

SEE SHEET 3 FOR PLAN SHEET LAYOUT  
AT TIME OF INVESTIGATION

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-3422	1	50

CONTENTS

LINE	STATION	PLAN
-L-	25+30 TO 201+0.73	4-17
-Y1-	17+57.10 TO 24+15	7
-Y2-	11+61.34 TO 14+52.73	7
-Y3-	20+40 TO 40+90.80	11, 18
-Y4-	10+35 TO 15+99.97	11
-Y5-	10+00 TO 32+50	12, 19

CROSS SECTIONS

LINE	STATION	SHEETS
-L-	31+00 TO 201+00	20-46
-Y3-	26+00 TO 38+00	47, 48
-Y5-	12+00 TO 26+00	49, 50

**ROADWAY  
SUBSURFACE INVESTIGATION**

COUNTY CUMBERLAND

PROJECT DESCRIPTION SR 1003 (CAMDEN ROAD) FROM  
FUTURE I-295 (FAYETTEVILLE OUTER LOOP) TO  
NC 59 (HOPE MILLS ROAD)

**INVENTORY**

**CAUTION NOTICE**

THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WERE MADE FOR THE PURPOSE OF STUDY, PLANNING AND DESIGN, AND NOT FOR CONSTRUCTION OR PAY PURPOSES. THE VARIOUS FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA AVAILABLE MAY BE REVIEWED OR INSPECTED IN RALEIGH BY CONTACTING THE N. C. DEPARTMENT OF TRANSPORTATION, GEOTECHNICAL ENGINEERING UNIT AT 1919 TOT-6850. THE SUBSURFACE PLANS AND REPORTS, FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA ARE NOT PART OF THE CONTRACT.

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

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

NOTES:

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

PERSONNEL

N.O. MOORE

S.N. ZIMARINO

D.P. PINTER

R.E. SMITH

INVESTIGATED BY N.O. MOORE

DRAWN BY N.O. MOORE

CHECKED BY N.T. ROBERSON

SUBMITTED BY N.T. ROBERSON

DATE NOVEMBER 2020

REFERENCE: U-3422

PROJECT: 39001



DocuSigned by:

*Nick Moore*

12/8/2020

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SIGNATURE

DATE

**DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED**

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

SOIL DESCRIPTION										GRADATION										ROCK DESCRIPTION										TERMS AND DEFINITIONS																																																																																																																															
<p>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 (ASTM 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</p>										<p>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.</p>										<p>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:</p>										<p>ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER. AQUIFER - A WATER BEARING FORMATION OR STRATA. ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND. ARGILLACEOUS - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING A NOTABLE PROPORTION OF CLAY IN THEIR COMPOSITION, SUCH AS SHALE, SLATE, ETC. ARTESIAN - GROUND WATER THAT IS UNDER SUFFICIENT PRESSURE TO RISE ABOVE THE LEVEL AT WHICH IT IS ENCOUNTERED, BUT WHICH DOES NOT NECESSARILY RISE TO OR ABOVE THE GROUND SURFACE. CALCAREOUS (CALC.) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE. COLLUVIUM - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM OF SLOPE. CORE RECOVERY (REC.) - TOTAL LENGTH OF ALL MATERIAL RECOVERED IN THE CORE BARREL DIVIDED BY TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE. DIKE - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT ROCKS OR CUTS MASSIVE ROCK. DIP - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL. DIP DIRECTION (DIP AZIMUTH) - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH. FAULT - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE. FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES. FLOAT - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLOGGED FROM PARENT MATERIAL. FLOOD PLAIN (FP) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM. FORMATION (FM) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD. JOINT - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED. LEDGE - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO ITS LATERAL EXTENT. LENS - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS. MOTTLED (MOT.) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS. MOTTLING IN SOILS USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE. PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE OF AN INTERVENING IMPERVIOUS STRATUM. RESIDUAL (RES.) SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK. ROCK QUALITY DESIGNATION (ROD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE. SAPROLITE (SAP.) - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK. SILL - AN INTRUSIVE BODY OF IGNEOUS ROCK OF APPROXIMATELY UNIFORM THICKNESS AND RELATIVELY THIN COMPARED WITH ITS LATERAL EXTENT, THAT HAS BEEN EMPLACED PARALLEL TO THE BEDDING OR SCHISTOSITY OF THE INTRUDED ROCKS. SLICKENSIDE - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT OR SLIP PLANE. STANDARD PENETRATION TEST (PENETRATION RESISTANCE) (SPT) - NUMBER OF BLOWS (N OR BPF) OF A 140 LB. HAMMER FALLING 30 INCHES REQUIRED TO PRODUCE A PENETRATION OF 1 FOOT INTO SOIL WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS PENETRATION EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS. STRATA CORE RECOVERY (SREC.) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE. STRATA ROCK QUALITY DESIGNATION (SROD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE. TOPSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.</p>																																																																																																																															
<p style="text-align: center;"><b>SOIL LEGEND AND AASHTO CLASSIFICATION</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>GENERAL CLASS.</th> <th colspan="5">GRANULAR MATERIALS (≤ 35% PASSING #200)</th> <th colspan="5">SILT-CLAY MATERIALS (&gt; 35% PASSING #200)</th> <th colspan="5">ORGANIC MATERIALS</th> </tr> <tr> <th>GROUP CLASS.</th> <th>A-1</th> <th>A-3</th> <th>A-2</th> <th>A-4</th> <th>A-5</th> <th>A-6</th> <th>A-7</th> <th>A-1, A-2</th> <th>A-3</th> <th>A-4, A-5</th> <th>A-6, A-7</th> <th></th> <th></th> <th></th> <th></th> </tr> <tr> <th>SYMBOL</th> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <th>% PASSING #10 #200</th> <td>50 MX</td> <td>30 MX</td> <td>15 MX</td> <td>50 MX</td> <td>10 MN</td> <td>35 MX</td> <td>35 MX</td> <td>35 MX</td> <td>35 MX</td> <td>35 MX</td> <td>35 MX</td> <td>35 MX</td> <td>35 MX</td> <td>35 MX</td> <td>35 MX</td> </tr> <tr> <th>MATERIAL PASSING #40 LL PI</th> <td>-</td> <td>-</td> <td>40 MX</td> <td>41 MN</td> <td>40 MX</td> <td>41 MN</td> <td>40 MX</td> <td>41 MN</td> <td>40 MX</td> <td>41 MN</td> <td>40 MX</td> <td>41 MN</td> <td>40 MX</td> <td>41 MN</td> <td>40 MX</td> </tr> <tr> <th>GROUP INDEX</th> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>4 MX</td> <td>8 MX</td> <td>12 MX</td> <td>16 MX</td> <td>20 MX</td> <td>24 MX</td> <td>28 MX</td> <td>32 MX</td> <td>36 MX</td> <td>40 MX</td> <td>44 MX</td> </tr> <tr> <th>USUAL TYPES OF MAJOR MATERIALS</th> <td>STONE FRAGS. 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ARE USED IN DESCRIPTIONS WHEN THEY ARE CONSIDERED OF SIGNIFICANCE.</p>										<p style="text-align: center;"><b>WEATHERING</b></p> <p>FRESH - ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING. ROCK RINGS UNDER HAMMER IF CRYSTALLINE.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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 &gt; 100 BPF.</p> <p>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 &gt; 100 BPF.</p> <p>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 &lt; 100 BPF.</p> <p>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.</p>									
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<p style="text-align: center;"><b>COLOR</b></p> <p>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.</p>										<p style="text-align: center;"><b>FRACTURE SPACING</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>TERM</th> <th>SPACING</th> </tr> <tr> <td>VERY WIDE</td> <td>MORE THAN 10 FEET</td> </tr> <tr> <td>WIDE</td> <td>3 TO 10 FEET</td> </tr> <tr> <td>MODERATELY CLOSE</td> <td>1 TO 3 FEET</td> </tr> <tr> <td>CLOSE</td> <td>0.16 TO 1 FOOT</td> </tr> <tr> <td>VERY CLOSE</td> <td>LESS THAN 0.16 FEET</td> </tr> </table>										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	<p style="text-align: center;"><b>BEDDING</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>TERM</th> <th>THICKNESS</th> </tr> <tr> <td>VERY THICKLY BEDDED</td> <td>4 FEET</td> </tr> <tr> <td>THICKLY BEDDED</td> <td>1.5 - 4 FEET</td> </tr> <tr> <td>THINLY BEDDED</td> <td>0.16 - 1.5 FEET</td> </tr> <tr> <td>VERY THINLY BEDDED</td> <td>0.03 - 0.16 FEET</td> </tr> <tr> <td>THICKLY LAMINATED</td> <td>0.008 - 0.03 FEET</td> </tr> <tr> <td>THINLY LAMINATED</td> <td>&lt; 0.008 FEET</td> </tr> </table>										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																																																																																																						
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<p style="text-align: center;"><b>INDURATION</b></p> <p>FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC.</p> <p>FRIABLE - RUBBING WITH FINGER FREES NUMEROUS GRAINS; GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE.</p> <p>MODERATELY INDURATED - GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE; BREAKS EASILY WHEN HIT WITH HAMMER.</p> <p>INDURATED - GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE; DIFFICULT TO BREAK WITH HAMMER.</p> <p>EXTREMELY INDURATED - SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE; SAMPLE BREAKS ACROSS GRAINS.</p>										<p style="text-align: center;"><b>NOTES:</b></p> <p>ROADWAY BORING ELEVATION WERE TAKEN FROM TIN FILE U3422.ls.tin.tin DATED 4/2/2020</p>																																																																																																																																																			
<p style="text-align: center;"><b>BENCH MARK:</b></p> <p style="text-align: right;">ELEVATION: _____ FEET</p>										<p style="text-align: right;">DATE: 8-15-14</p>																																																																																																																																																			

09/08/99

TIP PROJECT: U-3422

CONTRACT:

PENTABLE: \$PENTBL\$  
TIME: \$TIME\$

DATE: \$DATE\$

PLOT DRIVER: \$PLTDV\$  
USER: \$USER\$  
FILE: \$PWVAULTPATHDESC\$

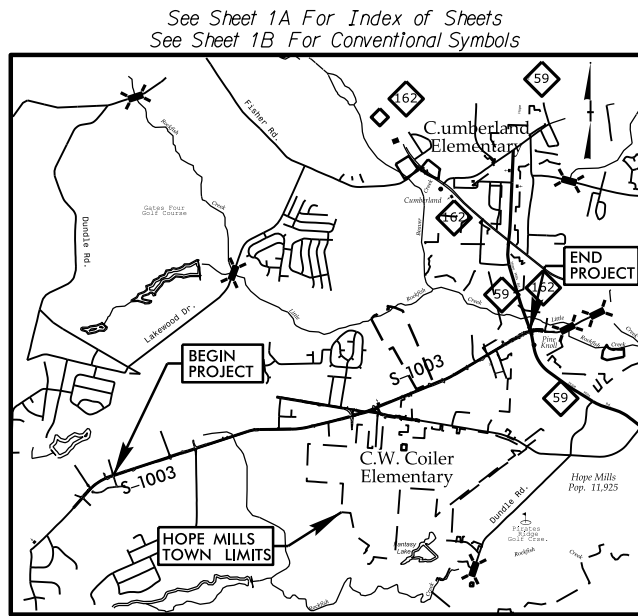
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

CUMBERLAND COUNTY

LOCATION: SR 1003 (Camden Road) from Future I-295  
(Fayetteville Outer Loop) To NC 59 (Hope Mills Road)

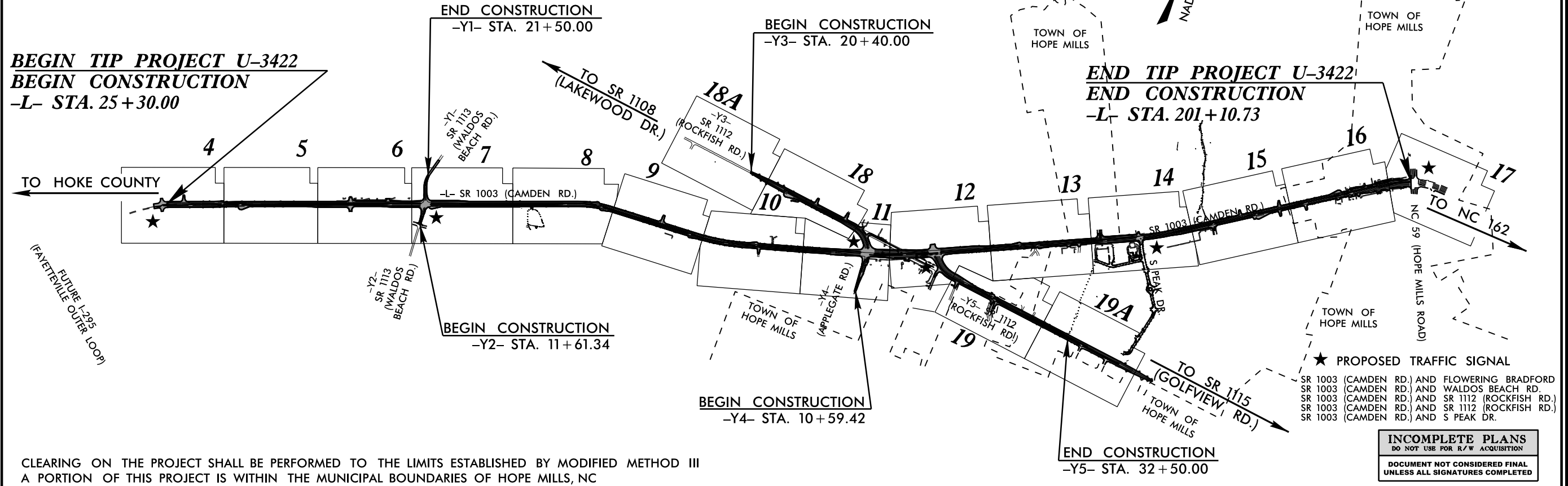
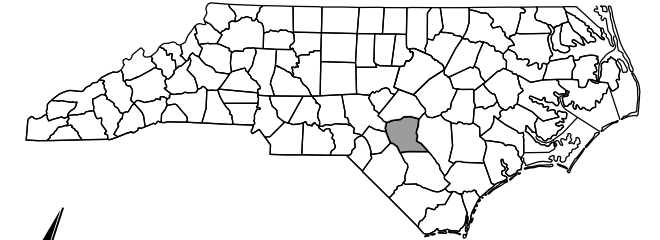
TYPE OF WORK: GRADING, PAVING, DRAINAGE AND SIGNALS

25% PLANS



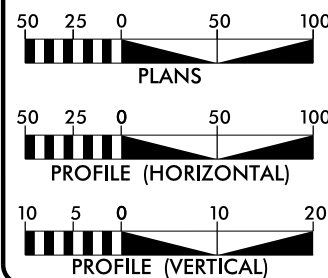
VICINITY MAP  
(NOT TO SCALE)

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-3422	3	50
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
39001.1.1	STP-1003 (131)	P.E.	
39001.2.1		ROW	
39001.2.2		UTILITIES	
39001.3.1		CONSTRUCTION	



CLEARING ON THE PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY MODIFIED METHOD III  
A PORTION OF THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF HOPE MILLS, NC

GRAPHIC SCALES



DESIGN DATA

ADT 2017 = 26,100  
ADT 2040 = 38,500  
K = 9 %  
D = 60 %  
T = 4 % \*  
V = 50 MPH  
(\* TTST 1% + DUAL 3%)  
FUNC CLASS = MINOR ARTERIAL  
STATEWIDE TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT U-3422 = 3.330 MILES  
LENGTH STRUCTURE TIP PROJECT U-3422 = 0.000 MILES  
TOTAL LENGTH TIP PROJECT U-3422 = 3.330 MILES



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

2018 STANDARD SPECIFICATIONS

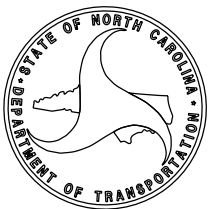
RIGHT OF WAY DATE:  
MARCH 29, 2019

LETTING DATE:  
MARCH 2021

PHILLIP E. ROGERS, PE  
PROJECT ENGINEER  
DAVID CHEEK, PE  
PROJECT DESIGN ENGINEER  
SEAN MATUSZEWSKI  
NCDOT CONTACT

HYDRAULICS ENGINEER

SIGNATURE: \_\_\_\_\_ P.E.  
ROADWAY DESIGN ENGINEER  
SIGNATURE: \_\_\_\_\_ P.E.





STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION

ROY COOPER  
GOVERNOR

J. ERIC BOYETTE  
SECRETARY

November 6, 2020

STATE PROJECT: 39001.1.1 (U-3422)  
FEDERAL PROJECT: STP-1003  
COUNTY: CUMBERLAND

DESCRIPTION: SR 1003 (Camden Road) from future I-295 (Fayetteville Outer Loop) to NC 59 (Hope Mills Road)

SUBJECT: Geotechnical Report – Inventory

The Geotechnical Engineering Unit has completed a subsurface investigation for this project and presents the following inventory.

**Project Description**

This project consists of widening SR 1003 (Camden Road) from future I-295 (Fayetteville Outer Loop) to NC 59 (Hope Mills Road).

A geotechnical investigation was conducted during March of 2020. One hundred and five hand auger borings were performed by the Geotechnical Engineering Unit. Representative soil samples were collected for visual classification in the field and selected samples were submitted for laboratory analysis by the Materials and Tests Unit.

The following alignments, totaling 3.298 miles, were investigated. Subsurface plans and cross sections of these alignments are included in this report.

<u>Line</u>	<u>Stations</u>
-L-	31+00 to 201+00
-Y3-	26+00 to 40+00
-Y5-	11+50 to 26+80

**Physiography and Geology**

The project is located outside the city limits of the town of Hope Mills, and within the Coastal Plain physiographic province of North Carolina. Tertiary-aged sands and gravels of terrace deposits overlay tertiary clay. The topography is relatively flat. The widening project consists of a mixture of woods, agriculture land, businesses and residences.

Mailing Address:  
NC DEPARTMENT OF TRANSPORTATION  
GEOTECHNICAL ENGINEERING UNIT  
1589 MAIL SERVICE CENTER  
RALEIGH NC 27699-1589

Telephone: 919-707-6850  
Fax: 919-250-4237  
Customer Service: 1-877-368-4968

Website: [www.ncdot.gov](http://www.ncdot.gov)

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

**Soils Properties**

Soils encountered during this investigation are roadway embankment, artificial fill, and undivided coastal plain.

Roadway Embankment soils are present throughout the entire project. These soils primarily consist of brown, tan, and orange, moist, loose, silty sand (A-2-4).

Artificial soils are only present at the end of the project associated with embankment fill. These soils are characterized by brown, moist, very loose, silty sand (A-2-4).

Undivided Coastal Plain soils are present throughout the southern half of the project. These soils are characterized by tan, orange, and gray, mottled, moist, very loose to loose, silty sand (A-2-4). A minor amount of light gray, tan, red, and orange, mottled, moist, soft to medium stiff, sandy clay (A-6) and silty (A-7-5; A-7-6) are also present.

**Groundwater**

Groundwater measurements were taken in March of 2020 during average rainfall conditions. Groundwater was present in some borings and ranged from 1.2 to 4.4 feet from the ground surface.

**Areas of Special Geotechnical Interests**

- The following sections were found to contain alluvial soils:


<u>Line</u>	<u>Stations</u>
-L-	77+00 to 80+00

- The following sections were found to contain artificial fill:

<u>Line</u>	<u>Stations</u>
-L-	57+00 to 59+00
-L-	169+00 to 170+00
-L-	190+00 to 192+00

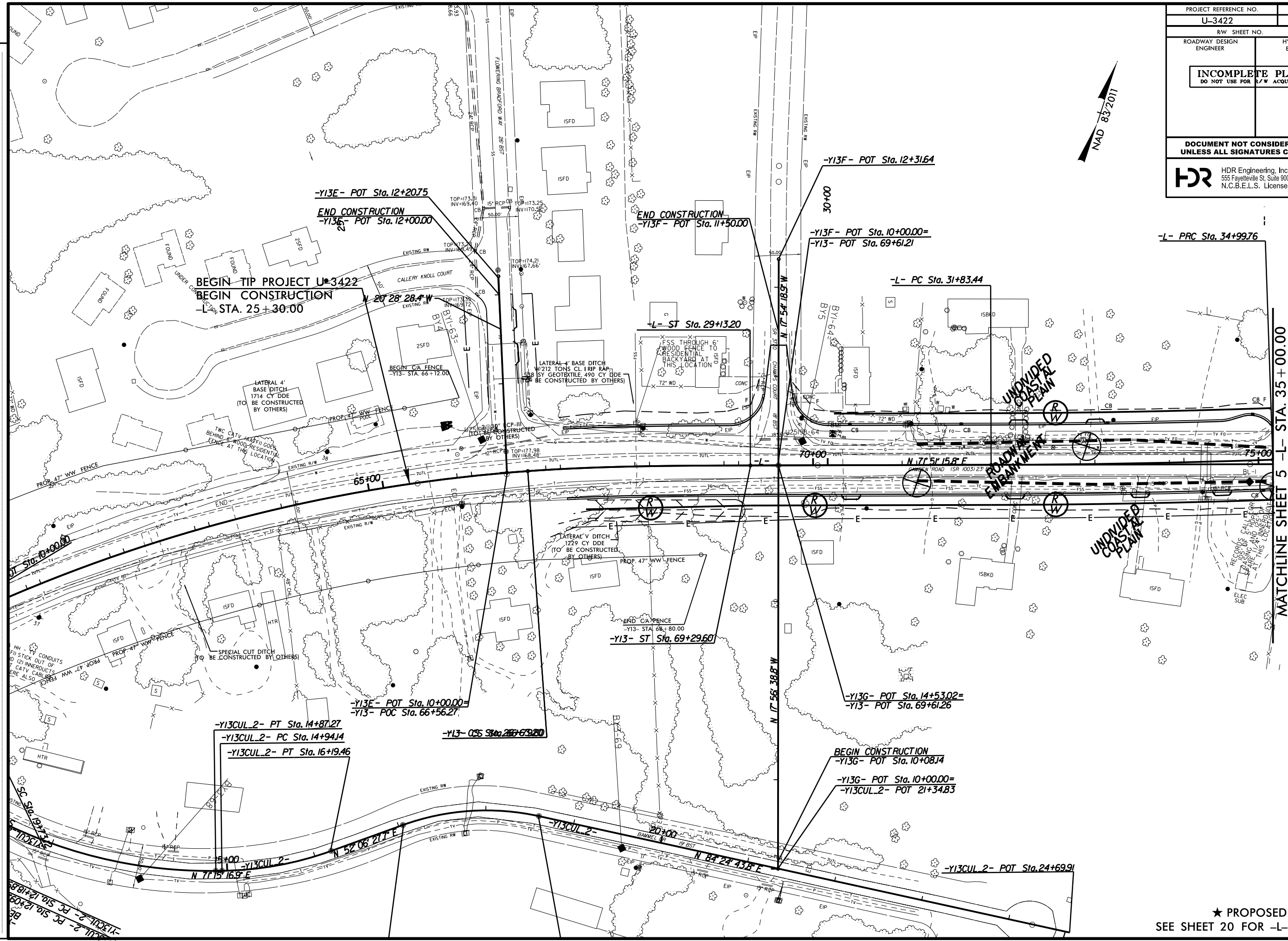
- The following sections were found to contain high ground water (6 feet below grade or higher):

<u>Line</u>	<u>Stations</u>
-L-	38+00 to 44+00
-L-	52+00 to 84+00

PROJECT REFERENCE NO.	SHEET NO.
U-3422	4
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION	
<b>DOCUMENT NOT CONSIDERED FINAL</b> UNLESS ALL SIGNATURES COMPLETED	
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PLOT DRIVER: \$PLTDVRS\$  
 USER: \$USERS\$  
 FILE: \$PWVARVAULTPATHDESC\$  
 DATE: \$DATES\$  
 TIME: \$TIME\$  
 REVISIONS:



