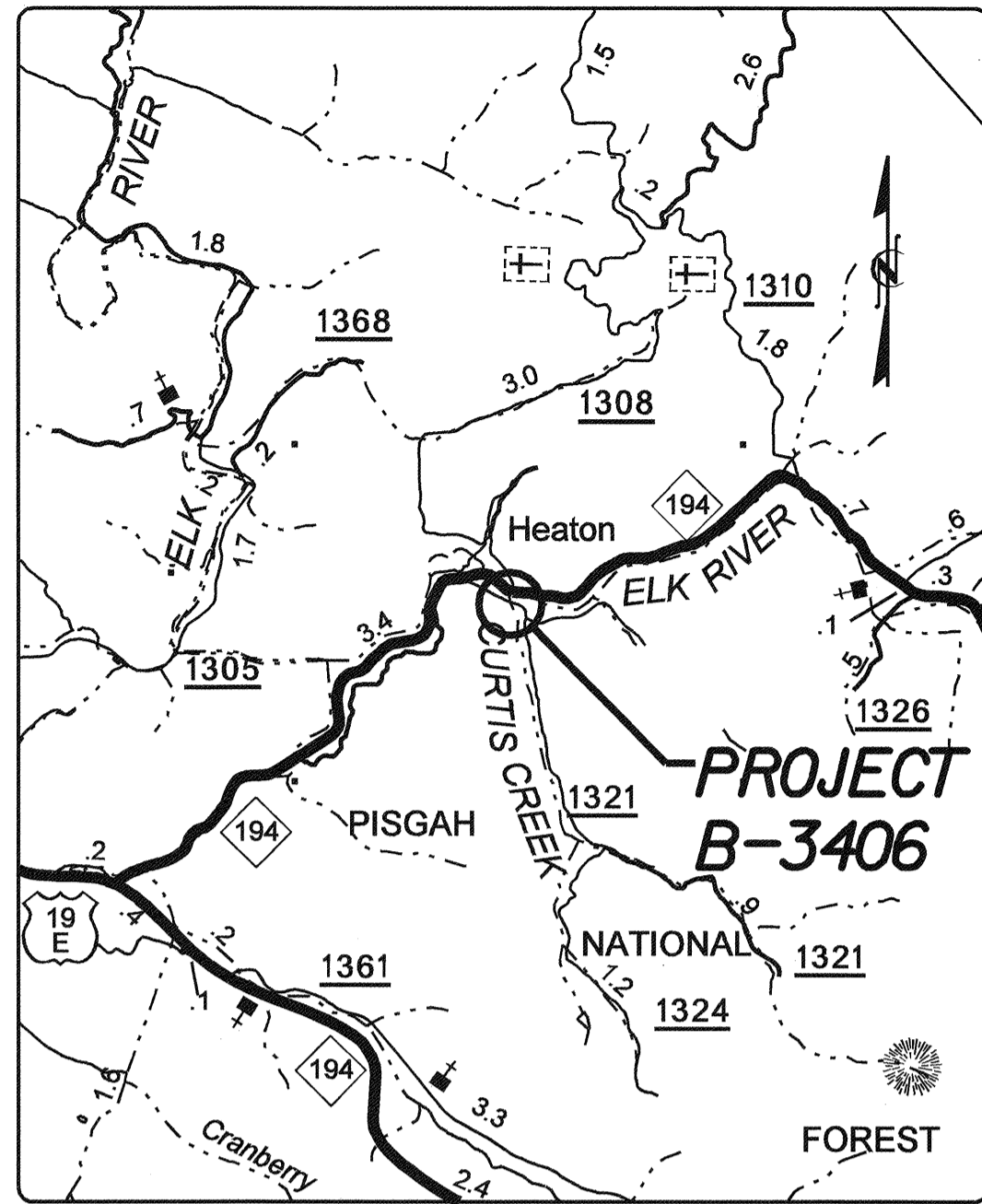


09/08/99

TIP PROJECT: B-3406

CONTRACT: C201582



VICINITY MAP FOR PROJECT B-3406

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

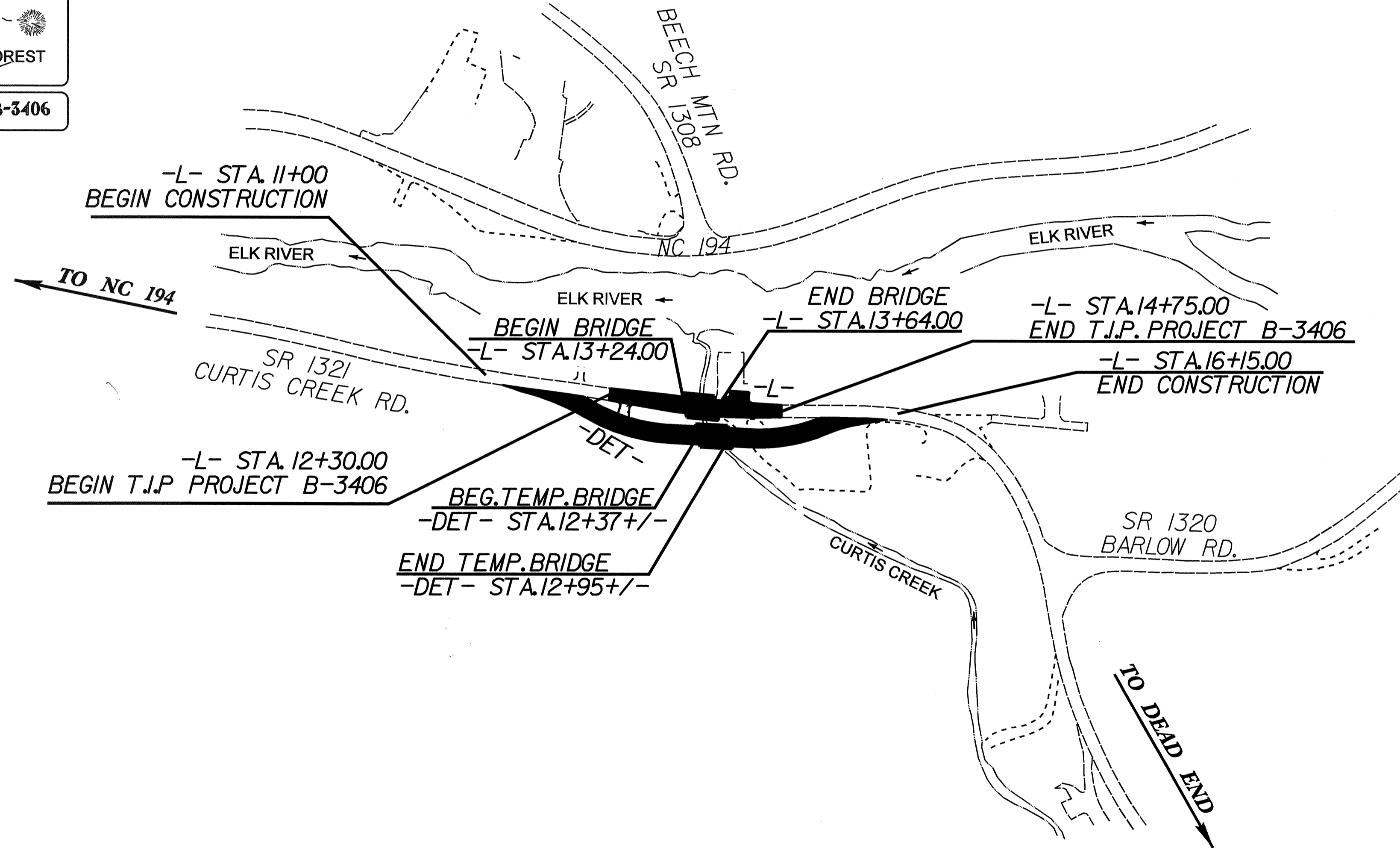
AVERY COUNTY

LOCATION: BRIDGE NO. 28 OVER CURTIS CREEK
ON SR 1321

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

| STATE | STATE PROJECT REFERENCE NO. | SHEET NO. | TOTAL SHEETS |
|-----------------|-----------------------------|-------------|--------------|
| N.C. | B-3406 | | |
| STATE PROJ. NO. | F.A. PROJ. NO. | DESCRIPTION | |
| 33037.1.1 | BRZ-1321(1) | PE | |
| 33037.2.1 | BRZ-1321(1) | RW/UTL | |
| 33037.3.2 | BRZ-1321(1) | CONST. | |
| | | | |
| | | | |
| | | | |

STRUCTURE



DESIGN EXCEPTION REQUIRED FOR VERTICAL SAG 'K' FACTOR AND SUPERELEVATION



DESIGN DATA

ADT 2006 = 967
ADT 2026 = 1,411
DHV = 10 %
D = 60 %
T = 3 % *
V = 60 MPH
* TTST 1% DUAL 2%

PROJECT LENGTH

LENGTH ROADWAY T.I.P. PROJECT B-3406 = 0.038 MILES
LENGTH STRUCTURES T.I.P. PROJECT B-3406 = 0.008 MILES
TOTAL LENGTH OF T.I.P. PROJECT B-3406 = 0.046 MILES

Prepared In the Office of:
DIVISION OF HIGHWAYS

1000 Birch Ridge Dr., NC, 27610

2006 STANDARD SPECIFICATIONS

LETTING DATE:
DECEMBER 19, 2006

John C. Frye, P.E.
PROJECT ENGINEER

William A. Davis, P.E.
PROJECT DESIGN ENGINEER

STRUCTURE DESIGN UNIT
1000 Birch Ridge Dr.
Raleigh, NC 27610



Gregory R. Perrett
10.17.06

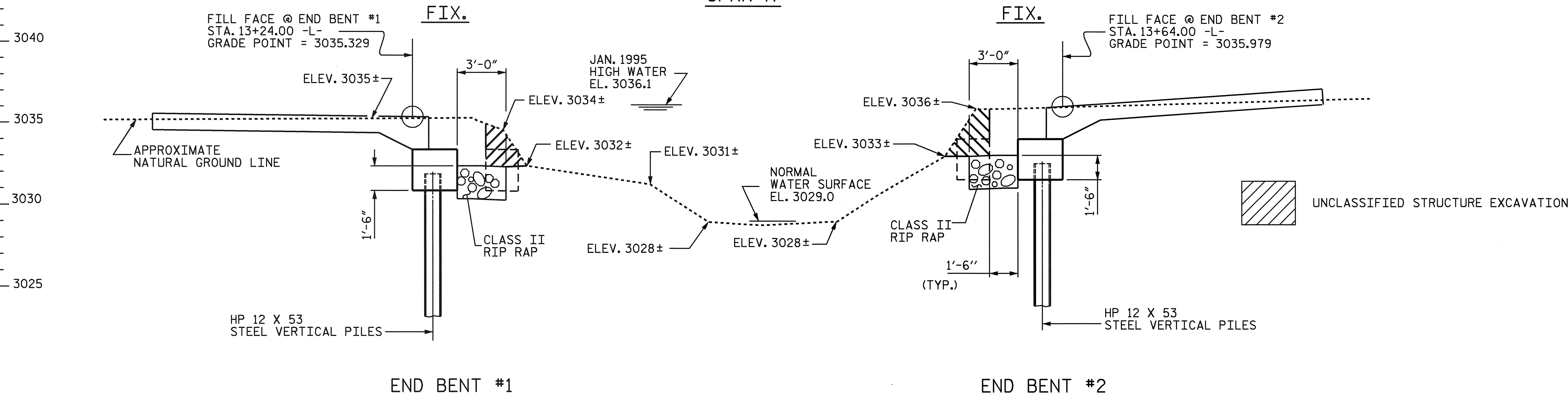
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE DESIGN ENGINEER
DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED
DIVISION ADMINISTRATOR DATE

16-OCT-2006 15:16
\$\$\$\$\$DGN\$\$\$\$\$
Telleland

SPAN A



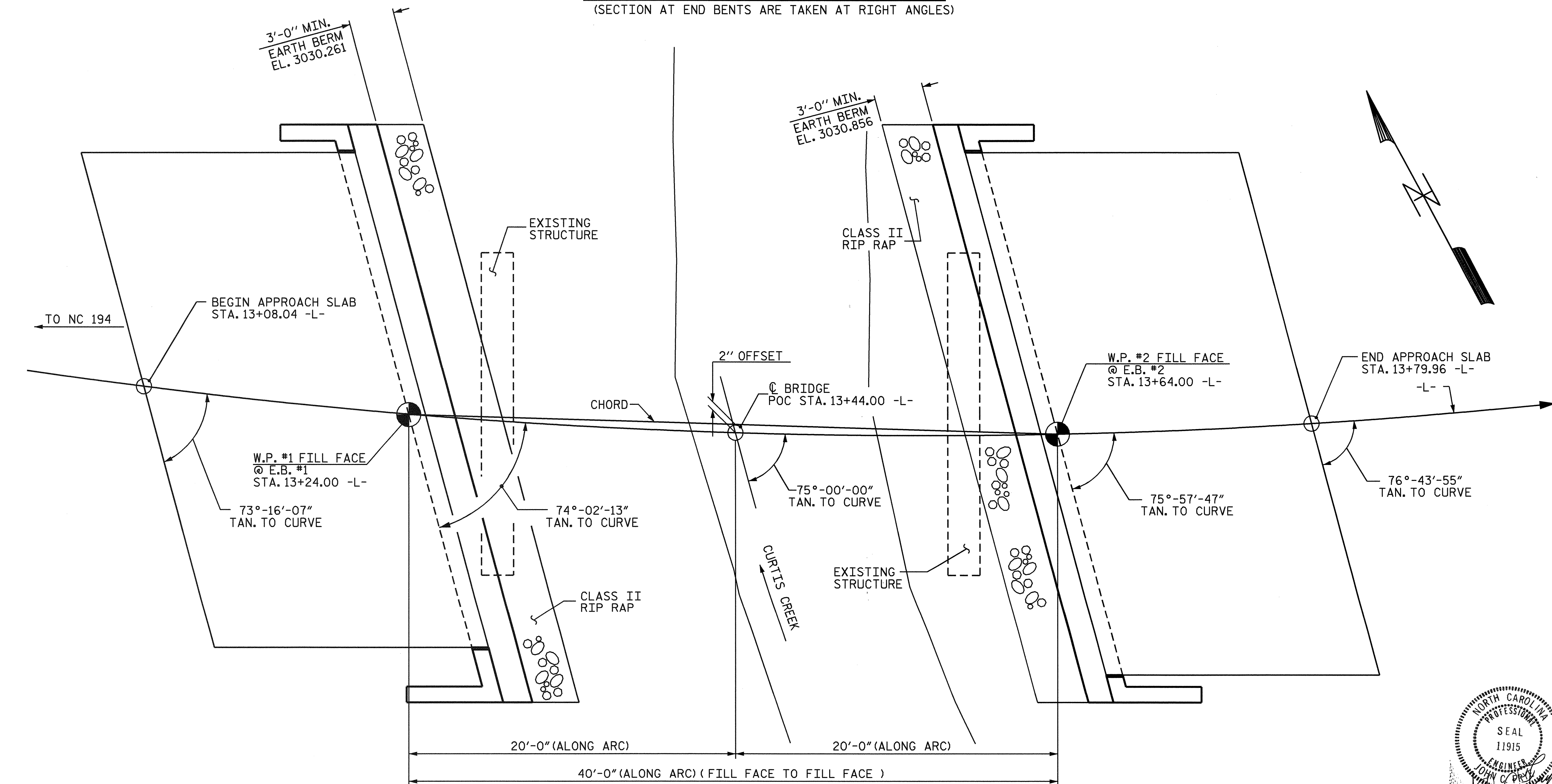
- 0.4500% 4.1600%

PI = 13+50.00
 ELEV. = 3034.99
 L = 120'
GRADE DATA

NOTE: THE CORED SLAB UNITS IN THE PROPOSED STRUCTURE ARE TO BE CONSTRUCTED PARALLEL TO THE CHORD CONNECTING W.P. NO. 1 AND W.P. NO. 2.

SECTION ALONG -L-

(SECTION AT END BENTS ARE TAKEN AT RIGHT ANGLES)



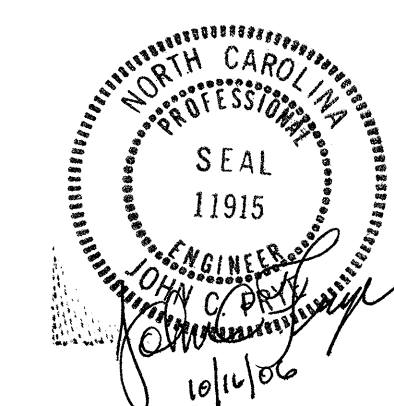
PI = 13+76.11
 $\Delta = 7^{\circ}-59'-49''$ (LT.)
 D = 4'-48'-53"
 L = 166.09'
 T = 83.18'
 R = 1,190.00'

HORIZONTAL CURVE DATA

PROJECT NO. B-3406
AVERY COUNTY
 STATION: 13+44.00 -L-

SHEET 1 OF 3 REPLACES BRIDGE # 28

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
**GENERAL DRAWING FOR
 BRIDGE OVER
 CURTIS CREEK
 ON SR 1321 BETWEEN
 NC 194 & SR 1320**



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

DRAWN BY : J.L. WALTON DATE : 7/06
 CHECKED BY : T.L. CLELLAND DATE : 7/06

PLAN
 (PILES NOT SHOWN IN PLAN VIEW FOR CLARITY)

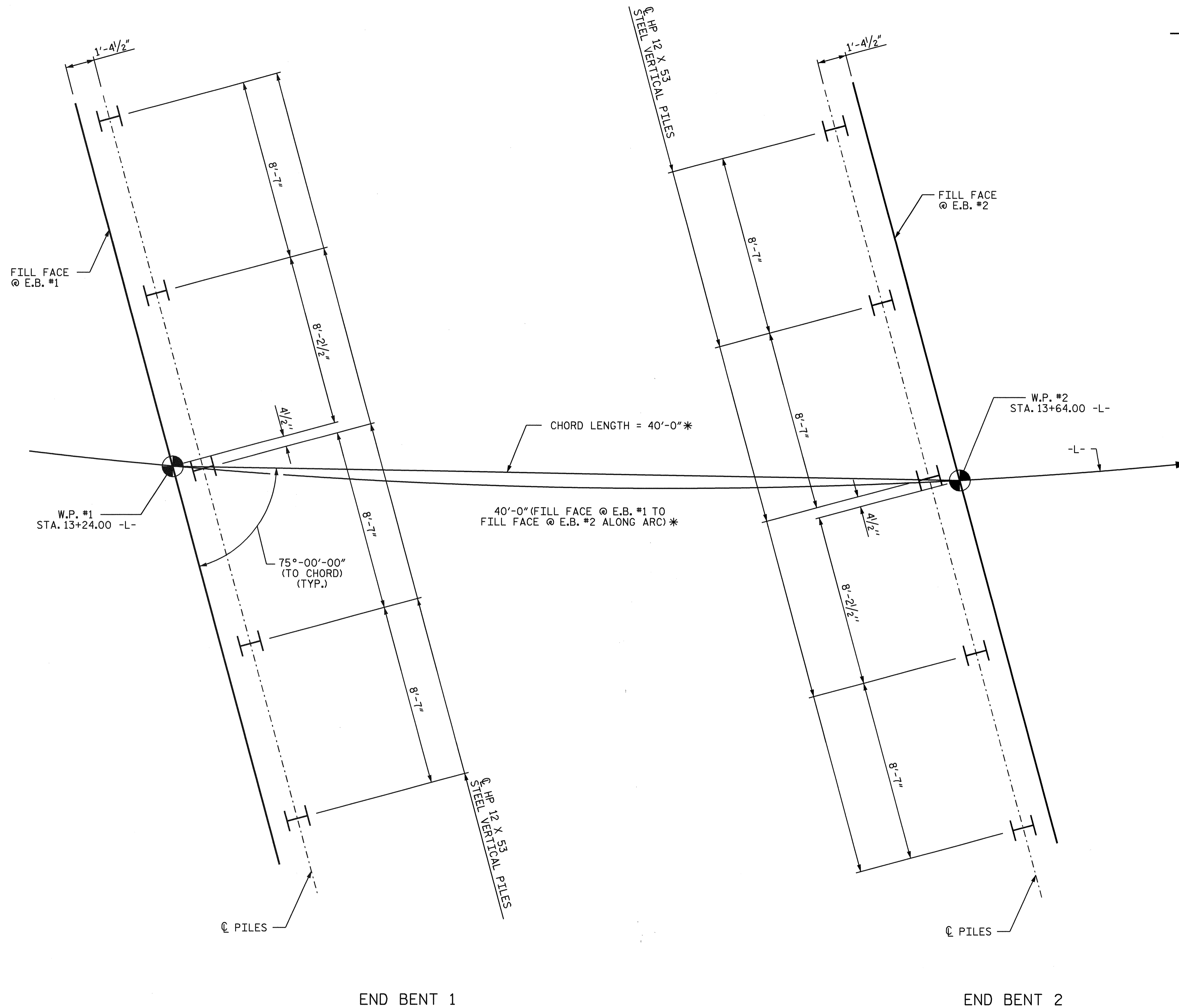
NOTES

DRIVE PILES AT END BENT NO.1 AND NO.2 TO A REQUIRED BEARING CAPACITY OF 120 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 BENT NO.1 AND NO.2 IS 60 TONS PER PILE.

PILE EXCAVATION IS REQUIRED TO INSTALL PILES AT END BENT NO.1 AND NO.2. EXCAVATE HOLES TO ELEVATION 3021.0 FEET. SEE PILE EXCAVATION SPECIAL PROVISION

* THE DIFFERENCE BETWEEN THE CHORD LENGTH AND THE ARC LENGTH IS NEGLIGIBLE.



END BENT 1

END BENT 2

FOUNDATION LAYOUT

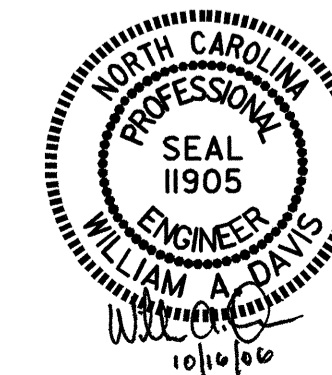
(DIMENSIONS LOCATING PILES ARE SHOWN TO THE PILE CENTERLINE)

PROJECT NO. B-3406
AVERY COUNTY
 STATION: 13+44.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING FOR
 BRIDGE OVER
 CURTIS CREEK
 ON SR 1321 BETWEEN
 NC 194 & SR 1320



DRAWN BY: J.L. WALTON DATE: 7/06
 CHECKED BY: T.L. CLELLAND DATE: 7/06

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

BENCH MARK: #2, PK NAIL IN CONCRETE WALK LEADING TO FOOTBRIDGE OVER ELK RIVER, -L- STA. 13+88.41 70.46 LT. ELEV. 3038.08

NOTES

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

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 EROSION CONTROL MEASURES SEE EROSION CONTROL PLANS.

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

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 SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

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

THE EXISTING STRUCTURE CONSISTING OF ONE SPAN AT 30'-6" WITH A CLEAR ROADWAY WIDTH OF 19.1 FT. ON A TIMBER FLOOR WITH STEEL I-BEAMS ON TIMBER CAPS, ON TIMBER PILES AND LOCATED AT THE SITE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED BELOW THE LEGAL LOAD LIMIT.

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.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 25 FT. EACH SIDE OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE MEASURED AND PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION.

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.

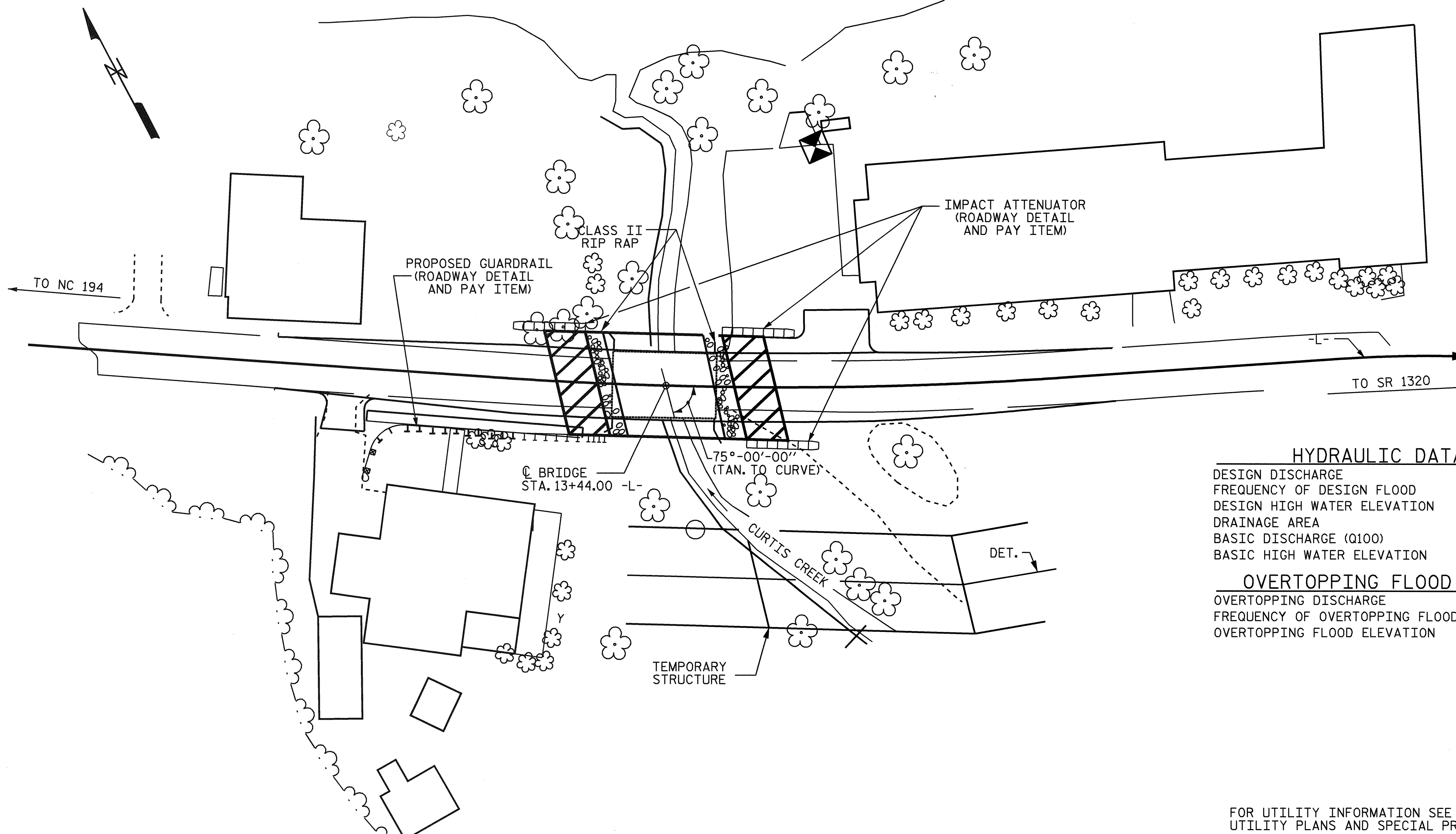
FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

THE CONTRACTOR WILL BE REQUIRED TO CONSTRUCT, MAINTAIN AND AFTERWARDS REMOVE A TEMPORARY STRUCTURE AT STATION 13+44.00 -L- FOR USE DURING CONSTRUCTION OF THE PROPOSED STRUCTURE. SEE SPECIAL PROVISIONS FOR CONSTRUCTION, MAINTENANCE AND REMOVAL OF TEMPORARY STRUCTURE.

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

ASPHALT WEARING SURFACE IS INCLUDED IN ROADWAY QUANTITY ON ROADWAY 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 13+44.00 -L-."



LOCATION SKETCH

FOR UTILITY INFORMATION SEE UTILITY PLANS AND SPECIAL PROVISIONS.

TOTAL BILL OF MATERIAL

| | CONSTRUCTION MAINTENANCE & REMOVAL OF TEMP. STRUCTURE | REMOVAL OF EXISTING STRUCTURE | PILE EXCAVATION IN SOIL | PILE EXCAVATION NOT IN SOIL | UNCLASSIFIED STRUCTURE EXCAVATION | CLASS A CONCRETE | BRIDGE APPROACH SLABS | REINFORCING STEEL | HP 12 x 53 STEEL PILES | ONE BAR METAL RAIL | 1'-0" X 1'-9" CONCRETE PARAPET | PLAIN RIP RAP CLASS II (2'-0" THICK) | FILTER FABRIC FOR DRAINAGE | ELASTOMERIC BEARINGS | 3'-0" X 1'-6" PRESTRESSED CONCRETE CORED SLAB | | |
|----------------|---|-------------------------------|-------------------------|-----------------------------|-----------------------------------|------------------|-----------------------|-------------------|------------------------|--------------------|--------------------------------|--------------------------------------|----------------------------|----------------------|---|----------|--------|
| | LUMP SUM | LUMP SUM | LIN. FT. | LIN. FT. | LUMP SUM | CU. YDS. | LUMP SUM | LBS. | NO. | LIN. FT. | LIN. FT. | LIN. FT. | SO. YD. | LUMP SUM | NO. | LIN. FT. | |
| SUPERSTRUCTURE | | | | | LUMP SUM | | LUMP SUM | | | 59.75 | 75.34 | | | LUMP SUM | 10 | 376.67 | |
| END BENT 1 | | | 37 | 13 | | 11.2 | | 1758 | 5 | 50 | | | | | | | |
| END BENT 2 | | | 23 | 27 | | 11.3 | | 1736 | 5 | 50 | | | | | | | |
| TOTAL | LUMP SUM | LUMP SUM | 60 | 40 | LUMP SUM | 22.5 | LUMP SUM | 3494 | 10 | 100 | 59.75 | 75.34 | 28 | 30 | LUMP SUM | 10 | 376.67 |

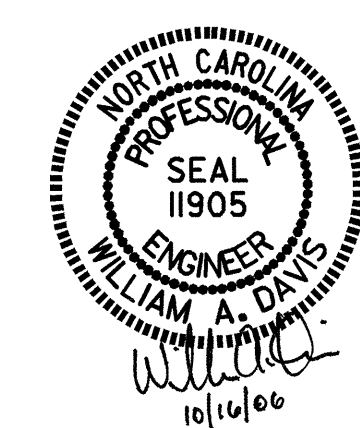
PROJECT NO. B-3406
AVERY COUNTY
 STATION: 13+44.00 -L-

SHEET 3 OF 3

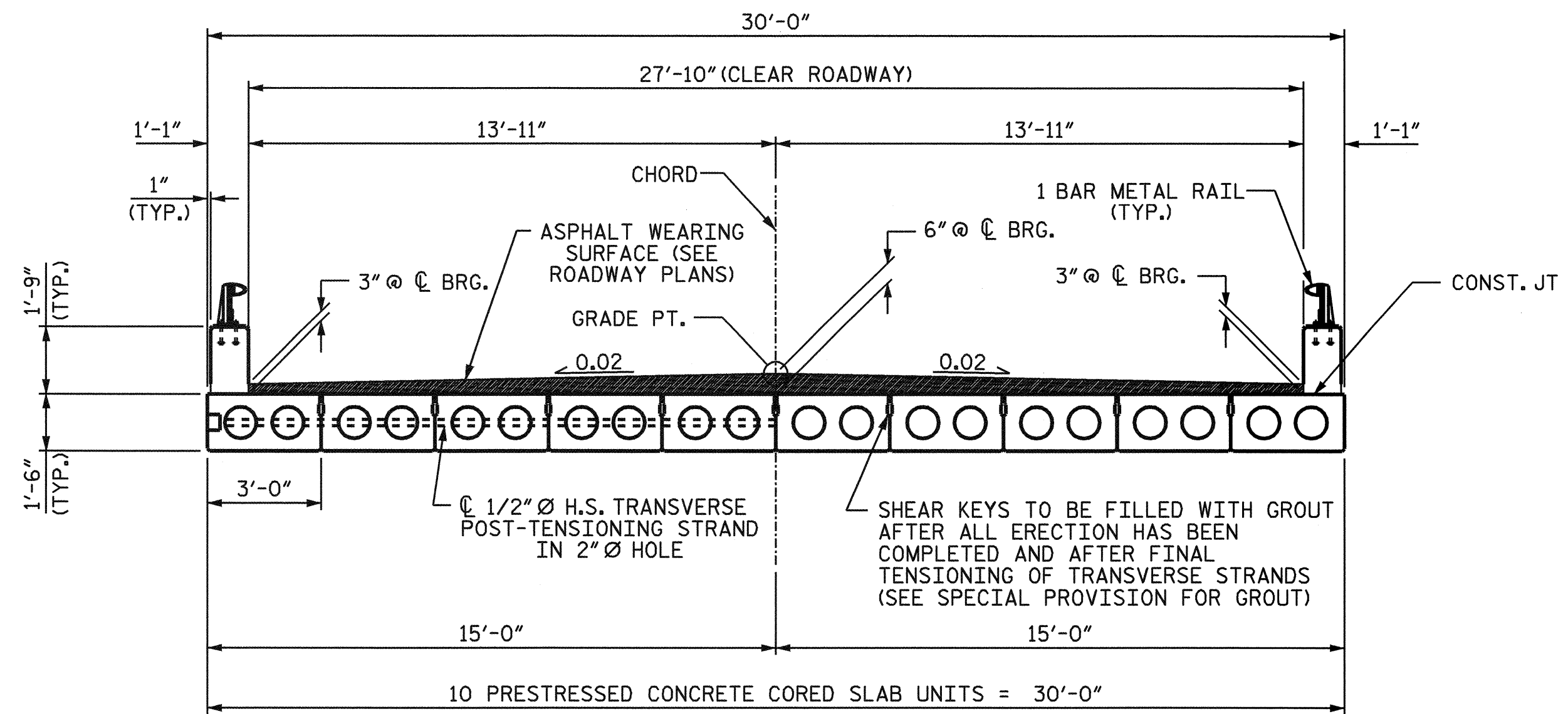
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING FOR
 BRIDGE OVER
 CURTIS CREEK
 ON SR 1321 BETWEEN
 NC 194 & SR 1320

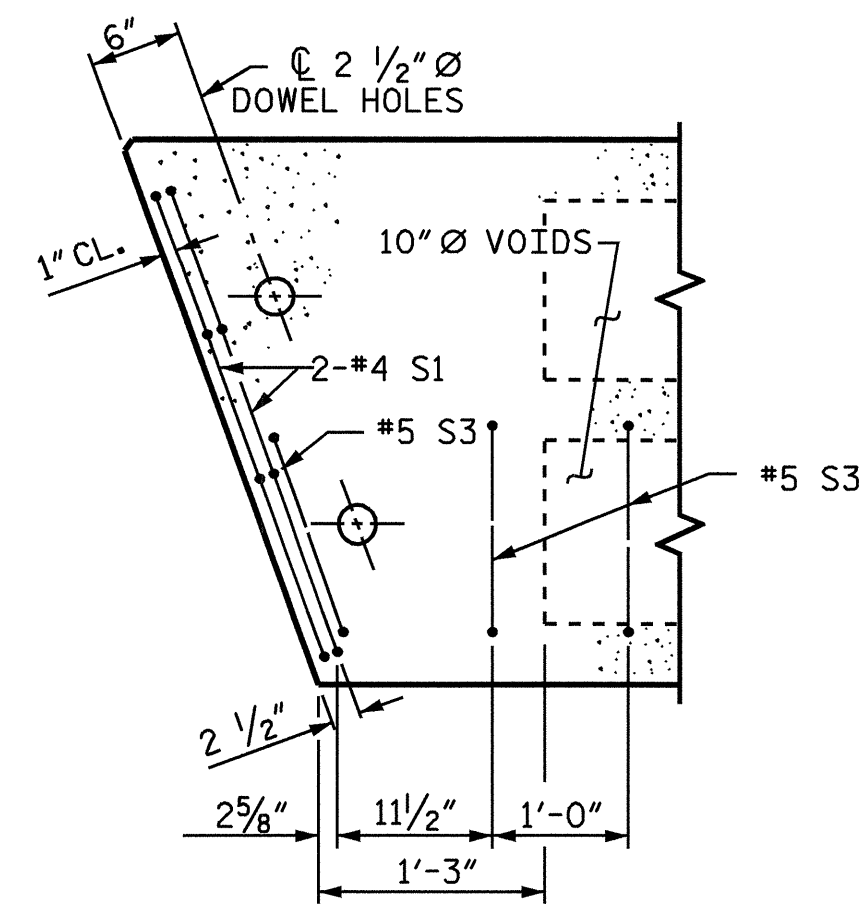
| REVISIONS | | | | | | SHEET NO. |
|-----------|-----|-------|-----|-----|-------|--------------|
| NO. | BY: | DATE: | NO. | BY: | DATE: | S-3 |
| 1 | | | 3 | | | TOTAL SHEETS |
| 2 | | | 4 | | | 18 |



