

CONTRACT: C201065 R-0967 CC

**CONTENTS:**

| LINE        | STATION                | SHEET NUMBERS |         |          |
|-------------|------------------------|---------------|---------|----------|
|             |                        | PLAN          | PROFILE | X-SECTS. |
| -L-         | 155+70 TO 238+50       | 4-31          | 35-47   | 61-80    |
| -LTRAN LT - | 238+50 TO 247+80       | 28-31         | 48-49   |          |
| -LTRAN RT-  | 238+50 TO 247+80       | 28-31         | 50-51   |          |
| -Y38-       | 10+00 TO 10+80         | 5             | 52      |          |
| -Y39-       | 10+20 TO 11+30.6       | 10            | 52      |          |
| -Y40-       | 10+35 TO 11+76.795     | 11            | 53      |          |
| -Y41-       | 10+00 TO 11+60         | 11            | 53      |          |
| -Y42-       | 10+00 TO 11+01.268     | 12            | 54      |          |
| -Y43-       | 10+00 TO 12+00         | 15,33         | 54      |          |
| -Y45A-      | 10+02.512 TO 10+71.389 | 34            | 55      |          |
| -Y45-       | 10+40 TO 12+59.751     | 20,34         | 55      |          |
| -Y46-       | 10+00 TO 11+15         | 20            | 56      |          |
| -Y47-       | 10+00 TO 11+20         | 21            | 56      |          |
| -Y48-       | 10+00 TO 11+20         | 22            | 57      |          |
| -Y49-       | 10+20 TO 11+56.796     | 22            | 57      |          |
| -Y50-       | 10+00 TO 11+20         | 25            | 58      |          |
| -Y51-       | 10+00 TO 10+80         | 27            | 58      |          |
| -Y52-       | 10+00 TO 11+20         | 29            | 59      |          |
| -Y53-       | 10+00 TO 12+23         | 30            | 59      |          |
| -Y55-       | 10+00 TO 11+00         | 33            | 60      |          |

STATE OF NORTH CAROLINA  
 DIVISION OF HIGHWAYS  
 GEOTECHNICAL UNIT

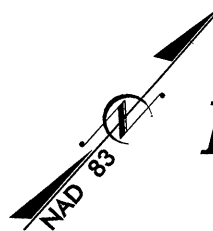
# SUBSURFACE INVESTIGATION

**STATE PROJECT:** 34355.3.12 **I.D.NO.:** R-0967CC

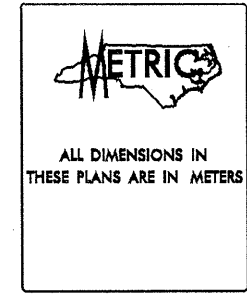
**F.A. PROJECT:**

**COUNTY:** STANLY

**DESCRIPTION:** NC 24 /27 EAST OF BIG BEAR CREEK TO SR 1963 (OAKBORO RD.)



## INVENTORY



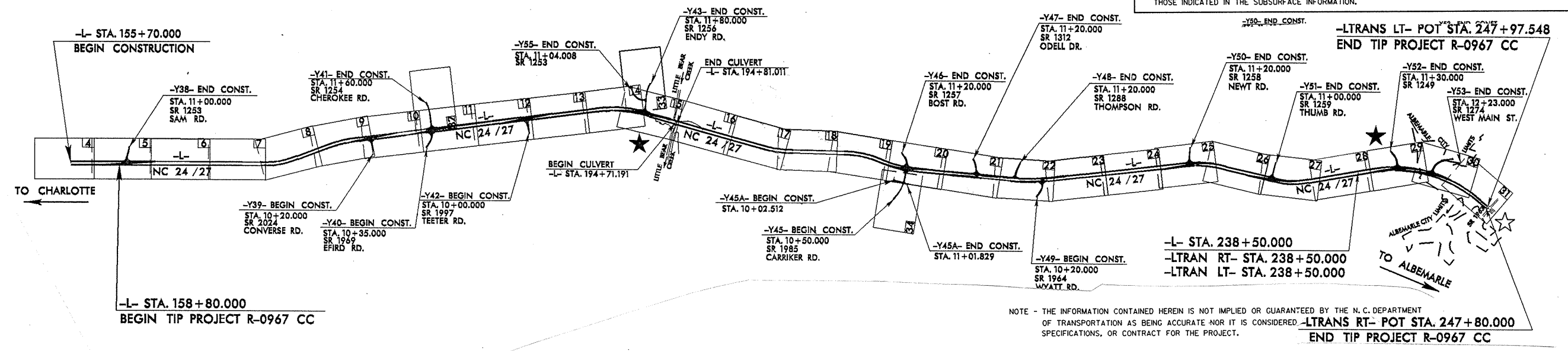
| STATE           | STATE PROJECT REFERENCE NO. | SHEET NO.   | TOTAL SHEETS |
|-----------------|-----------------------------|-------------|--------------|
| N.C.            | R-0967 CC                   | 1           | 80           |
| STATE PROJ. NO. | F.A. PROJ. NO.              | DESCRIPTION |              |
| 34355.1.1       |                             | PE          |              |
| 34355.2.5       |                             | RW, UTL     |              |
| 34355.3.12      |                             | CONST.      |              |

### CAUTION NOTICE

THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WAS 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 UNIT @ (919) 250-4088. NEITHER THE SUBSURFACE PLANS AND REPORTS, NOR THE FIELD BORING LOGS, ROCK CORES, OR SOIL TEST DATA IS 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.

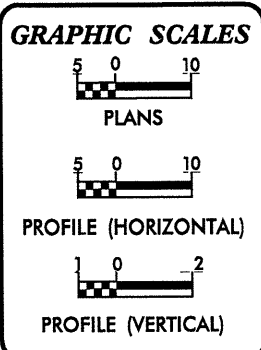
THE BIDDER OR CONTRACTOR IS CAUTIONED THAT DETAILS SHOWN ON THE SUBSURFACE PLANS ARE PRELIMINARY ONLY AND IN MANY CASES THE FINAL DESIGN DETAILS ARE DIFFERENT. FOR BIDDING AND CONSTRUCTION PURPOSES, REFER TO THE CONSTRUCTION PLANS AND DOCUMENTS FOR FINAL DESIGN INFORMATION ON THIS PROJECT. THE DEPARTMENT 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 THIS PROJECT. THE CONTRACTOR SHALL HAVE NO CLAIM FOR ADDITIONAL COMPENSATION OR FOR AN EXTENSION OF TIME FOR ANY REASON RESULTING FROM THE ACTUAL CONDITIONS ENCOUNTERED AT THE SITE DIFFERING FROM THOSE INDICATED IN THE SUBSURFACE INFORMATION.



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

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

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



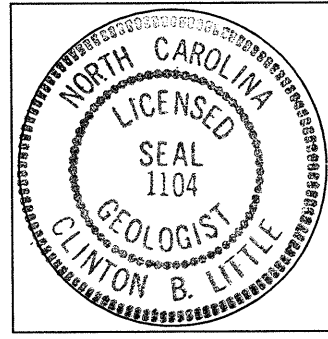
**DESIGN DATA**

|            |              |
|------------|--------------|
| ADT 2004 = | 11,650       |
| ADT 2024 = | 18,000       |
| DHV =      | 10 %         |
| D =        | 55 %         |
| T =        | 7 % *        |
| V =        | 100 km/h     |
| * TTST     | 4 % DUAL 3 % |

**PROJECT LENGTH**  
(EAST BOUND LANES USED FOR LENGTH OF PROJECT)

|   |           |
|---|-----------|
| LENGTH ROADWAY STATE PROJECT 6.689004T    | =         |
| LENGTH STRUCTURES STATE PROJECT 6.689004T | =         |
| TOTAL LENGTH STATE PROJECT 6.689004T      | = 9.060KM |


**INVESTIGATED BY:** J.E. BEVERLY  
**CHECKED BY:** C.B. LITTLE  
**SUBMITTED BY:** C.B. LITTLE  
**PERSONNEL:** J.K. STICKNEY, C.E. BURRIS, R.S. HINSON  
**DRAWN BY:** J.E. BEVERLY  
**DATE:** MARCH 2002



SEAL

SIGNATURE

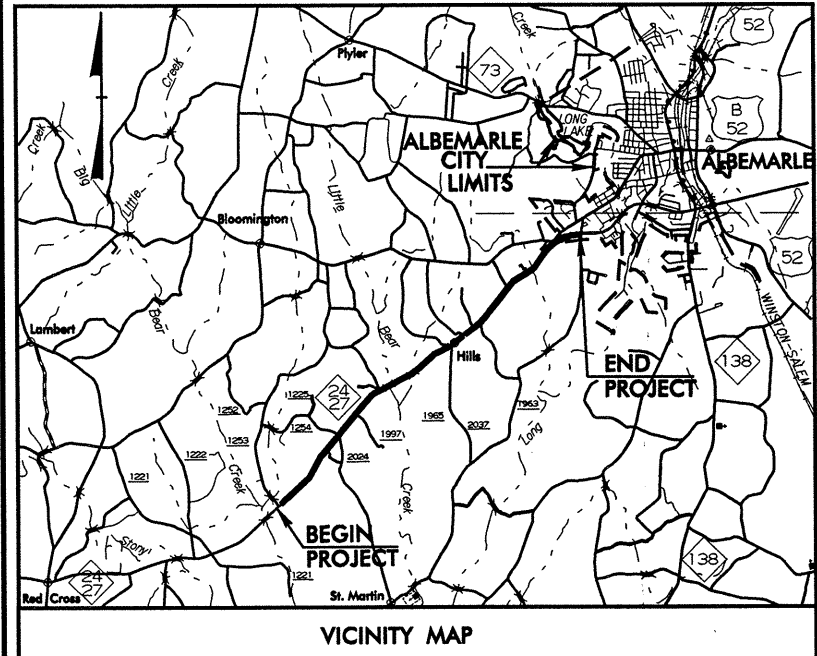
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS



ALL DIMENSIONS IN THESE PLANS ARE IN METERS

|                 |                             |             |              |
|-----------------|-----------------------------|-------------|--------------|
| STATE           | STATE PROJECT REFERENCE NO. | SHEET NO.   | TOTAL SHEETS |
| N.C.            | R-0967 CC                   | 1A          | 82           |
| STATE PROJ. NO. | F.A. PROJ. NO.              | DESCRIPTION |              |
| 6.689002T       |                             | PE          |              |
| 6.689004T       |                             | PE          |              |

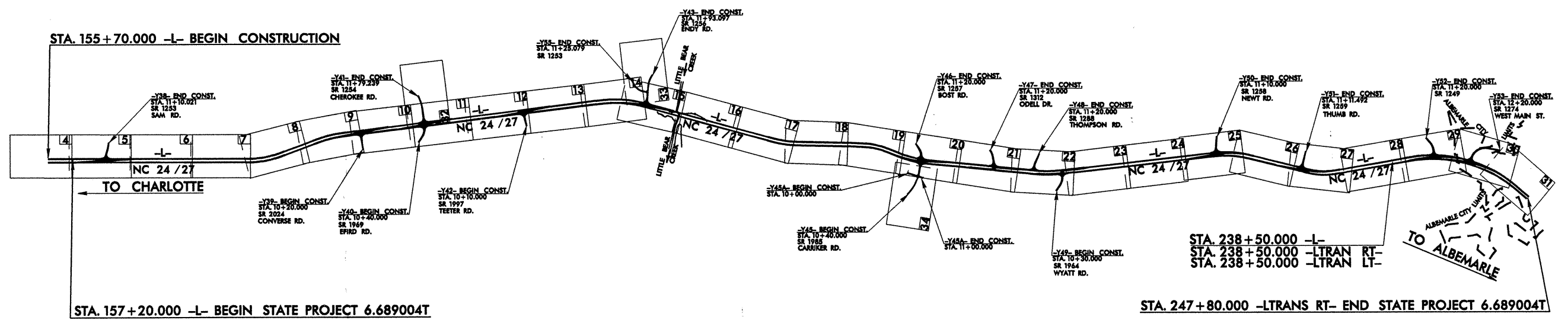
R-0967 CC



**STANLY COUNTY**

**LOCATION:** NC 2427 FROM EAST OF BIG BEAR CREEK TO SR 1963 (OAKBORO RD. AND SAINT MARTIN RD.) IN ALBEMARLE.

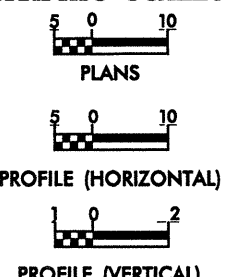
**TYPE OF WORK:** GRADING, DRAINAGE, PAVING, SIGNING, CULVERTS, AND GUARDRAIL.



PROJECT: 6.689004T

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

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD( )

|  |  |   |   |  |  |   |
|--|--|---|---|--|--|---|
| <b>GRAPHIC SCALES</b><br> | <b>DESIGN DATA</b><br>ADT 2004 = 11,650<br>ADT 2024 = 18,000<br>DHV = 10 %<br>D = 55 %<br>T = 7 % *<br>V = 100 km/h<br>* TTST 4 % DUAL 3 % | <b>PROJECT LENGTH</b><br>(EAST BOUND LANES USED FOR LENGTH OF PROJECT)<br>LENGTH ROADWAY STATE PROJECT 6.689004T =<br>LENGTH STRUCTURES STATE PROJECT 6.689004T =<br>TOTAL LENGTH STATE PROJECT 6.689004T = 9.060KM | Prepared in the Office of:<br><b>DIVISION OF HIGHWAYS</b><br>1000 Birch Ridge Dr., Raleigh, NC 27610                          |  | <b>HYDRAULICS ENGINEER</b><br><br>P.E.<br>SIGNATURE: _____<br><b>ROADWAY DESIGN ENGINEER</b><br><br>P.E.<br>SIGNATURE: _____ | <b>DIVISION OF HIGHWAYS</b><br>STATE OF NORTH CAROLINA<br><br>STATE DESIGN ENGINEER<br>DEPARTMENT OF TRANSPORTATION<br>FEDERAL HIGHWAY ADMINISTRATION<br><br>APPROVED<br>DIVISION ADMINISTRATOR<br>DATE |
|  |  |   | 1995 STANDARD SPECIFICATIONS<br><b>RIGHT OF WAY DATE:</b><br>October 18, 2002<br><br><b>LETTING DATE:</b><br>January 18, 2005 | RONALD D. ALLEN, P.E.<br>PROJECT ENGINEER<br><br>BOB A. MAY, P.E.<br>PROJECT DESIGN ENGINEER |  |   |

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS  
GEOTECHNICAL UNIT

SUBSURFACE INVESTIGATION

SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS



| SOIL DESCRIPTION  |   | GRADATION  |   | ROCK DESCRIPTION   |   | TERMS AND DEFINITIONS  |   |                                      |                                   |   |  |  |  |   |                                  |  |   |                            |  |  |   |                                |   |  |      |                           |                   |              |                                |   |            |  |   |  |      |           |   |       |  |           |               |              |                    |            |                   |             |                  |          |
|---|---|--|---|--|---|--|---|--------------------------------------|-----------------------------------|---|--|--|--|---|----------------------------------|--|---|----------------------------|--|--|---|--------------------------------|---|--|------|---------------------------|-------------------|--------------|--------------------------------|---|------------|--|---|--|------|-----------|---|-------|--|-----------|---------------|--------------|--------------------|------------|-------------------|-------------|------------------|----------|
| <p>SOIL IS CONSIDERED TO BE THE UNCONSOLIDATED, SEMI-CONSOLIDATED OR WEATHERED EARTH MATERIALS WHICH CAN BE PENETRATED WITH A CONTINUOUS FLIGHT POWER AUGER, AND WHICH YIELDS LESS THAN 100 BLOWS PER 30 cm ACCORDING TO STANDARD PENETRATION TEST (AASHTO T266, ASTM D-1586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM AND BASIC DESCRIPTIONS GENERALLY SHALL INCLUDE: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. EXAMPLE:</p> <p>VERY STIFF, GRAY SILTY CLAY, MOST WITH INTERBEDDED FINE SAND LAYERS, HIGH PLASTIC, A-7-6</p>  |   | <p>WELL-GRADED - INDICATES A GOOD REPRESENTATION OF PARTICLE SIZES FROM FINE TO COARSE<br/>UNIFORM - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE (ALSO POORLY GRADED).<br/>GAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLES OF TWO OR MORE SIZES.</p> <p>ANGULARITY OF GRAINS<br/>THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS ARE DESIGNATED BY THE TERMS: ANGULAR, SUBANGULAR, SUBROUNDED, OR ROUNDED.</p>      |   | <p>HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT WHEN TESTED, WOULD YIELD SPT REFUSAL, AN INFERRED ROCK LINE INDICATES THE LEVEL AT WHICH NON-COASTAL PLAIN MATERIAL WOULD YIELD SPT REFUSAL.<br/>SPT REFUSAL IS PENETRATION BY A SPLIT SPOON SAMPLER EQUAL TO OR LESS THAN 2.5 cm PER 50 BLOWS. IN NON-COASTAL PLAIN MATERIAL, THE TRANSITION BETWEEN SOIL AND ROCK IS OFTEN REPRESENTED BY A ZONE OF WEATHERED ROCK.<br/>ROCK MATERIALS ARE TYPICALLY DIVIDED AS FOLLOWS:</p> |   | <p>ALLUVIUM (ALLUV.) - SOILS WHICH HAVE BEEN TRANSPORTED BY WATER.<br/>AQUIFER - A WATER BEARING FORMATION OR STRATA.<br/>ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND.<br/>ARGILLACEOUS - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING A NOTABLE PROPORTION OF CLAY IN THEIR COMPOSITION, AS SHALE, SLATE, ETC.<br/>ARTESIAN - GROUND WATER THAT IS UNDER SUFFICIENT PRESSURE TO RISE ABOVE THE LEVEL AT WHICH IS ENCOUNTERED, BUT WHICH DOES NOT NECESSARILY RISE TO OR ABOVE THE GROUND SURFACE.<br/>CALCARNEOUS (CALC.) - SOILS WHICH CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE.<br/>COLLUVIUM - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM OF SLOPE.<br/>CORE RECOVERY (REC.) - TOTAL LENGTH OF ALL MATERIAL RECOVERED IN THE CORE BARREL DIVIDED BY TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE.<br/>DIKE - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT ROCKS OR CUTS MASSIVE ROCK.<br/>DIP - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL.<br/>DIP DIRECTION (DIP AZIMUTH) - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH.<br/>FAULT - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE.<br/>FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES.<br/>FLOAT - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLOADED FROM PARENT MATERIAL.<br/>FLOOD PLAIN (F.P.) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM.<br/>FORMATION (FM.) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD.<br/>JOINT - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED.<br/>LEDGE - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO ITS LATERAL EXTENT.<br/>LENS - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS.<br/>MOTTLED (MOT.) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS, MOTTLED IN SOILS USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE.<br/>PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE OF AN INTERVENING IMPERVIOUS STRATUM.<br/>RESIDUAL SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK.<br/>ROCK QUALITY DESIGNATION (R.Q.D.) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS EQUAL TO OR GREATER THAN 10 CENTIMETERS DIVIDED BY THE TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE.<br/>SAPROLITE (SAP.) - RESIDUAL SOIL WHICH RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK.<br/>SILL - AN INTRUSIVE BODY OF IGNEOUS ROCK OF APPROXIMATELY UNIFORM THICKNESS AND RELATIVELY THIN COMPARED WITH ITS LATERAL EXTENT, WHICH HAS BEEN EMPLACED PARALLEL TO THE BEDDING OR SCHISTOSITY OF THE INTRODUCED ROCKS.<br/>SLICKENSIDE - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT OR SLIP PLANE.<br/>STANDARD PENETRATION TEST (PENETRATION RESISTANCE) (SPT) - NUMBER OF BLOWS (N) OF A 63.5 kg HAMMER FALLING 0.76 METERS REQUIRED TO PRODUCE A PENETRATION OF 30 cm INTO SOIL WITH A 5 cm OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS LESS THAN 2.5 cm PENETRATION WITH 50 BLOWS.<br/>STRATA CORE RECOVERY (SREC.) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE.<br/>STRATA ROCK QUALITY DESIGNATION (S.R.Q.D.) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 10 CENTIMETERS DIVIDED BY THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE.<br/>TOPSOIL (T.S.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.</p> |   |                                      |                                   |   |  |  |  |   |                                  |  |   |                            |  |  |   |                                |   |  |      |                           |                   |              |                                |   |            |  |   |  |      |           |   |       |  |           |               |              |                    |            |                   |             |                  |          |
| <p>SOIL LEGEND AND AASHTO CLASSIFICATION</p> <table border="1"> <tr> <th>GENERAL CLASS.</th> <th>GRANULAR MATERIALS (&lt;math&gt;\le 75\%&lt;/math&gt; PASSING #200)</th> <th>SILT-CLAY MATERIALS (&lt;math&gt;\ge 75\%&lt;/math&gt; PASSING #200)</th> <th>ORGANIC MATERIALS</th> </tr> <tr> <td>GROUP CLASS.</td> <td>A-1, A-1-b, A-2, A-2-4, A-2-5, A-2-6, A-2-7</td> <td>A-4, A-5, A-6, A-7, A-7-5, A-7-6</td> <td>A-1, A-2, A-3, A-4, A-5, A-6, A-7</td> </tr> <tr> <td>SYMBOL</td> <td></td> <td></td> <td></td> </tr> <tr> <td>% PASSING</td> <td>50 MX, 30 MX, 15 MX, 10 MX, 5 MX</td> <td>40 MX, 30 MX, 20 MX, 15 MX, 10 MX, 5 MX</td> <td>GRANULAR SOILS, SILT-CLAY SOILS, MUCK, PEAT</td> </tr> <tr> <td>LIQUID LIMIT PLASTIC INDEX</td> <td>6 MX, NP, 10 MX, 11 MX, 12 MX, 13 MX, 14 MX, 15 MX, 16 MX, 17 MX, 18 MX, 19 MX, 20 MX, 21 MX, 22 MX, 23 MX, 24 MX, 25 MX, 26 MX, 27 MX, 28 MX, 29 MX, 30 MX</td> <td>40 MX, 41 MX, 42 MX, 43 MX, 44 MX, 45 MX, 46 MX, 47 MX, 48 MX, 49 MX, 50 MX, 51 MX, 52 MX, 53 MX, 54 MX, 55 MX, 56 MX, 57 MX, 58 MX, 59 MX, 60 MX, 61 MX, 62 MX, 63 MX, 64 MX, 65 MX, 66 MX, 67 MX, 68 MX, 69 MX, 70 MX, 71 MX, 72 MX, 73 MX, 74 MX, 75 MX, 76 MX, 77 MX, 78 MX, 79 MX, 80 MX, 81 MX, 82 MX, 83 MX, 84 MX, 85 MX, 86 MX, 87 MX, 88 MX, 89 MX, 90 MX, 91 MX, 92 MX, 93 MX, 94 MX, 95 MX, 96 MX, 97 MX, 98 MX, 99 MX, 100 MX</td> <td>SOILS WITH LITTLE OR MODERATE AMOUNTS OF ORGANIC MATTER, HIGHLY ORGANIC SOILS</td> </tr> <tr> <td>USUAL TYPES OF MAJOR MATERIALS</td> <td>STONE FRAGS, GRAVEL AND SAND, FINE SAND</td> <td>SILTY OR CLAYEY GRAVEL AND SAND, SILTY SOILS, CLAYEY SOILS</td> <td></td> </tr> <tr> <td>GEN. RATING AS A SUBGRADE</td> <td>EXCELLENT TO GOOD</td> <td>FAIR TO POOR</td> <td>FAIR TO POOR, POOR, UNSUITABLE</td> </tr> </table> <p>P.I. OF A-7-5 <math>\le</math> L.L. - 30 &amp; P.I. OF A-7-6 <math>&gt;</math> L.L. - 30</p> |   | GENERAL CLASS.   | GRANULAR MATERIALS (<math>\le 75\%</math> PASSING #200)                       | SILT-CLAY MATERIALS (<math>\ge 75\%</math> PASSING #200)   | ORGANIC MATERIALS   | GROUP CLASS.   | 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-7-5, A-7-6     | A-1, A-2, A-3, A-4, A-5, A-6, A-7 | SYMBOL  |  |  |  | % PASSING   | 50 MX, 30 MX, 15 MX, 10 MX, 5 MX | 40 MX, 30 MX, 20 MX, 15 MX, 10 MX, 5 MX  | GRANULAR SOILS, SILT-CLAY SOILS, MUCK, PEAT   | LIQUID LIMIT PLASTIC INDEX | 6 MX, NP, 10 MX, 11 MX, 12 MX, 13 MX, 14 MX, 15 MX, 16 MX, 17 MX, 18 MX, 19 MX, 20 MX, 21 MX, 22 MX, 23 MX, 24 MX, 25 MX, 26 MX, 27 MX, 28 MX, 29 MX, 30 MX  | 40 MX, 41 MX, 42 MX, 43 MX, 44 MX, 45 MX, 46 MX, 47 MX, 48 MX, 49 MX, 50 MX, 51 MX, 52 MX, 53 MX, 54 MX, 55 MX, 56 MX, 57 MX, 58 MX, 59 MX, 60 MX, 61 MX, 62 MX, 63 MX, 64 MX, 65 MX, 66 MX, 67 MX, 68 MX, 69 MX, 70 MX, 71 MX, 72 MX, 73 MX, 74 MX, 75 MX, 76 MX, 77 MX, 78 MX, 79 MX, 80 MX, 81 MX, 82 MX, 83 MX, 84 MX, 85 MX, 86 MX, 87 MX, 88 MX, 89 MX, 90 MX, 91 MX, 92 MX, 93 MX, 94 MX, 95 MX, 96 MX, 97 MX, 98 MX, 99 MX, 100 MX | SOILS WITH LITTLE OR MODERATE AMOUNTS OF ORGANIC MATTER, HIGHLY ORGANIC SOILS | USUAL TYPES OF MAJOR MATERIALS | STONE FRAGS, GRAVEL AND SAND, FINE SAND | SILTY OR CLAYEY GRAVEL AND SAND, SILTY SOILS, CLAYEY SOILS |      | GEN. RATING AS A SUBGRADE | EXCELLENT TO GOOD | FAIR TO POOR | FAIR TO POOR, POOR, UNSUITABLE | <p>MINERALOGICAL COMPOSITION</p> <p>MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHENEVER THEY ARE CONSIDERED OF SIGNIFICANCE.</p> |            | <p>WEATHERED ROCK (WR)</p> <p>CRYSTALLINE ROCK (CR)</p> <p>NON-CRYSTALLINE ROCK (NCR)</p> <p>COASTAL PLAIN SEDIMENTARY ROCK (CP)</p> |   | <p>WEATHERING</p> <p>FRESH</p> <p>VERY SLIGHT (V. SL.)</p> <p>SLIGHT (SL.)</p> <p>MODERATE (MOD.)</p> <p>MODERATELY SEVERE (MOD. SEV.)</p> <p>SEVERE (SEV.)</p> <p>VERY SEVERE (V. SEV.)</p> <p>COMPLETE</p> |      |           |   |       |  |           |               |              |                    |            |                   |             |                  |          |
| GENERAL CLASS.  | GRANULAR MATERIALS (<math>\le 75\%</math> PASSING #200)   | SILT-CLAY MATERIALS (<math>\ge 75\%</math> PASSING #200)   | ORGANIC MATERIALS   |  |   |  |   |                                      |                                   |   |  |  |  |   |                                  |  |   |                            |  |  |   |                                |   |  |      |                           |                   |              |                                |   |            |  |   |  |      |           |   |       |  |           |               |              |                    |            |                   |             |                  |          |
| GROUP CLASS.  | 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-7-5, A-7-6   | A-1, A-2, A-3, A-4, A-5, A-6, A-7   |  |   |  |   |                                      |                                   |   |  |  |  |   |                                  |  |   |                            |  |  |   |                                |   |  |      |                           |                   |              |                                |   |            |  |   |  |      |           |   |       |  |           |               |              |                    |            |                   |             |                  |          |
| SYMBOL  |   |  |   |  |   |  |   |                                      |                                   |   |  |  |  |   |                                  |  |   |                            |  |  |   |                                |   |  |      |                           |                   |              |                                |   |            |  |   |  |      |           |   |       |  |           |               |              |                    |            |                   |             |                  |          |
| % PASSING   | 50 MX, 30 MX, 15 MX, 10 MX, 5 MX  | 40 MX, 30 MX, 20 MX, 15 MX, 10 MX, 5 MX  | GRANULAR SOILS, SILT-CLAY SOILS, MUCK, PEAT                                   |  |   |  |   |                                      |                                   |   |  |  |  |   |                                  |  |   |                            |  |  |   |                                |   |  |      |                           |                   |              |                                |   |            |  |   |  |      |           |   |       |  |           |               |              |                    |            |                   |             |                  |          |
| LIQUID LIMIT PLASTIC INDEX  | 6 MX, NP, 10 MX, 11 MX, 12 MX, 13 MX, 14 MX, 15 MX, 16 MX, 17 MX, 18 MX, 19 MX, 20 MX, 21 MX, 22 MX, 23 MX, 24 MX, 25 MX, 26 MX, 27 MX, 28 MX, 29 MX, 30 MX | 40 MX, 41 MX, 42 MX, 43 MX, 44 MX, 45 MX, 46 MX, 47 MX, 48 MX, 49 MX, 50 MX, 51 MX, 52 MX, 53 MX, 54 MX, 55 MX, 56 MX, 57 MX, 58 MX, 59 MX, 60 MX, 61 MX, 62 MX, 63 MX, 64 MX, 65 MX, 66 MX, 67 MX, 68 MX, 69 MX, 70 MX, 71 MX, 72 MX, 73 MX, 74 MX, 75 MX, 76 MX, 77 MX, 78 MX, 79 MX, 80 MX, 81 MX, 82 MX, 83 MX, 84 MX, 85 MX, 86 MX, 87 MX, 88 MX, 89 MX, 90 MX, 91 MX, 92 MX, 93 MX, 94 MX, 95 MX, 96 MX, 97 MX, 98 MX, 99 MX, 100 MX | SOILS WITH LITTLE OR MODERATE AMOUNTS OF ORGANIC MATTER, HIGHLY ORGANIC SOILS |  |   |  |   |                                      |                                   |   |  |  |  |   |                                  |  |   |                            |  |  |   |                                |   |  |      |                           |                   |              |                                |   |            |  |   |  |      |           |   |       |  |           |               |              |                    |            |                   |             |                  |          |
| USUAL TYPES OF MAJOR MATERIALS  | STONE FRAGS, GRAVEL AND SAND, FINE SAND   | SILTY OR CLAYEY GRAVEL AND SAND, SILTY SOILS, CLAYEY SOILS   |   |  |   |  |   |                                      |                                   |   |  |  |  |   |                                  |  |   |                            |  |  |   |                                |   |  |      |                           |                   |              |                                |   |            |  |   |  |      |           |   |       |  |           |               |              |                    |            |                   |             |                  |          |
| GEN. RATING AS A SUBGRADE   | EXCELLENT TO GOOD   | FAIR TO POOR   | FAIR TO POOR, POOR, UNSUITABLE  |  |   |  |   |                                      |                                   |   |  |  |  |   |                                  |  |   |                            |  |  |   |                                |   |  |      |                           |                   |              |                                |   |            |  |   |  |      |           |   |       |  |           |               |              |                    |            |                   |             |                  |          |
| <p>CONSISTENCY OR DENSENESS</p> <table border="1"> <tr> <th>PRIMARY SOIL TYPE</th> <th>COMPACTNESS OR CONSISTENCY</th> <th>RANGE OF STANDARD PENETRATION RESISTANCE (N-VALUE)</th> <th>RANGE OF UNCONFINED COMPRESSIVE STRENGTH (kN/m<sup>2</sup>)</th> </tr> <tr> <td>GENERALLY GRANULAR MATERIAL (NON-COHESIVE)</td> <td>VERY LOOSE, LOOSE, MEDIUM DENSE, DENSE, VERY DENSE</td> <td>&lt;4, 4 TO 10, 10 TO 30, 30 TO 50, &gt;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>&lt;2, 2 TO 4, 4 TO 8, 8 TO 15, 15 TO 30, &gt;30</td> <td>&lt;25, 25 TO 50, 50 TO 100, 100 TO 200, 200 TO 400, &gt;400</td> </tr> </table>  |   | PRIMARY SOIL TYPE  | COMPACTNESS OR CONSISTENCY  | RANGE OF STANDARD PENETRATION RESISTANCE (N-VALUE)   | RANGE OF UNCONFINED COMPRESSIVE STRENGTH (kN/m <sup>2</sup> ) | 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 | <25, 25 TO 50, 50 TO 100, 100 TO 200, 200 TO 400, >400 | <p>MISCELLANEOUS SYMBOLS</p> <p>ROADWAY EMBANKMENT WITH SOIL DESCRIPTION</p> <p>SOIL SYMBOL</p> <p>ARTIFICIAL FILL OTHER THAN ROADWAY EMBANKMENTS</p> <p>INFERRED SOIL BOUNDARIES</p> <p>INFERRED ROCK LINE</p> <p>ALLUVIAL SOIL BOUNDARY</p> <p>DIP/DIP DIRECTION OF ROCK STRUCTURES</p> <p>SOUNDING ROD</p> <p>SPT TEST BORING</p> <p>AUGER BORING</p> <p>CORE BORING</p> <p>MONITORING WELL</p> <p>PIEZOMETER INSTALLATION</p> <p>SLOPE INDICATOR INSTALLATION</p> <p>SPT N-VALUE</p> <p>SPT REFUSAL</p> |                                  | <p>ROCK HARDNESS</p> <p>VERY HARD</p> <p>HARD</p> <p>MODERATELY HARD</p> <p>MEDIUM HARD</p> <p>SOFT</p> <p>VERY SOFT</p> |   |                            |  |  |   |                                |   |  |      |                           |                   |              |                                |   |            |  |   |  |      |           |   |       |  |           |               |              |                    |            |                   |             |                  |          |
| PRIMARY SOIL TYPE   | COMPACTNESS OR CONSISTENCY  | RANGE OF STANDARD PENETRATION RESISTANCE (N-VALUE)   | RANGE OF UNCONFINED COMPRESSIVE STRENGTH (kN/m <sup>2</sup> )                 |  |   |  |   |                                      |                                   |   |  |  |  |   |                                  |  |   |                            |  |  |   |                                |   |  |      |                           |                   |              |                                |   |            |  |   |  |      |           |   |       |  |           |               |              |                    |            |                   |             |                  |          |
| 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   | <25, 25 TO 50, 50 TO 100, 100 TO 200, 200 TO 400, >400                        |  |   |  |   |                                      |                                   |   |  |  |  |   |                                  |  |   |                            |  |  |   |                                |   |  |      |                           |                   |              |                                |   |            |  |   |  |      |           |   |       |  |           |               |              |                    |            |                   |             |                  |          |
| <p>TEXTURE OR GRAIN SIZE</p> <table border="1"> <tr> <th>U.S. STD. SIEVE SIZE OPENING (MM)</th> <th>4</th> <th>10</th> <th>40</th> <th>60</th> <th>200</th> <th>270</th> </tr> <tr> <td></td> <td>4.76</td> <td>2.0</td> <td>0.42</td> <td>0.25</td> <td>0.075</td> <td>0.053</td> </tr> </table> <table border="1"> <tr> <th>BOULDER (BLDR.)</th> <th>COBBLE (COB.)</th> <th>GRAVEL (GR.)</th> <th>COARSE SAND (CSE, SD.)</th> <th>FINE SAND (F, SD.)</th> <th>SILT (SL.)</th> <th>CLAY (CL.)</th> </tr> <tr> <td>GRAIN SIZE MM</td> <td>305</td> <td>75</td> <td>2.0</td> <td>0.25</td> <td>0.05</td> <td>0.005</td> </tr> <tr> <td>SIZE IN.</td> <td>12"</td> <td>3"</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>   |   | U.S. STD. SIEVE SIZE OPENING (MM)  | 4   | 10   | 40  | 60   | 200   | 270                                  |                                   | 4.76  | 2.0  | 0.42                                       | 0.25   | 0.075   | 0.053                            | BOULDER (BLDR.)  | COBBLE (COB.)   | GRAVEL (GR.)               | COARSE SAND (CSE, SD.)   | FINE SAND (F, SD.)   | SILT (SL.)  | CLAY (CL.)                     | GRAIN SIZE MM                           | 305  | 75   | 2.0                       | 0.25              | 0.05         | 0.005                          | SIZE IN.  | 12"        | 3"   |   |  |      |           | <p>ABBREVIATIONS</p> <p>AR - AUGER REFUSAL<br/>BT - BORING TERMINATED<br/>CL - CLAY<br/>CPT - CONE PENETRATION TEST<br/>CSE - COARSE<br/>DMT - DILATOMETER TEST<br/>DPT - DYNAMIC PENETRATION TEST<br/>e - VOID RATIO<br/>F - FINE<br/>FOSS - FOSSILIFEROUS<br/>FRAC - FRACTURED FRAGS - FRAGMENTS<br/>MED - MEDIUM<br/>PMT - PRESSUREMETER TEST<br/>SD - SAND, SANDY<br/>SL - SILT, SILTY<br/>SLI - SLIGHTLY<br/>TCR - TRICONE REFUSAL<br/>γ - UNIT WEIGHT<br/>γ<sub>d</sub> - DRY UNIT WEIGHT<br/>W - MOISTURE CONTENT<br/>V - VERY<br/>VST - VANE SHEAR TEST</p> |       | <p>ROCK HARDNESS</p> <p>VERY HARD</p> <p>HARD</p> <p>MODERATELY HARD</p> <p>MEDIUM HARD</p> <p>SOFT</p> <p>VERY SOFT</p> |           |               |              |                    |            |                   |             |                  |          |
| U.S. STD. SIEVE SIZE OPENING (MM)   | 4   | 10   | 40  | 60   | 200   | 270  |   |                                      |                                   |   |  |  |  |   |                                  |  |   |                            |  |  |   |                                |   |  |      |                           |                   |              |                                |   |            |  |   |  |      |           |   |       |  |           |               |              |                    |            |                   |             |                  |          |
|   | 4.76  | 2.0  | 0.42  | 0.25   | 0.075   | 0.053  |   |                                      |                                   |   |  |  |  |   |                                  |  |   |                            |  |  |   |                                |   |  |      |                           |                   |              |                                |   |            |  |   |  |      |           |   |       |  |           |               |              |                    |            |                   |             |                  |          |
| BOULDER (BLDR.)   | COBBLE (COB.)   | GRAVEL (GR.)   | COARSE SAND (CSE, SD.)  | FINE SAND (F, SD.)   | SILT (SL.)  | CLAY (CL.)   |   |                                      |                                   |   |  |  |  |   |                                  |  |   |                            |  |  |   |                                |   |  |      |                           |                   |              |                                |   |            |  |   |  |      |           |   |       |  |           |               |              |                    |            |                   |             |                  |          |
| GRAIN SIZE MM   | 305   | 75   | 2.0   | 0.25   | 0.05  | 0.005  |   |                                      |                                   |   |  |  |  |   |                                  |  |   |                            |  |  |   |                                |   |  |      |                           |                   |              |                                |   |            |  |   |  |      |           |   |       |  |           |               |              |                    |            |                   |             |                  |          |
| SIZE IN.  | 12"   | 3"   |   |  |   |  |   |                                      |                                   |   |  |  |  |   |                                  |  |   |                            |  |  |   |                                |   |  |      |                           |                   |              |                                |   |            |  |   |  |      |           |   |       |  |           |               |              |                    |            |                   |             |                  |          |
| <p>SOIL MOISTURE - CORRELATION OF TERMS</p> <table border="1"> <tr> <th>SOIL MOISTURE SCALE (ATTERBERG LIMITS)</th> <th>FIELD MOISTURE DESCRIPTION</th> <th>GUIDE FOR FIELD MOISTURE DESCRIPTION</th> </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</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> </table>   |   | SOIL MOISTURE SCALE (ATTERBERG LIMITS)   | FIELD MOISTURE DESCRIPTION  | GUIDE FOR FIELD MOISTURE DESCRIPTION   | LL - LIQUID LIMIT   | - SATURATED - (SAT.)   | USUALLY LIQUID; VERY WET, USUALLY FROM BELOW THE GROUND WATER TABLE | PL - PLASTIC LIMIT                   | - WET - (W)                       | SEMISOLID; REQUIRES DRYING TO ATTAIN OPTIMUM MOISTURE | OM - OPTIMUM MOISTURE                                  | - MOIST - (M)                              | SOLID; AT OR NEAR OPTIMUM MOISTURE                     | SL - SHRINKAGE LIMIT  | - DRY - (D)                      | REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE   | <p>EQUIPMENT USED ON SUBJECT PROJECT</p> <p>DRILL UNITS:</p> <p>MOBILE B-<br/>BK-51<br/>CME-45<br/>CME-550<br/>PORTABLE HOIST<br/>OTHER<br/>OTHER</p> <p>ADVANCING TOOLS:</p> <p>CLAY BITS<br/>152 mm CONTINUOUS FLIGHT AUGER<br/>203 mm HOLLOW AUGERS<br/>HARD FACED FINGER BITS<br/>TUNG-CARBIDE INSERTS<br/>CASING W/ ADVANCER<br/>TRICONE mm STEEL TEETH<br/>TRICONE mm TUNG-CARB.<br/>CORE BIT<br/>OTHER</p> <p>HAMMER TYPE:</p> <p>AUTOMATIC<br/>MANUAL</p> <p>CORE SIZE:</p> <p>B<br/>N<br/>H</p> <p>HAND TOOLS:</p> <p>POST HOLE DIGGER<br/>HAND AUGER<br/>SOUNDING ROD<br/>VANE SHEAR TEST<br/>OTHER</p> |                            | <p>FRACTURE SPACING</p> <table border="1"> <tr> <th>TERM</th> <th>SPACING</th> </tr> <tr> <td>VERY WIDE</td> <td>MORE THAN 3 m</td> </tr> <tr> <td>WIDE</td> <td>1 TO 3 m</td> </tr> <tr> <td>MODERATELY CLOSE</td> <td>30 TO 100 cm</td> </tr> <tr> <td>CLOSE</td> <td>5 TO 30 cm</td> </tr> <tr> <td>VERY CLOSE</td> <td>LESS THAN 5 cm</td> </tr> </table> <p>INDURATION</p> <p>FRIABLE</p> <p>MODERATELY INDURATED</p> <p>INDURATED</p> <p>EXTREMELY INDURATED</p> |  | TERM  | SPACING                        | VERY WIDE                               | MORE THAN 3 m  | WIDE | 1 TO 3 m                  | MODERATELY CLOSE  | 30 TO 100 cm | CLOSE                          | 5 TO 30 cm  | VERY CLOSE | LESS THAN 5 cm   | <p>BEDDING</p> <table border="1"> <tr> <th>TERM</th> <th>THICKNESS</th> </tr> <tr> <td>VERY THICKLY BEDDED</td> <td>&gt; 1 m</td> </tr> <tr> <td>THICKLY BEDDED</td> <td>0.5 - 1 m</td> </tr> <tr> <td>THINLY BEDDED</td> <td>0.05 - 0.5 m</td> </tr> <tr> <td>VERY THINLY BEDDED</td> <td>10 - 50 mm</td> </tr> <tr> <td>THICKLY LAMINATED</td> <td>2.5 - 10 mm</td> </tr> <tr> <td>THINLY LAMINATED</td> <td>&lt; 2.5 mm</td> </tr> </table> <p>FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF THE MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC.</p> |  | TERM | THICKNESS | VERY THICKLY BEDDED   | > 1 m | THICKLY BEDDED   | 0.5 - 1 m | THINLY BEDDED | 0.05 - 0.5 m | VERY THINLY BEDDED | 10 - 50 mm | THICKLY LAMINATED | 2.5 - 10 mm | THINLY LAMINATED | < 2.5 mm |
| SOIL MOISTURE SCALE (ATTERBERG LIMITS)  | FIELD MOISTURE DESCRIPTION  | GUIDE FOR FIELD MOISTURE DESCRIPTION   |   |  |   |  |   |                                      |                                   |   |  |  |  |   |                                  |  |   |                            |  |  |   |                                |   |  |      |                           |                   |              |                                |   |            |  |   |  |      |           |   |       |  |           |               |              |                    |            |                   |             |                  |          |
| LL - LIQUID LIMIT   | - SATURATED - (SAT.)  | USUALLY LIQUID; VERY WET, USUALLY FROM BELOW THE GROUND WATER TABLE  |   |  |   |  |   |                                      |                                   |   |  |  |  |   |                                  |  |   |                            |  |  |   |                                |   |  |      |                           |                   |              |                                |   |            |  |   |  |      |           |   |       |  |           |               |              |                    |            |                   |             |                  |          |
| PL - PLASTIC LIMIT  | - WET - (W)   | SEMISOLID; REQUIRES DRYING TO ATTAIN OPTIMUM MOISTURE  |   |  |   |  |   |                                      |                                   |   |  |  |  |   |                                  |  |   |                            |  |  |   |                                |   |  |      |                           |                   |              |                                |   |            |  |   |  |      |           |   |       |  |           |               |              |                    |            |                   |             |                  |          |
| OM - OPTIMUM MOISTURE   | - MOIST - (M)   | SOLID; AT OR NEAR OPTIMUM MOISTURE   |   |  |   |  |   |                                      |                                   |   |  |  |  |   |                                  |  |   |                            |  |  |   |                                |   |  |      |                           |                   |              |                                |   |            |  |   |  |      |           |   |       |  |           |               |              |                    |            |                   |             |                  |          |
| SL - SHRINKAGE LIMIT  | - DRY - (D)   | REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE   |   |  |   |  |   |                                      |                                   |   |  |  |  |   |                                  |  |   |                            |  |  |   |                                |   |  |      |                           |                   |              |                                |   |            |  |   |  |      |           |   |       |  |           |               |              |                    |            |                   |             |                  |          |
| TERM  | SPACING   |  |   |  |   |  |   |                                      |                                   |   |  |  |  |   |                                  |  |   |                            |  |  |   |                                |   |  |      |                           |                   |              |                                |   |            |  |   |  |      |           |   |       |  |           |               |              |                    |            |                   |             |                  |          |
| VERY WIDE   | MORE THAN 3 m   |  |   |  |   |  |   |                                      |                                   |   |  |  |  |   |                                  |  |   |                            |  |  |   |                                |   |  |      |                           |                   |              |                                |   |            |  |   |  |      |           |   |       |  |           |               |              |                    |            |                   |             |                  |          |
| WIDE  | 1 TO 3 m  |  |   |  |   |  |   |                                      |                                   |   |  |  |  |   |                                  |  |   |                            |  |  |   |                                |   |  |      |                           |                   |              |                                |   |            |  |   |  |      |           |   |       |  |           |               |              |                    |            |                   |             |                  |          |
| MODERATELY CLOSE  | 30 TO 100 cm  |  |   |  |   |  |   |                                      |                                   |   |  |  |  |   |                                  |  |   |                            |  |  |   |                                |   |  |      |                           |                   |              |                                |   |            |  |   |  |      |           |   |       |  |           |               |              |                    |            |                   |             |                  |          |
| CLOSE   | 5 TO 30 cm  |  |   |  |   |  |   |                                      |                                   |   |  |  |  |   |                                  |  |   |                            |  |  |   |                                |   |  |      |                           |                   |              |                                |   |            |  |   |  |      |           |   |       |  |           |               |              |                    |            |                   |             |                  |          |
| VERY CLOSE  | LESS THAN 5 cm  |  |   |  |   |  |   |                                      |                                   |   |  |  |  |   |                                  |  |   |                            |  |  |   |                                |   |  |      |                           |                   |              |                                |   |            |  |   |  |      |           |   |       |  |           |               |              |                    |            |                   |             |                  |          |
| TERM  | THICKNESS   |  |   |  |   |  |   |                                      |                                   |   |  |  |  |   |                                  |  |   |                            |  |  |   |                                |   |  |      |                           |                   |              |                                |   |            |  |   |  |      |           |   |       |  |           |               |              |                    |            |                   |             |                  |          |
| VERY THICKLY BEDDED   | > 1 m   |  |   |  |   |  |   |                                      |                                   |   |  |  |  |   |                                  |  |   |                            |  |  |   |                                |   |  |      |                           |                   |              |                                |   |            |  |   |  |      |           |   |       |  |           |               |              |                    |            |                   |             |                  |          |
| THICKLY BEDDED  | 0.5 - 1 m   |  |   |  |   |  |   |                                      |                                   |   |  |  |  |   |                                  |  |   |                            |  |  |   |                                |   |  |      |                           |                   |              |                                |   |            |  |   |  |      |           |   |       |  |           |               |              |                    |            |                   |             |                  |          |
| THINLY BEDDED   | 0.05 - 0.5 m  |  |   |  |   |  |   |                                      |                                   |   |  |  |  |   |                                  |  |   |                            |  |  |   |                                |   |  |      |                           |                   |              |                                |   |            |  |   |  |      |           |   |       |  |           |               |              |                    |            |                   |             |                  |          |
| VERY THINLY BEDDED  | 10 - 50 mm  |  |   |  |   |  |   |                                      |                                   |   |  |  |  |   |                                  |  |   |                            |  |  |   |                                |   |  |      |                           |                   |              |                                |   |            |  |   |  |      |           |   |       |  |           |               |              |                    |            |                   |             |                  |          |
| THICKLY LAMINATED   | 2.5 - 10 mm   |  |   |  |   |  |   |                                      |                                   |   |  |  |  |   |                                  |  |   |                            |  |  |   |                                |   |  |      |                           |                   |              |                                |   |            |  |   |  |      |           |   |       |  |           |               |              |                    |            |                   |             |                  |          |
| THINLY LAMINATED  | < 2.5 mm  |  |   |  |   |  |   |                                      |                                   |   |  |  |  |   |                                  |  |   |                            |  |  |   |                                |   |  |      |                           |                   |              |                                |   |            |  |   |  |      |           |   |       |  |           |               |              |                    |            |                   |             |                  |          |
| <p>PLASTICITY</p> <table border="1"> <tr> <th>NONPLASTIC</th> <th>PLASTICITY INDEX (PI)</th> <th>DRY STRENGTH</th> </tr> <tr> <td>LOW PLASTICITY</td> <td>0-5</td> <td>VERY LOW</td> </tr> <tr> <td>MED. PLASTICITY</td> <td>6-15</td> <td>SLIGHT</td> </tr> <tr> <td>HIGH PLASTICITY</td> <td>16-25</td> <td>MEDIUM</td> </tr> <tr> <td></td> <td>26 OR MORE</td> <td>HIGH</td> </tr> </table>   |   | NONPLASTIC   | PLASTICITY INDEX (PI)   | DRY STRENGTH   | LOW PLASTICITY  | 0-5  | VERY LOW  | MED. PLASTICITY                      | 6-15                              | SLIGHT  | HIGH PLASTICITY  | 16-25                                      | MEDIUM   |   | 26 OR MORE                       | HIGH   | <p>DESCRIPTIONS MAY INCLUDE COLOR OR COLOR COMBINATIONS (TAN, RED, YEL-BRN, BLUE-GRAY) MODIFIERS SUCH AS LIGHT, DARK, STREAKED, ETC. ARE USED TO DESCRIBE APPEARANCE.</p>   |                            | <p>BENCH MARK:</p> <p>ELEVATION:</p> <p>NOTES:</p>   |  |   |                                |   |  |      |                           |                   |              |                                |   |            |  |   |  |      |           |   |       |  |           |               |              |                    |            |                   |             |                  |          |
| NONPLASTIC  | PLASTICITY INDEX (PI)   | DRY STRENGTH   |   |  |   |  |   |                                      |                                   |   |  |  |  |   |                                  |  |   |                            |  |  |   |                                |   |  |      |                           |                   |              |                                |   |            |  |   |  |      |           |   |       |  |           |               |              |                    |            |                   |             |                  |          |
| LOW PLASTICITY  | 0-5   | VERY LOW   |   |  |   |  |   |                                      |                                   |   |  |  |  |   |                                  |  |   |                            |  |  |   |                                |   |  |      |                           |                   |              |                                |   |            |  |   |  |      |           |   |       |  |           |               |              |                    |            |                   |             |                  |          |
| MED. PLASTICITY   | 6-15  | SLIGHT   |   |  |   |  |   |                                      |                                   |   |  |  |  |   |                                  |  |   |                            |  |  |   |                                |   |  |      |                           |                   |              |                                |   |            |  |   |  |      |           |   |       |  |           |               |              |                    |            |                   |             |                  |          |
| HIGH PLASTICITY   | 16-25   | MEDIUM   |   |  |   |  |   |                                      |                                   |   |  |  |  |   |                                  |  |   |                            |  |  |   |                                |   |  |      |                           |                   |              |                                |   |            |  |   |  |      |           |   |       |  |           |               |              |                    |            |                   |             |                  |          |
|   | 26 OR MORE  | HIGH   |   |  |   |  |   |                                      |                                   |   |  |  |  |   |                                  |  |   |                            |  |  |   |                                |   |  |      |                           |                   |              |                                |   |            |  |   |  |      |           |   |       |  |           |               |              |                    |            |                   |             |                  |          |



