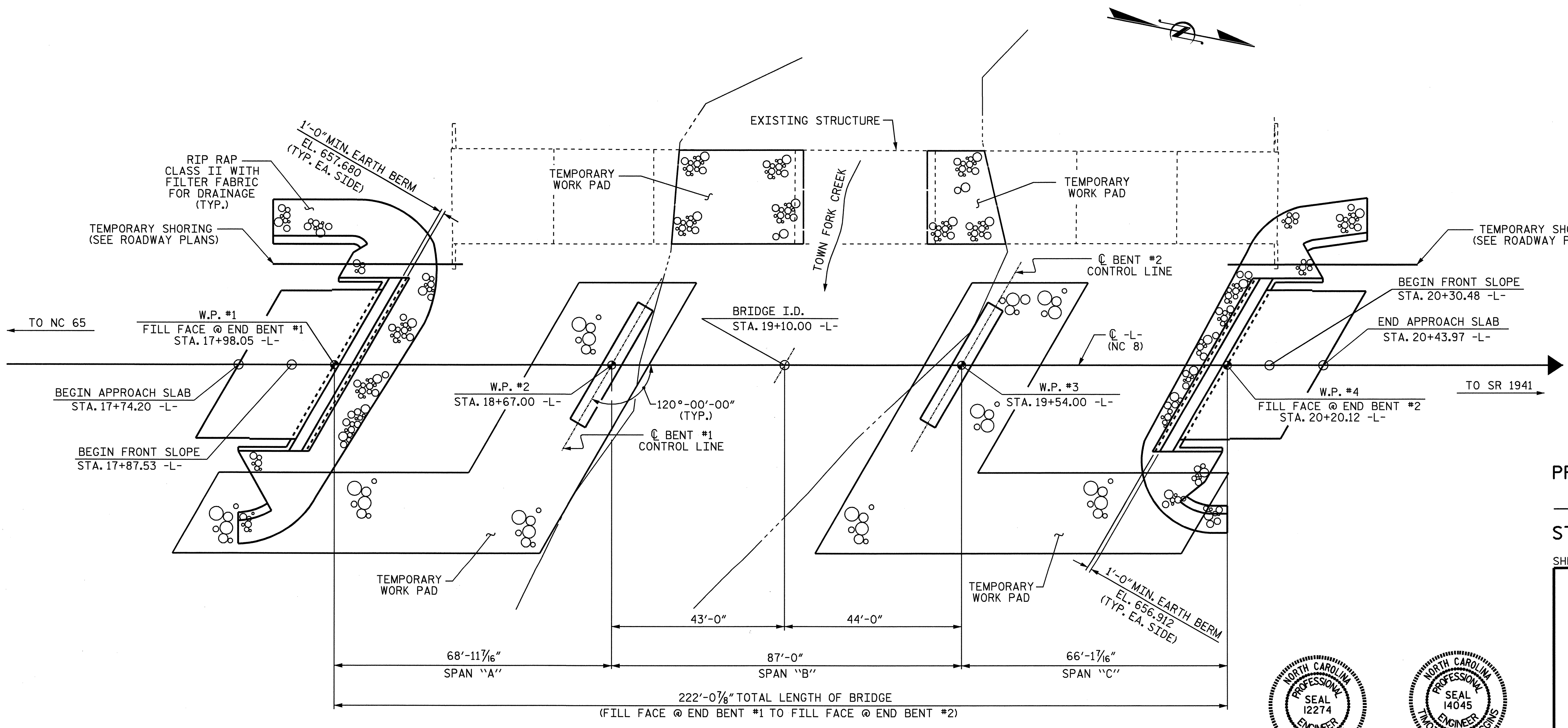


**GRADE DATA**

-1.7783%      -0.3560%

P.I. STA. = 15+00.00 -L-  
EL. = 668.00'  
V.C. = 200.00'



PROJECT NO. B-4280  
STOKES COUNTY  
 STATION: 19+10.00 -L-  
 SHEET 1 OF 3      REPLACES BRIDGE NO. 14

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**GENERAL DRAWING**

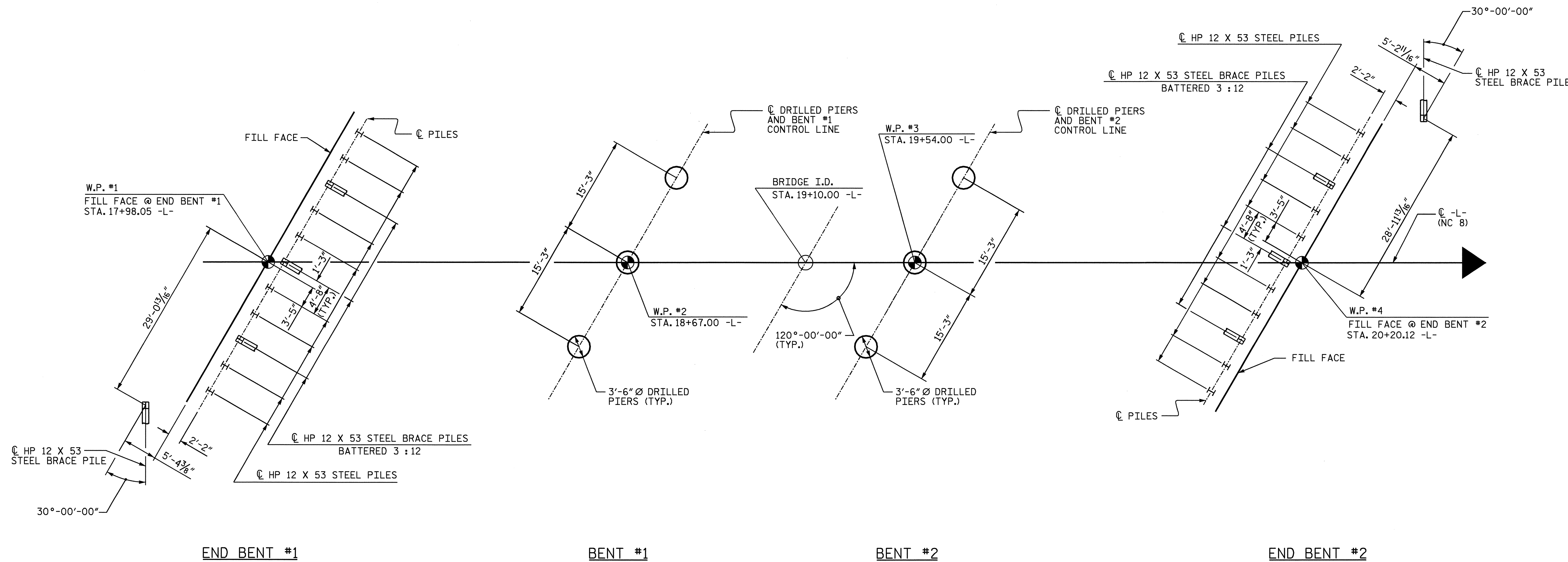
FOR BRIDGE OVER  
 TOWN FORK CREEK  
 ON NC 8 BETWEEN  
 NC 65 AND SR 1941

**REVISIONS**

| NO. | BY: | DATE: | NO. | BY: | DATE: |
|-----|-----|-------|-----|-----|-------|
| 1   |     |       | 3   |     |       |
| 2   |     |       | 4   |     |       |

Professional Engineer seals for Omar R. Aziz (Seal 12274) and Timothy A. Cozzino (Seal 14045) with dates 5/5/08 and 5/5/08.

DRAWN BY : T.L. AVERETTE      DATE : 3-04  
 CHECKED BY : PEGGY ADKINS      DATE : 6-04

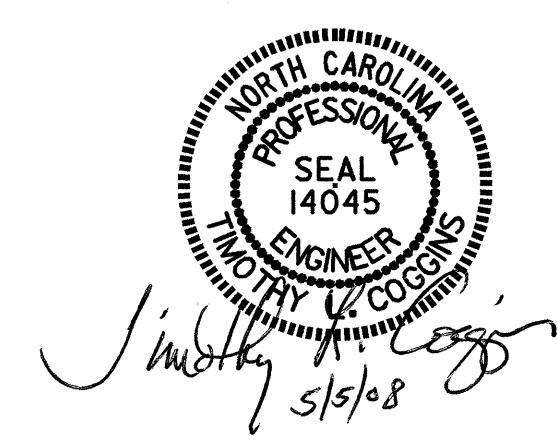


**FOUNDATION LAYOUT**

DIMENSIONS LOCATING PILES AND DRILLED PIERS ARE SHOWN TO PILE AND DRILLED PIER CENTERLINES.

PROJECT NO. B-4280  
STOKES COUNTY  
 STATION: 19+10.00 -L-

SHEET 2 OF 3  
 STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**GENERAL DRAWING**  
 FOR BRIDGE OVER  
 TOWN FORK CREEK  
 ON NC 8 BETWEEN  
 NC 65 AND SR 1941



DRAWN BY : PEGGY ADKINS DATE : 2-06  
 CHECKED BY : T. L. COGGINS DATE : 6-06

| REVISIONS |     |       |     |     |       | SHEET NO.    |
|-----------|-----|-------|-----|-----|-------|--------------|
| NO.       | BY: | DATE: | NO. | BY: | DATE: | S-2          |
| 1         |     |       | 3   |     |       | TOTAL SHEETS |
| 2         |     |       | 4   |     |       | 51           |



**TOTAL BILL OF MATERIAL**

|                | CONSTRUCTION, MAINTENANCE AND REMOVAL OF TEMPORARY ACCESS | REMOVAL OF EXISTING STRUCTURE | 3'-6" DIA. DRILLED PIERS IN SOIL | 3'-6" DIA. DRILLED PIERS NOT IN SOIL | PERMANENT STEEL CASING FOR 3'-6" DIA. DRILLED PIER | SID INSPECTION | CROSSHOLE SONIC LOGGING | REINFORCED CONCRETE DECK SLAB | GROOVING BRIDGE FLOORS | CLASS A CONCRETE | BRIDGE APPROACH SLABS | REINFORCING STEEL | SPIRAL COLUMN REINFORCING STEEL | 54" PRESTRESSED CONCRETE GIRDERS | HP 12 X 53 STEEL PILES | STEEL PILE POINTS | CONCRETE BARRIER RAIL | RIP RAP CLASS II (2'-0" THICK) | FILTER FABRIC FOR DRAINAGE | ELASTOMERIC BEARINGS | EVAZOTE JOINT SEALS |          |
|----------------|---|-------------------------------|----------------------------------|--------------------------------------|--|----------------|-------------------------|-------------------------------|------------------------|------------------|-----------------------|-------------------|---------------------------------|----------------------------------|------------------------|-------------------|-----------------------|--------------------------------|----------------------------|----------------------|---------------------|----------|
|                | LUMP SUM  | LUMP SUM                      | LIN. FT.                         | LIN. FT.                             | LIN. FT.   | EACH           | EACH                    | SQ.FT.                        | SQ.FT.                 | CU.YDS.          | LUMP SUM              | LBS.              | LBS.                            | LIN. FT.                         | NO.                    | LIN. FT.          | EACH                  | LIN. FT.                       | TON                        | SQ. YD.              | LUMP SUM            | LUMP SUM |
| SUPERSTRUCTURE |   |                               |                                  |                                      |  |                |                         | 8183                          | 8232                   |                  |                       |                   |                                 | 862.67                           |                        |                   | 439.33                |                                |                            |                      | LUMP SUM            | LUMP SUM |
| END BENT NO. 1 |   |                               |                                  |                                      |  |                |                         |                               |                        | 34.5             |                       | 4898              |                                 |                                  | 12                     | 180               |                       |                                | 161                        | 179                  |                     |          |
| BENT NO. 1     |   |                               | 21.38                            | 17.00                                | 15.58  |                | 1                       |                               |                        | 28.7             |                       | 8657              | 1607                            |                                  |                        |                   |                       |                                |                            |                      |                     |          |
| BENT NO. 2     |   |                               | 11.38                            | 27.00                                | 16.52  |                |                         |                               |                        | 28.2             |                       | 8554              | 1565                            |                                  |                        |                   |                       |                                |                            |                      |                     |          |
| END BENT NO. 2 |   |                               |                                  |                                      |  |                |                         |                               |                        | 34.5             |                       | 4899              |                                 |                                  | 12                     | 180               | 12                    |                                | 67                         | 74                   |                     |          |
| TOTAL          | LUMP SUM  | LUMP SUM                      | 32.76                            | 44.00                                | 32.10  | 1              | 1                       | 8183                          | 8232                   | 125.9            | LUMP SUM              | 27008             | 3172                            | 862.67                           | 24                     | 360               | 24                    | 439.33                         | 228                        | 253                  | LUMP SUM            | LUMP SUM |

**NOTES**

ASSUMED LIVE LOAD = HS20 OR ALTERNATE LOADING, EXCEPT THAT THE GIRDERS HAVE BEEN DESIGNED FOR HS25.

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

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

THIS BRIDGE HAS BEEN DESIGNED BY THE STRENGTH DESIGN METHOD AS SPECIFIED IN AASHTO STANDARD SPECIFICATIONS.

AFTER SERVING AS A TEMPORARY STRUCTURE, THE EXISTING STRUCTURE CONSISTING OF 2 SPANS @ 25'-1 1/2" CONTINUOUS, 3 SPANS @ 35'-0" SIMPLE AND 2 SPANS @ 25'-1 1/2" CONTINUOUS WITH AN ASPHALT WEARING SURFACE OVER A REINFORCED CONCRETE DECK ON I-BEAMS SUPPORTED ON REINFORCED CONCRETE CAP ON TIMBER PILES @ END AND INTERIOR BENTS NO. 1, 2, 5 AND 6 AND REINFORCED CONCRETE POST AND BEAMS AT INTERIOR BENTS NO. 3 AND 4, WITH A CLEAR ROADWAY WIDTH OF 24'-0" AND LOCATED UPSTREAM FROM THE PROPOSED STRUCTURE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY NOT POSTED FOR LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE DETERIORATE DURING CONSTRUCTION OF THE PROPOSED STRUCTURE, A LOAD LIMIT MAY BE POSTED AND MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT. A COFFERDAM MAY BE REQUIRED TO REMOVE INTERIOR BENT IN CREEK.

REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED SO AS NOT TO ALLOW DEBRIS TO FALL INTO THE WATER. THE CONTRACTOR SHALL REMOVE THE BRIDGE AND SUBMIT PLANS FOR DEMOLITION IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.

THE EXISTING BRIDGE INDICATED ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. SINCE THIS INFORMATION IS SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR, THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT OF TRANSPORTATION FOR ANY DELAYS OR ADDITIONAL COST INCURRED BASED ON DIFFERENCES BETWEEN THE EXISTING BRIDGE SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

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 1024-1 AND IN ACCORDANCE WITH ARTICLES 1024-5 AND 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.

THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH HEC 18, "EVALUATING SCOUR AT BRIDGES", MAY, 2001.

THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR SEISMIC DESIGN OF HIGHWAY BRIDGES FOR SEISMIC PERFORMANCE CATEGORY A.

FOR LIMITS OF TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC, SEE TRAFFIC CONTROL PLANS. FOR TEMPORARY SHORING PAY ITEM, SEE ROADWAY PLANS.

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 SPLICED WITH REPLACEMENT BARS OF THE SIZE AND LENGTH OF THE SAMPLE, PLUS A MINIMUM LAP SPlice OF THIRTY BAR DIAMETERS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR MAINTENANCE OF TRAFFIC, SEE TRAFFIC CONTROL PLANS.

INASMUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL CONTAINS LEAD, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COSTS RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR REMOVAL OF EXISTING STRUCTURE AT STATION 19+10.00 -L-.

FOR PRESTRESSED CONCRETE MEMBERS, SEE SPECIAL PROVISIONS.

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

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

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

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

DRILLED PIERS AT BENTS NO. 1 AND 2 ARE DESIGNED FOR BOTH SKIN FRICTION AND END BEARING. CHECK FIELD CONDITIONS FOR THE REQUIRED END BEARING CAPACITY OF 30 TSF.

DRILLED PIERS AT BENTS NO. 1 AND 2 ARE DESIGNED FOR AN APPLIED LOAD OF 209 TONS EACH AT THE TOP OF THE COLUMN.

PERMANENT STEEL CASING MAY BE REQUIRED FOR DRILLED PIERS AT BENT NO. 1. DO NOT EXTEND THE CASING BELOW ELEVATION 641.0 FT. WITHOUT PRIOR APPROVAL FROM THE ENGINEER. SEE DRILLED PIER SPECIAL PROVISION.

PERMANENT STEEL CASING IS REQUIRED FOR DRILLED PIERS AT BENT NO. 2. DO NOT EXTEND THE CASING BELOW ELEVATION 641.0 FT. WITHOUT PRIOR APPROVAL FROM THE ENGINEER. SEE DRILLED PIER SPECIAL PROVISION.

DRILLED PIERS AT BENTS NO. 1 AND 2 SHALL EXTEND TO AN ELEVATION NO HIGHER THAN 634.0 FT. AND SATISFY THE REQUIRED END BEARING CAPACITY.

THE SCOUR CRITICAL ELEVATION FOR BENTS NO. 1 AND 2 IS ELEVATION 639.0 FT. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

FOR DRILLED PIERS, SEE DRILLED PIERS SPECIAL PROVISIONS.

SPT TESTING IS NOT REQUIRED TO DETERMINE THE END BEARING CAPACITY OF THE DRILLED PIERS AT BENTS NO. 1 AND 2. SEE DRILLED PIERS SPECIAL PROVISIONS.

DO NOT USE SLURRY CONSTRUCTION FOR DRILLED PIERS AT BENTS NO. 1 AND 2.

SID INSPECTIONS MAY BE REQUIRED TO INSPECT THE BOTTOM CLEANLINESS OF THE DRILLED PIERS AT BENTS NO. 1 AND 2. THE ENGINEER WILL DETERMINE THE NEED FOR SID INSPECTIONS. SEE DRILLED PIERS SPECIAL PROVISION.

CSL TUBES ARE REQUIRED AND CSL TESTING MAY BE REQUIRED FOR THE DRILLED PIERS. THE ENGINEER WILL DETERMINE THE NEED FOR CSL TESTING. SEE CROSSHOLE SONIC LOGGING SPECIAL PROVISION.

DRIVE PILES AT END BENTS NO. 1 AND 2 TO A REQUIRED BEARING CAPACITY OF 100 TONS PER PILE. THE REQUIRED BEARING CAPACITY IS EQUAL TO THE ALLOWABLE BEARING CAPACITY WITH A MINIMUM FACTOR OF SAFETY OF TWO.

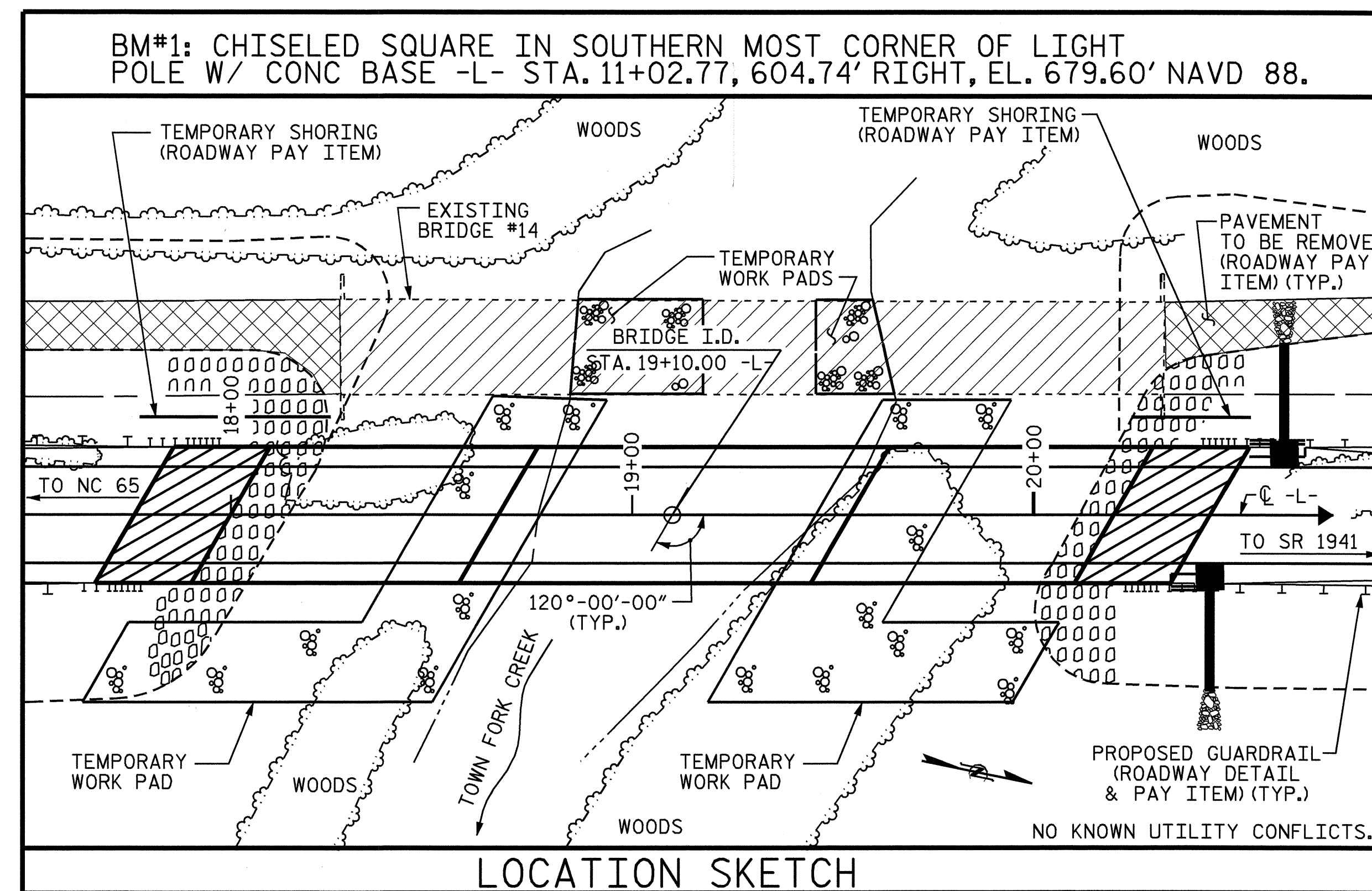
THE ALLOWABLE BEARING CAPACITY FOR PILES AT END BENTS NO. 1 AND 2 IS 50 TONS PER PILE.

STEEL PILE POINTS ARE REQUIRED FOR STEEL PILES AT END BENTS NO. 1 AND 2. SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

FOR CONSTRUCTION, MAINTENANCE AND REMOVAL OF TEMPORARY ACCESS AT STATION 19+10.00 -L-, SEE SPECIAL PROVISIONS.

AT THE CONTRACTOR'S OPTION, AND UPON REMOVAL OF THE WORK PAD, THE CLASS II RIP RAP USED IN THE WORK PAD MAY BE PLACED AS RIP RAP SLOPE PROTECTION. SEE SPECIAL PROVISIONS FOR CONSTRUCTION, MAINTENANCE AND REMOVAL OF TEMPORARY ACCESS AT STATION 19+10.00 -L-.

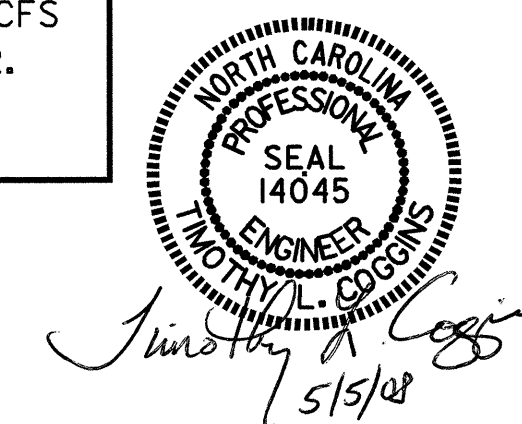
FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.



| HYDRAULIC DATA                 |                  |
|--------------------------------|------------------|
| DESIGN DISCHARGE               | = 7,143 CFS      |
| FREQUENCY OF DESIGN FLOOD      | = 50 YR.         |
| DESIGN HIGH WATER ELEVATION    | = 658.1'         |
| DRAINAGE AREA                  | = 62.9 SQ. MILES |
| BASIC DISCHARGE (Q100)         | = 8,223 CFS      |
| BASIC HIGH WATER ELEVATION     | = 659.0'         |
| OVERTOPPING FLOOD DATA         |                  |
| OVERTOPPING DISCHARGE          | = 20,000 CFS     |
| FREQUENCY OF OVERTOPPING FLOOD | = 500+ YR.       |
| OVERTOPPING FLOOD ELEVATION    | = 663.9'         |

PROJECT NO. B-4280  
STOKES COUNTY  
 STATION: 19+10.00 -L-

SHEET 3 OF 3  
 STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**GENERAL DRAWING**  
 FOR BRIDGE OVER  
 TOWN FORK CREEK  
 ON NC 8 BETWEEN  
 NC 65 AND SR 1941



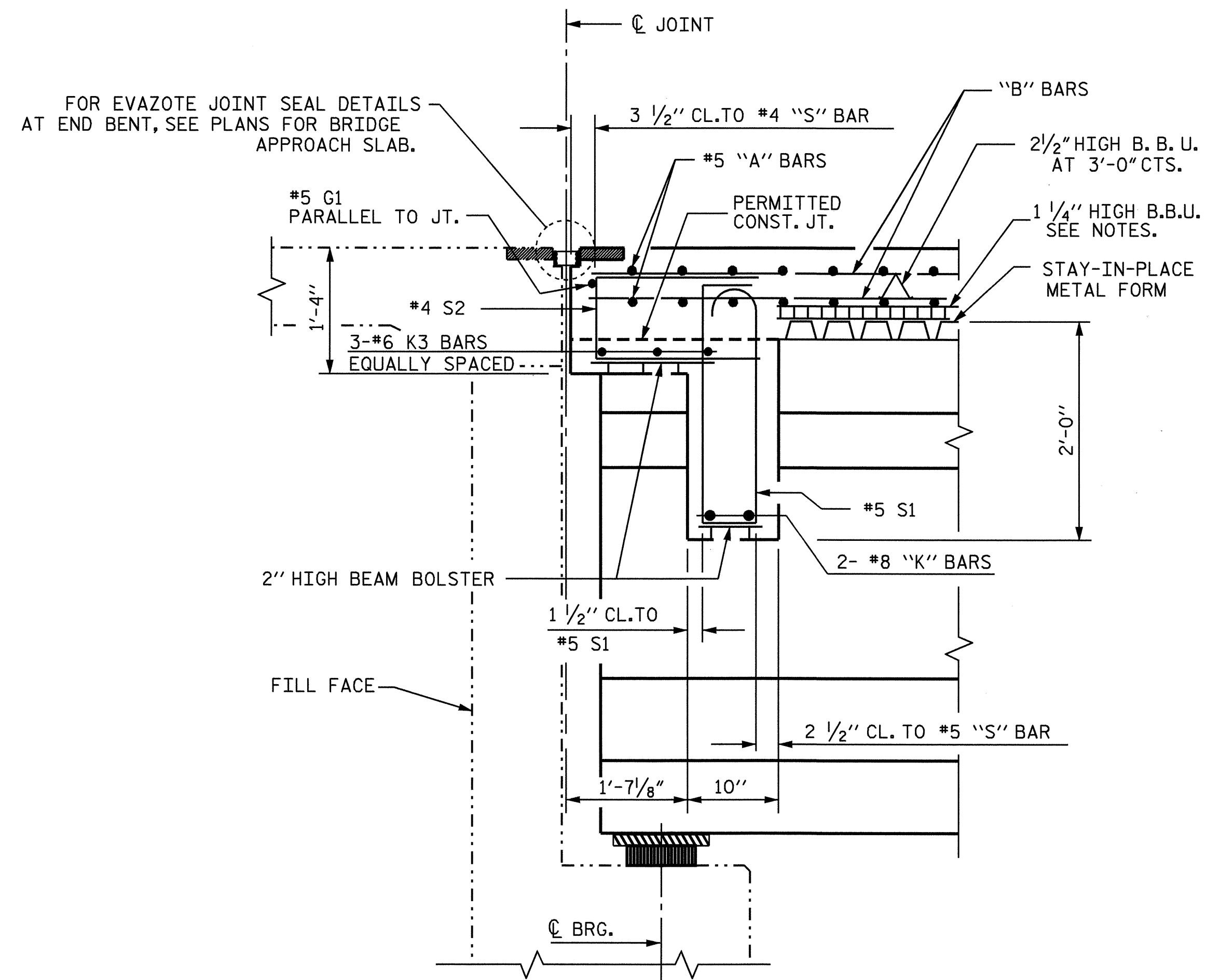
DRAWN BY : T.L. AVERETTE DATE : 3-04  
 CHECKED BY : PEGGY ADKINS DATE : 6-04

| REVISIONS |     |       |     |     | SHEET NO. |
|-----------|-----|-------|-----|-----|-----------|
| NO.       | BY: | DATE: | NO. | BY: | DATE:     |
| 1         |     |       | 3   |     |           |
| 2         |     |       | 4   |     |           |

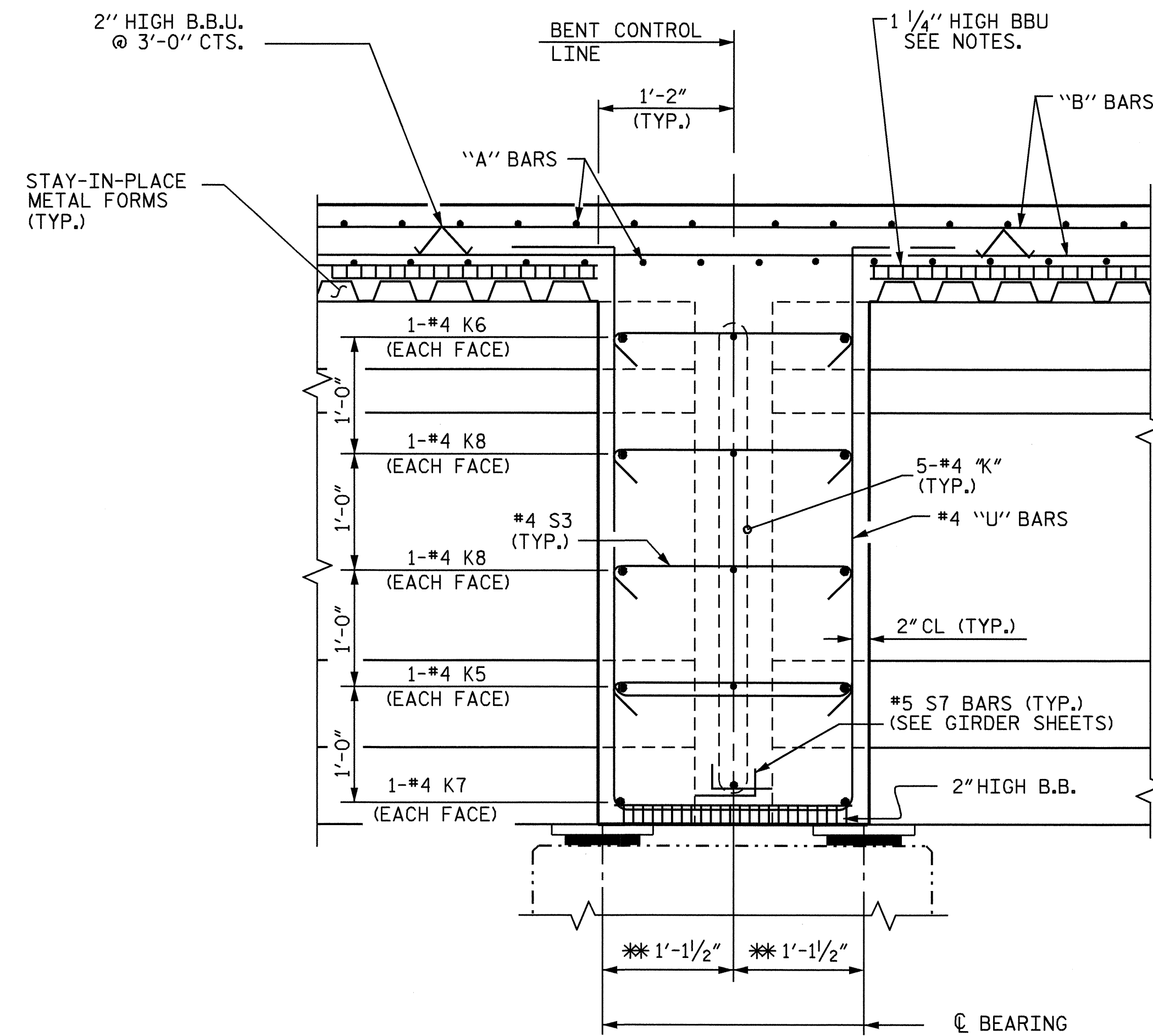
TOTAL SHEETS 51







**SECTION A-A**



**SECTION B-B**

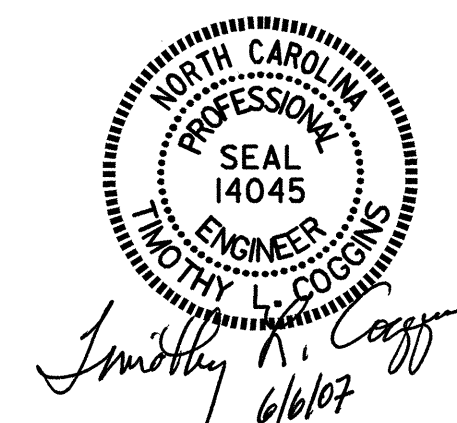
\*\* MEASURED ALONG GIRDER LINE

PROJECT NO. B-4280  
STOKES COUNTY  
 STATION: 19+10.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

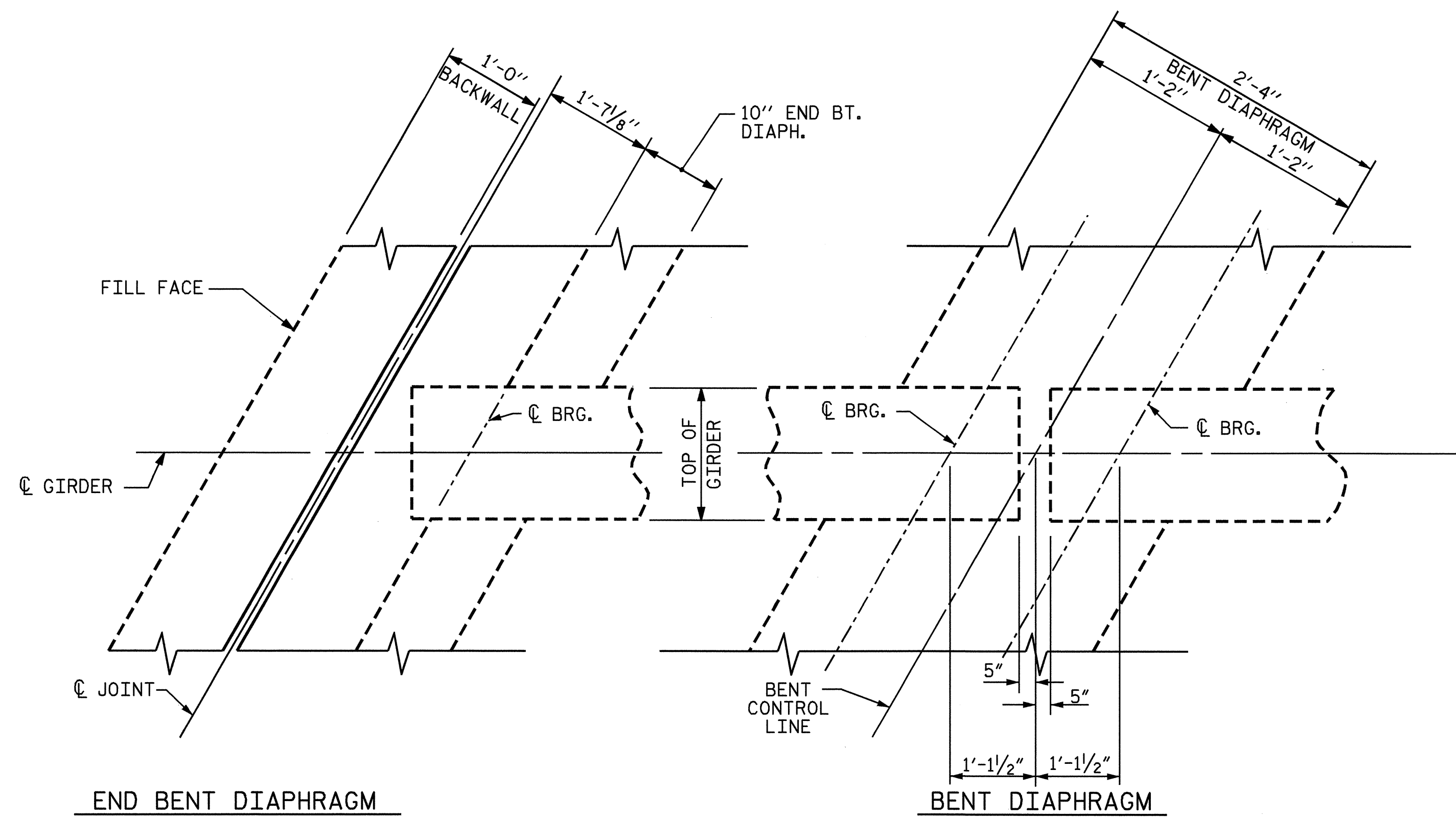
SUPERSTRUCTURE  
 TYPICAL SECTION  
 DETAILS



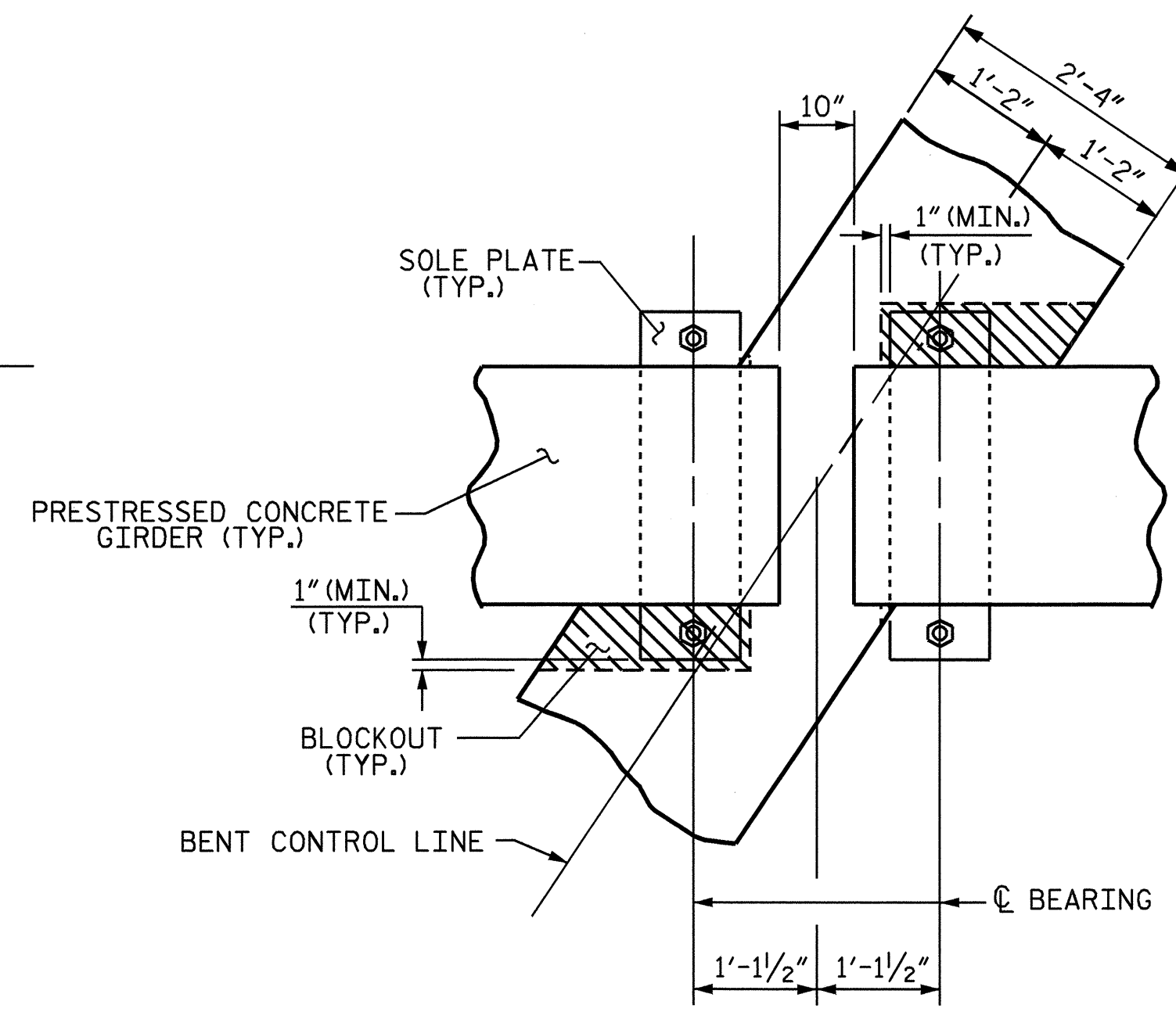
DRAWN BY: PEGGY ADKINS DATE: 6/04  
 CHECKED BY: T. L. AVERETTE DATE: 9-04

| REVISIONS |     |       |     |     |       | SHEET NO.    |
|-----------|-----|-------|-----|-----|-------|--------------|
| NO.       | BY: | DATE: | NO. | BY: | DATE: | S-5          |
| 1         |     |       | 3   |     |       | TOTAL SHEETS |
| 2         |     |       | 4   |     |       | 51           |

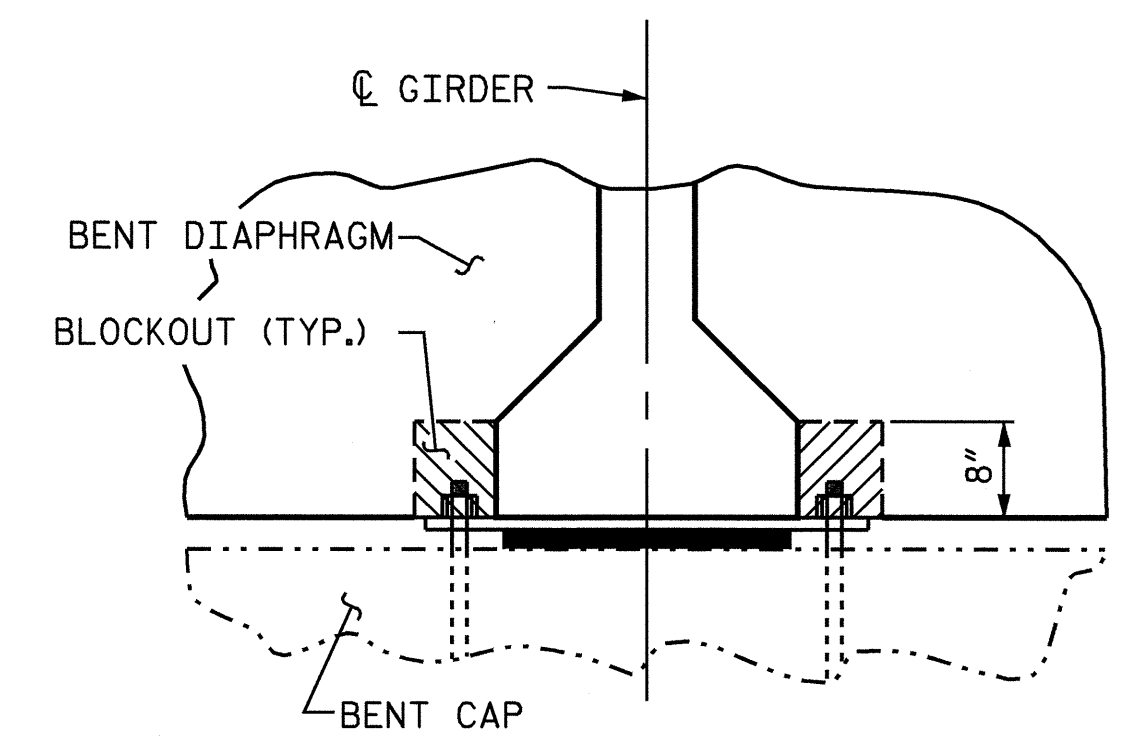




PLAN

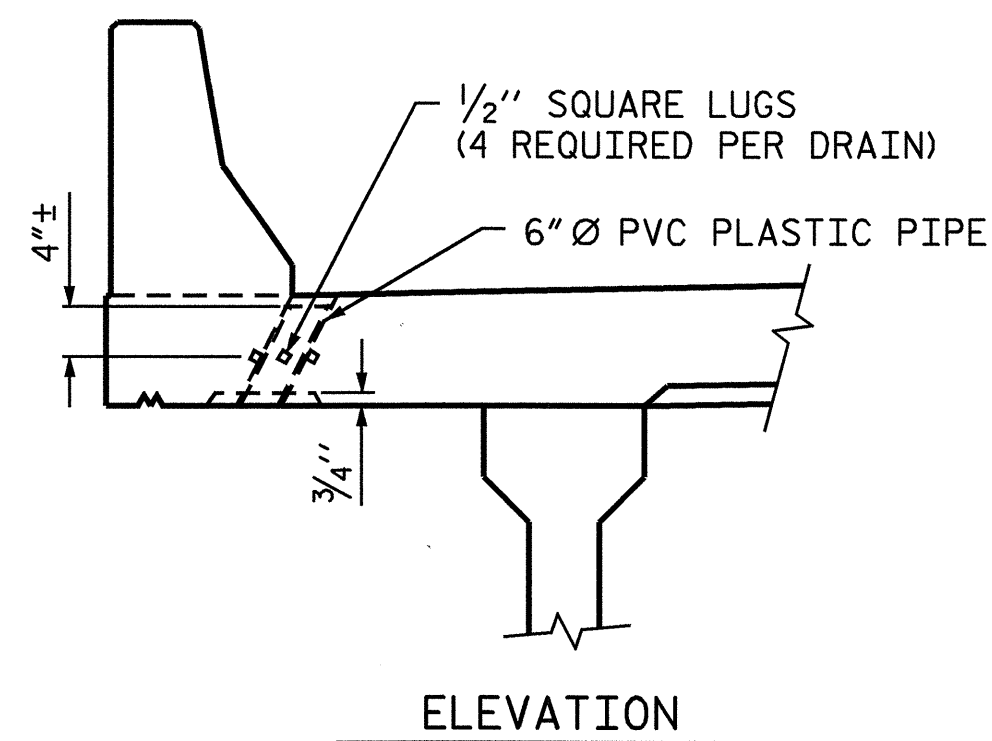


PLAN

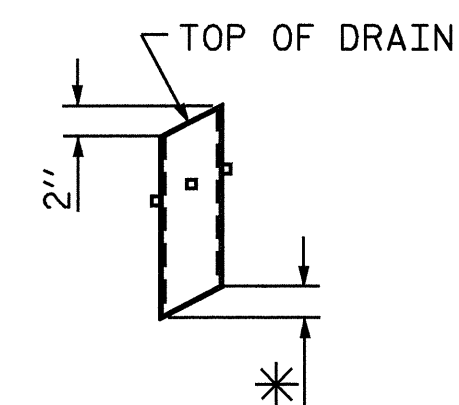


SECTION

BENT DIAPHRAGM BLOCK-OUT DETAIL

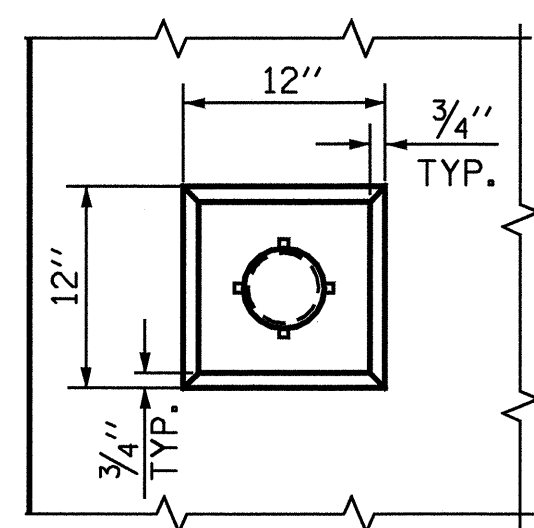


ELEVATION



\* TO BE SET TO MATCH SLOPE OF BOTTOM OF OVERHANG (17 DRAINS REQUIRED)

PIPE DETAIL



PLAN OF RECESS

DRAIN DETAILS

TOP OF FLOOR DRAINS TO BE SET 3/8" BELOW SURFACE OF SLAB.  
 4 - 1/2" SQUARE LUGS TO BE GLUED TO THE P.V.C. PLASTIC PIPE AT EQUAL SPACES AROUND THE PIPE DRAIN APPROXIMATELY 4" FROM THE TOP OF THE PIPE.  
 THE 6" Ø PVC PLASTIC PIPE AND FITTINGS SHALL BE SCHEDULE 40 AND CONFORM TO ASTM D1785.

PROJECT NO. B-4280  
STOKES COUNTY  
 STATION: 19+10.00 -L-

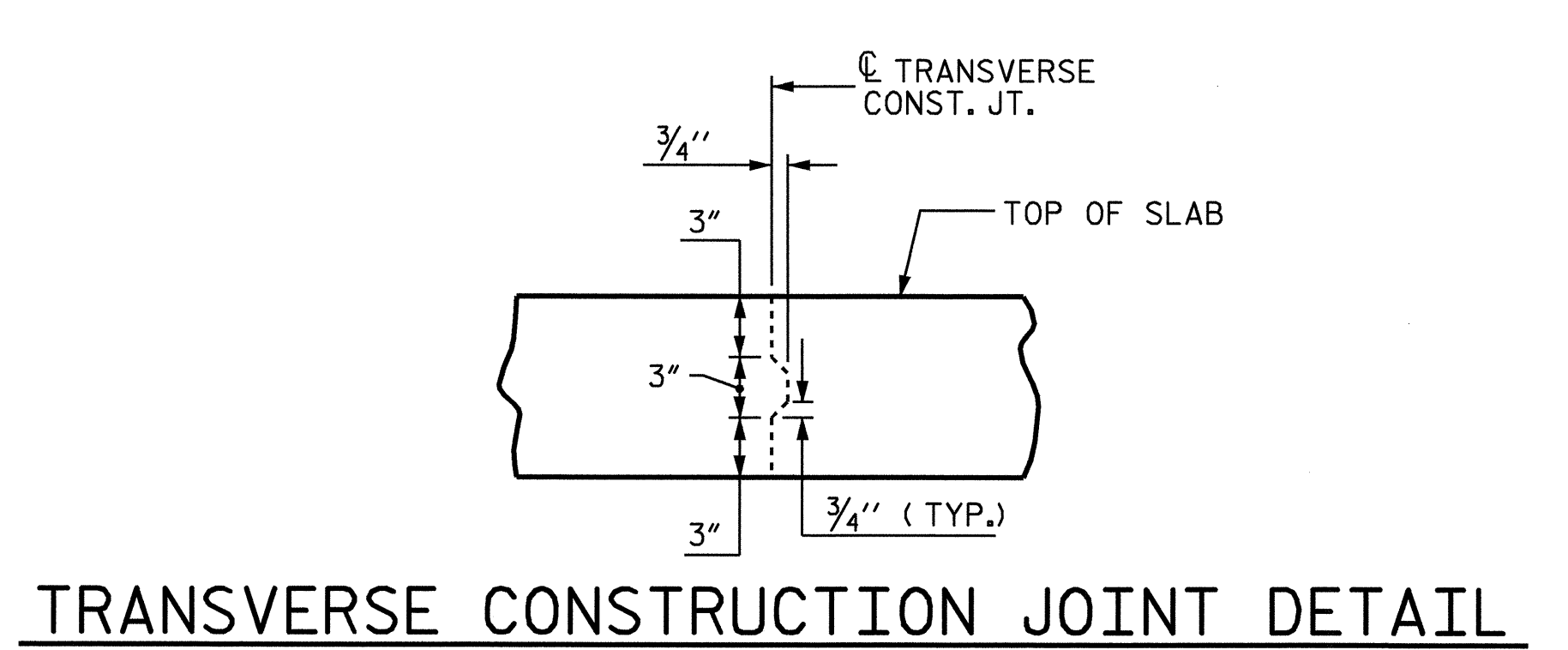
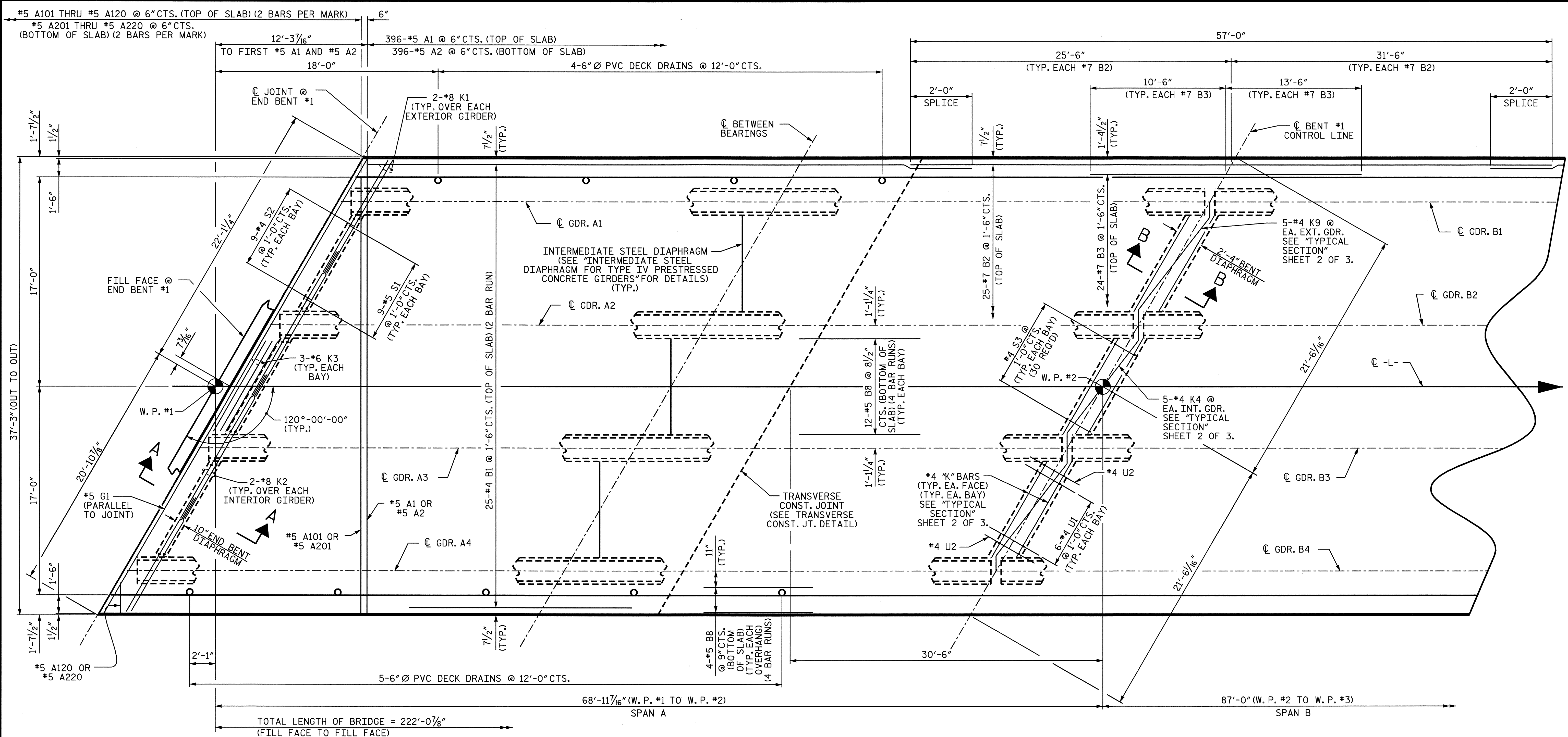
SHEET 3 OF 3

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE  
 TYPICAL SECTION  
 DETAILS

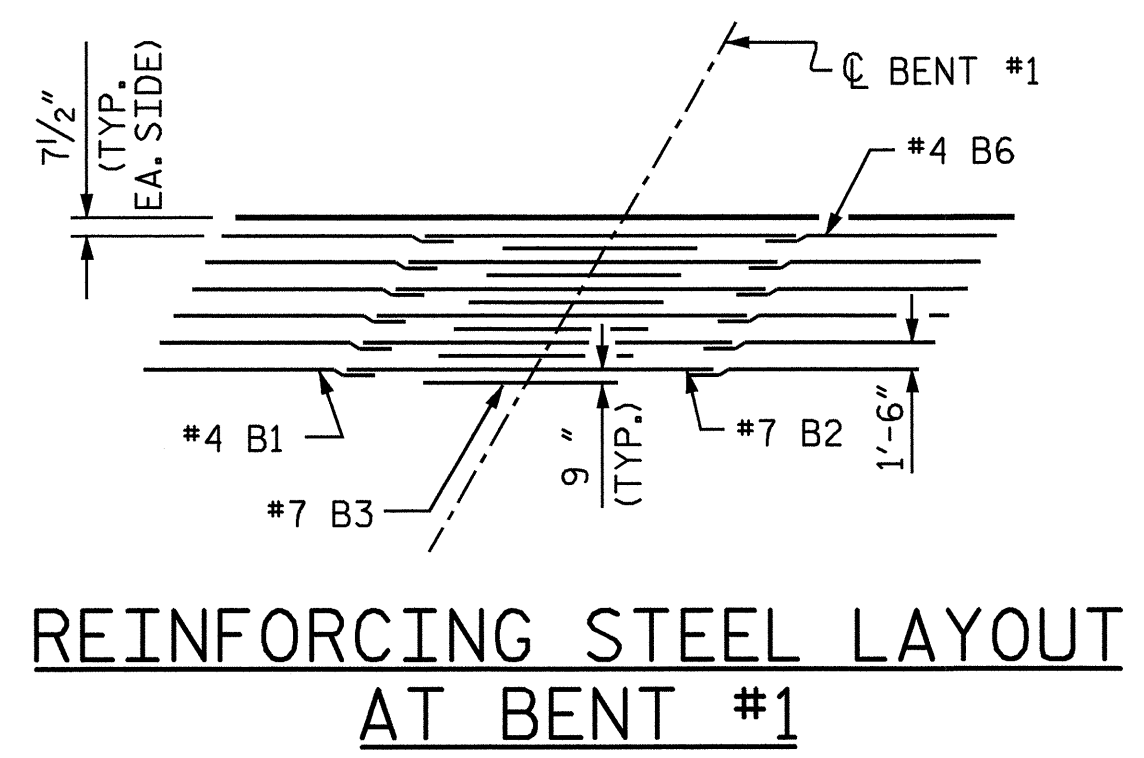
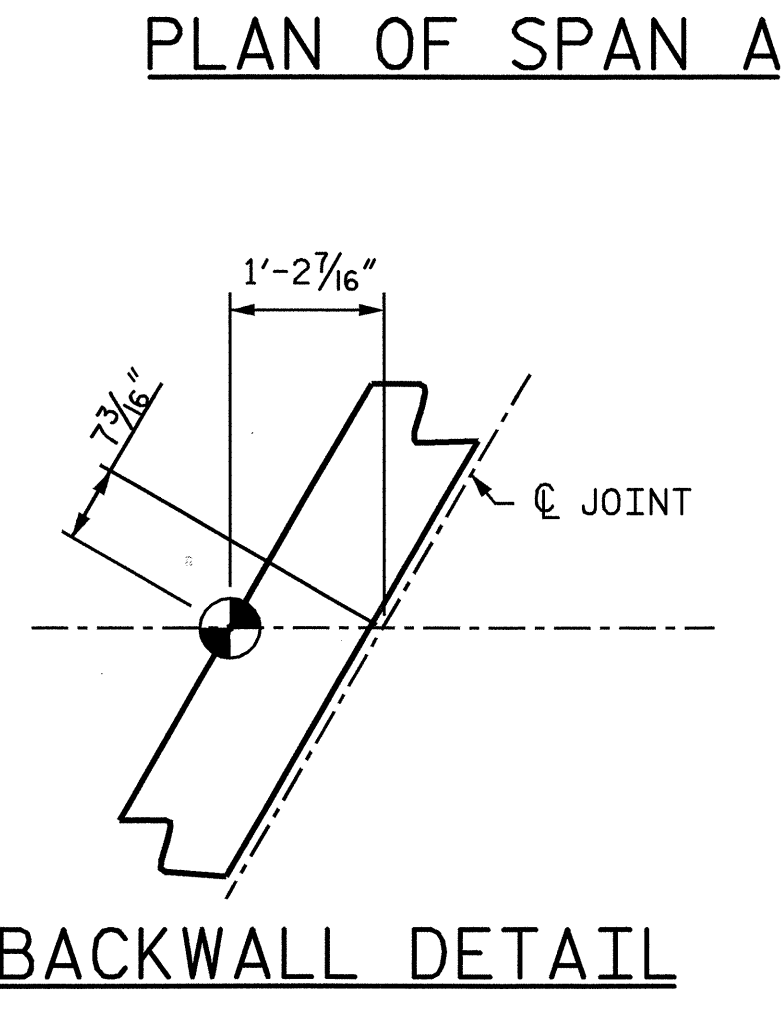
*Professional Engineer Seal*  
 NORTH CAROLINA  
 PROFESSIONAL ENGINEER  
 SEAL  
 14045  
 JIMMY W. COFFIN  
 6/6/07

DRAWN BY : PEGGY ADKINS DATE : 6/04  
 CHECKED BY : I.L. AVERETTE DATE : 9-04

| REVISIONS |     |       |     |       | SHEET NO.    |
|-----------|-----|-------|-----|-------|--------------|
| NO.       | BY: | DATE: | NO. | DATE: | S-6          |
| 1         |     |       | 3   |       | TOTAL SHEETS |
| 2         |     |       | 4   |       | 51           |



NOTE: REINFORCING STEEL IN SLAB NOT SHOWN. LONGITUDINAL REINFORCING STEEL SHALL BE CONTINUOUS THRU JOINT.

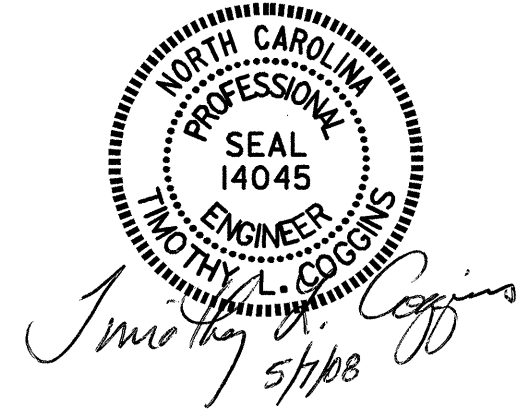


DRAWN BY : PEGGY ADKINS DATE : 6-04  
 CHECKED BY : J. L. AVERETTE DATE : 9-04

06-MAY-2008 08:13  
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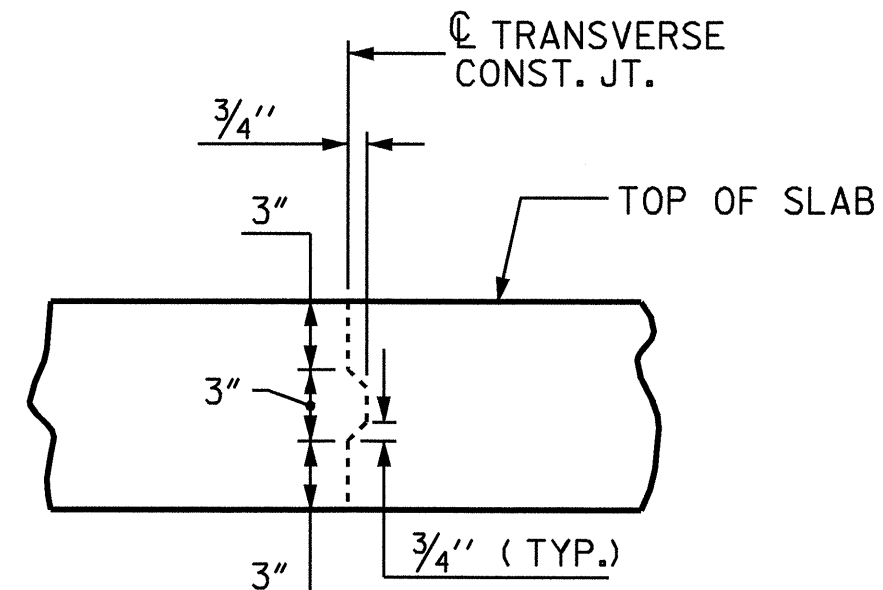
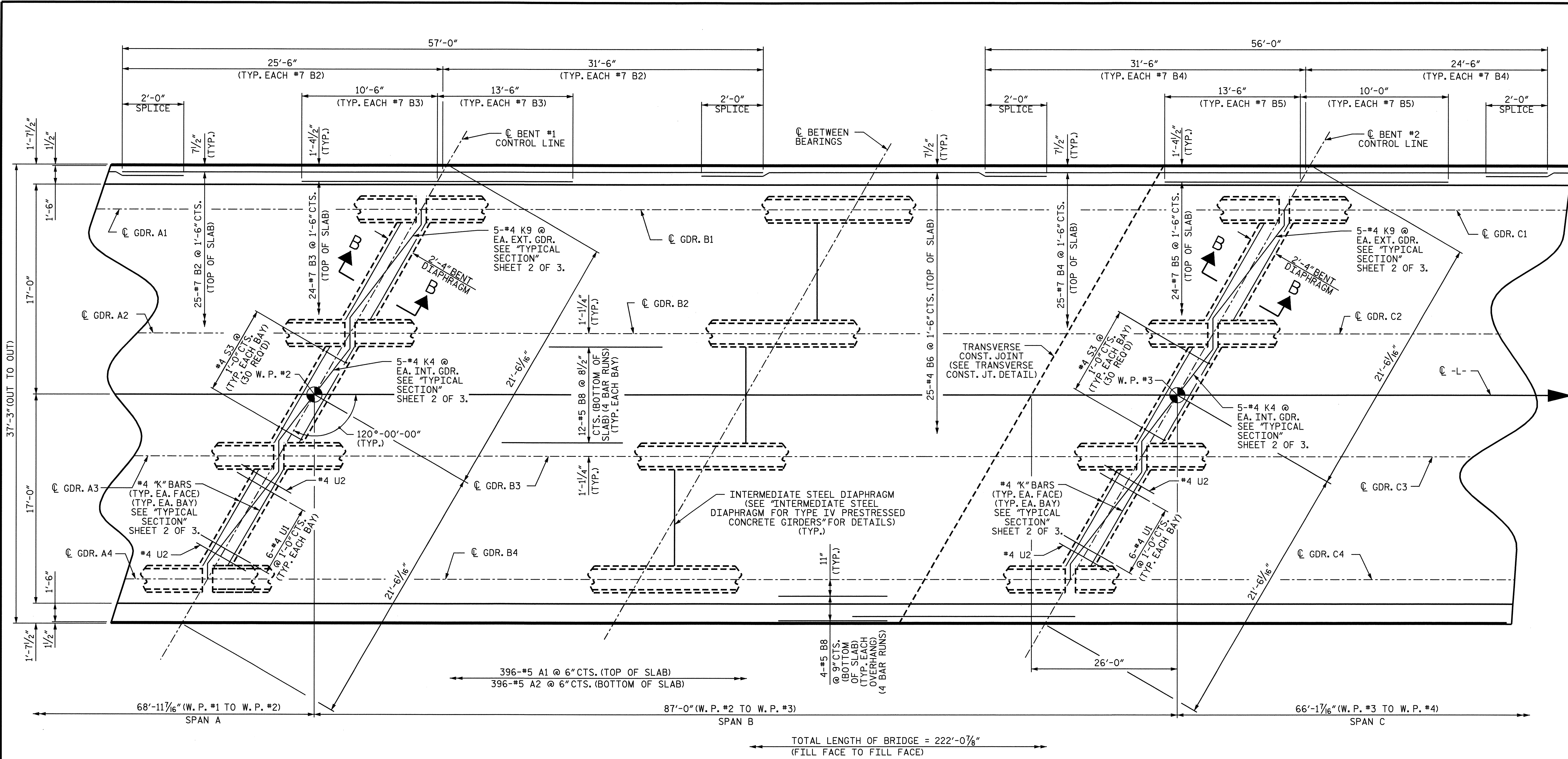
PROJECT NO. B-4280  
 STOKES COUNTY  
 STATION: 19+10.00 -L-  
 SHEET 1 OF 3

|  |     |       |     |     |           |
|--|-----|-------|-----|-----|-----------|
| STATE OF NORTH CAROLINA<br>DEPARTMENT OF TRANSPORTATION<br>RALEIGH |     |       |     |     |           |
| SUPERSTRUCTURE<br>PLAN OF SPAN A                                   |     |       |     |     |           |
| REVISIONS  |     |       |     |     | SHEET NO. |
| NO.  | BY: | DATE: | NO. | BY: | DATE:     |
| 1  |     |       | 3   |     |           |
| 2  |     |       | 4   |     |           |
| TOTAL SHEETS   |     |       |     |     | 51        |



STR. #1

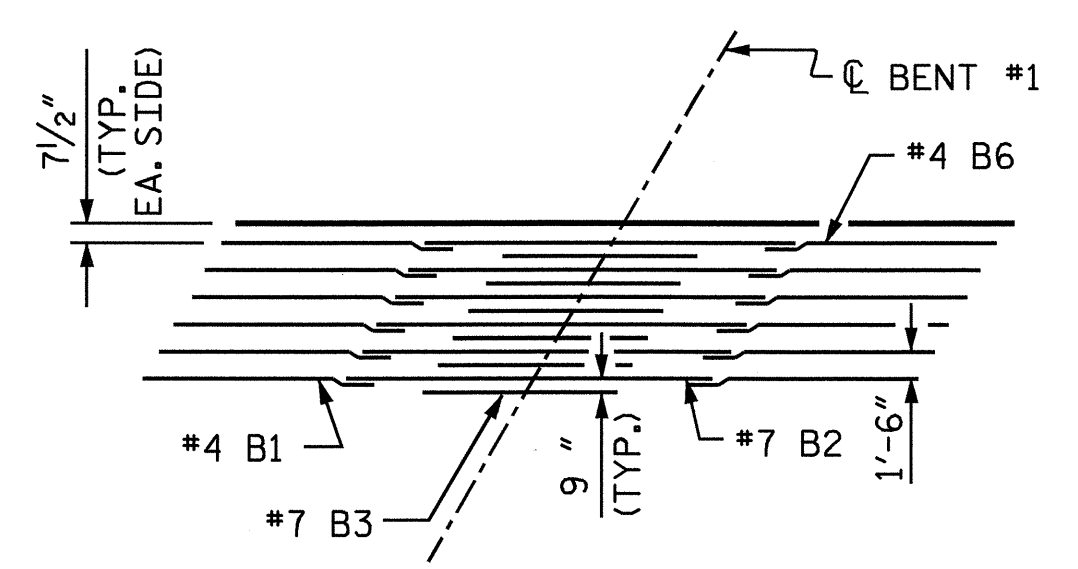




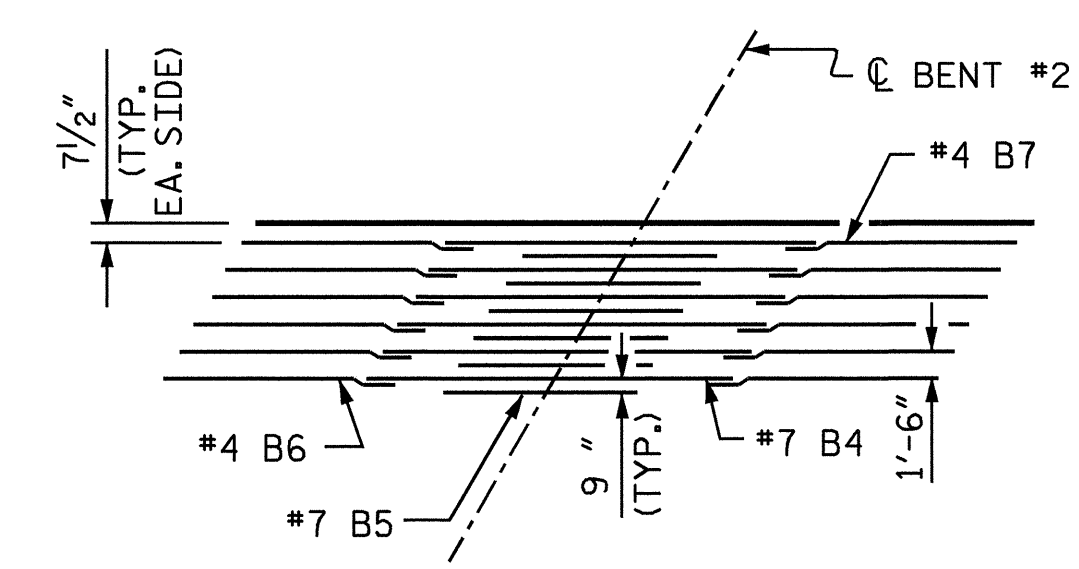
**TRANSVERSE CONSTRUCTION JOINT DETAIL**

NOTE: REINFORCING STEEL IN SLAB NOT SHOWN. LONGITUDINAL REINFORCING STEEL SHALL BE CONTINUOUS THRU JOINT.

**PLAN OF SPAN B**



**REINFORCING STEEL LAYOUT AT BENT #1**



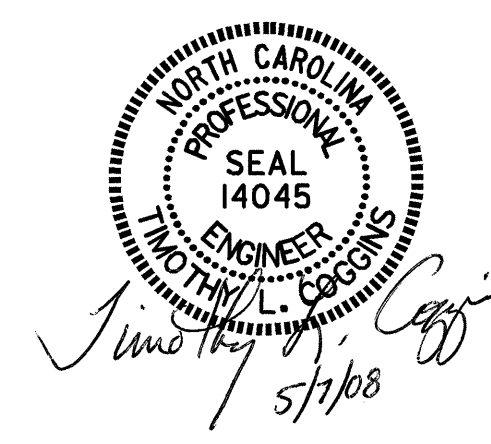
**REINFORCING STEEL LAYOUT AT BENT #2**

PROJECT NO. B-4280  
STOKES COUNTY  
 STATION: 19+10.00 -L-

SHEET 2 OF 3

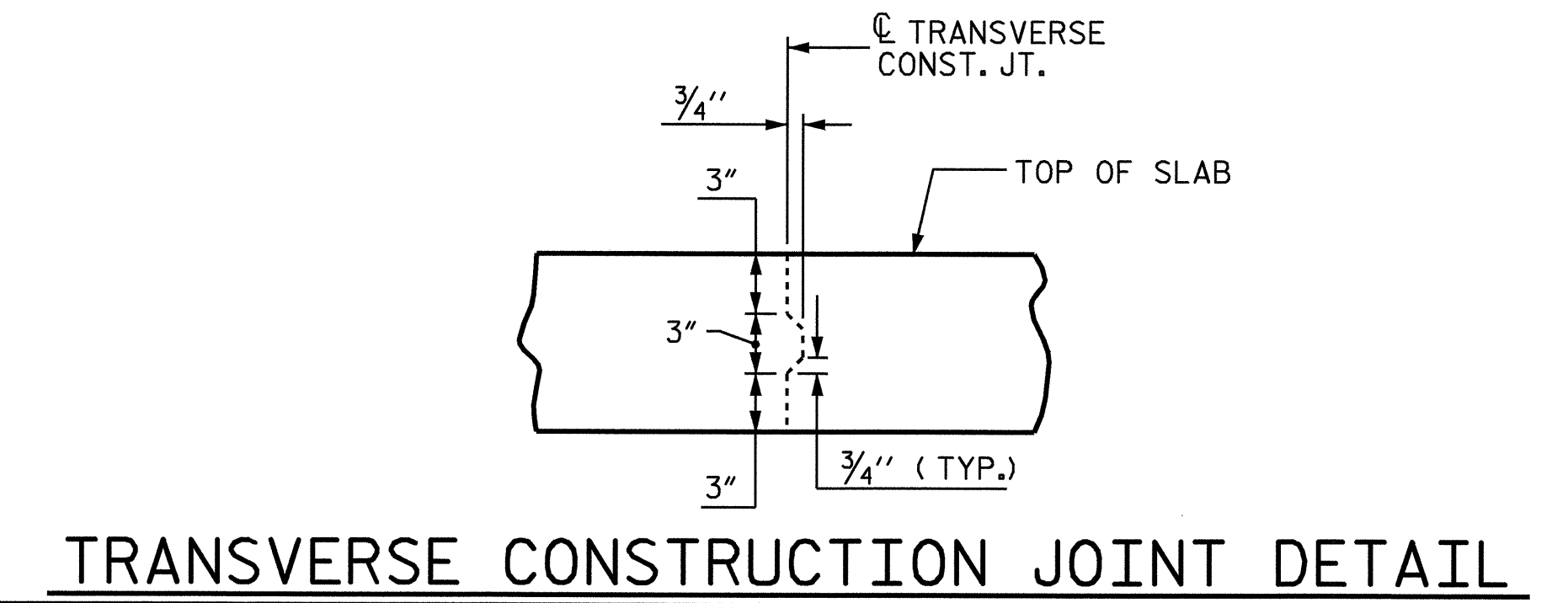
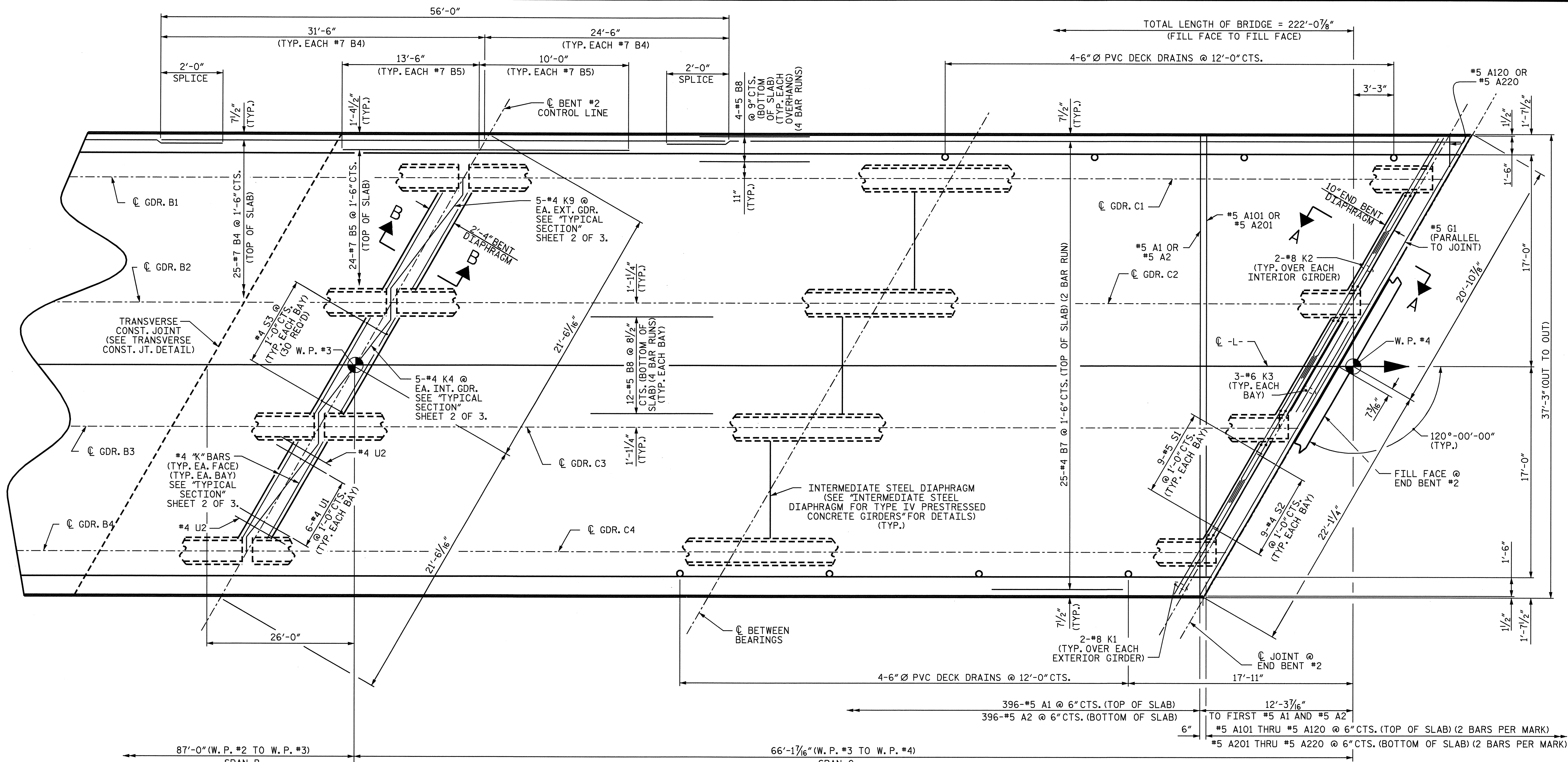
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

SUPERSTRUCTURE  
 PLAN OF SPAN B

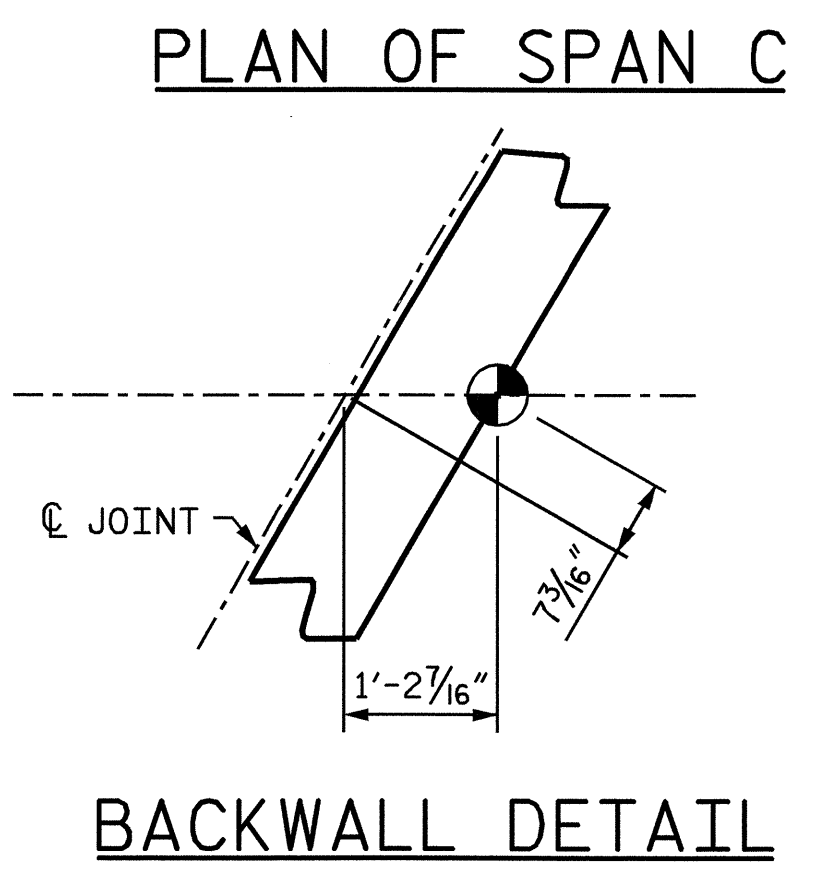


| REVISIONS |     |       |     |     |       | SHEET NO.    |  |
|-----------|-----|-------|-----|-----|-------|--------------|--|
| NO.       | BY: | DATE: | NO. | BY: | DATE: | S-8          |  |
| 1         |     |       | 3   |     |       | TOTAL SHEETS |  |
| 2         |     |       | 4   |     |       | 51           |  |

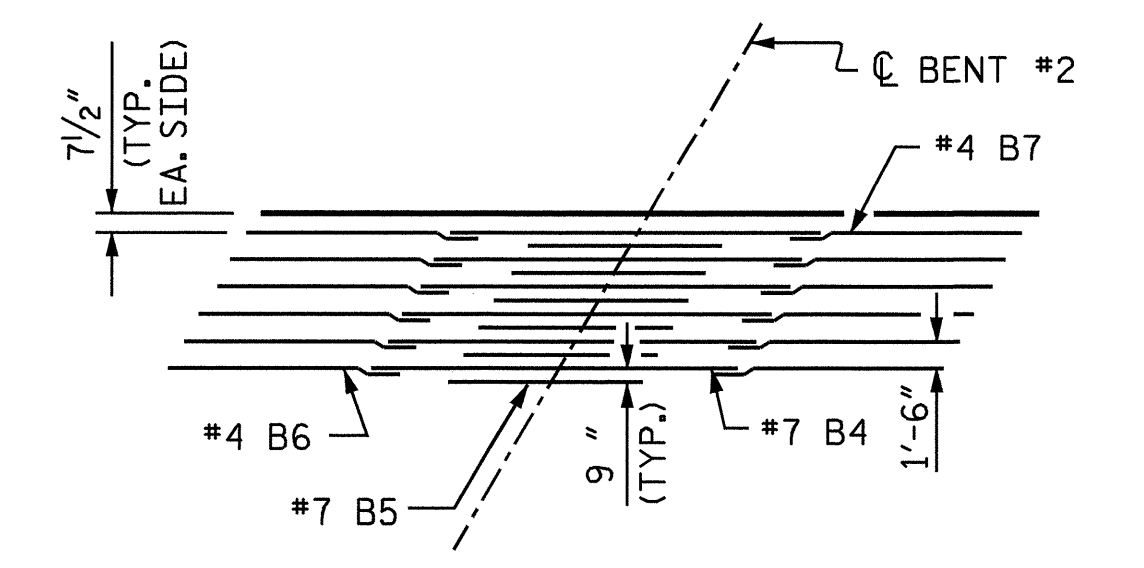
DRAWN BY: PEGGY ADKINS DATE: 6-04  
 CHECKED BY: I. L. AVERETTE DATE: 9-04



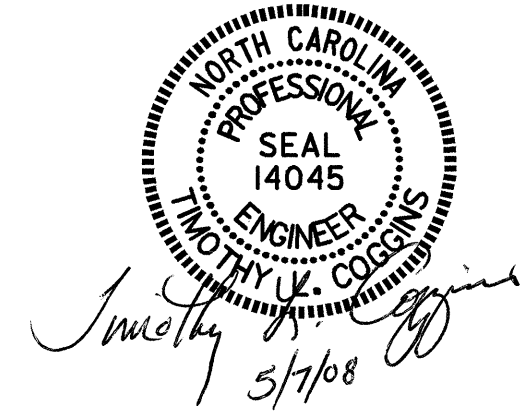
NOTE: REINFORCING STEEL IN SLAB NOT SHOWN. LONGITUDINAL REINFORCING STEEL SHALL BE CONTINUOUS THRU JOINT.



BACKWALL DETAIL



REINFORCING STEEL LAYOUT AT BENT #2

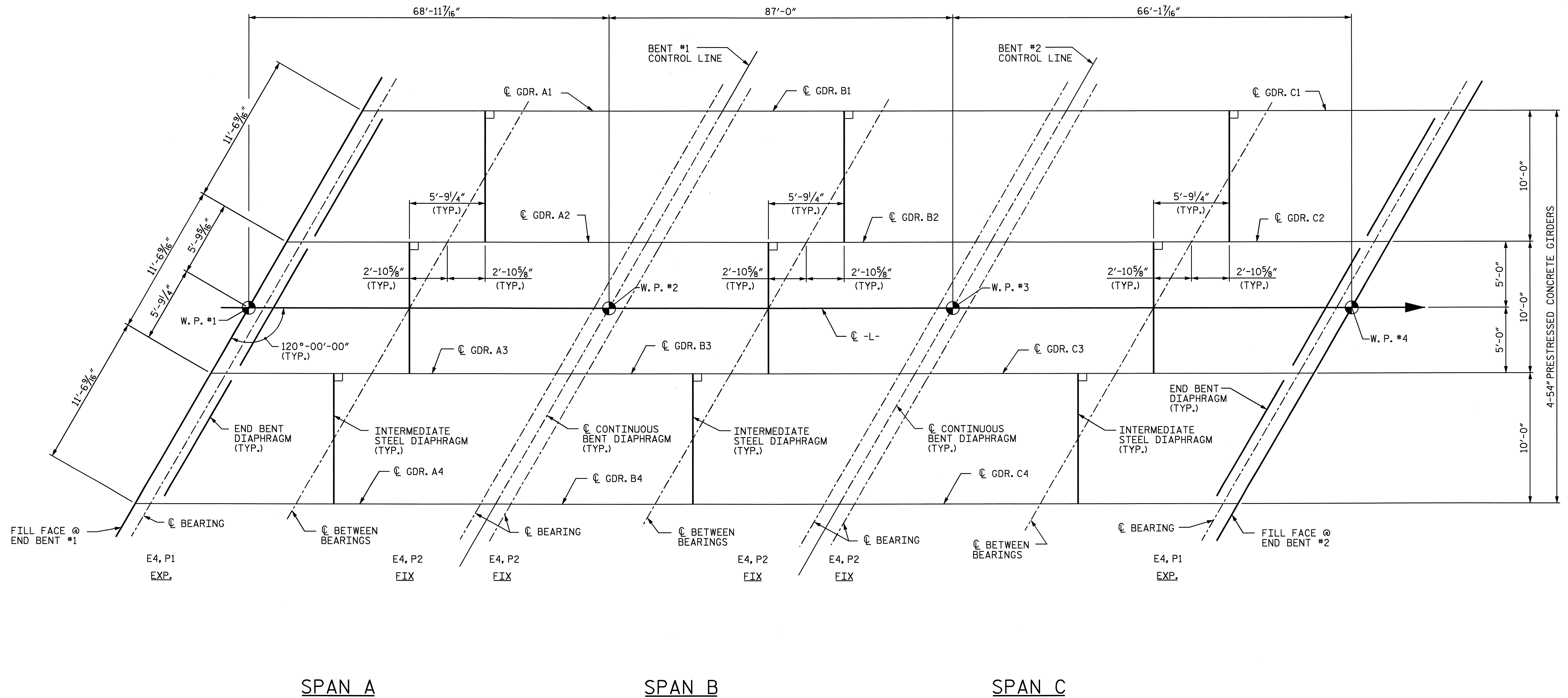


PROJECT NO. B-4280  
 STOKES COUNTY  
 STATION: 19+10.00 -L-  
 SHEET 3 OF 3

| REVISIONS |     |       |     |     |       | SHEET NO.    |  |
|-----------|-----|-------|-----|-----|-------|--------------|--|
| NO.       | BY: | DATE: | NO. | BY: | DATE: | S-9          |  |
| 1         |     |       | 3   |     |       | TOTAL SHEETS |  |
| 2         |     |       | 4   |     |       | 51           |  |

DRAWN BY : PEGGY ADKINS DATE : 6-04  
 CHECKED BY : J.L. AVERETTE DATE : 9-04

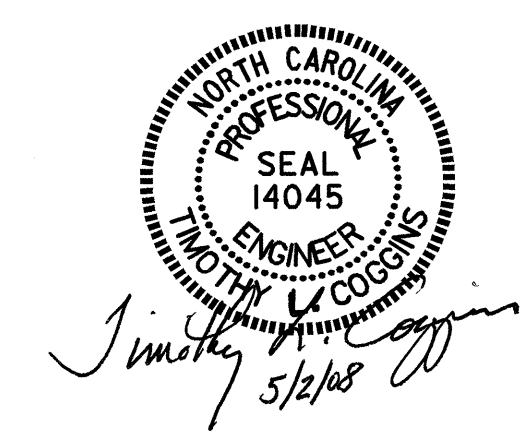




FRAMING PLAN

PROJECT NO. B-4280  
STOKES COUNTY  
 STATION: 19+10.00 -L-

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE  
 FRAMING PLAN

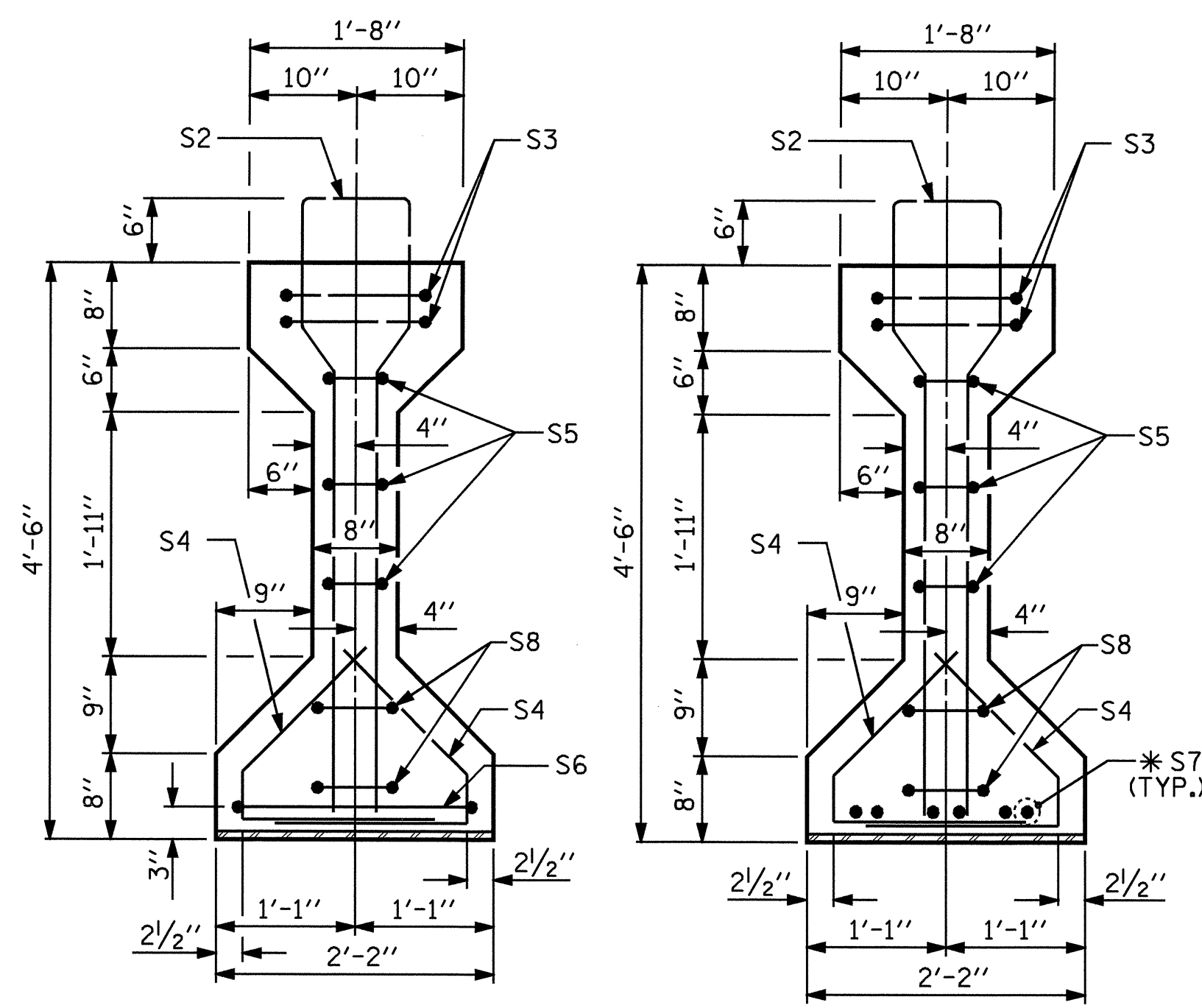


DRAWN BY : PEGGY ADKINS DATE : 6/04  
 CHECKED BY : T.L. AVERETTE DATE : 9-04

02-MAY-2008 13:16  
 V:\B4280\Structure\B4280\Str#\FINAL PLANS\B4280\_SD\_FP\_01.dwg

| REVISIONS |     |       |     |     |       | SHEET NO.    |
|-----------|-----|-------|-----|-----|-------|--------------|
| NO.       | BY: | DATE: | NO. | BY: | DATE: | S-10         |
| 1         |     |       | 3   |     |       | TOTAL SHEETS |
| 2         |     |       | 4   |     |       | 51           |

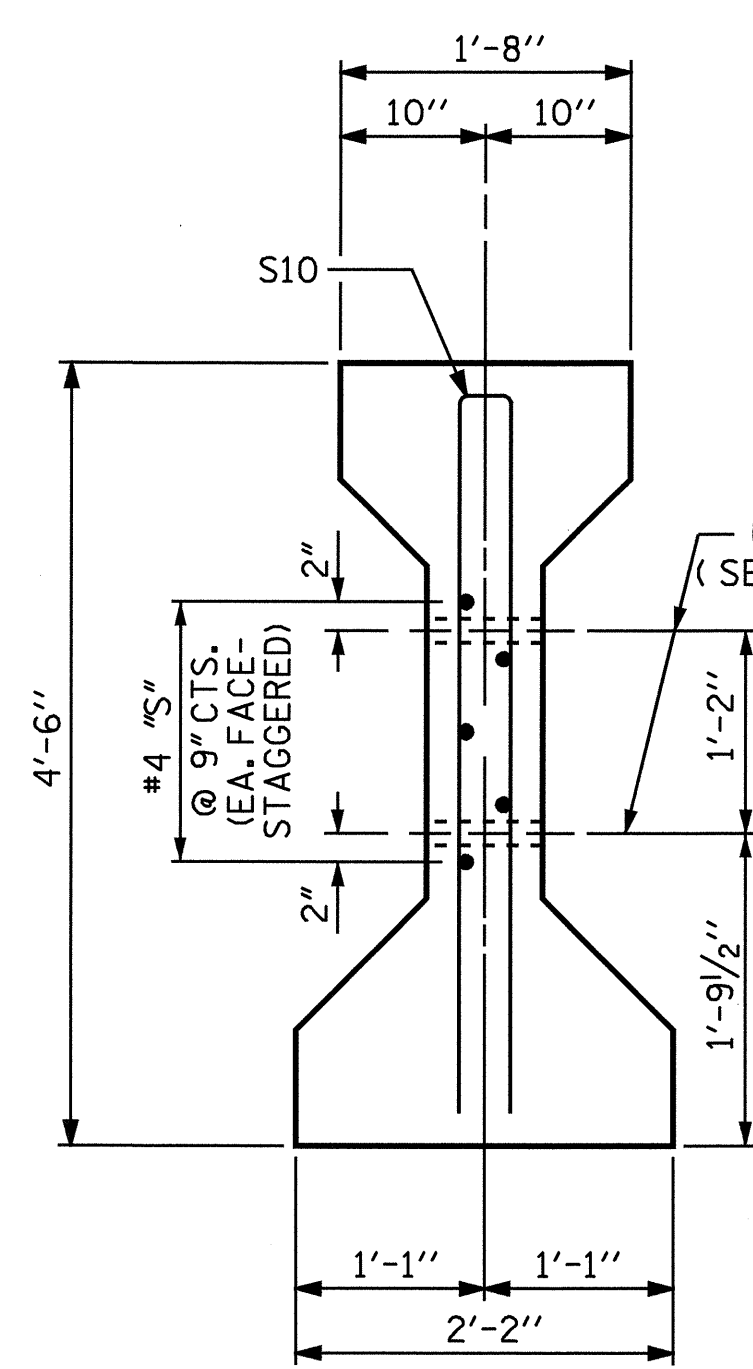
STR. #1



SECTION A-A

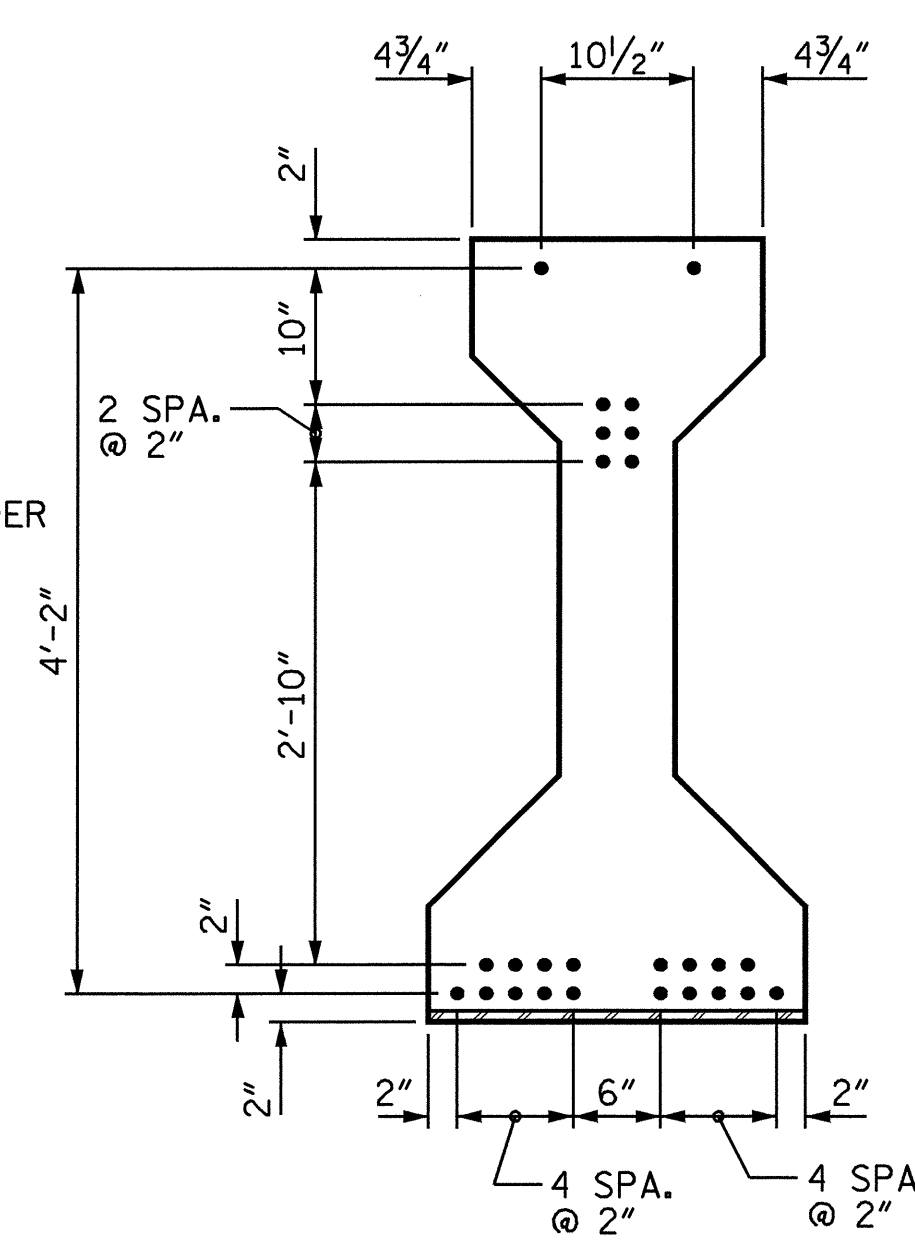
SECTION B-B

\* FOR S7 BARS, SEE  
DETAIL "A" OF  
PRESTRESSED  
CONCRETE GIRDER  
CONTINUOUS FOR LIVE  
LOAD DETAILS SHEET

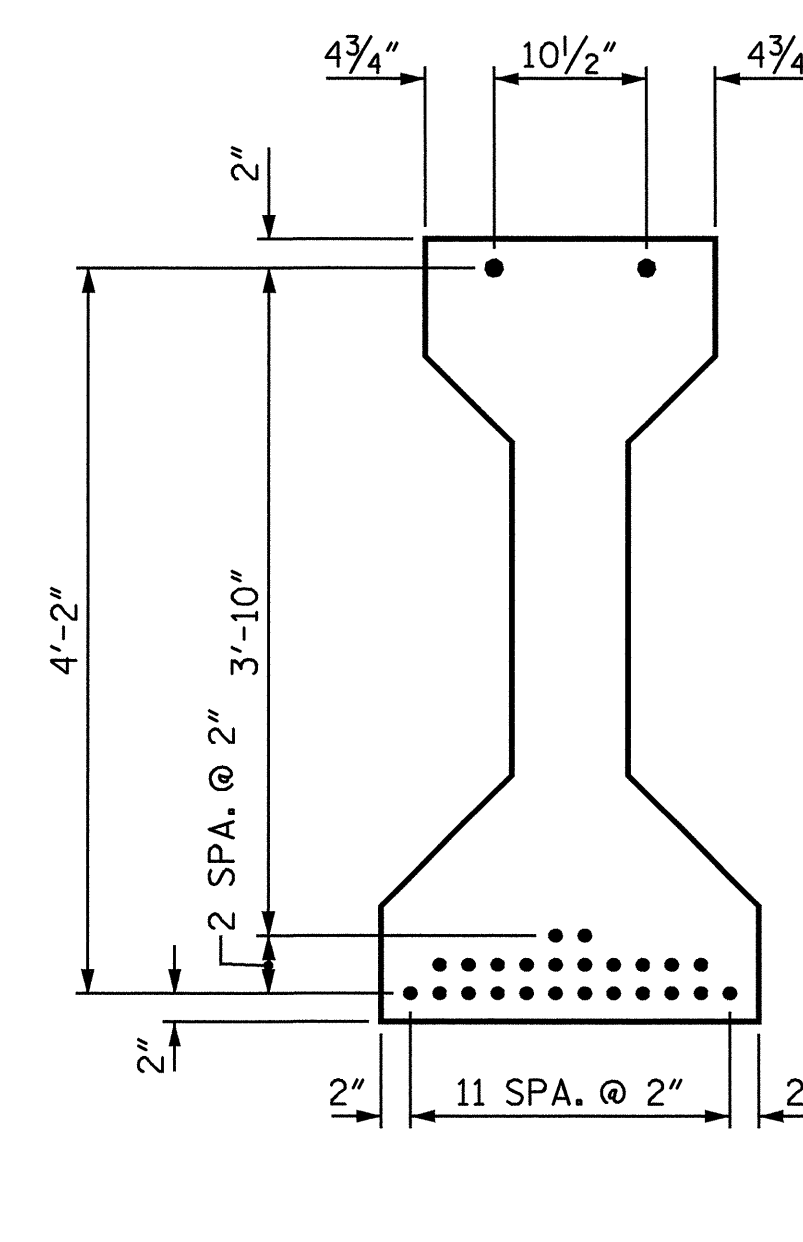


SECTION C-C

(S1 BARS NOT SHOWN)

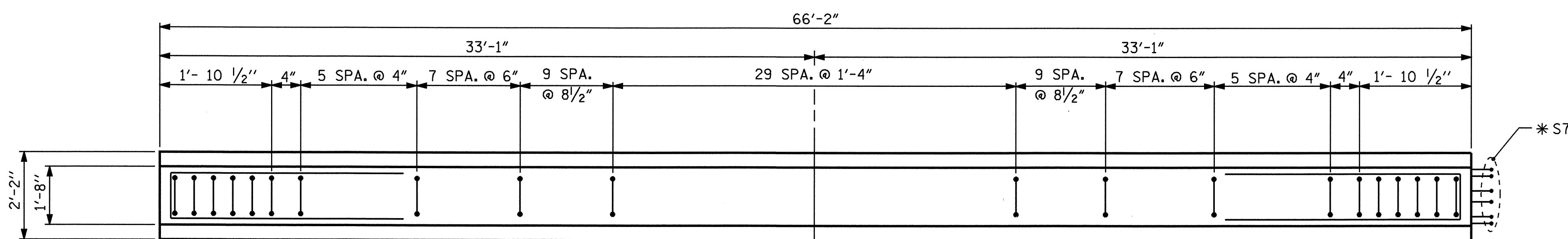


AT END OF GIRDER

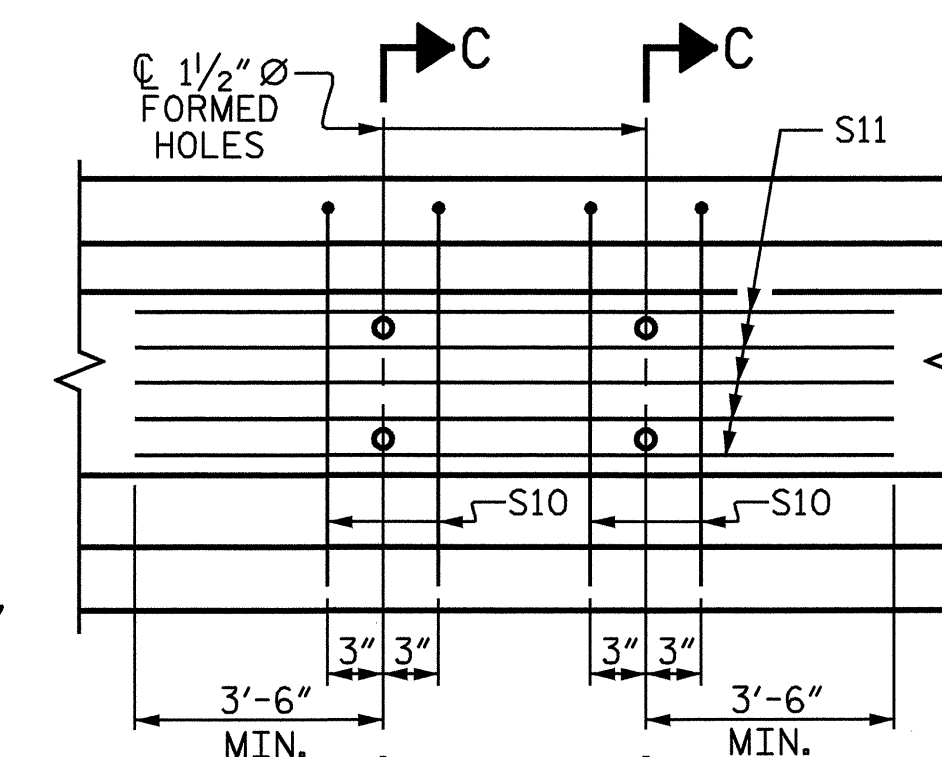


AT C OF GIRDER

1/2" Ø LOW RELAXATION STRAND LAYOUT

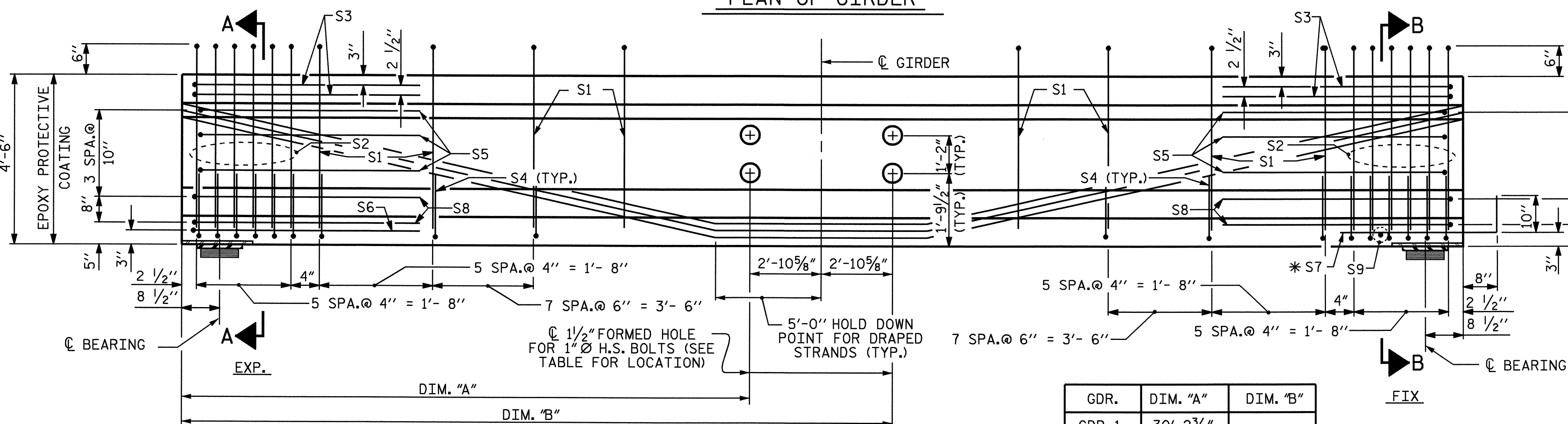


PLAN OF GIRDER



PARTIAL ELEVATION

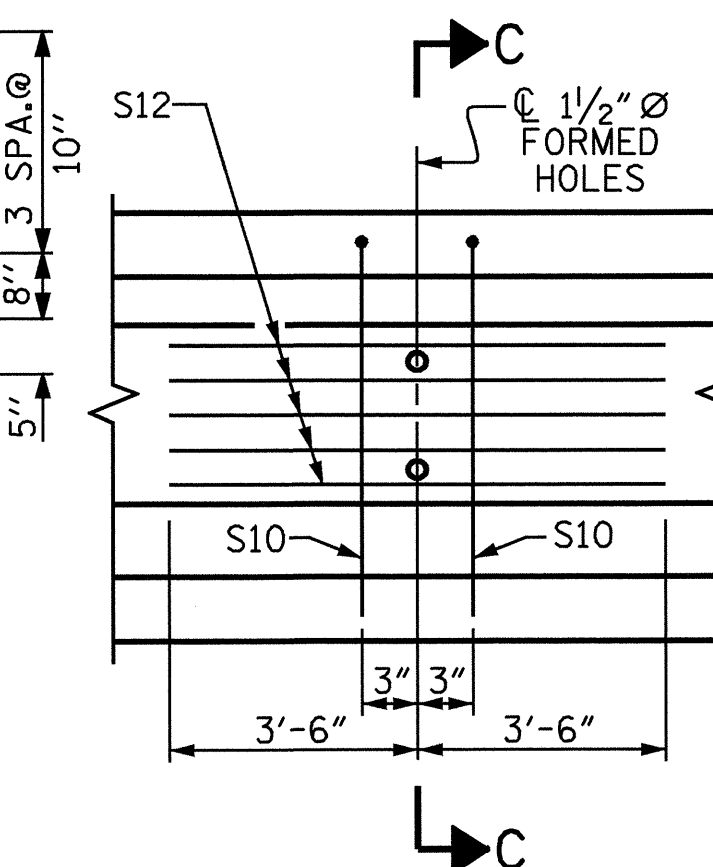
SHOWING INTERMEDIATE DIAPHRAGM  
REINFORCING STEEL FOR GIRDER Nos. A2 & A3



ELEVATION OF GIRDER

(SEE PARTIAL ELEVATION FOR ADDITIONAL "S" BARS)

| GDR.   | DIM. "A"   | DIM. "B"    |
|--------|------------|-------------|
| GDR. 1 | 30'-2 3/8" | —           |
| GDR. 2 | 30'-2 3/8" | 35'-11 5/8" |
| GDR. 3 | 30'-2 3/8" | 35'-11 5/8" |
| GDR. 4 | —          | 35'-11 5/8" |



PARTIAL ELEVATION

SHOWING INTERMEDIATE DIAPHRAGM  
REINFORCING STEEL FOR GIRDER Nos. A1 & A4

1/2" Ø L. R. GRADE 270 STRANDS

| AREA<br>(SQUARE INCHES) | ULTIMATE<br>STRENGTH<br>(LBS. PER STRAND) | APPLIED<br>PRESTRESS<br>(LBS. PER STRAND) |
|-------------------------|---|---|
| 0.153                   | 41,300                                    | 30,980                                    |

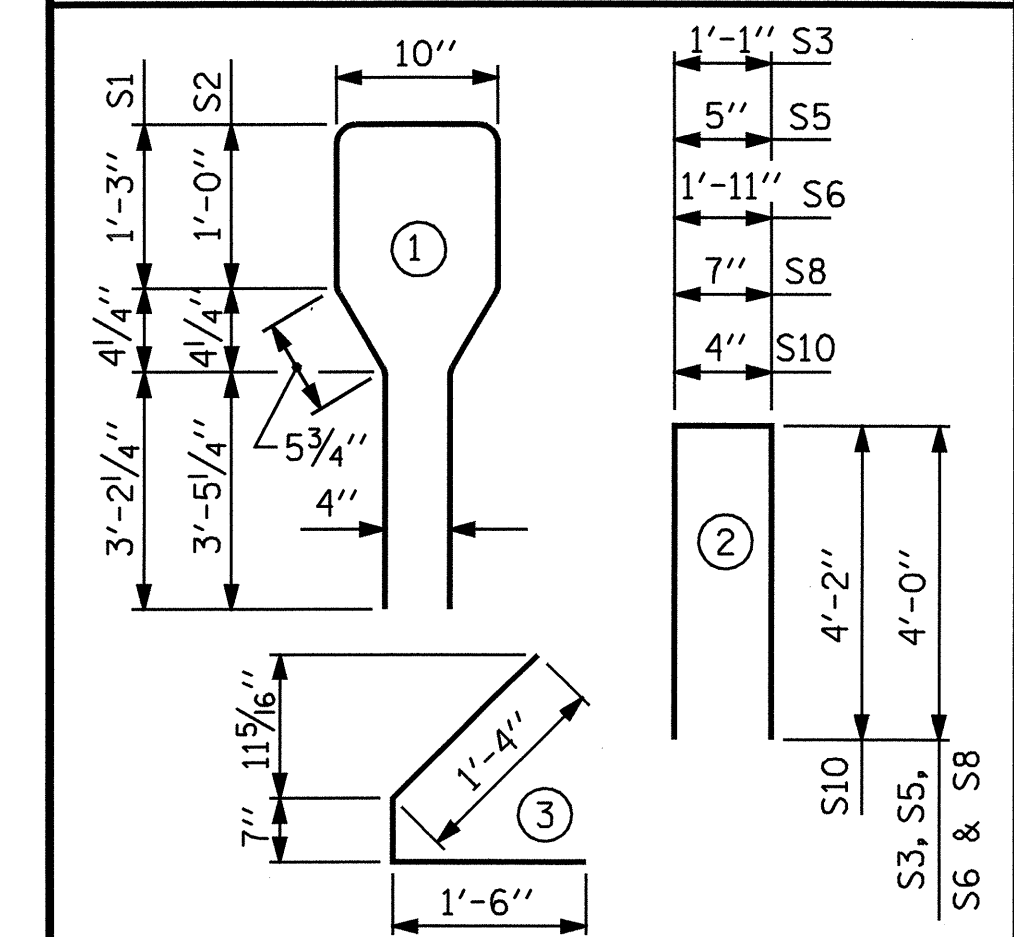
REINFORCING STEEL FOR ONE GIRDER

| BAR           | NUMBER | SIZE | TYPE | LENGTH | WEIGHT  |     |
|---------------|--------|------|------|--------|---------|-----|
| INTERIOR GDR. | S1     | 72   | #4   | 1      | 10'-8"  | 513 |
| EXTERIOR GDR. | S1     | 72   | #4   | 1      | 10'-8"  | 513 |
|               | S2     | 12   | #6   | 1      | 10'-8"  | 192 |
|               | S3     | 4    | #4   | 2      | 9'-1"   | 24  |
|               | S4     | 76   | #4   | 3      | 3'-5"   | 173 |
|               | S5     | 6    | #4   | 2      | 8'-5"   | 34  |
|               | S6     | 1    | #4   | 2      | 9'-11"  | 7   |
|               | * S7   | 6    | #5   | STR    | 3'-8"   | 23  |
|               | S8     | 4    | #4   | 2      | 8'-7"   | 23  |
| INTERIOR GDR. | S9     | 1    | #3   | STR    | 1'-10"  | 1   |
| EXTERIOR GDR. | S10    | 4    | #5   | 2      | 8'-8"   | 36  |
| INTERIOR GDR. | S10    | 2    | #5   | 2      | 8'-8"   | 18  |
| INTERIOR GDR. | S11    | 5    | #4   | STR    | 12'-10" | 43  |
| EXTERIOR GDR. | S12    | 5    | #4   | STR    | 7'-0"   | 23  |

\* NOTE: S7 BARS SHALL BE BENT BEFORE SHIPMENT. HEAT BENDING SHALL NOT BE ALLOWED.

