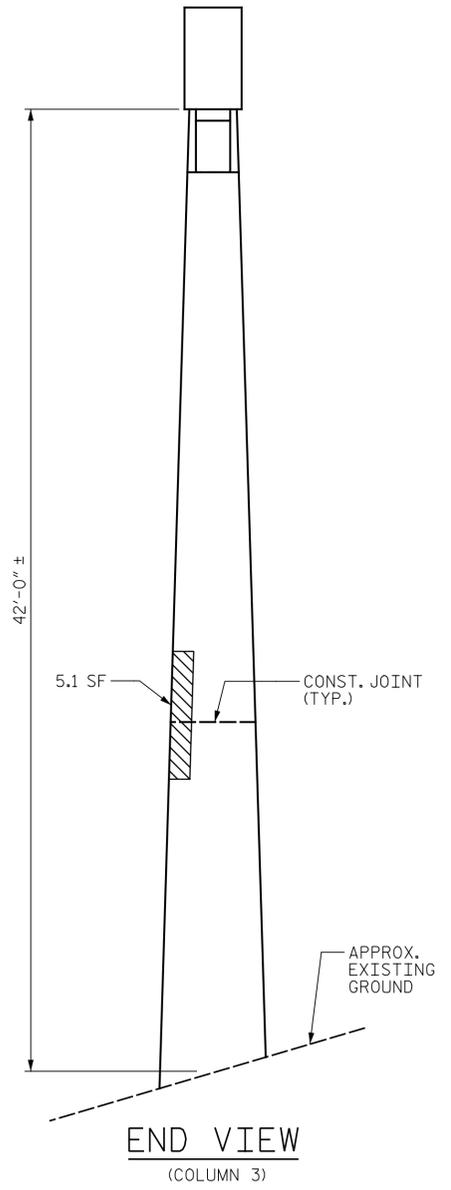
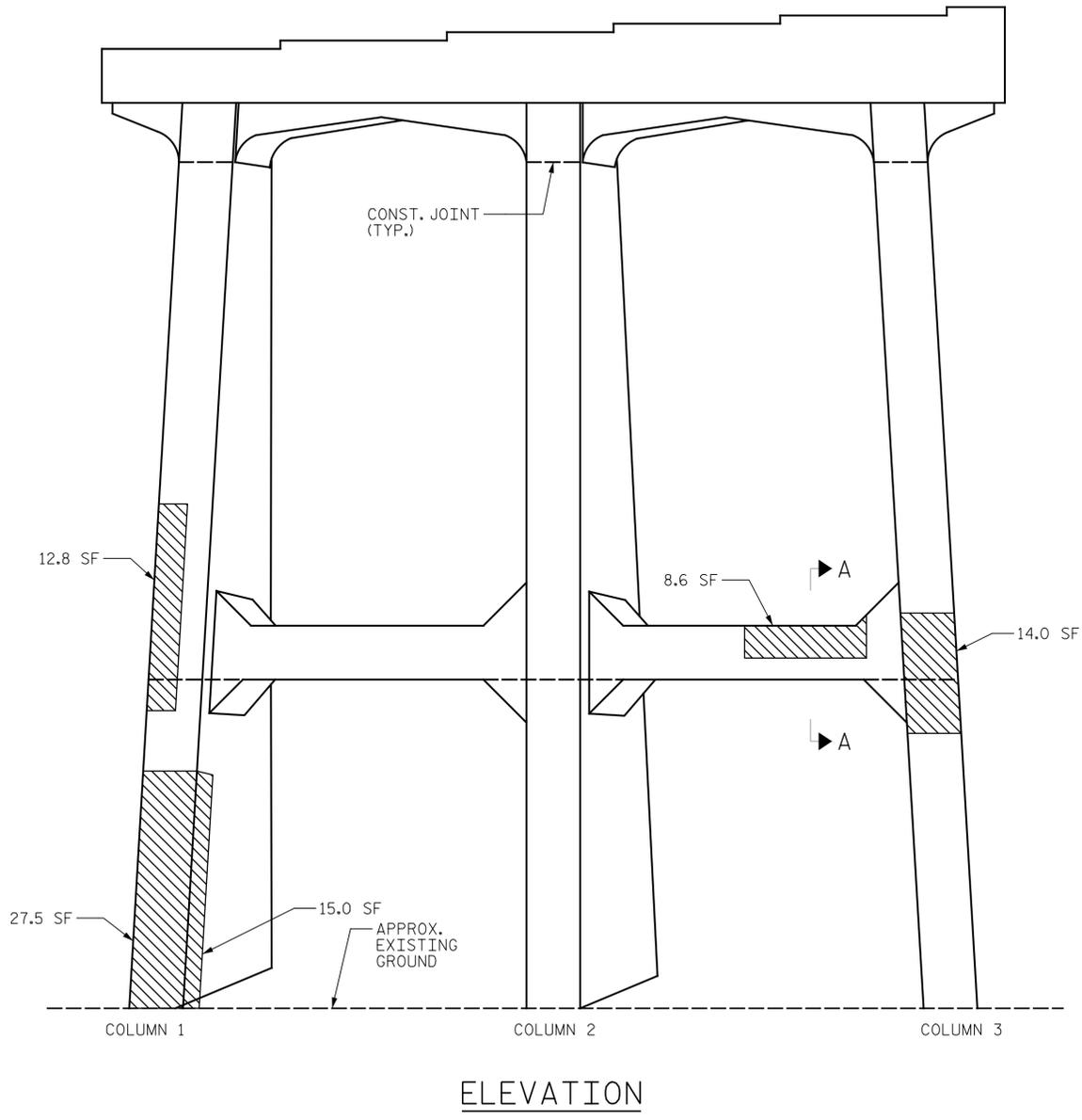
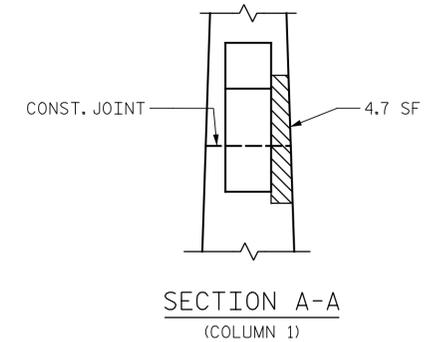
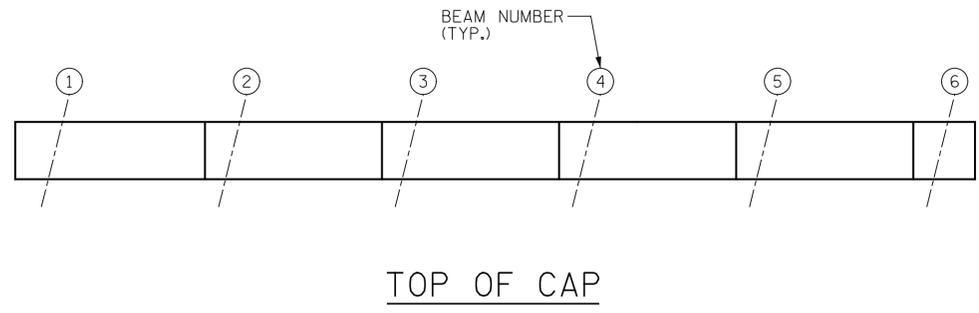


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| AS-BUILT REPAIR QUANTITY TABLE |            |           |           |          |           |
|--------------------------------|------------|-----------|-----------|----------|-----------|
| BENT 4 REPAIRS                 | QUANTITIES |           |           |          |           |
|                                | ESTIMATE   |           | ACTUAL    |          |           |
| SHOTCRETE REPAIRS              | AREA SF    | VOLUME CF | AREA SF   | DEPTH FT | VOLUME CF |
| CAP                            | 9.0        | 4.5       |           |          |           |
| COLUMN                         | 157.1      | 78.6      |           |          |           |
| STRUT                          | 27.0       | 13.5      |           |          |           |
| CONCRETE REPAIRS               | 0.0        | 0.0       |           |          |           |
| EPOXY RESIN INJECTION          | LENGTH LF  |           | LENGTH LF |          |           |
| CAP                            | 0.0        |           |           |          |           |
| COLUMN                         | 0.0        |           |           |          |           |
| STRUT                          | 0.0        |           |           |          |           |
| EPOXY COATING                  | SQ. FT     |           | SQ. FT    |          |           |
| TOP OF BENT CAP                | 91         |           |           |          |           |

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM OF 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

**NOTES:**

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE BASED ON THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ENTER THE ACTUAL QUANTITIES INTO THE AS-BUILT REPAIR QUANTITY TABLE.

FOR REPAIRS, SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

SHOTCRETE REPAIRS MAY BE REPLACED WITH CONCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

CONTRACTOR SHALL SAW CUT TO A MINIMUM DEPTH OF 1/2" BUT REINFORCING STEEL SHALL NOT BE DAMAGED. CONTRACTOR SHALL REMOVE SURFACE CONCRETE TO VERIFY THAT SAW CUT DEPTH WILL NOT DAMAGE EXISTING REINFORCING STEEL.

CONTRACTOR SHALL SAW CUT THE REPAIR AREAS SO THAT THE CORNERS ARE SQUARE AS INDICATED ON THE DETAILS.

CLEAN AND REMOVE DEBRIS FROM THE TOP OF THE CAP AND APPLY EPOXY PROTECTIVE COATING. EPOXY COATING SHALL BE APPLIED TO THE TOP SURFACE OF THE CAP. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAP BENEATH THE MASONRY PLATES. FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

WHEN COLUMN REPAIRS ARE INDICATED TO GROUND LINE, EXTEND REPAIR ONE (1) FOOT MIN. BELOW GROUND LINE.