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY  
GOVERNOR

P.O. BOX 25201, RALEIGH, N.C. 27611-5201

DAVID McCOY  
SECRETARY

March 5, 2002

STATE PROJECT: 6.689004T (R-0967CC)  
F.A. PROJECT:  
COUNTY: Stanly  
DESCRIPTION: NC 24-27 East of Big Bear Creek to SR 1963 (Oakboro Rd)  
SUBJECT: Geotechnical Report - Inventory

This Geotechnical Inventory Report presents the findings of the Geotechnical Investigation for section CC of NC 24-27 from east of Big Bear Creek to SR 1963 (Oakboro Rd.). Stations encompassed on this project are from -L- 157+20 through -LTRAN RT- station 247+80. The project generally proceeds in an easterly direction from beginning to end.

The geotechnical field investigation for this project was conducted between December 2001 and January 2002. An ATV mounted drill machine with automatic hammer was utilized for this investigation.

The following survey lines were investigated:

| Line       | Station               |
|------------|-----------------------|
| -L-        | 155+70 – 238+50       |
| -LTRAN LT- | 238+50 – 247+80       |
| -LTRAN RT- | 238+50 – 247+80       |
| -Y28-      | 10+00 – 10+80         |
| -Y39-      | 10+20 – 11+30.6       |
| -Y40-      | 10+35 – 11+76.795     |
| -Y41-      | 10+00 – 11+60         |
| -Y42-      | 10+00 – 11+01.268     |
| -Y43-      | 10+00 – 12+00         |
| -Y45A-     | 10+02.512 – 10+71.389 |
| -Y45-      | 10+40 – 12+59.751     |
| -Y46-      | 10+00 – 11+15         |

| Line  | Station           |
|-------|-------------------|
| -Y47- | 10+00 – 11+20     |
| -Y48- | 10+00 – 11+20     |
| -Y49- | 10+20 – 11+56.796 |
| -Y50- | 10+00 – 11+20     |
| -Y51- | 10+00 – 10+80     |
| -Y52- | 10+00 – 11+20     |
| -Y53- | 10+00 – 12+23     |
| -Y55- | 10+00 – 11+00     |

Areas of Special Geotechnical Interest:

1. Alluvial Soils:

There are several areas containing alluvial soils throughout the project corridor. Most of the alluvial areas are confined to a narrow region directly adjacent to creeks. In most instances these creeks are merely "wet weather runs". Creeks and drainage along this section of the project typically cut directly into hard residual soils and run on top of weathered rock and rock. For this reason most of the alluvial areas encountered are of no special interest and floodplains are minimal. A couple of small ponds within the project corridor had little or no water with soft silty clay (A-6) sediments less than 0.7 meters deep.

2. High PI Soils: (PI's Greater than 30)

No high PI soils were sampled during the course of this investigation. The highest value encountered, based on sample results, was on an A-7-6 clay yielding a PI of 28 with a corresponding liquid limit value of 51.

3. Rock:

Hard rock was encountered throughout the proposed project corridor. The following is a list of station ranges where rock was discovered at or above proposed grade.

| Alignment | Location        |
|-----------|-----------------|
| -L-       | 161+10 – 161+70 |
| -L-       | 162+70 – 163+30 |
| -L-       | 163+90 – 164+30 |
| -L-       | 164+90 – 165+70 |
| -L-       | 170+50 – 171+30 |
| -L-       | 186+00 – 186+90 |
| -L-       | 188+70 – 191+80 |
| -L-       | 197+30 – 199+70 |
| -L-       | 201+80 – 202+10 |
| -L-       | 204+80 – 205+50 |

| <u>Alignment</u> | <u>Location</u> |
|------------------|-----------------|
| -L-              | 206+30 – 206+50 |
| -L-              | 223+90 – 224+50 |

**Physiography/Geology:**

The project corridor is located in the piedmont region of North Carolina in Stanly County just west of the city of Albemarle. Geologically this site is part of the Carolina Slate Belt and is underlain by meta-mudstone and meta-argillite rock. The topography consists of gently rolling hills and gently sloping interstream areas ranging in elevation from approximately 110 to 180 meters. Densely wooded areas, open fields, and residential houses along existing NC 24-27 surround the proposed project corridor. Several small streams and wet weather drainage features bisect the project.

**Soil Properties:**

*1. Residual Soils:*

Residual soils are derived from in place weathering of parent materials. They occur in a variety of consistencies, classifications, and stratigraphic sequences. Residual soils are further subdivided into clays, silts, and sands.

Clays are found consistently throughout the project corridor as both near surface soils and subsoils. They consist primarily of stiff to hard red-brown, brown and tan silty clay, and sandy silty clay (A-6, A-7-5, A-7-6) up to 6 meters thick. These soils are typically well drained and possess Atterburg Limits in the intermediate range. Soil test results for these soils indicate a plasticity index range of 11 to 28 and a liquid limit range of 35 to 51.

Silts encountered on the project were of both the A-4 and A-5 AASHTO Classifications and occur as both near surface soils and subsoils. They generally consist of stiff to hard tan-brown, tan-gray, and red-brown clayey sandy silt with thicknesses up to 4.5 meters.

Sands encountered on the project were of the A-2-4, and A-2-6 AASHTO Classifications and occur as both surface soils and subsoils with a thickness of up to 3 meters. They consist primarily of dense to very dense gray, gray-brown and red-brown clayey sand.

*2. Alluvial Soils:*

Alluvial soils originate from water transportation and deposition in a floodplain environment. These deposits are usually shallow, but range up to 2 meters in thickness. Alluvial soils consist of soft to medium stiff gray sandy clayey silt (A-4), soft to medium stiff brown silty clay (A-6, A-7-6), and loose brown clayey silty sand and silty clayey sand (A-2-4, A-2-6).

**3. Fill Soils:**

- A. An area of artificial fill exists between -L- stations 210+90 to 211+50. The site was a former convenience mart with gas pumps. The building has been demolished and the site now contains an active remediation system and 2 monitoring wells. The soils encountered in this area consist of very soft to soft brown wet silty clay (A-6). Estimated quantity of material is 2000 cubic meters.
- B. The proposed project alignment crosses back and forth over existing NC 24-27 and many secondary roads. Thus existing roadway fill soils are encountered numerous times throughout the project. Typical roadway fill soils consist of stiff tan-brown sandy silty clay (A-7-5, A-7-6).

**Rock Properties:**

Rock is defined as that material which refuses penetration of power augers. Hard rock was encountered throughout the project corridor.

**Groundwater:**

Groundwater was rarely encountered during our investigation. There were no instances of groundwater found at or above proposed grade.

**Well Locations:**

Wells discovered within the proposed project corridor during our investigation were located at the following locations:

| <u>Survey Line</u> | <u>Station / Offset (m)</u> |
|--------------------|-----------------------------|
| -L-                | 158+41, 43 LT               |
| -L-                | 163+36, 46 LT               |
| -L-                | 166+84, 48 LT               |
| -L-                | 168+73, 41 LT               |
| -L-                | 169+17, 33 LT               |
| -L-                | 170+69, 30 RT               |
| -L-                | 176+02, 51 RT               |
| -L-                | 179+93, 30 RT               |
| -L-                | 180+33, 6 RT                |
| -L-                | 180+81, 47 RT               |
| -L-                | 183+23, 45 RT               |
| -L-                | 183+65, 34 RT               |
| -L-                | 187+25, 52 RT               |
| -L-                | 197+16, 31 LT               |
| -L-                | 197+55, 20 LT               |
| -L-                | 198+83, 27 RT               |
| -L-                | 200+00, 39 LT               |
| -L-                | 204+56, 12 RT               |
| -L-                | 204+84, 19 RT               |

| <u>Survey Line</u> | <u>Station / Offset (m)</u> |
|--------------------|-----------------------------|
| -L-                | 208+39, 21 RT               |
| -L-                | 208+84, 13 RT               |
| -L-                | 209+23, 20 RT               |
| -L-                | 214+29, 9 RT                |
| -L-                | 214+92, 42 RT               |
| -L-                | 221+90, 39 LT               |
| -L-                | 223+19, 40 LT               |
| -L-                | 232+42, 46 RT               |
| -L-                | 232+63, 44 RT               |
| -L-                | 233+00, 50 RT               |
| -L-                | 237+36, 25 RT               |
| -Y39-              | 10+91, 16 LT                |

Respectfully Submitted,

J.E. Beverly, Project Geologist

### EARTHWORK SUMMARIES

Volumes in Cubic Meters

PROJECT R-0967CC

COUNTY Stanly

DATE 11/12/04

SHEET 1 OF 5 SHEETS

| LINE                              | STATION    | STATION   | TOTAL EXCAV. (UNCL.) | ROCK EXCAV.  | UNDERCUT | UNSUIT. EXCAV. | SUITABLE EXCAV. | TOTAL EMB.   | ROCK EMB.   | EARTH EMB.   | EMBANK. +20% | BORROW      | ROCK WASTE   | SUITABLE WASTE | UNSUIT. WASTE | TOTAL WASTE  |
|-----------------------------------|------------|-----------|----------------------|--------------|----------|----------------|-----------------|--------------|-------------|--------------|--------------|-------------|--------------|----------------|---------------|--------------|
| <b>BEGIN PHASE I</b>              |            |           |                      |              |          |                |                 |              |             |              |              |             |              |                |               |              |
| CR1                               | 10+56.77   | 11+56.30  | 11                   |              |          |                | 11              | 181          |             | 181          | 217          | 206         |              |                |               |              |
| CR2                               | 10+50.21   | 11+62.38  | 25                   |              |          |                | 25              | 160          |             | 160          | 192          | 167         |              |                |               |              |
| LDET1                             | 10+79.07   | 12+37.38  | 4                    |              |          |                | 4               | 1262         |             | 1262         | 1514         | 1510        |              |                |               |              |
| LDET2                             | 10+00.00   | 12+10.43  | 203                  |              |          |                | 203             | 126          |             | 126          | 151          |             |              | 52             |               | 52           |
| <b>SUBTOTAL</b>                   |            |           | <b>243</b>           |              |          |                | <b>243</b>      | <b>1729</b>  |             | <b>1729</b>  | <b>2074</b>  | <b>1883</b> |              | <b>52</b>      |               | <b>52</b>    |
| -L- LT                            | 157+60.000 | 166+60.00 | 41487                | 4084         |          |                | 37403           | 539          | 539         |              | 539          |             | 3545         | 37403          |               | 40948        |
| -L- LT                            | 166+60.00  | 169+00.00 | 3350                 |              |          |                | 3350            | 5053         |             | 5053         | 6064         | 2714        |              |                |               |              |
| -Y38- LT                          | 10+14.200  | 10+80.00  | 194                  |              |          |                | 194             | 66           |             | 66           | 79           |             |              | 115            |               | 115          |
| -Y38- RT                          | 10+14.200  | 10+80.00  | 512                  |              |          |                | 512             | 67           |             | 67           | 80           |             |              | 432            |               | 432          |
| <b>SUBTOTAL</b>                   |            |           | <b>45543</b>         | <b>4084</b>  |          |                | <b>41459</b>    | <b>5725</b>  | <b>539</b>  | <b>5186</b>  | <b>6762</b>  | <b>2714</b> | <b>3545</b>  | <b>37950</b>   |               | <b>41495</b> |
| -L- RT                            | 168+40.00  | 177+00.00 | 11386                | 2482         |          |                | 8904            | 7388         | 2482        | 4906         | 8369         |             |              | 3017           |               | 3017         |
| -L- RT                            | 177+00     | 179+00.00 | 2877                 |              |          |                | 2877            | 897          |             | 897          | 1076         |             |              | 1801           |               | 1801         |
| -Y39- LT                          | 10+20.00   | 11+16.40  | 417                  |              |          |                | 417             | 4            |             | 4            | 5            |             |              | 412            |               | 412          |
| -Y39- RT                          | 10+20.00   | 11+16.40  | 438                  |              |          |                | 438             | 7            |             | 7            | 8            |             |              | 430            |               | 430          |
| -Y40- LT                          | 10+35.00   | 11+62.59  | 3010                 |              |          |                | 3010            | 88           |             | 88           | 106          |             |              | 2904           |               | 2904         |
| -Y40- RT                          | 10+35.00   | 11+62.59  | 2177                 |              |          |                | 2177            | 10           |             | 10           | 12           |             |              | 2165           |               | 2165         |
| -Y41-                             | 10+14.20   | 11+60.00  | 775                  |              |          |                | 775             | 957          |             | 957          | 1148         | 373         |              |                |               |              |
| <b>SUBTOTAL</b>                   |            |           | <b>21080</b>         | <b>2482</b>  |          |                | <b>18598</b>    | <b>9351</b>  | <b>2482</b> | <b>6869</b>  | <b>10724</b> | <b>373</b>  |              | <b>10729</b>   |               | <b>10729</b> |
| -L- RT                            | 179+00.00  | 188+00.00 | 13743                | 100          |          |                | 13643           | 1670         | 100         | 1570         | 1984         |             |              | 11759          |               | 11759        |
| -L- RT                            | 188+00.000 | 191+60.00 | 24113                | 13566        |          |                | 10547           | 343          | 343         |              | 343          |             | 13223        | 10547          |               | 23770        |
| -Y42-                             | 10+00.00   | 10+86.92  | 1824                 |              |          |                | 1824            | 39           |             | 39           | 47           |             |              | 1777           |               | 1777         |
| <b>SUBTOTAL</b>                   |            |           | <b>39680</b>         | <b>13666</b> |          |                | <b>26014</b>    | <b>2052</b>  | <b>443</b>  | <b>1609</b>  | <b>2374</b>  |             | <b>13223</b> | <b>24083</b>   |               | <b>37306</b> |
| <b>SHEET 1 SUBTOTAL (PHASE I)</b> |            |           | <b>106546</b>        | <b>20232</b> |          |                | <b>86314</b>    | <b>18857</b> | <b>3464</b> | <b>15393</b> | <b>21934</b> | <b>4970</b> | <b>16768</b> | <b>72814</b>   |               | <b>89582</b> |

3D

### EARTHWORK SUMMARIES

Volumes in Cubic Meters

PROJECT R-0967CC

COUNTY Stanly

DATE 11/12/04

SHEET 2 OF 5 SHEETS

| LINE                              | STATION   | STATION   | TOTAL EXCAV. (UNCL.) | ROCK EXCAV.  | UNDERCUT    | UNSUIT. EXCAV. | SUITABLE EXCAV. | TOTAL EMB.    | ROCK EMB.    | EARTH EMB.   | EMBANK. +20%  | BORROW       | ROCK WASTE | SUITABLE WASTE | UNSUIT. WASTE | TOTAL WASTE  |
|-----------------------------------|-----------|-----------|----------------------|--------------|-------------|----------------|-----------------|---------------|--------------|--------------|---------------|--------------|------------|----------------|---------------|--------------|
| -L- LT                            | 190+60.00 | 199+60.00 | 19315                | 6138         |             |                | 13177           | 19875         | 6138         | 13737        | 22622         | 3307         |            |                |               |              |
| -L- LT                            | 199+60.00 | 201+60.00 | 4776                 | 923          |             |                | 3853            | 2149          | 923          | 1226         | 2394          |              |            | 2382           |               | 2382         |
| -Y43-                             | 10+14.20  | 11+80.00  | 498                  |              |             |                | 498             | 1456          |              | 1456         | 1747          | 1249         |            |                |               |              |
| -Y55- LT                          | 10+03.86  | 11+00.00  | 75                   |              |             |                | 75              | 122           |              | 122          | 146           | 71           |            |                |               |              |
| -Y55- RT                          | 10+03.86  | 11+00.00  | 8                    |              |             |                | 8               | 325           |              | 325          | 390           | 382          |            |                |               |              |
| <b>SUBTOTAL</b>                   |           |           | <b>24672</b>         | <b>7061</b>  |             |                | <b>17611</b>    | <b>23927</b>  | <b>7061</b>  | <b>16866</b> | <b>27299</b>  | <b>5009</b>  |            | <b>2382</b>    |               | <b>2382</b>  |
| -L- RT                            | 200+80.00 | 210+00.00 | 13356                | 812          |             |                | 12544           | 16669         | 812          | 15857        | 19840         | 6484         |            |                |               |              |
| -Y45-                             | 10+40.00  | 12+45.55  | 433                  |              |             |                | 433             | 4307          |              | 4307         | 5168          | 4735         |            |                |               |              |
| -Y45A-                            | 10+02.512 | 11+01.829 | 765                  |              |             |                | 765             | 56            |              | 56           | 67            |              |            | 698            |               | 698          |
| -Y46-                             | 10+14.20  | 11+00.00  | 384                  |              |             |                | 384             | 1075          |              | 1075         | 1290          | 906          |            |                |               |              |
| <b>SUBTOTAL</b>                   |           |           | <b>14938</b>         | <b>812</b>   |             |                | <b>14126</b>    | <b>22107</b>  | <b>812</b>   | <b>21295</b> | <b>26365</b>  | <b>12125</b> |            | <b>698</b>     |               | <b>698</b>   |
| -L- RT                            | 210+00.00 | 218+60.00 | 4813                 |              | 2000        |                | 4813            | 13588         |              | 13588        | 16306         | 11493        |            |                | 2000          | 2000         |
| -Y49- RT                          | 10+20.00  | 11+42.60  | 288                  |              |             |                | 288             | 5771          |              | 5771         | 6925          | 6637         |            |                |               |              |
| <b>SUBTOTAL</b>                   |           |           | <b>5101</b>          |              | <b>2000</b> |                | <b>5101</b>     | <b>19359</b>  |              | <b>19359</b> | <b>23231</b>  | <b>18130</b> |            |                | <b>2000</b>   | <b>2000</b>  |
| -L- LT                            | 217+60.00 | 226+60.00 | 19772                | 4096         | 400         |                | 15676           | 9470          | 4096         | 5374         | 10545         |              |            | 9627           | 400           | 10027        |
| -L- LT                            | 226+60.00 | 229+40.00 | 966                  |              |             |                | 966             | 9804          |              | 9804         | 11765         | 10799        |            |                |               |              |
| -Y50-                             | 10+14.35  | 11+20.00  | 171                  |              |             |                | 171             | 4618          |              | 4618         | 5542          | 5371         |            |                |               |              |
| <b>SUBTOTAL</b>                   |           |           | <b>20909</b>         | <b>4096</b>  | <b>400</b>  |                | <b>16813</b>    | <b>23892</b>  | <b>4096</b>  | <b>19796</b> | <b>27852</b>  | <b>16170</b> |            | <b>9627</b>    | <b>400</b>    | <b>10027</b> |
| -L- RT                            | 228+80.00 | 237+80.00 | 39275                |              |             |                | 39275           | 9316          |              | 9316         | 11179         |              |            | 28096          |               | 28096        |
| -L- RT                            | 237+80.00 | 238+50.00 | 399                  |              |             |                | 399             | 2004          |              | 2004         | 2405          | 2006         |            |                |               |              |
| -Y51- LT                          | 10+14.20  | 10+80.0   | 198                  |              |             |                | 198             | 109           |              | 109          | 131           |              |            | 67             |               | 67           |
| -Y51- RT                          | 10+14.20  | 10+80.0   | 757                  |              |             |                | 757             | 13            |              | 13           | 16            |              |            | 741            |               | 741          |
| -Y52- LT                          | 10+03.60  | 11+20.00  | 328                  |              |             |                | 328             | 232           |              | 232          | 278           |              |            | 50             |               | 50           |
| -Y52- RT                          | 10+03.60  | 11+20.00  | 558                  |              |             |                | 558             | 102           |              | 102          | 122           |              |            | 436            |               | 436          |
| -LIRAN RT-                        | 238+50.00 | 241+40.00 | 1124                 |              |             |                | 1124            | 9625          |              | 9625         | 11550         | 10426        |            |                |               |              |
| <b>SUBTOTAL</b>                   |           |           | <b>42639</b>         |              |             |                | <b>42639</b>    | <b>21401</b>  |              | <b>21401</b> | <b>25681</b>  | <b>12432</b> |            | <b>29390</b>   |               | <b>29390</b> |
| <b>SHEET 2 SUBTOTAL (PHASE I)</b> |           |           | <b>108259</b>        | <b>11969</b> | <b>2400</b> |                | <b>96290</b>    | <b>110686</b> | <b>11969</b> | <b>98717</b> | <b>130428</b> | <b>63866</b> |            | <b>42097</b>   | <b>2400</b>   | <b>44497</b> |



### EARTHWORK SUMMARIES

Volumes in Cubic Meters

PROJECT R-0967CC

COUNTY Stanly

DATE 11/12/04

SHEET 3 OF 5 SHEETS

| LINE                    | STATION   | STATION    | TOTAL EXCAV. (UNCL.) | ROCK EXCAV. | UNDERCUT | UNSUIT. EXCAV. | SUITABLE EXCAV. | TOTAL EMB. | ROCK EMB. | EARTH EMB. | EMBANK. +20% | BORROW | ROCK WASTE | SUITABLE WASTE | UNSUIT. WASTE | TOTAL WASTE |
|-------------------------|-----------|------------|----------------------|-------------|----------|----------------|-----------------|------------|-----------|------------|--------------|--------|------------|----------------|---------------|-------------|
| -LTRAN LT-              | 241+80.00 | 245+00.00  | 3621                 |             |          |                | 3621            | 8455       |           | 8455       | 10146        | 6525   |            |                |               |             |
| -Y53-                   | 10+03.60  | 13+00.00   | 1336                 |             |          |                | 1336            | 5850       |           | 5850       | 7020         | 5684   |            |                |               |             |
| <b>SUBTOTAL</b>         |           |            | 4957                 |             |          |                | 4957            | 14305      |           | 14305      | 17166        | 12209  |            |                |               |             |
| -LTRAN RT-              | 241+40.00 | 247+97.548 | 3806                 |             |          |                | 3806            | 991        |           | 991        | 1189         |        |            | 2617           |               | 2617        |
| <b>SUBTOTAL</b>         |           |            | 3806                 |             |          |                | 3806            | 991        |           | 991        | 1189         |        |            | 2617           |               | 2617        |
| <b>SHEET 1 SUBTOTAL</b> |           | (PHASE I)  | 106546               | 20232       |          |                | 86314           | 18857      | 3464      | 15393      | 21934        | 4970   | 16768      | 72814          |               | 89582       |
| <b>SHEET 2 SUBTOTAL</b> |           | (PHASE I)  | 108259               | 11969       | 2400     |                | 96290           | 110686     | 11969     | 98717      | 130428       | 63866  |            | 42097          | 2400          | 44497       |
| <b>SHEET 3 SUBTOTAL</b> |           | (PHASE I)  | 8763                 |             |          |                | 8763            | 15296      |           | 15296      | 18355        | 12209  |            | 2617           |               | 2617        |
| <b>PHASE I SUBTOTAL</b> |           |            | 223568               | 32201       | 2400     |                | 191367          | 144839     | 15433     | 129406     | 170717       | 81045  | 16768      | 117528         | 2400          | 136696      |

**EARTHWORK SUMMARIES**

Volumes in Cubic Meters

PROJECT R-0967CC

COUNTY Stanly

DATE 11/12/04

SHEET 4 OF 5 SHEETS  
15 16

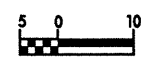
| LINE                     | STATION   | STATION    | TOTAL EXCAV. (UNCL.) | ROCK EXCAV. | UNDERCUT | UNSUIT. EXCAV. | SUITABLE EXCAV. | TOTAL EMB.   | ROCK EMB.  | EARTH EMB.   | EMBANK. +20% | BORROW       | ROCK WASTE | SUITABLE WASTE | UNSUIT. WASTE | TOTAL WASTE  |
|--------------------------|-----------|------------|----------------------|-------------|----------|----------------|-----------------|--------------|------------|--------------|--------------|--------------|------------|----------------|---------------|--------------|
| <b>PHASE II</b>          |           |            |                      |             |          |                |                 |              |            |              |              |              |            |                |               |              |
| -L- RT                   | 157+60.00 | 166+60.00  | 1443                 |             |          |                | 1443            | 955          |            | 955          | 1146         |              |            | 297            |               | 297          |
| -L- RT                   | 166+60.00 | 168+40.00  | 447                  |             |          |                | 447             | 265          |            | 265          | 318          |              |            | 129            |               | 129          |
| <b>SUBTOTAL</b>          |           |            | <b>1890</b>          |             |          |                | <b>1890</b>     | <b>1220</b>  |            | <b>1220</b>  | <b>1464</b>  |              |            | <b>426</b>     |               | <b>426</b>   |
| -L- LT                   | 169+00.00 | 178+00.00  | 1291                 |             |          |                | 1291            | 1377         |            | 1377         | 1652         | 361          |            |                |               |              |
| <b>SUBTOTAL</b>          |           |            | <b>1291</b>          |             |          |                | <b>1291</b>     | <b>1377</b>  |            | <b>1377</b>  | <b>1652</b>  | <b>361</b>   |            |                |               |              |
| -L- LT                   | 178+00.00 | 187+00.00  | 1047                 |             |          |                | 1047            | 361          |            | 361          | 433          |              |            | 614            |               | 614          |
| -L- LT                   | 187+00.00 | 190+60.00  | 1395                 |             |          |                | 1395            | 56           |            | 56           | 67           |              |            | 1328           |               | 1328         |
| <b>SUBTOTAL</b>          |           |            | <b>2442</b>          |             |          |                | <b>2442</b>     | <b>417</b>   |            | <b>417</b>   | <b>500</b>   |              |            | <b>1942</b>    |               | <b>1942</b>  |
| -L- RT                   | 191+60.00 | 200+80.00  | 4547                 | 158         |          |                | 4389            | 1156         | 158        | 998          | 1356         |              |            | 3191           |               | 3191         |
| <b>SUBTOTAL</b>          |           |            | <b>4547</b>          | <b>158</b>  |          |                | <b>4389</b>     | <b>1156</b>  | <b>158</b> | <b>998</b>   | <b>1356</b>  |              |            | <b>3191</b>    |               | <b>3191</b>  |
| -L- LT                   | 201+60.00 | 210+60.00  | 2097                 |             |          |                | 2097            | 14447        |            | 14447        | 17336        | 15239        |            |                |               |              |
| -L- LT                   | 210+60.00 | 217+60.00  | 976                  |             |          |                | 976             | 606          |            | 606          | 727          |              |            | 249            |               | 249          |
| -Y47- LT                 | 10+14.20  | 11+20.00   | 151                  |             |          |                | 151             | 347          |            | 347          | 416          | 265          |            |                |               |              |
| -Y47- RT                 | 10+14.20  | 11+20.00   | 4                    |             |          |                | 4               | 337          |            | 337          | 404          | 400          |            |                |               |              |
| -Y48- LT                 | 10+14.20  | 11+20.00   | 215                  |             |          |                | 215             | 220          |            | 220          | 264          | 49           |            |                |               |              |
| -Y48- RT                 | 10+14.20  | 11+20.00   | 273                  |             |          |                | 273             | 295          |            | 295          | 354          | 81           |            |                |               |              |
| <b>SUBTOTAL</b>          |           |            | <b>3716</b>          |             |          |                | <b>3716</b>     | <b>16252</b> |            | <b>16252</b> | <b>19501</b> | <b>16034</b> |            | <b>249</b>     |               | <b>249</b>   |
| -L- RT                   | 218+60.00 | 227+60.00  | 2022                 |             |          |                | 2022            | 8263         |            | 8263         | 9916         | 7894         |            |                |               |              |
| -L- RT                   | 227+60.00 | 228+80.00  | 3                    |             |          |                | 3               | 5895         |            | 5895         | 7074         | 7071         |            |                |               |              |
| <b>SUBTOTAL</b>          |           |            | <b>2025</b>          |             |          |                | <b>2025</b>     | <b>14158</b> |            | <b>14158</b> | <b>16990</b> | <b>14965</b> |            |                |               |              |
| -L- LT                   | 229+40.00 | 238+50.00  | 4562                 |             |          |                | 4562            | 647          |            | 647          | 776          |              |            | 3786           |               | 3786         |
| <b>SUBTOTAL</b>          |           |            | <b>4562</b>          |             |          |                | <b>4562</b>     | <b>647</b>   |            | <b>647</b>   | <b>776</b>   |              |            | <b>3786</b>    |               | <b>3786</b>  |
| LTRAN- LT                | 238+50.00 | 241+80.00  | 4289                 |             |          |                | 4289            | 138          |            | 138          | 166          |              |            | 4123           |               | 4123         |
| LTRAN- LT                | 245+00.00 | 247+97.548 | 1138                 |             |          |                | 1138            | 790          |            | 790          | 948          |              |            | 190            |               | 190          |
| <b>SUBTOTAL</b>          |           |            | <b>5427</b>          |             |          |                | <b>5427</b>     | <b>928</b>   |            | <b>928</b>   | <b>1114</b>  |              |            | <b>4313</b>    |               | <b>4313</b>  |
| <b>PHASE II SUBTOTAL</b> |           |            | <b>25900</b>         | <b>158</b>  |          |                | <b>25742</b>    | <b>36155</b> | <b>158</b> | <b>35997</b> | <b>43353</b> | <b>31360</b> |            | <b>13907</b>   |               | <b>13907</b> |



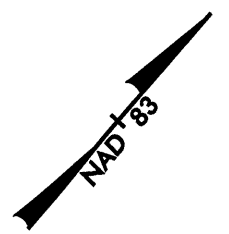
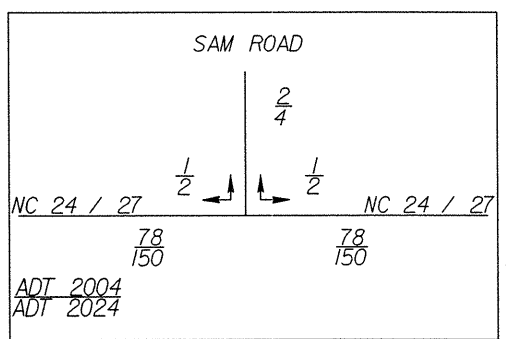