BAR TYPES

ALL BAR DIMENSIONS ARE OUT-TO-OUT



QUANTITIES FOR ONE GIRDER

|                 | REINFORCING<br>STEEL<br>LB. | 5,000 PSI<br>CONCRETE<br>C.Y. | 1/2" Ø L.R.<br>STRANDS<br>No. |
|-----------------|-----------------------------|-------------------------------|-------------------------------|
| INTERIOR GIRDER | 1069                        | 13.4                          | 26                            |
| EXTERIOR GIRDER | 1031                        | 13.4                          | 26                            |

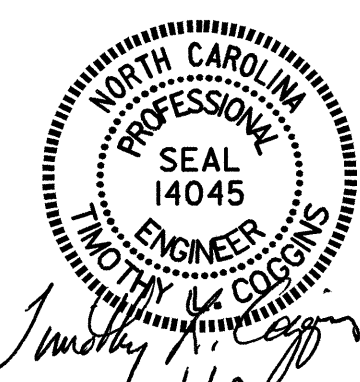
GIRDERS REQUIRED

| NUMBER | LENGTH | TOTAL LENGTH |
|--------|--------|--------------|
| 4      | 66'-2" | 264'-8"      |

PROJECT NO. B-4280  
STOKES COUNTY  
STATION: 19+10.00 -L-

SHEET 1 OF 4

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
STANDARD  
AASHTO TYPE IV  
PRESTRESSED CONCRETE GIRDER  
CONTINUOUS FOR LIVE LOAD  
SPAN A

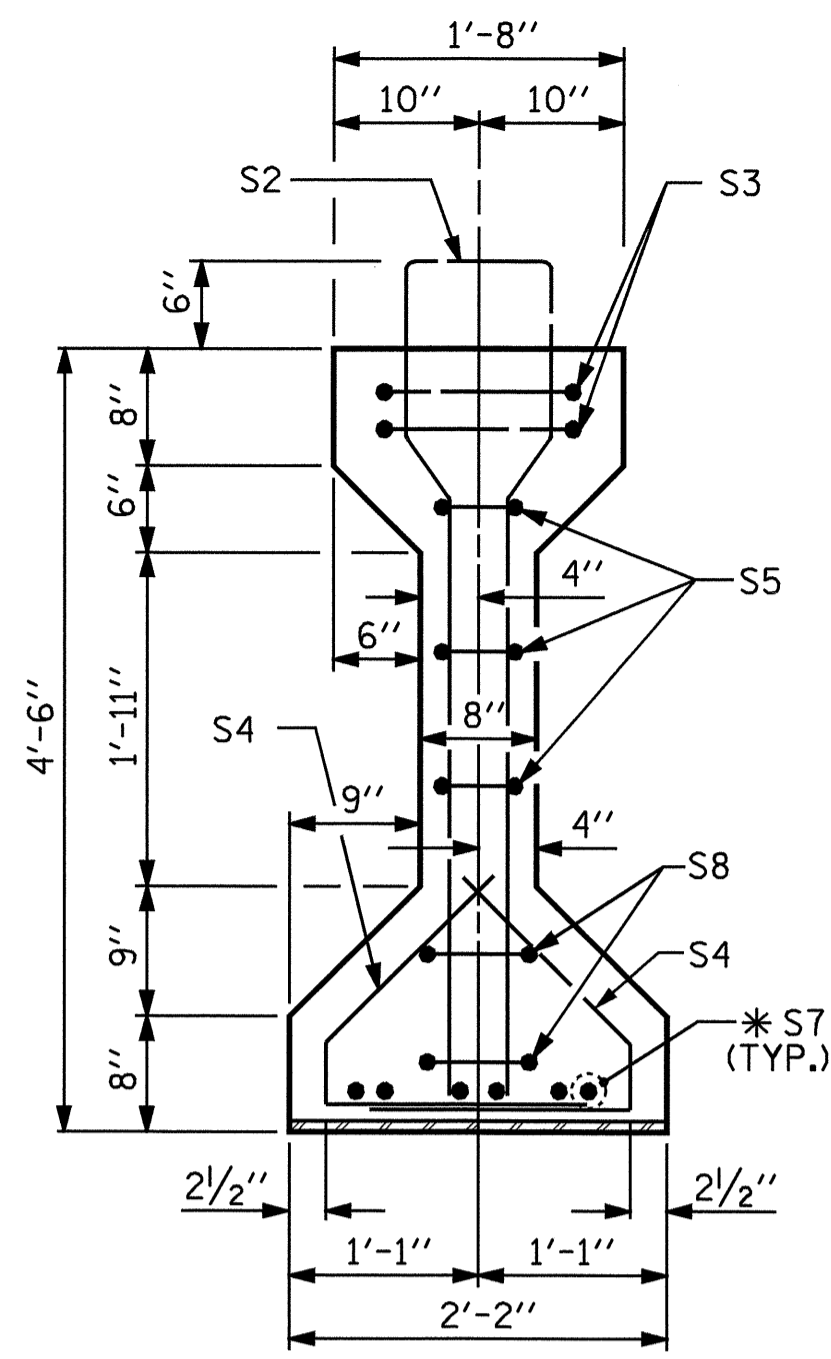


| REVISIONS |     |       |     |     |       | SHEET NO.       |
|-----------|-----|-------|-----|-----|-------|-----------------|
| NO.       | BY: | DATE: | NO. | BY: | DATE: | S-11            |
| 1         |     |       | 3   |     |       | TOTAL SHEETS 51 |
| 2         |     |       | 4   |     |       |                 |

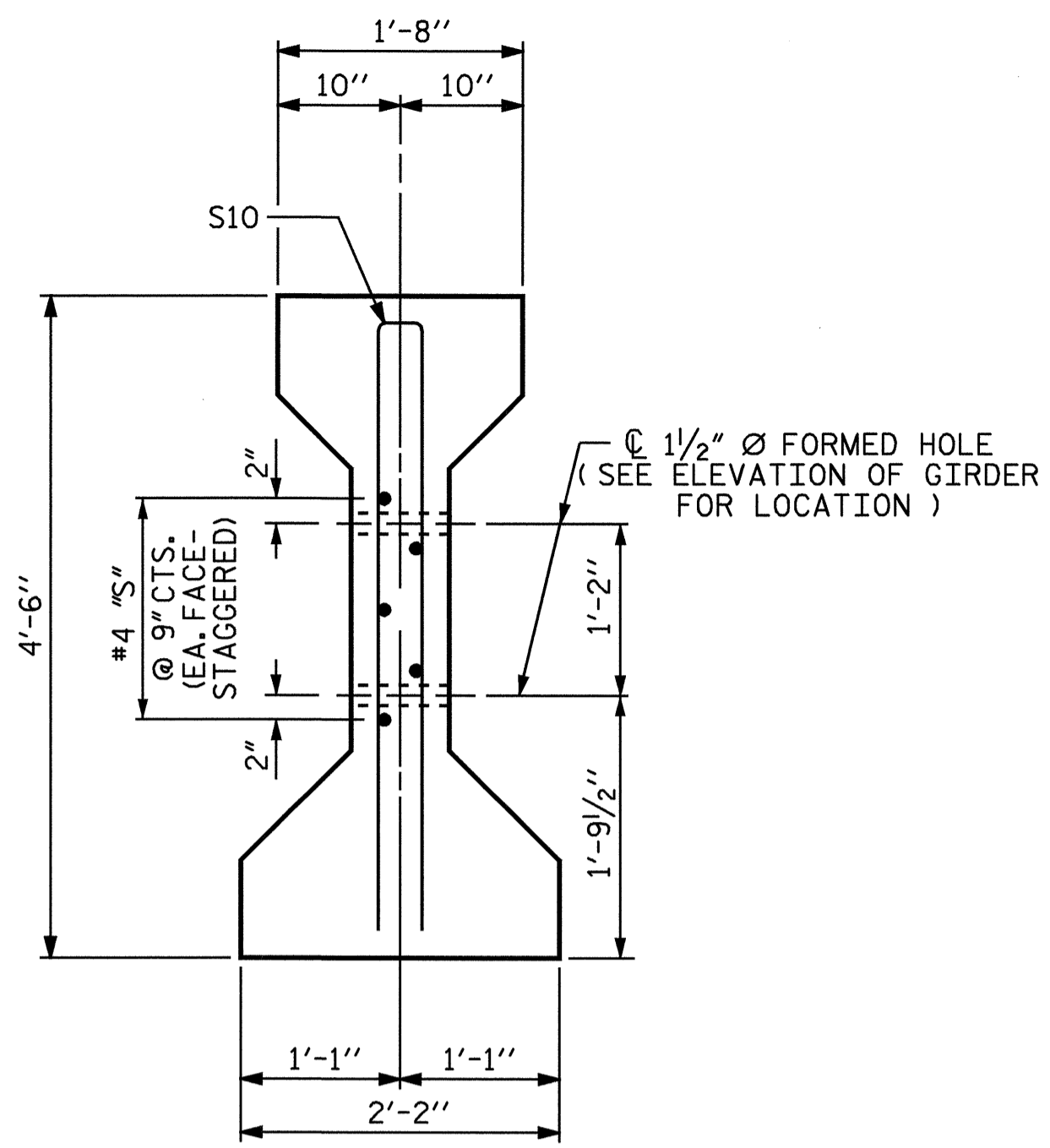
ASSEMBLED BY : PEGGY ADKINS DATE : 7-04  
CHECKED BY : T. L. AVERETTE DATE : 9-04  
DRAWN BY : ELR 8/91  
CHECKED BY : GRP 8/91

REV. 7/17/98 RWW/LES  
REV. 10/17/00R RWW/LES  
REV. 5/1/06 TLA/GM

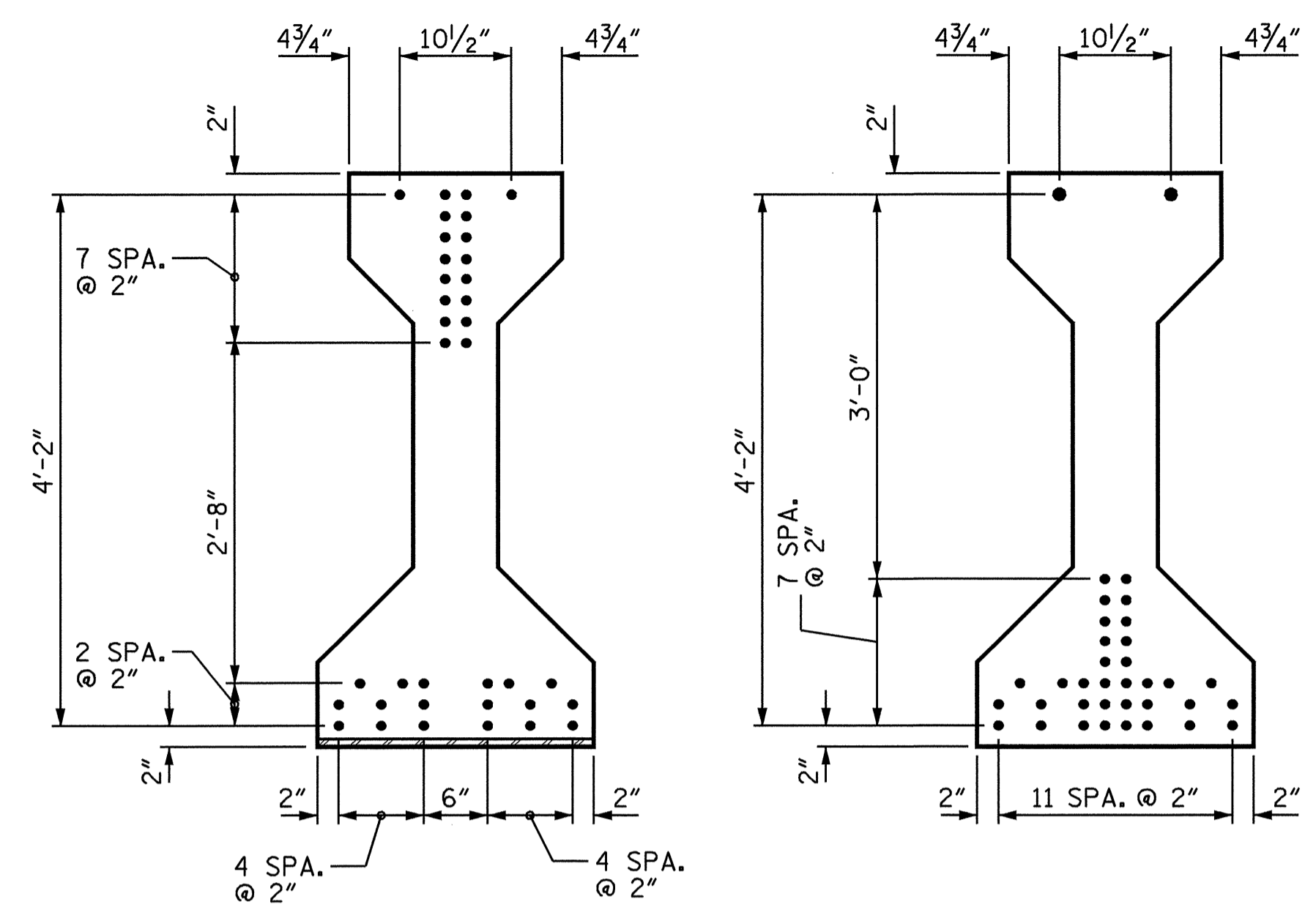




**SECTION B-B**  
 \* FOR S7 BARS, SEE  
 DETAIL "A" OF  
 PRESTRESSED  
 CONCRETE GIRDER  
 CONTINUOUS FOR LIVE  
 LOAD DETAILS SHEET



**SECTION C-C**  
 (S1 BARS NOT SHOWN)



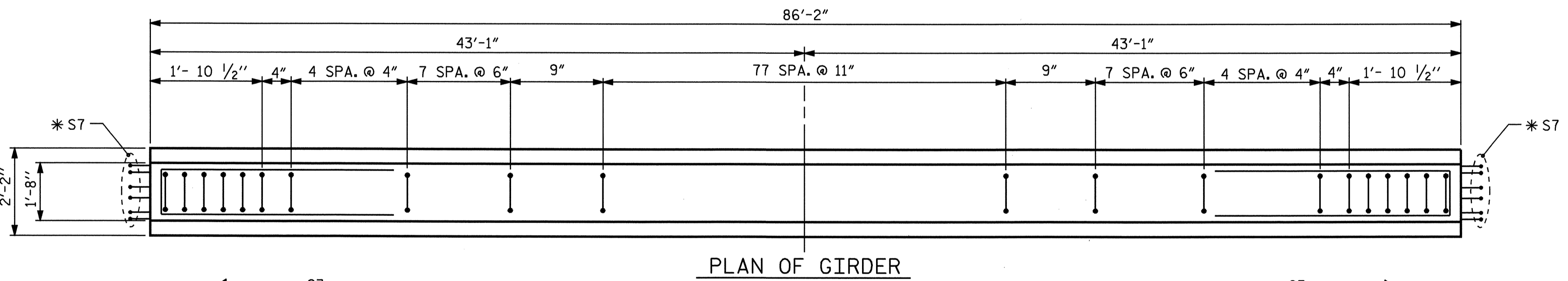
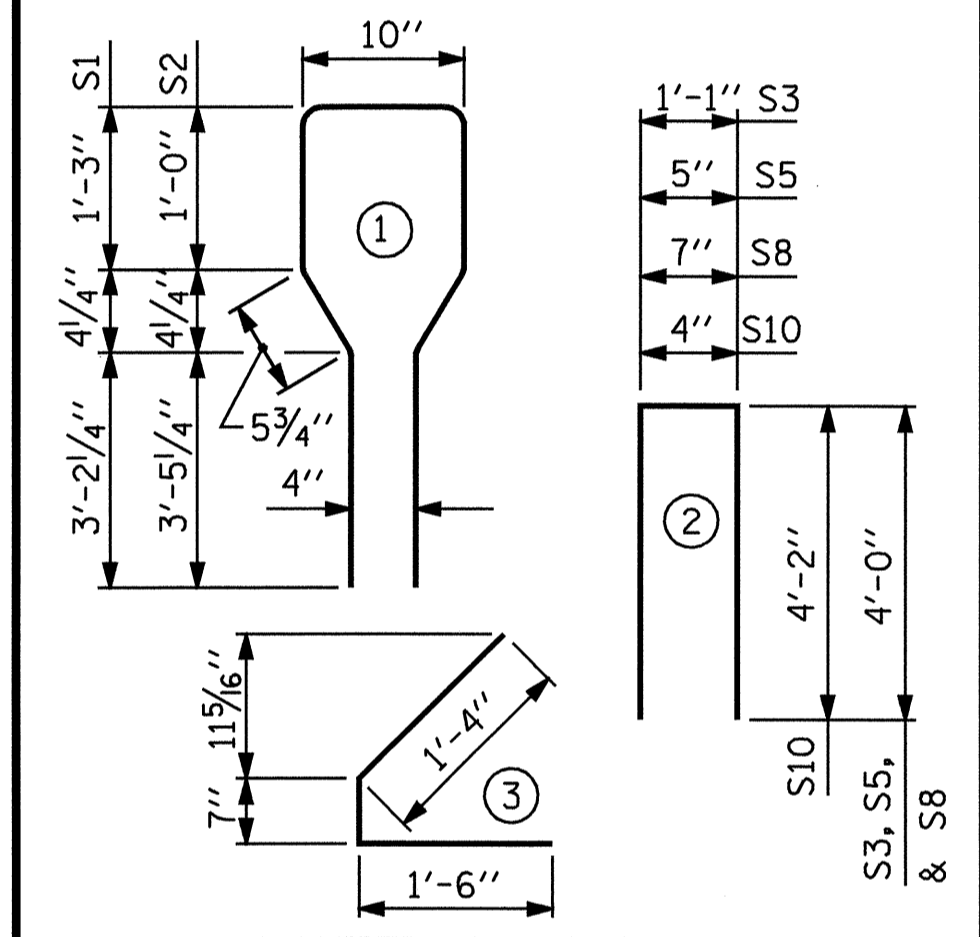
**AT END OF GIRDER**      **AT C OF GIRDER**  
 1/2" Ø LOW RELAXATION STRAND LAYOUT

| 1/2" Ø L. R. GRADE 270 STRANDS |   |   |
|--------------------------------|---|---|
| AREA<br>(SQUARE INCHES)        | ULTIMATE<br>STRENGTH<br>(LBS. PER STRAND) | APPLIED<br>PRESTRESS<br>(LBS. PER STRAND) |
| 0.153                          | 41,300                                    | 30,980                                    |

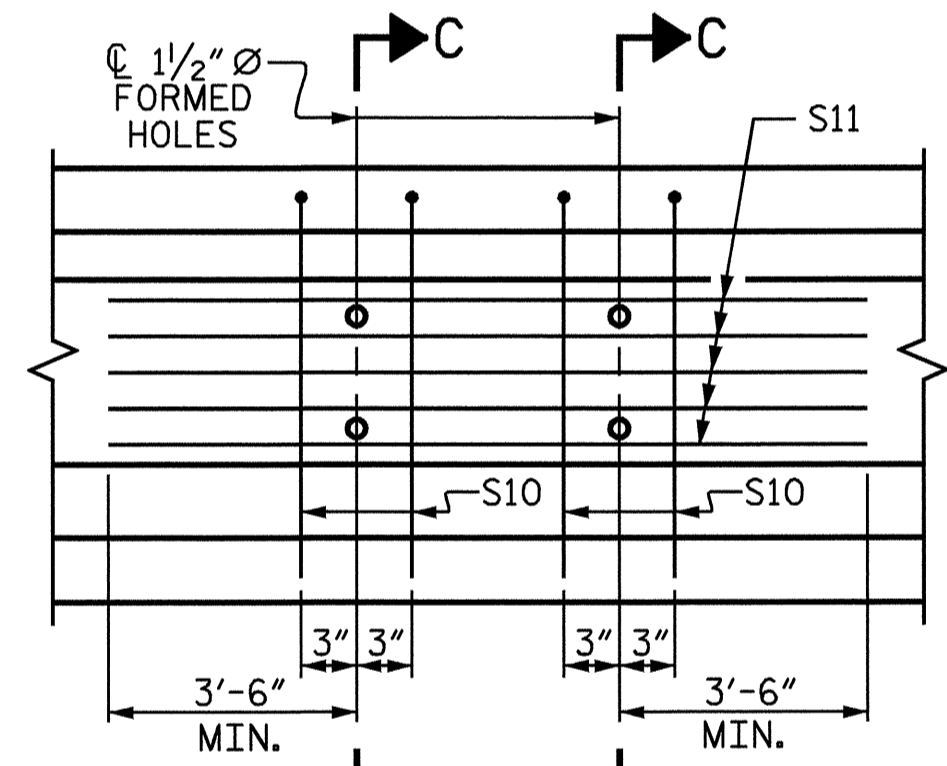
| REINFORCING STEEL FOR ONE GIRDER |        |      |      |        |         |     |
|----------------------------------|--------|------|------|--------|---------|-----|
| BAR                              | NUMBER | SIZE | TYPE | LENGTH | WEIGHT  |     |
| INTERIOR GDR.                    | S1     | 102  | #4   | 1      | 10'-8"  | 727 |
| EXTERIOR GDR.                    | S1     | 102  | #4   | 1      | 10'-8"  | 727 |
|                                  | S2     | 12   | #6   | 1      | 10'-8"  | 192 |
|                                  | S3     | 4    | #4   | 2      | 9'-1"   | 24  |
|                                  | S4     | 72   | #4   | 3      | 3'-5"   | 164 |
|                                  | S5     | 6    | #4   | 2      | 8'-5"   | 34  |
|                                  | * S7   | 12   | #5   | STR    | 3'-8"   | 46  |
|                                  | S8     | 4    | #4   | 2      | 8'-7"   | 23  |
| INTERIOR GDR.                    | S9     | 2    | #3   | STR    | 1'-10"  | 1   |
| EXTERIOR GDR.                    | S10    | 4    | #5   | 2      | 8'-8"   | 36  |
| INTERIOR GDR.                    | S10    | 2    | #5   | 2      | 8'-8"   | 18  |
| INTERIOR GDR.                    | S11    | 5    | #4   | STR    | 12'-10" | 43  |
| EXTERIOR GDR.                    | S12    | 5    | #4   | STR    | 7'-0"   | 23  |

\* NOTE: S7 BARS SHALL BE BENT BEFORE SHIPMENT. HEAT BENDING SHALL NOT BE ALLOWED.

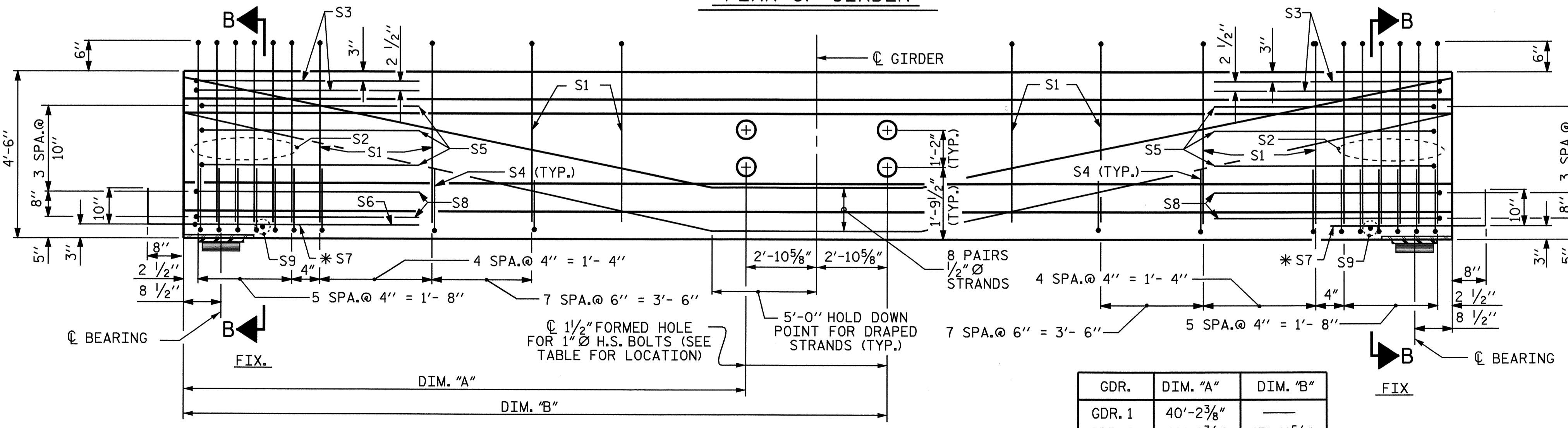
**BAR TYPES**  
 ALL BAR DIMENSIONS ARE OUT-TO-OUT



**PLAN OF GIRDER**

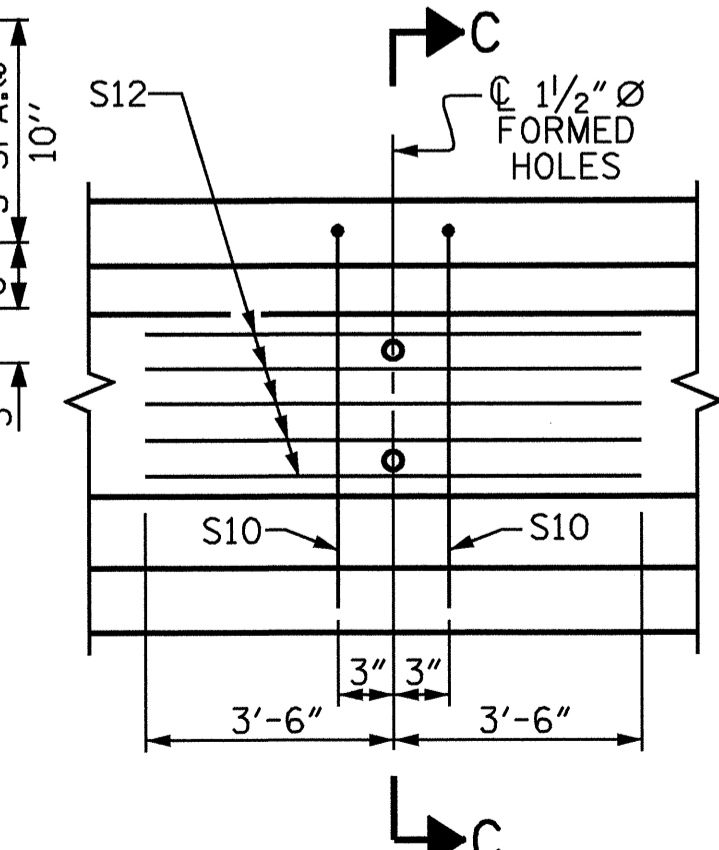


**PARTIAL ELEVATION**  
 SHOWING INTERMEDIATE DIAPHRAGM  
 REINFORCING STEEL FOR GIRDER Nos. B2 & B3



**ELEVATION OF GIRDER**  
 (SEE PARTIAL ELEVATION FOR ADDITIONAL "S" BARS)

| GDR.   | DIM. "A"   | DIM. "B"    |
|--------|------------|-------------|
| GDR. 1 | 40'-2 3/8" | —           |
| GDR. 2 | 40'-2 3/8" | 45'-11 5/8" |
| GDR. 3 | 40'-2 3/8" | 45'-11 5/8" |
| GDR. 4 | —          | 45'-11 5/8" |



**PARTIAL ELEVATION**  
 SHOWING INTERMEDIATE DIAPHRAGM  
 REINFORCING STEEL FOR GIRDER Nos. B1 & B4

|                 | REINFORCING STEEL |      | 6,500 PSI CONCRETE | 1/2" Ø L.R. STRANDS |
|-----------------|-------------------|------|--------------------|---------------------|
|                 | LB.               | C.Y. |                    | No.                 |
| INTERIOR GIRDER | 1290              | 17.5 |                    | 36                  |
| EXTERIOR GIRDER | 1252              | 17.5 |                    | 36                  |

| GIRDERS REQUIRED |        |              |
|------------------|--------|--------------|
| NUMBER           | LENGTH | TOTAL LENGTH |
| 4                | 86'-2" | 344'-8"      |

PROJECT NO. **B-4280**  
 STOKES COUNTY  
 STATION: **19+10.00 -L-**

SHEET 2 OF 4

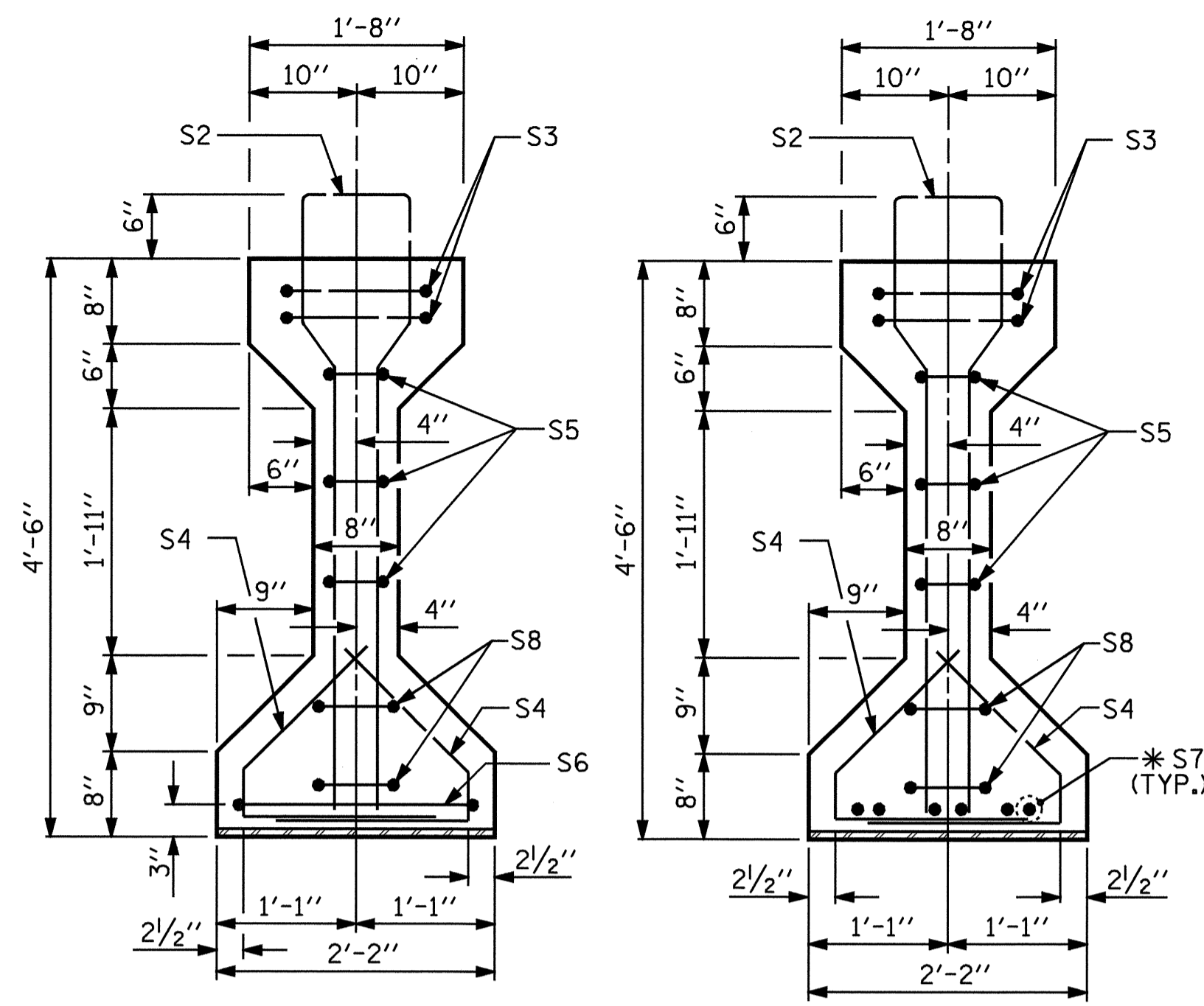
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

STANDARD  
 AASHTO TYPE IV  
 PRESTRESSED CONCRETE GIRDER  
 CONTINUOUS FOR LIVE LOAD  
 SPAN B

| REVISIONS |     |       |     |     |       |
|-----------|-----|-------|-----|-----|-------|
| NO.       | BY: | DATE: | NO. | BY: | DATE: |
| 1         |     |       | 3   |     |       |
| 2         |     |       | 4   |     |       |

SHEET NO. S-12  
 TOTAL SHEETS 51

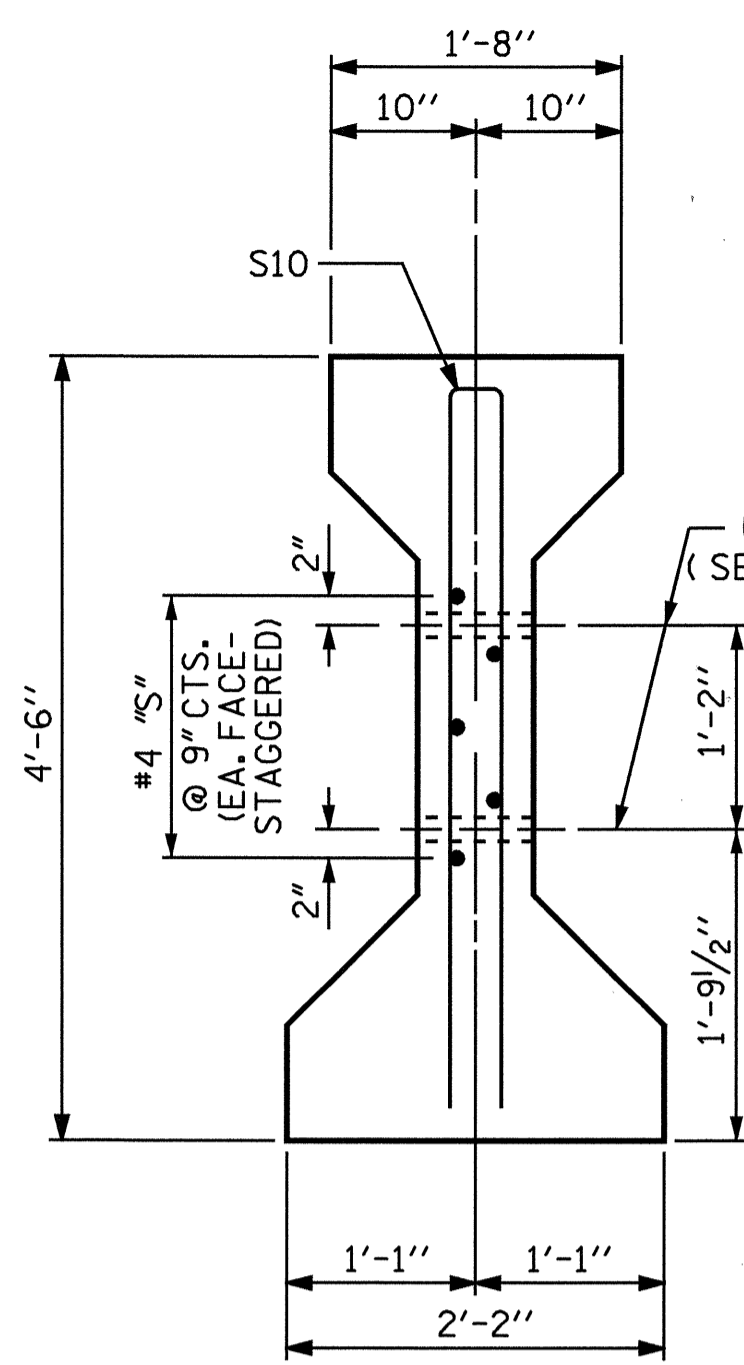
ASSEMBLED BY: PEGGY ADKINS DATE: 7-04  
 CHECKED BY: T. L. AVERETTE DATE: 9-04  
 DRAWN BY: ELR 8/91 REV. 7/17/98 RWW/LES  
 CHECKED BY: GRP 8/91 REV. 10/17/00R RWW/LES  
 REV. 5/1/06 TLA/GM



SECTION A-A

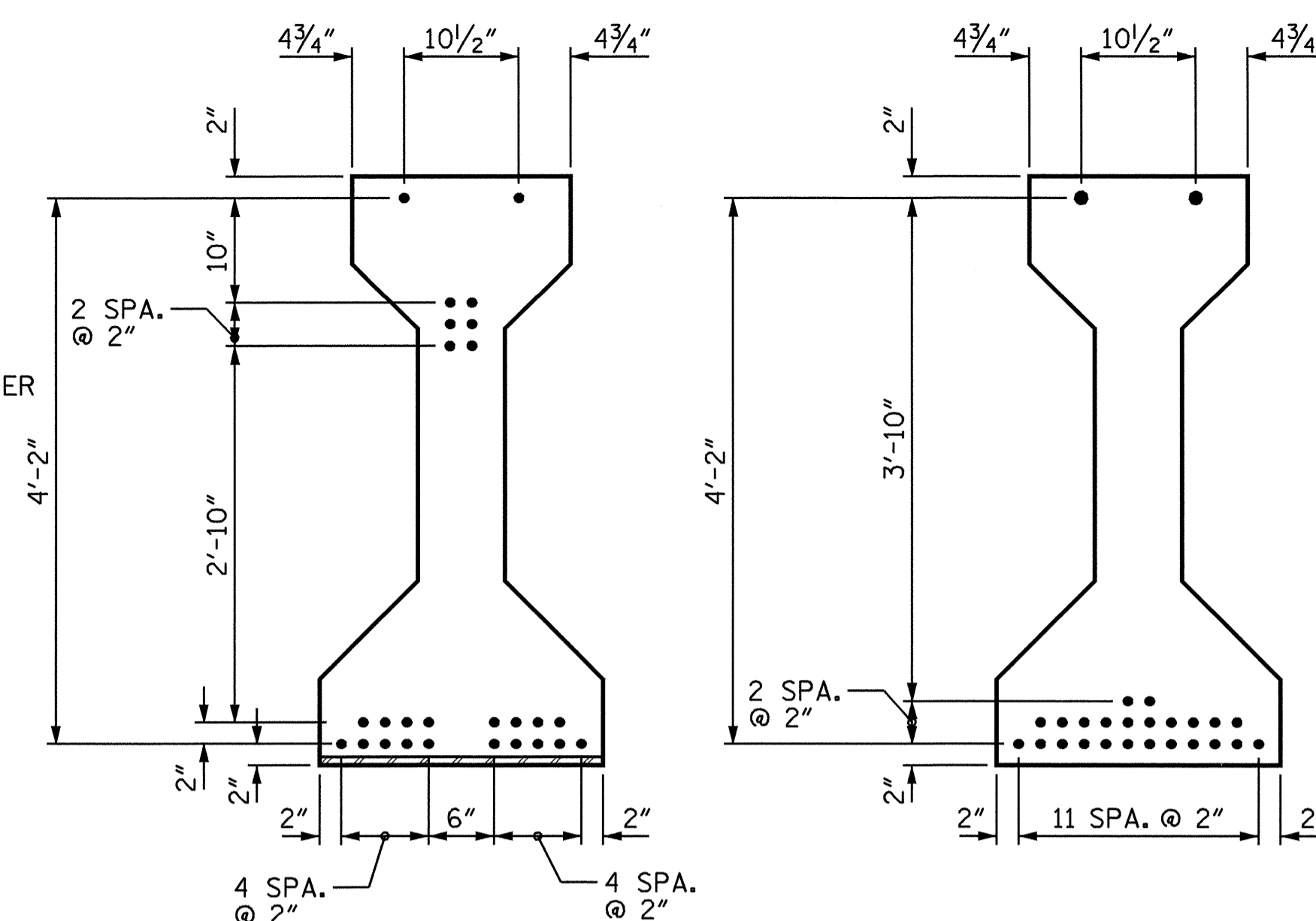
SECTION B-B

\* FOR S7 BARS, SEE  
DETAIL "A" OF  
PRESTRESSED  
CONCRETE GIRDER  
CONTINUOUS FOR LIVE  
LOAD DETAILS SHEET



SECTION C-C

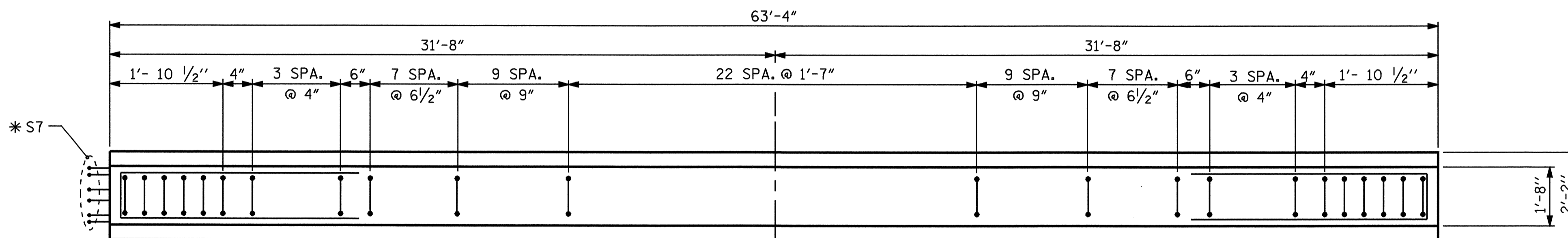
(S1 BARS NOT SHOWN)



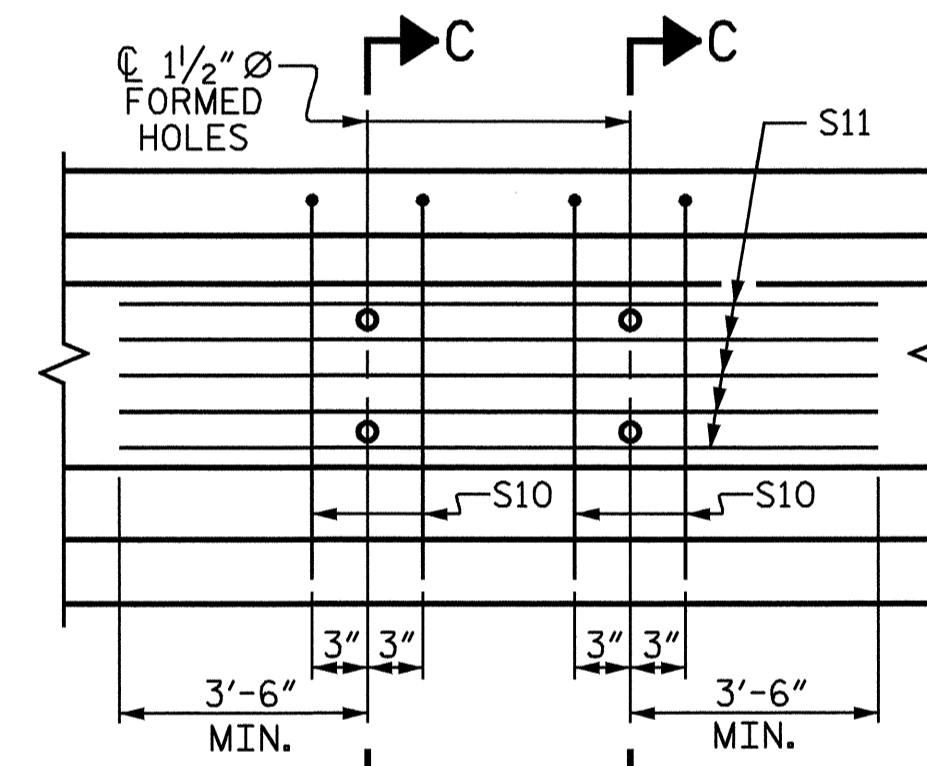
AT END OF GIRDER

AT C OF GIRDER

1/2" Ø LOW RELAXATION STRAND LAYOUT

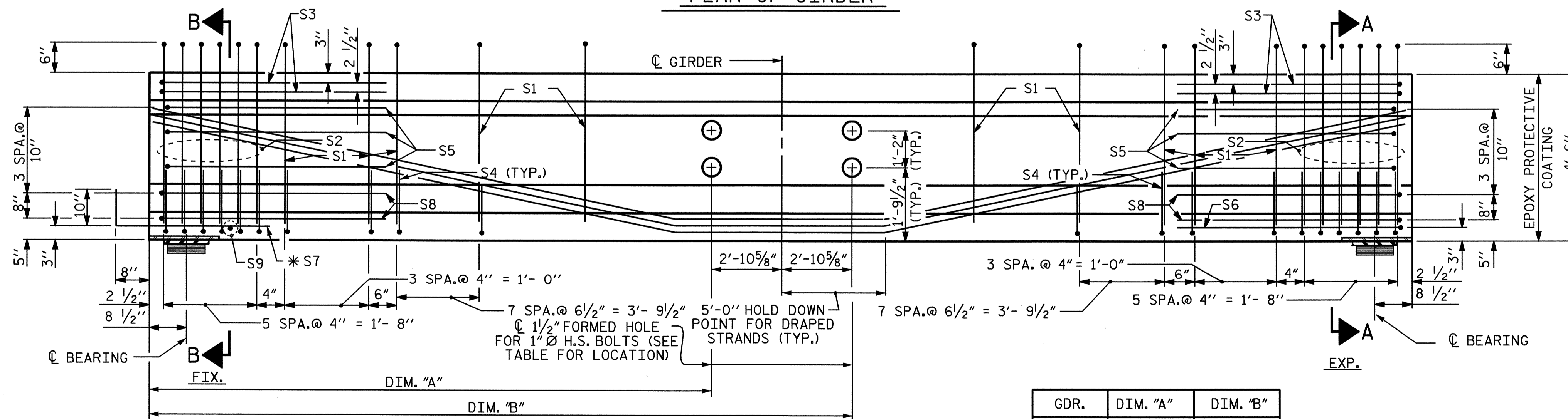


PLAN OF GIRDER



PARTIAL ELEVATION

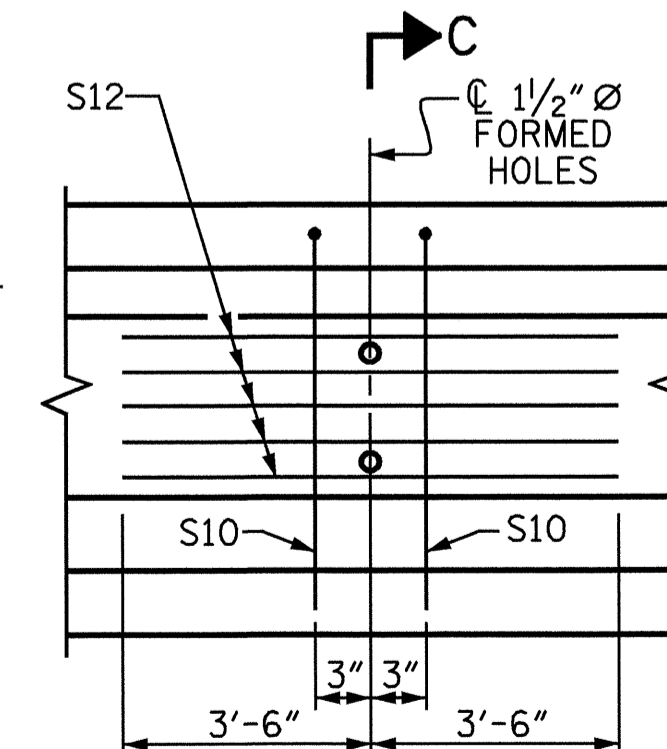
SHOWING INTERMEDIATE DIAPHRAGM  
REINFORCING STEEL FOR GIRDER Nos. C2 & C3



ELEVATION OF GIRDER

(SEE PARTIAL ELEVATION FOR ADDITIONAL "S" BARS)

| GDR.   | DIM. "A"   | DIM. "B"   |
|--------|------------|------------|
| GDR. 1 | 28'-9 3/8" | —          |
| GDR. 2 | 28'-9 3/8" | 34'-6 5/8" |
| GDR. 3 | 28'-9 3/8" | 34'-6 5/8" |
| GDR. 4 | —          | 34'-6 5/8" |



PARTIAL ELEVATION

SHOWING INTERMEDIATE DIAPHRAGM  
REINFORCING STEEL FOR GIRDER Nos. C1 & C4

1/2" Ø L. R. GRADE 270 STRANDS

| AREA<br>(SQUARE INCHES) | ULTIMATE<br>STRENGTH<br>(LBS. PER STRAND) | APPLIED<br>PRESTRESS<br>(LBS. PER STRAND) |
|-------------------------|---|---|
| 0.153                   | 41,300                                    | 30,980                                    |

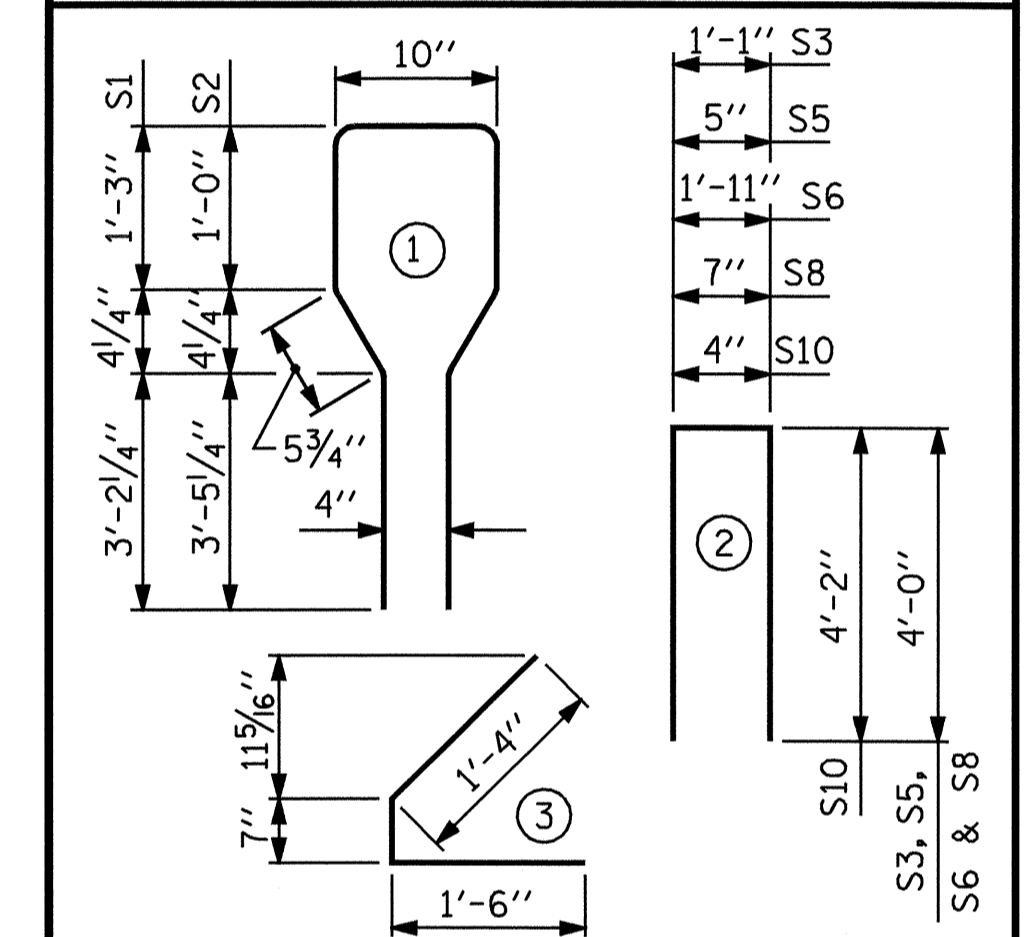
REINFORCING STEEL FOR ONE GIRDER

| BAR           | NUMBER | SIZE | TYPE | LENGTH | WEIGHT  |     |
|---------------|--------|------|------|--------|---------|-----|
| INTERIOR GDR. | S1     | 63   | #4   | 1      | 10'-8"  | 449 |
| EXTERIOR GDR. | S1     | 63   | #4   | 1      | 10'-8"  | 449 |
|               | S2     | 12   | #6   | 1      | 10'-8"  | 192 |
|               | S3     | 4    | #4   | 2      | 9'-1"   | 24  |
|               | S4     | 72   | #4   | 3      | 3'-5"   | 164 |
|               | S5     | 6    | #4   | 2      | 8'-5"   | 34  |
|               | S6     | 1    | #4   | 2      | 9'-11"  | 7   |
|               | *S7    | 6    | #5   | STR    | 3'-8"   | 23  |
|               | S8     | 4    | #4   | 2      | 8'-7"   | 23  |
|               | S9     | 1    | #3   | STR    | 1'-10"  | 1   |
| INTERIOR GDR. | S10    | 4    | #5   | 2      | 8'-8"   | 36  |
| EXTERIOR GDR. | S10    | 2    | #5   | 2      | 8'-8"   | 18  |
| INTERIOR GDR. | S11    | 5    | #4   | STR    | 12'-10" | 43  |
| EXTERIOR GDR. | S12    | 5    | #4   | STR    | 7'-0"   | 23  |

\* NOTE: S7 BARS SHALL BE BENT BEFORE SHIPMENT. HEAT BENDING SHALL NOT BE ALLOWED.

BAR TYPES

ALL BAR DIMENSIONS ARE OUT-TO-OUT



QUANTITIES FOR ONE GIRDER

|                 | REINFORCING<br>STEEL<br>LB. | 5,000 PSI<br>CONCRETE<br>C.Y. | 1/2" Ø L.R.<br>STRANDS<br>No. |
|-----------------|-----------------------------|-------------------------------|-------------------------------|
| INTERIOR GIRDER | 996                         | 12.9                          | 26                            |
| EXTERIOR GIRDER | 958                         | 12.9                          | 26                            |

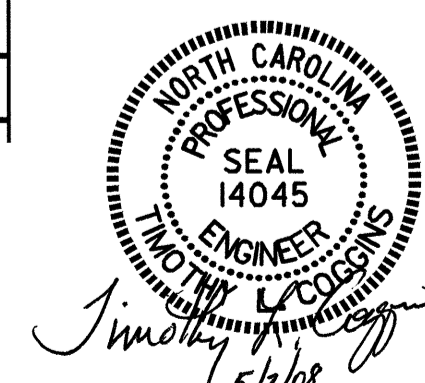
GIRDERS REQUIRED

| NUMBER | LENGTH | TOTAL LENGTH |
|--------|--------|--------------|
| 4      | 63'-4" | 253'-4"      |

PROJECT NO. B-4280  
STOKES COUNTY  
STATION: 19+10.00 -L-

SHEET 3 OF 4

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
STANDARD  
AASHTO TYPE IV  
PRESTRESSED CONCRETE GIRDER  
CONTINUOUS FOR LIVE LOAD  
SPAN C



| REVISIONS |     |       |     |     |       | SHEET NO.       |
|-----------|-----|-------|-----|-----|-------|-----------------|
| NO.       | BY: | DATE: | NO. | BY: | DATE: | S-13            |
| 1         |     |       | 3   |     |       | TOTAL SHEETS 51 |
| 2         |     |       | 4   |     |       |                 |

ASSEMBLED BY : PEGGY ADKINS DATE : 7-04  
CHECKED BY : T. L. AVERETTE DATE : 9-04  
DRAWN BY : ELR 8/91  
CHECKED BY : GRP 8/91  
REV. 7/17/98 RWW/LES  
REV. 10/17/00R RWW/LES  
REV. 5/1/06 TLA/GM



NOTES

ALL PRESTRESSING STRANDS SHALL BE 7-WIRE LOW-RELAXATION GRADE 270 STRANDS AND SHALL CONFORM TO AASHTO M203 EXCEPT FOR SAMPLING REQUIREMENTS WHICH SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

ALL REINFORCING STEEL SHALL BE GRADE 60.

APPLY EPOXY PROTECTIVE COATING TO END OF GIRDER SURFACES INDICATED IN ELEVATION VIEW.

EMBEDDED PLATE "B-1" SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. BEVEL EDGES OF PLATE "B-1" TO GIVE CLOSE FIT BUT NOT TIGHT FIT TO STEEL CASTING FORM.

ANCHOR STUDS SHALL CONFORM TO AASHTO M169 GRADES 1010 THROUGH 1020 OR APPROVED EQUIVALENTS. BEVEL EDGES OF PLATE "B-1" TO GIVE CLOSE FIT BUT NOT TIGHT FIT TO STEEL CASTING FORM.

AT ENDS OF GIRDERS TO BE EMBEDDED IN CONCRETE DIAPHRAGMS OR END WALLS, PRESTRESSING STRANDS MAY EXTEND A MAXIMUM OF 2" BEYOND THE GIRDER ENDS. OTHERWISE, PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE GIRDER ENDS.

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE GIRDER SHALL BE DONE WHEN CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 4000 PSI FOR SPAN A/SPAN C GIRDERS AND NOT LESS THAN 5300 PSI FOR SPAN B GIRDERS.

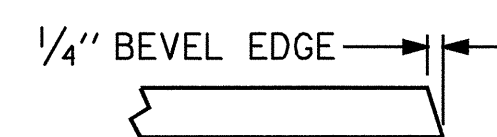
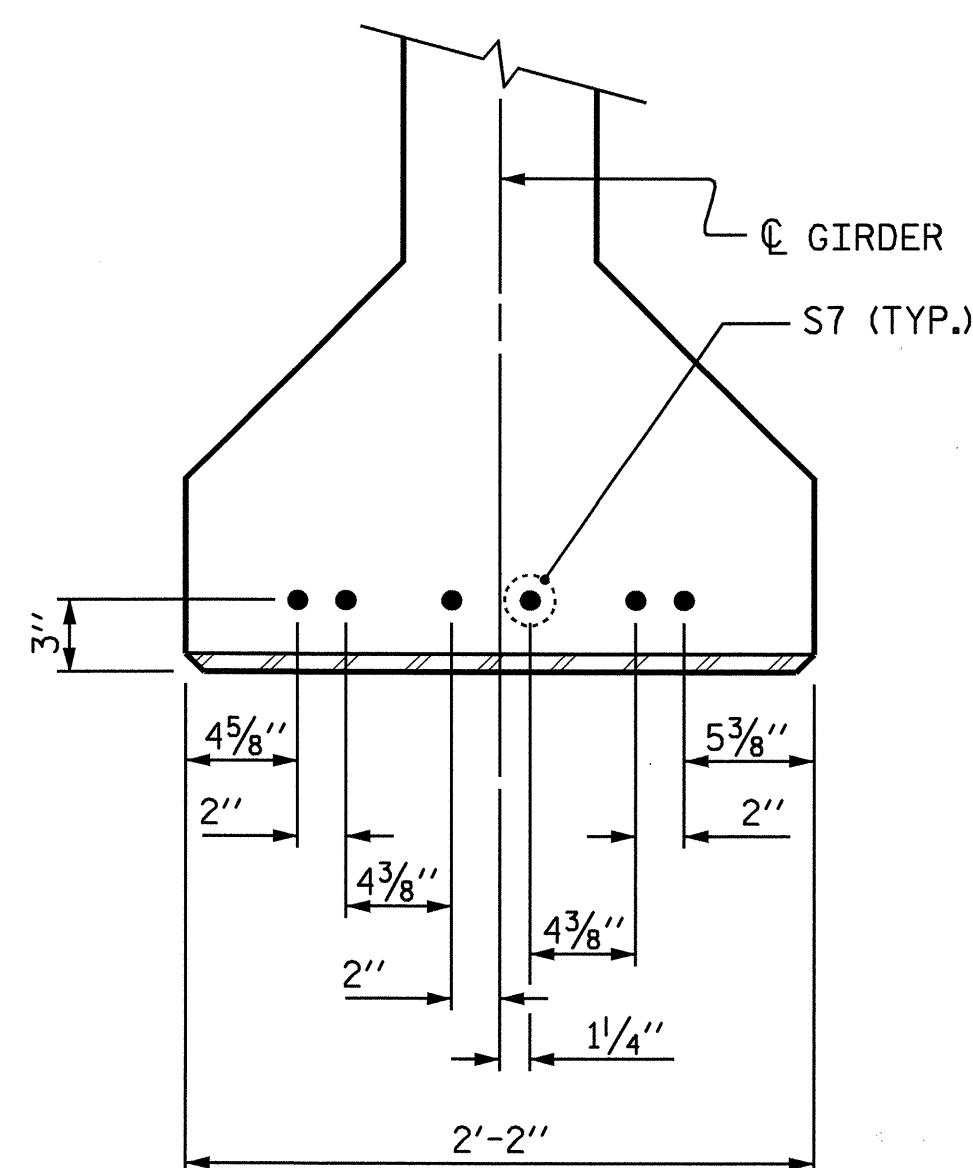
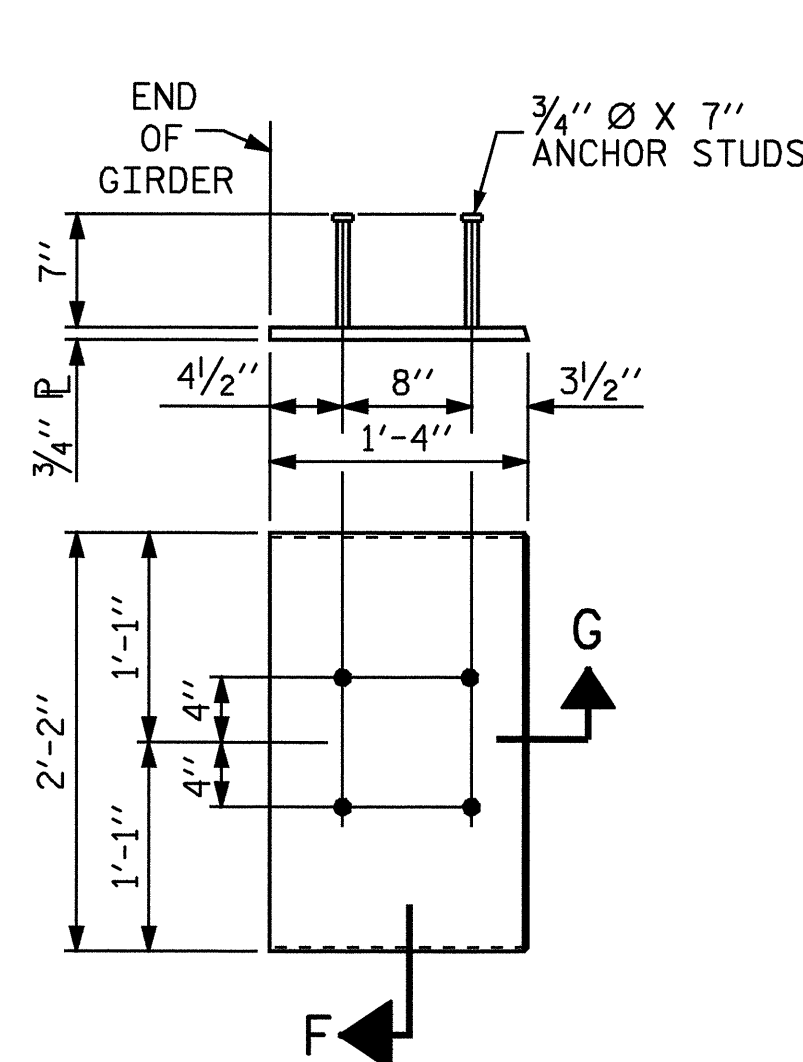
DEPENDING ON THE TYPE OF SYSTEM USED TO SUPPORT THE DECK SLAB FORMS, PRESET ANCHORS MAY BE NECESSARY IN THE PRESTRESSED CONCRETE GIRDER.

THE TOP SURFACE OF THE GIRDER, EXCLUDING THE OUTSIDE 4", SHALL BE RAKED TO A DEPTH OF 1/4".

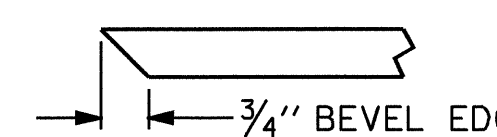
WHEN DRAPED STRANDS ARE DETAILED, THE LONGITUDINAL LOCATION OF THE HOLD DOWN DEVICES SHALL BE WITHIN 6" OF THE LOCATION SHOWN AND THE CENTER OF GRAVITY OF THE GROUP OF DRAPED STRANDS SHALL BE LOCATED WITHIN 1/2" OF THE THEORETICAL LOCATION SHOWN.

FOR CRACK REPAIR OF PRESTRESSED CONCRETE GIRDERS, SEE SPECIAL PROVISIONS.

THE UPLIFT FORCE FOR GIRDERS IN SPAN "C" DUE TO DRAPED STRANDS IS 24.5 KIPS.



SECTION "G"



SECTION "F"

(SEE NOTES)

EMBEDDED PLATE "B-1" DETAILS FOR AASHTO TYPE IV GIRDER

(2 REQ'D PER GIRDER)

DETAIL "A"

(FOR AASHTO TYPE IV GIRDERS)

DEAD LOAD DEFLECTION TABLE FOR SPAN A

| 1/2" Ø LOW RELAXATION                 | GIRDERS 2 AND 3 |      |       |       |       |       |        |       |       |       | GIRDERS 1 AND 4 |      |       |       |        |        |       |        |        |       |
|---------------------------------------|-----------------|------|-------|-------|-------|-------|--------|-------|-------|-------|-----------------|------|-------|-------|--------|--------|-------|--------|--------|-------|
|                                       | 0               | .1   | .2    | .3    | .4    | .5    | .6     | .7    | .8    | .9    | 0               | .1   | .2    | .3    | .4     | .5     | .6    | .7     | .8     | .9    |
| TENTH POINTS                          | 0               | .037 | .069  | .095  | .111  | .116  | .111   | .095  | .069  | .037  | 0               | .037 | .069  | .095  | .111   | .116   | .111  | .095   | .069   | .037  |
| CAMBER (GIRDER ALONE IN PLACE)        | ↑               | 0    | 0.037 | 0.069 | 0.095 | 0.111 | 0.116  | 0.111 | 0.095 | 0.069 | 0               | 0    | 0.037 | 0.069 | 0.095  | 0.111  | 0.116 | 0.111  | 0.095  | 0.069 |
| * DEFLECTION DUE TO SUPERIMPOSED D.L. | ↓               | 0    | 0.016 | 0.030 | 0.041 | 0.047 | 0.050  | 0.047 | 0.041 | 0.030 | 0               | 0    | 0.014 | 0.026 | 0.036  | 0.042  | 0.044 | 0.042  | 0.036  | 0.026 |
| FINAL CAMBER                          | ↑               | 0    | 1/4"  | 7/16" | 5/8"  | 3/4"  | 13/16" | 3/4"  | 5/8"  | 7/16" | 0               | 0    | 1/4"  | 1/2"  | 11/16" | 13/16" | 7/8"  | 13/16" | 11/16" | 1/2"  |

\* INCLUDES FUTURE WEARING SURFACE  
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT "FINAL CAMBER", WHICH IS GIVEN IN INCHES (FRACTION FORM).

DEAD LOAD DEFLECTION TABLE FOR SPAN B

| 1/2" Ø LOW RELAXATION                 | GIRDERS 2 AND 3 |      |       |       |        |       |         |       |        |       | GIRDERS 1 AND 4 |    |       |        |       |        |        |        |       |        |
|---------------------------------------|-----------------|------|-------|-------|--------|-------|---------|-------|--------|-------|-----------------|----|-------|--------|-------|--------|--------|--------|-------|--------|
|                                       | 0               | .1   | .2    | .3    | .4     | .5    | .6      | .7    | .8     | .9    | 0               | .1 | .2    | .3     | .4    | .5     | .6     | .7     | .8    | .9     |
| TENTH POINTS                          | 0               | .067 | .126  | .173  | .202   | .213  | .202    | .173  | .126   | .067  | 0               | 0  | 0.067 | 0.126  | 0.173 | 0.202  | 0.213  | 0.202  | 0.173 | 0.126  |
| CAMBER (GIRDER ALONE IN PLACE)        | ↑               | 0    | 0.067 | 0.126 | 0.173  | 0.202 | 0.213   | 0.202 | 0.173  | 0.126 | 0               | 0  | 0.067 | 0.126  | 0.173 | 0.202  | 0.213  | 0.202  | 0.173 | 0.126  |
| * DEFLECTION DUE TO SUPERIMPOSED D.L. | ↓               | 0    | 0.040 | 0.076 | 0.104  | 0.121 | 0.127   | 0.121 | 0.104  | 0.076 | 0               | 0  | 0.036 | 0.068  | 0.092 | 0.108  | 0.114  | 0.108  | 0.092 | 0.068  |
| FINAL CAMBER                          | ↑               | 0    | 5/16" | 5/8"  | 13/16" | 1"    | 1 1/16" | 1"    | 13/16" | 5/8"  | 0               | 0  | 3/8"  | 11/16" | 1"    | 1 1/8" | 13/16" | 1 1/8" | 1"    | 11/16" |

\* INCLUDES FUTURE WEARING SURFACE  
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT "FINAL CAMBER", WHICH IS GIVEN IN INCHES (FRACTION FORM).

DEAD LOAD DEFLECTION TABLE FOR SPAN C

| 1/2" Ø LOW RELAXATION                 | GIRDERS 2 AND 3 |      |       |       |        |        |        |        |        |       | GIRDERS 1 AND 4 |    |       |       |       |       |       |       |       |       |
|---------------------------------------|-----------------|------|-------|-------|--------|--------|--------|--------|--------|-------|-----------------|----|-------|-------|-------|-------|-------|-------|-------|-------|
|                                       | 0               | .1   | .2    | .3    | .4     | .5     | .6     | .7     | .8     | .9    | 0               | .1 | .2    | .3    | .4    | .5    | .6    | .7    | .8    | .9    |
| TENTH POINTS                          | 0               | .035 | .066  | .091  | .107   | .112   | .107   | .091   | .066   | .035  | 0               | 0  | 0.035 | 0.066 | 0.091 | 0.107 | .112  | .107  | .091  | .066  |
| CAMBER (GIRDER ALONE IN PLACE)        | ↑               | 0    | 0.035 | 0.066 | 0.091  | 0.107  | .112   | .107   | .091   | .066  | 0               | 0  | 0.035 | 0.066 | 0.091 | 0.107 | .112  | .107  | .091  | .066  |
| * DEFLECTION DUE TO SUPERIMPOSED D.L. | ↓               | 0    | 0.013 | 0.025 | 0.034  | 0.040  | 0.042  | 0.040  | 0.034  | 0.025 | 0               | 0  | 0.012 | 0.022 | 0.030 | 0.035 | 0.037 | 0.035 | 0.030 | 0.022 |
| FINAL CAMBER                          | ↑               | 0    | 1/4"  | 1/2"  | 11/16" | 13/16" | 13/16" | 13/16" | 11/16" | 1/2"  | 0               | 0  | 1/4"  | 1/2"  | 3/4"  | 7/8"  | 7/8"  | 7/8"  | 3/4"  | 1/2"  |

\* INCLUDES FUTURE WEARING SURFACE  
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT "FINAL CAMBER", WHICH IS GIVEN IN INCHES (FRACTION FORM).

PROJECT NO. B-4280  
STOKES COUNTY  
STATION: 19+10.00 -L-

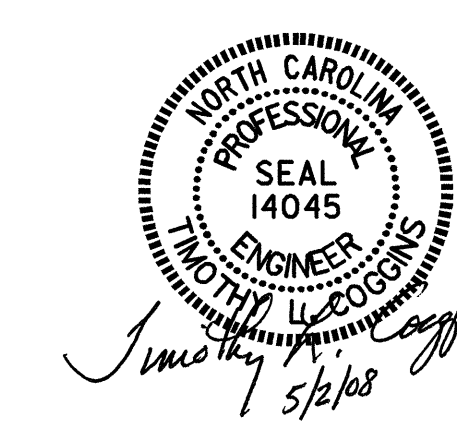
SHEET 4 OF 4

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

STANDARD  
PRESTRESSED CONCRETE GIRDER  
CONTINUOUS FOR LIVE LOAD  
DETAILS

NOVEMBER 1991

| REVISIONS |     |       |     |       | SHEET NO.    |
|-----------|-----|-------|-----|-------|--------------|
| NO.       | BY: | DATE: | NO. | DATE: | S-14         |
| 1         |     |       | 3   |       | TOTAL SHEETS |
| 2         |     |       | 4   |       | 51           |



|                             |                        |
|-----------------------------|------------------------|
| ASSEMBLED BY : PEGGY ADKINS | DATE : 7-04            |
| CHECKED BY : T. L. AVERETTE | DATE : 9-04            |
| DRAWN BY : ELR 11/91        | REV. 10/17/00 RWW/LES  |
| CHECKED BY : GRP 11/91      | REV. 7/10/01RR LES/RDR |
|                             | REV. 5/1/06 TLA/GM     |

**STRUCTURAL STEEL NOTES**

ALL INTERMEDIATE DIAPHRAGM STEEL, CONNECTOR PLATES AND PLATE WASHERS SHALL BE AASHTO M270 GRADE 50 OR APPROVED EQUAL.

TENSION ON THE AASHTO M164 BOLTS THROUGH THE CHANNEL MEMBER SHALL BE CALIBRATED USING DIRECT TENSION INDICATOR WASHERS IN ACCORDANCE WITH ARTICLE 440-8 OF THE STANDARD SPECIFICATIONS.

TENSION ON THE AASHTO M164 BOLTS THROUGH THE GIRDER WEB SHALL BE SNUG TIGHTENED FOLLOWED BY AN ADDITIONAL 1/4 TURN.

THE CHANNELS, ANGLES, BOLTS, WASHERS, PLATE WASHERS AND DIRECT TENSION INDICATORS SHALL BE GALVANIZED OR METALLIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. FOR THERMAL SPRAYED COATINGS (METALLIZATION), SEE SPECIAL PROVISIONS.

FOR METALLIZATION, APPLY AN 8 MIL THICK 99.99 PERCENT ZINC (W-Zn-1) THERMAL SPRAYED COATING WITH A 0.5 MIL THICK SEAL COAT TO ALL STEEL DIAPHRAGM SURFACES IN ACCORDANCE WITH THE THERMAL SPRAYED COATINGS SPECIAL PROVISIONS AND SECTION 442 OF THE STANDARD SPECIFICATIONS.

GALVANIZE THE HIGH STRENGTH BOLTS, NUTS AND WASHERS IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. FOR HIGH STRENGTH BOLTS, SEE SPECIAL PROVISIONS.

USE A MINIMUM 7/16" THICK PLATE WASHER WITH STANDARD HOLES UNDER EACH BOLT HEAD AND NUT. THE PLATE WASHERS SHALL HAVE SUFFICIENT SIZE TO COVER THE HOLES AFTER INSTALLATION. DIRECT TENSION INDICATORS ARE TO BE USED IN CONJUNCTION WITH THE PLATE WASHERS.

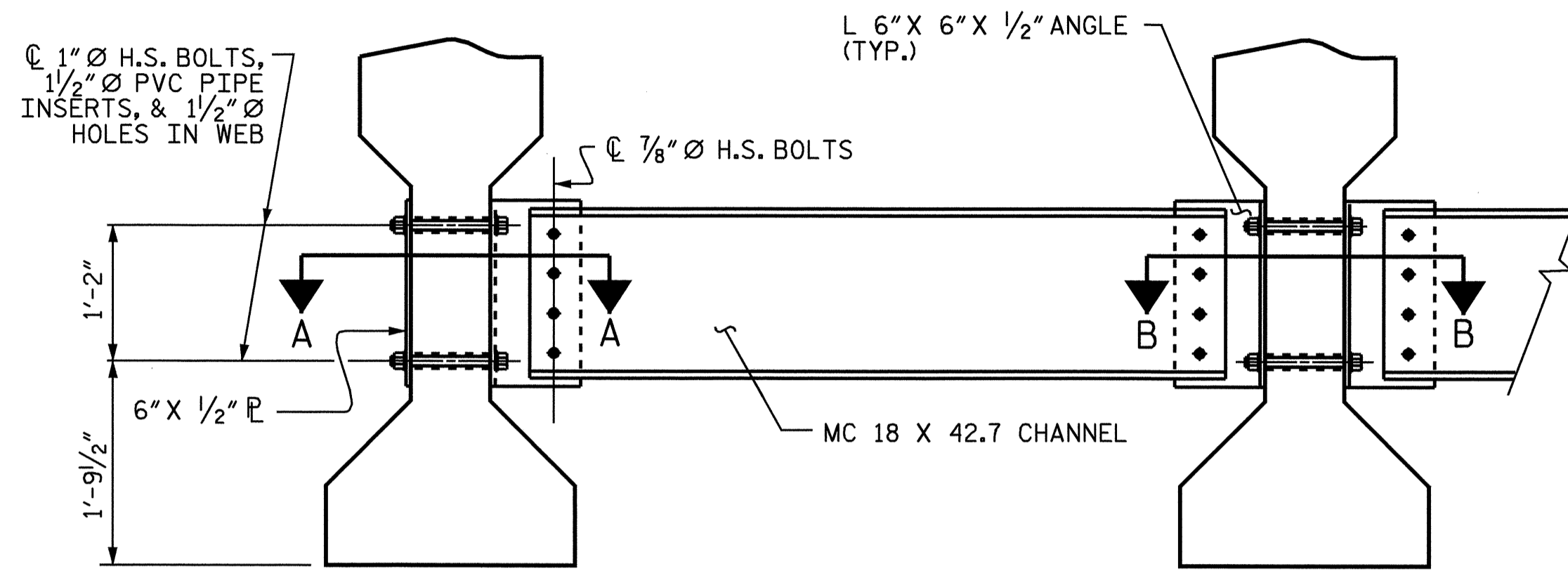
PROVIDE SUFFICIENT LENGTH OF ALL BOLTS TO ACCOMMODATE WASHERS, DIRECT TENSION INDICATORS, THE THICKNESS OF CONNECTING MEMBER PLUS AT LEAST 1/4" PROJECTION BEYOND THE NUT.

INTERMEDIATE DIAPHRAGM ASSEMBLY SHALL COMPLY WITH SECTION 1072 OF THE STANDARD SPECIFICATIONS.

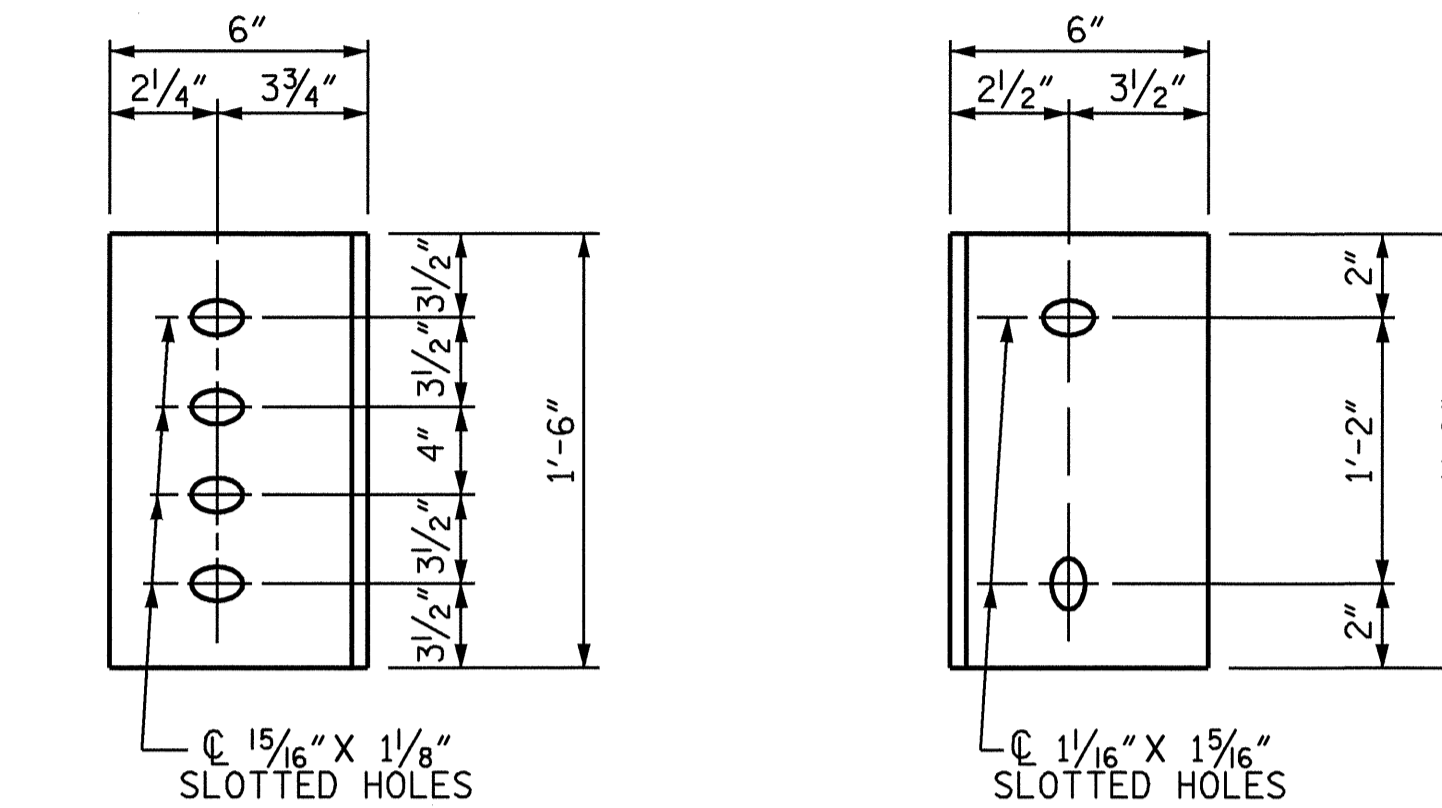
CONTRACTOR SHALL SUBMIT TWO SETS OF WORKING DRAWINGS FOR THE INTERMEDIATE DIAPHRAGM ASSEMBLY FOR REVIEW, COMMENTS AND ACCEPTANCE. AFTER REVIEW, COMMENTS, AND ACCEPTANCE, SUBMIT SEVEN SETS FOR DISTRIBUTION.

IN THE EXTERIOR BAYS, TEMPORARY STRUTS SHALL BE PLACED BETWEEN PRESTRESSED GIRDERS ADJACENT TO THE STEEL DIAPHRAGMS. STRUTS SHALL REMAIN IN PLACE 3 DAYS AFTER CONCRETE IS PLACED. ALL AASHTO M164 H.S. BOLTS SHALL BE FULLY TIGHTENED AFTER THE STRUTS HAVE BEEN REMOVED.

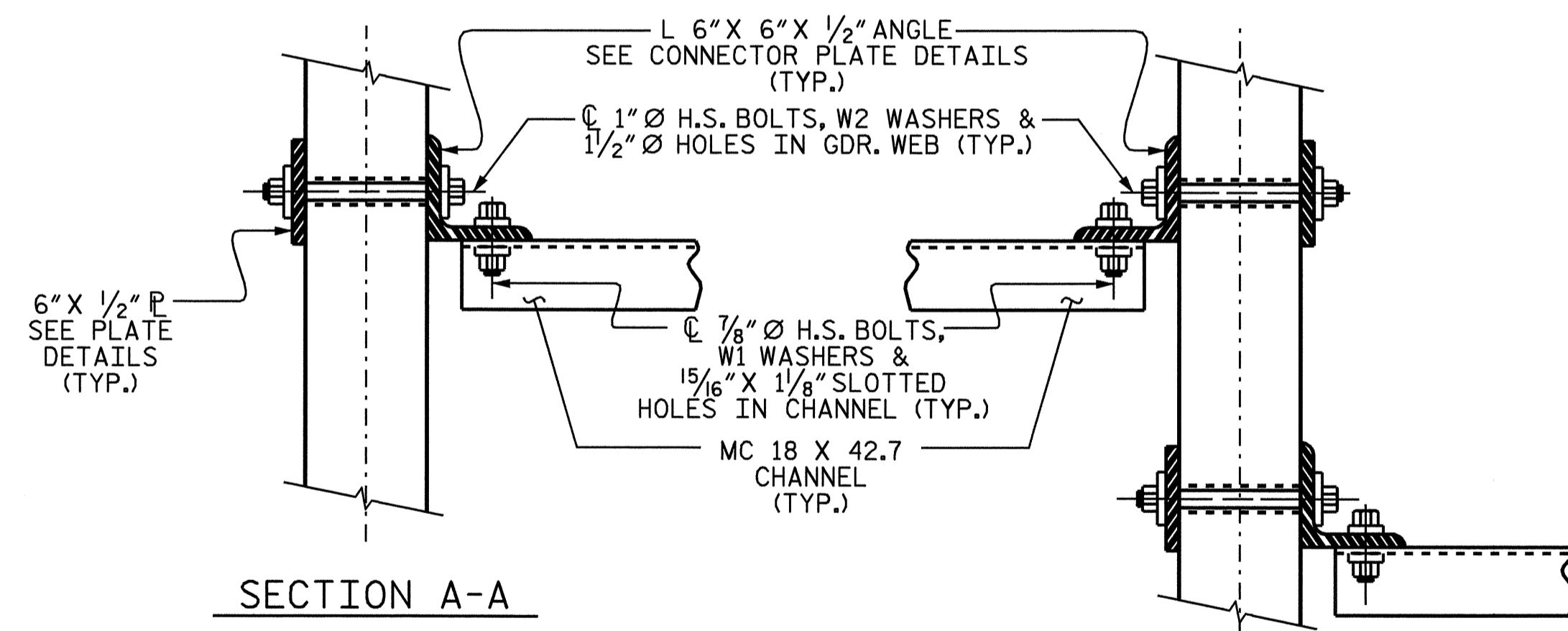
THE COST OF THE STEEL DIAPHRAGMS AND ASSEMBLIES SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE GIRDERS.



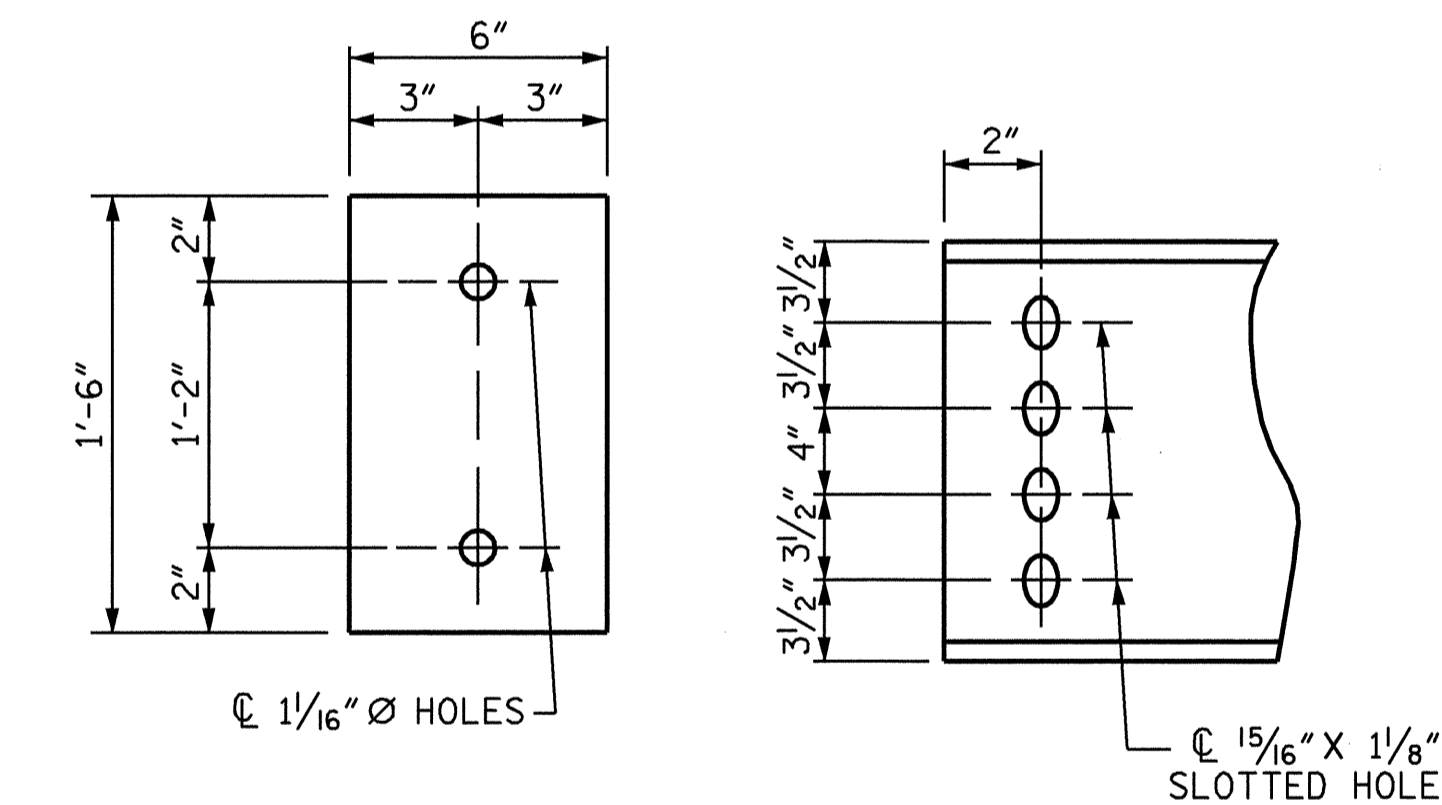
**EXTERIOR GIRDER**      **INTERIOR GIRDER**  
**PART SECTION AT INTERMEDIATE DIAPHRAGM**



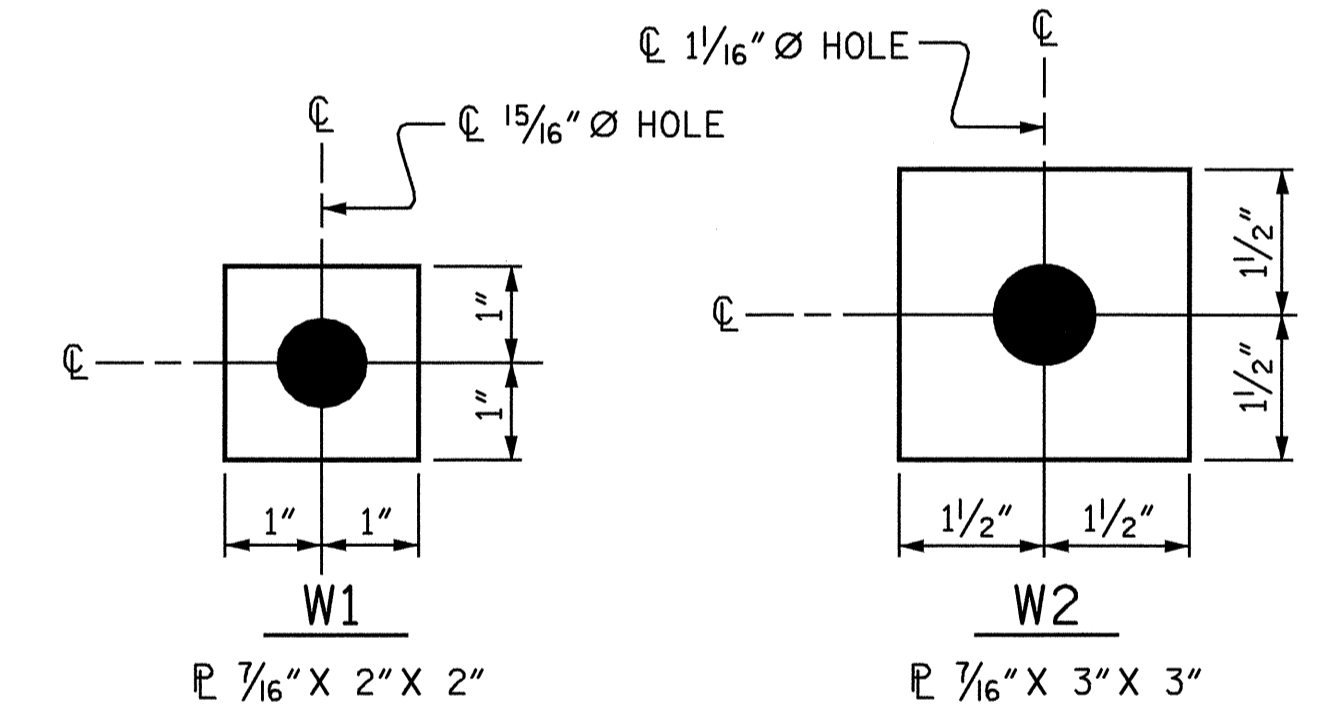
**DIAPHRAGM FACE**      **WEB FACE**  
**CONNECTOR PLATE DETAILS**



**SECTION A-A**      **SECTION B-B**  
**CONNECTION DETAILS**



**PLATE DETAILS**      **CHANNEL END**



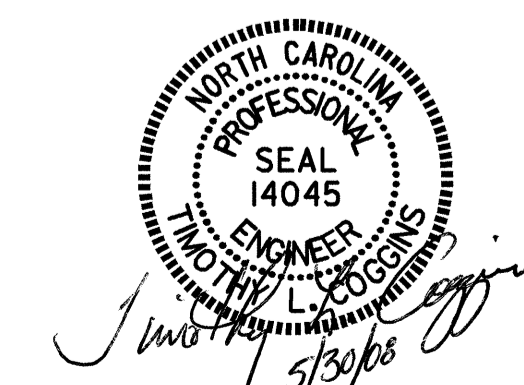
USE WITH 7/8" HVY. HEX NUTS & DIRECT TENSION INDICATOR WASHERS AT DIAPHRAGM CHANNEL TO CONNECTOR PLATE CONNECTIONS  
USE WITH 1" HVY. HEX NUTS AT CONNECTOR PLATE TO GIRDER CONNECTIONS

**WASHER DETAILS**

PROJECT NO. B-4280  
STOKES COUNTY  
STATION: 19+10.00 -L-

ASSEMBLED BY : PEGGY ADKINS DATE : 7-04  
CHECKED BY : T. AVERETTE DATE : 4/06  
DRAWN BY : TLA 6/05  
CHECKED BY : VC 6/05  
ADDED 10/21/05  
REV. 5/1/06 TLA/GM

29-MAY-2008 13:04  
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STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

**STANDARD INTERMEDIATE STEEL DIAPHRAGMS FOR TYPE IV PRESTRESSED CONCRETE GIRDERS**

| REVISIONS |     |       |     |     |       | SHEET NO.    |
|-----------|-----|-------|-----|-----|-------|--------------|
| NO.       | BY: | DATE: | NO. | BY: | DATE: | S-15         |
| 1         |     |       | 3   |     |       | TOTAL SHEETS |
| 2         |     |       | 4   |     |       | 51           |



**NOTES**

AT ALL FIXED POINTS OF SUPPORT, NUTS FOR ANCHOR BOLTS ARE TO BE TIGHTENED FINGER TIGHT AND THEN BACKED OFF 1/2 TURN. THE THREAD OF THE NUT AND BOLT SHALL THEN BE BURRED WITH A SHARP POINTED TOOL.

THE 2" Ø PIPE SLEEVE SHALL BE CUT FROM SCHEDULE 40 PVC PLASTIC PIPE. THE PVC PLASTIC PIPE SHALL MEET THE REQUIREMENTS OF ASTM D1785.