- SHOTCRETE REPAIR
- CONCRETE REPAIR (FORM & POUR)
- ERI - EPOXY RESIN INJECTION

PROJECT NO. I-5889B  
BUNCOMBE COUNTY  
 BRIDGE NO. 100347

SHEET 1 OF 2

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**BENT 4  
 SPAN D SIDE**

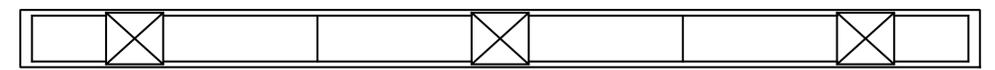


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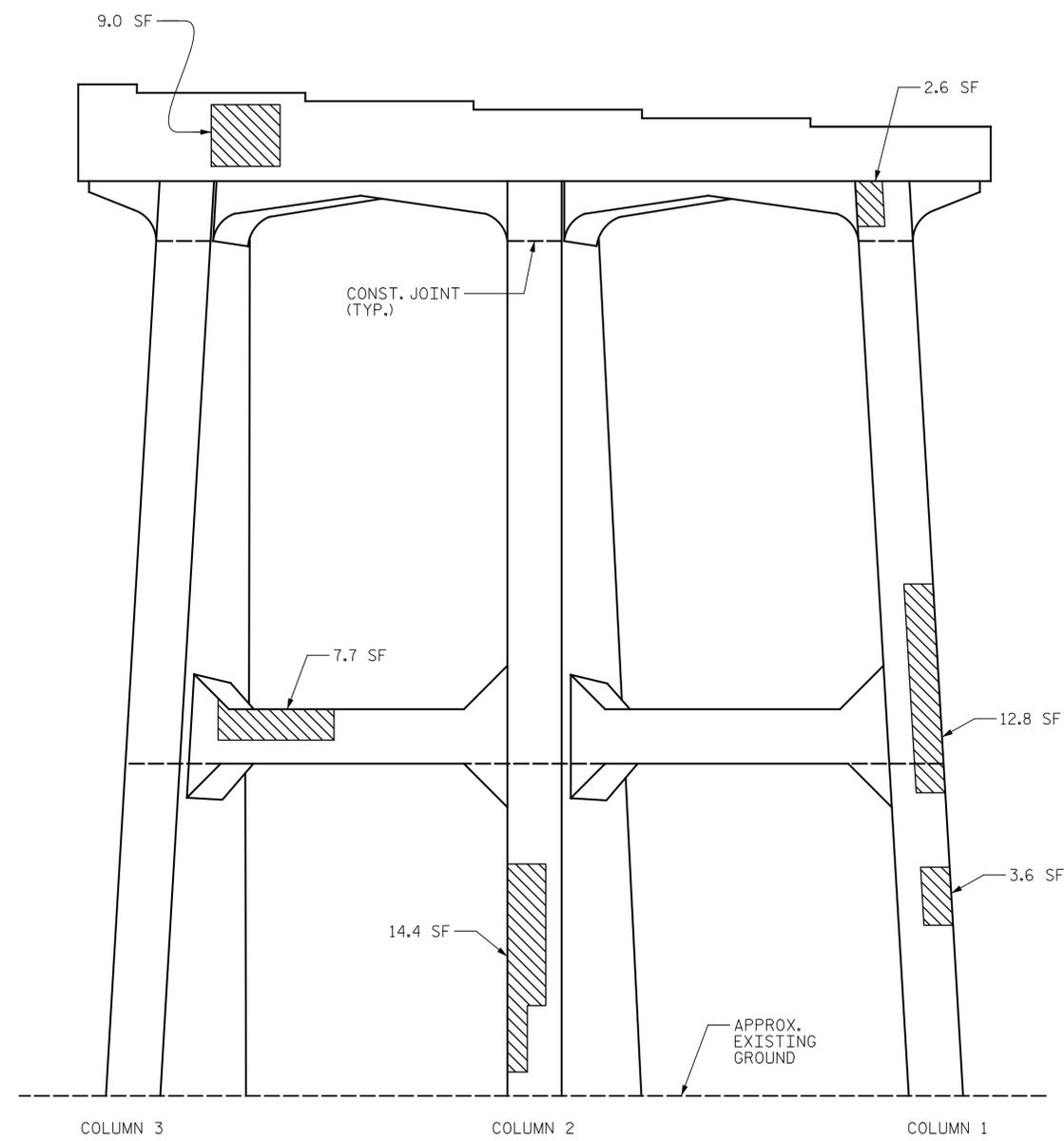
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BOTTOM OF CAP



ELEVATION

SPAN D  
SPAN E

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE BASED ON THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ENTER THE ACTUAL QUANTITIES INTO THE AS-BUILT REPAIR QUANTITY TABLE.

FOR REPAIRS, SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.  
 FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.  
 FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

SHOTCRETE REPAIRS MAY BE REPLACED WITH CONCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

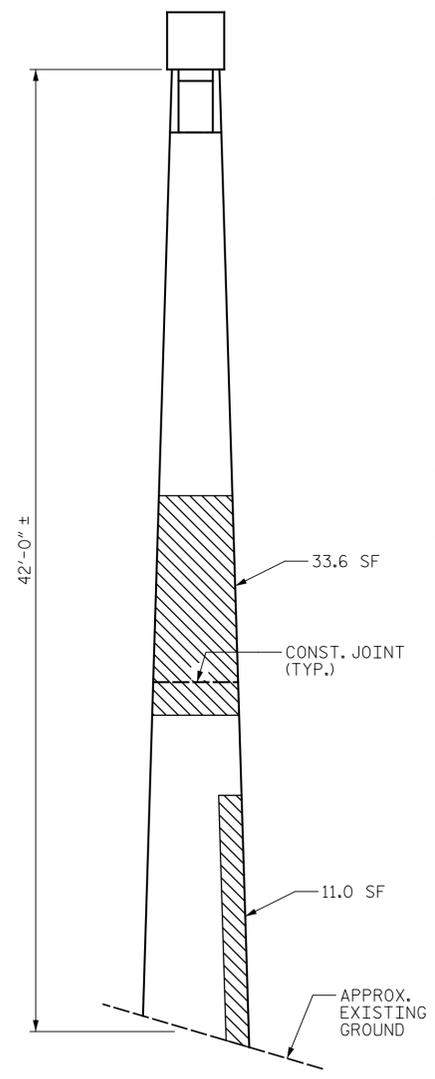
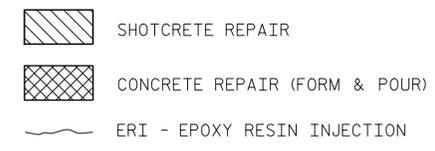
CONTRACTOR SHALL SAW CUT TO A MINIMUM DEPTH OF 1/2" BUT REINFORCING STEEL SHALL NOT BE DAMAGED. CONTRACTOR SHALL REMOVE SURFACE CONCRETE TO VERIFY THAT SAW CUT DEPTH WILL NOT DAMAGE EXISTING REINFORCING STEEL.

CONTRACTOR SHALL SAW CUT THE REPAIR AREAS SO THAT THE CORNERS ARE SQUARE AS INDICATED ON THE DETAILS.

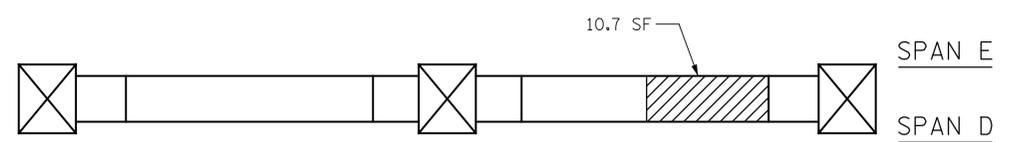
CLEAN AND REMOVE DEBRIS FROM THE TOP OF THE CAP AND APPLY EPOXY PROTECTIVE COATING. EPOXY COATING SHALL BE APPLIED TO THE TOP SURFACE OF THE CAP. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAP BENEATH THE MASONRY PLATES. FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

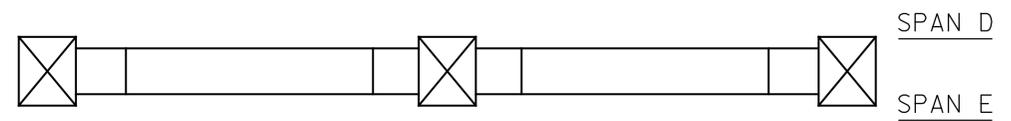
WHEN COLUMN REPAIRS ARE INDICATED TO GROUND LINE, EXTEND REPAIR ONE (1) FOOT MIN. BELOW GROUND LINE.



END VIEW  
(COLUMN 1)



TOP OF STRUT



BOTTOM OF STRUT

PROJECT NO. I-5889B  
BUNCOMBE COUNTY  
 BRIDGE NO. 100347

SHEET 2 OF 2

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**BENT 4**  
**SPAN E SIDE**



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*Eric B. Nelson* 7/25/2022  
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SUMMARY OF QUANTITIES

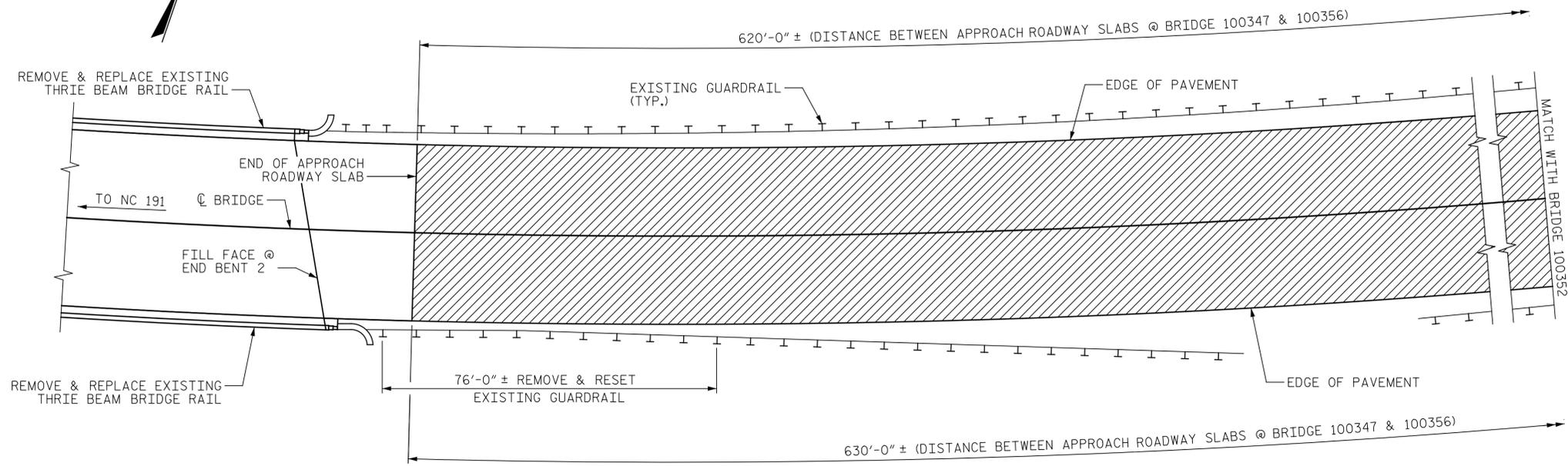
| DESCRIPTION                       | ESTIMATE | ACTUAL |
|-----------------------------------|----------|--------|
| FINE MILLING                      | 2730 SY  |        |
| REMOVE & RESET EXISTING GUARDRAIL | 284 LF   |        |