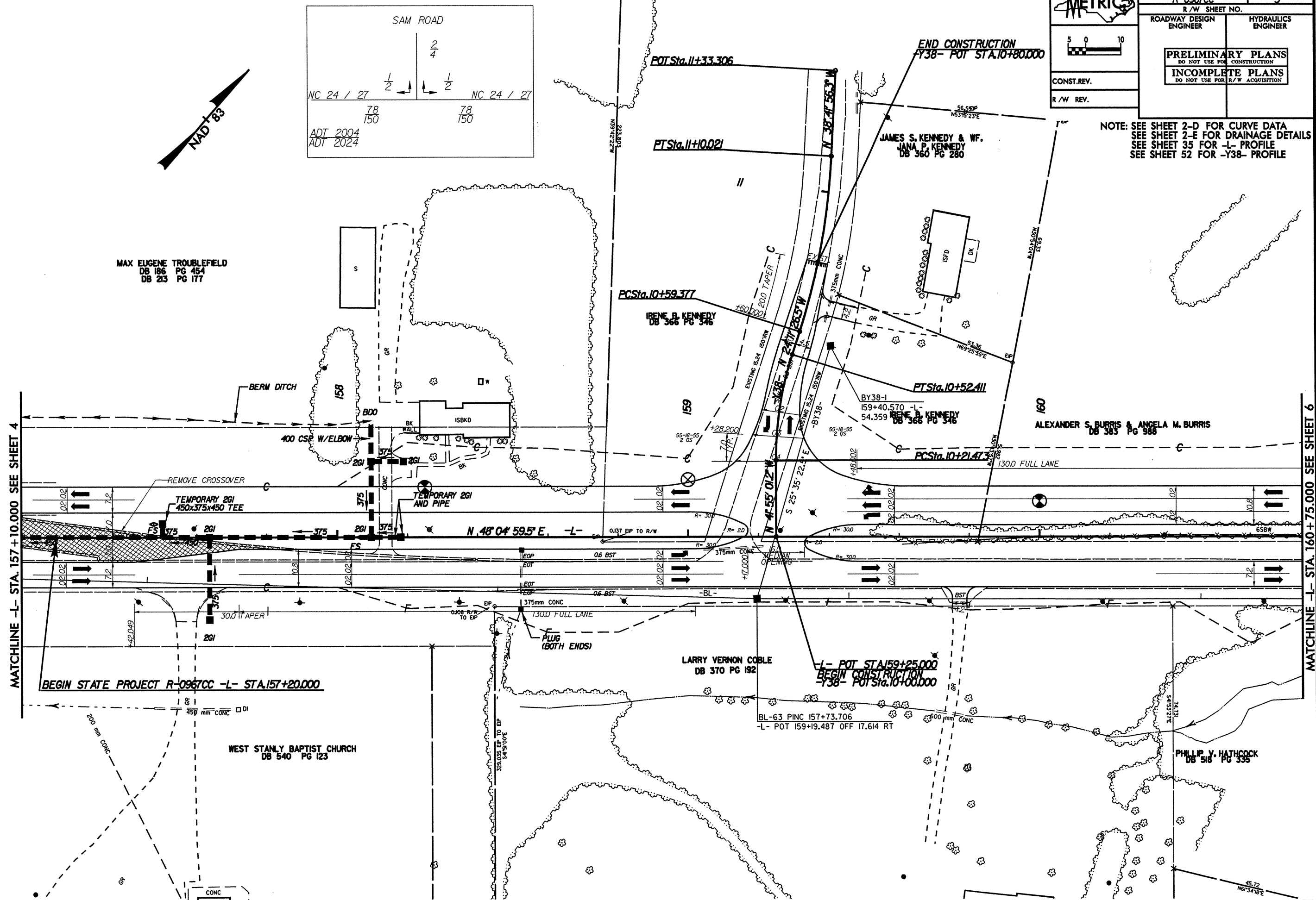
|  |                     |
|--|---------------------|
| PROJECT REFERENCE NO.<br>R-0967CC  | SHEET NO.<br>5      |
| R/W SHEET NO.  |                     |
| ROADWAY DESIGN ENGINEER  | HYDRAULICS ENGINEER |
| <b>PRELIMINARY PLANS</b><br>DO NOT USE FOR CONSTRUCTION<br><b>INCOMPLETE PLANS</b><br>DO NOT USE FOR R/W ACQUISITION |                     |
| CONST. REV.  |                     |
| R/W REV.   |                     |



NOTE: SEE SHEET 2-D FOR CURVE DATA  
 SEE SHEET 2-E FOR DRAINAGE DETAILS  
 SEE SHEET 35 FOR -L- PROFILE  
 SEE SHEET 52 FOR -Y38- PROFILE



MAX EUGENE TROUBLEFIELD  
 DB 186 PG 454  
 DB 213 PG 177



REVISIONS

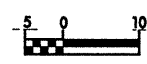
MATCHLINE -L- STA. 157 + 10.000 SEE SHEET 4

MATCHLINE -L- STA. 160 + 75.000 SEE SHEET 6

\*\*\*\*\*  
 SYSTEMS  
 \*\*\*\*\*



|   |                       |
|---|-----------------------|
| PROJECT REFERENCE NO.<br><b>R-0967CC</b>                  | SHEET NO.<br><b>6</b> |
| R/W SHEET NO.   |                       |
| ROADWAY DESIGN ENGINEER                                   | HYDRAULICS ENGINEER   |
| <b>PRELIMINARY PLANS</b><br>DO NOT USE FOR CONSTRUCTION   |                       |
| <b>INCOMPLETE PLANS</b><br>DO NOT USE FOR R/W ACQUISITION |                       |
| CONST. REV. _____   |                       |
| R/W REV. _____  |                       |



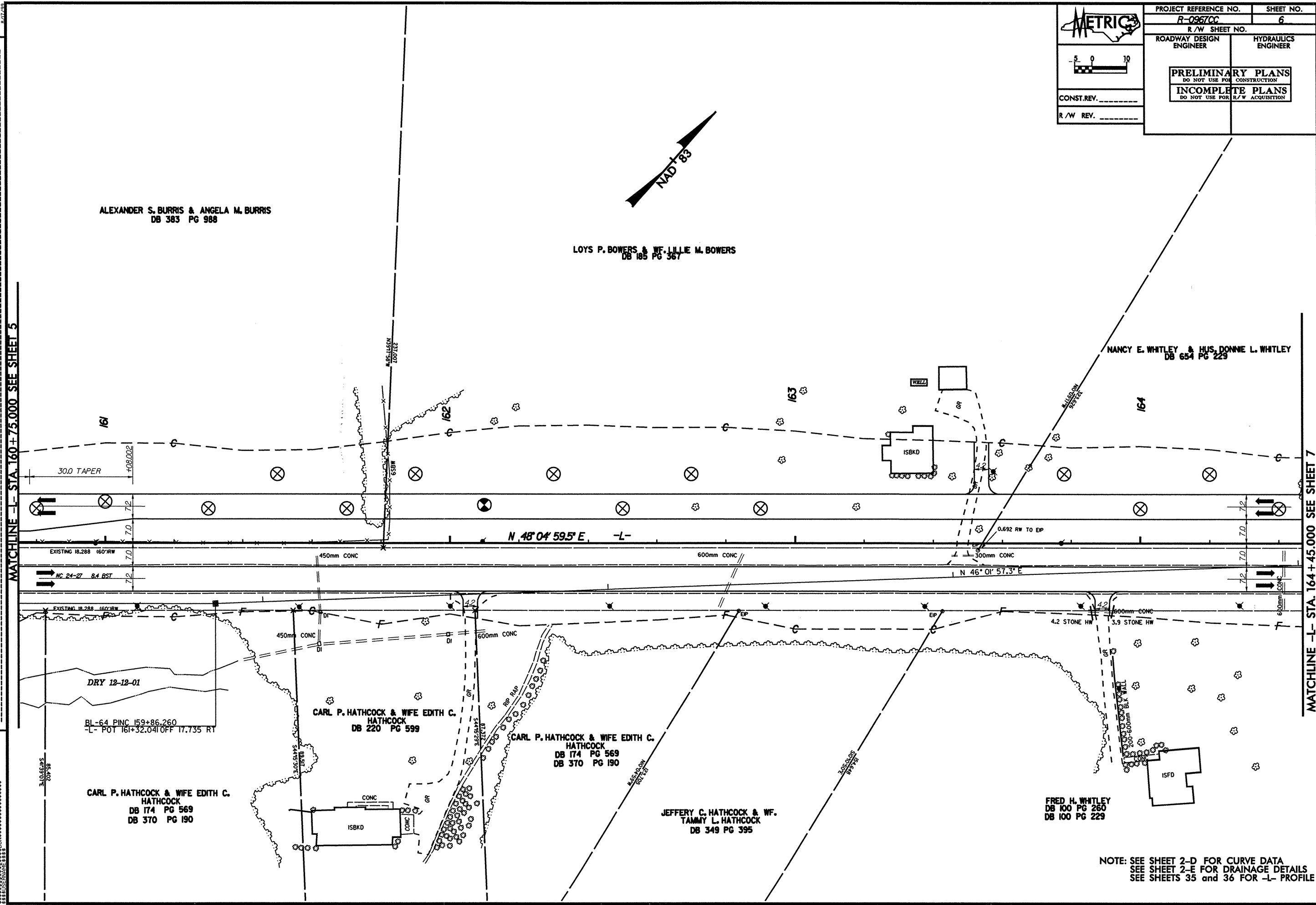
ALEXANDER S. BURRIS & ANGELA M. BURRIS  
DB 383 PG 988

LOYS P. BOWERS & WIFE LILLIE M. BOWERS  
DB 185 PG 367

NANCY E. WHITLEY & HUSB. DONNE L. WHITLEY  
DB 654 PG 229

MATCHLINE -L- STA. 160+75.000 SEE SHEET 5

MATCHLINE -L- STA. 164+45.000 SEE SHEET 7



NOTE: SEE SHEET 2-D FOR CURVE DATA  
SEE SHEET 2-E FOR DRAINAGE DETAILS  
SEE SHEETS 35 and 36 FOR -L- PROFILE

REVISIONS

\*\*\*\*\*SYSTEMTIME\*\*\*\*\*  
\*\*\*\*\*DOWNS\*\*\*\*\*  
\*\*\*\*\*\*\*\*\*\*



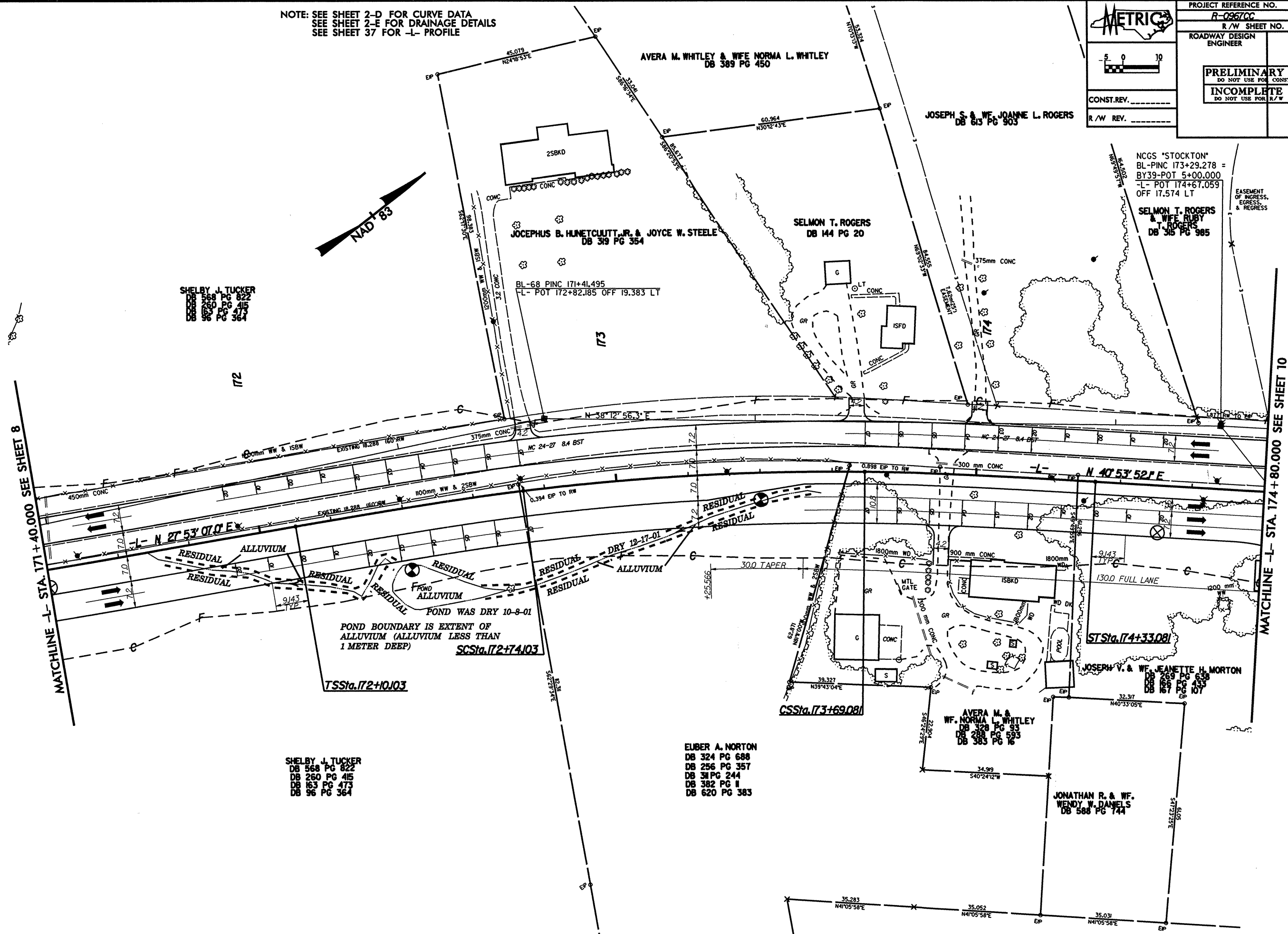
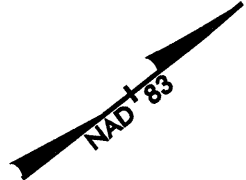
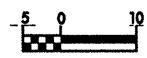




NOTE: SEE SHEET 2-D FOR CURVE DATA  
 SEE SHEET 2-E FOR DRAINAGE DETAILS  
 SEE SHEET 37 FOR -L- PROFILE



|  |                       |
|--|-----------------------|
| PROJECT REFERENCE NO.<br><b>R-096700</b>   | SHEET NO.<br><b>9</b> |
| R/W SHEET NO.  |                       |
| ROADWAY DESIGN ENGINEER  | HYDRAULICS ENGINEER   |
| <b>PRELIMINARY PLANS</b><br>DO NOT USE FOR CONSTRUCTION<br><b>INCOMPLETE PLANS</b><br>DO NOT USE FOR R/W ACQUISITION |                       |
| CONST. REV. _____  | R/W REV. _____        |



REVISIONS

MATCHLINE -L- STA. 171+40.000 SEE SHEET 8

MATCHLINE -L- STA. 174+80.000 SEE SHEET 10

SHELBY J. TUCKER  
 DB 568 PG 822  
 DB 260 PG 415  
 DB 163 PG 473  
 DB 96 PG 364

EUBER A. NORTON  
 DB 324 PG 688  
 DB 256 PG 357  
 DB 311 PG 244  
 DB 382 PG II  
 DB 620 PG 383

NCGS "STOCKTON"  
 BL-PINC 173+29.278 =  
 BY39-POT 5+00.000  
 -L- POT 174+67.059  
 OFF 17.574 LT  
 SELMON T. ROGERS  
 & WIFE RUBY  
 DB 315 PG 985

POND BOUNDARY IS EXTENT OF  
 ALLUVIUM (ALLUVIUM LESS THAN  
 1 METER DEEP)  
 SCSta. 172+74.03

TSSSta. 172+10.03

CSSSta. 173+69.081

STSta. 174+33.081

\*\*\*\*\*SYSTEMTIME\*\*\*\*\*  
 \*\*\*\*\*DATE\*\*\*\*\*  
 \*\*\*\*\*TIME\*\*\*\*\*

**METRIC**

5 0 10

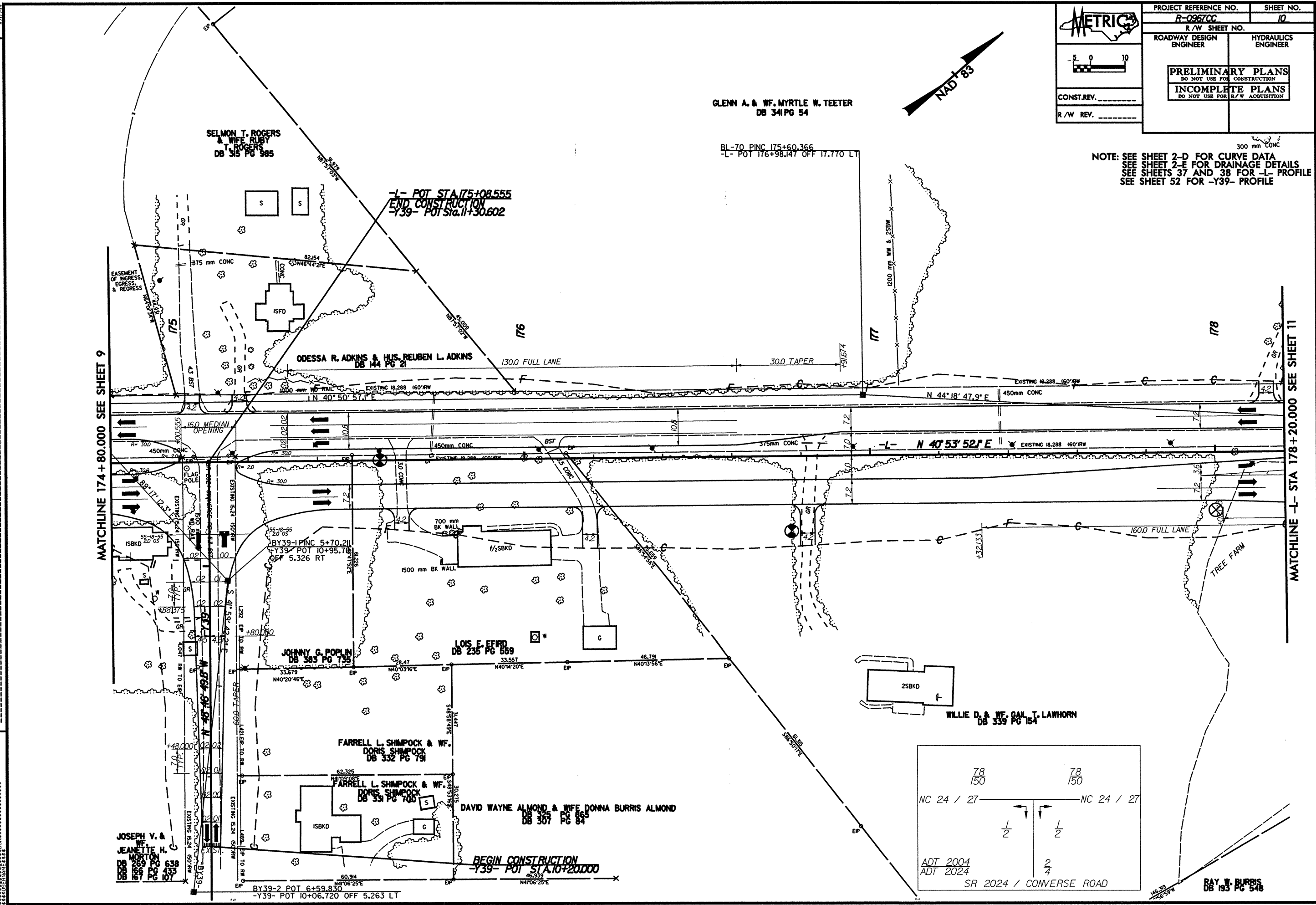
CONST. REV. \_\_\_\_\_

R/W REV. \_\_\_\_\_

|  |                     |
|--|---------------------|
| PROJECT REFERENCE NO.<br>R-0967CC  | SHEET NO.<br>10     |
| R/W SHEET NO.  |                     |
| ROADWAY DESIGN ENGINEER  | HYDRAULICS ENGINEER |
| <b>PRELIMINARY PLANS</b><br>DO NOT USE FOR CONSTRUCTION<br><b>INCOMPLETE PLANS</b><br>DO NOT USE FOR R/W ACQUISITION |                     |

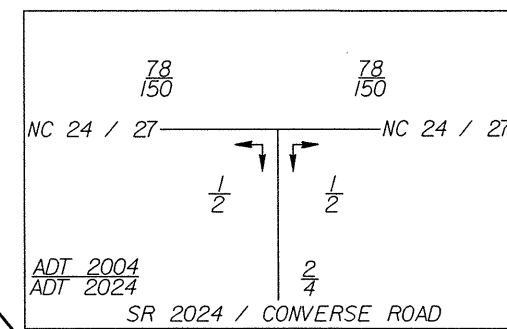
NOTE: SEE SHEET 2-D FOR CURVE DATA  
 SEE SHEET 2-E FOR DRAINAGE DETAILS  
 SEE SHEETS 37 AND 38 FOR -L- PROFILE  
 SEE SHEET 52 FOR -Y39- PROFILE

REVISIONS



MATCHLINE 174 + 80.000 SEE SHEET 9

MATCHLINE -L- STA 178 + 20.000 SEE SHEET 11



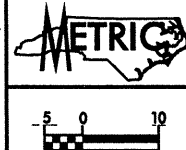
\*\*\*\*\*SYSTEMS\*\*\*\*\*  
 \*\*\*\*\*DRAWING\*\*\*\*\*  
 \*\*\*\*\*DATE\*\*\*\*\*  
 \*\*\*\*\*BY\*\*\*\*\*

RAY W. BURRIS  
 DB 193 PG 548

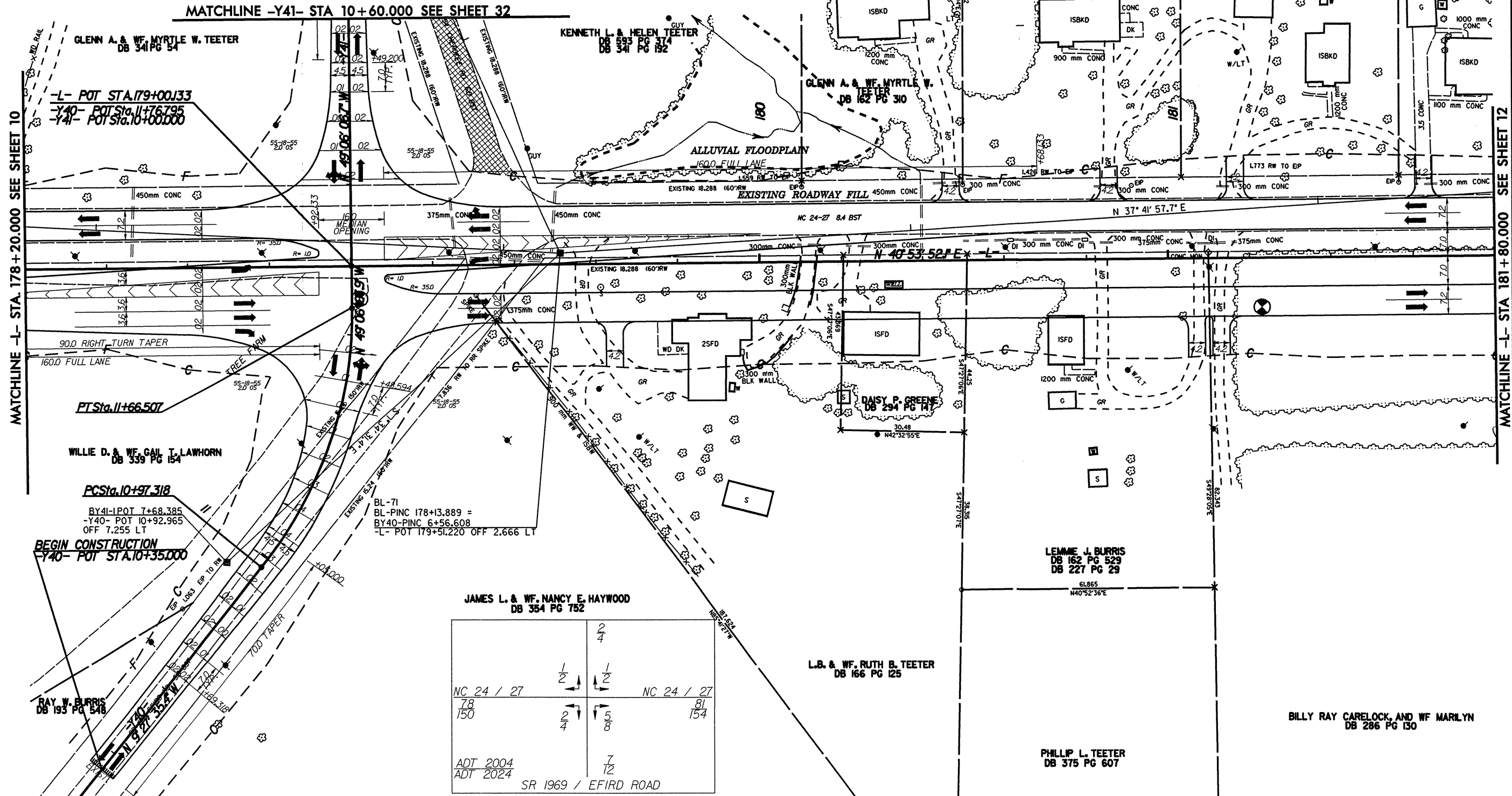
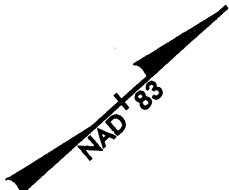
NOTE: SEE SHEET 2-D FOR CURVE DATA  
 SEE SHEET 2-E FOR DRAINAGE DETAILS  
 SEE SHEET 38 FOR -L- PROFILE  
 SEE SHEET 53 FOR -Y40- PROFILE  
 SEE SHEET 53 FOR -Y41- PROFILE

4L085 N41°5'20"E EP 12/27 EP  
 N45°45'54"E

KENNETH L. & HELEN TEETER  
 DB 593 PG 314  
 DB 341 PG 192



|  |                     |
|--|---------------------|
| PROJECT REFERENCE NO.<br>R-0967CC  | SHEET NO.<br>11     |
| R/W SHEET NO.  |                     |
| ROADWAY DESIGN ENGINEER  | HYDRAULICS ENGINEER |
| <b>PRELIMINARY PLANS</b><br>DO NOT USE FOR CONSTRUCTION<br><b>INCOMPLETE PLANS</b><br>DO NOT USE FOR R/W ACQUISITION |                     |
| CONST. REV. _____  |                     |
| R/W REV. _____   |                     |

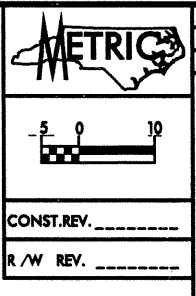


REVISIONS

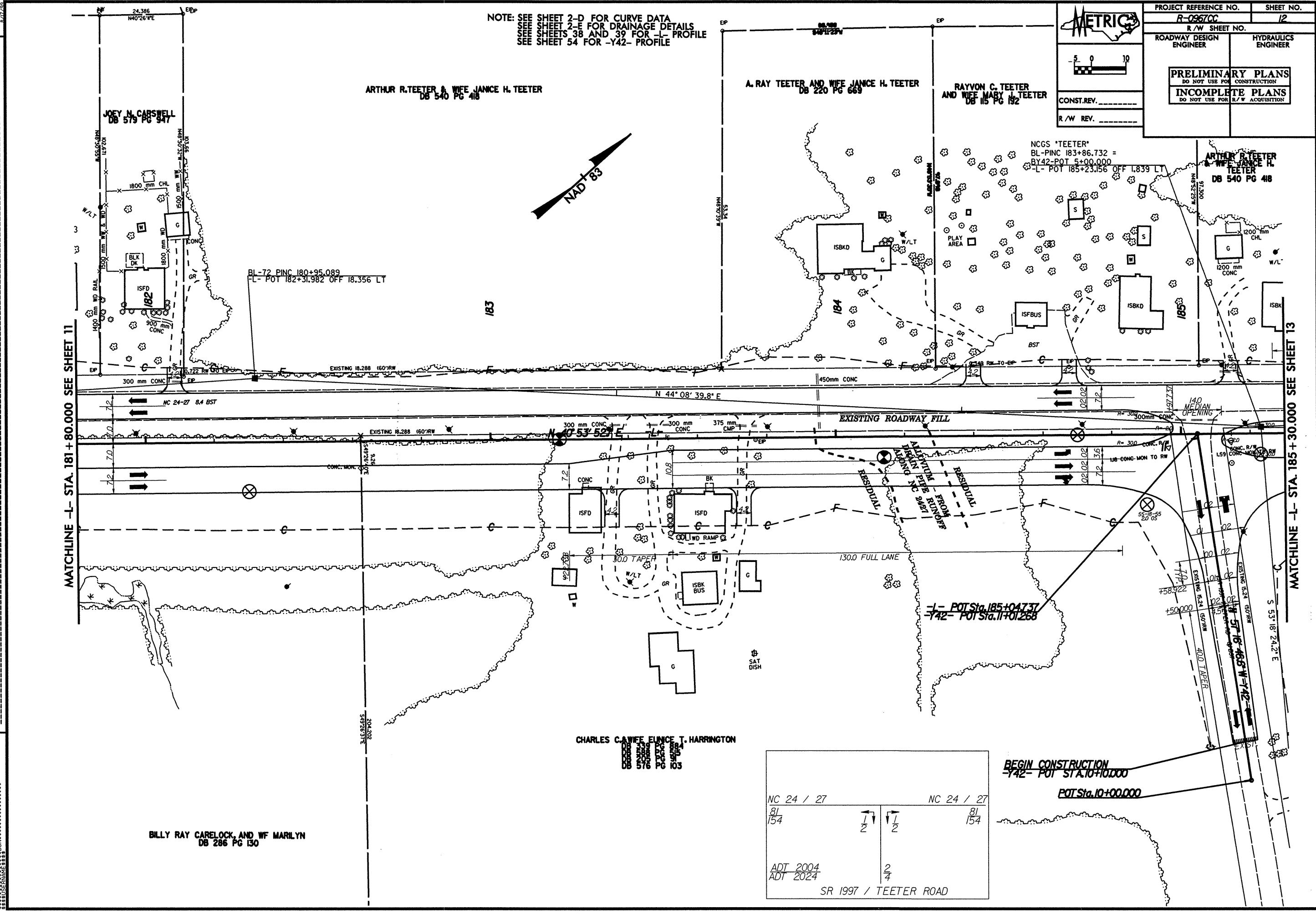
\*\*\*\*\*SYSTEM TIME\*\*\*\*\*  
 \*\*\*\*\*DATE\*\*\*\*\*  
 \*\*\*\*\*USER\*\*\*\*\*

JAMES L. & Wf. NANCY E. HAYWOOD  
 DB 354 PG 752

|                      |     |     |
|----------------------|-----|-----|
|                      | 2   | 4   |
| NC 24 / 27           | 1/2 | 1/2 |
| 78                   | 2/4 | 8/8 |
| 150                  |     | 154 |
| ADT 2004             |     | 7   |
| ADT 2024             |     | 12  |
| SR 1969 / EFIRD ROAD |     |     |



NOTE: SEE SHEET 2-D FOR CURVE DATA  
 SEE SHEET 2-E FOR DRAINAGE DETAILS  
 SEE SHEETS 38 AND 39 FOR -L- PROFILE  
 SEE SHEET 54 FOR -Y42- PROFILE



MATCHLINE -L- STA. 181+80.000 SEE SHEET 11

MATCHLINE -L- STA. 185+30.000 SEE SHEET 13

CHARLES C. & WIFE ELINCE T. HARRINGTON  
 DB 576 PG 103

BILLY RAY CARELOCK, AND WF MARILYN  
 DB 286 PG 130

|                       |            |
|-----------------------|------------|
| NC 24 / 27            | NC 24 / 27 |
| BL 154                | BL 154     |
| ADT 2004              | ADT 2024   |
| 2                     | 4          |
| SR 1997 / TEETER ROAD |            |

**BEGIN CONSTRUCTION**  
 -Y42- POT STA. 10+00.000  
 POT STA. 10+00.000

REVISIONS

\*\*\*\*\*SYSTEMS TIME\*\*\*\*\*  
 \*\*\*\*\*DATE\*\*\*\*\*  
 \*\*\*\*\*BY\*\*\*\*\*

**METRIC**

5 0 10

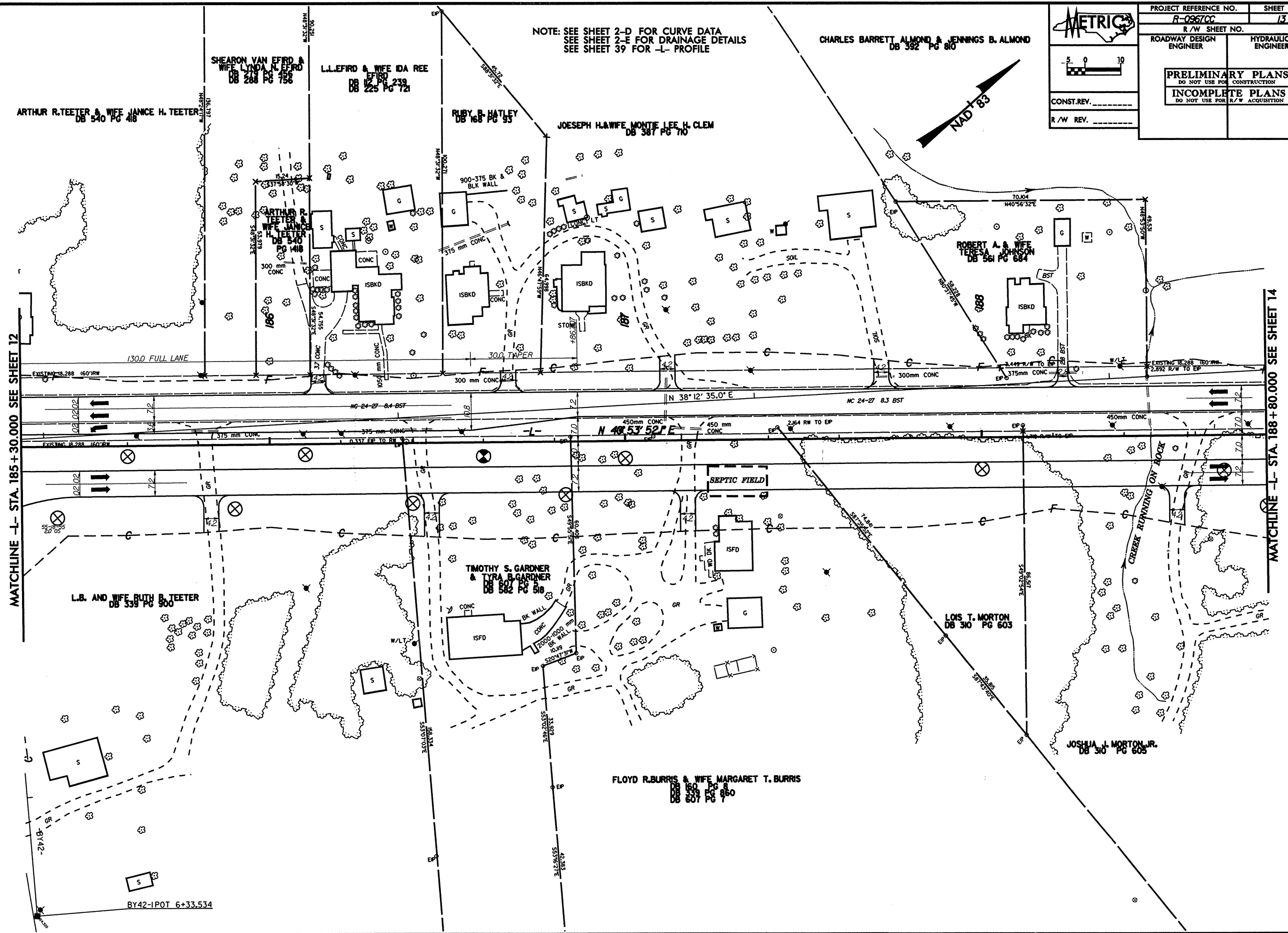
CONST. REV. \_\_\_\_\_

R/W REV. \_\_\_\_\_

|  |                     |
|--|---------------------|
| PROJECT REFERENCE NO.<br>R-0967CC  | SHEET NO.<br>13     |
| R/W SHEET NO.  |                     |
| ROADWAY DESIGN ENGINEER  | HYDRAULICS ENGINEER |
| <b>PRELIMINARY PLANS</b><br>DO NOT USE FOR CONSTRUCTION<br><b>INCOMPLETE PLANS</b><br>DO NOT USE FOR R/W ACQUISITION |                     |

NOTE: SEE SHEET 2-D FOR CURVE DATA  
 SEE SHEET 2-E FOR DRAINAGE DETAILS  
 SEE SHEET 39 FOR -L- PROFILE

CHARLES BARRETT ALMOND & JENNINGS B. ALMOND  
 DB 382 PG 80



MATCHLINE -L- STA. 185+30.000 SEE SHEET 12

MATCHLINE -L- STA. 188+80.000 SEE SHEET 14

REVISIONS

\*\*\*\*\*SYTIME\*\*\*\*\*  
 \*\*\*\*\*SUN\*\*\*\*\*  
 \*\*\*\*\*SUN\*\*\*\*\*  
 \*\*\*\*\*SUN\*\*\*\*\*  
 \*\*\*\*\*SUN\*\*\*\*\*

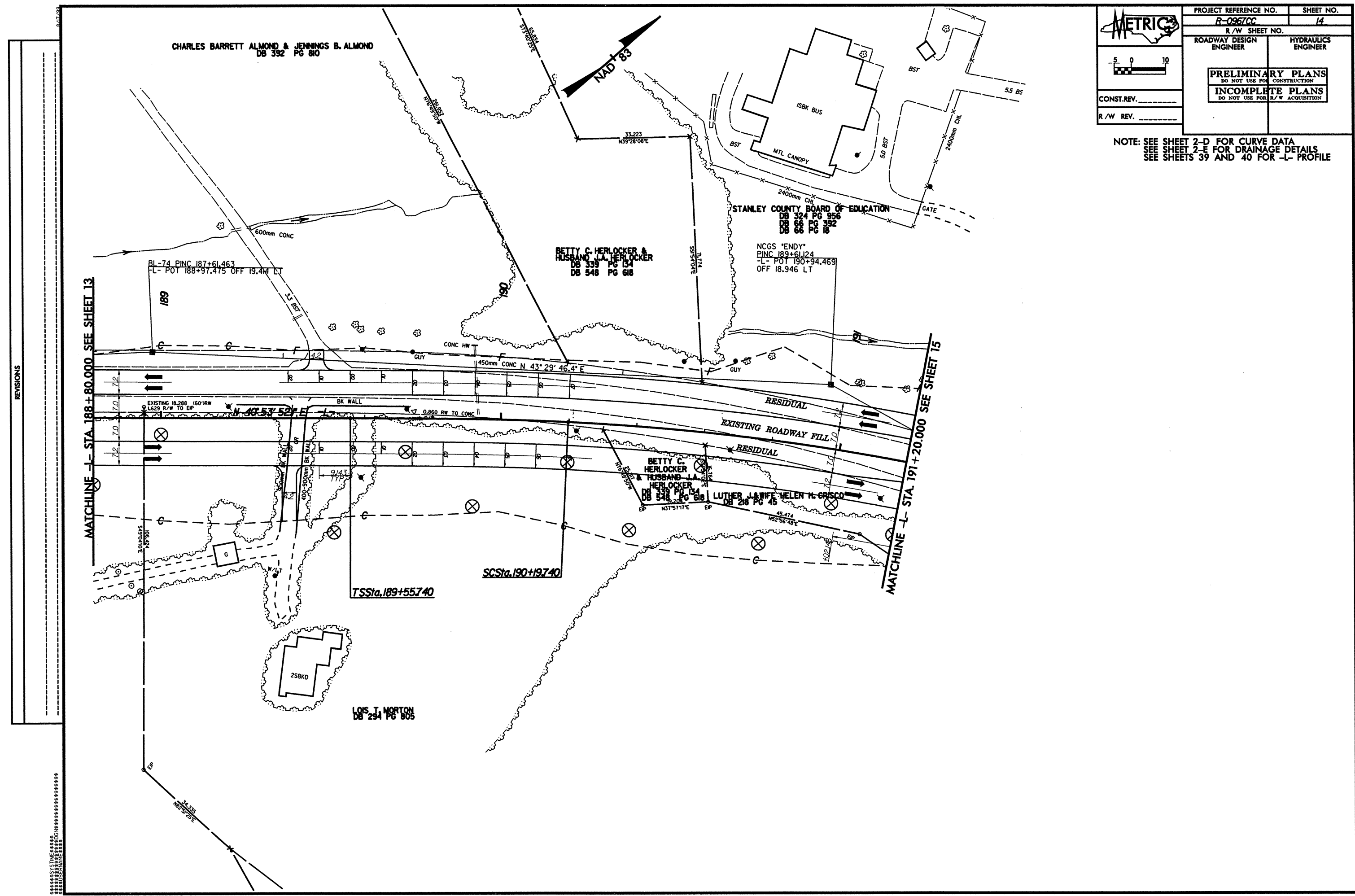
BY42-IPOT 6+33.534

**METRIC**

CONST. REV. \_\_\_\_\_  
R/W REV. \_\_\_\_\_

|   |                        |
|---|------------------------|
| PROJECT REFERENCE NO.<br><b>R-0967CC</b>                  | SHEET NO.<br><b>14</b> |
| R/W SHEET NO.   |                        |
| ROADWAY DESIGN ENGINEER                                   | HYDRAULICS ENGINEER    |
| <b>PRELIMINARY PLANS</b><br>DO NOT USE FOR CONSTRUCTION   |                        |
| <b>INCOMPLETE PLANS</b><br>DO NOT USE FOR R/W ACQUISITION |                        |

NOTE: SEE SHEET 2-D FOR CURVE DATA  
SEE SHEET 2-E FOR DRAINAGE DETAILS  
SEE SHEETS 39 AND 40 FOR -L- PROFILE



\*\*\*\*\*SYSTEMS\*\*\*\*\*  
\*\*\*\*\*DRAWING\*\*\*\*\*  
\*\*\*\*\*REVISIONS\*\*\*\*\*  
\*\*\*\*\*DATE\*\*\*\*\*







ROBERT K. &  
PEGGY S.  
SANDERS  
DB 346  
PG 239

JAMES L. & WIFE HELEN H.  
HONEYCUTT  
DB 184 PG 153

FAT CAT CUSTOMS, INC.  
DB 614 PG 74

JIMMY W. AND WIFE ROSA Y. BOHANNON  
DB 354 PG 166

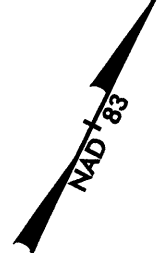
RUBY POPLIN TUCKER, CECL BENNETT POPLIN, & LOUVINE POPLIN FURR  
DB 299 PG 833

BRUCE G. ALMOND AND WIFE  
GWENDOLYN L. ALMOND  
DB 571 PG 444  
DB 179 PG 324



|  |                        |
|--|------------------------|
| PROJECT REFERENCE NO.<br>R-096700  | SHEET NO.<br>17        |
| R/W SHEET NO.  |                        |
| ROADWAY DESIGN<br>ENGINEER   | HYDRAULICS<br>ENGINEER |
| <b>PRELIMINARY PLANS</b><br>DO NOT USE FOR CONSTRUCTION<br><b>INCOMPLETE PLANS</b><br>DO NOT USE FOR R/W ACQUISITION |                        |
| CONST. REV. _____  |                        |
| R/W REV. _____   |                        |