DRAWN BY: J.L. WALTON DATE: 7/06
 CHECKED BY: T.L. CLELLAND DATE: 7/06

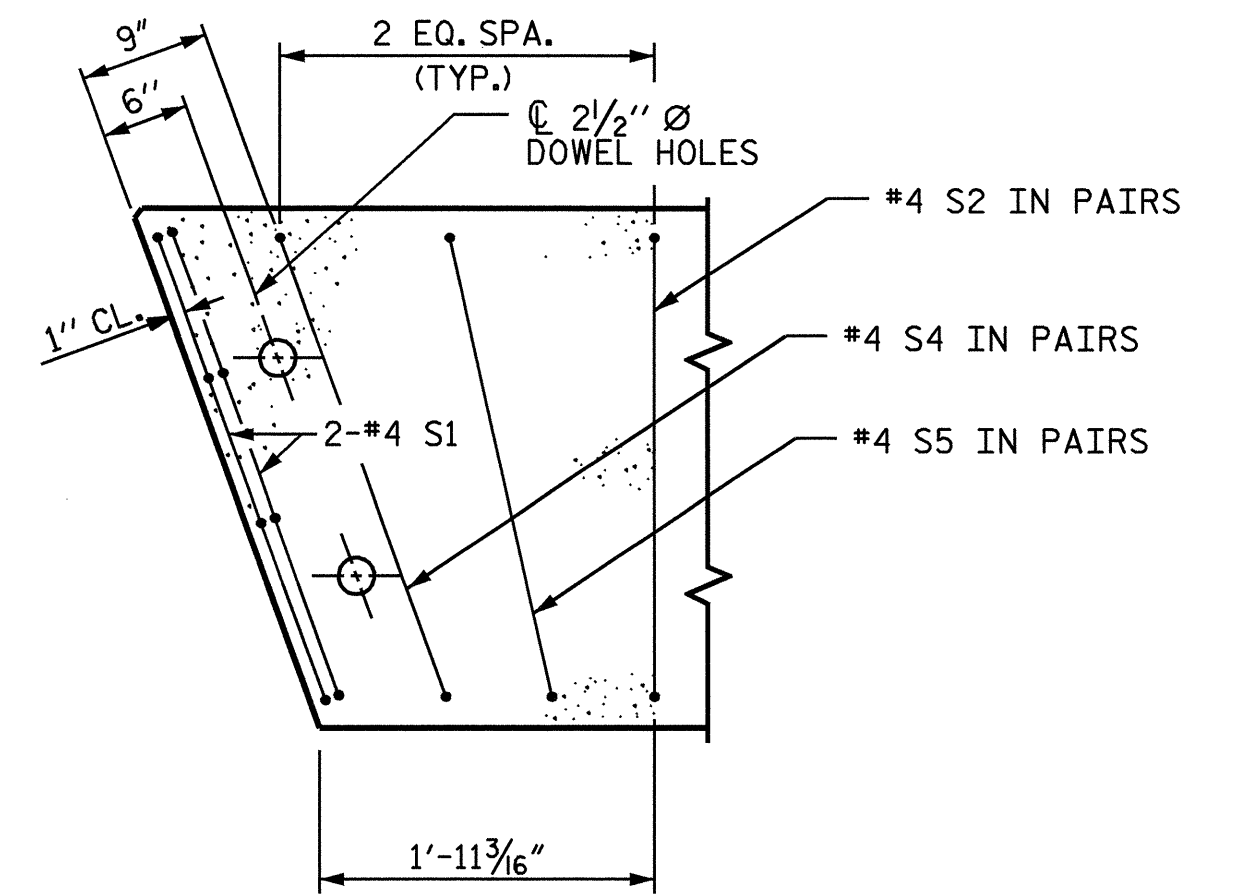


TYPICAL SECTION

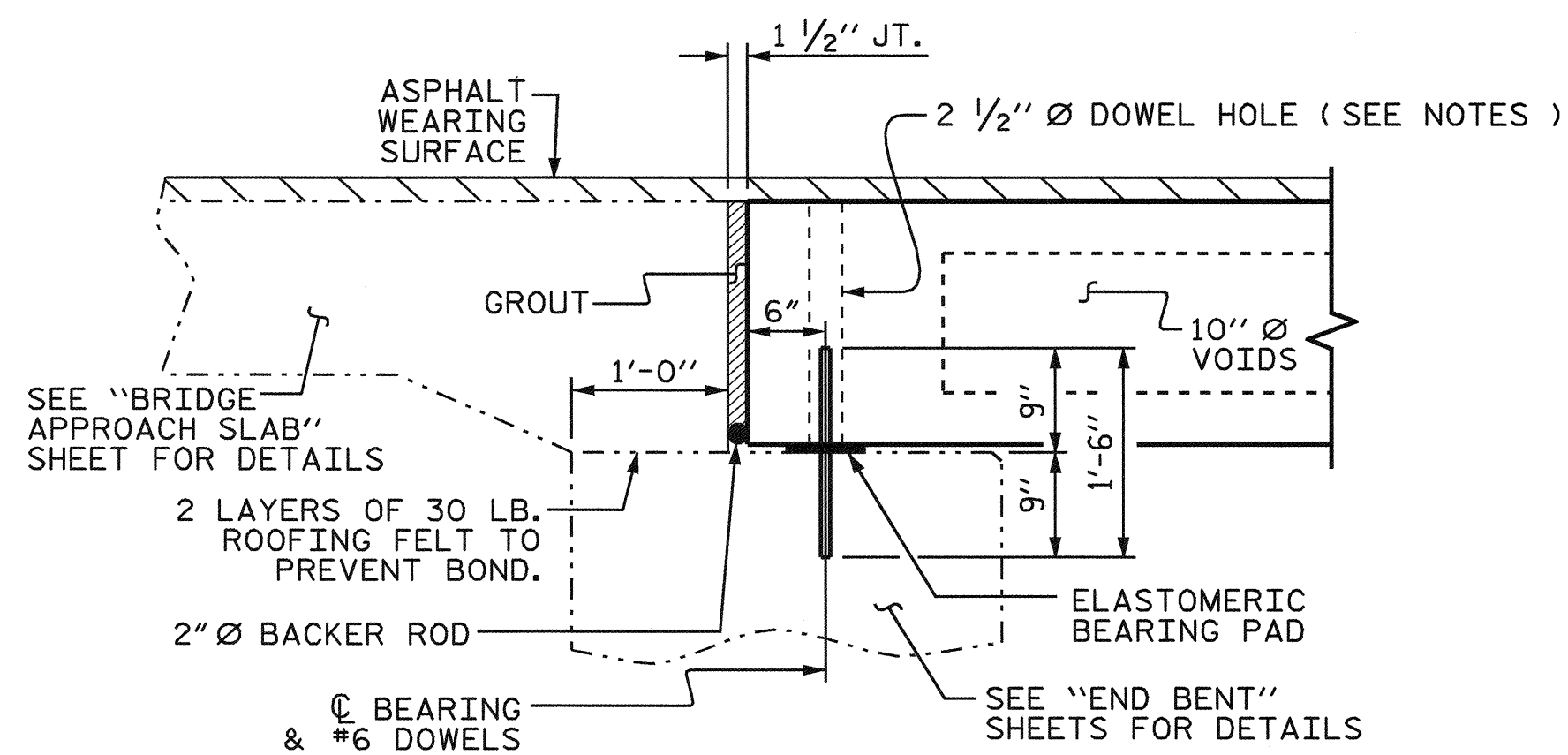


PART PLAN-EXTERIOR SECTION

NOTE: EXTERIOR SECTION SHOWN-INTERIOR SECTION SIMILAR EXCEPT OMIT S3 BARS. SEE CORED SLAB UNIT DETAIL SHEETS FOR DIMENSIONS.

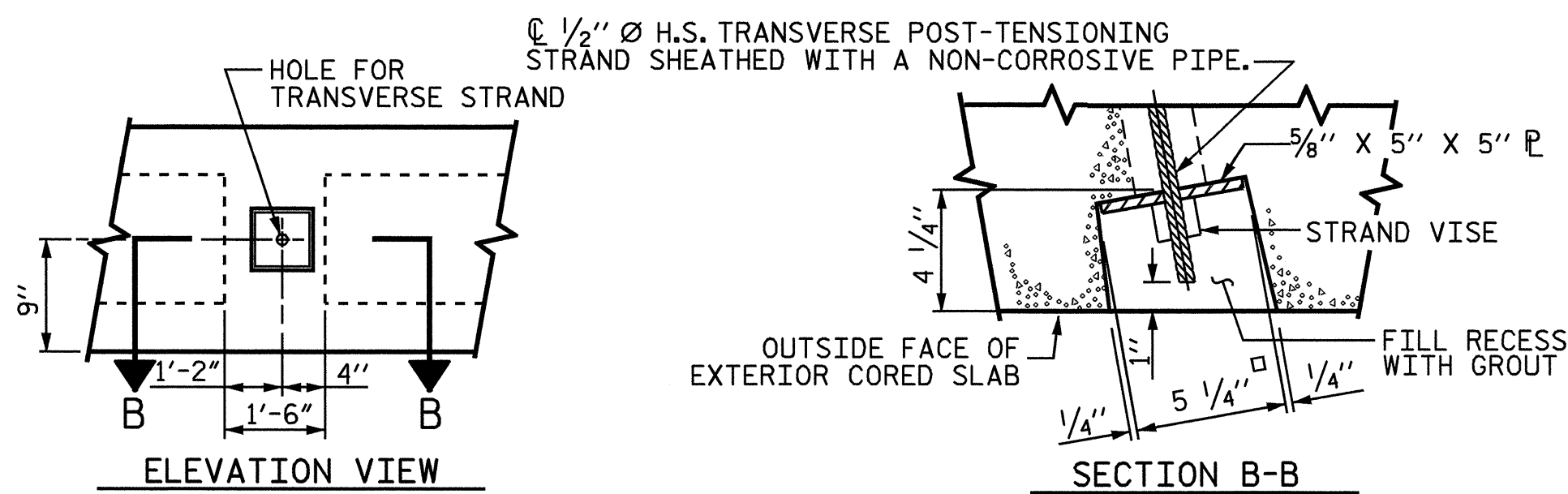


PART PLAN-INTERIOR SECTION

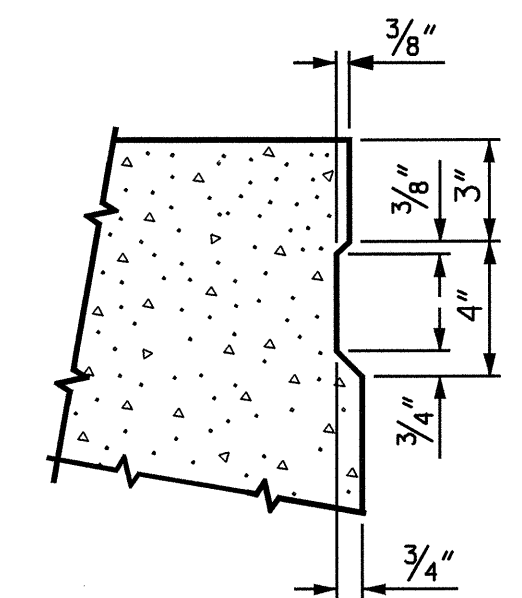


SECTION AT END BENT

(FIX BOTH ENDS)

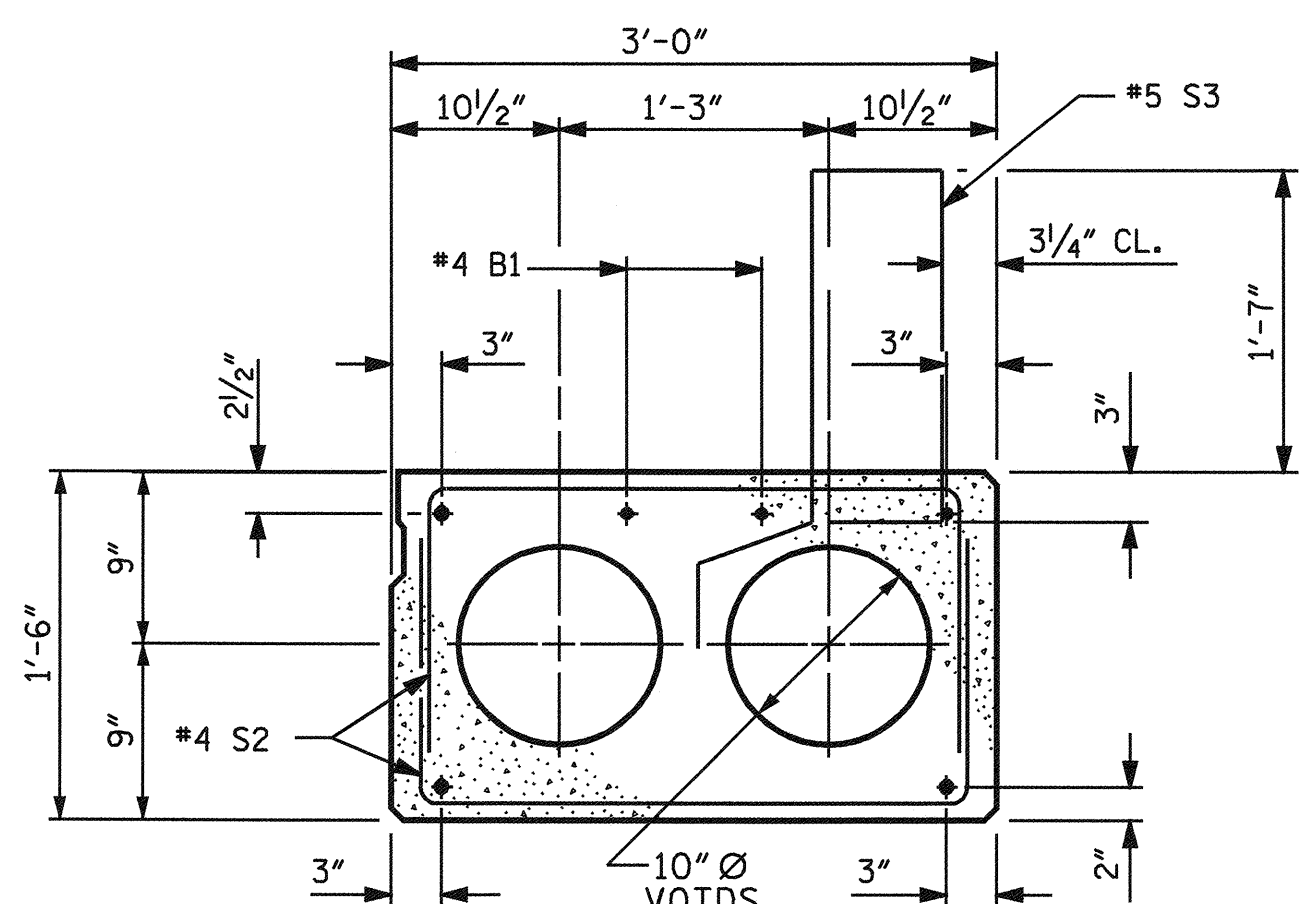


GRouted RECESS AT END OF POST-TENSIONED STRAND CORED SLABS



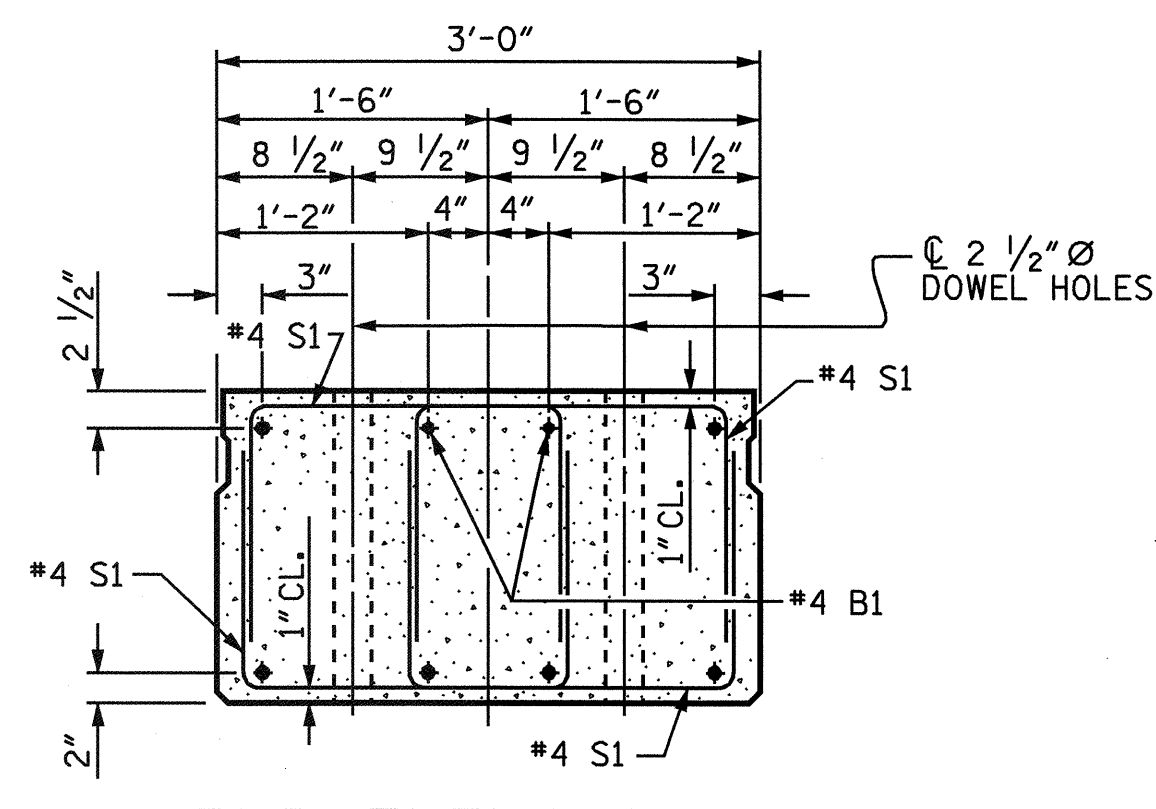
SHEAR KEY DETAIL

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



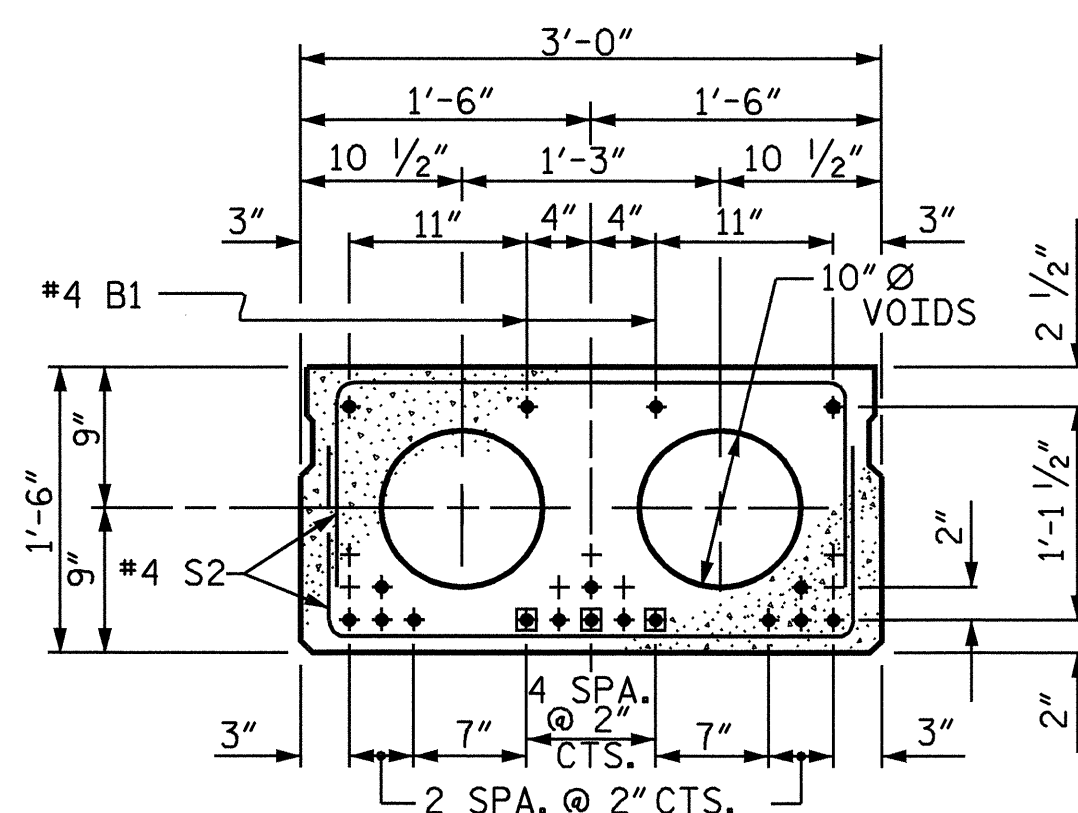
EXTERIOR SLAB SECTION

(FOR PRESTRESSING STRAND LAYOUT, SEE INTERIOR SLAB SECTION.)



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.



INTERIOR SLAB SECTION

1/2" Ø LOW RELAXATION STRAND LAYOUT

(16 STRANDS, 3 SHEATHED)

□ BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 4'-0" FROM END OF CORED SLAB UNIT, SEE STANDARD SPECIFICATIONS ARTICLE 1078-7.

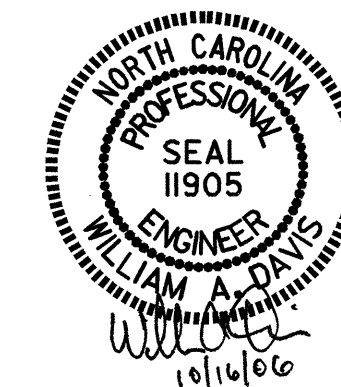
PROJECT NO. B-3406
AVERY COUNTY
 STATION: 13+44.00 -L-

SHEET 1 OF 3

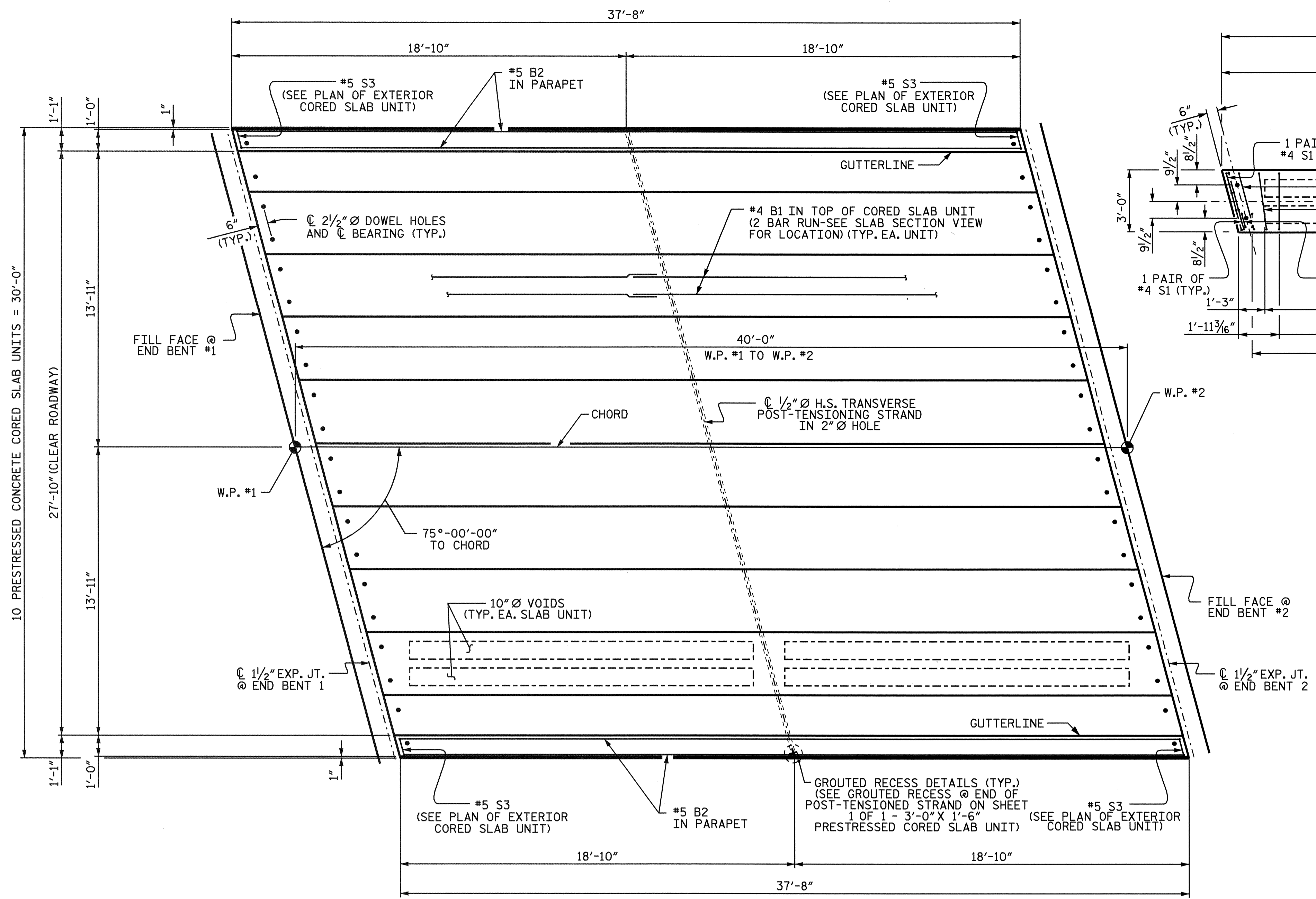
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 3'-0" X 1'-6"
 PRESTRESSED CORED
 SLAB UNIT

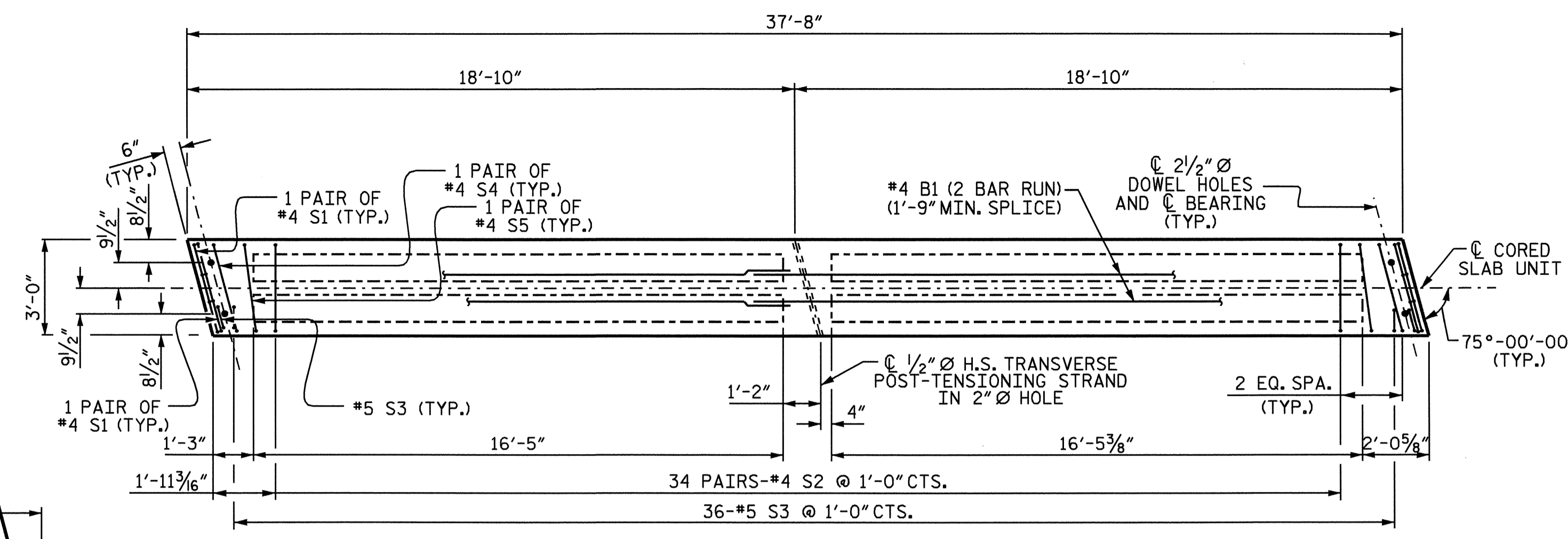
| REVISIONS | | | | | | SHEET NO. |
|-----------|-----|-------|-----|-----|-------|--------------|
| NO. | BY: | DATE: | NO. | BY: | DATE: | S-4 |
| 1 | | | 3 | | | TOTAL SHEETS |
| 2 | | | 4 | | | 18 |



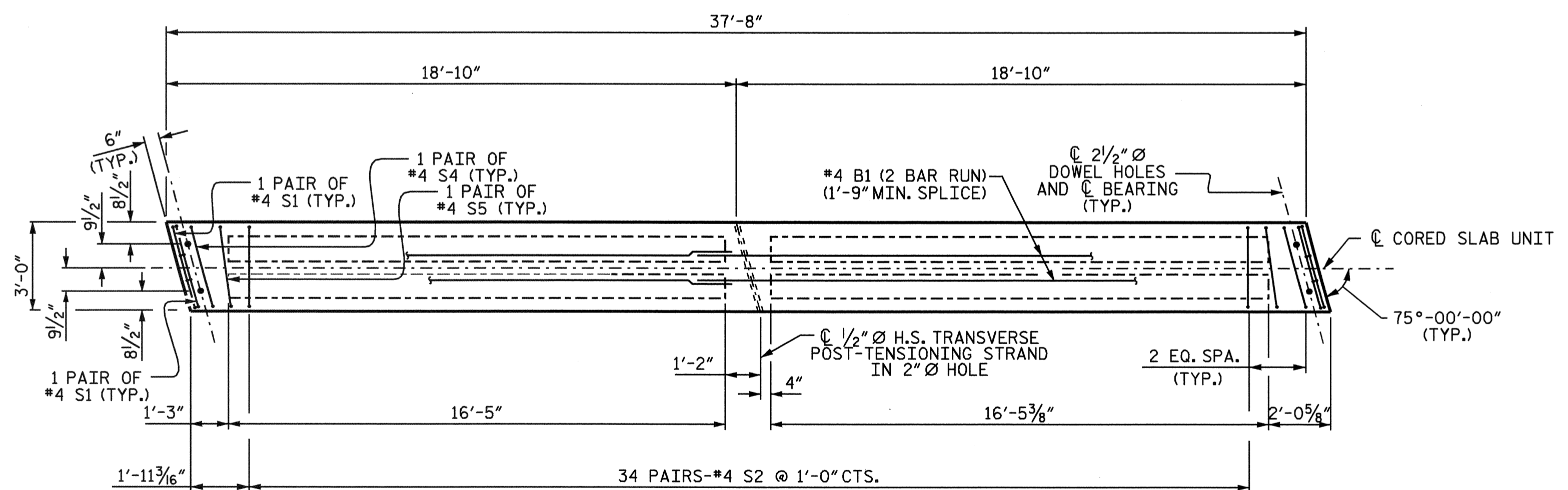
DRAWN BY: J.L. WALTON DATE: 11/05
 CHECKED BY: V.X. NGUYEN DATE: 2/06



PLAN OF SPAN



PLAN OF EXTERIOR CORED SLAB UNITS



PLAN OF INTERIOR CORED SLAB UNITS

PROJECT NO. B-3406
 AVERY COUNTY
 STATION: 13+44.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