NOTES:

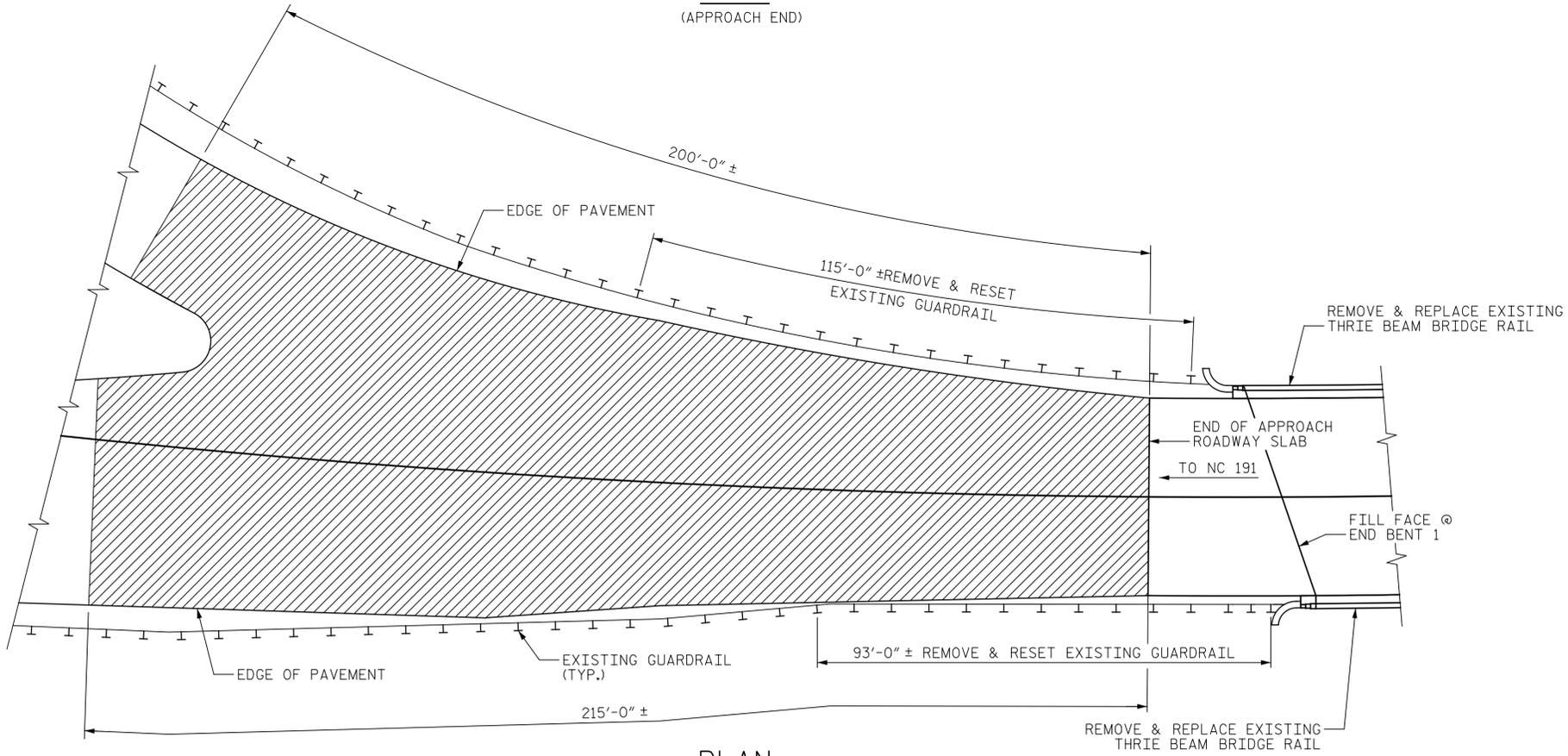
FINE MILLING - EXISTING APPROACH ASPHALT PAVEMENT TO BE MILLED AS NECESSARY TO ATTAIN MINIMUM 1 1/2" DEPTH OF NEW ASPHALT PAVEMENT, NEW ASPHALT PAVEMENT SHALL BE OF THICKNESS NECESSARY TO CREATE A SMOOTH TRANSITION BETWEEN THE ROADWAY AND THE BRIDGE NECK, NEW ASPHALT PAVING THICKNESS MAY EXCEED 1 1/2" DUE TO THE SETTLEMENT OF THE EXISTING APPROACH.

FOR ADDITIONAL DETAILS ON ASPHALT SURFACE COURSE, REPLACEMENT OF GUARDRAIL AND EROSION CONTROL MEASURES, SEE ROADWAY PLANS.

 FINE MILLING



PLAN  
(APPROACH END)



PLAN  
(EXIT END)

PROJECT NO. I-5889B  
BUNCOMBE COUNTY  
 BRIDGE NO. 100347

SHEET 1 OF 2

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

APPROACH MILLING  
 AND TYPICAL ROADWAY  
 SECTIONS



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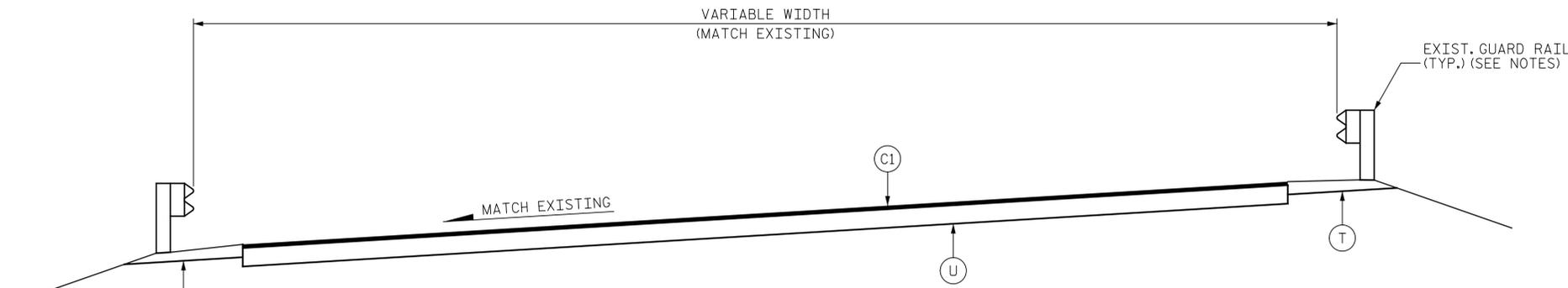
DRAWN BY : J. MYA DATE : 6/2022  
 CHECKED BY : J. YANACCONI DATE : 6/2022



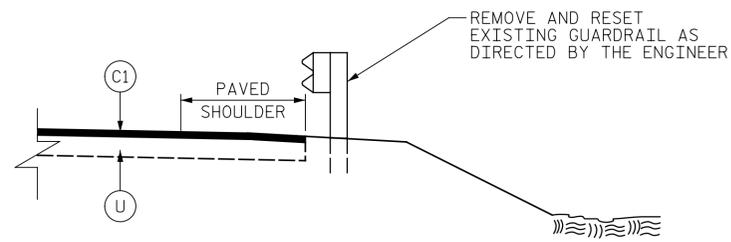
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| PAVEMENT SCHEDULE |  |
|-------------------|--|
| C1                | PROP. APPROX. 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5D, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. |
| M                 | FINE MILLING   |
| T                 | SHOULDER RECONSTRUCTION  |
| U                 | EXISTING PAVEMENT  |

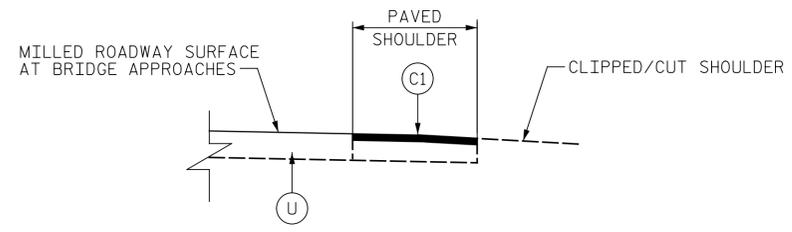
**NOTES:**  
 DETAIL DOES NOT APPLY TO OGAFD AND ULTRA-THIN BONDED WEARING COURSE.  
 BACKFILL SHOULDER WITH APPROVED MATERIAL.  
 REMOVE AND RESET EXISTING GUARDRAIL TO FACILITATE PLACEMENT OF ASPHALT PAVEMENT.  
 FOR ASPHALT CONCRETE SURFACE COURSE AND SHOULDER RECONSTRUCTION, SEE ROADWAY PLANS.



**TYPICAL SECTION**  
 CLIP/CUT/FILL SHOULDERS PER NCDOT STANDARD DRAWING 560.01 & 560.02 BEFORE RE-INSTALLING GUARDRAIL IN AREAS AS DIRECTED BY THE ENGINEER.

