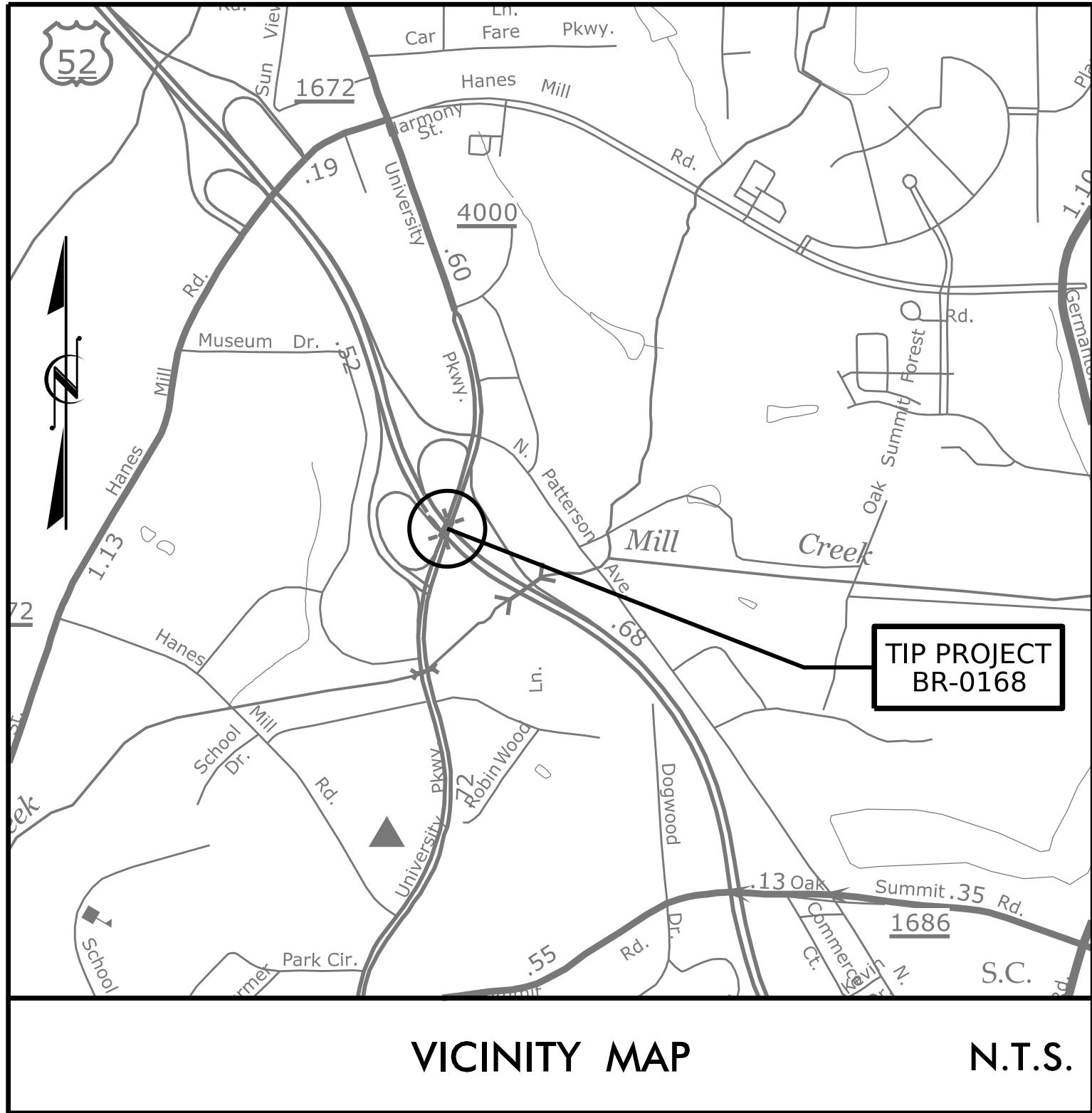


TIP PROJECT: BR-0168

CONTRACT: C205160

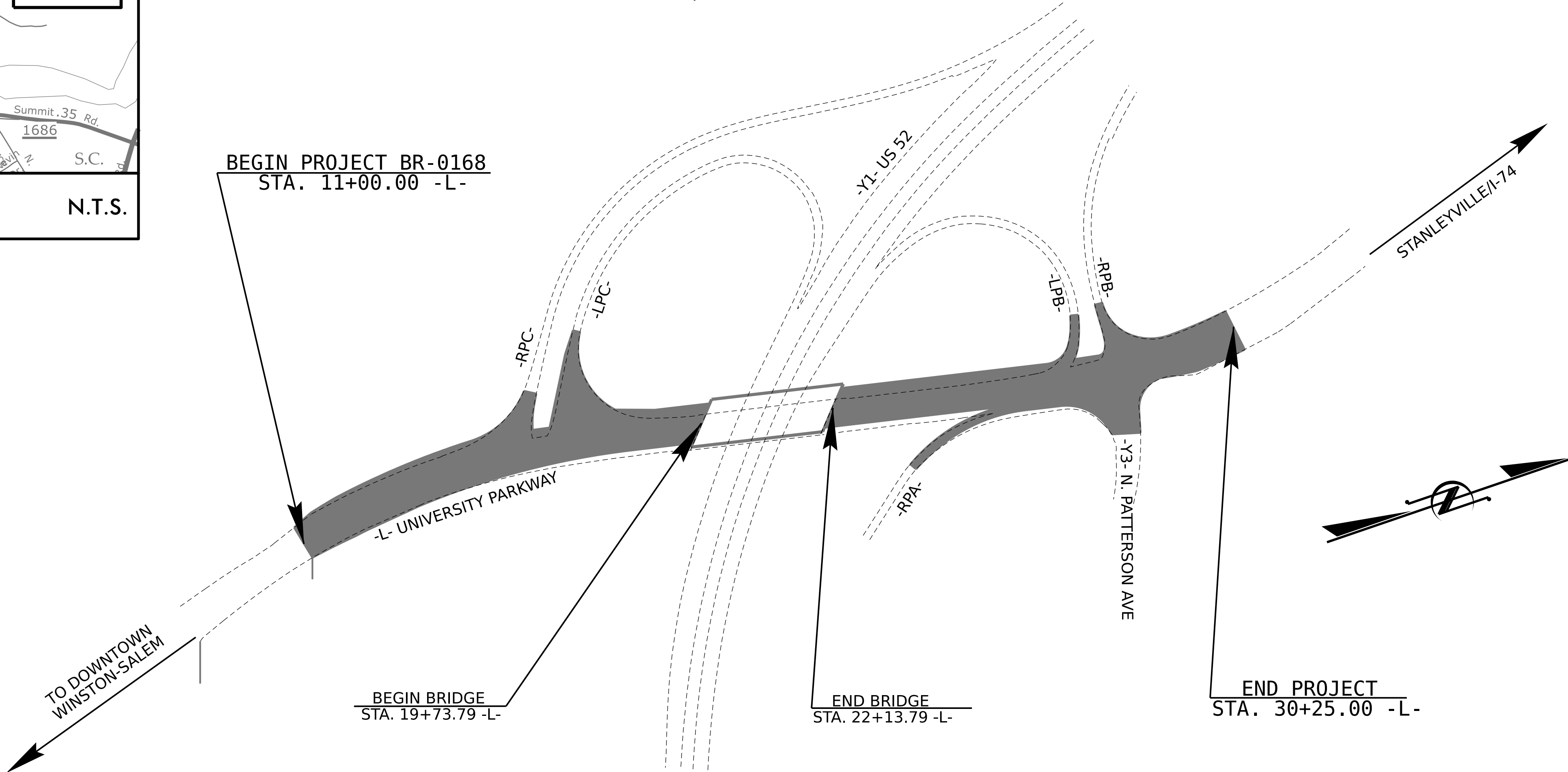
| STATE           | STATE PROJECT REFERENCE NO. | SHEET NO.   | TOTAL SHEETS |
|-----------------|-----------------------------|-------------|--------------|
| N.C.            | BR-0168                     | 1           |              |
| STATE PROJ. NO. | F.A. PROJ. NO.              | DESCRIPTION |              |
| 67168.1.1       | -                           | P.E.        |              |
| 67168.2.1       | -                           | UTILITIES   |              |
| 67168.2.2       | -                           | ROW         |              |
| 67168.3.1       | -                           | CONST.      |              |
|                 |                             |             |              |
|                 |                             |             |              |
|                 |                             |             |              |



STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS  
***FORSYTH COUNTY***

LOCATION: REPLACE BRIDGE 330289 ON SR 4000  
(UNIVERSITY PARKWAY) OVER US 52

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



***STRUCTURE***



**DESIGN DATA**

ADT 2026 = 32,800  
ADT 2046 = 31,550  
K = 9 %  
D = 65 %  
T = 4 % \*\*  
V = 50 MPH  
\* (TTST 1 %, DUAL 3 %)

FUNC CLASS=PRINCIPAL ARTERIAL  
REGIONAL TIER

**PROJECT LENGTH**

LENGTH ROADWAY TIP PROJECT BR-0168 = 0.320 MILES  
LENGTH STRUCTURE TIP PROJECT BR-0168 = 0.045 MILES  
TOTAL LENGTH TIP PROJECT BR-0168 = 0.365 MILES

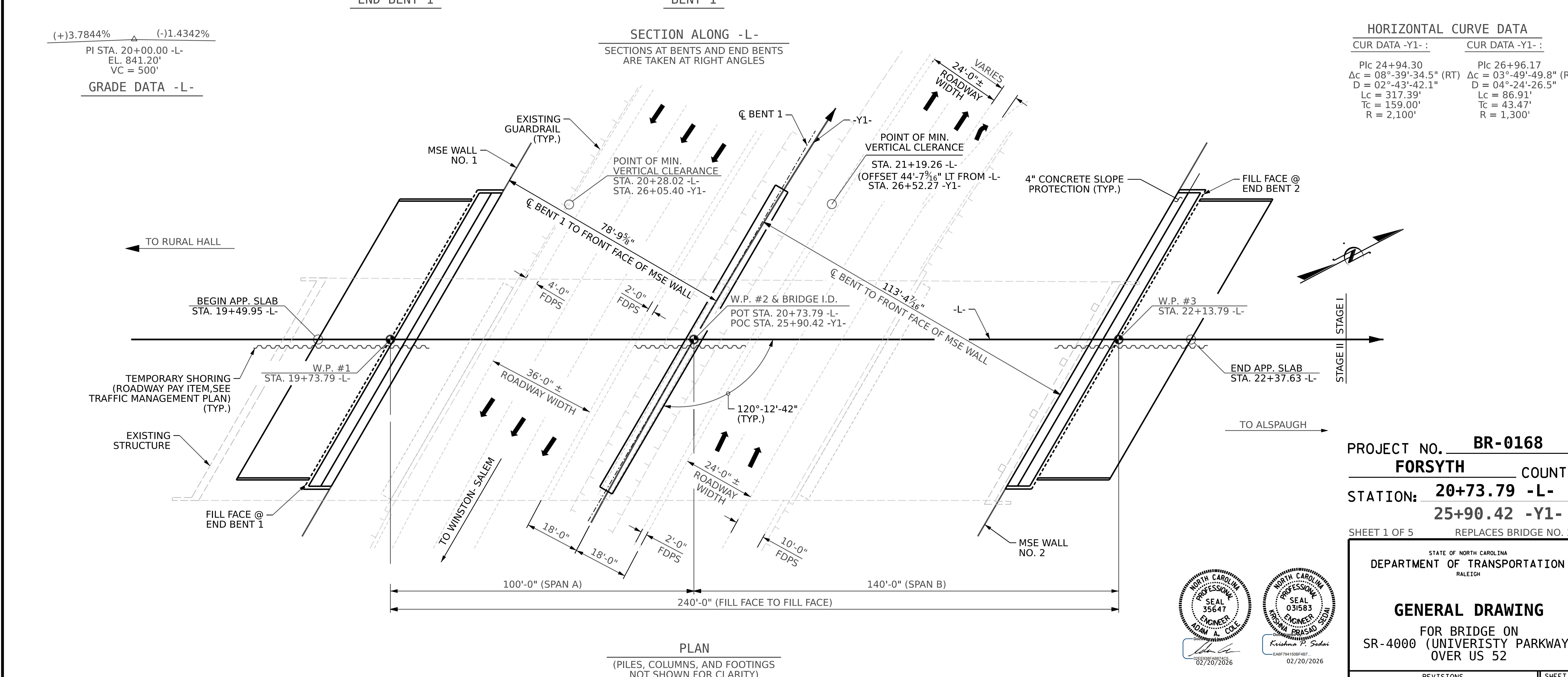
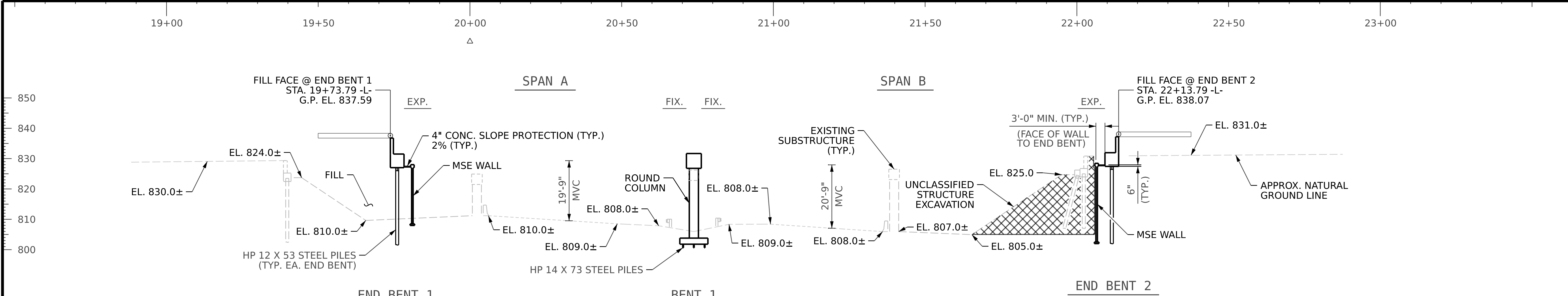
Prepared In the Office of:  
**DIVISION OF HIGHWAYS**  
STRUCTURES MANAGEMENT UNIT  
1000 BIRCH RIDGE DR.  
RALEIGH, N.C. 27610

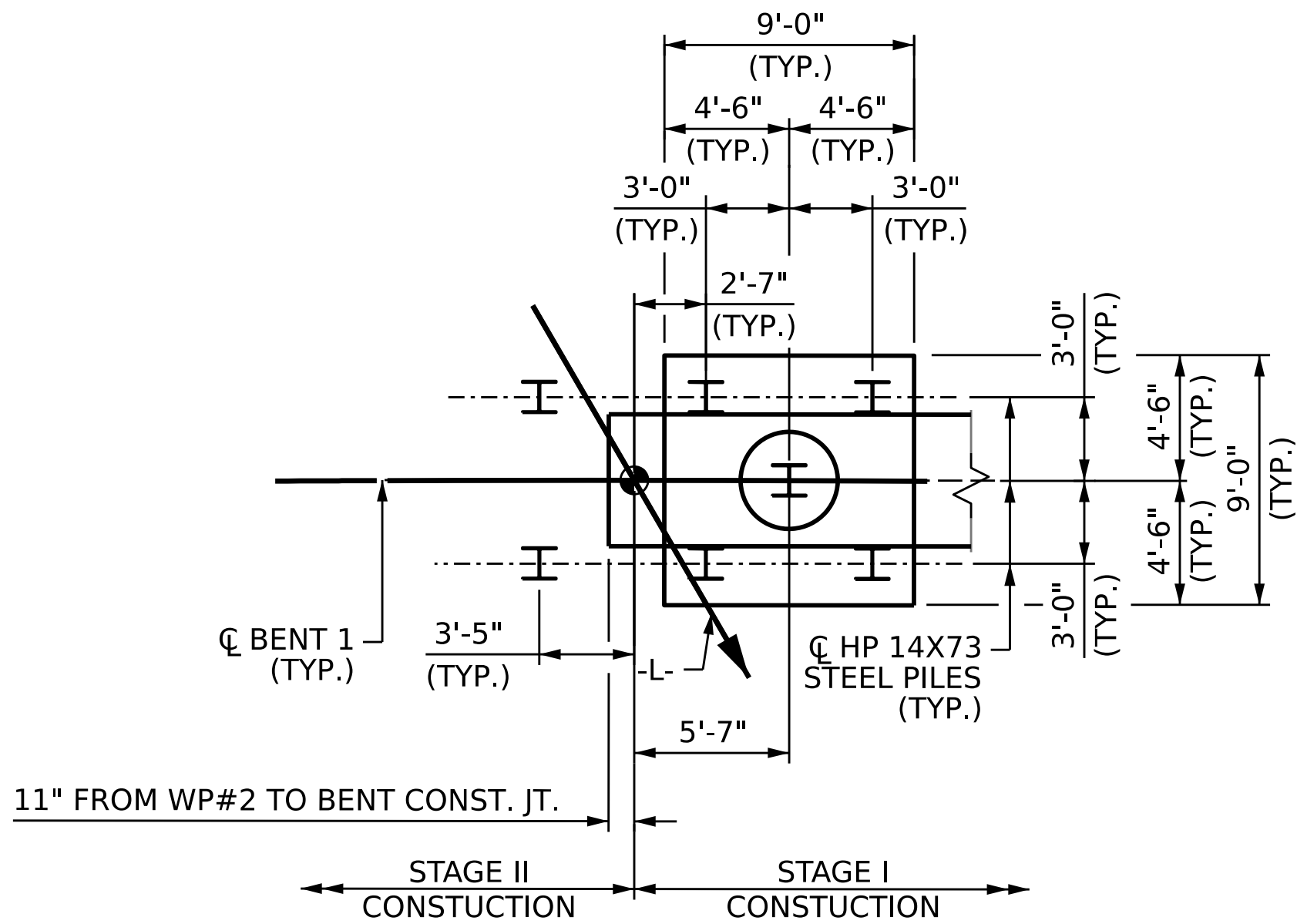
2024 STANDARD SPECIFICATIONS

LETTING DATE :  
MAY 19, 2026

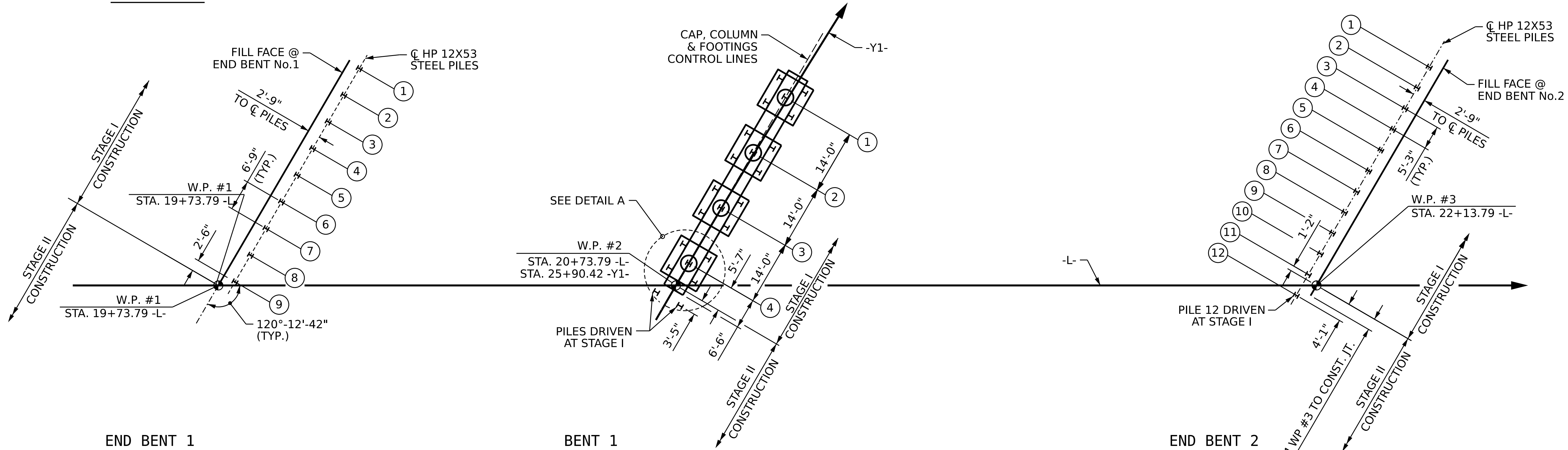
ADAM COLE, P.E.  
PROJECT ENGINEER

KRISHNA SEDAI, P.E.  
PROJECT DESIGN ENGINEER





DETAIL A



FOUNDATION LAYOUT- CONSTRUCTION STAGE I

DIMENSIONS LOCATING PILES  
ARE SHOWN TO THE CENTERLINE OF PILES.

PROJECT NO. **BR-0168**

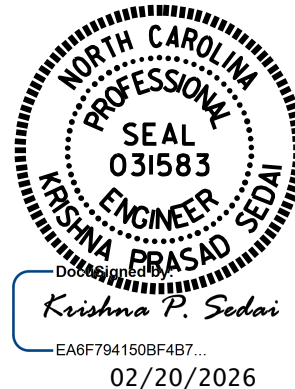
**FORSYTH** COUNTY

STATION: **20+73.79 -L-**

SHEET 2 OF 5

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

**GENERAL DRAWING**  
FOR BRIDGE ON  
SR-4000/UNIVERSITY PARKWAY  
OVER US 52

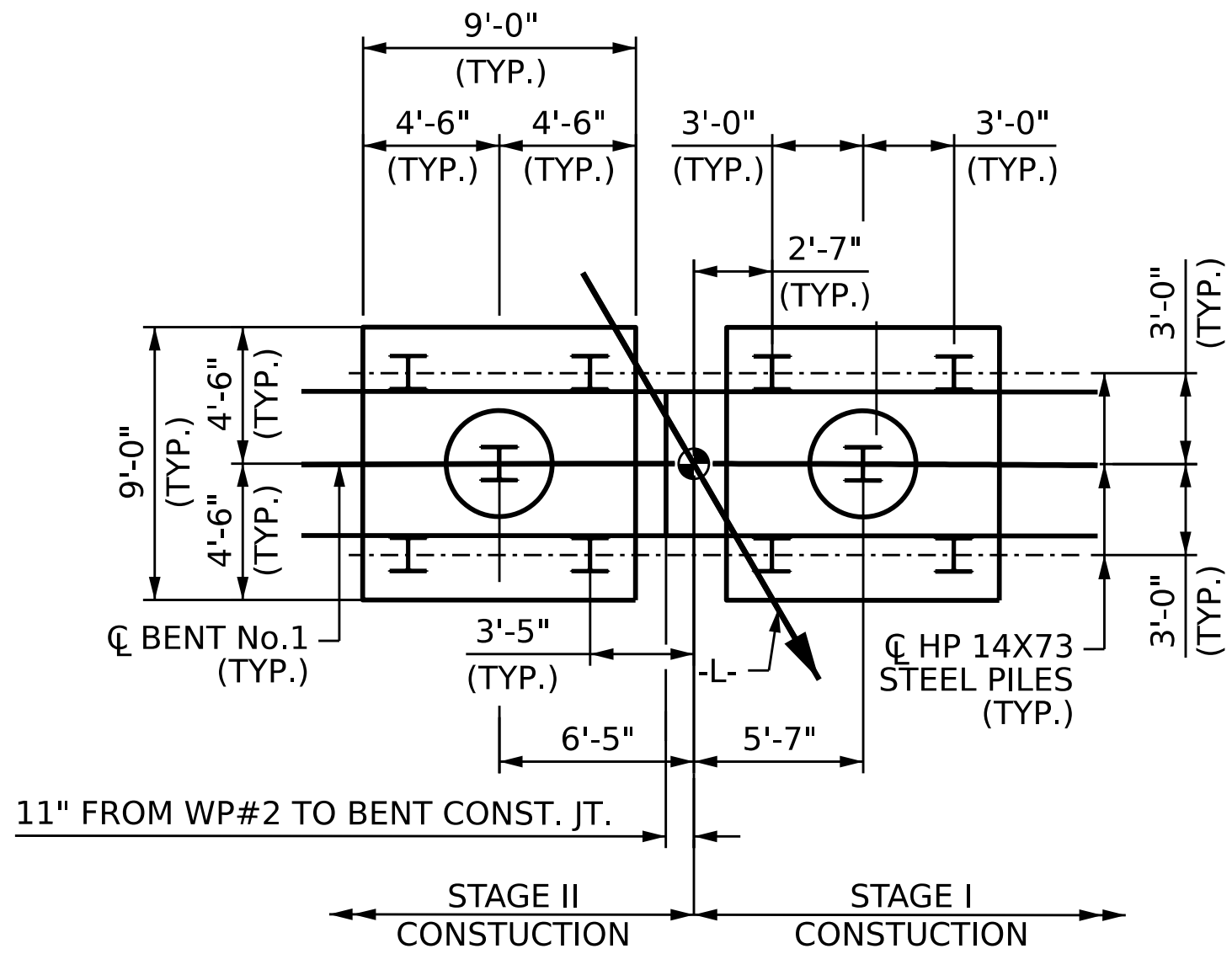


DRAWN BY : **E. MOHAMED/AI/NBS** DATE : **10/2025**  
CHECKED BY : **A. SORSENGINH** DATE : **10/2025**  
DESIGN ENGINEER OF RECORD: **A. IGHWAIR** DATE : **10/2025**

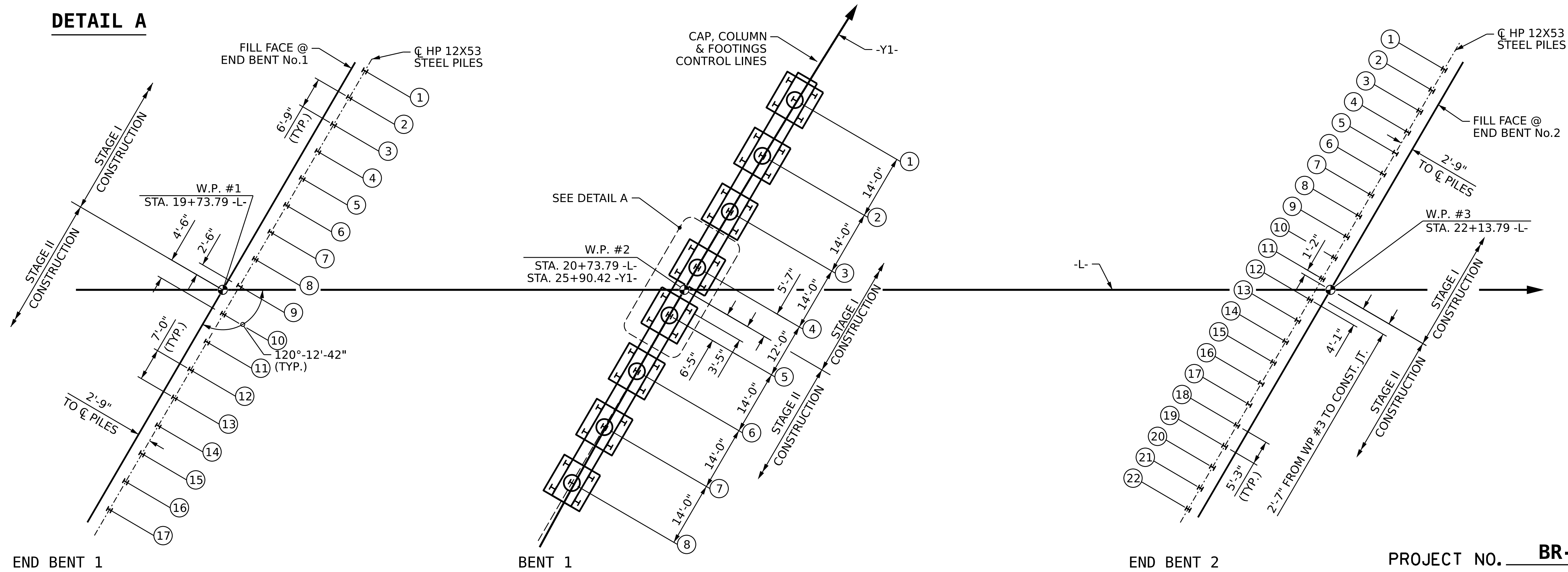
2/19/2026  
S:\DPG3\BR-0168\Final Plans\401.003.BR0168.SMU.FL.S02.330289.dgn  
ksedai

DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED

| REVISIONS |     |       |     |     |       | SHEET NO.          |
|-----------|-----|-------|-----|-----|-------|--------------------|
| NO.       | BY: | DATE: | NO. | BY: | DATE: |                    |
| 1         |     |       | 3   |     |       | S-02               |
| 2         |     |       | 4   |     |       | TOTAL SHEETS<br>53 |



DETAIL A



FOUNDATION LAYOUT- FINAL STAGE

PROJECT NO. **BR-0168**  
**FORSYTH** COUNTY  
STATION: **20+73.79 -L-**

SHEET 3 OF 5



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
**GENERAL DRAWING**  
FOR BRIDGE ON  
SR-4000/UNIVERSITY PARKWAY  
OVER US 52

DRAWN BY : E. MOHAMED/AAI/NBS DATE : 10/2025  
CHECKED BY : A. SORSENGINH DATE : 10/2025  
DESIGN ENGINEER OF RECORD: A. IGHWAIR DATE : 10/2025

2/19/2026  
S:\DPG3\BR-0168\Final Plans\401.005\_BR0168\_SMU\_FL\_S03\_330289.dgn  
ksedai

DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED

| REVISIONS    |     |       |     | SHEET NO. |       |
|--------------|-----|-------|-----|-----------|-------|
| NO.          | BY: | DATE: | NO. | BY:       | DATE: |
| 1            |     |       | 3   |           |       |
| 2            |     |       | 4   |           |       |
| TOTAL SHEETS |     |       |     | 53        |       |

SUMMARY OF PILE INFORMATION/INSTALLATION

(Blank entries indicate item is not applicable to structure)

| End Bent / Bent No, Pile(s) #(-#)<br>(e.g., "Bent 1, Piles 1-5") | Number of Piles per Line | Factored Resistance per Pile<br><b>KIPS</b> | Pile Cut-Off (Top of Pile) Elevation FT | Estimated Pile Length per Pile FT | Scour Critical Elevation FT | Driven Piles                                       |                                                            |                             | Predrilling for Piles **           |                                                            |                                     | Drilled-In Piles                              |                                             |                                         |
|------------------------------------------------------------------|--------------------------|---------------------------------------------|-----------------------------------------|-----------------------------------|-----------------------------|----------------------------------------------------|------------------------------------------------------------|-----------------------------|------------------------------------|------------------------------------------------------------|-------------------------------------|-----------------------------------------------|---------------------------------------------|-----------------------------------------|
|                                                                  |                          |                                             |                                         |                                   |                             | Minimum Pile Tip (Tip No Higher Than) Elevation FT | Required Driving Resistance (RDR)* per pile<br><b>KIPS</b> | Pile Redrives Quantity EACH | Predrilling Length per Pile LIN FT | Predrilling Elevation (Elevation Not To Predrill Below) FT | Maximum Predrilling Diameter INCHES | Pile Excavation (Bottom of Hole) Elevation FT | Pile Excavation Not in Soil per Pile LIN FT | Pile Excavation In Soil per Pile LIN FT |
| End Bent No. 1, Piles 1-13                                       | 13                       | 225                                         |                                         | 45                                |                             |                                                    | 375                                                        |                             |                                    |                                                            |                                     |                                               |                                             |                                         |
| End Bent No. 1, Piles 14-17                                      | 4                        | 225                                         |                                         | 55                                |                             |                                                    | 375                                                        |                             |                                    |                                                            |                                     |                                               |                                             |                                         |
| Bent No. 1, Footings 1-6                                         | 30                       | 240                                         |                                         | 25                                |                             |                                                    | 400                                                        |                             |                                    |                                                            |                                     |                                               |                                             |                                         |
| Bent No. 1, Footings 7-8                                         | 10                       | 240                                         |                                         | 45                                |                             |                                                    | 400                                                        |                             |                                    |                                                            |                                     |                                               |                                             |                                         |
| End Bent No. 2, Piles 1-4                                        | 4                        | 240                                         |                                         | 45                                |                             |                                                    | 400                                                        |                             |                                    |                                                            |                                     |                                               |                                             |                                         |
| End Bent No. 2, Piles 5-22                                       | 18                       | 240                                         |                                         | 55                                |                             |                                                    | 400                                                        |                             |                                    |                                                            |                                     |                                               |                                             |                                         |
|                                                                  |                          |                                             |                                         |                                   |                             |                                                    |                                                            |                             |                                    |                                                            |                                     |                                               |                                             |                                         |
|                                                                  |                          |                                             |                                         |                                   |                             |                                                    |                                                            |                             |                                    |                                                            |                                     |                                               |                                             |                                         |
| TOTAL QUANTITY:                                                  |                          |                                             |                                         |                                   |                             |                                                    |                                                            |                             |                                    |                                                            |                                     |                                               |                                             |                                         |
|                                                                  |                          |                                             |                                         |                                   |                             |                                                    |                                                            |                             |                                    |                                                            |                                     |                                               |                                             |                                         |

\*  $RDR = \frac{\text{Factored Resistance} + \text{Factored Drag Load} + \text{Factored Dead Load}}{\text{Dynamic Resistance Factor}}$  + Nominal Drag Load Resistance + Nomlnal Resistance from Scourable Material

\*\* Predrilling for Piles is required for end bents/bents with a predrilling length and at the Contractor's option for end bents/bents with predrilling information but no predrilling length.

PILE DESIGN INFORMATION

(Blank entries indicate item is not applicable to structure)

| End Bent / Bent No, Pile(s) #(-#)<br>(e.g., "Bent 1, Piles 1-5") | Factored Axial Load per Pile<br><b>KIPS</b> | Factored Drag Load per Pile<br><b>KIPS</b> | Factored Dead Load * per Pile<br><b>KIPS</b> | Dynamic Resistance Factor | Nominal Drag Resistance per Pile<br><b>KIPS</b> | Nominal Scour Resistance per Pile<br><b>KIPS</b> |
|------------------------------------------------------------------|---------------------------------------------|--------------------------------------------|----------------------------------------------|---------------------------|-------------------------------------------------|--------------------------------------------------|
| End Bent No.1                                                    | 225                                         |                                            |                                              | 0.60                      |                                                 |                                                  |
| Bent No. 1                                                       | 240                                         |                                            |                                              | 0.60                      |                                                 |                                                  |
| End Bent No.2                                                    | 240                                         |                                            |                                              | 0.60                      |                                                 |                                                  |
|                                                                  |                                             |                                            |                                              |                           |                                                 |                                                  |
|                                                                  |                                             |                                            |                                              |                           |                                                 |                                                  |

\* Factored Dead Load is factored weight of pile above the ground line.

SUMMARY OF PILE ACCESSORIES

(Blank entries indicate item is not applicable to structure)

| End Bent / Bent No, Pile(s) #(-#)<br>(e.g., "Bent 1, Piles 1-5") | Pipe Pile Plates EACH | Steel Pile Points            |                               |                    |
|------------------------------------------------------------------|-----------------------|------------------------------|-------------------------------|--------------------|
|                                                                  |                       | Pipe Pile Cutting Shoes EACH | Pipe Pile Conical Points EACH | H-Pile Points EACH |
|                                                                  |                       |                              |                               |                    |
|                                                                  |                       |                              |                               |                    |
|                                                                  |                       |                              |                               |                    |
|                                                                  |                       |                              |                               |                    |
|                                                                  |                       |                              |                               |                    |
|                                                                  |                       |                              |                               |                    |
| TOTAL QUANTITY:                                                  |                       |                              |                               |                    |
|                                                                  |                       |                              |                               |                    |

SUMMARY OF DPT/PILE ORDER LENGTHS

(Blank entries indicate item is not applicable to structure)

| Dynamic Pile Testing (DPT)                      |                         |                           |
|-------------------------------------------------|-------------------------|---------------------------|
| End Bent / Bent No<br>(e.g., "Bent 1 - Bent 3") | DPT Test Pile Length FT | DPT Testing Quantity EACH |
|                                                 |                         |                           |
|                                                 |                         |                           |
|                                                 |                         |                           |
|                                                 |                         |                           |
|                                                 |                         |                           |
|                                                 |                         |                           |
| TOTAL QUANTITY:                                 |                         |                           |
|                                                 |                         |                           |

| Pile Order Lengths for Concrete Piles           |                                     |
|-------------------------------------------------|-------------------------------------|
| End Bent / Bent No<br>(e.g., "Bent 1 - Bent 3") | Pile Order Length Basis* EST or DPT |
|                                                 |                                     |
|                                                 |                                     |
|                                                 |                                     |
|                                                 |                                     |
|                                                 |                                     |
|                                                 |                                     |

\* EST = Pile order lengths from estimated pile lengths; DPT = Pile order lengths based on Dynamic Pile Testing. For groups of end bents/bents with pile order lengths based on DPT testing, the first end bent/bent no. listed for each group is the representative end bent/bent with the DPT.

NOTES

THE PILE FOUNDATION TABLES ARE BASED ON THE BRIDGE SUBSTRUTURE DESIGN AND FOUNDATION RECOMMENDATIONS SEALED BY A NORTH CAROLINA PROFESSIONAL ENGINEER (MICHAEL H. STEPHENS, #028893) ON 01-31-2025. TOTAL PILE DRIVING EQUIPMENT SETUP QUANTITY (NOT SHOWN IN PILE FOUNDATION TABLES) EQUALS THE NUMBER OF DRIVEN PILES, I.E., THE NUMBER OF PILES WITH REQUIRED DRIVING RESISTANCE. THE ENGINEER MAY ADJUST THE QUANTITY FOR DPT TESTING AND PIPE PILE PLATES WHEN NECESSARY. FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

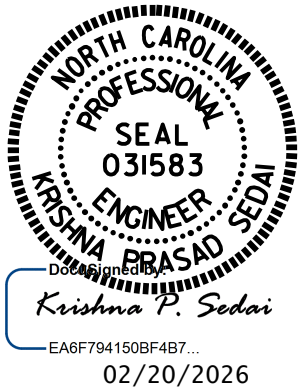
OBSERVE A 2 MONTH WAITING PERIOD AFTER CONSTRUCTING THE MSE ABUTMENT WALLS, END BENTS AND BRIDGE APPROACH FILLS, IF APPLICABLE, BEFOREBEGINNING APPROACH SLAB CONSTRUCTION AT END BENT NOS.1 AND 2. FOR BRIDGE WAITING PERIODS, SEE ROADWAY PLANS AND SECTION 235 OF THE STANDARD SPECIFICATIONS.

IT HAS BEEN ESTIMATED THAT A HAMMER WITH AN EQUIVALENT RATED ENERGY IN THE RANGE OF 40,000 FT-LBS TO 55,000 FT-LBS PER BLOW WILL BE REQUIRED TO DRIVE PILES AT END BENT NOS. 1 AND 2 AND BENT NO. 1. THIS ESTIMATED ENERGY RANGE DOES NOT RELEASE THE CONTRACTOR FROM PROVIDING DRIVING EQUIPMENT IN ACCORDANCE WITH SUBARTICLE 450-3(D)(2) OF THE STANDARD SPECIFICATIONS.

DRIVE PILES AT END BENT NOS. 1 AND 2 PRIOR TO THE CONSTRUCTION OF MSE ABUTMENT WALLS.

PROJECT NO. **BR-0168**  
**FORSYTH** COUNTY  
STATION: **20+73.79 -L-**

SHEET 4 OF 5

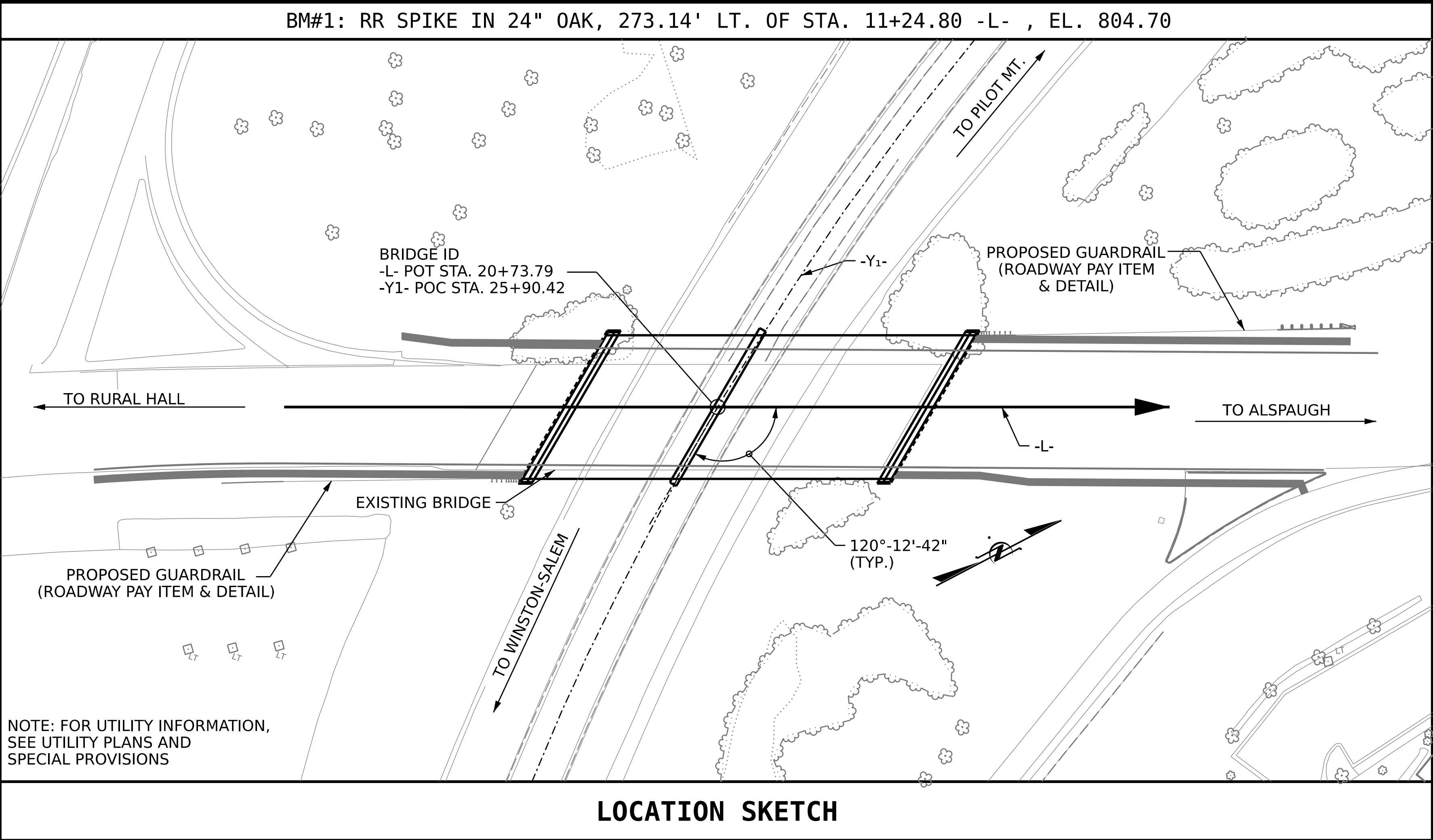


STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
  
**PILE FOUNDATION  
TABLES**

| REVISIONS |     |       |     |     |       | SHEET NO.                  |
|-----------|-----|-------|-----|-----|-------|----------------------------|
| NO.       | BY: | DATE: | NO. | BY: | DATE: |                            |
| 1         |     |       | 3   |     |       | S-04<br>TOTAL SHEETS<br>53 |
| 2         |     |       | 4   |     |       |                            |

DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED

DRAWN BY : E. MOHAMED DATE : 04/2025  
CHECKED BY : A.SORSENGINH DATE : 04/2025  
DESIGN ENGINEER OF RECORD: A. IGHWAIR DATE : 04/2025



NOTES:

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.

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

THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.

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

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR TEMPORARY GUARDRAIL, SEE TRAFFIC MANAGEMENT PLANS.

TEMPORARY SHORING WILL BE REQUIRED IN THE AREAS INDICATED IN THE PLAN VIEW

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

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

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 56 FT. EACH SIDE OF THE CENTERLINE ROADWAY AS DIRRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION. SEE SECTION 412 OF THE STANDARD SPECIFICATIONS.

FOR MAINTENANCE AND PROTECTION OF TRAFFIC BENEATH PROPOSED STRUCTURES AT STATION 20+73.79 -L-, SEE SPECIAL PROVISIONS.

FOR REMOVAL OF EXISTING STRUCTURE AT STATION 20+73.79 -L-, SEE SPECIAL PROVISIONS.

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 ASBESTOS ASSESSMENT FOR BRIDGE DEMOLITION AND RENOVATION ACTIVITIES, SEE SPECIAL PROVISIONS.

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 20+73.79 -L-."

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

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

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

FOR MSE WALLS, SEE GEOTECHNICAL SPECIAL PROVISIONS.

AFTER SERVING AS A TEMPORARY STRUCTURE, THE EXISTING BRIDGE CONSISTING OF 4 SPANS (1 @ 62'-6", 1 @ 71'-6", 1 @ 66'-0" AND 1 @ 62'-6") SHALL BE REMOVED. THE SUPERSTRUCTURE HAS A CLEAR ROADWAY WIDTH OF 68'-0" WITH REINFORCED CONCRETE DECK ON PRECACT PRESTRESSED CONCRETE GIRDERS. THE END BENTS CONSIST OF REINFORCED CONCRETE CAP AND PRECAST PRESTRESSED CONCRETE PILES. INTERIOR BENTS CONSIST OF REINFORCED CONCRETE CAPS WITH 5 CONCRETE COLUMNS ON SPREAD FOOTINGS. THE EXISTING BRIDGE IS PRESENTLY NOT POSTED FOR LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE DETERIORATE DURING THE CONSTRUCTION OF THE PROPSED BRIDGE, THE LOAD LIMIT MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.

THE EXISTING BRIDGE WILL BE IN SERVICE DURING CONSTRUCTION OF THE REPLACEMENT STRUCTURE. FOR DETAILS REGARDING CONSTRUCTION STAGING AND REQUIRMENTS FOR TEMPOARY SHORING, SEE TRAFFIC MANAGMENT PLANS.

FOR 63" F.I.B. PRESTRESSED CONCRETE GIRDERS, SEE STANDARD SPECIFICATIONS.

| TOTAL BILL OF MATERIAL |                                                       |                    |                                                             |                                   |                               |                        |                  |                      |                   |                                 |                                      |          |                                                         |                                                         |
|------------------------|-------------------------------------------------------|--------------------|-------------------------------------------------------------|-----------------------------------|-------------------------------|------------------------|------------------|----------------------|-------------------|---------------------------------|--------------------------------------|----------|---------------------------------------------------------|---------------------------------------------------------|
|                        | REMOVAL OF EXISTING STRUCTURE AT STATION 20+73.79 -L- | ASBESTOS ASSESMENT | FOUNDATION EXCAVATION FOR BENT NO.1 AT STATION 20+73.79 -L- | UNCLASSIFIED STRUCTURE EXCAVATION | REINFORCED CONCRETE DECK SLAB | GROOVING BRIDGE FLOORS | CLASS A CONCRETE | BRIDGE APPROACH SLAB | REINFORCING STEEL | SPIRAL COLUMN REINFORCING STEEL | FIB 63" PRESTRESSED CONCRETE GIRDERS |          | PILE DRIVING EQUIPMENT SETUP FOR HP 12 X 53 STEEL PILES | PILE DRIVING EQUIPMENT SETUP FOR HP 14 X 73 STEEL PILES |
|                        | LUMP SUM                                              | LUMP SUM           | LUMP SUM                                                    | LUMP SUM                          | SQ. FT.                       | SQ. FT.                | CU. YDS.         | LUMP SUM             | LBS.              | LBS.                            | NO.                                  | LIN. FT. | EACH                                                    | EACH                                                    |
| SUPERSTRUCTURE         |                                                       |                    |                                                             |                                   | 21,984                        | 21,498                 |                  | LUMP SUM             |                   |                                 | 24                                   | 2811.00  |                                                         |                                                         |
| END BENT No. 1         |                                                       |                    |                                                             |                                   |                               |                        | 120.6            |                      | 13,634            |                                 |                                      |          | 17                                                      |                                                         |
| BENT No.1              |                                                       |                    | LUMP SUM                                                    |                                   |                               |                        | 250.2            |                      | 28,567            | 4,461                           |                                      |          |                                                         | 40                                                      |
| END BENT No.2          |                                                       |                    |                                                             |                                   |                               |                        | 119.9            |                      | 14,122            |                                 |                                      |          | 22                                                      |                                                         |
| TOTAL                  | LUMP SUM                                              | LUMP SUM           | LUMP SUM                                                    | LUMP SUM                          | 21,984                        | 21,498                 | 490.7            | LUMP SUM             | 56,323            | 4,461                           | 24                                   | 2811.00  | 39                                                      | 40                                                      |

| TOTAL BILL OF MATERIAL |                        |          |                        |          |                    |                                 |                     |                      |                             |
|------------------------|------------------------|----------|------------------------|----------|--------------------|---------------------------------|---------------------|----------------------|-----------------------------|
|                        | HP 12 X 53 STEEL PILES |          | HP 14 X 73 STEEL PILES |          | TWO BAR METAL RAIL | 1'-2" X 3'-3½" CONCRETE PARAPET | 4" SLOPE PROTECTION | ELASTOMERIC BEARINGS | STRIP SEAL EXPANSION JOINTS |
|                        | NO.                    | LIN. FT. | NO.                    | LIN. FT. | LIN. FT            | LIN. FT.                        | SQ. YDS.            | LUMP SUM             | LUMP SUM                    |
| SUPERSTRUCTURE         |                        |          |                        |          | 458.06             | 474.4                           |                     | LUMP SUM             | LUMP SUM                    |
| END BENT No. 1         | 17                     | 805      |                        |          |                    |                                 | 28                  |                      |                             |
| BENT No.1              |                        |          | 40                     | 1200     |                    |                                 |                     |                      |                             |
| END BENT No.2          | 22                     | 1170     |                        |          |                    |                                 | 28                  |                      |                             |
| TOTAL                  | 39                     | 1975     | 40                     | 1200     | 458.06             | 474.4                           | 56                  | LUMP SUM             | LUMP SUM                    |

DRAWN BY : E. MOHAMED

CHECKED BY : A. SORSENGINH

DESIGN ENGINEER OF RECORD: A. IGHWAIR

DATE : 10/2025

DATE : 10/2025

DATE : 10/2025

DOCUMENT NOT CONSIDERED

FINAL UNLESS ALL

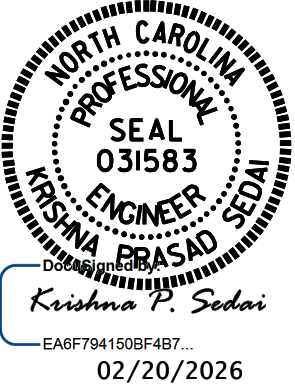
SIGNATURES COMPLETED

PROJECT NO. BR-0168

FORSYTH COUNTY

STATION: 20+73.79 -L-

SHEET 5 OF 5



STATE OF NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION

RALEIGH

GENERAL DRAWING

FOR BRIDGE ON

SR-4000/ UNIVERISTY PARKWAY

OVER US 52

| REVISIONS |     |       |     |     |       | SHEET NO.       |
|-----------|-----|-------|-----|-----|-------|-----------------|
| NO.       | BY: | DATE: | NO. | BY: | DATE: | S-05            |
| 1         |     |       | 3   |     |       | TOTAL SHEETS 53 |
| 2         |     |       | 4   |     |       |                 |

LOAD AND RESISTANCE FACTOR RATING (LRFR) SUMMARY FOR PRESTRESSED CONCRETE GIRDERS

| LOAD AND RESISTANCE FACTOR RATING (LRFR) SUMMARY FOR PRESTRESSED CONCRETE GIRDERS |                                         |                  |                      |                                 |                                   |               |                           |                              |               |      |                 |                                           |                              |               |      |                 |                                           |                           |                              |               |      |                 |                |                                           |
|-----------------------------------------------------------------------------------|-----------------------------------------|------------------|----------------------|---------------------------------|-----------------------------------|---------------|---------------------------|------------------------------|---------------|------|-----------------|-------------------------------------------|------------------------------|---------------|------|-----------------|-------------------------------------------|---------------------------|------------------------------|---------------|------|-----------------|----------------|-------------------------------------------|
| LOAD TYPE                                                                         |                                         | VEHICLE          | WEIGHT (W)<br>(TONS) | CONTROLLING<br>LOAD RATING<br># | MINIMUM<br>RATING FACTORS<br>(RF) | TONS = W X RF | STRENGTH I LIMIT STATE    |                              |               |      |                 |                                           |                              |               |      |                 | SERVICE III LIMIT STATE                   |                           |                              |               |      |                 | COMMENT NUMBER |                                           |
|                                                                                   |                                         |                  |                      |                                 |                                   |               | LIVELOAD<br>FACTORS (vLL) | MOMENT                       |               |      |                 |                                           | SHEAR                        |               |      |                 |                                           | LIVELOAD<br>FACTORS (vLL) | MOMENT                       |               |      |                 |                |                                           |
|                                                                                   |                                         |                  |                      |                                 |                                   |               |                           | DISTRIBUTION<br>FACTORS (DF) | RATING FACTOR | SPAN | GIRDER LOCATION | DISTANCE FROM<br>LEFT END OF<br>SPAN (ft) | DISTRIBUTION<br>FACTORS (DF) | RATING FACTOR | SPAN | GIRDER LOCATION | DISTANCE FROM<br>LEFT END OF<br>SPAN (ft) |                           | DISTRIBUTION<br>FACTORS (DF) | RATING FACTOR | SPAN | GIRDER LOCATION |                | DISTANCE FROM<br>LEFT END OF<br>SPAN (ft) |
| DESIGN<br>LOAD                                                                    |                                         | HL-93(Inventory) | N/A                  | 1                               | 1.088                             | --            | 1.75                      | 0.721                        | 1.252         | B    | ER              | 67.86                                     | 0.829                        | 1.214         | B    | ER              | 40.71                                     | 0.80                      | 0.721                        | 1.088         | B    | 1               | 67.86          |                                           |
|                                                                                   |                                         | HL-93(Operating) | N/A                  | --                              | 1.573                             | --            | 1.35                      | 0.721                        | 1.622         | B    | ER              | 67.86                                     | 0.829                        | 1.573         | B    | ER              | 40.71                                     | N/A                       | --                           | --            | --   | --              | --             |                                           |
|                                                                                   |                                         | HS-20(Inventory) | 36.000               | 2                               | 1.574                             | 56.650        | 1.75                      | 0.772                        | 1.867         | A    | EL              | 47.86                                     | 0.826                        | 1.574         | A    | EL              | 38.28                                     | 0.80                      | 0.772                        | 1.770         | A    | 1               | 47.86          |                                           |
|                                                                                   |                                         | HS-20(Operating) | 36.000               | --                              | 2.040                             | 73.435        | 1.35                      | 0.772                        | 2.420         | A    | EL              | 47.86                                     | 0.826                        | 2.040         | A    | EL              | 38.28                                     | N/A                       | --                           | --            | --   | --              | --             |                                           |
| LEGAL<br>LOAD                                                                     | SINGLE VEHICLE<br>(SV)                  | SNSH             | 13.500               | --                              | 4.179                             | 56.411        | 1.40                      | 0.772                        | 5.511         | A    | EL              | 47.86                                     | 0.826                        | 4.601         | A    | EL              | 38.28                                     | 0.80                      | 0.772                        | 4.179         | A    | 1               | 47.86          |                                           |
|                                                                                   |                                         | SNGARBS2         | 20.000               | --                              | 3.034                             | 60.677        | 1.40                      | 0.772                        | 4.001         | A    | EL              | 47.86                                     | 0.826                        | 3.297         | A    | EL              | 38.28                                     | 0.80                      | 0.772                        | 3.034         | A    | 1               | 47.86          |                                           |
|                                                                                   |                                         | SNAGRIS2         | 22.000               | --                              | 2.841                             | 62.496        | 1.40                      | 0.772                        | 3.747         | A    | EL              | 47.86                                     | 0.826                        | 3.070         | A    | EL              | 38.28                                     | 0.80                      | 0.772                        | 2.841         | A    | 1               | 47.86          |                                           |
|                                                                                   |                                         | SNCOTTS3         | 27.250               | --                              | 2.077                             | 56.599        | 1.40                      | 0.772                        | 2.739         | A    | EL              | 47.86                                     | 0.826                        | 2.299         | A    | EL              | 38.28                                     | 0.80                      | 0.772                        | 2.077         | A    | 1               | 47.86          |                                           |
|                                                                                   |                                         | SNAGGRS4         | 34.925               | --                              | 1.705                             | 59.543        | 1.40                      | 0.772                        | 2.249         | A    | EL              | 47.86                                     | 0.826                        | 1.926         | A    | EL              | 38.28                                     | 0.80                      | 0.772                        | 1.705         | A    | 1               | 47.86          |                                           |
|                                                                                   |                                         | SNS5A            | 35.550               | --                              | 1.669                             | 59.342        | 1.40                      | 0.772                        | 2.202         | A    | EL              | 47.86                                     | 0.826                        | 1.960         | A    | EL              | 38.28                                     | 0.80                      | 0.772                        | 1.669         | A    | 1               | 47.86          |                                           |
|                                                                                   |                                         | SNS6A            | 39.950               | --                              | 1.519                             | 60.682        | 1.40                      | 0.772                        | 2.003         | A    | EL              | 47.86                                     | 0.826                        | 1.796         | A    | EL              | 38.28                                     | 0.80                      | 0.772                        | 1.519         | A    | 1               | 47.86          |                                           |
|                                                                                   |                                         | SNS7B            | 42.000               | --                              | 1.446                             | 60.734        | 1.40                      | 0.772                        | 1.907         | A    | EL              | 47.86                                     | 0.826                        | 1.774         | A    | EL              | 22.33                                     | 0.80                      | 0.772                        | 1.446         | A    | 1               | 47.86          |                                           |
|                                                                                   | TRUCK TRACTOR<br>SEMI-TRAILER<br>(TTST) | TNAGRIT3         | 33.000               | --                              | 1.849                             | 61.003        | 1.40                      | 0.772                        | 2.438         | A    | EL              | 47.86                                     | 0.826                        | 2.131         | A    | EL              | 38.28                                     | 0.80                      | 0.772                        | 1.849         | A    | 1               | 47.86          |                                           |
|                                                                                   |                                         | TNT4A            | 33.075               | --                              | 1.853                             | 61.299        | 1.40                      | 0.772                        | 2.444         | A    | EL              | 47.86                                     | 0.826                        | 2.069         | A    | EL              | 38.28                                     | 0.80                      | 0.772                        | 1.853         | A    | 1               | 47.86          |                                           |
|                                                                                   |                                         | TNT6A            | 41.600               | --                              | 1.504                             | 62.548        | 1.40                      | 0.772                        | 1.983         | A    | EL              | 47.86                                     | 0.826                        | 1.907         | A    | EL              | 38.28                                     | 0.80                      | 0.772                        | 1.504         | A    | 1               | 47.86          |                                           |
|                                                                                   |                                         | TNT7A            | 42.000               | --                              | 1.505                             | 63.203        | 1.40                      | 0.772                        | 1.985         | A    | EL              | 47.86                                     | 0.826                        | 1.866         | A    | EL              | 38.28                                     | 0.80                      | 0.772                        | 1.505         | A    | 1               | 47.86          |                                           |
|                                                                                   |                                         | TNT7B            | 42.000               | --                              | 1.542                             | 64.749        | 1.40                      | 0.772                        | 2.033         | A    | EL              | 47.86                                     | 0.826                        | 1.725         | A    | EL              | 38.28                                     | 0.80                      | 0.772                        | 1.542         | A    | 1               | 47.86          |                                           |
|                                                                                   |                                         | TNAGRIT4         | 43.000               | --                              | 1.478                             | 63.545        | 1.40                      | 0.772                        | 1.949         | A    | EL              | 47.86                                     | 0.826                        | 1.667         | A    | EL              | 38.28                                     | 0.80                      | 0.772                        | 1.478         | A    | 1               | 47.86          |                                           |
|                                                                                   |                                         | TNAGT5A          | 45.000               | --                              | 1.399                             | 62.941        | 1.40                      | 0.772                        | 1.845         | A    | EL              | 47.86                                     | 0.826                        | 1.668         | A    | EL              | 38.28                                     | 0.80                      | 0.772                        | 1.399         | A    | 1               | 47.86          |                                           |
|                                                                                   |                                         | TNAGT5B          | 45.000               | 3                               | 1.387                             | 62.394        | 1.40                      | 0.772                        | 1.829         | A    | EL              | 47.86                                     | 0.826                        | 1.585         | A    | EL              | 38.28                                     | 0.80                      | 0.772                        | 1.387         | A    | 1               | 47.86          |                                           |
| EV LOAD<br>RATING                                                                 |                                         | EV2              | 28.750               | --                              | 2.135                             | 61.386        | 1.30                      | 0.772                        | 3.033         | A    | EL              | 47.86                                     | 0.826                        | 2.493         | A    | EL              | 38.28                                     | 0.80                      | 0.772                        | 2.135         | A    | 1               | 47.86          |                                           |
|                                                                                   |                                         | EV3              | 43.000               | 4                               | 1.406                             | 60.466        | 1.30                      | 0.772                        | 1.997         | A    | EL              | 47.86                                     | 0.826                        | 1.683         | A    | EL              | 38.28                                     | 0.80                      | 0.772                        | 1.406         | A    | 1               | 47.86          |                                           |

LOAD FACTORS:

| DESIGN<br>LOAD<br>RATING<br>FACTORS | LIMIT STATE | γ <sub>DC</sub> | γ <sub>DW</sub> |
|-------------------------------------|-------------|-----------------|-----------------|
|                                     | STRENGTH I  | 1.25            | 1.5             |
|                                     | SERVICE III | 1.00            | 1.00            |

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.

# CONTROLLING LOAD RATING

1 DESIGN LOAD RATING (HL-93)

2 DESIGN LOAD RATING (HS-20)

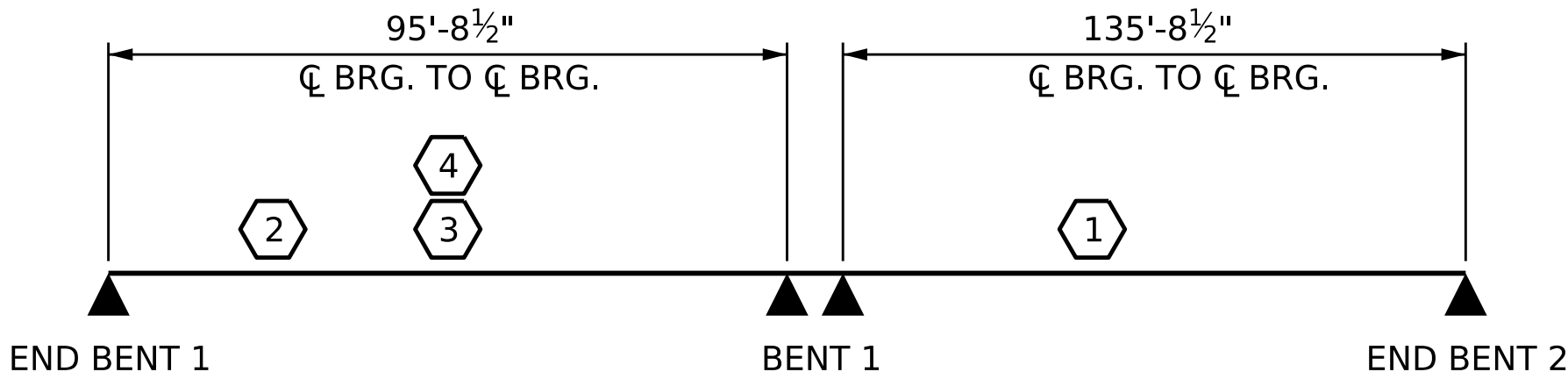
3 LEGAL LOAD RATING \*\*

4 EMERGENCY VEHICLE LOAD RATING \*\*

\*\* SEE CHART FOR VEHICLE TYPE

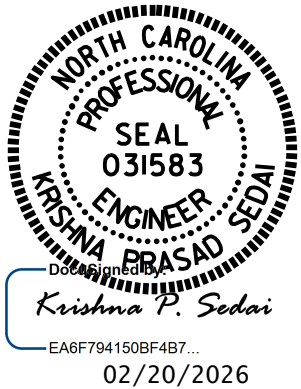
GIRDER LOCATION

I - INTERIOR GIRDER  
EL - EXTERIOR LEFT GIRDER  
ER - EXTERIOR RIGHT GIRDER



LRFR SUMMARY

PROJECT NO. **BR-0168**  
**FORSYTH** COUNTY  
STATION: **20+73.79 -L-**

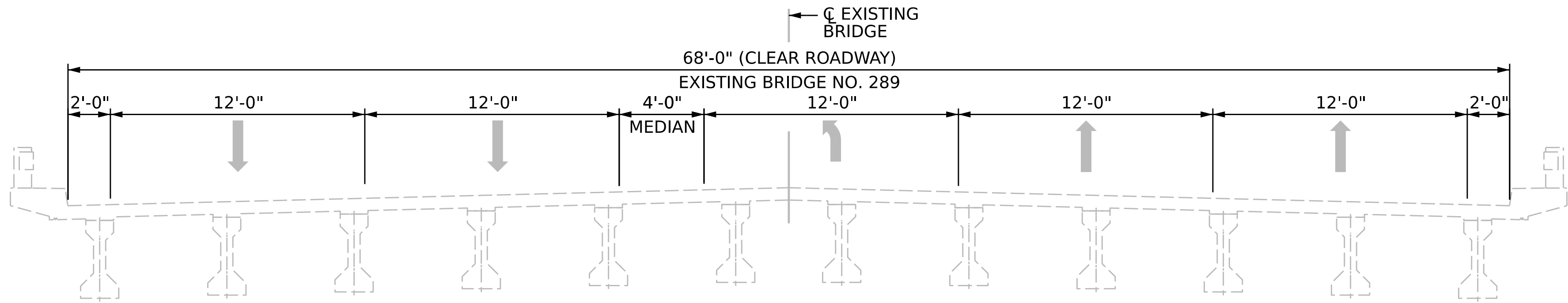


STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
**LRFR SUMMARY FOR  
PRESTRESSED  
CONCRETE GIRDERS**  
(NON-INTERSTATE TRAFFIC)

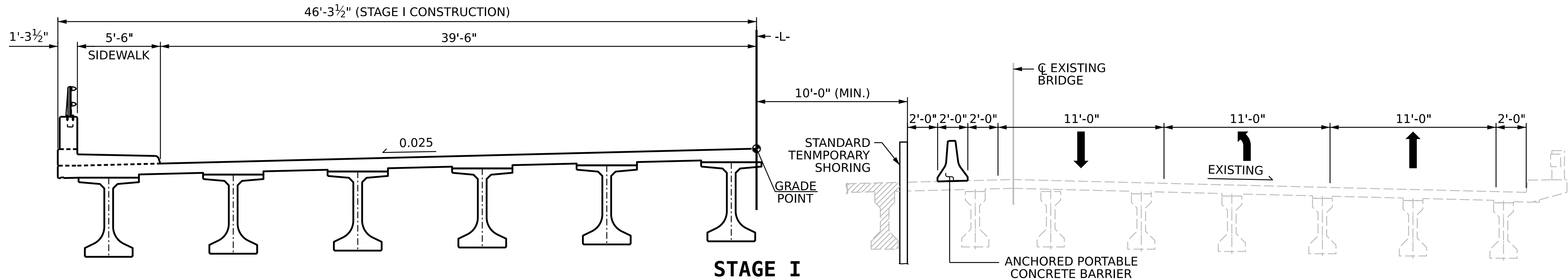
DRAWN BY : E. MOHAMED DATE : 05/2025  
CHECKED BY : A. SORSENGINH DATE : 05/2025  
DESIGN ENGINEER OF RECORD: A. IGHWAIR DATE : 05/2025

DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED

| REVISIONS    |     |       |     |     | SHEET NO. |
|--------------|-----|-------|-----|-----|-----------|
| NO.          | BY: | DATE: | NO. | BY: |           |
| 1            |     |       | 3   |     | S-06      |
| 2            |     |       | 4   |     |           |
| TOTAL SHEETS |     |       |     |     | 53        |

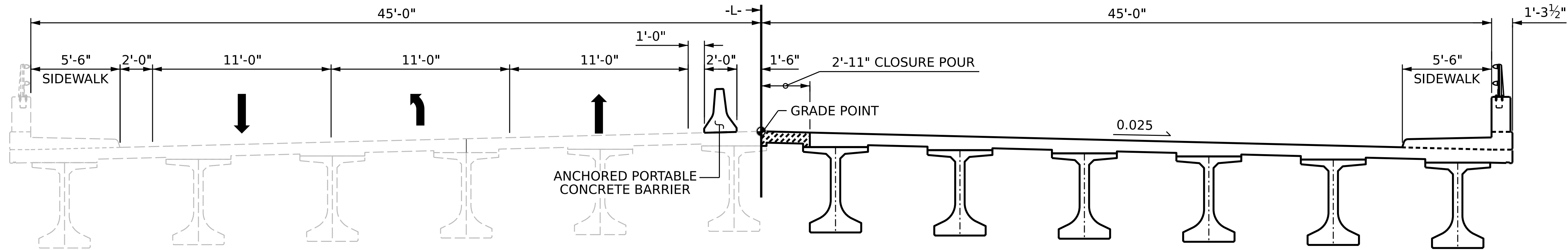


EXISTING SECTION



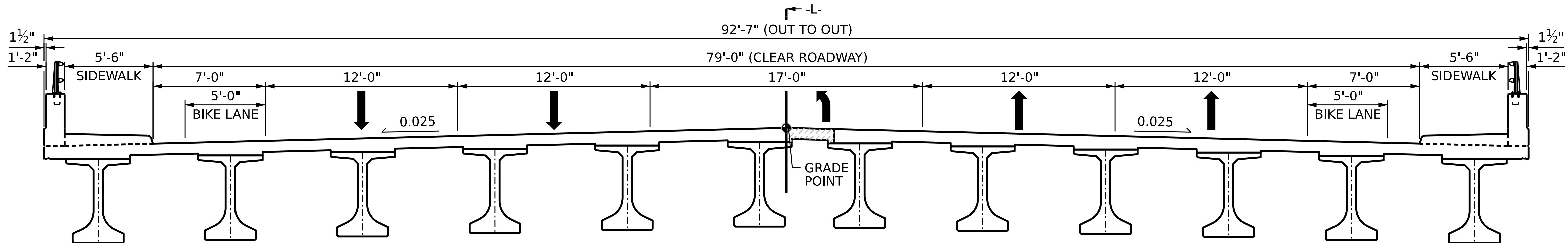
STAGE I

TRANSFER ALL TRAFFIC TO RIGHT SIDE OF EXISTING BRIDGE NO.289  
DEMOLISH LEFT SIDE EXISTING BRIDGE NO.289  
CONSTRUCT LEFT SIDE OF PROPOSED BRIDGE



STAGE II & CLOSURE POUR

TRANSFER ALL TRAFFIC TO LEFT SIDE OF PROPOSED BRIDGE  
CONSTRUCT RIGHT SIDE OF PROPOSED BRIDGE AND CLOSURE POUR



FINAL TYPICAL SECTION

NOTES:

FOR PHASING, MAINTENANCE OF TRAFFIC,  
LOCATION OF TEMPORARY SHORING AND  
PORTABLE CONCRETE BARRIER, SEE TRAFFIC  
CONTROL PLANS.

PROJECT NO. **BR-0168**  
**FORSYTH** COUNTY  
STATION: **20+73.79 -L-**

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

CONSTRUCTION  
SEQUENCE



DRAWN BY : **E. MOHAMED** DATE : **05/2025**  
CHECKED BY : **A. SORSENGINH** DATE : **05/2025**  
DESIGN ENGINEER OF RECORD: **A. IGHWAIR** DATE : **05/2025**

12/18/2025  
S:\DPO3\BR-0168\Final Plans\401.013.BR0168\_SMU\_CS\_S07\_330289.dgn  
ksedai

DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED

| REVISIONS    |     |       |     |     | SHEET NO. |
|--------------|-----|-------|-----|-----|-----------|
| NO.          | BY: | DATE: | NO. | BY: | DATE:     |
| 1            |     |       | 3   |     |           |
| 2            |     |       | 4   |     |           |
| TOTAL SHEETS |     |       |     |     | 53        |

NOTES:

PROVIDE 1 1/4" HIGH BEAM BOLSTERS UPPER AT 4'-0" CTS. ATOP THE METAL STAY-IN-PLACE FORMS TO SUPPORT THE BOTTOM MAT OF 'A' BARS. WHEN USING REMOVABLE FORMS, PROVIDE CONTINUOUS HIGH CHAIRS FOR METAL DECK (C.H.C.M.) @ 4'-0" CTS. WITH A HEIGHT TO SUPPORT THE BOTTOM MAT OF 'A' BARS A CLEAR DISTANCE OF 2 1/2" ABOVE THE TOP OF THE REMOVABLE FORM.

LONGITUDINAL STEEL MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO AVOID INTERFERENCE WITH STIRRUPS IN PRESTRESSED CONCRETE GIRDERS.

PREVIOUSLY CAST CONCRETE IN A CONTINUOUS UNIT SHALL HAVE ATTAINED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI BEFORE ADDITIONAL CONCRETE IS CAST IN THE UNIT.

CONCRETE PARAPET AND SIDE WALK IN A CONTINUOUS UNIT SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE IN THAT UNIT HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.

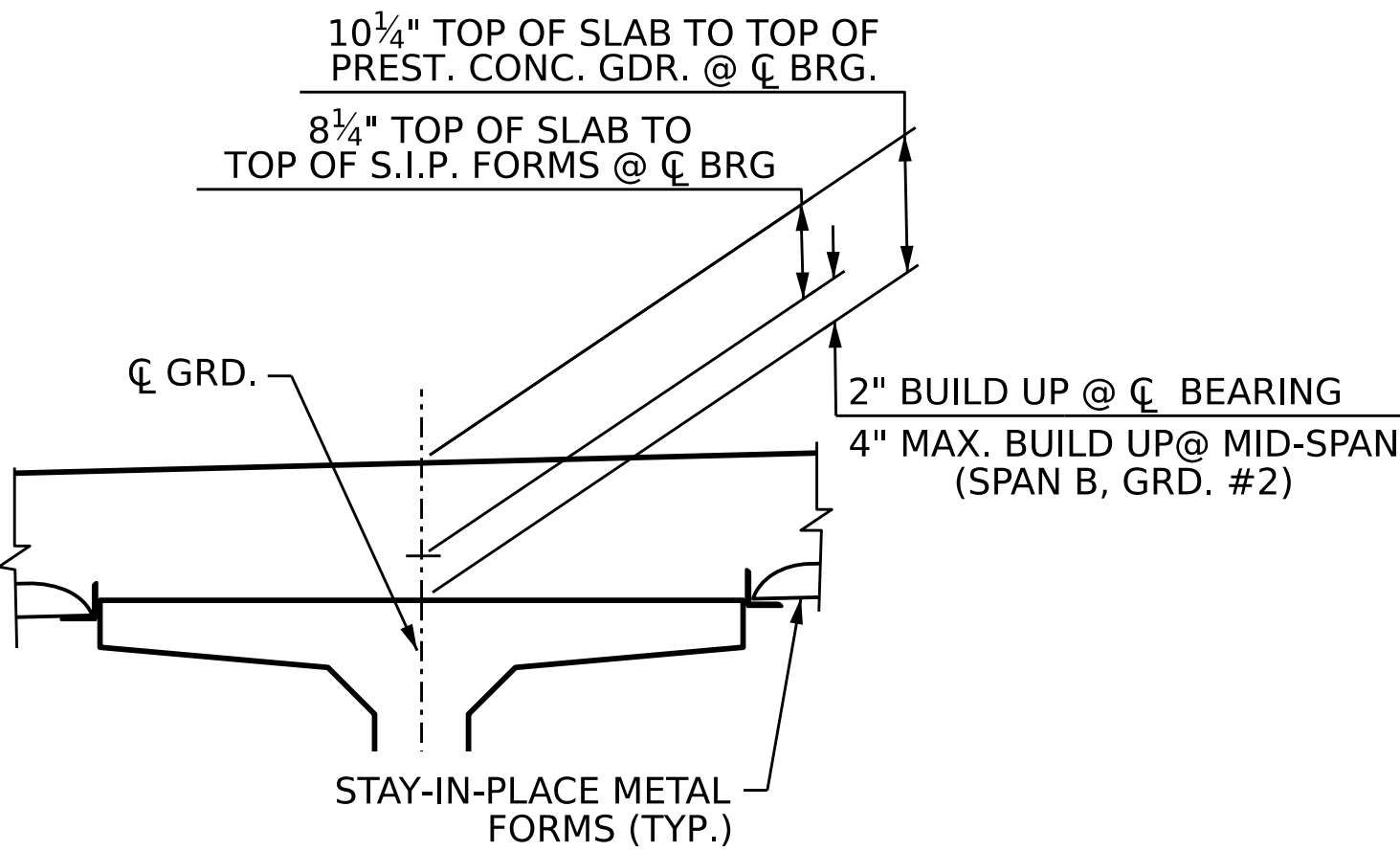
DOWELS SHALL BE PLACED IN THE SAME HORIZONTAL PLANE AS THE TOP AND BOTTOM SLAB REINFORCING STEEL.

SEE CONSTRUCTION SEQUENCE SHEETS FOR LOCATION OF TEMPORARY PORTABLE CONCRETE BARRIER (ANCHORED).

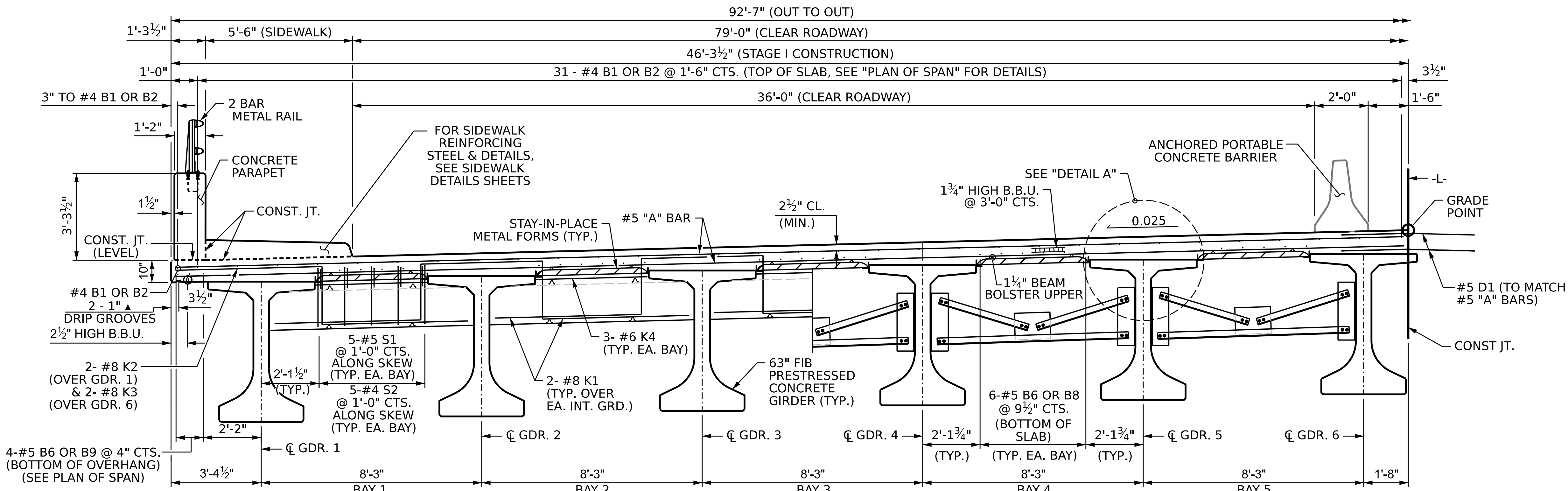
FOE SIDE WALK, 2 BAR METAL RAIL, SEE DETAILS SHEET.

THE JOINT IN THE DECK SHALL BE SAWED PRIOR TO CASTING OF SIDEWALK.

FOR STRIP SEAL EXPANSION JOINT, SEE SPECIAL PROVISIONS.



