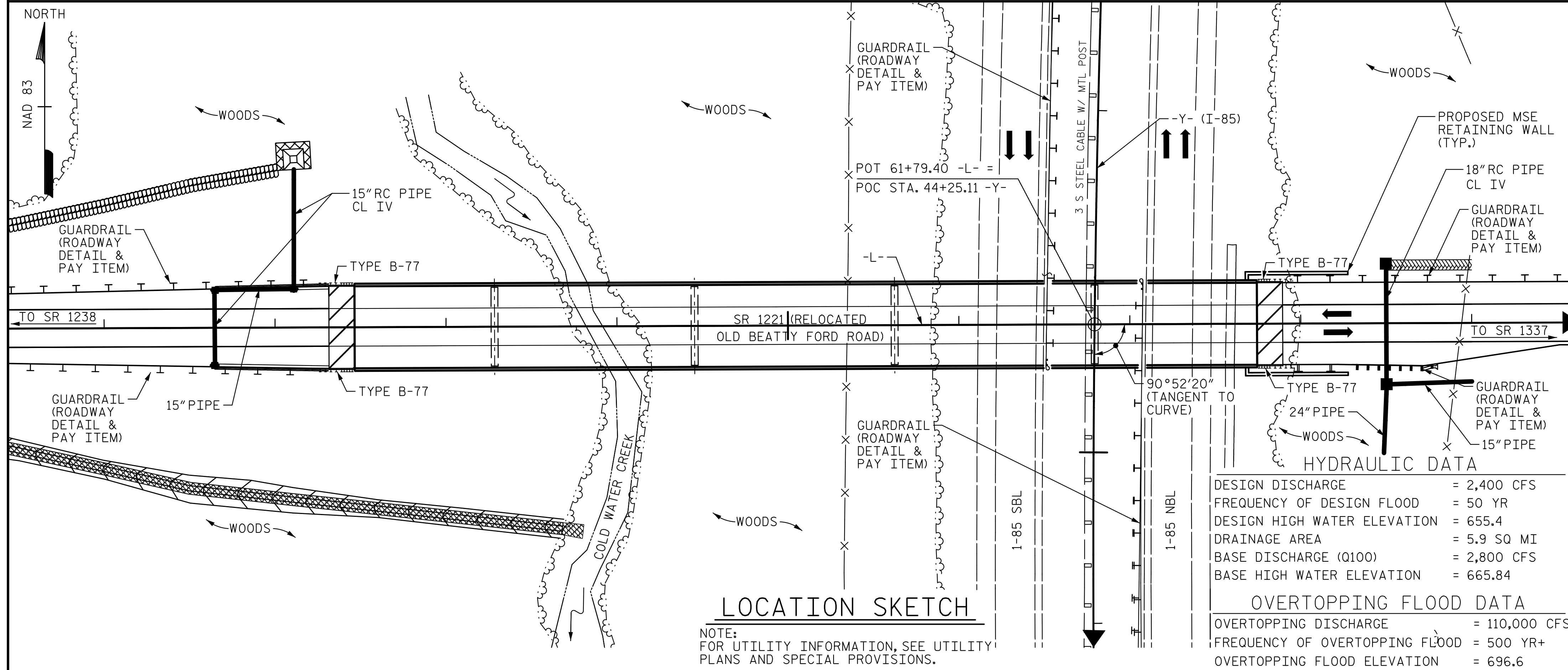


BENCH MARK # BM-2: RR SPIKE IN NW ROOT OF 6" OAK TREE, 995.31' RT. OF STA 71+90.63 -L-, EL. 732.72



**HYDRAULIC DATA**

|                             |             |
|-----------------------------|-------------|
| DESIGN DISCHARGE            | = 2,400 CFS |
| FREQUENCY OF DESIGN FLOOD   | = 50 YR     |
| DESIGN HIGH WATER ELEVATION | = 655.4     |
| DRAINAGE AREA               | = 5.9 SQ MI |
| BASE DISCHARGE (Q100)       | = 2,800 CFS |
| BASE HIGH WATER ELEVATION   | = 665.84    |

**OVERTOPPING FLOOD DATA**

|                                |               |
|--------------------------------|---------------|
| OVERTOPPING DISCHARGE          | = 110,000 CFS |
| FREQUENCY OF OVERTOPPING FLOOD | = 500 YR+     |
| OVERTOPPING FLOOD ELEVATION    | = 696.6       |

**NOTES:**

ASSUMED LIVE LOAD= HL-93 OR ALTERNATE LOADING.

THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.

THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.

FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR PLACING LOAD ON STRUCTURE MEMBERS, SEE SPECIAL PROVISIONS.

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA ON SHEET S-1 SHALL BE EXCAVATED FOR A DISTANCE OF 60.0 FT. AT BENT 3 ON EACH SIDE OF THE CENTERLINE OF ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION, SEE SECTION 412 OF THE STANDARD SPECIFICATIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR MAINTENANCE AND PROTECTION OF TRAFFIC BENEATH PROPOSED STRUCTURE, SEE SPECIAL PROVISIONS.

REMOVABLE FORMS MAY BE USED IN LIEU OF METAL STAY-IN-PLACE FORMS IN ACCORDANCE WITH ARTICLE 420-3 OF THE STANDARD SPECIFICATIONS.

NEEDLE BEAMS WILL NOT BE ALLOWED UNLESS OTHERWISE CALLED FOR ON THE PLANS OR APPROVED BY THE ENGINEER.

THE CLASS AA CONCRETE IN THE BRIDGE DECK SHALL CONTAIN FLY ASH OR GROUND GRANULATED BLAST FURNACE SLAG AT THE SUBSTITUTION RATE SPECIFIED IN ARTICLE 1024-6 OF THE STANDARD SPECIFICATIONS. NO PAYMENT WILL BE MADE FOR THIS SUBSTITUTION AS IT IS CONSIDERED INCIDENTAL TO THE COST OF THE REINFORCED CONCRETE DECK SLAB.

THE CONTRACTOR SHALL PROVIDE INDEPENDENT ASSURANCE SAMPLES OF REINFORCING STEEL AS FOLLOWS: FOR PROJECTS REQUIRING UP TO 400 TONS OF REINFORCING STEEL, ONE 30 INCH SAMPLE OF EACH SIZE BAR USED, AND FOR PROJECTS REQUIRING OVER 400 TONS OF REINFORCING STEEL, TWO 30 INCH SAMPLES OF EACH SIZE BAR USED. THE BARS FROM WHICH THE SAMPLES ARE TAKEN MUST THEN BE SPICED WITH REPLACEMENT BARS OF THE SIZE AND LENGTH OF THE SAMPLE, PLUS A MINIMUM LAP SPLICE OF THIRTY BAR DIAMETERS. PAYMENT FOR THE SAMPLES OF REINFORCING STEEL SHALL BE CONSIDERED INCIDENTAL TO VARIOUS PAY ITEMS.

THE ELEVATIONS AND CLEARANCES SHOWN ON THE PLANS AT THE POINTS OF MINIMUM VERTICAL CLEARANCE ARE FROM THE BEST INFORMATION AVAILABLE. PRIOR TO BEGINNING BRIDGE CONSTRUCTION, VERIFY THE ELEVATIONS ON THE EXISTING PAVEMENT AND CHECK THE CLEARANCE. REPORT ANY VARIATIONS TO THE ENGINEER. ANY PLAN REVISIONS NECESSARY TO ACHIEVE THE REQUIRED MINIMUM CLEARANCE WILL BE PROVIDED BY THE DEPARTMENT.

THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH "HEC 18-EVALUATING SCOUR AT BRIDGES."

