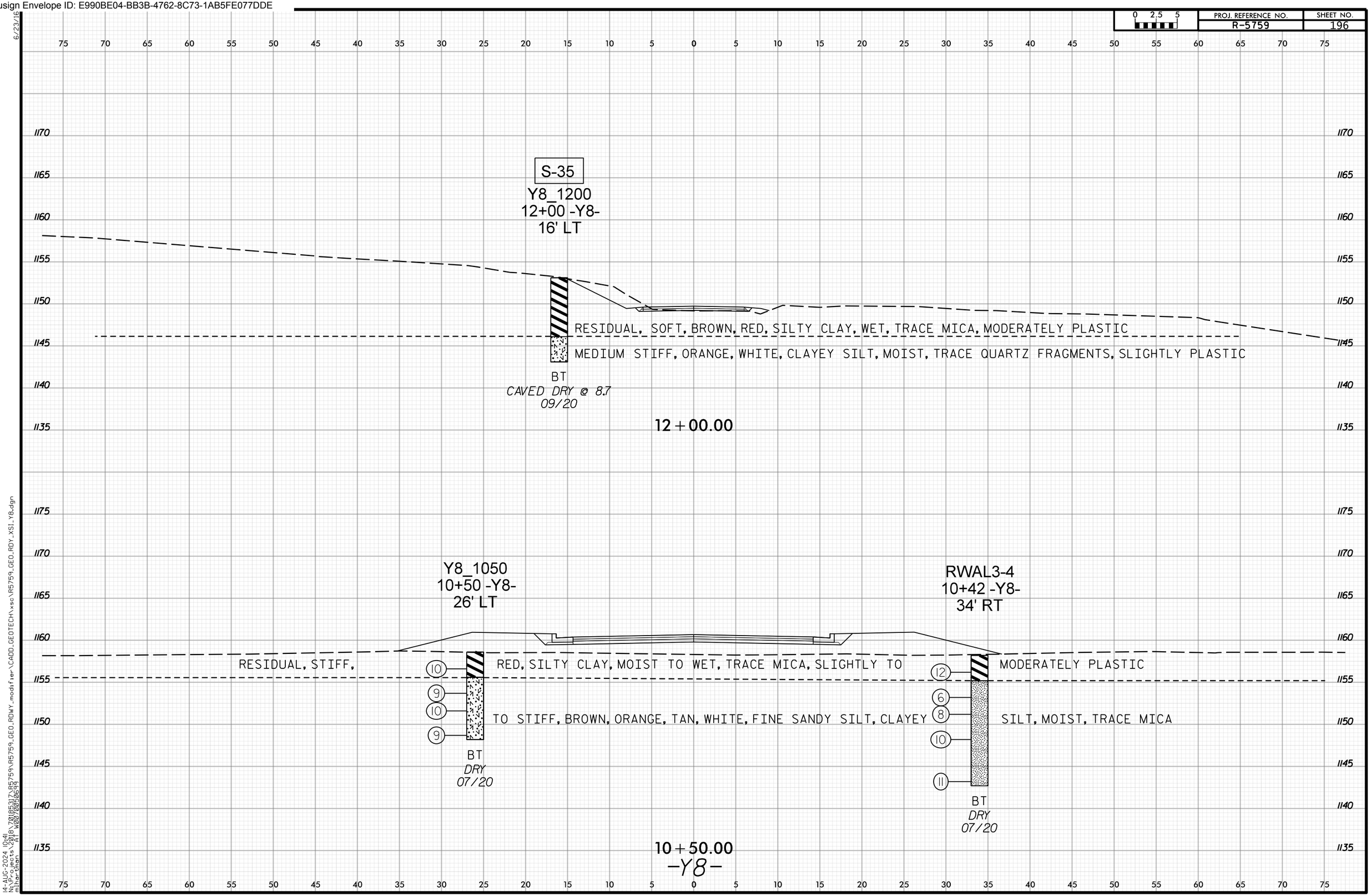

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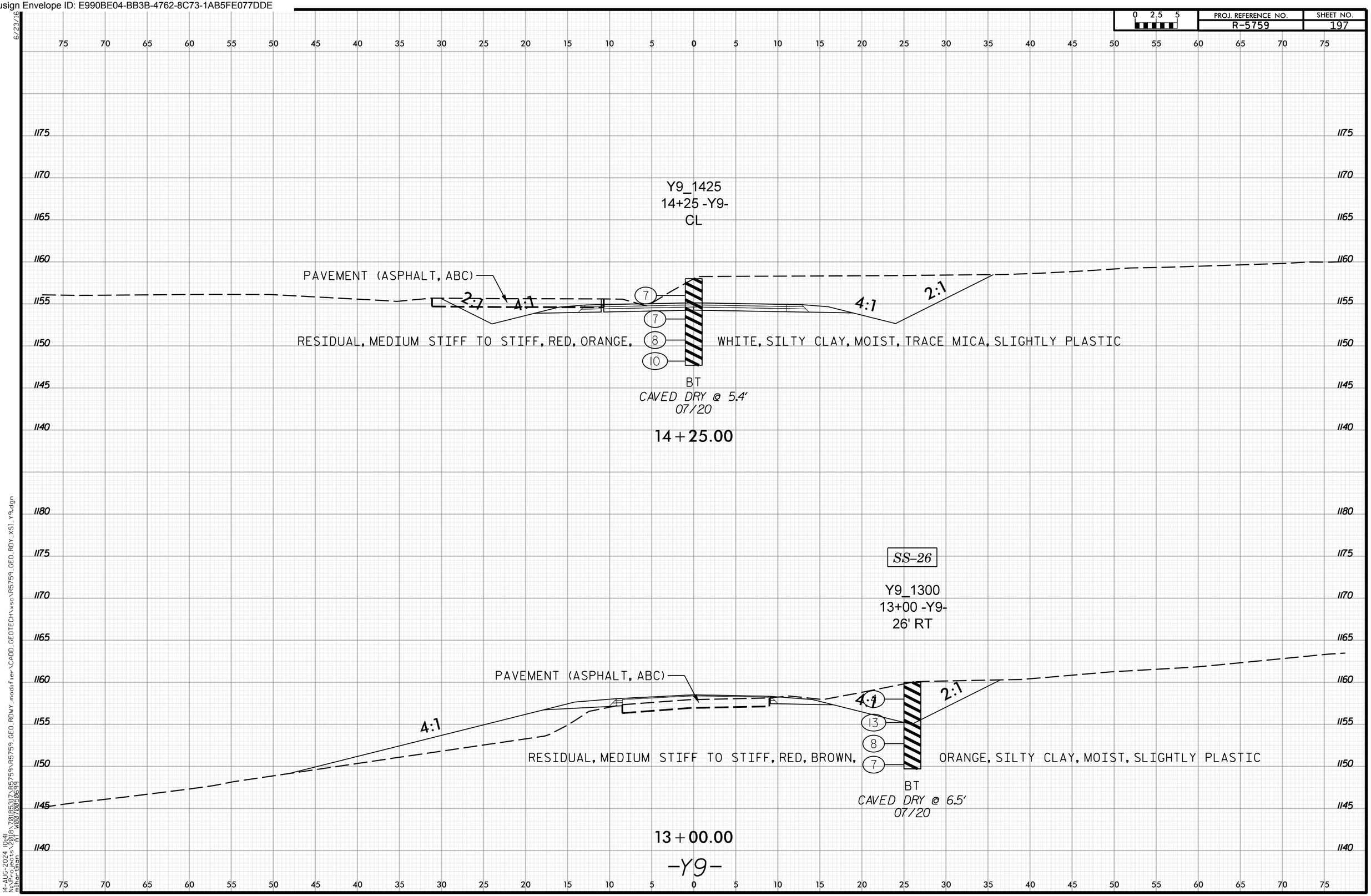

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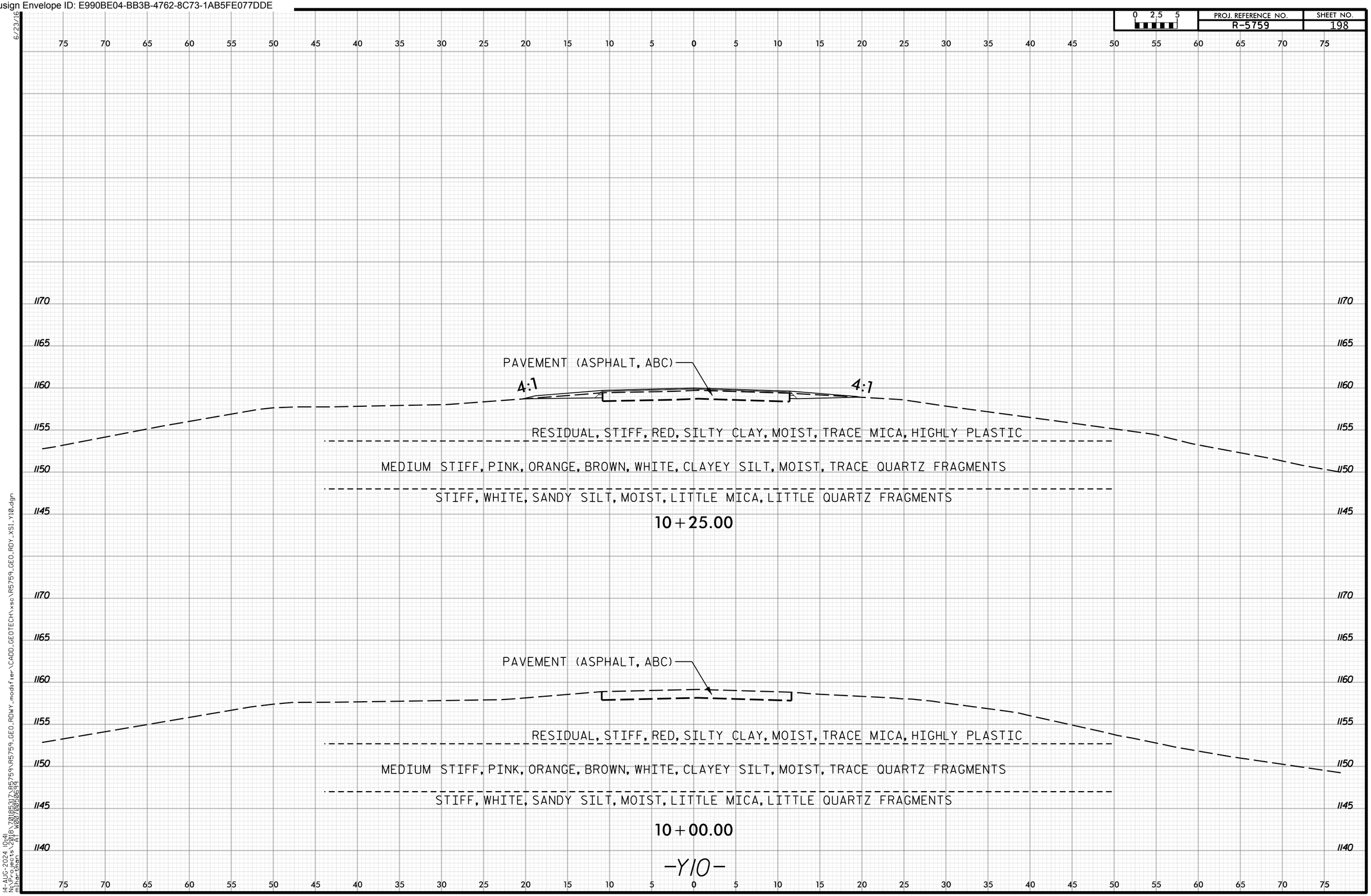
R-5759	198



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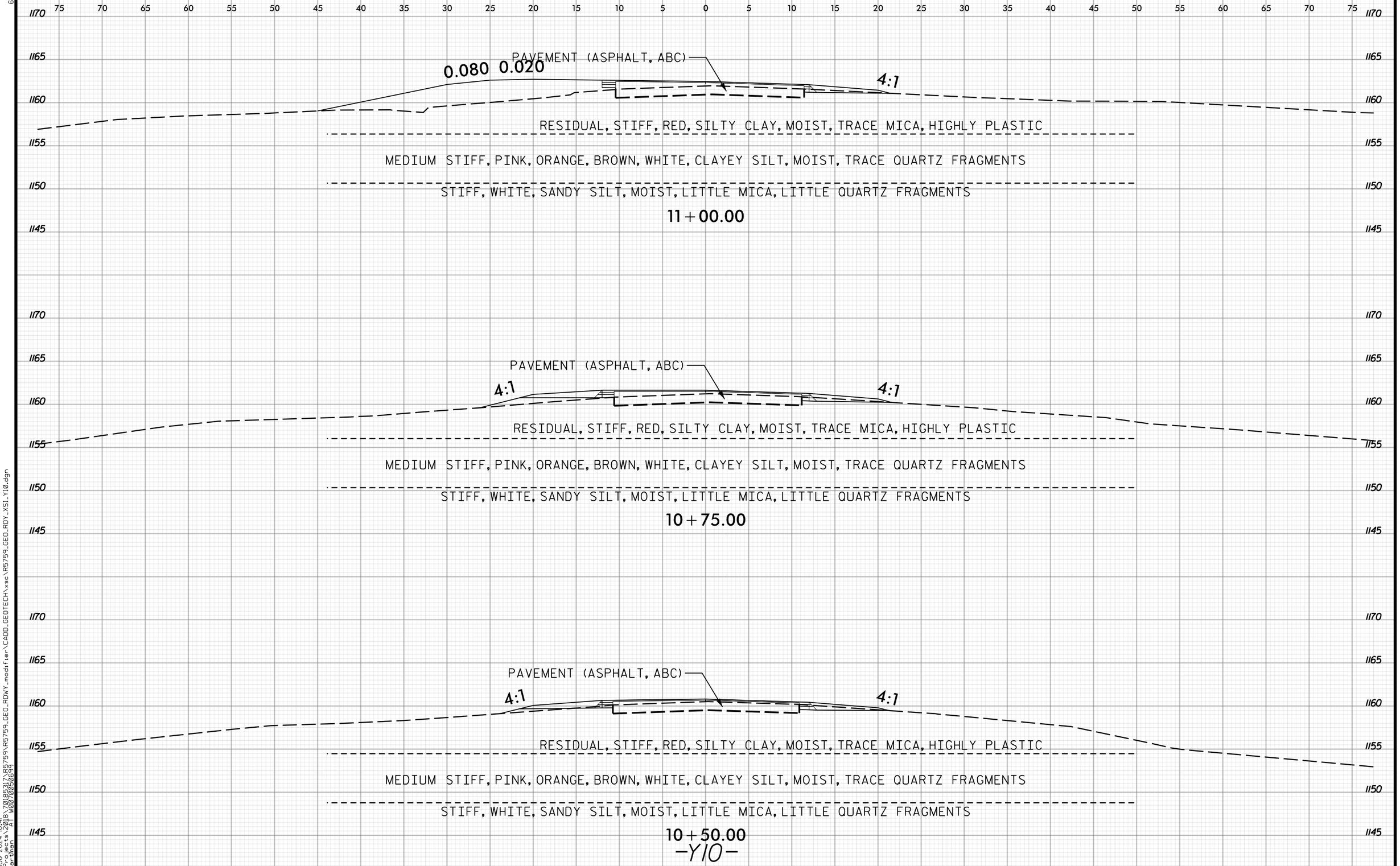

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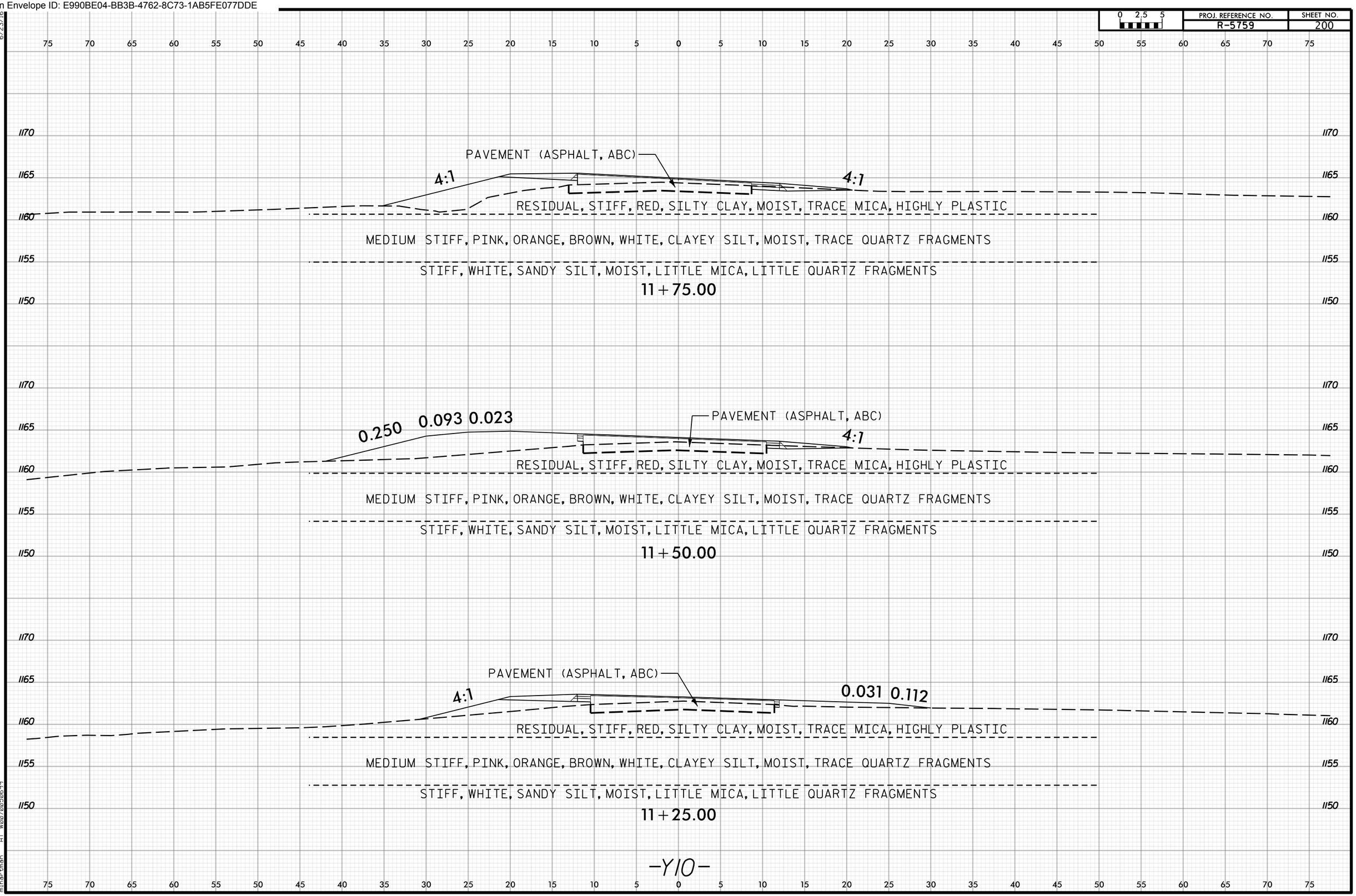

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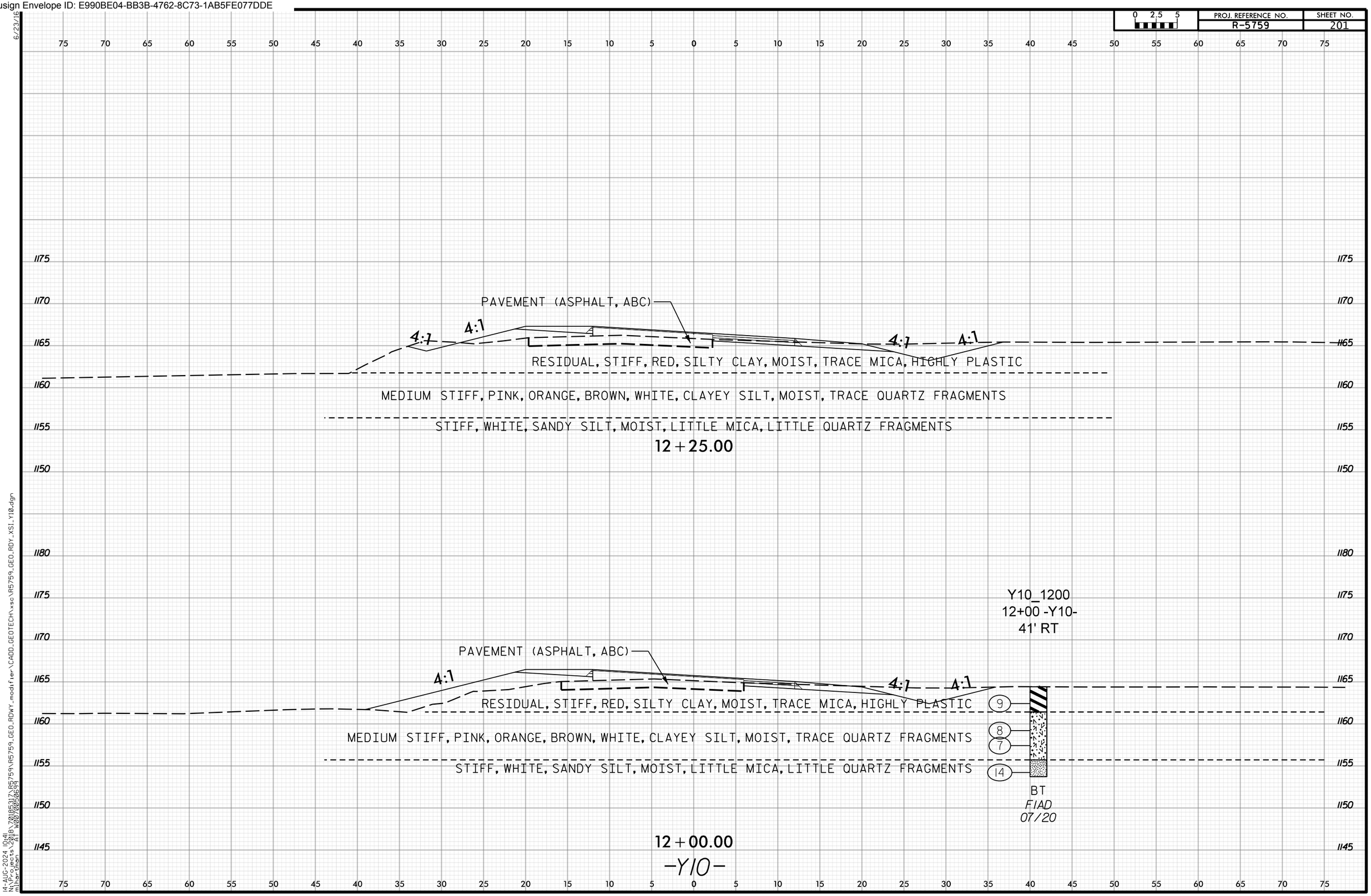
PROJ. REFERENCE NO. R-5759 | SHEET NO. 201



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6/23/16

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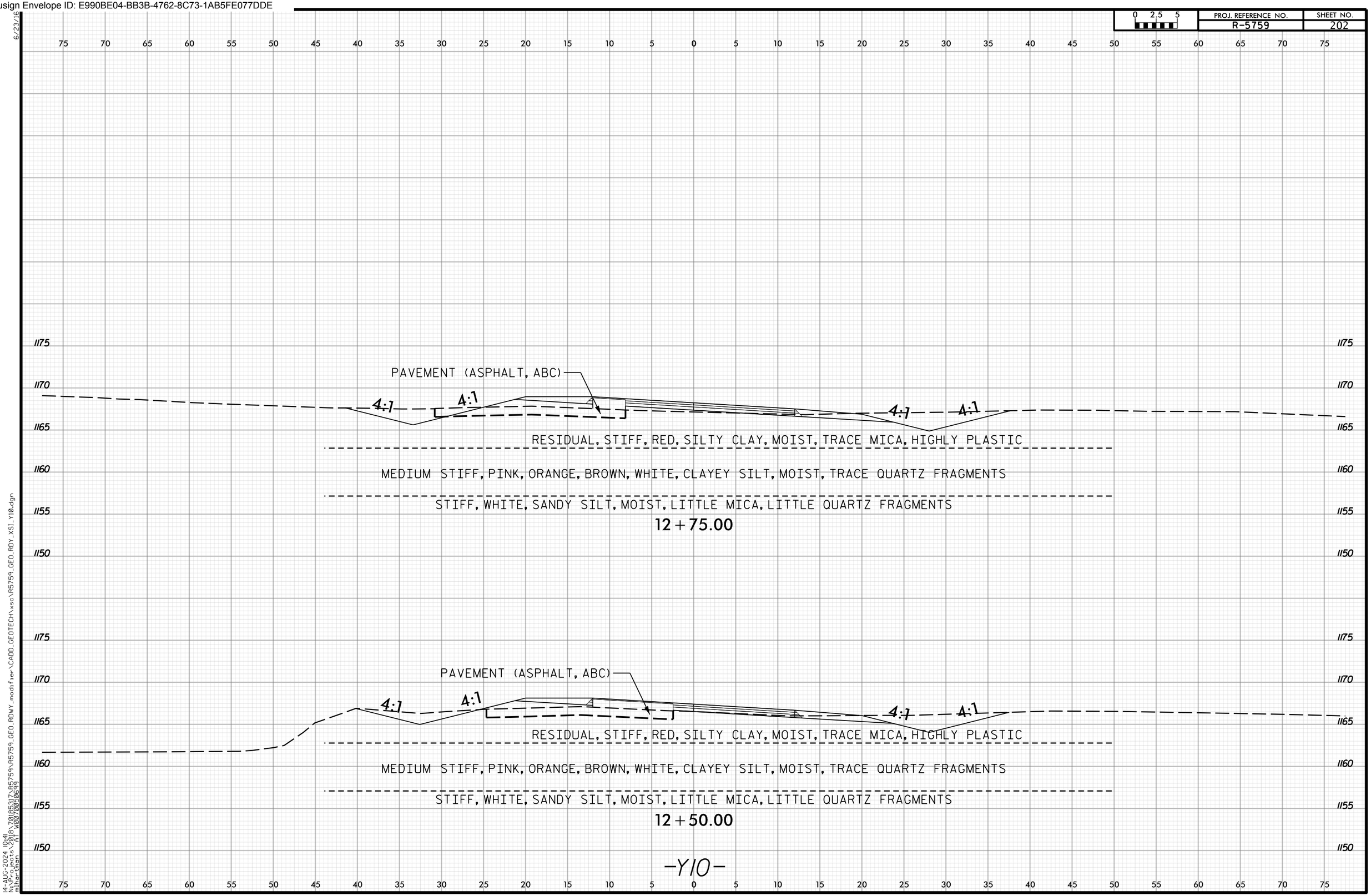
	R-5759	202



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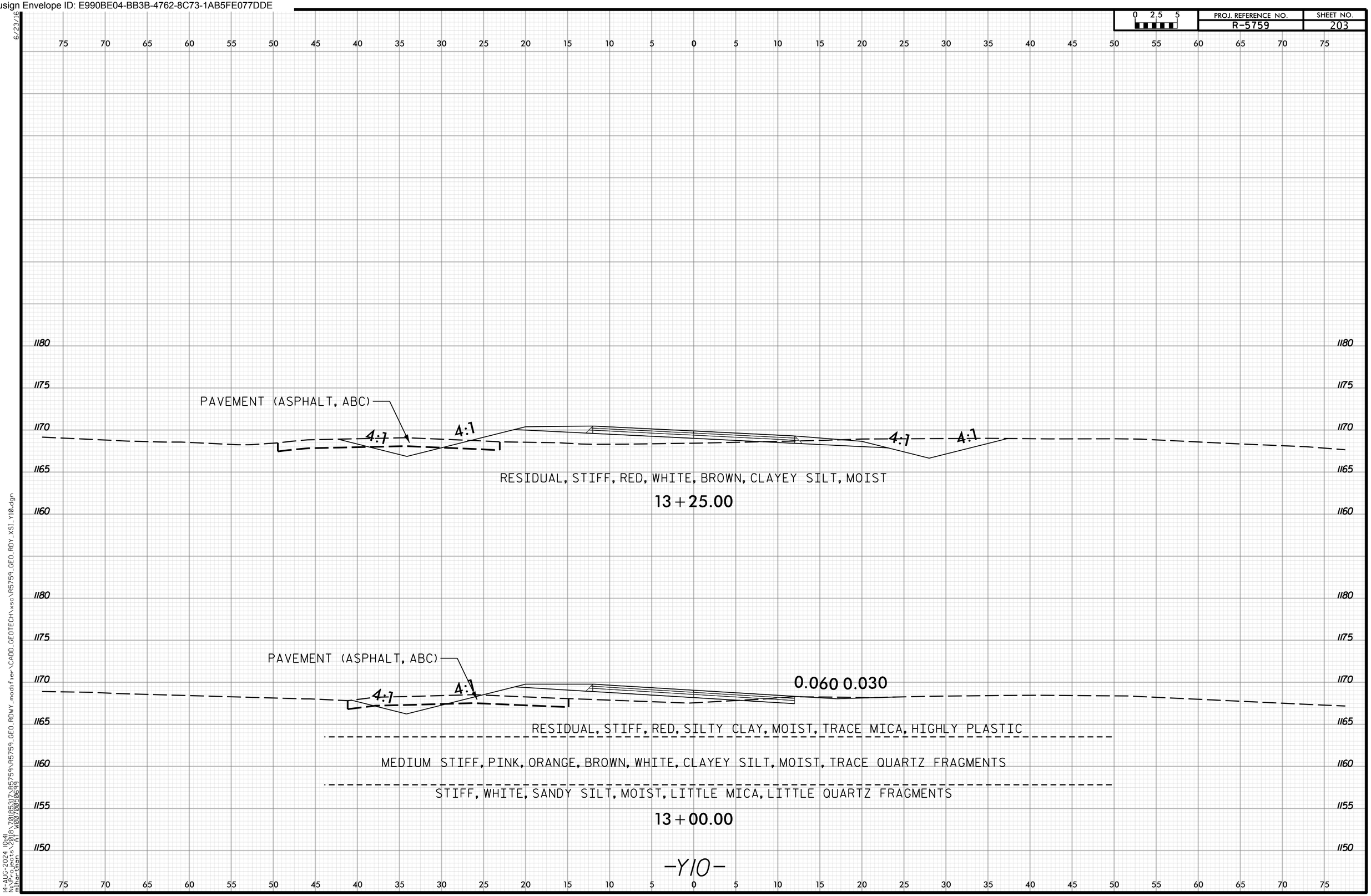

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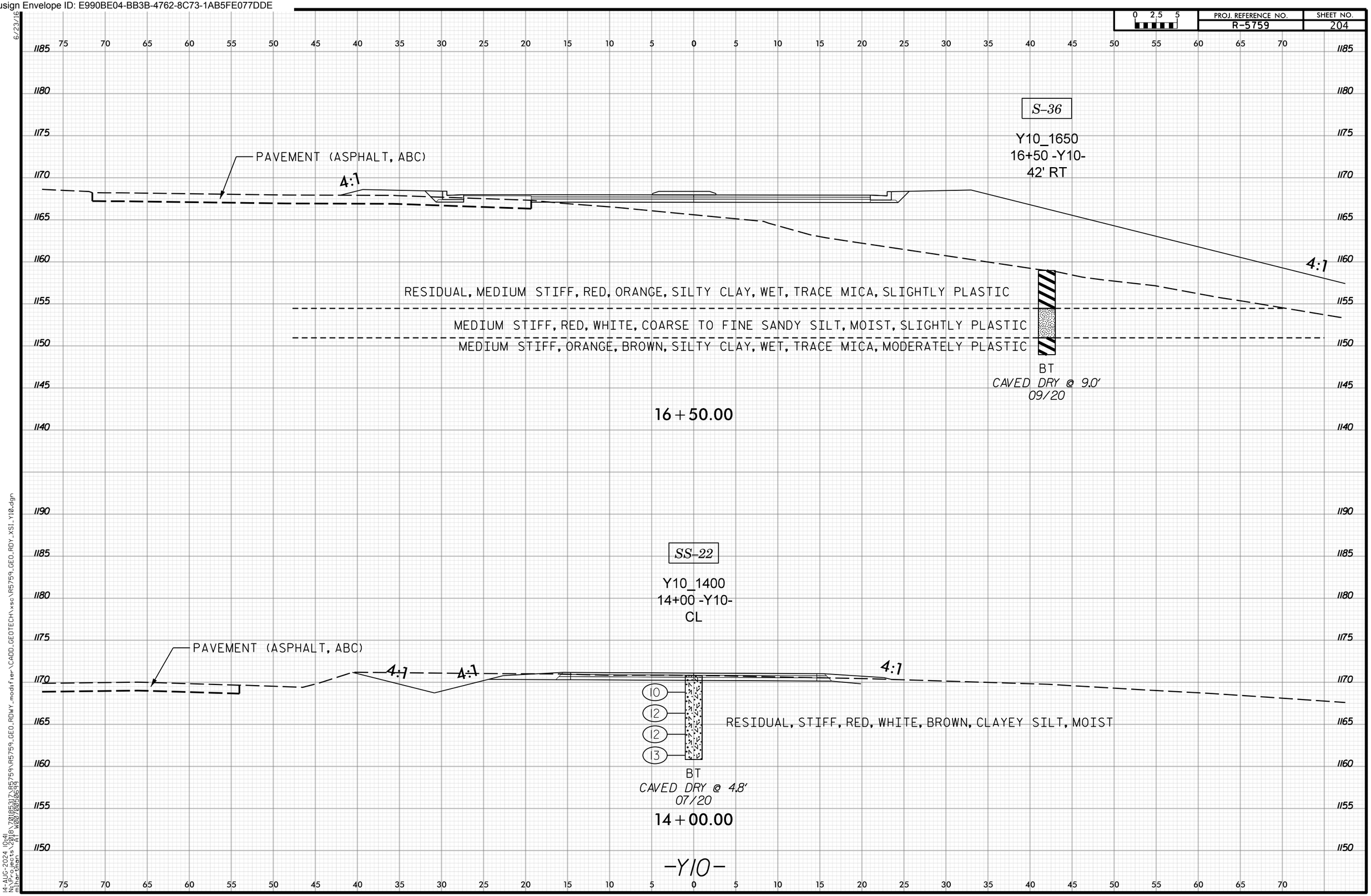

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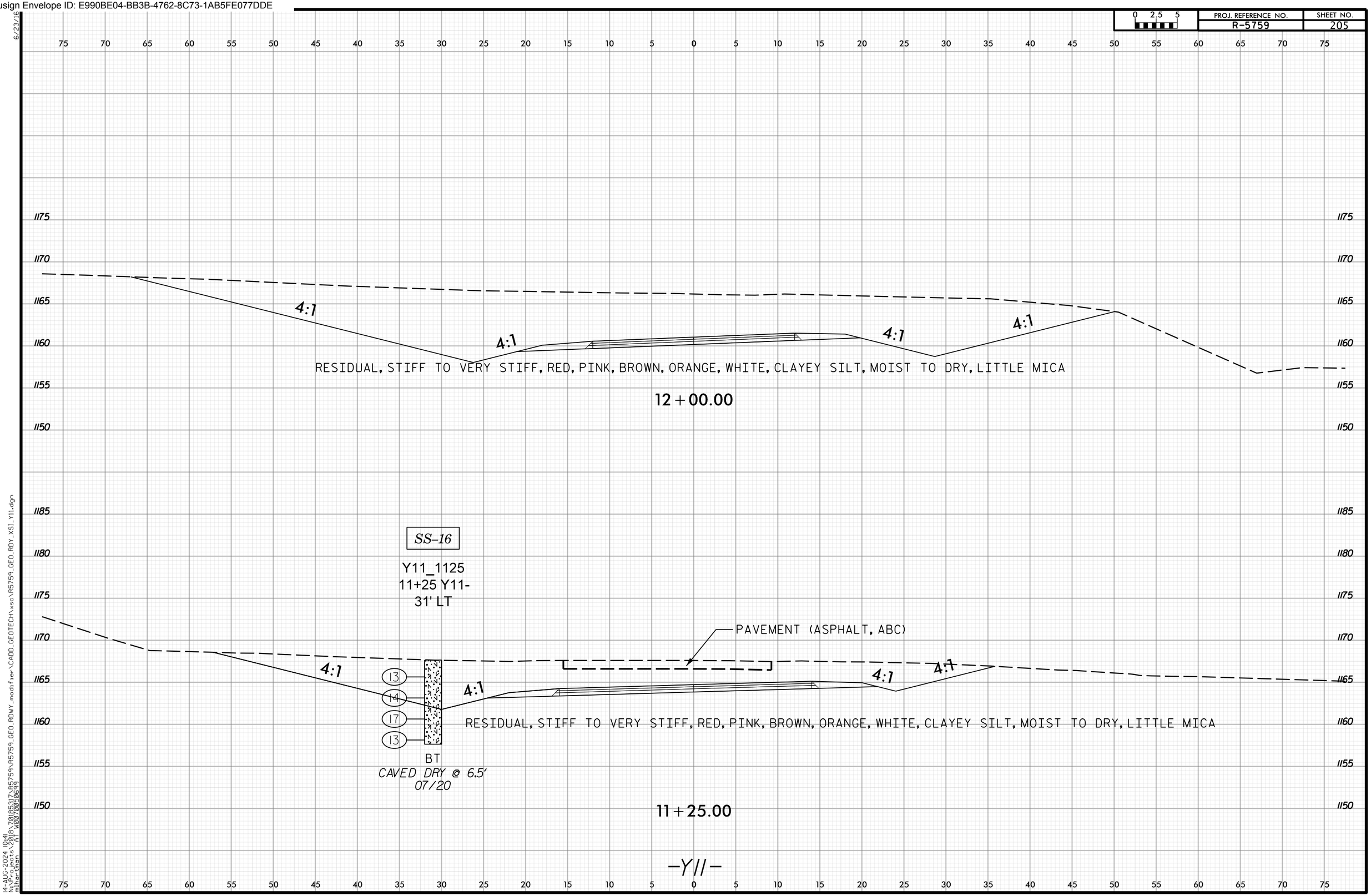

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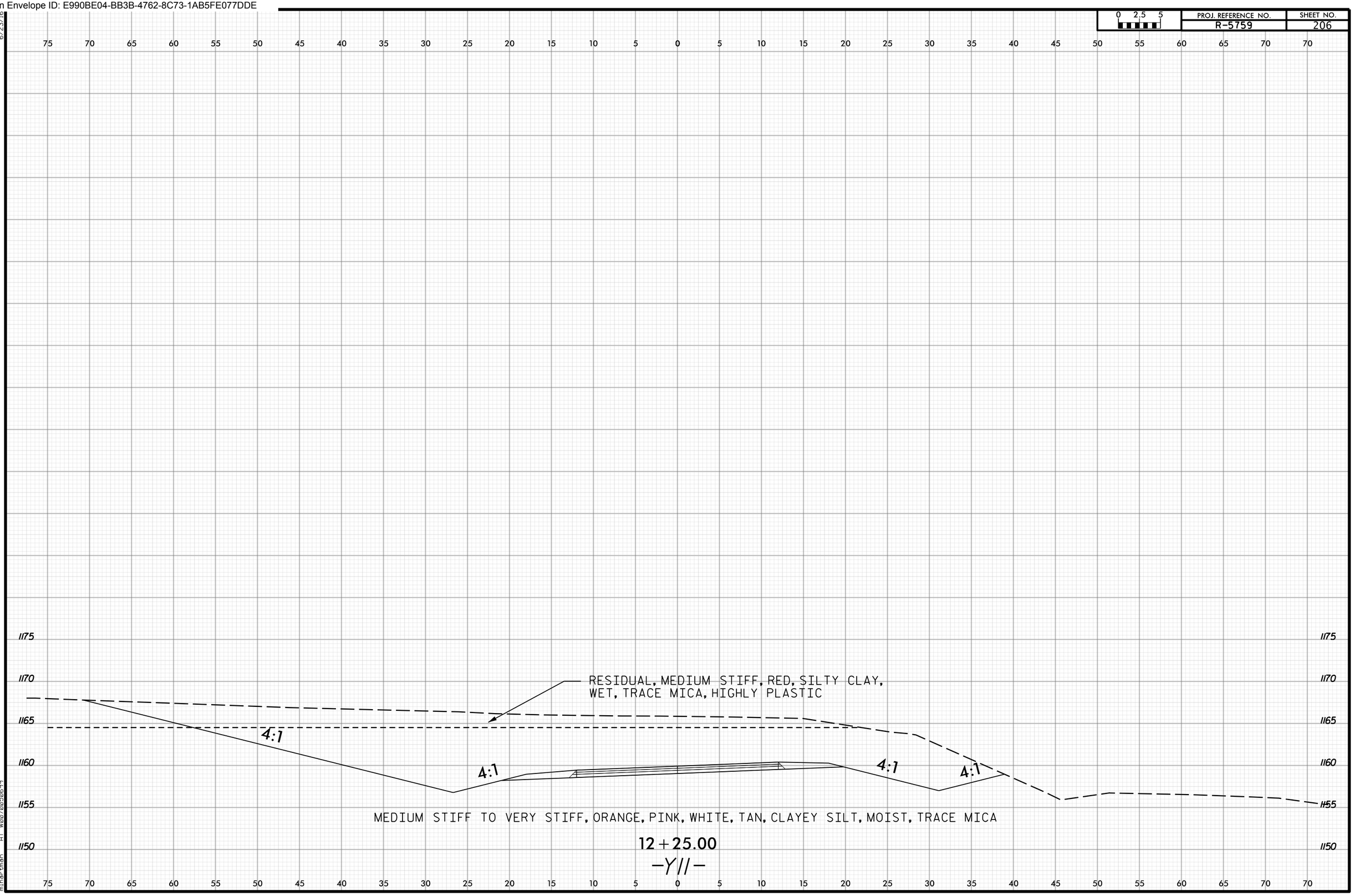

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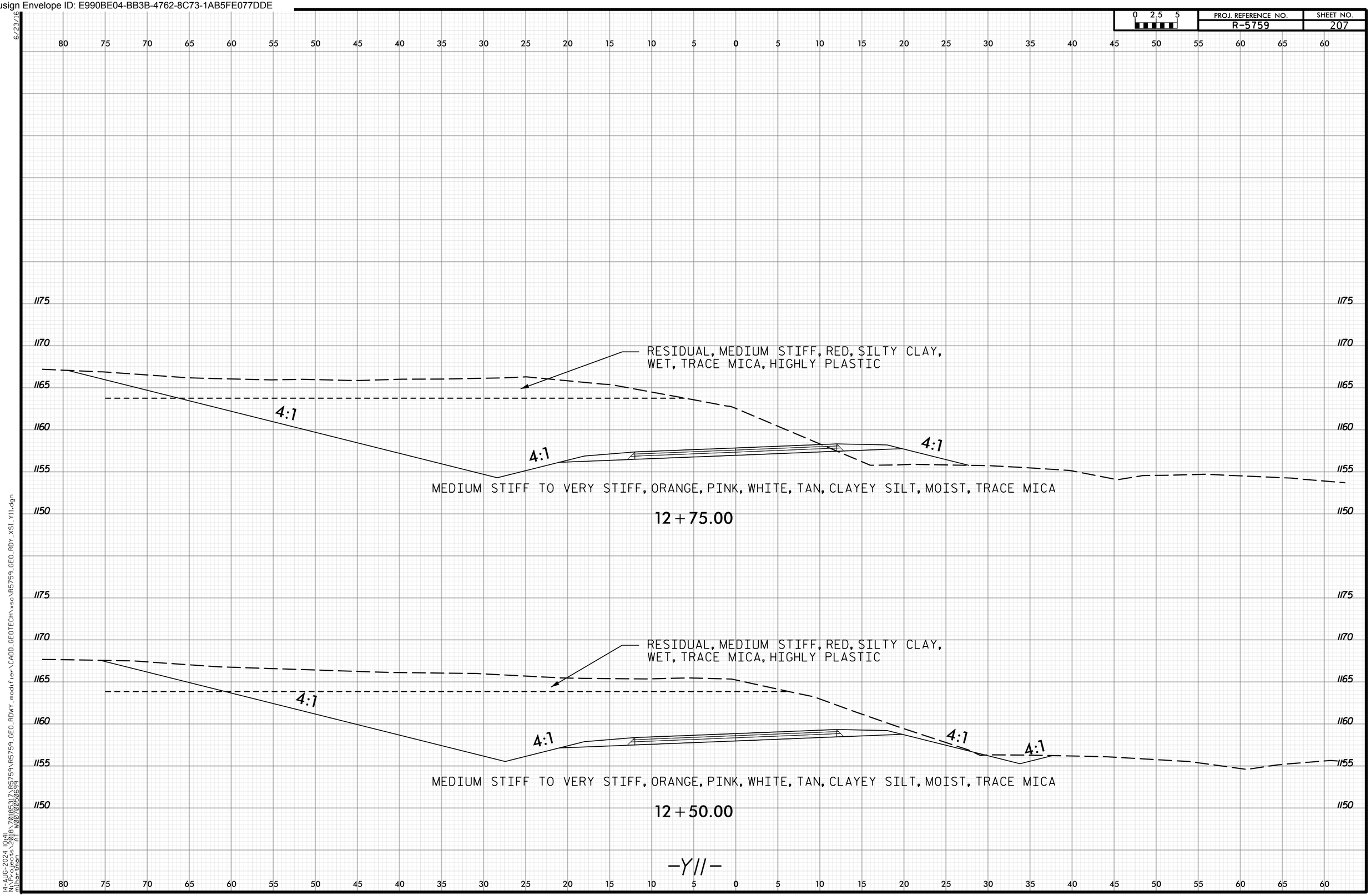

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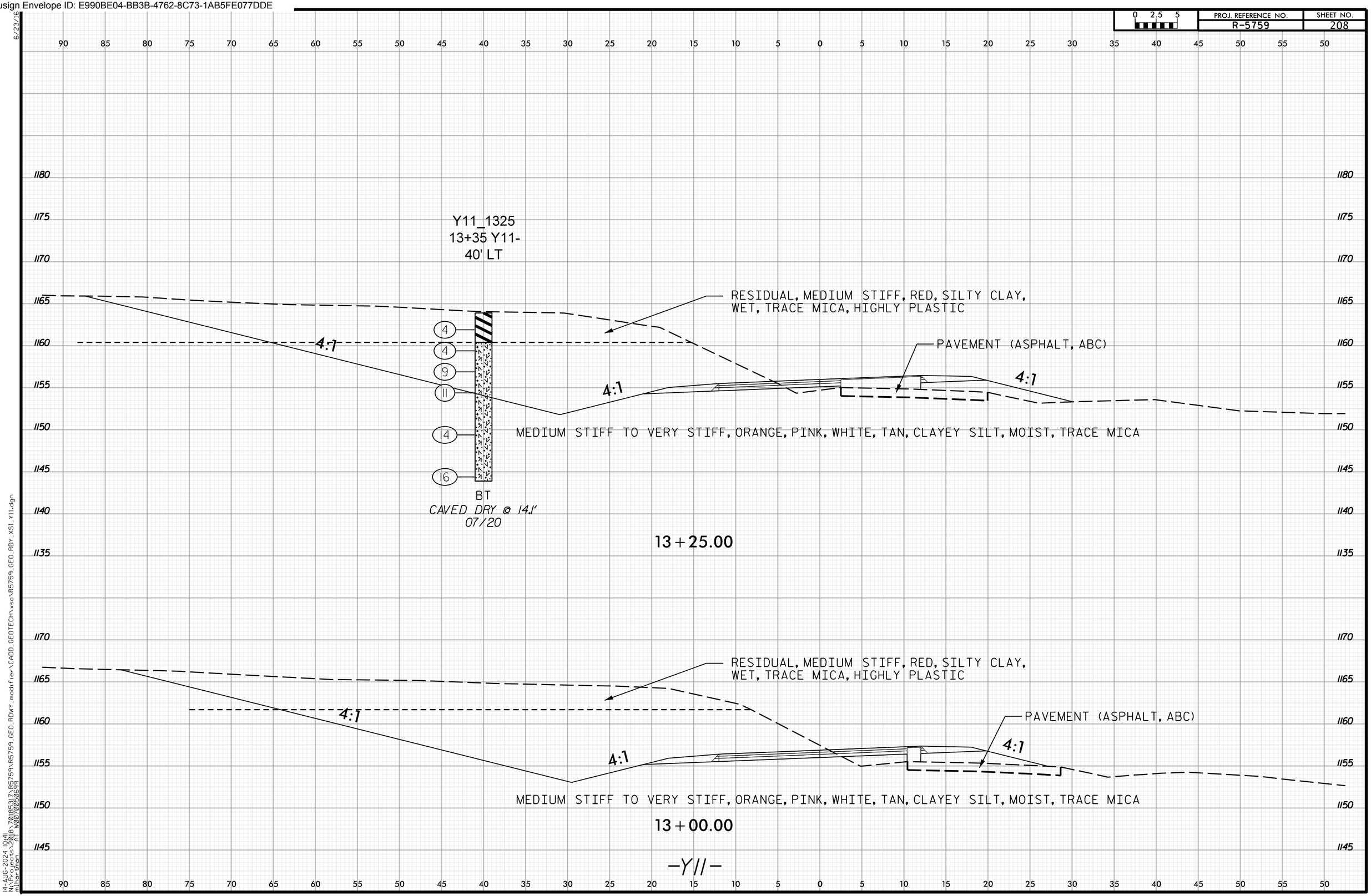

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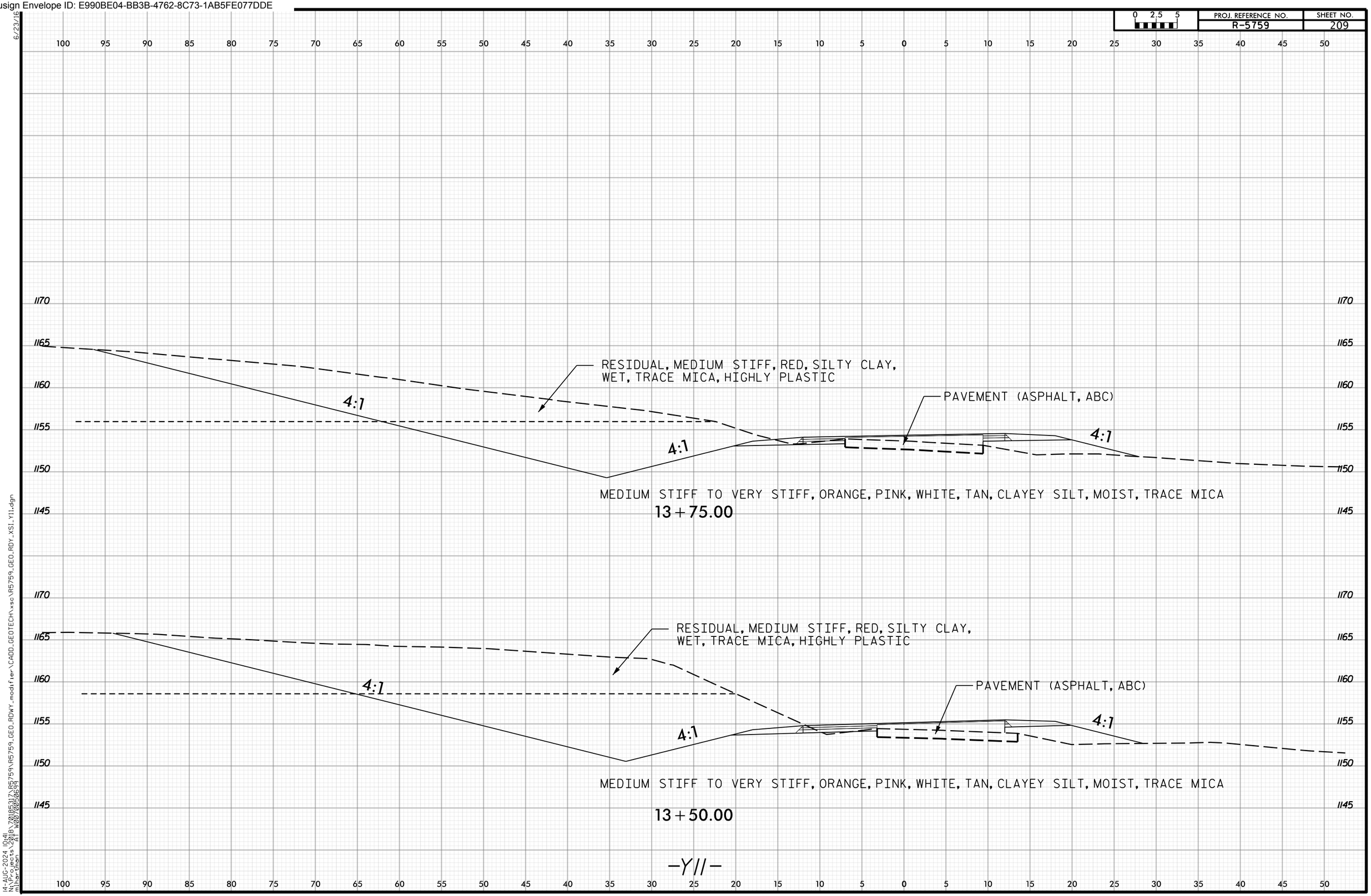

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6/23/16

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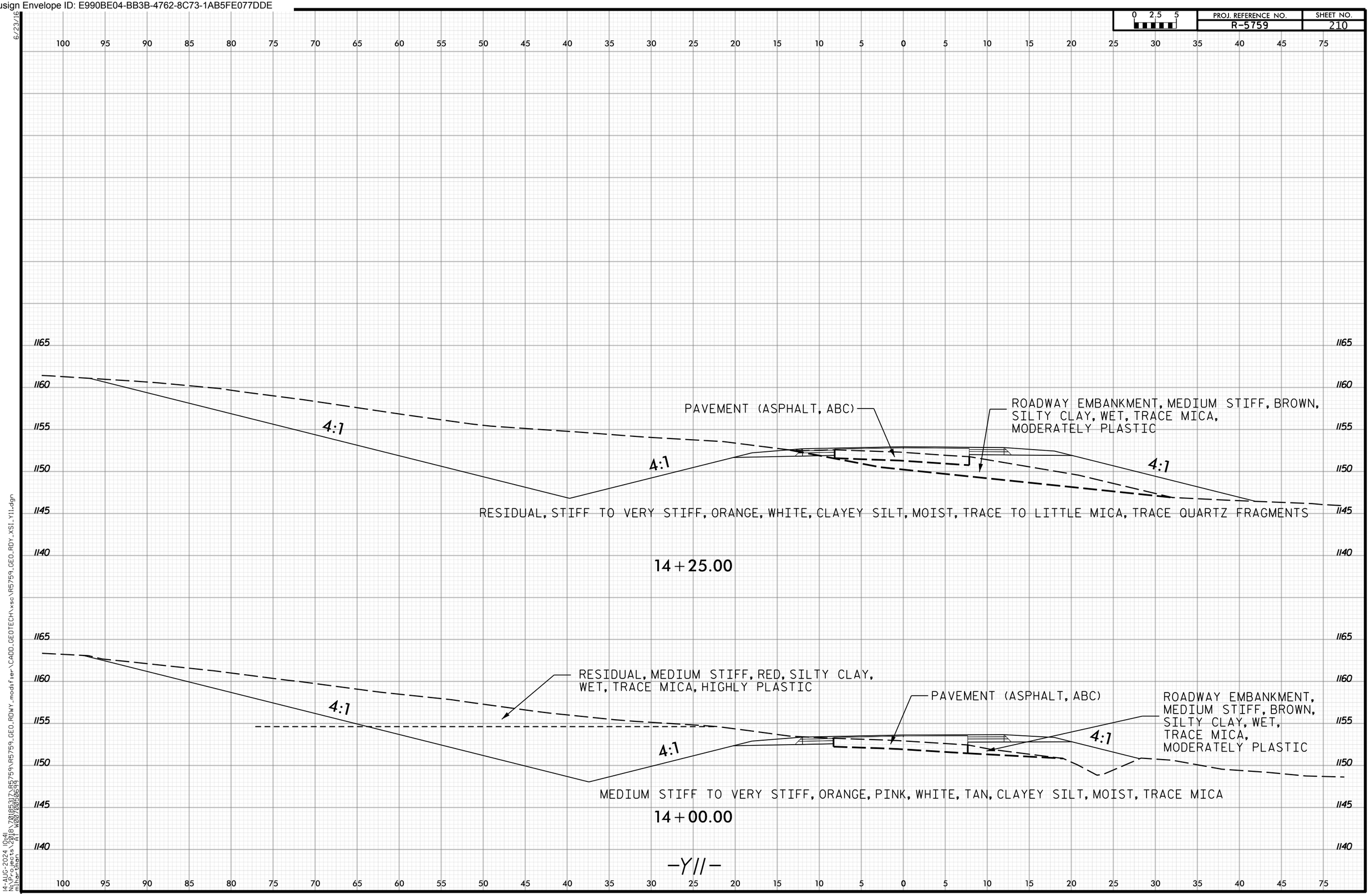

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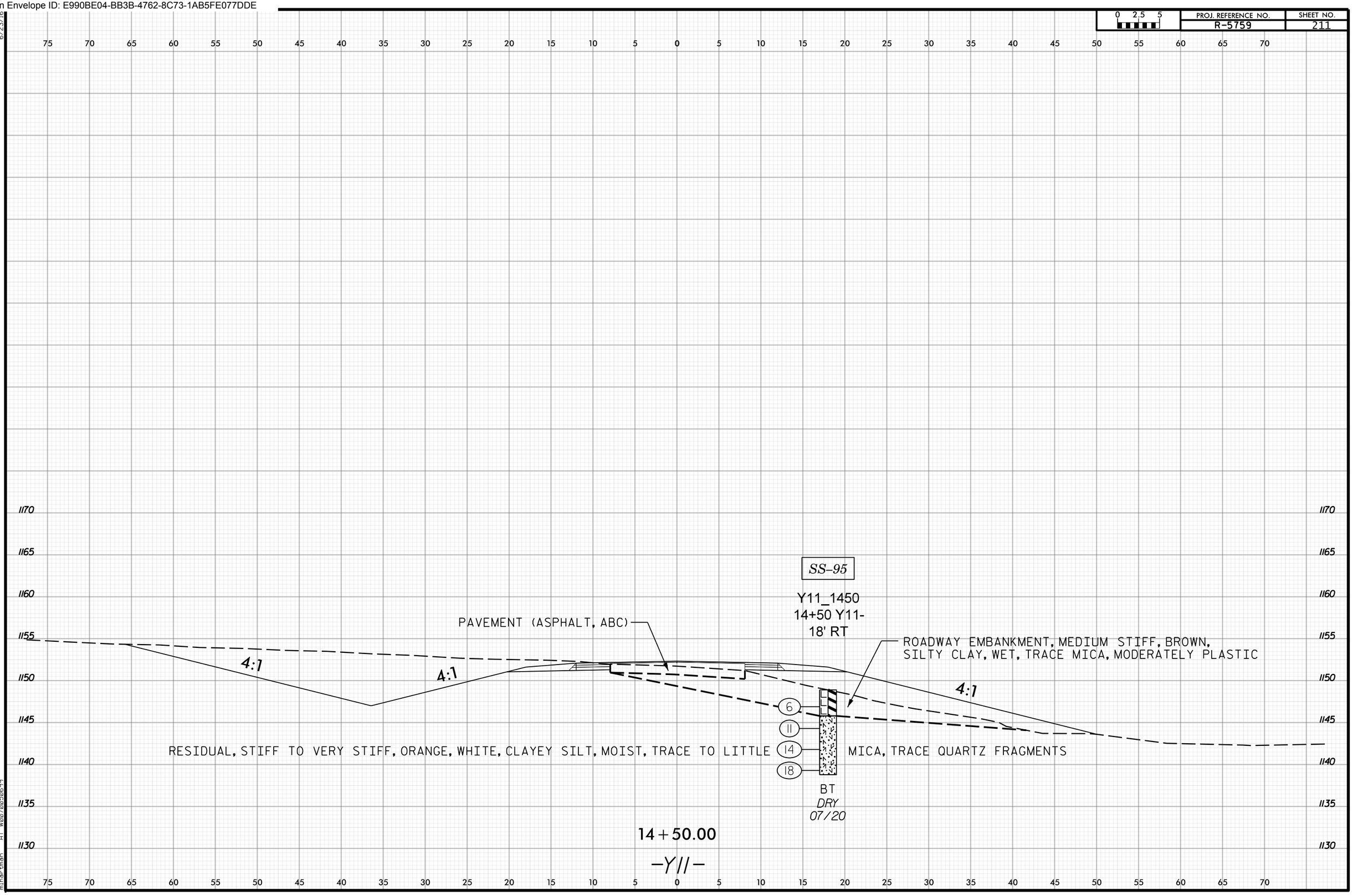

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6/23/16

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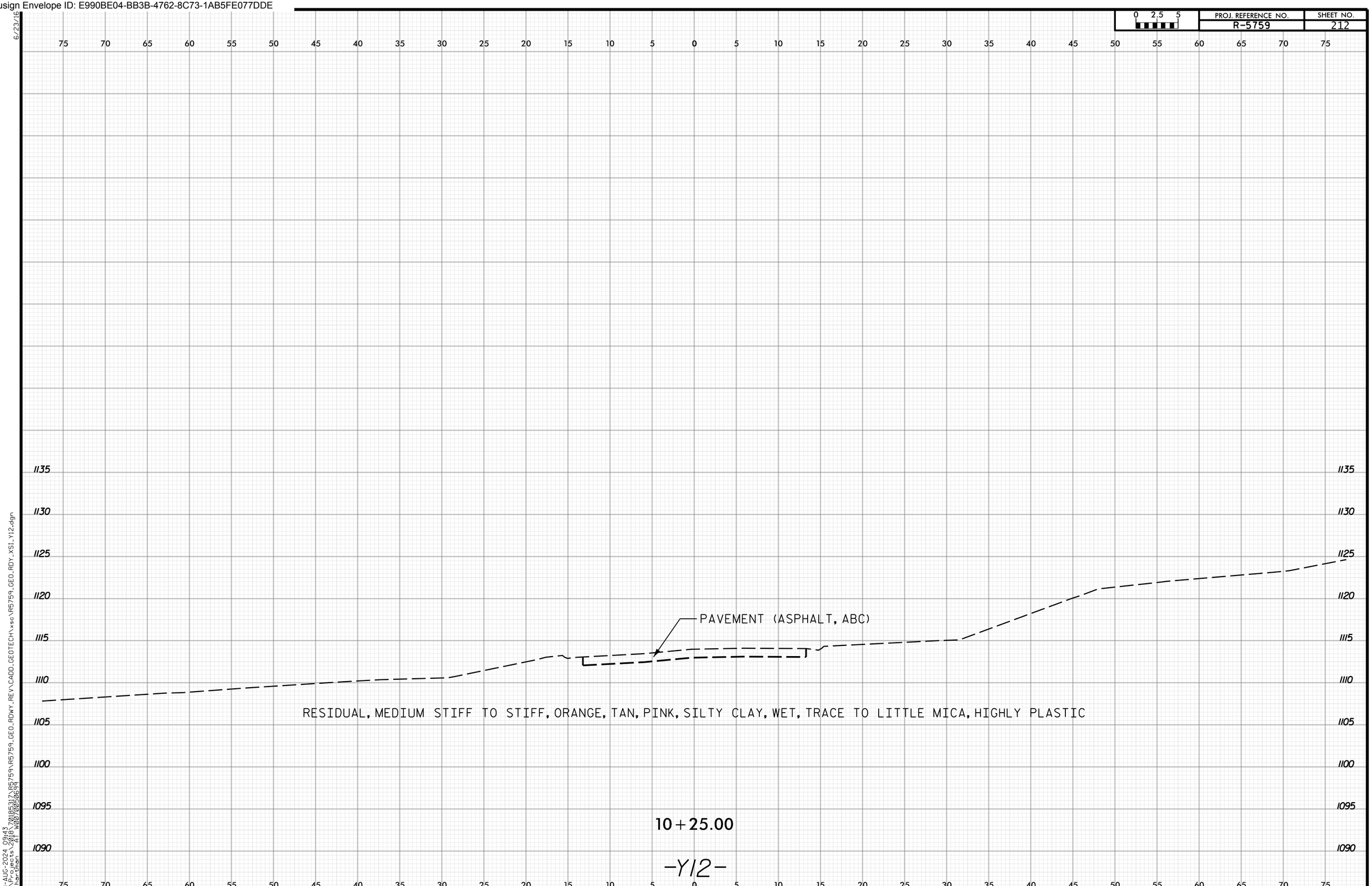

