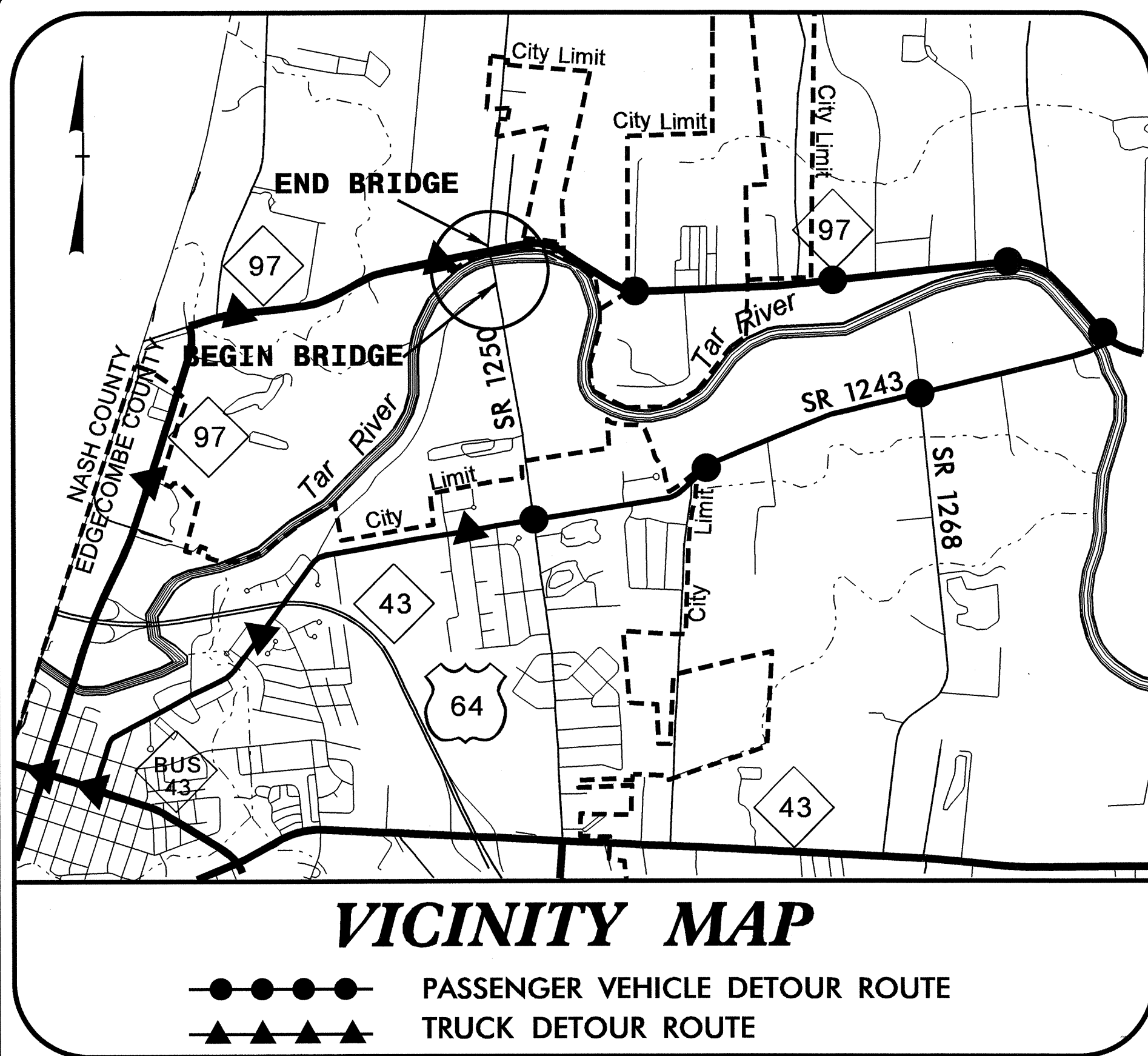


CONTRACT: C202730 TIP PROJECT: B-4503



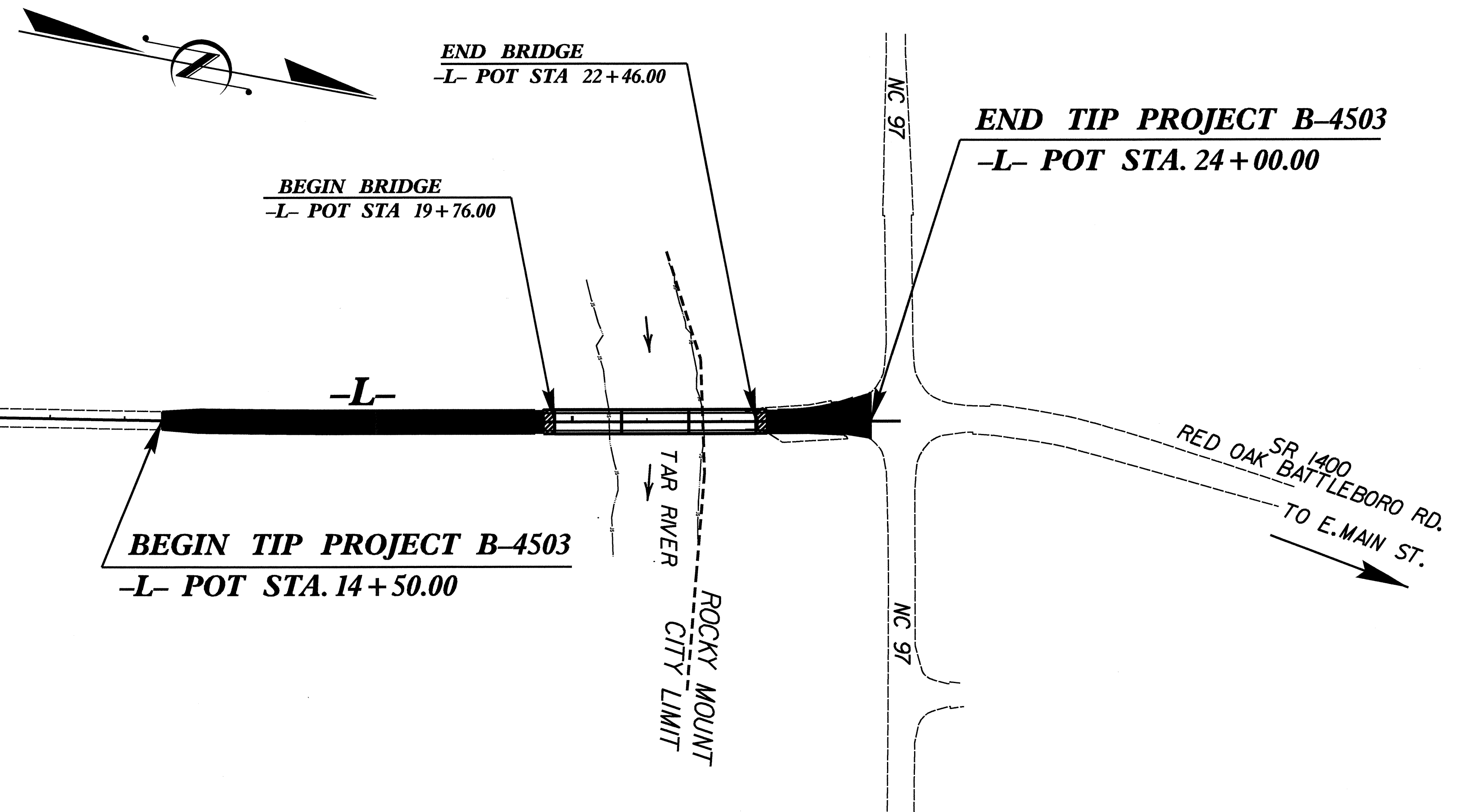
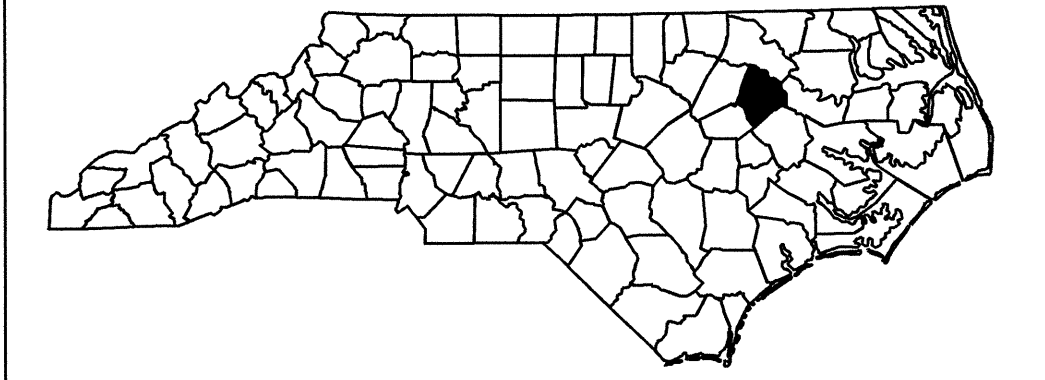
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

EDGECOMBE COUNTY

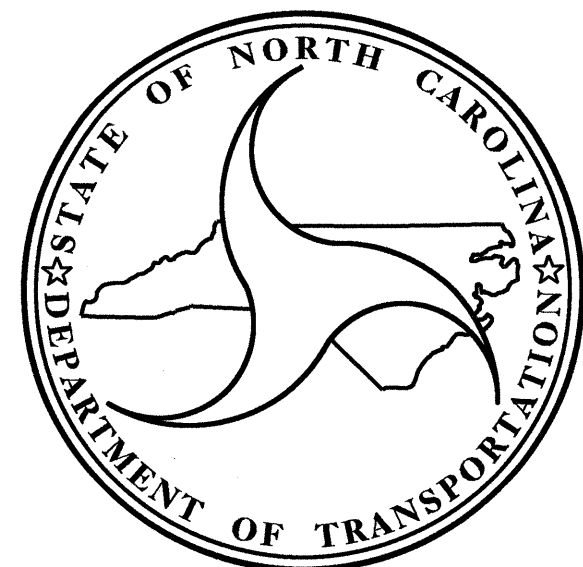
**LOCATION : BRIDGE NO.7 OVER THE TAR RIVER
ON SR 1250 (SPRINGFIELD DR.)**

**TYPE OF WORK : GRADING, DRAINAGE, PAVING
AND STRUCTURE**

| STATE | STATE PROJECT REFERENCE NO. | SHEET NO. | TOTAL SHEETS |
|-----------------|-----------------------------|-------------|--------------|
| N.C. | B-4503 | | |
| STATE PROJ. NO. | F.A. PROJ. NO. | DESCRIPTION | |
| 33734.1.1 | BRSTP-1250 (2) | PE | |
| 33734.2.1 | BRSTP-1250 (2) | R/W & UTIL. | |
| 33734.3.1 | BRSTP-1250 (2) | CONST. | |



STRUCTURE



DESIGN DATA

ADT 2010 = 5,300
 ADT 2030 = 9,500
 DHV = 10
 D = 60 %
 T = 6 % *
 V = 60 MPH
 * TTST 2% DUAL 4 %
 FUNC. CLASS = RURAL LOCAL

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT B-4503 = 0.129 MI.
 LENGTH OF STRUCTURE TIP PROJECT B-4503 = 0.051 MI.
 TOTAL LENGTH OF TIP PROJECT B-4503 = 0.180 MI.

Prepared in the Office of:

DIVISION OF HIGHWAYS

1000 BIRCH RIDGE DR. RALEIGH, NC 27610

2006 STANDARD SPECIFICATIONS

LETTING DATE:
NOVEMBER 15, 2011

N. N. BULLOCK, PE
PROJECT ENGINEER

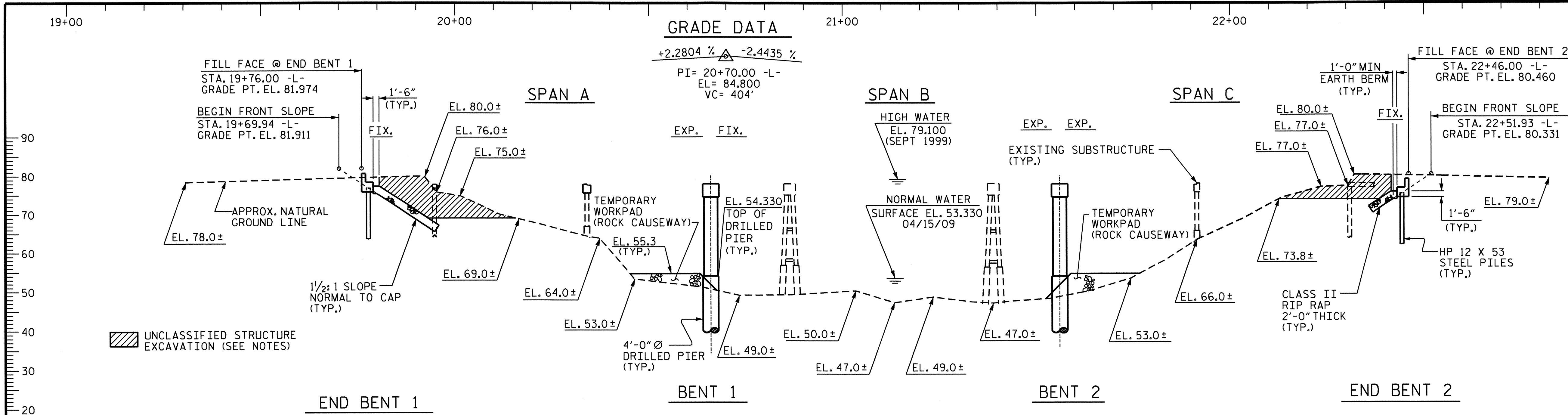
A. K. PASCHAL, PE
PROJECT DESIGN ENGINEER

STRUCTURE DESIGN UNIT

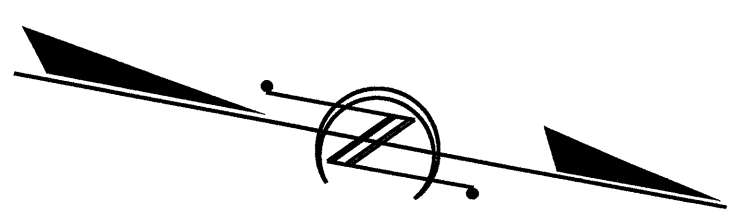
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE DESIGN ENGINEER
DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

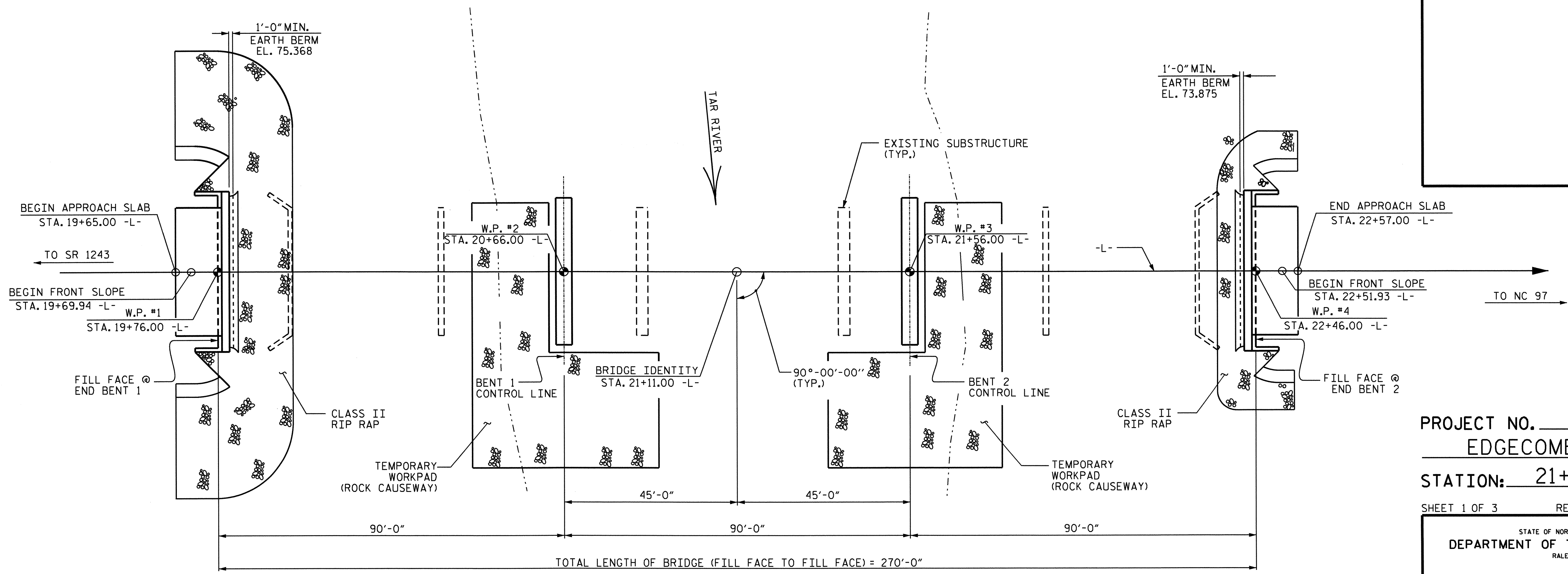
APPROVED
 DIVISION ADMINISTRATOR
 DATE



SECTION ALONG -L-



I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS



PLAN

PILES AND DRILLED PIERS NOT SHOWN IN PLAN FOR CLARITY

PROJECT NO. B-4503
EDGEcombe COUNTY
 STATION: 21+11.00 -L-

SHEET 1 OF 3 REPLACES BRIDGE NO. 7

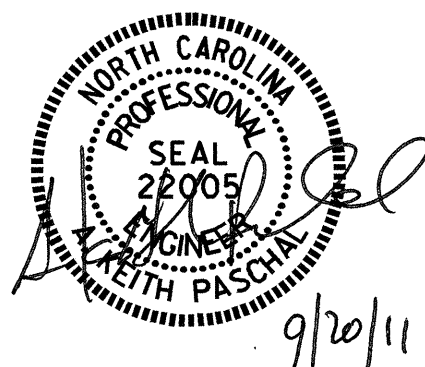
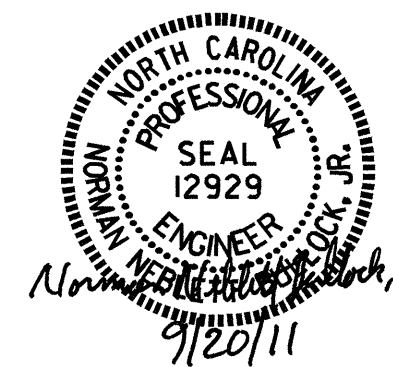
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

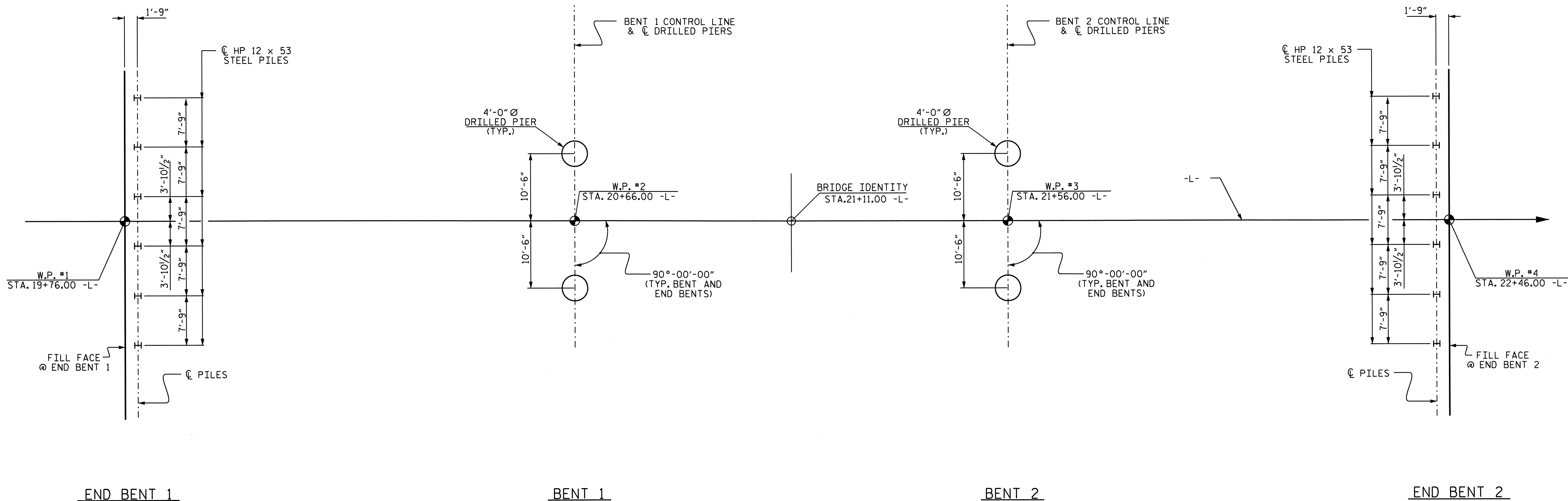
GENERAL DRAWING
 FOR BRIDGE OVER
 TAR RIVER
 ON SR 1250 BETWEEN
 SR 1243 AND NC 97

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

DRAWN BY : J.G. KHARVA DATE : 05/23/11
 CHECKED BY : J.D. HAWK DATE : 06/20/11

19-SEP-2011 08:02
 R:\Structures\Final Plans\B-4503.SD.GD.01.dgn
 jdhawk





FOUNDATION LAYOUT

DIMENSIONS LOCATING PILES ARE SHOWN TO CENTERLINE OF PILES.
 DIMENSIONS LOCATING DRILLED PIERS ARE SHOWN TO CENTERLINE OF DRILLED PIER.

FOUNDATION NOTES

FOR PILES, SEE SPECIAL PROVISIONS.

PILES AT END BENT 1 & END BENT 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 130 TONS PER PILE.

DRIVE PILES AT END BENT 1 & END BENT 2 TO A REQUIRED DRIVING RESISTANCE OF 220 TONS PER PILE.

FOR DRILLED PIERS, SEE SPECIAL PROVISIONS.

DRILLED PIERS AT BENT 1 AND 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 635 TONS PER PIER. CHECK FIELD CONDITIONS FOR THE REQUIRED TIP RESISTANCE OF 90 TSF.

PERMANENT STEEL CASING ARE REQUIRED FOR DRILLED PIERS AT BENT 1 AND BENT 2. DO NOT EXTEND PERMANENT CASING BELOW ELEVATION 35 FT. FOR BOTH BENT 1 AND BENT 2 WITHOUT PRIOR APPROVAL FROM THE ENGINEER.

INSTALL PERMANENT STEEL CASING AT BENT 1 AND BENT 2 BY VIBRATING, SCREWING OR DRIVING PERMANENT CASINGS BEFORE EXCAVATING OR DISTURBING ANY MATERIAL BELOW ELEVATION 39 FT.

INSTALL DRILLED PIERS AT BENT 1 THAT EXTEND TO AN ELEVATION NO HIGHER THAN -2 FT. AND SATISFY THE REQUIRED TIP RESISTANCE.

INSTALL DRILLED PIERS AT BENT 2 THAT EXTEND TO AN ELEVATION NO HIGHER THAN 15 FT. (LEFT AND ELEVATION 5 FT. (RIGHT) AND SATISFY THE REQUIRED TIP RESISTANCE.

THE SCOUR CRITICAL ELEVATION FOR BOTH BENTS 1 AND 2 IS ELEVATION 36 FT. SCOUR CRITICAL ELEVATION ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

SPT TESTING MAY BE REQUIRED FOR DRILLED PIERS AT BENT 1 OR BENT 2.

DO NOT DEWATER DRILLED PIER EXCAVATIONS AT BENT 1 AND BENT 2. CLEAN THE BOTTOM OF EXCAVATIONS WITH A SUBMERSIBLE PUMP OR AND AIRLIFT. WET PLACEMENT OF CONCRETE IS REQUIRED.

SID INSPECTIONS MAY BE REQUIRED FOR DRILLED PIERS AT BENT 1 OR BENT 2. THE ENGINEER WILL DETERMINE THE NEED FOR SID INSPECTIONS.

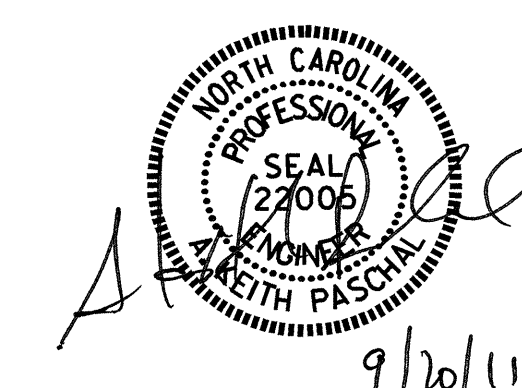
CSL TUBES ARE REQUIRED AND CSL TESTING MAY BE REQUIRED FOR DRILLED PIERS AT BENT 1 OR BENT 2. THE ENGINEER WILL DETERMINE THE NEED FOR CSL TESTING. FOR CROSSHOLE SONIC LOGGING, SEE DRILLED PIER SPECIAL PROVISIONS.

PROJECT NO. B-4503
EDGEcombe COUNTY
 STATION: 21+11.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE OVER
 TAR RIVER
 ON SR 1250 BETWEEN
 SR 1243 AND NC 97



DRAWN BY : J. G. KHARVA DATE : 5/23/11
 CHECKED BY : J. D. HAWK DATE : 6/20/11

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

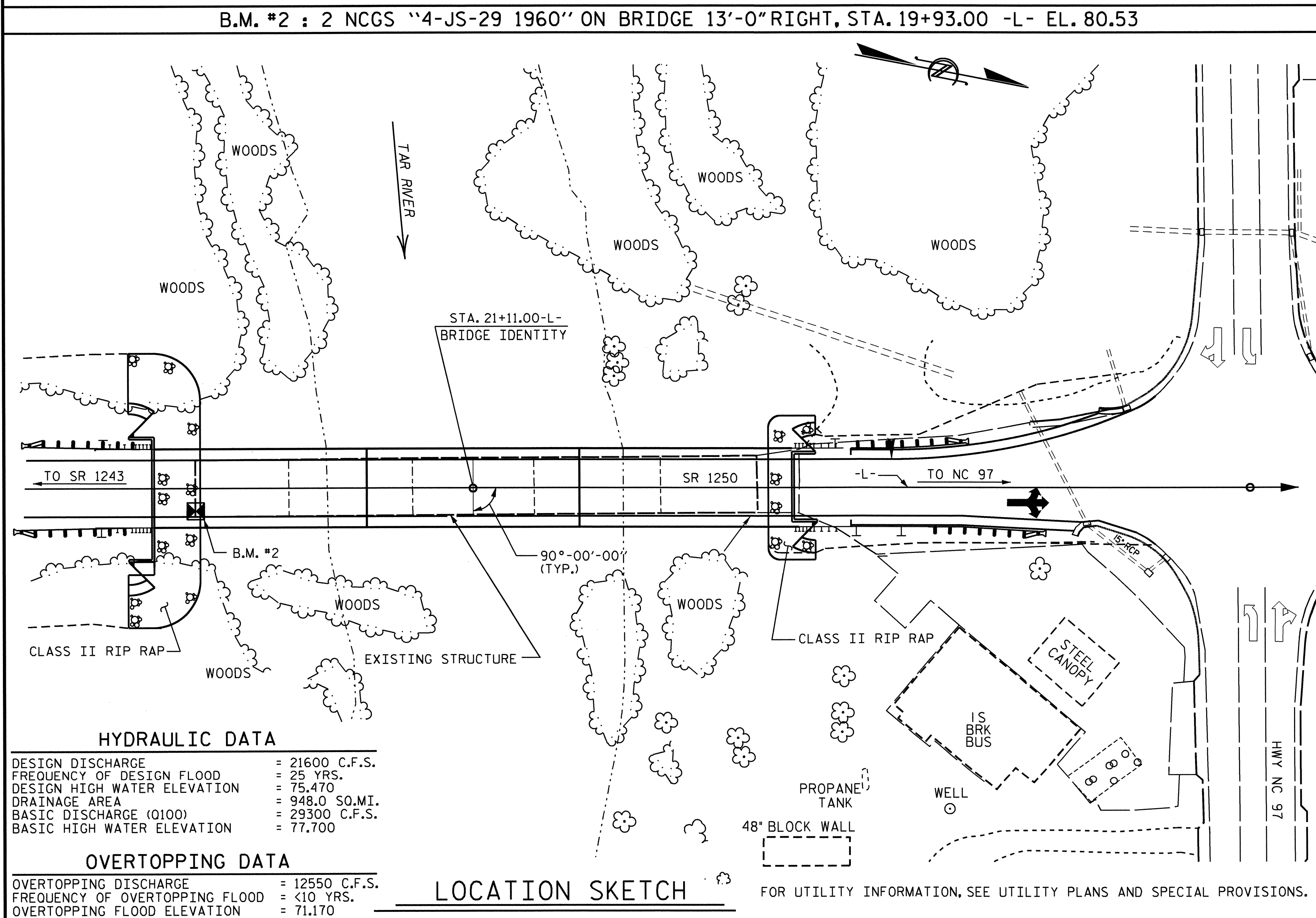
TOTAL BILL OF MATERIAL

| | CONSTRUCTION, MAINTENANCE, AND REMOVAL OF TEMPORARY ACCESS | REMOVAL OF EXISTING STRUCTURE | 4'-0" Ø DRILLED PIERS | PERMANENT STEEL CASING FOR 4'-0" Ø DRILLED PIER | SID INSPECTION | SPT TESTING | CSL TESTING | UNCLASSIFIED STRUCTURE EXCAVATION | CLASS A CONCRETE | BRIDGE APPROACH SLABS | REINFORCING STEEL | SPIRAL COLUMN REINFORCING STEEL | HP 12 x 53 STEEL PILES | TWO BAR METAL RAIL | 1'-2" x 2'-7 3/4" CONCRETE PARAPET | RIP RAP CLASS II (2'-0" THICK) | FILTER FABRIC FOR DRAINAGE | ELASTOMERIC BEARINGS | 3'-0" x 2'-9" PRESTRESSED CONCRETE BOX BEAMS | | |
|----------------|--|-------------------------------|-----------------------|---|----------------|-------------|-------------|-----------------------------------|------------------|-----------------------|-------------------|---------------------------------|------------------------|--------------------|------------------------------------|--------------------------------|----------------------------|----------------------|--|-----|----------|
| | LUMP SUM | LUMP SUM | LIN. FT. | LIN. FT. | EACH | EACH | EACH | LUMP SUM | CU. YDS. | LUMP SUM | LBS. | LBS. | NO. | LIN. FT. | LIN. FT. | LIN. FT. | TONS | SO. YDS. | LUMP SUM | NO. | LIN. FT. |
| SUPERSTRUCTURE | | | | | | | | | | LUMP SUM | | | | 520.50 | 535.50 | | | | LUMP SUM | 36 | 3210.0 |
| END BENT 1 | | | | | | | | LUMP SUM | 18.4 | | 3012 | | 6 | 360 | | 307 | 341 | | | | |
| BENT 1 | | | 112.67 | 38.67 | | | | | 41.1 | | 17121 | 3869 | | | | | | | | | |
| BENT 2 | | | 88.67 | 38.67 | | | | | 40.8 | | 14570 | 4175 | | | | | | | | | |
| END BENT 2 | | | | | | | | LUMP SUM | 18.4 | | 3012 | | 6 | 330 | | 93 | 103 | | | | |
| TOTAL | LUMP SUM | LUMP SUM | 201.34 | 77.34 | 2 | 2 | 1 | LUMP SUM | 118.7 | LUMP SUM | 37715 | 8044 | 12 | 690 | 520.50 | 535.50 | 400 | 444 | LUMP SUM | 36 | 3210.0 |

NOTES

- ASSUMED LIVE LOAD = HL 93 OR ALTERNATE LOADING.
- FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.
- THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.
- FOR EROSION CONTROL MEASURES SEE EROSION CONTROL PLANS.
- THE EXISTING STRUCTURE CONSISTING OF 5 (1 @ 40'-0", 3 @ 52'-6", 1 @ 40'-0") REINFORCED CONCRETE DECK ON STEEL I-BEAM SPANS WITH A CLEAR ROADWAY WIDTH OF 24'-0" SUPPORTED BY REINFORCED CONCRETE END BENTS AND BENTS ON STEEL PILES AND LOCATED AT THE PROPOSED STRUCTURE SHALL BE REMOVED.
- 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 SUBSTRUCTURE OF 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 SUBSTRUCTURE 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.
- THE CONTRACTOR SHALL PROVIDE INDEPENDENT ASSURANCE SAMPLES OF REINFORCING STEEL AS FOLLOWS: FOR PROJECTS REQUIRING UP TO 400 TONS OF REINFORCING STEEL, ONE 30 INCH SAMPLE OF EACH SIZE BAR USED, AND FOR PROJECTS REQUIRING OVER 400 TONS OF REINFORCING STEEL, TWO 30 INCH SAMPLES OF EACH SIZE BAR USED. THE BARS FROM WHICH THE SAMPLES ARE TAKEN MUST THEN BE SPICED WITH REPLACEMENT BARS OF THE SIZE AND LENGTH OF THE SAMPLE, PLUS A MINIMUM LAP SPLICE OF THIRTY BAR DIAMETERS. PAYMENT FOR THE SAMPLES OF REINFORCING STEEL SHALL BE CONSIDERED INCIDENTAL TO THE VARIOUS PAY ITEMS.
- THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 35 FT. EACH SIDE OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION. SEE SECTION 412 OF THE STANDARD SPECIFICATIONS.
- 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 21+11.00-L".
- AT THE CONTRACTOR'S OPTION, AND UPON REMOVAL OF THE CAUSEWAY, THE CLASS II RIP RAP USED IN THE CAUSEWAY MAY BE PLACED AS RIP RAP SLOPE PROTECTION. SEE SPECIAL PROVISIONS FOR CONSTRUCTION, MAINTENANCE AND REMOVAL OF TEMPORARY ACCESS AT STATION 21+11.00 -L-.
- ASPHALT WEARING SURFACE IS INCLUDED IN ROADWAY QUANTITY ON ROADWAY PLANS.
- ALL PAVEMENT MARKING WILL BE IN ACCORDANCE WITH THE PAVEMENT MARKING PLANS AND SHALL PROVIDE FOR BICYCLES.
- FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
- FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.
- FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.
- FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.
- FOR PRESTRESSED CONCRETE MEMBERS, SEE SPECIAL PROVISIONS.
- FOR CURING CONCRETE, SEE SPECIAL PROVISIONS.

B.M. #2 : 2 NCGS "4-JS-29 1960" ON BRIDGE 13'-0" RIGHT, STA. 19+93.00 -L- EL. 80.53



PROJECT NO. B-4503
EDGECOMBE COUNTY
 STATION: 21+11.00 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE OVER
 TAR RIVER
 ON SR 1250 BETWEEN
 SR 1243 AND NC 97

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

9/10/11

DRAWN BY : J.G. KHARVA DATE : 6/23/09
 CHECKED BY : J.D. HAWK DATE : 6/20/11

LOAD FACTORS:

| | | | |
|-------------------------------------|-------------|---------------|---------------|
| DESIGN LOAD RATING FACTORS | LIMIT STATE | γ_{DC} | γ_{DW} |
| | STRENGTH I | 1.25 | 1.50 |
| | SERVICE III | 1.00 | 1.00 |

| LOAD AND RESISTANCE FACTOR RATING (LRFD) SUMMARY FOR PRESTRESSED CONCRETE GIRDERS | | | | | | | | | | | | | | | | | | | | | | | | |
|---|------------|----------------------|---------------------------------|-----------------------------------|---------------|------------------------|------------------------------|---------------|------|-----------------|---|------------------------------|---------------|------|-----------------|---|---------------------|------------------------------|---------------|------|-----------------|----------------|---|--|
| LEVEL | VEHICLE | WEIGHT (W) (TONS) | CONTROLLING LOAD RATING # | MINIMUM RATING FACTORS (RF) | TONS = W X RF | STRENGTH I LIMIT STATE | | | | | | | | | | SERVICE III LIMIT STATE | | | | | | COMMENT NUMBER | | |
| | | | | | | MOMENT | | | | | SHEAR | | | | | MOMENT | | | | | | | | |
| | | | | | | LIVELOAD FACTORS | DISTRIBUTION FACTORS (DF) | RATING FACTOR | SPAN | GIRDER LOCATION | DISTANCE FROM LEFT END OF SPAN (ft) | DISTRIBUTION FACTORS (DF) | RATING FACTOR | SPAN | GIRDER LOCATION | DISTANCE FROM LEFT END OF SPAN (ft) | LIVELOAD FACTORS | DISTRIBUTION FACTORS (DF) | RATING FACTOR | SPAN | GIRDER LOCATION | | DISTANCE FROM LEFT END OF SPAN (ft) | |
| DESIGN LOAD RATING | HL-93(In) | N/A | 1 | 1.033 | -- | 1.75 | 0.268 | 1.22 | B | EL | 44.188 | 0.49 | 1.04 | B | EL | 4.419 | 0.80 | 0.268 | 1.03 | B | EL | 44.188 | | |
| | HL-93(0pr) | N/A | -- | 1.348 | -- | 1.35 | 0.268 | 1.58 | B | EL | 44.188 | 0.49 | 1.35 | B | EL | 4.419 | N/A | -- | -- | -- | -- | -- | | |
| | HS-20(In) | 36.000 | 2 | 1.362 | 49.047 | 1.75 | 0.268 | 1.65 | B | EL | 44.188 | 0.49 | 1.36 | B | EL | 4.419 | 0.80 | 0.268 | 1.40 | B | EL | 44.188 | | |
| | HS-20(0pr) | 36.000 | -- | 1.766 | 63.580 | 1.35 | 0.268 | 2.14 | B | EL | 44.188 | 0.49 | 1.77 | B | EL | 4.419 | N/A | -- | -- | -- | -- | -- | | |
| LEGAL LOAD RATING | SV | SNSH | 13.500 | -- | 3.275 | 44.218 | 1.4 | 0.268 | 4.82 | B | EL | 44.188 | 0.49 | 4.17 | B | EL | 4.419 | 0.80 | 0.268 | 3.28 | B | EL | 44.188 | |
| | | SNGARBS2 | 20.000 | -- | 2.394 | 47.881 | 1.4 | 0.268 | 3.52 | B | EL | 44.188 | 0.49 | 2.93 | B | EL | 4.419 | 0.80 | 0.268 | 2.39 | B | EL | 44.188 | |
| | | SNAGRIS2 | 22.000 | -- | 2.248 | 49.458 | 1.4 | 0.268 | 3.31 | B | EL | 44.188 | 0.49 | 2.70 | B | EL | 4.419 | 0.80 | 0.268 | 2.25 | B | EL | 44.188 | |
| | | SNCOTTS3 | 27.250 | -- | 1.629 | 44.378 | 1.4 | 0.268 | 2.40 | B | EL | 44.188 | 0.49 | 2.08 | B | EL | 4.419 | 0.80 | 0.268 | 1.63 | B | EL | 44.188 | |
| | | SNAGGRS4 | 34.925 | -- | 1.343 | 46.902 | 1.4 | 0.268 | 1.98 | B | EL | 44.188 | 0.49 | 1.70 | B | EL | 4.419 | 0.80 | 0.268 | 1.34 | B | EL | 44.188 | |
| | | SNS5A | 35.550 | -- | 1.314 | 46.730 | 1.4 | 0.268 | 1.93 | B | EL | 44.188 | 0.49 | 1.71 | B | EL | 4.419 | 0.80 | 0.268 | 1.31 | B | EL | 44.188 | |
| | | SNS6A | 39.950 | -- | 1.199 | 47.885 | 1.4 | 0.268 | 1.76 | B | EL | 44.188 | 0.49 | 1.55 | B | EL | 4.419 | 0.80 | 0.268 | 1.20 | B | EL | 44.188 | |
| | SNS7B | 42.000 | -- | 1.141 | 47.930 | 1.4 | 0.268 | 1.68 | B | EL | 44.188 | 0.49 | 1.51 | B | EL | 4.419 | 0.80 | 0.268 | 1.14 | B | EL | 44.188 | | |
| | TTST | TNAGRIT3 | 33.000 | -- | 1.459 | 48.163 | 1.4 | 0.268 | 2.15 | B | EL | 44.188 | 0.49 | 1.85 | B | EL | 4.419 | 0.80 | 0.268 | 1.46 | B | EL | 44.188 | |
| | | TNT4A | 33.075 | -- | 1.464 | 48.419 | 1.4 | 0.268 | 2.15 | B | EL | 44.188 | 0.49 | 1.81 | B | EL | 4.419 | 0.80 | 0.268 | 1.46 | B | EL | 44.188 | |
| | | TNT6A | 41.600 | -- | 1.190 | 49.503 | 1.4 | 0.268 | 1.75 | B | EL | 44.188 | 0.49 | 1.58 | B | EL | 4.419 | 0.80 | 0.268 | 1.19 | B | EL | 44.188 | |
| | | TNT7A | 42.000 | -- | 1.192 | 50.074 | 1.4 | 0.268 | 1.75 | B | EL | 44.188 | 0.49 | 1.56 | B | EL | 4.419 | 0.80 | 0.268 | 1.19 | B | EL | 44.188 | |
| | | TNT7B | 42.000 | -- | 1.224 | 51.424 | 1.4 | 0.268 | 1.8 | B | EL | 44.188 | 0.49 | 1.48 | B | EL | 4.419 | 0.80 | 0.268 | 1.22 | B | EL | 44.188 | |
| | | TNAGRIT4 | 43.000 | -- | 1.171 | 50.372 | 1.4 | 0.268 | 1.72 | B | EL | 44.188 | 0.49 | 1.44 | B | EL | 4.419 | 0.80 | 0.268 | 1.17 | B | EL | 44.188 | |
| TNAGT5A | | 45.000 | -- | 1.108 | 49.846 | 1.4 | 0.268 | 1.63 | B | EL | 44.188 | 0.49 | 1.41 | B | EL | 4.419 | 0.80 | 0.268 | 1.11 | B | EL | 44.188 | | |
| TNAGT5B | 45.000 | 3 | 1.097 | 49.370 | 1.4 | 0.268 | 1.61 | B | EL | 44.188 | 0.49 | 1.37 | B | EL | 4.419 | 0.80 | 0.268 | 1.10 | B | EL | 44.188 | | | |

NOTES:

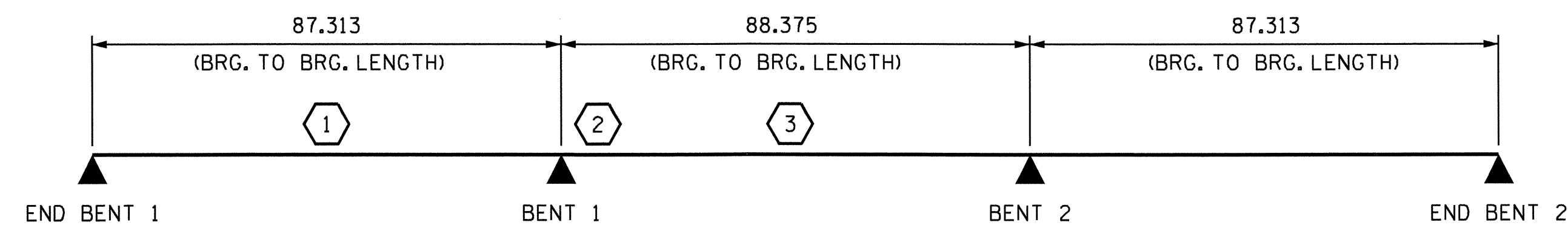
MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE III LIMIT STATES.

ALLOWABLE STRESSES FOR SERVICE III LIMIT STATE ARE AS REQUIRED FOR DESIGN.

COMMENTS:

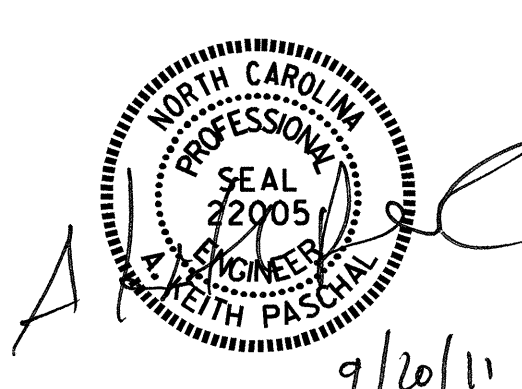
- 1.
- 2.
- 3.
- 4.

| | |
|-------------------------------|----------------------------|
| # | CONTROLLING LOAD RATING |
| 1 | DESIGN LOAD RATING (HL-93) |
| 2 | DESIGN LOAD RATING (HS-20) |
| 3 | LEGAL LOAD RATING ** |
| ** SEE CHART FOR VEHICLE TYPE | |
| GIRDER LOCATION | |
| I - INTERIOR GIRDER | |
| EL - EXTERIOR LEFT GIRDER | |
| ER - EXTERIOR RIGHT GIRDER | |



LRFR SUMMARY

PROJECT NO. B-4503
EDGEcombe COUNTY
 STATION: 21+11.00 -L-



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 LRFR SUMMARY FOR
 PRESTRESSED
 CONCRETE GIRDERS
 (NON-INTERSTATE TRAFFIC)

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

ASSEMBLED BY : J. MYA DATE : 6-10-11
 CHECKED BY : J. G. KHARVA DATE : 6-13-11
 DRAWN BY : MAA 1/08 REV. 11/12/08R MAA/GM
 CHECKED BY : GM/DI 2/08

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 BOX BEAM SECTIONS SHALL BE GRADE 60 AND SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE BOX BEAMS.

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

THE 2 1/2" Ø DOWEL HOLES AT FIXED ENDS OF BOX BEAM SECTIONS SHALL BE FILLED WITH GROUT. THE 2 1/2" Ø DOWEL HOLES AT EXPANSION ENDS OF BOX BEAM SECTIONS SHALL BE FILLED WITH JOINT SEALER MATERIAL TO 1/2" ABOVE THE TOP OF DOWELS AND THEN FILLED WITH GROUT.

THE JOINT SEALER MATERIAL SHALL CONFORM TO THE REQUIREMENTS OF TYPE SL LOW MODULUS SILICONE SEALANT. THE 2" Ø BACKER ROD SHALL CONFORM TO THE REQUIREMENTS OF TYPE M BOND BREAKER. SEE SECTION 1028 OF THE STANDARD SPECIFICATIONS.