NOTE: SEE SHEET 2-D FOR CURVE DATA  
SEE SHEET 2-E FOR DRAINAGE DETAILS  
SEE SHEET 41 FOR -L- PROFILE



MATCHLINE -L- STA. 198 + 30.000 SEE SHEET 16

MATCHLINE -L- STA. 201 + 80.000 SEE SHEET 18

NCGS 'KEITH' &  
PINC 197+32.928  
-L- POT 198+57.884  
OFF 32.115 RT

NASH JOHNSON & SONS FARMS, INC.  
DB 263 PG 78

METAL MAINTENANCE, INC.  
DB 498 PG 660

DAVID M. AND WIFE ROBIN M. HINSON  
DB 511 PG 365

DAVID M. AND WIFE ROBIN M. HINSON  
DB 346 PG 39  
DB 346 PG 346

E. ALLEN & WIFE  
TRACY A. GADY  
DB 550 PG 900

BL-79 PINC  
199+19.965  
-L- POT 200+42.488  
OFF 2.054 RT

REMOVE EXISTING GUARDRAIL

| CUL  | CE         | HW         | EAST       | ELEV.   |
|------|------------|------------|------------|---------|
| CUL3 | 173591.886 | 173591.886 | 494304.392 | 131.904 |
| CUL4 | 173591.241 | 173591.241 | 494306.775 | 131.902 |
| CUL5 | 173573.041 | 173573.041 | 494307.157 | 131.904 |
| CUL6 | 173573.041 | 173573.041 | 494309.517 | 131.917 |
| CUL7 | 173573.041 | 173573.041 | 494308.505 | 133.769 |
| CUL8 | 173573.041 | 173573.041 | 494306.108 | 134.259 |
| CE1  | 173573.041 | 173573.041 | 494305.716 | 131.869 |
| CE2  | 173573.041 | 173573.041 | 494303.384 | 131.876 |
| HW1  | 173573.041 | 173573.041 | 494305.716 | 131.874 |
| HW2  | 173573.041 | 173573.041 | 494303.384 | 131.872 |
|      |            |            |            | 133.569 |
|      |            |            |            | 134.245 |

M. GENE ALMOND & WIFE JEANNETTE D.  
DB 572 PG 899  
DB 563 PG 832  
DB 574 PG 473

REVISIONS

\*\*\*\*\*SYSTEMS\*\*\*\*\*  
\*\*\*\*\*DRAWINGS\*\*\*\*\*  
\*\*\*\*\*REVISIONS\*\*\*\*\*

|  |  |                        |  |
|--|--|------------------------|--|
| PROJECT REFERENCE NO.<br><b>R-0967CC</b>   |  | SHEET NO.<br><b>18</b> |  |
| R/W SHEET NO.  |  |                        |  |
| ROADWAY DESIGN ENGINEER  |  | HYDRAULICS ENGINEER    |  |
| <b>PRELIMINARY PLANS</b><br>DO NOT USE FOR CONSTRUCTION<br><b>INCOMPLETE PLANS</b><br>DO NOT USE FOR R/W ACQUISITION |  |                        |  |
| CONST. REV. _____  |  | R/W REV. _____         |  |

NOTE: SEE SHEET 2-D FOR CURVE DATA  
 SEE SHEET 2-E FOR DRAINAGE DETAILS  
 SEE SHEET 41 AND 42 FOR -L- PROFILE

MICHAEL B. MORGAN  
 DB 344 PG 98

HUBERT A. MORGAN  
 DB 169 PG 200

CROPSIE JREECE HOWELL  
 DB 348 PG 69

MICHAEL B. MORGAN  
 DB 344 PG 98

RUBY POPLIN TUCKER,  
 CECIL BENNETT POPLIN  
 & LOUWINE POPLIN FURR  
 DB 299 PG 833

CHRISTOPHER T. TUCKER  
 & SONYA L. PALMER  
 DB 660 PG 67

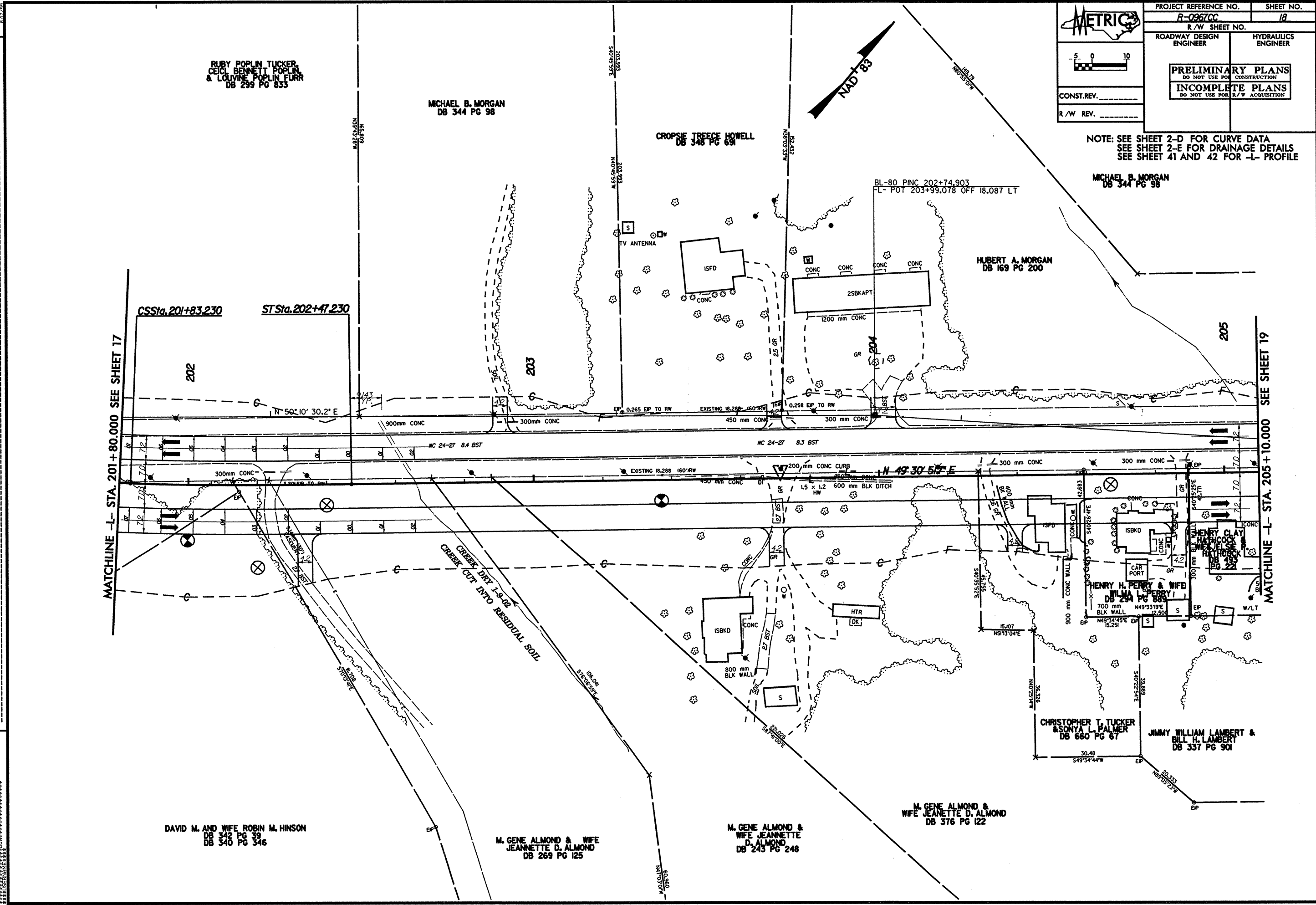
JIMMY WILLIAM LAMBERT &  
 BILL H. LAMBERT  
 DB 337 PG 901

M. GENE ALMOND &  
 WIFE JEANNETTE D. ALMOND  
 DB 376 PG 122

M. GENE ALMOND &  
 WIFE JEANNETTE  
 D. ALMOND  
 DB 245 PG 246

M. GENE ALMOND & WIFE  
 JEANNETTE D. ALMOND  
 DB 269 PG 125

DAVID M. AND WIFE ROBIN M. HINSON  
 DB 342 PG 39  
 DB 340 PG 346



REVISIONS

MATCHLINE -L- STA. 201+80.000 SEE SHEET 17

MATCHLINE -L- STA. 205+10.000 SEE SHEET 19

CSSSta. 201+83.230 STSta. 202+47.230

202

203

205

N 50°10'30.2"E

N 49°30'57"E

CREEK CUT INTO RESIDUAL SOIL

HENRY H. PERRY & WIFE  
 DB 294 PG 589

CHRISTOPHER T. TUCKER  
 & SONYA L. PALMER  
 DB 660 PG 67

JIMMY WILLIAM LAMBERT &  
 BILL H. LAMBERT  
 DB 337 PG 901

M. GENE ALMOND &  
 WIFE JEANNETTE D. ALMOND  
 DB 376 PG 122

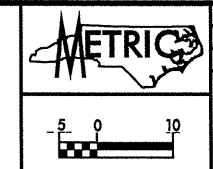
M. GENE ALMOND &  
 WIFE JEANNETTE  
 D. ALMOND  
 DB 245 PG 246

M. GENE ALMOND & WIFE  
 JEANNETTE D. ALMOND  
 DB 269 PG 125

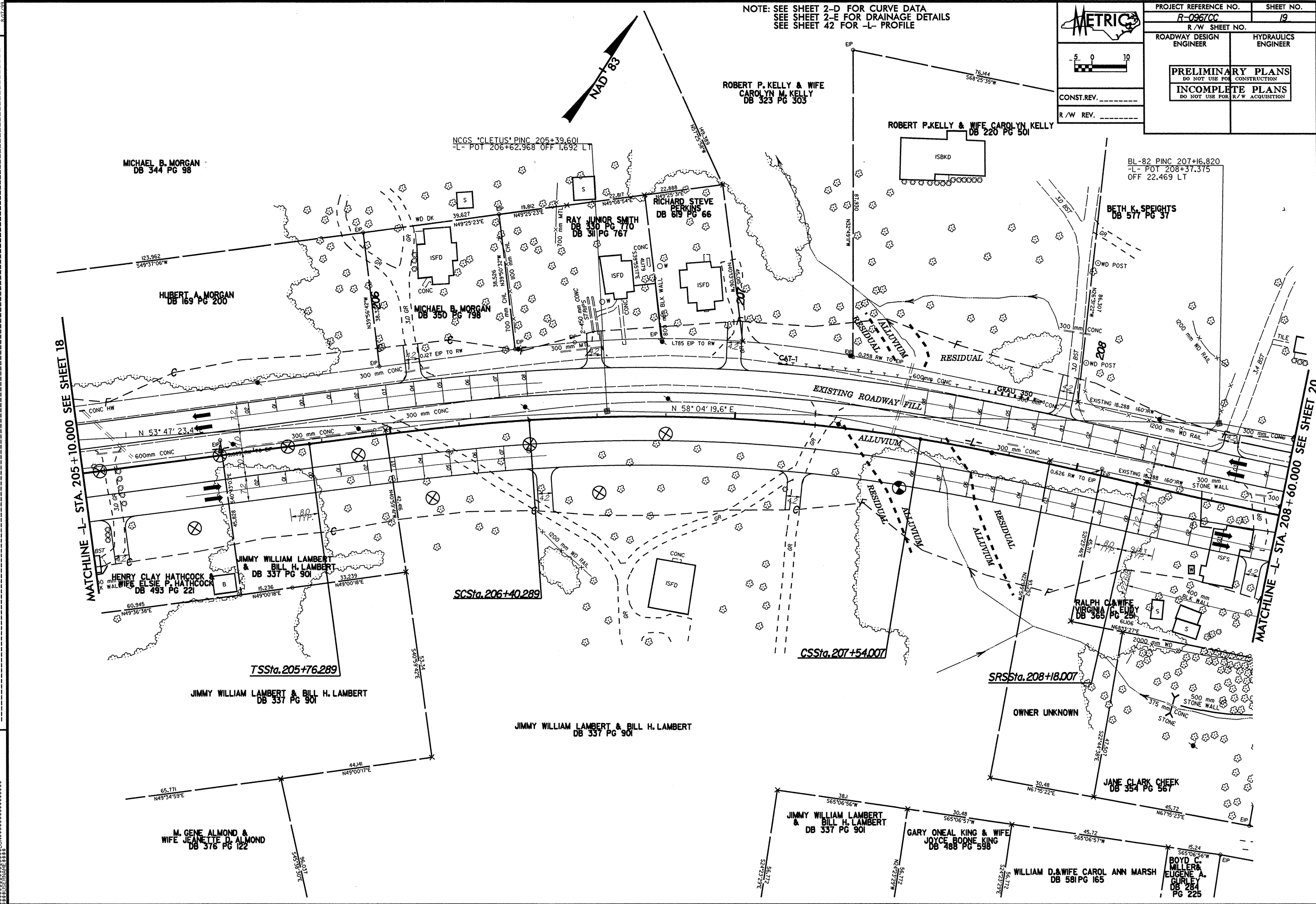
DAVID M. AND WIFE ROBIN M. HINSON  
 DB 342 PG 39  
 DB 340 PG 346

9.17.03  
 \*\*\*\*\*SYSTEMS\*\*\*\*\*  
 \*\*\*\*\*PLANNING\*\*\*\*\*  
 \*\*\*\*\*DESIGN\*\*\*\*\*  
 \*\*\*\*\*CONSTRUCTION\*\*\*\*\*  
 \*\*\*\*\*OPERATION\*\*\*\*\*  
 \*\*\*\*\*MAINTENANCE\*\*\*\*\*  
 \*\*\*\*\*REPAIR\*\*\*\*\*  
 \*\*\*\*\*REPLACEMENT\*\*\*\*\*  
 \*\*\*\*\*RECONSTRUCTION\*\*\*\*\*  
 \*\*\*\*\*RENOVATION\*\*\*\*\*  
 \*\*\*\*\*RESTORATION\*\*\*\*\*  
 \*\*\*\*\*REPAIR\*\*\*\*\*  
 \*\*\*\*\*REPLACEMENT\*\*\*\*\*  
 \*\*\*\*\*RECONSTRUCTION\*\*\*\*\*  
 \*\*\*\*\*RENOVATION\*\*\*\*\*  
 \*\*\*\*\*RESTORATION\*\*\*\*\*

NOTE: SEE SHEET 2-D FOR CURVE DATA  
 SEE SHEET 2-E FOR DRAINAGE DETAILS  
 SEE SHEET 42 FOR -L- PROFILE



|   |                        |
|---|------------------------|
| PROJECT REFERENCE NO.<br><b>R-0967CC</b>                  | SHEET NO.<br><b>19</b> |
| R/W SHEET NO.   |                        |
| ROADWAY DESIGN ENGINEER                                   | HYDRAULICS ENGINEER    |
| <b>PRELIMINARY PLANS</b><br>DO NOT USE FOR CONSTRUCTION   |                        |
| <b>INCOMPLETE PLANS</b><br>DO NOT USE FOR R/W ACQUISITION |                        |
| CONST. REV. _____   |                        |
| R/W REV. _____  |                        |



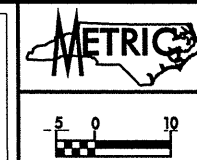
REVISIONS

MATCHLINE -L- STA. 205+10.000 SEE SHEET 18

MATCHLINE -L- STA. 208+60.000 SEE SHEET 20

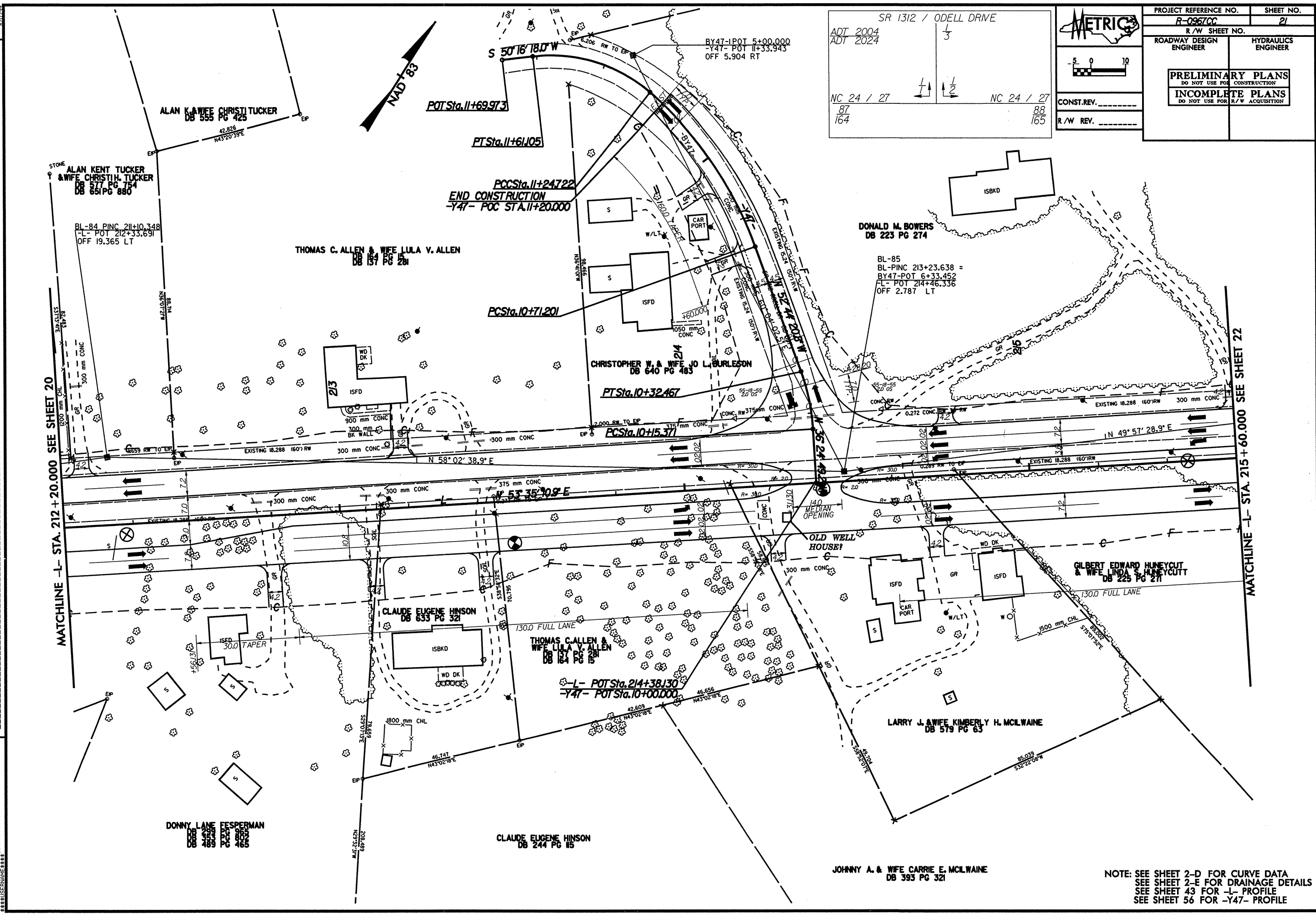
\*\*\*\*\*SYSTEM TIME\*\*\*\*\*  
 \*\*\*\*\*DATE\*\*\*\*\*  
 \*\*\*\*\*TIME\*\*\*\*\*





|   |                        |
|---|------------------------|
| PROJECT REFERENCE NO.<br><b>R-096700</b>                  | SHEET NO.<br><b>21</b> |
| R/W SHEET NO.   |                        |
| ROADWAY DESIGN ENGINEER                                   | HYDRAULICS ENGINEER    |
| <b>PRELIMINARY PLANS</b><br>DO NOT USE FOR CONSTRUCTION   |                        |
| <b>INCOMPLETE PLANS</b><br>DO NOT USE FOR R/W ACQUISITION |                        |
| CONST. REV. _____   |                        |
| R/W REV. _____  |                        |

|                       |            |
|-----------------------|------------|
| SR 1312 / ODELL DRIVE |            |
| ADT 2004              | 3          |
| ADT 2024              |            |
| NC 24 / 27            | NC 24 / 27 |
| 87                    | 88         |
| 164                   | 165        |



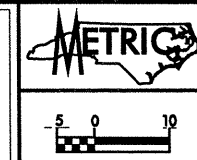
REVISIONS

MATCHLINE -L- STA. 212 + 20.000 SEE SHEET 20

MATCHLINE -L- STA. 215 + 60.000 SEE SHEET 22

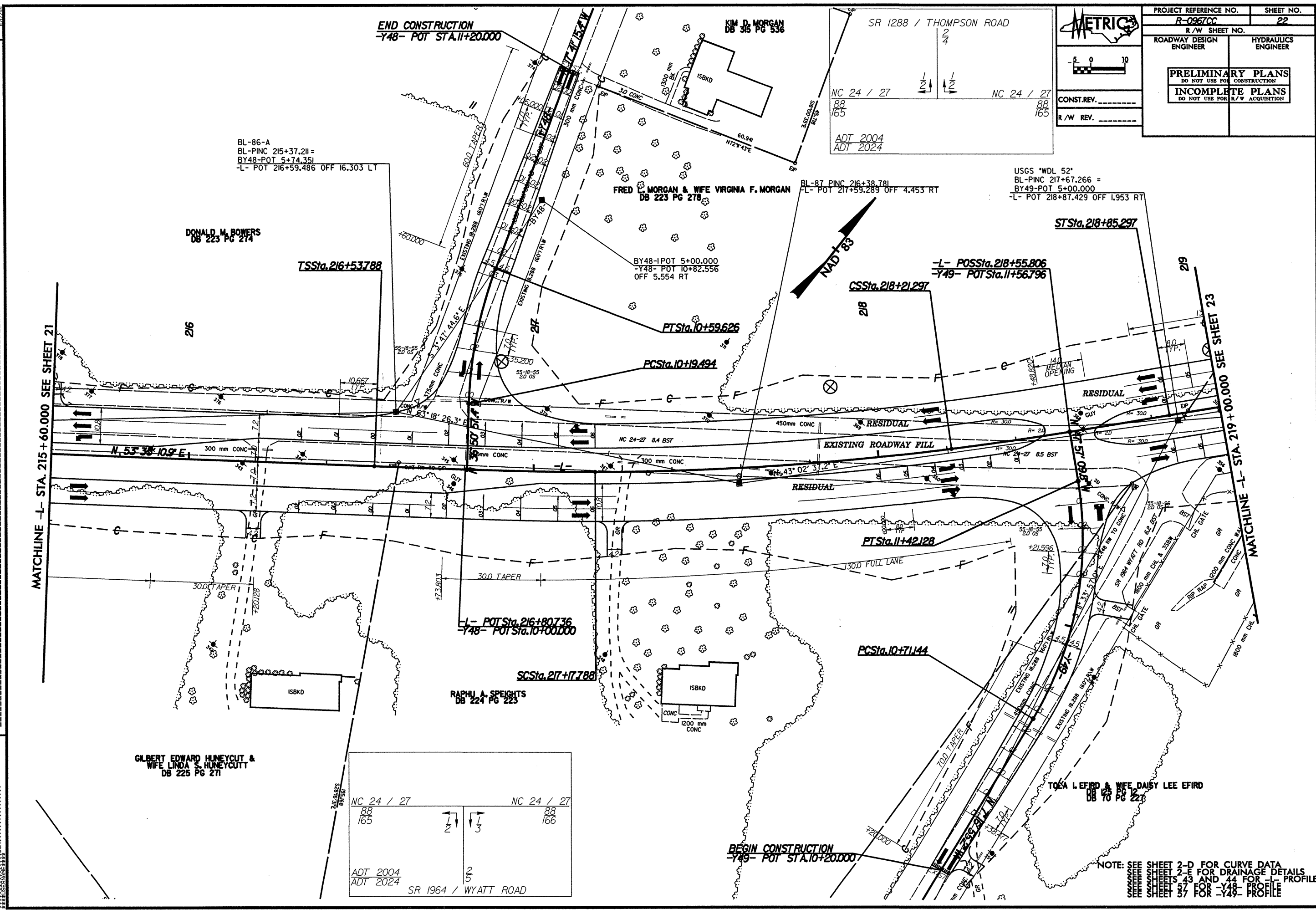
\*\*\*\*\*SYSTEMS\*\*\*\*\*  
\*\*\*\*\*DRAWING\*\*\*\*\*  
\*\*\*\*\*REVISIONS\*\*\*\*\*

NOTE: SEE SHEET 2-D FOR CURVE DATA  
SEE SHEET 2-E FOR DRAINAGE DETAILS  
SEE SHEET 43 FOR -L- PROFILE  
SEE SHEET 56 FOR -Y47- PROFILE



|   |                        |
|---|------------------------|
| PROJECT REFERENCE NO.<br><b>R-096700</b>                  | SHEET NO.<br><b>22</b> |
| R/W SHEET NO.   |                        |
| ROADWAY DESIGN ENGINEER                                   | HYDRAULICS ENGINEER    |
| <b>PRELIMINARY PLANS</b><br>DO NOT USE FOR CONSTRUCTION   |                        |
| <b>INCOMPLETE PLANS</b><br>DO NOT USE FOR R/W ACQUISITION |                        |
| CONST. REV. _____   |                        |
| R/W REV. _____  |                        |

REVISIONS



BL-86-A  
BL-PINC 215+37.211 =  
BY48-POT 5+74.351  
-L- POT 216+59.486 OFF 16.303 LT

DONALD M. BOWERS  
DB 223 PG 274

KIM D. MORGAN  
DB 315 PG 336

FRED L. MORGAN & WIFE VIRGINIA F. MORGAN  
DB 223 PG 278

ADT 2004  
ADT 2024

USGS "WDL 52"  
BL-PINC 217+67.266 =  
BY49-POT 5+00.000  
-L- POT 218+87.429 OFF 1.953 RT

RAPHI A. SPEIGHTS  
DB 224 PG 223

GILBERT EDWARD HUNEYCUTT &  
WIFE LINDA S. HUNEYCUTT  
DB 225 PG 271

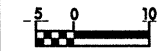
TOSSA L. EFIRD & WIFE DAISY LEE EFIRD  
DB 70 PG 227

|                      |            |
|----------------------|------------|
| NC 24 / 27           | NC 24 / 27 |
| 88<br>165            | 88<br>166  |
| ADT 2004             | ADT 2024   |
| SR 1964 / WYATT ROAD |            |

BEGIN CONSTRUCTION  
-Y49- POT STA. 10+20.000

NOTE: SEE SHEET 2-D FOR CURVE DATA  
SEE SHEET 2-E FOR DRAINAGE DETAILS  
SHEETS 43 AND 44 FOR -L- PROFILE  
SHEET 57 FOR -Y48- PROFILE  
SHEET 57 FOR -Y49- PROFILE

NOTE: SEE SHEET 2-D FOR CURVE DATA  
 SEE SHEET 2-E FOR DRAINAGE DETAILS  
 SEE SHEET 44 FOR -L- PROFILE



CONST. REV. \_\_\_\_\_  
 R/W REV. \_\_\_\_\_

|   |                        |
|---|------------------------|
| PROJECT REFERENCE NO.<br><b>R-0967CC</b>                  | SHEET NO.<br><b>23</b> |
| R/W SHEET NO.   |                        |
| ROADWAY DESIGN ENGINEER                                   | HYDRAULICS ENGINEER    |
| <b>PRELIMINARY PLANS</b><br>DO NOT USE FOR CONSTRUCTION   |                        |
| <b>INCOMPLETE PLANS</b><br>DO NOT USE FOR R/W ACQUISITION |                        |

FRED L. MORGAN & WIFE VIRGINIA F. MORGAN  
 DB 223 PG 278

JASON E. THOMPSON & REBA M. THOMPSON  
 DB 594 PG 110

MARVIN T. BOWERS & WIFE PAULINE L. BOWERS  
 DB 390 PG 831

MARVIN T. BOWERS & WIFE PAULINE L. BOWERS  
 DB 164 PG 311

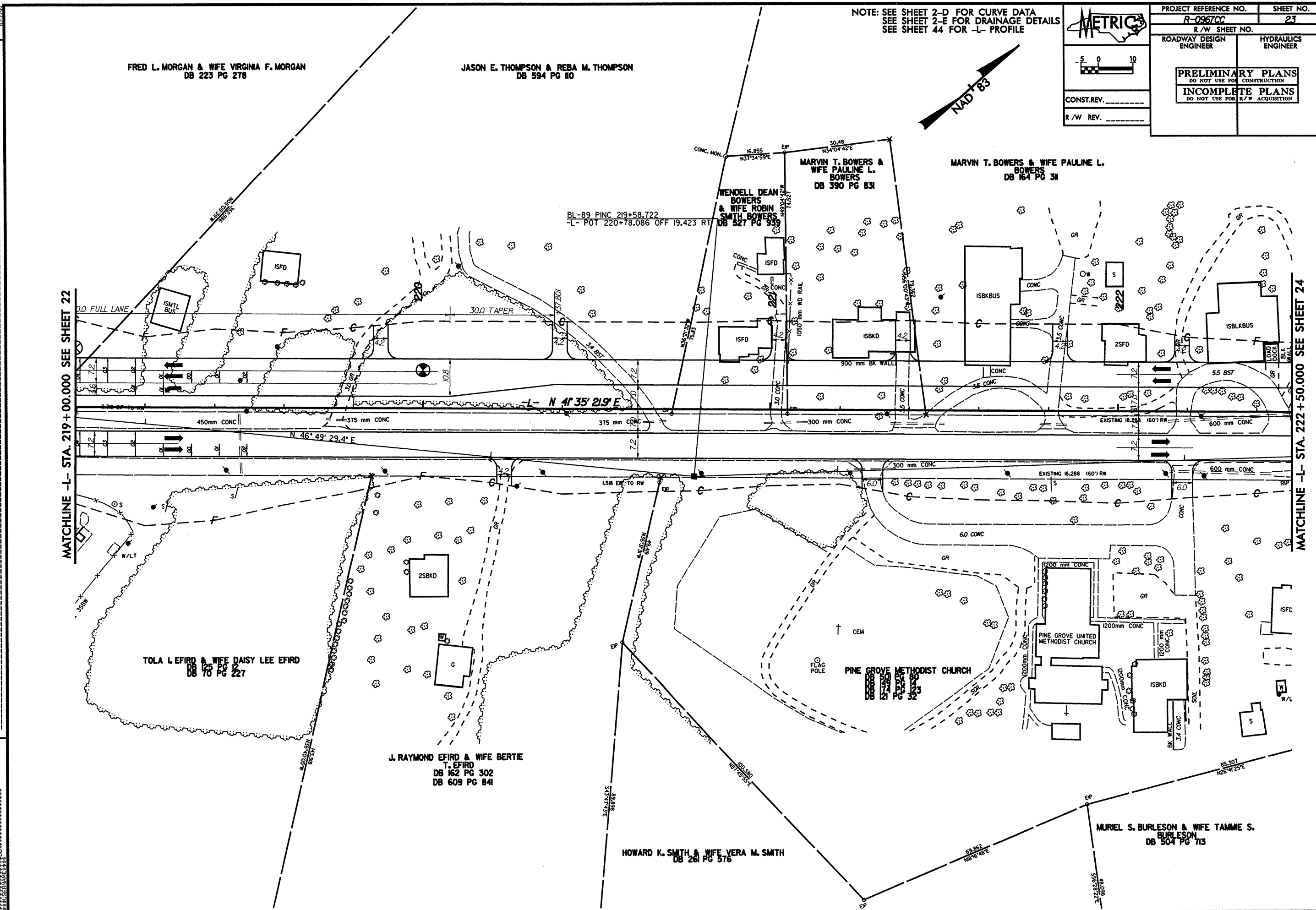
WENDELL DEAN BOWERS & WIFE ROBIN SMITH BOWERS  
 DB 527 PG 939

BL-89 PINC 219+58.722  
 -L- POT 220+78.086 OFF 19.423 RT

MATCHLINE -L- STA. 219 + 00.000 SEE SHEET 22

MATCHLINE -L- STA. 222 + 50.000 SEE SHEET 24

REVISIONS



TOLA L. EFIRD & WIFE DAISY LEE EFIRD  
 DB 125 PG 122

J. RAYMOND EFIRD & WIFE BERTIE T. EFIRD  
 DB 162 PG 302  
 DB 609 PG 841

HOWARD K. SMITH & WIFE VERA M. SMITH  
 DB 261 PG 576

MURIEL S. BURLESON & WIFE TAMMIE S. BURLESON  
 DB 504 PG 713

PINE GROVE METHODIST CHURCH

PINE GROVE UNITED METHODIST CHURCH

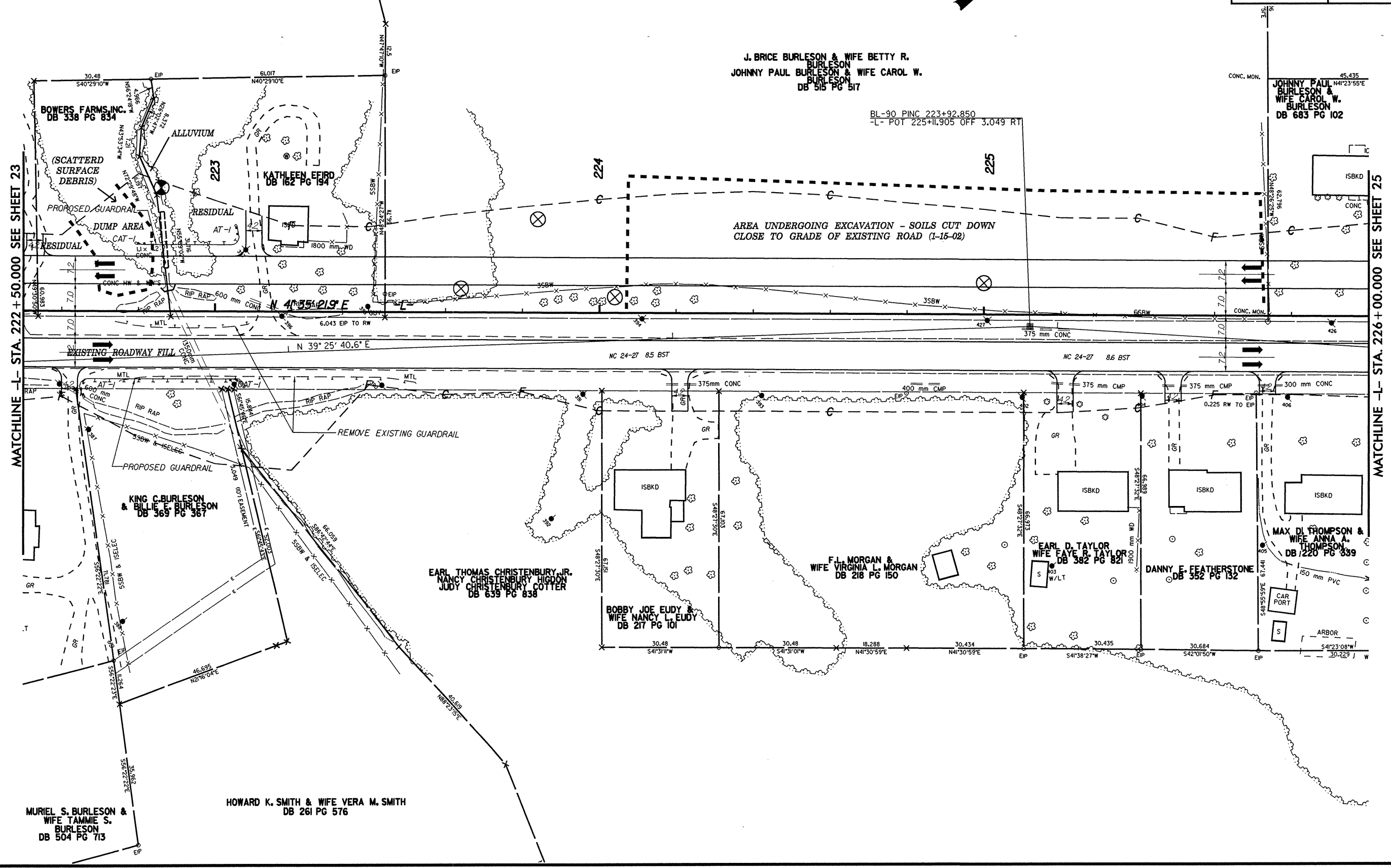
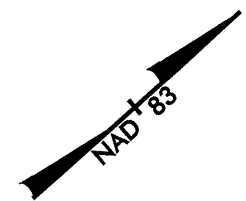
\*\*\*\*\*SYSTEMS\*\*\*\*\*  
 \*\*\*\*\*CONSTRUCTION\*\*\*\*\*  
 \*\*\*\*\*DATE\*\*\*\*\*

NOTE: SEE SHEET 2-D FOR CURVE DATA  
 SEE SHEET 2-E FOR DRAINAGE DETAILS  
 SEE SHEETS 44 AND 45 FOR -L- PROFILE

**METRIC**

CONST. REV. \_\_\_\_\_  
 R/W REV. \_\_\_\_\_

|   |                        |
|---|------------------------|
| PROJECT REFERENCE NO.<br><b>R-0967CC</b>                  | SHEET NO.<br><b>24</b> |
| R/W SHEET NO.   |                        |
| ROADWAY DESIGN ENGINEER                                   | HYDRAULICS ENGINEER    |
| <b>PRELIMINARY PLANS</b><br>DO NOT USE FOR CONSTRUCTION   |                        |
| <b>INCOMPLETE PLANS</b><br>DO NOT USE FOR R/W ACQUISITION |                        |



REVISIONS

MATCHLINE -L- STA. 222 + 50.000 SEE SHEET 23

MATCHLINE -L- STA. 226 + 00.000 SEE SHEET 25

\*\*\*\*\*SYSTEMTIME\*\*\*\*\*  
 \*\*\*\*\*DOWNS\*\*\*\*\*  
 \*\*\*\*\*\*\*\*\*\*

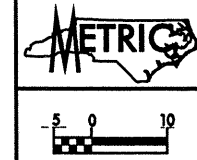


SR 1258 / NEWT ROAD

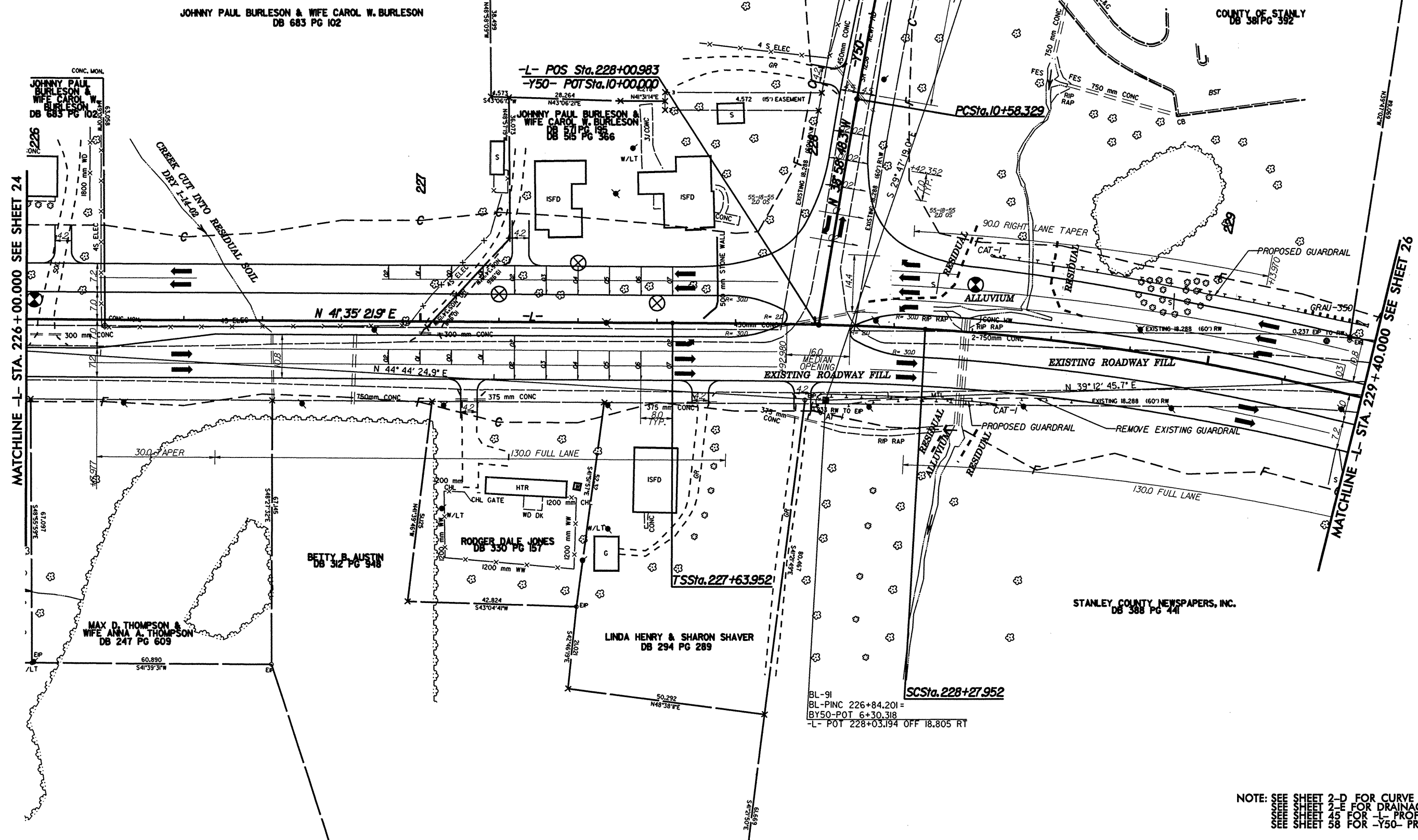
NC 24 / 27 4 7

88 166 88 167

ADT 2004  
ADT 2024



|  |                        |
|--|------------------------|
| PROJECT REFERENCE NO.<br><b>R-0967CC</b>   | SHEET NO.<br><b>25</b> |
| R/W SHEET NO.  |                        |
| ROADWAY DESIGN ENGINEER  | HYDRAULICS ENGINEER    |
| <b>PRELIMINARY PLANS</b><br>DO NOT USE FOR CONSTRUCTION<br><b>INCOMPLETE PLANS</b><br>DO NOT USE FOR R/W ACQUISITION |                        |
| CONST. REV. _____  | R/W REV. _____         |



REVISIONS

MATCHLINE -L- STA. 226+00.000 SEE SHEET 24

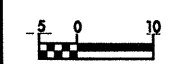
MATCHLINE -L- STA. 229+40.000 SEE SHEET 26