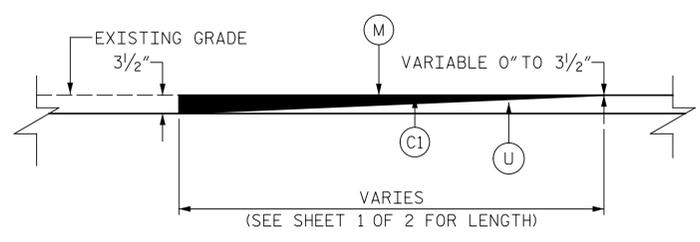


**GUARDRAIL DETAIL**  
 TO BE USED AT VARIOUS LOCATIONS

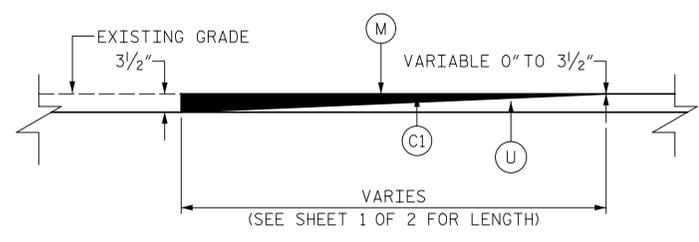


**SHOULDER DETAIL AT BRIDGE APPROACHES**

1. REMOVE PAVED SHOULDER MATERIAL.
  2. COMPACT SUBGRADE.
  3. PLACE SURFACE COURSE (S9.5D) ON COMPACTED SUBGRADE UP TO MILLED SURFACE FOR BRIDGE APPROACHES.
- TYPICAL FOR BOTH SIDES OF ROADWAY.  
 PAYMENT FOR THE REMOVAL OF THE PAVED SHOULDER AND COMPACTION OF THE SUBGRADE IS INCIDENTAL TO THE PLACEMENT OF S9.5D.



**MILLING DETAIL AT BRIDGE APPROACH**



**DETAIL TO TIE INTO EXISTING PAVEMENT**

THE CONTRACTOR'S ATTENTION IS DIRECTED TO THE FACT THAT HE WILL BE REQUIRED TO MILL THE EXISTING ASPHALT PAVEMENT TO ENSURE A PROPER TIE-IN WITH THE EXISTING SURFACE AT THE BEGINNING AND END OF EACH MAP TO BE RESURFACED WITH ASPHALT CONC. SURFACE COURSE, TYPE S9.5D.  
 THIS WILL BE PAID FOR AS FINE MILLING.

PROJECT NO. I-5889B  
BUNCOMBE COUNTY  
 BRIDGE NO. 100347  
 SHEET 2 OF 2

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**APPROACH MILLING AND TYPICAL ROADWAY SECTIONS**



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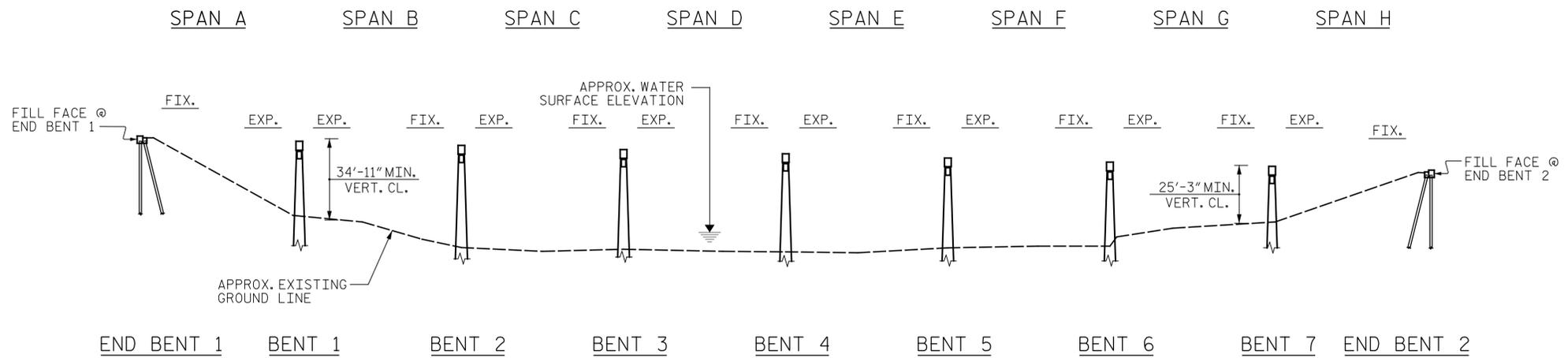


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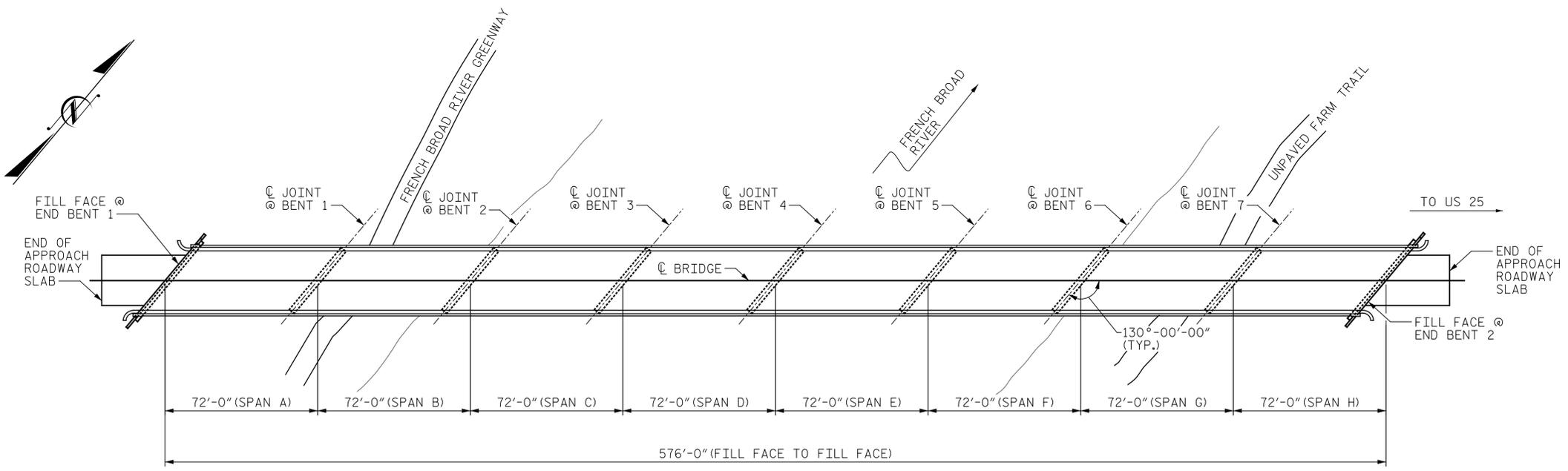
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 CHECKED BY : J. YANACCONO DATE : 6/2022

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**SECTION ALONG C BRIDGE**  
 (SECTION AT BENTS AND END BENTS ARE AT RIGHT ANGLES)



**PLAN**  
 (PILES NOT SHOWN FOR CLARITY)

**NOTE:**  
 GENERAL DRAWING INFORMATION IS TAKEN FROM THE ORIGINAL PLANS AND THE ROUTINE INSPECTION REPORT DATED 10/22/2019.  
 BRIDGE ORIENTATION CONFORMS TO THE EXISTING BRIDGE PLANS AND ROUTINE INSPECTION REPORT.

- SCOPE OF WORK**
- PROVIDE PEDESTRIAN PROTECTION FOR THE FRENCH BROAD RIVER GREENWAY.
  - REMOVE ASPHALT WEARING SURFACE AND PARTIALLY REMOVE TOP OF BRIDGE DECK CONCRETE BY FINE MILLING AND HYDRO-DEMOLITION.
  - OVERLAY PREPARED TOP OF BRIDGE DECK WITH VERY EARLY STRENGTH LATEX MODIFIED CONCRETE (LMC-VES).
  - REMOVE EXISTING JOINT MATERIAL AND INSTALL FOAM JOINTS.
  - GROOVE LMC-VES BRIDGE DECK.
  - REMOVE AND REPLACE EXISTING TUBULAR TRIPLE CORRUGATED STEEL BEAM BRIDGE RAIL.
  - REMOVE AND REPLACE EXISTING STEEL BEAM GUARDRAIL AND GUARDRAIL ANCHOR UNITS.
  - MILL AND REPAVE ASPHALT APPROACH ROADWAYS.
  - REMOVE DEBRIS FROM TOP OF EXISTING BENT CAPS AND APPLY EPOXY COATING.
  - EPOXY RESIN INJECTION OF CONCRETE CRACKS.
  - REMOVE UNSOUND CONCRETE AND PROPERLY PREPARE EXISTING END BENT AND BENT AREAS FOR SHOTCRETE AND CONCRETE REPAIRS.

I HEREBY CERTIFY THAT THIS STRUCTURE WAS REHABILITATED ACCORDING TO THESE PLANS OR AS NOTED HEREIN.

RESIDENT ENGINEER \_\_\_\_\_ DATE \_\_\_\_\_

PROJECT NO. I-5889B  
BUNCOMBE COUNTY  
 BRIDGE NO. 100352

SHEET 1 OF 2

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**GENERAL DRAWING**  
 FOR BRIDGE ON I-40 EBL OVER  
 FRENCH BROAD RIVER,  
 FRENCH BROAD RIVER GREENWAY  
 & FARM TRAIL



DocuSigned by:  
 Eric B. Nelson 7/25/2022  
 ACB802116D74CD...