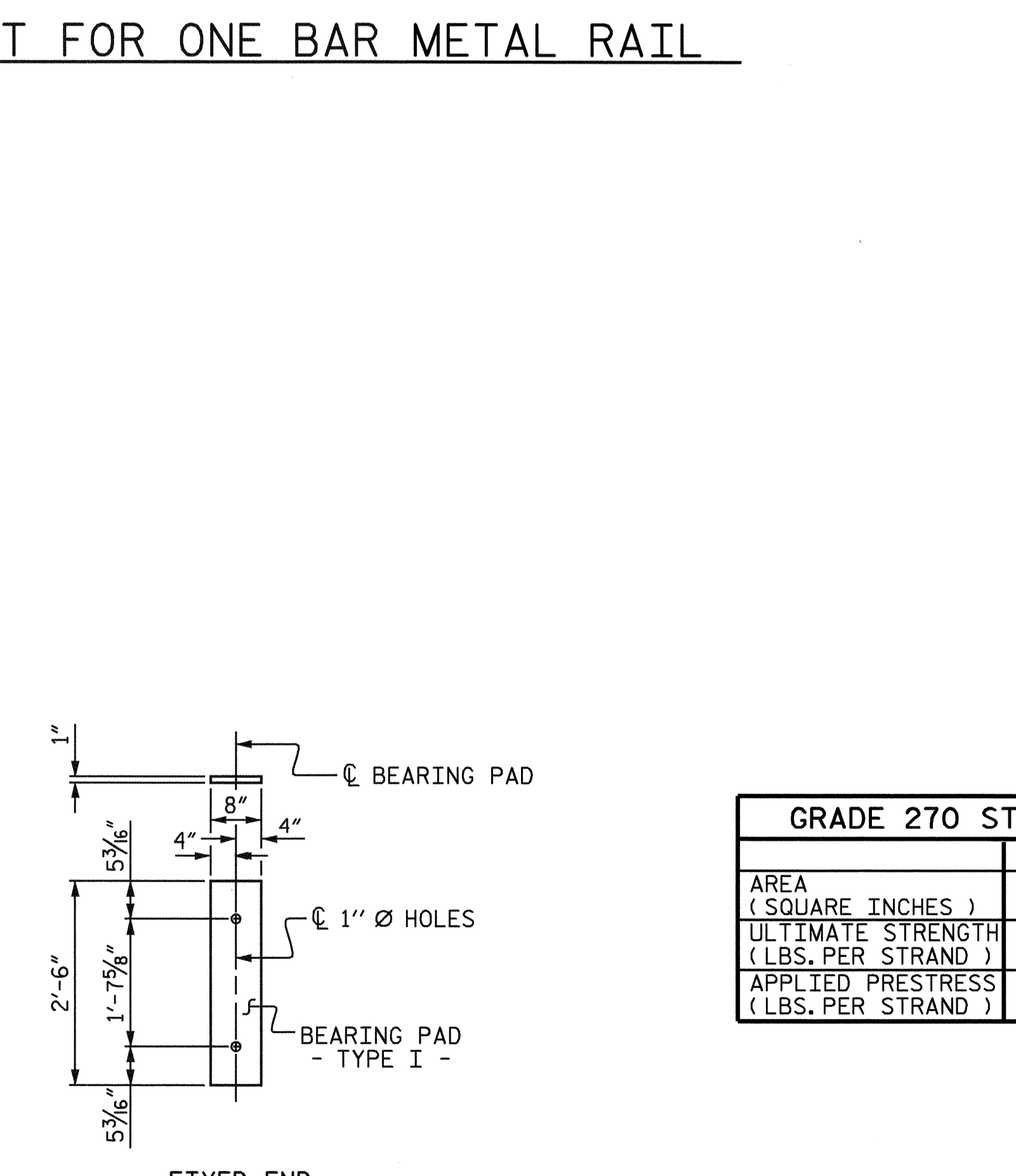
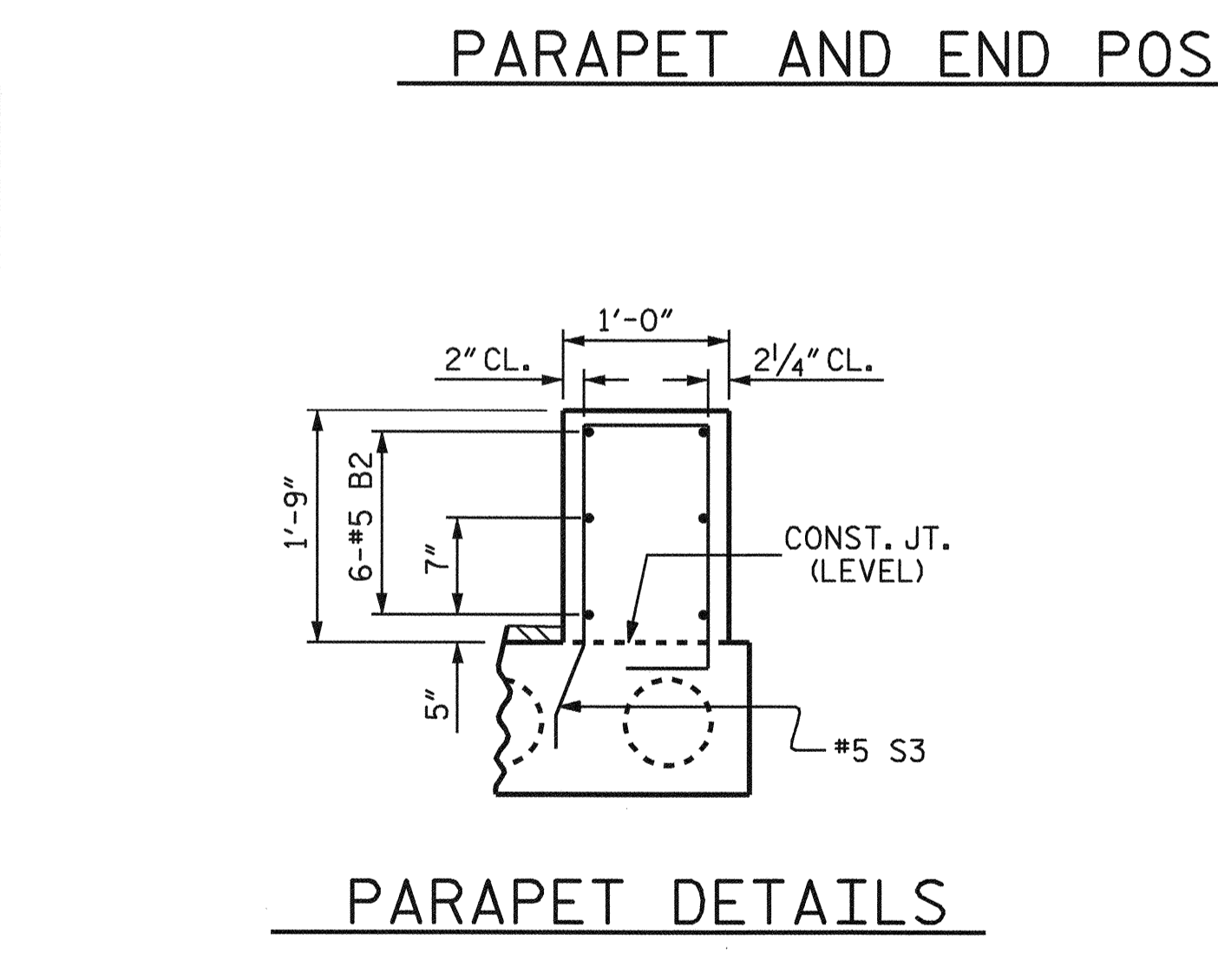
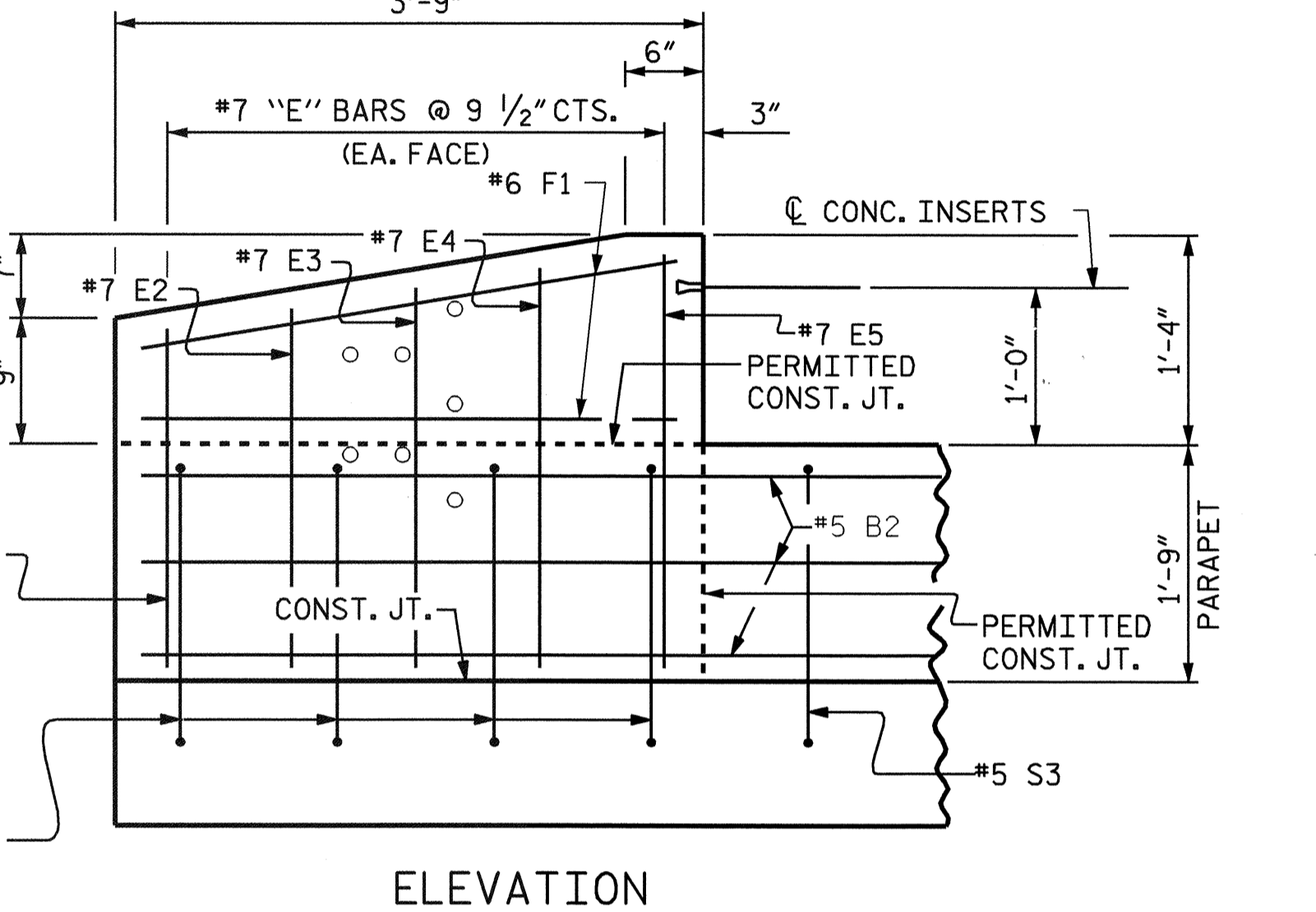
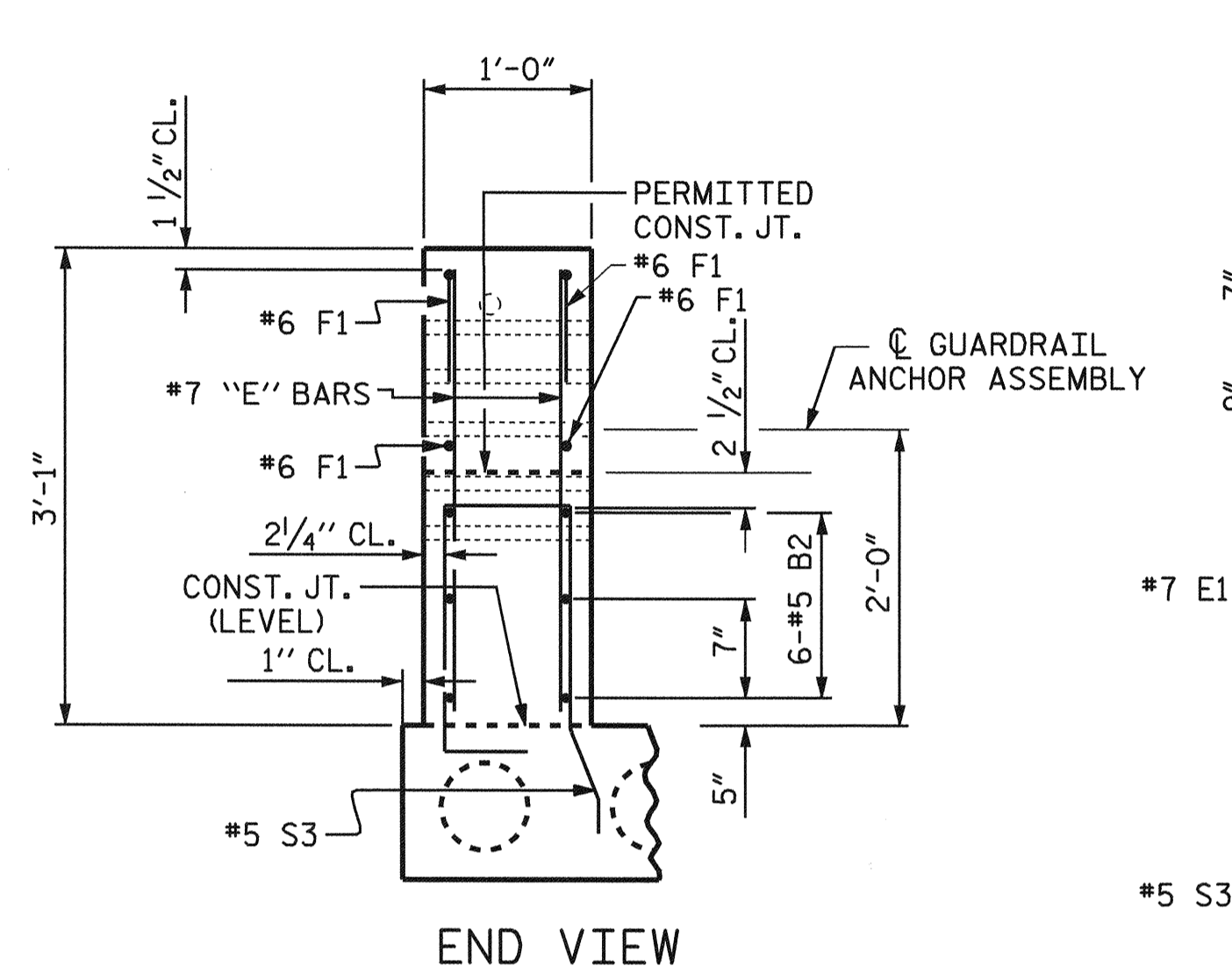
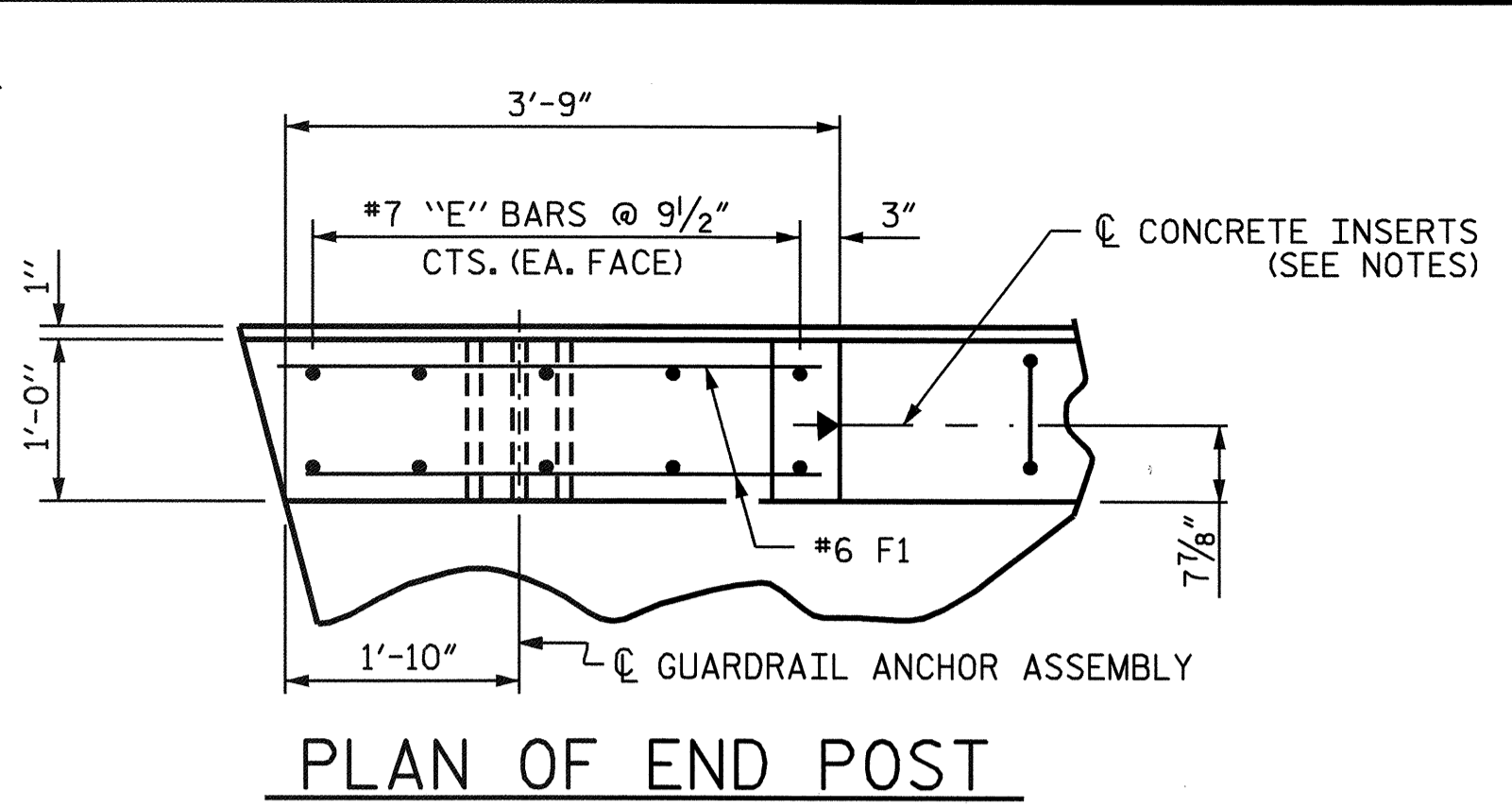
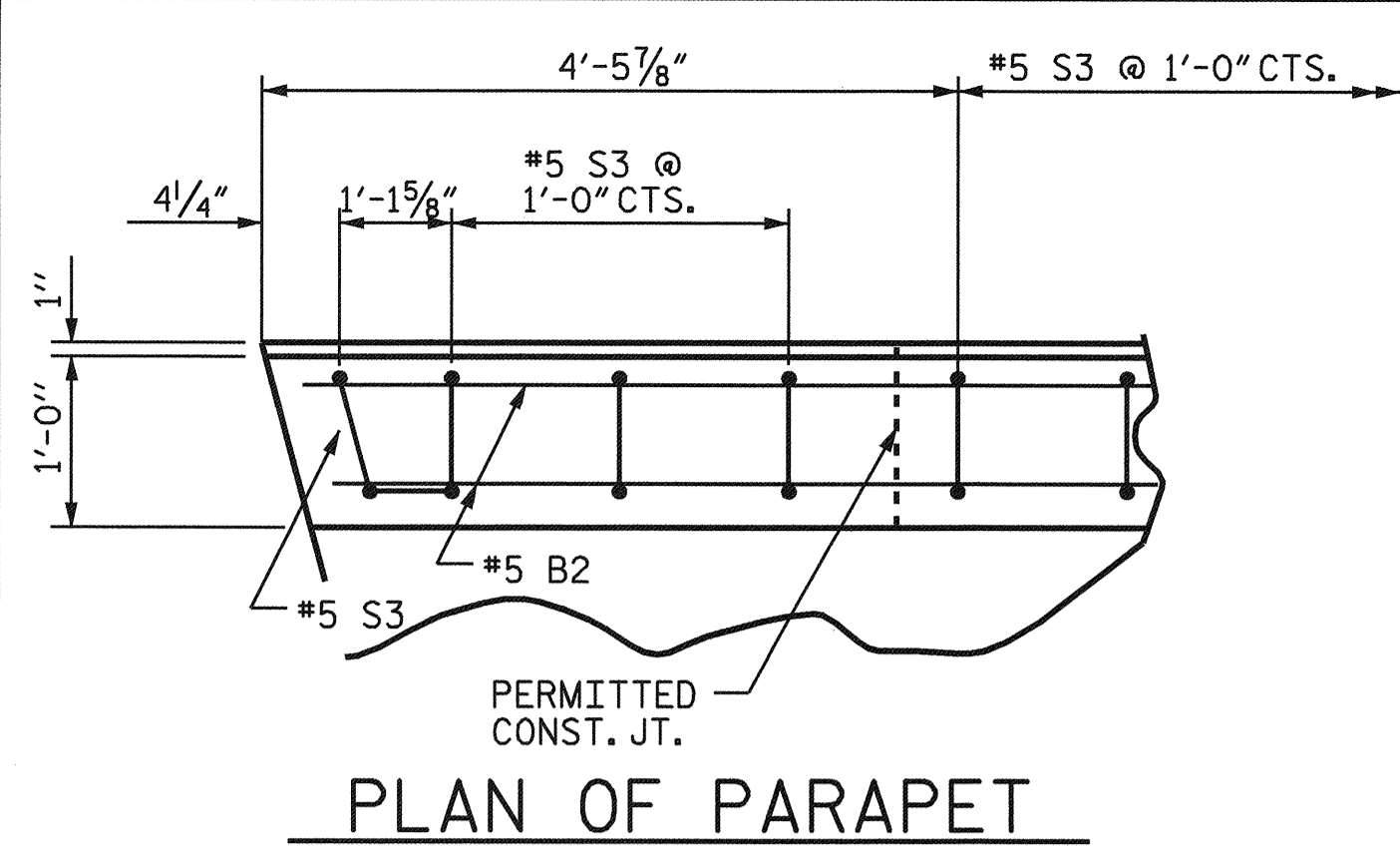
PLAN OF SPAN AND CORED SLAB UNIT DETAILS



| REVISIONS | | | | | | SHEET NO. |
|-----------|-----|-------|-----|-----|-------|--------------|
| NO. | BY: | DATE: | NO. | BY: | DATE: | S-5 |
| 1 | | | 3 | | | TOTAL SHEETS |
| 2 | | | 4 | | | 18 |

DRAWN BY: J.L. WALTON DATE: 11/05
 CHECKED BY: V.X. NGUYEN DATE: 2/06

16-OCT-2006 15:16
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 tcoland



BILL OF MATERIAL FOR ONE CORED SLAB UNIT

SPAN A

| BAR | NUMBER | SIZE | TYPE | INTERIOR UNIT | | EXTERIOR UNIT | |
|----------------------------|--------|------|------|---------------|--------|---------------|--------|
| | | | | LENGTH | WEIGHT | LENGTH | WEIGHT |
| B1 | 4 | #4 | STR | 19'-7" | 52 | 19'-7" | 52 |
| S1 | 8 | #4 | 1 | 3'-10" | 20 | 3'-10" | 20 |
| S2 | 68 | #4 | 1 | 4'-10" | 220 | 4'-10" | 220 |
| *S3 | 38 | #5 | 2 | | | 6'-1" | 241 |
| S4 | 4 | #4 | 1 | 4'-11" | 13 | 4'-11" | 13 |
| S5 | 4 | #4 | 1 | 4'-10" | 13 | 4'-10" | 13 |
| REINFORCING STEEL | | | | LB. | 318 | 318 | |
| *EPOXY COATED REINF. STEEL | | | | LB. | 0 | 241 | |
| 5,000 PSI CONCRETE | | | | CU. YDS. | 4.9 | 4.9 | |
| 1/2" Ø L.R. STRANDS | | | | No. | 16 | 16 | |

CORED SLABS REQUIRED

SPAN A

| UNIT TYPE | NUMBER | LENGTH | TOTAL LENGTH |
|--------------|--------|--------|--------------|
| INTERIOR | 8 | 37'-8" | 301'-4" |
| EXTERIOR | 2 | 37'-8" | 75'-4" |
| TOTAL NUMBER | 10 | 37'-8" | 376'-8" |

DEAD LOAD DEFLECTION AND CAMBER

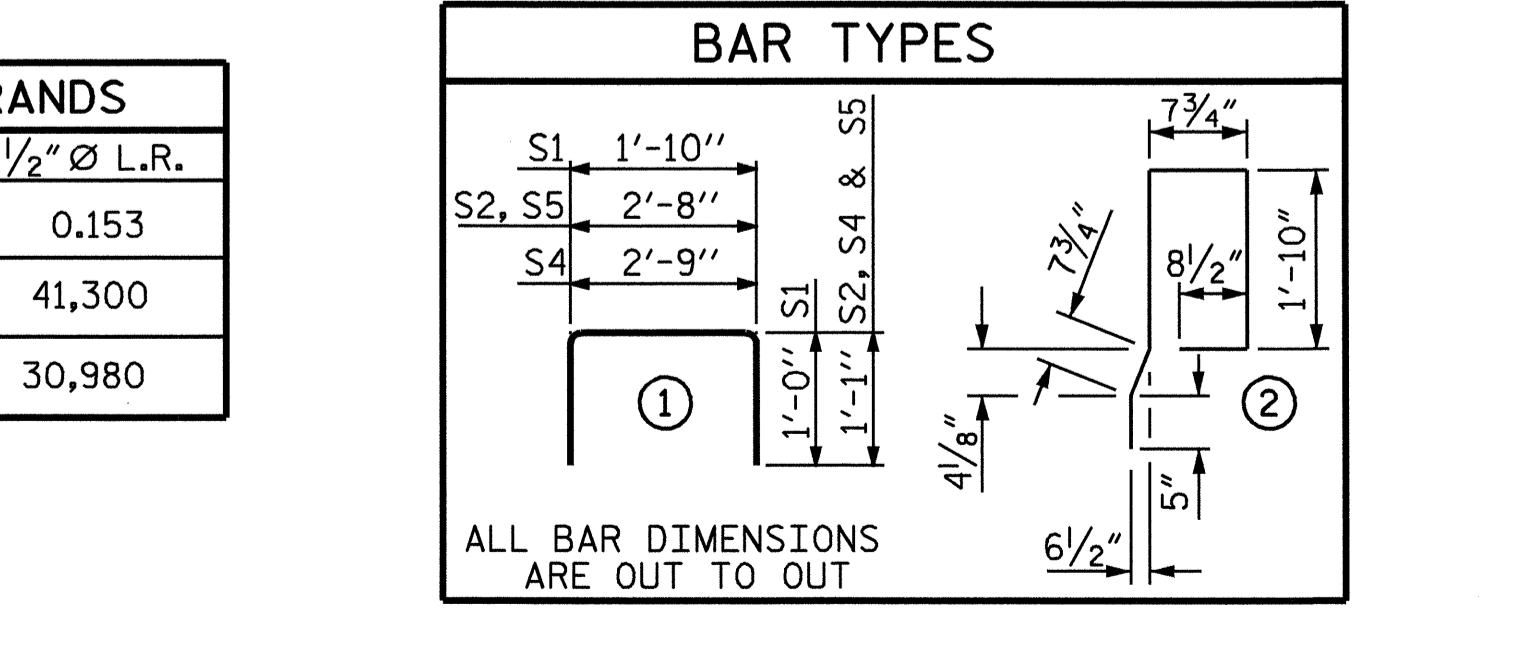
SPAN A (3'-0" X 1'-6") 1/2" Ø L.R. STRAND

| | |
|--|--------|
| CAMBER (SLAB ALONE IN PLACE) | ↑ 1/8" |
| DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD** | ↓ 1/8" |
| FINAL CAMBER | ↑ 1" |

** INCLUDES FUTURE WEARING SURFACE

BILL OF MATERIAL FOR CONCRETE PARAPET AND END POSTS

| BAR | NO. | SIZE | TYPE | LENGTH | WEIGHT |
|---------------------------|-----|------|------|--------|---------------|
| B2 | 12 | #5 | STR | 37'-4" | 467 |
| E1 | 8 | #7 | STR | 2'-2" | 35 |
| E2 | 8 | #7 | STR | 2'-4" | 38 |
| E3 | 8 | #7 | STR | 2'-5" | 40 |
| E4 | 8 | #7 | STR | 2'-7" | 42 |
| E5 | 8 | #7 | STR | 2'-9" | 45 |
| F1 | 16 | #6 | STR | 3'-5" | 82 |
| EPOXY COATED REINF. STEEL | | | | | LB. 749 |
| CLASS AA CONCRETE | | | | | CU. YDS. 5.5 |
| 1'-0" X 1'-9" | | | | | |
| CONCRETE PARAPET | | | | | LIN.FT. 75.34 |



ASSEMBLED BY : J.L. WALTON DATE : 11/05
 CHECKED BY : V.X. NGUYEN DATE : 2/06
 DRAWN BY : WJH 4/89 REV. 10/17/00 RWW/LES
 CHECKED BY : FCJ 5/89 REV. 7/10/01 RWW/LES
 REV. 5/7/03RR RWW/JTE

ELASTOMERIC BEARING DETAILS
 (TYPE I - 20 REQ'D)

GRADE 270 STRANDS

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

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 2" 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 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.

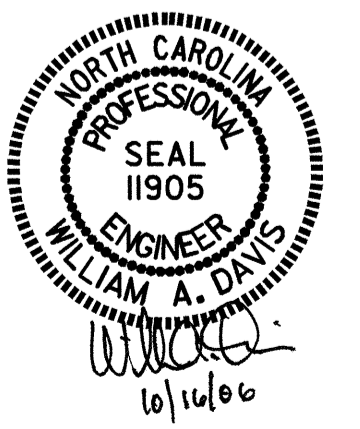
ALL REINFORCING STEEL IN PARAPET SHALL BE EPOXY COATED.

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 DETAILS OF CONCRETE INSERT AND GUARDRAIL ANCHOR ASSEMBLY, SEE "GUARDRAIL ANCHORAGE DETAILS FOR METAL RAILS."



PROJECT NO. B-3406
AVERY COUNTY
 STATION: 13+44.00 -L-

SHEET 3 OF 3

| REVISIONS | | | | | | SHEET NO. |
|-----------|-----|-------|-----|-----|-------|-----------------|
| NO. | BY: | DATE: | NO. | BY: | DATE: | S-6 |
| 1 | | | 3 | | | TOTAL SHEETS 18 |
| 2 | | | 4 | | | |

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 3'-0" X 1'-6"
 PRESTRESSED
 CONCRETE CORED
 SLAB UNIT

NOTES

AT THE CONTRACTOR'S OPTION, METAL RAIL MAY BE EITHER ALUMINUM OR GALVANIZED STEEL IN ACCORDANCE WITH THE REQUIREMENTS OF THE GENERAL NOTES AND THE FOLLOWING SPECIFICATIONS FOR THE ALTERNATE MATERIALS; HOWEVER THE CONTRACTOR WILL BE REQUIRED TO USE THE SAME RAIL MATERIAL ON ALL STRUCTURES ON THE PROJECT FOR WHICH METAL RAIL IS DESIGNATED.

ALUMINUM RAILS

MATERIAL FOR POSTS, BASES AND RAILS, EXPANSION BARS AND CLAMP BARS SHALL BE ASTM B221 ALLOY 6061-T6. MATERIAL FOR RIVETS SHALL BE ASTM B316 ALLOY 6061-T6. RIVETS SHALL BE STANDARD BUTTON HEAD AND CONE POINT COLD DRIVEN AS PER DRAWING.

THE BASE OF RAIL POSTS, OR ANY OTHER ALUMINUM SURFACE IN CONTACT WITH CONCRETE SHALL BE THOROUGHLY COATED WITH AN ALUMINUM IMPREGNATED CAULKING COMPOUND OF APPROVED QUALITY.

MATERIAL FOR SHIMS TO BE ASTM B209 ALLOY 6061-T6.

GALVANIZED STEEL RAILS

MATERIALS AND GALVANIZING ARE TO CONFORM TO THE FOLLOWING SPECIFICATIONS: POST, POST BASES, RAILS, EXPANSION BARS AND CLAMP BARS: AASHTO M270 GRADE 36 STRUCTURAL STEEL - GALVANIZED TO AASHTO M111.

RIVETS: RIVETS SHALL MEET THE REQUIREMENTS OF ASTM A502 FOR GRADE 1 RIVETS. THE CUT ENDS OF GALVANIZED STEEL RAILING, AFTER GRINDING SMOOTH SHALL BE GIVEN TWO COATS OF ZINC RICH PAINT MEETING THE REQUIREMENTS OF FEDERAL SPECIFICATION MIL-P-26915 USAF TYPE 1, OR OF FEDERAL SPECIFICATIONS TT-P-641.

SHIMS: SHIMS SHALL MEET THE REQUIREMENTS OF ASTM A570 FOR GRADE 33 OR A611 FOR GRADE C AND SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M111.

CLOSURE PLATES: CLOSURE PLATES SHALL MEET THE REQUIREMENTS OF ASTM A570 FOR GRADE 33 OR A611 FOR GRADE C AND SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M111.

GENERAL NOTES

RAILING SHALL BE CONTINUOUS FROM END POST TO END POST OF BRIDGE. EACH JOINT IN RAIL LENGTH SHALL BE SPLICED AS DETAILED. PANEL LENGTHS OF RAIL SHALL BE ATTACHED TO A MINIMUM OF THREE POSTS.

FOR END OF RAIL TO CLEAR FACE OF CONCRETE END POST DIMENSION, SEE STANDARD NO. BMR2.

MATERIAL FOR ANCHOR STUDS SHALL BE ASTM F593 ALLOY 304 STAINLESS STEEL WITH MINIMUM 75,000 PSI ULTIMATE STRENGTH. STUDS TO BE EMBEDDED 7" IN CONCRETE. NUTS SHALL BE AMERICAN STANDARD FINISHED HEXAGON THICK, CLASS 2B THREAD, AND MEET THE REQUIREMENTS OF ASTM F594 ALLOY 304 STAINLESS STEEL. WASHERS SHALL MEET THE REQUIREMENTS OF ASTM F844 EXCEPT THEY SHALL BE MADE FROM ALLOY 304 STAINLESS STEEL. ANCHOR P SHALL BE AASHTO M270 GRADE 36.

CAP SCREWS SHALL BE ASTM F593 ALLOY 305 STAINLESS STEEL.

CERTIFIED MILL REPORTS ARE REQUIRED FOR RAILS AND POSTS. SHOP INSPECTION IS NOT REQUIRED.

METAL RAIL POSTS SHALL BE SET NORMAL TO CURB GRADE.

METHOD OF MEASUREMENT FOR METAL RAILS: FOR LENGTH OF METAL RAILS TO BE PAID FOR, SEE THE STANDARD SPECIFICATIONS.

CURVED RAIL USAGE: WHERE RAILS ARE TO BE USED ON BRIDGES ON HORIZONTAL AND/OR VERTICAL CURVATURE THE CONTRACTOR MAY, AT HIS OPTION, HAVE THE REQUIRED CURVATURE IN THE RAIL FORMED IN THE SHOP OR IN THE FIELD. IN EITHER EVENT, THE RAIL SHALL CONFORM WITHOUT BUCKLING OR KINKING TO THE REQUIRED CURVATURE IN A UNIFORM MANNER ACCEPTABLE TO THE ENGINEER.

TO INSURE FUTURE IDENTIFICATION OF THE FABRICATOR, A PERMANENT IDENTIFYING MARK SHALL BE PLACED ON EACH POST. THE METHOD OF MARKING AND LOCATION SHALL BE SUCH THAT IT DOES NOT DETRACT FROM THE APPEARANCE OF THE POST.

SHIMS SHALL BE USED AS NECESSARY FOR POST ALIGNMENT.

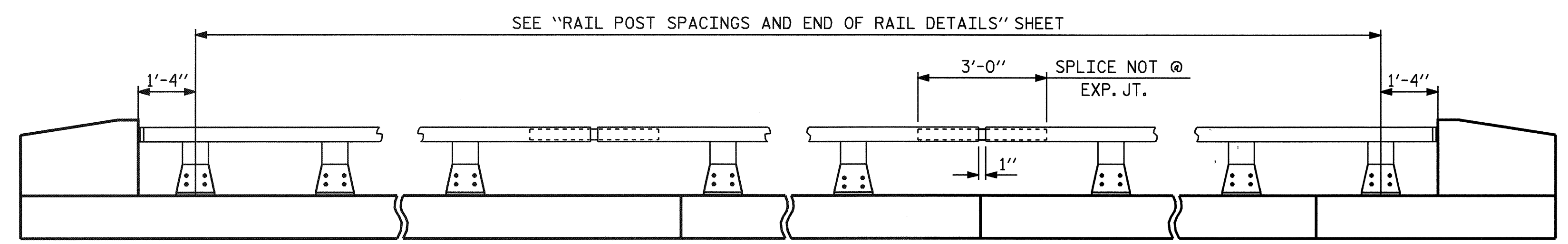
ALLOY 6351-T5 MAY BE SUBSTITUTED FOR ALLOY 6061-T6 WHERE APPLICABLE.

MINOR VARIATIONS IN DETAILS OF METAL RAIL WILL BE CONSIDERED. DETAILS OF SUCH VARIATIONS, IF DESIRED, SHALL BE SUBMITTED FOR APPROVAL.

THE CONTRACTOR, AT HIS OPTION, MAY USE ADHESIVELY ANCHORED ANCHOR BOLTS IN LIEU OF THE ANCHOR ASSEMBLY. THE YIELD LOAD OF THE 3/4" Ø BOLT IS 10 KIPS. FIELD TESTING OF THE ADHESIVE BONDING SYSTEM IS REQUIRED.

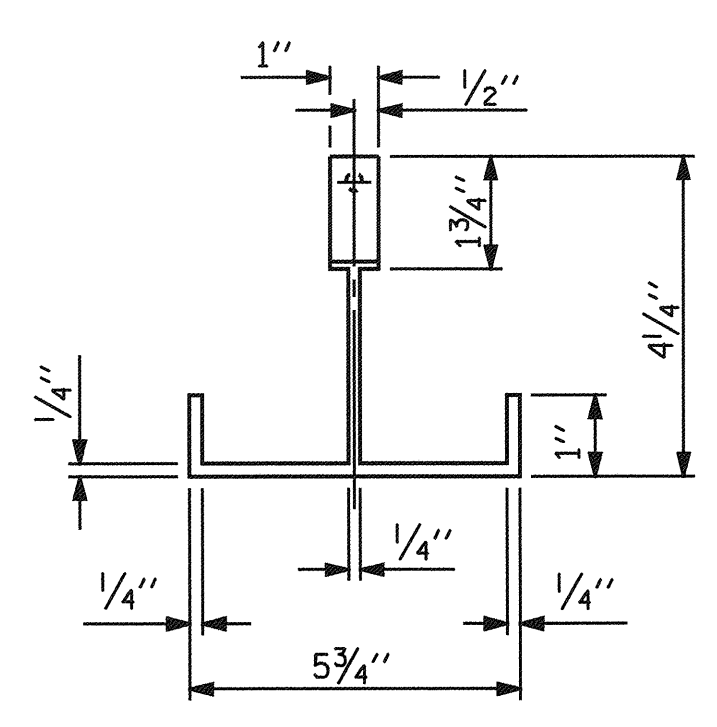
WHEN ADHESIVELY ANCHORED ANCHOR BOLTS ARE USED, BOLTS, NUTS AND WASHERS SHALL MEET THE SAME REQUIREMENTS AS THE ANCHOR STUDS, NUTS AND WASHERS FOR USE WITH THE ANCHOR ASSEMBLY.

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 8FT. TO 10FT. BETWEEN EXPANSION JOINTS. NO CONTRACTION JOINTS WILL BE REQUIRED FOR SEGMENTS LESS THAN 10 FEET IN LENGTH.

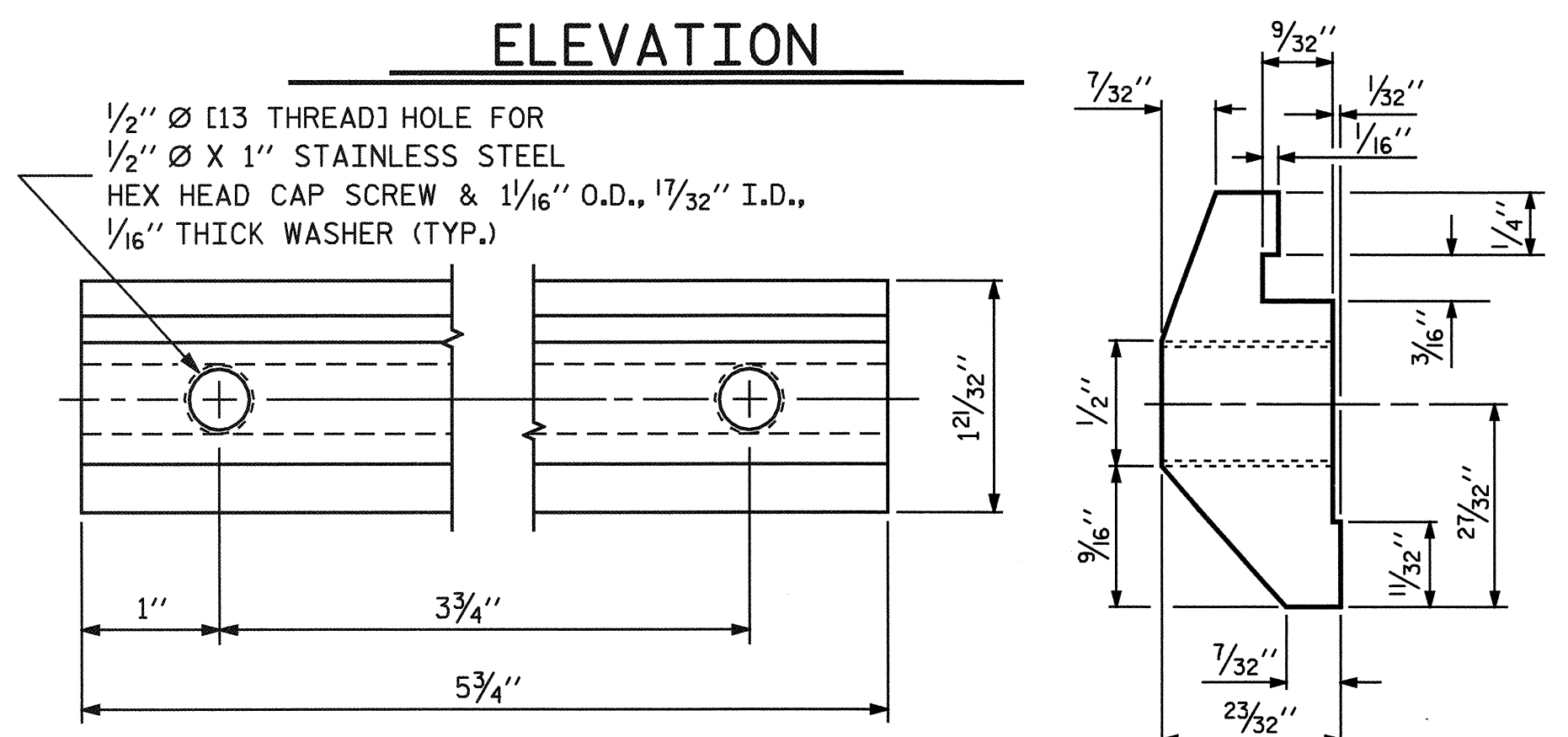


ELEVATION

NOTE:
FOR ATTACHMENT OF METAL RAIL TO END POST, SEE SHEET 2 OF 2

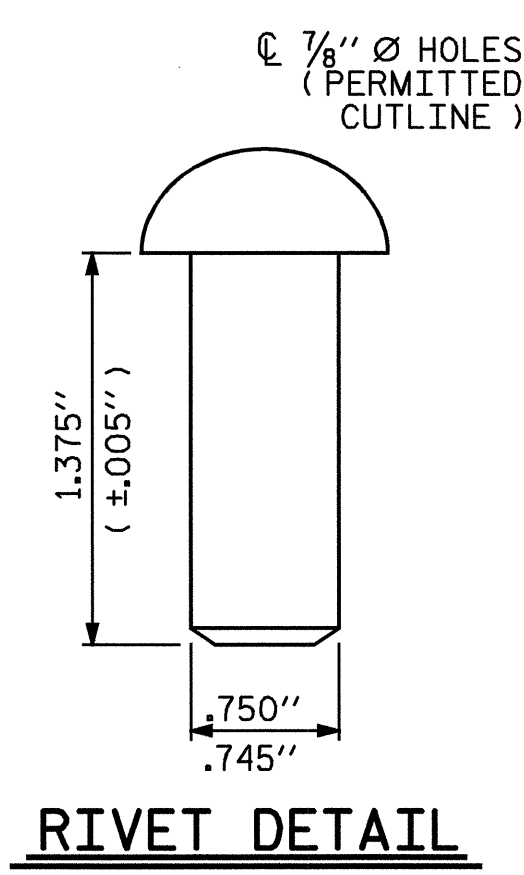


PLAN

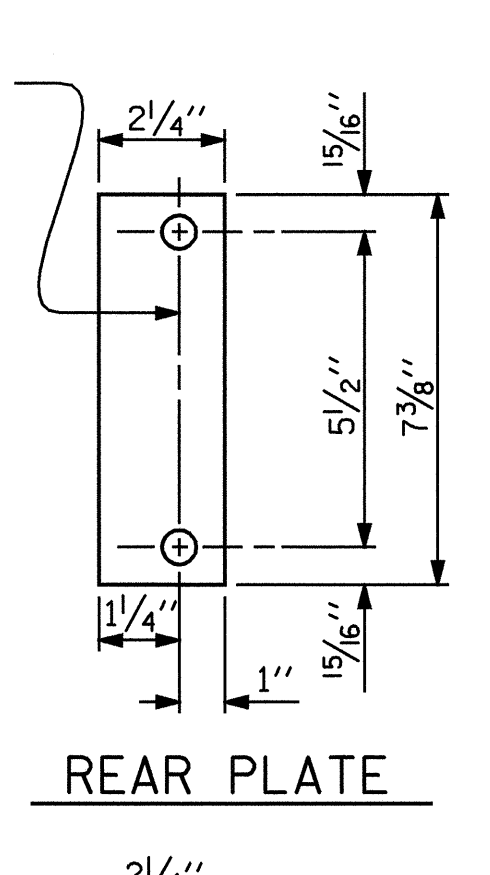


CLAMP BAR DETAIL

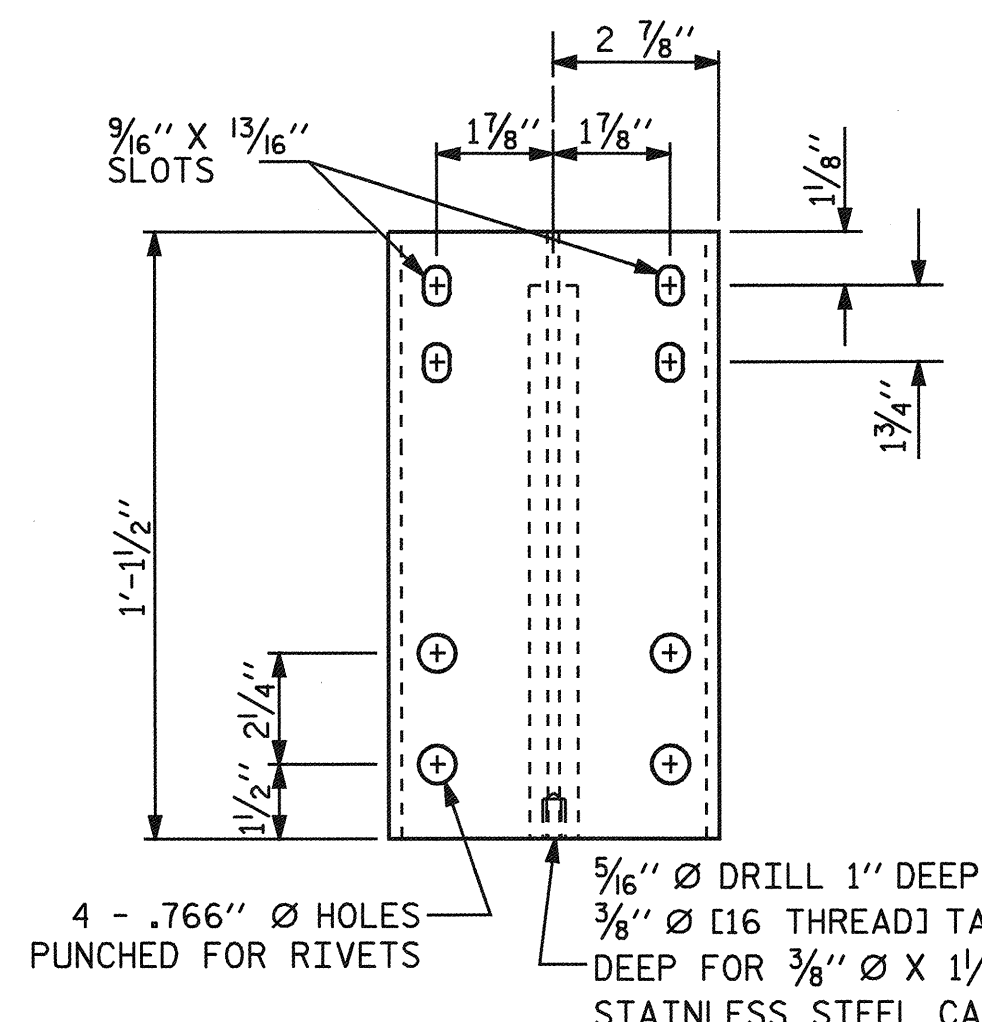
(2 REQUIRED PER POST)