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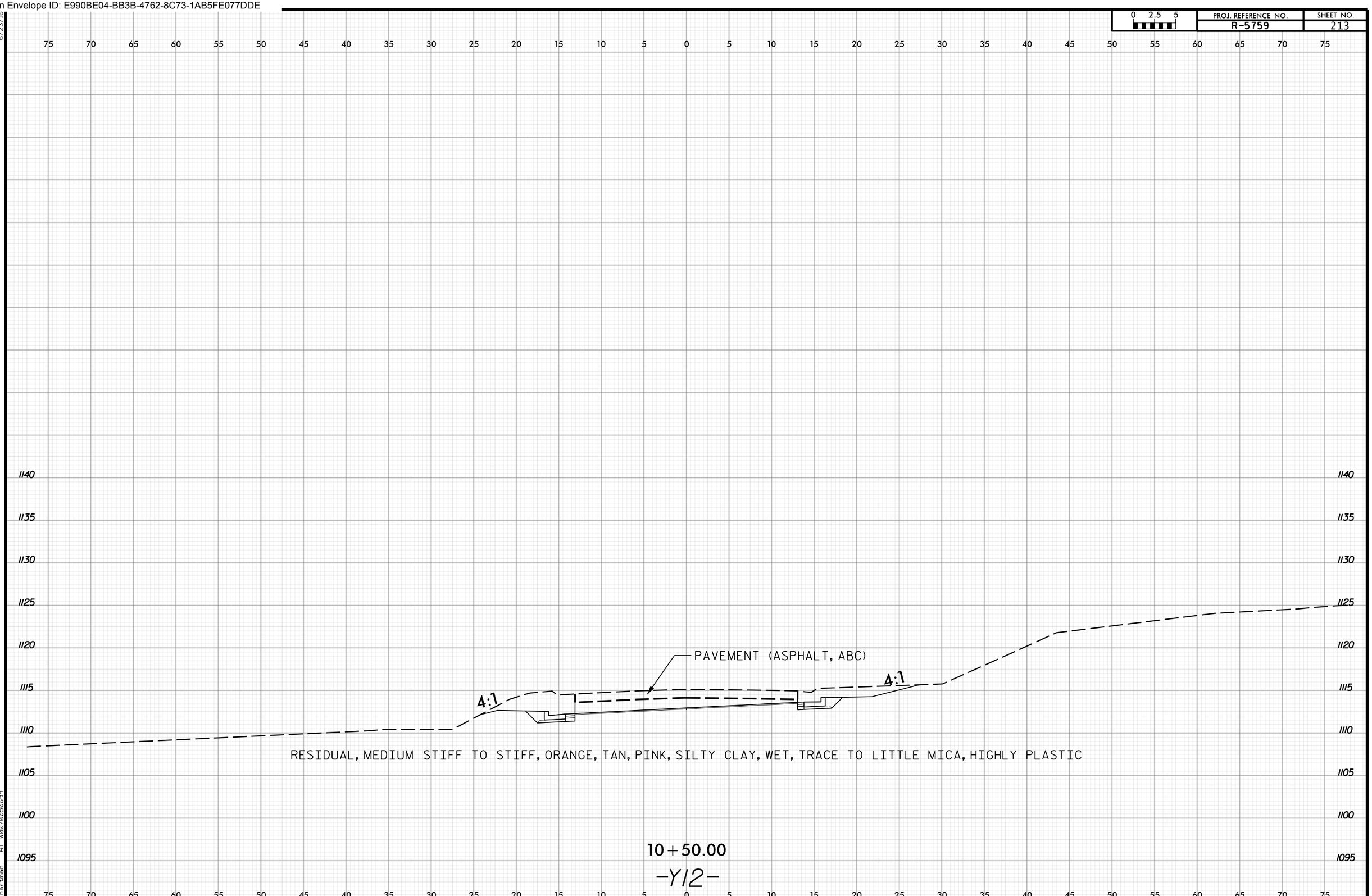

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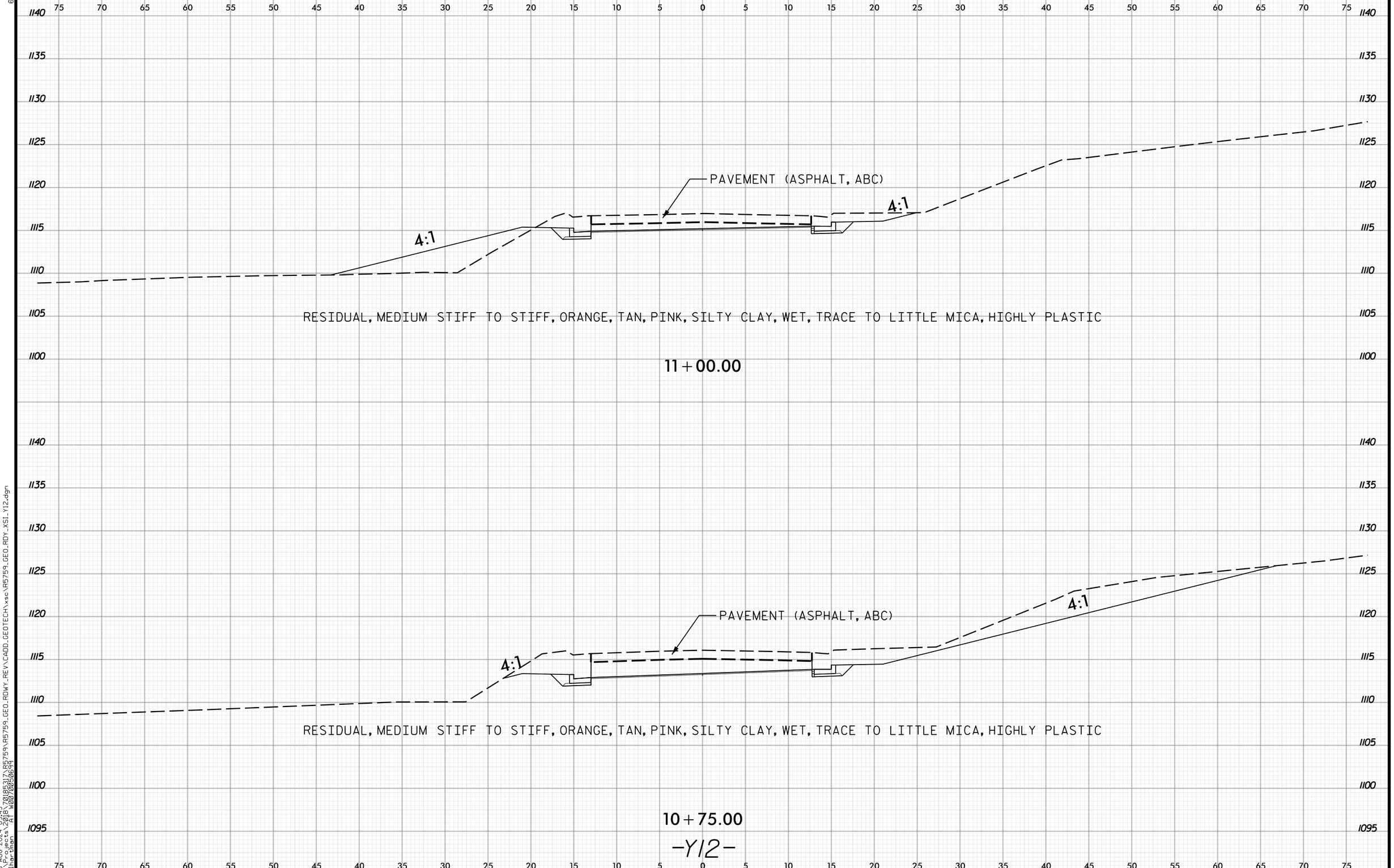

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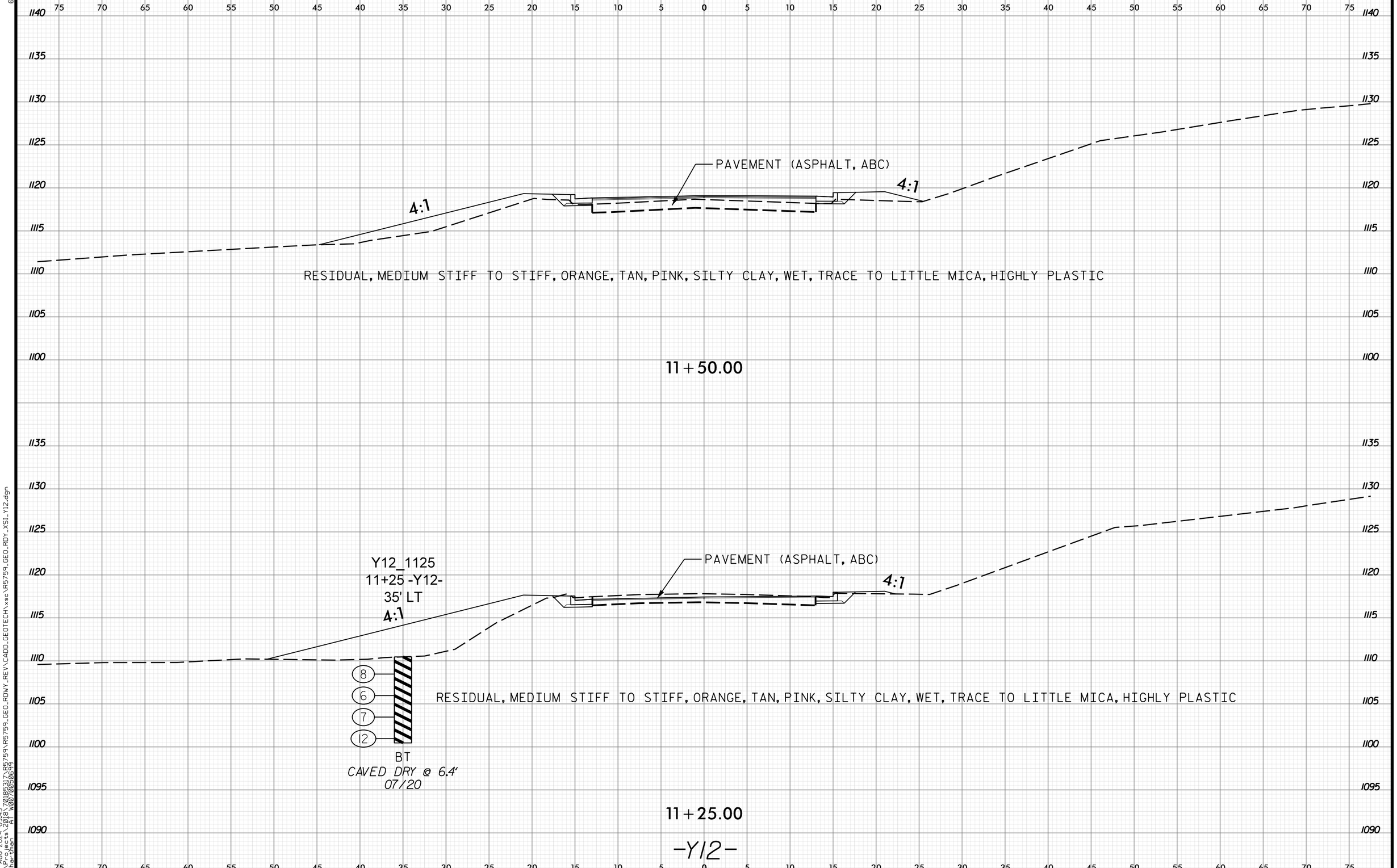

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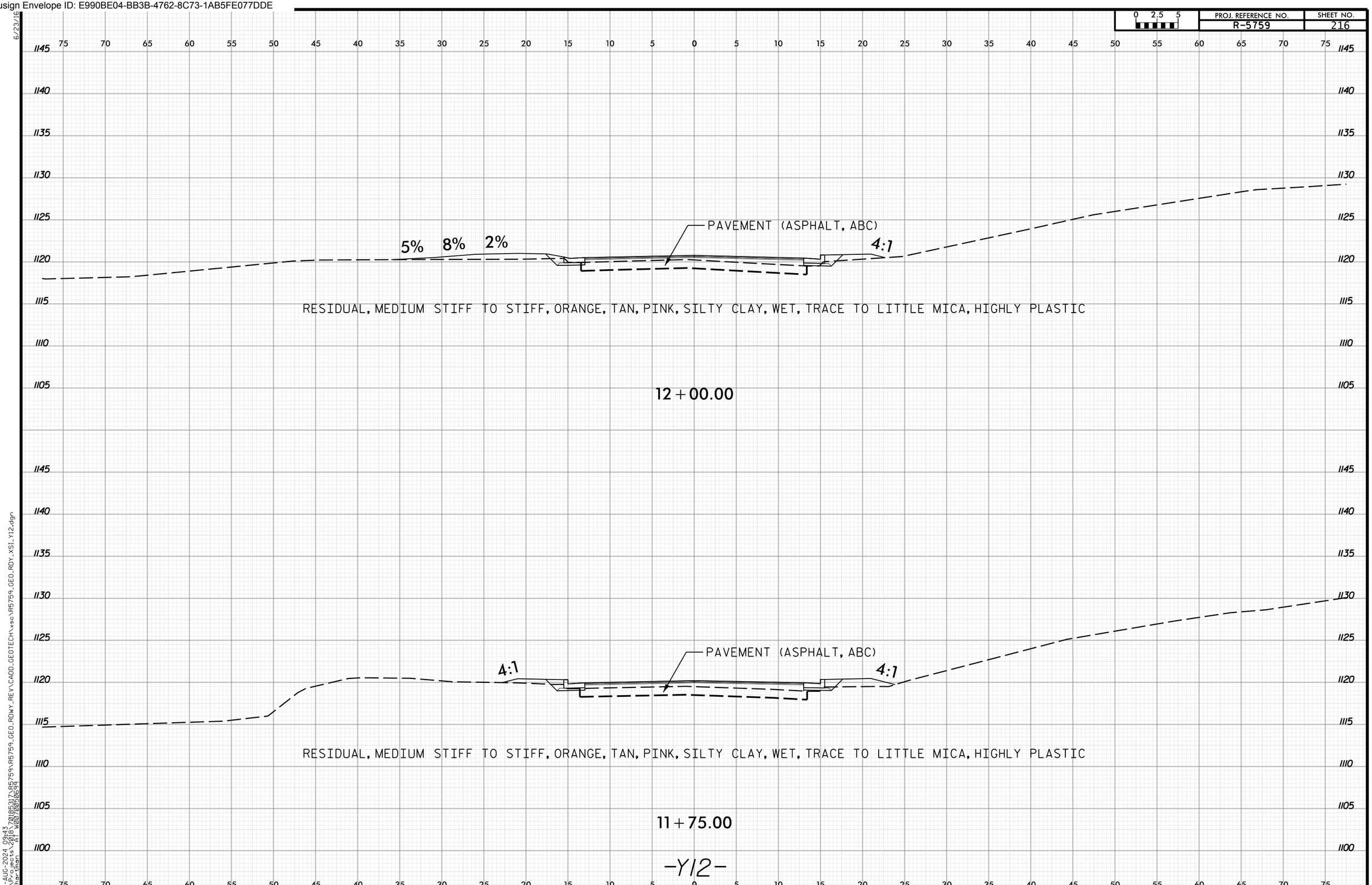

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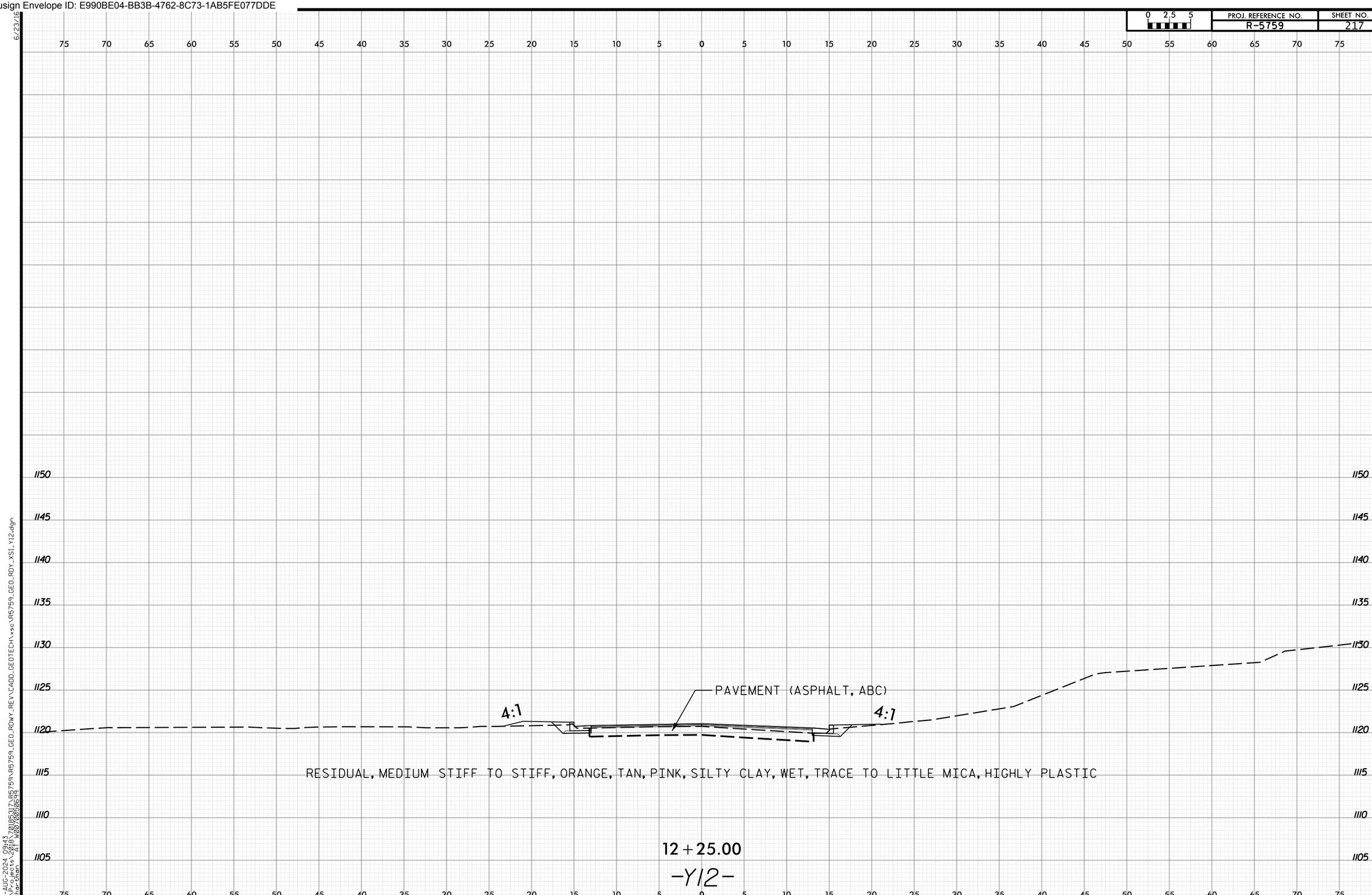

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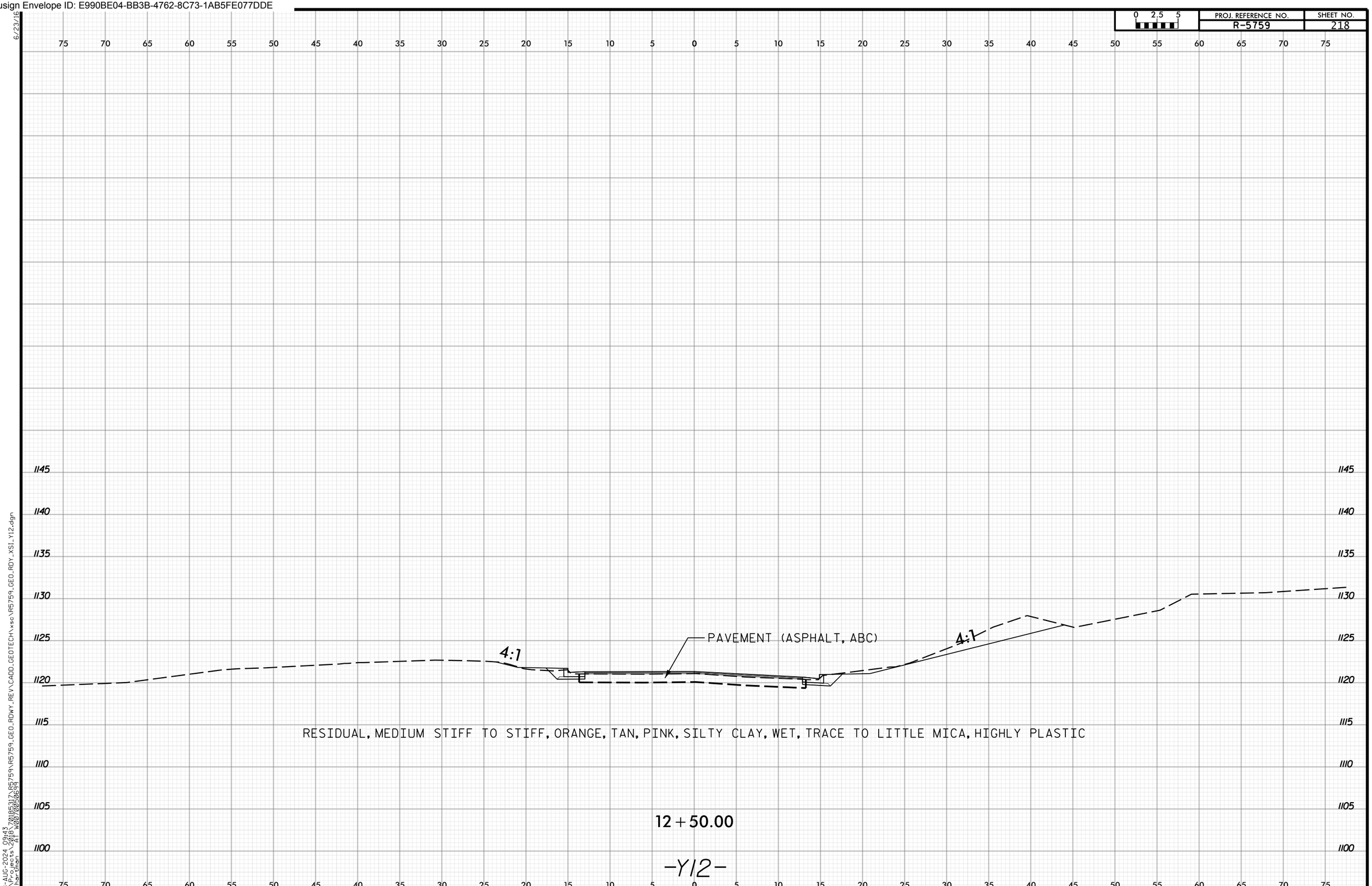

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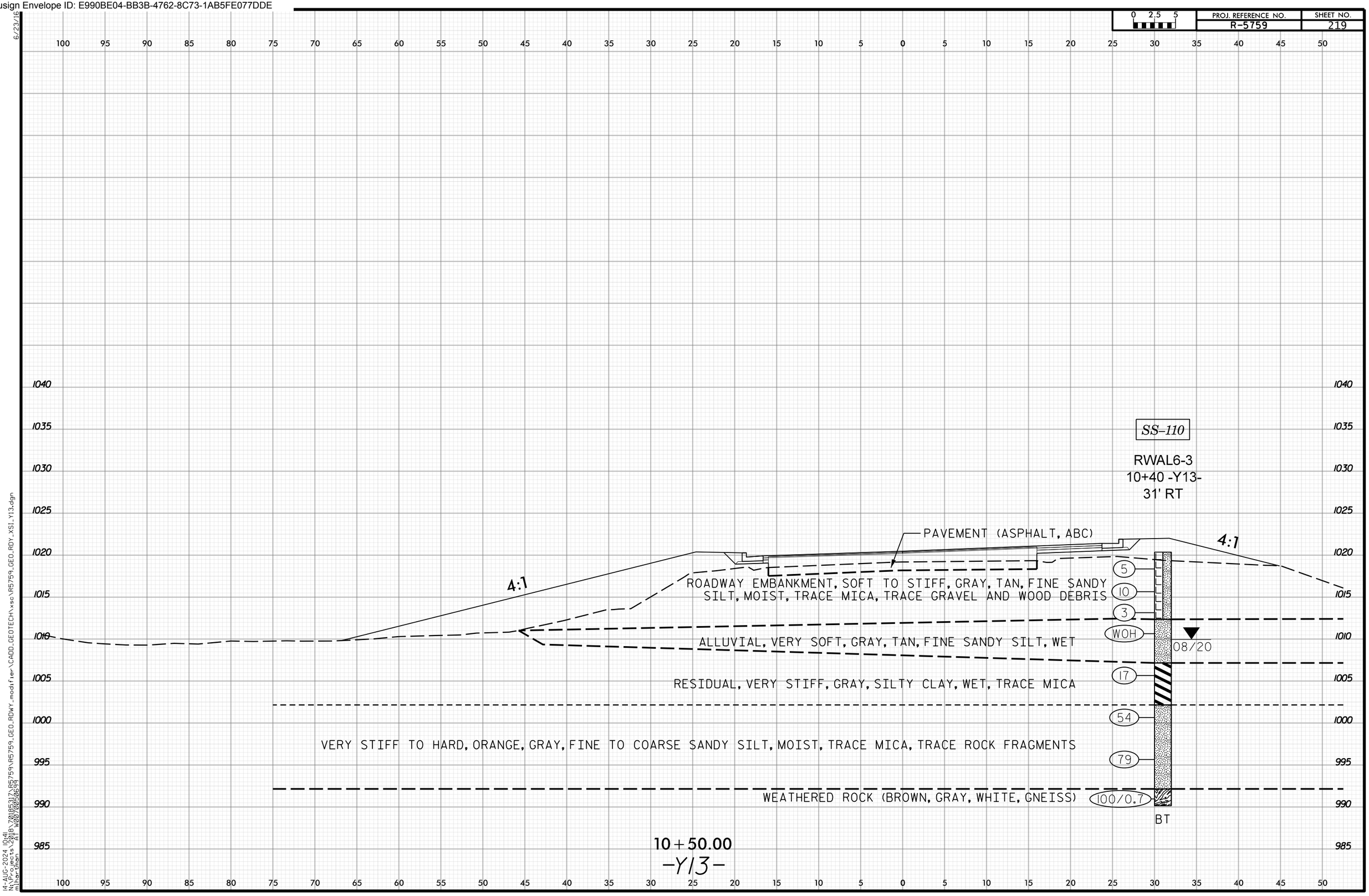

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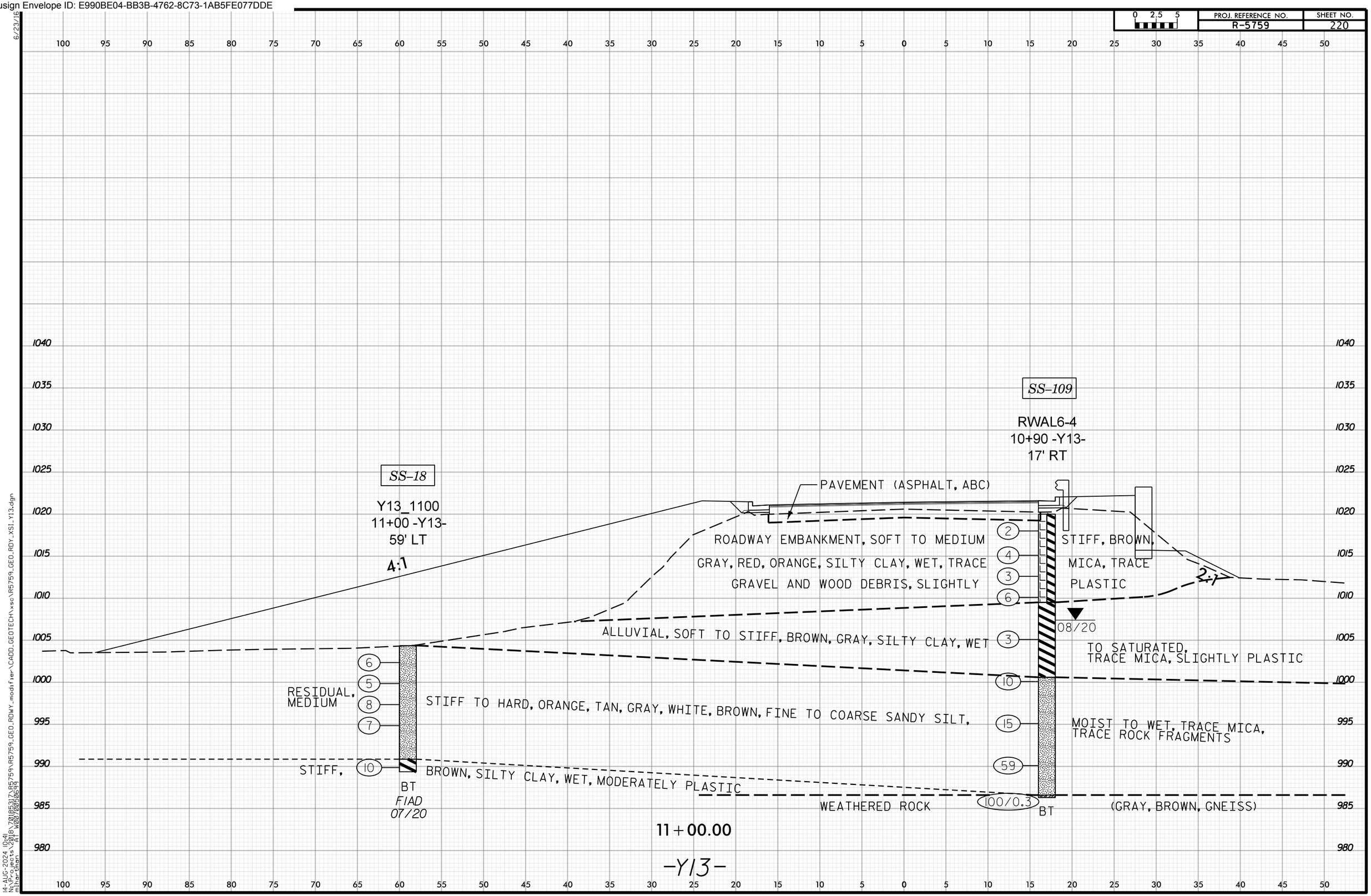

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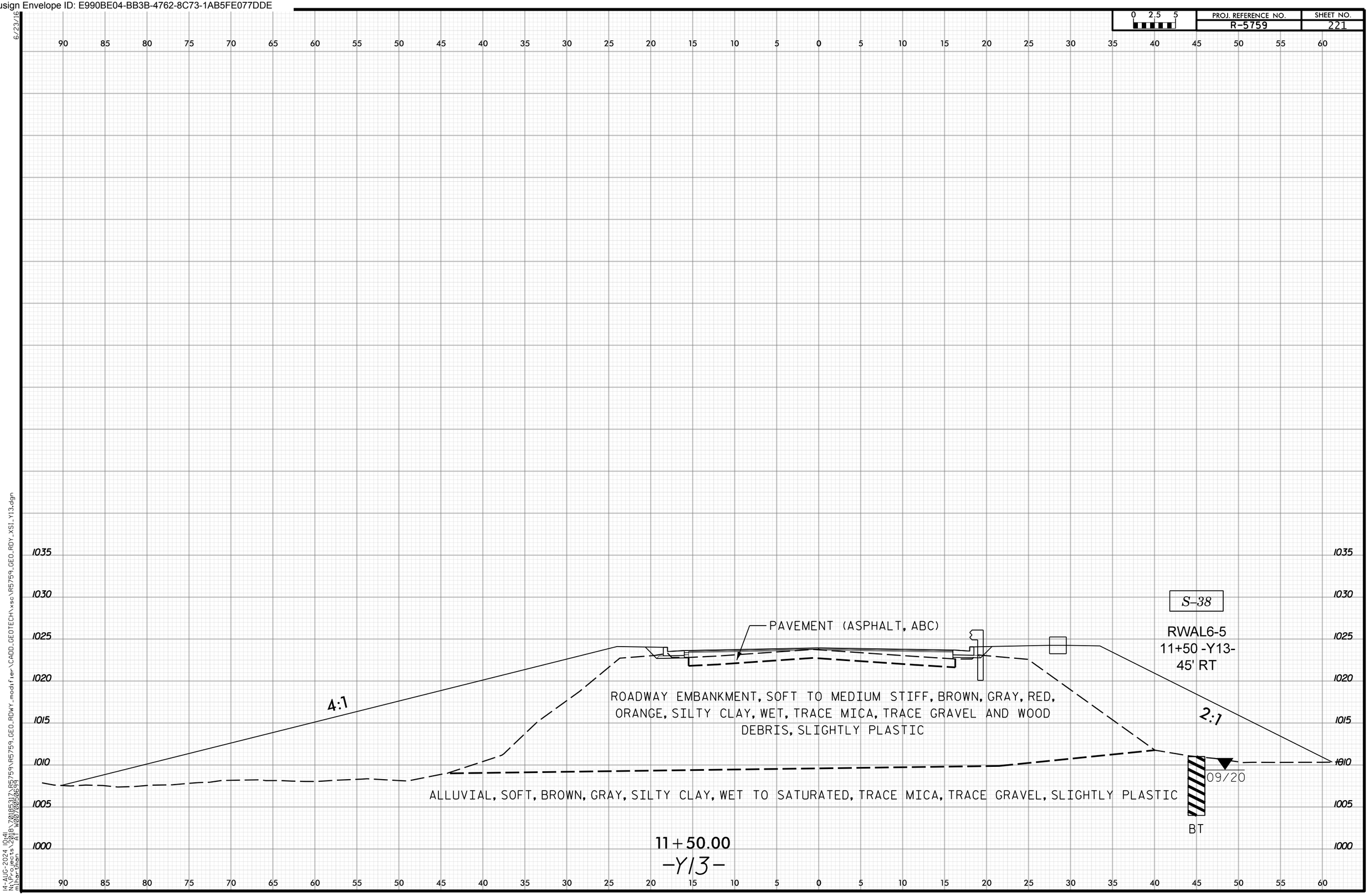

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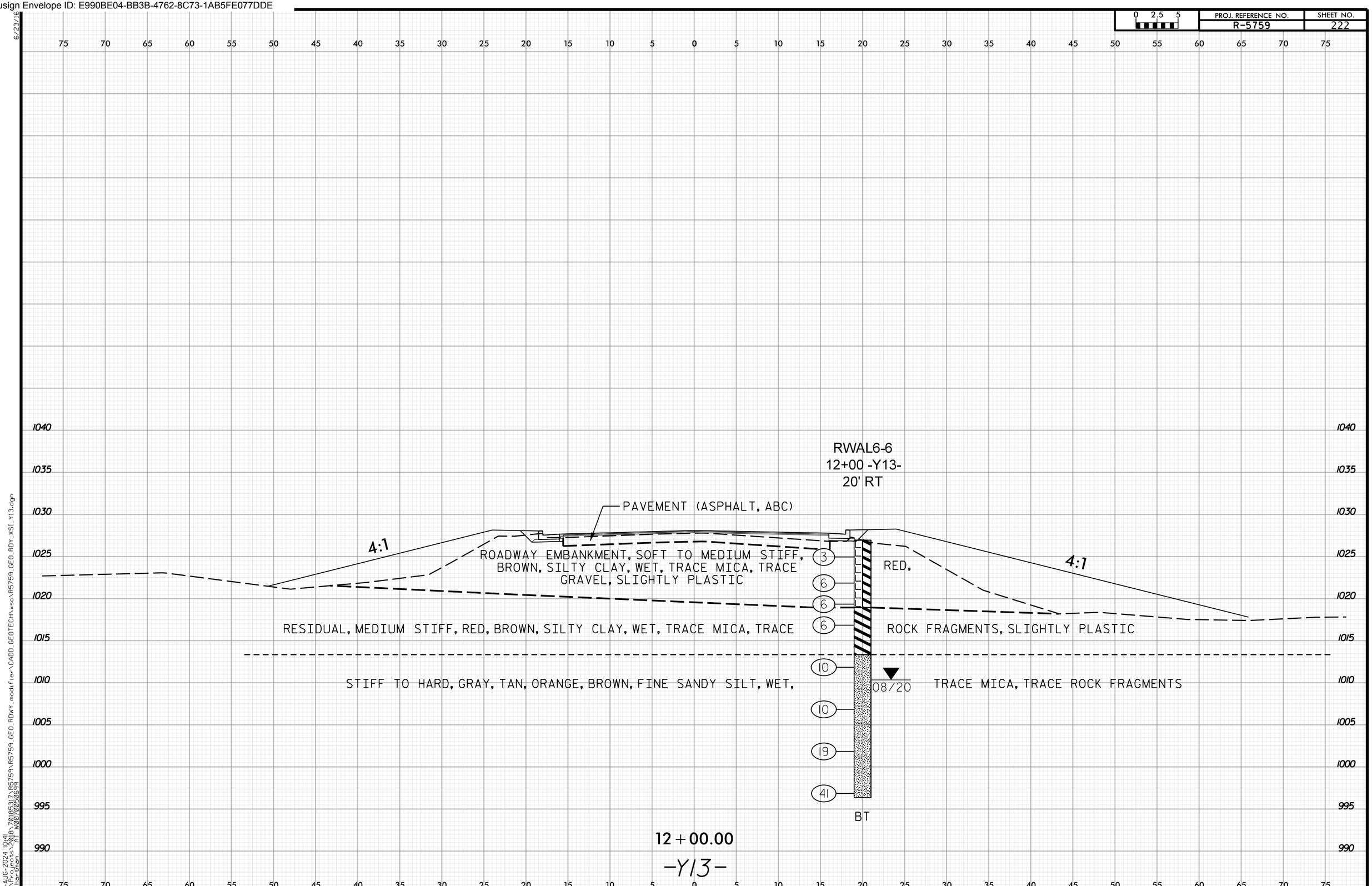

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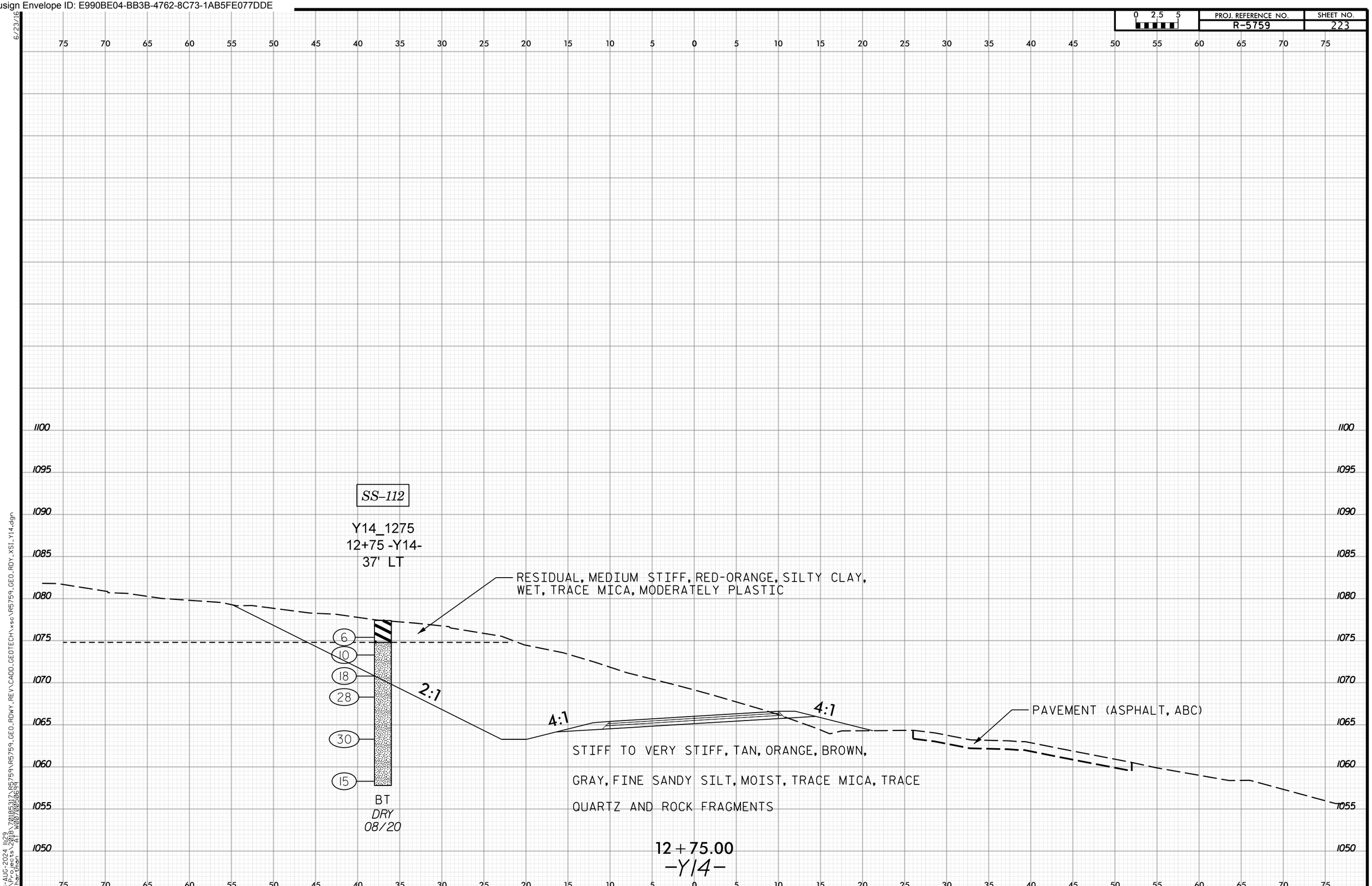

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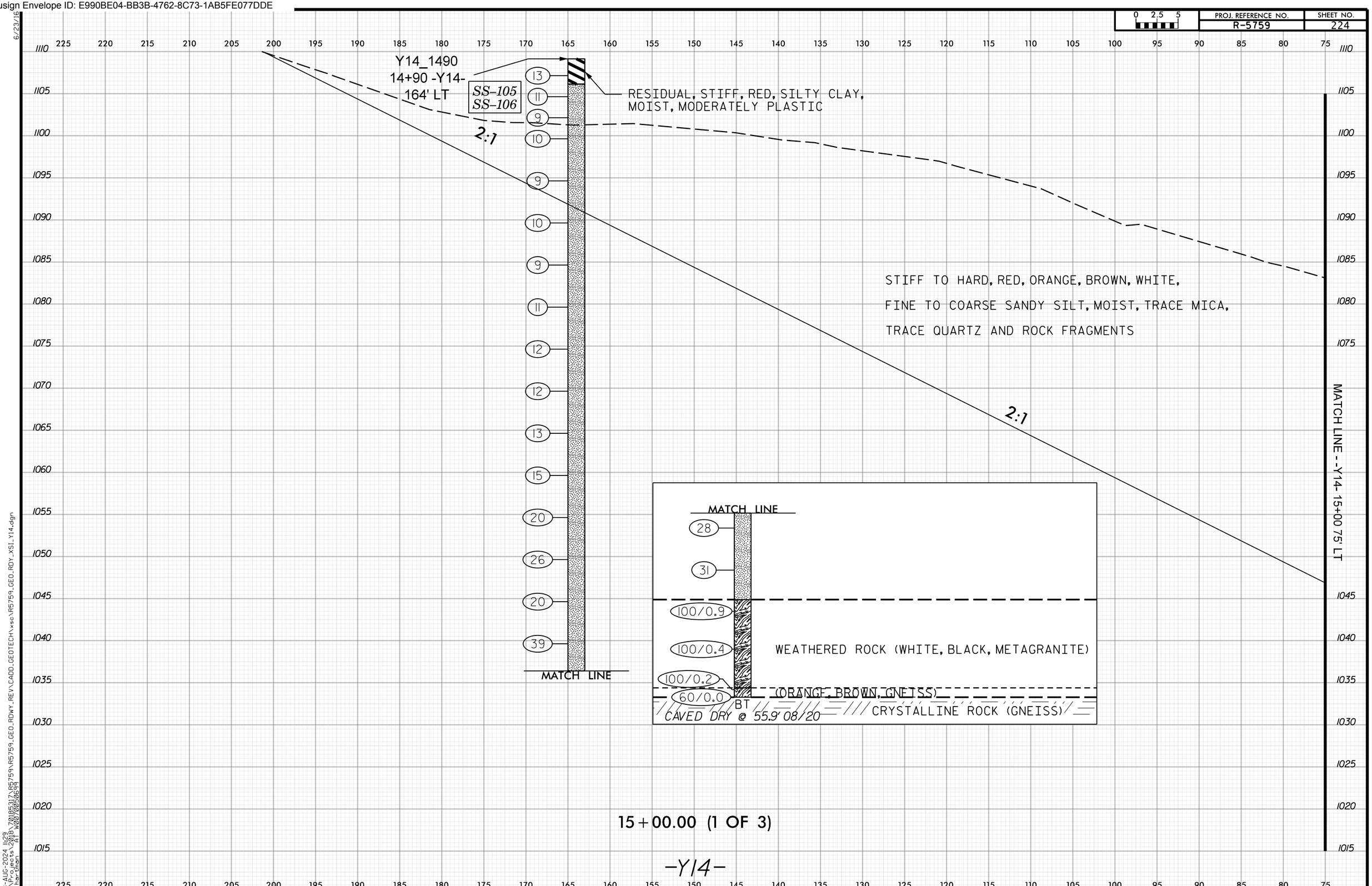

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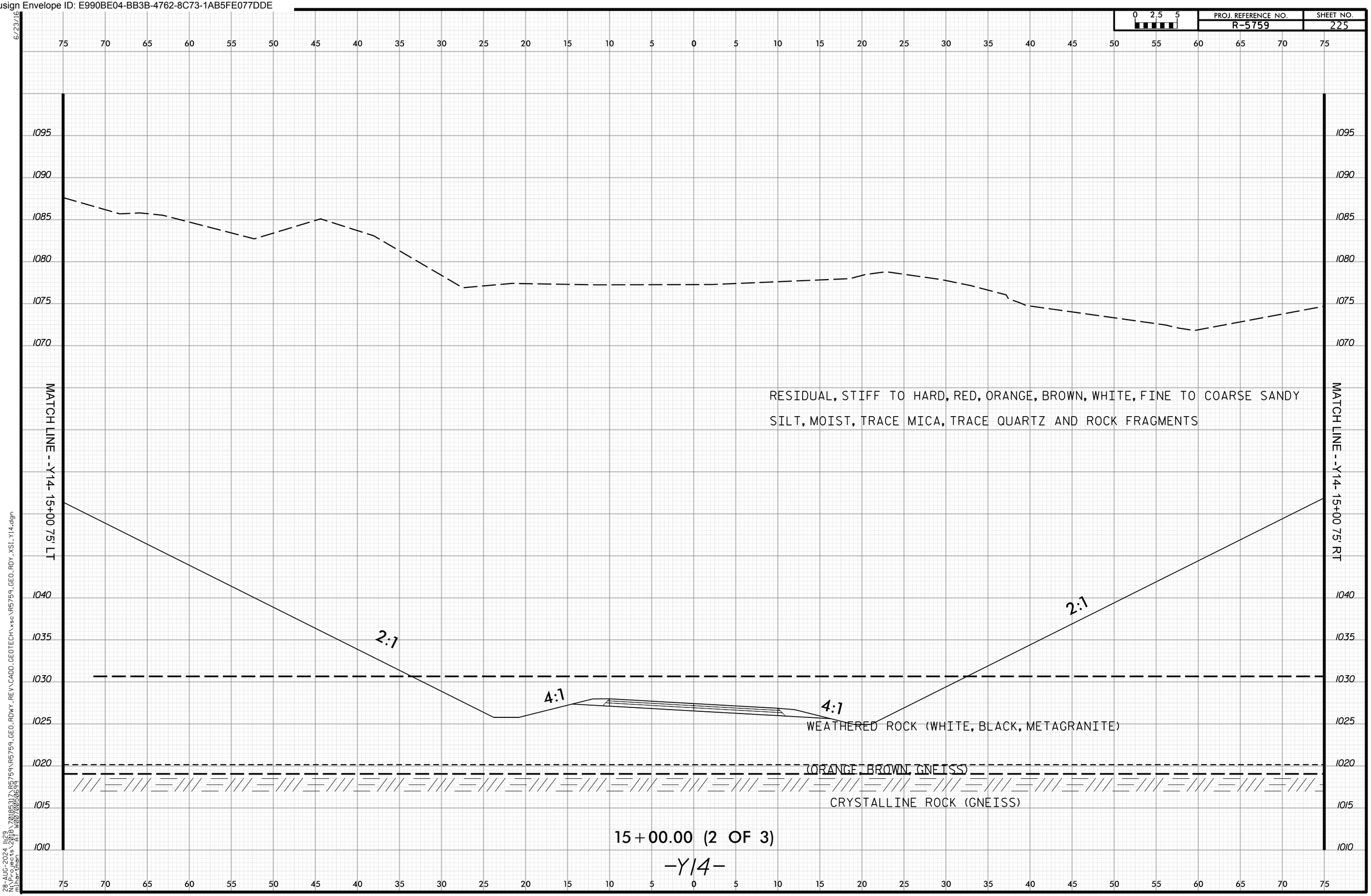

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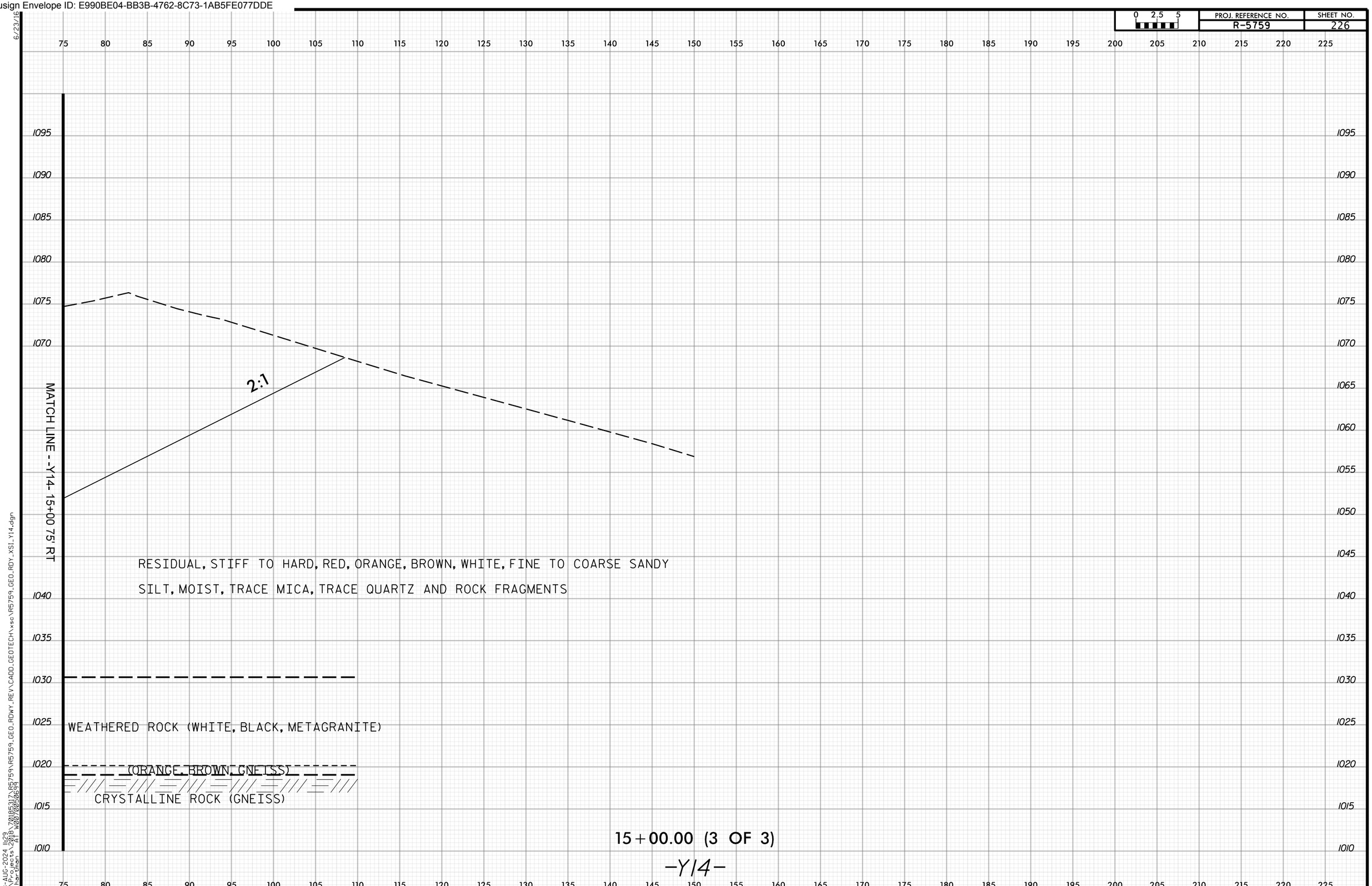

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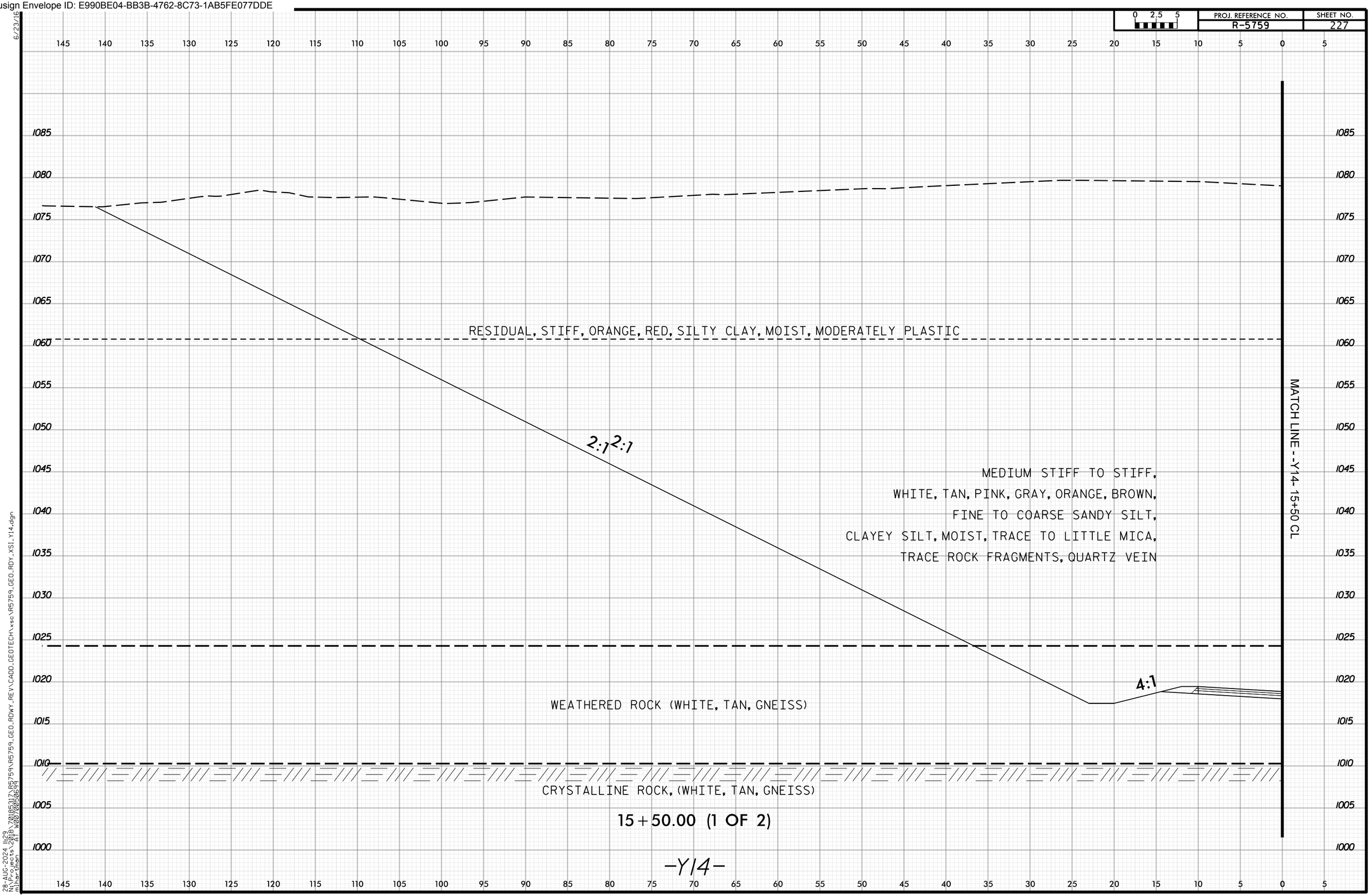

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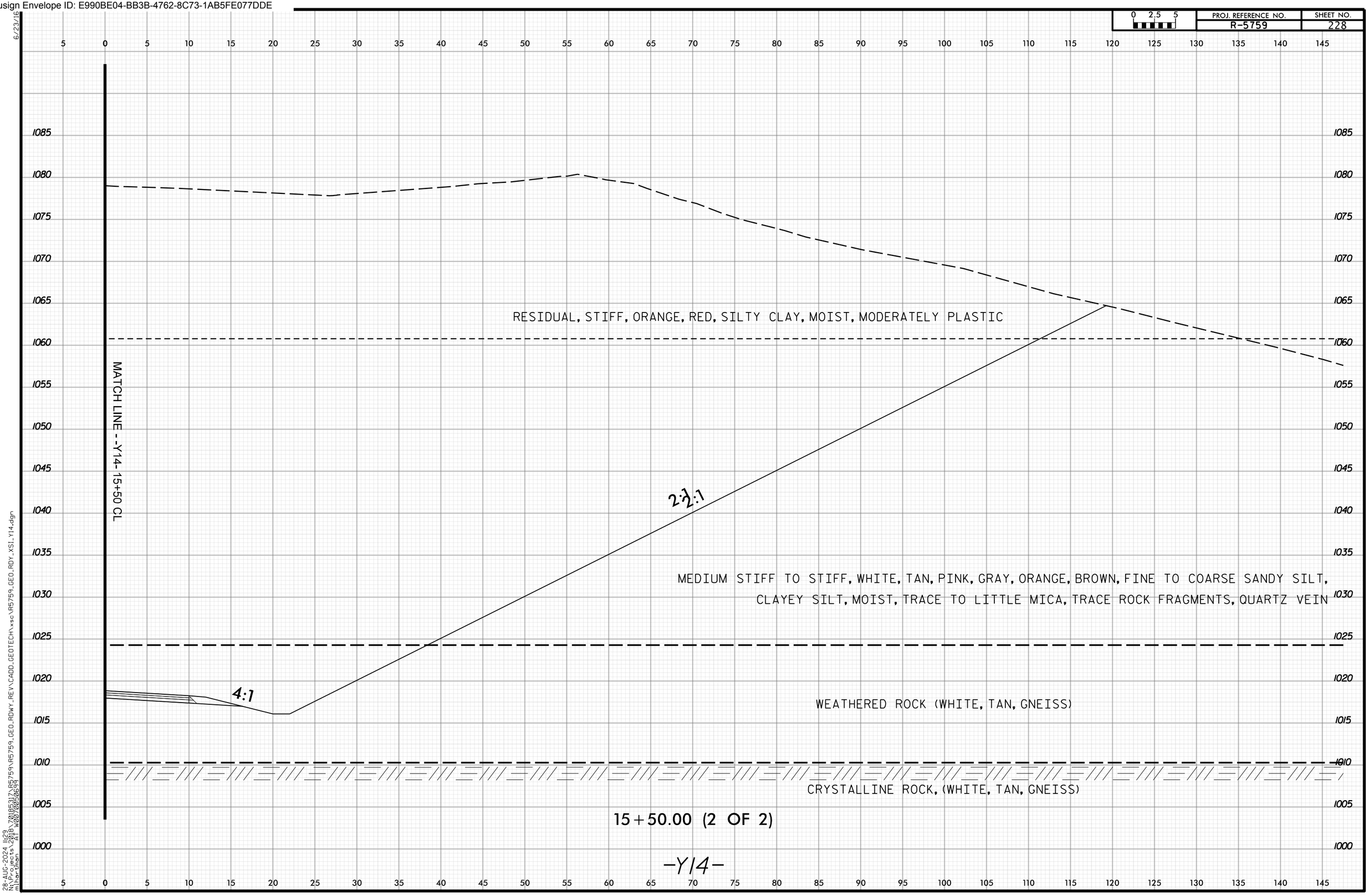