DETAIL A



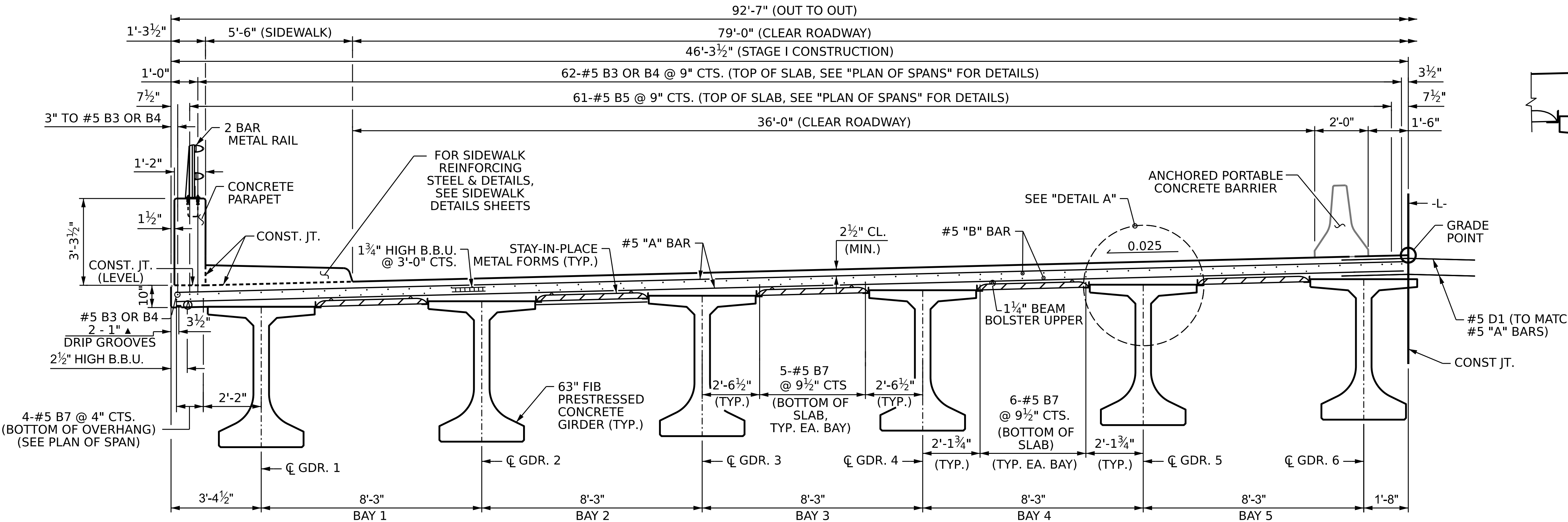
SECTION AT END BENT DIAPHRAGMS

TYPICAL SECTION

STAGE I - LEFT SIDE

SECTION AT INTERMEDIATE DIAPHRAGMS

(FOR INTERMEDIATE STEEL DIAPHRAGMS DETAILS. SEE "INTERMEDIATE DIAPHRAGMS FOR 63" FIB PRESTRESSED CONCRETE GIRDER")



TYPICAL SECTION AT LINK SLAB

STAGE I - LEFT SIDE

DRAWN BY : E. MOHAMED DATE : 03/2025  
CHECKED BY : A. SORSENGINH DATE : 03/2025  
DESIGN ENGINEER OF RECORD: A. IGHWAIR DATE : 03/2025

2/16/2026  
S:\DPO3\BR-0168\Final Plans\401.015.BR0168.SMU.TS.S08.330289.dgn  
ksedai

DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED

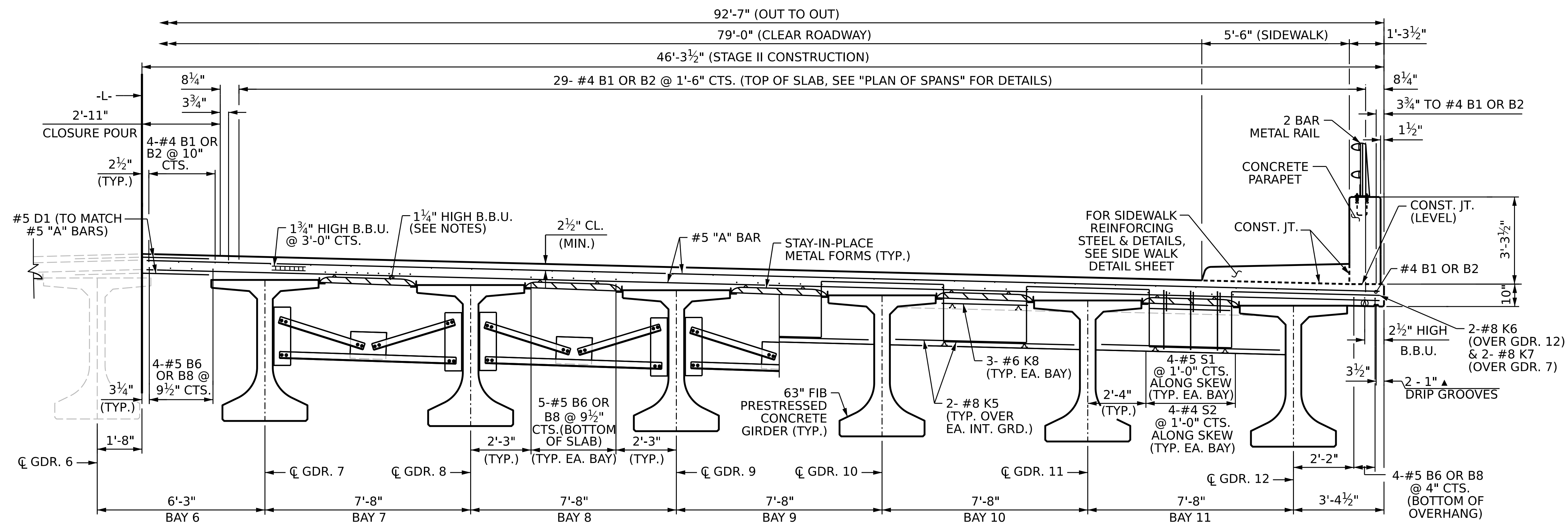
PROJECT NO. **BR-0168**  
**FORSYTH** COUNTY  
STATION: **20+73.79 -L-**

SHEET 1 OF 4



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
SUPERSTRUCTURE  
**TYPICAL SECTION**  
STAGE I

| REVISIONS    |     |       |     |     | SHEET NO. |
|--------------|-----|-------|-----|-----|-----------|
| NO.          | BY: | DATE: | NO. | BY: |           |
| 1            |     |       | 3   |     | S-08      |
| 2            |     |       | 4   |     |           |
| TOTAL SHEETS |     |       |     |     | 53        |



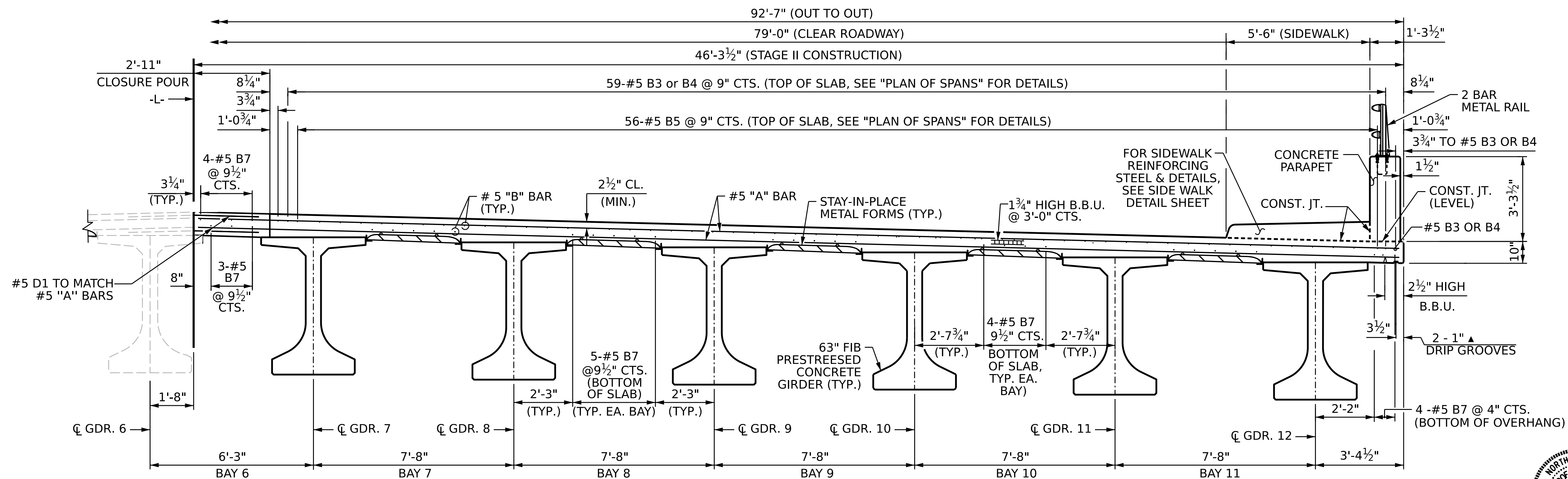
**SECTION AT INTERMEDIATE DIAPHRAGMS**  
(FOR INTERMEDIATE STEEL DIAPHRAGMS DETAILS.  
SEE "INTERMEDIATE STEEL DIAPHRAGMS FOR  
63" FIB DETAILS" SHEET)

## TYPICAL SECTION

---

STAGE II - RIGHT SIDE

SECTION AT END BENT DIAPHRAGMS



## TYPICAL SECTION AT LINK SLAB

---

### STAGE II - RIGHT SIDE

PROJECT NO. **BR-0168**  
**FORSYTH** COUNTY  
STATION: **20+73.79 -L-**

SHEET 2 OF 4



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

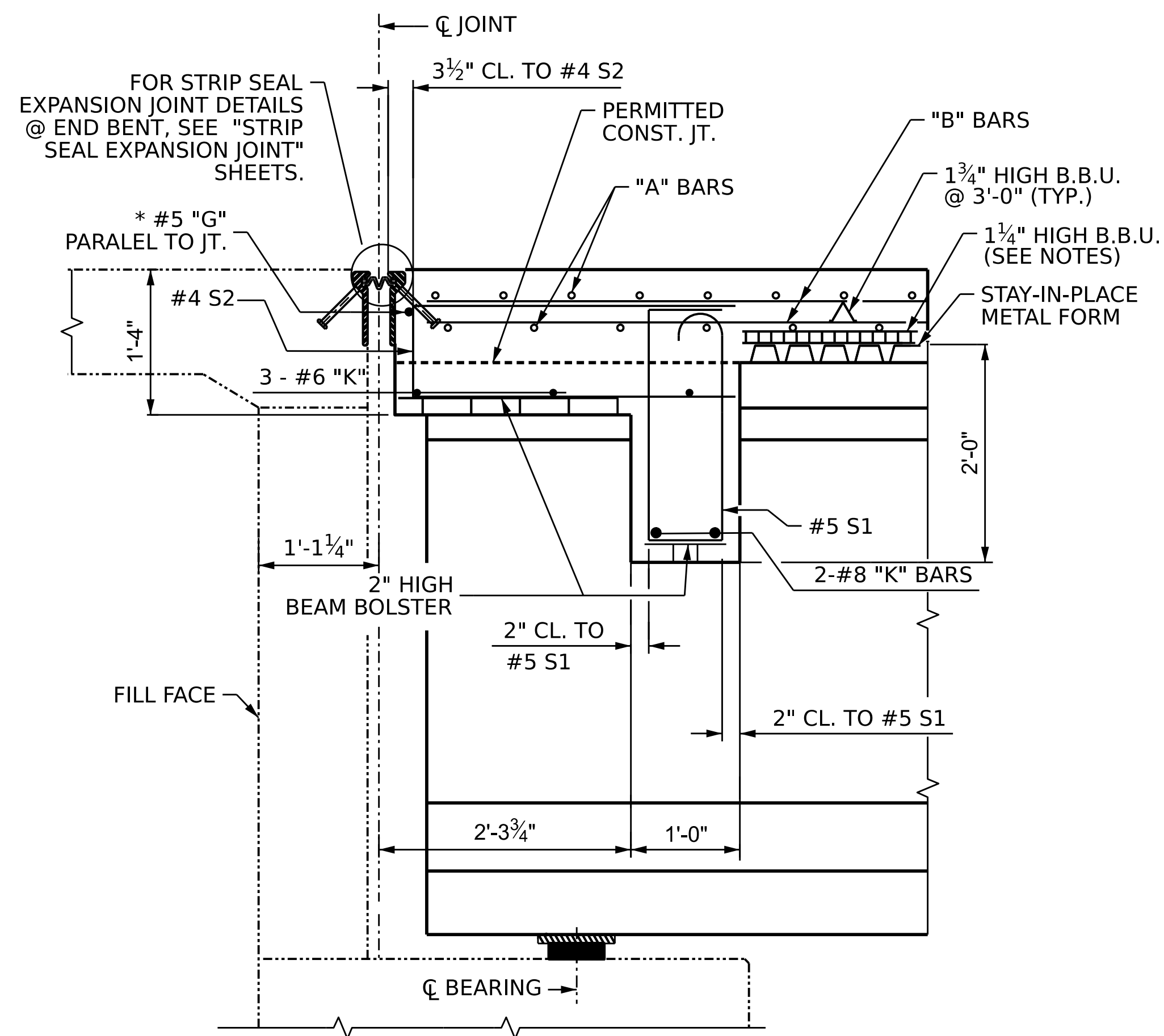
## SUPERSTRUCTURE

## TYPICAL SECTION STAGE II

|           |     |       |     |     |       |              |
|-----------|-----|-------|-----|-----|-------|--------------|
| REVISIONS |     |       |     |     |       | SHEET NO.    |
| NO.       | BY: | DATE: | NO. | BY: | DATE: | S-09         |
| 1         |     |       | 3   |     |       | TOTAL SHEETS |
| 2         |     |       | 4   |     |       | 53           |

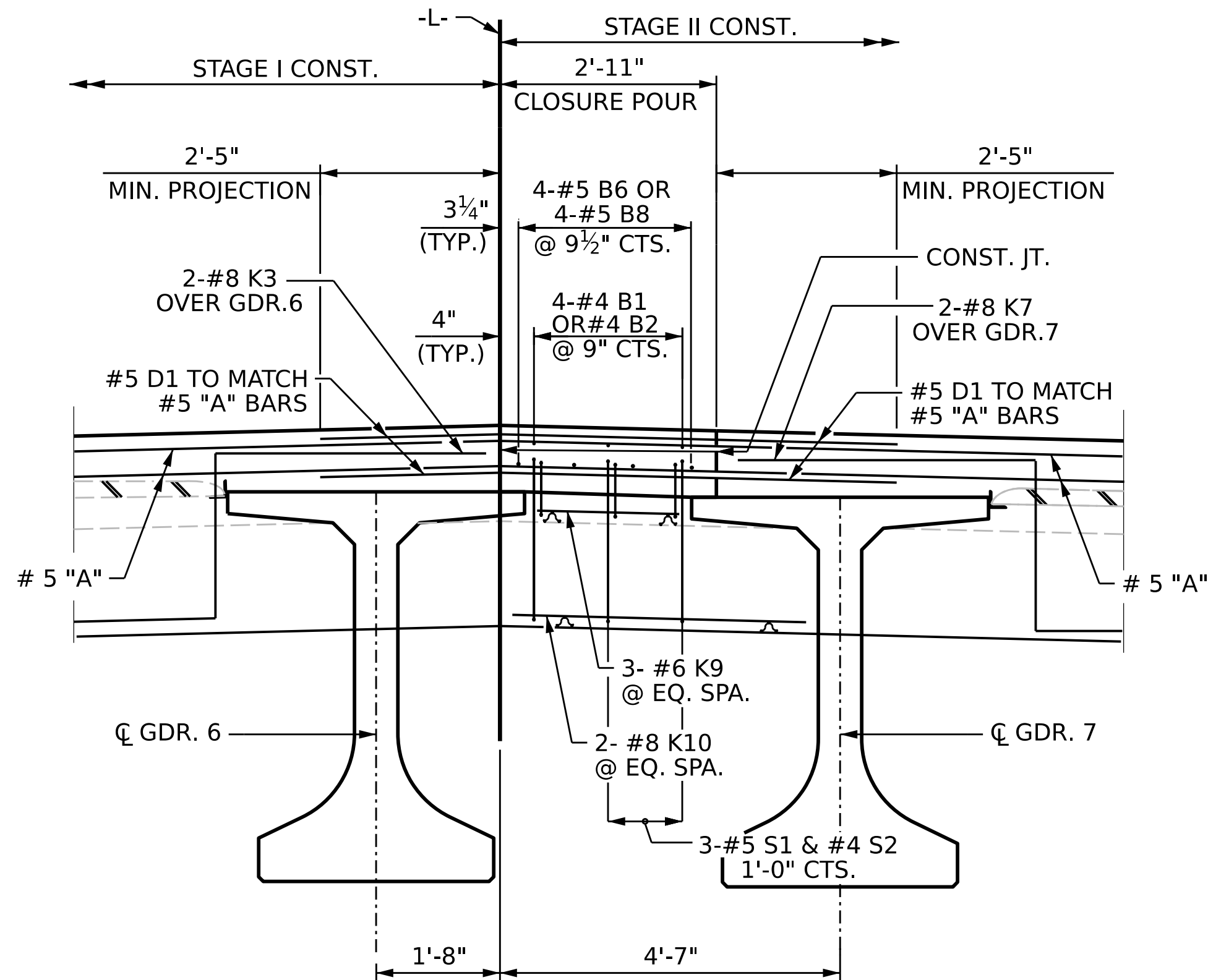
DRAWN BY : E. MOHAMED DATE : 03/2025  
 CHECKED BY : A. SORSENGINH DATE : 03/2025  
 DESIGN ENGINEER OF RECORD: A. IGHWAIR DATE : 03/2025

DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED



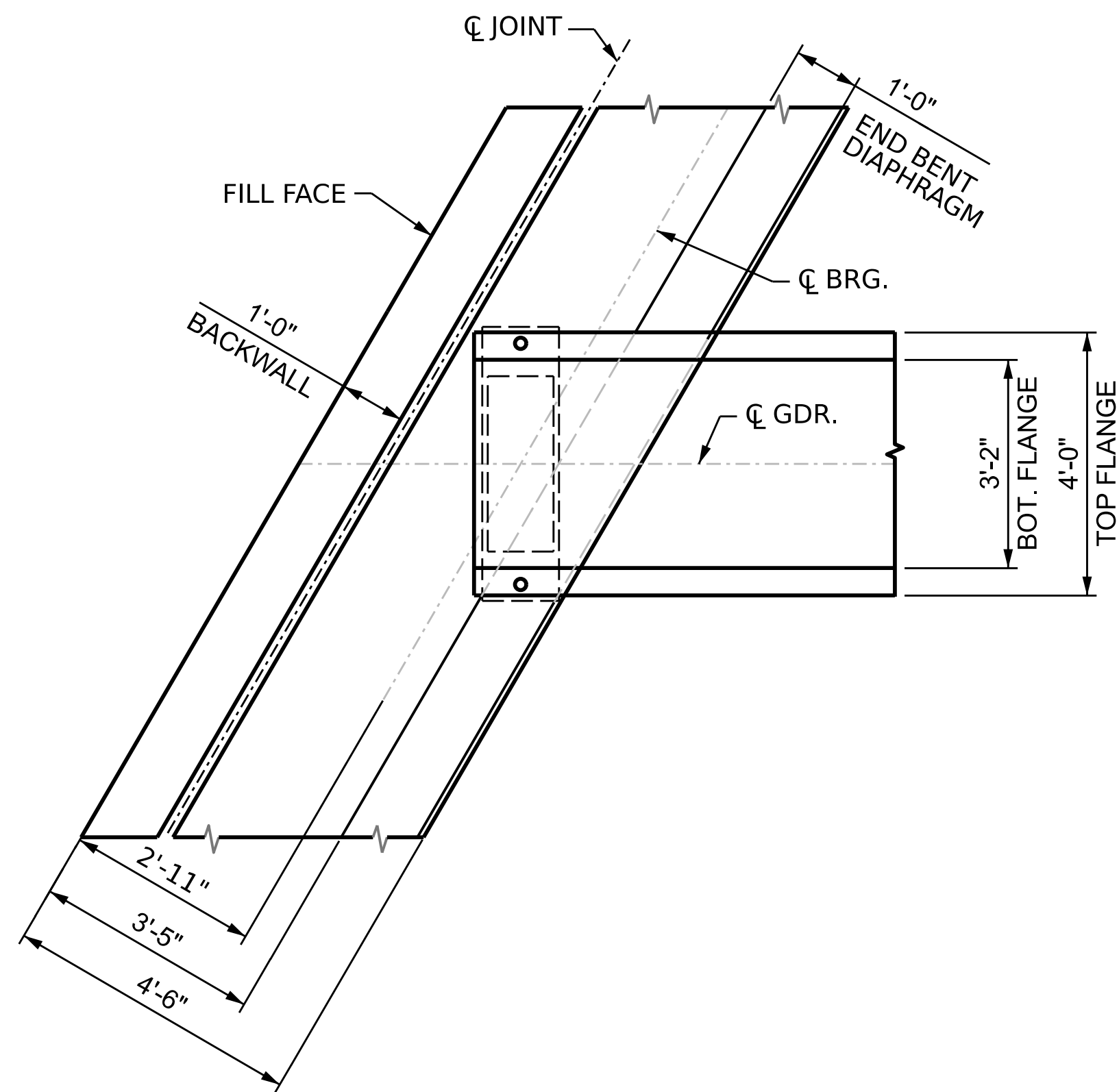
### SECTION THRU END BENT

\* #5 G MAY BE SHIFTED SLIGHTLY AS NECESSARY TO CLEAR REINFORCING STEEL AND STIRRUPS.

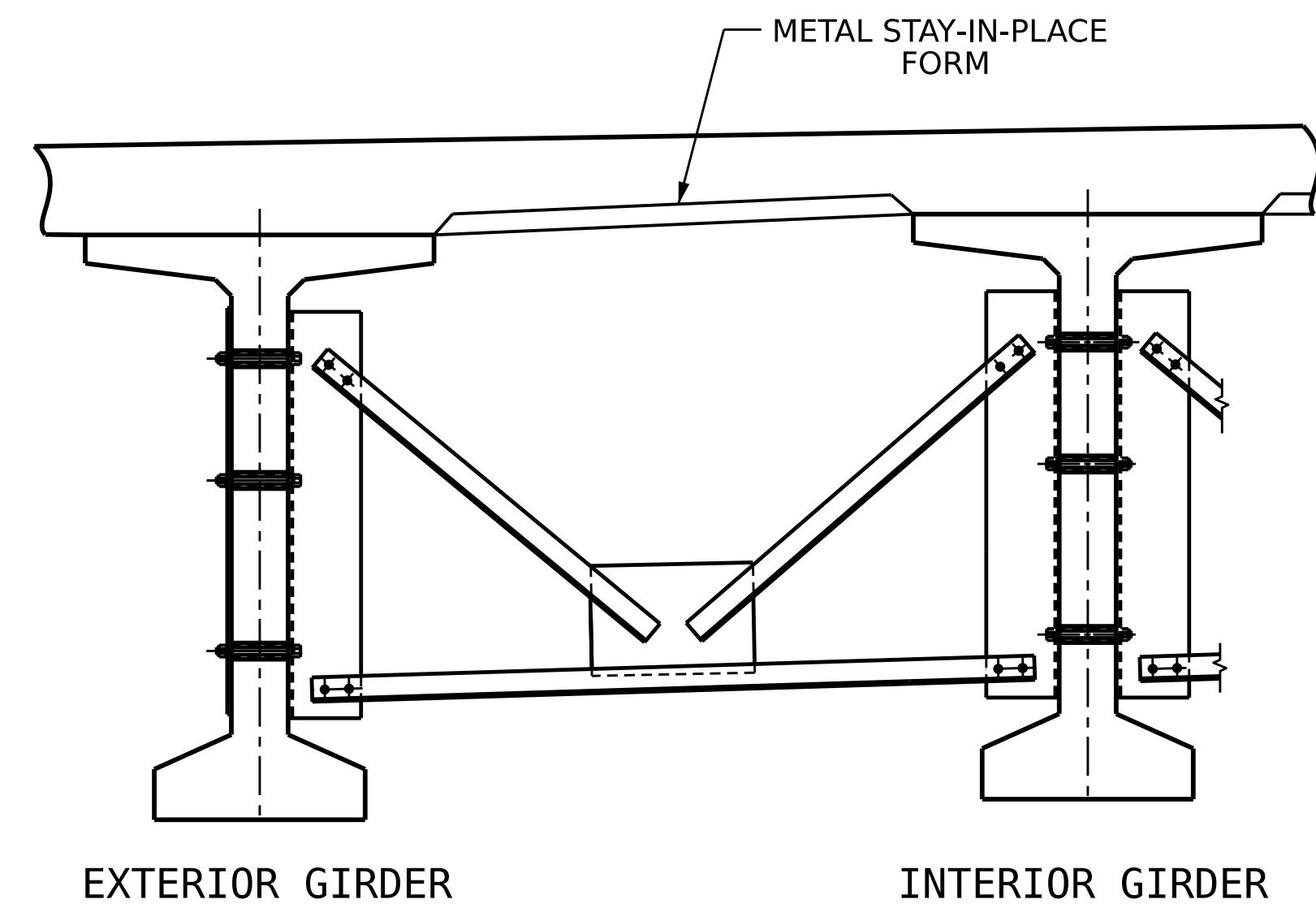


### CLOSURE POUR DETAIL

DECK CLOSURE POUR DETAIL @ END BENT



### PLAN VIEW @ END BENT

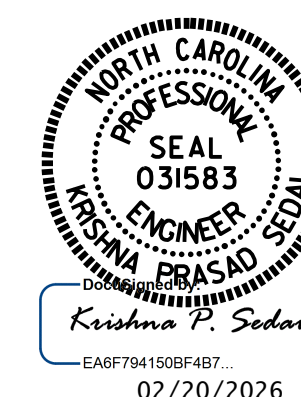


### SECTION @ INTERMEDIATE DIAPHRAGM

(FOR INTERMEDIATE STEEL DIAPHRAGMS DETAILS, SEE "INTERMEDIATE STEEL DIAPHRAGMS FOR 63" FIB DETAILS" SHEET)

PROJECT NO. **BR-0168**  
**FORSYTH** COUNTY  
 STATION: **20+73.79**

SHEET 3 OF 4



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

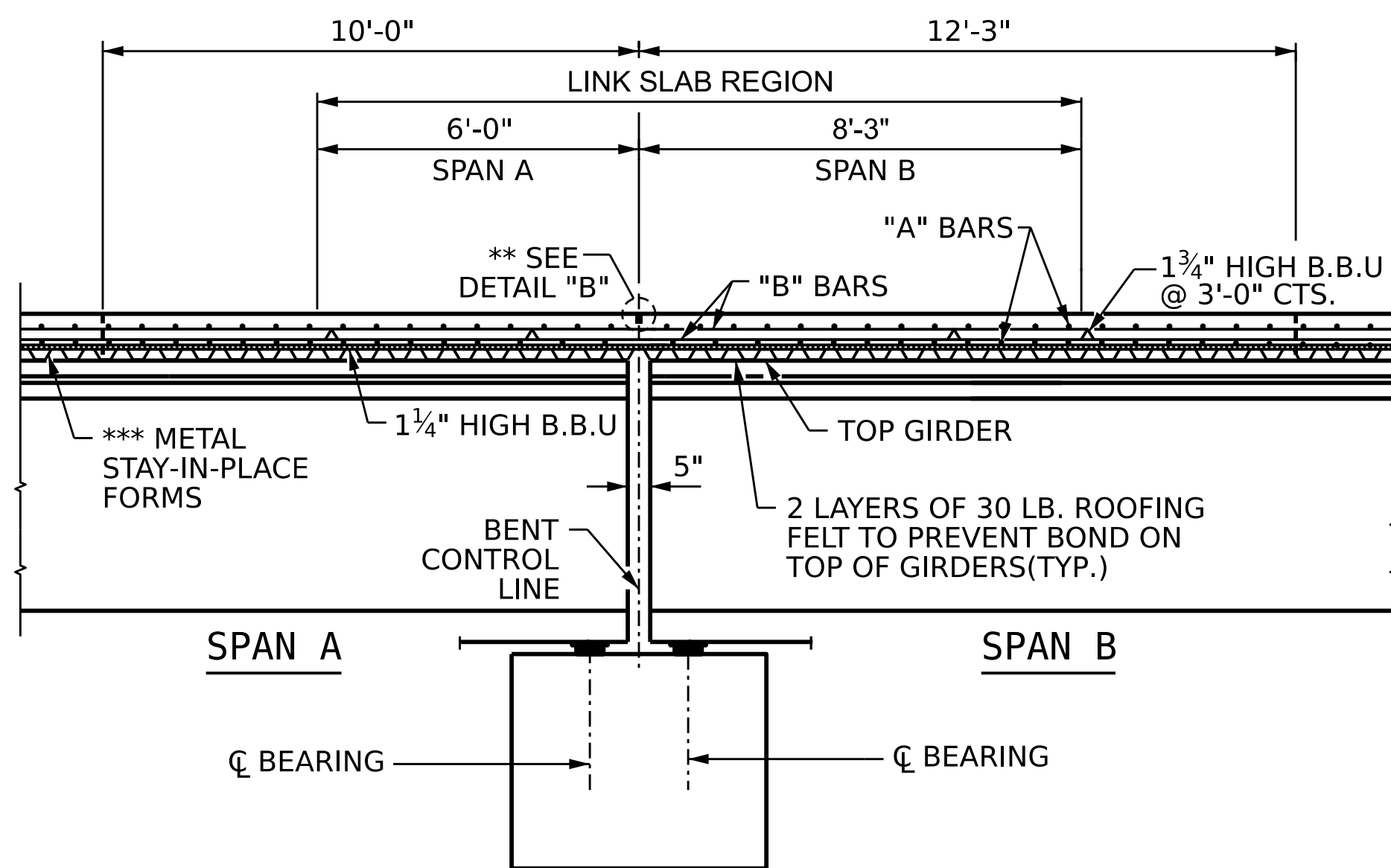
SUPERSTRUCTURE

### TYPICAL SECTION DETAIL

| REVISIONS |     |       |     |     | SHEET NO.    |
|-----------|-----|-------|-----|-----|--------------|
| NO.       | BY: | DATE: | NO. | BY: |              |
| 1         |     |       | 3   |     | S-10         |
| 2         |     |       | 4   |     | TOTAL SHEETS |
|           |     |       |     |     | 53           |

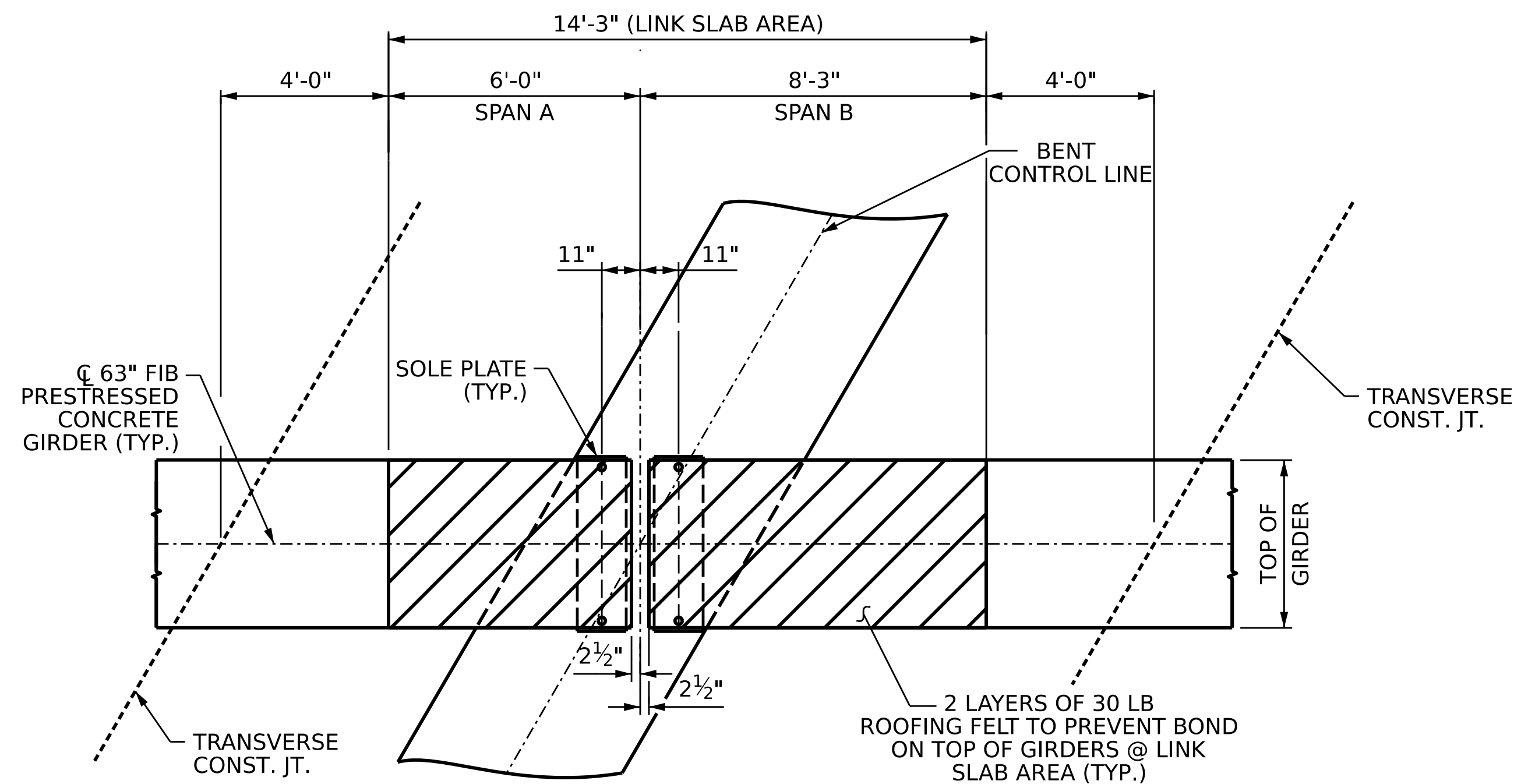
DOCUMENT NOT CONSIDERED  
 FINAL UNLESS ALL  
 SIGNATURES COMPLETED

DRAWN BY : **E. MOHAMED** DATE : **03/2025**  
 CHECKED BY : **A. SORSENGINH** DATE : **03/2025**  
 DESIGN ENGINEER OF RECORD: **A. IGHWAIR** DATE : **03/2025**



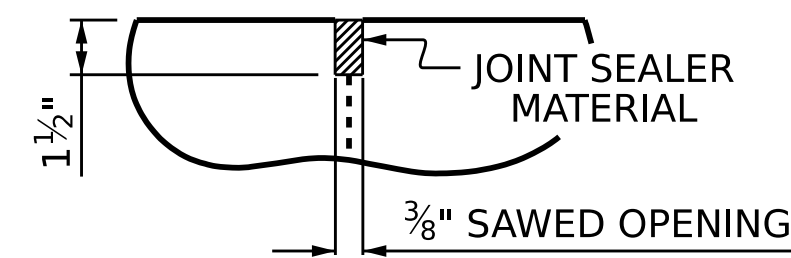
### SECTION @ LINK SLAB

\*\*\* METAL STAY-IN-PLACE FORMS SHALL NOT BE WELDED TO THE GIRDER FLANGES IN THE REGION OF THE LINK SLAB

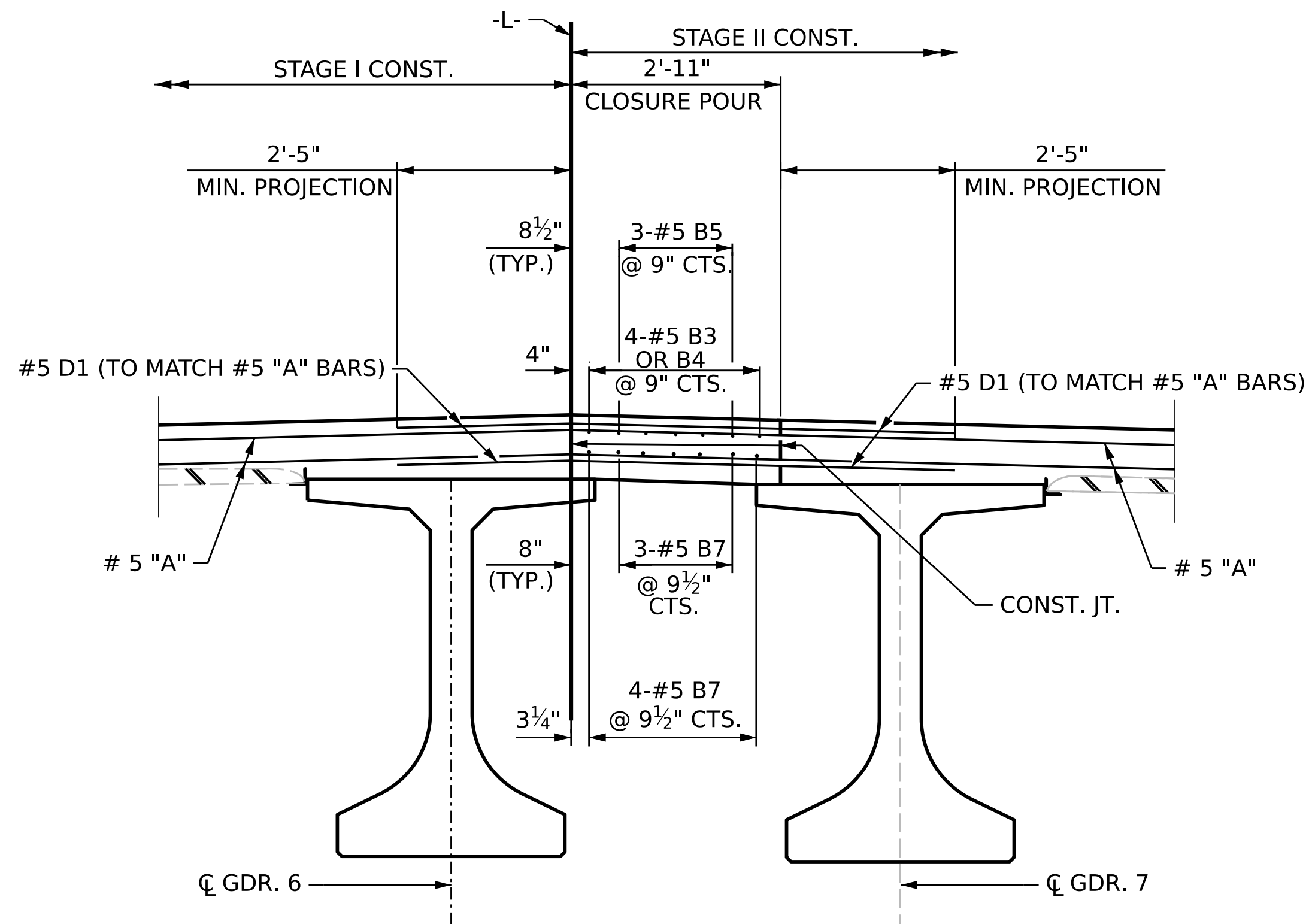


### PLAN @ BENT

THE TOP OF THE GIRDER IN THE REGION OF THE LINK SLAB SHALL BE SMOOTH (NOT RAKED) AND FREE OF STIRRUPS, ANCHOR STUDS, DECK FORMWORK ATTACHMENTS AND OVERHANGE FALSEWORK/FORMWORK ATTACHMENTS.



### DETAIL "B"



### CLOSURE POUR DETAILS

DECK CLOSURE POUR DETAIL @ LINK SLAB

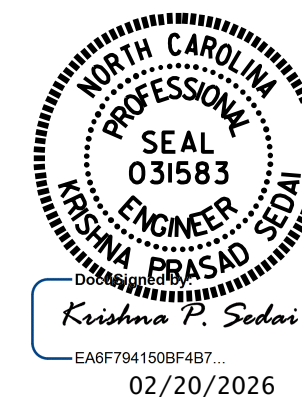
### NOTES

\*\* A 1 1/2" DEEP, 3/8" WIDE CONTRACTION JOINT AT THE BENT CONTROL LINE SHALL BE SAWED WITHIN 24 HOURS OF POURING THE DECK. THE JOINT SHALL BE FILLED WITH JOINT SEALER MATERIAL. THE JOINT SEALER MATERIAL SHALL CONFORM TO THE REQUIREMENTS OF SECTION 1028-3 OF THE STANDARD SPECIFICATIONS.

PROJECT NO. **BR-0168**  
**FORSYTH** COUNTY  
 STATION: **20+73.79**

SHEET 4 OF 4

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE  
**TYPICAL SECTION  
 DETAIL @ LINK SLAB AREA**

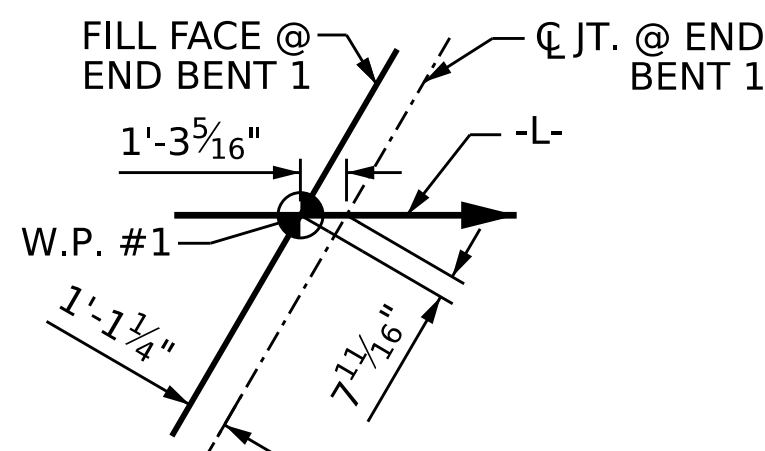


DRAWN BY : **E. MOHAMED** DATE : **03/2025**  
 CHECKED BY : **A. SORSENGINH** DATE : **03/2025**  
 DESIGN ENGINEER OF RECORD : **A. IGHWAIR** DATE : **03/2025**

2/20/2026  
 S:\DPG3\BR-0168\Final Plans\401.021.BR0168.SMU.TS.S11.330289.dgn  
 ksedai

DOCUMENT NOT CONSIDERED  
 FINAL UNLESS ALL  
 SIGNATURES COMPLETED

| REVISIONS |     |       |     |     | SHEET NO.       |
|-----------|-----|-------|-----|-----|-----------------|
| NO.       | BY: | DATE: | NO. | BY: |                 |
| 1         |     |       | 3   |     | S-11            |
| 2         |     |       | 4   |     | TOTAL SHEETS 53 |



**SPAN A**

---

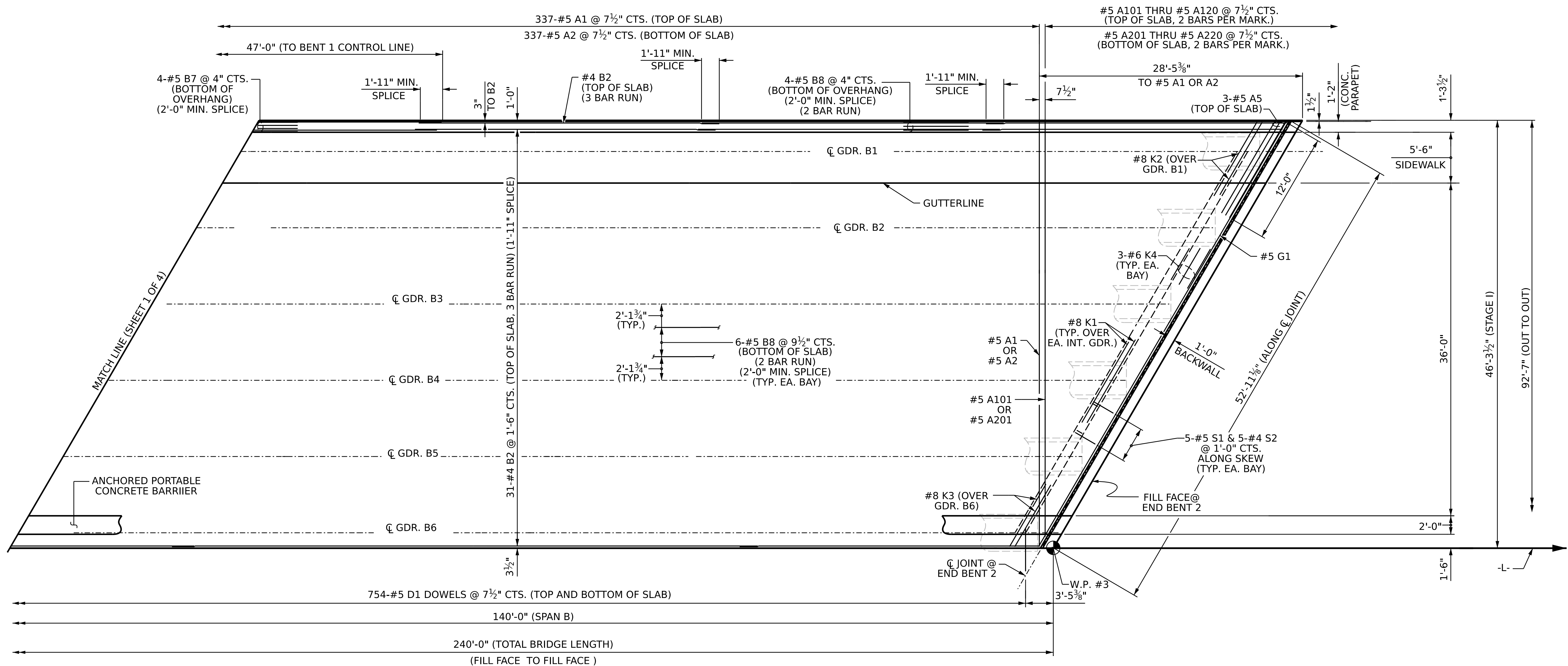
FOR INTERMEDIATE STEEL DIAPHRAGM DETAILS,  
SEE "INTERMEDIATE STEEL DIAPHRAGMS  
FOR 63" FIB DETAILS" SHEET.  
FOR LOCATION OF TRANSVERSE CONSTRUCTION  
JOINTS, SEE SHEET S-35

|           |     |       |     |     |       |                       |
|-----------|-----|-------|-----|-----|-------|-----------------------|
| REVISIONS |     |       |     |     |       | SHEET NO.<br>S-12     |
| NO.       | BY: | DATE: | NO. | BY: | DATE: |                       |
| 1         |     |       | 3   |     |       | TOTAL<br>SHEETS<br>53 |
| 2         |     |       | 4   |     |       |                       |

DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED

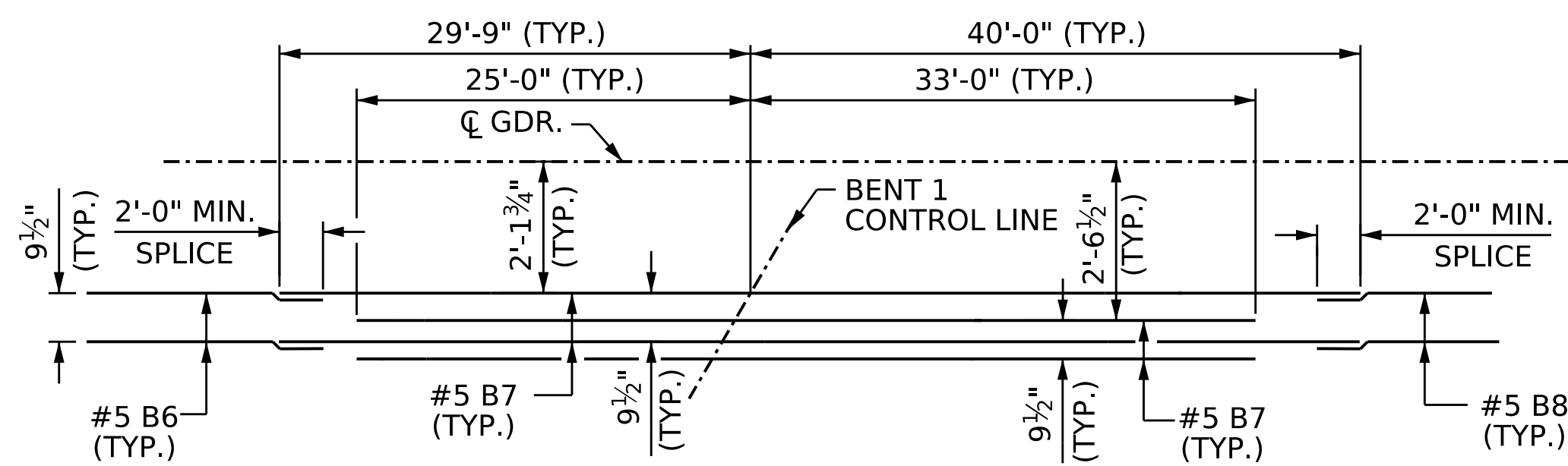
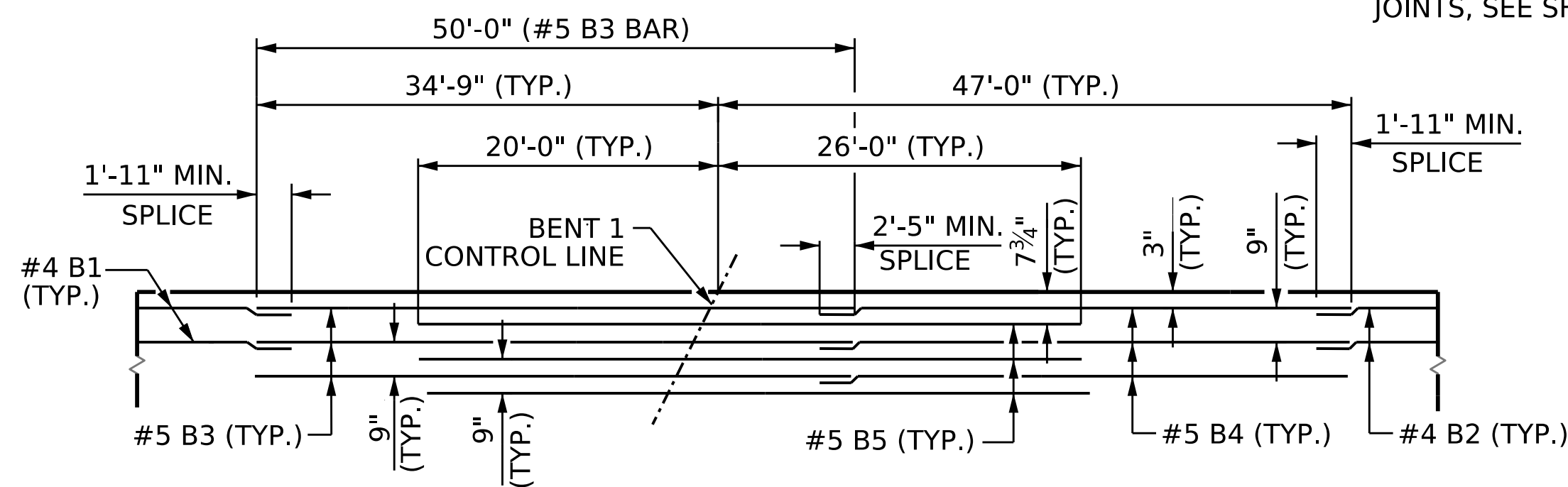
DRAWN BY : E. MOHAMED DATE : 03/2025  
 CHECKED BY : A. SORSENGINH DATE : 03/2025  
 DESIGN ENGINEER OF RECORD: A. IGHWAIR DATE : 03/2025

2/20/2026  
S:\DPG3\BR-0168\Final Plans\401\_023\_BR0168\_SMU\_PS\_S12\_330289.dgn  
ksedaj



### SPAN B

FOR INTERMEDIATE STEEL DIAPHRAGM DETAILS, SEE "INTERMEDIATE STEEL DIAPHRAGMS FOR 63" FIB DETAILS" SHEET.  
FOR LOCATION OF TRANSVERSE CONSTRUCTION JOINTS, SEE SHEET S-35



PROJECT NO. **BR-0168**

**FORSYTH** COUNTY

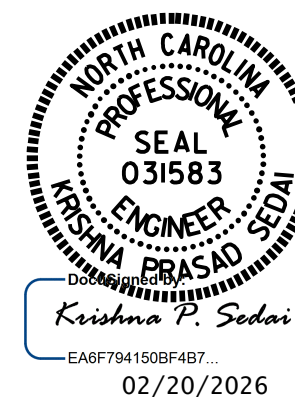
STATION: **20+73.79 -L-**

SHEET 2 OF 4

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

SUPERSTRUCTURE

**PLAN OF SPAN B**  
STAGE I (LEFT SIDE)

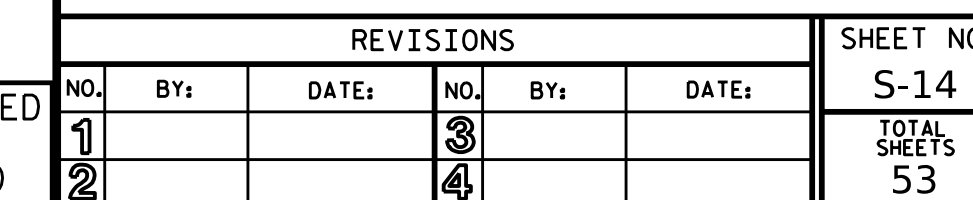


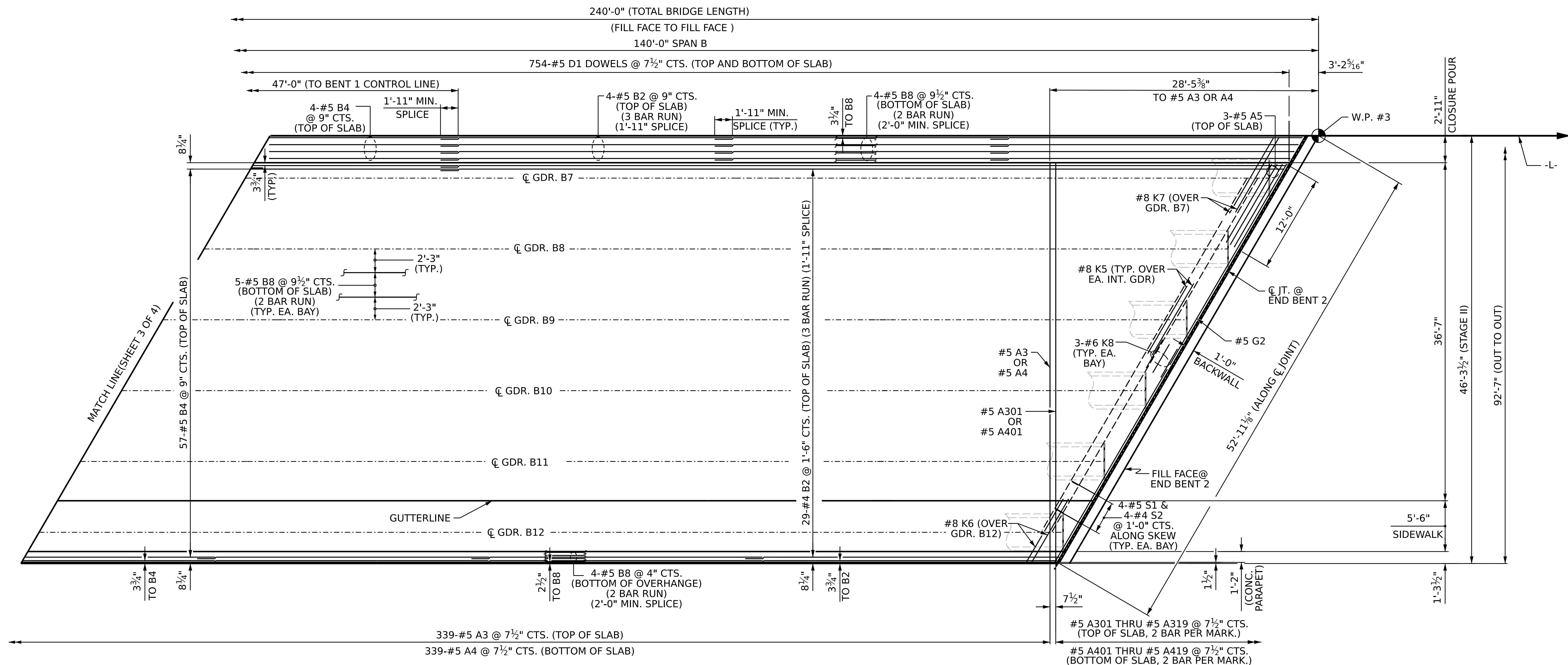
DRAWN BY : **E. MOHAMED** DATE : **03/2025**  
CHECKED BY : **A. SORSENGINH** DATE : **03/2025**  
DESIGN ENGINEER OF RECORD : **A. IGHWAIR** DATE : **03/2025**

2/20/2026  
S:\DPO3\BR-0168\Final Plans\401.025\_BR0168\_SMU\_PS\_S13\_330289.dgn  
ksedai

DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED

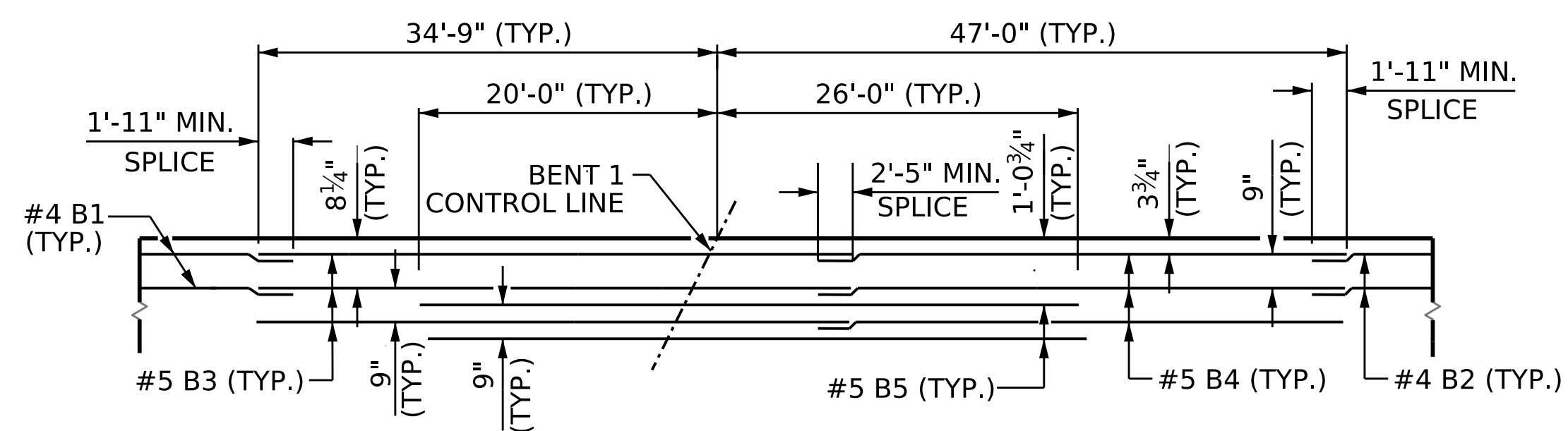
| REVISIONS |     |       |     |     | SHEET NO.    |
|-----------|-----|-------|-----|-----|--------------|
| NO.       | BY: | DATE: | NO. | BY: |              |
| 1         |     |       | 3   |     | 5-13         |
| 2         |     |       | 4   |     | TOTAL SHEETS |
|           |     |       |     |     | 53           |





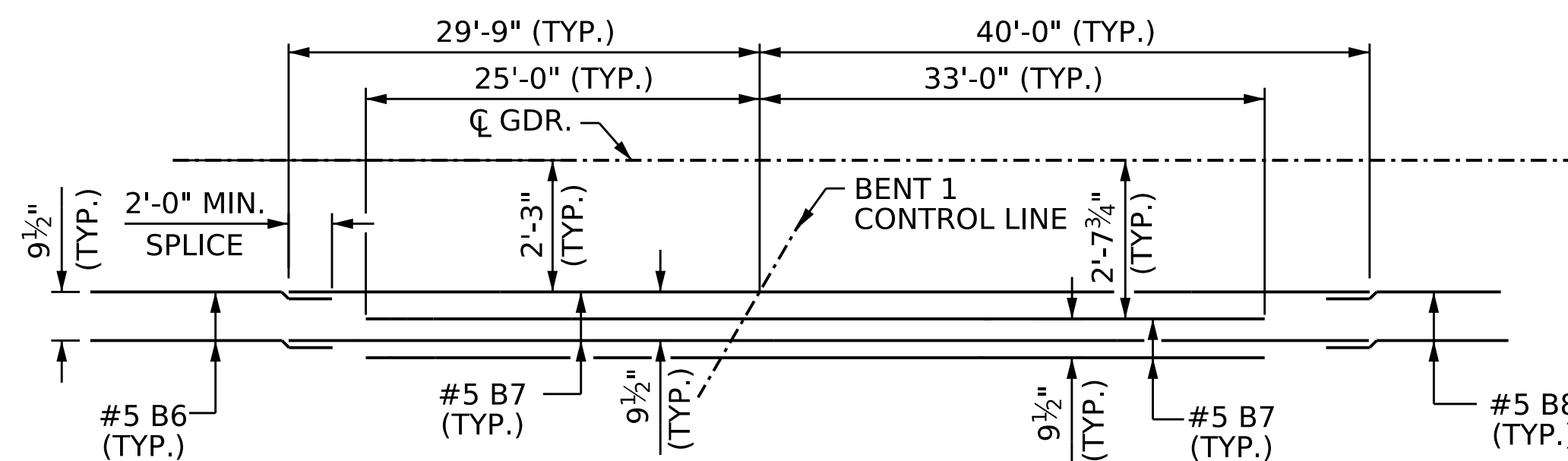
### SPAN B

FOR INTERMEDIATE STEEL DIPHRAGM DETAILS,  
SEE "INTERMEDIATE STEEL DIAPHRAGMS  
FOR 63" FIB DETAILS" SHEET.  
FOR LOCATION OF JOINTS OF TRANSVERSE CONSTRUCTION  
JOINTS, SEE SHEET S-35



### DECK REINFORCEMENT DETAILS @ BENT 1

SHOWIN "B" BARS IN TOP OF SLAB  
(NOT DRAWN TO SCALE)



### DECK REINFORCEMENT DETAILS @ BENT 1

SHOWING "B" BARS IN BOTTOM SLAB  
(NOT DRAWN TO SCALE)

PROJECT NO. **BR-0168**

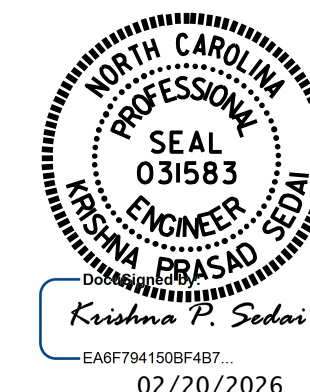
**FORSYTH** COUNTY

STATION: **20+73.79 -L-**

SHEET 4 OF 4

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
SUPERSTRUCTURE

**PLAN OF SPAN B**  
STAGE II (RIGHT SIDE)



DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED

| REVISIONS |     |       |     |     | SHEET NO.    |
|-----------|-----|-------|-----|-----|--------------|
| NO.       | BY: | DATE: | NO. | BY: |              |
| 1         |     |       | 3   |     | S-15         |
| 2         |     |       | 4   |     | TOTAL SHEETS |
|           |     |       |     |     | 53           |

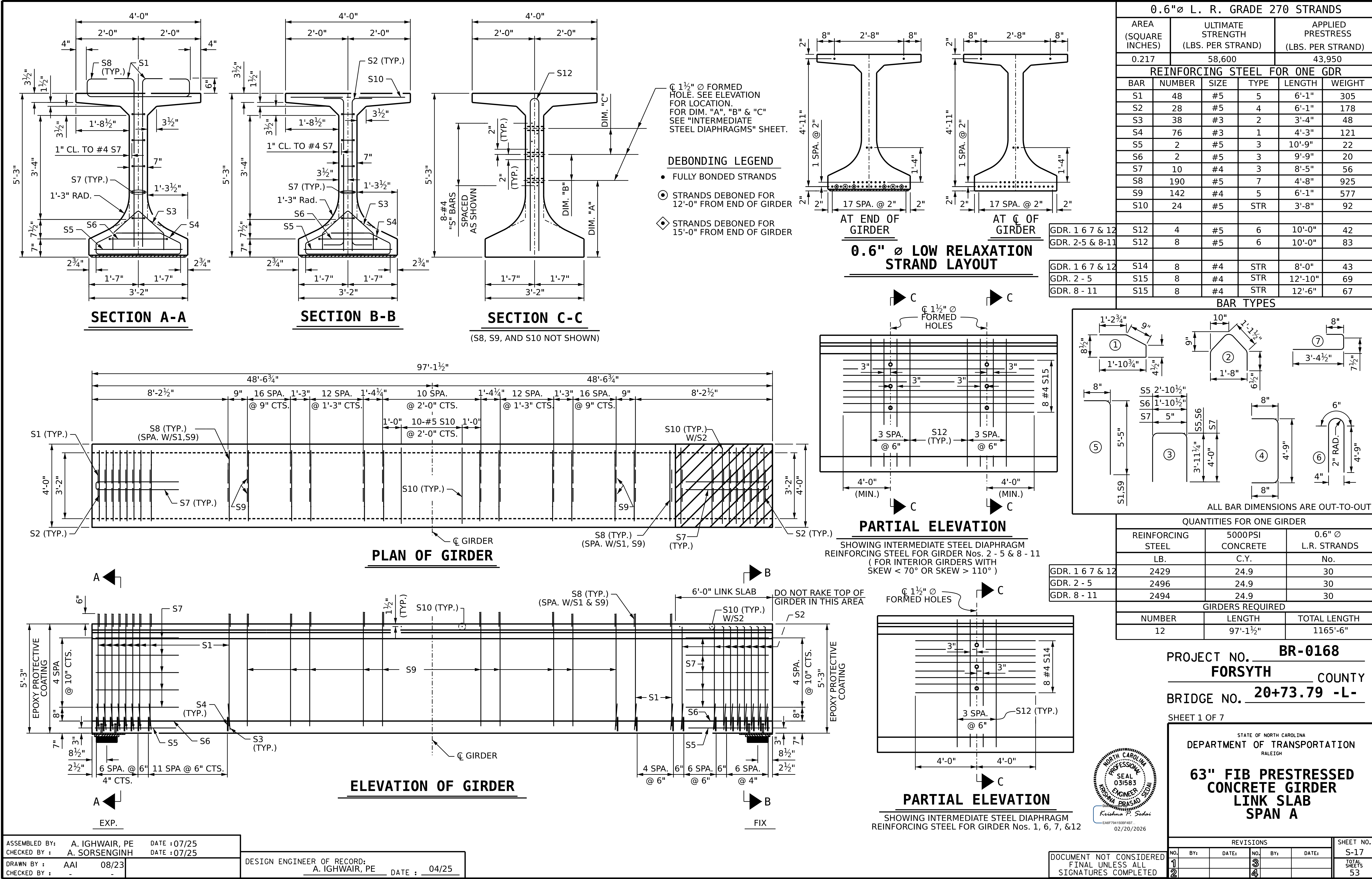
DRAWN BY : **E. MOHAMED** DATE : **05/2025**  
CHECKED BY : **A. SORSENGINH** DATE : **05/2025**  
DESIGN ENGINEER OF RECORD: **A. IGHWAIR** DATE : **05/2025**

2/20/2026  
S:\DPO3\BR-0168\Final Plans\401.029\_BR0168\_SMU.PS.S15.330289.dgn  
ksedai



| REVISIONS |     |       |     |     |       | SHEET NO.<br>S-16     |
|-----------|-----|-------|-----|-----|-------|-----------------------|
| NO.       | BY: | DATE: | NO. | BY: | DATE: |                       |
| 1         |     |       | 3   |     |       | TOTAL<br>SHEETS<br>53 |
| 2         |     |       | 4   |     |       |                       |

DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED





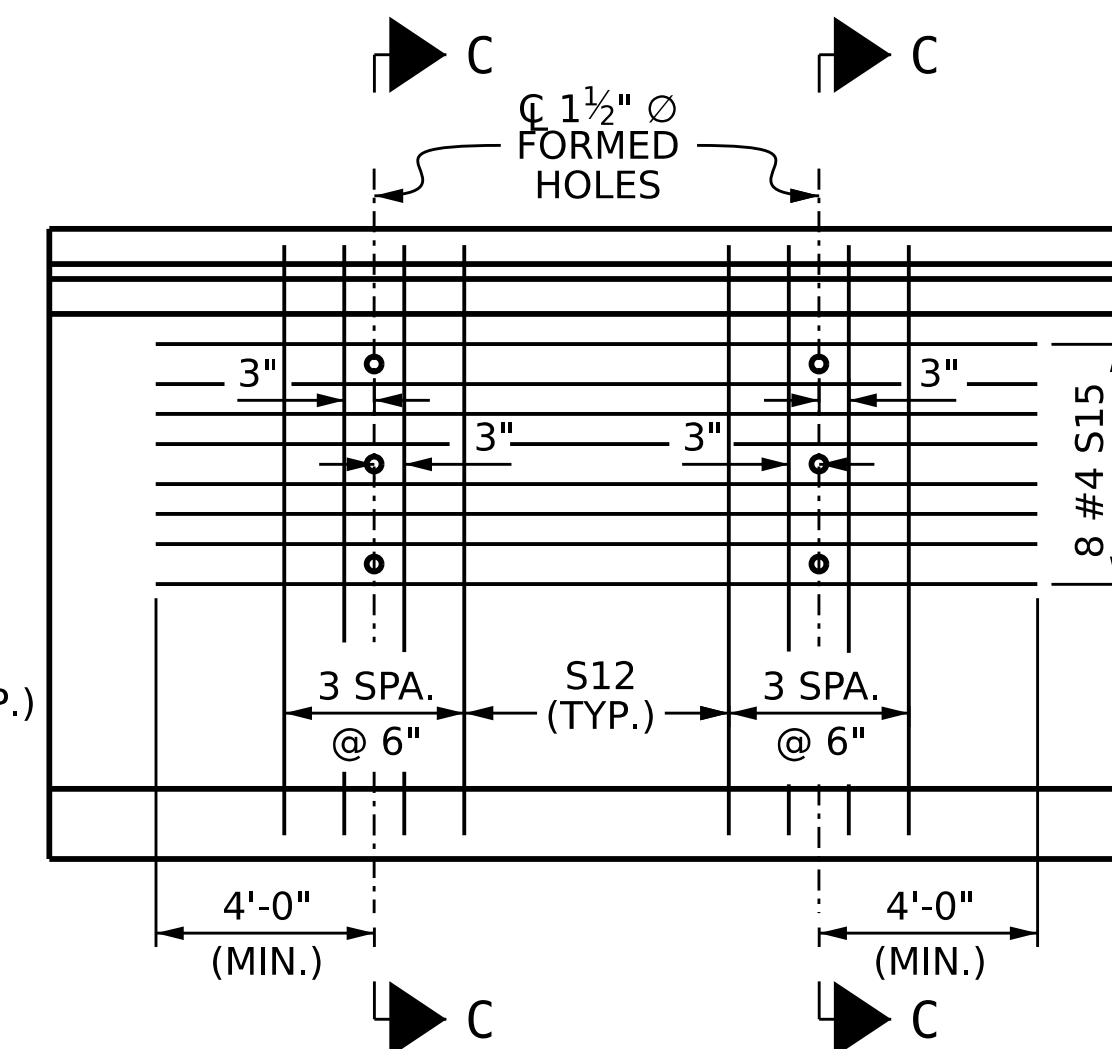
Ø 1½" FORMED  
HOLE. SEE ELEVATION  
FOR LOCATION.  
FOR DIM. "A", "B" & "C"  
SEE "INTERMEDIATE  
STEEL DIAPHRAGMS" SHEET.

- FULLY BONDED STRANDS
- ◻ STRANDS DEBONED FOR 9'-0" FROM END OF GIRDER
- ⊙ STRANDS DEBONED FOR 12'-0" FROM END OF GIRDER
- ◊ STRANDS DEBONED FOR 15'-0" FROM END OF GIRDER
- ⦿ STRANDS DEBONED FOR 21'-0" FROM END OF GIRDER

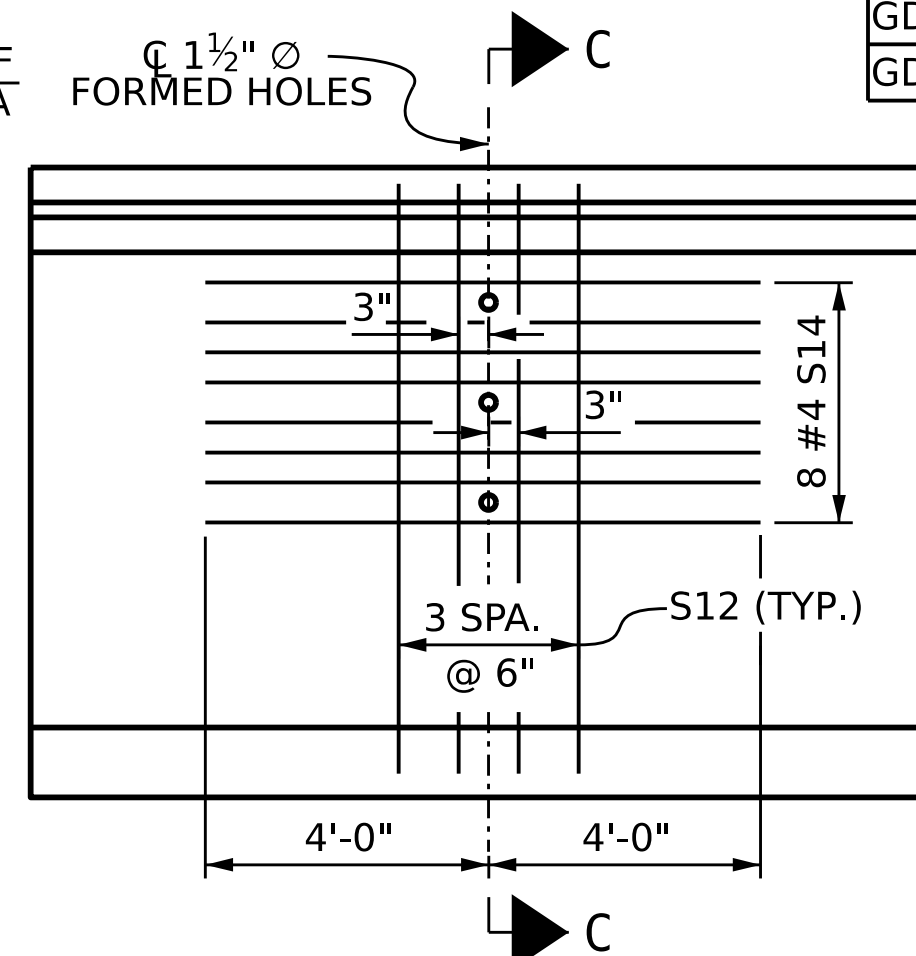


AT C OF  
GIRDER

## 0.6" Ø LOW RELAXATION STRAND LAYOUT

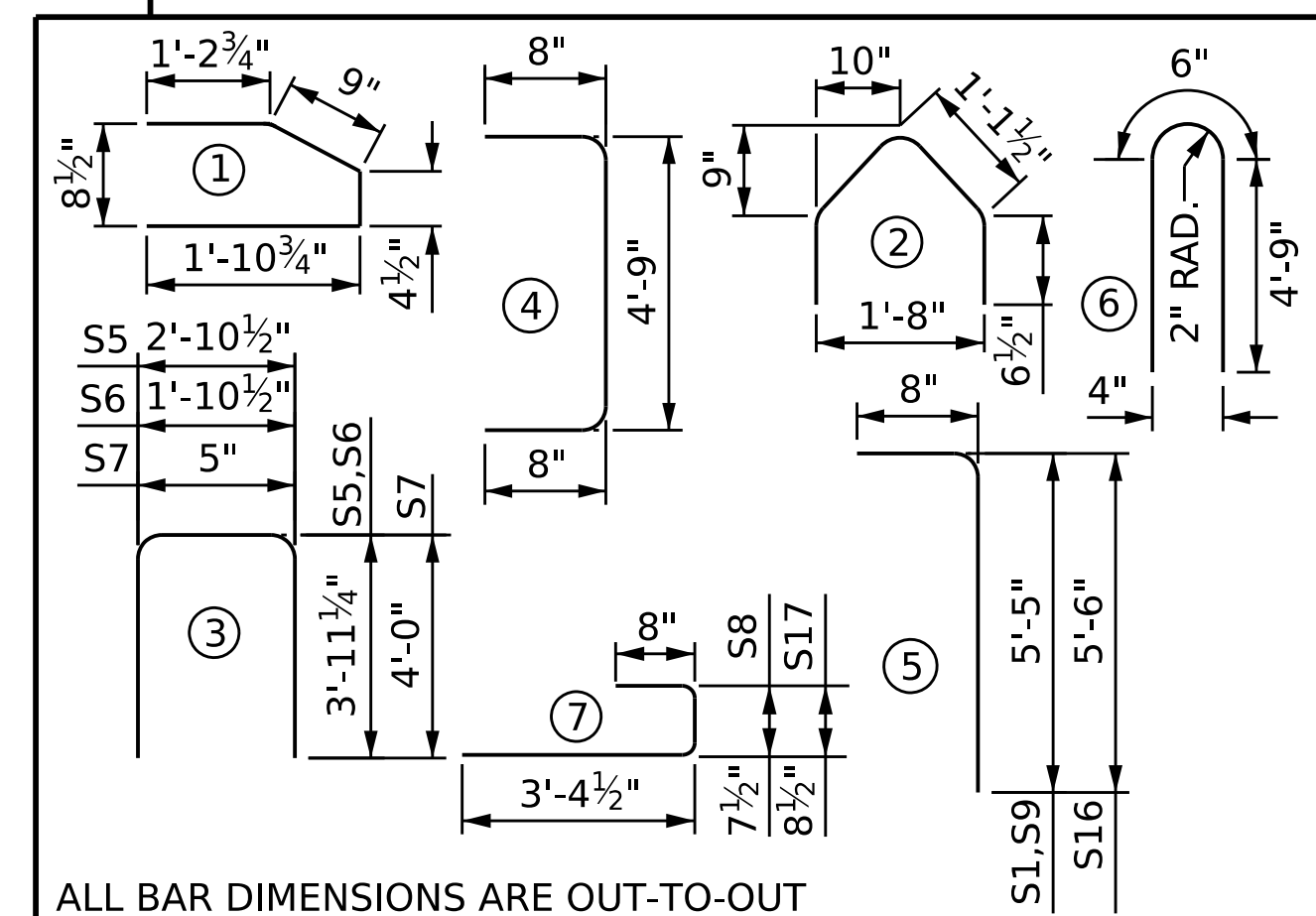


SHOWING INTERMEDIATE STEEL DIAPHRAGM  
REINFORCING STEEL FOR GIRDER Nos. 2 - 5 & 8 - 11  
( FOR INTERIOR GIRDERS WITH  
SKEW < 70° OR SKEW > 110° )



SHOWING INTERMEDIATE STEEL DIAPHRAGM  
REINFORCING STEEL FOR GIRDER Nos. 1, 6, 7, & 12

## BAR TYPES



ALL BAR DIMENSIONS ARE OUT-TO-OUT

|    | QUANTITIES FOR ONE GIRDER |                     |                        |
|----|---------------------------|---------------------|------------------------|
|    | REINFORCING<br>STEEL      | 8500PSI<br>CONCRETE | 0.6" Ø<br>L.R. STRANDS |
|    | LB.                       | C.Y.                | No.                    |
| 12 | 3612                      | 35.1                | 58                     |
|    | 3746                      | 35.1                | 58                     |
|    | 3743                      | 35.1                | 58                     |
|    | GIRDERS REQUIRED          |                     |                        |
|    | NUMBER                    | LENGTH              | TOTAL LENGTH           |
|    | 12                        | 137'-1½"            | 1645'-6"               |

PROJECT NO. **BR-0168**

**FORSYTH** COUNTY

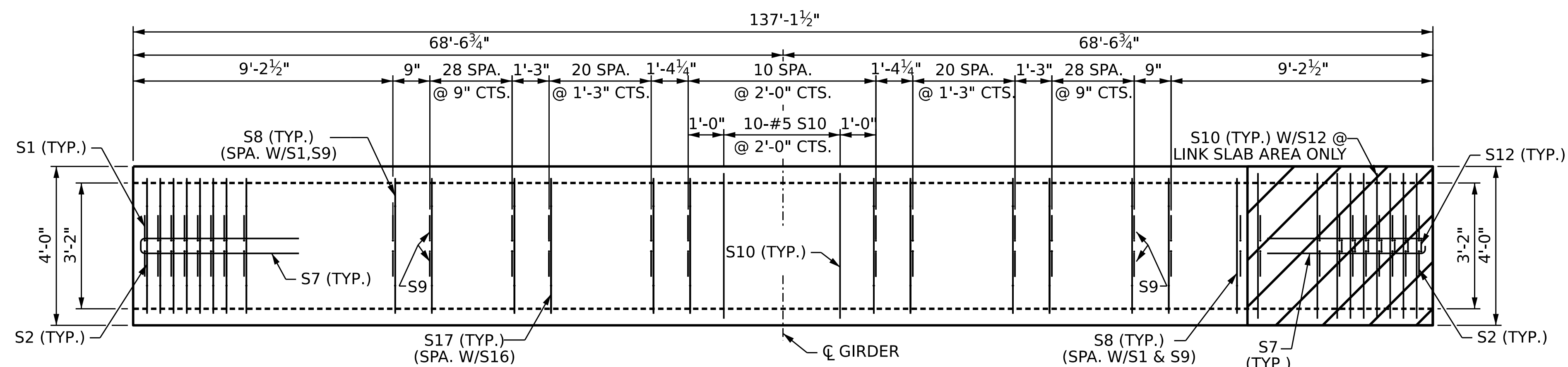
BRIDGE NO. 20+73.79 -L-

SHEET 2 OF 7

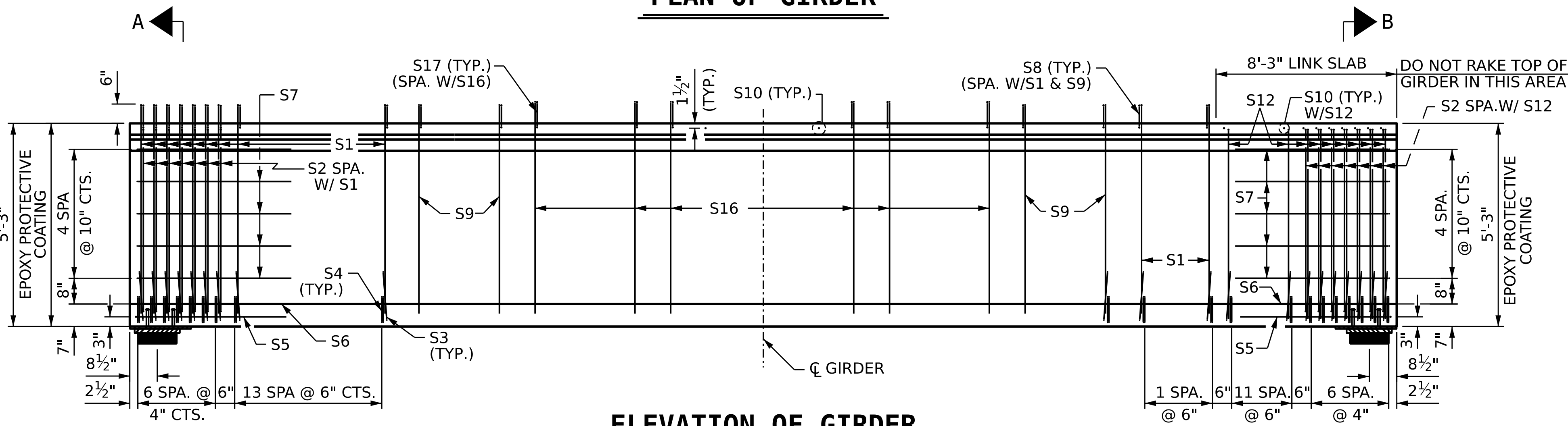
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

**63" FIB PRESTRESSED  
CONCRETE GIRDER  
LINK SLAB  
SPAN B**

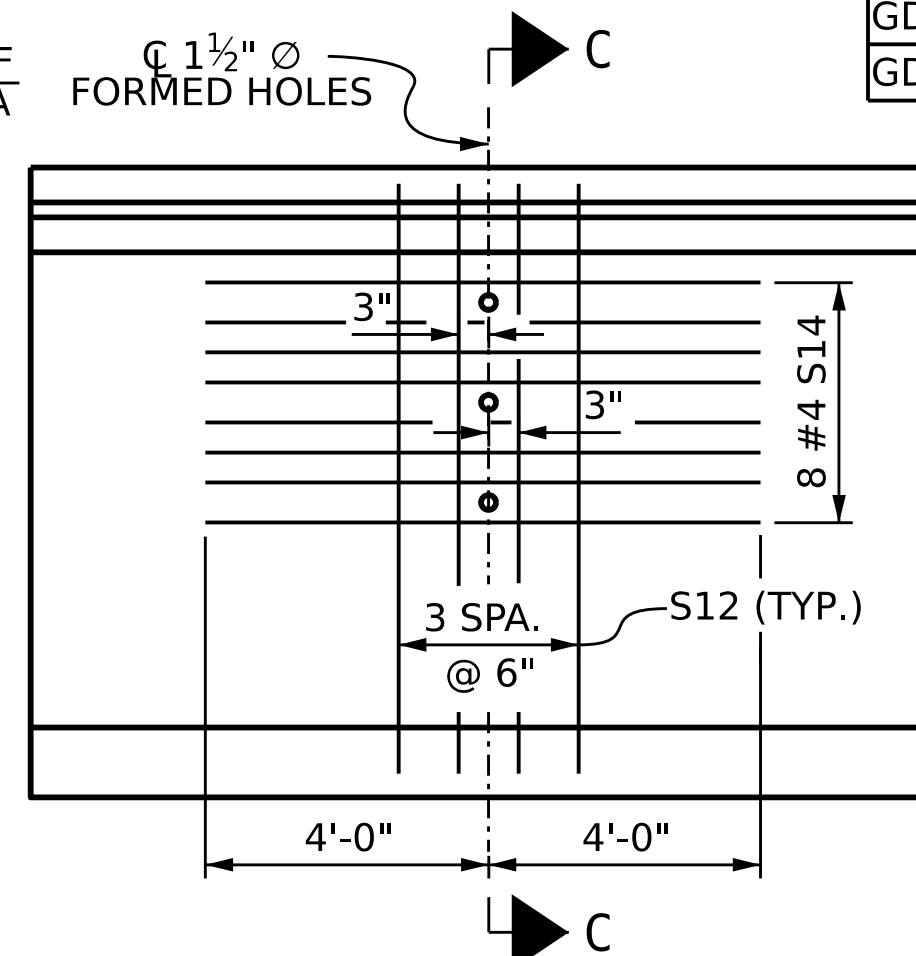
|           |     |       |     |     |       |                    |
|-----------|-----|-------|-----|-----|-------|--------------------|
| REVISIONS |     |       |     |     |       | SHEET NO.<br>S-18  |
| NO.       | BY: | DATE: | NO. | BY: | DATE: |                    |
| 1         |     |       | 3   |     |       | TOTAL SHEETS<br>53 |
| 2         |     |       | 4   |     |       |                    |



## PLAN OF GIRDER



## ELEVATION OF GIRDER



## PARTIAL ELEVATION

SHOWING INTERMEDIATE STEEL DIAPHRAGM  
REINFORCING STEEL FOR GIRDER Nos. 1, 6, 7, & 12

DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED

|                              |              |
|------------------------------|--------------|
| ASSEMBLED BY: A. IGHWAIR, PE | DATE : 07/25 |
| CHECKED BY : A. SORSENGINH   | DATE : 07/25 |
| DRAWN BY : AAI 08/23         |              |
| CHECKED BY : - -             |              |

DESIGN ENGINEER OF RECORD:  
A. IGHWAIR, PE      DATE . 04/25

12/19/2025  
S:\DPC3\BR-0168\Final Plans\401\_035\_BR168\_SMU\_GDR\_S18\_330289.dgn  
ksedaj

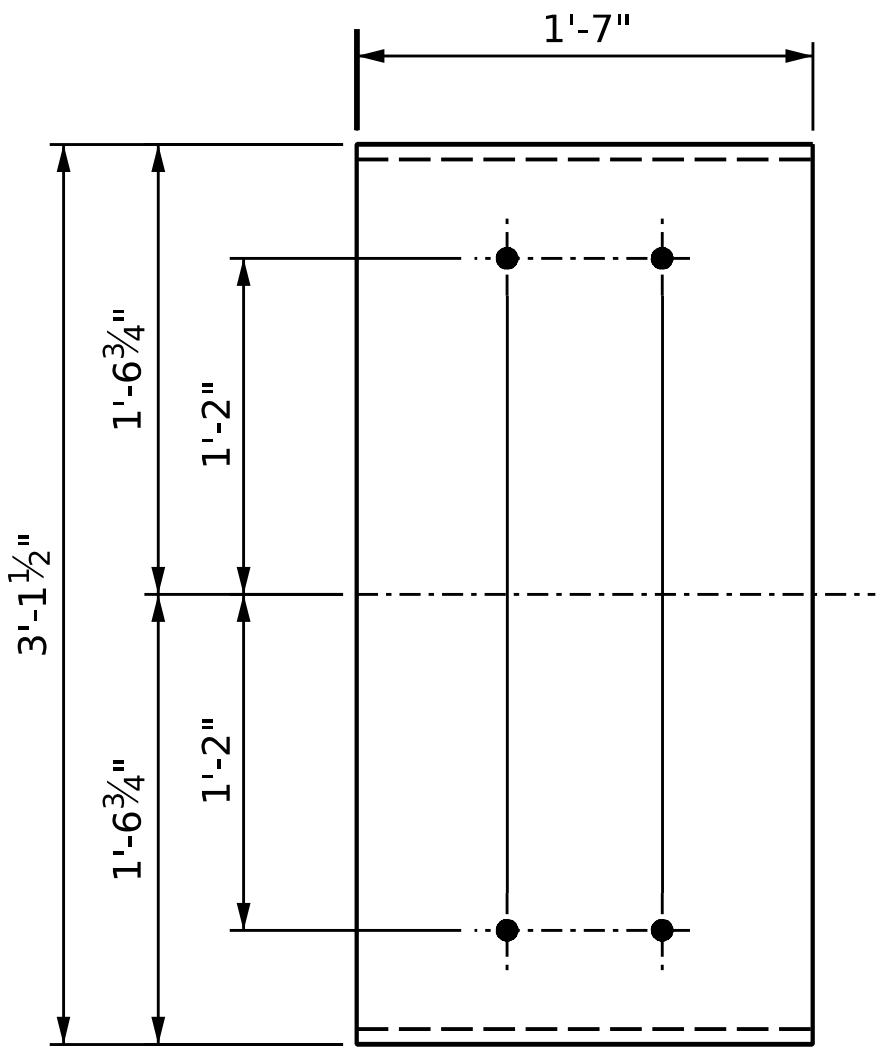
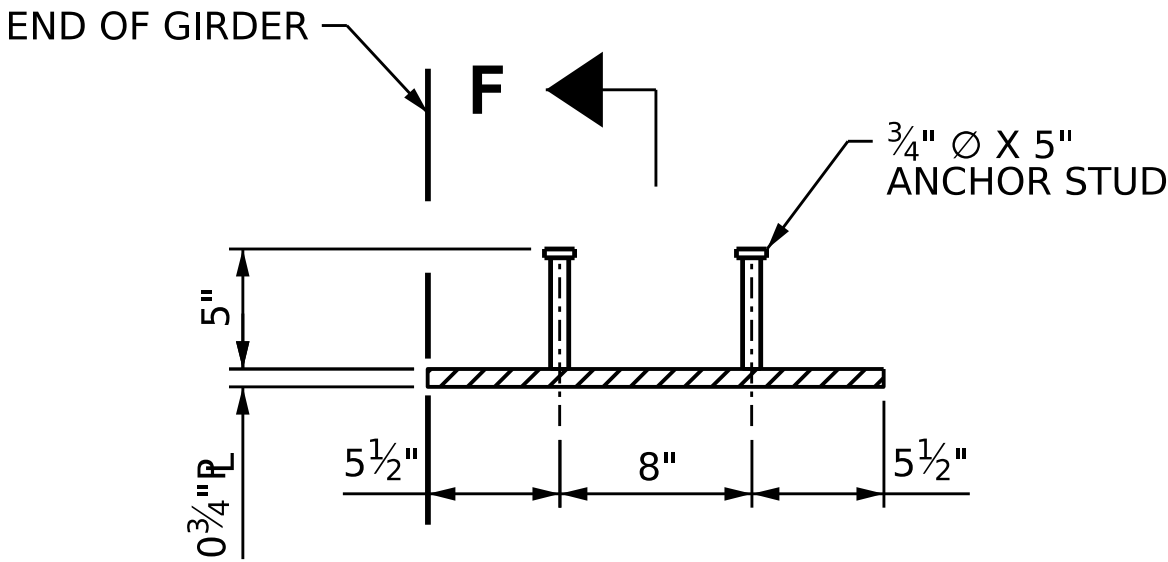
|                            |                |        |       |
|----------------------------|----------------|--------|-------|
| DRAWN BY :                 | A. IGHWAIR, PE | DATE : | 07/25 |
| CHECKED BY :               | A. SORSENGINH  | DATE : | 07/25 |
| DESIGN ENGINEER OF RECORD: | A. IGHWAIR, PE | DATE : | 07/25 |

12/19/2025  
S:\DPO3\BR-0168\Final Plans\401.037\_BR0168\_SMU.GDR.S19.330289.dgn  
ksedai



SECTION "F"

(SEE NOTES)



EMBEDDED PLATE "B-1" DETAILS

(2 REQ'D PER GIRDER)

NOTES

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

ALL REINFORCING STEEL SHALL BE GRADE 60.