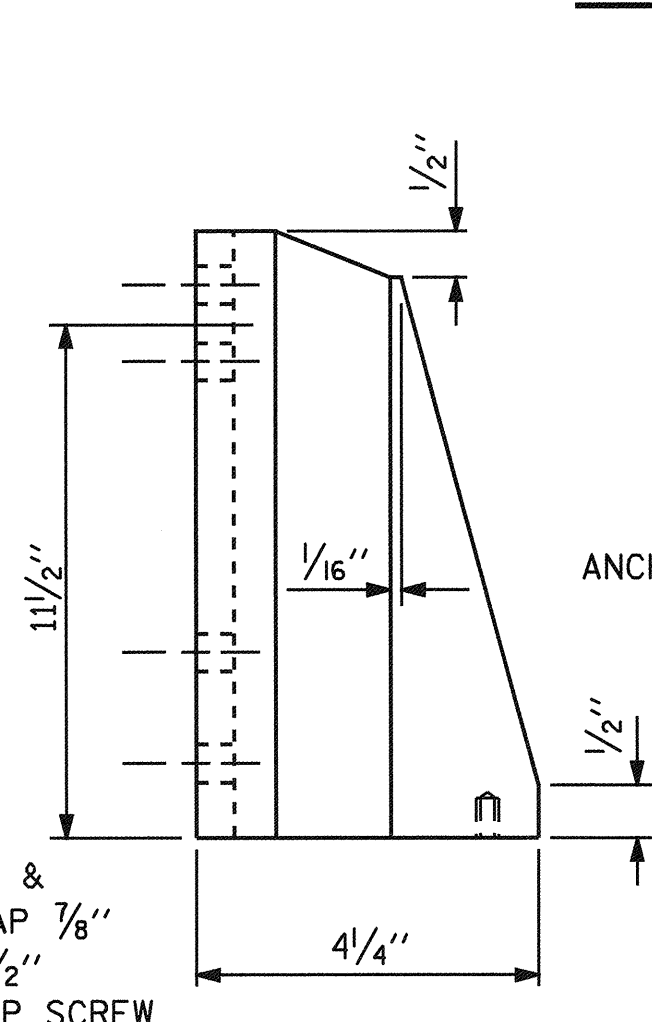
RIVET DETAIL



REAR PLATE

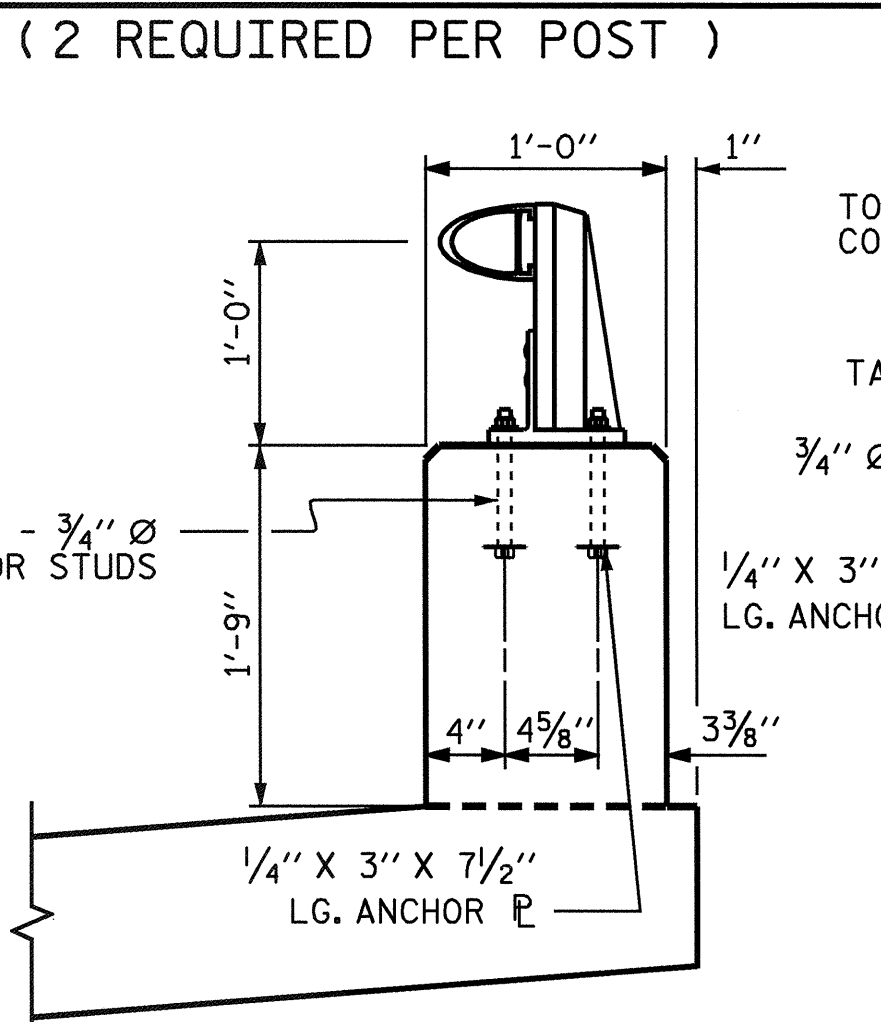


FRONT ELEVATION

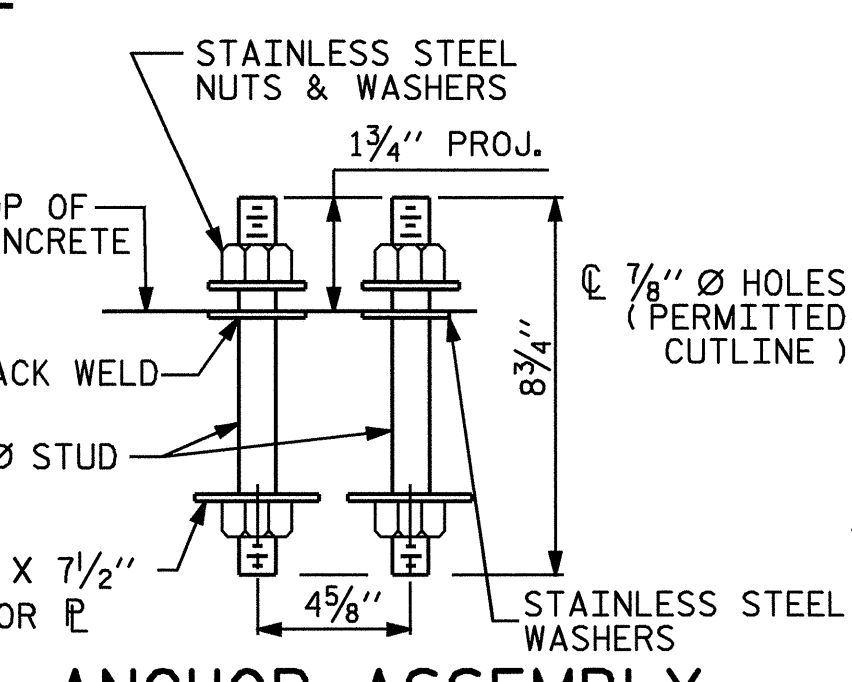


SIDE ELEVATION

DETAILS OF POST



SECTION THRU PARAPET AND RAIL

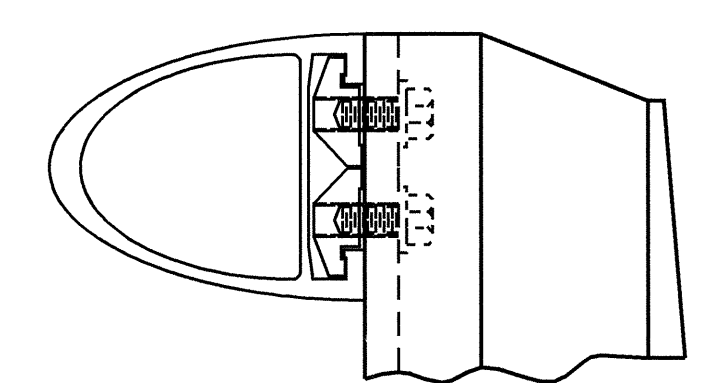


ANCHOR ASSEMBLY

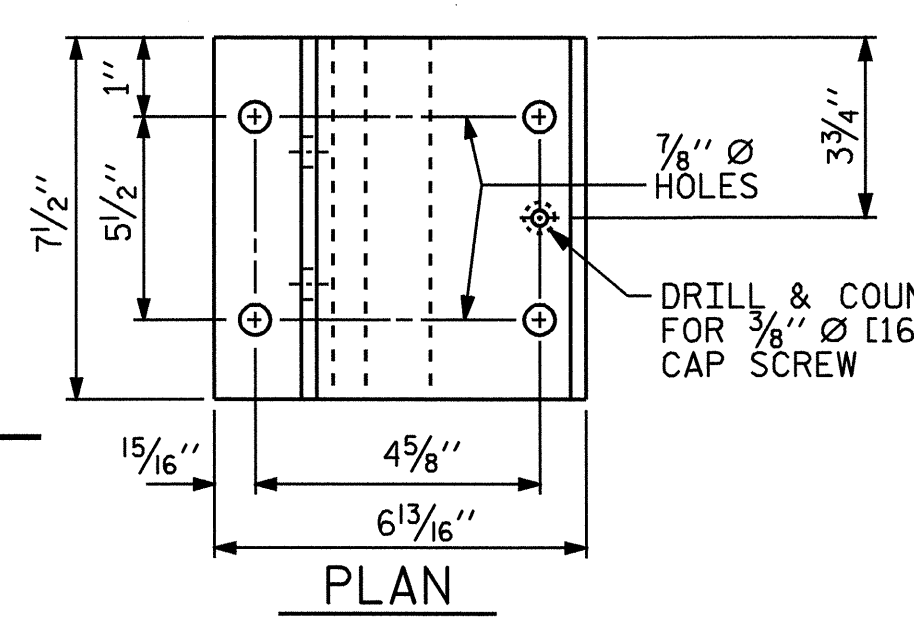
FRONT PLATE

SHIM DETAILS

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

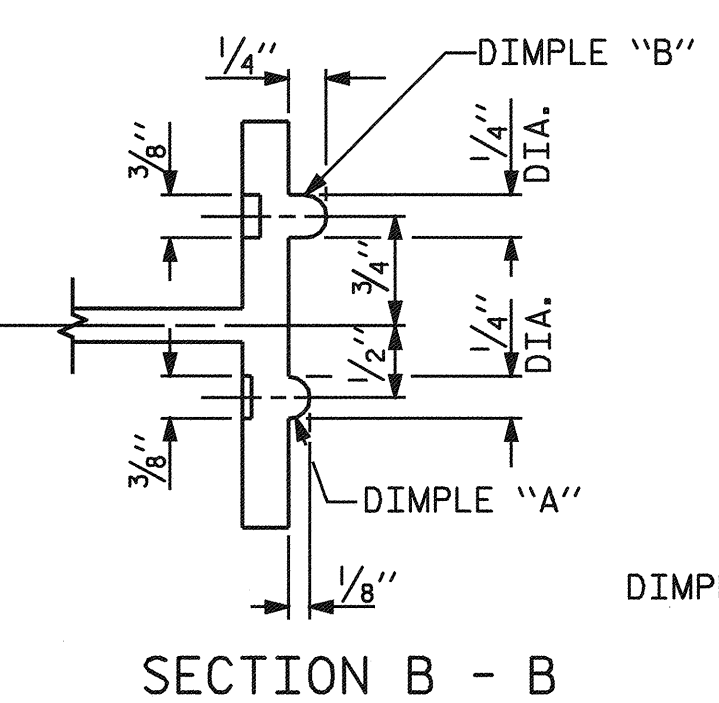


CLAMP & RAIL ASSEMBLY

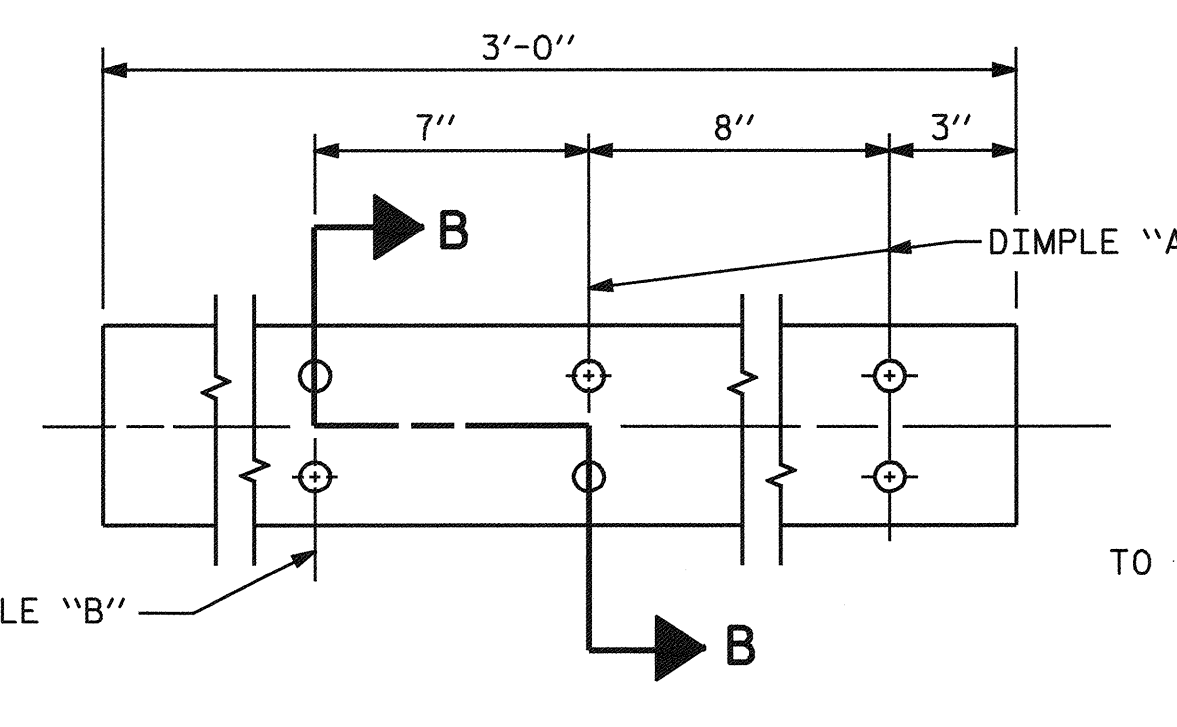


PLAN

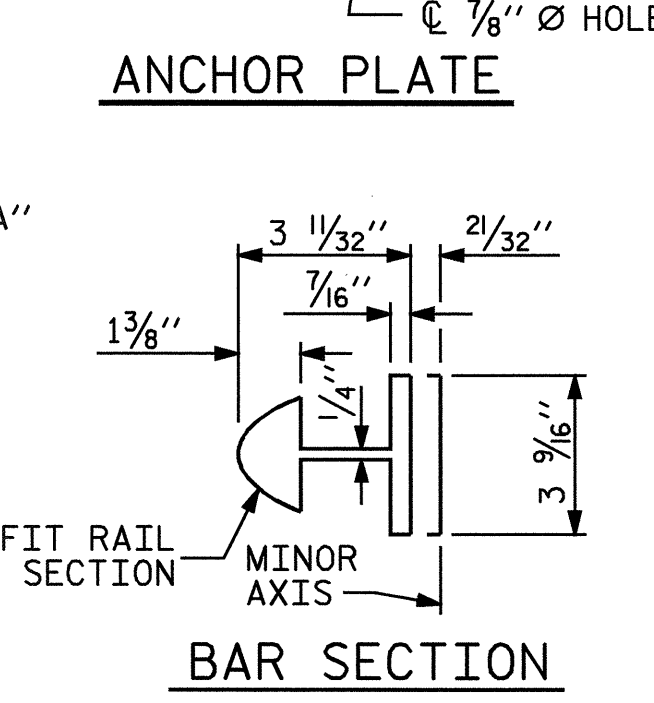
PAY LENGTH = 59.75 LIN. FT.



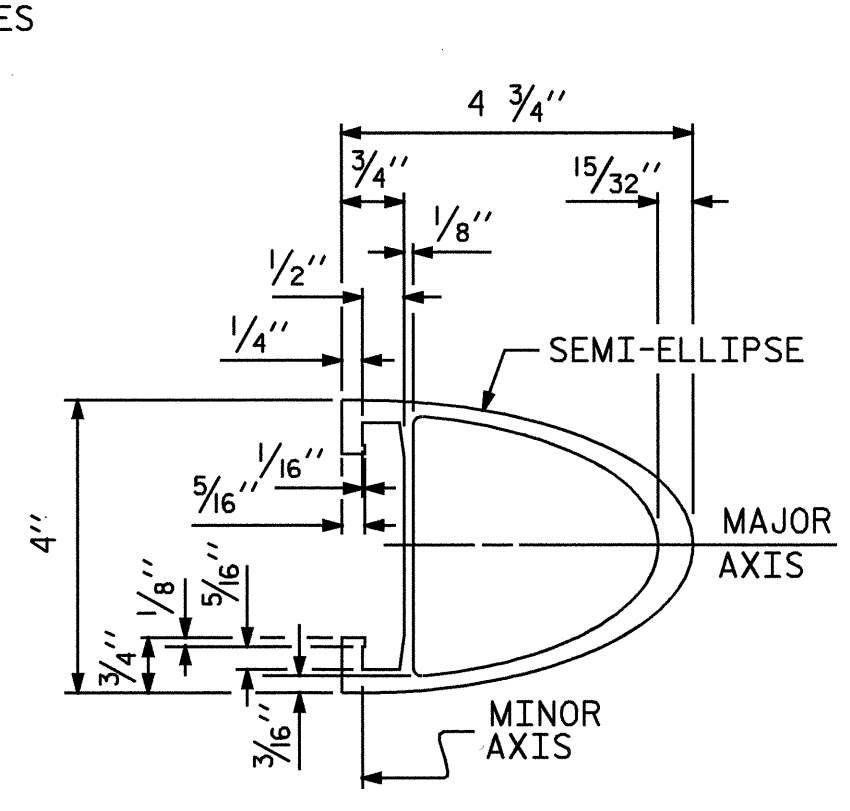
SECTION B - B



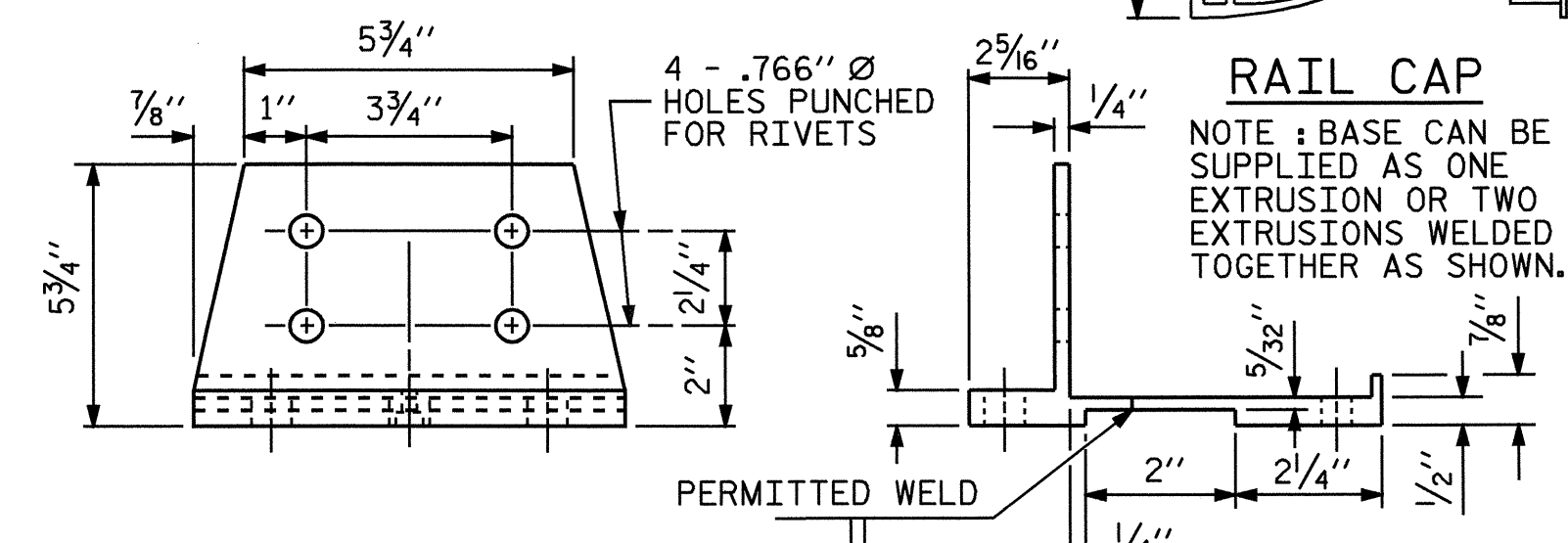
EXPANSION BAR DETAILS



BAR SECTION



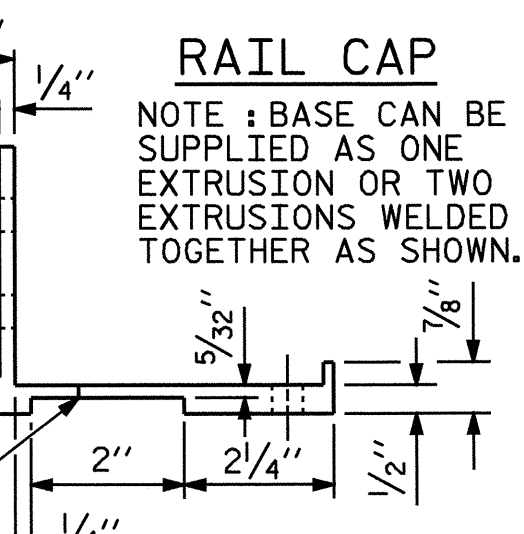
RAIL SECTION



FRONT ELEVATION

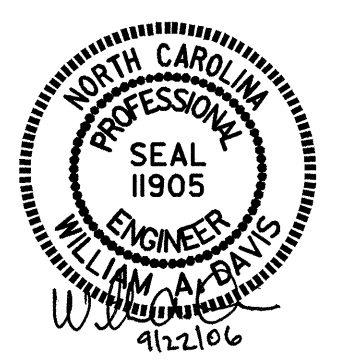
SIDE ELEVATION

POST BASE DETAILS



RAIL CAP

NOTE: BASE CAN BE SUPPLIED AS ONE EXTRUSION OR TWO EXTRUSIONS WELDED TOGETHER AS SHOWN.



PROJECT NO. **B-3406**
AVERY COUNTY
 STATION: **13+44.00 -L-**

SHEET 1 OF 2

| | | | | | |
|--|-----|-------|-----|-----|--------------------|
| STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH | | | | | |
| STANDARD 1 BAR METAL RAIL | | | | | |
| REVISIONS | | | | | |
| NO. | BY: | DATE: | NO. | BY: | DATE: |
| 1 | | | 3 | | |
| 2 | | | 4 | | |
| | | | | | SHEET NO. S-7 |
| | | | | | TOTAL SHEETS 18 |

STD. NO. BMR1

| | | | |
|----------------|-------------|---------------|---------|
| ASSEMBLED BY : | J.L. WALTON | DATE : | 11/05 |
| CHECKED BY : | V.X. NGUYEN | DATE : | 2/06 |
| DRAWN BY : | FCJ 1/88 | REV. 8/16/99 | RWW/LES |
| CHECKED BY : | CRK 3/89 | REV. 10/17/00 | LES/RDR |
| | | REV. 5/7/03R | RWW/JTE |

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 3/16" 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:

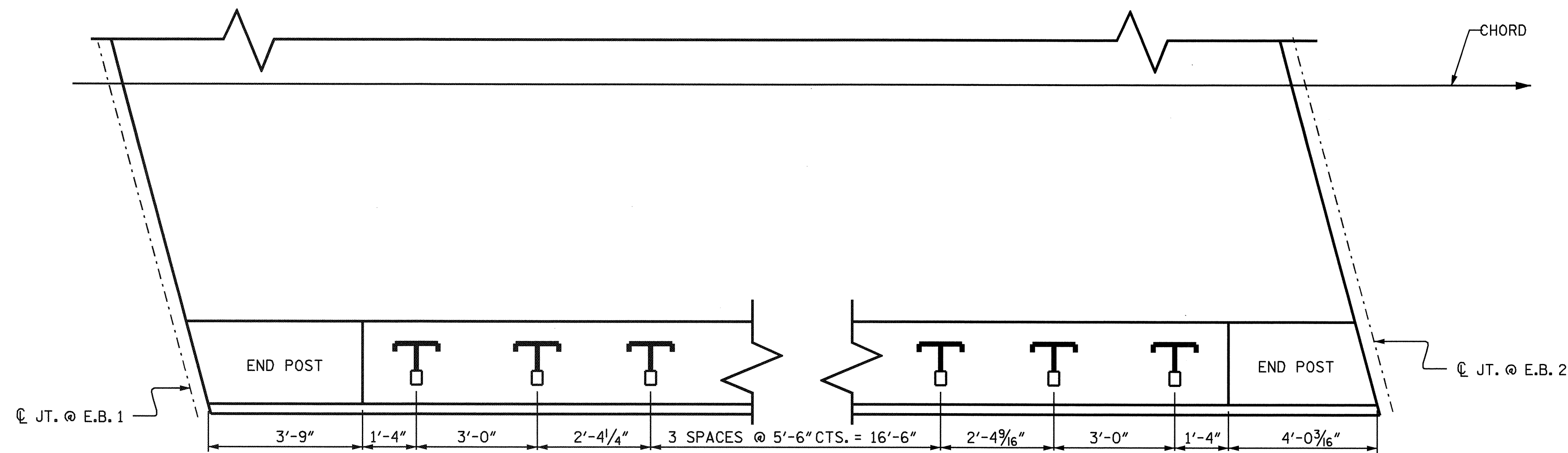
- A. 1/2" PLATES SHALL CONFORM TO AASHTO M270 GRADE 36 AND SHALL BE GALVANIZED AFTER FABRICATION.
- B. 3/4" STRUCTURAL CONCRETE INSERT SHALL HAVE A WORKING LOAD SHEAR CAPACITY OF 4800 LBS. THE FERRULES SHALL ENGAGE A 3/4" Ø X 1 5/8" BOLT WITH 2" O.D. WASHER IN PLACE. THE 3/4" Ø X 1 5/8" BOLT SHALL HAVE 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.

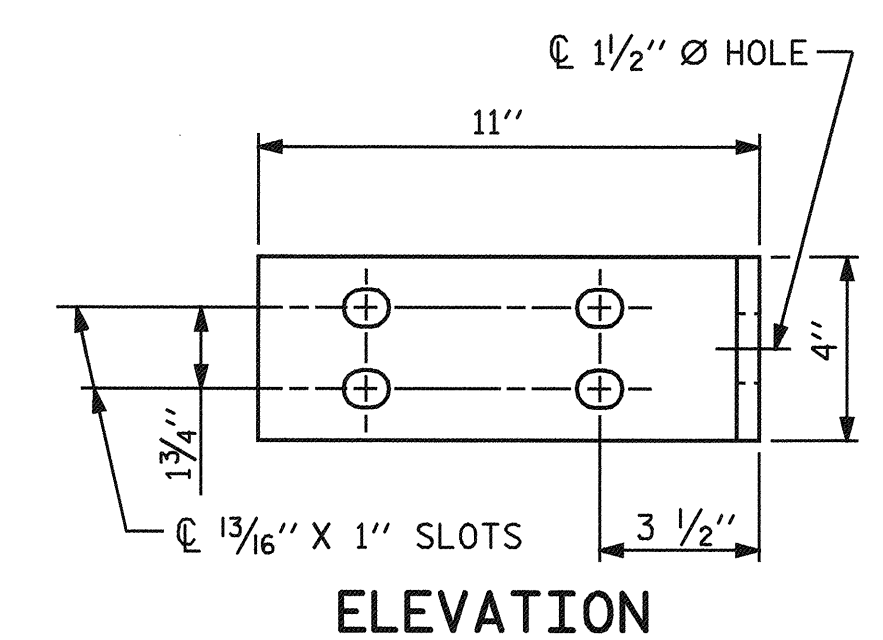
THE 3/4" STRUCTURAL CONCRETE INSERT WITH BOLT SHALL BE ASSEMBLED IN THE SHOP.

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.

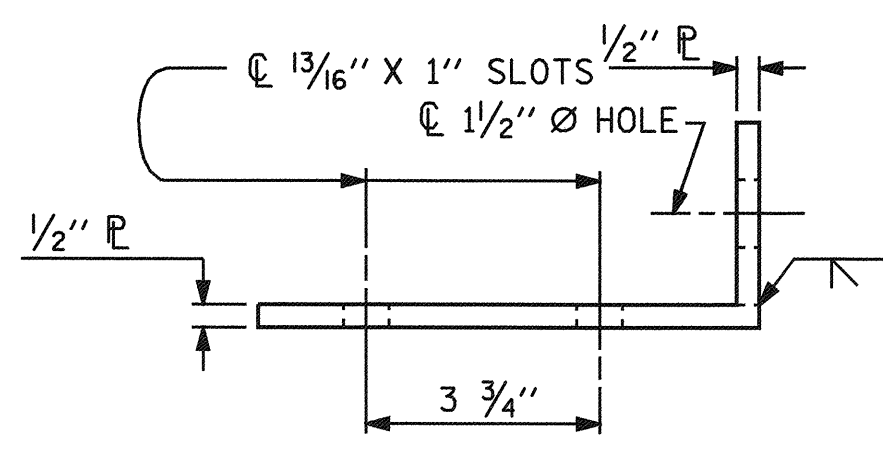
THE CONTRACTOR, AT HIS OPTION, MAY USE AN ADHESIVE BONDING SYSTEM IN LIEU OF THE STRUCTURAL CONCRETE INSERT EMBEDDED IN THE END POST. IF THE ADHESIVE BONDING SYSTEM IS USED, THE 3/4" Ø X 1 5/8" BOLT WITH WASHER SHALL BE REPLACED WITH A 3/4" Ø X 6 1/2" BOLT AND 2" O.D. WASHER. ALL SPECIFICATIONS THAT 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.



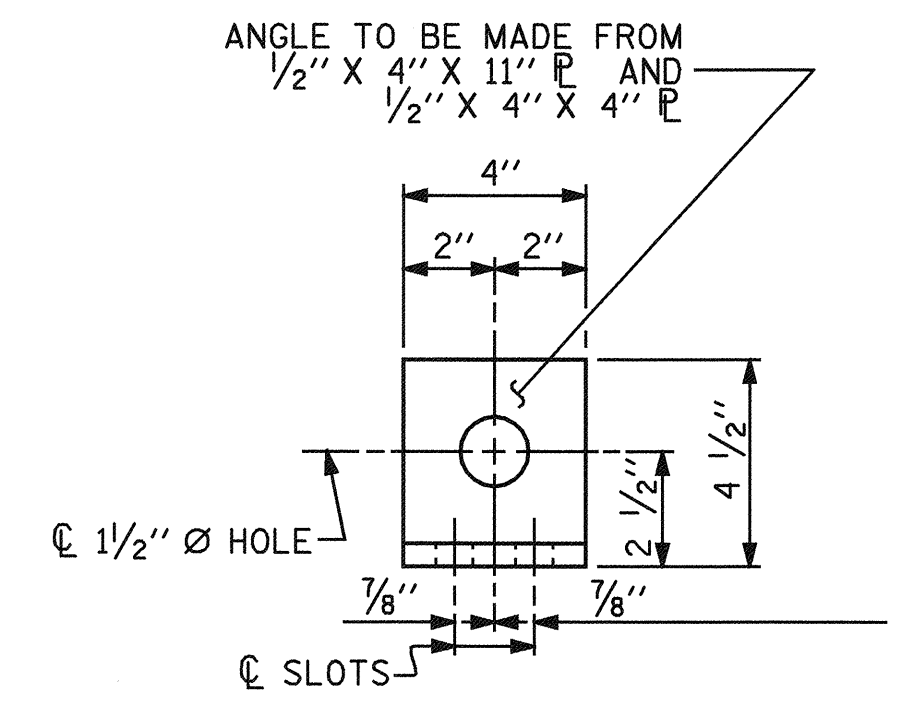
PLAN OF RAIL POST SPACING
(SYMMETRICAL ABOUT CHORD)



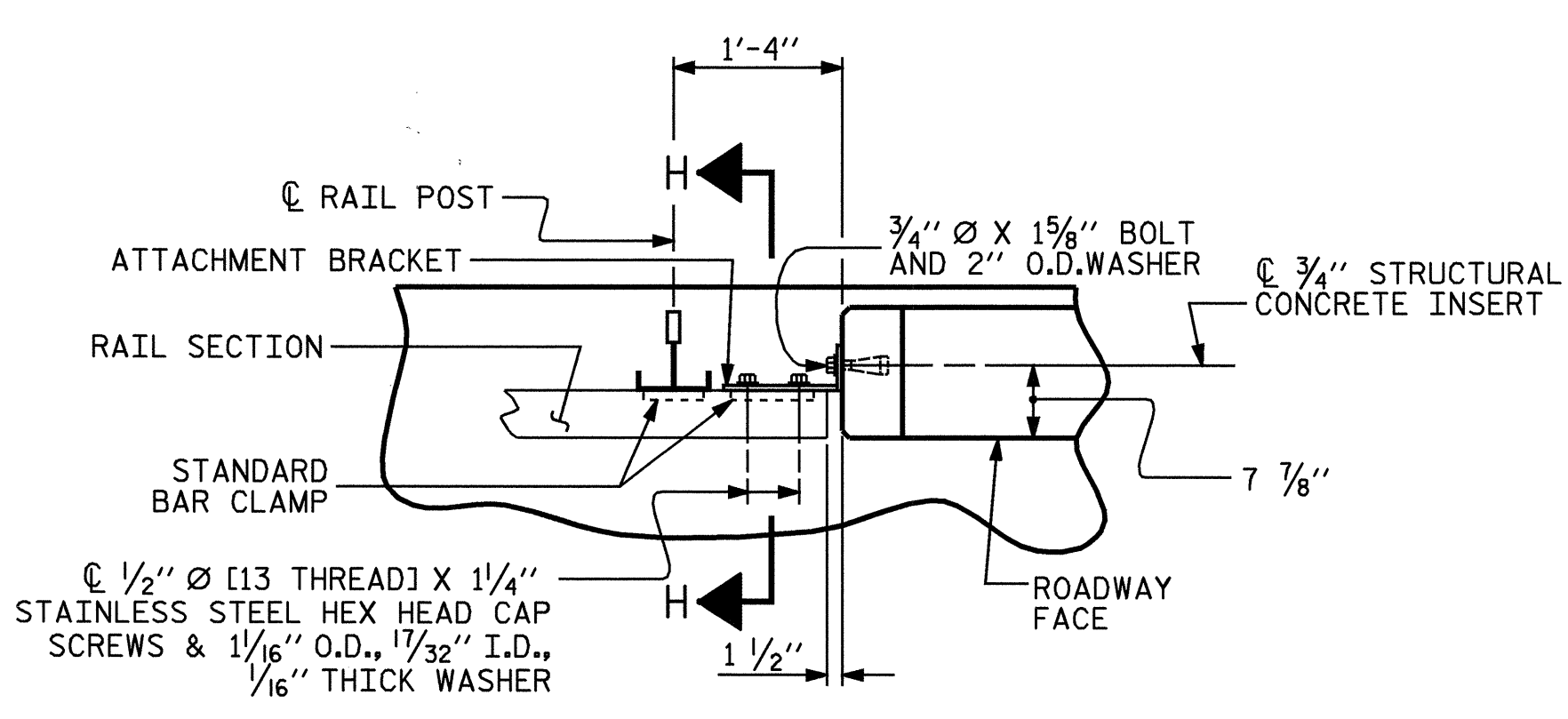
ELEVATION



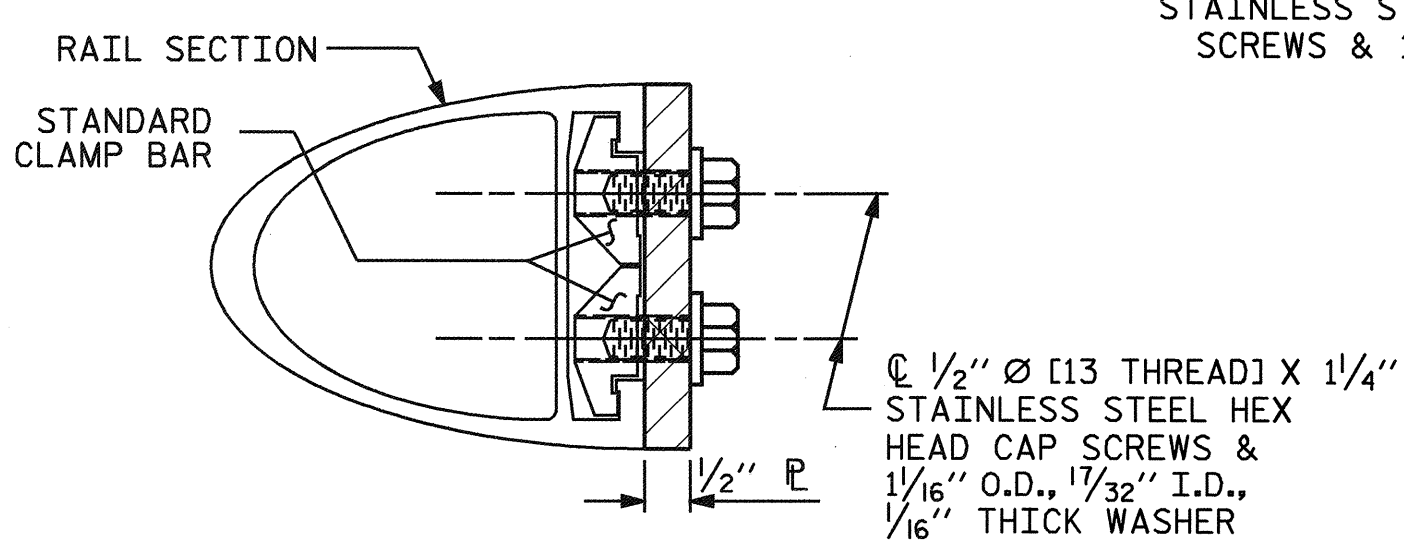
TOP VIEW



END VIEW (FIX AND EXP.)