MATCHLINE SHEET 5 -L- STA. 35+00.00

★ PROPOSED SIGNAL  
SEE SHEET 20 FOR -L- PROFILE




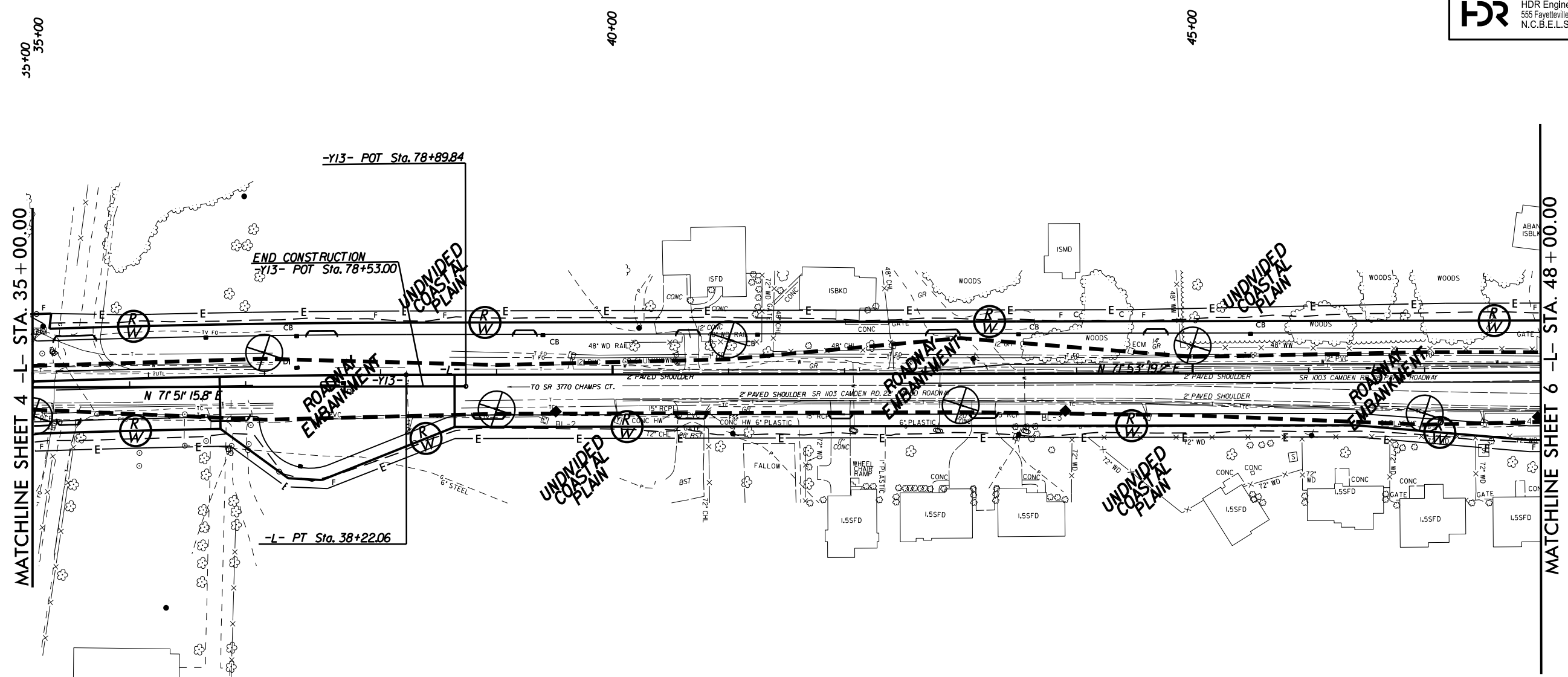
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PENTABLE: \$PENTBL\$  
 TIME: \$TIME\$

REVISIONS


PROJECT REFERENCE NO. U-3422	SHEET NO. 5
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION	
<b>DOCUMENT NOT CONSIDERED FINAL</b> UNLESS ALL SIGNATURES COMPLETED	
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MATCHLINE SHEET 6 -L- STA. 48+00.00

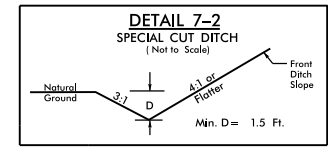
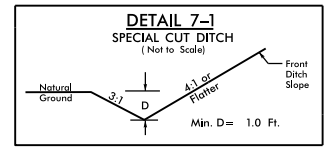
MATCHLINE SHEET 4 -L- STA. 35+00.00



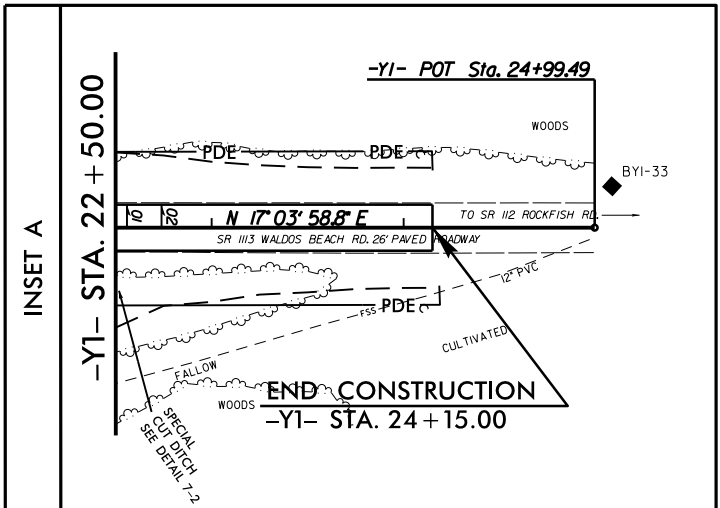
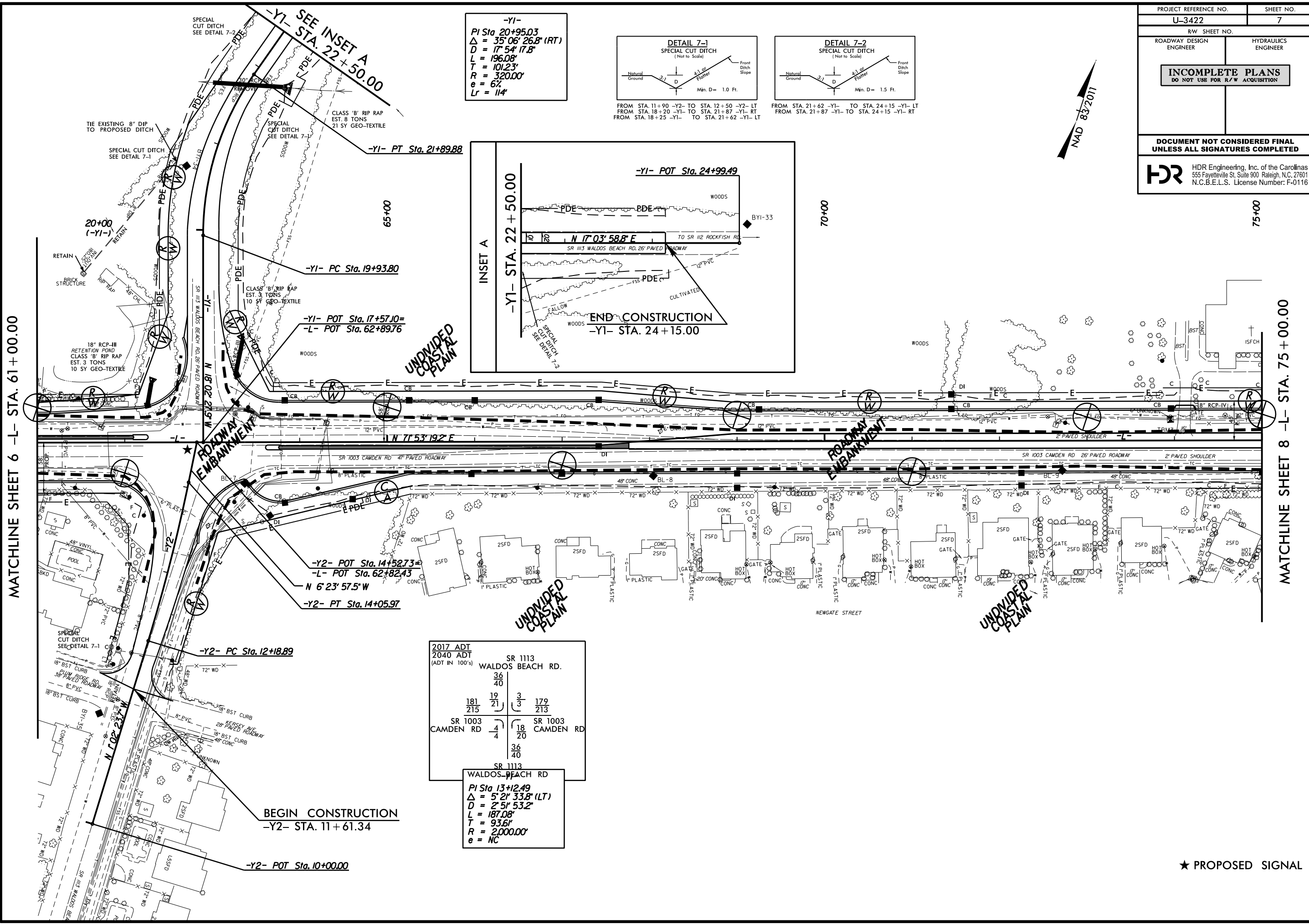
PROJECT REFERENCE NO.	SHEET NO.
U-3422	7
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION	
<b>DOCUMENT NOT CONSIDERED FINAL</b> UNLESS ALL SIGNATURES COMPLETED	
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-Y1-  
 PI Sta 20+95.03  
 $\Delta = 35^{\circ}06'26.8''$  (RT)  
 $D = 17^{\circ}54'17.8''$   
 $L = 196.08'$   
 $T = 101.23'$   
 $R = 320.00'$   
 $e = 6\%$   
 $Lr = 114'$



FROM STA. 11+90 -Y2- TO STA. 12+50 -Y2- LT  
 FROM STA. 18+20 -Y1- TO STA. 21+87 -Y1- RT  
 FROM STA. 18+25 -Y1- TO STA. 21+62 -Y1- LT  
 FROM STA. 21+62 -Y1- TO STA. 24+15 -Y1- RT



2017 ADT	SR 1113
2040 ADT	WALDOS BEACH RD.
(ADT IN 100's)	
	36 40
	181 19 3 179 215 21 3 213
SR 1003	SR 1003
CAMDEN RD	CAMDEN RD
4 4	18 20
	36 40
	SR 1113
	WALDOS BEACH RD
	PI Sta 13+12.49
	$\Delta = 5^{\circ}21'33.8''$ (LT)
	$D = 2^{\circ}51'53.2''$
	$L = 187.08'$
	$T = 93.61'$
	$R = 2,000.00'$
	$e = NC$

MATCHLINE SHEET 6 -L- STA. 61+00.00

MATCHLINE SHEET 8 -L- STA. 75+00.00

PLOT DRIVER: \$PLTDVRS\$  
 USER: \$USERS\$  
 FILE: \$PWVARVAULTPATHDESC\$  
 DATE: \$DATES\$  
 TIME: \$TIME\$  
 REVISIONS:

★ PROPOSED SIGNAL





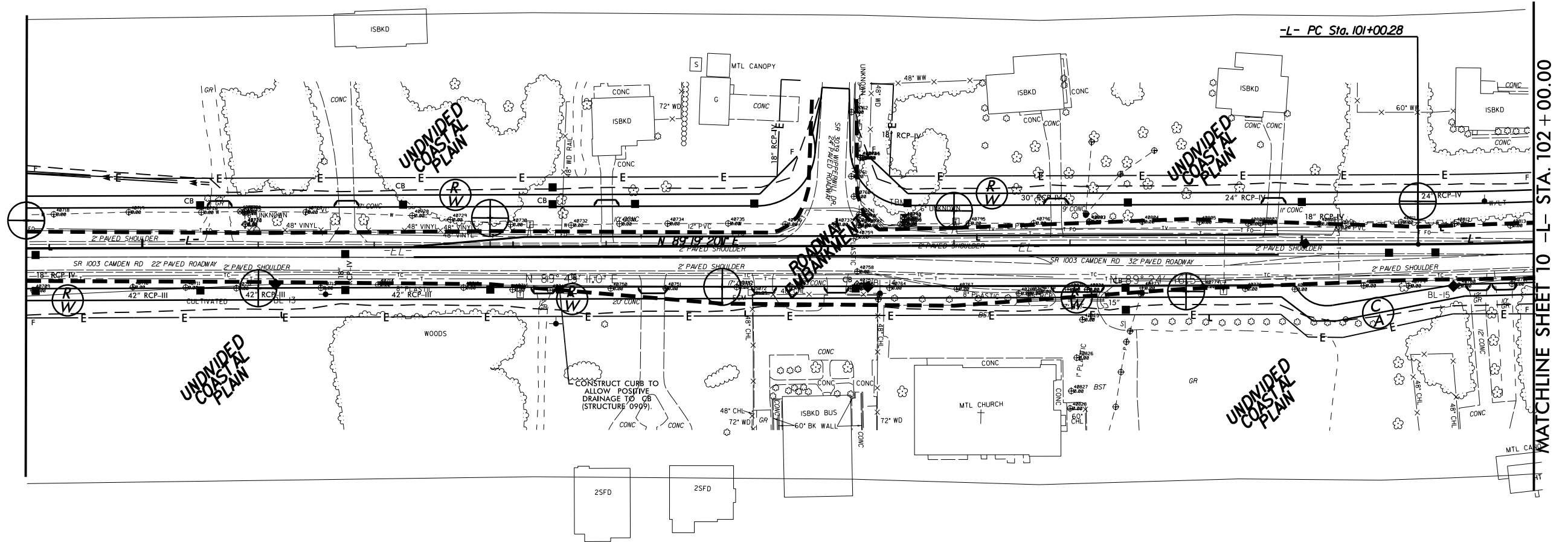
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 USER: \$USER\$  
 FILE: \$PWVARVAULTPATHDESC\$

DATE: \$DATE\$

PENTABLE: \$PENTBLS\$  
 TIME: \$TIME\$

REVISIONS

MATCHLINE SHEET 8 -L- STA. 89 + 00.00



90+00

95+00

100+00



PROJECT REFERENCE NO. U-3422	SHEET NO. 9
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION	
<b>DOCUMENT NOT CONSIDERED FINAL</b> <b>UNLESS ALL SIGNATURES COMPLETED</b>	
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MATCHLINE SHEET 10 -L- STA. 102 + 00.00

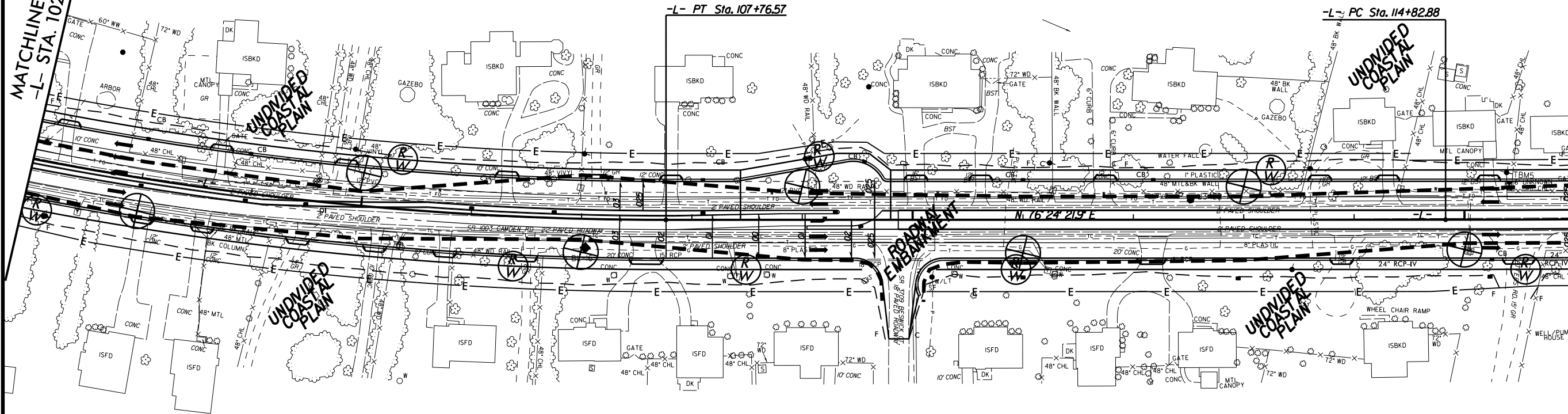
SEE SHEET 22 FOR -L- PROFILE

PROJECT REFERENCE NO.	SHEET NO.
U-3422	10
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION	
<b>DOCUMENT NOT CONSIDERED FINAL</b> UNLESS ALL SIGNATURES COMPLETED	
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MATCHLINE SHEET 9  
-L- STA. 102+00.00

MATCHLINE SHEET 11 -L- STA. 116+00.00

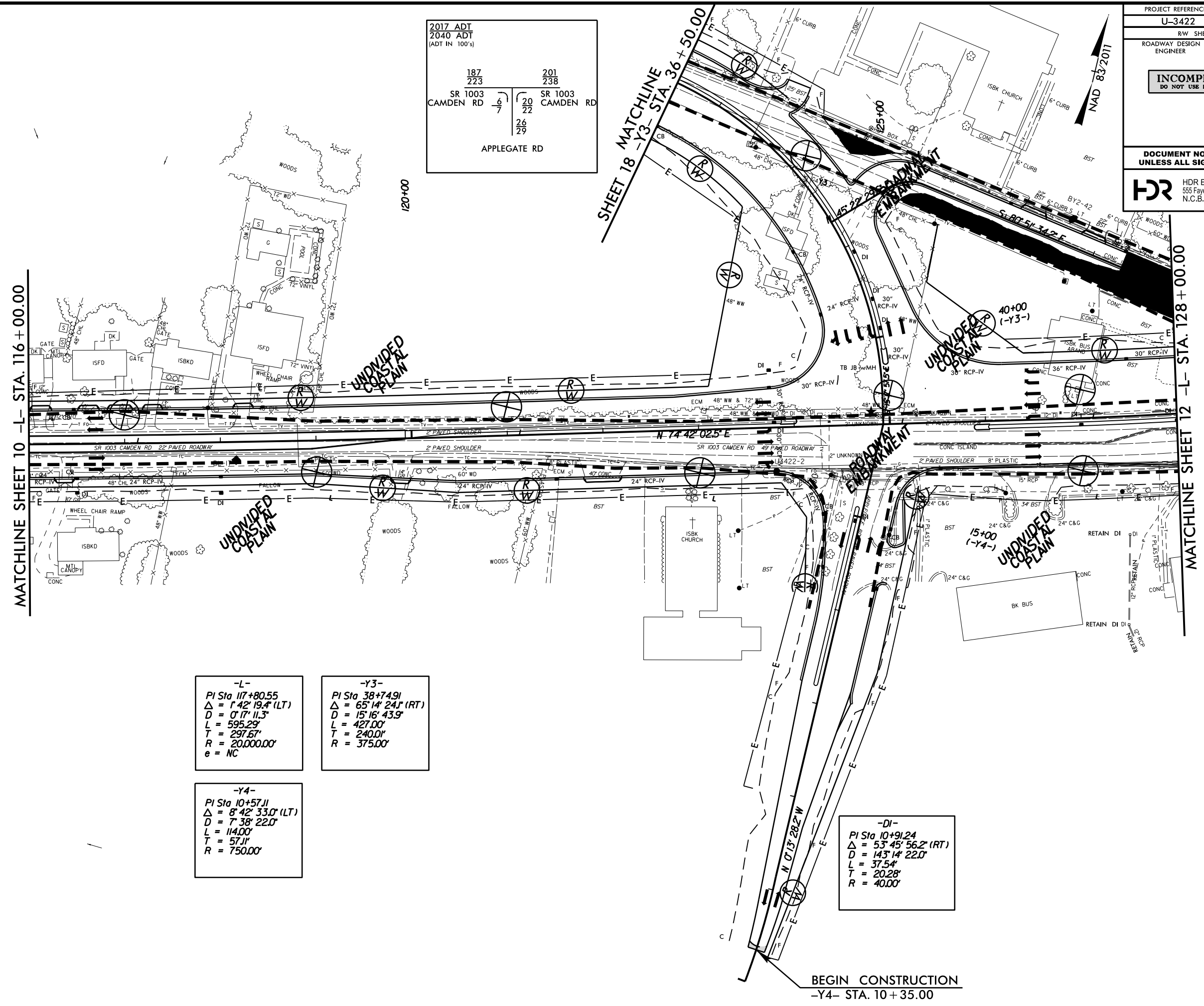


-L-  
 PI Sta. 104+39.87  
 $\Delta = 12^{\circ} 54' 58.2" (LT)$   
 $D = 1^{\circ} 54' 35.5"$   
 $L = 676.29'$   
 $T = 339.58'$   
 $R = 3,000.00'$   
 $e = 3\%$   
 $Lr = 126.00'$

REVISIONS

PLOT DRIVER: \$PLTDVRS\$  
 USER: \$USERS\$  
 FILE: \$PWVARVALTPATHDESC\$  
 PENTABLE: \$PENTBLS\$  
 TIME: \$TIMES\$  
 DATE: \$DATE\$

2017 ADT	201
2040 ADT	238
(ADT IN 100's)	
187	201
223	238
SR 1003 CAMDEN RD	SR 1003 CAMDEN RD
6/7	20/22
	26/29
APPEGATE RD	



**-L-**  
 PI Sta 117+80.55  
 $\Delta = 1' 42'' 19.4''$  (LT)  
 $D = 0' 17'' 11.3''$   
 $L = 595.29'$   
 $T = 297.67'$   
 $R = 20,000.00'$   
 $e = NC$

**-Y3-**  
 PI Sta 38+74.91  
 $\Delta = 65' 14'' 24.1''$  (RT)  
 $D = 15' 16'' 43.9''$   
 $L = 427.00'$   
 $T = 240.01'$   
 $R = 375.00'$

**-Y4-**  
 PI Sta 10+57.11  
 $\Delta = 8' 42'' 33.0''$  (LT)  
 $D = 7' 38'' 22.0''$   
 $L = 114.00'$   
 $T = 57.11'$   
 $R = 750.00'$

**-DI-**  
 PI Sta 10+91.24  
 $\Delta = 53' 45'' 56.2''$  (RT)  
 $D = 143' 14'' 22.0''$   
 $L = 37.54'$   
 $T = 20.28'$   
 $R = 40.00'$

**BEGIN CONSTRUCTION**  
 -Y4- STA. 10+35.00

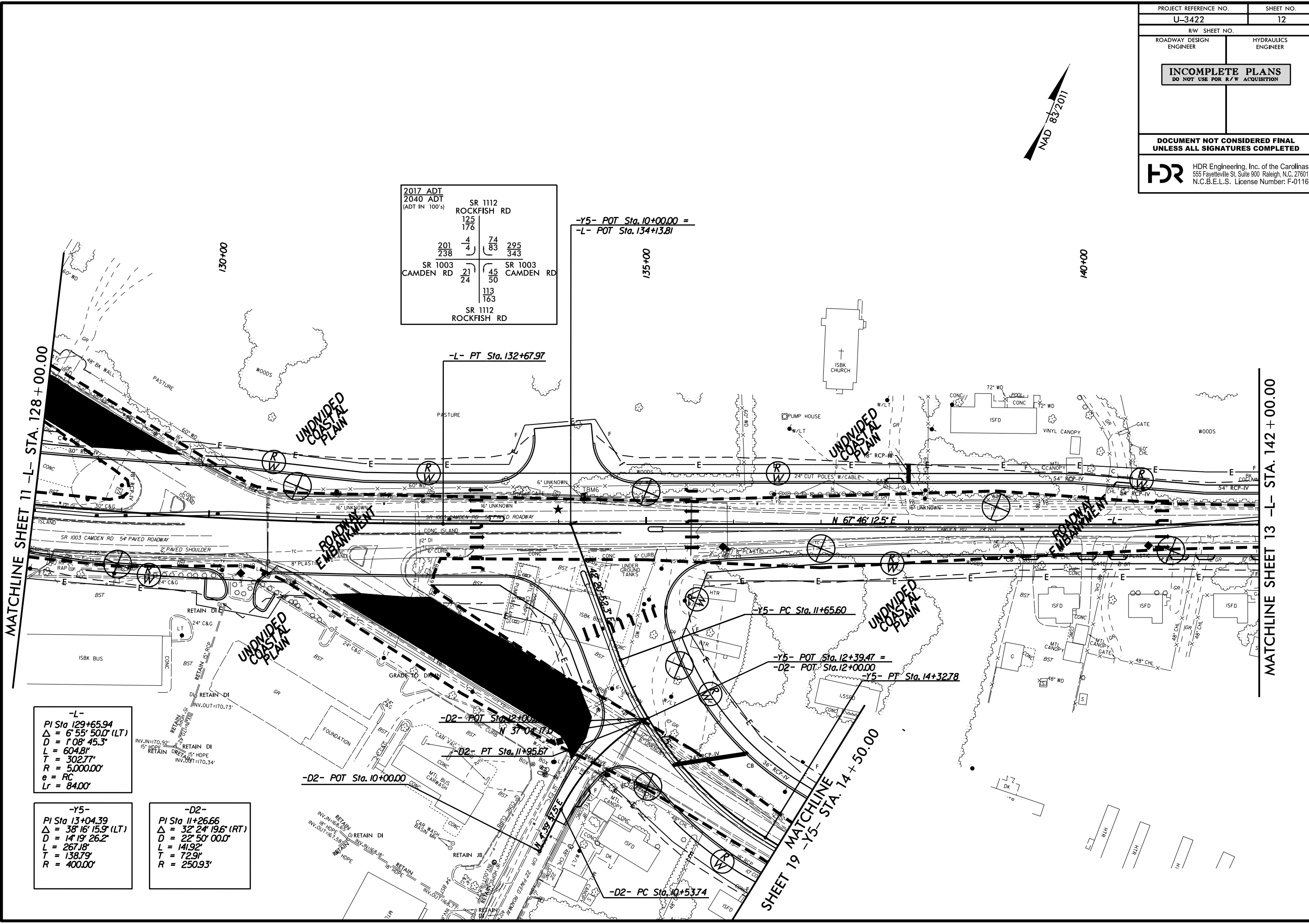
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 DATE: \$DATE\$