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE BOX BEAM UNIT SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 6000 PSI.

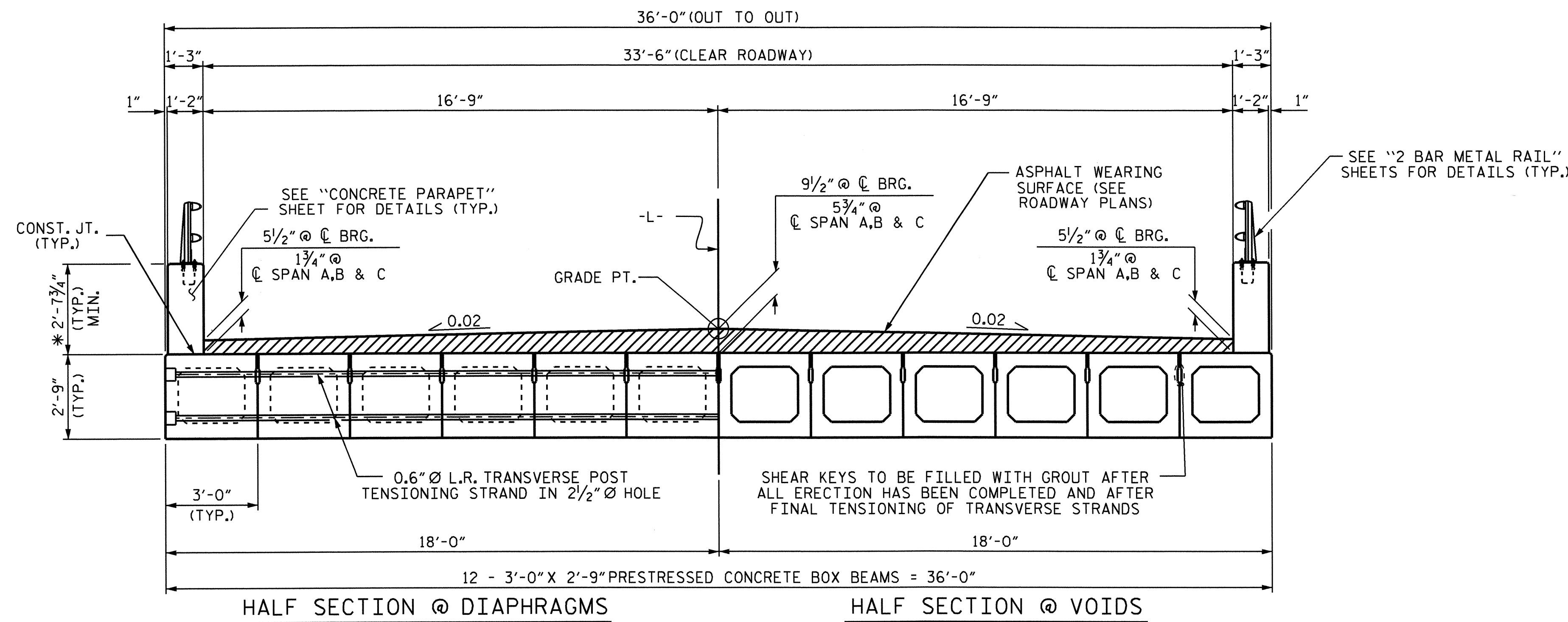
ALL REINFORCING STEEL IN CONCRETE PARAPET SHALL BE EPOXY COATED.

PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE BOX BEAM UNIT ENDS.

APPLY EPOXY PROTECTIVE COATING TO BOX BEAM UNIT ENDS.

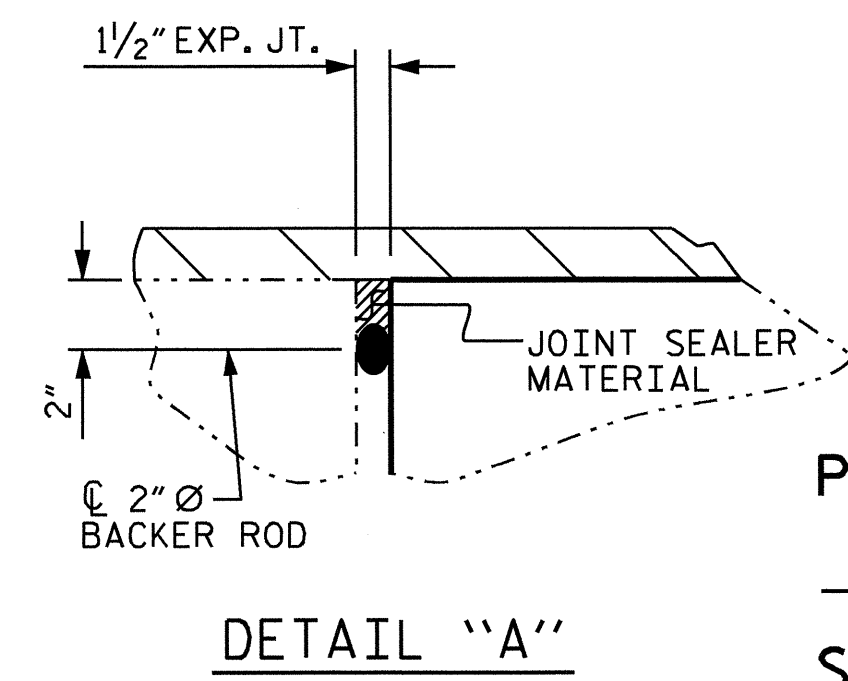
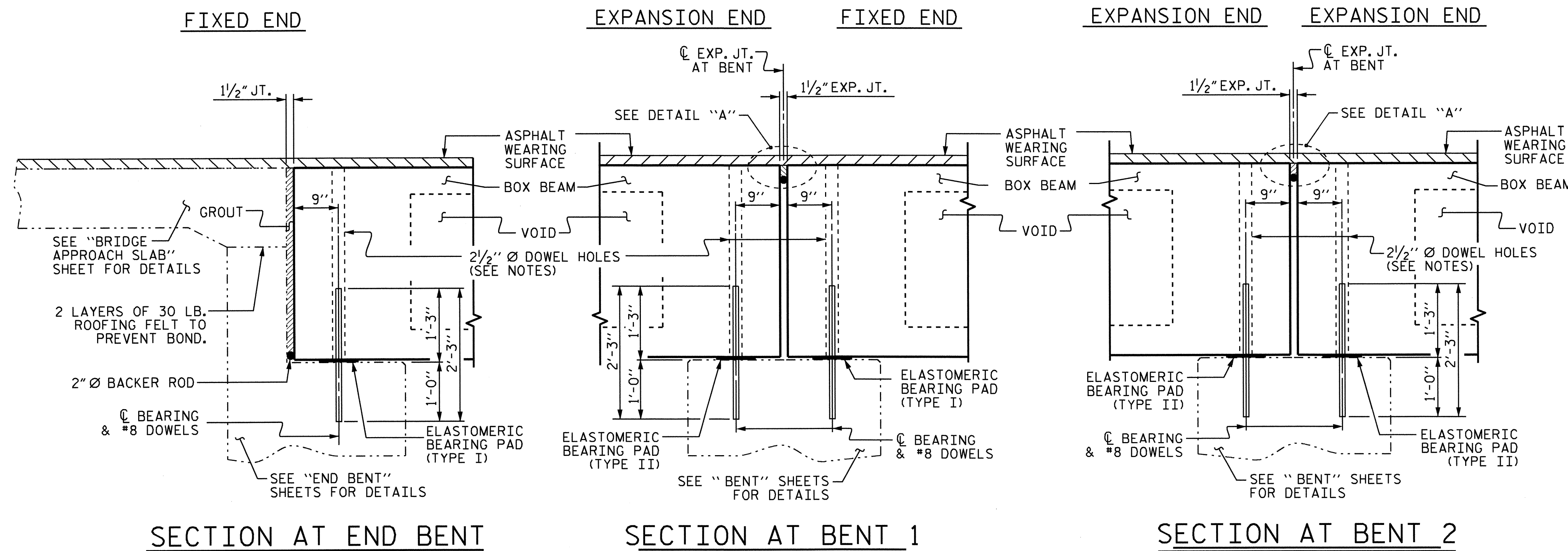
VERTICAL GROOVED CONTRACTION JOINTS 1/2" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF PARAPET IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. THE CONTRACTION JOINTS SHALL BE LOCATED AT A SPACING OF 8 FEET TO 10 FEET BETWEEN EXPANSION JOINTS. NO CONTRACTION JOINTS WILL BE REQUIRED FOR SEGMENTS LESS THAN 10 FEET IN LENGTH.

THE LOCATION OF THE VOID DRAINS MAY BE SHIFTED SLIGHTLY WHERE NECESSARY TO CLEAR PRESTRESSING STRANDS OR TRANSVERSE REINFORCING STEEL.



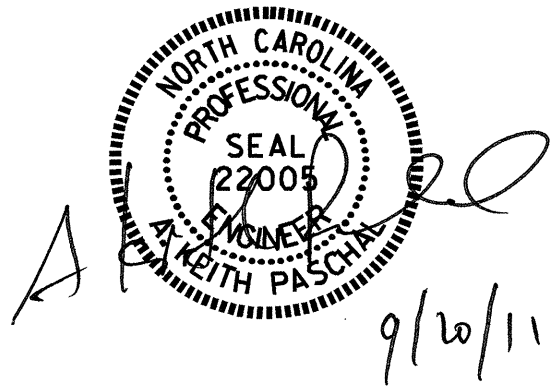
TYPICAL SECTION

* THE MINIMUM HEIGHT OF THE PARAPET IS SHOWN. THE HEIGHT OF THE PARAPET VARIES WHILE THE TOP OF THE PARAPET FOLLOWS THE PROFILE OF THE GUTTERLINE

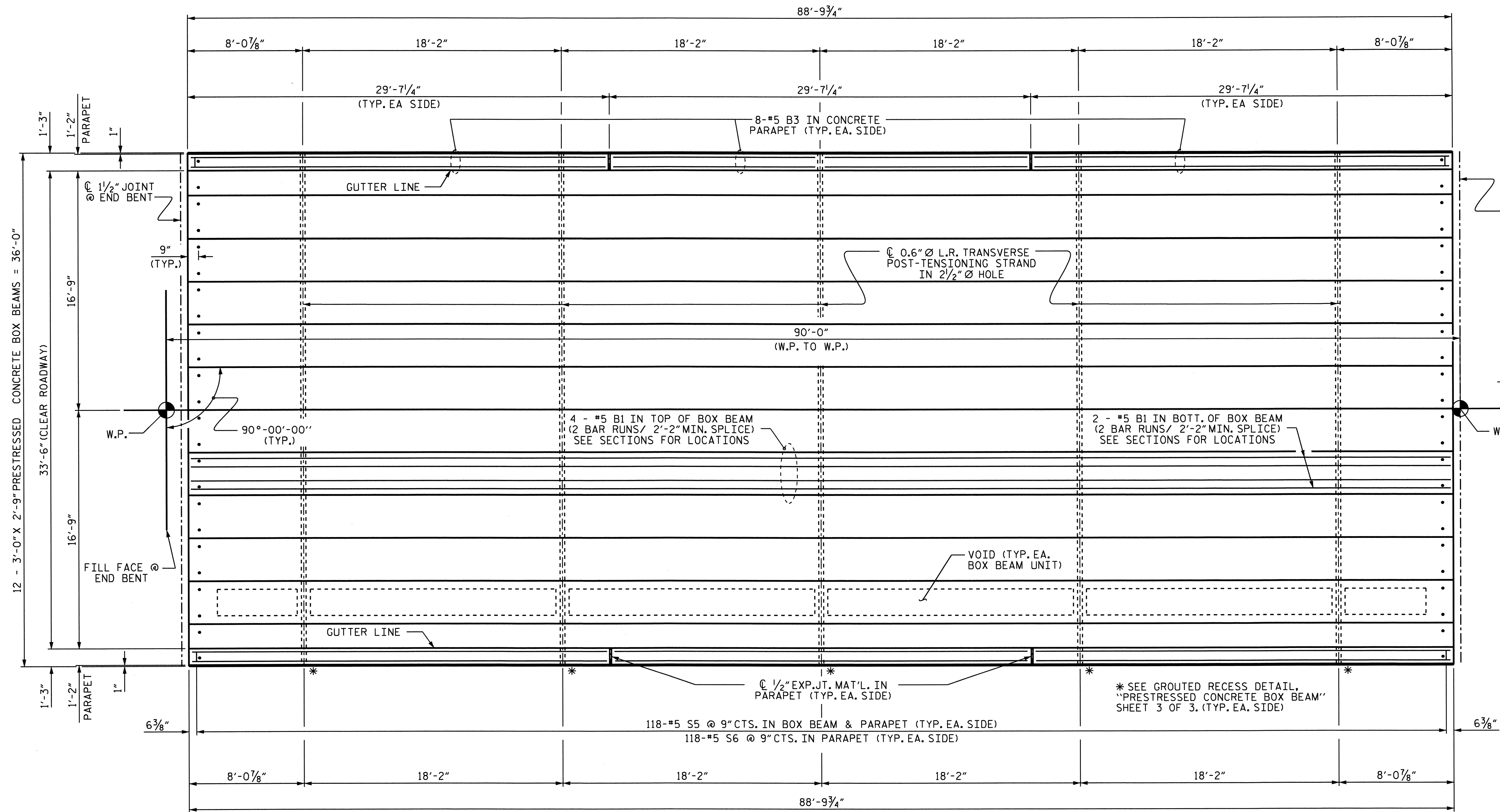


PROJECT NO. B-4503
EDGEcombe COUNTY
 STATION: 21+11.00 -L-

| | | | | | | |
|--|-----|-------|-----|-----|-------|--------------------|
| STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH | | | | | | SHEET NO. S-5 |
| STANDARD 3'-0" X 2'-9" PRESTRESSED CONCRETE BOX BEAM UNIT | | | | | | |
| REVISIONS | | | | | | TOTAL SHEETS 24 |
| NO. | BY: | DATE: | NO. | BY: | DATE: | |
| 1 | | | 3 | | | |
| 2 | | | 4 | | | |

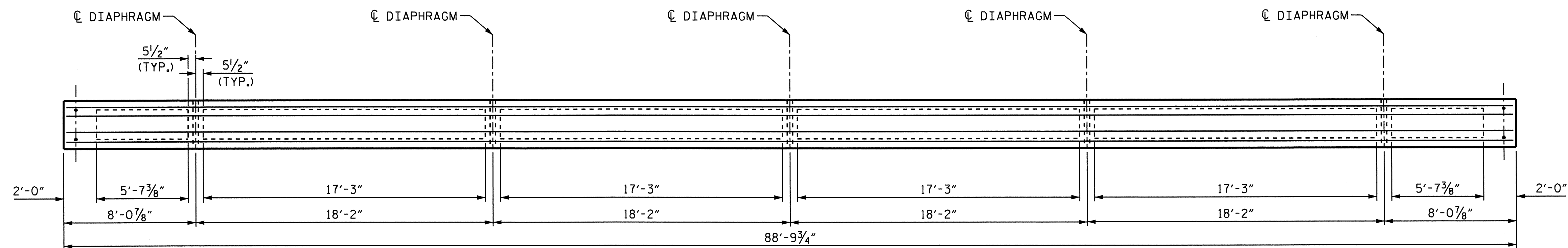


ASSEMBLED BY : M. E. FOWLER DATE : 5/1/11
 CHECKED BY : J. D. HAWK DATE : 6/1/11
 DRAWN BY : TLA 5/05
 CHECKED BY : GM 6/05
 ADDED 7/1/05R
 REV. 5/1/06R KMM/GM



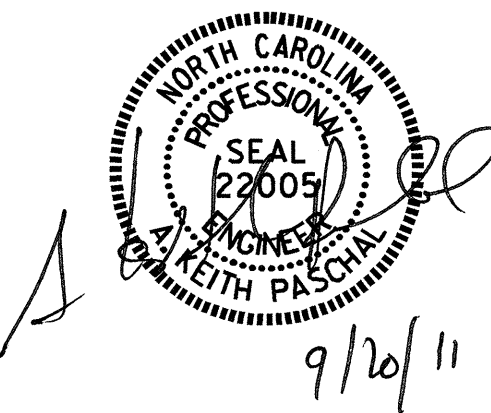
PLAN OF SPAN A

(FOR ADDITIONAL REINFORCING STEEL IN THE BOX BEAM UNITS, SEE "3'-0" X 2'-9" PRESTRESSED BOX BEAM UNIT SHEETS" (SPAN C SIMILAR))



PLAN OF BOX BEAM - SPAN A

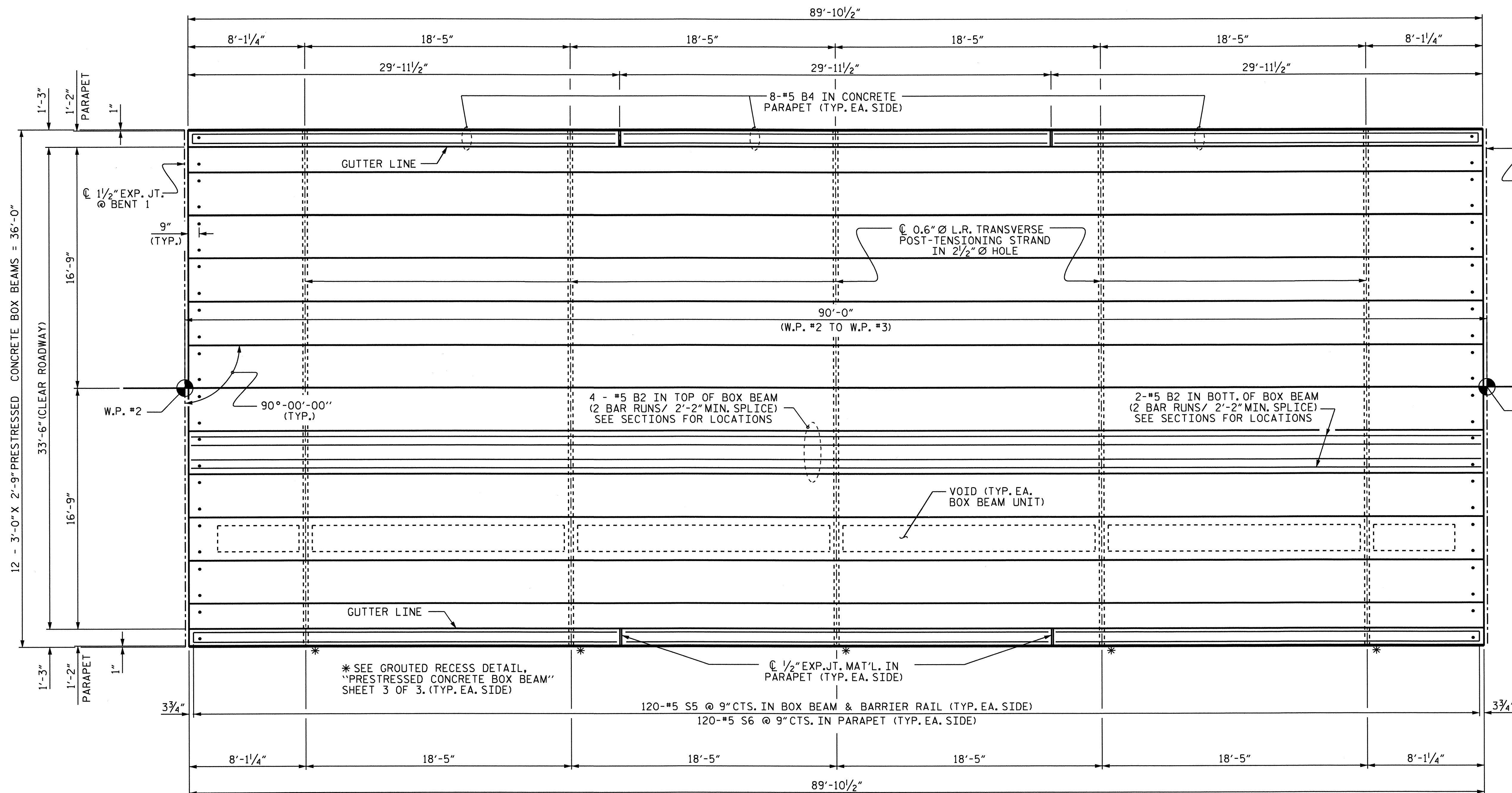
(SHOWING LOCATION OF VOIDS AND DIAPHRAGMS)



PROJECT NO. B-4503
EDGEcombe COUNTY
 STATION: 21+11.00 -L-

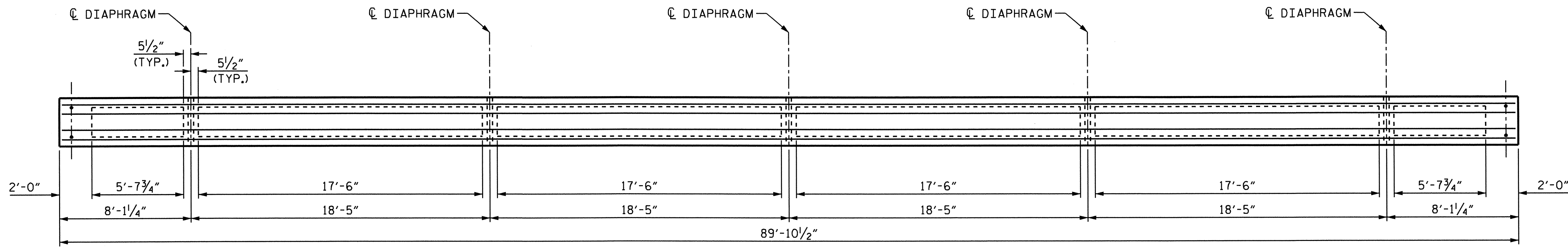
| | | | | | |
|--|-----|-------|-----|-----|--|
| STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH | | | | | |
| SUPERSTRUCTURE PLAN OF SPANS A & C | | | | | |
| REVISIONS | | | | | |
| NO. | BY: | DATE: | NO. | BY: | DATE: |
| 1 | | | 3 | | |
| 2 | | | 4 | | |
| | | | | | SHEET NO. S-6 TOTAL SHEETS 24 |

DRAWN BY : M. E. FOWLER DATE : 5/1/11
 CHECKED BY : J. D. HAWK DATE : 6/1/11



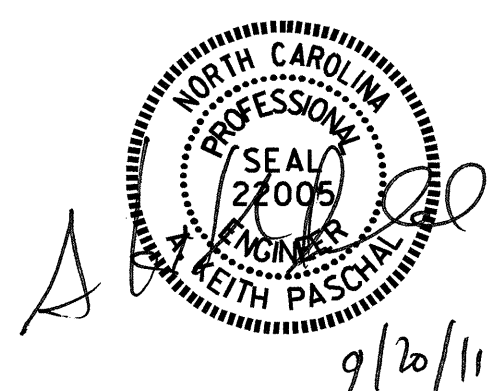
PLAN OF SPAN B

(FOR ADDITIONAL REINFORCING STEEL IN THE BOX BEAM UNITS, SEE "3'-0" X 2'-9" PRESTRESSED BOX BEAM UNIT SHEETS)



PLAN OF BOX BEAM - SPAN B

(SHOWING LOCATION OF VOIDS AND DIAPHRAGMS)



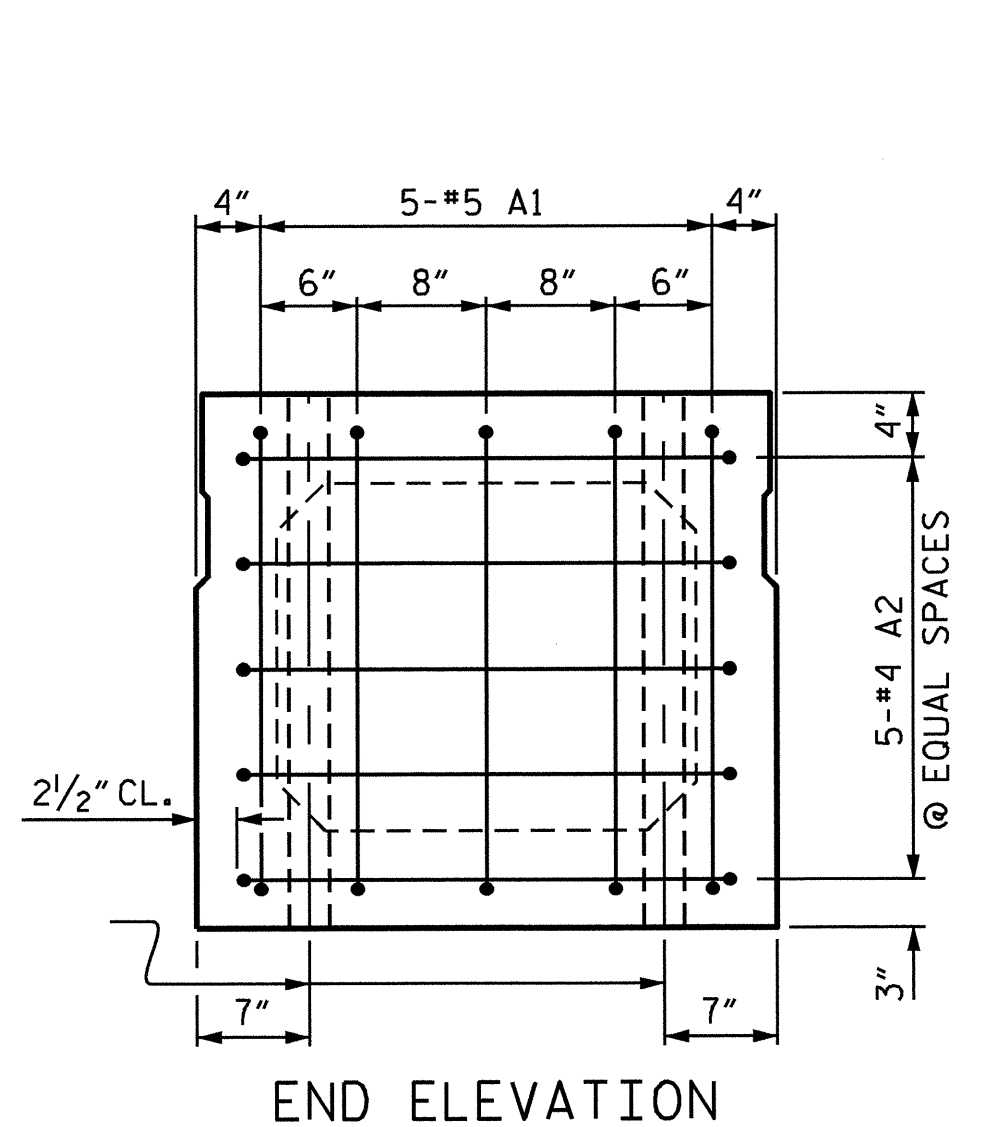
PROJECT NO. B-4503
EDGEcombe COUNTY
 STATION: 21+11.00 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

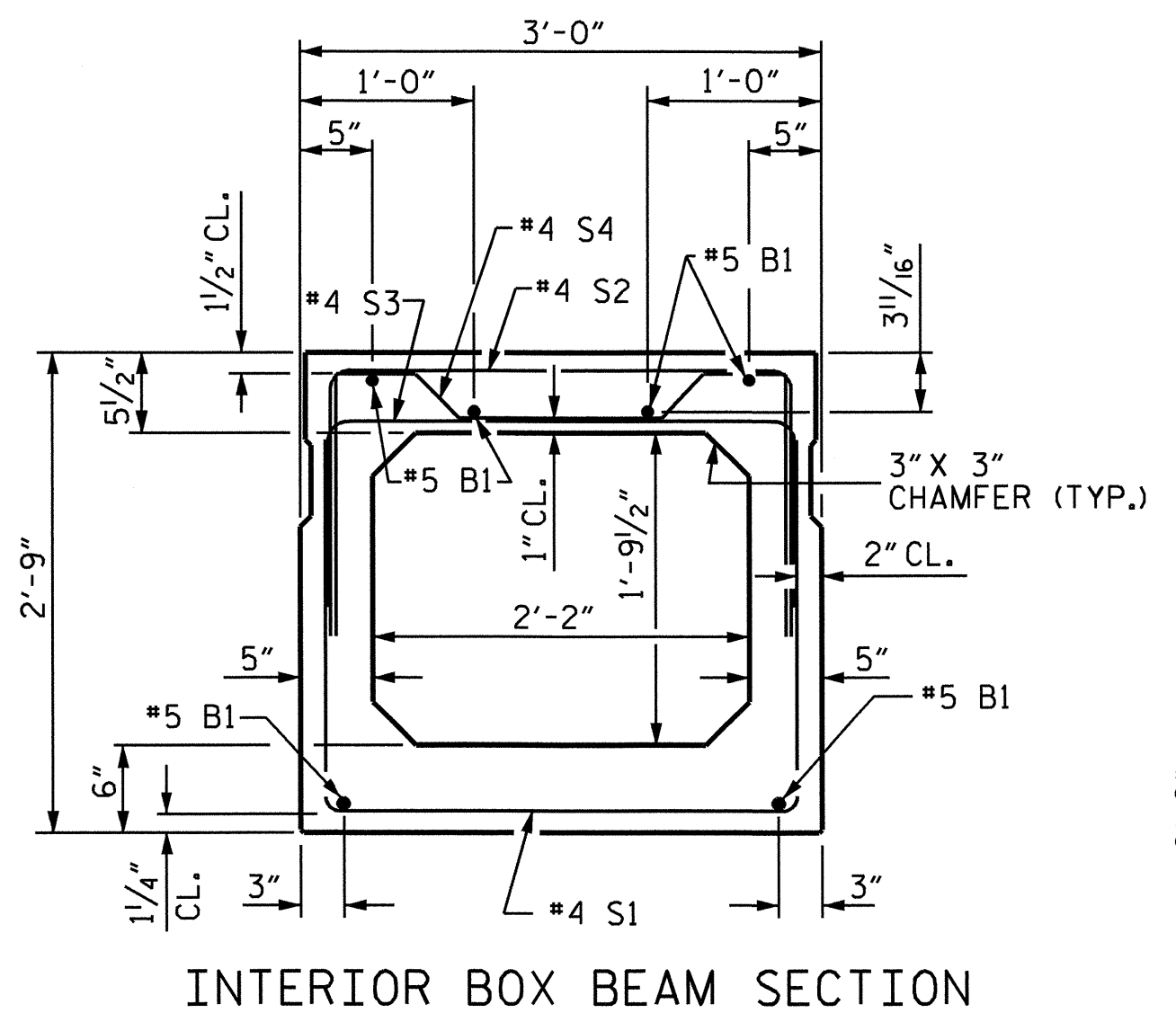
**SUPERSTRUCTURE
 PLAN OF SPAN B**

DRAWN BY : M. E. FOWLER DATE : 5/1/11
 CHECKED BY : J. D. HAWK DATE : 6/1/11

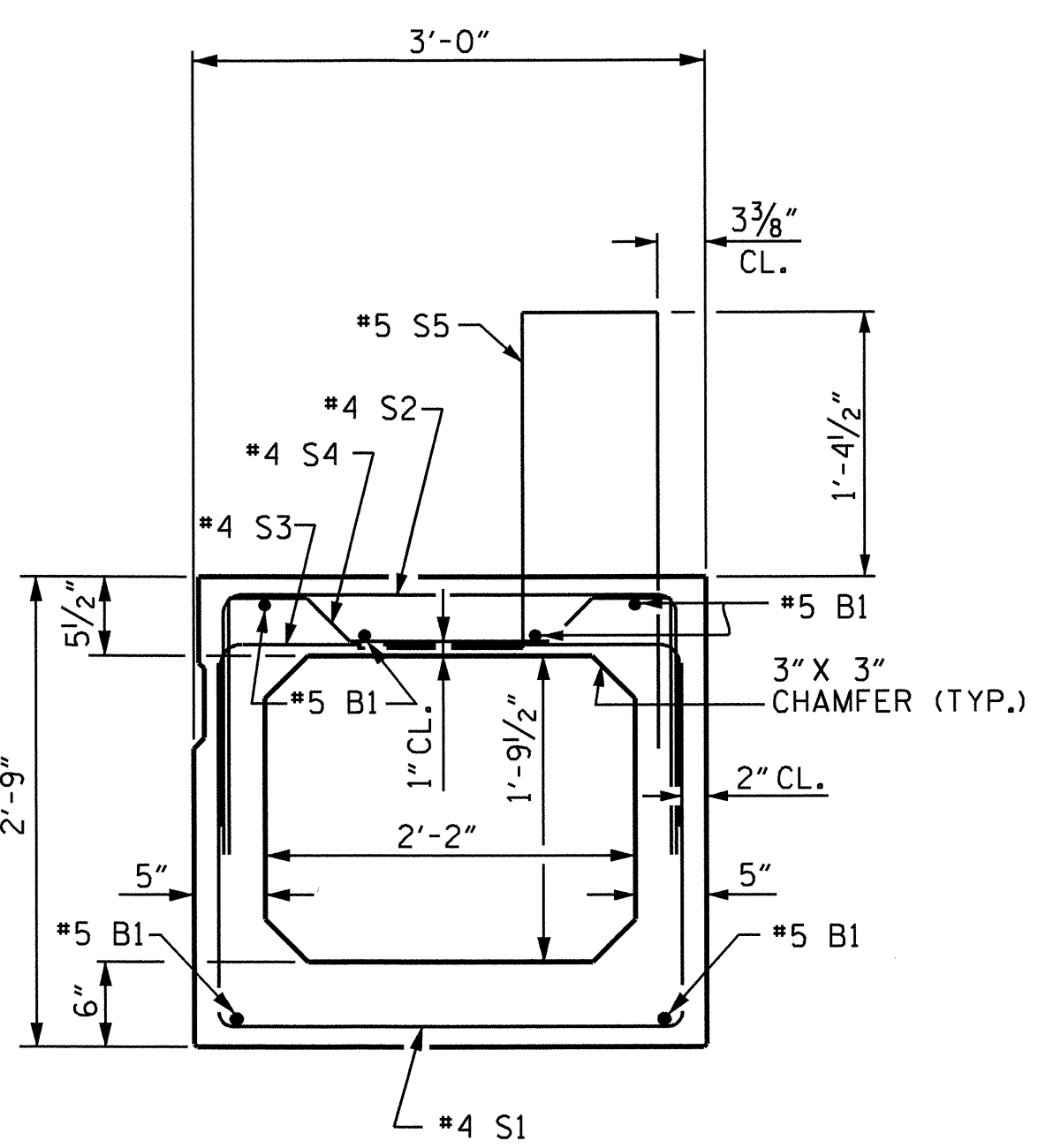
| REVISIONS | | | | | | SHEET NO. | |
|-----------|-----|-------|-----|-----|-------|--------------|----|
| NO. | BY: | DATE: | NO. | BY: | DATE: | S-7 | |
| 1 | | | 3 | | | TOTAL SHEETS | 24 |
| 2 | | | 4 | | | | |



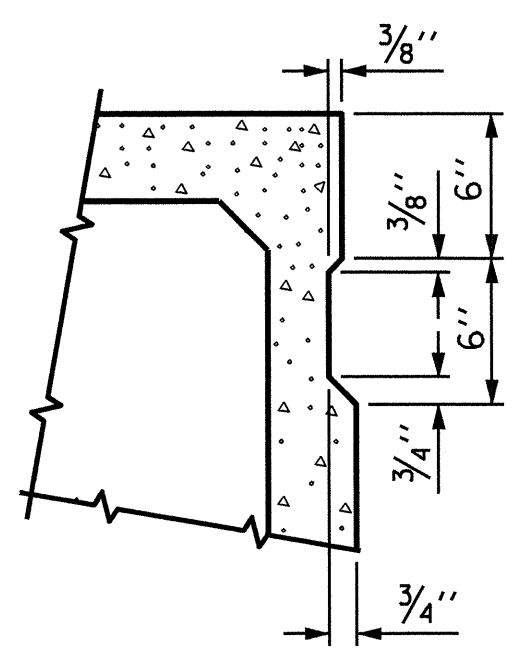
END ELEVATION
 SHOWING PLACEMENT OF #5 & #4 "A" BARS AND LOCATION OF DOWEL HOLES. (INTERIOR BOX BEAM SECTION SHOWN-EXTERIOR SECTION SIMILAR EXCEPT SHEAR KEY LOCATION. STRAND LAYOUT NOT SHOWN.)



INTERIOR BOX BEAM SECTION
 (STRAND LAYOUT NOT SHOWN)



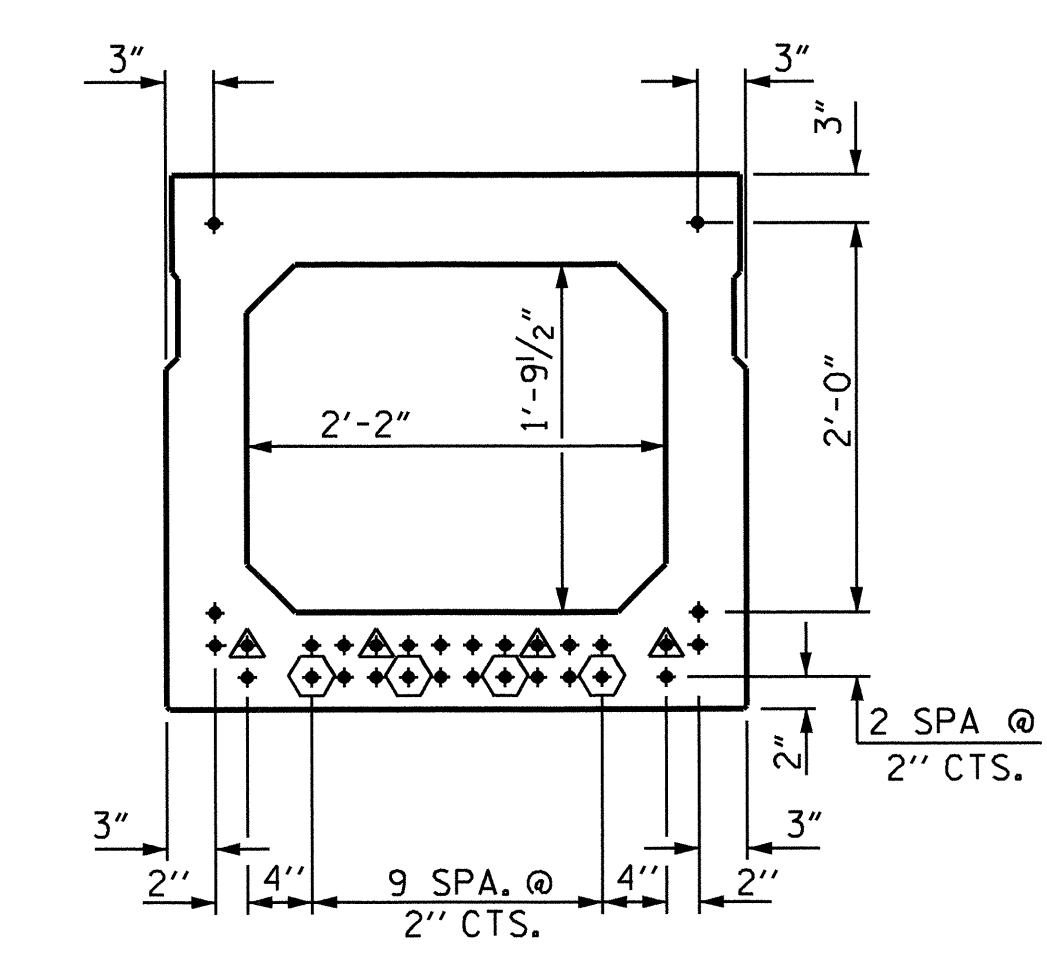
EXTERIOR BOX BEAM SECTION
 (STRAND LAYOUT NOT SHOWN)



SHEAR KEY DETAIL
 NOTE: OMIT SHEAR KEY ON OUTSIDE FACE OF EXTERIOR BOX BEAMS.

| GRADE 270 STRANDS | |
|-------------------------------------|--------|
| AREA (SQUARE INCHES) | 0.217 |
| ULTIMATE STRENGTH (LBS. PER STRAND) | 58,600 |
| APPLIED PRESTRESS (LBS. PER STRAND) | 43,950 |

0.6" Ø LOW RELAXATION STRAND LAYOUT

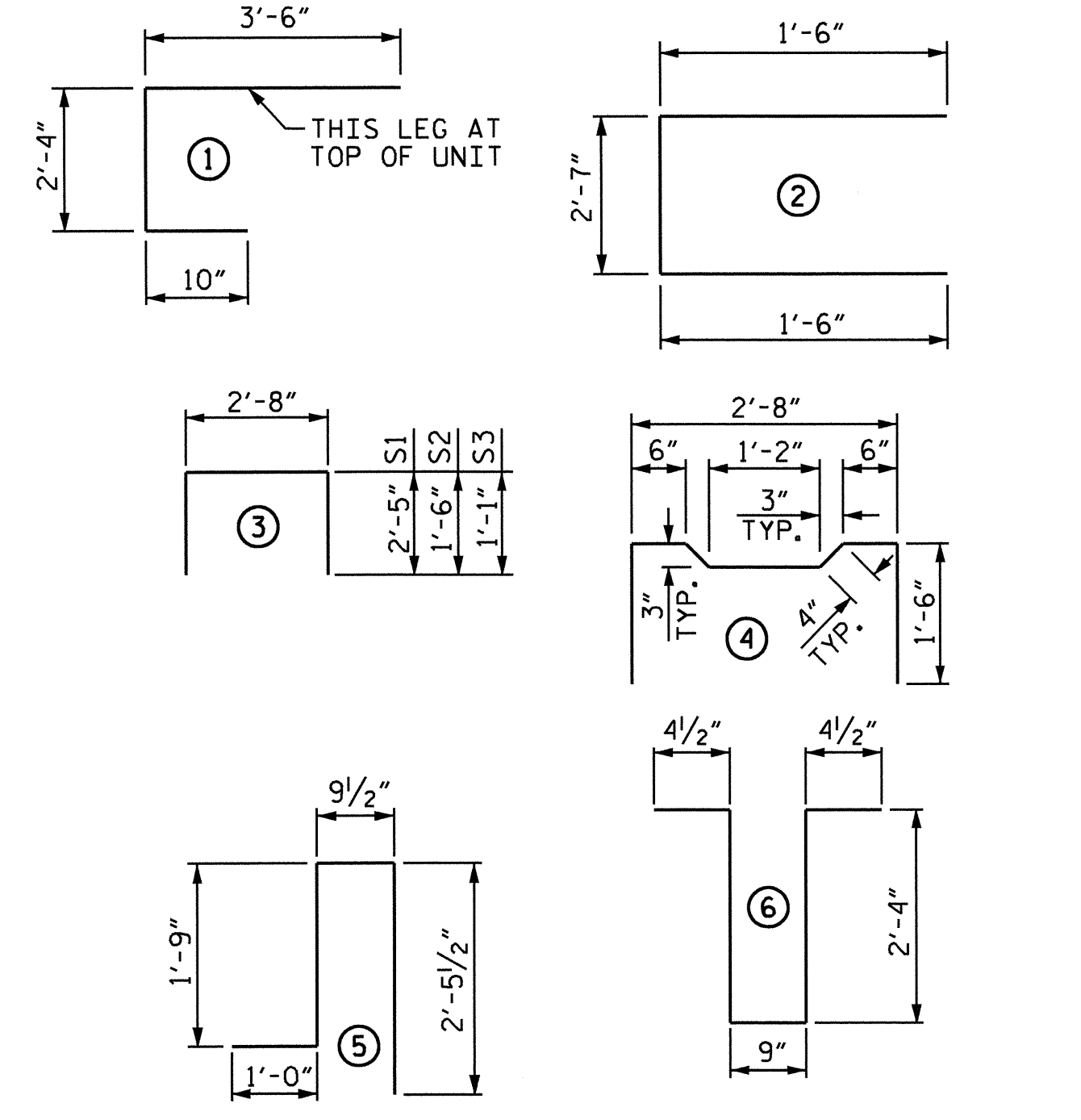


TYPICAL STRAND LOCATION
 (30 STRANDS REQUIRED)
 (INTERIOR BOX BEAM SECTION SHOWN-EXTERIOR SECTION SIMILAR EXCEPT SHEAR KEY LOCATION)

DEBONDING LEGEND

- FULLY BONDED STRANDS
 - ⊙ 4'-0" DEBONDED
 - ⊕ 12'-0" DEBONDED
- BOND SHALL BE BROKEN ON STRANDS AS SHOWN FOR THE SPECIFIED LENGTH FROM EACH END OF THE BOX BEAM. SEE STANDARD SPECIFICATIONS ARTICLE 1078-7.