STEEL SOLE PLATES, ANCHOR BOLTS, NUTS, AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

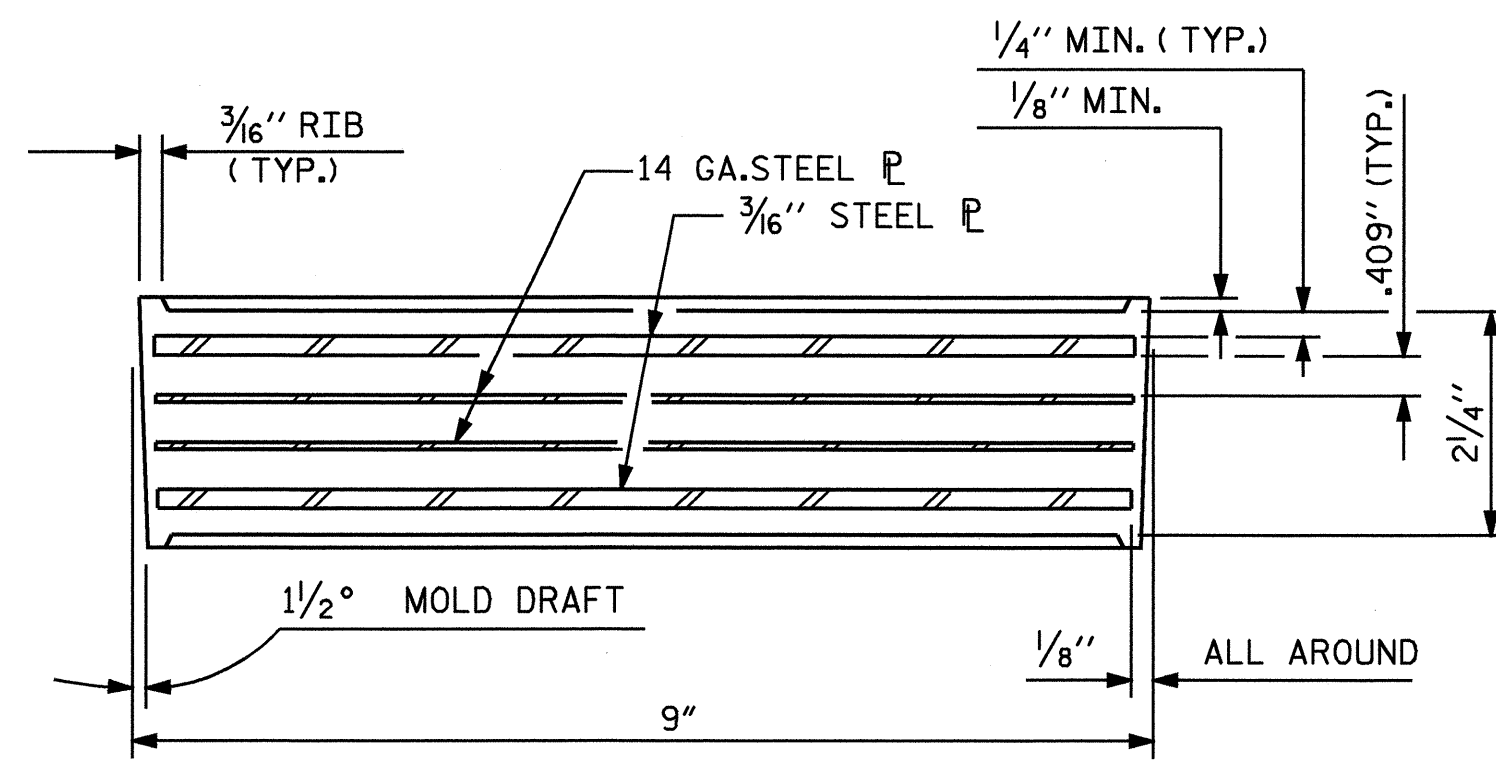
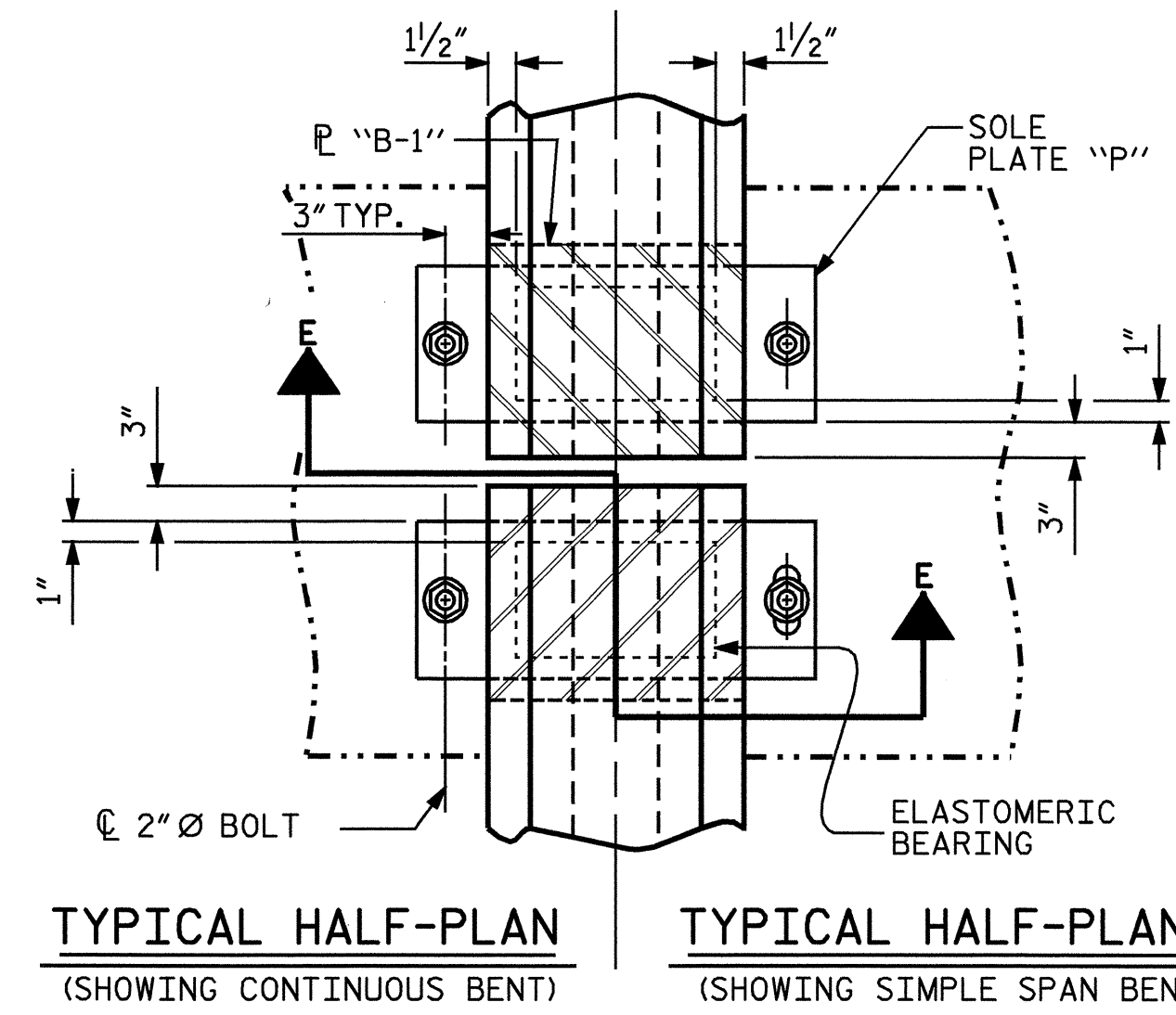
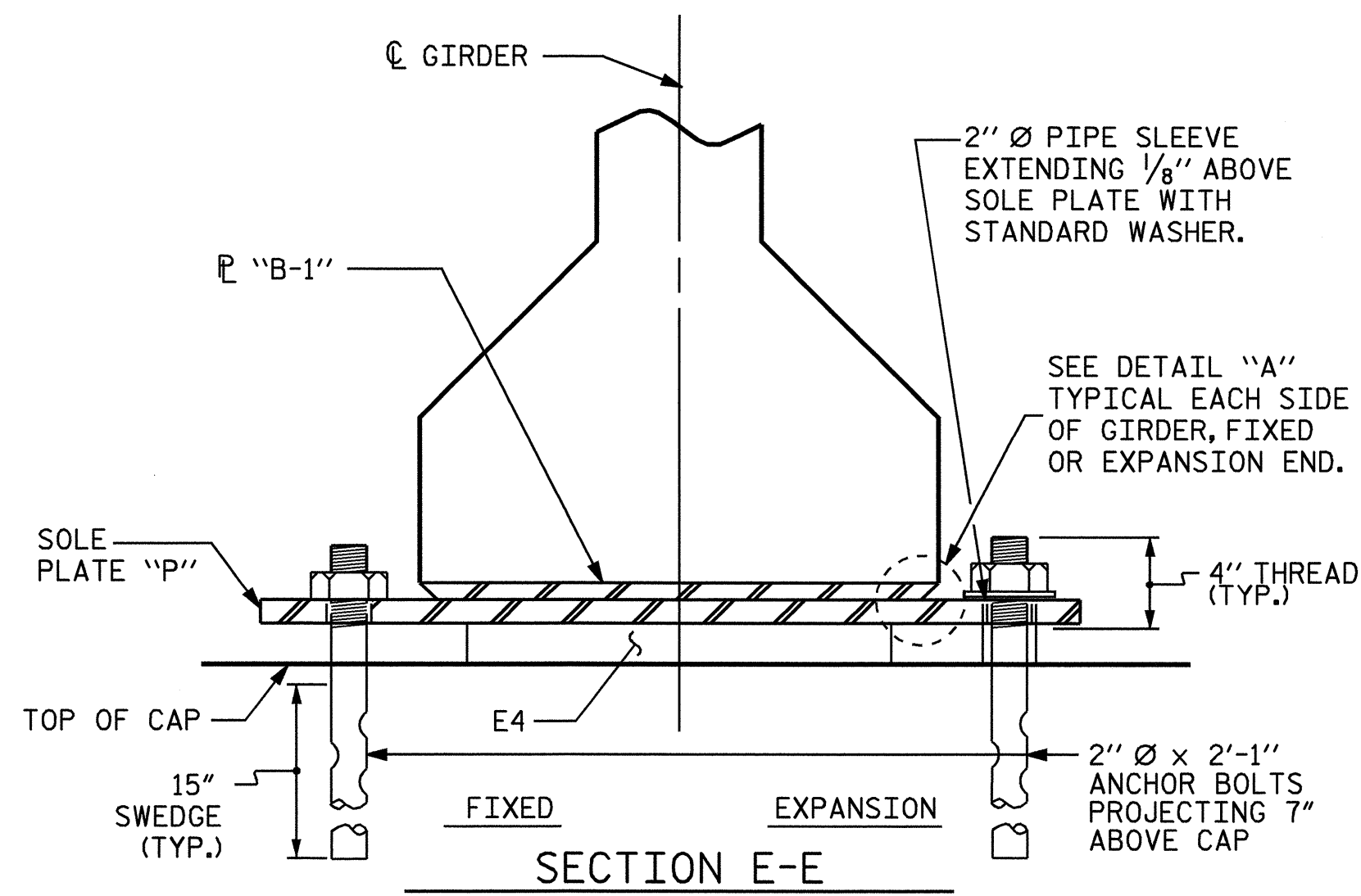
PRIOR TO WELDING, GRIND THE GALVANIZED SURFACE OF THE PORTION OF THE EMBEDDED PLATE AND SOLE PLATE THAT ARE TO BE WELDED. AFTER WELDING, DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

WHEN WELDING THE SOLE PLATE TO THE EMBEDDED PLATE IN THE GIRDER, USE TEMPERATURE INDICATING WAX PENS, OR OTHER SUITABLE MEANS, TO ENSURE THAT THE TEMPERATURE OF THE SOLE PLATE DOES NOT EXCEED 300°F. TEMPERATURES ABOVE THIS MAY DAMAGE THE ELASTOMER.

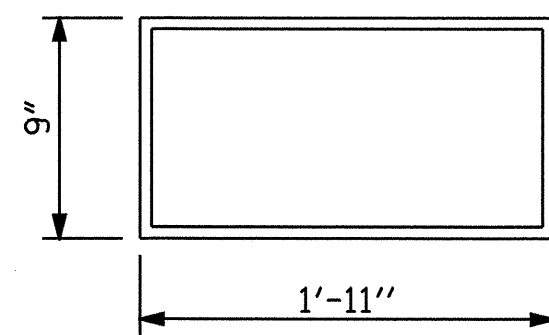
SOLE PLATE "P", BOLTS, NUTS, WASHERS, AND PIPE SLEEVE SHALL BE INCLUDED IN THE PAY ITEM FOR PRESTRESSED CONCRETE GIRDERS.

ANCHOR BOLTS SHALL MEET THE REQUIREMENTS OF ASTM A449. NUTS SHALL MEET THE REQUIREMENTS OF AASHTO M291-DH OR AASHTO M292-2H. WASHERS SHALL MEET THE REQUIREMENTS OF AASHTO M293. NO SHOP DRAWINGS ARE REQUIRED FOR ANCHOR BOLTS, NUTS AND WASHERS. SHOP INSPECTION IS REQUIRED.

ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.



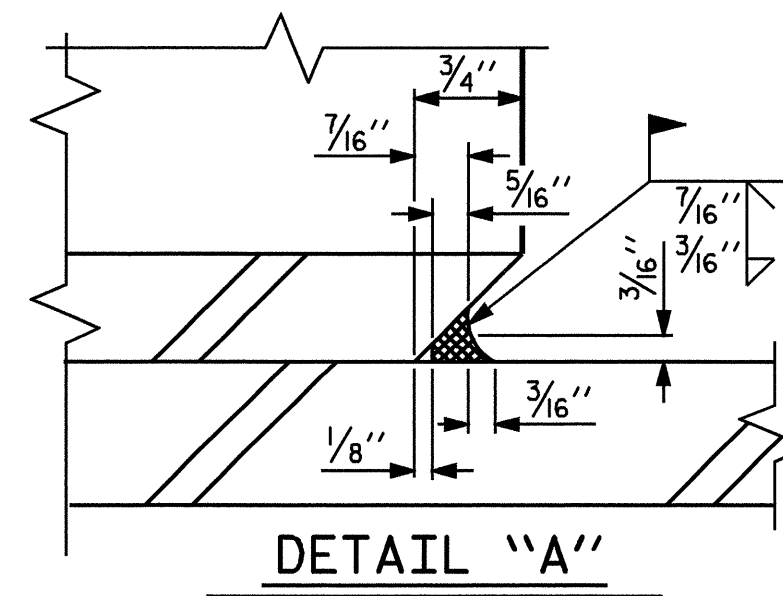
TYPICAL SECTION OF ELASTOMERIC BEARINGS



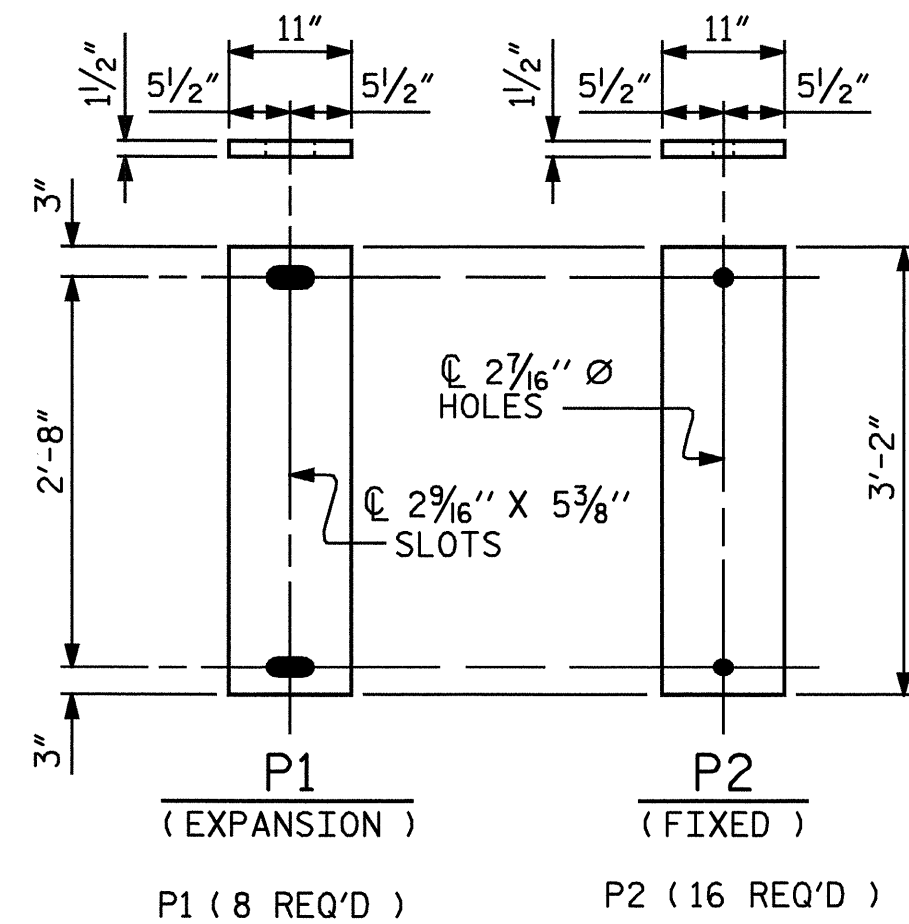
E4 (24 REQ'D)

PLAN VIEW OF ELASTOMERIC BEARING

**TYPE V**



DETAIL "A"

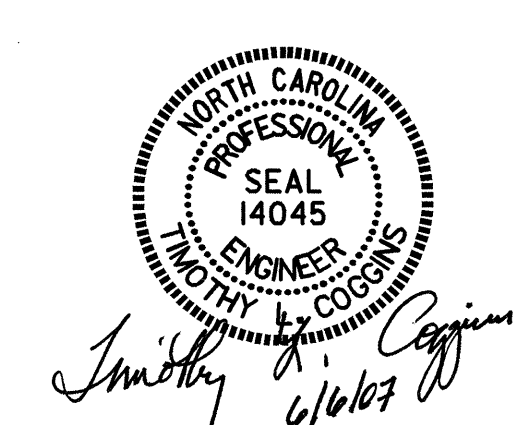


SOLE PLATE DETAILS ("P")

| — LOAD RATINGS — |                |
|------------------|----------------|
|                  | MAX.D.L.+ L.L. |
| TYPE V           | 180 K          |

PROJECT NO. B4280  
 STOKES COUNTY  
 STATION: 19+10.00 -L-

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**STANDARD  
 ELASTOMERIC BEARING  
 DETAILS**  
 PRESTRESSED CONCRETE GIRDER  
 SUPERSTRUCTURE



|                             |             |
|-----------------------------|-------------|
| ASSEMBLED BY : PEGGY ADKINS | DATE : 6-04 |
| CHECKED BY : T. L. AVERETTE | DATE : 9-04 |
| DRAWN BY : EEM              | 2/97        |
| CHECKED BY : VAP            | 2/97        |
| REV. 8/16/99                | RWW/LES     |
| REV. 10/17/00               | RWW/LES     |
| REV. 5/1/06                 | TLA/GM      |

| REVISIONS |     |       |     |     |       | SHEET NO.    |
|-----------|-----|-------|-----|-----|-------|--------------|
| NO.       | BY: | DATE: | NO. | BY: | DATE: | S-16         |
| 1         |     |       | 3   |     |       | TOTAL SHEETS |
| 2         |     |       | 4   |     |       | 51           |

**NOTES**

BARRIER RAIL IN A CONTINUOUS UNIT SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE IN THE UNIT HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.

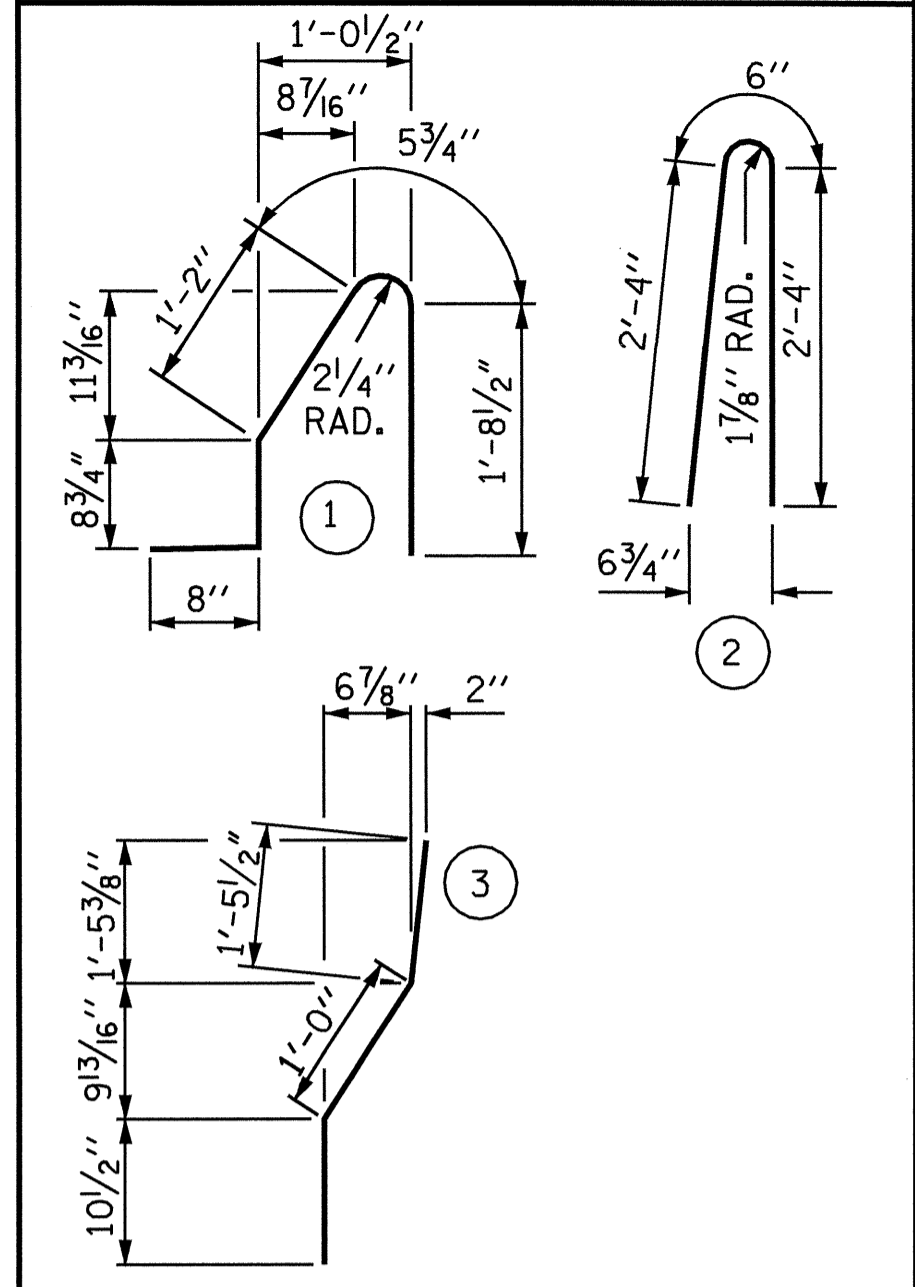
EVAZOTE JOINT SEAL IS REQUIRED. THE JOINT IN THE DECK SHALL BE SAWED PRIOR TO THE CASTING OF BARRIER RAIL.

ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.

THE #5 S3 AND #5 S4 BARS SHALL BE INSTALLED, USING AN ADHESIVE ANCHORING SYSTEM, AFTER SAWING THE JOINT. THE YIELD LOAD FOR THE #5 S3 AND #5 S4 BARS IS 18.6 KIPS. FIELD TESTING FOR THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.

VERTICAL GROOVED CONTRACTION JOINTS, 1/2" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE BARRIER RAIL AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. THE CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN BARRIER RAIL EXPANSION JOINTS. ONLY ONE CONTRACTION JOINT IS REQUIRED AT MIDPOINT OF BARRIER RAIL SEGMENTS LESS THAN 20 FEET IN LENGTH AND NO CONTRACTION JOINTS ARE REQUIRED FOR THOSE SEGMENTS LESS THAN 10 FEET IN LENGTH.

**BAR TYPES**



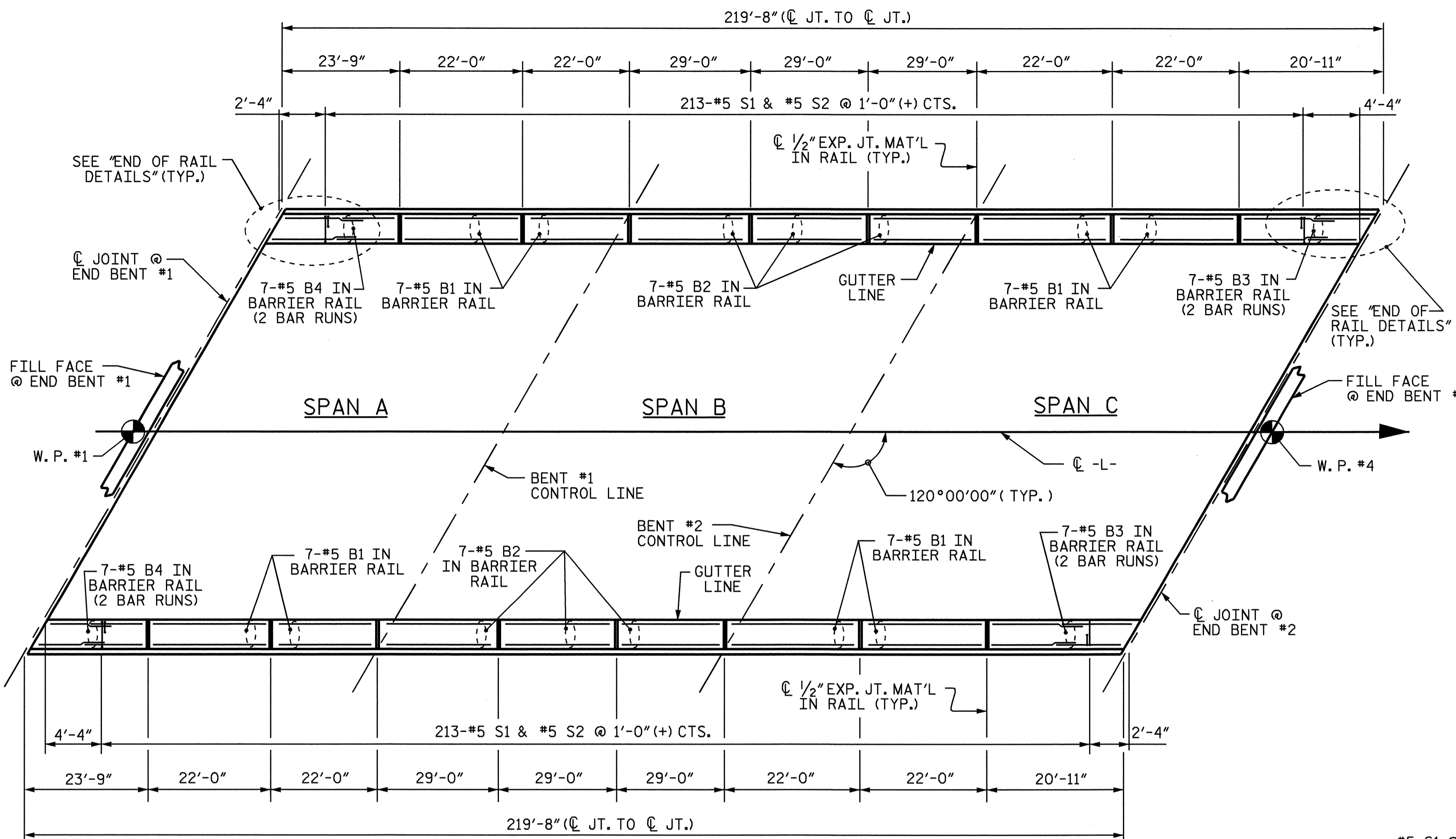
ALL BAR DIMENSIONS ARE OUT TO OUT

**BILL OF MATERIAL**

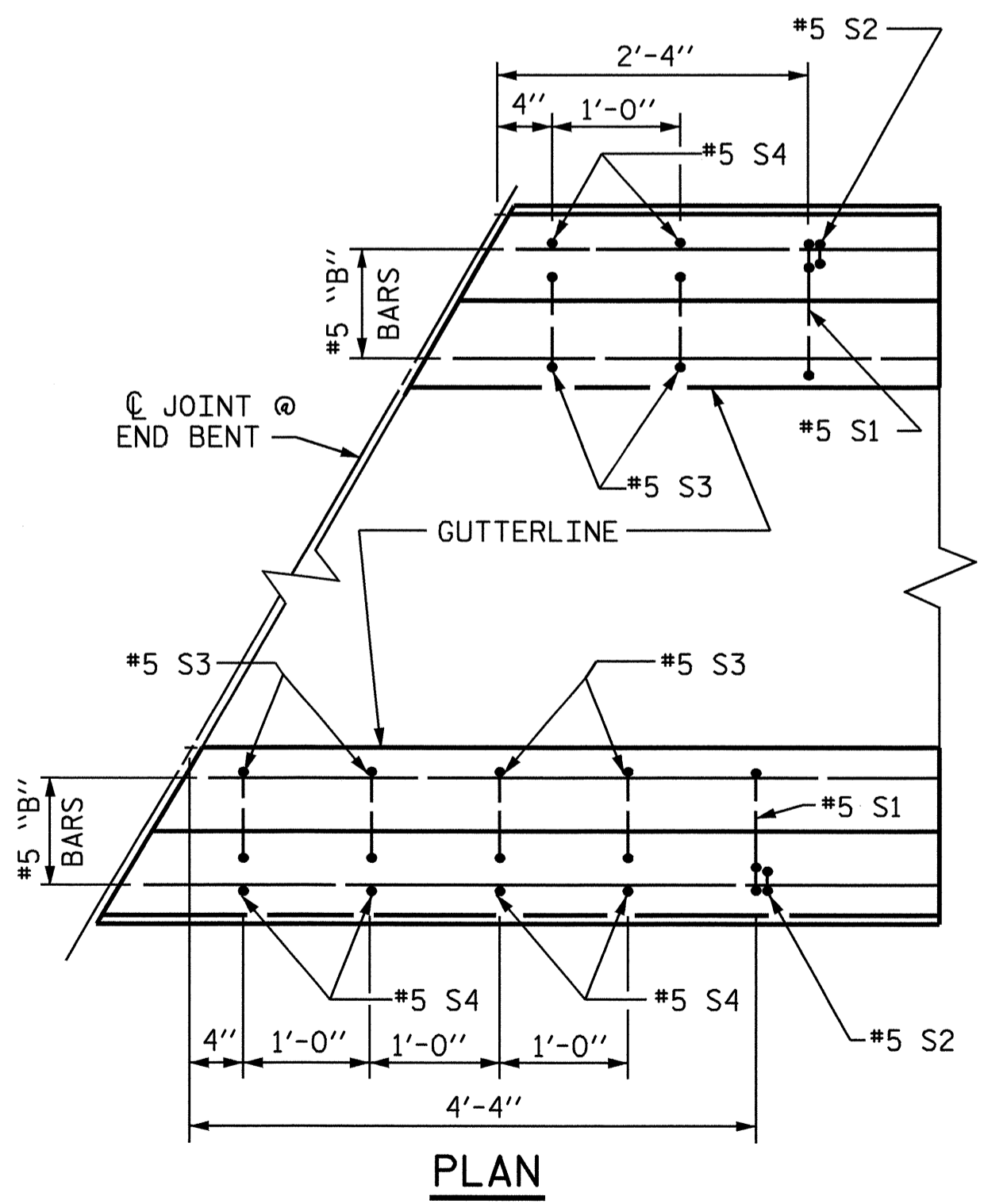
FOR CONCRETE BARRIER RAIL ONLY

| BAR NO. | SIZE | TYPE | LENGTH | WEIGHT |
|---------|------|------|--------|--------|
| * B1    | #5   | STR  | 21'-7" | 1261   |
| * B2    | #5   | STR  | 28'-7" | 1252   |
| * B3    | #5   | STR  | 12'-0" | 350    |
| * B4    | #5   | STR  | 13'-5" | 392    |
| * S1    | #5   | 1    | 4'-9"  | 2111   |
| * S2    | #5   | 2    | 5'-2"  | 2296   |
| * S3    | #5   | 3    | 3'-4"  | 42     |
| * S4    | #5   | STR  | 3'-2"  | 40     |

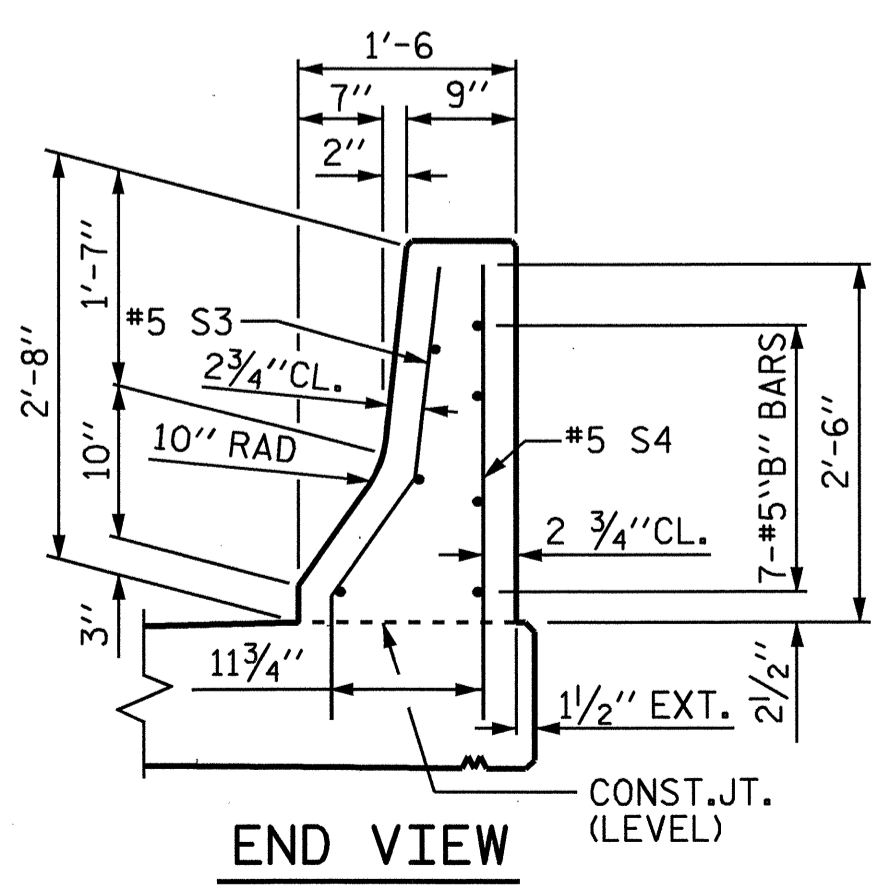
\* EPOXY COATED REINFORCING STEEL 7744 LBS.  
 CLASS AA CONCRETE 44.0 CU. YDS.  
 CONCRETE BARRIER RAIL 439.33 LIN. FT.



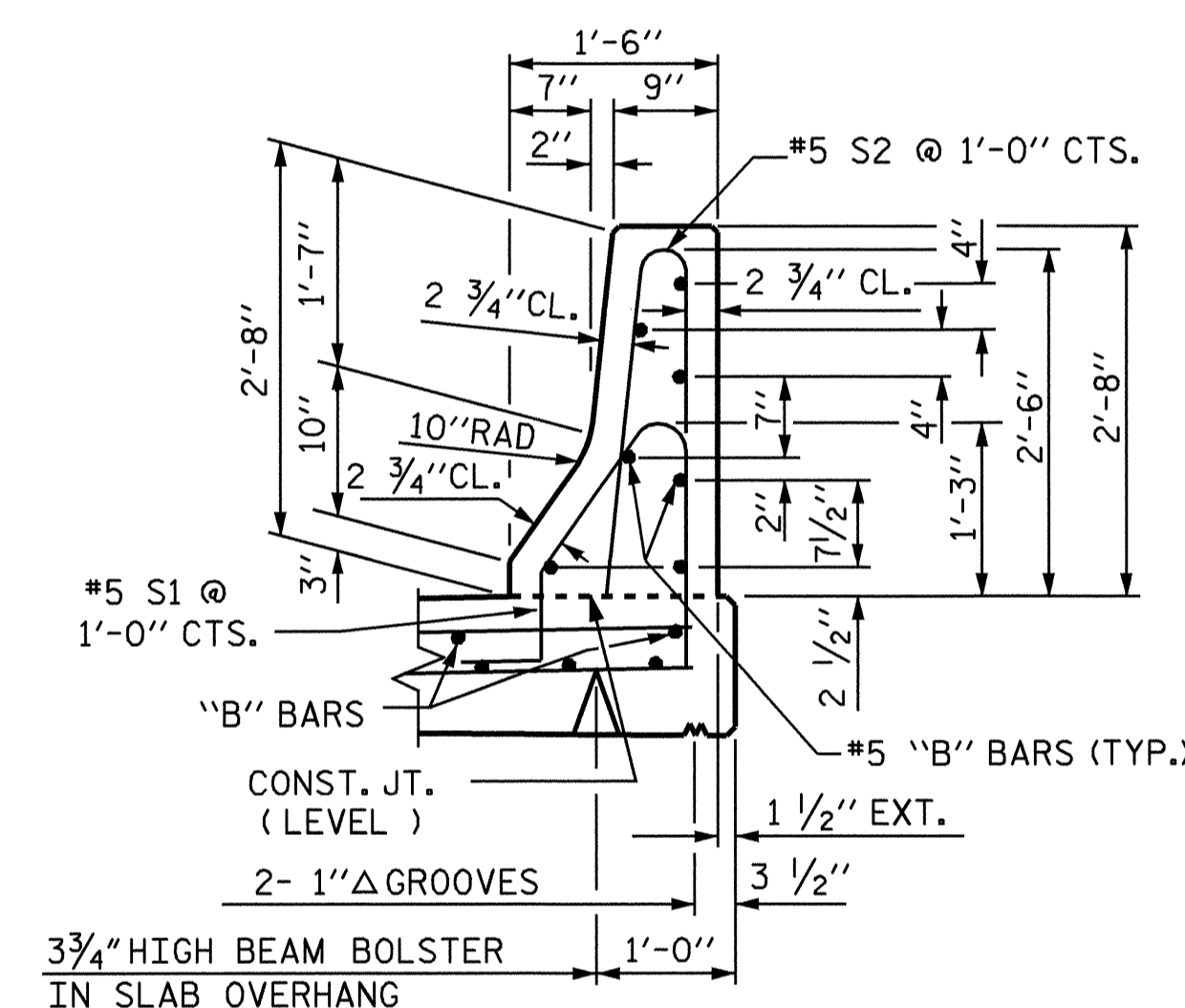
**PLAN OF BARRIER RAIL**



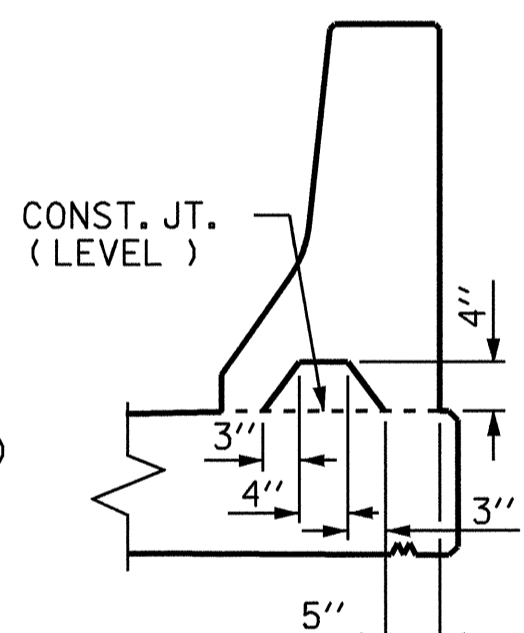
PLAN



END VIEW

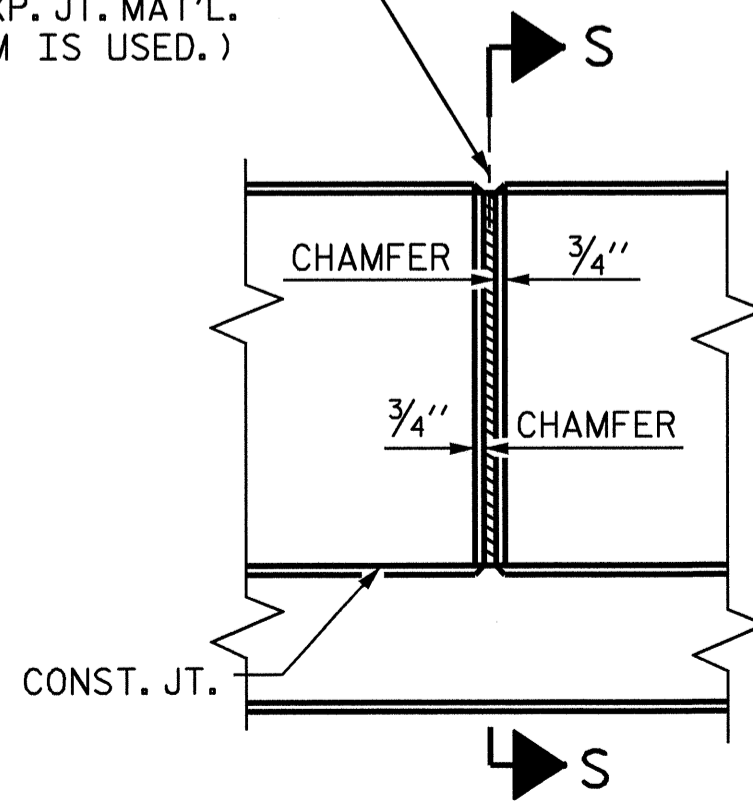


SECTION THRU RAIL



SECTION S-S  
 AT DAM IN OPEN JOINT  
 (THIS IS TO BE USED ONLY WHEN SLIP FORM IS USED)

1/2" EXP. JT. MAT'L HELD IN PLACE WITH GALVANIZED NAILS.  
 (NOTE: OMIT EXP. JT. MAT'L WHEN SLIP FORM IS USED.)



ELEVATION AT EXPANSION JOINTS  
**BARRIER RAIL DETAILS**

ASSEMBLED BY : PEGGY ADKINS DATE : 7/04  
 CHECKED BY : T.L. AVERETTE DATE : 9-04  
 DRAWN BY : ARB 5/87  
 CHECKED BY : SJD 9/87

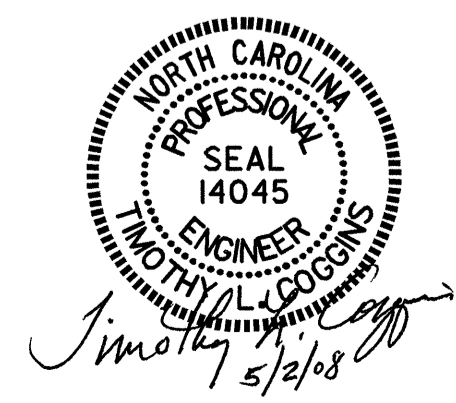
REV. 10/17/00 RWW/LES  
 REV. 5/1/03R RWW/JTE  
 REV. 5/1/06 TLA/GM

**END OF RAIL DETAILS**

FOR ADHESIVE ANCHORING AT SAWED JOINTS

PROJECT NO. B-4280  
STOKES COUNTY  
 STATION: 19+10.00 -L-

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**STANDARD CONCRETE BARRIER RAIL**



| REVISIONS |     |       |     | SHEET NO. |
|-----------|-----|-------|-----|-----------|
| NO.       | BY: | DATE: | NO. | DATE:     |
| 1         |     |       | 3   |           |
| 2         |     |       | 4   |           |

TOTAL SHEETS 51



NOTES

THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A 1/4" HOLD DOWN PLATE AND 4 - 7/8" Ø BOLTS WITH NUTS AND WASHERS, RUBRAIL, AND ADHESIVELY ANCHORED BOLTS.

THE HOLD-DOWN PLATE SHALL CONFORM TO AASHTO M270 GRADE 36. AFTER FABRICATION, THE HOLD-DOWN PLATE SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH AASHTO M111.

BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M291. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 7/8" Ø GALVANIZED BOLTS, NUTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)

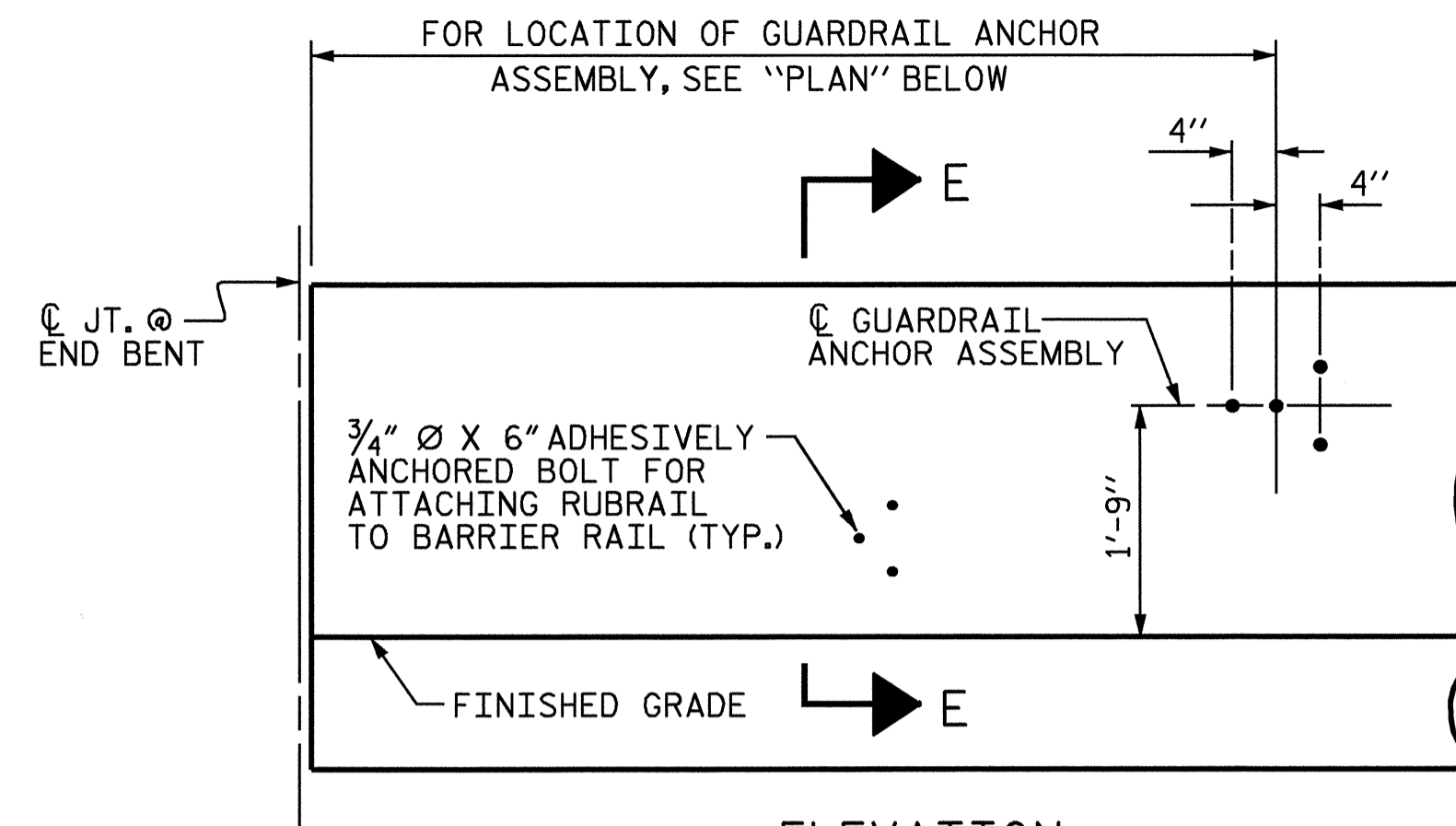
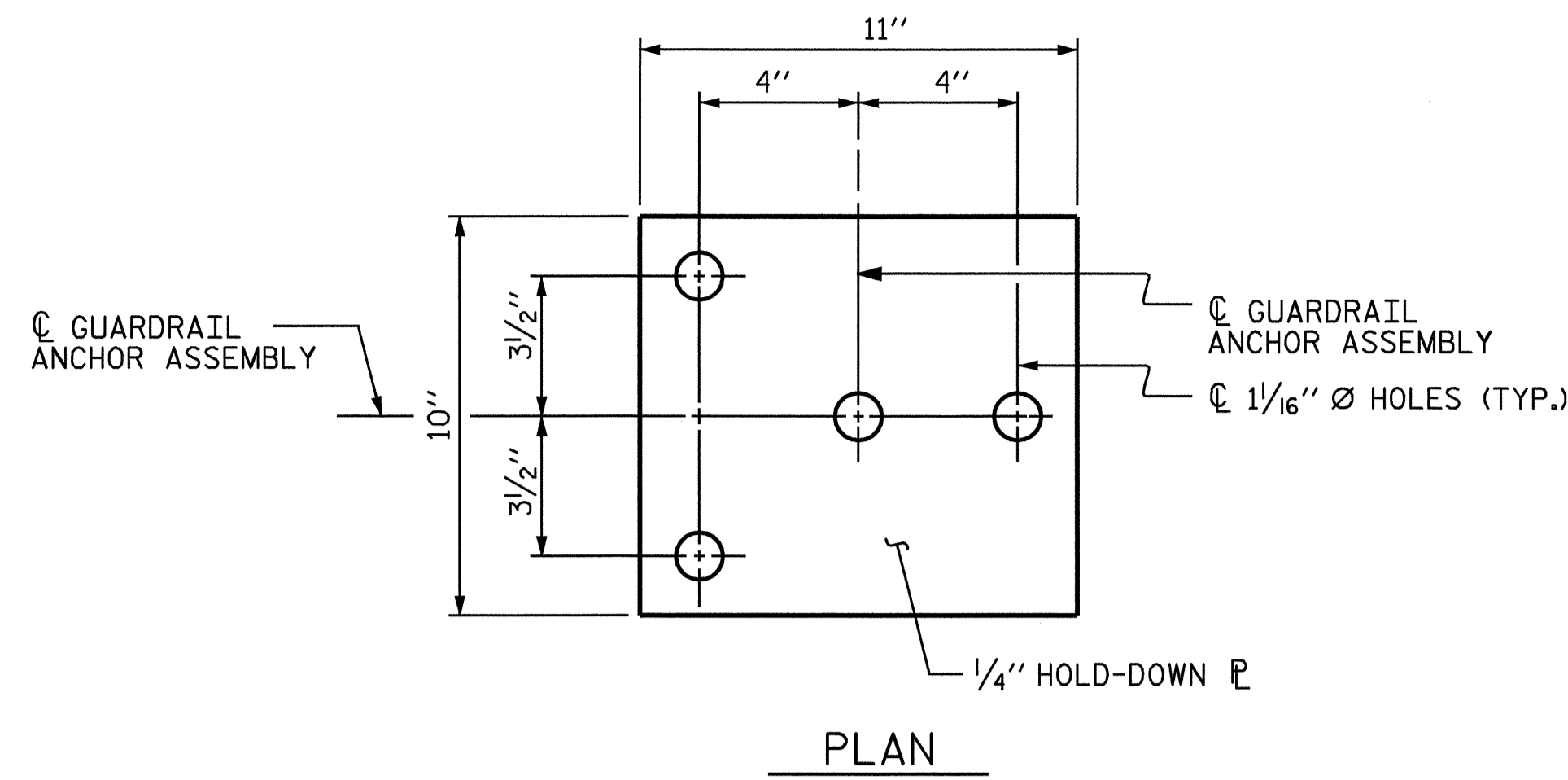
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

AFTER INSTALLATION, THE EXPOSED THREAD OF THE BOLT SHALL BE BURRED WITH A SHARP POINTED TOOL.

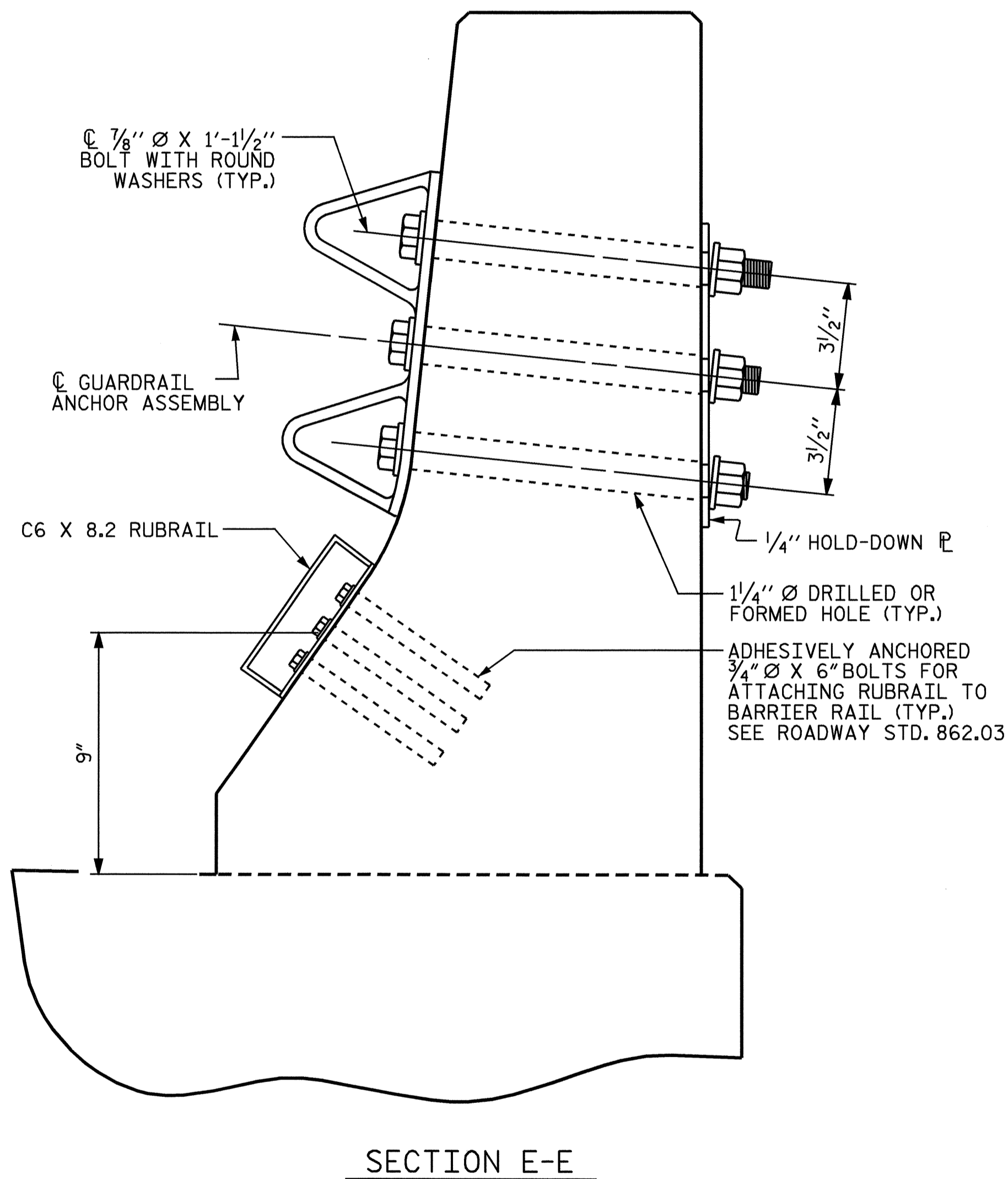
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR CONCRETE BARRIER RAIL.

THE 1 1/4" Ø HOLES SHALL BE FORMED OR DRILLED WITH A CORE BIT. IMPACT TOOLS WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.

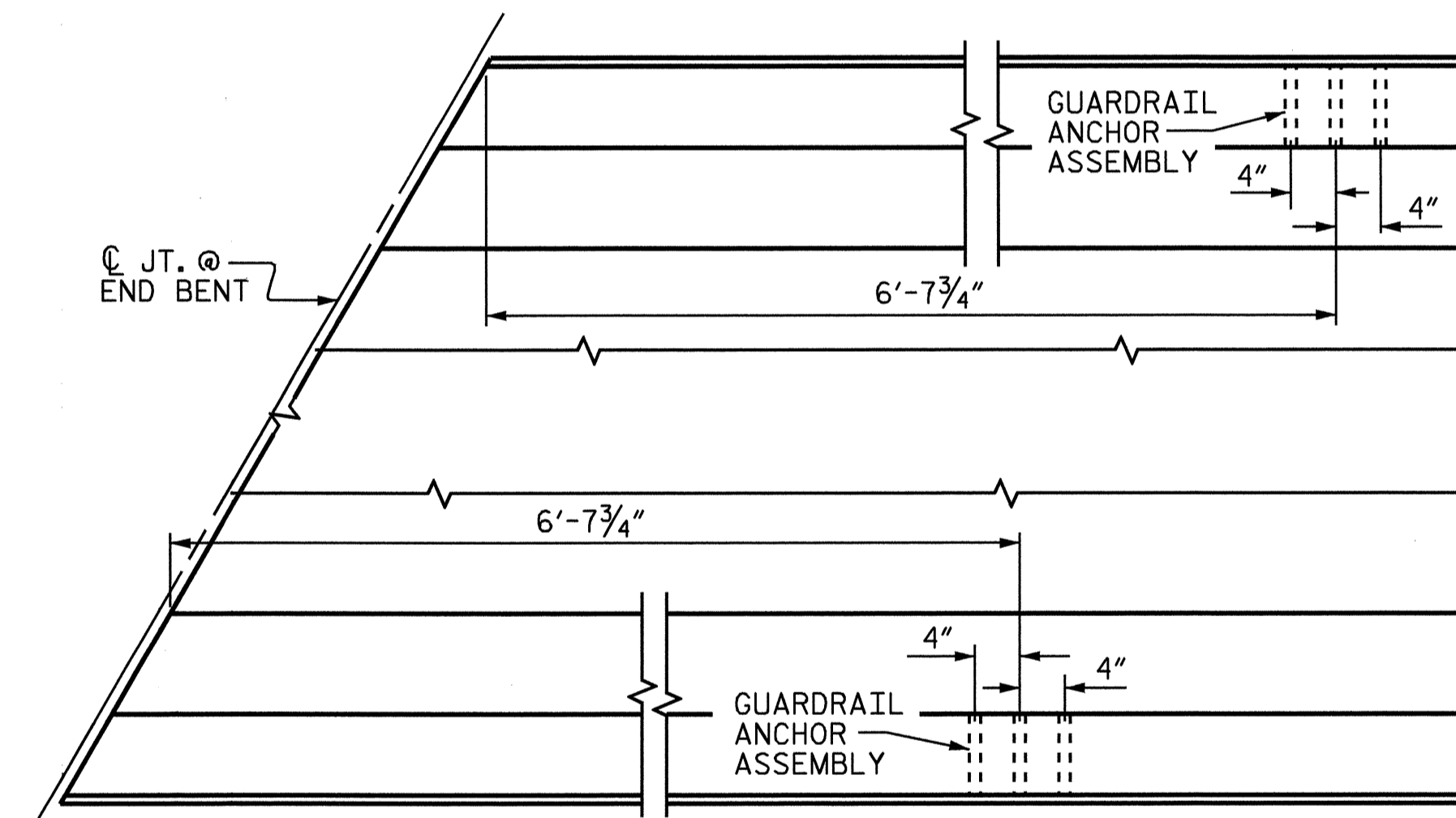
THE C6 X 8.2 RUBRAIL IS TO BE ADHESIVELY ANCHORED TO THE RAIL USING THREE 3/4" Ø X 6" BOLTS WITH WASHERS. LEVEL ONE FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE 3/4" Ø BOLT IS 12 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE SPECIAL PROVISIONS. SEE ROADWAY STANDARD 862.03 FOR DETAILS AND LOCATION OF THE RUBRAIL.



ELEVATION  
FOR LOCATION OF RUBRAIL, SEE ROADWAY STD. 862.03

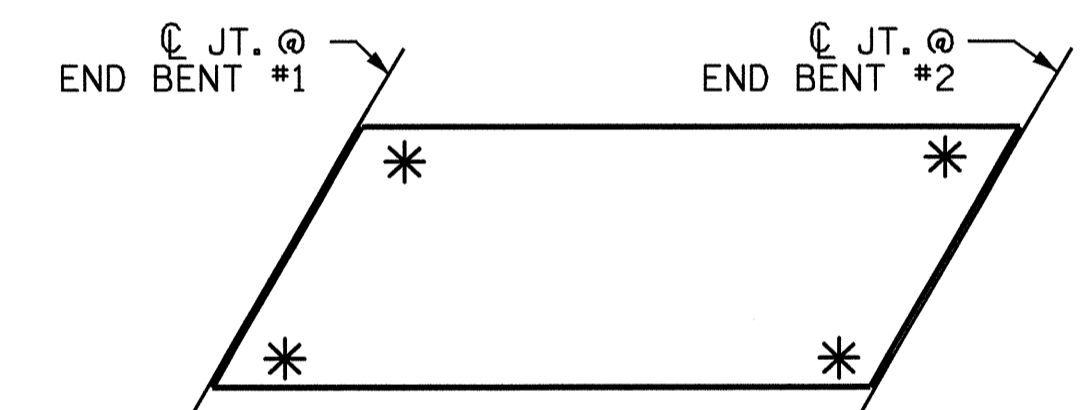


SECTION E-E  
GUARDRAIL ANCHOR ASSEMBLY DETAILS



PLAN  
LOCATION OF ANCHORS FOR GUARDRAIL

END BENT #1 SHOWN, END BENT #2 SIMILAR.

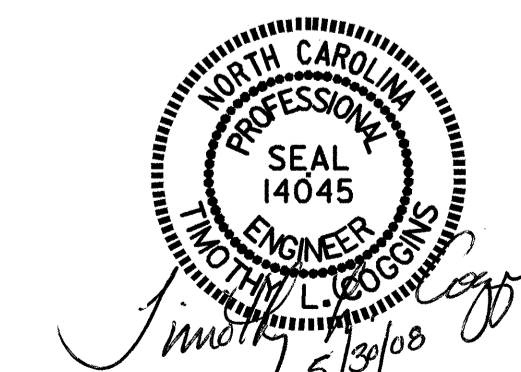


SKETCH SHOWING POINTS OF ATTACHMENTS

\* DENOTES GUARDRAIL ANCHOR ASSEMBLY

PROJECT NO. B-4280  
STOKES COUNTY  
STATION: 19+10.00 -L-

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
STANDARD  
GUARDRAIL ANCHORAGE  
FOR BARRIER RAIL



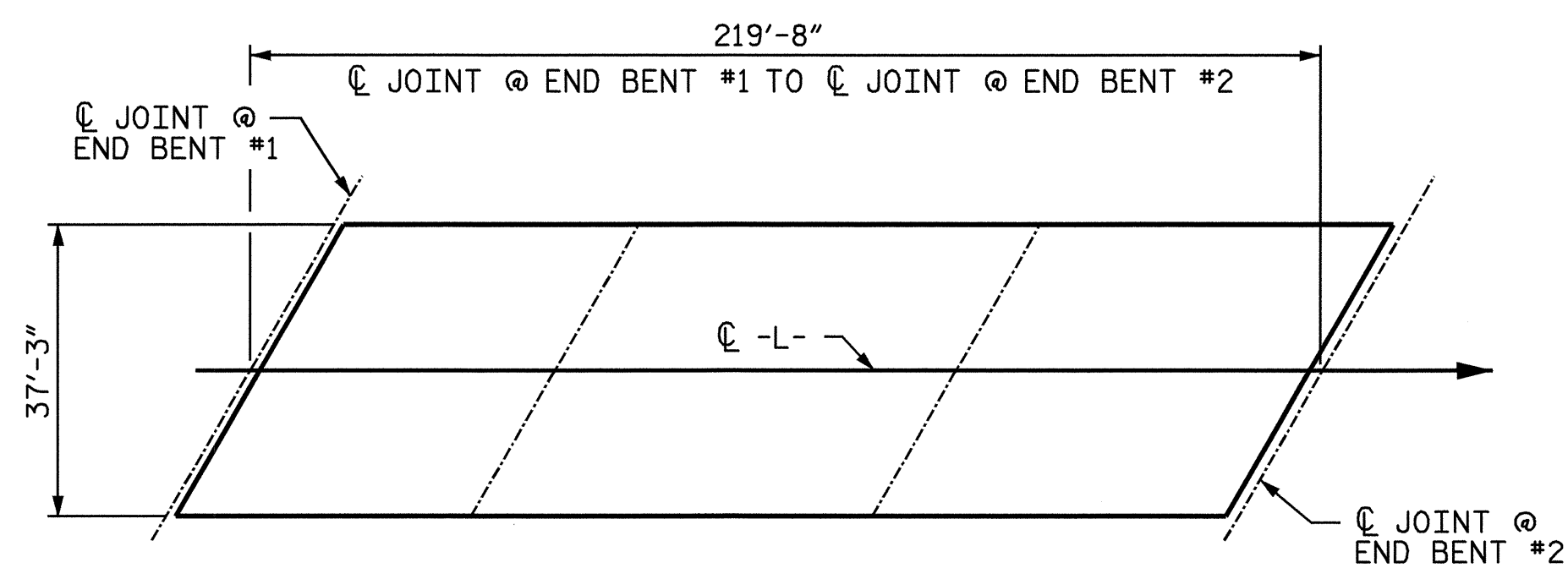
ASSEMBLED BY : PEGGY ADKINS DATE : 7-06  
CHECKED BY : T. L. COGGINS DATE : 7-06  
DRAWN BY : TLA 5/06  
CHECKED BY : GM 5/06

ADDED 5/1/06R KMM/GM

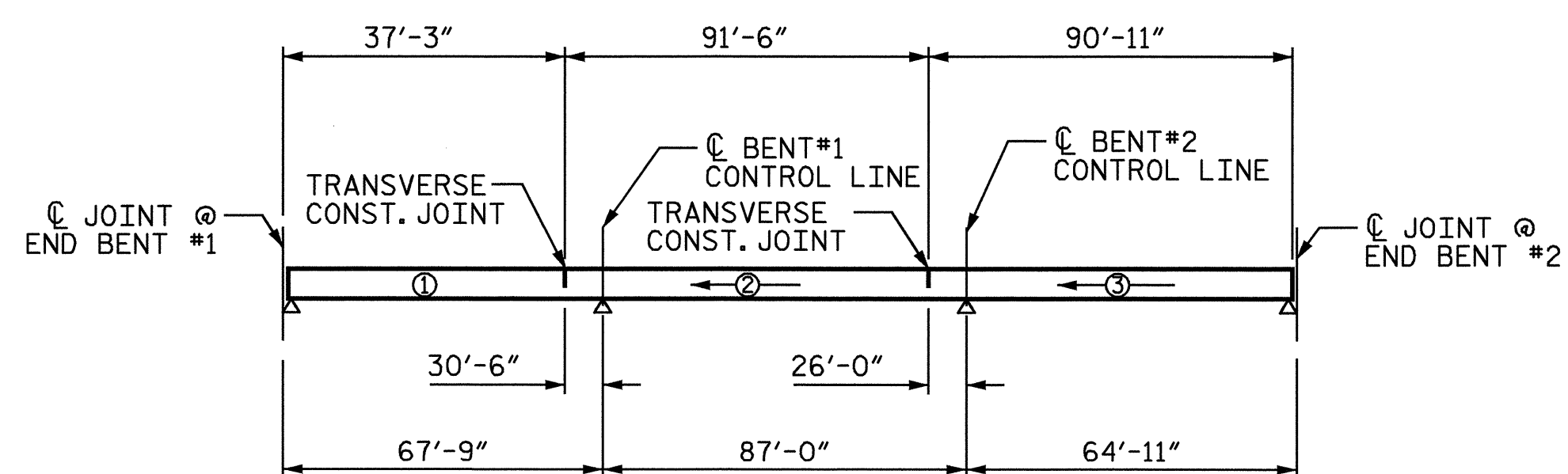
| REVISIONS |     |       |     |     |       | SHEET NO.    |
|-----------|-----|-------|-----|-----|-------|--------------|
| NO.       | BY: | DATE: | NO. | BY: | DATE: | S-18         |
| 1         |     |       | 3   |     |       | TOTAL SHEETS |
| 2         |     |       | 4   |     |       | 51           |

SUPERSTRUCTURE REINFORCING STEEL LENGTHS ARE BASED ON THE FOLLOWING MINIMUM SPLICE LENGTHS

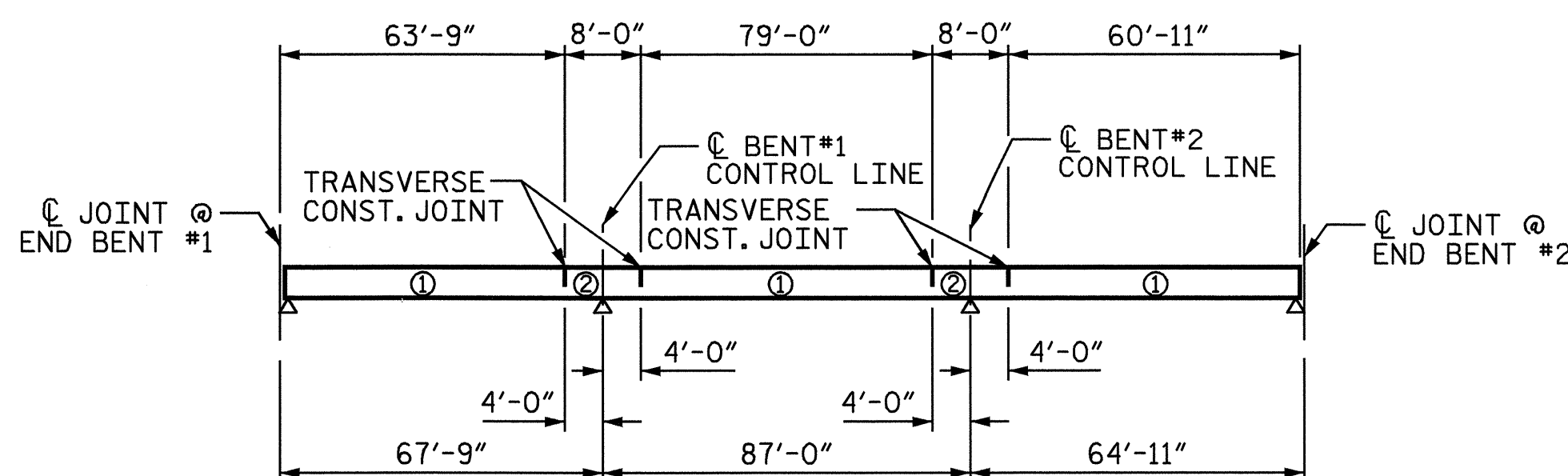
| BAR SIZE | SUPERSTRUCTURE EXCEPT APPROACH SLABS, PARAPET, AND BARRIER RAIL |          | APPROACH SLABS |          | PARAPET AND BARRIER RAIL |
|----------|---|----------|----------------|----------|--------------------------|
|          | EPOXY COATED  | UNCOATED | EPOXY COATED   | UNCOATED |                          |
| #4       | 2'-0"   | 1'-9"    | 2'-0"          | 1'-9"    | 2'-9"                    |
| #5       | 2'-6"   | 2'-2"    | 2'-6"          | 2'-2"    | 3'-5"                    |
| #6       | 3'-0"   | 2'-7"    | 3'-10"         | 2'-7"    | 4'-4"                    |
| #7       | 5'-3"   | 3'-6"    |                |          |                          |
| #8       | 6'-10"  | 4'-7"    |                |          |                          |



LAYOUT FOR COMPUTING AREA REINFORCED CONCRETE DECK SLAB (SQ. FT. = 8183)



POURING SEQUENCE



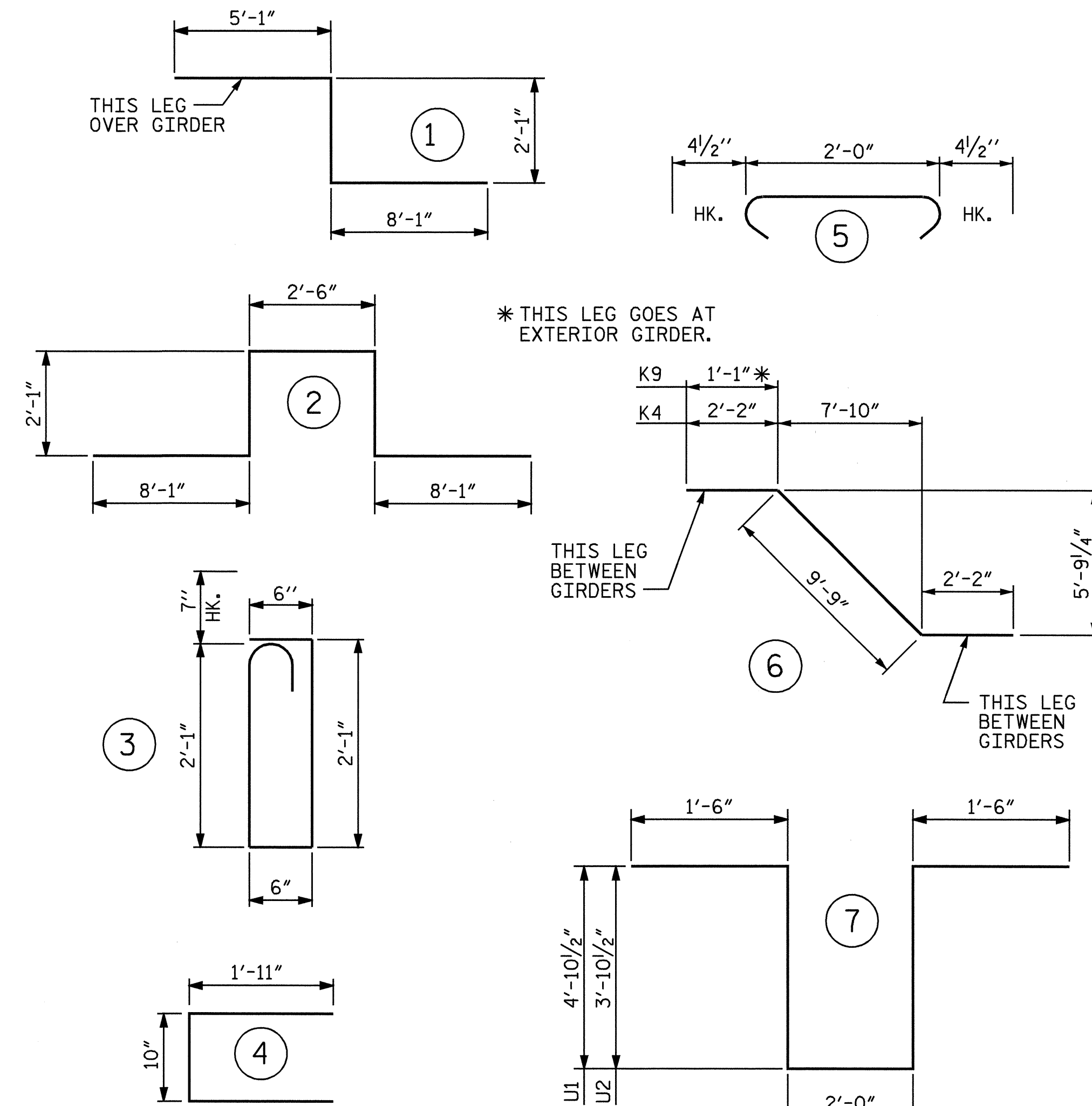
OPTIONAL POURING SEQUENCE

POUR ② CAN NOT BE STARTED UNTIL BOTH ADJACENT ① POURS REACH A MINIMUM OF 3000 PSI.

REINFORCING STEEL BAR SCHEDULE

| BAR NO. | SIZE | TYPE | LENGTH | WEIGHT  | BAR NO. | SIZE | TYPE | LENGTH | WEIGHT                          |         |       |
|---------|------|------|--------|---------|---------|------|------|--------|---------------------------------|---------|-------|
| *A1     | 396  | 5    | STR    | 36'-11" | 15248   | *B1  | 50   | 4      | STR                             | 22'-9"  | 760   |
| A2      | 396  | 5    | STR    | 36'-11" | 15248   | *B2  | 25   | 7      | STR                             | 57'-0"  | 2913  |
| *A101   | 4    | 5    | STR    | 34'-8"  | 145     | *B3  | 24   | 7      | STR                             | 24'-0"  | 1177  |
| *A102   | 4    | 5    | STR    | 32'-11" | 137     | *B4  | 25   | 7      | STR                             | 56'-0"  | 2862  |
| *A103   | 4    | 5    | STR    | 31'-2"  | 130     | *B5  | 24   | 7      | STR                             | 23'-6"  | 1153  |
| *A104   | 4    | 5    | STR    | 29'-6"  | 123     | *B6  | 25   | 4      | STR                             | 28'-0"  | 468   |
| *A105   | 4    | 5    | STR    | 27'-9"  | 116     | *B7  | 50   | 4      | STR                             | 21'-10" | 729   |
| *A106   | 4    | 5    | STR    | 26'-0"  | 108     | B8   | 176  | 5      | STR                             | 56'-6"  | 10372 |
| *A107   | 4    | 5    | STR    | 24'-3"  | 101     | *G1  | 2    | 5      | STR                             | 42'-7"  | 89    |
| *A108   | 4    | 5    | STR    | 22'-6"  | 94      | *K1  | 8    | 8      | 1                               | 15'-3"  | 326   |
| *A109   | 4    | 5    | STR    | 20'-10" | 87      | *K2  | 8    | 8      | 2                               | 22'-10" | 488   |
| *A110   | 4    | 5    | STR    | 19'-1"  | 80      | *K3  | 18   | 6      | STR                             | 9'-2"   | 248   |
| *A111   | 4    | 5    | STR    | 17'-4"  | 72      | K4   | 10   | 4      | 6                               | 14'-1"  | 94    |
| *A112   | 4    | 5    | STR    | 15'-7"  | 65      | K5   | 12   | 4      | STR                             | 9'-8"   | 77    |
| *A113   | 4    | 5    | STR    | 13'-10" | 58      | K6   | 12   | 4      | STR                             | 9'-2"   | 73    |
| *A114   | 4    | 5    | STR    | 12'-2"  | 51      | K7   | 12   | 4      | STR                             | 7'-11"  | 63    |
| *A115   | 4    | 5    | STR    | 10'-5"  | 43      | K8   | 24   | 4      | STR                             | 10'-4"  | 166   |
| *A116   | 4    | 5    | STR    | 8'-8"   | 36      | K9   | 20   | 4      | 6                               | 13'-0"  | 174   |
| *A117   | 4    | 5    | STR    | 6'-11"  | 29      | *S1  | 54   | 5      | 3                               | 5'-9"   | 324   |
| *A118   | 4    | 5    | STR    | 5'-3"   | 22      | *S2  | 54   | 4      | 4                               | 4'-8"   | 168   |
| *A119   | 4    | 5    | STR    | 3'-6"   | 15      | S3   | 180  | 4      | 5                               | 2'-9"   | 331   |
| *A120   | 4    | 5    | STR    | 1'-9"   | 7       | U1   | 36   | 4      | 7                               | 14'-9"  | 355   |
| A201    | 4    | 5    | STR    | 35'-5"  | 148     | U2   | 12   | 4      | 7                               | 12'-9"  | 102   |
| A202    | 4    | 5    | STR    | 33'-8"  | 140     |      |      |        |                                 |         |       |
| A203    | 4    | 5    | STR    | 31'-11" | 133     |      |      |        |                                 |         |       |
| A204    | 4    | 5    | STR    | 30'-3"  | 126     |      |      |        |                                 |         |       |
| A205    | 4    | 5    | STR    | 28'-6"  | 119     |      |      |        |                                 |         |       |
| A206    | 4    | 5    | STR    | 26'-9"  | 112     |      |      |        |                                 |         |       |
| A207    | 4    | 5    | STR    | 25'-0"  | 104     |      |      |        |                                 |         |       |
| A208    | 4    | 5    | STR    | 23'-3"  | 97      |      |      |        |                                 |         |       |
| A209    | 4    | 5    | STR    | 21'-7"  | 90      |      |      |        |                                 |         |       |
| A210    | 4    | 5    | STR    | 19'-10" | 83      |      |      |        |                                 |         |       |
| A211    | 4    | 5    | STR    | 18'-1"  | 75      |      |      |        |                                 |         |       |
| A212    | 4    | 5    | STR    | 16'-4"  | 68      |      |      |        |                                 |         |       |
| A213    | 4    | 5    | STR    | 14'-7"  | 61      |      |      |        |                                 |         |       |
| A214    | 4    | 5    | STR    | 12'-11" | 54      |      |      |        |                                 |         |       |
| A215    | 4    | 5    | STR    | 11'-2"  | 47      |      |      |        |                                 |         |       |
| A216    | 4    | 5    | STR    | 9'-5"   | 39      |      |      |        |                                 |         |       |
| A217    | 4    | 5    | STR    | 7'-8"   | 32      |      |      |        |                                 |         |       |
| A218    | 4    | 5    | STR    | 6'-0"   | 25      |      |      |        |                                 |         |       |
| A219    | 4    | 5    | STR    | 4'-3"   | 18      |      |      |        |                                 |         |       |
| A220    | 4    | 5    | STR    | 2'-6"   | 10      |      |      |        |                                 |         |       |
|         |      |      |        |         |         |      |      |        | REINFORCING STEEL               | LBS.    | 28636 |
|         |      |      |        |         |         |      |      |        | *EPOXY COATED REINFORCING STEEL | LBS.    | 28472 |

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

GROOVING BRIDGE FLOORS

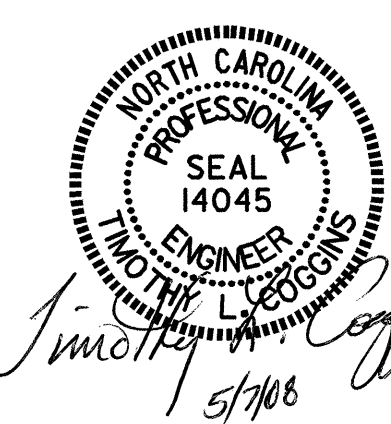
|      | BRIDGE DECK | APPROACH SLABS | TOTAL       |
|------|-------------|----------------|-------------|
| AREA | 6762 SQ.FT. | 1470 SQ.FT.    | 8232 SQ.FT. |

—SUPERSTRUCTURE BILL OF MATERIAL—

|          | CLASS AA CONCRETE (CU. YDS.) | REINFORCING STEEL (LBS.) | EPOXY COATED REINFORCING STEEL (LBS.) |
|----------|------------------------------|--------------------------|---------------------------------------|
| POUR #1  | 48.1                         |                          |                                       |
| POUR #2  | 123.7                        |                          |                                       |
| POUR #3  | 126.0                        | 28636                    | 28472                                 |
| TOTALS** | 297.8                        | 28636                    | 28472                                 |

\*\*QUANTITIES FOR BARRIER RAIL ARE NOT INCLUDED

PROJECT NO. B-4280  
STOKES COUNTY  
STATION: 19+10.00 -L-



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
STANDARD  
SUPERSTRUCTURE  
BILL OF MATERIAL

|                             |                      |
|-----------------------------|----------------------|
| ASSEMBLED BY : PEGGY ADKINS | DATE : 6-04          |
| CHECKED BY : T. L. AVERETTE | DATE : 9-04          |
| DRAWN BY : JMB 5/87         | REV. 6/1/94 EEM/GRP  |
| CHECKED BY : SJD 9/87       | REV. 8/16/99 RWW/LES |
|                             | REV. 5/1/06 TLA/GM   |

| REVISIONS |     |       |     |     | SHEET NO. |
|-----------|-----|-------|-----|-----|-----------|
| NO.       | BY: | DATE: | NO. | BY: | DATE:     |
| 1         |     |       | 3   |     |           |
| 2         |     |       | 4   |     |           |

TOTAL SHEETS 51

STR. #1 STD. NO. BOM2



**NOTES**

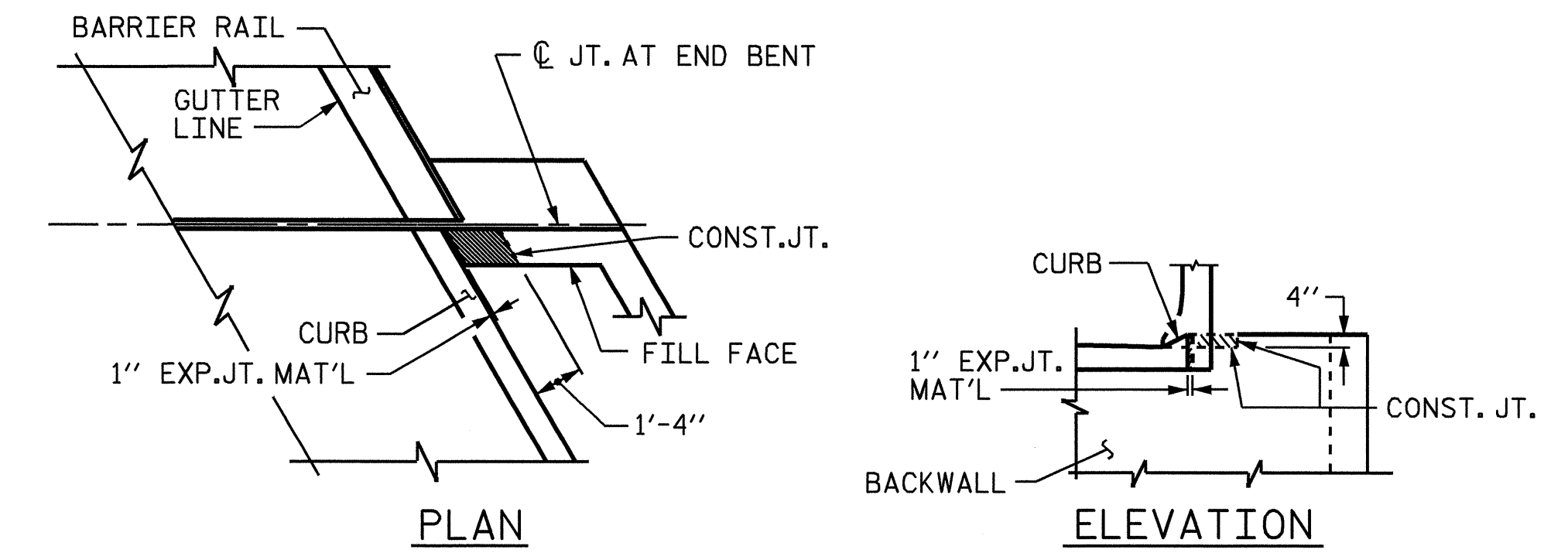
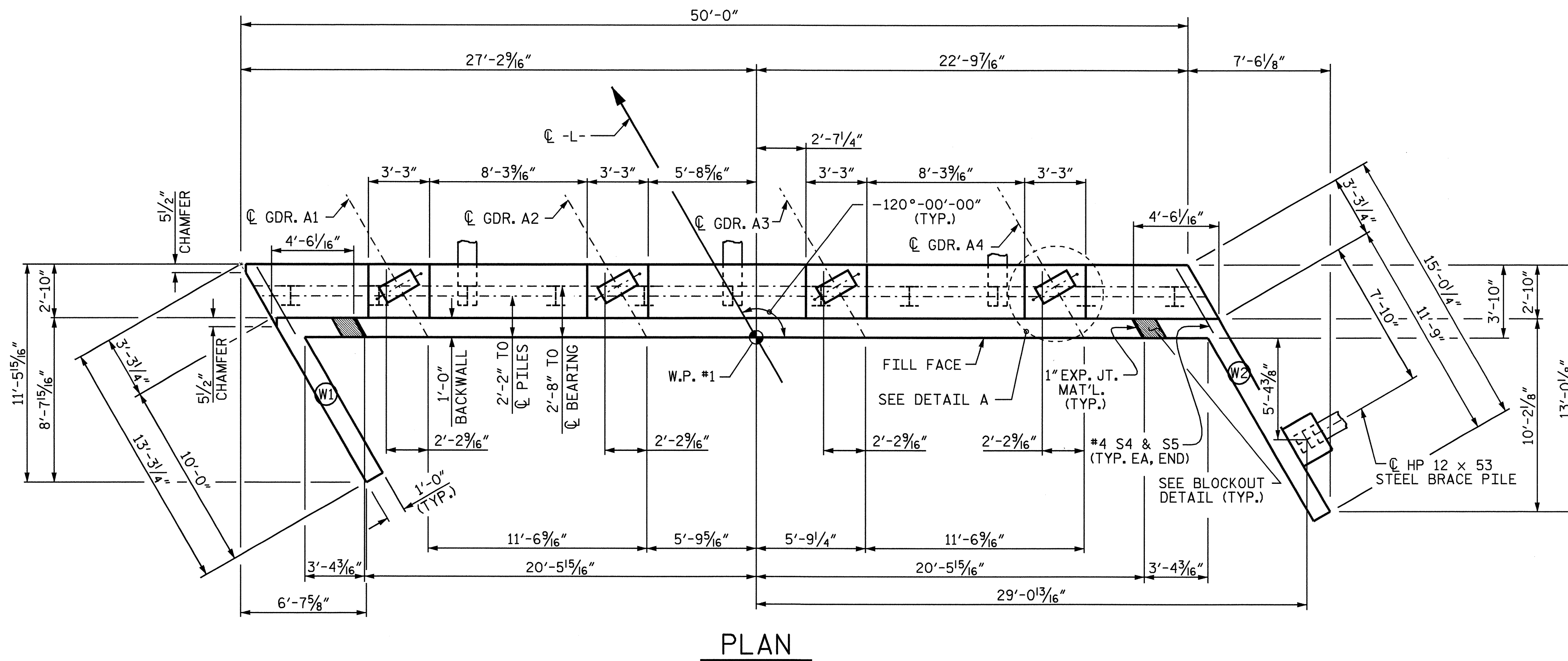
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

BACKWALL SHALL BE PLACED BEFORE APPLYING THE EPOXY PROTECTIVE COATING.

THE TOP SURFACE AREAS OF THE END BENT CAPS SHALL BE CURED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS EXCEPT THE MEMBRANE CURING COMPOUND METHOD SHALL NOT BE USED.

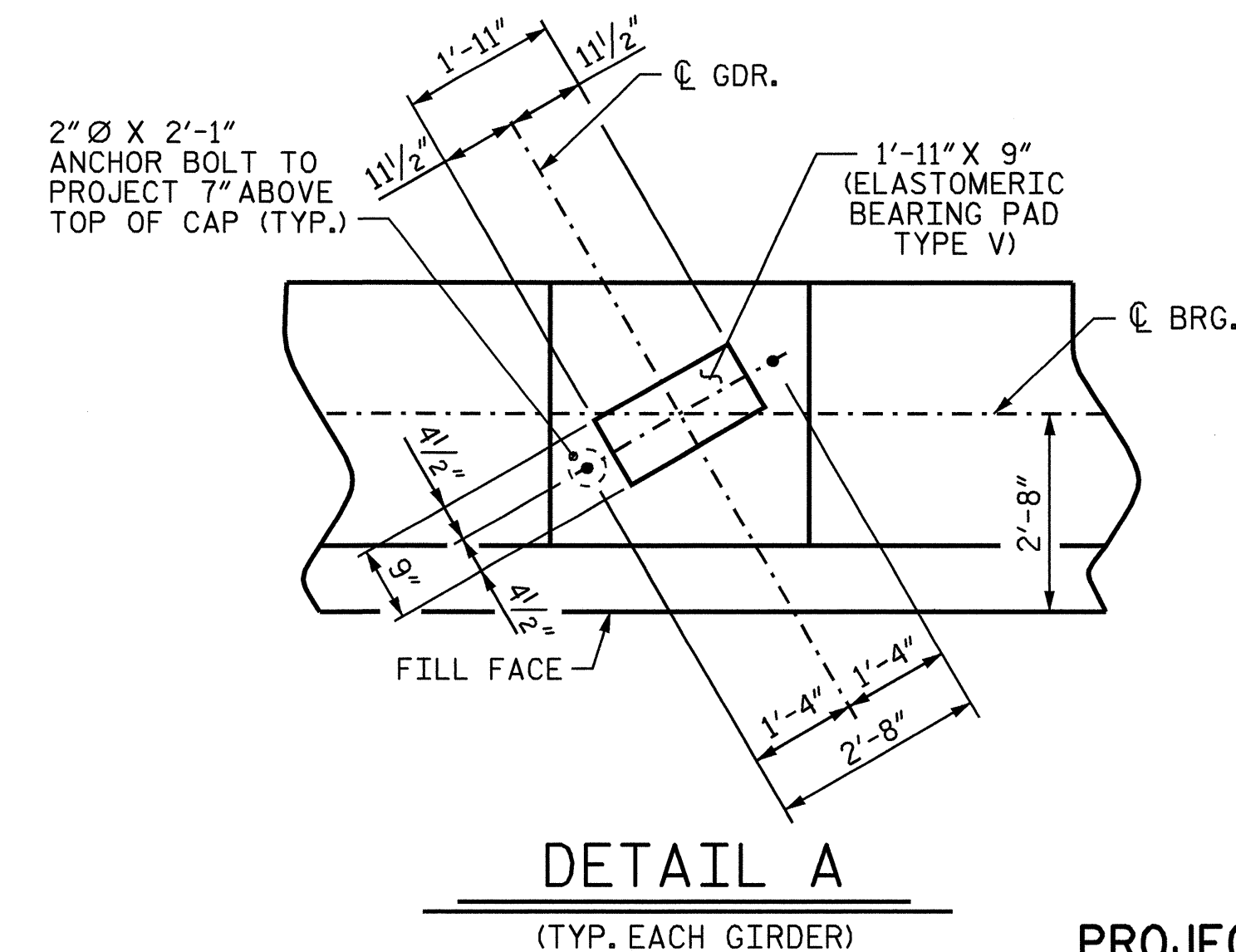
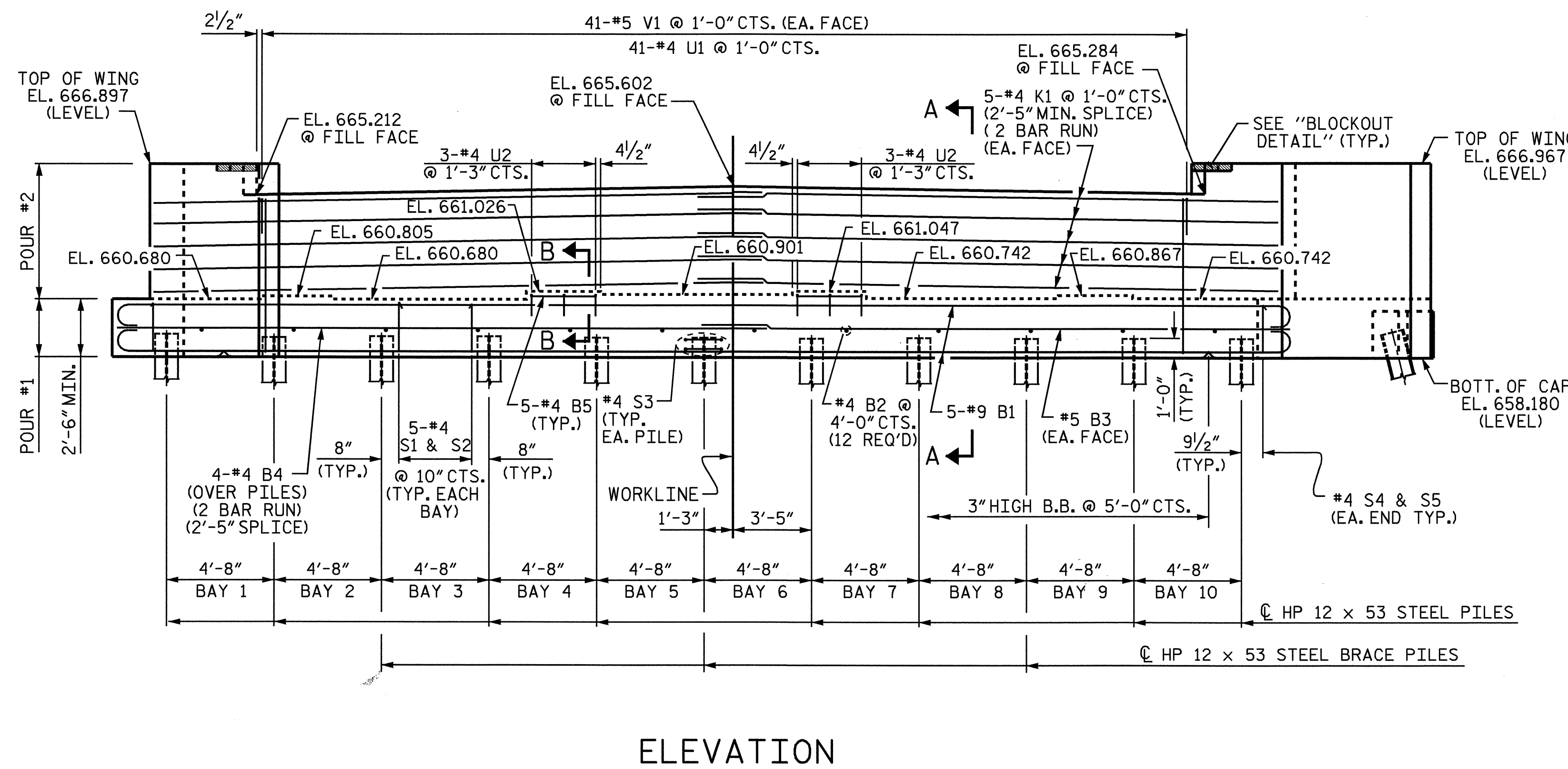
THE TOP SURFACE OF THE END BENT CAP EXCEPT THE BRIDGE SEAT BUILDUPS SHALL BE SLOPED TRANSVERSELY FROM THE FILL FACE TO THE BACK FACE AT THE RATE OF 2 %.

THE CONTRACTOR SHALL PROVIDE FOR INSTALLATION OF THE 4" DIAMETER DRAIN PIPE THROUGH THE WING WALL AS REQUIRED FOR REINFORCED BRIDGE APPROACH FILLS. SEE THE ROADWAY PLANS. REINFORCING STEEL IN THE WING WALL MAY BE SHIFTED AS NECESSARY TO CLEAR THE DRAIN PIPE.



**BLOCKOUT IN WING WALL FOR FITTING EVAZOTE JOINT SEAL**

NOTE: THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE JOINT BETWEEN THE DECK AND APPROACH SLAB HAS BEEN SAWED AND THE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

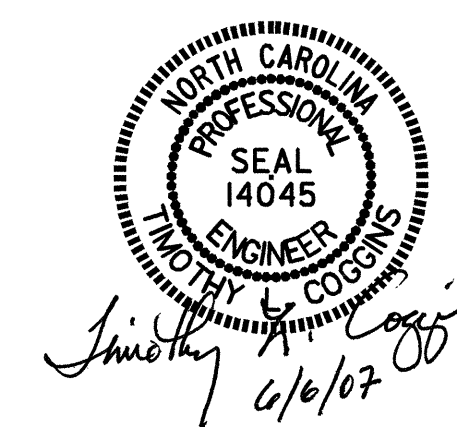


PROJECT NO. B-4280  
STOKES COUNTY  
 STATION: 19+10.00 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

SUBSTRUCTURE  
 END BENT #1

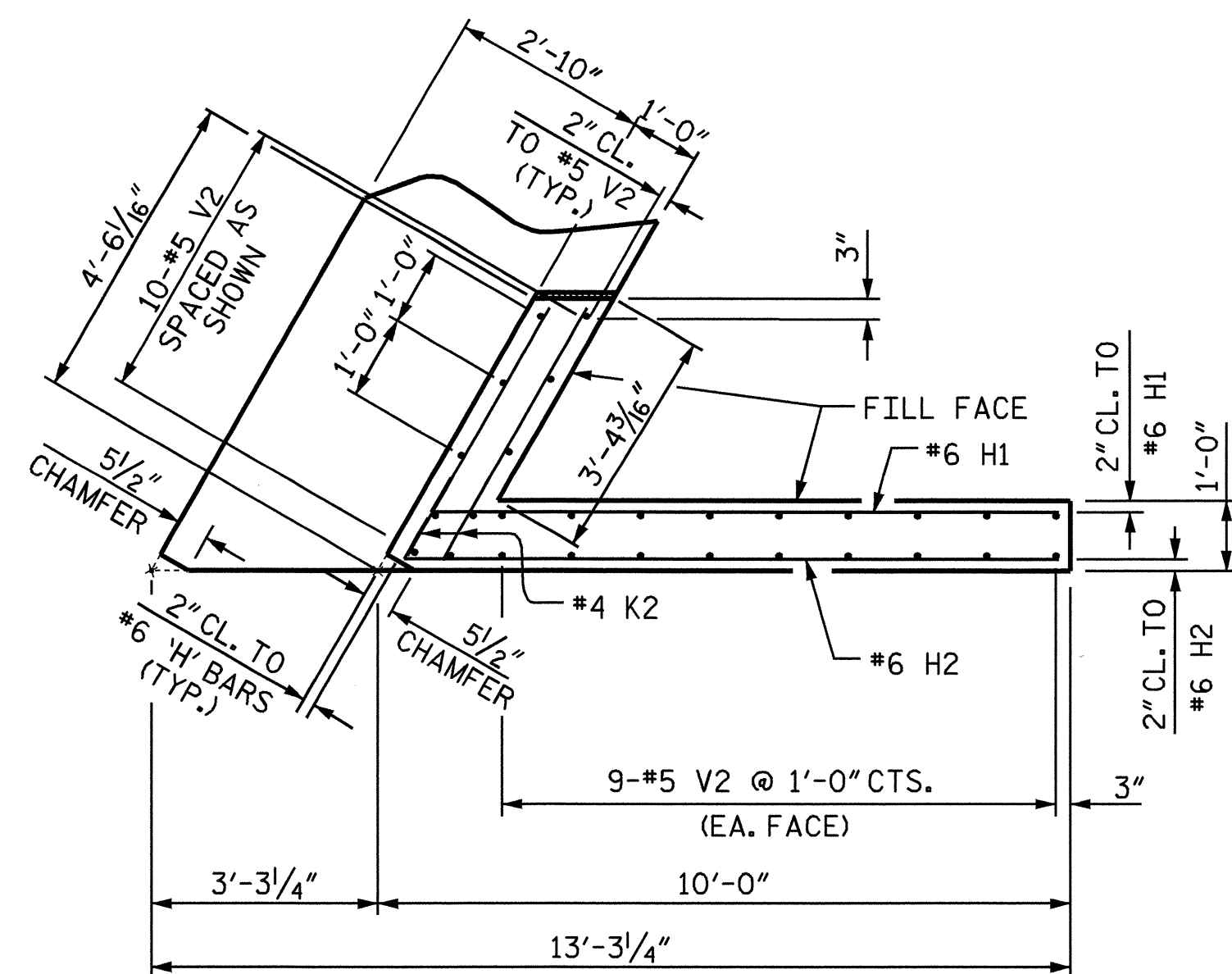


| REVISIONS |     |       |     |     |       | SHEET NO.<br>S-20  |
|-----------|-----|-------|-----|-----|-------|--------------------|
| NO.       | BY: | DATE: | NO. | BY: | DATE: |                    |
| 1         |     |       | 3   |     |       | TOTAL SHEETS<br>51 |
| 2         |     |       | 4   |     |       |                    |

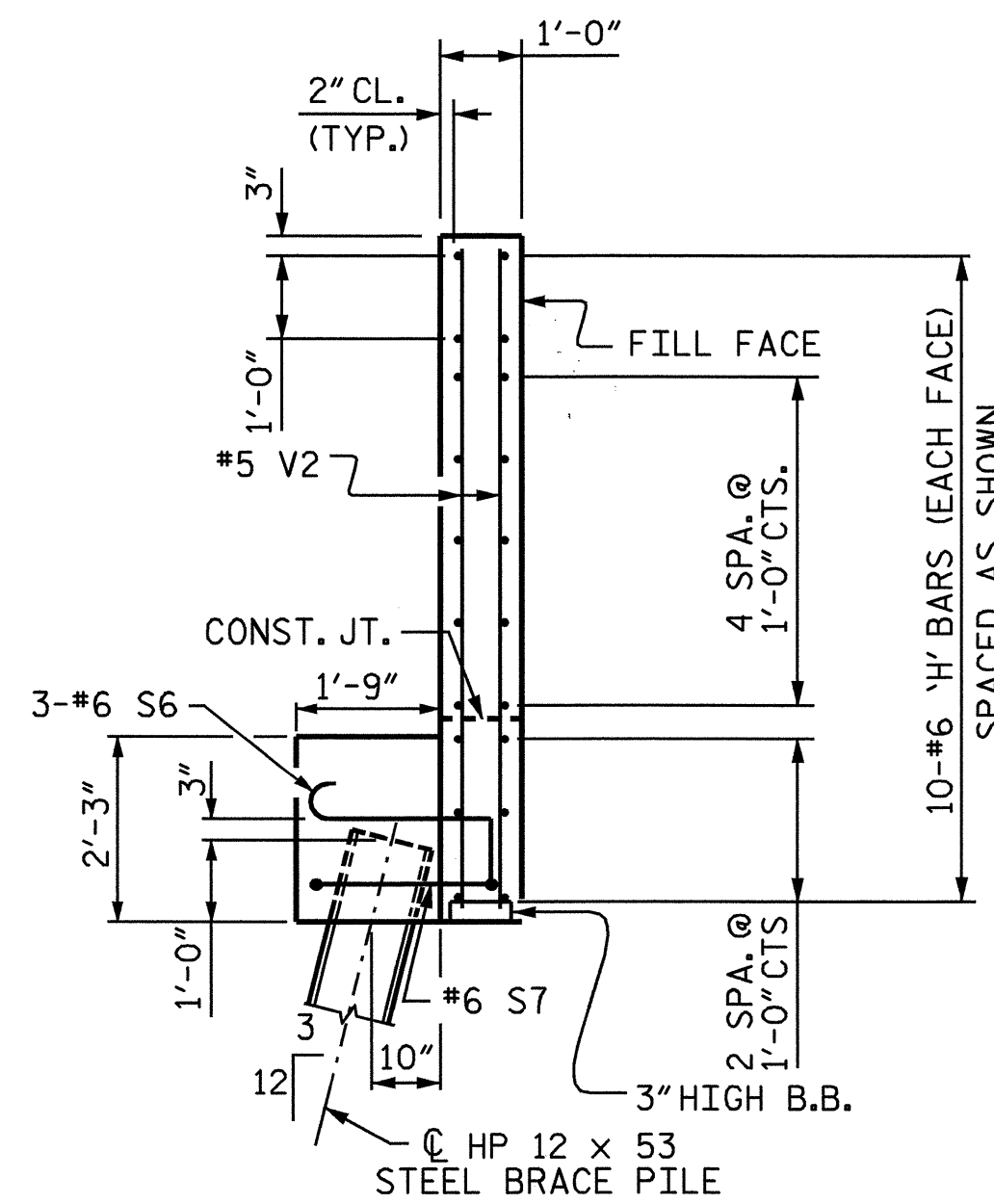
DRAWN BY : B.N.BARODAWALA DATE : 3-21-07  
 CHECKED BY : P. ADKINS DATE : 3-07

06-JUN-2007 12:01  
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 toverette

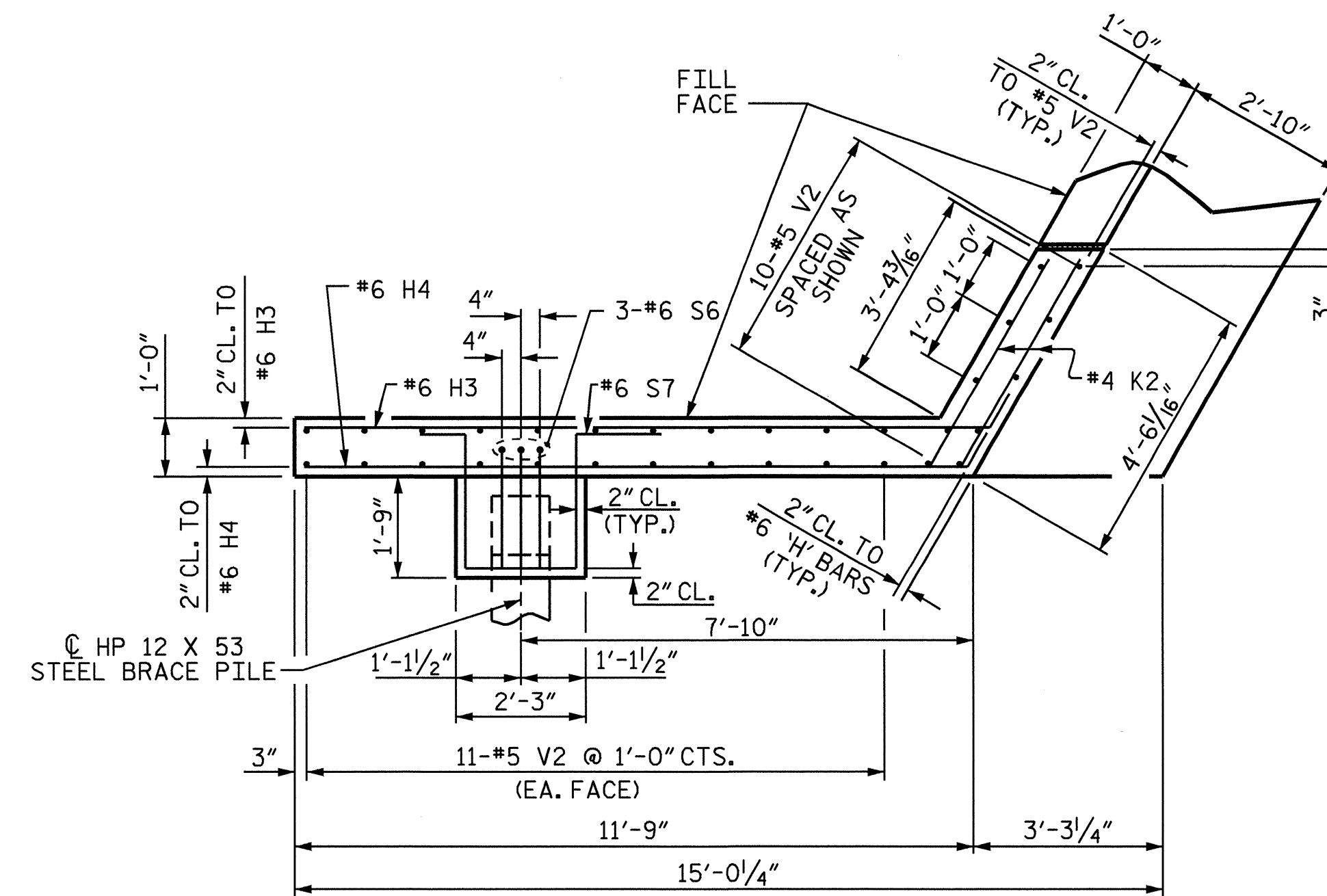
STR. #1



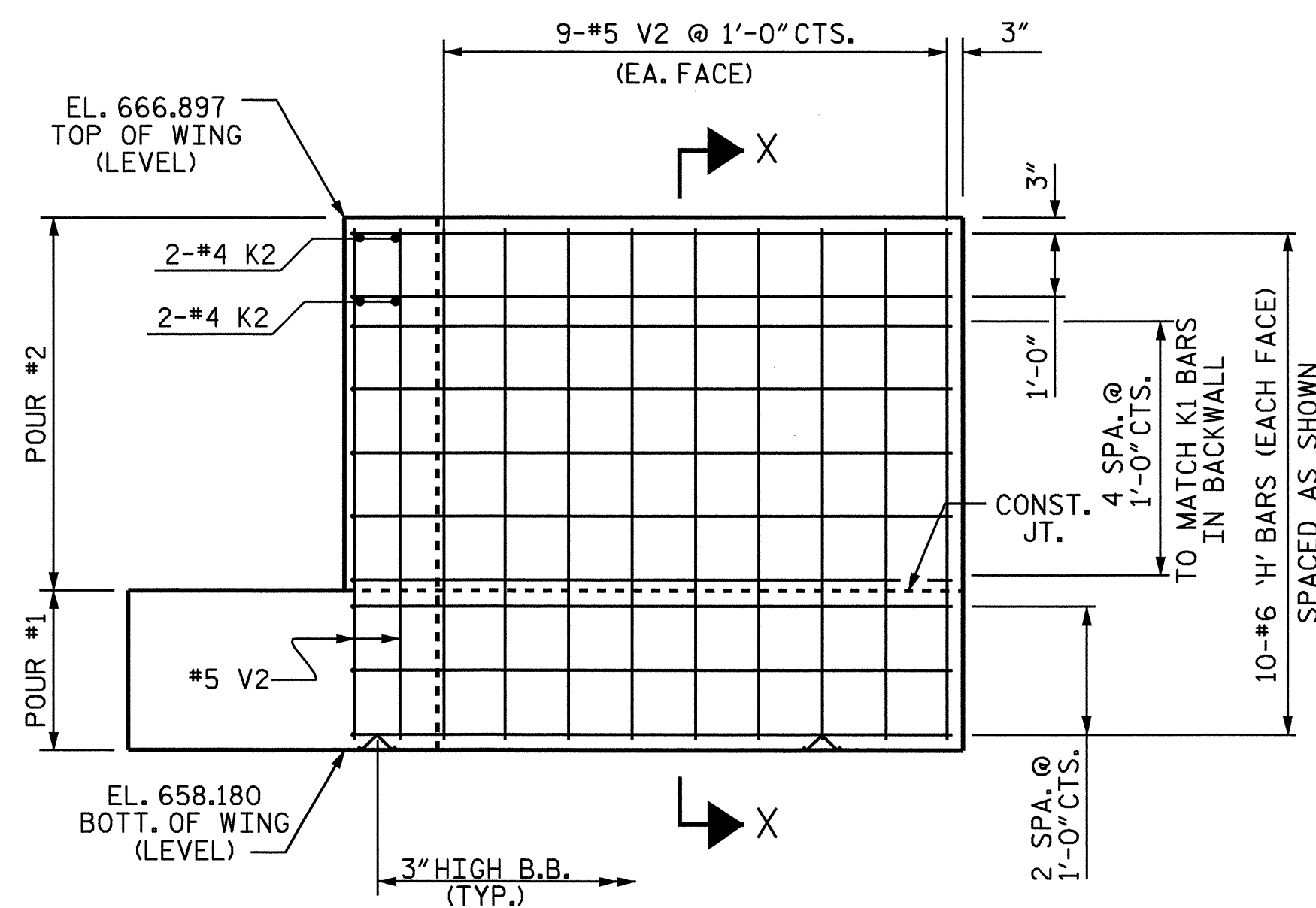
PLAN OF WING W1



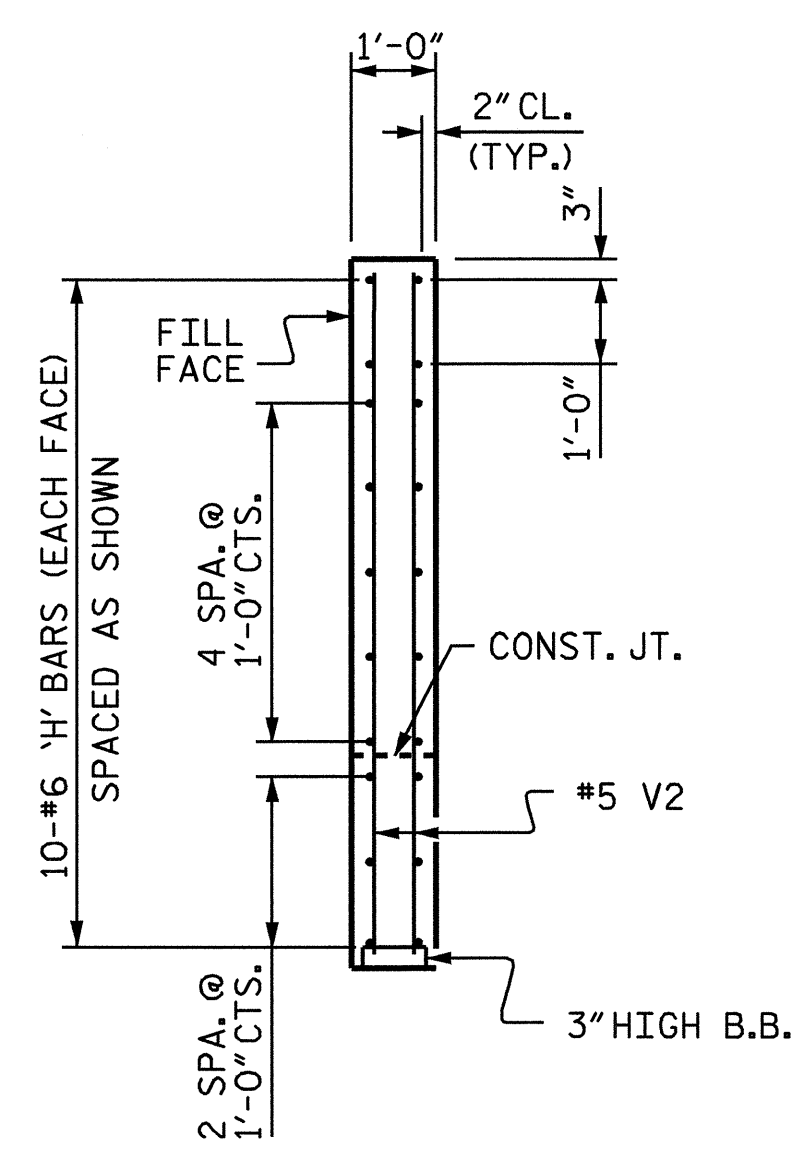
SECTION Y-Y



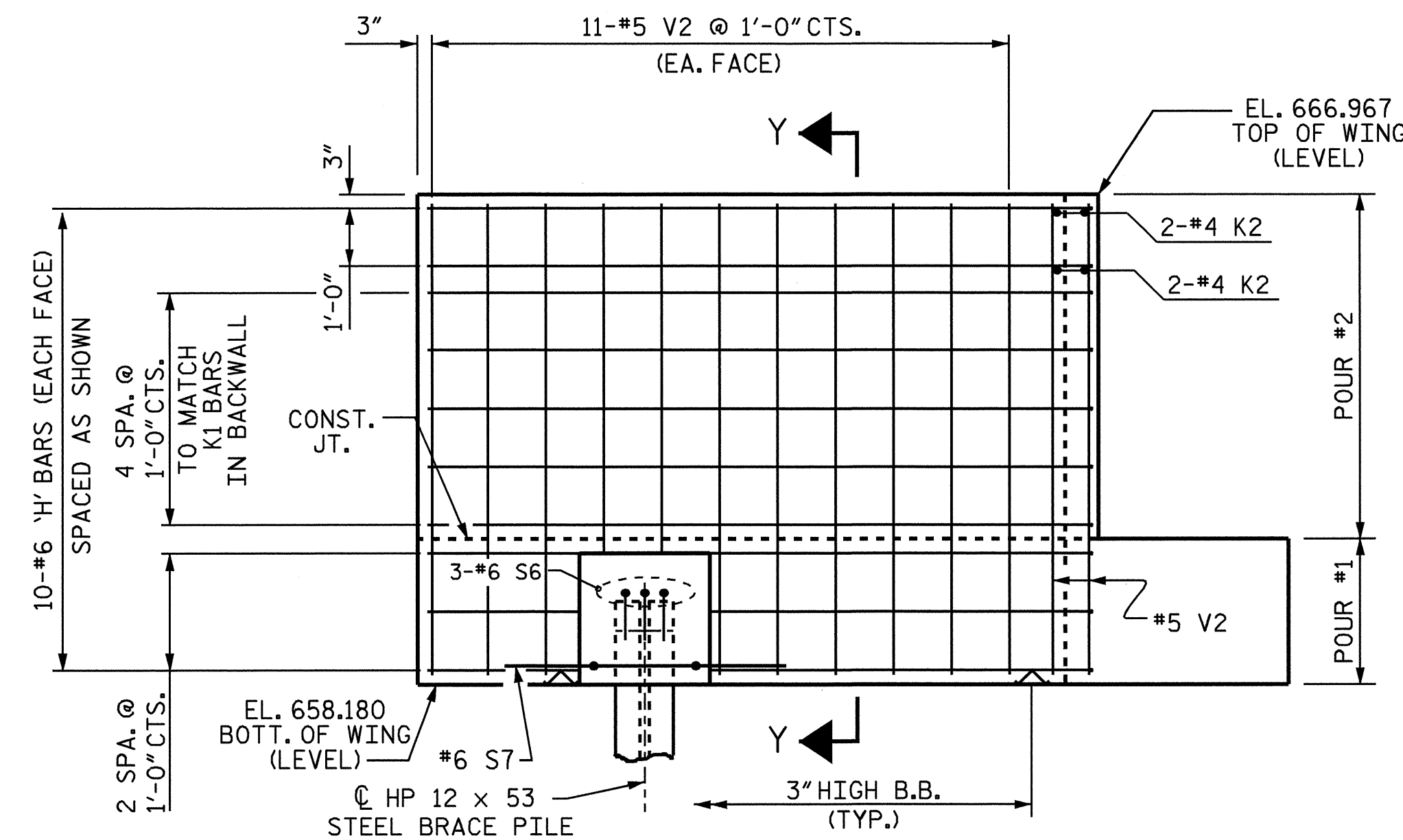
PLAN OF WING W2



ELEVATION OF WING W1



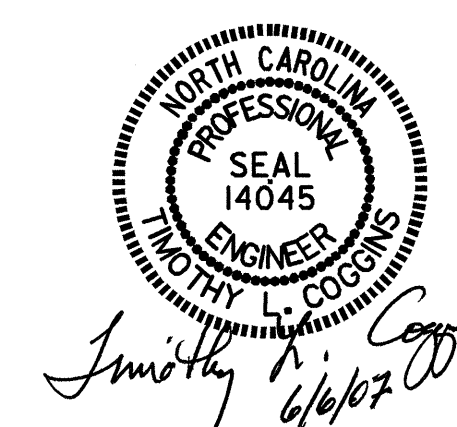
SECTION X-X



ELEVATION OF WING W2

DRAWN BY : B.N.BARODAWALA DATE : 3-21-07  
 CHECKED BY : P. ADKINS DATE : 3-07

06-JUN-2007 12:02  
 G:\TIP\Projects-B\B4280\Structures\B4280Str\*1\FINAL PLANS\B4280.sd.E1.dgn  
 toverette