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

EMBEDDED PLATE ``B-1" SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

ANCHOR STUDS SHALL CONFORM TO AASHTO M169 GRADES 1010 THROUGH 1020 OR APPROVED EQUAL, AND SHALL MEET THE TYPE ``B" REQUIREMENTS OF SUBSECTION 7.3 OF THE ANSI/AASHTO/AWS D1.5 BRIDGE WELDING CODE.

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

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE GIRDER SHALL BE DONE WHEN CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 4000 PSI FOR SPAN A AND 6600 PSI FOR SPAN B.

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

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

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

THE CONTRACTOR HAS THE OPTION TO PROVIDE, AT NO ADDITIONAL COST TO THE DEPARTMENT, 2 ADDITIONAL STRANDS AT THE TOP OF THE GIRDER TO FACILITATE TYING OF THE REINFORCING STEEL. THESE STRANDS SHALL BE PULLED TO A LOAD OF 4500 lbs.

PROJECT NO. **BR-0168**

**FORSYTH** COUNTY

STATION: **20+73.79 -L-**

SHEET 3 OF 7



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

63" FIB PRESTRESSED  
CONCRETE GIRDER  
DETAIL

| REVISIONS                                                           |     |       |     |     | SHEET NO.             |
|---------------------------------------------------------------------|-----|-------|-----|-----|-----------------------|
| NO.                                                                 | BY: | DATE: | NO. | BY: | DATE:                 |
| 1                                                                   |     |       | 3   |     |                       |
| 2                                                                   |     |       | 4   |     |                       |
| DOCUMENT NOT CONSIDERED<br>FINAL UNLESS ALL<br>SIGNATURES COMPLETED |     |       |     |     | TOTAL<br>SHEETS<br>53 |

DEAD LOAD DEFLECTION TABLE FOR GIRDERS

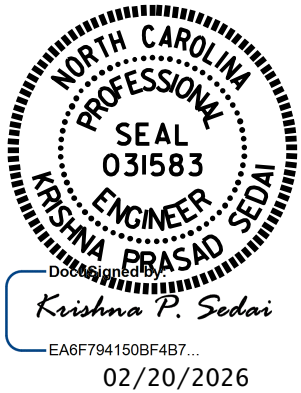
| SPAN A                         |   |              |       |       |       |       |       |       |        |        |        |        |        |        |        |       |       |       |       |       |       |      |
|--------------------------------|---|--------------|-------|-------|-------|-------|-------|-------|--------|--------|--------|--------|--------|--------|--------|-------|-------|-------|-------|-------|-------|------|
| 0.6" Ø LOW RELAXATION          |   | GIRDER 1     |       |       |       |       |       |       |        |        |        |        |        |        |        |       |       |       |       |       |       |      |
| 20TH POINTS                    |   | BRG.         | 0.050 | 0.100 | 0.150 | 0.200 | 0.250 | 0.300 | 0.350  | 0.400  | 0.450  | 0.500  | 0.550  | 0.600  | 0.650  | 0.700 | 0.750 | 0.800 | 0.850 | 0.900 | 0.950 | BRG. |
| CAMBER (GIRDER ALONE IN PLACE) | ↑ | 0            | 0.236 | 0.472 | 0.682 | 0.893 | 1.057 | 1.222 | 1.327  | 1.431  | 1.467  | 1.503  | 1.467  | 1.431  | 1.327  | 1.222 | 1.057 | 0.893 | 0.682 | 0.472 | 0.236 | 0    |
| DEFLECTION DUE TO SDL*         | ↓ | 0            | 0.143 | 0.287 | 0.415 | 0.543 | 0.643 | 0.743 | 0.807  | 0.870  | 0.892  | 0.914  | 0.892  | 0.870  | 0.807  | 0.743 | 0.643 | 0.543 | 0.415 | 0.287 | 0.143 | 0    |
| FINAL CAMBER                   | ↑ | 0"           | 1/16" | 3/16" | 1/4"  | 3/8"  | 7/16" | 1/2"  | 1/2"   | 9/16"  | 9/16"  | 9/16"  | 9/16"  | 9/16"  | 1/2"   | 1/2"  | 7/16" | 3/8"  | 1/4"  | 3/16" | 1/16" | 0"   |
| 0.6" Ø LOW RELAXATION          |   | GIRDER 2 & 3 |       |       |       |       |       |       |        |        |        |        |        |        |        |       |       |       |       |       |       |      |
| 20TH POINTS                    |   | BRG.         | 0.050 | 0.100 | 0.150 | 0.200 | 0.250 | 0.300 | 0.350  | 0.400  | 0.450  | 0.500  | 0.550  | 0.600  | 0.650  | 0.700 | 0.750 | 0.800 | 0.850 | 0.900 | 0.950 | BRG. |
| CAMBER (GIRDER ALONE IN PLACE) | ↑ | 0            | 0.236 | 0.472 | 0.682 | 0.893 | 1.057 | 1.222 | 1.327  | 1.431  | 1.467  | 1.503  | 1.467  | 1.431  | 1.327  | 1.222 | 1.057 | 0.893 | 0.682 | 0.472 | 0.236 | 0    |
| DEFLECTION DUE TO SDL*         | ↓ | 0            | 0.151 | 0.303 | 0.438 | 0.573 | 0.679 | 0.785 | 0.852  | 0.919  | 0.942  | 0.965  | 0.942  | 0.919  | 0.852  | 0.785 | 0.679 | 0.573 | 0.438 | 0.303 | 0.151 | 0    |
| FINAL CAMBER                   | ↑ | 0"           | 1/16" | 3/16" | 1/4"  | 5/16" | 3/8"  | 7/16" | 1/2"   | 1/2"   | 1/2"   | 9/16"  | 1/2"   | 1/2"   | 1/2"   | 7/16" | 3/8"  | 5/16" | 1/4"  | 3/16" | 1/16" | 0"   |
| 0.6" Ø LOW RELAXATION          |   | GIRDER 4 & 5 |       |       |       |       |       |       |        |        |        |        |        |        |        |       |       |       |       |       |       |      |
| 20TH POINTS                    |   | BRG.         | 0.050 | 0.100 | 0.150 | 0.200 | 0.250 | 0.300 | 0.350  | 0.400  | 0.450  | 0.500  | 0.550  | 0.600  | 0.650  | 0.700 | 0.750 | 0.800 | 0.850 | 0.900 | 0.950 | BRG. |
| CAMBER (GIRDER ALONE IN PLACE) | ↑ | 0            | 0.236 | 0.472 | 0.682 | 0.893 | 1.057 | 1.222 | 1.327  | 1.431  | 1.467  | 1.503  | 1.467  | 1.431  | 1.327  | 1.222 | 1.057 | 0.893 | 0.682 | 0.472 | 0.236 | 0    |
| DEFLECTION DUE TO SDL*         | ↓ | 0            | 0.132 | 0.265 | 0.383 | 0.501 | 0.594 | 0.686 | 0.745  | 0.804  | 0.824  | 0.844  | 0.824  | 0.804  | 0.745  | 0.686 | 0.594 | 0.501 | 0.383 | 0.265 | 0.132 | 0    |
| FINAL CAMBER                   | ↑ | 0"           | 1/8"  | 3/16" | 5/16" | 3/8"  | 7/16" | 9/16" | 9/16"  | 5/8"   | 5/8"   | 11/16" | 5/8"   | 5/8"   | 9/16"  | 9/16" | 7/16" | 3/8"  | 5/16" | 3/16" | 1/8"  | 0"   |
| 0.6" Ø LOW RELAXATION          |   | GIRDER 6     |       |       |       |       |       |       |        |        |        |        |        |        |        |       |       |       |       |       |       |      |
| 20TH POINTS                    |   | BRG.         | 0.050 | 0.100 | 0.150 | 0.200 | 0.250 | 0.300 | 0.350  | 0.400  | 0.450  | 0.500  | 0.550  | 0.600  | 0.650  | 0.700 | 0.750 | 0.800 | 0.850 | 0.900 | 0.950 | BRG. |
| CAMBER (GIRDER ALONE IN PLACE) | ↑ | 0            | 0.236 | 0.472 | 0.682 | 0.893 | 1.057 | 1.222 | 1.327  | 1.431  | 1.467  | 1.503  | 1.467  | 1.431  | 1.327  | 1.222 | 1.057 | 0.893 | 0.682 | 0.472 | 0.236 | 0    |
| DEFLECTION DUE TO SDL*         | ↓ | 0            | 0.120 | 0.240 | 0.346 | 0.453 | 0.537 | 0.620 | 0.674  | 0.727  | 0.745  | 0.763  | 0.745  | 0.727  | 0.674  | 0.620 | 0.537 | 0.453 | 0.346 | 0.240 | 0.120 | 0    |
| FINAL CAMBER                   | ↑ | 0"           | 1/8"  | 1/4"  | 5/16" | 7/16" | 1/2"  | 5/8"  | 5/8"   | 11/16" | 3/4"   | 3/4"   | 3/4"   | 11/16" | 5/8"   | 5/8"  | 1/2"  | 7/16" | 5/16" | 1/4"  | 1/8"  | 0"   |
| 0.6" Ø LOW RELAXATION          |   | GIRDER 7     |       |       |       |       |       |       |        |        |        |        |        |        |        |       |       |       |       |       |       |      |
| 20TH POINTS                    |   | BRG.         | 0.050 | 0.100 | 0.150 | 0.200 | 0.250 | 0.300 | 0.350  | 0.400  | 0.450  | 0.500  | 0.550  | 0.600  | 0.650  | 0.700 | 0.750 | 0.800 | 0.850 | 0.900 | 0.950 | BRG. |
| CAMBER (GIRDER ALONE IN PLACE) | ↑ | 0            | 0.236 | 0.472 | 0.682 | 0.893 | 1.057 | 1.222 | 1.327  | 1.431  | 1.467  | 1.503  | 1.467  | 1.431  | 1.327  | 1.222 | 1.057 | 0.893 | 0.682 | 0.472 | 0.236 | 0    |
| DEFLECTION DUE TO SDL*         | ↓ | 0            | 0.116 | 0.231 | 0.334 | 0.437 | 0.518 | 0.598 | 0.650  | 0.701  | 0.718  | 0.736  | 0.718  | 0.701  | 0.650  | 0.598 | 0.518 | 0.437 | 0.334 | 0.231 | 0.116 | 0    |
| FINAL CAMBER                   | ↑ | 0"           | 1/8"  | 1/4"  | 3/8"  | 7/16" | 9/16" | 5/8"  | 11/16" | 3/4"   | 3/4"   | 3/4"   | 3/4"   | 3/4"   | 11/16" | 5/8"  | 9/16" | 7/16" | 3/8"  | 1/4"  | 1/8"  | 0"   |
| 0.6" Ø LOW RELAXATION          |   | GIRDER 8 & 9 |       |       |       |       |       |       |        |        |        |        |        |        |        |       |       |       |       |       |       |      |
| 20TH POINTS                    |   | BRG.         | 0.050 | 0.100 | 0.150 | 0.200 | 0.250 | 0.300 | 0.350  | 0.400  | 0.450  | 0.500  | 0.550  | 0.600  | 0.650  | 0.700 | 0.750 | 0.800 | 0.850 | 0.900 | 0.950 | BRG. |
| CAMBER (GIRDER ALONE IN PLACE) | ↑ | 0            | 0.236 | 0.472 | 0.682 | 0.893 | 1.057 | 1.222 | 1.327  | 1.431  | 1.467  | 1.503  | 1.467  | 1.431  | 1.327  | 1.222 | 1.057 | 0.893 | 0.682 | 0.472 | 0.236 | 0    |
| DEFLECTION DUE TO SDL*         | ↓ | 0            | 0.124 | 0.249 | 0.360 | 0.471 | 0.558 | 0.645 | 0.700  | 0.755  | 0.774  | 0.793  | 0.774  | 0.755  | 0.700  | 0.645 | 0.558 | 0.471 | 0.360 | 0.249 | 0.124 | 0    |
| FINAL CAMBER                   | ↑ | 0"           | 1/8"  | 1/4"  | 5/16" | 7/16" | 1/2"  | 9/16" | 5/8"   | 11/16" | 11/16" | 11/16" | 11/16" | 11/16" | 5/8"   | 9/16" | 1/2"  | 7/16" | 5/16" | 1/4"  | 1/8"  | 0"   |
| 0.6" Ø LOW RELAXATION          |   | GIRDER 10    |       |       |       |       |       |       |        |        |        |        |        |        |        |       |       |       |       |       |       |      |
| 20TH POINTS                    |   | BRG.         | 0.050 | 0.100 | 0.150 | 0.200 | 0.250 | 0.300 | 0.350  | 0.400  | 0.450  | 0.500  | 0.550  | 0.600  | 0.650  | 0.700 | 0.750 | 0.800 | 0.850 | 0.900 | 0.950 | BRG. |
| CAMBER (GIRDER ALONE IN PLACE) | ↑ | 0            | 0.236 | 0.472 | 0.682 | 0.893 | 1.057 | 1.222 | 1.327  | 1.431  | 1.467  | 1.503  | 1.467  | 1.431  | 1.327  | 1.222 | 1.057 | 0.893 | 0.682 | 0.472 | 0.236 | 0    |
| DEFLECTION DUE TO SDL*         | ↓ | 0            | 0.145 | 0.290 | 0.420 | 0.549 | 0.651 | 0.752 | 0.817  | 0.881  | 0.903  | 0.925  | 0.903  | 0.881  | 0.817  | 0.752 | 0.651 | 0.549 | 0.420 | 0.290 | 0.145 | 0    |
| FINAL CAMBER                   | ↑ | 0"           | 1/16" | 3/16" | 1/4"  | 3/8"  | 3/8"  | 1/2"  | 1/2"   | 9/16"  | 9/16"  | 9/16"  | 9/16"  | 9/16"  | 1/2"   | 1/2"  | 3/8"  | 3/8"  | 1/4"  | 3/16" | 1/16" | 0"   |
| 0.6" Ø LOW RELAXATION          |   | GIRDER 11    |       |       |       |       |       |       |        |        |        |        |        |        |        |       |       |       |       |       |       |      |
| 20TH POINTS                    |   | BRG.         | 0.050 | 0.100 | 0.150 | 0.200 | 0.250 | 0.300 | 0.350  | 0.400  | 0.450  | 0.500  | 0.550  | 0.600  | 0.650  | 0.700 | 0.750 | 0.800 | 0.850 | 0.900 | 0.950 | BRG. |
| CAMBER (GIRDER ALONE IN PLACE) | ↑ | 0            | 0.236 | 0.472 | 0.682 | 0.893 | 1.057 | 1.222 | 1.327  | 1.431  | 1.467  | 1.503  | 1.467  | 1.431  | 1.327  | 1.222 | 1.057 | 0.893 | 0.682 | 0.472 | 0.236 | 0    |
| DEFLECTION DUE TO SDL*         | ↓ | 0            | 0.145 | 0.289 | 0.419 | 0.548 | 0.649 | 0.750 | 0.814  | 0.878  | 0.900  | 0.922  | 0.900  | 0.878  | 0.814  | 0.750 | 0.649 | 0.548 | 0.419 | 0.289 | 0.145 | 0    |
| FINAL CAMBER                   | ↑ | 0"           | 1/16" | 3/16" | 1/4"  | 3/8"  | 7/16" | 1/2"  | 1/2"   | 9/16"  | 9/16"  | 9/16"  | 9/16"  | 9/16"  | 1/2"   | 1/2"  | 7/16" | 3/8"  | 1/4"  | 3/16" | 1/16" | 0"   |
| 0.6 Ø LOW RELAXATION           |   | GIRDER 12    |       |       |       |       |       |       |        |        |        |        |        |        |        |       |       |       |       |       |       |      |
| 20TH POINTS                    |   | BRG.         | 0.050 | 0.100 | 0.150 | 0.200 | 0.250 | 0.300 | 0.350  | 0.400  | 0.450  | 0.500  | 0.550  | 0.600  | 0.650  | 0.700 | 0.750 | 0.800 | 0.850 | 0.900 | 0.950 | BG.  |
| CAMBER (GIRDER ALONE IN PLACE) | ↑ | 0            | 0.236 | 0.472 | 0.682 | 0.893 | 1.057 | 1.222 | 1.327  | 1.431  | 1.467  | 1.503  | 1.467  | 1.431  | 1.327  | 1.222 | 1.057 | 0.893 | 0.682 | 0.472 | 0.236 | 0    |
| DEFLECTION DUE TO SDL*         | ↓ | 0            | 0.140 | 0.280 | 0.404 | 0.529 | 0.627 | 0.724 | 0.787  | 0.849  | 0.870  | 0.891  | 0.870  | 0.849  | 0.787  | 0.724 | 0.627 | 0.529 | 0.404 | 0.280 | 0.140 | 0    |
| FINAL CAMBER                   | ↑ | 0"           | 1/8"  | 3/16" | 1/4"  | 3/8"  | 7/16" | 1/2"  | 9/16"  | 9/16"  | 5/8"   | 5/8"   | 5/8"   | 9/16"  | 9/16"  | 1/2"  | 7/16" | 3/8"  | 1/4"  | 3/16" | 1/8"  | 0"   |

\* INCLUDES FUTURE WEARING SURFACE.

ALL VALUES ARE SHOWN IN INCHES (DECIMAL FORM), EXCEPT "FINAL CAMBER" WHICH IS SHOWN IN INCHES (FRACTION FORM).

PROJECT NO. **BR-0168**  
**FORSYTH** COUNTY  
STATION: **20+73.79 -L-**

SHEET 4 OF 7



| STATE OF NORTH CAROLINA<br>DEPARTMENT OF TRANSPORTATION<br>RALEIGH<br>SUPERSTRUCTURE |     |       |     |     |                               |
|--------------------------------------------------------------------------------------|-----|-------|-----|-----|-------------------------------|
| DEAD LOAD<br>DEFLECTIONS TABLE<br>SPAN A                                             |     |       |     |     |                               |
| REVISIONS                                                                            |     |       |     |     | SHEET NO.                     |
| NO.                                                                                  | BY: | DATE: | NO. | BY: | DATE:                         |
| 1                                                                                    |     |       | 3   |     |                               |
| 2                                                                                    |     |       | 4   |     |                               |
| DOCUMENT NOT CONSIDERED<br>FINAL UNLESS ALL<br>SIGNATURES COMPLETED                  |     |       |     |     | S-20<br>TOTAL<br>SHEETS<br>53 |

DRAWN BY : E. MOHAMED DATE : 04/2025  
CHECKED BY : A. SORSENGINH DATE : 04/2025  
DESIGN ENGINEER OF RECORD: A. IGHWAIR DATE : 04/2025

8/26/21

DEAD LOAD DEFLECTION TABLE FOR GIRDERS

| SPAN B                         |      |              |                  |                  |                  |                  |                  |                  |                   |                   |                   |                   |                   |                   |                 |                   |                   |                   |                   |                  |                  |                  |                  |                  |                   |                   |                   |                  |                   |                   |                   |                   |                  |                  |                  |                  |                  |                  |                  |                  |                  |    |  |
|--------------------------------|------|--------------|------------------|------------------|------------------|------------------|------------------|------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-----------------|-------------------|-------------------|-------------------|-------------------|------------------|------------------|------------------|------------------|------------------|-------------------|-------------------|-------------------|------------------|-------------------|-------------------|-------------------|-------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|----|--|
| 0.6" Ø LOW RELAXATION          |      | GIRDER 1     |                  |                  |                  |                  |                  |                  |                   |                   |                   |                   |                   |                   |                 |                   |                   |                   |                   |                  |                  |                  |                  |                  |                   |                   |                   |                  |                   |                   |                   |                   |                  |                  |                  |                  |                  |                  |                  |                  |                  |    |  |
| 40TH POINTS                    | BRG. | 0.025        | 0.050            | 0.075            | 0.100            | 0.125            | 0.150            | 0.175            | 0.200             | 0.225             | 0.250             | 0.275             | 0.300             | 0.325             | 0.350           | 0.375             | 0.400             | 0.425             | 0.450             | 0.475            | 0.500            | 0.525            | 0.550            | 0.575            | 0.600             | 0.625             | 0.650             | 0.675            | 0.700             | 0.725             | 0.750             | 0.775             | 0.800            | 0.825            | 0.850            | 0.875            | 0.900            | 0.925            | 0.950            | 0.975            | BRG.             |    |  |
| CAMBER (GIRDER ALONE IN PLACE) | ↑    | 0            | 0.338            | 0.677            | 1.015            | 1.354            | 1.655            | 1.957            | 2.259             | 2.561             | 2.797             | 3.034             | 3.270             | 3.506             | 3.656           | 3.806             | 3.956             | 4.106             | 4.158             | 4.209            | 4.261            | 4.312            | 4.261            | 4.209            | 4.158             | 4.106             | 3.956             | 3.806            | 3.656             | 3.506             | 3.270             | 3.034             | 2.797            | 2.561            | 2.259            | 1.957            | 1.655            | 1.354            | 1.015            | 0.677            | 0.338            | 0  |  |
| DEFLECTION DUE TO SDL*         | ↓    | 0            | 0.258            | 0.516            | 0.773            | 1.031            | 1.261            | 1.491            | 1.721             | 1.951             | 2.131             | 2.311             | 2.491             | 2.671             | 2.785           | 2.900             | 3.014             | 3.128             | 3.168             | 3.207            | 3.246            | 3.285            | 3.246            | 3.207            | 3.168             | 3.128             | 3.014             | 2.900            | 2.785             | 2.671             | 2.491             | 2.311             | 2.131            | 1.951            | 1.721            | 1.491            | 1.261            | 1.031            | 0.773            | 0.516            | 0.258            | 0  |  |
| FINAL CAMBER                   | ↑    | 0"           | $\frac{1}{16}$ " | $\frac{3}{16}$ " | $\frac{1}{4}$ "  | $\frac{5}{16}$ " | $\frac{3}{8}$ "  | $\frac{7}{16}$ " | $\frac{9}{16}$ "  | $\frac{5}{8}$ "   | $\frac{11}{16}$ " | $\frac{3}{4}$ "   | $\frac{3}{4}$ "   | $\frac{13}{16}$ " | $\frac{7}{8}$ " | $\frac{7}{8}$ "   | $\frac{15}{16}$ " | 1"                | 1"                | 1"               | 1"               | 1"               | 1"               | 1"               | 1"                | $\frac{15}{16}$ " | $\frac{7}{8}$ "   | $\frac{7}{8}$ "  | $\frac{13}{16}$ " | $\frac{3}{4}$ "   | $\frac{3}{4}$ "   | $\frac{11}{16}$ " | $\frac{5}{8}$ "  | $\frac{9}{16}$ " | $\frac{7}{16}$ " | $\frac{3}{8}$ "  | $\frac{5}{16}$ " | $\frac{1}{4}$ "  | $\frac{3}{16}$ " | $\frac{1}{16}$ " | 0"               |    |  |
| 0.6" Ø LOW RELAXATION          |      | GIRDER 2     |                  |                  |                  |                  |                  |                  |                   |                   |                   |                   |                   |                   |                 |                   |                   |                   |                   |                  |                  |                  |                  |                  |                   |                   |                   |                  |                   |                   |                   |                   |                  |                  |                  |                  |                  |                  |                  |                  |                  |    |  |
| 40TH POINTS                    | BRG. | 0.025        | 0.050            | 0.075            | 0.100            | 0.125            | 0.150            | 0.175            | 0.200             | 0.225             | 0.250             | 0.275             | 0.300             | 0.325             | 0.350           | 0.375             | 0.400             | 0.425             | 0.450             | 0.475            | 0.500            | 0.525            | 0.550            | 0.575            | 0.600             | 0.625             | 0.650             | 0.675            | 0.700             | 0.725             | 0.750             | 0.775             | 0.800            | 0.825            | 0.850            | 0.875            | 0.900            | 0.925            | 0.950            | 0.975            | BRG.             |    |  |
| CAMBER (GIRDER ALONE IN PLACE) | ↑    | 0            | 0.338            | 0.677            | 1.015            | 1.354            | 1.655            | 1.957            | 2.259             | 2.561             | 2.797             | 3.034             | 3.270             | 3.506             | 3.656           | 3.806             | 3.956             | 4.106             | 4.158             | 4.209            | 4.261            | 4.312            | 4.261            | 4.209            | 4.158             | 4.106             | 3.956             | 3.806            | 3.656             | 3.506             | 3.270             | 3.034             | 2.797            | 2.561            | 2.259            | 1.957            | 1.655            | 1.354            | 1.015            | 0.677            | 0.338            | 0  |  |
| DEFLECTION DUE TO SDL*         | ↓    | 0            | 0.270            | 0.540            | 0.811            | 1.081            | 1.322            | 1.563            | 1.804             | 2.045             | 2.234             | 2.422             | 2.611             | 2.800             | 2.919           | 3.039             | 3.159             | 3.279             | 3.320             | 3.361            | 3.402            | 3.443            | 3.402            | 3.361            | 3.320             | 3.279             | 3.159             | 3.039            | 2.919             | 2.800             | 2.611             | 2.422             | 2.234            | 2.045            | 1.804            | 1.563            | 1.322            | 1.081            | 0.811            | 0.540            | 0.270            | 0  |  |
| FINAL CAMBER                   | ↑    | 0"           | $\frac{1}{16}$ " | $\frac{1}{8}$ "  | $\frac{3}{16}$ " | $\frac{1}{4}$ "  | $\frac{5}{16}$ " | $\frac{3}{8}$ "  | $\frac{7}{16}$ "  | $\frac{1}{2}$ "   | $\frac{9}{16}$ "  | $\frac{5}{8}$ "   | $\frac{11}{16}$ " | $\frac{11}{16}$ " | $\frac{3}{4}$ " | $\frac{3}{4}$ "   | $\frac{13}{16}$ " | $\frac{13}{16}$ " | $\frac{13}{16}$ " | $\frac{7}{8}$ "  | $\frac{7}{8}$ "  | $\frac{7}{8}$ "  | $\frac{7}{8}$ "  | $\frac{7}{8}$ "  | $\frac{13}{16}$ " | $\frac{13}{16}$ " | $\frac{13}{16}$ " | $\frac{3}{4}$ "  | $\frac{3}{4}$ "   | $\frac{11}{16}$ " | $\frac{11}{16}$ " | $\frac{5}{8}$ "   | $\frac{9}{16}$ " | $\frac{1}{2}$ "  | $\frac{7}{16}$ " | $\frac{3}{8}$ "  | $\frac{5}{16}$ " | $\frac{1}{4}$ "  | $\frac{3}{16}$ " | $\frac{1}{8}$ "  | $\frac{1}{16}$ " | 0" |  |
| 0.6" Ø LOW RELAXATION          |      | GIRDER 3     |                  |                  |                  |                  |                  |                  |                   |                   |                   |                   |                   |                   |                 |                   |                   |                   |                   |                  |                  |                  |                  |                  |                   |                   |                   |                  |                   |                   |                   |                   |                  |                  |                  |                  |                  |                  |                  |                  |                  |    |  |
| 40TH POINTS                    | BRG. | 0.025        | 0.050            | 0.075            | 0.100            | 0.125            | 0.150            | 0.175            | 0.200             | 0.225             | 0.250             | 0.275             | 0.300             | 0.325             | 0.350           | 0.375             | 0.400             | 0.425             | 0.450             | 0.475            | 0.500            | 0.525            | 0.550            | 0.575            | 0.600             | 0.625             | 0.650             | 0.675            | 0.700             | 0.725             | 0.750             | 0.775             | 0.800            | 0.825            | 0.850            | 0.875            | 0.900            | 0.925            | 0.950            | 0.975            | BRG.             |    |  |
| CAMBER (GIRDER ALONE IN PLACE) | ↑    | 0            | 0.338            | 0.677            | 1.015            | 1.354            | 1.655            | 1.957            | 2.259             | 2.561             | 2.797             | 3.034             | 3.270             | 3.506             | 3.656           | 3.806             | 3.956             | 4.106             | 4.158             | 4.209            | 4.261            | 4.312            | 4.261            | 4.209            | 4.158             | 4.106             | 3.956             | 3.806            | 3.656             | 3.506             | 3.270             | 3.034             | 2.797            | 2.561            | 2.259            | 1.957            | 1.655            | 1.354            | 1.015            | 0.677            | 0.338            | 0  |  |
| DEFLECTION DUE TO SDL*         | ↓    | 0            | 0.268            | 0.536            | 0.805            | 1.073            | 1.312            | 1.551            | 1.791             | 2.030             | 2.217             | 2.405             | 2.592             | 2.779             | 2.898           | 3.017             | 3.136             | 3.255             | 3.296             | 3.337            | 3.377            | 3.418            | 3.377            | 3.337            | 3.296             | 3.255             | 3.136             | 3.017            | 2.898             | 2.779             | 2.592             | 2.405             | 2.217            | 2.03             | 1.791            | 1.551            | 1.312            | 1.073            | 0.805            | 0.536            | 0.268            | 0  |  |
| FINAL CAMBER                   | ↑    | 0"           | $\frac{1}{16}$ " | $\frac{7}{8}$ "  | $\frac{3}{16}$ " | $\frac{1}{4}$ "  | $\frac{5}{16}$ " | $\frac{3}{8}$ "  | $\frac{7}{16}$ "  | $\frac{1}{2}$ "   | $\frac{9}{16}$ "  | $\frac{5}{8}$ "   | $\frac{11}{16}$ " | $\frac{3}{4}$ "   | $\frac{3}{4}$ " | $\frac{13}{16}$ " | $\frac{13}{16}$ " | $\frac{7}{8}$ "   | $\frac{7}{8}$ "   | $\frac{7}{8}$ "  | $\frac{7}{8}$ "  | $\frac{7}{8}$ "  | $\frac{7}{8}$ "  | $\frac{7}{8}$ "  | $\frac{13}{16}$ " | $\frac{13}{16}$ " | $\frac{13}{16}$ " | $\frac{3}{4}$ "  | $\frac{3}{4}$ "   | $\frac{11}{16}$ " | $\frac{11}{16}$ " | $\frac{5}{8}$ "   | $\frac{9}{16}$ " | $\frac{1}{2}$ "  | $\frac{7}{16}$ " | $\frac{3}{8}$ "  | $\frac{5}{16}$ " | $\frac{1}{4}$ "  | $\frac{3}{16}$ " | $\frac{7}{8}$ "  | $\frac{1}{16}$ " | 0" |  |
| 0.6" Ø LOW RELAXATION          |      | GIRDER 4 & 5 |                  |                  |                  |                  |                  |                  |                   |                   |                   |                   |                   |                   |                 |                   |                   |                   |                   |                  |                  |                  |                  |                  |                   |                   |                   |                  |                   |                   |                   |                   |                  |                  |                  |                  |                  |                  |                  |                  |                  |    |  |
| 40TH POINTS                    | BRG. | 0.025        | 0.050            | 0.075            | 0.100            | 0.125            | 0.150            | 0.175            | 0.200             | 0.225             | 0.250             | 0.275             | 0.300             | 0.325             | 0.350           | 0.375             | 0.400             | 0.425             | 0.450             | 0.475            | 0.500            | 0.525            | 0.550            | 0.575            | 0.600             | 0.625             | 0.650             | 0.675            | 0.700             | 0.725             | 0.750             | 0.775             | 0.800            | 0.825            | 0.850            | 0.875            | 0.900            | 0.925            | 0.950            | 0.975            | BRG.             |    |  |
| CAMBER (GIRDER ALONE IN PLACE) | ↑    | 0            | 0.338            | 0.677            | 1.015            | 1.354            | 1.655            | 1.957            | 2.259             | 2.561             | 2.797             | 3.034             | 3.270             | 3.506             | 3.656           | 3.806             | 3.956             | 4.106             | 4.158             | 4.209            | 4.261            | 4.312            | 4.261            | 4.209            | 4.158             | 4.106             | 3.956             | 3.806            | 3.656             | 3.506             | 3.270             | 3.034             | 2.797            | 2.561            | 2.259            | 1.957            | 1.655            | 1.354            | 1.015            | 0.677            | 0.338            | 0  |  |
| DEFLECTION DUE TO SDL*         | ↓    | 0            | 0.233            | 0.467            | 0.700            | 0.934            | 1.142            | 1.350            | 1.559             | 1.767             | 1.930             | 2.093             | 2.256             | 2.419             | 2.523           | 2.626             | 2.730             | 2.833             | 2.869             | 2.904            | 2.940            | 2.975            | 2.940            | 2.904            | 2.869             | 2.833             | 2.730             | 2.626            | 2.523             | 2.419             | 2.256             | 2.093             | 1.930            | 1.767            | 1.559            | 1.350            | 1.142            | 0.934            | 0.700            | 0.467            | 0.233            | 0  |  |
| FINAL CAMBER                   | ↑    | 0"           | $\frac{1}{8}$ "  | $\frac{3}{16}$ " | $\frac{5}{16}$ " | $\frac{7}{16}$ " | $\frac{1}{2}$ "  | $\frac{5}{8}$ "  | $\frac{11}{16}$ " | $\frac{13}{16}$ " | $\frac{7}{8}$ "   | $\frac{15}{16}$ " | 1"                | $\frac{1}{16}$ "  | $\frac{1}{8}$ " | $\frac{1}{16}$ "  | $\frac{1}{4}$ "   | $\frac{1}{4}$ "   | $\frac{15}{16}$ " | $\frac{1}{16}$ " | $\frac{1}{16}$ " | $\frac{1}{16}$ " | $\frac{1}{16}$ " | $\frac{1}{16}$ " | $\frac{1}{16}$ "  | $\frac{1}{16}$ "  | $\frac{1}{16}$ "  | $\frac{1}{16}$ " | $\frac{1}{16}$ "  | $\frac{1}{16}$ "  | $\frac{1}{16}$ "  | $\frac{1}{16}$ "  | $\frac{1}{16}$ " | $\frac{1}{16}$ " | $\frac{1}{16}$ " | $\frac{1}{16}$ " | $\frac{1}{16}$ " | $\frac{1}{16}$ " | $\frac{1}{16}$ " | $\frac{1}{16}$ " | $\frac{1}{16}$ " | 0" |  |
| 0.6" Ø LOW RELAXATION          |      | GIRDER 6     |                  |                  |                  |                  |                  |                  |                   |                   |                   |                   |                   |                   |                 |                   |                   |                   |                   |                  |                  |                  |                  |                  |                   |                   |                   |                  |                   |                   |                   |                   |                  |                  |                  |                  |                  |                  |                  |                  |                  |    |  |
| 40TH POINTS                    | BRG. | 0.025        | 0.050            | 0.075            | 0.100            | 0.125            | 0.150            | 0.175            | 0.200             | 0.225             | 0.250             | 0.275             | 0.300             | 0.325             | 0.350           | 0.375             | 0.400             | 0.425             | 0.450             | 0.475            | 0.500            | 0.525            | 0.550            | 0.575            | 0.600             | 0.625             | 0.650             | 0.675            | 0.700             | 0.725             | 0.750             | 0.775             | 0.800            | 0.825            | 0.850            | 0.875            | 0.900            | 0.925            | 0.950            | 0.975            | BRG.             |    |  |
| CAMBER (GIRDER ALONE IN PLACE) | ↑    | 0            | 0.338            | 0.677            | 1.015            | 1.354            | 1.655            | 1.957            | 2.259             | 2.561             | 2.797             | 3.034             | 3.27              | 3.506             | 3.656           | 3.806             | 3.956             | 4.106             | 4.158             | 4.209            | 4.261            | 4.312            | 4.261            | 4.209            | 4.158             | 4.106             | 3.956             | 3.806            | 3.656             | 3.506             | 3.270             | 3.034             | 2.797            | 2.561            | 2.259            | 1.957            | 1.655            | 1.354            | 1.015            | 0.677            | 0.338            | 0  |  |
| DEFLECTION DUE TO SDL*         | ↓    | 0            | 0.213            | 0.426            | 0.639            | 0.851            | 1.041            | 1.231            | 1.421             | 1.611             | 1.759             | 1.908             | 2.057             | 2.205             | 2.300           | 2.394             | 2.488             | 2.583             | 2.615             | 2.647            | 2.680            | 2.712            | 2.680            | 2.647            | 2.615             | 2.583             | 2.488             | 2.394            | 2.300             | 2.205             | 2.057             | 1.908             | 1.759            | 1.611            | 1.421            | 1.231            | 1.041            | 0.851            | 0.639            | 0.426            | 0.213            | 0  |  |
| FINAL CAMBER                   | ↑    | 0"           | $\frac{1}{8}$ "  | $\frac{1}{4}$ "  | $\frac{3}{8}$ "  | $\frac{1}{2}$ "  | $\frac{5}{8}$ "  | $\frac{3}{4}$ "  | $\frac{13}{16}$ " | $\frac{15}{16}$ " | $\frac{1}{16}$ "  | $\frac{1}{8}$ "   | $\frac{1}{16}$ "  | $\frac{1}{16}$ "  | $\frac{1}{8}$ " | $\frac{1}{16}$ "  | $\frac{1}{16}$ "  | $\frac{1}{16}$ "  | $\frac{1}{16}$ "  | $\frac{1}{16}$ " | $\frac{1}{16}$ " | $\frac{1}{16}$ " | $\frac{1}{16}$ " | $\frac{1}{16}$ " | $\frac{1}{16}$ "  | $\frac{1}{16}$ "  | $\frac{1}{16}$ "  | $\frac{1}{16}$ " | $\frac{1}{16}$ "  | $\frac{1}{16}$ "  | $\frac{1}{16}$ "  | $\frac{1}{16}$ "  | $\frac{1}{16}$ " | $\frac{1}{16}$ " | $\frac{1}{16}$ " | $\frac{1}{16}$ " | $\frac{1}{16}$ " | $\frac{1}{16}$ " | $\frac{1}{16}$ " | $\frac{1}{16}$ " | $\frac{1}{16}$ " | 0" |  |
| 0.6" Ø LOW RELAXATION          |      | GIRDER 7     |                  |                  |                  |                  |                  |                  |                   |                   |                   |                   |                   |                   |                 |                   |                   |                   |                   |                  |                  |                  |                  |                  |                   |                   |                   |                  |                   |                   |                   |                   |                  |                  |                  |                  |                  |                  |                  |                  |                  |    |  |
| 40TH POINTS                    | BRG. | 0.025        | 0.050            | 0.075            | 0.100            | 0.125            | 0.150            | 0.175            | 0.200             | 0.225             | 0.250             | 0.275             | 0.300             | 0.325             | 0.350           | 0.375             | 0.400             | 0.425             | 0.450             | 0.475            | 0.500            | 0.525            | 0.550            | 0.575</          |                   |                   |                   |                  |                   |                   |                   |                   |                  |                  |                  |                  |                  |                  |                  |                  |                  |    |  |

8/26/21

DEAD LOAD DEFLECTION TABLE FOR GIRDERS

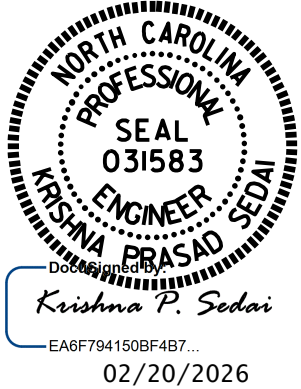
| SPAN B                         |   |                |       |       |       |       |       |       |       |       |        |       |        |        |        |        |        |         |         |         |         |        |         |         |         |         |        |        |        |        |        |       |        |       |       |       |       |       |       |       |       |      |
|--------------------------------|---|----------------|-------|-------|-------|-------|-------|-------|-------|-------|--------|-------|--------|--------|--------|--------|--------|---------|---------|---------|---------|--------|---------|---------|---------|---------|--------|--------|--------|--------|--------|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|------|
| 0.6" Ø LOW RELAXATION          |   | GIRDER 10 & 11 |       |       |       |       |       |       |       |       |        |       |        |        |        |        |        |         |         |         |         |        |         |         |         |         |        |        |        |        |        |       |        |       |       |       |       |       |       |       |       |      |
| 40TH POINTS                    |   | BRG.           | 0.025 | 0.050 | 0.075 | 0.100 | 0.125 | 0.150 | 0.175 | 0.200 | 0.225  | 0.250 | 0.275  | 0.300  | 0.325  | 0.350  | 0.375  | 0.400   | 0.425   | 0.450   | 0.475   | 0.500  | 0.525   | 0.550   | 0.575   | 0.600   | 0.625  | 0.650  | 0.675  | 0.700  | 0.725  | 0.750 | 0.775  | 0.800 | 0.825 | 0.850 | 0.875 | 0.900 | 0.925 | 0.950 | 0.975 | BRG. |
| CAMBER (GIRDER ALONE IN PLACE) | ↑ | 0              | 0.338 | 0.677 | 1.015 | 1.354 | 1.655 | 1.957 | 2.259 | 2.561 | 2.797  | 3.034 | 3.270  | 3.506  | 3.656  | 3.806  | 3.956  | 4.106   | 4.158   | 4.209   | 4.261   | 4.312  | 4.261   | 4.209   | 4.158   | 4.106   | 3.956  | 3.806  | 3.656  | 3.506  | 3.270  | 3.034 | 2.797  | 2.561 | 2.259 | 1.957 | 1.655 | 1.354 | 1.015 | 0.677 | 0.338 | 0    |
| DEFLECTION DUE TO SDL*         | ↓ | 0              | 0.258 | 0.515 | 0.773 | 1.031 | 1.261 | 1.491 | 1.721 | 1.950 | 2.130  | 2.310 | 2.490  | 2.670  | 2.785  | 2.899  | 3.013  | 3.127   | 3.167   | 3.206   | 3.245   | 3.284  | 3.245   | 3.206   | 3.167   | 3.127   | 3.013  | 2.899  | 2.785  | 2.670  | 2.490  | 2.310 | 2.130  | 1.950 | 1.721 | 1.491 | 1.261 | 1.031 | 0.773 | 0.515 | 0.258 | 0    |
| FINAL CAMBER                   | ↑ | 0"             | 1⁄16" | 3⁄16" | 1⁄4"  | 5⁄16" | 3⁄8"  | 7⁄16" | 9⁄16" | 5⁄8"  | 11⁄16" | 3⁄4"  | 3⁄4"   | 13⁄16" | 7⁄8"   | 15⁄16" | 15⁄16" | 1"      | 1"      | 1"      | 1"      | 1"     | 1"      | 1"      | 1"      | 1"      | 15⁄16" | 15⁄16" | 7⁄8"   | 13⁄16" | 3⁄4"   | 3⁄4"  | 11⁄16" | 5⁄8"  | 9⁄16" | 7⁄16" | 3⁄8"  | 5⁄16" | 1⁄4"  | 3⁄16" | 1⁄16" | 0"   |
| 0.6" Ø LOW RELAXATION          |   | GIRDER 12      |       |       |       |       |       |       |       |       |        |       |        |        |        |        |        |         |         |         |         |        |         |         |         |         |        |        |        |        |        |       |        |       |       |       |       |       |       |       |       |      |
| 40TH POINTS                    |   | BRG.           | 0.025 | 0.050 | 0.075 | 0.100 | 0.125 | 0.150 | 0.175 | 0.200 | 0.225  | 0.250 | 0.275  | 0.300  | 0.325  | 0.350  | 0.375  | 0.400   | 0.425   | 0.450   | 0.475   | 0.500  | 0.525   | 0.550   | 0.575   | 0.600   | 0.625  | 0.650  | 0.675  | 0.700  | 0.725  | 0.750 | 0.775  | 0.800 | 0.825 | 0.850 | 0.875 | 0.900 | 0.925 | 0.950 | 0.975 | BRG. |
| CAMBER (GIRDER ALONE IN PLACE) | ↑ | 0              | 0.338 | 0.677 | 1.015 | 1.354 | 1.655 | 1.957 | 2.259 | 2.561 | 2.797  | 3.034 | 3.270  | 3.506  | 3.656  | 3.806  | 3.956  | 4.106   | 4.158   | 4.209   | 4.261   | 4.312  | 4.261   | 4.209   | 4.158   | 4.106   | 3.956  | 3.806  | 3.656  | 3.506  | 3.270  | 3.034 | 2.797  | 2.561 | 2.259 | 1.957 | 1.655 | 1.354 | 1.015 | 0.677 | 0.338 | 0    |
| DEFLECTION DUE TO SDL*         | ↓ | 0              | 0.252 | 0.504 | 0.756 | 1.008 | 1.232 | 1.457 | 1.682 | 1.906 | 2.082  | 2.258 | 2.434  | 2.610  | 2.722  | 2.834  | 2.945  | 3.057   | 3.095   | 3.133   | 3.172   | 3.210  | 3.172   | 3.133   | 3.095   | 3.057   | 2.945  | 2.834  | 2.722  | 2.610  | 2.434  | 2.258 | 2.082  | 1.906 | 1.682 | 1.457 | 1.232 | 1.008 | 0.756 | 0.504 | 0.252 | 0    |
| FINAL CAMBER                   | ↑ | 0"             | 1⁄16" | 3⁄16" | 1⁄4"  | 3⁄8"  | 7⁄16" | 1⁄2"  | 9⁄16" | 5⁄8"  | 11⁄16" | 3⁄4"  | 13⁄16" | 7⁄8"   | 15⁄16" | 1"     | 1"     | 1 1⁄16" | 1 1⁄16" | 1 1⁄16" | 1 1⁄16" | 1 1⁄8" | 1 1⁄16" | 1 1⁄16" | 1 1⁄16" | 1 1⁄16" | 1"     | 1"     | 15⁄16" | 7⁄8"   | 13⁄16" | 3⁄4"  | 11⁄16" | 5⁄8"  | 9⁄16" | 1⁄2"  | 7⁄16" | 3⁄8"  | 1⁄4"  | 3⁄16" | 1⁄16" | 0"   |

\* INCLUDES FUTURE WEARING SURFACE.

ALL VALUES ARE SHOWN IN INCHES (DECIMAL FORM), EXCEPT "FINAL CAMBER" WHICH IS SHOWN IN INCHES (FRACTION FORM).

PROJECT NO. **BR-0168**  
**FORSYTH** COUNTY  
STATION: **20+73.79 -L-**

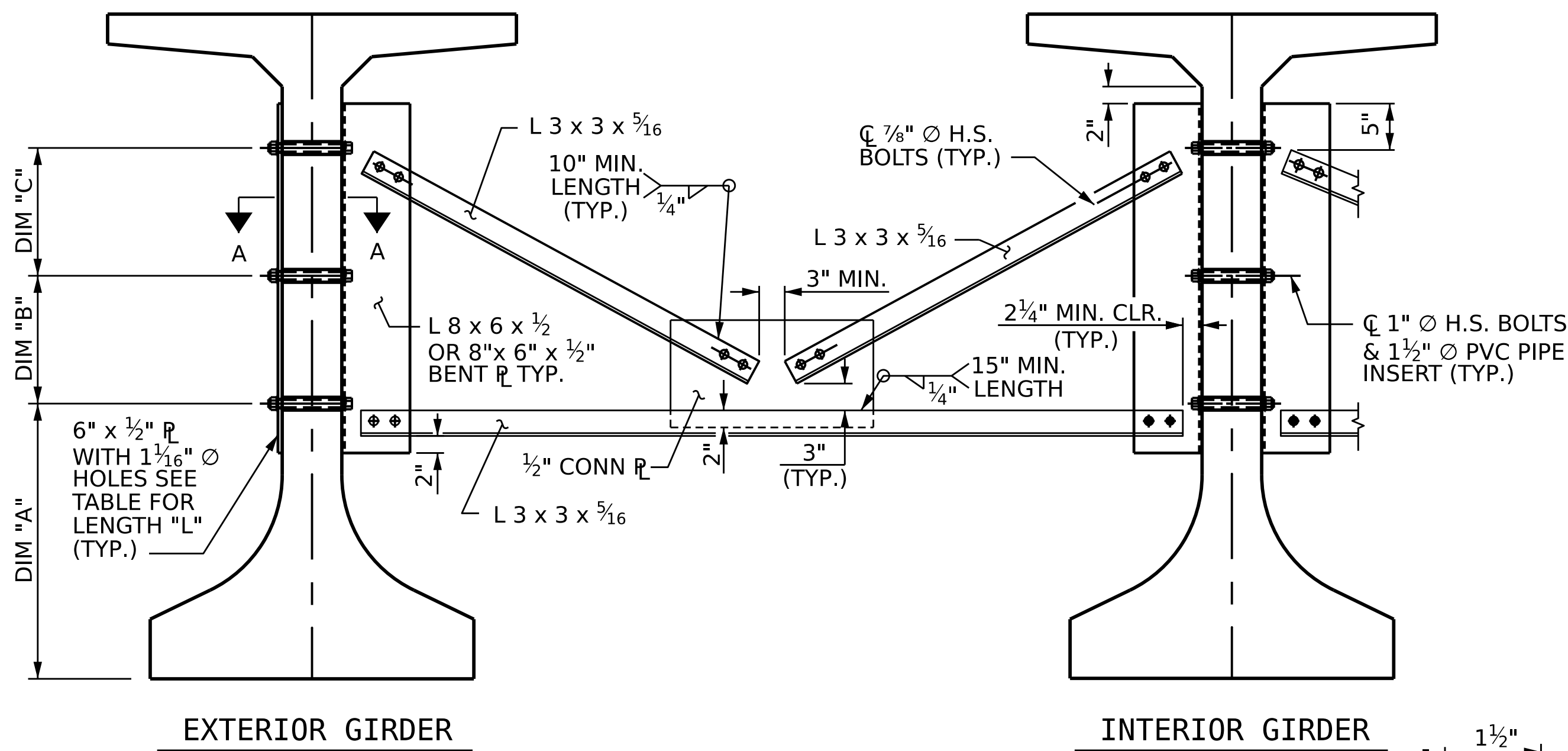
SHEET 6 OF 7



|                                                                                                                                              |     |       |     |     |       |           |  |                    |
|----------------------------------------------------------------------------------------------------------------------------------------------|-----|-------|-----|-----|-------|-----------|--|--------------------|
| STATE OF NORTH CAROLINA<br>DEPARTMENT OF TRANSPORTATION<br>RALEIGH<br>SUPERSTRUCTURE<br><br><b>DEAD LOAD DEFLECTION<br/>TABLE<br/>SPAN B</b> |     |       |     |     |       | REVISIONS |  | SHEET NO.<br>S-22  |
| NO.                                                                                                                                          | BY: | DATE: | NO. | BY: | DATE: |           |  | TOTAL SHEETS<br>53 |
| 1                                                                                                                                            |     |       | 3   |     |       |           |  |                    |
| 2                                                                                                                                            |     |       | 4   |     |       |           |  |                    |

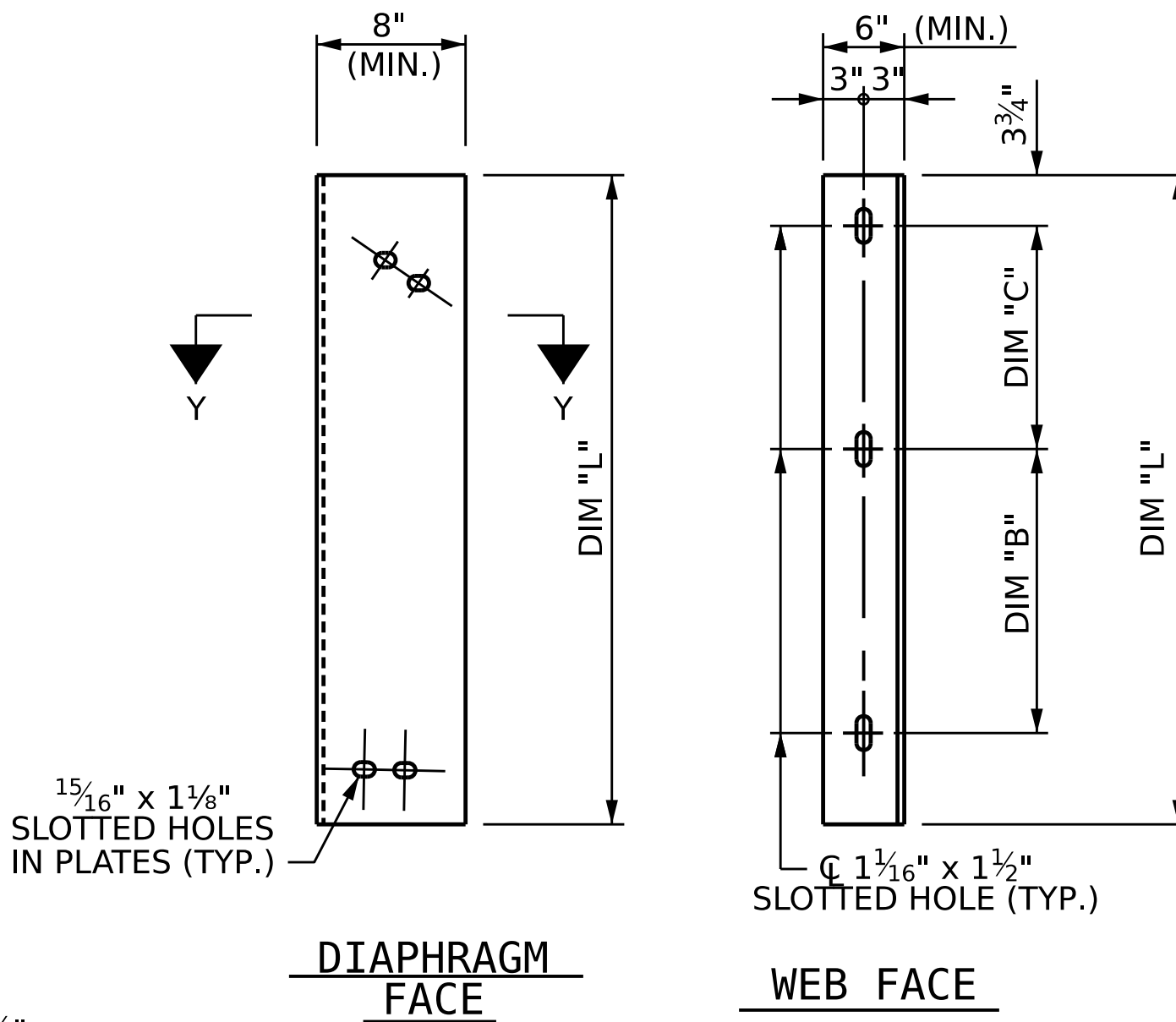
DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED

|                                              |                       |
|----------------------------------------------|-----------------------|
| DRAWN BY : <u>E. MOHAMED</u>                 | DATE : <u>04/2025</u> |
| CHECKED BY : <u>A. SORSENGINH</u>            | DATE : <u>04/2025</u> |
| DESIGN ENGINEER OF RECORD: <u>A. IGHWAIR</u> | DATE : <u>04/2025</u> |

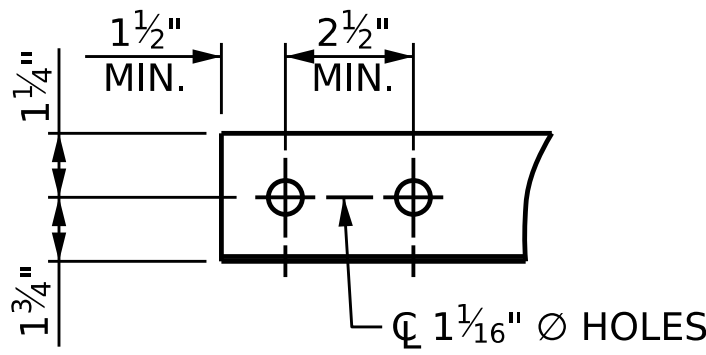


### PART SECTION AT INTERMEDIATE DIAPHRAGM

( 63", 72" FIB SHOWN )

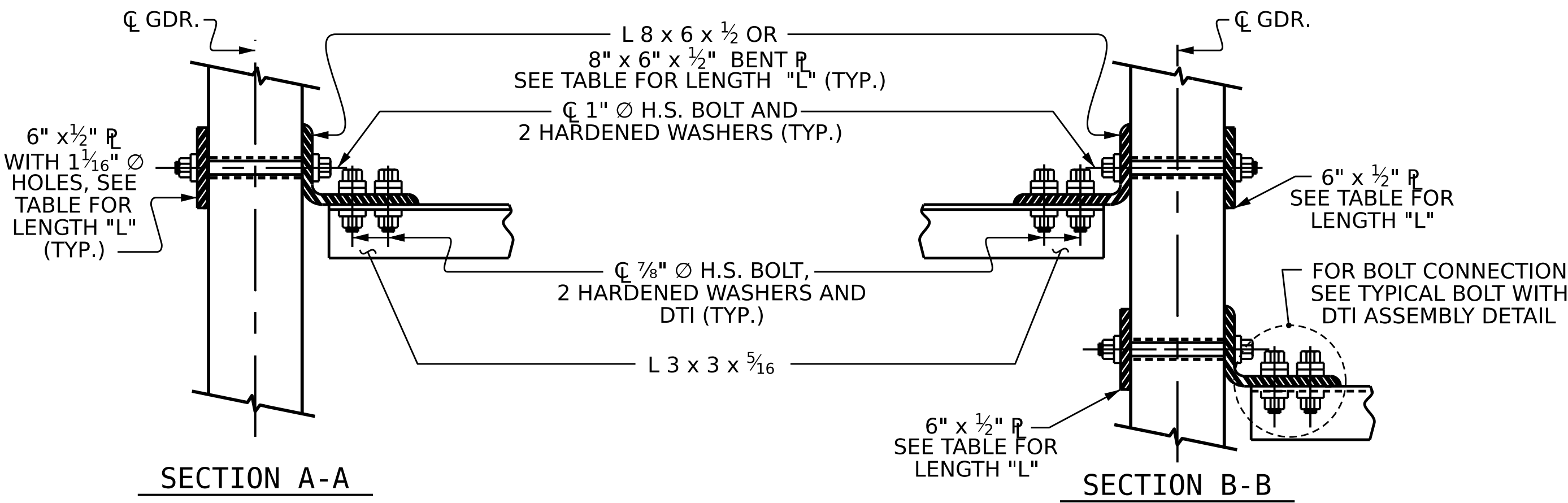


### CONNECTOR PLATE DETAIL



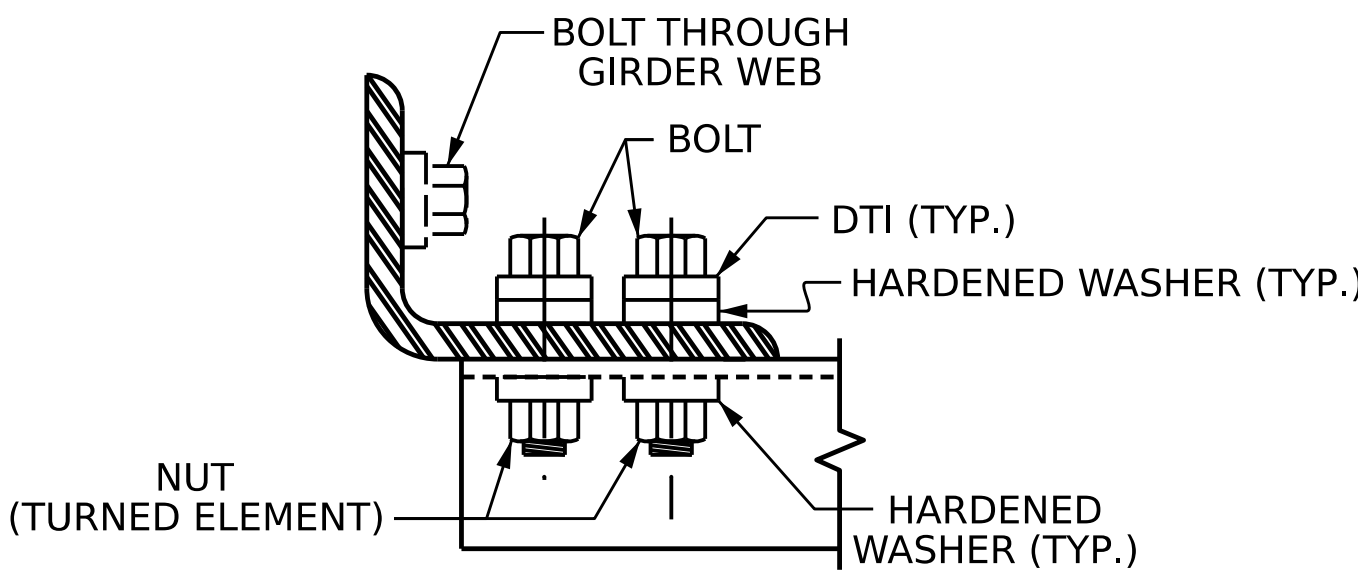
### ANGLE END

(L 3 x 3 x 5/16)



### CONNECTION DETAILS

(SKEW > 110° SHOWN  
SKEW < 70° SIM.)



### BOLT WITH DTI ASSEMBLY DETAIL

## STRUCTURAL STEEL NOTES

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

TENSION ON THE ASTM A325 BOLTS THROUGH THE ANGLE MEMBER SHALL BE CALIBRATED USING DIRECT TENSION INDICATOR WASHERS IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

TENSION ON THE ASTM A449 BOLTS THROUGH THE GIRDER WEB SHALL BE SNUG TIGHTENED FOLLOWED BY AN ADDITIONAL 1/4 TURN.

THE PLATES, BENT PLATES, AND ANGLES SHALL BE GALVANIZED OR METALLIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. FOR THERMAL SPRAYED COATINGS (METALLIZATION), SEE SPECIAL PROVISIONS.

FOR METALLIZATION, APPLY A THERMAL SPRAYED COATING WITH A SEAL COAT TO ALL STEEL DIAPHRAGM SURFACES IN ACCORDANCE WITH THE DEPARTMENTS THERMAL SPRAYED COATINGS (METALLIZATION) PROGRAM, THERMAL SPRAYED COATINGS SPECIAL PROVISION AND SECTION 442 OF THE STANDARD SPECIFICATIONS.

GALVANIZE THE HIGH STRENGTH BOLTS, NUTS, WASHERS AND DIRECT TENSION INDICATORS IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

USE AN ASTM F436 HARDENED WASHER WITH STANDARD AND SLOTTED HOLES UNDER EACH BOLT HEAD AND NUT.

FOR BOLTS THROUGH THE GIRDER WEB, PROVIDE SUFFICIENT LENGTH OF THREADS ON ALL BOLTS TO ACCOMMODATE WASHERS AND THE THICKNESS OF CONNECTING MEMBER PLUS AT LEAST 1/4" PROJECTION BEYOND THE NUT.

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

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

IN THE EXTERIOR BAYS, PLACE TEMPORARY STRUTS BETWEEN PRESTRESSED GIRDERS ADJACENT TO THE STEEL DIAPHRAGMS. STRUTS SHALL REMAIN IN PLACE 3 DAYS AFTER CONCRETE IS PLACED.

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

### TABLE

| GIRDER TYPE | DIM "A" | DIM "B" | DIM "C" | DIM "L" |
|-------------|---------|---------|---------|---------|
| 63" FIB     | 2'-7"   | 8"      | 8"      | 2'-2"   |

PROJECT NO. **BR-0168**  
**FORSYTH** COUNTY  
 STATION: **20+73.79 -L-**

SHEET 7 OF 7



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

STANDARD  
**INTERMEDIATE  
 STEEL DIAPHRAGMS  
 FOR 63" FIB DETAILS**

ASSEMBLED BY : A. IGHWAIR DATE :04/25  
 CHECKED BY : A. SORSENGINH DATE :04/25  
 DRAWN BY : BNB 08/21 REV.  
 CHECKED BY : AAI 08/21 REV.

DOCUMENT NOT CONSIDERED  
 FINAL UNLESS ALL  
 SIGNATURES COMPLETED

| REVISIONS |     |       |     |     |       | SHEET NO.<br>S-23     |
|-----------|-----|-------|-----|-----|-------|-----------------------|
| NO.       | BY: | DATE: | NO. | BY: | DATE: |                       |
| 1         |     |       | 3   |     |       | TOTAL<br>SHEETS<br>53 |
| 2         |     |       | 4   |     |       |                       |

STD. NO. FIB DIAPH

NOTES

AT ALL FIXED POINTS OF SUPPORT, NUTS FOR ANCHOR BOLTS ARE TO BE TIGHTENED FINGER TIGHT AND THEN BACKED OFF ½ TURN. THE THREAD OF THE NUT AND BOLT SHALL THEN BE BURRED WITH A SHARP POINTED TOOL.

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

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

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

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

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

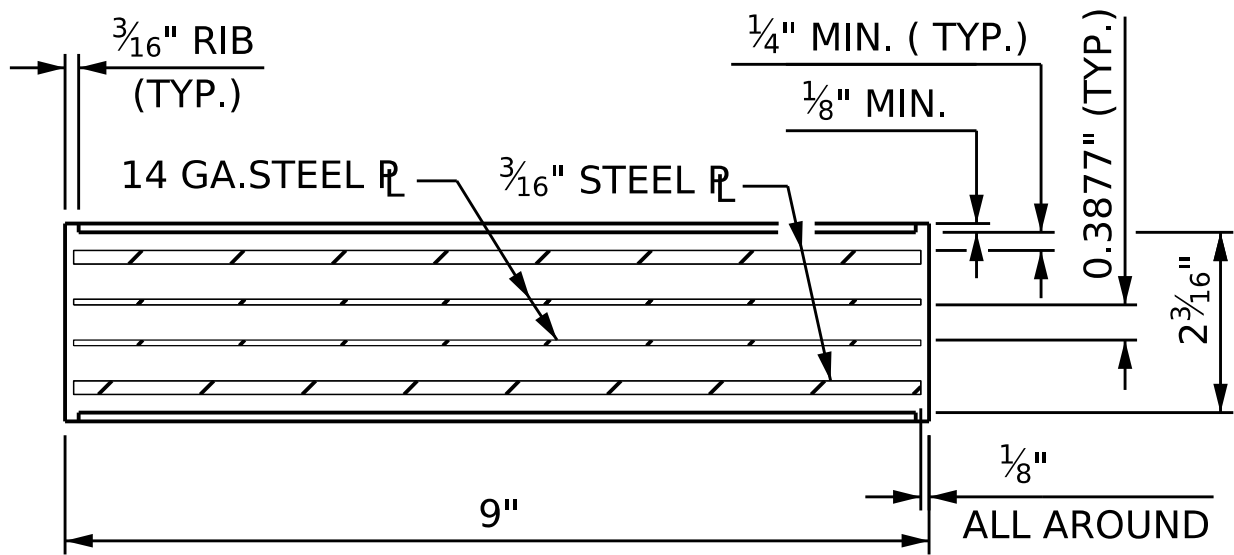
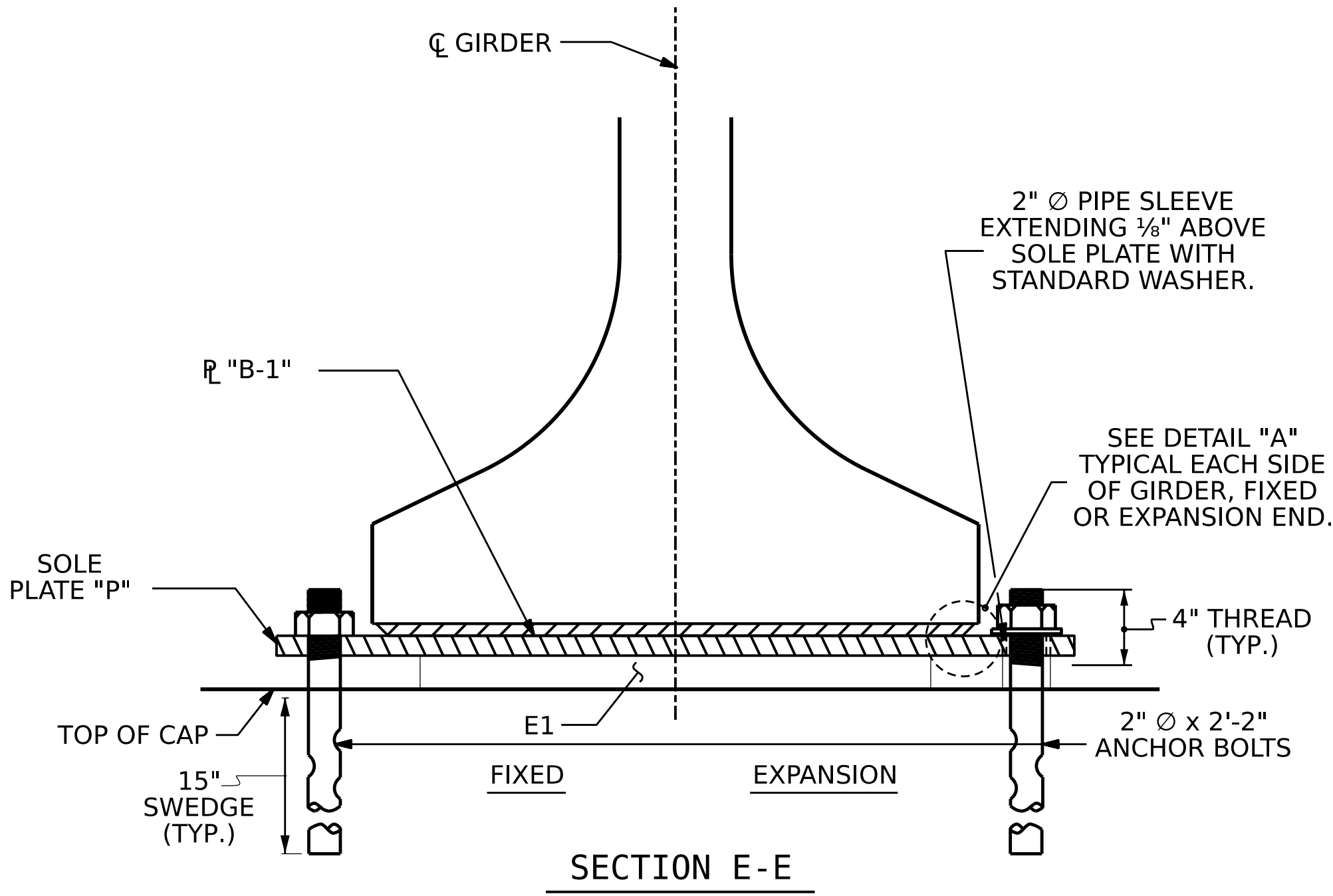
ANCHOR BOLTS SHALL MEET THE REQUIREMENTS OF ASTM A449. NUTS SHALL MEET THE REQUIREMENTS OF AASHTO M291-DH OR AASHTO M292-2H. WASHERS SHALL MEET THE REQUIREMENTS OF AASHTO M293. NO SHOP DRAWINGS ARE REQUIRED FOR ANCHOR BOLTS, NUTS AND WASHERS. SHOP INSPECTION IS REQUIRED.

ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.

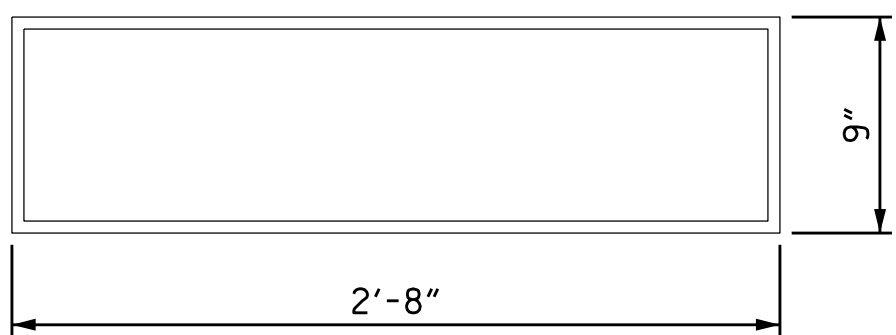
THE ELASTOMER IN THE STEEL REINFORCED BEARINGS SHALL HAVE A SHEAR MODULUS OF 0.160 KSI, IN ACCORDANCE WITH AASHTO M251.

FOR STEEL REINFORCED ELASTOMERIC BEARINGS, SEE STANDARD SPECIFICATIONS.

ALL SOLE PLATES SHALL BE AASHTO M270 GRADE 36.