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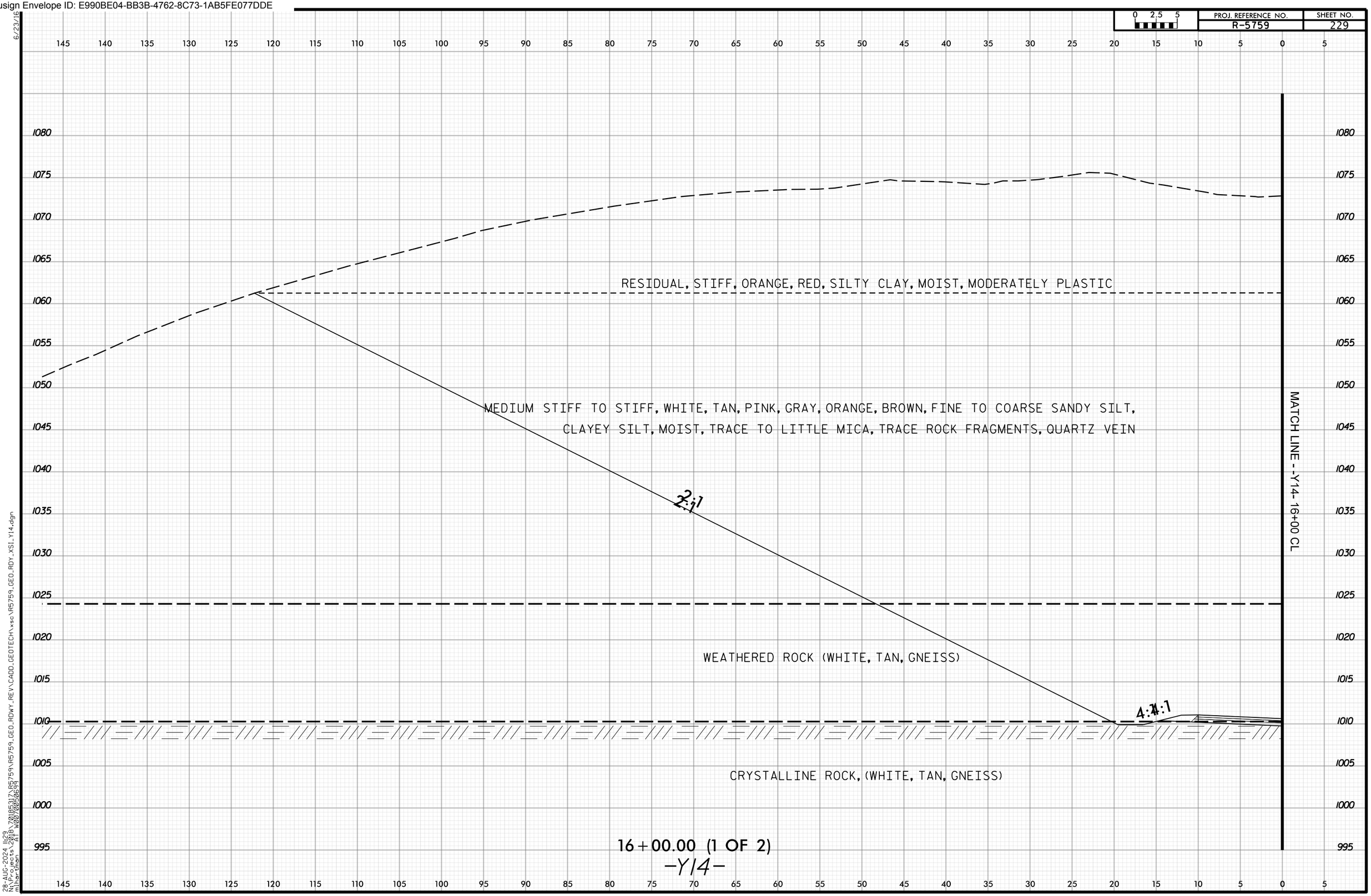

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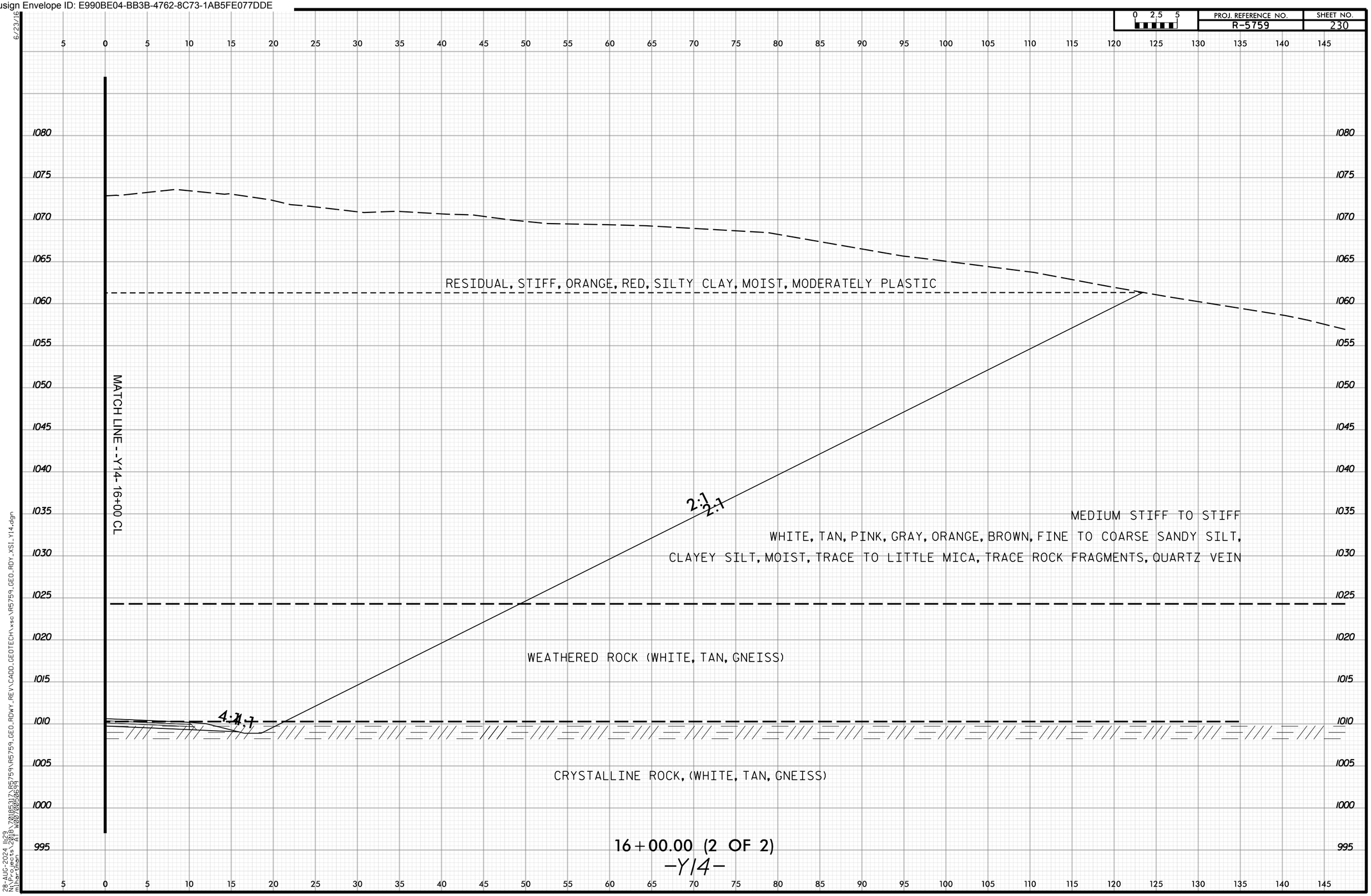

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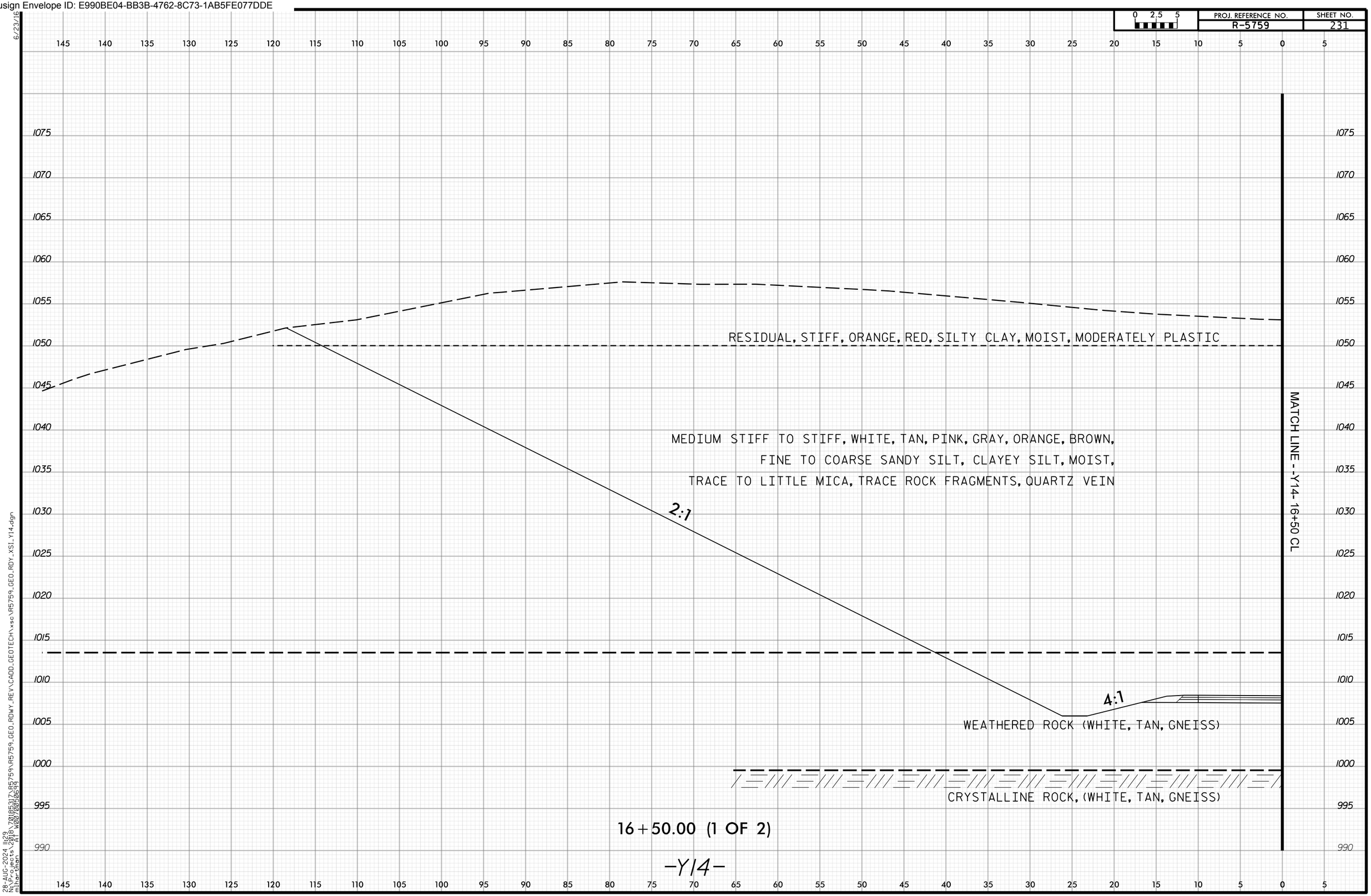

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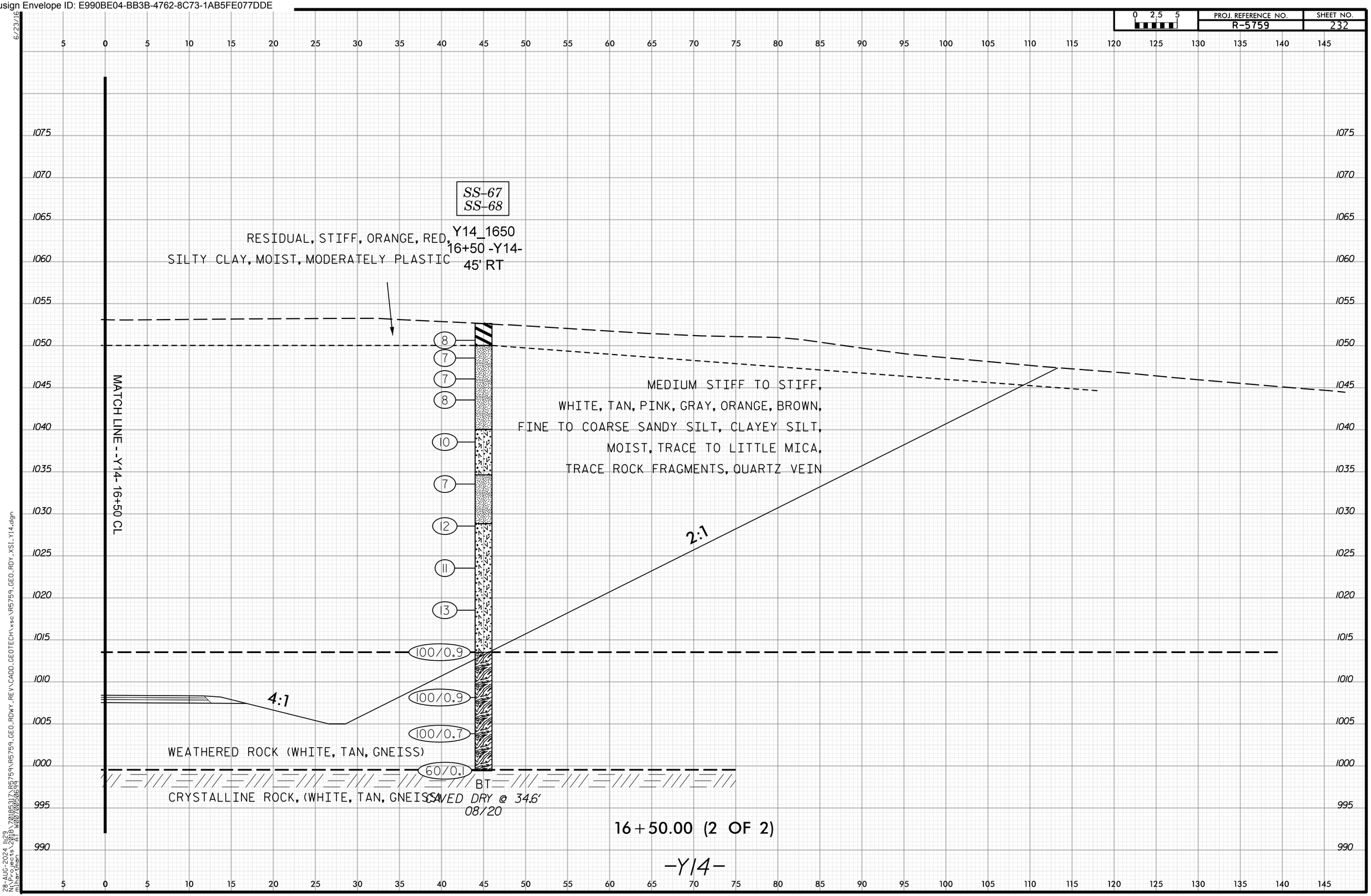

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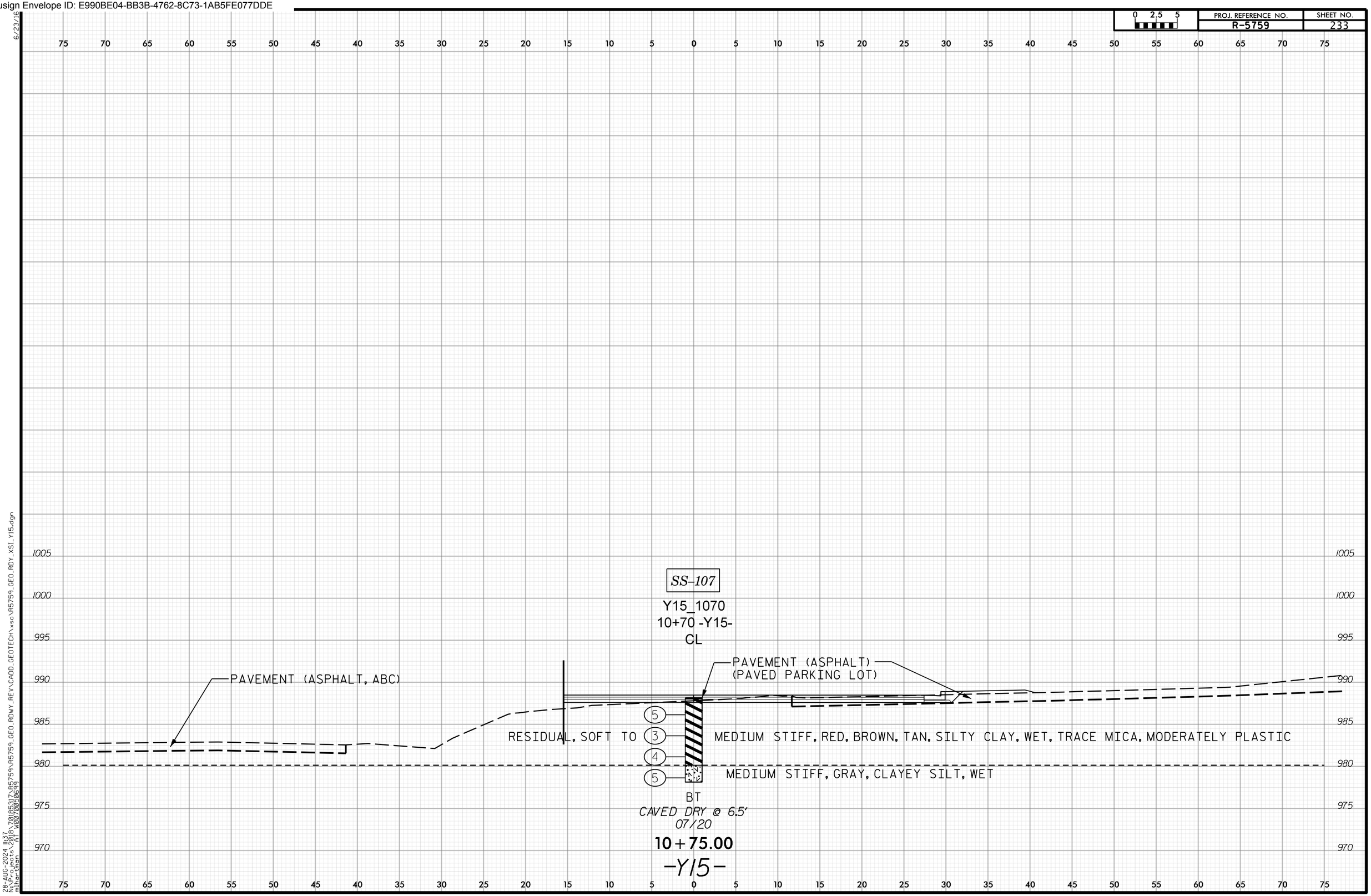

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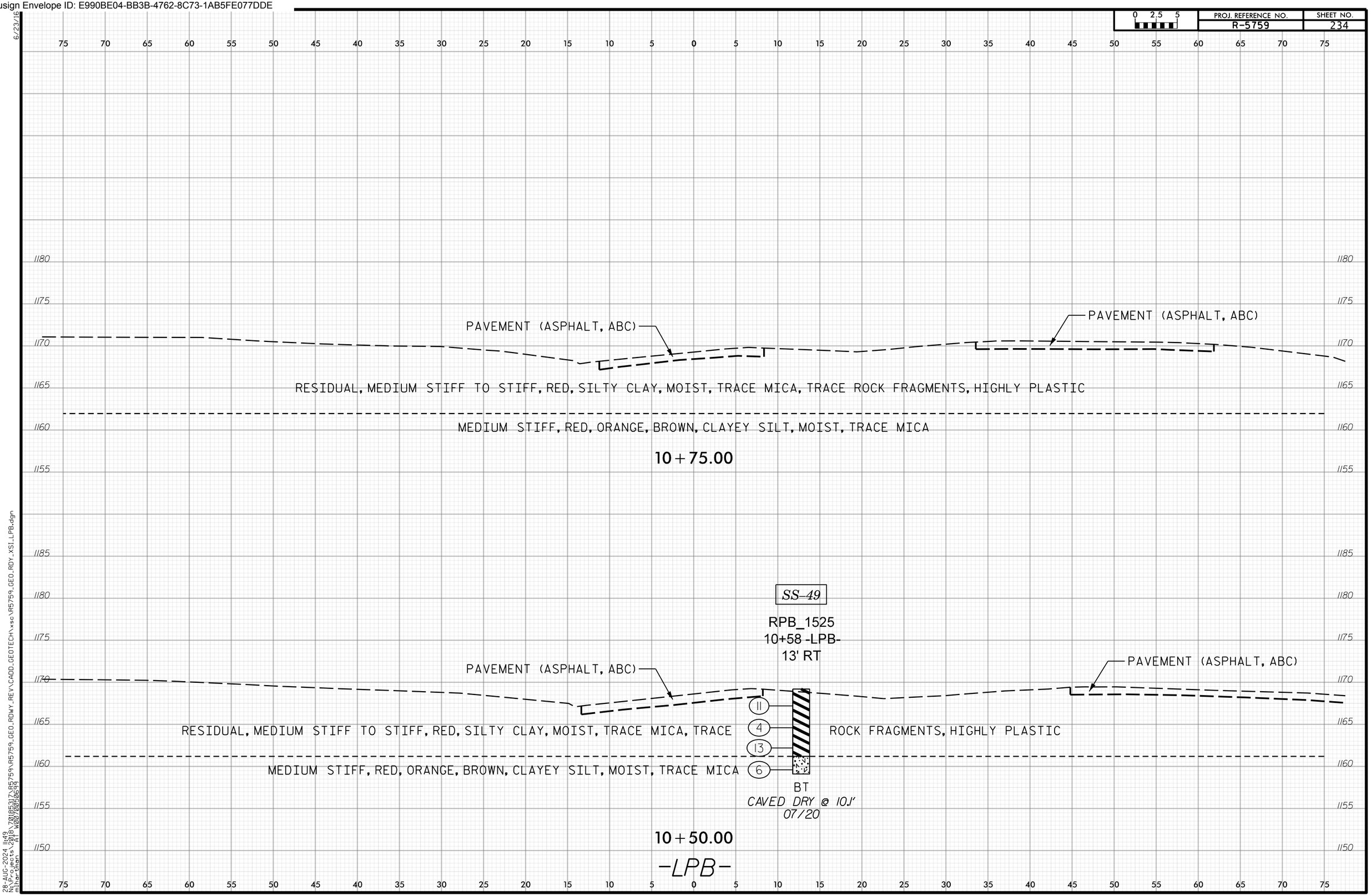

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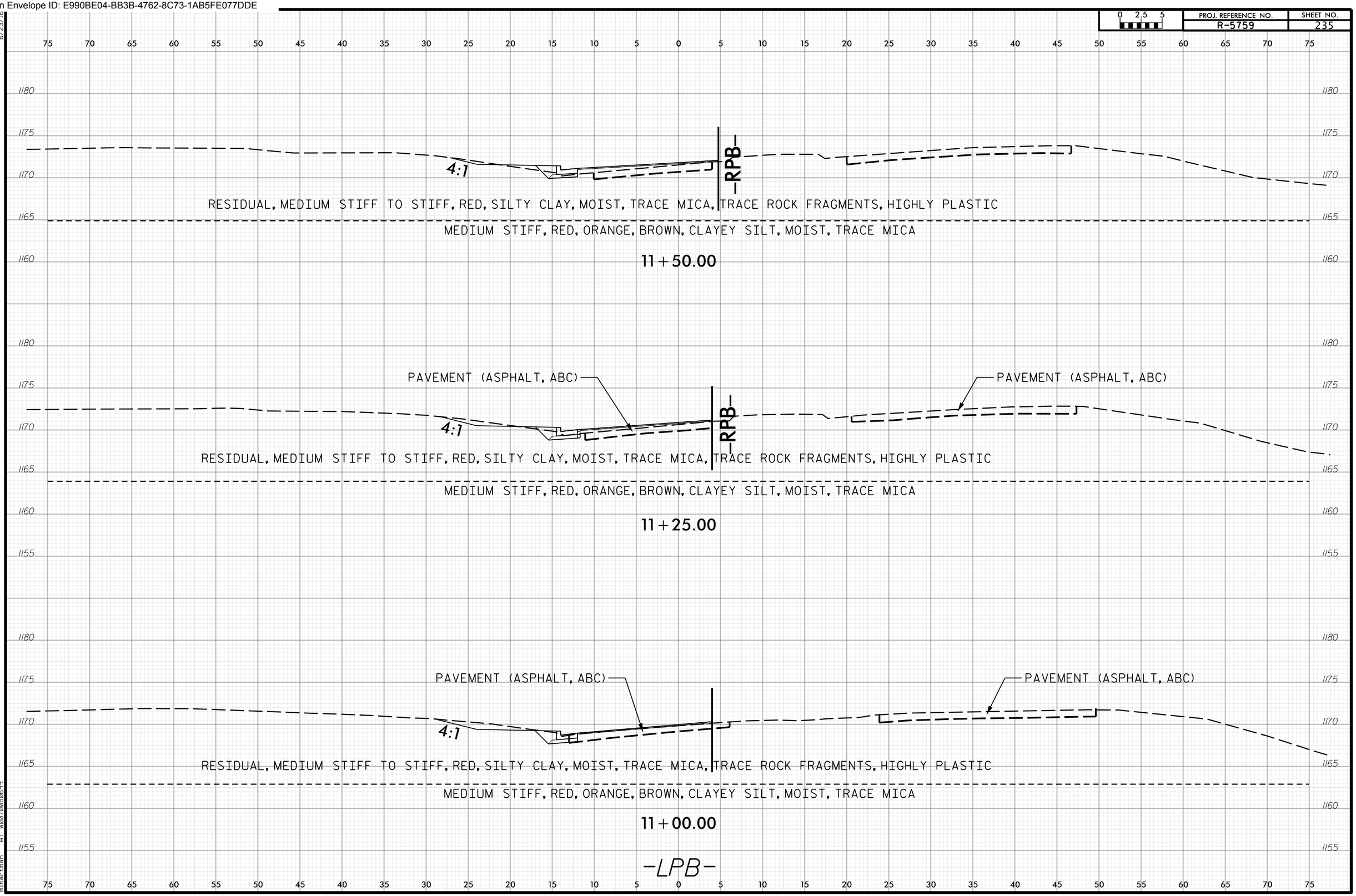

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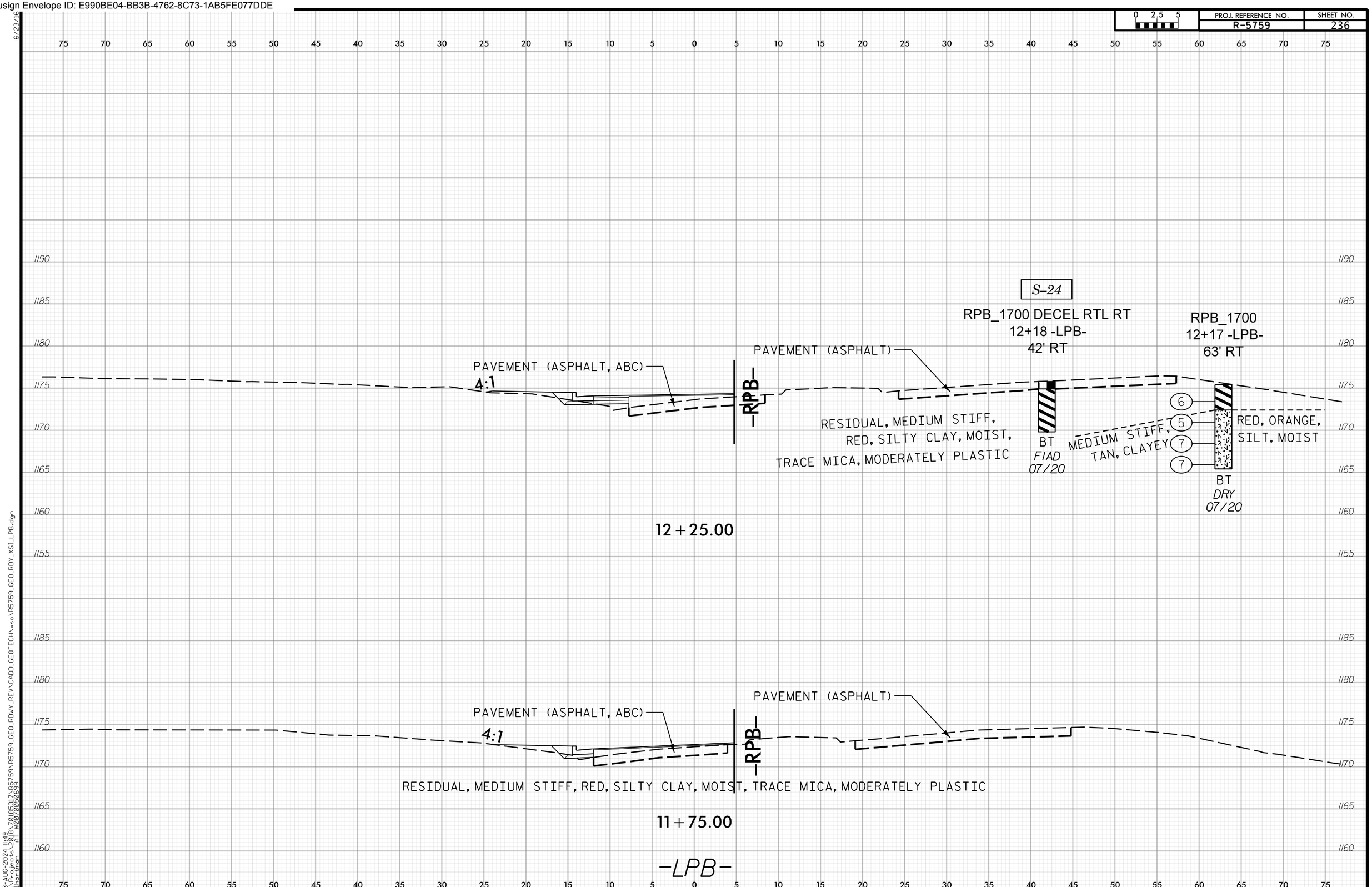

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mihartman AT W0070050699

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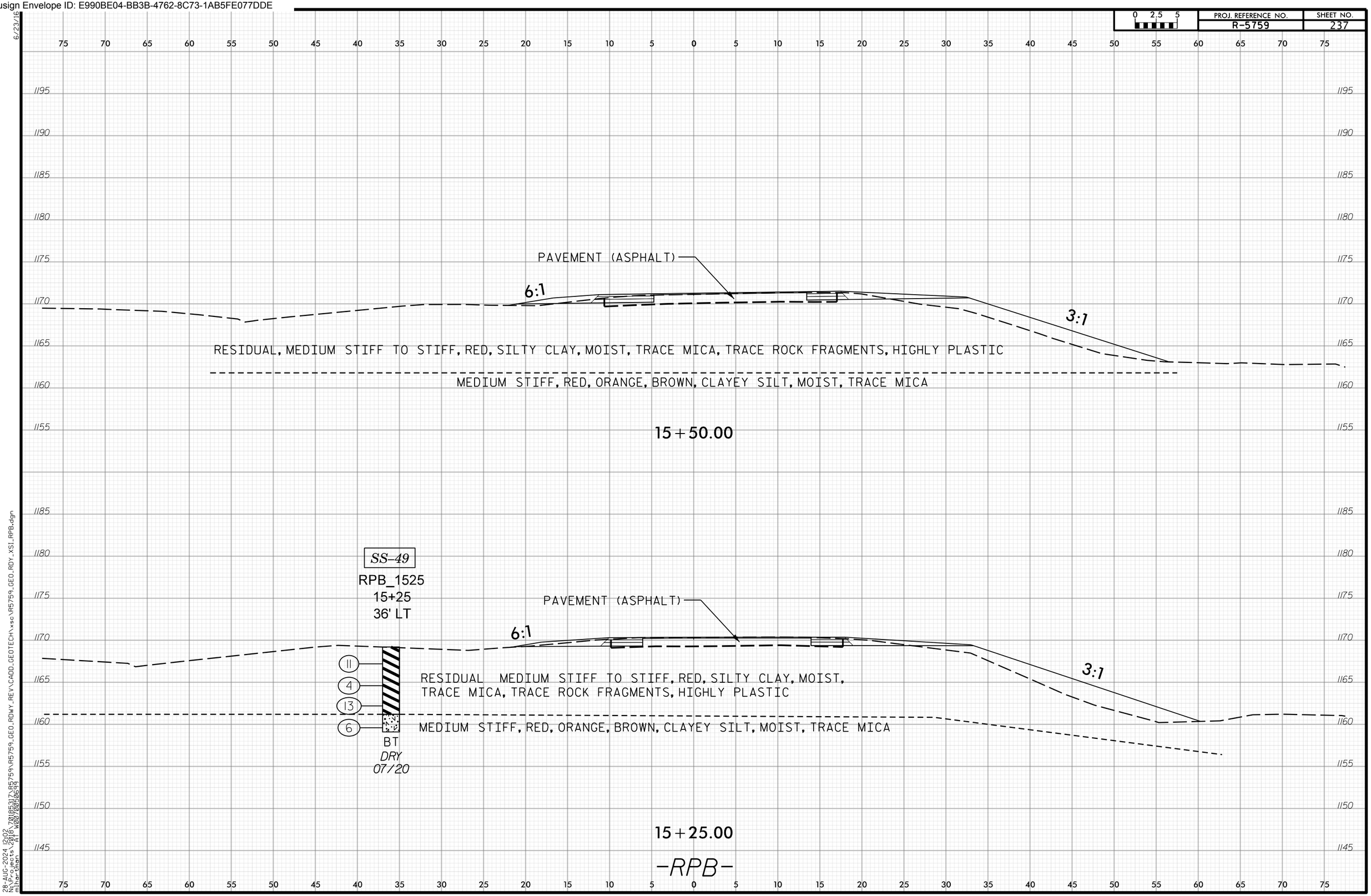
PROJ. REFERENCE NO. R-5759 | SHEET NO. 237



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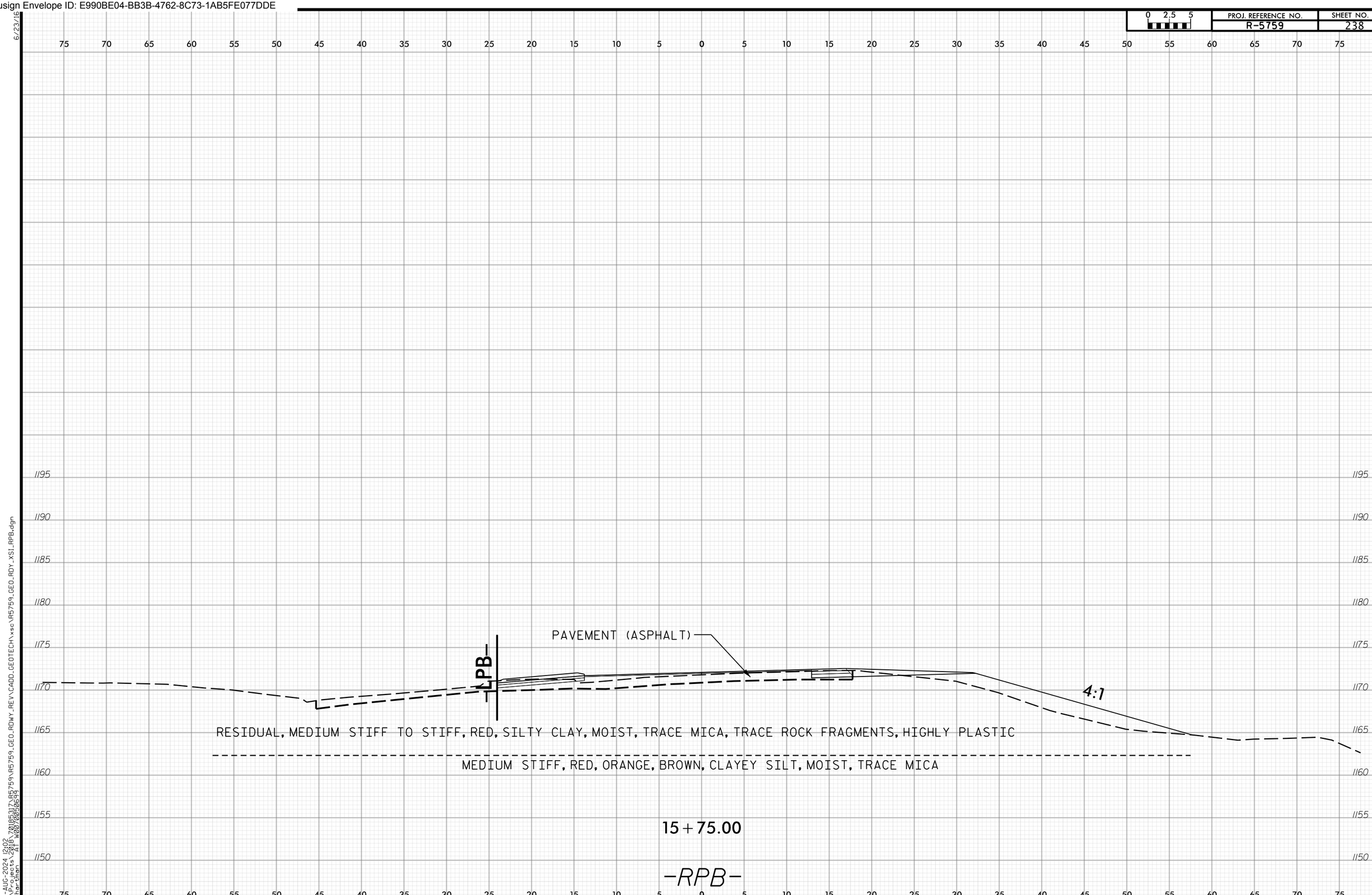

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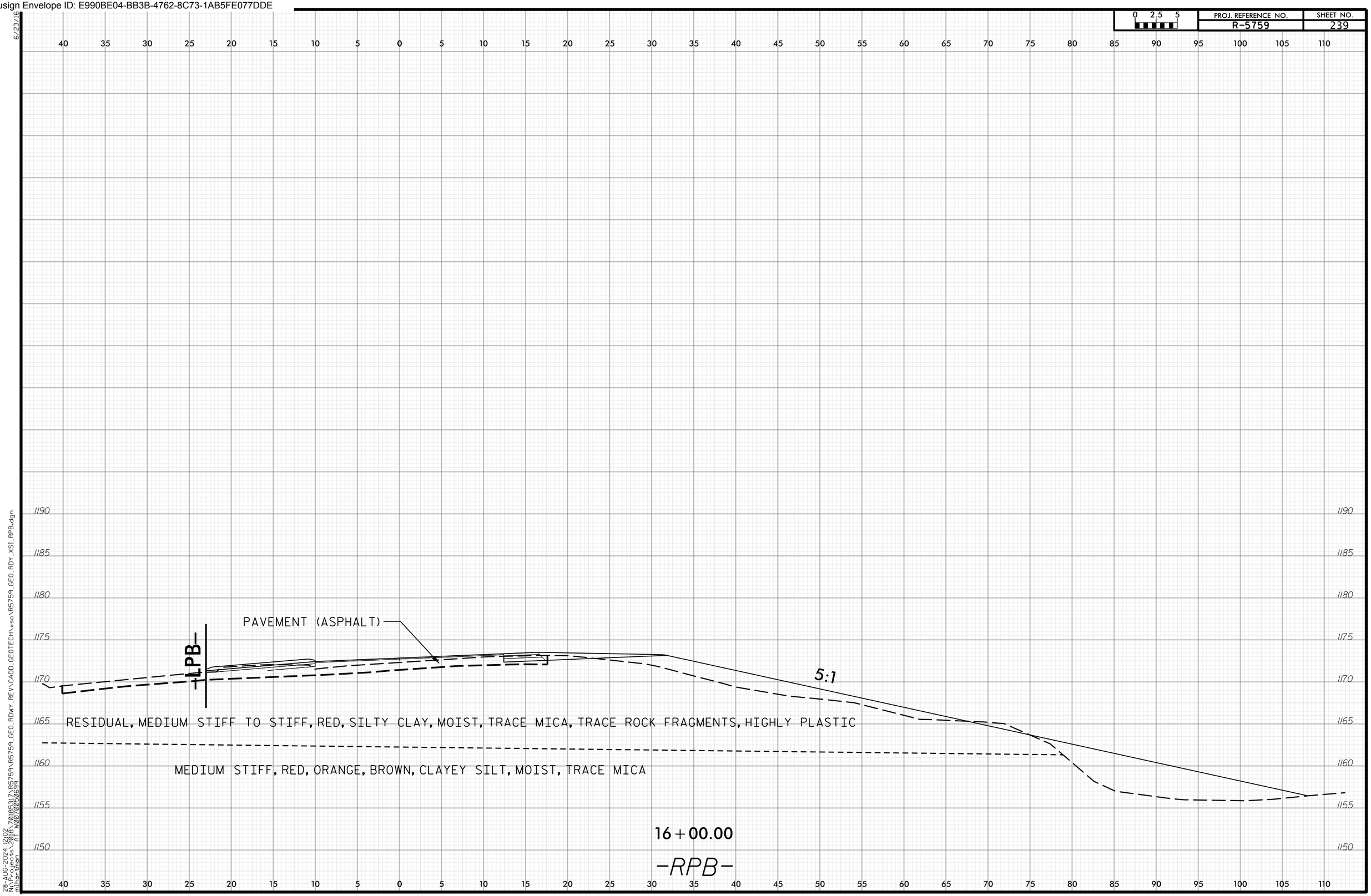

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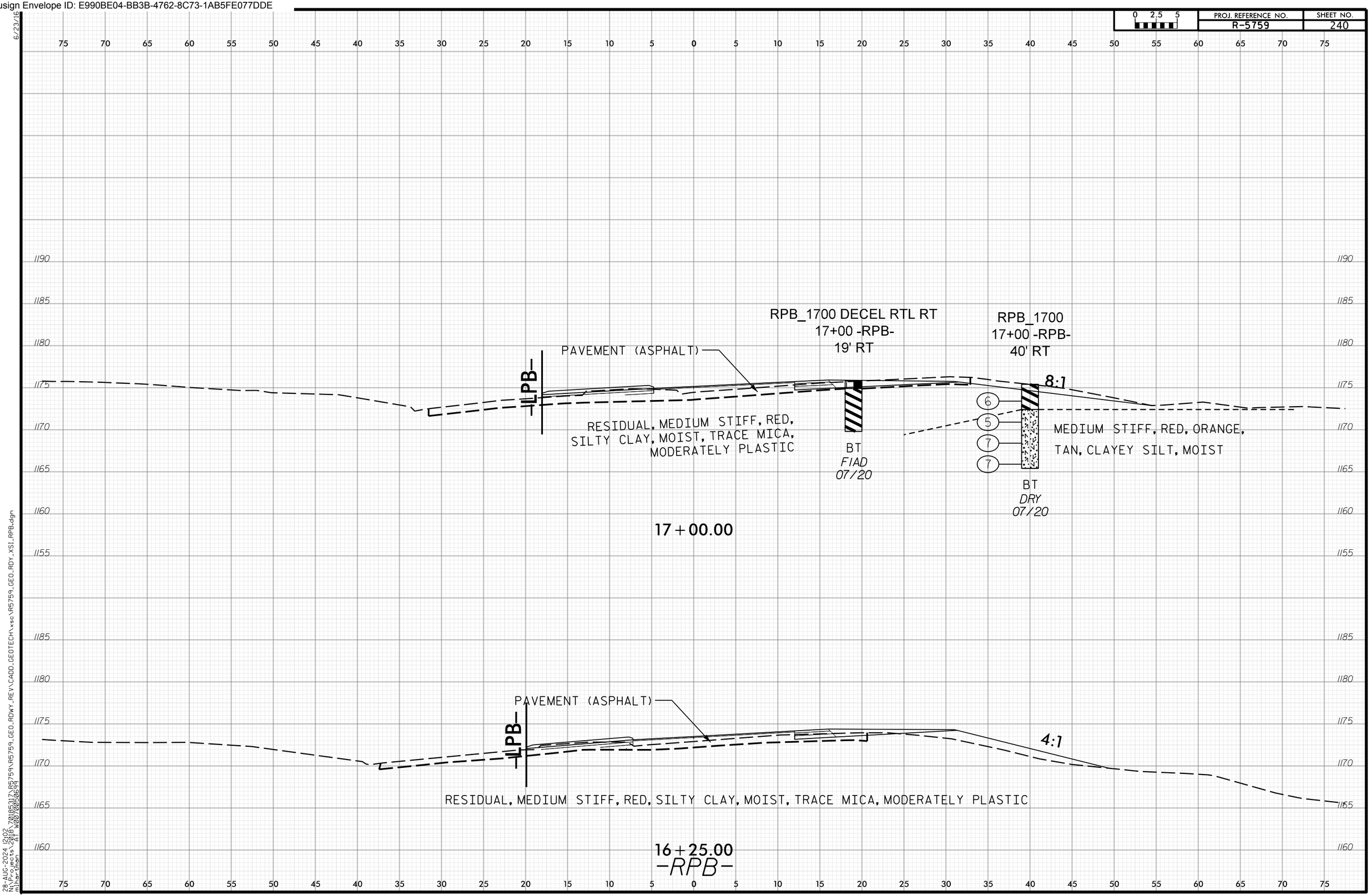

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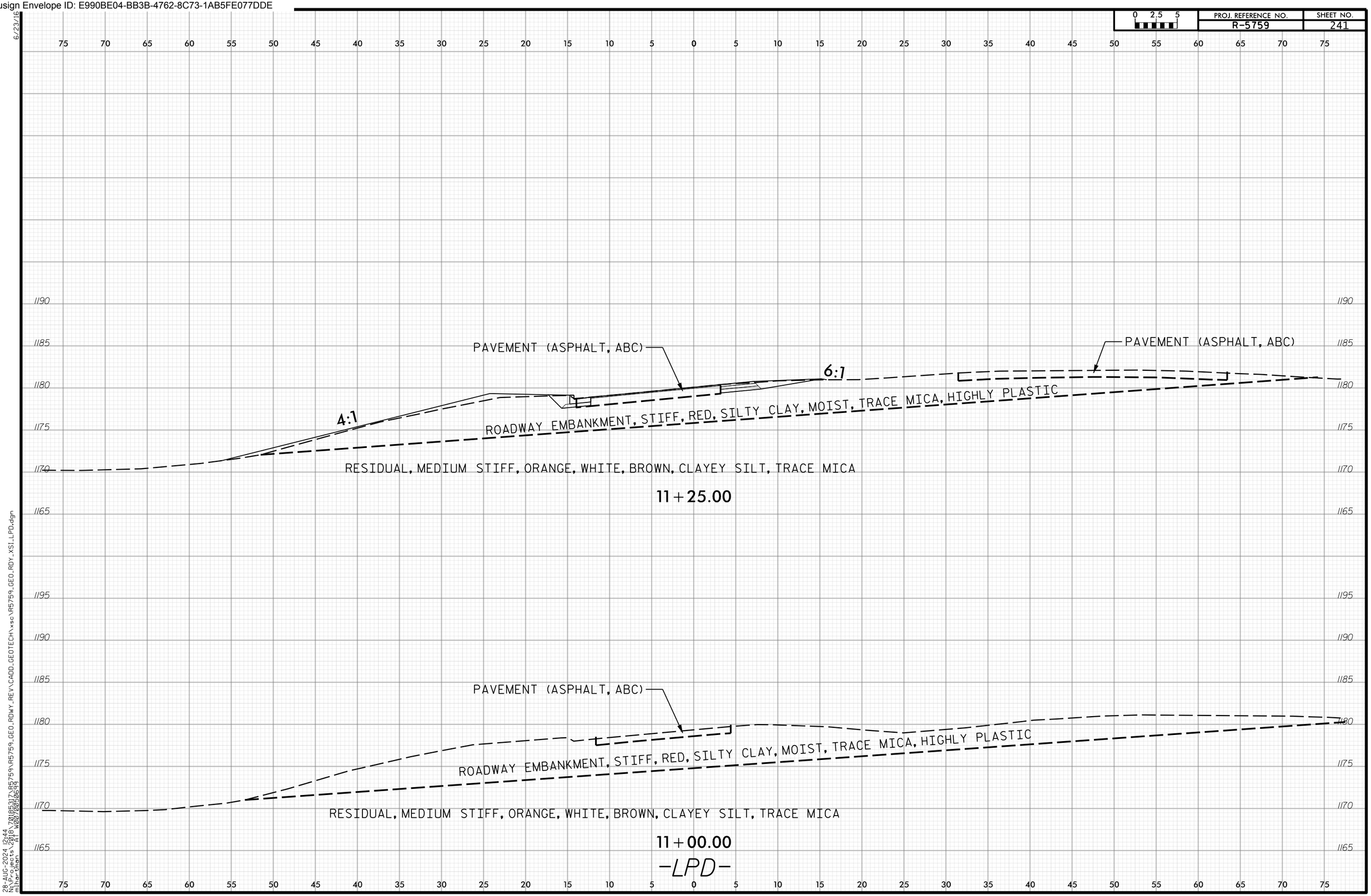

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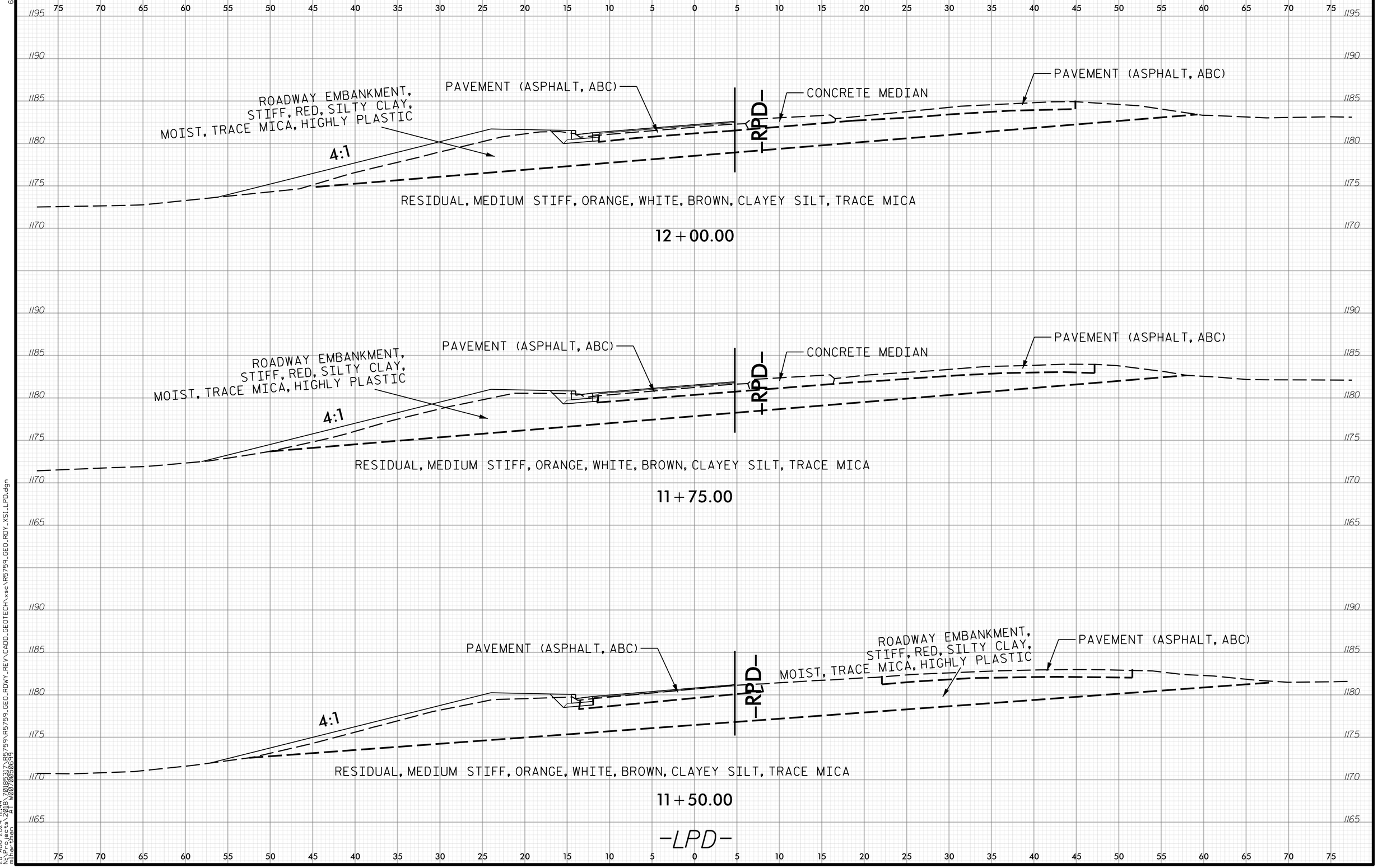

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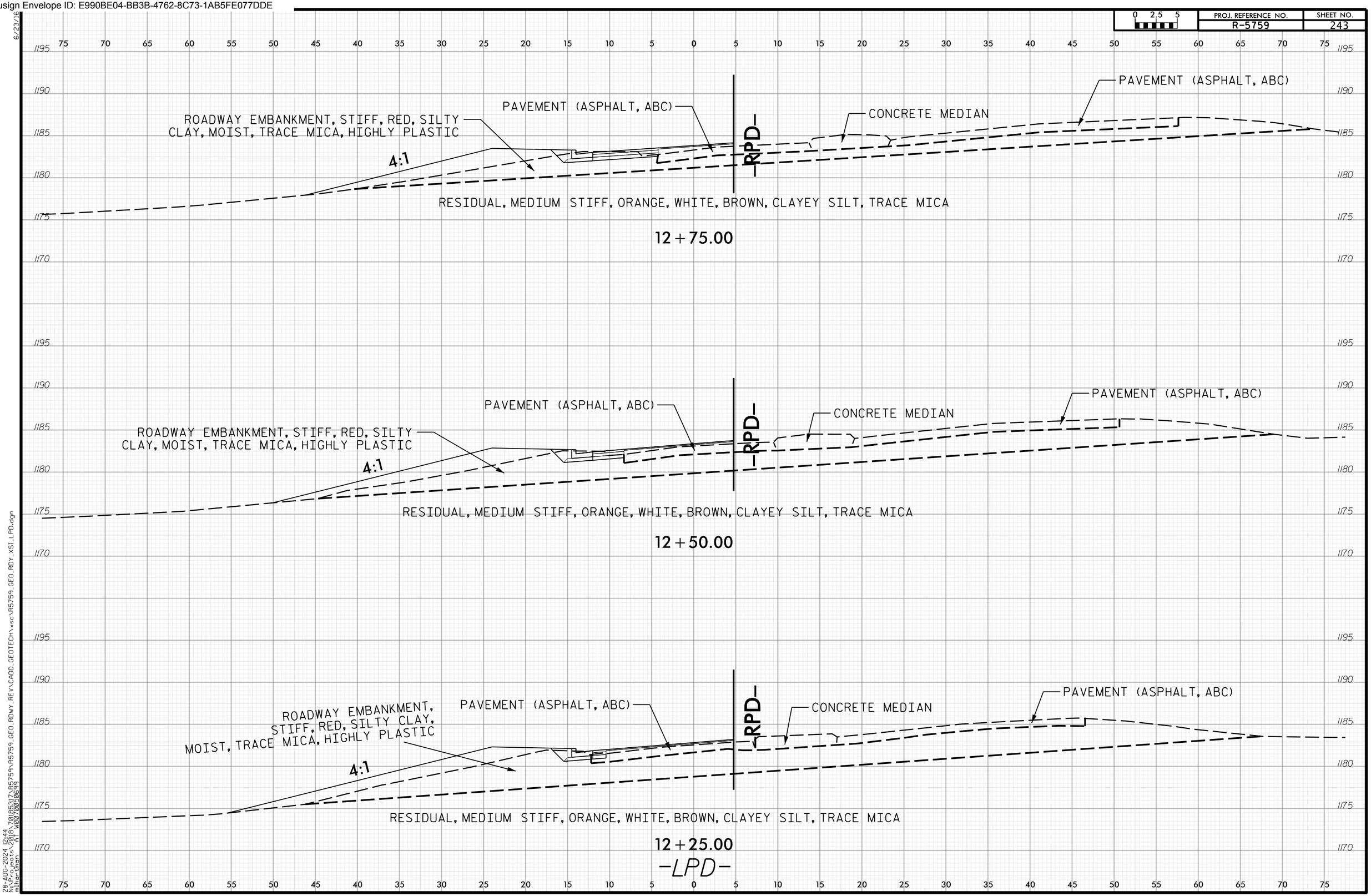

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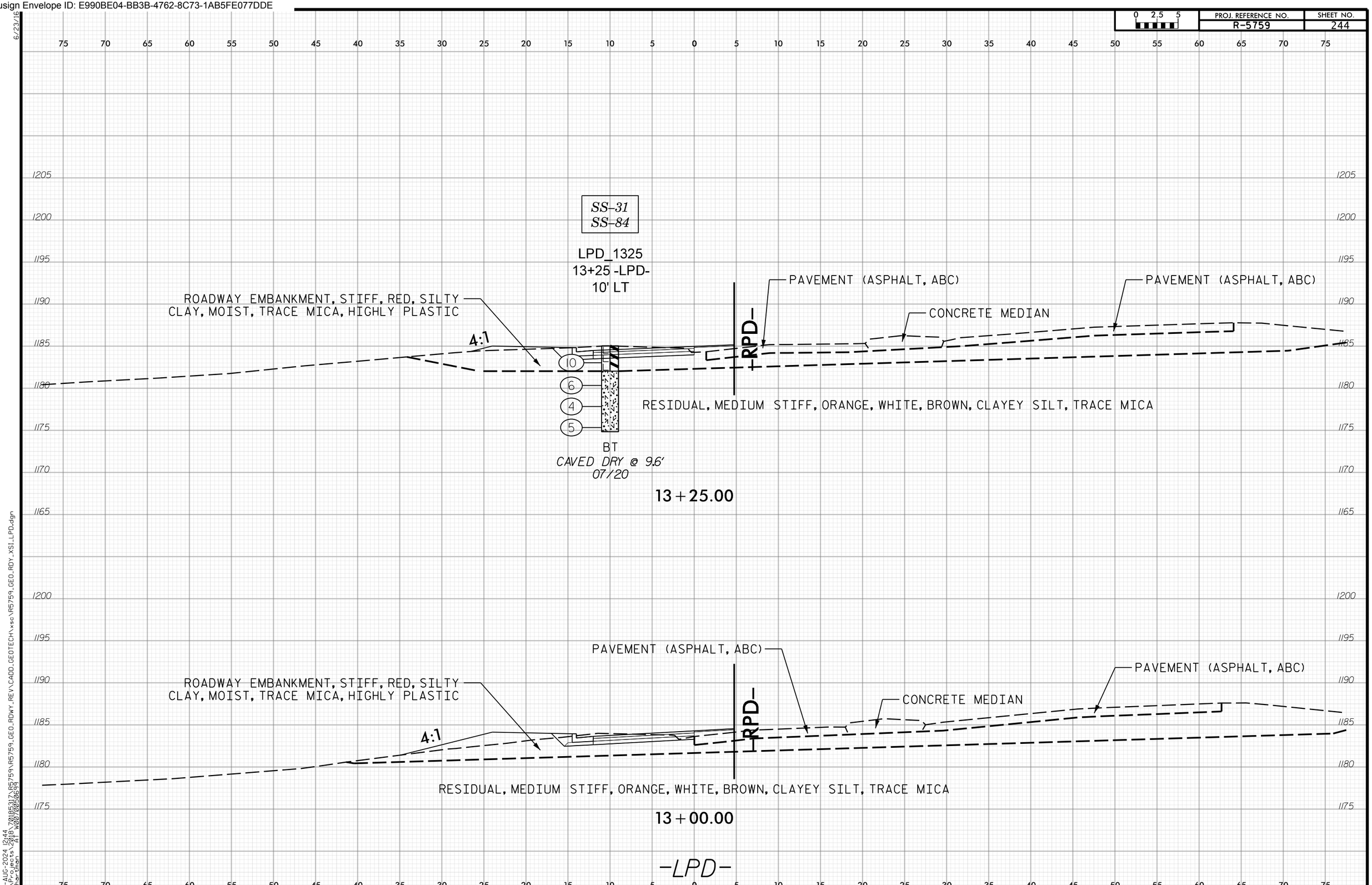

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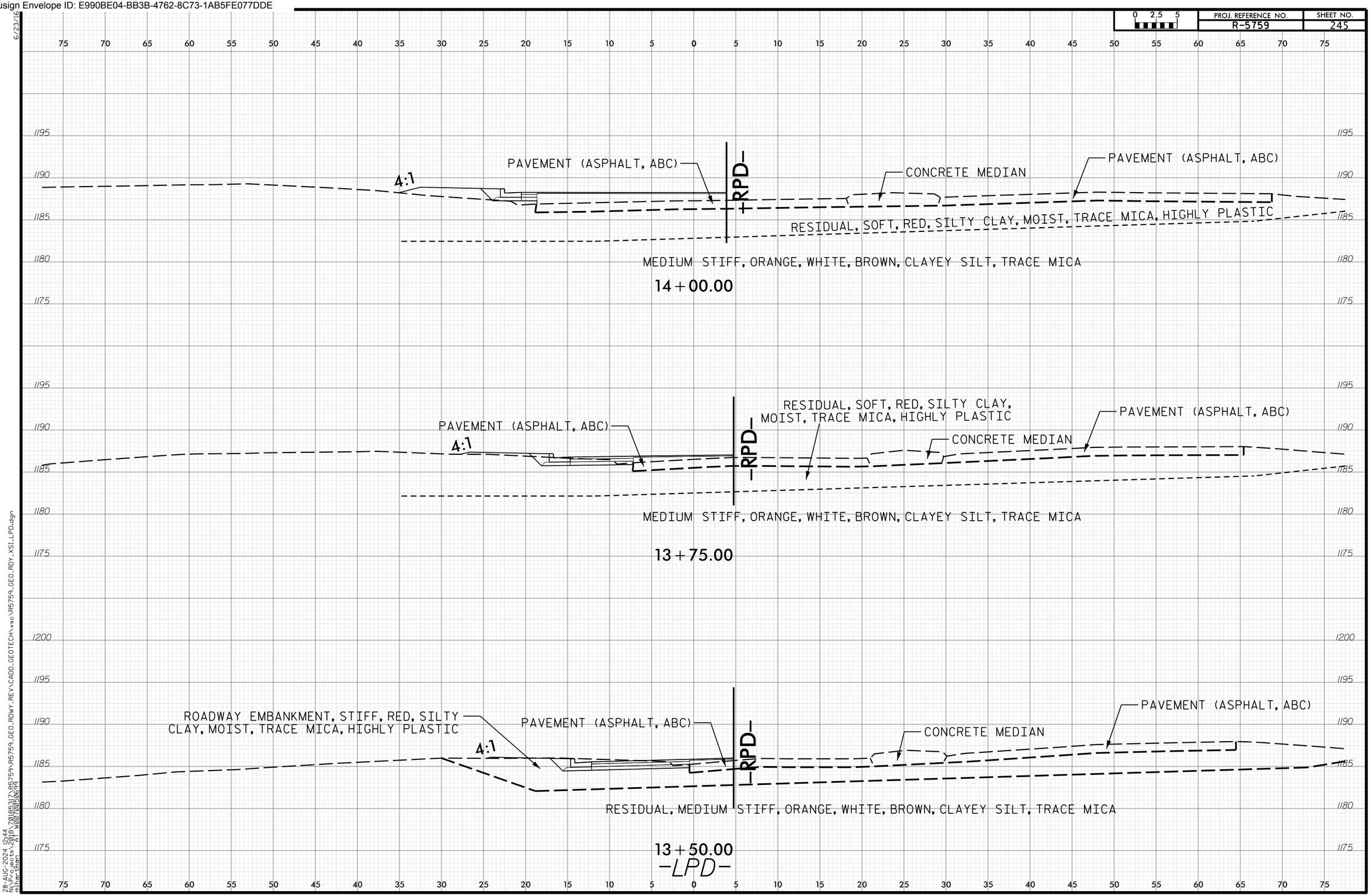

