

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-5824 | 1 | 44 |

CAUTION NOTICE

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

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

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

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

PERSONNEL

B. SMITH, PG

B. WORLEY, PG

M. SHIPMAN, EI

A. GROSS, GIT

M.B. MOSELEY

C. BOWEN

INVESTIGATED BY B. SMITH, PG

DRAWN BY B. SMITH, PG

CHECKED BY B. WORLEY, PG

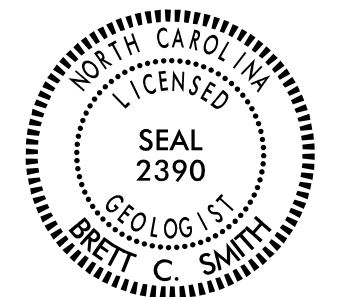
SUBMITTED BY B. SMITH, PG

DATE AUGUST, 2018

Prepared in the
Office of:



NC FIRM LICENSE No: P-0339 and C-487
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Hillsborough, NC 27278
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DocuSigned by:
[Signature] 1/24/2019

BE01A49304C542E SIGNATURE DATE

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CONTENTS

| LINE | STATION | PLAN | PROFILE |
|----------|----------------------|------|---------|
| -L- | 10+52.50 - 106+65.31 | 4-11 | 12-18 |
| -Y1- | 10+75.00 - 12+09.51 | 4 | |
| -Y2- | 10+39.50 - 11+75.00 | 4 | |
| -Y3- | 10+25.00 - 15+25.00 | 5 | |
| -Y4- | 10+00.00 - 13+75.00 | 5 | |
| -Y5- | 10+00.0 - 10+92.74 | 6 | |
| -Y6- | 10+52.62 - 12+00.00 | 7 | |
| -Y7A- | 10+51.50 - 12+00.00 | 7 | |
| -Y7B- | 12+00.00 - 13+03.24 | 7 | |
| -Y8A- | 10+47.72 - 12+90.79 | 8 | |
| -Y8B- | 11+25.00 - 12+42.99 | 8 | |
| -Y9- | 10+75.00 - 13+75.00 | 9 | |
| -Y10- | 10+25.00 - 11+73.59 | 10 | |
| -Y11A- | 10+44.26 - 12+25.00 | 10 | |
| -Y11B- | 10+00.00 - 11+32.17 | 10 | |
| -Y12_EX- | 11+32.85 - 14+10.87 | 11 | |

CROSS SECTIONS

| LINE | STATION | SHEETS |
|------|-----------------|--------|
| -L- | 18+50 - 21+00 | 19-22 |
| -L- | 43+00 - 46+50 | 23-27 |
| -L- | 92+50 - 97+50 | 28-36 |
| -L- | 102+50 - 105+50 | 37-41 |

ROADWAY
SUBSURFACE INVESTIGATION

COUNTY FORSYTH
PROJECT DESCRIPTION NC 66 (OLD HOLLOW ROAD)
WIDENING FROM HARLEY DRIVE TO US 158

INVENTORY

REFERENCE: U-5824

PROJECT: 44395

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 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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---------------|--|--|--|---|--|--|--|--|--|--|--|---------------|--|--|--|
| <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 (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, <i>VERY STIFF, GRAY, SILTY CLAY, MOIST WITH INTERBEDDED FINE SAND LAYERS, HIGHLY PLASTIC, A-7-6</i></p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SOIL LEGEND AND AASHTO CLASSIFICATION | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1" style="width: 100%; font-size: 8pt;"> <tr> <th rowspan="2">GENERAL CLASS.</th> <th colspan="7">GRANULAR MATERIALS (≤ 35% PASSING #200)</th> <th colspan="3">SILT-CLAY MATERIALS (> 35% PASSING #200)</th> <th colspan="3">ORGANIC MATERIALS</th> </tr> <tr> <th>A-1</th> <th>A-1-b</th> <th>A-2</th> <th>A-2-4</th> <th>A-2-5</th> <th>A-2-6</th> <th>A-2-7</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> </tr> <tr> <th>GROUP CLASS.</th> <td>A-1-a</td> <td>A-1-b</td> <td>A-2-4</td> <td>A-2-5</td> <td>A-2-6</td> <td>A-2-7</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>A-1, A-2</td> <td>A-3</td> <td>A-4, A-5</td> <td>A-6, A-7</td> </tr> <tr> <th>SYMBOL</th> <td colspan="7">[Pattern]</td> <td colspan="3">[Pattern]</td> <td colspan="3">[Pattern]</td> </tr> <tr> <th>% PASSING #10 #40 #200</th> <td>50 MX 30 MX 15 MX</td> <td>50 MX 25 MX</td> <td>51 MN 10 MX</td> <td>35 MX 35 MX</td> <td>35 MX 35 MX</td> <td>35 MX 35 MX</td> <td>36 MN 36 MN</td> <td>36 MN 36 MN</td> <td>36 MN 36 MN</td> <td></td> <td></td> <td>GRANULAR SOILS</td> <td>SILT-CLAY SOILS</td> <td>MUCK, PEAT</td> <td></td> </tr> <tr> <th>MATERIAL PASSING #40 LL PI</th> <td colspan="7">[Table]</td> <td colspan="3">[Table]</td> <td colspan="3">[Table]</td> </tr> <tr> <th>GROUP INDEX AS SUBGRADE</th> <td colspan="7">EXCELLENT TO GOOD</td> <td colspan="3">FAIR TO POOR</td> <td colspan="3">FAIR TO POOR POOR UNSUITABLE</td> </tr> <tr> <td colspan="15" style="text-align: center;">PI OF A-7-5 SUBGROUP IS ≤ LL - 30 ; PI OF A-7-6 SUBGROUP IS > LL - 30</td> </tr> <tr> <td colspan="4" style="text-align: center;">CONSISTENCY OR DENSENESS</td> </tr> <tr> <td>PRIMARY SOIL TYPE</td> <td>COMPACTNESS OR CONSISTENCY</td> <td>RANGE OF STANDARD PENETRATION RESISTANCE (N-VALUE)</td> <td>RANGE OF UNCONFINED COMPRESSIVE STRENGTH (TONS/FT²)</td> </tr> <tr> <td>GENERALLY GRANULAR MATERIAL (NON-COHESIVE)</td> <td>VERY LOOSE LOOSE MEDIUM DENSE DENSE VERY DENSE</td> <td>< 4 4 TO 10 10 TO 30 30 TO 50 > 50</td> <td>N/A</td> </tr> <tr> <td>GENERALLY SILT-CLAY MATERIAL (COHESIVE)</td> <td>VERY SOFT SOFT MEDIUM STIFF STIFF VERY STIFF HARD</td> <td>< 2 2 TO 4 4 TO 8 8 TO 15 15 TO 30 > 30</td> <td>< 0.25 0.25 TO 0.5 0.5 TO 1.0 1 TO 2 2 TO 4 > 4</td> </tr> <tr> <td colspan="4" style="text-align: center;">TEXTURE OR GRAIN SIZE</td> </tr> <tr> <td>U.S. STD. SIEVE SIZE OPENING (MM)</td> <td>4 4.75</td> <td>10 2.00</td> <td>40 0.42</td> <td>60 0.25</td> <td>200 0.075</td> <td>270 0.053</td> </tr> <tr> <td>BOULDER (BLDR.)</td> <td>COBBLE (COB.)</td> <td>GRAVEL (GR.)</td> <td>COARSE SAND (CS, SD.)</td> <td>FINE SAND (F SD.)</td> <td>SILT (SL.)</td> <td>CLAY (CL.)</td> </tr> <tr> <td>GRAIN SIZE</td> <td>MM 305 IN. 12</td> <td>75 3</td> <td>2.0</td> <td>0.25</td> <td>0.05</td> <td>0.005</td> </tr> <tr> <td colspan="4" style="text-align: center;">SOIL MOISTURE - CORRELATION OF TERMS</td> </tr> <tr> <td>SOIL MOISTURE SCALE (ATTERBERG LIMITS)</td> <td>FIELD MOISTURE DESCRIPTION</td> <td>GUIDE FOR FIELD MOISTURE DESCRIPTION</td> </tr> <tr> <td>LL - LIQUID LIMIT</td> <td>- SATURATED - (SAT.)</td> <td>USUALLY LIQUID; VERY WET, USUALLY FROM BELOW THE GROUND WATER TABLE</td> </tr> <tr> <td>PL - PLASTIC LIMIT</td> <td>- WET - (W)</td> <td>SEMISOLID; REQUIRES DRYING TO ATTAIN OPTIMUM MOISTURE</td> </tr> <tr> <td>OM - OPTIMUM MOISTURE SHRINKAGE LIMIT</td> <td>- MOIST - (M)</td> <td>SOLID; AT OR NEAR OPTIMUM MOISTURE</td> </tr> <tr> <td>SL - SHRINKAGE LIMIT</td> <td>- DRY - (D)</td> <td>REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE</td> </tr> <tr> <td colspan="4" style="text-align: center;">PLASTICITY</td> </tr> <tr> <td>NON PLASTIC</td> <td>PLASTICITY INDEX (PI) 0-5</td> <td>DRY STRENGTH VERY LOW</td> </tr> <tr> <td>SLIGHTLY PLASTIC</td> <td>6-15</td> <td>SLIGHT</td> </tr> <tr> <td>MODERATELY PLASTIC</td> <td>16-25</td> <td>MEDIUM</td> </tr> <tr> <td>HIGHLY PLASTIC</td> <td>26 OR MORE</td> <td>HIGH</td> </tr> <tr> <td colspan="4" style="text-align: center;">COLOR</td> </tr> <tr> <td colspan="4">DESCRIPTIONS MAY INCLUDE COLOR OR COLOR COMBINATIONS (TAN, RED, YELLOW-BROWN, BLUE-BROWN). MODIFIERS SUCH AS LIGHT, DARK, STREAKED, ETC. ARE USED TO DESCRIBE APPEARANCE.</td> </tr> <tr> <td colspan="4" style="text-align: center;">GRADATION</td> </tr> <tr> <td colspan="4">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.</td> </tr> <tr> <td colspan="4" style="text-align: center;">ANGULARITY OF GRAINS</td> </tr> <tr> <td colspan="4">THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TERMS: ANGULAR, SUBANGULAR, SUBROUNDED, OR ROUNDED.</td> </tr> <tr> <td colspan="4" style="text-align: center;">MINERALOGICAL COMPOSITION</td> </tr> <tr> <td colspan="4">MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHEN THEY ARE CONSIDERED OF SIGNIFICANCE.</td> </tr> <tr> <td colspan="4" style="text-align: center;">COMPRESSIBILITY</td> </tr> <tr> <td colspan="4">SLIGHTLY COMPRESSIBLE LL < 31 MODERATELY COMPRESSIBLE LL = 31 - 50 HIGHLY COMPRESSIBLE LL > 50</td> </tr> <tr> <td colspan="4" style="text-align: center;">PERCENTAGE OF MATERIAL</td> </tr> <tr> <td colspan="4"> <table border="1" style="width: 100%; font-size: 8pt;"> <tr> <th>ORGANIC MATERIAL</th> <th>GRANULAR SOILS</th> <th>SILT - CLAY SOILS</th> <th>OTHER MATERIAL</th> </tr> <tr> <td>TRACE OF ORGANIC MATTER</td> <td>2 - 3%</td> <td>3 - 5%</td> <td>TRACE 1 - 10%</td> </tr> <tr> <td>LITTLE ORGANIC MATTER</td> <td>3 - 5%</td> <td>5 - 12%</td> <td>LITTLE 10 - 20%</td> </tr> <tr> <td>MODERATELY ORGANIC</td> <td>5 - 10%</td> <td>12 - 20%</td> <td>SOME 20 - 35%</td> </tr> <tr> <td>HIGHLY ORGANIC</td> <td>> 10%</td> <td>> 20%</td> <td>HIGHLY 35% AND ABOVE</td> </tr> </table> </td> </tr> <tr> <td colspan="4" style="text-align: center;">GROUND WATER</td> </tr> <tr> <td colspan="4"> <p>▽ WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING ▽/24 STATIC WATER LEVEL AFTER 24 HOURS ▽/PW PERCHED WATER, SATURATED ZONE, OR WATER BEARING STRATA ○ SPRING OR SEEP</p> </td> </tr> <tr> <td colspan="4" style="text-align: center;">MISCELLANEOUS SYMBOLS</td> </tr> <tr> <td colspan="4"> <p>ROADWAY EMBANKMENT (RE) WITH SOIL DESCRIPTION SOIL SYMBOL ARTIFICIAL FILL (AF) OTHER THAN ROADWAY EMBANKMENT INFERRED SOIL BOUNDARY INFERRED ROCK LINE ALLUVIAL SOIL BOUNDARY</p> <p>25/025 DIP & DIP DIRECTION OF ROCK STRUCTURES SPT DMT TEST BORING AUGER BORING CORE BORING MONITORING WELL PIEZOMETER INSTALLATION</p> <p>SLOPE INDICATOR INSTALLATION CONE PENETROMETER TEST SOUNDING ROD TEST BORING WITH CORE SPT N-VALUE</p> </td> </tr> <tr> <td colspan="4" style="text-align: center;">RECOMMENDATION SYMBOLS</td> </tr> <tr> <td colspan="4"> <p>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</p> </td> </tr> <tr> <td colspan="4" style="text-align: center;">ABBREVIATIONS</td> </tr> <tr> <td colspan="4"> <table border="1" style="width: 100%; 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PI OF A-7-6 SUBGROUP IS > LL - 30 | | | | | | | | | | | | | | | CONSISTENCY OR DENSENESS | | | | PRIMARY SOIL TYPE | COMPACTNESS OR CONSISTENCY | RANGE OF STANDARD PENETRATION RESISTANCE (N-VALUE) | RANGE OF UNCONFINED COMPRESSIVE STRENGTH (TONS/FT ²) | GENERALLY GRANULAR MATERIAL (NON-COHESIVE) | VERY LOOSE LOOSE 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 OPENING (MM) | 4 4.75 | 10 2.00 | 40 0.42 | 60 0.25 | 200 0.075 | 270 0.053 | BOULDER (BLDR.) | COBBLE (COB.) | GRAVEL (GR.) | COARSE SAND (CS, SD.) | FINE SAND (F SD.) | SILT (SL.) | CLAY (CL.) | GRAIN SIZE | MM 305 IN. 12 | 75 3 | 2.0 | 0.25 | 0.05 | 0.005 | SOIL MOISTURE - CORRELATION OF TERMS | | | | SOIL MOISTURE SCALE (ATTERBERG LIMITS) | FIELD MOISTURE DESCRIPTION | GUIDE FOR FIELD MOISTURE DESCRIPTION | LL - LIQUID LIMIT | - SATURATED - (SAT.) | USUALLY LIQUID; VERY WET, USUALLY FROM BELOW THE GROUND WATER TABLE | PL - PLASTIC LIMIT | - WET - (W) | SEMISOLID; REQUIRES DRYING TO ATTAIN OPTIMUM MOISTURE | OM - OPTIMUM MOISTURE SHRINKAGE LIMIT | - MOIST - (M) | SOLID; AT OR NEAR OPTIMUM MOISTURE | SL - SHRINKAGE LIMIT | - DRY - (D) | REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE | PLASTICITY | | | | NON PLASTIC | PLASTICITY INDEX (PI) 0-5 | DRY STRENGTH 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-BROWN). 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. 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font-size: 8pt;"> <tr> <td>DRILL UNITS:</td> <td>ADVANCING TOOLS:</td> <td>HAMMER TYPE:</td> </tr> <tr> <td><input checked="" type="checkbox"/> D-50</td> <td><input type="checkbox"/> CLAY BITS</td> <td><input checked="" type="checkbox"/> AUTOMATIC <input type="checkbox"/> MANUAL</td> </tr> <tr> <td><input type="checkbox"/> CME-55</td> <td><input type="checkbox"/> 6" CONTINUOUS FLIGHT AUGER</td> <td>CORE SIZE:</td> </tr> <tr> <td><input type="checkbox"/> CME-550</td> <td><input checked="" type="checkbox"/> 2.25" HOLLOW STEM AUGERS</td> <td><input type="checkbox"/> -B <input type="checkbox"/> -H</td> </tr> <tr> <td><input type="checkbox"/> VANE SHEAR TEST</td> <td><input type="checkbox"/> HARD FACED FINGER BITS</td> <td><input type="checkbox"/> -N</td> </tr> <tr> <td><input type="checkbox"/> PORTABLE HOIST</td> <td><input type="checkbox"/> TUNG-CARBIDE INSERTS</td> <td>HAND TOOLS:</td> </tr> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/> CASING <input type="checkbox"/> W/ ADVANCER</td> <td><input type="checkbox"/> POST HOLE DIGGER</td> </tr> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/> TRICONE *STEEL TEETH</td> <td><input type="checkbox"/> HAND AUGER</td> </tr> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/> TRICONE *TUNG-CARB.</td> <td><input type="checkbox"/> SOUNDING ROD</td> </tr> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/> CORE BIT</td> <td><input type="checkbox"/> VANE SHEAR TEST</td> </tr> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> </table> | | | | DRILL UNITS: | ADVANCING TOOLS: | HAMMER TYPE: | <input checked="" type="checkbox"/> D-50 | <input type="checkbox"/> CLAY BITS | <input checked="" type="checkbox"/> AUTOMATIC <input type="checkbox"/> MANUAL | <input type="checkbox"/> CME-55 | <input type="checkbox"/> 6" CONTINUOUS FLIGHT AUGER | CORE SIZE: | <input type="checkbox"/> CME-550 | <input checked="" type="checkbox"/> 2.25" HOLLOW STEM AUGERS | <input type="checkbox"/> -B <input type="checkbox"/> -H | <input type="checkbox"/> VANE SHEAR TEST | <input type="checkbox"/> HARD FACED FINGER BITS | <input type="checkbox"/> -N | <input type="checkbox"/> PORTABLE HOIST | <input type="checkbox"/> TUNG-CARBIDE INSERTS | HAND TOOLS: | <input type="checkbox"/> | <input type="checkbox"/> CASING <input type="checkbox"/> W/ ADVANCER | <input type="checkbox"/> POST HOLE DIGGER | <input type="checkbox"/> | <input type="checkbox"/> TRICONE *STEEL TEETH | <input type="checkbox"/> HAND AUGER | <input type="checkbox"/> | <input type="checkbox"/> TRICONE *TUNG-CARB. | <input type="checkbox"/> SOUNDING ROD | <input type="checkbox"/> | <input type="checkbox"/> CORE BIT | <input type="checkbox"/> VANE SHEAR TEST | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | FRACATURE SPACING | | BEDDING | | TERM | SPACING | TERM | THICKNESS | VERY WIDE | MORE THAN 10 FEET | VERY THICKLY BEDDED | 4 FEET | WIDE | 3 TO 10 FEET | THICKLY BEDDED | 1.5 - 4 FEET | MODERATELY CLOSE | 1 TO 3 FEET | THINLY BEDDED | 0.16 - 1.5 FEET | CLOSE | 0.16 TO 1 FOOT | VERY THINLY BEDDED | 0.03 - 0.16 FEET | VERY CLOSE | LESS THAN 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. | | | NOTES: | | | | Elevations obtained from U5824_LS.DTM-2018-02-28.tin (file dated 2/28/18) | | | | FIAD = Filled Immediately After Drilling | | | | DATE: 8-15-14 | | | |
| GENERAL CLASS. | | GRANULAR MATERIALS (≤ 35% PASSING #200) | | | | | | | SILT-CLAY MATERIALS (> 35% PASSING #200) | | | ORGANIC MATERIALS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | A-1 | A-1-b | A-2 | A-2-4 | A-2-5 | A-2-6 | A-2-7 | A-4 | A-5 | A-6 | A-7 | A-1, A-2 | A-3 | A-4, A-5 | A-6, A-7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GROUP CLASS. | A-1-a | A-1-b | A-2-4 | A-2-5 | A-2-6 | A-2-7 | | | | | | A-1, A-2 | A-3 | A-4, A-5 | A-6, A-7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SYMBOL | [Pattern] | | | | | | | [Pattern] | | | [Pattern] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| % PASSING #10 #40 #200 | 50 MX 30 MX 15 MX | 50 MX 25 MX | 51 MN 10 MX | 35 MX 35 MX | 35 MX 35 MX | 35 MX 35 MX | 36 MN 36 MN | 36 MN 36 MN | 36 MN 36 MN | | | GRANULAR SOILS | SILT-CLAY SOILS | MUCK, PEAT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MATERIAL PASSING #40 LL PI | [Table] | | | | | | | [Table] | | | [Table] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GROUP INDEX 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 RESISTANCE (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 OPENING (MM) | 4 4.75 | 10 2.00 | 40 0.42 | 60 0.25 | 200 0.075 | 270 0.053 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| SL - SHRINKAGE LIMIT | - DRY - (D) | REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| <table border="1" style="width: 100%; font-size: 8pt;"> <tr> <th>ORGANIC MATERIAL</th> <th>GRANULAR SOILS</th> <th>SILT - CLAY SOILS</th> <th>OTHER MATERIAL</th> </tr> <tr> <td>TRACE OF ORGANIC MATTER</td> <td>2 - 3%</td> <td>3 - 5%</td> <td>TRACE 1 - 10%</td> </tr> <tr> <td>LITTLE ORGANIC MATTER</td> <td>3 - 5%</td> <td>5 - 12%</td> <td>LITTLE 10 - 20%</td> </tr> <tr> <td>MODERATELY ORGANIC</td> <td>5 - 10%</td> <td>12 - 20%</td> <td>SOME 20 - 35%</td> </tr> <tr> <td>HIGHLY ORGANIC</td> <td>> 10%</td> <td>> 20%</td> <td>HIGHLY 35% AND ABOVE</td> </tr> </table> | | | | 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 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 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 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>▽ WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING ▽/24 STATIC WATER LEVEL AFTER 24 HOURS ▽/PW PERCHED WATER, SATURATED ZONE, OR WATER BEARING STRATA ○ SPRING OR SEEP</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MISCELLANEOUS SYMBOLS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>ROADWAY EMBANKMENT (RE) WITH SOIL DESCRIPTION SOIL SYMBOL ARTIFICIAL FILL (AF) OTHER THAN ROADWAY EMBANKMENT INFERRED SOIL BOUNDARY INFERRED ROCK LINE ALLUVIAL SOIL BOUNDARY</p> <p>25/025 DIP & DIP DIRECTION OF ROCK STRUCTURES SPT DMT TEST BORING AUGER BORING CORE BORING MONITORING WELL PIEZOMETER INSTALLATION</p> <p>SLOPE INDICATOR INSTALLATION CONE PENETROMETER TEST SOUNDING ROD TEST BORING WITH CORE SPT N-VALUE</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| <p>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</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ABBREVIATIONS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1" style="width: 100%; font-size: 8pt;"> <tr> <td>AR - AUGER REFUSAL</td> <td>MED. - MEDIUM</td> <td>VST - VANE SHEAR TEST</td> </tr> <tr> <td>BT - BORING TERMINATED</td> <td>MICA - MICACEOUS</td> <td>WEA. - WEATHERED</td> </tr> <tr> <td>CL. - CLAY</td> <td>MOD. - MODERATELY</td> <td>UNIT WEIGHT</td> </tr> <tr> <td>CPT - CORE PENETRATION TEST</td> <td>NP - NON PLASTIC</td> <td>DRY UNIT WEIGHT</td> </tr> <tr> <td>CSE. - COARSE</td> <td>ORG. - ORGANIC</td> <td>SAMPLE ABBREVIATIONS</td> </tr> <tr> <td>DMT - DILATOMETER TEST</td> <td>PMT - PRESSUREMETER TEST</td> <td>S - BULK</td> </tr> <tr> <td>DPT - DYNAMIC PENETRATION TEST</td> <td>SAP. - SAPROLITIC</td> <td>SS - SPLIT SPOON</td> </tr> <tr> <td>e - VOID RATIO</td> <td>SD. - SAND, SANDY</td> <td>ST - SHELBY TUBE</td> </tr> <tr> <td>F - FINE</td> <td>SL. - SILTY, SILTY</td> <td>RS - ROCK</td> </tr> <tr> <td>FOSS. - FOSSILIFEROUS</td> <td>SLI. - SLIGHTLY</td> <td>RT - RECOMPACTED TRIAXIAL</td> </tr> <tr> <td>FRAC. - FRACTURED, FRACTURES</td> <td>TCR - TRICONE REFUSAL</td> <td>CBR - CALIFORNIA BEARING RATIO</td> </tr> <tr> <td>FRAGS. - FRAGMENTS</td> <td>w - MOISTURE CONTENT</td> <td></td> </tr> <tr> <td>HI. - HIGHLY</td> <td>V - VERY</td> <td></td> </tr> </table> | | | | AR - AUGER REFUSAL | MED. - MEDIUM | VST - VANE SHEAR TEST | BT - BORING TERMINATED | MICA - MICACEOUS | WEA. - WEATHERED | CL. - CLAY | MOD. - MODERATELY | UNIT WEIGHT | CPT - CORE PENETRATION TEST | NP - NON PLASTIC | DRY UNIT WEIGHT | CSE. - COARSE | ORG. - ORGANIC | SAMPLE ABBREVIATIONS | DMT - DILATOMETER TEST | PMT - PRESSUREMETER TEST | S - BULK | DPT - DYNAMIC PENETRATION TEST | SAP. - SAPROLITIC | SS - SPLIT SPOON | e - VOID RATIO | SD. - SAND, SANDY | ST - SHELBY TUBE | F - FINE | SL. - SILTY, SILTY | RS - ROCK | FOSS. - FOSSILIFEROUS | SLI. - SLIGHTLY | RT - RECOMPACTED TRIAXIAL | FRAC. - FRACTURED, FRACTURES | TCR - TRICONE REFUSAL | CBR - CALIFORNIA BEARING RATIO | FRAGS. - FRAGMENTS | w - MOISTURE CONTENT | | HI. - HIGHLY | V - VERY | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| BT - BORING TERMINATED | MICA - MICACEOUS | WEA. - WEATHERED | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CL. - CLAY | MOD. - MODERATELY | UNIT WEIGHT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CPT - CORE PENETRATION TEST | NP - NON PLASTIC | DRY UNIT WEIGHT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CSE. - COARSE | ORG. - ORGANIC | SAMPLE ABBREVIATIONS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| DMT - DILATOMETER TEST | PMT - PRESSUREMETER TEST | S - BULK | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| DPT - DYNAMIC PENETRATION TEST | SAP. - SAPROLITIC | SS - SPLIT SPOON | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| e - VOID RATIO | SD. - SAND, SANDY | ST - SHELBY TUBE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| F - FINE | SL. - SILTY, SILTY | RS - ROCK | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| FOSS. - FOSSILIFEROUS | SLI. - SLIGHTLY | RT - RECOMPACTED TRIAXIAL | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| FRAC. - FRACTURED, FRACTURES | TCR - TRICONE REFUSAL | CBR - CALIFORNIA BEARING RATIO | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| FRAGS. - FRAGMENTS | w - MOISTURE CONTENT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| HI. - HIGHLY | V - VERY | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| EQUIPMENT USED ON SUBJECT PROJECT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1" style="width: 100%; font-size: 8pt;"> <tr> <td>DRILL UNITS:</td> <td>ADVANCING TOOLS:</td> <td>HAMMER TYPE:</td> </tr> <tr> <td><input checked="" type="checkbox"/> D-50</td> <td><input type="checkbox"/> CLAY BITS</td> <td><input checked="" type="checkbox"/> AUTOMATIC <input type="checkbox"/> MANUAL</td> </tr> <tr> <td><input type="checkbox"/> CME-55</td> <td><input type="checkbox"/> 6" CONTINUOUS FLIGHT AUGER</td> <td>CORE SIZE:</td> </tr> <tr> <td><input type="checkbox"/> CME-550</td> <td><input checked="" type="checkbox"/> 2.25" HOLLOW STEM AUGERS</td> <td><input type="checkbox"/> -B <input type="checkbox"/> -H</td> </tr> <tr> <td><input type="checkbox"/> VANE SHEAR TEST</td> <td><input type="checkbox"/> HARD FACED FINGER BITS</td> <td><input type="checkbox"/> -N</td> </tr> <tr> <td><input type="checkbox"/> PORTABLE HOIST</td> <td><input type="checkbox"/> TUNG-CARBIDE INSERTS</td> <td>HAND TOOLS:</td> </tr> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/> CASING <input type="checkbox"/> W/ ADVANCER</td> <td><input type="checkbox"/> POST HOLE DIGGER</td> </tr> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/> TRICONE *STEEL TEETH</td> <td><input type="checkbox"/> HAND AUGER</td> </tr> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/> TRICONE *TUNG-CARB.</td> <td><input type="checkbox"/> SOUNDING ROD</td> </tr> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/> CORE BIT</td> <td><input type="checkbox"/> VANE SHEAR TEST</td> </tr> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> </table> | | | | DRILL UNITS: | ADVANCING TOOLS: | HAMMER TYPE: | <input checked="" type="checkbox"/> D-50 | <input type="checkbox"/> CLAY BITS | <input checked="" type="checkbox"/> AUTOMATIC <input type="checkbox"/> MANUAL | <input type="checkbox"/> CME-55 | <input type="checkbox"/> 6" CONTINUOUS FLIGHT AUGER | CORE SIZE: | <input type="checkbox"/> CME-550 | <input checked="" type="checkbox"/> 2.25" HOLLOW STEM AUGERS | <input type="checkbox"/> -B <input type="checkbox"/> -H | <input type="checkbox"/> VANE SHEAR TEST | <input type="checkbox"/> HARD FACED FINGER BITS | <input type="checkbox"/> -N | <input type="checkbox"/> PORTABLE HOIST | <input type="checkbox"/> TUNG-CARBIDE INSERTS | HAND TOOLS: | <input type="checkbox"/> | <input type="checkbox"/> CASING <input type="checkbox"/> W/ ADVANCER | <input type="checkbox"/> POST HOLE DIGGER | <input type="checkbox"/> | <input type="checkbox"/> TRICONE *STEEL TEETH | <input type="checkbox"/> HAND AUGER | <input type="checkbox"/> | <input type="checkbox"/> TRICONE *TUNG-CARB. | <input type="checkbox"/> SOUNDING ROD | <input type="checkbox"/> | <input type="checkbox"/> CORE BIT | <input type="checkbox"/> VANE SHEAR TEST | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| Elevations obtained from U5824_LS.DTM-2018-02-28.tin (file dated 2/28/18) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| DATE: 8-15-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