PROJECT NO. B-4280  
 STOKES COUNTY  
 STATION: 19+10.00 -L-

SHEET 2 OF 3

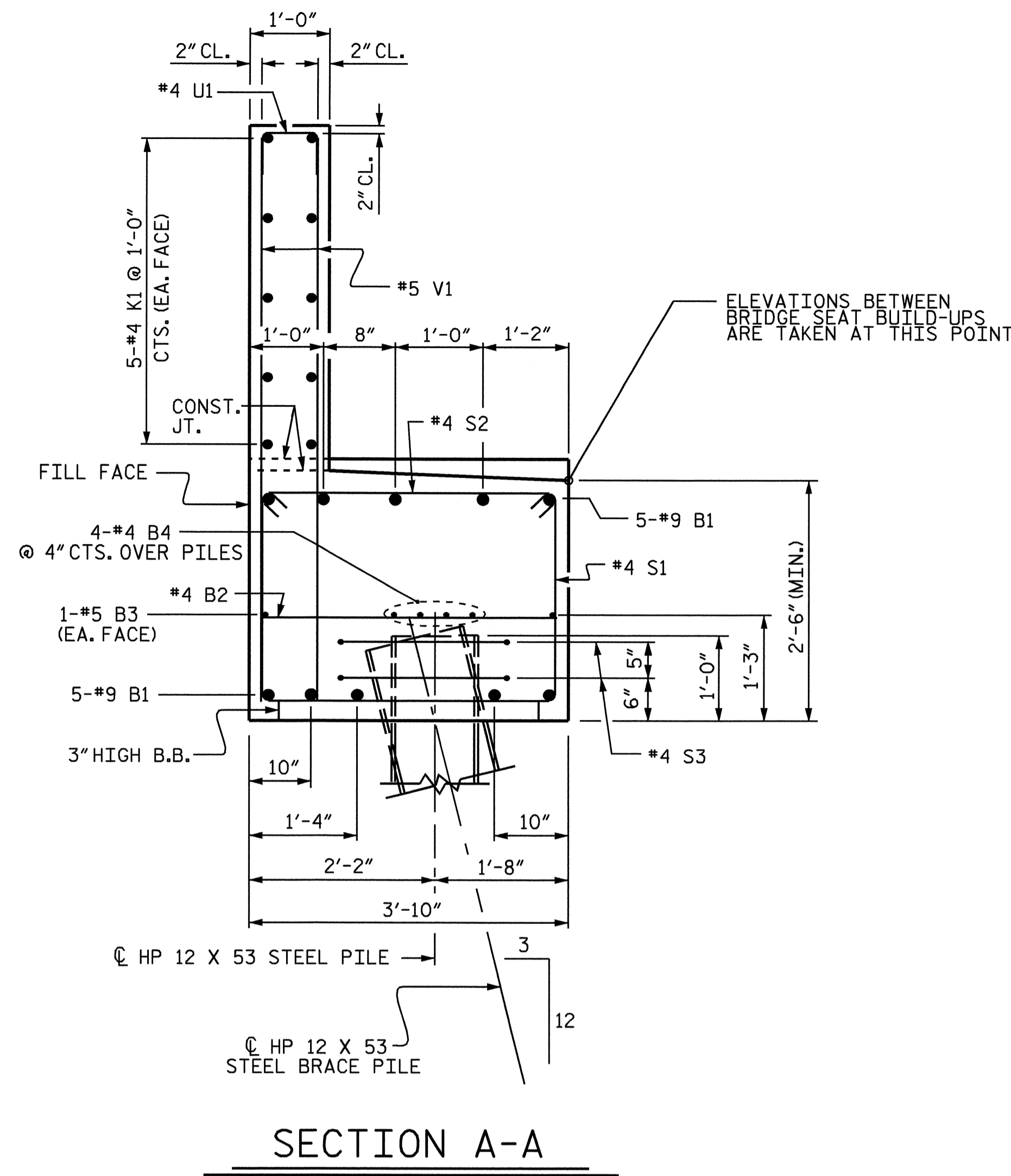
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

SUBSTRUCTURE  
 END BENT #1

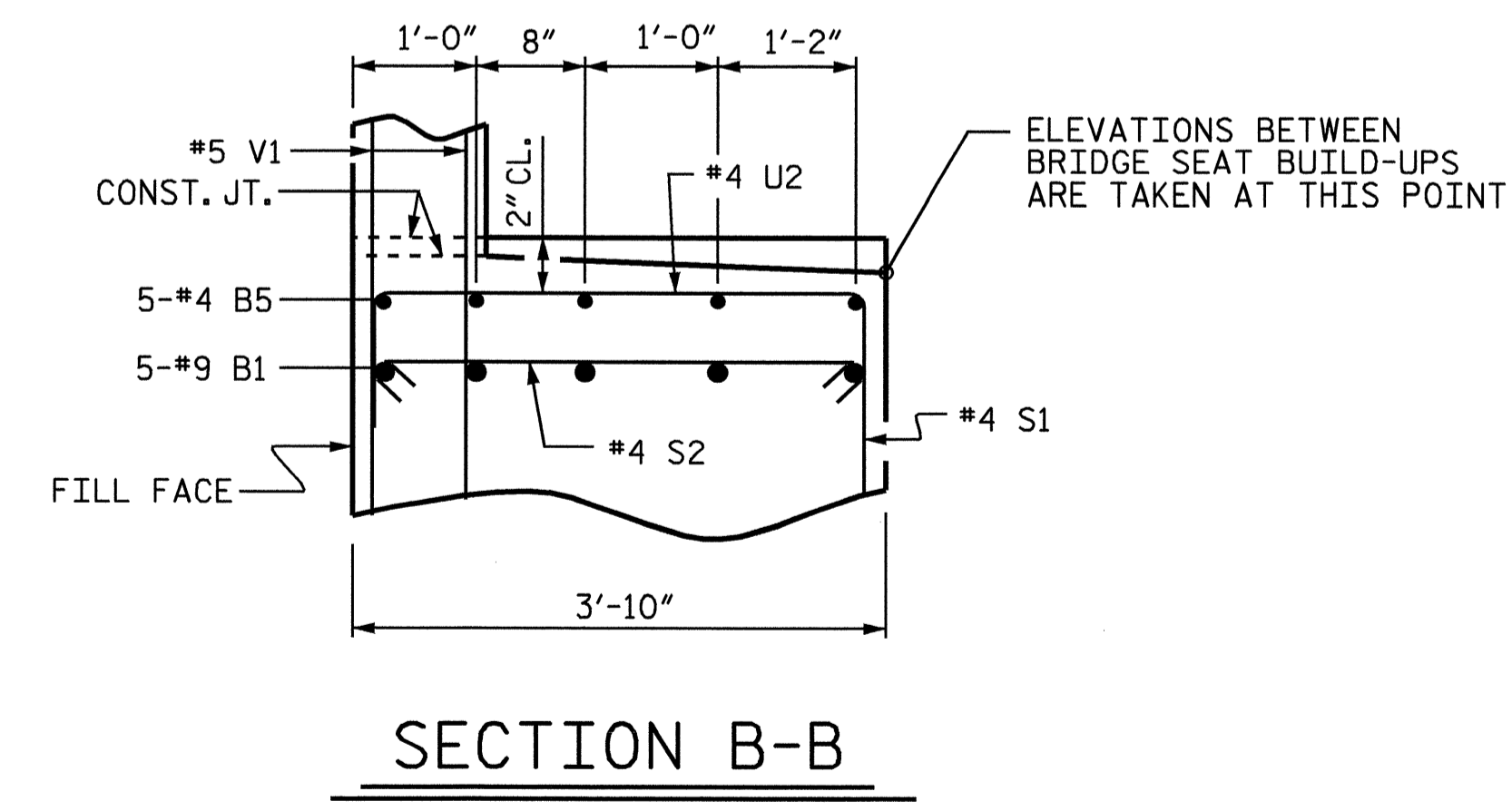
| REVISIONS |     |       |     |     |       | SHEET NO.       |  |
|-----------|-----|-------|-----|-----|-------|-----------------|--|
| NO.       | BY: | DATE: | NO. | BY: | DATE: | S-21            |  |
| 1         |     |       | 3   |     |       | TOTAL SHEETS 51 |  |
| 2         |     |       | 4   |     |       |                 |  |

STR. #1

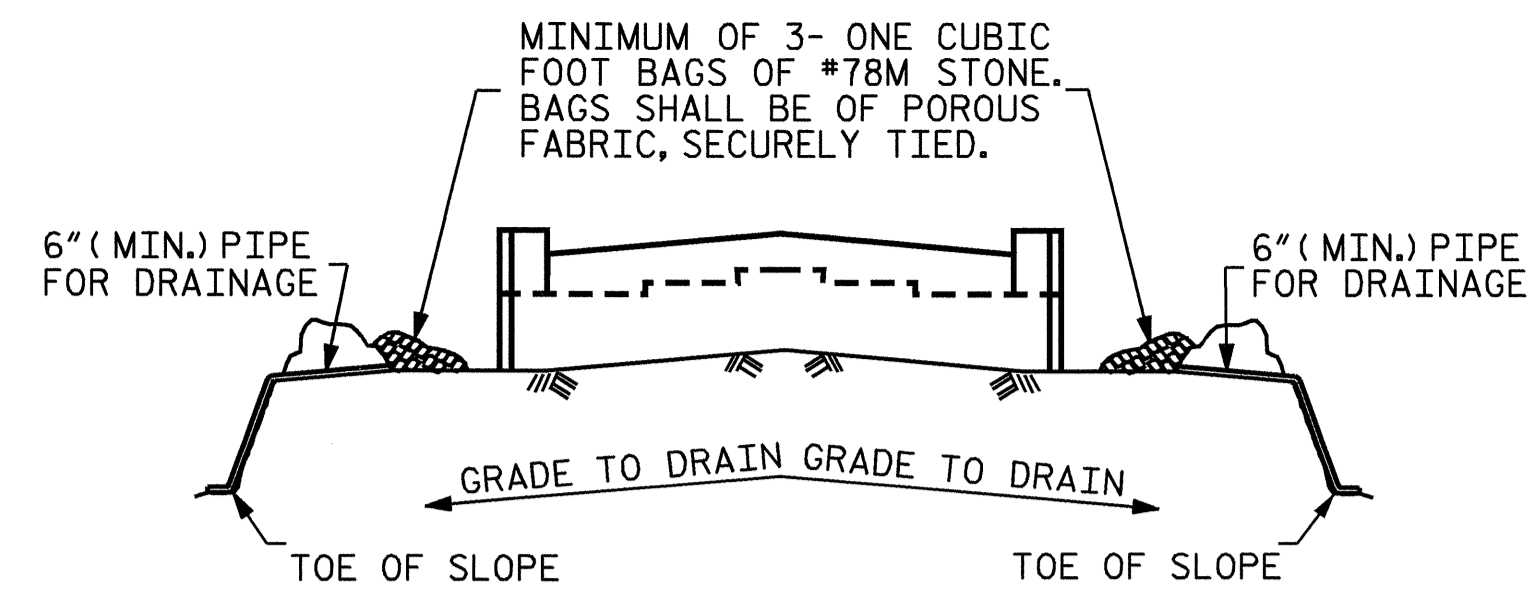




SECTION A-A



SECTION B-B

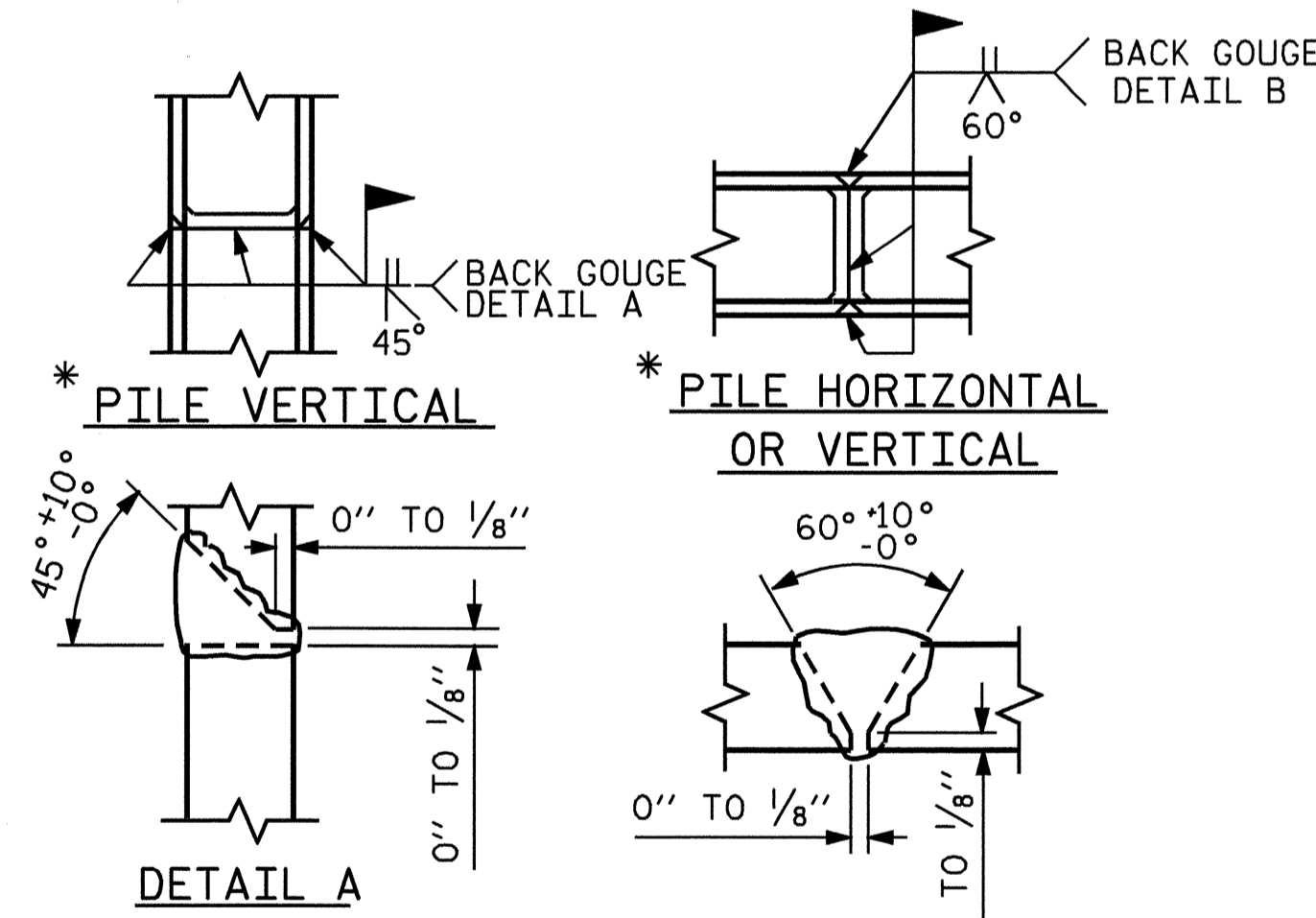


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

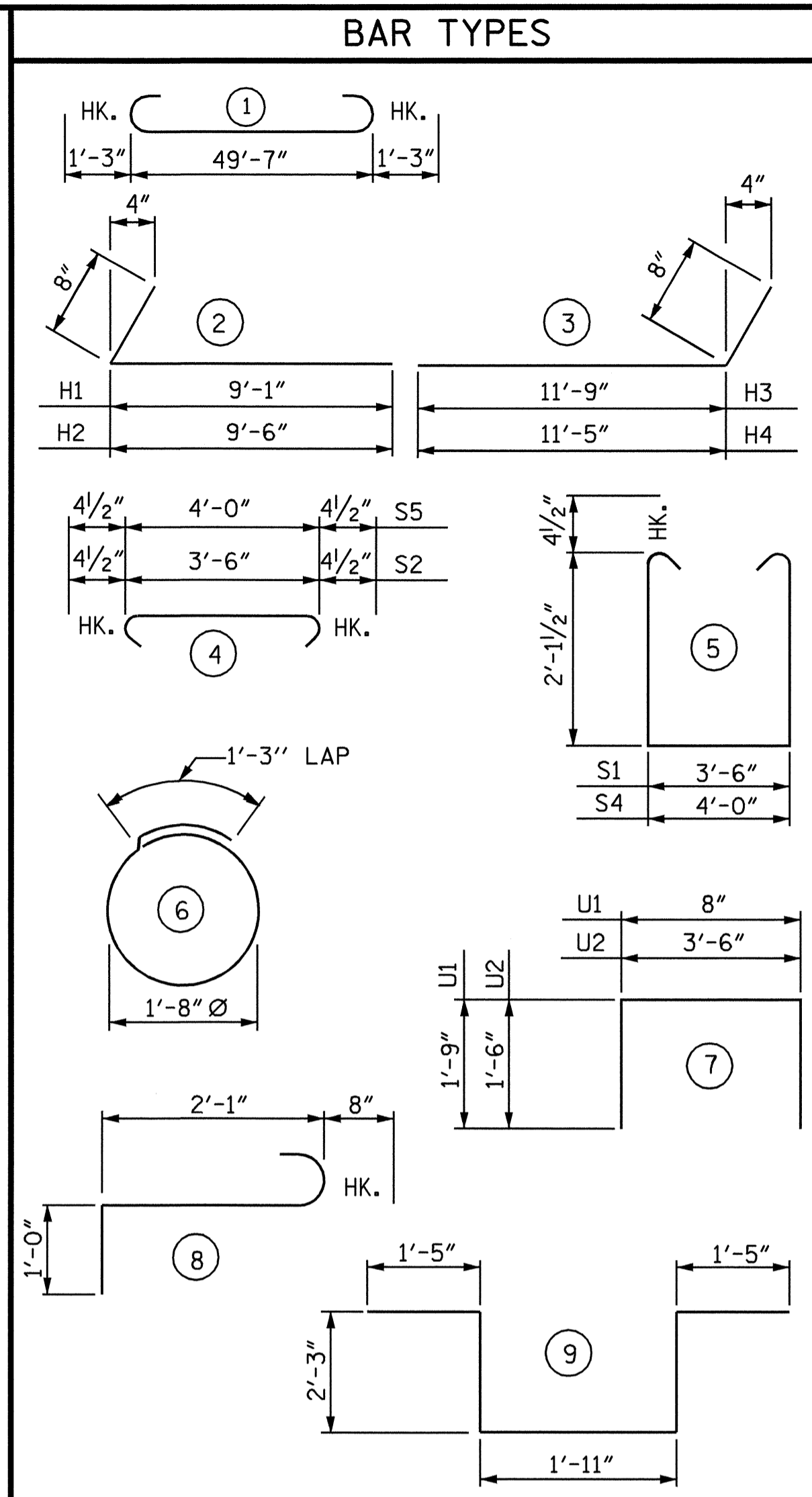
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR EFFECTIVENESS.

NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT



PILE SPLICE DETAILS

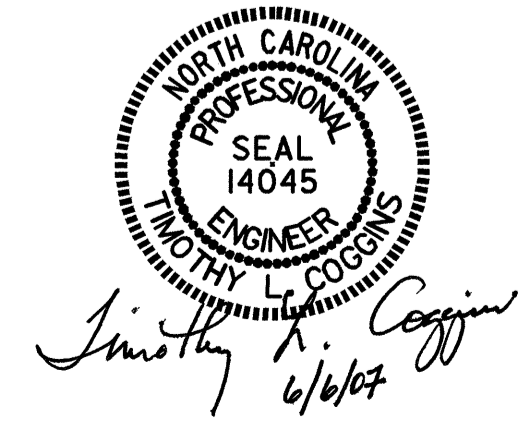


ALL BAR DIMENSIONS ARE OUT TO OUT.

| BILL OF MATERIAL               |     |      |      |          |          |
|--------------------------------|-----|------|------|----------|----------|
| END BENT #1                    |     |      |      |          |          |
| BAR                            | NO. | SIZE | TYPE | LENGTH   | WEIGHT   |
| B1                             | 10  | #9   | 1    | 52'-1"   | 1771     |
| B2                             | 12  | #4   | STR  | 3'-6"    | 28       |
| B3                             | 2   | #5   | STR  | 49'-7"   | 103      |
| B4                             | 8   | #4   | STR  | 26'-1"   | 139      |
| B5                             | 10  | #4   | STR  | 2'-10"   | 19       |
| H1                             | 10  | #6   | 2    | 9'-9"    | 146      |
| H2                             | 10  | #6   | 2    | 10'-2"   | 153      |
| H3                             | 10  | #6   | 3    | 12'-5"   | 186      |
| H4                             | 10  | #6   | 3    | 12'-1"   | 181      |
| K1                             | 20  | #4   | STR  | 26'-1"   | 348      |
| K2                             | 8   | #4   | STR  | 4'-1"    | 22       |
| S1                             | 50  | #4   | 5    | 8'-6"    | 284      |
| S2                             | 50  | #4   | 4    | 4'-3"    | 142      |
| S3                             | 22  | #4   | 6    | 6'-6"    | 96       |
| S4                             | 2   | #4   | 5    | 9'-0"    | 12       |
| S5                             | 2   | #4   | 4    | 4'-9"    | 6        |
| S6                             | 3   | #6   | 8    | 3'-9"    | 17       |
| S7                             | 1   | #6   | 9    | 9'-3"    | 14       |
| U1                             | 41  | #4   | 7    | 4'-2"    | 114      |
| U2                             | 6   | #4   | 7    | 6'-6"    | 26       |
| V1                             | 82  | #5   | STR  | 6'-8"    | 570      |
| V2                             | 60  | #5   | STR  | 8'-4"    | 521      |
| REINFORCING STEEL              |     |      |      | LBS.     | 4898     |
| CLASS 'A' CONCRETE             |     |      |      |          |          |
| POUR #1 CAP & LOWER WINGS      |     |      |      | CU. YDS. | 20.6     |
| POUR #2 BACKWALL & UPPER WINGS |     |      |      | CU. YDS. | 13.9     |
| TOTAL                          |     |      |      | CU. YDS. | 34.5     |
| HP 12 x 53 STEEL PILES         |     |      |      |          |          |
| NO. 12                         |     |      |      | 180      | LIN. FT. |
| STEEL PILE POINTS              |     |      |      | EA.      | 12       |

DRAWN BY : B.N.BARODAWALA DATE : 3-21-07  
 CHECKED BY : P. ADKINS DATE : 3-07

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PROJECT NO. B-4280  
 STOKES COUNTY  
 STATION: 19+10.00 -L-

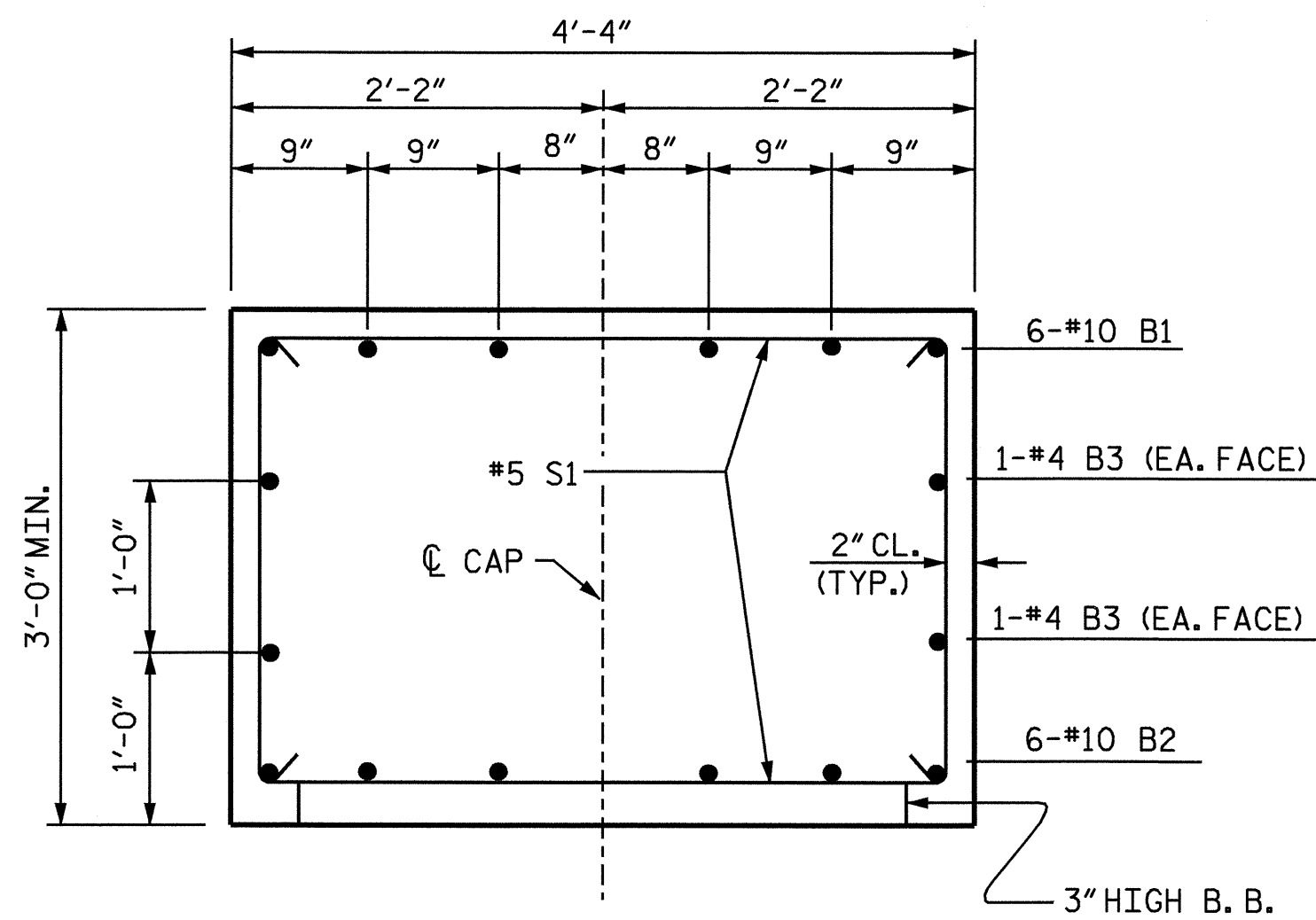
SHEET 3 OF 3

| REVISIONS |     |       |     |     |       | SHEET NO.    |
|-----------|-----|-------|-----|-----|-------|--------------|
| NO.       | BY: | DATE: | NO. | BY: | DATE: | S-22         |
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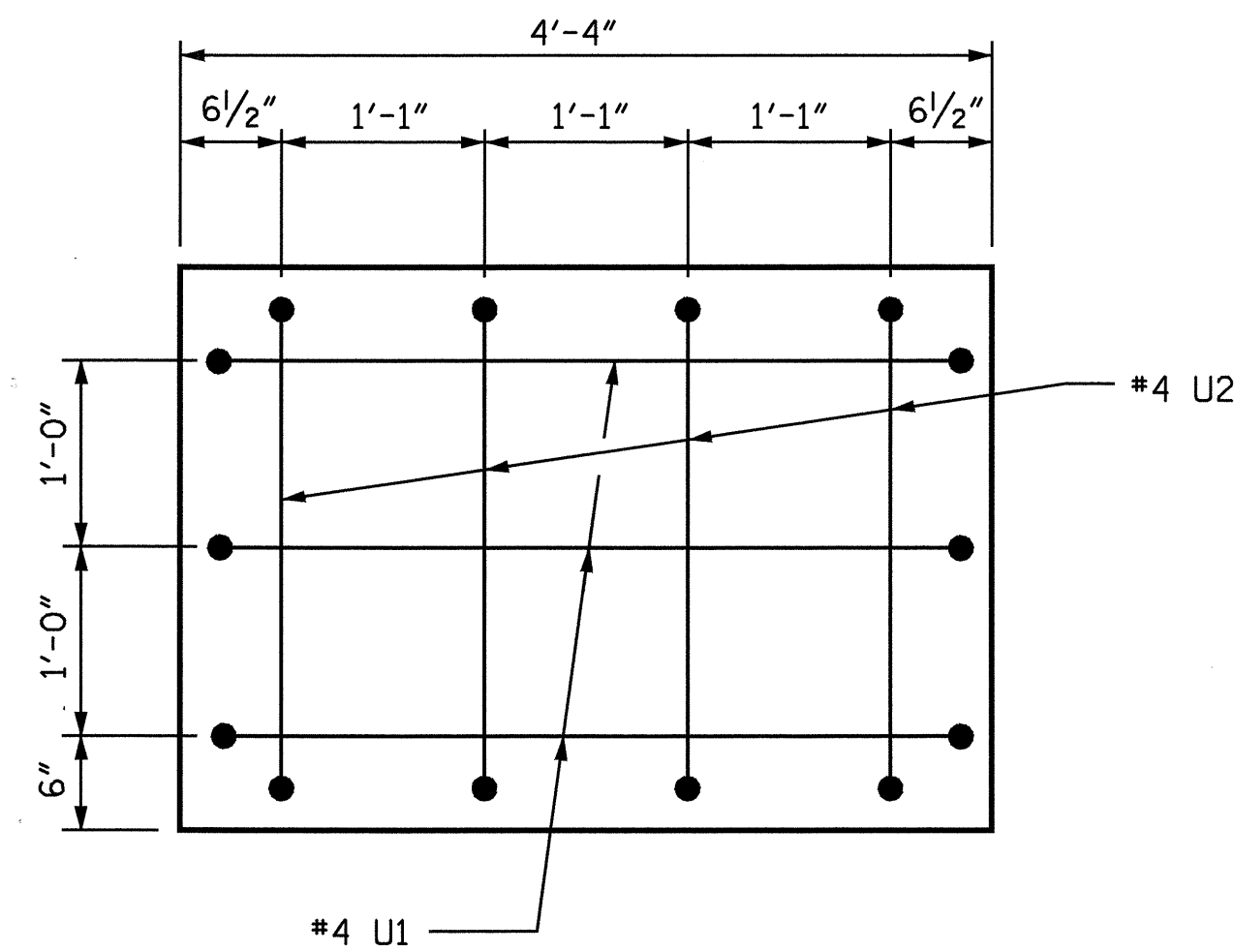
STR. #1





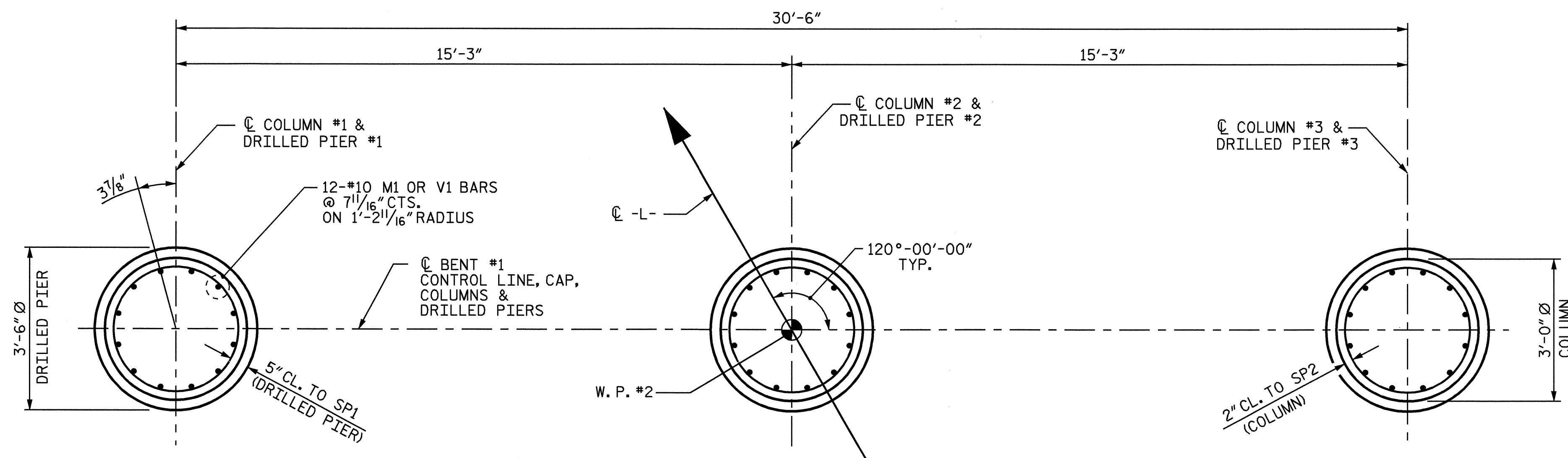


SECTION A-A



END VIEW

(TYP. EACH END)



PLAN OF DRILLED PIERS AND COLUMNS

(DIM. & REINFORCING STEEL ARE TYPICAL FOR EACH COLUMN & DRILLED PIER)

| BAR TYPES                                       |     |      |      |          | BILL OF MATERIAL |       |  |  |  |
|---|-----|------|------|----------|------------------|-------|--|--|--|
| BENT #1   |     |      |      |          |                  |       |  |  |  |
| BAR   | NO. | SIZE | TYPE | LENGTH   | WEIGHT           |       |  |  |  |
| B1  | 6   | 10   |      | 42'-2"   | 1089             |       |  |  |  |
| B2  | 6   | 10   | STR  | 39'-5"   | 1018             |       |  |  |  |
| B3  | 8   | 4    | STR  | 20'-11"  | 112              |       |  |  |  |
| M1  | 36  | 10   | STR  | 21'-8"   | 3356             |       |  |  |  |
| S1  | 54  | 5    | 3    | 10'-2"   | 573              |       |  |  |  |
| U1  | 6   | 4    | 2    | 6'-10"   | 27               |       |  |  |  |
| U2  | 8   | 4    | 2    | 5'-6"    | 29               |       |  |  |  |
| U3  | 36  | 4    | 2    | 7'-0"    | 168              |       |  |  |  |
| V1  | 36  | 10   | 6    | 14'-9"   | 2285             |       |  |  |  |
| REINFORCING STEEL                               |     |      |      |          | 8657 LBS.        |       |  |  |  |
| SP-1  | 3   | **   | 4    | 259'-11" | 813              |       |  |  |  |
| SP-2  | 3   | *    | 5    | 396'-1"  | 794              |       |  |  |  |
| SPIRAL COLUMN REINFORCING STEEL                 |     |      |      |          | 1607 LBS.        |       |  |  |  |
| CLASS A CONCRETE BREAKDOWN                      |     |      |      |          |                  |       |  |  |  |
| POUR #2 COLUMNS                                 |     |      |      |          | CU. YD.          | 8.9   |  |  |  |
| POUR #3 CAP                                     |     |      |      |          | CU. YD.          | 19.8  |  |  |  |
| TOTAL CLASS A CONCRETE                          |     |      |      |          | CU. YD.          | 28.7  |  |  |  |
| DRILLED PIERS                                   |     |      |      |          |                  |       |  |  |  |
| DRILLED PIER CONCRETE                           |     |      |      |          | CU. YD.          | 13.7  |  |  |  |
| 3'-6" Ø DRILLED PIERS NOT IN SOIL               |     |      |      |          | LIN. FT.         | 17.00 |  |  |  |
| 3'-6" Ø DRILLED PIERS IN SOIL                   |     |      |      |          | LIN. FT.         | 21.38 |  |  |  |
| PERMANENT STEEL CASING FOR 3'-6" Ø DRILLED PIER |     |      |      |          | LIN. FT.         | 15.58 |  |  |  |
| CROSSHOLE SONIC LOGGING                         |     |      |      |          | EA.              | 1     |  |  |  |
| CSL TUBES                                       |     |      |      |          | LIN. FT.         | 183.5 |  |  |  |

ALL BAR DIMENSIONS ARE OUT TO OUT.

\* THE SP-2 SPIRAL REINFORCING STEEL SHALL BE W20 OR D-20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR.  
 \*\* THE SP-1 SPIRAL REINFORCING STEEL SHALL BE W31 OR D-31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR.

PROJECT NO. B-4280  
STOKES COUNTY  
 STATION: 19+10.00 -L-

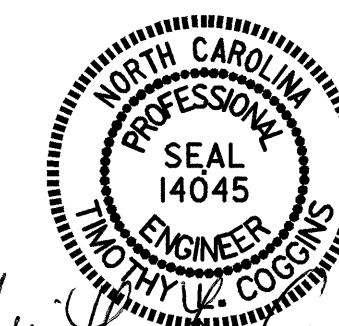
SHEET 2 OF 2

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

SUBSTRUCTURE

BENT #1

| REVISIONS |     |       |     |     |       | SHEET NO.    |  |
|-----------|-----|-------|-----|-----|-------|--------------|--|
| NO.       | BY: | DATE: | NO. | BY: | DATE: | S-24         |  |
| 1         |     |       | 3   |     |       | TOTAL SHEETS |  |
| 2         |     |       | 4   |     |       | 51           |  |



DRAWN BY: B.N. BARODAWALA DATE: 2-16-06  
 CHECKED BY: P. ADKINS DATE: 2-06

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STR. #1

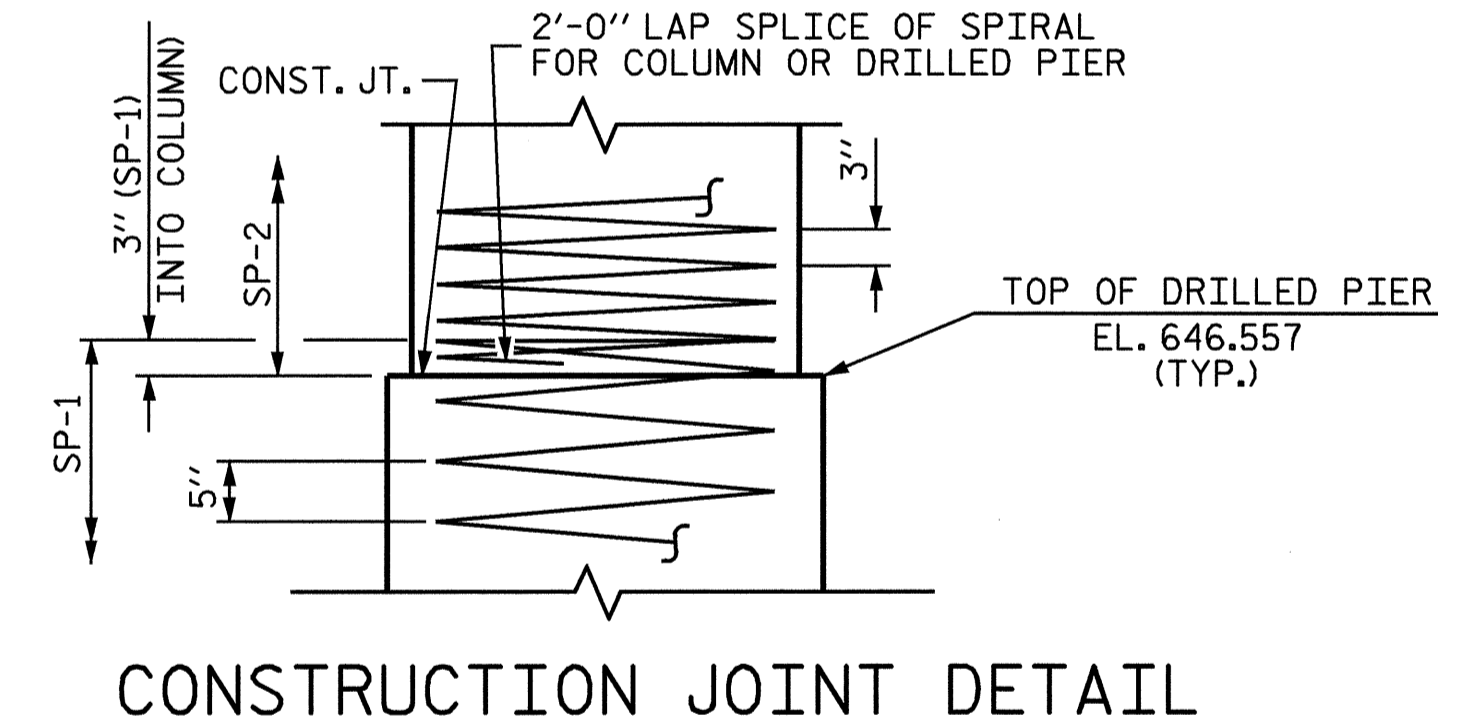
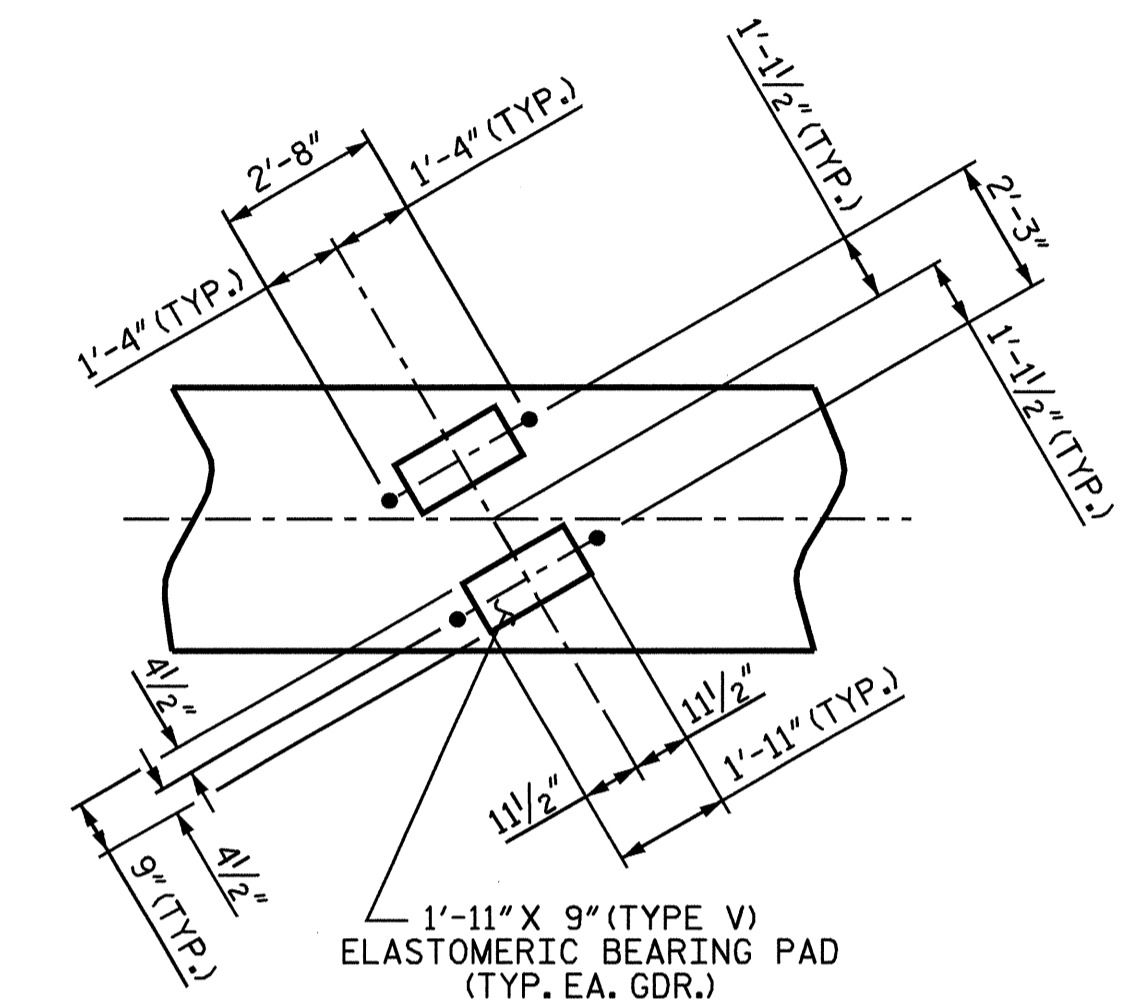
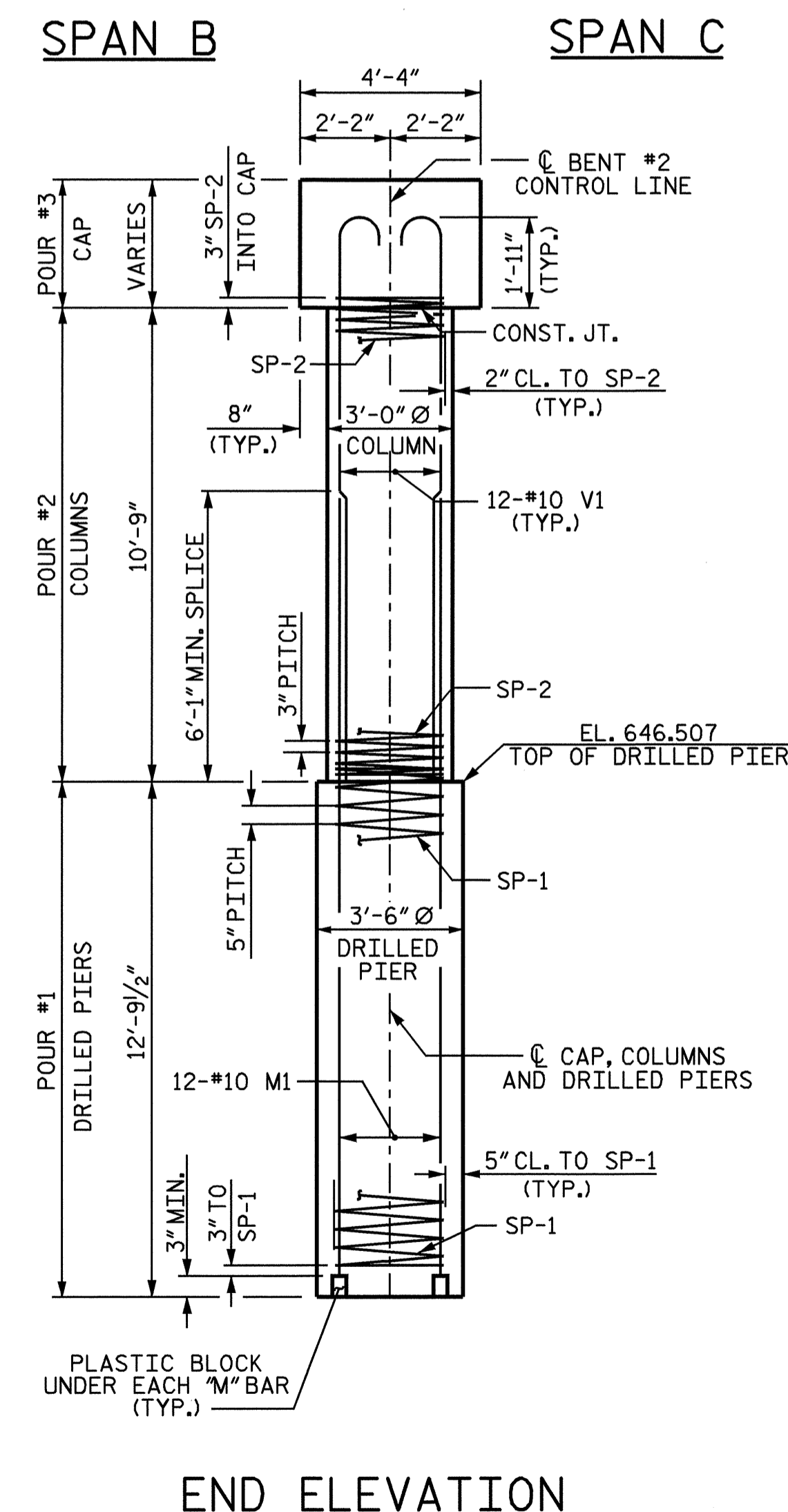
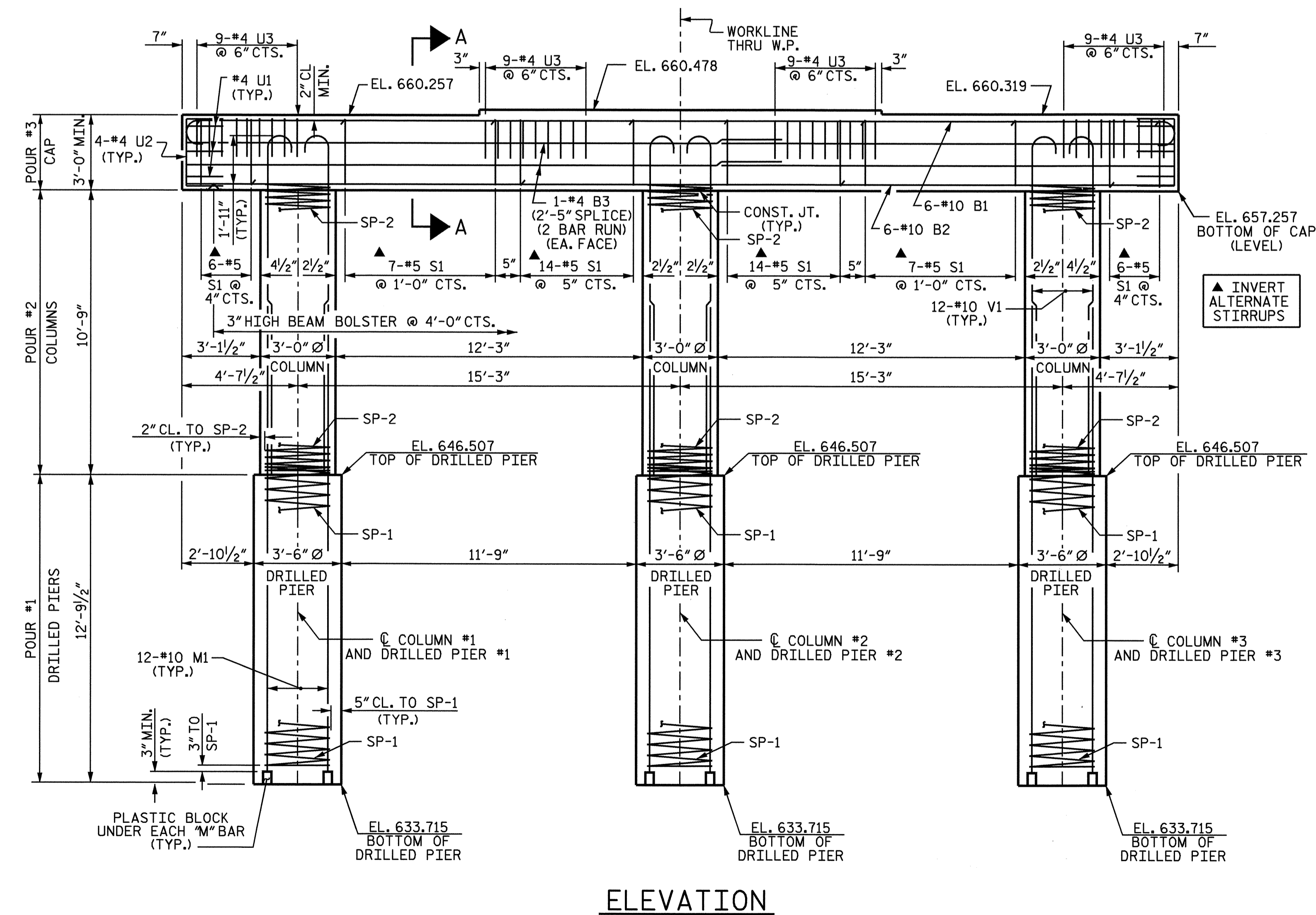
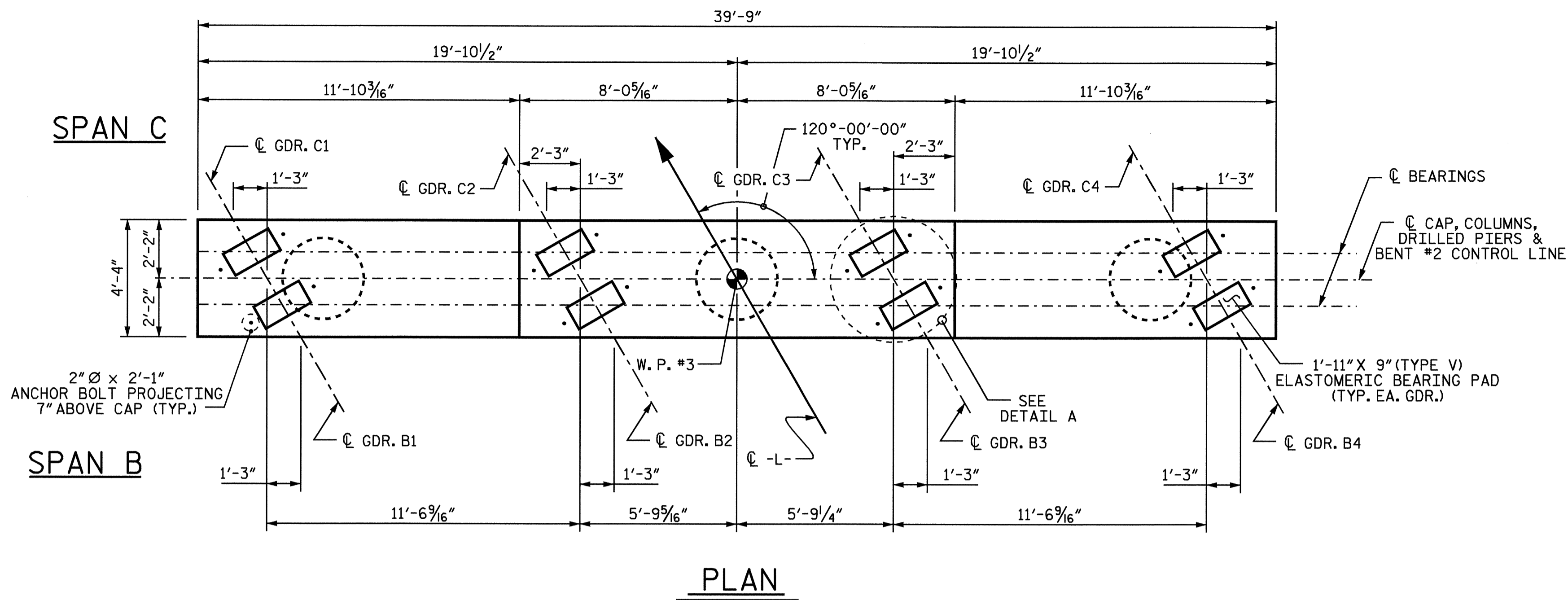
**NOTES:**

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

HOOKS ON "V" BARS MAY BE TURNED AS NECESSARY FOR PLACING REINFORCING STEEL.

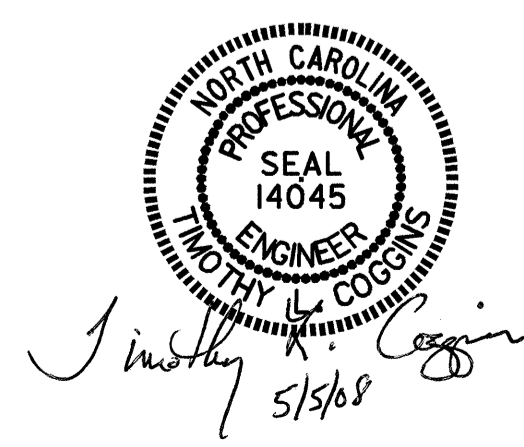
THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE LONGITUDINAL REINFORCEMENT FOR THE DRILLED PIERS IS DETAILED WITH 3'-0" OF EXTRA LENGTH.

ALL STEEL IN THE DRILLED PIERS IS INCLUDED IN THE PAY ITEMS FOR "REINFORCING STEEL" AND "SPIRAL COLUMN REINFORCING STEEL".



PROJECT NO. B-4280  
STOKES COUNTY  
 STATION: 19+10.00 -L-

SHEET 1 OF 2



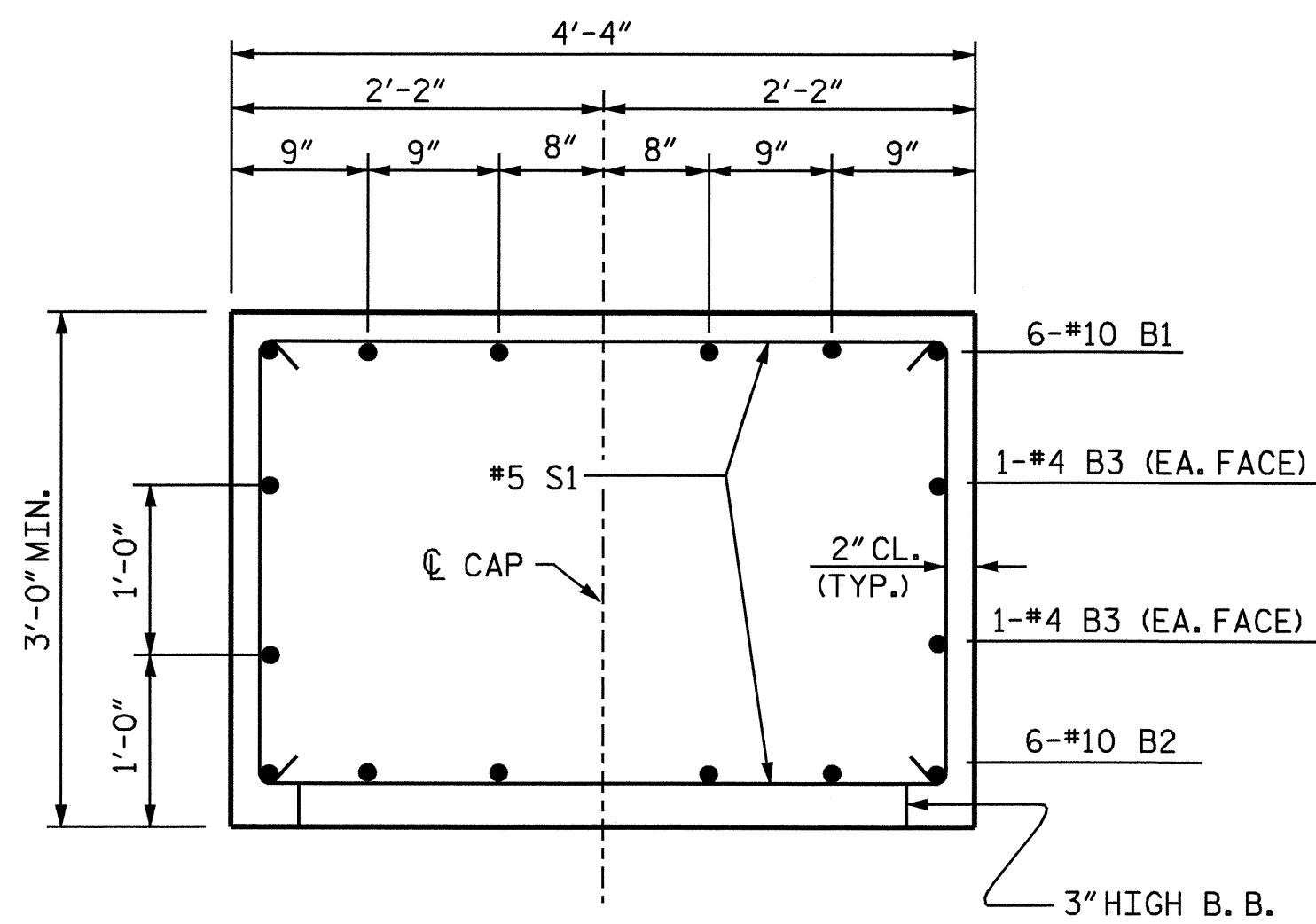
| STATE OF NORTH CAROLINA<br>DEPARTMENT OF TRANSPORTATION<br>RALEIGH |     |       |     |     |                    |
|--|-----|-------|-----|-----|--------------------|
| SUBSTRUCTURE   |     |       |     |     |                    |
| BENT #2  |     |       |     |     |                    |
| REVISIONS  |     |       |     |     |                    |
| NO.  | BY: | DATE: | NO. | BY: | DATE:              |
| 1  |     |       | 3   |     |                    |
| 2  |     |       | 4   |     |                    |
|  |     |       |     |     | SHEET NO.<br>S-25  |
|  |     |       |     |     | TOTAL SHEETS<br>51 |

DRAWN BY : B.N.BARODAWALA DATE : 2-16-06  
 CHECKED BY : P. ADDKINS DATE : 2-06

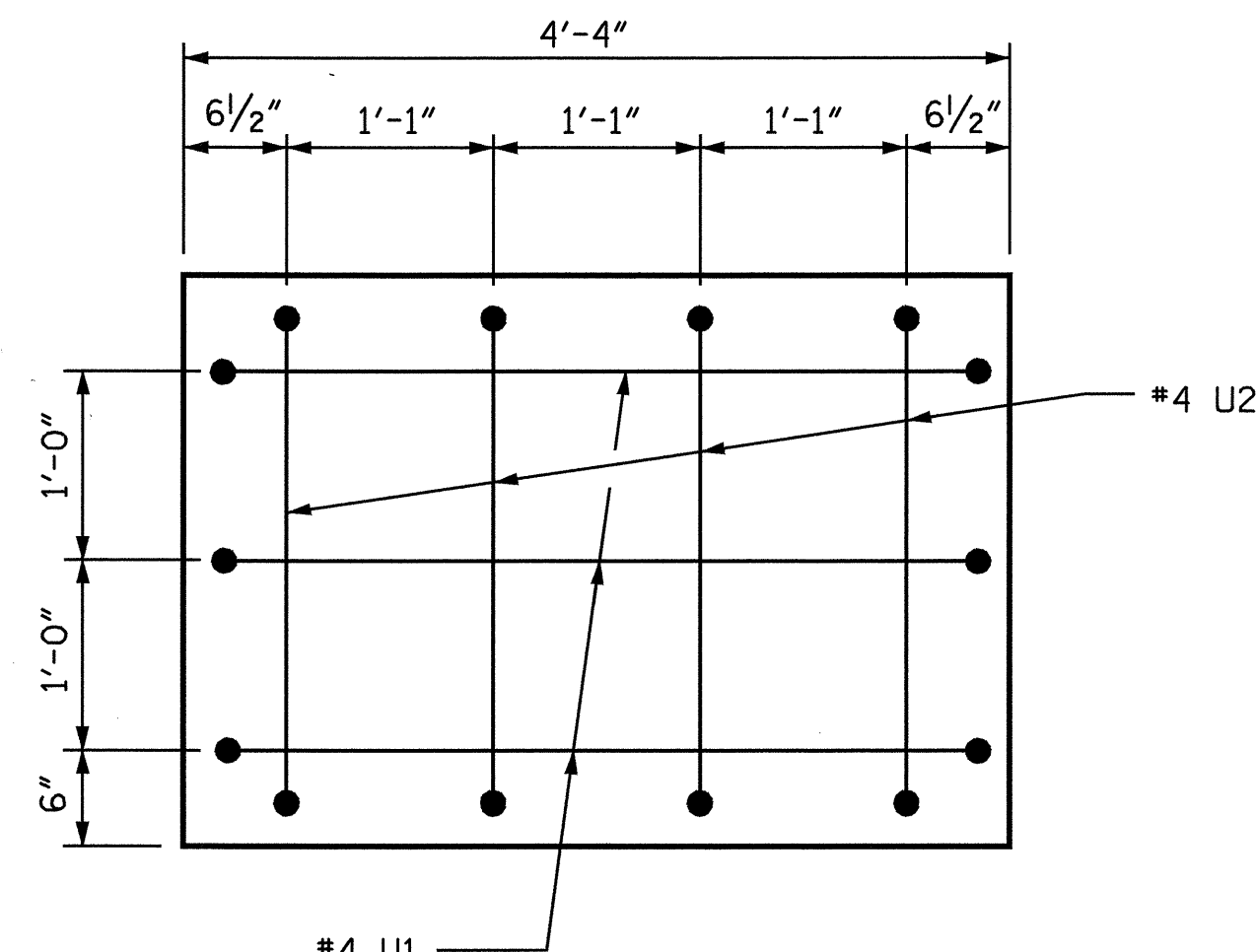
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STR. #1



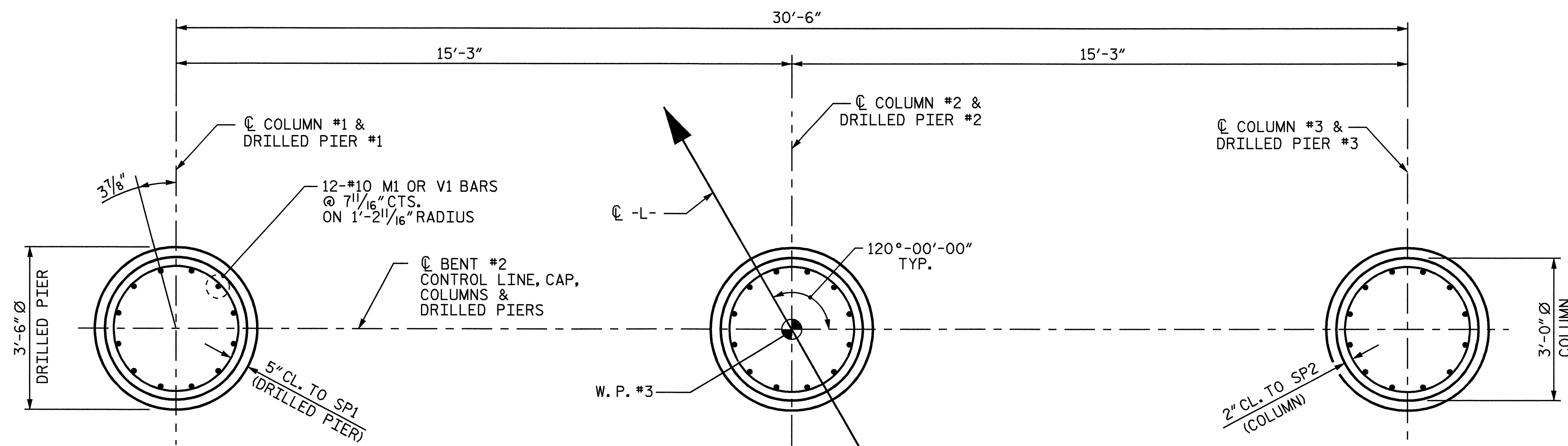


SECTION A-A



END VIEW

(TYP. EACH END)



PLAN OF DRILLED PIERS AND COLUMNS

(DIM. & REINFORCING STEEL ARE TYPICAL FOR EACH COLUMN & DRILLED PIER)

| BAR TYPES                                       |     | BILL OF MATERIAL |      |           |                |  |
|---|-----|------------------|------|-----------|----------------|--|
|   |     | BENT #2          |      |           |                |  |
| BAR   | NO. | SIZE             | TYPE | LENGTH    | WEIGHT         |  |
| B1  | 6   | 10               |      | 42'-2"    | 1089           |  |
| B2  | 6   | 10               | STR  | 39'-5"    | 1018           |  |
| B3  | 8   | 4                | STR  | 20'-11"   | 112            |  |
| M1  | 36  | 10               | STR  | 21'-8"    | 3356           |  |
| S1  | 54  | 5                | 3    | 10'-2"    | 573            |  |
| U1  | 6   | 4                | 2    | 6'-10"    | 27             |  |
| U2  | 8   | 4                | 2    | 5'-6"     | 29             |  |
| U3  | 36  | 4                | 2    | 7'-0"     | 168            |  |
| V1  | 36  | 10               | 6    | 14'-1"    | 2182           |  |
| REINFORCING STEEL                               |     |                  |      | 8554 LBS. |                |  |
| SP-1  | 3   | **               | 4    | 259'-11"  | 813            |  |
| SP-2  | 3   | *                | 5    | 375'-5"   | 752            |  |
| SPIRAL COLUMN REINFORCING STEEL                 |     |                  |      | 1565 LBS. |                |  |
| CLASS A CONCRETE BREAKDOWN                      |     |                  |      |           |                |  |
| POUR #2 COLUMNS                                 |     |                  |      | CU. YD.   | 8.4            |  |
| POUR #3 CAP                                     |     |                  |      | CU. YD.   | 19.8           |  |
| TOTAL CLASS A CONCRETE                          |     |                  |      | CU. YD.   | 28.2           |  |
| DRILLED PIERS                                   |     |                  |      |           |                |  |
| DRILLED PIER CONCRETE                           |     |                  |      |           |                |  |
| POUR #1 DRILLED PIERS                           |     |                  |      | CU. YD.   | 13.7           |  |
| 3'-6" Ø DRILLED PIERS NOT IN SOIL               |     |                  |      |           | LIN. FT. 27.00 |  |
| 3'-6" Ø DRILLED PIERS IN SOIL                   |     |                  |      |           | LIN. FT. 11.38 |  |
| PERMANENT STEEL CASING FOR 3'-6" Ø DRILLED PIER |     |                  |      |           | LIN. FT. 16.52 |  |
| CSL TUBES                                       |     |                  |      |           | LIN. FT. 183.5 |  |

ALL BAR DIMENSIONS ARE OUT TO OUT.

\* THE SP-2 SPIRAL REINFORCING STEEL SHALL BE W20 OR D-20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR.  
 \*\* THE SP-1 SPIRAL REINFORCING STEEL SHALL BE W31 OR D-31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR.

PROJECT NO. B-4280  
STOKES COUNTY  
 STATION: 19+10.00 -L-

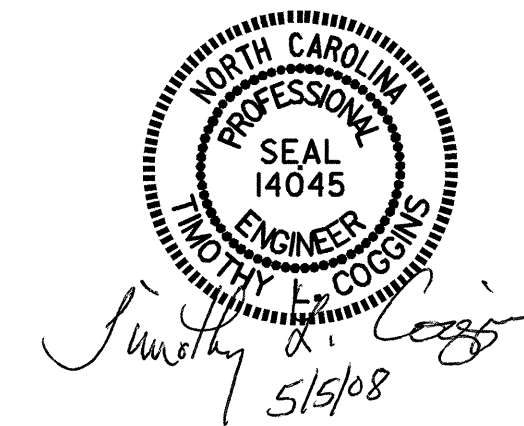
SHEET 2 OF 2

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

SUBSTRUCTURE

BENT #2

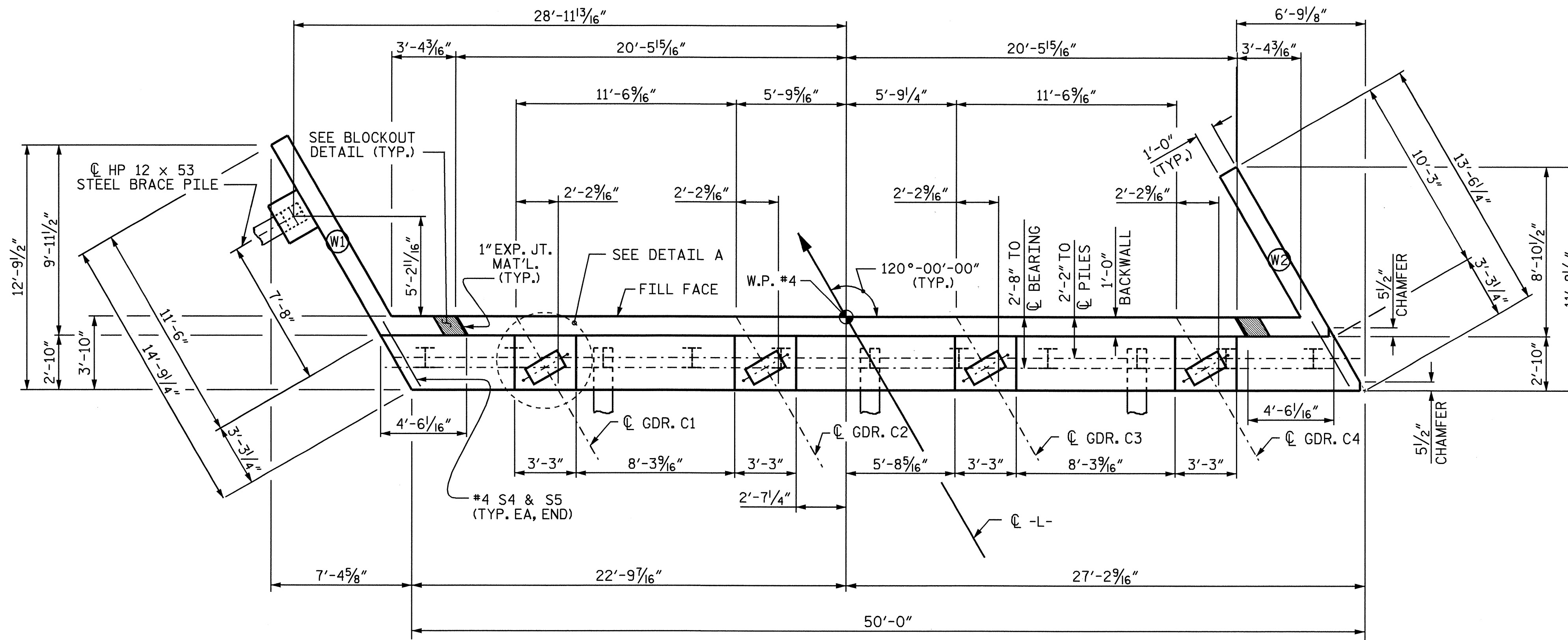
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| NO.       | BY: | DATE: | NO. | BY: | DATE: | S-26         |
| 1         |     |       | 3   |     |       | TOTAL SHEETS |
| 2         |     |       | 4   |     |       | 51           |



DRAWN BY: B.N.BARODAWALA DATE: 2-16-06  
 CHECKED BY: P. ADKINS DATE: 2-06

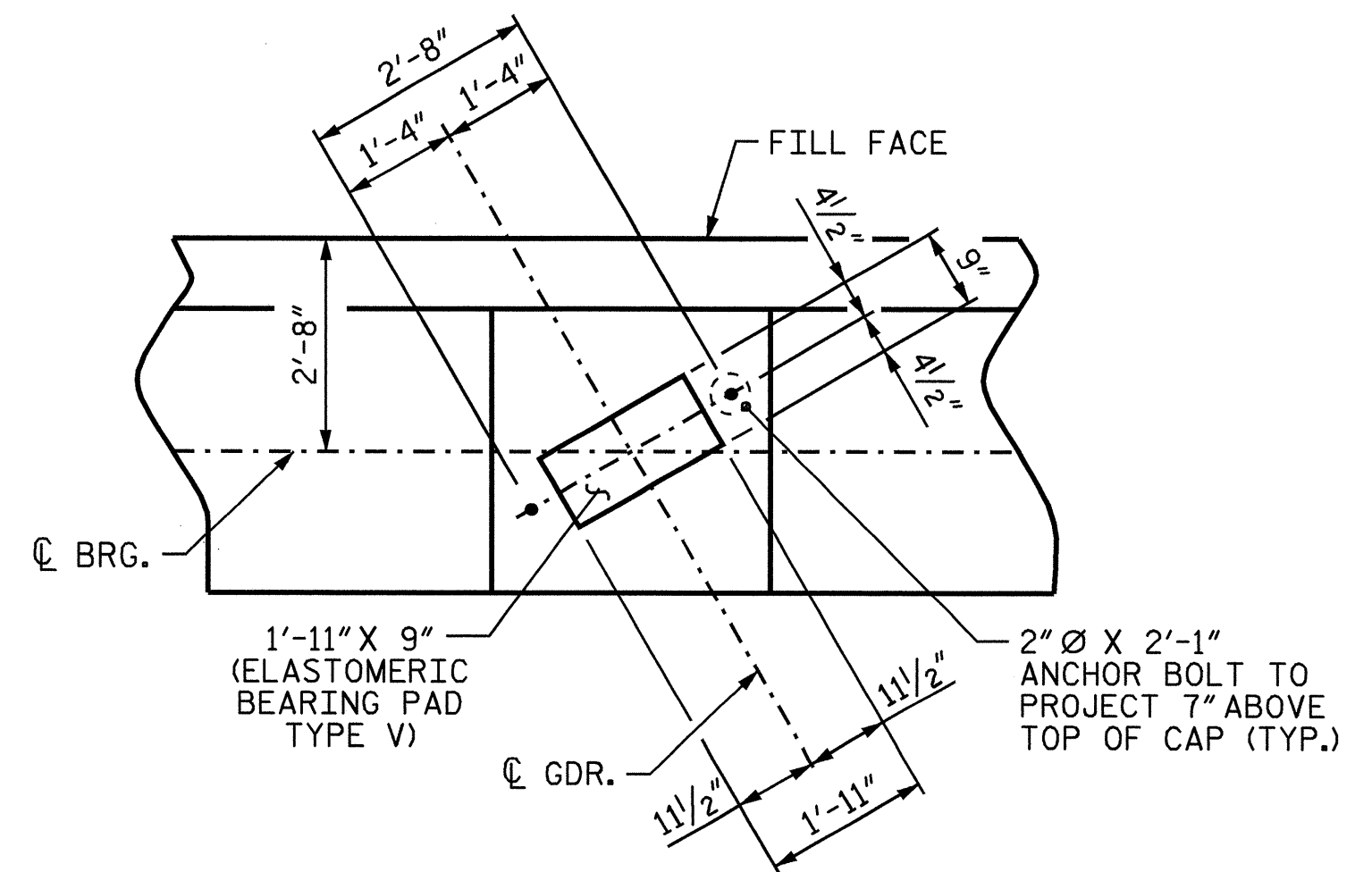
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STR. #1

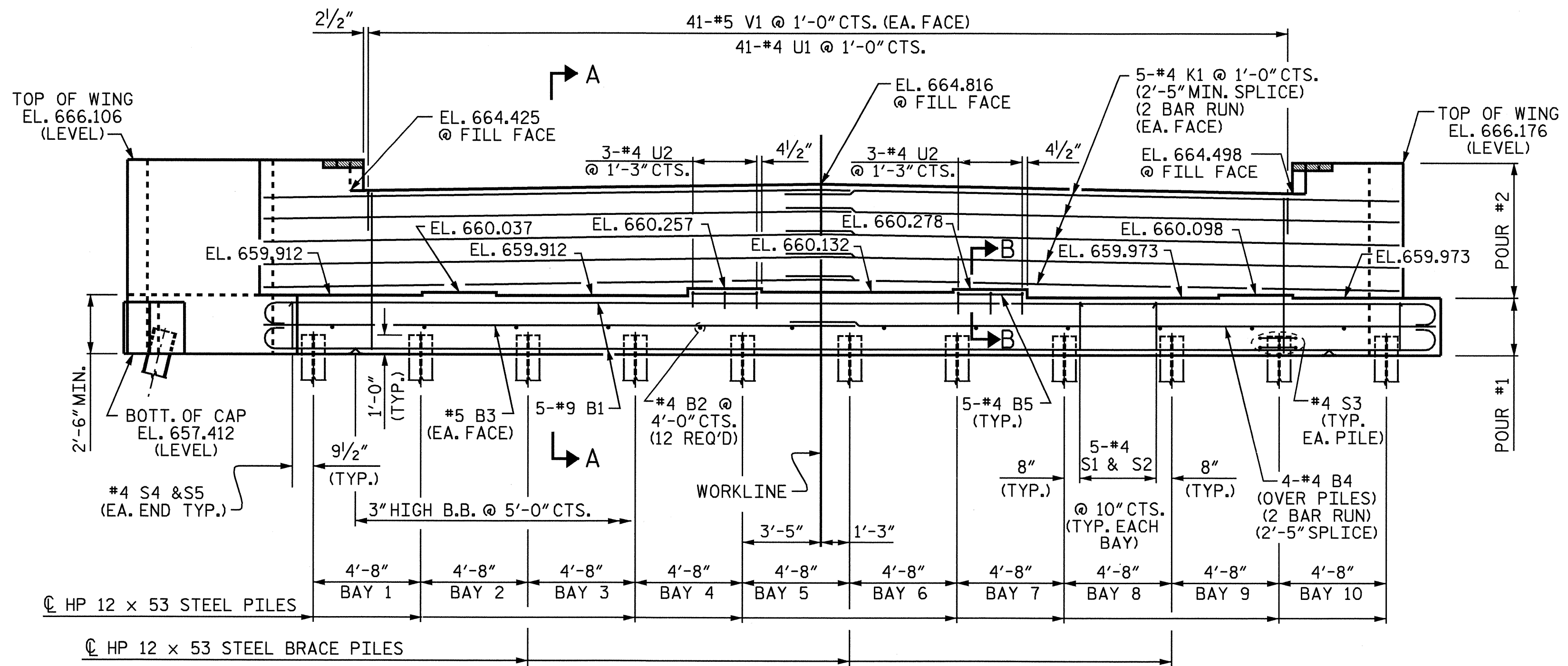


PLAN

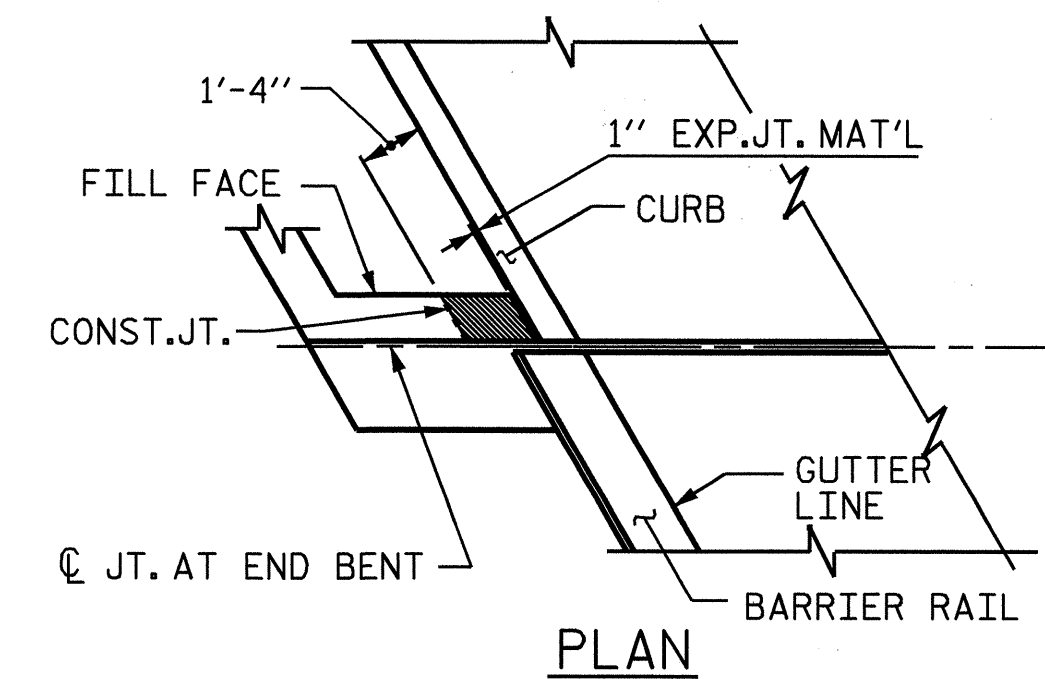
**NOTES**  
 STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.  
 BACKWALL SHALL BE PLACED BEFORE APPLYING THE EPOXY PROTECTIVE COATING.  
 THE TOP SURFACE AREAS OF THE END BENT CAPS SHALL BE CURED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS EXCEPT THE MEMBRANE CURING COMPOUND METHOD SHALL NOT BE USED.  
 THE TOP SURFACE OF THE END BENT CAP EXCEPT THE BRIDGE SEAT BUILDUPS SHALL BE SLOPED TRANSVERSELY FROM THE FILL FACE TO THE BACK FACE AT THE RATE OF 2 %.  
 THE CONTRACTOR SHALL PROVIDE FOR INSTALLATION OF THE 4" DIAMETER DRAIN PIPE THROUGH THE WING WALL AS REQUIRED FOR REINFORCED BRIDGE APPROACH FILLS, SEE THE ROADWAY PLANS, REINFORCING STEEL IN THE WING WALL MAY BE SHIFTED AS NECESSARY TO CLEAR THE DRAIN PIPE.



DETAIL A  
(TYP. EACH GIRDER)



ELEVATION



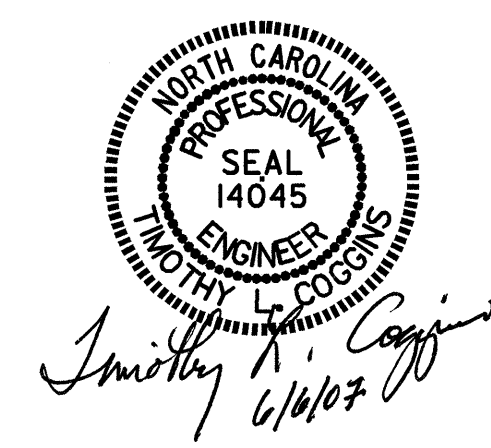
BLOCKOUT IN WING WALL FOR FITTING EVAZOTE JOINT SEAL

NOTE: THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE JOINT BETWEEN THE DECK AND APPROACH SLAB HAS BEEN SAWED AND THE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

PROJECT NO. B-4280  
STOKES COUNTY  
 STATION: 19+10.00 -L-

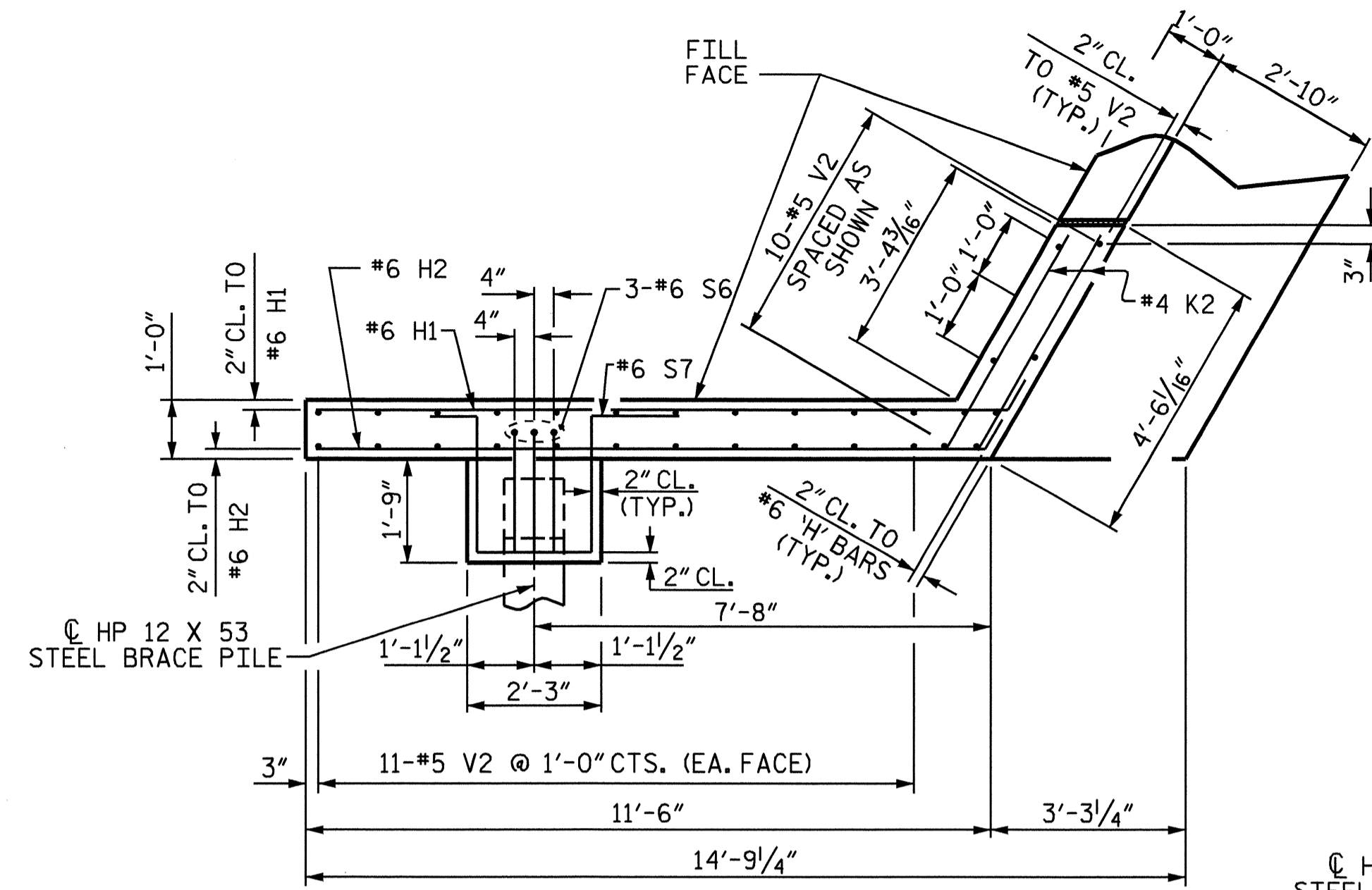
SHEET 1 OF 3

|  |     |       |     |     |                    |
|--|-----|-------|-----|-----|--------------------|
| STATE OF NORTH CAROLINA<br>DEPARTMENT OF TRANSPORTATION<br>RALEIGH |     |       |     |     |                    |
| SUBSTRUCTURE<br>END BENT #2  |     |       |     |     |                    |
| REVISIONS  |     |       |     |     |                    |
| NO.  | BY: | DATE: | NO. | BY: | DATE:              |
| 1  |     |       | 3   |     |                    |
| 2  |     |       | 4   |     |                    |
|  |     |       |     |     | SHEET NO.<br>S-27  |
|  |     |       |     |     | TOTAL SHEETS<br>51 |

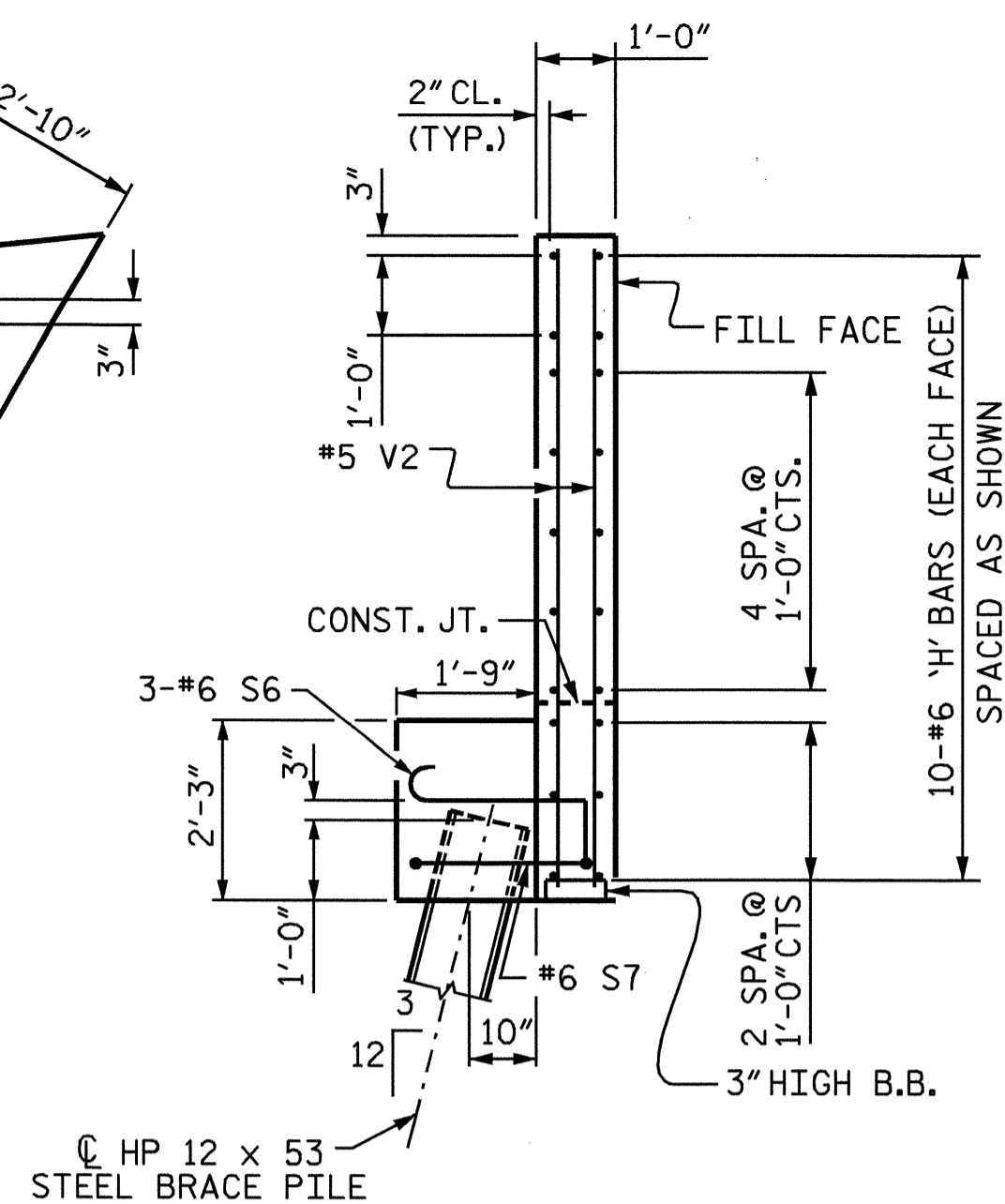


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 CHECKED BY: P. ADKINS DATE: 3-07

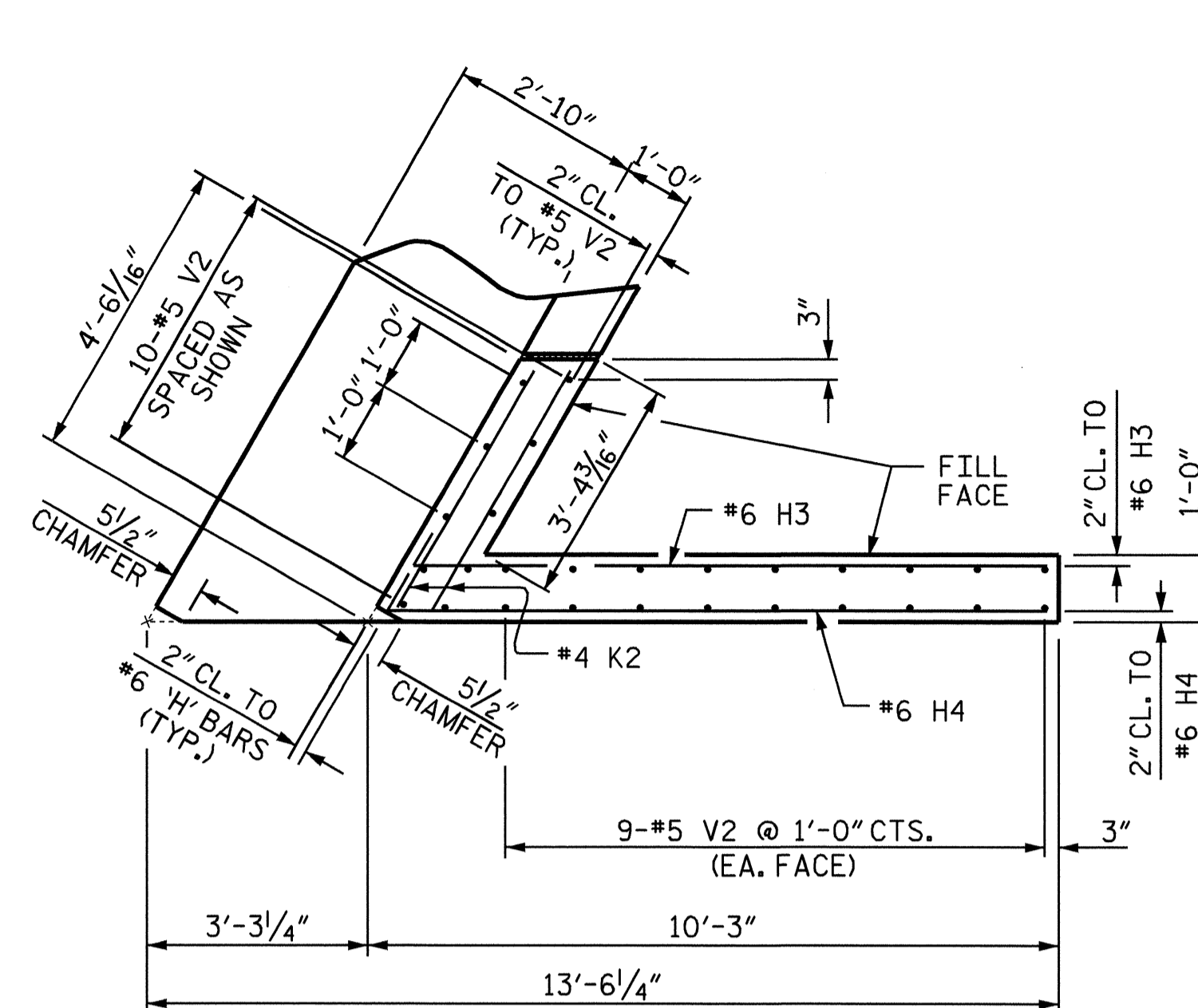




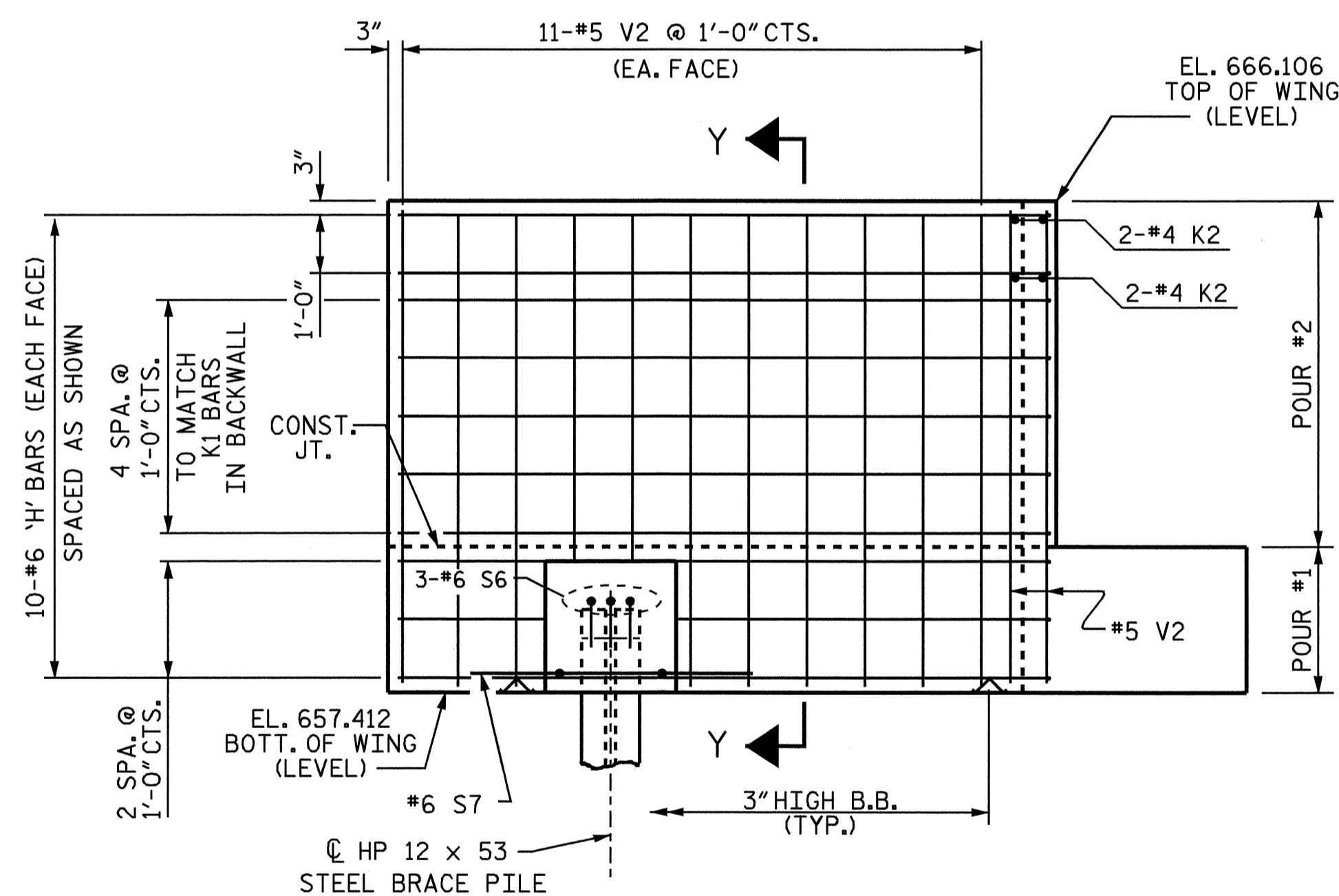
PLAN OF WING W1



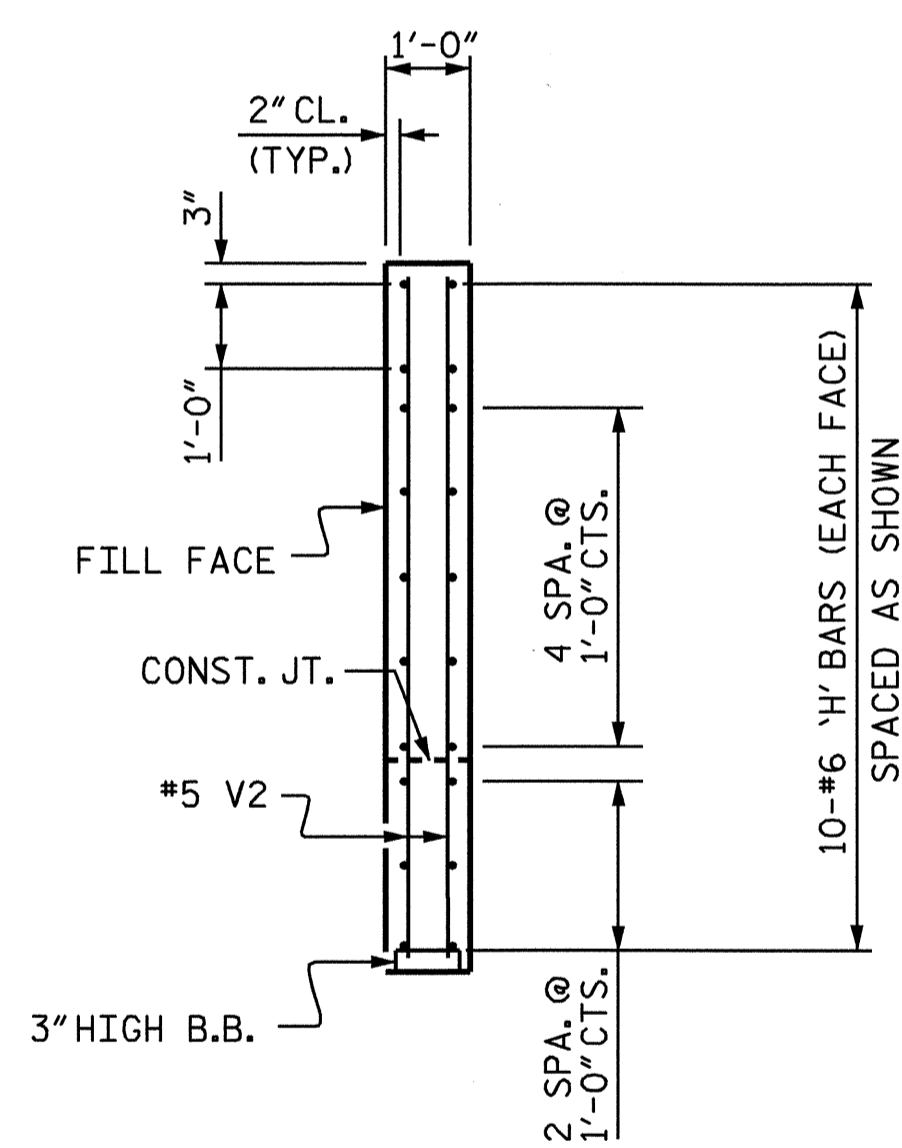
SECTION Y-Y



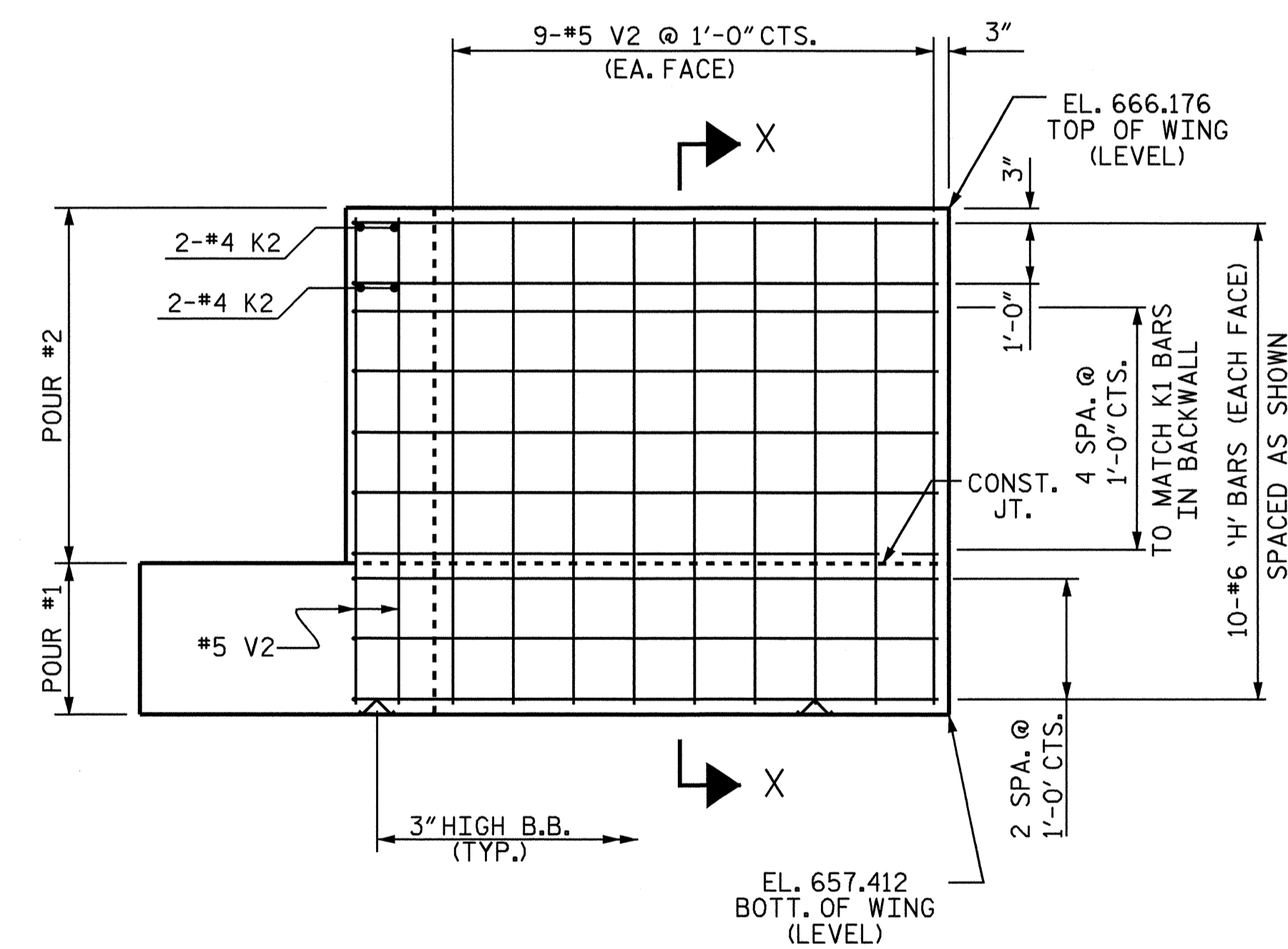
PLAN OF WING W2



ELEVATION OF WING W1



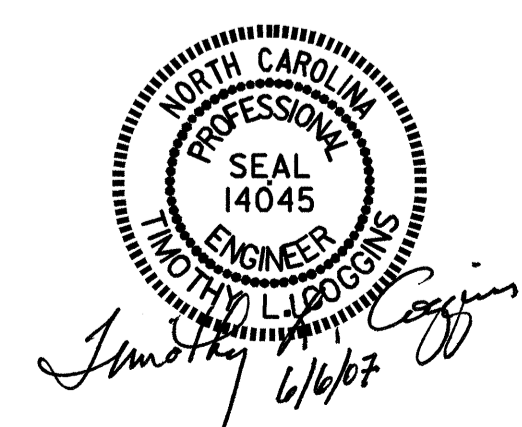
SECTION X-X



ELEVATION OF WING W2

DRAWN BY : B.N.BARODAWALA DATE : 3-21-07  
 CHECKED BY : P. ADKINS DATE : 3-07

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PROJECT NO. B-4280  
 STOKES COUNTY  
 STATION: 19+10.00 -L-