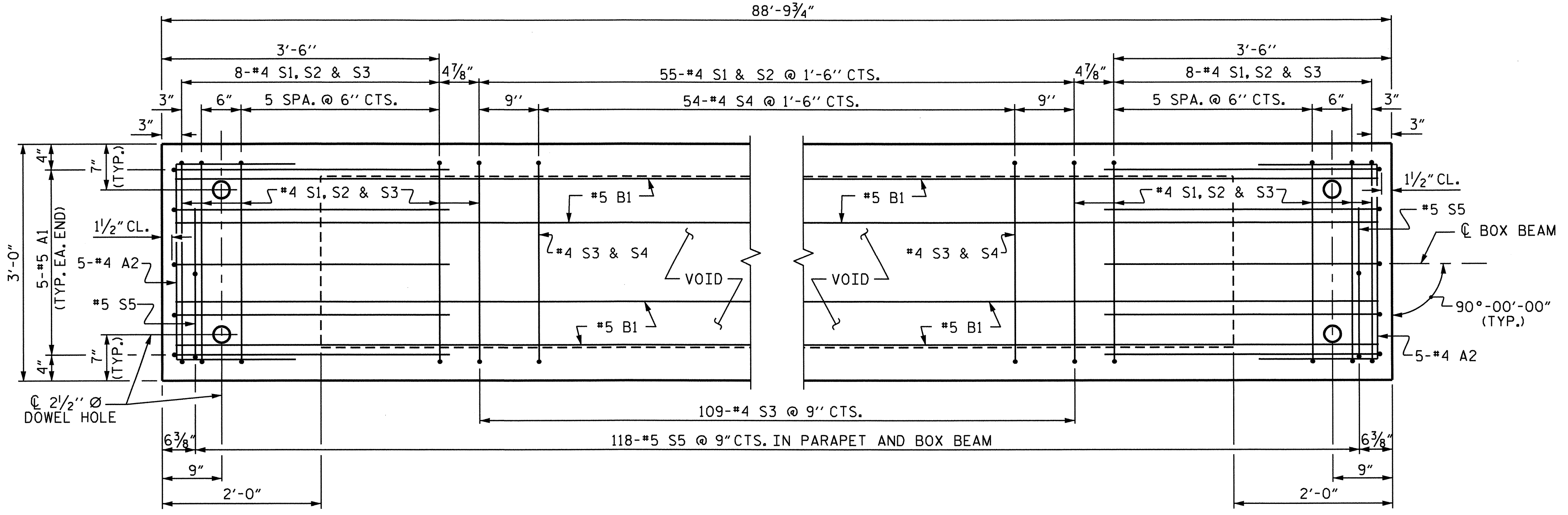
BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL FOR ONE BOX BEAM SECTION

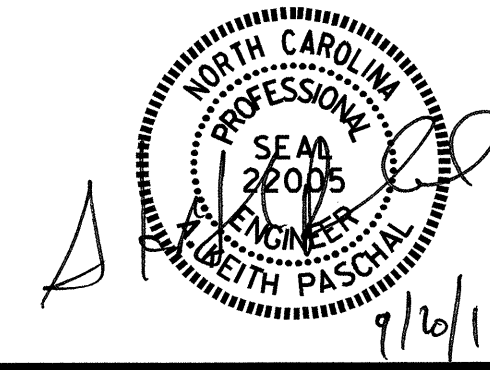
| BAR | NUMBER | SIZE | TYPE | EXTERIOR UNIT | | INTERIOR UNIT | |
|----------------------------|--------|------|------|---------------|--------|---------------|--------|
| | | | | LENGTH | WEIGHT | LENGTH | WEIGHT |
| A1 | 10 | #5 | 1 | 6'-8" | 70 | 6'-8" | 70 |
| A2 | 40 | #4 | 2 | 5'-7" | 149 | 5'-7" | 149 |
| B1 | 12 | #5 | STR | 45'-4" | 567 | 45'-4" | 567 |
| K1 | 15 | #4 | 6 | 6'-2" | 62 | 6'-2" | 62 |
| K2 | 10 | #4 | STR | 2'-7" | 17 | 2'-7" | 17 |
| S1 | 71 | #4 | 3 | 7'-6" | 356 | 7'-6" | 356 |
| S2 | 71 | #4 | 3 | 5'-8" | 269 | 5'-8" | 269 |
| S3 | 125 | #4 | 3 | 4'-10" | 405 | 4'-10" | 405 |
| S4 | 54 | #4 | 4 | 5'-10" | 210 | 5'-10" | 210 |
| *S5 | 118 | #5 | 5 | 6'-0" | 738 | -- | -- |
| REINFORCING STEEL | | | | 2105 LBS. | | 2105 LBS. | |
| *EPOXY COATED REINF. STEEL | | | | 738 LBS. | | | |
| 7500 P.S.I. CONCRETE | | | | 15.8 CU. YDS. | | 15.7 CU. YDS. | |
| 0.6" Ø L.R. STRANDS | | | | No. 30 | | No. 30 | |



PLAN OF BOX BEAM

EXTERIOR UNIT SHOWN, INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S5 BARS. FOR LOCATION OF DIAPHRAGMS, SEE PLAN OF SPANS. FOR REINFORCING STEEL IN DIAPHRAGMS, SEE DIAPHRAGM DETAILS.

| | |
|-----------------------------|--------------------|
| ASSEMBLED BY : M. E. FOWLER | DATE : 5/1/11 |
| CHECKED BY : J. D. HAWK | DATE : 6/1/11 |
| DRAWN BY : TLA 5/05 | ADDED 7/11/05 |
| CHECKED BY : GM 6/05 | REV. 5/1/06 TLA/GM |

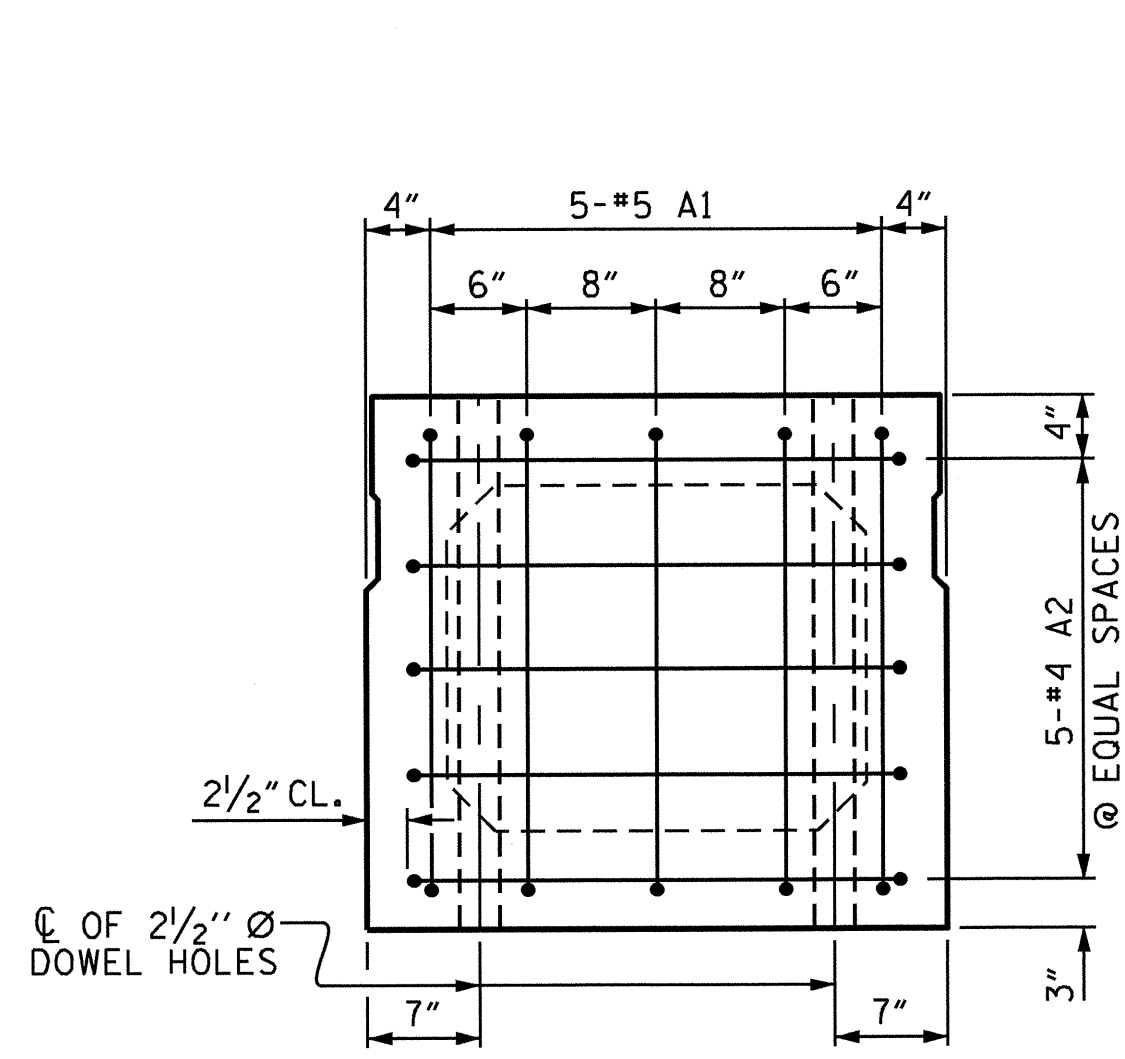


PROJECT NO. B-4503
EDGEcombe COUNTY
 STATION: 21+11.00 -L-

SHEET 1 OF 3
 STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 3'-0" X 2'-9"
 PRESTRESSED CONCRETE
 BOX BEAM UNIT
 SPAN A & C

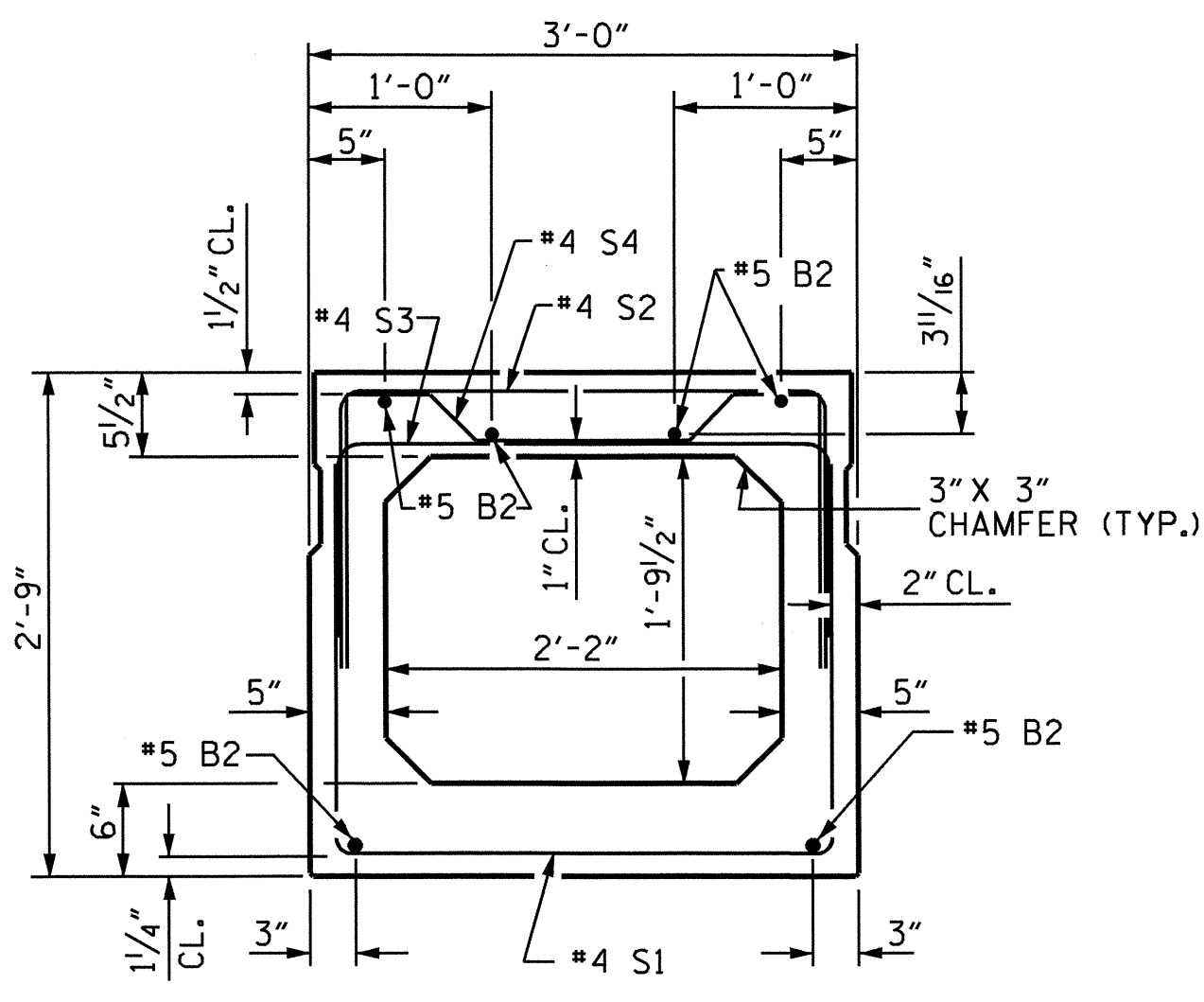
| REVISIONS | | | | | | SHEET NO. S-8 |
|-----------|-----|-------|-----|-----|-------|--------------------|
| NO. | BY: | DATE: | NO. | BY: | DATE: | |
| 1 | | | 3 | | | TOTAL SHEETS 24 |
| 2 | | | 4 | | | |

(SHT 1B) STD. NO. PCB44

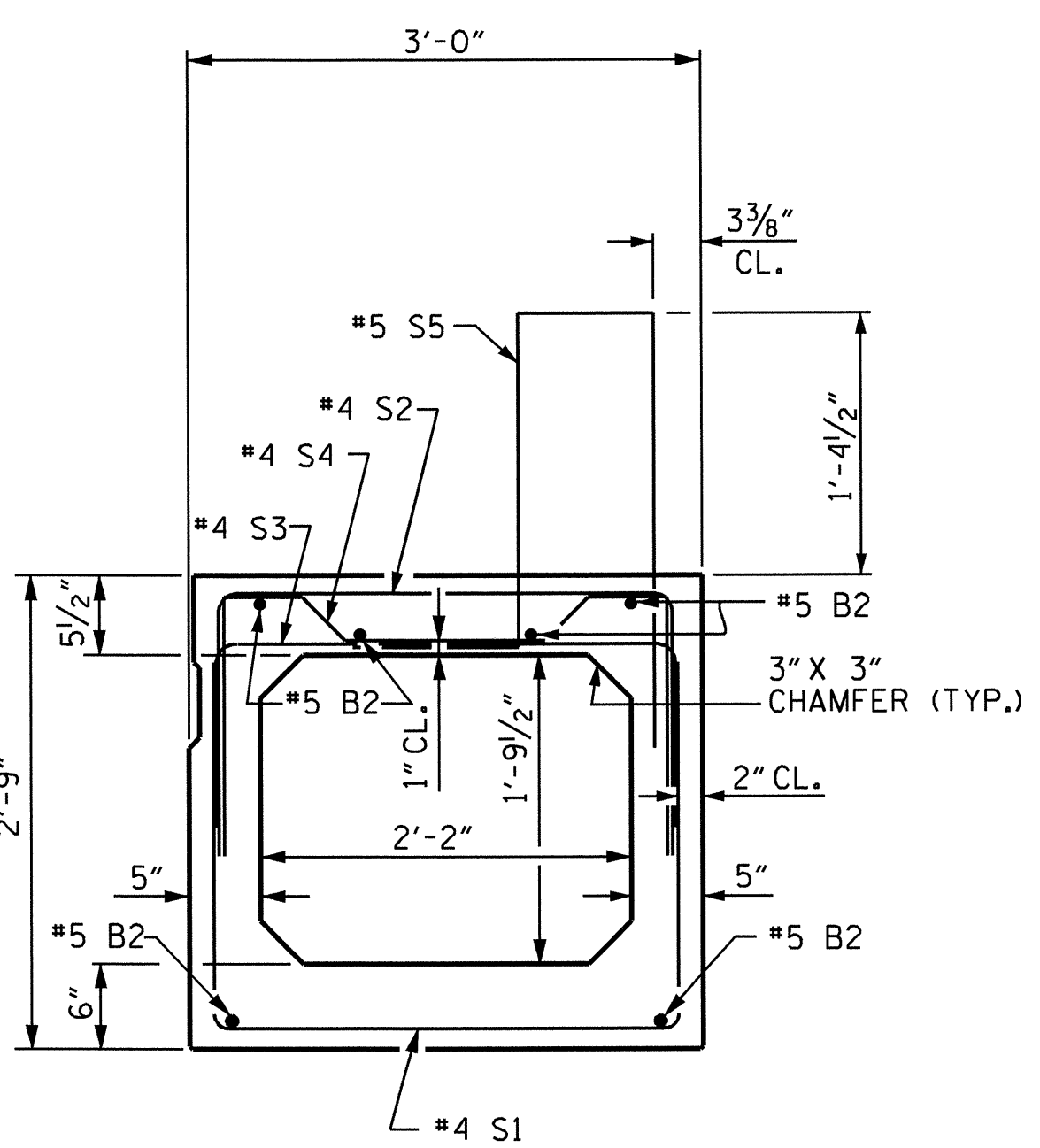


END ELEVATION

SHOWING PLACEMENT OF #5 & #4 "A" BARS AND LOCATION OF DOWEL HOLES. (INTERIOR BOX BEAM SECTION SHOWN-EXTERIOR SECTION SIMILAR EXCEPT SHEAR KEY LOCATION. STRAND LAYOUT NOT SHOWN.)

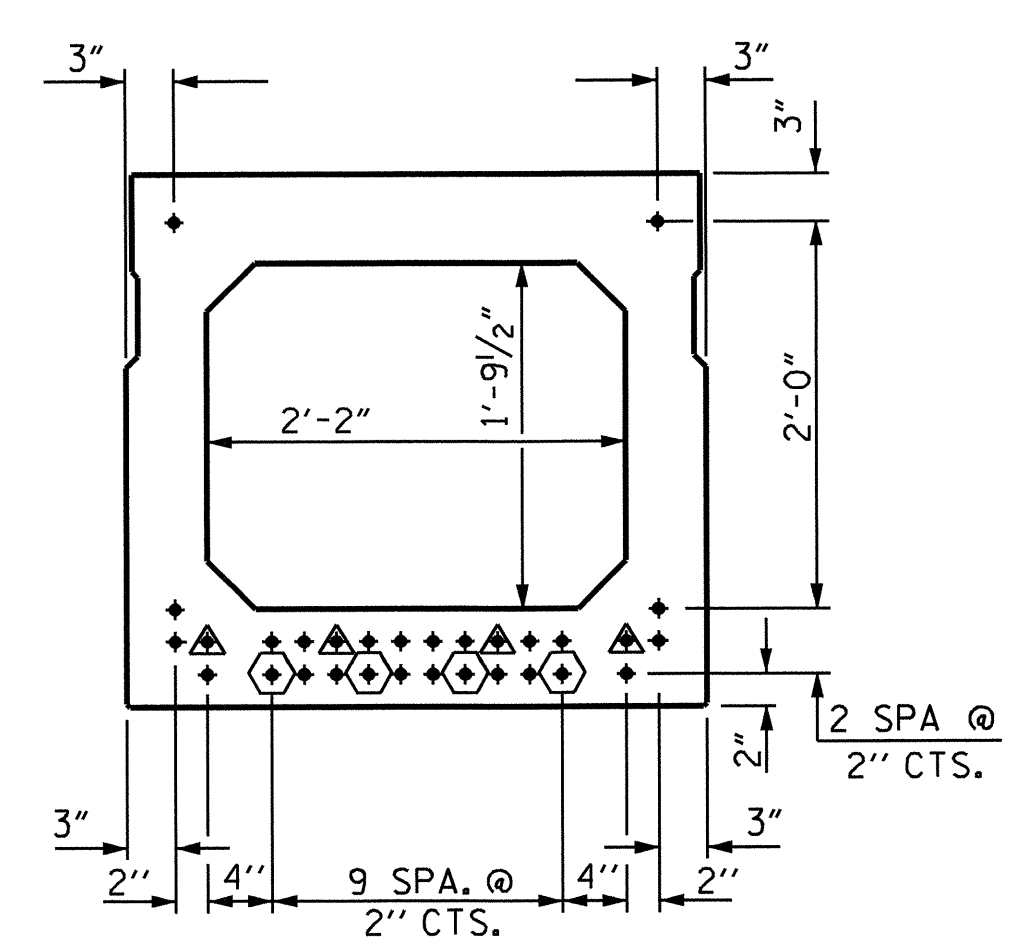


INTERIOR BOX BEAM SECTION
(STRAND LAYOUT NOT SHOWN)



EXTERIOR BOX BEAM SECTION
(STRAND LAYOUT NOT SHOWN)

0.6" Ø LOW RELAXATION STRAND LAYOUT



TYPICAL STRAND LOCATION
(30 STRANDS REQUIRED)

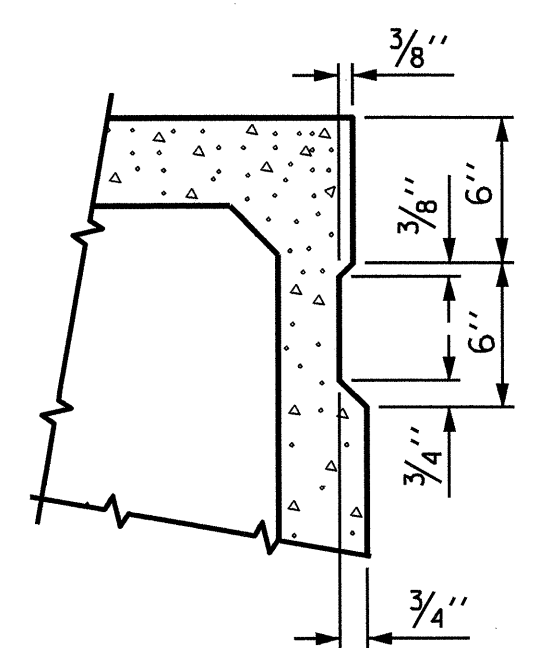
(INTERIOR BOX BEAM SECTION SHOWN-EXTERIOR SECTION SIMILAR EXCEPT SHEAR KEY LOCATION)

DEBONDING LEGEND

- FULLY BONDED STRANDS
- ▲ 4'-0" DEBONDED
- ◊ 12'-0" DEBONDED

BOND SHALL BE BROKEN ON STRANDS AS SHOWN FOR THE SPECIFIED LENGTH FROM EACH END OF THE BOX BEAM. SEE STANDARD SPECIFICATIONS ARTICLE 1078-7.

| GRADE 270 STRANDS | |
|---------------------------------------|-------------|
| | 0.6" Ø L.R. |
| AREA (SQUARE INCHES) | 0.217 |
| ULTIMATE STRENGTH (LBS. PER STRAND) | 58,600 |
| APPLIED PRESTRESS (LBS. PER STRAND) | 43,950 |



SHEAR KEY DETAIL

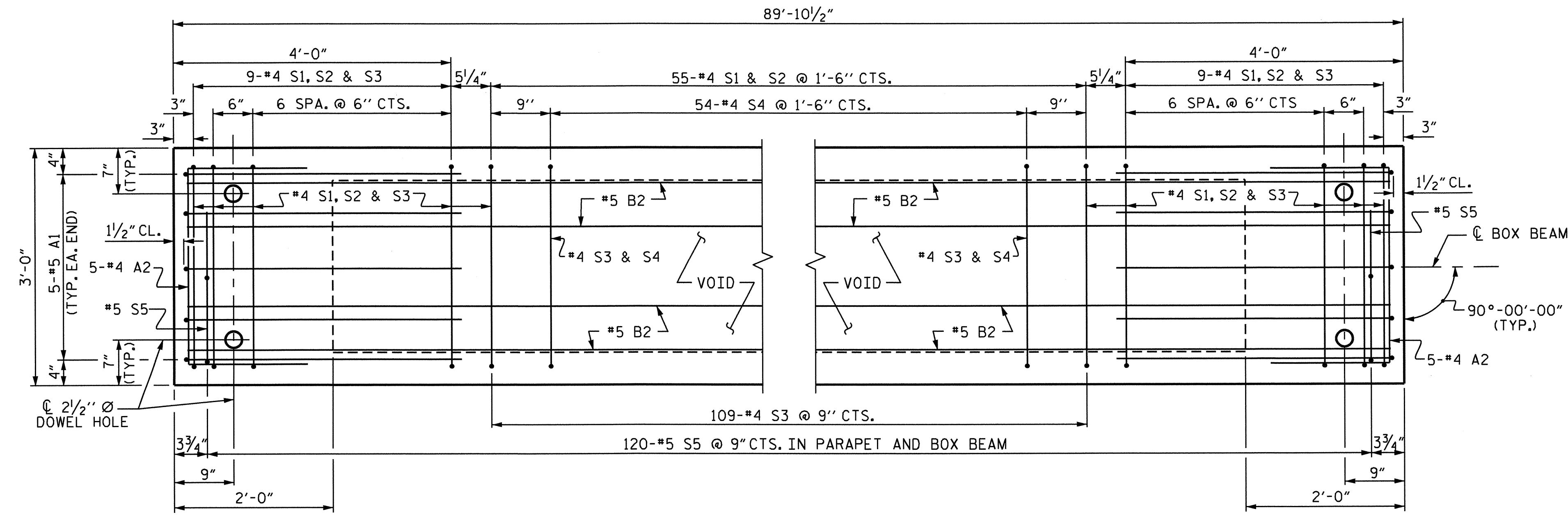
NOTE: OMIT SHEAR KEY ON OUTSIDE FACE OF EXTERIOR BOX BEAMS.

BAR TYPES

ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL FOR ONE BOX BEAM SECTION

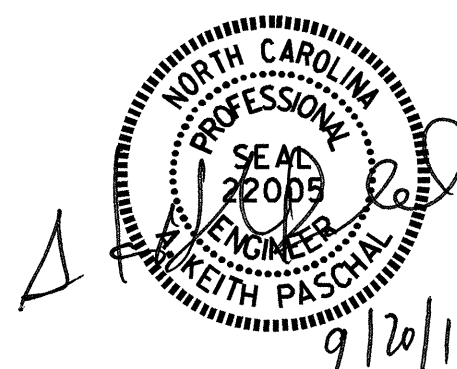
| BAR | NUMBER | SIZE | TYPE | EXTERIOR UNIT | | INTERIOR UNIT | |
|-----------------------------|--------|------|------|---------------|--------|---------------|--------|
| | | | | LENGTH | WEIGHT | LENGTH | WEIGHT |
| A1 | 10 | #5 | 1 | 6'-8" | 70 | 6'-8" | 70 |
| A2 | 40 | #4 | 2 | 5'-7" | 149 | 5'-7" | 149 |
| B2 | 12 | #5 | STR | 45'-11" | 575 | 45'-11" | 575 |
| K1 | 15 | #4 | 6 | 6'-2" | 62 | 6'-2" | 62 |
| K2 | 10 | #4 | STR | 2'-7" | 17 | 2'-7" | 17 |
| S1 | 73 | #4 | 3 | 7'-6" | 366 | 7'-6" | 366 |
| S2 | 73 | #4 | 3 | 5'-8" | 276 | 5'-8" | 276 |
| S3 | 127 | #4 | 3 | 4'-10" | 410 | 4'-10" | 410 |
| S4 | 54 | #4 | 4 | 5'-10" | 210 | 5'-10" | 210 |
| *S5 | 120 | #5 | 5 | 6'-0" | 751 | -- | -- |
| REINFORCING STEEL | | | | 2135 LBS. | | 2135 LBS. | |
| * EPOXY COATED REINF. STEEL | | | | 751 LBS. | | | |
| 7500 P.S.I. CONCRETE | | | | 16.0 CU. YDS. | | 15.9 CU. YDS. | |
| 0.6" Ø L.R. STRANDS | | | | No. | 30 | No. | 30 |



PLAN OF BOX BEAM

EXTERIOR UNIT SHOWN, INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S5 BARS. FOR LOCATION OF DIAPHRAGMS, SEE PLAN OF SPANS. FOR REINFORCING STEEL IN DIAPHRAGMS, SEE DIAPHRAGM DETAILS.

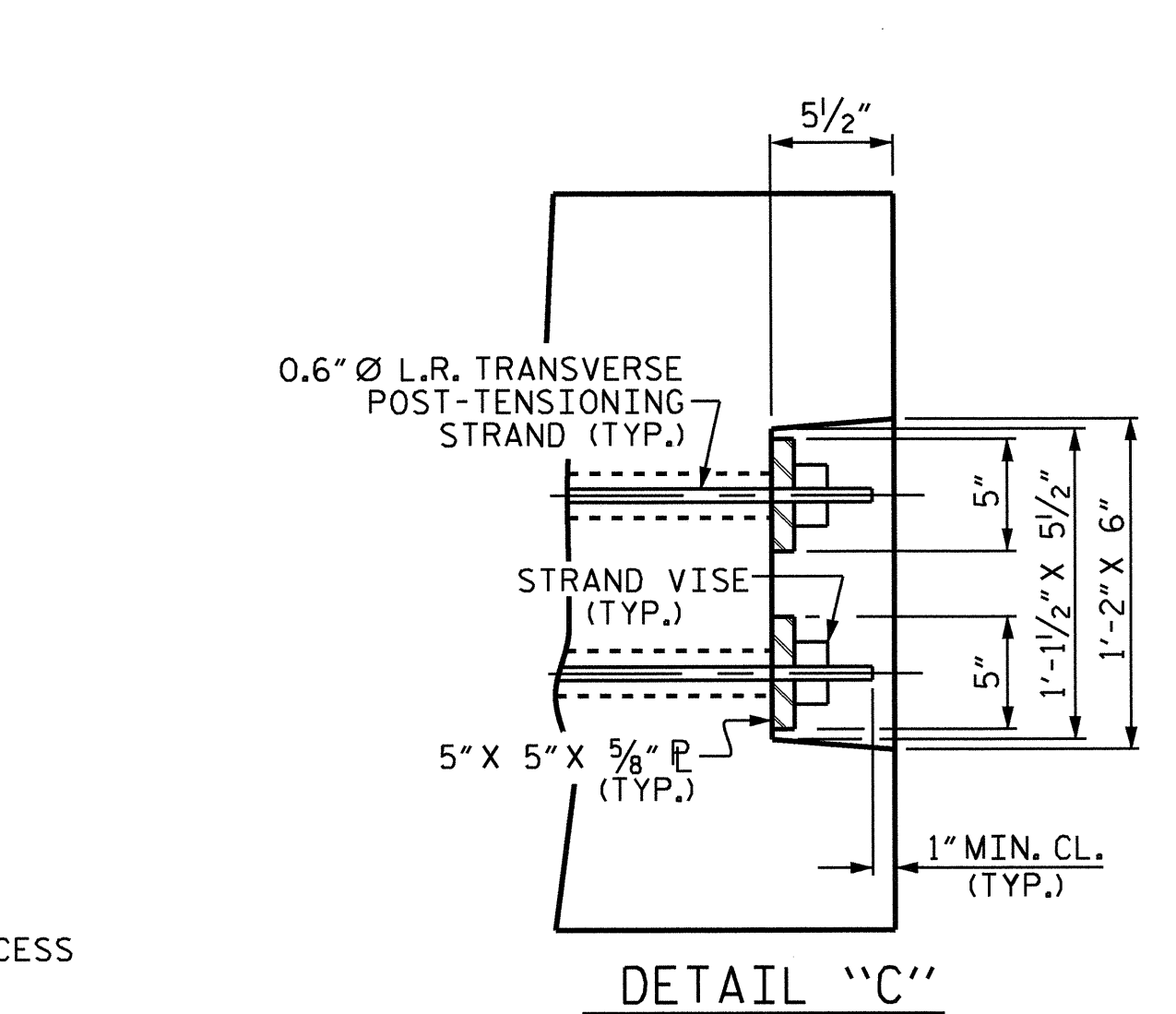
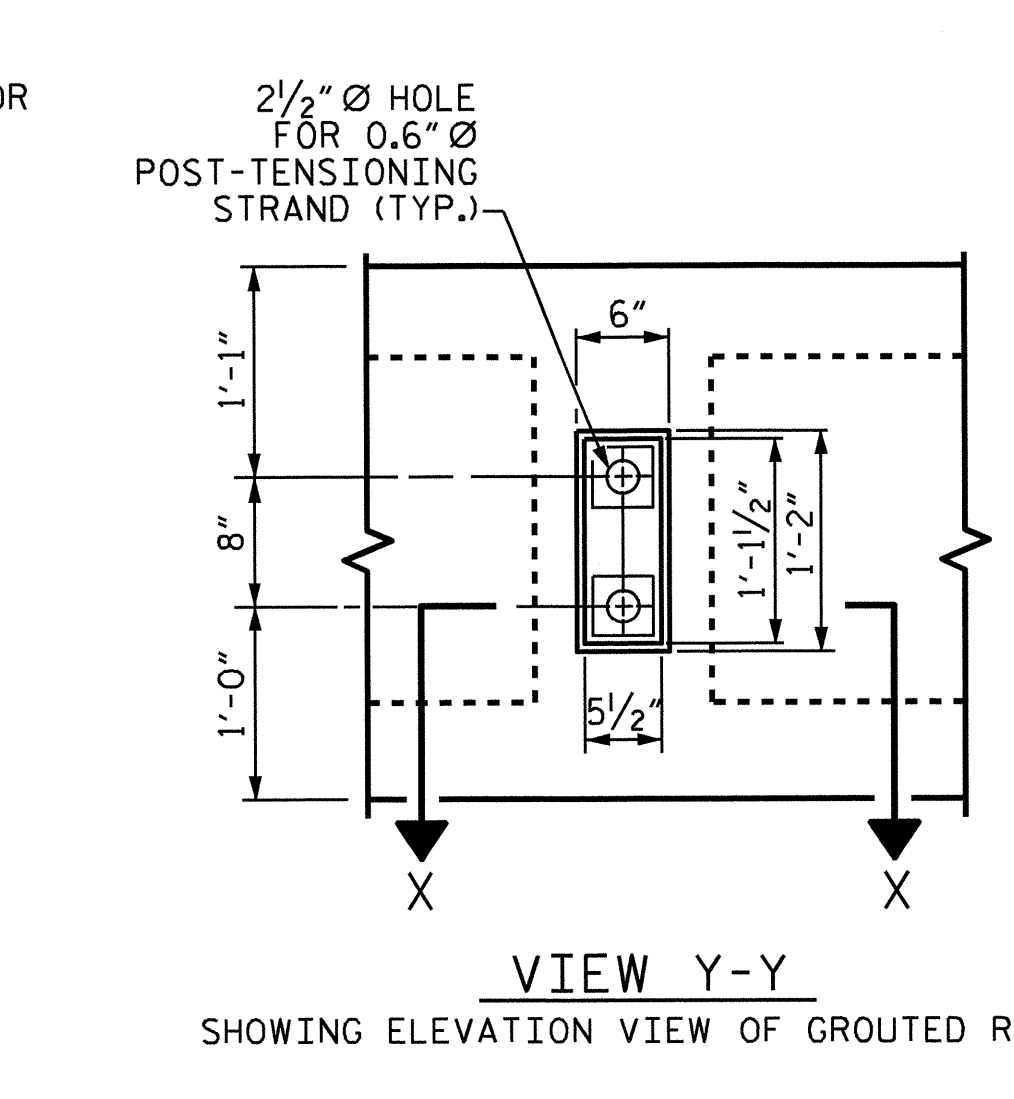
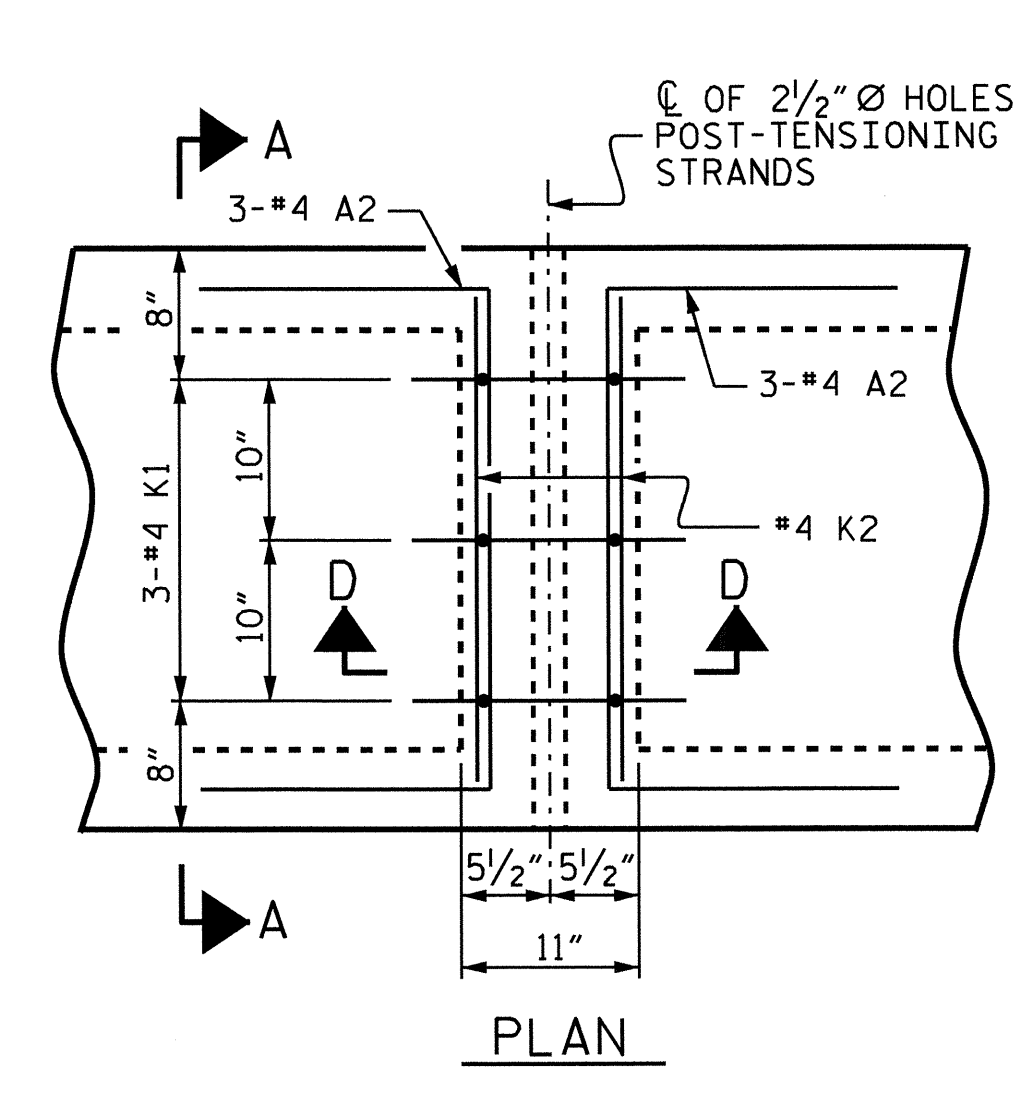
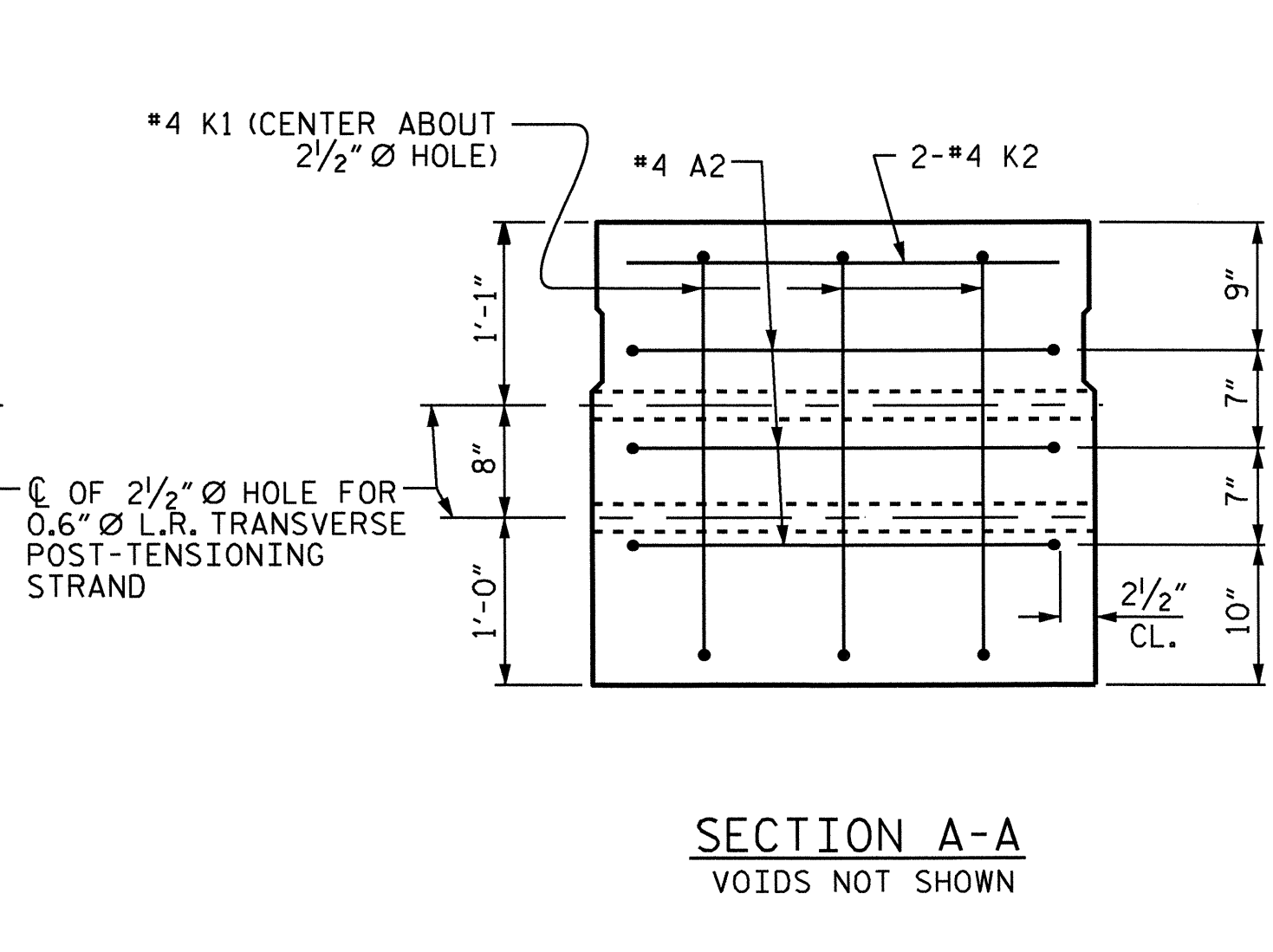
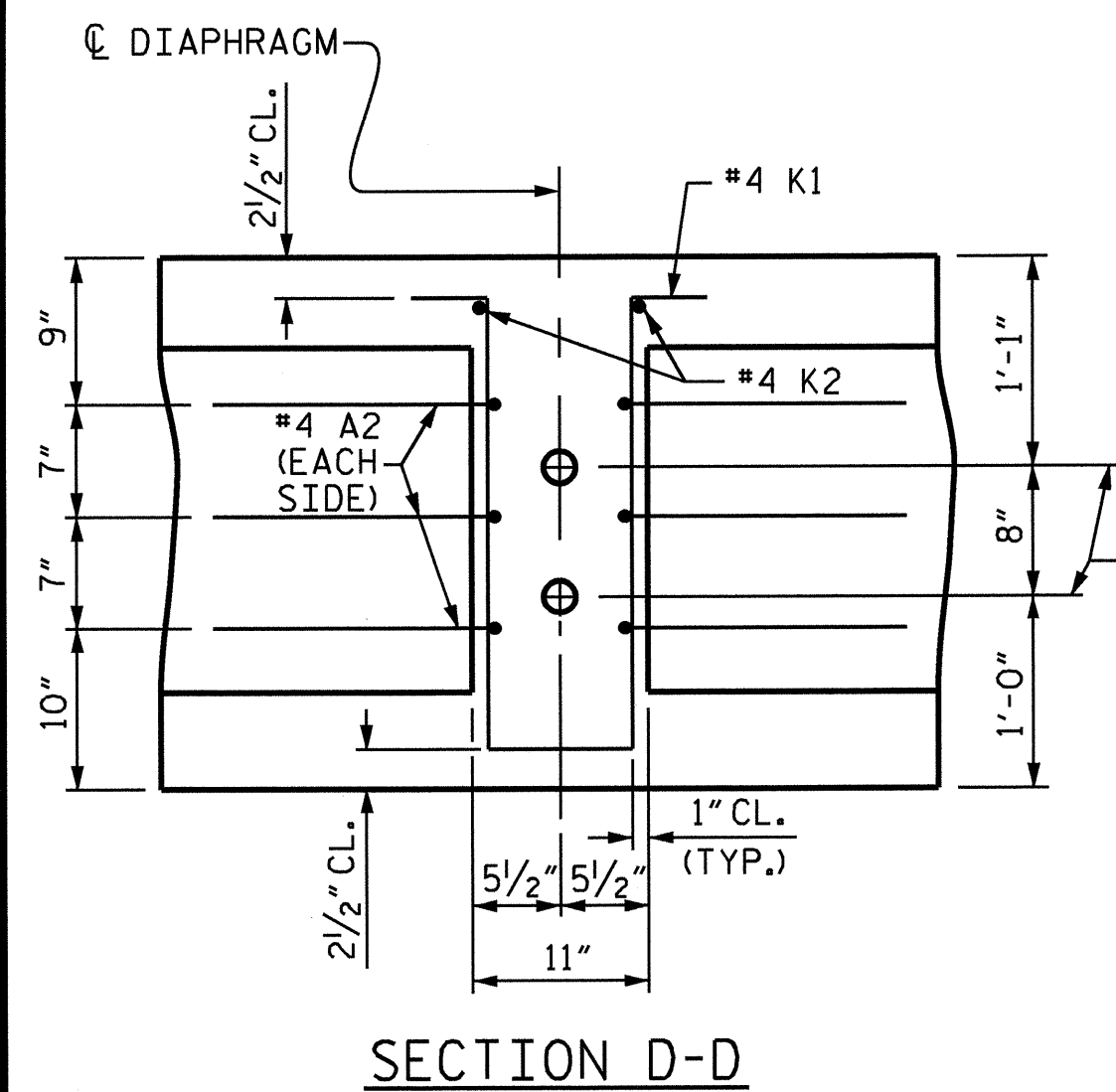
| | |
|-----------------------------|--------------------|
| ASSEMBLED BY : M. E. FOWLER | DATE : 5/1/11 |
| CHECKED BY : J. D. HAWK | DATE : 6/1/11 |
| DRAWN BY : TLA 5/05 | ADDED 7/11/05 |
| CHECKED BY : GM 6/05 | REV. 5/1/06 TLA/GM |