See Sheet 1A For Index of Sheets
 See Sheet 1B For Conventional Symbols
 See Sheet 1C-1 For Survey Control Sheet

STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS

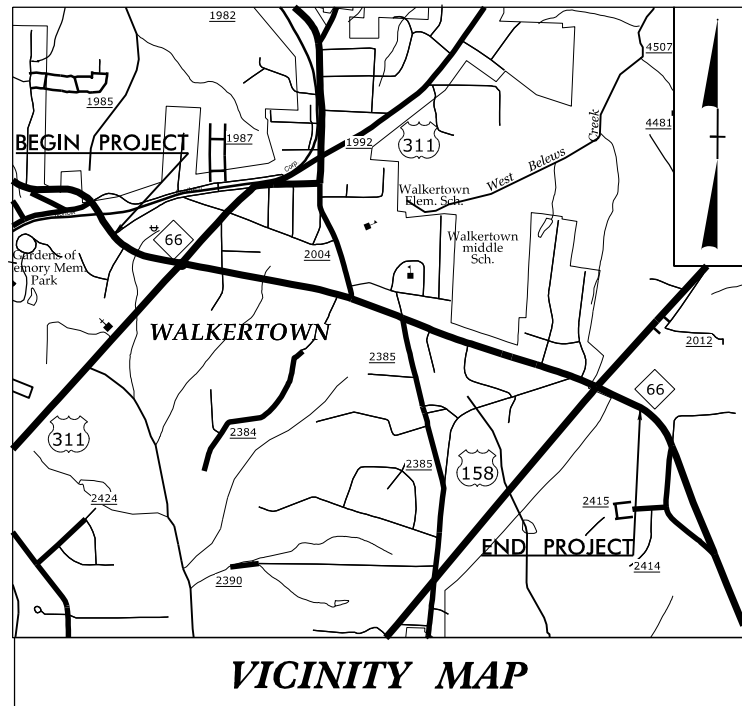
FORSYTH COUNTY

LOCATION: NC 66 (OLD HOLLOW ROAD) WIDENING
 FROM HARLEY DRIVE TO US 158

TYPE OF WORK: GRADING, DRAINAGE, PAVING, AND RETAINING WALLS

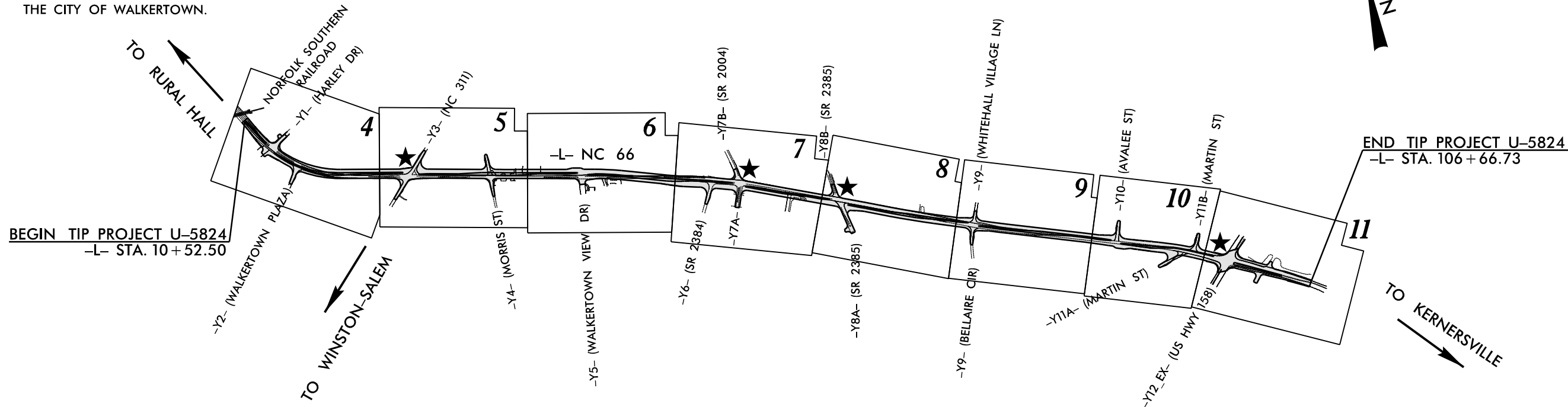
| STATE | STATE PROJECT REFERENCE NO. | SHEET NO. | TOTAL SHEETS |
|-----------------|-----------------------------|-------------|--------------|
| N.C. | U-5824 | 3 | 44 |
| STATE PROJ. NO. | F.A. PROJ. NO. | DESCRIPTION | |
| 44395.1.1 | | PE | |
| | | | |
| | | | |
| | | | |
| | | | |

★ TRAFFIC SIGNAL



VICINITY MAP

NOTE: THIS PROJECT IS WITHIN MUNICIPAL BOUNDARIES OF THE CITY OF WALKERTOWN.

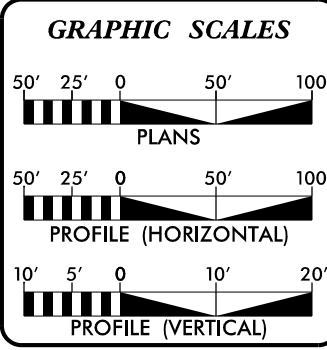


1102/38
 NAD

DESIGN EXCEPTIONS REQUIRED FOR SAG VERTICAL CURVE K, CREST VERTICAL CURVE K, AND VERTICAL STOPPING SIGHT DISTANCE FOR CREST CURVE.
 CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD ____.

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

CONTRACT:



DESIGN DATA

| | |
|--------------|------------------------------|
| ADT 2020 = | 22450 |
| ADT 2040 = | 24200 |
| K = | 8 % |
| D = | 55 % |
| T = | 4 % * |
| V = | 50 MPH |
| * TTST = | 1% DUAL=3% |
| FUNC CLASS = | MINOR ARTERIAL REGIONAL TIER |

PROJECT LENGTH

| | |
|-------------------------------------|-------------|
| LENGTH ROADWAY TIP PROJECT U-5824 = | 1.821 MILES |
| TOTAL LENGTH TIP PROJECT U-5824 = | 1.821 MILES |

BRETT ABERNATHY, PE, PLS
NCDOT CONTACT, DIVISION 9

Prepared in the Office of:

504 Meadowland Drive
 Hillsborough, NC 27278-8551
 Voice: (919) 732-3883
 Fax: (919) 732-6776
 www.summitde.net

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
 AUGUST 17, 2018

LETTING DATE:
 FEBRUARY 18, 2020

TRACY N. PARROTT, PE
PROJECT ENGINEER

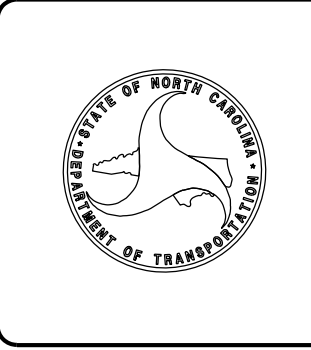
BRANDON W. JOHNSON, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

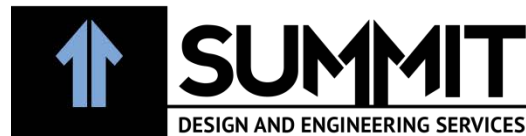
SIGNATURE: _____ P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: _____ P.E.



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 \$\$\$USERNAME\$\$\$



919.732.3883 SUMMIT-ENGINEER.COM
504 Meadowland Drive, Hillsborough, NC 27278

August 15, 2018

WBS Number: 44395.1.1
TIP Number: U-5824
County: Forsyth
Description: NC 66 (Old Hollow Road) Widening from Harley Drive to US 158

SUBJECT: Geotechnical Report - Roadway Subsurface Inventory

Project Description

The proposed project is located on NC 66 within the municipal boundaries of the city of Walkertown. The project consists of 1.82 miles of roadway widening along NC 66 (Old Hollow Road). Roadway improvements, designed to improve traffic flow associated with the new widening, are also proposed along 12 secondary roads and business entrances that intersect with NC 66. The proposed earthworks are relatively minor throughout the project corridor with most proposed grade elevations within a few feet of the existing grade of NC 66. However, there are a few areas of the project that have some proposed cut sections of up to 8 feet deep and embankment heights of up to 20 feet. One structure, a 225-foot retaining wall, is proposed within the project corridor along the south side of NC 66.

The geotechnical investigation was conducted from June 20, 2018 to July 3, 2018. Borings were advanced using a Diedrich D-50 drill machine equipped with an automatic hammer. Standard Penetration Tests were performed at all planned boring locations to provide subsurface information for roadbed and slope design/construction. Representative soil samples were collected and submitted to Summit's soils laboratory for classification and moisture content testing. Where possible, borings were left open for a minimum of 24 hours to collect groundwater data. All investigations and reporting were performed in accordance with the NCDOT Geotechnical Engineering Unit's 2016 "Geotechnical Investigation and Recommendations Manual."

The following alignments were investigated for this project:

| <u>Alignment</u> | <u>Station(±)</u> |
|------------------|----------------------|
| -L- | 10+52.50 - 106+65.31 |
| -Y1- | 10+75.00 - 12+09.51 |

| | |
|----------|---------------------|
| -Y2- | 10+39.50 - 11+75.00 |
| -Y3- | 10+25.00 - 15+25.00 |
| -Y4- | 10+00.00 - 13+75.00 |
| -Y5- | 10+00.00 - 10+92.74 |
| -Y6- | 10+52.62 - 12+00.00 |
| -Y7A- | 10+51.50 - 12+00.00 |
| -Y7B- | 12+00.00 - 13+03.24 |
| -Y8A- | 10+47.72 - 12+90.79 |
| -Y8B- | 11+25.00 - 12+42.99 |
| -Y9- | 10+75.00 - 13+75.00 |
| -Y10- | 10+25.00 - 11+73.59 |
| -Y11A- | 10+44.23 - 12+25.00 |
| -Y11B- | 10+00.00 - 11+32.17 |
| -Y12_EX- | 11+32.85 - 14+10.87 |

Physiography and Geography

The project corridor is located in north-central North Carolina in the Piedmont Physiographic Province. Topography in the region is characterized by gently rolling, well rounded hills and long low ridges with a few hundred feet of elevation difference between the hills and valleys. In general, the topography within the project corridor would fit this description. Elevations within the project corridor range from approximately 919 feet to approximately 1,004 feet above sea level. The topographic high occurs near the top of the intersection of NC 66 and Main Street (SR 2004). The topographic low occurs within the floodplain of Lowery Mill Creek.

Geologically, the project corridor is located within the Milton Belt. This small geologic belt is sandwiched in between the Dan River Triassic Basin to the west and the Carolina Slate Belt to the east. It is characterized by strongly foliated gneiss and schist that is commonly felsic in composition. Evidence suggests that rocks of the Milton Belt are mainly Precambrian in age and were likely metamorphosed during the early to middle-Paleozoic. The dominant rock types underlying the project corridor are believed to be Biotite Gneiss and Schist.

Lowery Mill Creek is the only significant body of water within the project corridor. A few small unnamed tributaries and/or drainage features were encountered or observed within the project corridor during the investigation.

Soil Properties

Roadway Embankment soils from the construction of existing NC 66 and the various intersecting secondary roads are present within the project corridor. These soils are quite similar to the local Residual soils that they were sourced from. Roadway Embankment soils consist of mostly sandy silts (A-4) and clayey silts (A-5). Laboratory analysis revealed a range of liquid limits from 26 to 51 with an average of 37. Plasticity Index (PI) values ranged from 4 to 6 with an average of 5. Soil moistures varied from 17.7% to 34.3% with an average of 28.1%. The higher moisture values were typically encountered near the base of existing areas of deeper fill. Soil densities of the sandy and clayey silts typically range from soft to stiff. Some areas of silty sands (A-2-4) are also present within the Roadway Embankment. Only 1 non-cohesive

sample was lab tested and the results showed a liquid limit of 25, a PI value of 3, and moisture content of 15.7%. Soil densities of the silty sands typically range from loose to medium dense with isolated very dense areas. Roadway Embankment soils often appear similar to the local residual soils in color and composition. However, they often have a “reworked” appearance, with a large variation in grain size. They can contain little to trace amounts of organic material, gravel, cobbles, boulders and/or other types of debris.

Alluvial soils, soils that have been transported and deposited by water, were not encountered during the geotechnical investigation. However, alluvial soils are believed to be present within a few areas of the project corridor. This is based on observations made in the field and data provided in the wetlands survey file. Alluvial soils are typically wet to saturated, very soft to soft, and trace to highly organic. Specific locations where these soils are believed to be present will be highlighted in the “Areas of Special Geotechnical Interest” section of this text report.

Residual soils, soils derived from the weathering of rock, are the dominant soil origin within the project corridor. In general, the residual soils follow the typical weathering profile seen throughout the piedmont. The clays, when present, are usually found closer to the ground surface. The silts and sands are typically found deeper and closer to the parent rock source. However, much like the parent rocks that they weather from, the Residual soils can vary significantly in some areas in both composition and vertical/horizontal distribution. In several areas throughout the project corridor, the top foot or two of Residual soils appeared disturbed or reworked. This may have been due to past agricultural activities and/or more recent development occurring along NC 66. Clayey silts (A-5) and sandy silts (A-4) are the predominate soil type and occur throughout the project corridor. These soils are saprolitic in many areas and are typically micaceous. Laboratory analysis indicated a range of liquid limits from 25 to 70 with an average of 50. PI values varied from 1 to 10 with an average of 5. Moisture content ranged from 17.3% to 46.4% with an average of 24.9%. Higher moisture values were typically encountered in topographically low areas. Sieve analysis showed that even the clayey silts have a very high sand content. Soil densities of the sandy and clayey silts typically range from medium stiff to very stiff with isolated very soft and hard areas. Some trace amounts of Manganese Oxide (MnO) were observed within the clayey and sandy silts. Manganese oxide (MnO) will generate nearly frictionless surfaces of indeterminate orientation throughout the Residual soil profile, which can lead to slope stability issues. However, no significant amounts of MnO were encountered during the geotechnical investigation. Clayey, silty sands (A-2-5) and silty sands (A-2-4) are also prevalent throughout the project corridor. These soils are typically saprolitic and micaceous. Laboratory analysis of these sands indicated a range of liquid limits from 27 to 58 with an average of 46. PI values varied from 0 to 7 with an average of 1. Moisture content ranged from 14.7% to 21.7% with an average of 17.6%. Soil densities of the sands typically range from loose to medium dense with some dense to very dense areas. Silty clays (A-7-5 & A-7-6) are present in some areas within the project corridor. These soils are typically not saprolitic and contain less visible mica. Laboratory testing of the clays showed a range of liquid limits from 41 to 80 with an average of 61. PI values varied from 13 to 36 with an average of 23. Moisture content ranged from 15.8% to 37.7% with an average of 24.3%. Soil densities of the clays typically range from stiff to very stiff with isolated soft to medium stiff areas. Sieve analysis showed that the clays often have a very high sand content which helps to limit their plasticity. A few areas within the project corridor do contain highly plastic clays (PI value greater than 26) and will be highlighted in the “Areas of Special Geotechnical Interest” section of this text report.

Rock Properties

Crystalline Rock was not encountered during this investigation and is not expected to be a factor during roadway construction. Weathered Rock (Mica Schist) was encountered in only one area but was greater than six feet from proposed grade and is not expected to be a factor during roadway construction.

Groundwater Properties

The field investigation as conducted during a period of near average rainfall. Groundwater was only encountered in two borings located in the lowest areas of the project. Between the two borings the average elevation of groundwater could be inferred at approximately 931.7 feet. Groundwater was not encountered within 6 feet of proposed grade and is not expected to be a factor during roadway construction.