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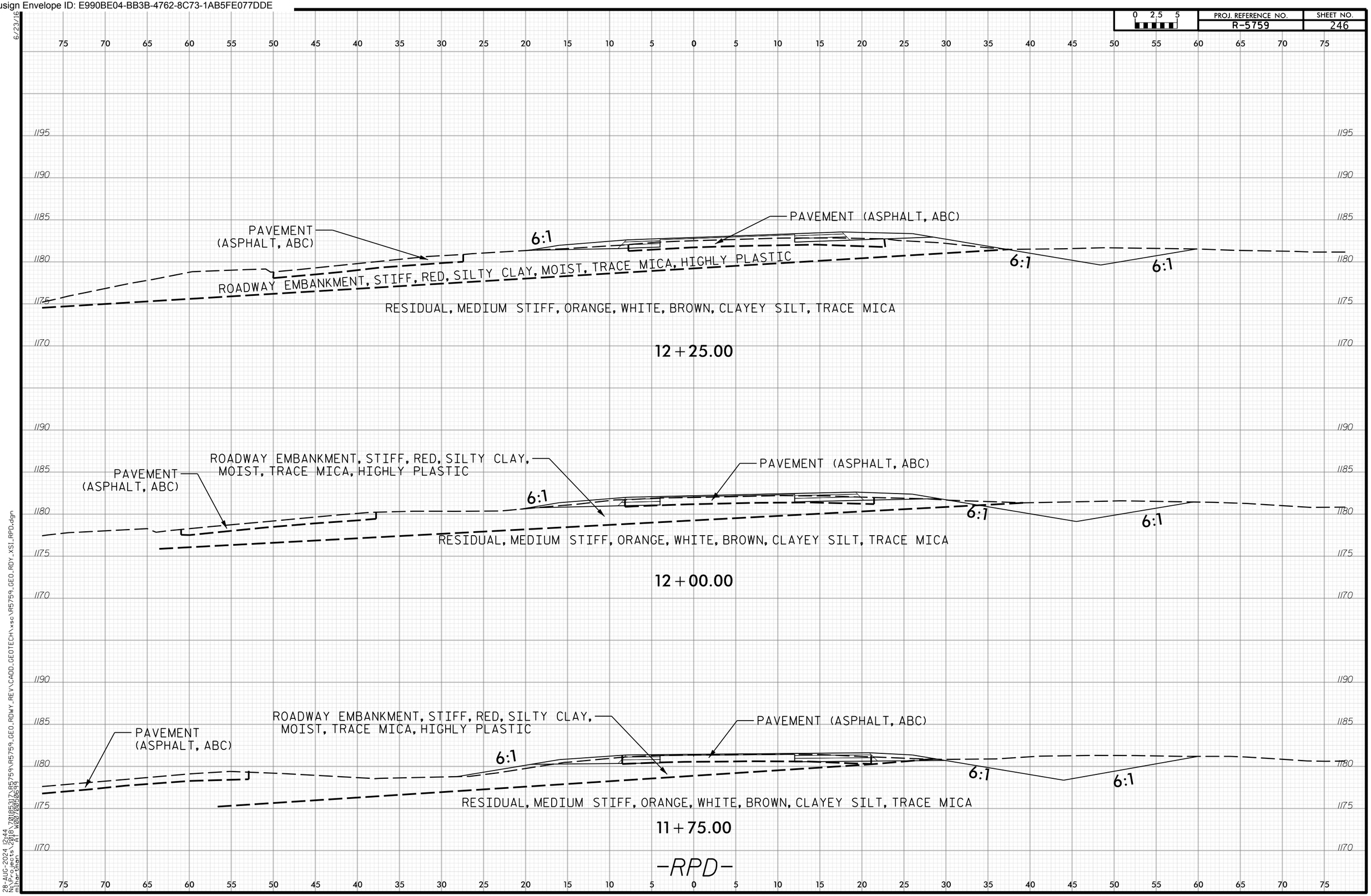

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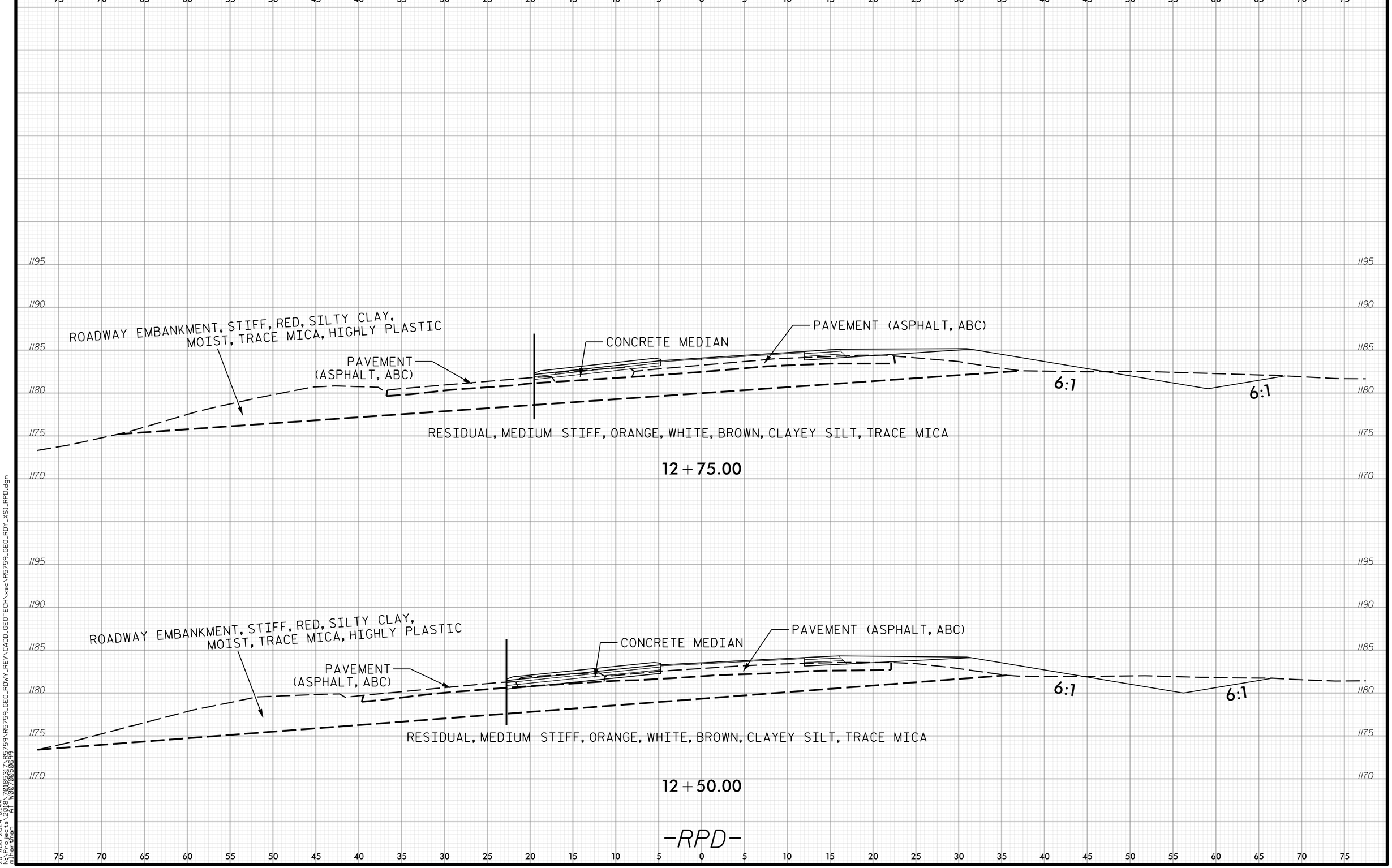

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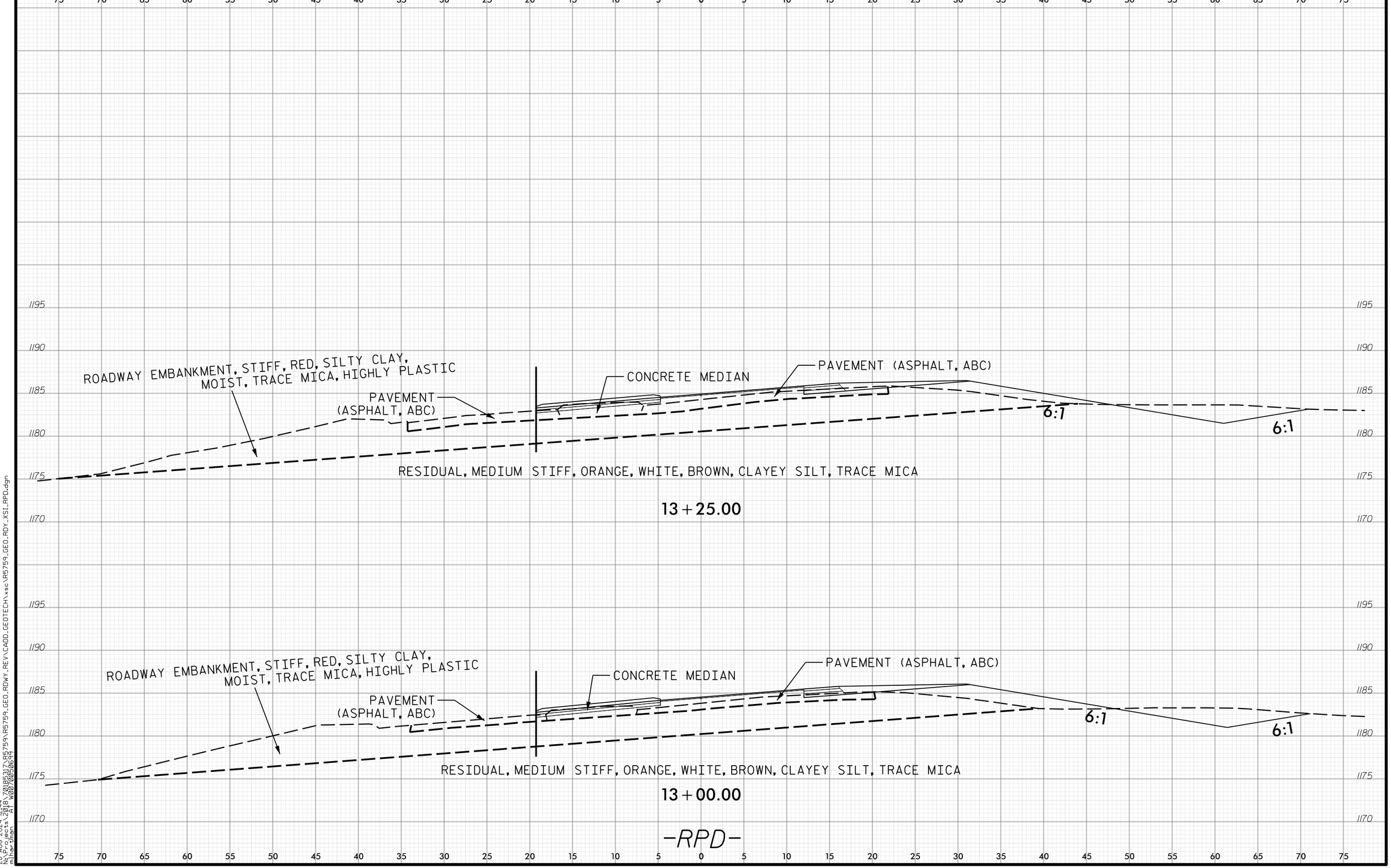

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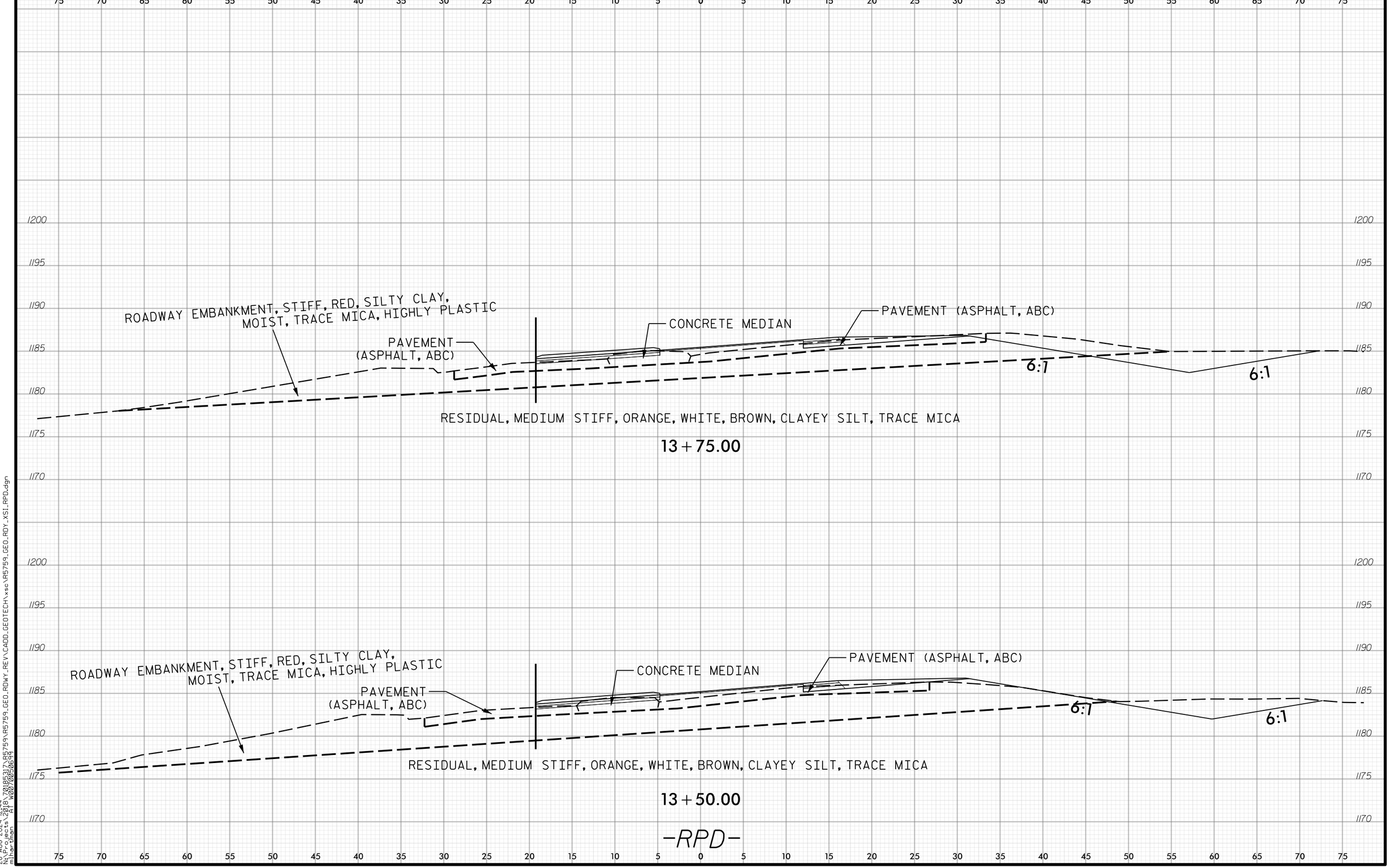

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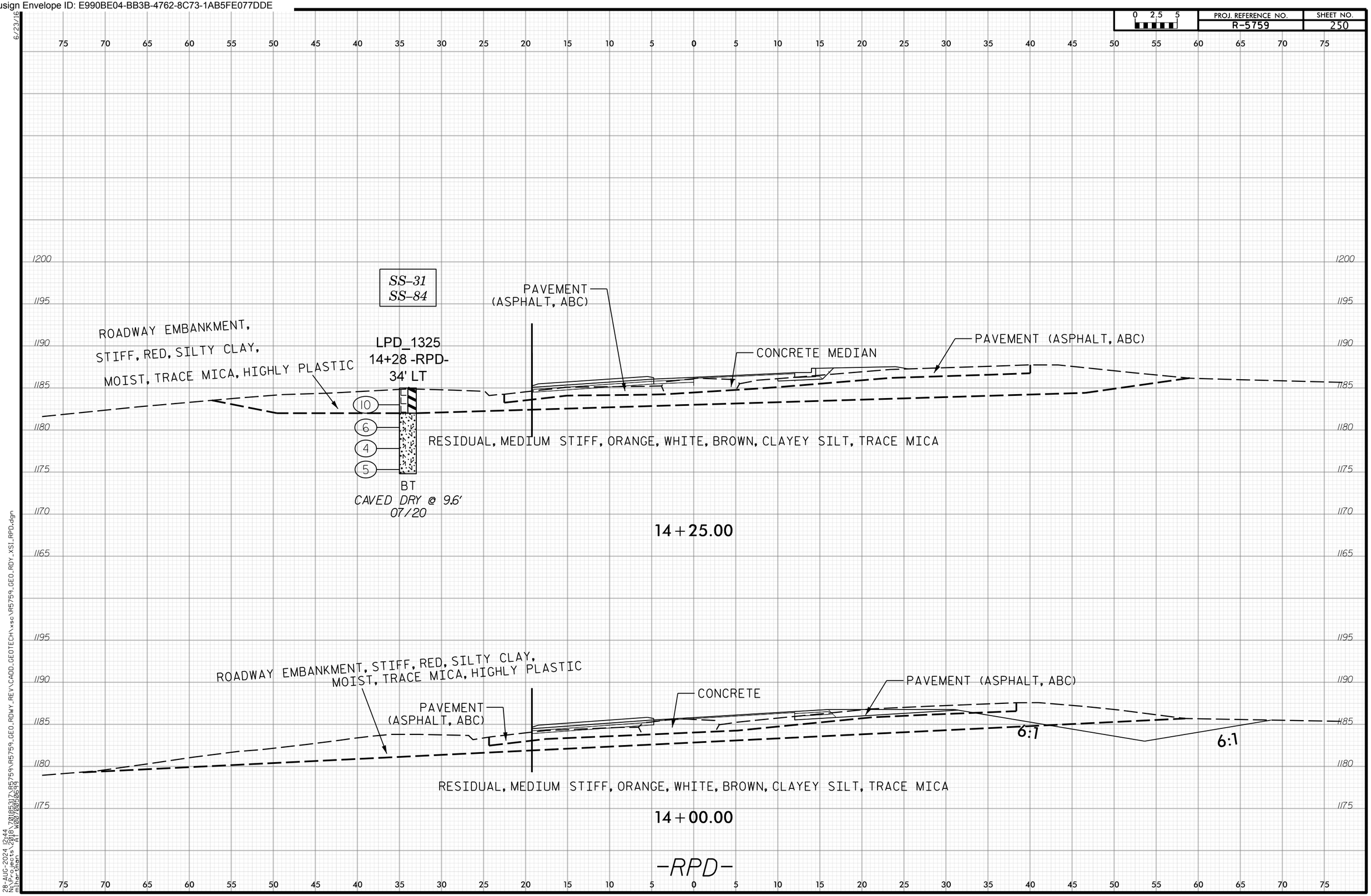

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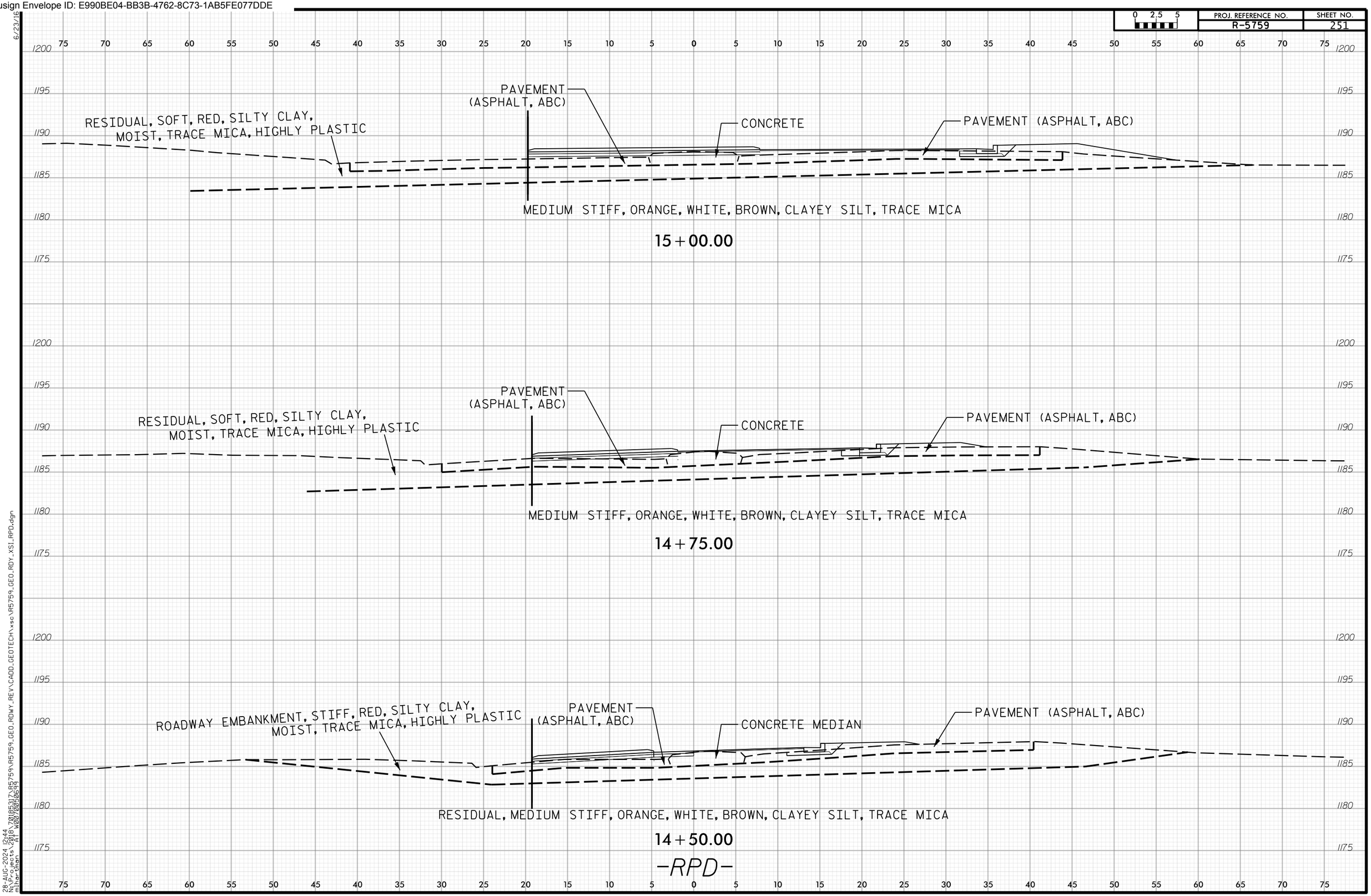

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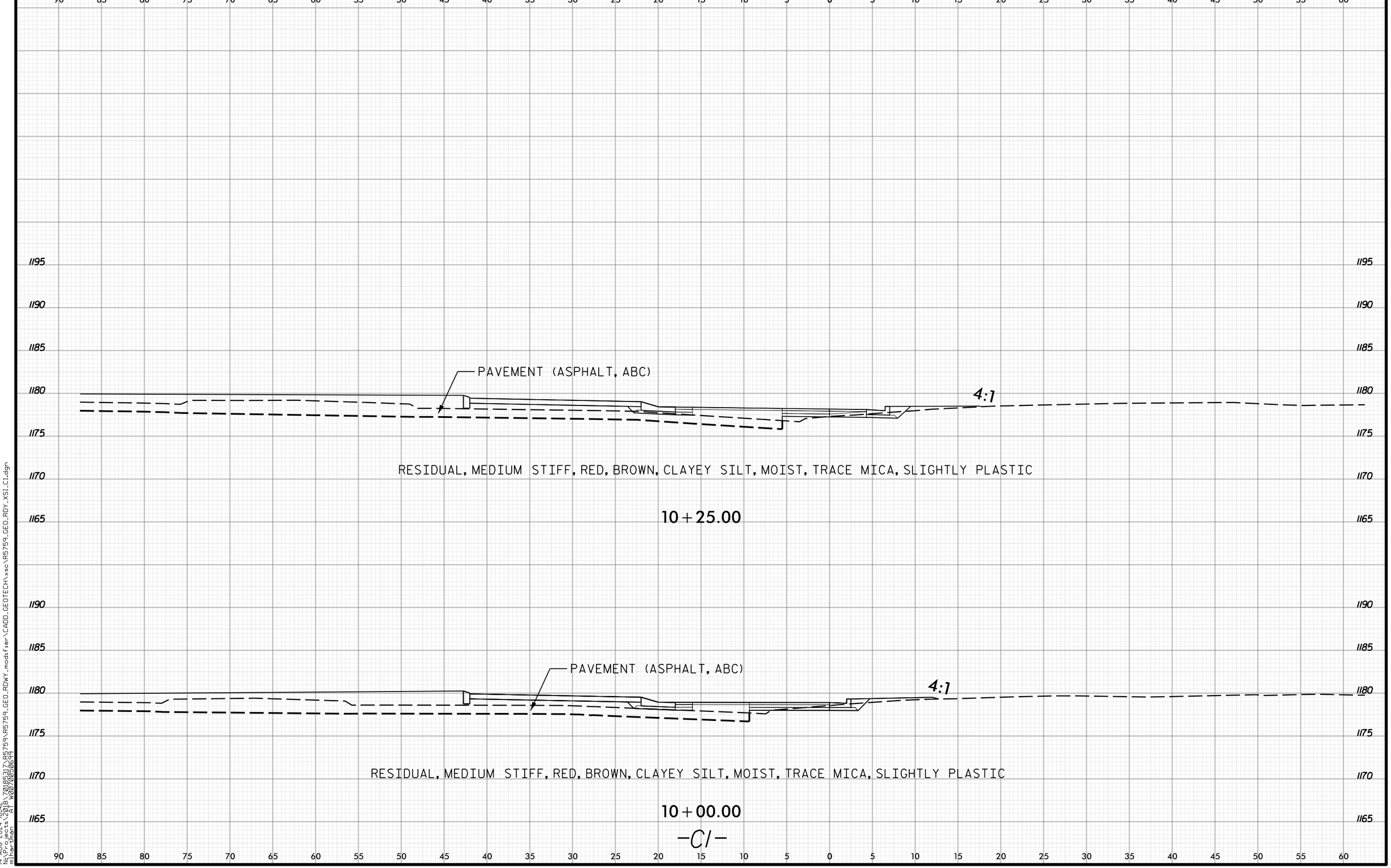

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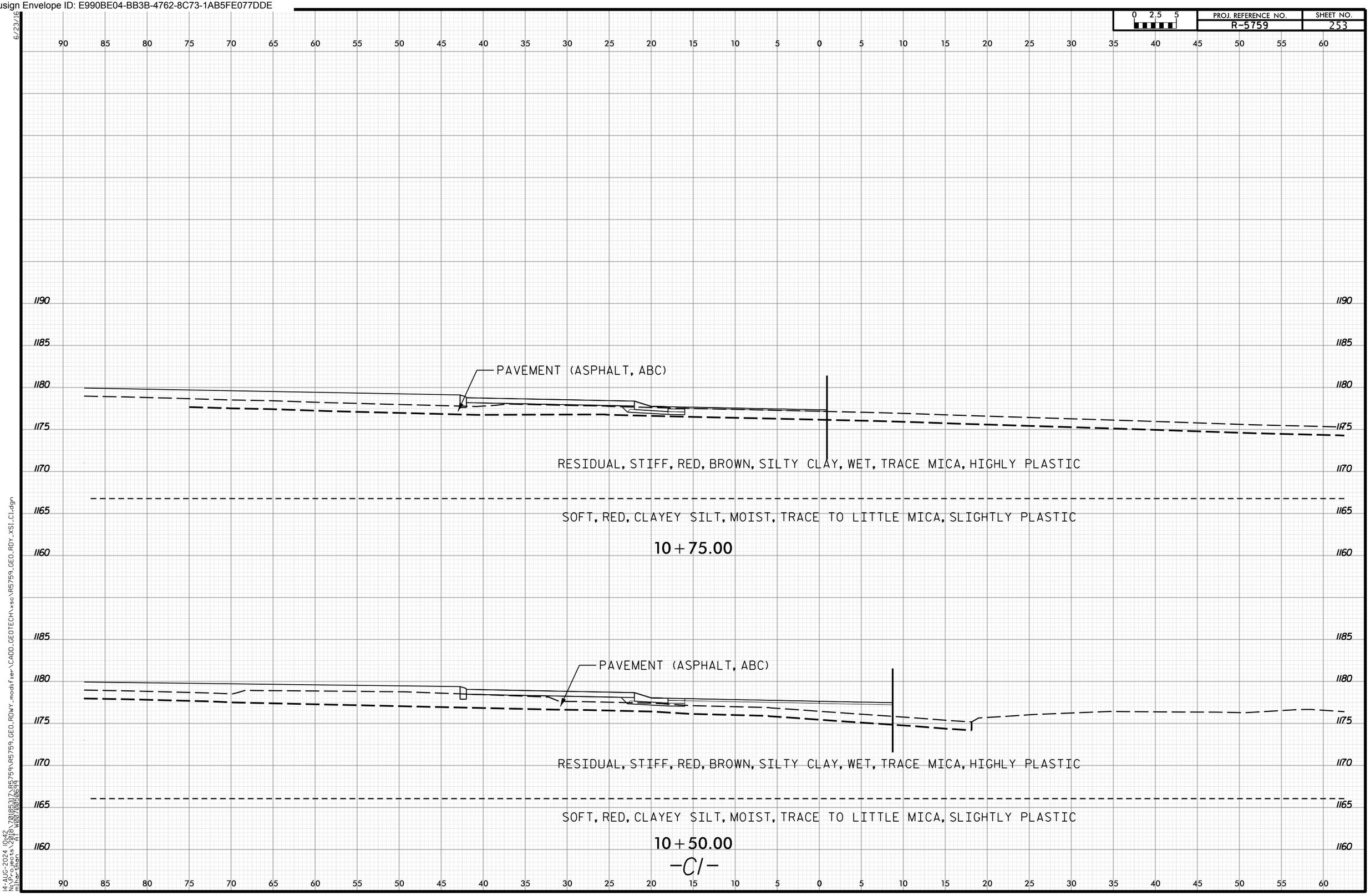

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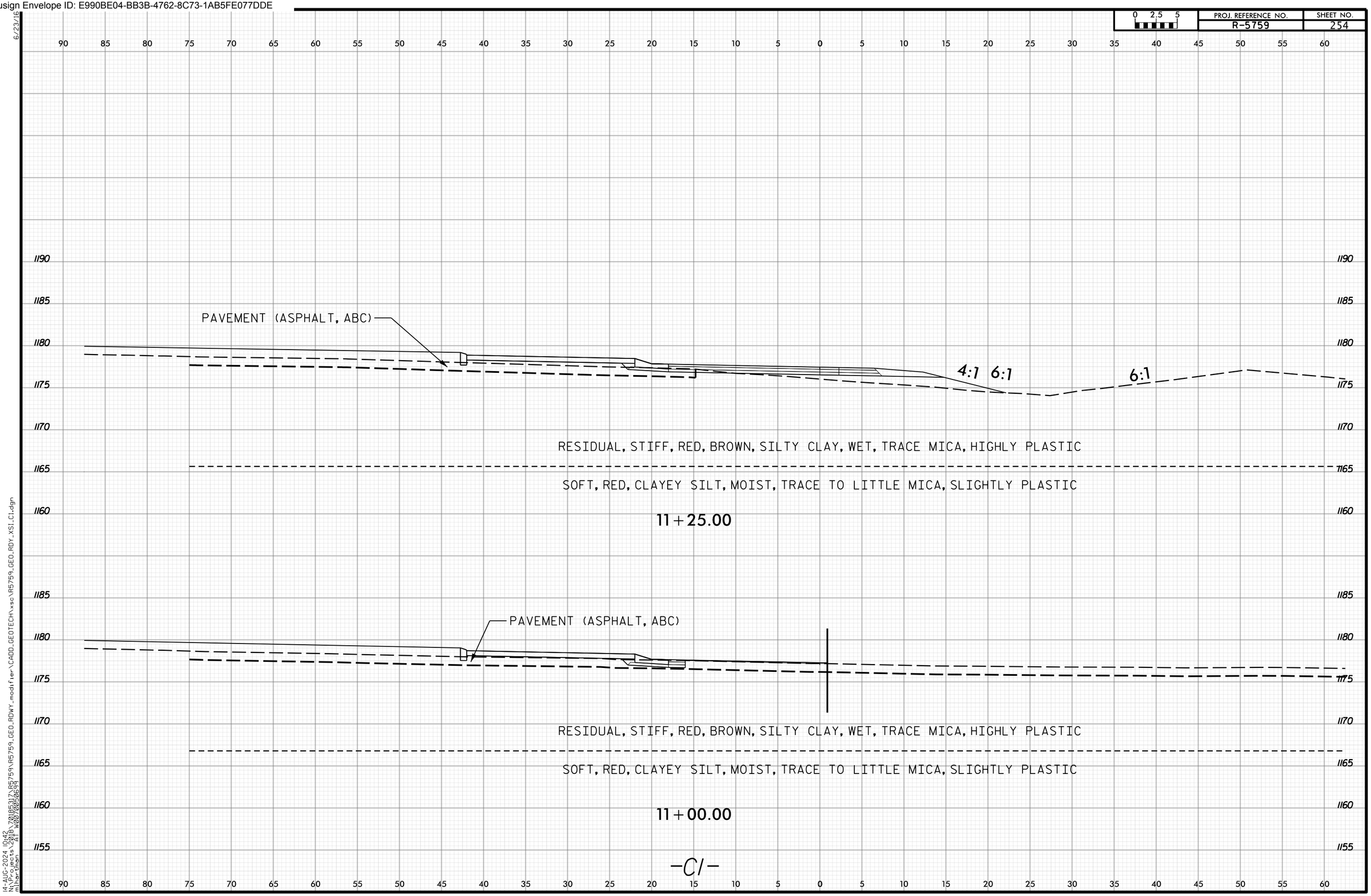

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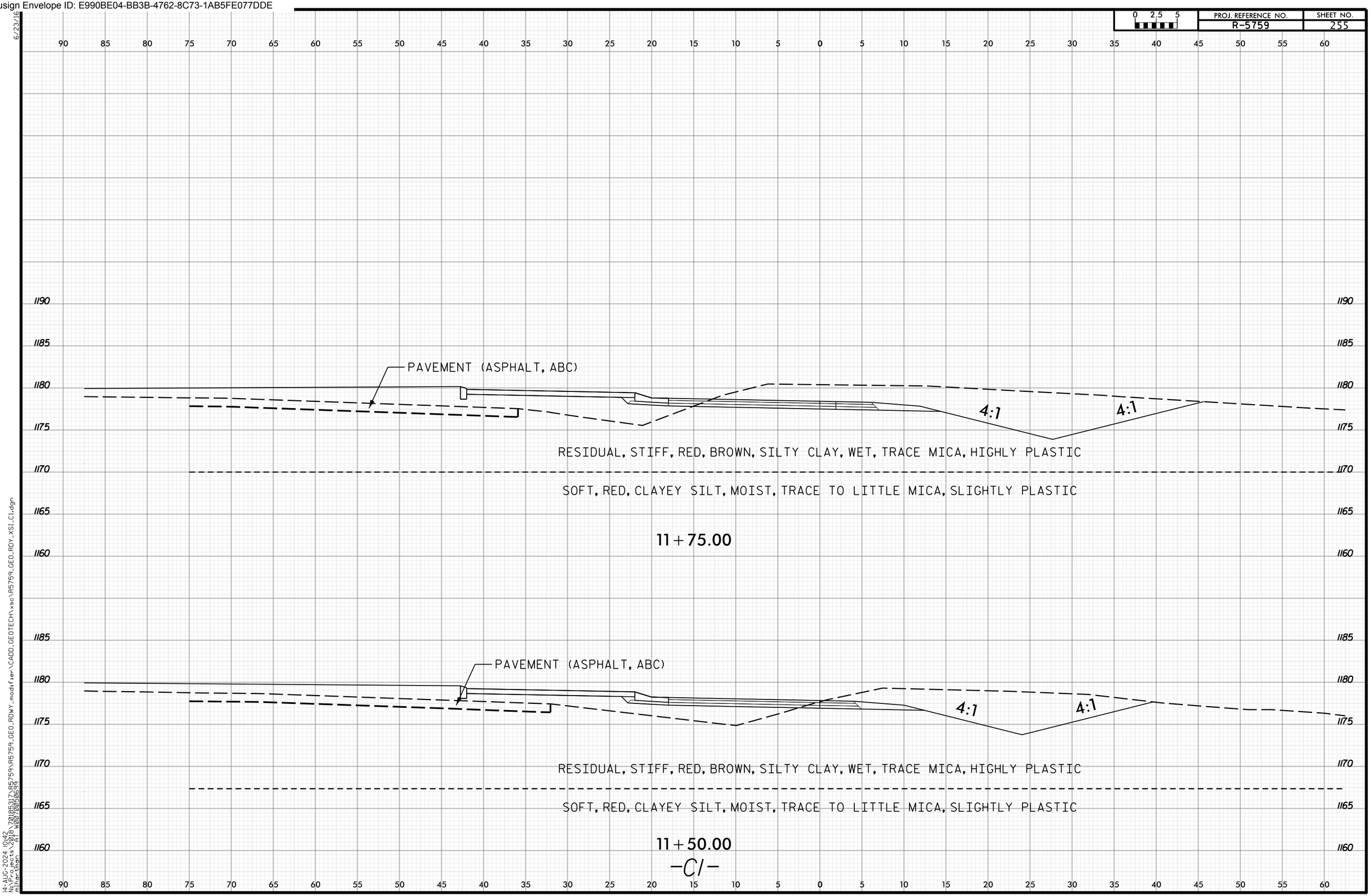

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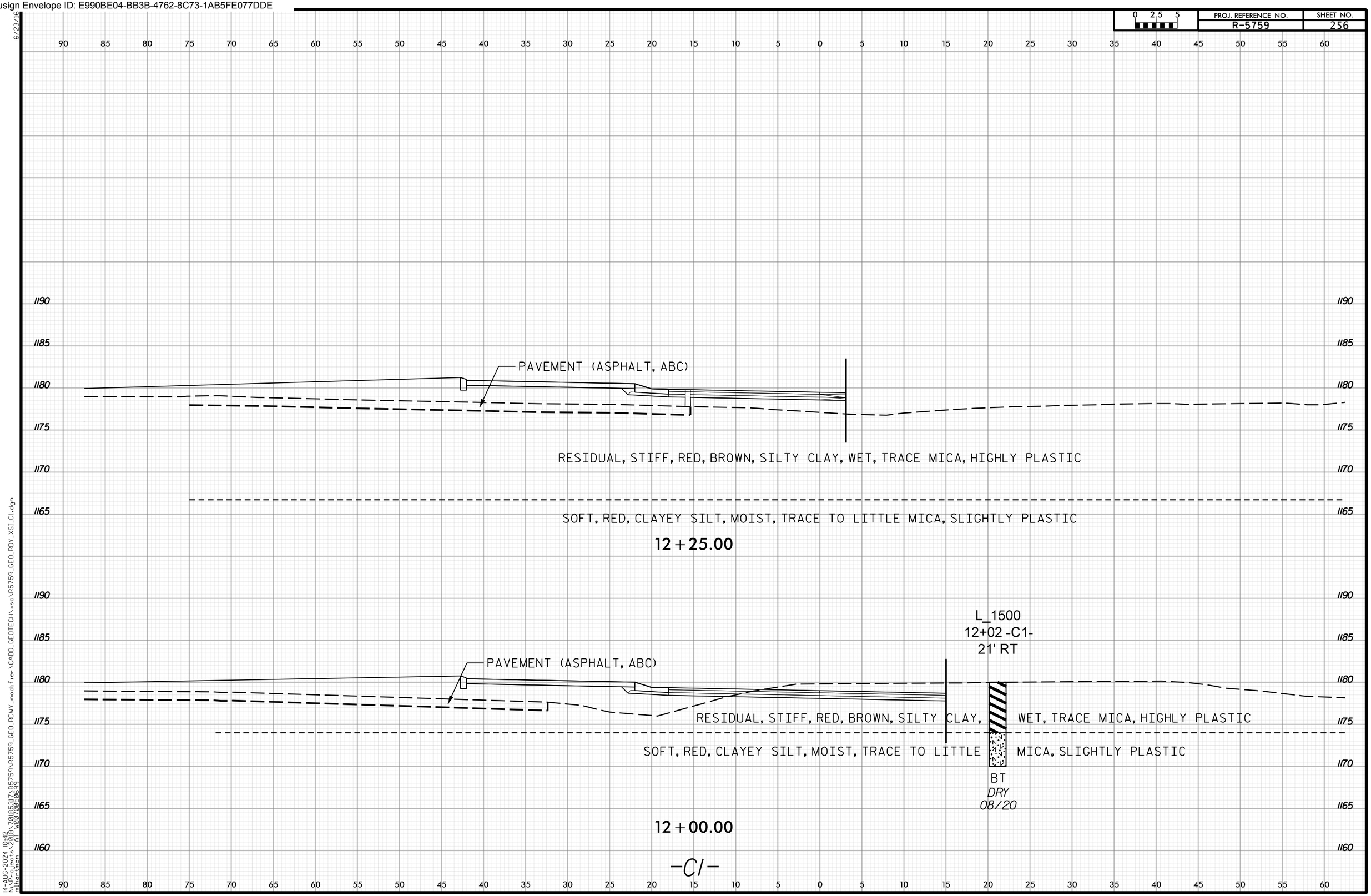

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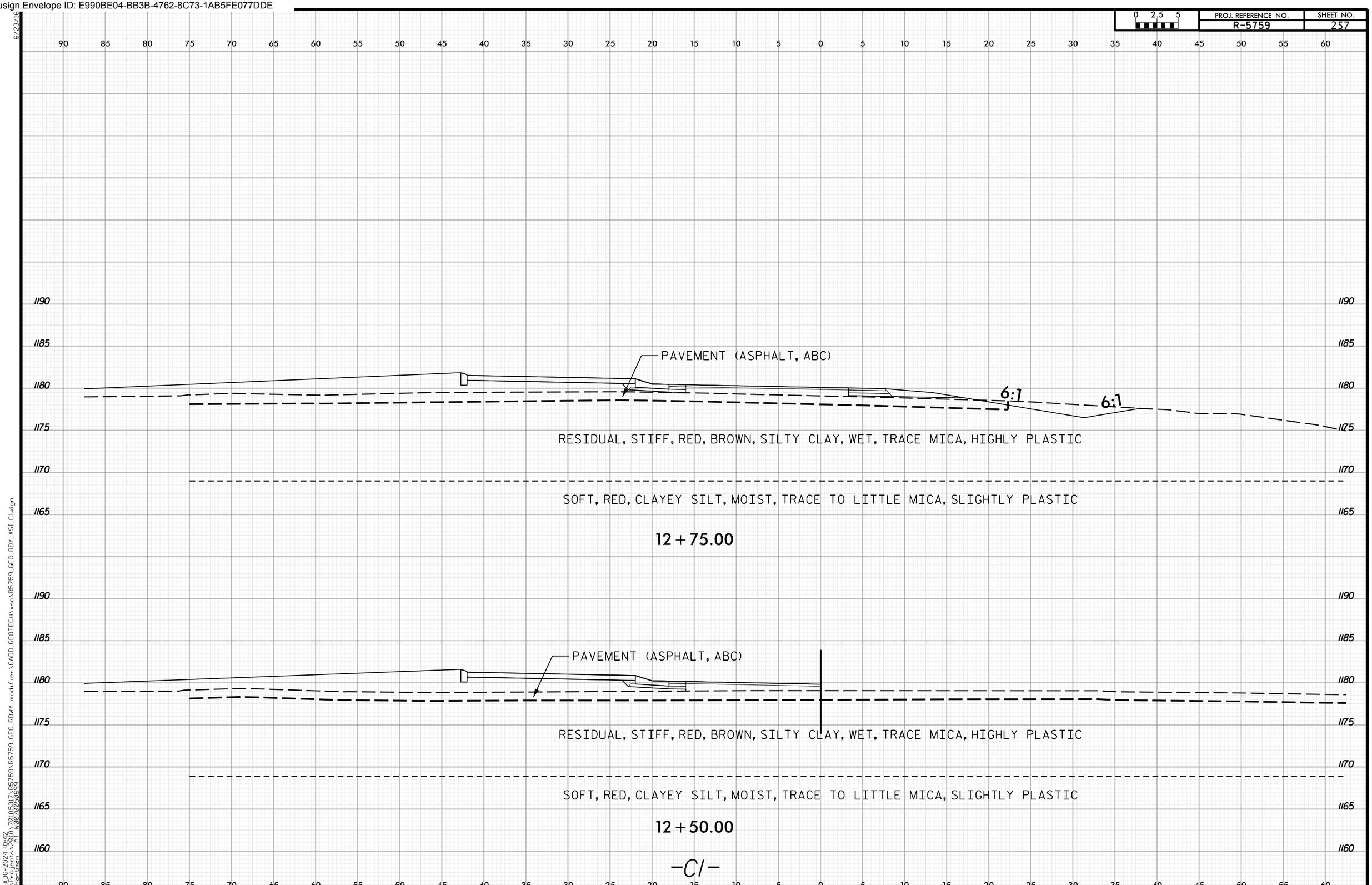

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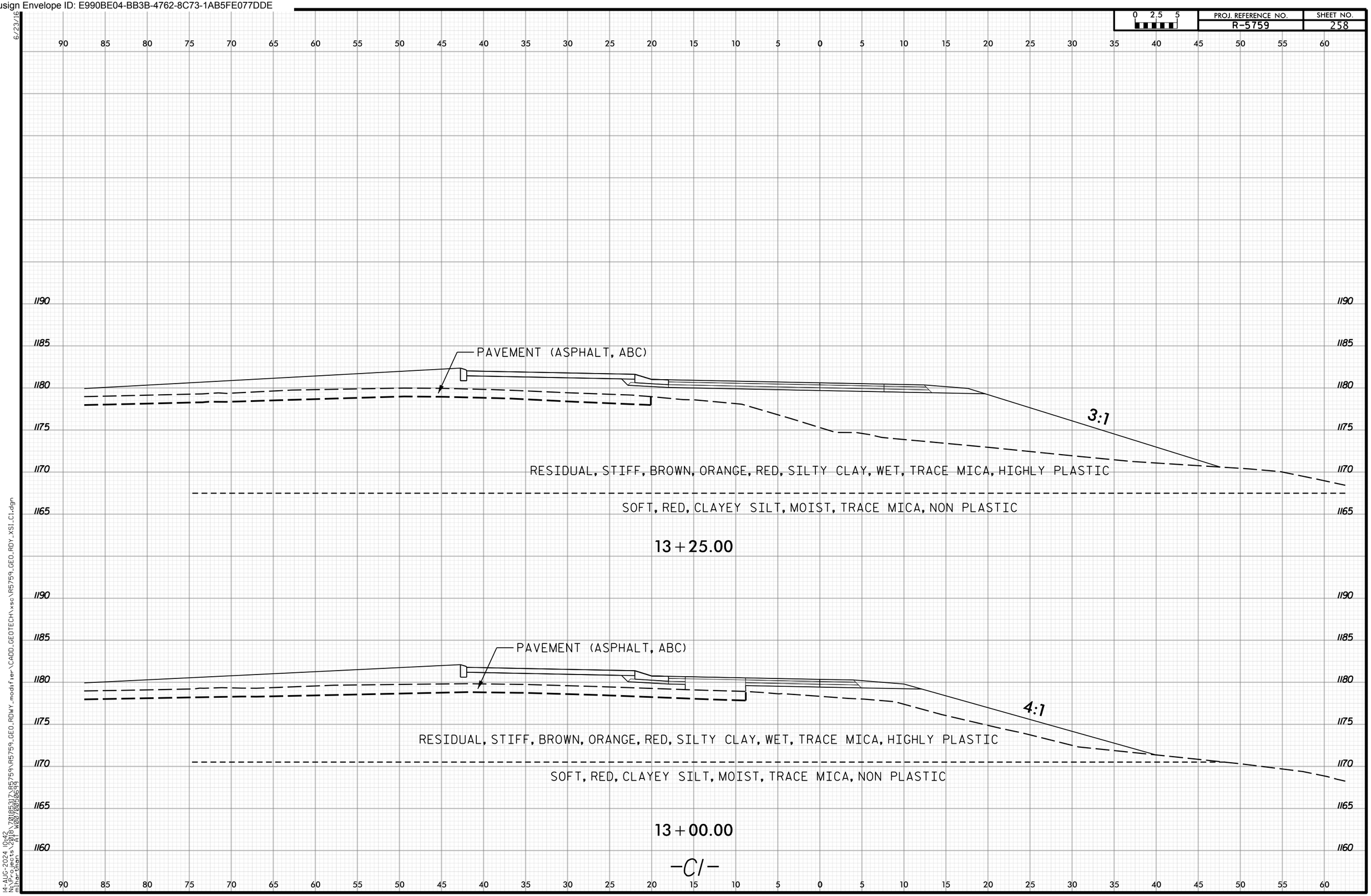

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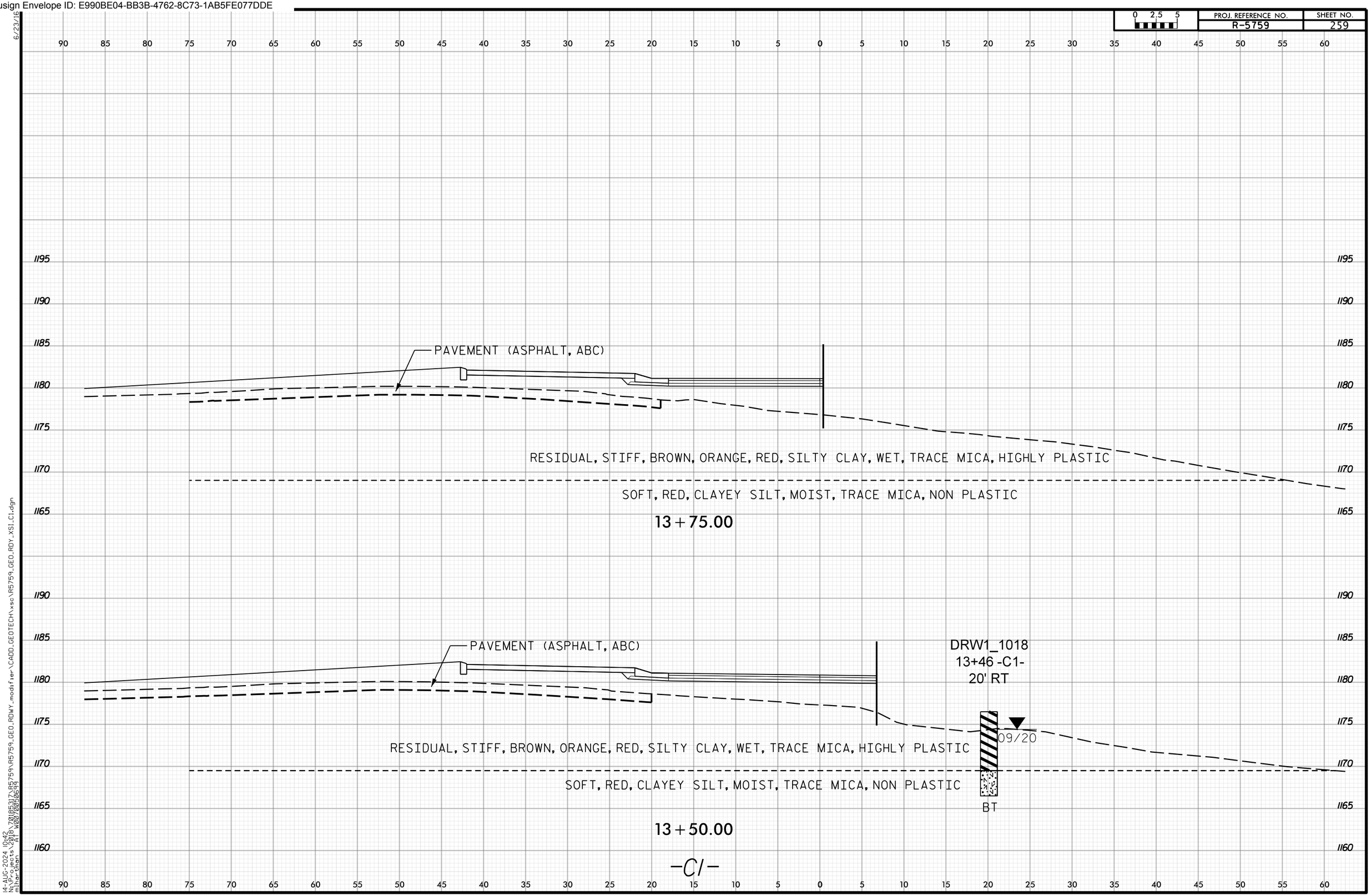

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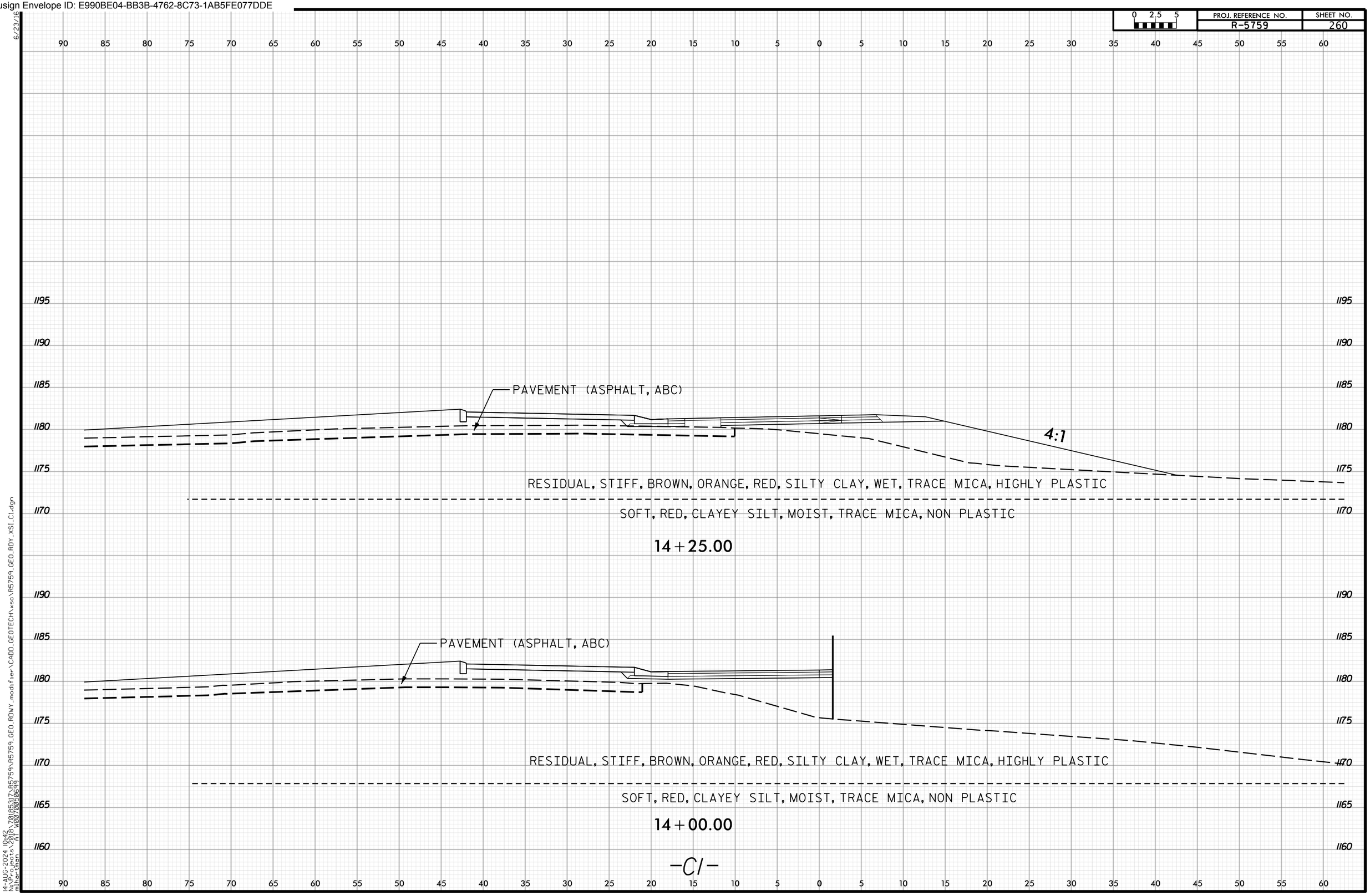

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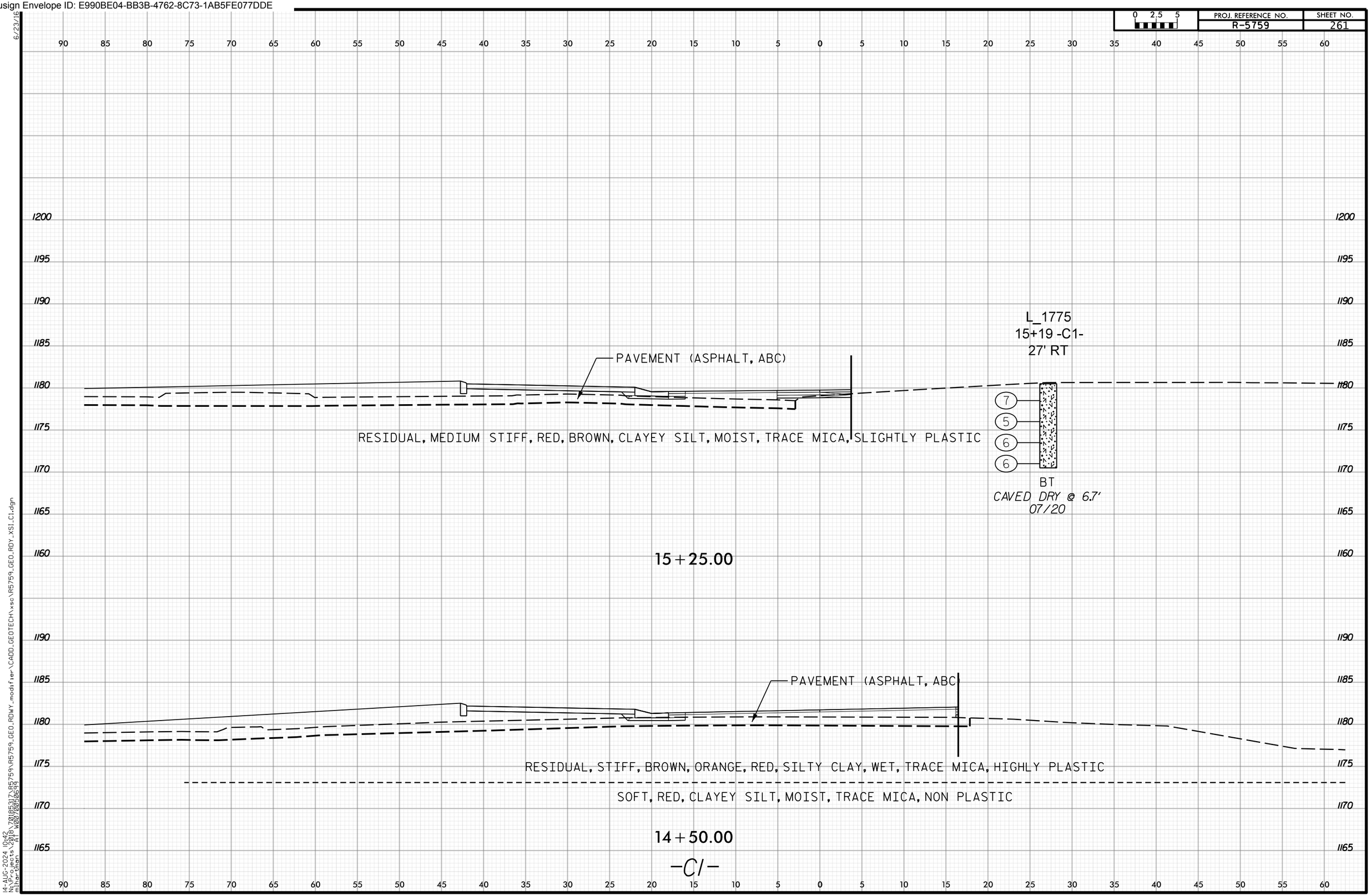

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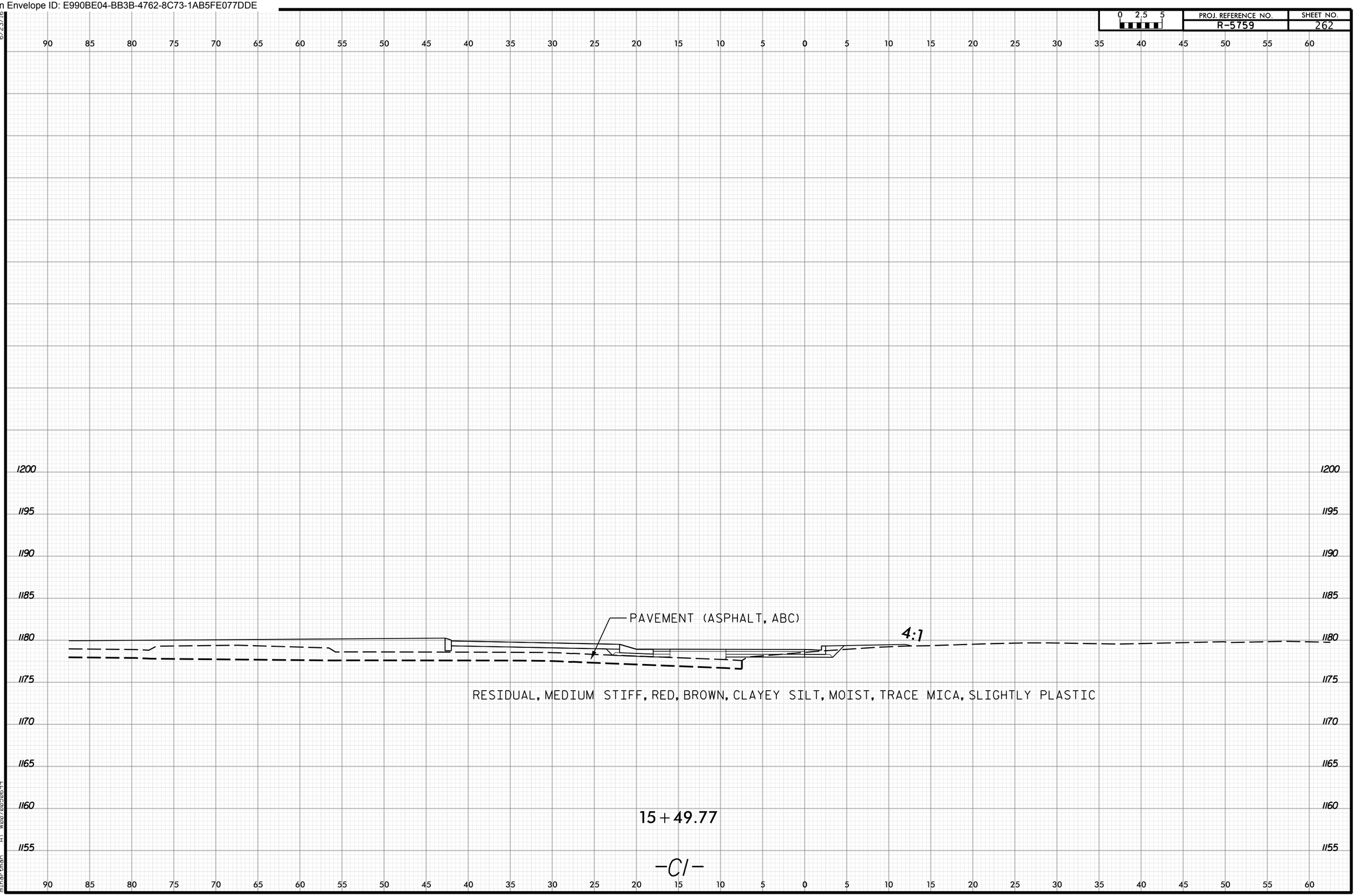