PROJECT NO. B-4503
EDGEcombe COUNTY
 STATION: 21+11.00 -L-
 SHEET 2 OF 3

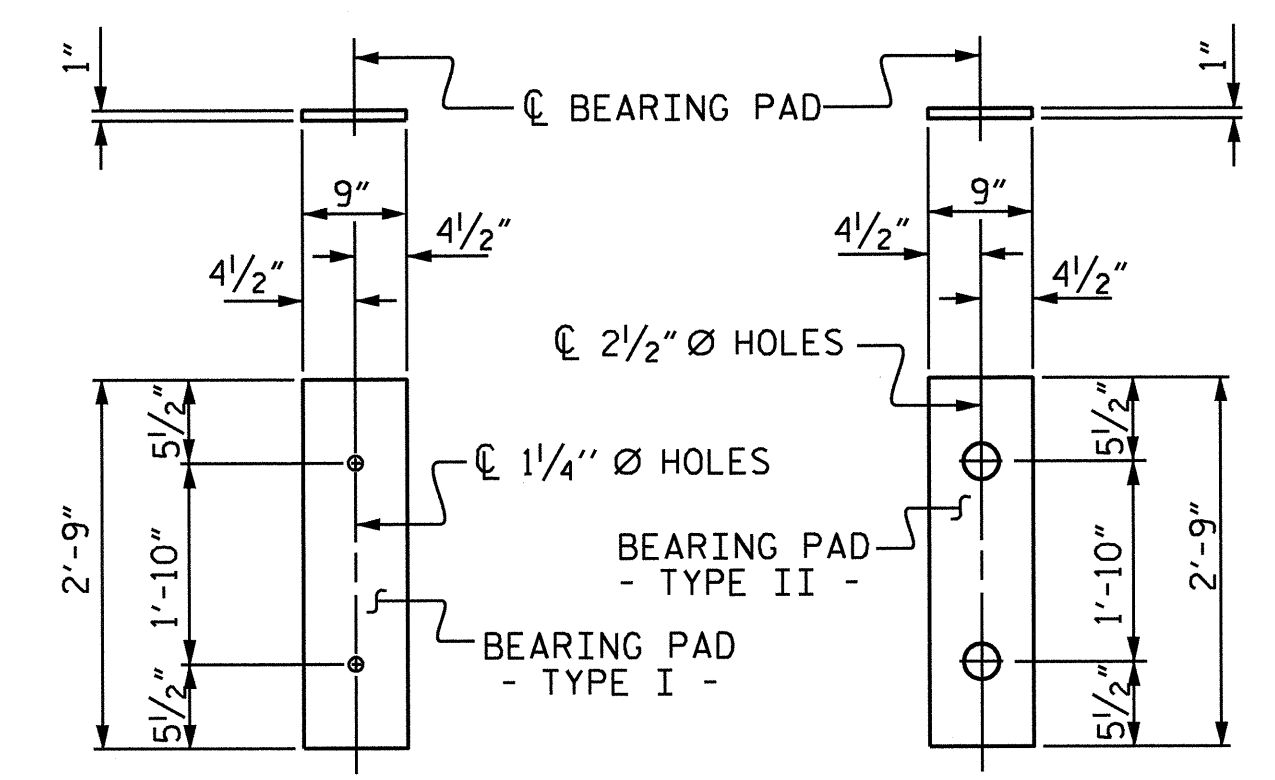
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 3'-0" X 2'-9"
 PRESTRESSED CONCRETE
 BOX BEAM UNIT
 SPAN B

| REVISIONS | | | | | | SHEET NO. |
|-----------|-----|-------|-----|-----|-------|-----------------|
| NO. | BY: | DATE: | NO. | BY: | DATE: | S-9 |
| 1 | | | 3 | | | TOTAL SHEETS 24 |
| 2 | | | 4 | | | |

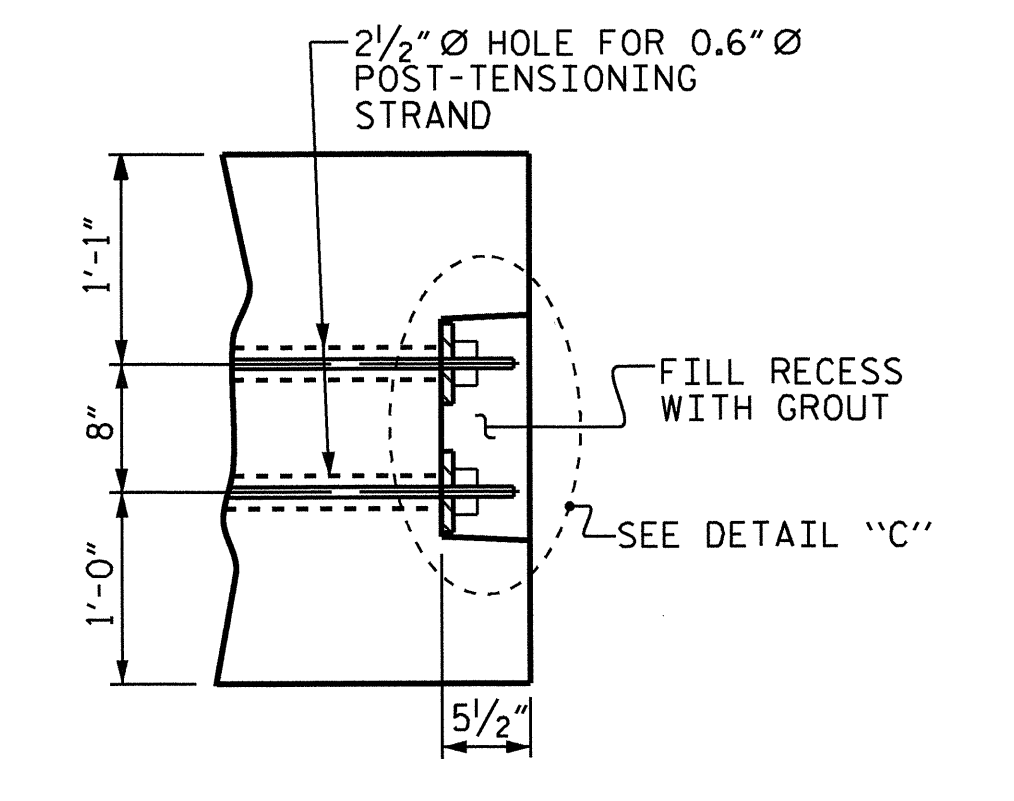


DOUBLE DIAPHRAGM DETAILS

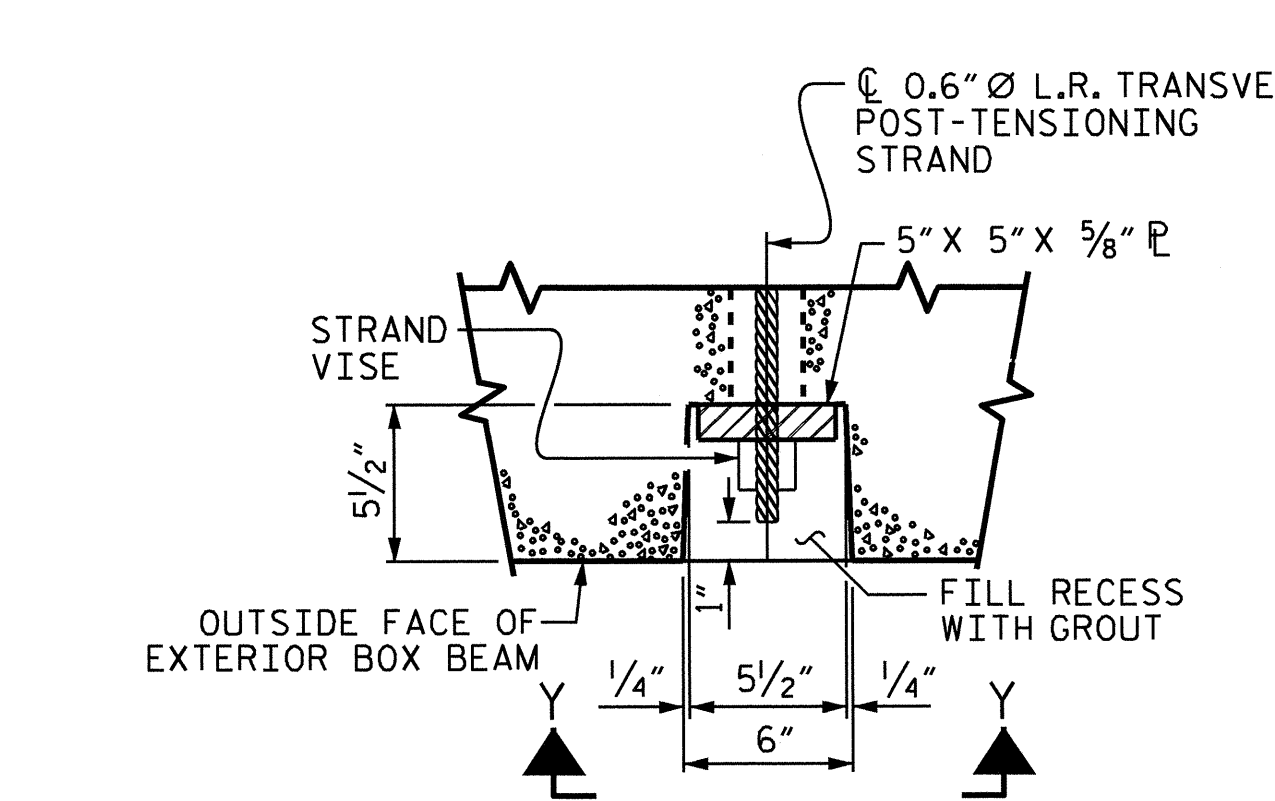
#4 "S" BARS NOT SHOWN. #4 "S" BARS MAY BE SHIFTED SLIGHTLY TO CLEAR 2 1/2" Ø HOLE.



ELASTOMERIC BEARING DETAILS
(60 DUROMETER HARDNESS)

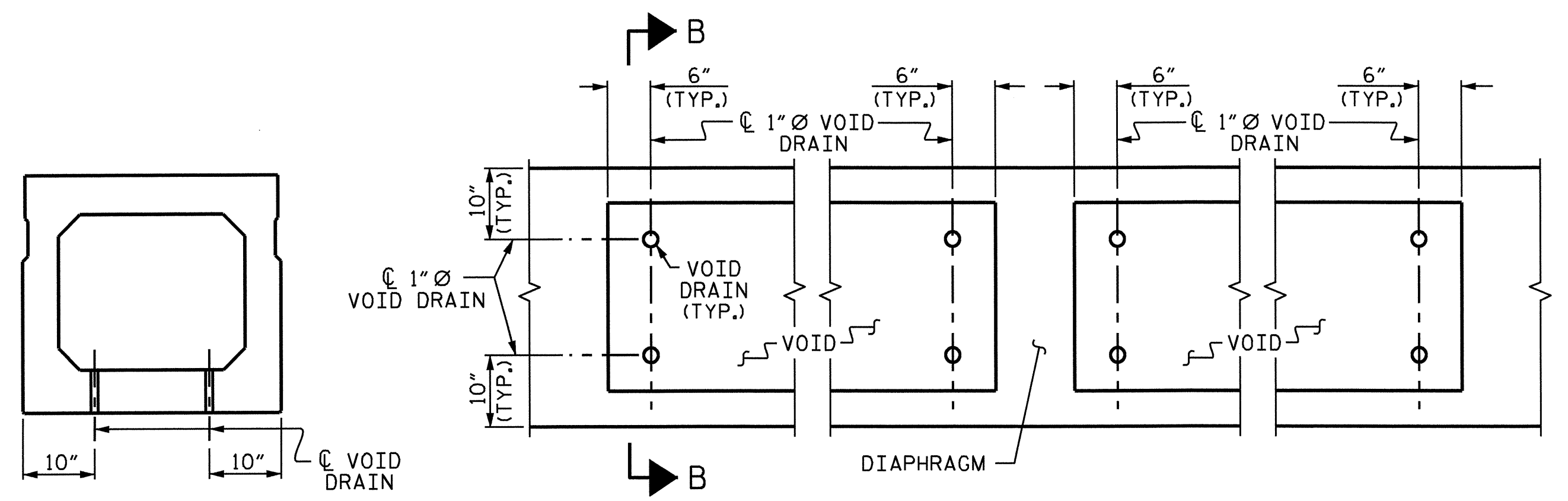


PART SECTION AT RECESS



SECTION X-X
SHOWING PLAN VIEW OF GROUTED RECESS

GROUTED RECESS DETAIL AT END OF POST-TENSIONED STRANDS OF EXTERIOR BOX BEAM



VOID DRAIN DETAILS
(DIMENSIONS SHOWN ARE TYPICAL FOR EACH VOID)

| DEAD LOAD DEFLECTION AND CAMBER | | | |
|---|----------|----------|----------|
| 3'-0" x 2'-9" | | | |
| 0.6" Ø L.R. STRAND | | | |
| | SPAN A | SPAN B | SPAN C |
| CAMBER (BEAM ALONE IN PLACE) ↓ | 4 13/16" | 4 13/16" | 4 13/16" |
| DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD ** | 1 1/4" | 1 5/16" | 1 1/4" |
| FINAL CAMBER ↑ | 3 3/16" | 3 1/2" | 3 3/16" |

** INCLUDES FUTURE ASPHALT WEARING SURFACE

| BOX BEAM UNITS REQUIRED | | | | | |
|-------------------------|----------|----------|-------|-------------|--------------|
| | EXTERIOR | INTERIOR | TOTAL | LENGTH | TOTAL LENGTH |
| SPAN A | 2 | 10 | 12 | 88'-9 3/4" | 1065'-9" |
| SPAN B | 2 | 10 | 12 | 89'-10 1/2" | 1078'-6" |
| SPAN C | 2 | 10 | 12 | 88'-9 3/4" | 1065'-9" |
| TOTAL | 6 | 30 | 36 | | 3210'-0" |

PROJECT NO. B-4503
EDGEcombe COUNTY
 STATION: 21+11.00 -L-

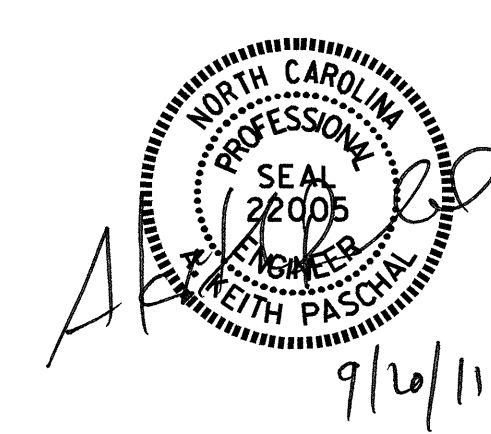
SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

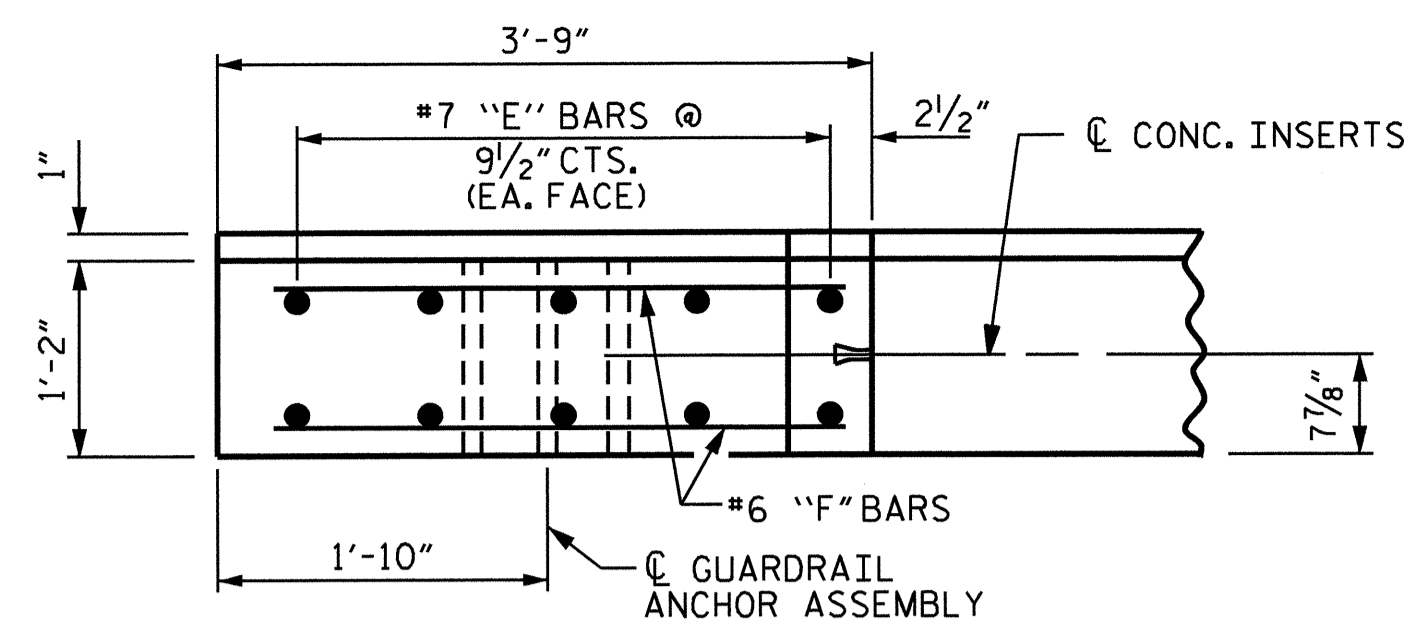
STANDARD
 3'-0" X 2'-9"
 PRESTRESSED CONCRETE
 BOX BEAM UNIT

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

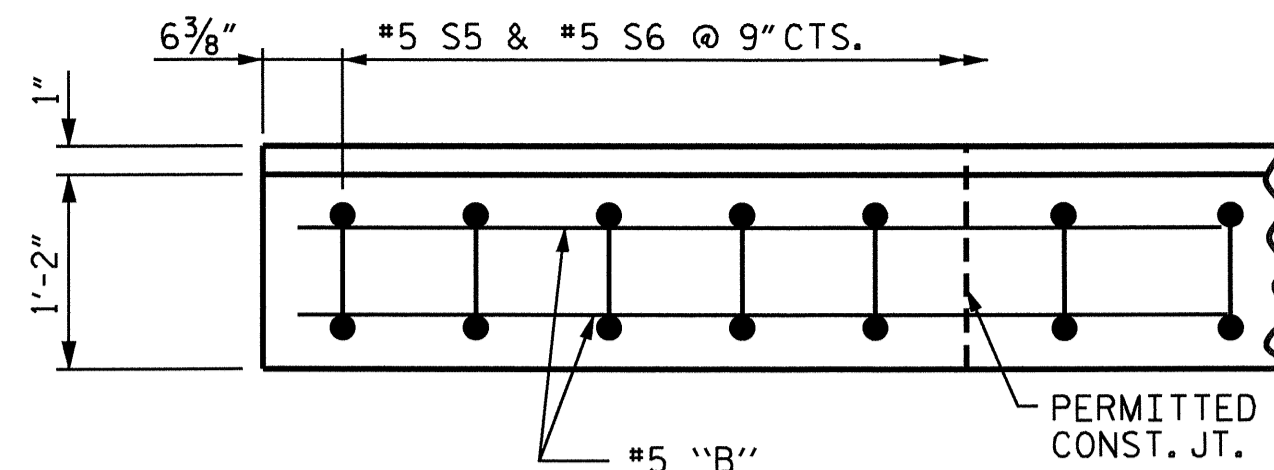
SHEET NO. **S-10**
 TOTAL SHEETS **24**



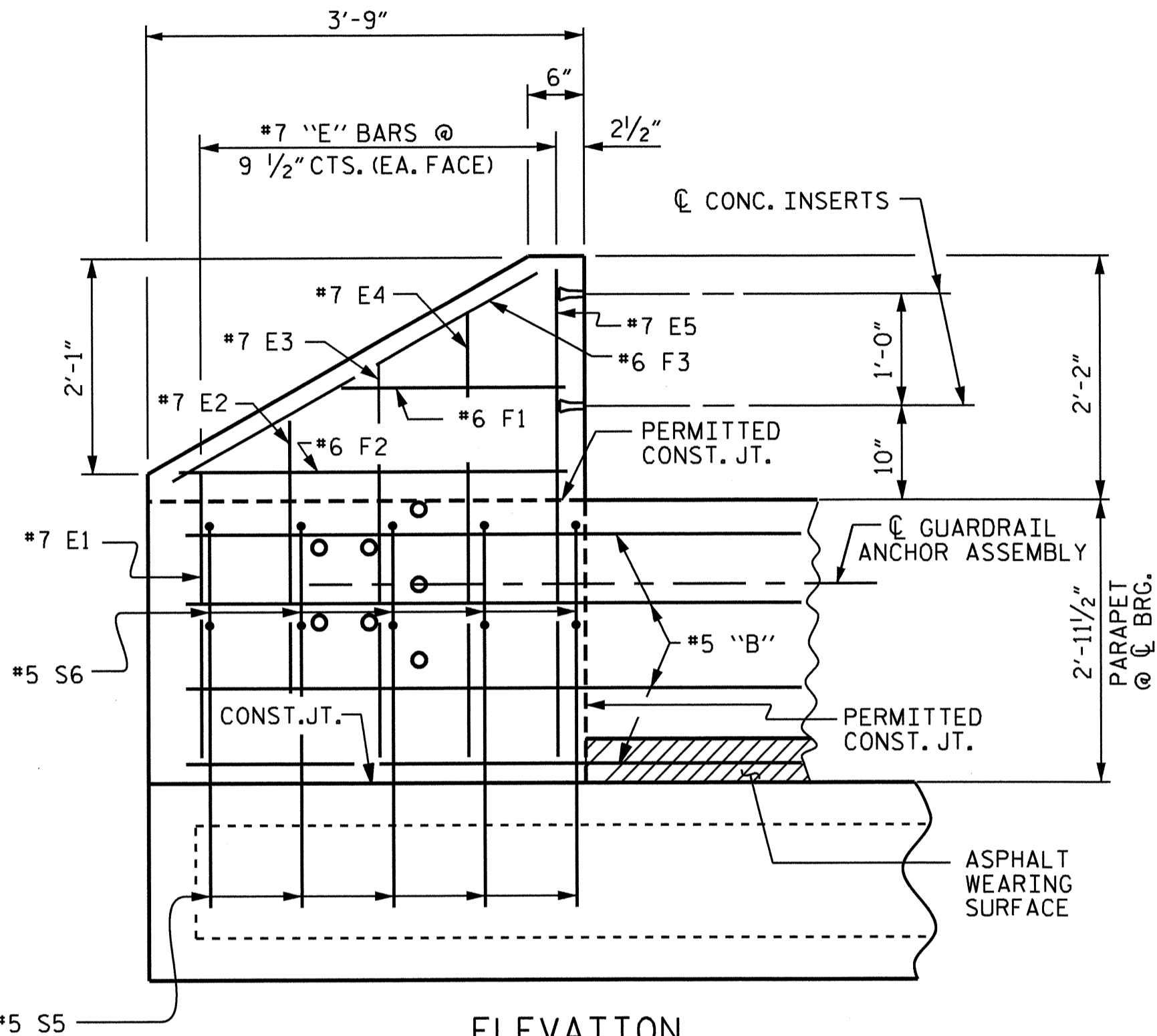
ASSEMBLED BY : M. E. FOWLER DATE : 5/1/11
 CHECKED BY : J. D. HAWK DATE : 6/1/11
 DRAWN BY : TLA 5/05
 CHECKED BY : GM 6/05



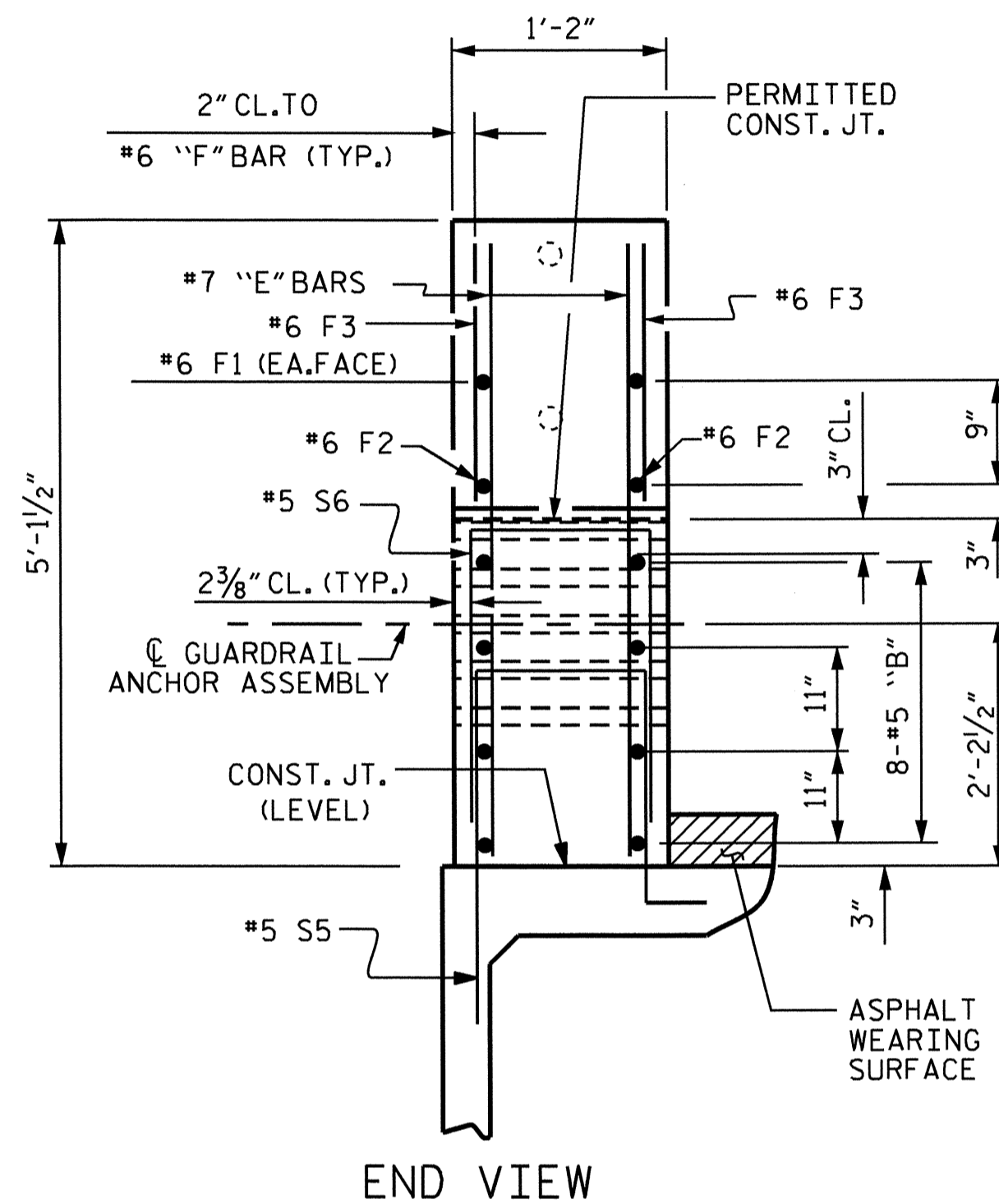
PLAN OF END POST



PLAN OF PARAPET

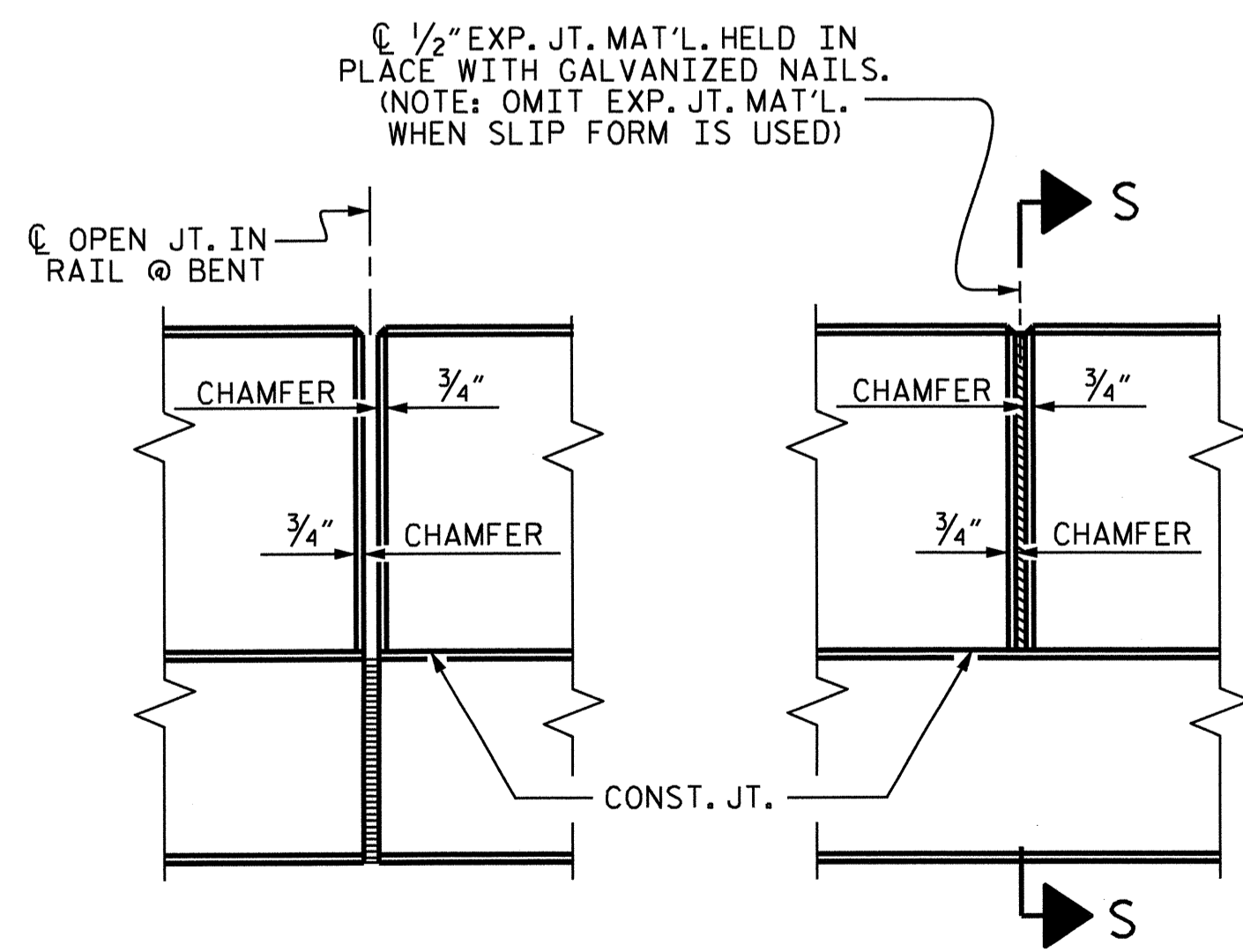


ELEVATION

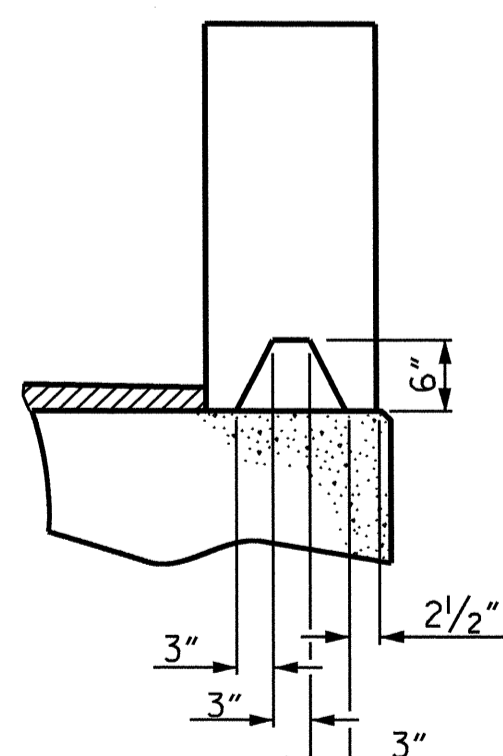


END VIEW

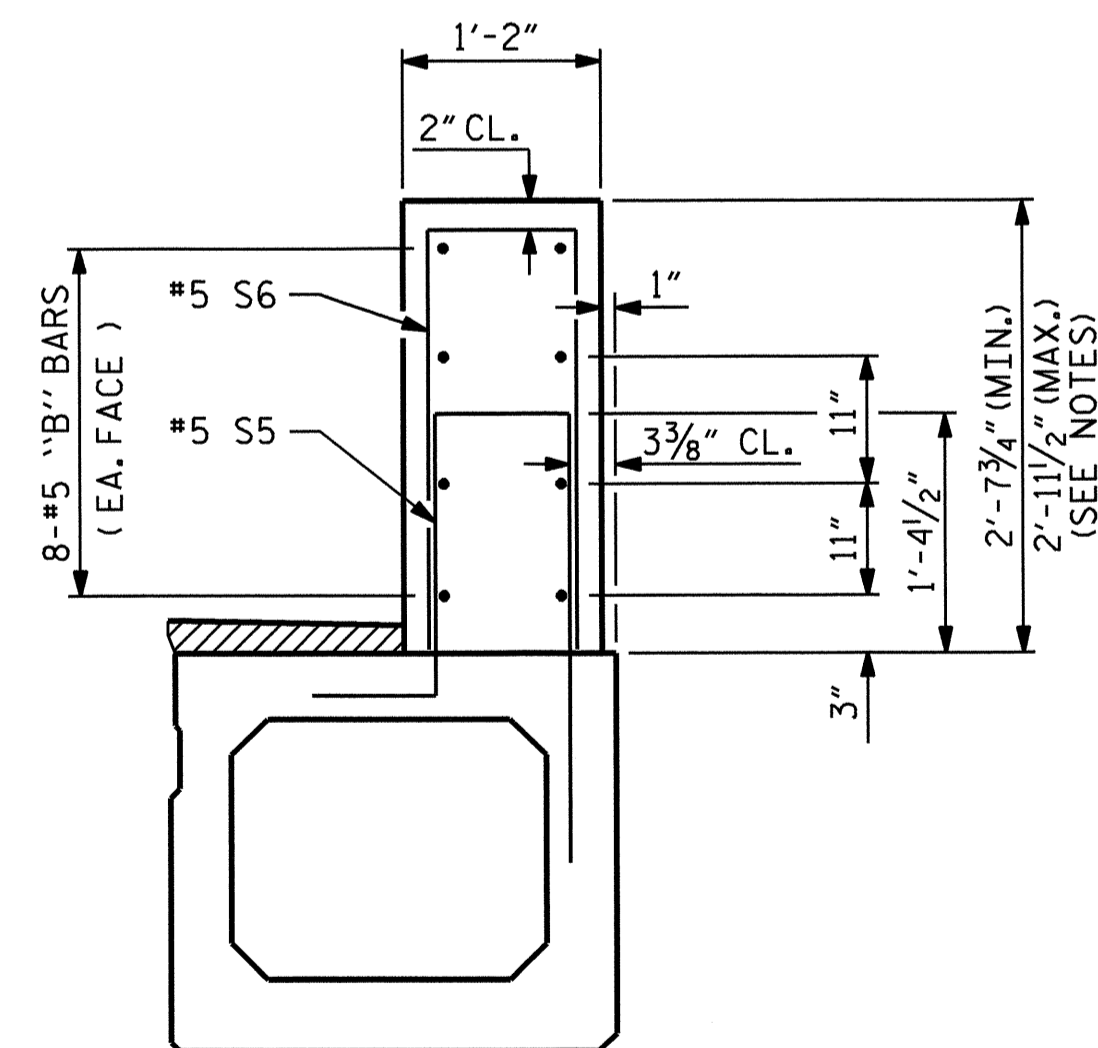
PARAPET AND END POST FOR TWO-BAR RAIL



ELEVATION AT EXPANSION JOINTS



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



TWO BAR METAL
RAIL PARAPET SECTION

— BAR TYPES —

ALL BAR DIMENSIONS ARE OUT TO OUT

| BILL OF MATERIAL FOR PARAPET AND END POSTS | | | | | | |
|--|-----|------|------|--------|--------|----------|
| BAR | NO. | SIZE | TYPE | LENGTH | WEIGHT | |
| *B3 | 96 | #5 | STR | 29'-3" | 2929 | |
| *B4 | 48 | #5 | STR | 29'-7" | 1481 | |
| *E1 | 8 | #7 | STR | 2'-11" | 48 | |
| *E2 | 8 | #7 | STR | 3'-5" | 56 | |
| *E3 | 8 | #7 | STR | 3'-11" | 64 | |
| *E4 | 8 | #7 | STR | 4'-5" | 72 | |
| *E5 | 8 | #7 | STR | 4'-9" | 78 | |
| *F1 | 8 | #6 | STR | 1'-11" | 23 | |
| *F2 | 8 | #6 | STR | 3'-1" | 37 | |
| *F3 | 8 | #6 | STR | 3'-7" | 43 | |
| *S6 | 712 | #6 | STR | 5'-8" | 4208 | |
| *EPOXY COATED REINFORCING STEEL | | | | | 9039 | LBS. |
| CLASS AA CONCRETE | | | | | 64.8 | CU.YDS. |
| CONCRETE PARAPET | | | | | 535.50 | LIN. FT. |

NOTES

- ALL REINFORCING STEEL IN THE PARAPETS AND END POSTS SHALL BE EPOXY COATED.
- FOR DETAILS OF CONCRETE INSERT AND GUARDRAIL ANCHOR ASSEMBLY, SEE "RAIL POST SPACINGS AND END OF RAIL DETAILS" SHEET 4 OF 5 AND "GUARDRAIL ANCHORAGE DETAILS" SHEET 5 OF 5.
- *5 S5 BARS ARE INCLUDED IN THE BILL OF MATERIAL FOR CORED SLAB UNITS.
- GROOVED CONTRACTION JOINTS, 1/2" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE PARAPET IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. THE CONTRACTION JOINT SHALL BE LOCATED AT A SPACING OF 8 FT. TO 10 FT. BETWEEN EXPANSION JOINTS. NO CONTRACTION JOINTS WILL BE REQUIRED FOR SEGMENTS LESS THAN 10 FEET IN LENGTH.
- THE HEIGHT OF THE PARAPET VARIES WHILE THE TOP OF THE PARAPET FOLLOWS THE PROFILE OF THE GUTTERLINE.
- THE 1/2" EXPANSION JOINT IN THE PARAPET MAY BE SHIFTED SLIGHTLY IN ORDER TO MAINTAIN A 2" MINIMUM CLEARANCE TO THE #5 S5 & #5 S6 BARS.
- FOR REINFORCING STEEL LAYOUT, SEE PLAN OF SPANS.

PROJECT NO. B-4503
EDGECOMBE COUNTY
 STATION: 21+11.00 -L-
 SHEET 1 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUPERSTRUCTURE
 CONCRETE PARAPET AND
 PARAPET END POST
 DETAILS**

PROFESSIONAL SEAL
 22005
 KEITH PASCHALL
 9/20/11

| REVISIONS | | | | | | SHEET NO. |
|-----------|-----|-------|-----|-----|-------|--------------|
| NO. | BY: | DATE: | NO. | BY: | DATE: | S-11 |
| 1 | | | 3 | | | TOTAL SHEETS |
| 2 | | | 4 | | | 24 |

DRAWN BY: M. E. FOWLER DATE: 10/8/09
 CHECKED BY: J. D. HAWK DATE: 06-01-11

NOTES

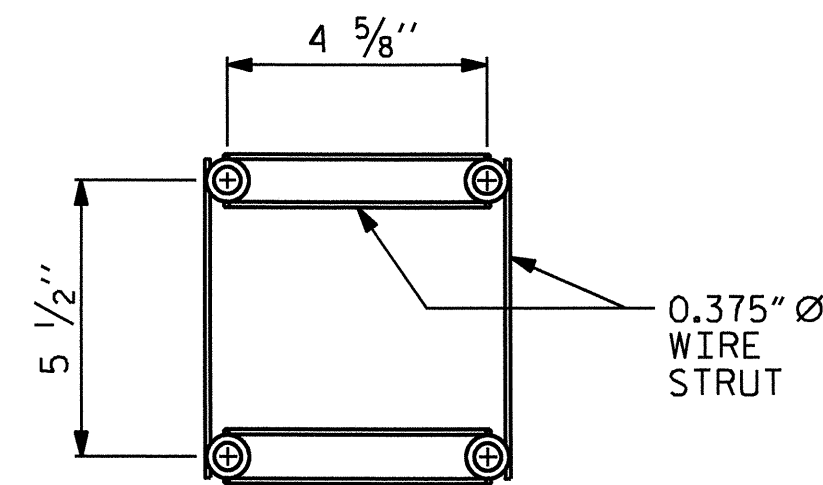
STRUCTURAL CONCRETE ANCHOR ASSEMBLY

THE STRUCTURAL CONCRETE ANCHOR ASSEMBLY SHALL CONSIST OF THE FOLLOWING COMPONENTS :

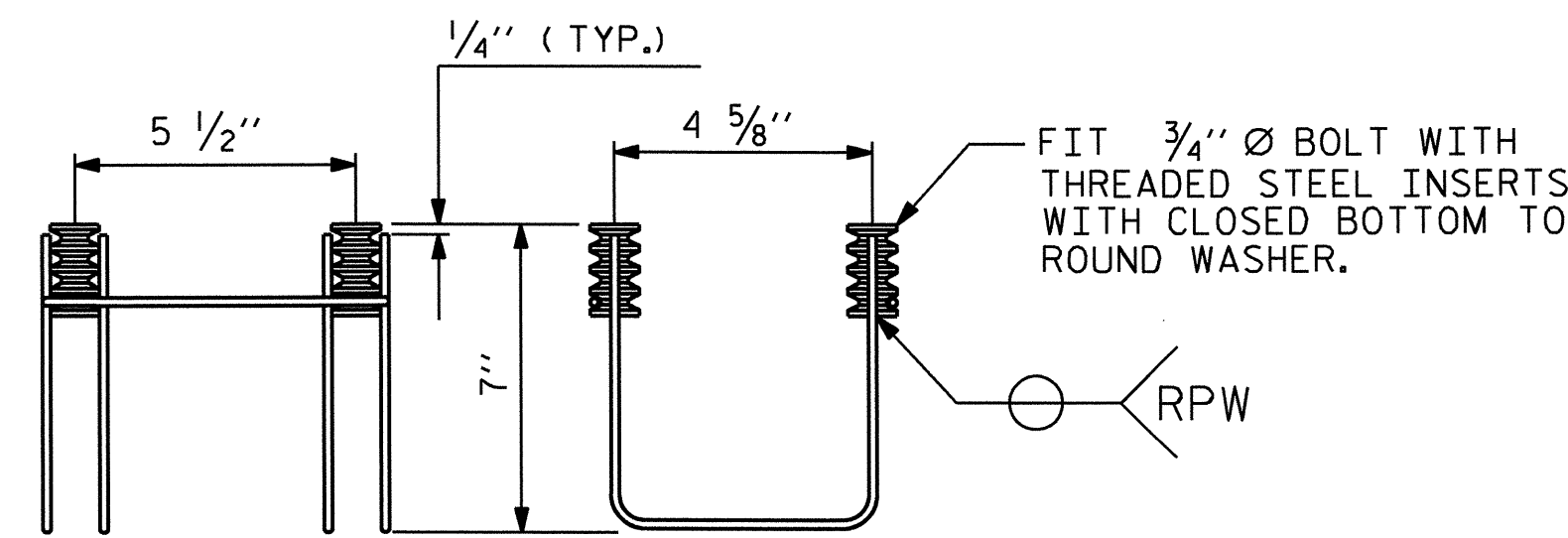
- A. FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF AASHTO M169, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 2" FOR 3/4" FERRULES.
- B. 4 - 3/4" Ø X 2 1/2" BOLTS WITH WASHERS. BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLTS AND WASHERS SHALL BE GALVANIZED. AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 3/4" Ø X 2 1/2" GALVANIZED BOLTS 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.
- C. WIRE STRUT SHOWN IN THE CONCRETE ANCHOR ASSEMBLY DETAIL IS THE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100,000 PSI. AS AN OPTION, A 1/16" Ø WIRE STRUT WITH A MINIMUM TENSILE STRENGTH OF 90,000 PSI IS ACCEPTABLE.
- D. THE METAL RAIL ANCHOR ASSEMBLIES TO BE HOT DIPPED GALVANIZED TO CONFORM TO REQUIREMENTS OF AASHTO M111.
- E. THE COST OF THE METAL RAIL ANCHOR ASSEMBLY WITH BOLTS AND WASHERS COMPLETE IN PLACE SHALL BE INCLUDED IN THE PRICE BID FOR LINEAR FEET OF METAL RAIL.
- F. BOLTS TO BE TIGHTENED ONE-HALF TURN WITH A WRENCH FROM A FINGER-TIGHT POSITION.

THE CONTRACTOR MAY USE ADHESIVELY ANCHORED ANCHOR BOLTS IN PLACE OF THE METAL RAIL ANCHOR ASSEMBLY. LEVEL ONE FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE 3/4" Ø BOLT IS 10 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE SPECIAL PROVISIONS.

WHEN ADHESIVELY ANCHORED ANCHOR BOLTS ARE USED, BOLTS SHALL MEET THE REQUIREMENTS OF ASTM F593 ALLOY 304 STAINLESS STEEL WITH MINIMUM 75,000 PSI ULTIMATE STRENGTH. NUTS SHALL MEET THE REQUIREMENTS OF ASTM F594 ALLOY 304 STAINLESS STEEL AND WASHERS SHALL MEET THE REQUIREMENTS OF ASTM F844 EXCEPT THEY SHALL BE MADE FROM ALLOY 304 STAINLESS STEEL.