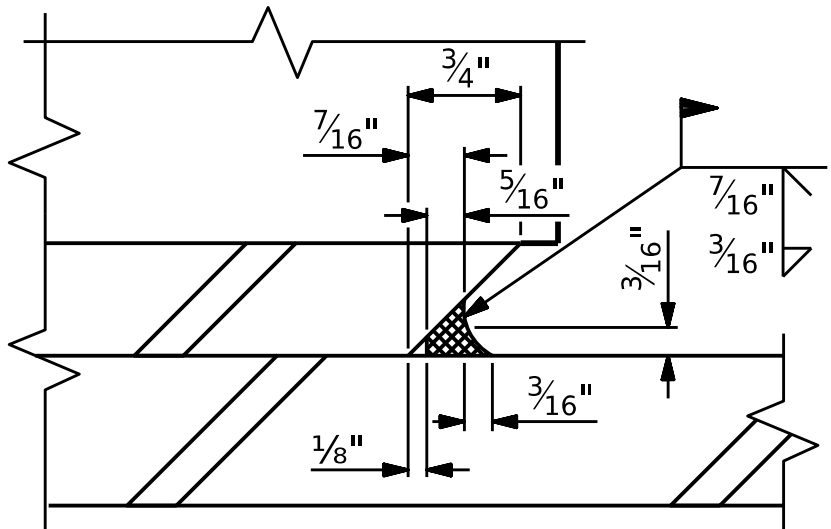
TYPICAL SECTION OF ELASTOMERIC BEARINGS



PLAN VIEW OF ELASTOMERIC BEARING

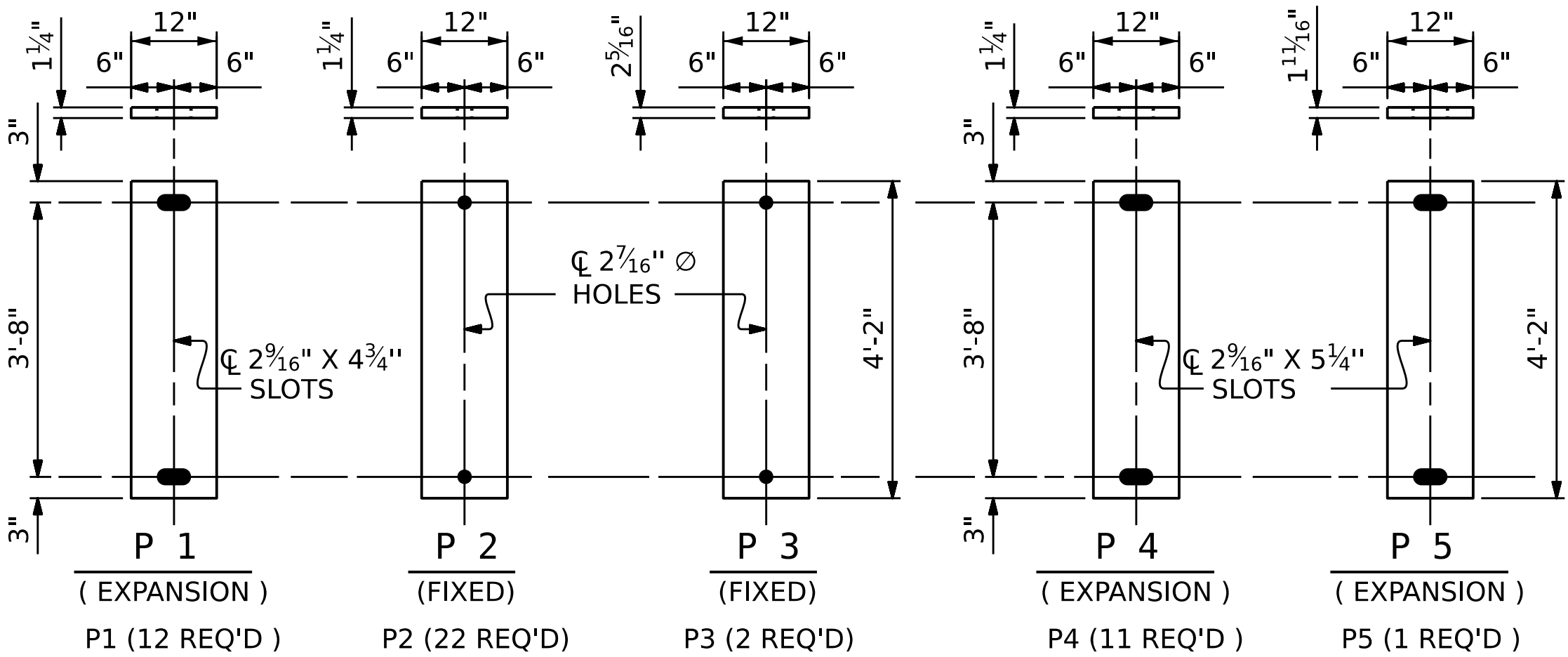
E1 PAD

(48 REQ'D)

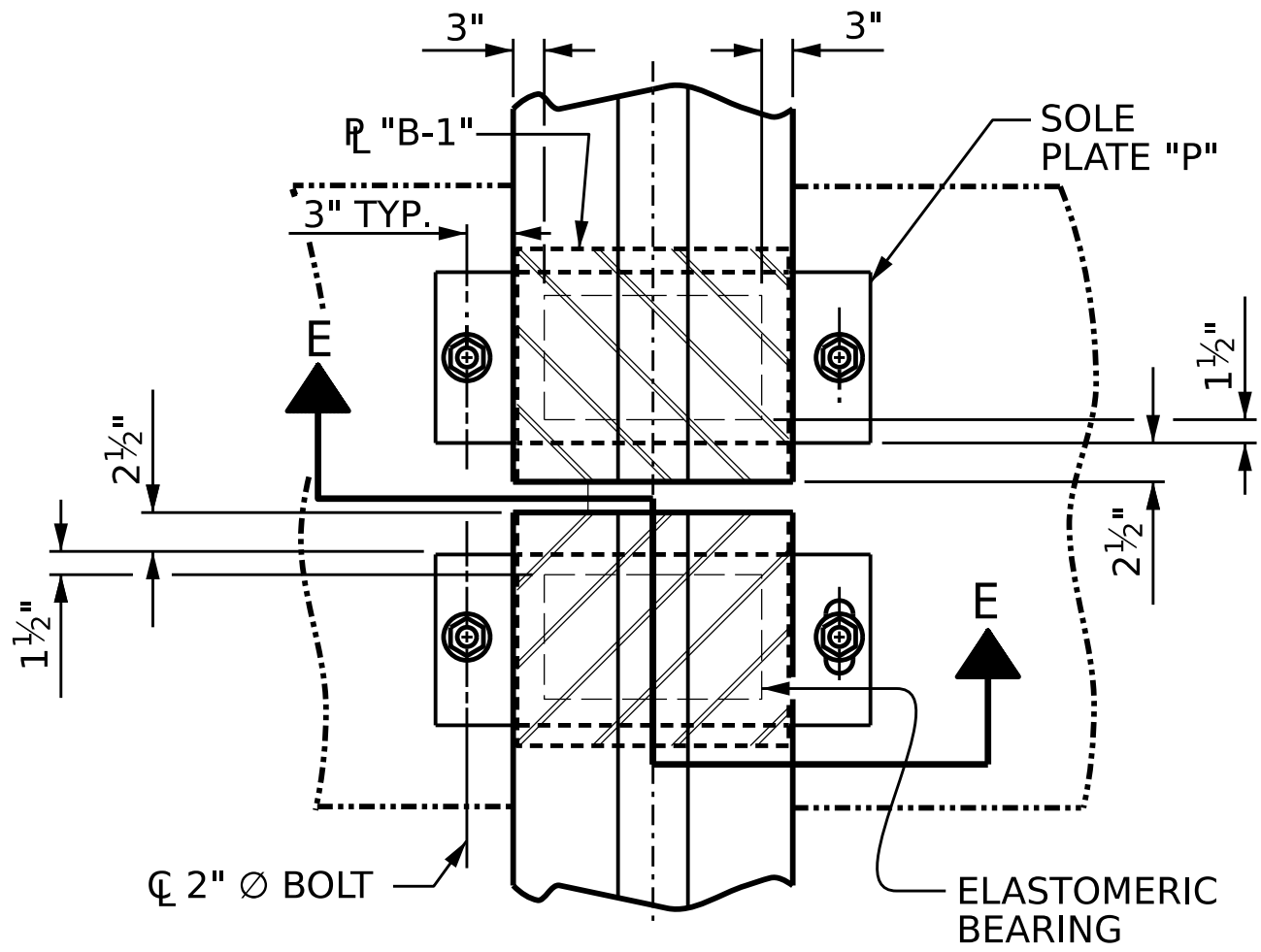


DETAIL "A"

| SERVICE LOADS         |         |
|-----------------------|---------|
| D.L.+L.L. (NO IMPACT) |         |
| E1 PAD                | 290 K   |
| EXPANSION LENGTH      |         |
| E1 PAD                | 140 FT. |



SOLE PLATE DETAILS ("P")



TYPICAL HALF-PLAN

(SHOWING CONTINUOUS BENT)

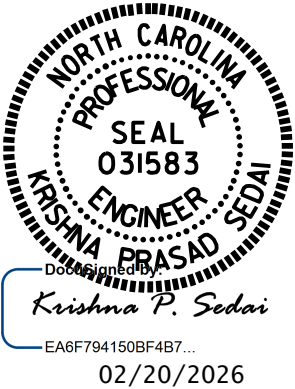
TYPICAL HALF-PLAN

(SHOWING SIMPLE SPAN BENT)

PROJECT NO. BR-0168

FORSYTH COUNTY

STATION: 20+73.79 -L-



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

ELASTOMERIC BEARING  
DETAILS

63"FIB PRESSTRSED  
CONCRETE GIRDER  
SUPERSTRUCTURE

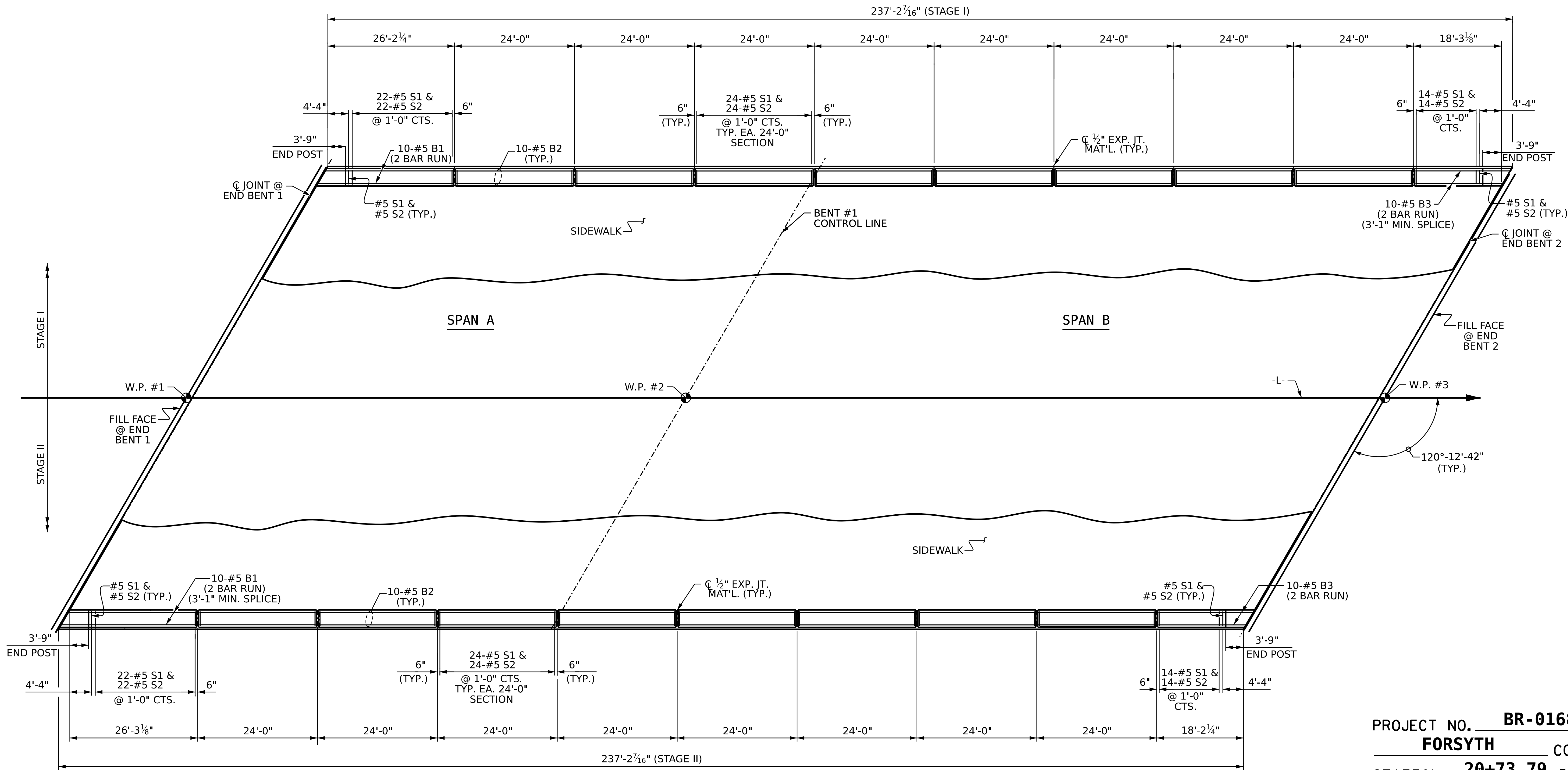
DRAWN BY : A. IGHWAIR, PE DATE : 04/25  
CHECKED BY : A. SORSENGINH DATE : 04/25  
DESIGN ENGINEER OF RECORD: A. IGHWAIR, PE DATE : 04/25

2/11/2026  
S:\DPG3\BR-0168\Final Plans\401\_047\_BR0168\_SMU.BC\_S24\_330289.dgn  
ksedal

DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED

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

|              |
|--------------|
| SHEET NO.    |
| S-24         |
| TOTAL SHEETS |
| 53           |



### PLAN OF CONCRETE PARAPET

ALL DIMENSIONS ARE MEASURED ALONG OUTSIDE FACE OF CONCRETE PARAPET

PROJECT NO. **BR-0168**  
**FORSYTH** COUNTY  
STATION: **20+73.79 -L-**

SHEET 1 OF 2

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
SUPERSTRUCTURE

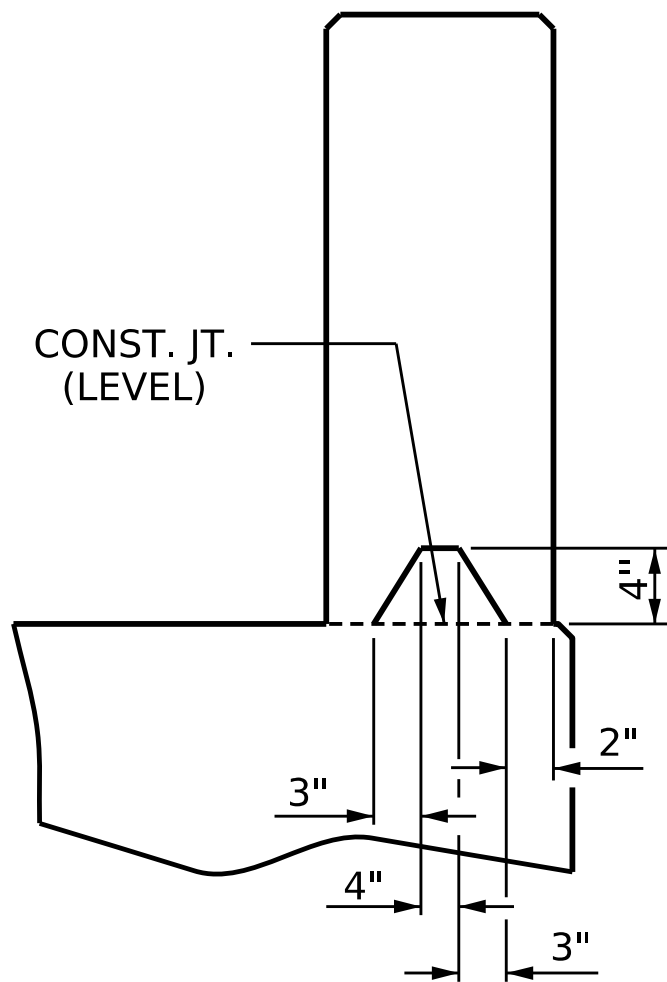
### CONCRETE PARAPET



DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED

| REVISIONS |     |       |     |     |       | SHEET NO.       |
|-----------|-----|-------|-----|-----|-------|-----------------|
| NO.       | BY: | DATE: | NO. | BY: | DATE: |                 |
| 1         |     |       | 3   |     |       | S-25            |
| 2         |     |       | 4   |     |       | TOTAL SHEETS 53 |

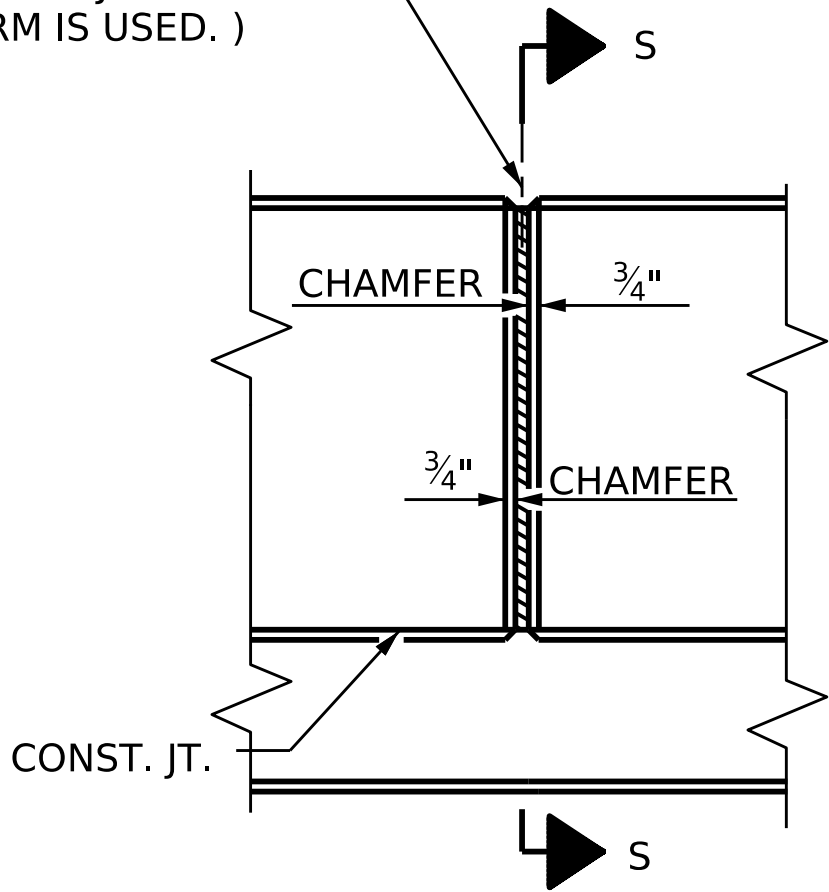
DRAWN BY : **E. MOHAMED** DATE : **04/2025**  
CHECKED BY : **A.SORSENGINH** DATE : **04/2025**  
DESIGN ENGINEER OF RECORD: **A.IGHWAIR** DATE : **04/2025**



SECTION S-S

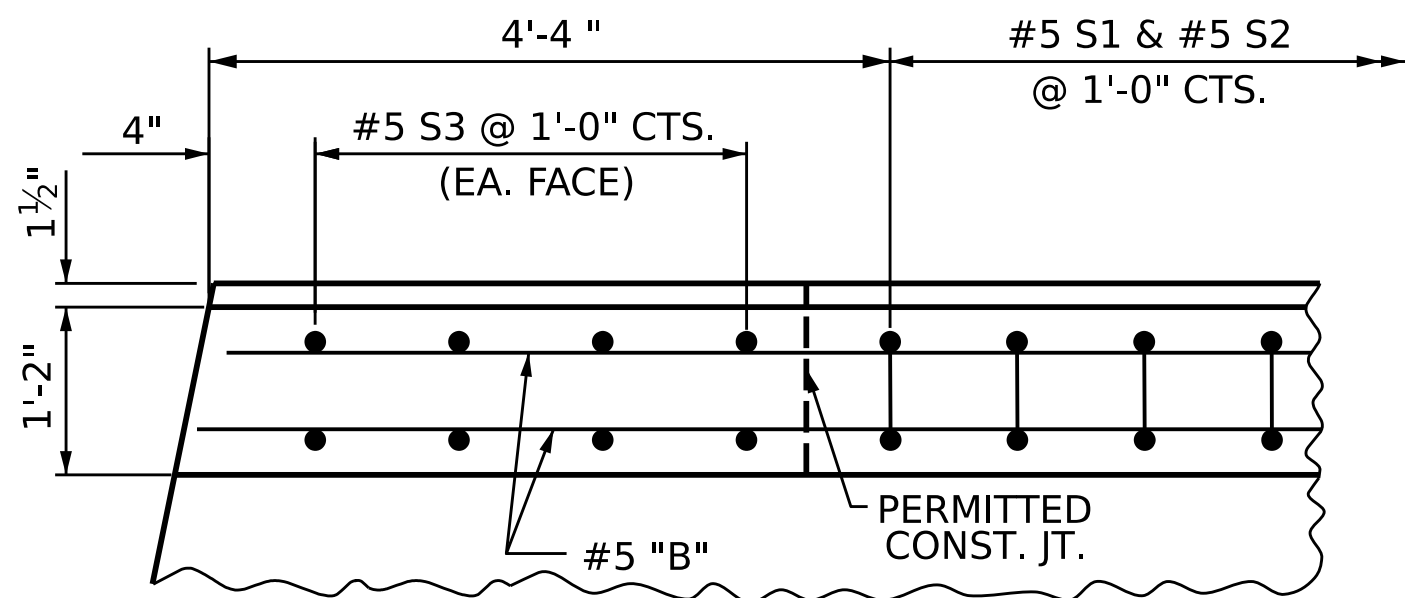
AT DAM IN OPEN JOINT  
(THIS IS TO BE USED ONLY  
WHEN SLIP FORM IS USED)

⌀ ½" EXP. JT. MAT'L. HELD IN  
PLACE WITH GALVANIZED NAILS.  
( NOTE: OMIT EXP. JT. MAT'L.  
WHEN SLIP FORM IS USED. )

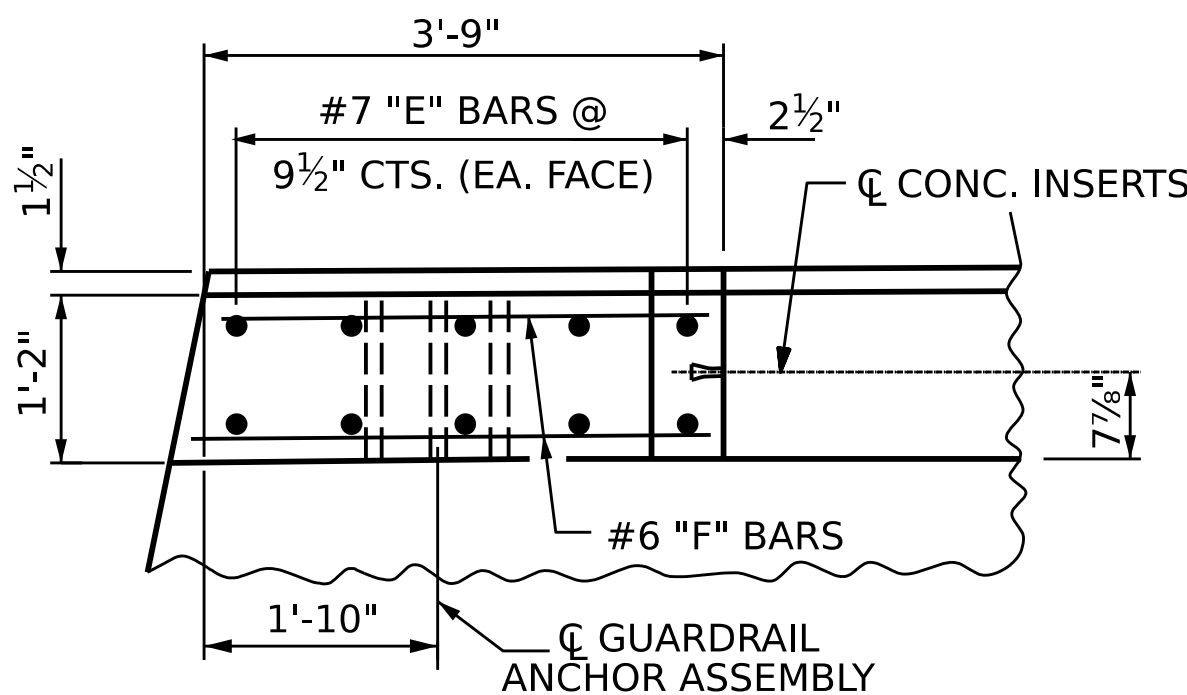


ELEVATION AT EXPANSION JOINTS

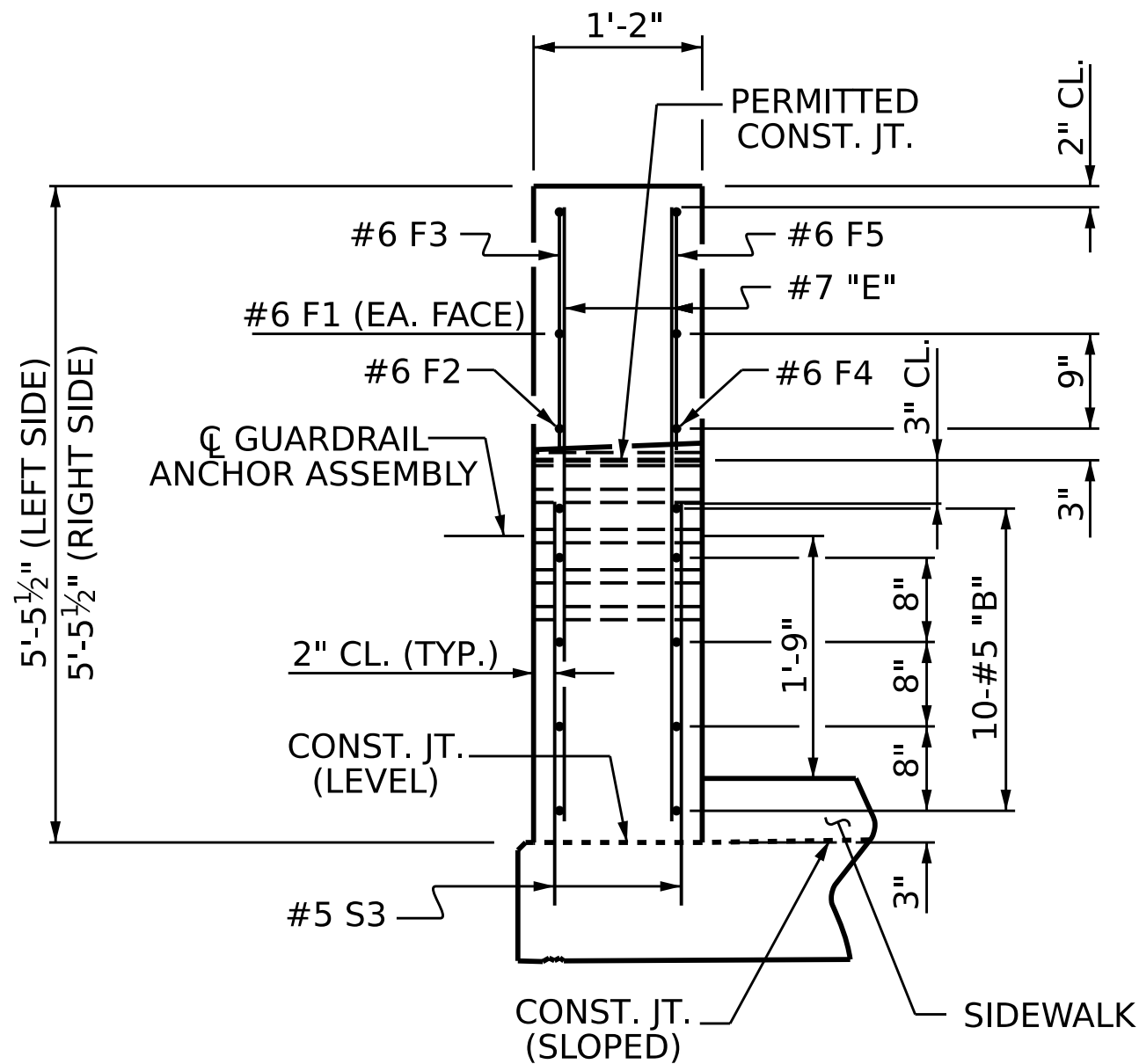
PARAPET DETAILS



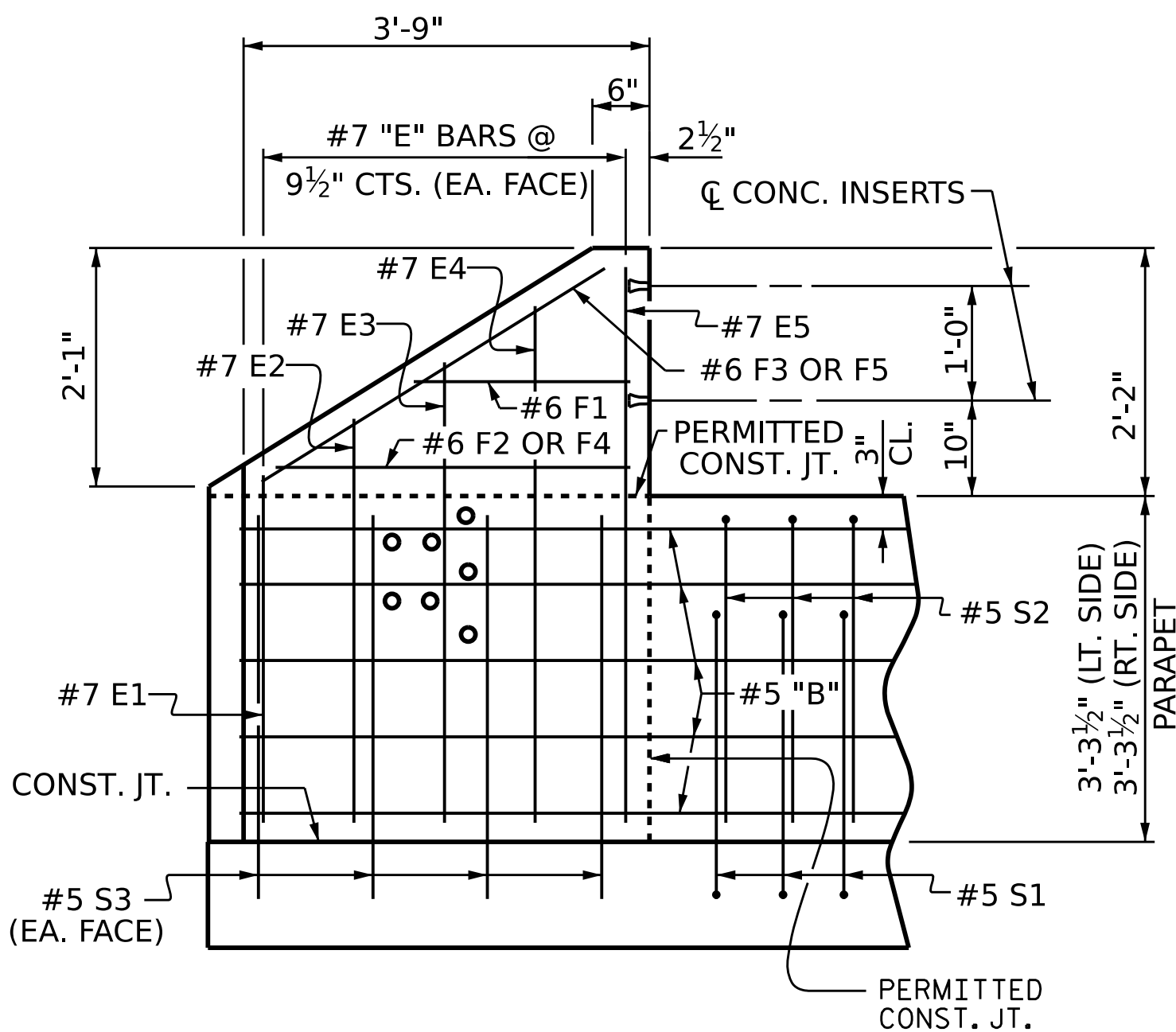
PLAN OF PARAPET



PLAN OF END POST



END VIEW



ELEVATION

NOTES:

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

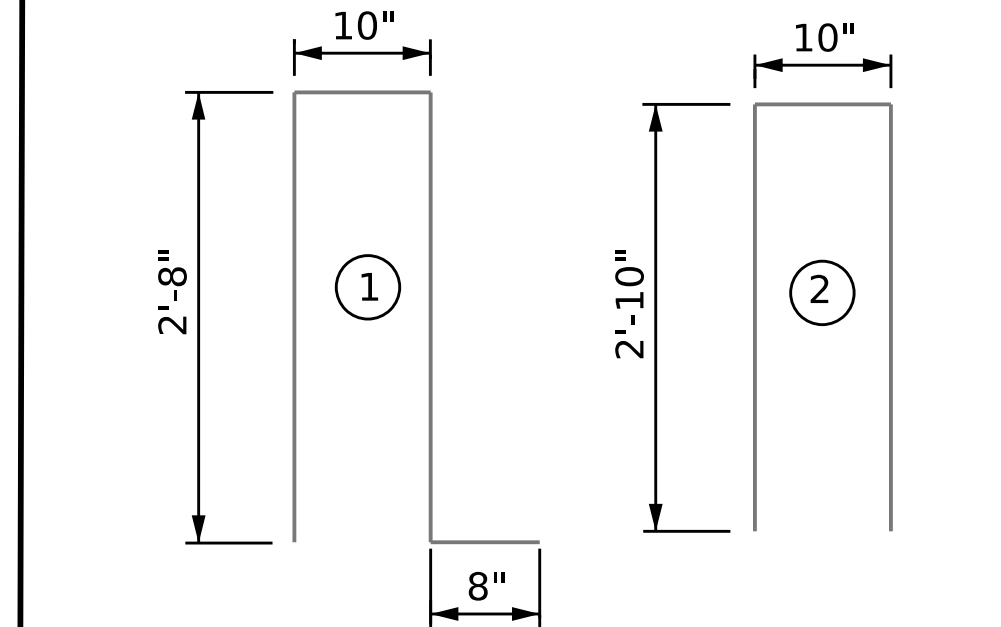
ALL REINFORCING STEEL IN PARAPET AND END POSTS SHALL BE EPOXY COATED.

THE #5 "S" BARS MAY BE SHIFTED SLIGHTLY IN ORDER TO MAINTAIN A 2" MINIMUM CLEARANCE TO THE ½" EXPANSION JT. MATERIAL IN PARAPET.

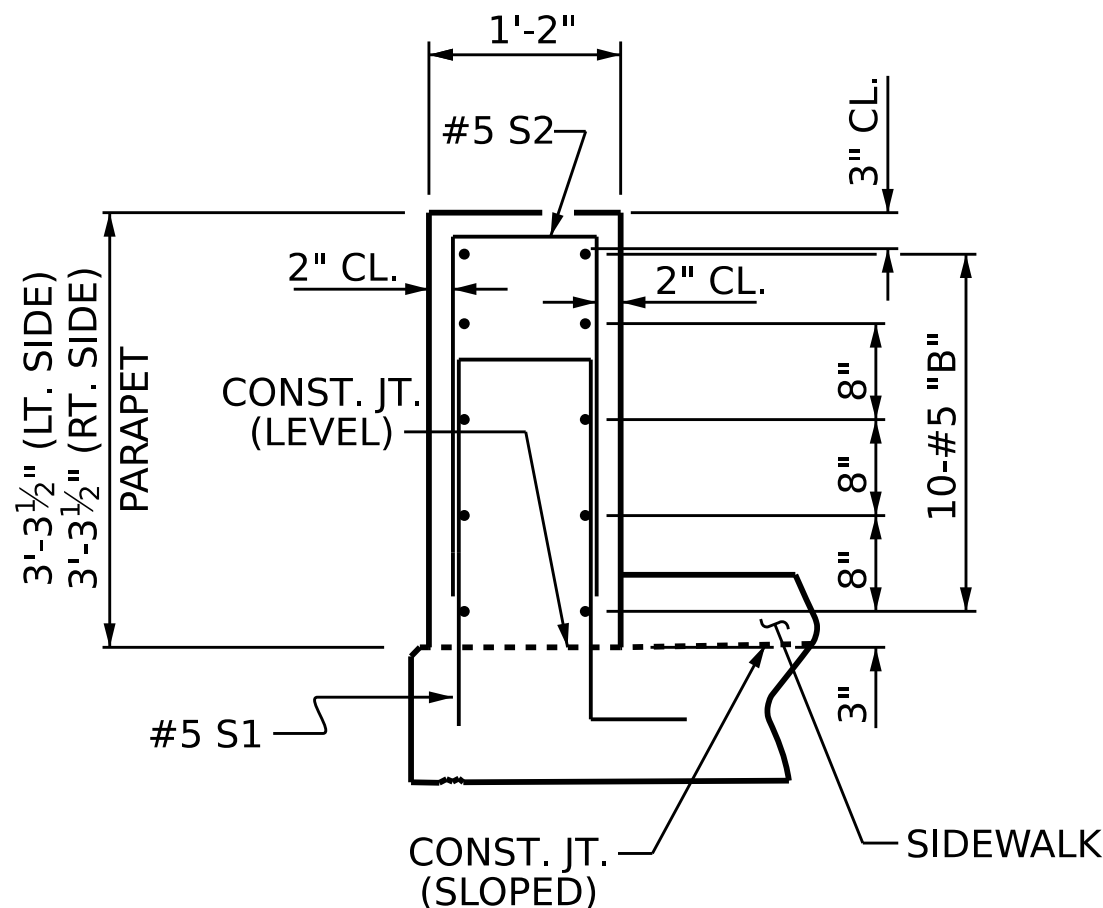
FOR DETAILS OF CONCRETE INSERTS IN END POSTS, SEE "RAIL POST SPACINGS AND END OF RAIL DETAILS" SHEET.

GROOVED CONTRACTION JOINTS, ½" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE PARAPET IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. A CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN PARAPET EXPANSION JOINTS. ONLY ONE CONTRACTION JOINT IS REQUIRED AT MID POINT OF PARAPET SEGMENTS LESS THAN 20 FEET IN LENGTH AND NO CONTRACTION JOINTS ARE REQUIRED FOR THOSE SEGMENTS LESS THAN 10 FEET IN LENGTH.

FOR DETAILS AND LOCATION OF THE GUARDRAIL ANCHOR ASSEMBLIES, SEE "GUARDRAIL ANCHORAGE DETAILS FOR METAL RAILS" SHEET.



ALL BAR DIMENSIONS ARE OUT TO OUT.



SECTION THROUGH PARAPET

STAGE 1

PARAPET & TWO END POSTS

| BAR  | NO. | SIZE | TYPE | LENGTH | WEIGHT |
|------|-----|------|------|--------|--------|
| * B1 | 20  | #5   | STR  | 15'-0" | 313    |
| * B2 | 80  | #5   | STR  | 23'-8" | 1975   |
| * B3 | 20  | #5   | STR  | 10'-8" | 223    |

|      |   |    |     |        |    |
|------|---|----|-----|--------|----|
| * E1 | 4 | #7 | STR | 3'-7"  | 29 |
| * E2 | 4 | #7 | STR | 4'-0"  | 33 |
| * E3 | 4 | #7 | STR | 4'-5"  | 36 |
| * E4 | 4 | #7 | STR | 4'-10" | 40 |
| * E5 | 4 | #7 | STR | 5'-1"  | 42 |

|      |   |    |     |        |    |
|------|---|----|-----|--------|----|
| * F1 | 4 | #6 | STR | 2'-2"  | 13 |
| * F2 | 2 | #6 | STR | 3'-5"  | 10 |
| * F3 | 2 | #6 | STR | 3'-0"  | 9  |
| * F4 | 2 | #6 | STR | 3'-11" | 12 |
| * F5 | 2 | #6 | STR | 3'-7"  | 11 |

|      |     |    |     |        |      |
|------|-----|----|-----|--------|------|
| * S1 | 230 | #5 | 1   | 6'-10" | 1639 |
| * S2 | 230 | #5 | 2   | 6'-6"  | 1559 |
| * S3 | 16  | #5 | STR | 3'-6"  | 58   |

|                                  |          |       |
|----------------------------------|----------|-------|
| * EPOXY COATED REINFORCING STEEL | LBS.     | 6002  |
| CLASS AA CONCRETE                | CU. YDS. | 34.7  |
| 1'-2" x 3'-3½" CONCRETE PARAPET  | LIN. FT. | 237.2 |

STAGE II

PARAPET & TWO END POSTS

| BAR  | NO. | SIZE | TYPE | LENGTH | WEIGHT |
|------|-----|------|------|--------|--------|
| * B1 | 20  | #5   | STR  | 15'-0" | 313    |
| * B2 | 80  | #5   | STR  | 23'-8" | 1975   |
| * B3 | 20  | #5   | STR  | 10'-8" | 223    |

|      |   |    |     |        |    |
|------|---|----|-----|--------|----|
| * E1 | 4 | #7 | STR | 3'-7"  | 29 |
| * E2 | 4 | #7 | STR | 4'-0"  | 33 |
| * E3 | 4 | #7 | STR | 4'-5"  | 36 |
| * E4 | 4 | #7 | STR | 4'-10" | 40 |
| * E5 | 4 | #7 | STR | 5'-1"  | 42 |

|      |   |    |     |        |    |
|------|---|----|-----|--------|----|
| * F1 | 4 | #6 | STR | 2'-2"  | 13 |
| * F2 | 2 | #6 | STR | 3'-5"  | 10 |
| * F3 | 2 | #6 | STR | 3'-0"  | 9  |
| * F4 | 2 | #6 | STR | 3'-11" | 12 |
| * F5 | 2 | #6 | STR | 3'-7"  | 11 |

|      |     |    |     |        |      |
|------|-----|----|-----|--------|------|
| * S1 | 230 | #5 | 1   | 6'-10" | 1639 |
| * S2 | 230 | #5 | 2   | 6'-6"  | 1559 |
| * S3 | 16  | #5 | STR | 3'-6"  | 58   |

|                                  |          |       |
|----------------------------------|----------|-------|
| * EPOXY COATED REINFORCING STEEL | LBS.     | 6002  |
| CLASS AA CONCRETE                | CU. YDS. | 34.7  |
| 1'-2" x 3'-3½" CONCRETE PARAPET  | LIN. FT. | 237.2 |

PROJECT NO. **BR-0168**

**FORSYTH** COUNTY

STATION: **20+73.79 -L-**

SHEET 2 OF 2



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
SUPERSTRUCTURE

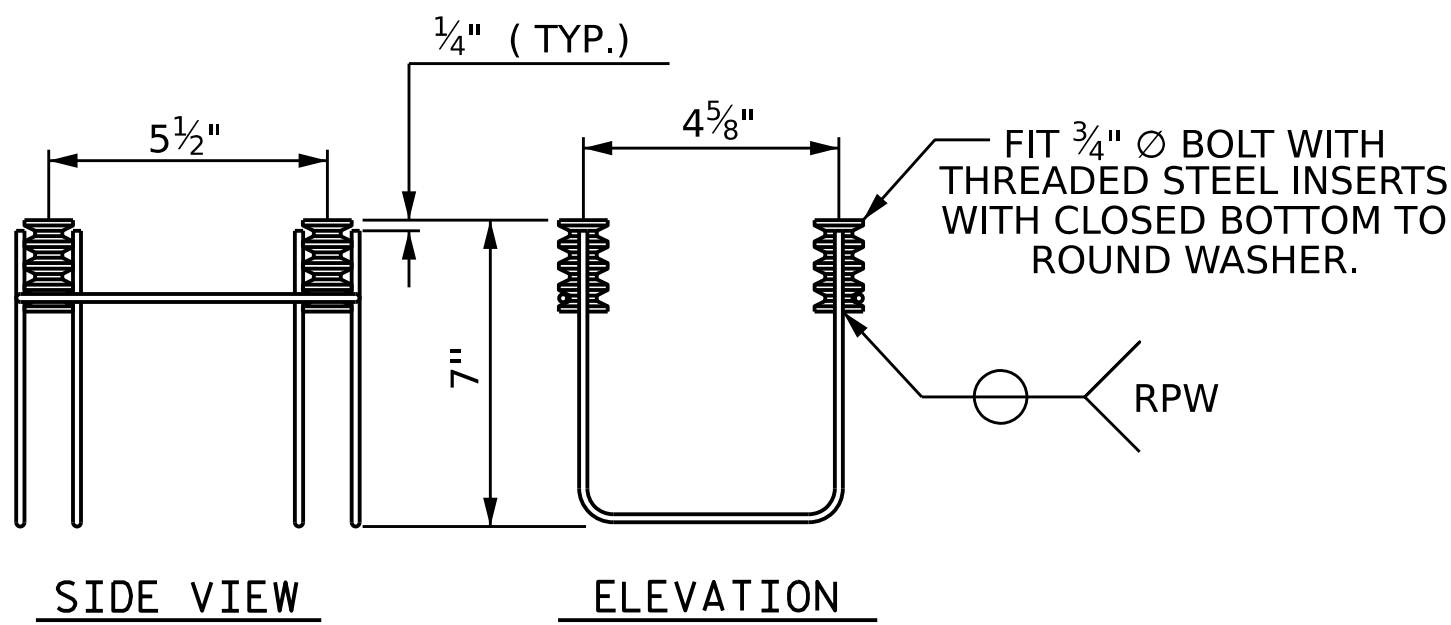
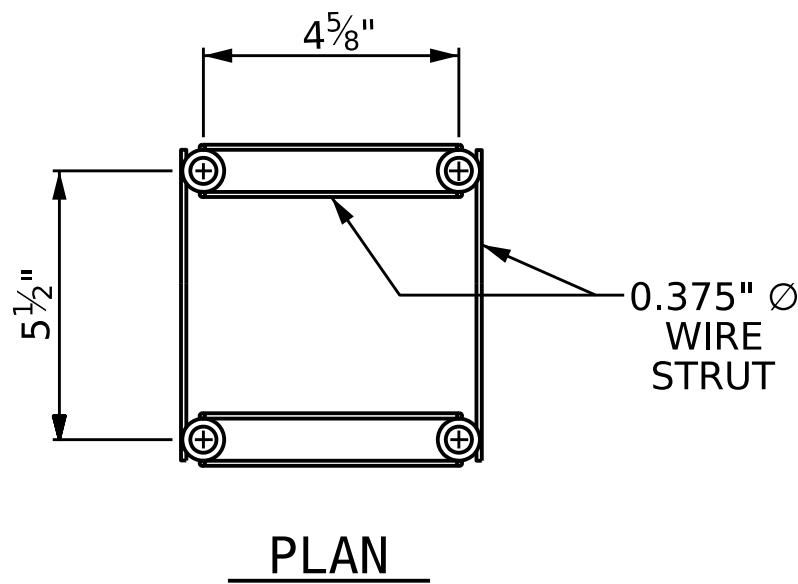
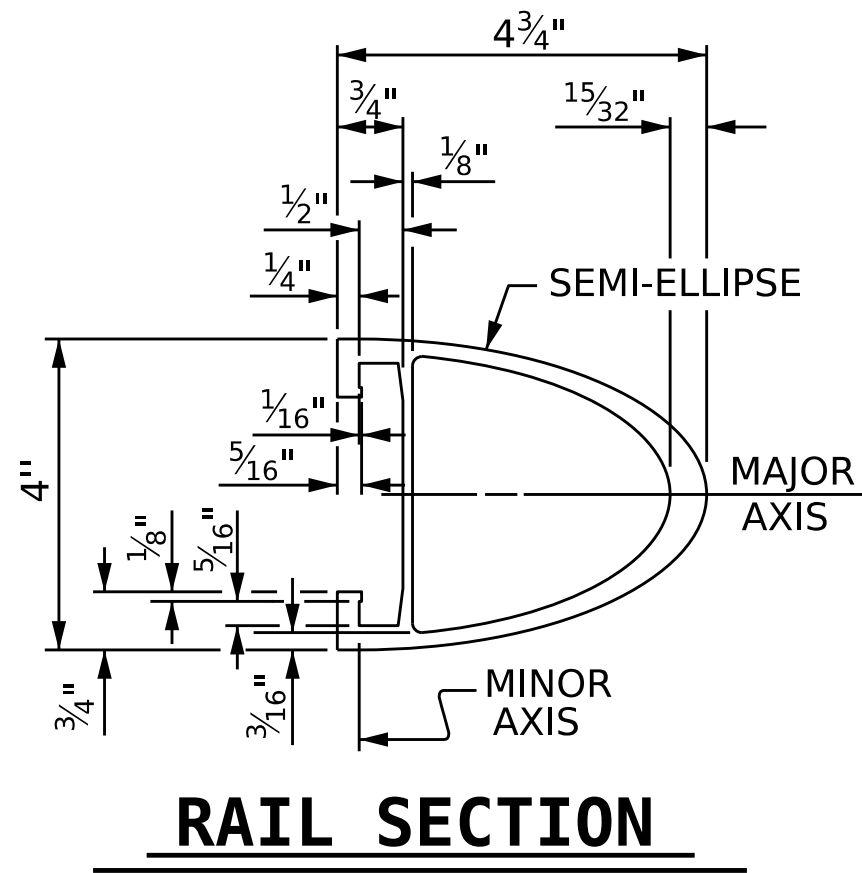
CONCRETE PARAPET  
DETAILS

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

DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED

|                            |              |        |         |
|----------------------------|--------------|--------|---------|
| DRAWN BY :                 | E. MOHAMED   | DATE : | 04/2025 |
| CHECKED BY :               | A.SORSENGINH | DATE : | 04/2025 |
| DESIGN ENGINEER OF RECORD: | A. IGHWAIR   | DATE : | 04/2025 |





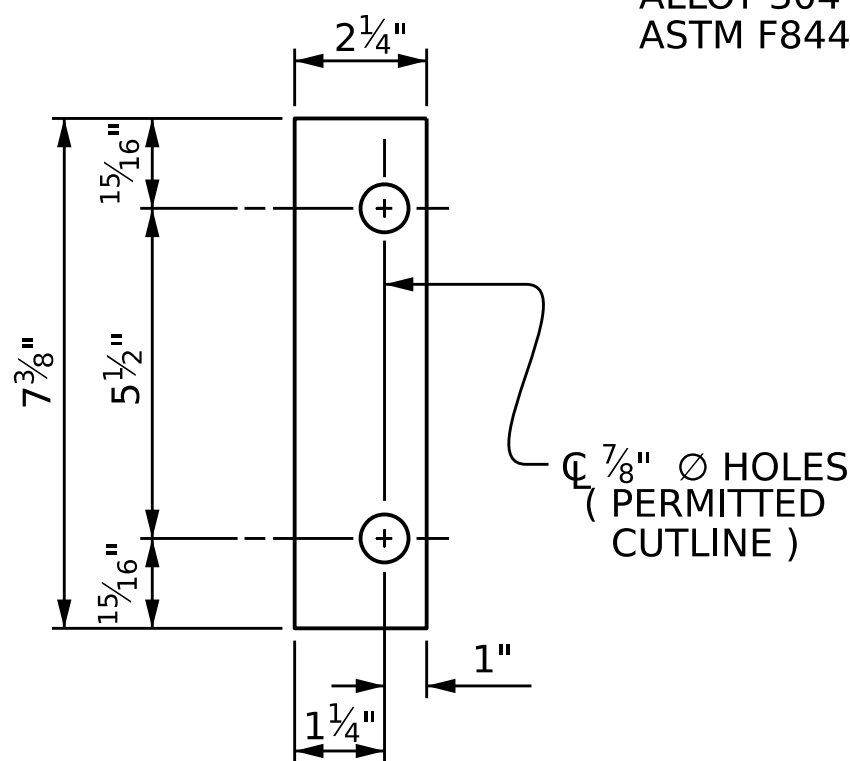
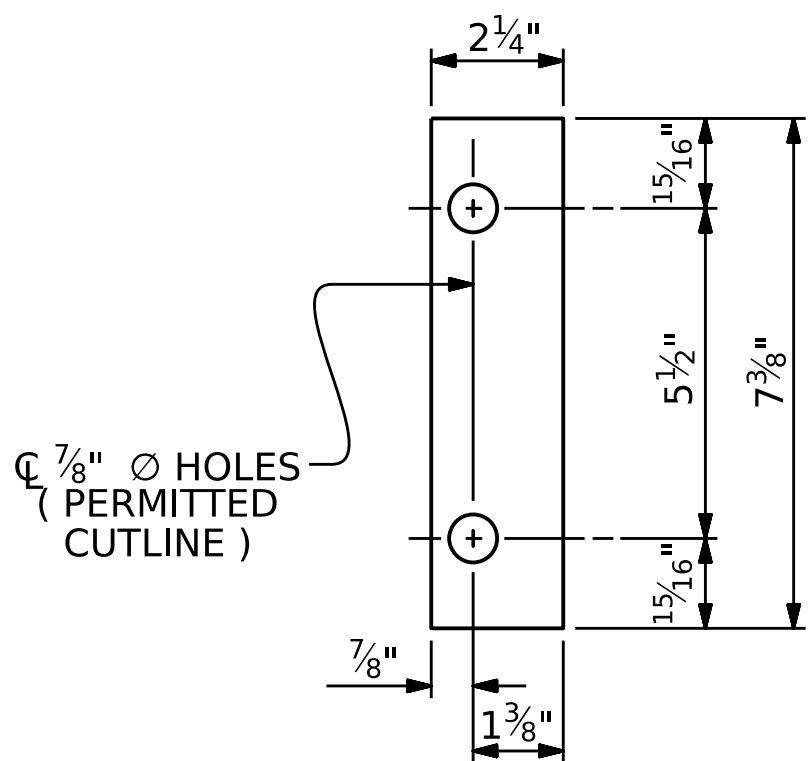
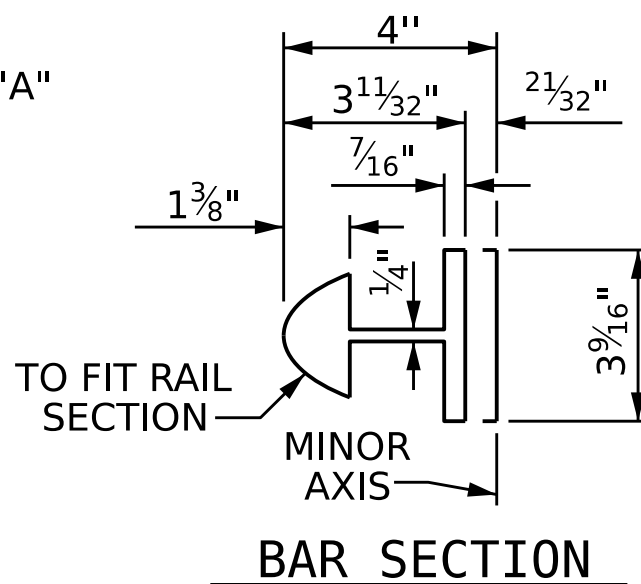
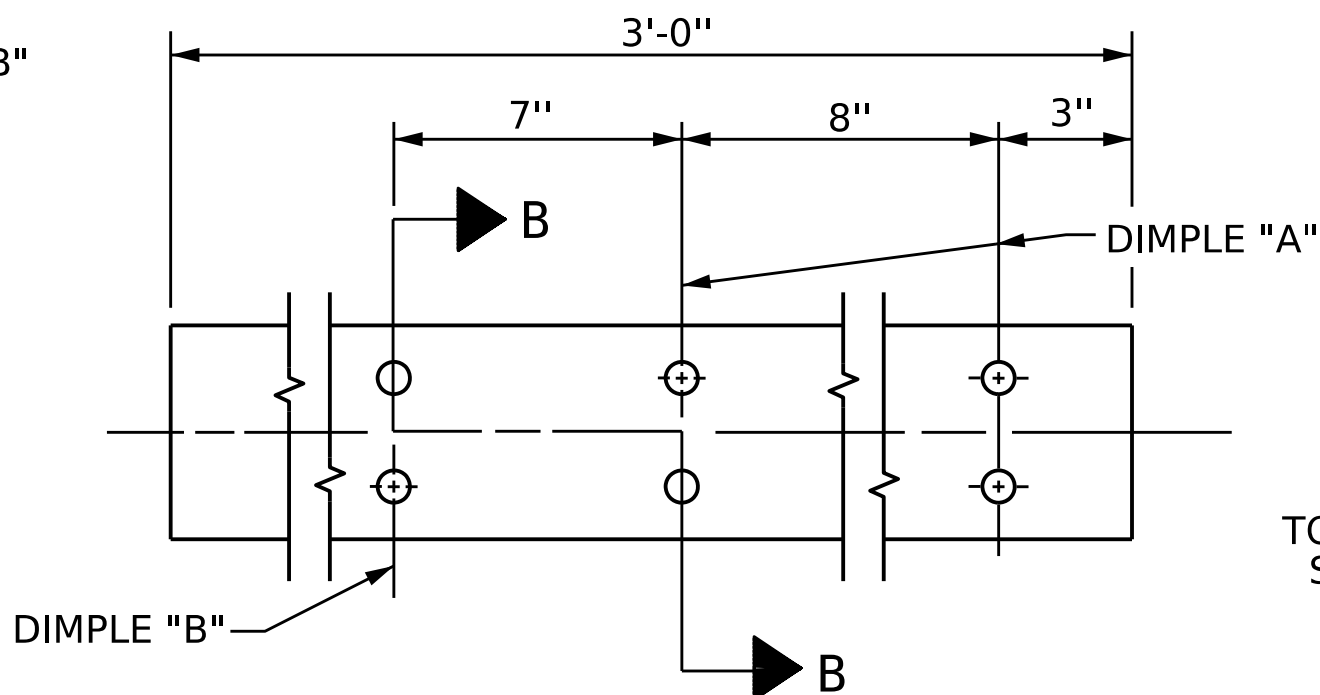
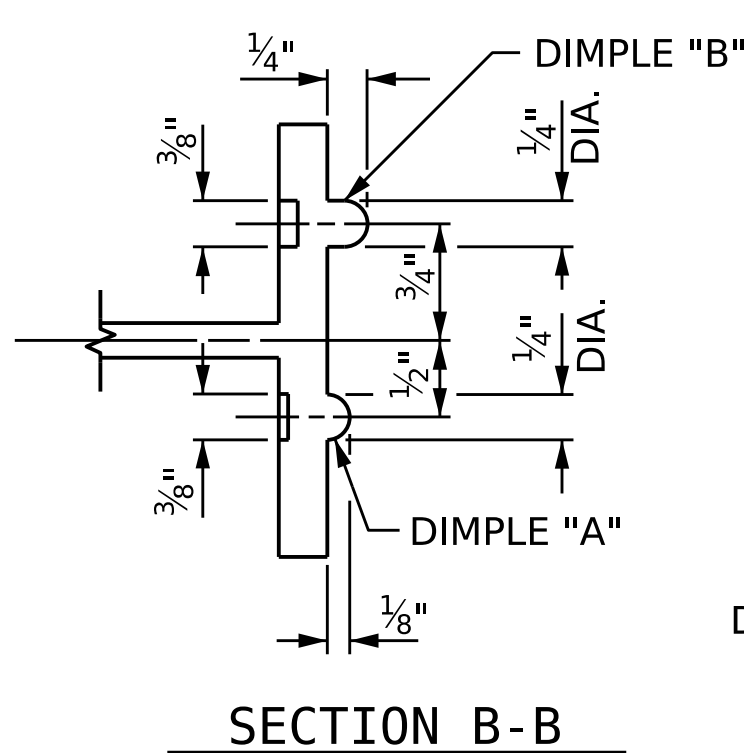
#### 4-BOLT METAL RAIL ANCHOR ASSEMBLY

( 82 ASSEMBLIES REQUIRED )

- 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"  $\phi$  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"  $\phi$  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 7/16"  $\phi$  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 ASTM A123.
  - 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.

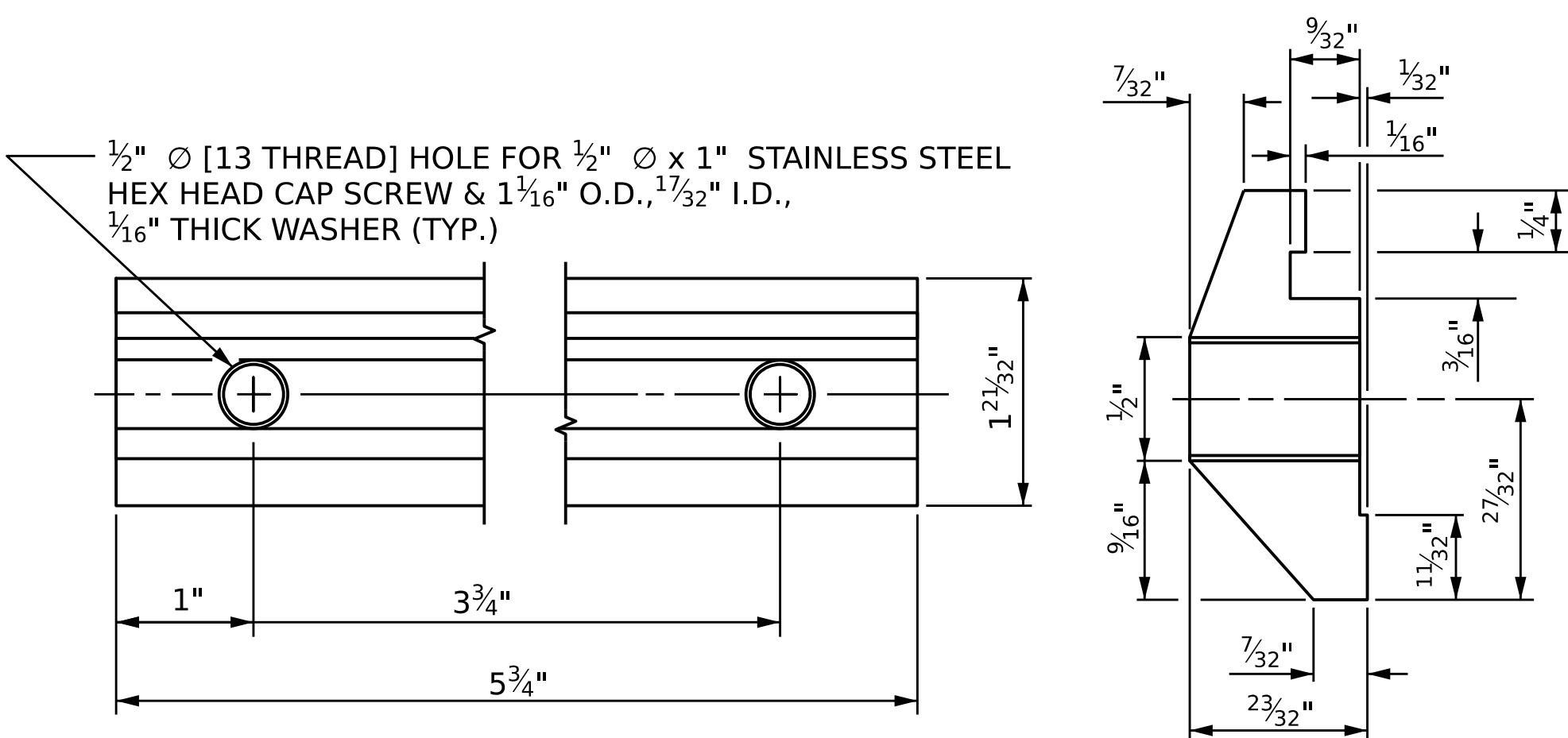
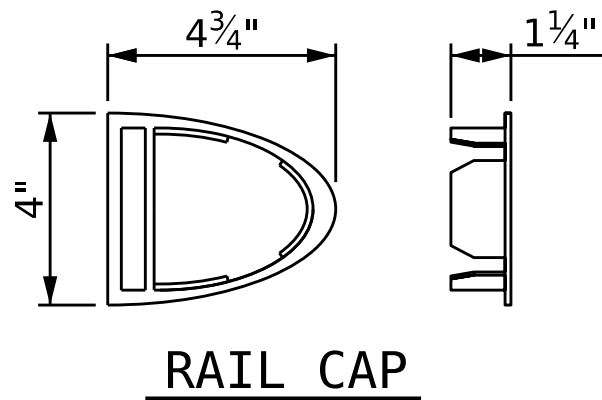
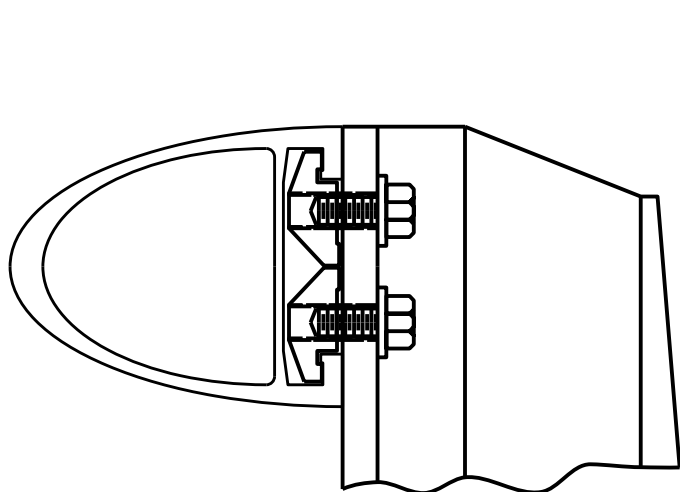
THE CONTRACTOR MAY USE ADHESIVELY ANCHORED ANCHOR BOLTS IN PLACE OF THE METAL RAIL ANCHOR ASSEMBLY. LEVEL ONE FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE 3/4"  $\phi$  BOLT IS 10 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE THE STANDARD SPECIFICATIONS.

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.



#### SHIM DETAILS

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



#### CLAMP BAR DETAIL

( 4 REQUIRED PER POST )

PROJECT NO. **BR-0168**  
**FORSYTH** COUNTY  
STATION: **20+73.79 -L-**

SHEET 2 OF 3

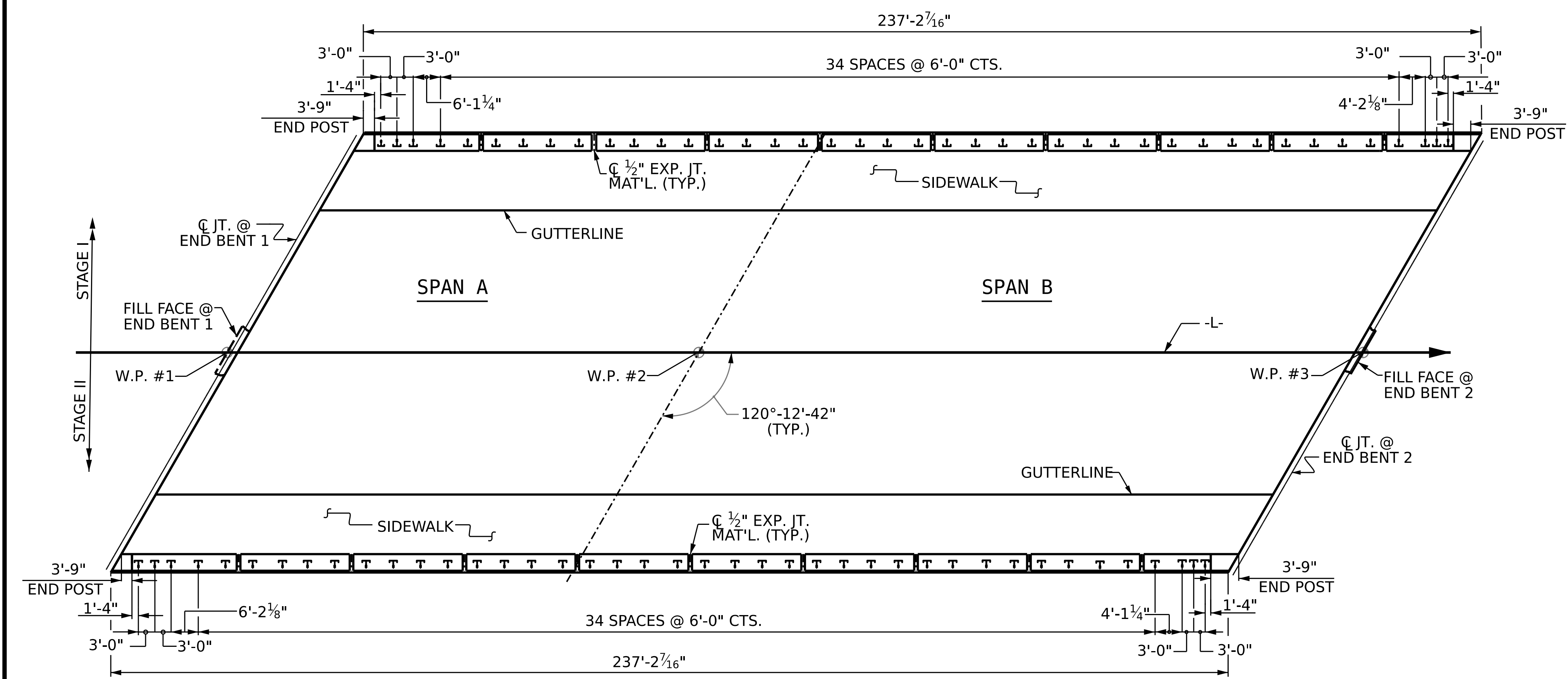
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
STANDARD

#### 2 BAR METAL RAIL

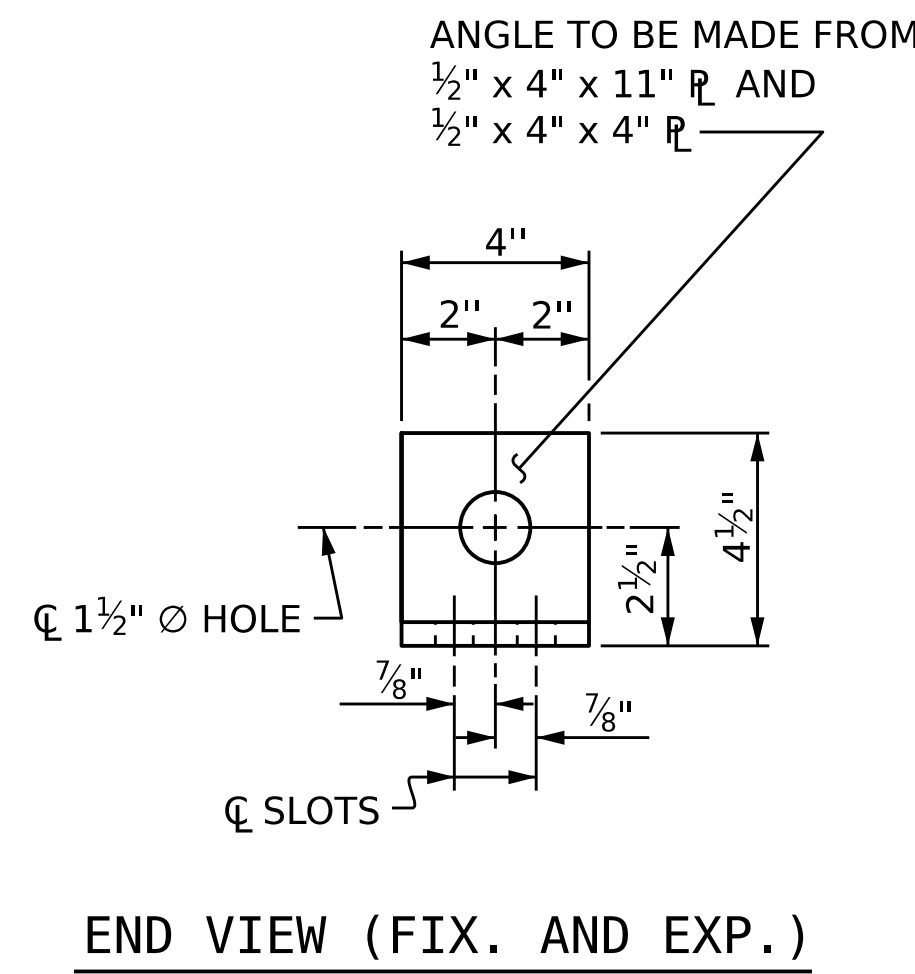
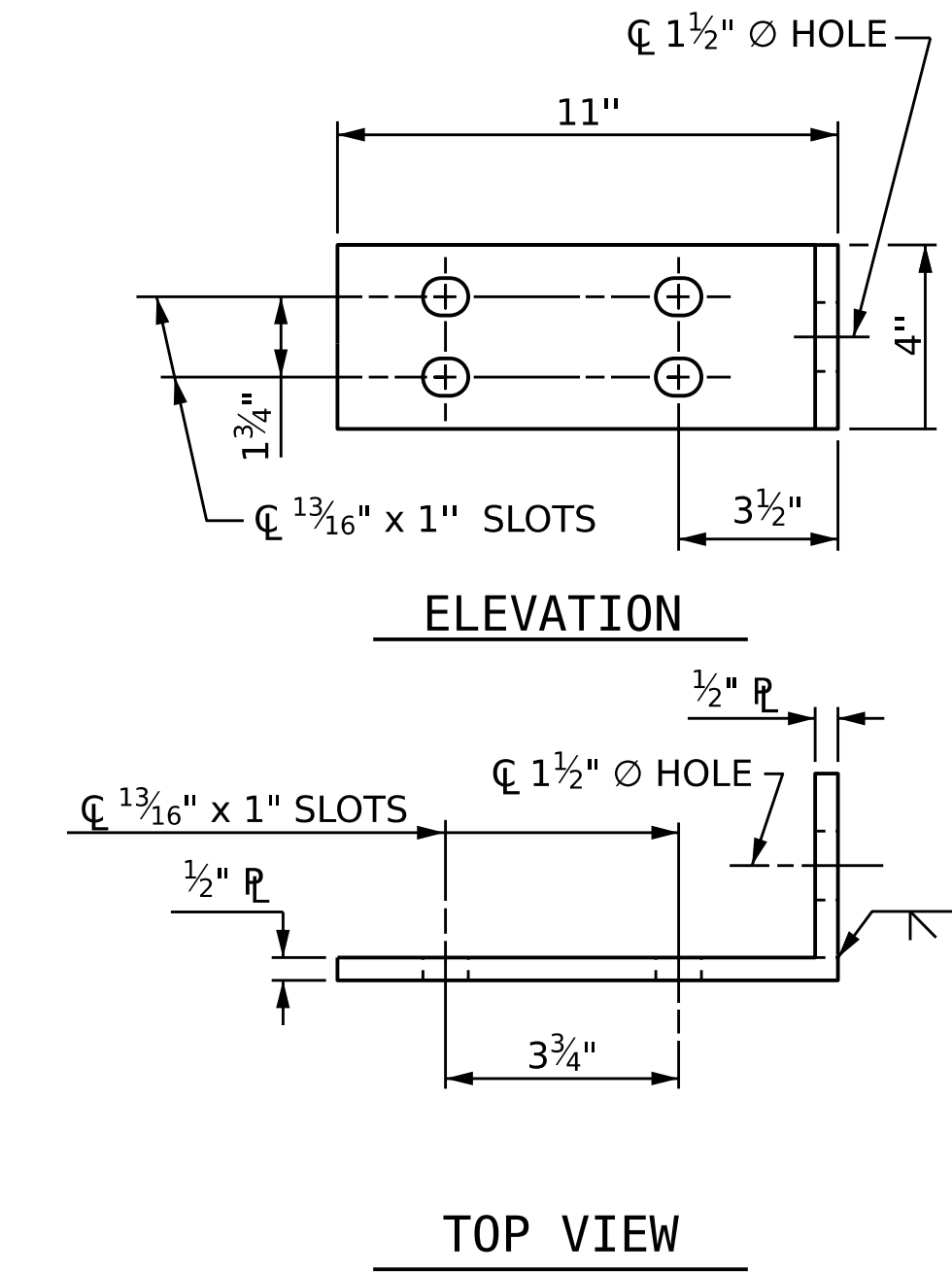


| REVISIONS                                                     |     |       |     |     |       | SHEET NO.          |
|---------------------------------------------------------------|-----|-------|-----|-----|-------|--------------------|
| NO.                                                           | BY: | DATE: | NO. | BY: | DATE: |                    |
| 1                                                             |     |       | 3   |     |       | S-28               |
| 2                                                             |     |       | 4   |     |       |                    |
| DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED |     |       |     |     |       | TOTAL SHEETS<br>53 |

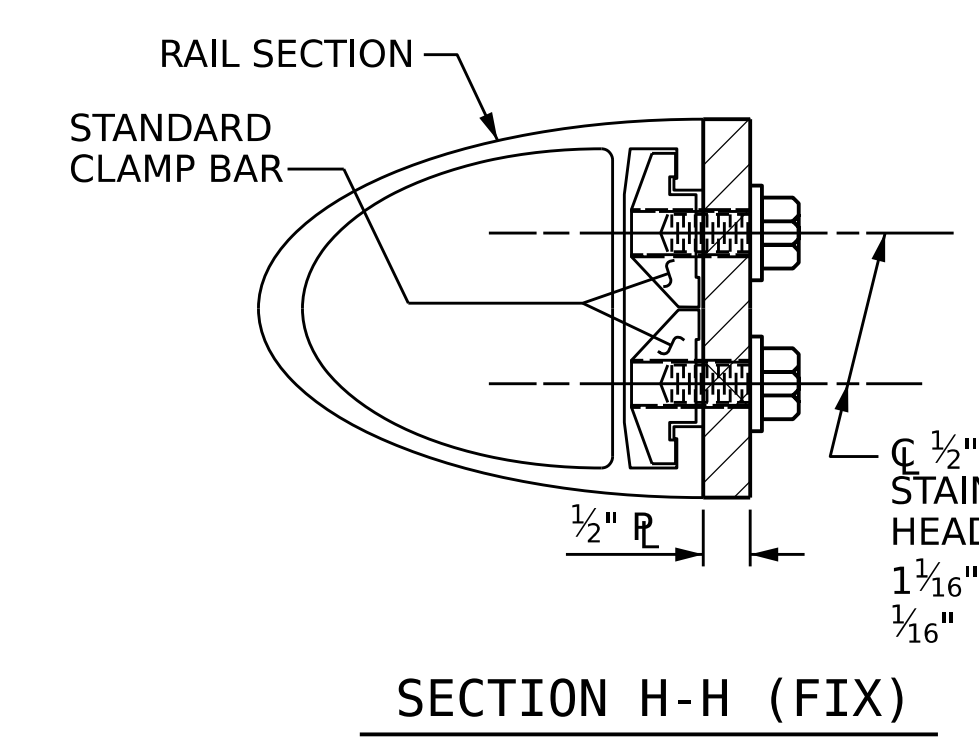
|                            |                    |
|----------------------------|--------------------|
| ASSEMBLED BY : E. MOHAMED  | DATE : 01/2025     |
| CHECKED BY : A. SORSENGINH | DATE : 04/2025     |
| DRAWN BY : EEM 6/94        | REV. 10/11 MAA/GM  |
| CHECKED BY : RGW 6/94      | REV. 12/17 MAA/THC |
|                            | REV. 10/23 BNB/SNM |



PLAN OF RAIL POST SPACINGS



END VIEW (FIX. AND EXP.)



SECTION H-H (FIX)

DETAILS FOR ATTACHING METAL RAIL TO END POST

**NOTES**

**STRUCTURAL CONCRETE INSERT**

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

- 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".
- 1 - 3/4"  $\varnothing$  x 1 3/8" 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"  $\varnothing$  x 1 3/8" 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.)
- 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 7/16"  $\varnothing$  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:

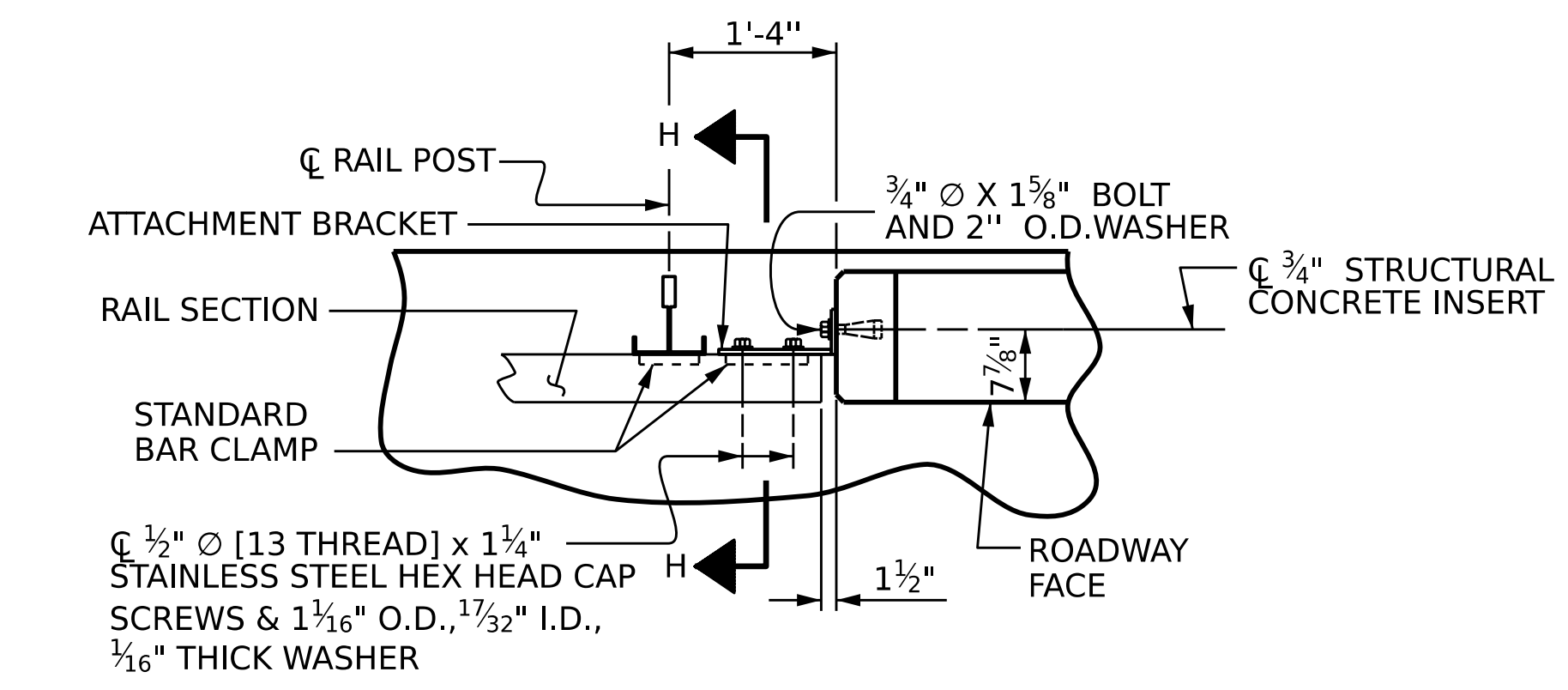
- 1/2" PLATES SHALL CONFORM TO ASTM A36 GRADE 36 AND SHALL BE GALVANIZED AFTER FABRICATION.
- 3/4" STRUCTURAL CONCRETE INSERT SHALL HAVE A WORKING LOAD SHEAR CAPACITY OF 4800 LBS. THE FERRULES SHALL ENGAGE A 3/4"  $\varnothing$  x 1 3/8" BOLT WITH 2" O.D. WASHER IN PLACE. THE 3/4"  $\varnothing$  x 1 3/8" BOLT SHALL HAVE N. C. THREADS.
- 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.
- STANDARD CLAMP BARS ( SEE METAL RAIL SHEET ).
- 1/2"  $\varnothing$  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.

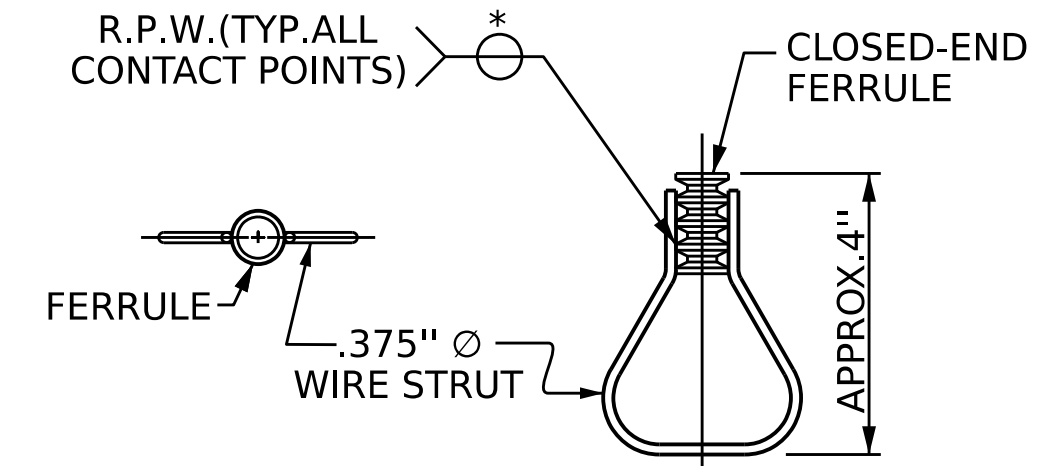
THE 3/4" STRUCTURAL CONCRETE INSERT WITH BOLT SHALL BE ASSEMBLED IN THE SHOP.

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"  $\varnothing$  x 1 3/8" BOLT WITH WASHER SHALL BE REPLACED WITH A 3/4"  $\varnothing$  x 6 1/2" BOLT AND 2" O.D. WASHER. ALL SPECIFICATIONS THAT APPLY TO THE 3/4"  $\varnothing$  x 1 3/8" BOLT SHALL APPLY TO THE 3/4"  $\varnothing$  x 6 1/2" BOLT. FIELD TESTING OF THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.