DRAWN BY : M. LEE / J. HARRIS DATE : 6/2022  
 CHECKED BY : J. YANNACCONE DATE : 6/2022

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**LOCATION SKETCH**

INFORMATION INDICATED ON THE LOCATION SKETCH SHALL BE CONSIDERED GENERAL INFORMATION ONLY. CONTRACTOR SHALL CONFIRM, THROUGH OTHER SOURCES, SPECIFIC INFORMATION REGARDING BRIDGES, ROADWAYS, UTILITIES, THE SURROUNDING AREA, AND ANY OTHER ASPECTS THAT MAY BE NECESSARY TO PERFORM AND COMPLETE THE PROJECT.

| BRIDGE COORDINATES |                |
|--------------------|----------------|
| LATITUDE           | LONGITUDE      |
| 35°-33'-35.50"     | 82°-35'-34.24" |

**GENERAL NOTES**

SEE TRANSPORTATION MANAGEMENT PLANS FOR LANE WIDTHS, SEQUENCING AND OTHER TRAFFIC CONTROL MEASURES FOR STAGING OF OVERLAY SURFACE PREPARATION AND LATEX MODIFIED CONCRETE - VERY EARLY STRENGTH (LMC-VES) PLACEMENT.

FOR NEW ASPHALT PLACEMENT, SEE STANDARD SPECIFICATIONS.

THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT DUE TO THE NATURE OF PRESERVATION PROJECTS, THE EXTENT OF WORK CANNOT ALWAYS BE ACCURATELY DETERMINED PRIOR TO COMMENCEMENT OF WORK. REPAIR LOCATIONS AND ESTIMATES OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS.

EXISTING DIMENSIONS AND BRIDGE CONDITION ARE FROM THE BEST INFORMATION AVAILABLE. THE CONTRACTOR SHALL FIELD VERIFY THE INFORMATION SHOWN ON THE PLANS AND NOTIFY THE ENGINEER IF ACTUAL DIMENSIONS AND CONDITIONS DIFFER.

THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT FOR ANY DELAYS OR ADDITIONAL COST INCURRED BASED ON DIFFERENCES BETWEEN WHAT IS SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

IT IS THE CONTRACTOR'S RESPONSIBILITY TO FOLLOW ALL STATE AND FEDERAL SAFETY REQUIREMENTS.

WORK ON THE BRIDGE SHALL BE PERFORMED SO AS NOT TO ALLOW DEBRIS TO FALL BELOW, EXCEPT WHERE THE CONTRACTOR'S PLAN USES PLATFORMS, NETS, SCREENS OR OTHER PROTECTIVE DEVICES TO CATCH THE MATERIAL. THE CONTRACTOR SHALL SUBMIT PLANS FOR CONSTRUCTION IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS AND THE PROJECT SPECIAL PROVISIONS.

THE CONTRACTOR SHALL PERFORM ALL WORK WITH CARE SO THAT THE EXISTING STRUCTURE WHICH IS TO REMAIN IN PLACE WILL NOT BE DAMAGED. IF THE CONTRACTOR DAMAGES ANY PART OF THE EXISTING STRUCTURE WHICH IS TO REMAIN IN PLACE, THE DAMAGED AREA SHALL BE REPAIRED OR REPLACED IN A MANNER SATISFACTORY TO THE ENGINEER AT NO ADDITIONAL COST TO THE DEPARTMENT.

ANY DAMAGE TO EXISTING REINFORCING STEEL, DURING CONTRACTOR'S OPERATIONS, SHALL BE REPAIRED AS DIRECTED BY THE ENGINEER AND PERFORMED AT NO ADDITIONAL COST TO THE DEPARTMENT.

FOR CONTROL OF TRAFFIC AND LIMITS ON PHASING OF CONSTRUCTION, SEE TRANSPORTATION MANAGEMENT PLANS.

PRIOR TO BEGINNING WORK, THE CONTRACTOR SHALL SUBMIT FOR REVIEW AND APPROVAL A COMPLETE SEQUENCE OF TASKS FOR EACH OPERATION AFFECTING THE BRIDGE SURFACE AND/OR TRAFFIC.

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

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR PEDESTRIAN PROTECTION, SEE SPECIAL PROVISIONS.

FOR WORK IN, OVER OR ADJACENT TO NAVIGABLE WATERS, SEE SPECIAL PROVISIONS.

FOR WATERCRAFT SAFETY, SEE SPECIAL PROVISIONS.

FOR TEMPORARY RIVER TRAFFIC WARNING SIGNS, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

ALL PAVEMENT MARKING WILL BE IN ACCORDANCE WITH THE TRANSPORTATION MANAGEMENT PLANS.

LONGITUDINAL CONSTRUCTION JOINTS OF OVERLAYS SHALL BE LOCATED ALONG THE CENTERLINE OR EDGE OF TRAVEL LANES.

FOR LATEX MODIFIED CONCRETE - VERY EARLY STRENGTH AND PLACING AND FINISHING LATEX MODIFIED CONCRETE - VERY EARLY STRENGTH, SEE LATEX MODIFIED CONCRETE - VERY EARLY STRENGTH SPECIAL PROVISIONS.

FOR FINE MILLING BRIDGE DECK, HYDRO-DEMOLITION OF BRIDGE DECK, CLASS II AND CLASS III SURFACE PREPARATION, SEE LMC OVERLAY SURFACE PREPARATION SPECIAL PROVISIONS.

THE CONTRACTOR MUST COLLECT, TREAT AND DISPOSE OF RUN-OFF WATER FROM THE HYDRO-DEMOLITION PROCESS, SEE LMC OVERLAY SURFACE PREPARATION SPECIAL PROVISION.

THE CONTRACTOR SHALL TAKE CARE DURING JOINT REHAB OPERATIONS NOT TO DROP ANY MATERIAL BELOW THE BRIDGE WITHOUT PROTECTIVE DEVICES BELOW TO CATCH THE MATERIAL. ANY MATERIAL THAT FALLS BELOW THE BRIDGE SHALL BE CONTAINED, REMOVED AND DISPOSED OF BY THE CONTRACTOR AT NO EXTRA COST TO THE DEPARTMENT. IF THE ENGINEER DETERMINES THAT PROTECTIVE DEVICES ARE NOT ADEQUATE OR NOT BEING EMPLOYED, THE WORK SHALL BE SUSPENDED UNTIL ADEQUATE PROTECTION IS PROVIDED.

FOR ELASTOMERIC CONCRETE FOR PRESERVATION, SEE SPECIAL PROVISIONS.

FOR BRIDGE JOINT DEMOLITION, SEE SPECIAL PROVISIONS.

FOR FOAM JOINT SEALS FOR PRESERVATION, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

FOR EPOXY COATING AND DEBRIS REMOVAL, SEE SPECIAL PROVISIONS.

FOR FINE MILLING, SEE SPECIAL PROVISIONS.

FOR REMOVAL AND REPLACEMENT OF TUBULAR BEAM GUARDRAIL, SEE SPECIAL PROVISIONS.

PROJECT NO. I-5889B  
BUNCOMBE COUNTY  
 BRIDGE NO. 100352

SHEET 2 OF 2



DocuSigned by:  
 Eric B. Nelson  
 7/25/2022

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**GENERAL DRAWING**  
 FOR BRIDGE ON I-40 EBL OVER  
 FRENCH BROAD RIVER,  
 FRENCH BROAD RIVER GREENWAY  
 & FARM TRAIL