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
U-3422	12
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION	
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2017 ADT	SR 1112	ROCKFISH RD
2040 ADT	125	176
(ADT IN 100's)	201	74
	238	83
	4	295
	4	343
	21	45
	24	50
		113
		163
	SR 1112	ROCKFISH RD



MATCHLINE SHEET 11 -L- STA. 128 + 00.00

MATCHLINE SHEET 13 -L- STA. 142 + 00.00

**-L-**  
 PI Sta 129+65.94  
 $\Delta = 6' 55" 50.0" (LT)$   
 $D = 1' 08" 45.3"$   
 $L = 604.81'$   
 $T = 302.77'$   
 $R = 5,000.00'$   
 $e = RC$   
 $Lr = 84.00'$

**-Y5-**  
 PI Sta 13+04.39  
 $\Delta = 38' 16" 15.9" (LT)$   
 $D = 14' 19" 26.2"$   
 $L = 267.18'$   
 $T = 138.79'$   
 $R = 400.00'$

**-D2-**  
 PI Sta 11+26.66  
 $\Delta = 32' 24" 19.6" (RT)$   
 $D = 22' 50" 00.0"$   
 $L = 141.92'$   
 $T = 72.91'$   
 $R = 250.93'$

**-D2- POT Sta. 10+00.00**

**-D2- POT Sta. 12+10.00**

**-D2- PT Sta. 11+95.67**

**-Y5- POT Sta. 10+00.00 =**  
**-L- POT Sta. 134+13.81**

**-L- PT Sta. 132+67.97**

**-Y5- PC Sta. 11+65.60**

**-Y5- POT Sta. 12+39.47 =**  
**-D2- POT Sta. 12+00.00**

**-Y5- PT Sta. 14+32.78**

**-D2- PC Sta. 10+53.74**

SHEET 19 MATCHLINE -Y5- STA. 14 + 50.00

PLOT DRIVER: \$PLTDVRS\$  
 USER: \$USER\$  
 FILE: \$PWYVAULTPATHFILES\$  
 DATE: \$DATE\$  
 TIME: \$TIME\$  
 PENTABLE: \$PENTBL\$  
 REVISIONS

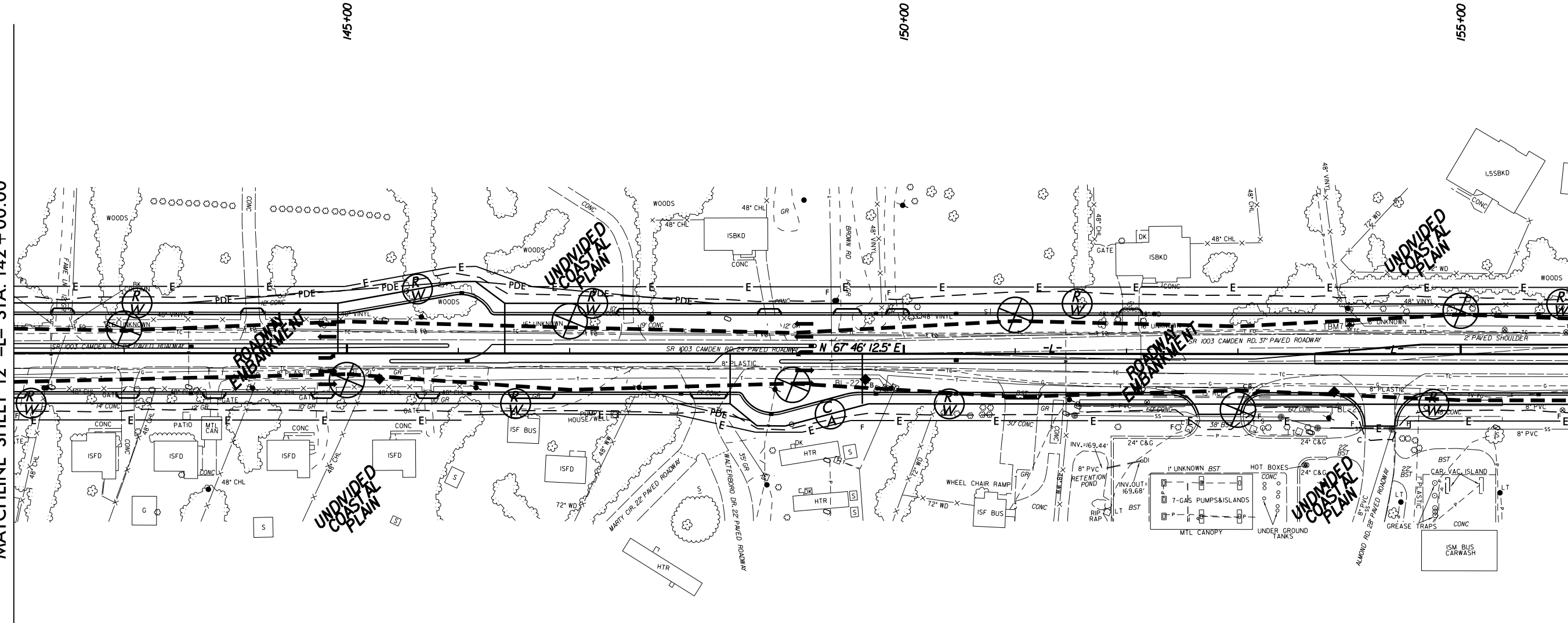
PLOT DRIVER: \$PLTDVRS\$  
 USER: \$USER\$  
 FILE: \$PWVAVULTPATHDSC\$

DATE: \$DATE\$

PENTABLE: \$PENTBL\$  
 TIME: \$TIME\$

REVISIONS

MATCHLINE SHEET 12 -L- STA. 142 + 00.00



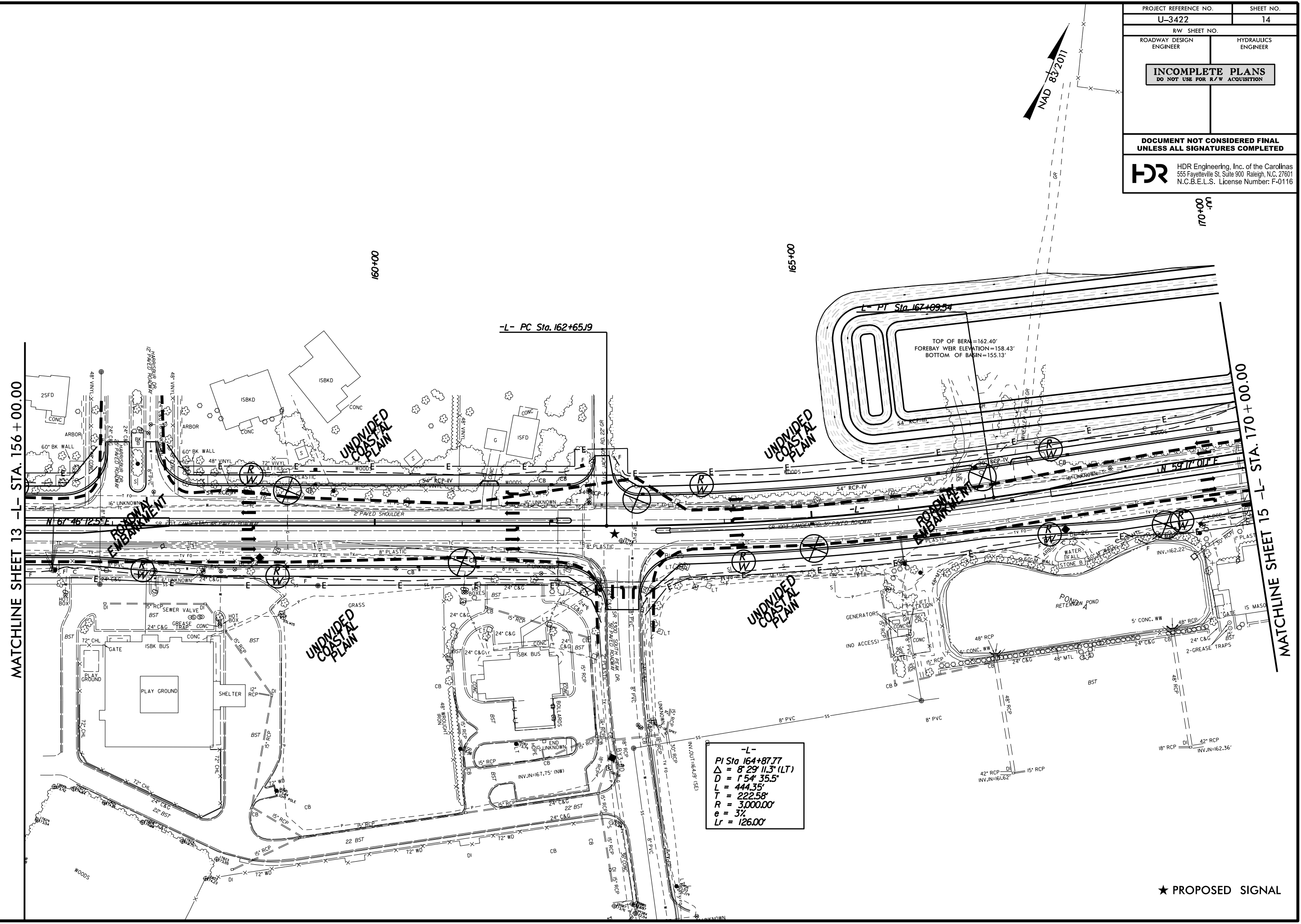
MATCHLINE SHEET 14 -L- STA. 156 + 00.00

PROJECT REFERENCE NO.	SHEET NO.
U-3422	13
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION	
<b>DOCUMENT NOT CONSIDERED FINAL</b> UNLESS ALL SIGNATURES COMPLETED	
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PROJECT REFERENCE NO.	SHEET NO.
U-3422	14
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION	
<b>DOCUMENT NOT CONSIDERED FINAL</b> UNLESS ALL SIGNATURES COMPLETED	
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MATCHLINE SHEET 13 -L- STA. 156 + 00.00

MATCHLINE SHEET 15 -L- STA. 170 + 00.00

-L- PC Sta. 162+65.19

L- PT Sta. 167+09.54

TOP OF BERM = 162.40'  
FOREBAY WEIR ELEVATION = 158.43'  
BOTTOM OF BASIN = 155.13'

-L-  
PI Sta 164+87.77  
 $\Delta = 8^{\circ} 29' 11.3" (LT)$   
 $D = 1^{\circ} 54' 35.5"$   
 $L = 444.35'$   
 $T = 222.58'$   
 $R = 3,000.00'$   
 $e = 3\%$   
 $Lr = 126.00'$

★ PROPOSED SIGNAL

PLOT DRIVER: \$PLTDVRS\$  
USER: \$USER\$  
FILE: \$FWVARVAULTPATHDES\$

REVISIONS

DATE: \$DATE\$  
TIME: \$TIME\$

PENTABLE: \$PENTBL\$

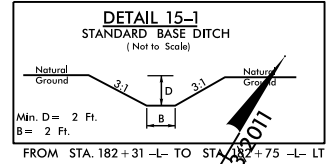
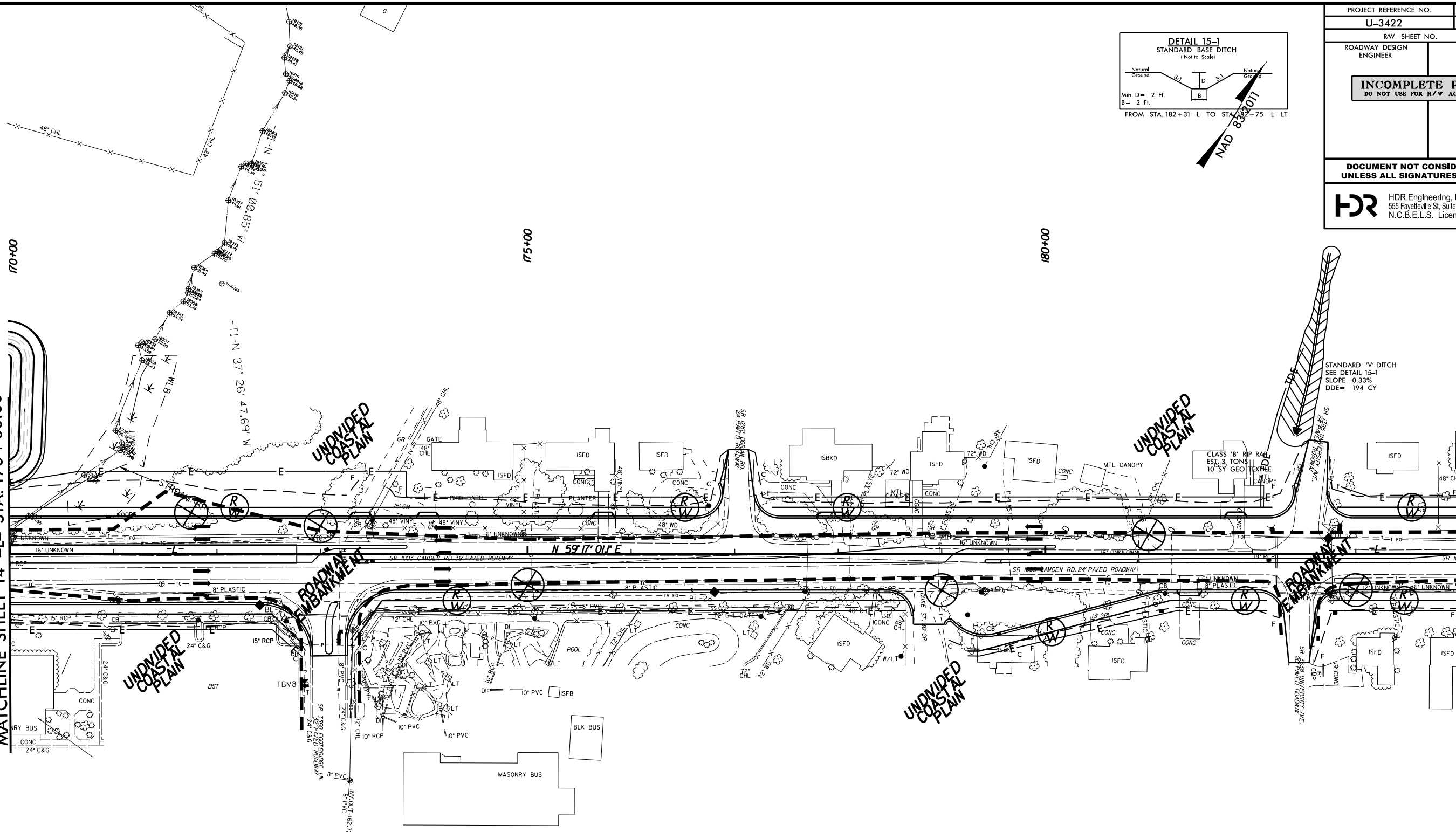
PLOT DRIVER: \$PLTDRV\$  
 USER: \$USER\$  
 FILE: \$PWVAVULTPATHDES\$

DATE: \$DATE\$

PENTABLE: \$PENTBL\$  
 TIME: \$TIME\$

REVISIONS

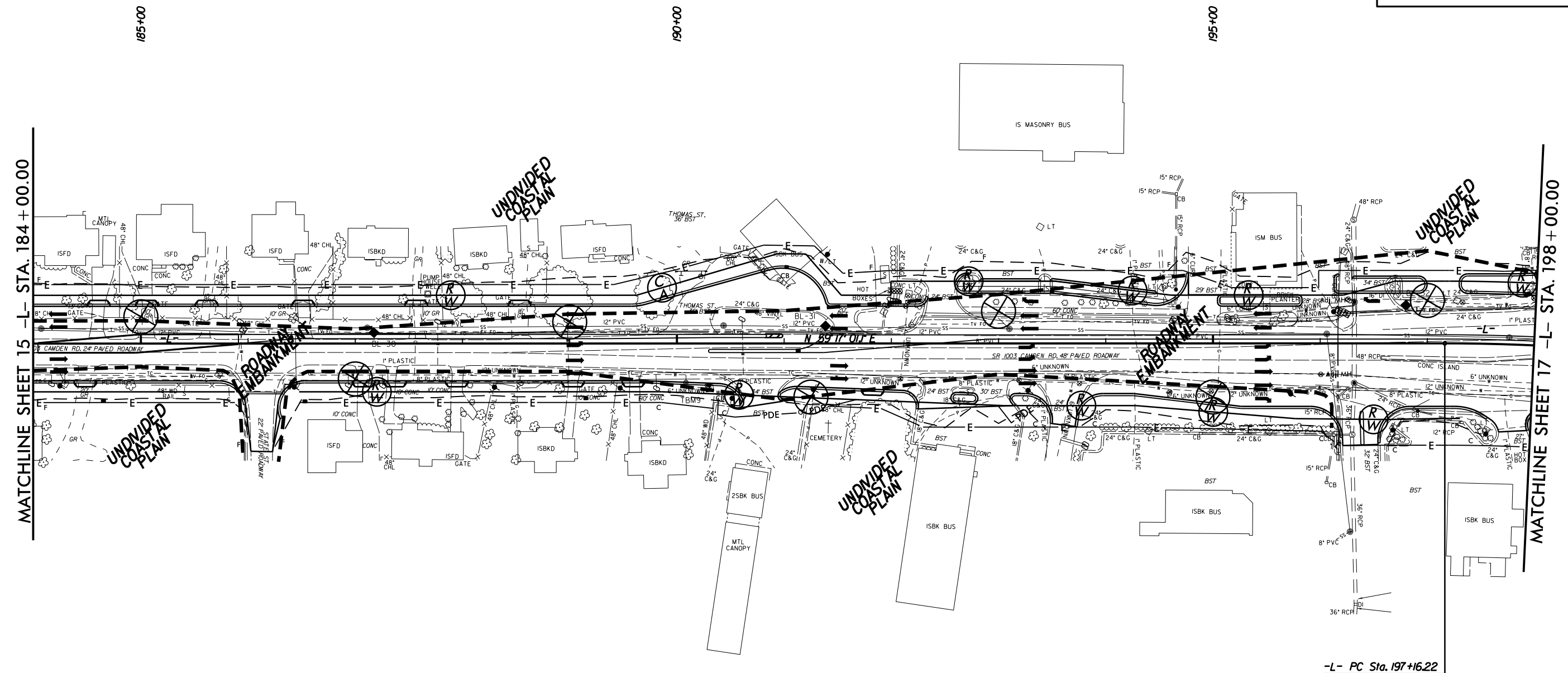
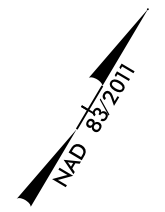
MATCHLINE SHEET 14 -L- STA. 170+00.00



PROJECT REFERENCE NO. <b>U-3422</b>	SHEET NO. <b>15</b>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION	
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MATCHLINE SHEET 16 -L- STA. 184+00.00

PROJECT REFERENCE NO.	SHEET NO.
U-3422	16
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION	
<b>DOCUMENT NOT CONSIDERED FINAL</b> UNLESS ALL SIGNATURES COMPLETED	
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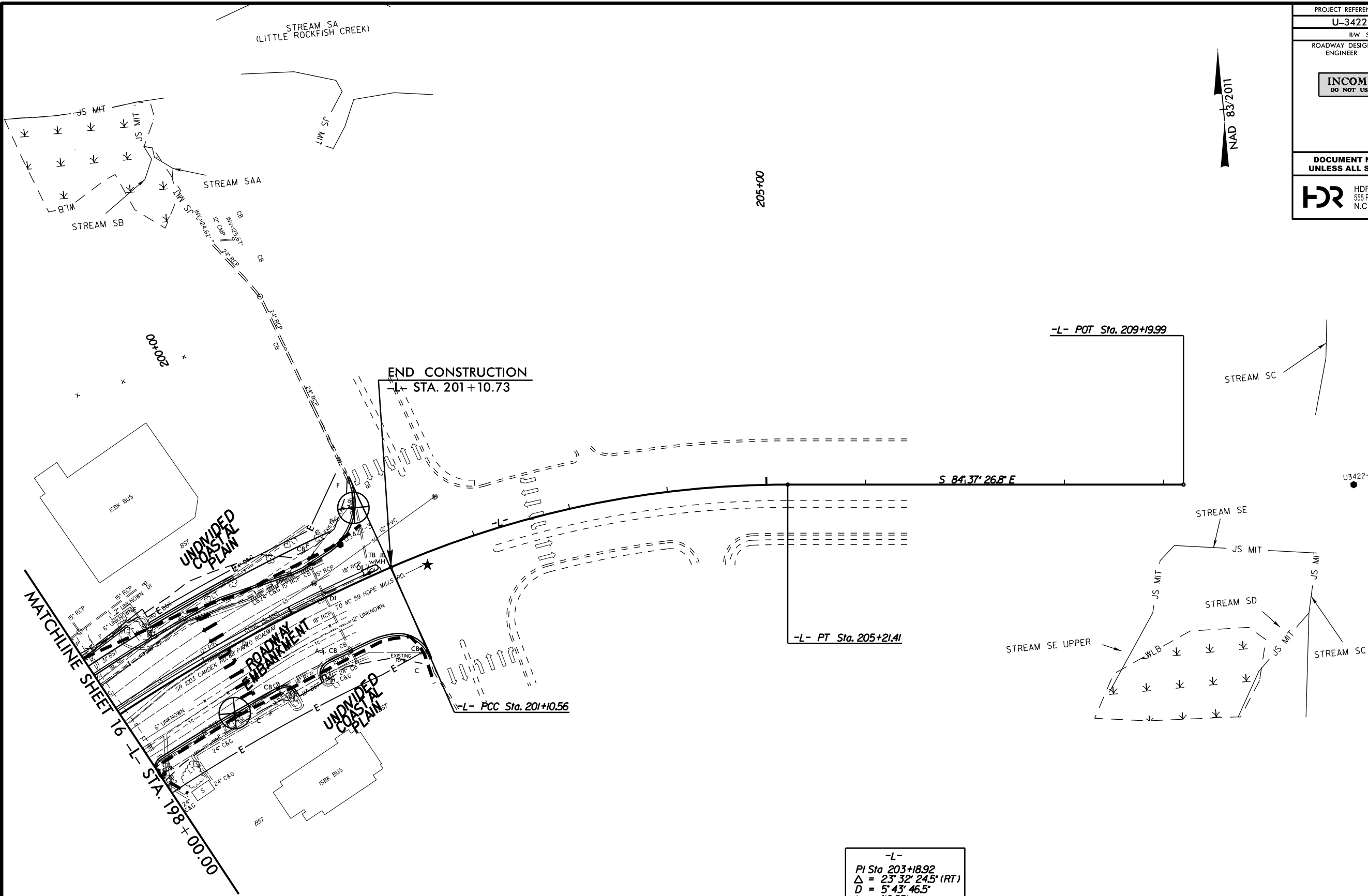
-L-  
 PI Sta 199+14.18  
 $\Delta = 12^{\circ} 33' 07.6''$  (RT)  
 $D = 3^{\circ} 10' 59.2''$   
 $L = 394.34'$   
 $T = 197.96'$   
 $R = 1,800.00'$   
 $e = 3\%$   
 $Lr = 126.00'$