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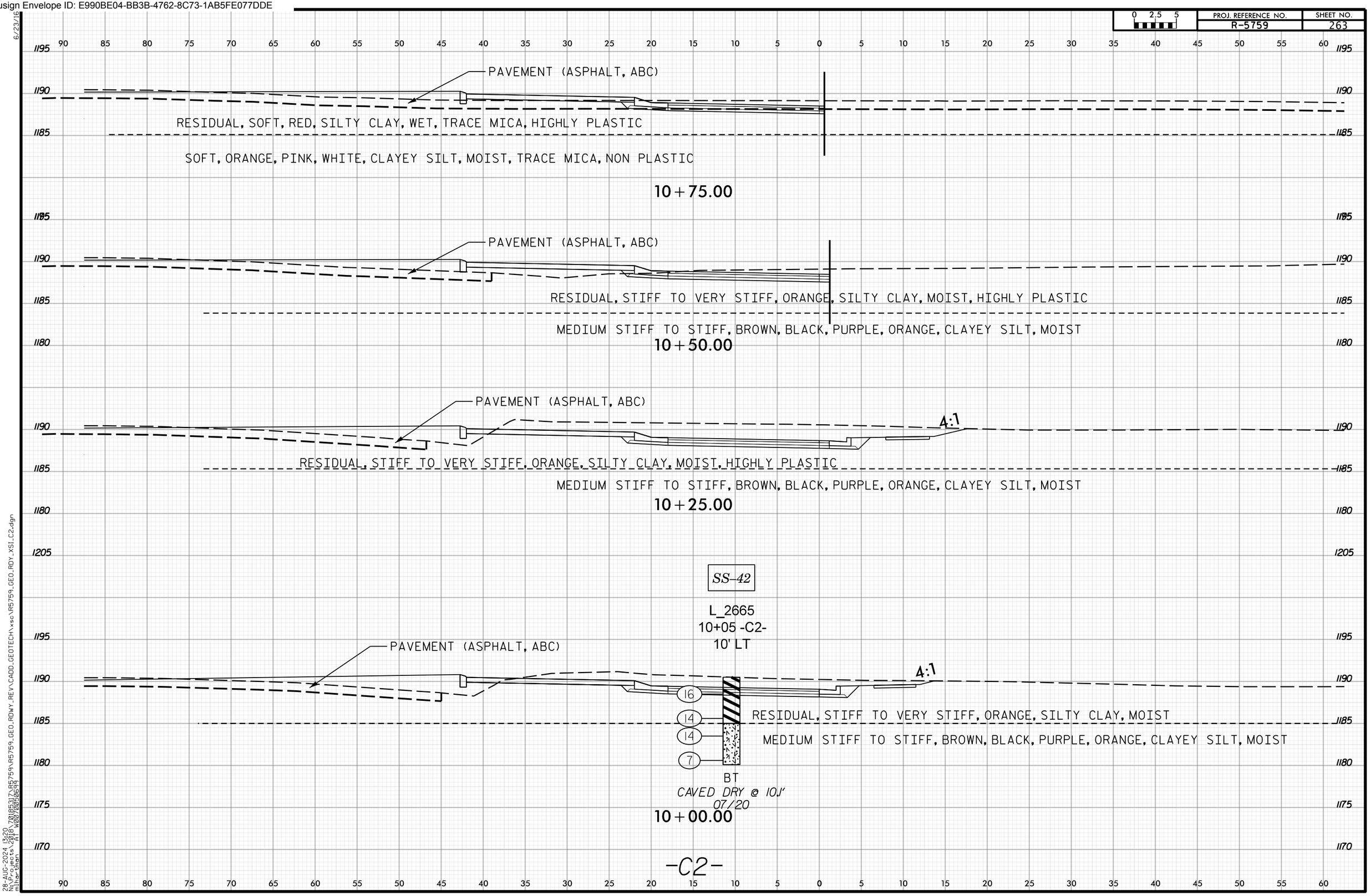

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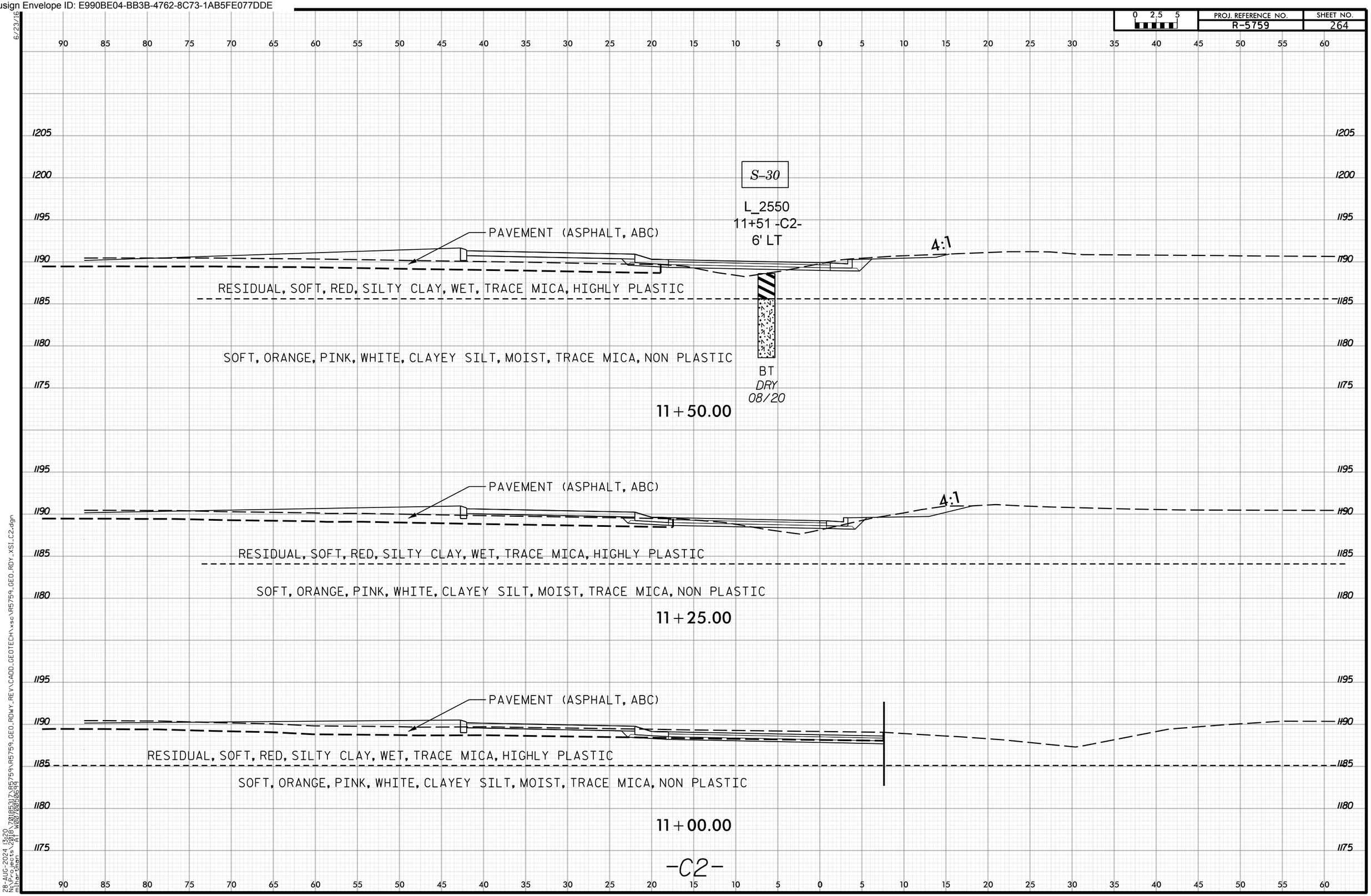

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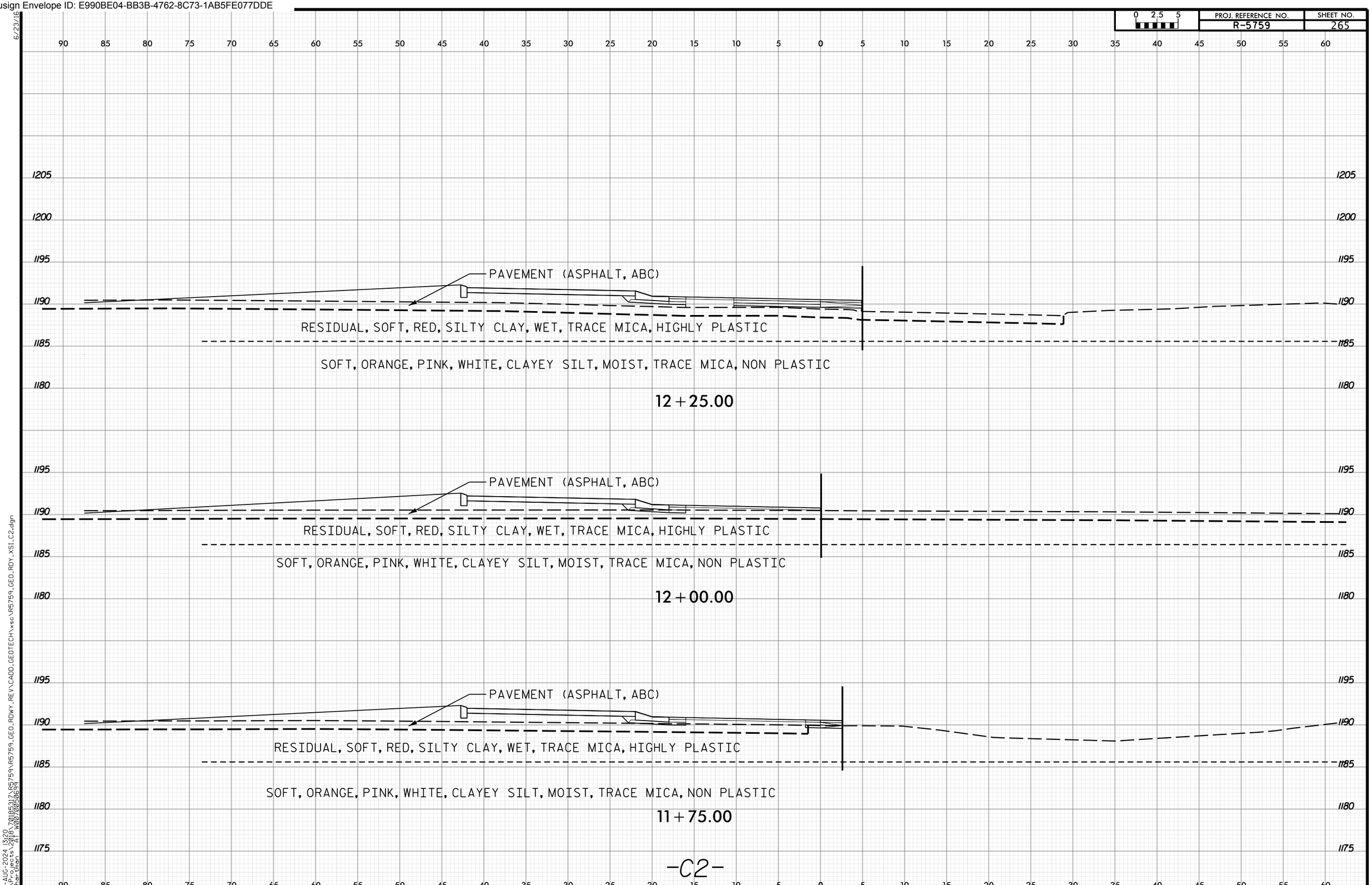

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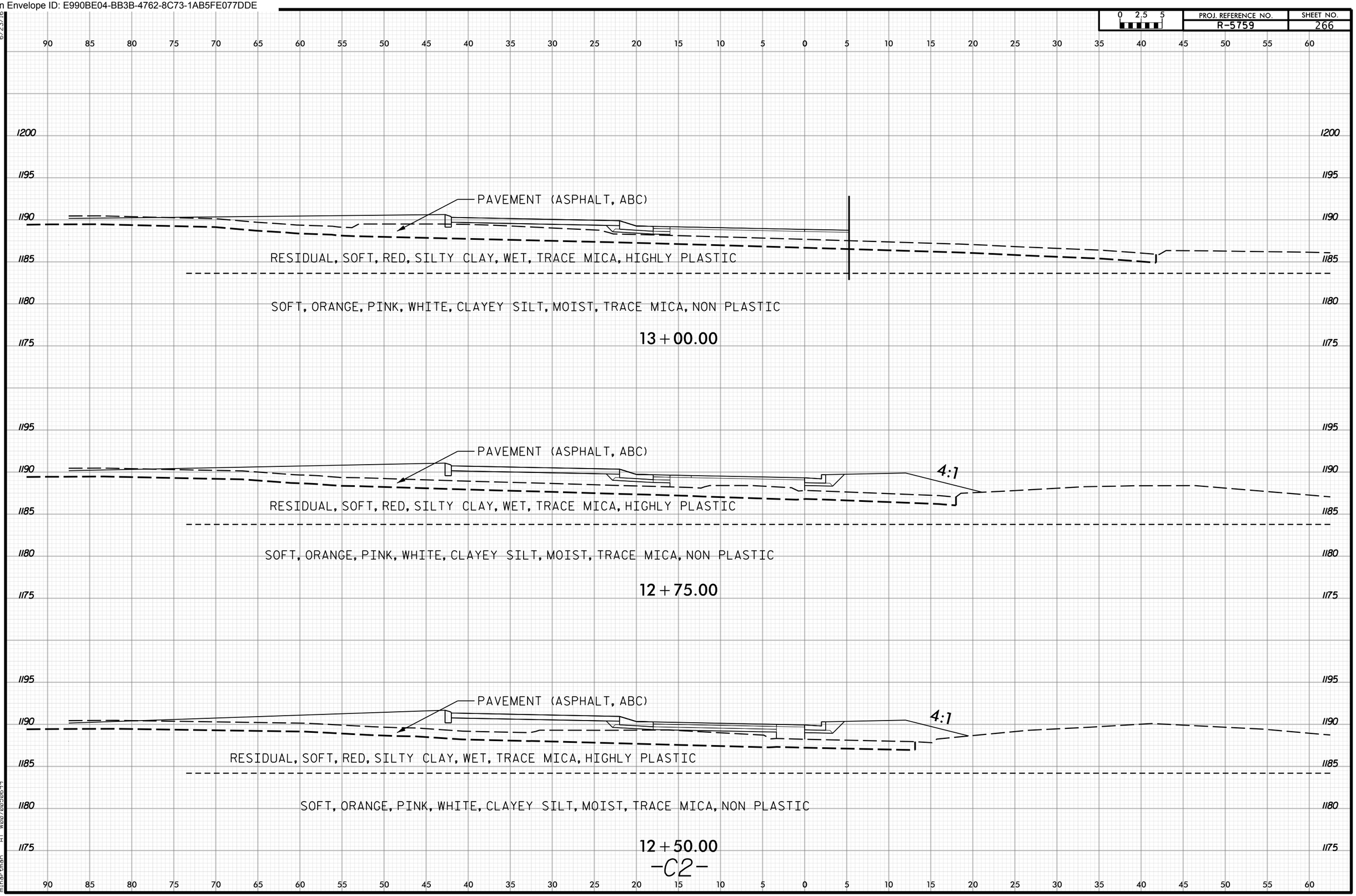

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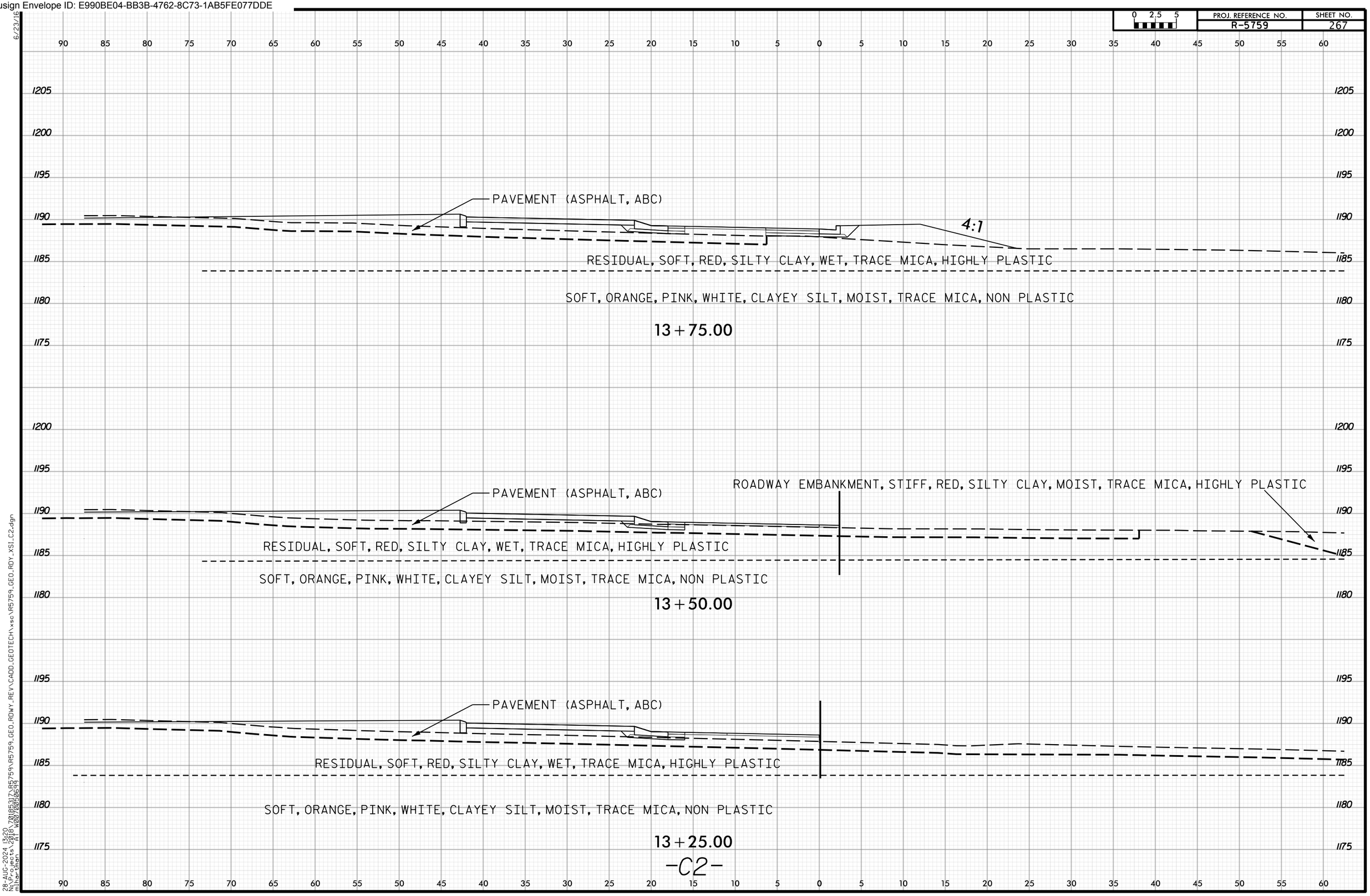

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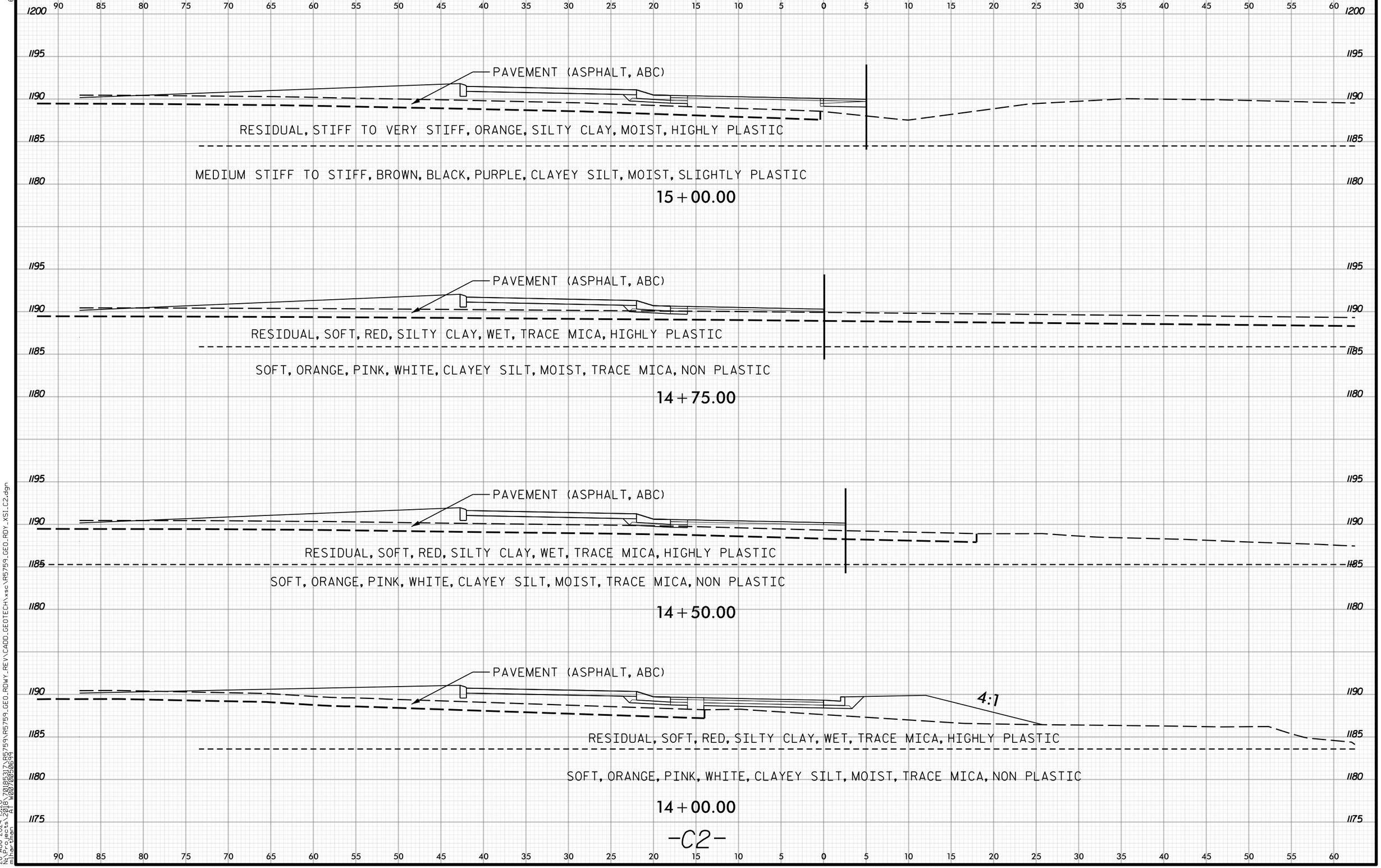

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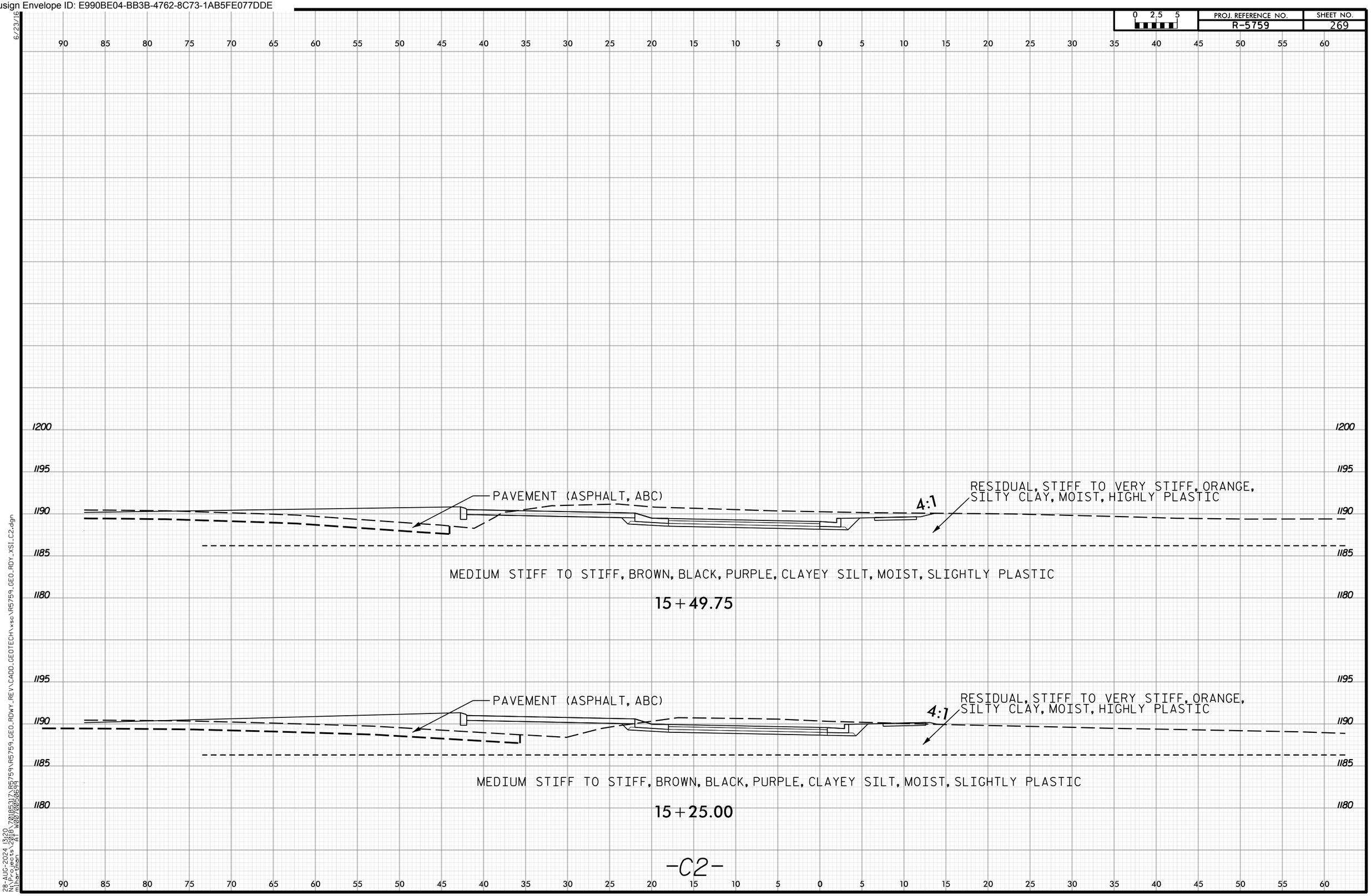

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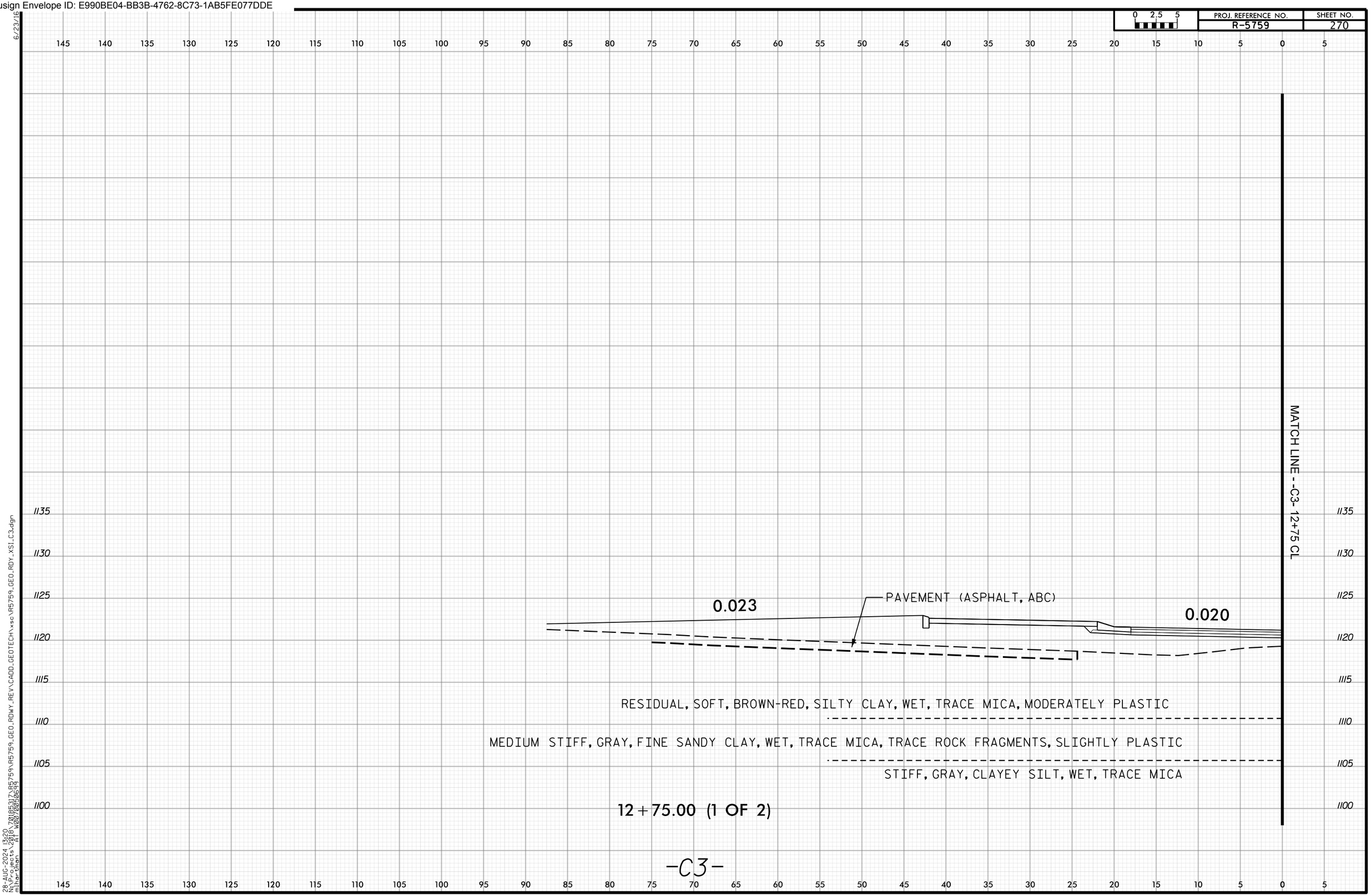

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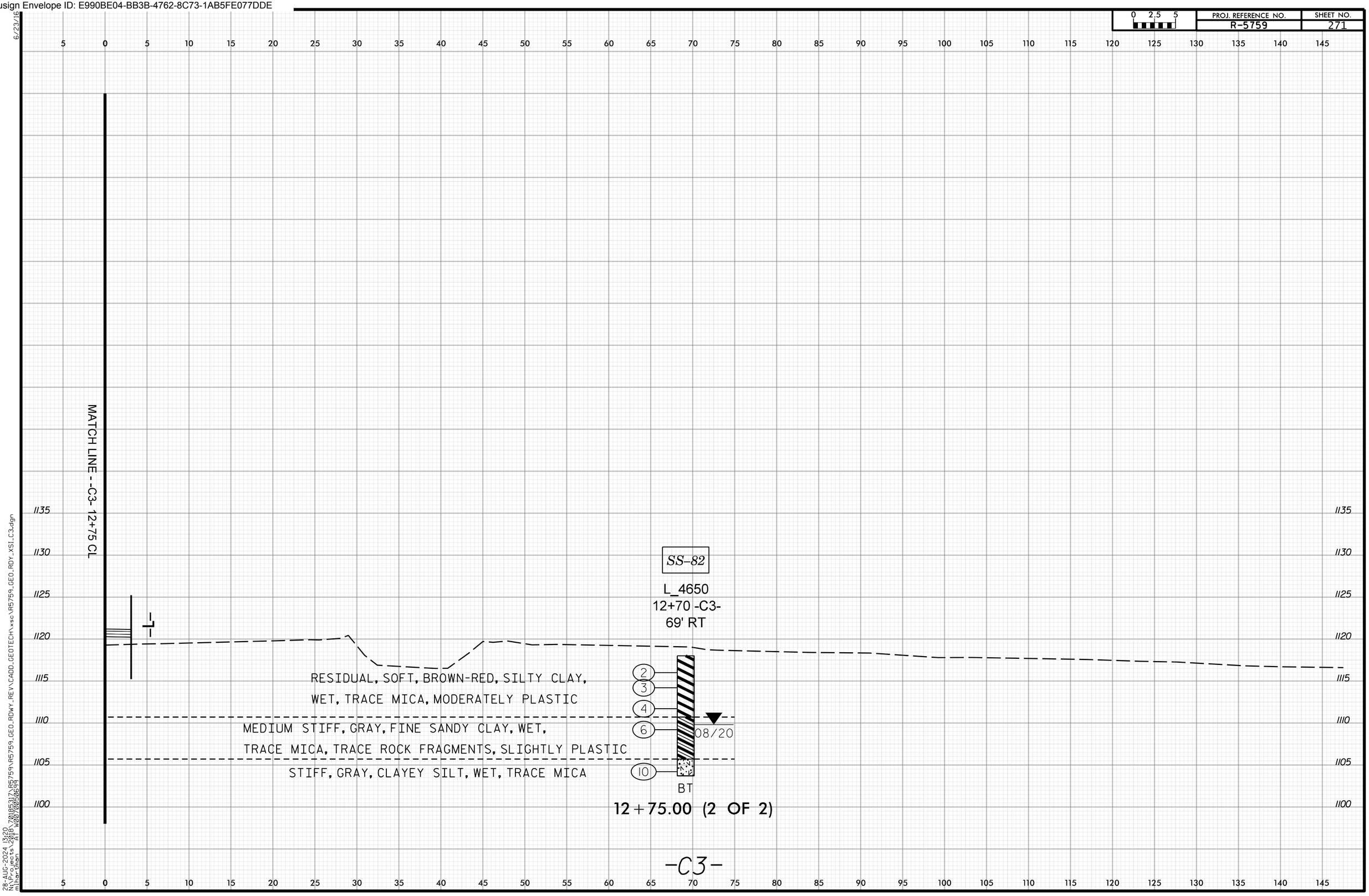

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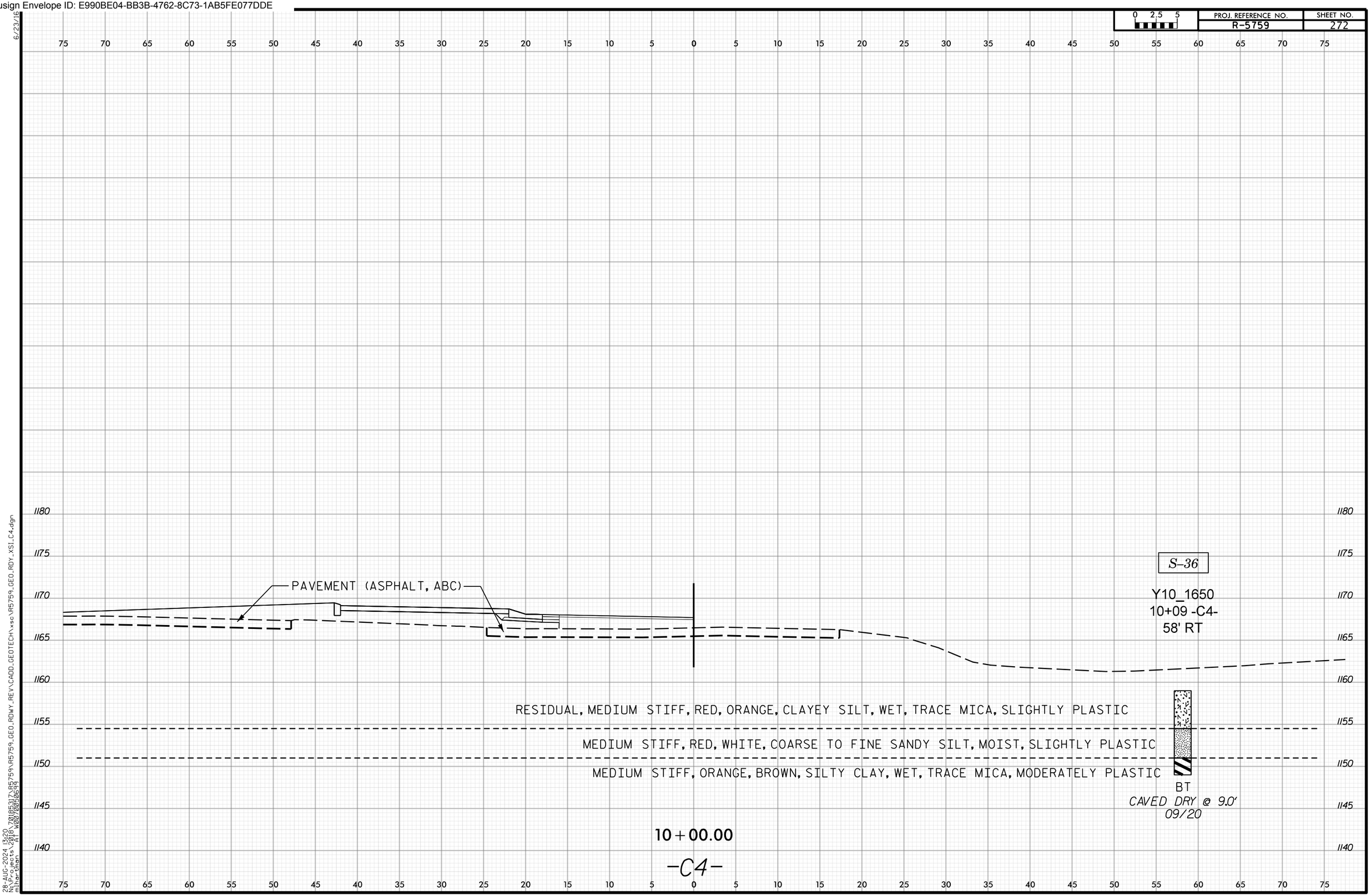

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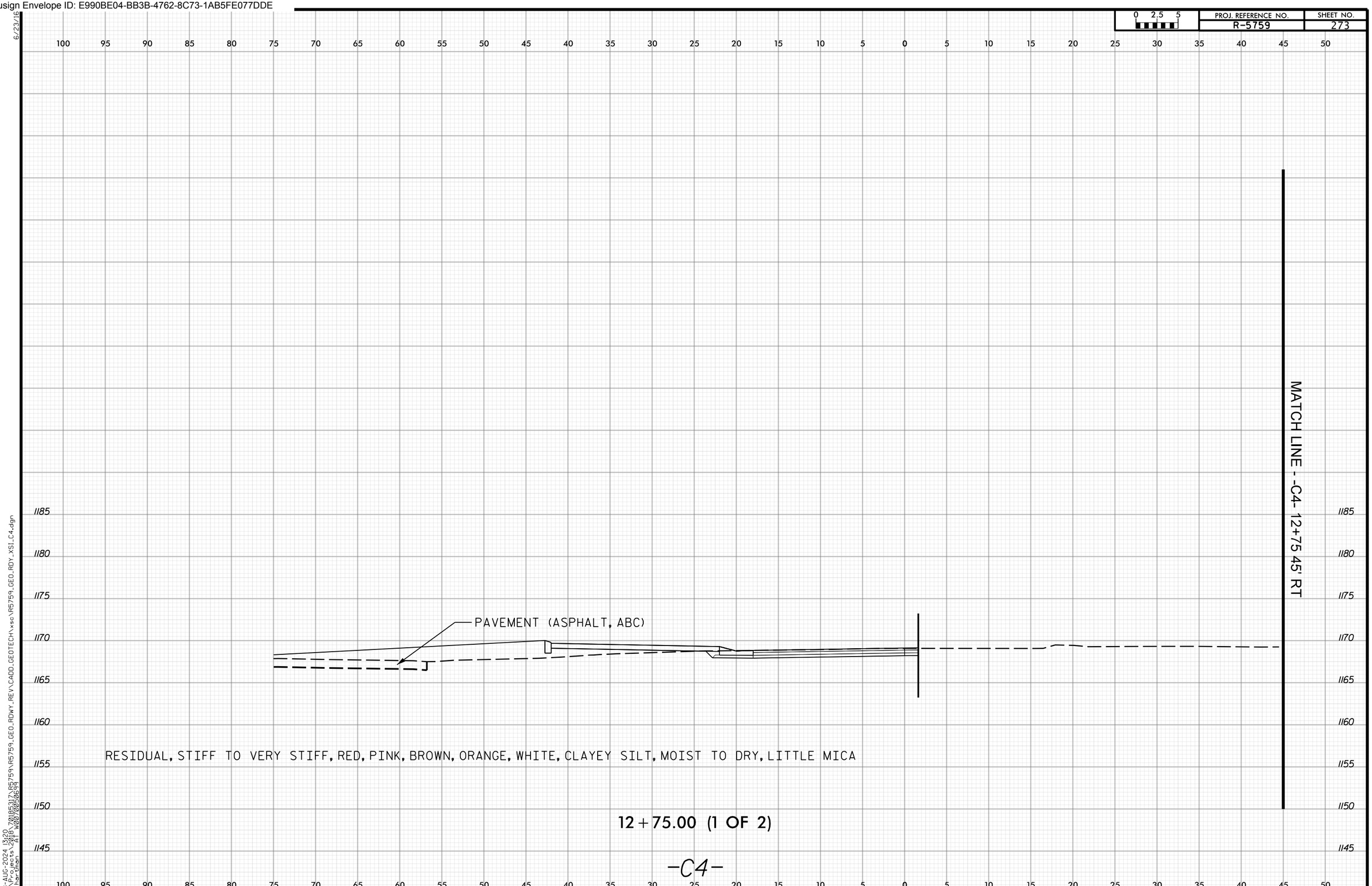

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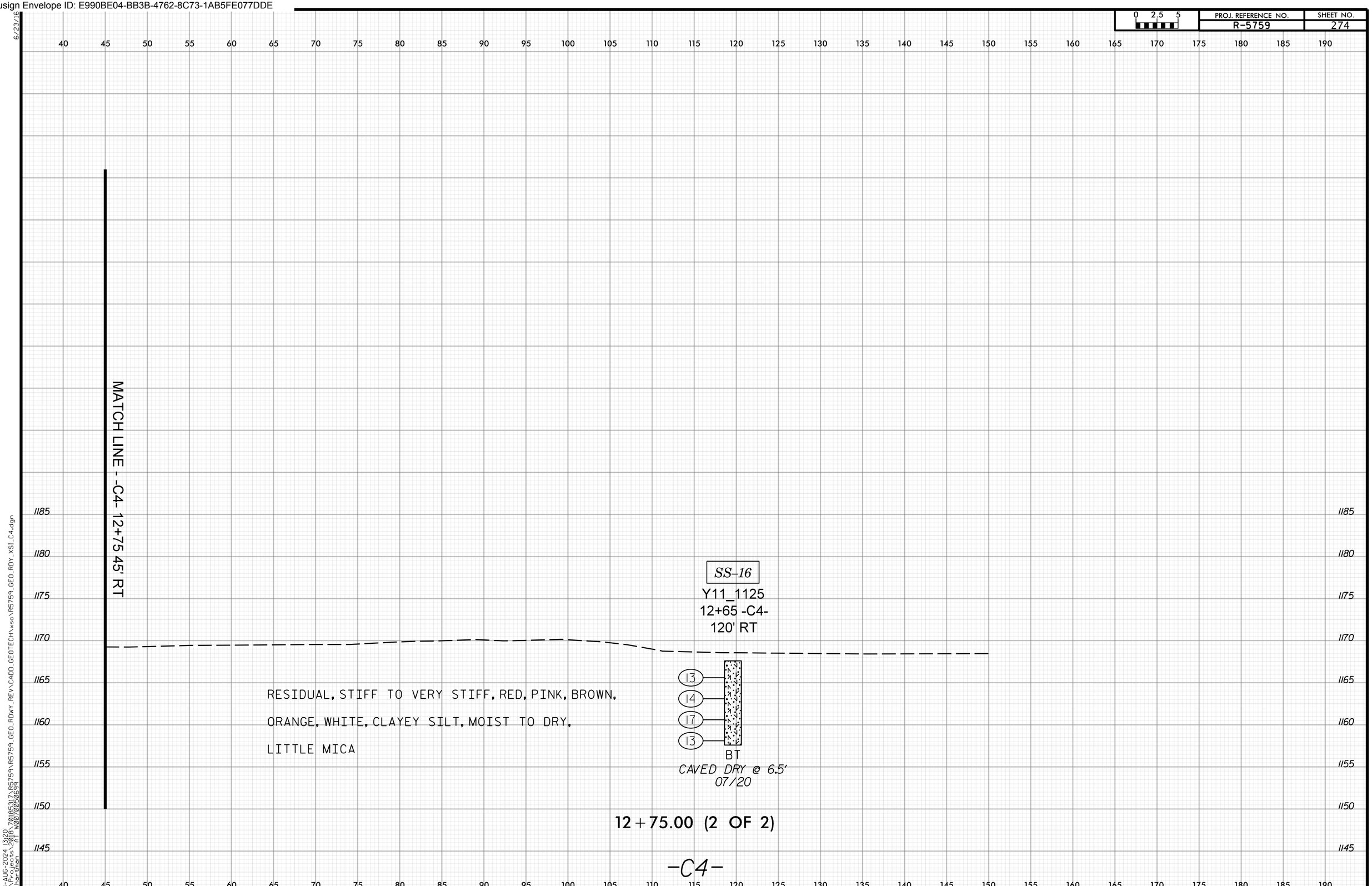

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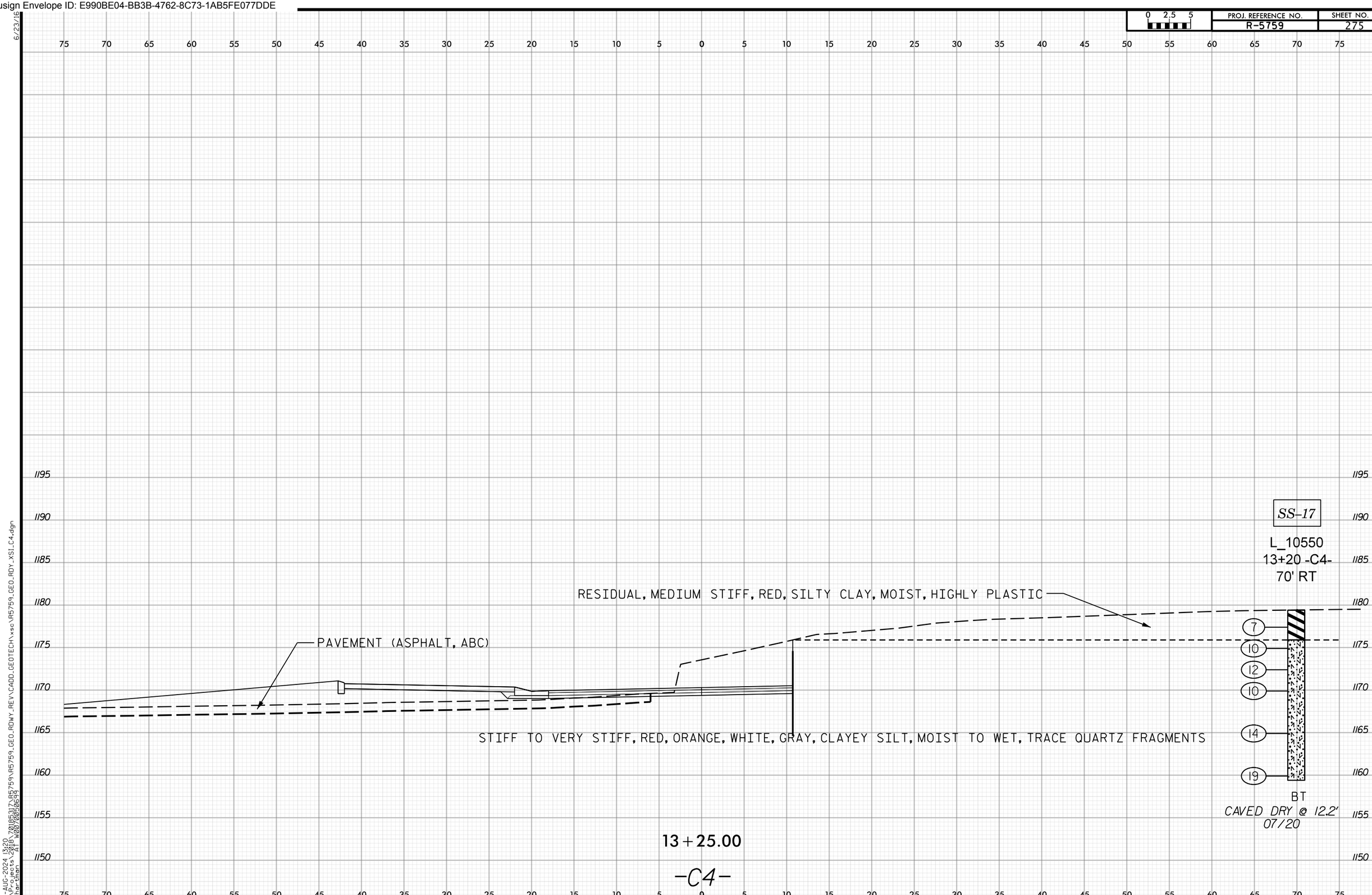

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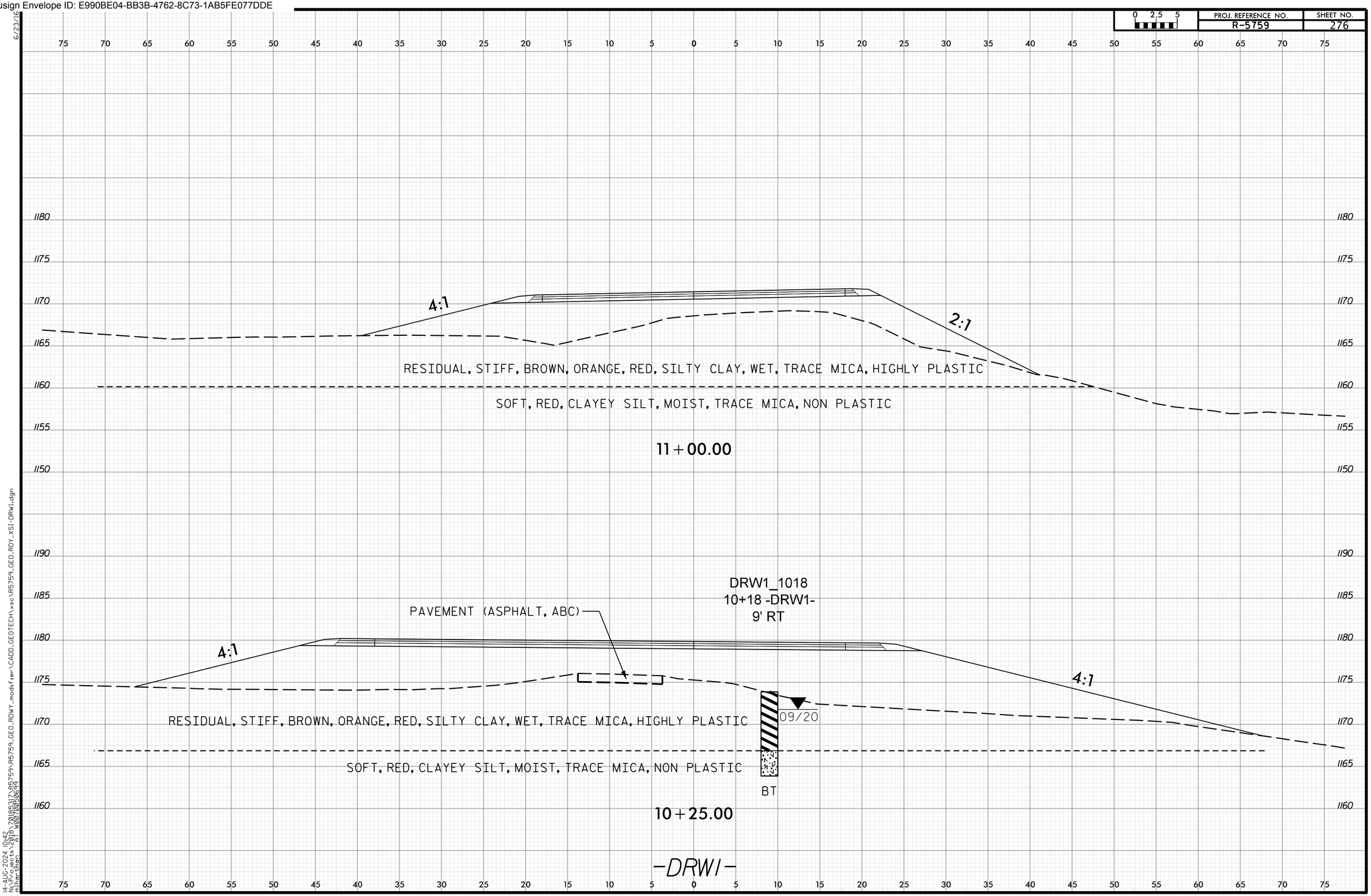

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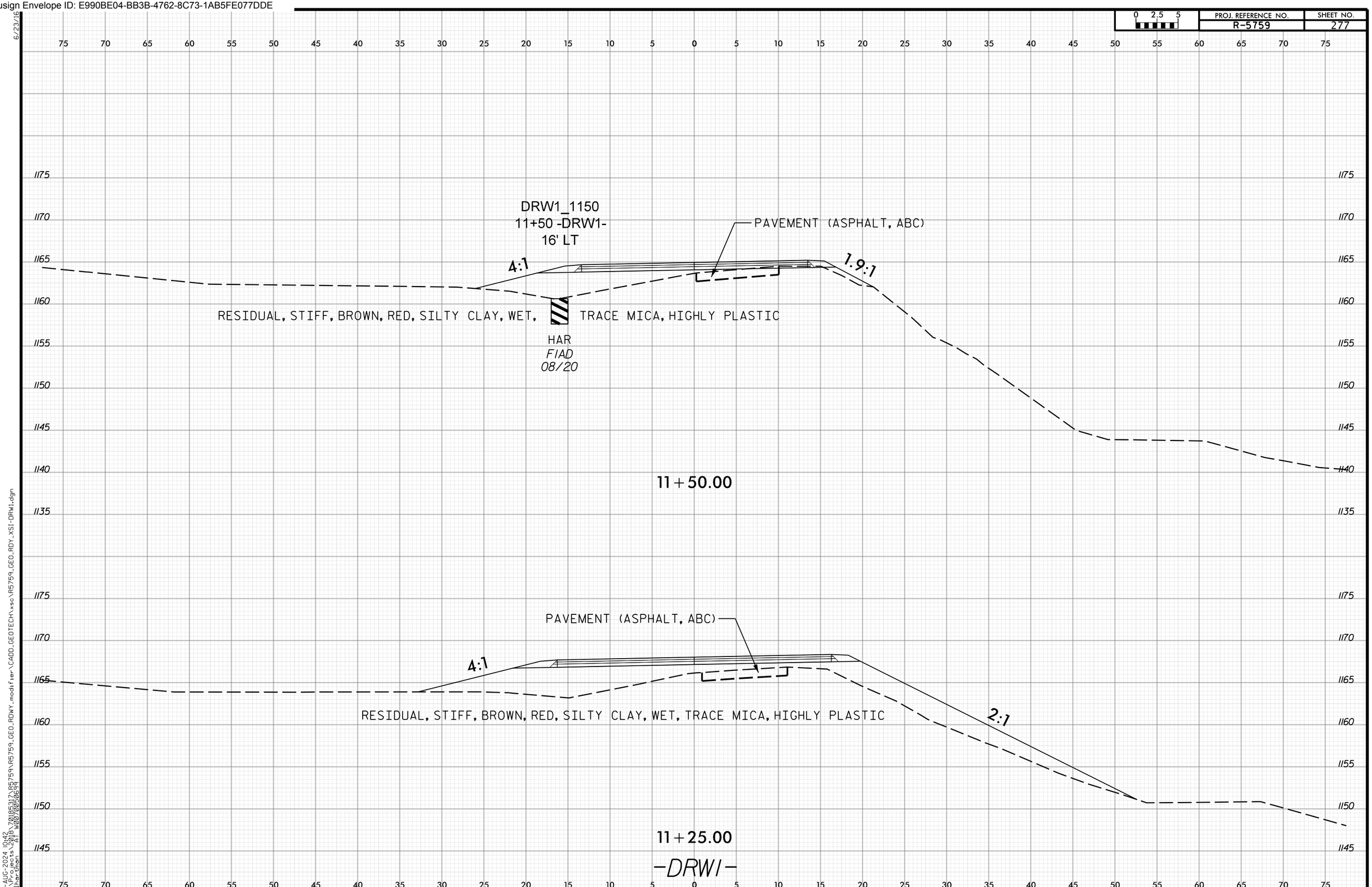

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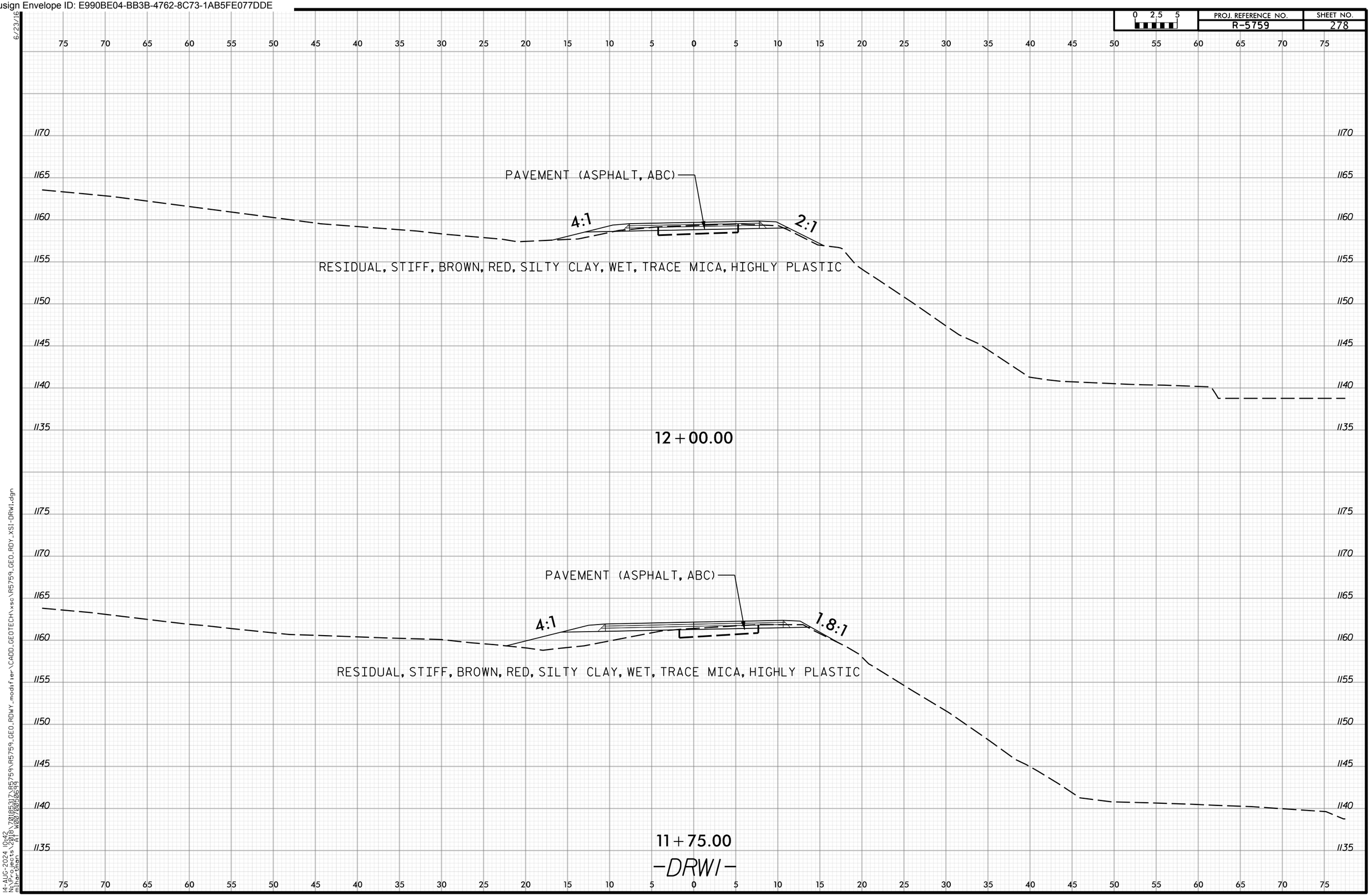

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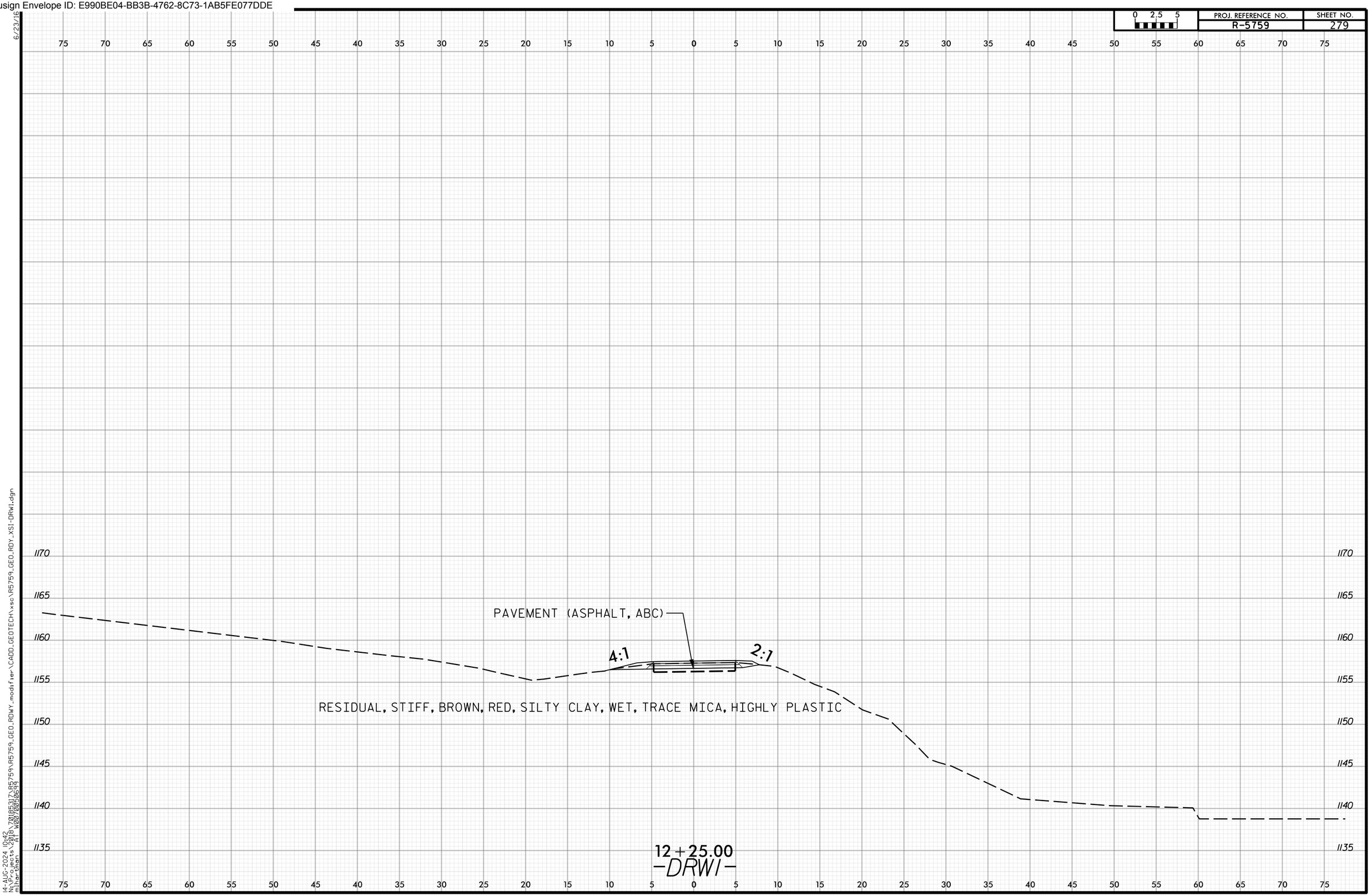