PLAN - RAIL AND END POST

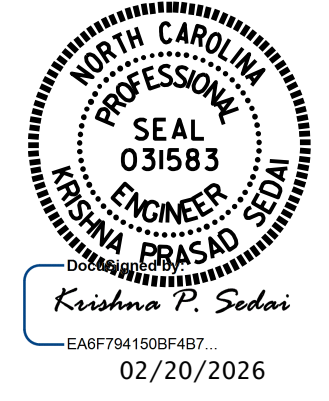


PLAN ELEVATION  
STRUCTURAL CONCRETE INSERT

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

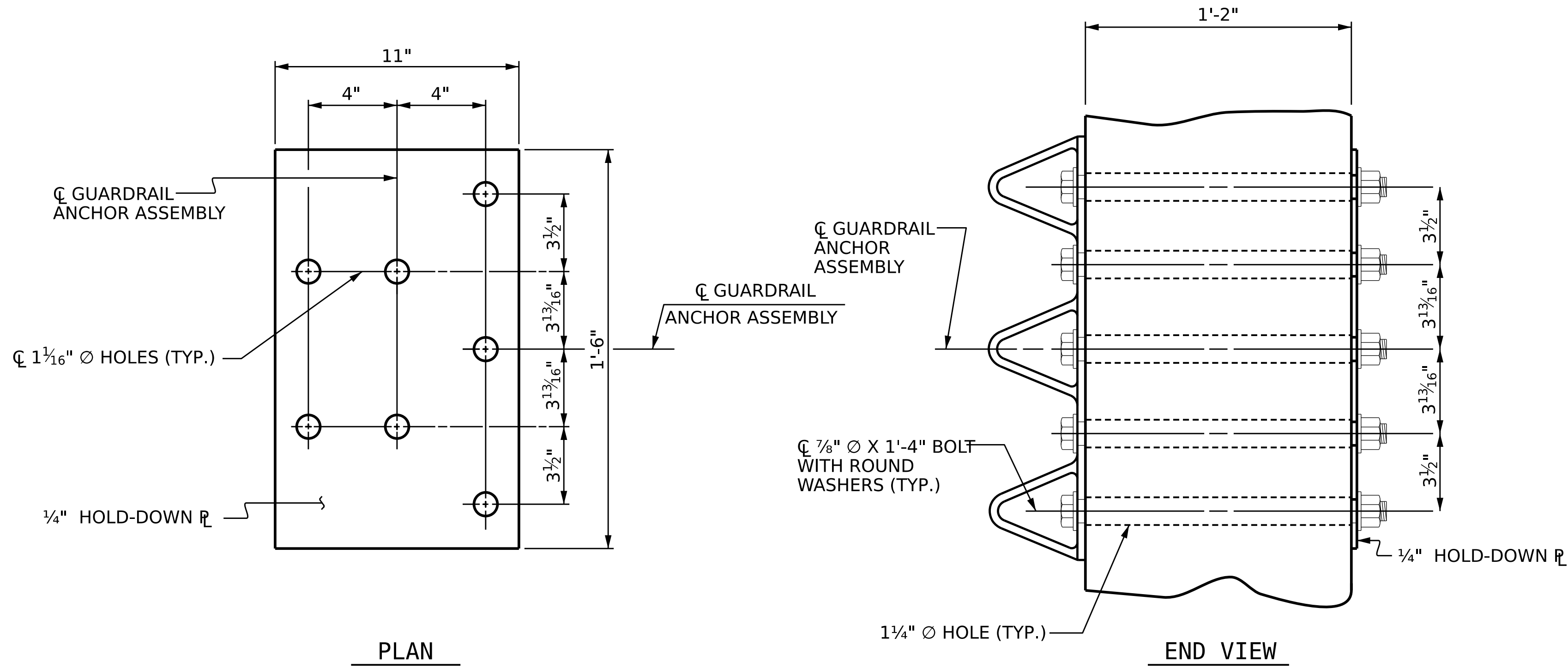
PROJECT NO. **BR-0168**  
**FORSYTH** COUNTY  
STATION: **20+73.79 -L-**

|                                                                                                                                                               |     |       |     |     |           |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-------|-----|-----|-----------|
| SHEET 3 OF 3                                                                                                                                                  |     |       |     |     |           |
| STATE OF NORTH CAROLINA<br>DEPARTMENT OF TRANSPORTATION<br>RALEIGH<br>STANDARD<br>RAIL POST SPACINGS<br>AND<br>END OF RAIL DETAILS<br>FOR TWO BAR METAL RAILS |     |       |     |     |           |
| REVISIONS                                                                                                                                                     |     |       |     |     | SHEET NO. |
| NO.                                                                                                                                                           | BY: | DATE: | NO. | BY: | DATE:     |
| 1                                                                                                                                                             |     |       | 3   |     |           |
| 2                                                                                                                                                             |     |       | 4   |     |           |
| TOTAL SHEETS                                                                                                                                                  |     |       |     |     | 53        |



DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED

|                            |                     |
|----------------------------|---------------------|
| ASSEMBLED BY : E. MOHAMED  | DATE : 01/2025      |
| CHECKED BY : A. SORSENGINH | DATE : 04/2025      |
| DRAWN BY : FCJ 1/88        | REV. 10/1/11 MAA/GM |
| CHECKED BY : CRK 3/89      | REV. 12/17 MAA/THC  |
|                            | REV. 10/23 BNB/SNM  |



GUARDRAIL ANCHOR ASSEMBLY DETAILS

**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.

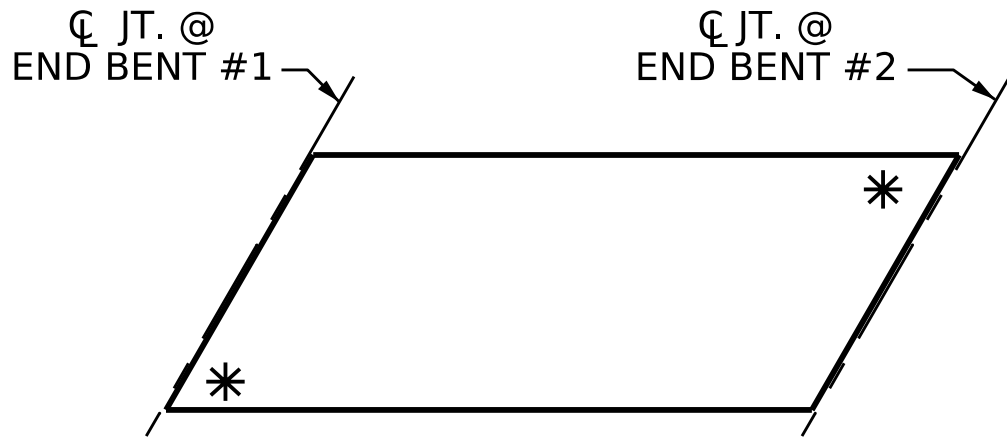
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF THE PARAPET. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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.

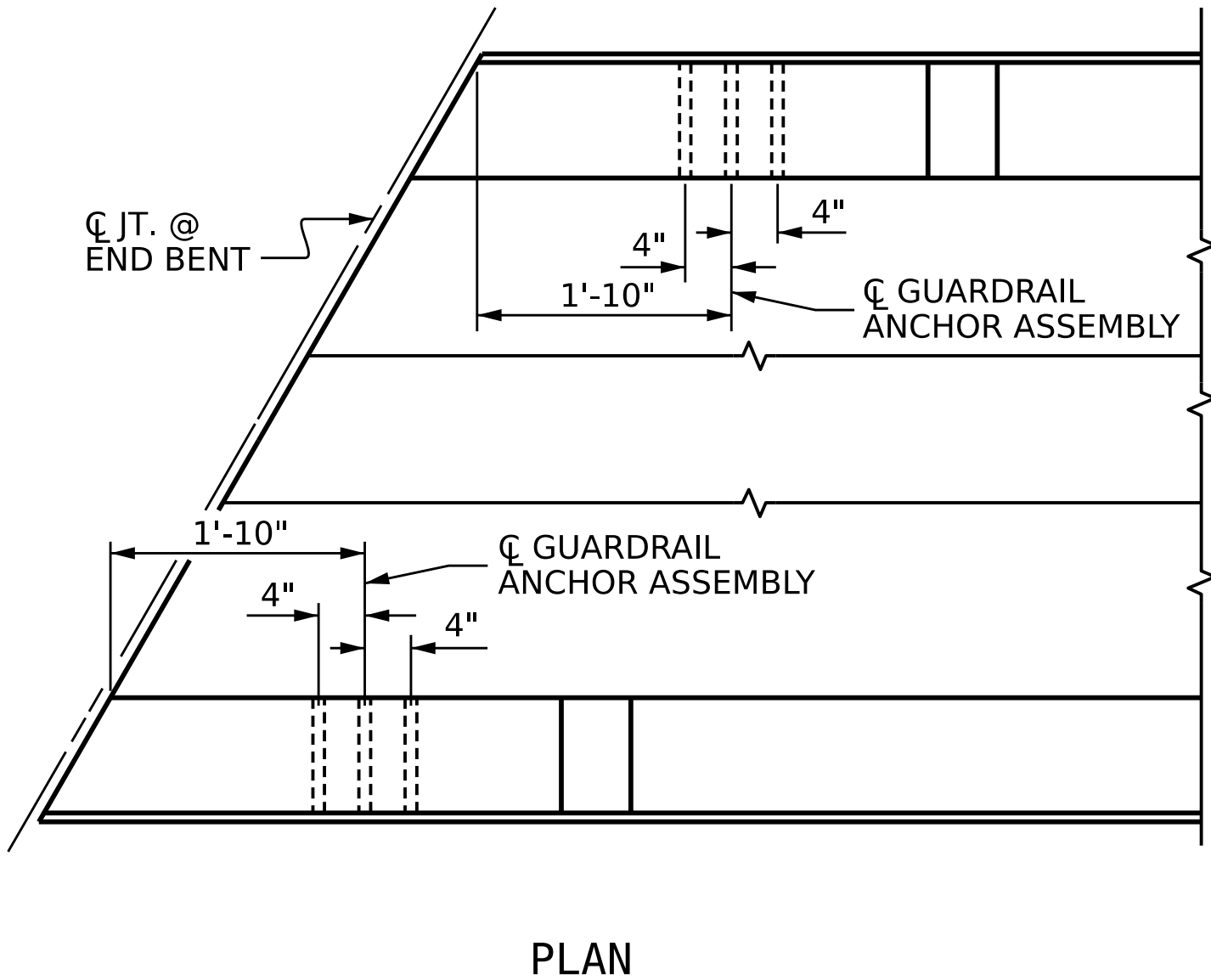
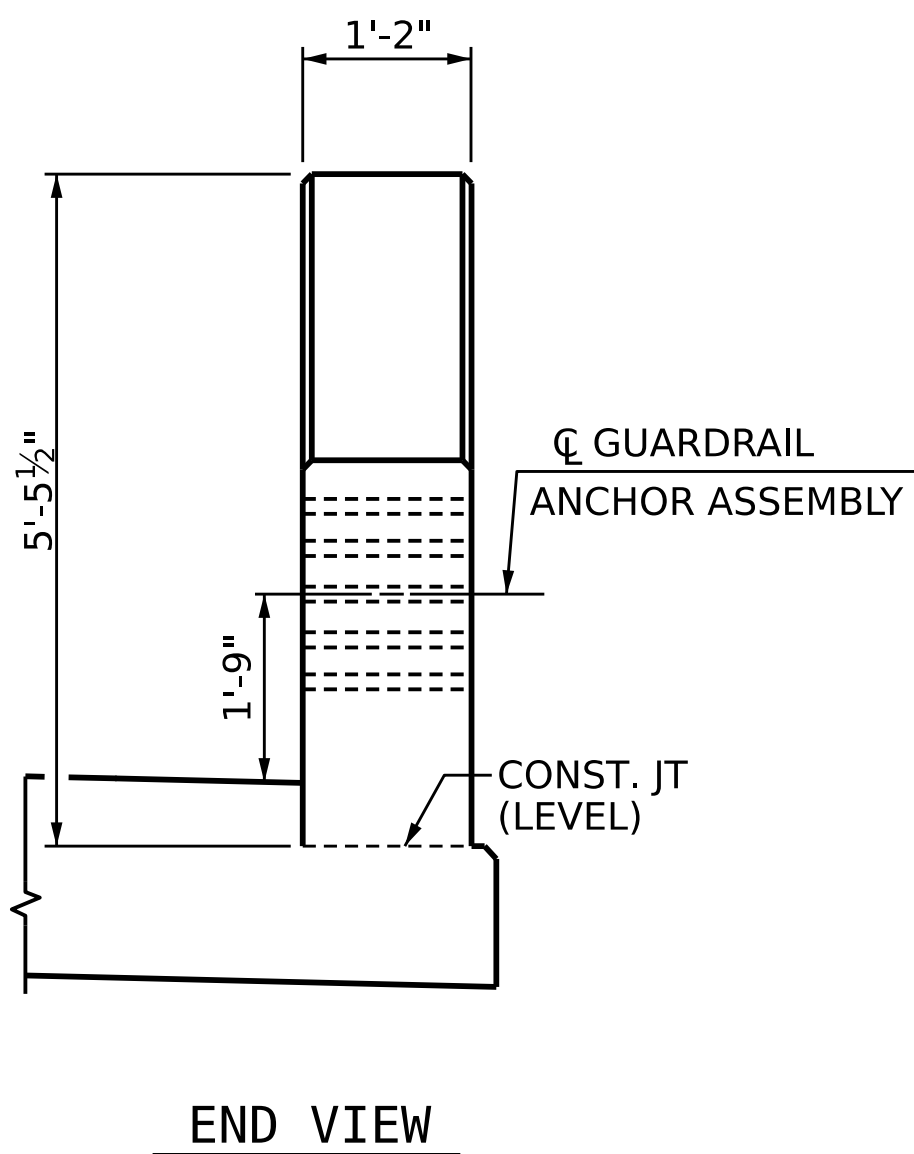
THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE END POST TO CLEAR ASSEMBLY BOLTS.

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.



SKETCH SHOWING POINTS OF ATTACHMENT

\* LOCATION OF GUARDRAIL ATTACHMENT



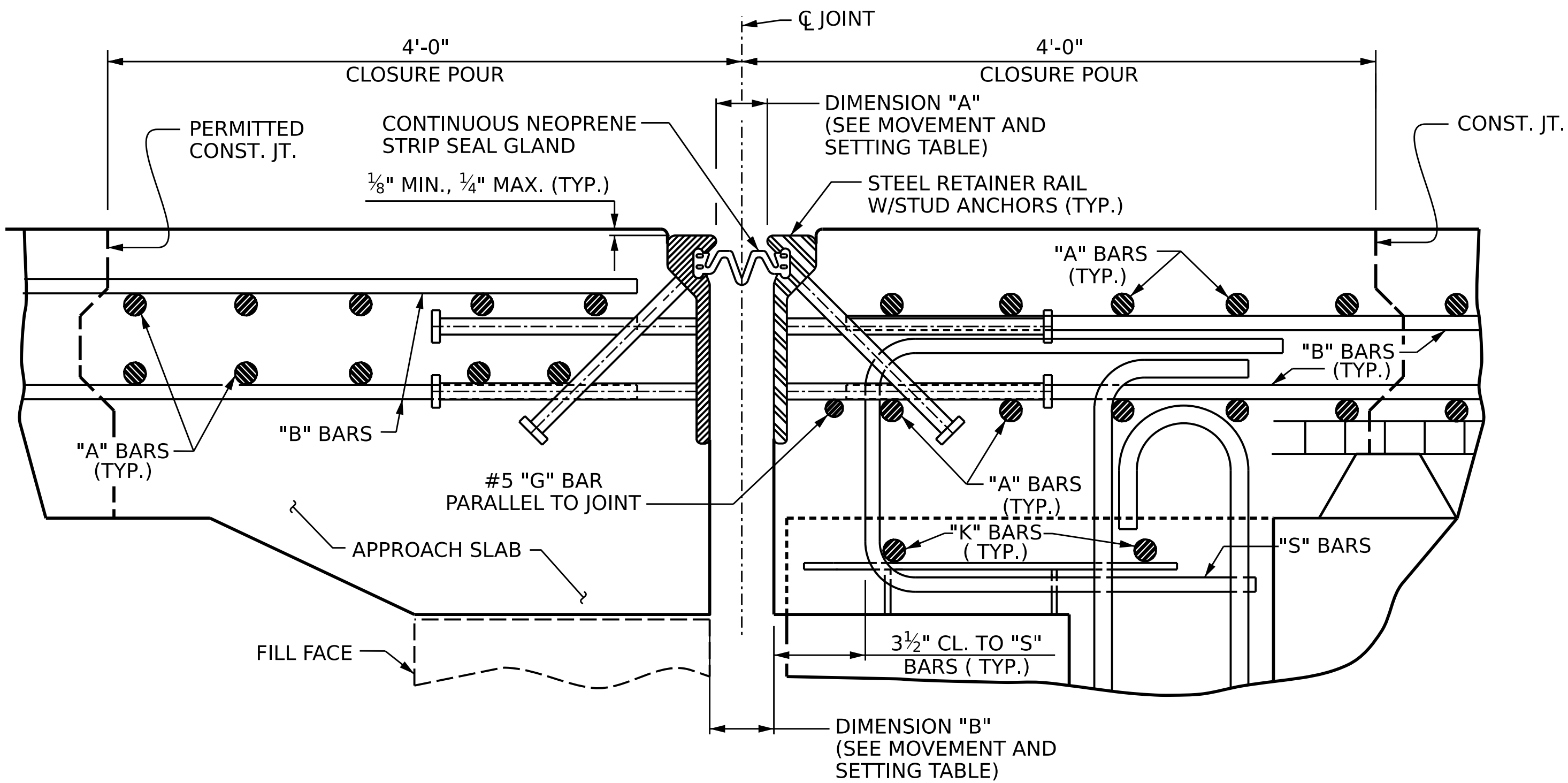
LOCATION OF GUARDRAIL ANCHOR AT END POST

PROJECT NO. **BR-0168**  
**FORSYTH** COUNTY  
STATION: **20+73.79 -L-**



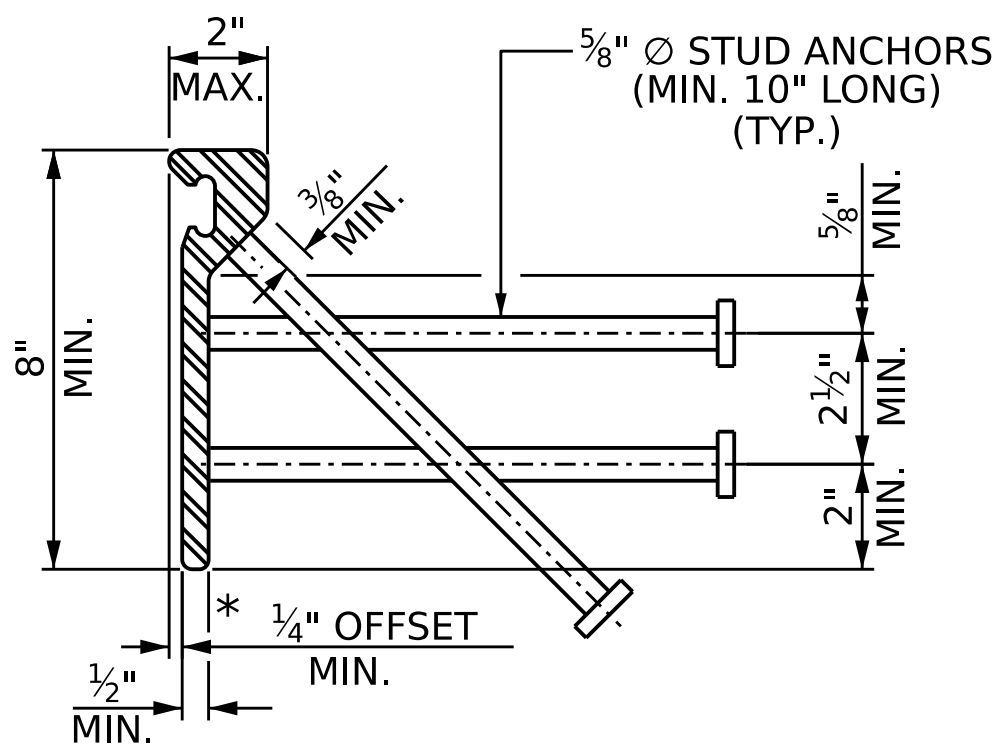
| STATE OF NORTH CAROLINA<br>DEPARTMENT OF TRANSPORTATION<br>RALEIGH  |     |       |     |     |                       |
|---------------------------------------------------------------------|-----|-------|-----|-----|-----------------------|
| STANDARD                                                            |     |       |     |     |                       |
| GUARDRAIL ANCHORAGE<br>DETAILS<br>FOR METAL RAILS                   |     |       |     |     |                       |
| REVISIONS                                                           |     |       |     |     | SHEET NO.             |
| NO.                                                                 | BY: | DATE: | NO. | BY: | DATE:                 |
| 1                                                                   |     |       | 3   |     |                       |
| 2                                                                   |     |       | 4   |     |                       |
| DOCUMENT NOT CONSIDERED<br>FINAL UNLESS ALL<br>SIGNATURES COMPLETED |     |       |     |     | TOTAL<br>SHEETS<br>53 |

|                            |                |
|----------------------------|----------------|
| ASSEMBLED BY : E. MOHAMED  | DATE : 04/2025 |
| CHECKED BY : A. SORSENGINH | DATE : 04/2025 |
| DRAWN BY : MAA             | 5/10           |
| CHECKED BY : GM            | 5/10           |
| REV. 1/15                  | MAA/TMC        |
| REV. 12/17                 | MAA/THC        |
| REV. 5/18                  | MAA/THC        |



### STRIP SEAL EXPANSION JOINT DETAILS

SECTION NORMAL TO JOINT -- PRESTRESSED GIRDER SUPERSTRUCTURE

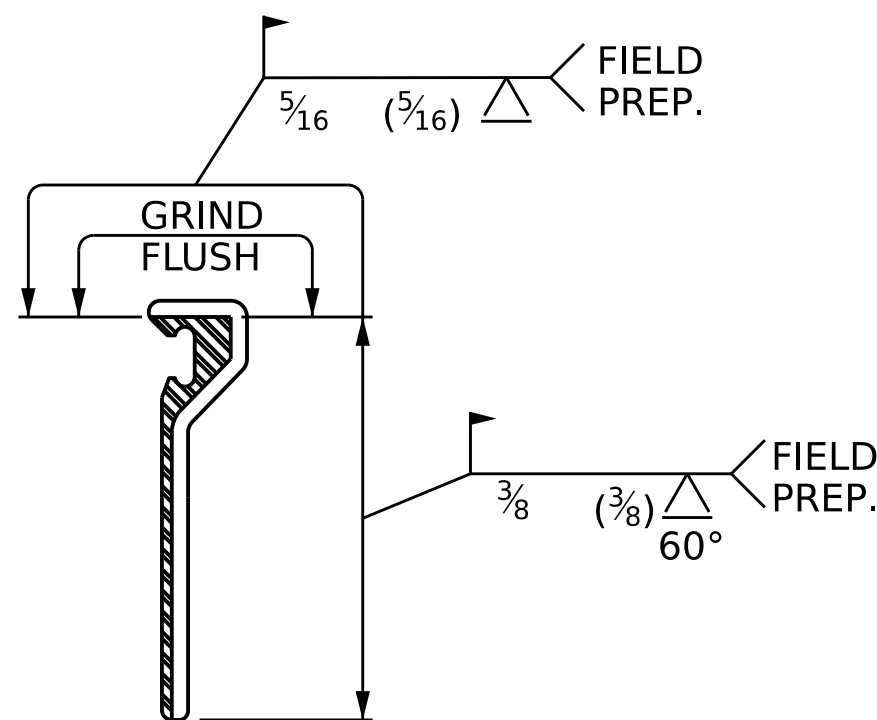


### TYPICAL SECTION STEEL RETAINER RAIL

\*DIMENSION "B" BASED ON STEEL RETAINER RAIL  
TOP OFFSET TO FACE OF RAIL OF 1/4" MINIMUM.  
IF ACTUAL OFFSET IS GREATER ADJUST  
DIMENSION "B" AS REQUIRED.

### JOINT INSTALLATION PROCEDURE:

1. INSTALL THE STRIP SEAL EXPANSION JOINT AS RECOMMENDED BY THE MANUFACTURER.
2. A MANUFACTURER'S REPRESENTATIVE SHALL BE PRESENT DURING INSTALLATION OF THE JOINT.
3. PLACE STEEL RETAINER RAILS IN JOINT OPENING. PROPERLY ALIGN THE RAILS BOTH HORIZONTALLY AND VERTICALLY. DO NOT WELD SUPPORT SYSTEM TO THE METALLIZED SURFACES OF THE STEEL RETAINER RAILS.
4. CONFLICTING REINFORCING STEEL MAY BE SHIFTED SLIGHTLY WHEN NECESSARY.
5. DECK SLAB CONCRETE PLACEMENT OPERATIONS SHALL COMMENCE PER THE POURING SEQUENCE AFTER FINAL JOINT ALIGNMENT IS SET.
6. PROTECT THE STEEL RETAINER RAILS FROM BEING FOULED BY CONCRETE SPILLOVER DURING THE DECK POUR.
7. LOOSEN THE STEEL RETAINER RAIL SUPPORT SYSTEM TO ALLOW MOVEMENT WHILE CONCRETE CURES.
8. RE-LEVEL AND RE-ALIGN STEEL RETAINER RAIL AS REQUIRED ON OPPOSITE SIDE OF JOINT.
9. PLACE DECK SLAB CONCRETE.
10. ONCE THE CONCRETE HAS HARDENED SUFFICIENTLY ON BOTH SIDES OF JOINT, STEEL RETAINER RAILS SHALL BE CLEANED THOROUGHLY AND SEAL CHANNELS SHALL BE INSPECTED TO ASCERTAIN THE ABSENCE OF CONCRETE AND DEBRIS.
11. COAT THE STRIP SEAL LUGS WITH LUBRICANT-ADHESIVE AND INSTALL THE NEOPRENE STRIP SEAL GLAND AS RECOMMENDED BY THE STRIP SEAL EXPANSION JOINT MANUFACTURER.



### STEEL RETAINER RAIL (FIELD SPLICE DETAIL)

### GENERAL NOTES

FOR STRIP SEAL EXPANSION JOINTS, SEE SPECIAL PROVISIONS.

STEEL RETAINER RAILS AND COVER PLATES SHALL CONFORM TO AASHTO M270 GRADE 36 OR GRADE 50 STEEL. ALL STUD ANCHORS SHALL CONFORM TO AASHTO M169, GRADES 1010 THRU 1020 OR APPROVED EQUAL. ALL CONCRETE INSERTS SHALL BE CLOSED END AND SHALL CONFORM TO AASHTO M169, GRADE 12L14. TENSILE CAPACITY SHALL BE 3000 LBS. MIN.

ONLY STEEL RETAINER RAILS OF ONE-PIECE CONSTRUCTION ARE PERMITTED. STEEL RETAINER RAILS CONSISTING OF TWO OR MORE COMPONENTS WELDED TOGETHER TO OBTAIN THEIR FINAL CROSS-SECTIONAL SHAPE ARE NOT PERMITTED.

STUD ANCHORS SHALL BE SHOP WELDED AND SHALL BE ELECTRIC ARC END WELDED WITH COMPLETE FUSION.

SURFACES COMING IN CONTACT WITH STRIP SEAL GLAND SHALL BE GROUND SMOOTH PRIOR TO METALLIZING.

UPON COMPLETION OF SHOP FABRICATION, THE STEEL RETAINER RAILS SHALL BE METALLIZED AS SHOWN IN THE "METALLIZING DETAIL". SEE SPECIAL PROVISIONS FOR THERMAL SPRAYED COATINGS (METALLIZATION).

INSTALLED STEEL RETAINER RAILS SHALL FOLLOW THE ROADWAY SLOPE.

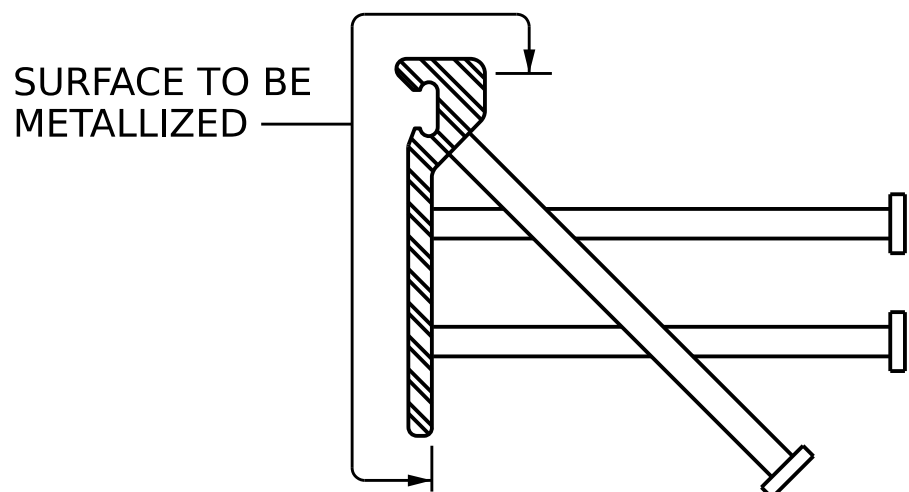
FIELD SPLICES OF THE RETAINER RAILS SHALL BE KEPT TO A MINIMUM. CONTRACTOR SHALL FURNISH DETAILED PLANS SHOWING PROPOSED SPLICE LOCATIONS FOR APPROVAL. FINISHED WELDS SHALL BE REPAIRED IN ACCORDANCE WITH THE SPECIAL PROVISION FOR THERMAL SPRAYED COATINGS (METALLIZATION).

NEOPRENE STRIP SEAL GLAND SHALL BE CONTINUOUS THROUGHOUT THE JOINT AND SHALL BE COMPATIBLE WITH THE STEEL RETAINER RAILS. FIELD SPLICING THE GLAND IS NOT PERMITTED.

NO ALTERNATE JOINT DETAILS SHALL BE PERMITTED IN LIEU OF THOSE SHOWN ON THESE PLANS.

THE COVER PLATES SHALL BE GALVANIZED OR METALLIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. FOR THERMAL SPRAYED COATINGS (METALLIZATION), SEE SPECIAL PROVISIONS.

THE CONTRACTOR MAY, AT HIS OPTION, USE ADHESIVELY ANCHORED ANCHOR BOLTS IN PLACE OF CONCRETE INSERTS FOR COVER PLATES. THE YIELD LOAD OF THE 3/4" Ø BOLT IS 10 KIPS. FIELD TESTING OF THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.



### METALLIZING DETAIL

PROJECT NO. **BR-0168**

**FORSYTH** COUNTY

STATION: **20+73.79 -L-**

SHEET 1 OF 3



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

STANDARD

### STRIP SEAL EXPANSION JOINT DETAILS

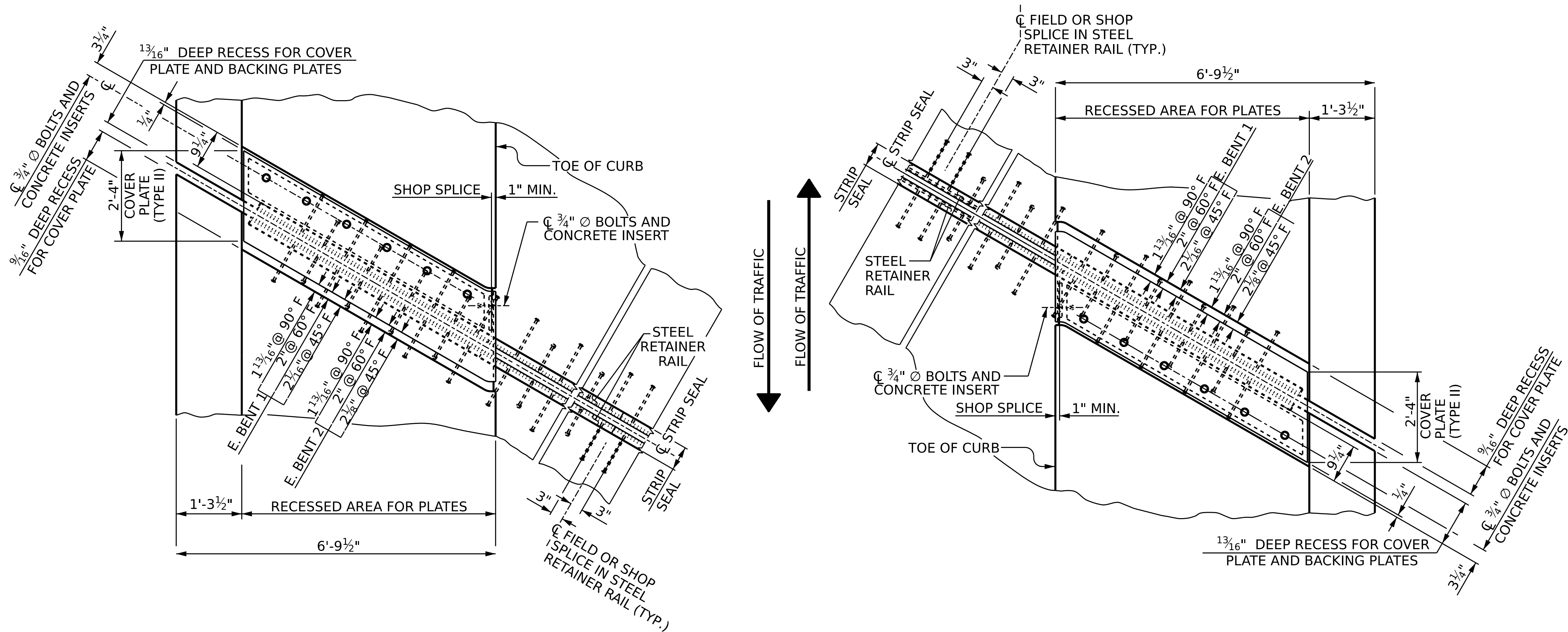
| REVISIONS    |     |       |     |     |       | SHEET NO. |
|--------------|-----|-------|-----|-----|-------|-----------|
| NO.          | BY: | DATE: | NO. | BY: | DATE: |           |
| 1            |     |       | 3   |     |       | S-31      |
| 2            |     |       | 4   |     |       |           |
| TOTAL SHEETS |     |       |     |     |       | 53        |

DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED

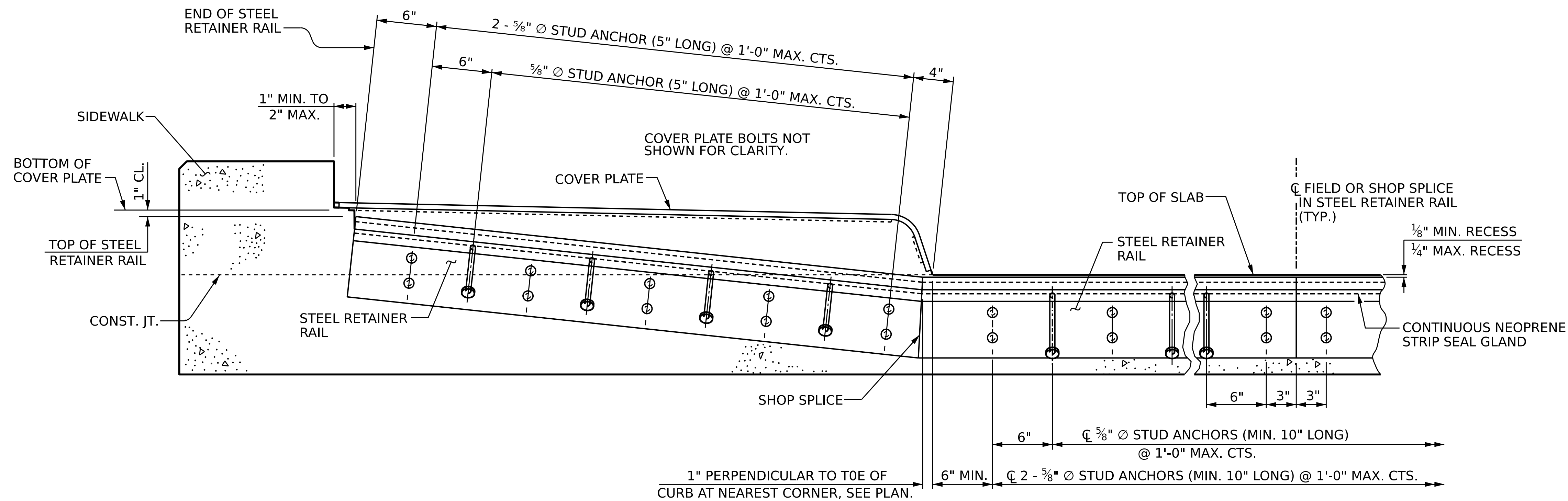
ASSEMBLED BY : E. MOHAMED DATE : 04/2025  
CHECKED BY : A. SORSENGINH DATE : 04/2025  
DRAWN BY : MAA 6/20  
CHECKED BY : BNB 6/20

12/19/2025  
S:\DPO3\BR-0168\Final Plans\401.061.BR0168\_SMU\_SSEJ.S31.330289.dgn  
ksedai

STD. NO. SSEJ1



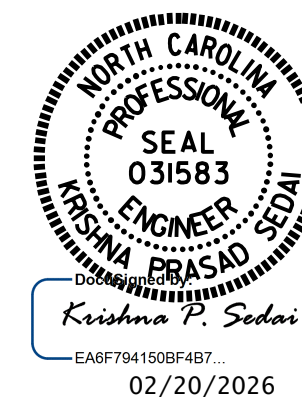
PLAN OF STRIP SEAL EXPANSION JOINT



SECTION THRU SIDEWALK NORMAL TO JOINT

PROJECT NO. **BR-0168**  
**FORSYTH** COUNTY  
 STATION: **20+73.79 -L-**

SHEET 2 OF 3

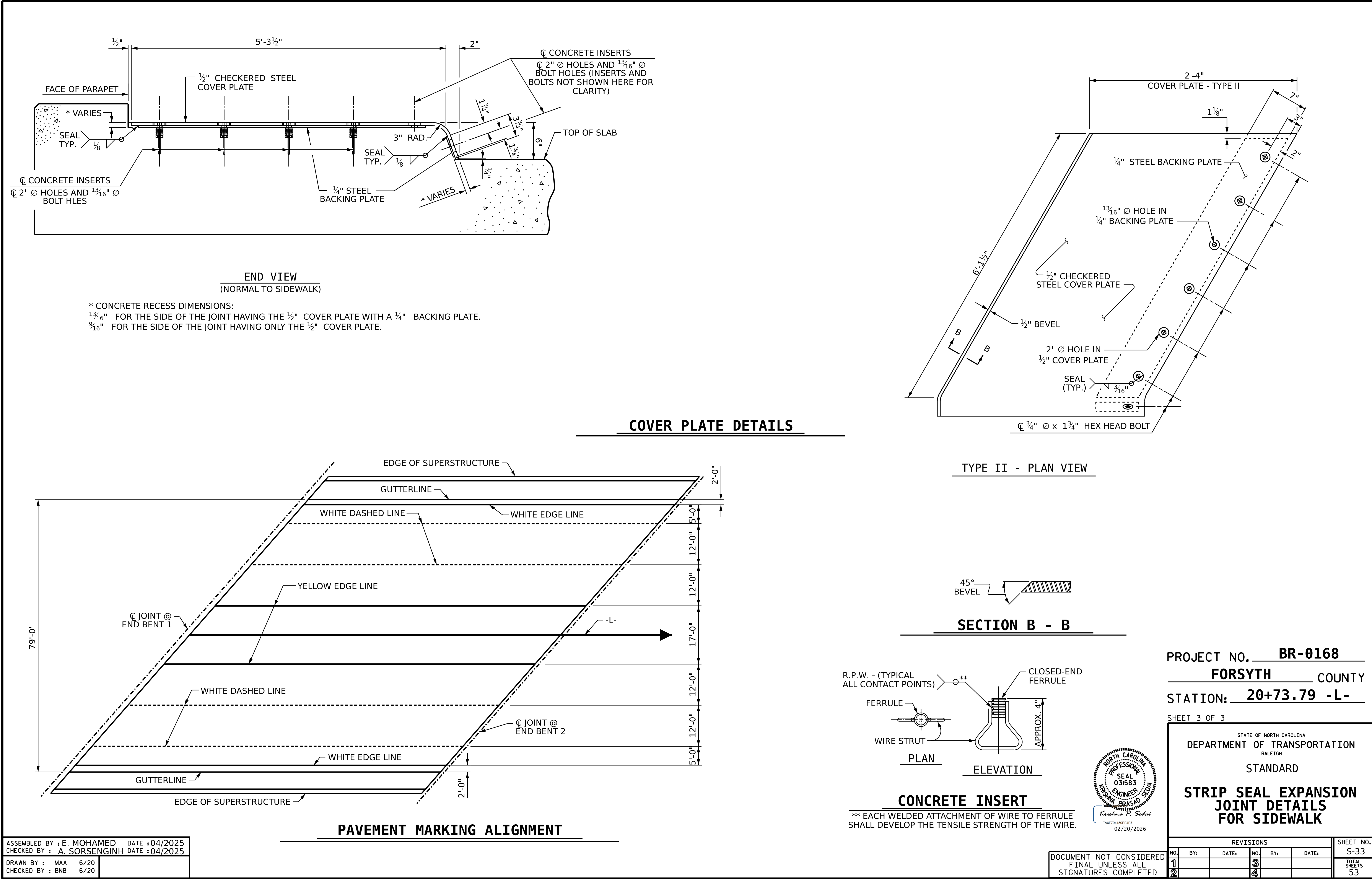


STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 STANDARD  
**STRIP SEAL EXPANSION  
 JOINT DETAILS  
 FOR SIDEWALK**

ASSEMBLED BY : E.MOHAMED DATE : 04/2025  
 CHECKED BY : A.SORSENGINH DATE : 04/2025  
 DRAWN BY : MAA 6/20  
 CHECKED BY : BNB 6/20

DOCUMENT NOT CONSIDERED  
 FINAL UNLESS ALL  
 SIGNATURES COMPLETED

| REVISIONS |     |       |     |     | SHEET NO.       |
|-----------|-----|-------|-----|-----|-----------------|
| NO.       | BY: | DATE: | NO. | BY: |                 |
| 1         |     |       | 3   |     | S-32            |
| 2         |     |       | 4   |     | TOTAL SHEETS 53 |



|                            |      |               |
|----------------------------|------|---------------|
| ASSEMBLED BY : E. MOHAMED  |      | DATE :04/2025 |
| CHECKED BY : A. SORSENGINH |      | DATE :04/2025 |
| DRAWN BY : MAA             | 6/20 |               |
| CHECKED BY : BNB           | 6/20 |               |

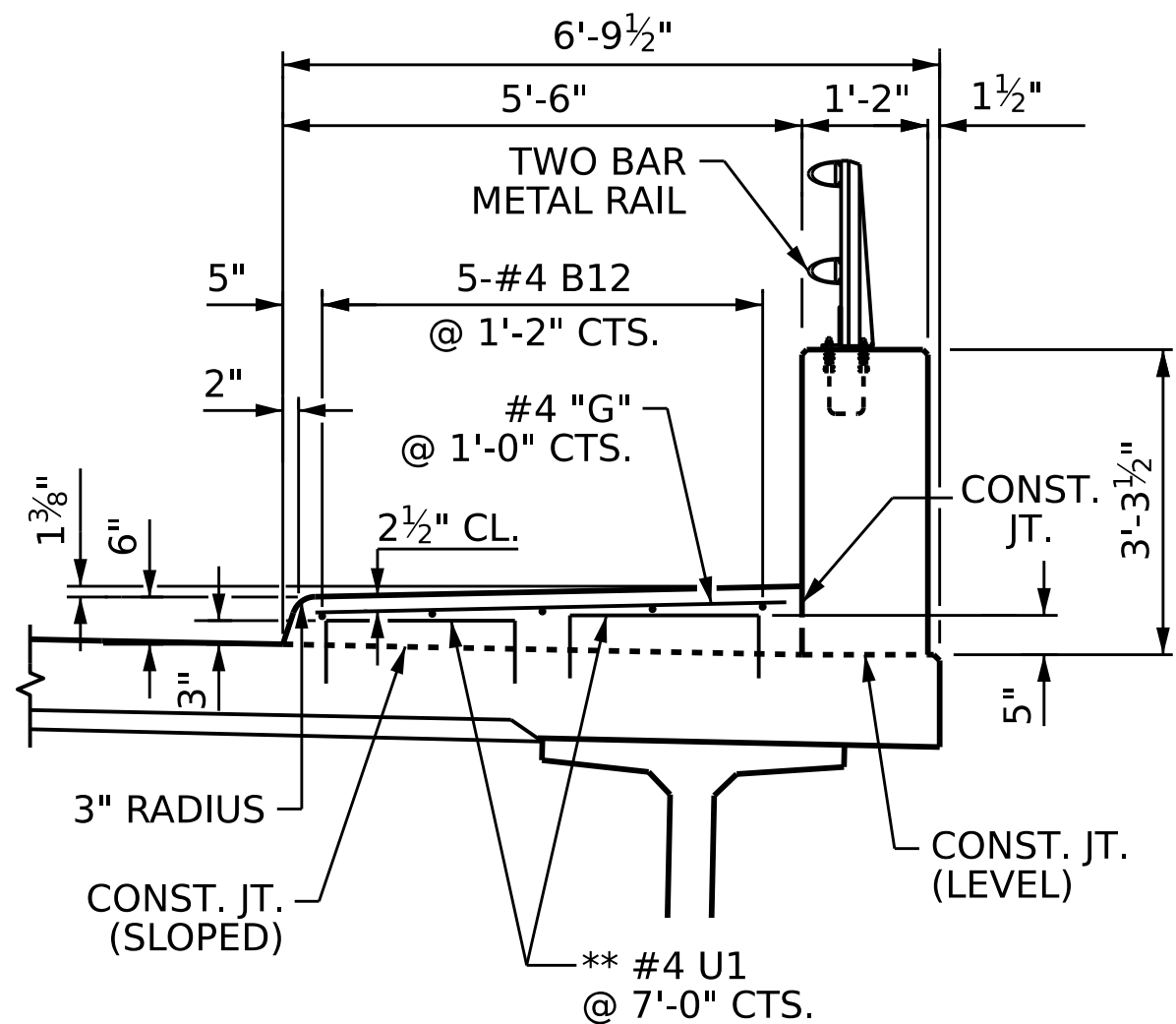
12/19/2025

|                                                                     |  |  |  |  |  |
|---------------------------------------------------------------------|--|--|--|--|--|
| DOCUMENT NOT CONSIDERED<br>FINAL UNLESS ALL<br>SIGNATURES COMPLETED |  |  |  |  |  |
|---------------------------------------------------------------------|--|--|--|--|--|

|                                                                    |     |       |     |     |           |
|--------------------------------------------------------------------|-----|-------|-----|-----|-----------|
| PROJECT NO. <b>BR-0168</b>                                         |     |       |     |     |           |
| <b>FORSYTH</b> COUNTY                                              |     |       |     |     |           |
| STATION: <b>20+73.79 -L-</b>                                       |     |       |     |     |           |
| SHEET 3 OF 3                                                       |     |       |     |     |           |
| STATE OF NORTH CAROLINA<br>DEPARTMENT OF TRANSPORTATION<br>RALEIGH |     |       |     |     |           |
| STANDARD                                                           |     |       |     |     |           |
| <b>STRIP SEAL EXPANSION<br/>JOINT DETAILS<br/>FOR SIDEWALK</b>     |     |       |     |     |           |
| REVISIONS                                                          |     |       |     |     | SHEET NO. |
| NO.                                                                | BY: | DATE: | NO. | BY: | DATE:     |
| 1                                                                  |     |       | 3   |     |           |
| 2                                                                  |     |       | 4   |     |           |
| TOTAL SHEETS                                                       |     |       |     |     | 53        |

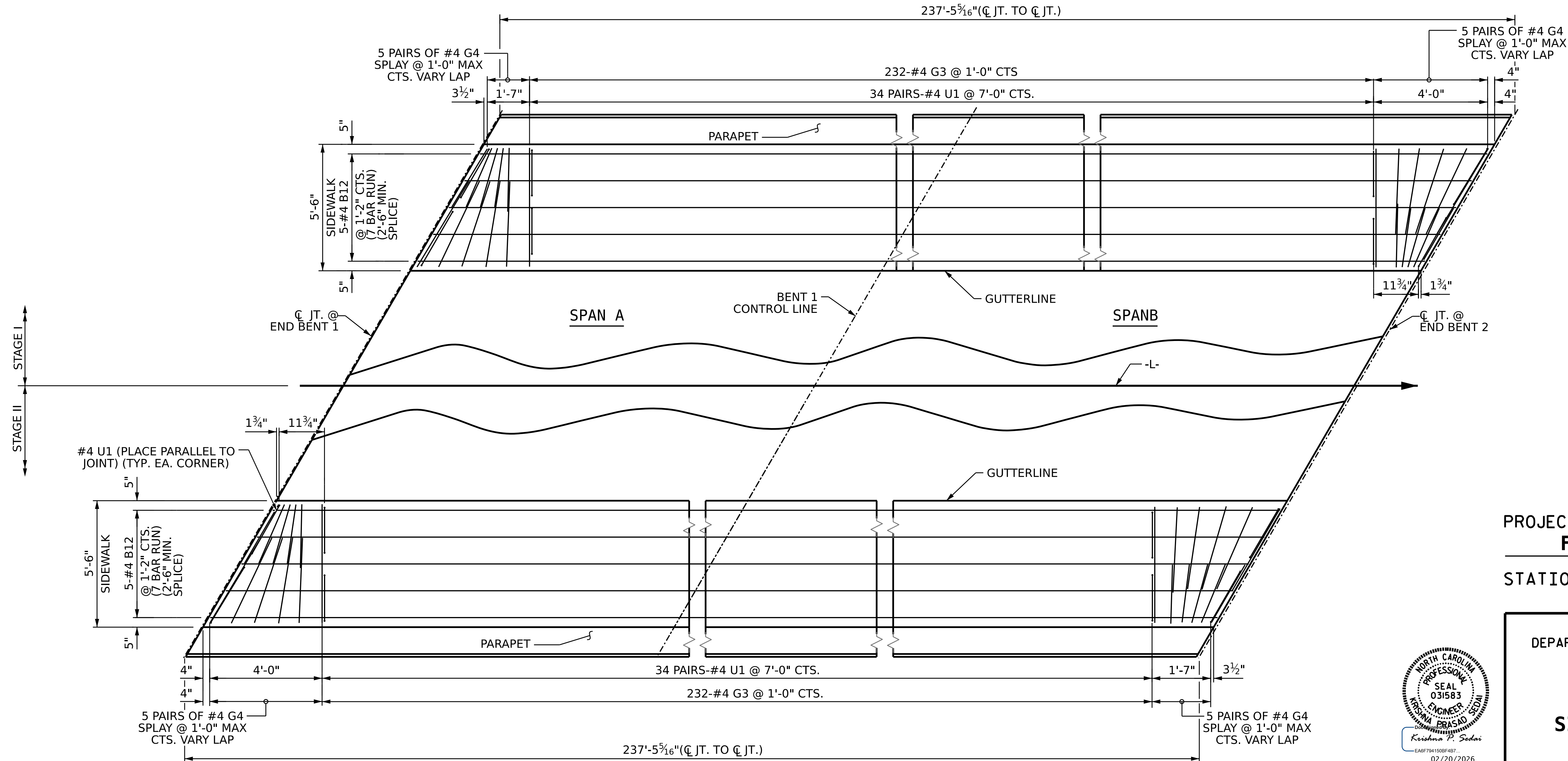
| BAR TYPES                        |     | BILL OF MATERIAL FOR SIDEWALK |      |          |        |  |  |
|----------------------------------|-----|-------------------------------|------|----------|--------|--|--|
| BAR                              | NO. | SIZE                          | TYPE | LENGTH   | WEIGHT |  |  |
| * B12                            | 70  | #4                            | STR  | 36'-0"   | 1683   |  |  |
| * G3                             | 464 | #4                            | STR  | 5'-1"    | 1576   |  |  |
| * G4                             | 40  | #4                            | STR  | 4'-0"    | 107    |  |  |
| * U1                             | 144 | #4                            | 1    | 3'-4"    | 321    |  |  |
| * EPOXY COATED REINFORCING STEEL |     |                               |      | LBS.     | 3687   |  |  |
| CLASS AA CONCRETE                |     |                               |      | CU. YDS. | 59.6   |  |  |

ALL BAR DIMENSIONS ARE OUT TO OUT



SECTION THRU RIGHT SIDEWALK

\*\* #4 U1 MAY BE PUSHED INTO GREEN CONCRETE AFTER SPAN HAS BEEN SCREED OFF (RIGHT SIDEWALK SHOWN, LEFT SIDEWALK SIMILAR)



NOTES

SIDEWALK IN THE SPAN SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE IN THE SPAN HAS BEEN CAST AND REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI,

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

ALL REINFORCING STEEL IN SIDEWALK SHALL BE EPOXY COATED.

SEE "EXPANSION JOINT SEAL DETAILS FOR SIDEWALK" SHEETS FOR COVER PLATE DETAILS.

FOR SIDEWALK ON APPROACH SLAB, SEE APPROACH SLAB SHEETS.

PROJECT NO. **BR-0168**  
**FORSYTH** COUNTY  
STATION: **20+73.79 -L-**

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

SUPERSTRUCTURE  
SIDEWALK DETAILS

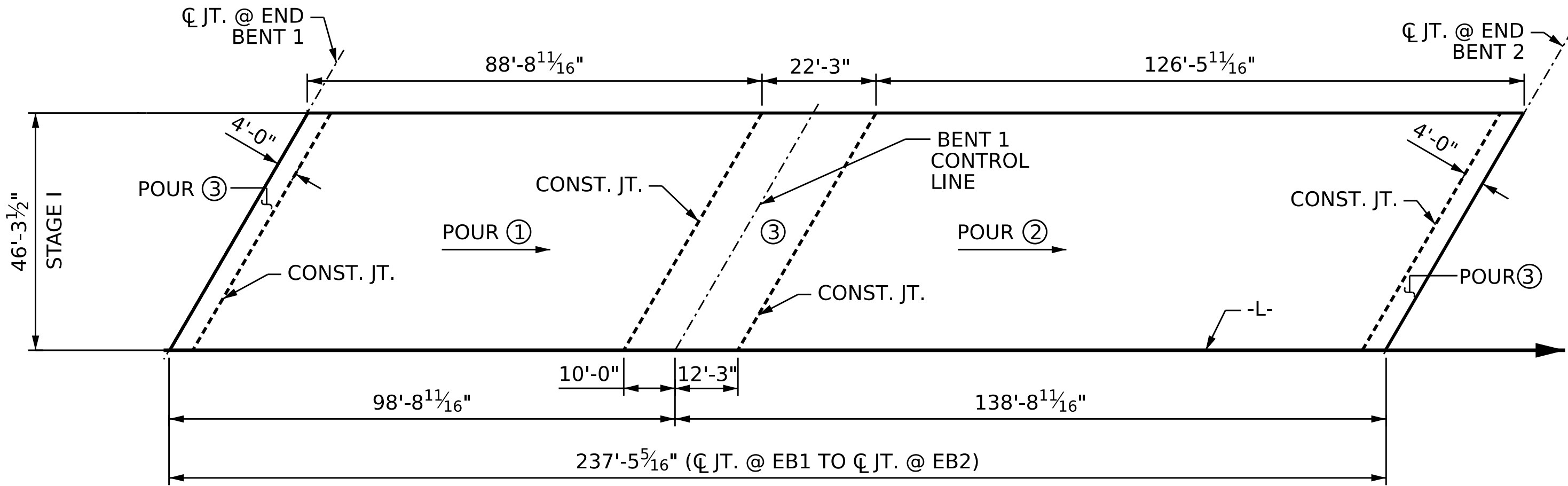


DRAWN BY : **E. MOHAMED** DATE : **09/2025**  
CHECKED BY : **A.SORSENGINH** DATE : **09/2025**  
DESIGN ENGINEER OF RECORD: **A. IGHWAIR** DATE : **09/2025**

PLAN OF SIDEWALK

DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED

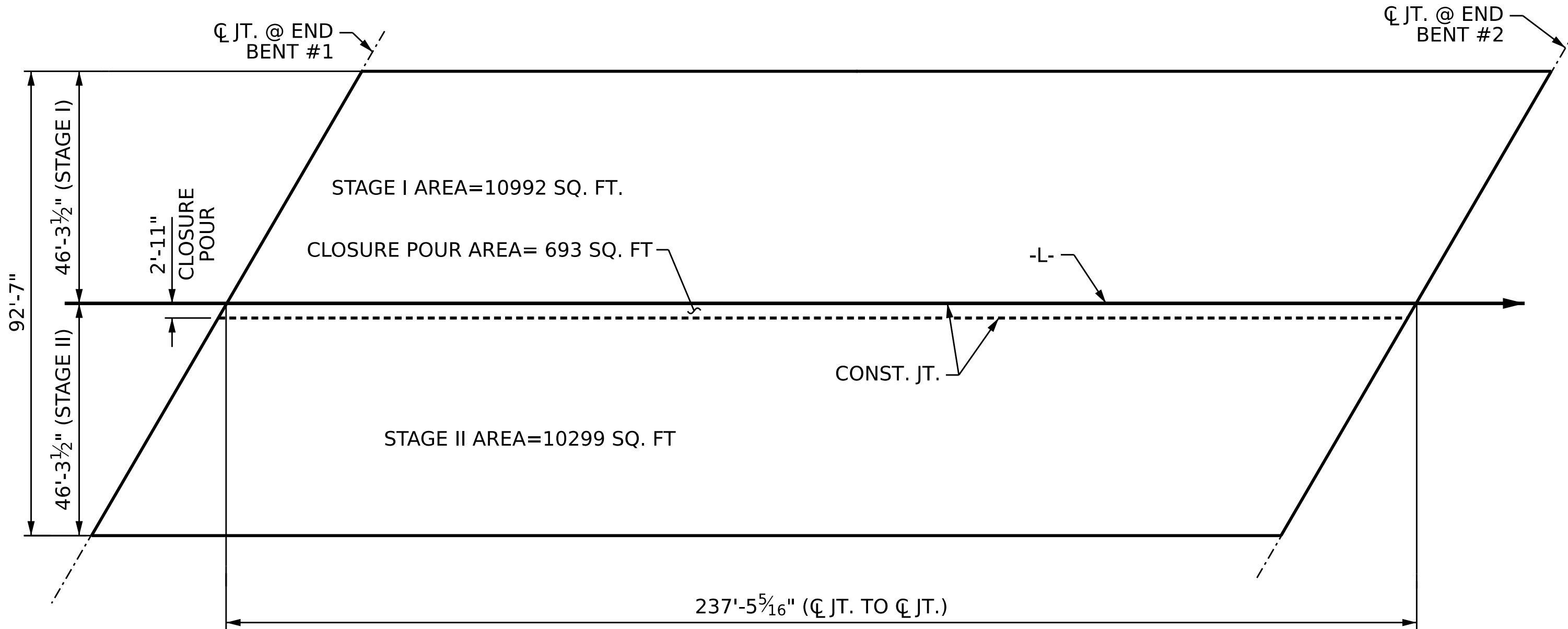
| REVISIONS |     |       |     |     | SHEET NO.       |
|-----------|-----|-------|-----|-----|-----------------|
| NO.       | BY: | DATE: | NO. | BY: |                 |
| 1         |     |       | 3   |     | S-34            |
| 2         |     |       | 4   |     | TOTAL SHEETS 53 |



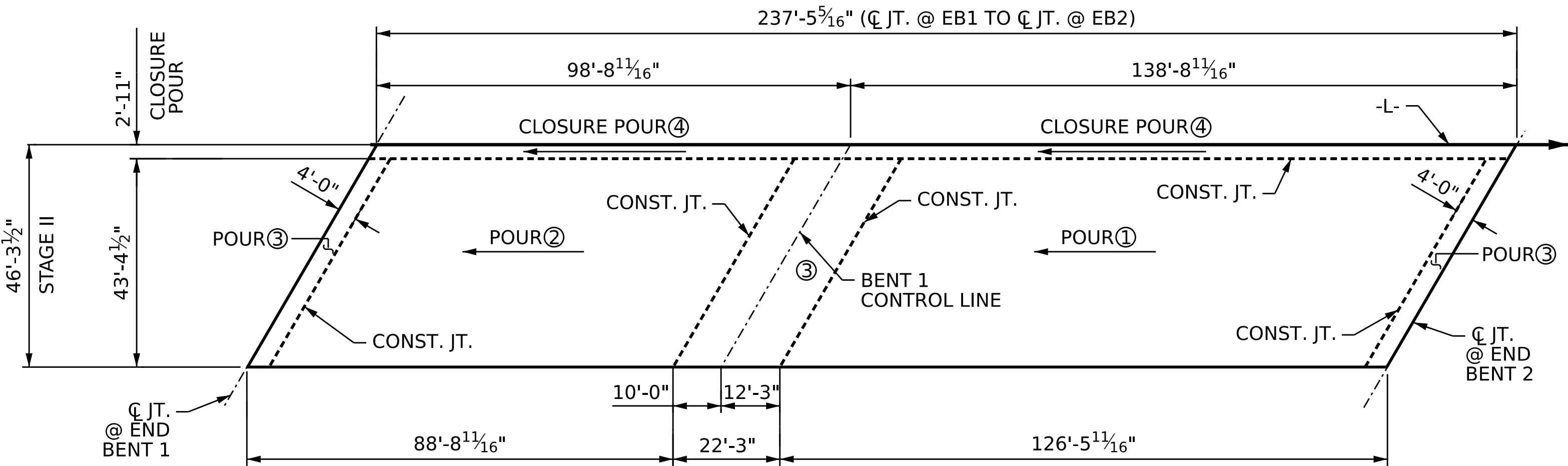
### POURING SEQUENCE STAGE I

POUR 3 CAN NOT BE STARTED UNTIL BOTH ADJACENT POURS #1 & #2 REACH A MINIMUM OF 3,000 PSI.

-#- INDICATES POUR NUMBER AND DIRECTION OF POUR



### LAYOUT FOR COMPUTING AREA OF REINFORCED CONCRETE DECK SLAB (SQ. FT. = 21,984)



### POURING SEQUENCE STAGE II

POUR 3 CAN NOT BE STARTED UNTIL BOTH ADJACENT POURS #1 & #2 REACH A MINIMUM OF 3,000 PSI.

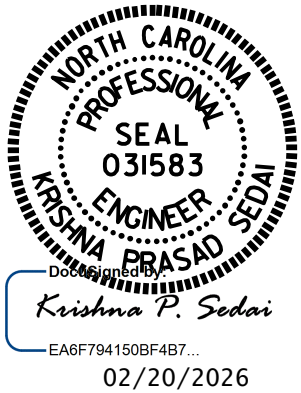
-#- INDICATES POUR NUMBER AND DIRECTION OF POUR

| CLASS AA CONCRETE BREAKDOWN (CU. YDS.) |        |        |        |        |       |
|----------------------------------------|--------|--------|--------|--------|-------|
| STAGE I                                | POUR 1 | POUR 2 | POUR 3 | POUR 4 | TOTAL |
|                                        | 119.0  | 172.4  | 48.7   |        | 340.1 |
| STAGE II                               | POUR 1 | POUR 2 | POUR 3 | POUR 4 |       |
| TOTALS **                              | 162.0  | 112.0  | 46.4   | 20.0   | 340.4 |
|                                        |        |        |        |        | 680.5 |

\*\* QUANTITIES FOR BARRIER RAIL ARE NOT INCLUDED

PROJECT NO. **BR-0168**  
**FORSYTH** COUNTY  
STATION: **20+73.79 -L-**

SHEET 1 OF 2



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
SUPERSTRUCTURE  
**CONCRETE DECK  
POURING DETAILS**

DRAWN BY : **E. MOHAMED** DATE : **04/2025**  
CHECKED BY : **A. SORSENGINH** DATE : **04/2025**  
DESIGN ENGINEER OF RECORD: **A. IGHWAIR** DATE : **04/2025**

2/20/2026  
S:\DPG3\BR-0168\Final Plans\401.069.BR0168.SMU.BOM.S35.330289.dgn  
ksedai

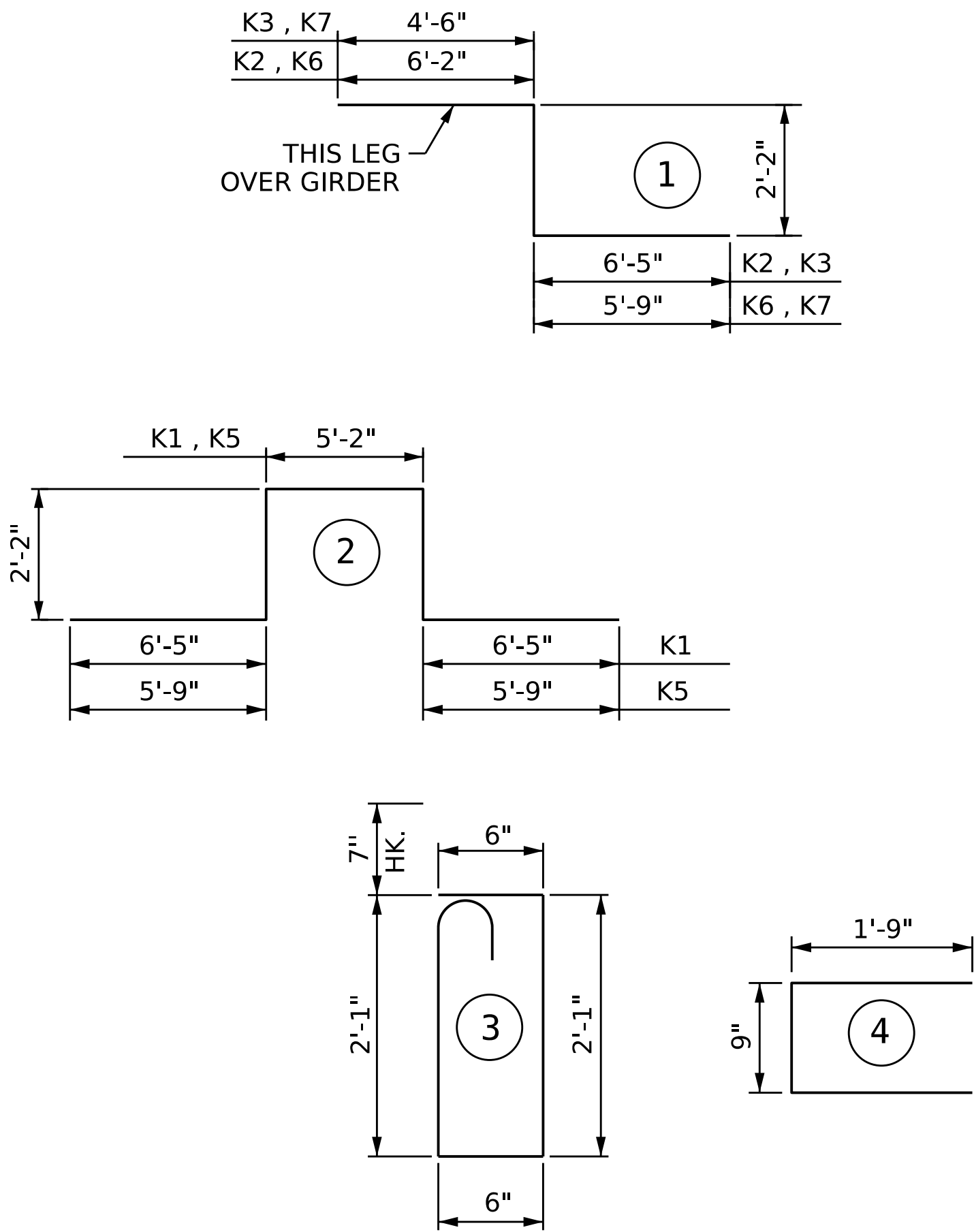
DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED

| REVISIONS |     |       |     |     | SHEET NO.          |
|-----------|-----|-------|-----|-----|--------------------|
| NO.       | BY: | DATE: | NO. | BY: | DATE:              |
| 1         |     |       | 3   |     |                    |
| 2         |     |       | 4   |     |                    |
|           |     |       |     |     | S-35               |
|           |     |       |     |     | TOTAL SHEETS<br>53 |

REINFORCING BAR SCHEDULE

| STAGE I                         |     |      |      |         |             | STAGE II                        |     |      |      |         |             | CLOSURE POUR                    |     |      |      |        |        |            |
|---------------------------------|-----|------|------|---------|-------------|---------------------------------|-----|------|------|---------|-------------|---------------------------------|-----|------|------|--------|--------|------------|
| BAR                             | No. | SIZE | TYPE | LENGTH  | WEIGHT      | BAR                             | No. | SIZE | TYPE | LENGTH  | WEIGHT      | BAR                             | No. | SIZE | TYPE | LENGTH | WEIGHT |            |
| *A1                             | 337 | # 5  | STR  | 45'-11" | 16139       | *A3                             | 339 | # 5  | STR  | 43'-0"  | 15204       | *B1                             | 8   | # 4  | STR  | 33'-9" | 180    |            |
| A2                              | 337 | # 5  | STR  | 45'-11" | 16139       | A4                              | 339 | # 5  | STR  | 43'-0"  | 15204       | *B2                             | 12  | # 4  | STR  | 32'-5" | 260    |            |
| *A5                             | 6   | # 5  | STR  | 12'-0"  | 75          | *A5                             | 6   | # 5  | STR  | 12'-0"  | 75          | *B3                             | 4   | # 5  | STR  | 50'-0" | 209    |            |
|                                 |     |      |      |         |             |                                 |     |      |      |         |             | *B4                             | 4   | # 5  | STR  | 34'-2" | 143    |            |
| *A101                           | 4   | # 5  | STR  | 43'-9"  | 183         | *A301                           | 4   | # 5  | STR  | 40'-10" | 170         | *B5                             | 3   | # 5  | STR  | 46'-0" | 144    |            |
| *A102                           | 4   | # 5  | STR  | 41'-8"  | 174         | *A302                           | 4   | # 5  | STR  | 38'-9"  | 162         | B6                              | 8   | # 5  | STR  | 38'-9" | 323    |            |
| *A103                           | 4   | # 5  | STR  | 39'-6"  | 165         | *A303                           | 4   | # 5  | STR  | 36'-7"  | 153         | B7                              | 7   | # 5  | STR  | 58'-0" | 423    |            |
| *A104                           | 4   | # 5  | STR  | 37'-4"  | 156         | *A304                           | 4   | # 5  | STR  | 34'-5"  | 144         | B8                              | 8   | # 5  | STR  | 54'-9" | 457    |            |
| *A105                           | 4   | # 5  | STR  | 35'-2"  | 147         | *A305                           | 4   | # 5  | STR  | 32'-3"  | 135         |                                 |     |      |      |        |        |            |
| *A106                           | 4   | # 5  | STR  | 33'-0"  | 138         | *A306                           | 4   | # 5  | STR  | 30'-1"  | 126         | *K9                             | 3   | # 6  | STR  | 2'-2"  | 10     |            |
| *A107                           | 4   | # 5  | STR  | 30'-11" | 129         | *A307                           | 4   | # 5  | STR  | 28'-0"  | 117         | *K10                            | 2   | # 8  | STR  | 6'-2"  | 33     |            |
| *A108                           | 4   | # 5  | STR  | 28'-9"  | 120         | *A308                           | 4   | # 5  | STR  | 25'-10" | 108         |                                 |     |      |      |        |        |            |
| *A109                           | 4   | # 5  | STR  | 26'-7"  | 111         | *A309                           | 4   | # 5  | STR  | 23'-8"  | 99          | *S1                             | 3   | # 5  | 3    | 5'-9"  | 18     |            |
| *A110                           | 4   | # 5  | STR  | 24'-5"  | 102         | *A310                           | 4   | # 5  | STR  | 21'-6"  | 90          | *S2                             | 3   | # 4  | 4    | 4'-3"  | 9      |            |
| *A111                           | 4   | # 5  | STR  | 22'-4"  | 93          | *A311                           | 4   | # 5  | STR  | 19'-5"  | 81          | REINFORCING STEEL               |     |      |      |        |        | 1,203 LBS. |
| *A112                           | 4   | # 5  | STR  | 20'-2"  | 84          | *A312                           | 4   | # 5  | STR  | 17'-3"  | 72          | *EPOXY COATED REINFORCING STEEL |     |      |      |        |        | 1,006 LBS. |
| *A113                           | 4   | # 5  | STR  | 18'-0"  | 75          | *A313                           | 4   | # 5  | STR  | 15'-1"  | 63          |                                 |     |      |      |        |        |            |
| *A114                           | 4   | # 5  | STR  | 15'-10" | 66          | *A314                           | 4   | # 5  | STR  | 12'-11" | 54          |                                 |     |      |      |        |        |            |
| *A115                           | 4   | # 5  | STR  | 13'-9"  | 57          | *A315                           | 4   | # 5  | STR  | 10'-10" | 45          |                                 |     |      |      |        |        |            |
| *A116                           | 4   | # 5  | STR  | 11'-7"  | 48          | *A316                           | 4   | # 5  | STR  | 8'-8"   | 36          |                                 |     |      |      |        |        |            |
| *A117                           | 4   | # 5  | STR  | 9'-5"   | 39          | *A317                           | 4   | # 5  | STR  | 6'-6"   | 27          |                                 |     |      |      |        |        |            |
| *A118                           | 4   | # 5  | STR  | 7'-3"   | 30          | *A318                           | 4   | # 5  | STR  | 4'-4"   | 18          |                                 |     |      |      |        |        |            |
| *A119                           | 4   | # 5  | STR  | 5'-2"   | 22          | *A319                           | 4   | # 5  | STR  | 2'-3"   | 9           |                                 |     |      |      |        |        |            |
| *A120                           | 4   | # 5  | STR  | 3'-0"   | 13          |                                 |     |      |      |         |             |                                 |     |      |      |        |        |            |
|                                 |     |      |      |         |             |                                 |     |      |      |         |             |                                 |     |      |      |        |        |            |
| A201                            | 4   | # 5  | STR  | 43'-9"  | 183         | A401                            | 4   | # 5  | STR  | 40'-10" | 170         |                                 |     |      |      |        |        |            |
| A202                            | 4   | # 5  | STR  | 41'-8"  | 174         | A402                            | 4   | # 5  | STR  | 38'-9"  | 162         |                                 |     |      |      |        |        |            |
| A203                            | 4   | # 5  | STR  | 39'-6"  | 165         | A403                            | 4   | # 5  | STR  | 36'-7"  | 153         |                                 |     |      |      |        |        |            |
| A204                            | 4   | # 5  | STR  | 37'-4"  | 156         | A404                            | 4   | # 5  | STR  | 34'-5"  | 144         |                                 |     |      |      |        |        |            |
| A205                            | 4   | # 5  | STR  | 35'-2"  | 147         | A405                            | 4   | # 5  | STR  | 32'-3"  | 135         |                                 |     |      |      |        |        |            |
| A206                            | 4   | # 5  | STR  | 33'-0"  | 138         | A406                            | 4   | # 5  | STR  | 30'-1"  | 126         |                                 |     |      |      |        |        |            |
| A207                            | 4   | # 5  | STR  | 30'-11" | 129         | A407                            | 4   | # 5  | STR  | 28'-0"  | 117         |                                 |     |      |      |        |        |            |
| A208                            | 4   | # 5  | STR  | 28'-9"  | 120         | A408                            | 4   | # 5  | STR  | 25'-10" | 108         |                                 |     |      |      |        |        |            |
| A209                            | 4   | # 5  | STR  | 26'-7"  | 111         | A409                            | 4   | # 5  | STR  | 23'-8"  | 99          |                                 |     |      |      |        |        |            |
| A210                            | 4   | # 5  | STR  | 24'-5"  | 102         | A410                            | 4   | # 5  | STR  | 21'-6"  | 90          |                                 |     |      |      |        |        |            |
| A211                            | 4   | # 5  | STR  | 22'-4"  | 93          | A411                            | 4   | # 5  | STR  | 19'-5"  | 81          |                                 |     |      |      |        |        |            |
| A212                            | 4   | # 5  | STR  | 20'-2"  | 84          | A412                            | 4   | # 5  | STR  | 17'-3"  | 72          |                                 |     |      |      |        |        |            |
| A213                            | 4   | # 5  | STR  | 18'-0"  | 75          | A413                            | 4   | # 5  | STR  | 15'-1"  | 63          |                                 |     |      |      |        |        |            |
| A214                            | 4   | # 5  | STR  | 15'-10" | 66          | A414                            | 4   | # 5  | STR  | 12'-11" | 54          |                                 |     |      |      |        |        |            |
| A215                            | 4   | # 5  | STR  | 13'-9"  | 57          | A415                            | 4   | # 5  | STR  | 10'-10" | 45          |                                 |     |      |      |        |        |            |
| A216                            | 4   | # 5  | STR  | 11'-7"  | 48          | A416                            | 4   | # 5  | STR  | 8'-8"   | 36          |                                 |     |      |      |        |        |            |
| A217                            | 4   | # 5  | STR  | 9'-5"   | 39          | A417                            | 4   | # 5  | STR  | 6'-6"   | 27          |                                 |     |      |      |        |        |            |
| A218                            | 4   | # 5  | STR  | 7'-3"   | 30          | A418                            | 4   | # 5  | STR  | 4'-4"   | 18          |                                 |     |      |      |        |        |            |
| A219                            | 4   | # 5  | STR  | 5'-2"   | 22          | A419                            | 4   | # 5  | STR  | 2'-3"   | 9           |                                 |     |      |      |        |        |            |
| A220                            | 4   | # 5  | STR  | 3'-0"   | 13          |                                 |     |      |      |         |             |                                 |     |      |      |        |        |            |
|                                 |     |      |      |         |             |                                 |     |      |      |         |             |                                 |     |      |      |        |        |            |
| *B1                             | 64  | # 4  | STR  | 33'-9"  | 1443        | *B1                             | 62  | # 4  | STR  | 33'-9"  | 1398        |                                 |     |      |      |        |        |            |
| *B2                             | 96  | # 4  | STR  | 32'-5"  | 2079        | *B2                             | 93  | # 4  | STR  | 32'-5"  | 2014        |                                 |     |      |      |        |        |            |
| *B3                             | 62  | # 5  | STR  | 50'-0"  | 3233        | *B3                             | 59  | # 5  | STR  | 50'-0"  | 3077        |                                 |     |      |      |        |        |            |
| *B4                             | 62  | # 5  | STR  | 34'-2"  | 2209        | *B4                             | 59  | # 5  | STR  | 34'-2"  | 2103        |                                 |     |      |      |        |        |            |
| *B5                             | 61  | # 5  | STR  | 46'-0"  | 2927        | *B5                             | 56  | # 5  | STR  | 46'-0"  | 2687        |                                 |     |      |      |        |        |            |
| B6                              | 68  | # 5  | STR  | 38'-9"  | 2748        | B6                              | 58  | # 5  | STR  | 38'-9"  | 2344        |                                 |     |      |      |        |        |            |
| B7                              | 59  | # 5  | STR  | 58'-0"  | 3569        | B7                              | 49  | # 5  | STR  | 58'-0"  | 2964        |                                 |     |      |      |        |        |            |
| B8                              | 68  | # 5  | STR  | 54'-9"  | 3883        | B8                              | 58  | # 5  | STR  | 54'-9"  | 3312        |                                 |     |      |      |        |        |            |
|                                 |     |      |      |         |             |                                 |     |      |      |         |             |                                 |     |      |      |        |        |            |
| *D1                             | 754 | # 5  | STR  | 5'-4"   | 4194        | *D1                             | 754 | # 5  | STR  | 5'-4"   | 4194        |                                 |     |      |      |        |        |            |
|                                 |     |      |      |         |             |                                 |     |      |      |         |             |                                 |     |      |      |        |        |            |
| *G1                             | 2   | # 5  | STR  | 56'-6"  | 118         | *G2                             | 2   | # 5  | STR  | 53'-2"  | 111         |                                 |     |      |      |        |        |            |
|                                 |     |      |      |         |             |                                 |     |      |      |         |             |                                 |     |      |      |        |        |            |
| *K1                             | 16  | # 8  | 2    | 22'-4"  | 954         | *K5                             | 16  | # 8  | 2    | 21'-0"  | 897         |                                 |     |      |      |        |        |            |
| *K2                             | 4   | # 8  | 1    | 14'-9"  | 158         | *K6                             | 4   | # 8  | 1    | 14'-1"  | 150         |                                 |     |      |      |        |        |            |
| *K3                             | 4   | # 8  | 1    | 13'-1"  | 140         | *K7                             | 4   | # 8  | 1    | 12'-5"  | 133         |                                 |     |      |      |        |        |            |
| *K4                             | 30  | # 6  | STR  | 4'-6"   | 203         | *K8                             | 30  | # 6  | STR  | 3'-10"  | 173         |                                 |     |      |      |        |        |            |
|                                 |     |      |      |         |             |                                 |     |      |      |         |             |                                 |     |      |      |        |        |            |
| *S1                             | 50  | # 5  | 3    | 5'-9"   | 300         | *S1                             | 40  | # 5  | 3    | 5'-9"   | 240         |                                 |     |      |      |        |        |            |
| *S2                             | 50  | # 4  | 4    | 4'-3"   | 142         | *S2                             | 40  | # 4  | 4    | 4'-3"   | 114         |                                 |     |      |      |        |        |            |
|                                 |     |      |      |         |             |                                 |     |      |      |         |             |                                 |     |      |      |        |        |            |
| REINFORCING STEEL               |     |      |      |         | 28,291 LBS. | REINFORCING STEEL               |     |      |      |         | 25,533 LBS. |                                 |     |      |      |        |        |            |
| *EPOXY COATED REINFORCING STEEL |     |      |      |         | 36,266 LBS. | *EPOXY COATED REINFORCING STEEL |     |      |      |         | 34,279 LBS. |                                 |     |      |      |        |        |            |

BAR TYPES

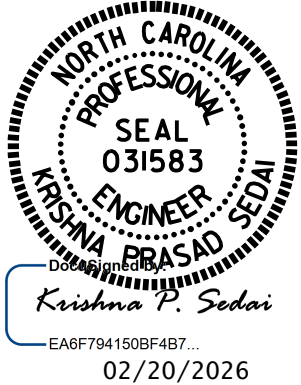


ALL BAR DIMENSIONS ARE OUT TO OUT

| GROOVING BRIDGE FLOORS |                                                                 |          | SUPERSTRUCTURE REINFORCING STEEL LENGTHS ARE BASED ON THE FOLLOWING MINIMUM SPLICE LENGTHS |          |                          |  |
|------------------------|-----------------------------------------------------------------|----------|--------------------------------------------------------------------------------------------|----------|--------------------------|--|
|                        | STAGE I                                                         | STAGE II |                                                                                            |          |                          |  |
|                        | SQ.FT.                                                          | SQ.FT.   |                                                                                            |          |                          |  |
| APPROACH SLAB          | 1,799                                                           | 1,799    |                                                                                            |          |                          |  |
| DECK SLAB              | 8,950                                                           | 8,950    |                                                                                            |          |                          |  |
|                        |                                                                 |          |                                                                                            |          |                          |  |
| SUBTOTAL               | 10,749                                                          | 10,749   |                                                                                            |          |                          |  |
| TOTAL                  | 21,498                                                          |          |                                                                                            |          |                          |  |
| BAR SIZE               | SUPERSTRUCTURE EXCEPT APPROACH SLABS, PARAPET, AND BARRIER RAIL |          | APPROACH SLABS                                                                             |          | PARAPET AND BARRIER RAIL |  |
|                        | EPOXY COATED                                                    | UNCOATED | EPOXY COATED                                                                               | UNCOATED |                          |  |
| #4                     | 1' - 11"                                                        | 1' - 7"  | 1' - 11"                                                                                   | 1' - 7"  | 2' - 6"                  |  |
| #5                     | 2' - 5"                                                         | 2' - 0"  | 2' - 5"                                                                                    | 2' - 0"  | 3' - 1"                  |  |
| #6                     | 2' - 10"                                                        | 2' - 5"  | 3' - 7"                                                                                    | 2' - 5"  | 3' - 8"                  |  |
| #7                     | 4' - 2"                                                         | 2' - 9"  |                                                                                            |          |                          |  |
| #8                     | 4' - 9"                                                         | 3' - 2"  |                                                                                            |          |                          |  |

PROJECT NO. **BR-0168**  
**FORSYTH** COUNTY  
STATION: **20+73.79 -L-**

SHEET 2 OF 2



| STATE OF NORTH CAROLINA<br>DEPARTMENT OF TRANSPORTATION<br>RALEIGH |     |       |     |     |                    |
|--------------------------------------------------------------------|-----|-------|-----|-----|--------------------|
| SUPERSTRUCTURE<br>BILL OF MATERIAL                                 |     |       |     |     |                    |
| REVISIONS                                                          |     |       |     |     | SHEET NO.          |
| NO.                                                                | BY: | DATE: | NO. | BY: | DATE:              |
| 1                                                                  |     |       | 3   |     |                    |
| 2                                                                  |     |       | 4   |     |                    |
| DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED      |     |       |     |     | TOTAL SHEETS<br>53 |

DRAWN BY : E. MOHAMED DATE : 04/2025  
CHECKED BY : A. SORSENGNH DATE : 04/2025  
DESIGN ENGINEER OF RECORD: A. IGHWAIR DATE : 04/2025



**NOTES :**

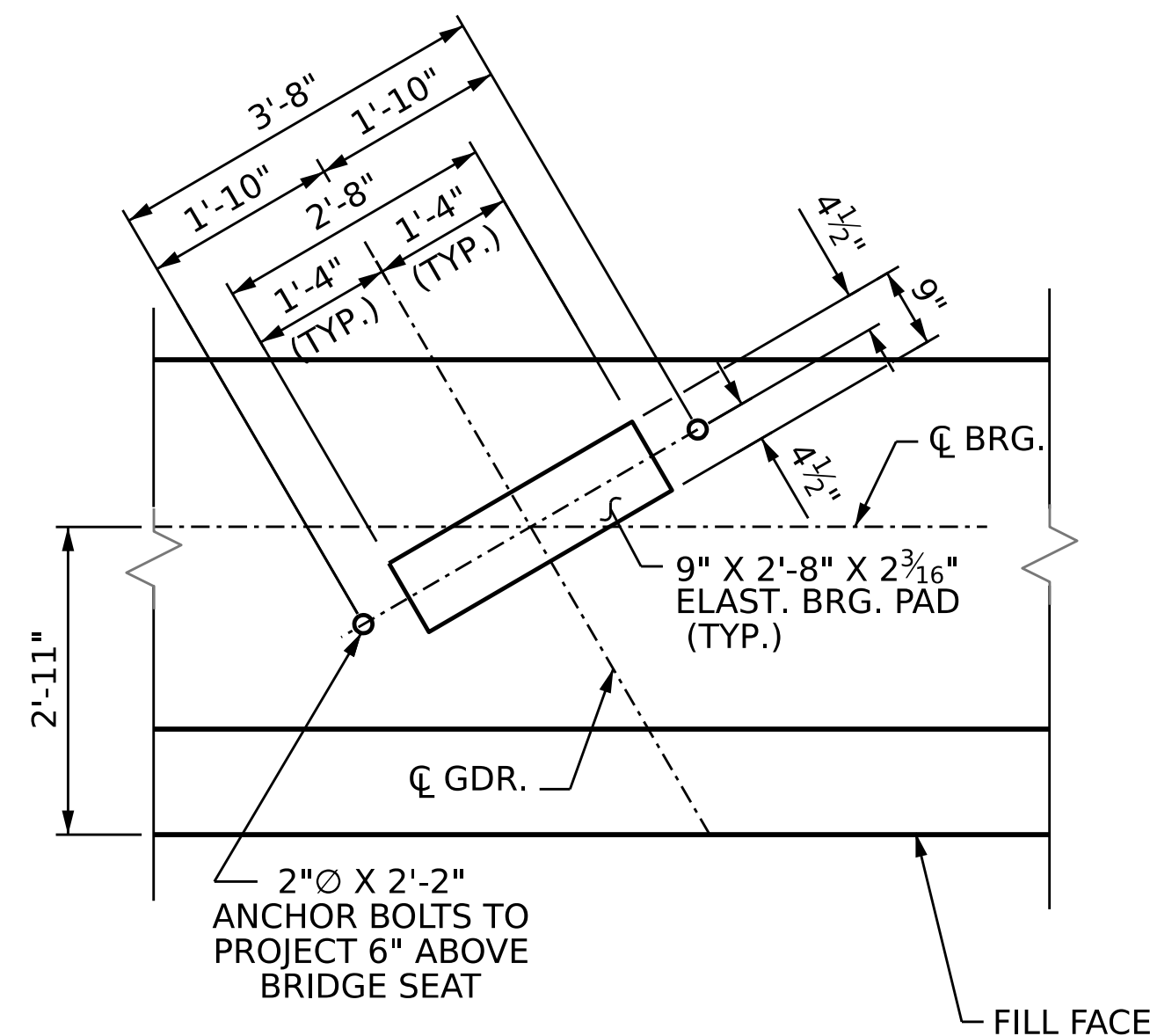
STIRRUPS AND "U" BARS IN CAP MAY BE SHIFTED AS NECESSARY  
TO CLEAR ANCHORS.