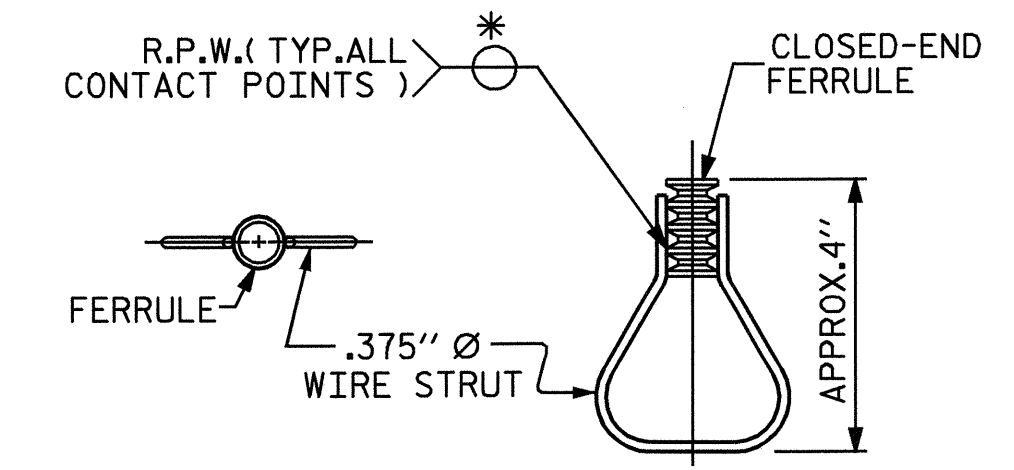
PLAN - RAIL AND END POST



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-3406
AVERY COUNTY
STATION: 13+44.00 -L-

SHEET 2 OF 2

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



| | |
|----------------------------|-----------------------|
| ASSEMBLED BY : J.L. WALTON | DATE : 11/05 |
| CHECKED BY : V.X. NGUYEN | DATE : 2/06 |
| DRAWN BY : FCJ 1/88 | REV. 8/16/99 RWW/LES |
| CHECKED BY : CRK 3/89 | REV. 10/17/00 LES/RDR |
| | REV. 5/7/03 RWW/JTE |

| REVISIONS | | | | | | SHEET NO. |
|-----------|-----|-------|-----|-----|-------|--------------|
| NO. | BY: | DATE: | NO. | BY: | DATE: | S-8 |
| 1 | | | 3 | | | TOTAL SHEETS |
| 2 | | | 4 | | | 18 |

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.

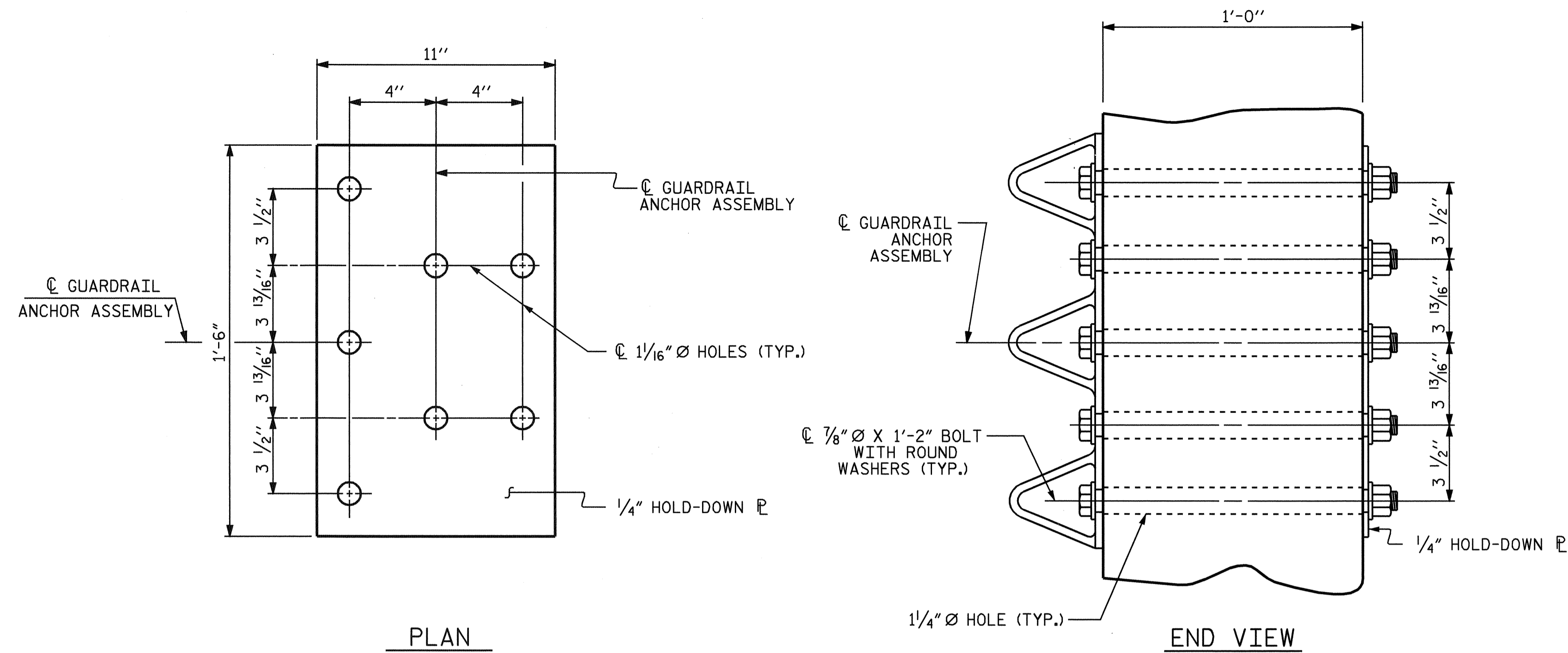
BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M291. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 7/8" Ø GALVANIZED BOLTS, NUTS AND WASHERS.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

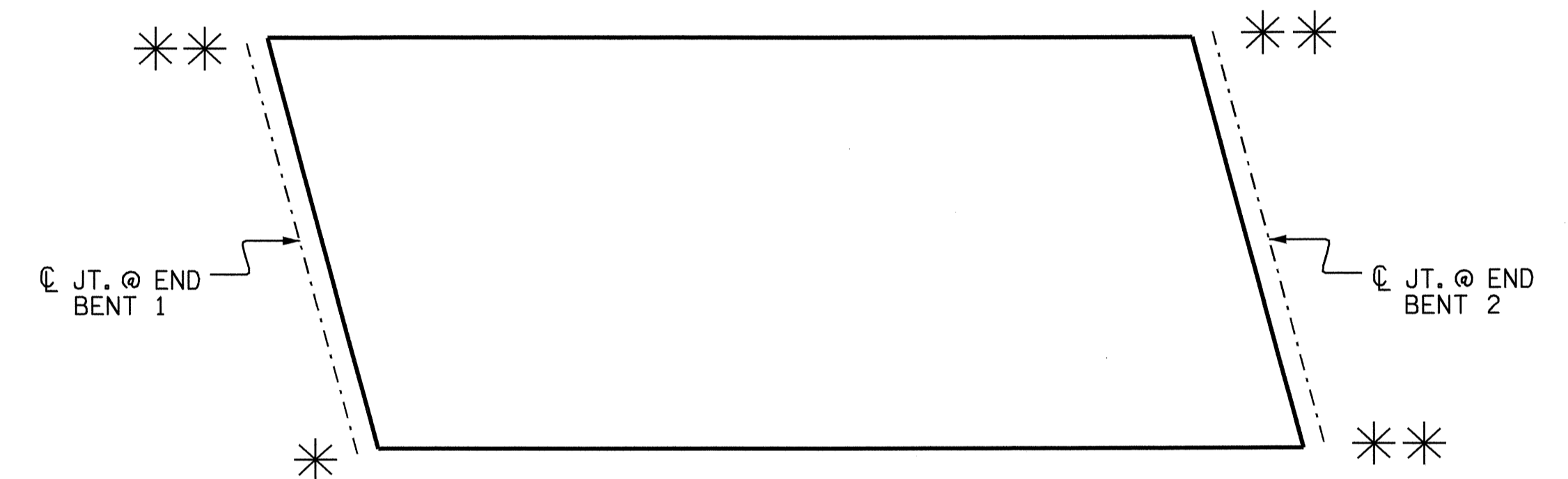
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLIES WITH BOLTS, NUTS AND WASHERS COMPLETE IN PLACE, SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.

THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE 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.

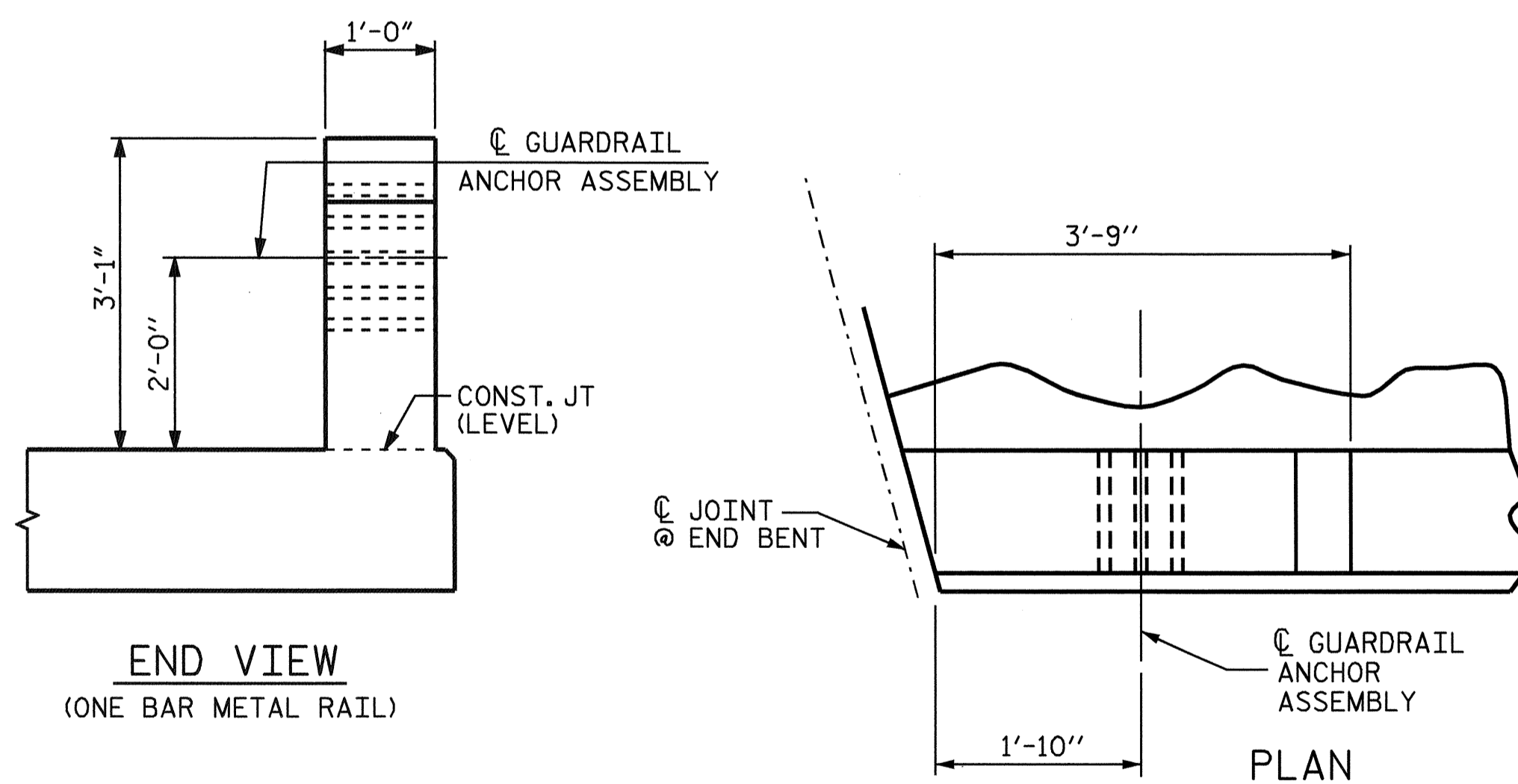


GUARDRAIL ANCHOR ASSEMBLY DETAILS



SKETCH SHOWING POINTS OF ATTACHMENT

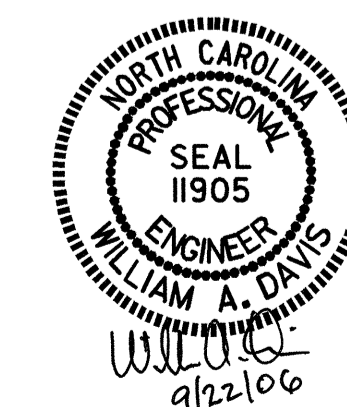
* LOCATION OF GUARDRAIL ATTACHMENT
 ** LOCATION OF IMPACT ATTENUATOR ATTACHMENT



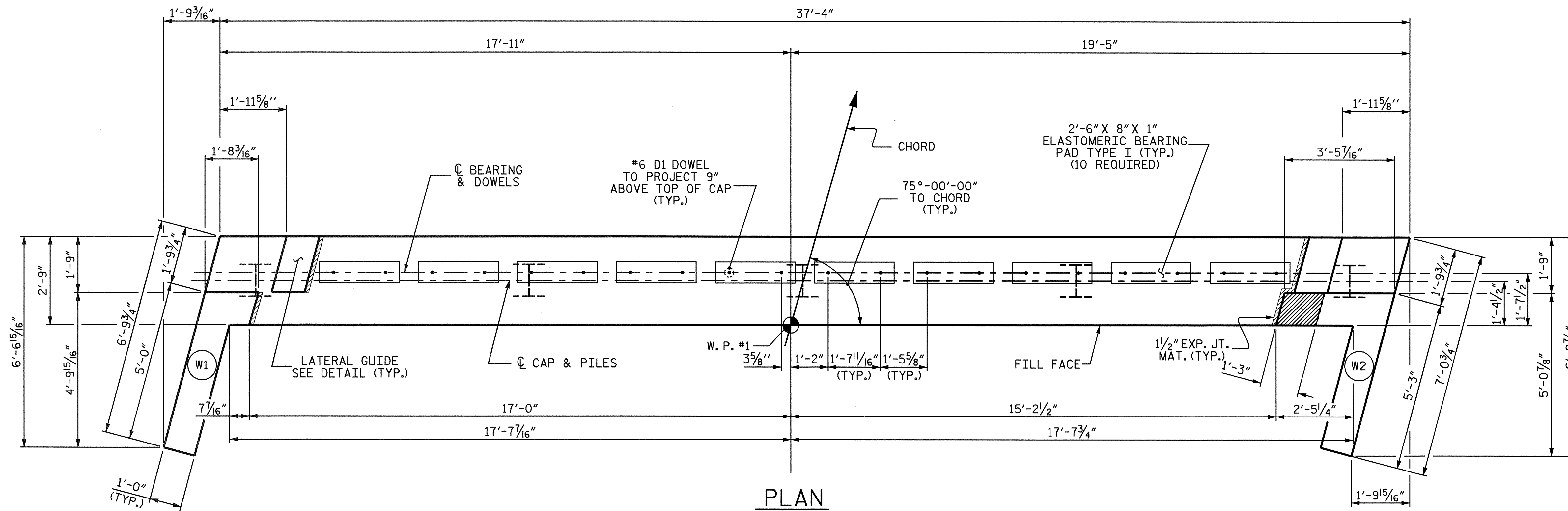
LOCATION OF GUARDRAIL ANCHOR AT END POST

PROJECT NO. B-3406
AVERY COUNTY
 STATION: 13+44.00 -L-

| | |
|----------------------------|-----------------------|
| ASSEMBLED BY : J.L. WALTON | DATE : 11/05 |
| CHECKED BY : V.X. NGUYEN | DATE : 2/06 |
| DRAWN BY : EEM 6/94 | REV. 8/16/99 RWW/LES |
| CHECKED BY : RGW 6/94 | REV. 10/17/00 RWW/LES |
| | REV. 5/7/03 RWW/JTE |



| | | | | | |
|--|-----|-------|-----|-----|--------------------|
| STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH | | | | | |
| STANDARD GUARDRAIL ANCHORAGE DETAILS FOR METAL RAILS | | | | | |
| REVISIONS | | | | | SHEET NO. |
| NO. | BY: | DATE: | NO. | BY: | DATE: |
| 1 | | | 3 | | |
| 2 | | | 4 | | |
| | | | | | TOTAL SHEETS 18 |



NOTES

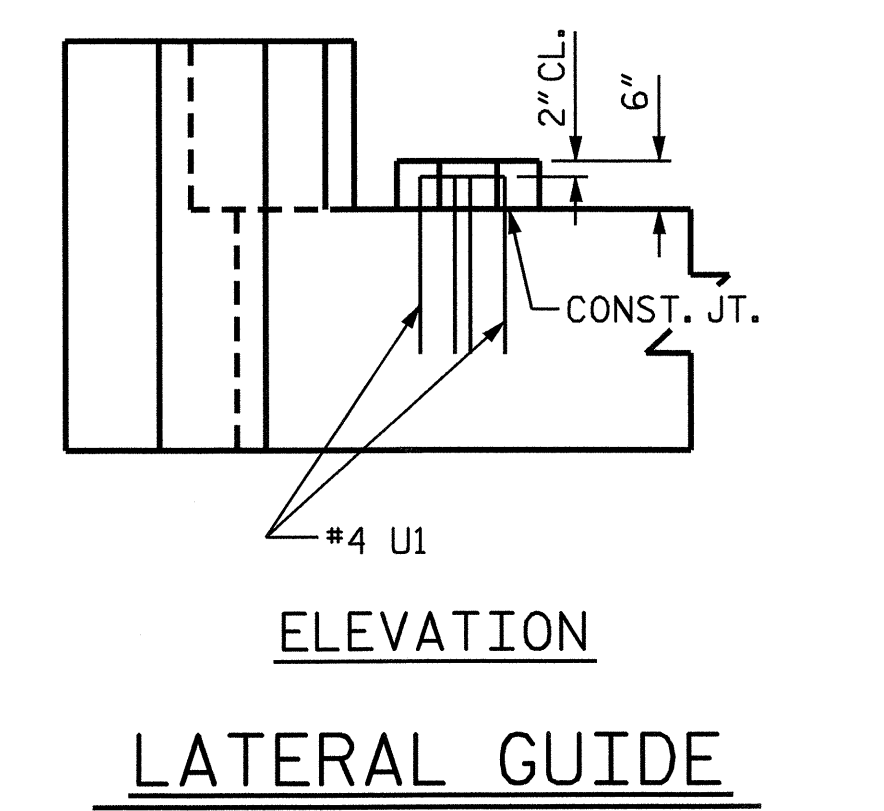
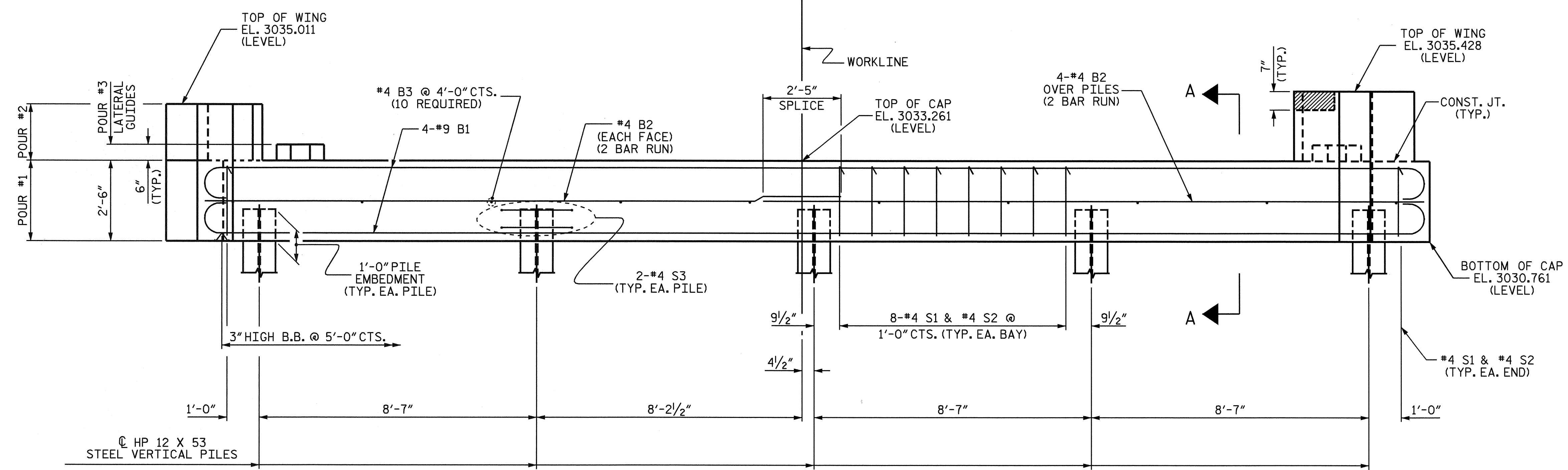
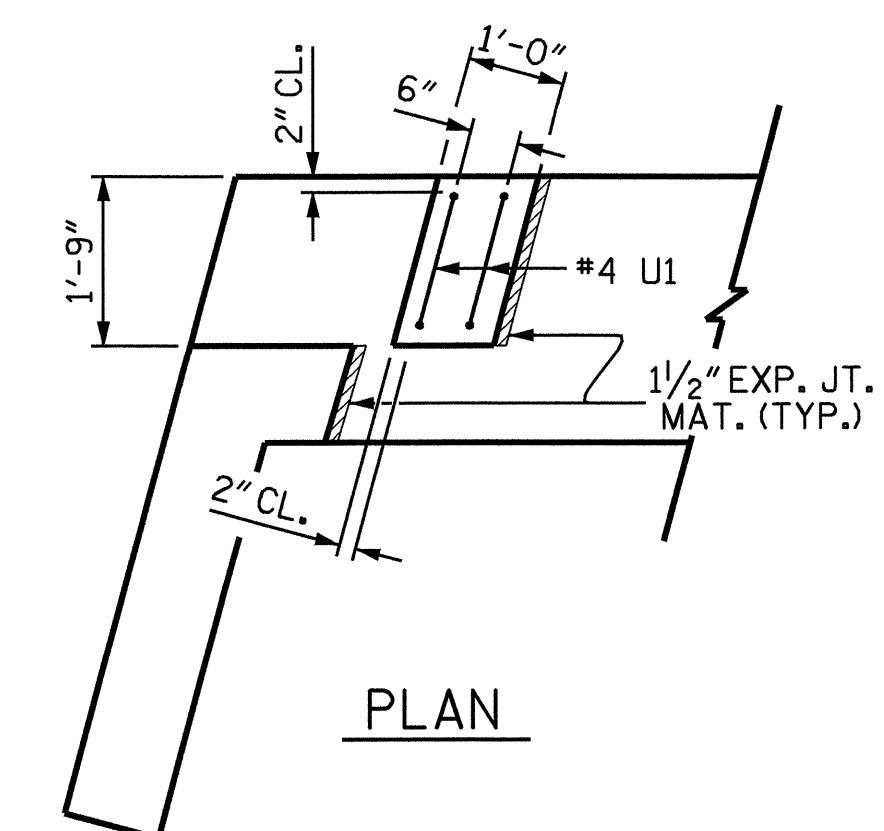
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

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.

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

FOR PILE SPLICE DETAILS, SEE SHEET 3 OF 3.

THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE PARAPET AND END POST ARE CAST IF SLIP FORMING IS USED.



ELEVATION
(FOR WING REINFORCING STEEL AND DETAILS SEE SHEET 2 OF 3)

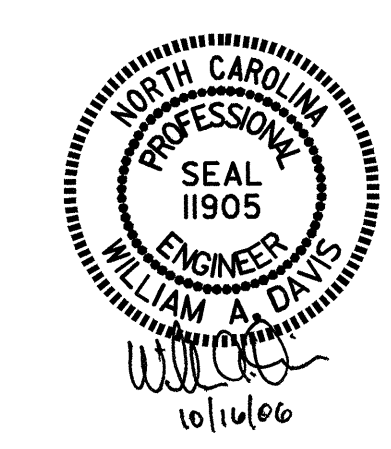
PROJECT NO. B-3406
AVERY COUNTY
 STATION: 13+44.00 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

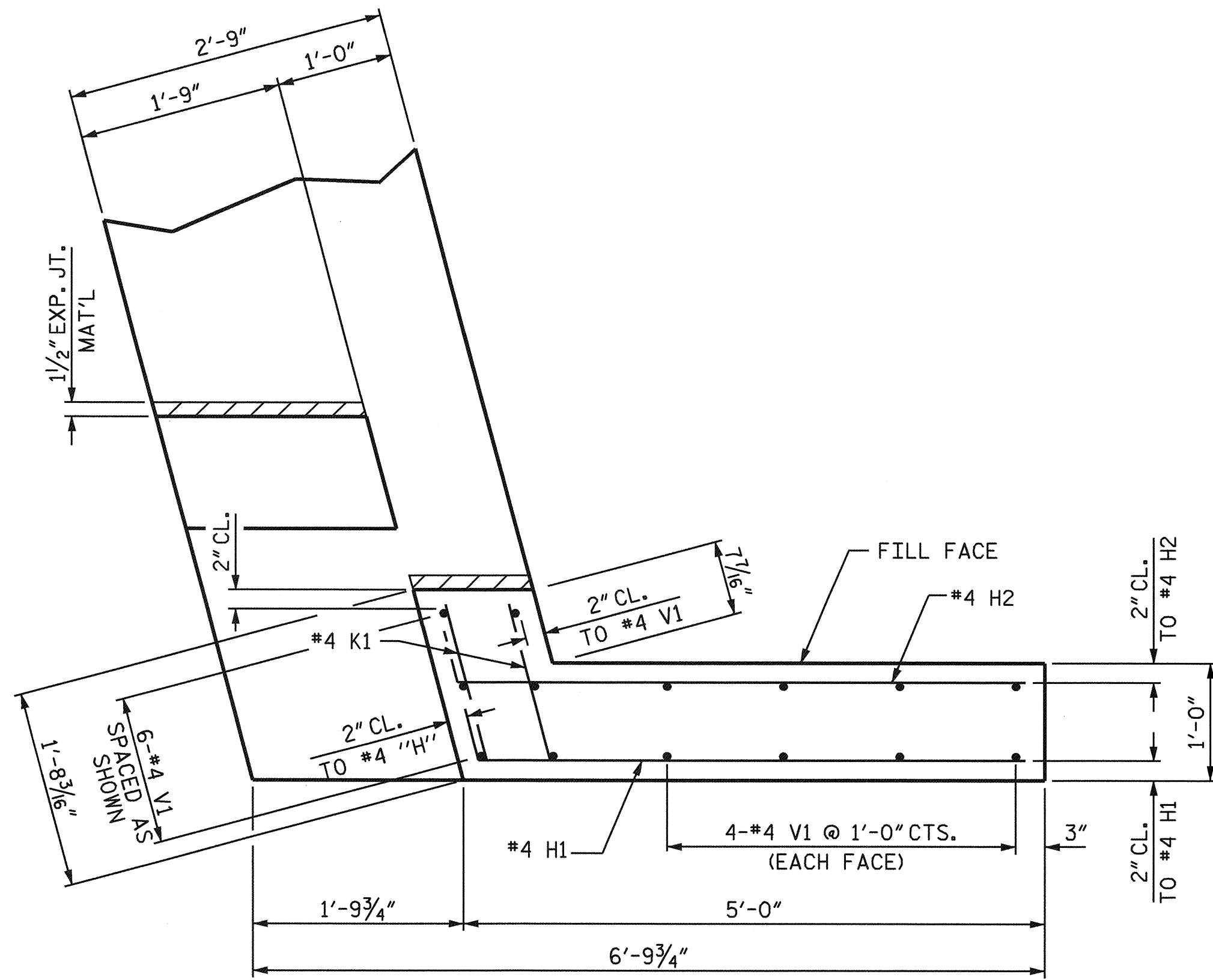
SUBSTRUCTURE
 END BENT #1

| REVISIONS | | | | | | SHEET NO. |
|-----------|-----|-------|-----|-----|-------|-----------------|
| NO. | BY: | DATE: | NO. | BY: | DATE: | S-10 |
| 1 | | | 3 | | | TOTAL SHEETS 18 |
| 2 | | | 4 | | | |

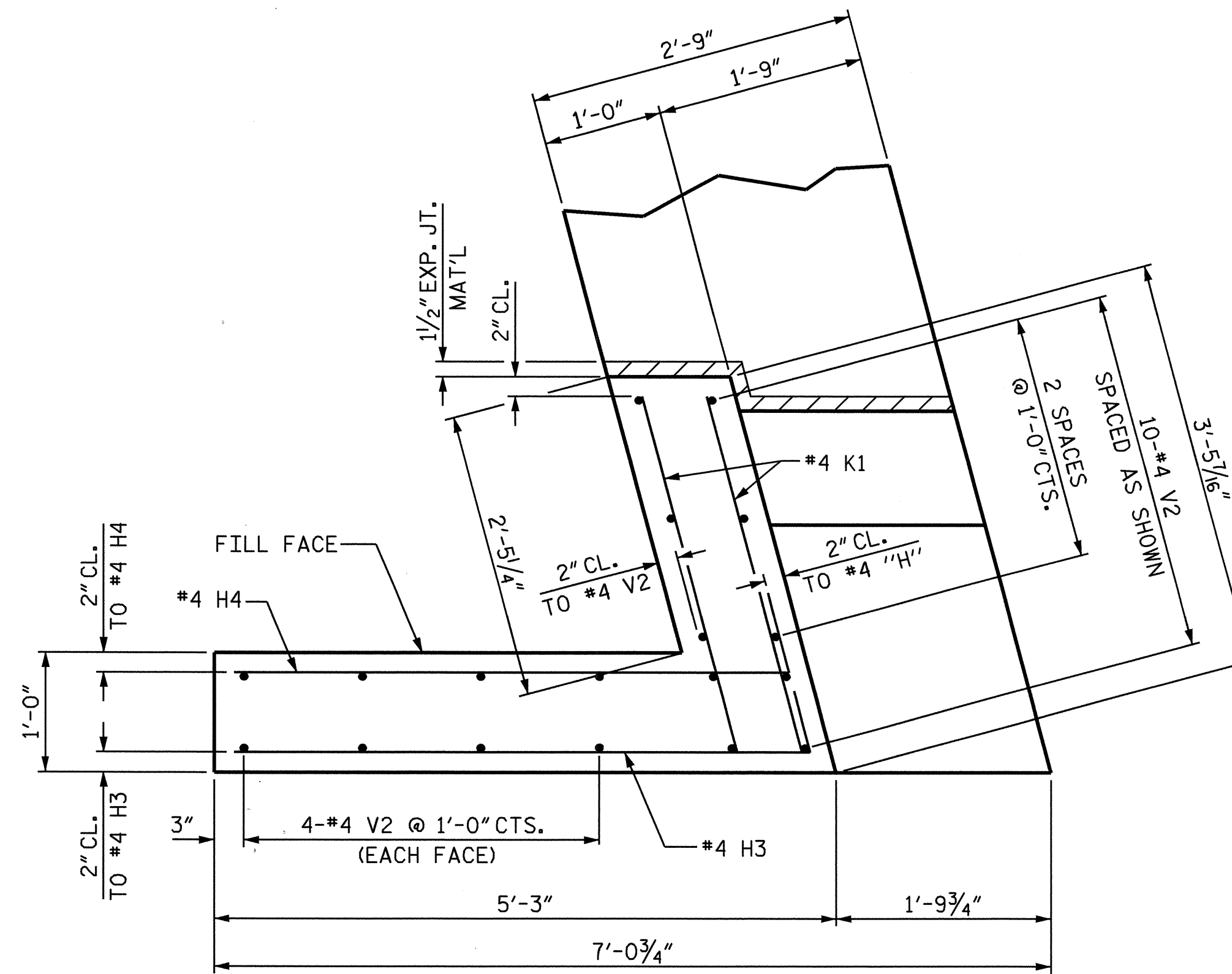


DRAWN BY : A. SORSENGINH DATE : 12/27/05
 CHECKED BY : J.L. WALTON DATE : 3/8/06

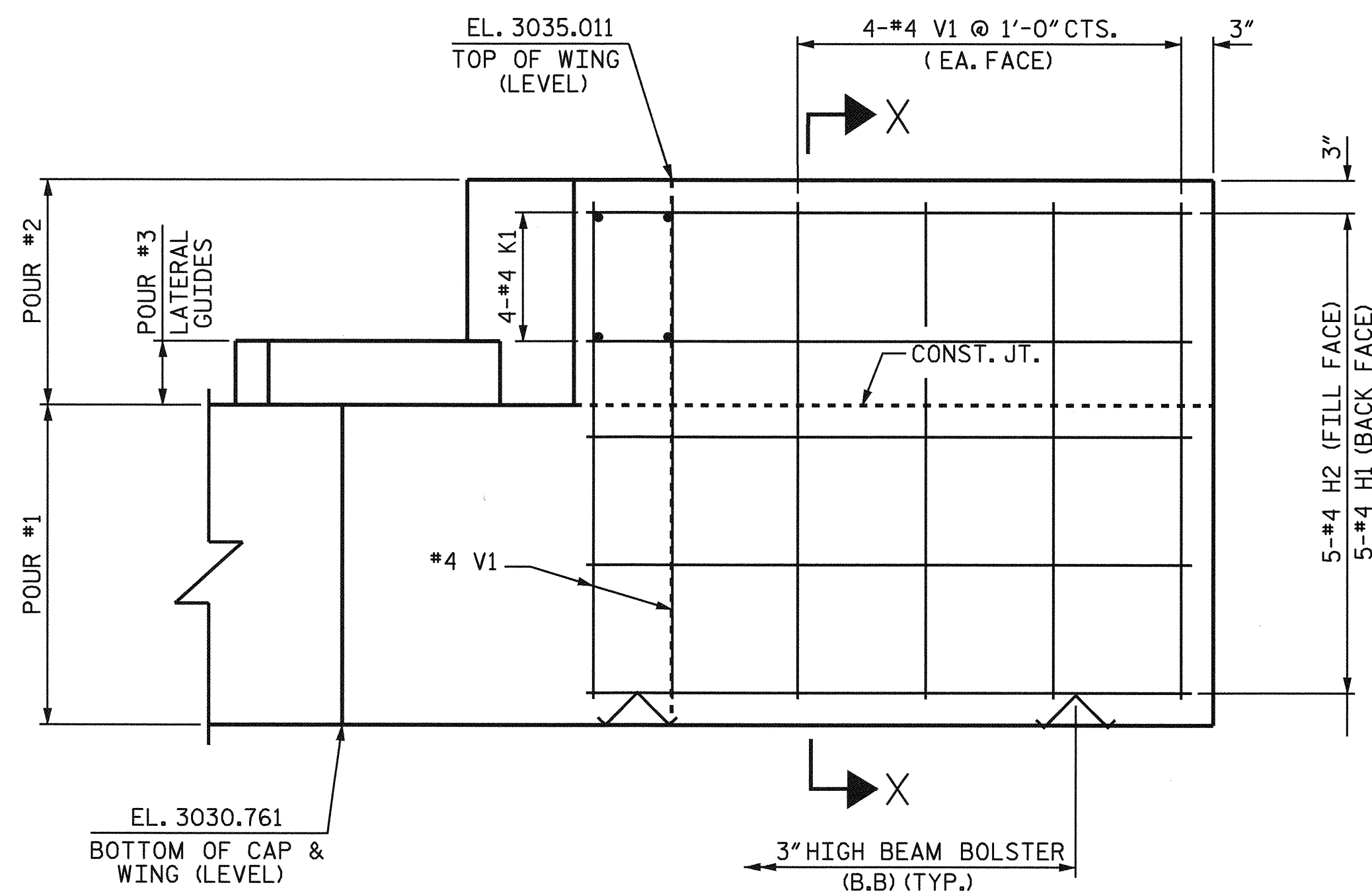
16-OCT-2006 15:17
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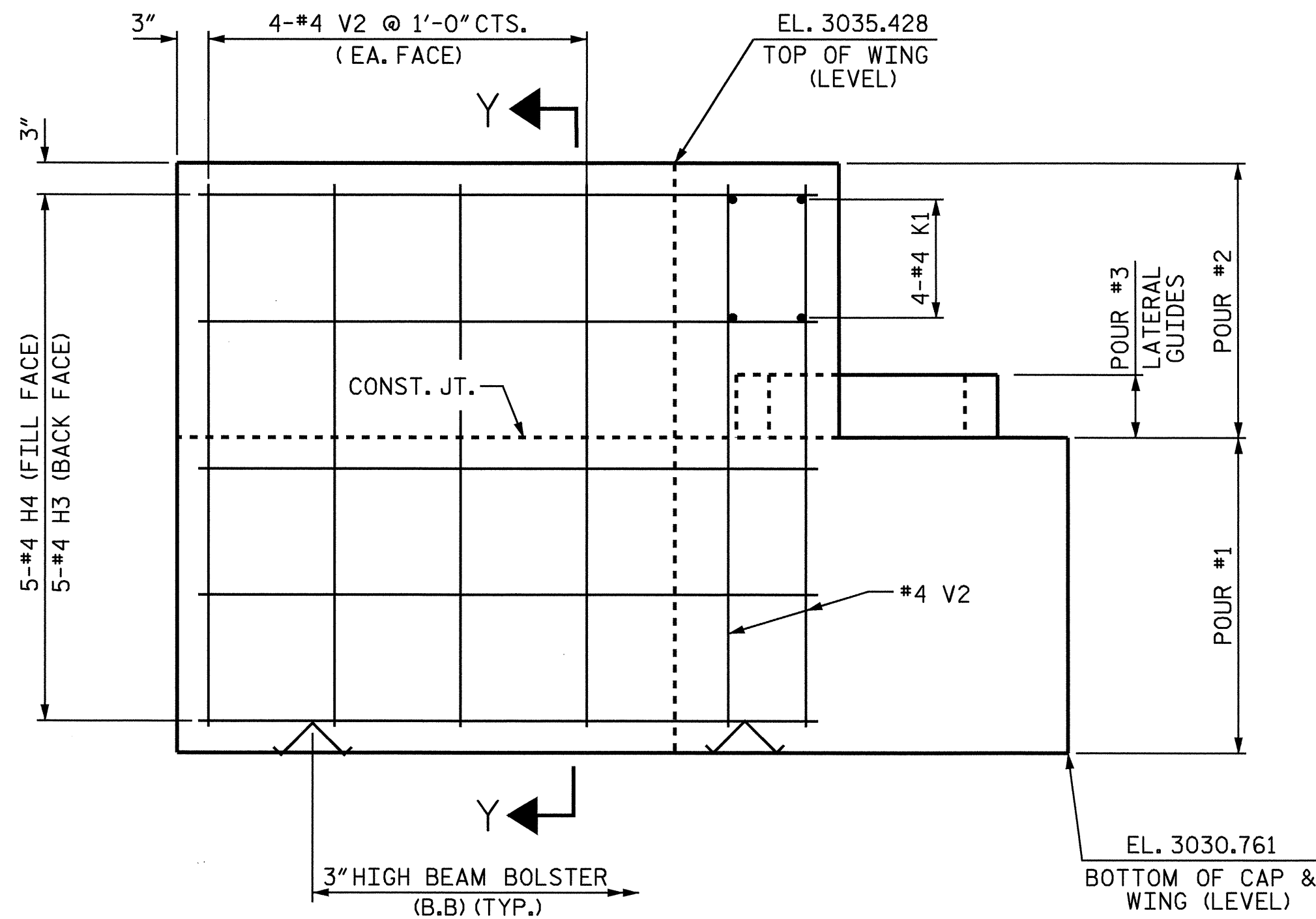
PLAN OF LEFT WING (W1)