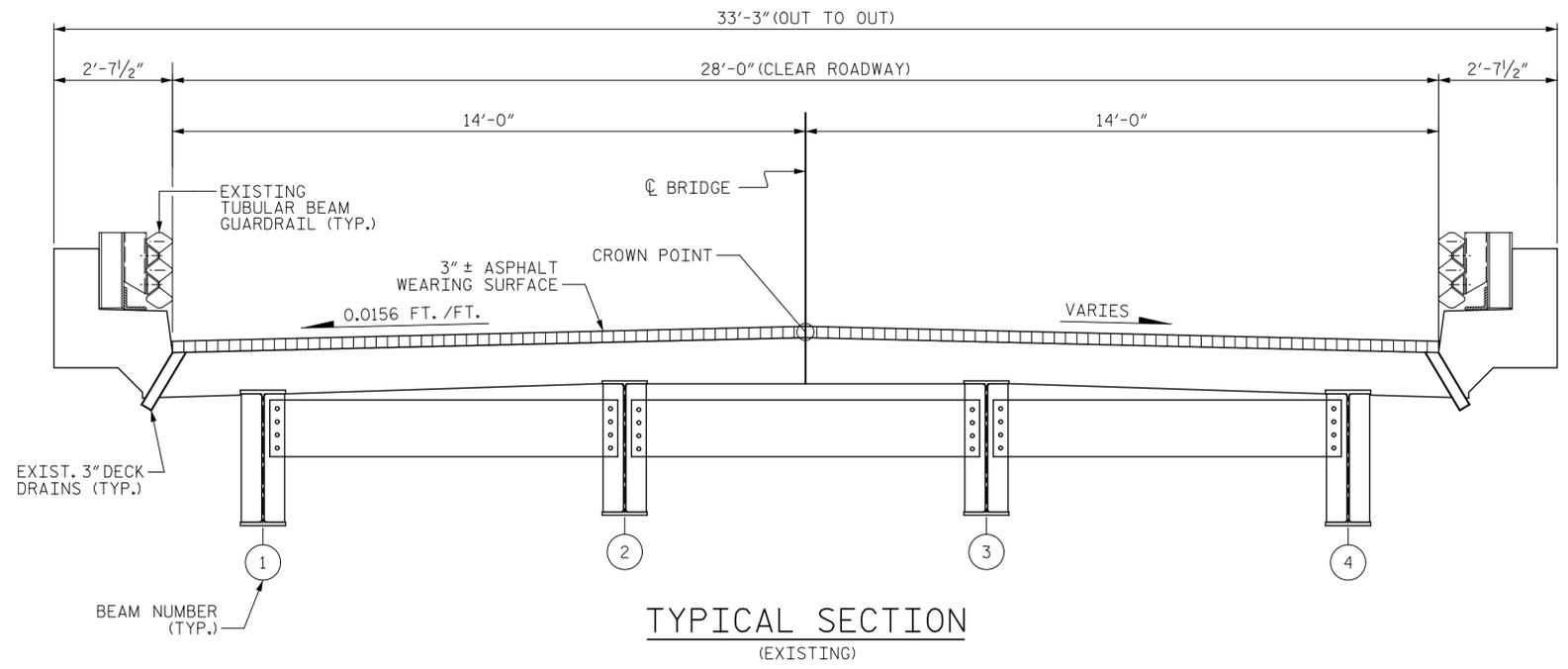
DRAWN BY : J. HARRIS DATE : 6/2022  
 CHECKED BY : J. YANACCONE DATE : 6/2022



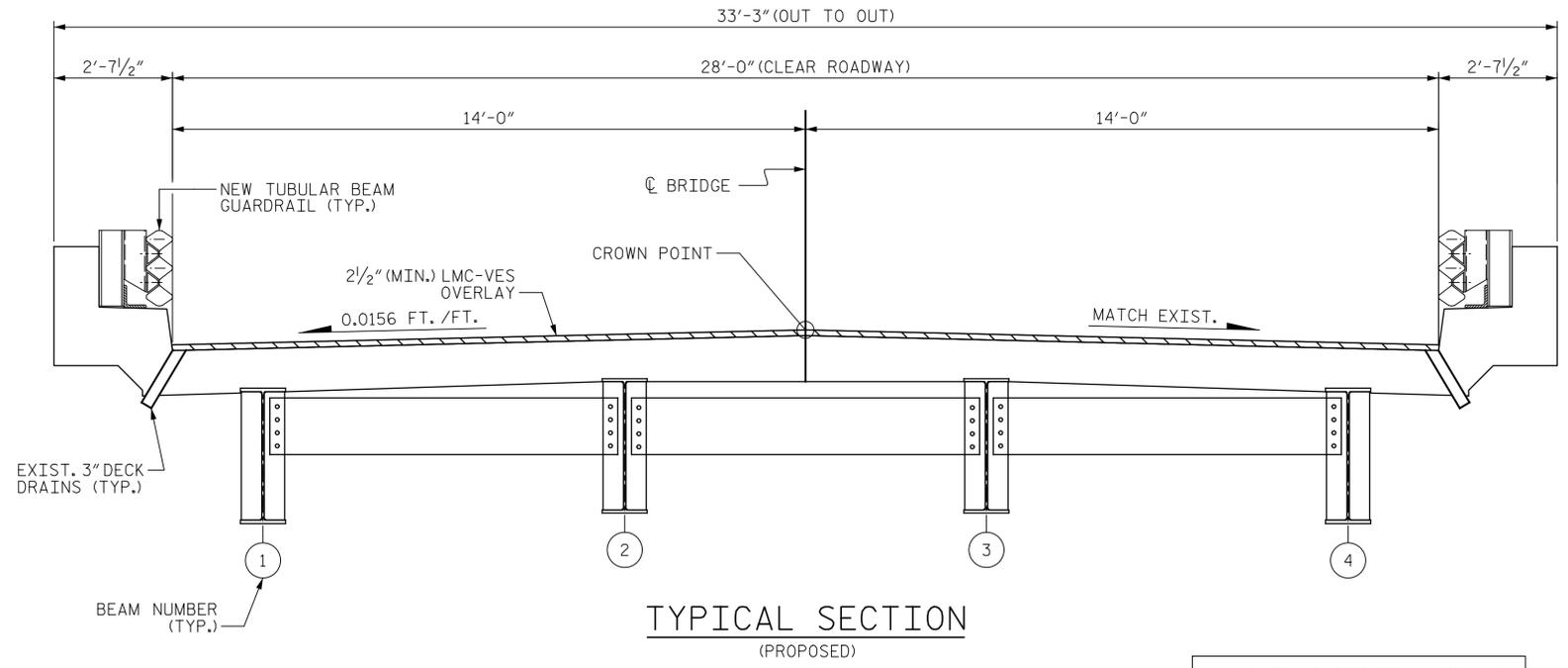
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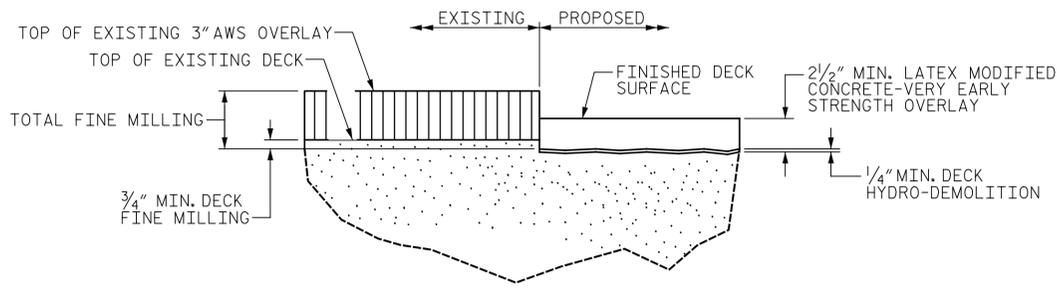
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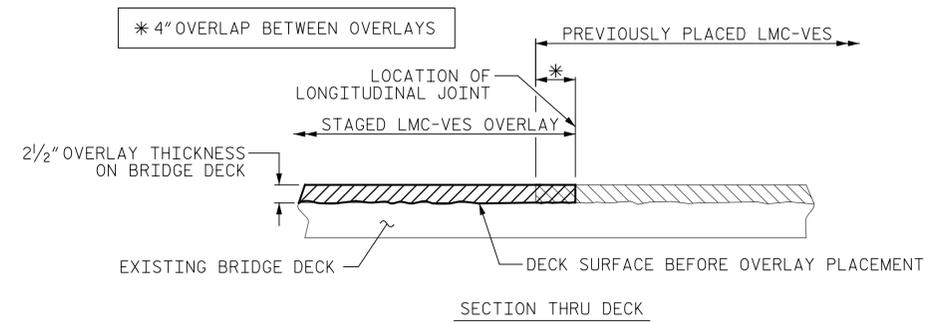
TYPICAL SECTION  
(EXISTING)



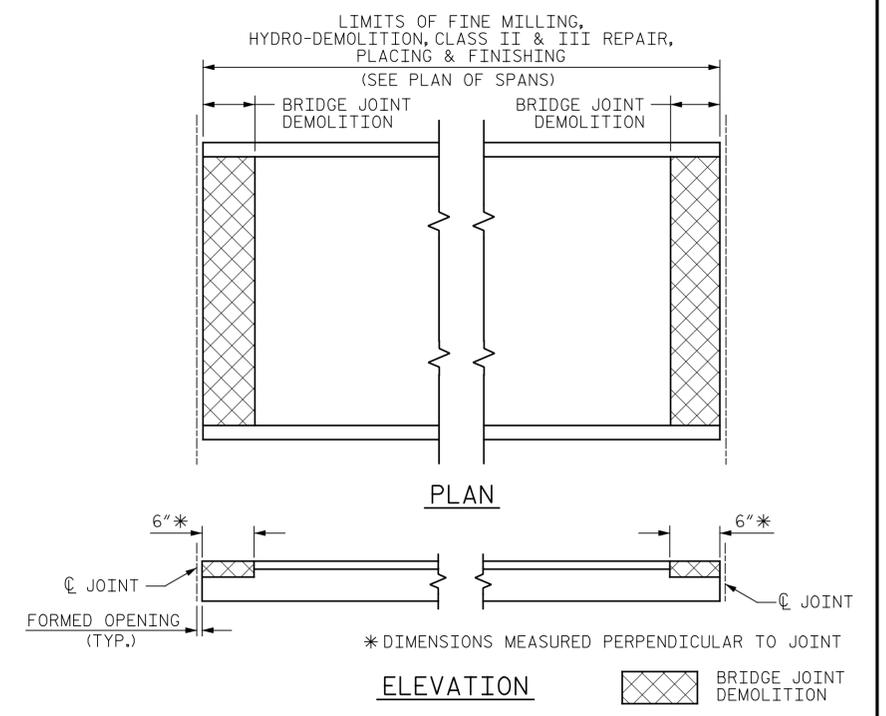
TYPICAL SECTION  
(PROPOSED)



DETAIL FOR LMC-VES OVERLAY



SECTION THRU DECK  
STAGED LMC-VES OVERLAY JOINT



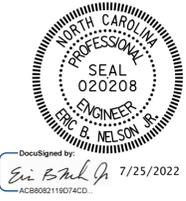
PAY LIMITS FOR OVERLAY BID ITEMS

NOTES:

SEE TRAFFIC MANAGEMENT PLANS FOR LANE WIDTHS, SEQUENCING, AND OTHER TRAFFIC CONTROL MEASURES FOR STAGING OF OVERLAY SURFACE PREPARATION AND LMC PLACEMENT.

WHEN PREPARING THE SURFACE FOR LMC-VES OVERLAY ADJACENT TO A PREVIOUSLY PLACED LMC-VES STAGE, THE PREVIOUSLY PLACED LMC-VES SHALL BE REMOVED FOR A DISTANCE OF 4 INCHES FROM THE LMC-VES EDGE. THE SURFACE OF THE NEW STAGE AREA, ALONG WITH THE 4 INCH OVERLAY AREA, SHALL BE PREPARED AS PER THE OVERLAY SURFACE PREPARATION SPECIAL PROVISIONS. NEW LMC-VES SHALL BE PLACED IN THE 4-INCH OVERLAP, AS PART OF THE NEW LMC-VES STAGE PLACEMENT.