BL-91  
BL-PINC 226+84.201=  
BY50-POT 6+30.318  
-L- POT 228+03.194 OFF 18.805 RT

NOTE: SEE SHEET 2-D FOR CURVE DATA  
SEE SHEET 2-E FOR DRAINAGE DETAILS  
SEE SHEET 45 FOR -L- PROFILE  
SEE SHEET 58 FOR -Y50- PROFILE

NOTE: SEE SHEET 2-D FOR CURVE DATA  
 SEE SHEET 2-E FOR DRAINAGE DETAILS  
 SEE SHEETS 45 AND 46 FOR -L- PROFILE

|  |                     |                        |
|--|---------------------|------------------------|
| PROJECT REFERENCE NO.<br><b>R-096700</b>   |                     | SHEET NO.<br><b>26</b> |
| R/W SHEET NO.  |                     |                        |
| ROADWAY DESIGN ENGINEER  | HYDRAULICS ENGINEER |                        |
| <b>PRELIMINARY PLANS</b><br>DO NOT USE FOR CONSTRUCTION<br><b>INCOMPLETE PLANS</b><br>DO NOT USE FOR R/W ACQUISITION |                     |                        |
| CONST. REV. _____  |                     |                        |
| R/W REV. _____   |                     |                        |



ELSE M. BURLISON  
 DB 102 PG 137

ELVIE THOMPSON CULP  
 DB 213 PG 259

MARVIN A. BROOKS & WIFE  
 ANNETTE S. BROOKS  
 DB 354 PG 372

LARRY WAYNE HARWOOD & WIFE  
 JILL C. HARWOOD  
 DB 255 PG 264

CARL R. CULP & WIFE  
 ELVIE T. CULP  
 DB 184 PG 116

CARL RAY CULP  
 DB 104 PG 257

RANDY C. AND WIFE  
 BRENDA G. COLE  
 DB 372 PG 336

ELVIE THOMPSON CULP  
 DB 201 PG 98

STANLEY COUNTY NEWSPAPERS, INC.  
 DB 388 PG 441

WILLIAM H. GARLAND & WIFE  
 MONICA GARLAND  
 DB 297 PG 9

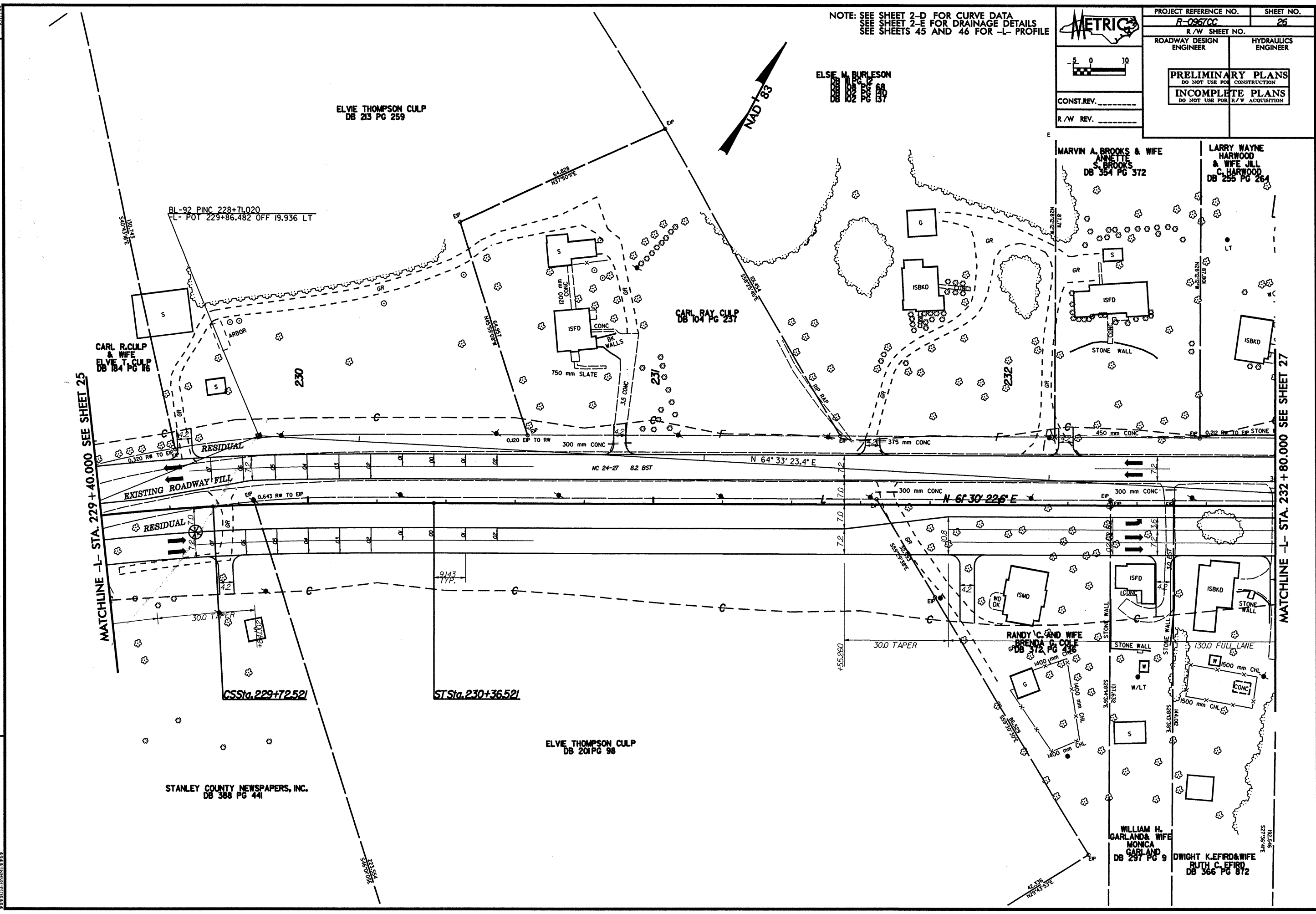
DWIGHT K. EFIRD & WIFE  
 RUTH C. EFIRD  
 DB 366 PG 872

MATCHLINE -L- STA. 229 + 40.000 SEE SHEET 25

MATCHLINE -L- STA. 232 + 80.000 SEE SHEET 27

REVISIONS

SYSTEMS  
 TIME  
 DATE  
 NAME

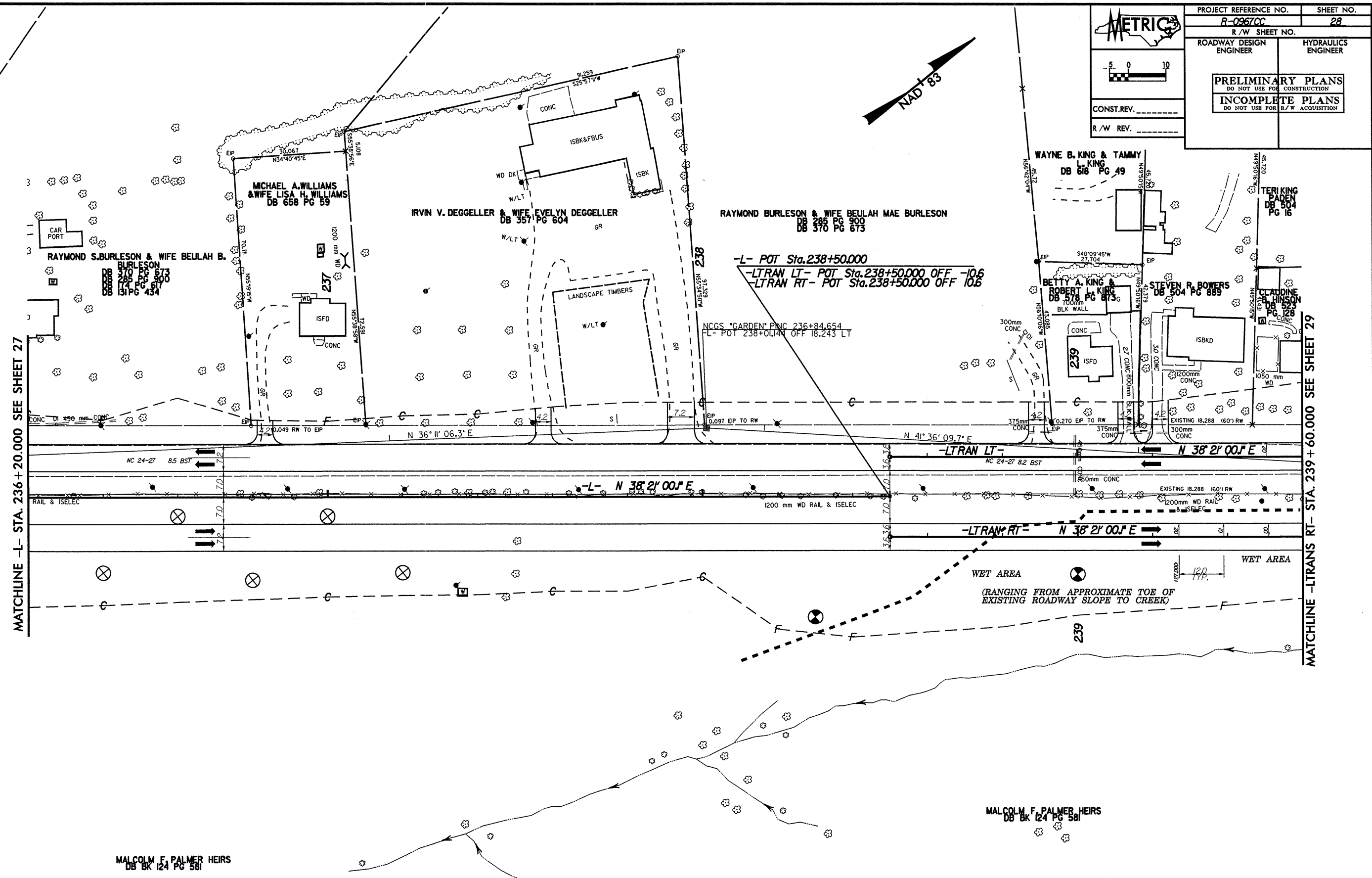




**METRIC**

CONST. REV. \_\_\_\_\_  
R/W REV. \_\_\_\_\_

|  |                        |
|--|------------------------|
| PROJECT REFERENCE NO.<br><b>R-0967CC</b>   | SHEET NO.<br><b>28</b> |
| R/W SHEET NO.  |                        |
| ROADWAY DESIGN ENGINEER  | HYDRAULICS ENGINEER    |
| <b>PRELIMINARY PLANS</b><br>DO NOT USE FOR CONSTRUCTION<br><b>INCOMPLETE PLANS</b><br>DO NOT USE FOR R/W ACQUISITION |                        |



REVISIONS

MATCHLINE -L- STA. 236+20.000 SEE SHEET 27

MATCHLINE -LTRAN RT- STA. 239+60.000 SEE SHEET 29

MALCOLM F. PALMER HEIRS  
DB BK 124 PG 581

MALCOLM F. PALMER HEIRS  
DB BK 124 PG 581

NOTE: SEE SHEET 2-D FOR CURVE DATA  
 SEE SHEET 2-E FOR DRAINAGE DETAILS  
 SEE SHEETS 46 AND 47 FOR -L- PROFILE  
 SEE SHEET 48 FOR -LTRANLT- PROFILE  
 SEE SHEET 50 FOR -LTRANRT- PROFILE

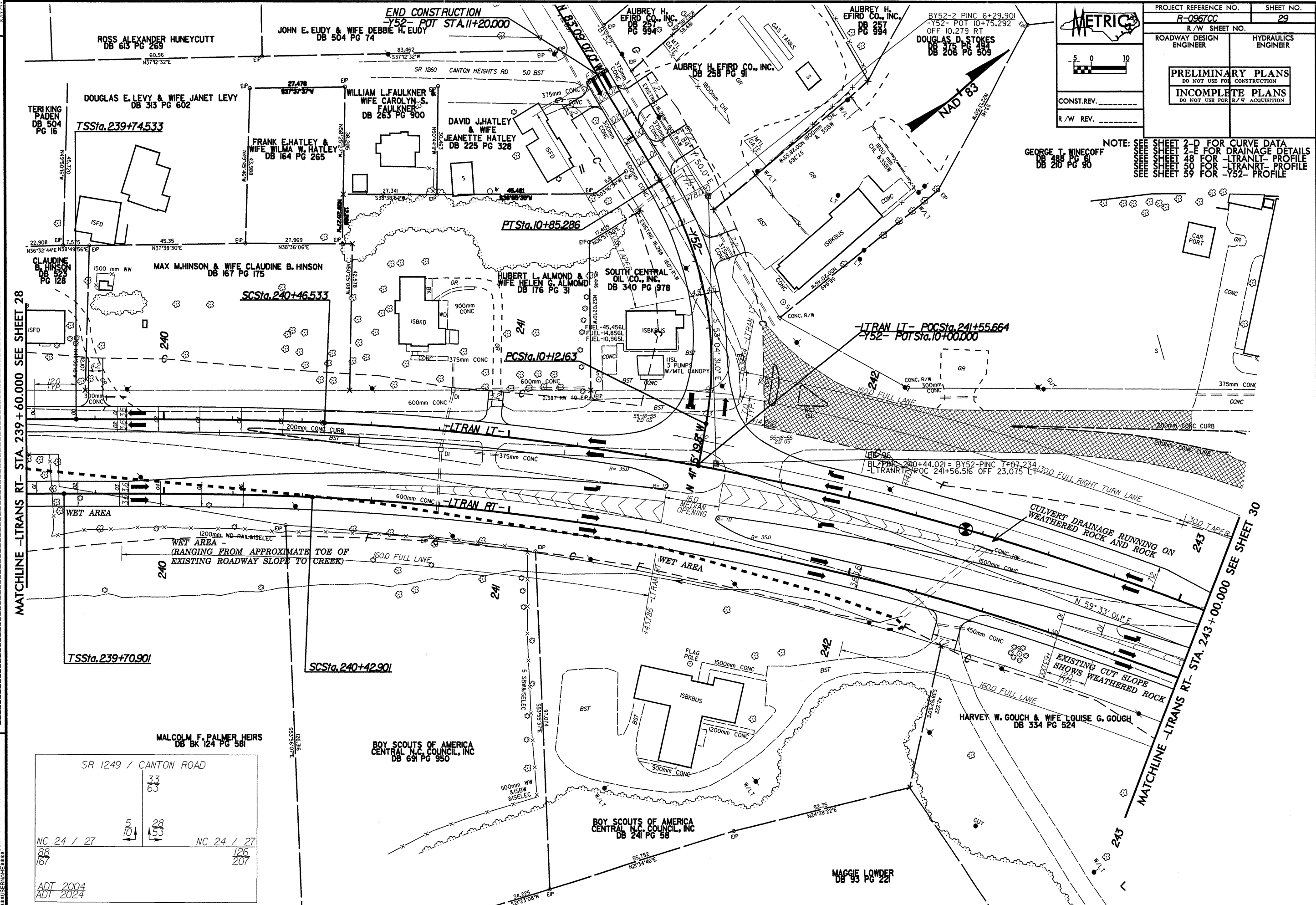
**METRIC**

CONST. REV. \_\_\_\_\_  
R/W REV. \_\_\_\_\_

|   |                        |
|---|------------------------|
| PROJECT REFERENCE NO.<br><b>R-0967CC</b>                  | SHEET NO.<br><b>29</b> |
| ROADWAY DESIGN ENGINEER                                   |                        |
| HYDRAULICS ENGINEER                                       |                        |
| <b>PRELIMINARY PLANS</b><br>DO NOT USE FOR CONSTRUCTION   |                        |
| <b>INCOMPLETE PLANS</b><br>DO NOT USE FOR R/W ACQUISITION |                        |

NOTE: SEE SHEET 2-D FOR CURVE DATA  
SHEET 2-E FOR DRAINAGE DETAILS  
SHEET 48 FOR -LTRAN LT- PROFILE  
SHEET 50 FOR -LTRAN RT- PROFILE  
SHEET 59 FOR -Y52- PROFILE

GEORGE T. WINECOFF  
DB 289 PG 90



REVISIONS

MATCHLINE -LTRANS RT- STA. 239 + 60.000 SEE SHEET 28

MATCHLINE -LTRANS RT- STA. 243 + 00.000 SEE SHEET 30

|                       |            |
|-----------------------|------------|
| SR 1249 / CANTON ROAD |            |
| 33                    | 63         |
| 5                     | 28         |
| 10                    | 53         |
| NC 24 / 27            | NC 24 / 27 |
| 88                    | 126        |
| 167                   | 207        |
| ADT 2004              |            |
| ADT 2024              |            |

\*\*\*\*\*SYSTEM TIME\*\*\*\*\*  
\*\*\*\*\*DRAWN BY\*\*\*\*\*  
\*\*\*\*\*DATE\*\*\*\*\*

ADT 2004  
ADT 2024

WEST MAIN STREET  
53  
85

34  
56

20  
30

NC 24 / 27  
126  
207

NC 24 / 27  
113  
167

NOTE: SEE SHEET 2-D FOR CURVE DATA  
SEE SHEET 2-E FOR DRAINAGE DETAILS  
SEE SHEETS 48 AND 49 FOR -LTRANLT- PROFILE  
SEE SHEETS 50 AND 51 FOR -LTRANRT- PROFILE  
SEE SHEET 59 FOR -Y53- PROFILE

**METRIC**

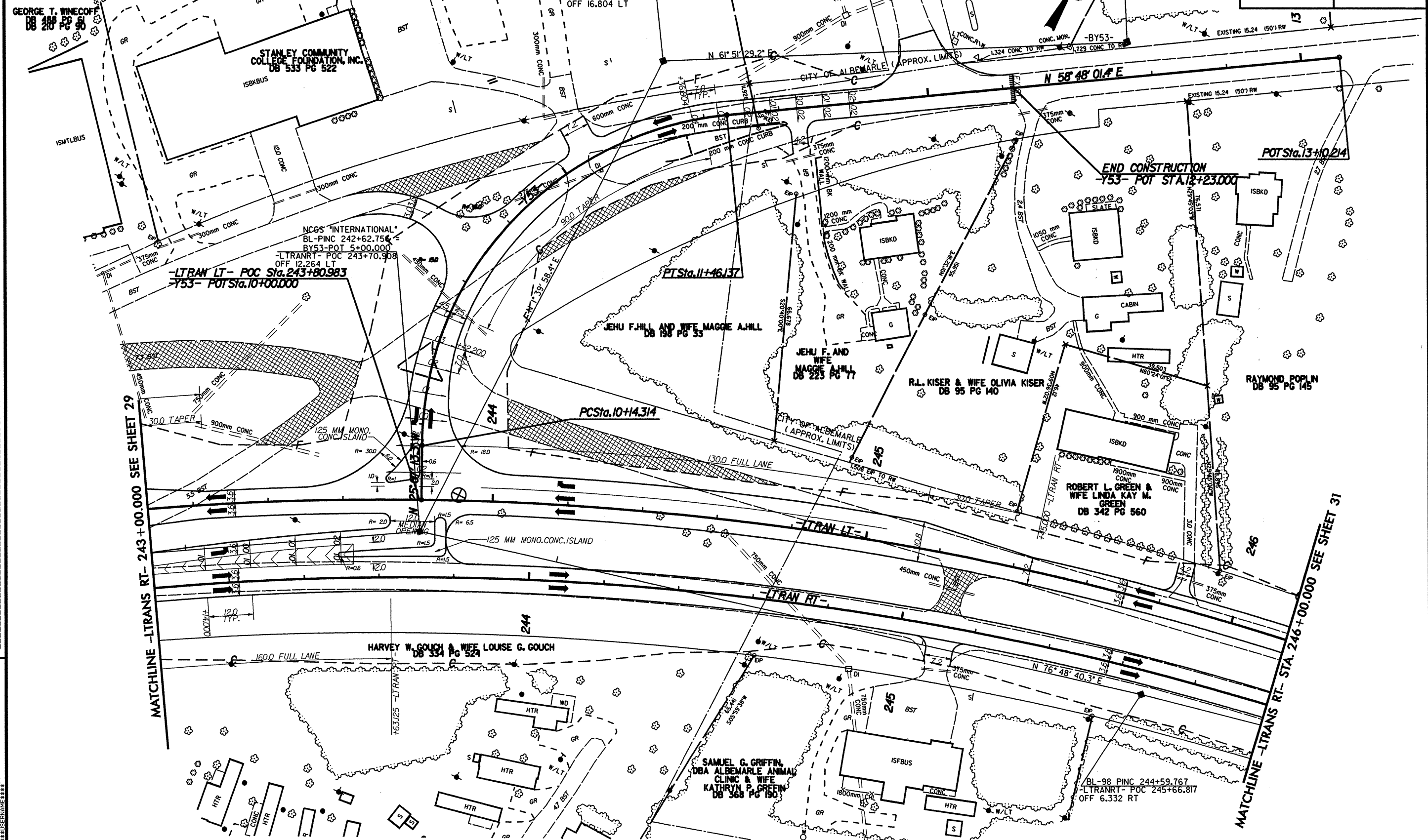
PROJECT REFERENCE NO. R-096700  
SHEET NO. 30

R/W SHEET NO.

ROADWAY DESIGN ENGINEER  
HYDRAULICS ENGINEER

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

CONST. REV. \_\_\_\_\_  
R/W REV. \_\_\_\_\_



REVISIONS


\*\*\*\*\*SYSTEMS\*\*\*\*\*  
\*\*\*\*\*DRAWING\*\*\*\*\*  
\*\*\*\*\*DATE\*\*\*\*\*

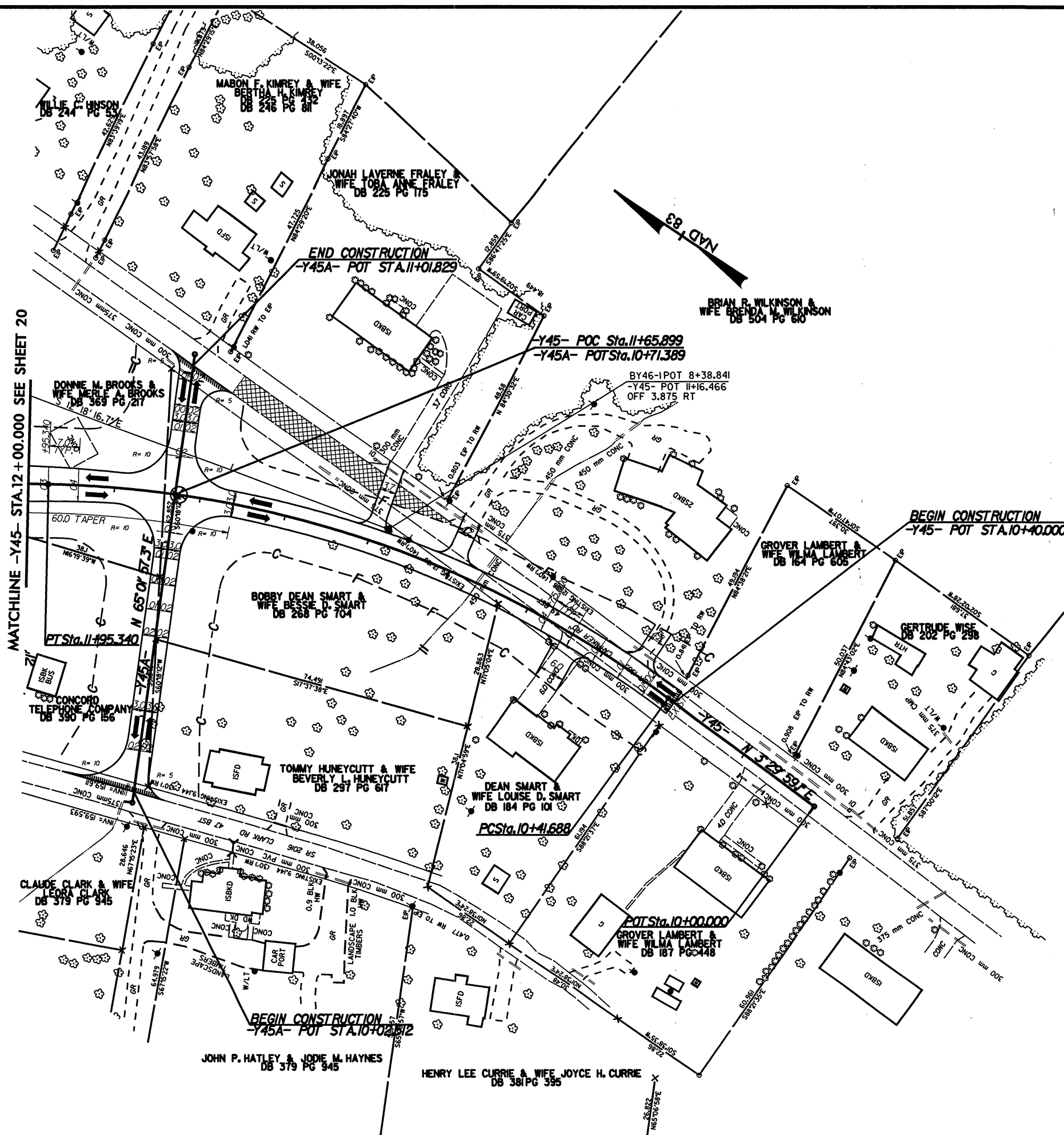
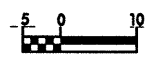








|  |                       |                     |
|--|-----------------------|---------------------|
|  | PROJECT REFERENCE NO. | SHEET NO.           |
|  | R-0967CC              | 34                  |
| ROADWAY DESIGN ENGINEER  |                       | HYDRAULICS ENGINEER |
| <b>PRELIMINARY PLANS</b><br>DO NOT USE FOR CONSTRUCTION                            |                       |                     |
| <b>INCOMPLETE PLANS</b><br>DO NOT USE FOR R/W ACQUISITION                          |                       |                     |
| CONST. REV. _____  |                       |                     |
| R/W REV. _____   |                       |                     |



MATCHLINE -Y45- STA. 12+00.000 SEE SHEET 20

REVISIONS

NOTE: SEE SHEET 2-D FOR CURVE DATA  
 SEE SHEET 2-E FOR DRAINAGE DETAILS  
 SEE SHEET 55 FOR -Y45- PROFILE  
 SEE SHEET 55 FOR -Y45A- PROFILE

\*\*\*\*\*SYSTEMTIME\*\*\*\*\*  
 \*\*\*\*\*USER\*\*\*\*\*



6/16/08

156  
155  
154  
153  
152  
151  
150  
149  
148  
147  
146  
145  
144  
143  
142  
141  
140  
139  
138  
137  
136  
135  
134  
162  
161  
160  
159  
158  
157  
156  
155  
154  
153  
152  
151  
150  
149  
148  
147  
146  
145  
144  
143  
142  
141  
140

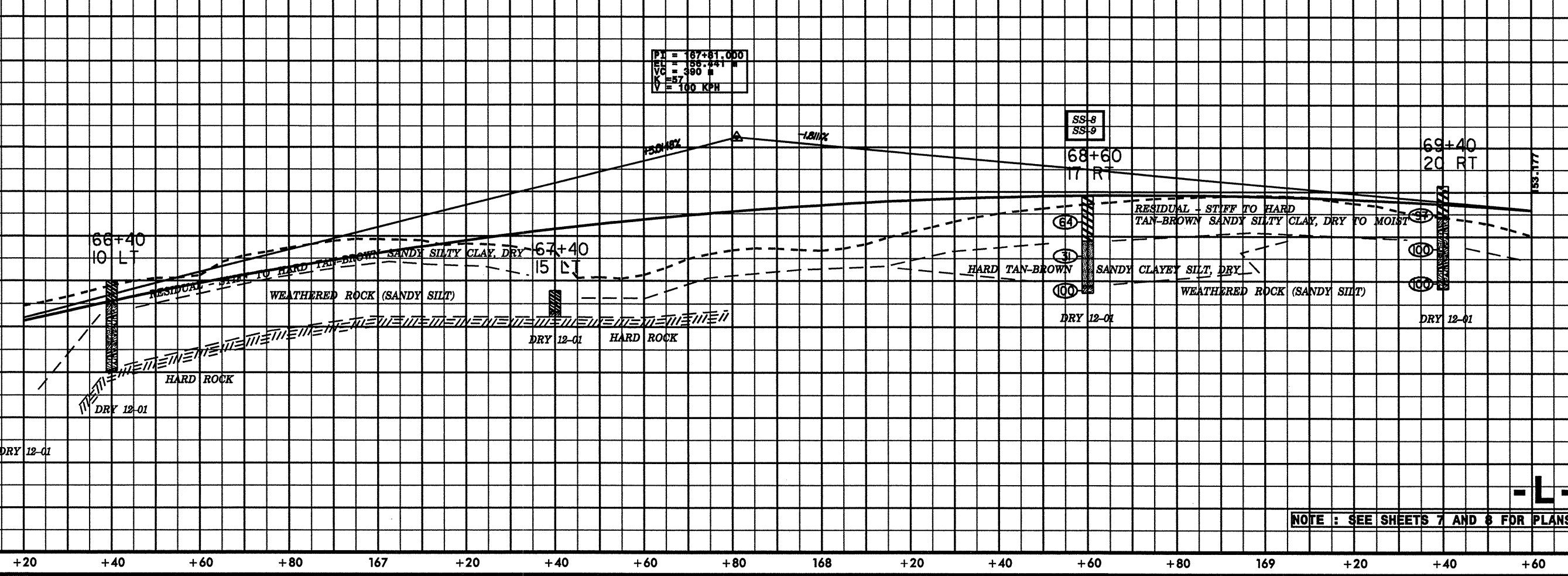
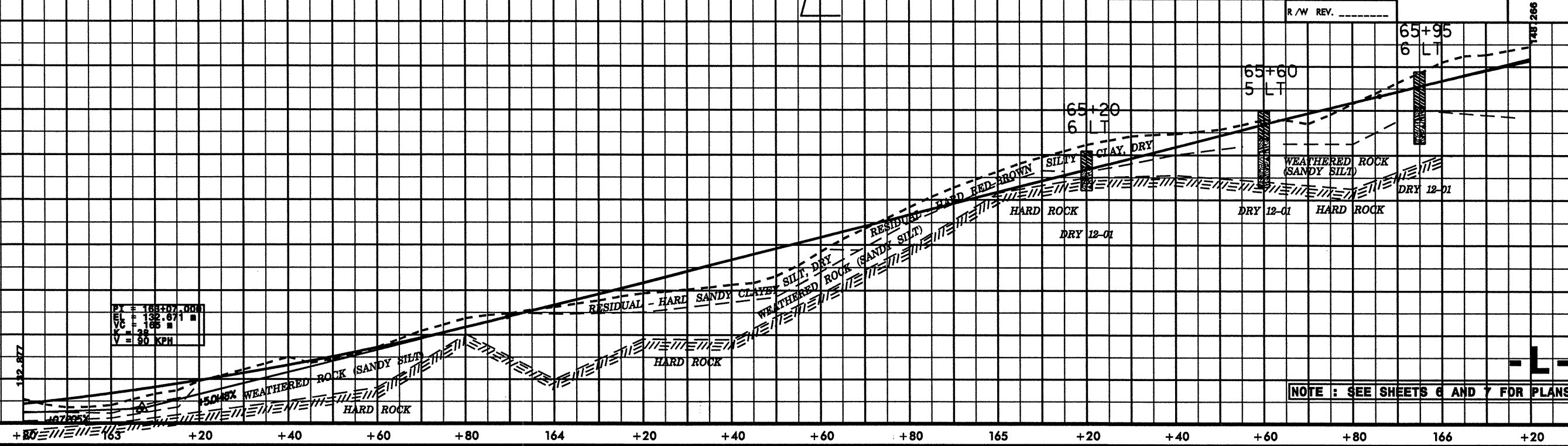
| SOIL TEST RESULTS |        |         |                |               |      |        |             |         |      |      |                  |    |     |            |           |
|-------------------|--------|---------|----------------|---------------|------|--------|-------------|---------|------|------|------------------|----|-----|------------|-----------|
| SAMPLE NO.        | OFFSET | STATION | DEPTH INTERVAL | AASHTO CLASS. | L.L. | P.L.I. | % BY WEIGHT |         |      |      | % PASSING SIEVES |    |     | % MOISTURE | % ORGANIC |
|                   |        |         |                |               |      |        | C. SAND     | F. SAND | SILT | CLAY | 10               | 40 | 200 |            |           |
| SS-8              | 17 RT  | 168+60  | 1.31-1.61      | A-7-6(10)     | 41   | 13     | 11.5        | 18.1    | 24.0 | 46.4 | 100              | 93 | 75  | -          | -         |
| SS-9              | 17 RT  | 168+60  | 2.83-3.13      | A-4(6)        | 40   | 9      | 9.9         | 31.7    | 8.1  | 50.4 | 100              | 94 | 69  | -          | -         |

B.M. 26  
BENT BRIDGE SPIKE IN BASE OF 600MM OAK  
N 171175.070 E 491869.277  
LOCATER 34.800 RIGHT OF -BL- STA. 163+82.900  
EL. 152.078

**METRIC**

CONST. REV. \_\_\_\_\_  
R/W REV. \_\_\_\_\_

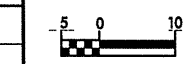
PROJECT REFERENCE NO. **R-0967CC** SHEET NO. **36**  
ROADWAY DESIGN ENGINEER HYDRAULICS ENGINEER  
**INCOMPLETE PLANS**  
DO NOT USE FOR R/W ACQUISITION  
**PRELIMINARY PLANS**  
DO NOT USE FOR CONSTRUCTION



SYSTEM TIME: 2008/06/16 10:00:00 AM



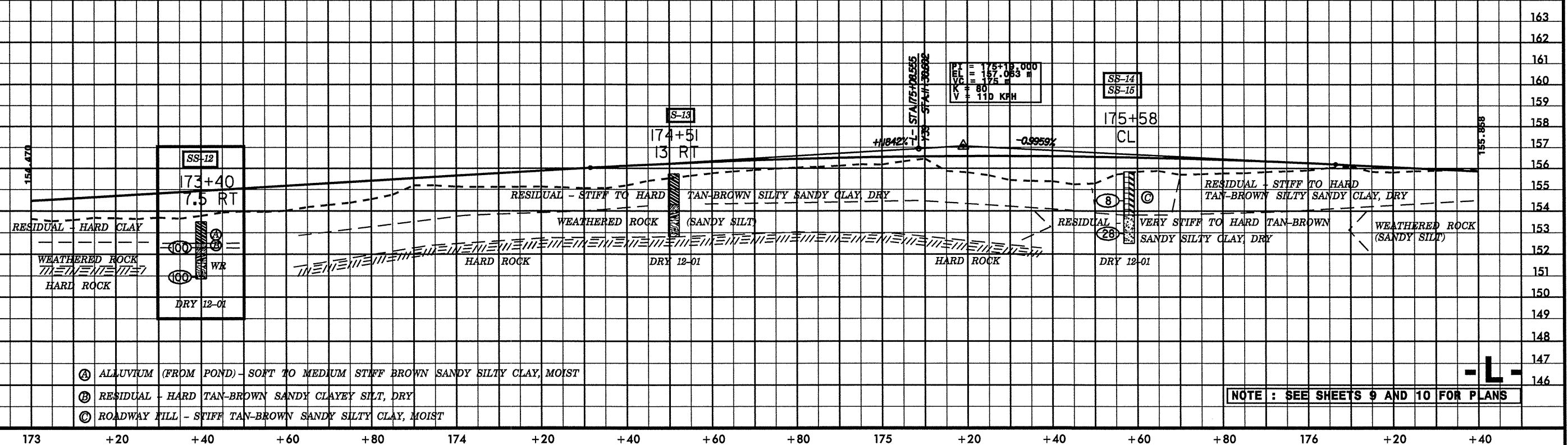
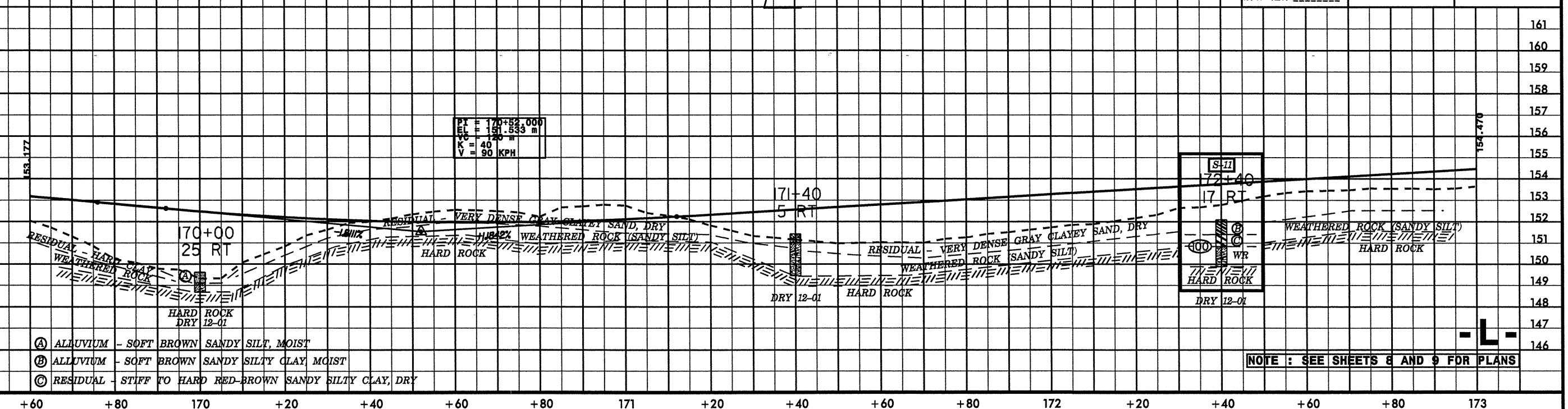
INCOMPLETE PLANS  
DO NOT USE FOR R/W ACQUISITION  
PRELIMINARY PLANS  
DO NOT USE FOR CONSTRUCTION



CONST. REV. \_\_\_\_\_  
R/W REV. \_\_\_\_\_

### SOIL TEST RESULTS

| SAMPLE NO. | OFFSET | STATION | DEPTH INTERVAL | AASHTO CLASS. | LL | PL. I. | % BY WEIGHT |         |      |      | % PASSING SIEVES |    |     | MOISTURE | % ORGANIC |
|------------|--------|---------|----------------|---------------|----|--------|-------------|---------|------|------|------------------|----|-----|----------|-----------|
|            |        |         |                |               |    |        | C. SAND     | F. SAND | SILT | CLAY | 10               | 40 | 200 |          |           |
| S-11       | 15 RT  | 172+40  | 0.00-0.60      | A-6(5)        | 37 | 17     | 12.5        | 7.9     | 27.2 | 52.4 | 59               | 53 | 49  | -        | -         |
| SS-12      | 7.5 RT | 173+40  | 1.20-1.50      | A-4(4)        | 30 | 7      | 8.7         | 15.1    | 29.8 | 46.4 | 86               | 82 | 70  | -        | -         |
| S-13       | 13 RT  | 174+51  | 0.00-2.91      | A-6(2)        | 37 | 13     | 13.9        | 7.1     | 18.5 | 60.5 | 53               | 47 | 43  | -        | -         |
| SS-14      | CL     | 175+58  | 1.50-1.80      | A-7-6(9)      | 43 | 16     | 9.3         | 6.0     | 20.2 | 64.5 | 75               | 69 | 65  | -        | -         |
| SS-15      | CL     | 175+58  | 3.02-3.32      | A-5(11)       | 41 | 9      | 2.2         | 5.6     | 37.7 | 54.4 | 100              | 98 | 94  | -        | -         |

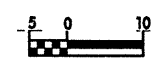


\$\$\$\$\$SYTIME\$\$\$\$\$  
\$\$\$\$\$DGN\$\$\$\$\$  
\$\$\$\$\$NAME\$\$\$\$\$

| SOIL TEST RESULTS |        |         |                |               |      |        |             |         |      |      |                  |    |     |            |           |
|-------------------|--------|---------|----------------|---------------|------|--------|-------------|---------|------|------|------------------|----|-----|------------|-----------|
| SAMPLE NO.        | OFFSET | STATION | DEPTH INTERVAL | AASHTO CLASS. | L.L. | P.L.I. | % BY WEIGHT |         |      |      | % PASSING SIEVES |    |     | % MOISTURE | % ORGANIC |
|                   |        |         |                |               |      |        | C. SAND     | F. SAND | SILT | CLAY | 10               | 40 | 200 |            |           |
| SS-16             | 22 RT  | 176+77  | 1.45-1.75      | A-7-5(10)     | 44   | 12     | 12.3        | 7.5     | 19.8 | 60.5 | 89               | 81 | 73  | -          | -         |
| S-17              | 14 RT  | 182+30  | 0.00-2.00      | A-7-6(18)     | 43   | 28     | 8.9         | 6.5     | 18.1 | 66.5 | 83               | 77 | 72  | -          | -         |