REVISIONS

PLOT DRIVER: \$PLTDVRS\$      PENTABLE: \$PENTBL\$  
 USER: \$USER\$                      DATE: \$DATE\$                      TIME: \$TIME\$  
 FILE: \$PWVAVULTPATHDSC\$

PROJECT REFERENCE NO.	SHEET NO.
U-3422	17
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION	
<b>DOCUMENT NOT CONSIDERED FINAL</b> UNLESS ALL SIGNATURES COMPLETED	
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NAD 83/2011



-L-  
 PI Sta 203+18.92  
 $\Delta = 23^{\circ} 32' 24.5" (RT)$   
 $D = 5^{\circ} 43' 46.5"$   
 $L = 410.85'$   
 $T = 208.37'$   
 $R = 1,000.00'$   
 $e = EXISTING$   
 $Lr = NA$

REVISIONS

PLOT DRIVER: \$PLTDRV\$  
 USER: \$USER\$  
 FILE: \$PWVAVVAULTPATH\H05C\$  
 DATE: \$DATE\$  
 TIME: \$TIME\$  
 PENTABLE: \$PENTBL\$  
 TIME: \$TIME\$

MATCHLINE SHEET 16  
 -L- STA. 198+00.00

200+00

205+00

-L- POT Sta. 209+19.99

END CONSTRUCTION  
 STA. 201+10.73

S 84.37° 26.8' E

-L- PT Sta. 205+21.41

-L- PCC Sta. 201+10.56

U3422-4

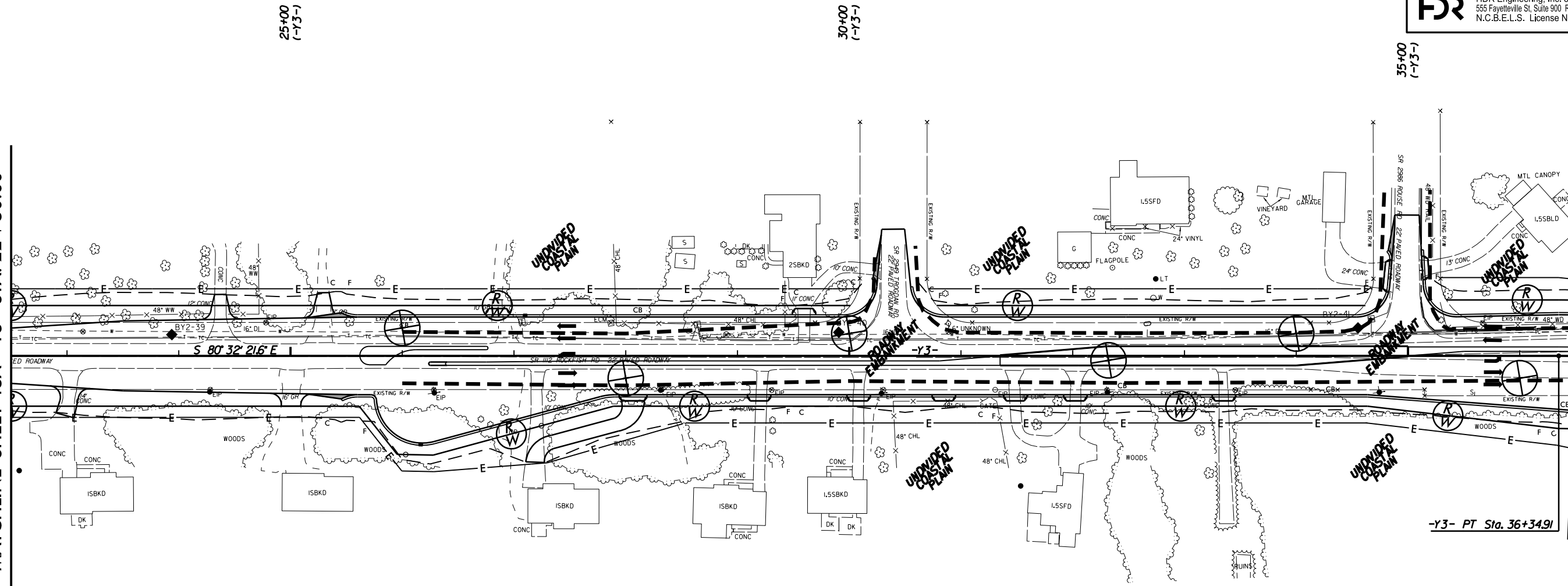
PLOT DRIVER: \$PLTDRV\$  
 USER: \$USER\$  
 FILE: \$PWVAVLTPATHDES\$

DATE: \$DATE\$

PENTABLE: \$PENTBL\$  
 TIME: \$TIME\$

REVISIONS

MATCHLINE SHEET 18A -Y3- STA. 22 + 50.00



-Y3-  
 PI Sta 38+74.91  
 $\Delta = 65^\circ 14' 24.1''$  (RT)  
 $D = 15' 16' 43.9''$   
 $L = 427.00'$   
 $T = 240.01'$   
 $R = 375.00'$

-Y3- PT Sta. 36+34.91

MATCHLINE SHEET 11 -Y3- STA. 36 + 50.00

PROJECT REFERENCE NO. U-3422	SHEET NO. 18
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION	
<b>DOCUMENT NOT CONSIDERED FINAL</b> UNLESS ALL SIGNATURES COMPLETED	
<b>HDR</b>	HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116



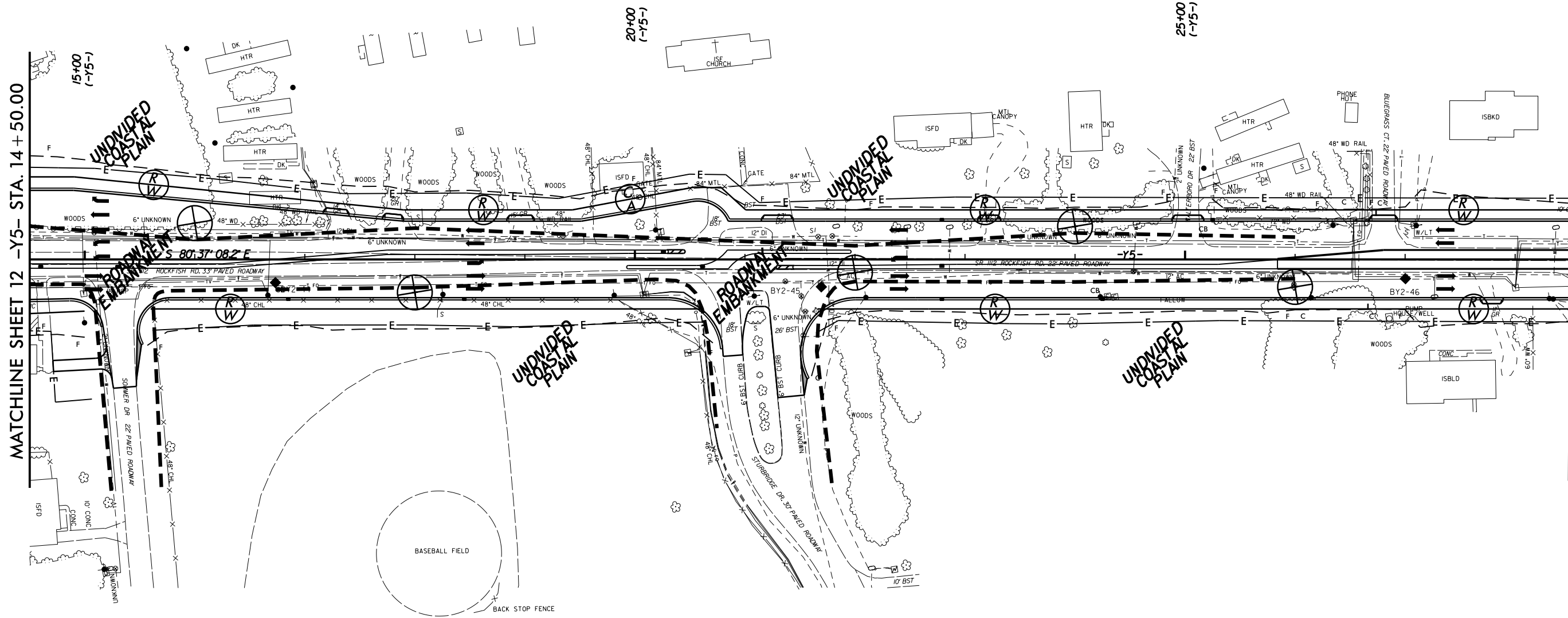
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REVISIONS

MATCHLINE SHEET 12 -Y5- STA. 14 + 50.00

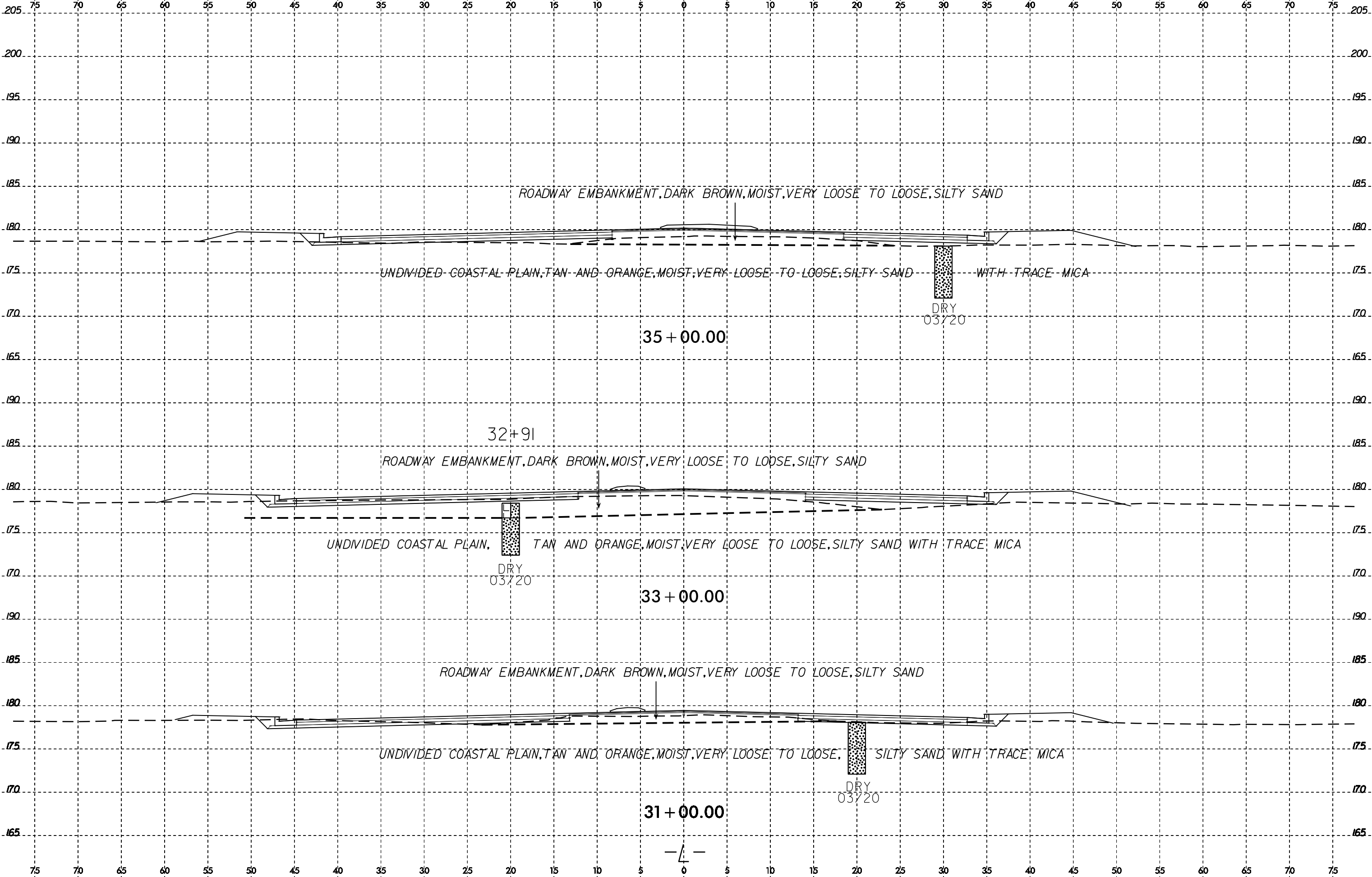


PROJECT REFERENCE NO.	SHEET NO.
U-3422	19
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
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<b>HDR</b> HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116	

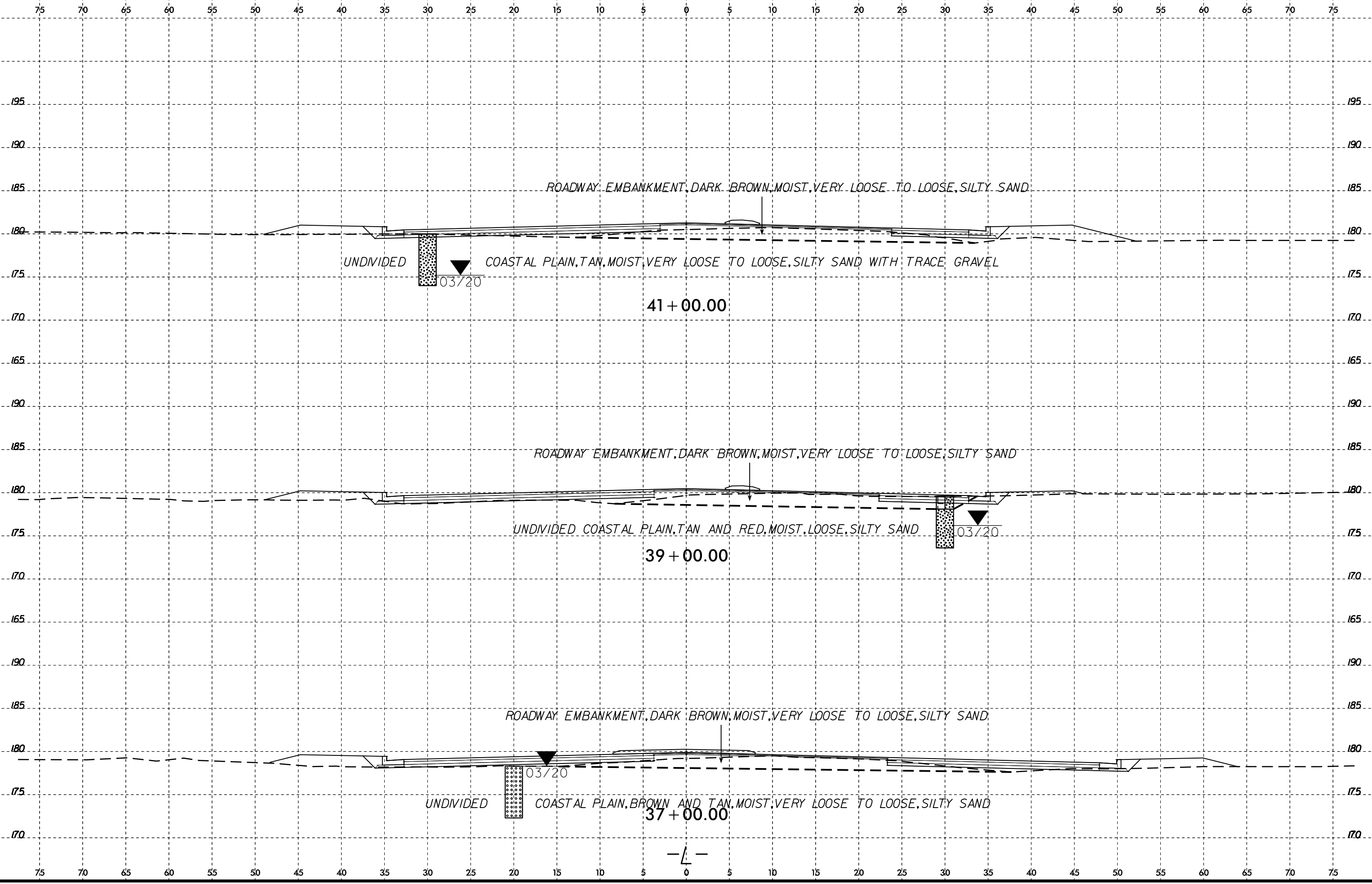
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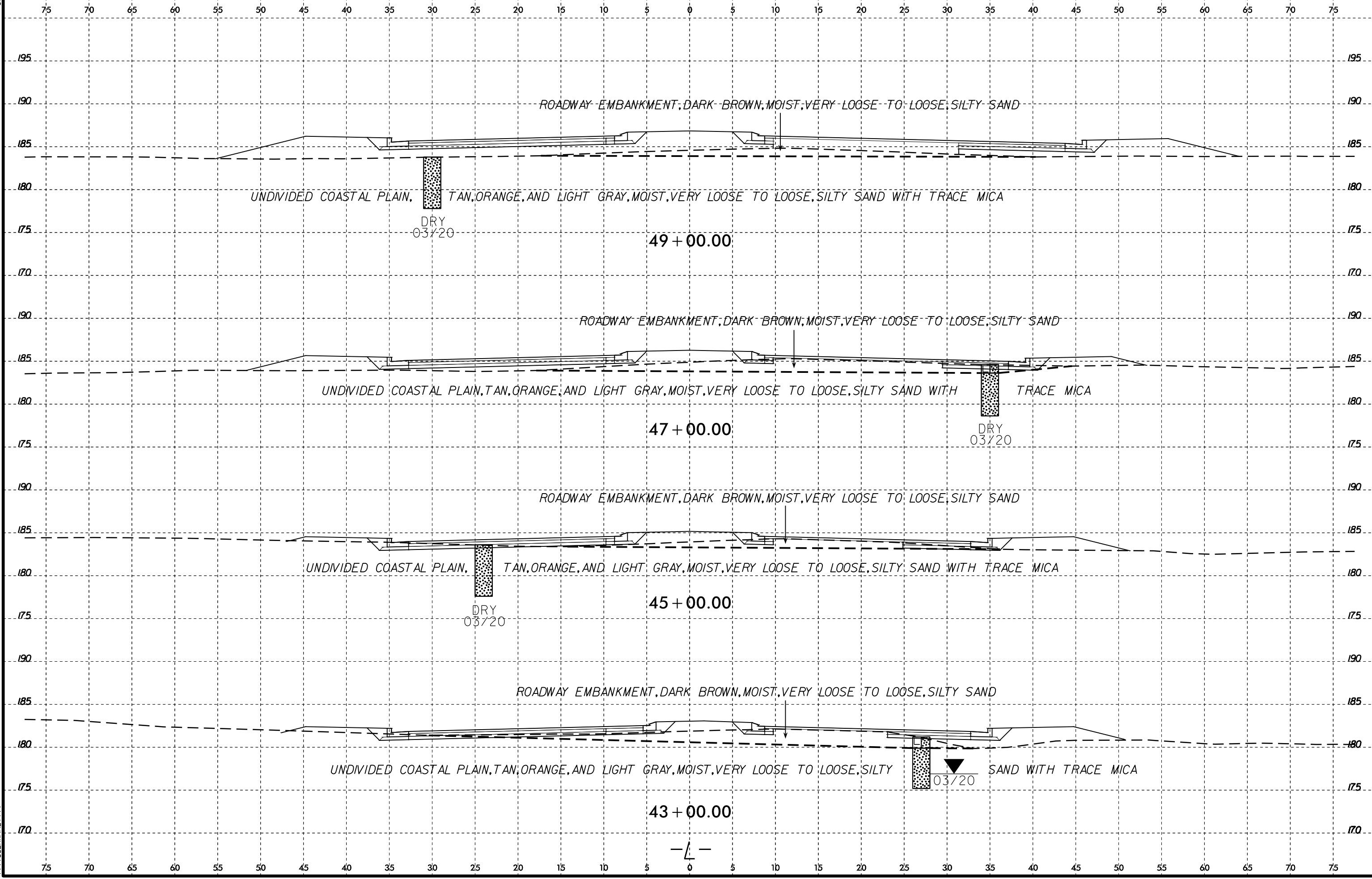
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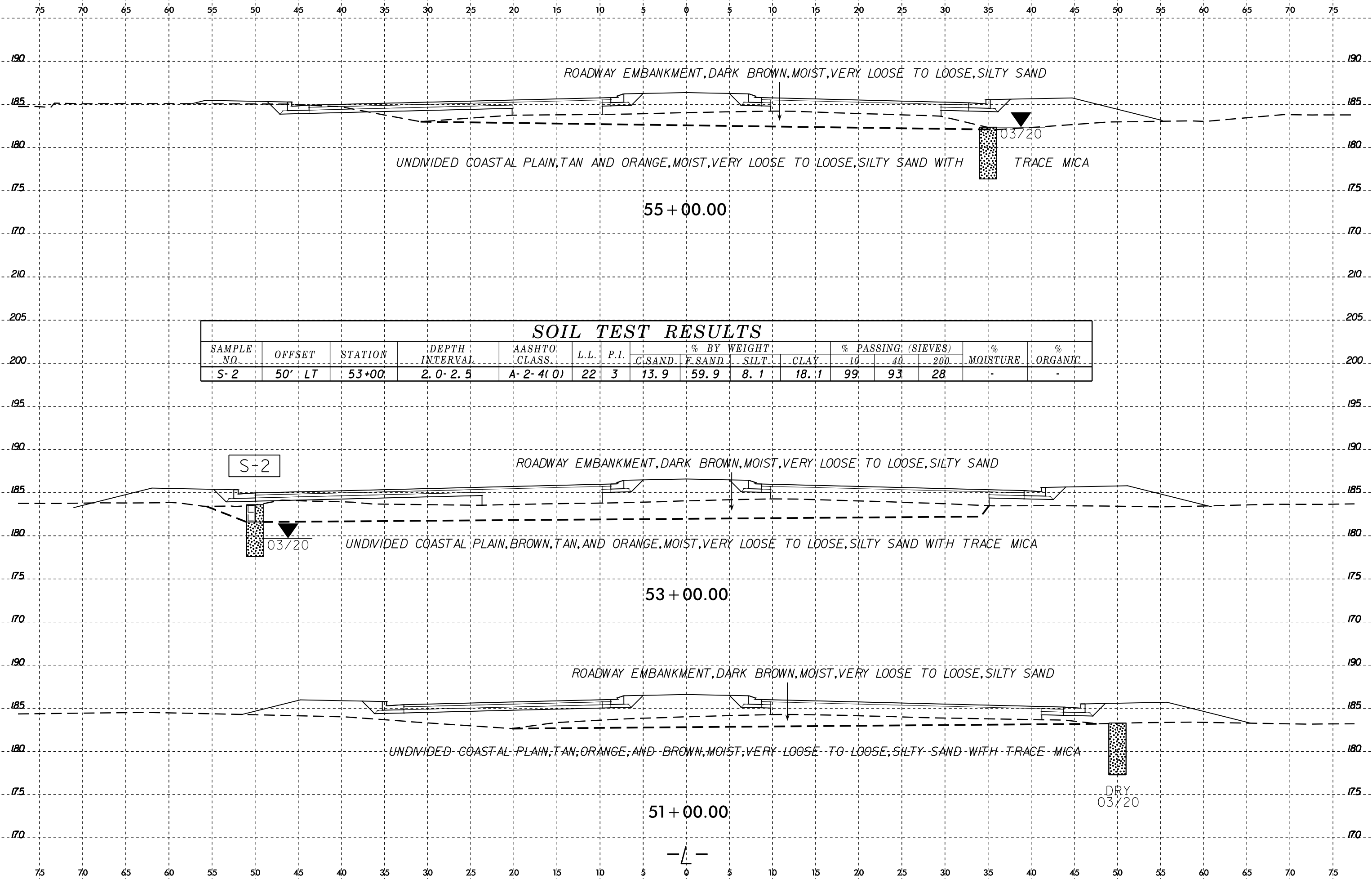