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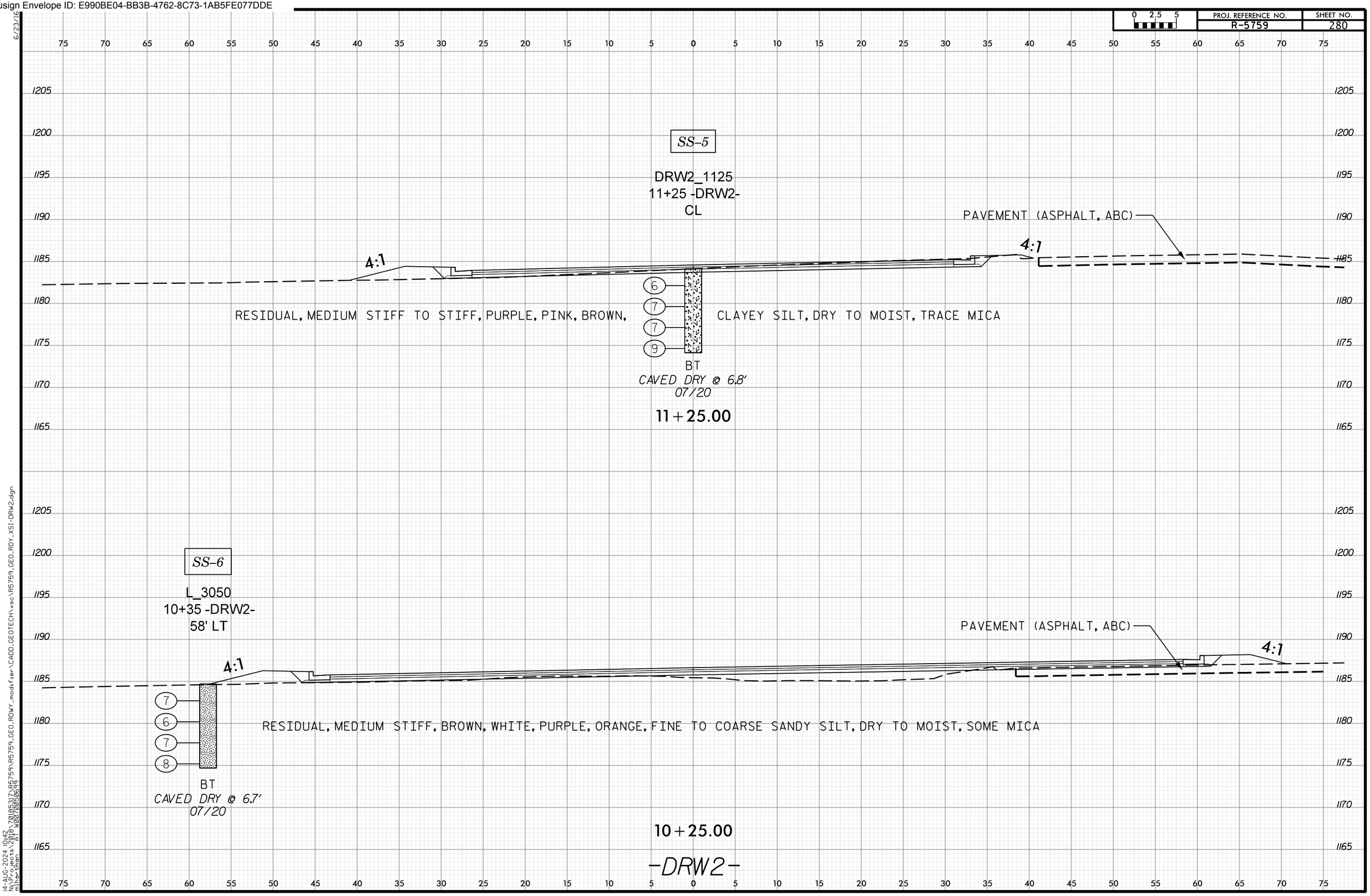

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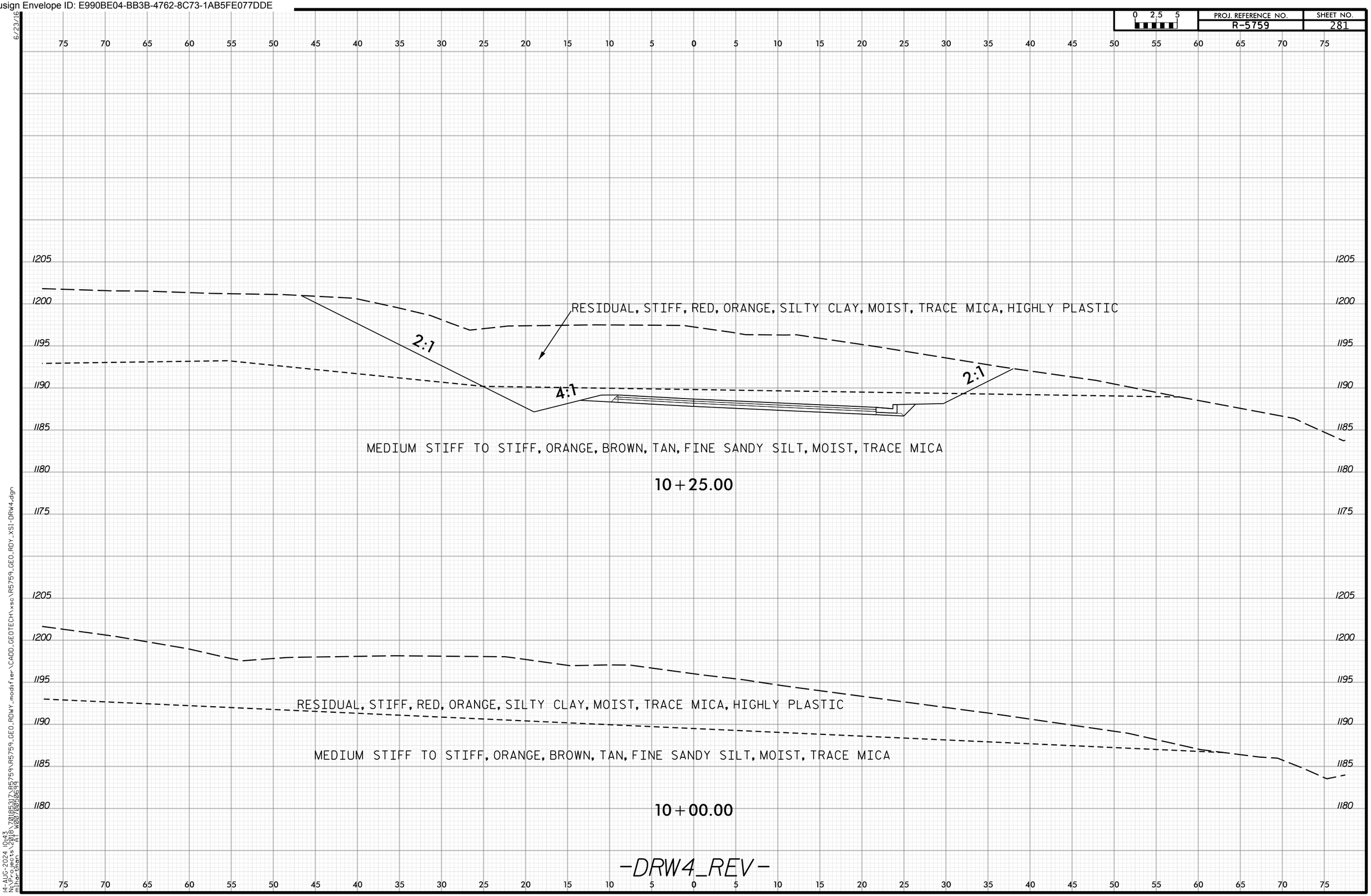

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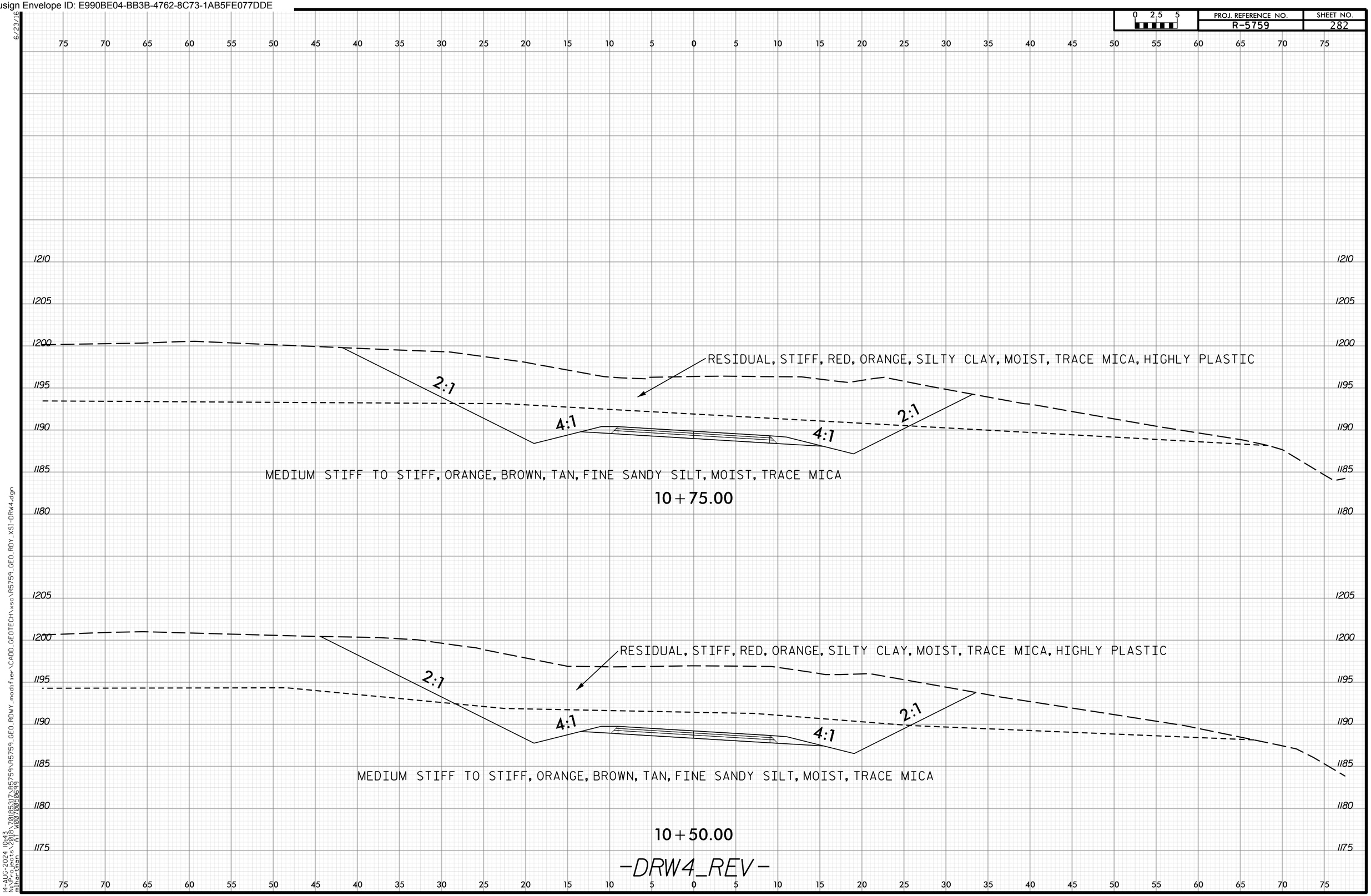

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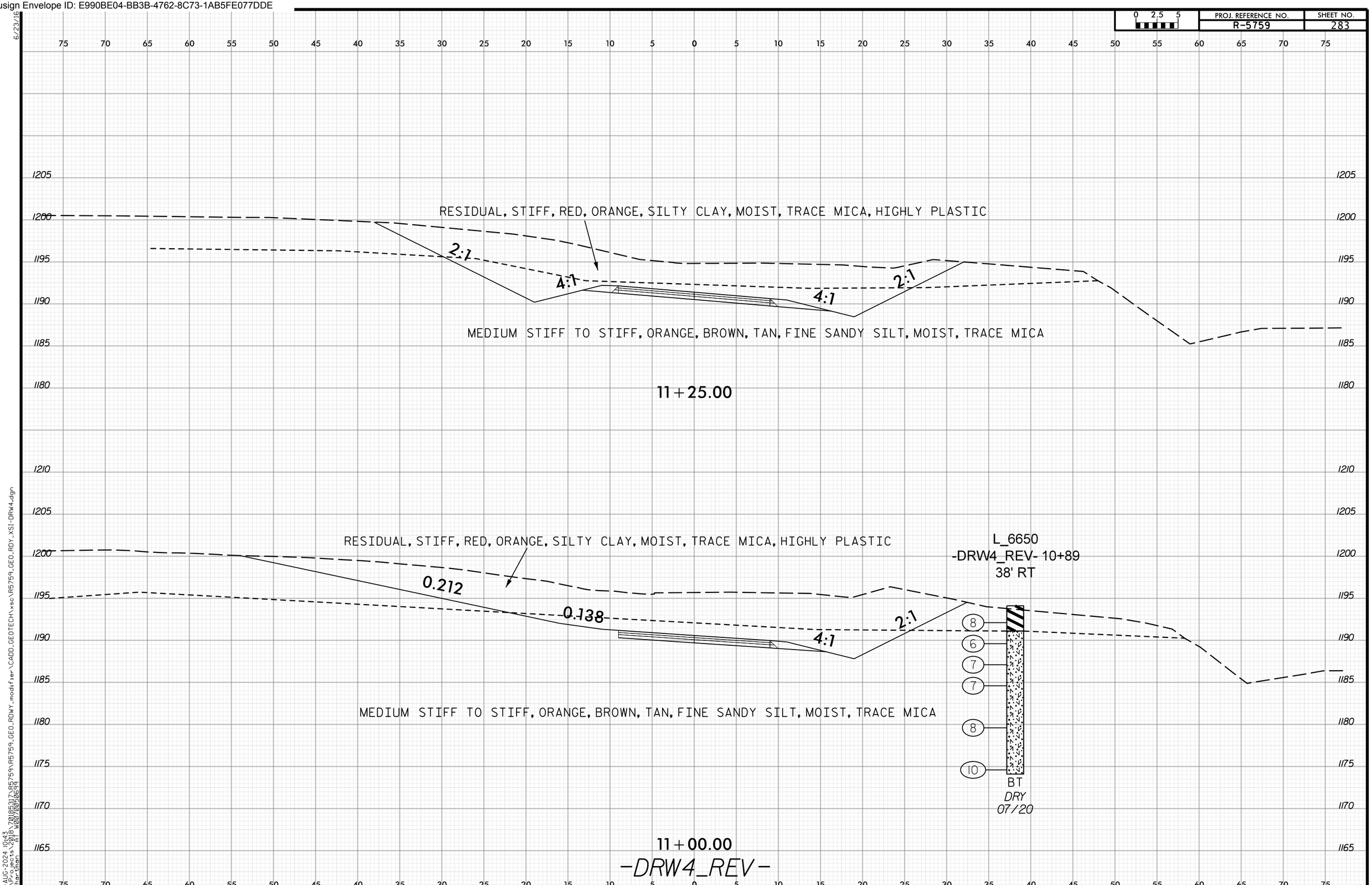

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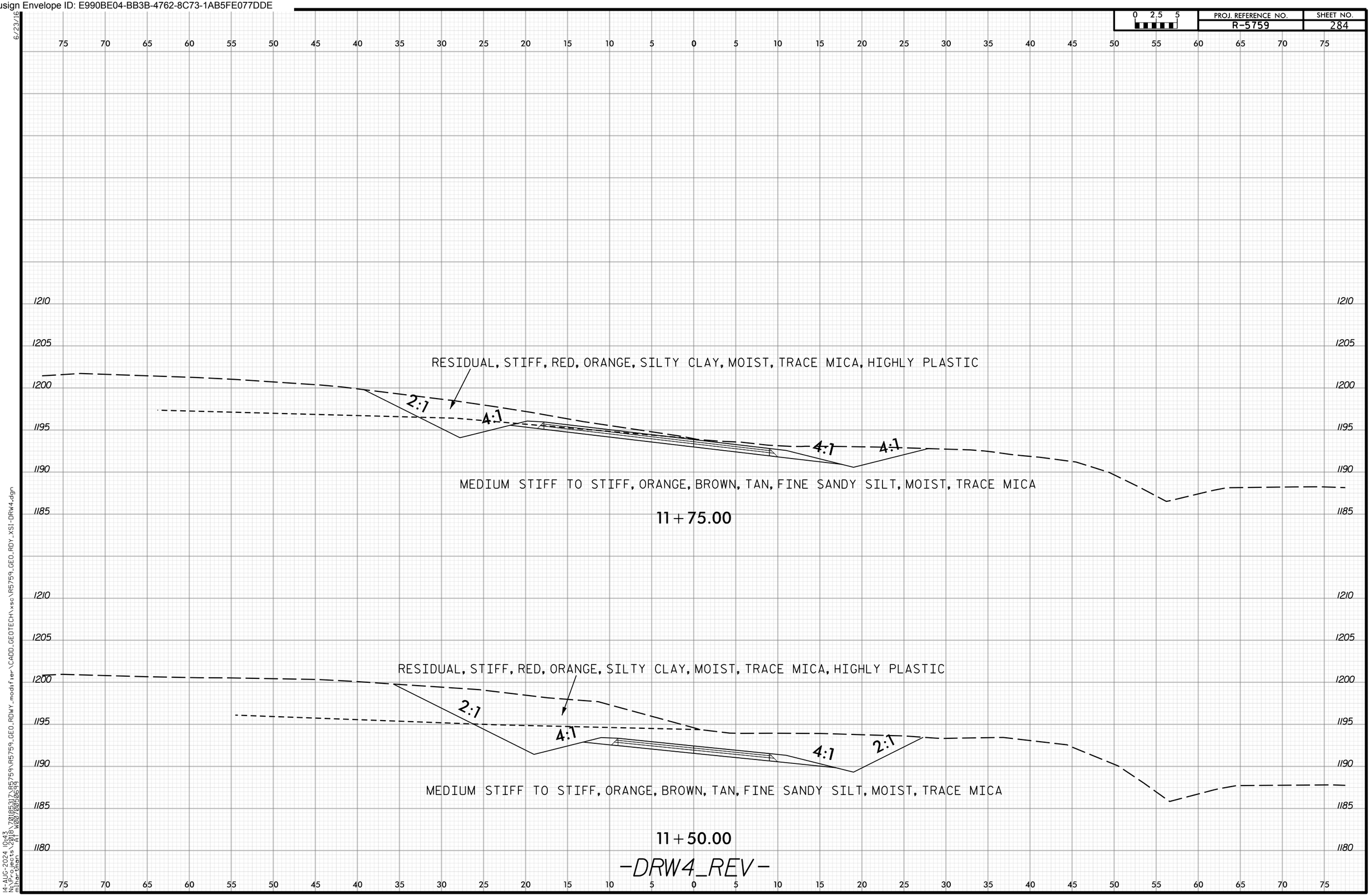

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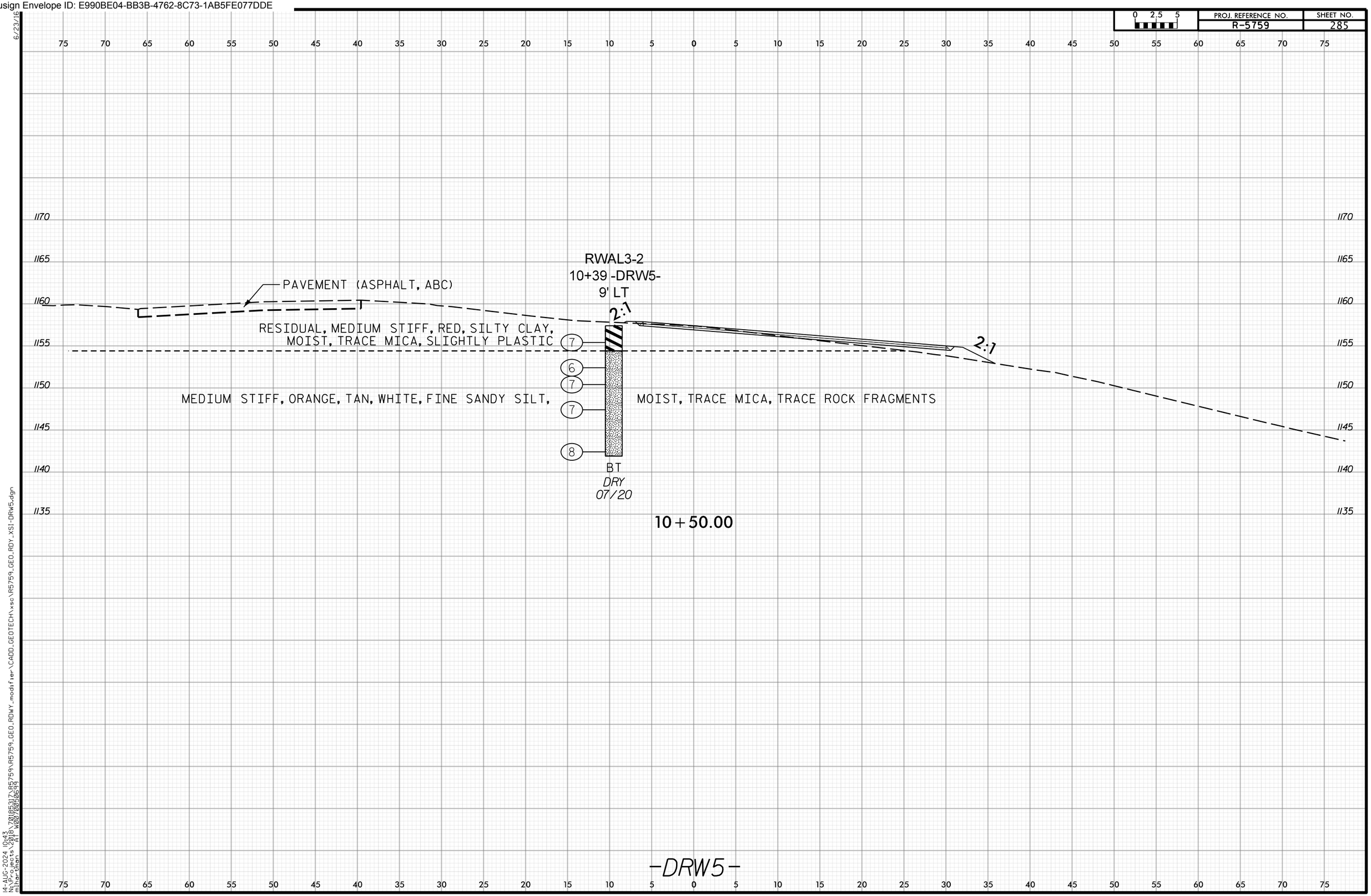

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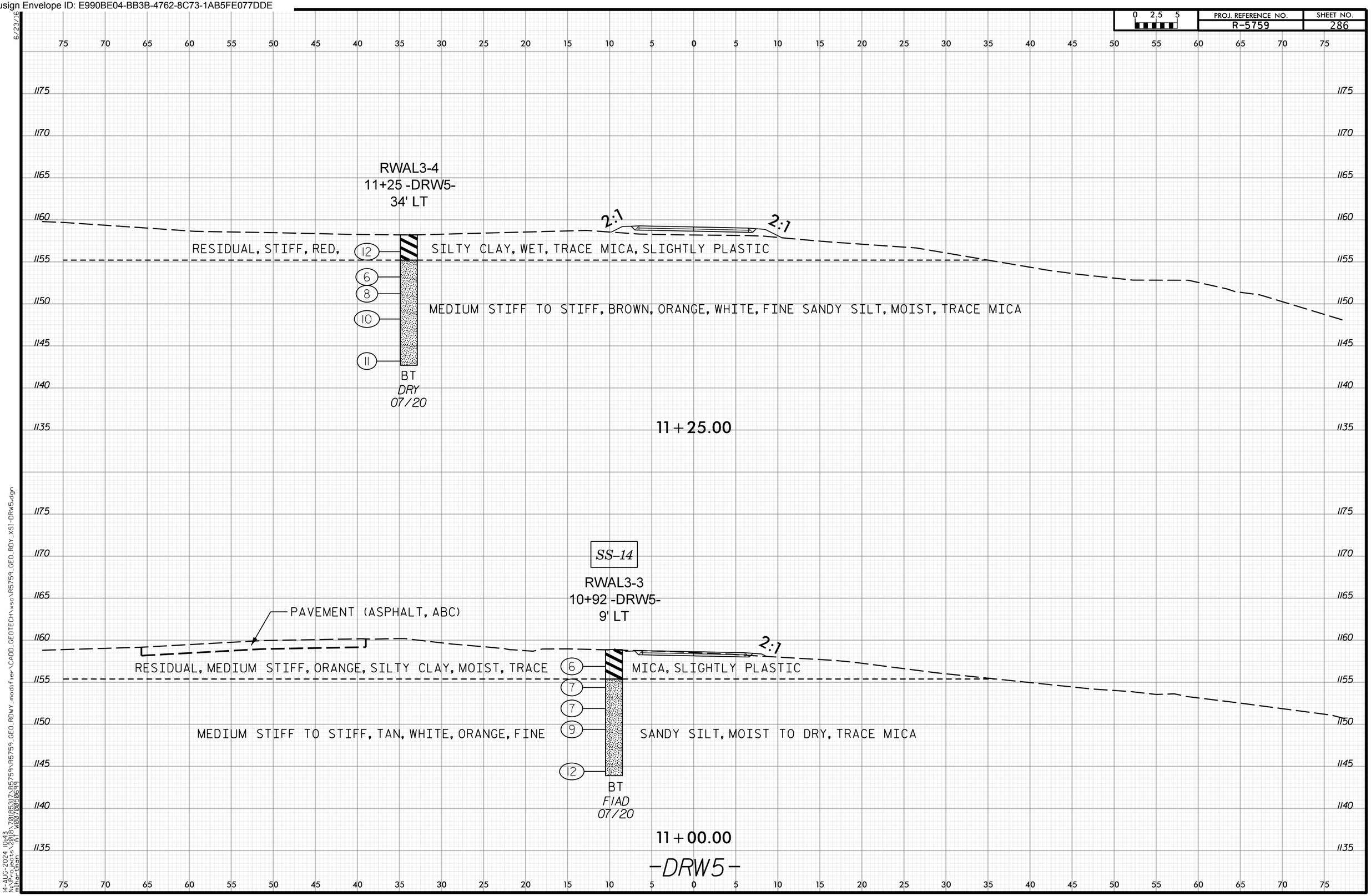

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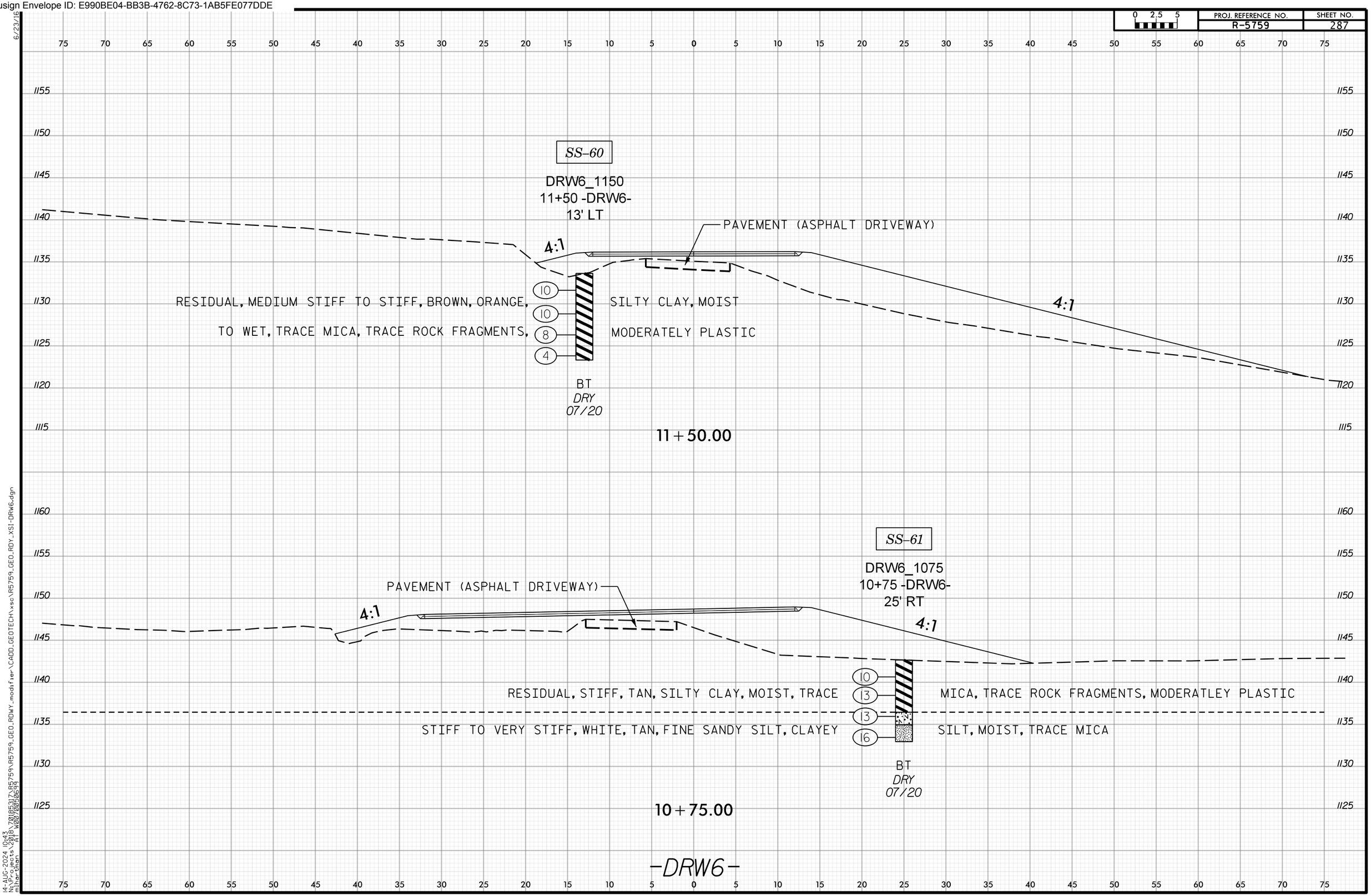

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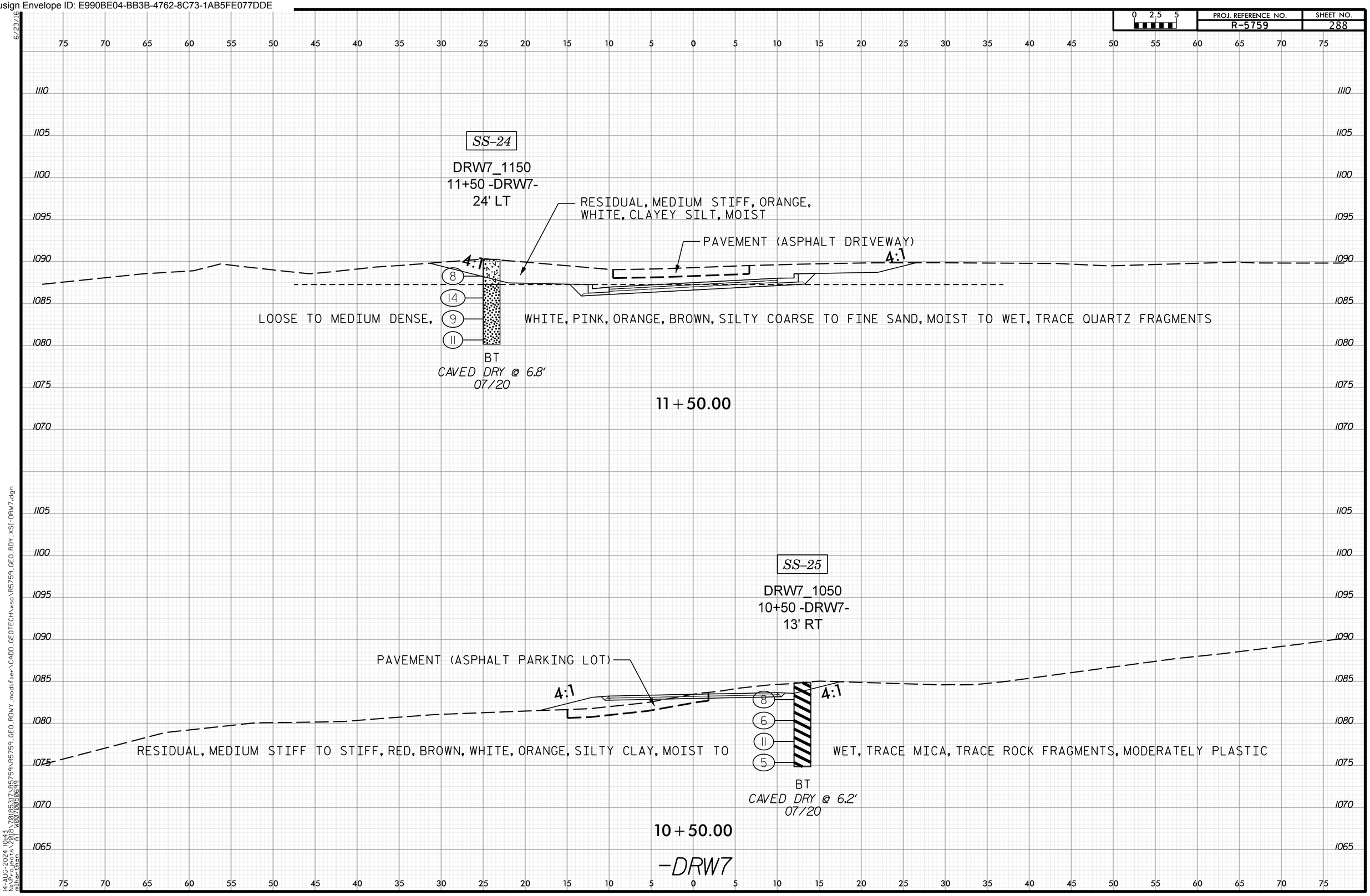

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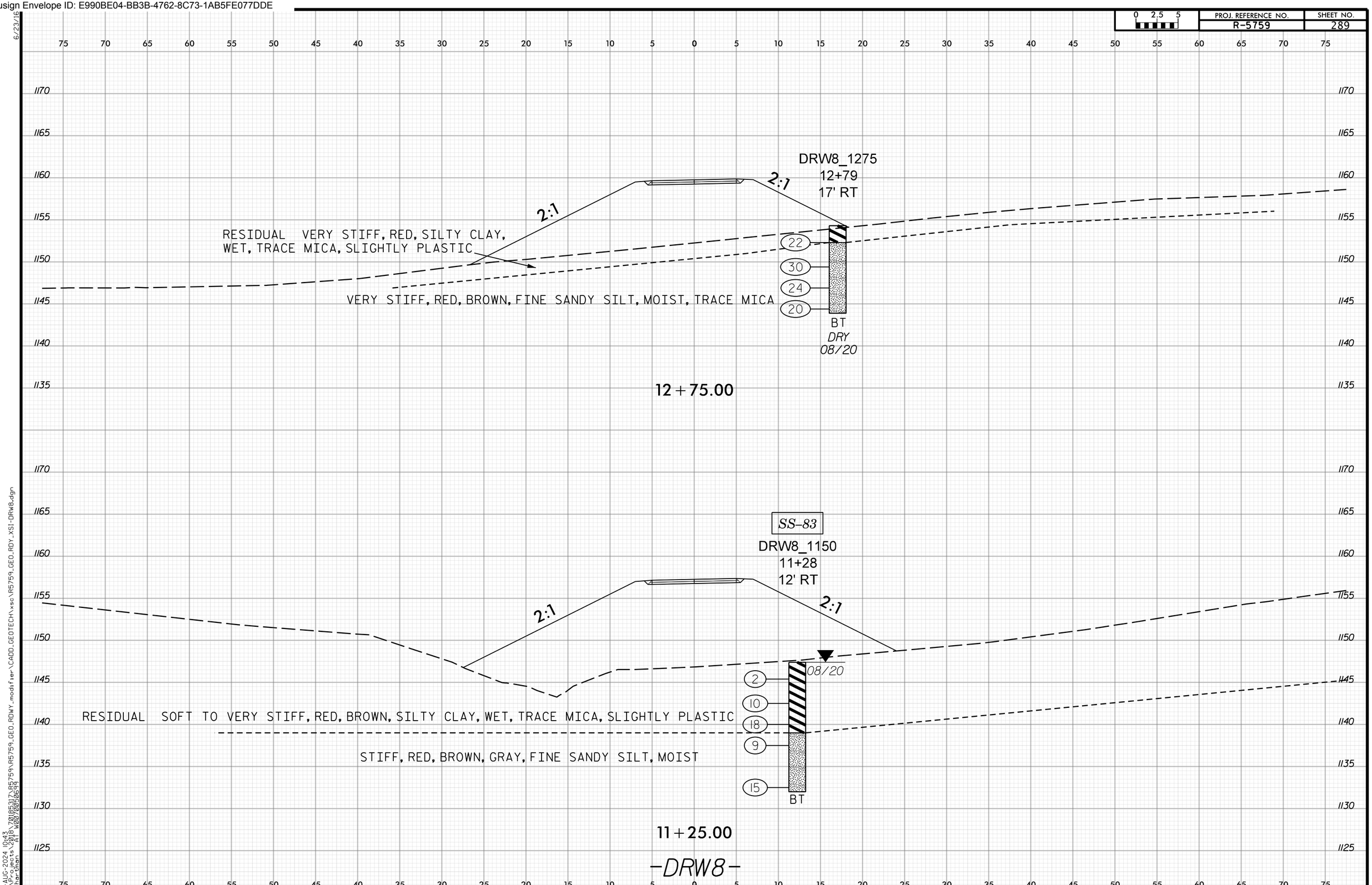

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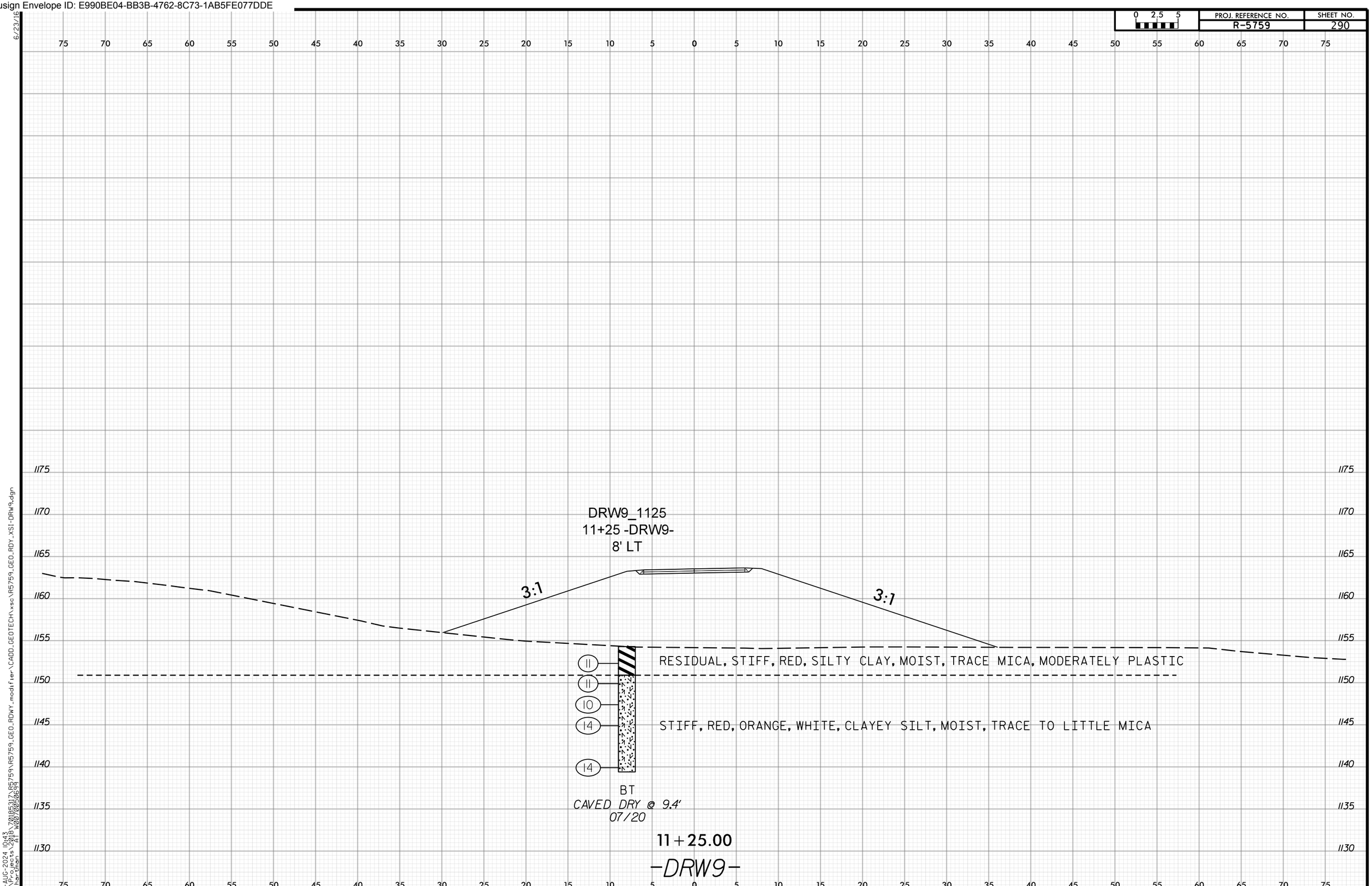

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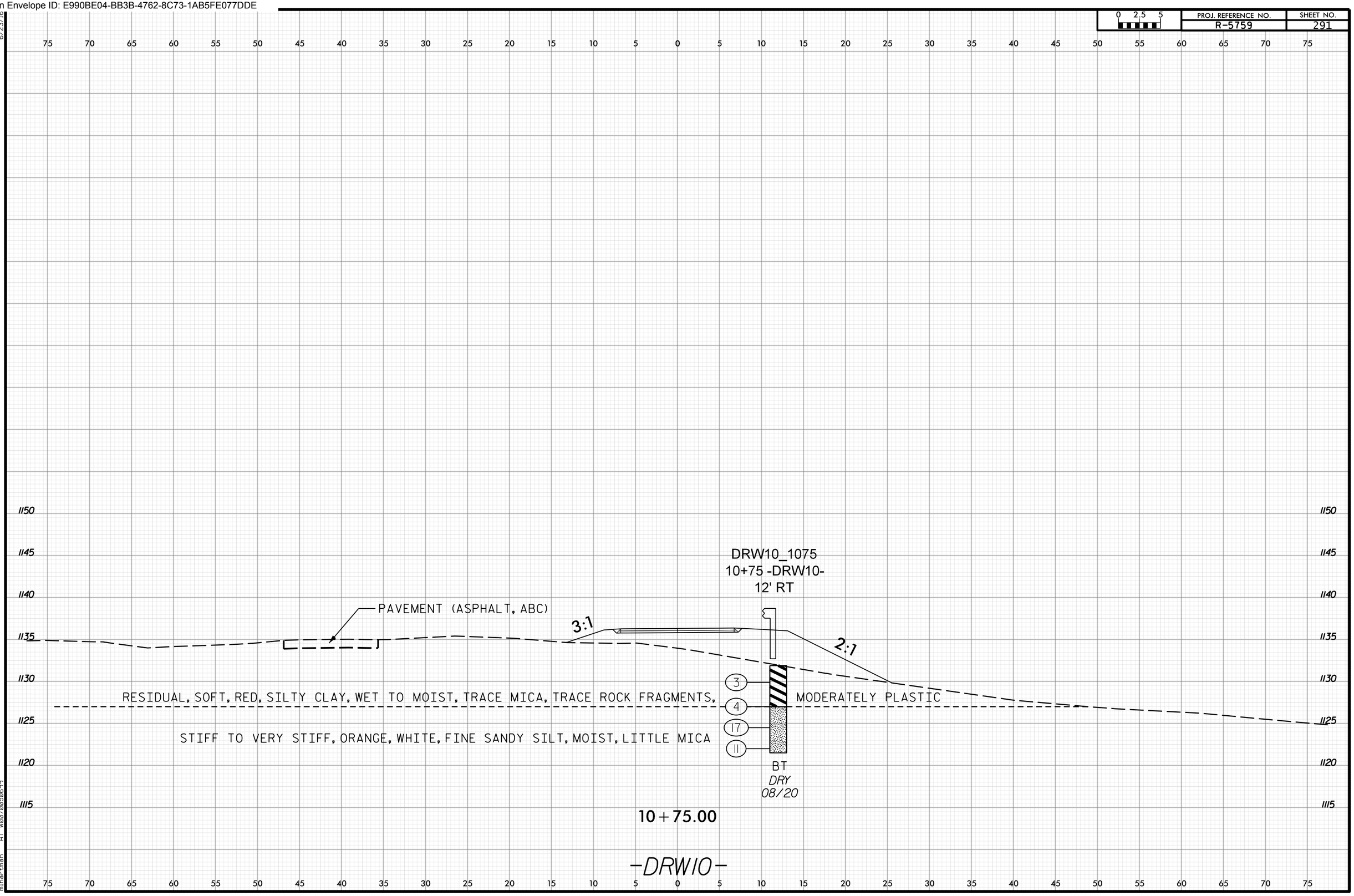

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REFERENCE: R-5759

PROJECT: 44691.1.1

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

SUBSURFACE INVESTIGATION

APPENDIX A

LABORATORY SUMMARY SHEETS FOR SOIL CLASSIFICATIONS
PROCTOR & CBR TEST RESULTS
SHELBY TUBE LABORATORY SUMMARY SHEETS
SHELBY TUBE LABORATORY DATA SHEETS

Prepared in the Office of:

Terracon

2401 BRENTWOOD ROAD, SUITE 107
RALEIGH, NORTH CAROLINA 27604
NC REGISTERED ENGINEERING FIRM: F-0869
NC REGISTERED GEOLOGIC FIRM: C-367

Docusign Envelope ID: E990BE04-BB3B-4762-8C73-1AB5FE077DDE

LABORATORY TESTING SUMMARY

PROJECT NUME 44691.1.1 **TIP:** R-5759 **COUNTY:** WILKES

DESCRIPTION WIDENING OF NC 115 (STATESVILLE ROAD) FROM US 421 TO 2ND STREET

Sample No.	Station	Alignment	Offset (feet)	Northing	Easting	Depth Interval (feet)	AASHTO Class.	L.L.	P.I.	% by Weight				% Passing (sieves)				% Moisture	% Organic
										Coarse Sand	Fine Sand	Silt	Clay	#4	#10	#40	#200		
SS-4	11+00	-L-	27 RT	874285	1379067	8.5 - 10.0	A-4 (1)	38	4	23.2	36.4	25.7	14.7	0	100	87	49	20.6	--
SS-5	11+25	-DRW2-	CL	876112	1379055	1.0 - 2.5	A-5 (0)	42	5	24.6	41.5	21.5	12.4	0	100	90	42	18.7	--
SS-6	30+50	-L-	35 RT	876164	1378962	1.0 - 2.5	A-4 (0)	34	4	27.0	37.7	19.7	15.6	2	98	87	42	17.2	--
SS-8	34+50	-L-	51 RT	876565	1378953	1.0 - 2.5	A-4 (1)	38	9	29.5	29.3	22.0	19.2	12	83	66	40	14.3	--
SS-10	11+80	-Y4-	30 RT	877496	1379046	3.5 - 5.0	A-2-4 (0)	NP	NP	31.3	46.6	15.9	6.2	3	93	77	29	--	--
SS-12	68+50	-L-	56 RT	879463	1377383	6.0 - 7.5	A-4 (3)	38	6	14.0	35.7	34.3	16.0	4	94	86	57	15.2	--
SS-13	83+50	-L-	55 RT	880777	1376676	3.5 - 5.0	A-7-5 (5)	43	13	22.8	27.1	23.8	26.3	7	90	77	51	27.7	--
SS-14	87+50	-L-	43 RT	881072	1376395	3.5 - 5.0	A-4 (3)	40	3	16.4	26.2	36.2	21.2	0	100	90	66	19.7	--
SS-16	11+25	-Y11-	31 LT	882335	1375248	1.5 - 2.5	A-5 (4)	43	9	22.9	29.0	29.0	19.1	0	100	86	56	19.8	--
SS-17	105+50	-L-	58 RT	882291	1375124	1.0 - 2.5	A-7-5 (24)	61	26	7.0	20.8	28.7	43.5	0	100	96	79	30.1	--
SS-18	11+00	-Y13-	59 LT	884498	1372853	1.0 - 2.5	A-4 (1)	37	7	22.8	40.1	16.7	20.4	7	91	81	42	19.9	--
SS-19	159+60	-L-	43 RT	885760	1371236	3.5 - 5.0	A-7-5 (31)	67	31	3.7	16.9	17.4	62.0	0	100	98	84	32.0	--
SS-20	177+50	-L-	35 LT	886098	1369502	1.0 - 2.5	A-2-4 (0)	NP	NP	37.0	32.0	18.6	12.4	3	90	64	35	--	--
SS-21	163+50	-L-	32 LT	885790	1370840	1.0 - 2.5	A-4 (0)	30	5	35.5	28.5	19.8	16.2	2	90	65	39	15.0	--
SS-22	14+00	-Y10-	CL	882108	1374838	3.5 - 5.0	A-5 (2)	41	7	21.2	30.8	32.9	15.1	14	84	73	48	19.1	--
SS-23	107+50	-L-	50 LT	882328	1374900	8.5 - 10.0	A-4 (2)	36	5	17.8	35.9	32.2	14.1	1	98	88	55	13.8	--
SS-24	11+50	-DRW7-	24 LT	883631	1373298	3.6 - 5.1	A-2-4 (0)	35	6	48.9	23.7	17.0	10.4	7	80	50	26	--	--
SS-25	10+50	-DRW7-	13 RT	883531	1373325	8.5 - 10.0	A-7-5 (18)	54	23	5.4	28.2	40.3	26.1	1	99	96	74	28.2	--
SS-26	13+00	-Y9-	26 RT	881466	1375698	8.8 - 10.3	A-7-5 (10)	50	12	10.0	28.5	38.6	22.9	0	100	95	71	25.6	--
SS-27	14+00	-Y6-	24 RT	878782	1377447	6.3 - 7.8	A-7-5 (11)	51	11	3.3	35.5	47.1	14.1	0	100	99	75	25.9	--
SS-28	19+50	-L-	35 LT	875062	1378957	6.3 - 7.8	A-5 (4)	47	8	13.7	37.3	26.8	22.2	0	100	96	57	23.5	--
SS-29	13+00	-L-	40 LT	874476	1378984	3.6 - 5.1	A-5 (2)	46	7	24.6	31.5	21.6	22.3	0	100	88	50	24.4	--
SS-30	144+00	-L-	16 RT	885019	1372566	1.8 - 2.7	A-4 (2)	35	3	10.6	37.0	38.2	14.2	0	99	94	63	23.8	--
SS-31	13+25	-LPD-	10 LT	875691	1379122	1.0 - 2.5	A-7-5 (18)	61	26	11.8	26.0	17.3	44.9	0	100	96	66	25.7	--
SS-32	169+50	-L-	24 RT	886001	1370275	3.6 - 5.1	A-4 (2)	39	8	26.5	28.4	27.7	17.4	3	94	77	48	22.0	--
SS-33	37+00	-L-	11 LT	876810	1378876	3.9 - 5.4	A-5 (4)	50	8	13.6	39.5	29.1	17.8	0	100	95	55	24.4	--
SS-34	37+50	-L-	11 LT	876860	1378873	4.0 - 5.5	A-5 (0)	47	3	23.0	45.1	19.7	12.2	0	100	90	40	19.6	--
SS-35	38+50	-L-	11 LT	876960	1378867	1.5 - 3.0	A-7-6 (12)	46	23	14.6	29.2	26.4	29.8	2	97	90	60	20.5	--
SS-36	38+50	-L-	11 LT	876960	1378867	9.1 - 10.6	A-5 (1)	42	7	20.8	44.0	33.8	1.4	0	100	94	43	19.2	--
SS-37	40+00	-L-	10 LT	877110	1378859	6.5 - 8.0	A-5 (4)	44	9	12.2	41.6	43.2	3.0	0	100	94	57	17.8	--
SS-38	40+50	-L-	11 LT	877160	1378855	6.5 - 8.0	A-7-5 (15)	55	22	13.9	24.4	32.0	29.7	0	99	91	66	25.3	--
SS-39	40+50	-L-	11 LT	877160	1378855	9.0 - 10.5	A-4 (0)	33	3	16.3	48.7	28.9	6.1	0	99	93	45	13.1	--
SS-40	24+17	-Y2-	CL	876092	1378756	1.0 - 2.5	A-7-6 (15)	52	24	12.8	24.4	15.6	47.2	2	97	92	65	17.6	--
SS-41	21+85	-Y2-	1 LT	875972	1378567	13.7 - 15.2	A-4 (1)	39	10	25.9	38.4	11.4	24.3	0	99	87	41	17.6	--
SS-42	26+65	-L-	65 LT	875774	1378886	6.0 - 7.5	A-5 (4)	54	9	16.7	39.8	24.1	19.4	0	99	91	51	30.2	--
SS-43	41+50	-L-	14 LT	877259	1378846	8.7 - 10.2	A-7-6 (15)	46	27	10.5	30.1	14.6	44.8	0	99	95	65	24.6	--
SS-44	76+00	-L-	11 LT	880076	1376952	8.8 - 10.3	A-7-5 (6)	42	11	16.9	22.5	46.1	14.5	3	93	82	63	14.0	--
SS-45	89+50	-L-	45 LT	881208	1376261	1.0 - 2.5	A-7-6 (11)	44	16	13.2	22.1	24.5	40.2	0	98	90	69	27.5	--
SS-46	132+11	-L-	16 LT	883923	1373022	6.0 - 7.5	A-4 (0)	35	3	32.6	29.6	23.7	14.1	1	92	71	41	10.9	--
SS-47	69+50	-L-	43 LT	879493	1377246	6.0 - 7.5	A-7-5 (7)	45	12	8.3	39.7	34.3	17.7	0	98	94	63	17.2	--

NP - NON-PLASTIC

Stephanie H. Huffman

Certified Lab Technician Signature

114-01-1203

Certification Number

Docusign Envelope ID: E990BE04-BB3B-4762-8C73-1AB5FE077DDE

LABORATORY TESTING SUMMARY

PROJECT NUMBER: 44691.1.1 **TIP:** R-5759 **COUNTY:** WILKES

DESCRIPTION: WIDENING OF NC 115 (STATESVILLE ROAD) FROM US 421 TO 2ND STREET

Sample No.	Station	Alignment	Offset (feet)	Northing	Easting	Depth Interval (feet)	AASHTO Class.	L.L.	P.I.	% by Weight				% Passing (sieves)				% Moisture	% Organic
										Coarse Sand	Fine Sand	Silt	Clay	#4	#10	#40	#200		
SS-48	32+50	-L-	30 LT	876360	1378879	4.2 - 5.7	A-5 (3)	46	8	18.8	39.0	20.0	22.2	0	100	93	50	21.8	--
SS-49	15+25	-RPB-	36 LT	874868	1378655	6.0 - 7.5	A-7-5 (19)	60	28	16.6	21.0	28.2	34.2	0	100	91	66	26.9	--
SS-50	132+56	-L-	15 LT	883958	1372993	6.0 - 7.5	A-4 (3)	35	9	17.6	37.3	30.7	14.4	0	99	91	55	12.5	--
SS-51	136+55	-L-	52 LT	884292	1372755	6.0 - 7.5	A-4 (0)	31	3	24.2	36.2	38.2	1.4	0	100	85	48	20.7	--
SS-52	12+91	-Y4-	18 LT	877503	1379169	3.9 - 5.4	A-4 (1)	33	6	23.0	38.9	27.6	10.5	1	96	82	46	17.7	--
SS-53	135+00	-L-	13 LT	884163	1372856	4.0 - 5.5	A-4 (1)	32	7	23.3	34.2	22.8	19.7	1	97	83	50	14.7	--
SS-55	11+50	-Y3-	5 RT	876618	1378591	1.0 - 2.5	A-2-4 (0)	NP	NP	25.6	56.3	8.5	9.6	1	97	87	25	--	--
SS-56	145+91	-L-	15 RT	885180	1372459	3.9 - 5.4	A-2-4 (0)	25	3	45.0	27.8	17.6	9.6	7	81	54	27	5.8	--
SS-57	151+50	-L-	10 RT	885510	1372008	1.5 - 5.0	A-7-6 (17)	48	23	8.1	22.6	23.0	46.3	0	99	94	75	22.7	--
SS-58	87+50	-L-	44 LT	881072	1376395	1.0 - 2.5	A-7-6 (12)	42	22	15.1	24.9	11.9	48.1	1	99	93	64	19.3	--
SS-59	62+50	-L-	45 LT	878919	1377654	1.0 - 2.5	A-7-5 (22)	57	26	6.1	23.2	20.3	50.4	0	100	97	77	22.6	--
SS-60	11+50	-DRW6-	13 LT	881735	1375909	1.0 - 2.5	A-7-6 (20)	49	23	6.3	16.3	22.5	54.9	0	99	96	81	22.4	--
SS-61	10+75	-DRW6-	25 RT	881654	1375901	6.2 - 7.2	A-5 (5)	41	9	19.4	28.1	36.7	15.8	0	99	87	59	15.5	--
SS-62	142+00	-L-	141 LT	884782	1372495	1.0 - 2.5	A-5 (6)	42	7	6.2	31.7	44.4	17.7	0	100	98	72	18.6	--
SS-63	142+00	-L-	141 LT	884782	1372495	12.7 - 14.2	A-4 (0)	NP	NP	28.3	38.3	21.0	12.4	0	98	83	41	19.7	--
SS-64	144+00	-L-	180 LT	884927	1372393	1.0 - 2.5	A-7-6 (18)	50	22	8.4	22.2	22.1	47.3	0	100	95	76	24.6	--
SS-65	144+00	-L-	180 LT	884927	1372393	23.5 - 25.0	A-2-4 (0)	32	7	37.3	28.1	20.8	13.8	17	72	53	29	--	--
SS-66	144+00	-L-	180 LT	884927	1372393	33.5 - 35.0	A-7-6 (8)	43	15	11.3	36.7	35.9	16.1	0	100	94	62	20.7	--
SS-67	16+50	-Y14-	45 RT	884703	1372590	18.1 - 19.6	A-4 (0)	36	3	23.2	42.6	27.2	7.0	13	83	72	37	11.8	--
SS-68	16+50	-Y14-	45 RT	884703	1372590	23.8 - 24.6	A-5 (4)	46	7	13.5	35.3	36.5	14.7	1	99	93	60	33.0	--
SS-69	133+00	-L-	105 LT	883938	1372894	1.0 - 2.5	A-6 (6)	39	14	19.3	22.5	24.3	33.9	5	89	77	57	21.6	--
SS-70	133+00	-L-	105 LT	883938	1372894	9.5 - 10.5	A-2-4 (0)	30	7	49.4	23.5	8.9	18.2	35	51	32	16	14.3	--
SS-71	135+45	-L-	44 LT	884190	1372808	1.0 - 1.5	A-6 (5)	38	11	15.8	27.1	27.6	29.5	6	91	82	58	25.3	--
SS-72	132+00	-L-	65 RT	883970	1373089	1.0 - 2.5	A-5 (6)	41	8	6.8	31.5	35.6	26.1	0	100	97	71	24.2	--
SS-73	134+00	-L-	63 RT	884118	1372971	1.0 - 2.5	A-2-4 (0)	NP	NP	43.3	26.4	8.1	22.2	4	80	53	29	--	--
SS-74	128+00	-L-	63 RT	883712	1373383	3.7 - 5.2	A-7-5 (26)	63	27	3.9	20.4	18.1	57.6	0	100	98	82	29.5	--
SS-75	128+00	-L-	63 RT	883712	1373383	8.7 - 10.2	A-7-5 (12)	49	12	3.7	25.8	35.3	35.2	0	100	98	79	29.1	--
SS-76	142+00	-L-	70 RT	884849	1372695	6.2 - 7.7	A-2-6 (0)	34	12	47.1	22.1	10.6	20.2	0	97	61	35	--	--
SS-77	138+50	-L-	47 LT	884480	1372696	1.0 - 2.5	A-4 (0)	NP	NP	19.2	35.2	32.7	12.9	3	94	83	51	23.3	--
SS-78	12+00	-Y4-	73 LT	877593	1379108	3.2 - 4.7	A-2-4 (0)	NP	NP	30.6	39.1	15.8	14.5	4	86	68	34	--	--
SS-79	10+71	-Y4-	53 LT	877621	1378971	4.2 - 5.7	A-2-4 (0)	NP	NP	26.4	52.6	8.9	12.1	4	95	88	25	--	--
SS-80	56+50	-L-	28 LT	878469	1378053	1.0 - 2.5	A-7-6 (14)	48	19	6.7	26.3	25.1	41.9	2	97	94	73	26.3	--
SS-81	50+50	-L-	57 LT	877992	1378418	4.0 - 5.5	A-5 (7)	41	10	13.1	25.3	31.3	30.3	0	100	91	70	21.4	--
SS-82	46+50	-L-	52 LT	877689	1378680	7.8 - 9.3	A-6 (5)	34	11	13.9	29.4	36.6	20.1	4	93	86	60	22.8	--
SS-83	11+50	-DRW8-	8 LT	880551	1376589	8.9 - 10.4	A-4 (0)	NP	NP	18.8	32.6	38.5	10.1	0	100	89	57	22.4	--
SS-84	13+25	-LPD-	10 LT	875691	1379122	3.7 - 5.2	A-5 (3)	44	9	28.4	30.3	23.4	17.9	0	100	84	48	20.5	--
SS-85	17+00	-Y2-	23 LT	875967	1378099	6.3 - 7.8	A-5 (0)	41	5	22.3	44.4	22.5	10.8	0	100	91	42	16.1	--
SS-86	42+22	-L-	58 RT	877336	1378913	8.8 - 10.2	A-6 (7)	32	14	10.5	29.9	22.4	37.2	0	100	95	66	27.6	--
SS-87	40+50	-L-	61 RT	877164	1378927	13.9 - 15.4	A-2-4 (0)	NP	NP	30.7	45.2	16.6	7.5	0	100	86	32	--	--
SS-88	11+80	-Y4-	30 RT	877496	1379046	1.0 - 2.5	A-6 (8)	37	12	4.1	33.9	29.9	32.1	0	100	98	72	34.9	--