Areas of Special Geotechnical Interest

Plastic Soils - During the geotechnical investigation, highly plastic clays were encountered in a few areas within the project corridor. More detailed information on these soils can be found in the “Soil Properties” section of this text report. The following approximate locations listed below show areas where highly plastic clays are present within the project corridor:

| <u>Alignment</u> | <u>Station(±)</u> | <u>Offset</u> |
|-------------------------|--------------------------|----------------------|
| -L- | 71+25 – 73+25 | Left & Right |
| -L- | 92+75 – 97+25 | Left & Right |
| -L- | 103+00 – 105+25 | Left & Right |

Alluvial Soils - During the geotechnical investigation, areas of Alluvial soils were observed. These soils are typically soft, wet or saturated, and may contain higher amounts of organic material. More detailed information on these soils can be found in the “Soil Properties” section of this text report. The following approximate locations listed below show areas where Alluvial soils are present within the project corridor:

| <u>Alignment</u> | <u>Station(±)</u> | <u>Offset</u> |
|-------------------------|--------------------------|----------------------|
| -L- | 19+06 – 20+41 | Left |

Soft and/or Wet Soils – During the geotechnical investigation, low areas containing soft and/or wet Residual soils were encountered. More detailed information on these soils can be found in the “Soil Properties” section of this text report. The following approximate locations listed below show areas where soft and/or wet Residual soils are present within the project corridor.

| <u>Alignment</u> | <u>Station(±)</u> | <u>Offset</u> |
|-------------------------|--------------------------|----------------------|
| -L- | 18+75 – 19+75 | Left & Right |
| -L- | 42+75 – 45+50 | Left |
| -L- | 105+25 – 106+65 | Left & Right |

References

The Geology of the Carolinas, J. Wright Horton, Jr., and Victor A. Zullo

Respectfully Submitted,

Brett Smith, PG
Project Geologist
Summit Design and Engineering Services, PLLC

8/17/09

REVISIONS

15-AUG-2018 11:49 C:\Users\smth\Documents\NCDDOT Projects\Active Projects\U-5824 - Walker-town\U5824_GEO_ROWY_Inventor\U5824_GEO.inv.06.dgn

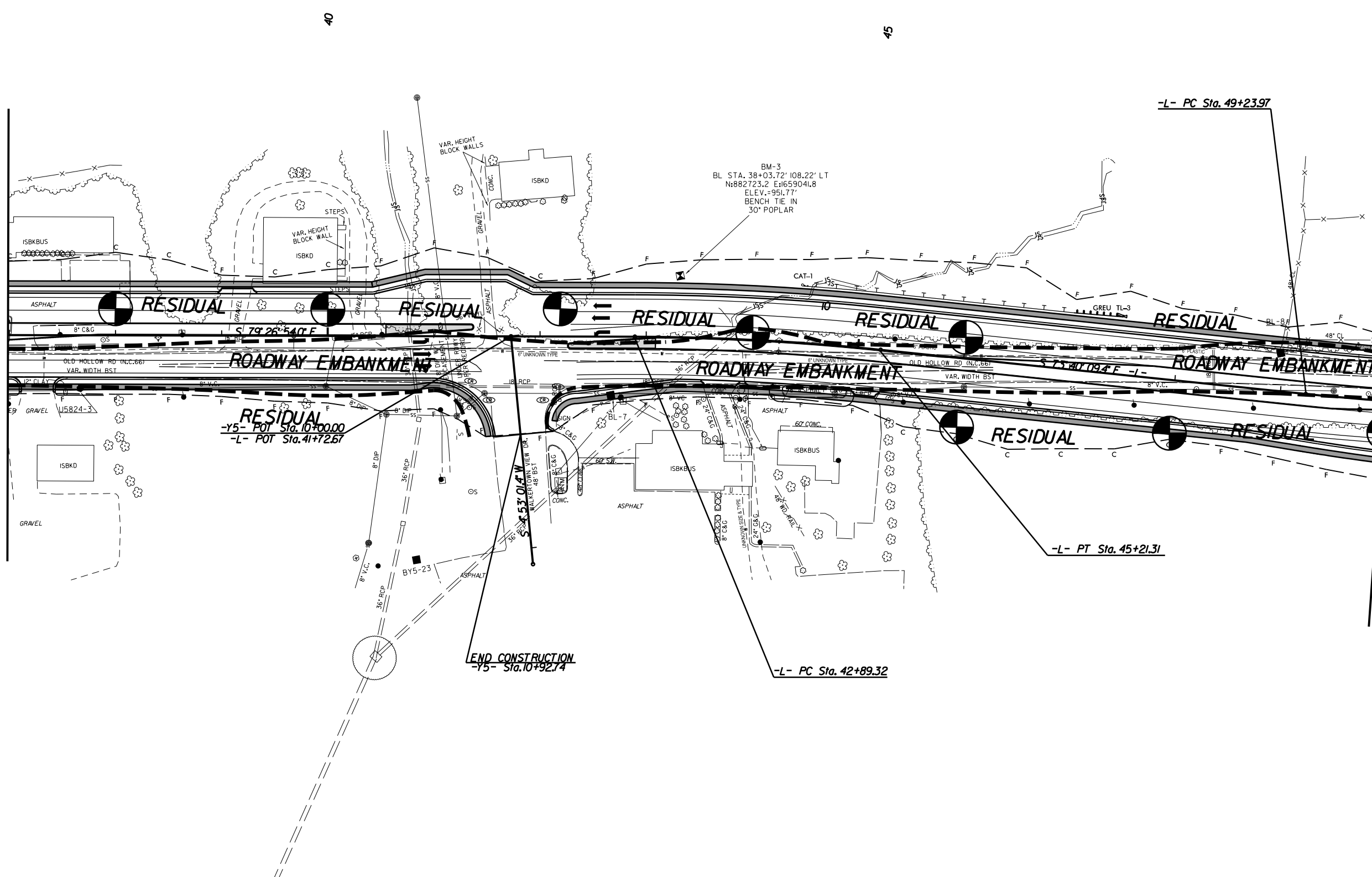
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|-------------------------------------|-------------------------------------|
| PI Sta 44+05.41 | PI Sta 50+18.92 |
| $\Delta = 5^{\circ} 46' 44.5" (RT)$ | $\Delta = 4^{\circ} 43' 39.5" (LT)$ |
| $D = 2' 29' 28.0"$ | $D = 2' 29' 28.0"$ |
| $L = 231.99'$ | $L = 189.78'$ |
| $T = 116.09'$ | $T = 94.95'$ |
| $R = 2,300.00'$ | $R = 2,300.00'$ |
| $SE = 3\%$ | $SE = 3\%$ |
| $RO = 144'$ | $RO = 144'$ |

NAD 83/2011

| | |
|---|---|
| PROJECT REFERENCE NO. U-5824 | SHEET NO. 6 |
| RW SHEET NO. ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION | |
| DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED | |
| Prepared in the Office of: SUMMIT | NC FIRM LICENSE No: P-0339 504 Meadows Drive Hillsborough, NC 27278 (919) 332-3883 (919) 732-6676 (FAX) |

MATCHLINE -L- STA 37 + 00.00
(SEE SHEET 5)

MATCHLINE -L- STA 50 + 00.00
(SEE SHEET 7)



40

45

50

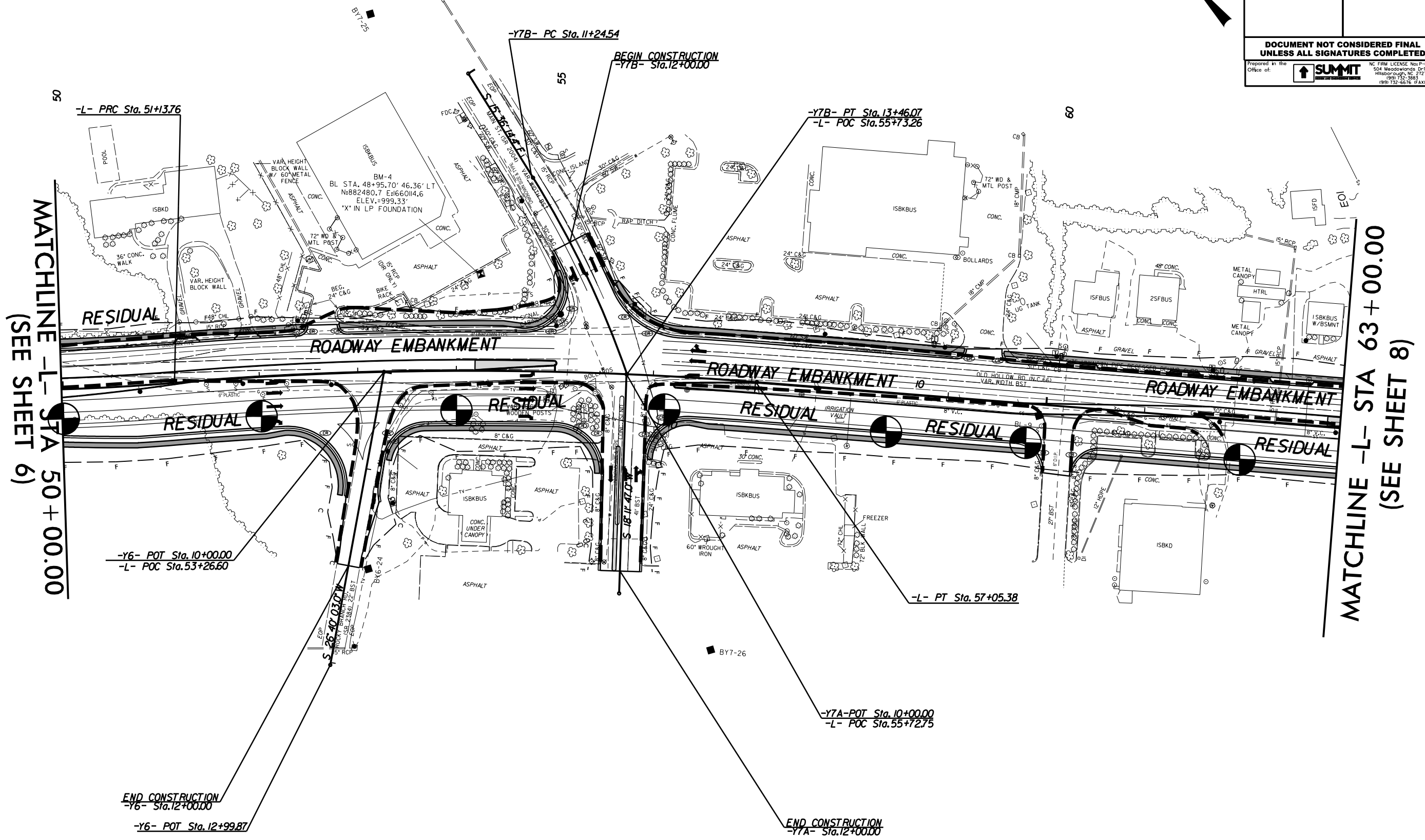
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| PROJECT REFERENCE NO. | SHEET NO. |
| U-5824 | 7 |
| RW SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION | |
| DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED | |
| Prepared in the Office at: | NC FIRM LICENSE No: P-0339 Sgt. Madsen Drive Hillsborough, NC 27278 (919) 732-3881 (919) 732-6676 (FAX) |

-Y7B-
 PI Sta 12+35.76
 $\Delta = 12' 41" 34.4" (RT)$
 $D = 5' 43" 46.5"$
 $L = 221.53'$
 $T = 111.22'$
 $R = 1,000.00'$

-L-
 PI Sta 50+18.92
 $\Delta = 4' 43" 39.8" (LT)$
 $D = 2' 29" 28.0"$
 $L = 189.78'$
 $T = 94.95'$
 $R = 2,300.00'$
 $SE = 3\%$
 $RO = 144'$

-L-
 PI Sta 54+10.21
 $\Delta = 9' 11" 11.0" (RT)$
 $D = 1' 33" 09.8"$
 $L = 591.63'$
 $T = 296.45'$
 $R = 3,690.00'$
 $SE = 2\%$
 $RO = 96'$



REVISIONS
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-Y8A-
PI Sta 11+10.45
Δ = 1'26"19.4" (LT)
D = 2'17"30.6"
L = 62.78'
T = 31.39'
R = 2,500.00'

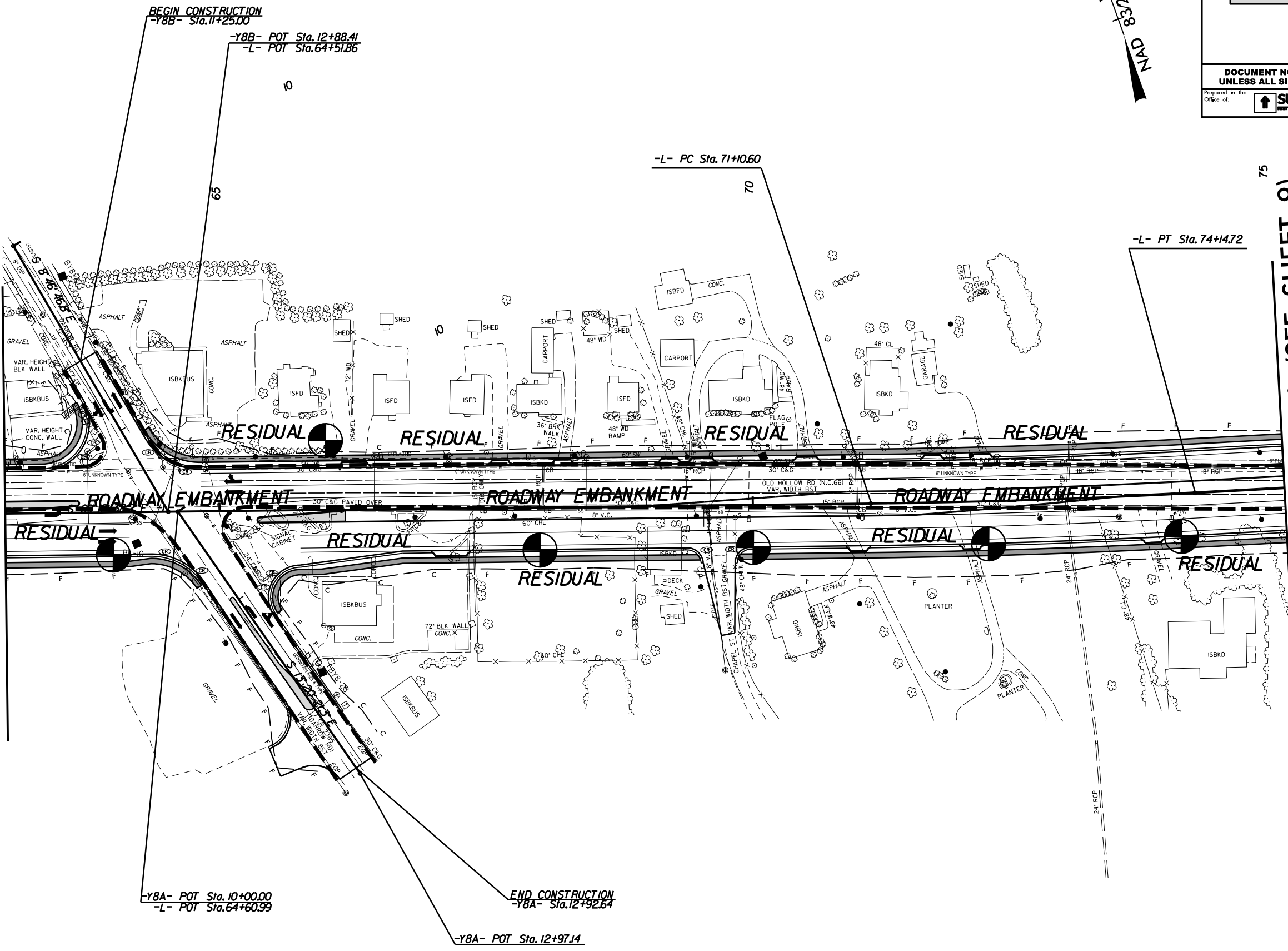
-L-
PI Sta 72+62.68
Δ = 2'23"13.1" (LT)
D = 0'47"05.5"
L = 304.12'
T = 152.08'
R = 7,300.00'
SE = NC

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|---|---|
| PROJECT REFERENCE NO. U-5824 | SHEET NO. 8 |
| RW SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION | |
| DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED | |
| Prepared in the Office of:  | NC FIRM LICENSE No: P-0339 504 Meadows Drive Hillsborough, NC 27278 (919) 732-3881 (919) 732-6676 (FAX) |




MATCHLINE -L- STA 63 + 00.00 (SEE SHEET 7)

MATCHLINE -L- STA 75 + 00.00 (SEE SHEET 9)



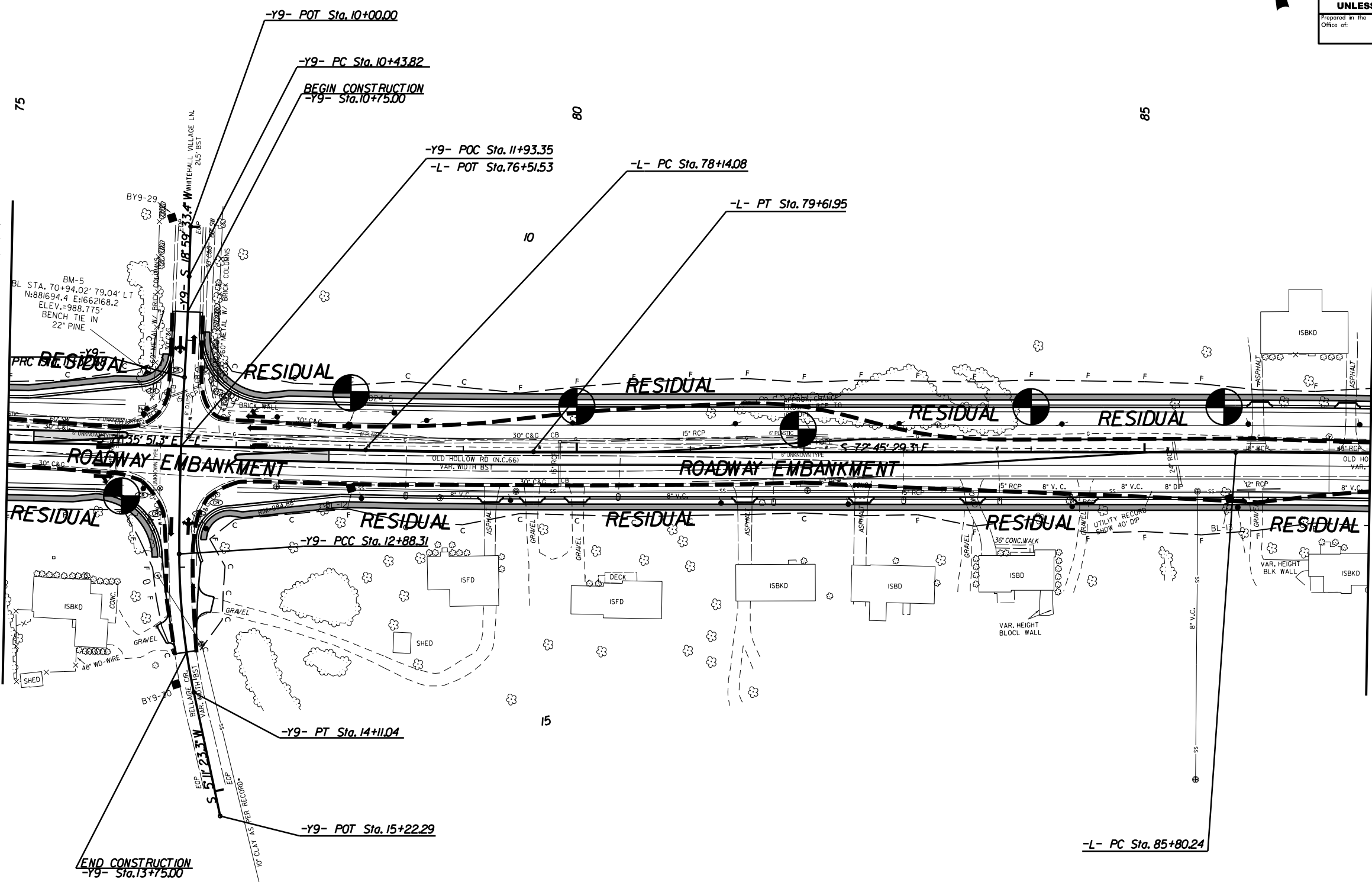
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| -L- | | -Y9- | | |
|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|
| PI Sta 78+88.02 | PI Sta 87+15.36 | PI Sta 10+88.25 | PI Sta 12+10.52 | PI Sta 13+49.89 |
| $\Delta = 1'09'38.0"$ (LT) | $\Delta = 2'07'14.6"$ (RT) | $\Delta = 1'41'49.3"$ (RT) | $\Delta = 3'34'51.9"$ (LT) | $\Delta = 1'55'07.5"$ (LT) |
| $D = 0'47'05.5"$ | $D = 0'47'05.5"$ | $D = 1'54'35.5"$ | $D = 2'18'03.7"$ | $D = 9'42'40.1"$ |
| $L = 147.86'$ | $L = 270.20'$ | $L = 88.86'$ | $L = 155.63'$ | $L = 122.73'$ |
| $T = 73.93'$ | $T = 135.12'$ | $T = 44.43'$ | $T = 77.84'$ | $T = 61.59'$ |
| $R = 7,300.00'$ | $R = 7,300.00'$ | $R = 3,000.00'$ | $R = 2,490.00'$ | $R = 590.00'$ |
| SE = NC | SE = NC | | | |

| | |
|---|---|
| PROJECT REFERENCE NO. U-5824 | SHEET NO. 9 |
| RW SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION | |
| DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED | |
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MATCHLINE -L- STA 75 + 00.00
 (SEE SHEET 8)

MATCHLINE -L- STA 87 + 00.00
 (SEE SHEET 10)



REVISIONS

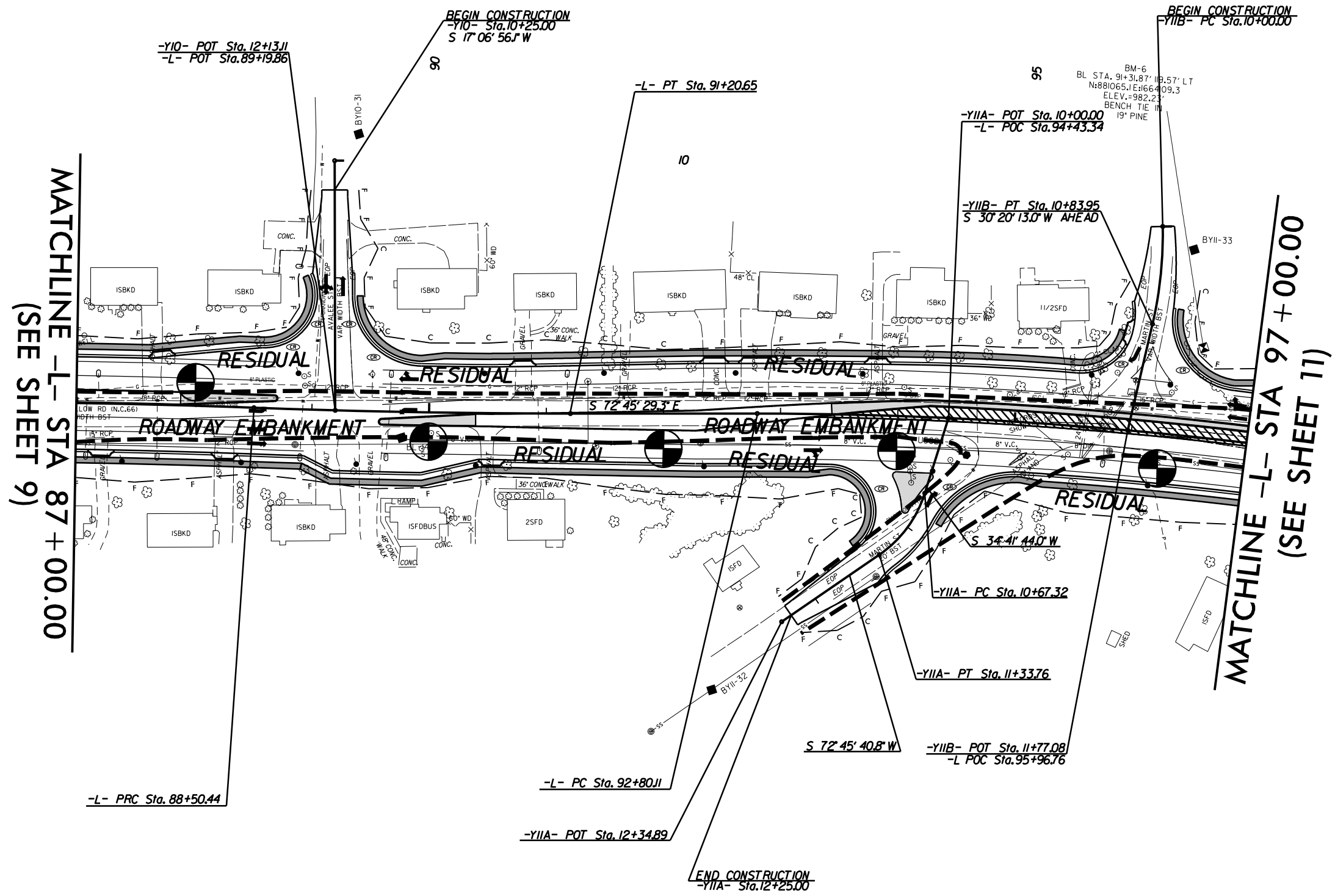
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15-AUG-2018 14:57
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| -L- | | |
|------------------------------|------------------------------|------------------------------|
| PI Sta 87+15.36 | PI Sta 89+85.56 | PI Sta 95+14.03 |
| $\Delta = 2' 07" 14.6" (RT)$ | $\Delta = 2' 07" 14.6" (LT)$ | $\Delta = 7' 38" 49.5" (RT)$ |
| $D = 0' 47" 05.5"$ | $D = 0' 47" 05.5"$ | $D = 1' 38" 13.3"$ |
| $L = 270.20'$ | $L = 270.20'$ | $L = 467.13'$ |
| $T = 135.12'$ | $T = 135.12'$ | $T = 233.91'$ |
| $R = 7,300.00'$ | $R = 7,300.00'$ | $R = 3,500.00'$ |
| SE = NC | SE = NC | SE = 2% |
| | | RO = 98' |

| -YIIA- | -YIIB- |
|-------------------------------|-------------------------------|
| PI Sta 11+01.82 | PI Sta 10+42.19 |
| $\Delta = 38' 03" 56.8" (RT)$ | $\Delta = 14' 08" 48.2" (RT)$ |
| $D = 57' 17" 44.8"$ | $D = 16' 51" 06.1"$ |
| $L = 66.44'$ | $L = 83.95'$ |
| $T = 34.50'$ | $T = 42.19'$ |
| $R = 100.00'$ | $R = 340.00'$ |