PROJECT NO. I-5889B  
 BUNCOMBE COUNTY  
 BRIDGE NO. 100352



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

TYPICAL SECTION AND  
 SURFACE PREPARATION  
 DETAILS

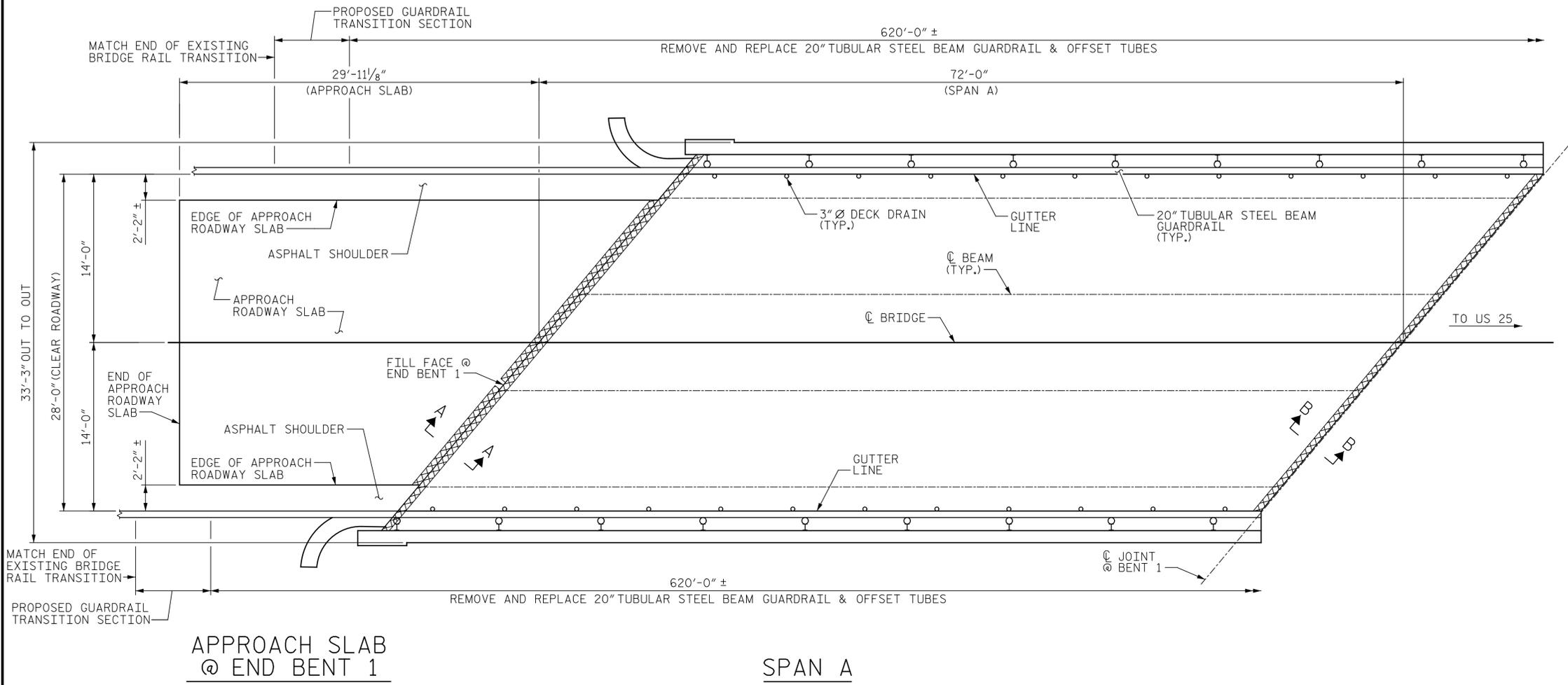
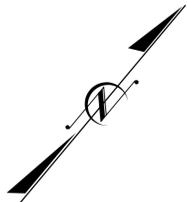
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 CHECKED BY: J. YANACCONE DATE: 6/2022



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**NOTES:**

REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

CONCRETE COVER FOR TOP BARS IN THE DECK SLAB IS 1 1/8" PER THE EXISTING BRIDGE PLANS.

FOR SECTION A-A AND B-B, SEE "JOINT DETAILS" SHEET.

FOR FINE MILLING, SEE SPECIAL PROVISIONS.

THE CONTRACTOR SHALL REMOVE AND REPLACE THE 20" TUBULAR STEEL BEAM GUARDRAIL. THE ENGINEER WILL SELECT THOSE SECTIONS OF THE EXISTING GUARDRAIL SUITABLE FOR FUTURE USE AND TRANSPORT THEM TO A STOCKPILE FOR THE USE OF THE DEPARTMENT. THE REMAINING GUARDRAIL SECTIONS SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE PROJECT.

FOR DIMENSIONS OF TUBULAR BEAM GUARDRAIL, POST AND TUBES, SEE "TUBULAR BEAM GUARDRAIL DETAILS" SHEET.

| BRIDGE RAIL QUANTITIES<br>(FOR ENTIRE BRIDGE) |         |
|---|---------|
| REMOVE 20" TUBULAR STEEL BEAM GUARDRAIL       | 1260 LF |
| 20" TUBULAR STEEL BEAM GUARDRAIL              | 1240 LF |
| REMOVE AND REPLACE W 6X9 POSTS                | 0 EA    |
| W-TR STEEL BEAM GUARDRAIL TRANSITION SECTION  | 3 EA    |

- BRIDGE JOINT DEMOLITION
- APPROX. CLASS II SURFACE PREPARATION
- APPROX. CLASS III SURFACE PREPARATION
- UNDERSIDE OF DECK/OVERHANG REPAIR
- ERI EPOXY RESIN INJECTION

| TOP OF DECK REPAIR                    | APPROACH SLAB 1 |        | SPAN A   |        | UNDERSIDE OF DECK REPAIR        |        |          |        |  |
|---------------------------------------|-----------------|--------|----------|--------|---------------------------------|--------|----------|--------|--|
|                                       | ESTIMATE        | ACTUAL | ESTIMATE | ACTUAL | SHOTCRETE REPAIR                |        | ESTIMATE | ACTUAL |  |
| FINE MILLING                          | 78 SY           |        | 224 SY   |        | UNDERSIDE OF DECK               | 0.0    | 0.0      |        |  |
| HYDRO-DEMOLITION OF BRIDGE DECK       | 78 SY           |        | 224 SY   |        | OVERHANG DIAPHRAGMS             | 0.0    | 0.0      |        |  |
| CLASS II SURFACE PREPARATION          | 0.0 SY          |        | 0.0 SY   |        | UNDERSIDE OF OVERHANG           | 0.0    | 0.0      |        |  |
| CLASS III SURFACE PREPARATION         | 0.0 SY          |        | 0.0 SY   |        | INTERIOR DIAPHRAGMS             | 0.0    | 0.0      |        |  |
| LATEX MODIFIED CONCRETE - VES OVERLAY | 5.7 CY          |        | 16.3 CY  |        |                                 |        |          |        |  |
| PLACING & FINISHING LMC - VES OVERLAY | 78 SY           |        | 224 SY   |        |                                 |        |          |        |  |
| BRIDGE JOINT DEMOLITION               | 15 SF           |        | 37 SF    |        |                                 |        |          |        |  |
| GROOVING BRIDGE FLOORS                | 672 SF          |        | 1755 SF  |        | UNDERSIDE EPOXY RESIN INJECTION | 0.0 LF |          |        |  |

VALUES IN CHART REPRESENT ESTIMATED UNDERSIDE OF DECK REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEAR TO SAWCUT. FOR REPAIR DETAILS, SEE "OVERHANG UNDERSIDE REPAIR DETAILS" SHEET.

PAYMENT FOR CLASS II AND CLASS III SURFACE PREPARATION IS BASED ON THE SQUARE YARDS OF ADDITIONAL DEMOLITION REQUIRED FOLLOWING HYDRO-DEMOLITION OF THE BRIDGE DECK. SEE "OVERLAY SURFACE PREPARATION" SPECIAL PROVISION.

PROJECT NO. I-5889B  
BUNCOMBE COUNTY  
 BRIDGE NO. 100352

SHEET 1 OF 8

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

PLAN OF SPANS  
 SPAN A AND  
 APPROACH SLAB



DocuSigned by:  
 Eric B. Nelson 7/25/2022  
 AC880211907ACD

DRAWN BY: J. HARRIS DATE: 6/2022  
 CHECKED BY: J. YANACCONE DATE: 6/2022



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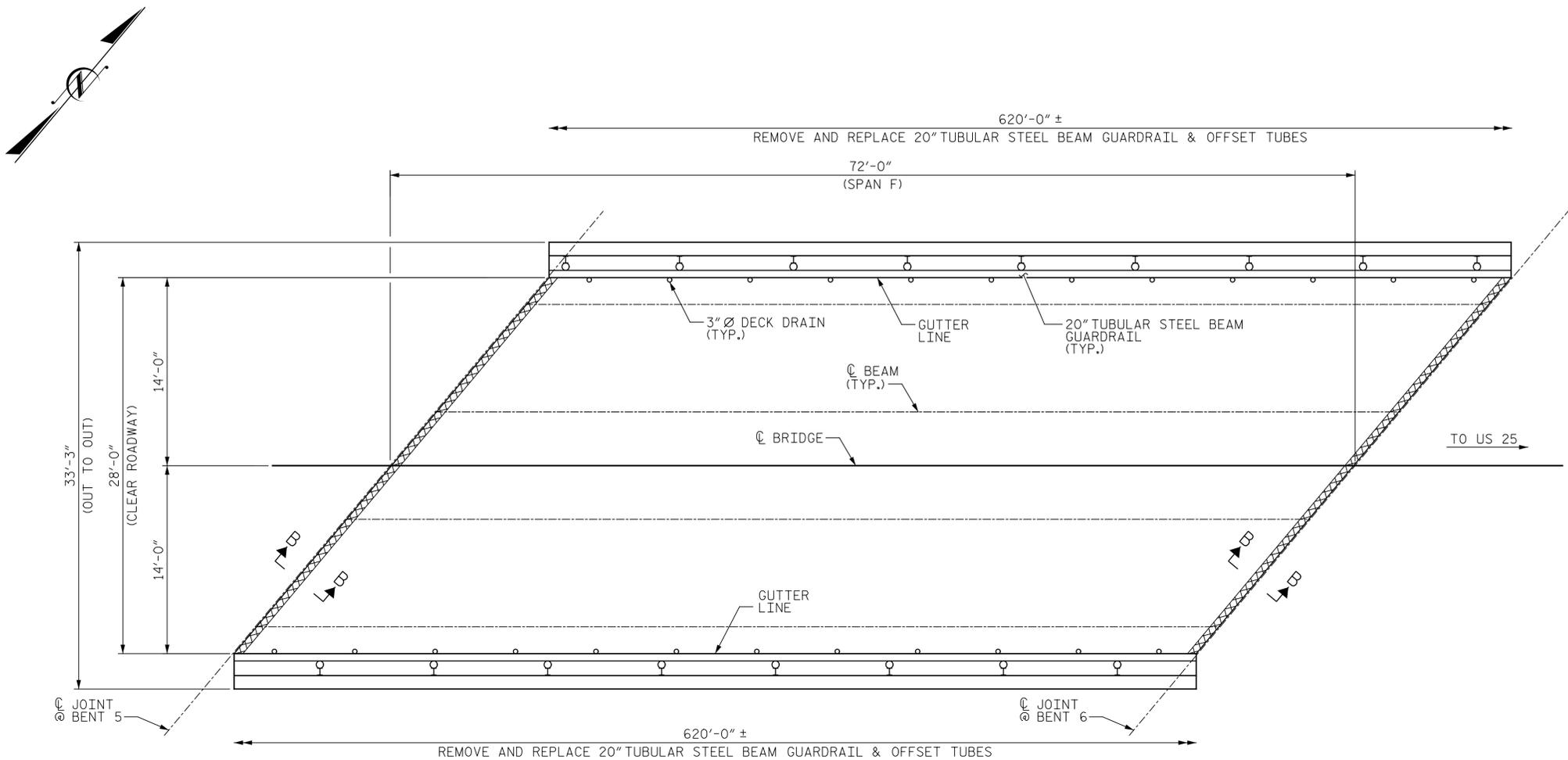