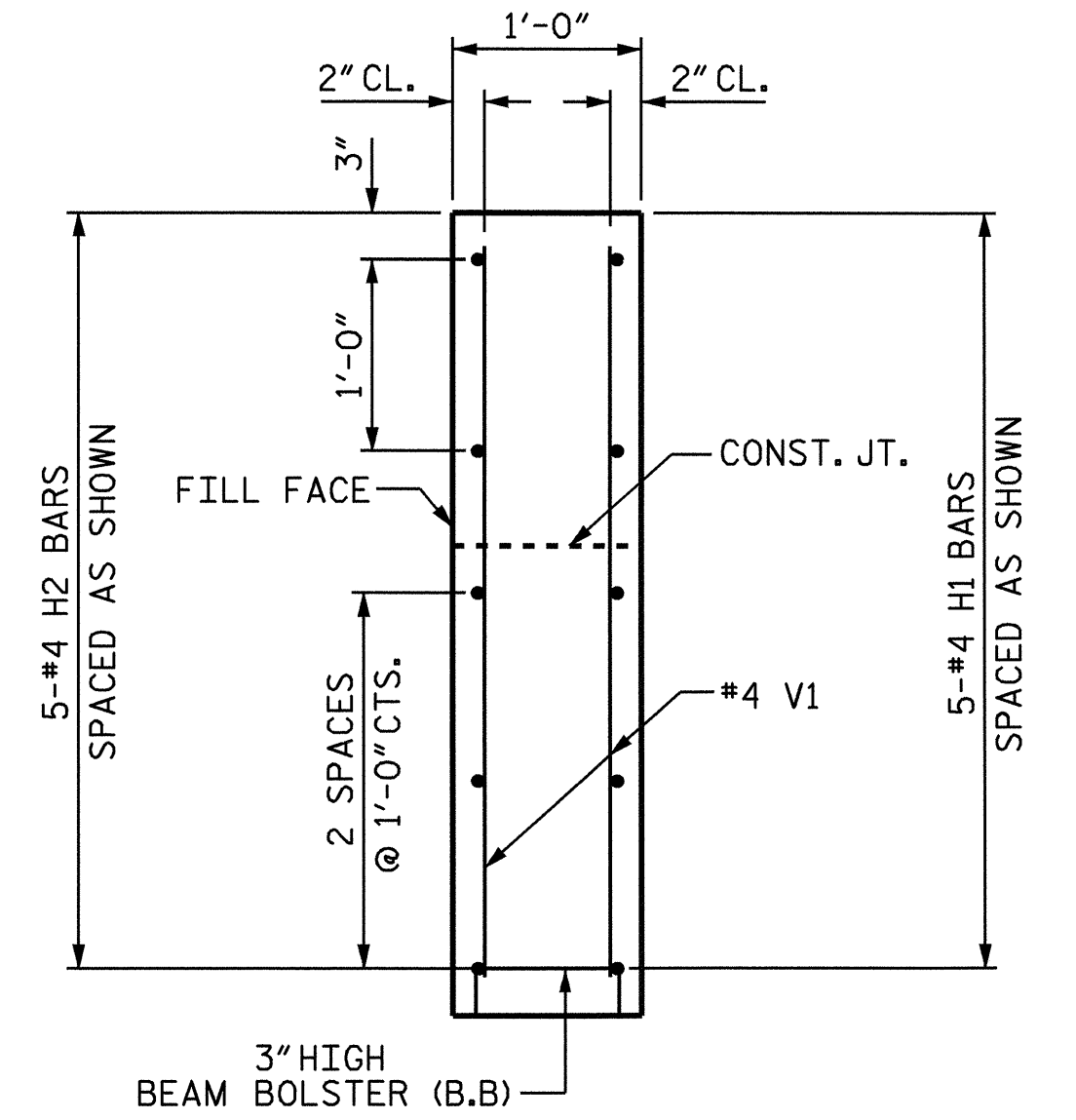
PLAN OF RIGHT WING (W2)



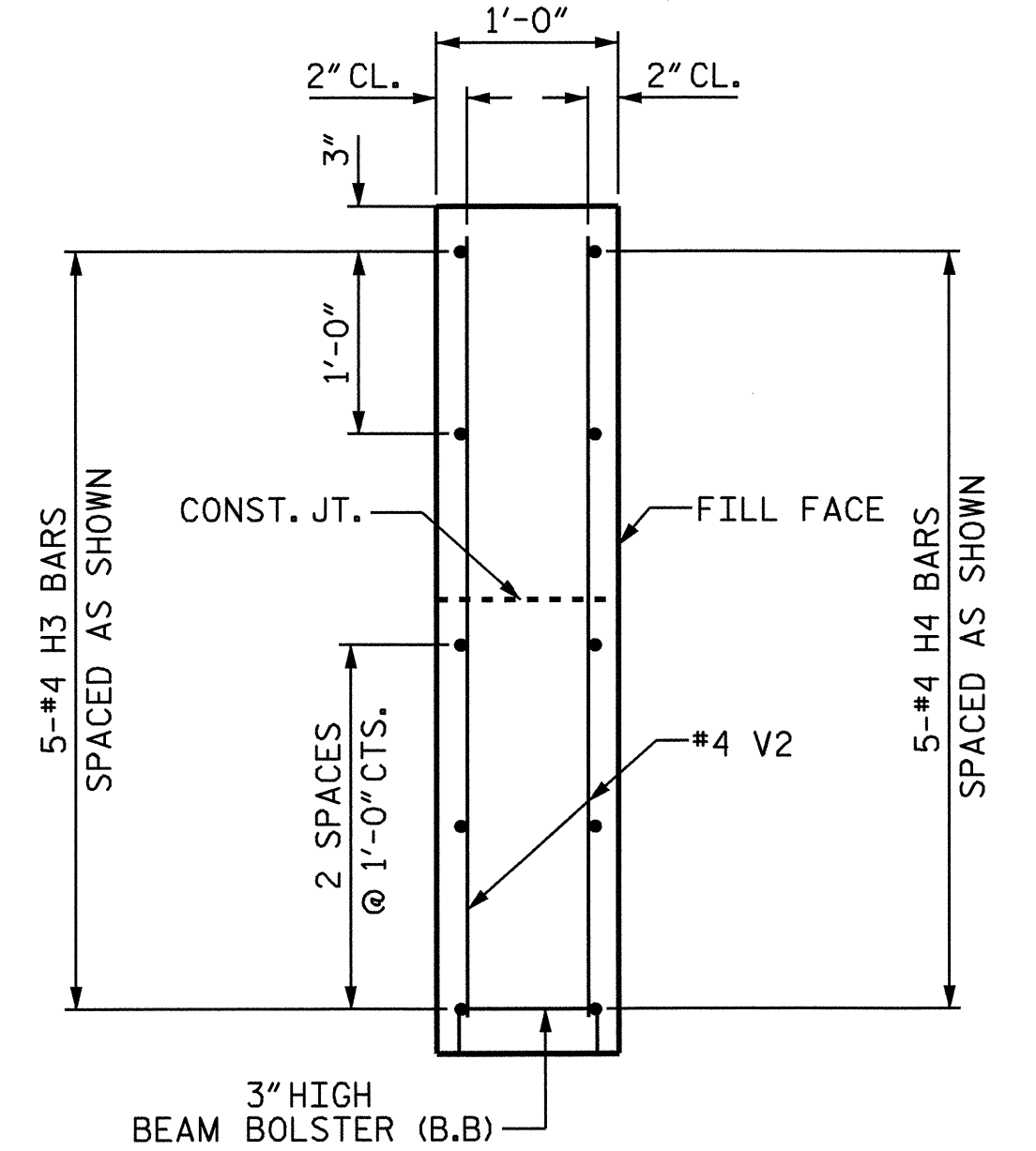
ELEVATION OF LEFT WING (W1)



ELEVATION OF RIGHT WING (W2)



SECTION X-X



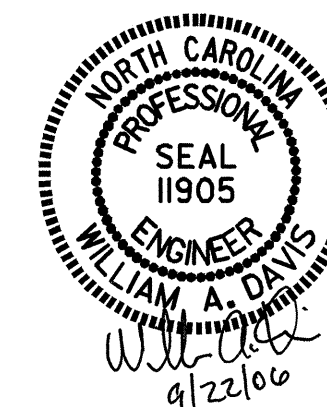
SECTION Y-Y

PROJECT NO. B-3406
 AVERY COUNTY
 STATION: 13+44.00 -L-

SHEET 2 OF 3

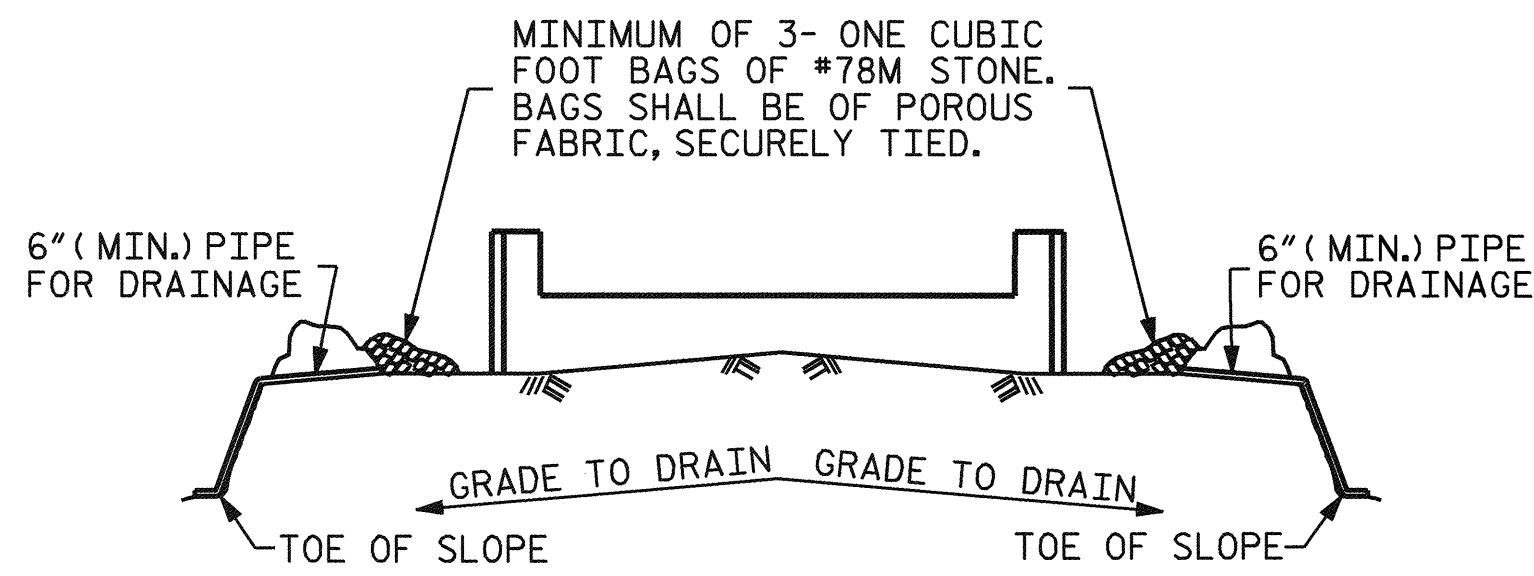
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT #1



DRAWN BY: A. SORSENGINH DATE: 12/05
 CHECKED BY: J.L. WALTON DATE: 3/06

| REVISIONS | | | | | | SHEET NO. | |
|-----------|-----|-------|-----|-----|-------|-----------------|--|
| NO. | BY: | DATE: | NO. | BY: | DATE: | S-11 | |
| 1 | | | 3 | | | TOTAL SHEETS 18 | |
| 2 | | | 4 | | | | |

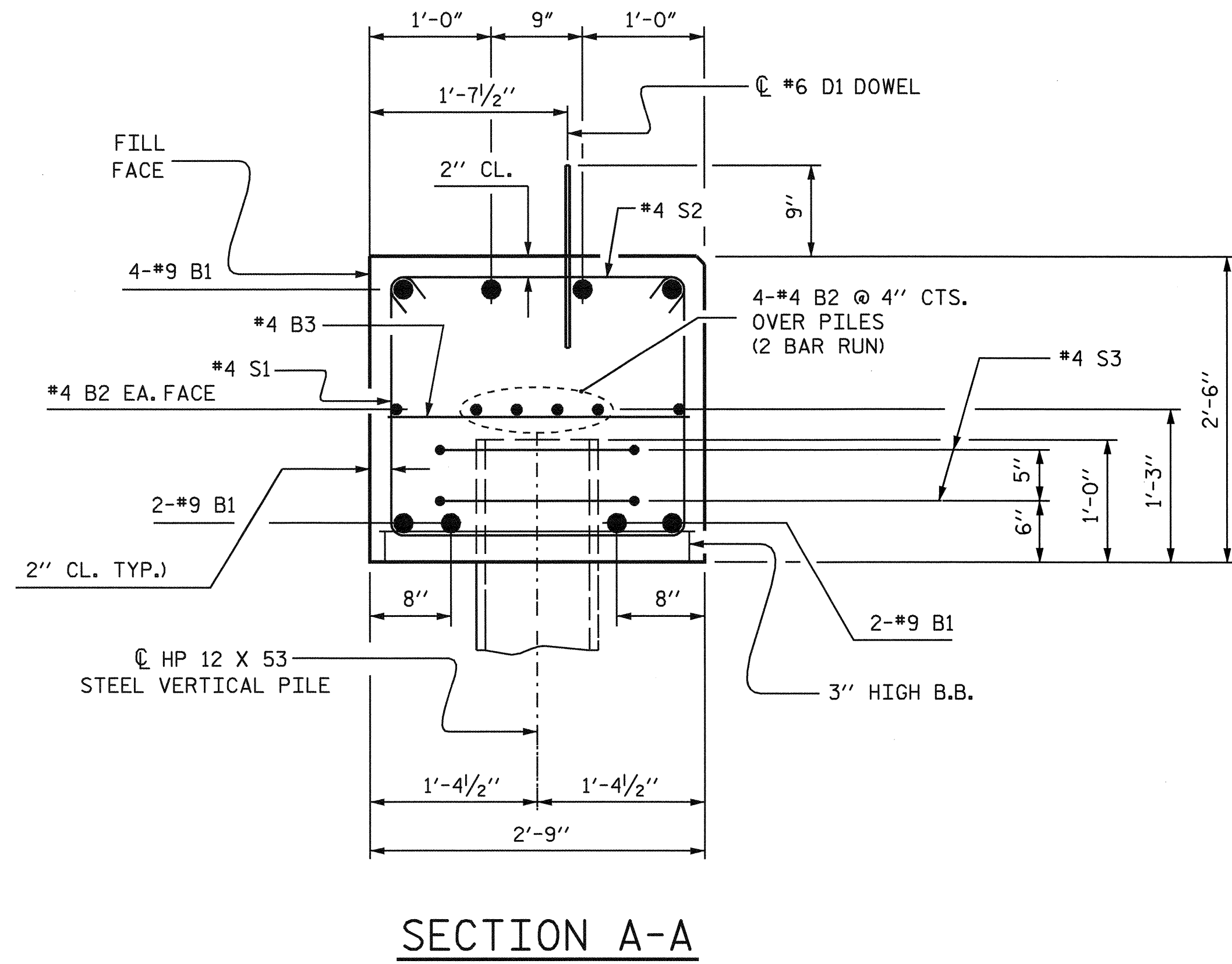


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

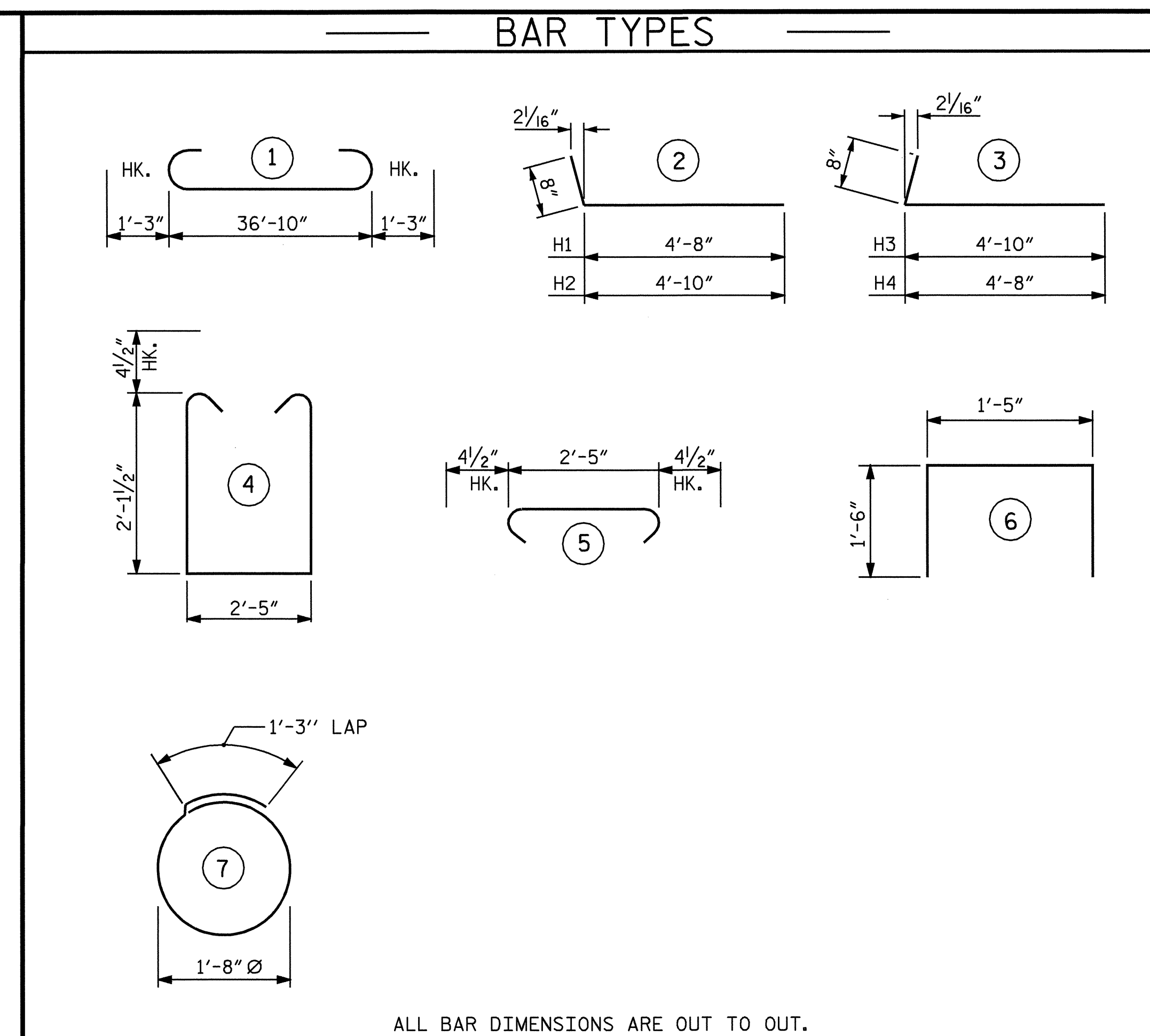
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR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



SECTION A-A



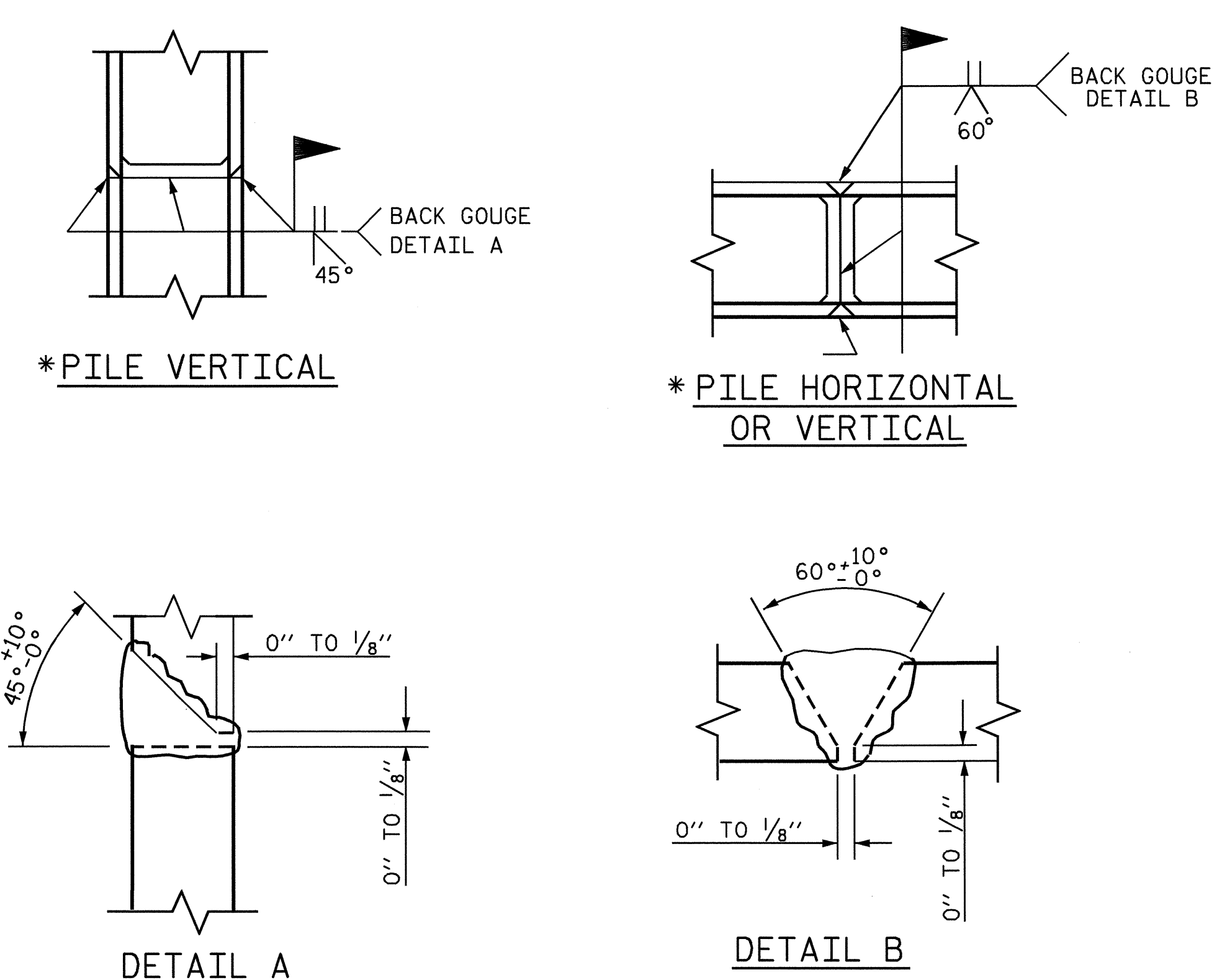
ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

| END BENT #1 | | | | | |
|-------------|-----|------|------|--------|--------|
| BAR | NO. | SIZE | TYPE | LENGTH | WEIGHT |
| B1 | 8 | #9 | | 39'-4" | 1070 |
| B2 | 12 | #4 | STR | 19'-9" | 158 |
| B3 | 10 | #4 | STR | 2'-5" | 16 |
| D1 | 20 | #6 | STR | 1'-6" | 45 |
| H1 | 5 | #4 | | 5'-4" | 18 |
| H2 | 5 | #4 | | 5'-6" | 18 |
| H3 | 5 | #4 | | 5'-6" | 18 |
| H4 | 5 | #4 | | 5'-4" | 18 |
| K1 | 4 | #4 | STR | 1'-4" | 4 |
| K2 | 4 | #4 | STR | 3'-1" | 8 |
| S1 | 34 | #4 | | 7'-5" | 168 |
| S2 | 34 | #4 | | 3'-2" | 72 |
| S3 | 10 | #4 | | 6'-6" | 44 |
| U1 | 4 | #4 | | 4'-5" | 12 |
| V1 | 14 | #4 | STR | 3'-11" | 37 |
| V2 | 18 | #4 | STR | 4'-4" | 52 |

| | | |
|-------------------------------------|------|----------|
| REINFORCING STEEL | = | 1758 LBS |
| CLASS A CONCRETE BREAKDOWN | | |
| POUR #1 CAP AND LOWER PART OF WINGS | C.Y. | 10.4 |
| POUR #2 UPPER PART OF WINGS | C.Y. | 0.7 |
| POUR #3 LATERAL GUIDES | C.Y. | 0.1 |
| TOTAL CLASS A CONCRETE | C.Y. | 11.2 |

| | | |
|-----------------------------|----------|----|
| HP 12 X 53 STEEL PILES | | |
| NO. 5 | LIN. FT. | 50 |
| PILE EXCAVATION NOT IN SOIL | LIN. FT. | 13 |
| PILE EXCAVATION IN SOIL | LIN. FT. | 37 |



PILE SPLICE DETAILS

* POSITION OF PILE DURING WELDING.

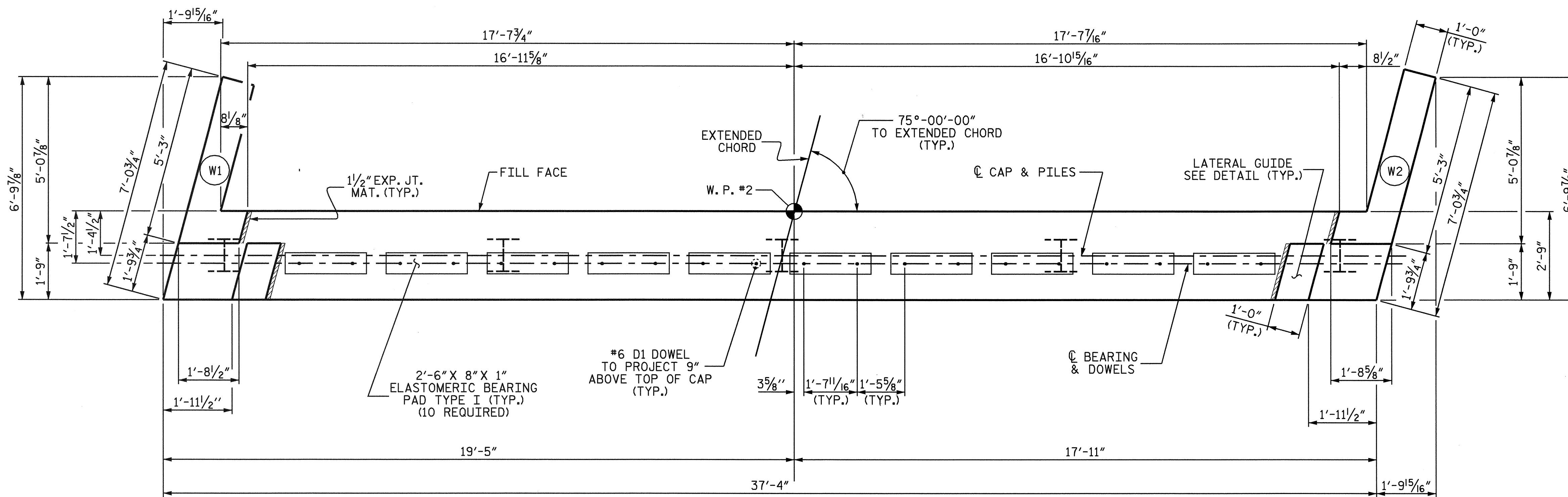


PROJECT NO. B-3406
AVERY COUNTY
 STATION: 13+44.00 -L-

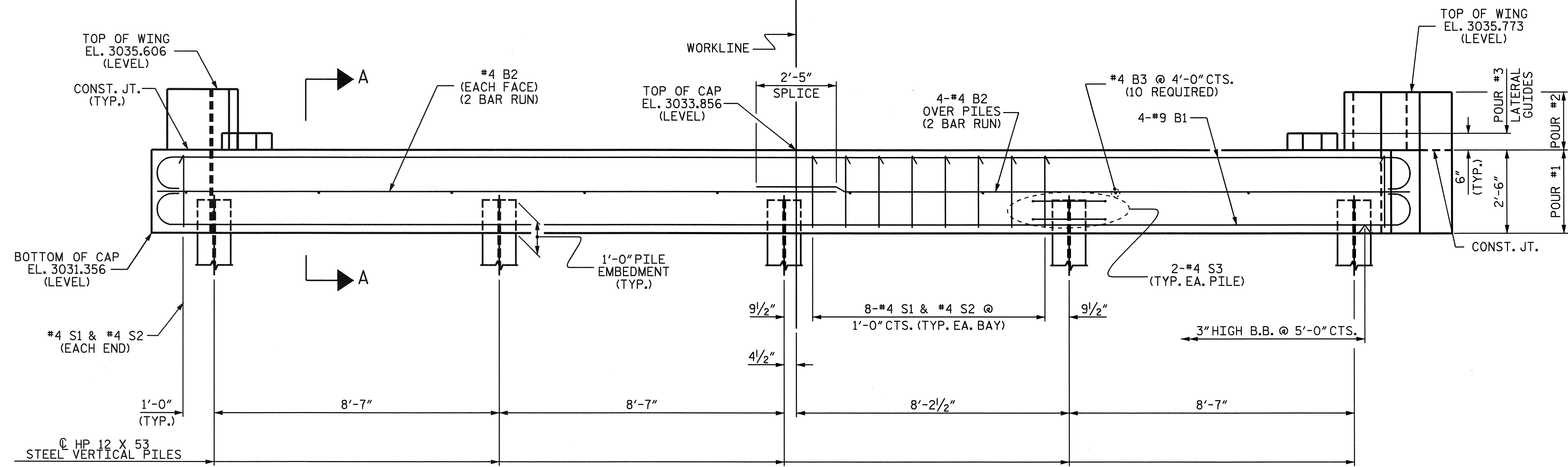
SHEET 3 OF 3

| | | | | | |
|--|-----|-------|-----|-----|--------------------|
| STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH | | | | | |
| SUBSTRUCTURE END BENT#1 | | | | | |
| REVISIONS | | | | | |
| NO. | BY: | DATE: | NO. | BY: | DATE: |
| 1 | | | 3 | | |
| 2 | | | 4 | | |
| | | | | | SHEET NO. S-12 |
| | | | | | TOTAL SHEETS 18 |

DRAWN BY : A. SORSENGINH DATE : 12/05
 CHECKED BY : J.L. WALTON DATE : 3/06



PLAN



ELEVATION
(FOR WING REINFORCING STEEL AND DETAILS SEE SHEET 2 OF 3)

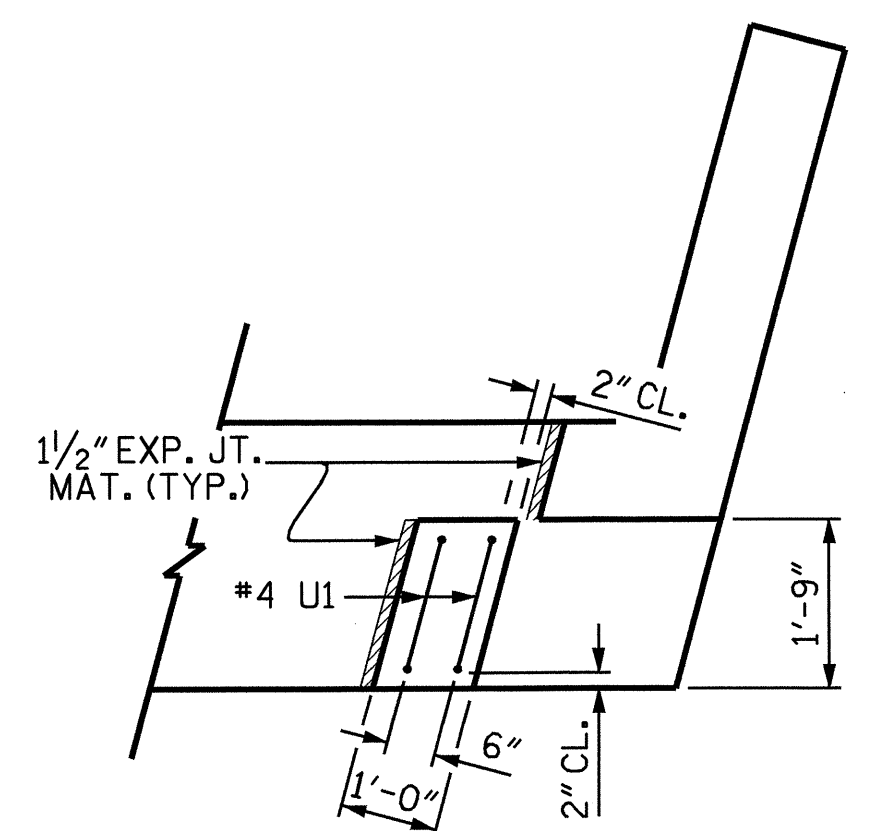
NOTES

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

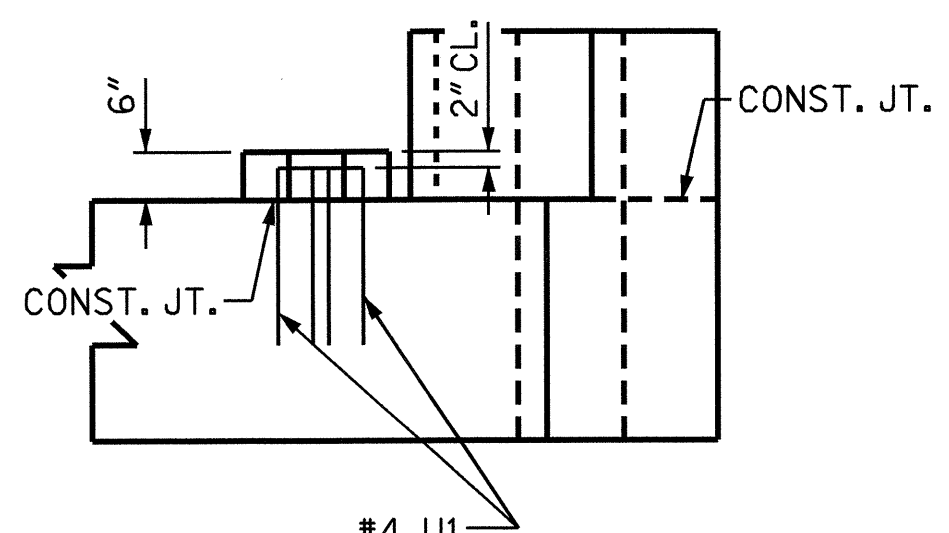
THE CONTRACTOR SHALL PROVIDE FOR INSTALLATION OF THE 4" DIAMETER DRAIN PIPE THROUGH THE WING WALL AS REQUIRED FOR REINFORCED BRIDGE APPROACH FILLS, SEE THE ROADWAY PLANS. REINFORCING STEEL IN THE WING WALL MAY BE SHIFTED AS NECESSARY TO CLEAR THE DRAIN PIPE.