#5 "V" BARS IN BACKWALL SHALL BE PLACED 2" CLEAR FROM TOP OF BACKWALL.

BACKWALL SHALL BE PLACED BEFORE APPLYING THE EPOXY PROTECTIVE COATING.

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

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



## DETAIL A

(TYP. EA. GIRDER)

PROJECT NO. **BR-0168**  
**FORSYTH** COUNTY  
 STATION: **20+73.79 -L-**

SHEET 1 OF 5

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

## SUBSTRUCTURE

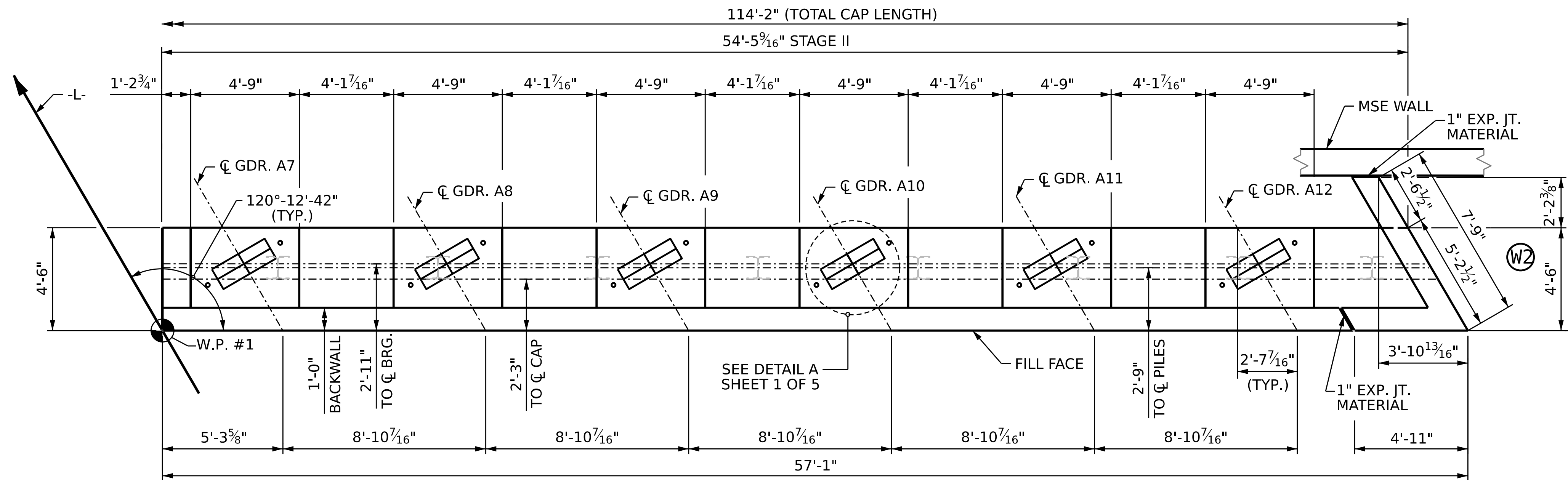
**END BENT #1**  
**STAGE I**

| REVISIONS |     |       |     |     |       | SHEET NO.<br>S-37     |
|-----------|-----|-------|-----|-----|-------|-----------------------|
| NO.       | BY: | DATE: | NO. | BY: | DATE: |                       |
| 1         |     |       | 3   |     |       | TOTAL<br>SHEETS<br>53 |
| 2         |     |       | 4   |     |       |                       |

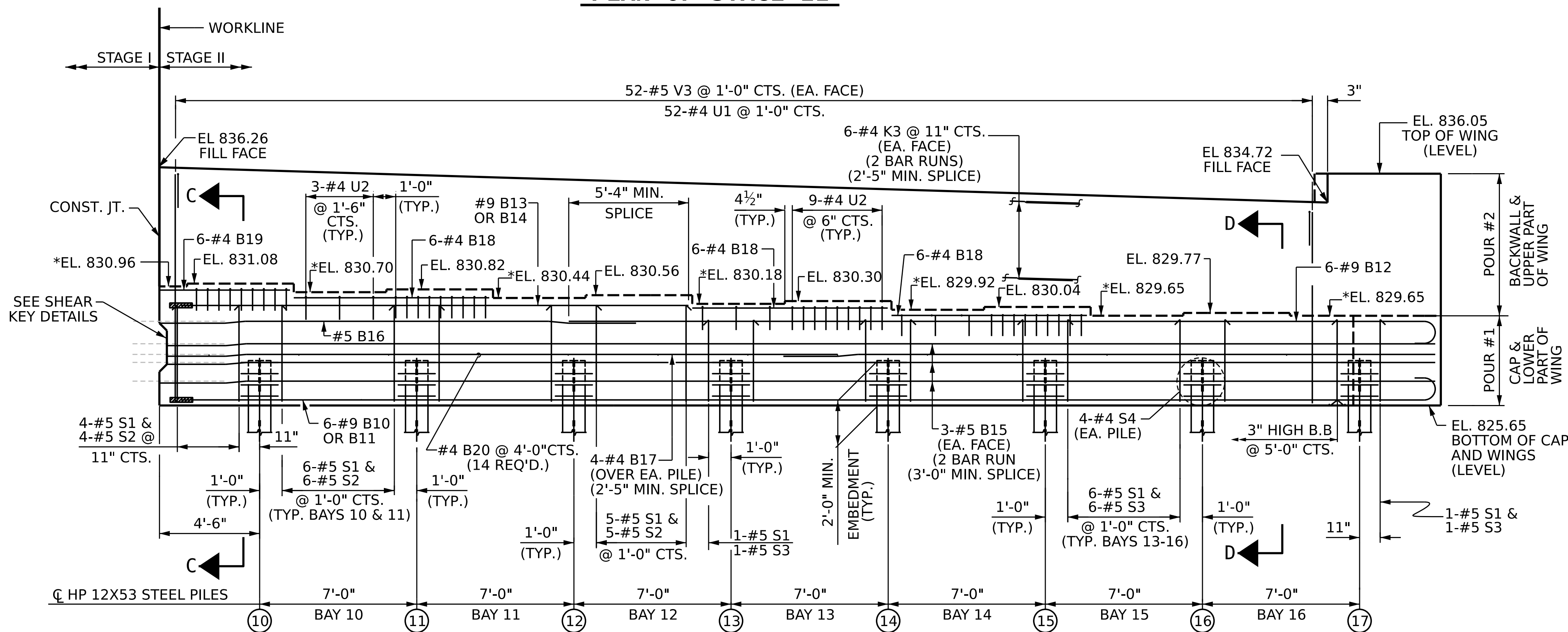
DRAWN BY : E. MOHAMED DATE : 10/2025  
 CHECKED BY : A.SORSENGINH DATE : 10/2025  
 DESIGN ENGINEER OF RECORD: A. IGHWAIR DATE : 10/2025

DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED





PLAN OF STAGE II



ELEVATION OF STAGE II

FOR SECTIONS C-C & D-D,  
SEE SHEET 5 OF 5

NOTES:

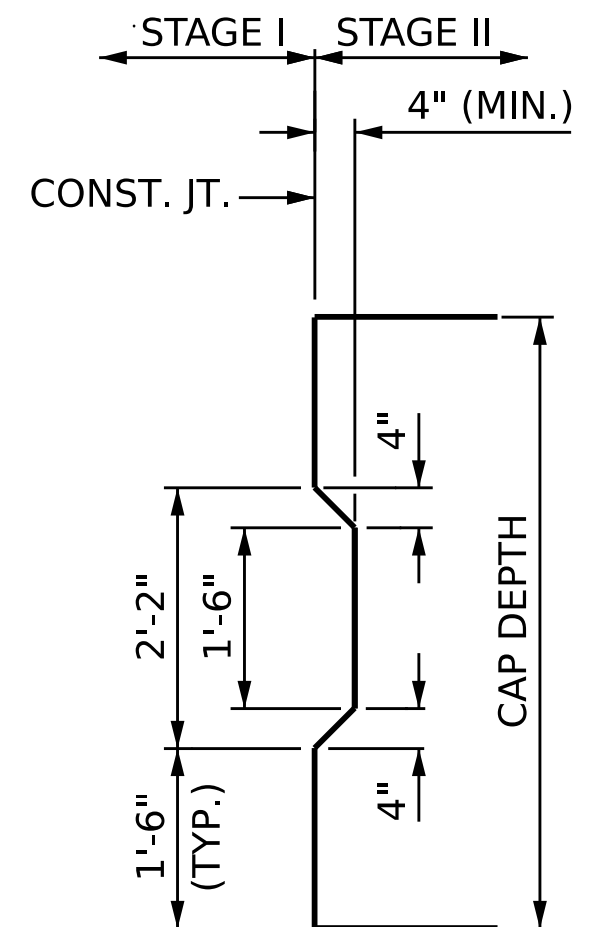
STIRRUPS AND "U" BARS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHORS.

#5 "V" BARS IN BACKWALL SHALL BE PLACED 2" CLEAR FROM TOP OF BACKWALL.

BACKWALL SHALL BE PLACED BEFORE APPLYING THE EPOXY PROTECTIVE COATING.

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

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



SHEAR KEY DETAIL

PROJECT NO. **BR-0168**

**FORSYTH** COUNTY

STATION: **20+73.79 -L-**

SHEET 2 OF 5



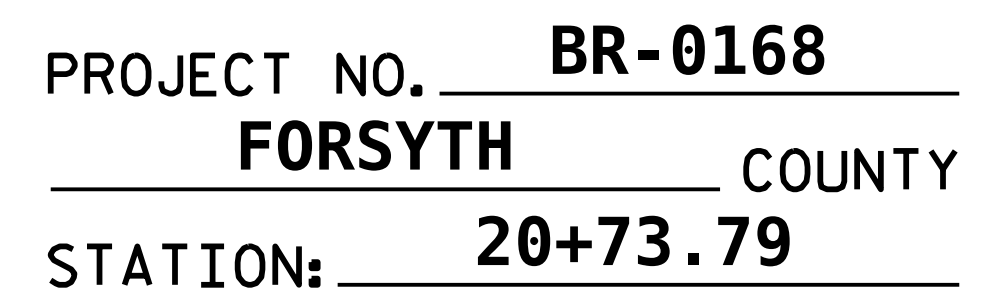
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

SUBSTRUCTURE  
**END BENT #1  
STAGE II**

| REVISIONS |     |       |     |     | SHEET NO.       |
|-----------|-----|-------|-----|-----|-----------------|
| NO.       | BY: | DATE: | NO. | BY: |                 |
| 1         |     |       | 3   |     | S-38            |
| 2         |     |       | 4   |     | TOTAL SHEETS 53 |

DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED

DRAWN BY : **E. MOHAMED** DATE : **09/2025**  
CHECKED BY : **A. SORSENGINH** DATE : **09/2025**  
DESIGN ENGINEER OF RECORD: **A. IGHWAIR** DATE : **09/2025**



WING WALLS @  
END BENT 1

|           |     |       |     |     |       |              |
|-----------|-----|-------|-----|-----|-------|--------------|
| REVISIONS |     |       |     |     |       | SHEET NO.    |
| NO.       | BY: | DATE: | NO. | BY: | DATE: | S-39         |
| 1         |     |       | 3   |     |       | TOTAL SHEETS |
| 2         |     |       | 4   |     |       | 53           |

DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED

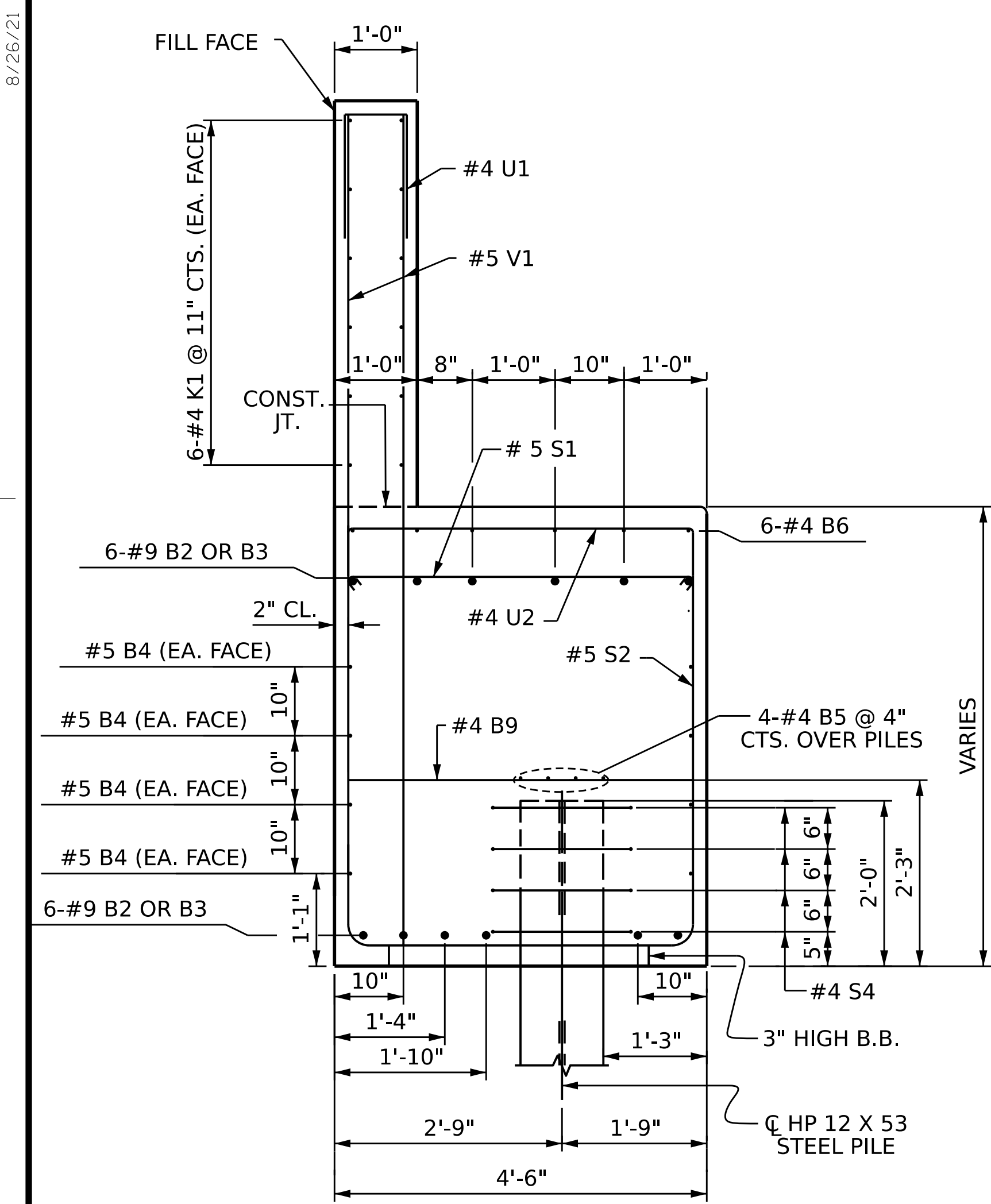
8/26/21

+

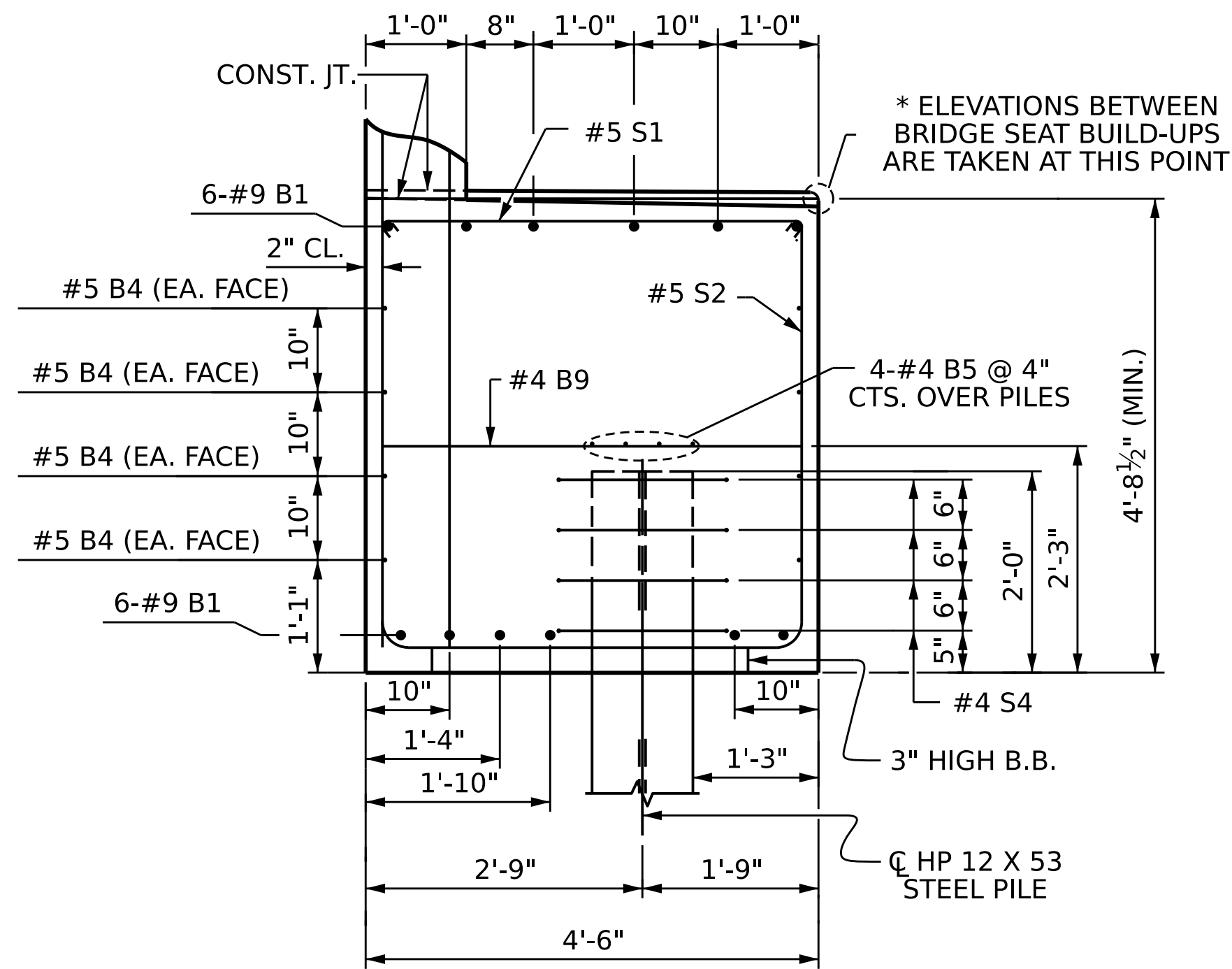
+

DRAWN BY : E. MOHAMED DATE : 09/2025  
CHECKED BY : A. SORSENGINH DATE : 09/2025  
DESIGN ENGINEER OF RECORD: A. IGHWAIR DATE : 09/2025

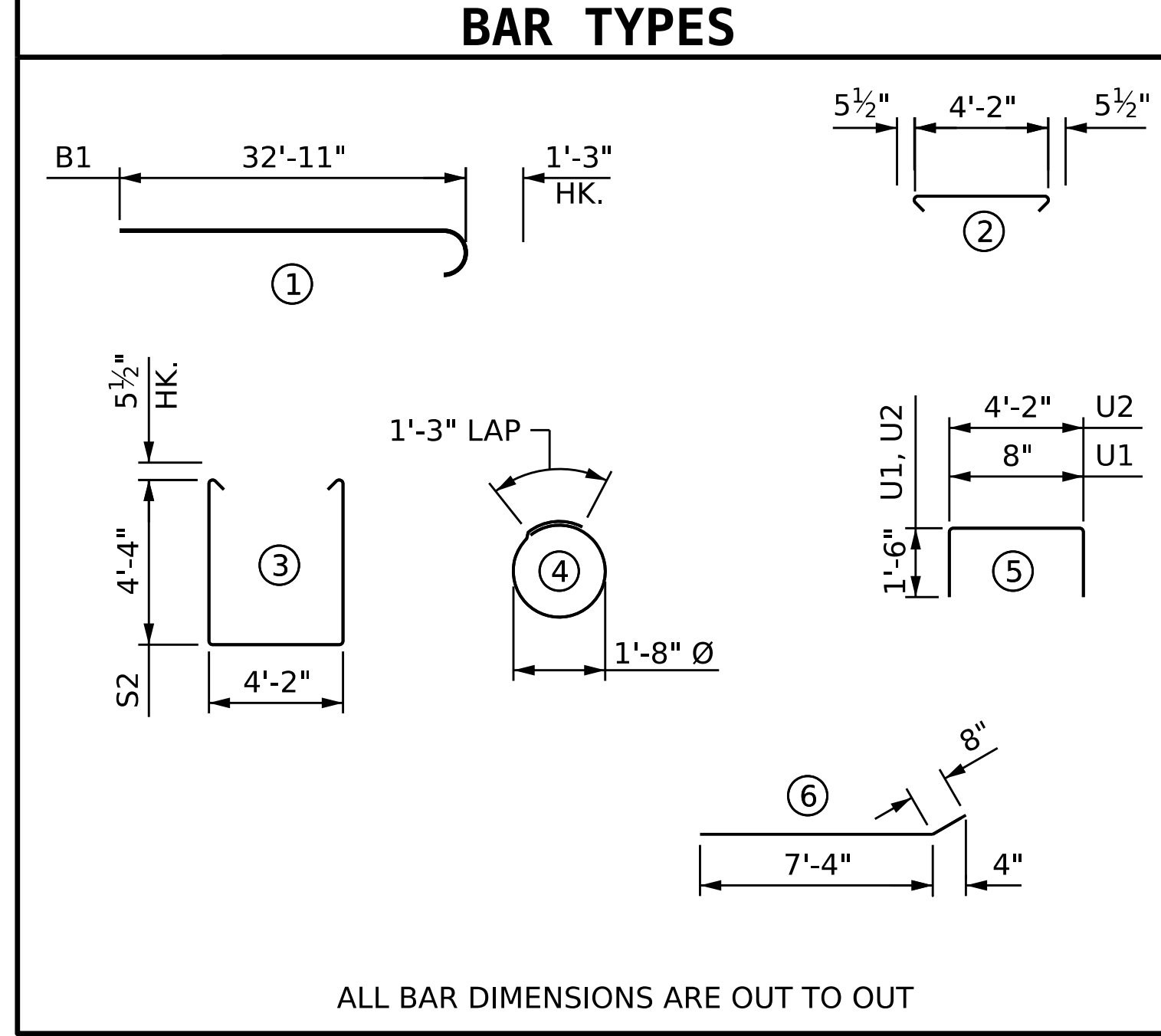
2/6/2026  
S:\DP03\BR-0168\Final Plans\401.079\_BR0168\_SMU.EB1.540.330289.dgn  
ksedol



SECTION A-A

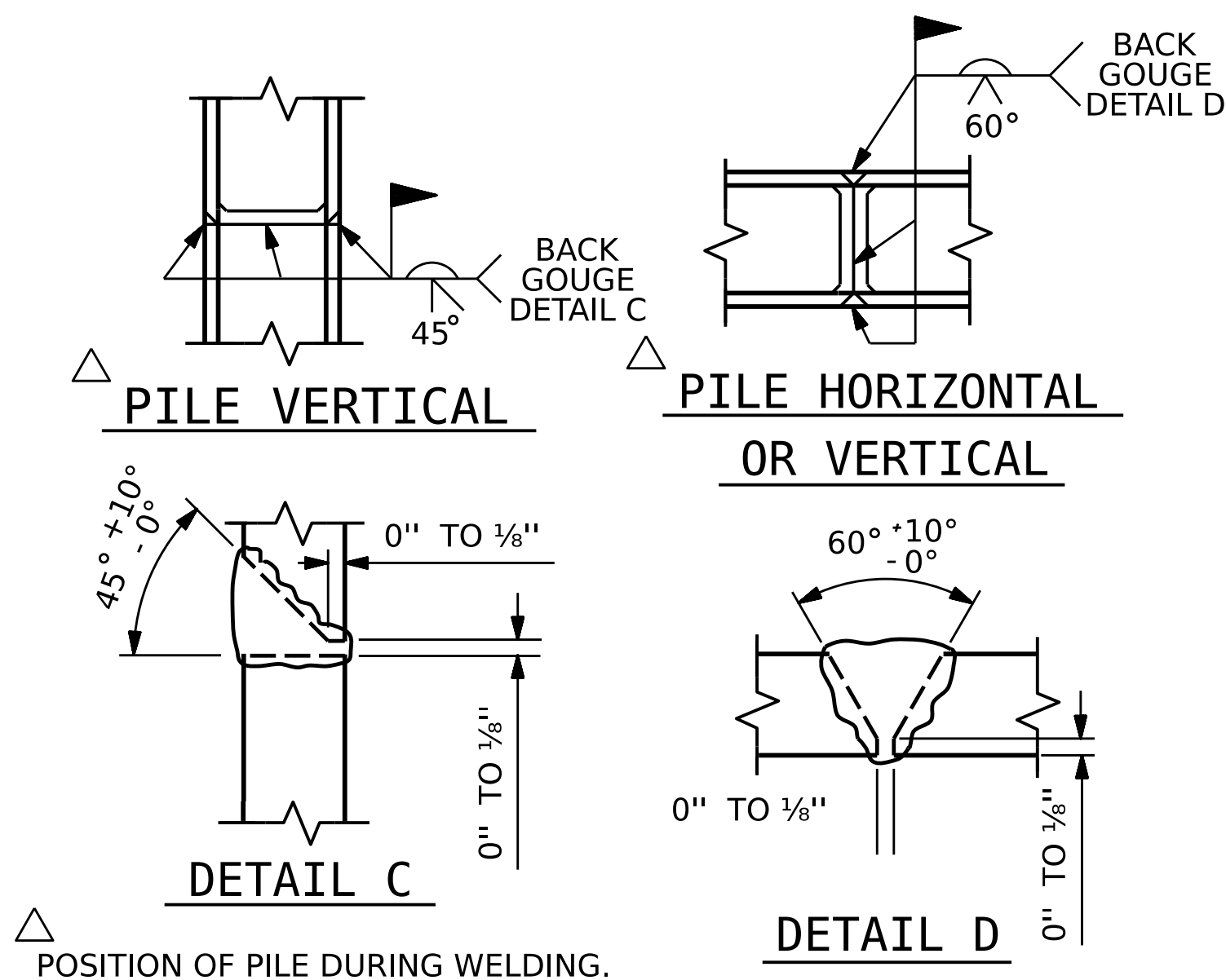


SECTION B-B

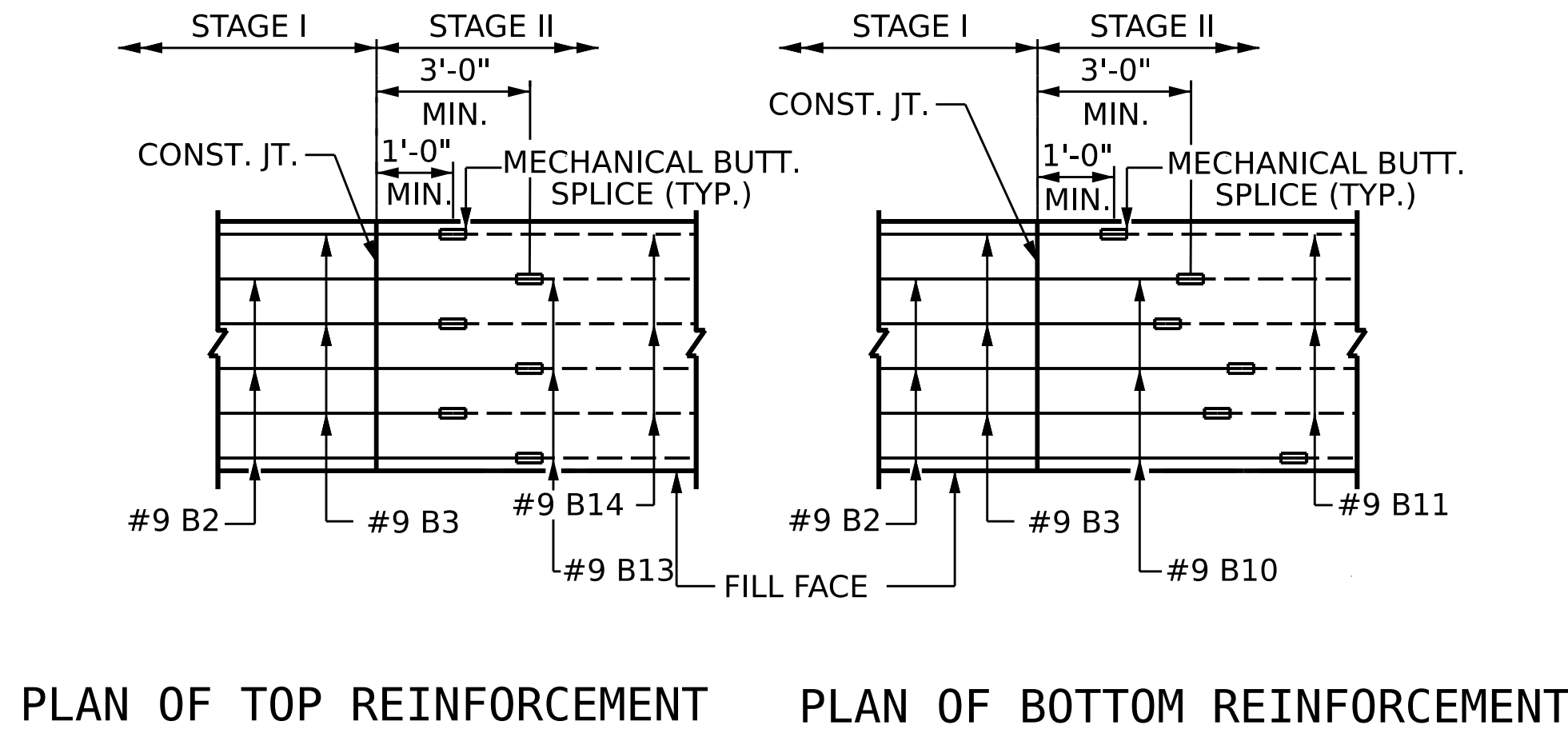


| BILL OF MATERIAL  |     |      |      |         |            |
|-------------------|-----|------|------|---------|------------|
| STAGE I           |     |      |      |         |            |
| BAR               | No. | SIZE | TYPE | LENGTH  | WEIGHT     |
| B1                | 12  | #9   | 1    | 34'-2"  | 1394       |
| B2                | 6   | #9   | STR  | 34'-11" | 712        |
| B3                | 6   | #9   | STR  | 32'-11" | 672        |
| B4                | 16  | #5   | STR  | 32'-10" | 548        |
| B5                | 8   | #4   | STR  | 32'-6"  | 174        |
| B6                | 6   | #4   | STR  | 18'-4"  | 73         |
| B7                | 12  | #4   | STR  | 9'-4"   | 75         |
| B8                | 6   | #4   | STR  | 4'-5"   | 18         |
| B9                | 15  | #4   | STR  | 4'-2"   | 42         |
| H1                | 28  | #5   | 6    | 8'-0"   | 233        |
| K1                | 24  | #4   | STR  | 29'-9"  | 477        |
| K2                | 4   | #4   | STR  | 4'-6"   | 12         |
| S1                | 52  | #5   | 2    | 5'-1"   | 276        |
| S2                | 52  | #5   | 3    | 13'-9"  | 746        |
| S4                | 36  | #4   | 4    | 6'-6"   | 156        |
| U1                | 52  | #4   | 5    | 3'-8"   | 127        |
| U2                | 54  | #4   | 5    | 7'-2"   | 259        |
| V1                | 104 | #5   | STR  | 9'-6"   | 1030       |
| V2                | 26  | #5   | STR  | 10'-9"  | 292        |
| REINFORCING STEEL |     |      |      |         | 7,316 LBS. |

| CLASS A CONCRETE BREAKDOWN (STAGE I) |                                |              |
|--------------------------------------|--------------------------------|--------------|
| POUR #1                              | CAP & LOWER PART OF WINGS      | 50.9 C.Y.    |
| POUR #2                              | BACKWALL & UPPER PART OF WINGS | 13.5 C.Y.    |
| TOTAL CLASS A CONCRETE               |                                | 64.4 C.Y.    |
| HP 12X53 STEEL PILES                 |                                |              |
| NO. 9                                |                                | 405 LIN. FT. |



PILE SPLICE DETAILS



DETAIL B

PROJECT NO. **BR-0168**  
**FORSYTH** COUNTY  
STATION: **20+73.79 -L-**

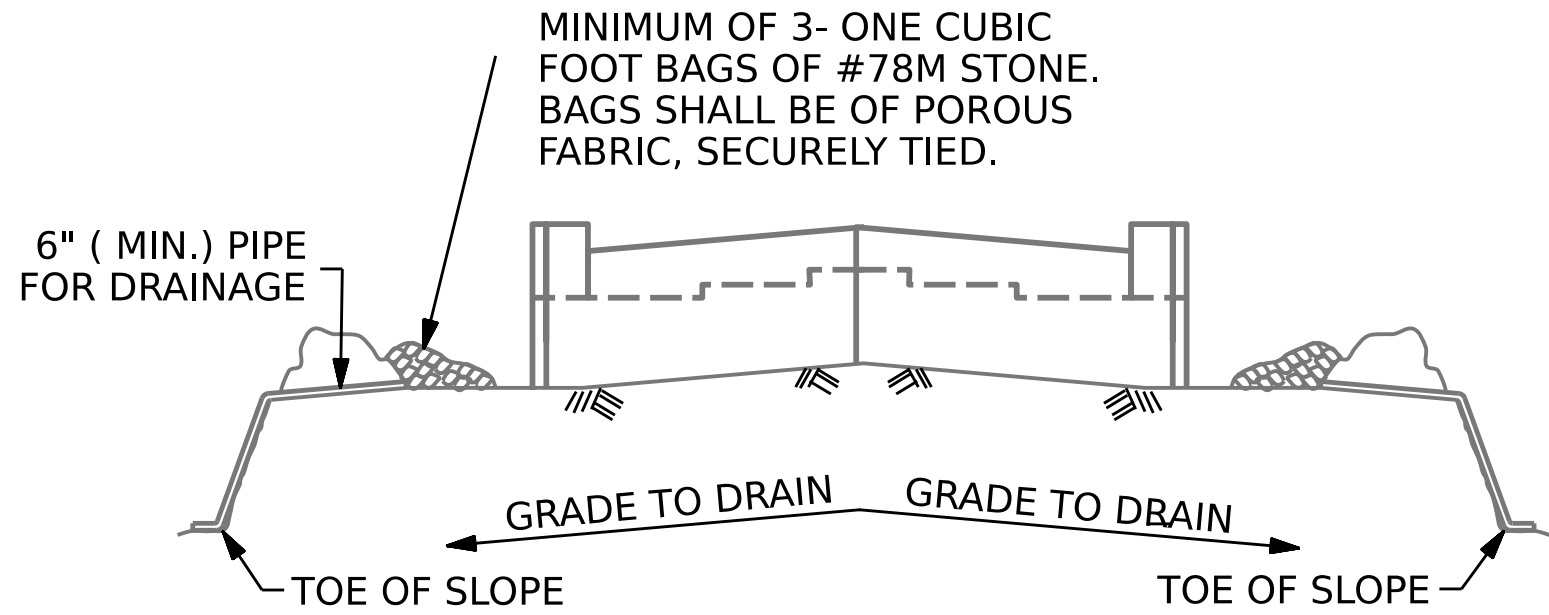
SHEET 4 OF 5



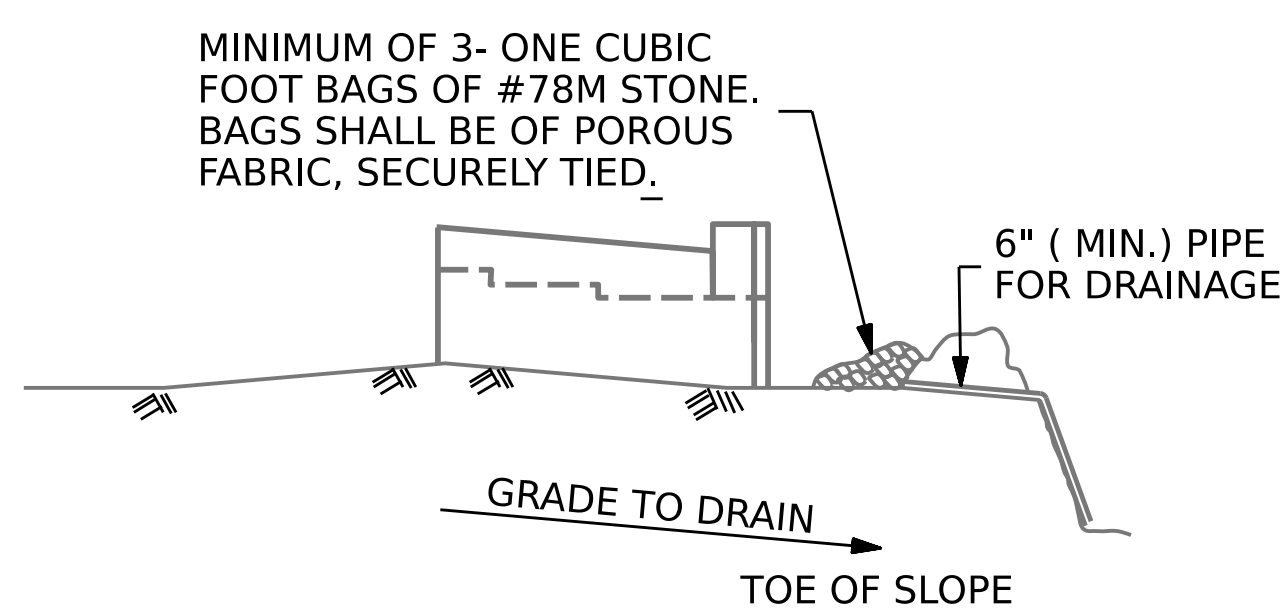
| STATE OF NORTH CAROLINA<br>DEPARTMENT OF TRANSPORTATION<br>RALEIGH |     |       |     |                 |
|--------------------------------------------------------------------|-----|-------|-----|-----------------|
| SUBSTRUCTURE                                                       |     |       |     |                 |
| END BENT #1<br>STAGE I                                             |     |       |     |                 |
| REVISIONS                                                          |     |       |     |                 |
| NO.                                                                | BY: | DATE: | NO. | BY:             |
| 1                                                                  |     |       | 3   |                 |
| 2                                                                  |     |       | 4   |                 |
| SHEET NO. S-40                                                     |     |       |     | TOTAL SHEETS 53 |

DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED

8/26/21



### STAGE II CONSTRUCTION



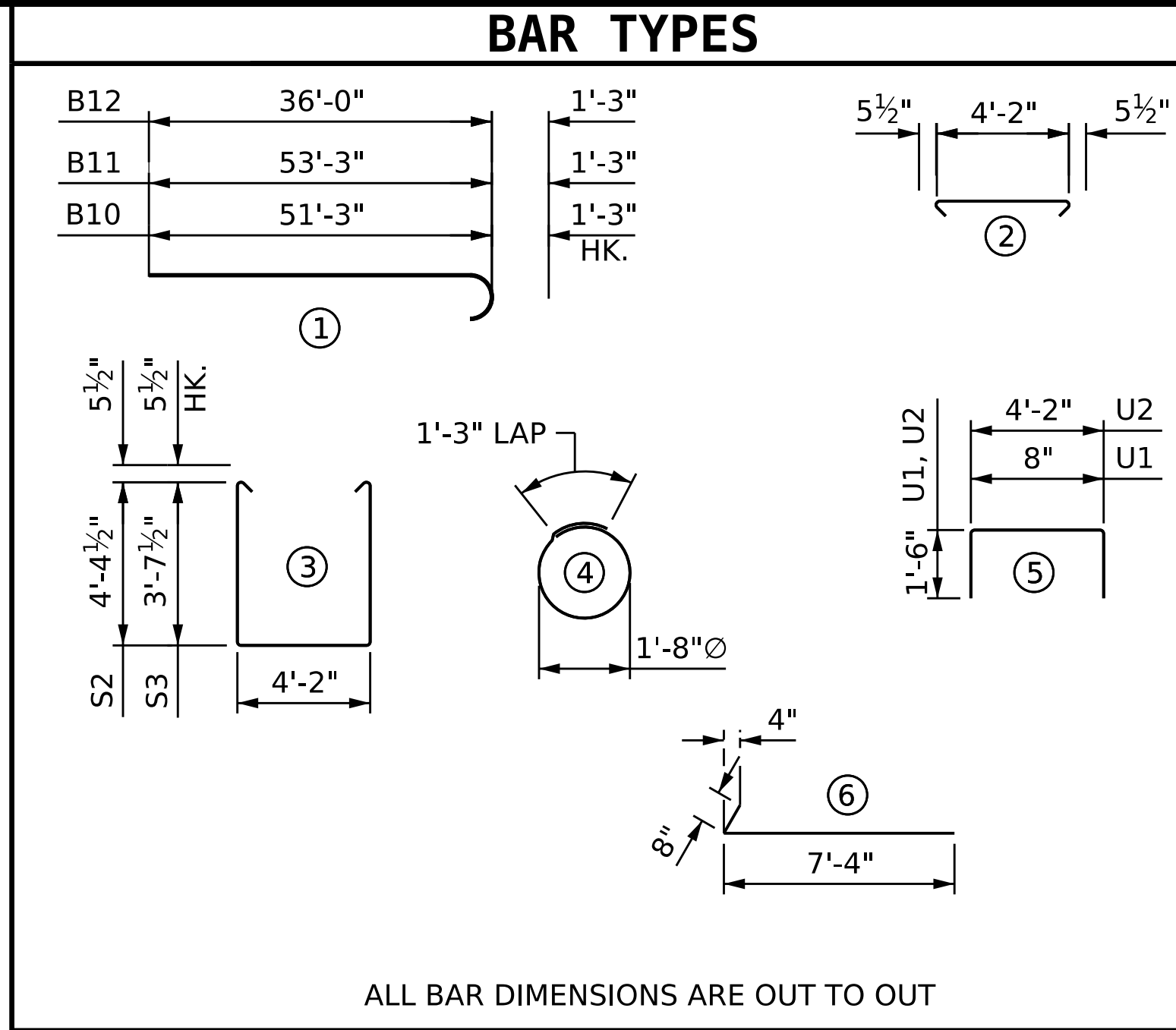
### STAGE I CONSTRUCTION

## TEMPORARY DRAINAGE AT END BENT

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 ACCUMULATIOJS 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.



## BILL OF MATERIAL

### STAGE II

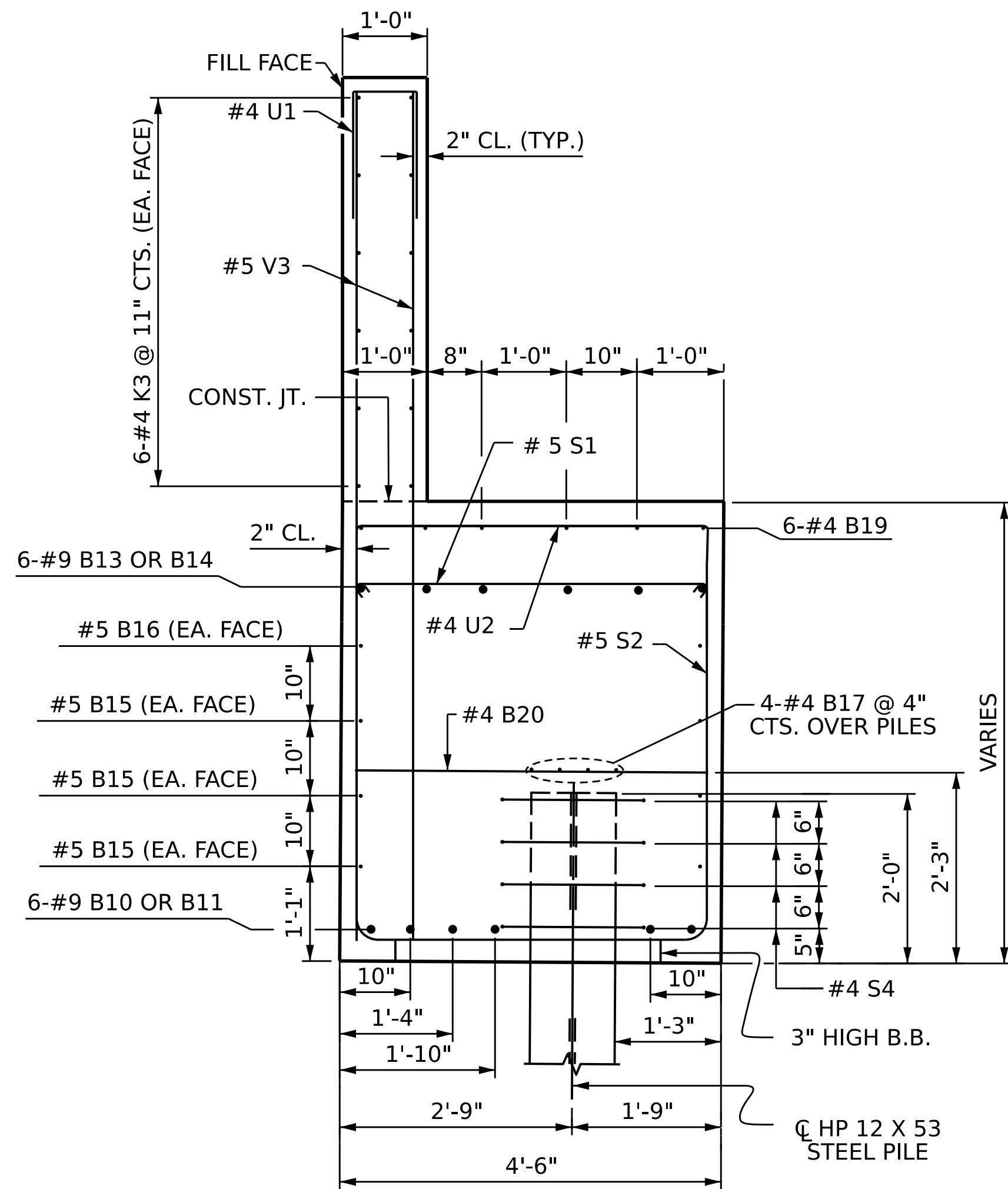
| BAR               | No. | SIZE | TYPE | LENGTH     | WEIGHT |
|-------------------|-----|------|------|------------|--------|
| B10               | 3   | #9   | 1    | 52'-6"     | 536    |
| B11               | 3   | #9   | 1    | 54'-6"     | 556    |
| B12               | 6   | #9   | 1    | 37'-3"     | 760    |
| B13               | 3   | #9   | STR  | 20'-7"     | 210    |
| B14               | 3   | #9   | STR  | 22'-7"     | 230    |
| B15               | 12  | #5   | STR  | 29'-5"     | 368    |
| B16               | 2   | #5   | STR  | 23'-10"    | 50     |
| B17               | 8   | #4   | STR  | 29'-8"     | 159    |
| B18               | 18  | #4   | STR  | 8'-8"      | 104    |
| B19               | 6   | #4   | STR  | 5'-9"      | 23     |
| B20               | 14  | #4   | STR  | 4'-2"      | 39     |
| H2                | 26  | #5   | 6    | 8'-0"      | 217    |
| K2                | 4   | #4   | STR  | 4'-6"      | 12     |
| K3                | 24  | #4   | STR  | 29'-8"     | 476    |
| S1                | 47  | #5   | 2    | 5'-1"      | 249    |
| S2                | 21  | #5   | 3    | 13'-10"    | 303    |
| S3                | 26  | #5   | 3    | 12'-4"     | 334    |
| S4                | 32  | #4   | 4    | 6'-6"      | 139    |
| U1                | 52  | #4   | 5    | 3'-8"      | 127    |
| U2                | 45  | #4   | 5    | 7'-2"      | 215    |
| V3                | 104 | #5   | STR  | 8'-8"      | 940    |
| V4                | 26  | #5   | STR  | 10'-0"     | 271    |
| REINFORCING STEEL |     |      |      | 6,318 LBS. |        |

### CLASS A CONCRETE BREAKDOWN (STAGE II)

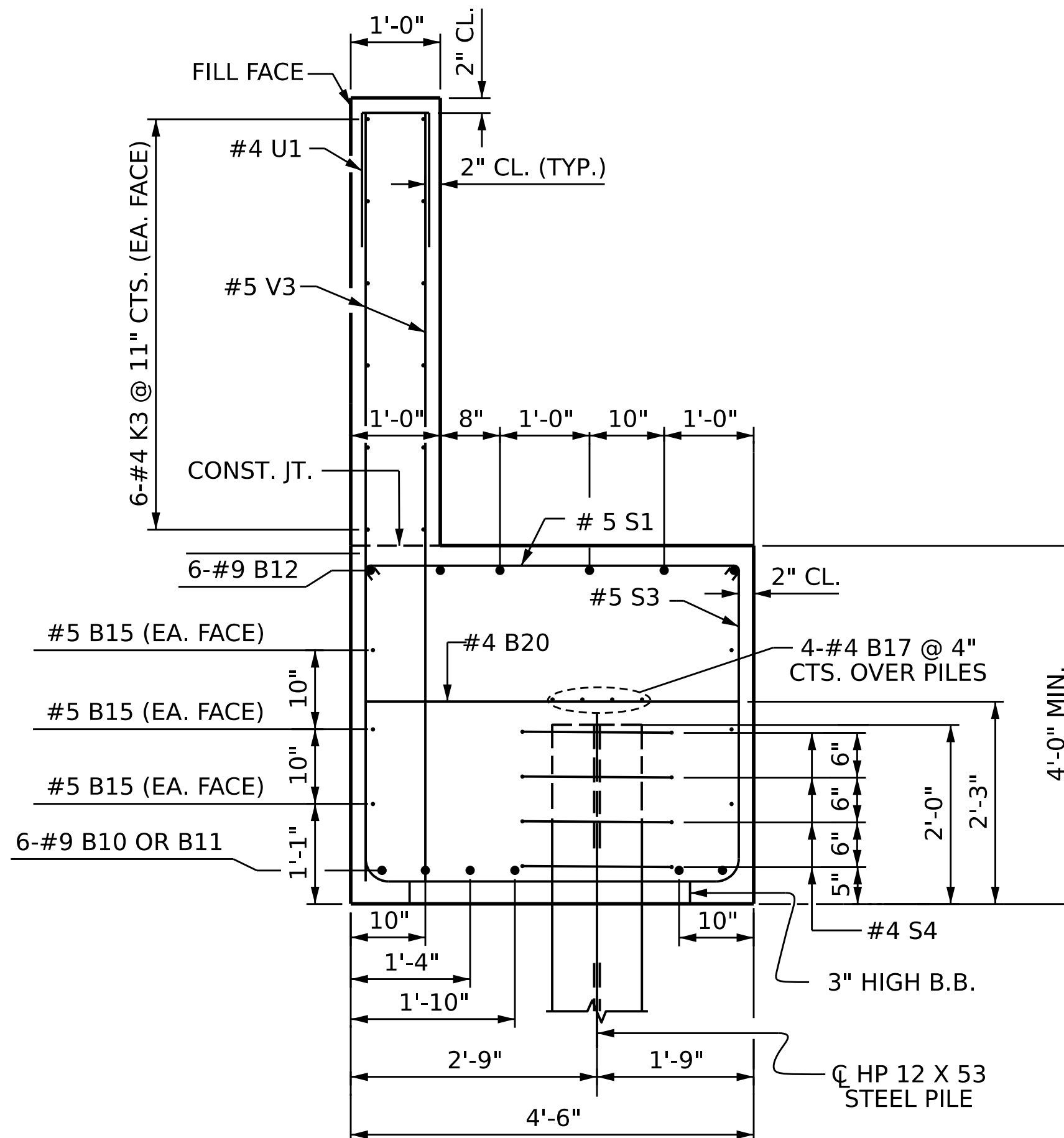
|                        |                                |           |
|------------------------|--------------------------------|-----------|
| POUR #1                | CAP & LOWER PART OF WINGS      | 42.6 C.Y. |
| POUR #2                | BACKWALL & UPPER PART OF WINGS | 13.6 C.Y. |
| TOTAL CLASS A CONCRETE |                                | 56.2 C.Y. |

### HP 12X53 STEEL PILES

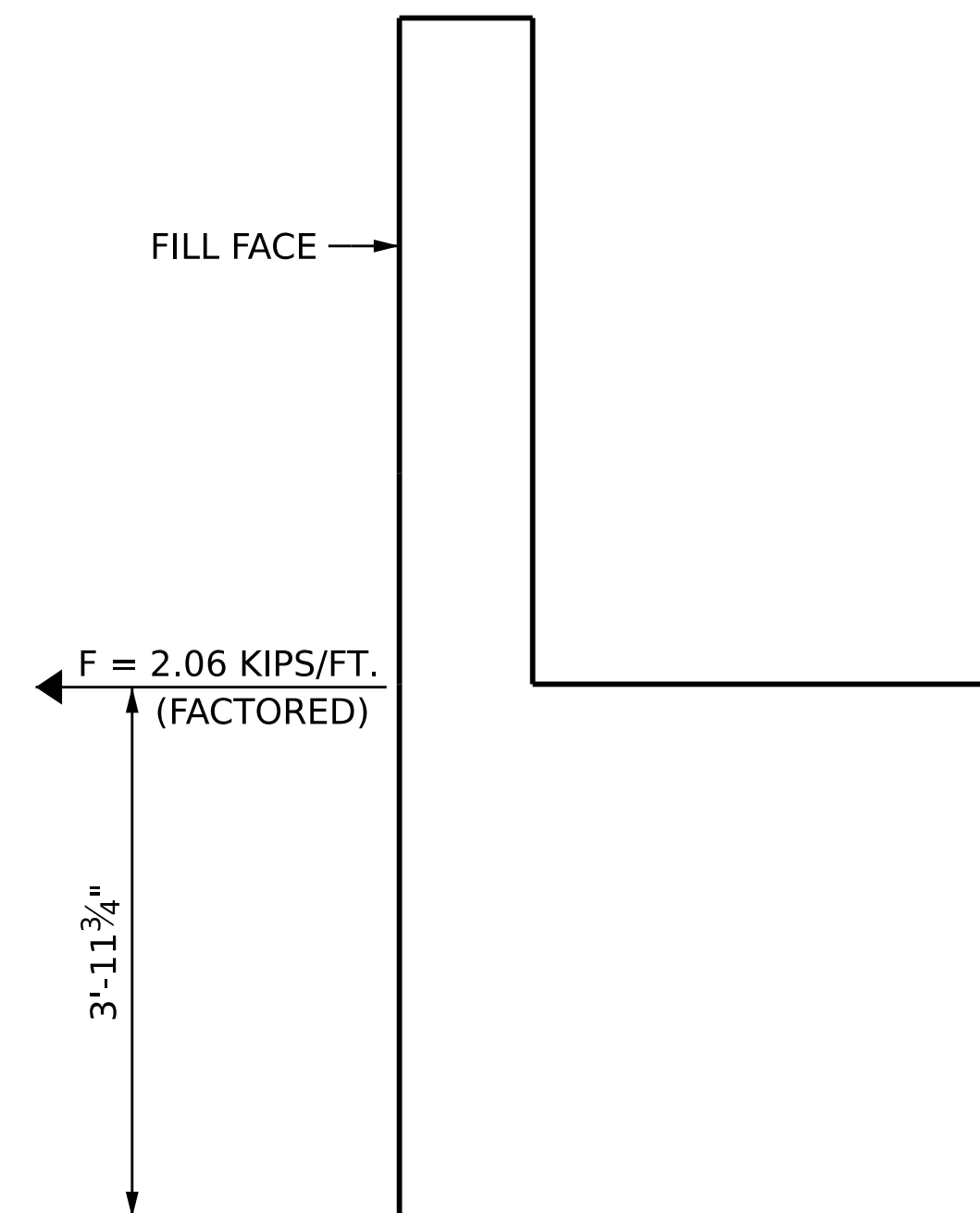
|       |              |
|-------|--------------|
| NO. 8 | 400 LIN. FT. |
|-------|--------------|



### SECTION C-C

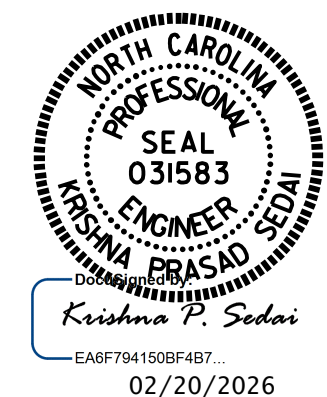


### SECTION D-D



### TIE BACK DETAILS

(DETAIL SHOWING TIE BACK RESTRAINT FOR END BENT)



PROJECT NO. **BR-0168**  
**FORSYTH** COUNTY  
STATION: **20+73.79 -L-**

SHEET 5 OF 5

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

### SUBSTRUCTURE

## END BENT #1 STAGE II

### REVISIONS

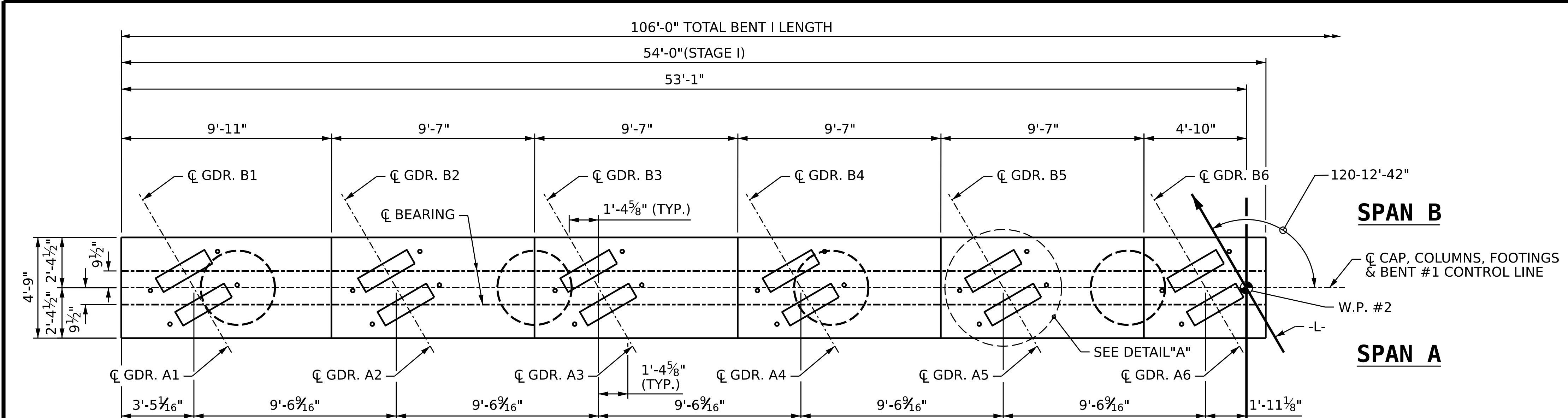
| NO. | BY: | DATE: | NO. | BY: | DATE: | SHEET NO.       |
|-----|-----|-------|-----|-----|-------|-----------------|
| 1   |     |       | 3   |     |       | S-41            |
| 2   |     |       | 4   |     |       | TOTAL SHEETS 53 |

DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED

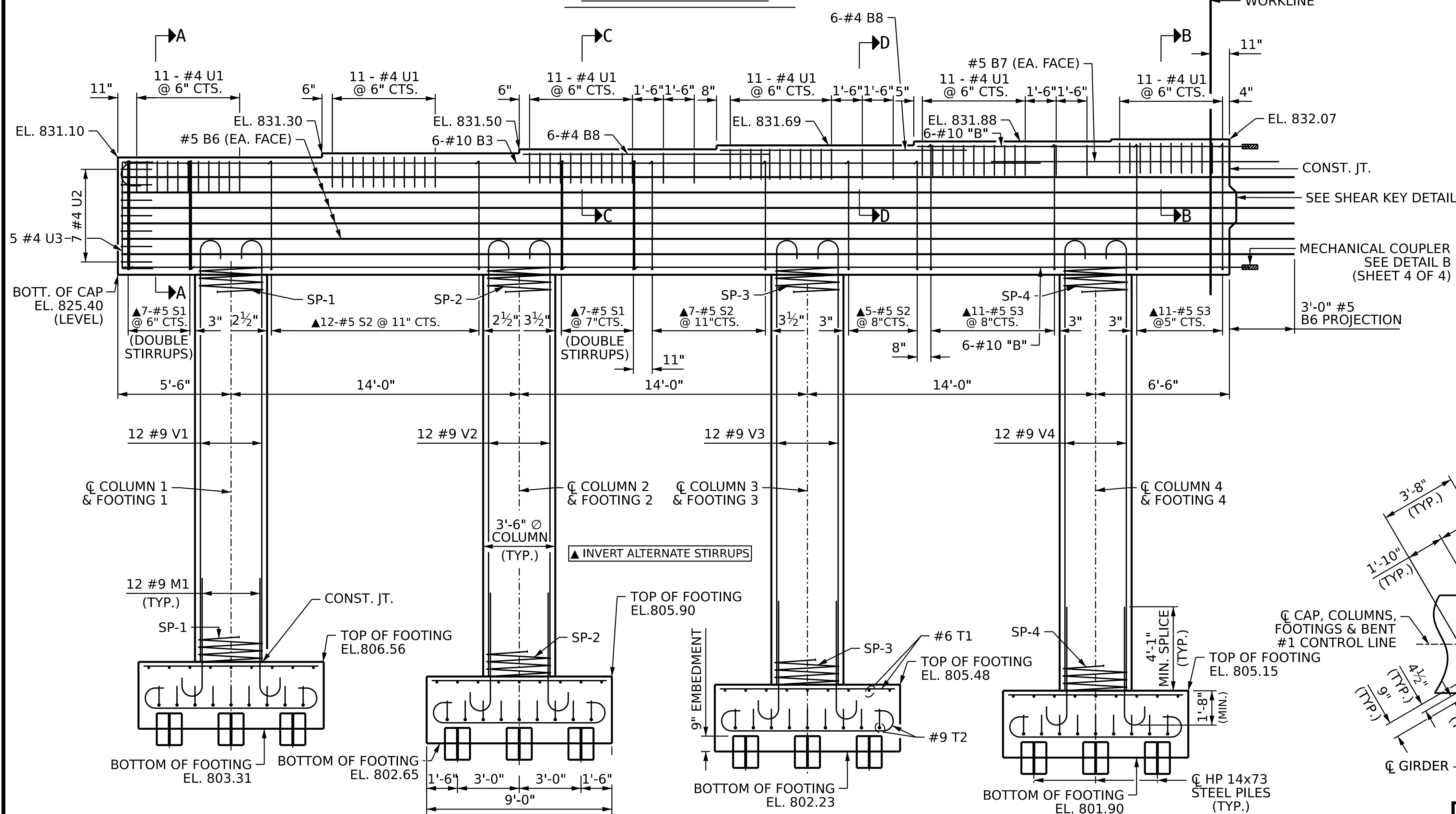
DRAWN BY : **E. MOHAMED/T. STOGNER** DATE : **09/2025**  
CHECKED BY : **A. SORSENGINH** DATE : **09/2025**  
DESIGN ENGINEER OF RECORD: **E. MOHAMED** DATE : **09/2025**

2/6/2026  
S:\DPO3\BR-0168\Final Plans\401.081.BR0168.SMU.EB1.S41.330289.dgn  
ksedai

8/26/21



PLAN - STAGE I



ELEVATION - STAGE I

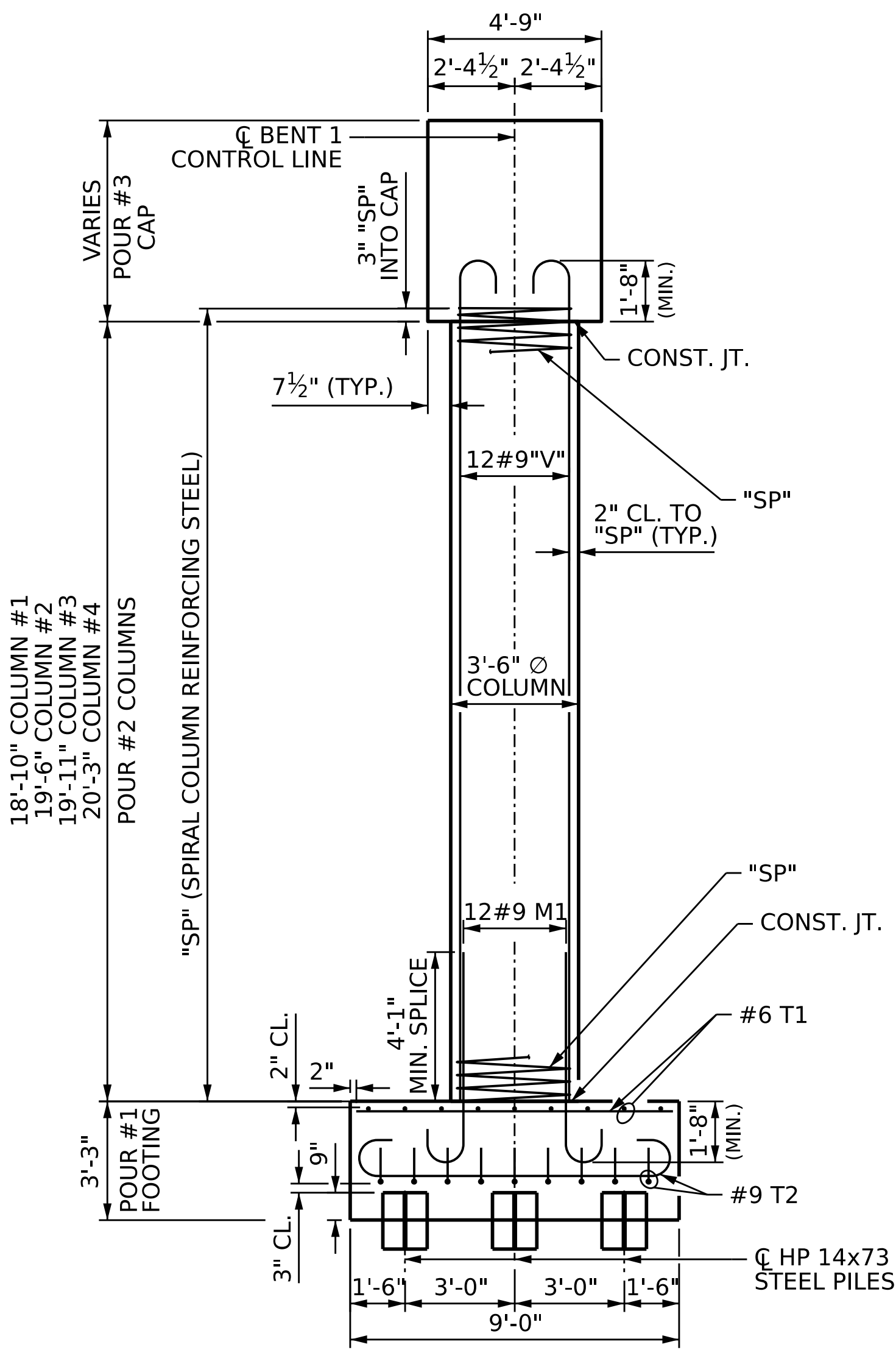
DIMENSIONS AND REINFORCING STEEL ARE TYPICAL FOR EACH FOOTING UNLESS OTHERWISE NOTED.

NOTES

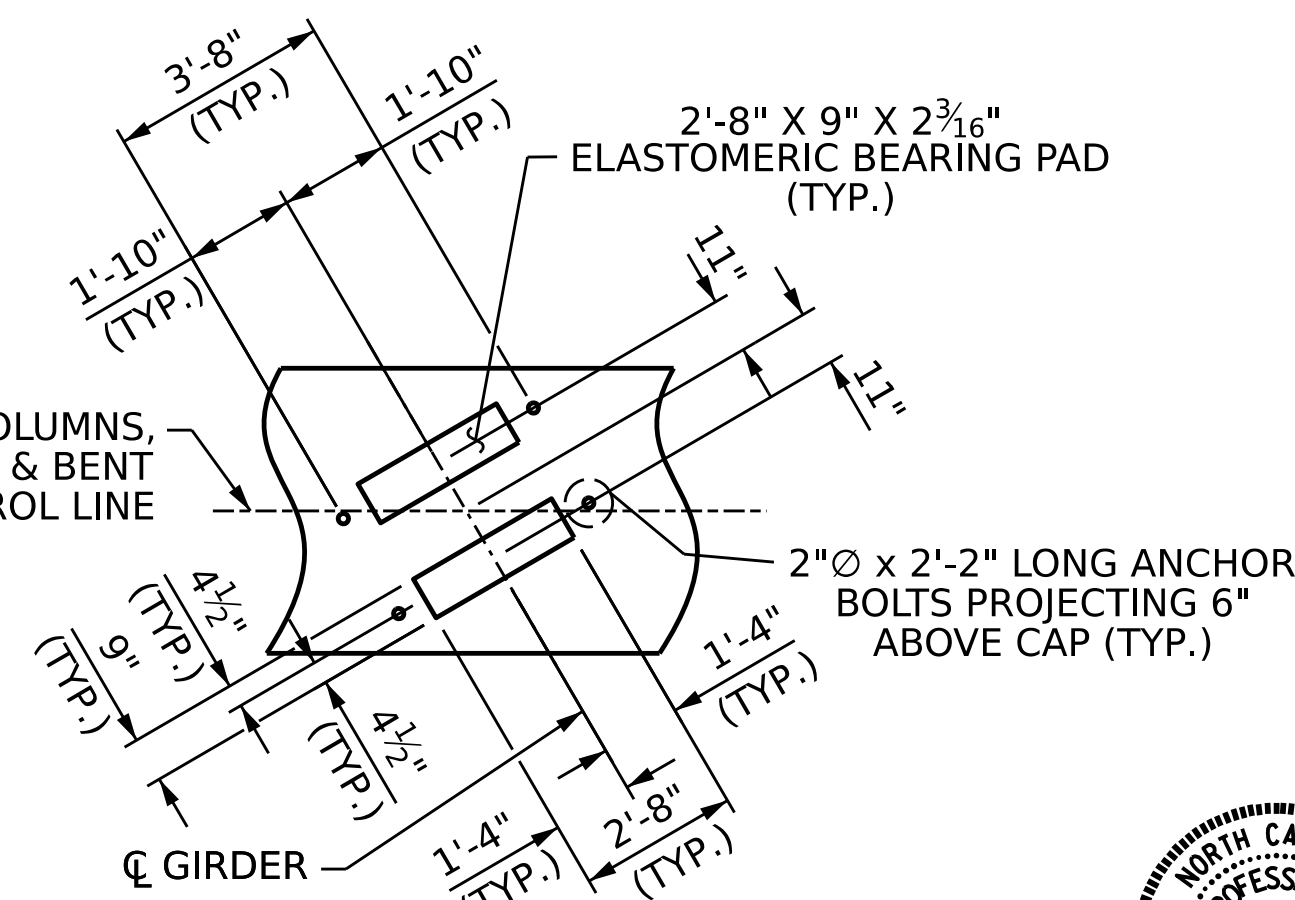
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

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

FOR SECTIONS A-A, B-B, C-C, & D-D, SEE SHEET 4 OF 4.



END ELEVATION



DETAIL "A"

PROJECT NO. **BR-0168**

**FORYSTH** COUNTY

STATION: **20+73.79 -L-**

SHEET 1 OF 4

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

SUBSTRUCTURE  
BENT 1 STAGE I



02/20/2026

DRAWN BY : T. STOGNER DATE : 09/25  
CHECKED BY : A. SORSENGINH DATE : 10/25  
DESIGN ENGINEER OF RECORD : A. IGHWAR DATE : 10/25

2/9/2026  
S:\DPO3\BR-0168\Final Plans\401.083\_BR0168\_SMU.B1\_S42\_330289.dgn  
ksedai

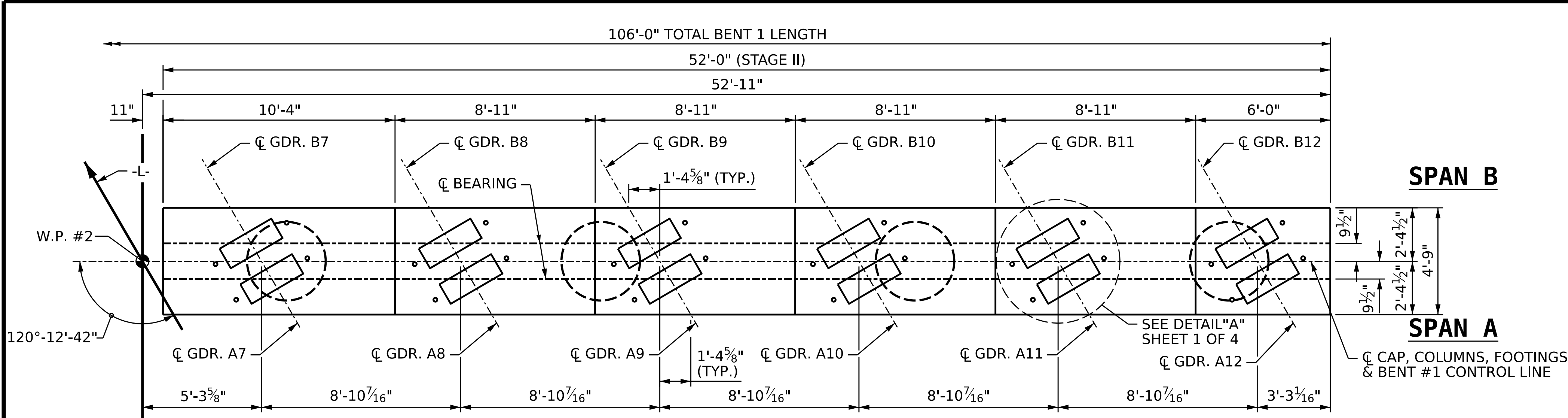
DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED

| REVISIONS |     |       |     |     | SHEET NO.       |
|-----------|-----|-------|-----|-----|-----------------|
| NO.       | BY: | DATE: | NO. | BY: |                 |
| 1         |     |       | 3   |     | S-42            |
| 2         |     |       | 4   |     | TOTAL SHEETS 53 |

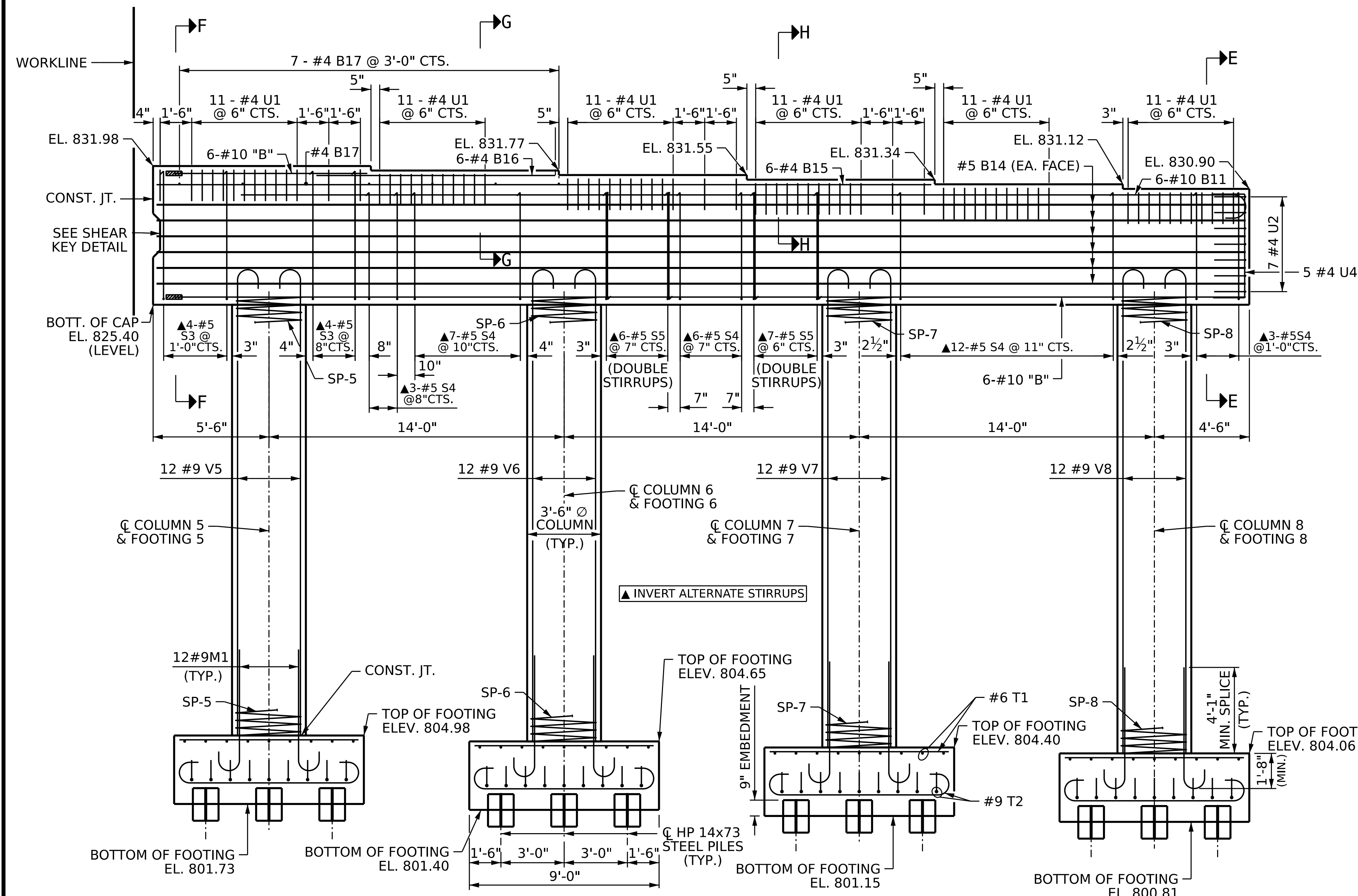
8/26/21

120°-12'-42"

120°-12'-42"



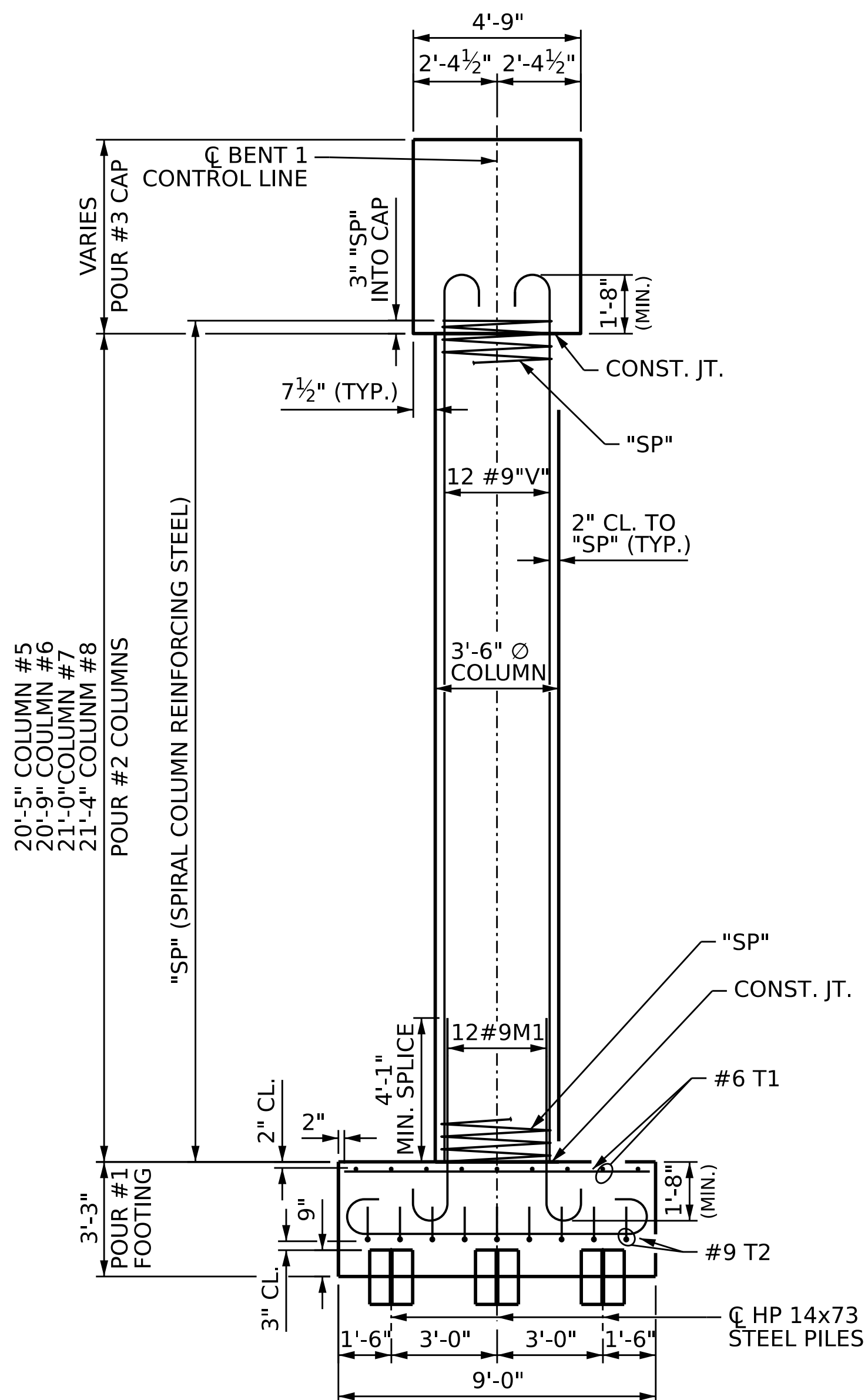
PLAN - STAGE II



ELEVATION - STAGE II

DIMENSIONS AND REINFORCING STEEL ARE TYPICAL FOR EACH FOOTING UNLESS OTHERWISE NOTED

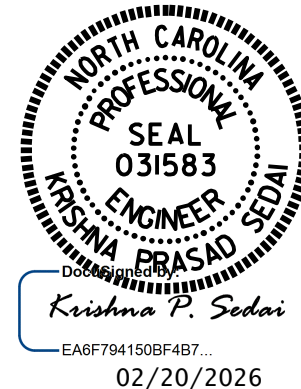
NOTES  
FOR SECTIONS E-E, F-F, G-G, & H-H, SEE SHEET 3 OF 4.