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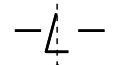
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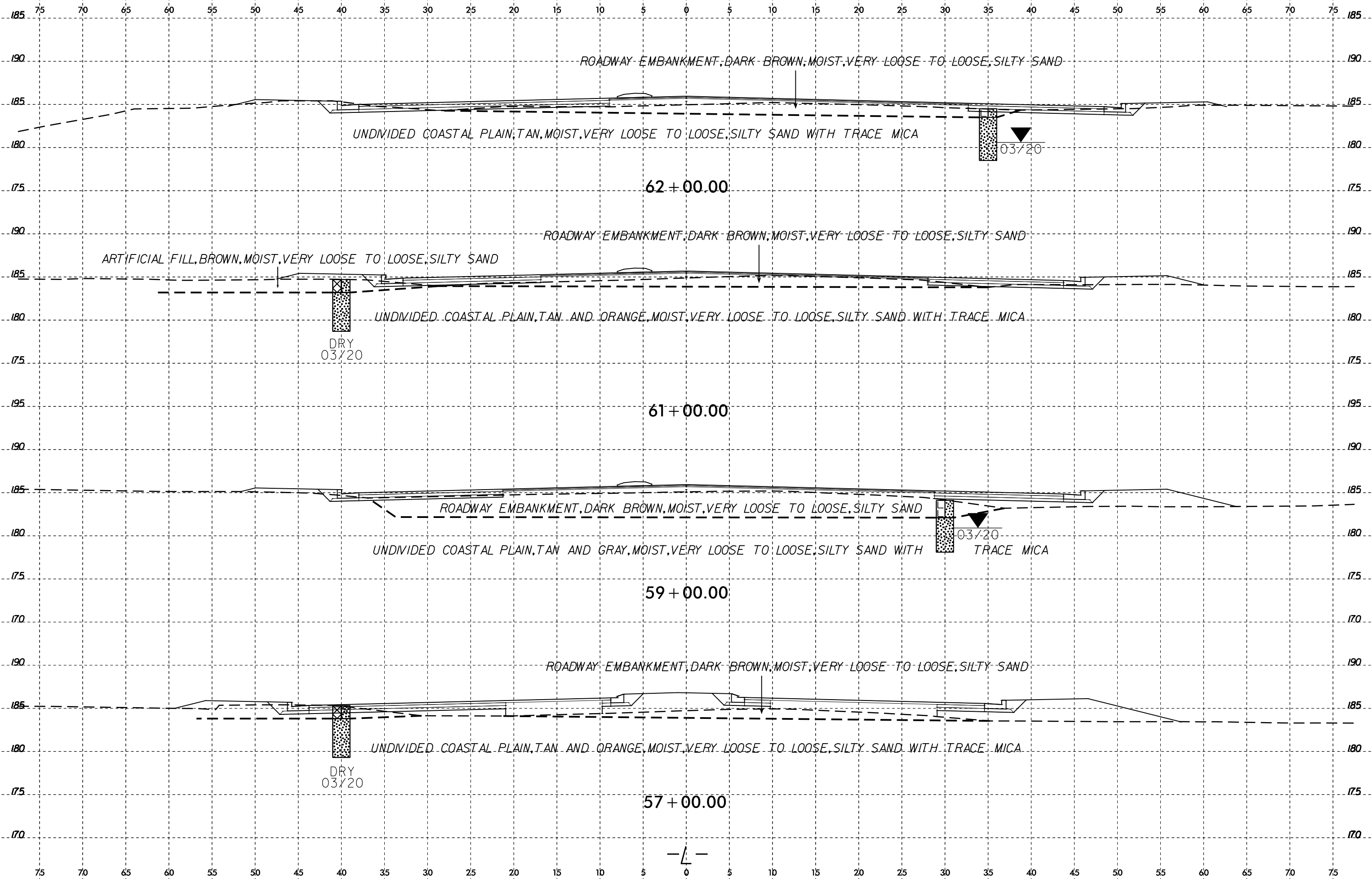
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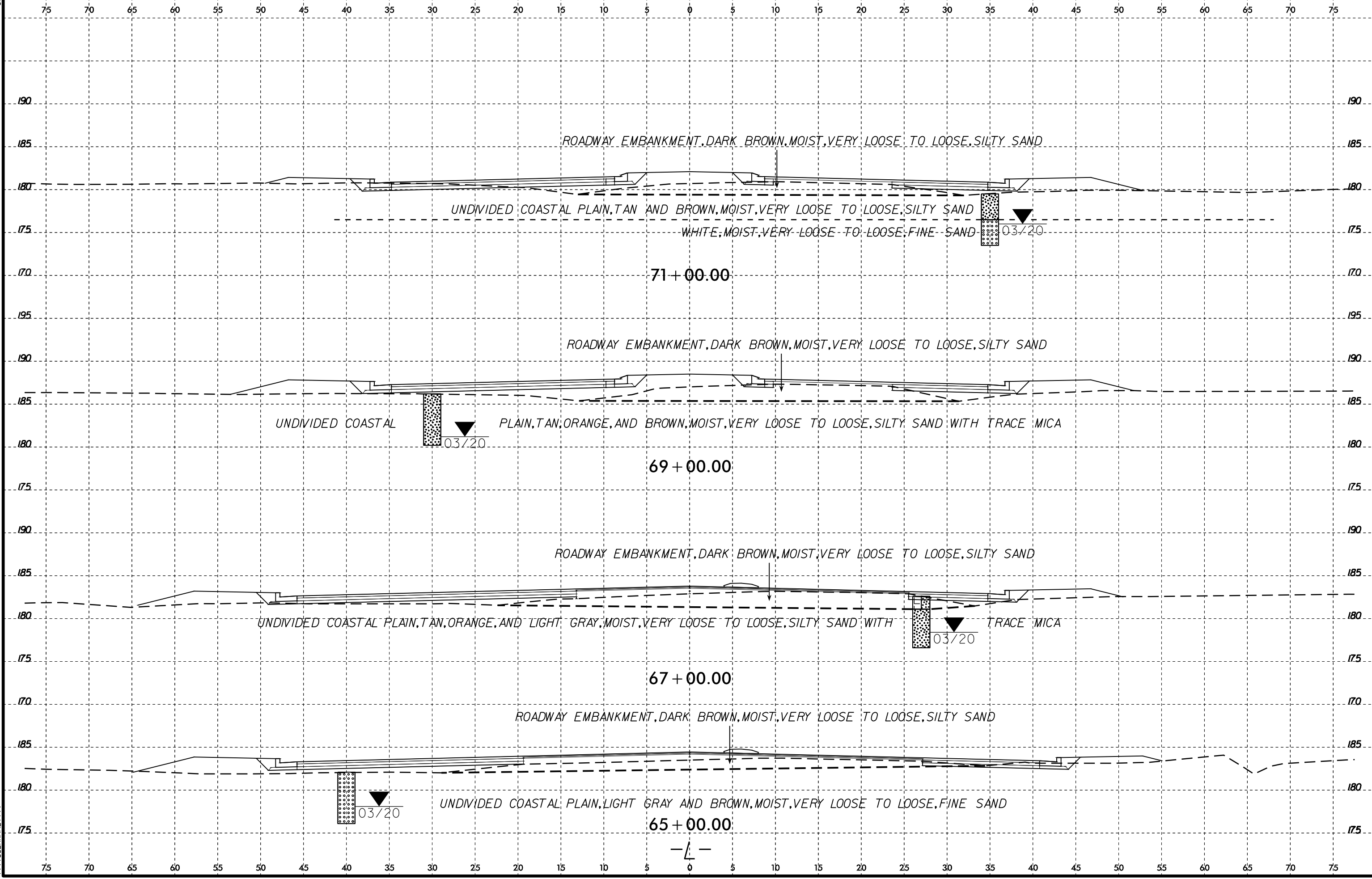
### SOIL TEST RESULTS

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							C. SAND	F. SAND	SILT	CLAY	10	40	200		
S-2	50' LT	53+00	2.0-2.5	A-2-4(O)	22	3	13.9	59.9	8.1	18.1	99	93	28	-	-

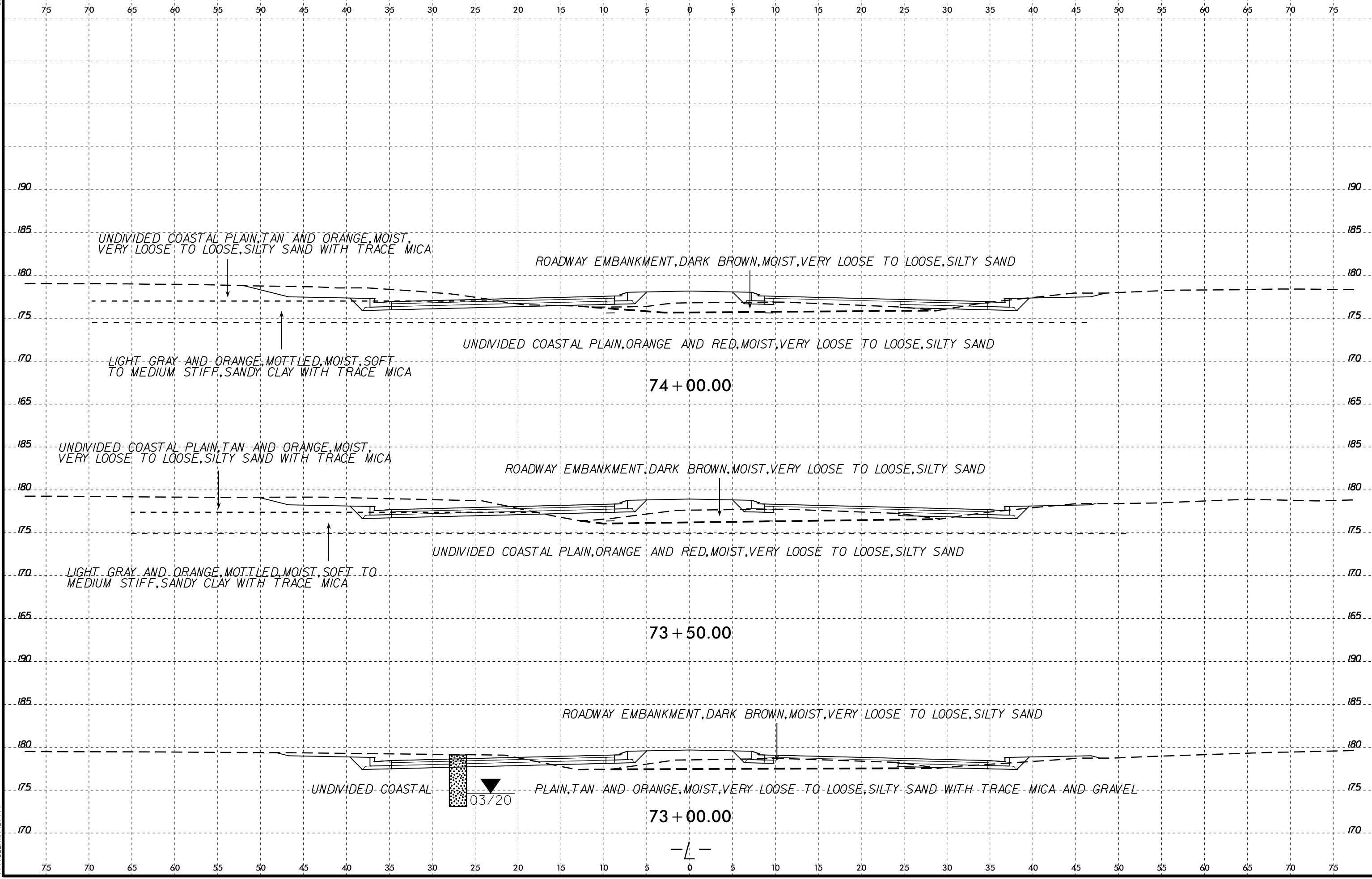




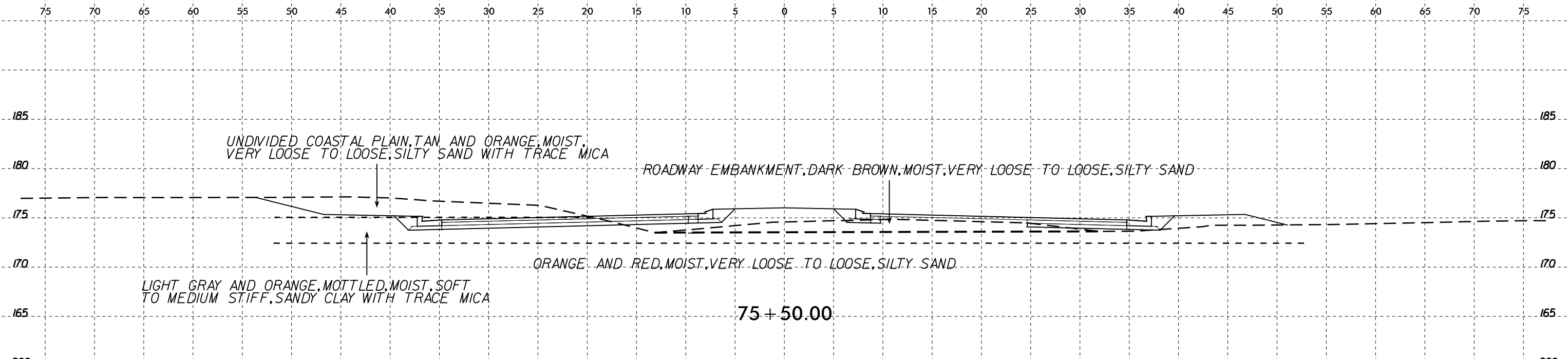
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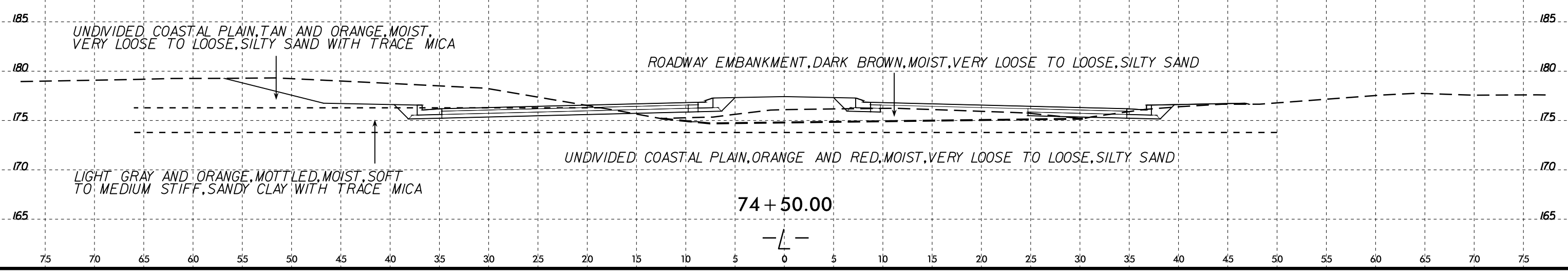
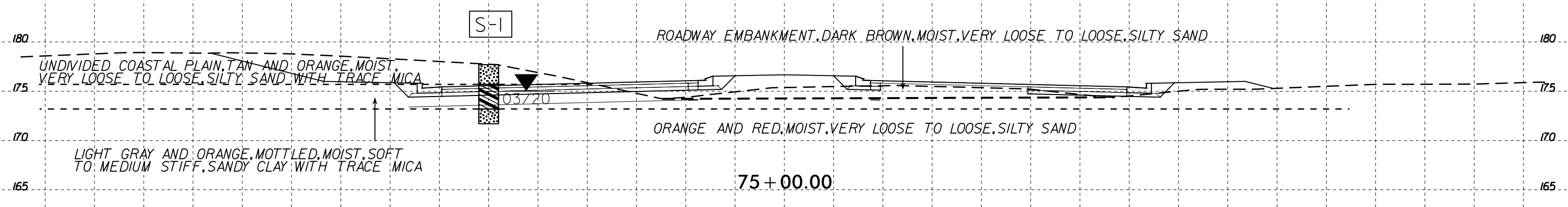




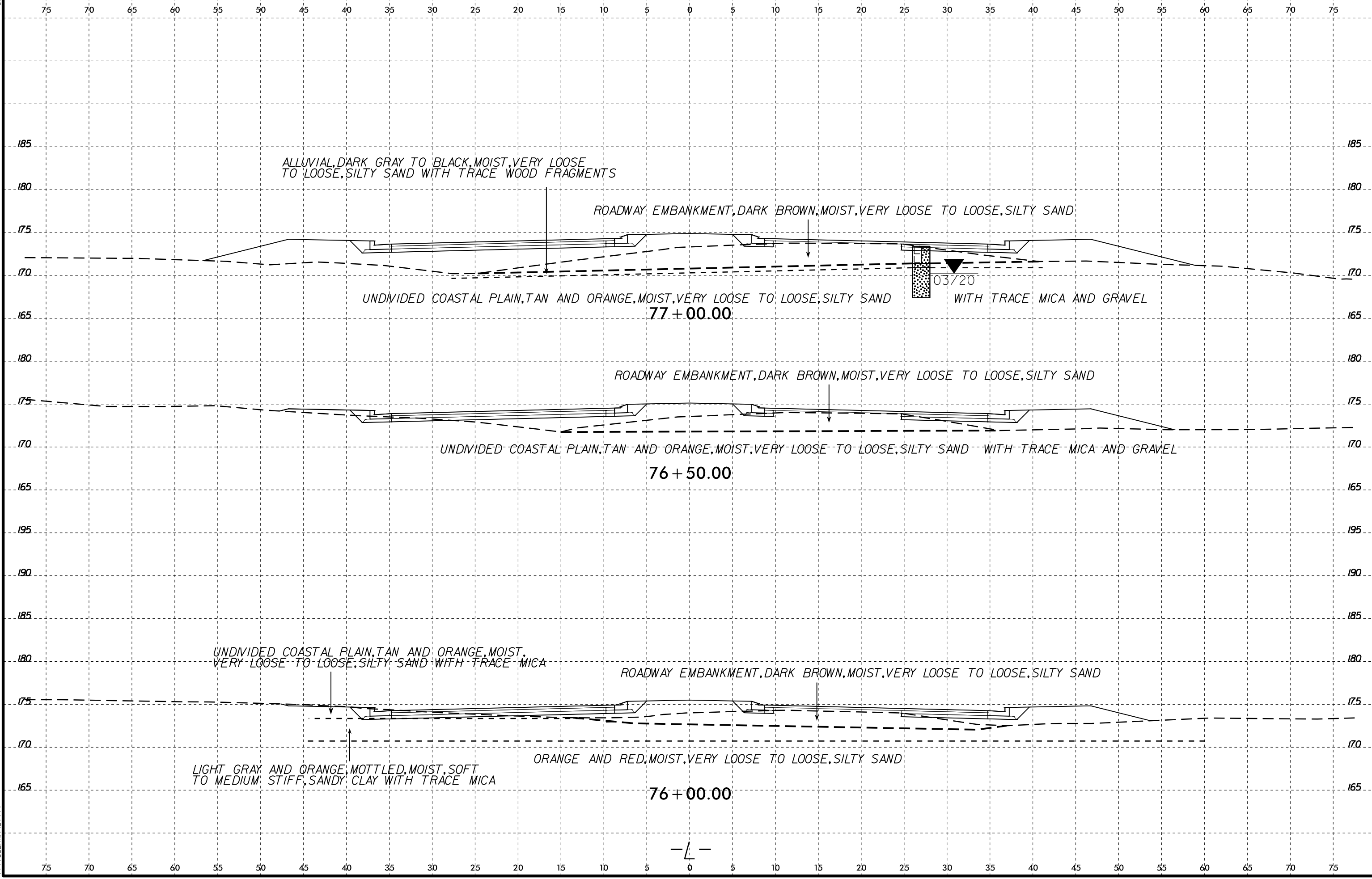
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SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
S-1	30' LT	75+00	2.0-2.5	A-6(11)	37	14	4.4	24.6	22.6	48.4	100	97	80	24	-



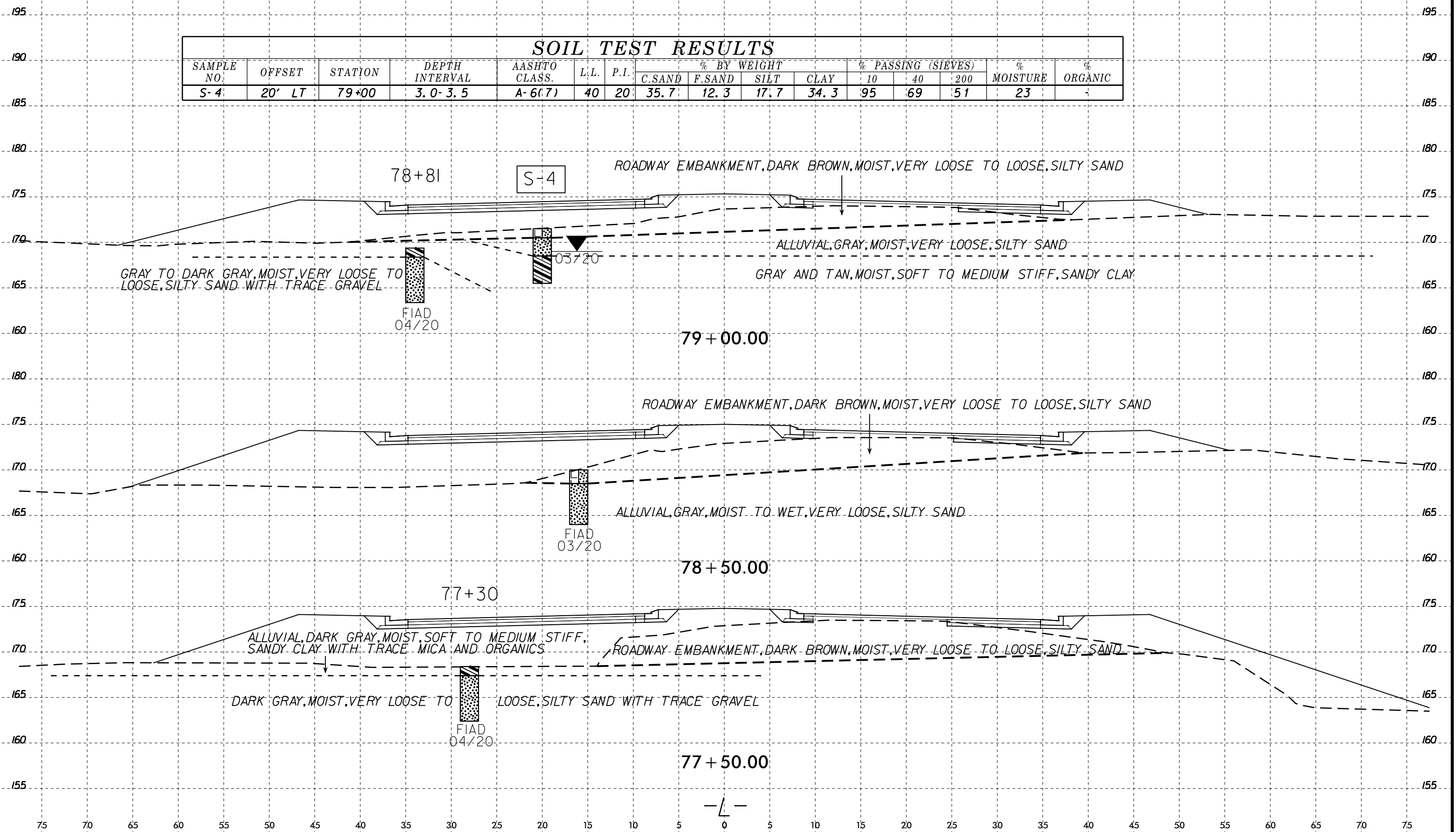
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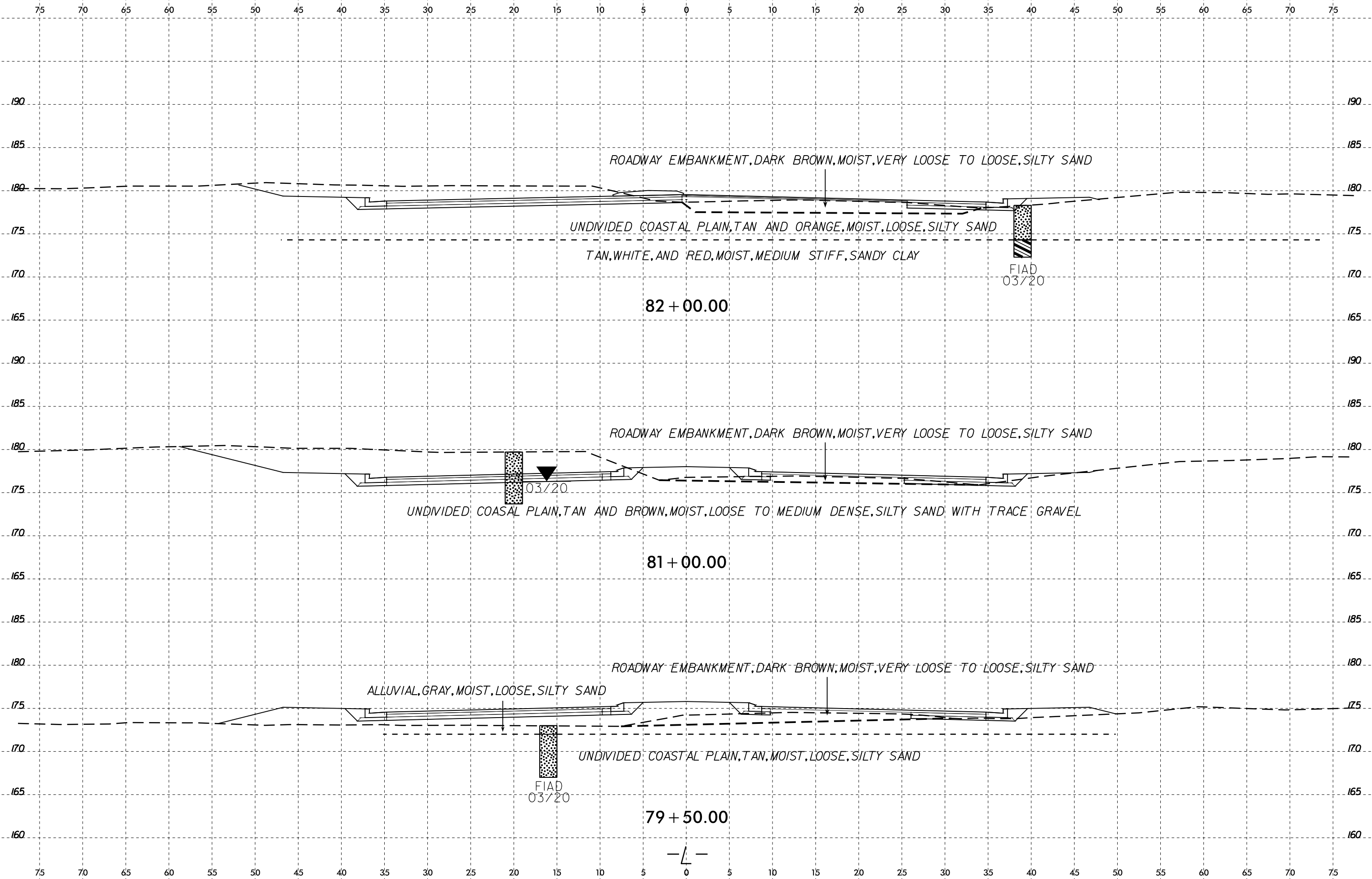