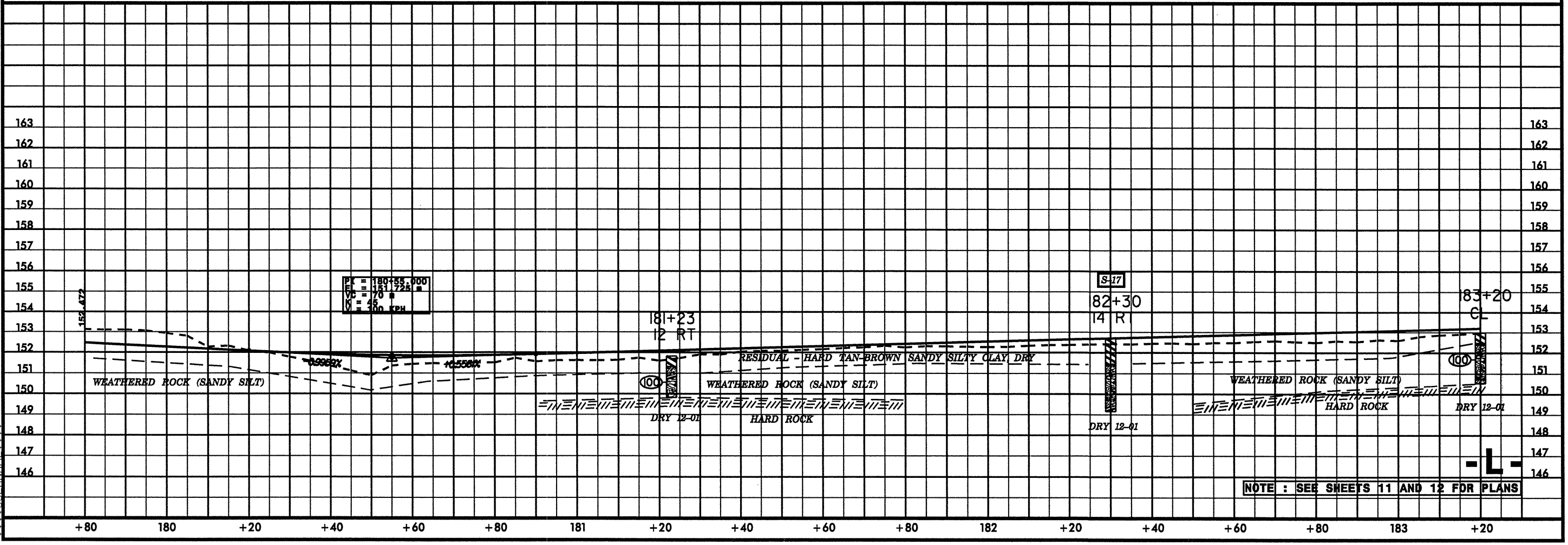
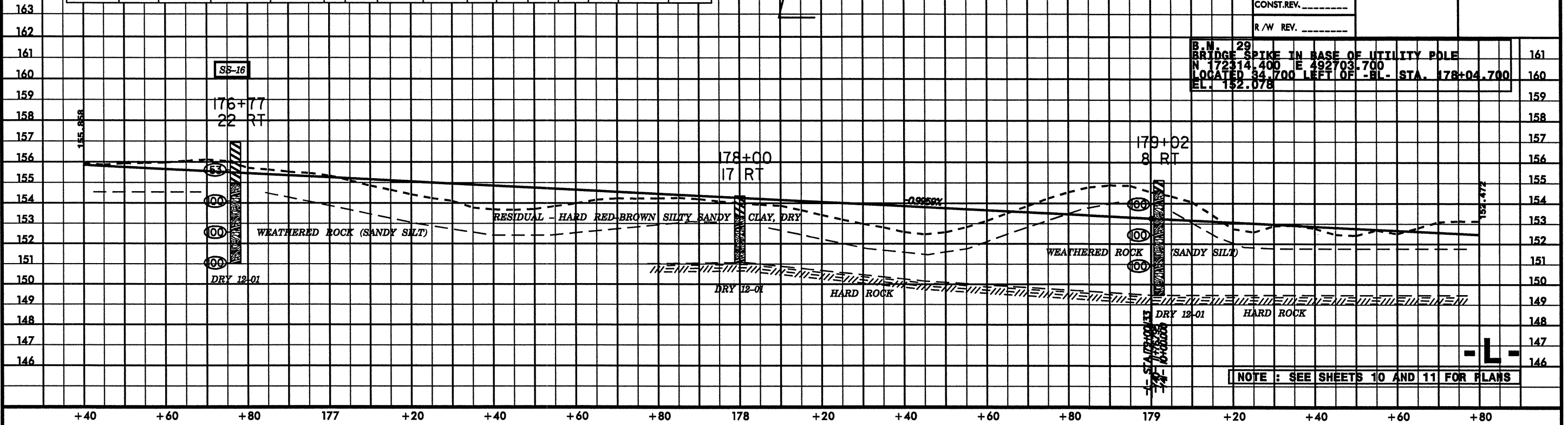
PROJECT REFERENCE NO. R-0967CC SHEET NO. 38  
 ROADWAY DESIGN ENGINEER HYDRAULICS ENGINEER



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

CONST. REV. \_\_\_\_\_  
 R/W REV. \_\_\_\_\_

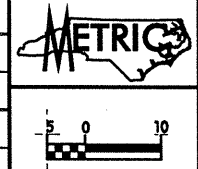
B.M. 29  
 BRIDGE SPIKE IN BASE OF UTILITY POLE  
 N 172314.400 E 492703.700  
 LOCATED 84.700 LEFT OF -BL- STA. 178+04.700  
 EL. 152.078



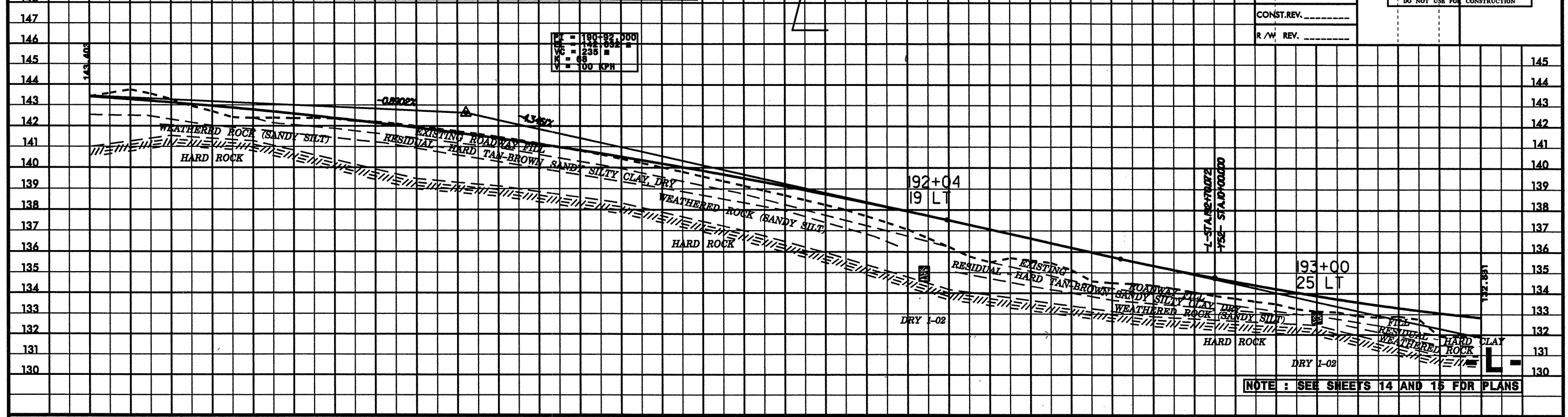
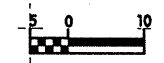
\$\$\$ SYSTEMS TIME \$\$\$  
 \$\$\$ DESIGN \$\$\$  
 \$\$\$ USER NAME \$\$\$



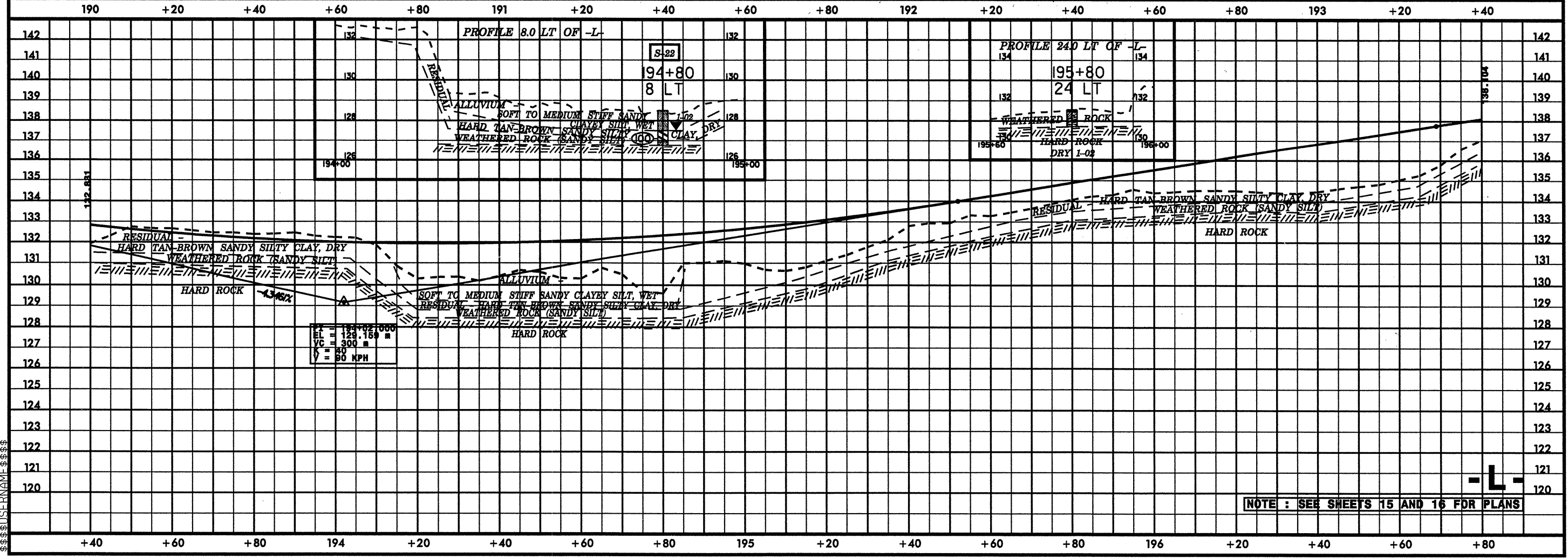
| SOIL TEST RESULTS |        |         |                |               |      |        |             |         |      |      |                  |    |     |            |           |
|-------------------|--------|---------|----------------|---------------|------|--------|-------------|---------|------|------|------------------|----|-----|------------|-----------|
| SAMPLE NO.        | OFFSET | STATION | DEPTH INTERVAL | AASHTO CLASS. | L.L. | P.L.I. | % BY WEIGHT |         |      |      | % PASSING SIEVES |    |     | % MOISTURE | % ORGANIC |
|                   |        |         |                |               |      |        | C. SAND     | F. SAND | SILT | CLAY | 10               | 40 | 200 |            |           |
| 5-22              | 8 LT   | 194+78  | 0.00-1.00      | A-4(1)        | 28   | 7      | 8.9         | 30.1    | 30.7 | 30.3 | 72               | 67 | 48  | -          | -         |



|  |                     |
|--|---------------------|
| PROJECT REFERENCE NO.<br>R-0967CC  | SHEET NO.<br>40     |
| ROADWAY DESIGN ENGINEER  | HYDRAULICS ENGINEER |
| <b>INCOMPLETE PLANS</b><br>DO NOT USE FOR R/W ACQUISITION<br><b>PRELIMINARY PLANS</b><br>DO NOT USE FOR CONSTRUCTION |                     |
| CONST. REV. _____  |                     |
| R/W REV. _____   |                     |



NOTE : SEE SHEETS 14 AND 15 FOR PLANS



NOTE : SEE SHEETS 15 AND 16 FOR PLANS

\$\$\$\$\$SYTIME\$\$\$\$\$DGN\$\$\$\$\$SAL\$\$\$\$\$



152  
151  
150  
149  
148  
147  
146  
145  
144  
143  
142  
141  
140  
139  
138  
137  
136  
135  
134  
133  
132  
131  
130

| SOIL TEST RESULTS |        |         |                |               |           |      |             |         |      |      |                  |     |     |            |           |   |
|-------------------|--------|---------|----------------|---------------|-----------|------|-------------|---------|------|------|------------------|-----|-----|------------|-----------|---|
| SAMPLE NO.        | OFFSET | STATION | DEPTH INTERVAL | AASHTO CLASS. | L.L.      | P.L. | % BY WEIGHT |         |      |      | % PASSING SIEVES |     |     | % MOISTURE | % ORGANIC |   |
|                   |        |         |                |               |           |      | C. SAND     | F. SAND | SILT | CLAY | 10               | 40  | 200 |            |           |   |
| 149               | S-24   | 7 LT    | 199+76         | 0.00-6.00     | A-7-5(13) | 48   | 16          | 4.4     | 25.1 | 34.1 | 36.4             | 100 | 99  | 75         | -         | - |
| 148               | SS-27  | 6 RT    | 203+37         | 1.39-1.69     | A-6(3)    | 38   | 14          | 16.8    | 5.5  | 33.3 | 44.4             | 57  | 49  | 45         | -         | - |

**METRIC**

PROJECT REFERENCE NO. **R-0967CC** SHEET NO. **41**

ROADWAY DESIGN ENGINEER HYDRAULICS ENGINEER

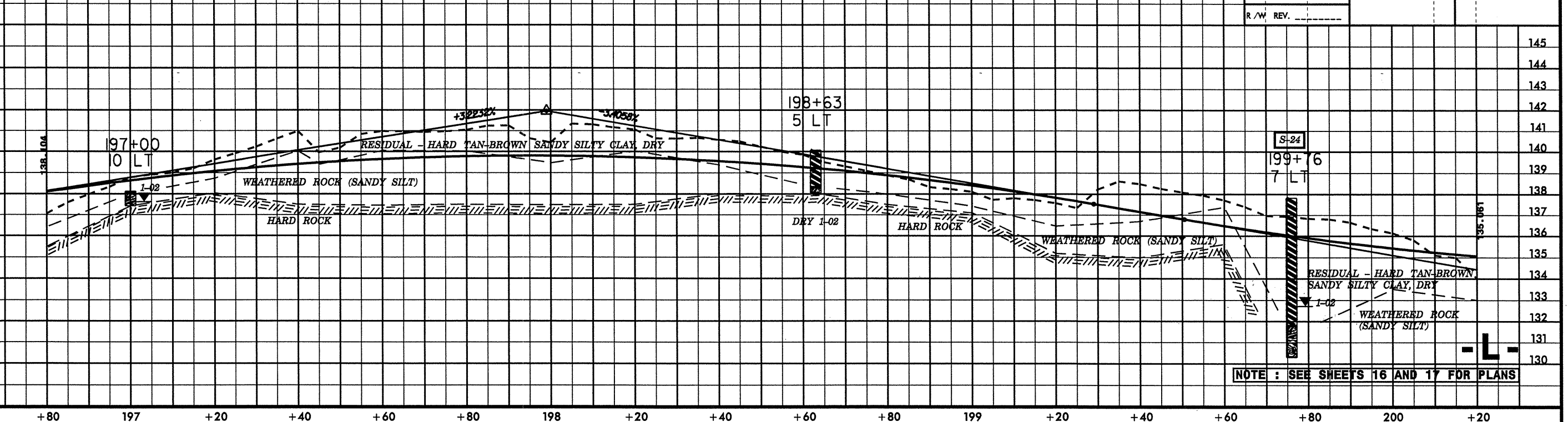
**INCOMPLETE PLANS**  
DO NOT USE FOR R/W ACQUISITION

**PRELIMINARY PLANS**  
DO NOT USE FOR CONSTRUCTION

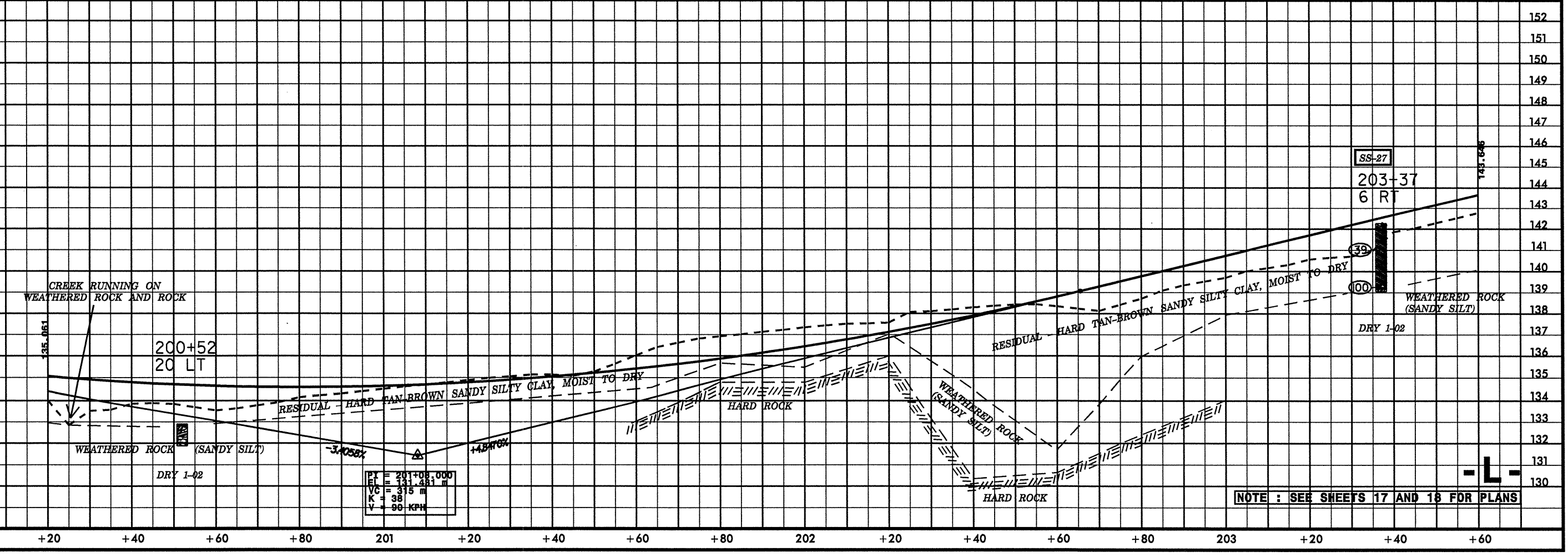
CONST. REV. \_\_\_\_\_

R/W REV. \_\_\_\_\_

5 0 10



152  
151  
150  
149  
148  
147  
146  
145  
144  
143  
142  
141  
140  
139  
138  
137  
136  
135  
134  
133  
132  
131  
130



\$\$\$ TIME \$\$\$  
\$\$\$ DOWN \$\$\$  
\$\$\$ UP \$\$\$  
\$\$\$ NAME \$\$\$

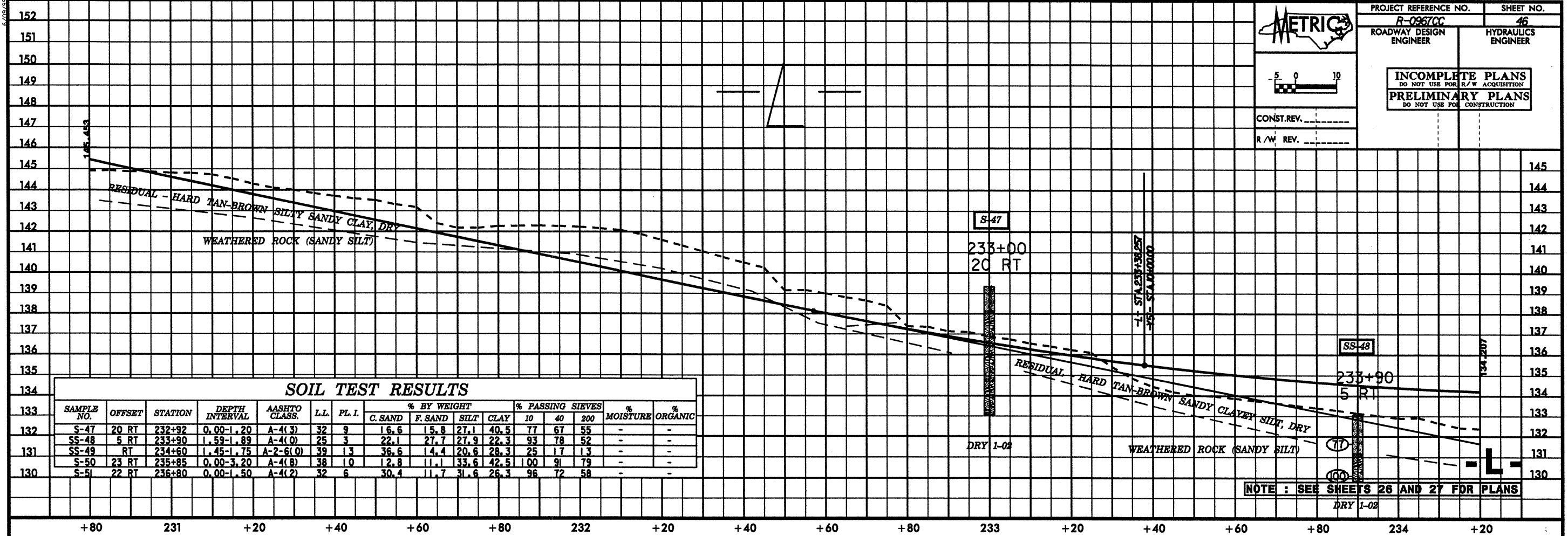
HY = 201+00.000  
ET = 131.481 m  
VC = 315 m  
K = 38  
V = 90 KPH











PROJECT REFERENCE NO. **R-096700** SHEET NO. **46**

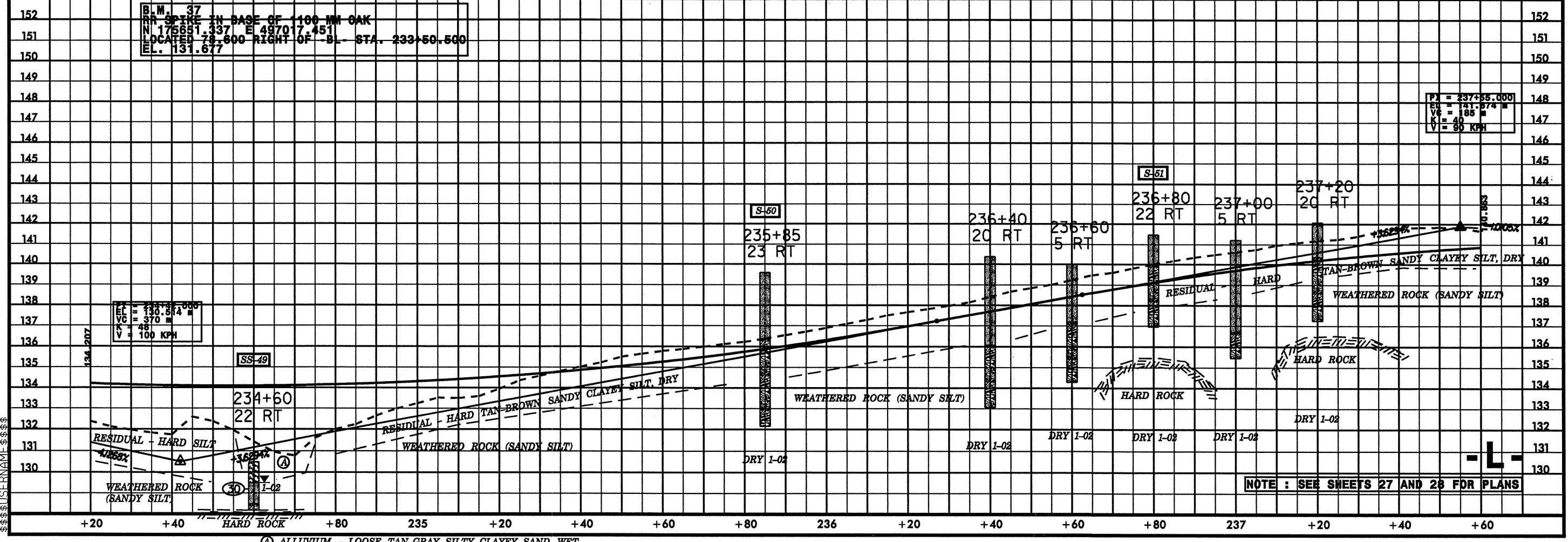
ROADWAY DESIGN ENGINEER HYDRAULICS ENGINEER

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

CONST. REV. \_\_\_\_\_  
R/W REV. \_\_\_\_\_

**SOIL TEST RESULTS**

| SAMPLE NO. | OFFSET | STATION | DEPTH INTERVAL | AASHTO CLASS. | LL | PL. I. | % BY WEIGHT |         |      |      | % PASSING SIEVES |    |     | % MOISTURE | % ORGANIC |
|------------|--------|---------|----------------|---------------|----|--------|-------------|---------|------|------|------------------|----|-----|------------|-----------|
|            |        |         |                |               |    |        | C. SAND     | F. SAND | SILT | CLAY | 10               | 40 | 200 |            |           |
| S-47       | 20 RT  | 232+92  | 0.00-1.20      | A-4(3)        | 32 | 9      | 16.6        | 15.8    | 27.1 | 40.5 | 77               | 67 | 55  | -          | -         |
| SS-48      | 5 RT   | 233+90  | 1.59-1.89      | A-4(0)        | 25 | 3      | 22.1        | 27.7    | 27.9 | 22.3 | 93               | 78 | 52  | -          | -         |
| SS-49      | RT     | 234+60  | 1.45-1.75      | A-2-6(0)      | 39 | 13     | 36.6        | 14.4    | 20.6 | 28.3 | 25               | 17 | 13  | -          | -         |
| S-50       | 23 RT  | 235+85  | 0.00-3.20      | A-4(8)        | 38 | 10     | 12.8        | 11.1    | 33.6 | 42.5 | 100              | 91 | 79  | -          | -         |
| S-51       | 22 RT  | 236+80  | 0.00-1.50      | A-4(2)        | 32 | 6      | 30.4        | 11.7    | 31.6 | 26.3 | 96               | 72 | 58  | -          | -         |



B.M. 37  
RR SPIKE IN BASE OF 1100 MM OAK  
N 175651.337 E 497017.451  
LOCATED 78.600 RIGHT OF B.L. STA. 233+50.500  
EL. 131.677


PVI = 237+55.000  
EL = 131.674  
VC = 185 M  
K = 40  
V = 90 KPH

NOTE: SEE SHEETS 27 AND 28 FOR PLANS

(A) ALLUVIUM - LOOSE TAN-GRAY SILTY CLAYEY SAND, WET

\$\$\$\$\$SYTIME\$\$\$\$\$  
\$\$\$\$\$DOWN\$\$\$\$\$  
\$\$\$\$\$PLS\$\$\$\$\$  
\$\$\$\$\$NAME\$\$\$\$\$

152  
151  
150  
149  
148  
147  
146  
145  
144  
143  
142  
141  
140  
139  
138  
137  
136  
135  
134  
133  
132  
131  
130



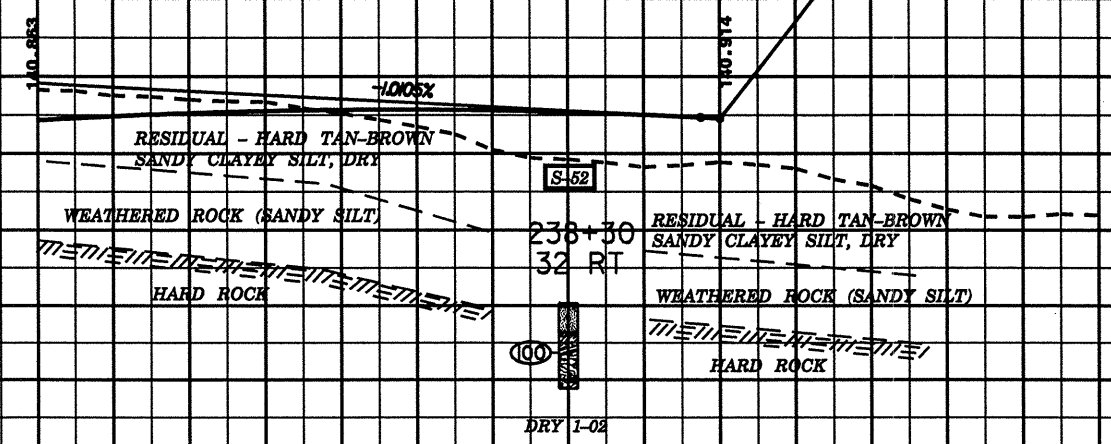
5 0 10

CONST. REV. \_\_\_\_\_  
R/W REV. \_\_\_\_\_

|  |                     |
|--|---------------------|
| PROJECT REFERENCE NO.<br>R-0967CC  | SHEET NO.<br>47     |
| ROADWAY DESIGN ENGINEER  | HYDRAULICS ENGINEER |
| <b>INCOMPLETE PLANS</b><br>DO NOT USE FOR R/W ACQUISITION<br><b>PRELIMINARY PLANS</b><br>DO NOT USE FOR CONSTRUCTION |                     |

END GRADE  
L- STA 238+50.000  
EL 140.914

| SAMPLE NO. | OFFSET | STATION | DEPTH INTERVAL | AASHTO CLASS. | L.L. | P.L.I. | % BY WEIGHT |         |      |      | % PASSING SIEVES |    |     | % MOISTURE | % ORGANIC |
|------------|--------|---------|----------------|---------------|------|--------|-------------|---------|------|------|------------------|----|-----|------------|-----------|
|            |        |         |                |               |      |        | C. SAND     | F. SAND | SILT | CLAY | 10               | 40 | 200 |            |           |
| S-52       | 30 RT  | 238+30  | 0.00-0.80      | A-4(1)        | 33   | 9      | 31.0        | 7.9     | 22.7 | 38.5 | 65               | 47 | 41  | -          | -         |



NOTE : SEE SHEET 28 FOR PLANS

+60    +80    238    +20    +40    +60    +80    239

SYSTEMS  
DESIGN  
SURVEYING  
CONSULTANTS

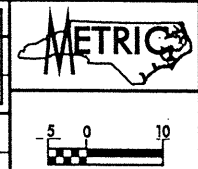








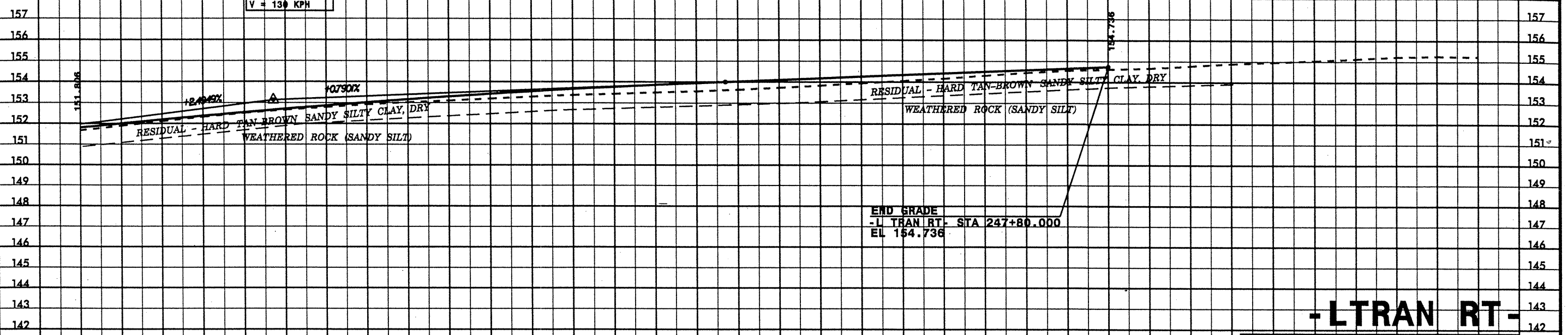
B.M. "WANDI"  
 NGS "WANDI"  
 N 176456.436 E 498068.517  
 LOCATED ON BL STA. 247+37.081  
 EL. 154.717



|  |                     |
|--|---------------------|
| PROJECT REFERENCE NO.<br>R-0967CC  | SHEET NO.<br>51     |
| ROADWAY DESIGN ENGINEER  | HYDRAULICS ENGINEER |
| <b>INCOMPLETE PLANS</b><br>DO NOT USE FOR R/W ACQUISITION<br><b>PRELIMINARY PLANS</b><br>DO NOT USE FOR CONSTRUCTION |                     |
| CONST. REV. _____  |                     |
| R/W REV. _____   |                     |

BY = 245+77.000  
 EL = 153.182  
 VC = 220  
 K = 120  
 V = 130 KPH

# - LTRAN RT -



+40    +60    +80    246    +20    +40    +60    +80    247    +20    +40    +60    +80    248    +20    +40    +60

\$\$\$SYSTIME\$\$\$\$\$  
 \$\$\$CON\$\$\$\$\$  
 \$\$\$PRIME\$\$\$\$\$  
 \$\$\$COST\$\$\$\$\$  
 \$\$\$

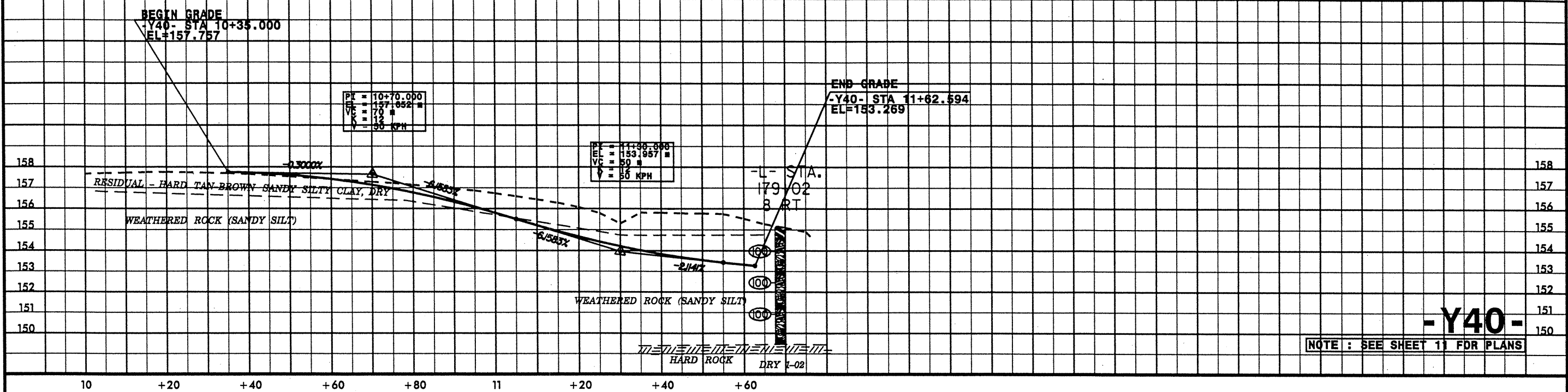


**METRIC**

CONST. REV. \_\_\_\_\_  
R/W REV. \_\_\_\_\_

|  |                     |
|--|---------------------|
| PROJECT REFERENCE NO.<br>R-0867CC  | SHEET NO.<br>53     |
| ROADWAY DESIGN ENGINEER  | HYDRAULICS ENGINEER |
| <b>INCOMPLETE PLANS</b><br>DO NOT USE FOR R/W ACQUISITION<br><b>PRELIMINARY PLANS</b><br>DO NOT USE FOR CONSTRUCTION |                     |

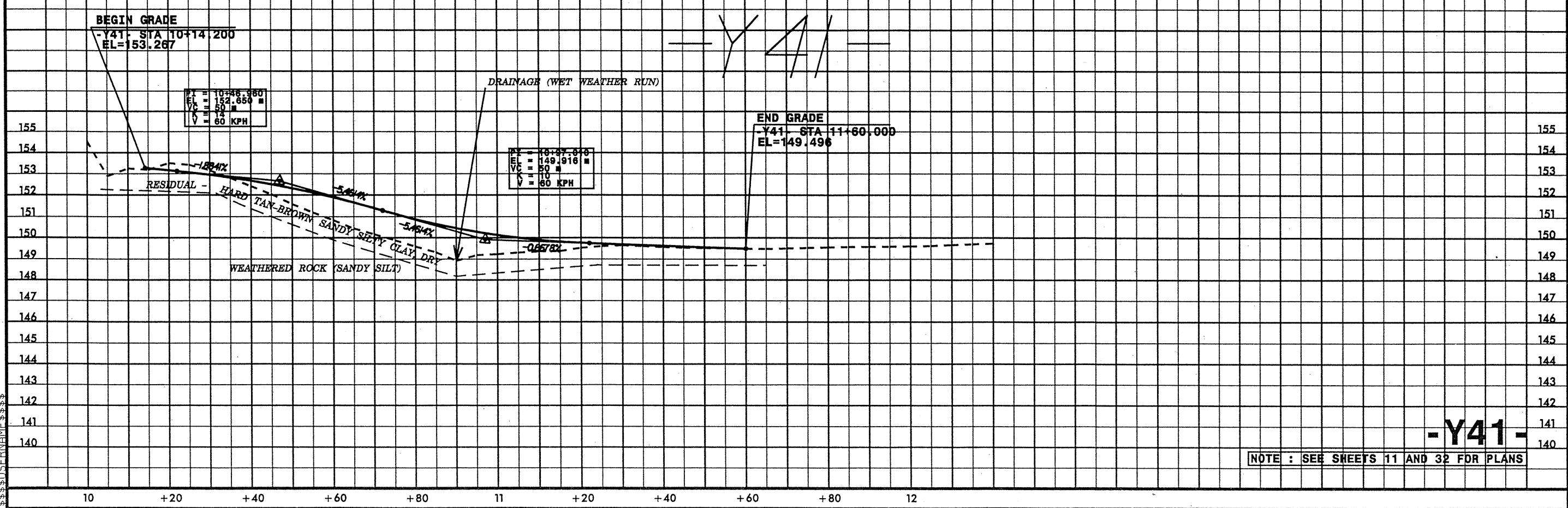
-Y40-



-Y40-

NOTE: SEE SHEET 11 FOR PLANS

\$\$\$SYTIME\$\$\$\$\$  
 \$\$\$DGN\$\$\$\$\$  
 \$\$\$SERNAME\$\$\$\$\$



-Y41-

-Y41-

NOTE: SEE SHEETS 11 AND 32 FOR PLANS

6/03/93

BEGIN GRADE  
-Y42- STA 10+00.000  
EL=155.098

PT = 10+25.819  
EL = 155.337  
VC = 40  
V = 40 KPH

END GRADE  
-Y42- STA 10+88.922  
EL=153.600

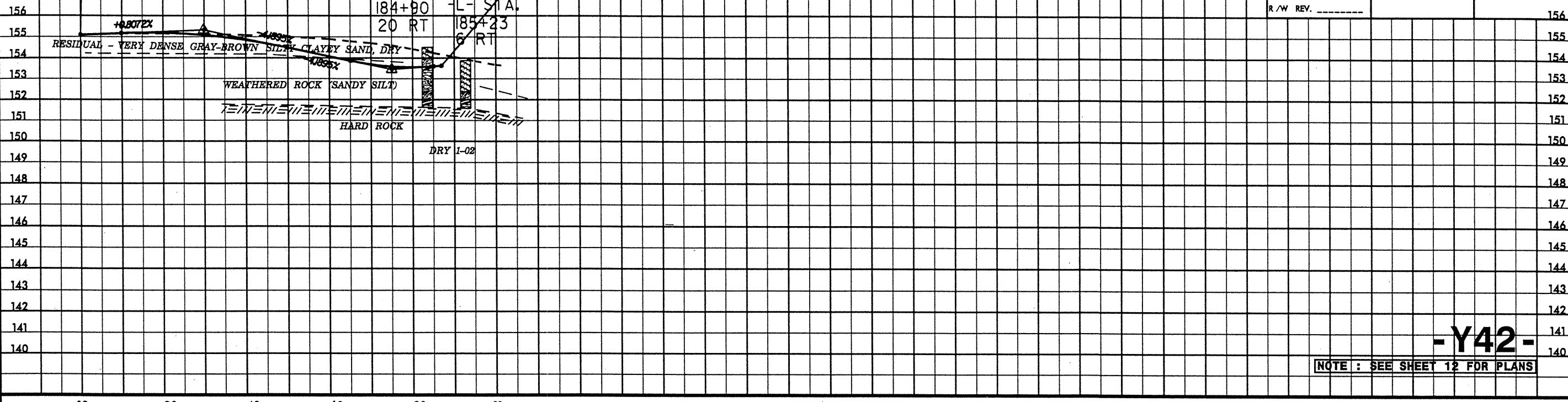
-Y42-

**METRIC**

CONST. REV. \_\_\_\_\_  
R/W REV. \_\_\_\_\_

PROJECT REFERENCE NO. **R-0967CC** SHEET NO. **54**  
ROADWAY DESIGN ENGINEER HYDRAULICS ENGINEER

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



10 +20 +40 +60 +80 11

-Y42-

NOTE : SEE SHEET 12 FOR PLANS

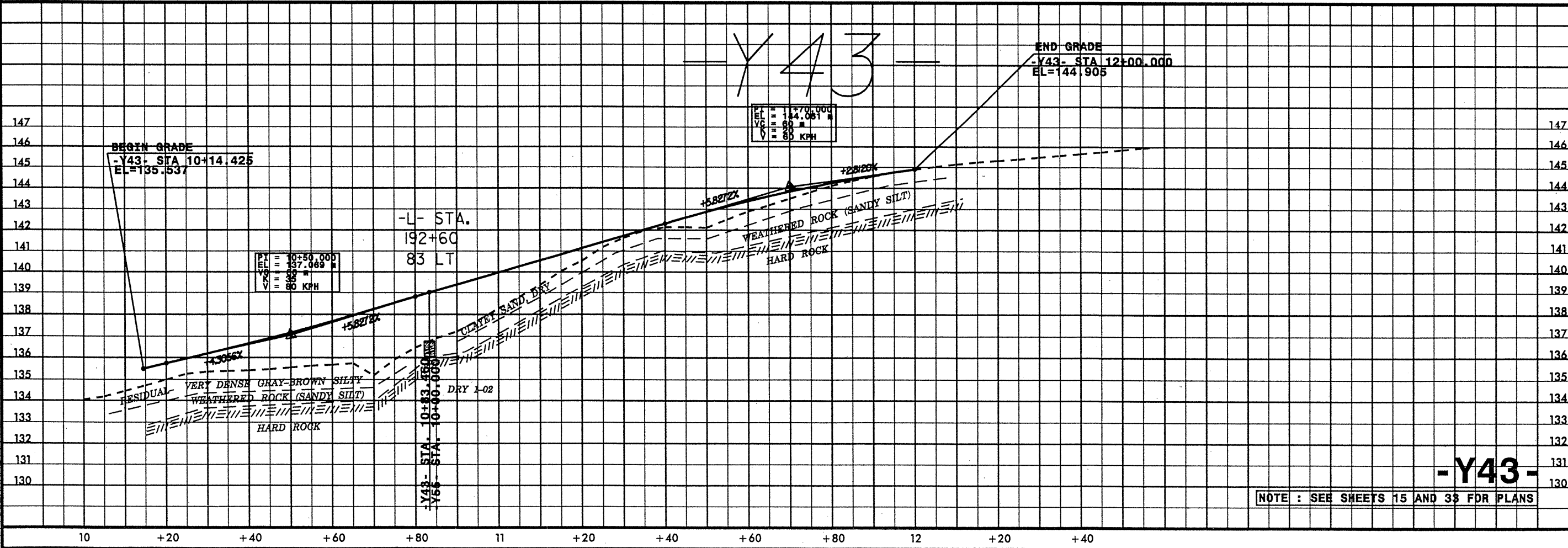
BEGIN GRADE  
-Y43- STA 10+14.425  
EL=135.537