PLAN

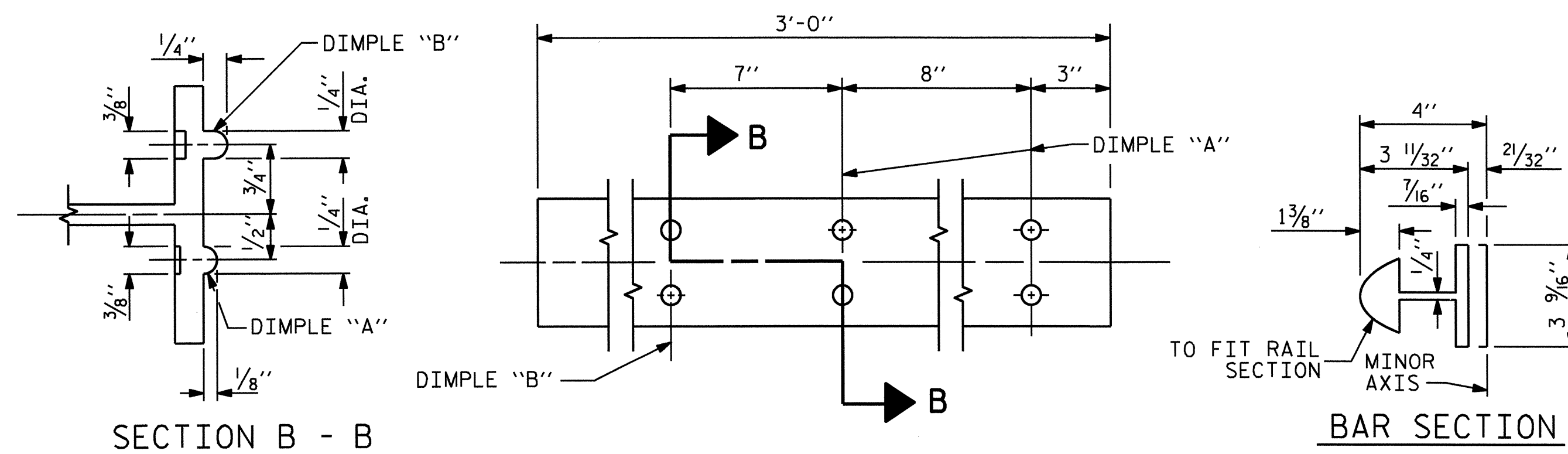


SIDE VIEW

ELEVATION

4-BOLT METAL RAIL ANCHOR ASSEMBLY

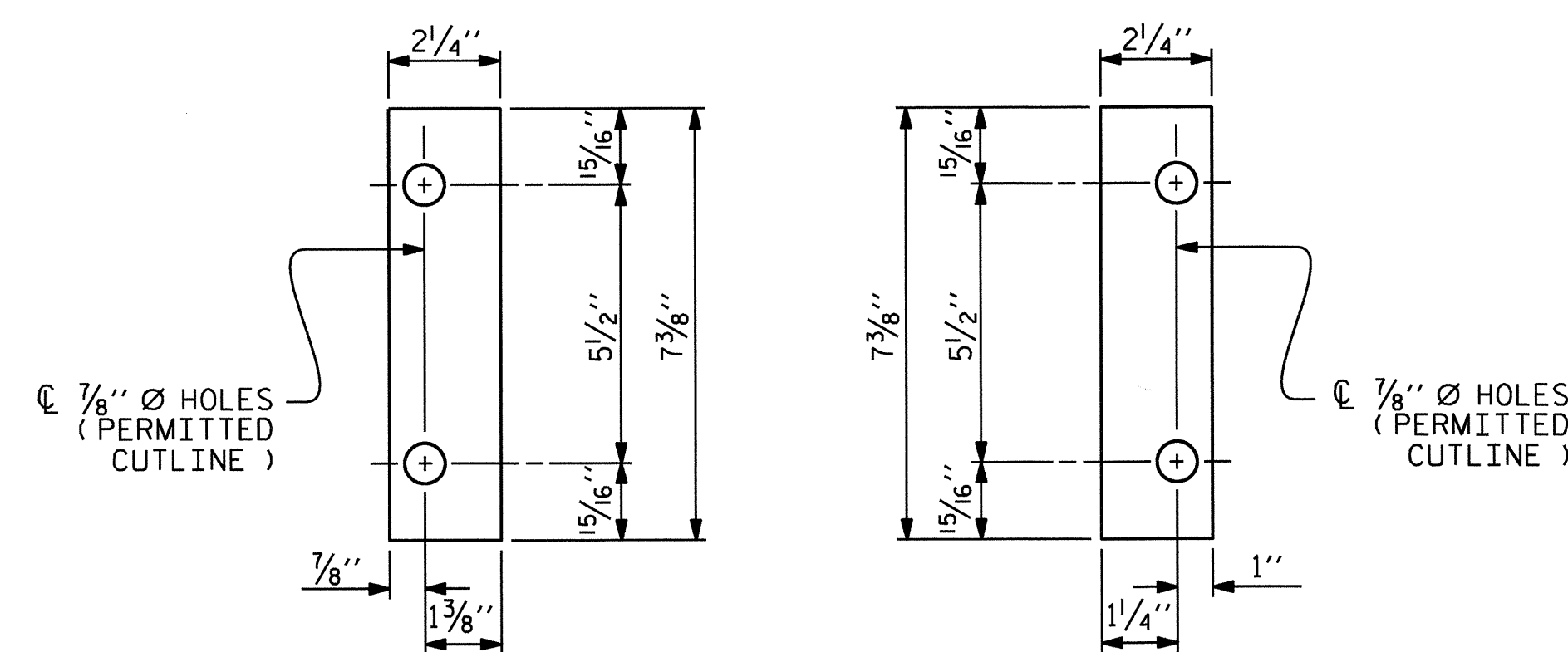
(86 ASSEMBLIES REQUIRED)



SECTION B - B

EXPANSION BAR DETAILS

BAR SECTION

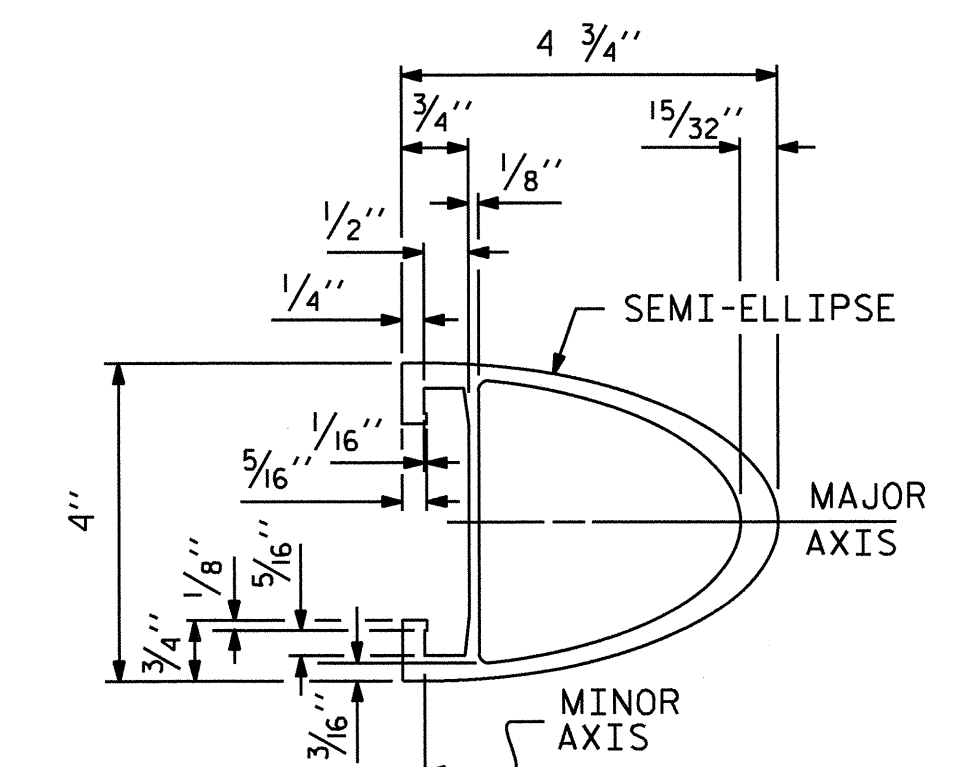


FRONT PLATE

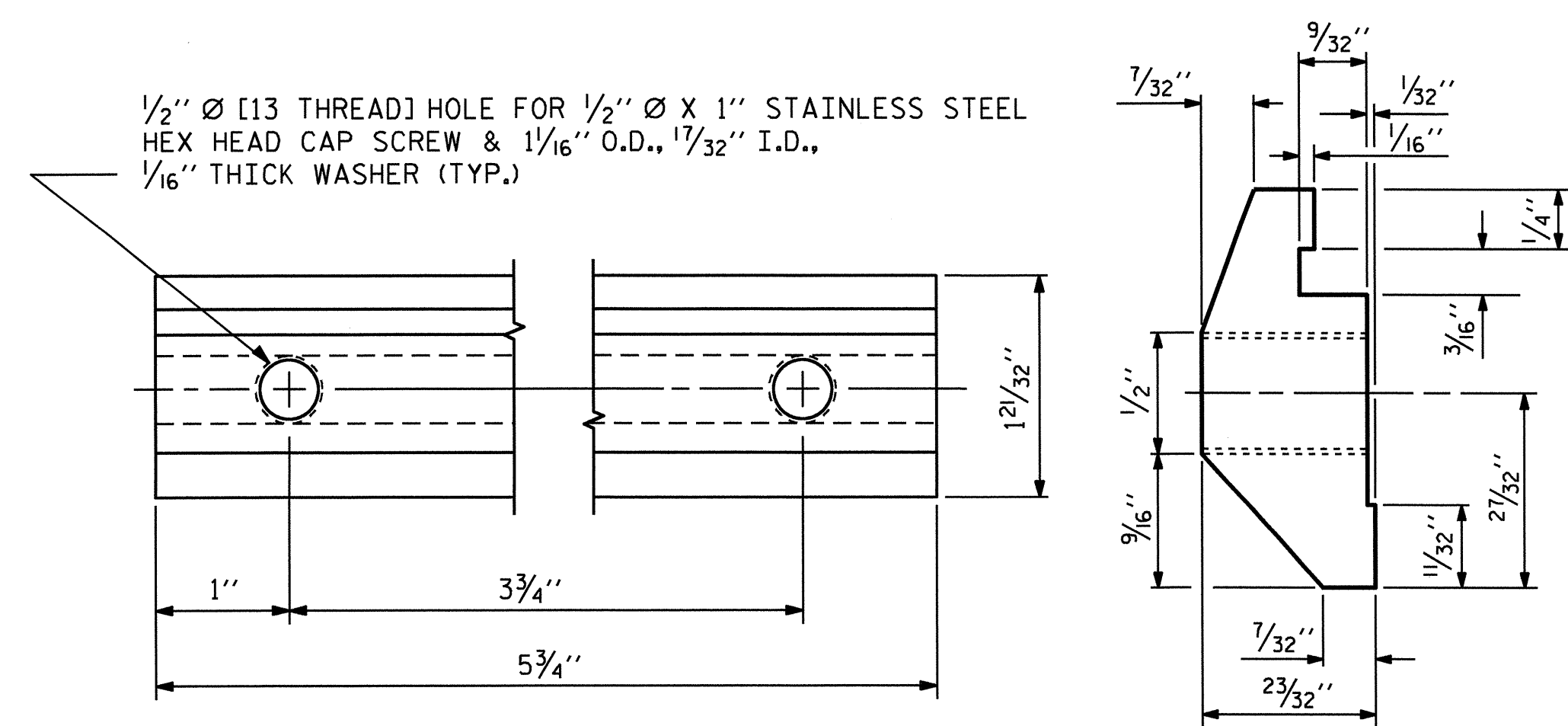
REAR PLATE

SHIM DETAILS

NOTE : SHIMS MAY BE CUT ALONG PERMITTED CUTLINE OR SLOTTED TO EDGE OF PLATE TO FACILITATE PLACEMENT.

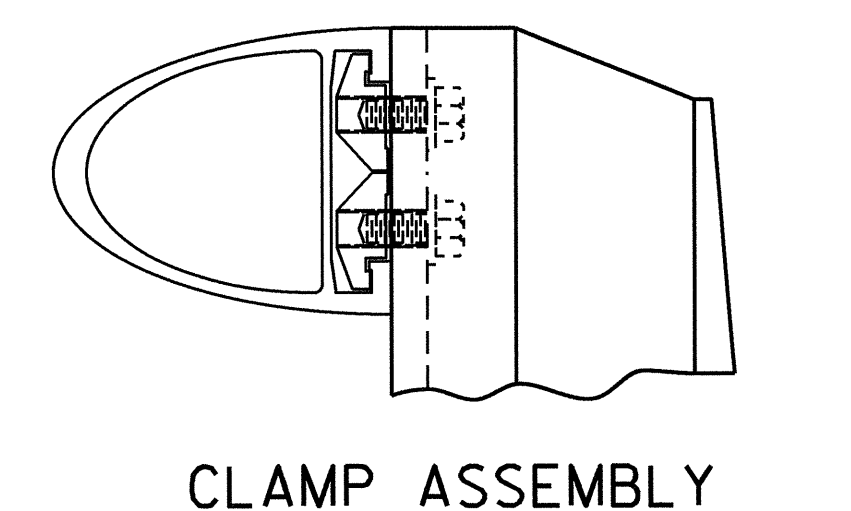


RAIL SECTION

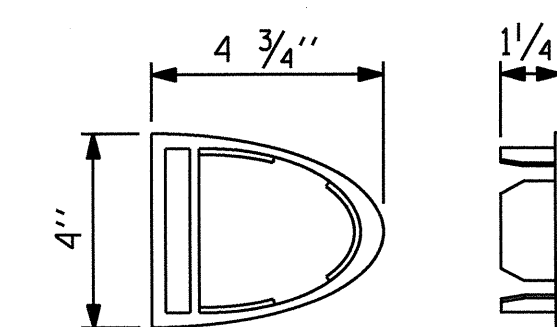


CLAMP BAR DETAIL

(4 REQUIRED PER POST)



CLAMP ASSEMBLY



RAIL CAP

PROJECT NO. B-4503
EDGEcombe COUNTY
 STATION: 21+11.00 -L-

SHEET 3 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STANDARD

2 BAR METAL RAIL

PROFESSIONAL SEAL
 22005
 KEITH PASCHAL
 9/20/11

| REVISIONS | | | | | SHEET NO. |
|-----------|-----|-------|-----|-------|--------------|
| NO. | BY: | DATE: | NO. | DATE: | S-13 |
| 1 | | | 3 | | TOTAL SHEETS |
| 2 | | | 4 | | 24 |

| | |
|-----------------------------|----------------------|
| ASSEMBLED BY : M. E. FOWLER | DATE : 10/3/09 |
| CHECKED BY : J. D. HAWK | DATE : 6/1/11 |
| DRAWN BY : EEM 6/94 | REV. 2/6/97 EEM/RGW |
| CHECKED BY : RGW 6/94 | REV. 8/16/99 MAB/LKS |
| | REV. 5/1/06R KMM/GM |

NOTES

STRUCTURAL CONCRETE INSERT

THE STRUCTURAL CONCRETE INSERT ASSEMBLY SHALL CONSIST OF THE FOLLOWING COMPONENTS:

- A. FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF AASHTO M169, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 1 1/2".
- B. 1 - 3/4" Ø X 1 5/8" BOLT WITH WASHER, BOLT SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLT AND WASHER SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLT AND WASHER MAY BE USED AS AN ALTERNATE FOR THE 3/4" Ø X 1 5/8" GALVANIZED BOLT AND WASHER. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)
- C. WIRE STRUT SHOWN IN THE CONCRETE INSERT ASSEMBLY DETAIL IS THE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100,000 PSI. AS AN OPTION, A 1/6" Ø WIRE STRUT WITH A MINIMUM TENSILE STRENGTH OF 90,000 PSI IS ACCEPTABLE.

NOTES

METAL RAIL TO END POST CONNECTION

THE METAL RAIL TO END POST CONNECTION SHALL CONSIST OF THE FOLLOWING COMPONENTS:

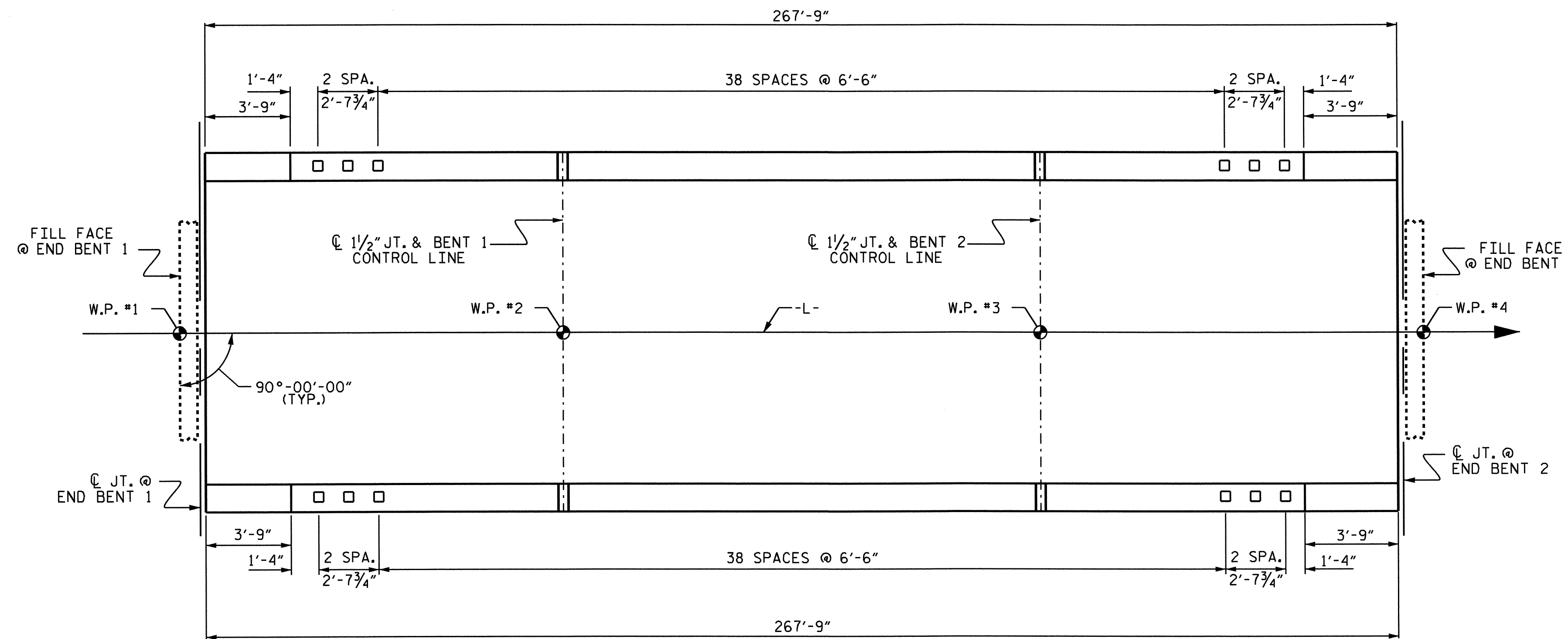
- A. 1/2" PLATES SHALL CONFORM TO AASHTO M270 GRADE 36 AND SHALL BE GALVANIZED AFTER FABRICATION.
- B. 3/4" STRUCTURAL CONCRETE INSERT SHALL HAVE A WORKING LOAD SHEAR CAPACITY OF 4800 LBS. THE FERRULES SHALL ENGAGE A 3/4" Ø X 1 5/8" BOLT WITH 2" O.D. WASHER IN PLACE. THE 3/4" Ø X 1 5/8" BOLT SHALL HAVE N. C. THREADS.
- C. CAP SCREWS FOR RAIL ATTACHMENT TO ANGLE SHALL CONFORM TO THE REQUIREMENTS OF ASTM F593 ALLOY 305 STAINLESS STEEL. CAP SCREWS TO BE CENTERED IN SLOTS AT 60° F.
- D. STANDARD CLAMP BARS (SEE METAL RAIL SHEET).
- E. 1/2" Ø PIPE SLEEVES (IF REQUIRED) TO BE GALVANIZED.

THE COST OF THE STANDARD CLAMP BARS AND CAP SCREWS USED IN THE METAL RAIL TO END POST CONNECTION SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR LINEAR FEET OF 1 OR 2 BAR METAL RAILS.

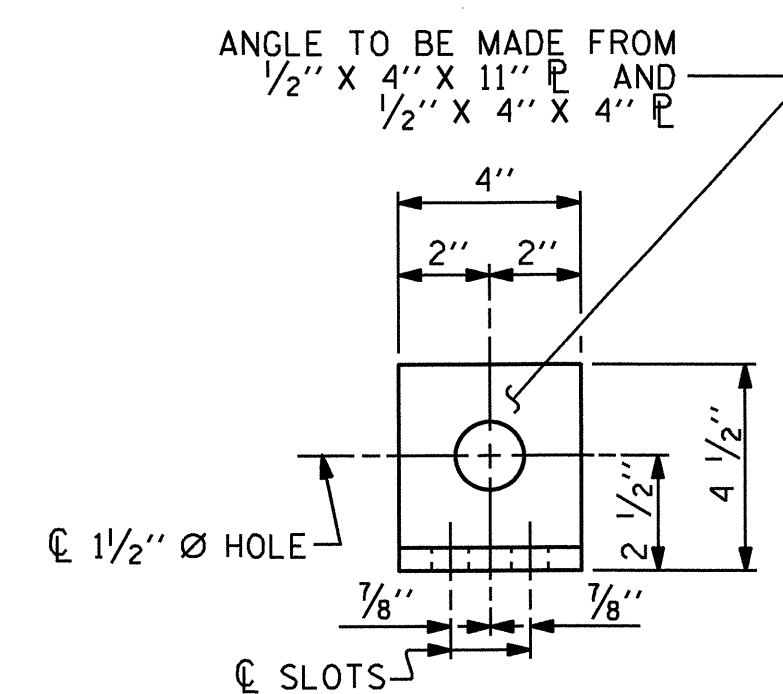
THE 3/4" STRUCTURAL CONCRETE INSERT WITH BOLT SHALL BE ASSEMBLED IN THE SHOP.

THE COST OF THE 3/4" STRUCTURAL CONCRETE INSERT ASSEMBLY, AND THE 1/2" PLATES COMPLETE IN PLACE SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.

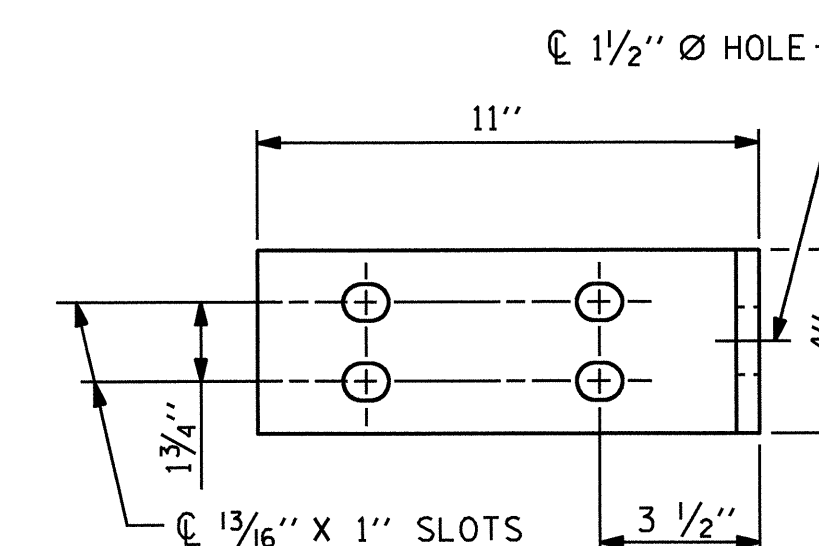
THE CONTRACTOR, AT HIS OPTION, MAY USE AN ADHESIVE BONDING SYSTEM IN LIEU OF THE STRUCTURAL CONCRETE INSERT EMBEDDED IN THE END POST. IF THE ADHESIVE BONDING SYSTEM IS USED, THE 3/4" Ø X 1 5/8" BOLT WITH WASHER SHALL BE REPLACED WITH A 3/4" Ø X 6 1/2" BOLT AND 2" O.D. WASHER. ALL SPECIFICATIONS THAT APPLY TO THE 3/4" Ø X 1 5/8" BOLT SHALL APPLY TO THE 3/4" Ø X 6 1/2" BOLT. FIELD TESTING OF THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.



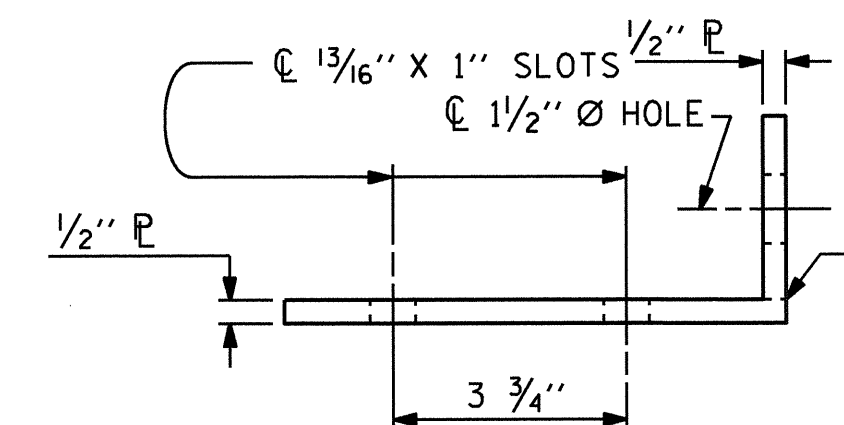
PLAN OF RAIL POST SPACINGS



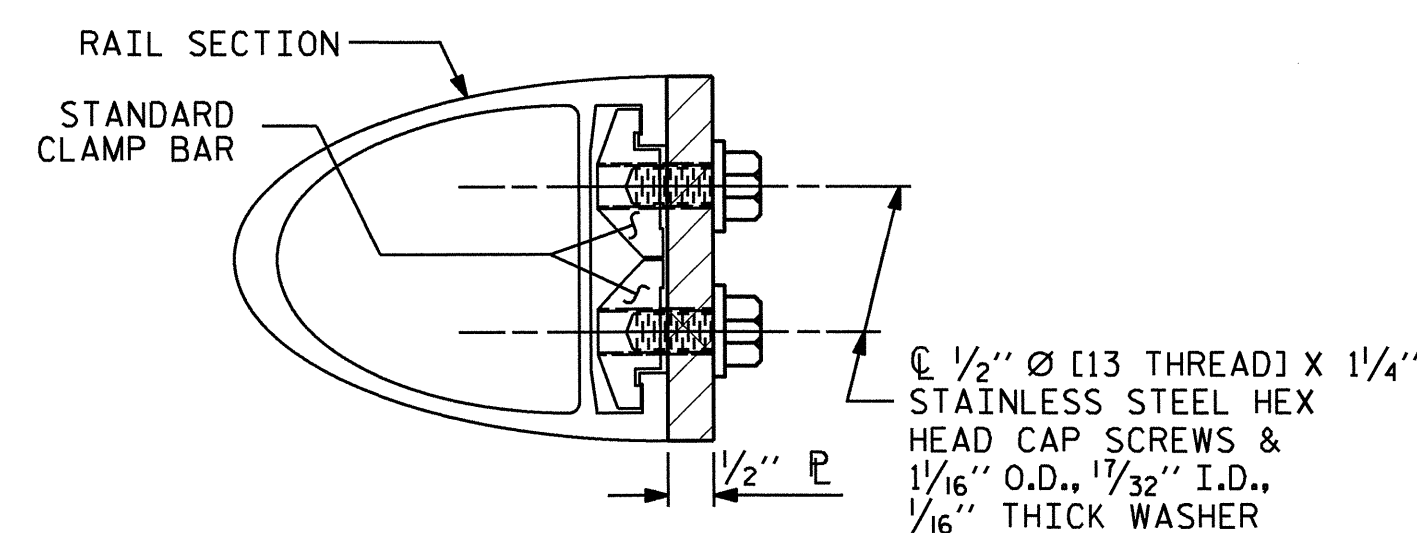
END VIEW (FIX AND EXP.)



ELEVATION



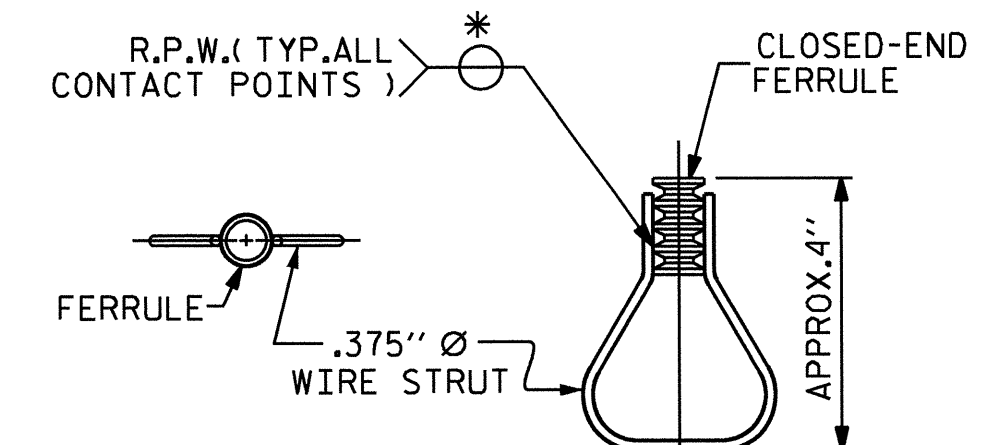
TOP VIEW



SECTION H-H (FIX)

FIXED

DETAILS FOR ATTACHING METAL RAIL TO END POST



PLAN ELEVATION

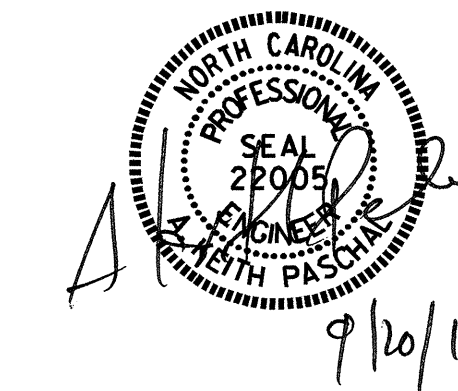
STRUCTURAL CONCRETE INSERT

* EACH WELDED ATTACHMENT OF WIRE TO FERRULE SHALL DEVELOP THE TENSILE STRENGTH OF THE WIRE.

PROJECT NO. B-4503
EDGEcombe COUNTY
 STATION: 21+11.00 -L-

SHEET 4 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 RAIL POST SPACINGS
 AND
 END OF RAIL DETAILS
 FOR TWO BAR METAL RAILS



| | |
|-----------------------------|-----------------------|
| ASSEMBLED BY : M. E. FOWLER | DATE : 5/31/11 |
| CHECKED BY : J. D. HAWK | DATE : 06/01/11 |
| DRAWN BY : FCJ 1/88 | REV. 10/17/00 LES/RDR |
| CHECKED BY : CRK 3/89 | REV. 5/7/03 RWW/JTE |
| | REV. 5/1/06 TLA/GM |

| REVISIONS | | | | | | SHEET NO. | |
|-----------|-----|-------|-----|-----|-------|--------------|----|
| NO. | BY: | DATE: | NO. | BY: | DATE: | S-14 | |
| 1 | | | 3 | | | TOTAL SHEETS | 24 |
| 2 | | | 4 | | | | |

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 M11.

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.

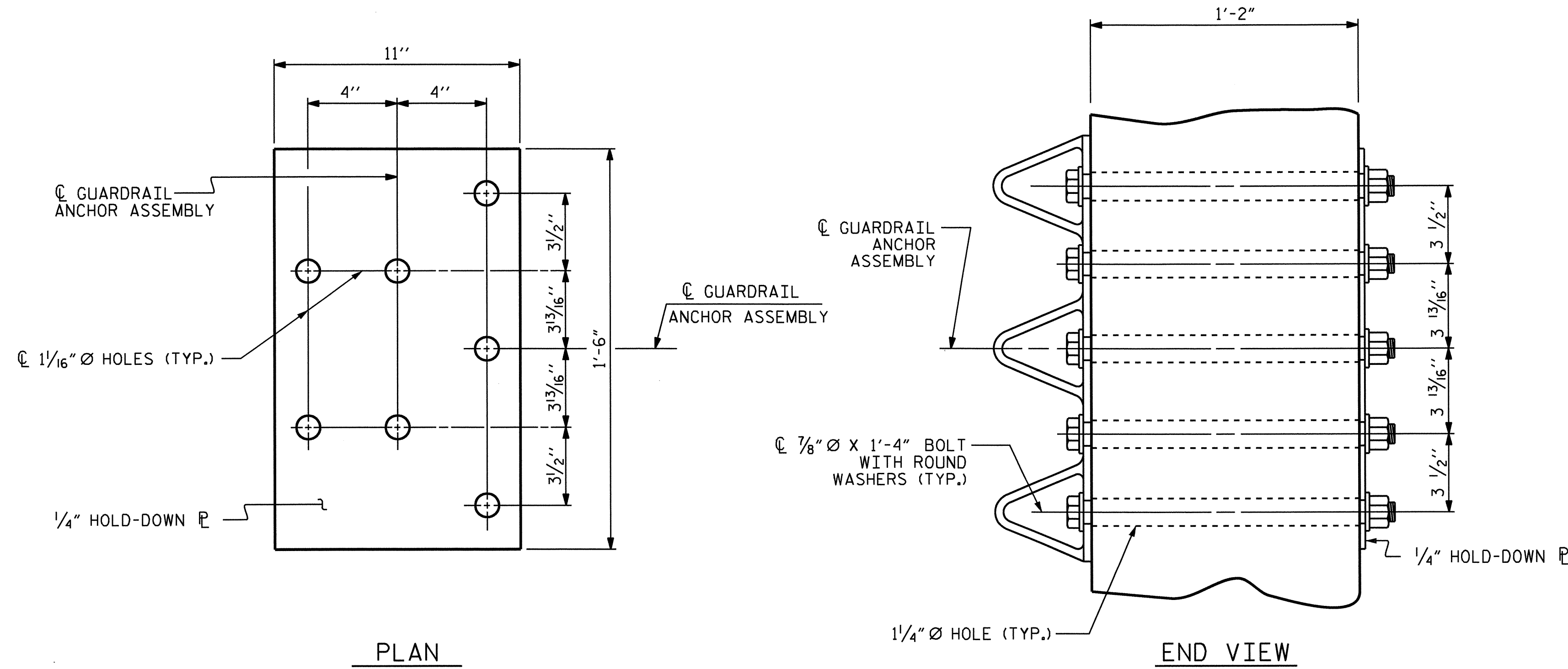
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF THE PARAPET. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

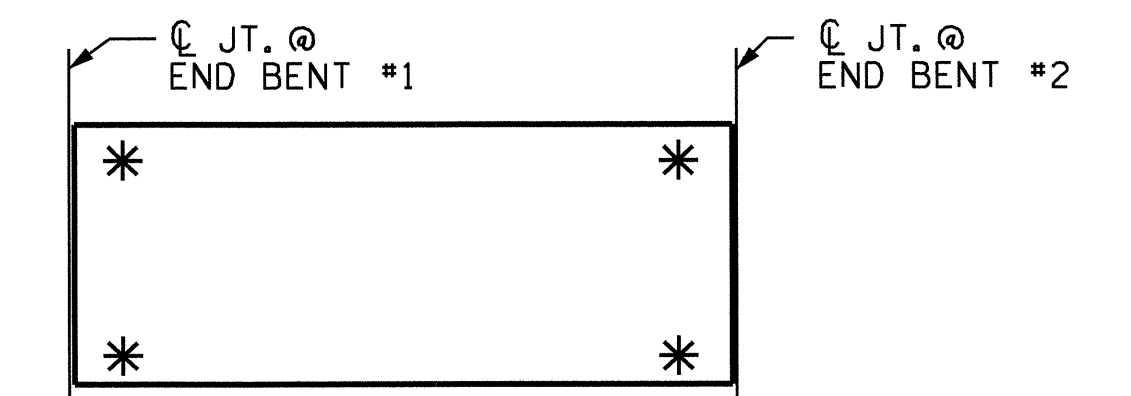
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLIES WITH BOLTS, NUTS AND WASHERS COMPLETE IN PLACE, SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.

THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE END POST 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.

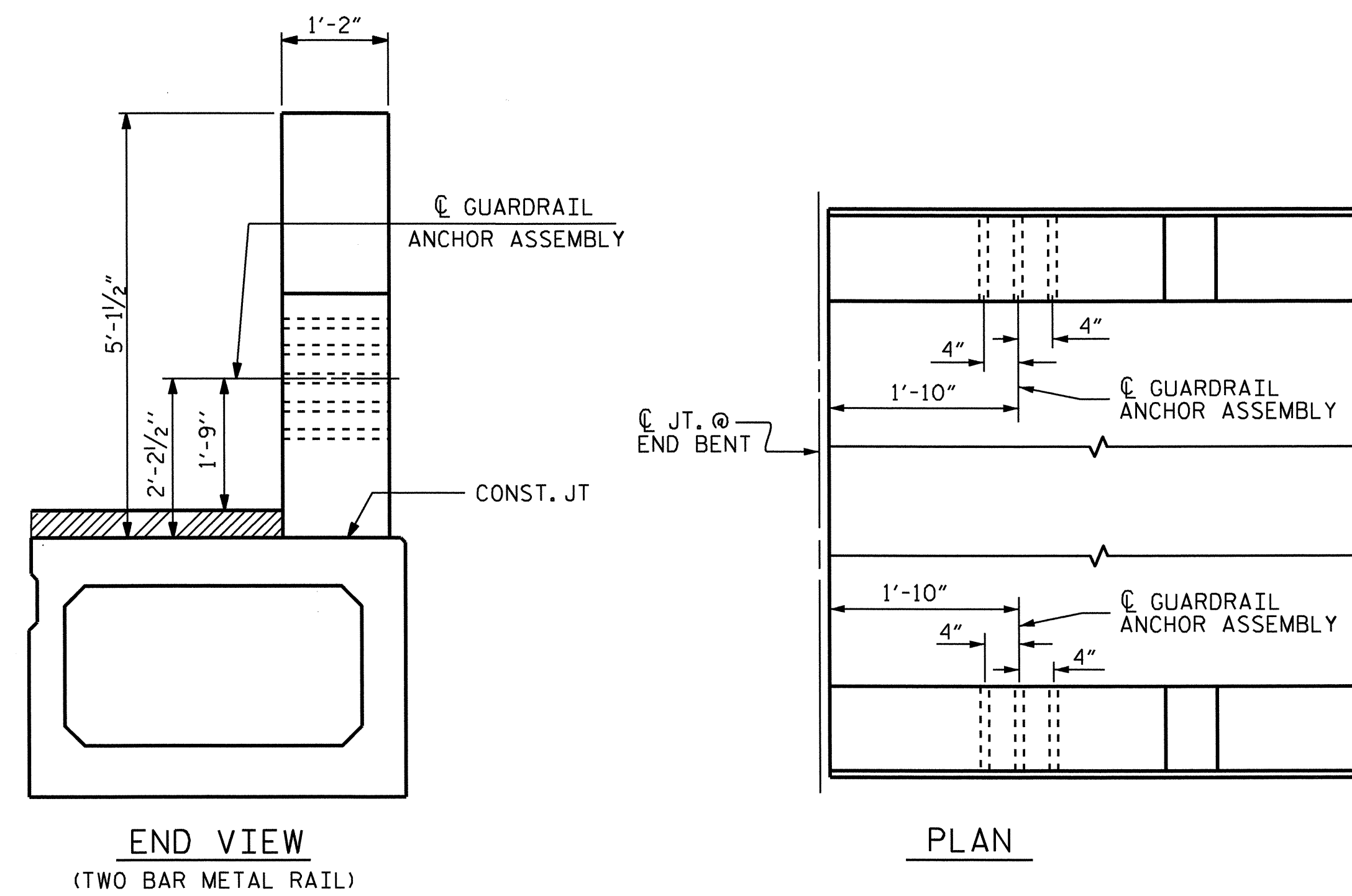


GUARDRAIL ANCHOR ASSEMBLY DETAILS



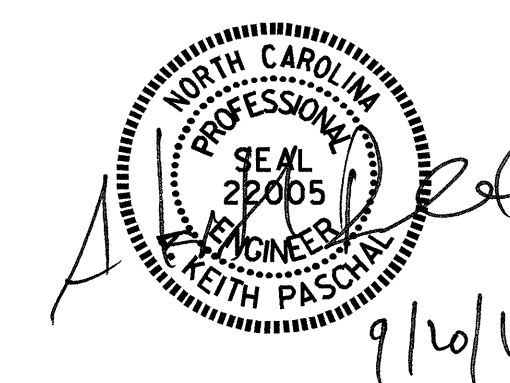
SKETCH SHOWING POINTS OF ATTACHMENT

* LOCATION OF GUARDRAIL ATTACHMENT



LOCATION OF GUARDRAIL ANCHOR AT END POST

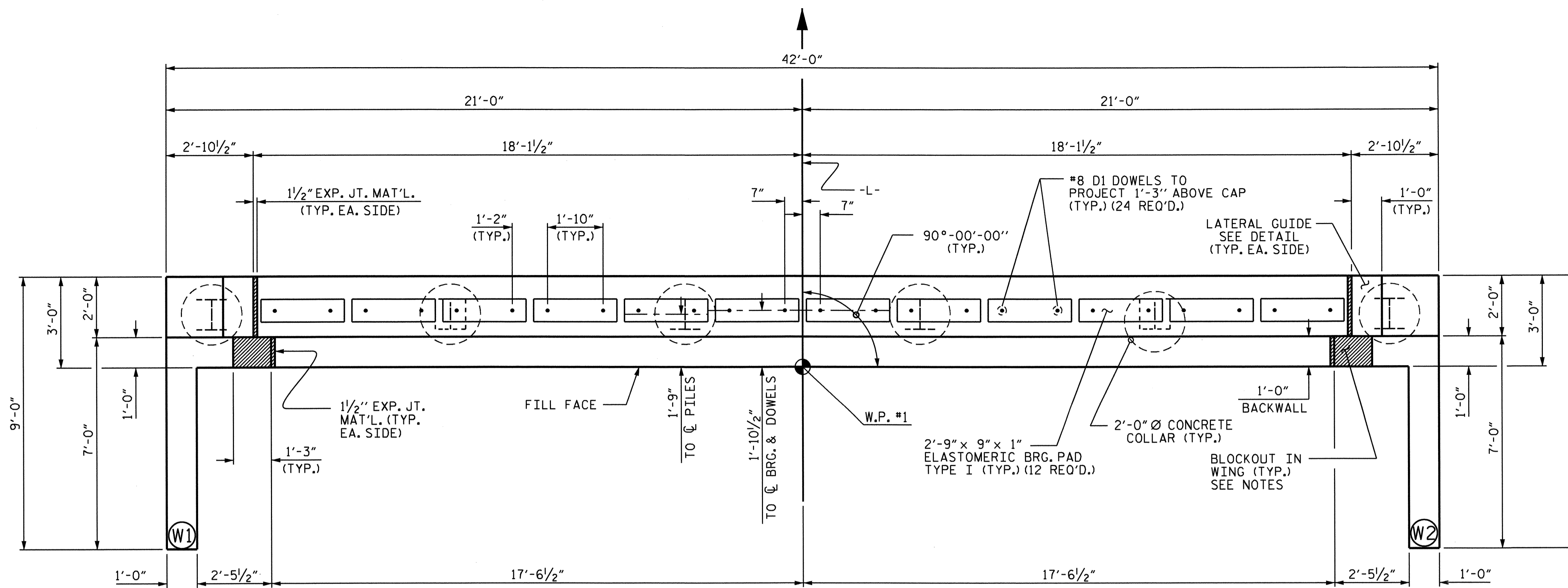
PROJECT NO. B-4503
EDGEcombe COUNTY
 STATION: 21+11.00 -L-
 SHEET 5 OF 5



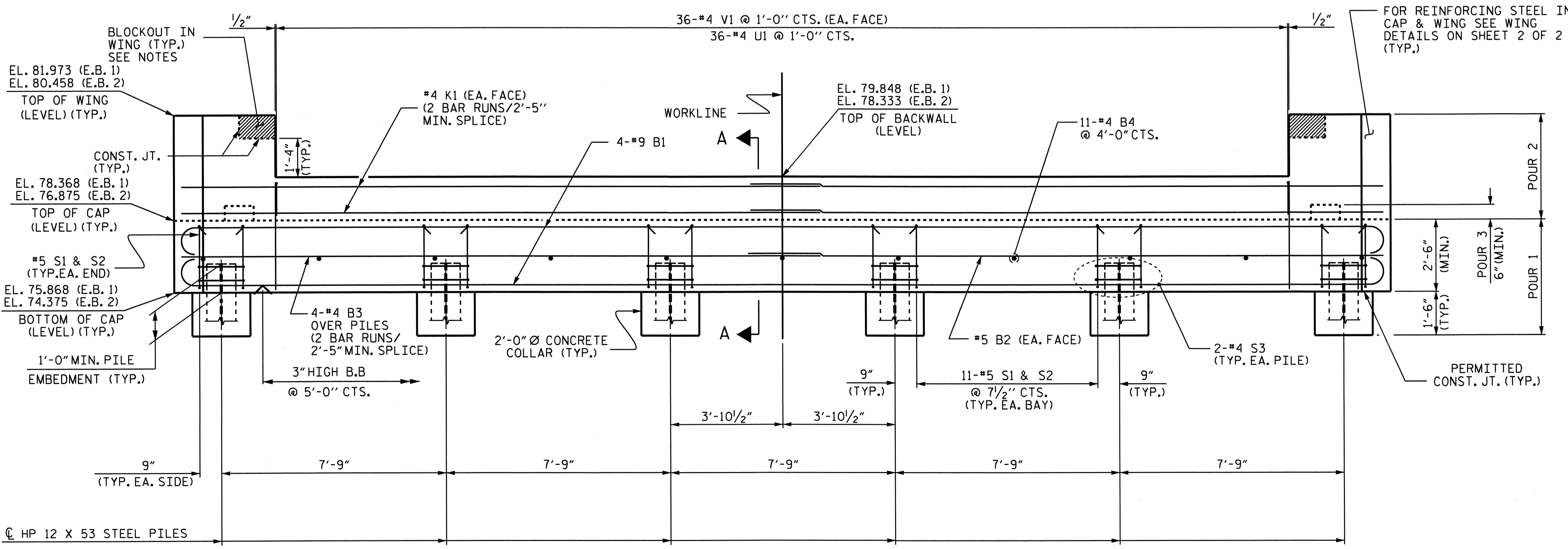
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 GUARDRAIL ANCHORAGE
 DETAILS
 FOR METAL RAILS

| | |
|-----------------------------|-----------------|
| ASSEMBLED BY : M. E. FLOWER | DATE : 10-03-09 |
| CHECKED BY : J. D. HAWK | DATE : 06-01-11 |
| DRAWN BY : MAA 5/10 | ADDED 5/6/10 |
| CHECKED BY : GM 5/10 | |

| REVISIONS | | | | | | SHEET NO. |
|-----------|-----|-------|-----|-----|-------|--------------|
| NO. | BY: | DATE: | NO. | BY: | DATE: | S-15 |
| 1 | | | 3 | | | TOTAL SHEETS |
| 2 | | | 4 | | | 24 |



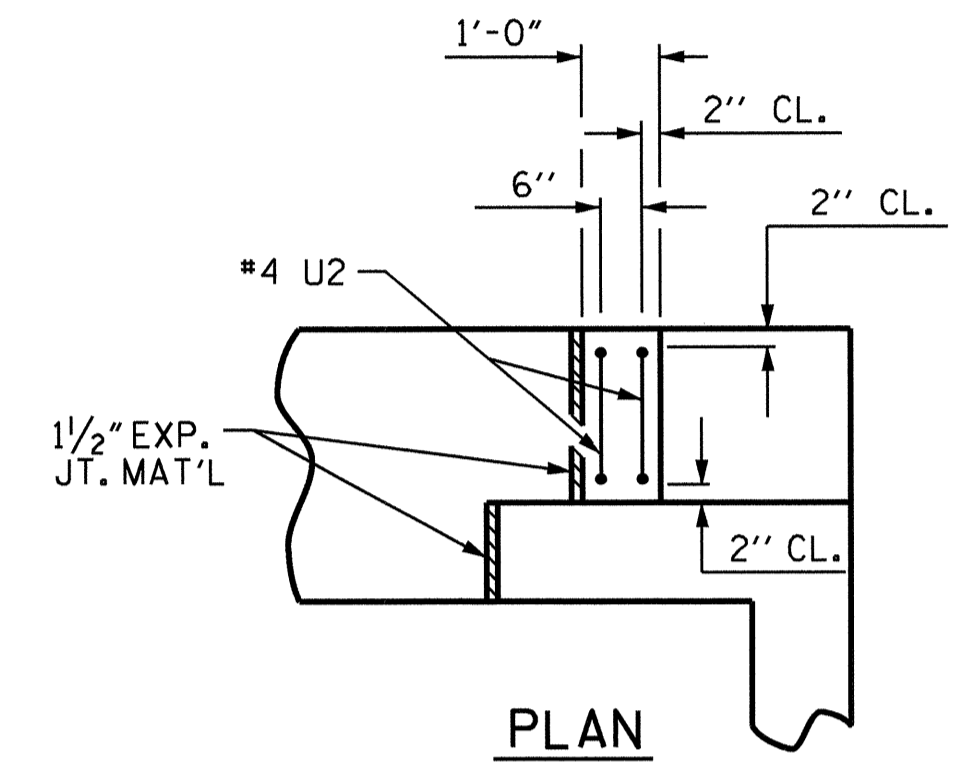
PLAN
(END BENT 1 SHOWN, END BENT 2 SIMILAR)



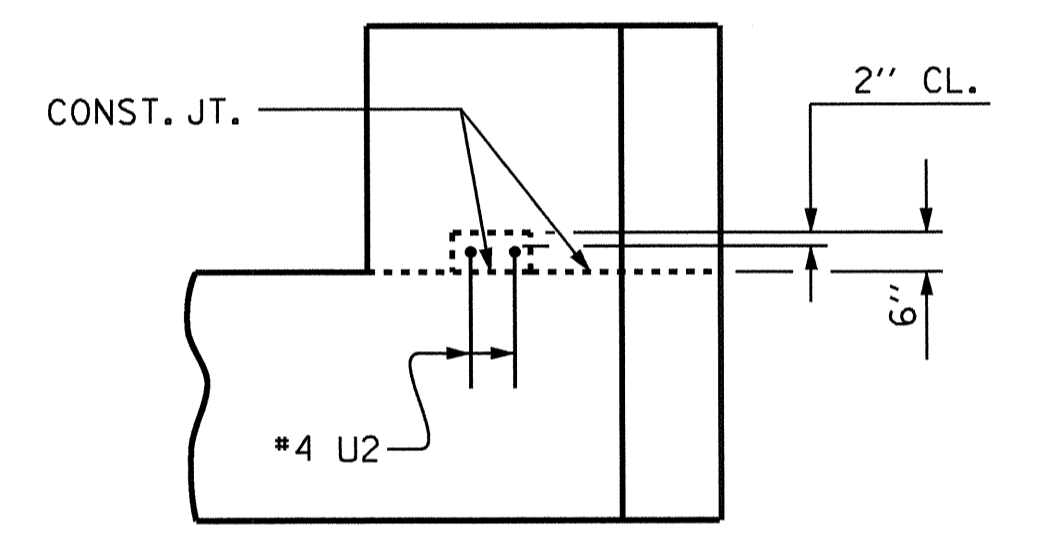
ELEVATION
(END BENT 1 SHOWN, END BENT 2 SIMILAR)

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 BOX BEAM UNITS ARE IN PLACE.
 THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE PARAPET IS CAST IF SLIP FORMING IS USED.
 THE CONTRACTOR HAS THE OPTION TO OMIT THE LATERAL GUIDES IF APPROVED BY THE ENGINEER.