END ELEVATION

PROJECT NO. **BR-0168**  
**FORYSTH** COUNTY  
STATION: **20+73.79 -L-**

SHEET 2 OF 4



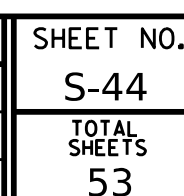
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
**SUBSTRUCTURE  
BENT 1 STAGE II**

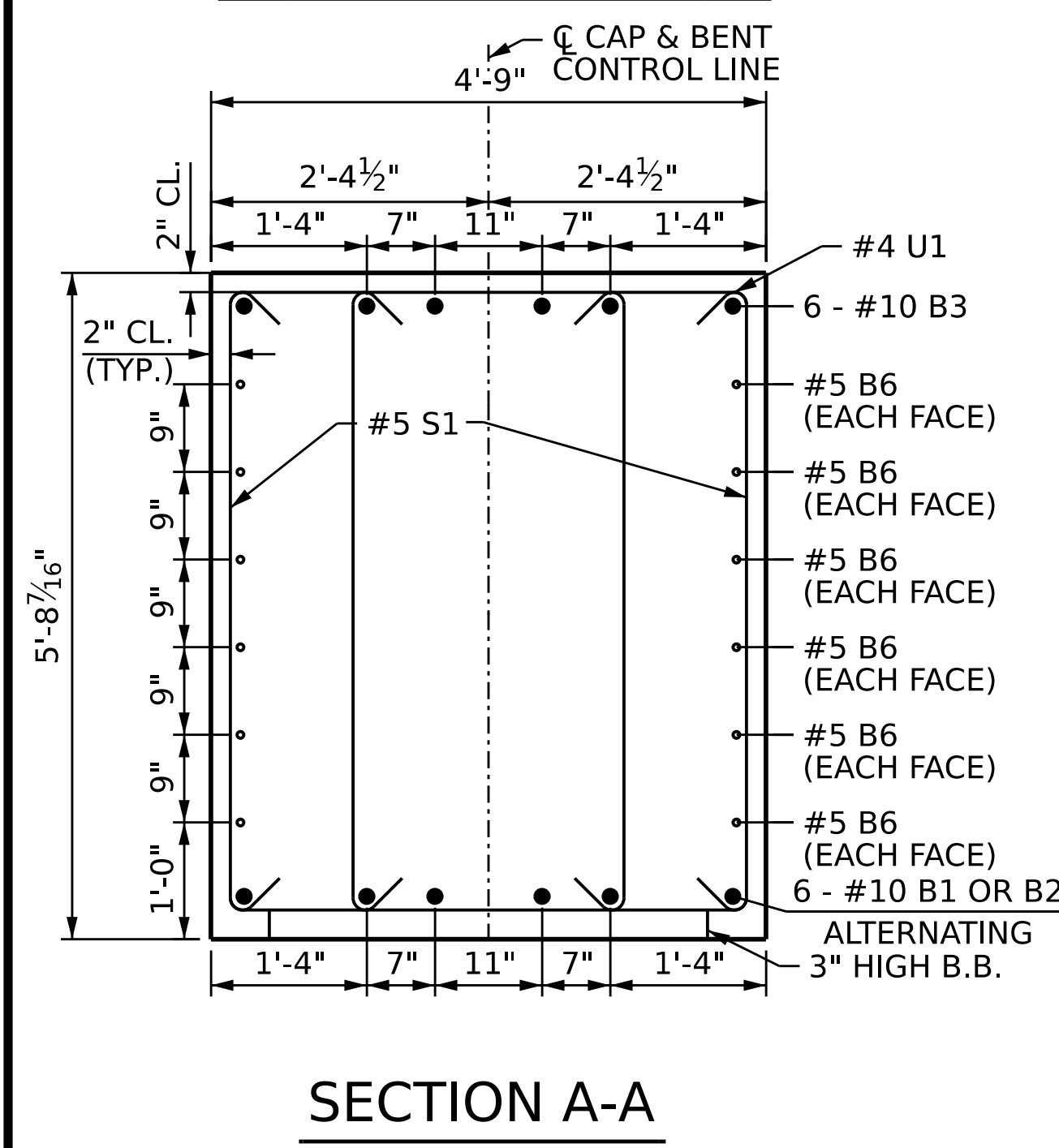
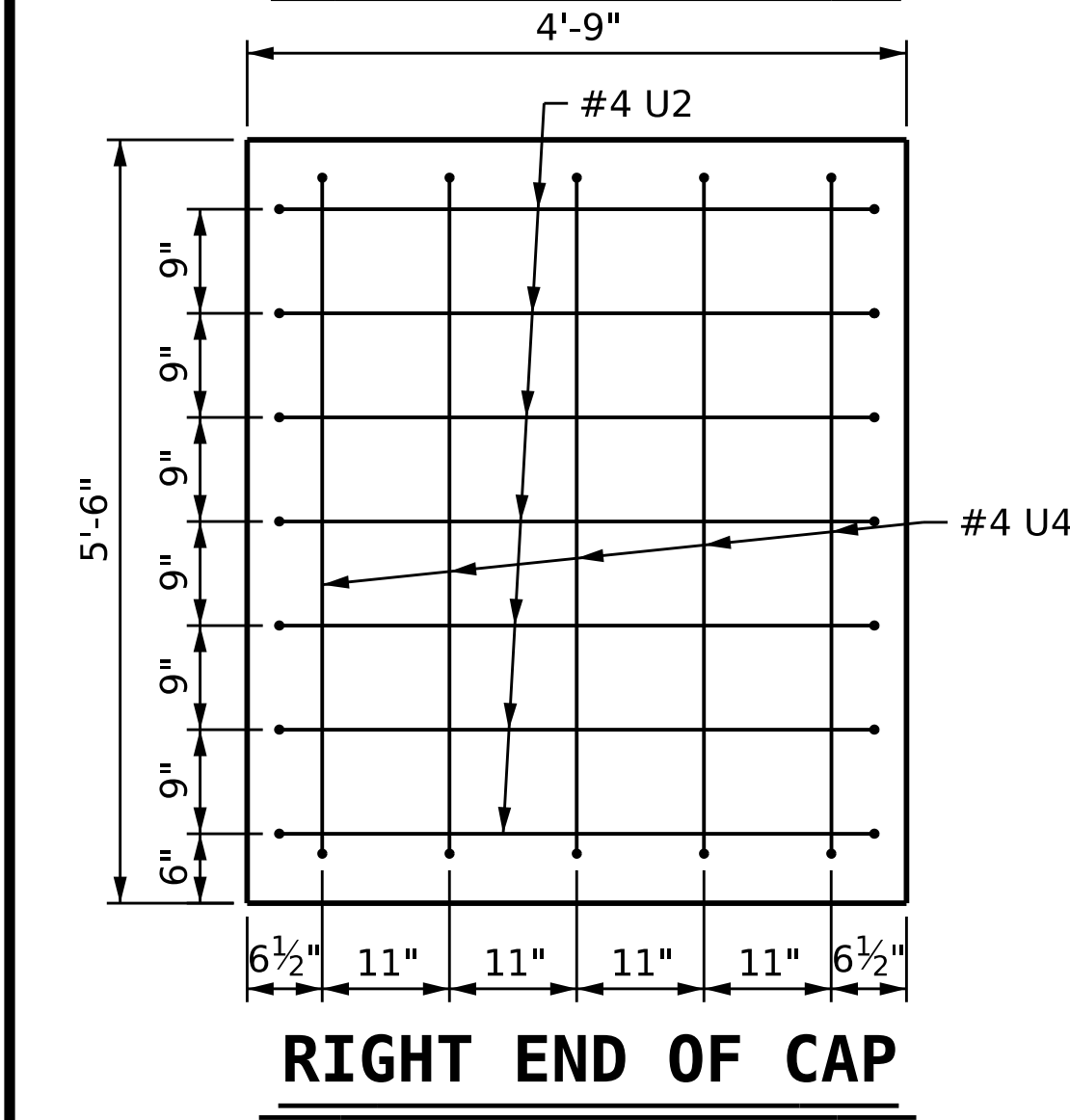
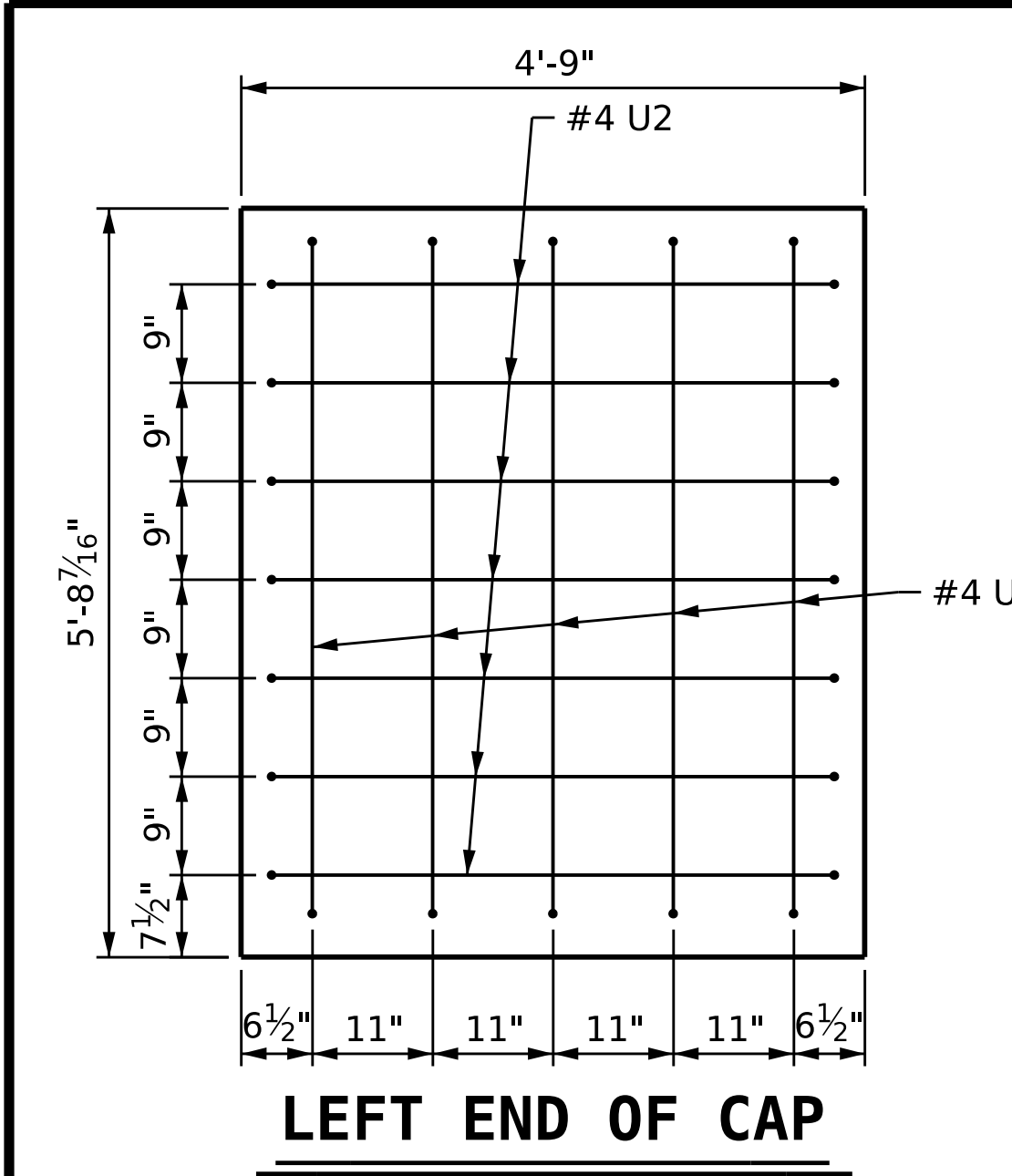
DRAWN BY : **T. STOGNER** DATE : **09/25**  
CHECKED BY : **A. SORSENGINH** DATE : **10/25**  
DESIGN ENGINEER OF RECORD : **A. IGHWAR** DATE : **10/25**

DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED

| REVISIONS |     |       |     |     | SHEET NO.       |
|-----------|-----|-------|-----|-----|-----------------|
| NO.       | BY: | DATE: | NO. | BY: |                 |
| 1         |     |       | 3   |     | S-43            |
| 2         |     |       | 4   |     | TOTAL SHEETS 53 |

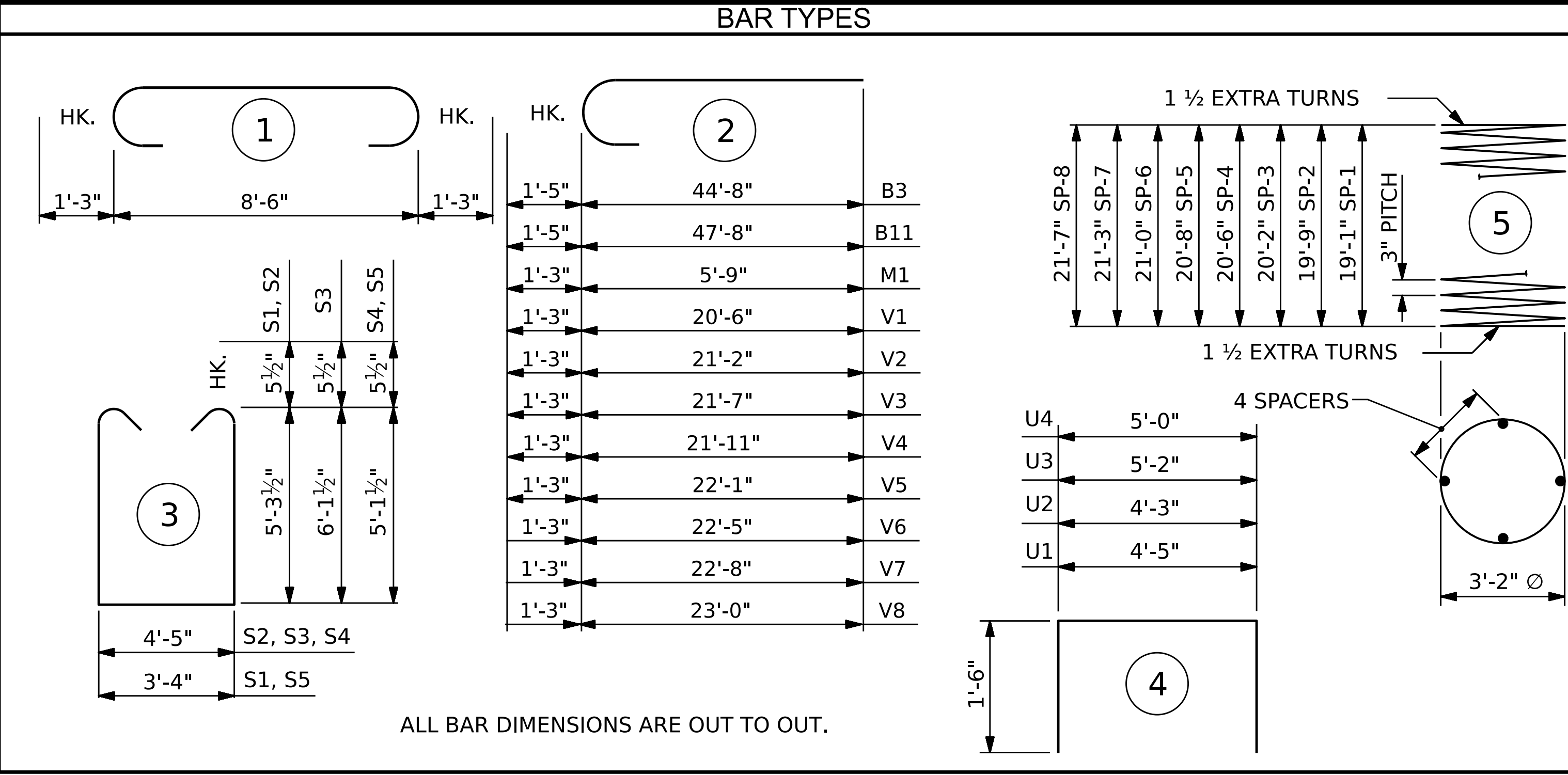
2/16/2026  
S:\DPO3\BR-0168\Final Plans\401.085\_BR0168\_SMU.B1.S43.330289.dgn  
Ksedai



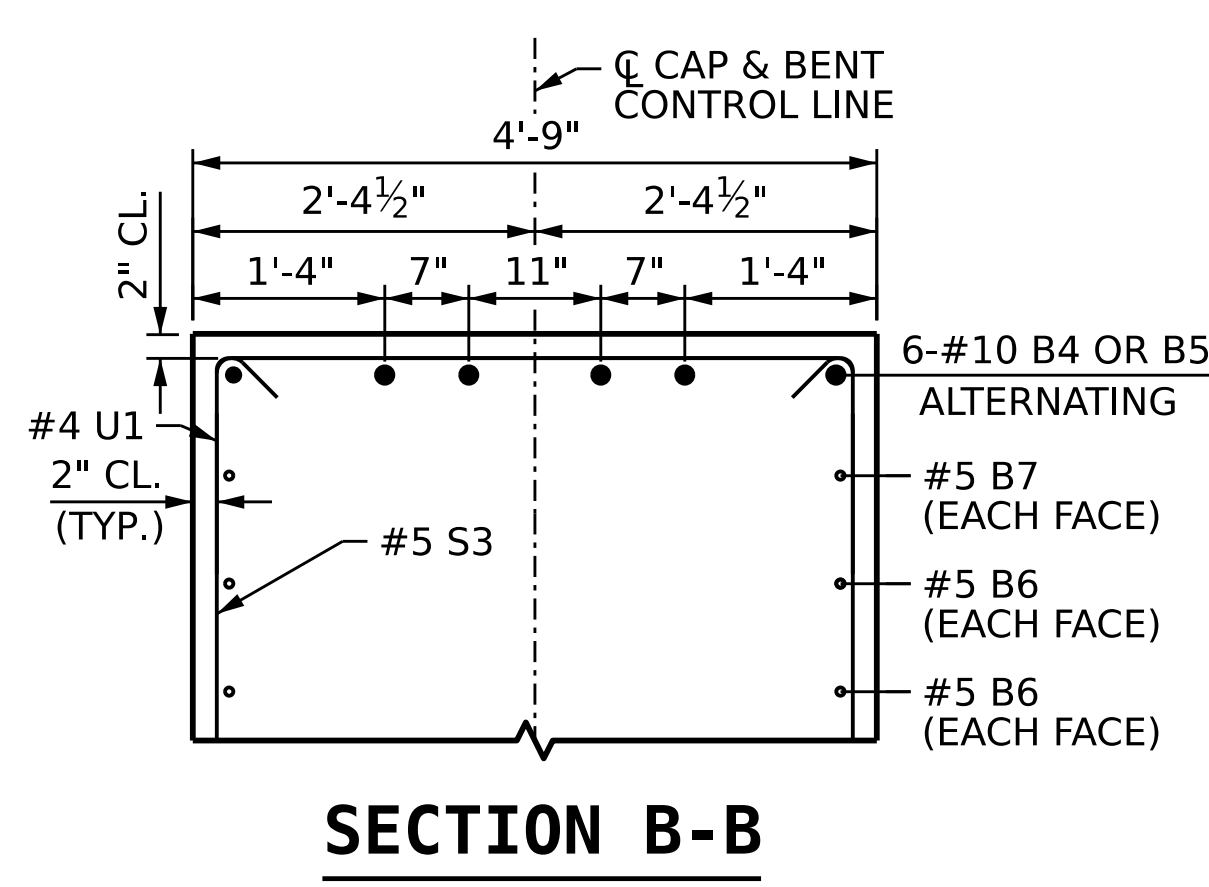


|                            |               |        |       |
|----------------------------|---------------|--------|-------|
| DRAWN BY :                 | T. STOGNER    | DATE : | 09/25 |
| CHECKED BY :               | A. SORSENGINH | DATE : | 10/25 |
| DESIGN ENGINEER OF RECORD: | A. IGHWAR     | DATE : | 10/25 |

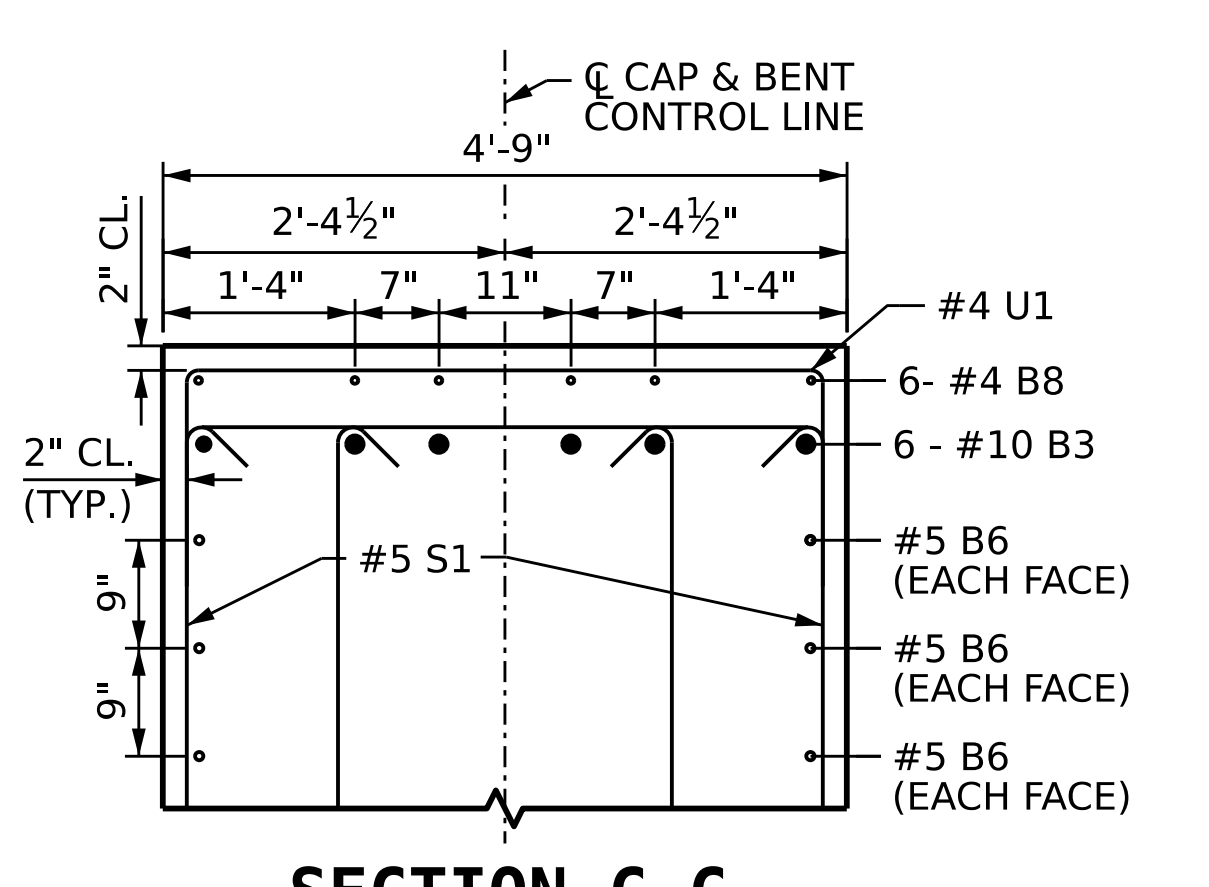
2/6/2026  
S:\DP03\BR-0168\Final Plans\401.089\_BR0168\_SMU\_B1\_S45\_330289.dgn  
Ksedai



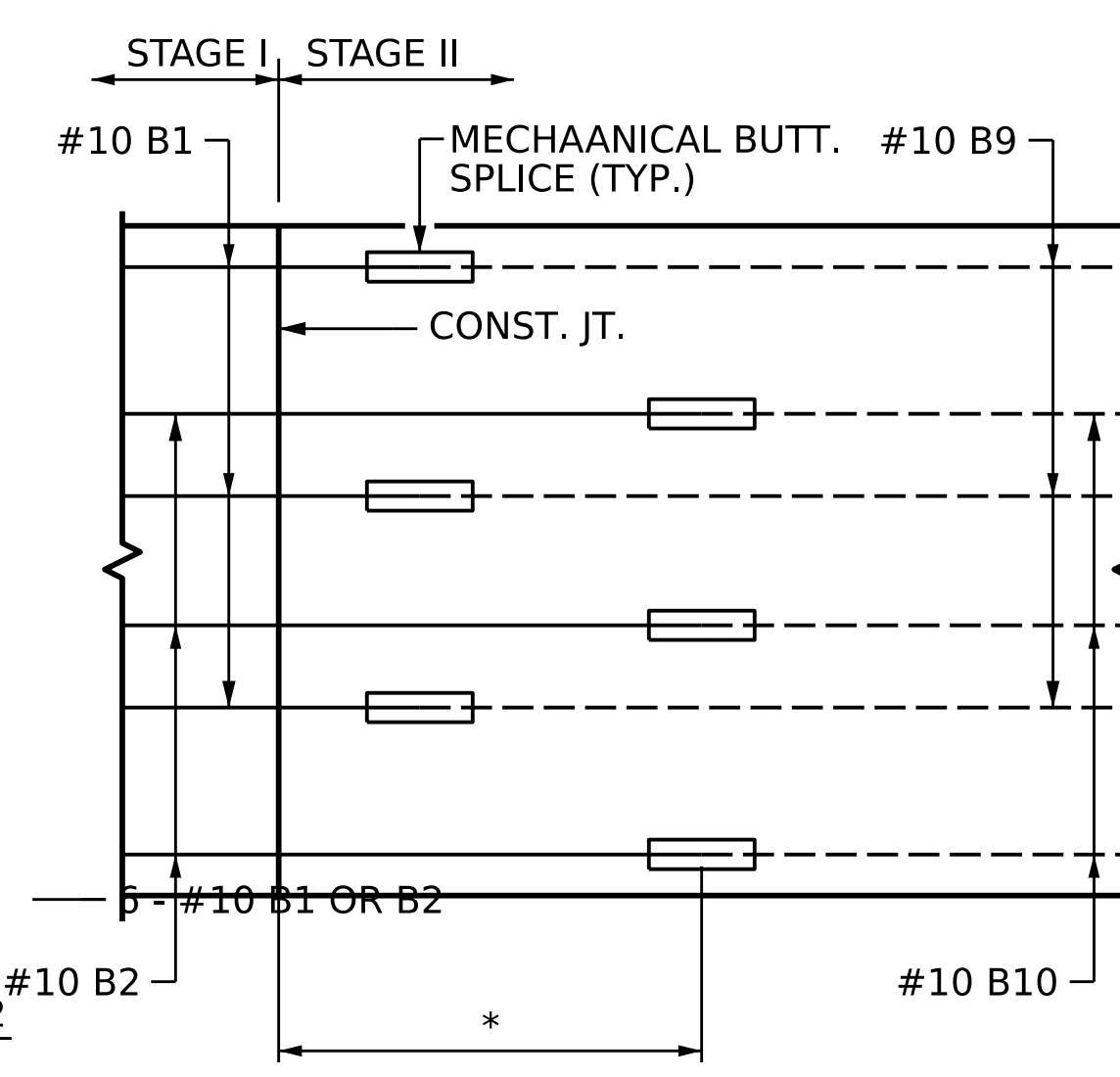
ALL BAR DIMENSIONS ARE OUT TO OUT.



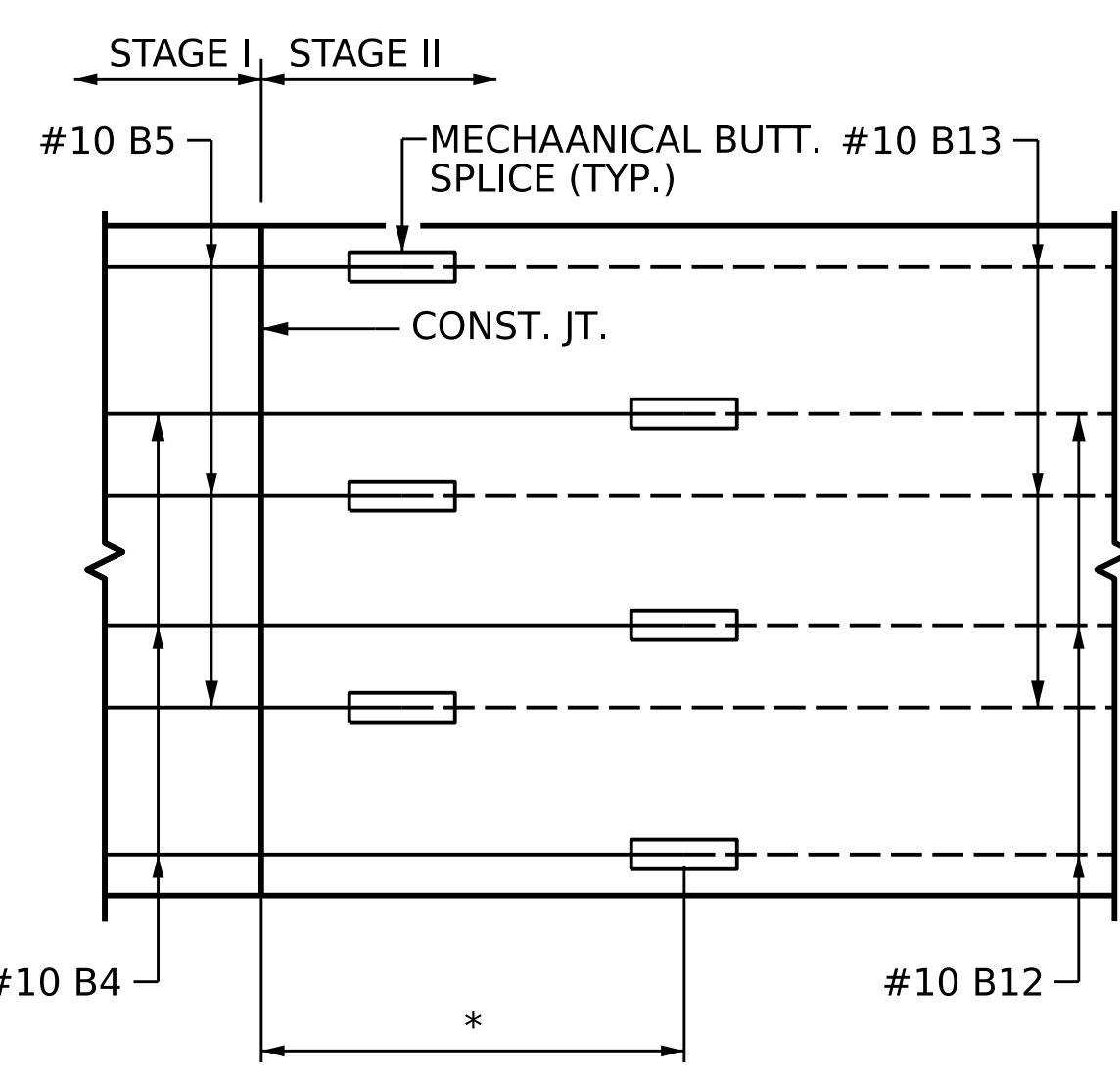
SECTION B-B



SECTION C-C



PLAN OF BOTTOM REINFORCEMENT

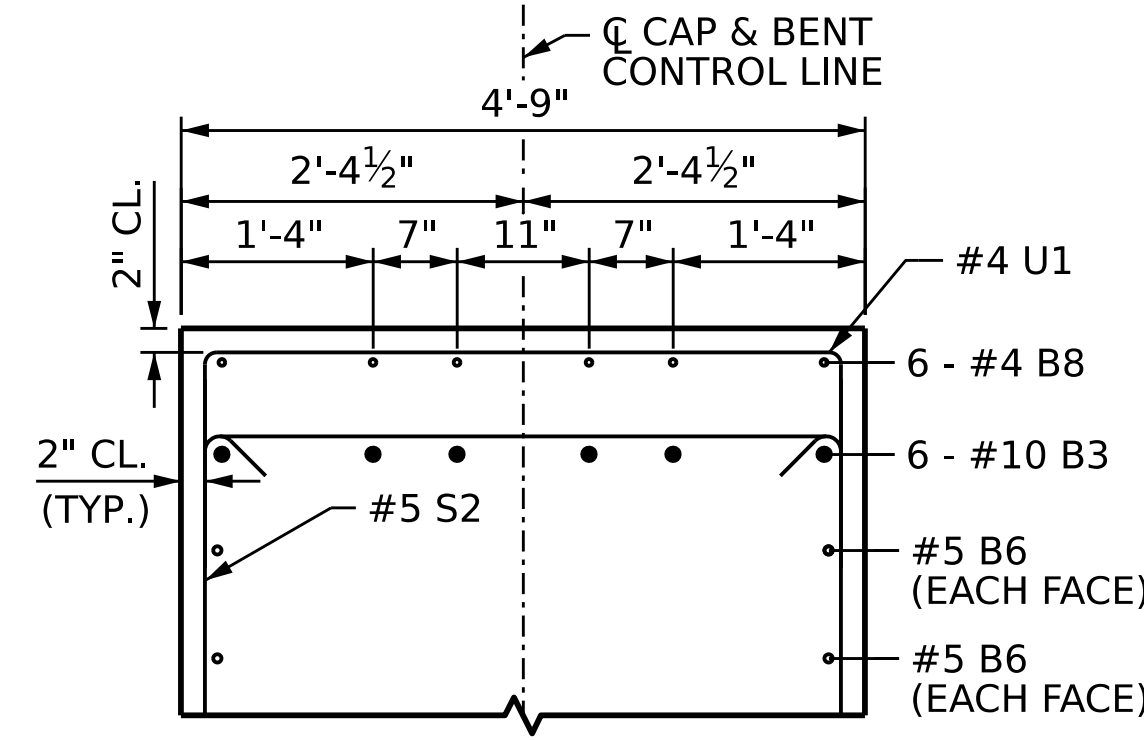


PLAN OF TOP REINFORCEMENT

DETAIL B

\* STAGE I TOP AND BOTTOM "B" BARS ARE DETAILED WITH STAGGERED 1'-0" AND 3'-0" EXTENTIONS BEYOND CONSTRUCTION JOINT.

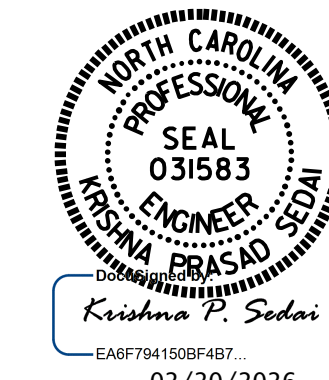
| BILL OF MATERIAL BENT #1                                                                                                  |     |      |      |          |            |                                                                                                                           |     |      |      |         |            |
|---------------------------------------------------------------------------------------------------------------------------|-----|------|------|----------|------------|---------------------------------------------------------------------------------------------------------------------------|-----|------|------|---------|------------|
| STAGE I                                                                                                                   |     |      |      |          |            | STAGE II                                                                                                                  |     |      |      |         |            |
| BAR                                                                                                                       | NO. | SIZE | TYPE | LENGTH   | WEIGHT     | BAR                                                                                                                       | NO. | SIZE | TYPE | LENGTH  | WEIGHT     |
| B1                                                                                                                        | 3   | #10  | STR  | 54'-9"   | 707        | B9                                                                                                                        | 3   | #10  | STR  | 50'-10" | 656        |
| B2                                                                                                                        | 3   | #10  | STR  | 56'-9"   | 733        | B10                                                                                                                       | 3   | #10  | STR  | 48'-10" | 630        |
| B3                                                                                                                        | 6   | #10  | 2    | 46'-1"   | 1190       | B11                                                                                                                       | 6   | #10  | 2    | 49'-1"  | 1267       |
| B4                                                                                                                        | 3   | #10  | STR  | 18'-2"   | 235        | B12                                                                                                                       | 3   | #10  | STR  | 7'-2"   | 93         |
| B5                                                                                                                        | 3   | #10  | STR  | 16'-2"   | 209        | B13                                                                                                                       | 3   | #10  | STR  | 9'-2"   | 118        |
| B6                                                                                                                        | 12  | #5   | STR  | 57'-0"   | 713        | B14                                                                                                                       | 12  | #5   | STR  | 51'-8"  | 645        |
| B7                                                                                                                        | 2   | #5   | STR  | 14'-2"   | 30         | B15                                                                                                                       | 6   | #4   | STR  | 36'-9"  | 147        |
| B8                                                                                                                        | 12  | #4   | STR  | 12'-0"   | 96         | B16                                                                                                                       | 6   | #4   | STR  | 11'-4"  | 45         |
|                                                                                                                           |     |      |      |          |            | B17                                                                                                                       | 7   | #4   | STR  | 4'-5"   | 21         |
| M1                                                                                                                        | 48  | #9   | 2    | 7'-0"    | 1142       | M1                                                                                                                        | 48  | #9   | 2    | 7'-0"   | 1142       |
| S1                                                                                                                        | 28  | #5   | 3    | 14'-10"  | 433        | S3                                                                                                                        | 8   | #5   | 3    | 17'-7"  | 148        |
| S2                                                                                                                        | 24  | #5   | 3    | 15'-11"  | 398        | S4                                                                                                                        | 31  | #5   | 3    | 15'-7"  | 504        |
| S3                                                                                                                        | 22  | #5   | 3    | 17'-7"   | 403        | S5                                                                                                                        | 26  | #5   | 3    | 14'-6"  | 393        |
| T1                                                                                                                        | 80  | #6   | STR  | 8'-8"    | 1041       | T1                                                                                                                        | 80  | #6   | STR  | 8'-8"   | 1041       |
| T2                                                                                                                        | 80  | #9   | 1    | 11'-0"   | 2992       | T2                                                                                                                        | 80  | #9   | 1    | 11'-0"  | 2992       |
| U1                                                                                                                        | 72  | #4   | 4    | 7'-5"    | 357        | U1                                                                                                                        | 73  | #4   | 4    | 7'-5"   | 362        |
| U2                                                                                                                        | 7   | #4   | 4    | 7'-3"    | 34         | U2                                                                                                                        | 7   | #4   | 4    | 7'-3"   | 34         |
| U3                                                                                                                        | 5   | #4   | 4    | 8'-2"    | 27         | U4                                                                                                                        | 5   | #4   | 4    | 8'-0"   | 27         |
| V1                                                                                                                        | 12  | #9   | 2    | 21'-9"   | 887        | V5                                                                                                                        | 12  | #9   | 2    | 23'-4"  | 952        |
| V2                                                                                                                        | 12  | #9   | 2    | 22'-5"   | 915        | V6                                                                                                                        | 12  | #9   | 2    | 23'-8"  | 966        |
| V3                                                                                                                        | 12  | #9   | 2    | 22'-10"  | 932        | V7                                                                                                                        | 12  | #9   | 2    | 23'-11" | 976        |
| V4                                                                                                                        | 12  | #9   | 2    | 23'-2"   | 945        | V8                                                                                                                        | 12  | #9   | 2    | 24'-3"  | 989        |
| REINFORCING STEEL 14,419 LBS.                                                                                             |     |      |      |          |            | REINFORCING STEEL 14,148 LBS.                                                                                             |     |      |      |         |            |
| BAR                                                                                                                       | NO. | SIZE | TYPE | LENGTH   | WEIGHT     | BAR                                                                                                                       | NO. | SIZE | TYPE | LENGTH  | WEIGHT     |
| SP-1                                                                                                                      | 1   | **   | 5    | 779'-2"  | 520        | SP-5                                                                                                                      | 1   | **   | 5    | 841'-4" | 562        |
| SP-2                                                                                                                      | 1   | **   | 5    | 805'-4"  | 538        | SP-6                                                                                                                      | 1   | **   | 5    | 854'-5" | 571        |
| SP-3                                                                                                                      | 1   | **   | 5    | 821'-8"  | 549        | SP-7                                                                                                                      | 1   | **   | 5    | 864'-3" | 577        |
| SP-4                                                                                                                      | 1   | **   | 5    | 834'-10" | 558        | SP-8                                                                                                                      | 1   | **   | 5    | 877'-4" | 586        |
| SPIRAL COLUMN REINFORCING STEEL 2165 LBS.                                                                                 |     |      |      |          |            | SPIRAL COLUMN REINFORCING STEEL 2296 LBS.                                                                                 |     |      |      |         |            |
| ** THE SP-1, SP-2, SP-3, & SP-4 SPIRAL REINFORCING STEEL SHALL BE W20 OR D-20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR |     |      |      |          |            | ** THE SP-5, SP-6, SP-7, & SP-8 SPIRAL REINFORCING STEEL SHALL BE W20 OR D-20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR |     |      |      |         |            |
| CLASS A CONCRETE BREAKDOWN                                                                                                |     |      |      |          |            | CLASS A CONCRETE BREAKDOWN                                                                                                |     |      |      |         |            |
| POUR #1 (FOOTINGS)                                                                                                        |     |      |      |          | 39.0 C.Y.  | POUR #1 (FOOTINGS)                                                                                                        |     |      |      |         | 39.0 C.Y.  |
| POUR #2 (COLUMNS)                                                                                                         |     |      |      |          | 28.0 C.Y.  | POUR #2 (COLUMNS)                                                                                                         |     |      |      |         | 30.1 C.Y.  |
| POUR #3 (CAP)                                                                                                             |     |      |      |          | 58.4 C.Y.  | POUR #3 (CAP)                                                                                                             |     |      |      |         | 55.7 C.Y.  |
| TOTAL CLASS A CONCRETE                                                                                                    |     |      |      |          | 125.4 C.Y. | TOTAL CLASS A CONCRETE                                                                                                    |     |      |      |         | 124.8 C.Y. |



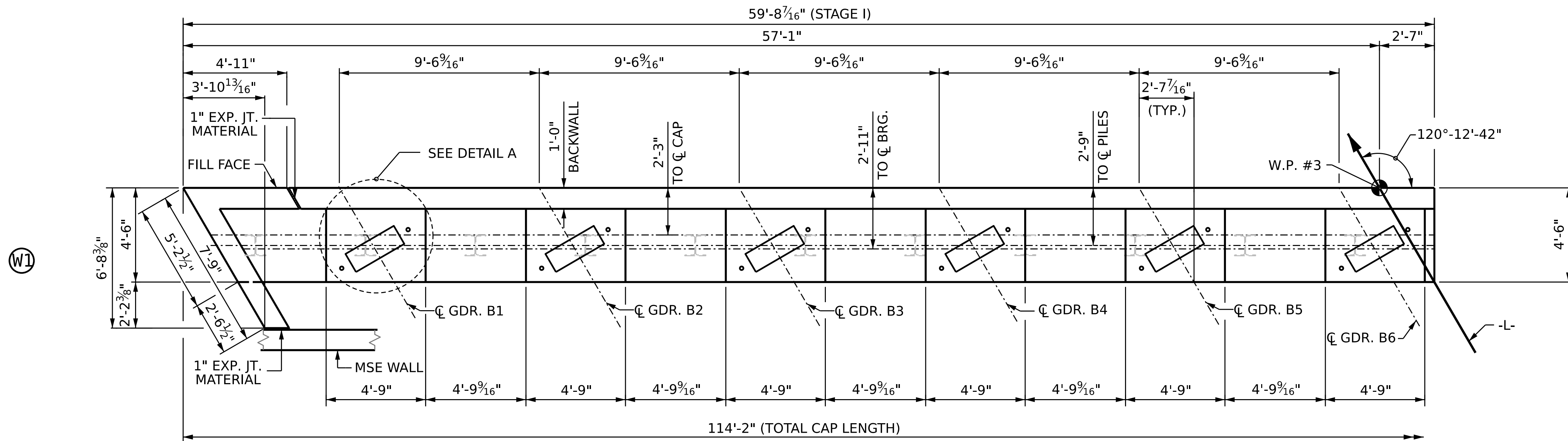
SECTION D-D

PROJECT NO. **BR-0168**  
**FORYSTH** COUNTY  
STATION: **20+73.79 -L-**

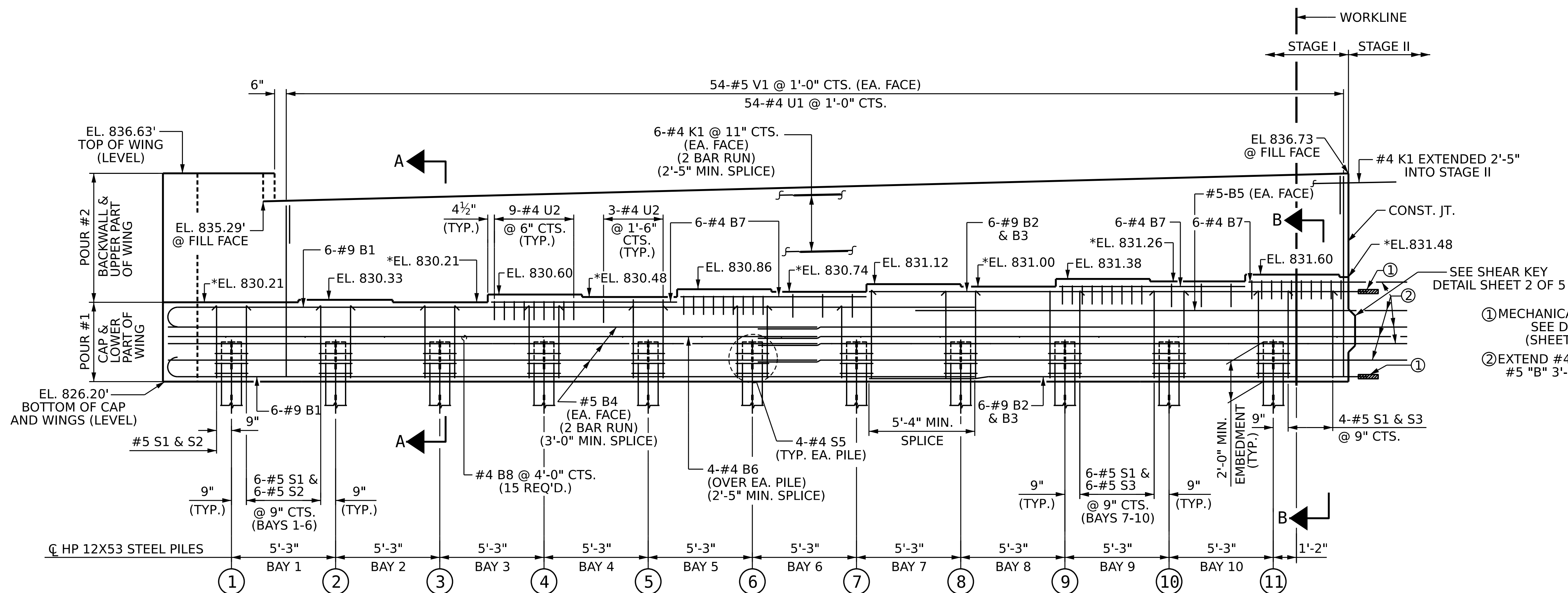
SHEET 4 OF 4



| STATE OF NORTH CAROLINA<br>DEPARTMENT OF TRANSPORTATION<br>RALEIGH |     |       |     |     |                            |
|--------------------------------------------------------------------|-----|-------|-----|-----|----------------------------|
| SUBSTRUCTURE<br>BENT 1                                             |     |       |     |     |                            |
| REVISIONS                                                          |     |       |     |     | SHEET NO.                  |
| NO.                                                                | BY: | DATE: | NO. | BY: | DATE:                      |
| 1                                                                  |     |       | 3   |     |                            |
| 2                                                                  |     |       | 4   |     |                            |
| DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED      |     |       |     |     | S-45<br>TOTAL SHEETS<br>53 |



**PLAN OF STAGE I**



**ELEVATION OF STAGE I**

FOR SECTIONS A-A & B-B,  
SEE SHEET 4 OF 5

**NOTES:**

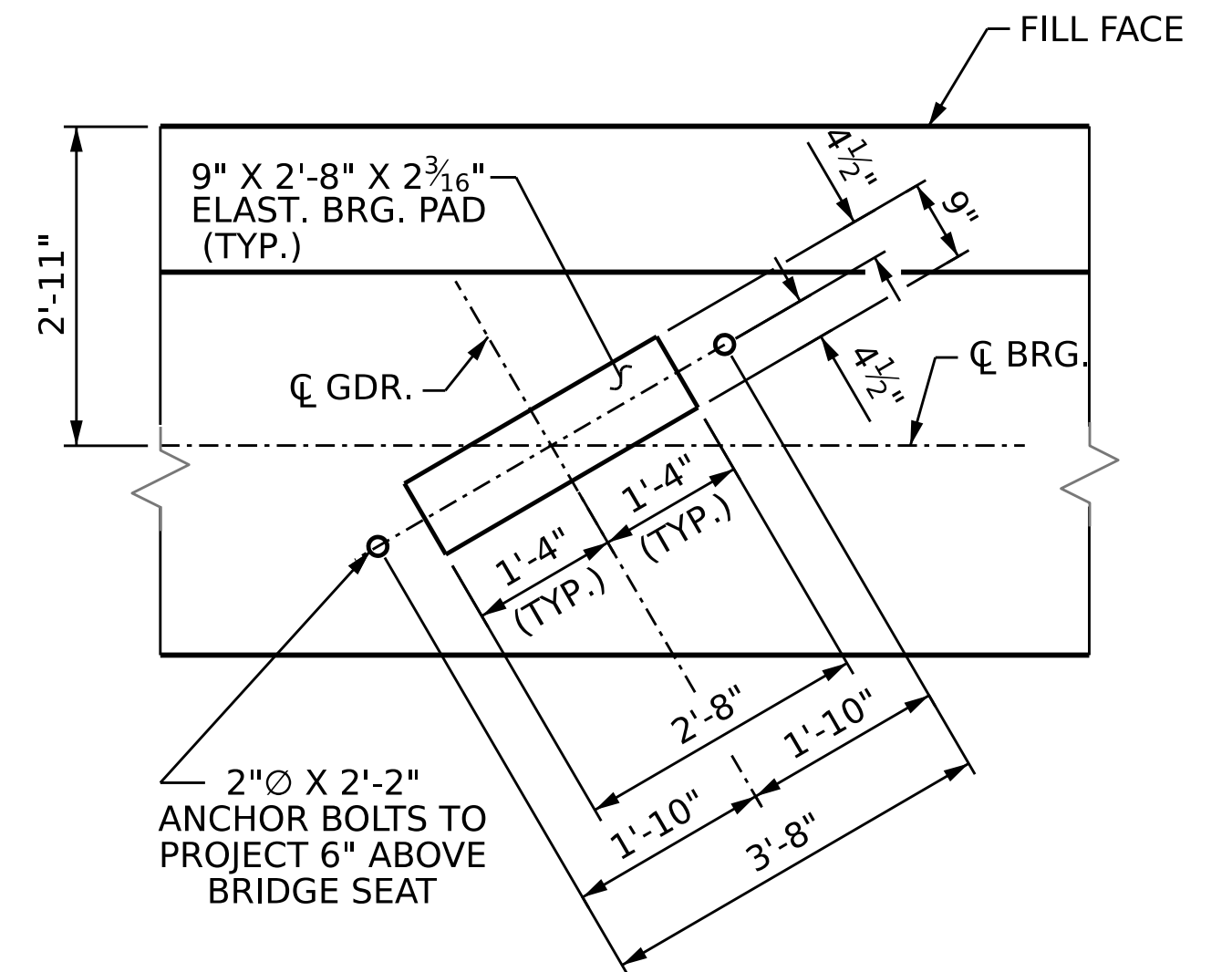
STIRRUPS AND "U" BARS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHORS.

#5 "V" BARS IN BACKWALL SHALL BE PLACED 2" CLEAR FROM TOP OF BACKWALL.

BACKWALL SHALL BE PLACED BEFORE APPLYING THE EPOXY PROTECTIVE COATING.

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

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



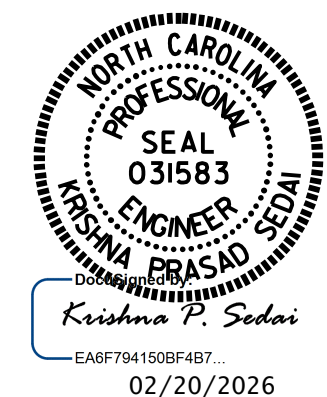
**DETAIL A**

(TYP. EA. GIRDER)

- ① MECHANICAL COUPLER, SEE DETAIL B (SHEET 4 OF 5)  
② EXTEND #4 "B" 2'-5" MIN. & #5 "B" 3'-0" INTO STAGE II

PROJECT NO. **BR-0168**  
**FORSYTH** COUNTY  
STATION: **20+73.79 -L-**

SHEET 1 OF 5



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

SUBSTRUCTURE  
**END BENT #2**  
**STAGE I**

REVISIONS

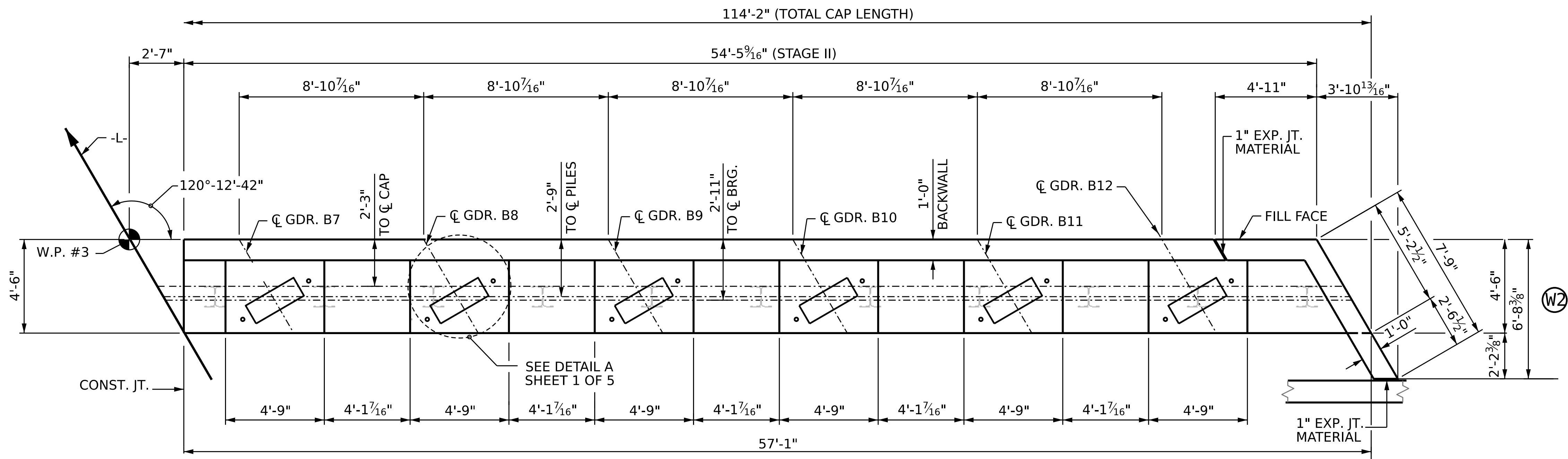
| NO. | BY: | DATE: | NO. | BY: | DATE: | SHEET NO.       |
|-----|-----|-------|-----|-----|-------|-----------------|
| 1   |     |       | 3   |     |       | S-46            |
| 2   |     |       | 4   |     |       | TOTAL SHEETS 53 |

DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED

DRAWN BY : **E. MOHAMED** DATE : **10/2025**  
CHECKED BY : **A. SORSENGINH** DATE : **10/2025**  
DESIGN ENGINEER OF RECORD: **A. IGHWAIR** DATE : **10/2025**

12/19/2025  
S:\DPO3\BR-0168\Final Plans\401.091.BR0168.SMU.EB2.546.330289.dgn  
ksedai

8/26/21



PLAN OF STAGE II

NOTES:

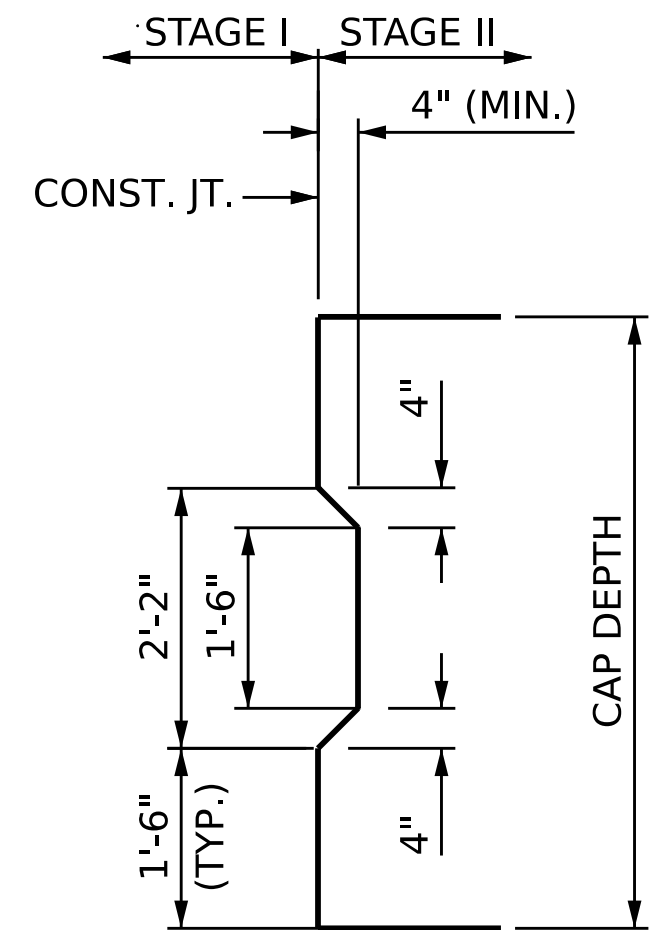
STIRRUPS AND "U" BARS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHORS.

#5 "V" BARS IN BACKWALL SHALL BE PLACED 2" CLEAR FROM TOP OF BACKWALL.

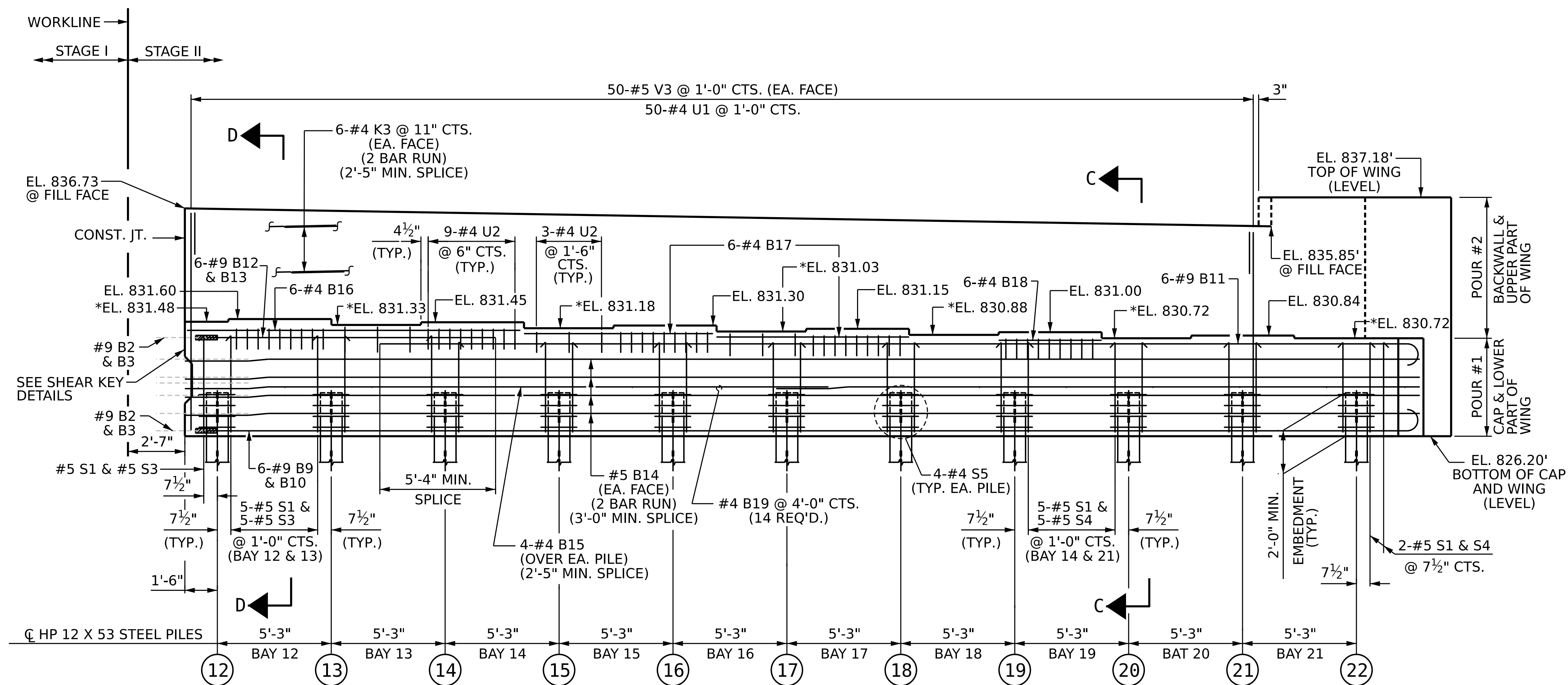
BACKWALL SHALL BE PLACED BEFORE APPLYING THE EPOXY PROTECTIVE COATING.

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

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



SHEAR KEY DETAIL

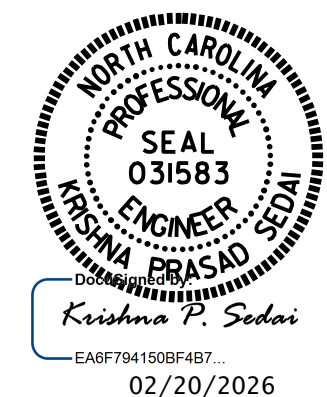


ELEVATION OF STAGE II

FOR SECTIONS C-C & SECTION D-D,  
SEE SHEET 5 OF 5

PROJECT NO. **BR-0168**  
**FORSYTH** COUNTY  
STATION: **20+73.79 -L-**

SHEET 2 OF 5



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

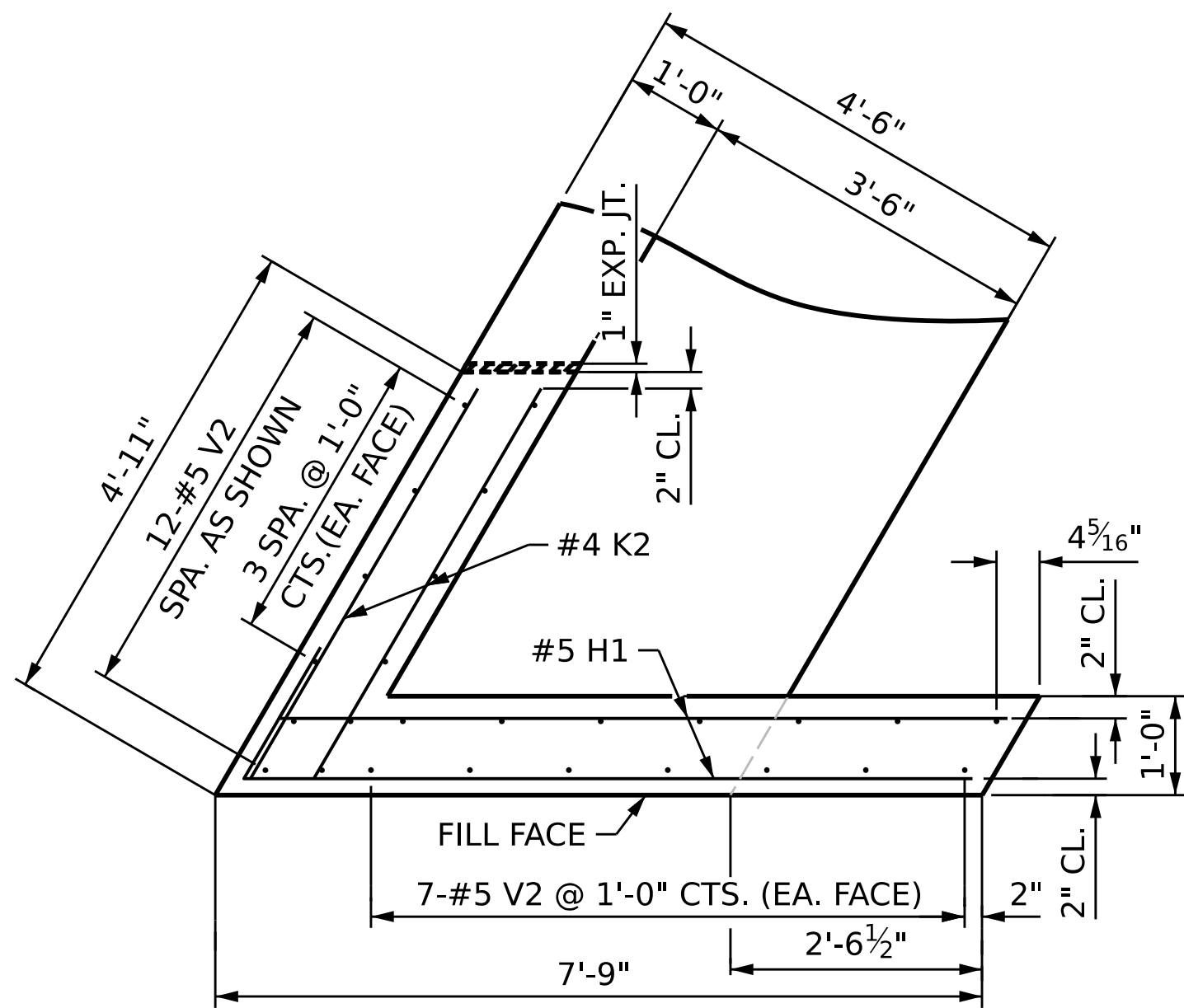
SUBSTRUCTURE  
**END BENT #2  
STAGE II**

DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED

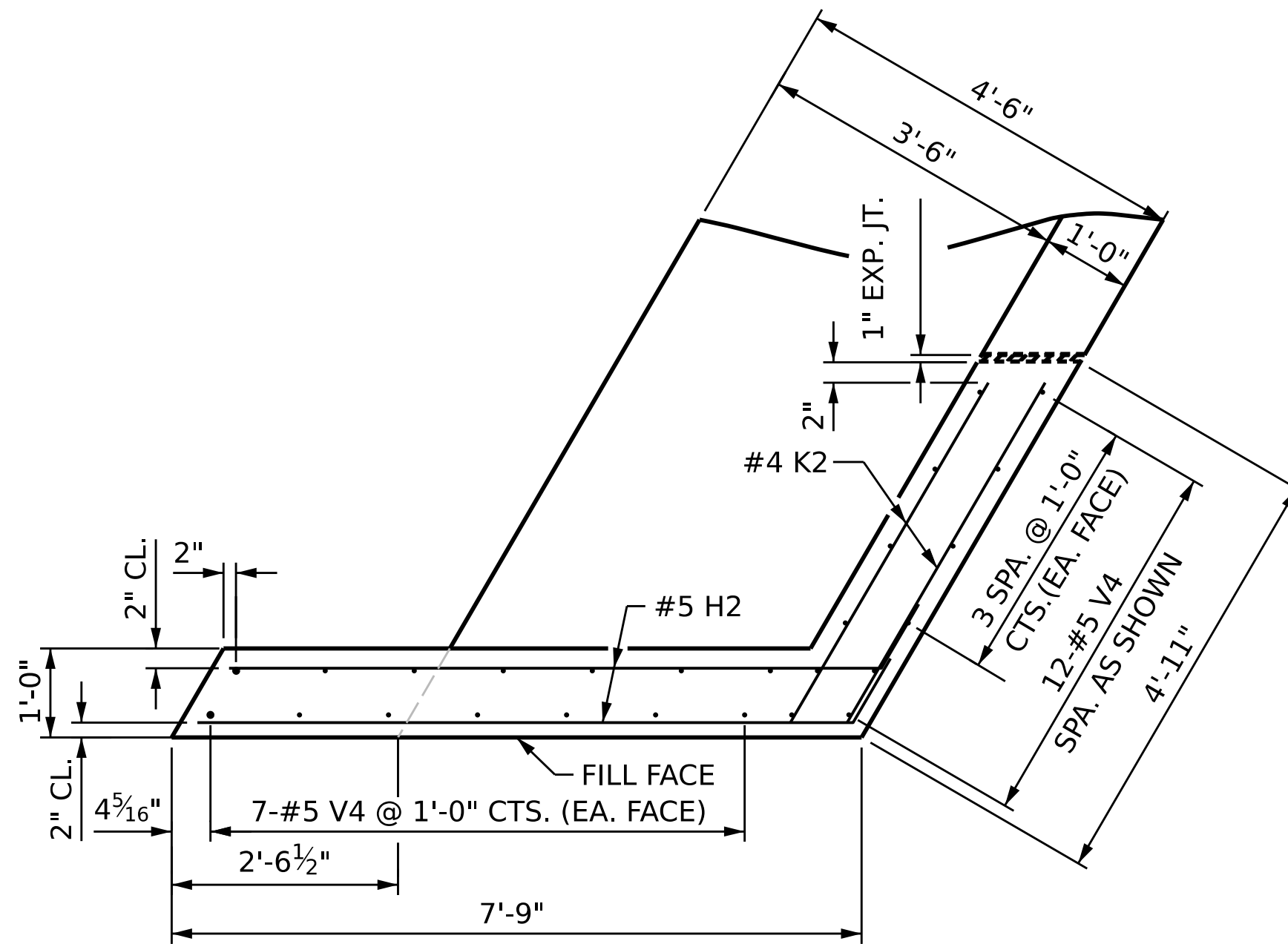
| REVISIONS |     |       |     |     | SHEET NO.       |
|-----------|-----|-------|-----|-----|-----------------|
| NO.       | BY: | DATE: | NO. | BY: |                 |
| 1         |     |       | 3   |     | S-47            |
| 2         |     |       | 4   |     | TOTAL SHEETS 53 |

DRAWN BY : **E. MOHAMED** DATE : **09/2025**  
CHECKED BY : **A. SORSENGINH** DATE : **09/2025**  
DESIGN ENGINEER OF RECORD: **A. IGHWAIR** DATE : **09/2025**

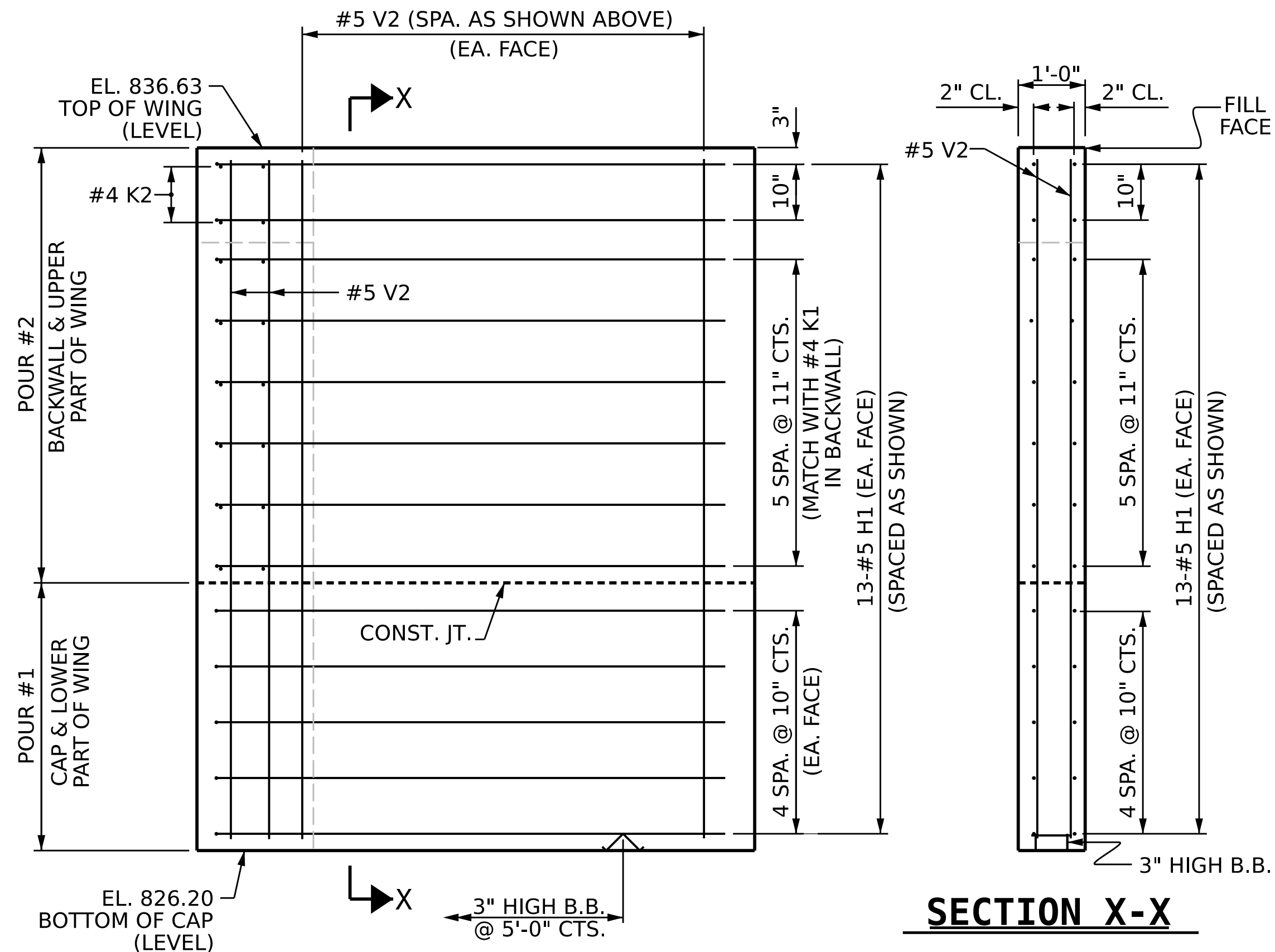
12/19/2025  
S:\DPO3\BR-0168\Final Plans\401.093\_BR0168\_SMU.EB2.S47.330289.dgn  
ksedai



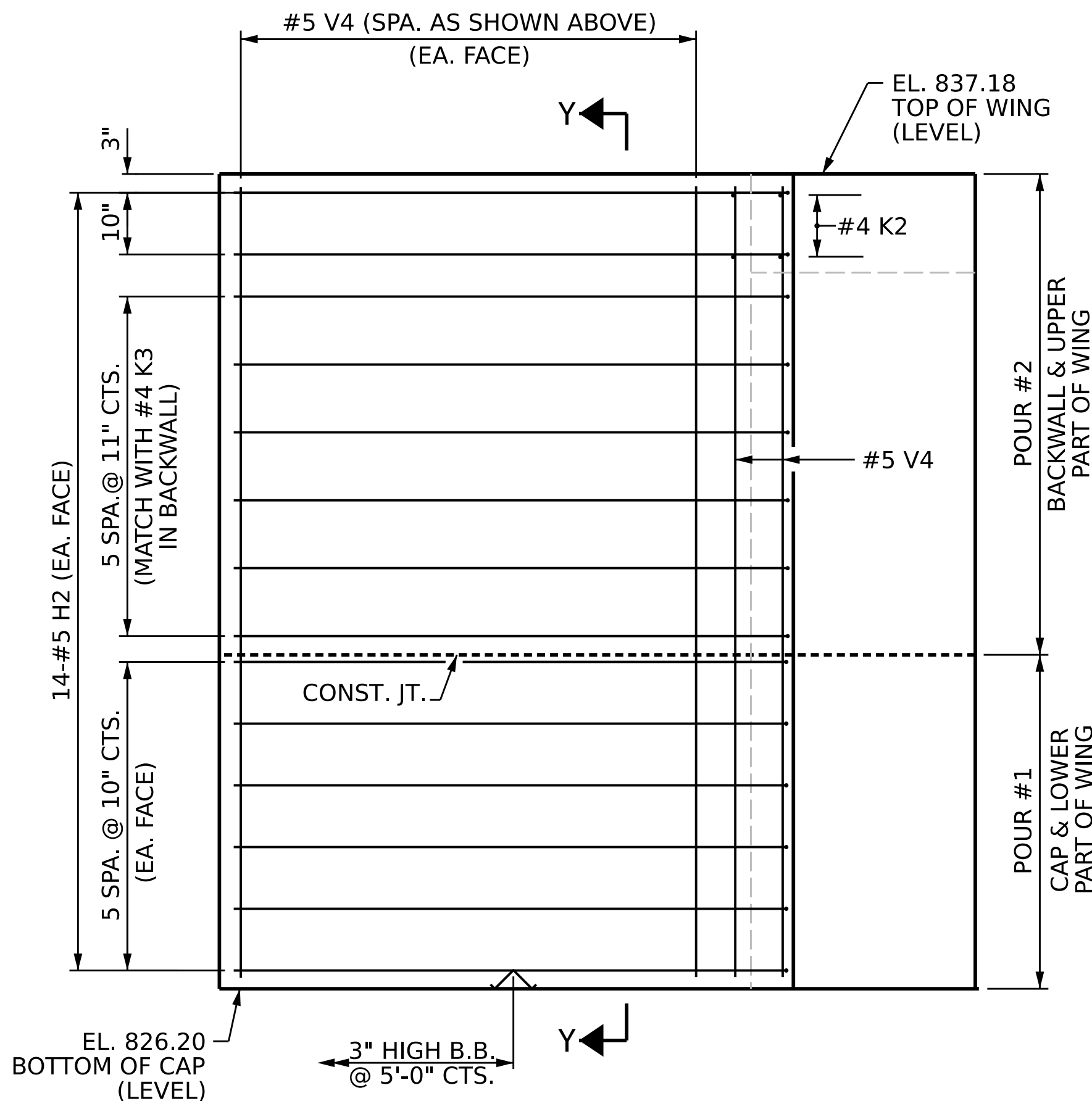
PLAN OF WING W1 STAGE I



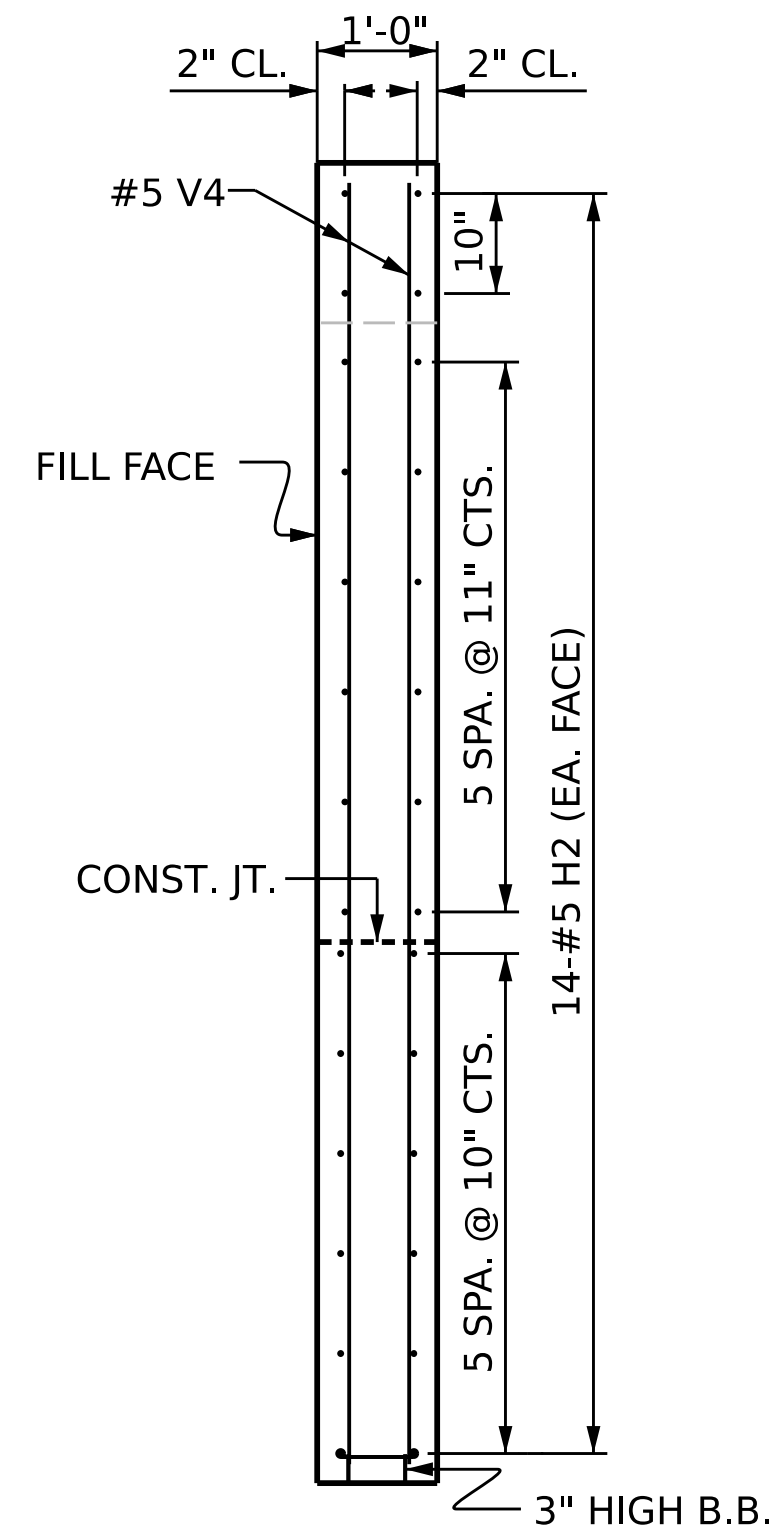
PLAN OF WING W2 STAGE II



ELEVATION OF WING W1 STAGE I



ELEVATION OF WING W2 STAGE II

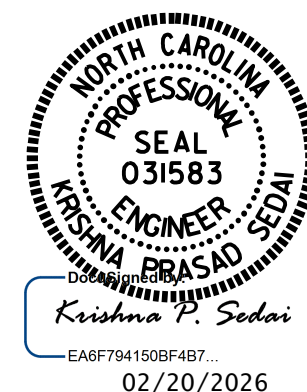


SECTION Y-Y

DRAWN BY : E. MOHAMED DATE : 09/2025  
CHECKED BY : A. SORSENGINH DATE : 09/2025  
DESIGN ENGINEER OF RECORD : A. IGHWAIR DATE : 09/2025