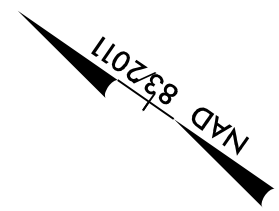
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| RW SHEET NO. | |
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| INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION | |
| DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED | |
| Prepared in the Office of: SUMMIT | NC FIRM LICENSE No: P-0339 504 Meadows Drive Hillsborough, NC 27278 (919) 332-3883 (919) 732-6676 (FAX) |



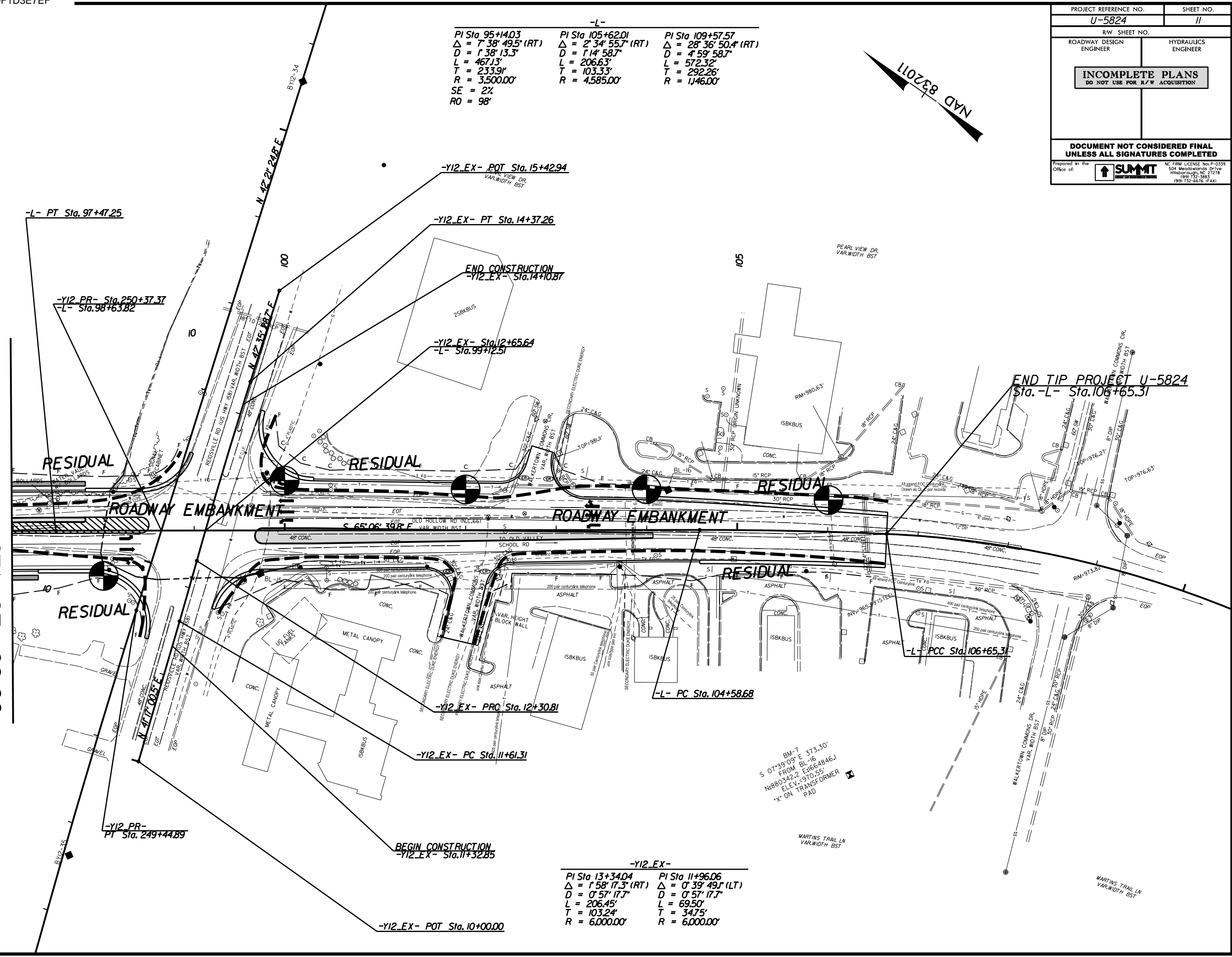
8/17/99

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| U-5824 | 11 |
| RW SHEET NO. | |
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| INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION | |
| DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED | |
| Prepared in the Office of: |  <small>NC FIRM LICENSE No. P-0339 504 Meadows Drive Hillsborough, NC 27278 (919) 332-3883 (919) 732-6676 (FAX)</small> |

| -L- | | |
|------------------------------|------------------------------|-------------------------------|
| PI Sta 95+14.03 | PI Sta 105+62.01 | PI Sta 109+57.57 |
| $\Delta = 7' 38' 49.5" (RT)$ | $\Delta = 2' 34' 55.7" (RT)$ | $\Delta = 28' 36' 50.4" (RT)$ |
| $D = 1' 38' 13.3"$ | $D = 1' 14' 58.7"$ | $D = 4' 59' 58.7"$ |
| $L = 467.13'$ | $L = 206.63'$ | $L = 572.32'$ |
| $T = 233.91'$ | $T = 103.33'$ | $T = 292.26'$ |
| $R = 3,500.00'$ | $R = 4,585.00'$ | $R = 1,460.00'$ |
| $SE = 2\%$ | | |
| $RO = 98'$ | | |



MATCHLINE -L- STA 97+00.00
 (SEE SHEET 10)



-Y12_EX- POT Sta. 15+42.94
PEARL VIEW DR.
VAR. WIDTH BST

-Y12_EX- PT Sta. 14+37.26

END CONSTRUCTION
-Y12_EX- Sta. 14+10.87

-Y12_EX- Sta. 12+65.64
-L- Sta. 99+12.51

-Y12_PR- Sta. 250+37.37
-L- Sta. 98+63.82

-L- PT Sta. 97+47.25

END TIP PROJECT U-5824
Sta. -L- Sta. 106+65.31

-L- PC Sta. 104+58.68

-Y12_EX- PRC Sta. 12+30.81

-Y12_EX- PC Sta. 11+61.31

-Y12_PR- PT Sta. 249+44.89

BEGIN CONSTRUCTION
-Y12_EX- Sta. 11+32.85

-Y12_EX- POT Sta. 10+00.00

| -Y12_EX- | |
|------------------------------|------------------------------|
| PI Sta 13+34.04 | PI Sta 11+96.06 |
| $\Delta = 1' 58' 17.3" (RT)$ | $\Delta = 0' 39' 49.1" (LT)$ |
| $D = 0' 57' 17.7"$ | $D = 0' 57' 17.7"$ |
| $L = 206.45'$ | $L = 69.50'$ |
| $T = 103.24'$ | $T = 34.75'$ |
| $R = 6,000.00'$ | $R = 6,000.00'$ |

BM-7
S 07°39'09" E 373.30'
FROM BL-16
N880342.2 E1664846.1
ELEV. = 970.55'
* ON TRANSFORMER
PAD

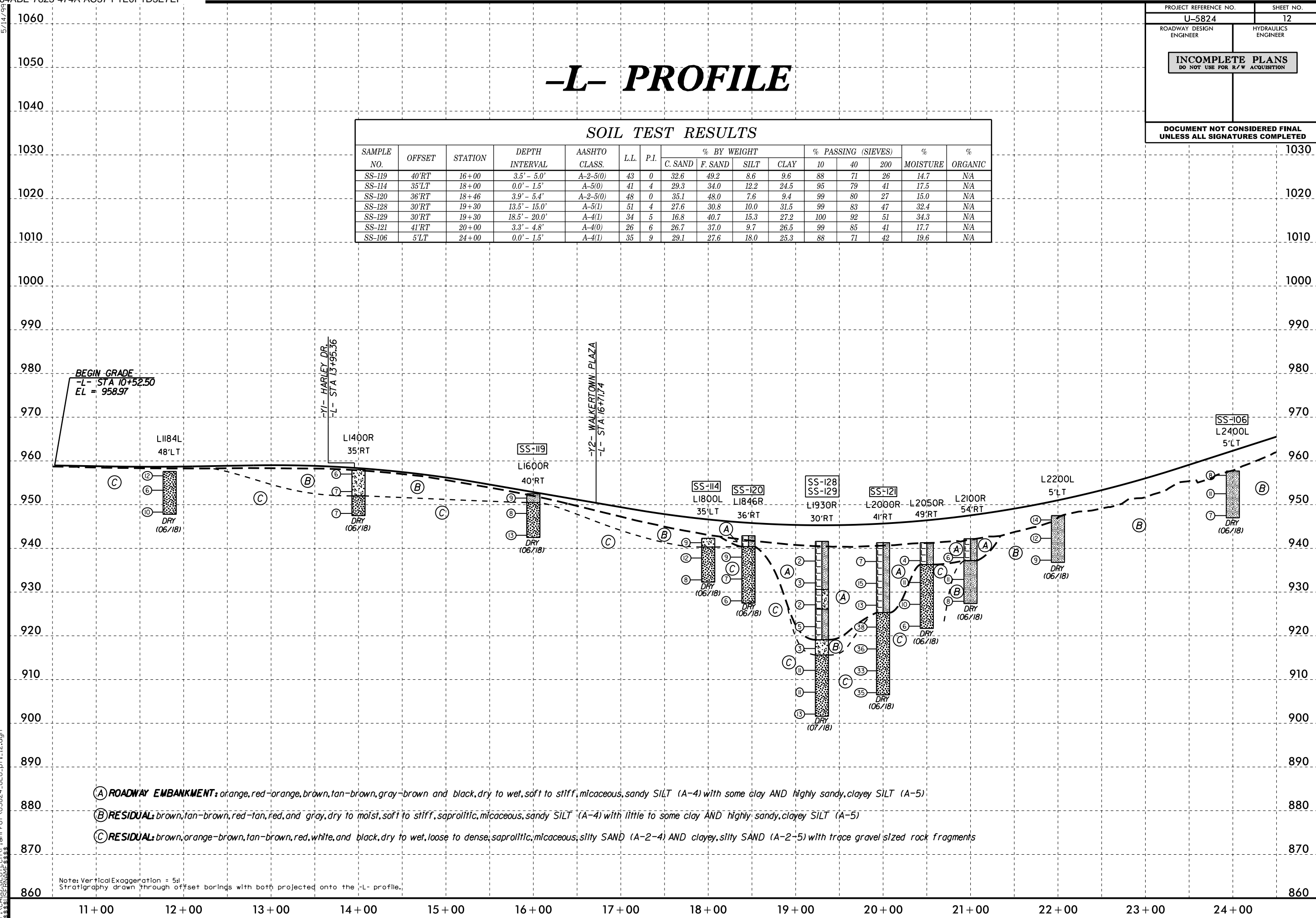
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| | |
|---|------------------------|
| PROJECT REFERENCE NO. U-5824 | SHEET NO. 12 |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION | |
| DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED | |

-L- PROFILE

| SAMPLE NO. | OFFSET | STATION | DEPTH INTERVAL | AASHTO CLASS. | L.L. | P.I. | % BY WEIGHT | | | | % PASSING (SIEVES) | | | % MOISTURE | % ORGANIC |
|------------|--------|---------|----------------|---------------|------|------|-------------|---------|-------|-------------|--------------------|----|-----|------------|-----------|
| | | | | | | | C. SAND | F. SAND | SILT | CLAY | 10 | 40 | 200 | | |
| | | | | | | | SS-119 | 40'RT | 16+00 | 3.5' - 5.0' | A-2-5(0) | 43 | 0 | | |
| SS-114 | 35'LT | 18+00 | 0.0' - 1.5' | A-5(0) | 41 | 4 | 29.3 | 34.0 | 12.2 | 24.5 | 95 | 79 | 41 | 17.5 | NA |
| SS-120 | 36'RT | 18+46 | 3.9' - 5.4' | A-2-5(0) | 48 | 0 | 35.1 | 48.0 | 7.6 | 9.4 | 99 | 80 | 27 | 15.0 | NA |
| SS-128 | 30'RT | 19+30 | 13.5' - 15.0' | A-5(1) | 51 | 4 | 27.6 | 30.8 | 10.0 | 31.5 | 99 | 83 | 47 | 32.4 | NA |
| SS-129 | 30'RT | 19+30 | 18.5' - 20.0' | A-4(1) | 34 | 5 | 16.8 | 40.7 | 15.3 | 27.2 | 100 | 92 | 51 | 34.3 | NA |
| SS-121 | 41'RT | 20+00 | 3.3' - 4.8' | A-4(0) | 26 | 6 | 26.7 | 37.0 | 9.7 | 26.5 | 99 | 85 | 41 | 17.7 | NA |
| SS-106 | 5'LT | 24+00 | 0.0' - 1.5' | A-4(1) | 35 | 9 | 29.1 | 27.6 | 18.0 | 25.3 | 88 | 71 | 42 | 19.6 | NA |



- (A) **ROADWAY EMBANKMENT:** orange, red-orange, brown, tan-brown, gray-brown and black, dry to wet, soft to stiff, micaceous, sandy SILT (A-4) with some clay AND highly sandy, clayey SILT (A-5)
- (B) **RESIDUAL:** brown, tan-brown, red-tan, red, and gray, dry to moist, soft to stiff, saprolitic, micaceous, sandy SILT (A-4) with little to some clay AND highly sandy, clayey SILT (A-5)
- (C) **RESIDUAL:** brown, orange-brown, tan-brown, red, white, and black, dry to wet, loose to dense, saprolitic, micaceous, silty SAND (A-2-4) AND clayey, silty SAND (A-2-5) with trace gravel sized rock fragments

Note: Vertical Exaggeration = 5x
Stratigraphy drawn through offset borings with both projected onto the -L- profile.

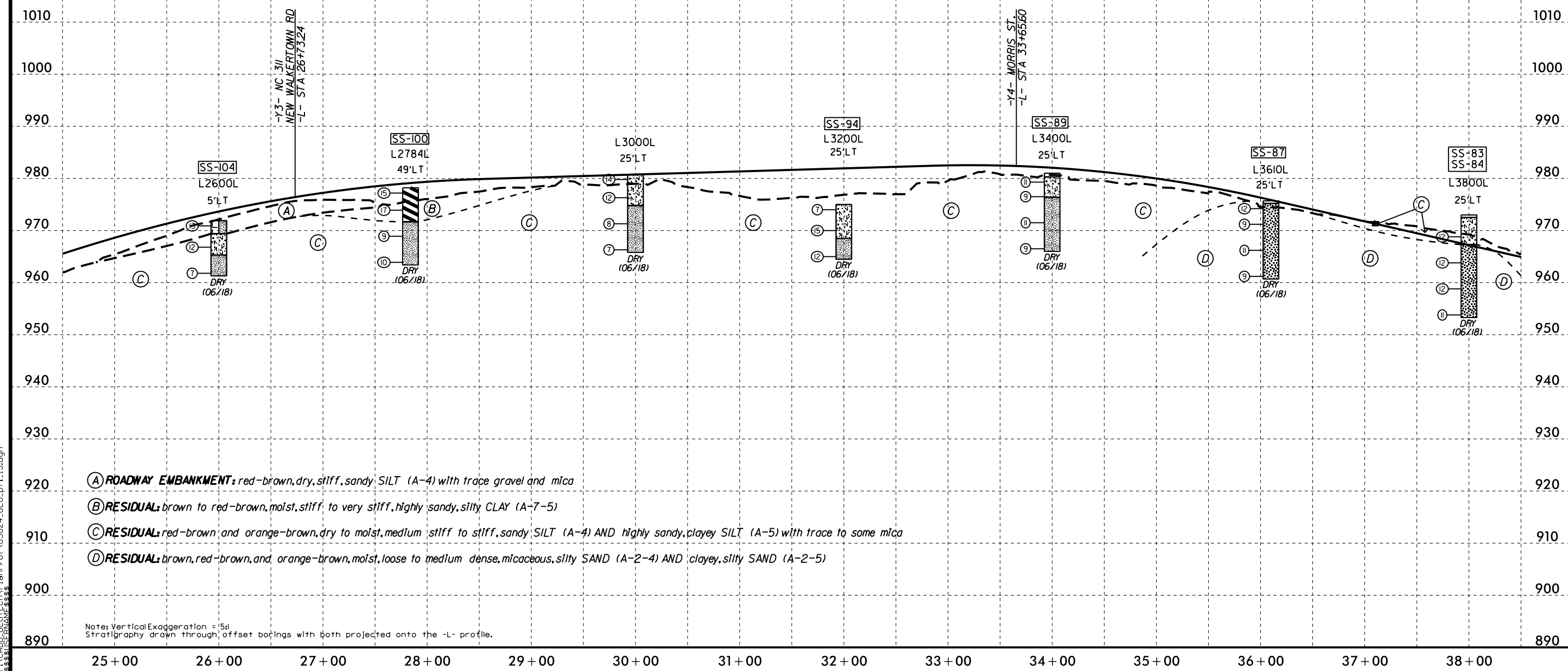
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| | |
|---|------------------------|
| PROJECT REFERENCE NO. U-5824 | SHEET NO. 13 |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION | |
| DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED | |

-L- PROFILE

| SAMPLE NO. | OFFSET | STATION | DEPTH INTERVAL | AASHTO CLASS. | L.L. | P.I. | % BY WEIGHT | | | | % PASSING (SIEVES) | | | % MOISTURE | % ORGANIC |
|------------|--------|---------|----------------|---------------|------|------|-------------|---------|-------|-------------|--------------------|----|-----|------------|-----------|
| | | | | | | | C. SAND | F. SAND | SILT | CLAY | 10 | 40 | 200 | | |
| | | | | | | | SS-104 | 5'LT | 26+00 | 4.1' - 5.6' | A-5(0) | 43 | 2 | | |
| SS-100 | 49'LT | 27+84 | 3.3' - 4.8' | A-7-5(13) | 61 | 18 | 14.8 | 22.2 | 11.9 | 51.1 | 99 | 93 | 66 | 20.6 | N/A |
| SS-94 | 25'LT | 32+00 | 4.0' - 5.5' | A-5(2) | 58 | 8 | 18.2 | 40.8 | 6.0 | 35.0 | 87 | 78 | 42 | 26.7 | N/A |
| SS-89 | 25'LT | 34+00 | 0.7' - 2.2' | A-5(4) | 58 | 5 | 19.0 | 25.2 | 12.2 | 43.5 | 97 | 85 | 58 | 28.0 | N/A |
| SS-87 | 25'LT | 36+10 | 3.5' - 5.0' | A-2-5(0) | 46 | 0 | 25.2 | 49.2 | 6.8 | 18.8 | 99 | 88 | 34 | 18.9 | N/A |
| SS-83 | 25'LT | 38+00 | 3.2' - 4.7' | A-5(2) | 51 | 1 | 20.7 | 23.9 | 14.3 | 41.2 | 98 | 87 | 59 | 26.5 | N/A |
| SS-84 | 25'LT | 38+00 | 8.2' - 9.7' | A-2-5(0) | 52 | 0 | 29.0 | 46.7 | 8.2 | 16.2 | 96 | 81 | 33 | 21.7 | N/A |



- (A) **ROADWAY EMBANKMENT:** red-brown, dry, stiff, sandy SILT (A-4) with trace gravel and mica
- (B) **RESIDUAL:** brown to red-brown, moist, stiff to very stiff, highly sandy, silty CLAY (A-7-5)
- (C) **RESIDUAL:** red-brown and orange-brown, dry to moist, medium stiff to stiff, sandy SILT (A-4) AND highly sandy, clayey SILT (A-5) with trace to some mica
- (D) **RESIDUAL:** brown, red-brown, and orange-brown, moist, loose to medium dense, micaceous, silty SAND (A-2-4) AND clayey, silty SAND (A-2-5)

Note: Vertical Exaggeration = 5x
Stratigraphy drawn through offset borings with both projected onto the -L- profile.

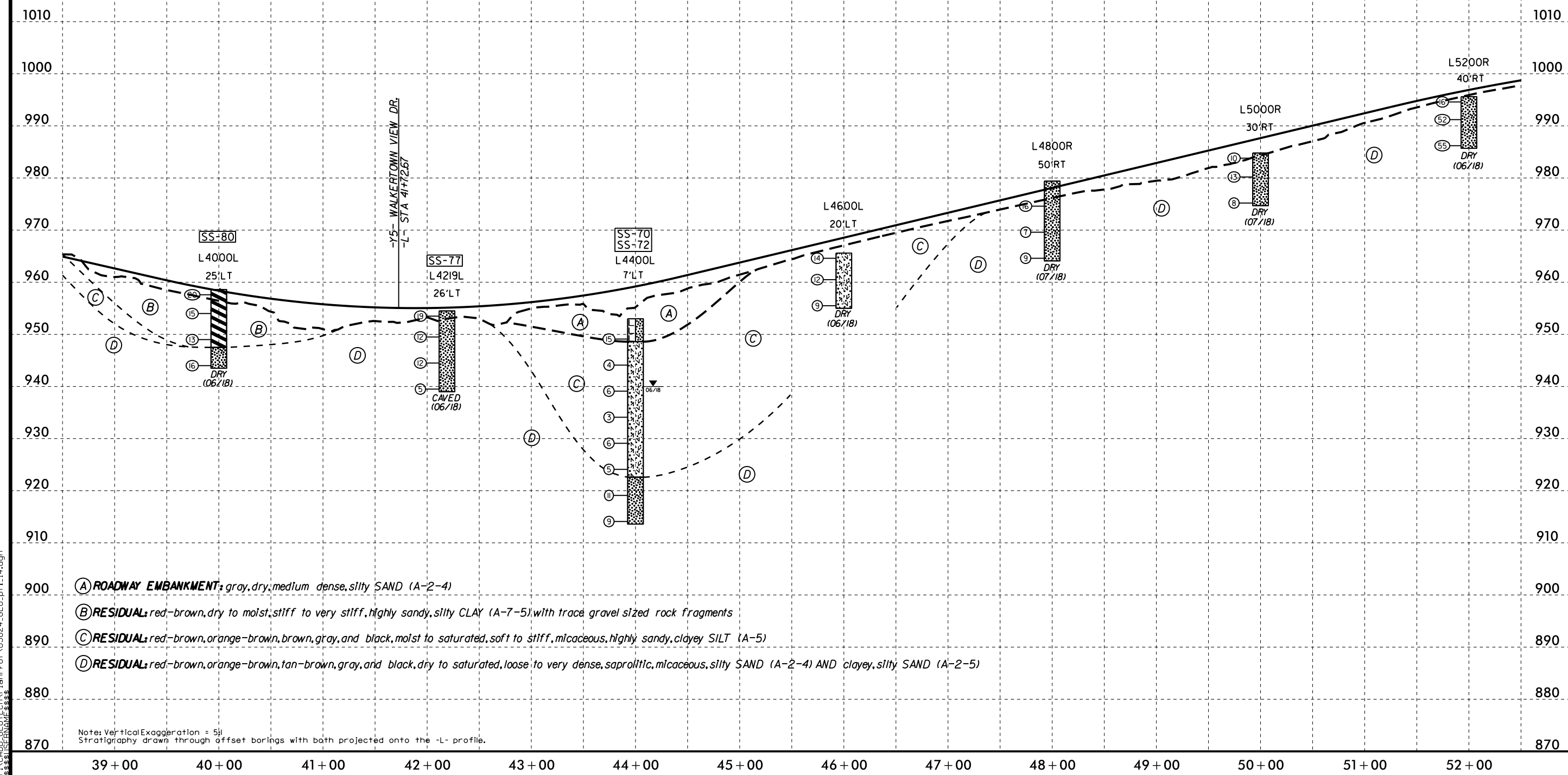
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|---|------------------------|
| PROJECT REFERENCE NO. U-5824 | SHEET NO. 14 |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION | |
| DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED | |

-L- PROFILE

| SAMPLE NO. | OFFSET | STATION | DEPTH INTERVAL | AASHTO CLASS. | L.L. | P.I. | % BY WEIGHT | | | | % PASSING (SIEVES) | | | % MOISTURE | % ORGANIC |
|------------|--------|---------|----------------|---------------|------|------|-------------|---------|-------|-------------|--------------------|----|-----|------------|-----------|
| | | | | | | | C. SAND | F. SAND | SILT | CLAY | 10 | 40 | 200 | | |
| | | | | | | | SS-80 | 25'LT | 40+00 | 3.6' - 5.1' | A-7-5(4) | 43 | 13 | | |
| SS-77 | 26'LT | 42+19 | 4.0' - 5.5' | A-2-4(0) | 27 | 7 | 42.8 | 23.7 | 6.7 | 26.9 | 93 | 64 | 34 | 15.2 | N/A |
| SS-70 | 7'LT | 44+00 | 2.9' - 4.4' | A-2-4(0) | 28 | 3 | 45.0 | 28.1 | 5.9 | 21.1 | 91 | 63 | 28 | 15.7 | N/A |
| SS-72 | 7'LT | 44+00 | 12.9' - 14.4' | A-5(0) | 50 | 1 | 20.0 | 40.4 | 17.5 | 22.1 | 98 | 88 | 48 | 46.4 | N/A |



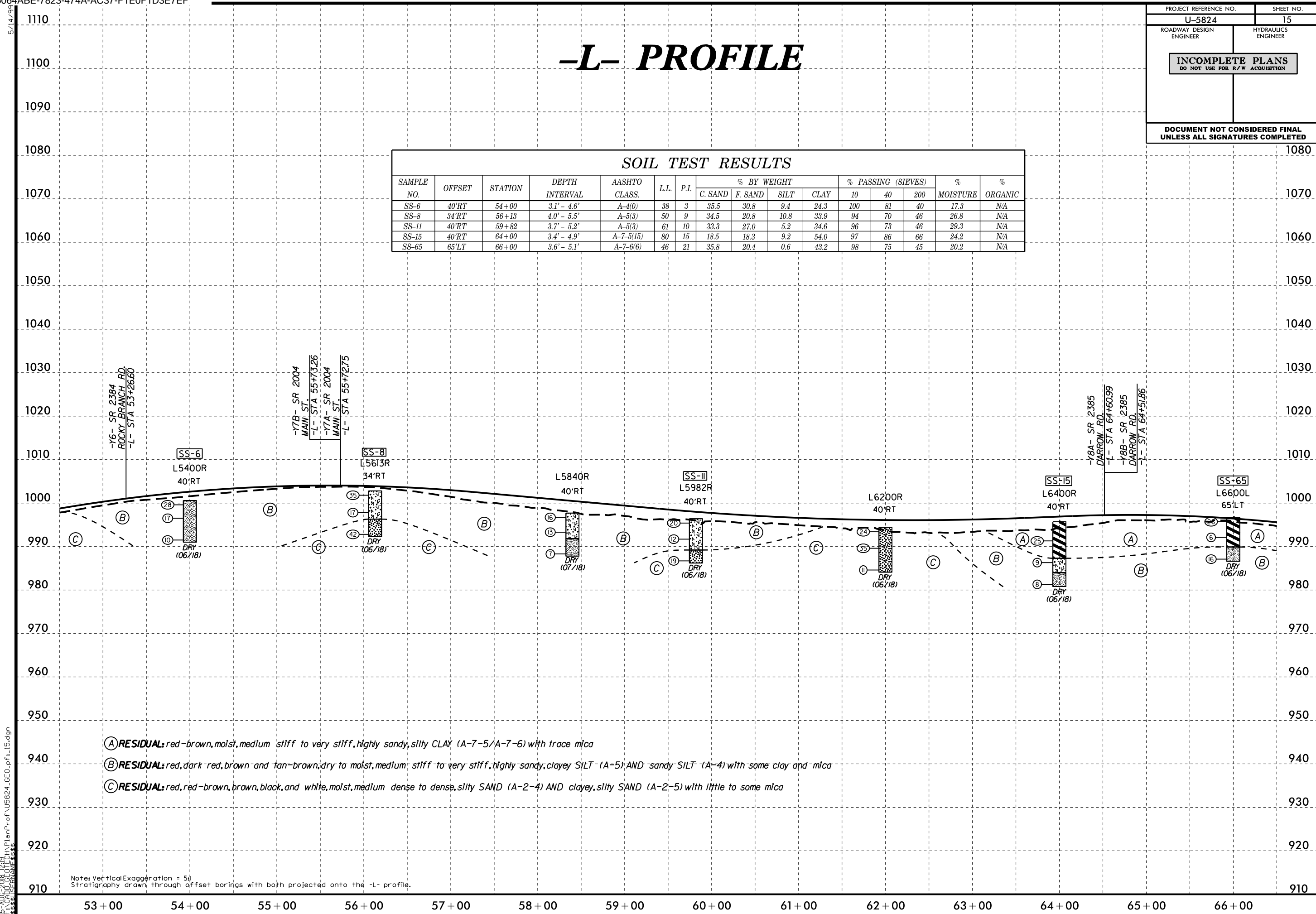
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\$\$\$\$\$STRAND\$\$\$\$\$

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|---|------------------------|
| PROJECT REFERENCE NO. U-5824 | SHEET NO. 15 |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION | |
| DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED | |

-L- PROFILE

| SAMPLE NO. | OFFSET | STATION | DEPTH INTERVAL | AASHTO CLASS. | L.L. | P.I. | % BY WEIGHT | | | | % PASSING (SIEVES) | | | % MOISTURE | % ORGANIC |
|------------|--------|---------|----------------|---------------|------|------|-------------|---------|-------|-------------|--------------------|----|-----|------------|-----------|
| | | | | | | | C. SAND | F. SAND | SILT | CLAY | 10 | 40 | 200 | | |
| | | | | | | | SS-6 | 40'RT | 54+00 | 3.1' - 4.6' | A-4(0) | 38 | 3 | | |
| SS-8 | 34'RT | 56+13 | 4.0' - 5.5' | A-5(3) | 50 | 9 | 34.5 | 20.8 | 10.8 | 33.9 | 94 | 70 | 46 | 26.8 | NA |
| SS-11 | 40'RT | 59+82 | 3.7' - 5.2' | A-5(3) | 61 | 10 | 33.3 | 27.0 | 5.2 | 34.6 | 96 | 73 | 46 | 29.3 | NA |
| SS-15 | 40'RT | 64+00 | 3.4' - 4.9' | A-7-5(15) | 80 | 15 | 18.5 | 18.3 | 9.2 | 54.0 | 97 | 86 | 66 | 24.2 | NA |
| SS-65 | 65'LT | 66+00 | 3.6' - 5.1' | A-7-6(6) | 46 | 21 | 35.8 | 20.4 | 0.6 | 43.2 | 98 | 75 | 45 | 20.2 | NA |



- (A) RESIDUAL: red-brown, moist, medium stiff to very stiff, highly sandy, silty CLAY (A-7-5/A-7-6) with trace mica
- (B) RESIDUAL: red, dark red, brown and tan-brown, dry to moist, medium stiff to very stiff, highly sandy, clayey SILT (A-5) AND sandy SILT (A-4) with some clay and mica
- (C) RESIDUAL: red, red-brown, brown, black, and white, moist, medium dense to dense, silty SAND (A-2-4) AND clayey, silty SAND (A-2-5) with little to some mica

Note: Vertical Exaggeration = 5x
Stratigraphy drawn through offset borings with both projected onto the -L- profile.

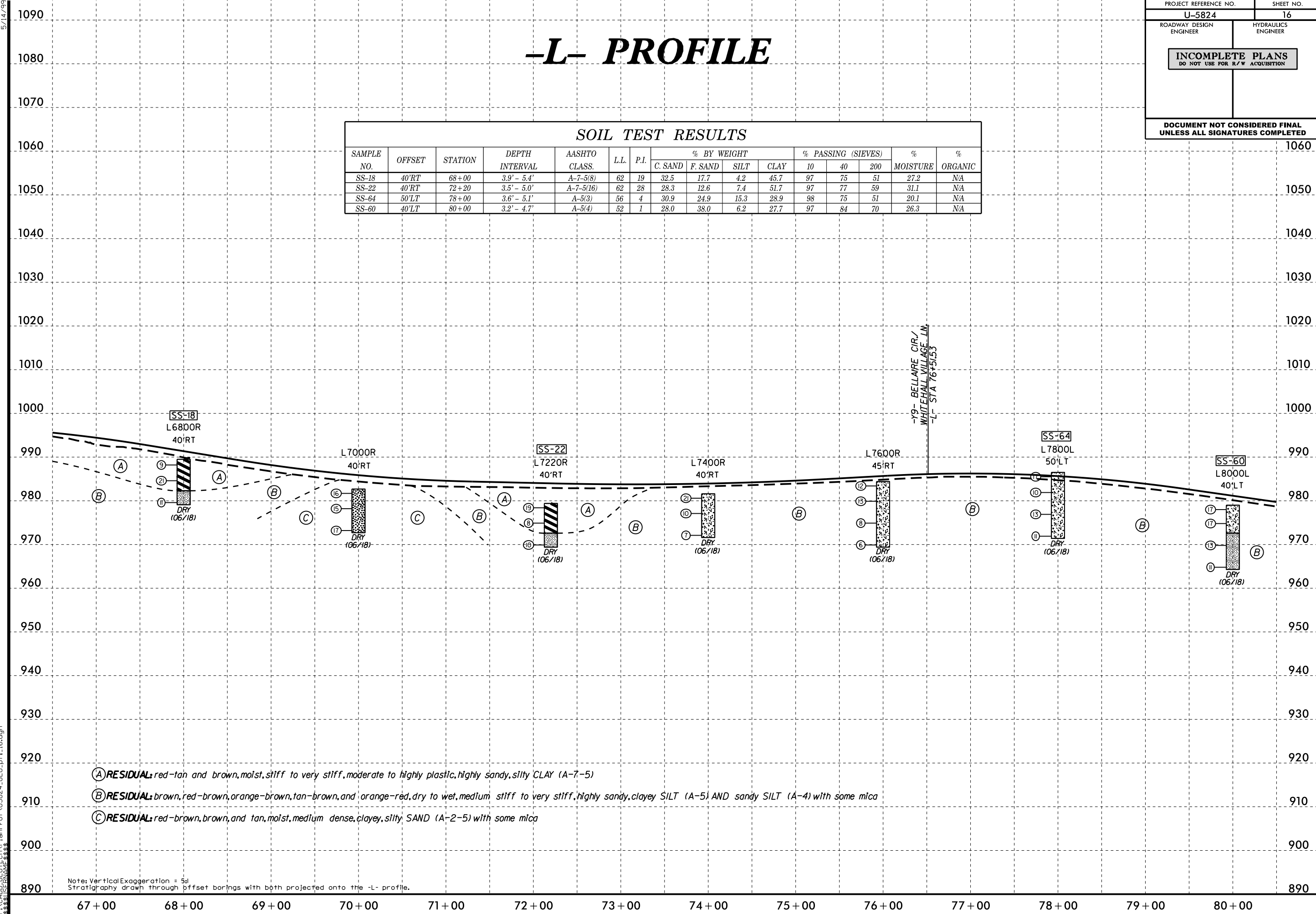
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|---|------------------------|
| PROJECT REFERENCE NO. U-5824 | SHEET NO. 16 |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION | |
| DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED | |

-L- PROFILE

| SOIL TEST RESULTS | | | | | | | | | | | | | | | |
|-------------------|--------|---------|----------------|---------------|-----|------|-------------|---------|------|------|--------------------|----|-----|------------|-----------|
| SAMPLE NO. | OFFSET | STATION | DEPTH INTERVAL | AASHTO CLASS. | LL. | P.I. | % BY WEIGHT | | | | % PASSING (SIEVES) | | | % MOISTURE | % ORGANIC |
| | | | | | | | C. SAND | F. SAND | SILT | CLAY | 10 | 40 | 200 | | |
| SS-18 | 40'RT | 68+00 | 3.9' - 5.4' | A-7-5(8) | 62 | 19 | 32.5 | 17.7 | 4.2 | 45.7 | 97 | 75 | 51 | 27.2 | NA |
| SS-22 | 40'RT | 72+20 | 3.5' - 5.0' | A-7-5(16) | 62 | 28 | 28.3 | 12.6 | 7.4 | 51.7 | 97 | 77 | 59 | 31.1 | NA |
| SS-64 | 50'LT | 78+00 | 3.6' - 5.1' | A-5(3) | 56 | 4 | 30.9 | 24.9 | 15.3 | 28.9 | 98 | 75 | 51 | 20.1 | NA |
| SS-60 | 40'LT | 80+00 | 3.2' - 4.7' | A-5(4) | 52 | 1 | 28.0 | 38.0 | 6.2 | 27.7 | 97 | 84 | 70 | 26.3 | NA |



- (A) RESIDUAL: red-tan and brown, moist, stiff to very stiff, moderate to highly plastic, highly sandy, silty CLAY (A-7-5)
- (B) RESIDUAL: brown, red-brown, orange-brown, tan-brown, and orange-red, dry to wet, medium stiff to very stiff, highly sandy, clayey SILT (A-5) AND sandy SILT (A-4) with some mica
- (C) RESIDUAL: red-brown, brown, and tan, moist, medium dense, clayey, silty SAND (A-2-5) with some mica

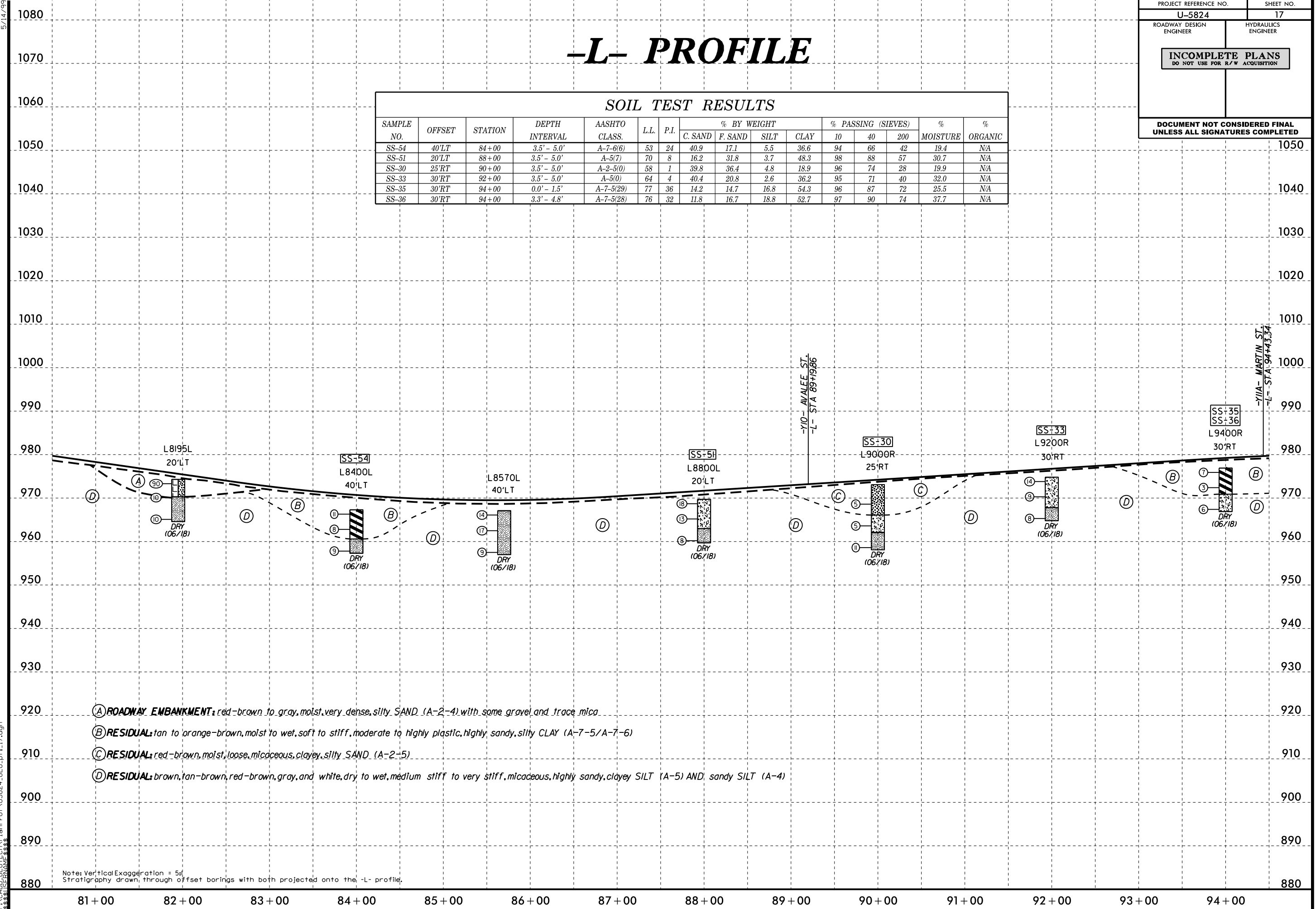
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|---|------------------------|
| PROJECT REFERENCE NO. U-5824 | SHEET NO. 17 |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION | |
| DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED | |

-L- PROFILE

| SAMPLE NO. | OFFSET | STATION | DEPTH INTERVAL | AASHTO CLASS. | L.L. | P.I. | % BY WEIGHT | | | | % PASSING (SIEVES) | | | % MOISTURE | % ORGANIC |
|------------|--------|---------|----------------|---------------|------|------|-------------|---------|------|------|--------------------|----|-----|------------|-----------|
| | | | | | | | C. SAND | F. SAND | SILT | CLAY | 10 | 40 | 200 | | |
| | | | | | | | | | | | | | | | |
| SS-54 | 40'LT | 84+00 | 3.5' - 5.0' | A-7-6(6) | 53 | 24 | 40.9 | 17.1 | 5.5 | 36.6 | 94 | 66 | 42 | 19.4 | N/A |
| SS-51 | 20'LT | 88+00 | 3.5' - 5.0' | A-5(7) | 70 | 8 | 16.2 | 31.8 | 3.7 | 48.3 | 98 | 88 | 57 | 30.7 | N/A |
| SS-30 | 25'RT | 90+00 | 3.5' - 5.0' | A-2-5(0) | 58 | 1 | 39.8 | 36.4 | 4.8 | 18.9 | 96 | 74 | 28 | 19.9 | N/A |
| SS-33 | 30'RT | 92+00 | 3.5' - 5.0' | A-5(0) | 64 | 4 | 40.4 | 20.8 | 2.6 | 36.2 | 95 | 71 | 40 | 32.0 | N/A |
| SS-35 | 30'RT | 94+00 | 0.0' - 1.5' | A-7-5(29) | 77 | 36 | 14.2 | 14.7 | 16.8 | 54.3 | 96 | 87 | 72 | 25.5 | N/A |
| SS-36 | 30'RT | 94+00 | 3.3' - 4.8' | A-7-5(28) | 76 | 32 | 11.8 | 16.7 | 18.8 | 52.7 | 97 | 90 | 74 | 37.7 | N/A |



- (A) **ROADWAY EMBANKMENT:** red-brown to gray, moist, very dense, silty SAND (A-2-4) with some gravel and trace mica
- (B) **RESIDUAL:** tan to orange-brown, moist to wet, soft to stiff, moderate to highly plastic, highly sandy, silty CLAY (A-7-5/A-7-6)
- (C) **RESIDUAL:** red-brown, moist, loose, micaceous, clayey, silty SAND (A-2-5)
- (D) **RESIDUAL:** brown, tan-brown, red-brown, gray, and white, dry to wet, medium stiff to very stiff, micaceous, highly sandy, clayey SILT (A-5) AND; sandy SILT (A-4)

Note: Vertical Exaggeration = 5x
Stratigraphy drawn through offset borings with both projected onto the -L- profile.

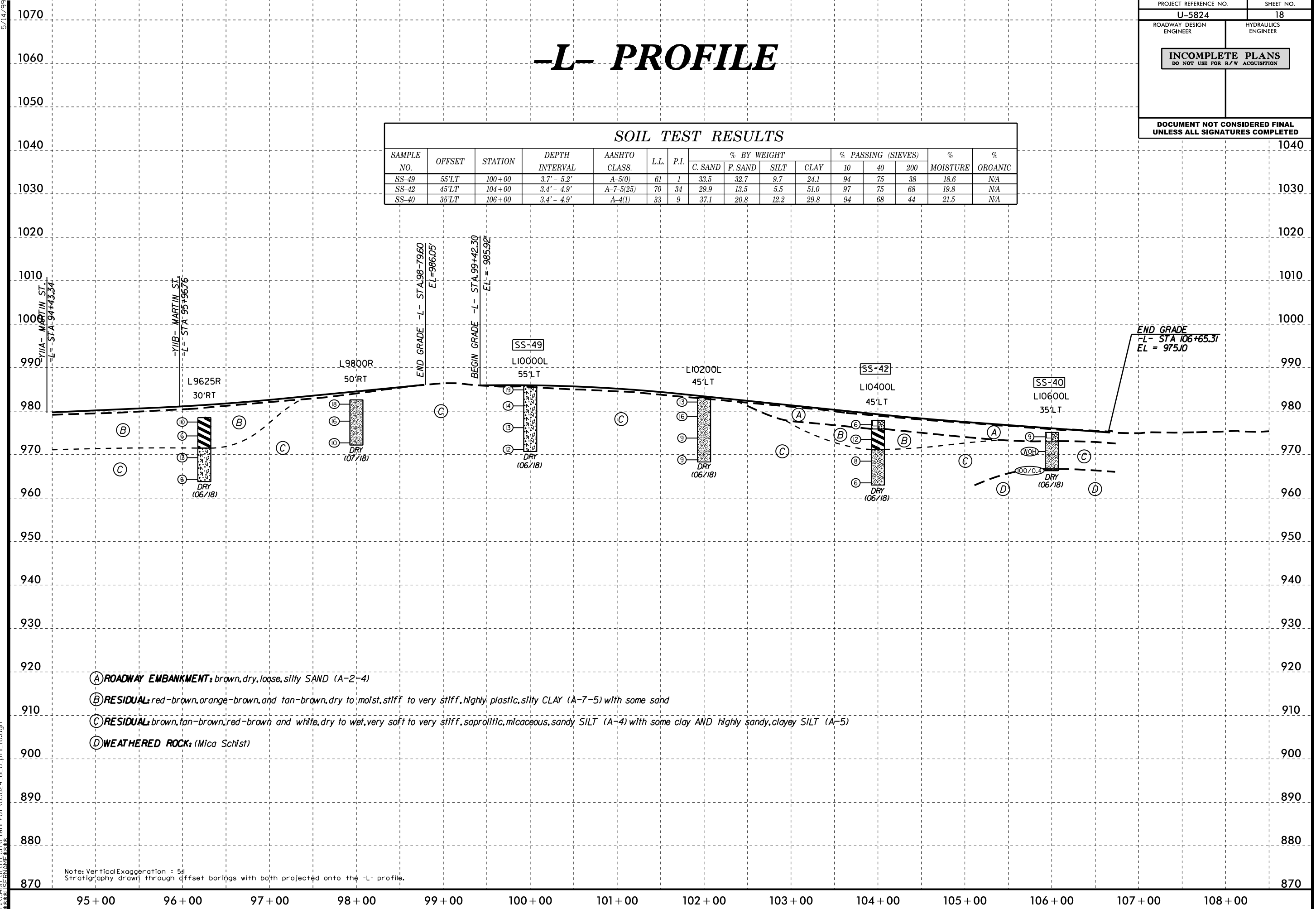
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| | |
|---|------------------------|
| PROJECT REFERENCE NO. U-5824 | SHEET NO. 18 |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION | |
| DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED | |

-L- PROFILE

| SAMPLE NO. | OFFSET | STATION | DEPTH INTERVAL | AASHTO CLASS. | L.L. | P.I. | % BY WEIGHT | | | | % PASSING (SIEVES) | | | % MOISTURE | % ORGANIC |
|------------|--------|---------|----------------|---------------|------|------|-------------|---------|--------|-------------|--------------------|----|-----|------------|-----------|
| | | | | | | | C. SAND | F. SAND | SILT | CLAY | 10 | 40 | 200 | | |
| | | | | | | | SS-49 | 55'LT | 100+00 | 3.7' - 5.2' | A-5(0) | 61 | 1 | | |
| SS-42 | 45'LT | 104+00 | 3.4' - 4.9' | A-7-5(25) | 70 | 34 | 29.9 | 13.5 | 5.5 | 51.0 | 97 | 75 | 68 | 19.8 | NA |
| SS-40 | 35'LT | 106+00 | 3.4' - 4.9' | A-4(1) | 33 | 9 | 37.1 | 20.8 | 12.2 | 29.8 | 94 | 68 | 44 | 21.5 | NA |