PLAN



ELEVATION

LATERAL GUIDE DETAIL
(RIGHT SIDE SHOWN, LEFT SIDE SIMILAR)

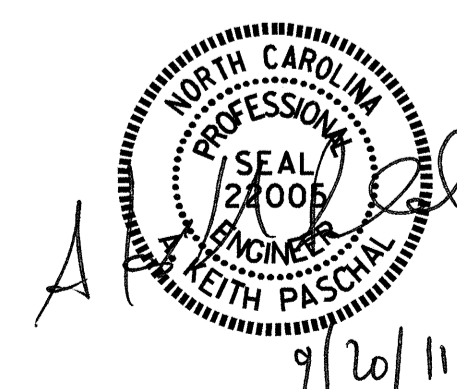
PROJECT NO. B-4503
 EDGEcombe COUNTY
 STATION: 21+11.00 -L-

SHEET 1 OF 2

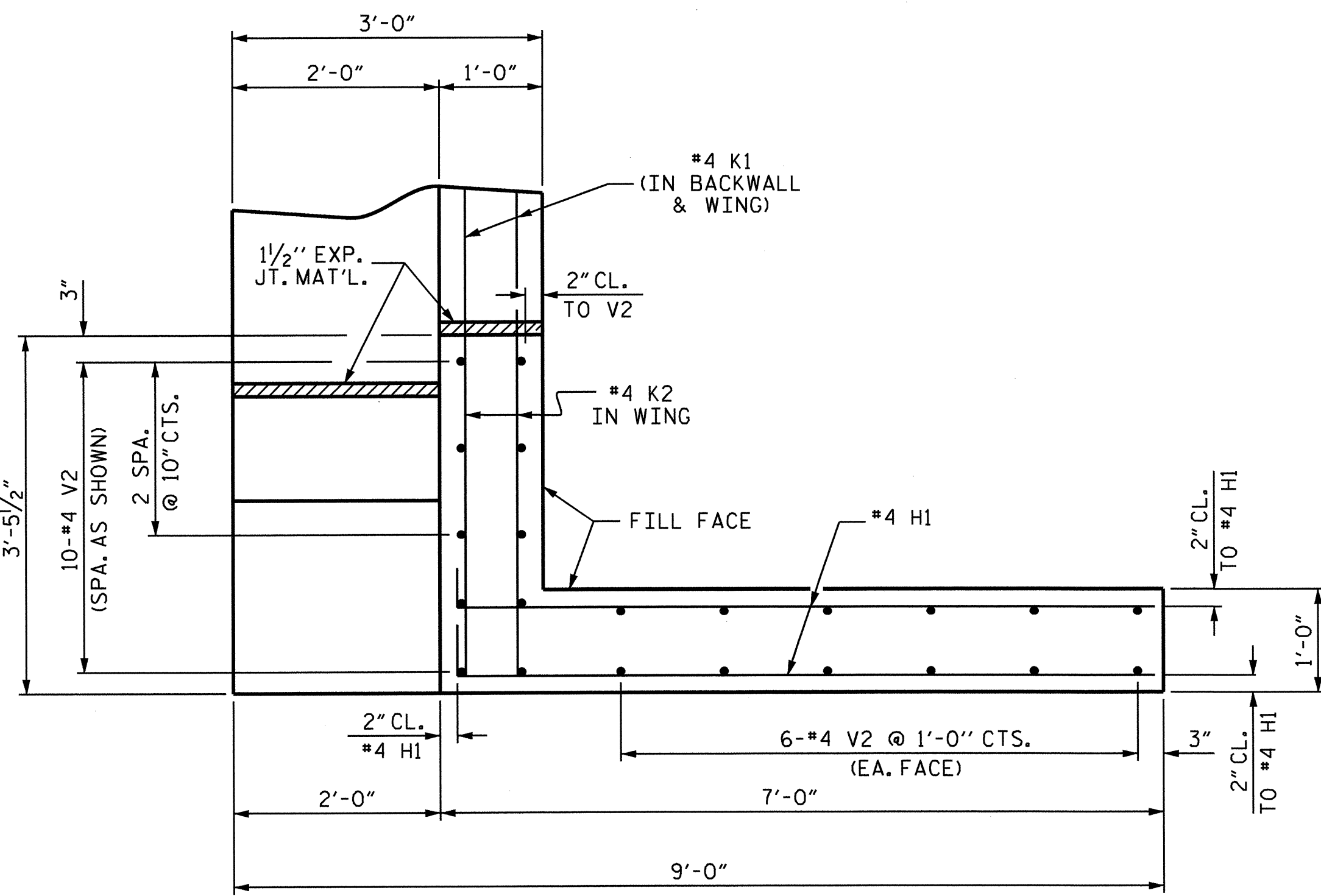
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUBSTRUCTURE
 END BENT 1 & 2**

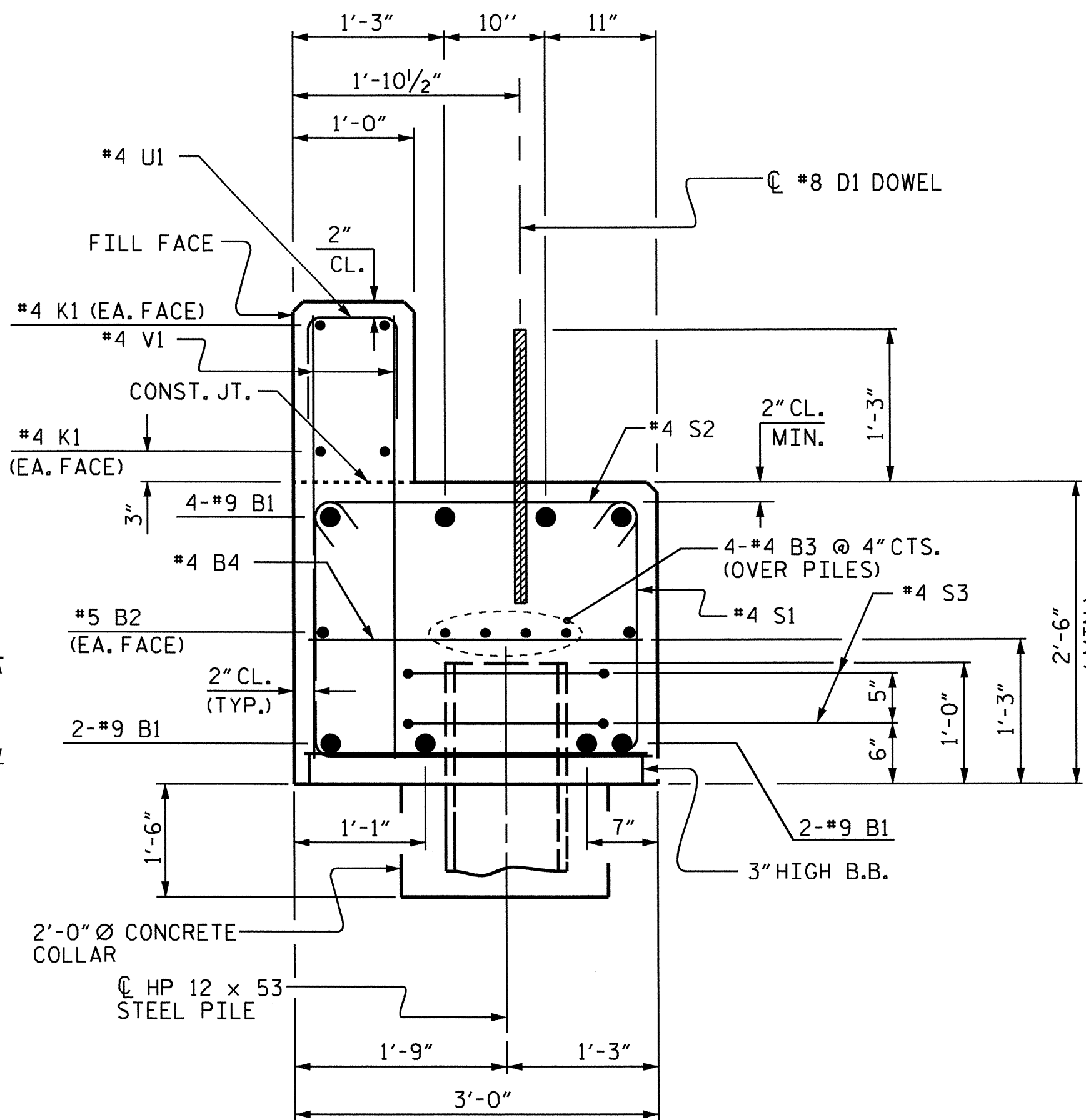
| REVISIONS | | | | | | SHEET NO. |
|-----------|-----|-------|-----|-----|-------|--------------|
| NO. | BY: | DATE: | NO. | BY: | DATE: | S-16 |
| 1 | | | 3 | | | TOTAL SHEETS |
| 2 | | | 4 | | | 24 |



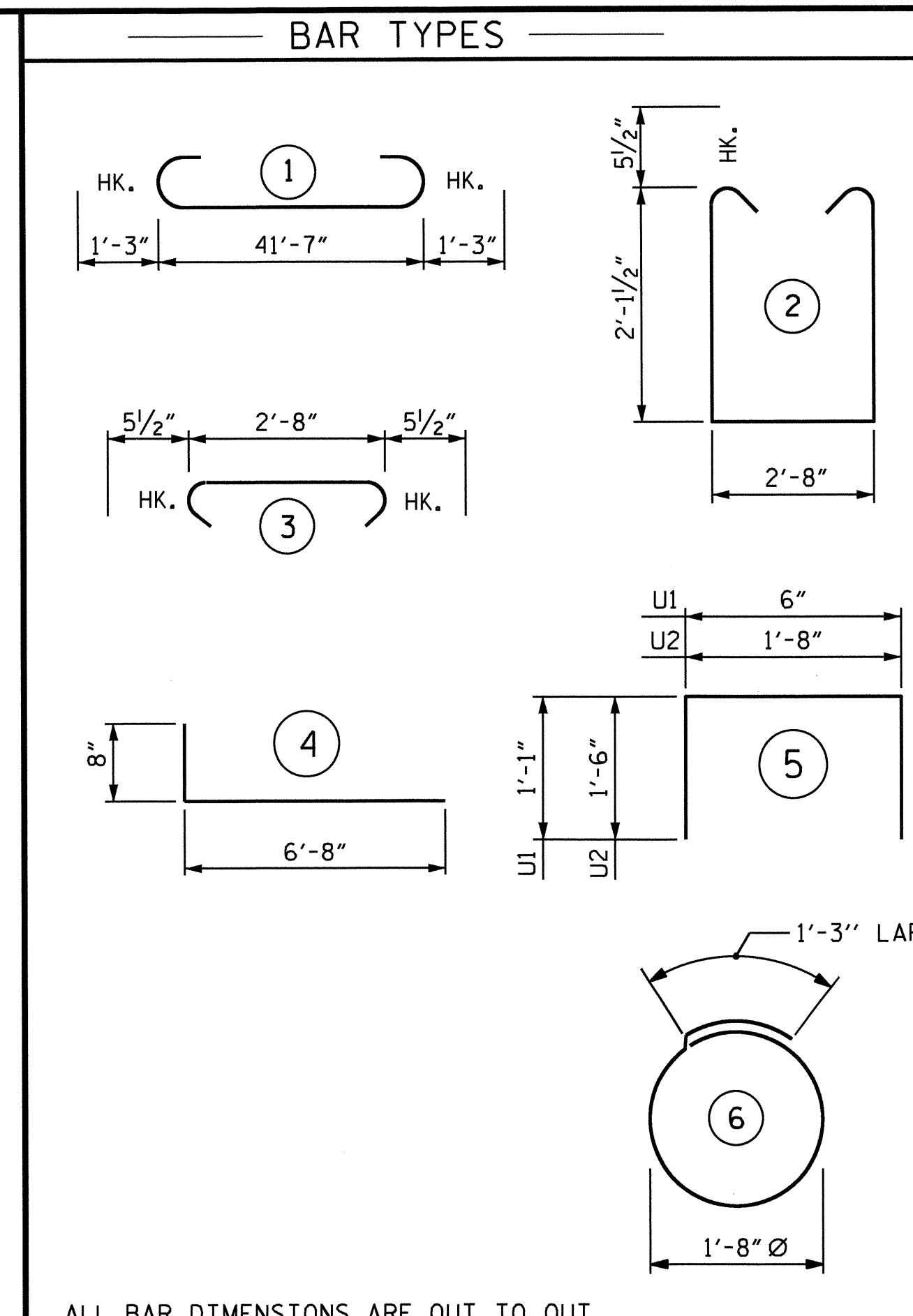
DRAWN BY : M.E. FOWLER DATE : 4/26/10
 CHECKED BY : J. MYA DATE : 5/18/11



PLAN OF WING - W1
(WING 1 SHOWN WING 2 SIMILAR)

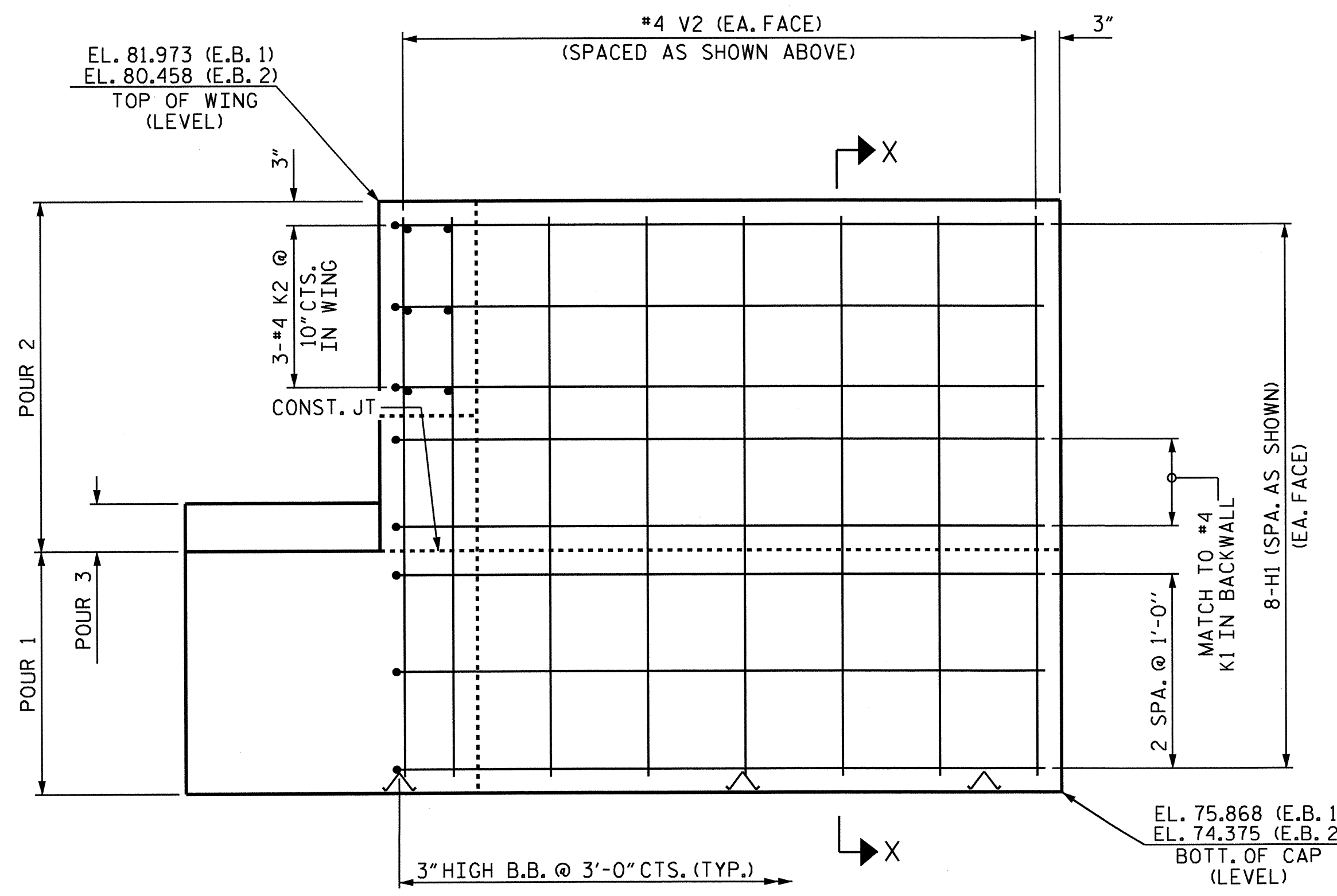


SECTION A-A

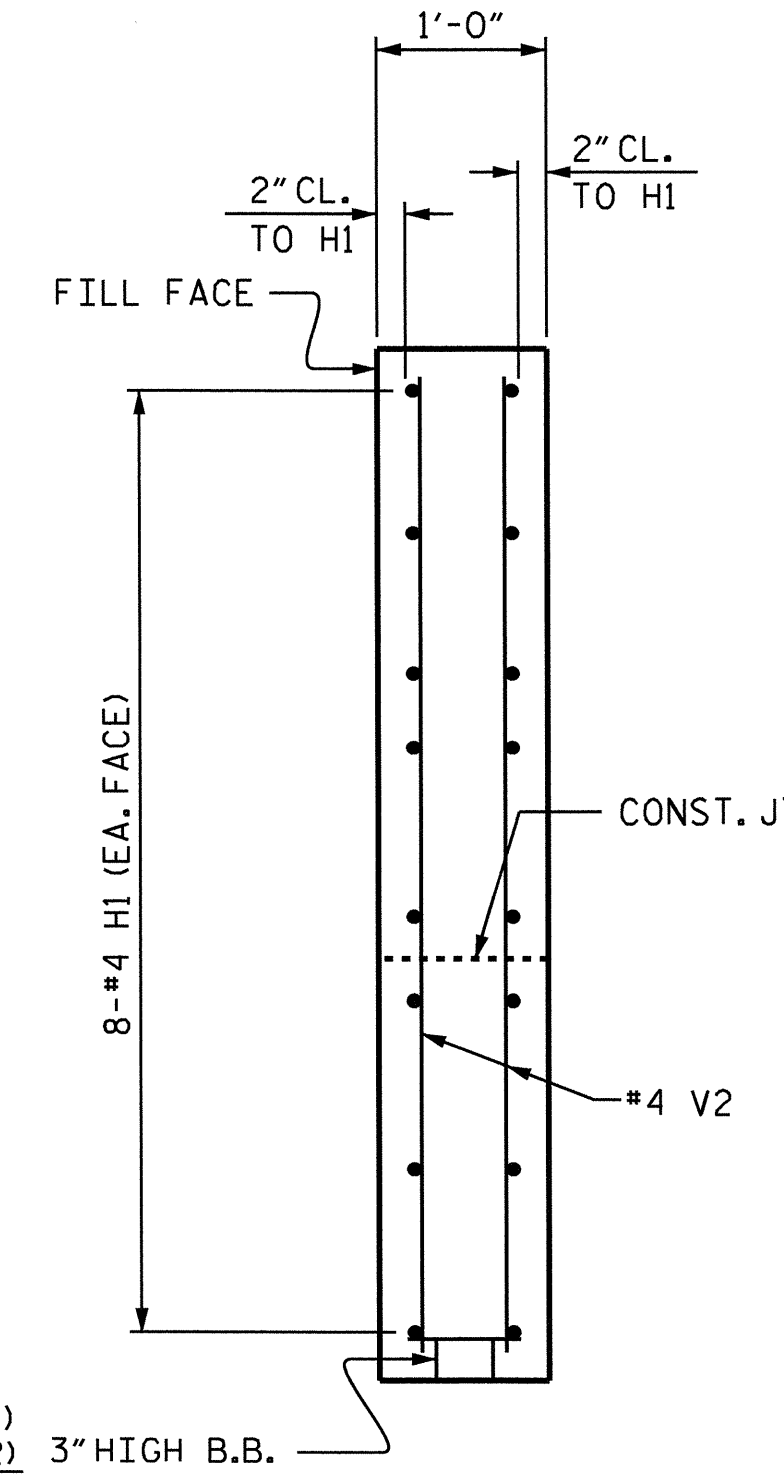


ALL BAR DIMENSIONS ARE OUT TO OUT.

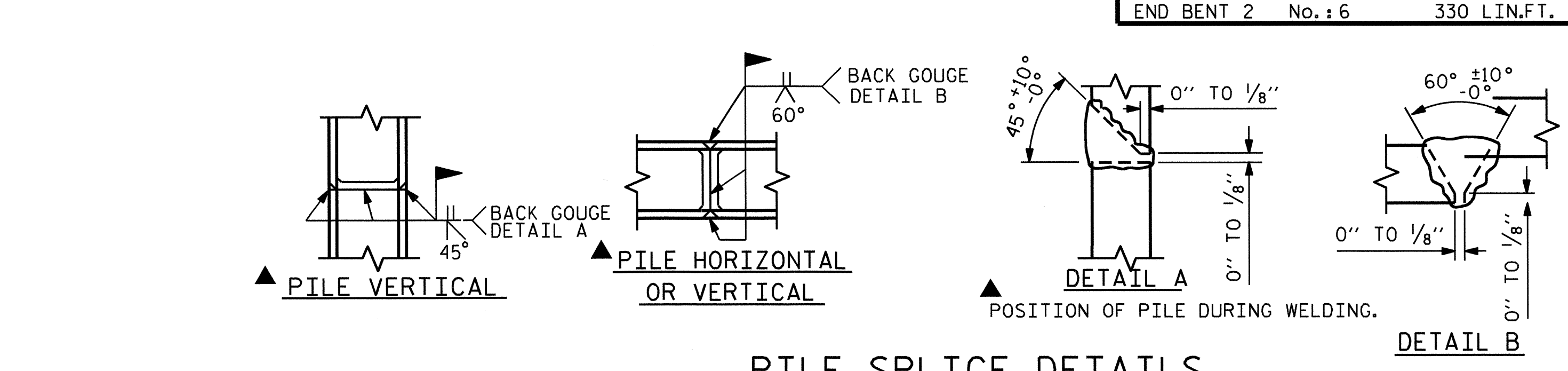
| BILL OF MATERIAL | | | | | |
|--|-----|------|------|-------------|--------|
| FOR ONE END BENT (2 REQ'D.) | | | | | |
| BAR | NO. | SIZE | TYPE | LENGTH | WEIGHT |
| B1 | 8 | #9 | | 44'-1" | 1199 |
| B2 | 2 | #5 | STR | 41'-8" | 87 |
| B3 | 8 | #4 | STR | 22'-1" | 118 |
| B4 | 11 | #4 | STR | 2'-8" | 20 |
| D1 | 24 | #8 | STR | 2'-3" | 144 |
| H1 | 32 | #4 | 4 | 7'-4" | 157 |
| K1 | 8 | #4 | STR | 22'-1" | 118 |
| K2 | 12 | #4 | STR | 3'-1" | 25 |
| S1 | 57 | #5 | 2 | 7'-10" | 466 |
| S2 | 57 | #5 | 3 | 3'-7" | 213 |
| S3 | 12 | #4 | 6 | 6'-6" | 52 |
| U1 | 36 | #4 | 5 | 2'-8" | 64 |
| U2 | 4 | #4 | 5 | 4'-8" | 12 |
| V1 | 72 | #4 | STR | 3'-6" | 168 |
| V2 | 44 | #4 | STR | 5'-9" | 169 |
| REINFORCING STEEL | | | | LBS. | 3012 |
| CLASS A CONCRETE BREAKDOWN | | | | | |
| POUR 1 (CAP, CONCRETE COLLARS, & LOWER PART OF WINGS) 13.8 CU. YDS. | | | | | |
| POUR 2 (BACKWALL & UPPER PART OF WINGS) 4.5 CU. YDS. | | | | | |
| POUR 3 (LATERAL GUIDES) 0.1 CU. YDS. | | | | | |
| TOTAL | | | | CU. YDS. | 18.4 |
| HP 12 x 53 STEEL PILES | | | | | |
| END BENT 1 No. : 6 | | | | 360 LIN.FT. | |
| END BENT 2 No. : 6 | | | | 330 LIN.FT. | |



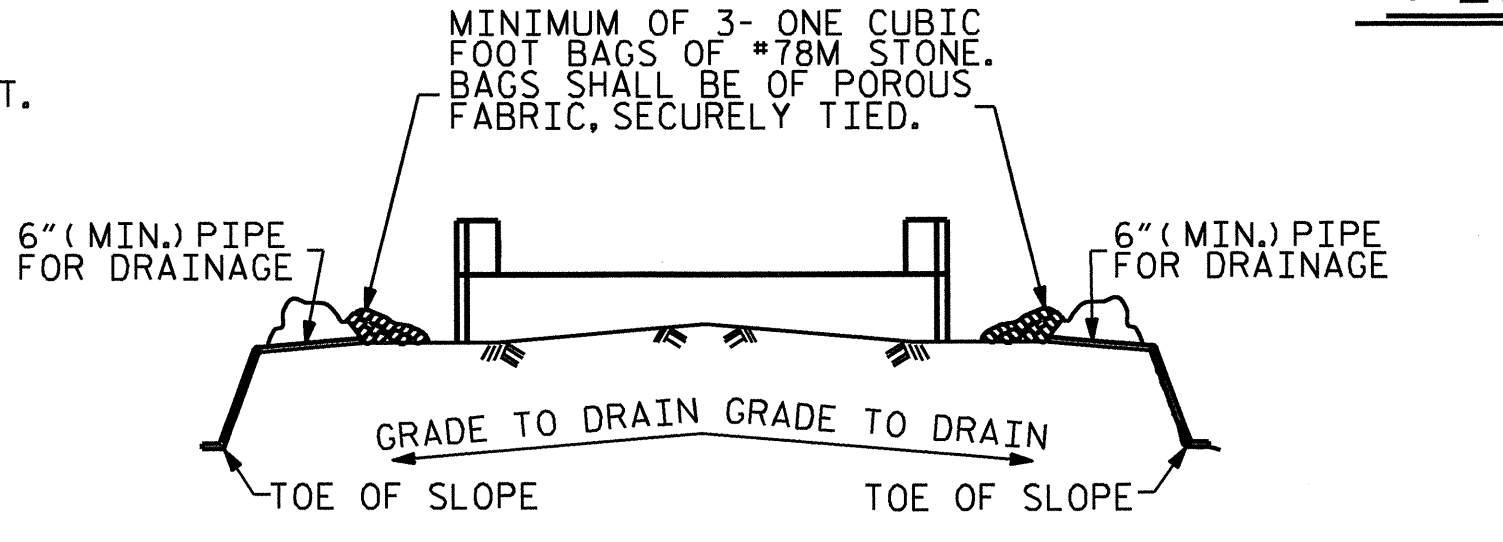
ELEVATION OF WING - W1
(WING 1 SHOWN, WING 2 SIMILAR)



SECTION X-X



PILE SPLICE DETAILS



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 THE WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

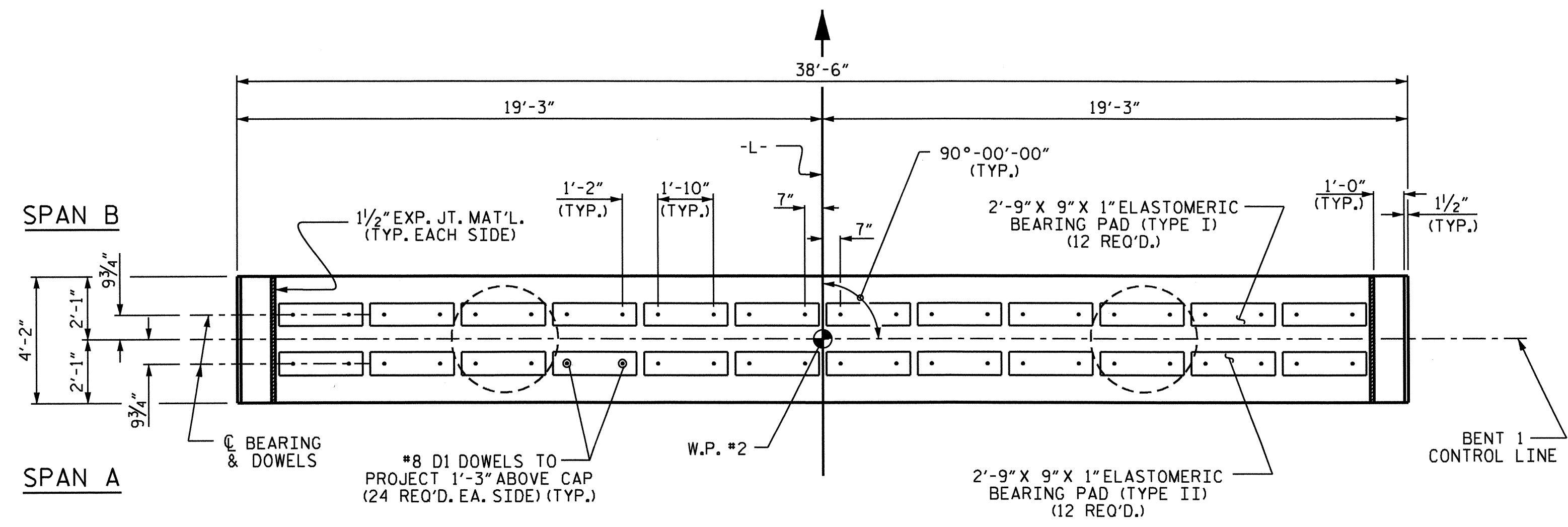
TEMPORARY DRAINAGE AT END BENT



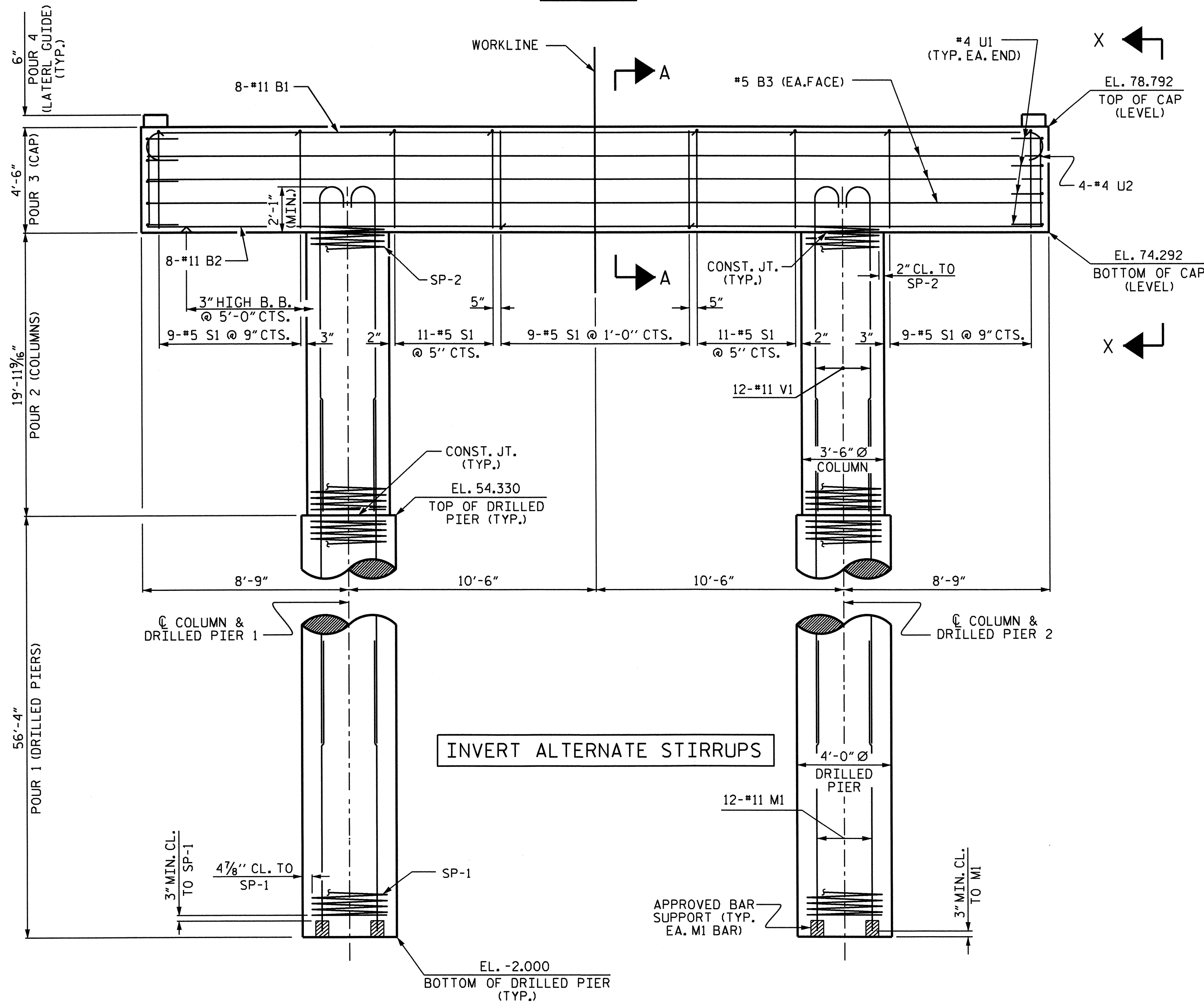
PROJECT NO. B-4503
EDGECOMBE COUNTY
 STATION: 21+11.00 -L-

| | | | | | |
|------------------------------|-----|-------|-----|-----|-----------|
| STATE OF NORTH CAROLINA | | | | | |
| DEPARTMENT OF TRANSPORTATION | | | | | |
| RALEIGH | | | | | |
| SUBSTRUCTURE | | | | | |
| END BENT 1 & 2 | | | | | |
| REVISIONS | | | | | SHEET NO. |
| NO. | BY: | DATE: | NO. | BY: | DATE: |
| 1 | | | 3 | | |
| 2 | | | 4 | | |
| TOTAL SHEETS | | | | | 24 |

DRAWN BY: M. E. FOWLER DATE: 4/30/10
 CHECKED BY: J. MYA DATE: 5/18/11

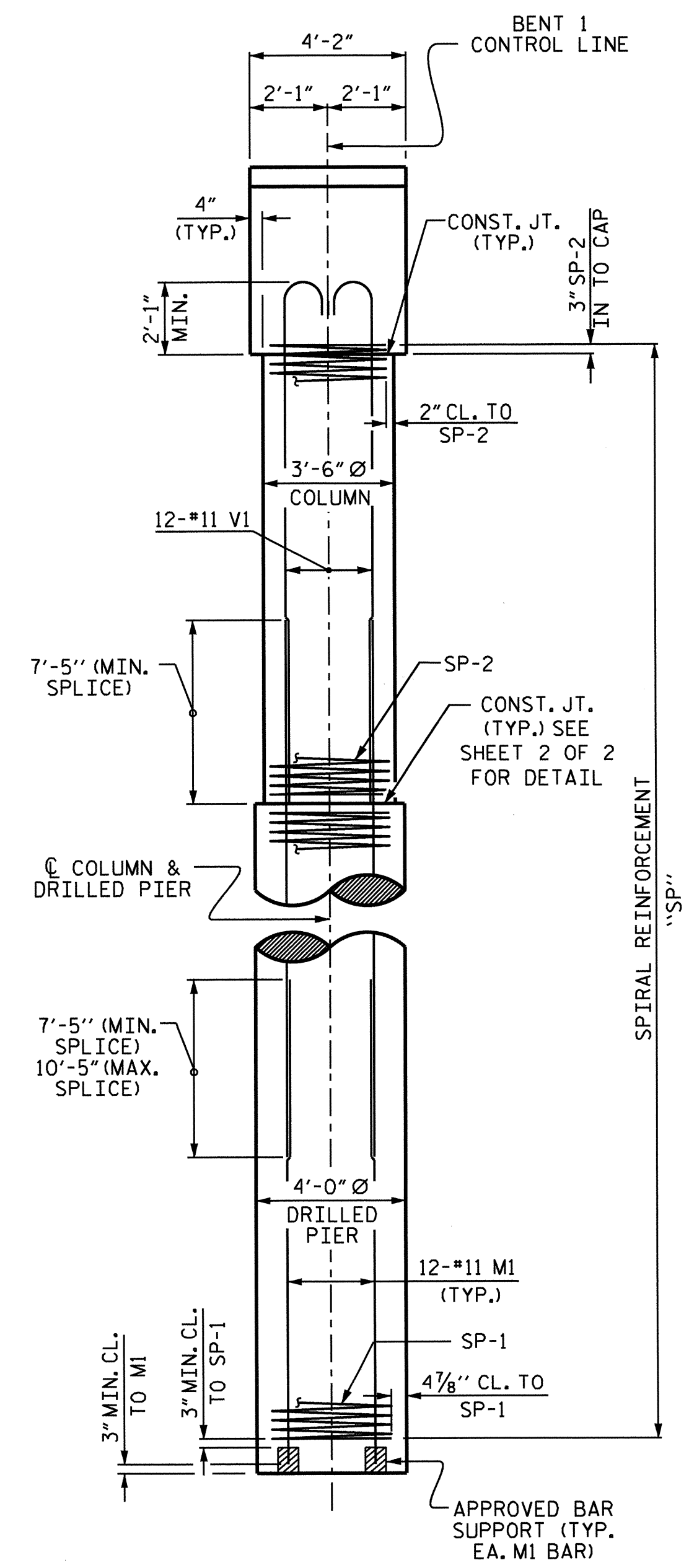


PLAN



ELEVATION

(REINFORCING STEEL AND DIMENSIONS ARE TYPICAL FOR ALL DRILLED PIERS AND COLUMNS)

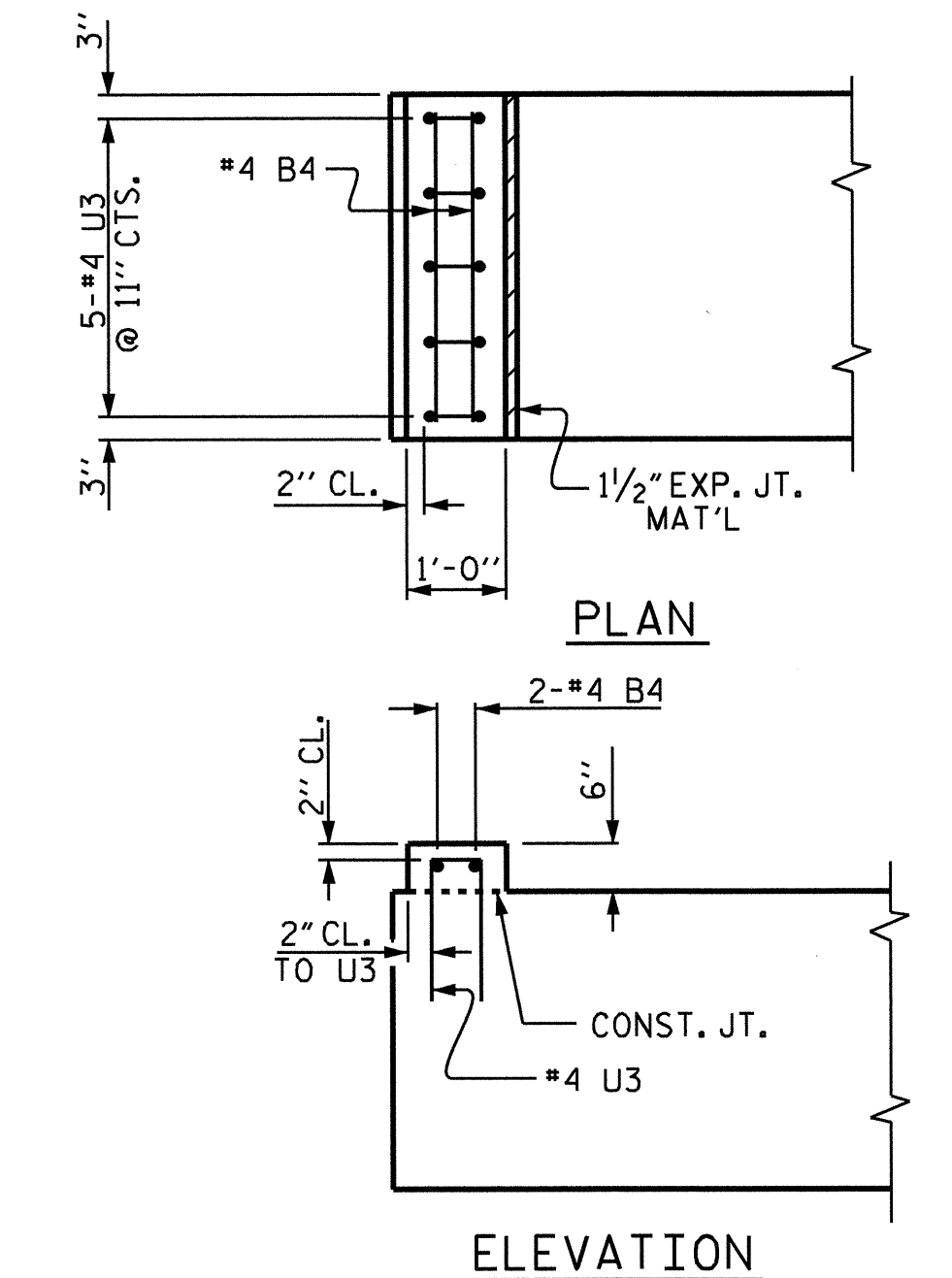


END ELEVATION

(REINFORCING STEEL AND DIMENSIONS ARE TYPICAL FOR ALL DRILLED PIERS AND COLUMNS)

NOTES

- STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.
- 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 FEET OF EXTRA LENGTH.
- THE LATERAL GUIDE AT EACH END OF THE CAP IS NOT TO BE POURED UNTIL AFTER THE BOX BEAM UNITS ARE IN PLACE.
- THE CONTRACTOR HAS THE OPTION TO OMIT THE LATERAL GUIDES IF APPROVED BY THE ENGINEER.