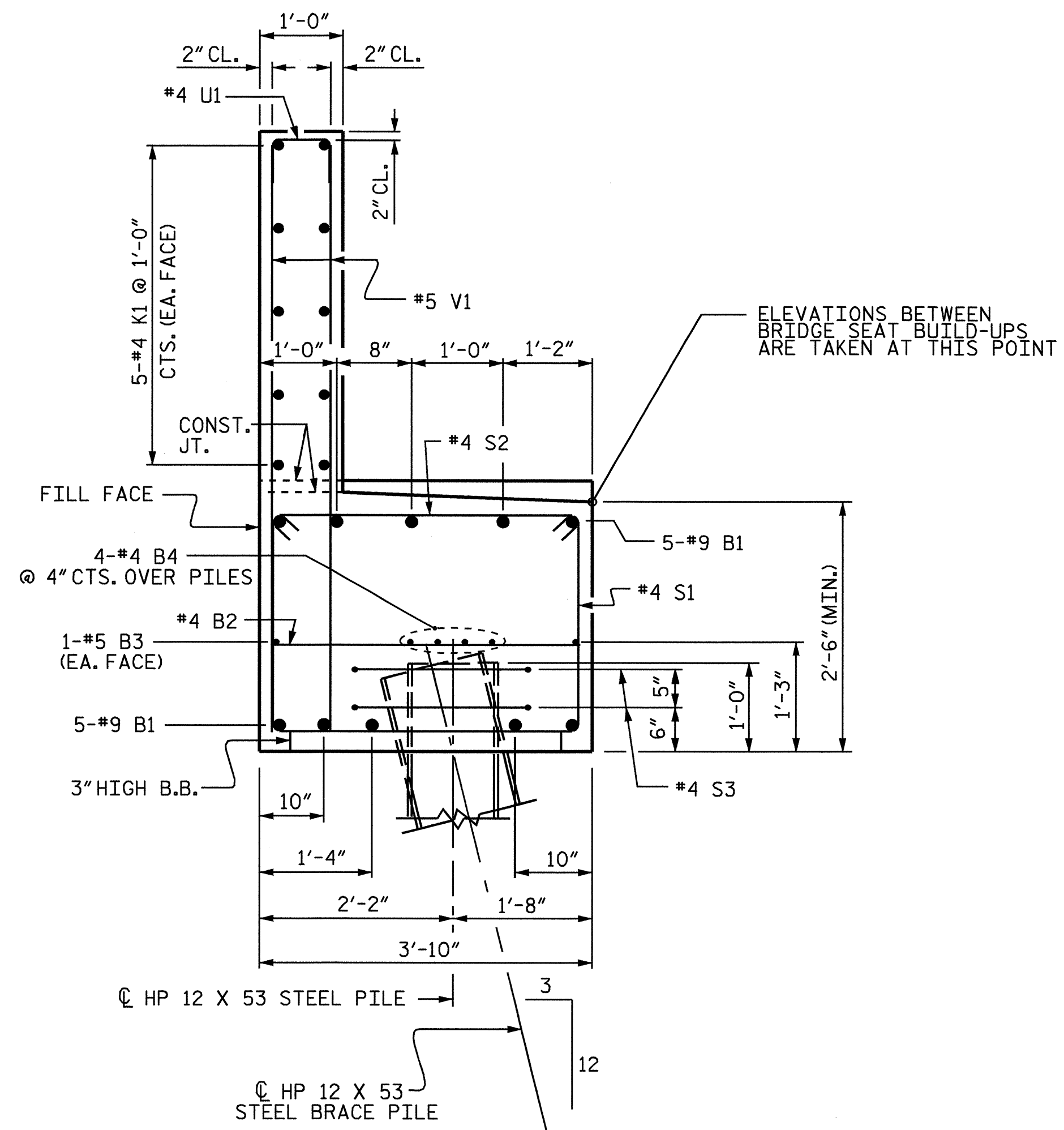
SHEET 2 OF 3

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

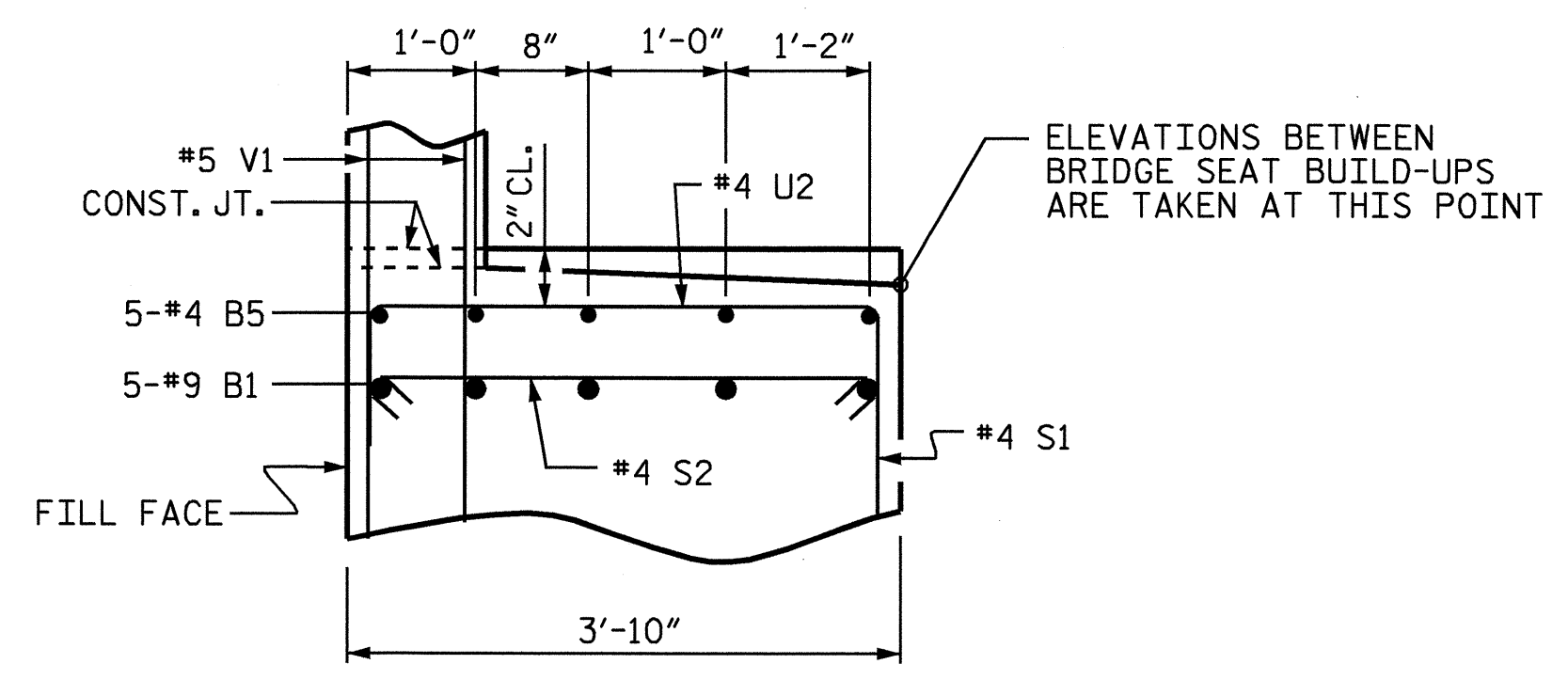
SUBSTRUCTURE  
 END BENT #2

| REVISIONS |     |       |     |     |       | SHEET NO.       |  |
|-----------|-----|-------|-----|-----|-------|-----------------|--|
| NO.       | BY: | DATE: | NO. | BY: | DATE: | S-28            |  |
| 1         |     |       | 3   |     |       | TOTAL SHEETS 51 |  |
| 2         |     |       | 4   |     |       |                 |  |

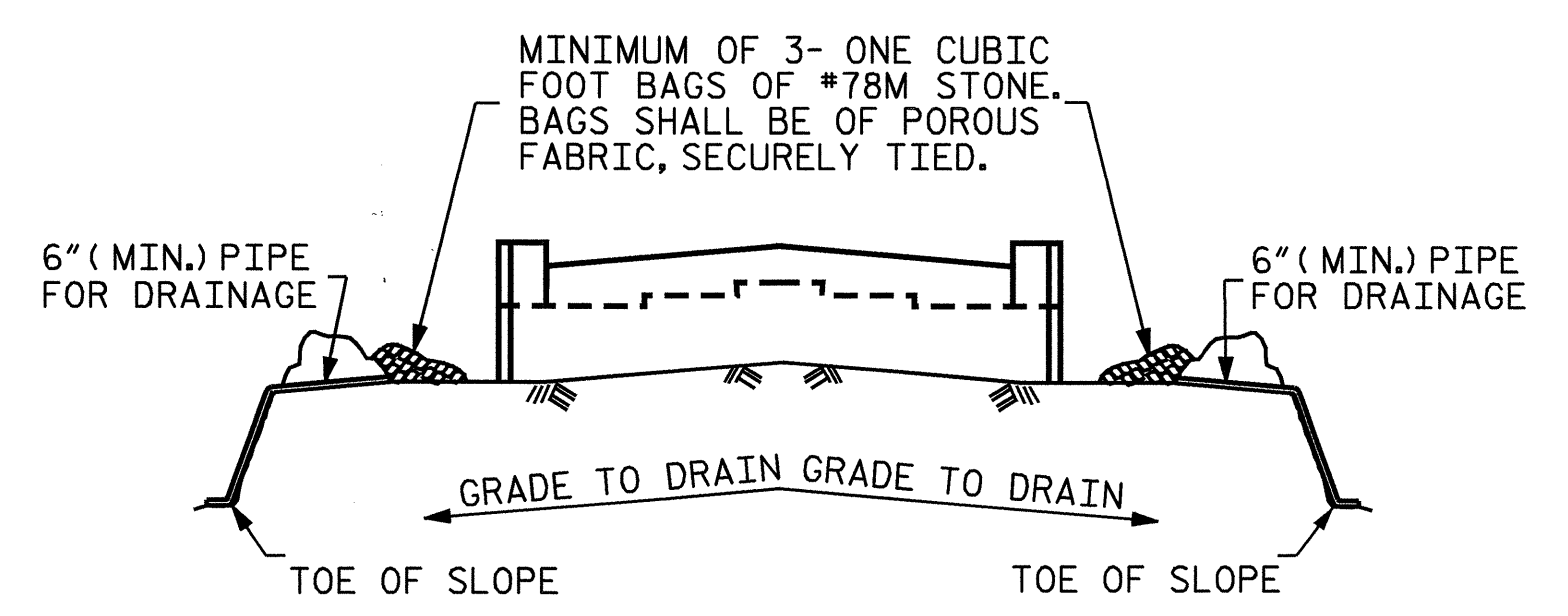
STR. #1



SECTION A-A



SECTION B-B

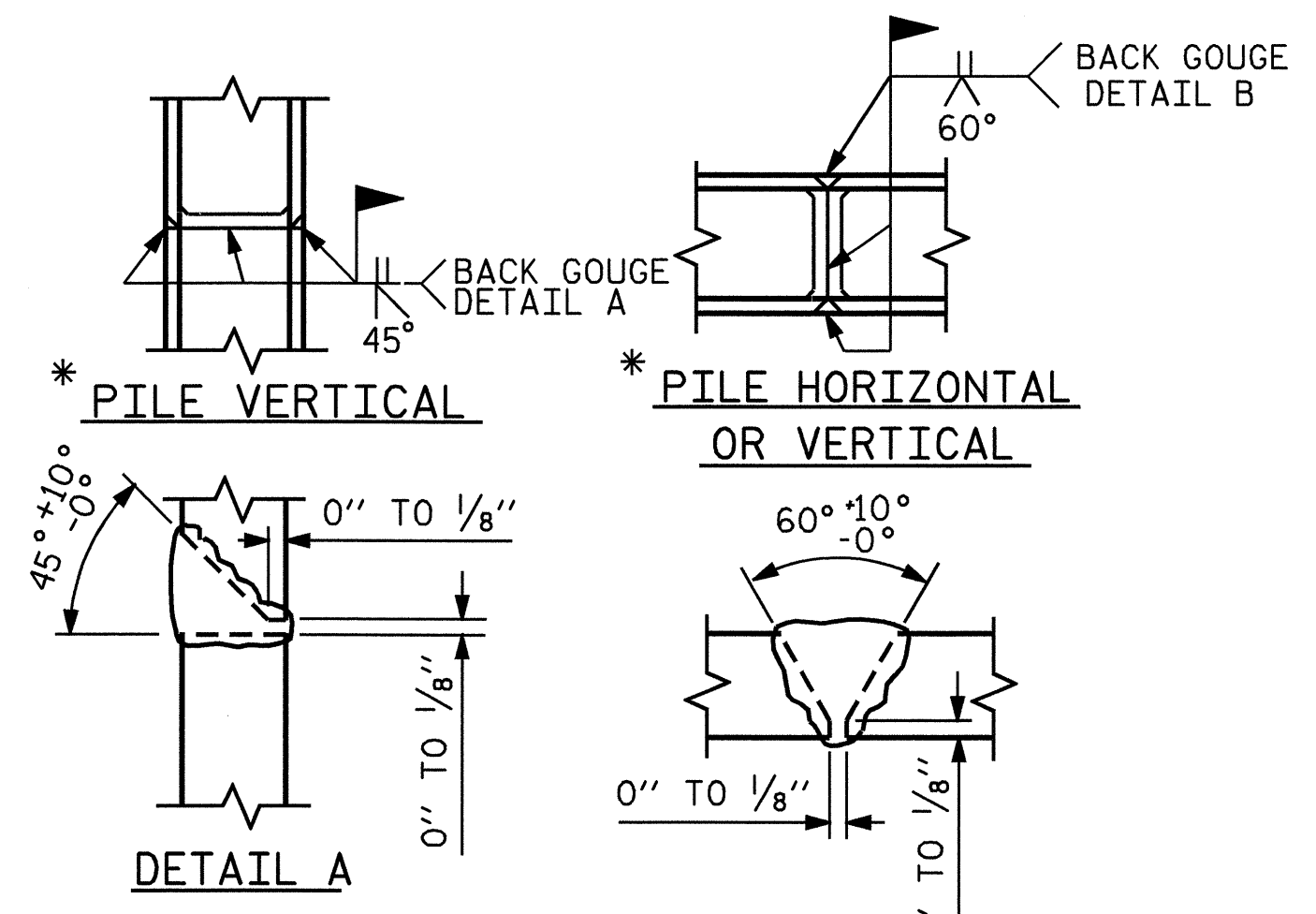


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETEIORATED AND LOST THEIR EFFECTIVENESS.

NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT



PILE SPLICE DETAILS

| BAR TYPES                      |     |      |      |         | BILL OF MATERIAL |          |      |  |  |
|--------------------------------|-----|------|------|---------|------------------|----------|------|--|--|
|                                |     |      |      |         | END BENT #2      |          |      |  |  |
| BAR                            | NO. | SIZE | TYPE | LENGTH  | WEIGHT           |          |      |  |  |
| B1                             | 10  | #9   | 1    | 52'-1"  | 1771             |          |      |  |  |
| B2                             | 12  | #4   | STR  | 3'-6"   | 28               |          |      |  |  |
| B3                             | 2   | #5   | STR  | 49'-7"  | 103              |          |      |  |  |
| B4                             | 8   | #4   | STR  | 26'-1"  | 139              |          |      |  |  |
| B5                             | 10  | #4   | STR  | 2'-10"  | 19               |          |      |  |  |
| H1                             | 10  | #6   | 3    | 12'-2"  | 183              |          |      |  |  |
| H2                             | 10  | #6   | 3    | 11'-10" | 178              |          |      |  |  |
| H3                             | 10  | #6   | 2    | 10'-0"  | 150              |          |      |  |  |
| H4                             | 10  | #6   | 2    | 10'-5"  | 156              |          |      |  |  |
| K1                             | 20  | #4   | STR  | 26'-1"  | 348              |          |      |  |  |
| K2                             | 8   | #4   | STR  | 4'-1"   | 22               |          |      |  |  |
| S1                             | 50  | #4   | 5    | 8'-6"   | 284              |          |      |  |  |
| S2                             | 50  | #4   | 4    | 4'-3"   | 142              |          |      |  |  |
| S3                             | 22  | #4   | 6    | 6'-6"   | 96               |          |      |  |  |
| S4                             | 2   | #4   | 5    | 9'-0"   | 12               |          |      |  |  |
| S5                             | 2   | #4   | 4    | 4'-9"   | 6                |          |      |  |  |
| S6                             | 3   | #6   | 8    | 3'-9"   | 17               |          |      |  |  |
| S7                             | 1   | #6   | 9    | 9'-3"   | 14               |          |      |  |  |
| U1                             | 41  | #4   | 7    | 4'-2"   | 114              |          |      |  |  |
| U2                             | 6   | #4   | 7    | 6'-6"   | 26               |          |      |  |  |
| V1                             | 82  | #5   | STR  | 6'-8"   | 570              |          |      |  |  |
| V2                             | 60  | #5   | STR  | 8'-4"   | 521              |          |      |  |  |
| REINFORCING STEEL              |     |      |      | LBS.    | 4899             |          |      |  |  |
| CLASS 'A' CONCRETE             |     |      |      |         |                  |          |      |  |  |
| POUR #1 CAP & LOWER WINGS      |     |      |      |         | CU. YDS.         | 20.6     |      |  |  |
| POUR #2 BACKWALL & UPPER WINGS |     |      |      |         | CU. YDS.         | 13.9     |      |  |  |
|                                |     |      |      |         | TOTAL            | CU. YDS. | 34.5 |  |  |
| HP 12 x 53 STEEL PILES         |     |      |      |         |                  |          |      |  |  |
| NO. 12                         |     |      |      |         | 180              | LIN. FT. |      |  |  |
| STEEL PILE POINTS              |     |      |      |         | EA. 12           |          |      |  |  |

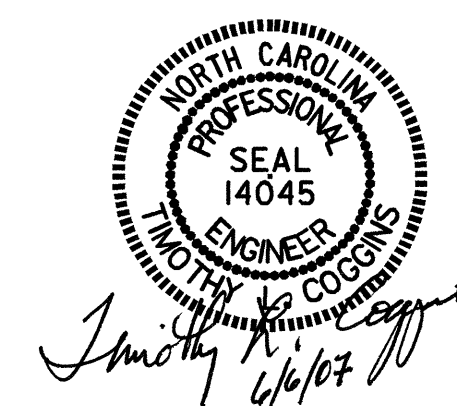
PROJECT NO. B-4280  
 STOKES COUNTY  
 STATION: 19+10.00 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

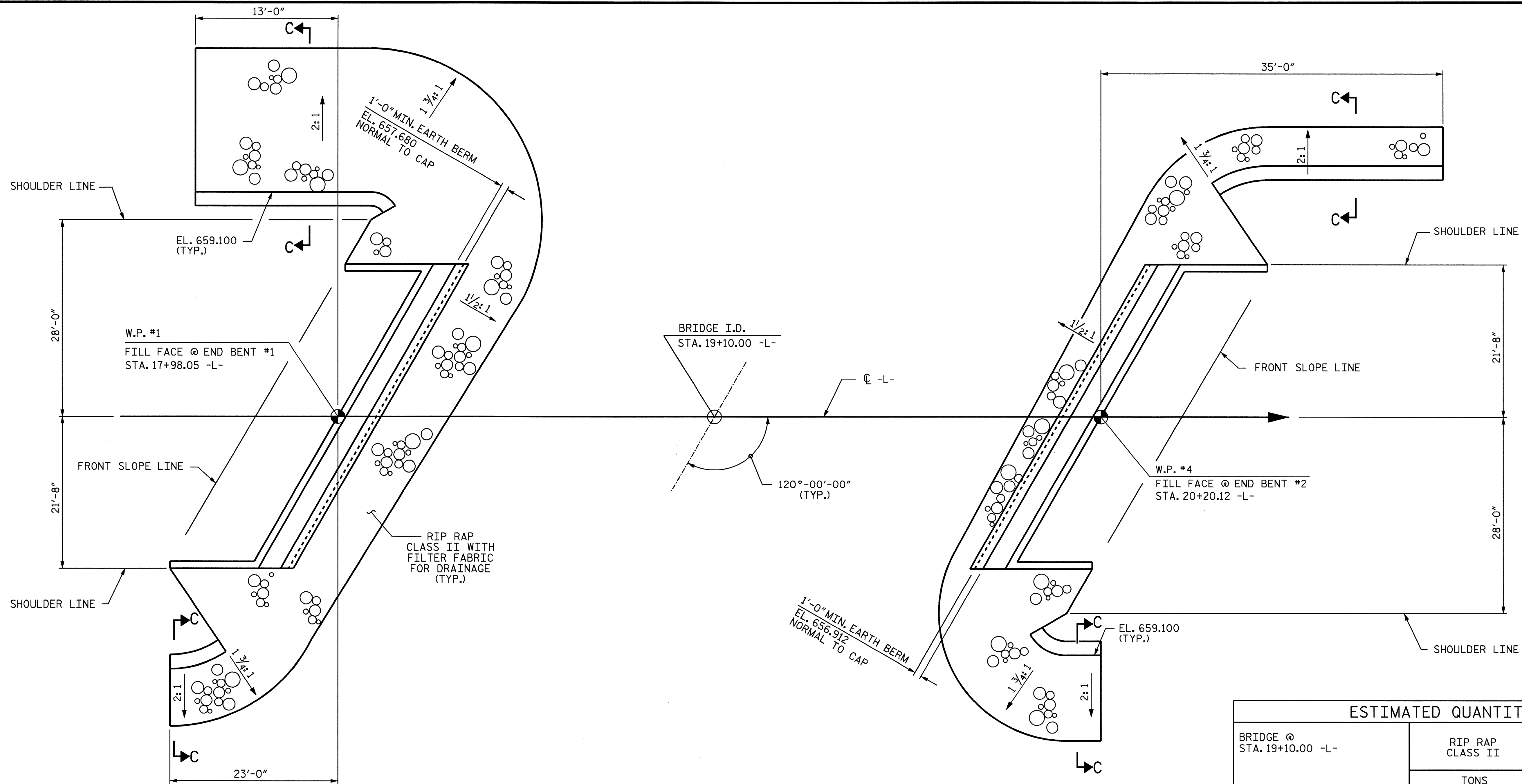
SUBSTRUCTURE  
 END BENT #2

| REVISIONS |     |       |     |     |       | SHEET NO.    |  |
|-----------|-----|-------|-----|-----|-------|--------------|--|
| NO.       | BY: | DATE: | NO. | BY: | DATE: | S-29         |  |
| 1         |     |       | 3   |     |       | TOTAL SHEETS |  |
| 2         |     |       | 4   |     |       | 51           |  |

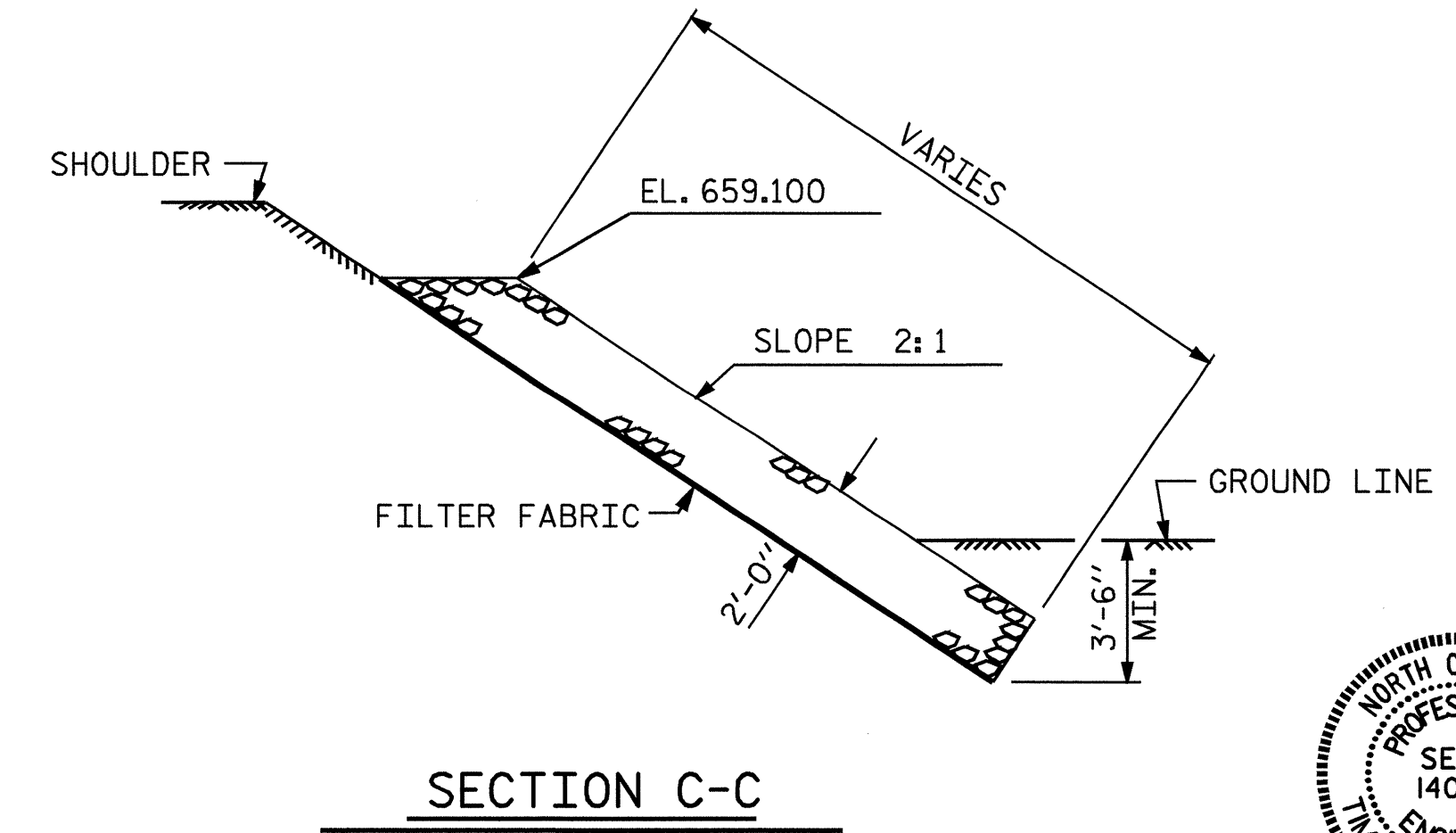
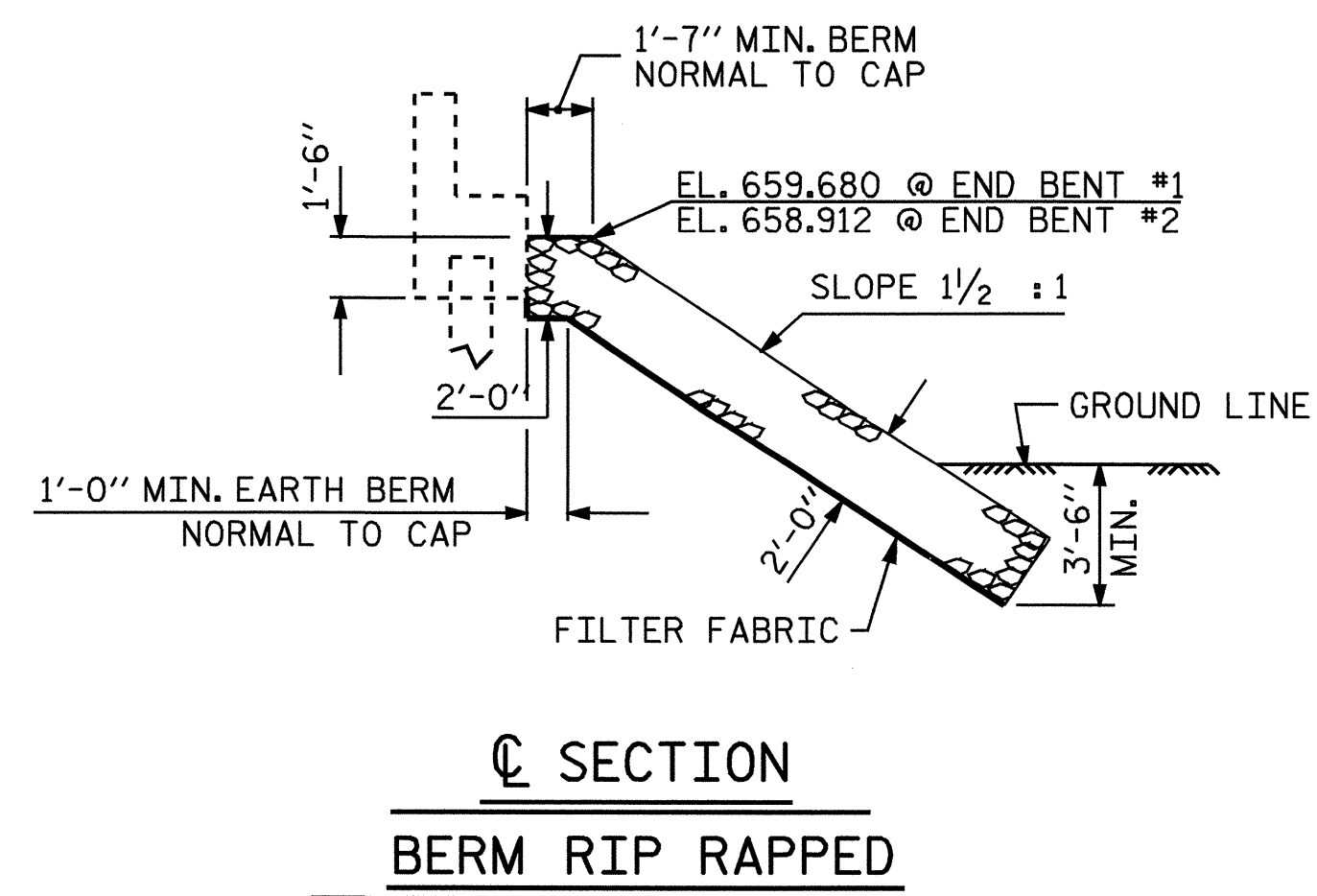


DRAWN BY: B.N.BARODAWALA DATE: 3-21-07  
 CHECKED BY: P. ADKINS DATE: 3-07



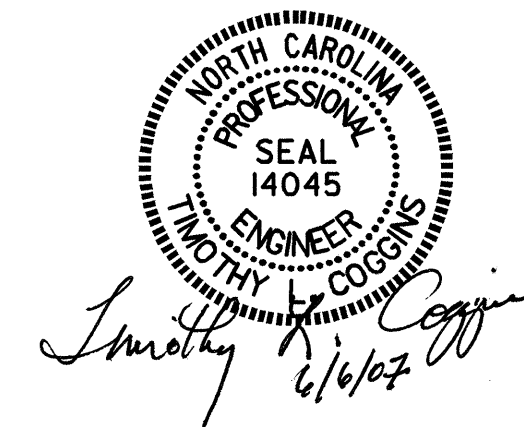


| ESTIMATED QUANTITIES          |                     |                               |
|-------------------------------|---------------------|-------------------------------|
| BRIDGE @<br>STA. 19+10.00 -L- | RIp RAP<br>CLASS II | FILTER FABRIC<br>FOR DRAINAGE |
|                               | TONS                | SQUARE YARDS                  |
| END BENT 1                    | 161                 | 179                           |
| END BENT 2                    | 67                  | 74                            |



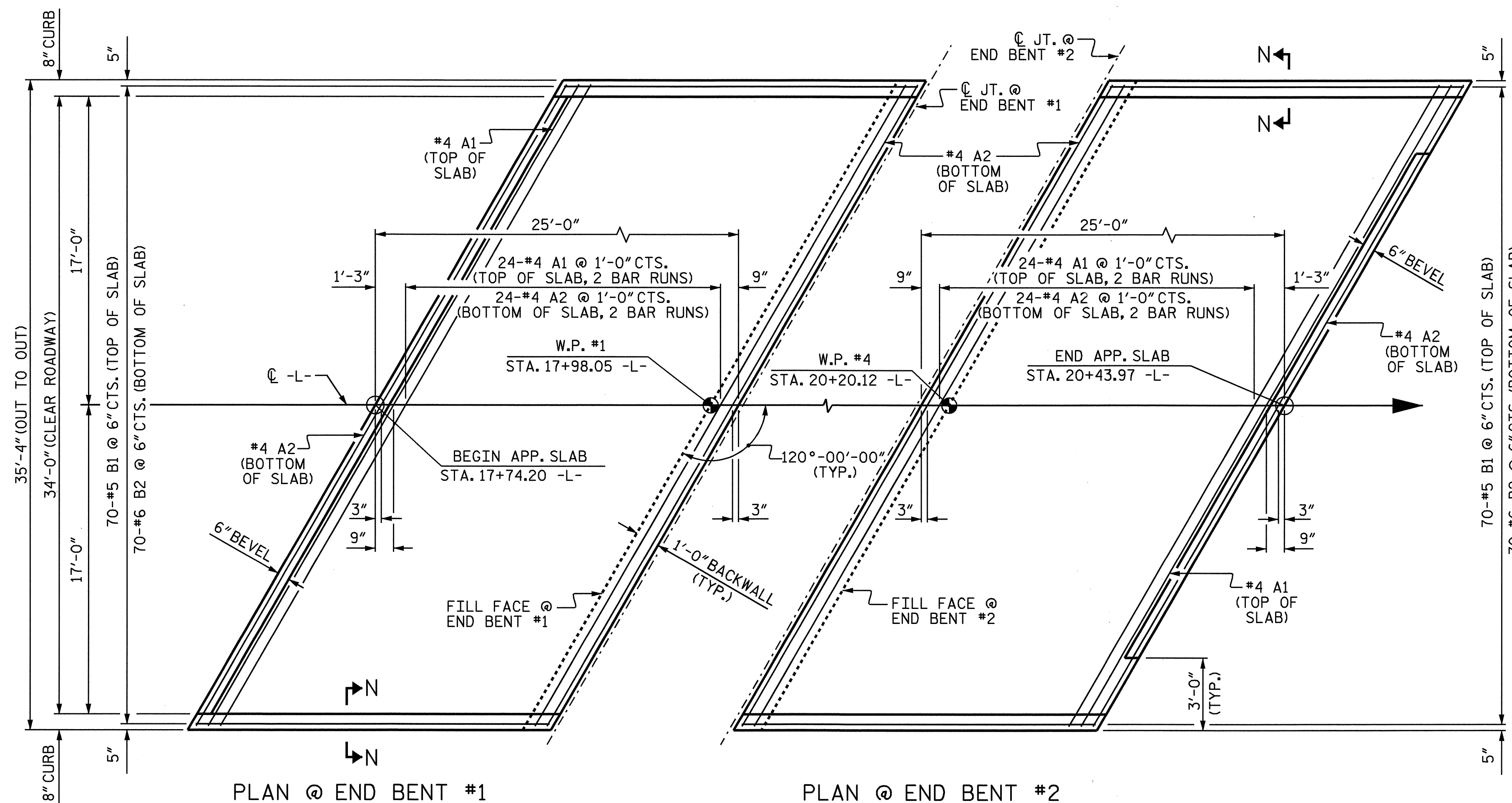
PROJECT NO. B-4280  
STOKES COUNTY  
 STATION: 19+10.00 -L-

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 STANDARD  
 — RIP RAP DETAILS —



|                             |                       |
|-----------------------------|-----------------------|
| ASSEMBLED BY : PEGGY ADKINS | DATE : 9-04           |
| CHECKED BY : B.N.BARODAWALA | DATE : 3-06           |
| DRAWN BY : REK 1/84         | REV. 8/16/99 RWW/LES  |
| CHECKED BY : RDU 1/84       | REV. 10/17/00 RWW/LES |
|                             | REV. 5/1/06 TLA/GM    |

| REVISIONS |     |       |     |     |       | SHEET NO.    |
|-----------|-----|-------|-----|-----|-------|--------------|
| NO.       | BY: | DATE: | NO. | BY: | DATE: | S-30         |
| 1         |     |       | 3   |     |       | TOTAL SHEETS |
| 2         |     |       | 4   |     |       | 51           |



PLAN @ END BENT #1  
 PLAN @ END BENT #2  
 DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS

**NOTES**

APPROACH SLAB SHALL NOT BE CONSTRUCTED PRIOR TO COMPLETION OF THE BRIDGE DECK.

FOR REINFORCED BRIDGE APPROACH FILL INCLUDING FABRIC, IMPERMEABLE GEOMEMBRANE, 4" Ø DRAINAGE PIPE, #78M STONE, AND SELECT MATERIAL, SEE ROADWAY PLANS.

AREA BETWEEN THE WINGWALL AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE AND SHALL BE PAVED. SEE ROADWAY PLANS.

THE 6" COMP. A.B.C. SHALL BE FLUSH WITH THE ROADWAY END OF THE APPROACH SLAB AND SHALL EXTEND 1'-0" OUTSIDE EACH EDGE OF THE APPROACH SLAB.

THE CONTRACTOR MAY USE 4" TYPE B-25.0B ASPHALT CONCRETE BASE COURSE IN LIEU OF 6" COMP. A.B.C. IF THIS OPTION IS USED, THE BASE COURSE SHALL BE FLUSH WITH THE ROADWAY END OF THE APPROACH SLAB, AND THE WIDTH SHALL BE THE SAME AS THAT OF THE APPROACH SLAB.

THE CONTRACTOR MAY USE 5" CLASS "A" CONCRETE BASE IN LIEU OF 6" COMP. A.B.C. IF THIS OPTION IS USED, THE CONCRETE BASE SHALL BE FLUSH WITH THE ROADWAY END OF THE APPROACH SLAB, AND THE WIDTH SHALL BE THE SAME AS THAT OF THE APPROACH SLAB. THE CONCRETE SHALL BE FINISHED TO A SMOOTH SURFACE AND A LAYER OF 30 LB ROOFING FELT SHALL BE PLACED BETWEEN THE CONCRETE BASE AND THE APPROACH SLAB TO PREVENT BOND. THE APPROACH SLAB SHALL NOT BE CAST UNTIL THE CONCRETE BASE HAS REACHED AN AGE OF THREE CURING DAYS.

THE JOINT SHALL BE SAWS PRIOR TO THE CASTING OF THE BARRIER RAIL.

WITH EVAZOTE JOINT SEAL

FOR EVAZOTE JOINT SEALS, SEE SPECIAL PROVISIONS.

THE NOMINAL UNCOMPRESSED SEAL WIDTH OF THE EVAZOTE JOINT SEAL SHALL BE 2 1/2".

FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.

**BILL OF MATERIAL**

**APPROACH SLAB AT EB #1**

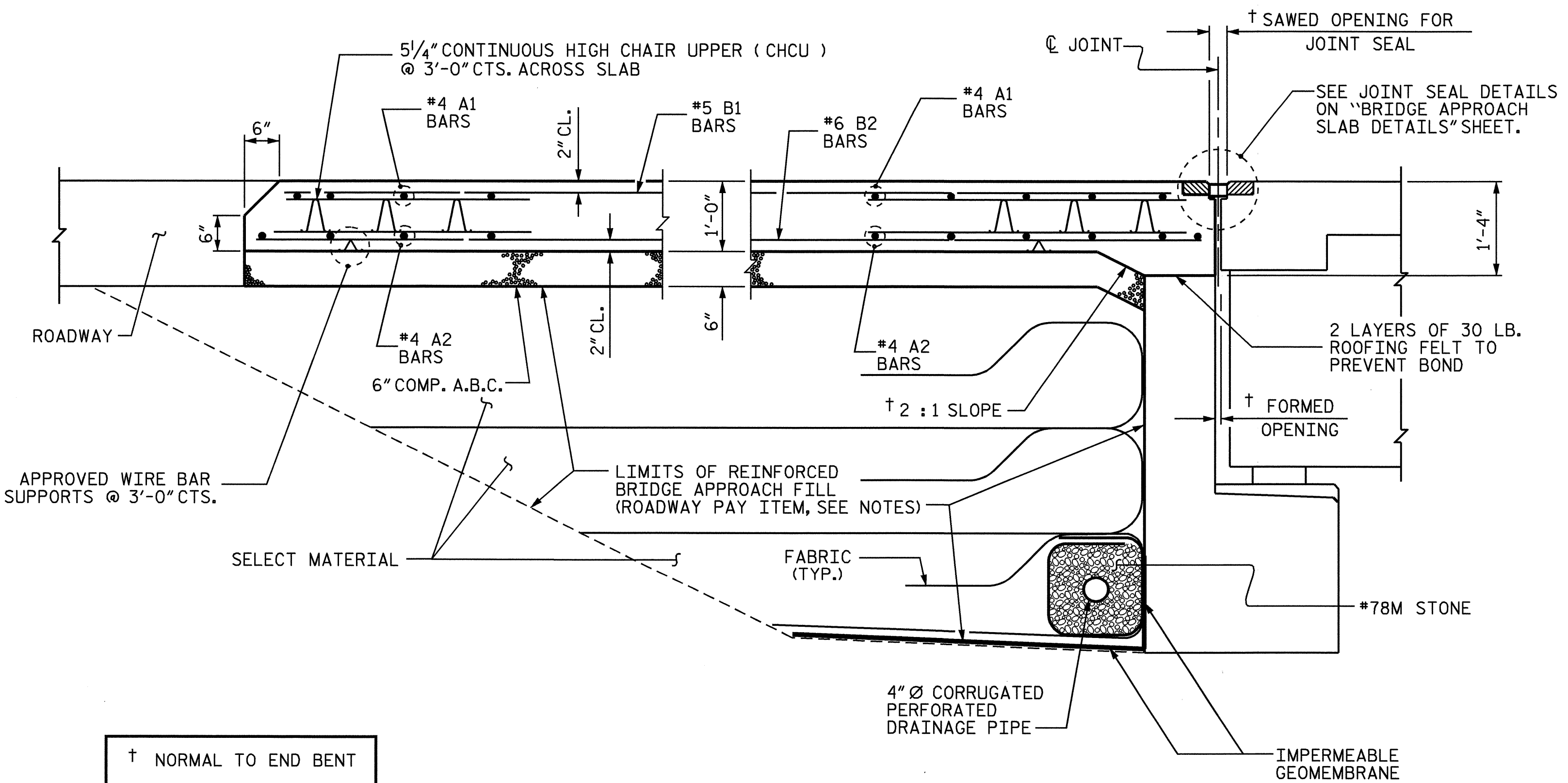
| BAR                             | NO. | SIZE | TYPE | LENGTH | WEIGHT |
|---------------------------------|-----|------|------|--------|--------|
| *A1                             | 50  | #4   | STR  | 21'-2" | 707    |
| A2                              | 52  | #4   | STR  | 21'-1" | 732    |
| *B1                             | 70  | #5   | STR  | 23'-8" | 1728   |
| B2                              | 70  | #6   | STR  | 24'-7" | 2585   |
| REINFORCING STEEL               |     |      |      | LBS.   | 3317   |
| *EPOXY COATED REINFORCING STEEL |     |      |      | LBS.   | 2435   |
| CLASS AA CONCRETE               |     |      |      | C. Y.  | 33.4   |

**APPROACH SLAB AT EB #2**

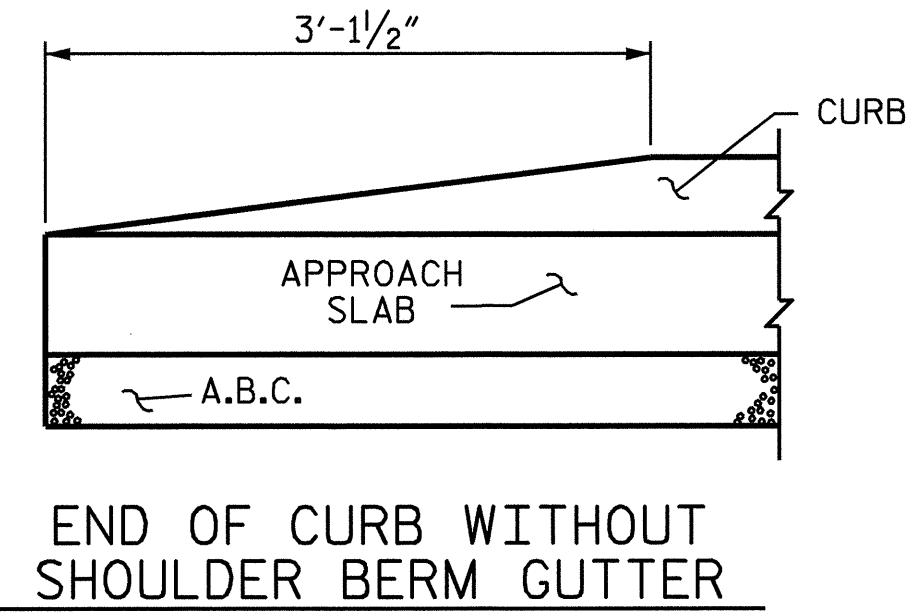
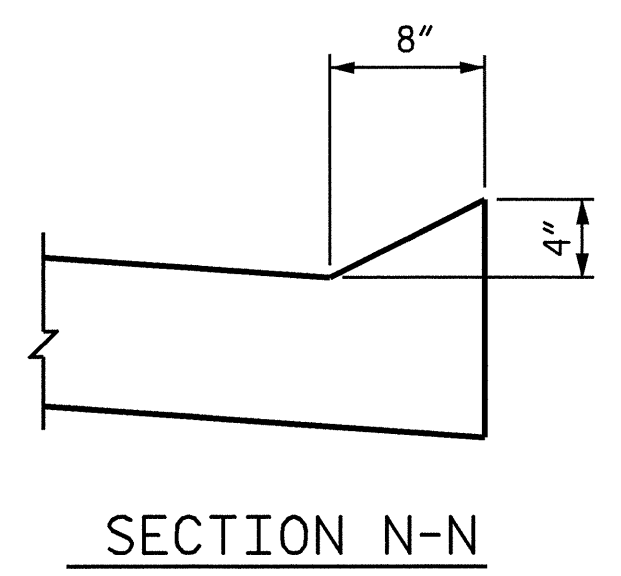
| BAR                             | NO. | SIZE | TYPE | LENGTH | WEIGHT |
|---------------------------------|-----|------|------|--------|--------|
| *A1                             | 50  | #4   | STR  | 21'-2" | 707    |
| A2                              | 52  | #4   | STR  | 21'-1" | 732    |
| *B1                             | 70  | #5   | STR  | 23'-8" | 1728   |
| B2                              | 70  | #6   | STR  | 24'-7" | 2585   |
| REINFORCING STEEL               |     |      |      | LBS.   | 3317   |
| *EPOXY COATED REINFORCING STEEL |     |      |      | LBS.   | 2435   |
| CLASS AA CONCRETE               |     |      |      | C. Y.  | 33.4   |

**SPLICE CHART**

| BAR SIZE | SPLICE LENGTH |
|----------|---------------|
| #4 A1    | 2'-0"         |
| #4 A2    | 1'-9"         |



SECTION THRU SLAB



CURB DETAILS

PROJECT NO. B-4280  
 STOKES COUNTY  
 STATION: 19+10.00 -L-

SHEET 1 OF 2

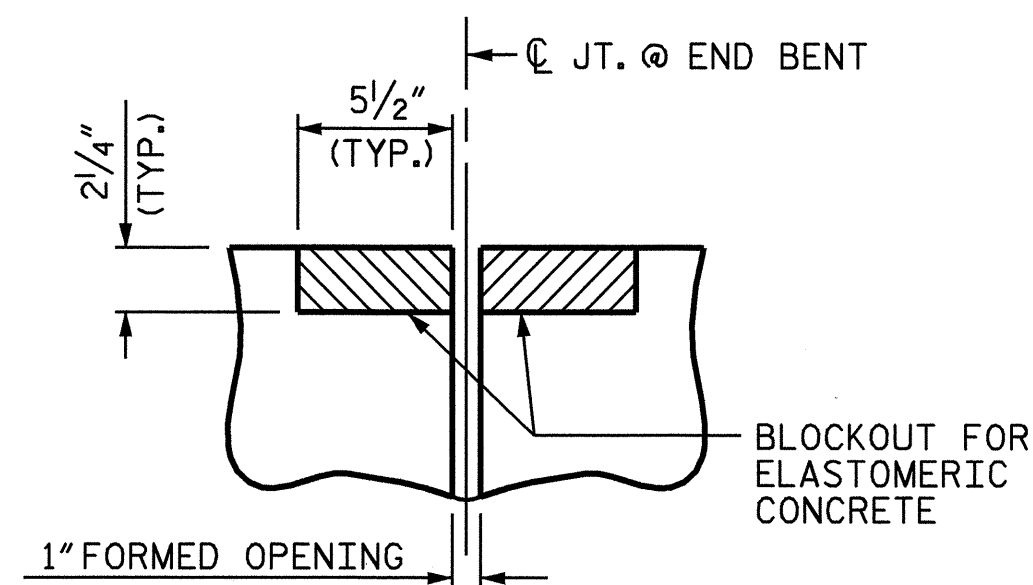
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

STANDARD  
 BRIDGE APPROACH SLAB  
 FOR FLEXIBLE PAVEMENT

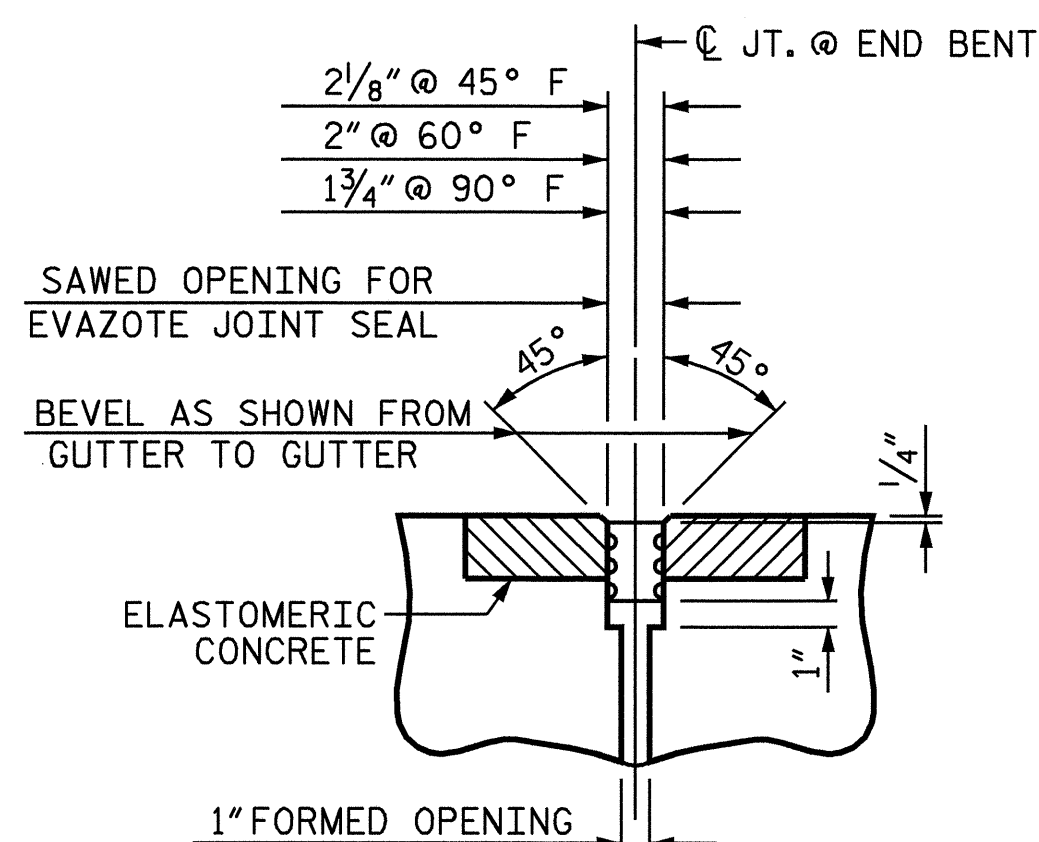
| REVISIONS |     |       |     |     |       | SHEET NO.       |
|-----------|-----|-------|-----|-----|-------|-----------------|
| NO.       | BY: | DATE: | NO. | BY: | DATE: | S-31            |
| 1         |     |       | 3   |     |       | TOTAL SHEETS 51 |
| 2         |     |       | 4   |     |       |                 |

ASSEMBLED BY: ZION J. RORIE DATE: 8/11/06  
 CHECKED BY: B. N. BARODAWAL DATE: 8/17/06  
 DRAWN BY: EEM 3/95 REV. 7/10/01 LES/RDR  
 CHECKED BY: VAP 3/95 REV. 5/7/03R RWW/JTE  
 REV. 5/1/06R KMM/GM





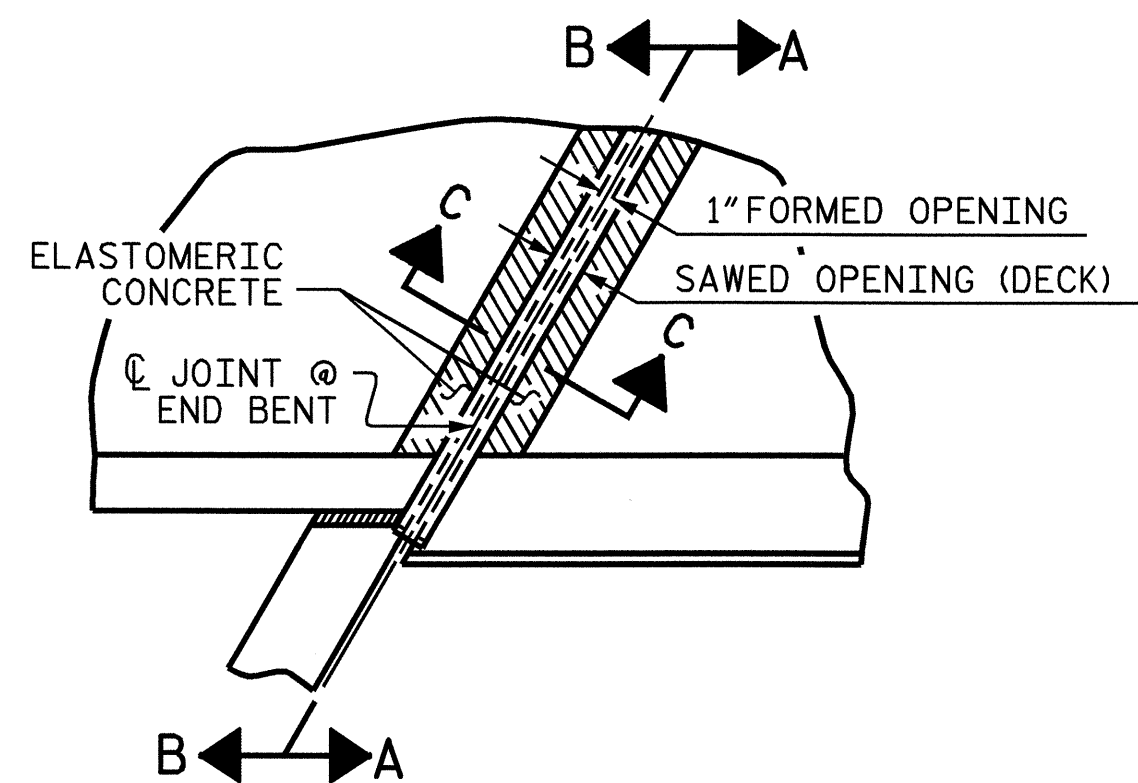
SECTION C-C  
EVAZOTE JOINT SEAL  
(PRE-SAWED ELASTOMERIC  
CONCRETE DIMENSIONS)



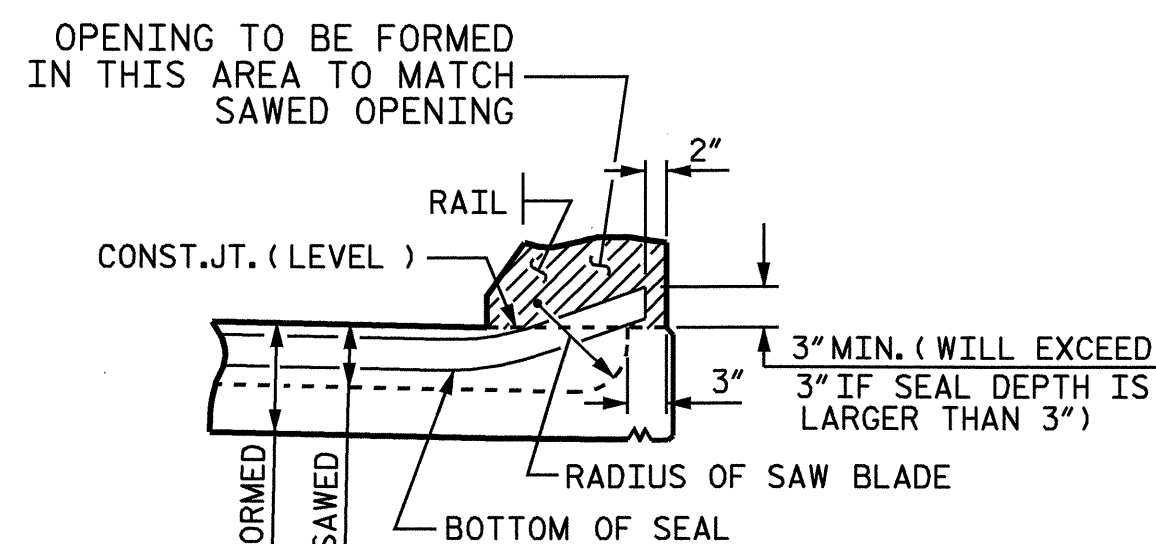
SECTION C-C  
EVAZOTE JOINT SEAL

| ELASTOMERIC CONCRETE |                                  |
|----------------------|----------------------------------|
| END BENT NO.         | ELASTOMERIC CONCRETE * (CU. FT.) |
| 1                    | 6.7                              |
| 2                    | 6.7                              |
| TOTAL                | 13.4                             |

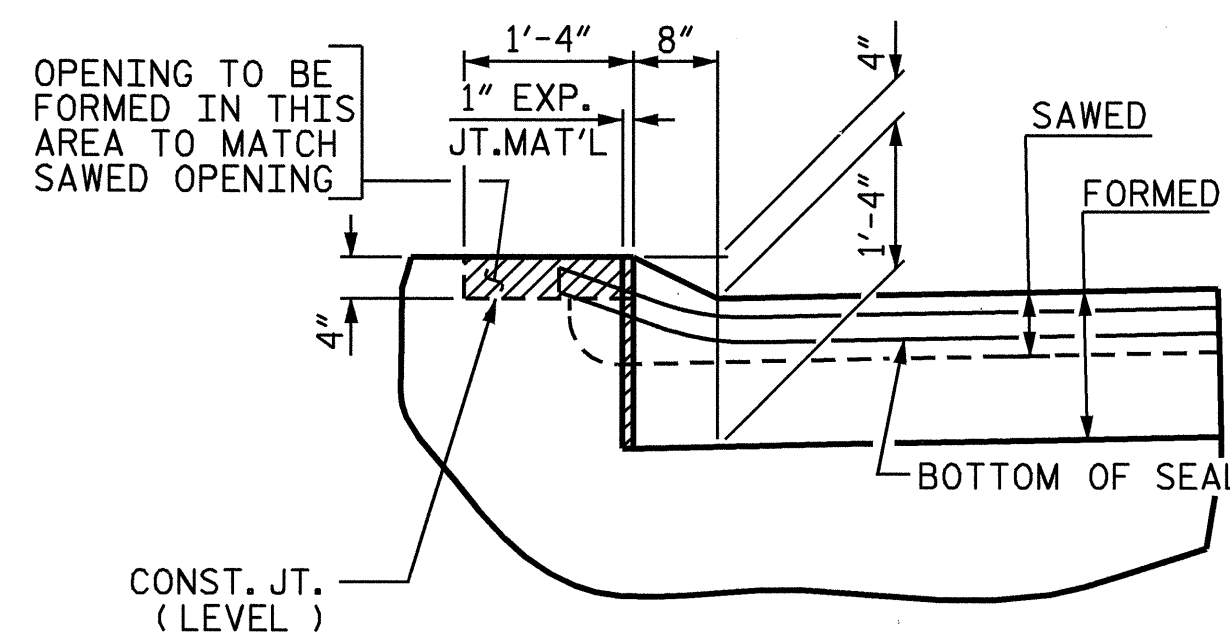
\* BASED ON THE MINIMUM BLOCKOUT SHOWN.



PLAN

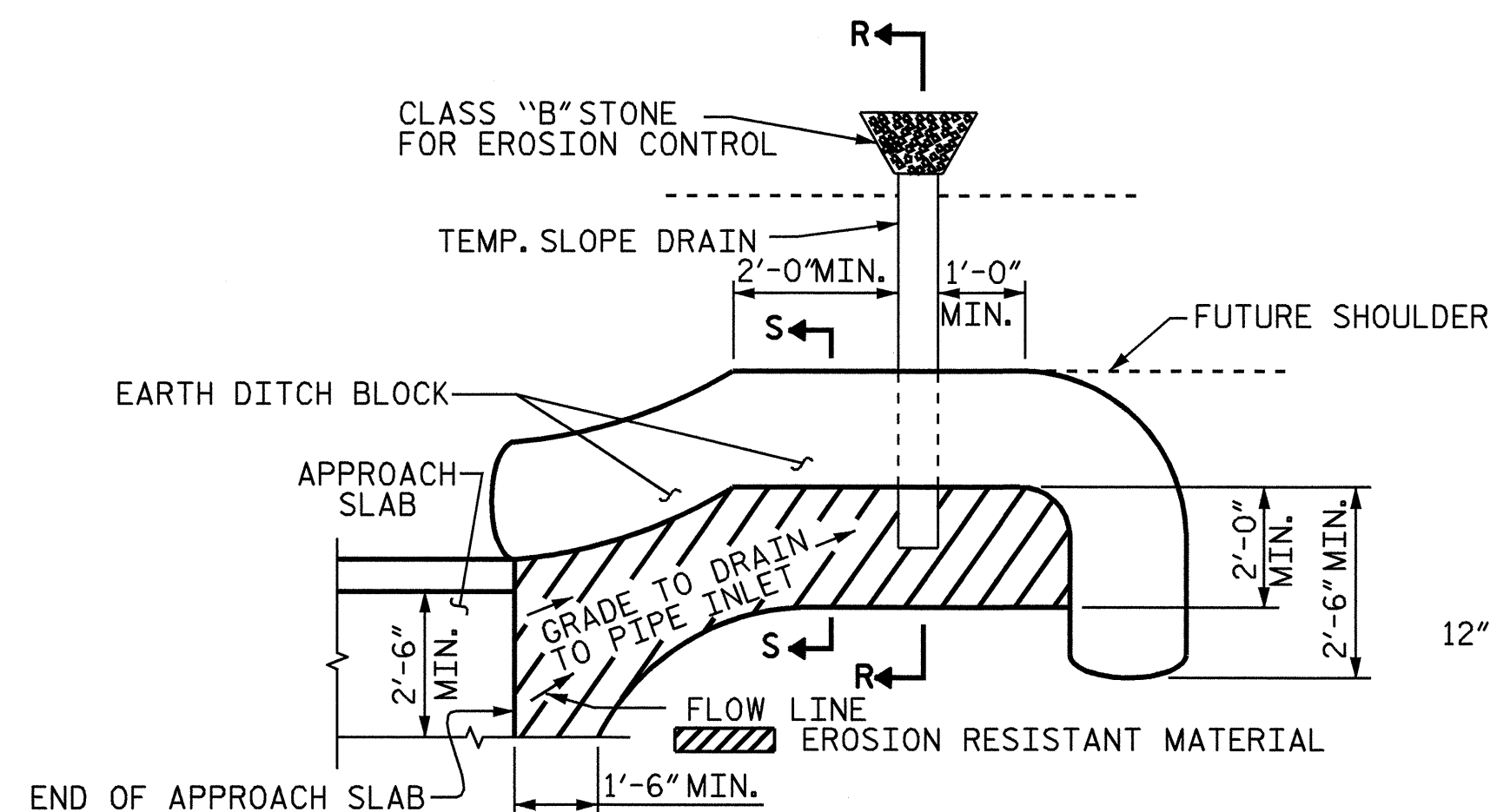


SECTION A-A



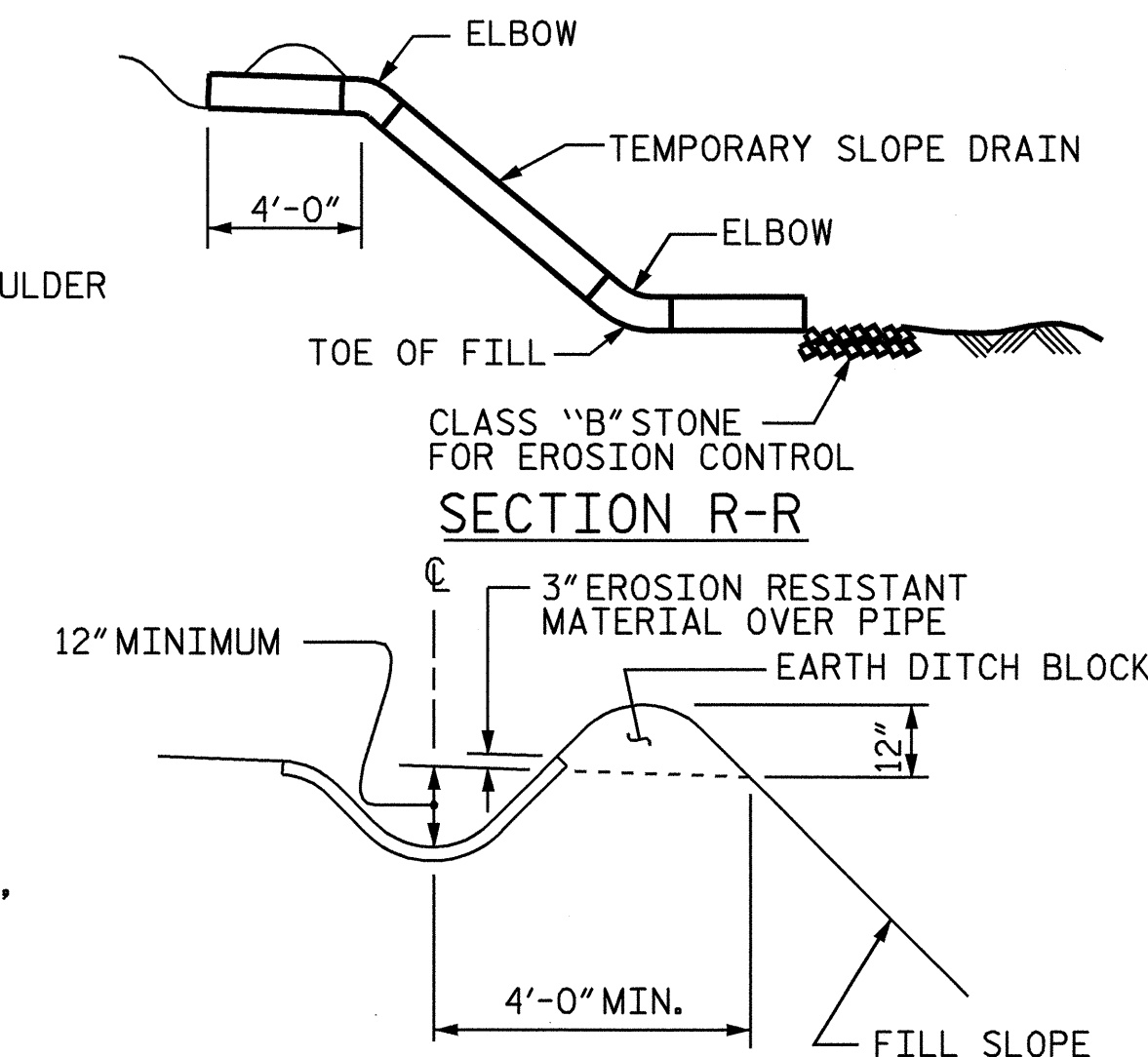
SECTION B-B

JOINT SEAL DETAILS @ END BENT



NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN. 2" DEPTH, 2) EROSION CONTROL MAT, OR 3) CONCRETE, AS DIRECTED BY THE ENGINEER. THE SLOPE DRAIN SHALL CONSIST OF A NON-PERFORATED TEMPORARY DRAINAGE PIPE, 12 INCHES IN DIAMETER.

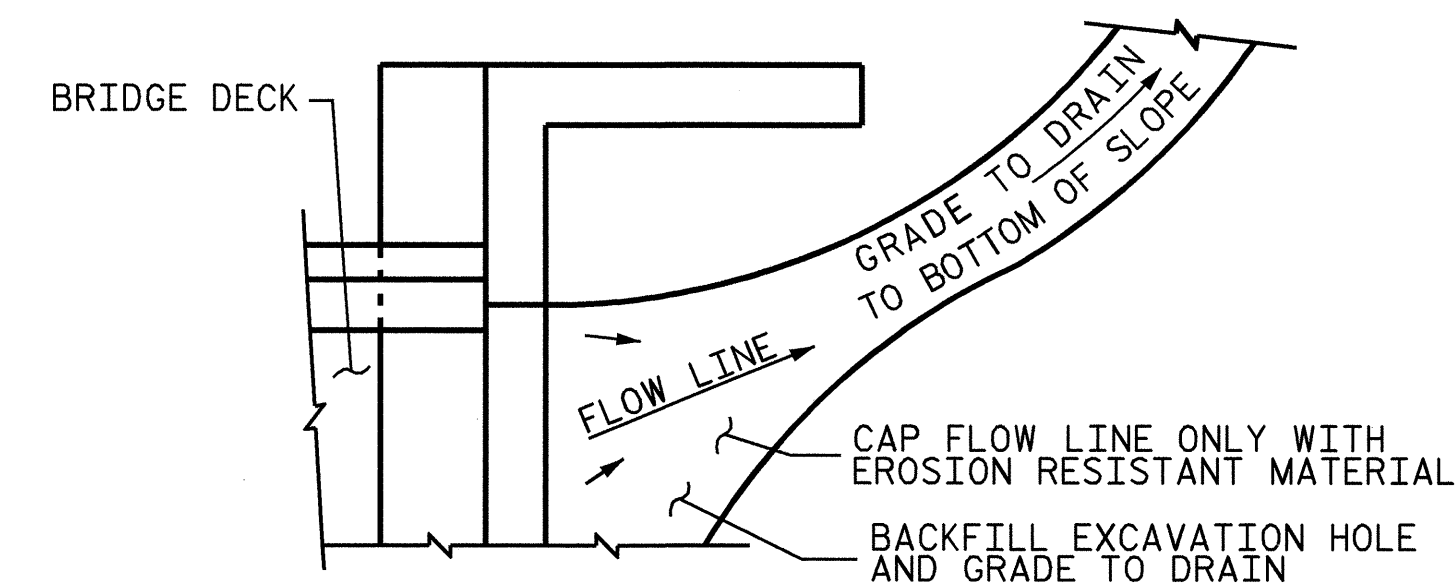
PLAN VIEW



SECTION S-S

TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)



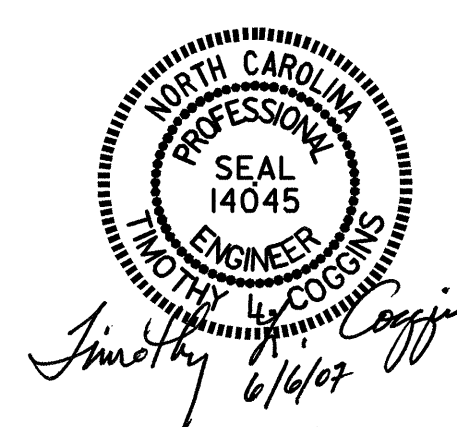
NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT TO THE STRUCTURE. THE CONTRACTOR WILL BE REQUIRED TO REMOVE THESE MATERIALS PRIOR TO CONSTRUCTION OF THE APPROACH SLAB.

TEMPORARY DRAINAGE DETAIL

PROJECT NO. B-4280  
STOKES COUNTY  
STATION: 19+10.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
STANDARD  
BRIDGE APPROACH  
SLAB DETAILS



ASSEMBLED BY : ZION J. RORIE DATE : 8/11/06  
CHECKED BY : B. N. BARODAWALA DATE : 8/17/06  
DRAWN BY : FCJ 11/88 REV. 10/17/00 RWW/LES  
CHECKED BY : ARB 11/88 REV. 5/1/03 RWW/JTE  
REV. 5/1/06 TLA/GM

| REVISIONS |     |       |     |     |       | TOTAL SHEETS |
|-----------|-----|-------|-----|-----|-------|--------------|
| NO.       | BY: | DATE: | NO. | BY: | DATE: | 51           |
| 1         |     |       | 3   |     |       | 51           |
| 2         |     |       | 4   |     |       | 51           |

OVERHANG BRACKET CALCULATION INSTRUCTIONS

AASHTO SHAPES - TYPES III, IV, V, AND VI

- RECORD KNOWN INFORMATION ON "BRIDGE OVERHANG BRACKET SUMMARY" ON SHEET 2
- CALCULATE THE MAXIMUM SCREED LOAD PER BRACKET (SLPB) WITH AN ESTIMATED R = 1.5.  $SLPB = R \times W$ . ROUND VALUE UP TO NEAREST SLPB VALUE INDICATED ON APPROPRIATE TABLE 1-1, 1-2, 1-3, OR 1-4.
- WITH THE ESTIMATED SLPB, OVERHANG SLAB THICKNESS, "K" VALUE, AND 45° HANGER SAFE WORKING LOAD (SWL), ENTER THE APPROPRIATE TABLE 1-1, 1-2, 1-3, OR 1-4 (BASED ON OVERHANG DIMENSION) AND DETERMINE THE BRACKET SPACING, S.
- CALCULATE S/D1 AND S/D2, ROUNDING UP TO NEAREST VALUE IN TABLE 2. ENTER TABLE 2 AND DETERMINE R VALUE.
- CALCULATE REVISED SLPB. ROUND VALUE UP TO NEAREST SLPB VALUE INDICATED ON APPROPRIATE TABLE 1-1, 1-2, 1-3, OR 1-4.
- WITH THE REVISED SLPB, OVERHANG SLAB THICKNESS, "K" VALUE AND 45° HANGER SAFE WORKING LOAD (SWL), ENTER THE APPROPRIATE TABLE 1-1, 1-2, 1-3 OR 1-4 (BASED ON OVERHANG DIMENSION) AND DETERMINE REVISED BRACKET SPACING, S.
- CONTINUE ITERATIONS OF STEPS 4-6 UNTIL THE REVISED BRACKET SPACING, S, IS THE SAME AS THE PREVIOUS S VALUE.
- CHECK LUMBER JOIST SPACING: WITH BRACKET SPACING VALUE, S, ROUND THIS VALUE UP TO THE NEAREST VALUE OF ALLOWABLE SPAN LENGTH OF JOIST OF TABLE 3. USING THIS VALUE, ALONG WITH THE AVERAGE OVERHANG SLAB THICKNESS AND THE LUMBER JOIST SIZE, DETERMINE JOIST SPACING FROM TABLE 3. IF NECESSARY, ADJUST LUMBER JOIST SIZE AND/OR JOIST SPACING TO MEET ALLOWABLE SPAN LENGTH OF JOIST.
- CONVERSELY, IF THE DESIRED JOIST SPACING IS KNOWN, USE THIS ALONG WITH THE AVERAGE OVERHANG SLAB THICKNESS AND THE LUMBER JOIST SIZE TO DETERMINE IF ALLOWABLE SPAN LENGTH OF JOIST IS GREATER THAN THE BRACKET SPACING, S. IF NECESSARY, ADJUST LUMBER JOIST SIZE TO MEET REQUIREMENTS OF ALLOWABLE SPAN LENGTH OF JOIST AND JOIST SPACING.
- RECORD REMAINING INFORMATION ON "BRIDGE OVERHANG BRACKET SUMMARY" FORM.
- SUBMIT FORM AND CALCULATIONS FOR REVIEW AND APPROVAL.

TABLE 1-1 (FOR USE ON UP TO 2'-0" OVERHANG (L) & 54" HORIZONTAL LEG LENGTH OF THE OVERHANG BRACKET)

| AVG. SLAB THICKNESS (t) (in) | BRACKET DIMENSION (in) | SCREED LOAD PER BRACKET |           |           |           |           |           |           |          | 45° HANGER SWL (lbs) |        |
|------------------------------|------------------------|-------------------------|-----------|-----------|-----------|-----------|-----------|-----------|----------|----------------------|--------|
|                              |                        | 2500 lbs.               | 2250 lbs. | 2000 lbs. | 1750 lbs. | 1500 lbs. | 1250 lbs. | 1000 lbs. | 750 lbs. |                      | 0 lbs. |
| 10                           | 30                     | 3'-6"                   | 4'-0"     | 4'-5"     | 2'-1"     | 2'-7"     | 3'-2"     | 3'-8"     | 4'-2"    | 5'-9"                | 4000   |
|                              | 40                     | 3'-6"                   | 4'-0"     | 4'-5"     | 2'-1"     | 2'-7"     | 3'-2"     | 3'-8"     | 4'-2"    | 5'-9"                | 6000   |
|                              | 50                     | 3'-6"                   | 4'-0"     | 4'-5"     | 2'-1"     | 2'-7"     | 3'-2"     | 3'-8"     | 4'-2"    | 5'-9"                | 6000   |
| 12                           | 30                     | 3'-2"                   | 3'-7"     | 4'-1"     | 2'-4"     | 2'-10"    | 3'-4"     | 3'-9"     | 5'-2"    | 4000                 |        |
|                              | 40                     | 3'-2"                   | 3'-7"     | 4'-1"     | 2'-4"     | 2'-10"    | 3'-4"     | 3'-9"     | 5'-2"    | 6000                 |        |
|                              | 50                     | 3'-2"                   | 3'-7"     | 4'-1"     | 2'-4"     | 2'-10"    | 3'-4"     | 3'-9"     | 5'-2"    | 6000                 |        |
| 14                           | 30                     | 2'-10"                  | 3'-4"     | 3'-9"     | 2'-2"     | 2'-7"     | 3'-0"     | 3'-5"     | 4'-9"    | 4000                 |        |
|                              | 40                     | 2'-10"                  | 3'-4"     | 3'-9"     | 2'-2"     | 2'-7"     | 3'-0"     | 3'-5"     | 4'-9"    | 6000                 |        |
|                              | 50                     | 2'-10"                  | 3'-4"     | 3'-9"     | 2'-2"     | 2'-7"     | 3'-0"     | 3'-5"     | 4'-9"    | 6000                 |        |
| 16                           | 30                     | 2'-8"                   | 3'-0"     | 3'-5"     | 2'-0"     | 2'-4"     | 2'-9"     | 3'-2"     | 4'-4"    | 4000                 |        |
|                              | 40                     | 2'-8"                   | 3'-0"     | 3'-5"     | 2'-0"     | 2'-4"     | 2'-9"     | 3'-2"     | 4'-4"    | 6000                 |        |
|                              | 50                     | 2'-8"                   | 3'-0"     | 3'-5"     | 2'-0"     | 2'-4"     | 2'-9"     | 3'-2"     | 4'-4"    | 6000                 |        |

TABLE 1-2 (FOR USE ON OVER 2'-0" TO 2'-6" OVERHANG (L) & 54" HORIZONTAL LEG LENGTH OF THE OVERHANG BRACKET)

| AVG. SLAB THICKNESS (t) (in) | BRACKET DIMENSION (in) | SCREED LOAD PER BRACKET |           |           |           |           |           |           |          | 45° HANGER SWL (lbs) |
|------------------------------|------------------------|-------------------------|-----------|-----------|-----------|-----------|-----------|-----------|----------|----------------------|
|                              |                        | 2500 lbs.               | 2250 lbs. | 2000 lbs. | 1750 lbs. | 1500 lbs. | 1250 lbs. | 1000 lbs. | 750 lbs. |                      |
| 10                           | 30                     | 3'-1"                   | 3'-6"     | 4'-0"     | 2'-4"     | 2'-9"     | 3'-3"     | 3'-8"     | 5'-1"    | 4000                 |
|                              | 40                     | 3'-1"                   | 3'-6"     | 4'-0"     | 2'-4"     | 2'-9"     | 3'-3"     | 3'-8"     | 5'-1"    | 6000                 |
|                              | 50                     | 3'-1"                   | 3'-6"     | 4'-0"     | 2'-4"     | 2'-9"     | 3'-3"     | 3'-8"     | 5'-1"    | 6000                 |
| 12                           | 30                     | 2'-9"                   | 3'-2"     | 3'-7"     | 2'-1"     | 2'-6"     | 2'-11"    | 3'-4"     | 4'-6"    | 4000                 |
|                              | 40                     | 2'-9"                   | 3'-2"     | 3'-7"     | 2'-1"     | 2'-6"     | 2'-11"    | 3'-4"     | 4'-6"    | 6000                 |
|                              | 50                     | 2'-9"                   | 3'-2"     | 3'-7"     | 2'-1"     | 2'-6"     | 2'-11"    | 3'-4"     | 4'-6"    | 6000                 |
| 14                           | 30                     | 2'-6"                   | 2'-10"    | 3'-3"     | 2'-3"     | 2'-7"     | 3'-0"     | 4'-1"     | 4000     |                      |
|                              | 40                     | 2'-6"                   | 2'-10"    | 3'-3"     | 2'-3"     | 2'-7"     | 3'-0"     | 4'-1"     | 6000     |                      |
|                              | 50                     | 2'-6"                   | 2'-10"    | 3'-3"     | 2'-3"     | 2'-7"     | 3'-0"     | 4'-1"     | 6000     |                      |
| 16                           | 30                     | 2'-3"                   | 2'-7"     | 2'-11"    | 2'-1"     | 2'-5"     | 2'-9"     | 3'-9"     | 4000     |                      |
|                              | 40                     | 2'-3"                   | 2'-7"     | 2'-11"    | 2'-1"     | 2'-5"     | 2'-9"     | 3'-9"     | 6000     |                      |
|                              | 50                     | 2'-3"                   | 2'-7"     | 2'-11"    | 2'-1"     | 2'-5"     | 2'-9"     | 3'-9"     | 6000     |                      |

TABLE 1-3 (FOR USE ON OVER 2'-6" TO 3'-0" OVERHANG (L) & 54" HORIZONTAL LEG LENGTH OF THE OVERHANG BRACKET)

| AVG. SLAB THICKNESS (t) (in) | BRACKET DIMENSION (in) | SCREED LOAD PER BRACKET |           |           |           |           |           |           |          | 45° HANGER SWL (lbs) |        |
|------------------------------|------------------------|-------------------------|-----------|-----------|-----------|-----------|-----------|-----------|----------|----------------------|--------|
|                              |                        | 2500 lbs.               | 2250 lbs. | 2000 lbs. | 1750 lbs. | 1500 lbs. | 1250 lbs. | 1000 lbs. | 750 lbs. |                      | 0 lbs. |
| 10                           | 30                     |                         |           |           |           | 2'-1"     | 2'-6"     | 2'-11"    | 3'-4"    | 4'-6"                | 4000   |
|                              | 40                     |                         |           |           |           | 2'-1"     | 2'-6"     | 2'-11"    | 3'-4"    | 4'-6"                | 6000   |
|                              | 50                     | 2'-9"                   | 3'-2"     | 3'-7"     | 4'-0"     | 4'-5"     | 4'-10"    | 5'-3"     | 5'-7"    | 6'-7"                | 4000   |
| 12                           | 30                     |                         |           |           |           | 2'-1"     | 2'-6"     | 2'-11"    | 3'-4"    | 4'-6"                | 4000   |
|                              | 40                     |                         |           |           |           | 2'-1"     | 2'-6"     | 2'-11"    | 3'-4"    | 4'-6"                | 6000   |
|                              | 50                     | 2'-9"                   | 3'-2"     | 3'-7"     | 4'-0"     | 4'-5"     | 4'-10"    | 5'-3"     | 5'-7"    | 6'-7"                | 4000   |
| 14                           | 30                     |                         |           |           |           | 2'-2"     | 2'-7"     | 2'-11"    | 3'-4"    | 4'-6"                | 4000   |
|                              | 40                     |                         |           |           |           | 2'-2"     | 2'-7"     | 2'-11"    | 3'-4"    | 4'-6"                | 6000   |
|                              | 50                     | 2'-9"                   | 3'-2"     | 3'-7"     | 4'-0"     | 4'-5"     | 4'-10"    | 5'-3"     | 5'-7"    | 6'-7"                | 4000   |
| 16                           | 30                     |                         |           |           |           | 2'-2"     | 2'-7"     | 2'-11"    | 3'-4"    | 4'-6"                | 4000   |
|                              | 40                     |                         |           |           |           | 2'-2"     | 2'-7"     | 2'-11"    | 3'-4"    | 4'-6"                | 6000   |
|                              | 50                     | 2'-9"                   | 3'-2"     | 3'-7"     | 4'-0"     | 4'-5"     | 4'-10"    | 5'-3"     | 5'-7"    | 6'-7"                | 4000   |

TABLE 1-4 (FOR USE ON OVER 3'-0" TO 3'-6" OVERHANG (L) & 54" HORIZONTAL LEG LENGTH OF THE OVERHANG BRACKET)

| AVG. SLAB THICKNESS (t) (in) | BRACKET DIMENSION (in) | SCREED LOAD PER BRACKET |           |           |           |           |           |           |          | 45° HANGER SWL (lbs) |        |
|------------------------------|------------------------|-------------------------|-----------|-----------|-----------|-----------|-----------|-----------|----------|----------------------|--------|
|                              |                        | 2500 lbs.               | 2250 lbs. | 2000 lbs. | 1750 lbs. | 1500 lbs. | 1250 lbs. | 1000 lbs. | 750 lbs. |                      | 0 lbs. |
| 10                           | 30                     |                         |           |           |           | 2'-3"     | 2'-1"     | 2'-5"     | 2'-9"    | 3'-10"               | 4000   |
|                              | 40                     |                         |           |           |           | 2'-3"     | 2'-1"     | 2'-5"     | 2'-9"    | 3'-10"               | 6000   |
|                              | 50                     | 2'-4"                   | 2'-8"     | 3'-0"     | 3'-4"     | 3'-8"     | 4'-1"     | 4'-5"     | 4'-9"    | 5'-9"                | 4000   |
| 12                           | 30                     |                         |           |           |           | 2'-1"     | 2'-8"     | 3'-4"     | 3'-11"   | 5'-2"                | 4000   |
|                              | 40                     |                         |           |           |           | 2'-1"     | 2'-8"     | 3'-4"     | 3'-11"   | 5'-2"                | 6000   |
|                              | 50                     | 2'-4"                   | 2'-8"     | 3'-0"     | 3'-4"     | 3'-8"     | 4'-1"     | 4'-5"     | 4'-9"    | 5'-9"                | 4000   |
| 14                           | 30                     |                         |           |           |           | 2'-0"     | 2'-6"     | 3'-1"     | 3'-8"    | 4'-8"                | 4000   |
|                              | 40                     |                         |           |           |           | 2'-0"     | 2'-6"     | 3'-1"     | 3'-8"    | 4'-8"                | 6000   |
|                              | 50                     | 2'-2"                   | 2'-5"     | 2'-8"     | 3'-0"     | 3'-3"     | 3'-6"     | 3'-10"    | 4'-8"    | 6000                 |        |
| 16                           | 30                     |                         |           |           |           | 2'-4"     | 2'-10"    | 3'-5"     | 4'-3"    | 5'-2"                | 4000   |
|                              | 40                     |                         |           |           |           | 2'-4"     | 2'-10"    | 3'-5"     | 4'-3"    | 5'-2"                | 6000   |
|                              | 50                     | 2'-2"                   | 2'-5"     | 2'-8"     | 3'-0"     | 3'-3"     | 3'-6"     | 3'-10"    | 4'-8"    | 6000                 |        |

DEFINITIONS

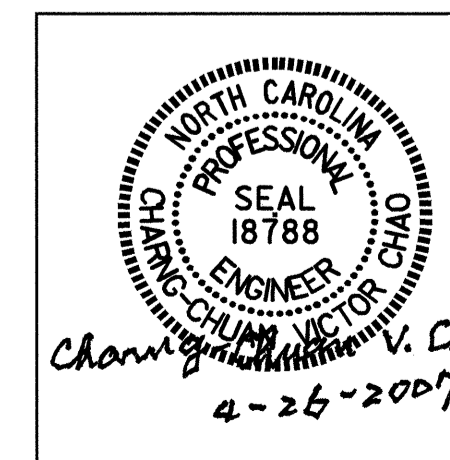
- SLPB = SCREED LOAD PER BRACKET (R x W)
- R = SCREED LOAD FACTOR, OBTAINED FROM TABLE 2
- W = WHEEL LOAD
- S = BRACKET SPACING
- T = AVERAGE SLAB THICKNESS
- SWL = SAFE WORKING LOAD
- K = DIMENSION DEFINED ON "BRIDGE OVERHANG BRACKET SUMMARY" ON SHEET 2
- L = OVERHANG MEASURED FROM EDGE OF TOP FLANGE TO EDGE OF SUPERSTRUCTURE

PROJECT NO. B-4280  
STOKES COUNTY  
STATION: 19+10.00 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

STANDARD OVERHANG FALSEWORK  
AASHTO TYPES  
III, IV, V, AND VI



| REVISIONS |     |       |     |     |       | SHEET NO.<br>S-33  |
|-----------|-----|-------|-----|-----|-------|--------------------|
| NO.       | BY: | DATE: | NO. | BY: | DATE: |                    |
| 1         |     |       | 3   |     |       | TOTAL SHEETS<br>51 |
| 2         |     |       | 4   |     |       |                    |

|                              |       |
|------------------------------|-------|
| ASSEMBLED BY:                | DATE: |
| CHECKED BY:                  | DATE: |
| DRAWN BY: R. WRIGHT 06/04    | REV.  |
| CHECKED BY: C. V. CHAO 06/04 |       |

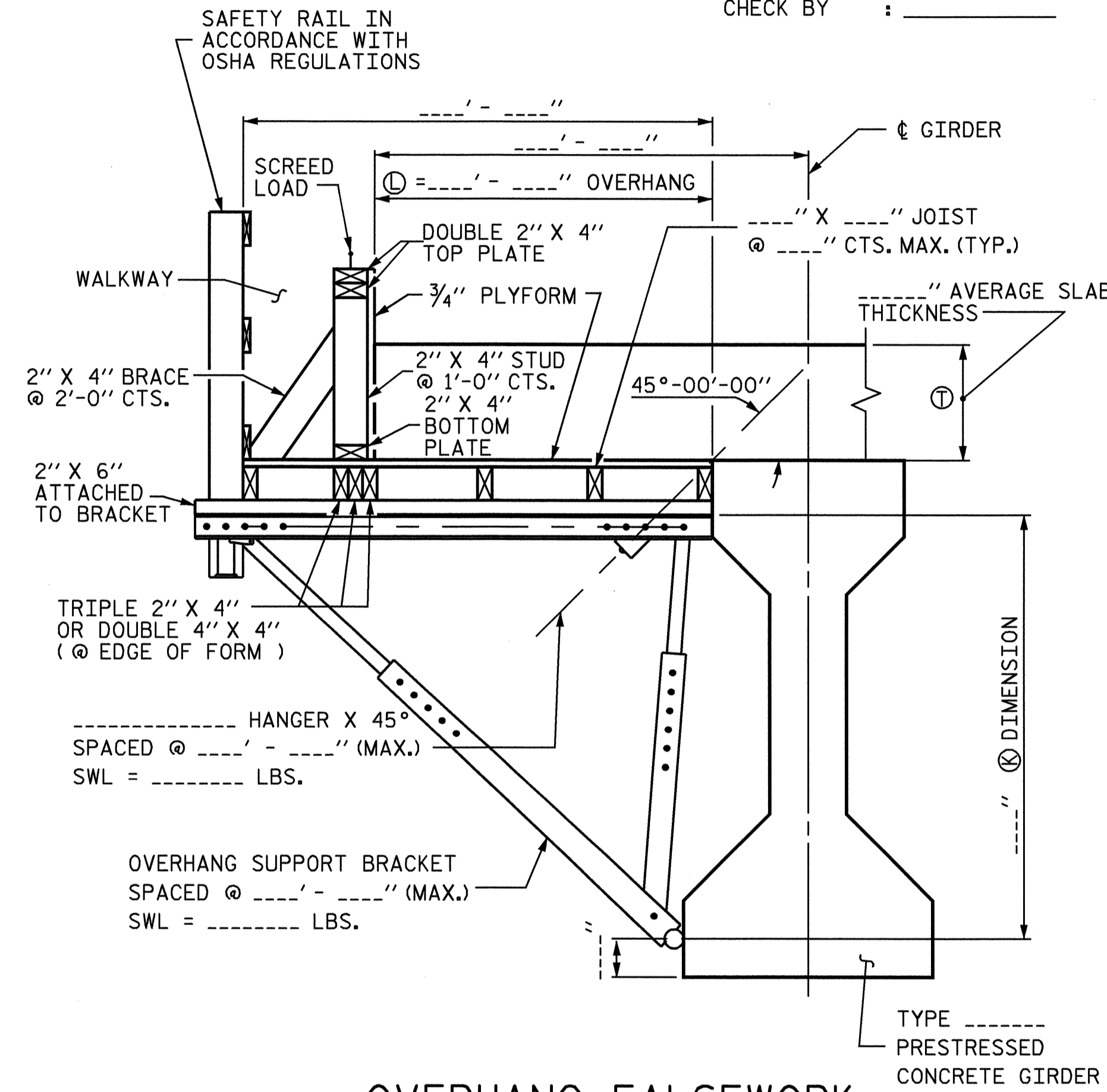


**BRIDGE OVERHANG BRACKET SUMMARY**

TOTAL SCREED WEIGHT = \_\_\_\_\_ LBS.  
 NUMBER OF SCREED WHEELS = \_\_\_\_\_  
 SCREED WHEEL LOAD (W) = \_\_\_\_\_ LBS.  
 SCREED LOAD PER BRACKET = \_\_\_\_\_ LBS.

PROJECT No. : \_\_\_\_\_  
 COUNTY : \_\_\_\_\_  
 STATION : \_\_\_\_\_  
 DESCRIPTION : \_\_\_\_\_

DATE : \_\_\_\_\_  
 DESIGN BY : \_\_\_\_\_  
 CHECK BY : \_\_\_\_\_



**OVERHANG FALSEWORK**

**NOTES**

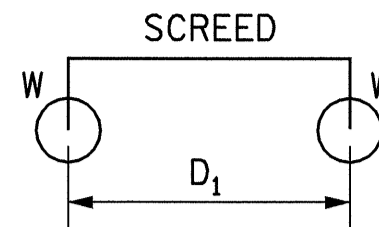
DESIGN INCLUDES CONSTRUCTION LIVE LOAD 20 PSF ON THE AREA SUPPORTED AND 75 PLF AT THE OUTSIDE DECK OF OVERHANGS.

REQUIRED MINIMUM DIAGONAL LEG CAPACITY: 3600 LB WORKING LOAD

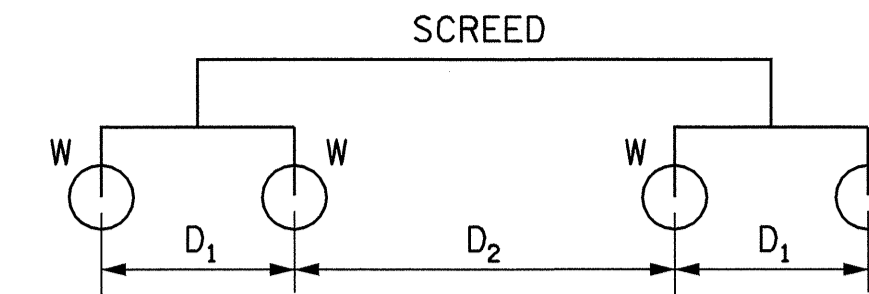
THE CONTRACTOR HAS THE OPTION OF SUBMITTING HIS OWN DESIGN FOR OVERHANG FALSEWORK IN ACCORDANCE WITH THE SPECIAL PROVISIONS.

SUBMITTALS UTILIZING THE INSTRUCTIONS AND PROCEDURES DESCRIBED ON SHEET 1 OF 3 SHALL BE IN ACCORDANCE WITH THE APPLICABLE SECTIONS OF THE SPECIFICATIONS AND SPECIAL PROVISIONS, EXCEPT THAT CALCULATIONS FOR OVERHANG FALSEWORK NEED NOT BE SEALED BY A REGISTERED ENGINEER.

FOR OVERHANG FALSEWORK BRACING DESIGN, SEE SHEET 3 OF 3.