2/6/2026  
S:\DP03\BR-0168\Final Plans\401.095\_BR0168\_SMU.EB2.S48.330289.dgn  
ksedai

DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED



PROJECT NO. **BR-0168**  
**FORSYTH** COUNTY  
STATION: **20+73.79 -L-**

SHEET 3 OF 5

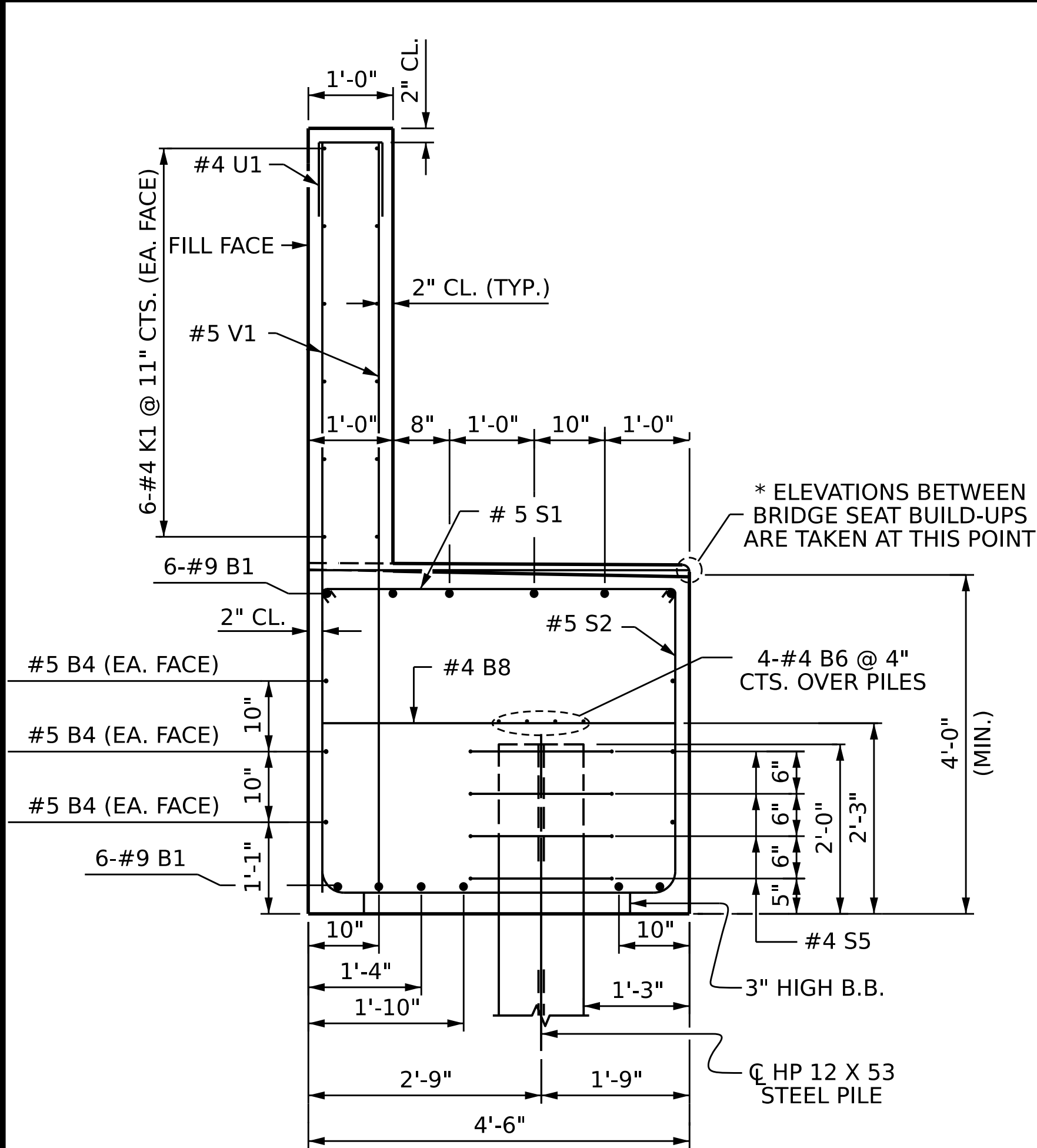
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

SUBSTRUCTURE

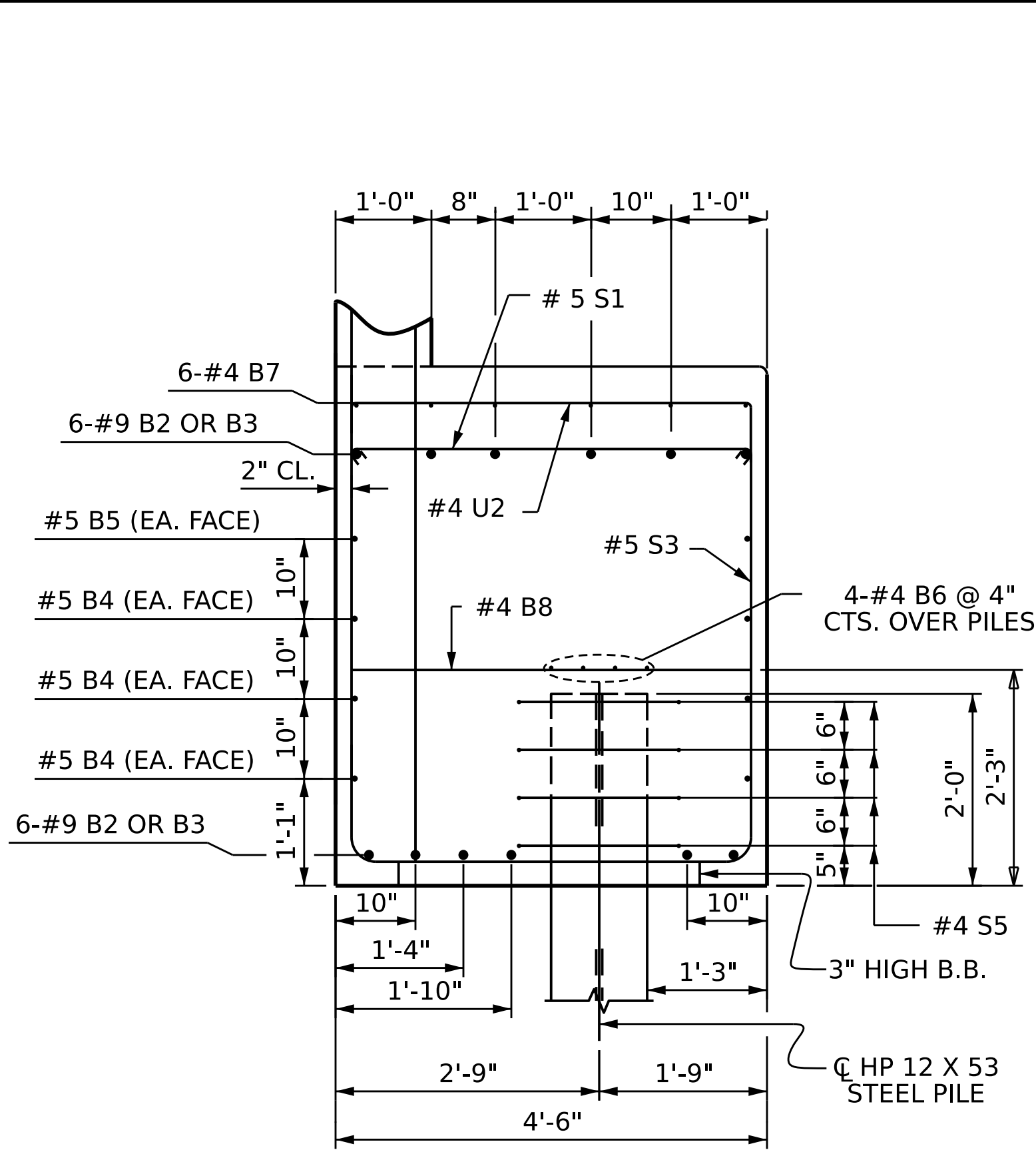
**WING WALLS @  
END BENT 2**

| REVISIONS |     |       |     |     | SHEET NO.       |
|-----------|-----|-------|-----|-----|-----------------|
| NO.       | BY: | DATE: | NO. | BY: |                 |
| 1         |     |       | 3   |     | S-48            |
| 2         |     |       | 4   |     | TOTAL SHEETS 53 |

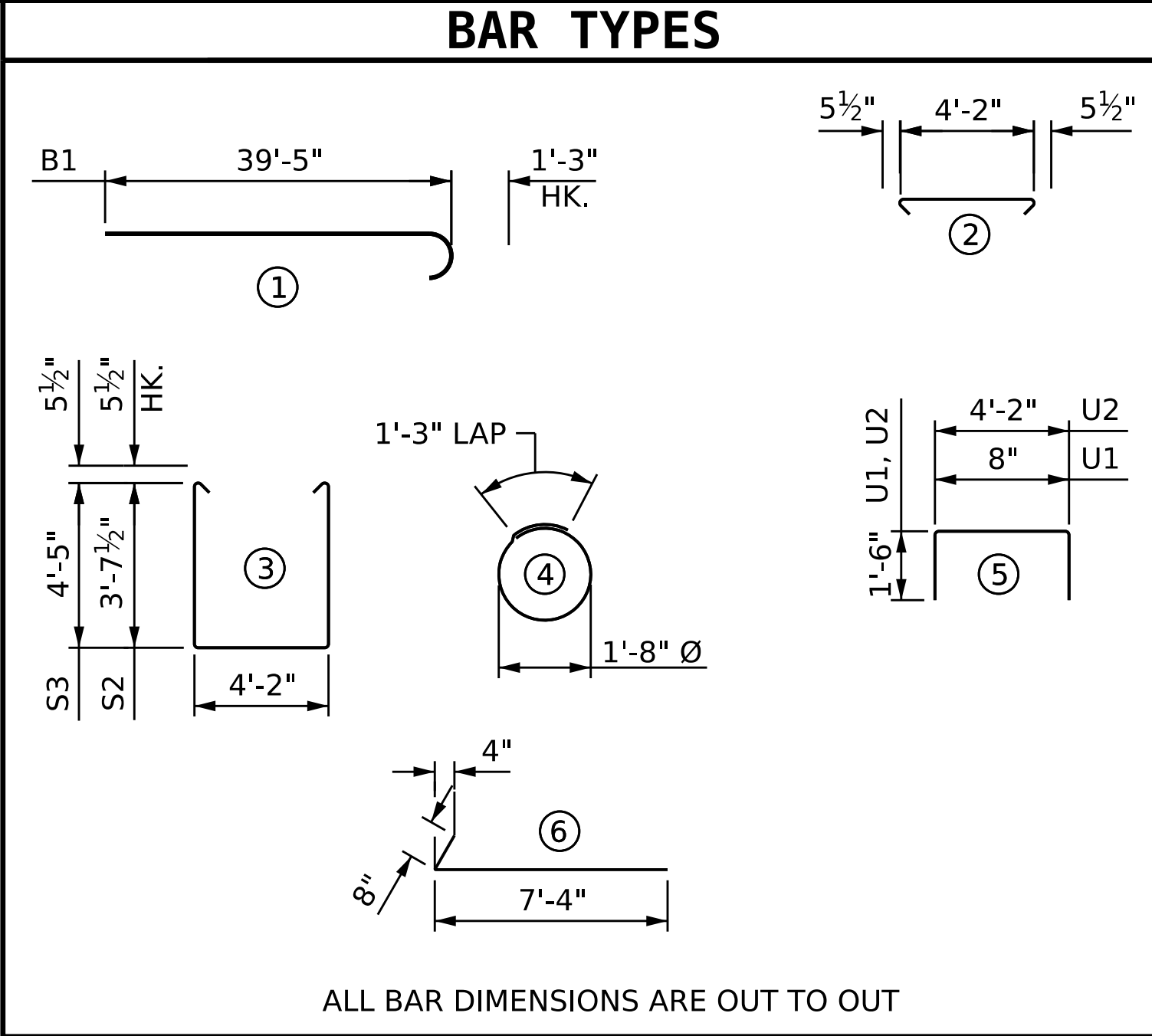
8/26/21



SECTION A-A

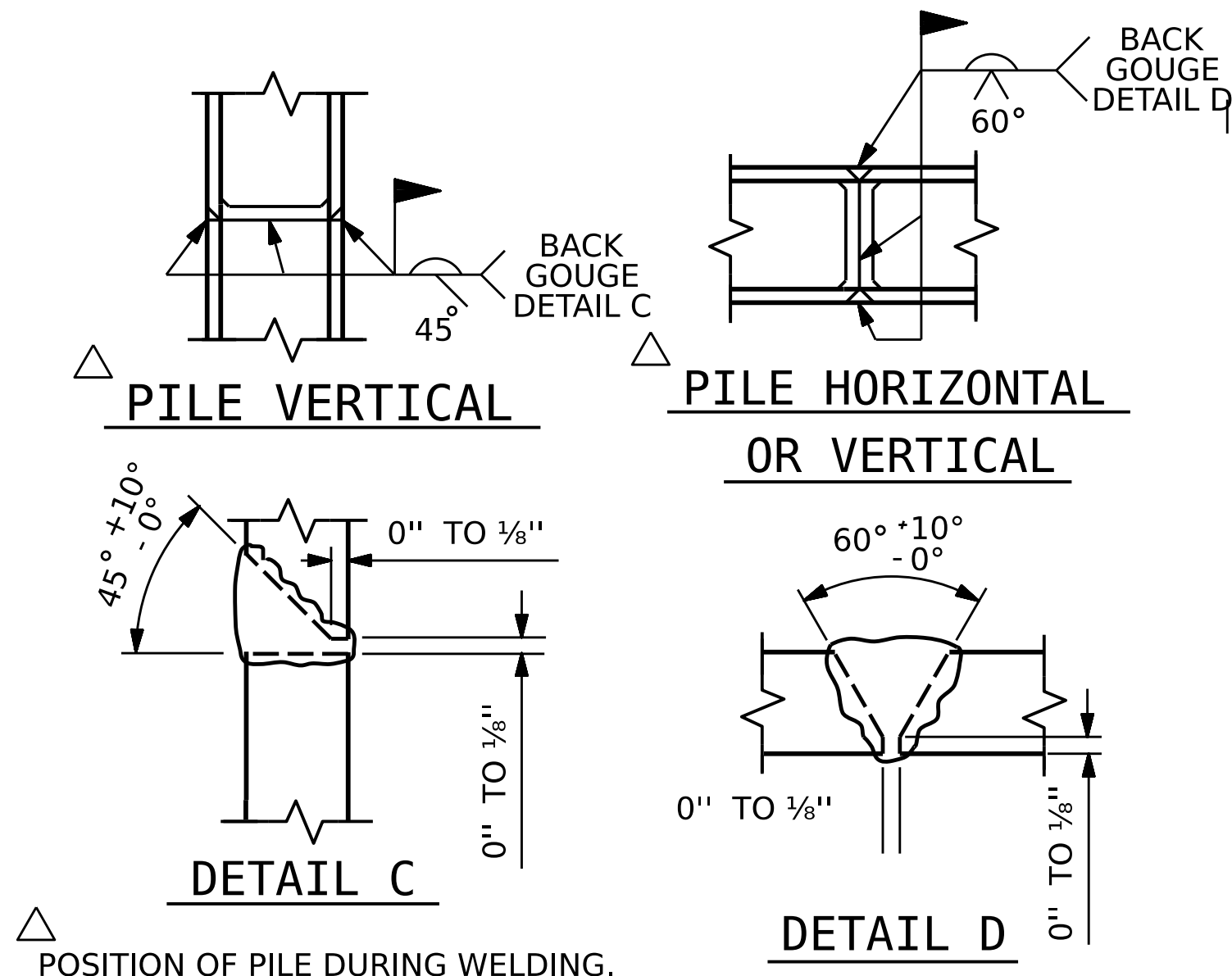


SECTION B-B

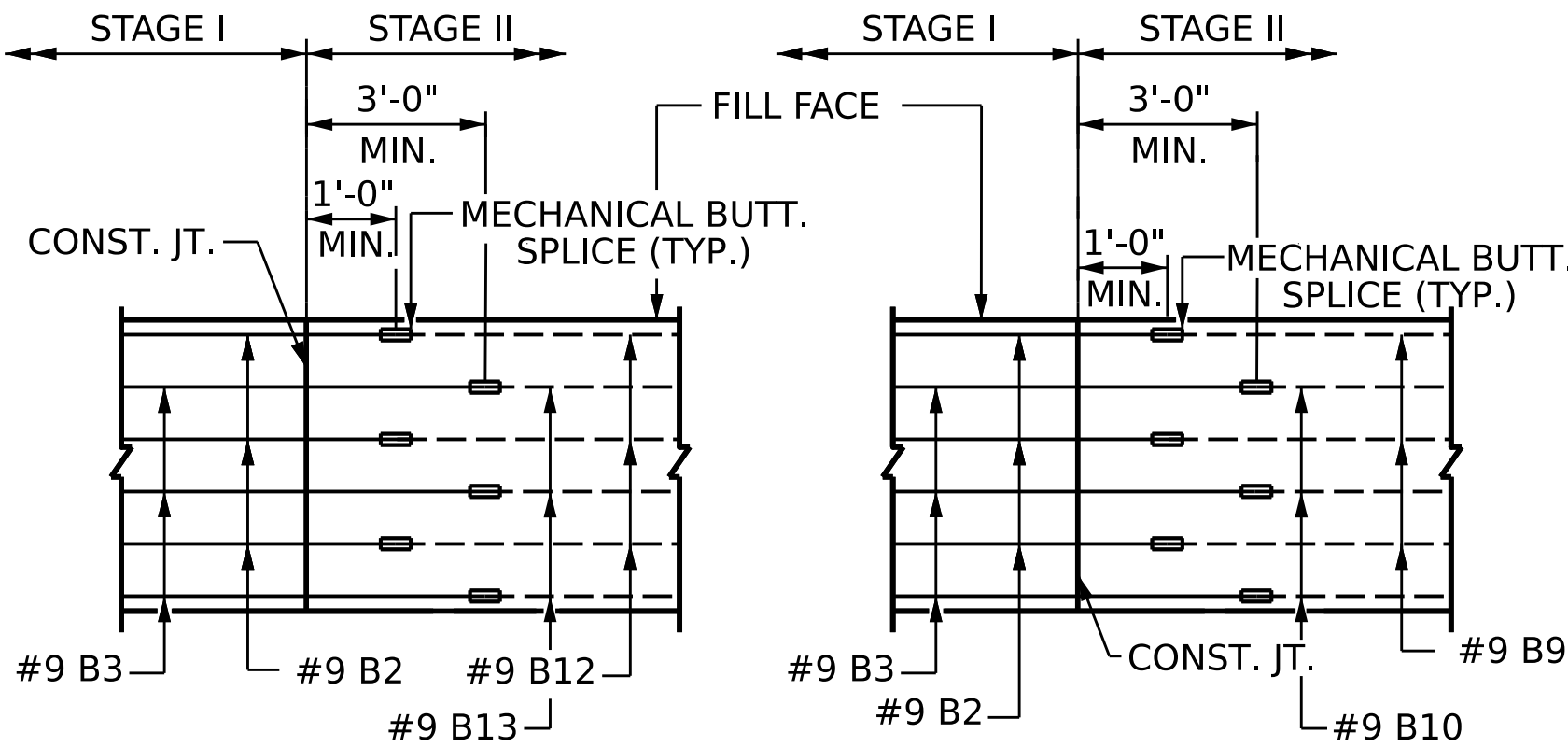


| BILL OF MATERIAL  |     |      |      |            |        |
|-------------------|-----|------|------|------------|--------|
| STAGE I           |     |      |      |            |        |
| BAR               | No. | SIZE | TYPE | LENGTH     | WEIGHT |
| B1                | 12  | #9   |      | 40'-8"     | 1659   |
| B2                | 6   | #9   | STR  | 26'-5"     | 539    |
| B3                | 6   | #9   | STR  | 28'-5"     | 580    |
| B4                | 12  | #5   | STR  | 32'-10"    | 411    |
| B5                | 2   | #5   | STR  | 26'-0"     | 54     |
| B6                | 8   | #4   | STR  | 32'-6"     | 174    |
| B7                | 24  | #4   | STR  | 9'-5"      | 151    |
| B8                | 15  | #4   | STR  | 4'-2"      | 42     |
| H1                | 26  | #5   |      | 8'-0"      | 217    |
| K1                | 24  | #4   | STR  | 32'-3"     | 517    |
| K2                | 4   | #4   | STR  | 4'-6"      | 12     |
| S1                | 65  | #5   | 2    | 5'-1"      | 347    |
| S2                | 37  | #5   | 3    | 12'-4"     | 476    |
| S3                | 28  | #5   | 3    | 13'-11"    | 406    |
| S5                | 44  | #4   | 4    | 6'-6"      | 191    |
| U1                | 54  | #4   | 5    | 3'-8"      | 132    |
| U2                | 45  | #4   | 5    | 7'-2"      | 215    |
| V1                | 108 | #5   | STR  | 8'-9"      | 986    |
| V2                | 26  | #5   | STR  | 10'-1"     | 273    |
| REINFORCING STEEL |     |      |      | 7,382 LBS. |        |

| CLASS A CONCRETE BREAKDOWN<br>(STAGE I) |                                |              |
|-----------------------------------------|--------------------------------|--------------|
| POUR #1                                 | CAP & LOWER PART OF WINGS      | 46.4 C.Y.    |
| POUR #2                                 | BACKWALL & UPPER PART OF WINGS | 13.6 C.Y.    |
| TOTAL CLASS A CONCRETE                  |                                | 60.0 C.Y.    |
| HP 12X53 STEEL PILES                    |                                |              |
| NO. 11                                  |                                | 565 LIN. FT. |



PILE SPLICE DETAILS



DETAIL B

PROJECT NO. **BR-0168**  
**FORSYTH** COUNTY  
STATION: **20+73.79 -L-**

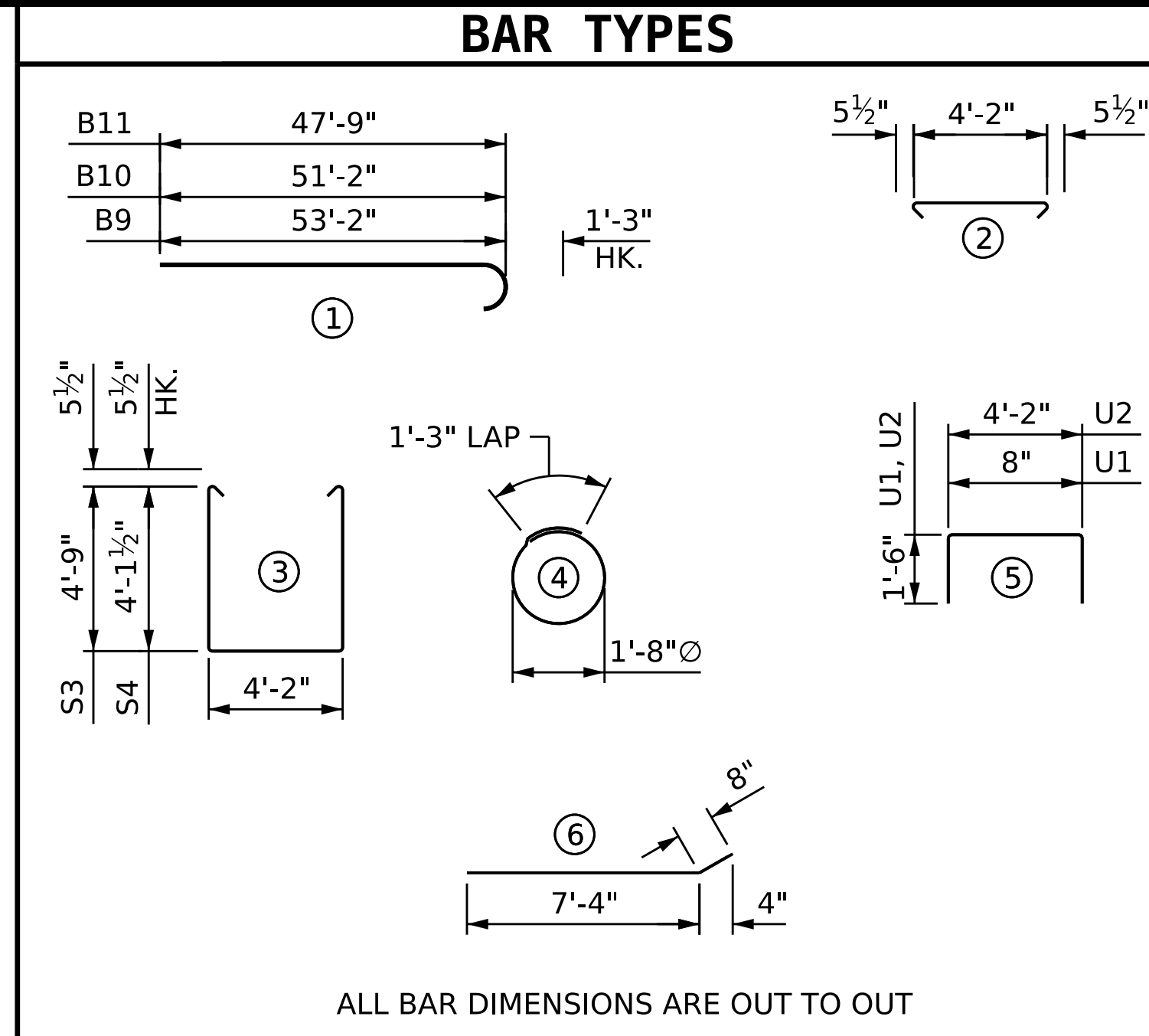
SHEET 4 OF 5



| STATE OF NORTH CAROLINA<br>DEPARTMENT OF TRANSPORTATION<br>RALEIGH  |     |       |     |     |                    |
|---------------------------------------------------------------------|-----|-------|-----|-----|--------------------|
| SUBSTRUCTURE<br>END BENT #2<br>STAGE I                              |     |       |     |     |                    |
| REVISIONS                                                           |     |       |     |     | SHEET NO.          |
| NO.                                                                 | BY: | DATE: | NO. | BY: | DATE:              |
| 1                                                                   |     |       | 3   |     |                    |
| 2                                                                   |     |       | 4   |     |                    |
| DOCUMENT NOT CONSIDERED<br>FINAL UNLESS ALL<br>SIGNATURES COMPLETED |     |       |     |     | TOTAL SHEETS<br>53 |

DRAWN BY : **E. MOHAMED** DATE : **10/2025**  
CHECKED BY : **A. SORSENGINH** DATE : **10/2025**  
DESIGN ENGINEER OF RECORD: **A. IGHWAIR** DATE : **10/2025**

2/6/2026  
S:\DP03\BR-0168\Final Plans\401.097\_BR0168\_SMU.EB2.S49.330289.dgn  
ksedai



| CLASS A CONCRETE BREAKDOWN<br>(STAGE II) |                                      |              |
|------------------------------------------|--------------------------------------|--------------|
| POUR #1                                  | CAP & LOWER<br>PART OF WINGS         | 46.9 C.Y.    |
| POUR #2                                  | BACKWALL &<br>UPPER PART OF<br>WINGS | 13.0 C.Y.    |
| TOTAL CLASS A CONCRETE                   |                                      | 59.9 C.Y.    |
| HP 12X53 STEEL PILES                     |                                      |              |
| NO. 11                                   |                                      | 605 LIN. FT. |



SHEET 5 OF 5

## SUBSTRUCTURE

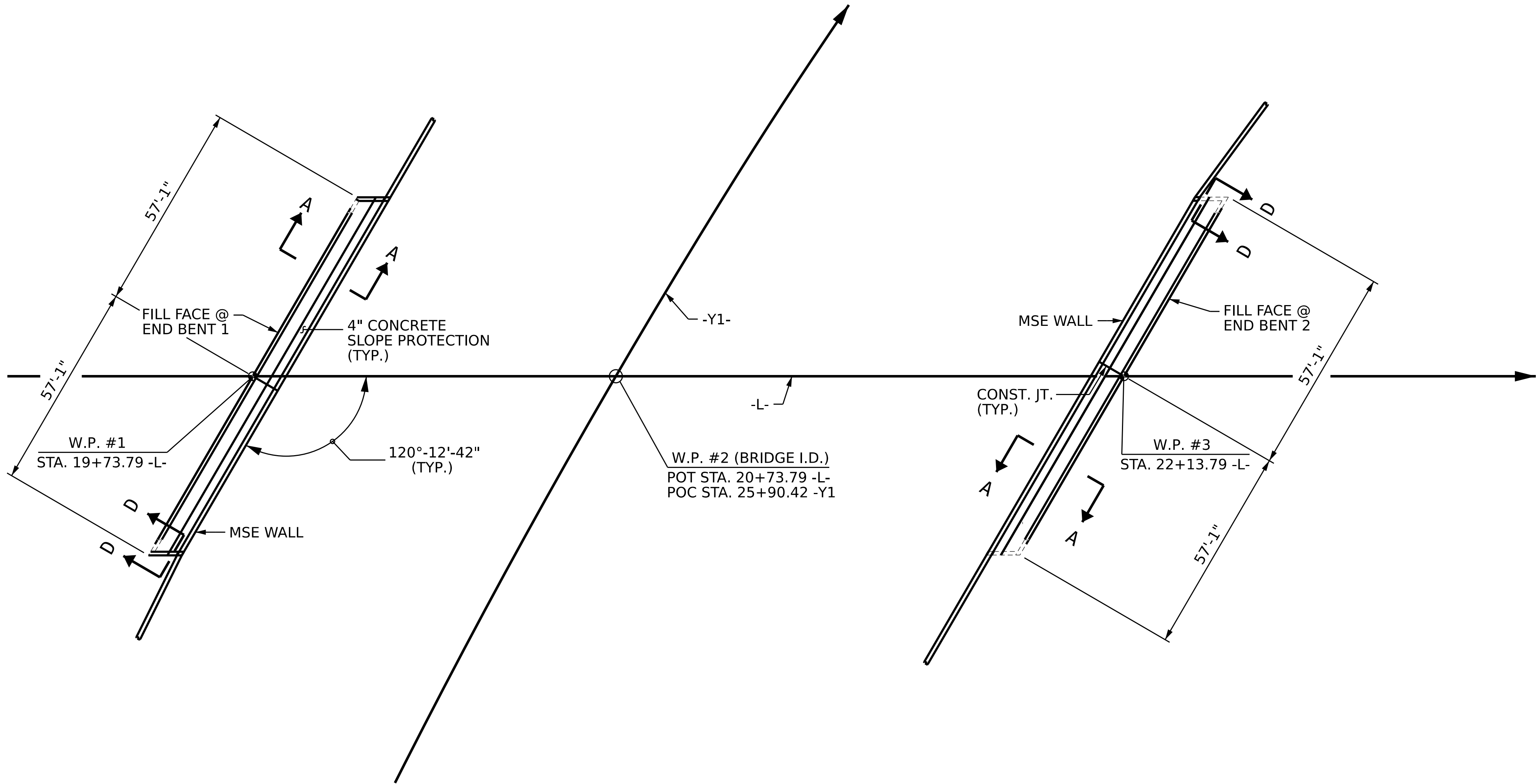
**END BENT #2**  
**STAGE II**

| REVISIONS |     |       |     |     |       | SHEET NO.<br>S-50  |
|-----------|-----|-------|-----|-----|-------|--------------------|
| NO.       | BY: | DATE: | NO. | BY: | DATE: |                    |
| 1         |     |       | 3   |     |       | TOTAL SHEETS<br>53 |
| 2         |     |       | 4   |     |       |                    |

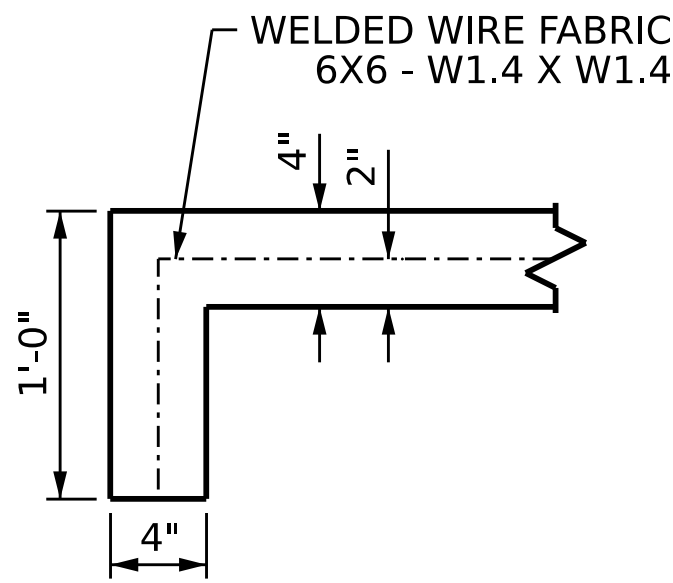
DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED

DRAWN BY : E. MOHAMED/T. STOGNER DATE : 10/2025  
 CHECKED BY : A. SORSENGINH DATE : 10/2025  
 DESIGN ENGINEER OF RECORD: E. MOHAMED DATE : 10/2025

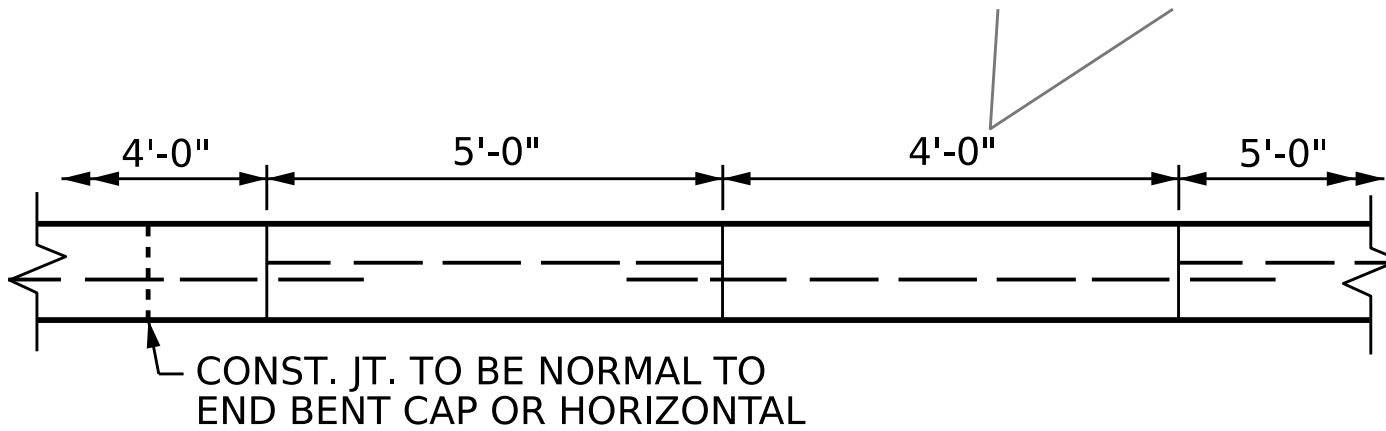
2/6/2026  
S:\DPG3\BR-0168\Final Plans\401\_099\_BR0168\_SMU\_EB2\_S50\_330289.dgn  
ksedai



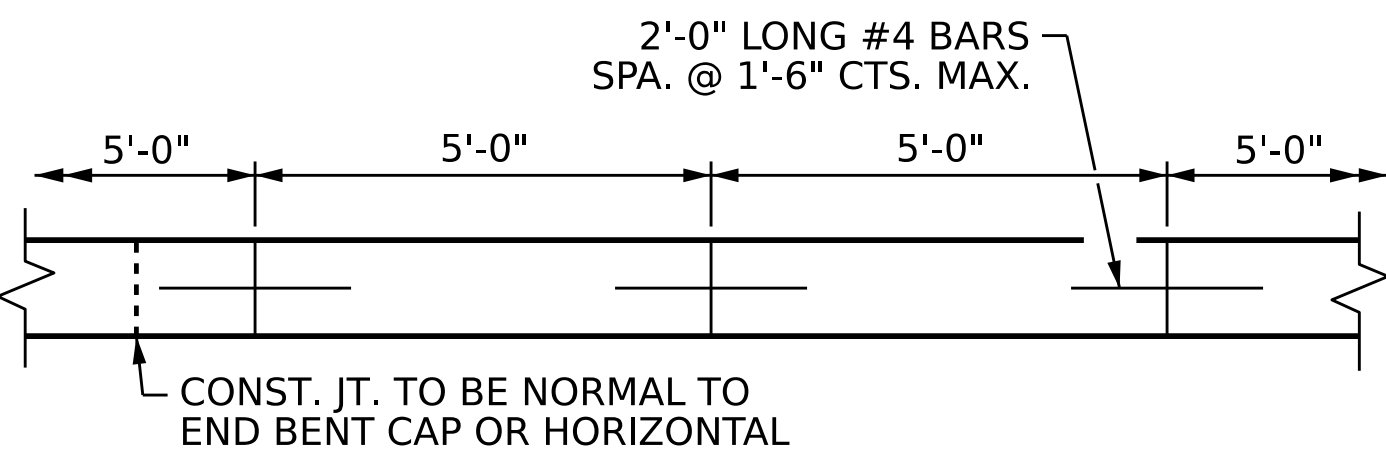
PLAN



SECTION D-D



OPTIONAL POURING DETAIL



POURING DETAIL

| BRIDGE @<br>STA. 20+73.79 -L- | 4" SLOPE<br>PROTECTION | * WELDED WIRE FABRIC<br>60 INCHES WIDE |
|-------------------------------|------------------------|----------------------------------------|
|                               | SQUARE YARDS           | APPROX. L.F.                           |
| END BENT 1                    | 28                     | 50                                     |
| END BENT 2                    | 28                     | 50                                     |

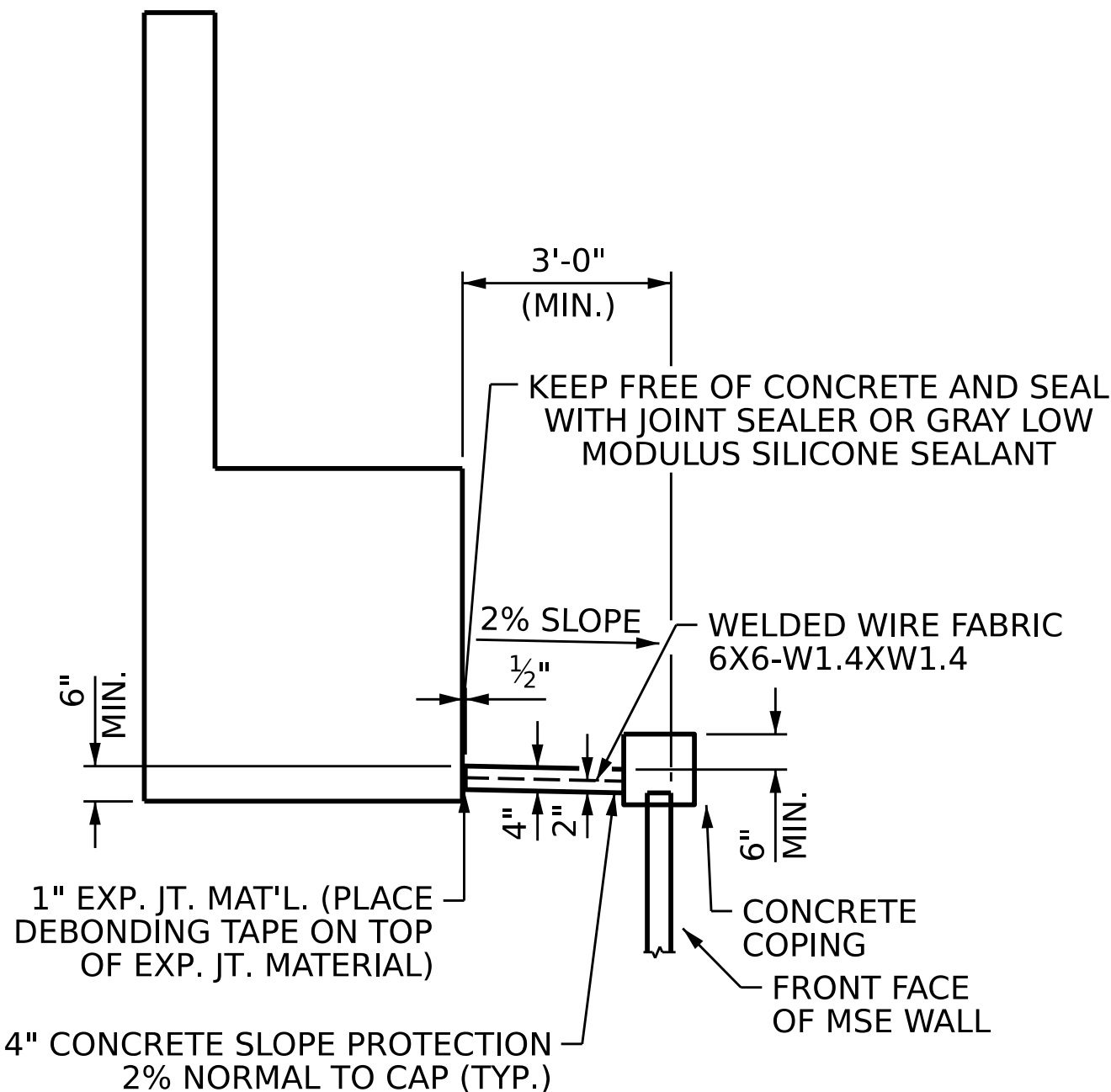
\* QUANTITIES SHOWN ARE BASED ON 5' POURS

NOTES

SLOPE PROTECTION SHALL BE PLACED UNDER THE ENDS OF THE BRIDGE AS SHOWN IN THE DETAILS. MEASUREMENT AND PAYMENT SHALL BE AS PRESCRIBED IN SECTION 462 OF THE STANDARD SPECIFICATIONS.

SLOPE PROTECTION SHALL CONSIST OF 4" POURED-IN-PLACE CONCRETE PAVING AS SHOWN IN THE DETAILS ON THIS SHEET. CONCRETE SHALL BE CLASS ``B''. THE CONCRETE SURFACE SHALL BE FLOATED WITH A WOODEN FLOAT AND FINISHED. WELDED WIRE FABRIC REINFORCING SHALL BE 6 X 6 - W1.4 X W1.4, 60" WIDE. SLOPE PROTECTION SHALL BE POURED IN 5' STRIPS AS SHOWN IN THE ``POURING DETAIL'' WITH 2'-0" LONG #4 BARS PLACED ALONG THE SLOPE BETWEEN STRIPS AT 1'-6" MAXIMUM SPACING. SLOPE PROTECTION MAY BE POURED IN ALTERNATE 4' AND 5' STRIPS AS SHOWN IN THE "OPTIONAL POURING DETAIL" WITH ADJACENT RUNS OF WELDED WIRE FABRIC LAPPING AT LEAST 6". THE COST OF THE WELDED WIRE FABRIC AND #4 BARS, IF USED, SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE BID PER SQUARE YARD FOR SLOPE PROTECTION.

CONTRACTOR SHALL COORDINATE WITH WALL MANUFACTURER TO ENSURE PROPER DRAINAGE ON CONCRETE SLOPE PROTECTION.



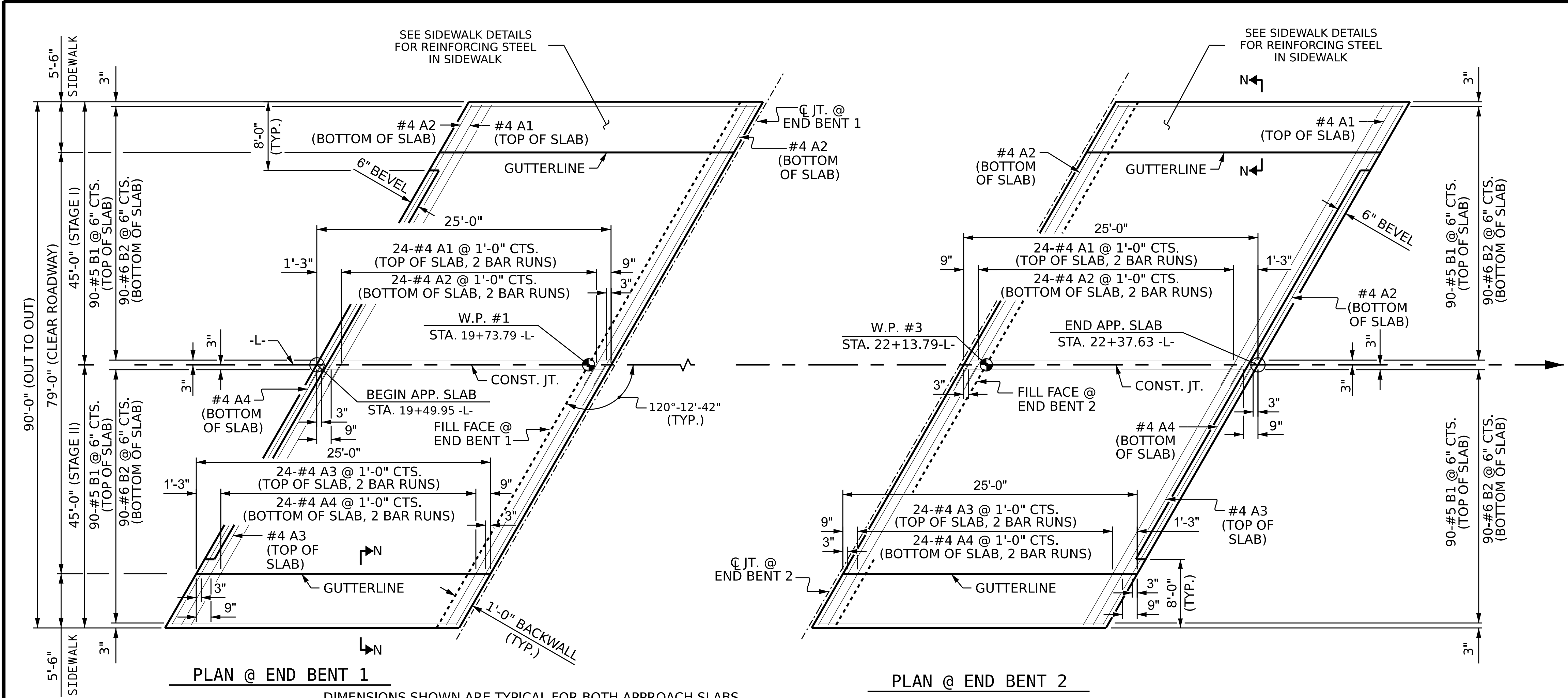
SECTION A-A

PROJECT NO. **BR-0168**  
**FORYSTH** COUNTY  
STATION: **20+73.79 -L-**

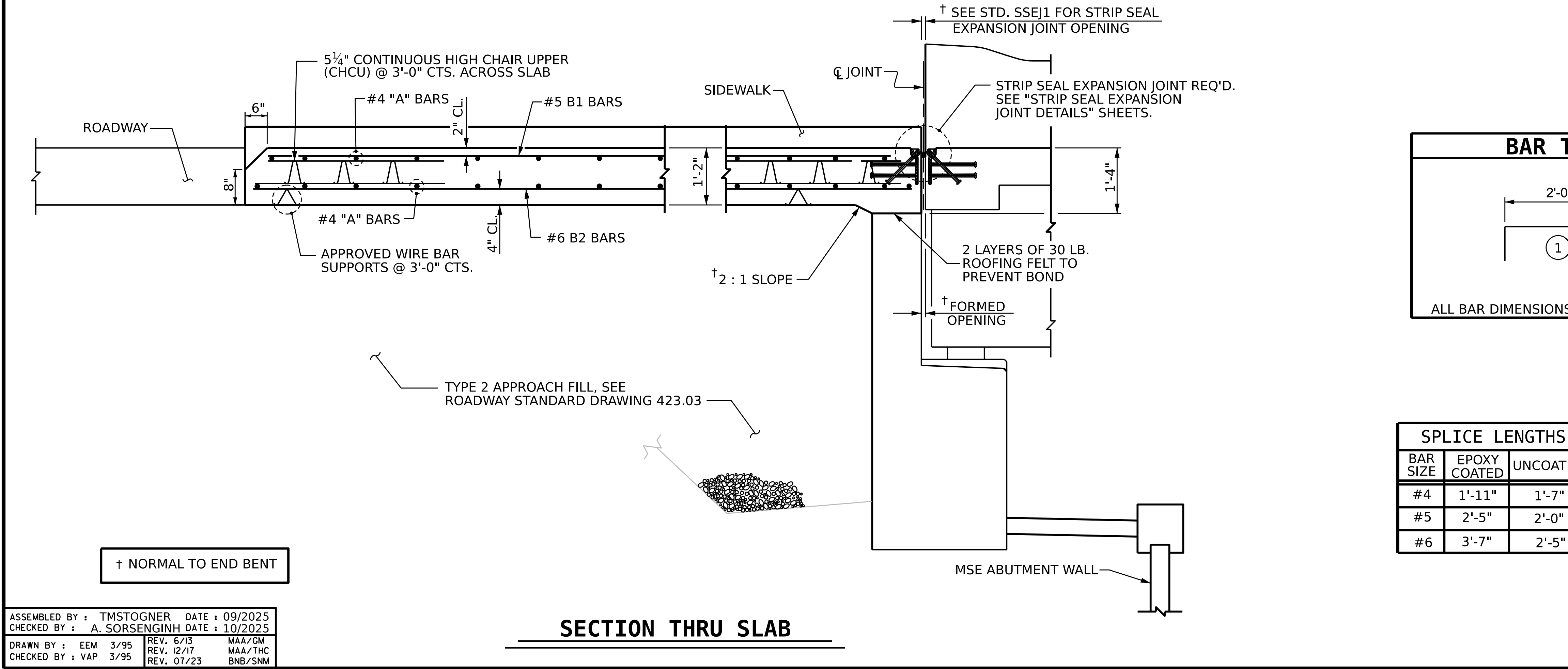


| STATE OF NORTH CAROLINA<br>DEPARTMENT OF TRANSPORTATION<br>RALEIGH  |     |       |     |     |                               |
|---------------------------------------------------------------------|-----|-------|-----|-----|-------------------------------|
| SLOPE PROTECTION<br>DETAILS                                         |     |       |     |     |                               |
| REVISIONS                                                           |     |       |     |     | SHEET NO.                     |
| NO.                                                                 | BY: | DATE: | NO. | BY: | DATE:                         |
| 1                                                                   |     |       | 3   |     |                               |
| 2                                                                   |     |       | 4   |     |                               |
| DOCUMENT NOT CONSIDERED<br>FINAL UNLESS ALL<br>SIGNATURES COMPLETED |     |       |     |     | S-51<br>TOTAL<br>SHEETS<br>53 |

DRAWN BY : TMSTOGNER DATE : 10/2025  
CHECKED BY : A. SORSENGINH DATE : 10/2025  
DESIGN ENGINEER OF RECORD: T. STOGNER DATE : 10/2025



| BILL OF MATERIAL                        |     |      |      |         |            |                                         |     |      |      |         |            |
|-----------------------------------------|-----|------|------|---------|------------|-----------------------------------------|-----|------|------|---------|------------|
| APPROACH SLAB AT END BENT 1<br>STAGE I  |     |      |      |         |            | APPROACH SLAB AT END BENT 2<br>STAGE I  |     |      |      |         |            |
| BAR                                     | NO. | SIZE | TYPE | LENGTH  | WEIGHT     | BAR                                     | NO. | SIZE | TYPE | LENGTH  | WEIGHT     |
| *A1                                     | 50  | #4   | STR  | 28'-0"  | 935        | *A1                                     | 50  | #4   | STR  | 28'-0"  | 935        |
| A2                                      | 52  | #4   | STR  | 27'-8"  | 961        | A2                                      | 52  | #4   | STR  | 27'-8"  | 961        |
| *B1                                     | 90  | #5   | STR  | 23'-7"  | 2214       | *B1                                     | 90  | #5   | STR  | 23'-7"  | 2214       |
| B2                                      | 90  | #6   | STR  | 24'-7"  | 3323       | B2                                      | 90  | #6   | STR  | 24'-7"  | 3323       |
| *B3                                     | 5   | #4   | STR  | 23'-7"  | 79         | *B3                                     | 5   | #4   | STR  | 23'-7"  | 79         |
| *G1                                     | 25  | #4   | STR  | 5'-8"   | 95         | *G1                                     | 25  | #4   | STR  | 5'-8"   | 95         |
| *U1                                     | 10  | #4   | 1    | 3'-4"   | 22         | *U1                                     | 10  | #4   | 1    | 3'-4"   | 22         |
| REINFORCING STEEL                       |     |      |      |         | LBS. 4284  | REINFORCING STEEL                       |     |      |      |         | LBS. 4284  |
| * EPOXY COATED REINFORCING STEEL        |     |      |      |         | LBS. 3345  | * EPOXY COATED REINFORCING STEEL        |     |      |      |         | LBS. 3345  |
| CLASS AA CONCRETE BREAKDOWN             |     |      |      |         |            | CLASS AA CONCRETE BREAKDOWN             |     |      |      |         |            |
| POUR #1 SLAB                            |     |      |      |         | C. Y. 50.2 | POUR #1 SLAB                            |     |      |      |         | C. Y. 50.2 |
| POUR #2 SIDEWALK                        |     |      |      |         | C. Y. 3.1  | POUR #2 SIDEWALK                        |     |      |      |         | C. Y. 3.1  |
| CLASS AA CONCRETE TOTAL                 |     |      |      |         | C. Y. 53.3 | CLASS AA CONCRETE TOTAL                 |     |      |      |         | C. Y. 53.3 |
| APPROACH SLAB AT END BENT 1<br>STAGE II |     |      |      |         |            | APPROACH SLAB AT END BENT 2<br>STAGE II |     |      |      |         |            |
| BAR                                     | NO. | SIZE | TYPE | LENGTH  | WEIGHT     | BAR                                     | NO. | SIZE | TYPE | LENGTH  | WEIGHT     |
| *A3                                     | 50  | #4   | STR  | 26'-11" | 899        | *A3                                     | 50  | #4   | STR  | 26'-11" | 899        |
| A4                                      | 52  | #4   | STR  | 26'-9"  | 929        | A4                                      | 52  | #4   | STR  | 26'-9"  | 929        |
| *B1                                     | 90  | #5   | STR  | 23'-7"  | 2214       | *B1                                     | 90  | #5   | STR  | 23'-7"  | 2214       |
| B2                                      | 90  | #6   | STR  | 24'-7"  | 3323       | B2                                      | 90  | #6   | STR  | 24'-7"  | 3323       |
| *B3                                     | 5   | #4   | STR  | 23'-7"  | 79         | *B3                                     | 5   | #4   | STR  | 23'-7"  | 79         |
| *G1                                     | 25  | #4   | STR  | 5'-8"   | 95         | *G1                                     | 25  | #4   | STR  | 5'-8"   | 95         |
| *U1                                     | 10  | #4   | 1    | 3'-4"   | 22         | *U1                                     | 10  | #4   | 1    | 3'-4"   | 22         |
| REINFORCING STEEL                       |     |      |      |         | LBS. 4252  | REINFORCING STEEL                       |     |      |      |         | LBS. 4252  |
| * EPOXY COATED REINFORCING STEEL        |     |      |      |         | LBS. 3309  | * EPOXY COATED REINFORCING STEEL        |     |      |      |         | LBS. 3309  |
| CLASS AA CONCRETE BREAKDOWN             |     |      |      |         |            | CLASS AA CONCRETE BREAKDOWN             |     |      |      |         |            |
| POUR #1 SLAB                            |     |      |      |         | C. Y. 50.2 | POUR #1 SLAB                            |     |      |      |         | C. Y. 50.2 |
| POUR #2 SIDEWALK                        |     |      |      |         | C. Y. 3.1  | POUR #2 SIDEWALK                        |     |      |      |         | C. Y. 3.1  |
| CLASS AA CONCRETE TOTAL                 |     |      |      |         | C. Y. 53.3 | CLASS AA CONCRETE TOTAL                 |     |      |      |         | C. Y. 53.3 |



BAR TYPE

2'-0"

1

∞

ALL BAR DIMENSIONS ARE OUT TO OUT

SPLICE LENGTHS

| BAR SIZE | EPOXY COATED | UNCOATED |
|----------|--------------|----------|
| #4       | 1'-11"       | 1'-7"    |
| #5       | 2'-5"        | 2'-0"    |
| #6       | 3'-7"        | 2'-5"    |

PROJECT NO. **BR-0168**

**FORSYTH** COUNTY

STATION: **20+73.79 -L-**

SHEET 1 OF 2

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

STANDARD  
**BRIDGE APPROACH SLAB  
FOR FLEXIBLE PAVEMENT**

NO. 1

BY: 2

DATE: 3

NO. 4

BY: 1

DATE: 4

SHEET NO. S-52  
TOTAL SHEETS 53

DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

SEAL  
031583  
ENGINEER  
KRISHNA P. SEDA  
EABE7941508F4B7...  
02/20/2026

ASSEMBLED BY : TMSTOGNER DATE : 09/2025  
CHECKED BY : A. SORSENGINH DATE : 10/2025  
DRAWN BY : EEM 3/95  
CHECKED BY : VAP 3/95  
REV. 6/13 MAA/GM  
REV. 12/17 MAA/THC  
REV. 07/23 BNB/SNM

2/9/2026  
S:\DPO3\BR-0168\Final Plans\401.103.BR0168.SMU.AS.552.330289.dgn  
Ksedai

NOTES

FOR BRIDGE APPROACH FILL INCLUDING GEOTEXTILE, MSE WALL REINFORCEMENT, AND BACK FILL MATERIAL, SEE ROADWAY PLANS.

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

BACKFILL MATERIAL IS GOING TO BE THE AGGREGATE USED IN THE REINFORCED ZONE FOR THE MSE RETAINING WALL.

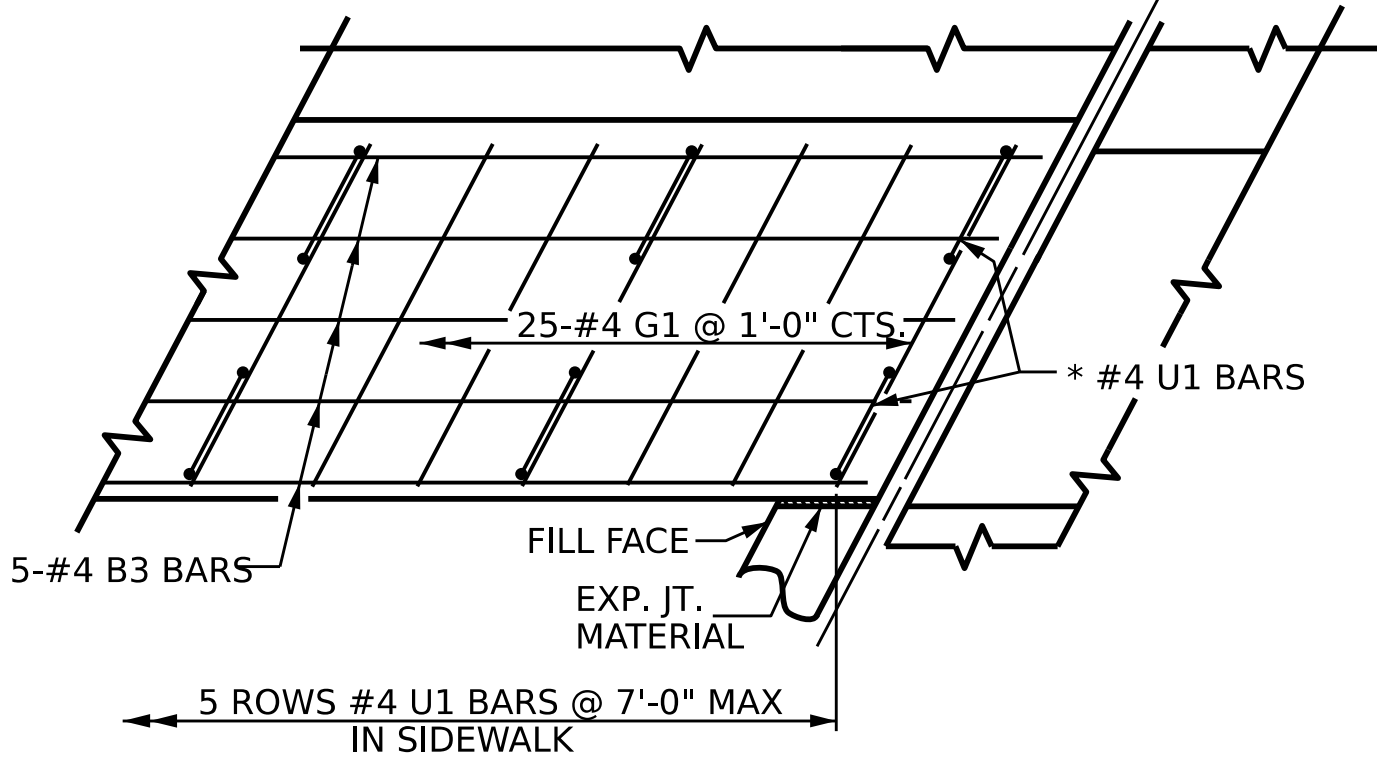
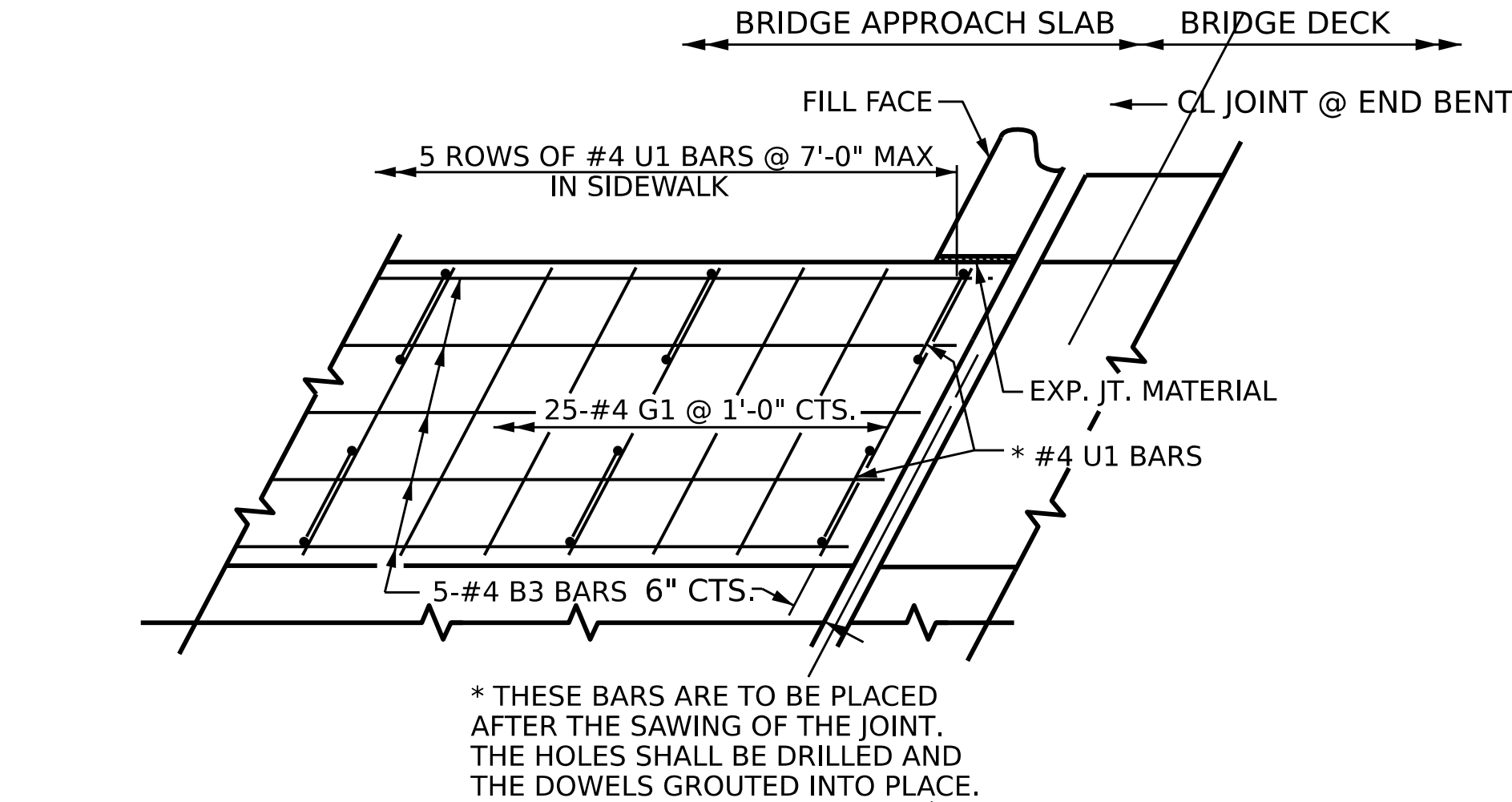
APPROACH SLAB SHALL NOT BE CONSTRUCTED PRIOR TO COMPLETION OF THE BRIDGE DECK.

AREA BETWEEN THE MSE WALL 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 SIDEWALK SHALL NOT BE CAST UNTIL APPROACH SLAB CONCRETE HAS BEEN CAST AND REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI.

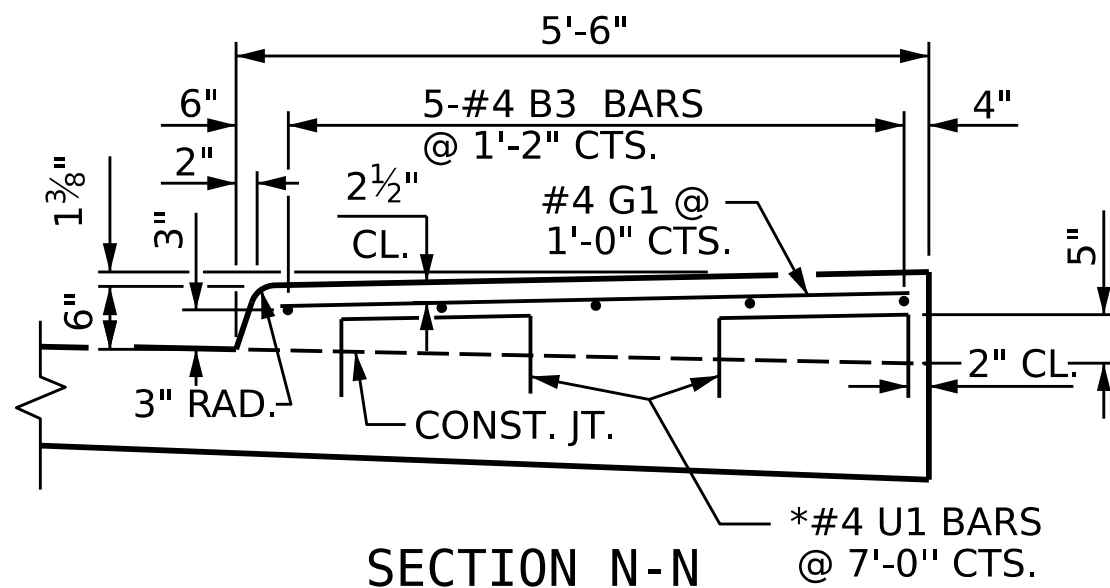
ALL REINFORCING STEEL IN THE SIDEWALKS SHALL BE EPOXY COATED.

THE ENTIRE COST FOR SIDEWALKS ON APPROACH SLAB SHALL BE INCLUDED IN THE LUMP SUM BID PRICE FOR APPROACH SLABS, NO SEPERATE PAYMENT SHALL BE MADE.



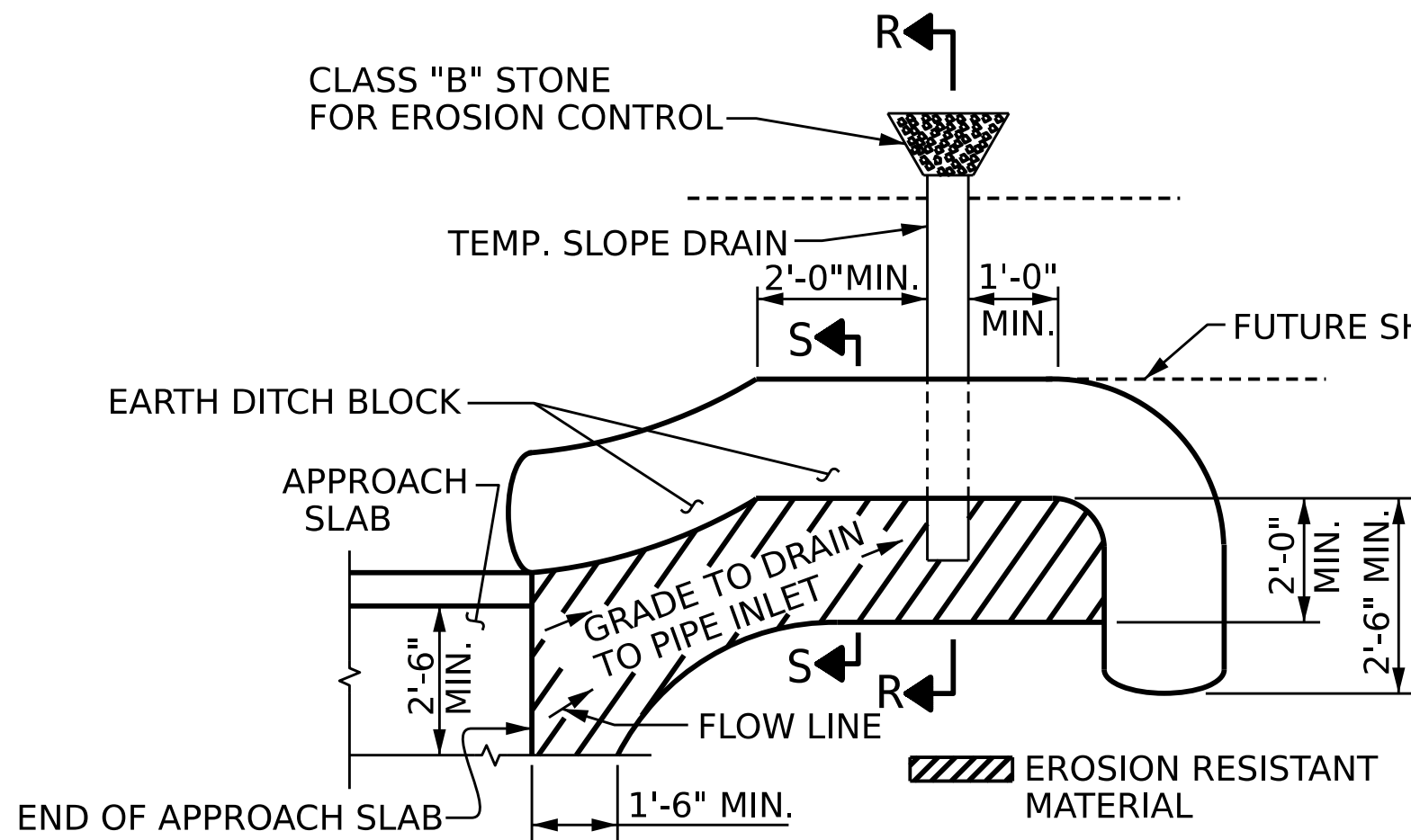
PLAN

DETAILS OF SIDEWALK ON APPROACH SLAB



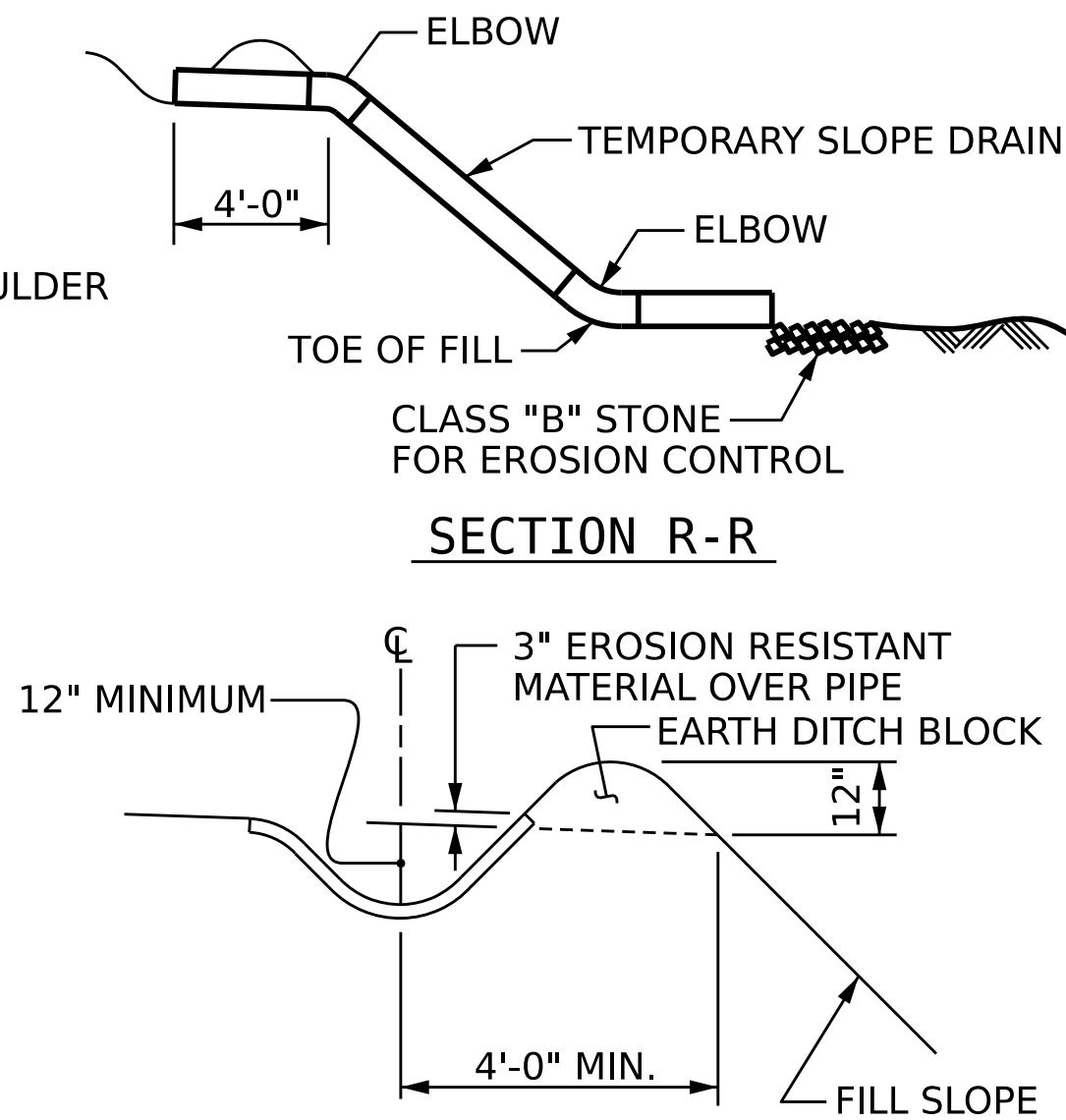
SECTION N-N

SIDEWALK DETAILS

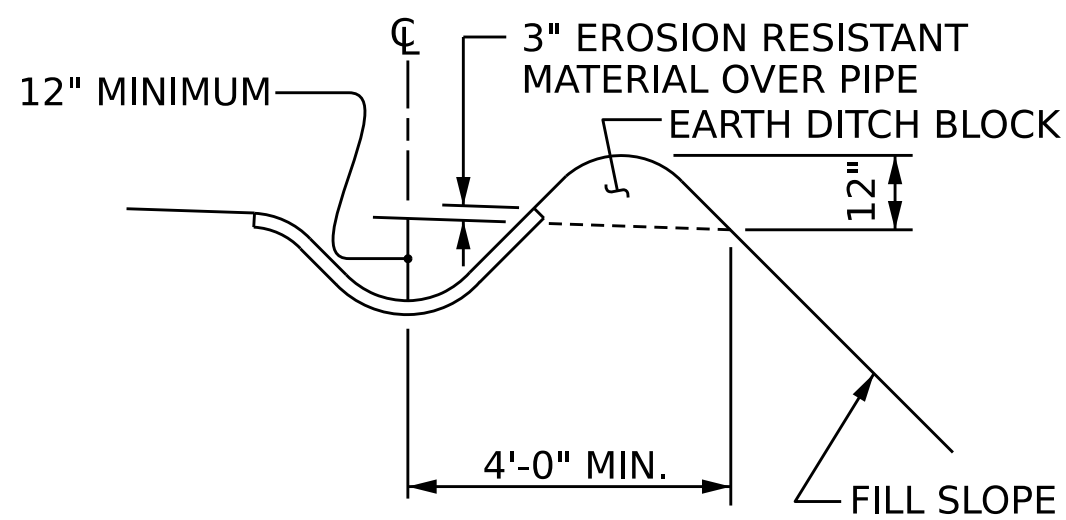


NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN.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

PLAN VIEW



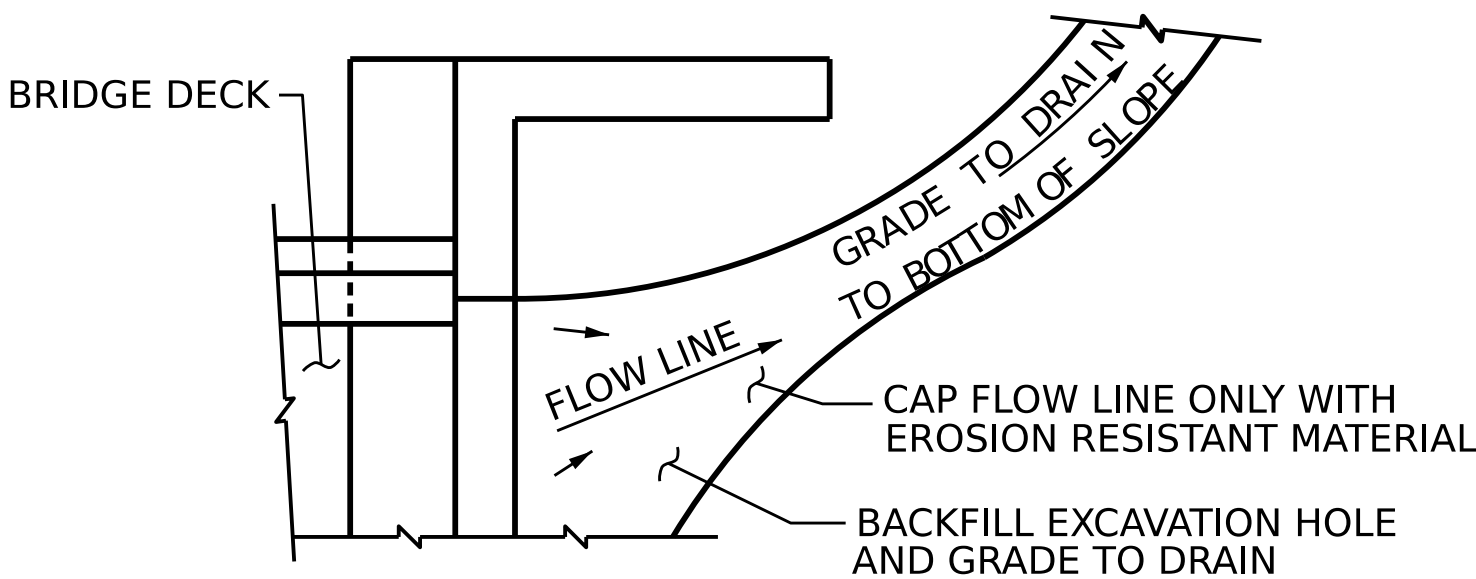
SECTION R-R



SECTION S-S

TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)



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

TEMPORARY DRAINAGE DETAIL



PROJECT NO. **BR-0168**  
**FORSYTH** COUNTY  
STATION: **20+73.79 -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: |                 |
| 1         |     |       | 3   |     | S-53            |
| 2         |     |       | 4   |     | TOTAL SHEETS 53 |

DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED

|               |               |            |         |
|---------------|---------------|------------|---------|
| ASSEMBLED BY: | TMSTOGRNER    | DATE :     | 09/2025 |
| CHECKED BY :  | A. SORSENGINH | DATE :     | 10/2025 |
| DRAWN BY :    | FCJ           | REV. 6/13  | MAA/GM  |
| CHECKED BY :  | ARB           | REV. 12/17 | MAA/THC |
|               |               | REV. 5/18  | MAA/THC |

STANDARD NOTES

|                                                                       |                                  |
|-----------------------------------------------------------------------|----------------------------------|
| DESIGN DATA:                                                          |                                  |
| SPECIFICATIONS                                                        | AASHTO (CURRENT)                 |
| LIVE LOAD                                                             | SEE PLANS                        |
| IMPACT ALLOWANCE                                                      | SEE AASHTO                       |
| STRESS IN EXTREME FIBER OF<br>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 AASHTO                       |
| STRUCTURAL TIMBER - TREATED OR UNTREATED<br>EXTREME FIBER STRESS      | 1,800 LBS. PER SQ. IN.           |
| COMPRESSION PERPENDICULAR TO GRAIN<br>OF TIMBER                       | 375 LBS. PER SQ. IN.             |
| EQUIVALENT FLUID PRESSURE OF EARTH                                    | 30 LBS. PER CU. FT.<br>(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 2024 "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 ¾" WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO 1½" RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A ¼" 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 ¼" 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 ⅞" Ø SHEAR STUDS FOR THE ¾" Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - ⅞" Ø STUDS FOR 4 - ¾" Ø STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF ⅞" Ø STUDS ALONG THE BEAM AS SHOWN FOR ¾" Ø STUDS BASED ON THE RATIO OF 3 - ⅞"Ø STUDS FOR 4 - ¾" 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 ⅝" 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 ⅛" 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. FINIS 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.