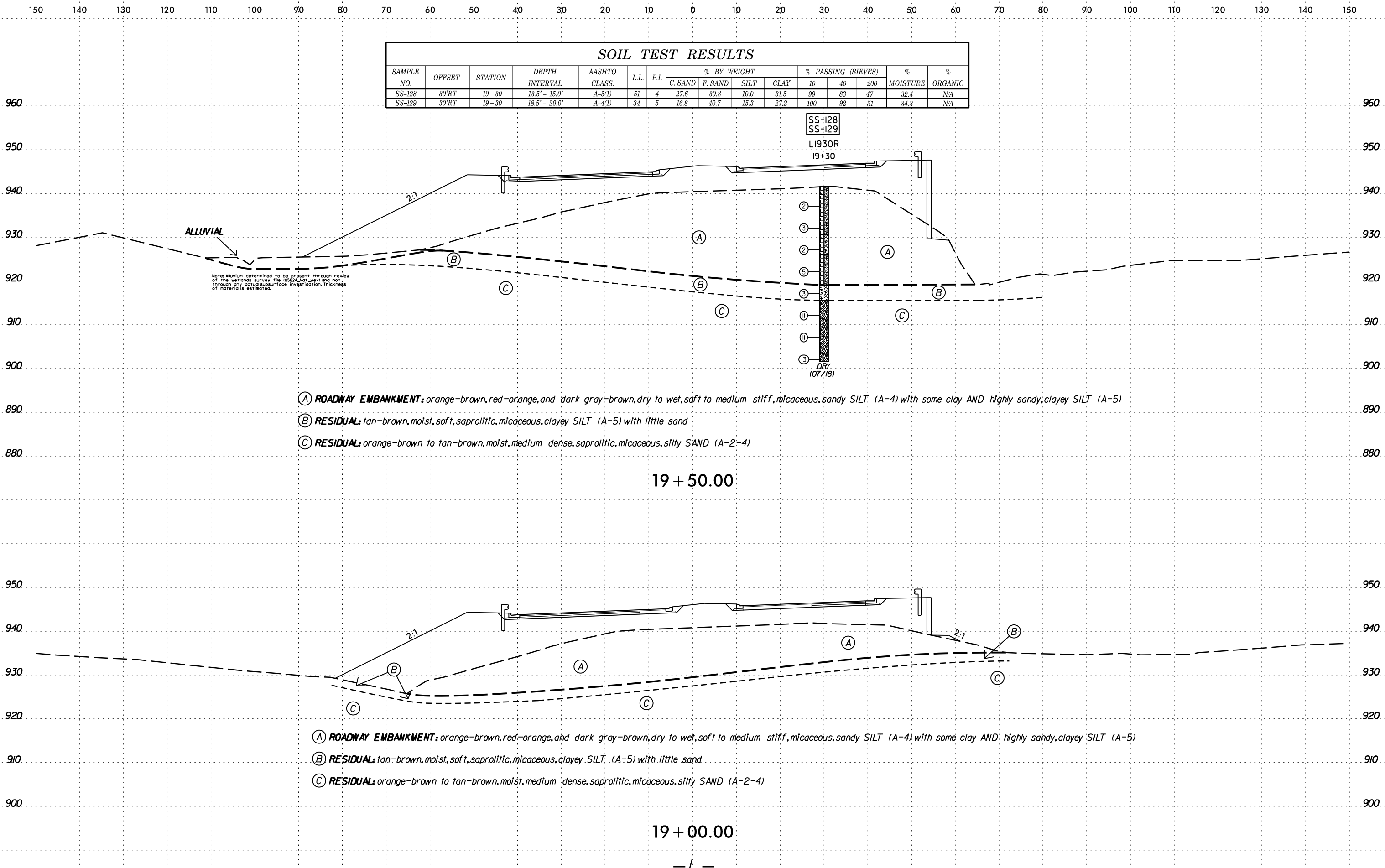


- (A) ROADWAY EMBANKMENT: brown, dry, loose, silty SAND (A-2-4)
- (B) RESIDUAL: red-brown, orange-brown, and tan-brown, dry to moist, stiff to very stiff, highly plastic, silty CLAY (A-7-5) with some sand
- (C) RESIDUAL: brown, tan-brown, red-brown and white, dry to wet, very soft to very stiff, saprolitic, micaceous, sandy SILT (A-4) with some clay AND highly sandy, clayey SILT (A-5)
- (D) WEATHERED ROCK: (Mica Schist)

Note: Vertical Exaggeration = 5x
Stratigraphy drawn through offset borings with both projected onto the -L- profile.

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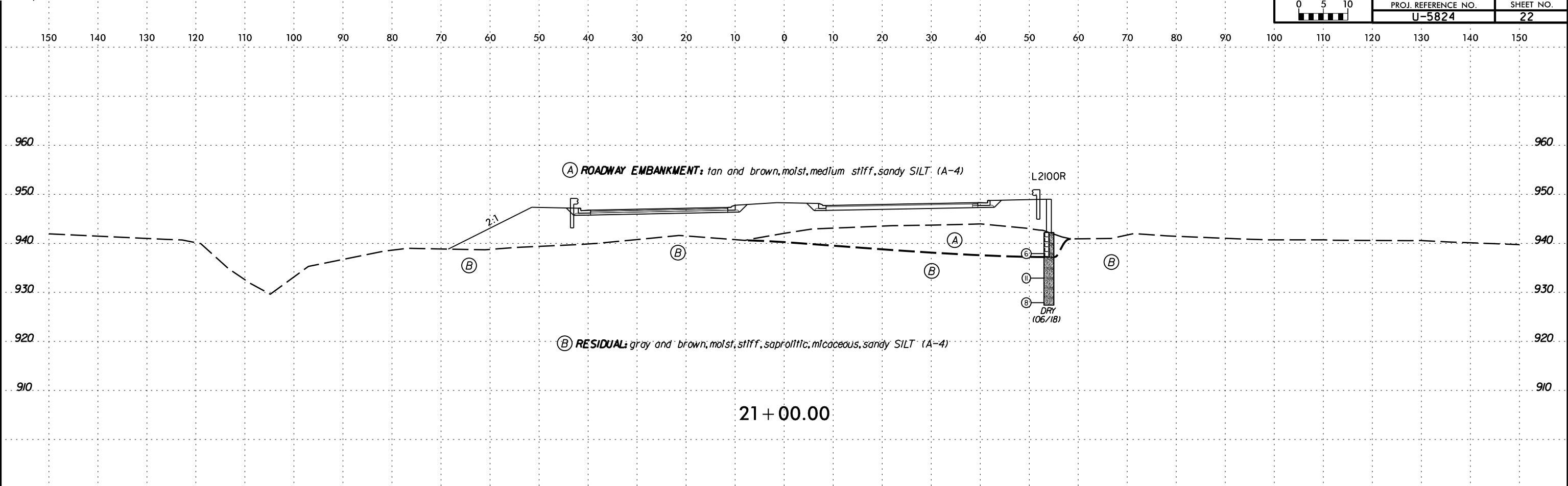
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|-------------------|--------|---------|----------------|---------------|------|------|-------------|---------|------|------|--------------------|----|-----|------------|-----------|
| SAMPLE NO. | OFFSET | STATION | DEPTH INTERVAL | AASHTO CLASS. | L.L. | P.I. | % BY WEIGHT | | | | % PASSING (SIEVES) | | | % MOISTURE | % ORGANIC |
| | | | | | | | C. SAND | F. SAND | SILT | CLAY | 10 | 40 | 200 | | |
| SS-128 | 30'RT | 19+30 | 13.5' - 15.0' | A-5(1) | 51 | 4 | 27.6 | 30.8 | 10.0 | 31.5 | 99 | 83 | 47 | 32.4 | NA |
| SS-129 | 30'RT | 19+30 | 18.5' - 20.0' | A-4(1) | 34 | 5 | 16.8 | 40.7 | 15.3 | 27.2 | 100 | 92 | 51 | 34.3 | NA |



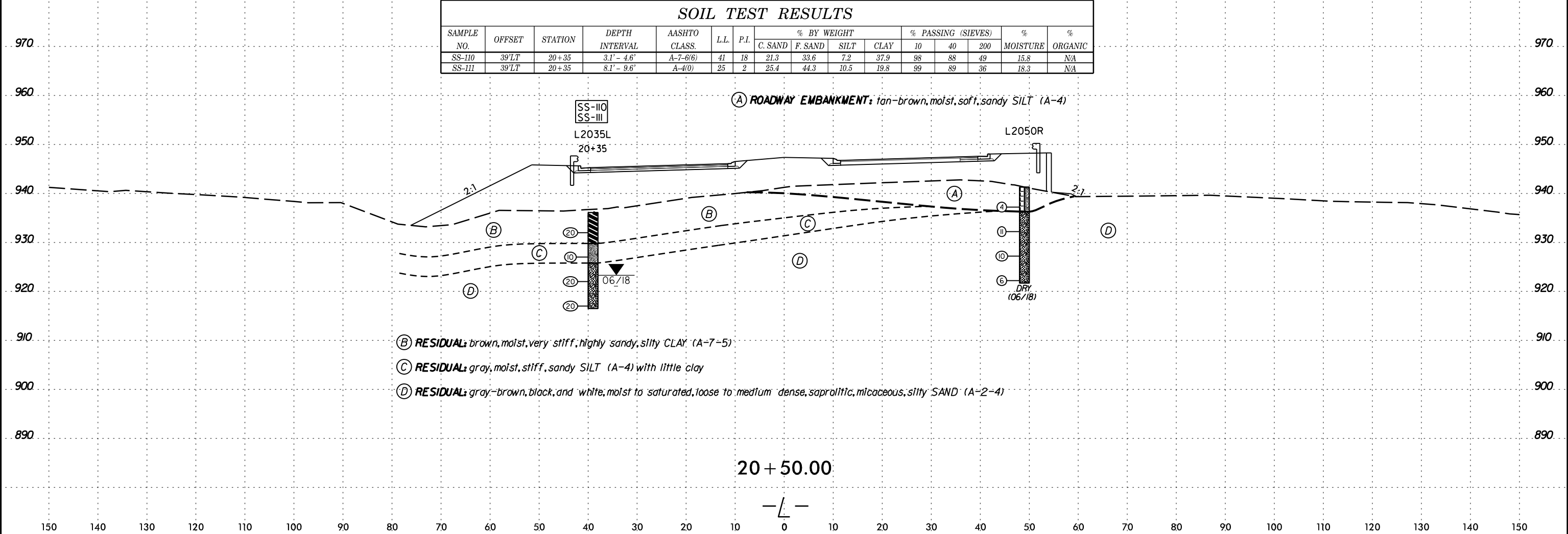
- (A) **ROADWAY EMBANKMENT:** orange-brown, red-orange, and dark gray-brown, dry to wet, soft to medium stiff, micaceous, sandy SILT (A-4) with some clay AND highly sandy, clayey SILT (A-5)
- (B) **RESIDUAL:** tan-brown, moist, soft, saprolitic, micaceous, clayey SILT (A-5) with little sand
- (C) **RESIDUAL:** orange-brown to tan-brown, moist, medium dense, saprolitic, micaceous, silty SAND (A-2-4)

- (A) **ROADWAY EMBANKMENT:** orange-brown, red-orange, and dark gray-brown, dry to wet, soft to medium stiff, micaceous, sandy SILT (A-4) with some clay AND highly sandy, clayey SILT (A-5)
- (B) **RESIDUAL:** tan-brown, moist, soft, saprolitic, micaceous, clayey SILT (A-5) with little sand
- (C) **RESIDUAL:** orange-brown to tan-brown, moist, medium dense, saprolitic, micaceous, silty SAND (A-2-4)

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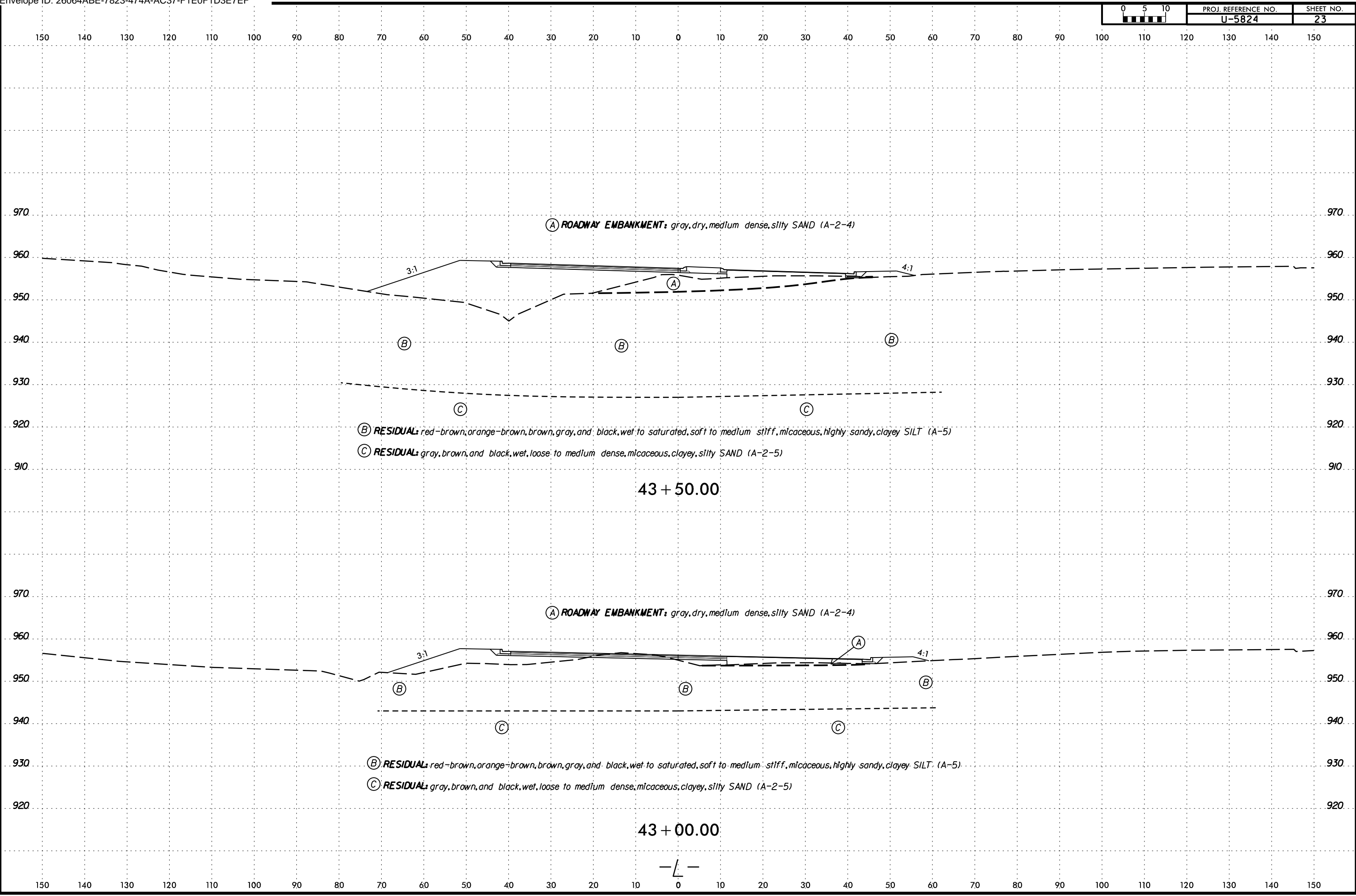
| SOIL TEST RESULTS | | | | | | | | | | | | | | | |
|-------------------|--------|---------|----------------|---------------|------|------|-------------|---------|------|------|--------------------|----|-----|------------|-----------|
| SAMPLE NO. | OFFSET | STATION | DEPTH INTERVAL | AASHTO CLASS. | L.L. | P.I. | % BY WEIGHT | | | | % PASSING (SIEVES) | | | % MOISTURE | % ORGANIC |
| | | | | | | | C. SAND | F. SAND | SILT | CLAY | 10 | 40 | 200 | | |
| SS-110 | 39'LT | 20+35 | 3.1' - 4.6' | A-7-6(6) | 41 | 18 | 21.3 | 33.6 | 7.2 | 37.9 | 98 | 88 | 49 | 15.8 | N/A |
| SS-111 | 39'LT | 20+35 | 8.1' - 9.6' | A-4(0) | 25 | 2 | 25.4 | 44.3 | 10.5 | 19.8 | 99 | 89 | 36 | 18.3 | N/A |



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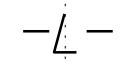


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43 + 50.00

43 + 00.00

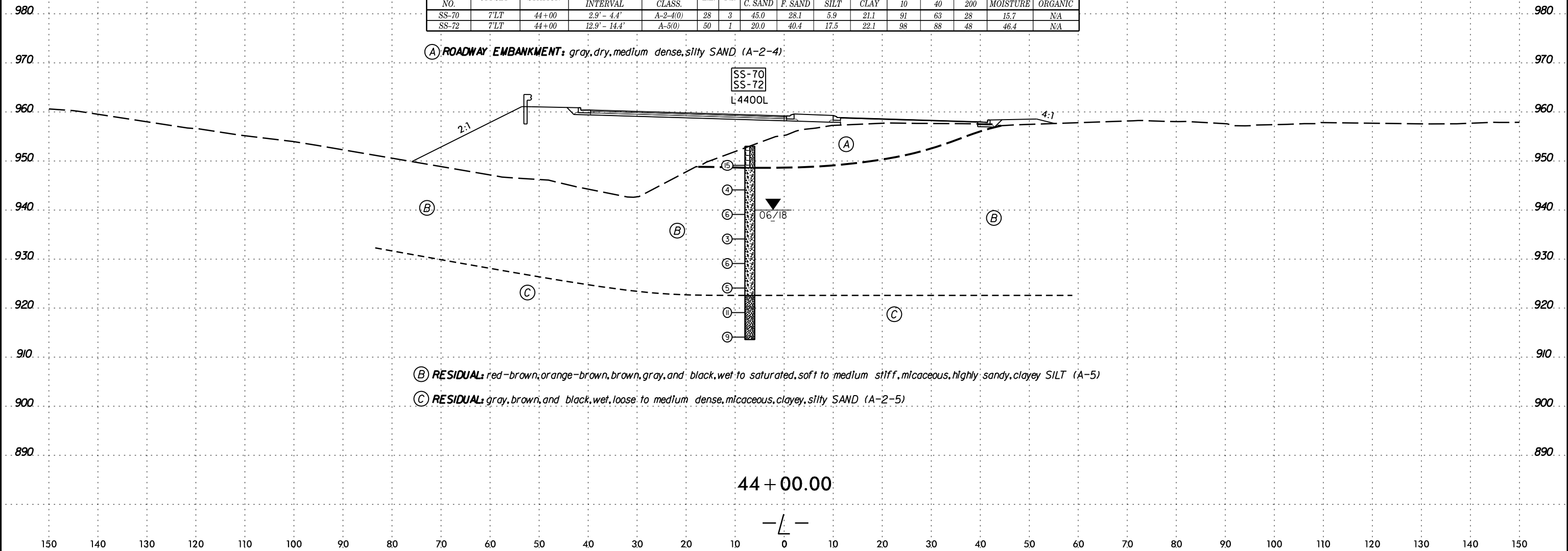




| SOIL TEST RESULTS | | | | | | | | | | | | | | | |
|-------------------|--------|---------|----------------|---------------|------|------|-------------|---------|------|------|--------------------|----|-----|------------|-----------|
| SAMPLE NO. | OFFSET | STATION | DEPTH INTERVAL | AASHTO CLASS. | L.L. | P.I. | % BY WEIGHT | | | | % PASSING (SIEVES) | | | % MOISTURE | % ORGANIC |
| | | | | | | | C. SAND | F. SAND | SILT | CLAY | 10 | 40 | 200 | | |
| SS-70 | 7'LT | 44+00 | 2.9' - 4.4' | A-2-4(0) | 28 | 3 | 45.0 | 28.1 | 5.9 | 21.1 | 91 | 63 | 28 | 15.7 | NA |
| SS-72 | 7'LT | 44+00 | 12.9' - 14.4' | A-5(0) | 50 | 1 | 20.0 | 40.4 | 17.5 | 22.1 | 98 | 88 | 48 | 46.4 | NA |

(A) ROADWAY EMBANKMENT: gray, dry, medium dense, silty SAND (A-2-4)

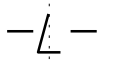
SS-70
SS-72
L4400L



(B) RESIDUAL: red-brown, orange-brown, brown, gray, and black, wet to saturated, soft to medium stiff, micaceous, highly sandy, clayey SILT (A-5)

(C) RESIDUAL: gray, brown, and black, wet, loose to medium dense, micaceous, clayey, silty SAND (A-2-5)

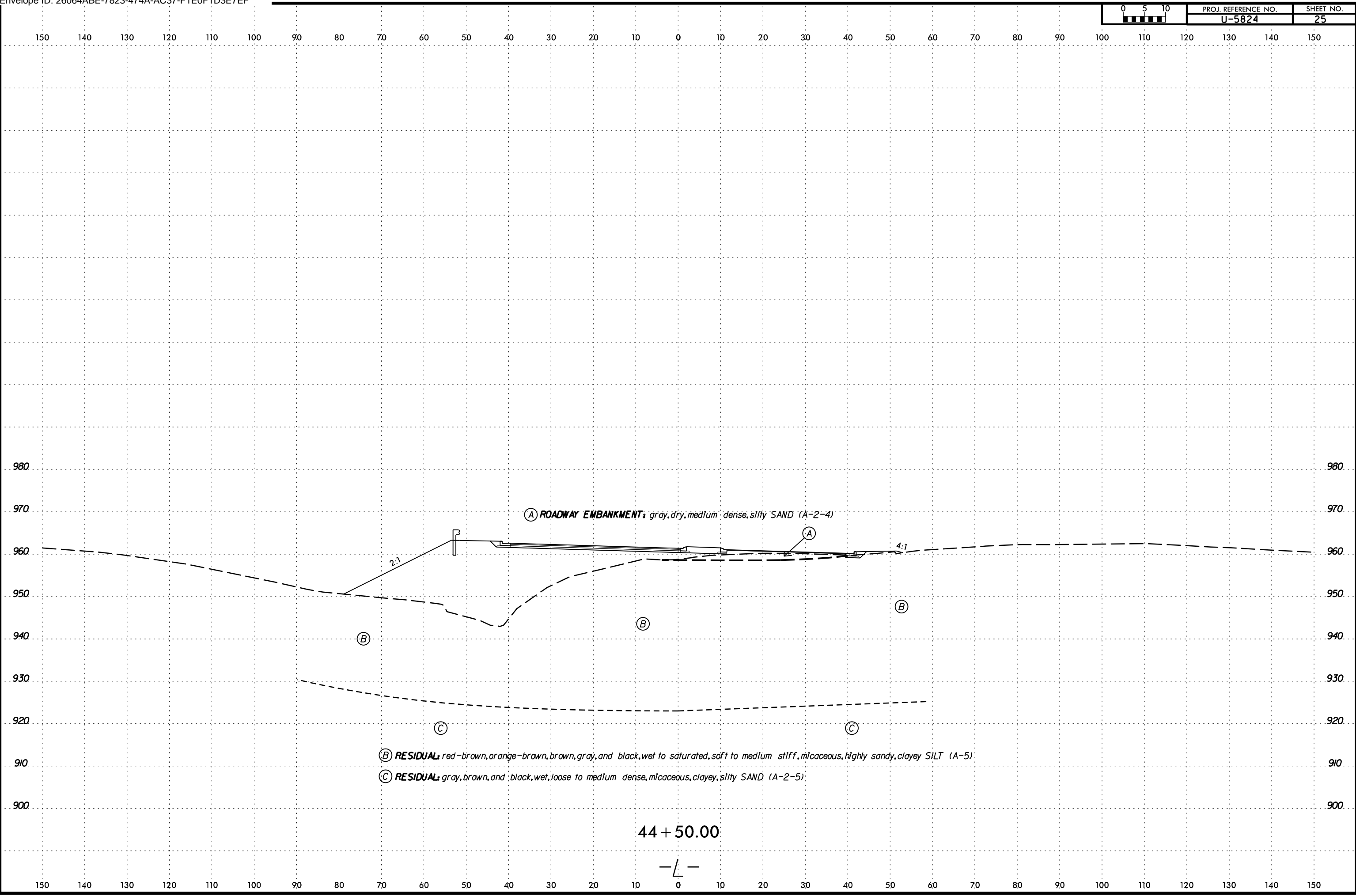
44 + 00.00



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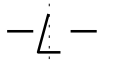