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

FOR PILE SPLICE DETAILS, SEE SHEET 3 OF 3.



PLAN



ELEVATION

LATERAL GUIDE
(EACH END SIMILAR)

PROJECT NO. B-3406
AVERY COUNTY
 STATION: 13+44.00 -L-
 SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

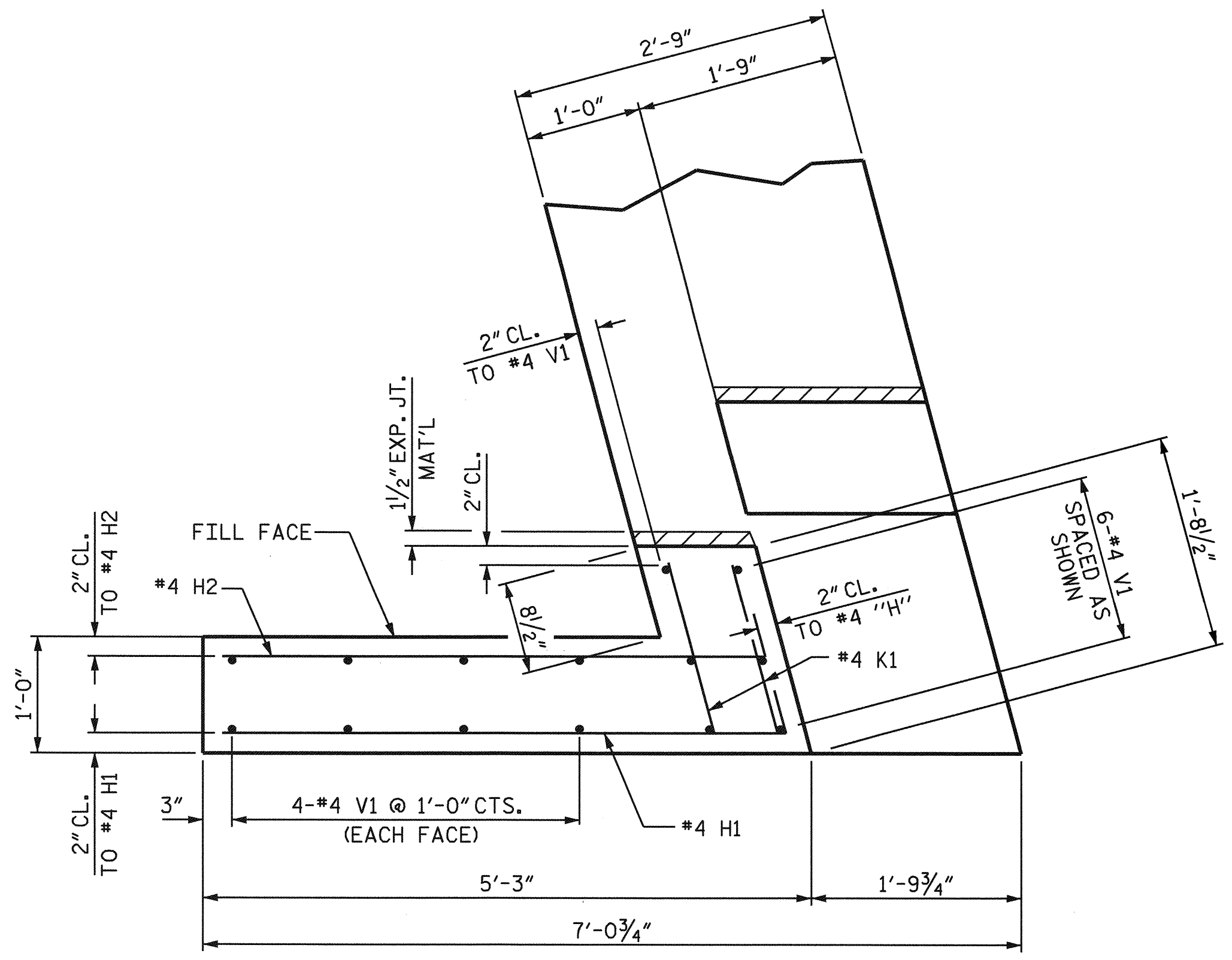
SUBSTRUCTURE
 END BENT #2



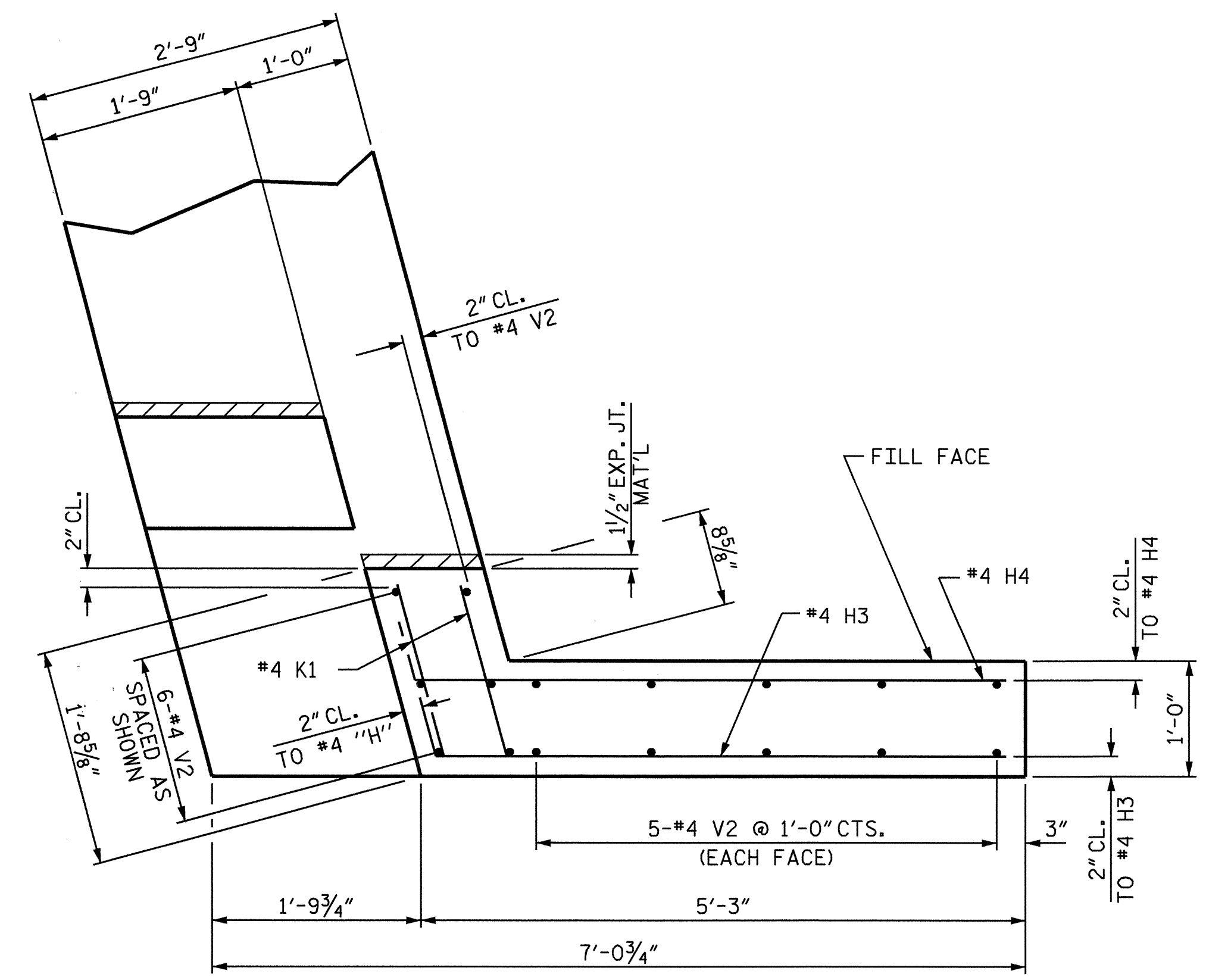
DRAWN BY: A. SORSENGINH DATE: 12/27/05
 CHECKED BY: J.L. WALTON DATE: 3/8/06

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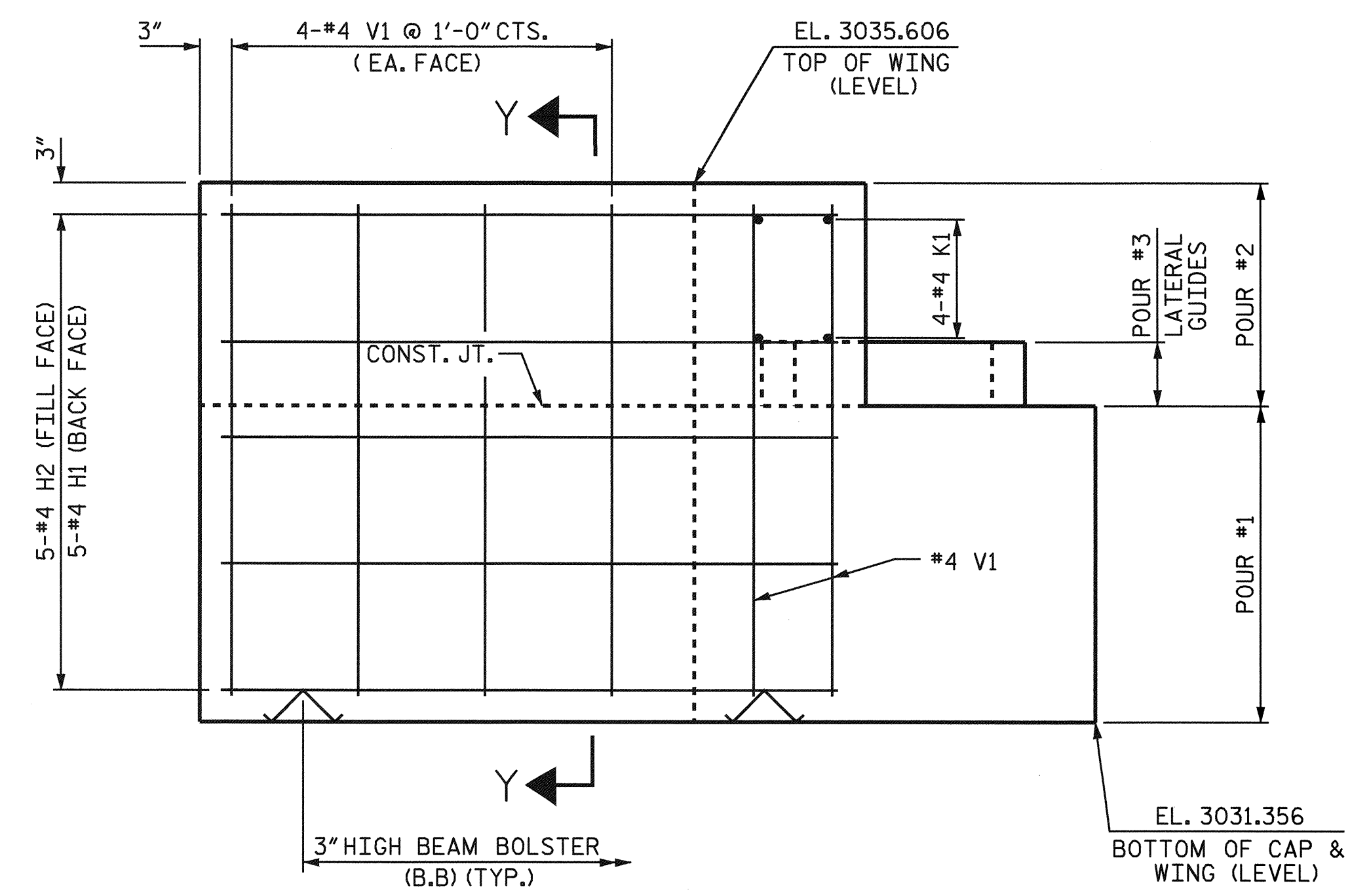
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|-----------|-----|-------|-----|-----|-------|-------------------|
| NO. | BY: | DATE: | NO. | BY: | DATE: | |
| 1 | | | 3 | | | TOTAL SHEETS 18 |
| 2 | | | 4 | | | |



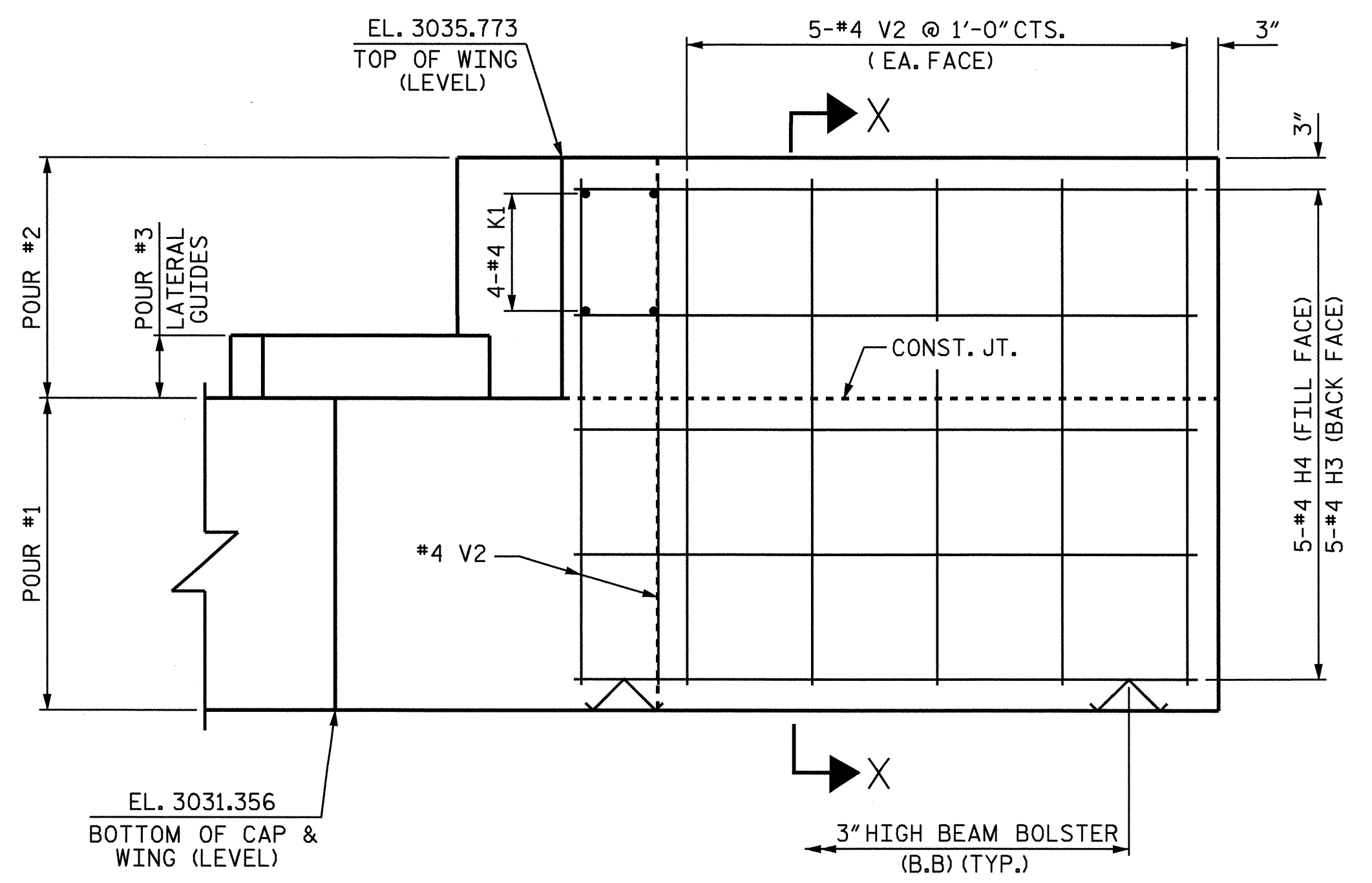
PLAN OF LEFT WING (W1)



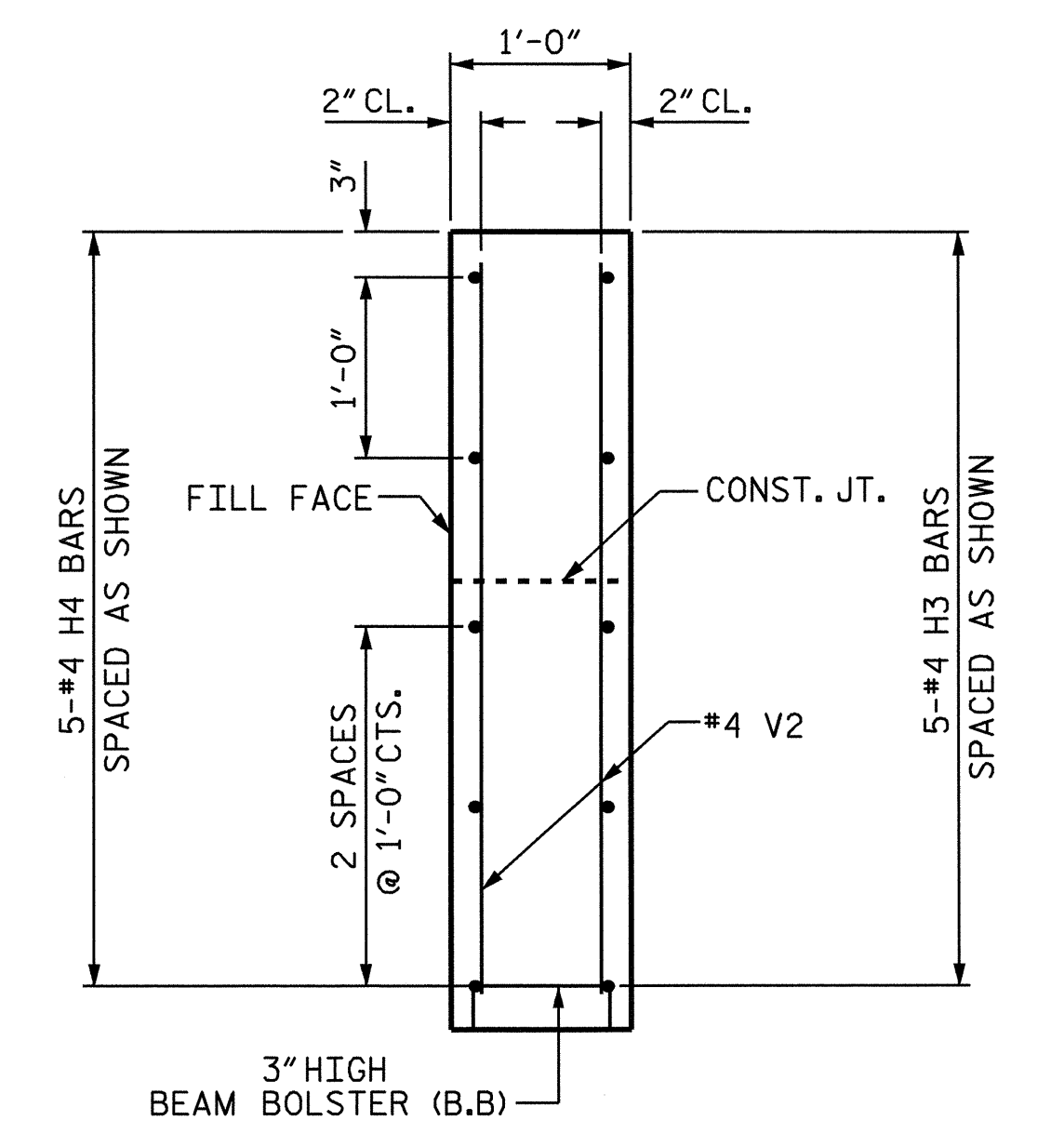
PLAN OF RIGHT WING (W2)



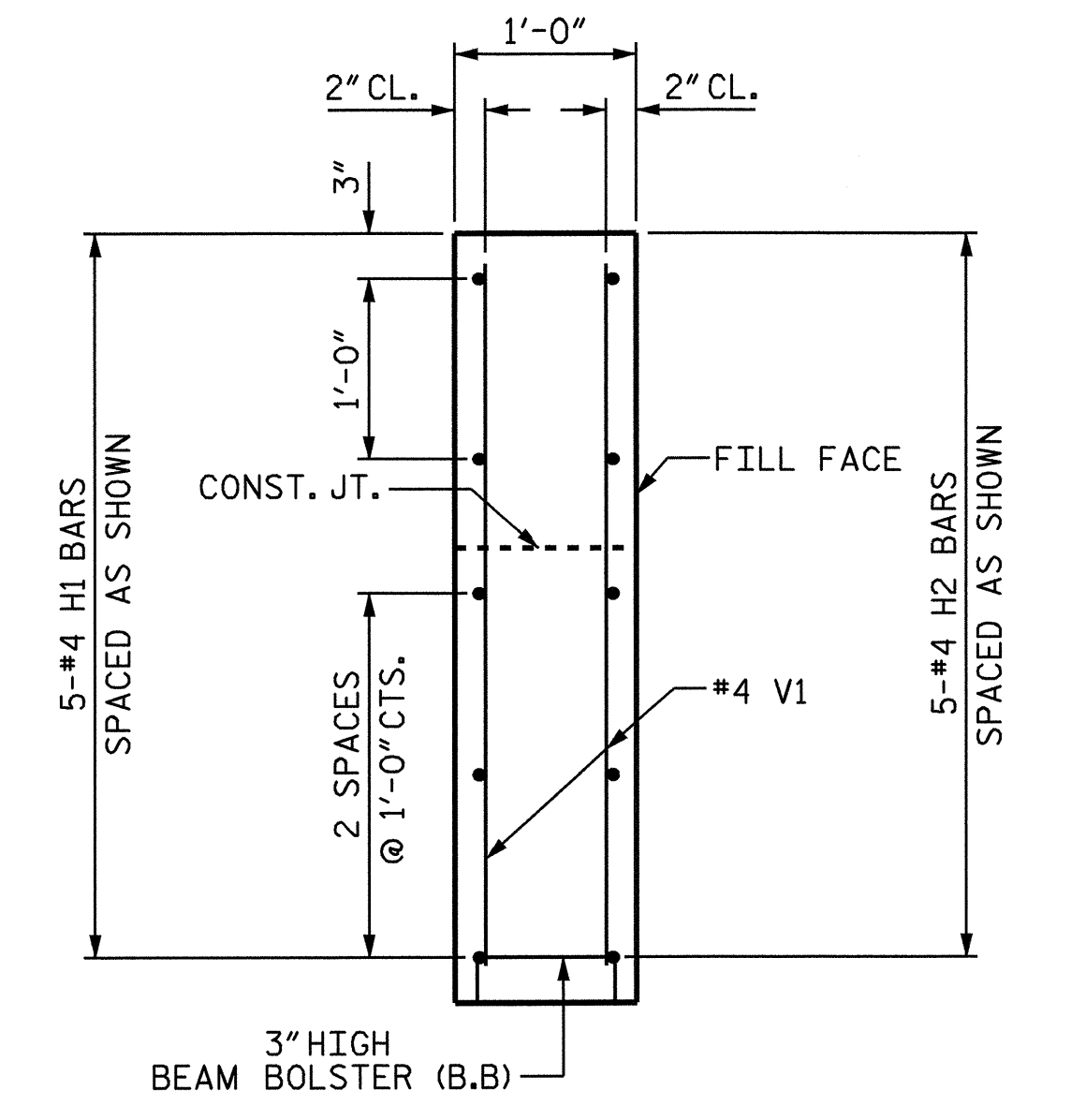
ELEVATION OF LEFT WING (W1)



ELEVATION OF RIGHT WING (W2)



SECTION X-X



SECTION Y-Y

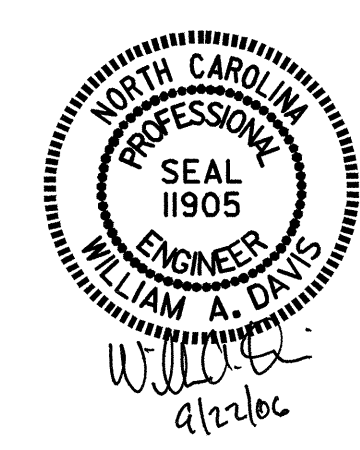
PROJECT NO. B-3406
 AVERY COUNTY
 STATION: 13+44.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

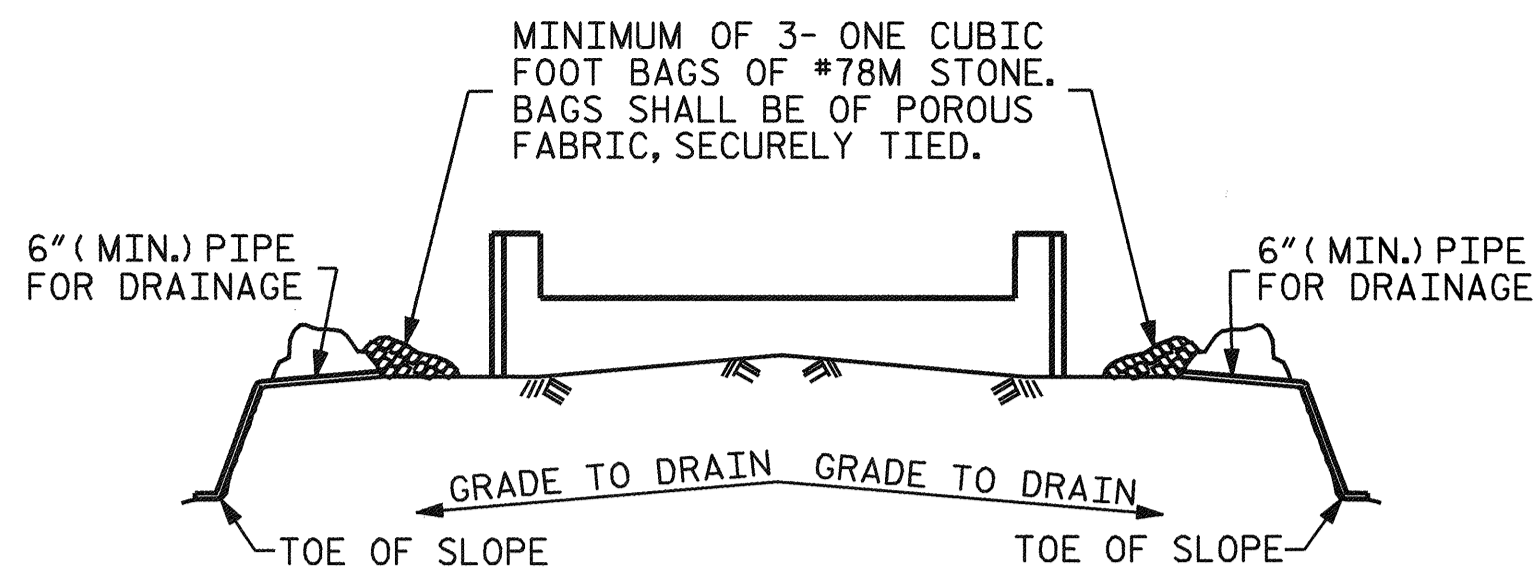
SUBSTRUCTURE
 END BENT #2

| REVISIONS | | | | | | SHEET NO. | |
|-----------|-----|-------|-----|-----|-------|-----------------|--|
| NO. | BY: | DATE: | NO. | BY: | DATE: | S-14 | |
| 1 | | | 3 | | | TOTAL SHEETS 18 | |
| 2 | | | 4 | | | | |



DRAWN BY: A. SORSENGINH DATE: 12/05
 CHECKED BY: J.L. WALTON DATE: 3/06

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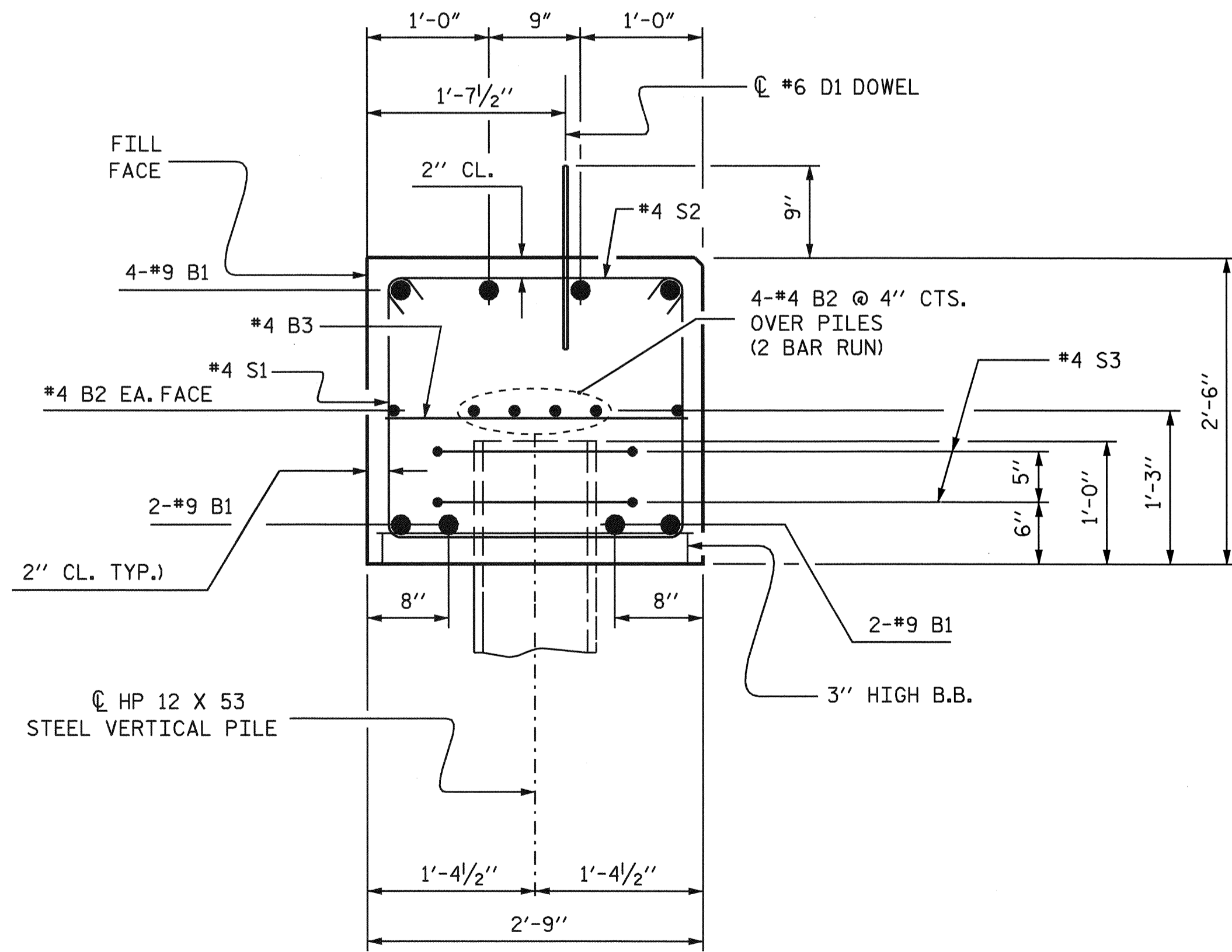


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

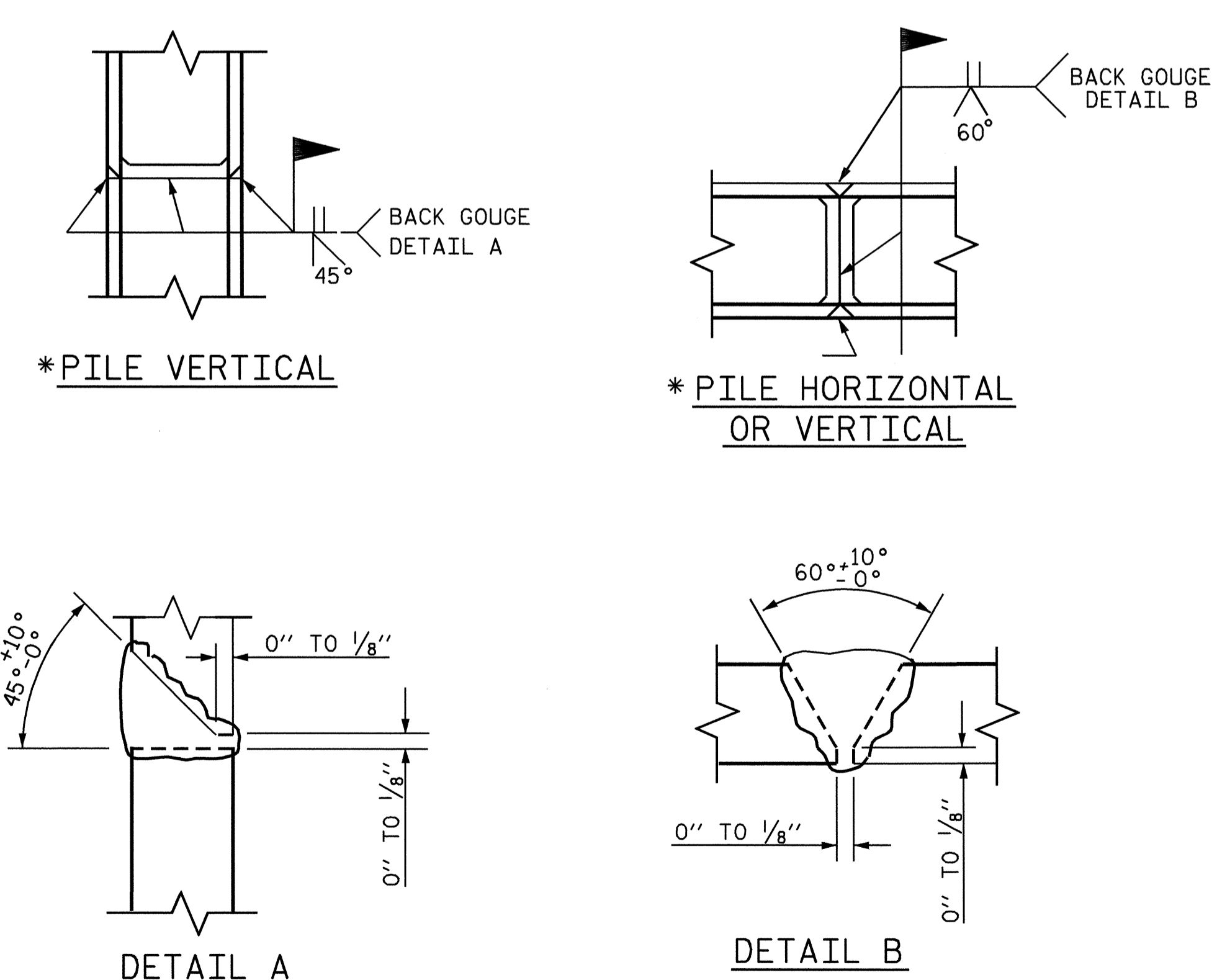
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR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



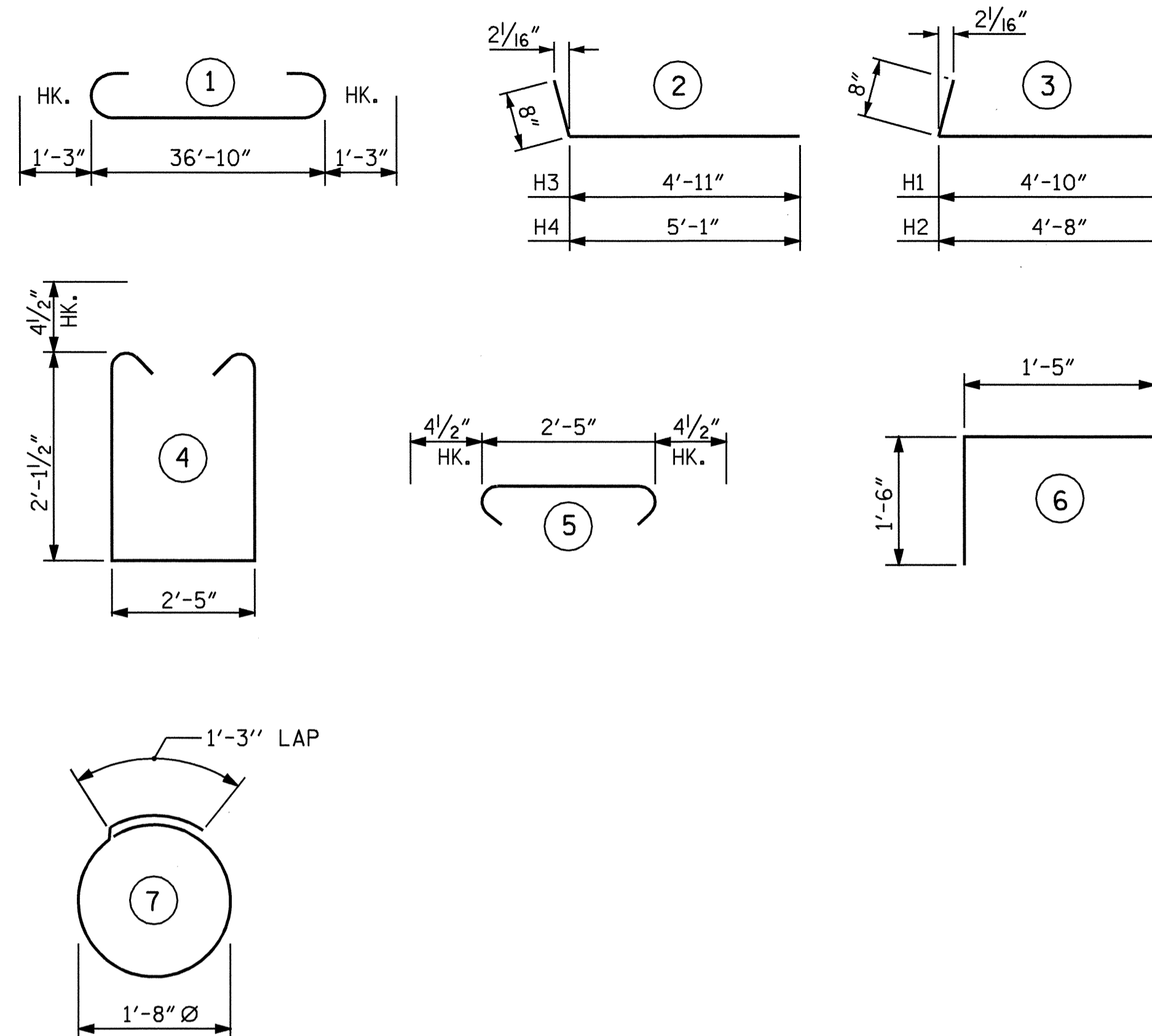
SECTION A-A



PILE SPLICE DETAILS

* POSITION OF PILE DURING WELDING.