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SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
S-4	20' LT	79+00	3.0-3.5	A-6(7)	40	20	35.7	12.3	17.7	34.3	95	69	51	23	-





75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

200

200

SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
S-3	33' RT	83+00	1.0-1.5	A-7-6(14)	6	19	11.9	19.6	26.2	42.3	97	89	73	32	-

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ROADWAY EMBANKMENT, DARK BROWN, MOIST, VERY LOOSE TO LOOSE, SILTY SAND

S-3

UNDIVIDED COASTAL PLAIN, LIGHT GRAY, ORANGE, AND RED, MOTTLED, MOIST, SOFT TO MEDIUM STIFF, HIGHLY PLASTIC, SILTY CLAY

83 + 00.00

ROADWAY EMBANKMENT, DARK BROWN, MOIST, VERY LOOSE TO LOOSE, SILTY SAND

UNDIVIDED COASTAL PLAIN, TAN, MOIST, LOOSE, SILTY SAND

TAN, WHITE AND RED, MOIST, MEDIUM STIFF, SILTY CLAY

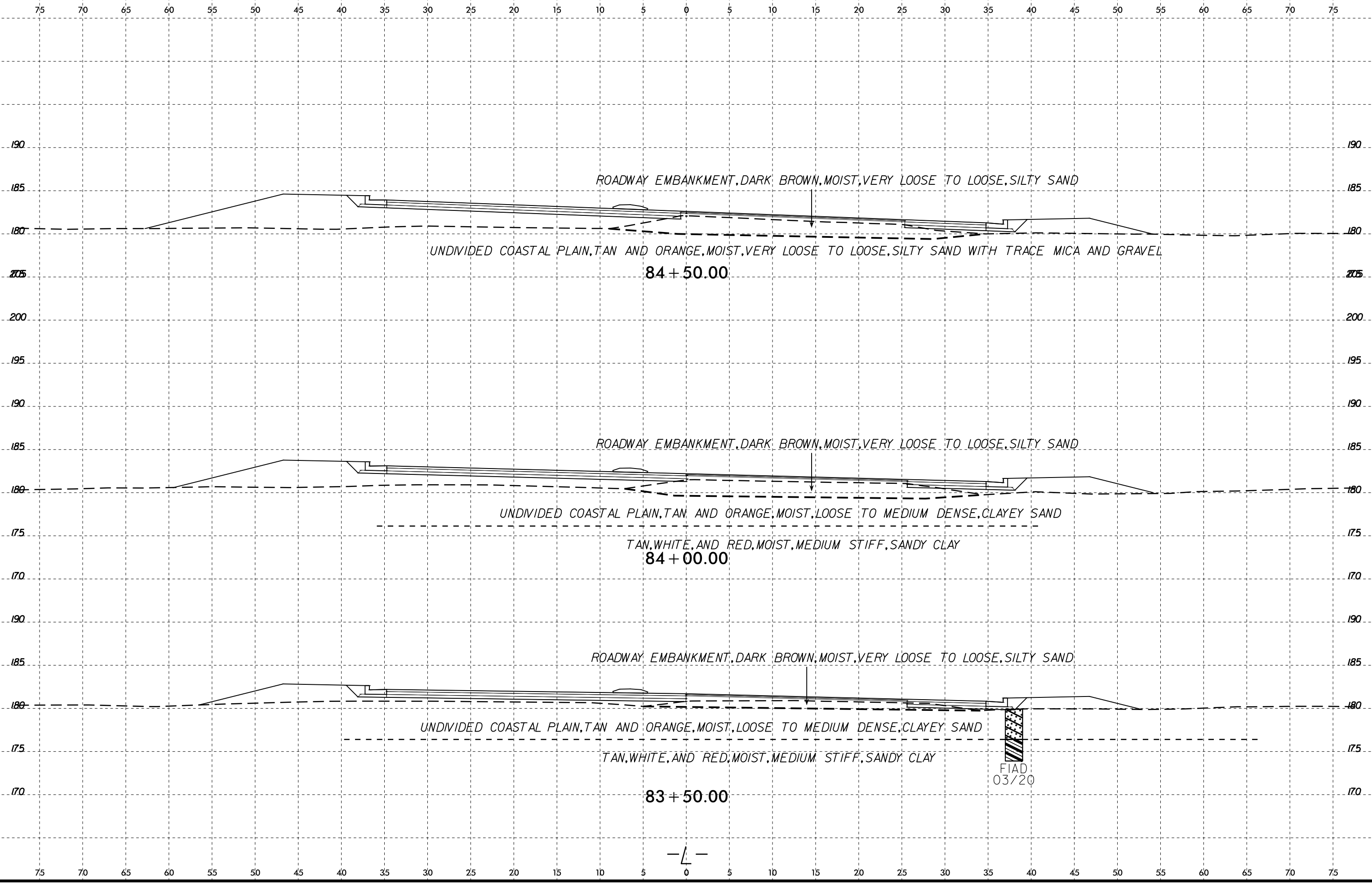
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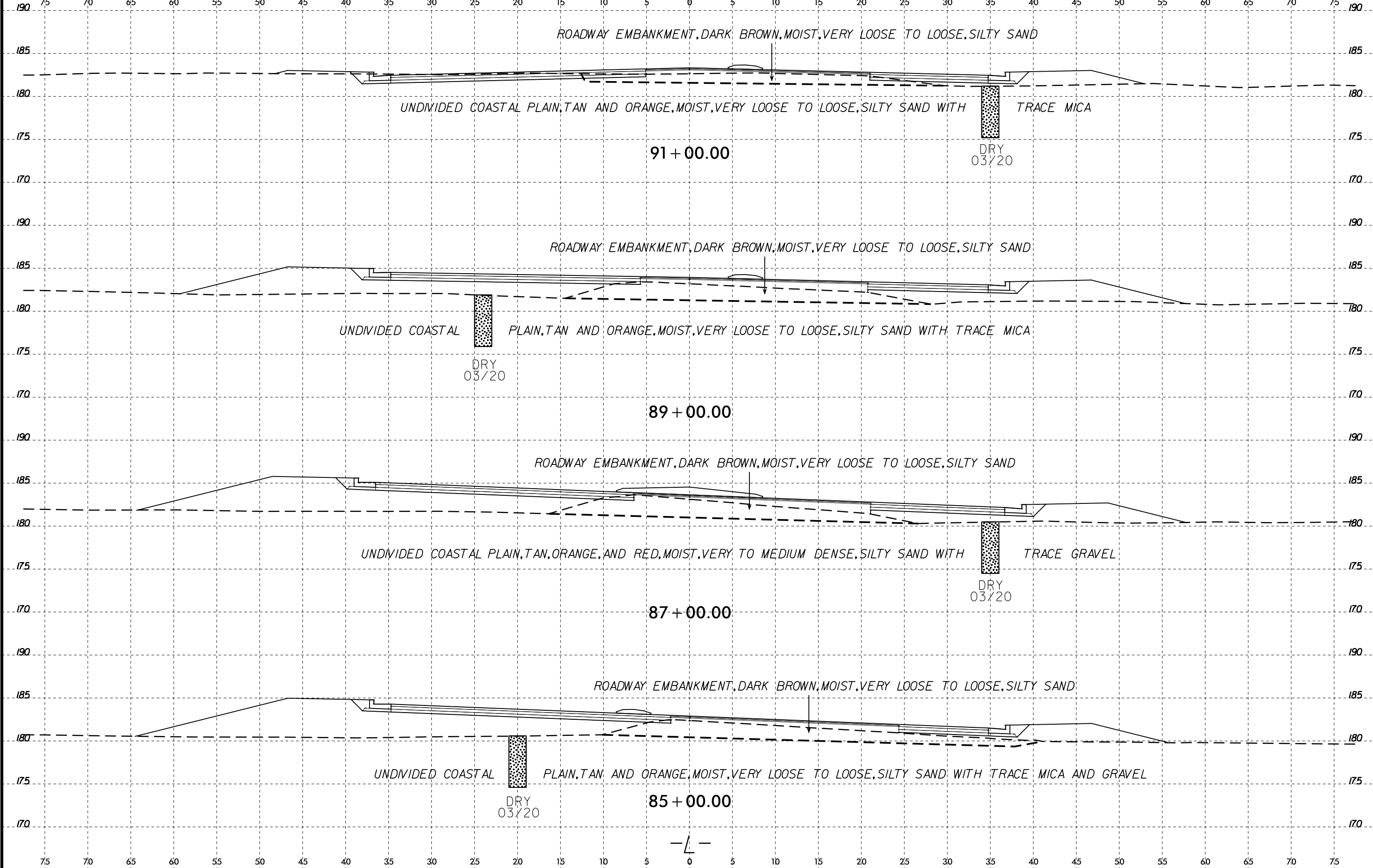