(A) ROADWAY EMBANKMENT: gray, dry, medium dense, silty SAND (A-2-4)

(B) RESIDUAL: red-brown, orange-brown, brown, gray, and black, wet to saturated, soft to medium stiff, micaceous, highly sandy, clayey SILT (A-5)

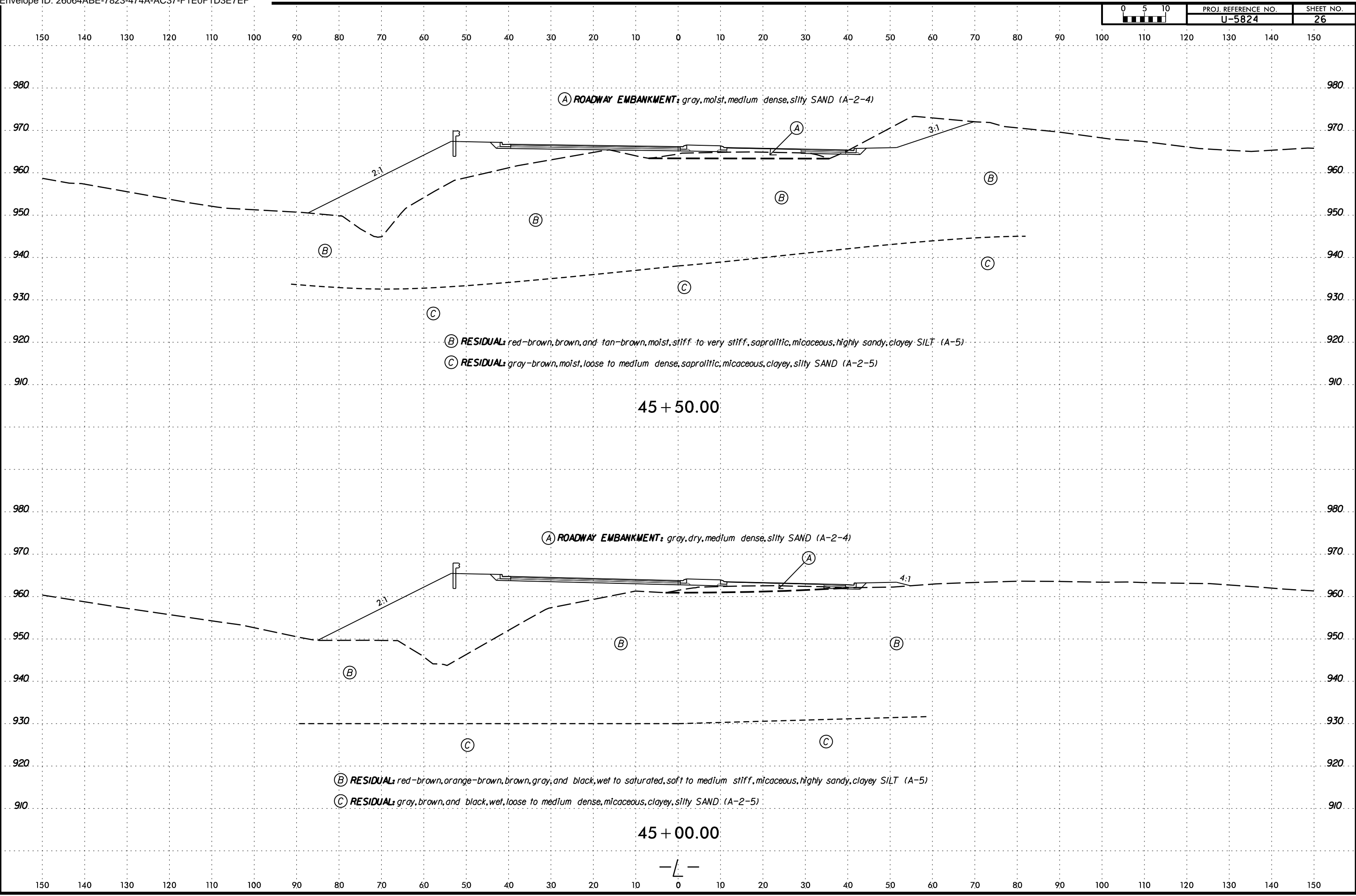
(C) RESIDUAL: gray, brown, and black, wet, loose to medium dense, micaceous, clayey, silty SAND (A-2-5)

44 + 50.00





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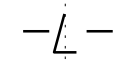
45 + 50.00

(A) ROADWAY EMBANKMENT: gray, dry, medium dense, silty SAND (A-2-4)

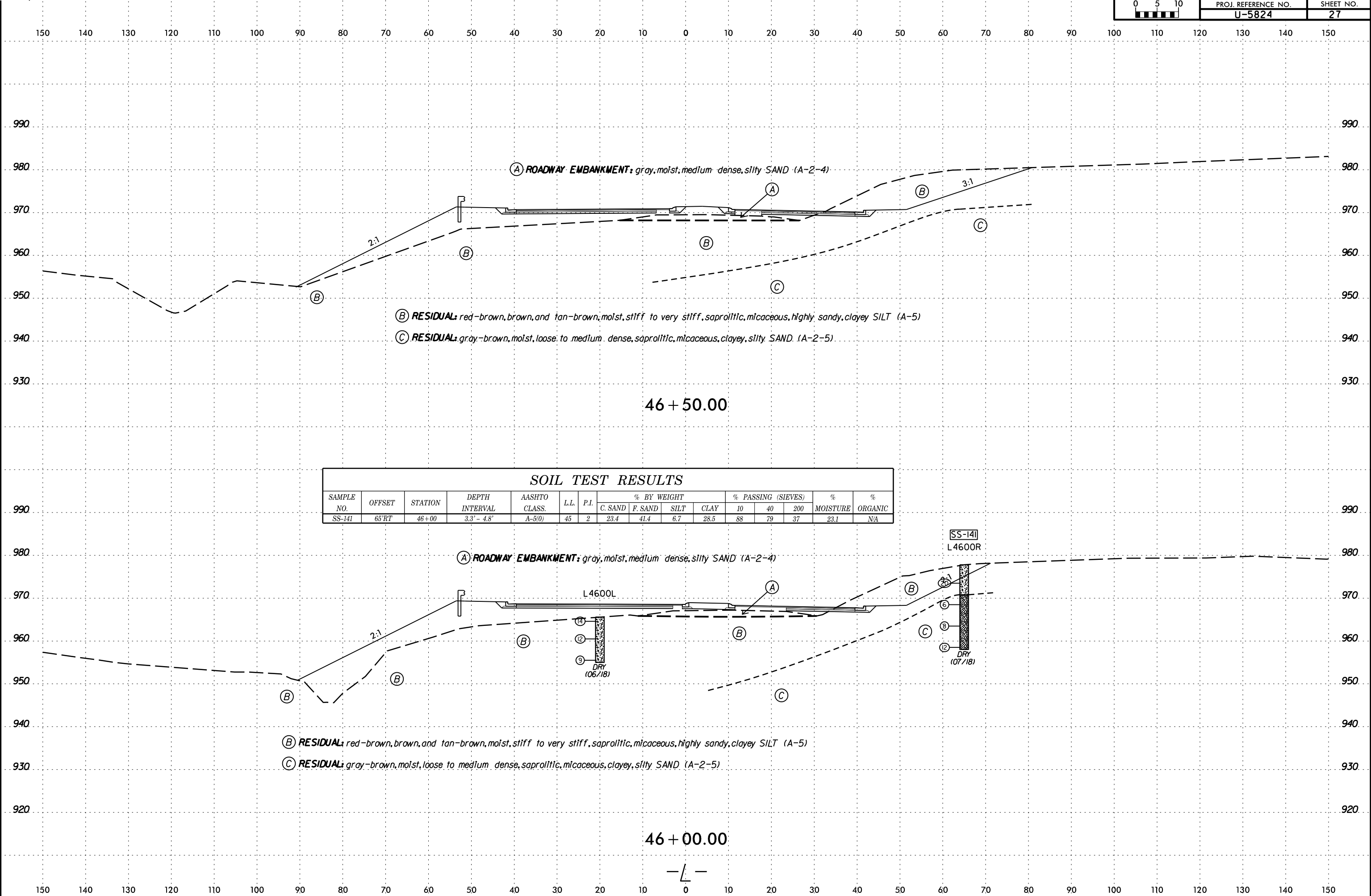
(B) RESIDUAL: red-brown, orange-brown, brown, gray, and black, wet to saturated, soft to medium stiff, micaceous, highly sandy, clayey SILT (A-5)

(C) RESIDUAL: gray, brown, and black, wet, loose to medium dense, micaceous, clayey, silty SAND (A-2-5)

45 + 00.00



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(A) ROADWAY EMBANKMENT: gray, moist, medium dense, silty SAND (A-2-4)

(B) RESIDUAL: red-brown, brown, and tan-brown, moist, stiff to very stiff, saprolitic, micaceous, highly sandy, clayey SILT (A-5)

(C) RESIDUAL: gray-brown, moist, loose to medium dense, saprolitic, micaceous, clayey, silty SAND (A-2-5)

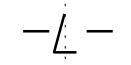
| SOIL TEST RESULTS | | | | | | | | | | | | | | | |
|-------------------|--------|---------|----------------|---------------|------|------|-------------|---------|------|------|--------------------|----|-----|------------|-----------|
| SAMPLE NO. | OFFSET | STATION | DEPTH INTERVAL | AASHTO CLASS. | L.L. | P.I. | % BY WEIGHT | | | | % PASSING (SIEVES) | | | % MOISTURE | % ORGANIC |
| | | | | | | | C. SAND | F. SAND | SILT | CLAY | 10 | 40 | 200 | | |
| SS-141 | 65'RT | 46+00 | 3.3' - 4.8' | A-5(0) | 45 | 2 | 23.4 | 41.4 | 6.7 | 28.5 | 88 | 79 | 37 | 23.1 | NA |

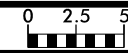
(A) ROADWAY EMBANKMENT: gray, moist, medium dense, silty SAND (A-2-4)

(B) RESIDUAL: red-brown, brown, and tan-brown, moist, stiff to very stiff, saprolitic, micaceous, highly sandy, clayey SILT (A-5)

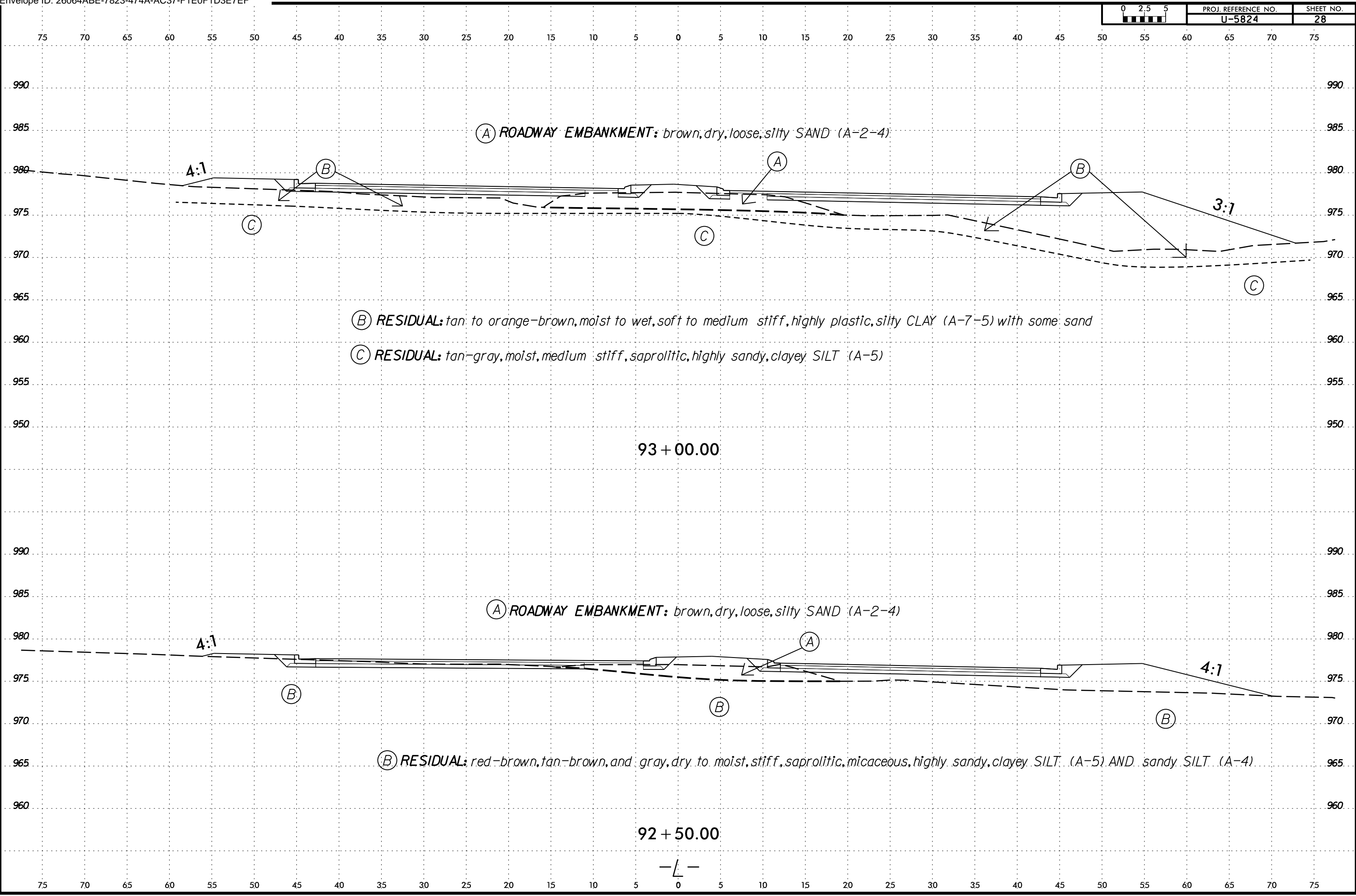
(C) RESIDUAL: gray-brown, moist, loose to medium dense, saprolitic, micaceous, clayey, silty SAND (A-2-5)

46 + 00.00





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(A) ROADWAY EMBANKMENT: brown, dry, loose, silty SAND (A-2-4)

(B) RESIDUAL: tan to orange-brown, moist to wet, soft to medium stiff, highly plastic, silty CLAY (A-7-5) with some sand

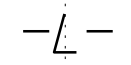
(C) RESIDUAL: tan-gray, moist, medium stiff, saprolitic, highly sandy, clayey SILT (A-5)

(A) ROADWAY EMBANKMENT: brown, dry, loose, silty SAND (A-2-4)

(B) RESIDUAL: red-brown, tan-brown, and gray, dry to moist, stiff, saprolitic, micaceous, highly sandy, clayey SILT (A-5) AND sandy SILT (A-4)

93 + 00.00

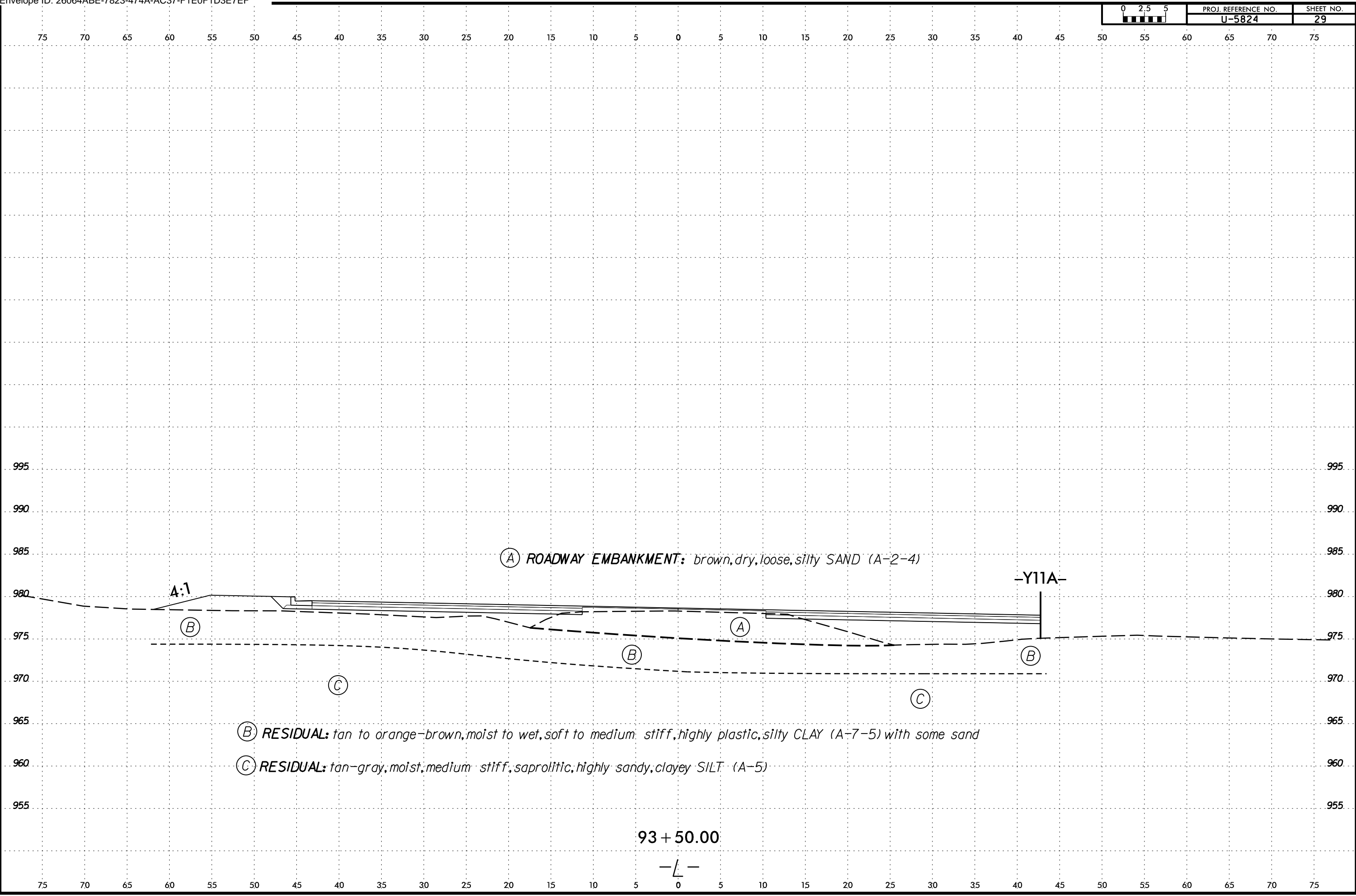
92 + 50.00





| PROJ. REFERENCE NO. | SHEET NO. |
|---------------------|-----------|
| U-5824 | 29 |

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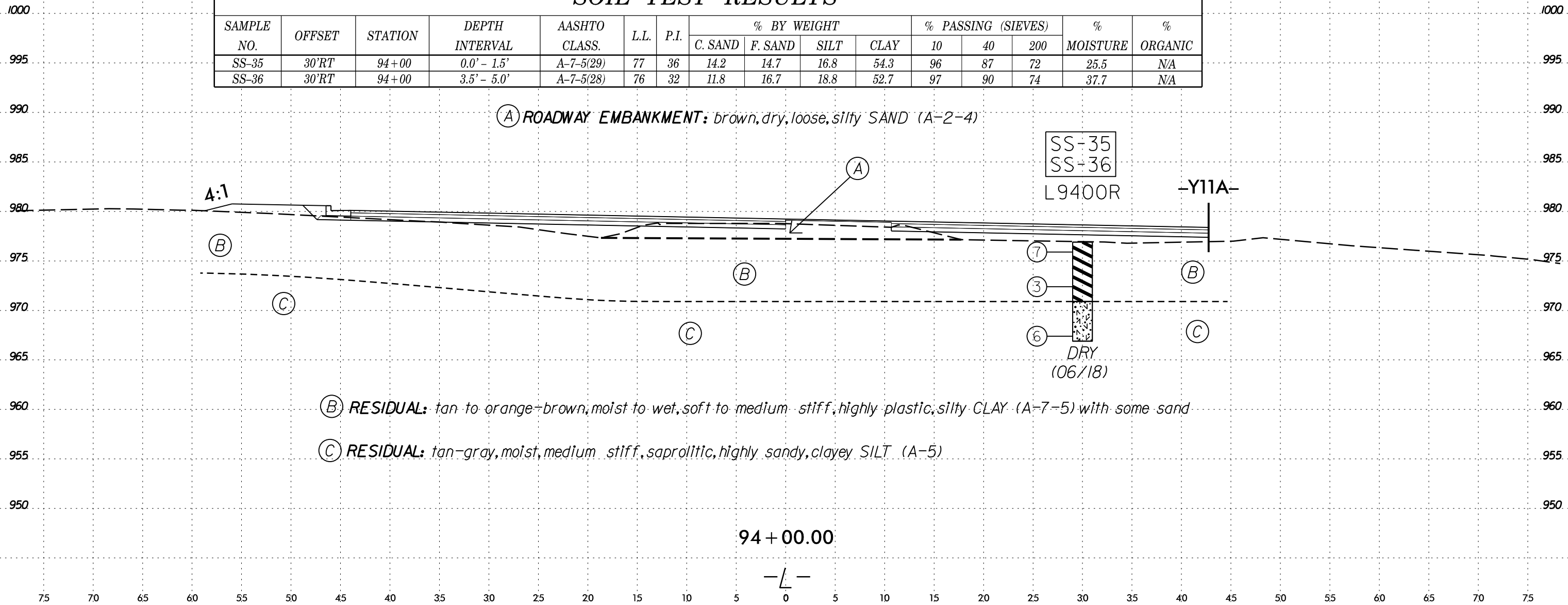


93 + 50.00





| SOIL TEST RESULTS | | | | | | | | | | | | | | | |
|-------------------|--------|---------|----------------|---------------|------|------|-------------|---------|------|------|--------------------|----|-----|------------|-----------|
| SAMPLE NO. | OFFSET | STATION | DEPTH INTERVAL | AASHTO CLASS. | L.L. | P.I. | % BY WEIGHT | | | | % PASSING (SIEVES) | | | % MOISTURE | % ORGANIC |
| | | | | | | | C. SAND | F. SAND | SILT | CLAY | 10 | 40 | 200 | | |
| SS-35 | 30'RT | 94+00 | 0.0' - 1.5' | A-7-5(29) | 77 | 36 | 14.2 | 14.7 | 16.8 | 54.3 | 96 | 87 | 72 | 25.5 | N/A |
| SS-36 | 30'RT | 94+00 | 3.5' - 5.0' | A-7-5(28) | 76 | 32 | 11.8 | 16.7 | 18.8 | 52.7 | 97 | 90 | 74 | 37.7 | N/A |



(A) ROADWAY EMBANKMENT: brown, dry, loose, silty SAND (A-2-4)

(B) RESIDUAL: tan to orange-brown, moist to wet, soft to medium stiff, highly plastic, silty CLAY (A-7-5) with some sand

(C) RESIDUAL: tan-gray, moist, medium stiff, saprolitic, highly sandy, clayey SILT (A-5)

SS-35
SS-36

L9400R

-Y11A-

7
3
6

DRY
(06/18)