NP - NON-PLASTIC

Stephanie H. Huffman

Certified Lab Technician Signature

114-01-1203

Certification Number

Docusign Envelope ID: E990BE04-BB3B-4762-8C73-1AB5FE077DDE

LABORATORY TESTING SUMMARY

PROJECT NUMBER: 44691.1.1 **TIP:** R-5759 **COUNTY:** WILKES

DESCRIPTION: WIDENING OF NC 115 (STATESVILLE ROAD) FROM US 421 TO 2ND STREET

Sample No.	Station	Alignment	Offset (feet)	Northing	Easting	Depth Interval (feet)	AASHTO Class.	L.L.	P.I.	% by Weight				% Passing (sieves)				% Moisture	% Organic
										Coarse Sand	Fine Sand	Silt	Clay	#4	#10	#40	#200		
SS-89	50+50	-L-	57 LT	877992	1378418	1.0 - 2.5	A-7-6 (12)	43	17	10.0	20.9	30.9	38.2	0	97	91	73	23.5	--
SS-90	54+50	-L-	40 LT	878309	1378173	8.6 - 10.1	A-5 (6)	45	7	5.0	46.3	40.4	8.3	0	100	98	67	25.4	--
SS-91	60+50	-L-	66 LT	878750	1377766	6.0 - 7.5	A-5 (6)	49	6	8.0	42.4	41.1	8.5	0	100	96	66	22.6	--
SS-92	68+50	-L-	56 RT	879463	1377383	1.0 - 2.5	A-7-6 (11)	45	17	10.4	26.7	23.8	39.1	1	97	92	68	22.4	--
SS-94	85+50	-L-	41 RT	880950	1376573	13.8 - 15.3	A-5 (7)	48	9	7.8	36.1	39.7	16.4	0	100	98	67	30.8	--
SS-95	14+50	-Y11-	18 RT	882643	1375340	1.0 - 2.5	A-7-6 (11)	44	18	14.0	22.1	22.2	41.7	1	96	87	67	22.3	--
SS-97	109+00	-L-	54 LT	882420	1374780	1.0 - 2.5	A-7-6 (17)	48	23	6.8	24.7	20.0	48.5	0	99	95	74	25.4	--
SS-98	112+50	-L-	38 RT	882713	1374567	3.5 - 5.0	A-5 (6)	47	9	15.0	32.6	37.8	14.6	0	100	92	62	25.7	--
SS-99	122+50	-L-	88 RT	883384	1373824	6.0 - 7.5	A-5 (4)	42	9	21.9	26.6	30.1	21.4	3	91	77	54	20.9	--
SS-100	122+50	-L-	88 RT	883384	1373824	13.5 - 15.0	A-4 (0)	36	7	39.5	22.2	21.5	16.8	1	90	63	38	20.7	--
SS-101	132+00	-L-	65 RT	883970	1373089	18.7 - 20.2	A-4 (1)	37	3	19.9	37.1	32.9	10.1	0	100	88	54	16.8	--
SS-102	136+55	-L-	52 LT	884292	1372755	1.0 - 1.5	A-4 (2)	37	8	20.6	33.2	29.7	16.5	4	94	82	52	23.8	--
SS-103	149+50	-L-	80 LT	885343	1372139	5.3 - 6.8	A-7-6 (16)	49	22	9.7	23.7	26.3	40.3	0	100	94	73	24.3	--
SS-104	149+50	-L-	80 LT	885343	1372139	12.8 - 14.3	A-4 (0)	NP	NP	28.8	34.4	27.8	9.0	0	99	82	45	13.2	--
SS-105	14+90	-Y14-	164 LT	884746	1372303	8.5 - 10.0	A-4 (2)	37	5	13.0	36.6	39.9	10.5	0	99	93	60	15.3	--
SS-106	14+90	-Y14-	164 LT	884746	1372303	48.5 - 50.0	A-4 (3)	40	3	5.2	40.3	42.5	12.0	0	100	98	68	19.8	--
SS-107	10+70	-Y15-	CL	885487	1372191	6.0 - 7.5	A-7-6 (12)	42	16	7.2	23.0	29.6	40.2	0	99	95	76	33.2	--
SS-109	10+90	-Y13-	17 RT	884422	1372856	3.9 - 5.6	A-7-5 (9)	44	13	11.7	27.7	33.2	27.4	1	98	91	67	31.2	--
SS-110	10+40	-Y13-	31 RT	884399	1372809	1.0 - 2.5	A-4 (0)	31	2	31.4	34.1	27.5	7.0	1	96	76	42	13.9	--
SS-111	135+00	-L-	13 LT	884163	1372856	14.0 - 15.5	A-7-5 (6)	43	11	15.7	29.0	32.5	22.8	0	98	89	62	29.7	--
SS-112	12+75	-Y14-	37 LT	884490	1372344	8.1 - 9.6	A-4 (0)	33	4	27.4	38.2	25.5	8.9	0	100	83	44	14.7	--
S-1	36+50	-L-	37 LT	876759	1378853	4.0 - 4.5	A-5 (2)	51	10	24.6	40.4	19.8	15.2	0	100	87	42	20.4	--
S-2	41+00	-L-	46 LT	877207	1378817	7.5 - 8.0	A-7-5 (20)	56	25	7.1	24.2	15.9	52.8	0	100	97	74	29.8	--
S-3	11+50	-L-	8 RT	874334	1379046	1.3 - 6.0	A-7-5 (20)	57	26	8.0	23.4	15.6	53.0	0	99	96	72	26.1	--
S-7	64+50	-L-	16 RT	879115	1377579	1.3 - 6.0	A-7-5 (9)	45	13	10.5	30.3	26.9	32.3	0	99	92	67	26.5	--
S-9	93+00	-L-	3 LT	881461	1376017	2.5 - 6.0	A-7-6 (7)	43	14	21.7	21.8	24.6	31.9	4	94	80	58	13.7	--
S-12	109+00	-L-	6 LT	882457	1374810	1.5 - 4.0	A-7-6 (13)	47	19	11.3	24.7	19.7	44.3	0	98	92	69	25.1	--
S-16	12+00	-Y6_REV-	6 RT	878597	1377387	1.5 - 6.0	A-7-6 (11)	41	17	8.3	30.8	20.3	40.6	0	99	95	68	9.2	--
S-17	164+00	-L-	22 RT	885855	1370805	2.0 - 6.0	A-7-6 (20)	50	27	8.4	22.1	14.2	55.3	0	99	93	74	17.2	--
S-19	12+50	-Y7-	1 LT	880075	1377233	1.3 - 5.0	A-7-6 (7)	42	16	17.1	29.2	26.1	27.6	2	96	87	58	22.9	--
S-24	17+00	-RPB-	19 RT	874758	1378799	0.9 - 6.0	A-7-6 (3)	45	18	24.8	29.7	17.9	27.6	22	73	62	38	9.5	--
S-30	25+50	-L-	40 LT	875361	1378934	5.0 - 5.5	A-5 (4)	45	10	17.2	36.9	24.9	21.0	0	100	95	52	25.0	--
S-31	23+00	-L-	45 LT	875411	1378926	1.0 - 1.5	A-7-6 (23)	57	31	11.6	17.8	10.4	60.2	0	100	95	73	26.6	--
S-32	120+75	-L-	35 RT	883232	1373926	2.0 - 2.5	A-7-6 (18)	52	25	10.9	20.6	19.0	49.5	0	98	91	72	27.4	--
S-33	136+90	-L-	41 LT	884330	1372753	4.0 - 4.5	A-4 (0)	NP	NP	25.1	45.7	20.0	9.2	1	97	84	38	21.6	--
S-34	157+50	-L-	43 LT	885622	1371416	5.0 - 5.5	A-7-6 (35)	61	34	1.2	13.1	25.6	60.1	0	100	100	90	33.7	--
S-35	12+00	-Y8-	16 LT	881329	1376463	7.0 - 7.5	A-5 (6)	46	7	11.3	27.1	34.3	27.3	0	100	93	70	22.3	--
S-36	16+50	-Y10-	42 RT	882050	1375092	6.5 - 7.0	A-4 (0)	NP	NP	31.8	30.5	24.9	12.8	1	94	72	42	22.2	--
S-37	126+50	-L-	29 LT	883546	1373441	1.0 - 1.5	A-2-4 (0)	NP	NP	37.4	30.7	16.9	15.0	15	76	56	29	--	--
S-38	11+50	-Y13-	45 RT	884405	1372920	1.5 - 2.0	A-7-5 (10)	47	13	11.4	22.5	32.4	33.7	2	96	89	70	44.0	--
S-39	76+00	-L-	51 LT	880058	1376916	3.5 - 4.0	A-7-5 (13)	53	17	9.9	29.1	32.2	28.8	0	100	94	69	18.4	--

NP - NON-PLASTIC

Stephanie H. Huffman

Certified Lab Technician Signature

114-01-1203

Certification Number

Docusign Envelope ID: E990BE04-BB3B-4762-8C73-1AB5FE077DDE

LABORATORY TESTING SUMMARY

PROJECT NUMBER: 44691.1.1 **TIP:** R-5759 **COUNTY:** WILKES

DESCRIPTION: WIDENING OF NC 115 (STATESVILLE ROAD) FROM US 421 TO 2ND STREET

Sample No.	Station	Alignment	Offset (feet)	Northing	Easting	Depth Interval (feet)	AASHTO Class.	L.L.	P.I.	% by Weight				% Passing (sieves)				% Moisture	% Organic
										Coarse Sand	Fine Sand	Silt	Clay	#4	#10	#40	#200		
S-40	153+50	-L-	76 LT	885486	1371793	4.0 - 4.5	A-7-6 (16)	53	25	15.5	17.7	20.4	46.4	5	92	82	65	23.8	--
S-41	101+50	-L-	31 LT	881974	1375339	2.0 - 2.5	A-7-5 (25)	62	31	8.6	17.8	17.9	55.7	2	97	92	75	26.2	--
CBR-1	28+50	-L-	19 RT	875964	1378958	1.0 - 3.0	A-7-5 (14)	59	27	15.3	27.4	23.2	34.1	7	91	85	57	22.1	--
CBR-2	93+00	-L-	21 RT	881479	1376032	1.0 - 3.0	A-6 (4)	36	12	22.0	27.2	24.8	26.0	5	92	79	52	16.7	--
CBR-3	154+00	-L-	36 LT	885538	1371755	1.0 - 3.0	A-7-6 (9)	41	13	9.9	20.7	37.6	31.8	4	93	87	70	24.5	--
ST-1	133+00	-L-	105 LT	883938	1372894	3.0 - 5.2	A-6	36	11	13.9	24.0	27.9	34.2	2	90	92	68	13.6	--

NP - NON-PLASTIC

Stephanie H. Huffman

Certified Lab Technician Signature

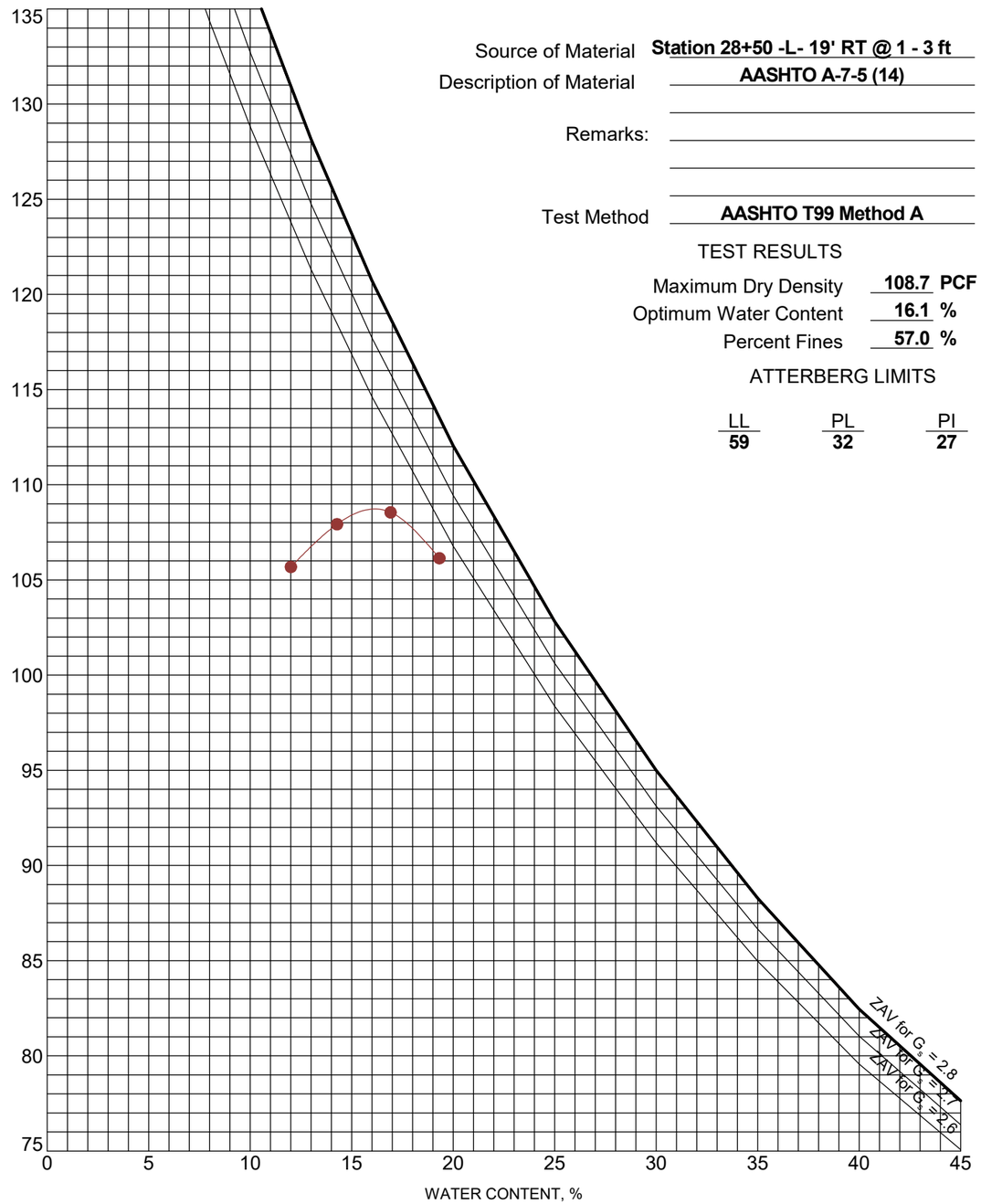
114-01-1203

Certification Number

Docusign Envelope ID: E990BE04-BB3B-4762-8C73-1AB5FE077DDE

MOISTURE-DENSITY RELATIONSHIP

ASTM D698/D1557



Source of Material: **Station 28+50 -L- 19' RT @ 1 - 3 ft**

Description of Material: **AASHTO A-7-5 (14)**

Remarks:

Test Method: **AASHTO T99 Method A**

TEST RESULTS

Maximum Dry Density	108.7	PCF
Optimum Water Content	16.1	%
Percent Fines	57.0	%

ATTERBERG LIMITS

LL	PL	PI
59	32	27

PROJECT: R-5759 Upgrades NC 115 (Statesville Road)	Terracon 2401 Brentwood Rd Ste 107 Raleigh, NC	PROJECT NUMBER: 70185317
SITE: Statesville Road Wilkesboro, North Carolina		CLIENT: HNTB North Carolina PC Raleigh, North Carolina
		EXHIBIT: B-2

LABORATORY TESTS ARE NOT VALID IF SEPARATED FROM ORIGINAL REPORT. COMPACTION - V2 70185317 GINT FILE.GPJ TERRACON_DATATEMPLATE.GDT 9/9/20

REPORT FOR CALIFORNIA BEARING RATIO

Service Date: 07/22/20
Report Date: 08/03/20

Terracon
2401 Brentwood Road, Suite 107
Raleigh, NC 27604
919-873-2211

Client

HNTB North Carolina PC
Attn: Joseph Olson
343 East Six Forks
Raleigh, North Carolina 28280

Project

R-5759 Upgrades NC 115 (Statesville Road)
Statesville Road / 2nd Street
Wilkesboro, North Carolina

Project No. 70185317

SAMPLE INFORMATION

Sample Number:	CBR-1	Proctor Method:	AASHTO T99 - Method A
Boring Number:	Station 28+50 -L- 19' RT	Maximum Dry Density (pcf):	108.7
Sample Location:	CBR-1	Optimum Moisture:	16.1
Depth:	1.0 - 3.0'	Liquid Limit:	
Material Description:		Plasticity Index:	

CBR TEST DATA

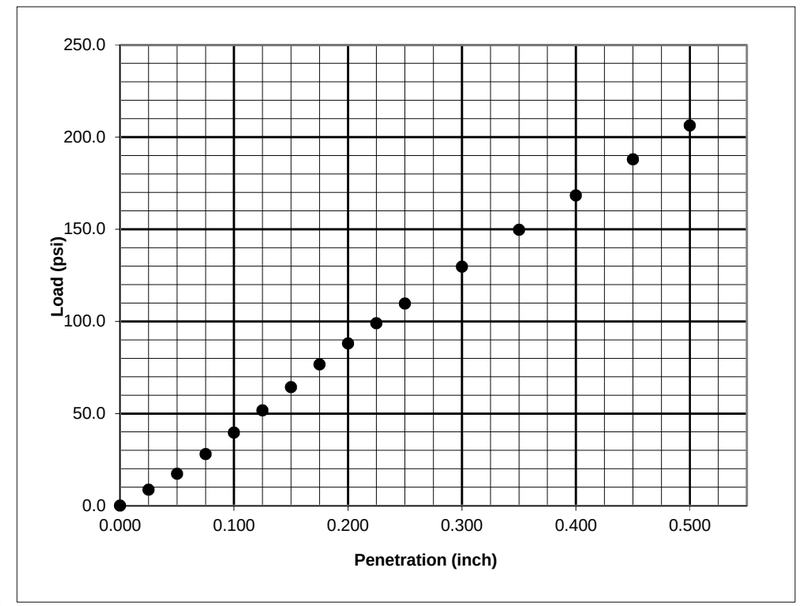
CBR Value at 0.100 inch	**4.0**
CBR Value at 0.200 inch	**5.9**
Surcharge Weight (lbs)	10
Soaking Condition	Soaked
Length of Soaking (hours)	96
Swell (%)	2.8

DENSITY DATA

Dry Density Before Soaking (pcf)	108.5
Compaction of Proctor (%)	99.8

MOISTURE DATA

Before Compaction (%)	16.3
After Compaction (%)	16.4
Top 1" After Soaking (%)	23.0
Average After Soaking (%)	20.1



Comments:

Services: Obtain soil sample and test for California Bearing Ratio

Terracon Rep: Stephanie Huffman
Reported To: Matt Alexander
Contractor:

Report Distribution

Reviewed by:
Matthew J. Alexander
Geotechnical Project Manager

Test Methods: AASHTO T193

The tests were performed in general accordance with applicable ASTM, AASHTO, or DOT test methods. This report is exclusively for the use of the client indicated above and shall not be reproduced except in full without the written approval of Terracon. Test results transmitted herein are only applicable to the actual samples tested at the location(s) referenced and are not necessarily indicative of the properties of other apparently similar or identical materials.

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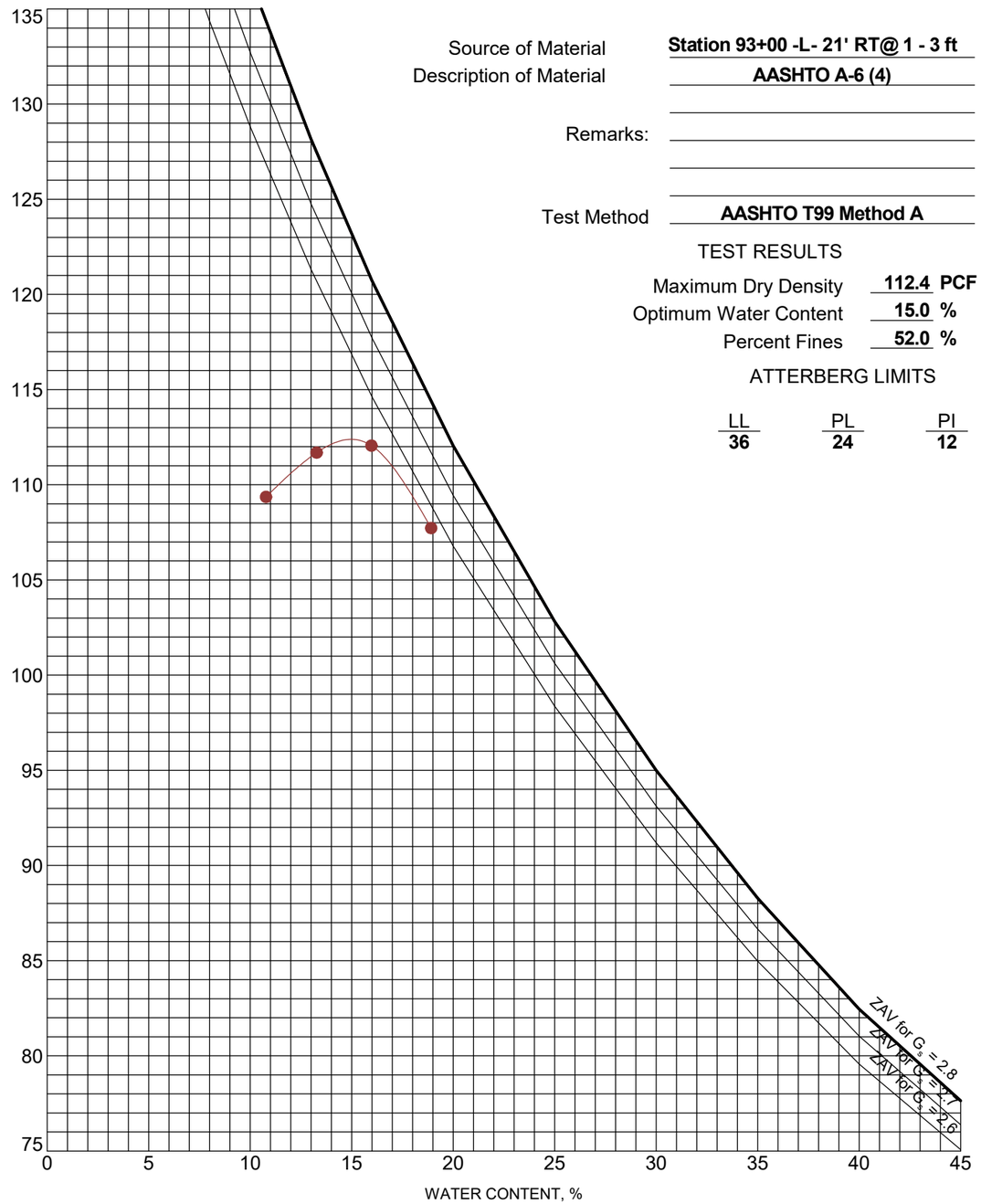
MOISTURE-DENSITY RELATIONSHIP

ASTM D698/D1557



Source of Material	Station 93+00 -L- 21' RT@ 1 - 3 ft
Description of Material	AASHTO A-6 (4)
Remarks:	
Test Method	AASHTO T99 Method A

TEST RESULTS

Maximum Dry Density	112.4	PCF
Optimum Water Content	15.0	%
Percent Fines	52.0	%

ATTERBERG LIMITS

LL	PL	PI
36	24	12

PROJECT: R-5759 Upgrades NC 115 (Statesville Road)	Terracon 2401 Brentwood Rd Ste 107 Raleigh, NC	PROJECT NUMBER: 70185317
SITE: Statesville Road Wilkesboro, North Carolina		CLIENT: HNTB North Carolina PC Raleigh, North Carolina
		EXHIBIT: B-3

LABORATORY TESTS ARE NOT VALID IF SEPARATED FROM ORIGINAL REPORT. COMPACTION - V2 70185317 GINT FILE.GPJ TERRACON_DATATEMPLATE.GDT 9/9/20

REPORT FOR CALIFORNIA BEARING RATIO

Terracon
2401 Brentwood Road, Suite 107
Raleigh, NC 27604
919-873-2211

Service Date: 07/22/20
Report Date: 08/03/20

Client

HNTB North Carolina PC
Attn: Joseph Olson
343 East Six Forks
Raleigh, North Carolina 28280

Project

R-5759 Upgrades NC 115 (Statesville Road)
Statesville Road / 2nd Street
Wilkesboro, North Carolina

Project No. 70185317

SAMPLE INFORMATION

Sample Number:	CBR-2	Proctor Method:	AASHTO T99 - Method A
Boring Number:	Station 93+00 -L 21' RT	Maximum Dry Density (pcf):	112.4
Sample Location:	CBR-2	Optimum Moisture:	15.0
Depth:	1.0 - 3.0'	Liquid Limit:	
Material Description:		Plasticity Index:	

CBR TEST DATA

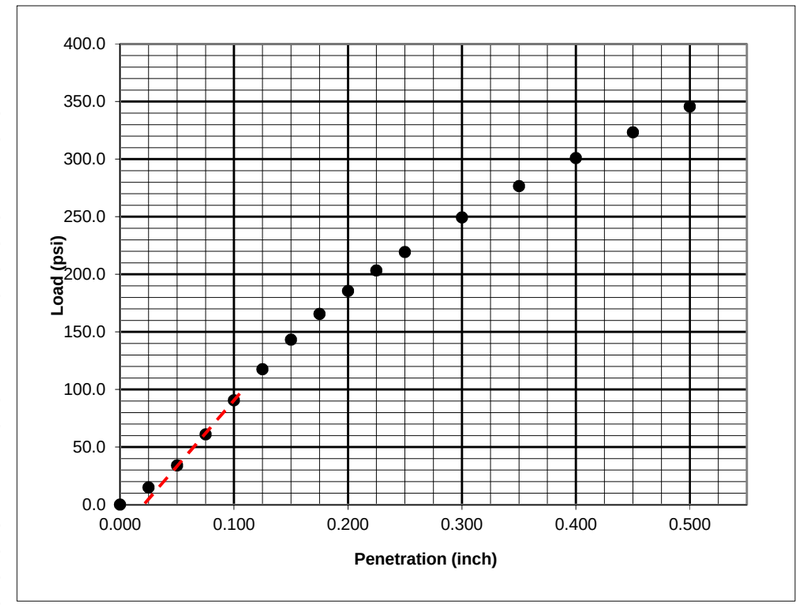
CBR Value at 0.100 inch	**11.5**
CBR Value at 0.200 inch	**13.3**
Surcharge Weight (lbs)	10
Soaking Condition	Soaked
Length of Soaking (hours)	96
Swell (%)	1.2

DENSITY DATA

Dry Density Before Soaking (pcf)	112.5
Compaction of Proctor (%)	100.1

MOISTURE DATA

Before Compaction (%)	14.9
After Compaction (%)	14.7
Top 1" After Soaking (%)	17.9
Average After Soaking (%)	17.0



Comments:

Services: Obtain soil sample and test for California Bearing Ratio

Terracon Rep: Stephanie Huffman
Reported To: Matt Alexander
Contractor:

Report Distribution

Reviewed by:
Matthew J. Alexander
Geotechnical Project Manager

Test Methods: AASHTO T193

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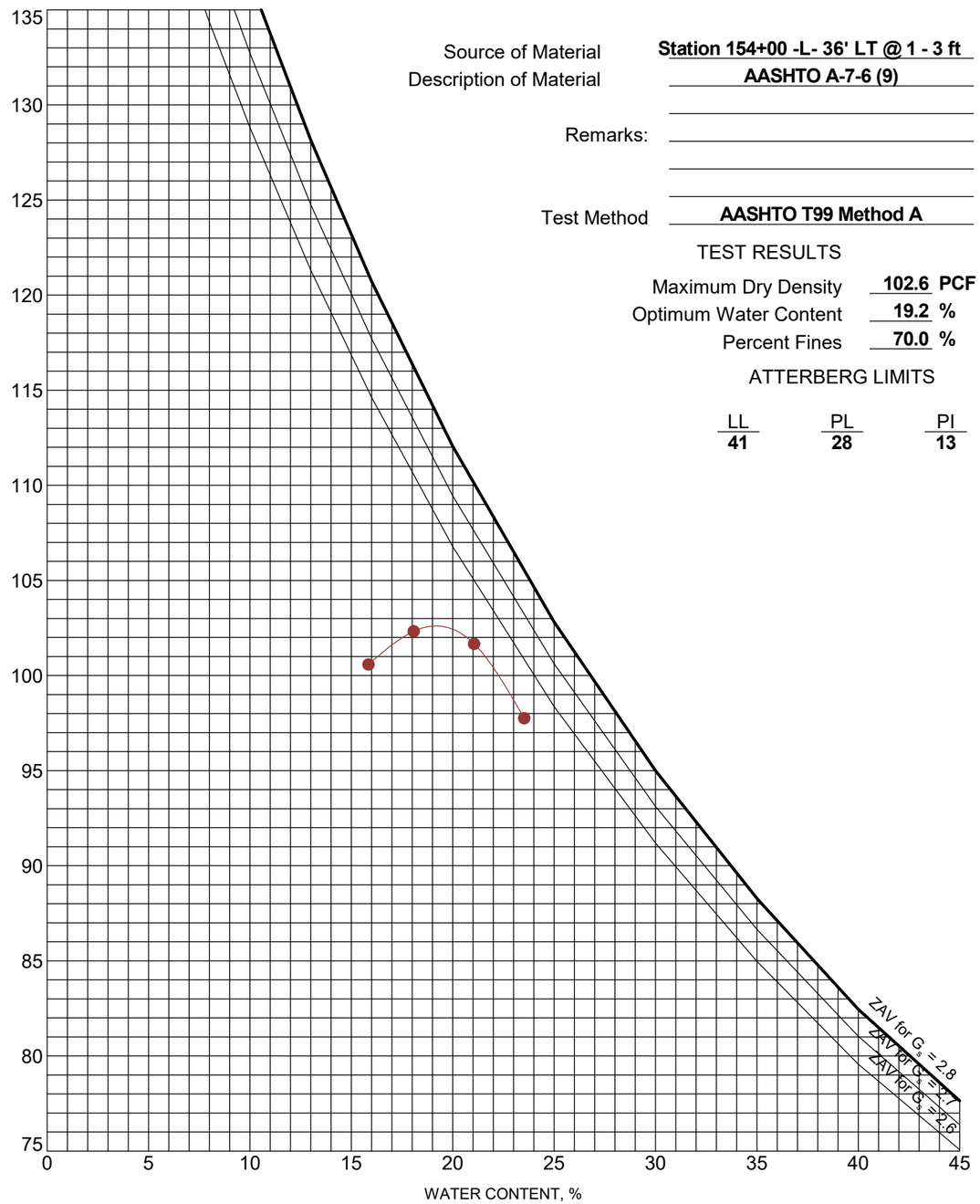
MOISTURE-DENSITY RELATIONSHIP

ASTM D698/D1557



Source of Material: **Station 154+00 -L- 36' LT @ 1 - 3 ft**

Description of Material: **AASHTO A-7-6 (9)**

Remarks:

Test Method: **AASHTO T99 Method A**

TEST RESULTS

Maximum Dry Density	102.6	PCF
Optimum Water Content	19.2	%
Percent Fines	70.0	%

ATTERBERG LIMITS

LL	PL	PI
41	28	13

PROJECT: R-5759 Upgrades NC 115 (Statesville Road)	Terracon 2401 Brentwood Rd Ste 107 Raleigh, NC	PROJECT NUMBER: 70185317
SITE: Statesville Road Wilkesboro, North Carolina		CLIENT: HNTB North Carolina PC Raleigh, North Carolina
		EXHIBIT: B-1

LABORATORY TESTS ARE NOT VALID IF SEPARATED FROM ORIGINAL REPORT. COMPACTION - V2 70185317 GINT FILE.GPJ TERRACON_DATATEMPLATE.GDT 9/9/20

REPORT FOR CALIFORNIA BEARING RATIO

Service Date: 07/22/20
Report Date: 08/03/20

Terracon
2401 Brentwood Road, Suite 107
Raleigh, NC 27604
919-873-2211

Client
HNTB North Carolina PC
Attn: Joseph Olson
343 East Six Forks
Raleigh, North Carolina 28280

Project
R-5759 Upgrades NC 115 (Statesville Road)
Statesville Road / 2nd Street
Wilkesboro, North Carolina

Project No. 70185317

SAMPLE INFORMATION

Sample Number:	CBR-3	Proctor Method:	AASHTO T99 - Method A
Boring Number:	Station 154+00 -L-36' LT	Maximum Dry Density (pcf):	102.6
Sample Location:	CBR 3	Optimum Moisture:	19.2
Depth:	1.0 - 3.0'	Liquid Limit:	
Material Description:		Plasticity Index:	

CBR TEST DATA

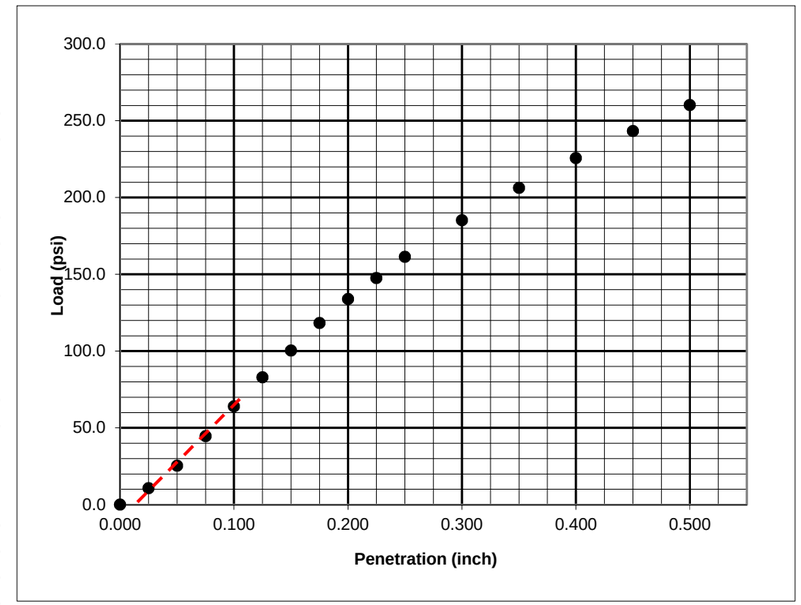
CBR Value at 0.100 inch	**7.7**
CBR Value at 0.200 inch	**9.5**
Surcharge Weight (lbs)	10
Soaking Condition	Soaked
Length of Soaking (hours)	96
Swell (%)	1.3

DENSITY DATA

Dry Density Before Soaking (pcf)	101.5
Compaction of Proctor (%)	98.9

MOISTURE DATA

Before Compaction (%)	19.8
After Compaction (%)	19.6
Top 1" After Soaking (%)	23.4
Average After Soaking (%)	21.9



Comments:

Services: Obtain soil sample and test for California Bearing Ratio

Terracon Rep: Stephanie Huffman
Reported To: Matt Alexander
Contractor:

Report Distribution

Reviewed by:
Matthew J. Alexander
Geotechnical Project Manager

Test Methods: AASHTO T193

The tests were performed in general accordance with applicable ASTM, AASHTO, or DOT test methods. This report is exclusively for the use of the client indicated above and shall not be reproduced except in full without the written approval of Terracon. Test results transmitted herein are only applicable to the actual samples tested at the location(s) referenced and are not necessarily indicative of the properties of other apparently similar or identical materials.

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SIEVE AND HYDROMETER ANALYSIS NCDOT
MOD. AASHTO T-88,

Client	Terracon	Boring No.	RWAL4-3
Client Reference	Widening NC-115	Depth (ft)	3.0-5.15
Project No.	R-2020-175-001	Sample No.	ST-1 STA 133+00 -L- 105' LT
Lab ID	R-2020-175-001-001	Soil Color	**Red Brown**

	SIEVE ANALYSIS			*HYDROMETER USCS*
cobbles	gravel	sand	silt	and clay fraction
AASHTO	**cobbles**	**gravel**	**sand**	**silt and clay fraction**

Sieve Size (mm)	Percent Finer	USCS	%	AASHTO	%	NCDOT SOIL MORTAR	%
100	100.00	*Gravel*	5.56	*Gravel*	9.60	*Coarse Sand Ret. #60*	13.92
2	90.40	*Sand*	32.58	*Coarse Sand*	7.62	*Fine Sand Ret. #270*	23.96
0.075	61.86	*Silt&Clay*	61.86	*Fine Sand*	20.92	*Silt 0.05-0.005mm*	27.91
				Silt & Clay	61.86	Clay <0.005mm	34.21
AASHTO (GI)		***A-6***	**(5)**				

DCN: CT-S3Y DATE 6-26-98 REVISION 1 *Z:\JOBPROJECTS\Terracon\2020-175 Terracon - Widening NC-115\[2020-175-001-001 DOT SIEVEHYD10.xlsm]Data1*

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WASH SIEVE ANALYSIS
NCDOT MOD. AASHTO T-88,

Client	Terracon	Boring No.	RWAL4-3
Client Reference	Widening NC-115	Depth (ft)	3.0-5.15
Project No.	R-2020-175-001	Sample No.	ST-1
Lab ID	R-2020-175-001-001	Soil Color	**Red Brown**

Minus #10 for Hygroscopic (10-15gm)		Hydrometer Specimen 50 or 100gms	
Tare No.	AL	Air Dried Hydrometer Material (gm)	70.61
Wgt.Tare + Wet Specimen (gm)	48.19	Corrected Dry Wt. of Hydro Mtrl. (gm)	62.14
Wgt.Tare + Dry Specimen (gm)	44.26		
Weight of Tare (gm)	15.44	Weight of -#270 Material	38.60
Weight of Water (gm)	3.93	Weight of -#10; +#270 Material	23.54
Weight of Dry Soil (gm)	28.82		
Moisture Content (%)	**13.6**		

Tare No.	724		
Wgt. Tare + Air Dry Soil (gm)	677.33	Dry Weight of Material Ret. #10 (gm)	45.85
Weight of Tare (gm)	140.83	Corrected Dry Sample Wt - #10 (gm)	431.77
Air Dried Wgt.Total Sample (gm)	536.50		
Total Dry Weight Sample (gm)	477.6	**J - Factor (Percent Finer than #10)**	**0.9040**

Sieve Size	Sieve Opening (mm)	Wgt.of Soil Retained (gm)	Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	**Accumulated Percent Finer (%)**
12"	300	0.00	0.00	0.00	100.00	**100.00**
6"	150	0.00	0.00	0.00	100.00	**100.00**
3"	75	0.00	0.00	0.00	100.00	**100.00**
2"	50	0.00	0.00	0.00	100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00	100.00	**100.00**
1"	25.0	0.00	0.00	0.00	100.00	**100.00**
3/4"	19.0	14.37	3.01	3.01	96.99	**96.99**
1/2"	12.5	2.20	0.46	3.47	96.53	**96.53**
3/8"	9.5	0.96	0.20	3.67	96.33	**96.33**
#4	4.75	9.04	1.89	5.56	94.44	**94.44**
#10	2.00	19.28	4.04	9.60	90.40	**90.40**
#20	0.85	1.98	3.19	3.19	96.81	**87.52**
#40	0.425	3.26	5.25	8.43	91.57	**82.78**
#60	0.25	3.41	5.49	13.92	86.08	**77.82**
#140	0.106	7.37	11.86	25.78	74.22	**67.09**
#200	0.075	3.60	5.79	31.58	68.42	**61.86**
#270	0.053	3.92	6.31	37.88	62.12	**56.15**
Pan	-	38.60	62.12	100.00	-	**-**

Tested By 129-09-0411 Date 9/4/20 Checked By GEM Date 9/9/20

DCN: CT-S3Y DATE 12/16/09 REVISION 6 *Z:\JOBPROJECTS\Terracon\2020-175 Terracon - Widening NC-115\[2020-175-001-001 DOT SIEVEHYD10.xlsm]Data1*

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HYDROMETER ANALYSIS

NCDOT MOD. AASHTO T-88,

Client	Terracon	Boring No.	RWAL4-3
Client Reference	Widening NC-115	Depth (ft)	3.0-5.15
Project No.	R-2020-175-001	Sample No.	ST-1
Lab ID	R-2020-175-001-001	Soil Color	**Red Brown**

Elapsed Time (min)		R Measured	Temp. (°C)	Composite Correction	R Corrected	N (%)	K Factor	Diameter (mm)	N' (%)
11:47:00	0	NA	NA	NA	NA	NA	NA	NA	NA
11:47:31	0.52	45.0	23.5	-2.34	41.3	66.1	0.01297	0.0539	**59.8**
12:47:00	60.00	25.0	23.7	-2.38	21.4	34.2	0.01294	0.0058	**30.9**

Corrections	
a - Factor	0.994
Percent Finer than # 10	90.40
Specific Gravity	2.68 Assumed

Note: *Hydrometer test is performed on - #10 sieve material.*

LL = 36

PL = 25

PI = 11

Tested By 129-09-0411 Date 9/4/20 Checked By GEM Date 9/9/20

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ATTERBERG LIMITS

AASHTO T-89, T-90 *(DOT Modified)*

Client	Terracon	Boring No.	RWAL4-3
Client Reference	Widening NC-115	Depth (ft)	3.0-5.15
Project No.	R-2020-175-001	Sample No.	ST-1
Lab ID	R-2020-175-001-001	Soil Description	**RED BROWN SILT**

Note: The USCS symbol used with this test refers only to the minus No. 40 sieve material. See the "Sieve and Hydrometer Analysis" graph page for the complete material description. (Minus No. 40 sieve material, Airdried)

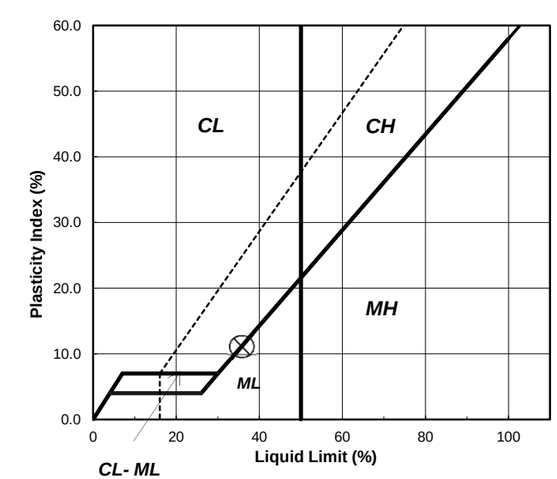
Liquid Limit Test	**1**
Tare Number	W-5
Wt. of Tare & WS (gm)	33.01
Wt. of Tare & DS (gm)	28.43
Wt. of Tare (gm)	15.56
Wt. of Water (gm)	4.6
Wt. of DS (gm)	12.9
Moisture Content (%)	**35.6**
Number of Blows	**25**

Plastic Limit Test	**1**	**2**	**Range**
Tare Number	15	18	
Wt. of Tare & WS (gm)	17.61	17.25	
Wt. of Tare & DS (gm)	15.46	15.19	
Wt. of Tare (gm)	6.98	6.99	
Wt. of Water (gm)	2.2	2.1	
Wt. of DS (gm)	8.5	8.2	
Moisture Content (%)	**25.4**	**25.1**	**0.2**

Note: The acceptable range of the two Moisture contents is ± 2.6

Test Results	
Liquid Limit (%)	**36**
Plastic Limit (%)	**25**
Plasticity Index (%)	**11**
USCS Symbol	**ML**

Plasticity Chart



Tested By 129-07-0411 Date 9/4/20 Checked By GEM Date 9/8/20

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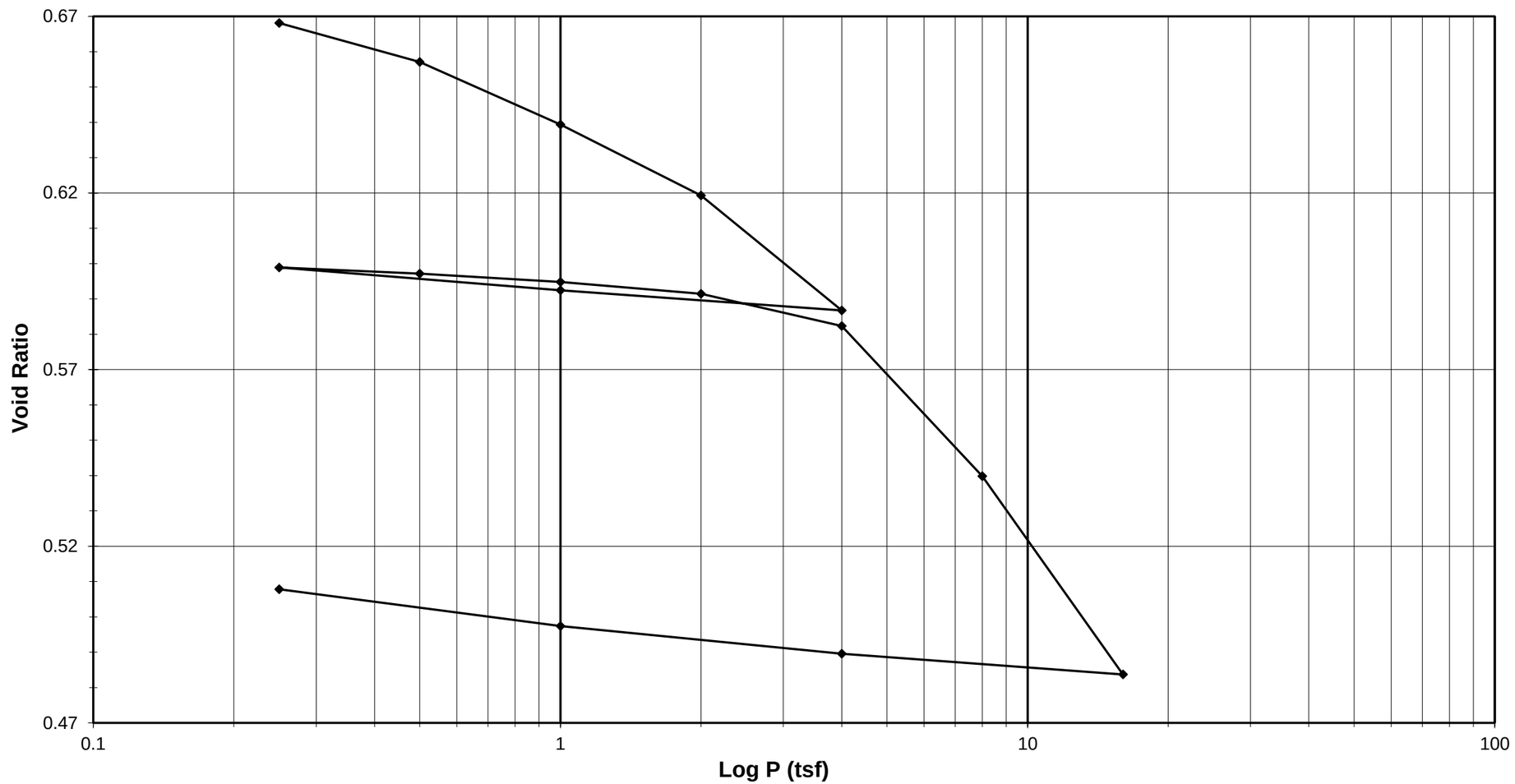
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Terracon	Boring No.	RWAL4-3
Client Reference	Widening NC-115	Depth (ft)	3.0'-5.15'
Project No.	R-2020-175-001	Sample No.	ST-1
Lab ID	R-2020-175-001-001	Visual Description	Red-Brown Clay

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED



Tested By *129-07-0411* *Date* *9/2/2020* *Approved By* *MPS* *Date* 9/8/2020

DCN: CT-24E Date: 5/3/12 Revision: 6

Z:\2020 PROJECTS\Terracon\2020-175 Terracon - Widening NC-115\[175-001-001 DOT GEOJAC-16TSF1 Cv.xlsm]FINAL PLOT

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ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Terracon	Boring No.	RWAL4-3
Client Reference	Widening NC-115	Depth (ft)	3.0'-5.15'
Project No.	R-2020-175-001	Sample No.	ST-1
Lab ID	R-2020-175-001-001	Visual Description	Red-Brown Clay

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED
Consolidometer No. R409
1 Division = 0.0001 (in.)

Sample Properties	**Initial**	**Final**
Water Content		
Tare Number	TB-08	854
Wt. Tare & WS (g)	340.43	283.80
Wt. Tare & DS (g)	310.66	260.31
Wt. Water (g)	29.77	23.49
Wt. Tare (g)	135.63	134.82
Wt. DS (g)	175.03	125.49
Water Content (%)	17.01	18.72
Sample Parameters		
Sample Diameter (in)	2.5	2.5
Sample Height (in)	1.0000	0.8944
Sample Volume (cc)	80.44	71.95
Wt. Wet Sample + Ring (g)	365.45	367.65
Wt. of Ring (g)	214.71	214.71
Wt. of Wet Sample (g)	150.74	152.94
Wet Density (pcf)	116.93	132.65
Wet Density (g/cc)	1.87	2.13
Water Content (%)	17.01	18.72
Wt. of Dry Sample (g)	128.83	128.83
Dry Density (pcf)	99.94	111.73
Dry Density (g/cc)	1.60	1.79
Void Ratio	0.6859	0.5079
Saturation (%)	66.96	99.52
Specific Gravity	2.70	*Assumed*

Test Data Summary

Applied Pressure (tsf)	**Final Dial Reading** (div)	**Machine Deflection** (div)	**Corrected Reading** (div)	**Height of Sample** (mm)	**Volume (cc)**	**Dry Density** (g/cc)	**Void Ratio**
Seating	0	0	0	25.400	80.440	1.60155	**0.68587**
0.25	116.0	10.7	105.3	25.132	79.593	1.61860	**0.66811**
0.5	200.8	30.0	170.8	24.966	79.066	1.62938	**0.65707**
1	322.7	47.1	275.6	24.700	78.223	1.64694	**0.63940**
2	469.2	74.4	394.8	24.397	77.264	1.66737	**0.61932**
4	689.1	101.3	587.8	23.907	75.712	1.70156	**0.58678**
1	624.0	69.8	554.2	23.992	75.982	1.69552	**0.59244**
0.25	550.3	34.5	515.8	24.090	76.291	1.68864	**0.59892**
0.5	566.8	40.8	526.0	24.064	76.209	1.69047	**0.59719**
1	595.4	55.4	540.0	24.029	76.096	1.69296	**0.59484**
2	637.2	77.3	560.0	23.978	75.935	1.69655	**0.59147**
4	716.4	102.2	614.2	23.840	75.499	1.70635	**0.58233**
8	1012.9	146.5	866.4	23.199	73.471	1.75347	**0.53981**
16	1399.1	199.9	1199.2	22.354	70.794	1.81977	**0.48370**
4	1302.9	138.4	1164.5	22.442	71.072	1.81263	**0.48955**
1	1204.7	86.8	1117.9	22.561	71.448	1.80311	**0.49741**
0.25	1101.5	45.6	1055.9	22.718	71.946	1.79062	**0.50785**

Tested By *129-07-0411* *Date* *9/2/2020* *Input Checked By* *GEM* *Date* 9/8/2020

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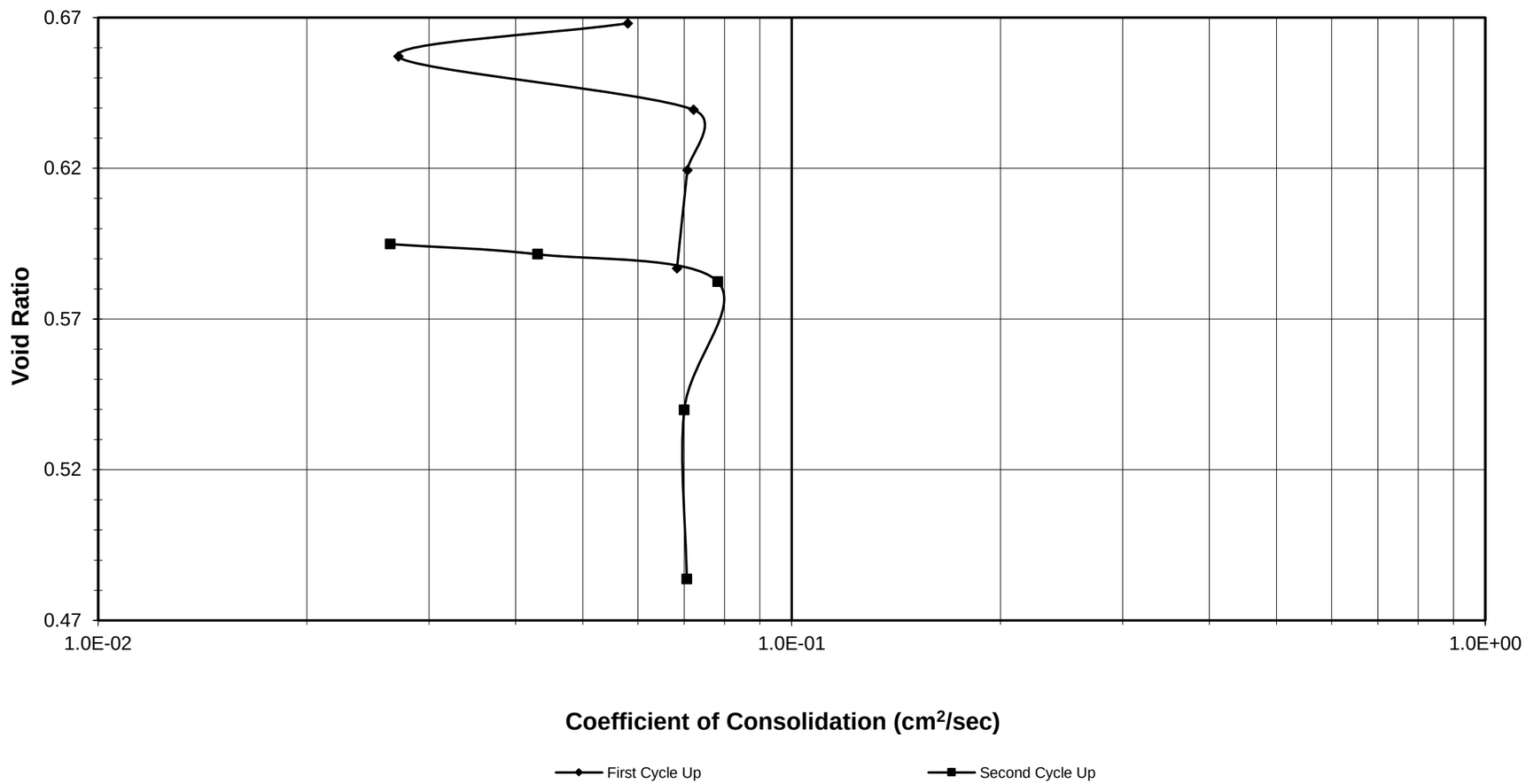
AASHTO T-216

Client	Terracon	Boring No.	RWAL4-3
Client Reference	Widening NC-115	Depth (ft)	3.0'-5.15'
Project No.	R-2020-175-001	Sample No.	ST-1
Lab ID	R-2020-175-001-001	Visual Description	Red-Brown Clay

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED



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DCN: CT-24E Date: 5/3/12 Revision: 6

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AASHTO T-216

Client	Terracon	Boring No.	RWAL4-3
Client Reference	Widening NC-115	Depth (ft)	3.0'-5.15'
Project No.	R-2020-175-001	Sample No.	ST-1
Lab ID	R-2020-175-001-001	Visual Description	Red-Brown Clay

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED
Consolidometer No. R409
1 Division = 0.0001 (in.)