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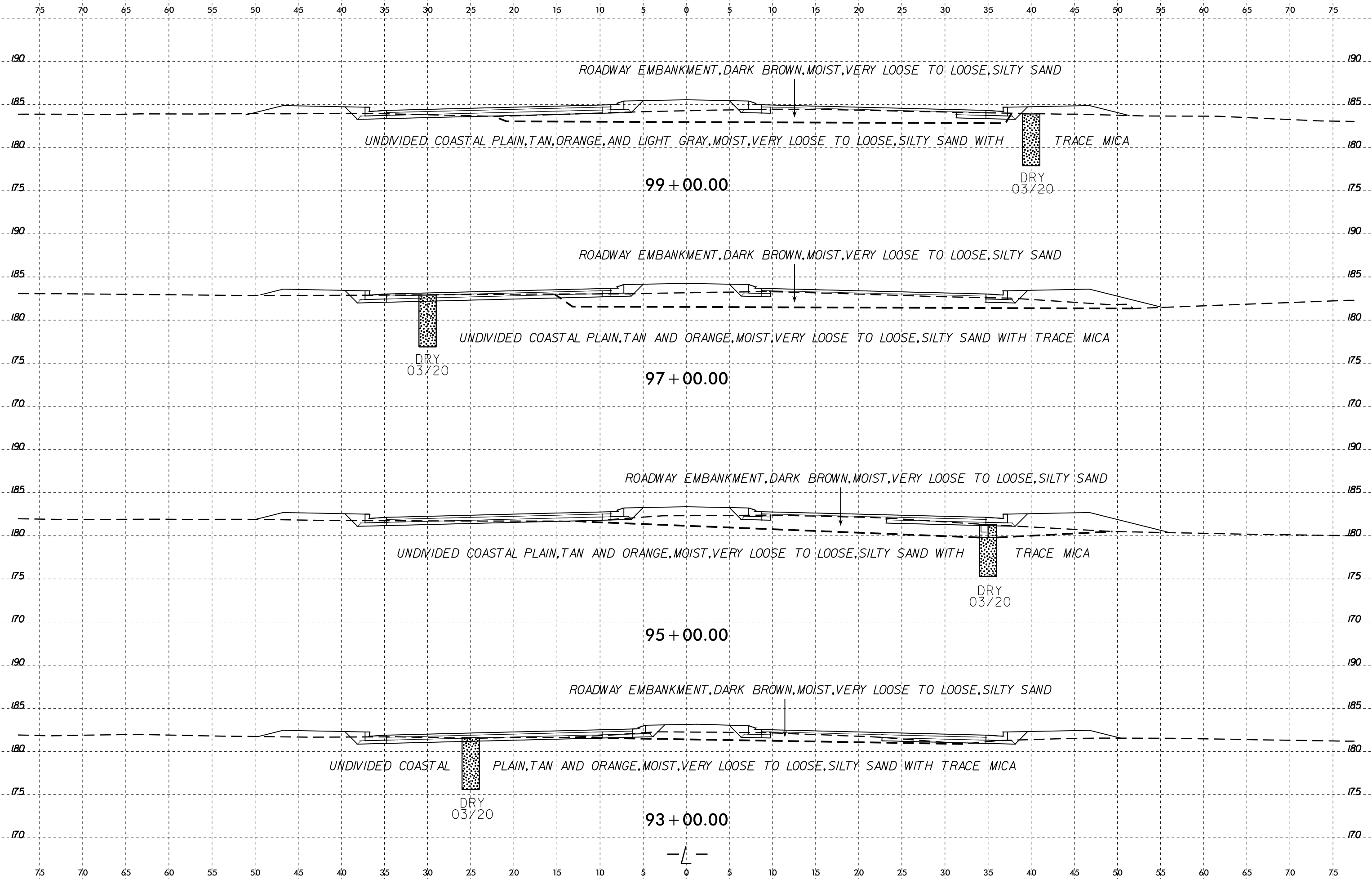
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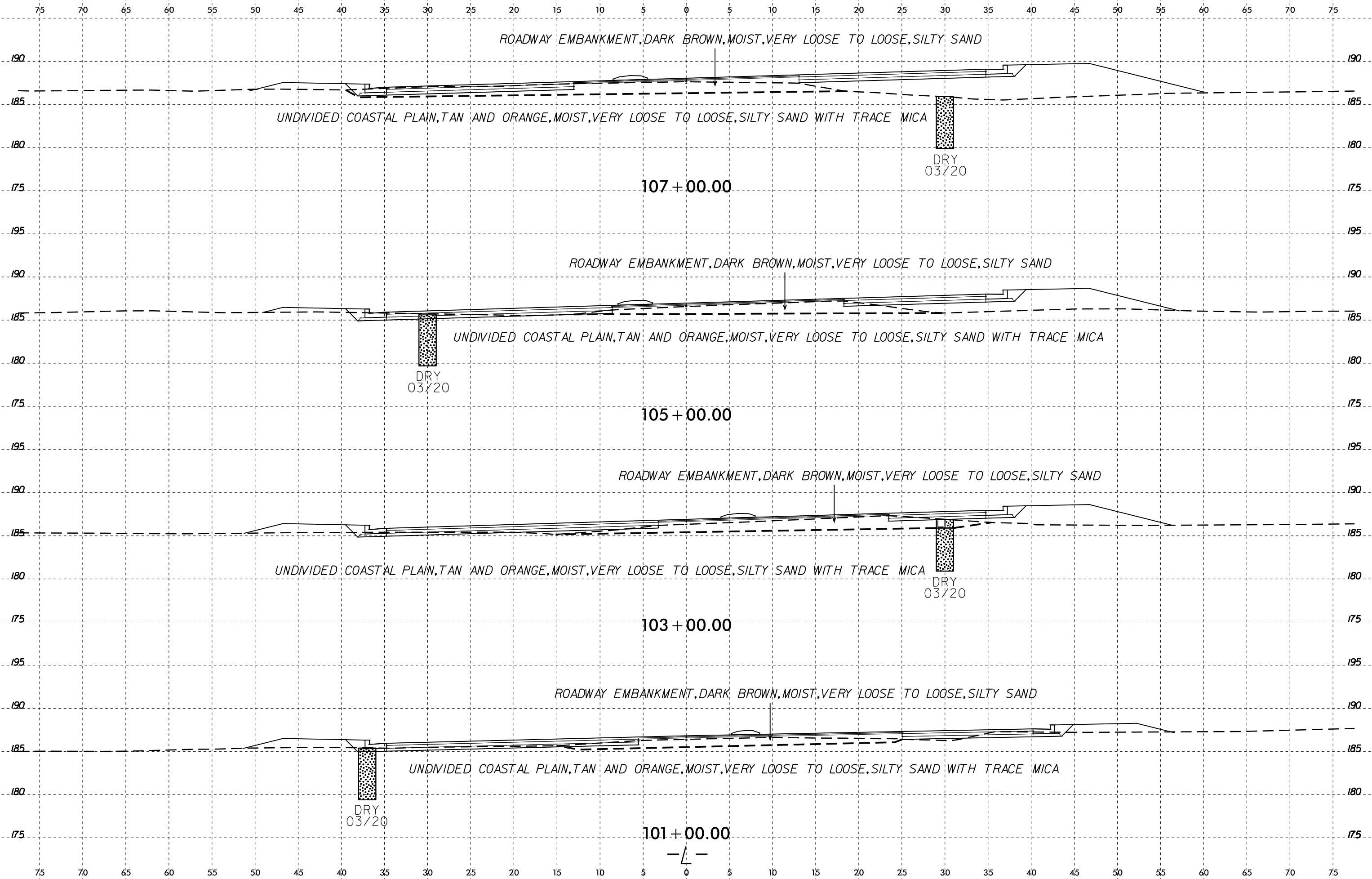
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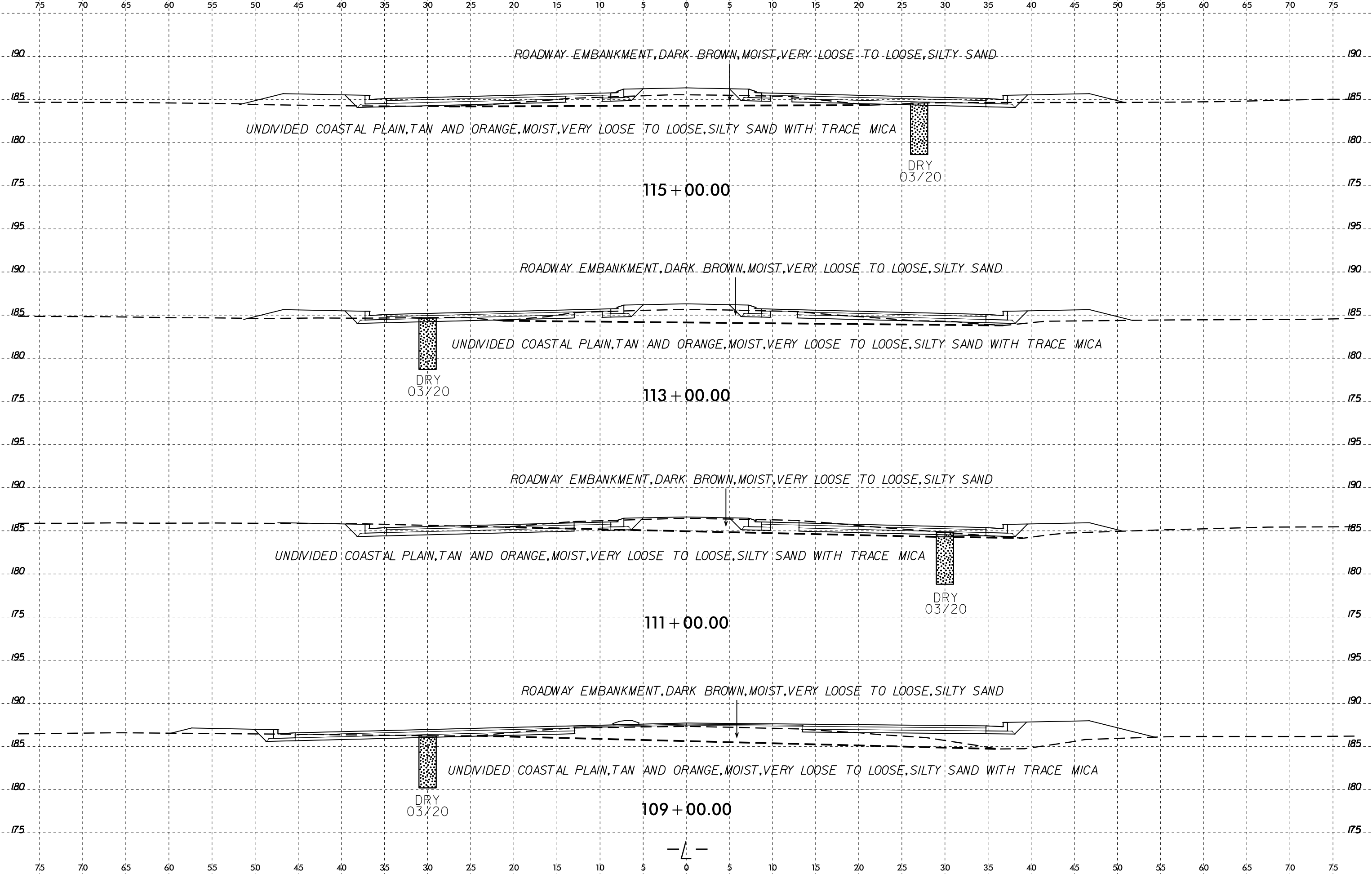
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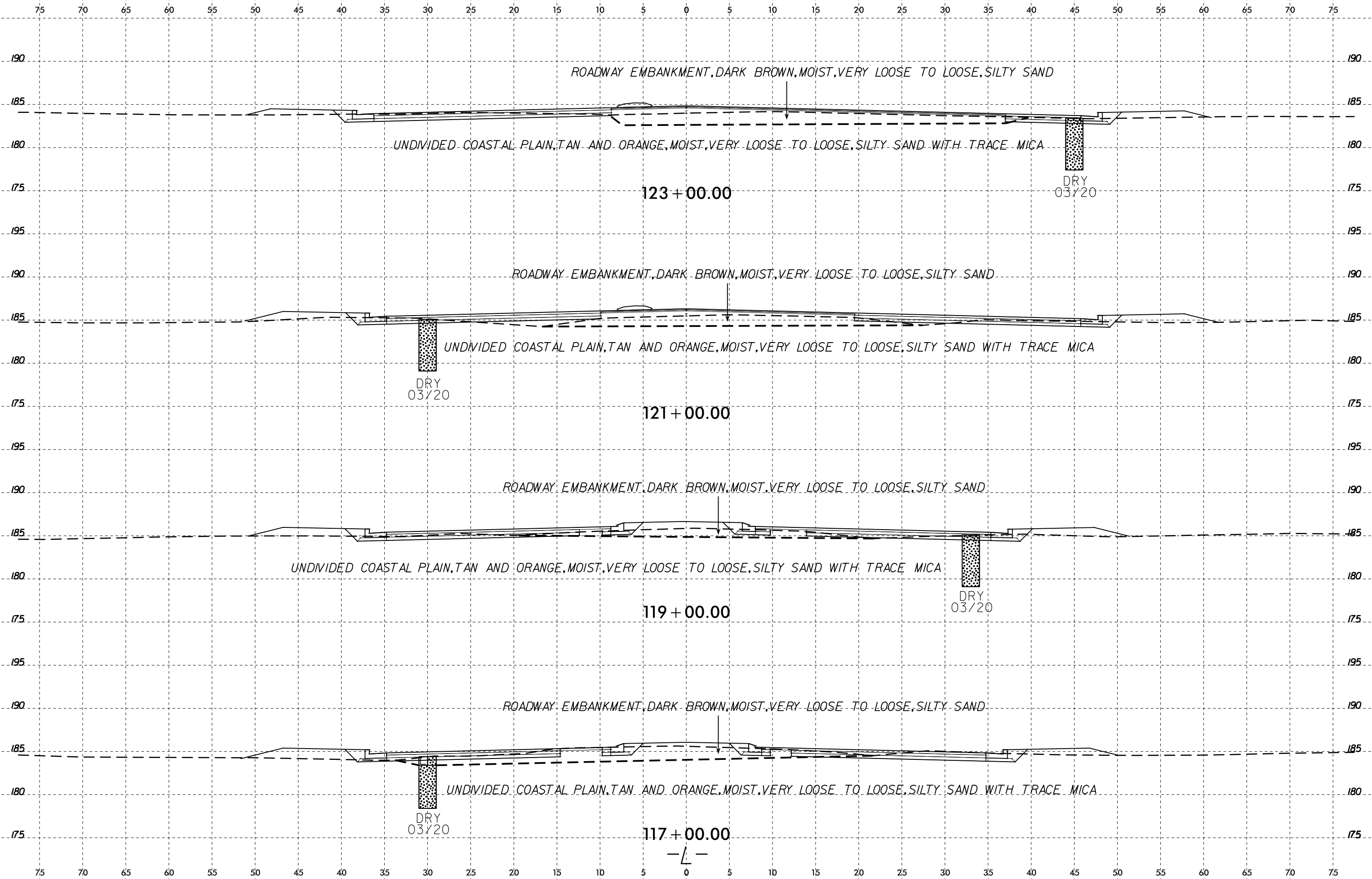
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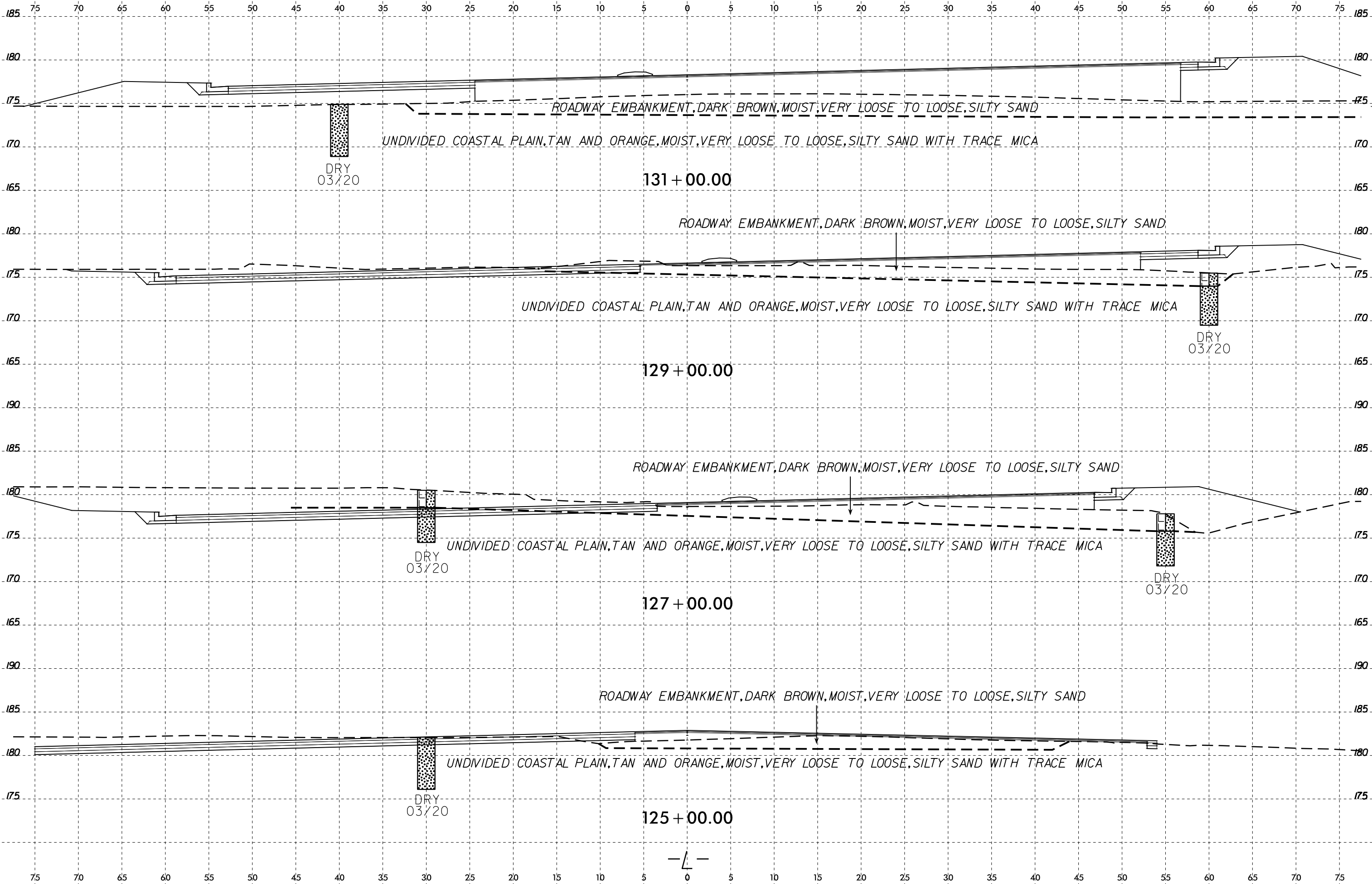
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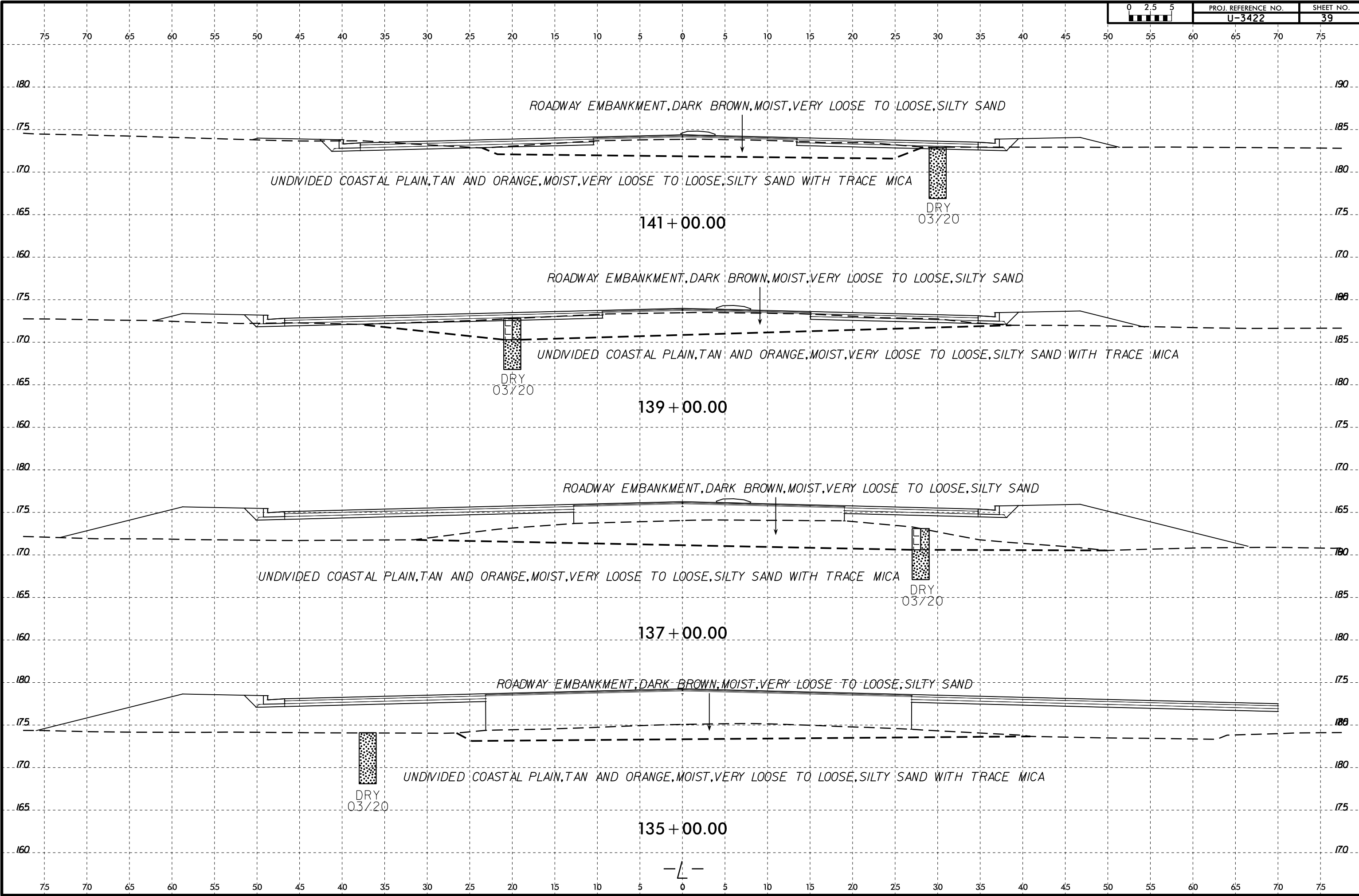
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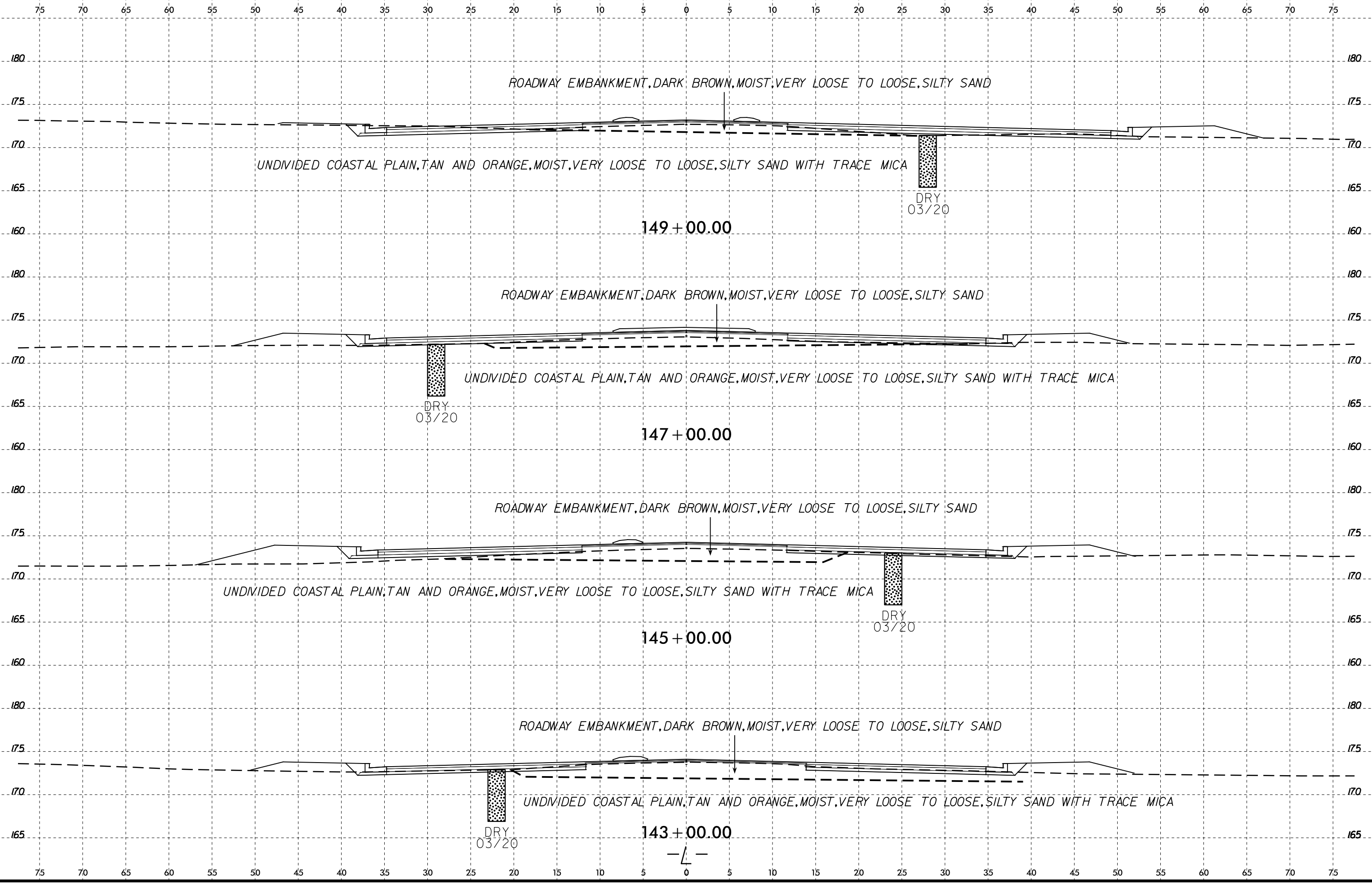
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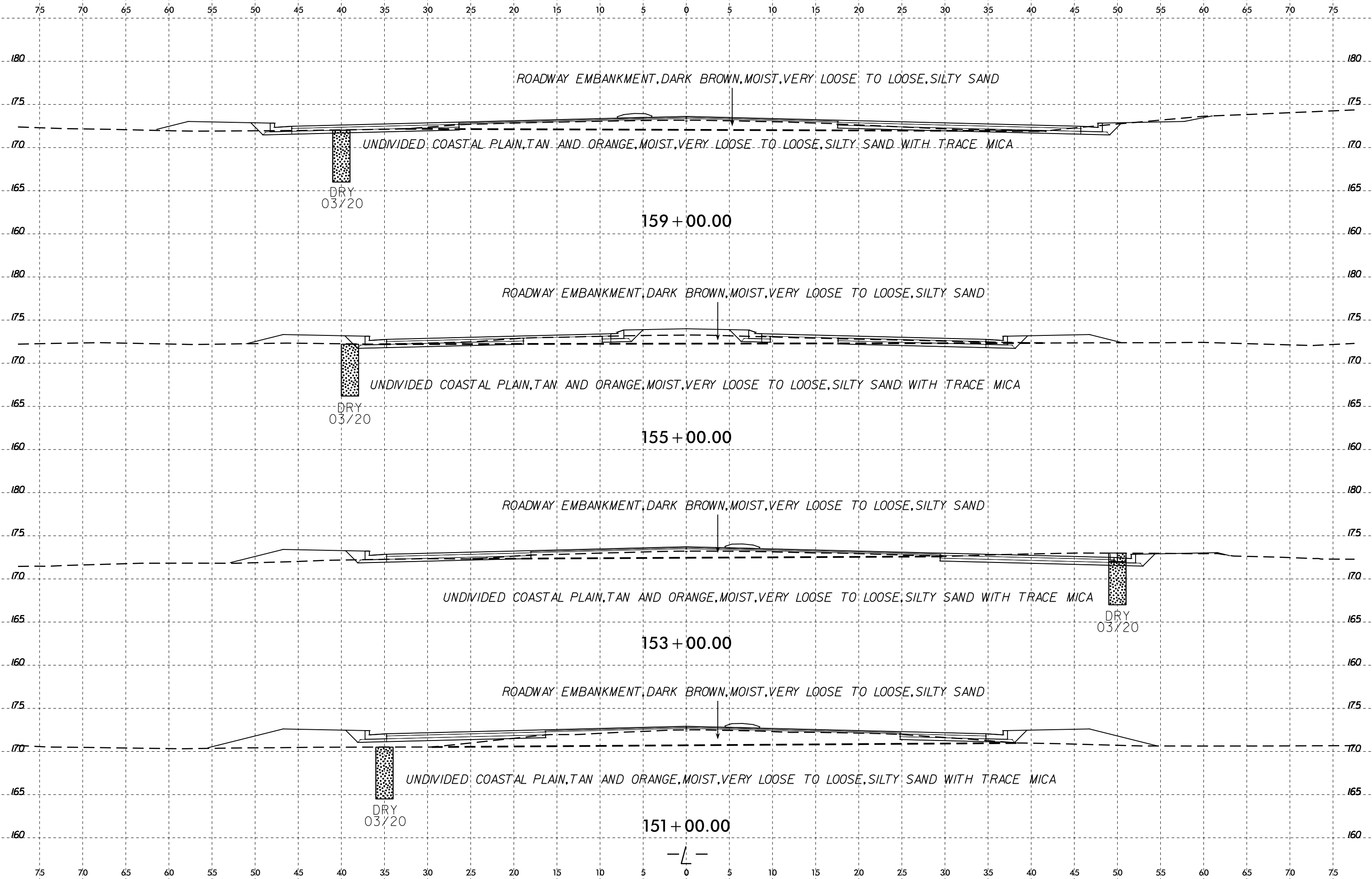
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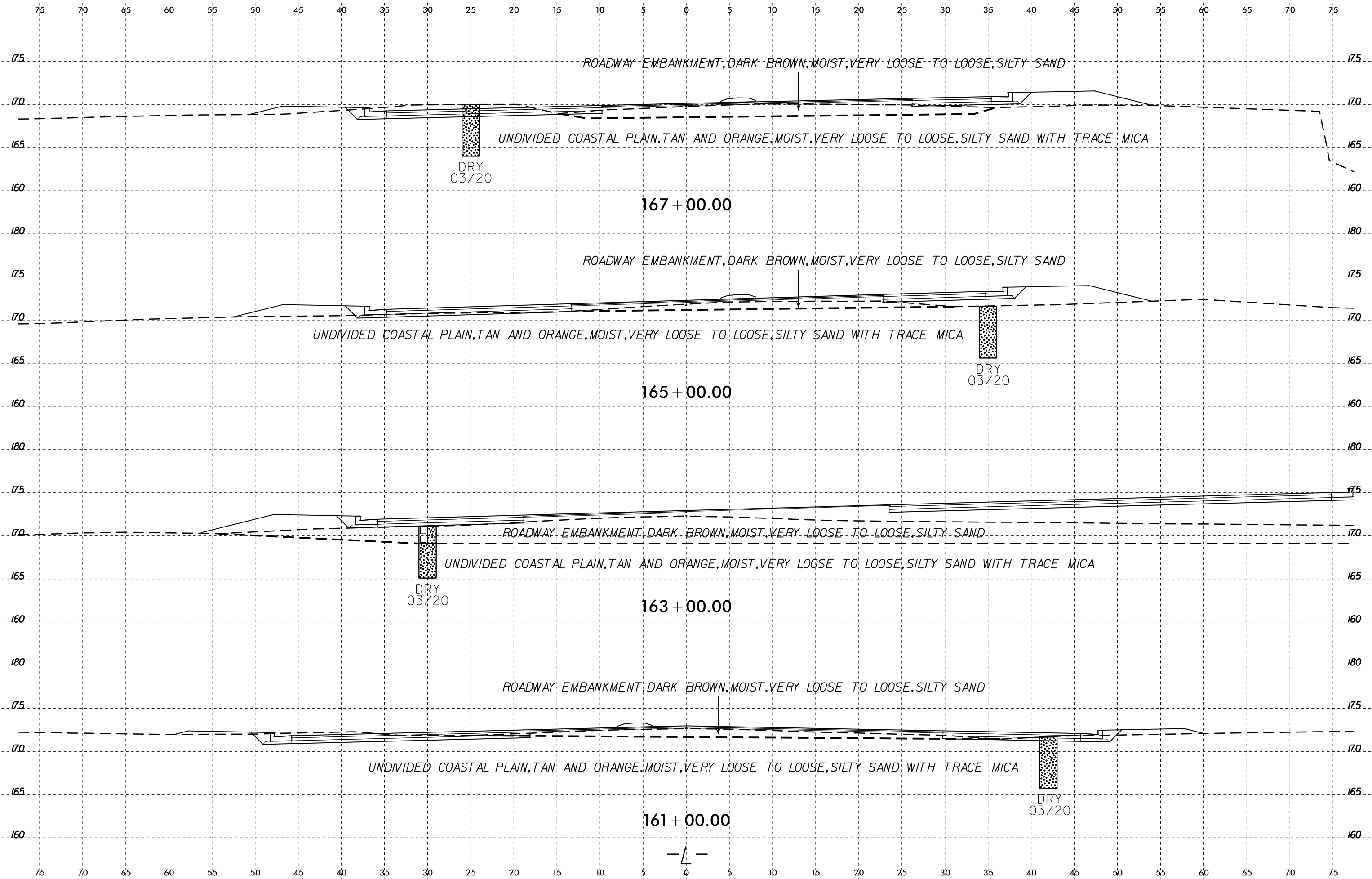




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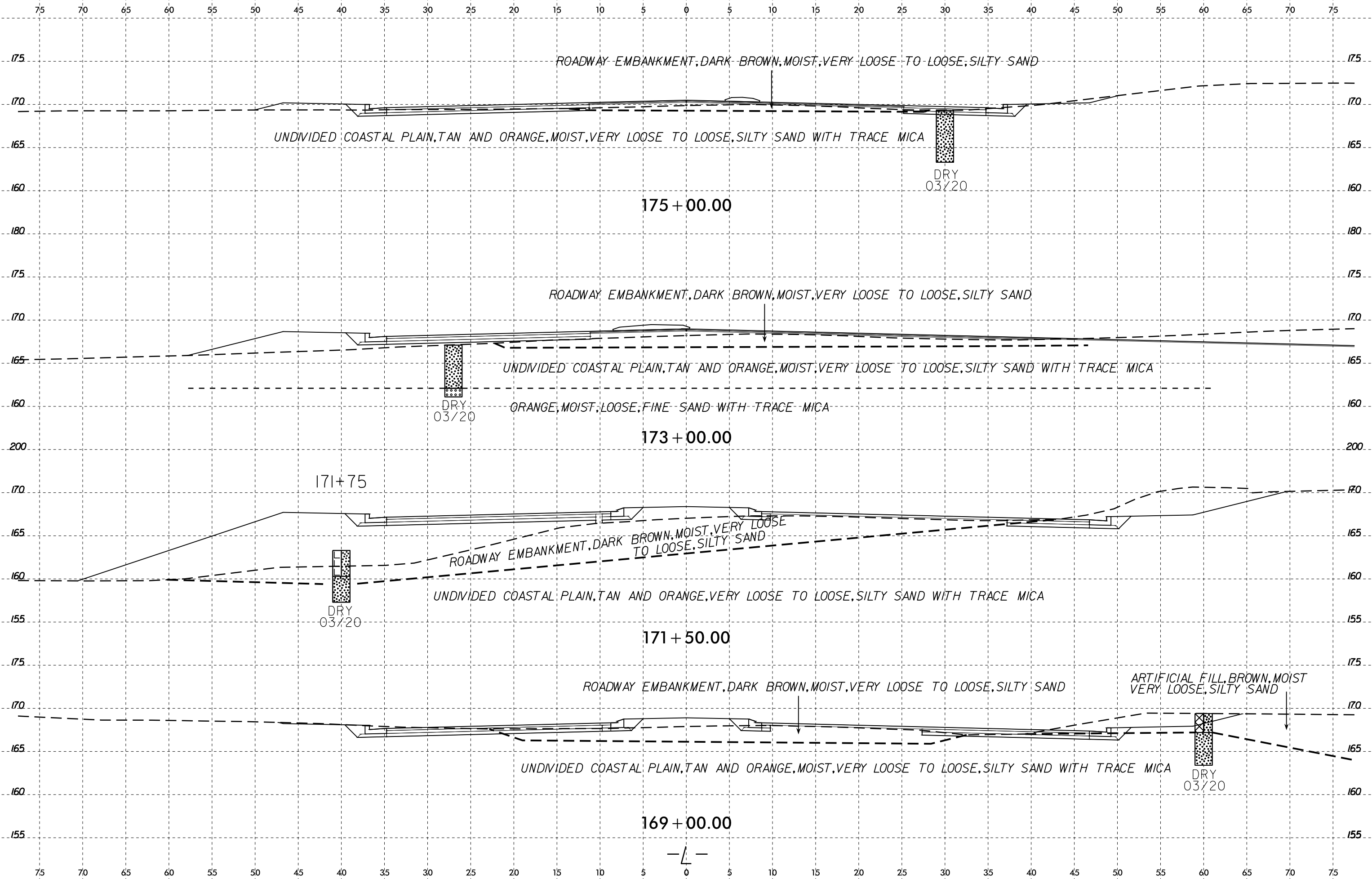