PT = 10+58.000  
EL = 137.089  
VC = 30  
V = 80 KPH

PT = 11+70.000  
EL = 144.081  
VC = 80  
V = 80 KPH

END GRADE  
-Y43- STA 12+00.000  
EL=144.905

-Y43-



10 +20 +40 +60 +80 11 +20 +40 +60 +80 12 +20 +40

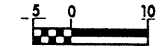
-Y43-

NOTE : SEE SHEETS 15 AND 33 FOR PLANS

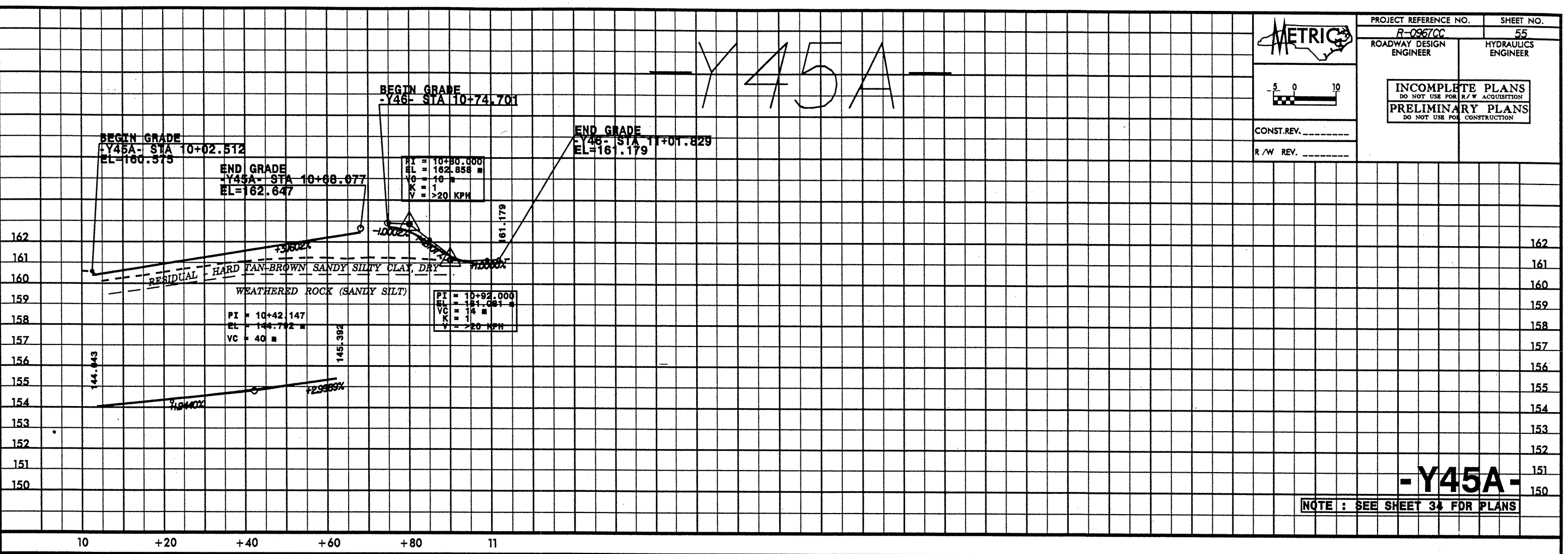
\$\$\$\$\$SYTIME\$\$\$\$\$  
\$\$\$\$\$DGN\$\$\$\$\$  
\$\$\$\$\$NAME\$\$\$\$\$



|  |                     |
|--|---------------------|
| PROJECT REFERENCE NO.<br>R-0967CC  | SHEET NO.<br>55     |
| ROADWAY DESIGN ENGINEER  | HYDRAULICS ENGINEER |
| <b>INCOMPLETE PLANS</b><br>DO NOT USE FOR R/W ACQUISITION<br><b>PRELIMINARY PLANS</b><br>DO NOT USE FOR CONSTRUCTION |                     |
| CONST. REV. _____  |                     |
| R/W REV. _____   |                     |



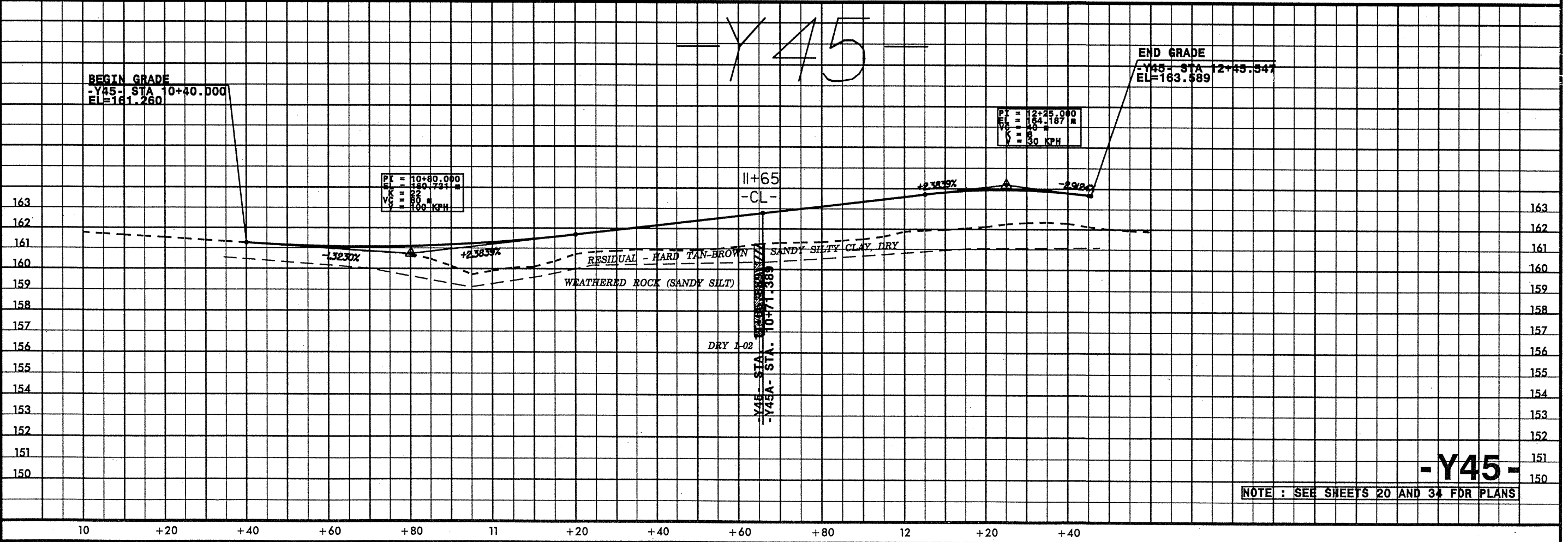
# -Y45A-



**-Y45A-**

NOTE : SEE SHEET 34 FOR PLANS

# -Y45-



**-Y45-**

NOTE : SEE SHEETS 20 AND 34 FOR PLANS

\$\$\$SYTIME\$\$\$\$\$  
 \$\$\$DGN\$\$\$\$\$  
 \$\$\$SERIAL\$\$\$\$\$  
 \$\$\$NAME\$\$\$\$\$  
 \$\$\$\$\$\$\$\$

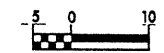
-Y48-



PROJECT REFERENCE NO. R-0967CC SHEET NO. 57

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER



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

CONST. REV. \_\_\_\_\_  
R/W REV. \_\_\_\_\_

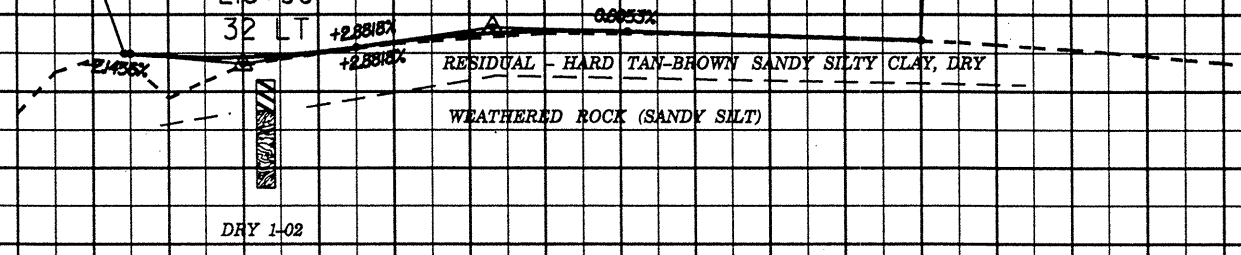
BEGIN GRADE  
-Y48- STA 10+14.200  
EL=161.058

END GRADE  
-Y48- STA 11+20.000  
EL=161.325

PI = 10+63.000  
EL = 161.670  
VC = 38  
V = 50 KPH  
K = 10

-L- STA.  
216+90

32 LT



-Y48-

NOTE : SEE SHEET 22 FOR PLANS

10 +20 +40 +60 +80 11 +20 +40 +60

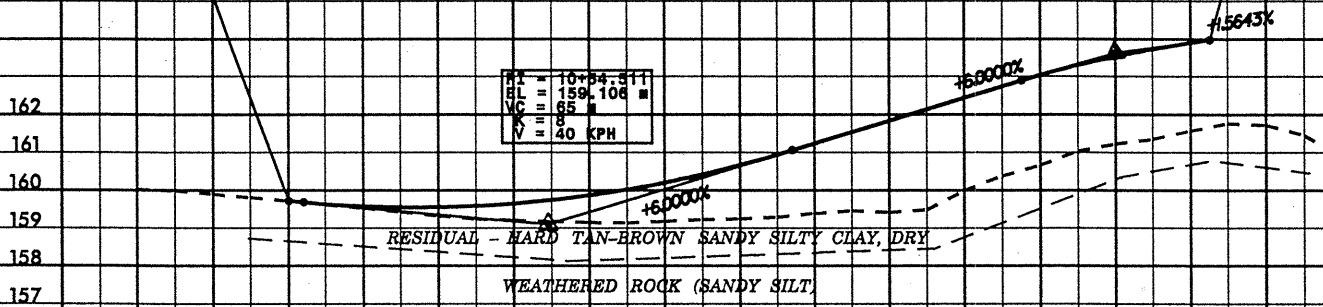
-Y49-

BEGIN GRADE  
-Y49- STA 10+20.000  
EL=159.723

PI = 10+34.000  
EL = 168.835  
VC = 30  
V = 30 KPH  
K = 25

END GRADE  
-Y49- STA 11+42.596  
EL=163.832

PI = 10+64.511  
EL = 159.106  
VC = 65  
V = 40 KPH



-Y49-

NOTE : SEE SHEET 22 FOR PLANS

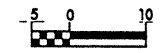
10 +20 +40 +60 +80 11 +20 +40

\$\$\$\$\$SYTIME\$\$\$\$\$  
\$\$\$\$\$DOWNS\$\$\$\$\$  
\$\$\$\$\$FRNAME\$\$\$\$\$





|  |                     |
|--|---------------------|
| PROJECT REFERENCE NO.<br>R-0867CC  | SHEET NO.<br>58     |
| ROADWAY DESIGN ENGINEER  | HYDRAULICS ENGINEER |
| <b>INCOMPLETE PLANS</b><br>DO NOT USE FOR R/W ACQUISITION<br><b>PRELIMINARY PLANS</b><br>DO NOT USE FOR CONSTRUCTION |                     |
| CONST. REV. _____  |                     |
| R/W REV. _____   |                     |



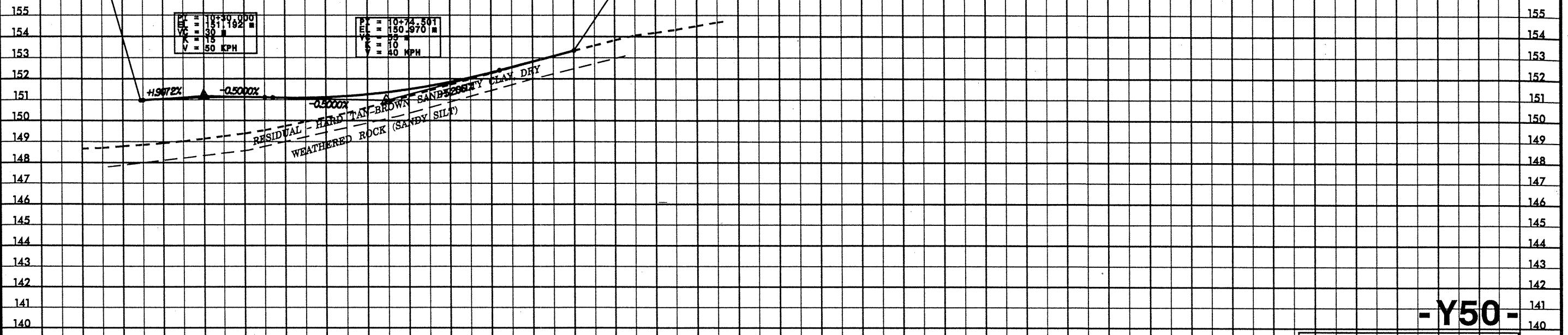
-Y50-

BEGIN GRADE  
 -Y50- STA 10+14.352  
 EL=150.894

END GRADE  
 -Y50- STA 11+20.000  
 EL=153.339

PI = 10+30.000  
 EL = 151.192 m  
 VC = 30 m  
 K = 15  
 V = 50 KPH

PI = 10+74.501  
 EL = 150.970 m  
 VC = 35 m  
 K = 10  
 V = 40 KPH



10      +20      +40      +60      +80      11      +20      +40

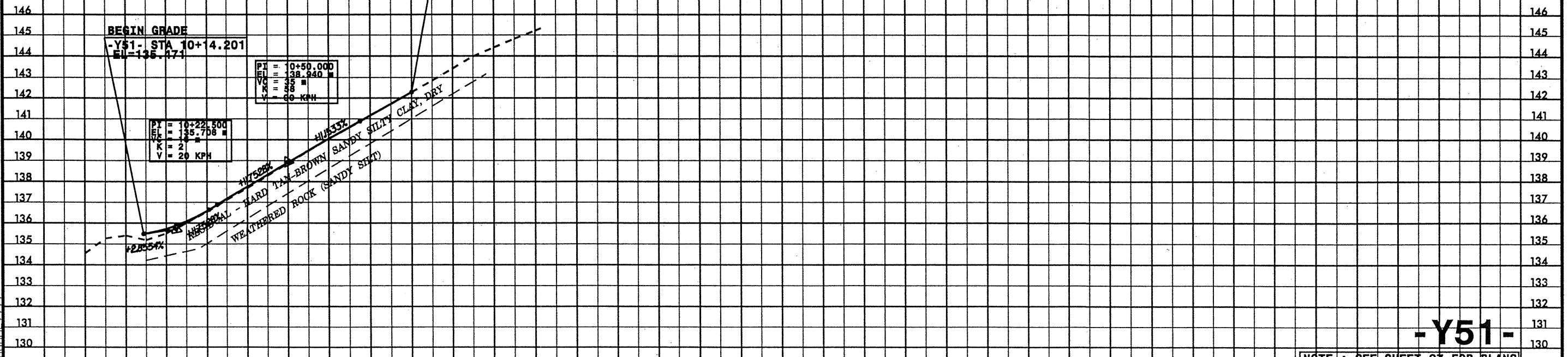
-Y51-

BEGIN GRADE  
 -Y51- STA 10+14.201  
 EL=136.871

END GRADE  
 -Y51- STA 10+80.000  
 EL=142.286

PI = 10+50.000  
 EL = 138.940 m  
 VC = 35 m  
 K = 38  
 V = 60 KPH

PI = 10+22.500  
 EL = 135.706 m  
 VC = 21 m  
 V = 20 KPH



10      +20      +40      +60      +80      11

\$\$\$\$\$  
 \$\$\$SYTIME\$\$\$\$\$  
 \$\$\$USFRANHE\$\$\$\$\$  
 \$\$\$CALC\$\$\$\$\$  
 \$\$\$EDGN\$\$\$\$\$  
 \$\$\$\$\$\$\$\$

-Y52-

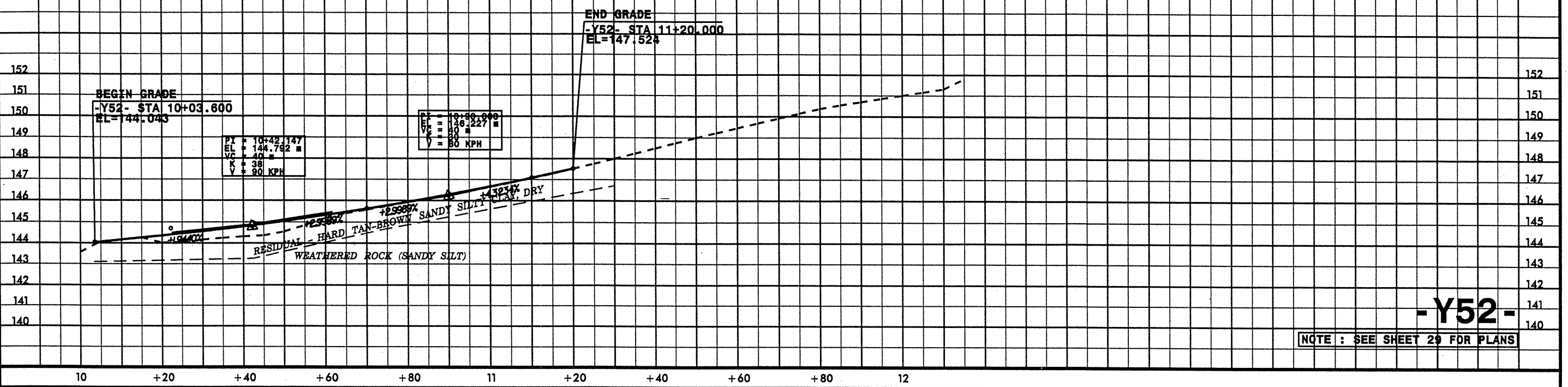
**METRIC**

0 10

CONST. REV. \_\_\_\_\_

R/W REV. \_\_\_\_\_

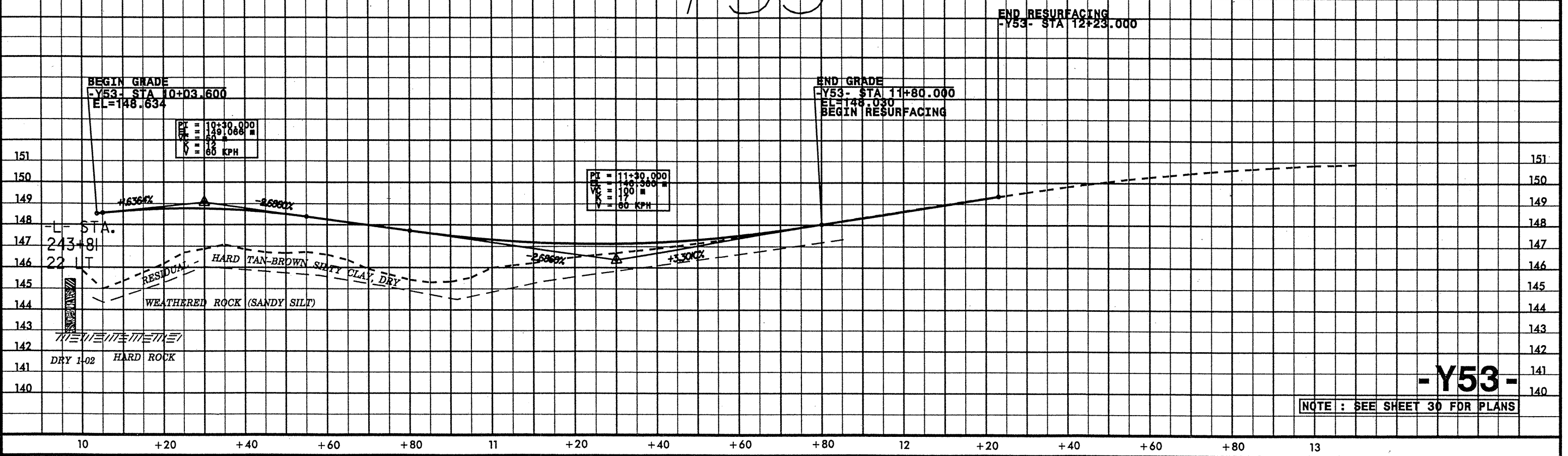
|  |                     |
|--|---------------------|
| PROJECT REFERENCE NO.  | SHEET NO.           |
| R-096700   | 59                  |
| ROADWAY DESIGN ENGINEER  | HYDRAULICS ENGINEER |
| <b>INCOMPLETE PLANS</b><br>DO NOT USE FOR R/W ACQUISITION<br><b>PRELIMINARY PLANS</b><br>DO NOT USE FOR CONSTRUCTION |                     |



-Y52-

NOTE : SEE SHEET 29 FOR PLANS

-Y53-



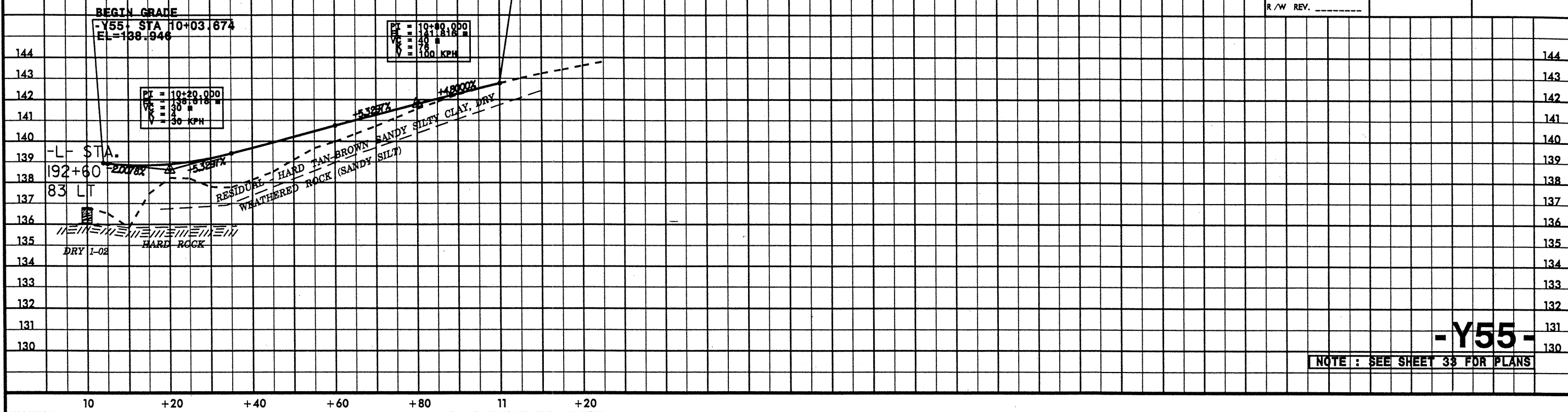
-Y53-

NOTE : SEE SHEET 30 FOR PLANS

\$\$\$\$\$SYTIME\$\$\$\$\$  
\$\$\$\$\$DGN\$\$\$\$\$  
\$\$\$\$\$NAME\$\$\$\$\$

|  |  |                     |  |
|--|--|---------------------|--|
| PROJECT REFERENCE NO.  |  | SHEET NO.           |  |
| R-0967CC   |  | 60                  |  |
| ROADWAY DESIGN ENGINEER  |  | HYDRAULICS ENGINEER |  |
| <b>INCOMPLETE PLANS</b><br>DO NOT USE FOR R/W ACQUISITION<br><b>PRELIMINARY PLANS</b><br>DO NOT USE FOR CONSTRUCTION |  |                     |  |
| CONST. REV. _____  |  | R/W REV. _____      |  |

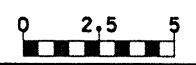
-Y55-



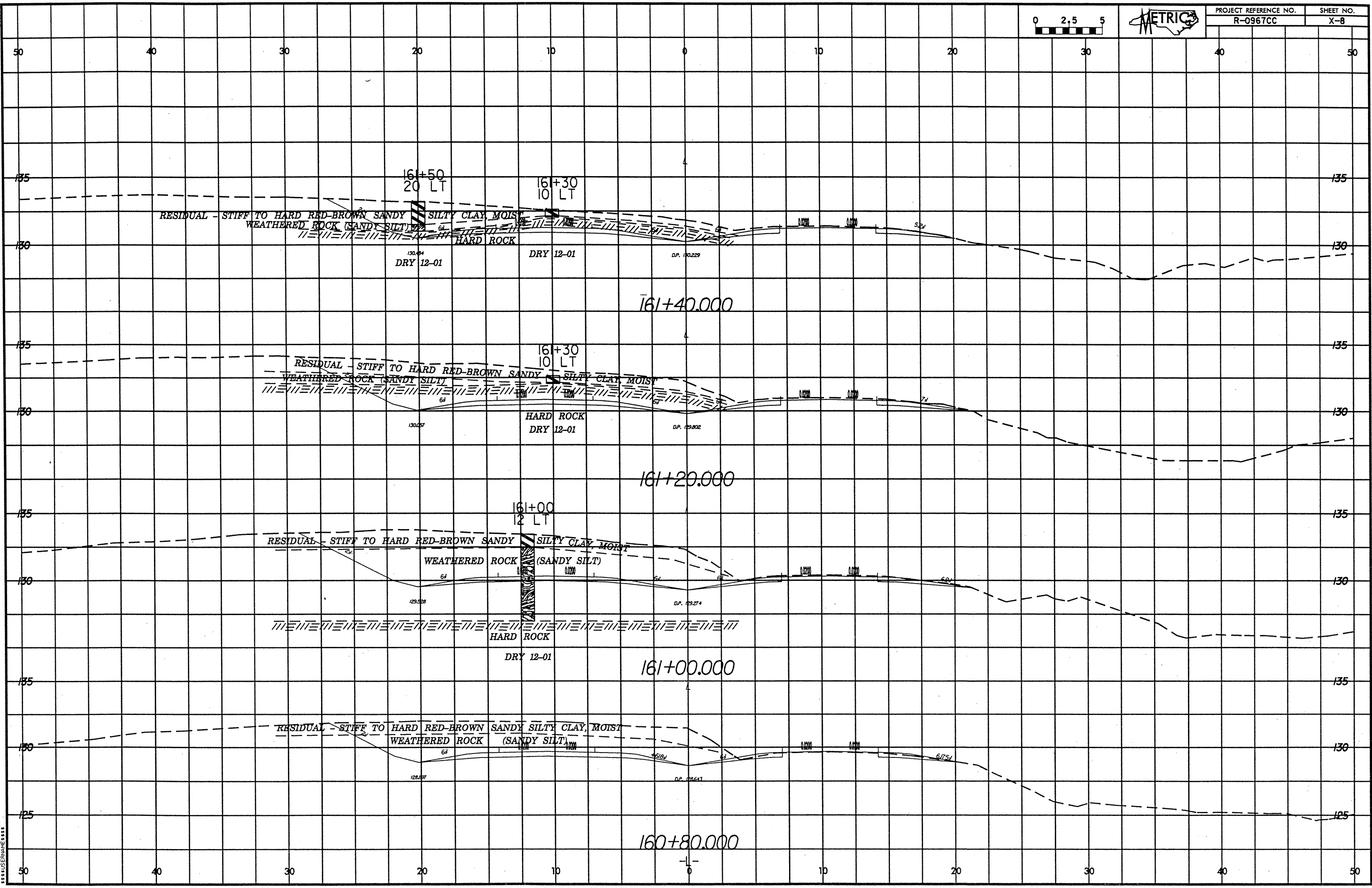
-Y55-

NOTE : SEE SHEET 33 FOR PLANS

\$\$\$\$\$\$SYTIME\$\$\$\$\$\$  
 \$\$\$\$\$\$DDON\$\$\$\$\$\$  
 \$\$\$\$\$\$NAME\$\$\$\$\$\$

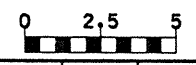


|                       |           |
|-----------------------|-----------|
| PROJECT REFERENCE NO. | SHEET NO. |
| R-0967CC              | X-8       |

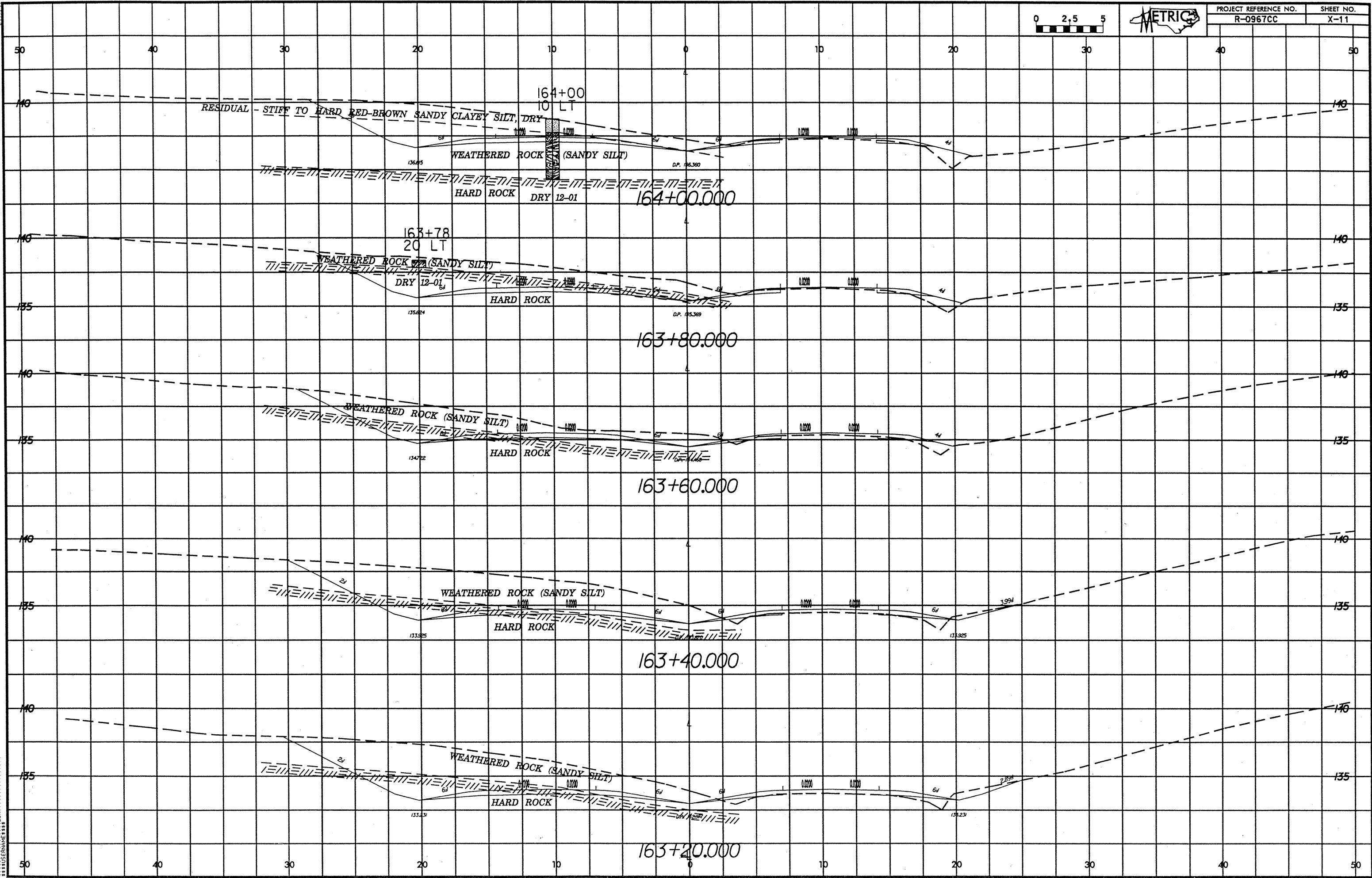


\*\*\*\*\*  
SYSTEMS  
\*\*\*\*\*





|                       |           |
|-----------------------|-----------|
| PROJECT REFERENCE NO. | SHEET NO. |
| R-0967CC              | X-11      |

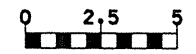


\*\*\*\*\*  
 SYSTEMS  
 \*\*\*\*\*





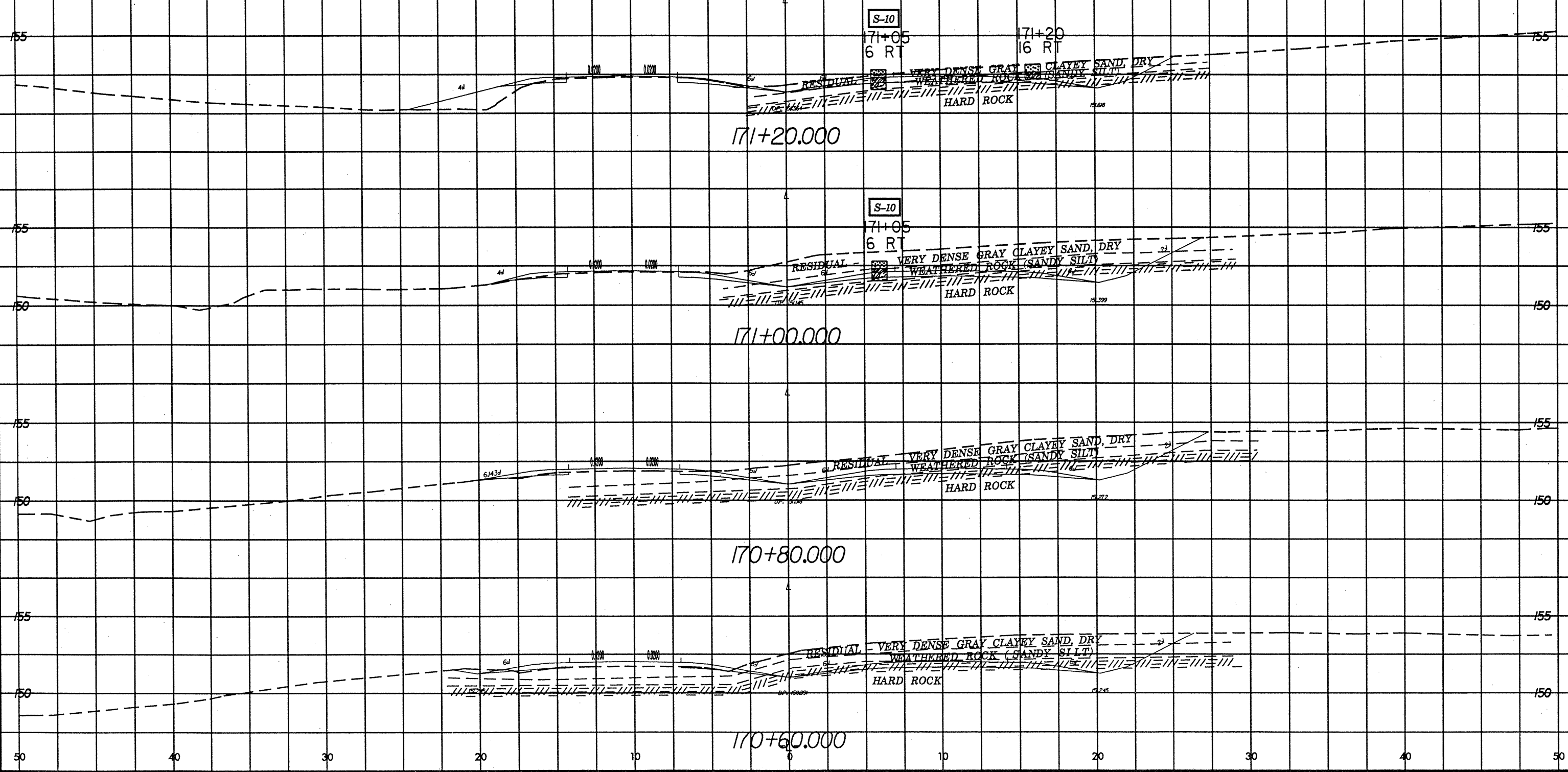




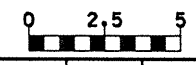
PROJECT REFERENCE NO. R-0967CC  
SHEET NO. X-19

**SOIL TEST RESULTS**

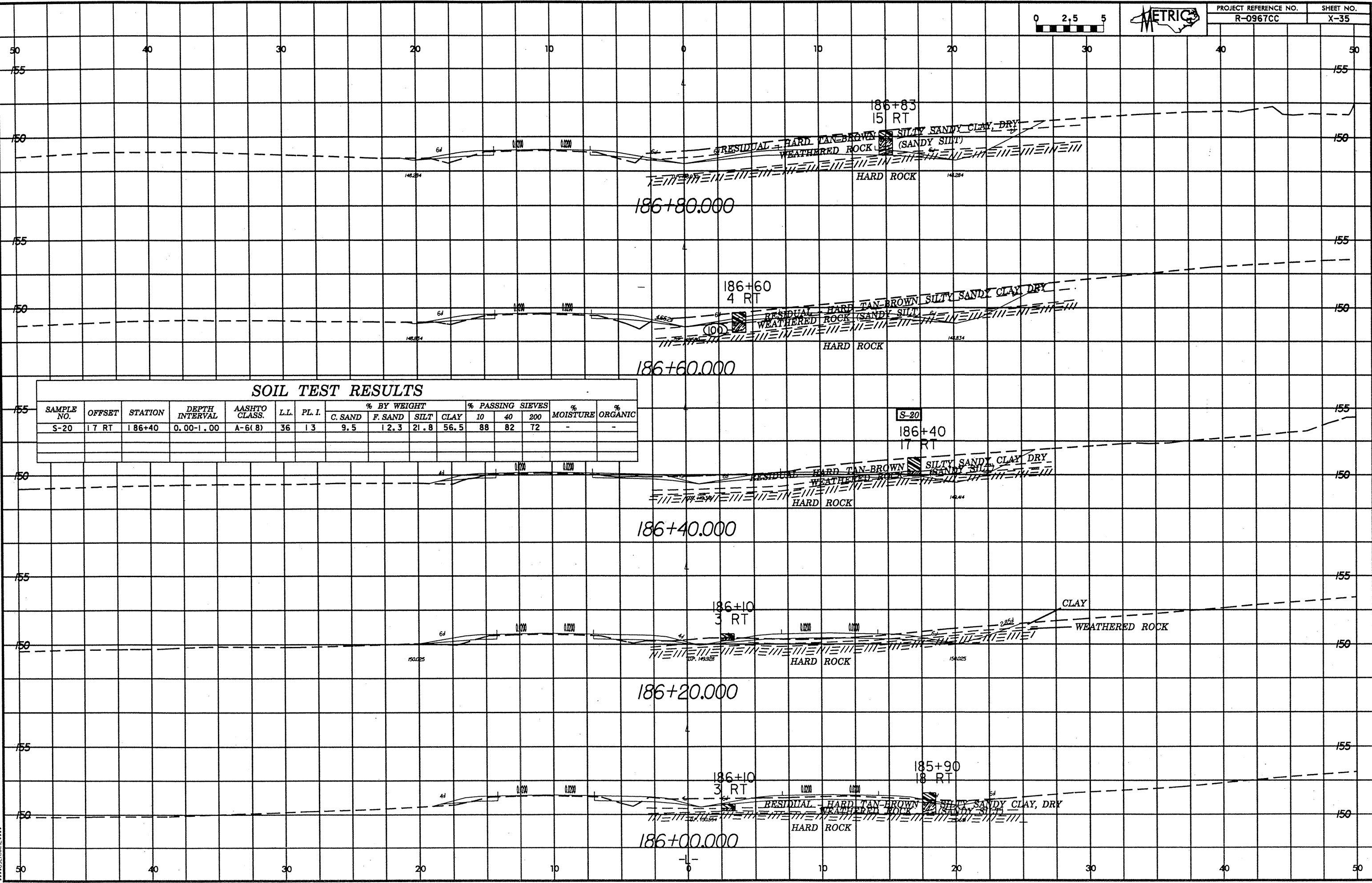
| SAMPLE NO. | OFFSET | STATION | DEPTH INTERVAL | AASHTO CLASS. | L.L. | P.L.I. | % BY WEIGHT |         |      |      | % PASSING SIEVES |    |     | % MOISTURE | % ORGANIC |
|------------|--------|---------|----------------|---------------|------|--------|-------------|---------|------|------|------------------|----|-----|------------|-----------|
|            |        |         |                |               |      |        | C. SAND     | F. SAND | SILT | CLAY | 10               | 40 | 200 |            |           |
| SS-6       | 20 LT  | 165+40  | 1.55-1.85      | A-6(8)        | 37   | 11     | 9.1         | 3.8     | 26.6 | 60.5 | 87               | 82 | 77  | -          | -         |



\*\*\*\*\*  
SYSTEMS  
\*\*\*\*\*  
\*\*\*\*\*  
USER NAME  
\*\*\*\*\*



|                                   |                   |
|-----------------------------------|-------------------|
| PROJECT REFERENCE NO.<br>R-0967CC | SHEET NO.<br>X-35 |
|-----------------------------------|-------------------|