4-WHEEL MACHINE



8-WHEEL MACHINE

TABLE 2: SCREED LOAD FACTOR "R"

| 4 WHEEL MACHINE |      |
|-----------------|------|
| S/D1            | R    |
| <= 1.0          | 1.00 |
| 1.1             | 1.09 |
| 1.2             | 1.17 |
| 1.3             | 1.23 |
| 1.4             | 1.29 |
| 1.5             | 1.33 |
| 1.6             | 1.38 |
| 1.7             | 1.41 |
| 1.8             | 1.44 |
| 1.9             | 1.47 |
| 2.0             | 1.50 |
| 2.2             | 1.55 |
| 2.4             | 1.58 |
| 2.6             | 1.62 |
| 2.8             | 1.64 |
| 3.0             | 1.67 |
| 3.5             | 1.71 |
| 4.0             | 1.75 |

|                  |        | THE SCREED LOAD FACTOR R (FOR 8 WHEEL MACHINE) |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|------------------|--------|--|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
|                  |        | S/D <sub>2</sub>                               |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                  |        | <= 1.0   | 1.1  | 1.2  | 1.3  | 1.4  | 1.5  | 1.6  | 1.7  | 1.8  | 1.9  | 2.0  | 2.2  | 2.4  | 2.6  | 2.8  | 3.0  | 3.5  | 4.0  |
| S/D <sub>1</sub> | <= 1.0 | 1.00   | 1.09 | 1.17 | 1.23 | 1.29 | 1.33 | 1.38 | 1.41 | 1.44 | 1.47 | 1.50 | 1.55 | 1.58 | 1.62 | 1.64 | 1.67 | 1.71 | 1.75 |
|                  | 1.1    | 1.09   | 1.18 | 1.26 | 1.32 | 1.38 | 1.42 | 1.47 | 1.50 | 1.54 | 1.56 | 1.59 | 1.64 | 1.67 | 1.71 | 1.73 | 1.76 | 1.81 | 1.84 |
|                  | 1.2    | 1.17   | 1.26 | 1.33 | 1.40 | 1.45 | 1.50 | 1.54 | 1.58 | 1.61 | 1.64 | 1.67 | 1.71 | 1.75 | 1.78 | 1.81 | 1.83 | 1.88 | 1.92 |
|                  | 1.3    | 1.23   | 1.32 | 1.40 | 1.46 | 1.52 | 1.56 | 1.61 | 1.64 | 1.68 | 1.70 | 1.73 | 1.78 | 1.81 | 1.85 | 1.87 | 1.90 | 1.95 | 1.98 |
|                  | 1.4    | 1.29   | 1.38 | 1.45 | 1.52 | 1.57 | 1.62 | 1.66 | 1.70 | 1.73 | 1.76 | 1.79 | 1.83 | 1.87 | 1.90 | 1.93 | 1.95 | 2.00 | 2.07 |
|                  | 1.5    | 1.33   | 1.42 | 1.50 | 1.56 | 1.62 | 1.67 | 1.71 | 1.75 | 1.78 | 1.81 | 1.83 | 1.88 | 1.92 | 1.95 | 1.98 | 2.00 | 2.10 | 2.17 |
|                  | 1.6    | 1.38   | 1.47 | 1.54 | 1.61 | 1.66 | 1.71 | 1.75 | 1.79 | 1.82 | 1.85 | 1.88 | 1.92 | 1.96 | 1.99 | 2.04 | 2.08 | 2.18 | 2.25 |
|                  | 1.7    | 1.41   | 1.50 | 1.58 | 1.64 | 1.70 | 1.75 | 1.79 | 1.82 | 1.86 | 1.89 | 1.91 | 1.96 | 2.00 | 2.05 | 2.11 | 2.16 | 2.25 | 2.32 |
|                  | 1.8    | 1.44   | 1.54 | 1.61 | 1.68 | 1.73 | 1.78 | 1.82 | 1.86 | 1.89 | 1.92 | 1.94 | 1.99 | 2.06 | 2.12 | 2.17 | 2.22 | 2.32 | 2.39 |
|                  | 1.9    | 1.47   | 1.56 | 1.64 | 1.70 | 1.76 | 1.81 | 1.85 | 1.89 | 1.92 | 1.95 | 1.97 | 2.04 | 2.11 | 2.18 | 2.23 | 2.28 | 2.38 | 2.45 |
|                  | 2.0    | 1.50   | 1.59 | 1.67 | 1.73 | 1.79 | 1.83 | 1.88 | 1.91 | 1.94 | 1.97 | 2.00 | 2.09 | 2.17 | 2.23 | 2.29 | 2.33 | 2.43 | 2.50 |
|                  | 2.2    | 1.55   | 1.64 | 1.71 | 1.78 | 1.83 | 1.88 | 1.92 | 1.96 | 1.99 | 2.04 | 2.09 | 2.18 | 2.26 | 2.32 | 2.38 | 2.42 | 2.52 | 2.59 |
| 2.4              | 1.58   | 1.67   | 1.75 | 1.81 | 1.87 | 1.92 | 1.96 | 2.00 | 2.06 | 2.11 | 2.17 | 2.26 | 2.33 | 2.40 | 2.45 | 2.50 | 2.60 | 2.67 |      |
| 2.6              | 1.62   | 1.71   | 1.78 | 1.85 | 1.90 | 1.95 | 1.99 | 2.05 | 2.12 | 2.18 | 2.23 | 2.32 | 2.40 | 2.46 | 2.52 | 2.56 | 2.66 | 2.73 |      |
| 2.8              | 1.64   | 1.73   | 1.81 | 1.87 | 1.93 | 1.98 | 2.04 | 2.11 | 2.17 | 2.23 | 2.29 | 2.38 | 2.45 | 2.52 | 2.57 | 2.62 | 2.71 | 2.79 |      |
| 3.0              | 1.67   | 1.76   | 1.83 | 1.90 | 1.95 | 2.00 | 2.08 | 2.16 | 2.22 | 2.28 | 2.33 | 2.42 | 2.50 | 2.56 | 2.62 | 2.67 | 2.76 | 2.83 |      |
| 3.5              | 1.71   | 1.81   | 1.88 | 1.95 | 2.00 | 2.10 | 2.18 | 2.25 | 2.32 | 2.38 | 2.43 | 2.52 | 2.60 | 2.66 | 2.71 | 2.76 | 2.86 | 2.93 |      |
| 4.0              | 1.75   | 1.84   | 1.92 | 1.98 | 2.07 | 2.17 | 2.25 | 2.32 | 2.39 | 2.45 | 2.50 | 2.59 | 2.67 | 2.73 | 2.79 | 2.83 | 2.93 | 3.00 |      |

TABLE 3: ALLOWABLE SPAN LENGTH OF JOISTS AND JOIST SPACINGS

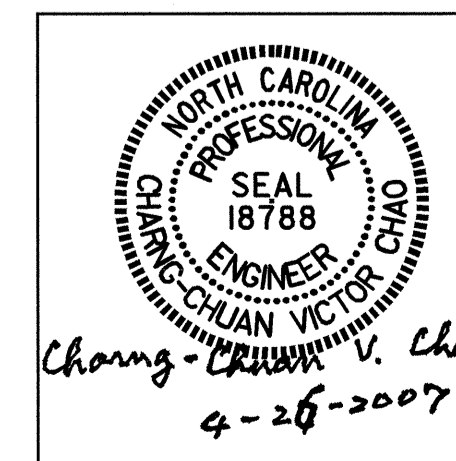
| AVG. SLAB THICKNESS (IN)            | LUMBER JOIST SIZE (IN X IN) | JOIST SPACINGS |         |         |         |
|-------------------------------------|-----------------------------|----------------|---------|---------|---------|
|                                     |                             | 15 IN          | 12 IN   | 10 IN   | 8 IN    |
| THE ALLOWABLE SPAN LENGTH OF JOISTS |                             |                |         |         |         |
| 10                                  | 2 X 4                       | —              | 4' - 6" | 4' - 9" | 5' - 0" |
|                                     | 4 X 4                       | 5' - 9"        | 6' - 3" | 6' - 6" | 6' - 7" |
| 12                                  | 2 X 4                       | —              | 4' - 3" | 4' - 9" | 5' - 0" |
|                                     | 4 X 4                       | 5' - 3"        | 6' - 0" | 6' - 3" | 6' - 5" |
| 14                                  | 2 X 4                       | —              | 4' - 0" | 4' - 6" | 5' - 0" |
|                                     | 4 X 4                       | —              | 5' - 6" | 6' - 0" | 6' - 4" |
| 16                                  | 2 X 4                       | —              | 4' - 0" | 4' - 3" | 4' - 9" |
|                                     | 4 X 4                       | —              | 5' - 3" | 5' - 9" | 6' - 3" |

PROJECT NO. B-4280  
STOKES COUNTY  
 STATION: 19+10.00 -L-

SHEET 2 OF 3

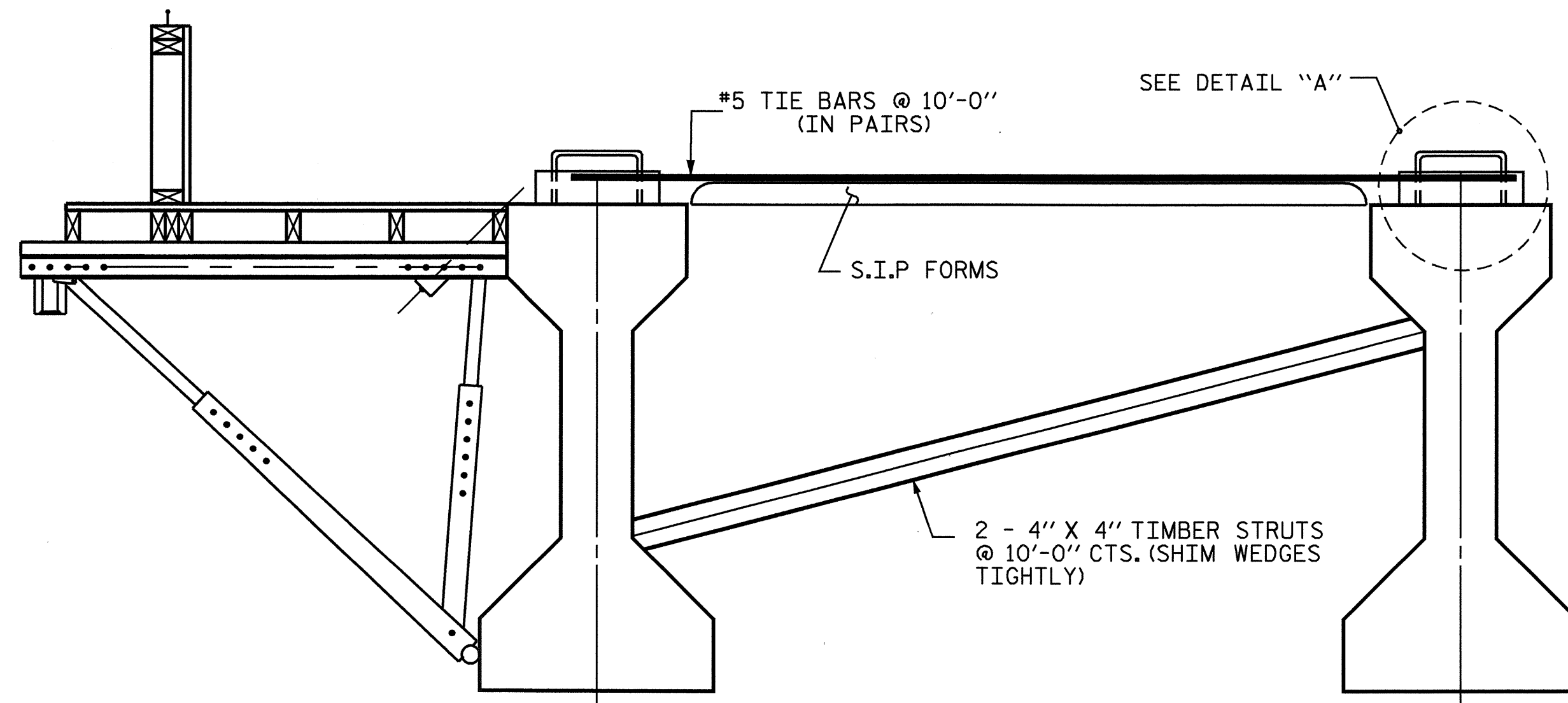
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

STANDARD OVERHANG FALSEWORK  
 AASHTO TYPES III, IV, V, AND VI



| REVISIONS |     |       |     |     |       | SHEET NO.<br>S-34<br>TOTAL SHEETS<br>51 |
|-----------|-----|-------|-----|-----|-------|---|
| NO.       | BY: | DATE: | NO. | BY: | DATE: |   |
| 1         |     |       | 3   |     |       |   |
| 2         |     |       | 4   |     |       |   |

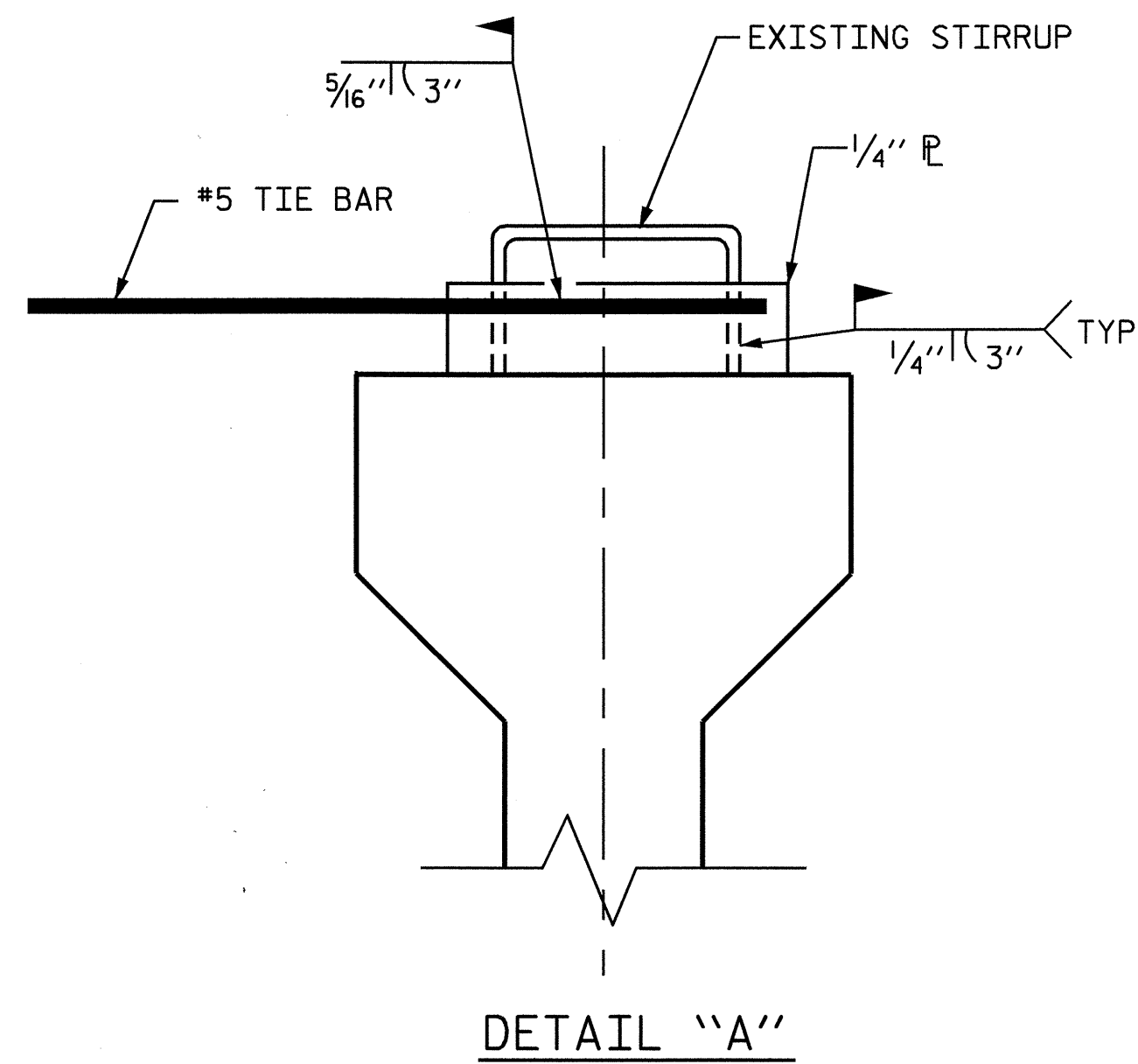
|                              |       |
|------------------------------|-------|
| ASSEMBLED BY:                | DATE: |
| CHECKED BY:                  | DATE: |
| DRAWN BY: R. WRIGHT 06/04    | REV.  |
| CHECKED BY: C. V. CHAO 06/04 |       |



EXTERIOR GIRDER

INTERIOR GIRDER

DETAIL OF REQUIRED OVERHANG FALSEWORK BRACING SYSTEM



NOTES:

EACH #5 TIE BAR SHALL BE WELDED TO ONE STIRRUP LOOP AS SHOWN IN DETAIL "A". #5 TIE BARS SHALL BE WELDED TO TWO ADJACENT STIRRUPS OF THE EXTERIOR GIRDER AND THE ADJACENT INTERIOR GIRDER BETWEEN PERMANENT DIAPHRAGMS. WELD STEEL PLATES IN BETWEEN THE TIE BARS AND THE STIRRUP LOOP. WELDING TWO TIE BARS TO THE SAME STIRRUP LOOP SHALL NOT BE PERMITTED.

MAXIMUM SPACING BETWEEN THE BRACING (TIE BARS-TIMBER STRUT) IS 10'-0" CTS. #5 TIE BARS SHALL BE LOCATED OVER A TIMBER STRUT.

INSTALL TIE BARS AND TIMBER STRUTS PRIOR TO PLACEMENT OF CONCRETE OR SCREED WEIGHT ONTO THE OVERHANG FALSEWORK.

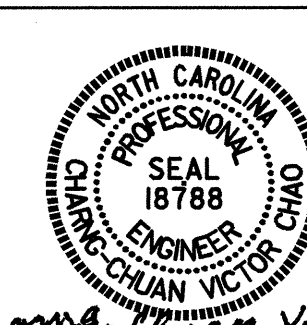
PROJECT NO. B-4280  
STOKES COUNTY  
 STATION: 19+10.00 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

STANDARD OVERHANG FALSEWORK

AASHTO TYPES  
 III, IV, V, AND VI

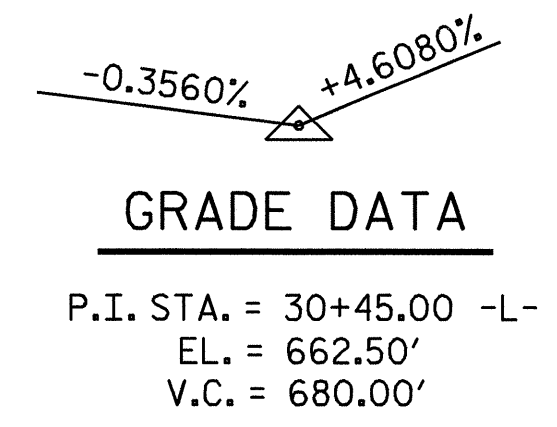
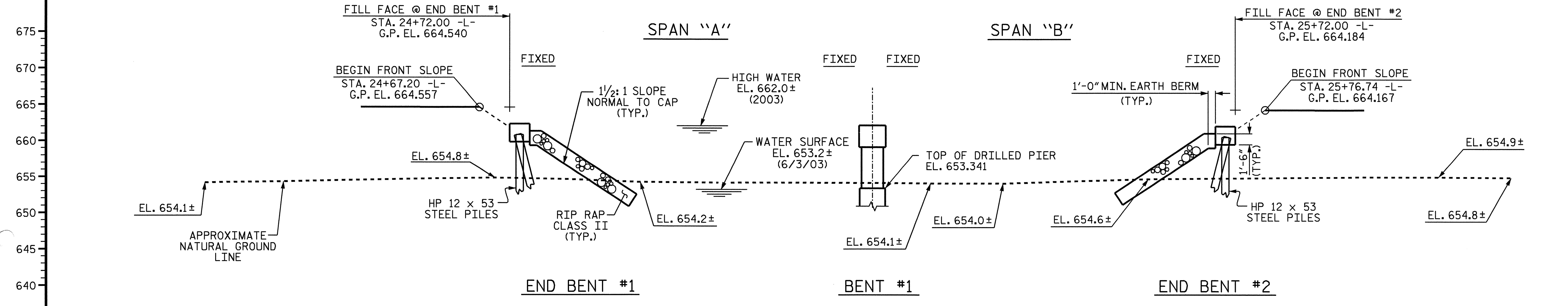


Chang-Kuan V. Chao  
 4-26-2007

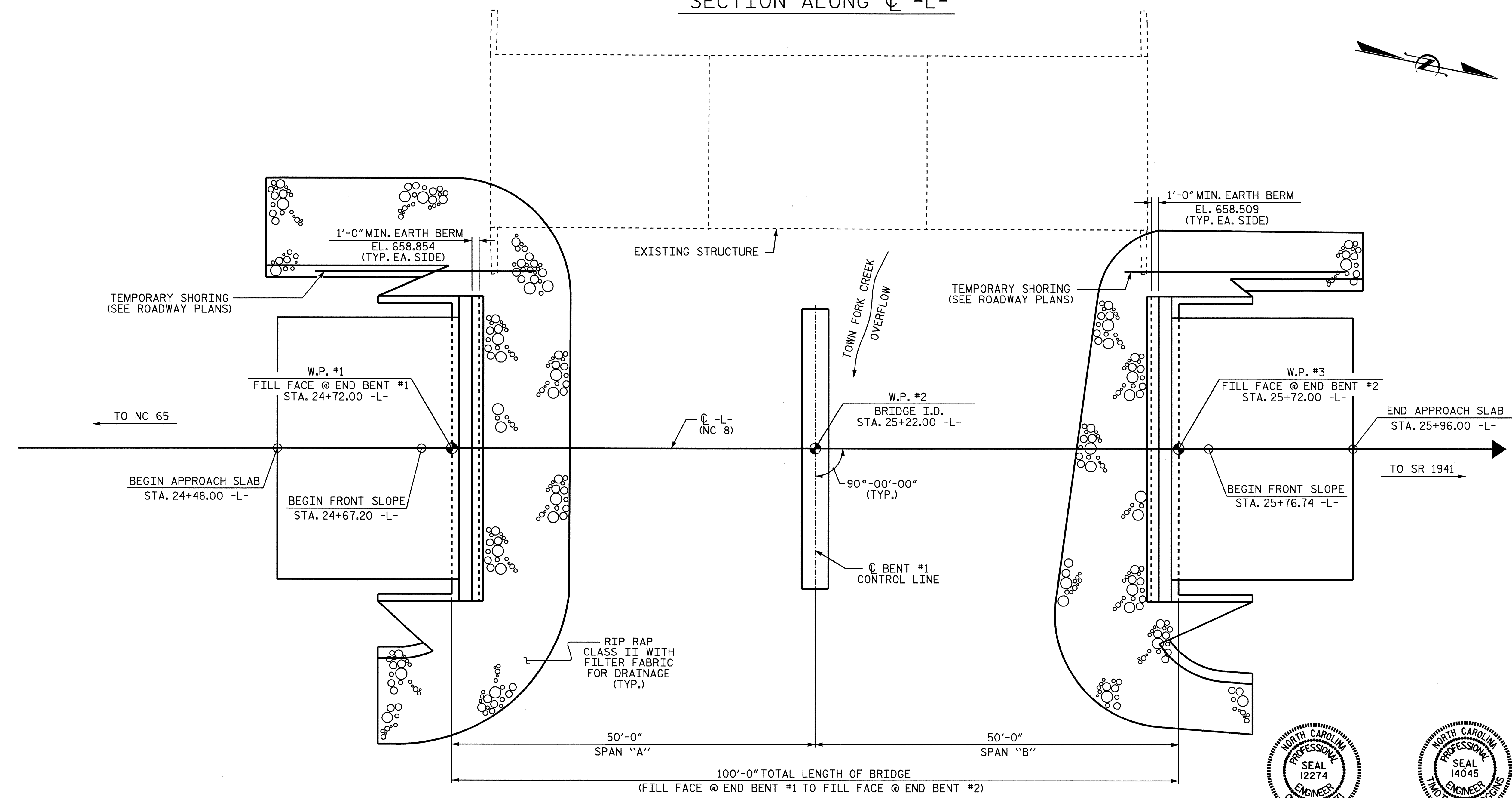
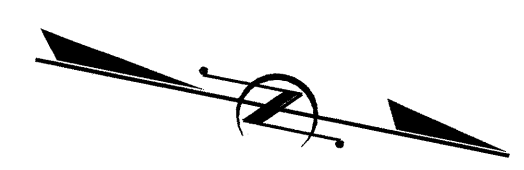
| REVISIONS |     |       |     |     |       | SHEET NO.    |
|-----------|-----|-------|-----|-----|-------|--------------|
| NO.       | BY: | DATE: | NO. | BY: | DATE: | S-35         |
| 1         |     |       | 3   |     |       | TOTAL SHEETS |
| 2         |     |       | 4   |     |       | 51           |

DRAWN BY: R. WRIGHT 06/04 DATE : \_\_\_\_\_  
 CHECKED BY: C. V. CHAO 06/04 DATE : \_\_\_\_\_





**SECTION ALONG C-L-L**



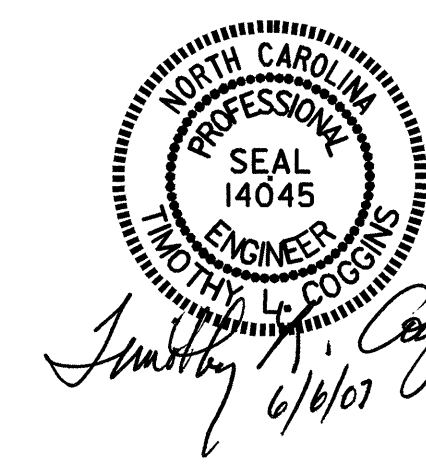
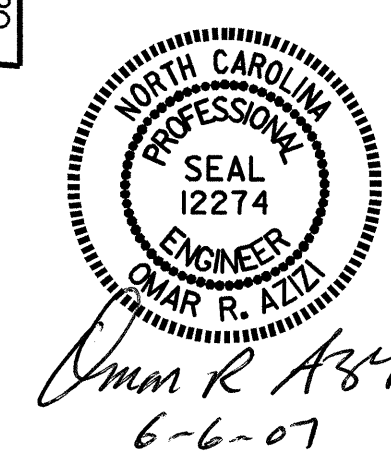
PROJECT NO. B-4280  
STOKES COUNTY  
 STATION: 25+22.00 -L-

SHEET 1 OF 3      REPLACES BRIDGE NO. 44

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**GENERAL DRAWING**

FOR BRIDGE OVER  
 TOWN FORK CREEK OVERFLOW  
 ON NC 8 BETWEEN  
 NC 65 AND SR 1941

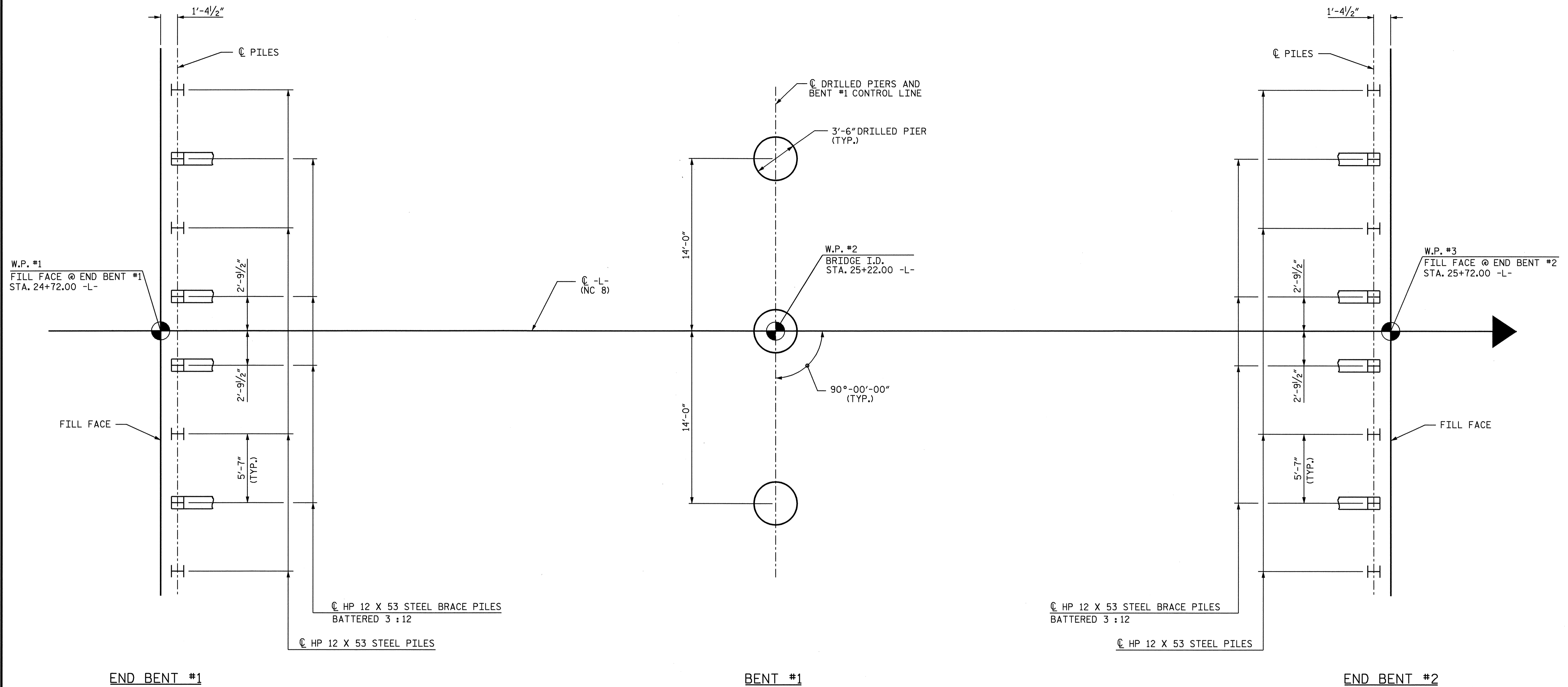


DRAWN BY : T.L. AVERETTE      DATE : 2-04  
 CHECKED BY : PEGGY ADKINS      DATE : 6-04

06-JUN-2007 15:25  
 G:\TIP\Projects-B\B4280\Structures\B4280\Str#2\FINAL PLANS\B4280.sd.GD.02.dgn  
 taverette

| REVISIONS |     |       |     |     |       | SHEET NO.       |
|-----------|-----|-------|-----|-----|-------|-----------------|
| NO.       | BY: | DATE: | NO. | BY: | DATE: | S-36            |
| 1         |     |       | 3   |     |       | TOTAL SHEETS 51 |
| 2         |     |       | 4   |     |       |                 |

STR. #2



### FOUNDATION LAYOUT

DIMENSIONS LOCATING PILES AND DRILLED PIERS ARE SHOWN TO PILE AND DRILLED PIER CENTERLINES.

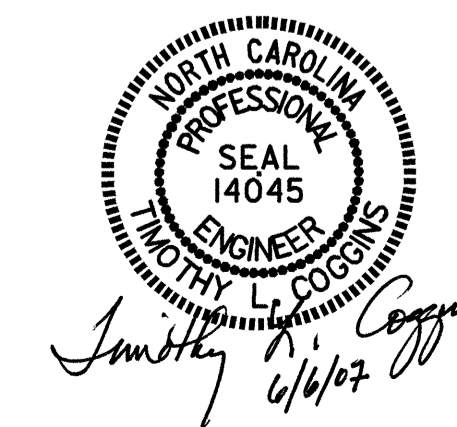
PROJECT NO. B-4280  
STOKES COUNTY  
 STATION: 25+22.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

### GENERAL DRAWING

FOR BRIDGE OVER  
 TOWN FORK CREEK OVERFLOW  
 ON NC 8 BETWEEN  
 NC 65 AND SR 1941



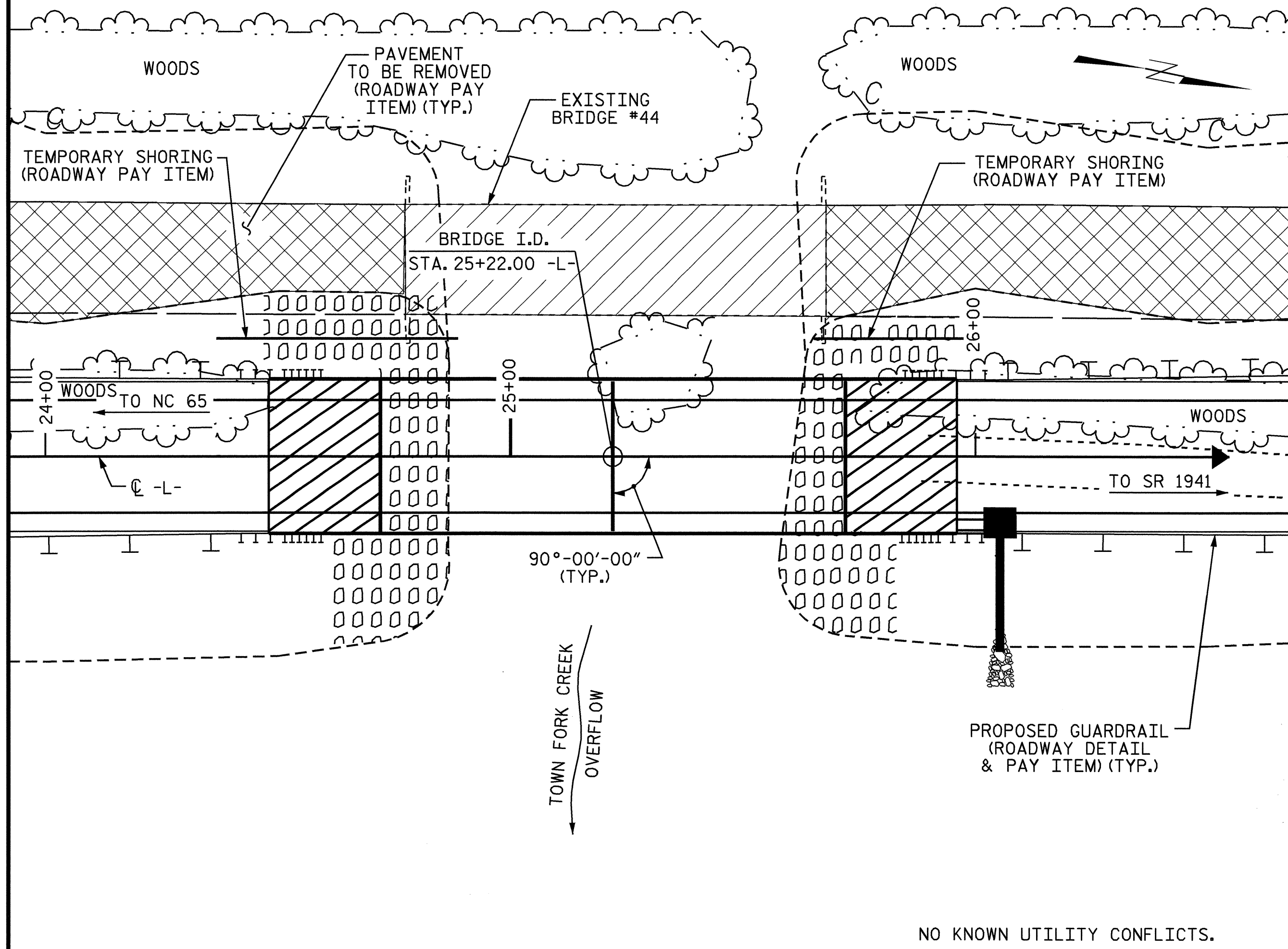
DRAWN BY : PEGGY ADKINS DATE : 2-06  
 CHECKED BY : B.N.BARODAWALA DATE : 3-06

26-APR-2007 07:42  
 G:\TIP\Projects-B\B4280\Structures\b4280\Str#2\padklns\Microstation\B4280\_sd.GD\_02.dgn  
 taverette

| REVISIONS |     |       |     |     |       | SHEET NO.    |
|-----------|-----|-------|-----|-----|-------|--------------|
| NO.       | BY: | DATE: | NO. | BY: | DATE: | S-37         |
| 1         |     |       | 3   |     |       | TOTAL SHEETS |
| 2         |     |       | 4   |     |       | 51           |

STR. #2





LOCATION SKETCH

NO KNOWN UTILITY CONFLICTS.

NOTES

ASSUMED LIVE LOAD = HS20 OR ALTERNATE LOADING, EXCEPT THAT THE CORED SLABS HAVE BEEN DESIGNED FOR HS25.

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

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

THIS BRIDGE HAS BEEN DESIGNED BY THE STRENGTH DESIGN METHOD AS SPECIFIED IN AASHTO STANDARD SPECIFICATIONS.

AFTER SERVING AS A TEMPORARY STRUCTURE, THE EXISTING STRUCTURE CONSISTING OF 1 SPAN @ 30'-2", 1 SPAN @ 30'-0" AND 1 SPAN @ 30'-2", WITH AN ASPHALT WEARING SURFACE OVER A REINFORCED CONCRETE DECK ON I-BEAMS SUPPORTED ON END AND INTERIOR BENTS COMPOSED OF REINFORCED CONCRETE CAPS ON TIMBER PILES WITH A CLEAR ROADWAY WIDTH OF 24'-0" AND LOCATED WEST OF THE PROPOSED STRUCTURE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED BELOW THE LEGAL LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE FURTHER DETERIORATE, THIS LOAD LIMITATION MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.

REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED SO AS NOT TO ALLOW DEBRIS TO FALL INTO THE WATER. THE CONTRACTOR SHALL REMOVE THE BRIDGE AND SUBMIT PLANS FOR DEMOLITION IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.

THE EXISTING BRIDGE INDICATED ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. SINCE THIS INFORMATION IS SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR, THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT OF TRANSPORTATION FOR ANY DELAYS OR ADDITIONAL COST INCURRED BASED ON DIFFERENCES BETWEEN THE EXISTING BRIDGE SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH HEC 18, "EVALUATING SCOUR AT BRIDGES", MAY, 2001.

THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF THE AASHTO STANDARD SPECIFICATIONS FOR SEISMIC DESIGN OF HIGHWAY BRIDGES FOR SEISMIC PERFORMANCE CATEGORY A.

FOR LIMITS OF TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC, SEE TRAFFIC CONTROL PLANS. FOR TEMPORARY SHORING PAY ITEM, SEE ROADWAY PLANS.

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 SPLICED WITH REPLACEMENT BARS OF THE SIZE AND LENGTH OF THE SAMPLE, PLUS A MINIMUM LAP SPLICE OF THIRTY BAR DIAMETERS.

INASMUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL CONTAINS LEAD, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COSTS RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR "REMOVAL OF EXISTING STRUCTURE AT STATION 25+22.00 -L-."

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR PRESTRESSED CONCRETE MEMBERS, SEE SPECIAL PROVISIONS.

FOR MAINTENANCE OF TRAFFIC, SEE TRAFFIC CONTROL PLANS.

DRIVE PILES AT END BENTS NO.1 AND 2 TO A REQUIRED BEARING CAPACITY OF 100 TONS PER PILE. THE REQUIRED BEARING CAPACITY IS EQUAL TO THE ALLOWABLE BEARING CAPACITY WITH A MINIMUM FACTOR OF SAFETY OF TWO.

THE ALLOWABLE BEARING CAPACITY FOR PILES AT END BENTS NO.1 AND 2 IS 50 TONS PER PILE.

DRILLED PIERS AT BENT NO.1 ARE DESIGNED FOR BOTH SKIN FRICTION AND END BEARING. CHECK FIELD CONDITIONS FOR THE REQUIRED END BEARING CAPACITY OF 30 TSF.

DRILLED PIERS AT BENT NO.1 ARE DESIGNED FOR AN APPLIED LOAD OF 161 TONS EACH AT THE TOP OF THE COLUMN.

PERMANENT STEEL CASING IS NOT REQUIRED FOR DRILLED PIERS AT BENT NO.1.

DRILLED PIERS AT BENT NO.1 SHALL EXTEND TO AN ELEVATION NO HIGHER THAN 636.0 FT. AND SATISFY THE REQUIRED END BEARING CAPACITY.

THE SCOUR CRITICAL ELEVATION FOR BENT NO.1 IS ELEVATION 641.0 FT. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

FOR DRILLED PIERS, SEE DRILLED PIERS SPECIAL PROVISION.

SPT TESTING IS NOT REQUIRED TO DETERMINE THE END BEARING CAPACITY OF THE DRILLED PIERS AT BENT NO.1. SEE DRILLED PIERS SPECIAL PROVISION.

DO NOT USE SLURRY CONSTRUCTION FOR DRILLED PIERS AT BENT NO.1.

SID INSPECTIONS MAY BE REQUIRED TO INSPECT THE BOTTOM CLEANLINESS OF THE DRILLED PIERS AT BENT NO.1. THE ENGINEER WILL DETERMINE THE NEED FOR SID INSPECTIONS. SEE DRILLED PIERS SPECIAL PROVISION.

CSL TUBES ARE REQUIRED AND CSL TESTING MAY BE REQUIRED FOR THE DRILLED PIERS. THE ENGINEER WILL DETERMINE THE NEED FOR CSL TESTING. SEE CROSSHOLE SONIC LOGGING SPECIAL PROVISION.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

HYDRAULIC DATA

|                             |                  |
|-----------------------------|------------------|
| DESIGN DISCHARGE            | = 1,257 CFS      |
| FREQUENCY OF DESIGN FLOOD   | = 50 YR.         |
| DESIGN HIGH WATER ELEVATION | = 658.1'         |
| DRAINAGE AREA               | = 62.9 SQ. MILES |
| BASIC DISCHARGE (Q100)      | = 1,677 CFS      |
| BASIC HIGH WATER ELEVATION  | = 659.0'         |

OVERTOPPING FLOOD DATA

|                                |              |
|--------------------------------|--------------|
| OVERTOPPING DISCHARGE          | = 20,000 CFS |
| FREQUENCY OF OVERTOPPING FLOOD | = 500+ YR.   |
| OVERTOPPING FLOOD ELEVATION    | = 663.9'     |

TOTAL BILL OF MATERIAL

|                | REMOVAL OF EXISTING STRUCTURE | 3'-6" DIA. DRILLED PIERS IN SOIL | 3'-6" DIA. DRILLED PIERS NOT IN SOIL | SID INSPECTION | CROSSHOLE SONIC LOGGING | CONCRETE WEARING SURFACE | GROOVING BRIDGE FLOORS | CLASS A CONCRETE | BRIDGE APPROACH SLABS | REINFORCING STEEL | SPIRAL COLUMN REINFORCING STEEL | HP 12 X 53 STEEL PILES | VERTICAL CONCRETE BARRIER RAIL | RIP RAP CLASS II (2'-0" THICK) | FILTER FABRIC FOR DRAINAGE | ELASTOMERIC BEARINGS | EVAZOTE JOINT SEALS | 3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLABS |         |
|----------------|-------------------------------|----------------------------------|--------------------------------------|----------------|-------------------------|--------------------------|------------------------|------------------|-----------------------|-------------------|---------------------------------|------------------------|--------------------------------|--------------------------------|----------------------------|----------------------|---------------------|--|---------|
|                | LUMP SUM                      | LIN. FT.                         | LIN. FT.                             | EACH           | EACH                    | SQ. FT.                  | SQ. FT.                | CU.YDS.          | LUMP SUM              | LBS.              | LBS.                            | NO.                    | LIN. FT.                       | TON                            | SQ. YDS.                   | LUMP SUM             | LUMP SUM            | NO.  | LIN.FT. |
| SUPERSTRUCTURE |                               |                                  |                                      |                |                         | 3340                     | 4605                   |                  | LUMP SUM              |                   |                                 |                        | 195.50                         |                                |                            | LUMP SUM             | LUMP SUM            | 24   | 1171.50 |
| END BENT NO. 1 |                               |                                  |                                      |                |                         |                          |                        | 15.4             |                       | 2242              |                                 | 8                      | 160                            | 179                            | 199                        |                      |                     |  |         |
| BENT NO. 1     |                               | 37.88                            | 15.00                                | 1              | 1                       |                          |                        | 19.8             |                       | 6203              | 1542                            |                        |                                |                                |                            |                      |                     |  |         |
| END BENT NO. 2 |                               |                                  |                                      |                |                         |                          |                        | 15.4             |                       | 2242              |                                 | 8                      | 160                            | 166                            | 184                        |                      |                     |  |         |
| TOTAL          | LUMP SUM                      | 37.88                            | 15.00                                | 1              | 1                       | 3340                     | 4605                   | 50.6             | LUMP SUM              | 10687             | 1542                            | 16                     | 320                            | 345                            | 383                        | LUMP SUM             | LUMP SUM            | 24   | 1171.50 |

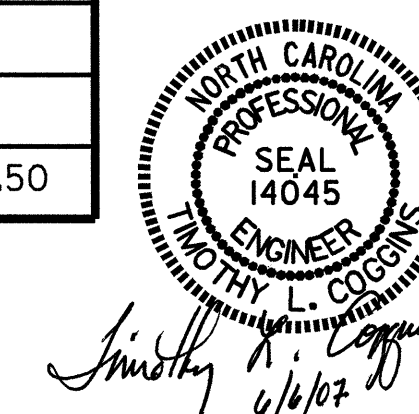
PROJECT NO. B-4280  
STOKES COUNTY  
STATION: 25+22.00 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

GENERAL DRAWING

FOR BRIDGE OVER  
TOWN FORK CREEK OVERFLOW  
ON NC 8 BETWEEN  
NC 65 AND SR 1941

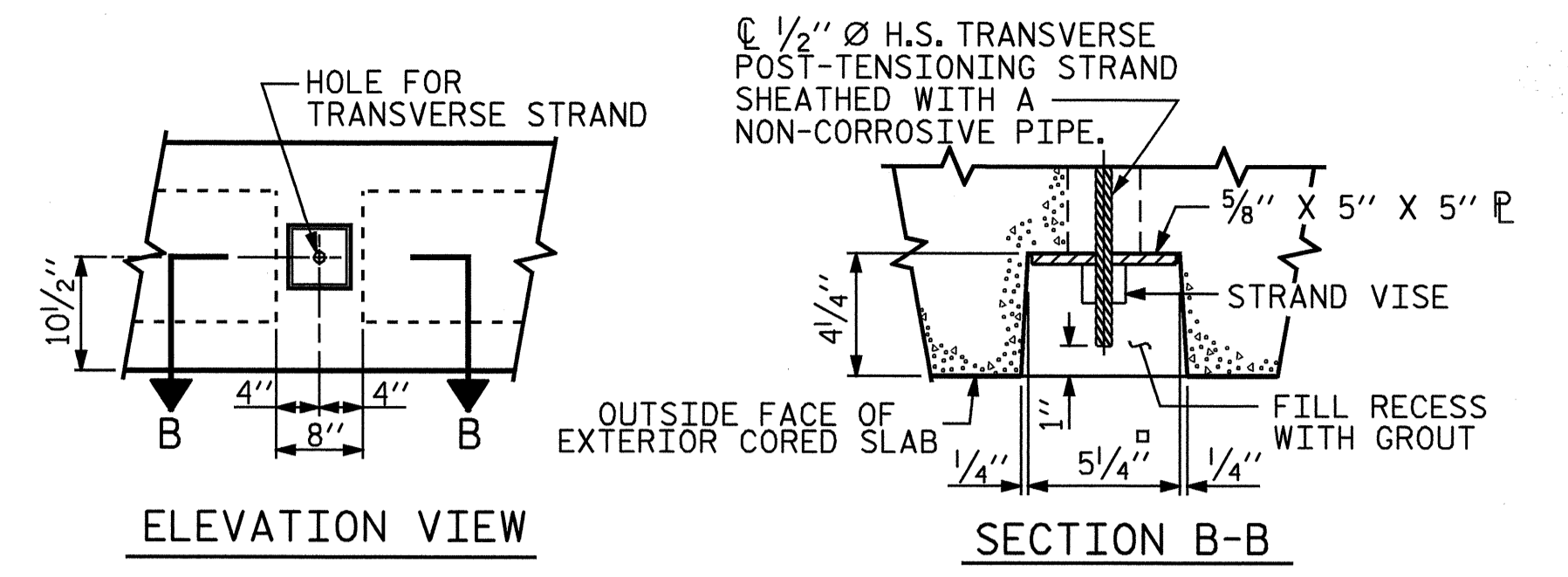
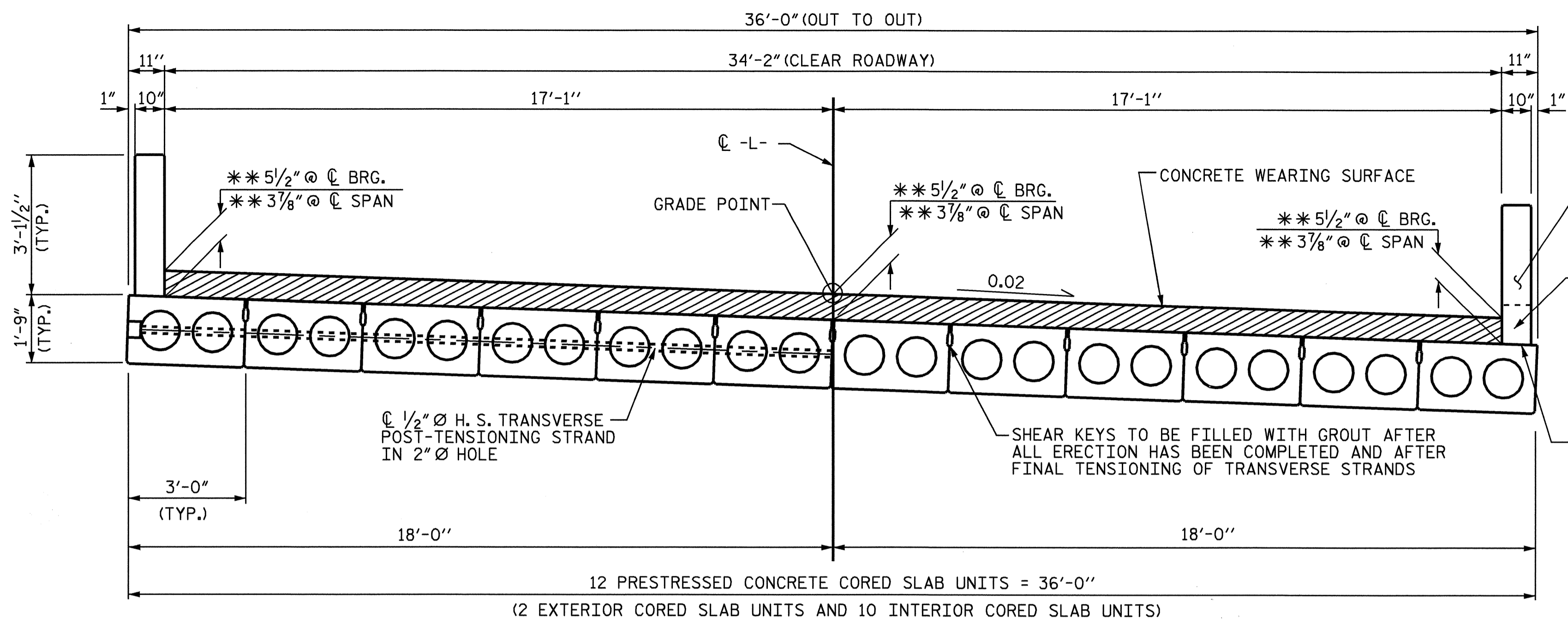


REVISIONS

| NO. | BY: | DATE: | NO. | BY: | DATE: |
|-----|-----|-------|-----|-----|-------|
| 1   |     |       | 3   |     |       |
| 2   |     |       | 4   |     |       |

SHEET NO.  
S-38  
TOTAL SHEETS  
51

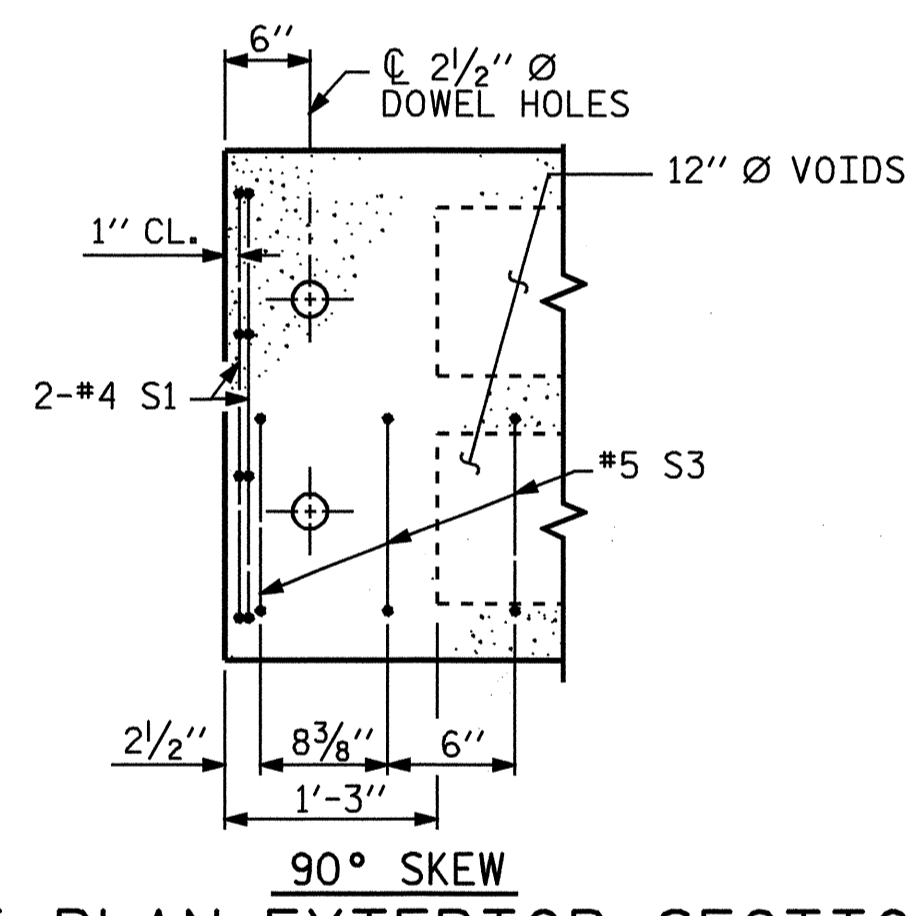
DRAWN BY : T.L. AVERETTE DATE : 3-04  
CHECKED BY : PEGGY ADKINS DATE : 6-04



**GROUTED RECESS AT END OF POST-TENSIONED STRAND CORED SLABS**

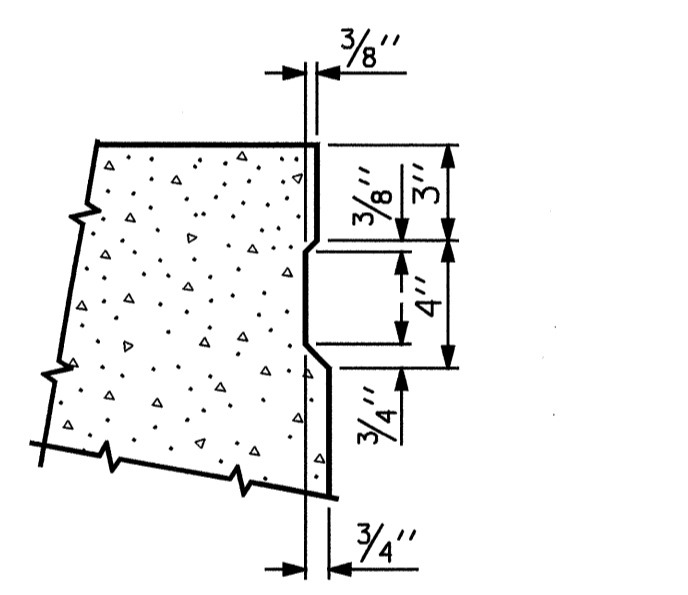
**HALF SECTION @ INTERMEDIATE DIAPHRAGM      HALF SECTION @ END BENT & BENT**  
**TYPICAL SECTION**

\*\*BASED ON PREDICTED FINAL CAMBER AND THEORETICAL GRADE LINE ELEVATIONS

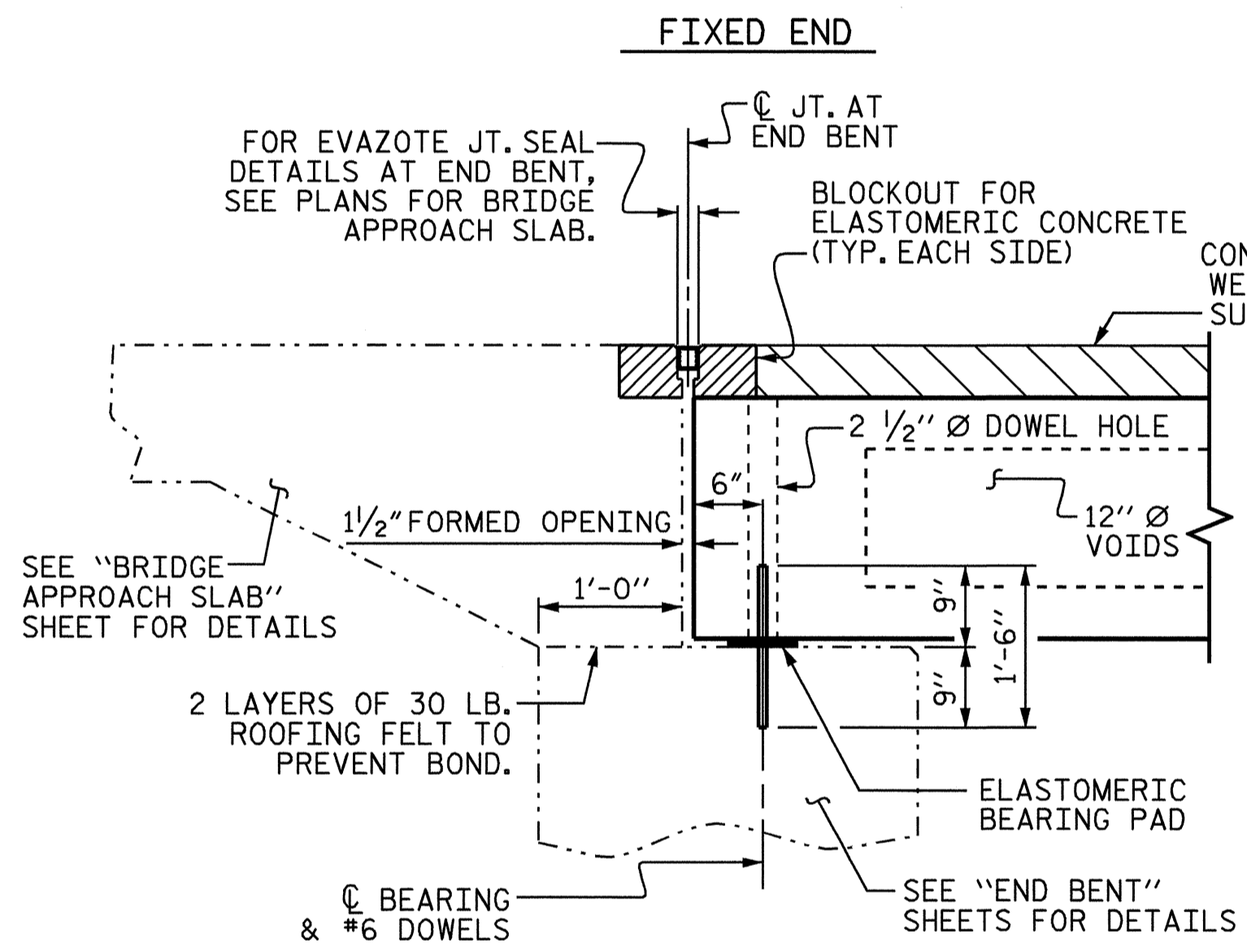


**PART PLAN-EXTERIOR SECTION**

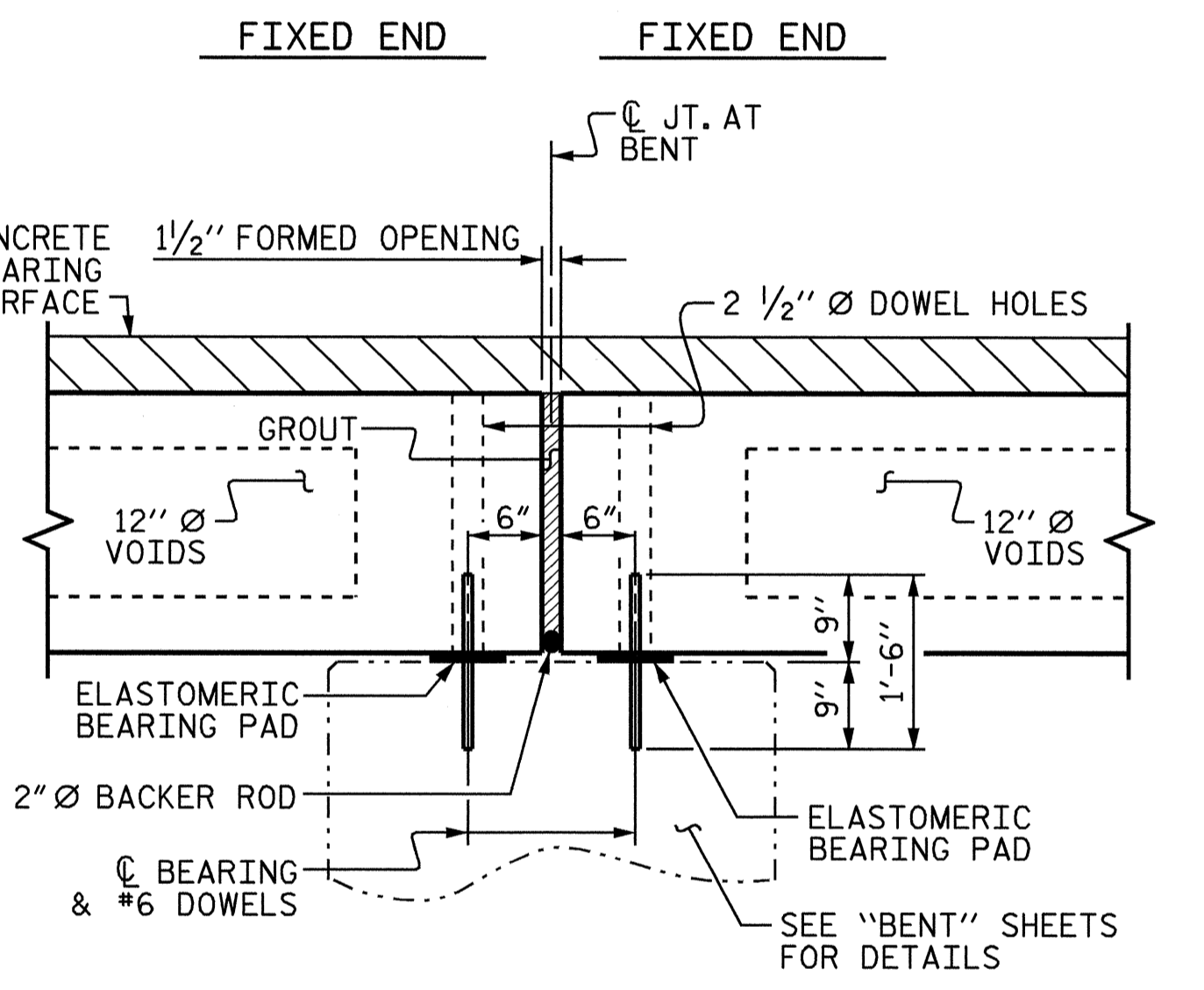
NOTE: EXTERIOR SECTION SHOWN-INTERIOR SECTION SIMILAR EXCEPT OMIT S3 BARS.



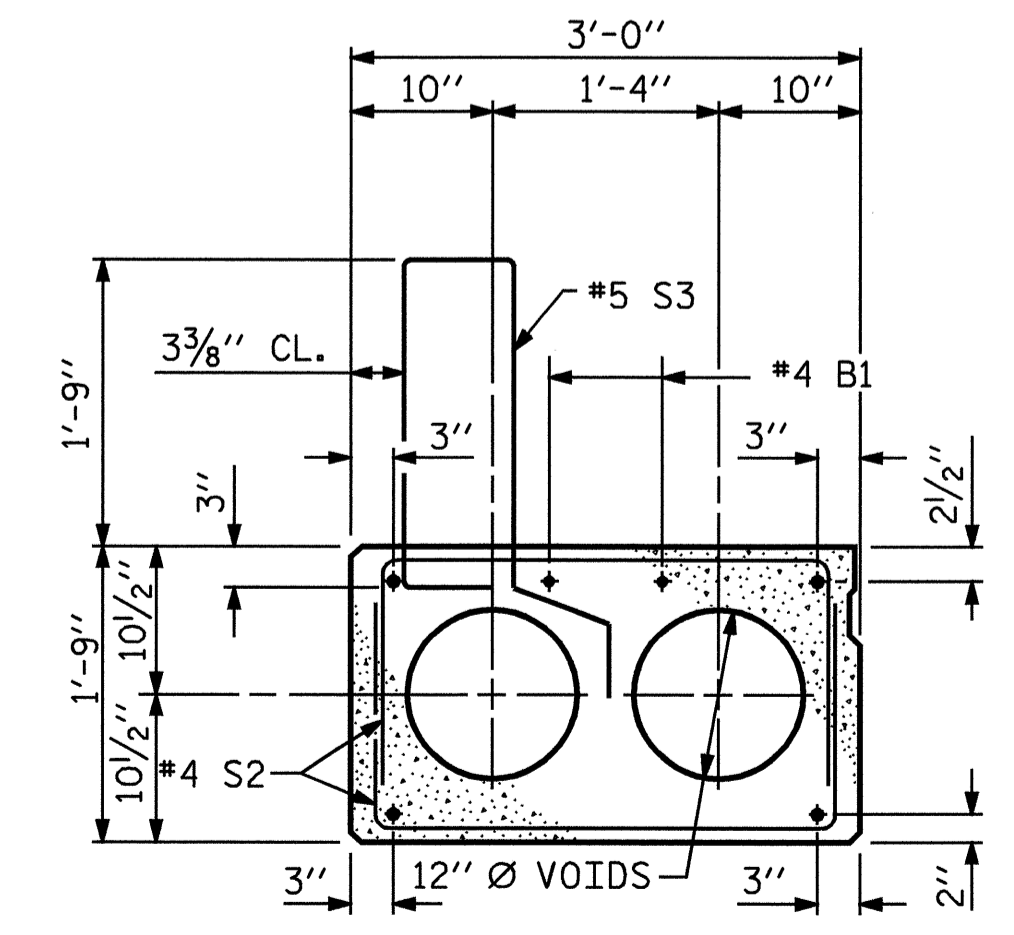
**SHEAR KEY DETAIL**  
 NOTE: OMIT SHEAR KEY ON OUTSIDE FACE OF EXTERIOR CORED SLABS.



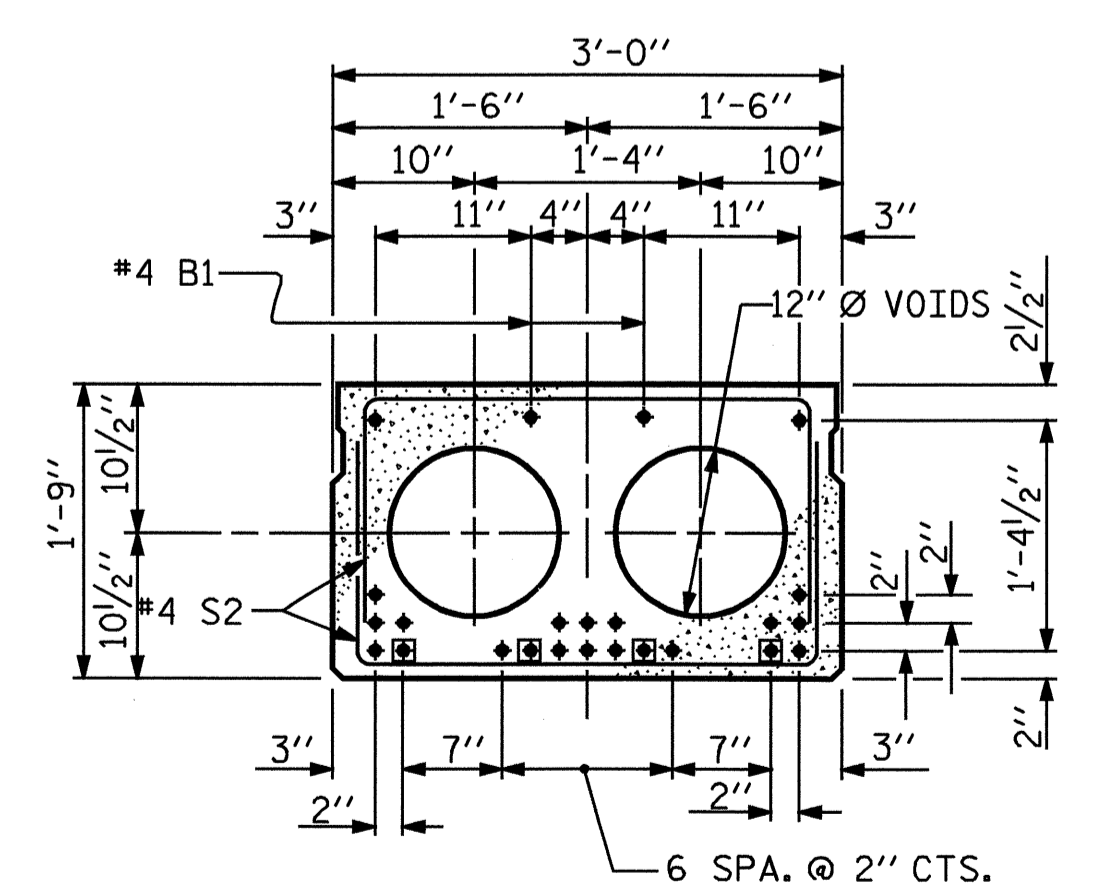
**SECTION AT END BENT**



**SECTION AT BENT**

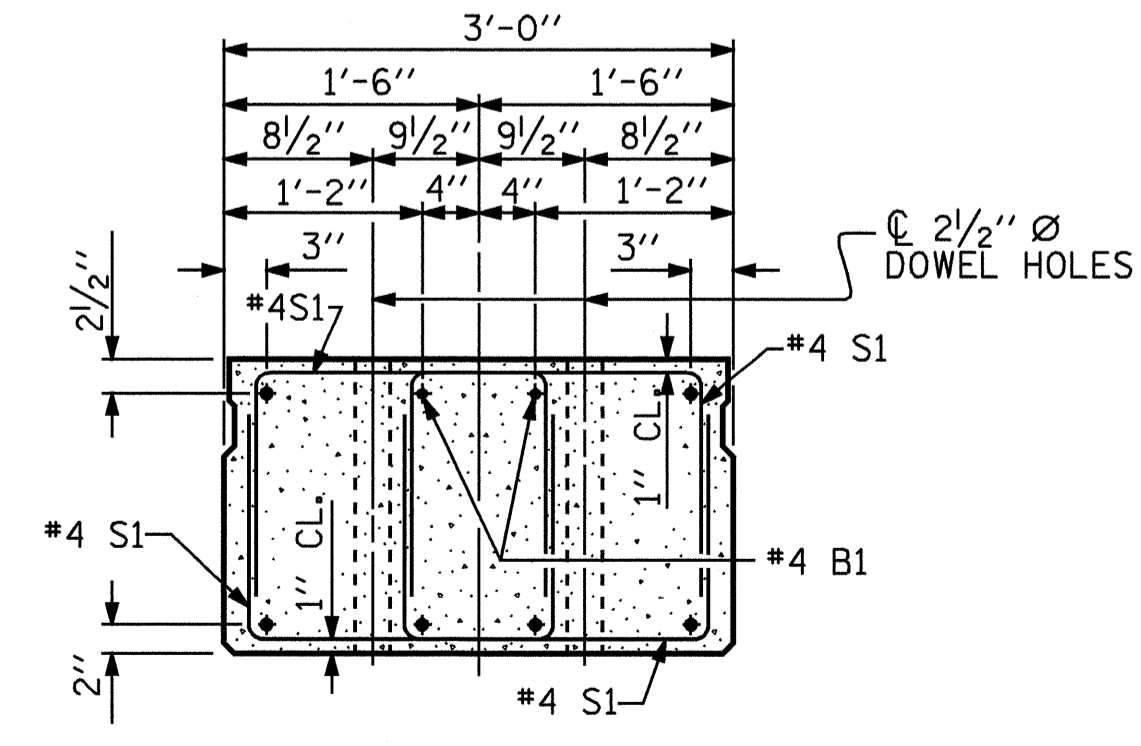


**EXTERIOR SLAB SECTION**  
 (FOR PRESTRESSED STRAND LAYOUT, SEE INTERIOR SLAB SECTION.)



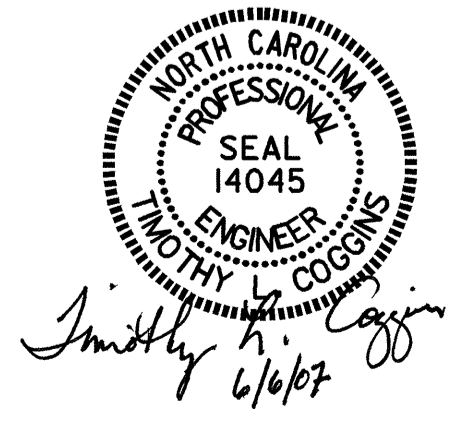
**1/2" Ø LOW RELAXATION STRAND LAYOUT**

**INTERIOR SLAB SECTION (22 STRANDS)**  
 □ BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 4'-0" FROM END OF CORED SLAB UNIT



**END ELEVATION**

SHOWING PLACEMENT OF DOUBLE STIRRUPS AND LOCATION OF DOWEL HOLES. (STRAND LAYOUT NOT SHOWN.) INTERIOR SLAB SECTION SHOWN-EXTERIOR SLAB SECTION SIMILAR EXCEPT SHEAR KEY LOCATION.



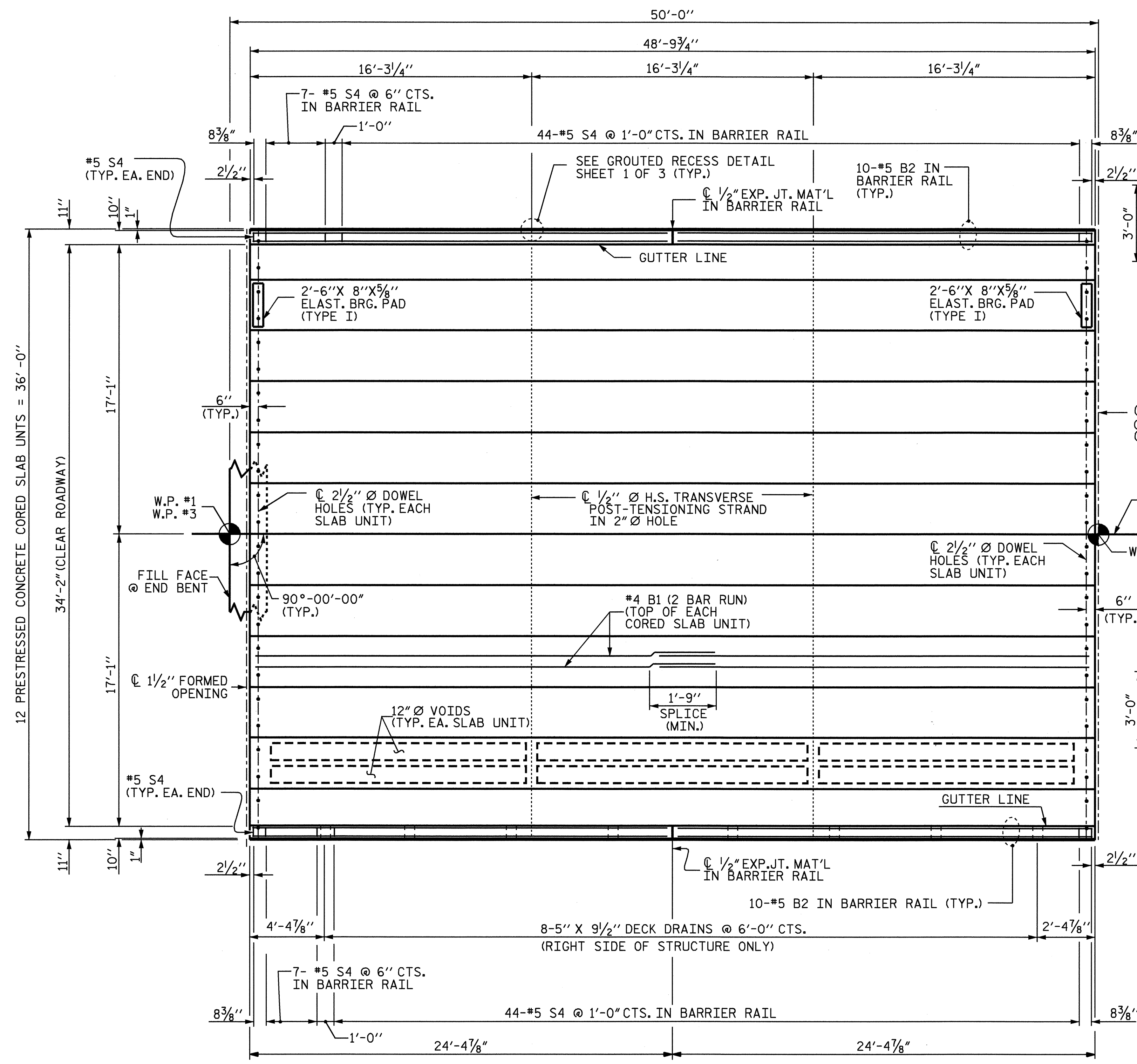
PROJECT NO. B-4280  
STOKES COUNTY  
 STATION: 25+22.00 -L-

SHEET 1 OF 4

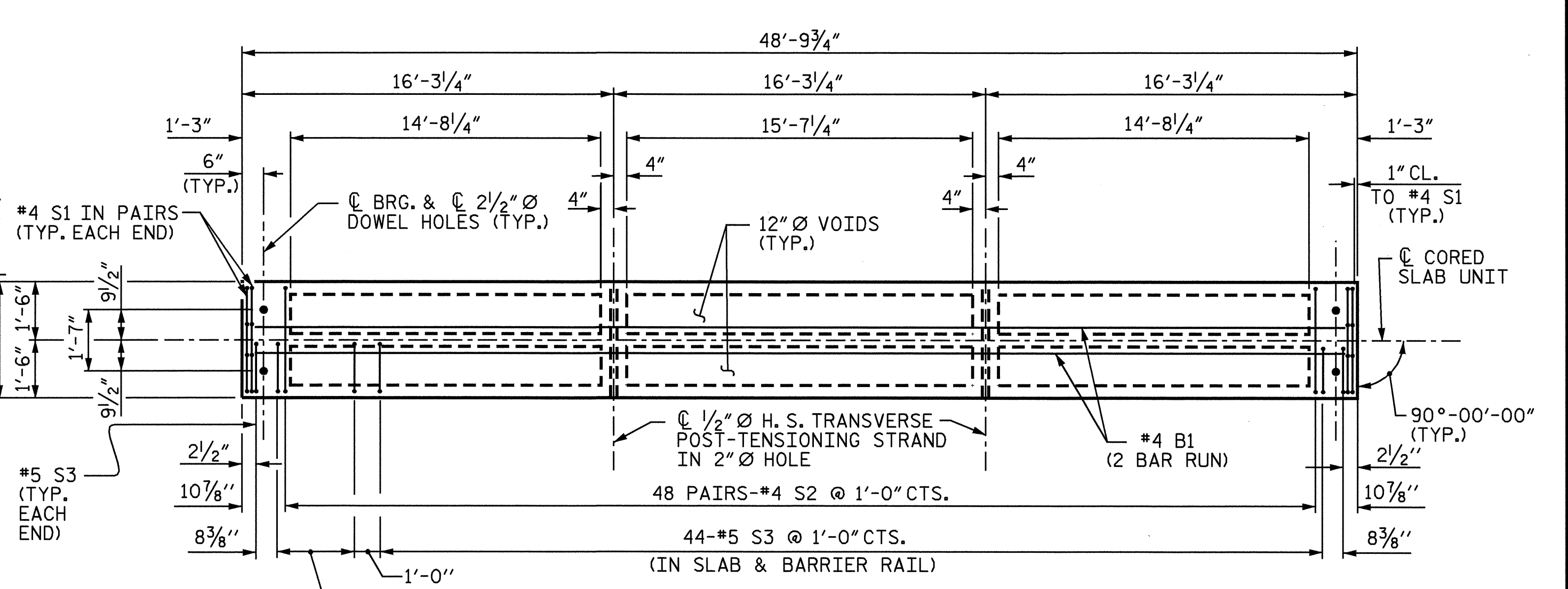
| STATE OF NORTH CAROLINA<br>DEPARTMENT OF TRANSPORTATION<br>RALEIGH   |     |       |     |     |       |
|--|-----|-------|-----|-----|-------|
| STANDARD<br>3'-0" X 1'-9"<br>PRESTRESSED CONCRETE<br>CORED SLAB UNIT |     |       |     |     |       |
| REVISIONS  |     |       |     |     |       |
| NO.  | BY: | DATE: | NO. | BY: | DATE: |
| 1  |     |       | 3   |     |       |
| 2  |     |       | 4   |     |       |

|                         |                       |
|-------------------------|-----------------------|
| ASSEMBLED BY : C.MILLER | DATE : 03/07          |
| CHECKED BY : P.ADKINS   | DATE : 03/07          |
| DRAWN BY : WJH 4/89     | REV. 10/17/00 RWW/LES |
| CHECKED BY : FCJ 5/89   | REV. 7/10/01R RWW/LES |
|                         | REV. 5/1/06 TLA/GM    |

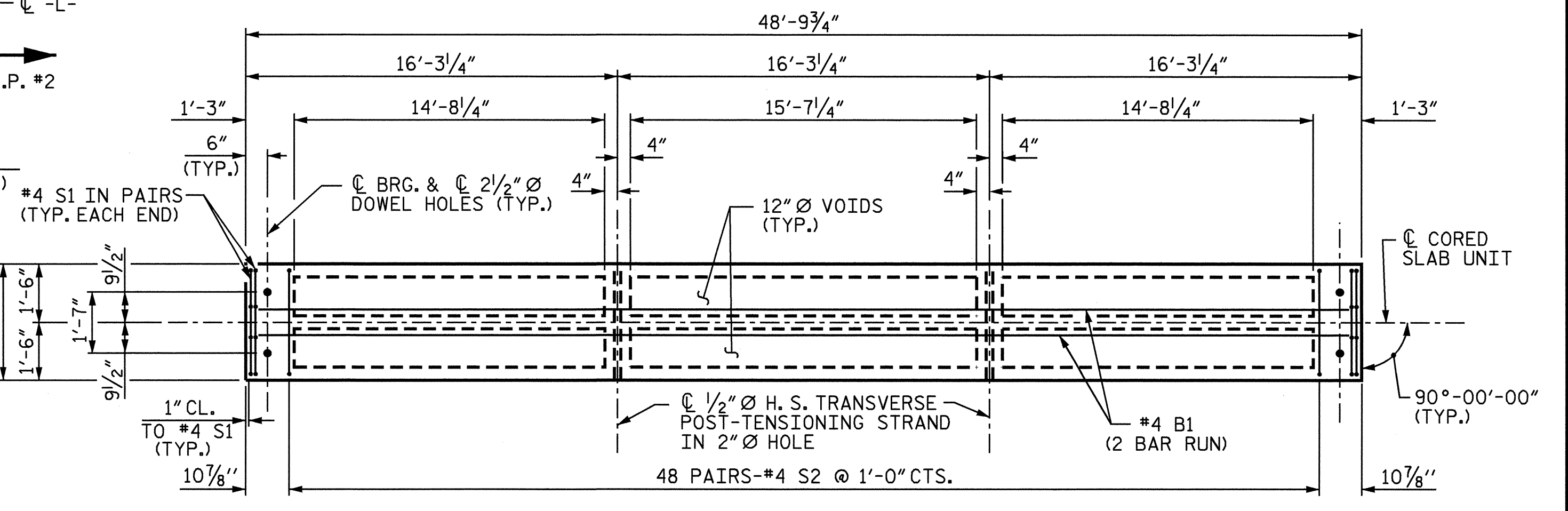




SPAN "A" & "B"  
 (SPAN "A" SHOWN, SPAN "B" IS MIRROR COPY)



PLAN OF EXTERIOR CORED SLAB UNIT  
 (RIGHT EXTERIOR CORED SLAB UNIT AT END BENT #1 SHOWN)



PLAN OF INTERIOR CORED SLAB UNIT

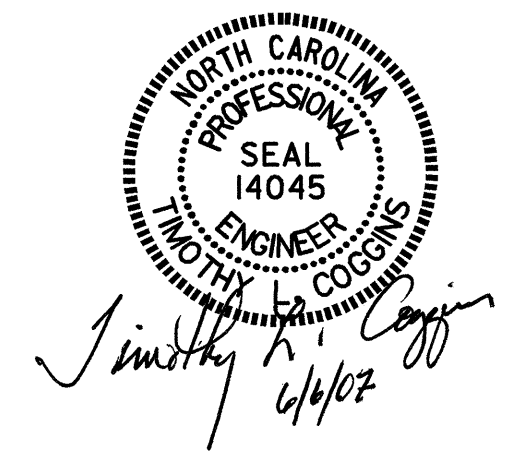
PROJECT NO. B-4280  
 STOKES COUNTY  
 STATION: 25+22.00 -L-

SHEET 2 OF 4

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

SUPERSTRUCTURE  
 PLAN OF SPANS  
 "A" AND "B"

| REVISIONS |     |       |     |     |       | SHEET NO.       |
|-----------|-----|-------|-----|-----|-------|-----------------|
| NO.       | BY: | DATE: | NO. | BY: | DATE: | S-40            |
| 1         |     |       | 3   |     |       | TOTAL SHEETS 51 |
| 2         |     |       | 4   |     |       |                 |



DRAWN BY: C.MILLER DATE: 03/07  
 CHECKED BY: P.ADKINS DATE: 03/07

NOTES

THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A 1/4" HOLD DOWN PLATE AND 7 - 7/8" Ø BOLTS WITH NUTS AND WASHERS.

THE HOLD-DOWN PLATE SHALL CONFORM TO AASHTO M270 GRADE 36. AFTER FABRICATION, THE HOLD-DOWN PLATE SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH AASHTO M111.

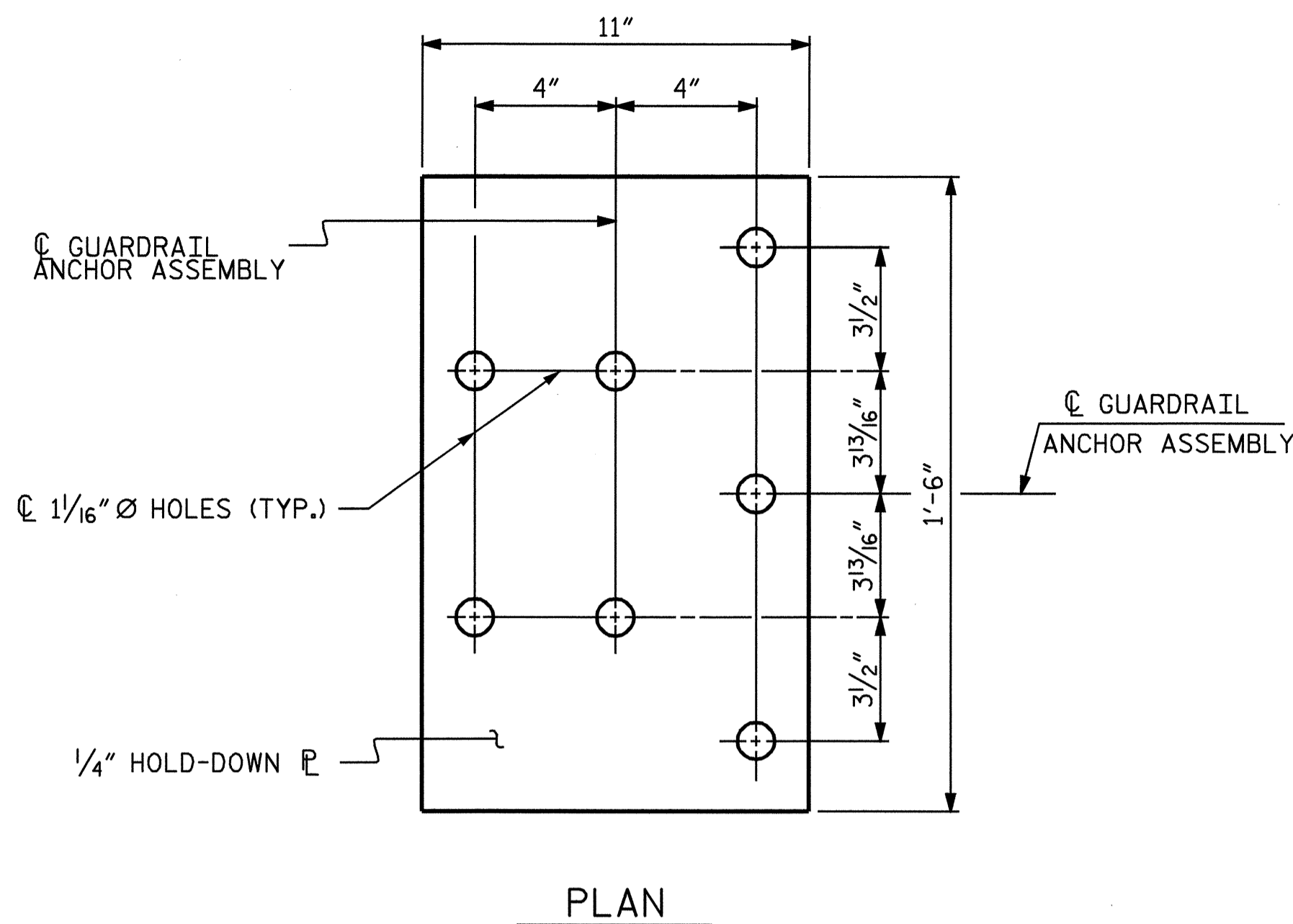
BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M291. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 7/8" Ø GALVANIZED BOLTS, NUTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.

AFTER INSTALLATION, THE EXPOSED THREAD OF THE BOLT SHALL BE BURRED WITH A SHARP POINTED TOOL.

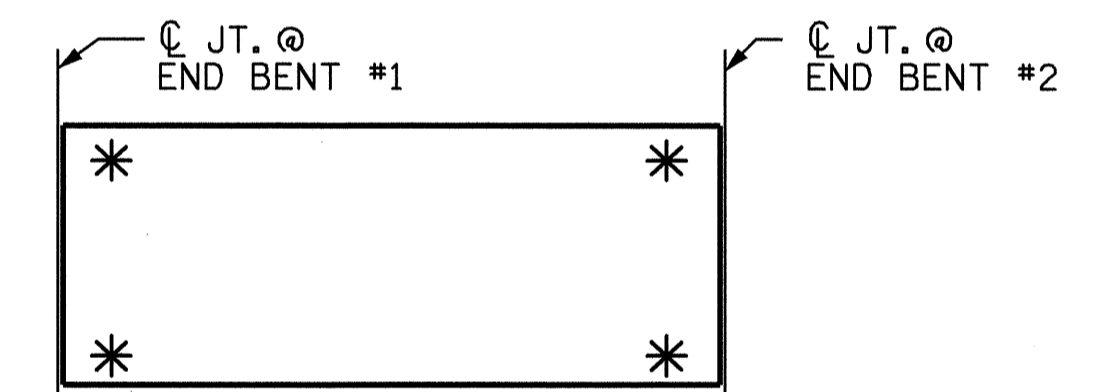
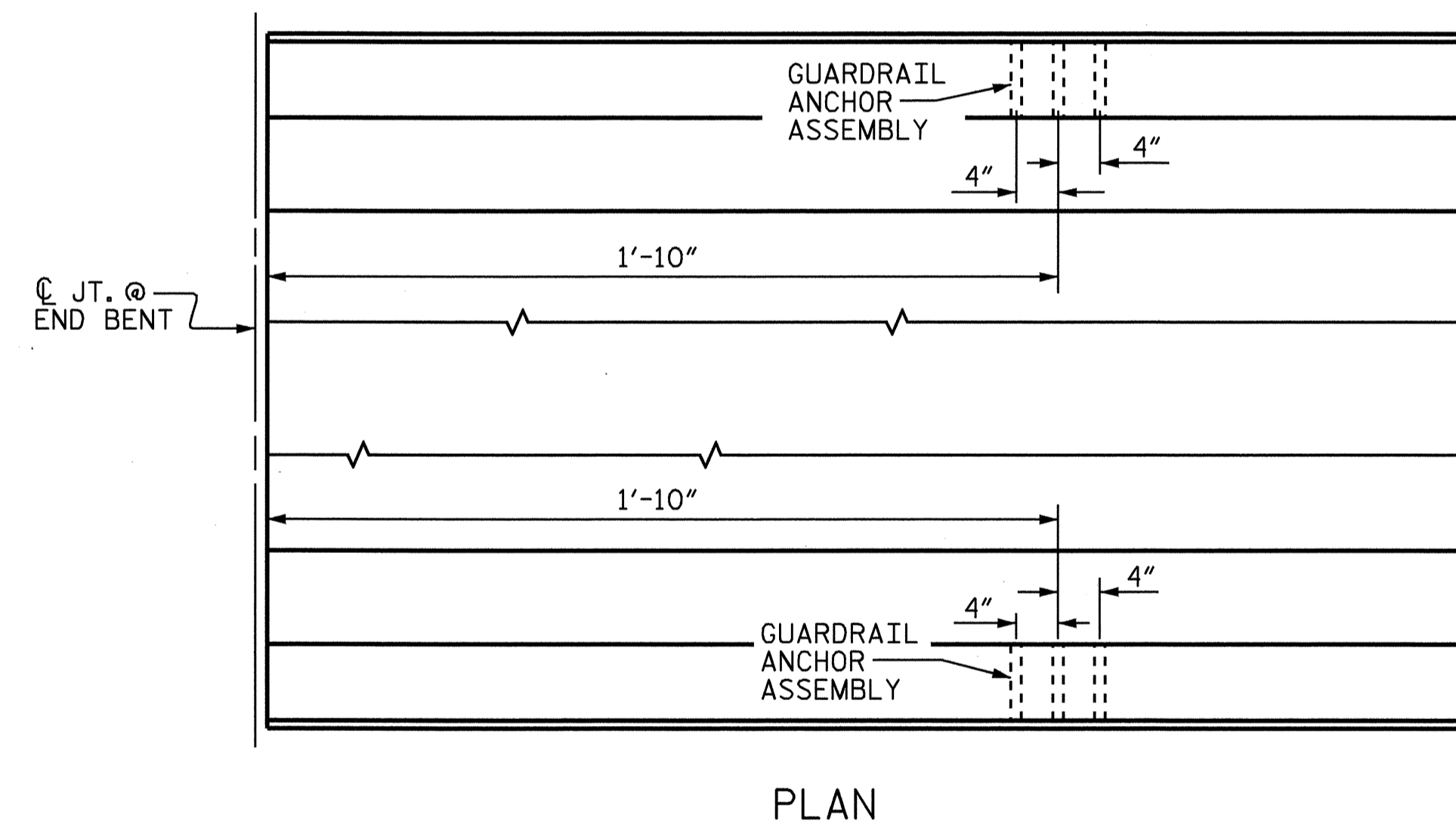
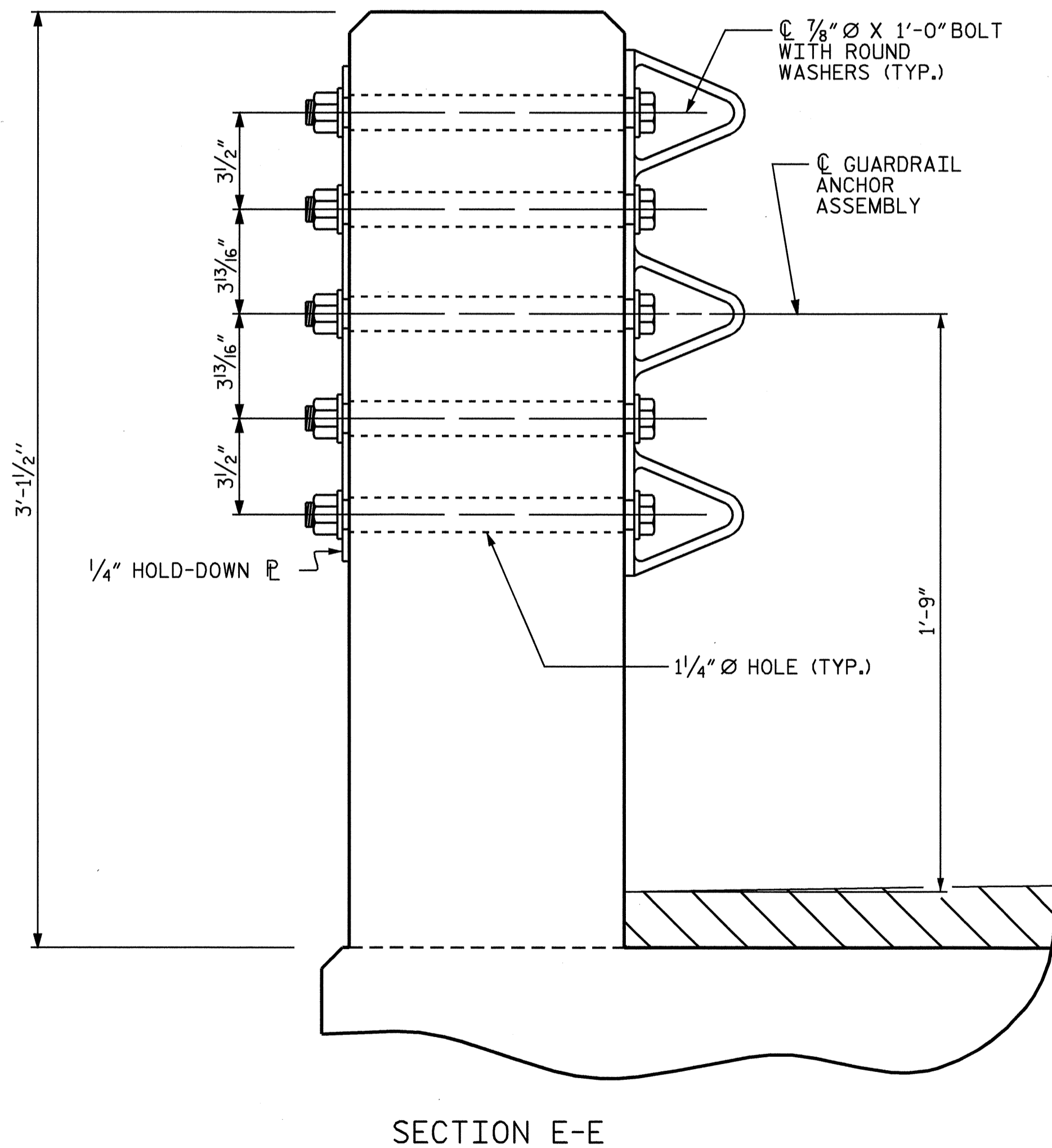
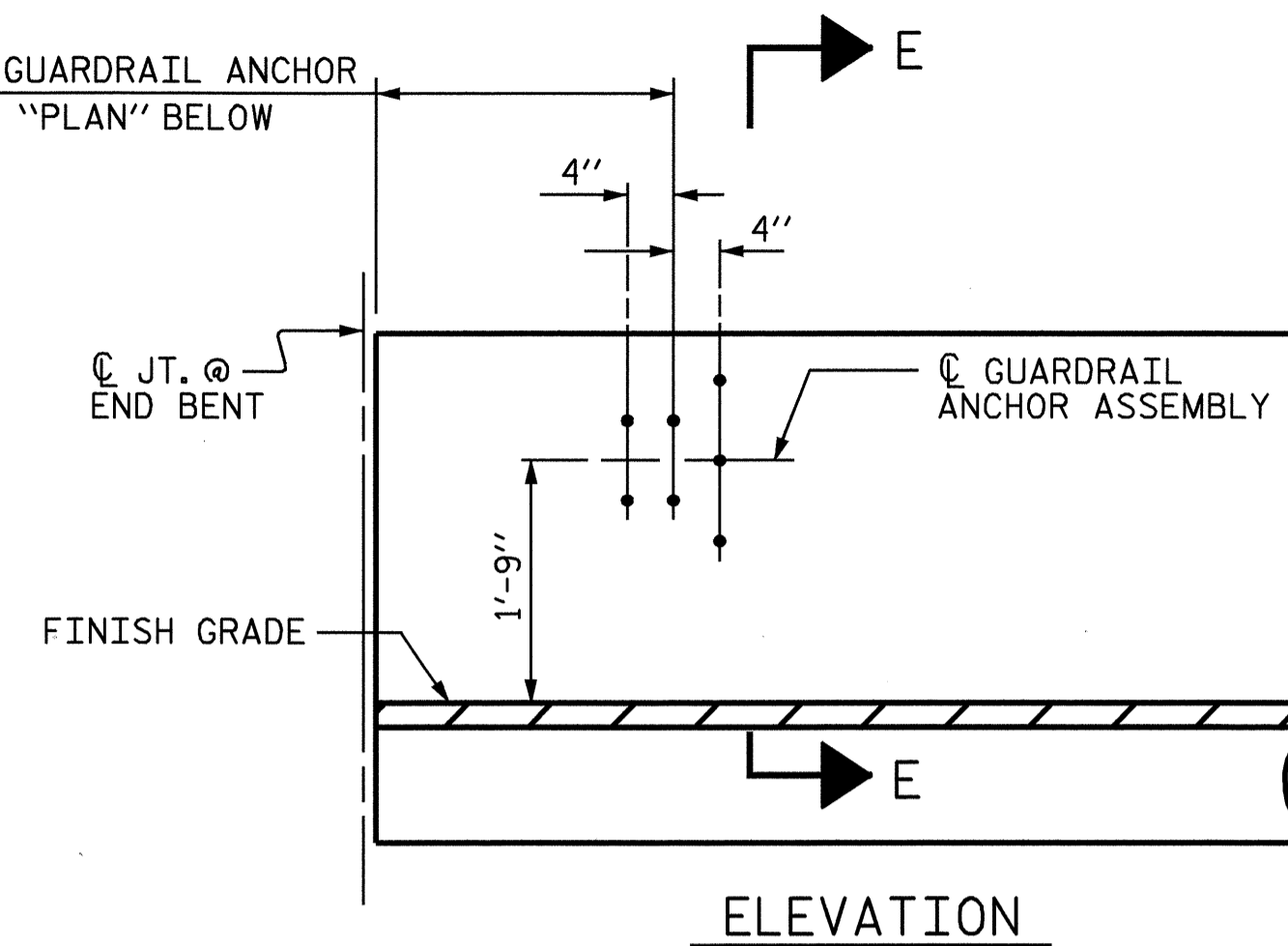
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLIES WITH BOLTS, NUTS AND WASHERS COMPLETE IN PLACE, SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.

THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE VERTICAL CONCRETE BARRIER RAIL TO CLEAR ASSEMBLY BOLTS.

THE 1 1/4" Ø HOLES SHALL BE FORMED OR DRILLED WITH A CORE BIT. IMPACT TOOLS WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.



FOR LOCATION OF GUARDRAIL ANCHOR ASSEMBLY, SEE "PLAN" BELOW



SKETCH SHOWING POINTS OF ATTACHMENTS

\* DENOTES GUARDRAIL ANCHOR ASSEMBLY

LOCATION OF ANCHORS FOR GUARDRAIL

END BENT #1 SHOWN, END BENT #2 SIMILAR.

PROJECT NO. B-4280

STOKES COUNTY

STATION: 25+22.00 -L-

SHEET 3 OF 4

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

GUARDRAIL ANCHORAGE  
FOR VERTICAL CONCRETE  
BARRIER RAIL

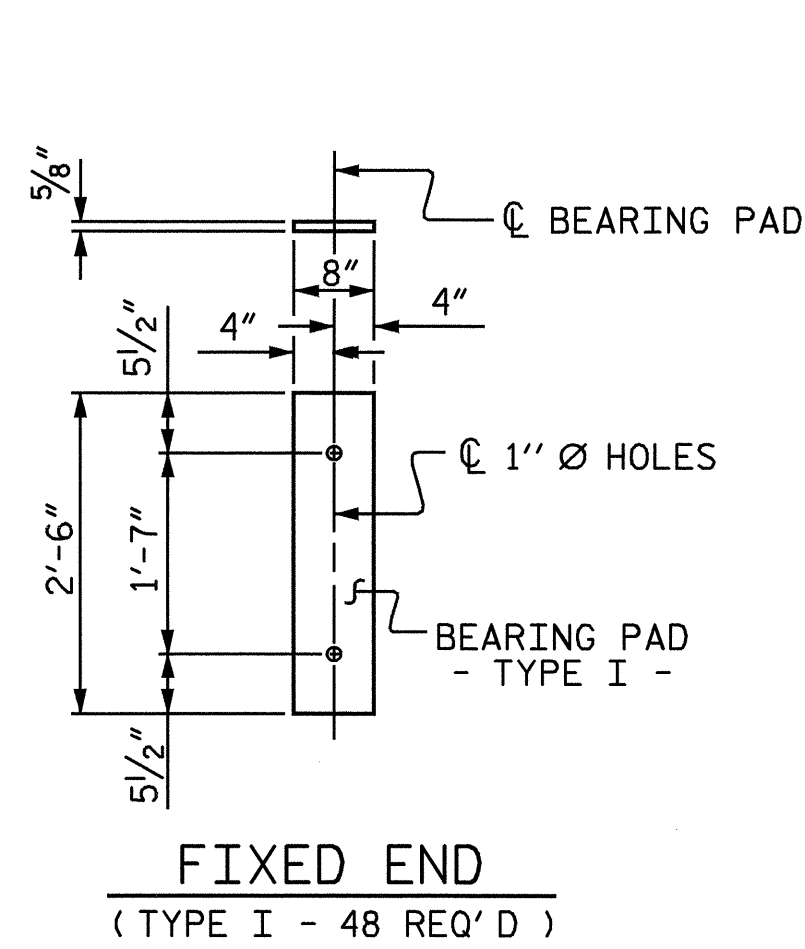


*Timothy L. Coggin*  
6/16/07

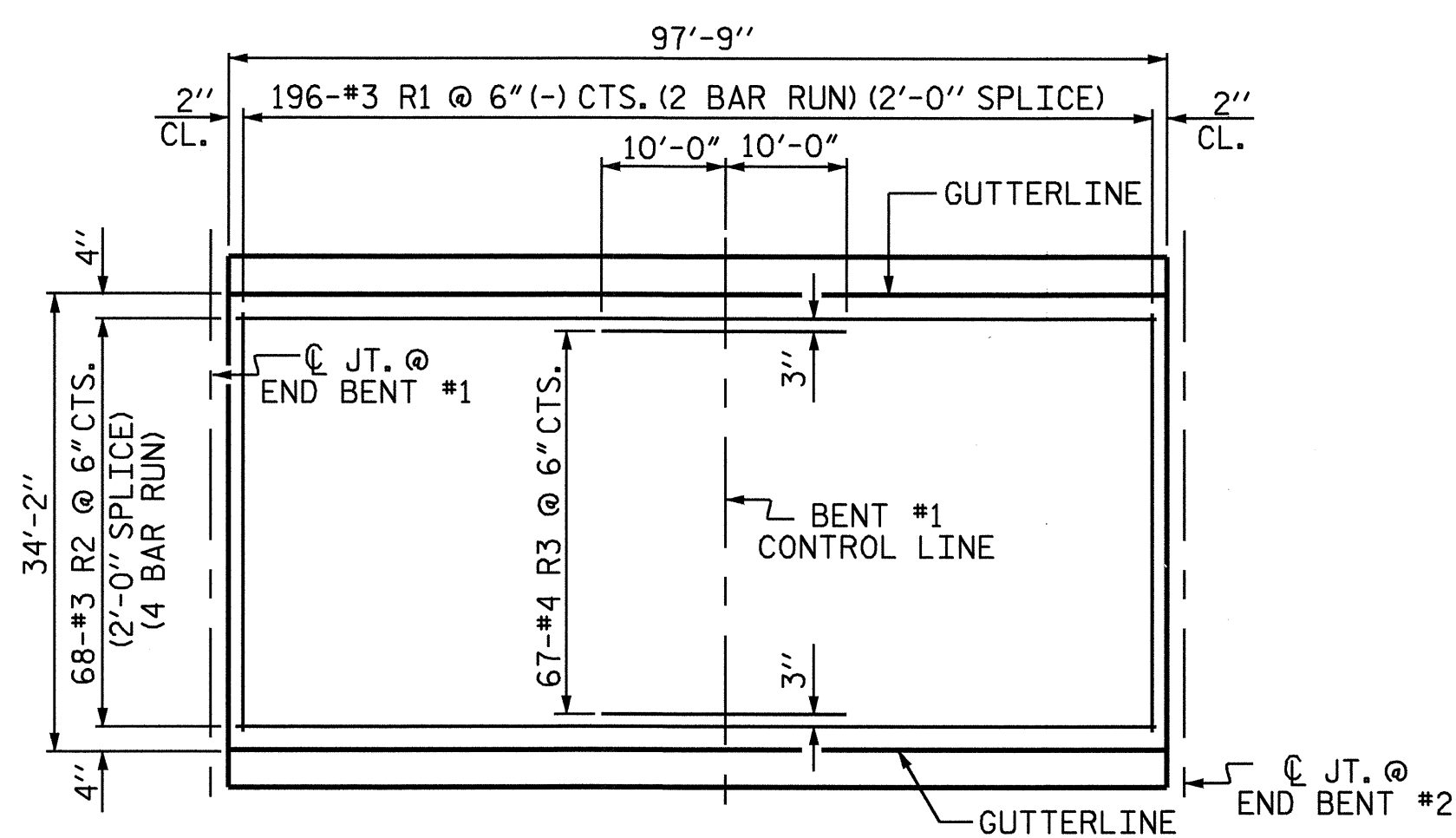
| REVISIONS |     |       |     |     |       | SHEET NO.    |  |
|-----------|-----|-------|-----|-----|-------|--------------|--|
| NO.       | BY: | DATE: | NO. | BY: | DATE: | S-41         |  |
| 1         |     |       | 3   |     |       | TOTAL SHEETS |  |
| 2         |     |       | 4   |     |       | 51           |  |

|                          |              |
|--------------------------|--------------|
| ASSEMBLED BY : C. MILLER | DATE : 03/07 |
| CHECKED BY : P. ADKINS   | DATE : 03/07 |
| DRAWN BY : MAA           | 12/06        |
| CHECKED BY : GM          | 12/06        |

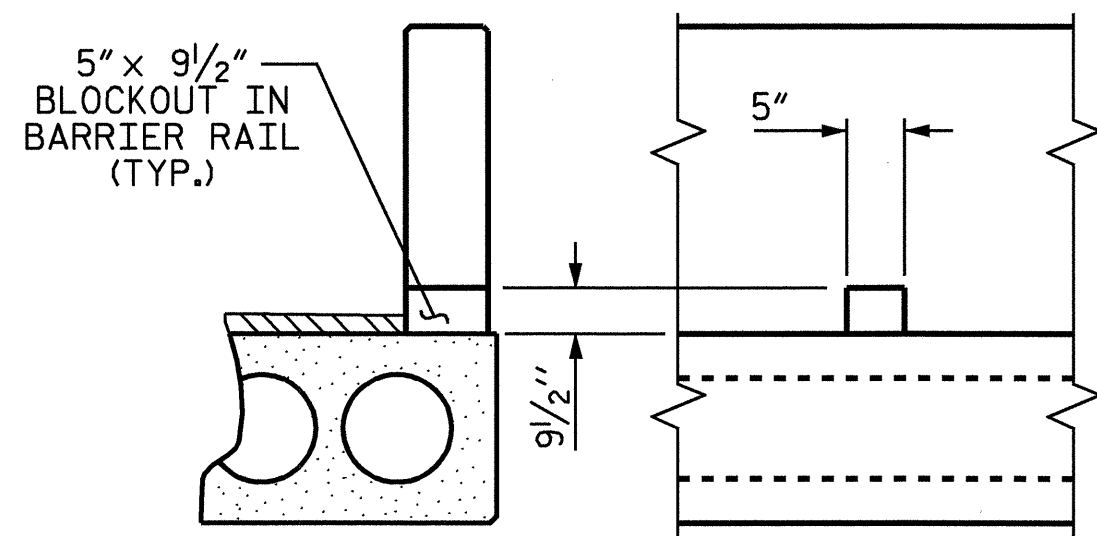




ELASTOMERIC BEARING DETAILS

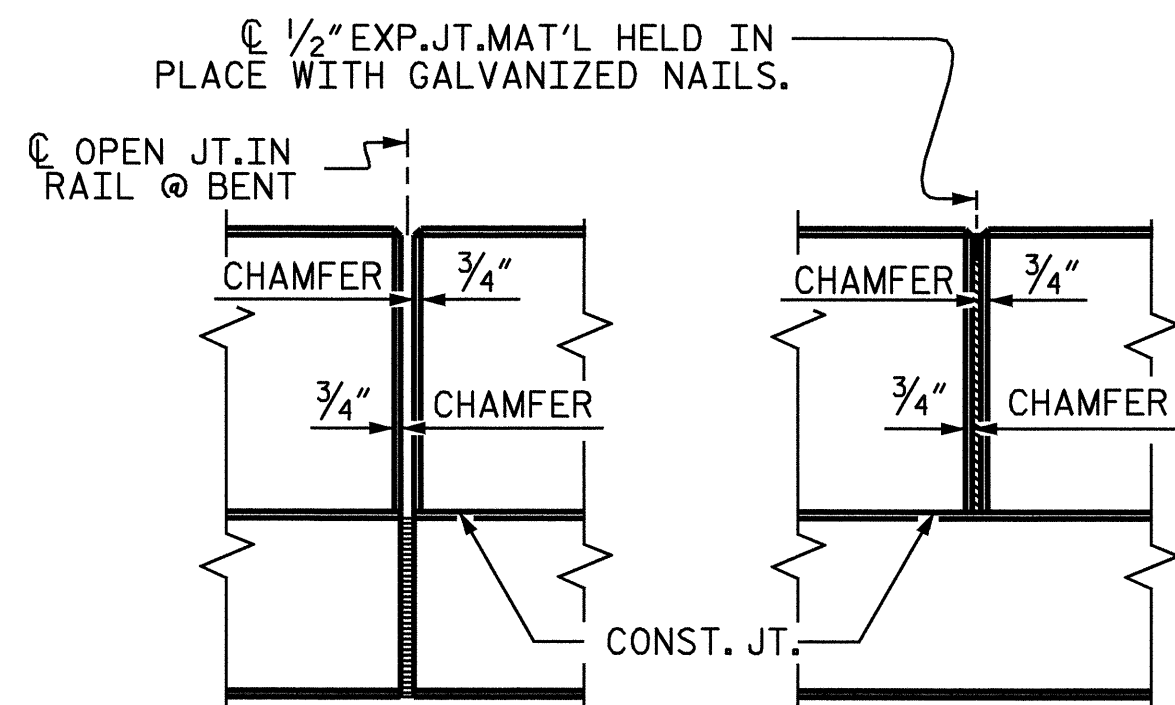


PLAN SHOWING CONCRETE WEARING SURFACE REINFORCING STEEL

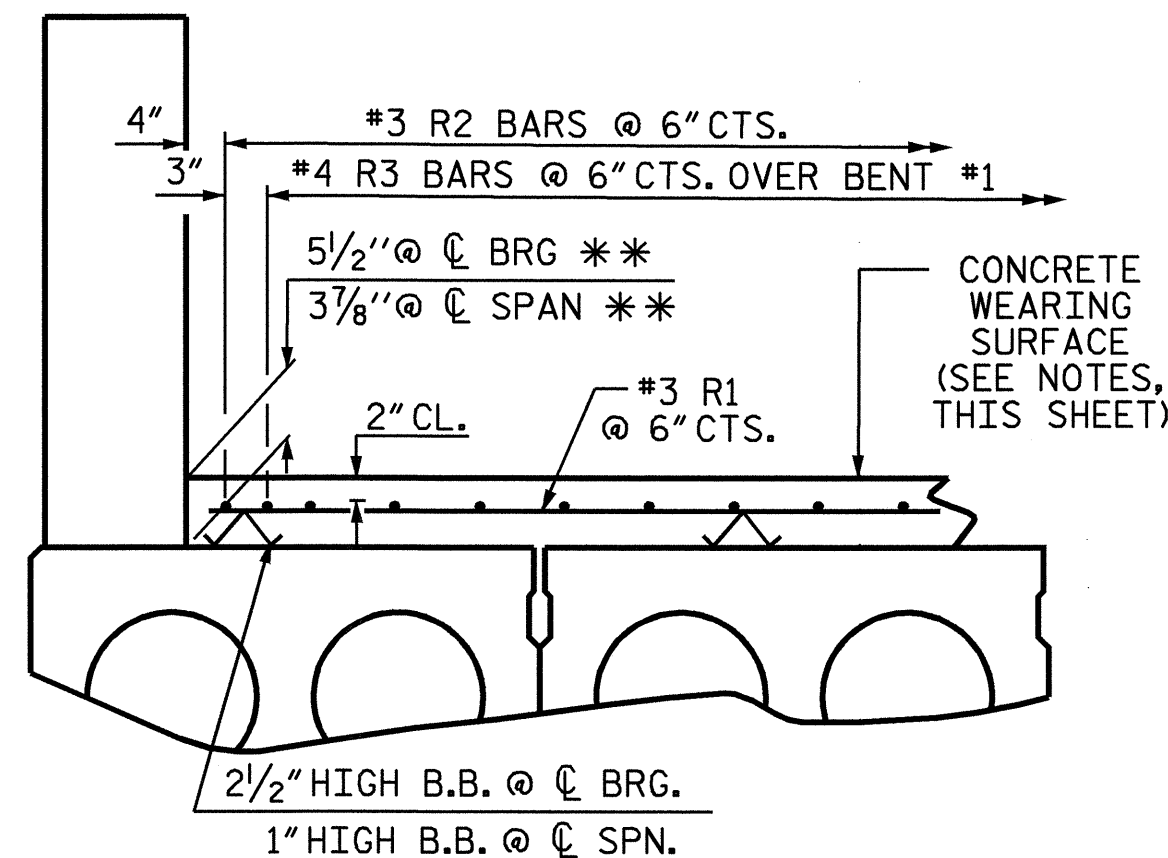


BLOCKOUT DETAIL FOR DRAINAGE

(16 BLOCKOUTS REQUIRED)  
(BLOCKOUTS TO BE CENTERED BETWEEN "S" BARS IN BARRIER RAIL)  
(SEE PLAN OF SPANS FOR LOCATIONS)

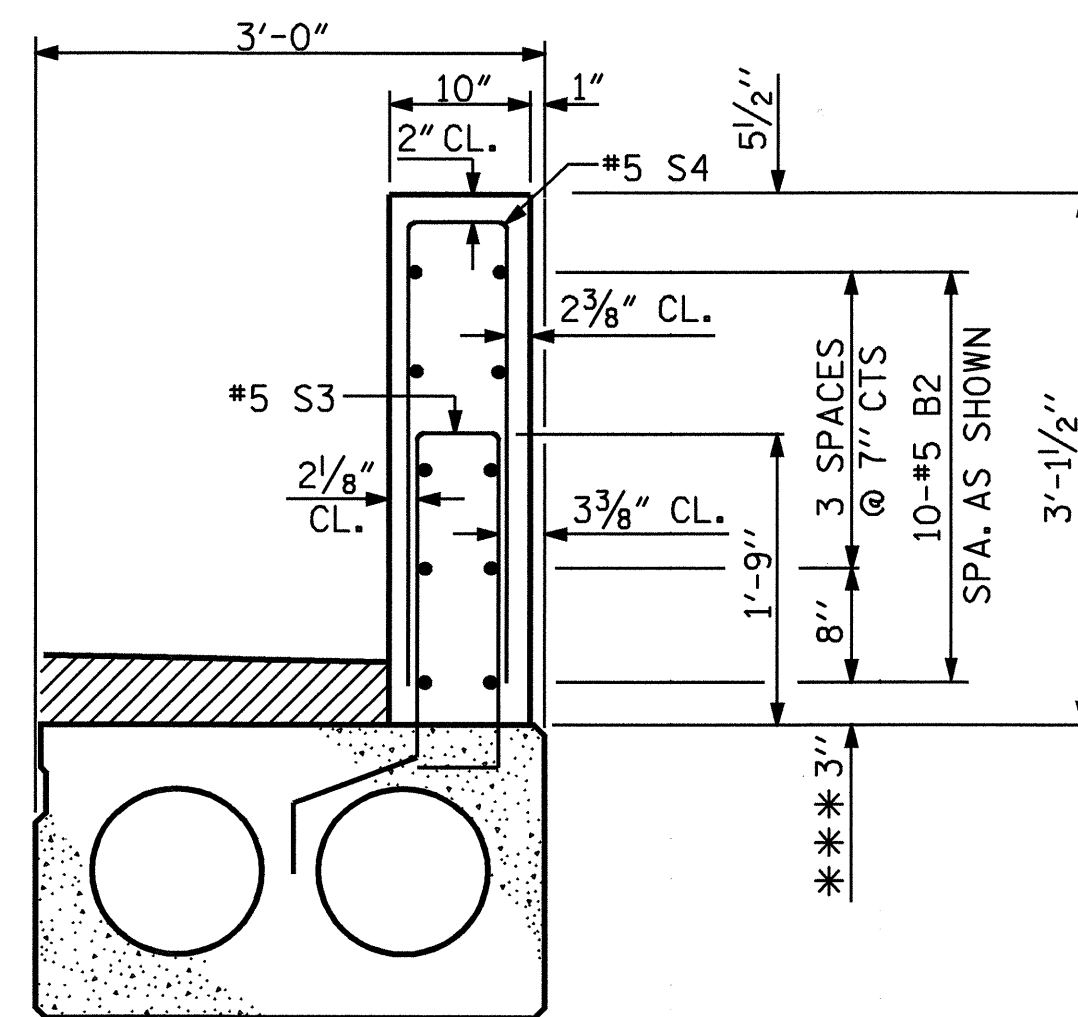


ELEVATION AT EXPANSION JOINTS



REINFORCING STEEL FOR CONCRETE WEARING SURFACE

\*\*BASED ON PREDICTED FINAL CAMBER AND THEORETICAL GRADE LINE ELEVATIONS



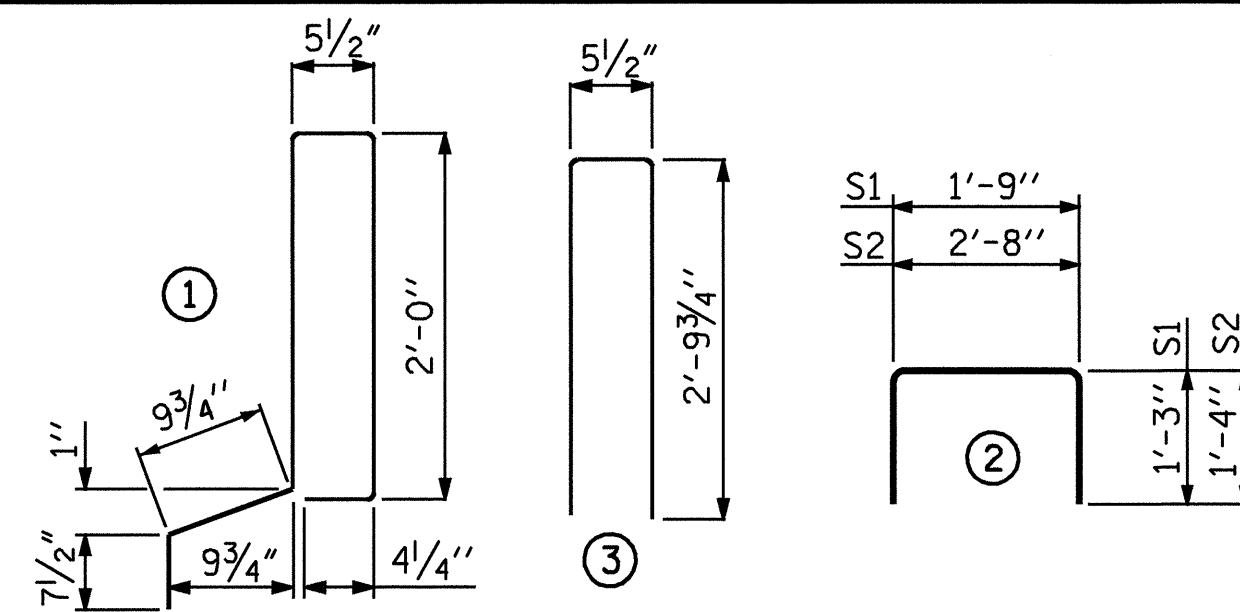
SECTION THRU RAIL

\*\*\*BOTTOM ROW OF "B" BARS MAY BE CUT TO AVOID DRAINAGE SLOTS

BARRIER RAIL DETAILS

|                         |                      |
|-------------------------|----------------------|
| ASSEMBLED BY : C.MILLER | DATE : 03/07         |
| CHECKED BY : P.ADKINS   | DATE : 03/07         |
| DRAWN BY : WJH 4/89     | REV. 7/10/01 RWN/LES |
| CHECKED BY : FCJ 5/89   | REV. 5/1/03R RWN/JTE |
|                         | REV. 5/1/06 TLA/GM   |

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL FOR ONE CORED SLAB SECTION

| BAR NUMBER                      | SIZE | TYPE | EXTERIOR UNIT (4 REQUIRED) |              | INTERIOR UNIT (20 REQUIRED) |              |
|---------------------------------|------|------|----------------------------|--------------|-----------------------------|--------------|
|                                 |      |      | LENGTH                     | WEIGHT       | LENGTH                      | WEIGHT       |
| B1                              | #4   | STR  | 25'-2"                     | 67           | 25'-2"                      | 67           |
| S1                              | #4   | 2    | 4'-3"                      | 23           | 4'-3"                       | 23           |
| S2                              | #4   | 2    | 5'-4"                      | 342          | 5'-4"                       | 342          |
| *S3                             | #5   | 1    | 6'-3"                      | 345          |                             |              |
| REINFORCING STEEL               |      |      |                            | 432 LBS.     |                             | 432 LBS.     |
| *EPOXY COATED REINFORCING STEEL |      |      |                            | 345 LBS.     |                             | LBS.         |
| 5,000 P.S.I. CONCRETE           |      |      |                            | 6.9 CU. YDS. |                             | 6.9 CU. YDS. |
| 1/2" Ø L.R. STRANDS             |      |      |                            | No. 22       |                             | No. 22       |

BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL

| BAR  | BARS PER SPAN |        | TOTAL NO. | SIZE | TYPE | LENGTH | WEIGHT        |
|--|---------------|--------|-----------|------|------|--------|---------------|
|  | SPAN A        | SPAN B |           |      |      |        |               |
| *B2  | 40            | 40     | 80        | #5   | STR  | 24'-0" | 2003          |
| *S4  | 106           | 106    | 212       | #5   | 3    | 6'-1"  | 1345          |
| *EPOXY COATED REINFORCING STEEL                  |               |        |           |      |      |        | LBS. 3348     |
| CLASS AA CONCRETE                                |               |        |           |      |      |        | CU. YDS. 18.9 |
| TOTAL LIN. FT. OF VERTICAL CONCRETE BARRIER RAIL |               |        |           |      |      |        | 195.50        |

BILL OF MATERIAL FOR CONCRETE WEARING SURFACE

| BAR                             | NO. | SIZE | TYPE | LENGTH  | WEIGHT       |
|---------------------------------|-----|------|------|---------|--------------|
| *R1                             | 392 | #3   | STR  | 17'-11" | 2641         |
| *R2                             | 272 | #3   | STR  | 26'-0"  | 2659         |
| *R3                             | 67  | #4   | STR  | 20'-0"  | 895          |
| *EPOXY COATED REINFORCING STEEL |     |      |      |         | LBS. 6195    |
| CONCRETE WEARING SURFACE        |     |      |      |         | SQ. FT. 3340 |

CORED SLABS REQUIRED

| SPAN     | NUMBER        | LENGTH | TOTAL LENGTH |
|----------|---------------|--------|--------------|
|          |               |        |              |
| SPAN "A" | EXTERIOR C.S. | 2      | 48'-9 3/4"   |
|          | INTERIOR C.S. | 10     | 48'-9 3/4"   |
| SPAN "B" | EXTERIOR C.S. | 2      | 48'-9 3/4"   |
|          | INTERIOR C.S. | 10     | 48'-9 3/4"   |
| TOTAL    |               | 24     | 1171'-6"     |

GRADE 270 STRANDS

| AREA (SQUARE INCHES)                | 1/2" Ø L.R. |
|-------------------------------------|-------------|
| 0.153                               |             |
| ULTIMATE STRENGTH (LBS. PER STRAND) | 41,300      |
| APPLIED PRESTRESS (LBS. PER STRAND) | 30,980      |

DEAD LOAD DEFLECTION AND CAMBER

|  | 3'-0" x 1'-9" 1/2" Ø L.R. STRAND |           |
|--|----------------------------------|-----------|
|  | SPAN "A"                         | SPAN "B"  |
| CAMBER (SLAB ALONE IN PLACE)             | ↑ 1 5/16"                        | ↑ 1 5/16" |
| DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD | ↓ 5/16"                          | ↓ 5/16"   |
| FINAL CAMBER                             | ↑ 1 5/8"                         | ↑ 1 5/8"  |

NOTES:

ALL PRESTRESSING STRANDS SHALL BE 7-WIRE LOW RELAXATION GRADE 270 STRANDS AND SHALL CONFORM TO AASHTO M203 EXCEPT FOR SAMPLING REQUIREMENTS WHICH SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

ALL REINFORCING STEEL CAST WITH THE CORED SLAB SECTIONS SHALL BE GRADE 60 AND SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE CORED SLABS.