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

| END BENT #2 | | | | | |
|-------------------|-----|------|------|--------|------------|
| BAR | NO. | SIZE | TYPE | LENGTH | WEIGHT |
| B1 | 8 | #9 | | 39'-4" | 1070 |
| B2 | 12 | #4 | STR | 19'-9" | 158 |
| B3 | 10 | #4 | STR | 2'-5" | 16 |
| D1 | 20 | #6 | STR | 1'-6" | 45 |
| H1 | 5 | #4 | | 5'-6" | 18 |
| H2 | 5 | #4 | | 5'-4" | 18 |
| H3 | 5 | #4 | | 5'-7" | 19 |
| H4 | 5 | #4 | | 5'-9" | 19 |
| K1 | 8 | #4 | STR | 1'-4" | 8 |
| S1 | 34 | #4 | | 7'-5" | 168 |
| S2 | 34 | #4 | | 3'-2" | 72 |
| S3 | 10 | #4 | | 6'-6" | 44 |
| U1 | 4 | #4 | | 4'-5" | 12 |
| V1 | 14 | #4 | STR | 3'-11" | 37 |
| V2 | 16 | #4 | STR | 4'-1" | 44 |
| REINFORCING STEEL | | | | | = 1736 LBS |

| CLASS A CONCRETE BREAKDOWN | | |
|-------------------------------------|------|------|
| POUR #1 CAP AND LOWER PART OF WINGS | C.Y. | 10.5 |
| POUR #2 UPPER PART OF WINGS | C.Y. | 0.7 |
| POUR #3 LATERAL GUIDES | C.Y. | 0.1 |
| TOTAL CLASS A CONCRETE | C.Y. | 11.3 |

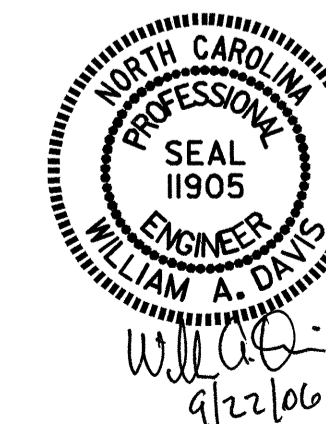
| | | |
|-----------------------------|----------|----|
| HP 12 X 53 STEEL PILES | | |
| NO. 5 | LIN. FT. | 50 |
| PILE EXCAVATION NOT IN SOIL | LIN. FT. | 27 |
| PILE EXCAVATION IN SOIL | LIN. FT. | 23 |

PROJECT NO. B-3406
AVERY COUNTY
 STATION: 13+44.00 -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-15 |
| 1 | | | 3 | | | TOTAL SHEETS |
| 2 | | | 4 | | | 18 |

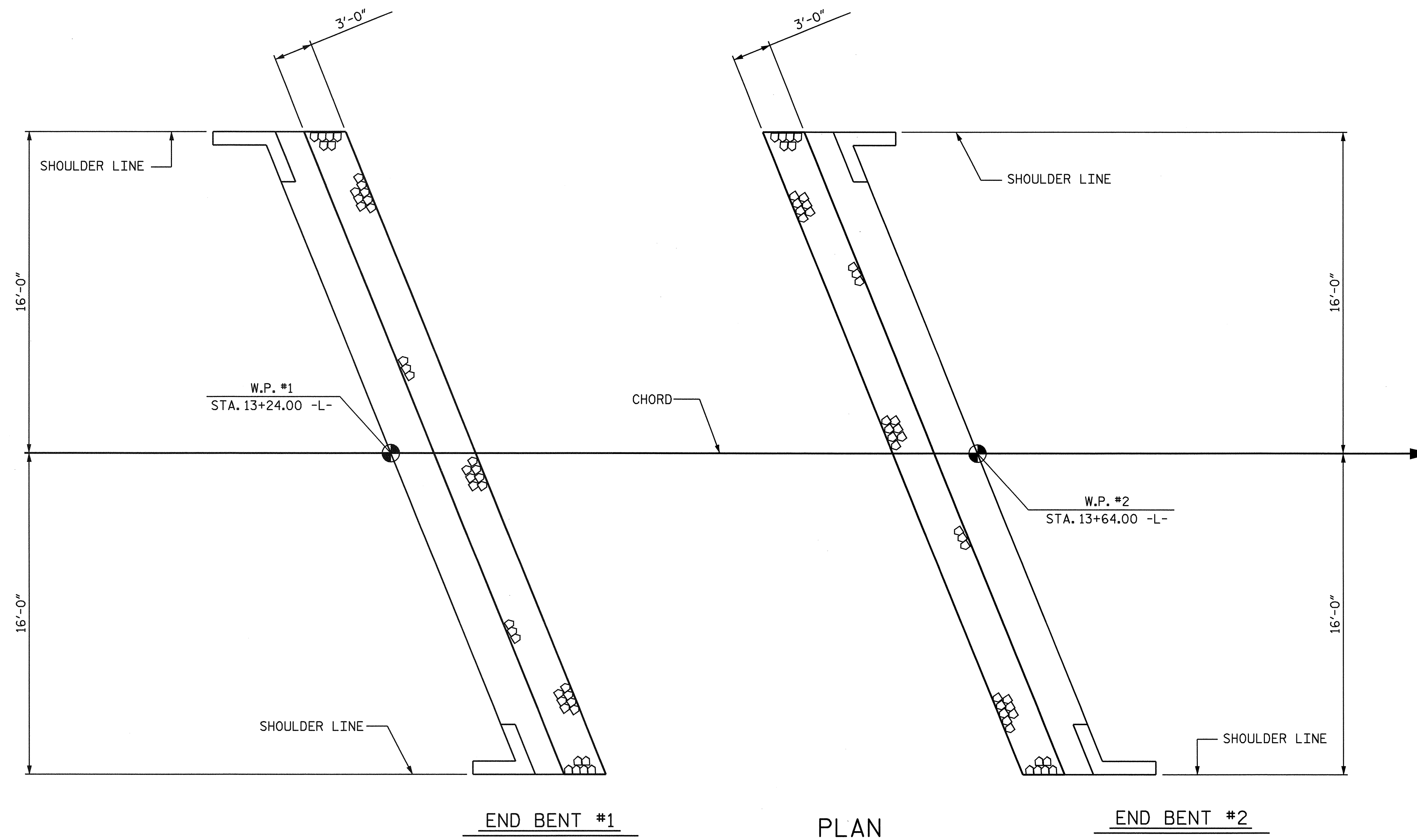
DRAWN BY: A. SORSENGINH DATE: 12/05
 CHECKED BY: J.L. WALTON DATE: 3/06

NOTES:

FOR BERM WIDTH DIMENSIONS, SEE GENERAL DRAWING.

ESTIMATED QUANTITIES

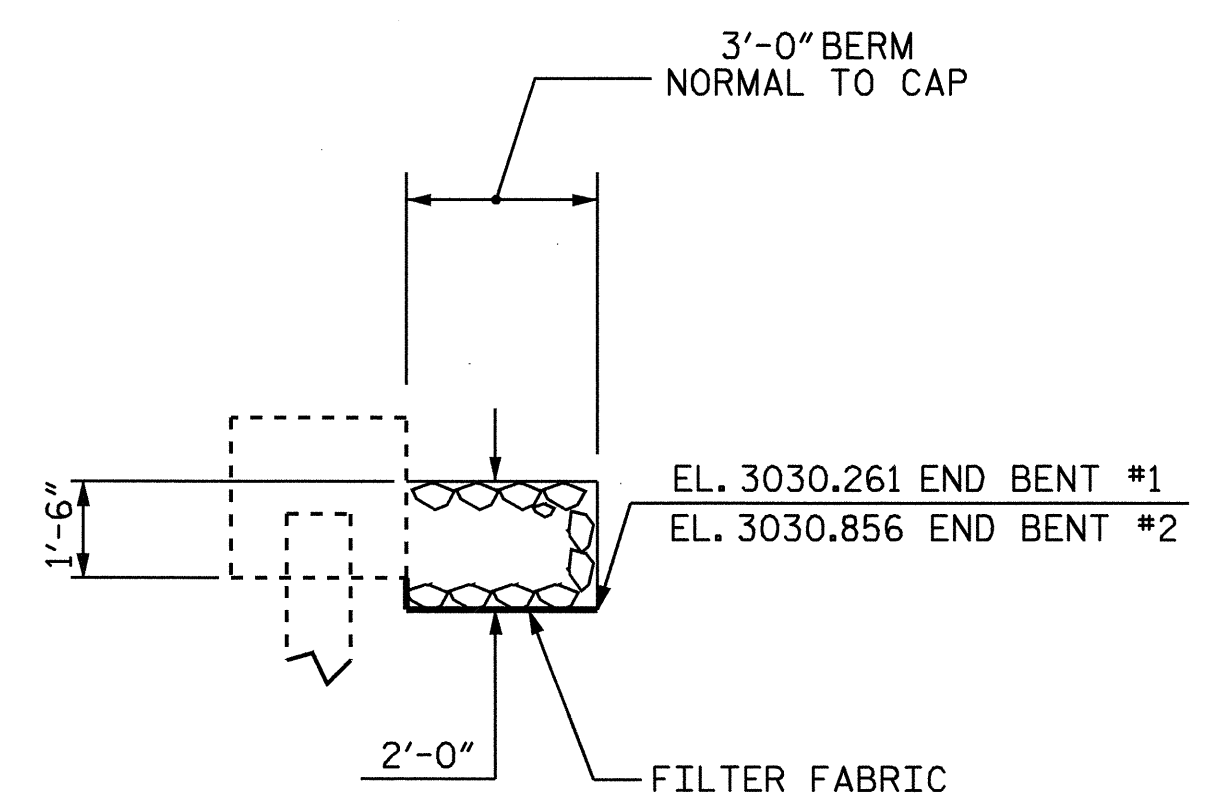
| BRIDGE @ STA. 13+44.00 -L- | PLAIN RIP RAP CLASS II | FILTER FABRIC FOR DRAINAGE |
|-------------------------------|---------------------------|-------------------------------|
| | TONS | SQUARE YARDS |
| END BENT 1 | 14 | 15 |
| END BENT 2 | 14 | 15 |



END BENT #1

PLAN

END BENT #2



SECTION

BERM RIP RAPPED

PROJECT NO. B-3406
AVERY COUNTY
 STATION: 13+44.00 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

— RIP RAP DETAILS —

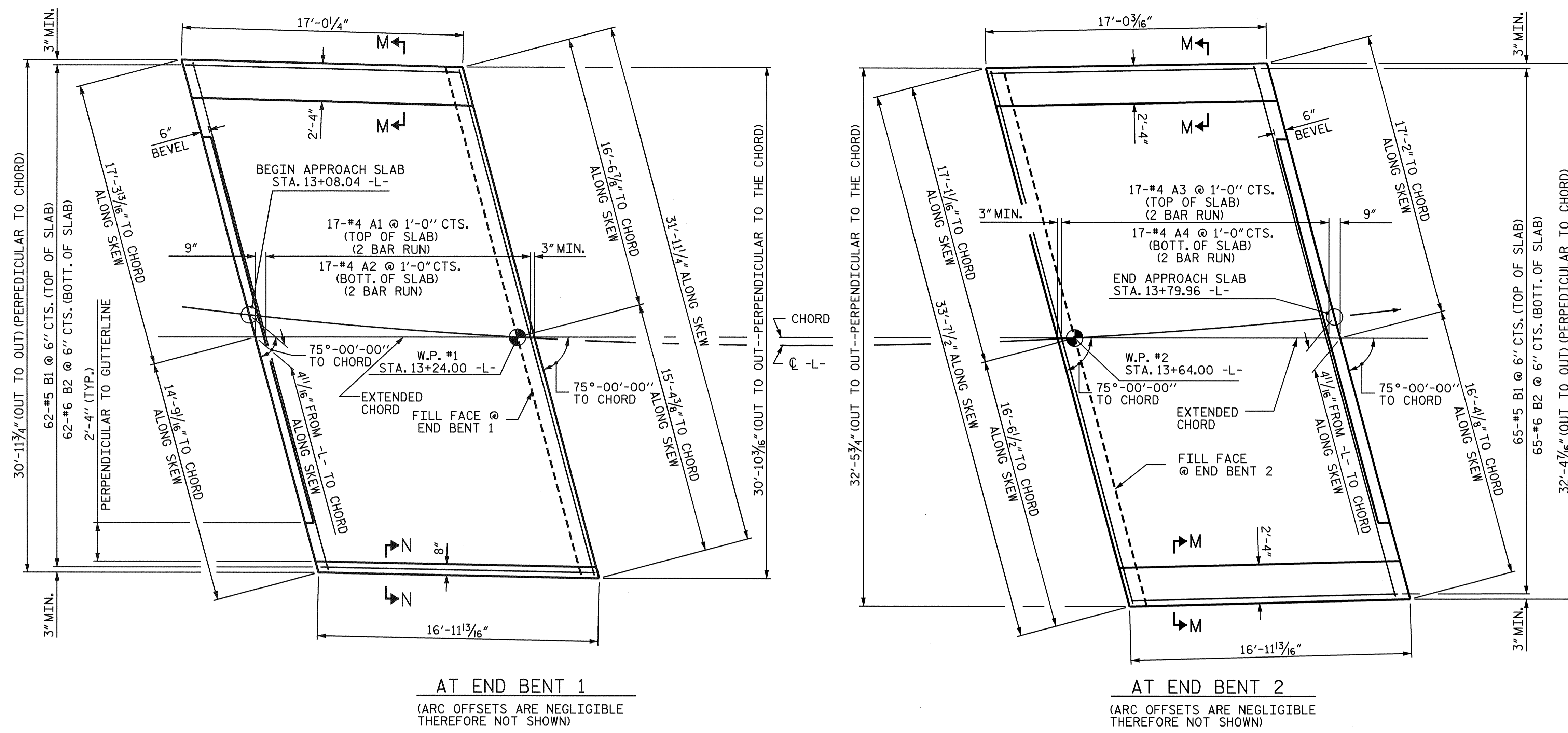
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| 1 | | | 3 | | | TOTAL SHEETS |
| 2 | | | 4 | | | 18 |



| | | |
|----------------------------|---------------|---------|
| ASSEMBLED BY : REK 1/84 | REV. 7/17/98 | REK/RWW |
| CHECKED BY : T.L. CLELLAND | REV. 8/16/99 | RWW/LES |
| | REV. 10/17/00 | RWW/LES |

SKREW < 90°

STD. NO. RR1



| SPLICE CHART | |
|--------------|-------|
| #4 A1, A3 | 2'-0" |
| #4 A2, A4 | 1'-9" |

| BILL OF MATERIAL | | | | | |
|---------------------------------|-----|------|------|---------|--------|
| APPROACH SLAB AT EB #1 | | | | | |
| BAR | NO. | SIZE | TYPE | LENGTH | WEIGHT |
| *A1 | 34 | #4 | STR | 16'-11" | 384 |
| A2 | 34 | #4 | STR | 16'-11" | 384 |
| *B1 | 62 | #5 | STR | 16'-1" | 1040 |
| B2 | 62 | #6 | STR | 16'-7" | 1544 |
| REINFORCING STEEL | | | | LBS. | 1928 |
| *EPOXY COATED REINFORCING STEEL | | | | LBS. | 1424 |
| CLASS AA CONCRETE | | | | C. Y. | 21.6 |
| APPROACH SLAB AT EB #2 | | | | | |
| BAR | NO. | SIZE | TYPE | LENGTH | WEIGHT |
| *A3 | 34 | #4 | STR | 17'-8" | 401 |
| A4 | 34 | #4 | STR | 17'-8" | 401 |
| *B1 | 65 | #5 | STR | 16'-1" | 1090 |
| B2 | 65 | #6 | STR | 16'-7" | 1619 |
| REINFORCING STEEL | | | | LBS. | 2020 |
| *EPOXY COATED REINFORCING STEEL | | | | LBS. | 1491 |
| CLASS AA CONCRETE | | | | C. Y. | 22.8 |

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 EXTEND 10'-0" BEYOND THE END OF THE APPROACH SLAB AND 1'-0" OUTSIDE OF EACH EDGE OF 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 EXTEND 1'-0" BEYOND THE END OF THE APPROACH SLAB AND THE WIDTH SHALL BE THE SAME AS THAT OF THE APPROACH SLAB.

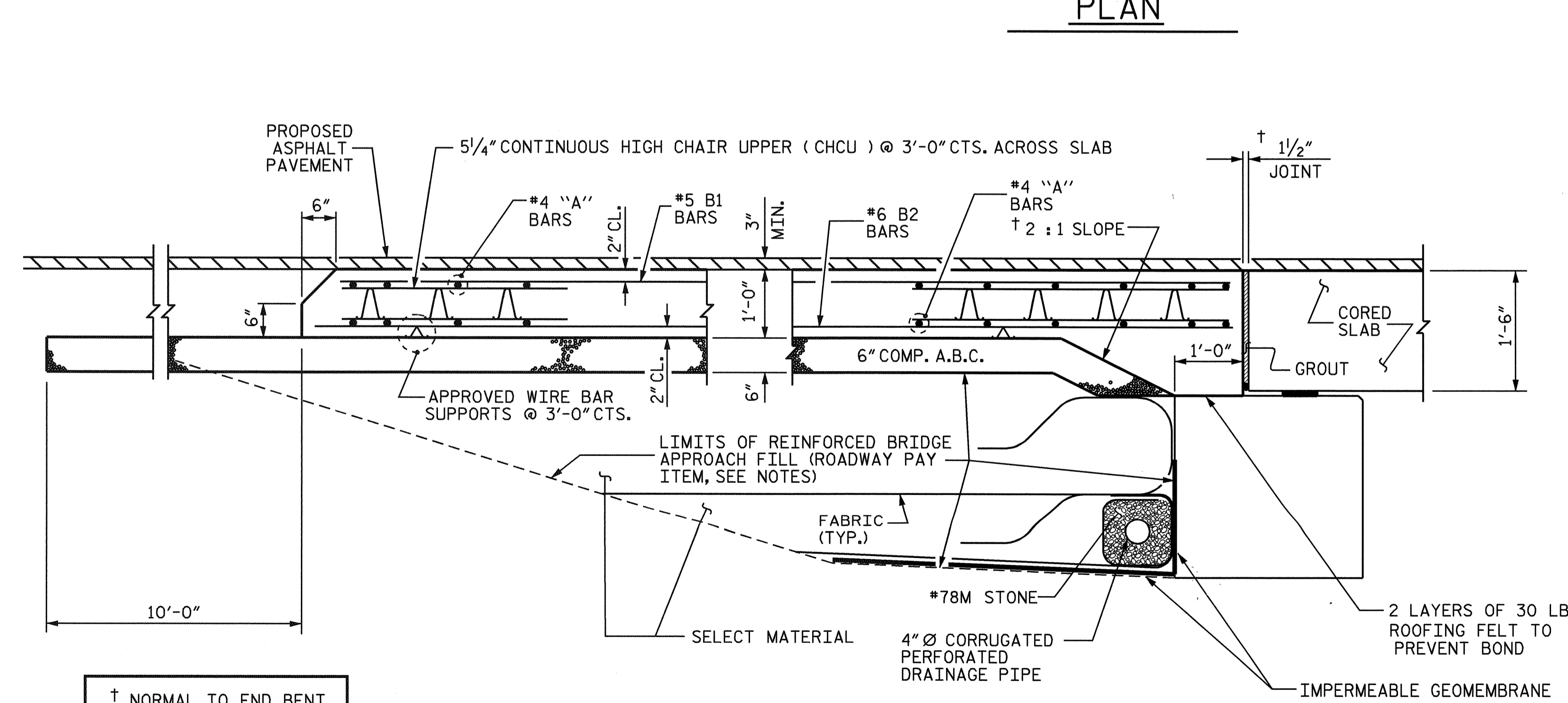
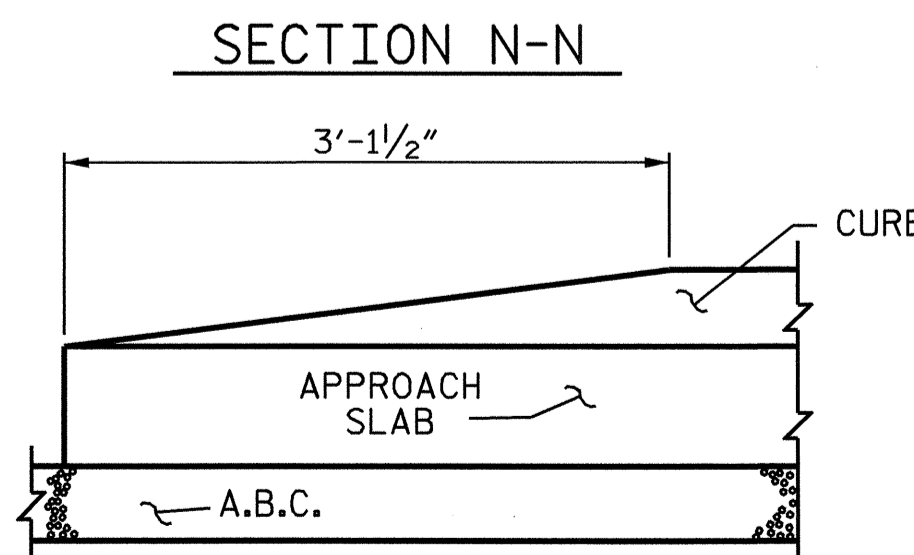
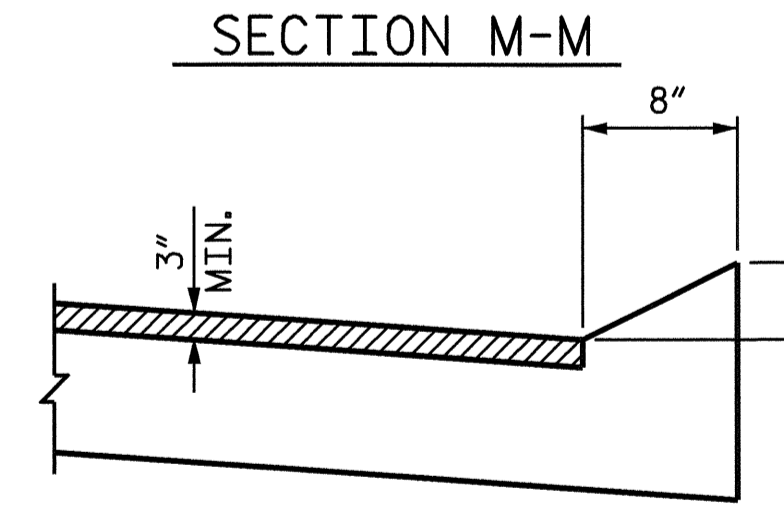
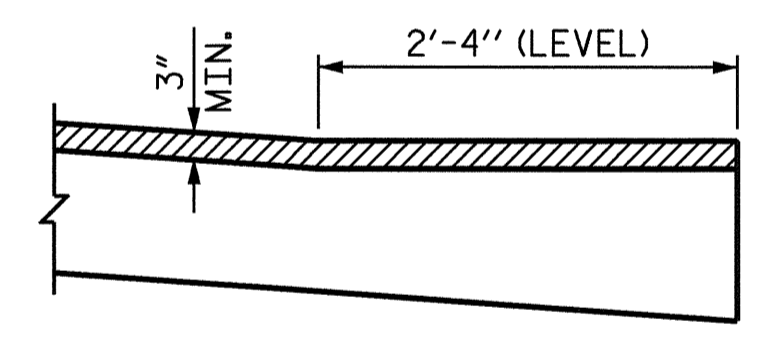
THE CONTRACTOR MAY USE 5" CLASS "A" CONCRETE BASE IN LIEU OF 6" COMP. A.B.C. IF THIS OPTION IS USED, THE CONCRETE BASE SHALL EXTEND 1'-0" BEYOND THE END OF THE APPROACH SLAB AND THE WIDTH SHALL BE THE SAME AS THAT OF THE APPROACH SLAB. THE CONCRETE SHALL BE FINISHED TO A SMOOTH SURFACE AND A LAYER OF 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 CORED SLAB UNIT" SHEETS.

THE JOINT AT THE END BENT SHALL BE GROUTED AS SOON AS PRACTICAL AFTER THE CONSTRUCTION OF THE APPROACH SLABS.

APPROACH SLAB GROOVING IS NOT REQUIRED.

PLAN



ASSEMBLED BY : T.L. CLELLAND DATE : 7/13/06
 CHECKED BY : P.K. NEWTON DATE : 7/24/06
 DRAWN BY : FCJ 6/87 REV. 7/10/01 LES/RDR
 CHECKED BY : EGA 6/87 REV. 5/1/03R RWW/JTE
 REV. 5/1/06 TLA/GM

SECTION THRU SLAB

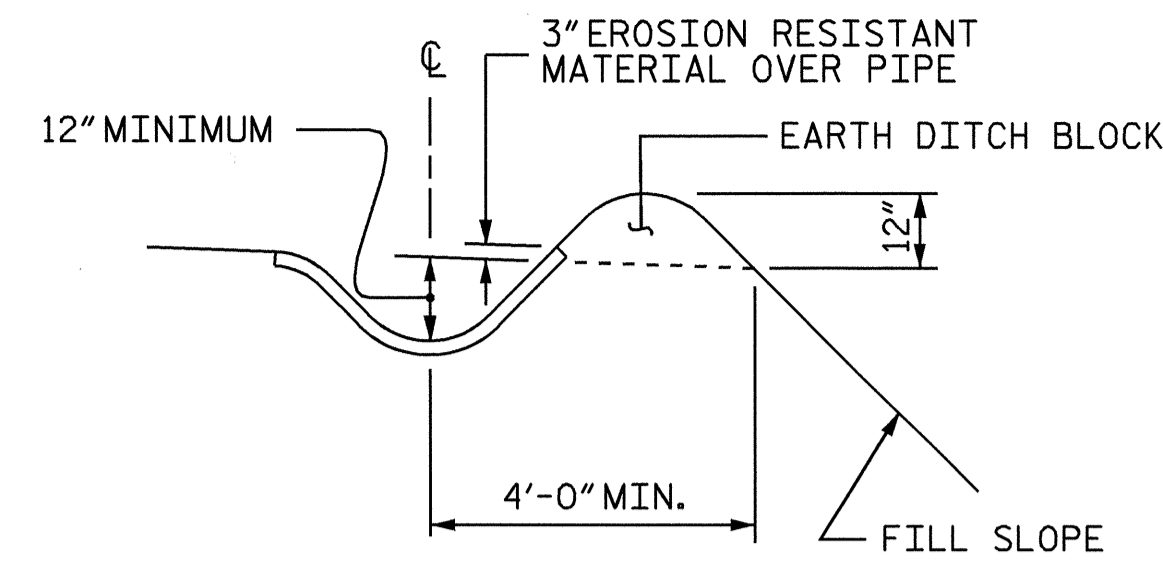
PROJECT NO. B-3406
AVERY COUNTY
 STATION: 13+44.00 -L-

SHEET 1 OF 2

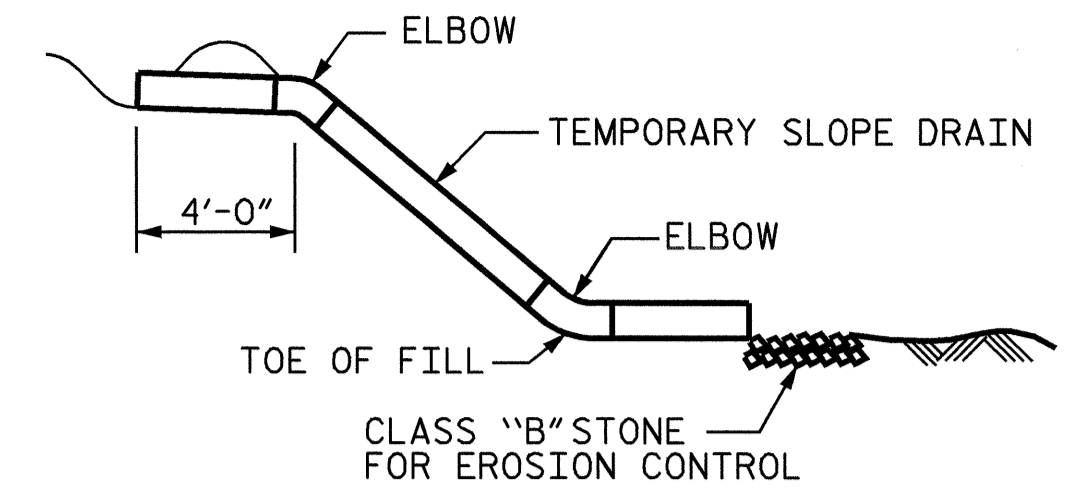
| REVISIONS | | | | | | SHEET NO. |
|-----------|-----|-------|-----|-----|-------|-----------|
| NO. | BY: | DATE: | NO. | BY: | DATE: | |
| 1 | | | 3 | | | S-17 |
| 2 | | | 4 | | | |

TOTAL SHEETS 18

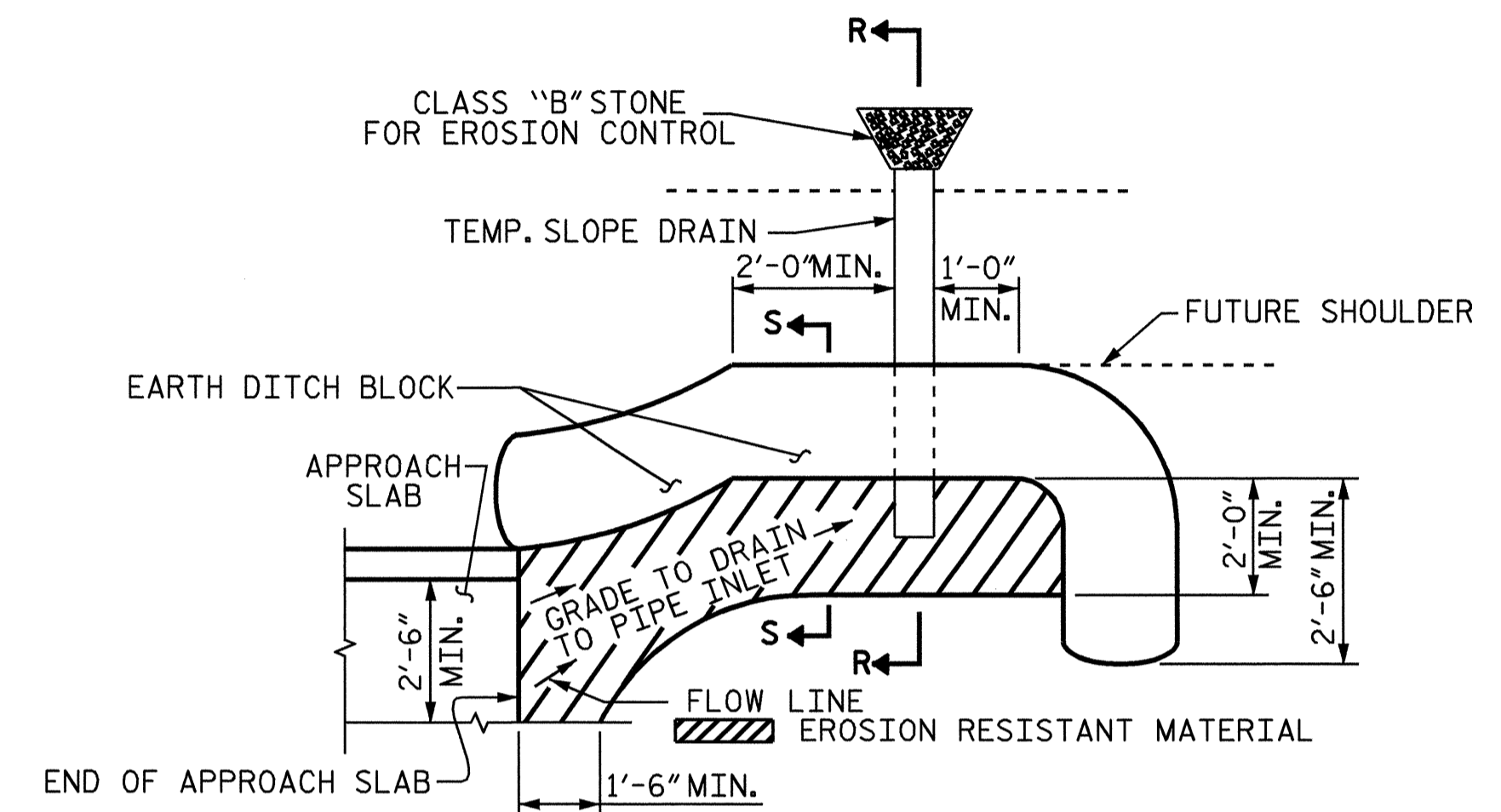




SECTION S-S



SECTION R-R

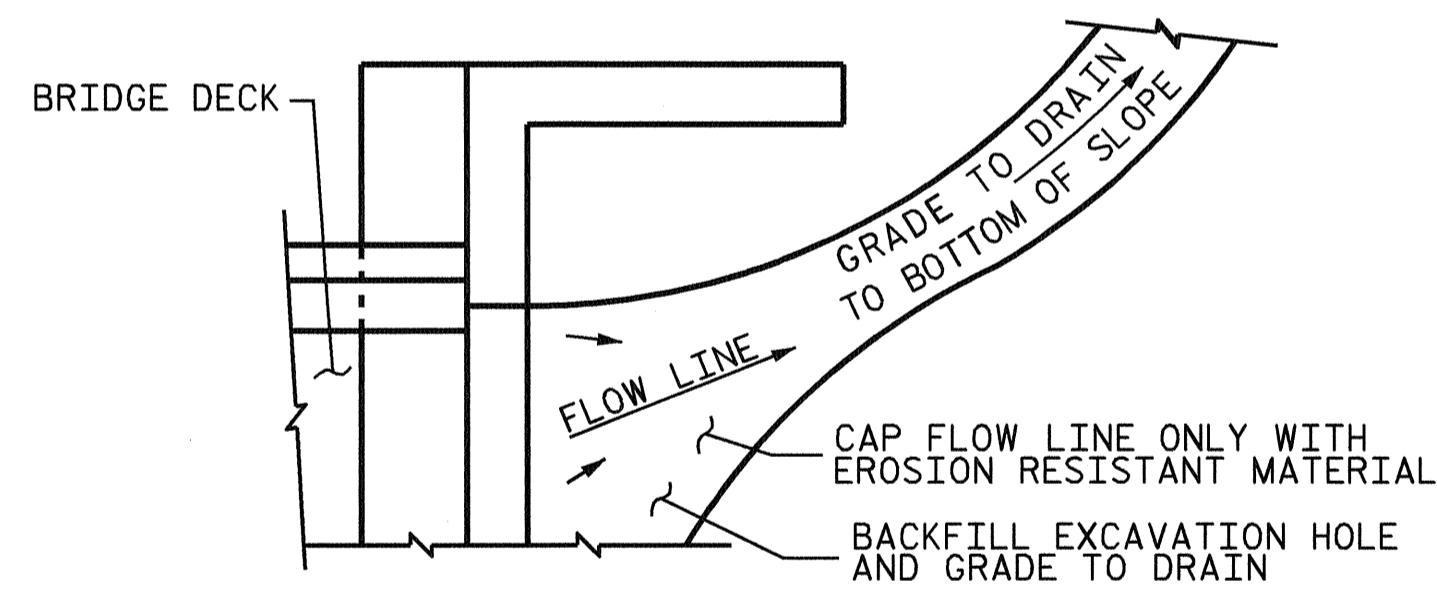


NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN. 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

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-3406
AVERY COUNTY
 STATION: 13+44.00-L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**BRIDGE APPROACH
 SLAB DETAILS**



| | | | |
|----------------|---------------|--------|-----------------------|
| ASSEMBLED BY : | A. SORSENGH | DATE : | 12/29/05 |
| CHECKED BY : | T.L. CLELLAND | DATE : | 3/8/05 |
| DRAWN BY : | FCJ | 11/88 | REV. 8/16/99 MAB/LES |
| CHECKED BY : | ARB | 11/88 | REV. 10/17/00 RWW/LES |
| | | | REV. 5/7/03 RWW/JTE |

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

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 2002 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; CLASS B CONCRETE SHALL BE USED FOR SLOPE PROTECTION AND RIP RAP; AND CLASS S SHALL BE USED FOR UNDERWATER FOOTING SEALS.

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 WITH THE EXCEPTION OF #2 BARS WHICH MAY BE FABRICATED FROM COLD DRAWN STEEL WIRE. 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.

PLACEMENT OF BEAM OR GIRDER MEMBERS ON TRUCKS FOR HAULING SHALL BE DONE IN COMPLIANCE WITH LIMITS SHOWN ON SKETCHES PROVIDED TO THE MATERIALS AND TEST UNIT APPROVED BY THE STRUCTURE DESIGN UNIT DATED MAY 8, 1991. THESE SKETCHES PRIMARILY LIMIT THE UNSUPPORTED CANTILEVER LENGTH OF MEMBERS. WHEN THE CONTRACTOR WISHES TO PLACE MEMBERS ON TRUCKS NOT IN ACCORDANCE WITH THESE LIMITS, TO SHIP BY RAIL, TO ATTACH SHIPPING RESTRAINTS TO THE MEMBERS OR TO INVERT MEMBERS, HE SHALL SUBMIT A SKETCH FOR APPROVAL PRIOR TO SHIPPING. SEE ALSO ARTICLE 1072-11.

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