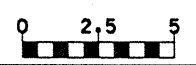


**SOIL TEST RESULTS**

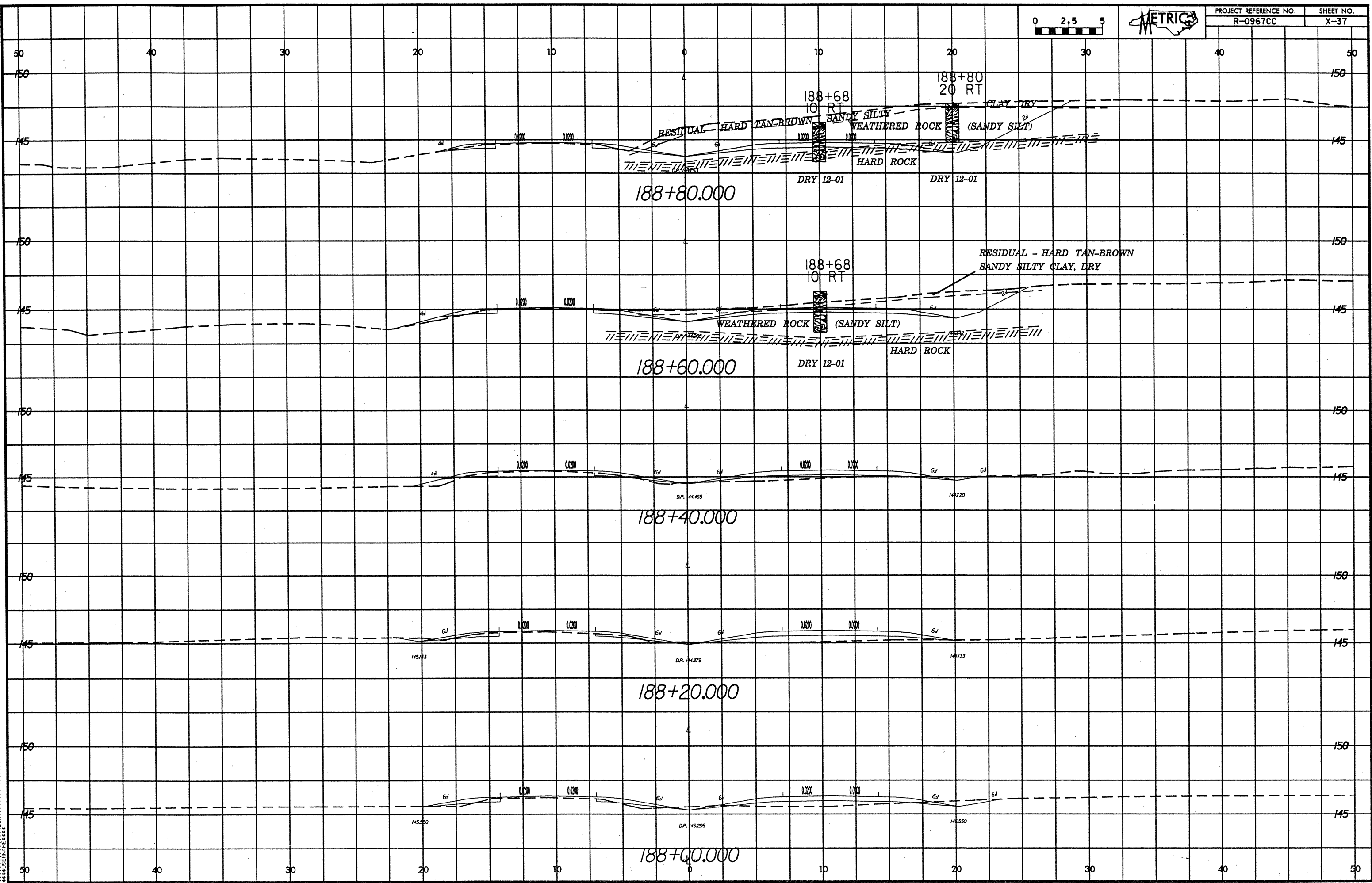
| SAMPLE NO. | OFFSET | STATION | DEPTH INTERVAL | AASHTO CLASS. | L.L. | P.L. I. | % BY WEIGHT |         |      |      | % PASSING SIEVES |    |     | % MOISTURE | % ORGANIC |
|------------|--------|---------|----------------|---------------|------|---------|-------------|---------|------|------|------------------|----|-----|------------|-----------|
|            |        |         |                |               |      |         | C. SAND     | F. SAND | SILT | CLAY | 10               | 40 | 200 |            |           |
| S-20       | 17 RT  | 186+40  | 0.00-1.00      | A-6(8)        | 36   | 13      | 9.5         | 12.3    | 21.8 | 56.5 | 88               | 82 | 72  | -          | -         |

S-20  
186+40  
17 RT

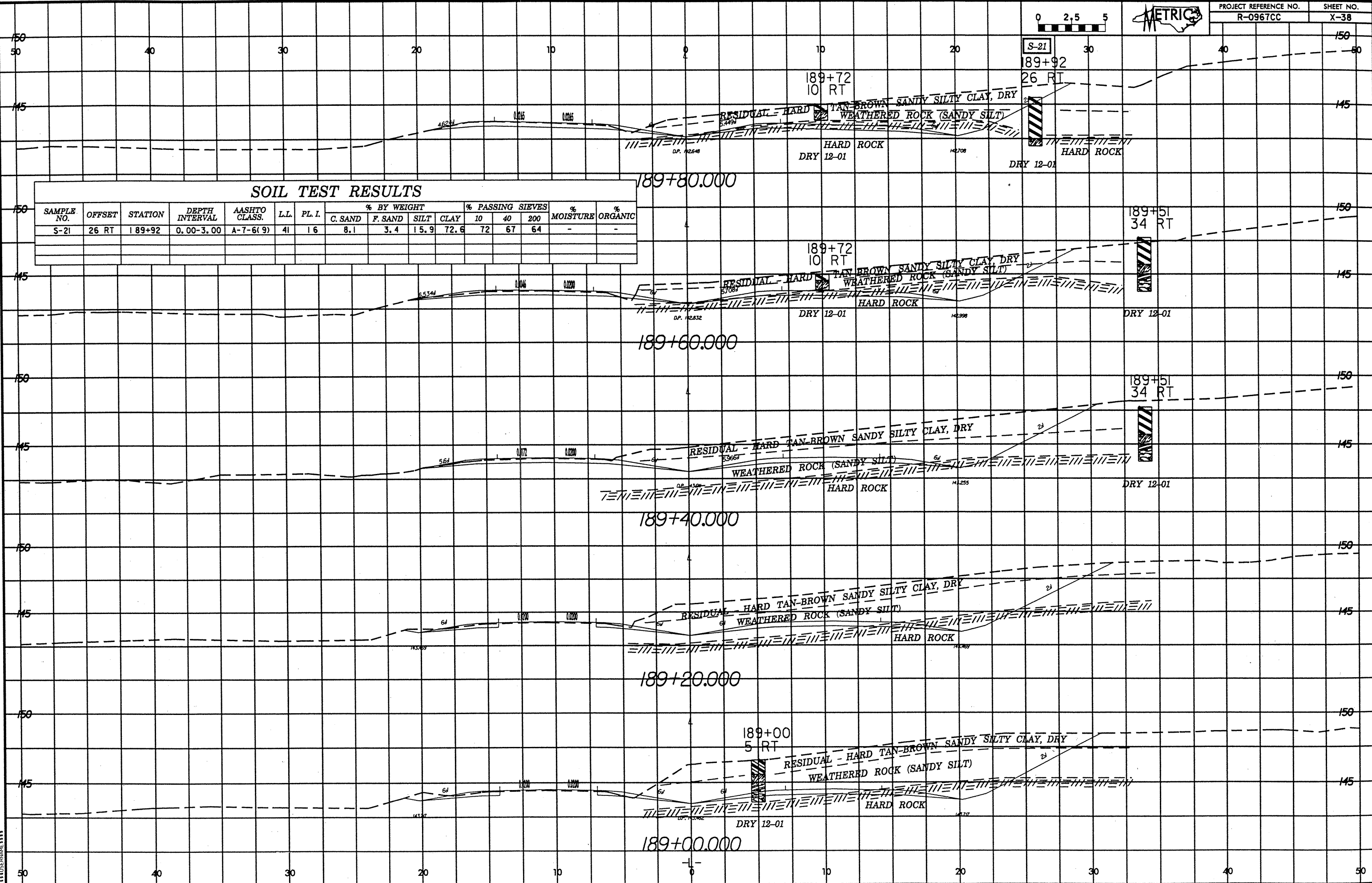
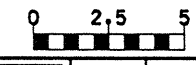
\*\*\*\*\*SYTIME\*\*\*\*\*  
 \*\*\*\*\*AUSUMER\*\*\*\*\*



|                       |           |
|-----------------------|-----------|
| PROJECT REFERENCE NO. | SHEET NO. |
| R-0967CC              | X-37      |

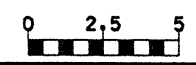


\*\*\*\*\*  
CUSTOMER'S  
PROPERTY  
\*\*\*\*\*



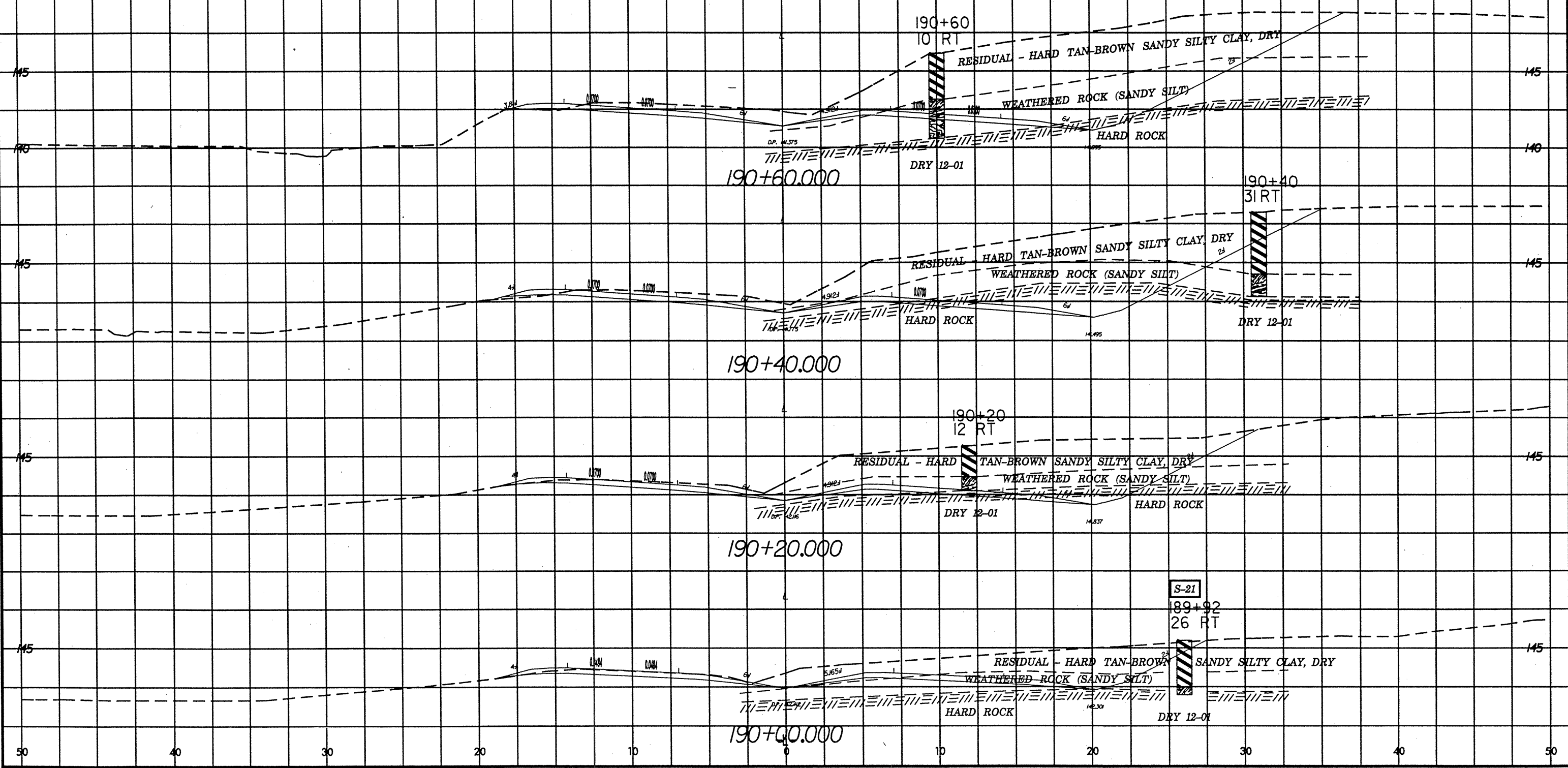
**SOIL TEST RESULTS**

| SAMPLE NO. | OFFSET | STATION | DEPTH INTERVAL | AASHTO CLASS. | LL. | PL. I. | % BY WEIGHT |         |      |      | % PASSING SIEVES |    |     | % MOISTURE | % ORGANIC |
|------------|--------|---------|----------------|---------------|-----|--------|-------------|---------|------|------|------------------|----|-----|------------|-----------|
|            |        |         |                |               |     |        | C. SAND     | F. SAND | SILT | CLAY | 10               | 40 | 200 |            |           |
| S-21       | 26 RT  | 189+92  | 0.00-3.00      | A-7-6(9)      | 41  | 16     | 8.1         | 3.4     | 15.9 | 72.6 | 72               | 67 | 64  | -          | -         |



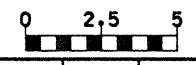
**SOIL TEST RESULTS**

| SAMPLE NO. | OFFSET | STATION | DEPTH INTERVAL | AASHTO CLASS. | L.L. | P.L.I. | % BY WEIGHT |         |      |      | % PASSING SIEVES |    |     | % MOISTURE | % ORGANIC |
|------------|--------|---------|----------------|---------------|------|--------|-------------|---------|------|------|------------------|----|-----|------------|-----------|
|            |        |         |                |               |      |        | C. SAND     | F. SAND | SILT | CLAY | 10               | 40 | 200 |            |           |
| S-21       | 26 RT  | 189+92  | 0.00-3.00      | A-7-6(9)      | 41   | 16     | 8.1         | 3.4     | 15.9 | 72.6 | 72               | 67 | 64  | -          | -         |

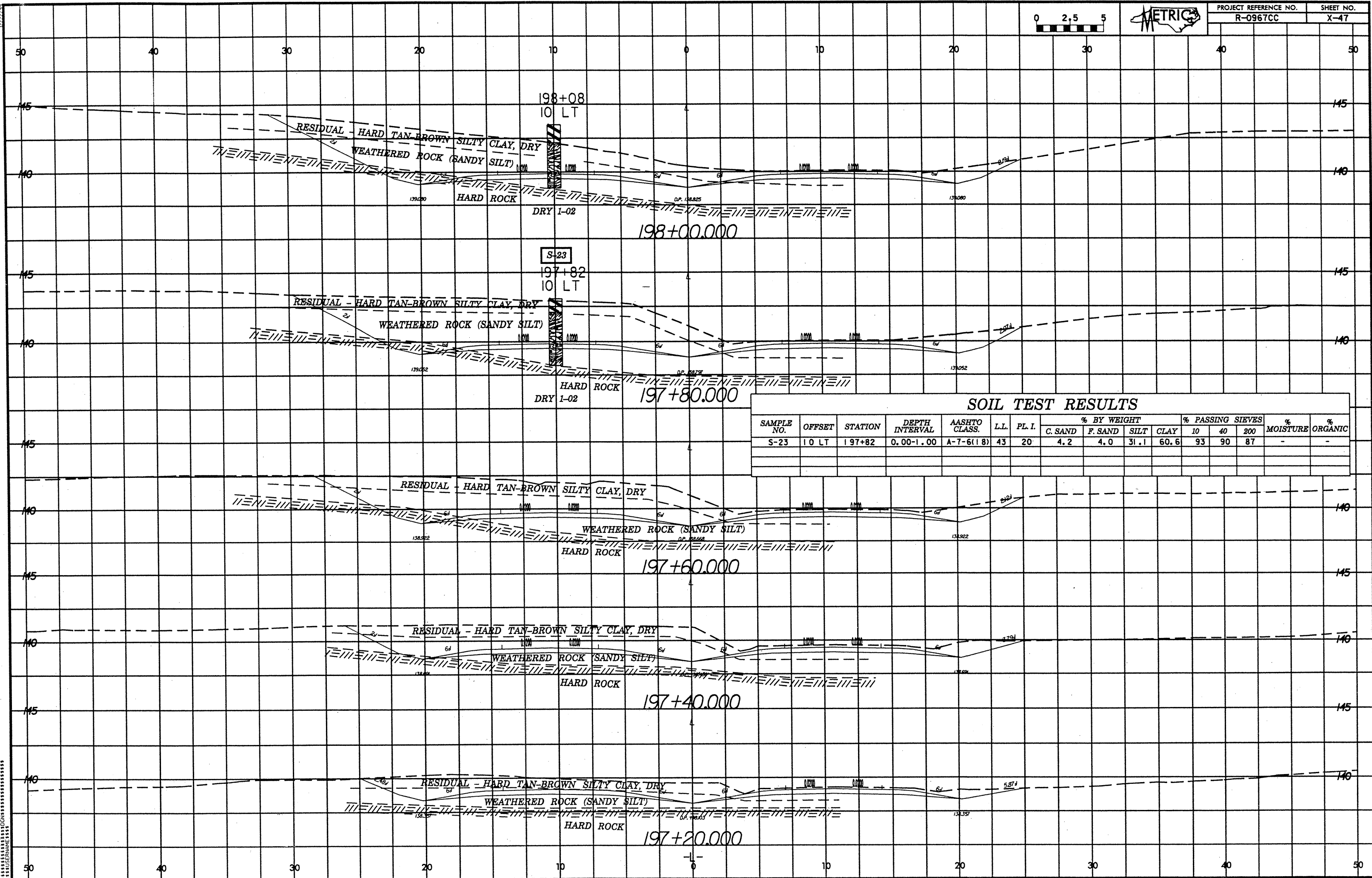








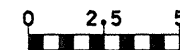
|                                   |                   |
|-----------------------------------|-------------------|
| PROJECT REFERENCE NO.<br>R-0967CC | SHEET NO.<br>X-47 |
|-----------------------------------|-------------------|



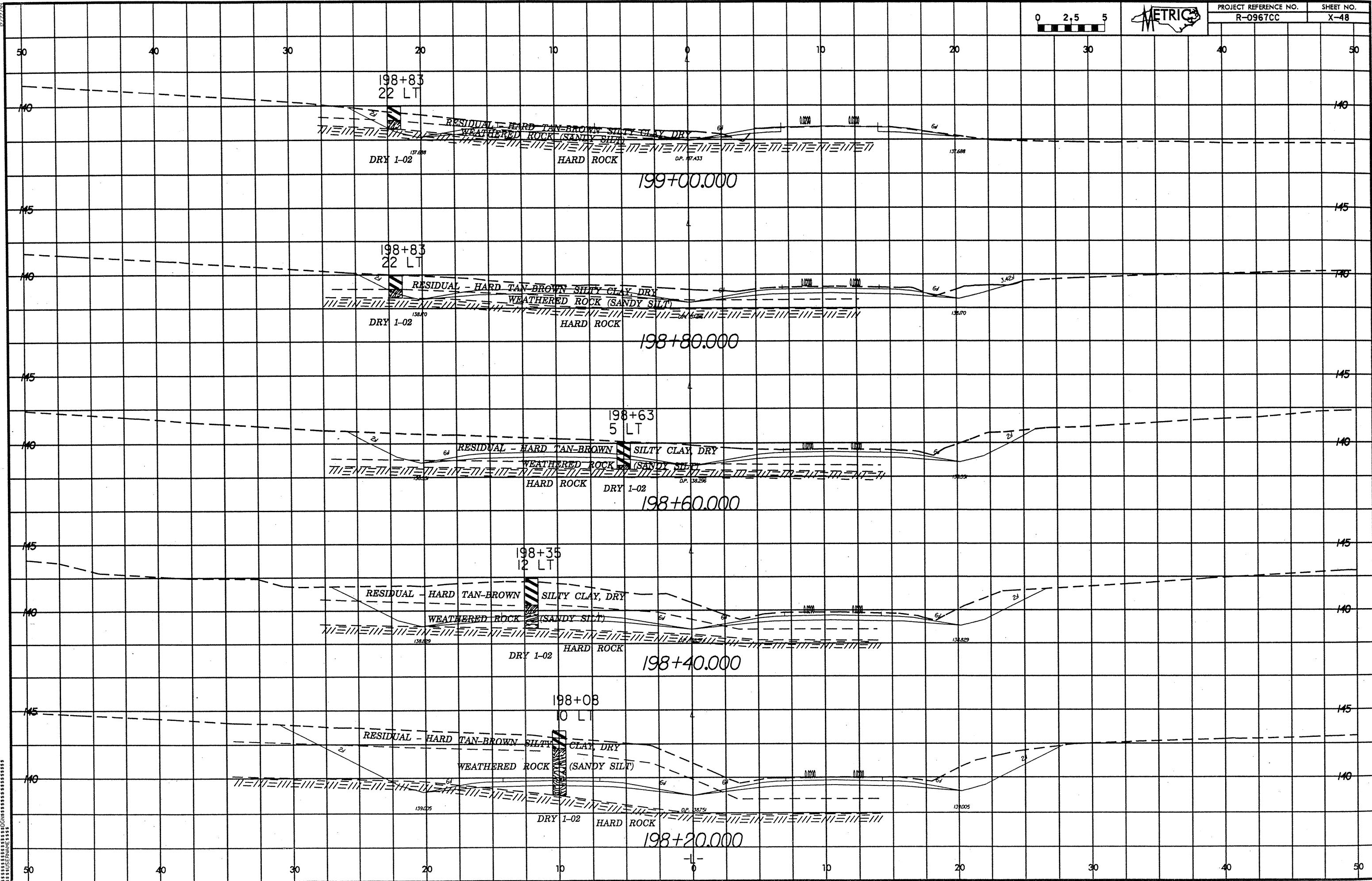
| SOIL TEST RESULTS |        |         |                |               |    |        |             |         |      |      |                  |    |     |            |           |
|-------------------|--------|---------|----------------|---------------|----|--------|-------------|---------|------|------|------------------|----|-----|------------|-----------|
| SAMPLE NO.        | OFFSET | STATION | DEPTH INTERVAL | AASHTO CLASS. | LL | PL. I. | % BY WEIGHT |         |      |      | % PASSING SIEVES |    |     | % MOISTURE | % ORGANIC |
|                   |        |         |                |               |    |        | C. SAND     | F. SAND | SILT | CLAY | 10               | 40 | 200 |            |           |
| S-23              | 10 LT  | 197+82  | 0.00-1.00      | A-7-6(18)     | 43 | 20     | 4.2         | 4.0     | 31.1 | 60.6 | 93               | 90 | 87  | -          | -         |

\*\*\*\*\*  
 SYSTEMS  
 \*\*\*\*\*



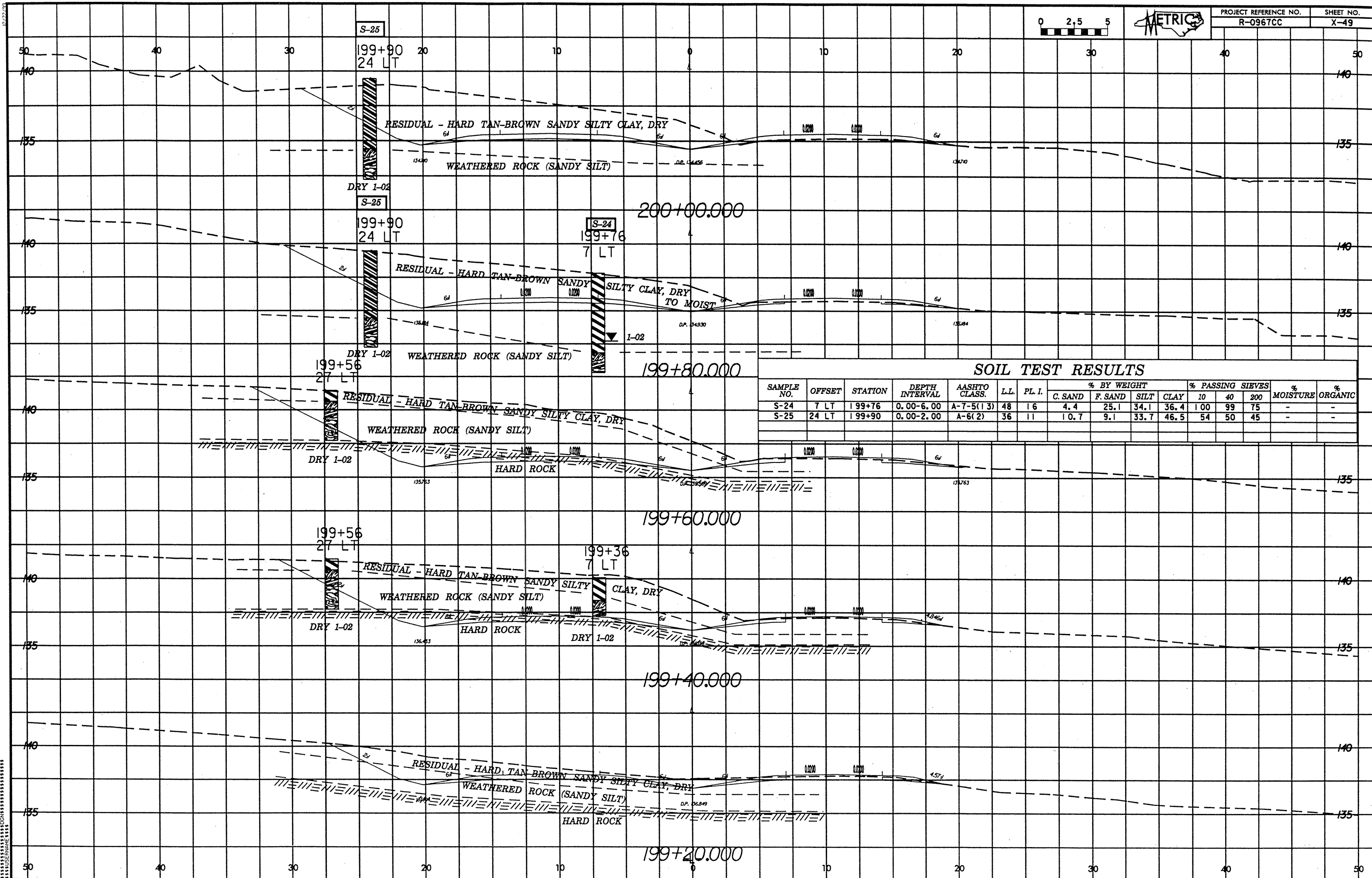
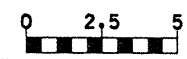


|                       |           |
|-----------------------|-----------|
| PROJECT REFERENCE NO. | SHEET NO. |
| R-0967CC              | X-48      |



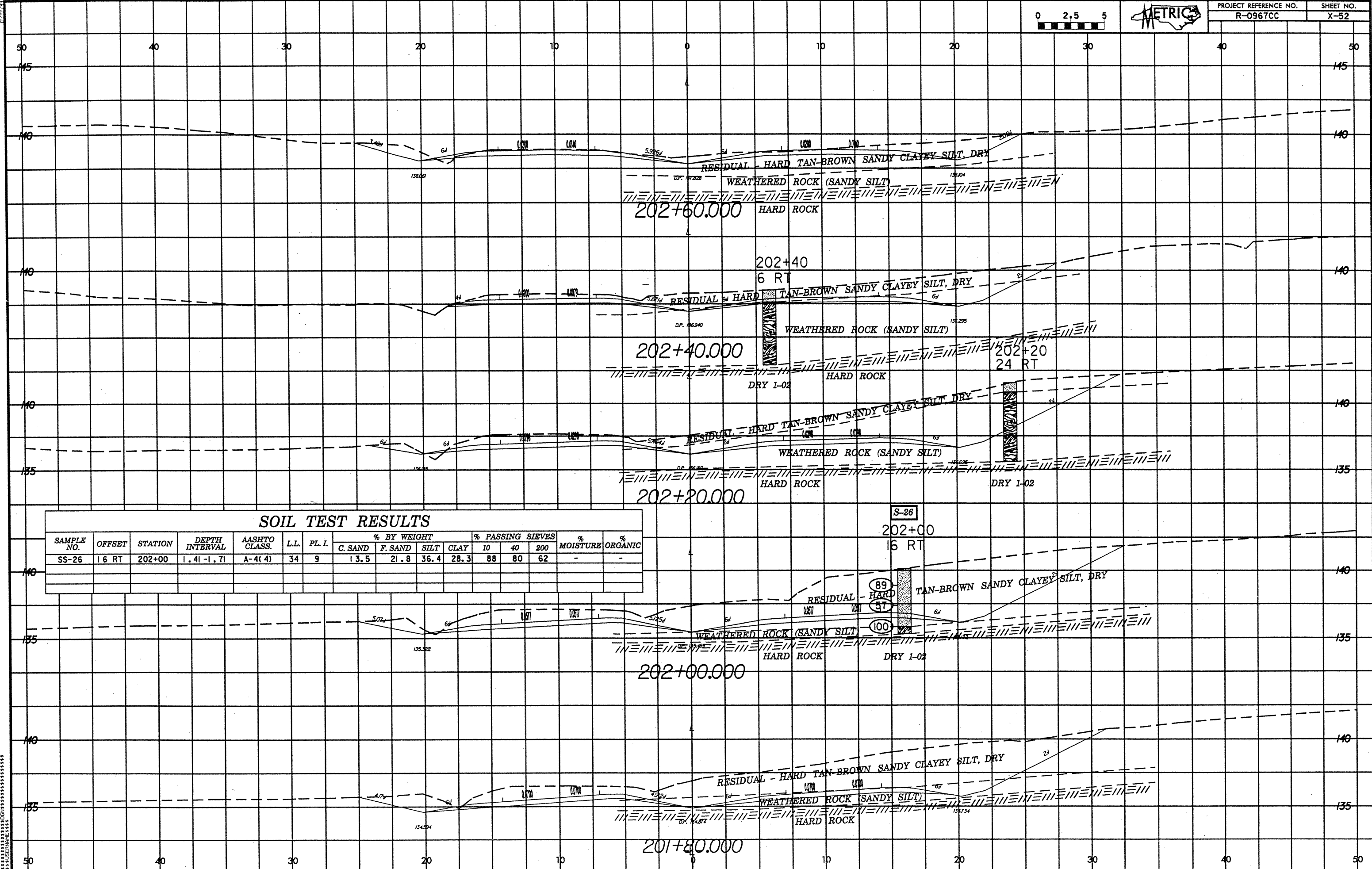
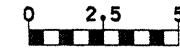
P.272.08

\*\*\*\*\*  
SYSTEMS  
\*\*\*\*\*



| SOIL TEST RESULTS |        |         |                |               |     |        |             |         |      |      |                  |    |     |            |           |
|-------------------|--------|---------|----------------|---------------|-----|--------|-------------|---------|------|------|------------------|----|-----|------------|-----------|
| SAMPLE NO.        | OFFSET | STATION | DEPTH INTERVAL | AASHTO CLASS. | LL. | PL. I. | % BY WEIGHT |         |      |      | % PASSING SIEVES |    |     | % MOISTURE | % ORGANIC |
|                   |        |         |                |               |     |        | C. SAND     | F. SAND | SILT | CLAY | 10               | 40 | 200 |            |           |
| S-24              | 7 LT   | 199+76  | 0.00-6.00      | A-7-5(13)     | 48  | 16     | 4.4         | 25.1    | 34.1 | 36.4 | 100              | 99 | 75  | -          | -         |
| S-25              | 24 LT  | 199+90  | 0.00-2.00      | A-6(2)        | 36  | 11     | 10.7        | 9.1     | 33.7 | 46.5 | 54               | 50 | 45  | -          | -         |

\*\*\*\*\*  
 SYSTEMS  
 \*\*\*\*\*



**SOIL TEST RESULTS**

| SAMPLE NO. | OFFSET | STATION | DEPTH INTERVAL | AASHTO CLASS. | L.L. | P.L. I. | % BY WEIGHT |         |      |      | % PASSING SIEVES |    |     | % MOISTURE | % ORGANIC |
|------------|--------|---------|----------------|---------------|------|---------|-------------|---------|------|------|------------------|----|-----|------------|-----------|
|            |        |         |                |               |      |         | C. SAND     | F. SAND | SILT | CLAY | 10               | 40 | 200 |            |           |
| SS-26      | 16 RT  | 202+00  | 1.41 - 1.71    | A-4(4)        | 34   | 9       | 13.5        | 21.8    | 36.4 | 28.3 | 88               | 80 | 62  | -          | -         |

S-26

202+00  
16 RT

89

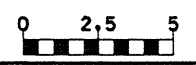
37

100

DRY 1-02

202+100.00

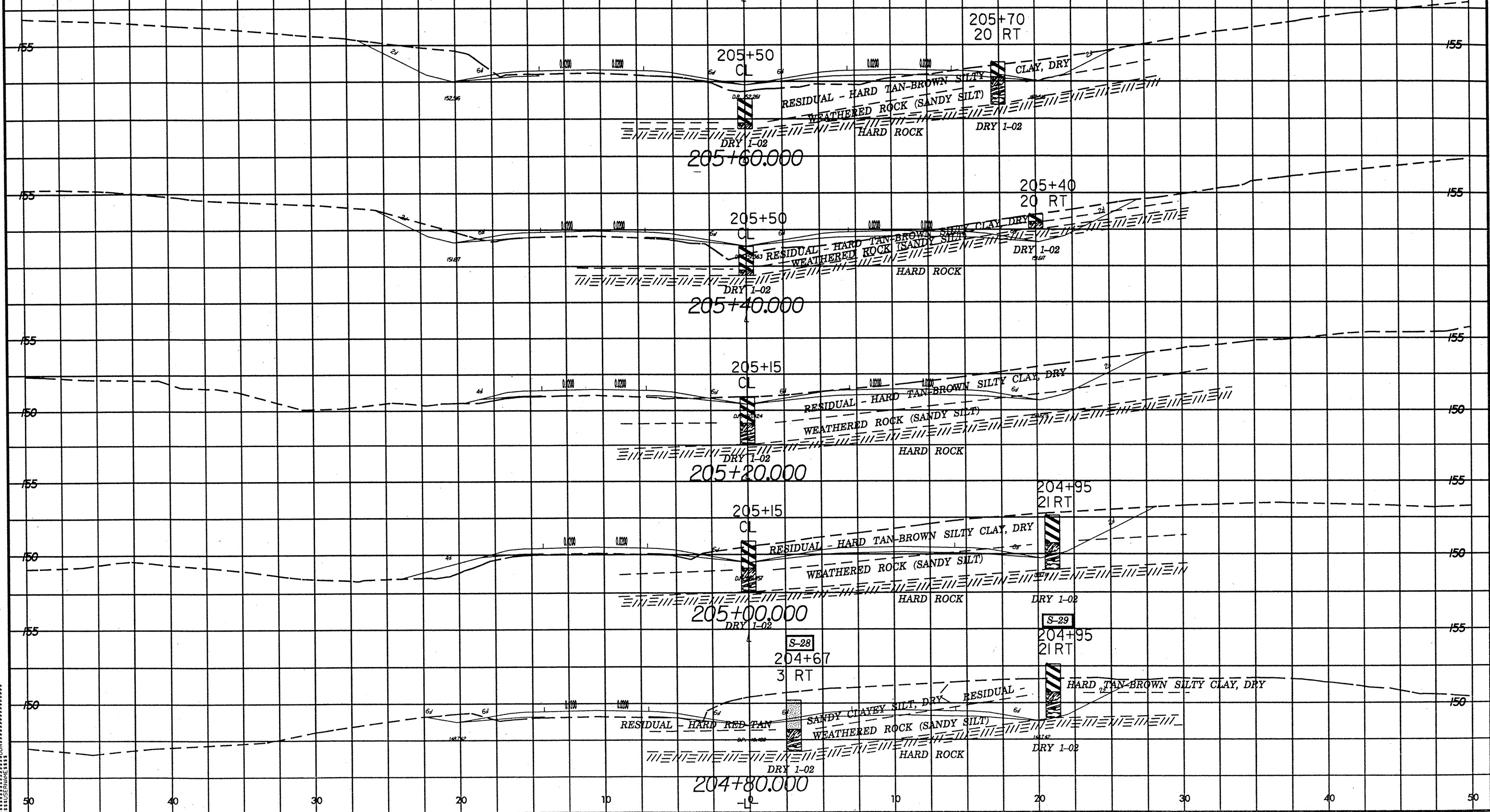
201+80.00

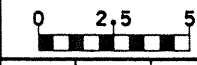


|                                   |                   |
|-----------------------------------|-------------------|
| PROJECT REFERENCE NO.<br>R-0967CC | SHEET NO.<br>X-55 |
|-----------------------------------|-------------------|

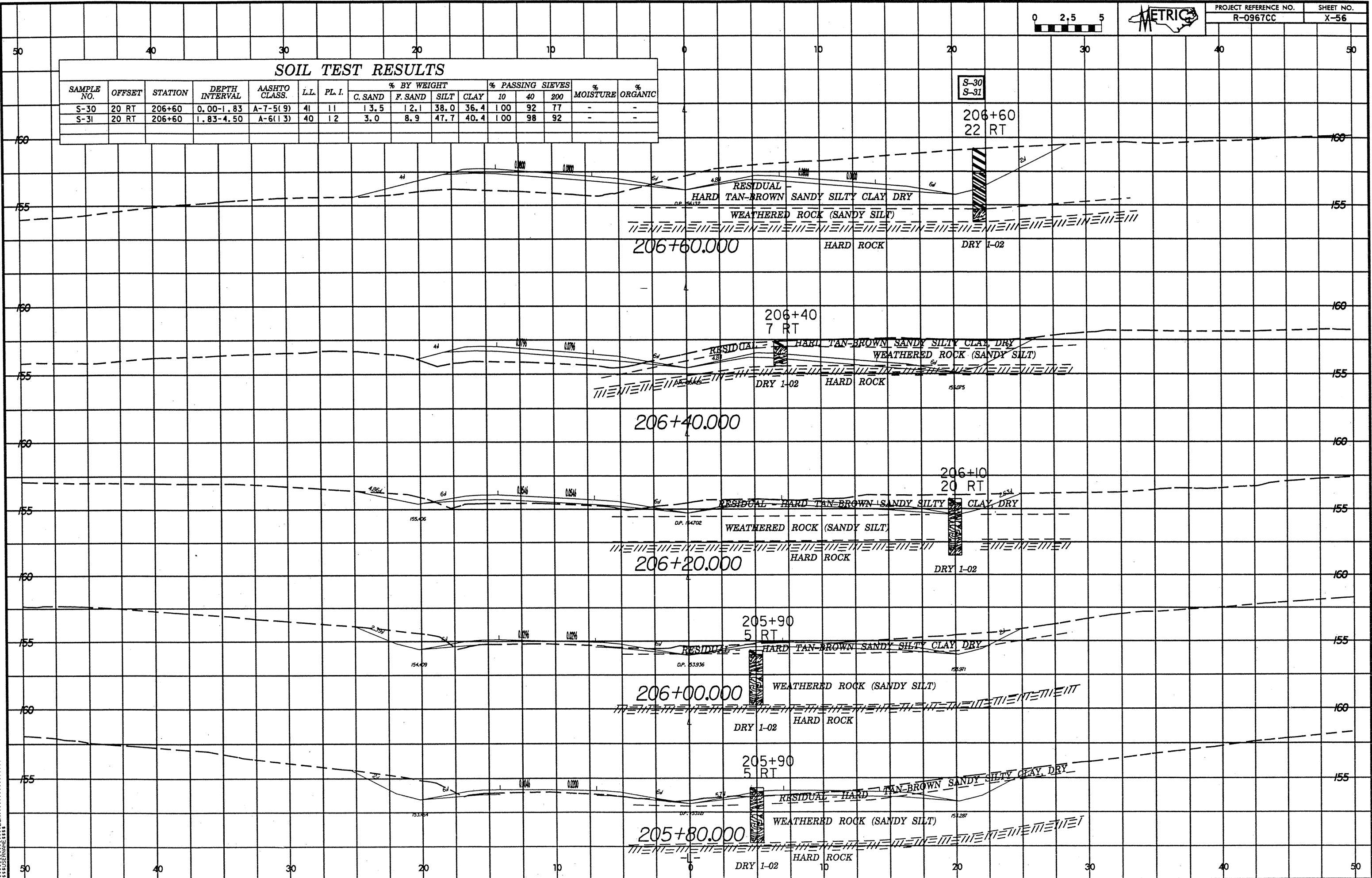
### SOIL TEST RESULTS

| SAMPLE NO. | OFFSET | STATION | DEPTH INTERVAL | AASHTO CLASS. | LL. | PL. I. | % BY WEIGHT |         |      |      | % PASSING SIEVES |    |     | % MOISTURE | % ORGANIC |
|------------|--------|---------|----------------|---------------|-----|--------|-------------|---------|------|------|------------------|----|-----|------------|-----------|
|            |        |         |                |               |     |        | C. SAND     | F. SAND | SILT | CLAY | 10               | 40 | 200 |            |           |
| S-28       | 3 RT   | 204+67  | 0.00-2.00      | A-4(8)        | 35  | 9      | 3.2         | 10.5    | 43.8 | 42.4 | 91               | 89 | 82  | -          | -         |
| S-29       | 21 RT  | 204+95  | 0.00-1.90      | A-7-6(18)     | 45  | 16     | 2.4         | 3.8     | 41.2 | 52.5 | 100              | 98 | 95  | -          | -         |

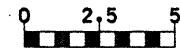




| SOIL TEST RESULTS |        |         |                |               |      |      |             |         |      |      |                  |    |     |            |           |
|-------------------|--------|---------|----------------|---------------|------|------|-------------|---------|------|------|------------------|----|-----|------------|-----------|
| SAMPLE NO.        | OFFSET | STATION | DEPTH INTERVAL | AASHTO CLASS. | L.L. | P.L. | % BY WEIGHT |         |      |      | % PASSING SIEVES |    |     | % MOISTURE | % ORGANIC |
|                   |        |         |                |               |      |      | C. SAND     | F. SAND | SILT | CLAY | 10               | 40 | 200 |            |           |
| S-30              | 20 RT  | 206+60  | 0.00-1.83      | A-7-5(9)      | 41   | 11   | 13.5        | 12.1    | 38.0 | 36.4 | 100              | 92 | 77  | -          | -         |
| S-31              | 20 RT  | 206+60  | 1.83-4.50      | A-6(13)       | 40   | 12   | 3.0         | 8.9     | 47.7 | 40.4 | 100              | 98 | 92  | -          | -         |



\*\*\*\*\*SUSTINE\*\*\*\*\*  
\*\*\*\*\*USERNAME\*\*\*\*\*



SOIL TEST RESULTS

| SAMPLE NO. | OFFSET | STATION | DEPTH INTERVAL | AASHTO CLASS. | L.L. | P.L. | % BY WEIGHT |         |      |      | % PASSING SIEVES |    |     | % MOISTURE | % ORGANIC |
|------------|--------|---------|----------------|---------------|------|------|-------------|---------|------|------|------------------|----|-----|------------|-----------|
|            |        |         |                |               |      |      | C. SAND     | F. SAND | SILT | CLAY | 10               | 40 | 200 |            |           |
| S-42       | 24 LT  | 223+84  | 0.00-2.70      | A-7-6(14)     | 42   | 15   | 4.3         | 16.2    | 28.9 | 50.6 | 100              | 97 | 84  | -          | -         |
| S-43       | 24 LT  | 223+84  | 2.70-3.00      | A-4(3)        | 34   | 8    | 24.1        | 12.3    | 29.1 | 34.4 | 89               | 71 | 59  | -          | -         |