RECESSES FOR TRANSVERSE STRANDS SHALL BE GROUTED AFTER THE TENSIONING OF THE STRANDS.

THE 2 1/2" Ø DOWEL HOLES AT FIXED ENDS OF SLAB SECTIONS SHALL BE FILLED WITH GROUT. THE SPACE BETWEEN CORED SLABS AT BENT #1 SHALL BE FILLED WITH GROUT. FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

THE 2" Ø BACKER ROD SHALL CONFORM TO THE REQUIREMENTS OF TYPE M BOND BREAKER. SEE SECTION 1028 OF THE STANDARD SPECIFICATIONS.

WHEN CORED SLABS ARE CAST, A POSITIVE HOLD-DOWN SYSTEM SHALL BE EMPLOYED TO PREVENT VOIDS FROM RISING OR MOVING SIDEWAYS. THIS SYSTEM SHALL BE DESIGNED TO BE LEFT IN PLACE UNTIL THE CONCRETE HAS REACHED RELEASE STRENGTH. AT LEAST THREE WEEKS PRIOR TO CASTING CORED SLABS, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR REVIEW AND COMMENT, DETAILED DRAWINGS OF THE PROPOSED HOLD-DOWN SYSTEM. IN ADDITION TO STRUCTURAL DETAILS, LOCATION AND SPACING OF THE HOLD-DOWNS SHALL BE INDICATED.

THE TOP SURFACE OF THE CORED SLAB UNITS SHALL HAVE A 3/8" RAKED FINISH.

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE CORED SLAB UNIT SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 4000 PSI.

ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.

PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE CORED SLAB UNIT ENDS.

APPLY EPOXY PROTECTIVE COATING TO CORED SLAB UNIT ENDS.

VERTICAL GROOVED CONTRACTION JOINTS, 1/2" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE BARRIER RAIL AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. A VERTICAL CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN BARRIER RAIL EXPANSION JOINTS. ONLY ONE CONTRACTION JOINT IS REQUIRED AT MIDPOINT OF BARRIER RAIL SEGMENTS LESS THAN 20 FEET IN LENGTH AND NO CONTRACTION JOINTS ARE REQUIRED FOR THOSE SEGMENTS LESS THAN 10 FEET IN LENGTH.

FOR VERTICAL CONCRETE BARRIER RAIL, SEE SPECIAL PROVISIONS.

PLACEMENT OF THE CONCRETE WEARING SURFACE SHALL OCCUR AFTER CASTING THE CONCRETE RAIL. THE COST OF THE REINFORCING STEEL CAST WITH THE CONCRETE WEARING SURFACE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR CONCRETE WEARING SURFACE. FOR CONCRETE WEARING SURFACE, SEE SPECIAL PROVISIONS.

GROOVING BRIDGE FLOORS

|                |             |
|----------------|-------------|
| BRIDGE DECK    | 3047 SQ.FT. |
| APPROACH SLABS | 1558 SQ.FT. |
| TOTAL          | 4605 SQ.FT. |

PROJECT NO. B-4280

STOKES COUNTY

STATION: 25+22.00 -L-

SHEET 4 OF 4



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
STANDARD  
3'-0" X 1'-9"  
PRESTRESSED  
CONCRETE CORED  
SLAB UNIT

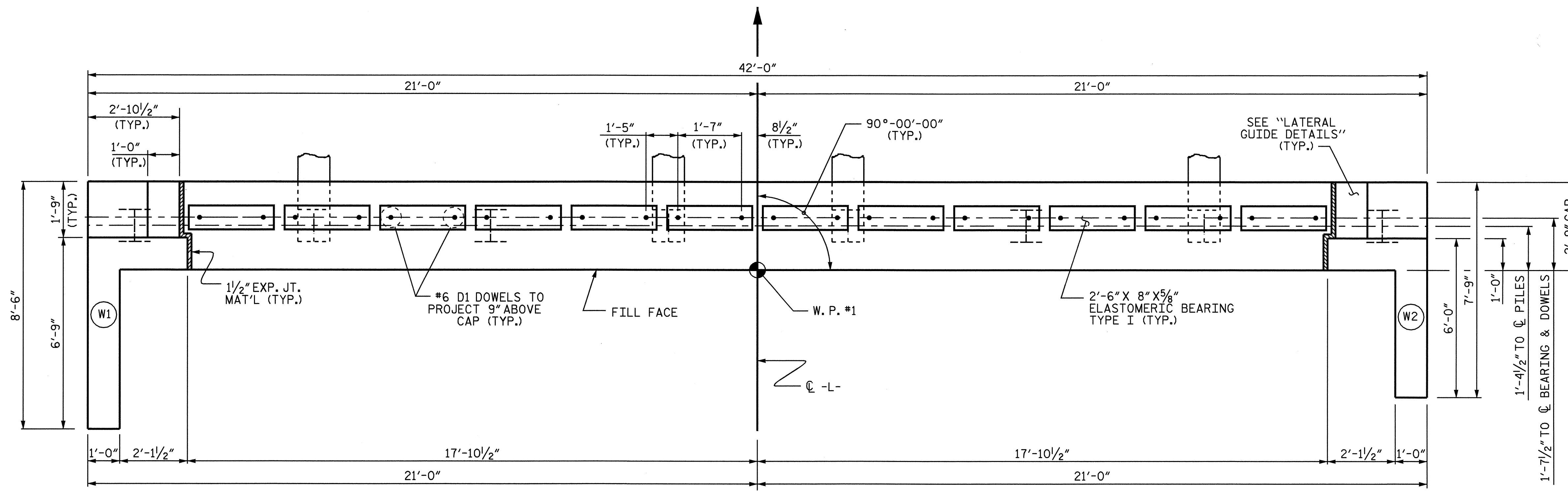
| REVISIONS |     |       |     |     |       | SHEET NO.       |
|-----------|-----|-------|-----|-----|-------|-----------------|
| NO.       | BY: | DATE: | NO. | BY: | DATE: | S-42            |
| 1         |     |       | 3   |     |       | TOTAL SHEETS 51 |
| 2         |     |       | 4   |     |       |                 |

**NOTES**

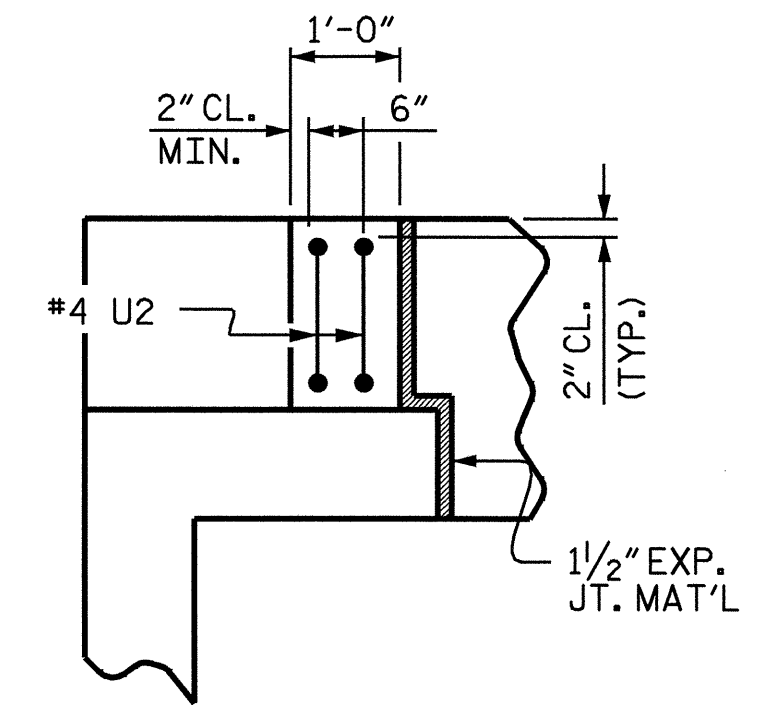
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

THE LATERAL GUIDE AT EACH END OF THE CAP IS NOT TO BE POURED UNTIL AFTER THE CORED SLAB UNITS ARE IN PLACE.

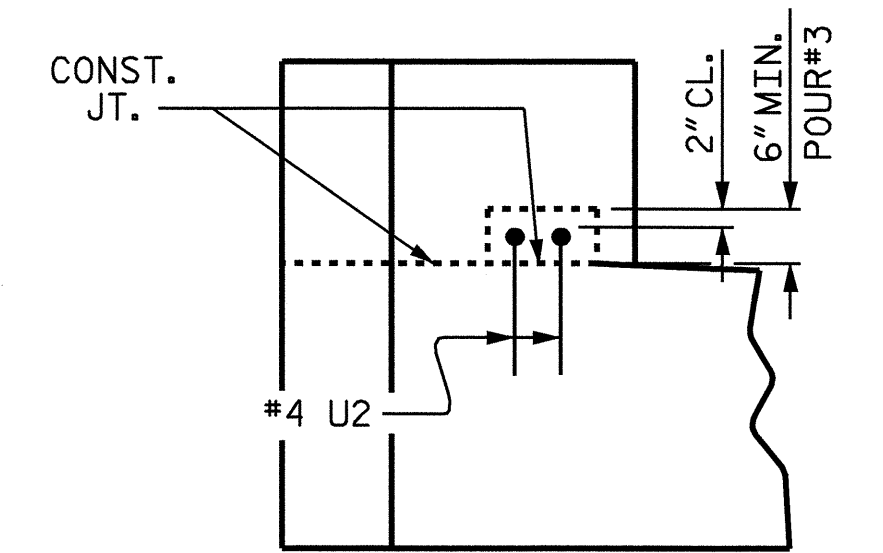
THE CONTRACTOR SHALL PROVIDE FOR INSTALLATION OF THE 4" DIAMETER DRAIN PIPE THROUGH THE WING WALL AS REQUIRED FOR REINFORCED BRIDGE APPROACH FILLS, SEE THE ROADWAY PLANS. REINFORCING STEEL IN THE WING WALL MAY BE SHIFTED AS NECESSARY TO CLEAR THE DRAIN PIPE.



**PLAN**



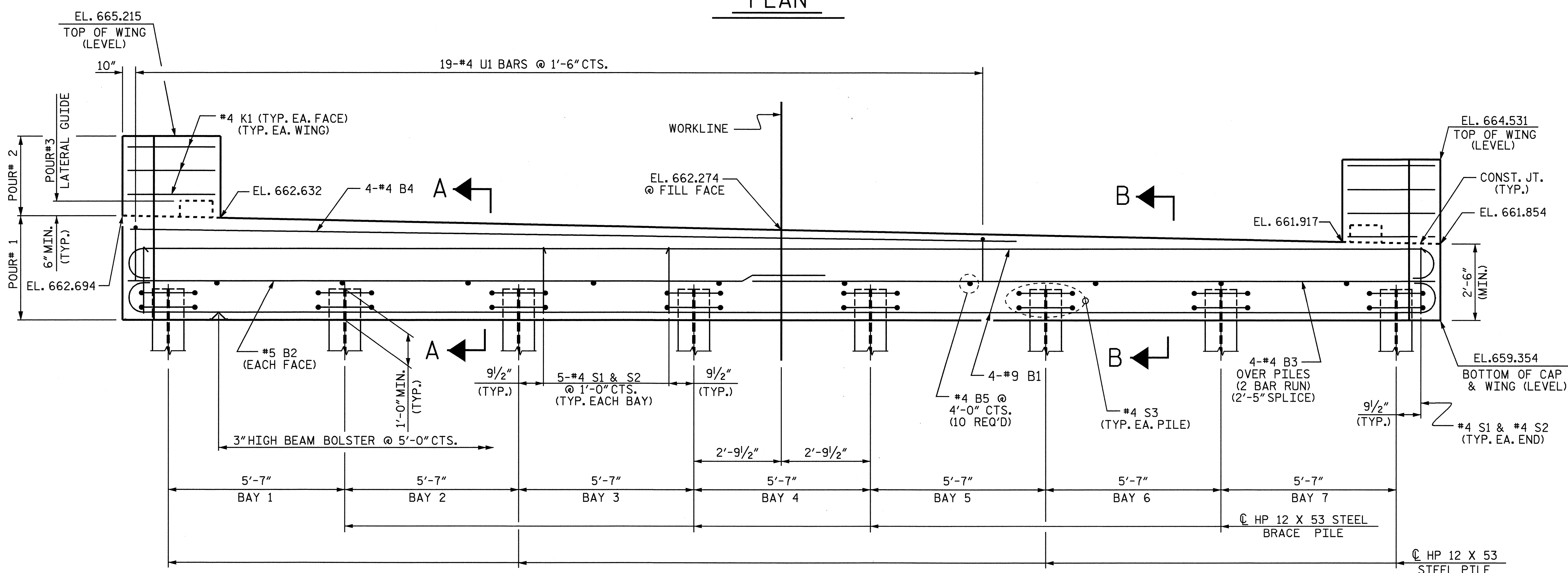
**PLAN**



**ELEVATION**

**LATERAL GUIDE DETAILS**

(EACH END SIMILAR)



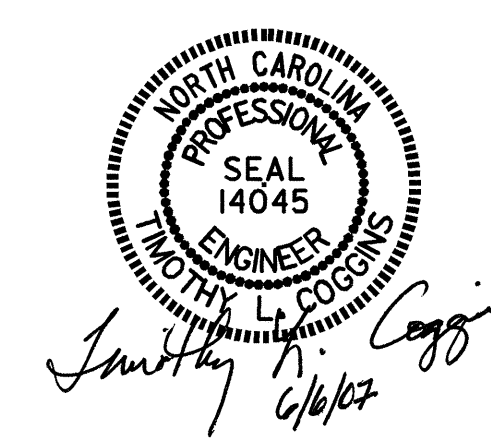
**ELEVATION**

PROJECT NO. B-4280  
STOKES COUNTY  
 STATION: 25+22.00 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

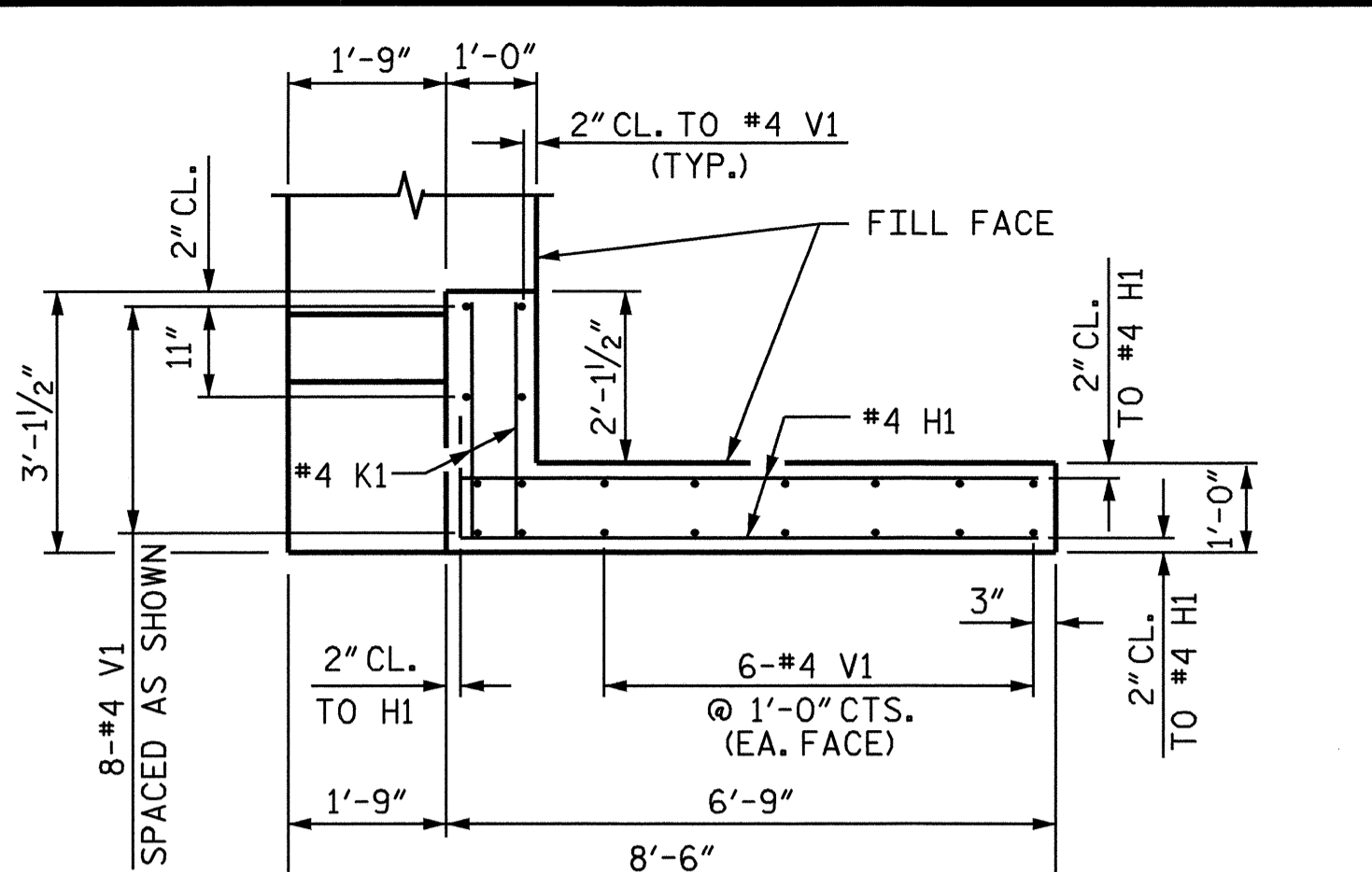
**SUBSTRUCTURE  
 END BENT #1**



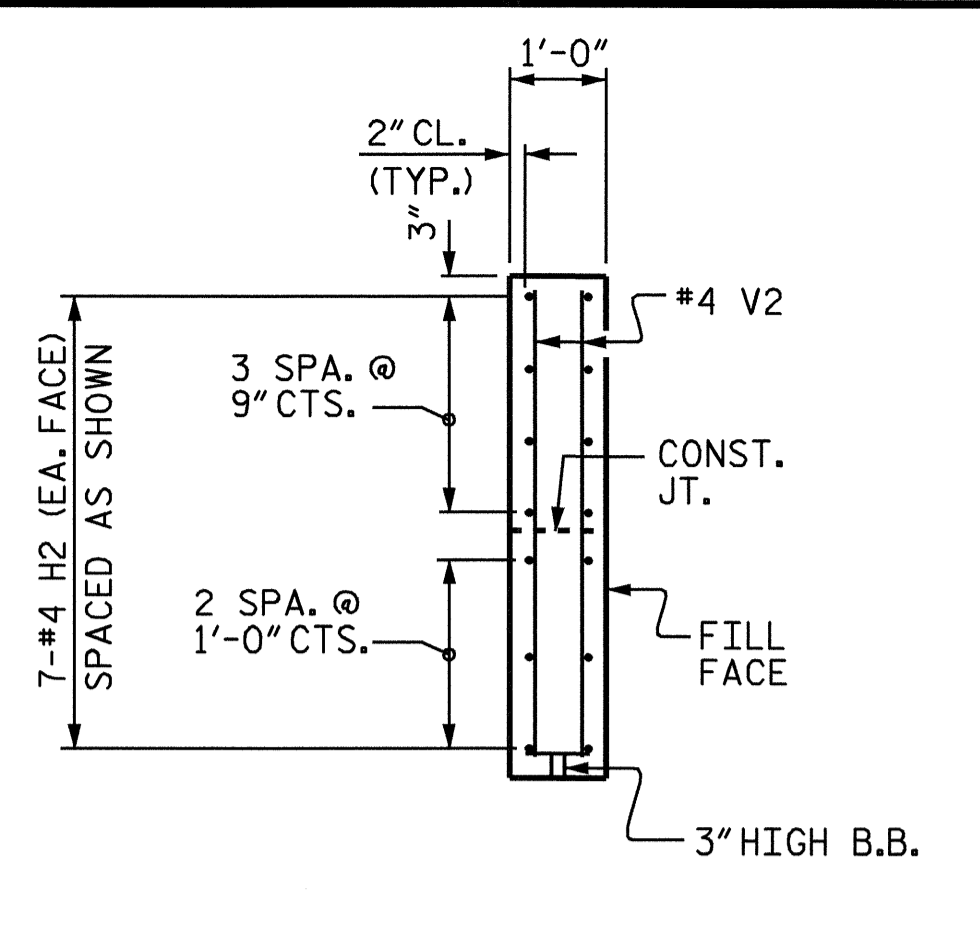
| REVISIONS |     |       |     |     |       | SHEET NO.<br>S-43  |
|-----------|-----|-------|-----|-----|-------|--------------------|
| NO.       | BY: | DATE: | NO. | BY: | DATE: |                    |
| 1         |     |       | 3   |     |       | TOTAL SHEETS<br>51 |
| 2         |     |       | 4   |     |       |                    |

DRAWN BY: B.N.BARODAWALA DATE: 5-31-06  
 CHECKED BY: PEGGY ADKINS DATE: 6-06

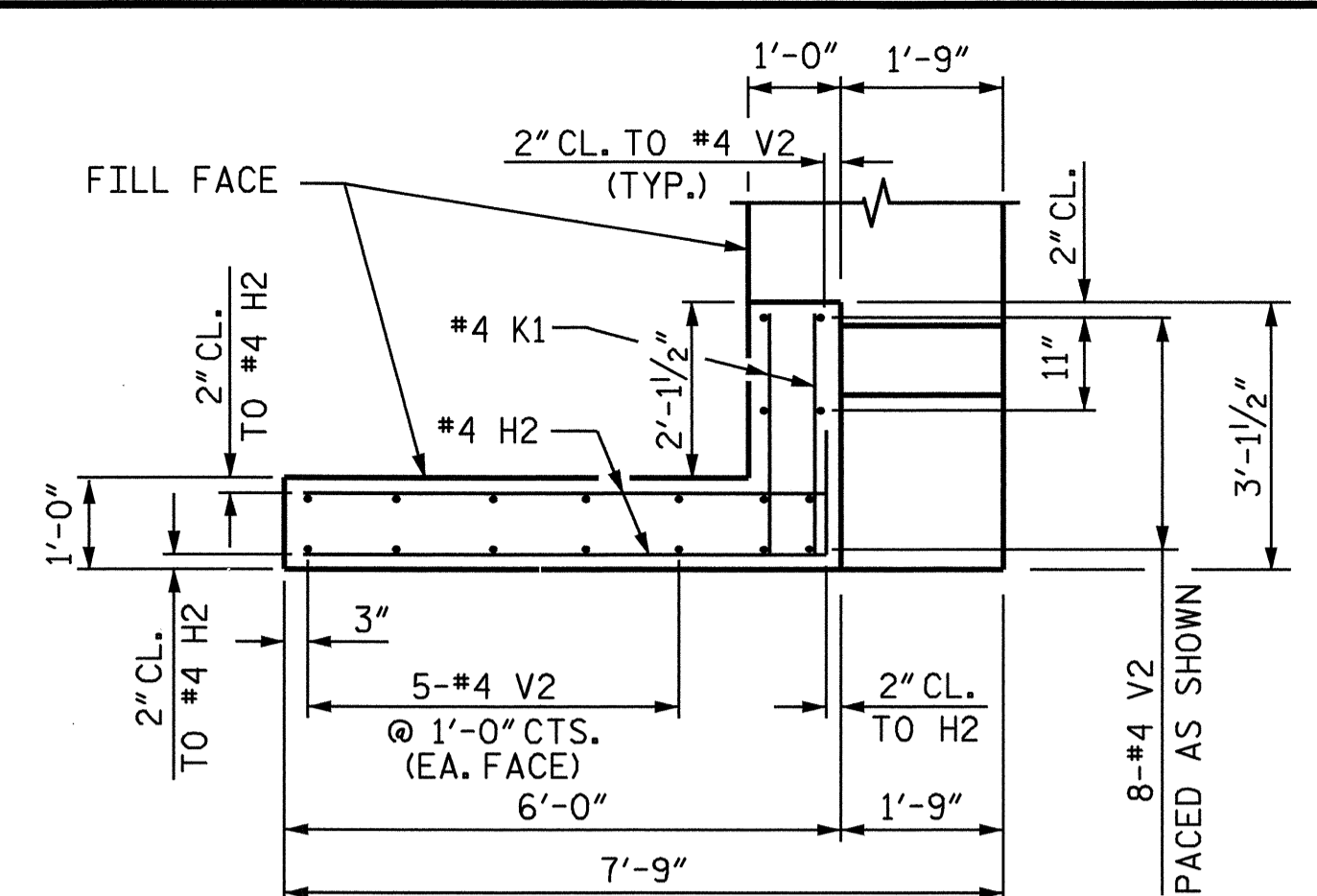




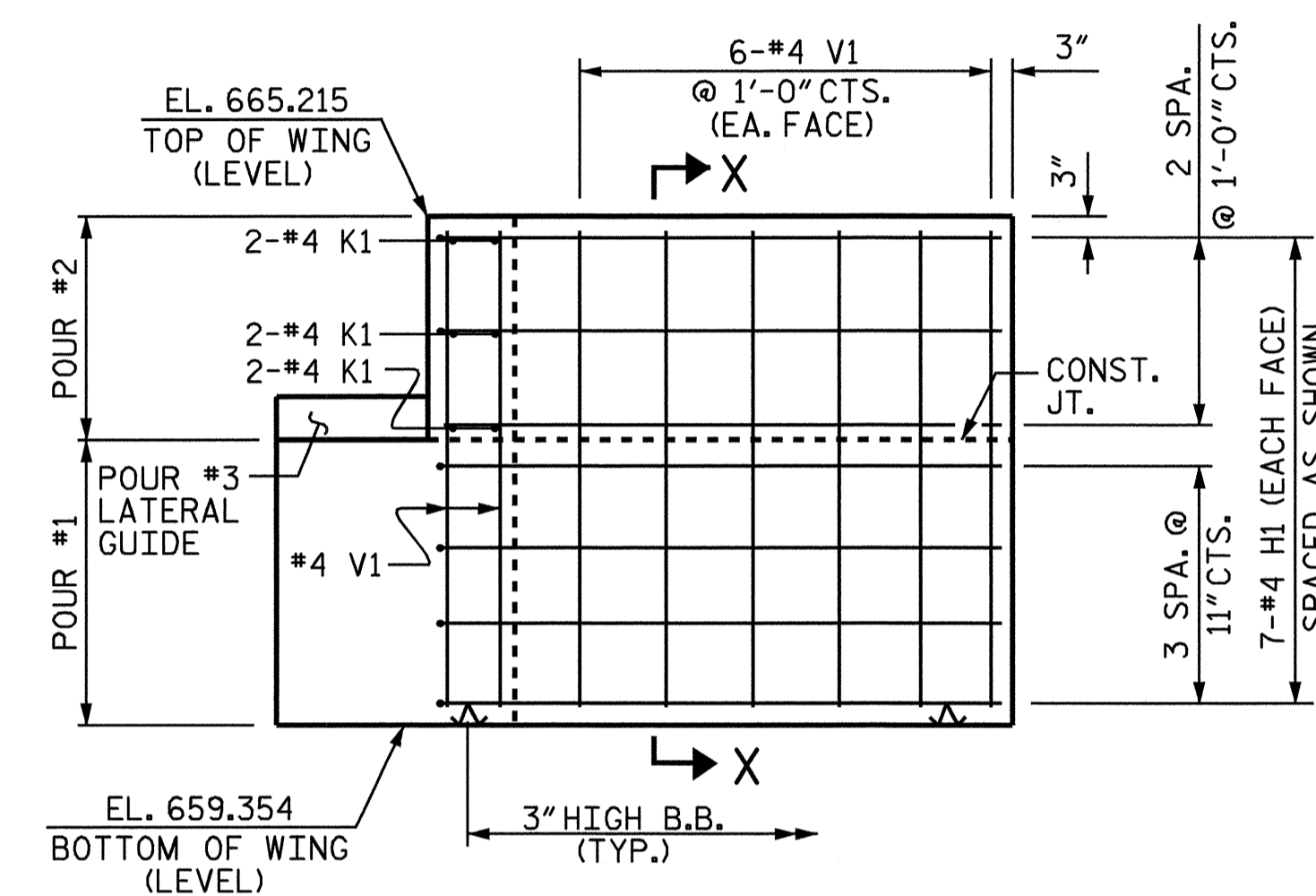
PLAN OF WING W1



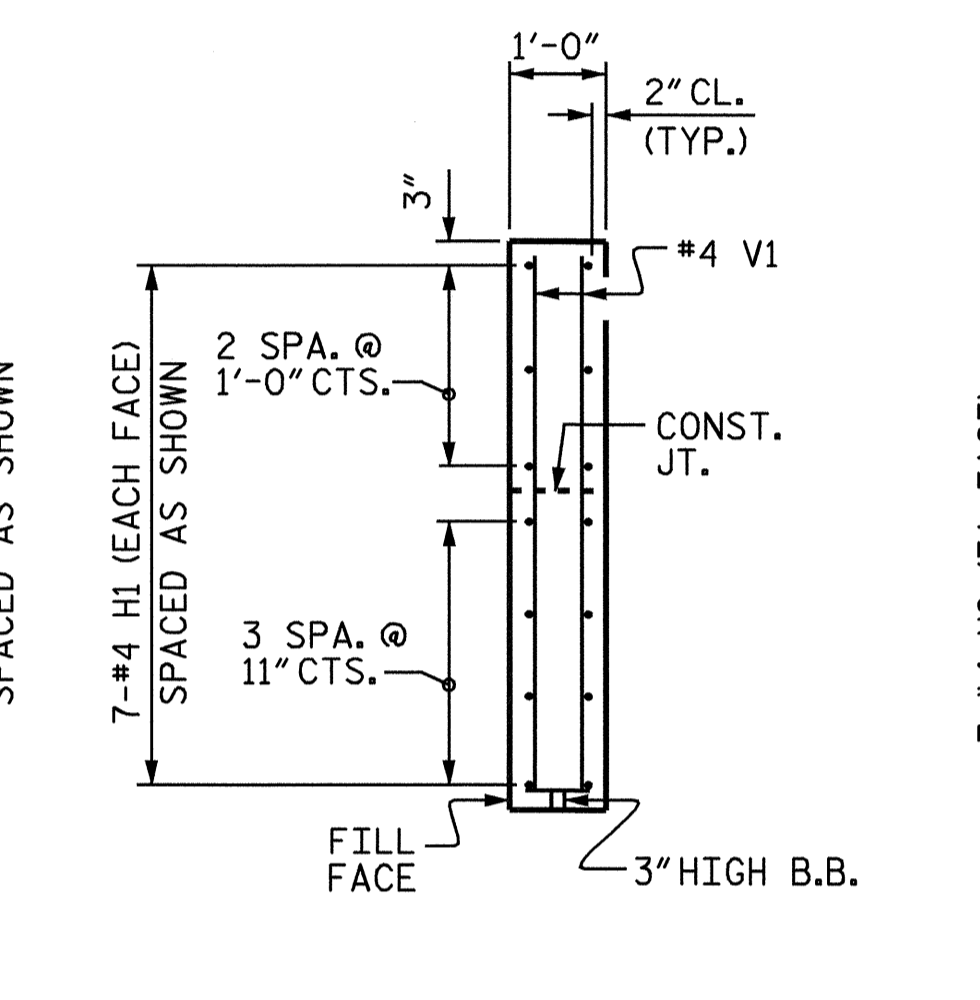
SECTION Y-Y



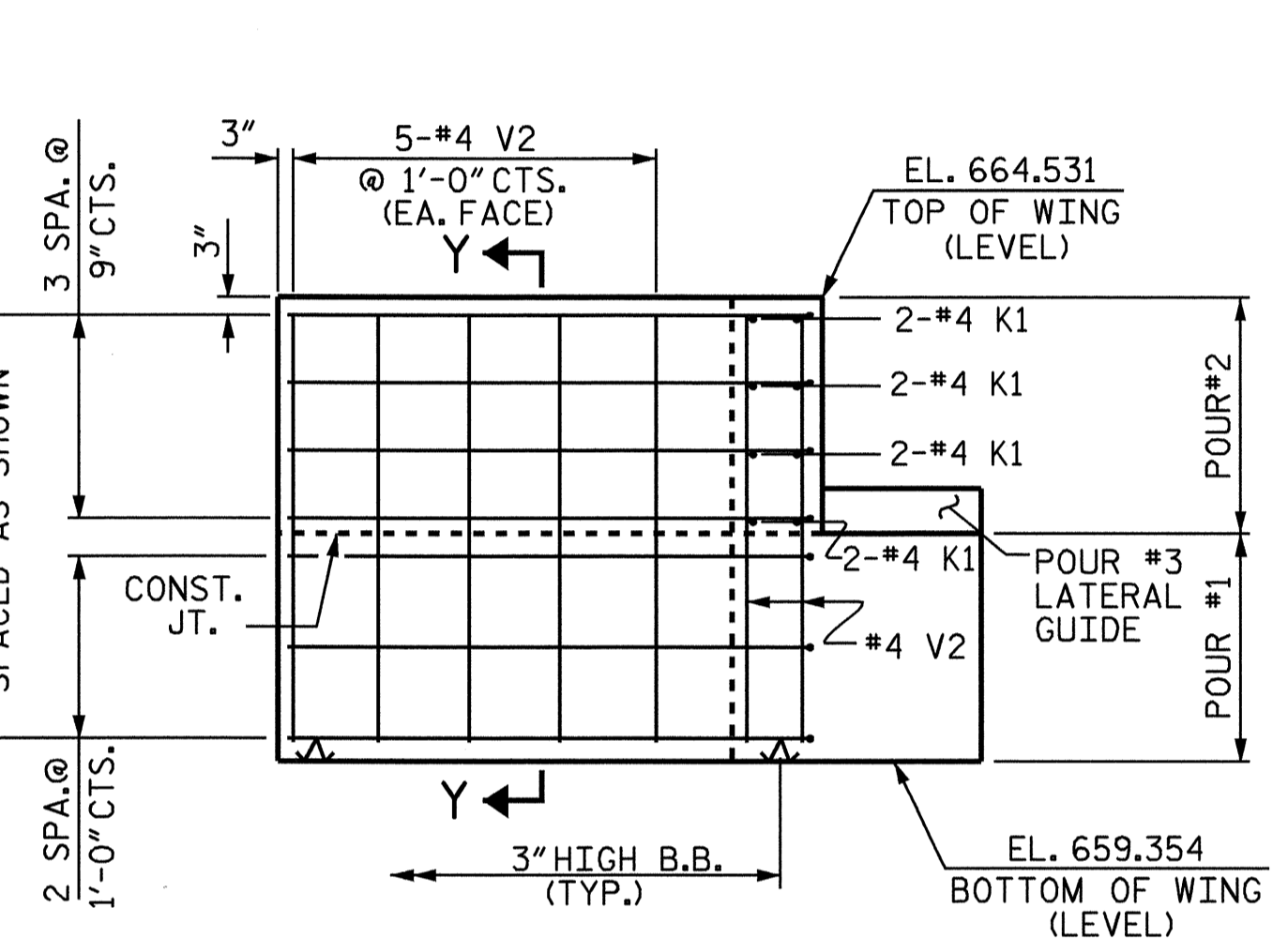
PLAN OF WING W2



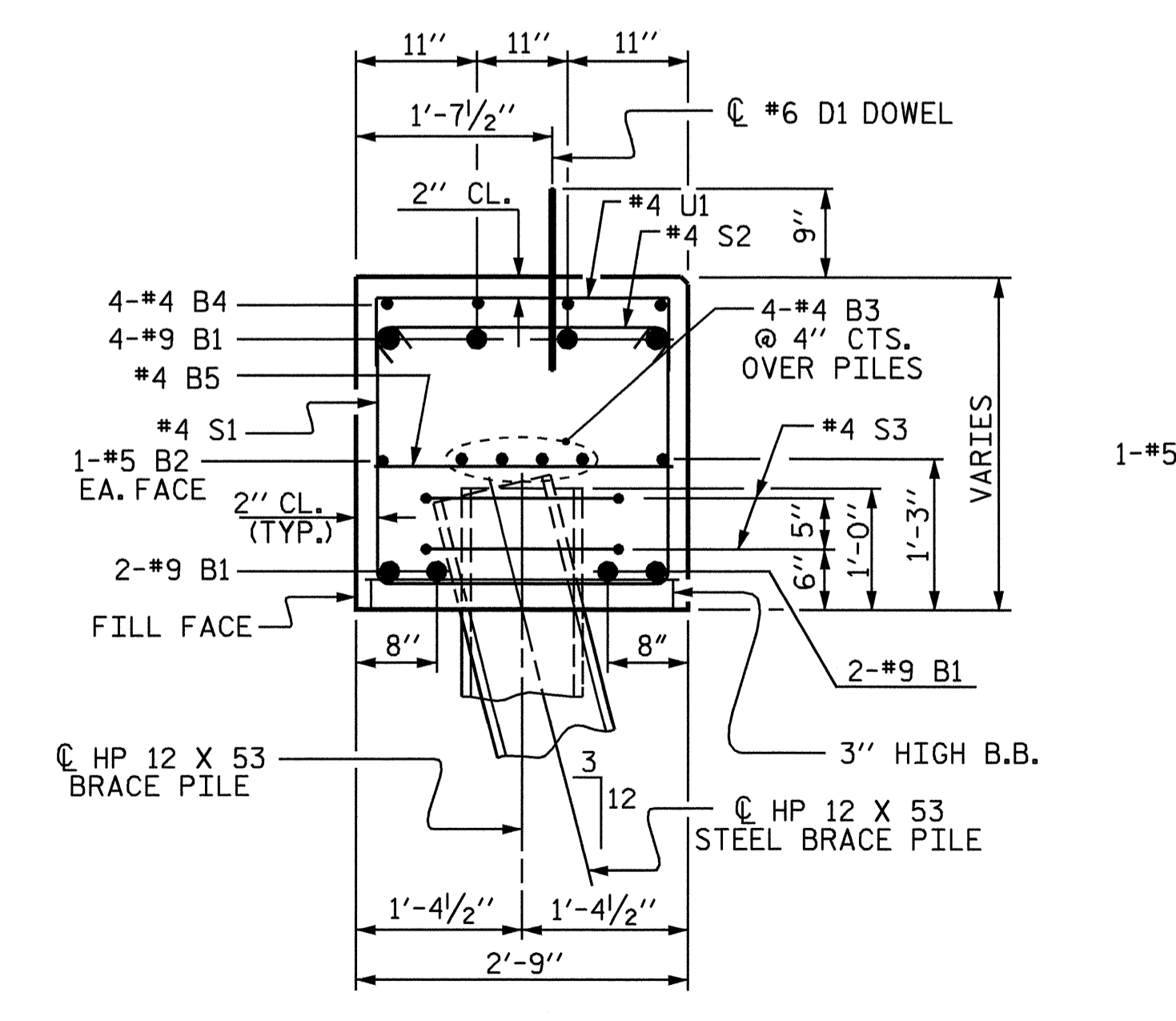
ELEVATION OF WING W1



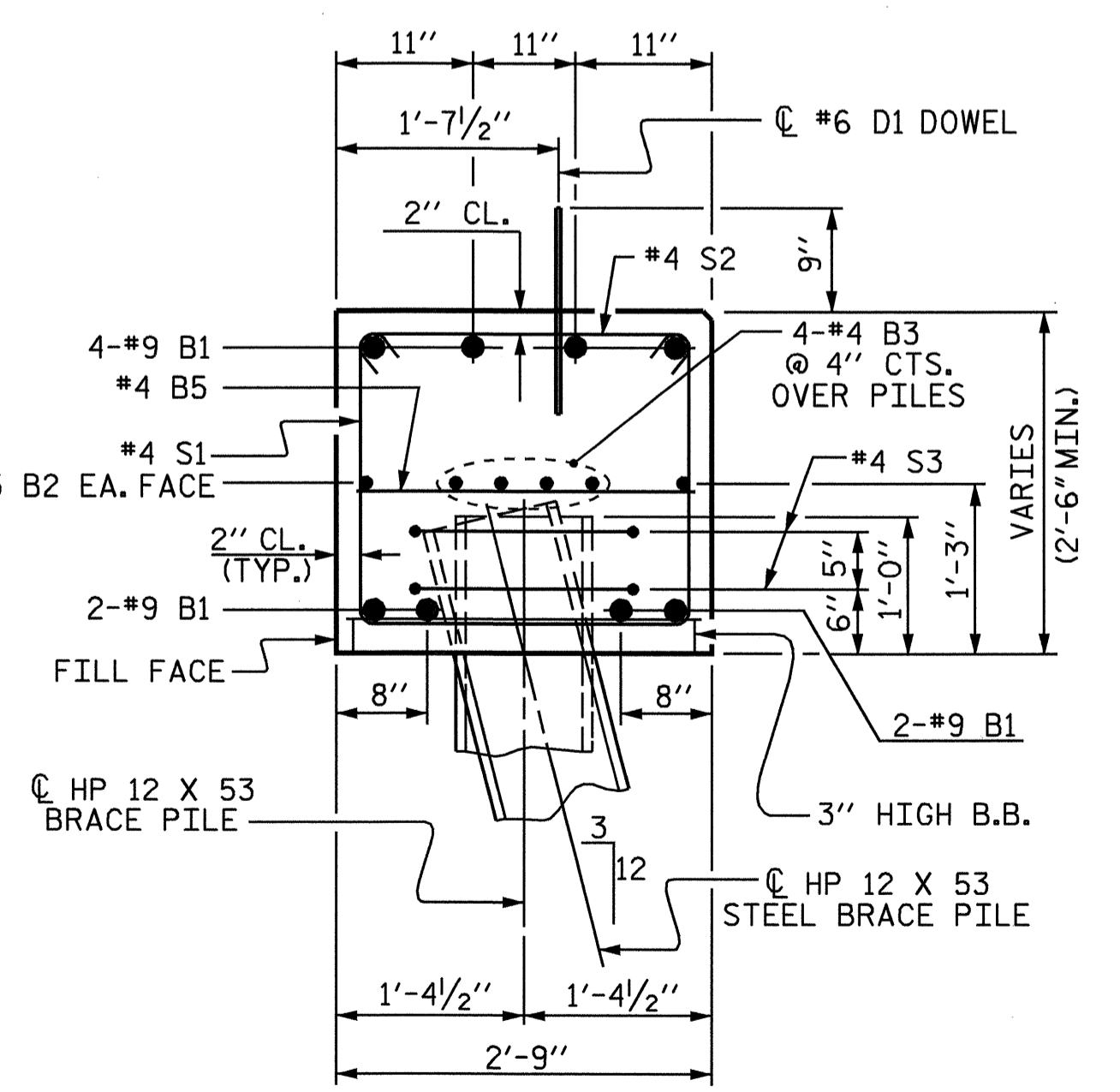
SECTION X-X



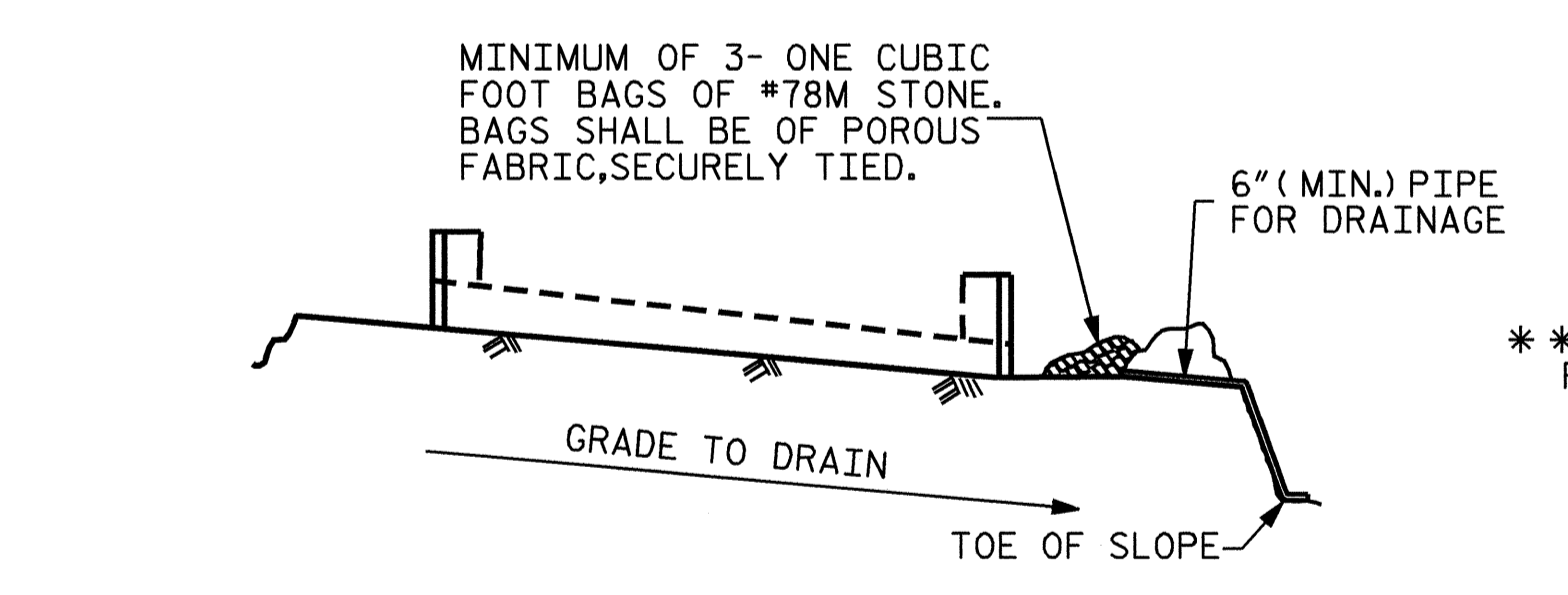
ELEVATION OF WING W2



SECTION A-A



SECTION B-B

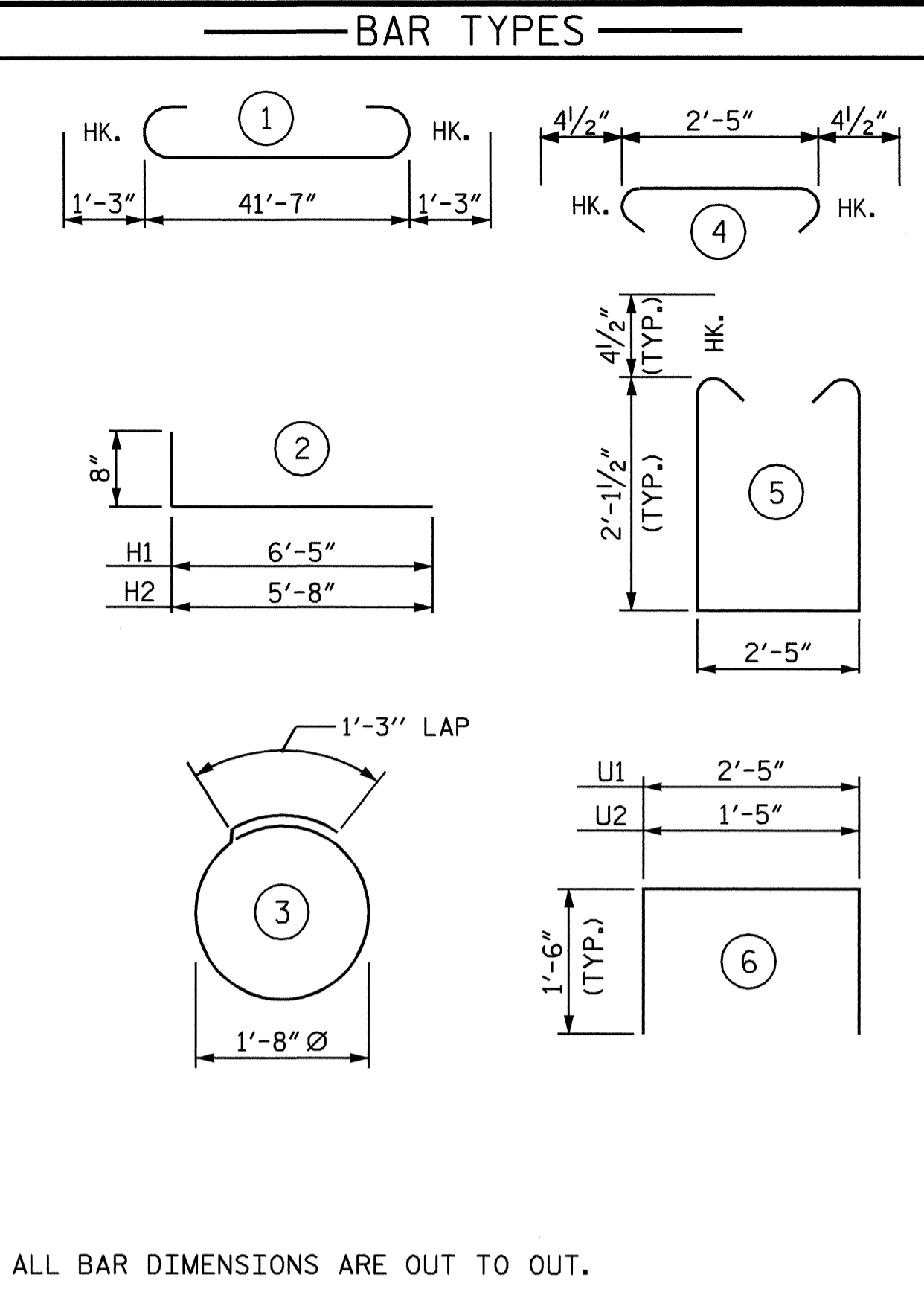


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR EFFECTIVENESS.

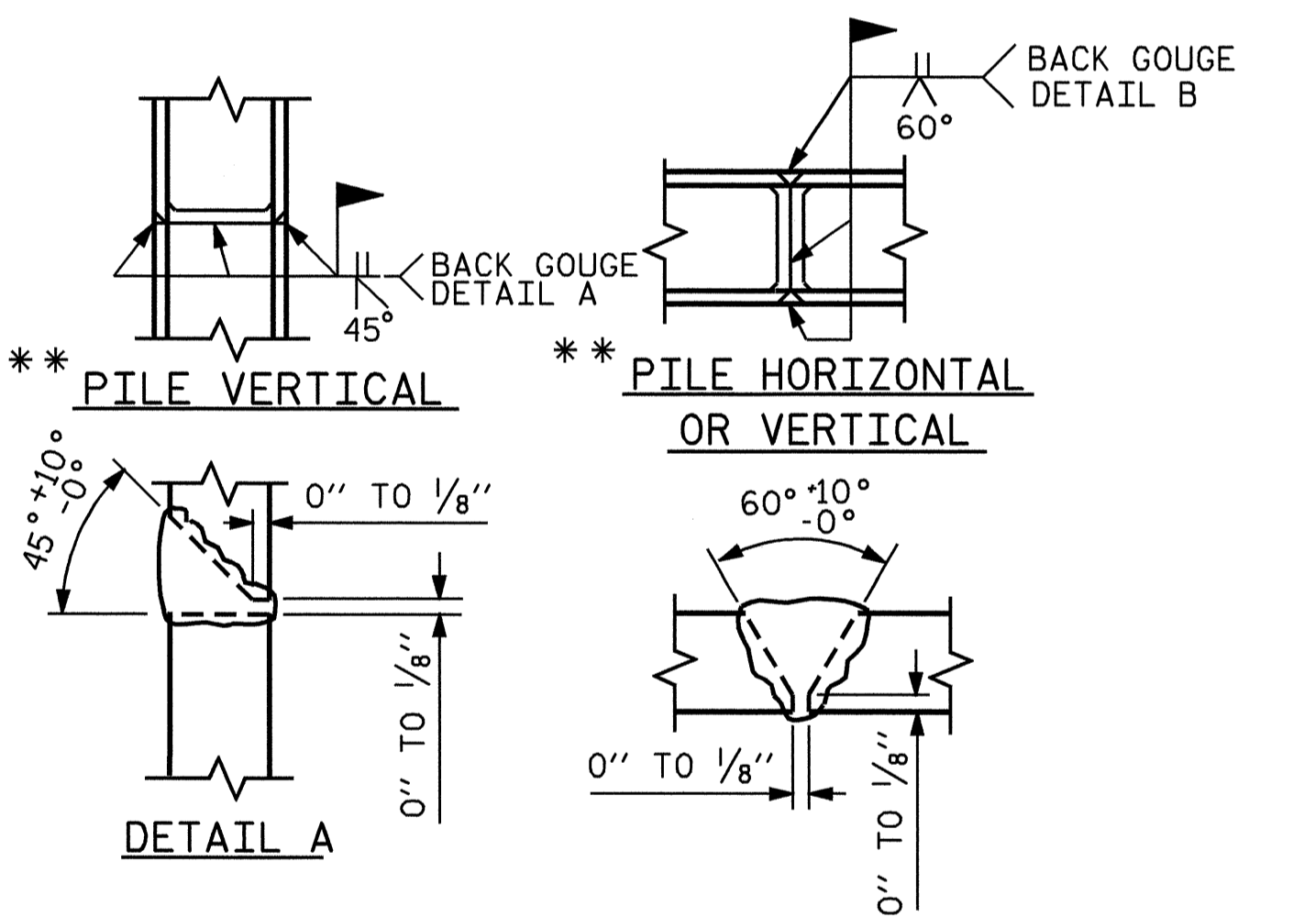
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT



ALL BAR DIMENSIONS ARE OUT TO OUT.

| BILL OF MATERIAL                   |     |      |      |        |              |
|------------------------------------|-----|------|------|--------|--------------|
| END BENT #1                        |     |      |      |        |              |
| BAR                                | NO. | SIZE | TYPE | LENGTH | WEIGHT       |
| B1                                 | 8   | #9   |      | 44'-1" | 1199         |
| B2                                 | 2   | #5   | STR  | 41'-8" | 87           |
| B3                                 | 8   | #4   | STR  | 22'-1" | 118          |
| B4                                 | 4   | #4   | STR  | 28'-3" | 75           |
| B5                                 | 10  | #4   | STR  | 2'-5"  | 16           |
| D1                                 | 24  | #6   | STR  | 1'-6"  | 54           |
| H1                                 | 14  | #4   |      | 7'-1"  | 66           |
| H2                                 | 14  | #4   |      | 6'-4"  | 59           |
| K1                                 | 14  | #4   | STR  | 2'-9"  | 26           |
| S1                                 | 37  | #4   |      | 7'-5"  | 183          |
| S2                                 | 37  | #4   |      | 3'-2"  | 78           |
| S3                                 | 16  | #4   |      | 6'-6"  | 69           |
| U1                                 | 19  | #4   |      | 5'-5"  | 69           |
| U2                                 | 4   | #4   |      | 4'-5"  | 12           |
| V1                                 | 20  | #4   | STR  | 5'-6"  | 73           |
| V2                                 | 18  | #4   | STR  | 4'-10" | 58           |
| REINFORCING STEEL                  |     |      |      |        | LBS 2242     |
| CLASS A CONCRETE BREAKDOWN         |     |      |      |        |              |
| POUR #1: CAP & LOWER PART OF WINGS |     |      |      |        | CU. YD. 13.7 |
| POUR #2: UPPER PART OF WINGS       |     |      |      |        | CU. YD. 1.6  |
| POUR #3: LATERAL GUIDES            |     |      |      |        | CU. YD. 0.1  |
| TOTAL                              |     |      |      |        | CU. YD. 15.4 |
| HP 12 x 53 STEEL PILES             |     |      |      |        |              |
| NO. 8                              |     |      |      |        | LIN. FT. 160 |

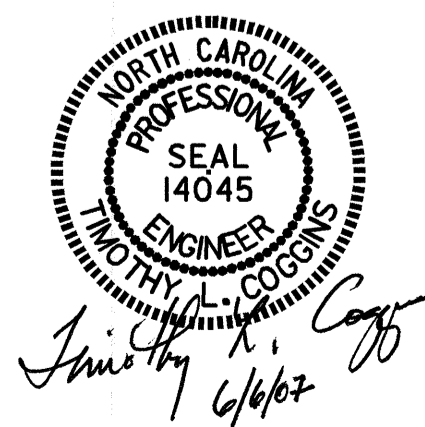


PILE SPLICE DETAILS

PROJECT NO. B-4280  
 STOKES COUNTY  
 STATION: 25+22.00 -L-

| REVISIONS |     |       |     |     |       |
|-----------|-----|-------|-----|-----|-------|
| NO.       | BY: | DATE: | NO. | BY: | DATE: |
| 1         |     |       | 3   |     |       |
| 2         |     |       | 4   |     |       |

|                 |
|-----------------|
| SHEET NO. S-44  |
| TOTAL SHEETS 51 |



DRAWN BY: B.N.BARODAWALA DATE: 5-31-06  
 CHECKED BY: PEGGY ADKINS DATE: 6-06

**NOTES**

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

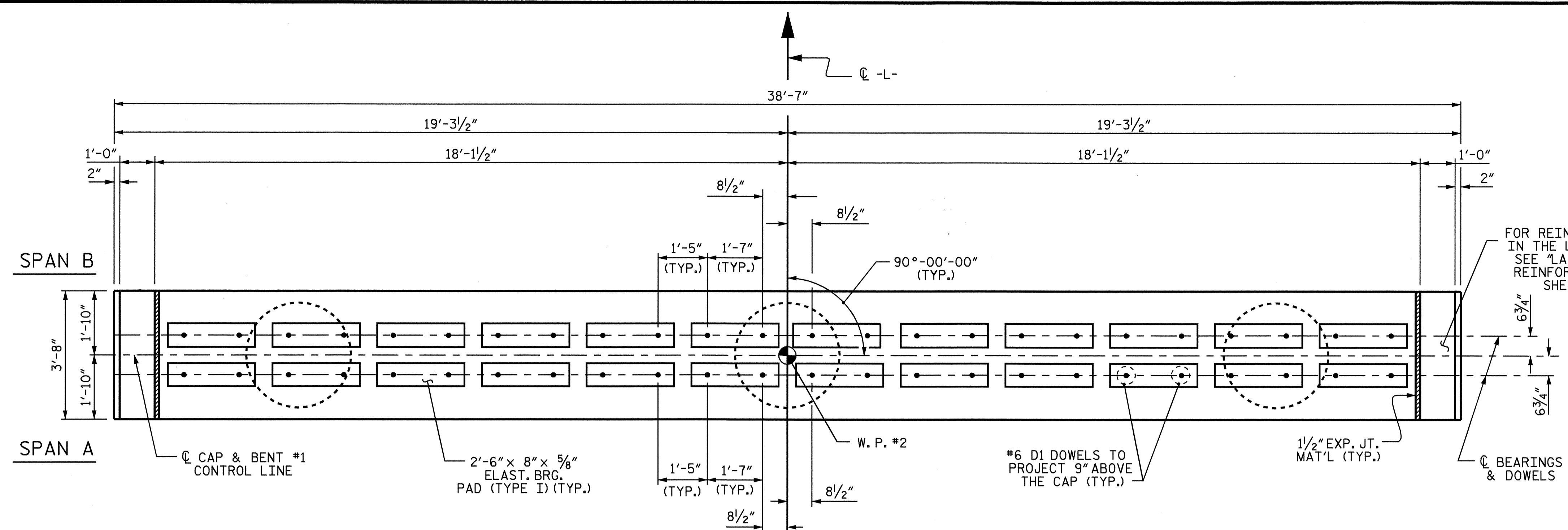
THE LATERAL GUIDE AT EACH END OF THE CAP IS NOT TO BE POURED UNTIL AFTER THE CORED SLAB UNITS ARE IN PLACE.

HOOKS ON "V" BARS MAY BE TURNED AS NECESSARY FOR PLACING REINFORCING STEEL.

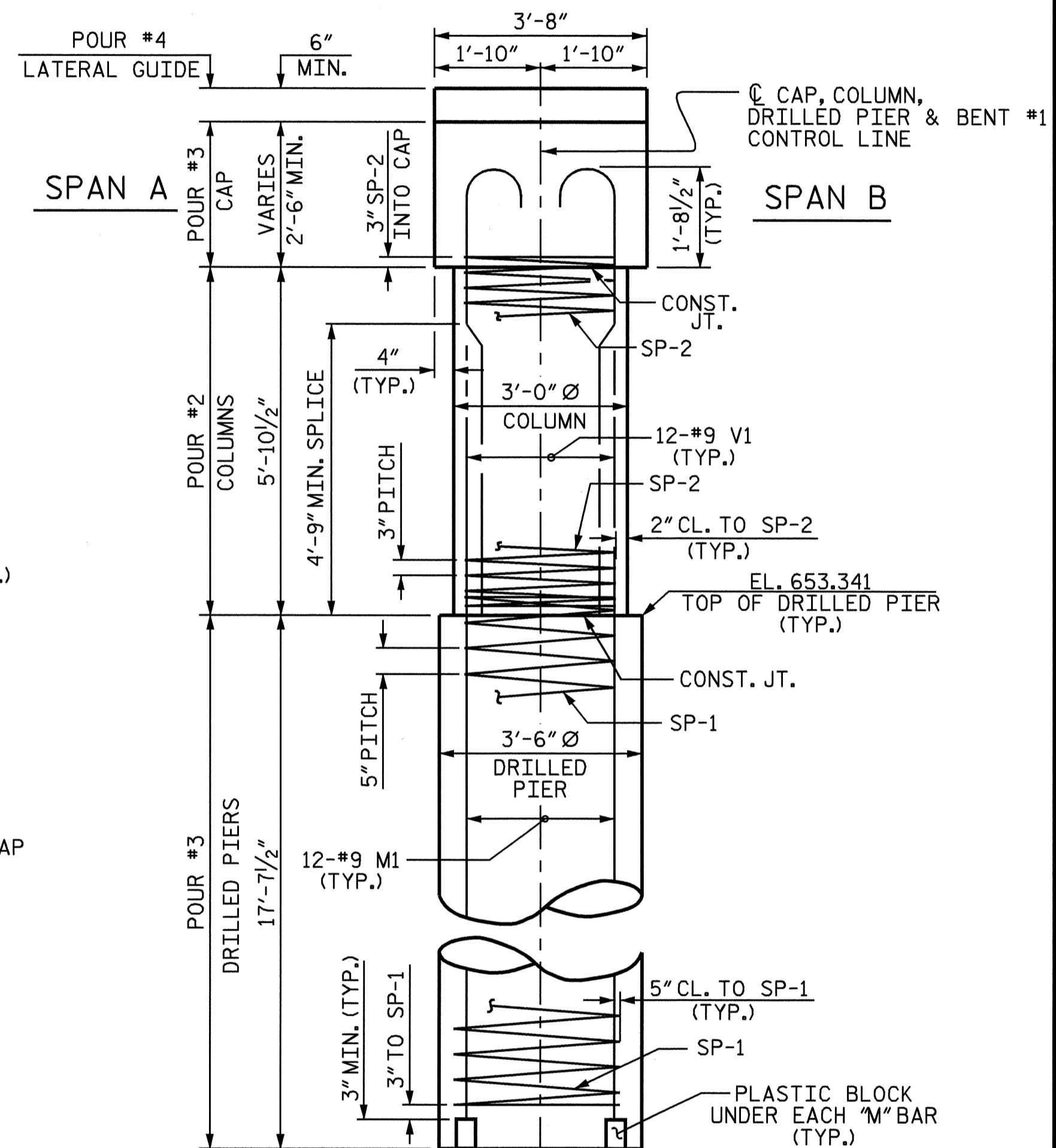
ALL STEEL IN THE DRILLED PIERS IS INCLUDED IN THE PAY ITEMS FOR REINFORCING STEEL AND SPIRAL COLUMN REINFORCING STEEL.

THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE LONGITUDINAL REINFORCEMENT FOR THE DRILLED PIERS IS DETAILED WITH 3'-0" OF EXTRA LENGTH.

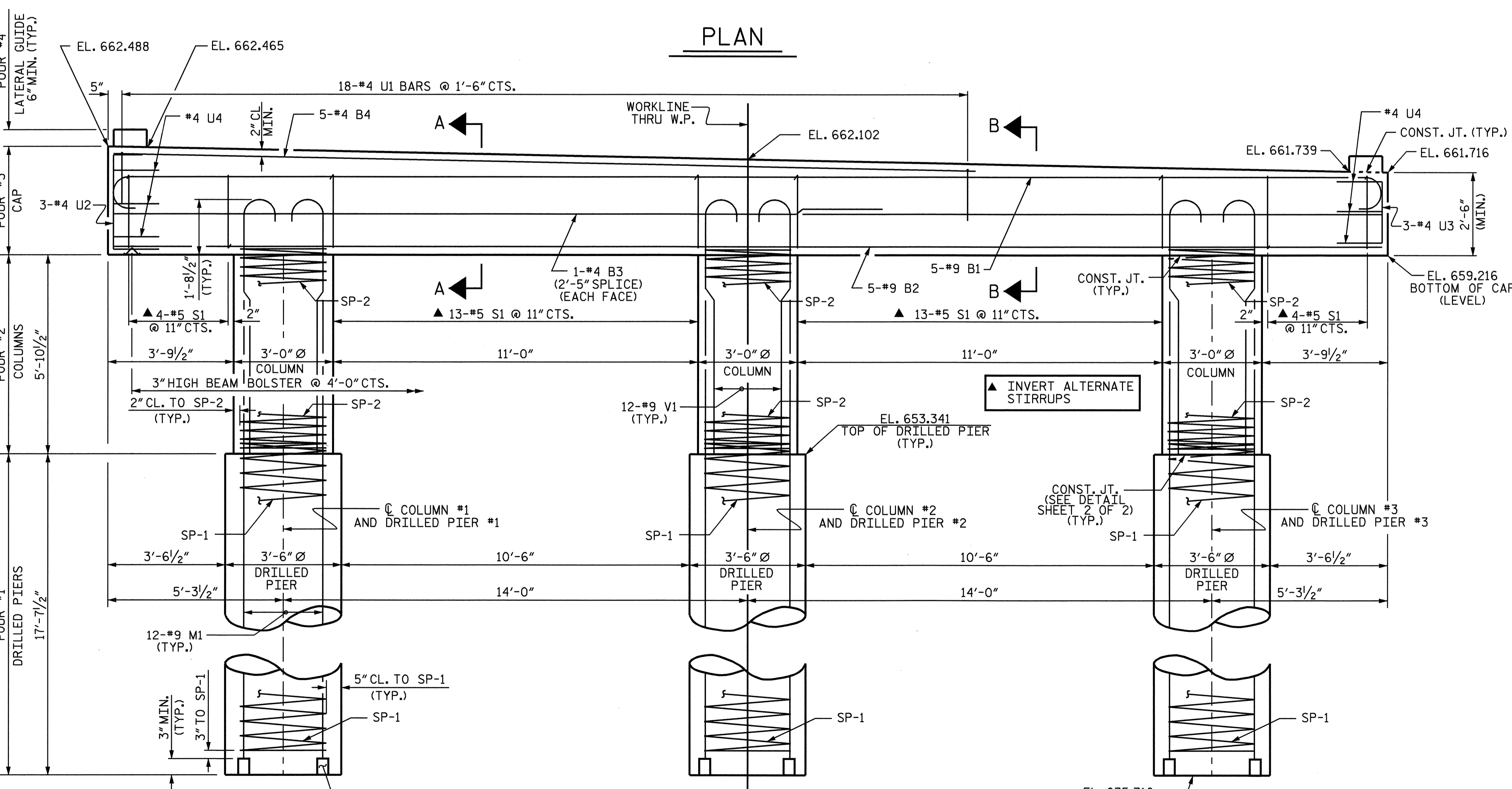
THE LOCATION OF THE CONSTRUCTION JOINT IN THE DRILLED PIER IS BASED ON AN APPROXIMATE GROUND LINE ELEVATION. IF THE CONSTRUCTION JOINT IS ABOVE THE ACTUAL GROUND LINE ELEVATION, THE CONTRACTOR SHALL PLACE THE CONSTRUCTION JOINT 1'-0" BELOW THE GROUND LINE.



**PLAN**



**END ELEVATION**

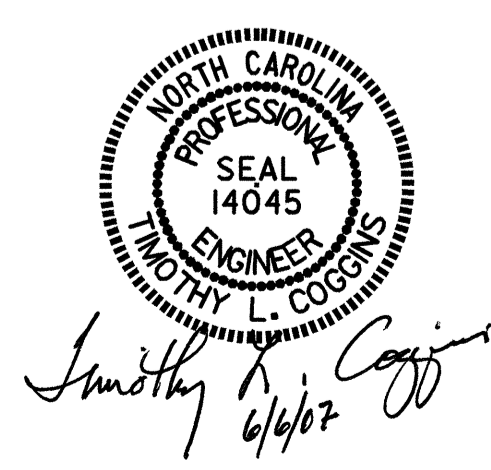


**ELEVATION**

PROJECT NO. **B-4280**  
**STOKES** COUNTY  
 STATION: **25+22.00 -L-**

SHEET 1 OF 2

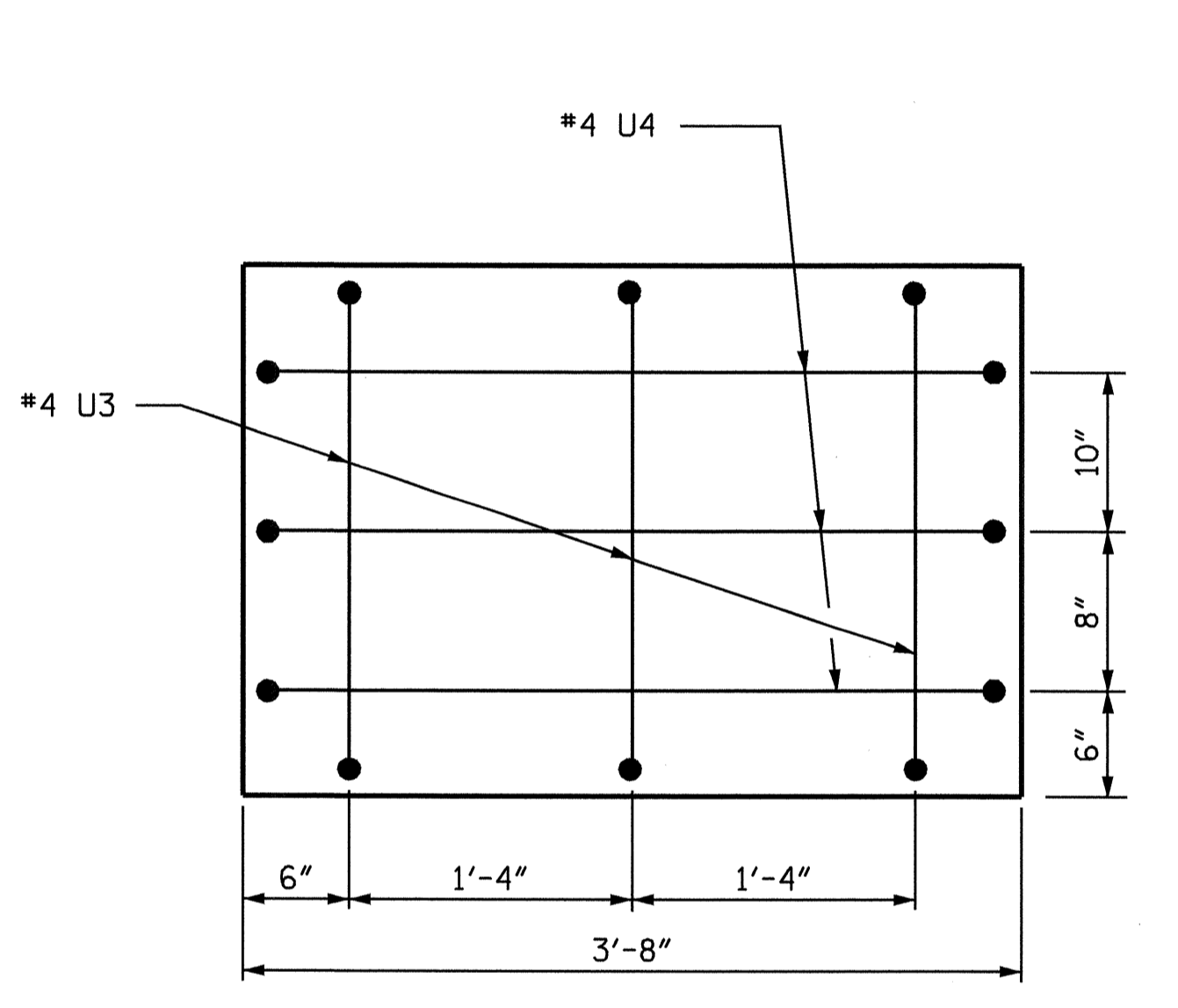
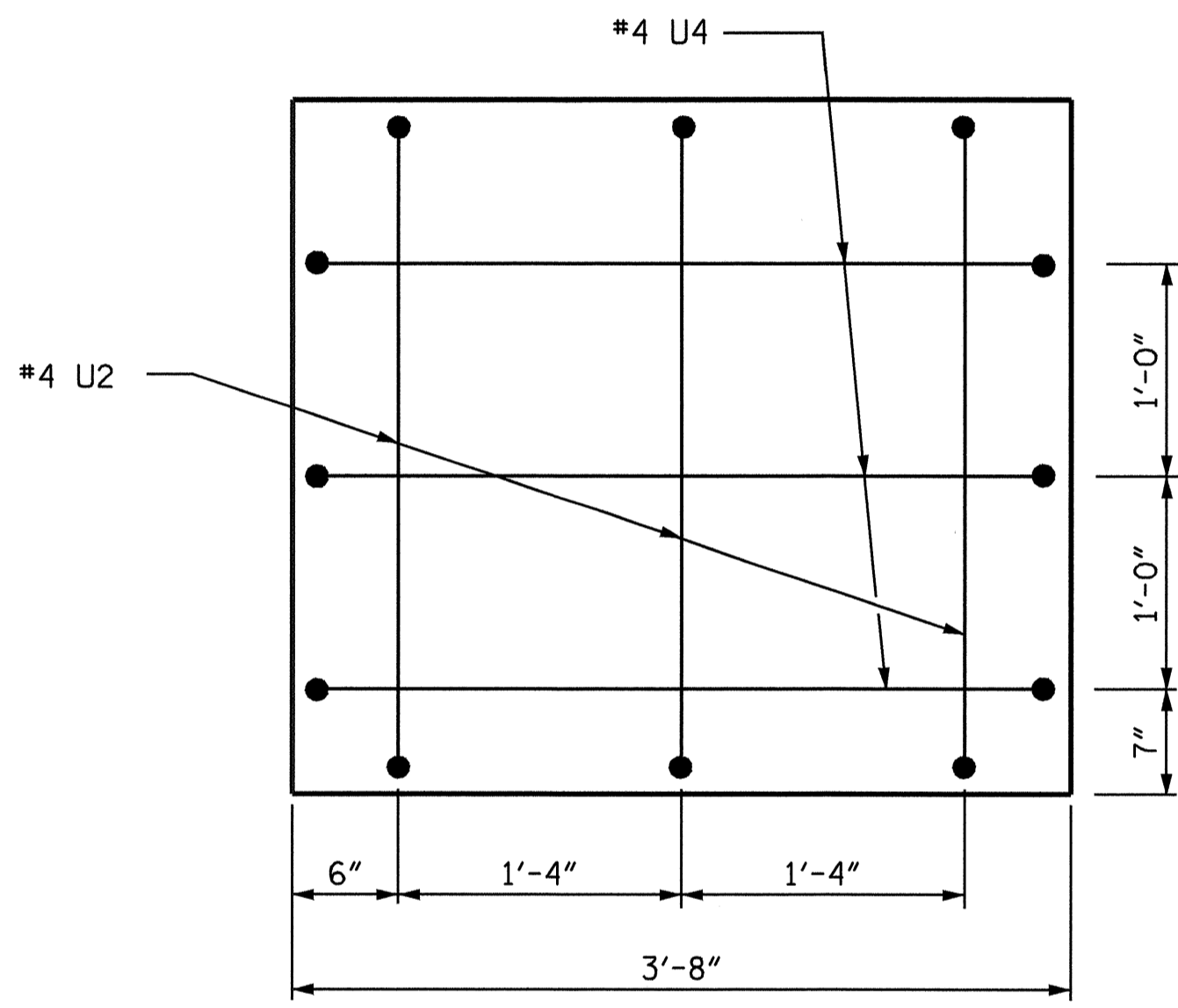
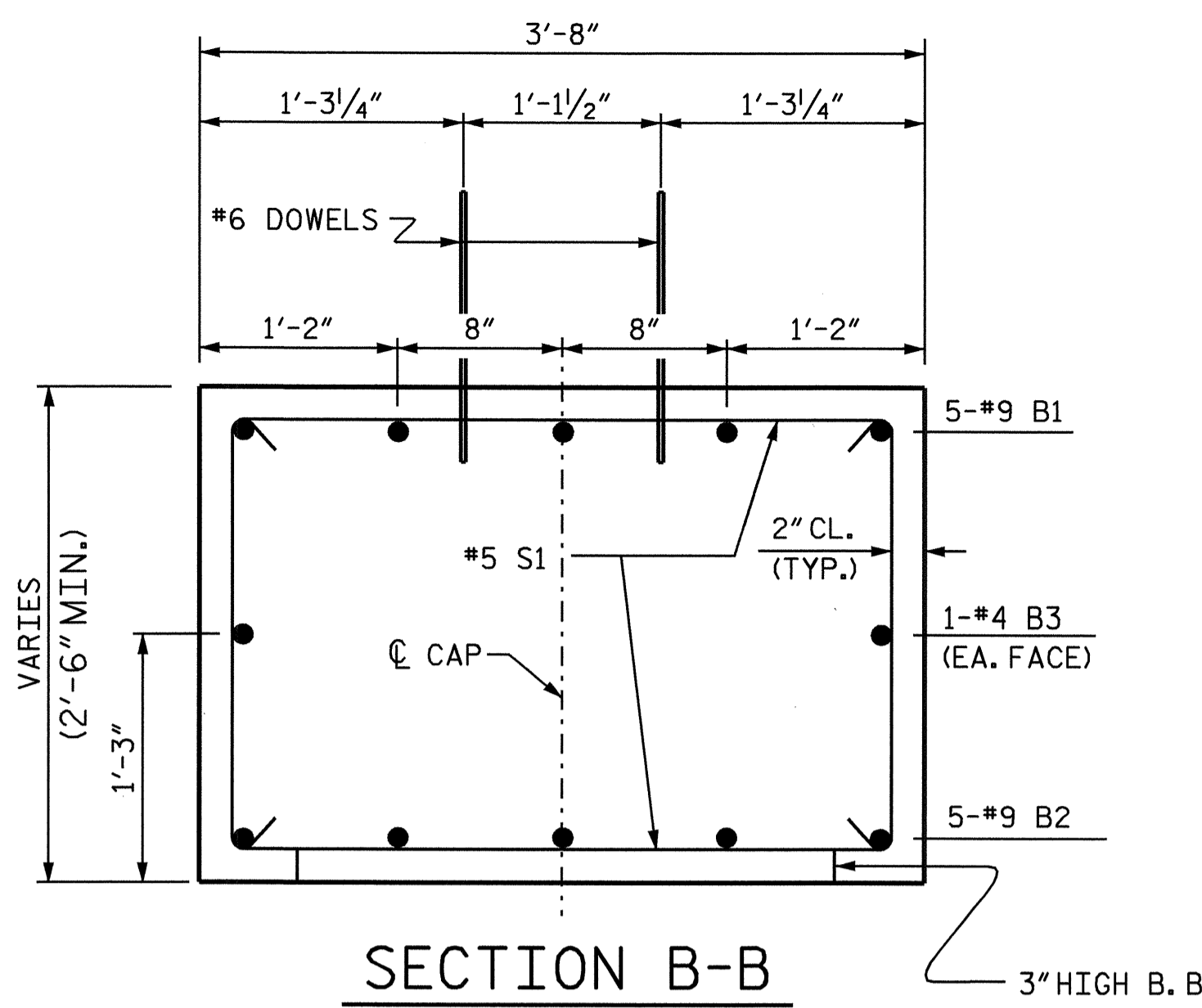
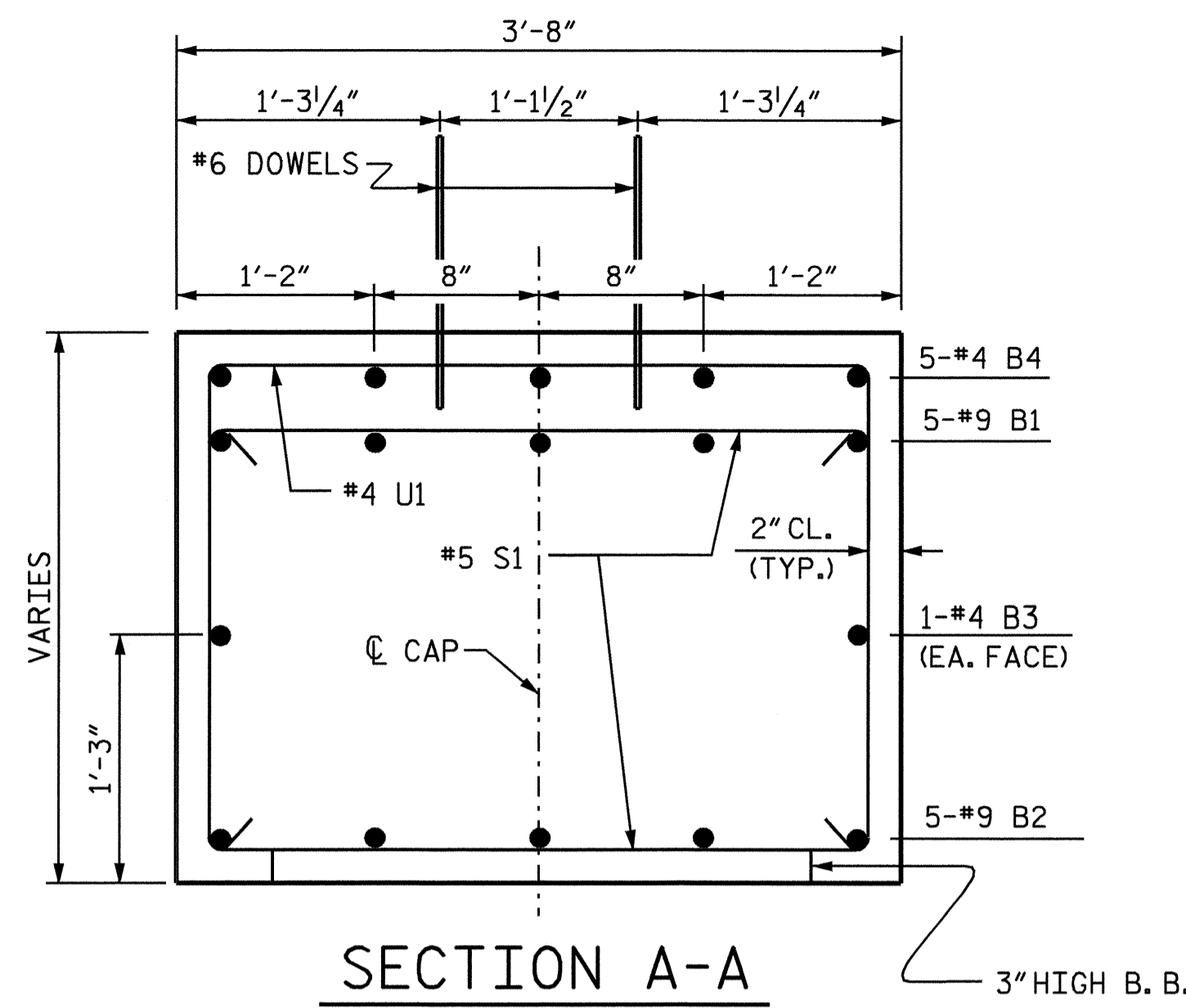
|  |     |       |     |     |                    |
|--|-----|-------|-----|-----|--------------------|
| STATE OF NORTH CAROLINA<br>DEPARTMENT OF TRANSPORTATION<br>RALEIGH |     |       |     |     |                    |
| SUBSTRUCTURE<br>BENT #1  |     |       |     |     |                    |
| REVISIONS  |     |       |     |     | SHEET NO.          |
| NO.  | BY: | DATE: | NO. | BY: | DATE:              |
| 1  |     |       | 3   |     |                    |
| 2  |     |       | 4   |     |                    |
|  |     |       |     |     | TOTAL SHEETS<br>51 |



DRAWN BY: B.N.BARODAWALA DATE: 5-31-06  
 CHECKED BY: PEGGY ADKINS DATE: 6-06

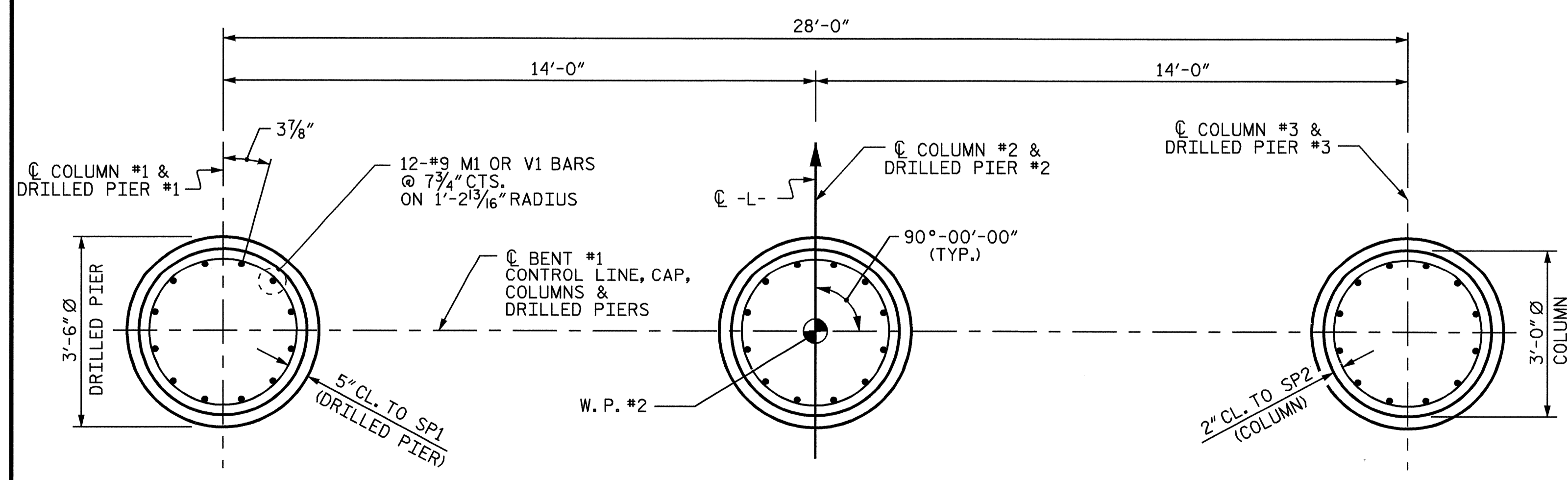
(DIMENSIONS AND REINFORCING STEEL ARE TYPICAL FOR EACH COLUMN & DRILLED PIER)





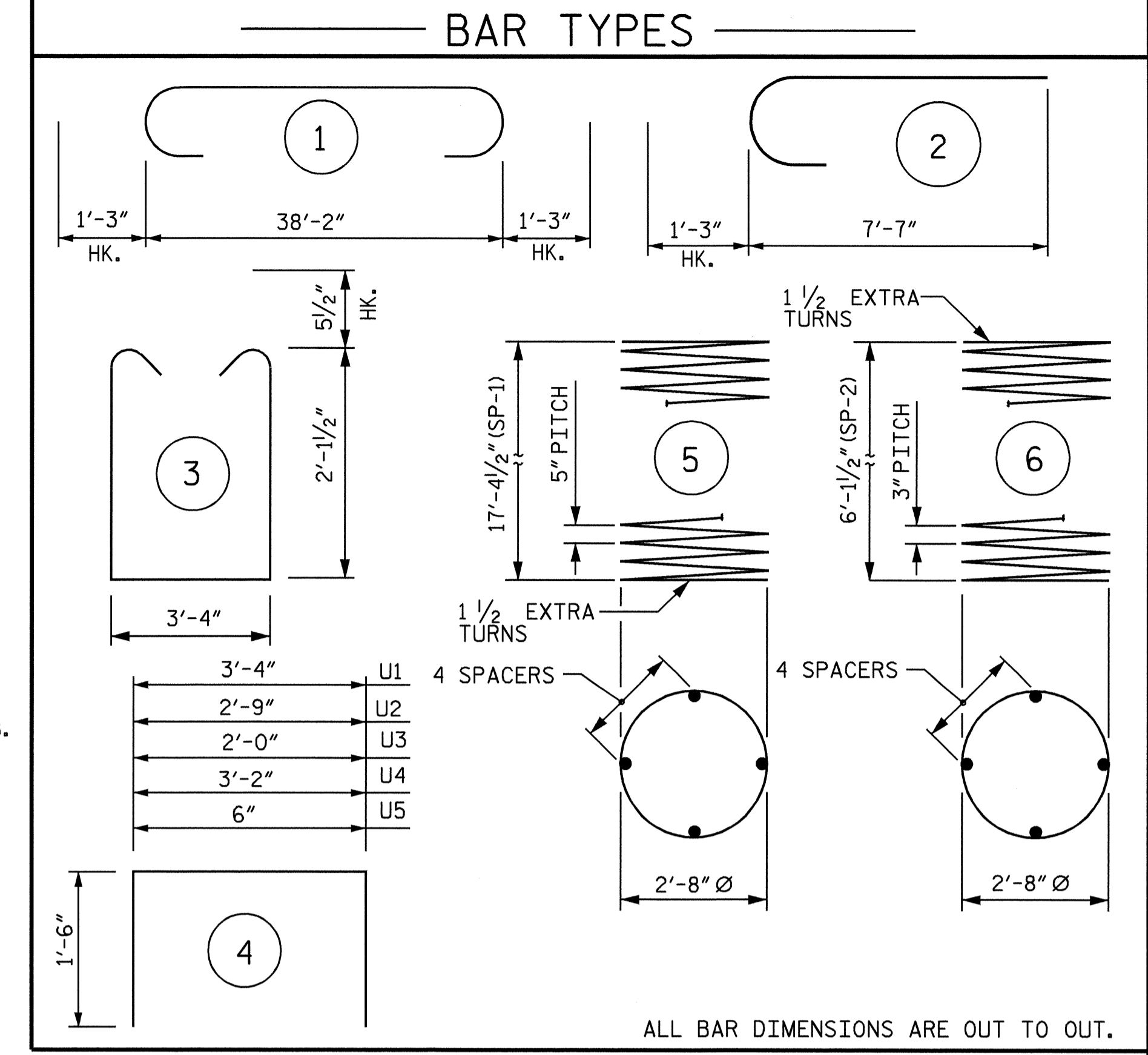
LEFT END VIEW

RIGHT END VIEW

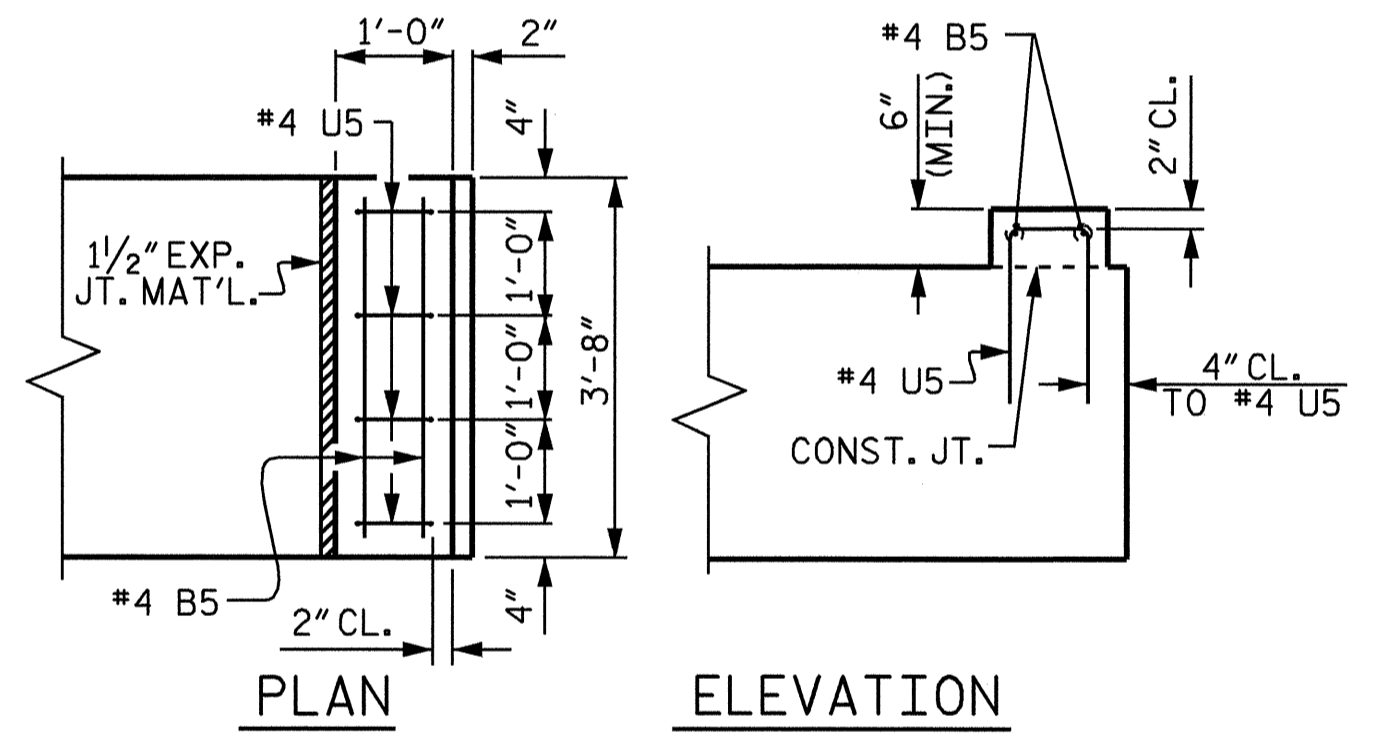


PLAN OF DRILLED PIERS AND COLUMNS  
(DIM. & REINFORCING STEEL ARE TYPICAL FOR EACH COLUMN & DRILLED PIER)

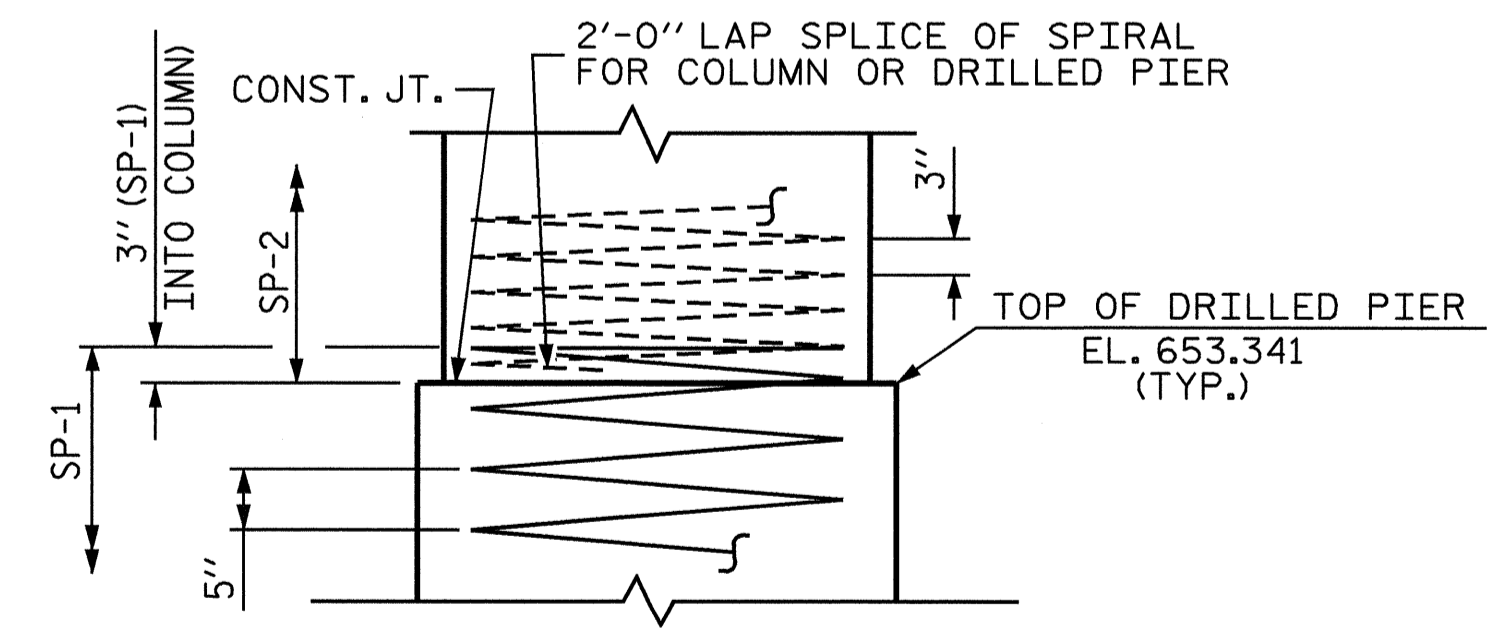
DRAWN BY: B.N.BARODAWALA DATE: 5-31-06  
CHECKED BY: PEGGY ADKINS DATE: 6-06



ALL BAR DIMENSIONS ARE OUT TO OUT.