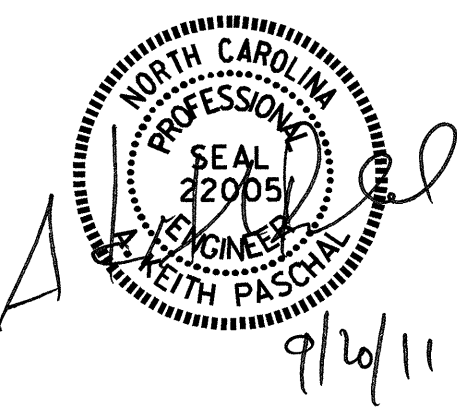
LATERAL GUIDE DETAIL

(LEFT SIDE SHOWN, RIGHT SIDE SIMILAR)

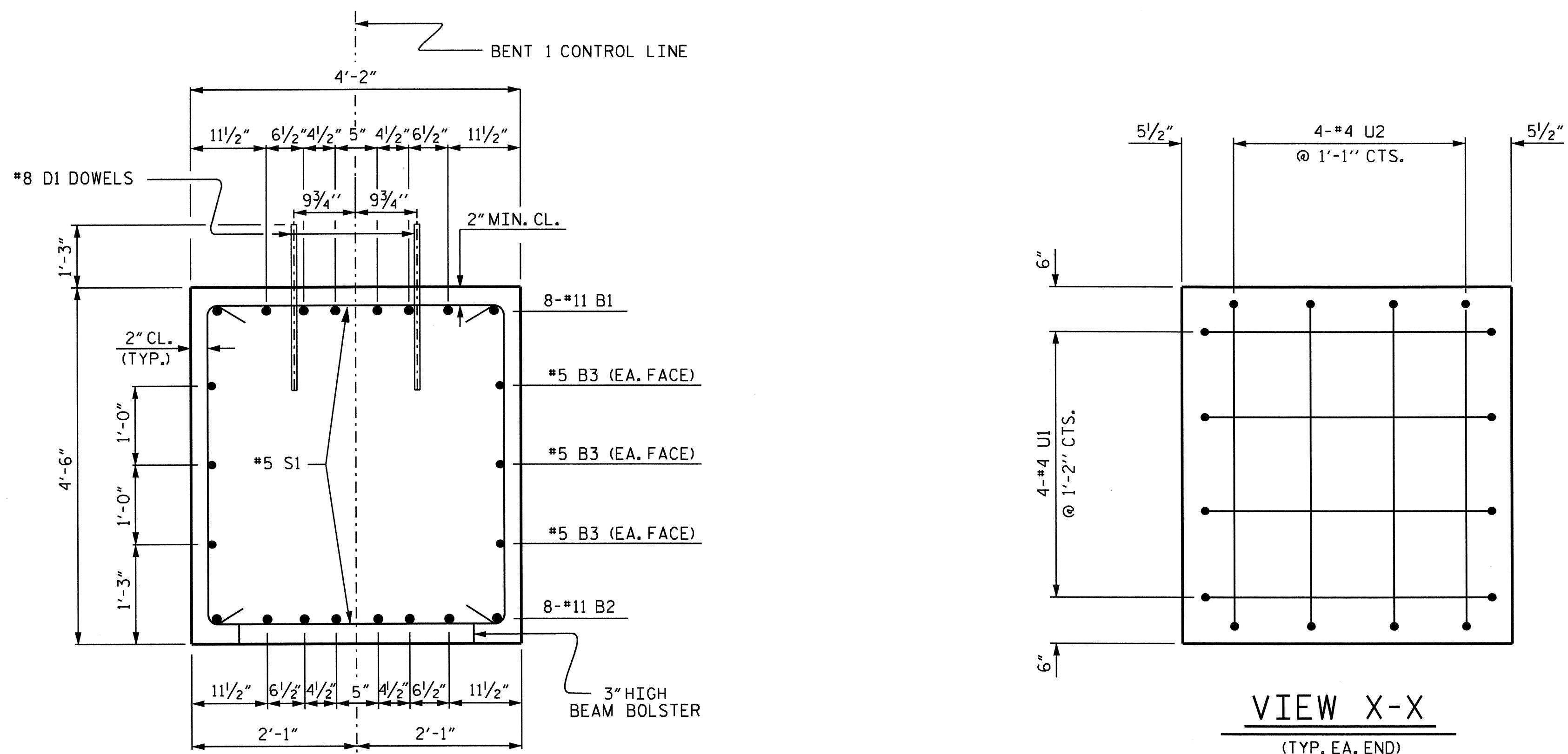
PROJECT NO. B-4503
EDGEcombe COUNTY
 STATION: 21+11.00 -L-

SHEET 1 OF 2

| | | | | | |
|--|-----|-------|-----|-----|---|
| STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH | | | | | |
| SUBSTRUCTURE BENT 1 | | | | | |
| REVISIONS | | | | | |
| NO. | BY: | DATE: | NO. | BY: | DATE: |
| 1 | | | 3 | | |
| 2 | | | 4 | | |
| | | | | | SHEET NO. S-18 TOTAL SHEETS 24 |

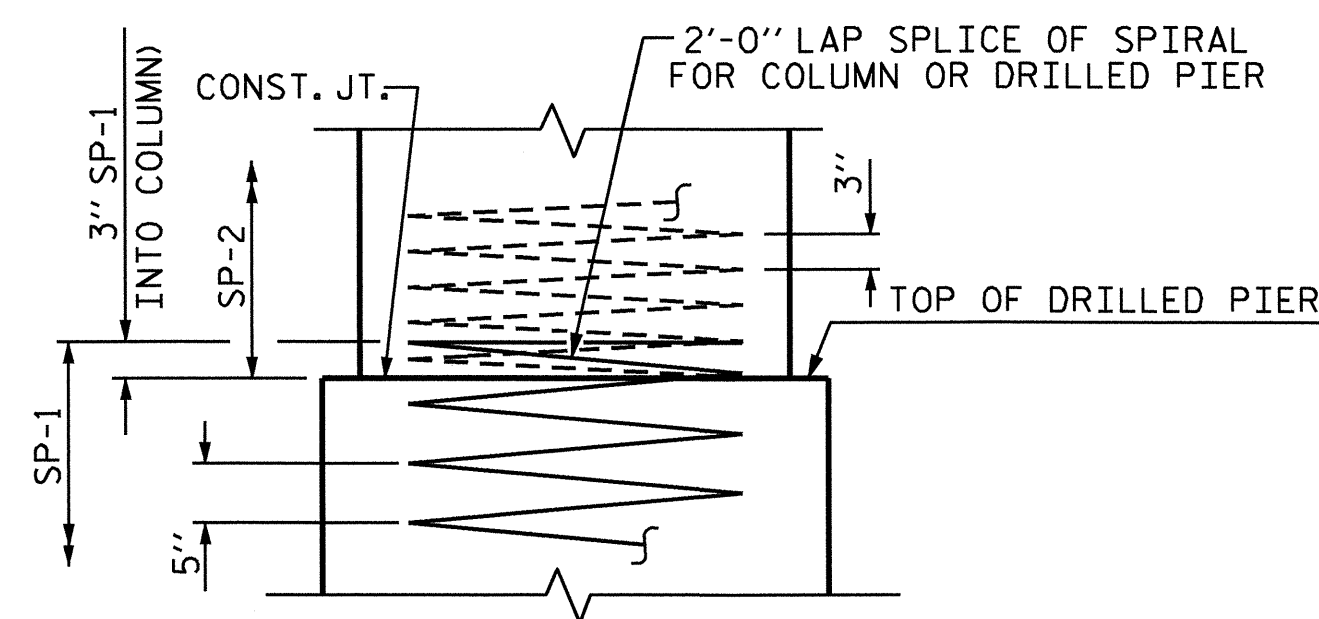


DRAWN BY : J. G. KHARVA DATE : 6/06/11
 CHECKED BY : J. MYA DATE : 6/10/11

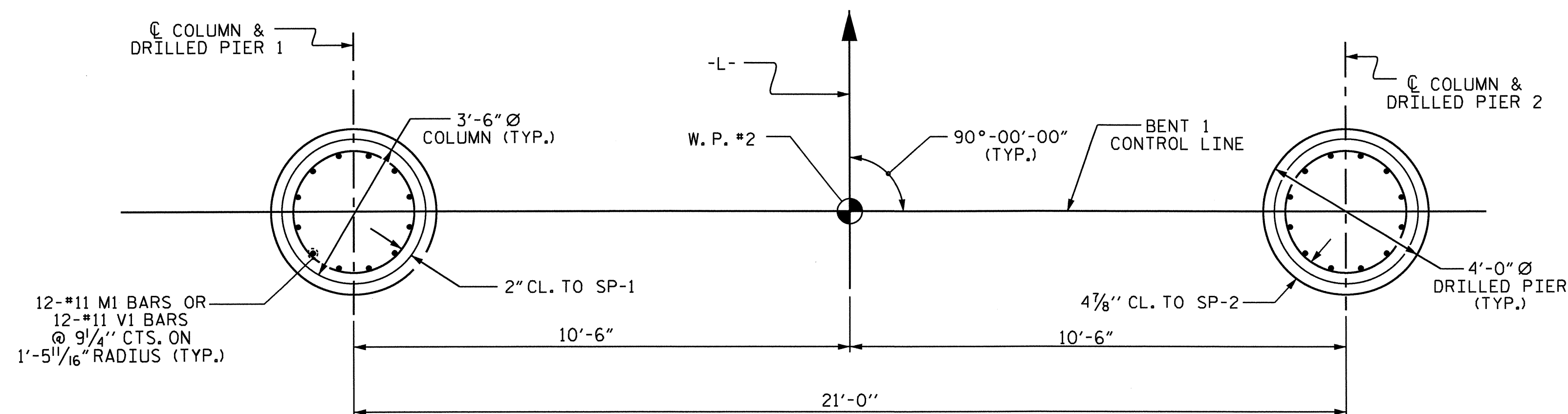


SECTION A-A

VIEW X-X
(TYP. EA. END)

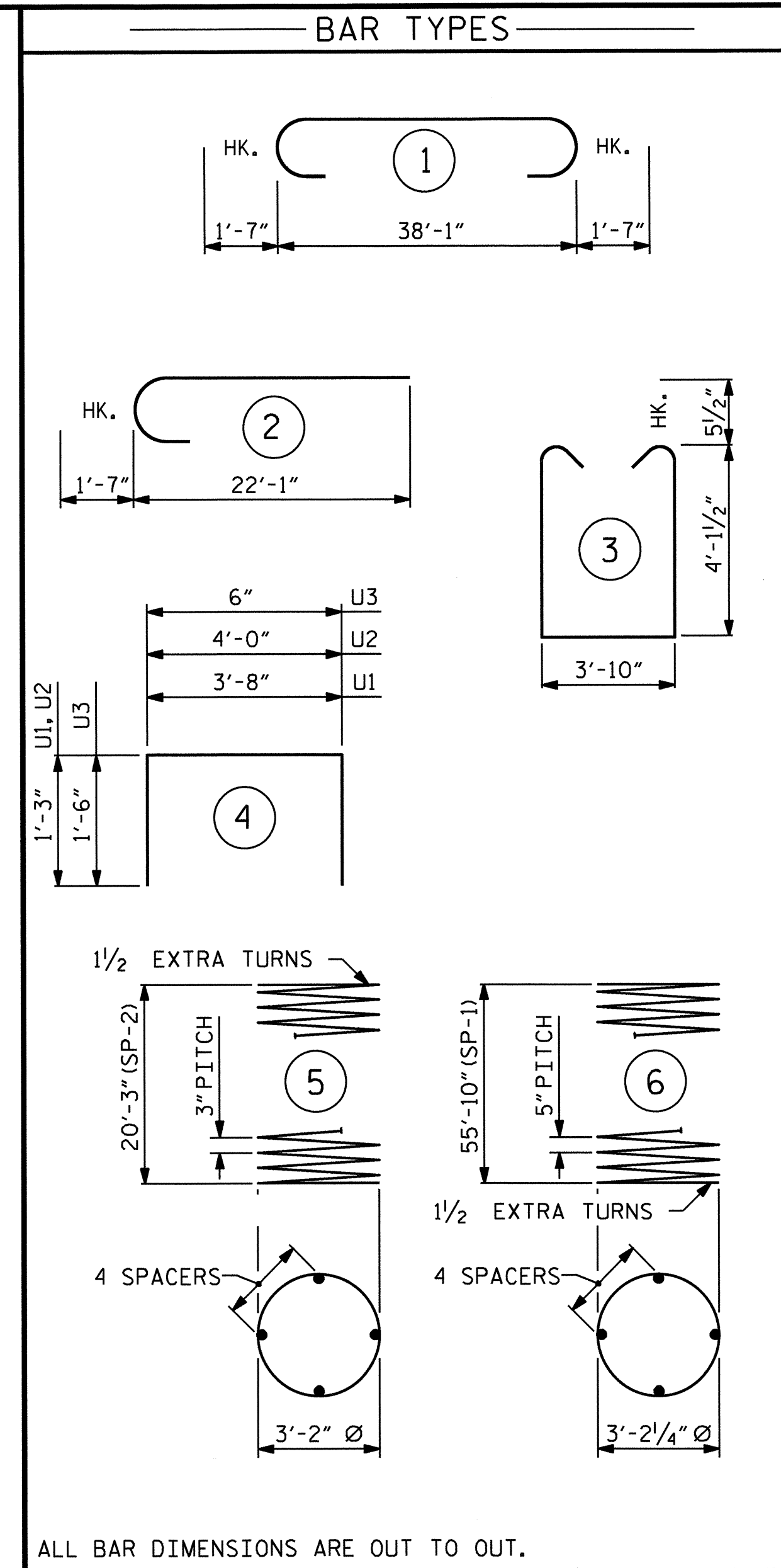


CONSTRUCTION JOINT DETAIL



PLAN OF COLUMNS AND DRILLED PIERS

(REINFORCING STEEL AND DIMENSIONS ARE TYPICAL FOR ALL DRILLED PIERS AND COLUMNS)



ALL BAR DIMENSIONS ARE OUT TO OUT.

- ** THE SP-1 SPIRAL REINFORCING STEEL SHALL BE W31 OR D-31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR.
- * THE SP-2 SPIRAL REINFORCING STEEL SHALL BE W20 OR D-20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR.
- ▲ NO SEPARATE PAYMENT WILL BE MADE FOR CSL TUBES. CSL TUBES WILL BE INCLUDED IN THE UNIT BID PRICE FOR DRILLED PIERS.

BILL OF MATERIAL

| BENT 1 | | | | | |
|--|-----|------|------|-------------------|------------|
| BAR | NO. | SIZE | TYPE | LENGTH | WEIGHT |
| B1 | 8 | #11 | 1 | 41'-3" | 1753 |
| B2 | 8 | #11 | STR | 38'-2" | 1622 |
| B3 | 6 | #5 | STR | 38'-2" | 239 |
| B4 | 4 | #4 | STR | 3'-10" | 10 |
| D1 | 48 | #8 | STR | 2'-3" | 288 |
| M1 | 48 | #11 | STR | 37'-0" | 9436 |
| S1 | 49 | #5 | 3 | 13'-0" | 664 |
| U1 | 8 | #4 | 4 | 6'-2" | 33 |
| U2 | 8 | #4 | 4 | 6'-6" | 35 |
| U3 | 10 | #4 | 4 | 3'-6" | 23 |
| V1 | 24 | #11 | 2 | 23'-8" | 3018 |
| REINFORCING STEEL | | | | = | 17121 LBS. |
| SP-1 | 2 | ** | 6 | 1335'-11" | 2787 |
| SP-2 | 2 | * | 5 | 810'-3" | 1082 |
| SPIRAL COLUMN REINFORCING STEEL | | | | = | 3869 LBS. |
| CLASS A CONCRETE BREAKDOWN | | | | | |
| POUR 2 (COLUMNS) | | | | 14.2 C.Y. | |
| POUR 3 (CAP) | | | | 26.7 C.Y. | |
| POUR 4 (LATERAL GUIDES) | | | | 0.2 C.Y. | |
| TOTAL | | | | 41.1 C.Y. | |
| DRILLED PIERS | | | | | |
| DRILLED PIER CONCRETE | | | | | |
| POUR 1 (DRILLED PIERS) | | | | 52.4 C.Y. | |
| 4'-0" Ø DRILLED PIERS | | | | 112.67 LIN. FT. | |
| PERMANENT STEEL CASING FOR 4'-0" Ø DRILLED PIERS | | | | LIN. FT. = 38.67 | |
| ▲ CSL TUBES | | | | LIN. FT. = 470.67 | |

PROJECT NO. B-4503
EDGEcombe COUNTY
 STATION: 21+11.00 -L-

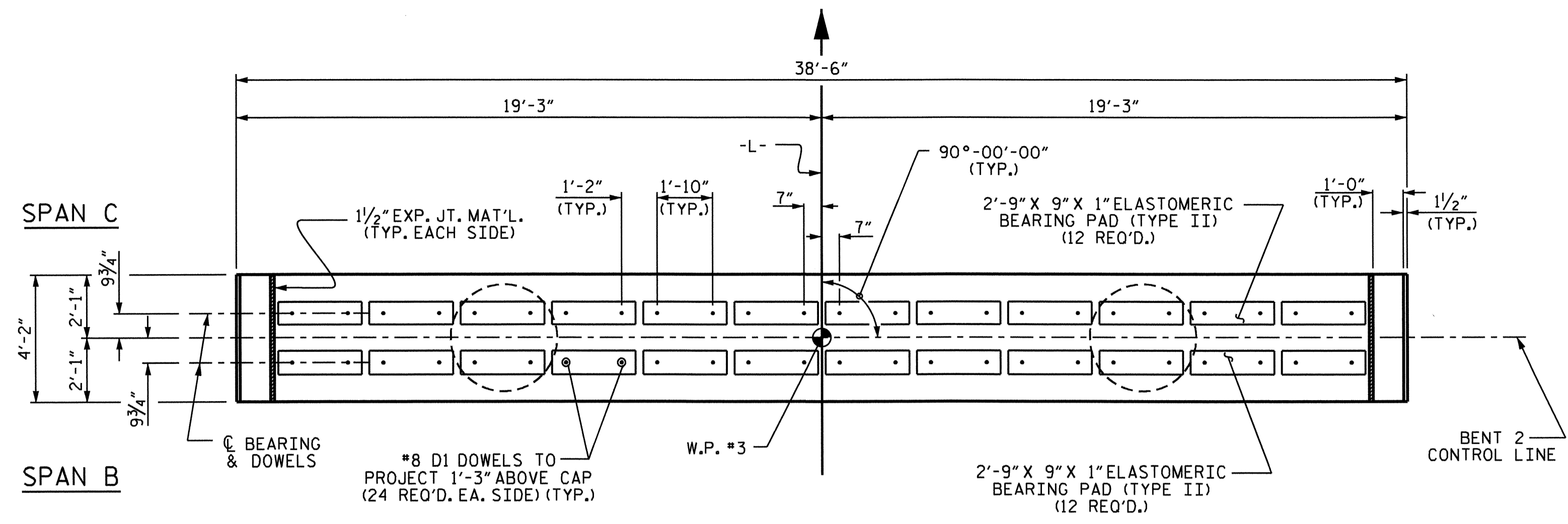
SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 BENT 1

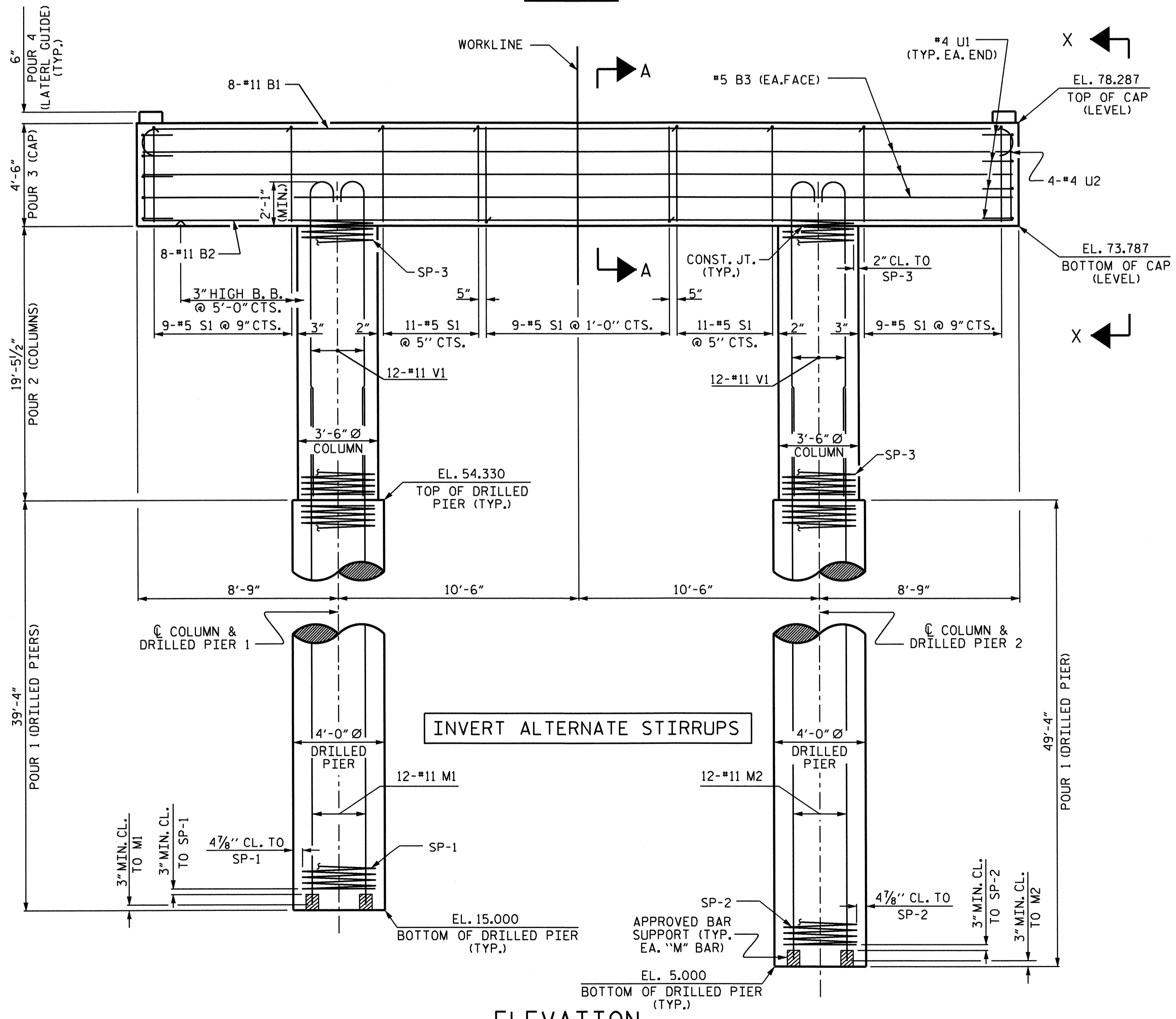


| REVISIONS | | | | | | SHEET NO. | |
|-----------|-----|-------|-----|-----|-------|--------------|--|
| NO. | BY: | DATE: | NO. | BY: | DATE: | S-19 | |
| 1 | | | 3 | | | TOTAL SHEETS | |
| 2 | | | 4 | | | 24 | |

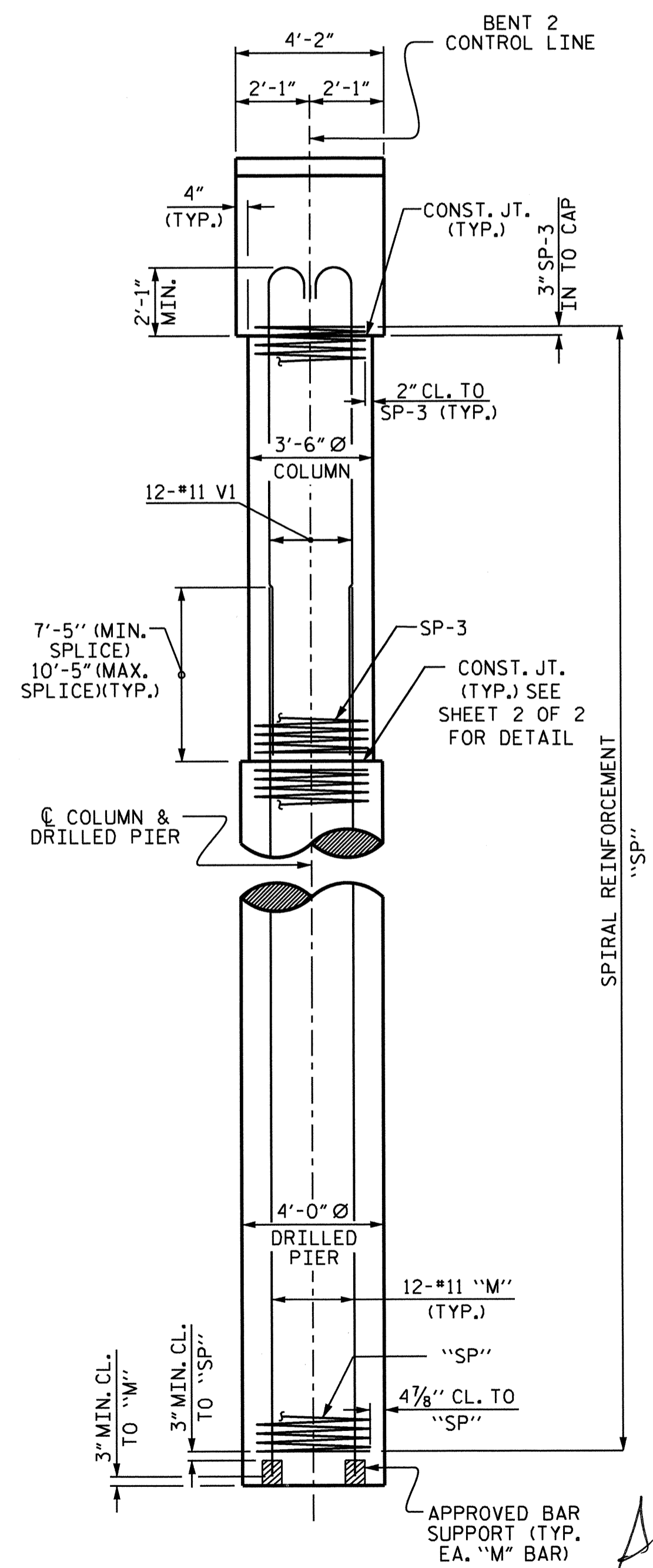
DRAWN BY: J. G. KHARVA DATE: 6/07/11
 CHECKED BY: J. MYA DATE: 6/10/11



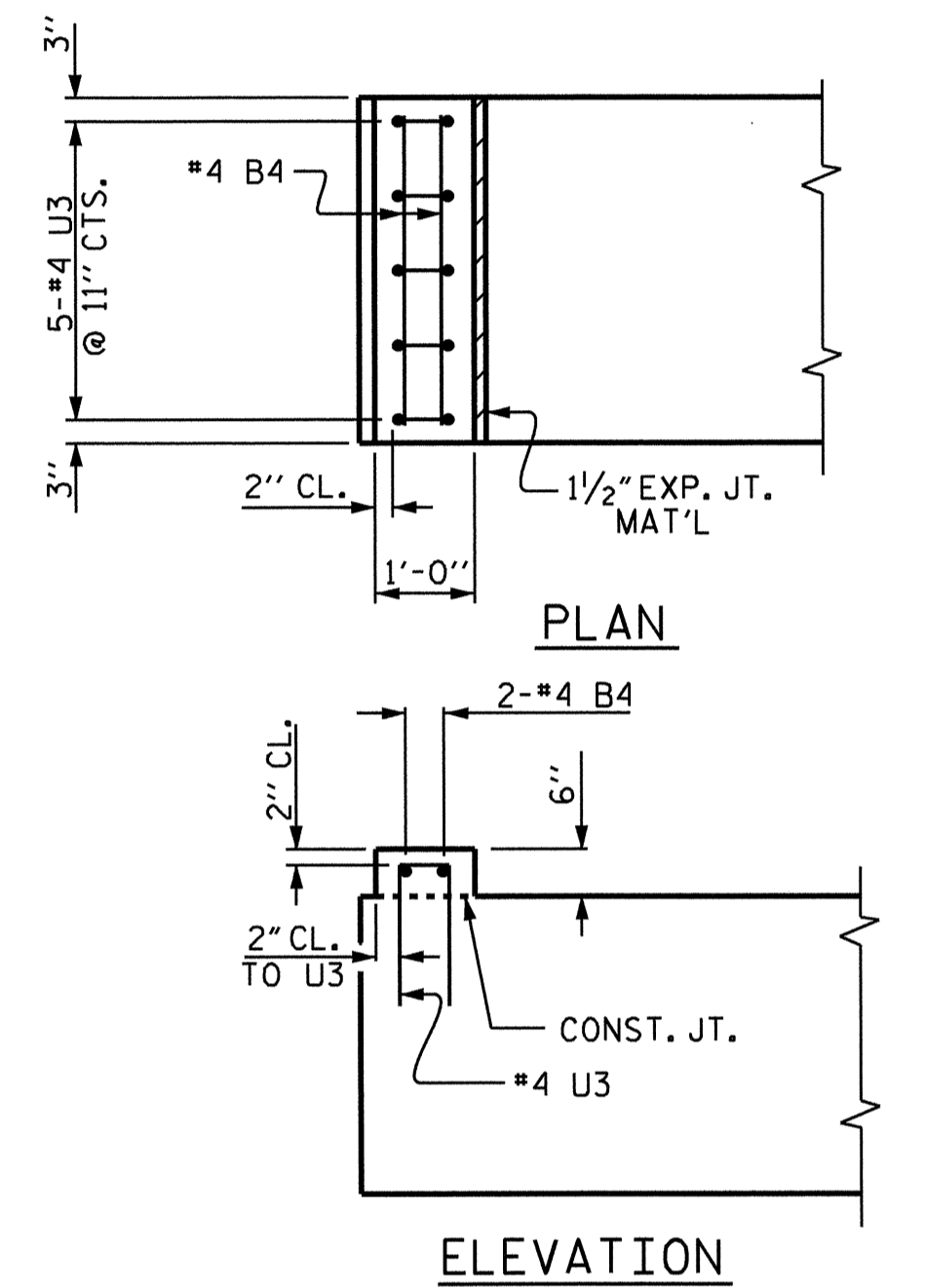
PLAN



ELEVATION



END ELEVATION



LATERAL GUIDE DETAIL

NOTES

- STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.
- 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 FEET OF EXTRA LENGTH.
- THE LATERAL GUIDE AT EACH END OF THE CAP IS NOT TO BE POURED UNTIL AFTER THE BOX BEAM SLAB UNITS ARE IN PLACE.
- THE CONTRACTOR HAS THE OPTION TO OMIT THE LATERAL GUIDES IF APPROVED BY THE ENGINEER.

PROJECT NO. B-4503
EDGEcombe COUNTY
 STATION: 21+11.00 -L-

SHEET 1 OF 2

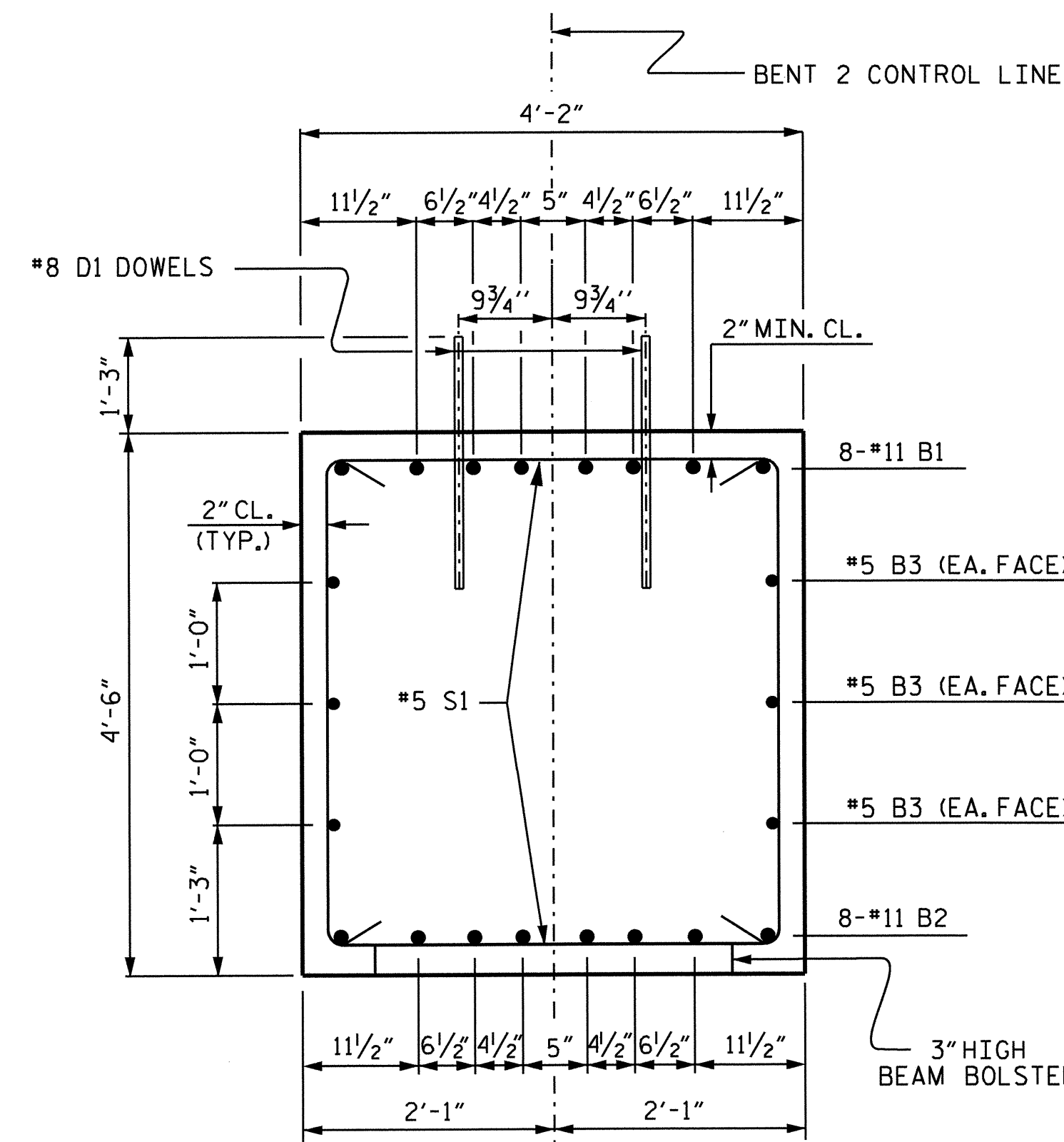
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 BENT 2

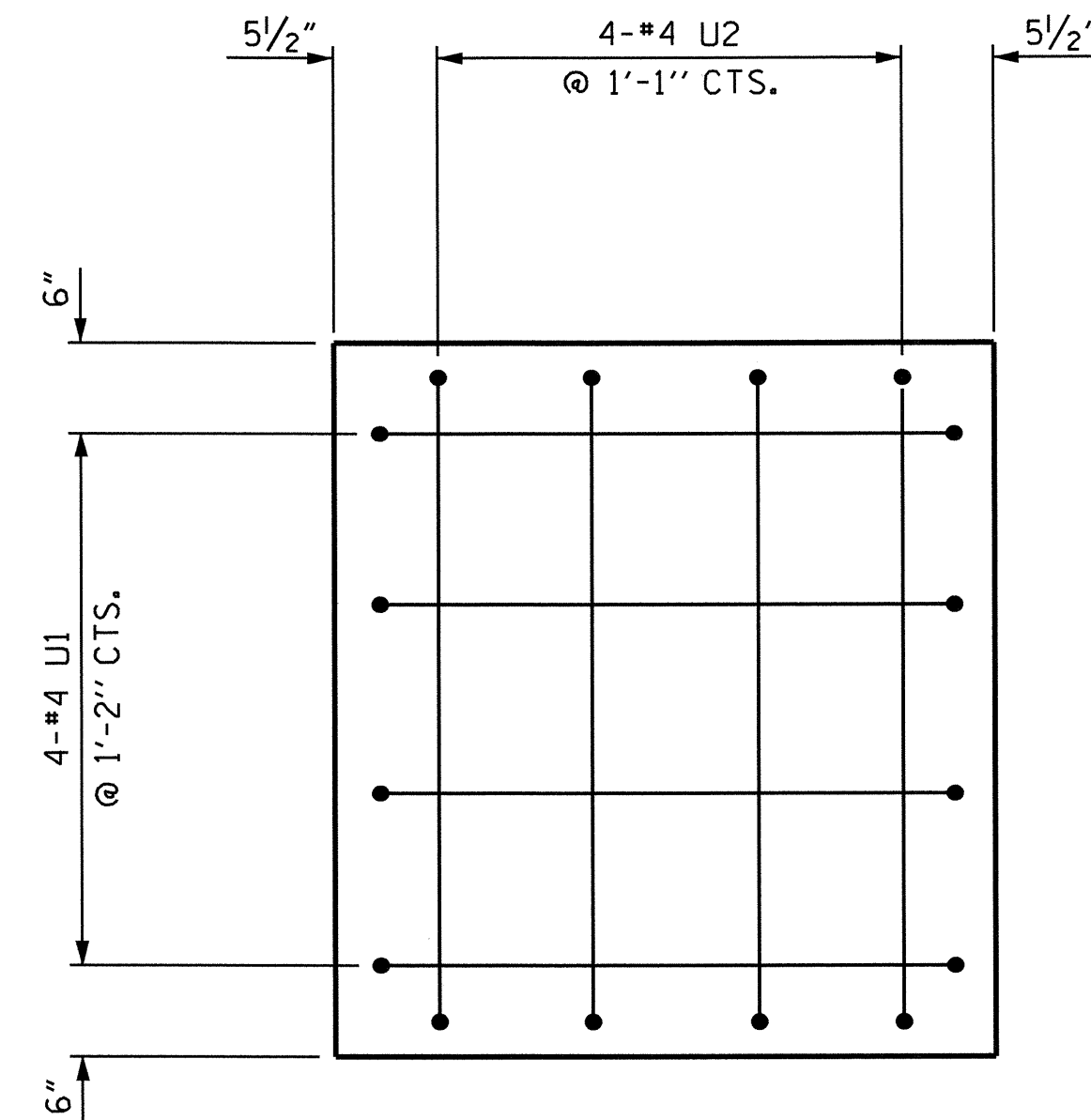


| REVISIONS | | | | | | SHEET NO. | |
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| 1 | | | 3 | | | TOTAL SHEETS | |
| 2 | | | 4 | | | 24 | |

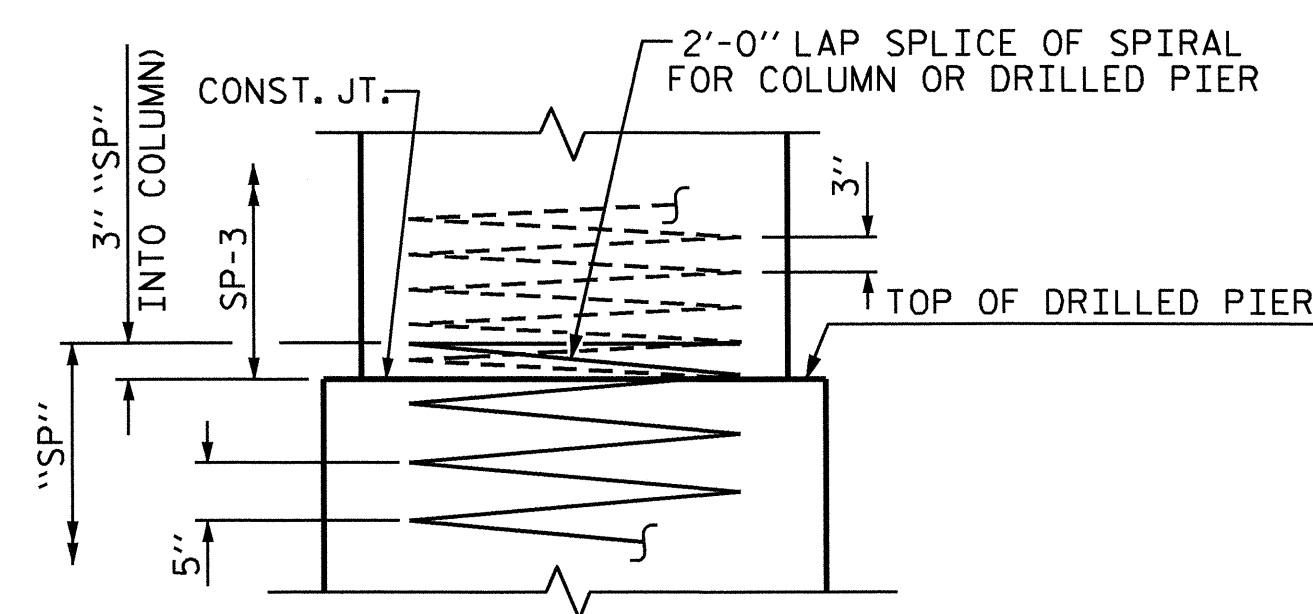
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 CHECKED BY : J. MYA DATE : 6/10/11



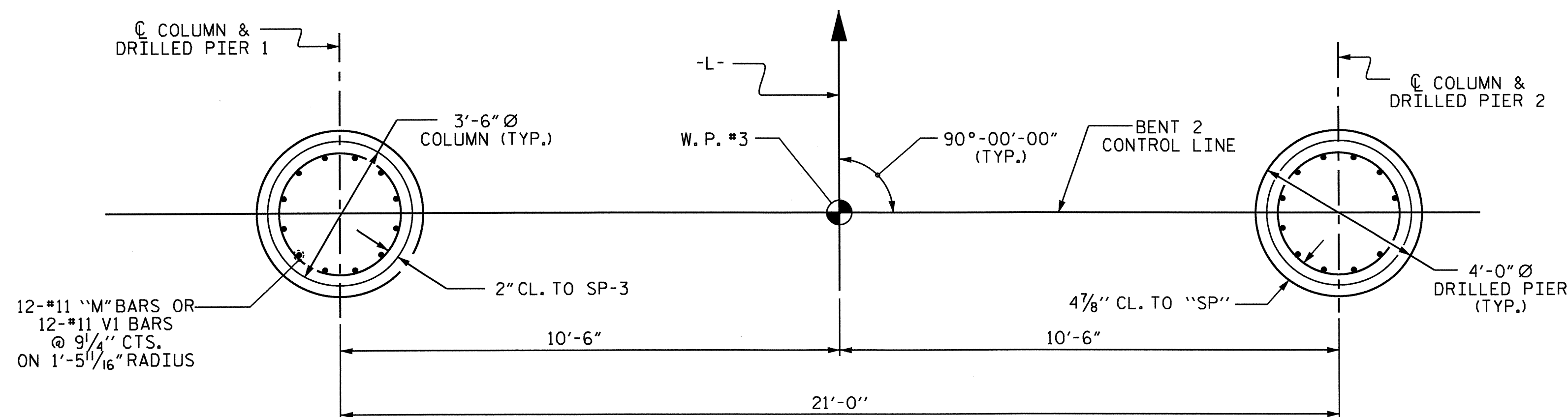
SECTION A-A



VIEW X-X
(TYP. EA. END)



CONSTRUCTION JOINT DETAIL

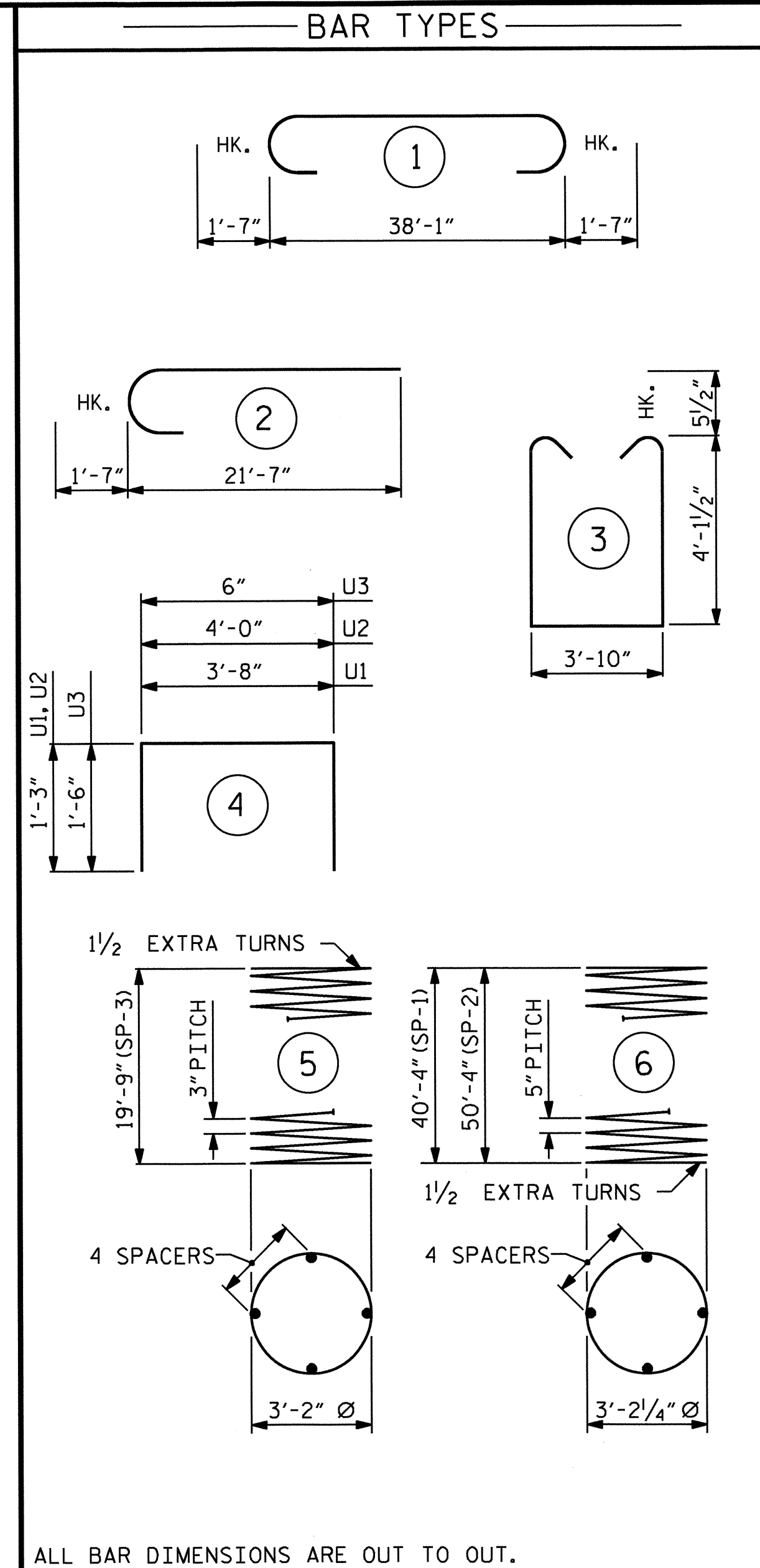


PLAN OF COLUMNS AND DRILLED PIERS

(REINFORCING STEEL AND DIMENSIONS ARE TYPICAL FOR ALL DRILLED PIERS AND COLUMNS EXCEPT WHERE NOTED)

DRAWN BY: J. G. KHARVA DATE: 6/07/11
CHECKED BY: J. MYA DATE: 6/10/11

19-SEP-2011 08:20
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jdhawk



ALL BAR DIMENSIONS ARE OUT TO OUT.