Sample Properties	**Initial**	**Final**
Water Content		
Tare Number	TB-08	854
Wt. Tare & WS (g)	340.43	283.80
Wt. Tare & DS (g)	310.66	260.31
Wt. Water (g)	29.77	23.49
Wt. Tare (g)	135.63	134.82
Wt. DS (g)	175.03	125.49
Water Content (%)	17.01	18.72
Sample Parameters		
Sample Diameter (in)	2.5	2.5
Sample Height (in)	1.000	0.894
Sample Volume (cc)	80.44	71.95
Wt. Wet Sample + Ring (g)	365.45	367.65
Wt. of Ring (g)	214.71	214.71
Wt. of Wet Sample (g)	150.74	152.94
Wet Density (pcf)	116.93	132.65
Wet Density (g/cc)	1.87	2.13
Water Content (%)	17.01	18.72
Wt. of Dry Sample (g)	128.83	128.83
Dry Density (pcf)	99.94	111.73
Dry Density (g/cc)	1.60	1.79
Void Ratio	0.6859	0.5079
Saturation (%)	66.96	99.52
Specific Gravity	*2.7*	*Assumed*

C_v Test Data Summary

Load Increment (tsf)	**Dial Reading @ t_{50}** (div)	**Machine Deflection** (div)	**Corrected Dial Reading @ t_{50}** (div)	**Sample Height @ t_{50}** (cm)	**Time t_{50}** (min.)	**C_v** **(cm^2/sec)**
0 - 0.25	79.0	10.7	68.3	2.523	**0.09**	**0.05804**
0.25 - 0.5	171.4	30.0	141.4	2.504	**0.19**	**0.02709**
0.5 - 1.0	279.6	47.1	232.5	2.481	**0.07**	**0.07218**
1.0 - 2.0	406.8	74.4	332.3	2.456	**0.07**	**0.07071**
2.0 - 4.0	598.3	101.3	497.0	2.414	**0.07**	**0.06832**
4.0 - 1.0	NA	69.8	NA	NA	**NA**	**NA**
1.0 - 0.25	NA	34.5	NA	NA	**NA**	**NA**
0.25 - 0.5	NA	40.8	NA	NA	**NA**	**NA**
0.5 - 1.0	587.5	55.4	532.0	2.405	**0.18**	**0.02637**
1.0 - 2.0	625.2	77.3	547.9	2.401	**0.11**	**0.04301**
2.0 - 4.0	686.9	102.2	584.7	2.391	**0.06**	**0.07824**
4.0 - 8.0	878.0	146.5	731.5	2.354	**0.07**	**0.06999**
8.0 - 16.0	1257.8	199.9	1057.9	2.271	**0.06**	**0.07057**
16.0 - 4.0	NA	138.4	NA	NA	**NA**	**NA**
4.0 - 1.0	NA	86.8	NA	NA	**NA**	**NA**
1.0 - 0.25	NA	45.6	NA	NA	**NA**	**NA**

Tested By *129-07-0411* *Date* *9/2/2020* *Input Checked By* *GEM* *Date* *9/8/2020*

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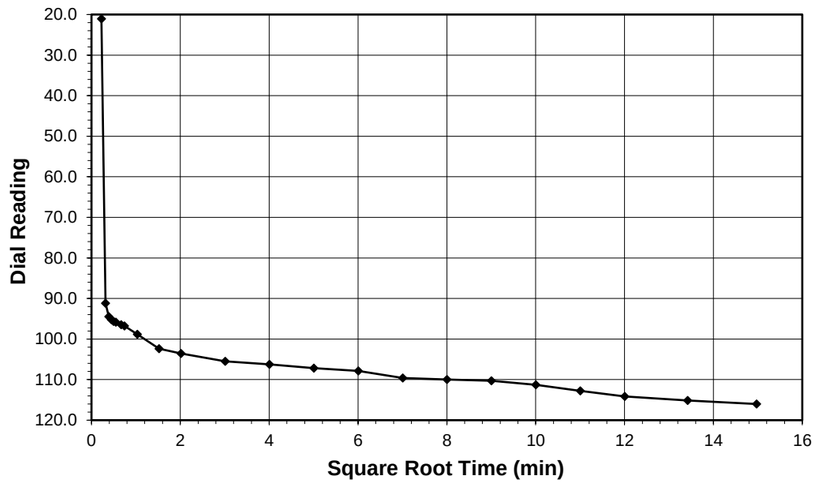
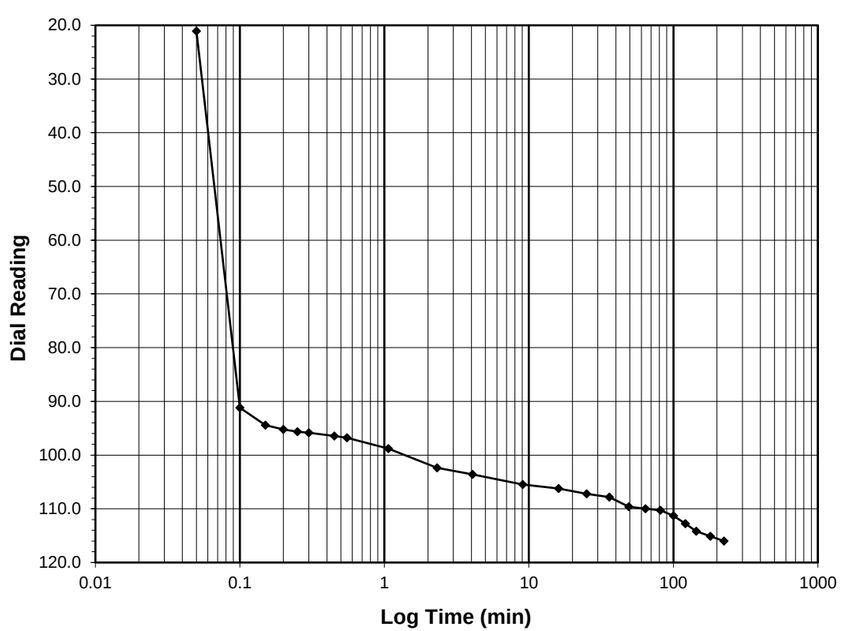
AASHTO T-216

Client	Terracon	Boring No.	RWAL4-3
Client Project	Widening NC-115	Depth (ft)	3.0'-5.15'
Project No.	R-2020-175-001	Sample No.	ST-1
Lab ID	R-2020-175-001-001	Visual Description	Red-Brown Clay

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**0.0-0.25**
Final Reading	**(div)**	**116.0**
Consolidometer No.		**R409**
1 Division	(in)	0.0001
Start Date		9/2/2020
Start Time		8:45:24

Elapsed Time (min)	Dial Reading (div)
Initial	**0.0**
0.05	21.1
0.10	91.2
0.15	94.4
0.20	95.2
0.25	95.7
0.30	95.8
0.45	96.4
0.55	96.8
1.07	98.8
2.32	102.4
4.07	103.6
9.07	105.5
16.07	106.2
25.07	107.2
36.07	107.8
49.07	109.6
64.07	110.0
81.07	110.3
100.07	111.3
121.07	112.8
144.07	114.2
180.07	115.1
224.15	116.0

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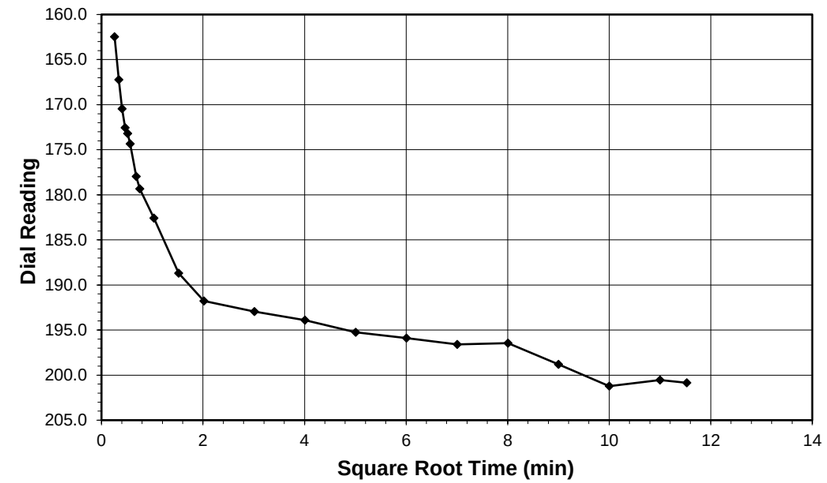
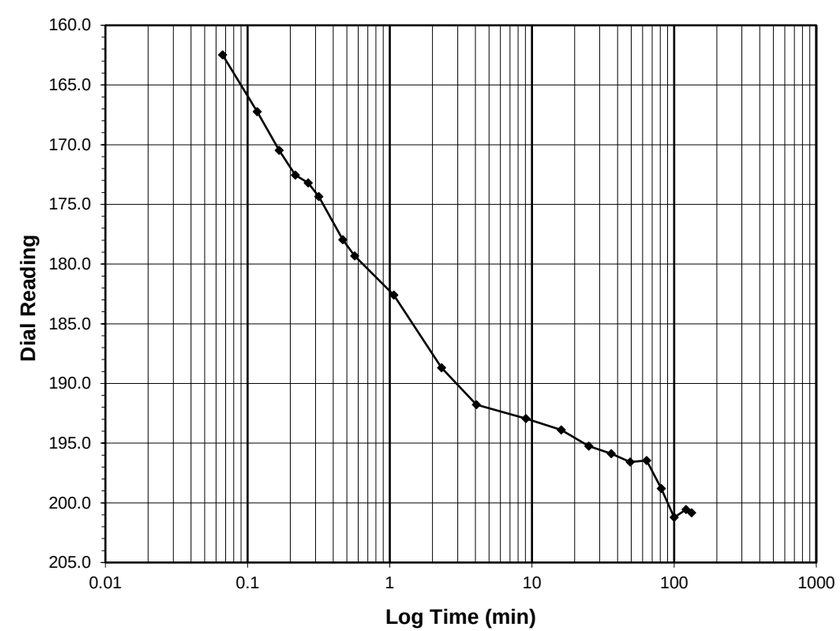
AASHTO T-216

Client	Terracon	Boring No.	RWAL4-3
Client Project	Widening NC-115	Depth (ft)	3.0'-5.15'
Project No.	R-2020-175-001	Sample No.	ST-1
Lab ID	R-2020-175-001-001	Visual Description	Red-Brown Clay

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**0.25-0.5**
Final Reading	**(div)**	**200.8**
Consolidometer No.		**R409**
1 Division	(in)	0.0001
Start Date		9/2/2020
Start Time		12:29:34

Elapsed Time (min)	Dial Reading (div)
Initial	**116.0**
0.07	162.5
0.12	167.2
0.17	170.5
0.22	172.6
0.27	173.2
0.32	174.3
0.47	178.0
0.57	179.3
1.07	182.6
2.32	188.7
4.07	191.8
9.07	192.9
16.07	193.9
25.07	195.3
36.07	195.9
49.07	196.6
64.07	196.5
81.07	198.8
100.07	201.2
121.07	200.6
132.88	200.8

Tested By *129-07-0411* *Date* *9/2/2020* *Checked By* *GEM* *Date* 9/8/2020

 DCN: CT-24E Date: 5/3/12 Revision: 3

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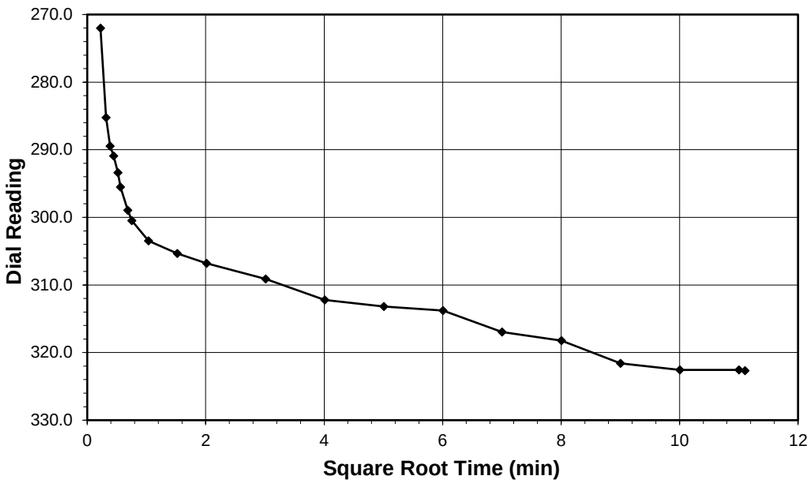
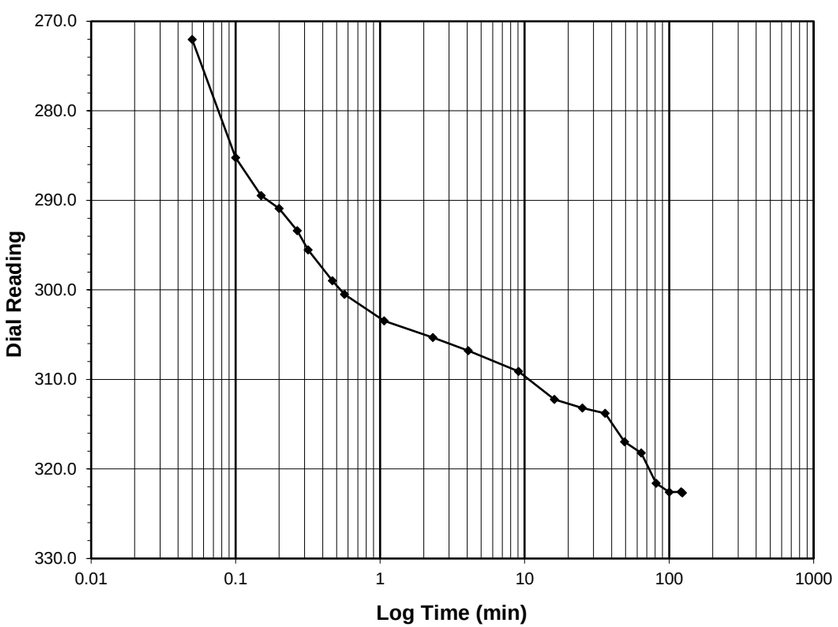
AASHTO T-216

Client	Terracon	Boring No.	RWAL4-3
Client Project	Widening NC-115	Depth (ft)	3.0'-5.15'
Project No.	R-2020-175-001	Sample No.	ST-1
Lab ID	R-2020-175-001-001	Visual Description	Red-Brown Clay

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**0.5-1.0**
Final Reading	**(div)**	**322.7**
Consolidometer No.		**R409**
1 Division	(in)	0.0001
Start Date		9/2/2020
Start Time		14:42:26

Elapsed Time (min)	Dial Reading (div)
Initial	**200.8**
0.05	272.0
0.10	285.2
0.15	289.5
0.20	290.9
0.27	293.4
0.32	295.5
0.47	299.0
0.57	300.5
1.07	303.5
2.32	305.3
4.07	306.8
9.07	309.1
16.07	312.2
25.07	313.2
36.07	313.8
49.07	317.0
64.08	318.2
81.08	321.6
100.08	322.6
121.08	322.6
123.32	322.7

Tested By *129-07-0411* *Date* *9/2/2020* *Checked By* *GEM* *Date* 9/8/2020

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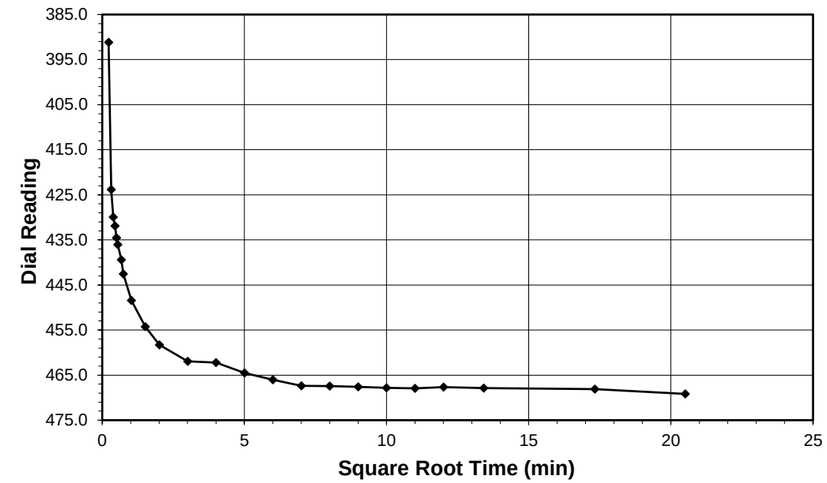
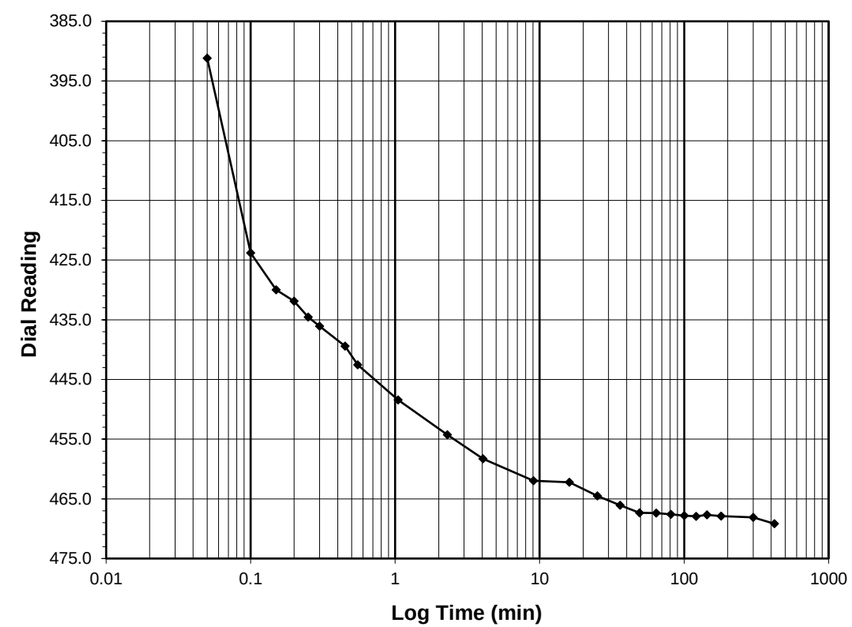
AASHTO T-216

Client	Terracon	Boring No.	RWAL4-3
Client Project	Widening NC-115	Depth (ft)	3.0'-5.15'
Project No.	R-2020-175-001	Sample No.	ST-1
Lab ID	R-2020-175-001-001	Visual Description	Red-Brown Clay

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**1.0-2.0**
Final Reading	**(div)**	**469.2**
Consolidometer No.		**R409**
1 Division	(in)	0.0001
Start Date		9/2/2020
Start Time		16:45:46

Elapsed Time (min)	Dial Reading (div)
Initial	**322.7**
0.05	391.2
0.10	423.8
0.15	430.0
0.20	431.9
0.25	434.5
0.30	436.1
0.45	439.4
0.55	442.5
1.05	448.4
2.30	454.3
4.05	458.3
9.05	462.0
16.05	462.2
25.05	464.5
36.05	466.1
49.05	467.4
64.05	467.4
81.05	467.6
100.05	467.8
121.05	467.9
144.05	467.7
180.05	467.9
300.05	468.1
420.50	469.2

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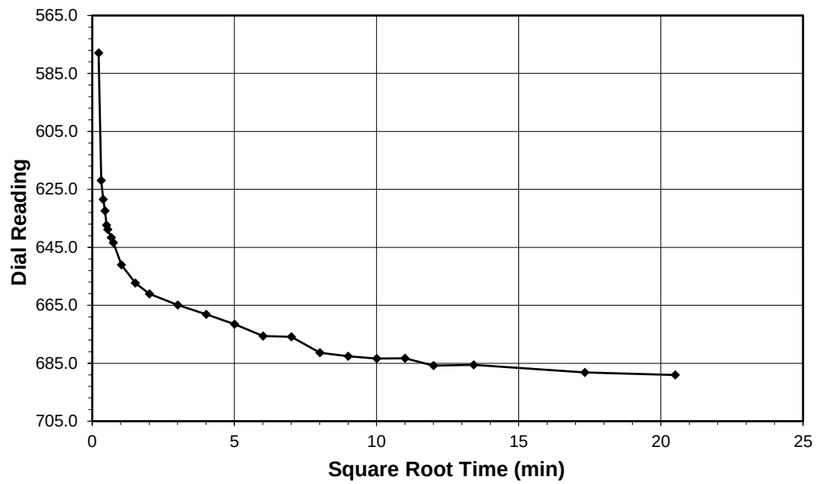
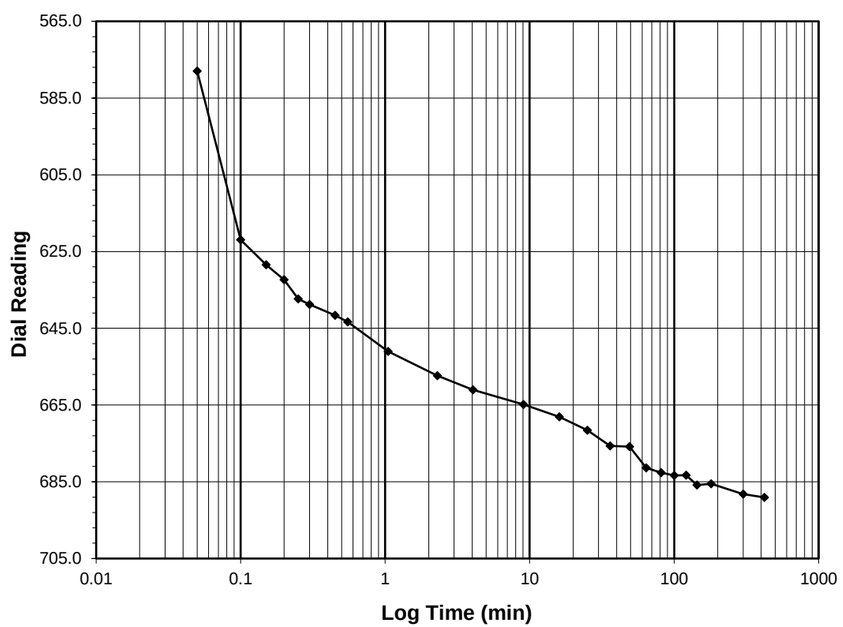
AASHTO T-216

Client	Terracon	Boring No.	RWAL4-3
Client Project	Widening NC-115	Depth (ft)	3.0'-5.15'
Project No.	R-2020-175-001	Sample No.	ST-1
Lab ID	R-2020-175-001-001	Visual Description	Red-Brown Clay

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**2.0-4.0**
Final Reading	**(div)**	**689.1**
Consolidometer No.		**R409**
1 Division	(in)	0.0001
Start Date		9/2/2020
Start Time		23:46:16

Elapsed Time (min)	Dial Reading (div)
Initial	**469.2**
0.05	578.0
0.10	621.9
0.15	628.4
0.20	632.4
0.25	637.3
0.30	638.8
0.45	641.6
0.55	643.3
1.05	651.0
2.30	657.3
4.05	661.1
9.05	664.9
16.07	668.1
25.07	671.6
36.07	675.6
49.07	675.9
64.07	681.4
81.07	682.6
100.07	683.3
121.07	683.3
144.07	685.8
180.07	685.5
300.07	688.2
420.47	689.1

Tested By *129-07-0411* *Date* *9/2/2020* *Checked By* *GEM* *Date* 9/8/2020

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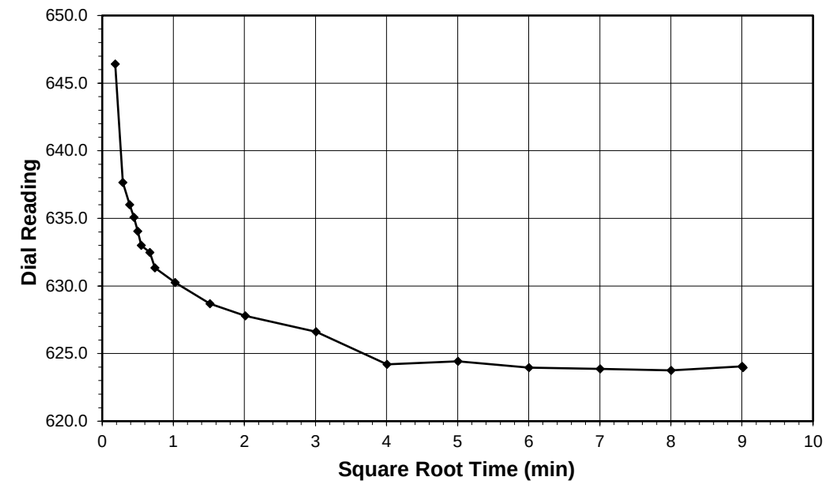
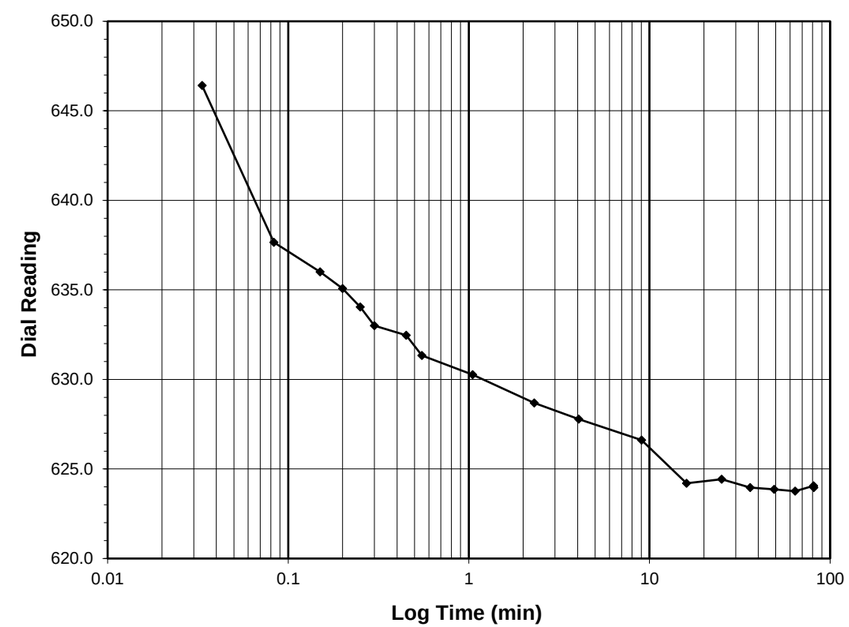
AASHTO T-216

Client	Terracon	Boring No.	RWAL4-3
Client Project	Widening NC-115	Depth (ft)	3.0'-5.15'
Project No.	R-2020-175-001	Sample No.	ST-1
Lab ID	R-2020-175-001-001	Visual Description	Red-Brown Clay

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**4.0-1.0**
Final Reading	**(div)**	**624.0**
Consolidometer No.		**R409**
1 Division	(in)	0.0001
Start Date		9/3/2020
Start Time		6:46:44

Elapsed Time (min)	Dial Reading (div)
Initial	**689.1**
0.03	646.4
0.08	637.7
0.15	636.0
0.20	635.1
0.25	634.0
0.30	633.0
0.45	632.5
0.55	631.3
1.05	630.3
2.30	628.7
4.05	627.8
9.05	626.6
16.05	624.2
25.05	624.4
36.05	624.0
49.05	623.9
64.05	623.8
81.05	624.1
81.30	624.0

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 DCN: CT-24E Date: 5/3/12 Revision: 3

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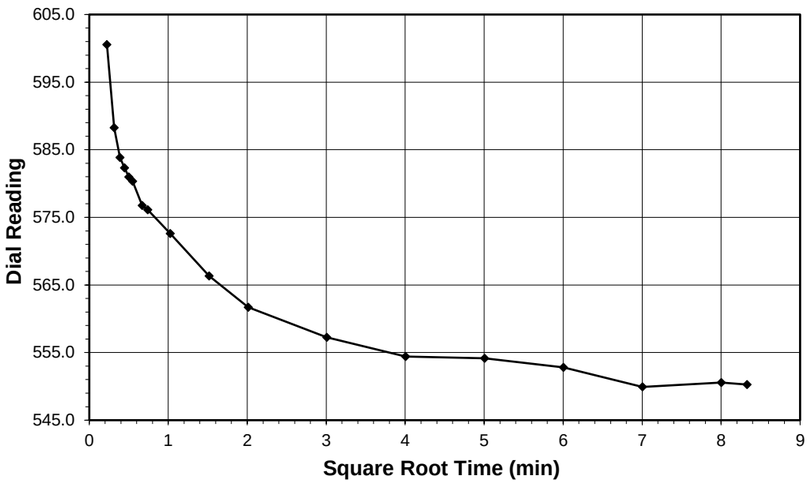
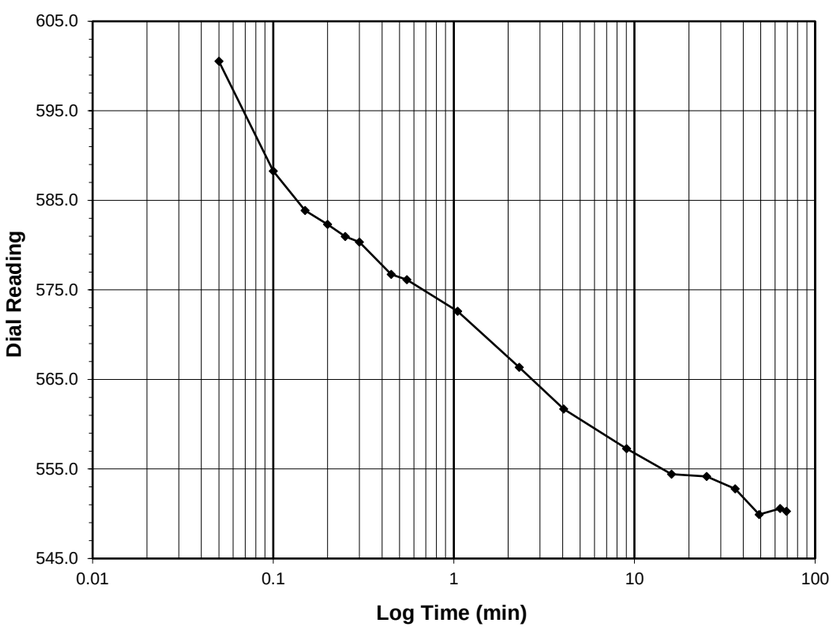
AASHTO T-216

Client	Terracon	Boring No.	RWAL4-3
Client Project	Widening NC-115	Depth (ft)	3.0'-5.15'
Project No.	R-2020-175-001	Sample No.	ST-1
Lab ID	R-2020-175-001-001	Visual Description	Red-Brown Clay

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**1.0-0.25**
Final Reading	**(div)**	**550.3**
Consolidometer No.		**R409**
1 Division	(in)	0.0001
Start Date		9/3/2020
Start Time		8:08:04

Elapsed Time (min)	Dial Reading (div)
Initial	**624.0**
0.05	600.5
0.10	588.3
0.15	583.9
0.20	582.3
0.25	581.0
0.30	580.3
0.45	576.7
0.55	576.1
1.05	572.6
2.30	566.3
4.05	561.7
9.05	557.3
16.05	554.4
25.05	554.2
36.05	552.8
49.05	549.9
64.05	550.6
69.38	550.3

Tested By *129-07-0411* *Date* *9/3/2020* *Checked By* *GEM* *Date* 9/8/2020

DCN: CT-24E Date: 5/3/12 Revision: 3

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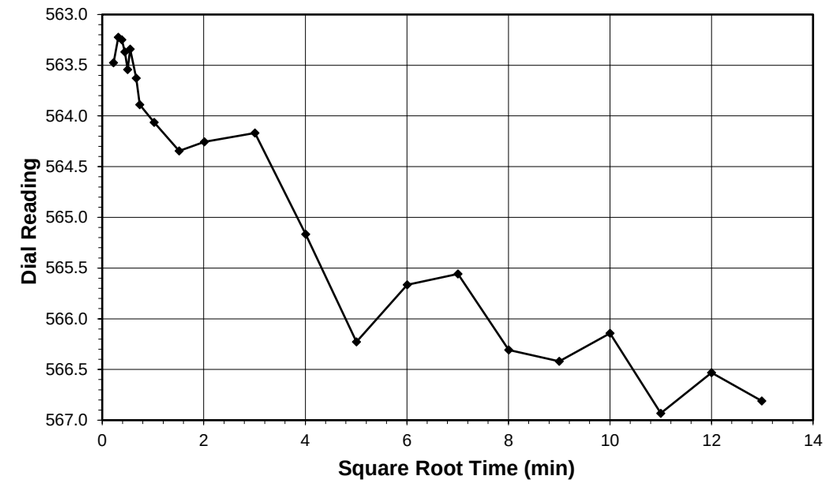
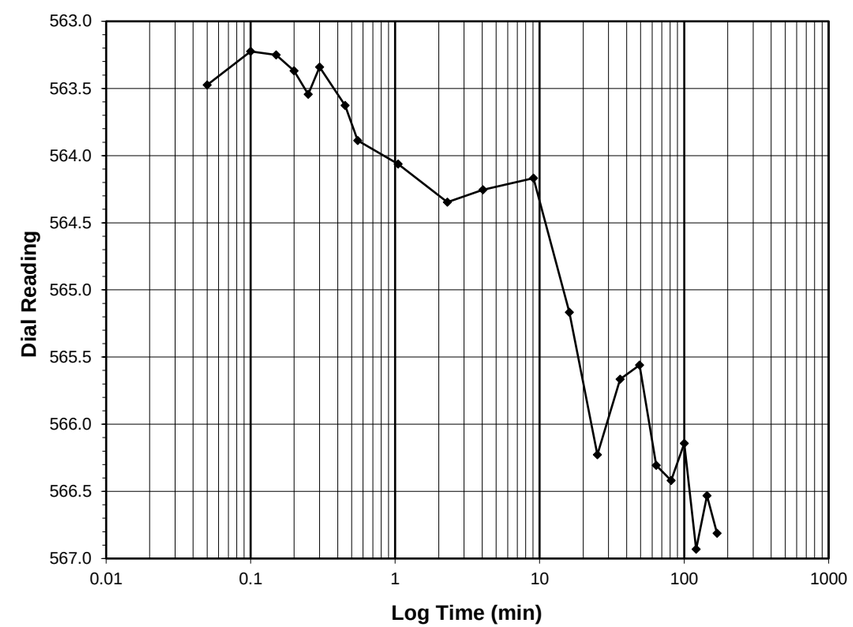
AASHTO T-216

Client	Terracon	Boring No.	RWAL4-3
Client Project	Widening NC-115	Depth (ft)	3.0'-5.15'
Project No.	R-2020-175-001	Sample No.	ST-1
Lab ID	R-2020-175-001-001	Visual Description	Red-Brown Clay

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**0.25-0.5**
Final Reading	**(div)**	**566.8**
Consolidometer No.		**R409**
1 Division	(in)	0.0001
Start Date		9/3/2020
Start Time		9:17:27

Elapsed Time (min)	Dial Reading (div)
Initial	**550.3**
0.05	563.5
0.10	563.2
0.15	563.2
0.20	563.4
0.25	563.5
0.30	563.3
0.45	563.6
0.55	563.9
1.05	564.1
2.30	564.3
4.05	564.3
9.05	564.2
16.05	565.2
25.07	566.2
36.07	565.7
49.07	565.6
64.07	566.3
81.07	566.4
100.07	566.1
121.07	566.9
144.07	566.5
168.77	566.8

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DCN: CT-24E Date: 5/3/12 Revision: 3

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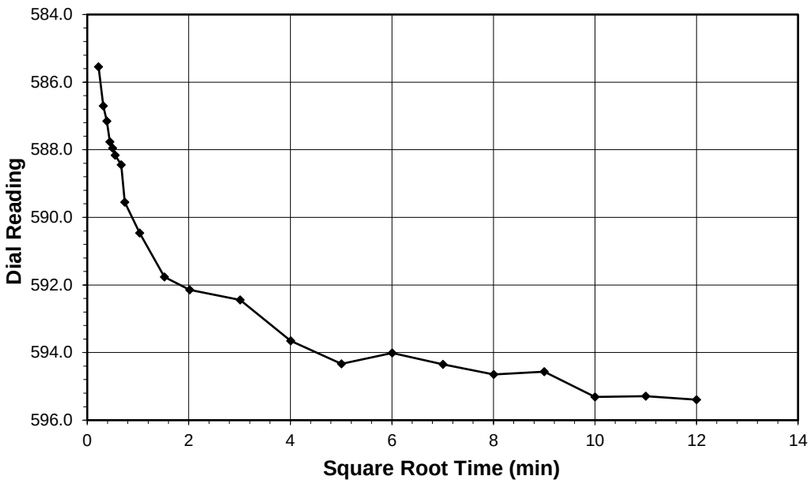
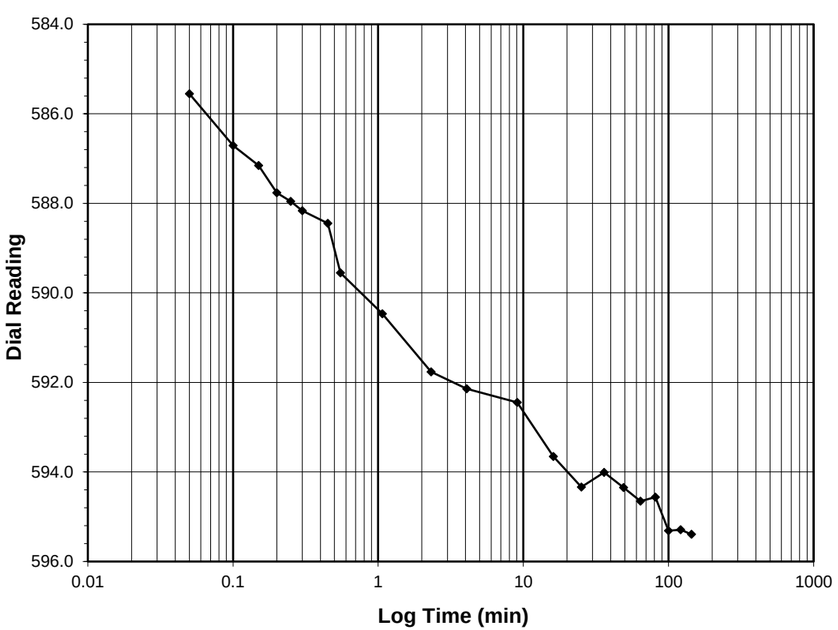
AASHTO T-216

Client	Terracon	Boring No.	RWAL4-3
Client Project	Widening NC-115	Depth (ft)	3.0'-5.15'
Project No.	R-2020-175-001	Sample No.	ST-1
Lab ID	R-2020-175-001-001	Visual Description	Red-Brown Clay

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**0.5-1.0**
Final Reading	**(div)**	**595.4**
Consolidometer No.		**R409**
1 Division	(in)	0.0001
Start Date		9/3/2020
Start Time		12:06:13

Elapsed Time (min)	Dial Reading (div)
Initial	**566.8**
0.05	585.6
0.10	586.7
0.15	587.2
0.20	587.8
0.25	588.0
0.30	588.2
0.45	588.4
0.55	589.6
1.07	590.5
2.32	591.8
4.07	592.1
9.07	592.4
16.07	593.7
25.07	594.3
36.07	594.0
49.07	594.3
64.07	594.6
81.07	594.6
100.07	595.3
121.07	595.3
144.07	595.4

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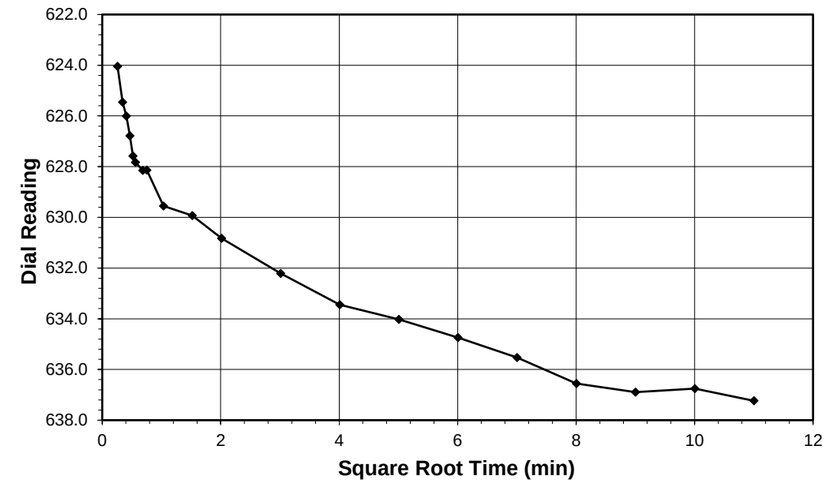
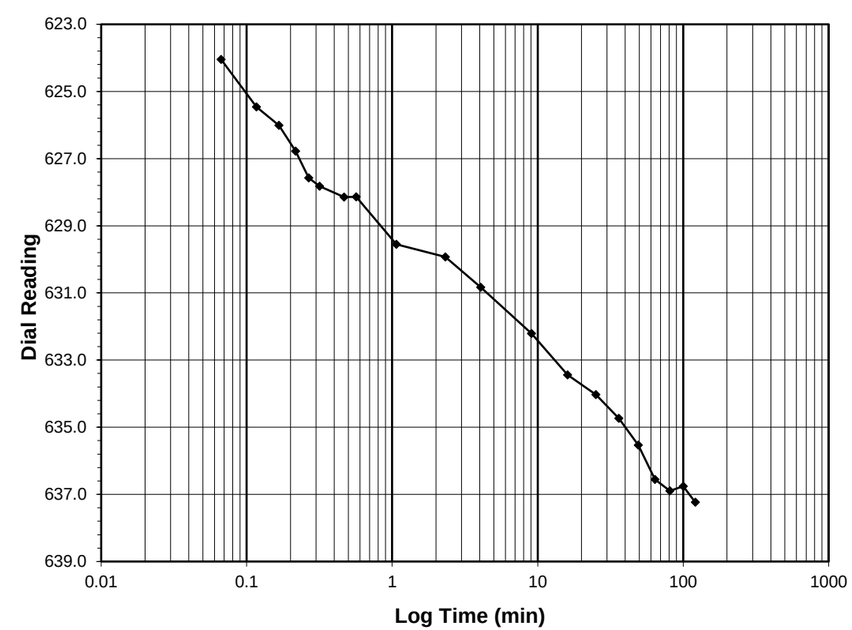
AASHTO T-216

Client	Terracon	Boring No.	RWAL4-3
Client Project	Widening NC-115	Depth (ft)	3.0'-5.15'
Project No.	R-2020-175-001	Sample No.	ST-1
Lab ID	R-2020-175-001-001	Visual Description	Red-Brown Clay

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**1.0-2.0**
Final Reading	**(div)**	**637.2**
Consolidometer No.		**R409**
1 Division	(in)	0.0001
Start Date		9/3/2020
Start Time		14:40:56

Elapsed Time (min)	Dial Reading (div)
Initial	**595.4**
0.07	624.0
0.12	625.5
0.17	626.0
0.22	626.8
0.27	627.6
0.32	627.8
0.47	628.1
0.57	628.1
1.07	629.5
2.32	629.9
4.07	630.8
9.07	632.2
16.07	633.4
25.07	634.0
36.07	634.7
49.07	635.5
64.08	636.6
81.08	636.9
100.08	636.8
121.08	637.2

Tested By *129-07-0411* *Date* *9/3/2020* *Checked By* *GEM* *Date* 9/8/2020

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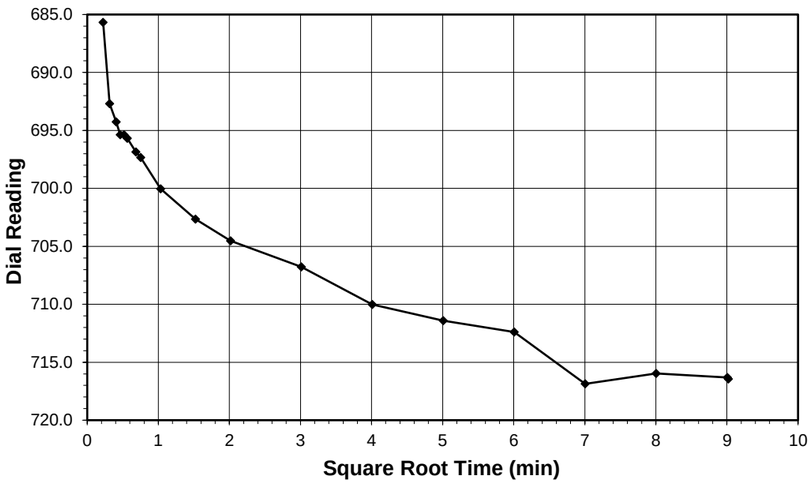
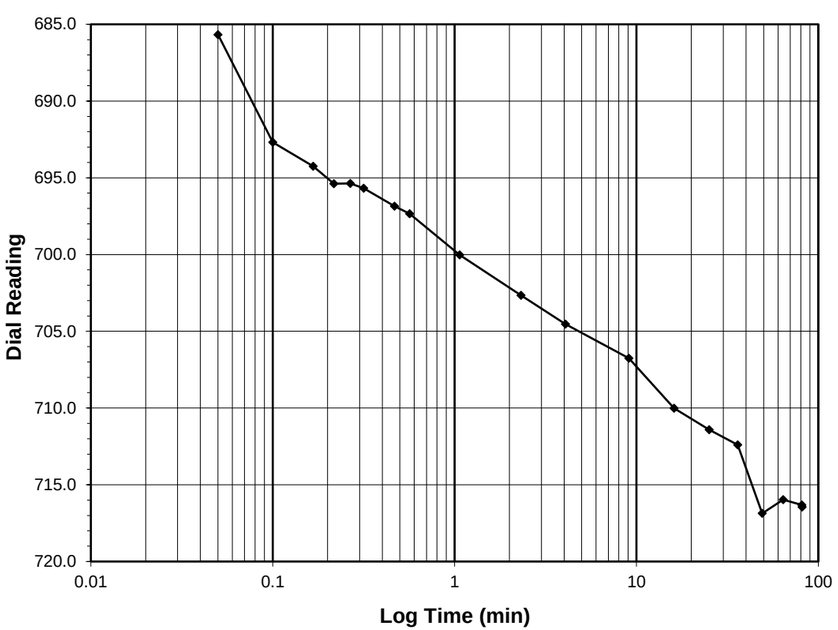
AASHTO T-216

Client	Terracon	Boring No.	RWAL4-3
Client Project	Widening NC-115	Depth (ft)	3.0'-5.15'
Project No.	R-2020-175-001	Sample No.	ST-1
Lab ID	R-2020-175-001-001	Visual Description	Red-Brown Clay

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**2.0-4.0**
Final Reading	**(div)**	**716.4**
Consolidometer No.		**R409**
1 Division	(in)	0.0001
Start Date		9/3/2020
Start Time		16:42:53

Elapsed Time (min)	Dial Reading (div)
Initial	**637.2**
0.05	685.7
0.10	692.7
0.17	694.3
0.22	695.4
0.27	695.4
0.32	695.7
0.47	696.9
0.57	697.3
1.07	700.0
2.32	702.7
4.07	704.5
9.07	706.8
16.07	710.0
25.07	711.4
36.07	712.4
49.07	716.9
64.07	716.0
81.07	716.3
81.33	716.4

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 DCN: CT-24E Date: 5/3/12 Revision: 3

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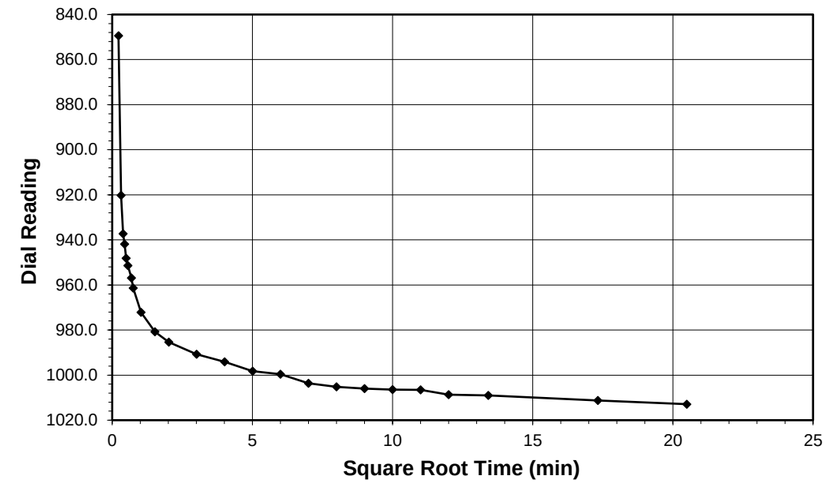
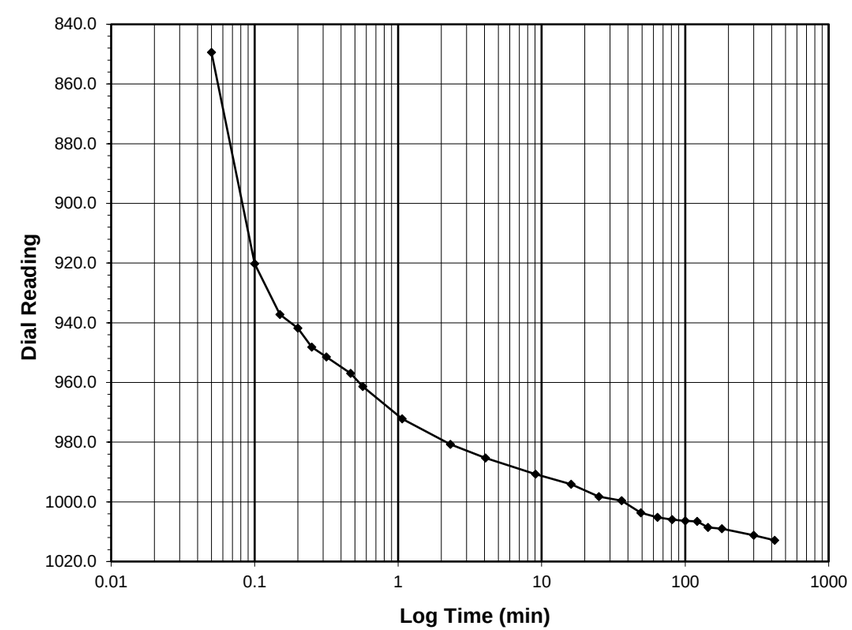
AASHTO T-216

Client	Terracon	Boring No.	RWAL4-3
Client Project	Widening NC-115	Depth (ft)	3.0'-5.15'
Project No.	R-2020-175-001	Sample No.	ST-1
Lab ID	R-2020-175-001-001	Visual Description	Red-Brown Clay

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**4.0-8.0**
Final Reading	**(div)**	**1012.9**
Consolidometer No.		**R409**
1 Division	(in)	0.0001
Start Date		9/3/2020
Start Time		18:04:13

Elapsed Time (min)	Dial Reading (div)
Initial	**716.4**
0.05	849.4
0.10	920.2
0.15	937.3
0.20	941.9
0.25	948.2
0.32	951.4
0.47	956.9
0.57	961.4
1.07	972.2
2.32	980.8
4.07	985.3
9.07	990.7
16.07	994.2
25.07	998.3
36.07	999.6
49.07	1003.7
64.07	1005.2
81.07	1005.9
100.07	1006.4
121.07	1006.6
144.07	1008.6
180.07	1009.0
300.07	1011.2
420.02	1012.9

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 DCN: CT-24E Date: 5/3/12 Revision: 3

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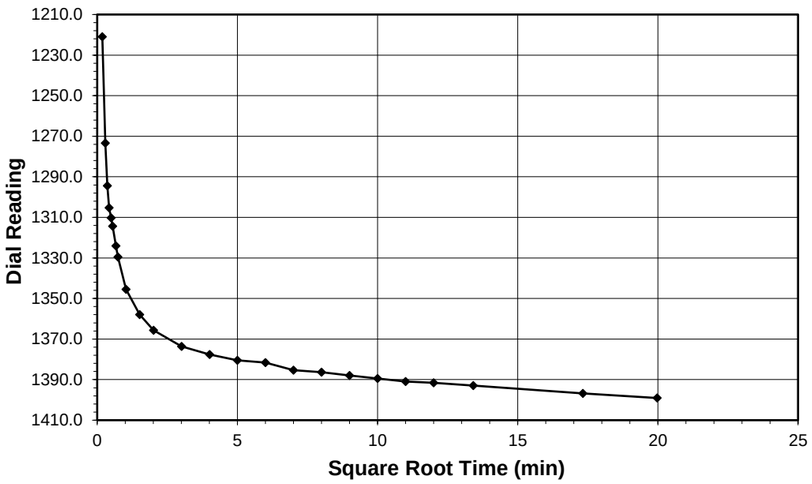
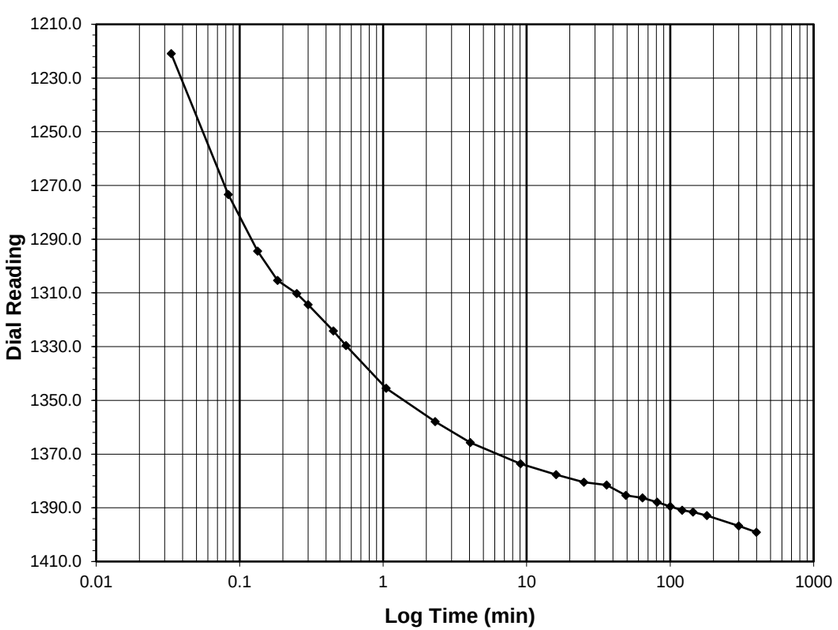
AASHTO T-216

Client	Terracon	Boring No.	RWAL4-3
Client Project	Widening NC-115	Depth (ft)	3.0'-5.15'
Project No.	R-2020-175-001	Sample No.	ST-1
Lab ID	R-2020-175-001-001	Visual Description	Red-Brown Clay

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**8.0-16.0**
Final Reading	**(div)**	**1399.1**
Consolidometer No.		**R409**
1 Division	(in)	0.0001
Start Date		9/4/2020
Start Time		1:04:14

Elapsed Time (min)	Dial Reading (div)
Initial	**1012.9**
0.03	1221.0
0.08	1273.3
0.13	1294.4
0.18	1305.3
0.25	1310.2
0.30	1314.4
0.45	1324.1
0.55	1329.6
1.05	1345.5
2.30	1357.9
4.05	1365.7
9.05	1373.6
16.05	1377.6
25.05	1380.5
36.05	1381.6
49.05	1385.4
64.05	1386.3
81.05	1387.9
100.05	1389.5
121.05	1391.0
144.05	1391.6
180.05	1392.9
300.05	1396.7
398.97	1399.1

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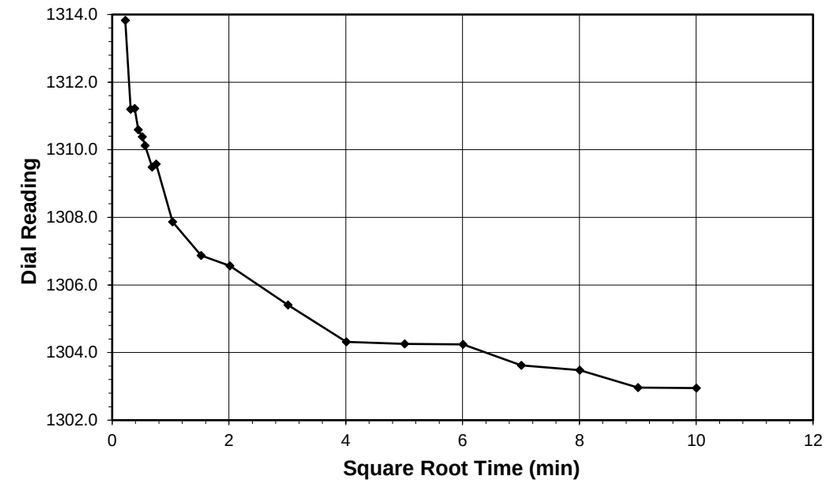
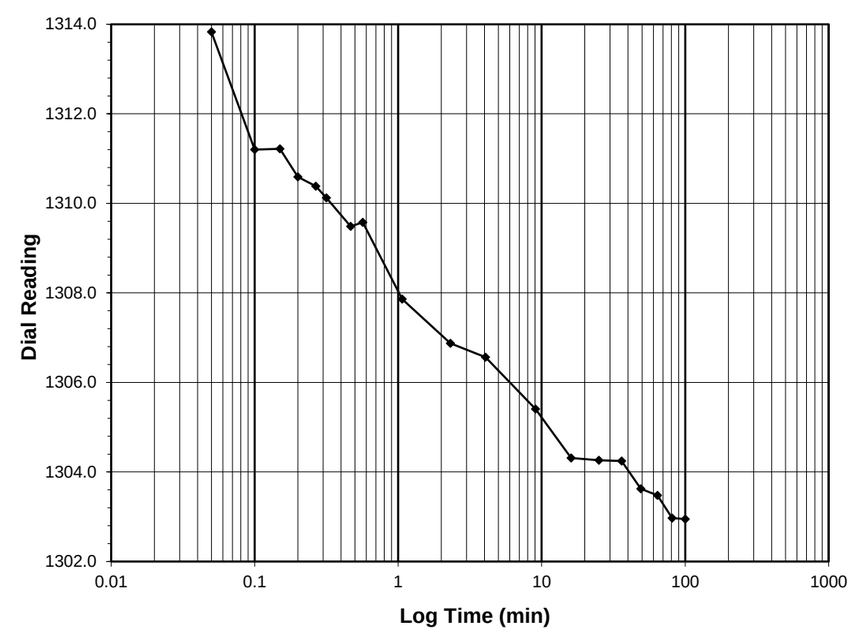
AASHTO T-216

Client	Terracon	Boring No.	RWAL4-3
Client Project	Widening NC-115	Depth (ft)	3.0'-5.15'
Project No.	R-2020-175-001	Sample No.	ST-1
Lab ID	R-2020-175-001-001	Visual Description	Red-Brown Clay

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**16.0-4.0**
Final Reading	**(div)**	**1302.9**
Consolidometer No.		**R409**
1 Division	(in)	0.0001
Start Date		9/4/2020
Start Time		7:43:13

Elapsed Time (min)	Dial Reading (div)
Initial	**1399.1**
0.05	1313.8
0.10	1311.2
0.15	1311.2
0.20	1310.6
0.27	1310.4
0.32	1310.1
0.47	1309.5
0.57	1309.6
1.07	1307.9
2.32	1306.9
4.07	1306.6
9.07	1305.4
16.07	1304.3
25.07	1304.3
36.07	1304.2
49.07	1303.6
64.07	1303.5
81.07	1303.0
100.07	1302.9

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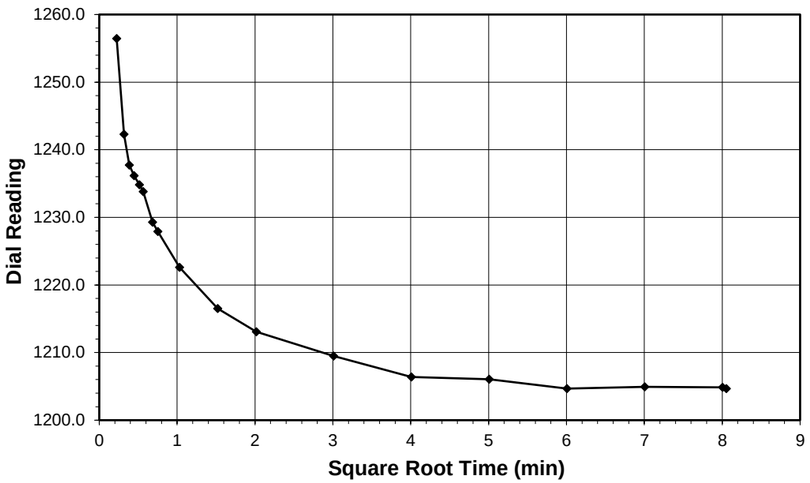
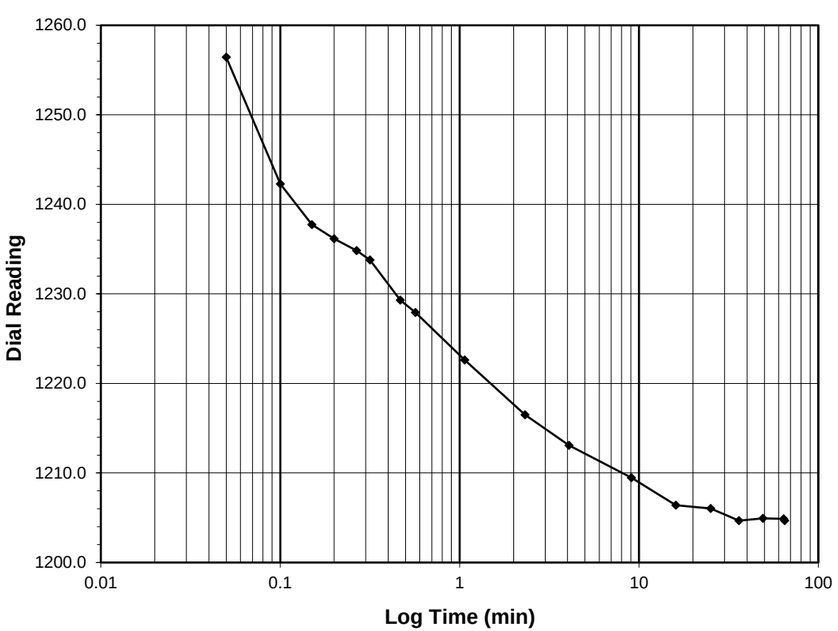
AASHTO T-216

Client	Terracon	Boring No.	RWAL4-3
Client Project	Widening NC-115	Depth (ft)	3.0'-5.15'
Project No.	R-2020-175-001	Sample No.	ST-1
Lab ID	R-2020-175-001-001	Visual Description	Red-Brown Clay

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**4.0-1.0**
Final Reading	**(div)**	**1204.7**
Consolidometer No.		**R409**
1 Division	(in)	0.0001
Start Date		9/4/2020
Start Time		9:23:54

Elapsed Time (min)	Dial Reading (div)
Initial	**1302.9**
0.05	1256.4
0.10	1242.3
0.15	1237.7
0.20	1236.2
0.27	1234.8
0.32	1233.8
0.47	1229.3
0.57	1227.9
1.07	1222.6
2.32	1216.5
4.07	1213.1
9.07	1209.5
16.07	1206.4
25.07	1206.0
36.07	1204.7
49.07	1204.9
64.07	1204.9
64.87	1204.7

Tested By *129-07-0411* *Date* *9/4/2020* *Checked By* *GEM* *Date* 9/8/2020

 DCN: CT-24E Date: 5/3/12 Revision: 3

Z:\2020 PROJECTS\Terracon\2020-175 Terracon - Widening NC-115\[175-001-001 DOT GEOJAC-16TSF1 Cv.xlsm]FINAL PLOT

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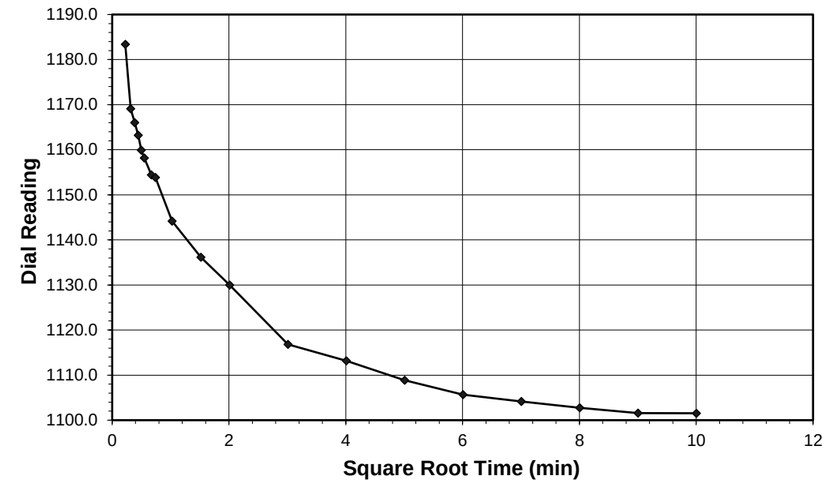
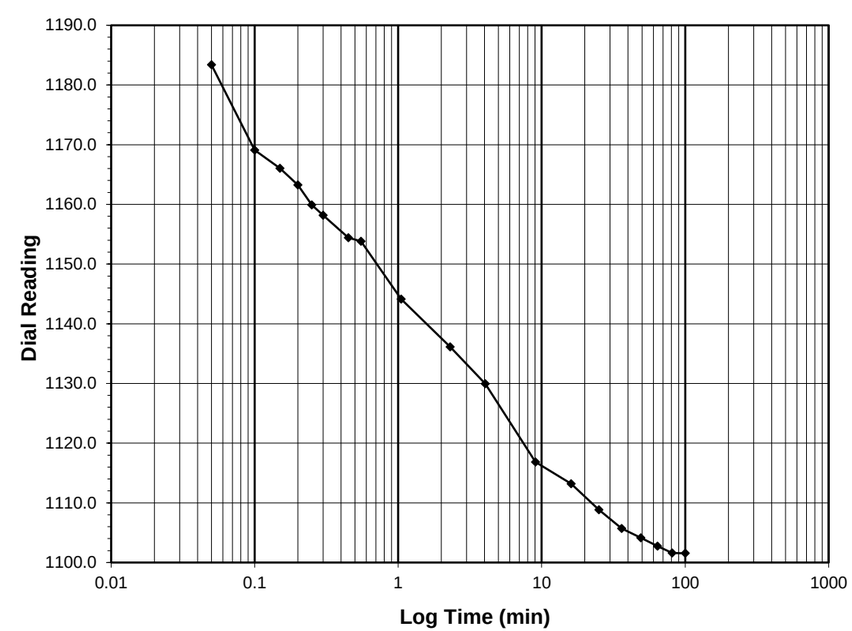
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Terracon	Boring No.	RWAL4-3
Client Project	Widening NC-115	Depth (ft)	3.0'-5.15'
Project No.	R-2020-175-001	Sample No.	ST-1
Lab ID	R-2020-175-001-001	Visual Description	Red-Brown Clay

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**1.0-0.25**
Final Reading	**(div)**	**1101.5**
Consolidometer No.		**R409**
1 Division	(in)	0.0001
Start Date		9/4/2020
Start Time		10:28:47

Elapsed Time (min)	Dial Reading (div)
Initial	**1204.7**
0.05	1183.4
0.10	1169.1
0.15	1166.0
0.20	1163.2
0.25	1159.9
0.30	1158.2
0.45	1154.4
0.55	1153.8
1.05	1144.1
2.30	1136.2
4.05	1130.0
9.07	1116.8
16.07	1113.2
25.07	1108.8
36.07	1105.7
49.07	1104.2
64.07	1102.7
81.07	1101.6
100.07	1101.5

Tested By *129-07-0411* *Date* *9/4/2020* *Checked By* *GEM* *Date* 9/8/2020

page 1 of 1 DCN: CT-24E Date: 5/3/12 Revision: 3

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Docusign Envelope ID: E990BE04-BB3B-4762-8C73-1AB5FE077DDE

REFERENCE: R-5759

PROJECT: 44691.1.1

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

SUBSURFACE INVESTIGATION

APPENDIX B

SUPPLEMENTAL BORING LOGS

Prepared in the Office of:

Terracon

2401 BRENTWOOD ROAD, SUITE 107
RALEIGH, NORTH CAROLINA 27604
NC REGISTERED ENGINEERING FIRM: F-0869
NC REGISTERED GEOLOGIC FIRM: C-367

Docusign Envelope ID: E990BE04-BB3B-4762-8C73-1AB5FE077DDE

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 44691.1.1	**TIP** R-5759	**COUNTY** WILKES	**GEOLOGIST** FARMER, B. C.
SITE DESCRIPTION WIDENING OF NC 115 (STATESVILLE ROAD) FROM US 421 TO 2ND STREET			**GROUND WTR (ft)**
BORING NO. Y6_1200	**STATION** 12+00	**OFFSET** 6 ft RT	**ALIGNMENT** -Y6_REV- / **0 HR.** Dry
COLLAR ELEV. 1,196.2 ft	**TOTAL DEPTH** 6.0 ft	**NORTHING** 878,597	**EASTING** 1,377,387 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE TER1974 CME-45B 88% 01/27/2020		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER TURNAGE, J. R.	**START DATE** 07/16/20	**COMP. DATE** 07/16/20	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
1200											
										1,196.2 GROUND SURFACE	0.0
1195										1,194.7 **PAVEMENT** 0.3' ASPHALT, 1.2' ABC	1.5
							S-16	9%		**RESIDUAL** MEDIUM STIFF, RED, SILTY CLAY, MOIST, TRACE MICA, MODERATELY PLASTIC	
										1,190.2	6.0
										Boring Terminated at Elevation 1,190.2 ft IN RESIDUAL SILTY CLAY	

NCDOT BORE SINGLE R5759_GEO_RDWY.GPJ NC_DOT.GDT 5/8/24

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 44691.1.1	**TIP** R-5759	**COUNTY** WILKES	**GEOLOGIST** FARMER, B. C.
SITE DESCRIPTION WIDENING OF NC 115 (STATESVILLE ROAD) FROM US 421 TO 2ND STREET			**GROUND WTR (ft)**
BORING NO. Y6_1400	**STATION** 13+90	**OFFSET** 40 ft RT	**ALIGNMENT** -Y6_REV- / **0 HR.** Dry
COLLAR ELEV. 1,199.2 ft	**TOTAL DEPTH** 10.3 ft	**NORTHING** 878,782	**EASTING** 1,377,447 / **24 HR.** Caved
DRILL RIG/HAMMER EFF./DATE TER1974 CME-45B 88% 01/27/2020		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER TURNAGE, J. R.	**START DATE** 07/09/20	**COMP. DATE** 07/09/20	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
1200											
										1,199.2 GROUND SURFACE	0.0
	1,198.2	1.0								**RESIDUAL**	
			3	3	3	6		M		MEDIUM STIFF TO STIFF, RED, PINK, WHITE, SILTY CLAY, MOIST, TRACE MICA, SLIGHTLY PLASTIC	
1195	1,195.4	3.8									
			2	3	6	9		M			
	1,192.9	6.3									
			2	3	5	8	SS-27	26%			
1190	1,190.4	8.8									
			3	5	5	10		M		1,188.9	10.3
										Boring Terminated at Elevation 1,188.9 ft IN RESIDUAL SILTY CLAY	
										CAVED DRY AT 6.0'	

NCDOT BORE SINGLE R5759_GEO_RDWY.GPJ NC_DOT.GDT 5/8/24