LATERAL GUIDE REINFORCING DETAIL  
(EACH END SIMILAR)



CONSTRUCTION JOINT DETAIL

BILL OF MATERIAL

BENT #1

| BAR | NO. | SIZE | TYPE | LENGTH | WEIGHT |
|-----|-----|------|------|--------|--------|
| B1  | 5   | #9   | 1    | 40'-8" | 691    |
| B2  | 5   | #9   | STR  | 38'-3" | 650    |
| B3  | 4   | #4   | STR  | 20'-4" | 54     |
| B4  | 5   | #4   | STR  | 26'-0" | 87     |
| B5  | 4   | #4   | STR  | 3'-4"  | 9      |
| D1  | 48  | #6   | STR  | 1'-6"  | 108    |
| M1  | 36  | #9   | STR  | 25'-2" | 3080   |
| S1  | 34  | #5   | 3    | 8'-6"  | 301    |
| U1  | 18  | #4   | 4    | 6'-4"  | 76     |
| U2  | 3   | #4   | 4    | 5'-9"  | 12     |
| U3  | 3   | #4   | 4    | 5'-0"  | 10     |
| U4  | 6   | #4   | 4    | 6'-2"  | 25     |
| U5  | 8   | #4   | 4    | 3'-6"  | 19     |
| V1  | 36  | #9   | 2    | 8'-10" | 1081   |

| REINFORCING STEEL |   |   |   |         | 6203 |
|-------------------|---|---|---|---------|------|
| SP-1              | 3 | * | 5 | 355'-4" | 1112 |
| SP-2              | 3 | * | 6 | 214'-7" | 430  |

| SPIRAL COLUMN REINFORCING STEEL |  |  |  |  | 1542 |
|---------------------------------|--|--|--|--|------|
|---------------------------------|--|--|--|--|------|

| CLASS A CONCRETE BREAKDOWN     |  |  |         |      |
|--------------------------------|--|--|---------|------|
| POUR #2 COLUMNS                |  |  | CU. YD. | 4.6  |
| POUR #3 CAP                    |  |  | CU. YD. | 15.1 |
| POUR #4 LATERAL GUIDES         |  |  | CU. YD. | 0.1  |
| TOTAL CLASS A CONCRETE CU. YD. |  |  |         | 19.8 |

| DRILLED PIER CONCRETE |  |  |         |      |
|-----------------------|--|--|---------|------|
| POUR #1 DRILLED PIERS |  |  | CU. YD. | 18.8 |

|                                   |          |       |
|-----------------------------------|----------|-------|
| 3'-6" Ø DRILLED PIERS NOT IN SOIL | LIN. FT. | 15.00 |
| 3'-6" Ø DRILLED PIERS IN SOIL     | LIN. FT. | 37.88 |

|                |     |   |
|----------------|-----|---|
| SID INSPECTION | EA. | 1 |
|----------------|-----|---|

|                         |     |   |
|-------------------------|-----|---|
| CROSSHOLE SONIC LOGGING | EA. | 1 |
|-------------------------|-----|---|

|           |          |       |
|-----------|----------|-------|
| CSL TUBES | LIN. FT. | 241.5 |
|-----------|----------|-------|

\* THE SP-2 SPIRAL REINFORCING STEEL SHALL BE W20 OR D-20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR.  
\*\* THE SP-1 SPIRAL REINFORCING STEEL SHALL BE W31 OR D-31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR.

PROJECT NO. B-4280  
STOKES COUNTY  
STATION: 25+22.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

SUBSTRUCTURE  
BENT #1



Timothy L. Cozzani  
6/6/07

| REVISIONS |     |       |     |     |       | SHEET NO.    |
|-----------|-----|-------|-----|-----|-------|--------------|
| NO.       | BY: | DATE: | NO. | BY: | DATE: | S-46         |
| 1         |     |       | 3   |     |       | TOTAL SHEETS |
| 2         |     |       | 4   |     |       | 51           |

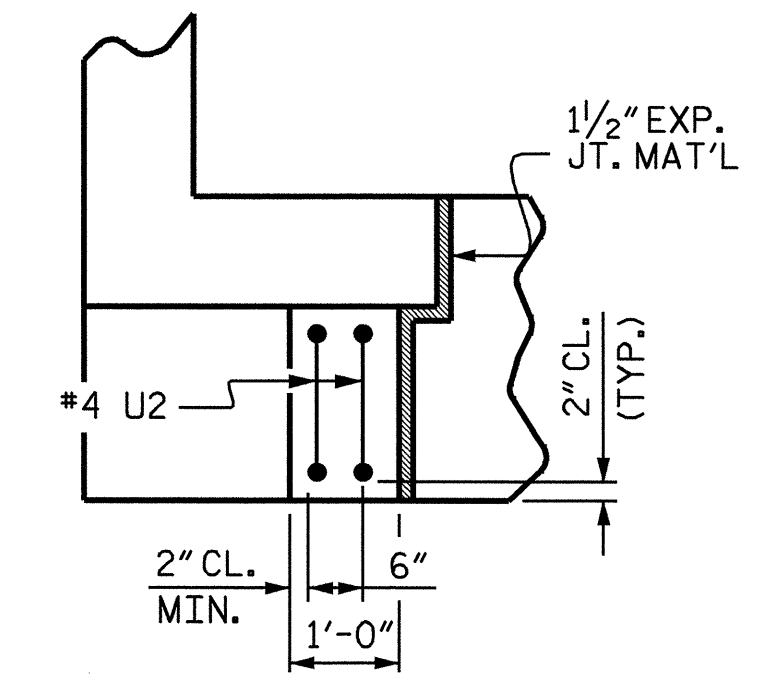
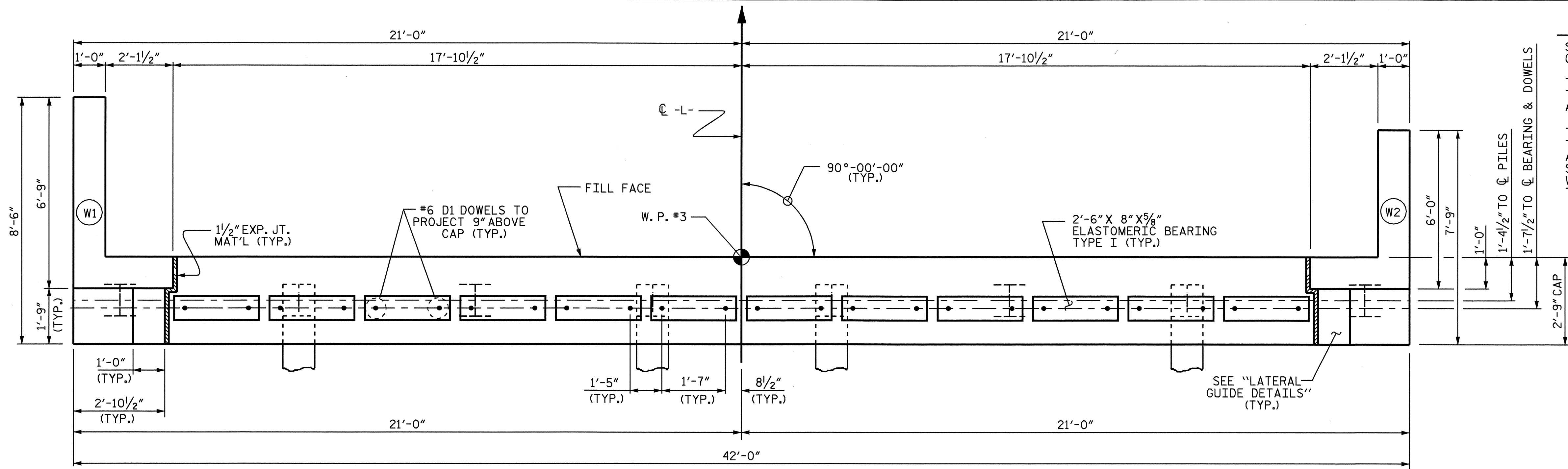
STR. #2

**NOTES**

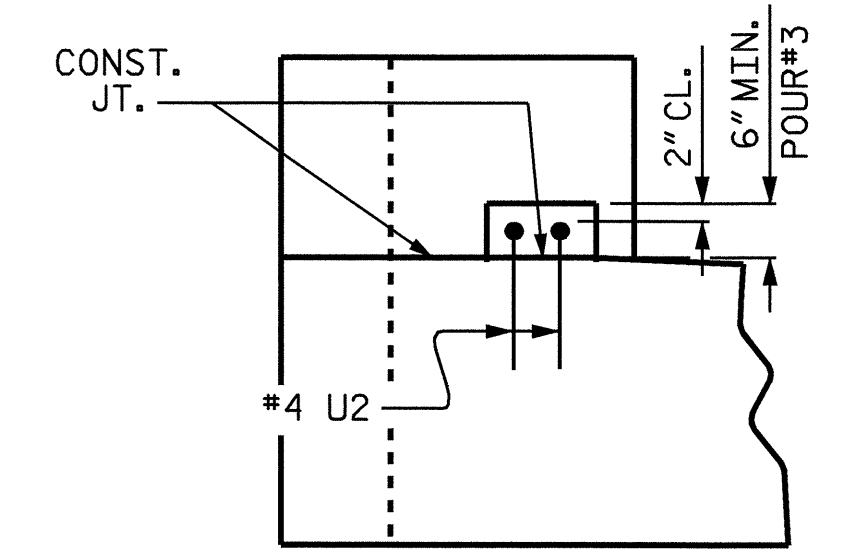
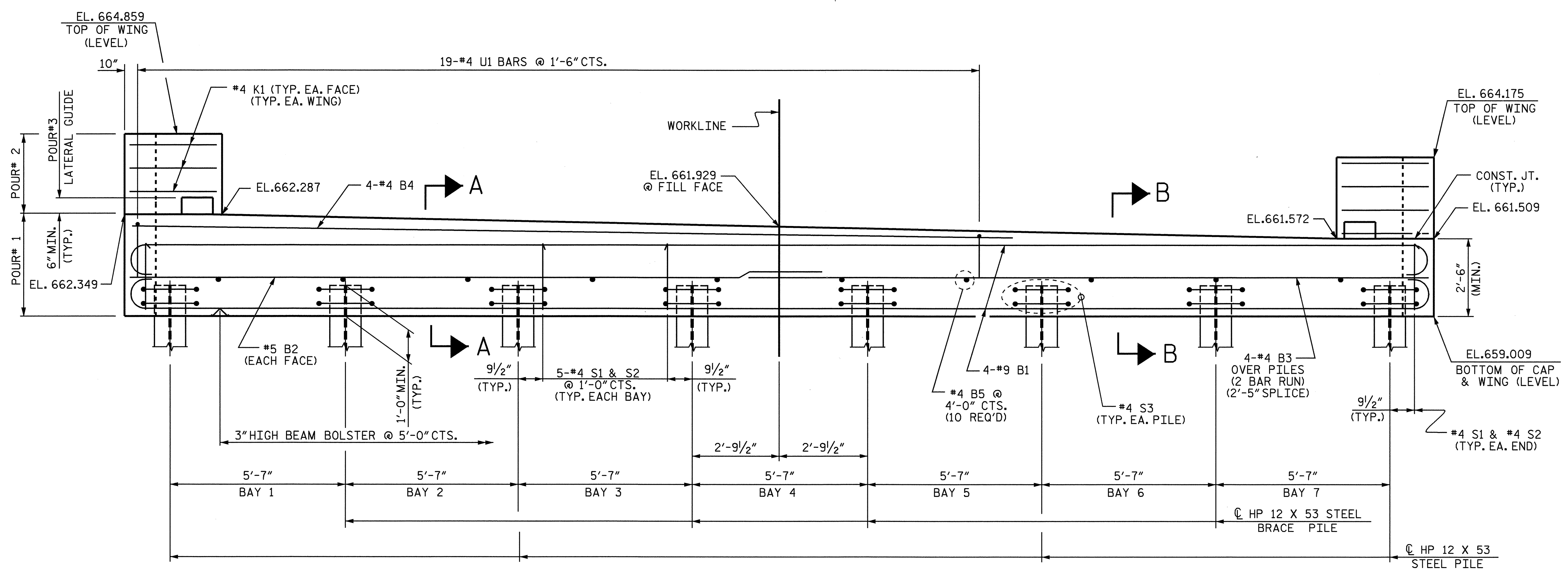
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

THE LATERAL GUIDE AT EACH END OF THE CAP IS NOT TO BE POURED UNTIL AFTER THE CORED SLAB UNITS ARE IN PLACE.

THE CONTRACTOR SHALL PROVIDE FOR INSTALLATION OF THE 4" DIAMETER DRAIN PIPE THROUGH THE WING WALL, AS REQUIRED FOR REINFORCED BRIDGE APPROACH FILLS, SEE THE ROADWAY PLANS. REINFORCING STEEL IN THE WING WALL MAY BE SHIFTED AS NECESSARY TO CLEAR THE DRAIN PIPE.



**PLAN**



**ELEVATION**

**LATERAL GUIDE DETAILS**

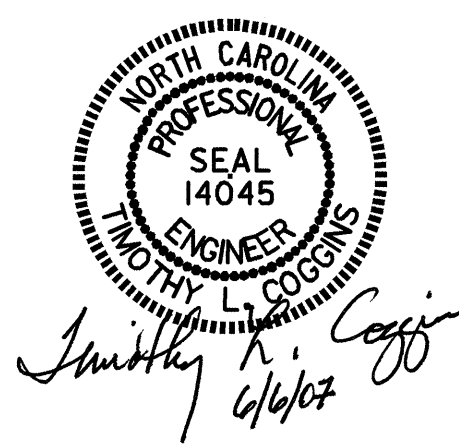
(EACH END SIMILAR)

PROJECT NO. B-4280  
 STOKES COUNTY  
 STATION: 25+22.00 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**SUBSTRUCTURE  
 END BENT #2**



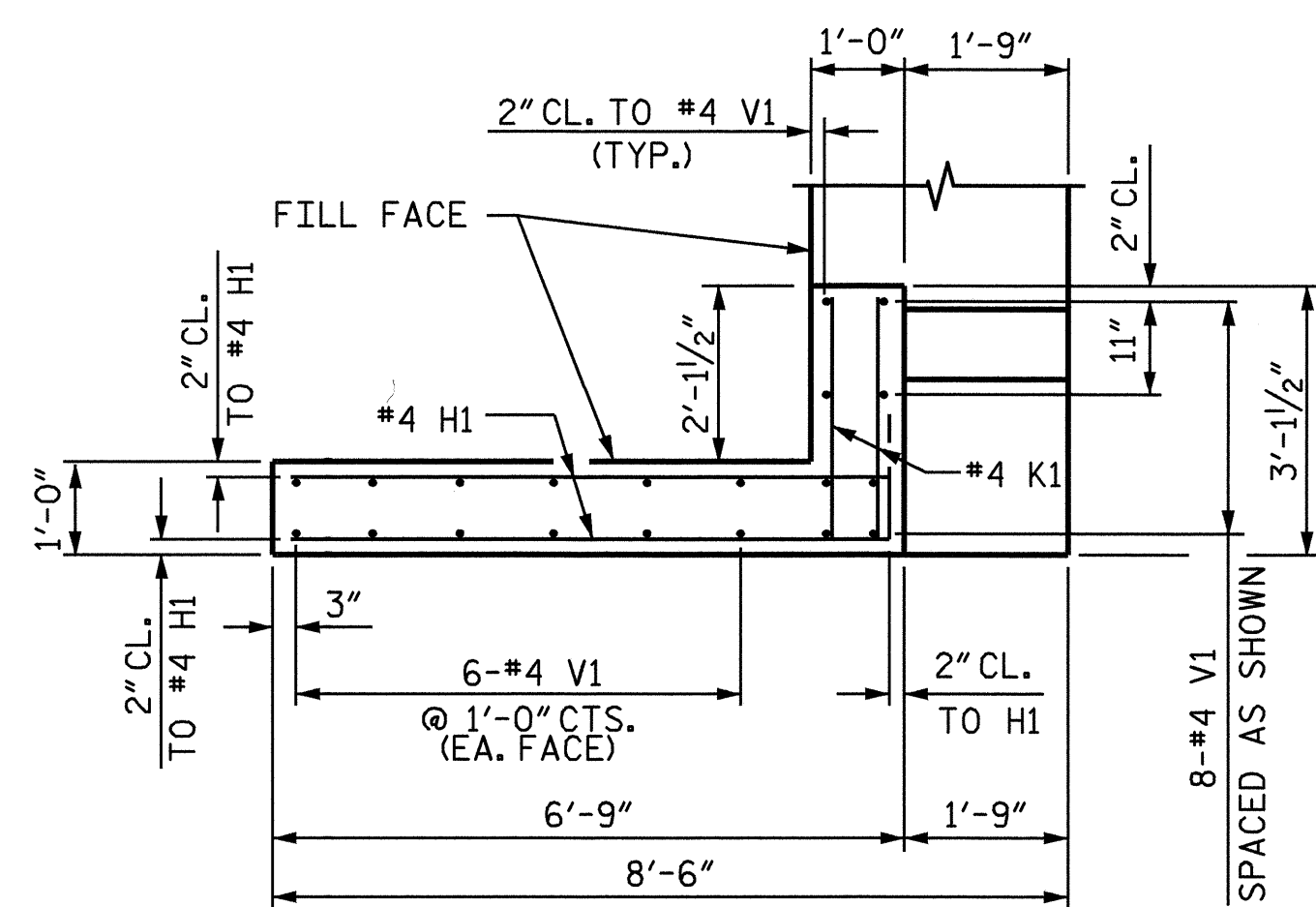
DRAWN BY: B.N. BARODAWALA DATE: 5-31-06  
 CHECKED BY: PEGGY ADKINS DATE: 6-06

26-APR-2007 07:31  
 G:\TIP\Projects-B\B4280\Structures\B4280\Str#2\bbarodawala\Microrstation\B 4280.sd.E\*.dgn  
 taverette

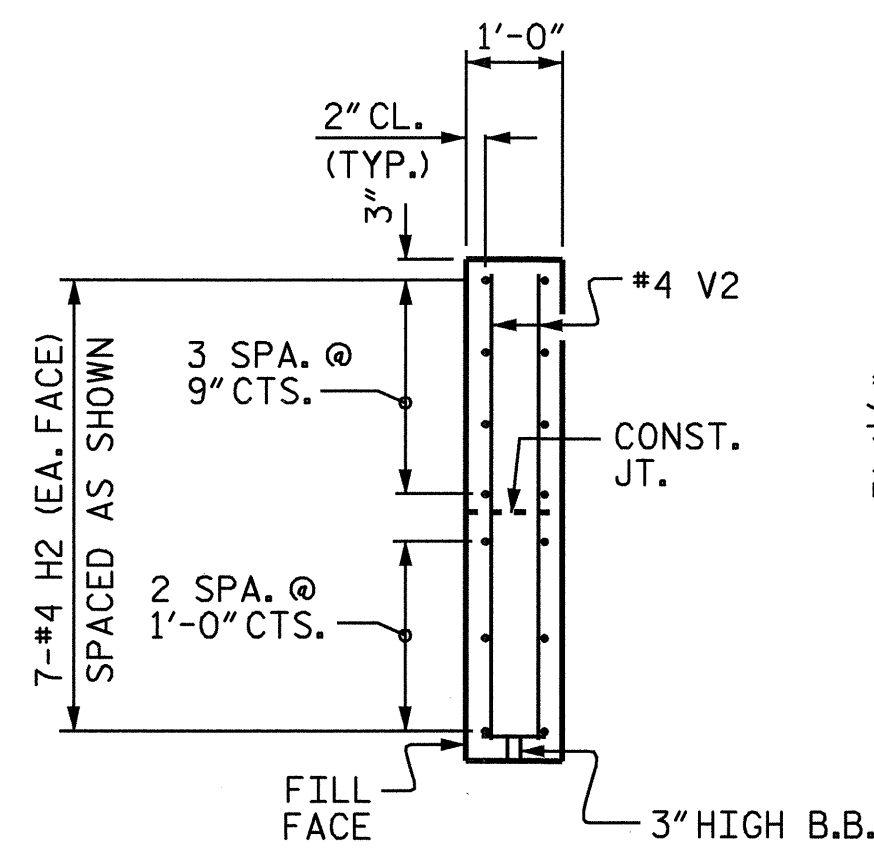
| REVISIONS |     |       |     |     |       | SHEET NO.    |  |
|-----------|-----|-------|-----|-----|-------|--------------|--|
| NO.       | BY: | DATE: | NO. | BY: | DATE: | S-47         |  |
| 1         |     |       | 3   |     |       | TOTAL SHEETS |  |
| 2         |     |       | 4   |     |       | 51           |  |

STR. #2

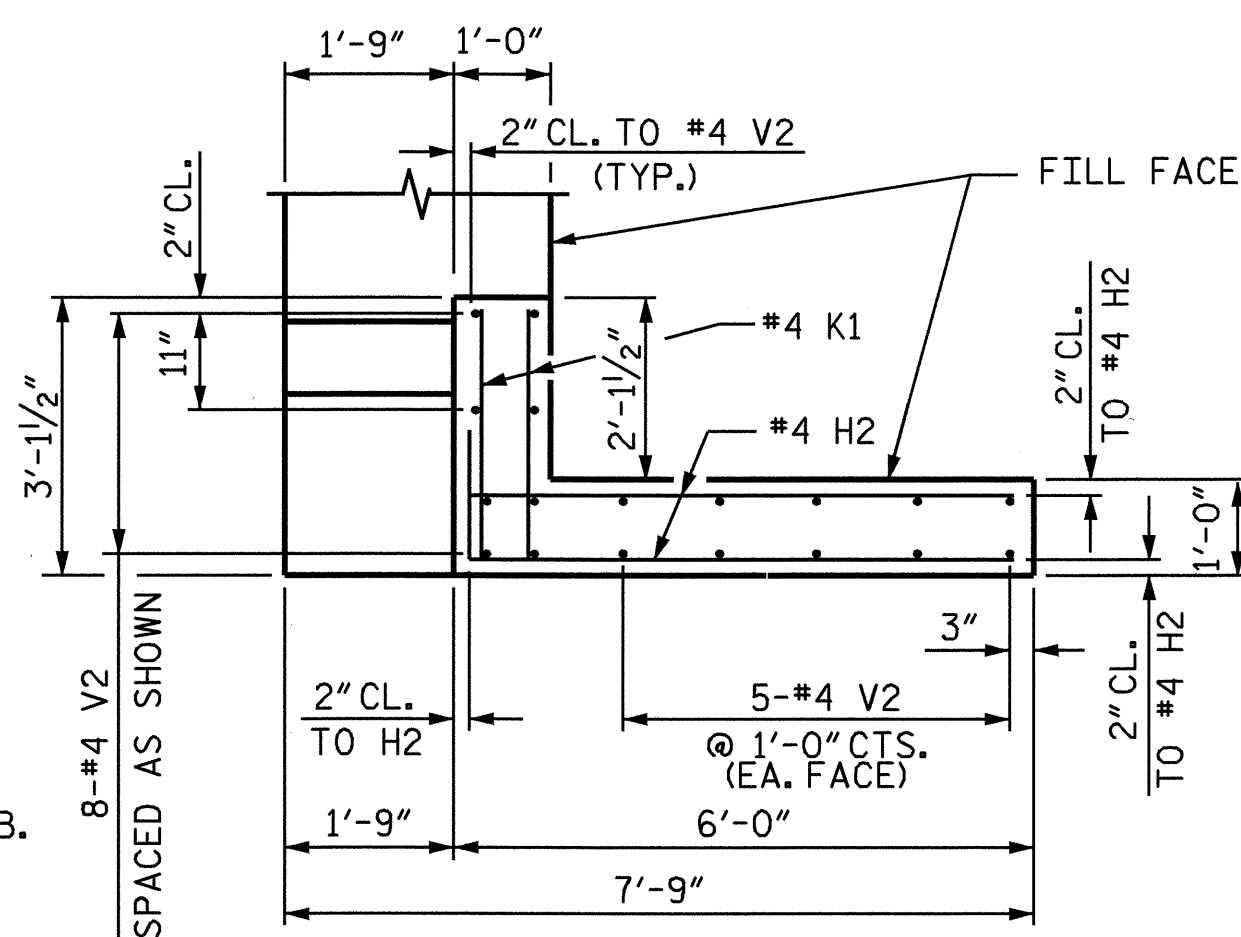




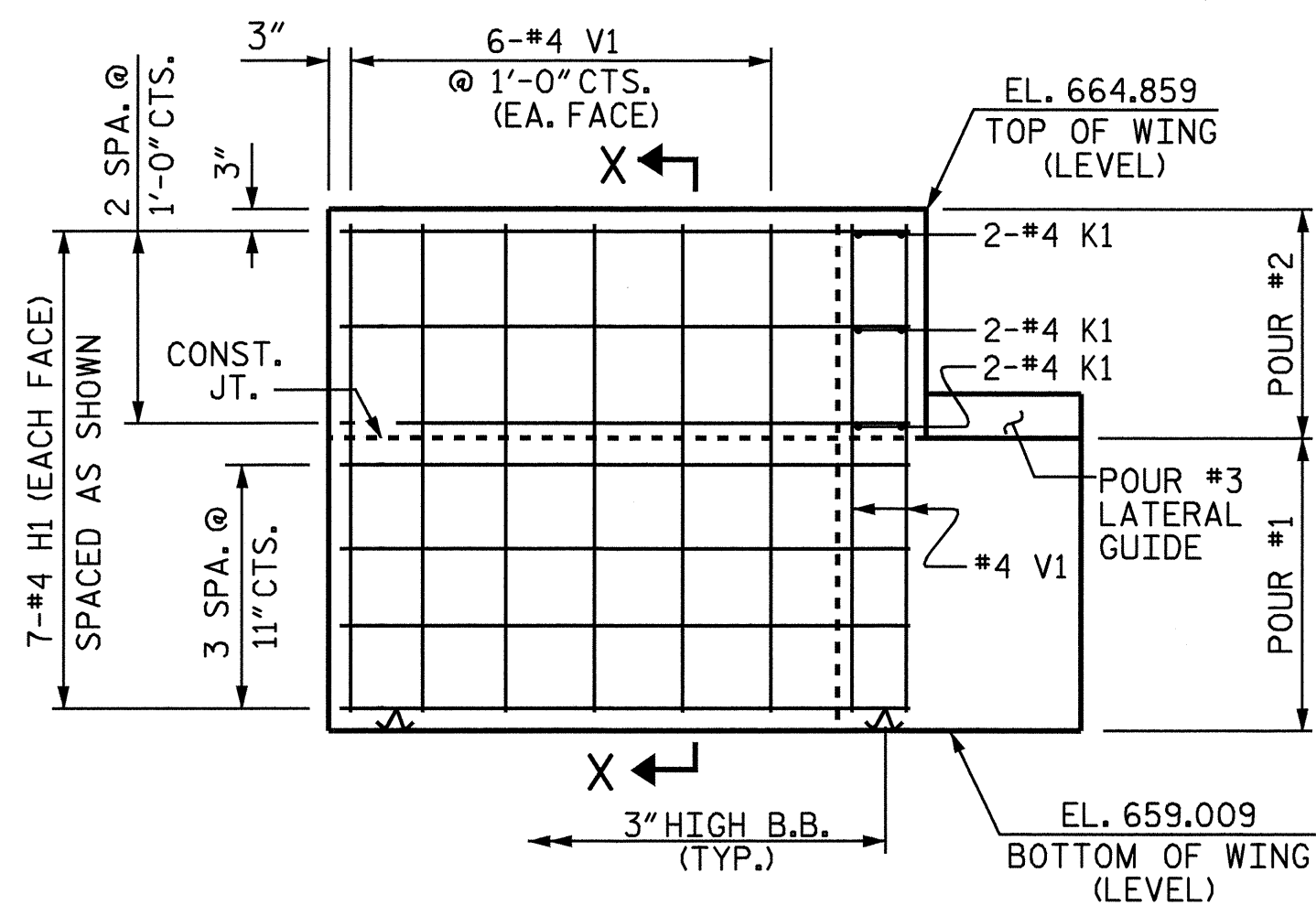
PLAN OF WING W1



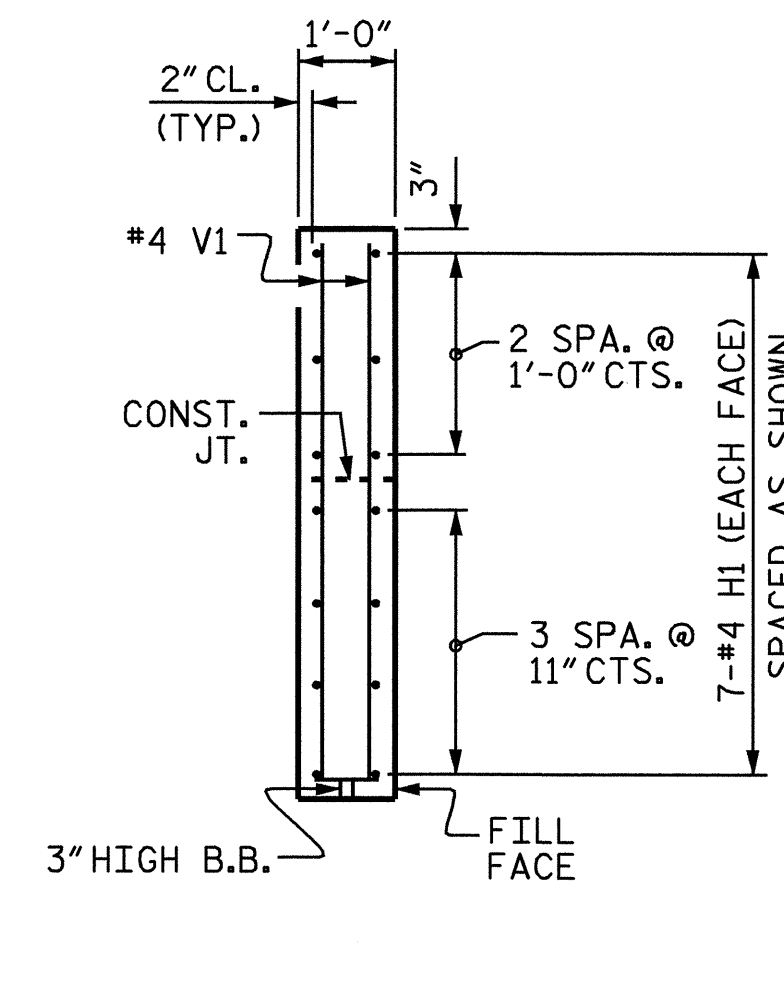
SECTION Y-Y



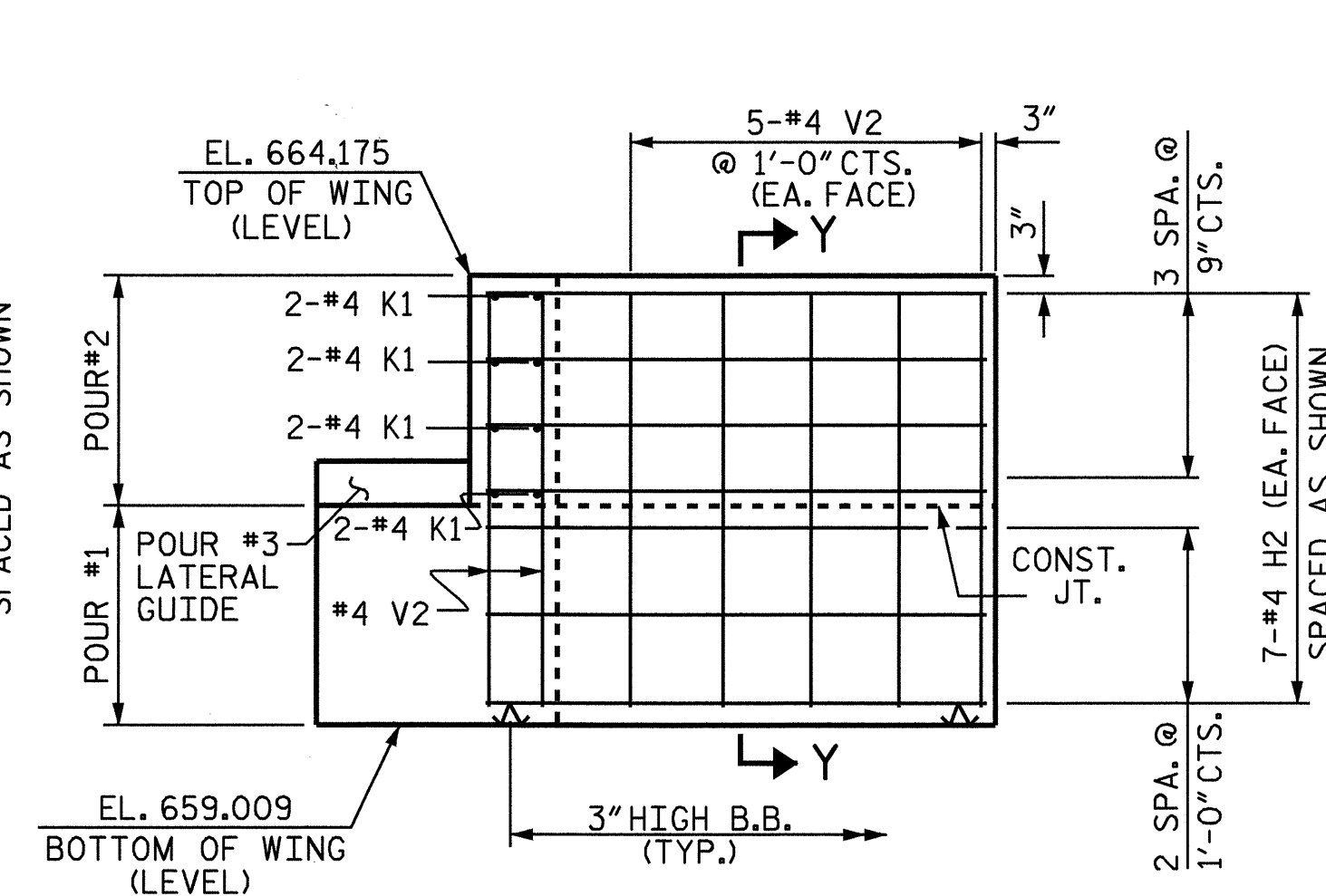
PLAN OF WING W2



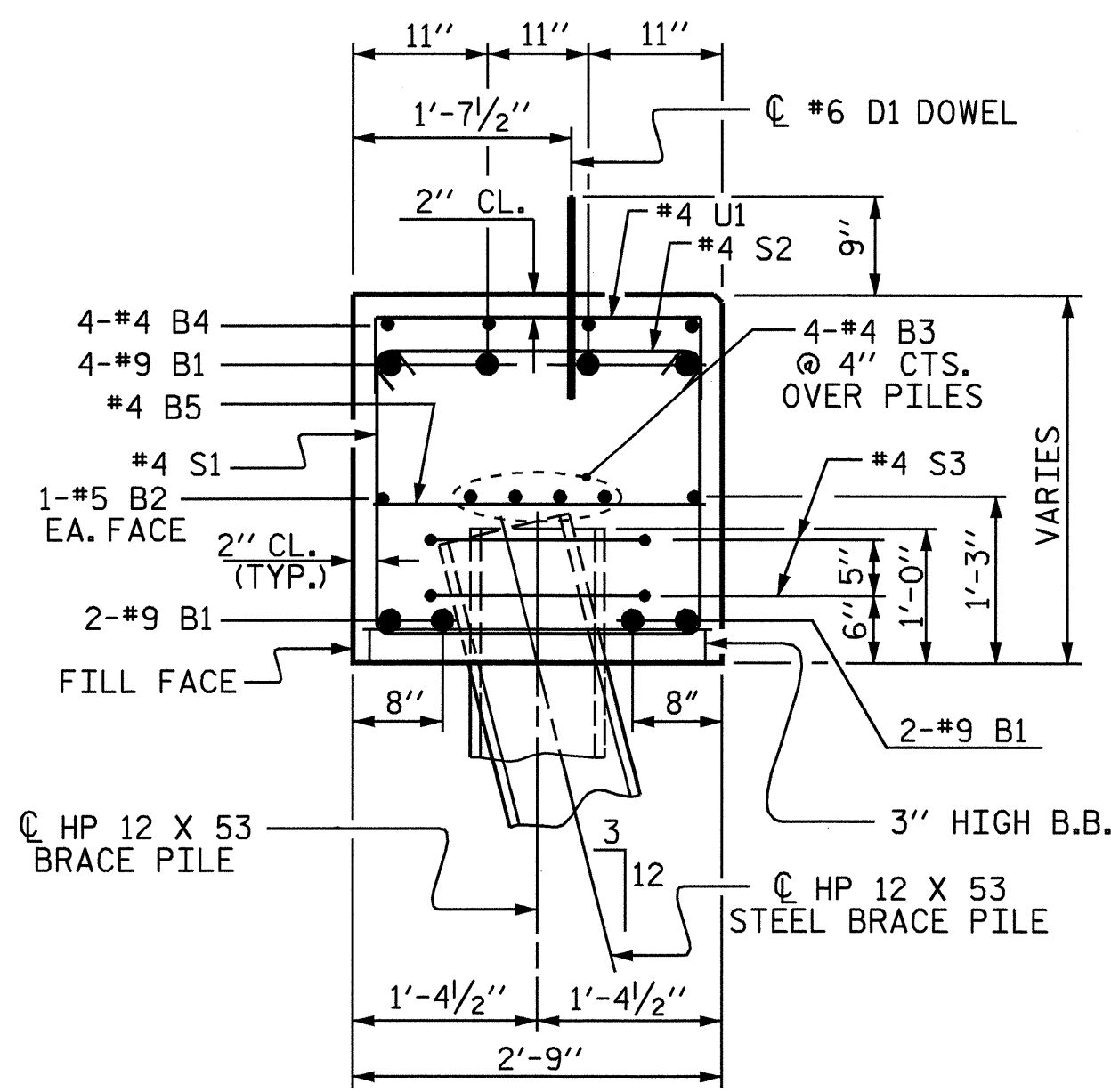
ELEVATION OF WING W1



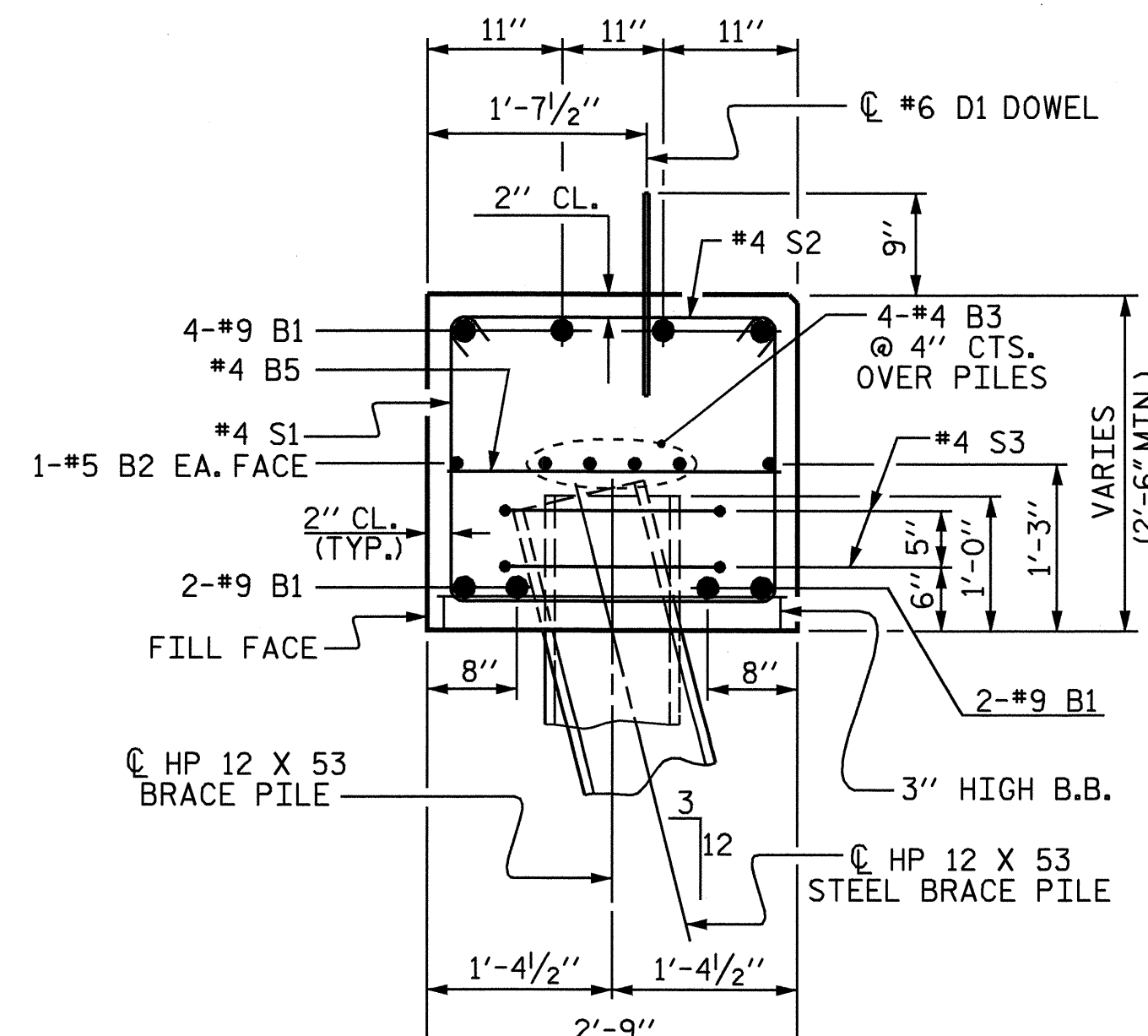
SECTION X-X



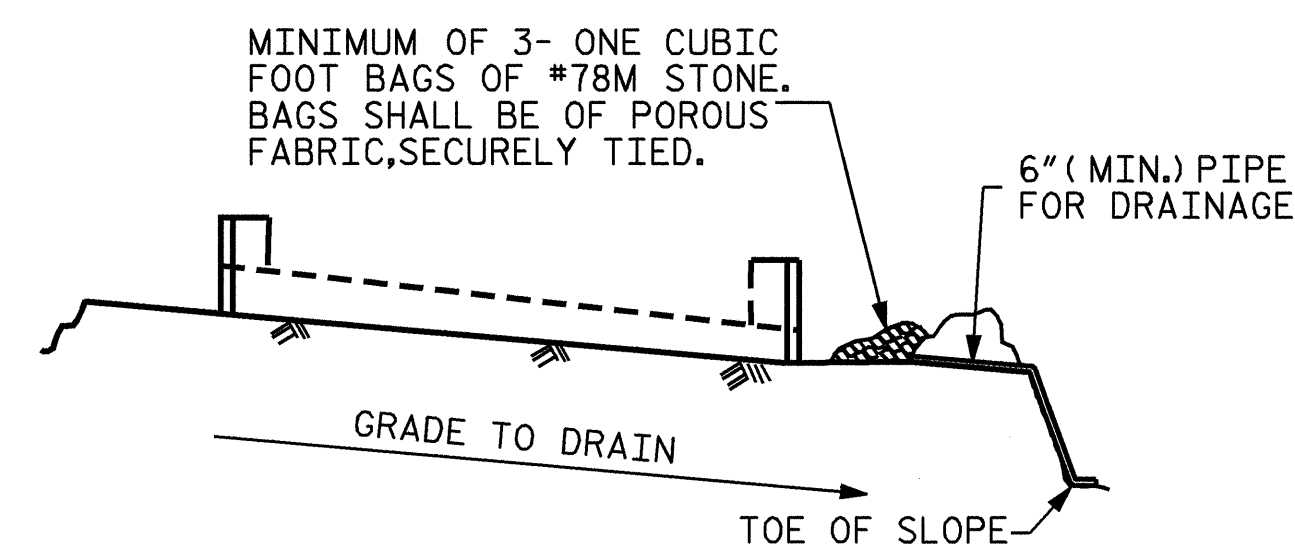
ELEVATION OF WING W2



SECTION A-A



SECTION B-B

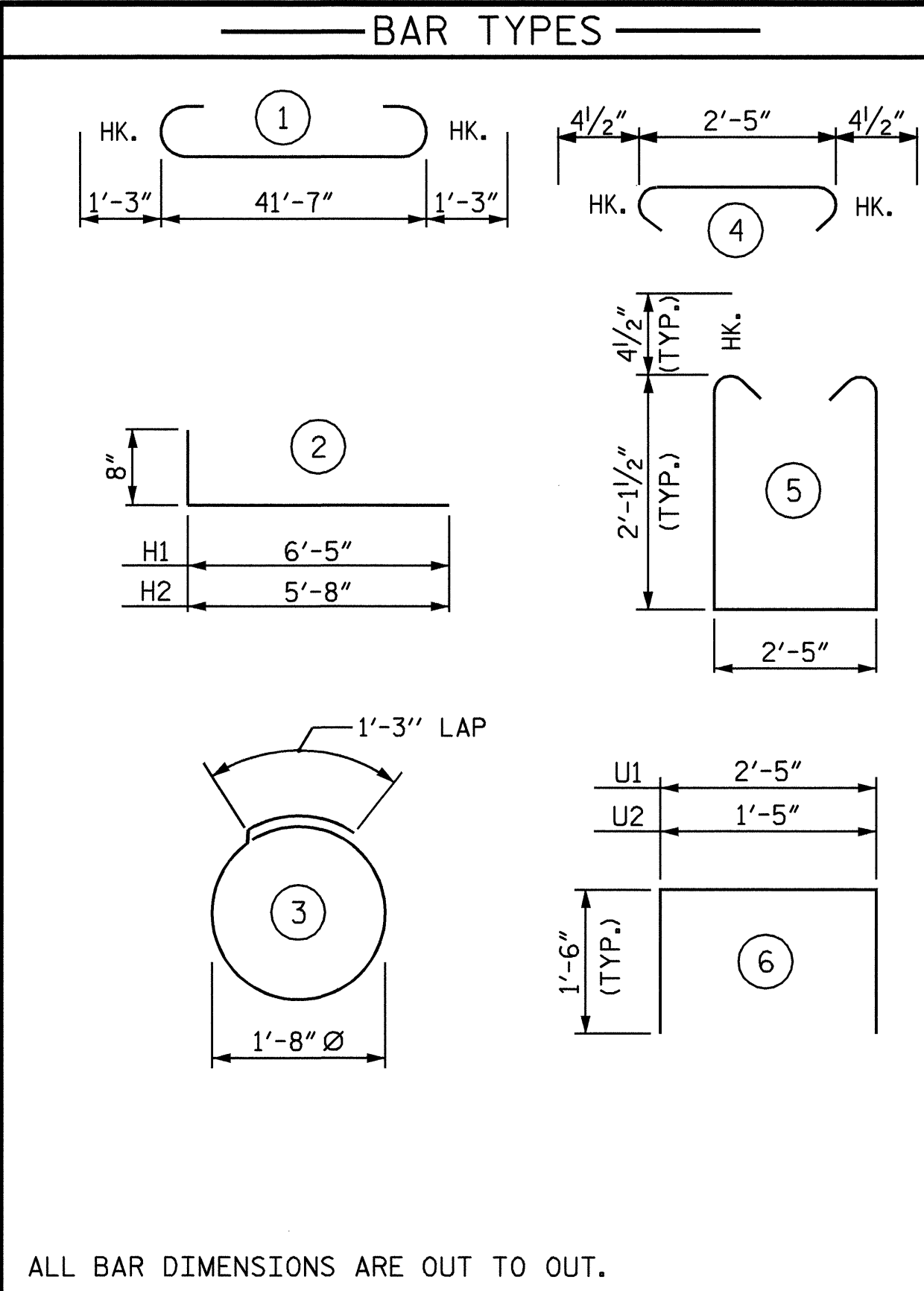


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR EFFECTIVENESS.

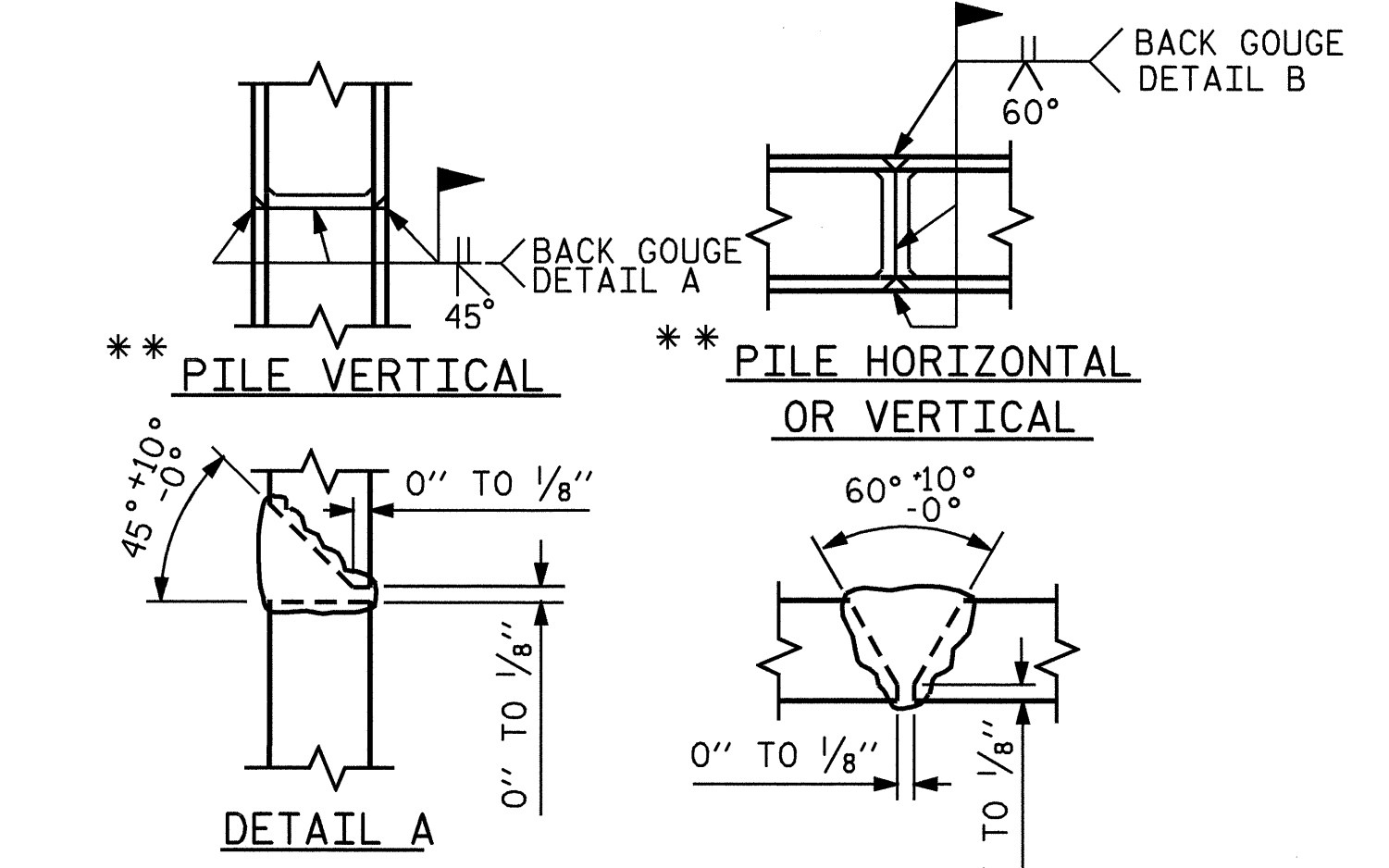
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT



ALL BAR DIMENSIONS ARE OUT TO OUT.

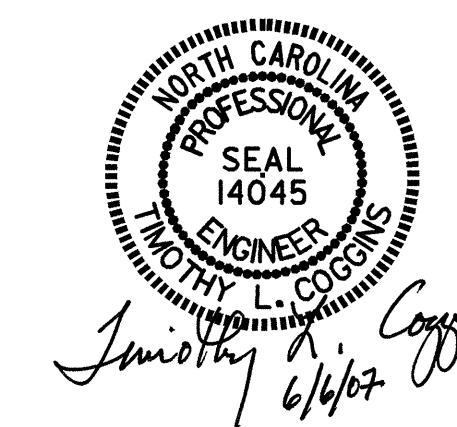
| BILL OF MATERIAL                   |     |      |      |         |              |
|------------------------------------|-----|------|------|---------|--------------|
| END BENT #2                        |     |      |      |         |              |
| BAR                                | NO. | SIZE | TYPE | LENGTH  | WEIGHT       |
| B1                                 | 8   | #9   |      | 44'-1"  | 1199         |
| B2                                 | 2   | #5   | STR  | 41'-8"  | 87           |
| B3                                 | 8   | #4   | STR  | 22'-1"  | 118          |
| B4                                 | 4   | #4   | STR  | 28'-3"  | 75           |
| B5                                 | 10  | #4   | STR  | 2'-5"   | 16           |
| D1                                 | 24  | #6   | STR  | 1'-6"   | 54           |
| H1                                 | 14  | #4   |      | 7'-1"   | 66           |
| H2                                 | 14  | #4   |      | 6'-4"   | 59           |
| K1                                 | 14  | #4   | STR  | 2'-9"   | 26           |
| S1                                 | 37  | #4   |      | 7'-5"   | 183          |
| S2                                 | 37  | #4   |      | 3'-2"   | 78           |
| S3                                 | 16  | #4   |      | 6'-6"   | 69           |
| U1                                 | 19  | #4   |      | 5'-5"   | 69           |
| U2                                 | 4   | #4   |      | 4'-5"   | 12           |
| V1                                 | 20  | #4   | STR  | 5'-6"   | 73           |
| V2                                 | 18  | #4   | STR  | 4'-10"  | 58           |
| REINFORCING STEEL                  |     |      |      |         | LBS 2242     |
| CLASS A CONCRETE BREAKDOWN         |     |      |      |         |              |
| POUR #1: CAP & LOWER PART OF WINGS |     |      |      | CU. YD. | 13.7         |
| POUR #2: UPPER PART OF WINGS       |     |      |      | CU. YD. | 1.6          |
| POUR #3: LATERAL GUIDES            |     |      |      | CU. YD. | 0.1          |
| TOTAL                              |     |      |      | CU. YD. | 15.4         |
| HP 12 x 53 STEEL PILES             |     |      |      |         |              |
| NO. 8                              |     |      |      |         | LIN. FT. 160 |



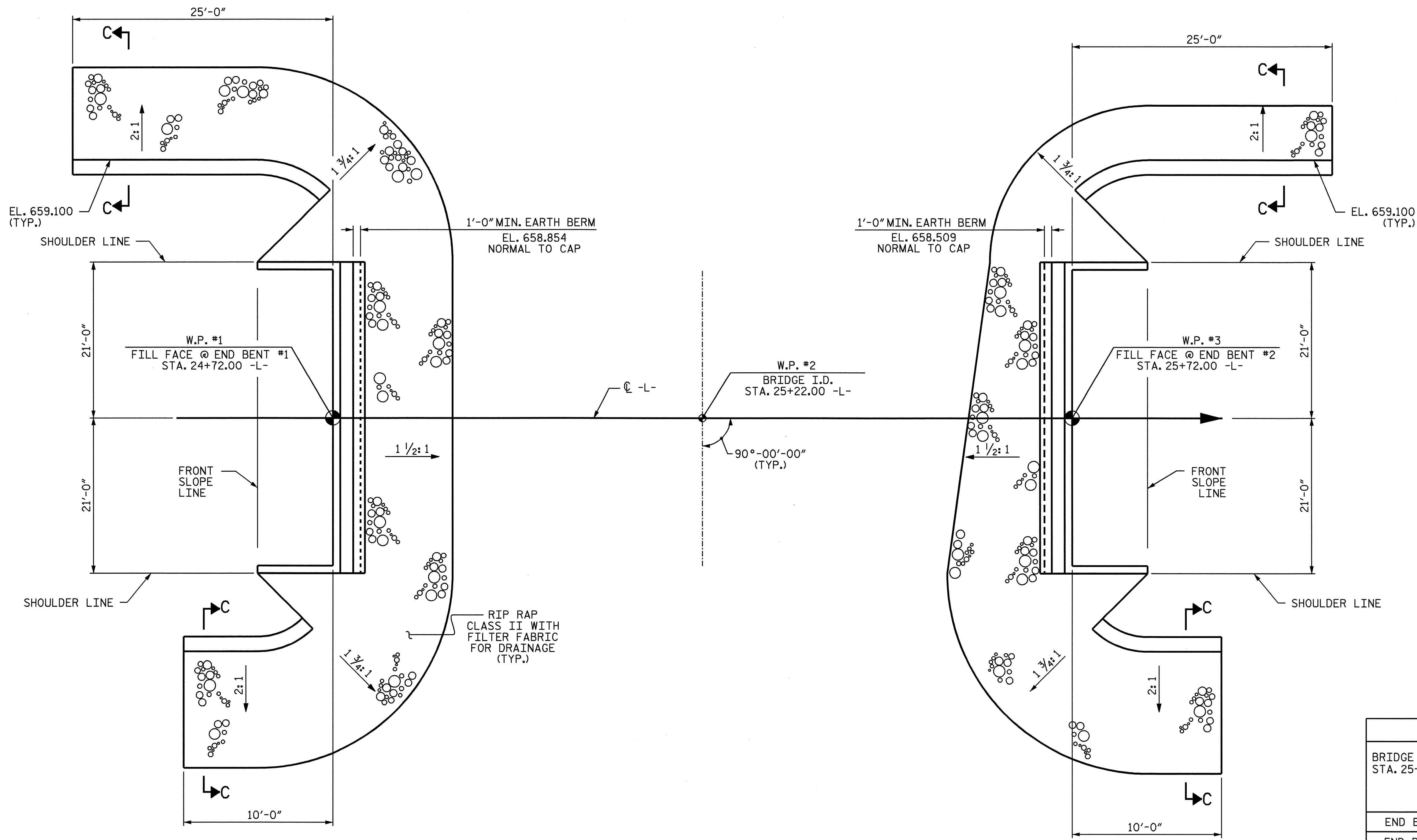
PILE SPLICE DETAILS

PROJECT NO. B-4280  
 STOKES COUNTY  
 STATION: 25+22.00 -L-

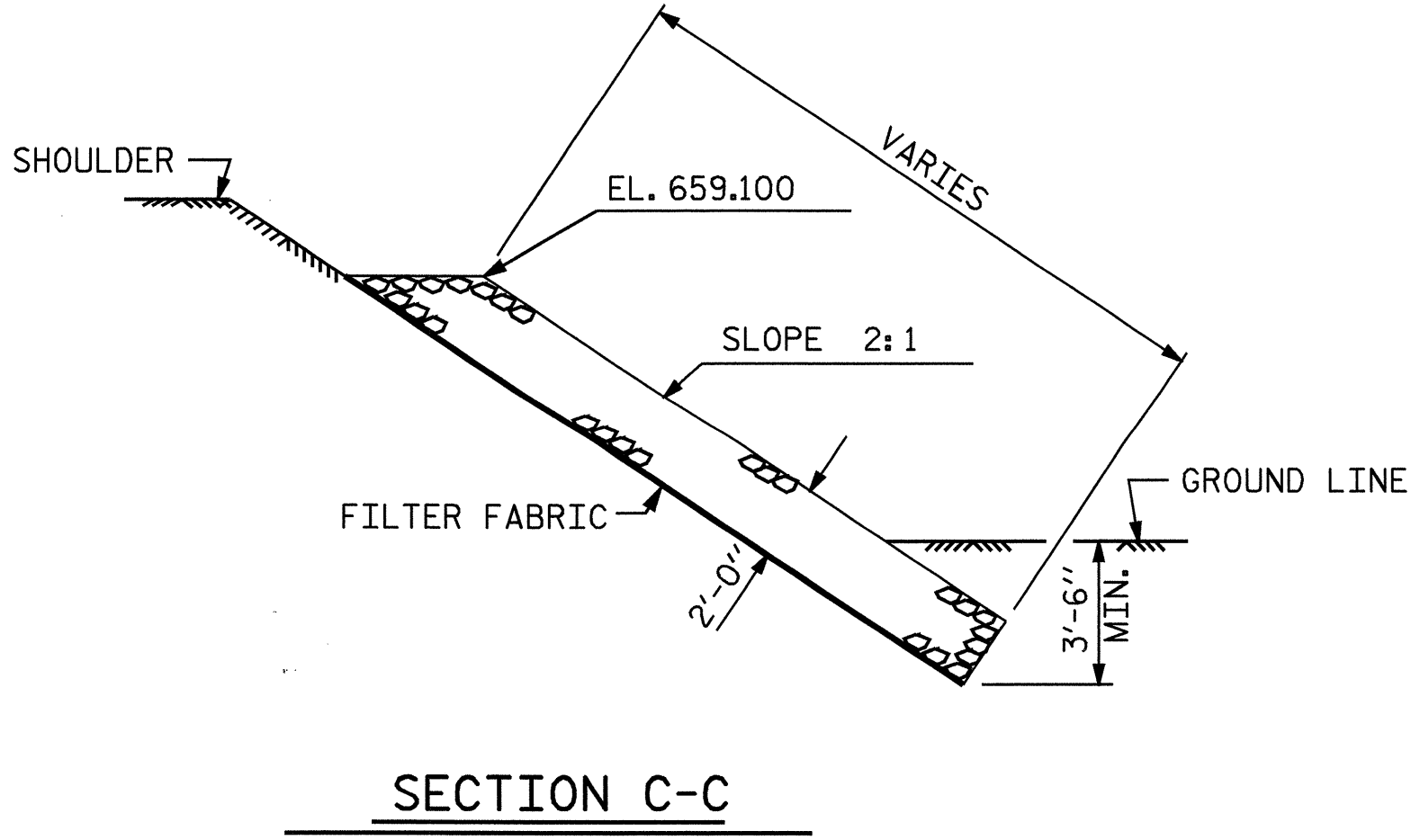
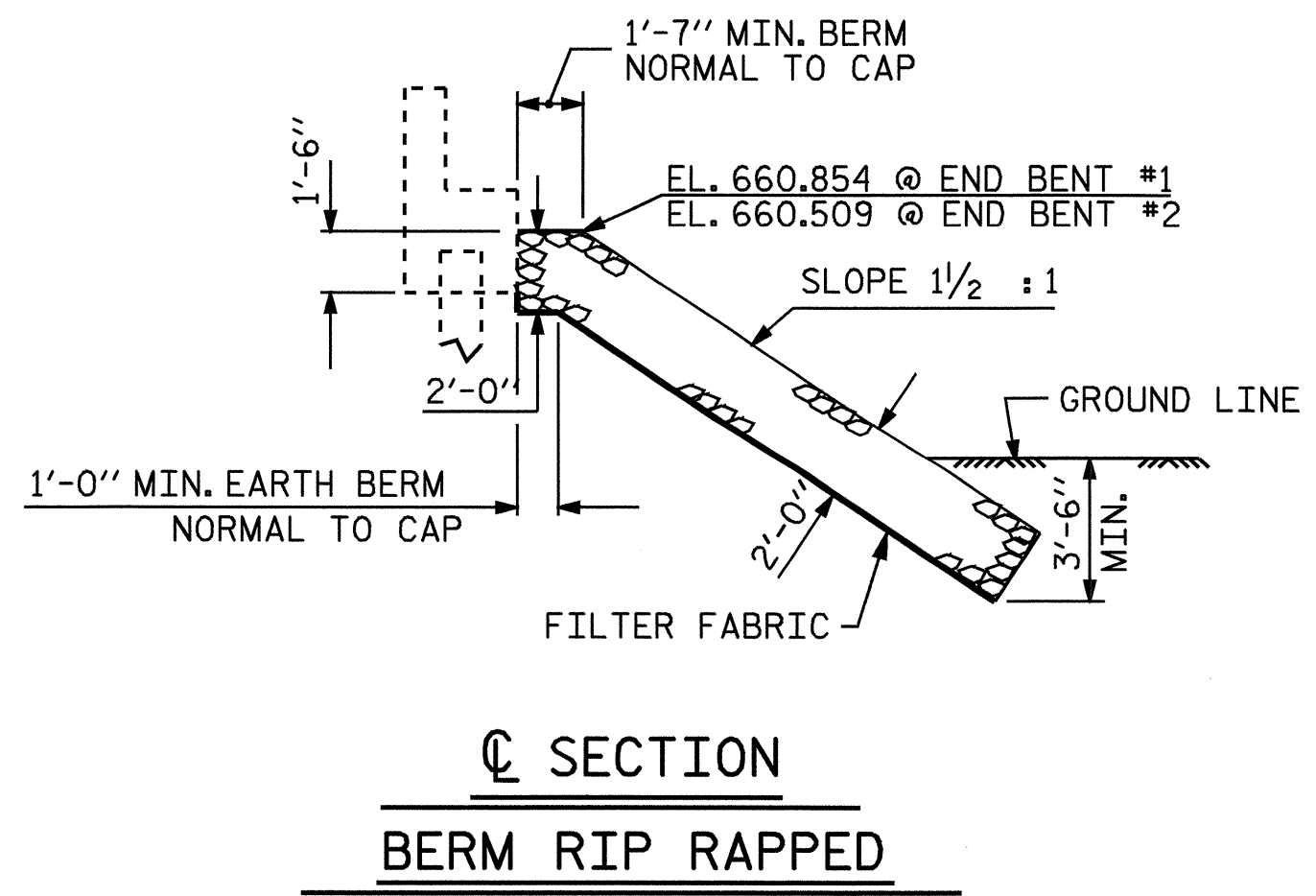
| REVISIONS |    |      |     |    |      |
|-----------|----|------|-----|----|------|
| NO.       | BY | DATE | NO. | BY | DATE |
| 1         |    |      | 3   |    |      |
| 2         |    |      | 4   |    |      |



DRAWN BY: B.N. BARODAWALA DATE: 5-31-06  
 CHECKED BY: PEGGY ADKINS DATE: 6-06



| ESTIMATED QUANTITIES          |                     |                               |
|-------------------------------|---------------------|-------------------------------|
| BRIDGE @<br>STA. 25+22.00 -L- | RIP RAP<br>CLASS II | FILTER FABRIC<br>FOR DRAINAGE |
|                               | TONS                | SQUARE YARDS                  |
| END BENT 1                    | 179                 | 199                           |
| END BENT 2                    | 166                 | 184                           |

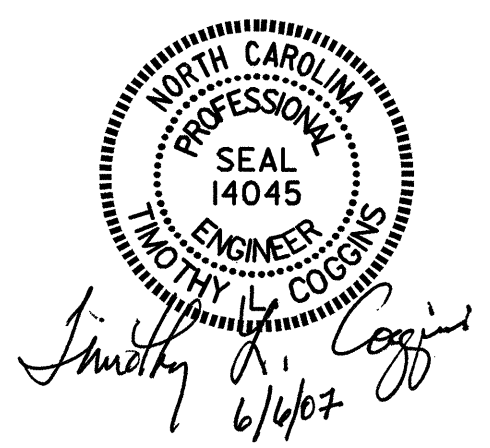


PROJECT NO. B-4280  
STOKES COUNTY  
 STATION: 25+22.00 -L-

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

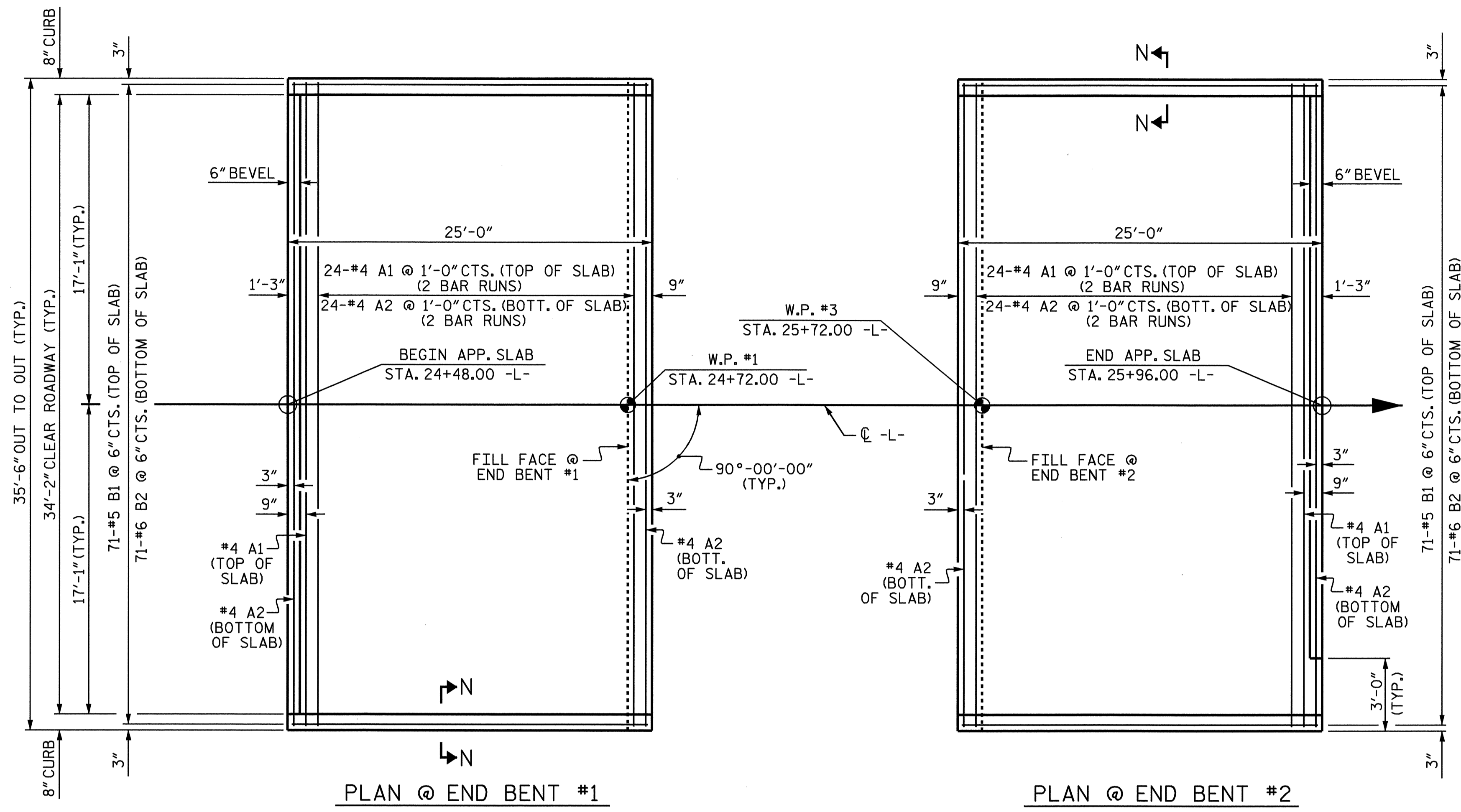
STANDARD  
 —RIP RAP DETAILS—

| REVISIONS |     |       |     |     |       | SHEET NO.    |
|-----------|-----|-------|-----|-----|-------|--------------|
| NO.       | BY: | DATE: | NO. | BY: | DATE: | S-49         |
| 1         |     |       | 3   |     |       | TOTAL SHEETS |
| 2         |     |       | 4   |     |       | 51           |



ASSEMBLED BY : PEGGY ADKINS DATE : 9-04  
 CHECKED BY : B.N.BARODAWALA DATE : 6-06  
 DRAWN BY : FCJ 2/88 REV. 8/16/99 RWW/LES  
 CHECKED BY : ARB 8/88 REV. 10/17/00 RWW/LES  
 REV. 5/1/06 TLA/GM





PLAN @ END BENT #1  
 PLAN @ END BENT #2  
 DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS

**NOTES**

FOR REINFORCED BRIDGE APPROACH FILL INCLUDING FABRIC, IMPERMEABLE GEOMEMBRANE, 4" Ø DRAINAGE PIPE, #78M STONE, AND SELECT MATERIAL, SEE ROADWAY PLANS.

AREA BETWEEN THE WINGWALL AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE AND SHALL BE PAVED. SEE ROADWAY PLANS.

THE 6" COMP. A.B.C. SHALL BE FLUSH WITH THE ROADWAY END OF THE APPROACH SLAB AND SHALL EXTEND 1'-0" OUTSIDE OF EACH EDGE OF THE APPROACH SLAB.

THE CONTRACTOR MAY USE 4" TYPE B-25.0B ASPHALT CONCRETE BASE COURSE IN LIEU OF 6" COMP. A.B.C. IF THIS OPTION IS USED, THE BASE COURSE SHALL BE FLUSH WITH THE ROADWAY END OF THE APPROACH SLAB, AND THE WIDTH SHALL BE THE SAME AS THAT OF THE APPROACH SLAB.

THE CONTRACTOR MAY USE 5" CLASS "A" CONCRETE BASE IN LIEU OF 6" COMP. A.B.C. IF THIS OPTION IS USED, THE CONCRETE BASE SHALL BE FLUSH WITH THE ROADWAY END OF THE APPROACH SLAB, AND THE WIDTH SHALL BE THE SAME AS THAT OF THE APPROACH SLAB. THE CONCRETE SHALL BE FINISHED TO A SMOOTH SURFACE AND A LAYER OF 30 LB ROOFING FELT SHALL BE PLACED BETWEEN THE CONCRETE BASE AND THE APPROACH SLAB TO PREVENT BOND. THE APPROACH SLAB SHALL NOT BE CAST UNTIL THE CONCRETE BASE HAS REACHED AN AGE OF THREE CURING DAYS.

FOR EVAZOTE JOINT SEALS, SEE SPECIAL PROVISIONS.

THE NOMINAL UNCOMPRESSED SEAL WIDTH OF THE EVAZOTE JOINT SEAL SHALL BE 3 7/16".

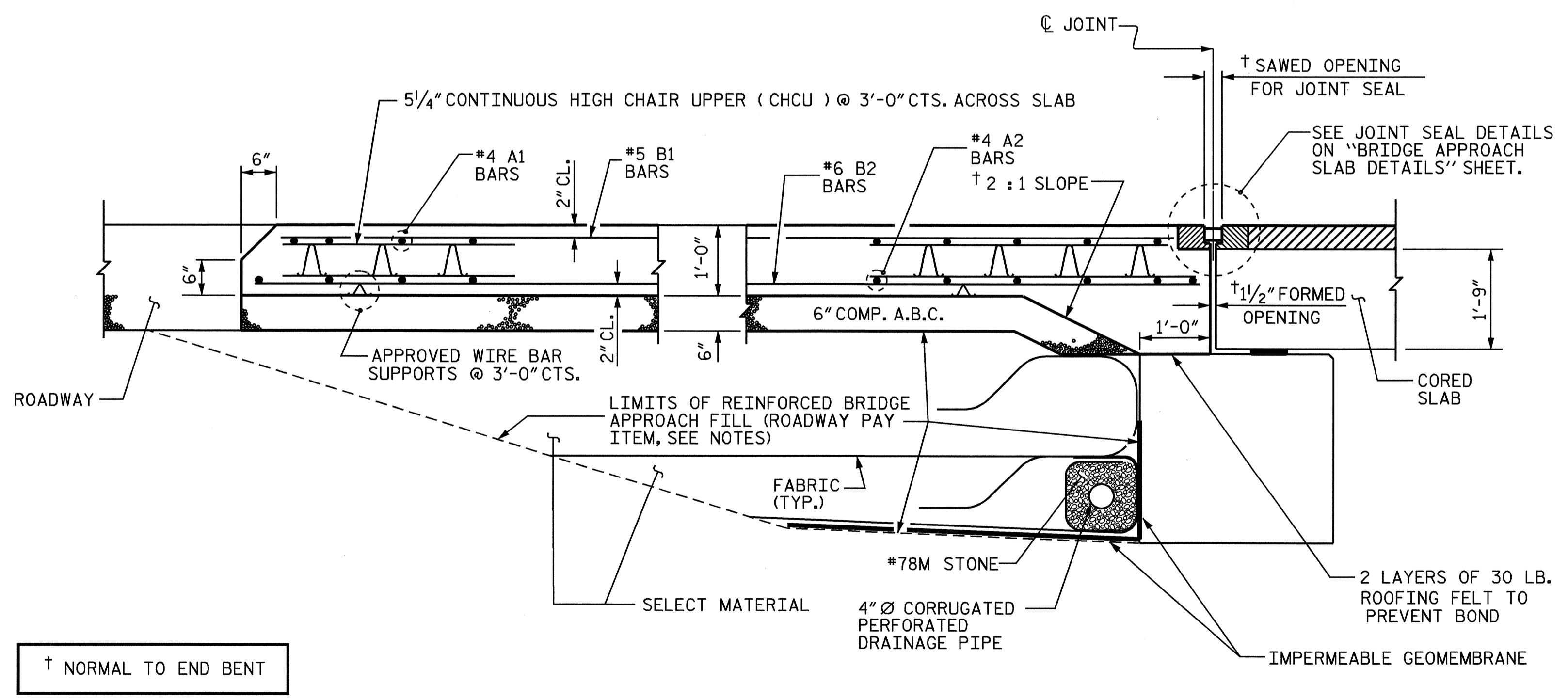
FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.

APPROACH SLABS SHALL BE POURED AFTER CONCRETE OVERLAY IS POURED.

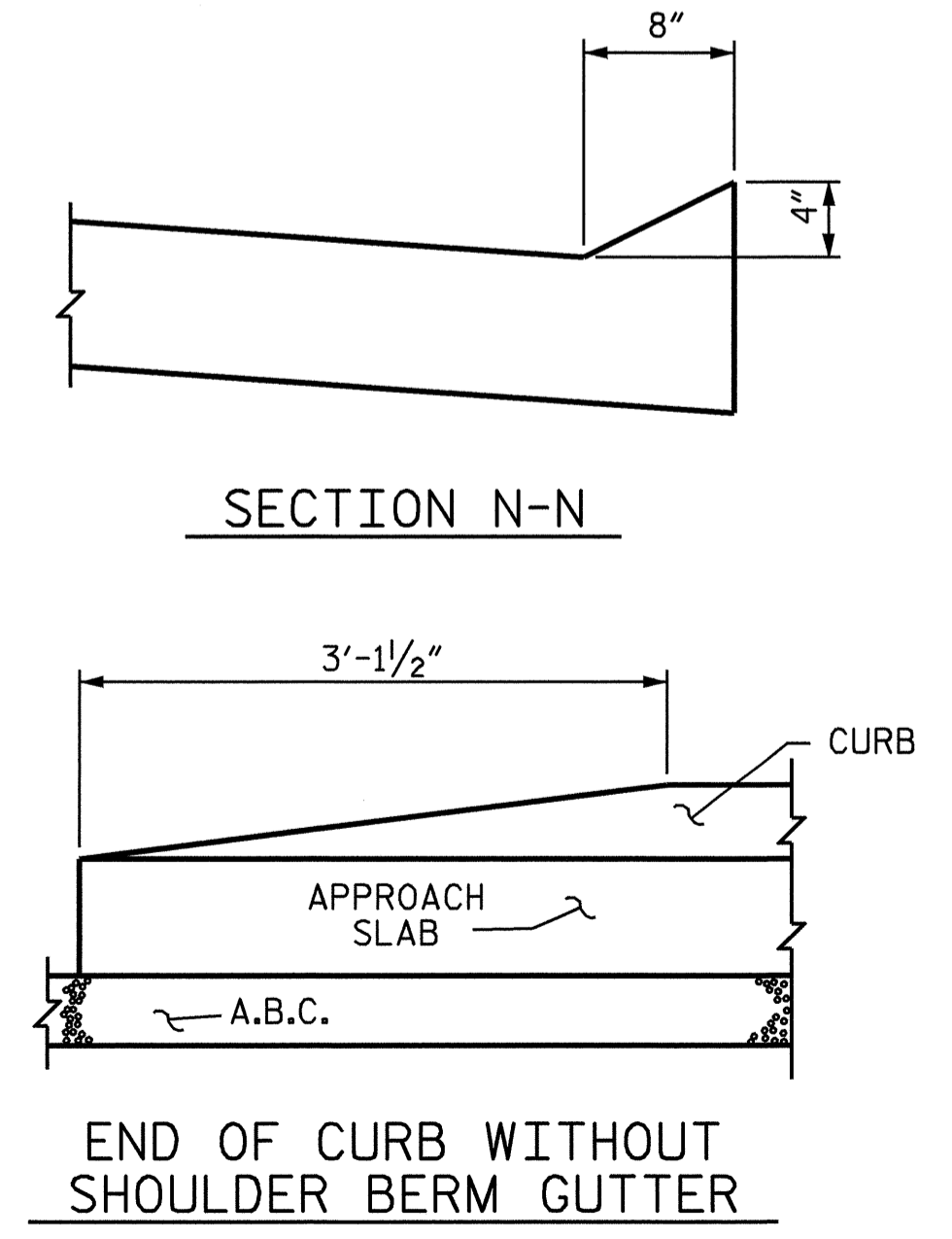
THE JOINT SHALL BE SAWED AFTER THE CASTING OF THE VERTICAL BARRIER RAIL.

| BILL OF MATERIAL                 |     |      |      |        |        |
|----------------------------------|-----|------|------|--------|--------|
| APPROACH SLAB AT EB #1           |     |      |      |        |        |
| BAR                              | NO. | SIZE | TYPE | LENGTH | WEIGHT |
| *A1                              | 50  | #4   | STR  | 18'-7" | 621    |
| A2                               | 52  | #4   | STR  | 18'-6" | 643    |
| *B1                              | 71  | #5   | STR  | 23'-8" | 1753   |
| B2                               | 71  | #6   | STR  | 24'-8" | 2631   |
| REINFORCING STEEL                |     |      |      | LBS.   | 3274   |
| * EPOXY COATED REINFORCING STEEL |     |      |      | LBS.   | 2374   |
| CLASS AA CONCRETE                |     |      |      | C. Y.  | 36.4   |
| APPROACH SLAB AT EB #2           |     |      |      |        |        |
| BAR                              | NO. | SIZE | TYPE | LENGTH | WEIGHT |
| *A1                              | 50  | #4   | STR  | 18'-7" | 621    |
| A2                               | 52  | #4   | STR  | 18'-6" | 643    |
| *B1                              | 71  | #5   | STR  | 23'-8" | 1753   |
| B2                               | 71  | #6   | STR  | 24'-8" | 2631   |
| REINFORCING STEEL                |     |      |      | LBS.   | 3274   |
| * EPOXY COATED REINFORCING STEEL |     |      |      | LBS.   | 2374   |
| CLASS AA CONCRETE                |     |      |      | C. Y.  | 36.4   |

| SPLICE CHART |               |
|--------------|---------------|
| BAR SIZE     | SPLICE LENGTH |
| #4 A1        | 2'-0"         |
| #4 A2        | 1'-9"         |



SECTION THRU SLAB



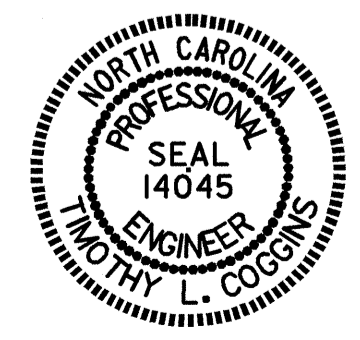
CURB DETAILS

PROJECT NO. B-4280  
 STOKES COUNTY  
 STATION: 25+22.00 -L-

SHEET 1 OF 2

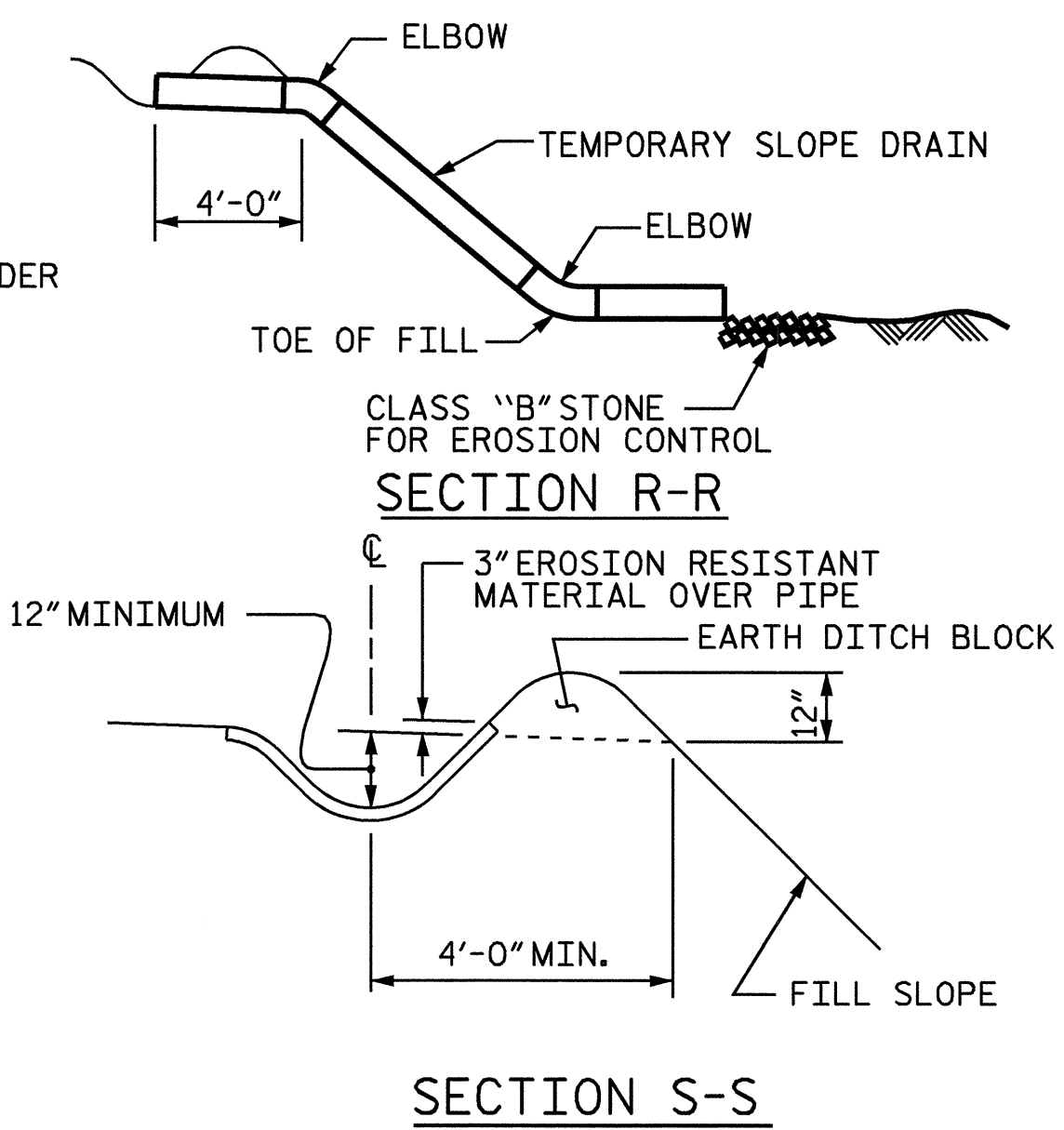
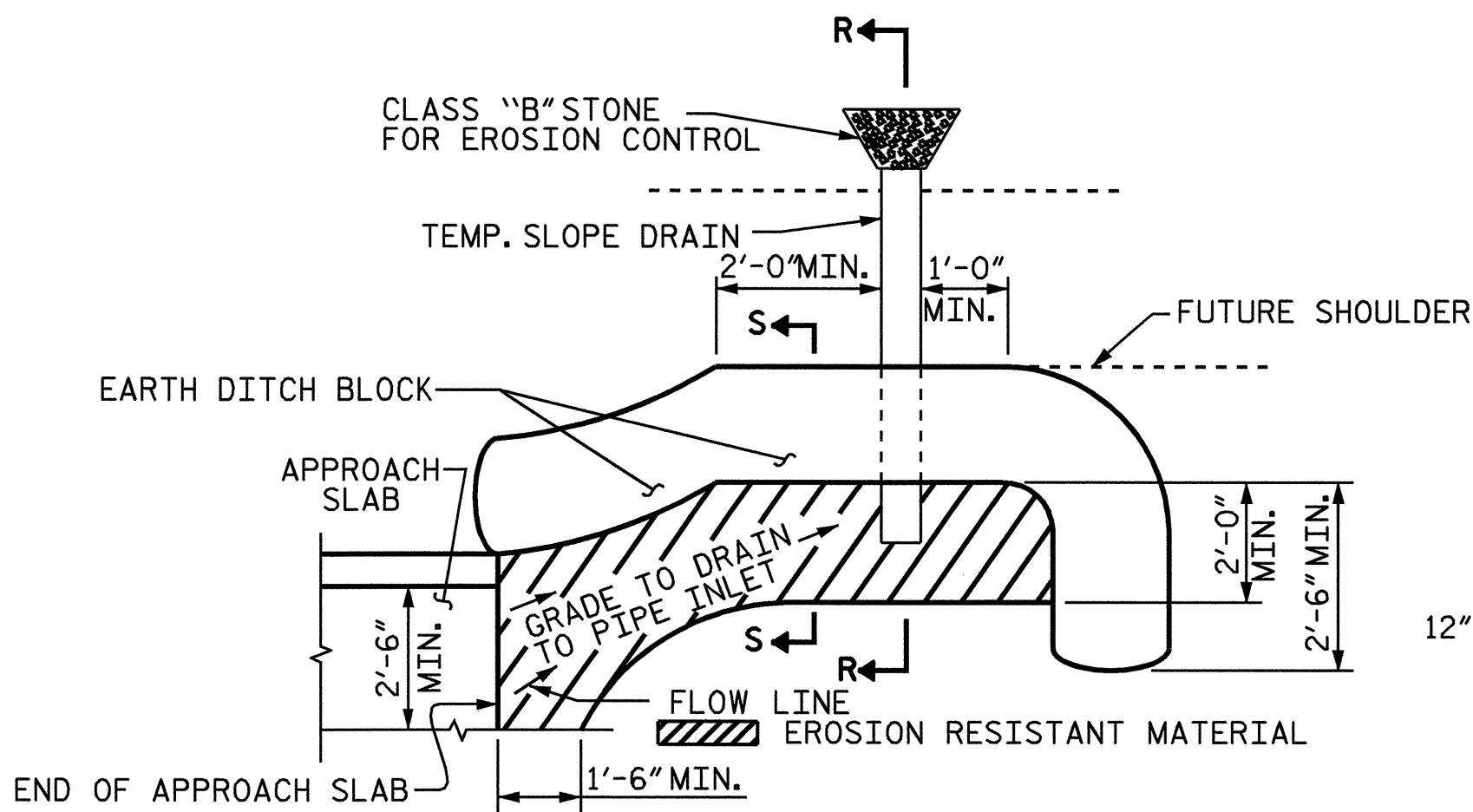
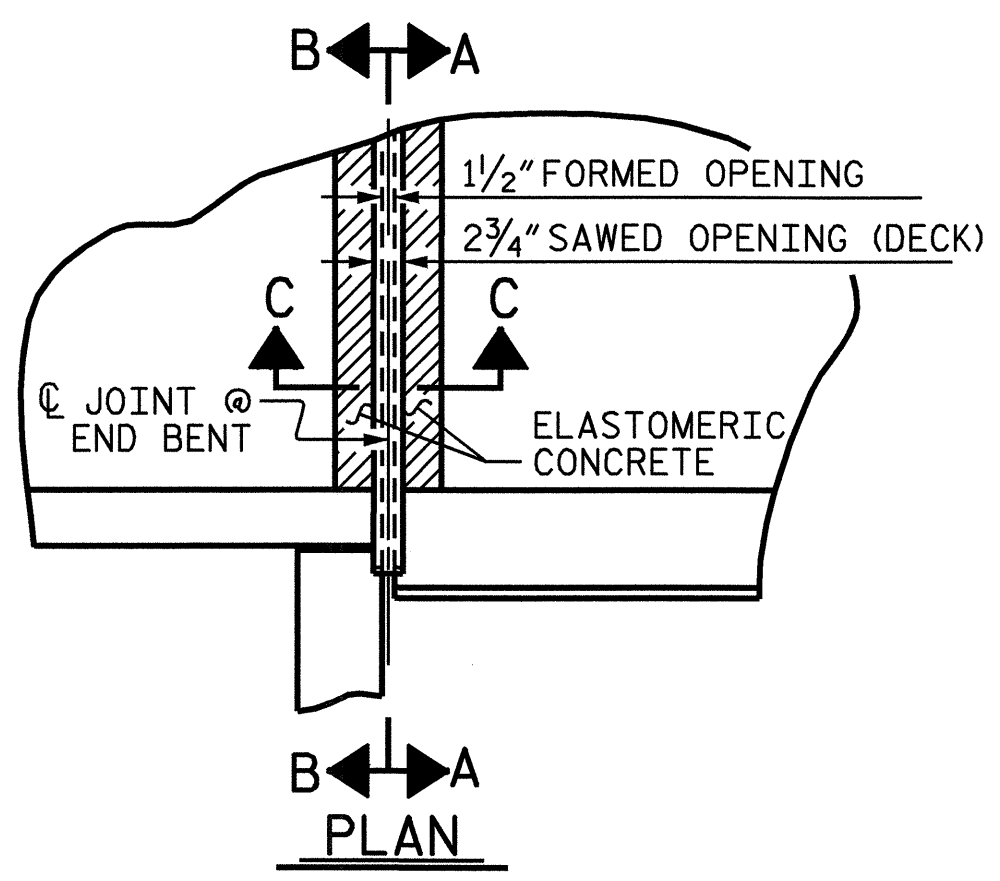
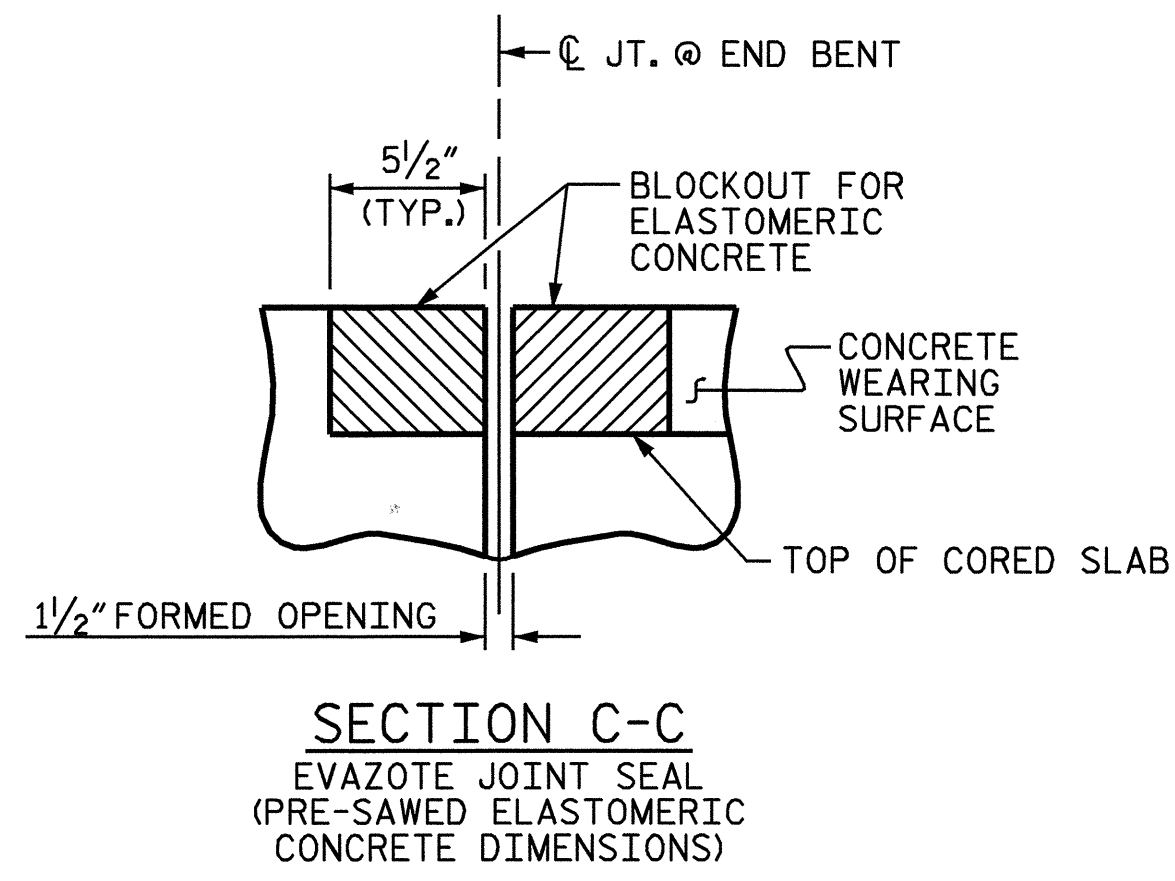
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

STANDARD  
 BRIDGE APPROACH SLAB  
 FOR PRESTRESSED CONCRETE  
 CORED SLAB



| REVISIONS |     |       |     |     |       | SHEET NO.    |
|-----------|-----|-------|-----|-----|-------|--------------|
| NO.       | BY: | DATE: | NO. | BY: | DATE: | S-50         |
| 1         |     |       | 3   |     |       | TOTAL SHEETS |
| 2         |     |       | 4   |     |       | 51           |

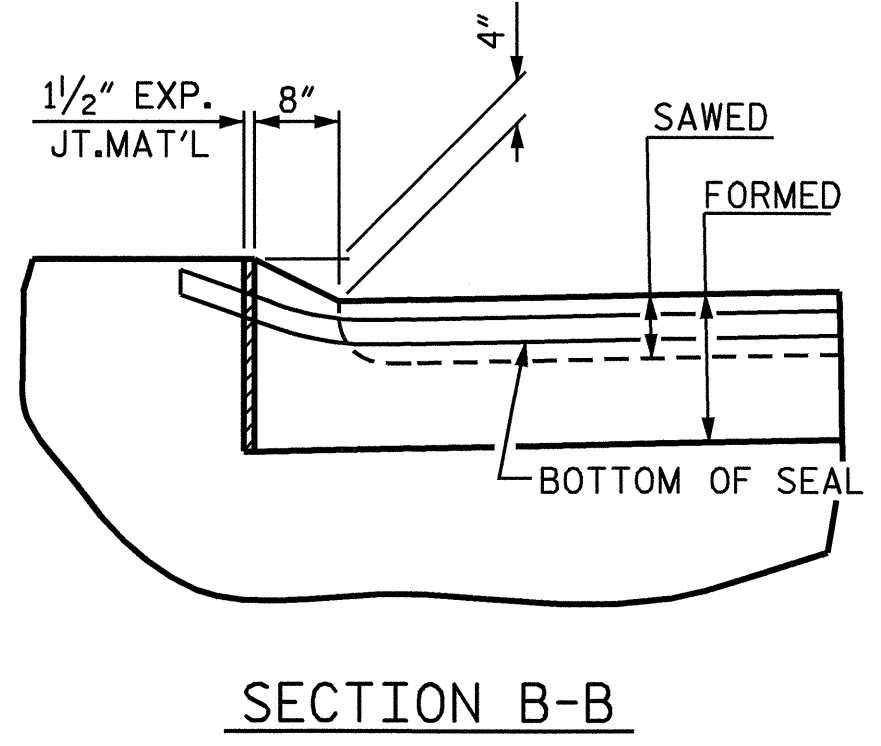
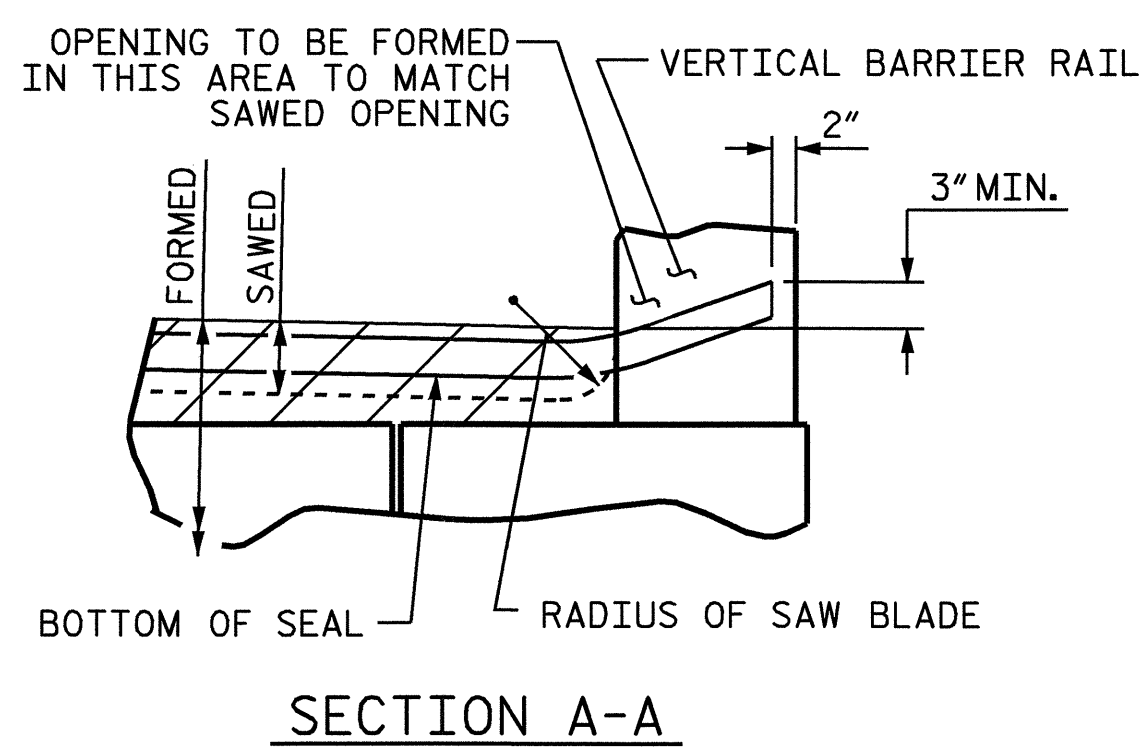
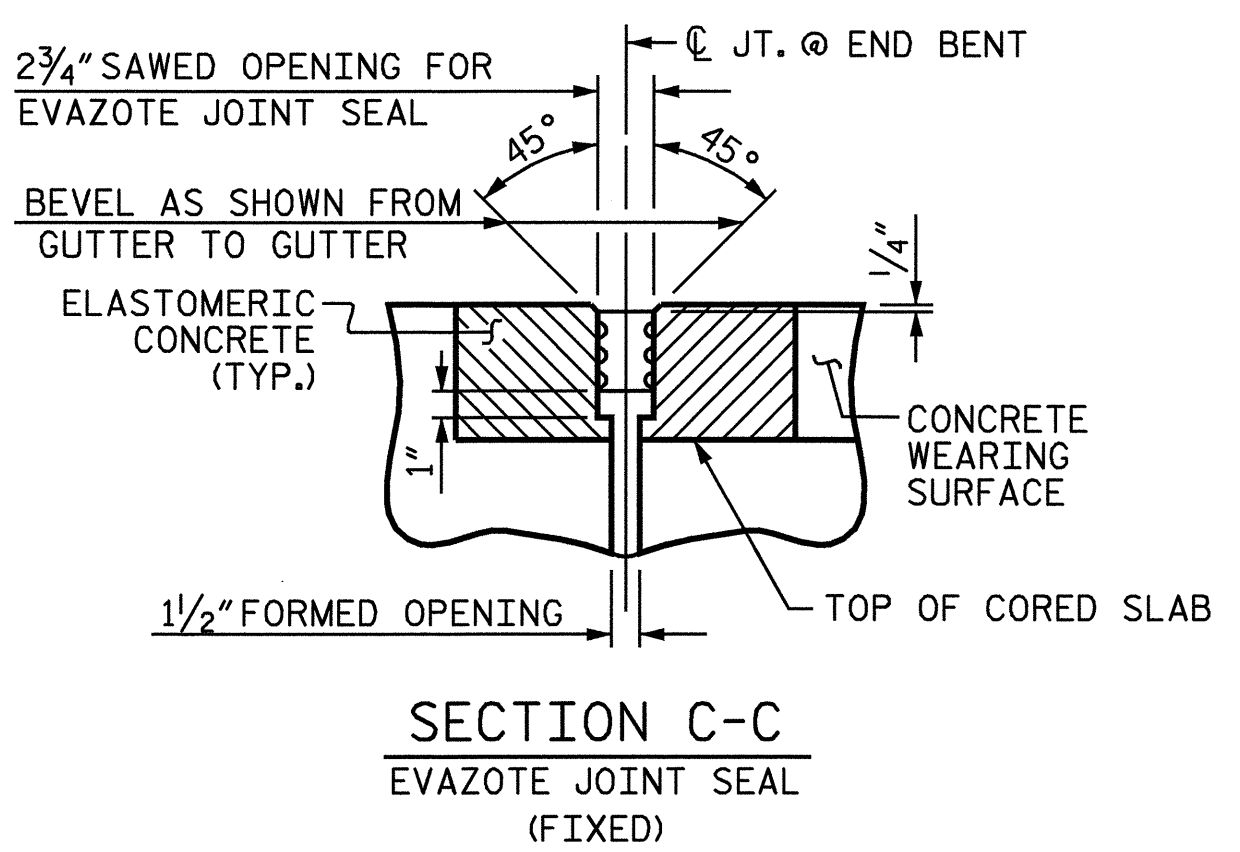
ASSEMBLED BY: ZION J. RORIE DATE: 7/20/06  
 CHECKED BY: B.N. BARODAWALA DATE: 7/25/06  
 DRAWN BY: FCJ 6/87  
 CHECKED BY: EGA 6/87  
 REV. 7/10/01 LES/RDR  
 REV. 5/7/03R RWW/JTE  
 REV. 5/1/06R KMM/GM



NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN. 2" DEPTH, 2) EROSION CONTROL MAT, OR 3) CONCRETE, AS DIRECTED BY THE ENGINEER. THE SLOPE DRAIN SHALL CONSIST OF A NON-PERFORATED TEMPORARY DRAINAGE PIPE, 12 INCHES IN DIAMETER.

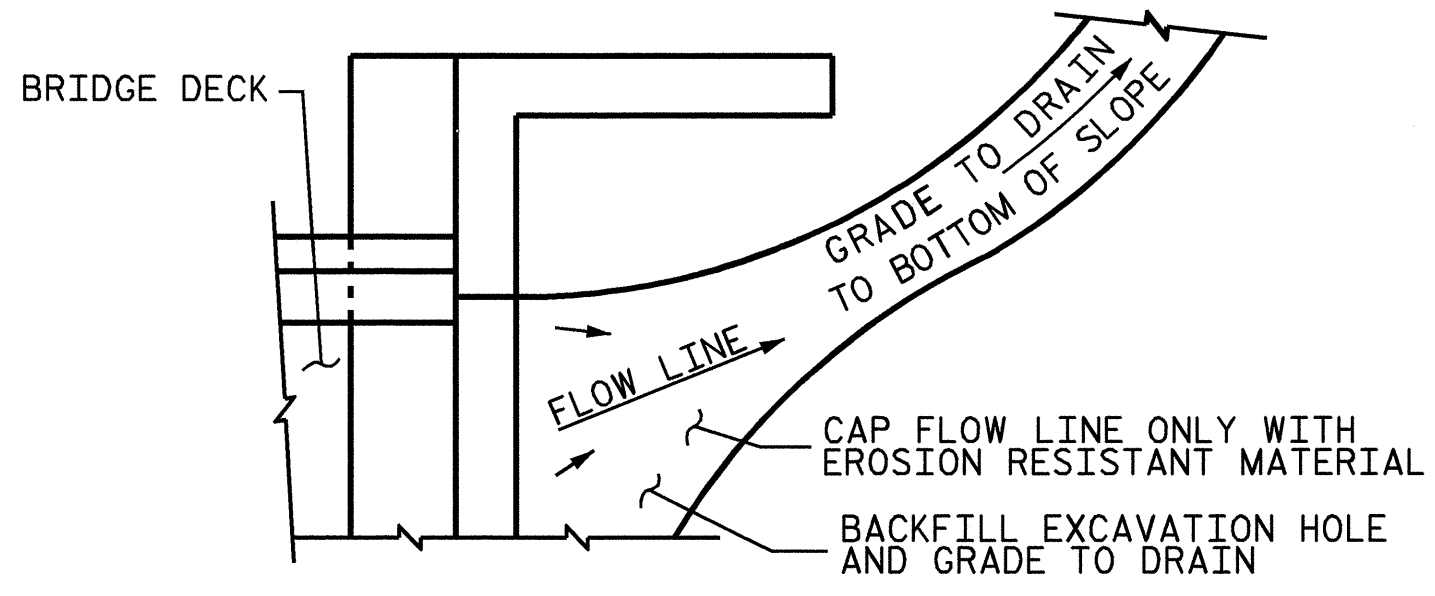
**TEMPORARY BERM AND SLOPE DRAIN DETAILS**

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)



| ELASTOMERIC CONCRETE |                                  |
|----------------------|----------------------------------|
| END BENT NO.         | ELASTOMERIC CONCRETE * (CU. FT.) |
| 1                    | 14.4                             |
| 2                    | 14.4                             |
| TOTAL                | 28.8                             |

\* BASED ON THE MINIMUM BLOCKOUT SHOWN.



NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT TO THE STRUCTURE. THE CONTRACTOR WILL BE REQUIRED TO REMOVE THESE MATERIALS PRIOR TO CONSTRUCTION OF THE APPROACH SLAB.

**TEMPORARY DRAINAGE DETAIL**

**JOINT SEAL DETAILS @ END BENT**

PROJECT NO. B-4280  
STOKES COUNTY  
 STATION: 25+22.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 STANDARD  
 BRIDGE APPROACH  
 SLAB DETAILS

| REVISIONS |     |       |     |     |       |
|-----------|-----|-------|-----|-----|-------|
| NO.       | BY: | DATE: | NO. | BY: | DATE: |
| 1         |     |       | 3   |     |       |
| 2         |     |       | 4   |     |       |

1988  
 SHEET NO. S-51  
 TOTAL SHEETS 51

*Smithy*  
 6/9/07

ASSEMBLED BY : ZION RORIE DATE : 7/20/06  
 CHECKED BY : B.N. BARODAWAL DATE : 7/25/06  
 DRAWN BY : FCJ 11/88 REV. 10/17/00 RWW/LES  
 CHECKED BY : ARB 11/88 REV. 5/1/03 RWW/JTE  
 REV. 5/1/06 TLA/GM