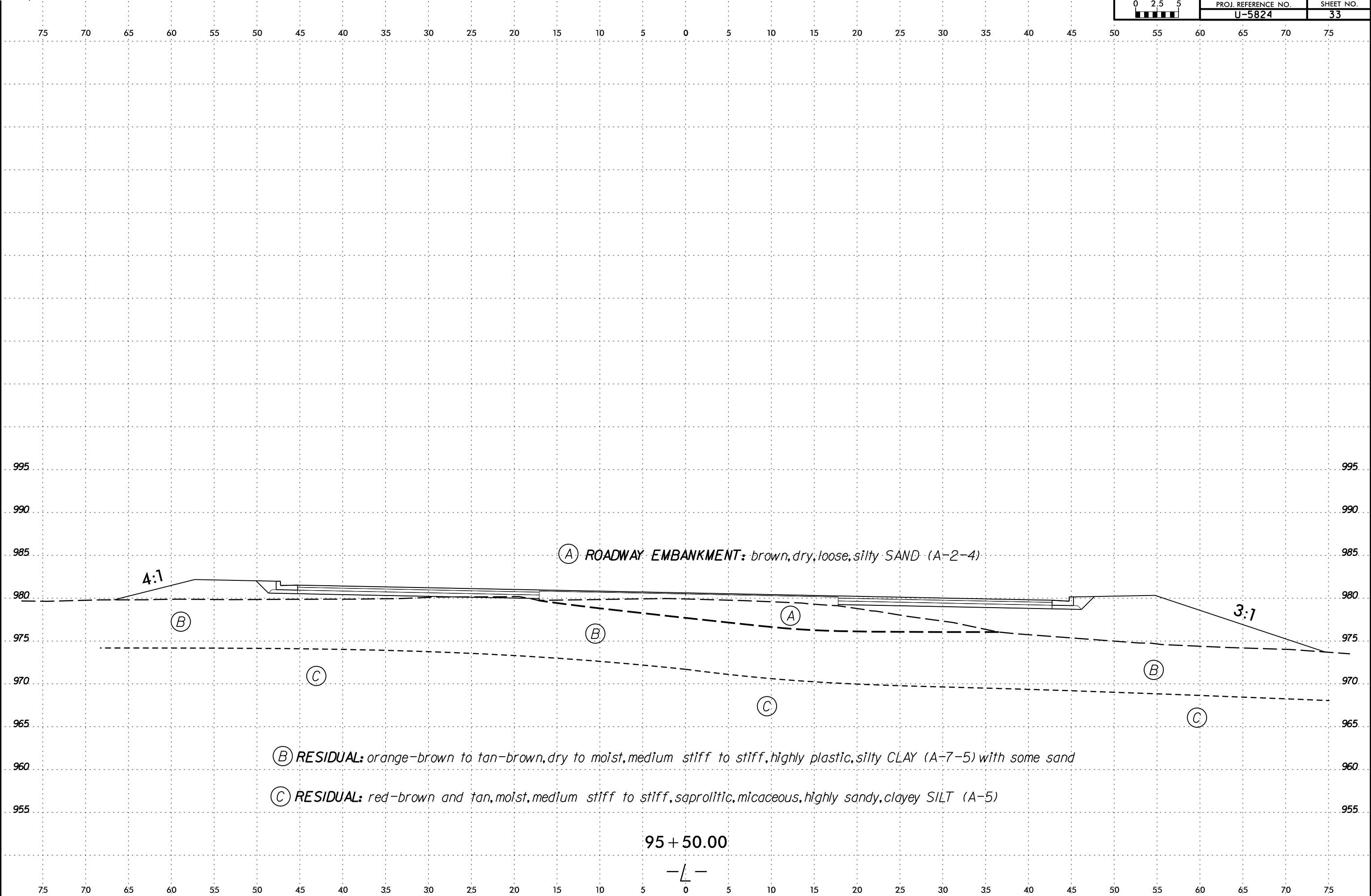
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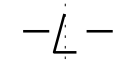


(A) ROADWAY EMBANKMENT: brown, dry, loose, silty SAND (A-2-4)

(B) RESIDUAL: orange-brown to tan-brown, dry to moist, medium stiff to stiff, highly plastic, silty CLAY (A-7-5) with some sand

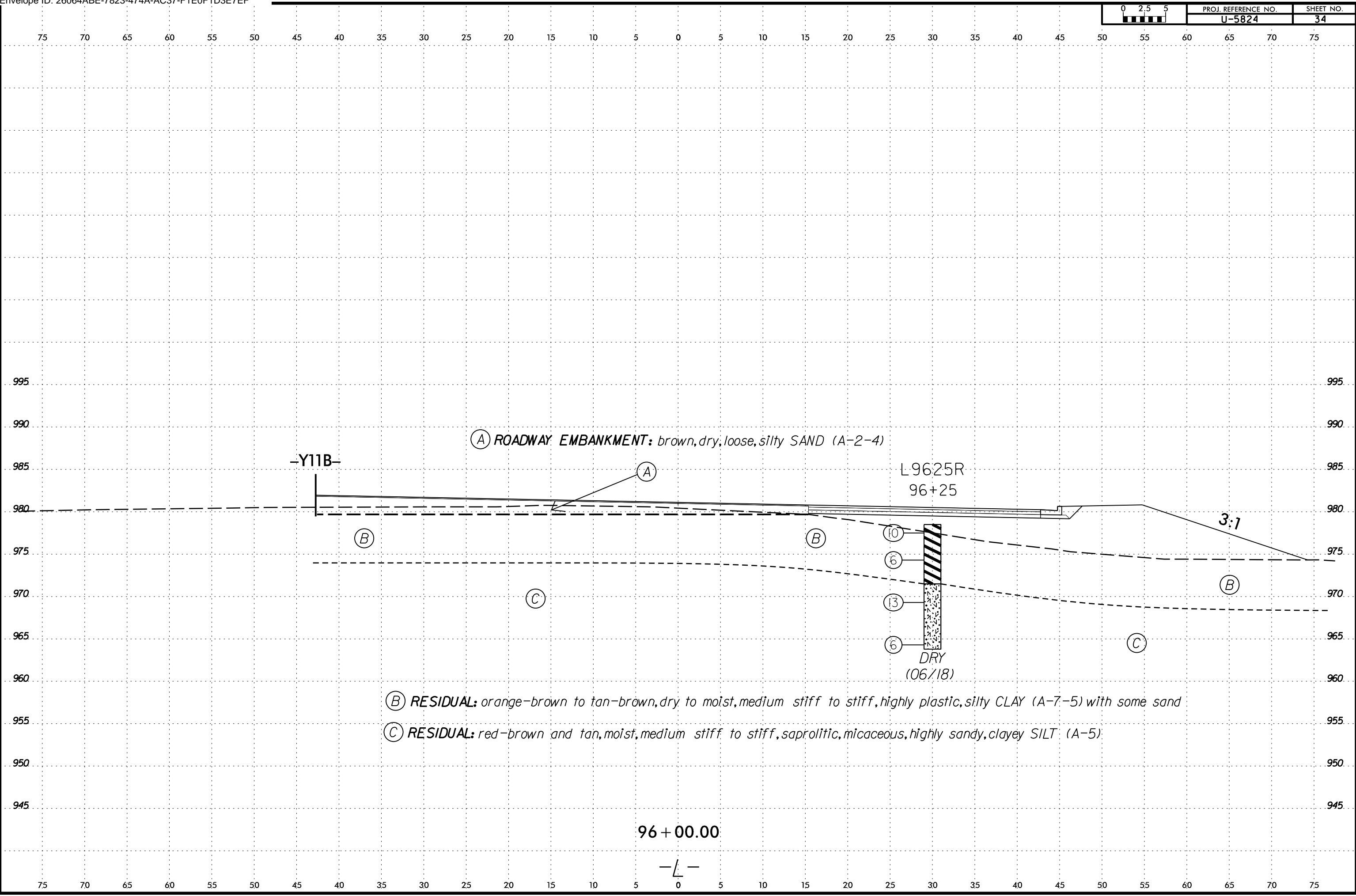
(C) RESIDUAL: red-brown and tan, moist, medium stiff to stiff, saprolitic, micaceous, highly sandy, clayey SILT (A-5)

95 + 50.00





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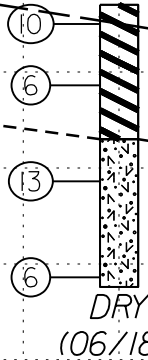


(A) ROADWAY EMBANKMENT: brown, dry, loose, silty SAND (A-2-4)

-Y11B-

L9625R
96+25

3:1



(B) RESIDUAL: orange-brown to tan-brown, dry to moist, medium stiff to stiff, highly plastic, silty CLAY (A-7-5) with some sand

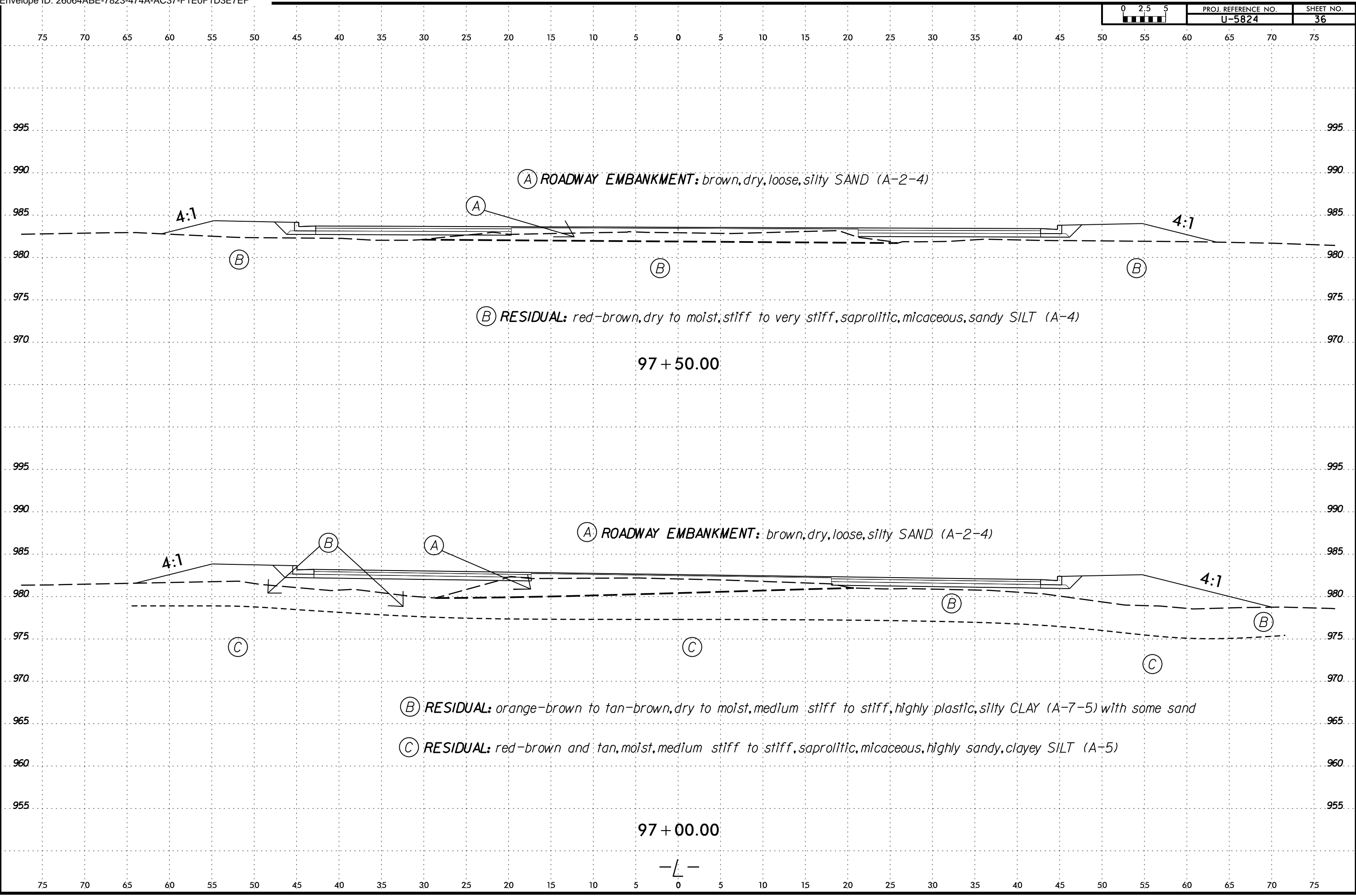
(C) RESIDUAL: red-brown and tan, moist, medium stiff to stiff, saprolitic, micaceous, highly sandy, clayey SILT (A-5)

96 + 00.00

-L-



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(A) ROADWAY EMBANKMENT: brown, dry, loose, silty SAND (A-2-4)

(B) RESIDUAL: red-brown, dry to moist, stiff to very stiff, saprolitic, micaceous, sandy SILT (A-4)

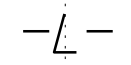
97 + 50.00

(A) ROADWAY EMBANKMENT: brown, dry, loose, silty SAND (A-2-4)

(B) RESIDUAL: orange-brown to tan-brown, dry to moist, medium stiff to stiff, highly plastic, silty CLAY (A-7-5) with some sand

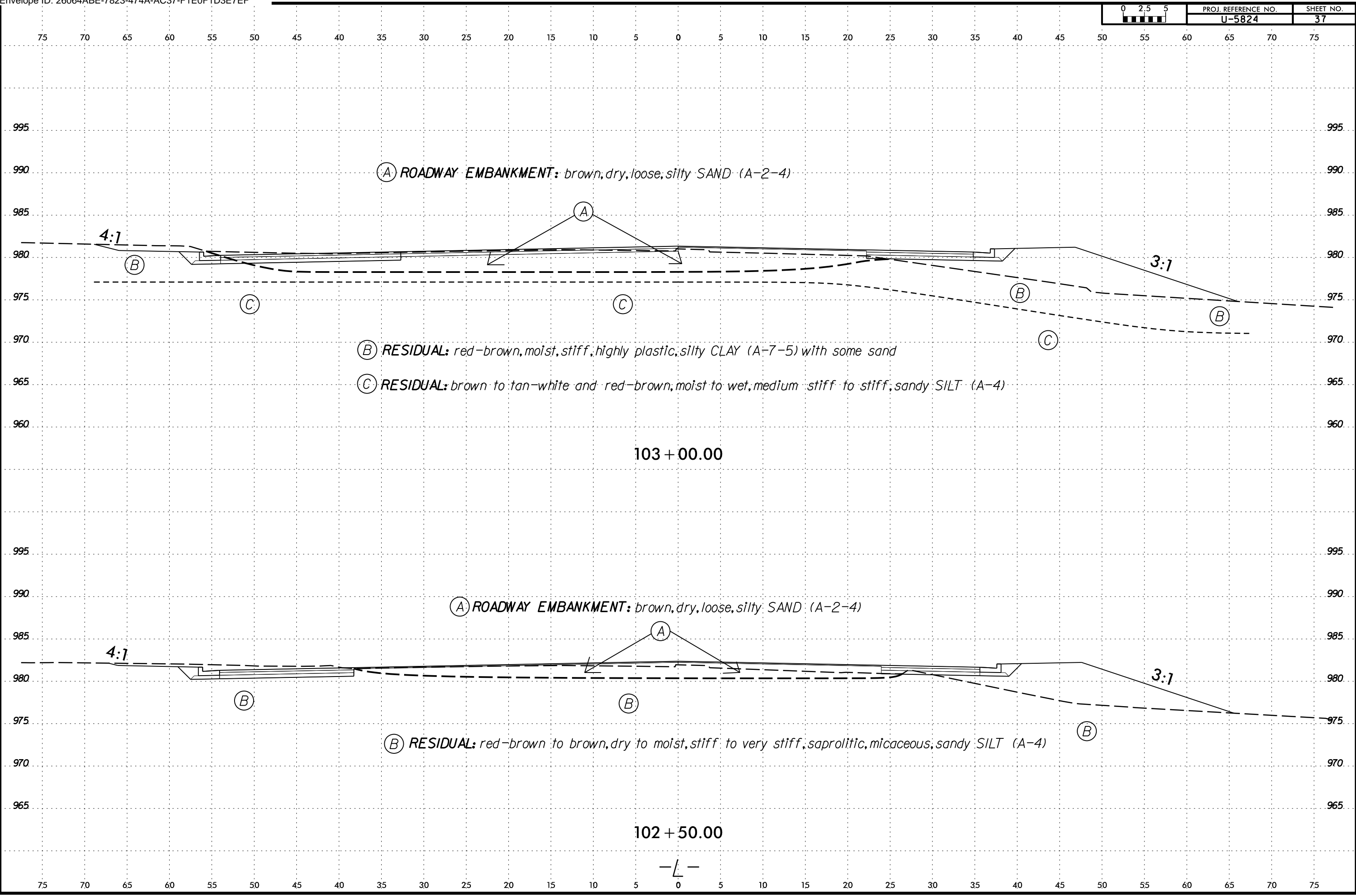
(C) RESIDUAL: red-brown and tan, moist, medium stiff to stiff, saprolitic, micaceous, highly sandy, clayey SILT (A-5)

97 + 00.00





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(A) ROADWAY EMBANKMENT: brown, dry, loose, silty SAND (A-2-4)

(B) RESIDUAL: red-brown, moist, stiff, highly plastic, silty CLAY (A-7-5) with some sand

(C) RESIDUAL: brown to tan-white and red-brown, moist to wet, medium stiff to stiff, sandy SILT (A-4)

103 + 00.00

(A) ROADWAY EMBANKMENT: brown, dry, loose, silty SAND (A-2-4)

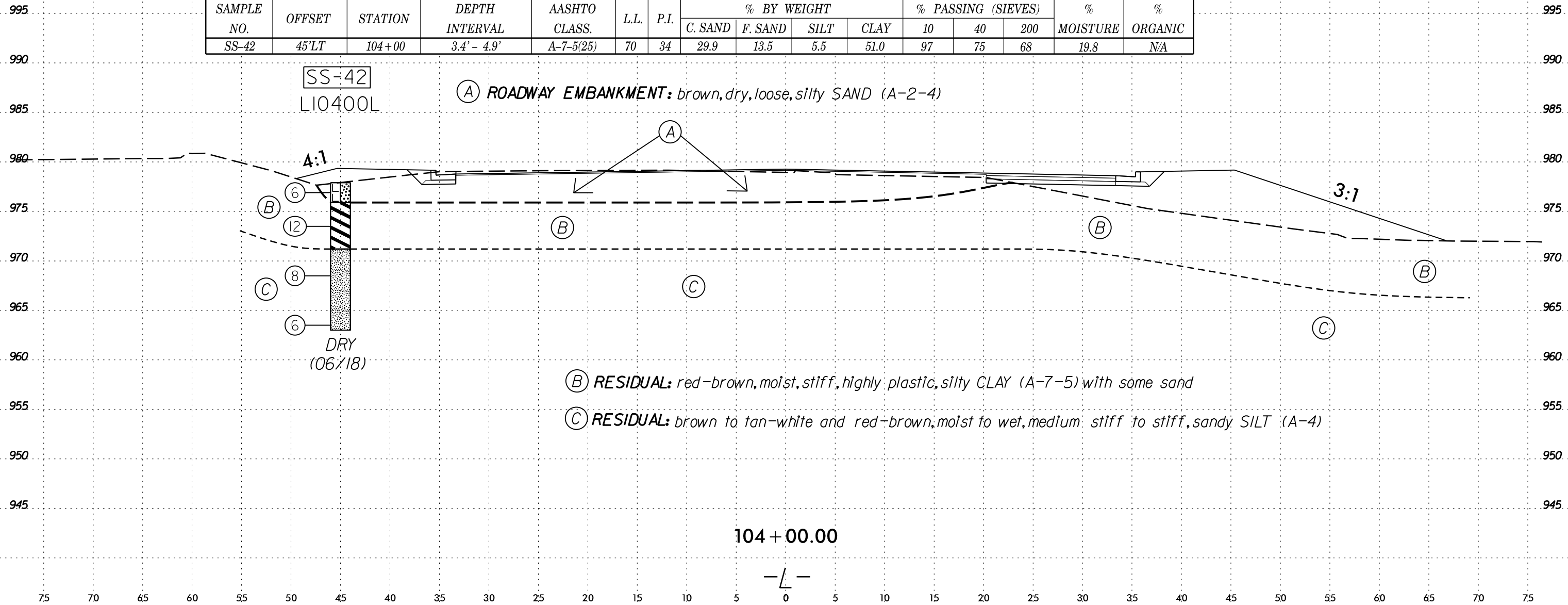
(B) RESIDUAL: red-brown to brown, dry to moist, stiff to very stiff, saprolitic, micaceous, sandy SILT (A-4)

102 + 50.00





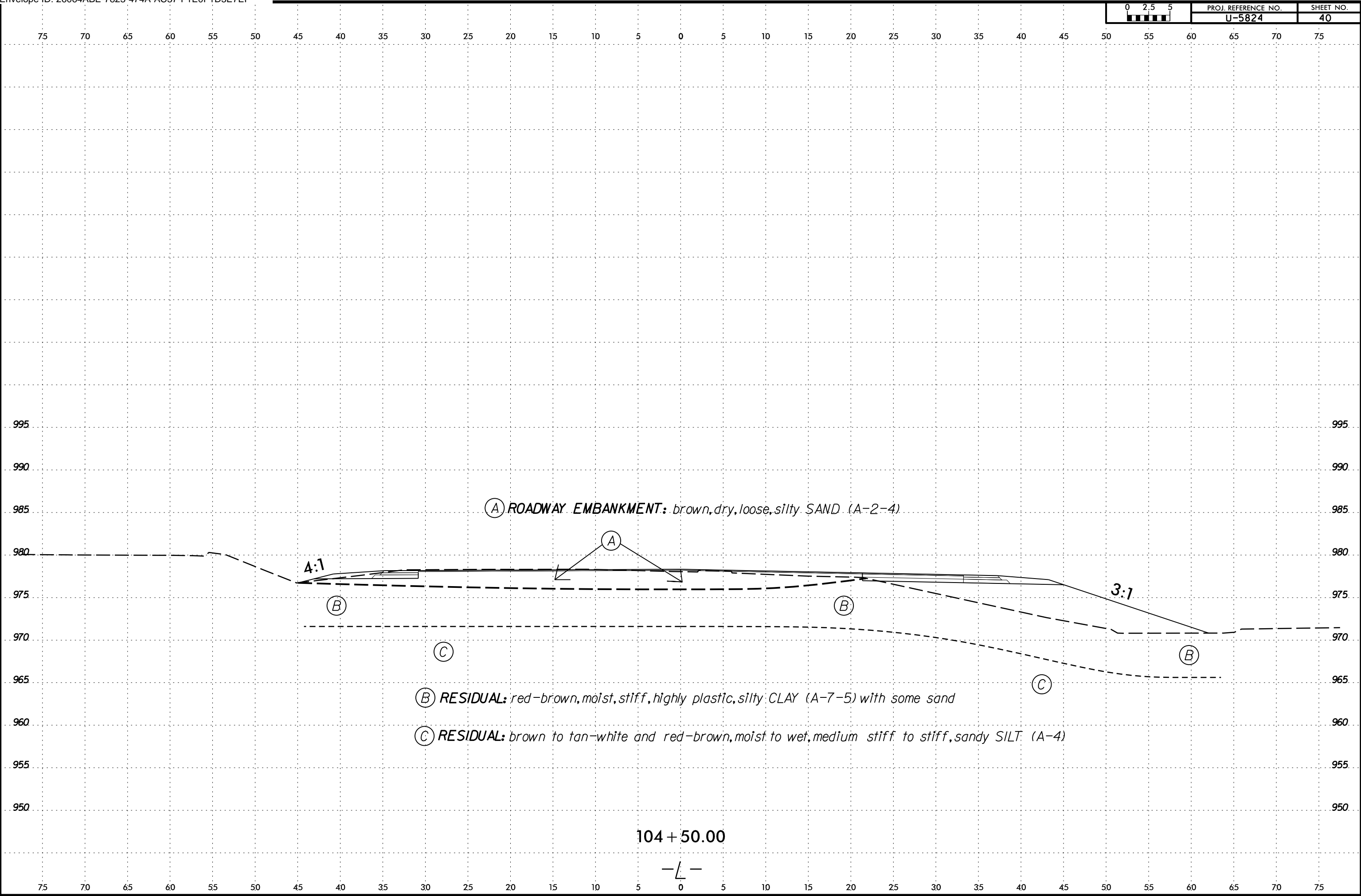
| SOIL TEST RESULTS | | | | | | | | | | | | | | | |
|-------------------|--------|---------|----------------|---------------|------|------|-------------|---------|------|------|--------------------|----|-----|------------|-----------|
| SAMPLE NO. | OFFSET | STATION | DEPTH INTERVAL | AASHTO CLASS. | L.L. | P.I. | % BY WEIGHT | | | | % PASSING (SIEVES) | | | % MOISTURE | % ORGANIC |
| | | | | | | | C. SAND | F. SAND | SILT | CLAY | 10 | 40 | 200 | | |
| SS-42 | 45'LT | 104+00 | 3.4' - 4.9' | A-7-5(25) | 70 | 34 | 29.9 | 13.5 | 5.5 | 51.0 | 97 | 75 | 68 | 19.8 | N/A |



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(A) ROADWAY EMBANKMENT: brown, dry, loose, silty SAND (A-2-4)

(B) RESIDUAL: red-brown, moist, stiff, highly plastic, silty CLAY (A-7-5) with some sand

(C) RESIDUAL: brown to tan-white and red-brown, moist to wet, medium stiff to stiff, sandy SILT (A-4)

104 + 50.00