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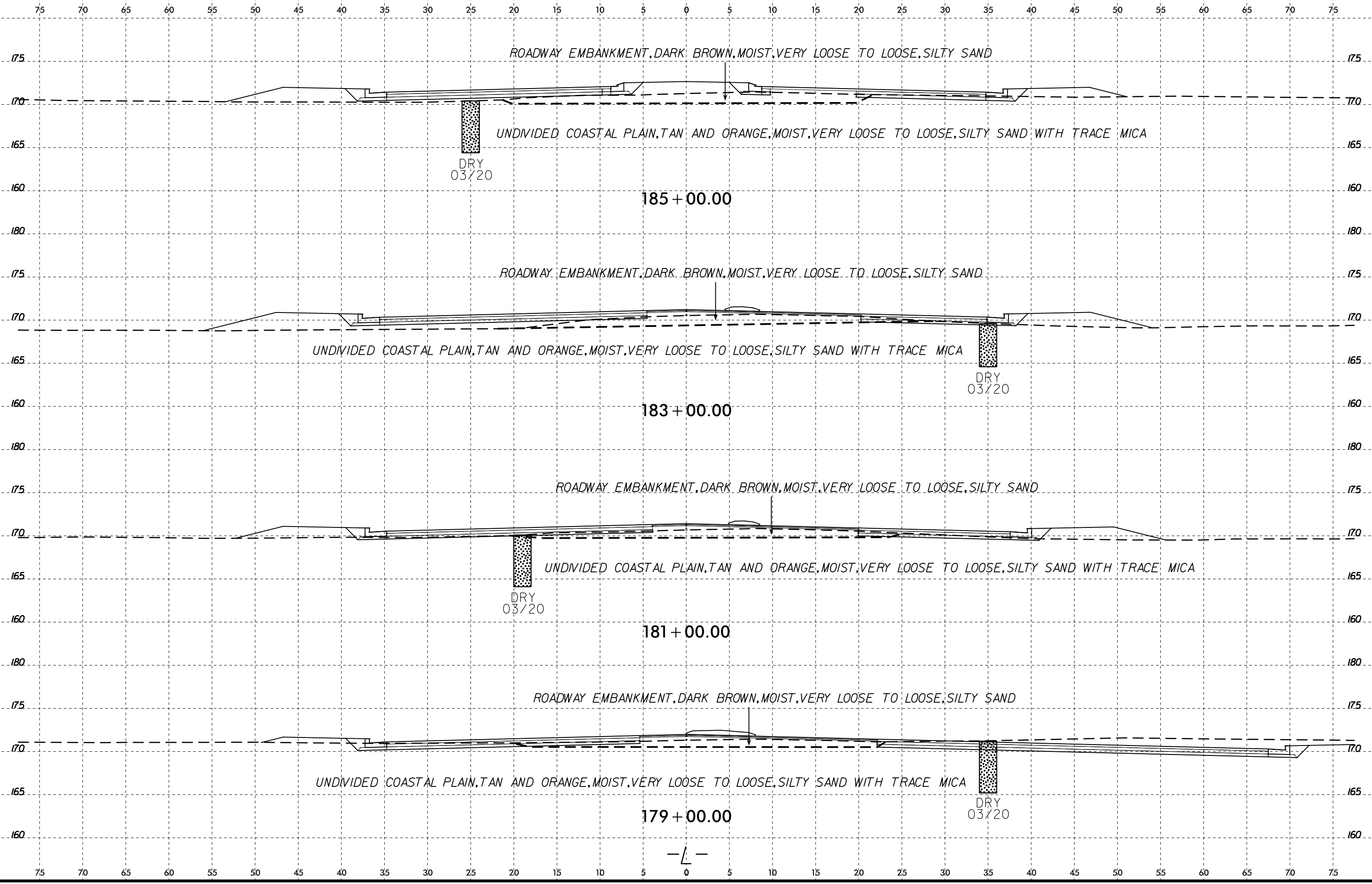


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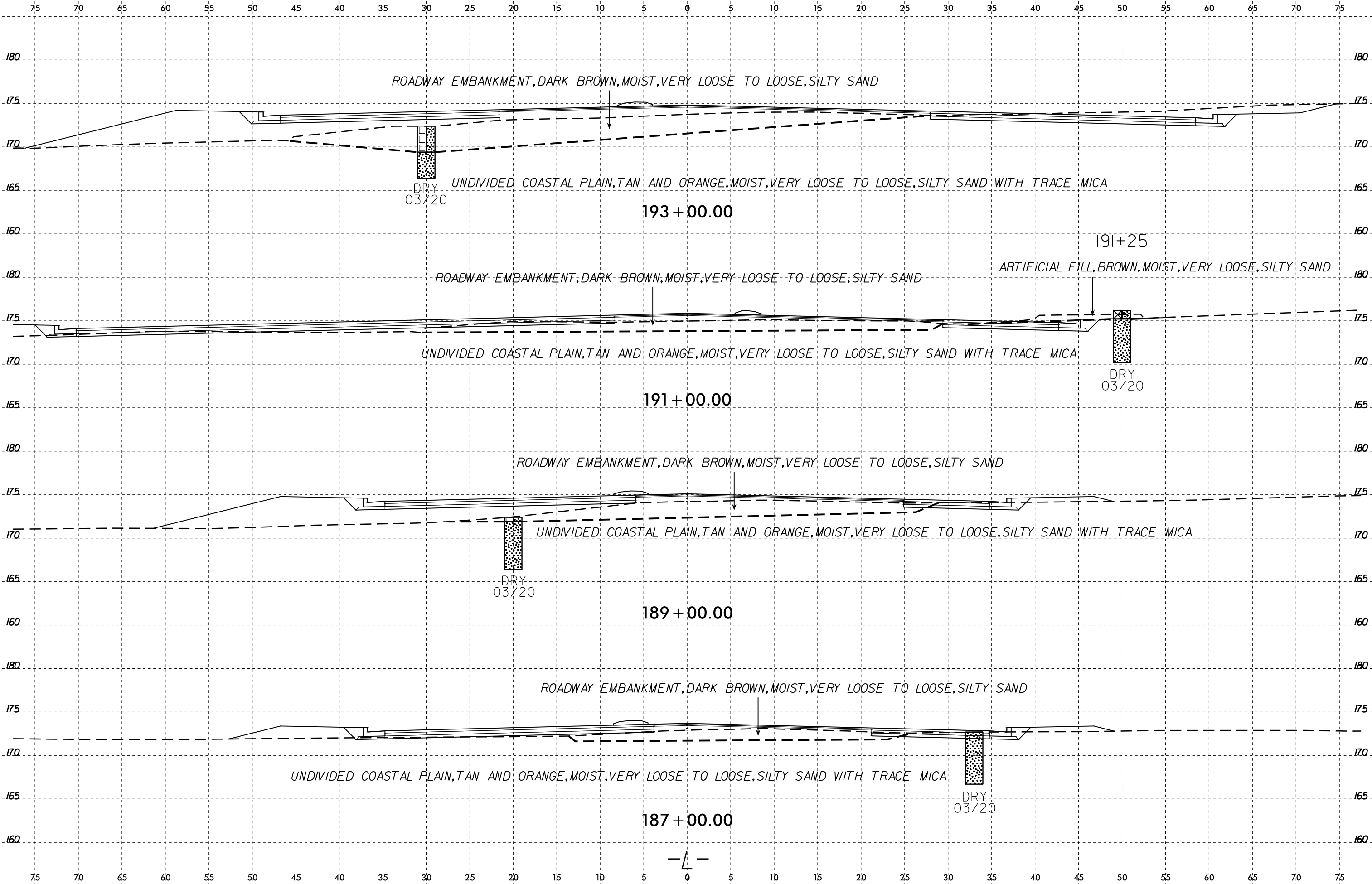
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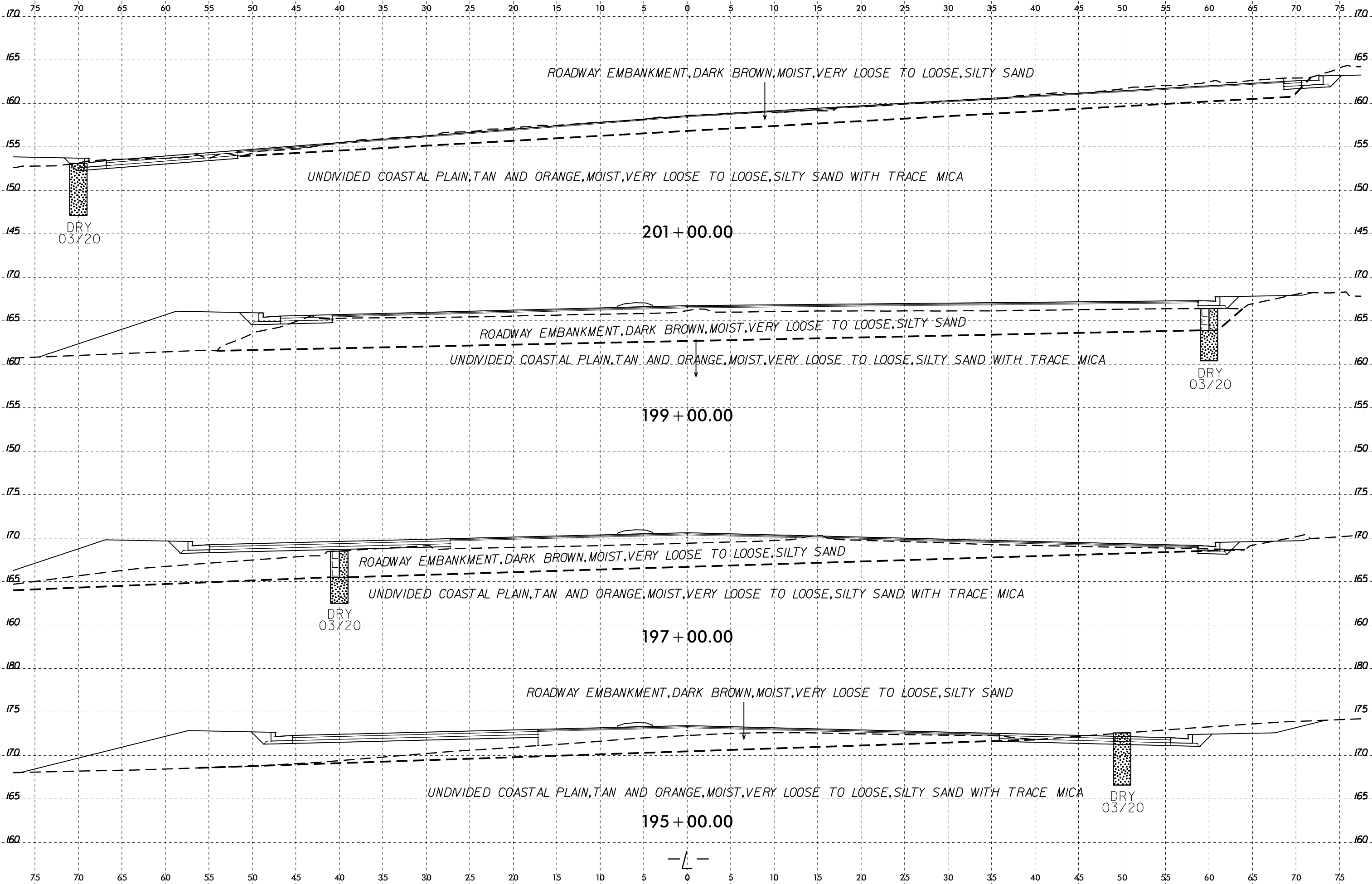
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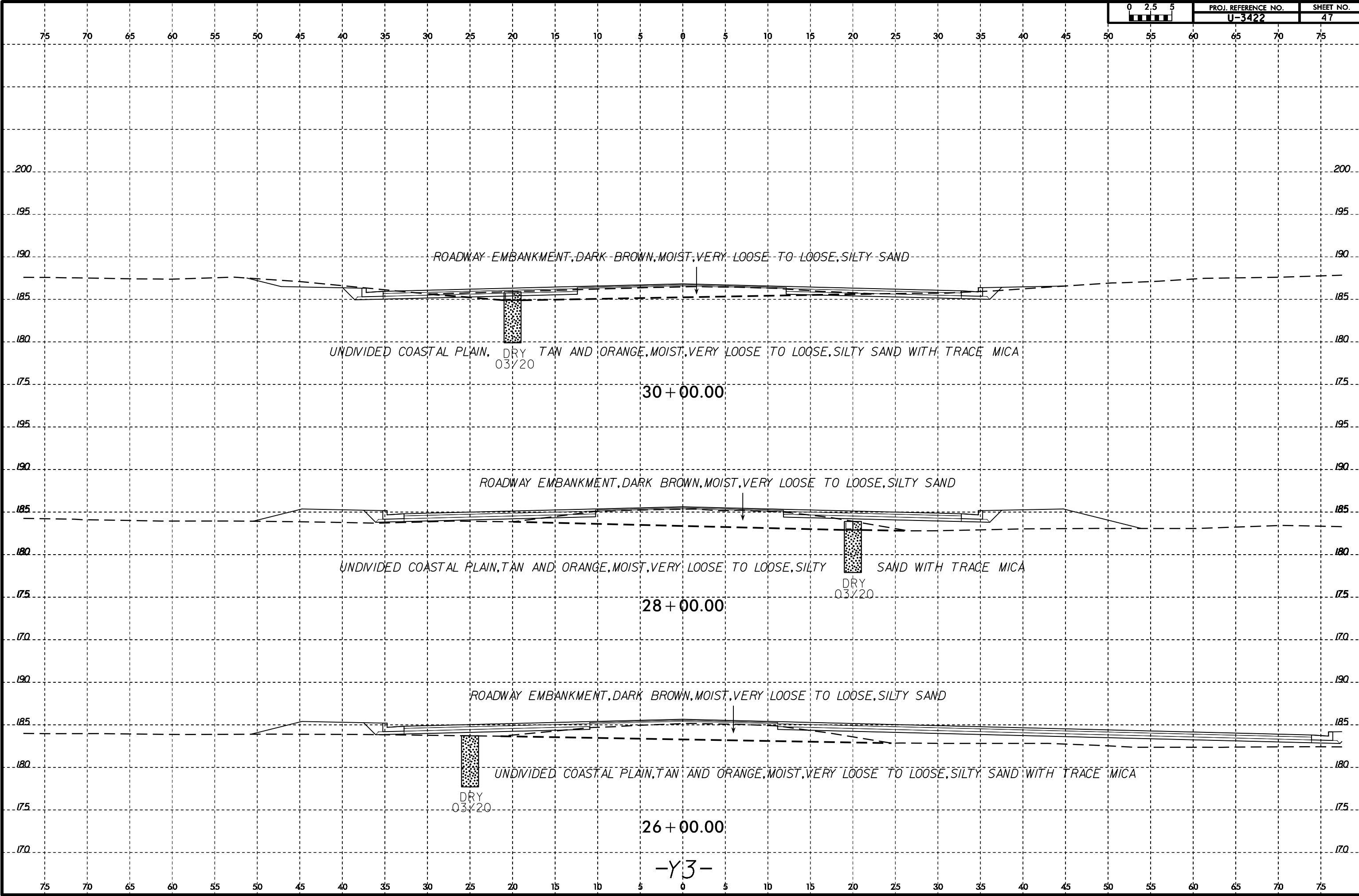
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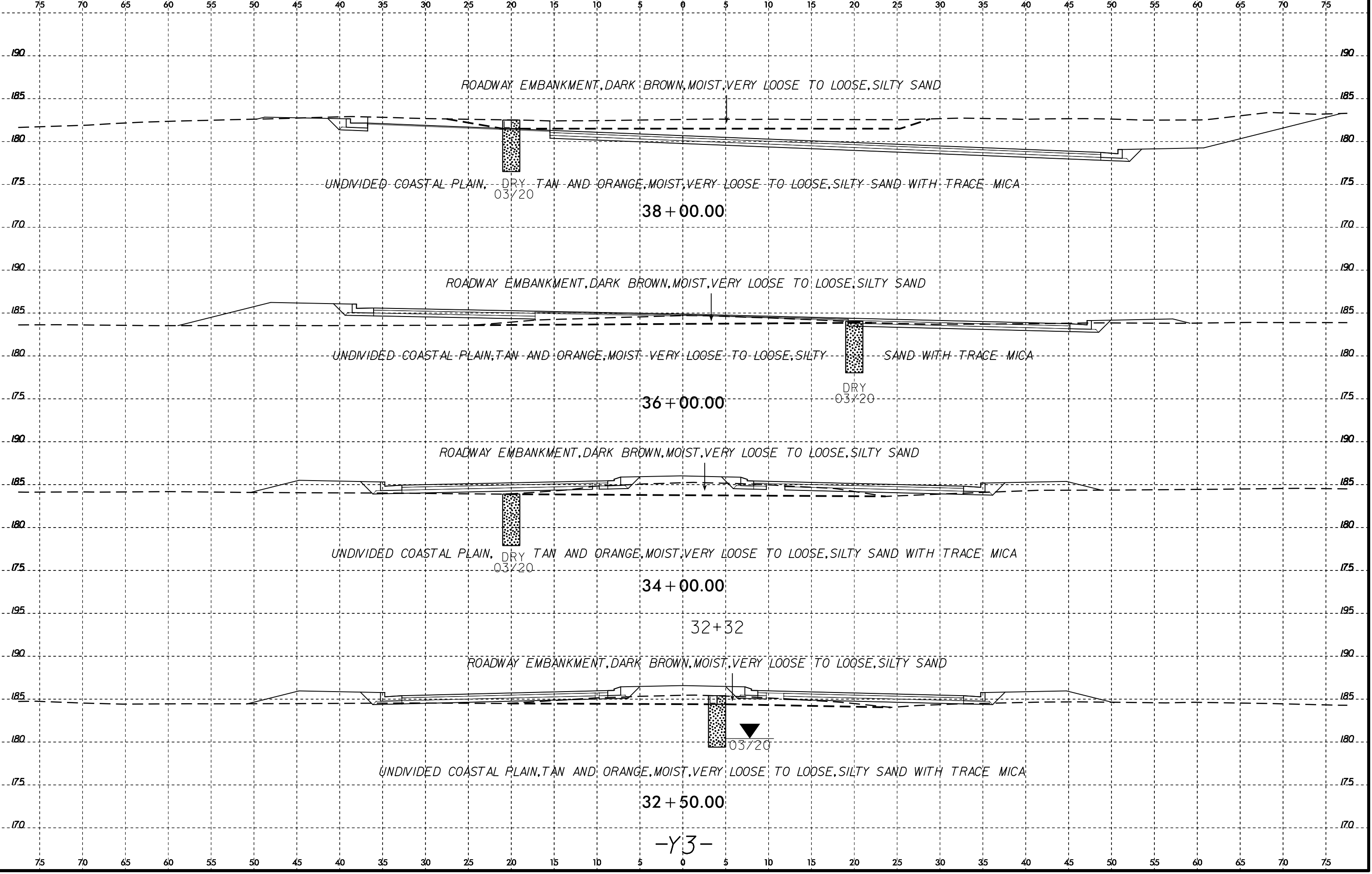


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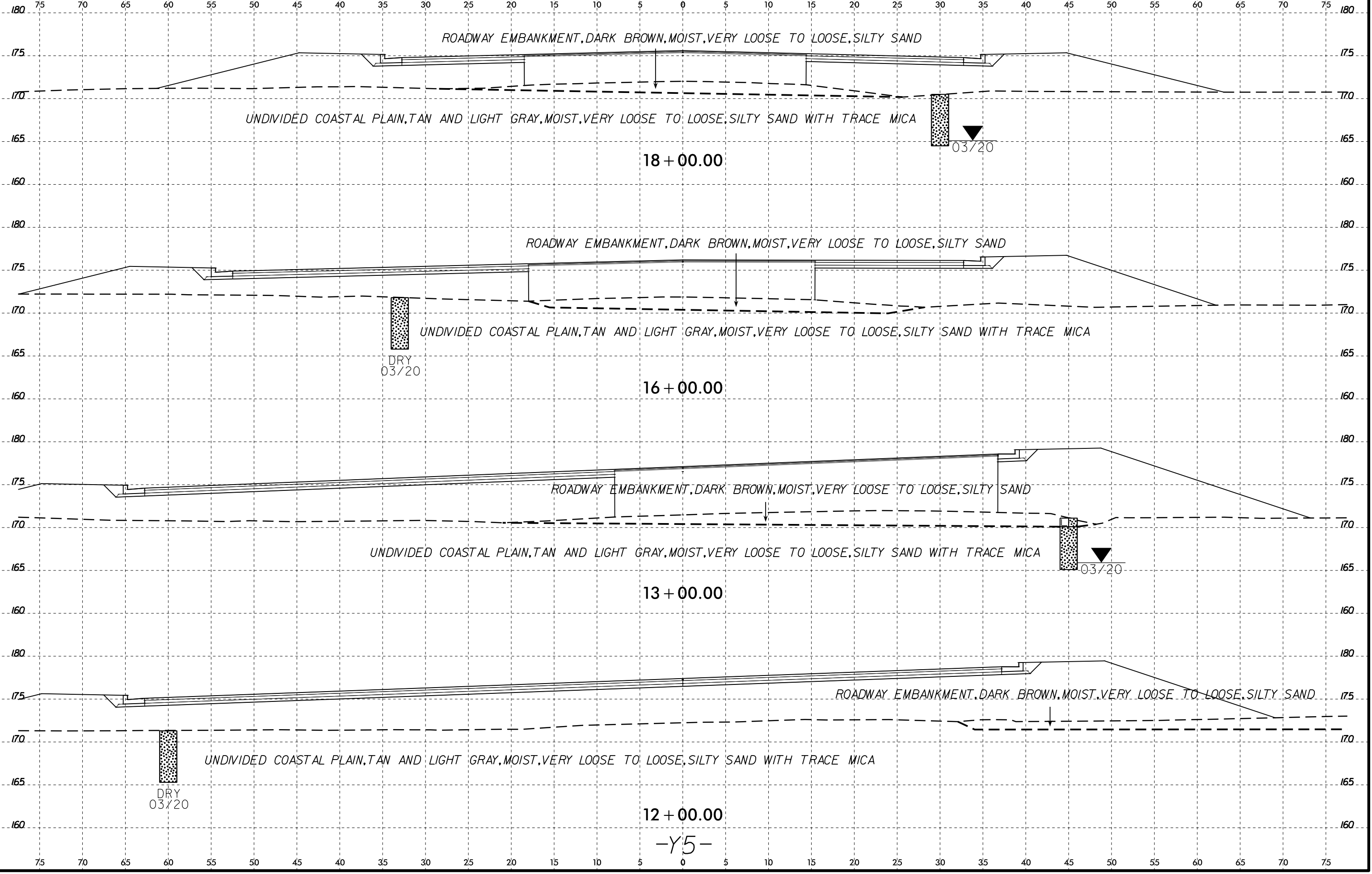
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