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

**TOTAL BILL OF MATERIAL**

|                | 4'-0" DIA DRILLED PIERS IN SOIL | 4'-0" DIA DRILLED PIERS NOT IN SOIL | PERMANENT STEEL CASING FOR 4'-0" DIA. DRILLED PIER | CSL TESTING | UNCLASSIFIED STRUCTURE EXCAVATION | REINFORCED CONCRETE DECK SLAB | GROOVING BRIDGE FLOORS | CLASS A CONCRETE | BRIDGE APPROACH SLABS | REINFORCING STEEL | SPIRAL COLUMN REINFORCING STEEL | MODIFIED 72" PRESTRESSED CONCRETE GIRDERS | HP 12 X 53 STEEL PILES | STEEL PILE POINTS | CONCRETE BARRIER RAIL | 4" SLOPE PROTECTION | RIP RAP CLASS II | GEOTEXTILE FOR DRAINAGE | ELASTOMERIC BEARINGS | FOAM JOINT SEALS |          |          |
|----------------|---------------------------------|-------------------------------------|--|-------------|-----------------------------------|-------------------------------|------------------------|------------------|-----------------------|-------------------|---------------------------------|---|------------------------|-------------------|-----------------------|---------------------|------------------|-------------------------|----------------------|------------------|----------|----------|
|                | LIN. FT.                        | LIN. FT.                            | LIN. FT.   | EA.         | LUMP SUM                          | SQ. FT.                       | SQ. FT.                | CU. YDS.         | LUMP SUM              | LBS.              | LBS.                            | NO. LIN. FT.                              | NO. LIN. FT.           | EA.               | LIN. FT.              | SQ. YDS.            | TONS             | SQ. YDS.                | LUMP SUM             | LUMP SUM         |          |          |
| SUPERSTRUCTURE |                                 |                                     |  |             |                                   | 27,053                        | 24,963                 |                  |                       |                   |                                 | 25  | 2,619.17               |                   | 1,055.42              |                     |                  |                         |                      |                  |          |          |
| END BENT 1     |                                 |                                     |  |             |                                   |                               |                        | 58.8             |                       | 7,781             |                                 |   | 8                      | 280               | 8                     |                     | 885              | 983                     |                      |                  |          |          |
| BENT 1         | 40.80                           | 36.00                               | 44.72  | 1           |                                   |                               |                        | 61.4             |                       | 17,250            | 3,775                           |   |                        |                   |                       |                     |                  |                         |                      |                  |          |          |
| BENT 2         | 34.80                           | 36.00                               | 33.29  | 1           |                                   |                               |                        | 64.3             |                       | 17,393            | 3,841                           |   |                        |                   |                       |                     |                  |                         |                      |                  |          |          |
| BENT 3         | 47.10                           | 36.00                               |  | 1           |                                   |                               |                        | 55.9             |                       | 16,676            | 3,524                           |   |                        |                   |                       |                     |                  |                         |                      |                  |          |          |
| BENT 4         | 55.80                           | 36.00                               |  | 1           |                                   |                               |                        | 56.9             |                       | 17,409            | 3,813                           |   |                        |                   |                       |                     |                  |                         |                      |                  |          |          |
| END BENT 2     |                                 |                                     |  |             |                                   |                               |                        | 49.9             |                       | 6,521             |                                 | 9   | 315                    | 9                 | 13                    |                     |                  |                         |                      |                  |          |          |
| TOTAL          | 178.50                          | 144.00                              | 78.01  | 4           | LUMP SUM                          | 27,053                        | 24,963                 | 347.2            | LUMP SUM              | 83,030            | 14,953                          | 25  | 2,619.17               | 17                | 595                   | 17                  | 1,055.42         | 13                      | 885                  | 983              | LUMP SUM | LUMP SUM |

PROJECT NO. W-5516

ROWAN COUNTY

STATION: 61+79.40 -L-

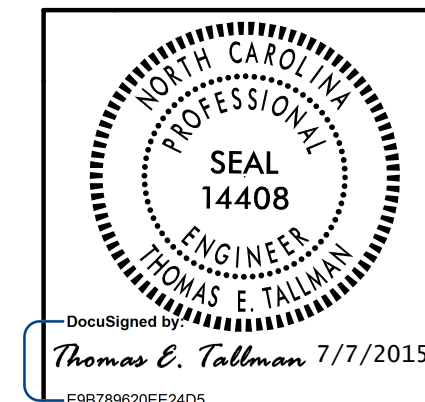
SHEET 3 OF 3

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

**GENERAL DRAWING**

FOR BRIDGE ON SR 1221 OVER I-85 AND COLD WATER CREEK BETWEEN SR 1238 AND SR 1337

| REVISIONS |     |       |     |     |       | SHEET NO.       |
|-----------|-----|-------|-----|-----|-------|-----------------|
| NO.       | BY: | DATE: | NO. | BY: | DATE: | S-3             |
| 1         |     |       | 3   |     |       | TOTAL SHEETS 41 |
| 2         |     |       | 4   |     |       |                 |



DRAWN BY : D. H. CARTER DATE : JUN 2015

CHECKED BY : M. T. NEIHEISEL DATE : JUN 2015

DESIGN ENGINEER OF RECORD: T. E. TALLMAN DATE : JUN 2015

7/7/2015 10:51:00 AM C:\Users\pca\Documents\Projects\W-5516\SD-15.dgn