- ** THE SP-1 & SP-2 SPIRAL REINFORCING STEEL SHALL BE W31 OR D-31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR.
- * THE SP-3 SPIRAL REINFORCING STEEL SHALL BE W20 OR D-20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR.
- ▲ NO SEPARATE PAYMENT WILL BE MADE FOR CSL TUBES. CSL TUBES WILL BE INCLUDED IN THE UNIT BID PRICE FOR DRILLED PIERS.

BILL OF MATERIAL

| BENT 2 | | | | | |
|--------|-----|------|------|--------|--------|
| BAR | NO. | SIZE | TYPE | LENGTH | WEIGHT |
| B1 | 8 | #11 | 1 | 41'-3" | 1753 |
| B2 | 8 | #11 | STR | 38'-2" | 1622 |
| B3 | 6 | #5 | STR | 38'-2" | 239 |
| B4 | 4 | #4 | STR | 3'-10" | 10 |
| D1 | 48 | #8 | STR | 2'-3" | 288 |
| M1 | 12 | #11 | STR | 49'-6" | 3156 |
| M2 | 12 | #11 | STR | 59'-6" | 3793 |
| S1 | 49 | #5 | 3 | 13'-0" | 664 |
| U1 | 8 | #4 | 4 | 6'-2" | 33 |
| U2 | 8 | #4 | 4 | 6'-6" | 35 |
| U3 | 10 | #4 | 4 | 3'-6" | 23 |
| V1 | 24 | #11 | 2 | 23'-2" | 2954 |

REINFORCING STEEL = 14570 LBS.

| | | | | | |
|------|---|----|---|----------|------|
| SP-1 | 1 | ** | 6 | 1207'-9" | 2519 |
| SP-2 | 1 | ** | 6 | 971'-2" | 1013 |
| SP-3 | 2 | * | 5 | 481'-6" | 643 |

SPIRAL COLUMN REINFORCING STEEL = 4175 LBS.

| CLASS A CONCRETE BREAKDOWN | |
|----------------------------|------------------|
| POUR #2 (COLUMNS) | 13.9 C.Y. |
| POUR #3 (CAP) | 26.7 C.Y. |
| POUR #4 (LATERAL GUIDES) | 0.2 C.Y. |
| TOTAL | 40.8 C.Y. |

DRILLED PIERS

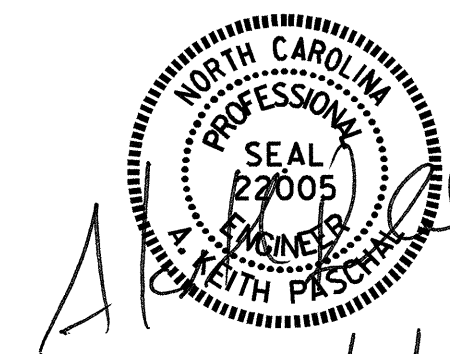
| | |
|--|-------------------|
| DRILLED PIER CONCRETE | |
| POUR #1 (DRILLED PIERS) | 41.3 C.Y. |
| 4'-0" Ø DRILLED PIERS | 88.67 LIN. FT. |
| PERMANENT STEEL CASING FOR 4'-0" Ø DRILLED PIERS | LIN. FT. = 38.67 |
| ▲ CSL TUBES | LIN. FT. = 374.67 |

PROJECT NO. B-4503
EDGEcombe COUNTY
STATION: 21+11.00 -L-

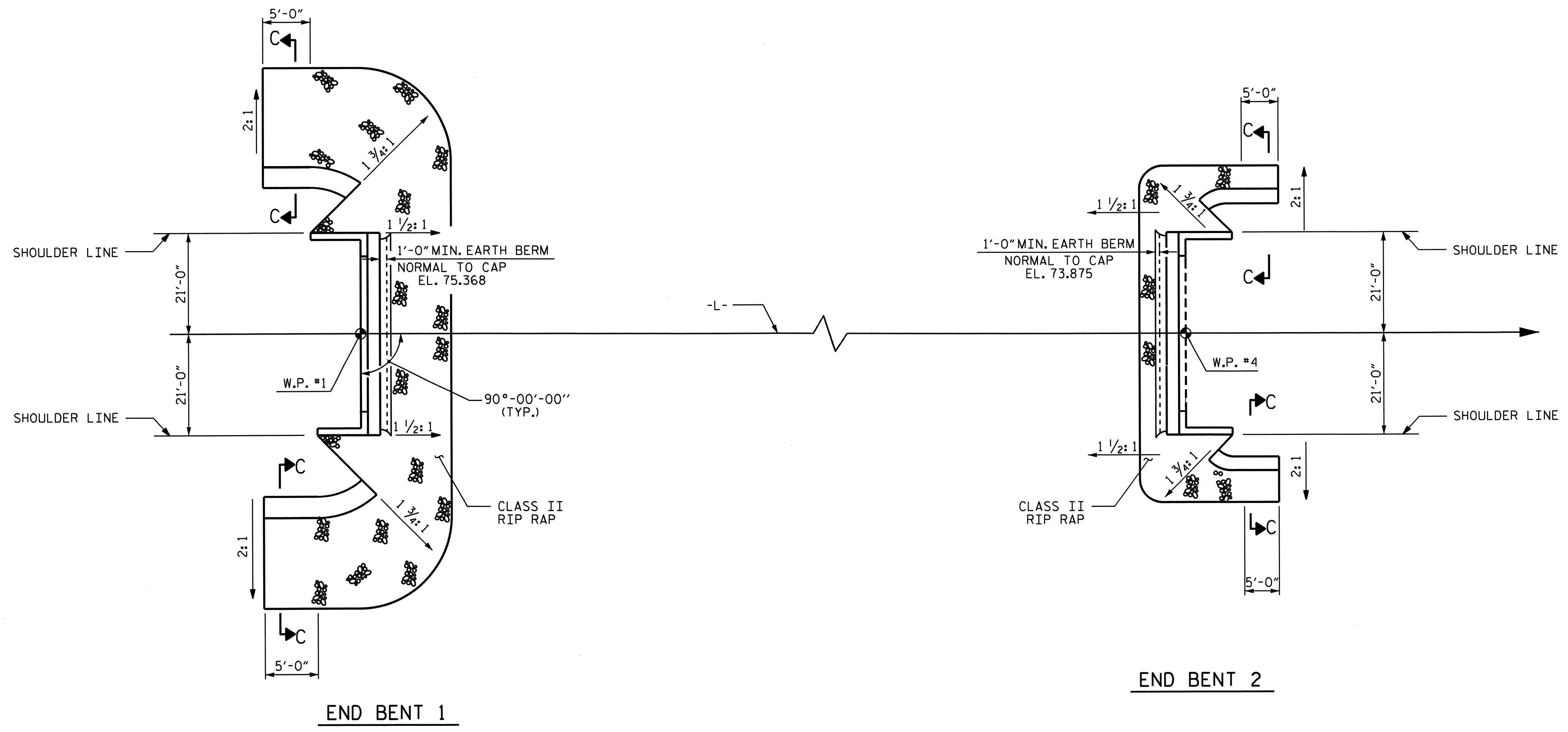
SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

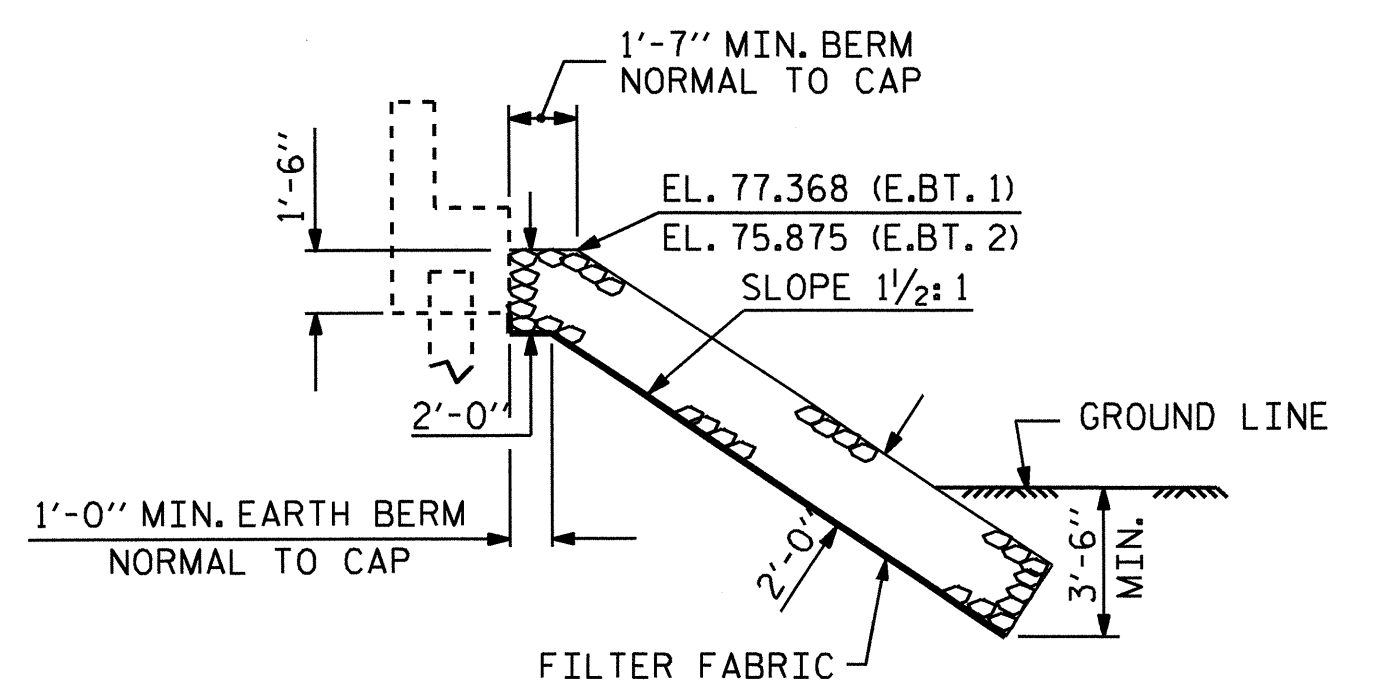
SUBSTRUCTURE
BENT 2



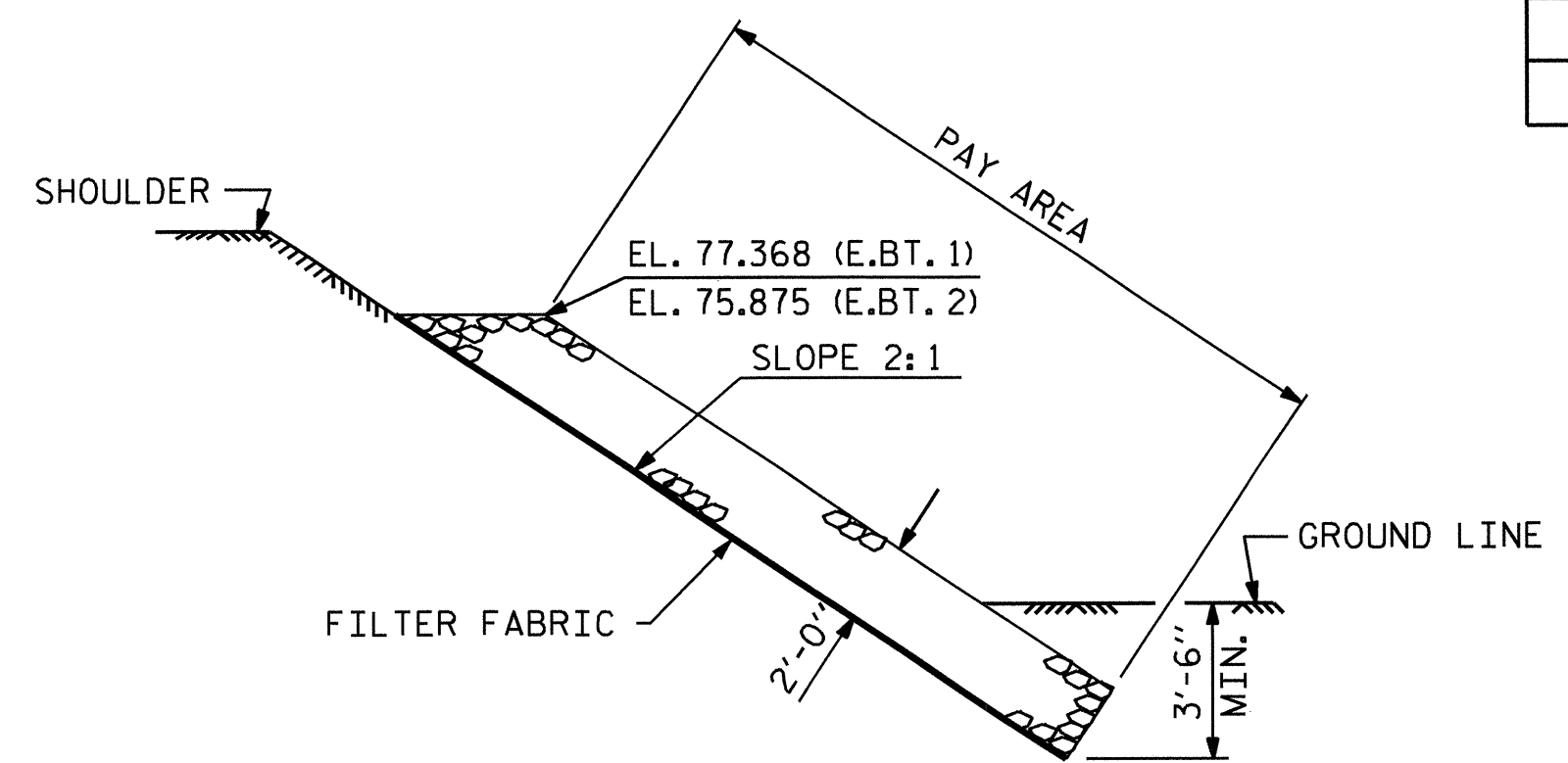
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|-----------|-----|-------|-----|-----|-------|--------------------|
| NO. | BY: | DATE: | NO. | BY: | DATE: | |
| 1 | | | 3 | | | TOTAL SHEETS 24 |
| 2 | | | 4 | | | |



PLAN



SECTION C-C
BERM RIP RAPPED



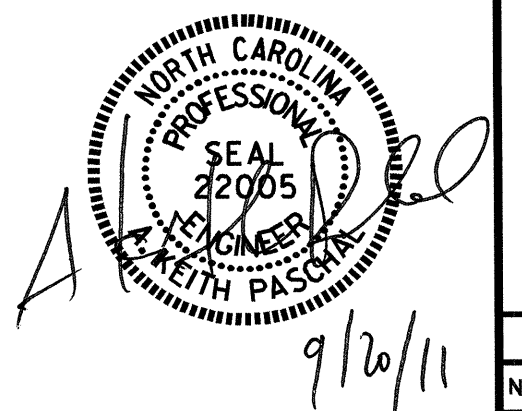
SECTION C-C

| ESTIMATED QUANTITIES | | |
|-------------------------------|--------------------------------------|-------------------------------|
| BRIDGE @ STA. 21+11.00 -L- | RIP RAP CLASS II (2'-0" THICK) | FILTER FABRIC FOR DRAINAGE |
| | TONS | SQUARE YARDS |
| END BENT 1 | 307 | 341 |
| END BENT 2 | 93 | 103 |
| TOTAL | 400 | 444 |

PROJECT NO. B-4503
EDGEcombe COUNTY
 STATION: 21+11.00 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

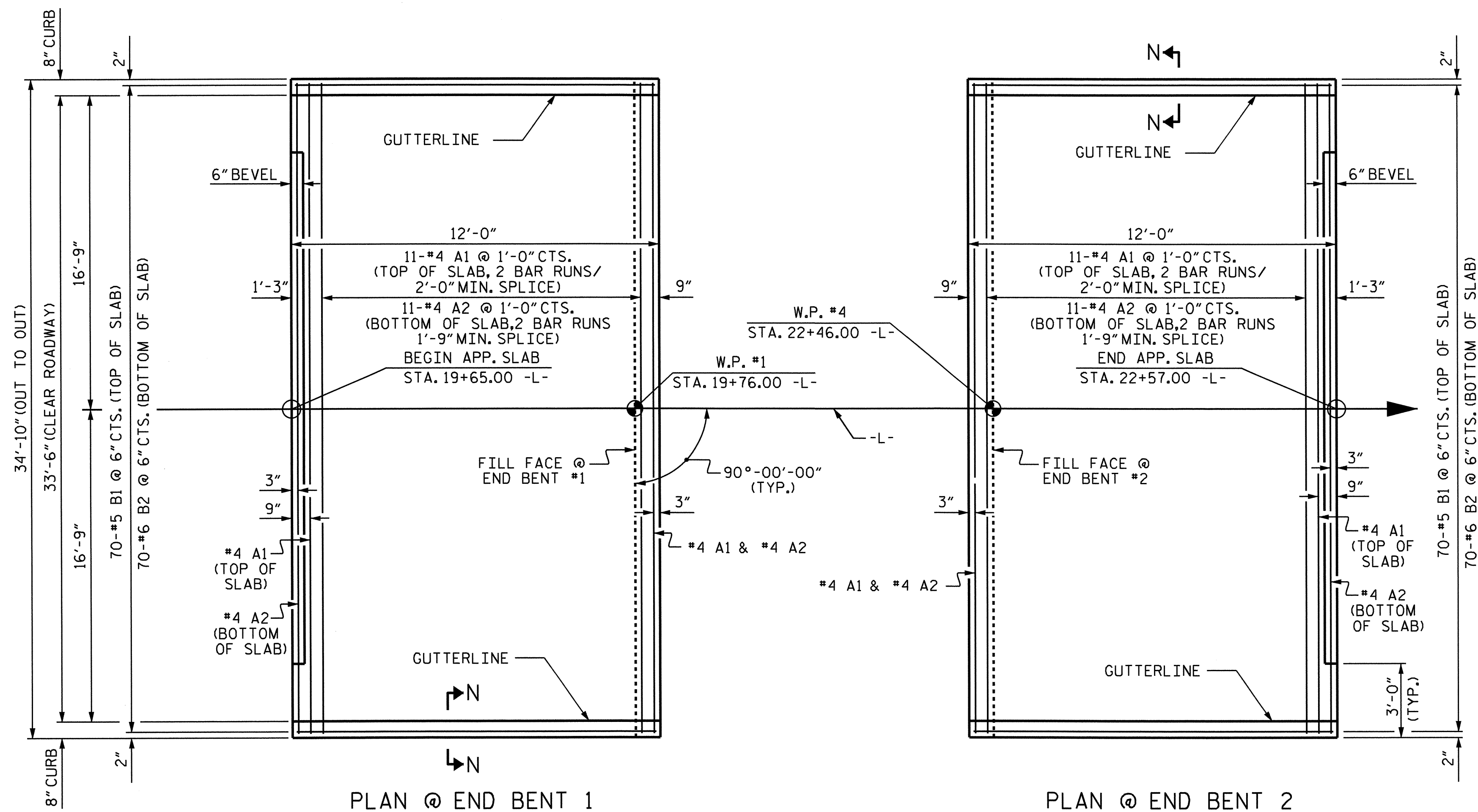
STANDARD
 RIP RAP DETAILS



| REVISIONS | | | | | | SHEET NO. |
|-----------|-----|-------|-----|-----|-------|--------------|
| NO. | BY: | DATE: | NO. | BY: | DATE: | S-22 |
| 1 | | | 3 | | | TOTAL SHEETS |
| 2 | | | 4 | | | 24 |

DRAWN BY : M. E. FOWLER DATE : 9/6/10
 CHECKED BY : J. D. HAWK DATE : 6/1/11

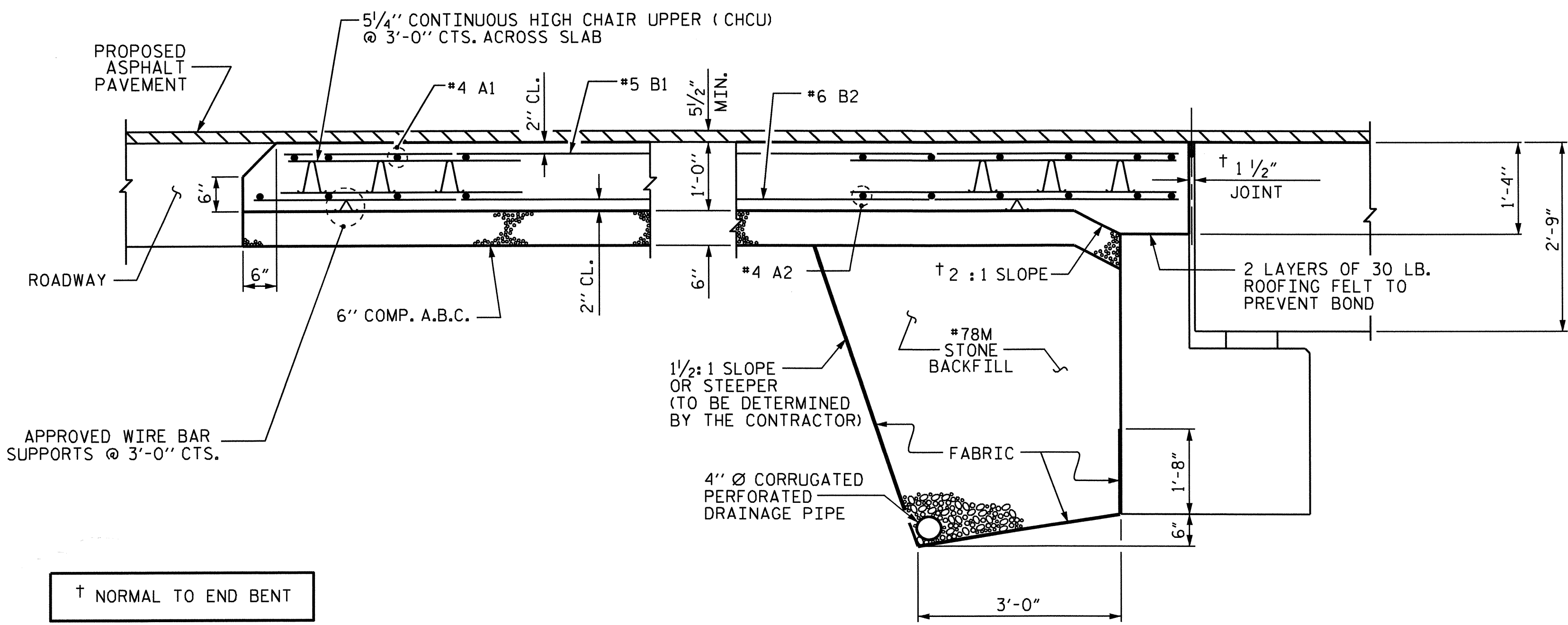
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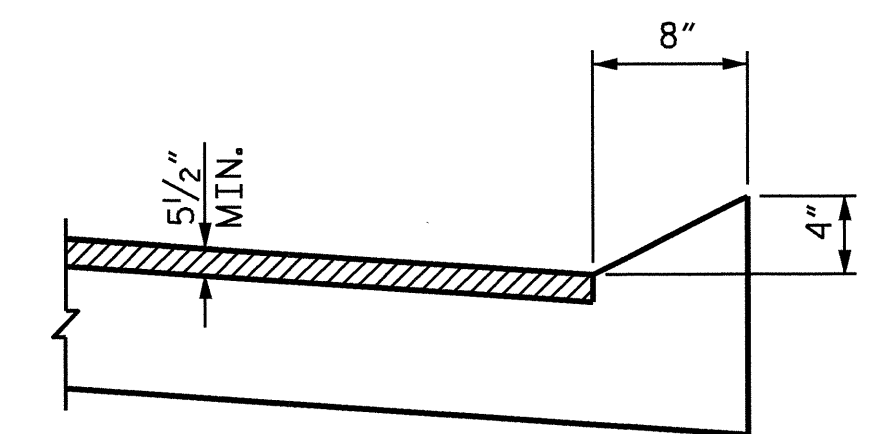
PLAN @ END BENT 1

PLAN @ END BENT 2

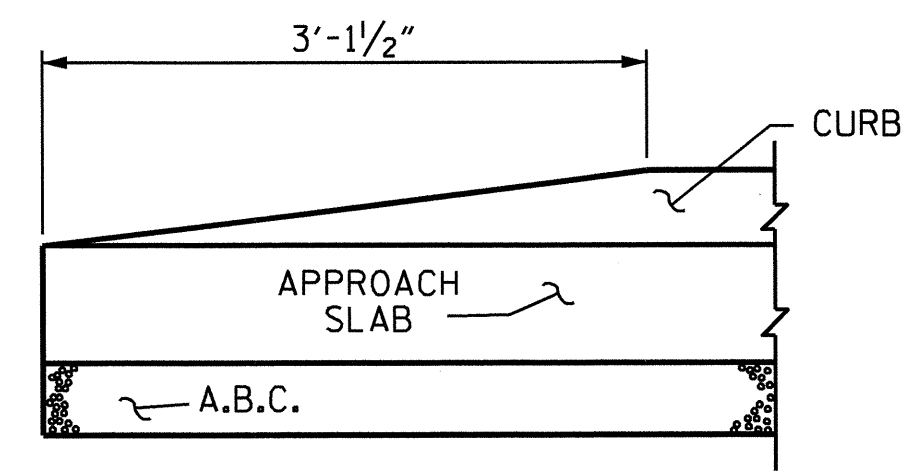
DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS



SECTION THRU SLAB



SECTION N-N



CURB DETAILS

NOTES

FOR BRIDGE APPROACH FILL INCLUDING FABRIC, 4" Ø DRAINAGE PIPE, AND #78M STONE BACKFILL, SEE ROADWAY PLANS.

FABRIC SHALL BE TYPE 1 ENGINEERING FABRIC IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS SECTION 1056.

#78M STONE BACKFILL (CLASS V SELECT MATERIAL) SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS SECTION 1016.

#78M STONE BACKFILL IS TO BE CONTINUOUS ALONG FILL FACE OF BACKWALL FROM OUTSIDE EDGE TO OUTSIDE EDGE OF APPROACH SLAB.

FOR THE 4" Ø DRAINAGE PIPE OUTLET(S), SEE ROADWAY STANDARD DRAWINGS.

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 JOINT DETAILS, SEE "PRESTRESSED CONCRETE BOX BEAM UNIT" SHEETS.

APPROACH SLAB GROOVING IS NOT REQUIRED.

BILL OF MATERIAL

FOR ONE APPROACH SLAB (2 REQ'D)

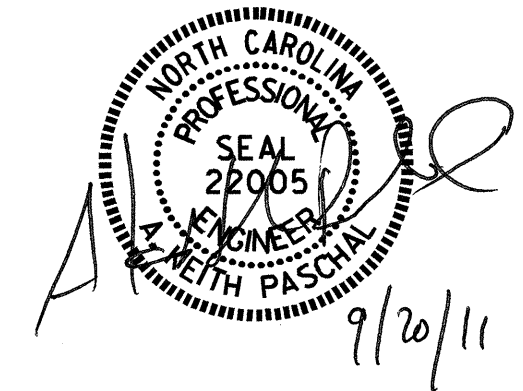
| BAR | NO. | SIZE | TYPE | LENGTH | WEIGHT |
|---------------------------------|-----|------|------|--------|--------|
| *A1 | 26 | #4 | STR | 18'-3" | 317 |
| A2 | 26 | #4 | STR | 18'-2" | 316 |
| *B1 | 70 | #5 | STR | 11'-4" | 827 |
| B2 | 70 | #6 | STR | 11'-8" | 1227 |
| REINFORCING STEEL | | | | LBS. | 1543 |
| *EPOXY COATED REINFORCING STEEL | | | | LBS. | 1144 |
| CLASS AA CONCRETE | | | | C. Y. | 16.0 |

PROJECT NO. B-4503
 EDGEcombe COUNTY
 STATION: 21+11.00 -L-

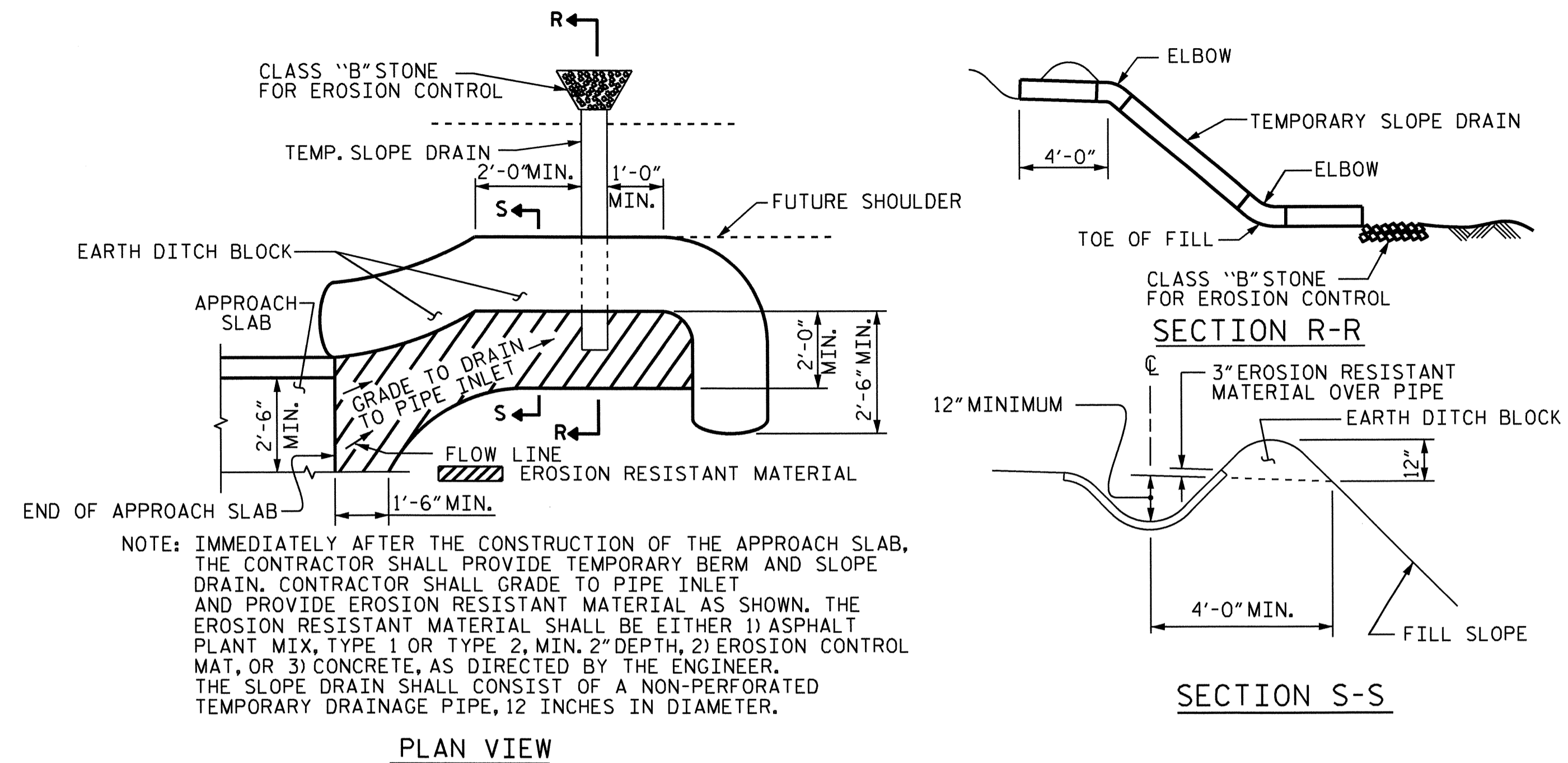
SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 BRIDGE APPROACH SLAB
 FOR PRESTRESSED CONCRETE
 BOX BEAM UNIT
 (SUB-REGIONAL TIER)

| REVISIONS | | | | | | SHEET NO. | |
|-----------|-----|-------|-----|-----|-------|--------------|----|
| NO. | BY: | DATE: | NO. | BY: | DATE: | S-23 | |
| 1 | | | 3 | | | TOTAL SHEETS | 24 |
| 2 | | | 4 | | | | |



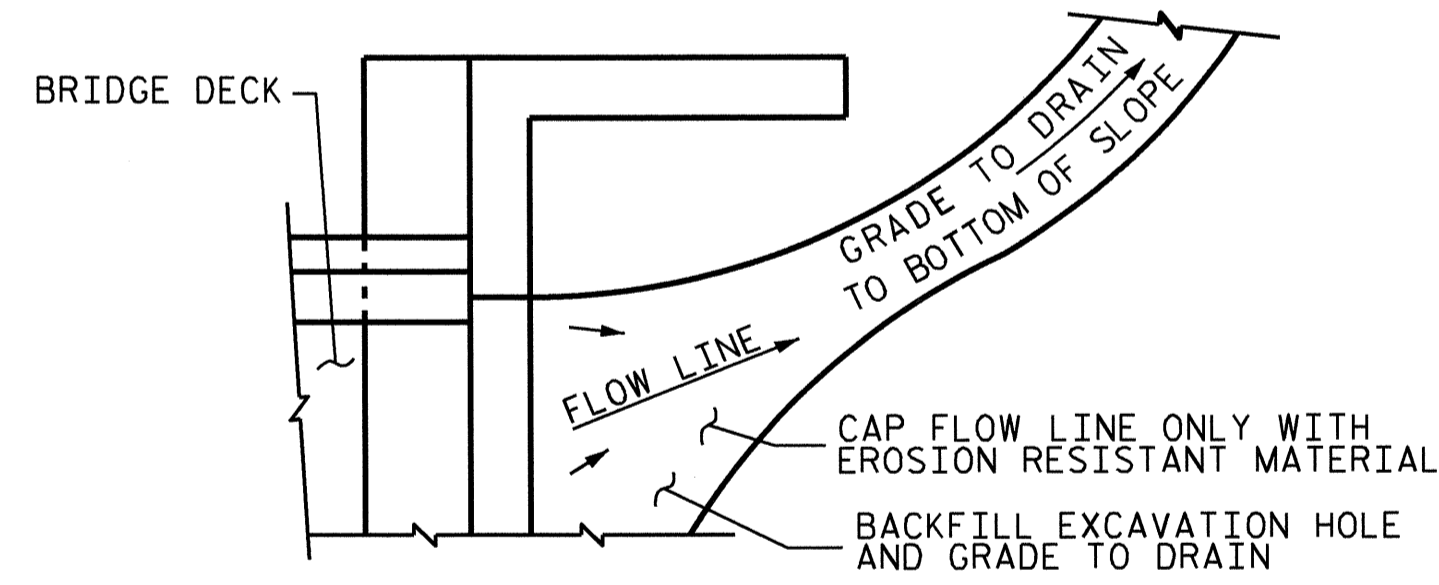
ASSEMBLED BY : M. E. FOWLER DATE : 9/3/10
 CHECKED BY : J. D. HAWK DATE : 5/1/11
 DRAWN BY : KMM 3-08
 CHECKED BY : GM 3-08



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)



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

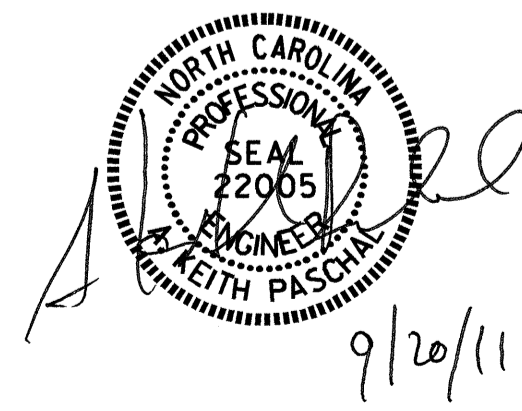
PROJECT NO. B-4503
EDGEcombe COUNTY
 STATION: 21+11.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STANDARD
 BRIDGE APPROACH
 SLAB DETAILS

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



| | |
|-----------------------------|-----------------------|
| ASSEMBLED BY : M. E. FOWLER | DATE : 9/3/10 |
| CHECKED BY : J. D. HAWK | DATE : 5/1/11 |
| DRAWN BY : FCJ 11/88 | REV. 10/17/00 RWW/LES |
| CHECKED BY : ARB 11/88 | REV. 5/7/03 RWW/JTE |
| | REV. 5/1/06R MAA/KMM |

STANDARD NOTES

DESIGN DATA:

| | | |
|---|-------|----------------------------------|
| SPECIFICATIONS | ----- | A.A.S.H.T.O. (CURRENT) |
| LIVE LOAD | ----- | SEE PLANS |
| IMPACT ALLOWANCE | ----- | SEE A.A.S.H.T.O. |
| STRESS IN EXTREME FIBER OF | | |
| STRUCTURAL STEEL - AASHTO M270 GRADE 36 | - | 20,000 LBS. PER SQ. IN. |
| - AASHTO M270 GRADE 50W | - | 27,000 LBS. PER SQ. IN. |
| - AASHTO M270 GRADE 50 | - | 27,000 LBS. PER SQ. IN. |
| REINFORCING STEEL IN TENSION | | |
| GRADE 60 | --- | 24,000 LBS. PER SQ. IN. |
| CONCRETE IN COMPRESSION | ----- | 1,200 LBS. PER SQ. IN. |
| CONCRETE IN SHEAR | ----- | SEE A.A.S.H.T.O. |
| STRUCTURAL TIMBER - TREATED OR | | |
| UNTREATED - EXTREME FIBER STRESS | ----- | 1,800 LBS. PER SQ. IN. |
| COMPRESSION PERPENDICULAR TO GRAIN OF TIMBER | ----- | 375 LBS. PER SQ. IN. |
| EQUIVALENT FLUID PRESSURE OF EARTH | ----- | 30 LBS. PER CU. FT. (MINIMUM) |

MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2006 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N. C. DEPARTMENT OF TRANSPORTATION.

STEEL SHEET PILING FOR PERMANENT OR TEMPORARY APPLICATIONS SHALL BE HOT ROLLED.

CONCRETE:

UNLESS OTHERWISE REQUIRED ON PLANS, CLASS A CONCRETE SHALL BE USED FOR ALL PORTIONS OF ALL STRUCTURES WITH THE EXCEPTION THAT: CLASS AA CONCRETE SHALL BE USED IN BRIDGE SUPERSTRUCTURES, ABUTMENT BACKWALLS, AND APPROACH SLABS; AND CLASS B CONCRETE SHALL BE USED FOR SLOPE PROTECTION AND RIP RAP.

CONCRETE CHAMFERS:

UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED 3/4" WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO 1-1/2" RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A 1/4" FINISHING TOOL UNLESS OTHERWISE REQUIRED ON PLANS; AND CORNERS OF EXPANSION JOINTS IN THE ROADWAY FACES AND TOPS OF CURBS AND SIDEWALKS SHALL BE ROUNDED TO A 1/4" RADIUS WITH A FINISHING STONE OR TOOL UNLESS OTHERWISE REQUIRED ON PLANS.

DOWELS:

DOWELS WHEN INDICATED ON PLANS AS FOR CULVERT EXTENSIONS, SHALL BE EMBEDDED AT LEAST 12" INTO THE OLD CONCRETE AND GROUTED INTO PLACE WITH 1:2 CEMENT MORTAR.

ALLOWANCE FOR DEAD LOAD DEFLECTION, SETTLEMENT, ETC. IN CASTING SUPERSTRUCTURES:

BRIDGES SHALL BE BUILT ON THE GRADE OR VERTICAL CURVE SHOWN ON PLANS. SLABS, CURBS AND PARAPETS SHALL CONFORM TO THE GRADE OR CURVE.
ALL DIMENSIONS WHICH ARE GIVEN IN SECTION AND ARE AFFECTED BY DEAD LOAD DEFLECTIONS ARE DIMENSIONS AT CENTER LINE OF BEARING UNLESS OTHERWISE NOTED ON PLANS. IN SETTING FORMS FOR STEEL BEAM BRIDGES AND PRESTRESSED CONCRETE GIRDER BRIDGES, ADJUSTMENTS SHALL BE MADE DUE TO THE DEAD LOAD DEFLECTIONS FOR THE ELEVATIONS SHOWN. WHERE BLOCKS ARE SHOWN OVER BEAMS FOR BUILDING UP TO THE SLAB, THE VERTICAL DIMENSIONS OF THE BLOCKS SHALL BE ADJUSTED BETWEEN BEARINGS TO COMPENSATE FOR DEAD LOAD DEFLECTIONS, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER. WHERE BOTTOM OF SLAB IS IN LINE WITH BOTTOM OF TOP FLANGES, DEPTH OF SLAB BETWEEN BEARINGS SHALL BE ADJUSTED TO COMPENSATE FOR DEAD LOAD DEFLECTION, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER.
IN SETTING FALSEWORK AND FORMS FOR REINFORCED CONCRETE SPANS, AN ALLOWANCE SHALL BE MADE FOR DEAD LOAD DEFLECTIONS, SETTLEMENT OF FALSEWORK, AND PERMANENT CAMBER WHICH SHALL BE PROVIDED FOR IN ADDITION TO THE ELEVATIONS SHOWN. AFTER REMOVAL OF THE FALSEWORK, THE FINISHED STRUCTURES SHALL CONFORM TO THE PROFILE AND ELEVATIONS SHOWN ON THE PLANS AND CONSTRUCTION ELEVATIONS FURNISHED BY THE ENGINEER.
DETAILED DRAWINGS FOR FALSEWORK OR FORMS FOR BRIDGE SUPERSTRUCTURE AND ANY STRUCTURE OR PARTS OF A STRUCTURE AS NOTED ON THE PLANS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE CONSTRUCTION OF THE FALSEWORK OR FORMS IS STARTED.

REINFORCING STEEL:

ALL REINFORCING STEEL SHALL BE DEFORMED. DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED IN THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE OUT TO OUT AS INDICATED ON PLANS.
WIRE BAR SUPPORTS SHALL BE PROVIDED FOR REINFORCING STEEL WHERE INDICATED ON THE PLANS. WHEN BAR SUPPORT PIECES ARE PLACED IN CONTINUOUS LINES, THEY SHALL BE SO PLACED THAT THE ENDS OF THE SUPPORTING WIRES SHALL BE LAPPED TO LOCK LEGS ON ADJOINING PIECES.

STRUCTURAL STEEL:

AT THE CONTRACTOR'S OPTION, HE MAY SUBSTITUTE 7/8" Ø SHEAR STUDS FOR THE 3/4" Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF 7/8" Ø STUDS ALONG THE BEAM AS SHOWN FOR 3/4" Ø STUDS BASED ON THE RATIO OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-0".
EXCEPT AT THE INTERIOR SUPPORTS OF CONTINUOUS BEAMS WHERE THE COVER PLATE IS IN CONTACT WITH BEARING PLATE, THE CONTRACTOR MAY, AT HIS OPTION, SUBSTITUTE FOR THE COVER PLATES DESIGNATED ON THE PLANS COVER PLATES OF THE EQUIVALENT AREA PROVIDED THESE PLATES ARE AT LEAST 5/16" IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2" OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ANSI/AASHTO/AWS "BRIDGE WELDING CODE". ELECTROSLAG WELDING WILL NOT BE PERMITTED.
WITH THE SOLE EXCEPTION OF EDGES AT SURFACES WHICH BEAR ON OTHER SURFACES, ALL SHARP EDGES AND ENDS OF SHAPES AND PLATES SHALL BE SLIGHTLY ROUNDED BY SUITABLE MEANS TO A RADIUS OF APPROXIMATELY 1/16" INCH OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE PRIOR TO PAINTING, GALVANIZING, OR METALLIZING.

HANDRAILS AND POSTS:

METAL STANDARDS AND FACES OF THE CONCRETE END POSTS FOR THE METAL RAIL SHALL BE SET NORMAL TO THE GRADE OF THE CURB, UNLESS OTHERWISE SHOWN ON PLANS. THE METAL RAIL AND TOPS OF CONCRETE POSTS USED WITH THE ALUMINUM RAIL SHALL BE BUILT PARALLEL TO THE GRADE OF THE CURB.
METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. FINISHES AND OTHER DEFORMATIONS RESULTING FROM CASTING OR OTHERWISE SHALL BE REMOVED IN A MANNER SO THAT A UNIFORM COLORING OF THE COMPLETED CASTING SHALL BE OBTAINED. CASTINGS WITH DISCOLORATIONS OR OF NON-UNIFORM COLORING WILL NOT BE ACCEPTED. CERTIFIED MILL REPORTS ARE REQUIRED FOR METAL RAILS AND POSTS.

SPECIAL NOTES:

GENERALLY, IN CASE OF DISCREPANCY, THIS STANDARD SHEET OF NOTES SHALL GOVERN OVER THE SPECIFICATIONS, BUT THE REMAINDER OF THE PLANS SHALL GOVERN OVER NOTES HEREON, AND SPECIAL PROVISIONS SHALL GOVERN OVER ALL. SEE SPECIFICATIONS ARTICLE 105-4.

ENGLISH

JANUARY, 1990

STD. NO. SN