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**SPAN F**

**NOTES:**

REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

CONCRETE COVER FOR TOP BARS IN THE DECK SLAB IS 1 1/16" PER THE EXISTING BRIDGE PLANS.

FOR SECTION B-B, SEE "JOINT DETAILS" SHEET.

FOR FINE MILLING, SEE SPECIAL PROVISIONS.

THE CONTRACTOR SHALL REMOVE AND REPLACE THE 20" TUBULAR STEEL BEAM GUARDRAIL. THE ENGINEER WILL SELECT THOSE SECTIONS OF THE EXISTING GUARDRAIL SUITABLE FOR FUTURE USE AND TRANSPORT THEM TO A STOCKPILE FOR THE USE OF THE DEPARTMENT. THE REMAINING GUARDRAIL SECTIONS SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE PROJECT.

FOR DIMENSIONS OF TUBULAR BEAM GUARDRAIL, POSTS AND TUBES, SEE "TUBULAR BEAM GUARDRAIL DETAILS" SHEET.

DRAWN BY : J. HARRIS DATE : 6/2022  
 CHECKED BY : J. YANNACCONE DATE : 6/2022

| REPAIR QUANTITY TABLE                 |          |           |         |           |
|---------------------------------------|----------|-----------|---------|-----------|
| TOP OF DECK REPAIR                    |          |           |         |           |
|                                       | ESTIMATE | ACTUAL    |         |           |
| FINE MILLING                          | 224 SY   |           |         |           |
| HYDRO-DEMOLITION OF BRIDGE DECK       | 224 SY   |           |         |           |
| CLASS II SURFACE PREPARATION          | 0.0 SY   |           |         |           |
| CLASS III SURFACE PREPARATION         | 0.0 SY   |           |         |           |
| LATEX MODIFIED CONCRETE - VES OVERLAY | 16.3 CY  |           |         |           |
| PLACING & FINISHING LMC - VES OVERLAY | 224 SY   |           |         |           |
| BRIDGE JOINT DEMOLITION               | 37 SF    |           |         |           |
| GROOVING BRIDGE FLOORS                | 1754 SF  |           |         |           |
| UNDERSIDE OF DECK REPAIR              |          |           |         |           |
| SHOTCRETE REPAIRS                     | ESTIMATE | ACTUAL    |         |           |
|                                       | AREA SF  | VOLUME CF | AREA SF | VOLUME CF |
| UNDERSIDE OF DECK                     | 0.0      | 0.0       |         |           |
| OVERHANG DIAPHRAGMS                   | 0.0      | 0.0       |         |           |
| UNDERSIDE OF OVERHANG                 | 0.0      | 0.0       |         |           |
| INTERIOR DIAPHRAGMS                   | 0.0      | 0.0       |         |           |
|                                       |          |           |         |           |
|                                       | ESTIMATE | ACTUAL    |         |           |
| UNDERSIDE EPOXY RESIN INJECTION       | 0.0 LF   |           |         |           |

VALUES IN CHART REPRESENT ESTIMATED UNDERSIDE OF DECK REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEAR TO SAWCUT. FOR REPAIR DETAILS, SEE "OVERHANG UNDERSIDE REPAIR DETAILS" SHEET.

PAYMENT FOR CLASS II AND CLASS III SURFACE PREPARATION IS BASED ON THE SQUARE YARDS OF ADDITIONAL DEMOLITION REQUIRED FOLLOWING HYDRO-DEMOLITION OF THE BRIDGE DECK. SEE "OVERLAY SURFACE PREPARATION" SPECIAL PROVISION.

- BRIDGE JOINT DEMOLITION
- APPROX. CLASS II SURFACE PREPARATION
- APPROX. CLASS III SURFACE PREPARATION
- UNDERSIDE OF DECK/OVERHANG REPAIR
- ERI EPOXY RESIN INJECTION

PROJECT NO. I-5889B  
BUNCOMBE COUNTY  
 BRIDGE NO. 100352

SHEET 6 OF 8



DocuSigned by:  
 Eric B. Nelson 7/25/2022

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**PLAN OF SPANS  
 SPAN F**

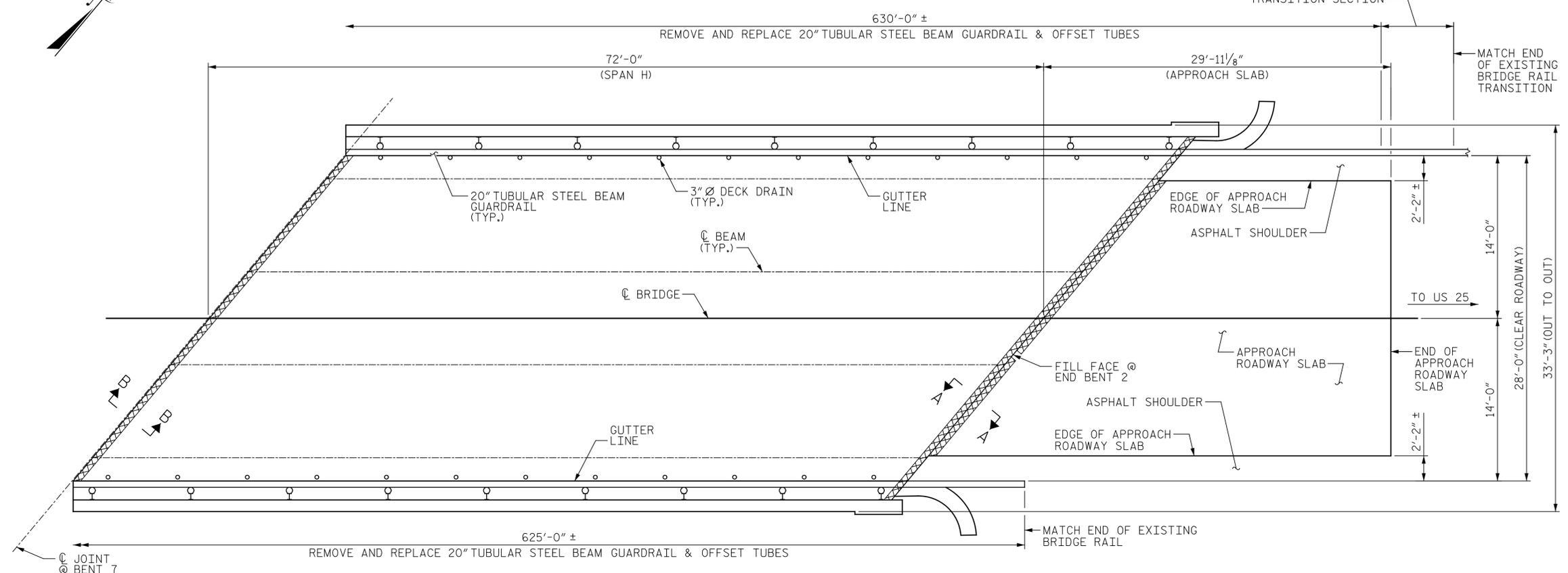
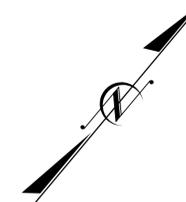


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SPAN H

APPROACH SLAB @ END BENT 2

**NOTES:**

REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

CONCRETE COVER FOR TOP BARS IN THE DECK SLAB IS 1 1/16" PER THE EXISTING BRIDGE PLANS.

FOR SECTION A-A AND B-B, SEE "JOINT DETAILS" SHEET.

FOR FINE MILLING, SEE SPECIAL PROVISIONS.

THE CONTRACTOR SHALL REMOVE AND REPLACE THE 20" TUBULAR STEEL BEAM GUARDRAIL. THE ENGINEER WILL SELECT THOSE SECTIONS OF THE EXISTING GUARDRAIL SUITABLE FOR FUTURE USE AND TRANSPORT THEM TO A STOCKPILE FOR THE USE OF THE DEPARTMENT. THE REMAINING GUARDRAIL SECTIONS SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE PROJECT.

FOR DIMENSIONS OF TUBULAR BEAM GUARDRAIL, POST AND TUBES, SEE "TUBULAR BEAM GUARDRAIL DETAILS" SHEET.

- BRIDGE JOINT DEMOLITION
- APPROX. CLASS II SURFACE PREPARATION
- APPROX. CLASS III SURFACE PREPARATION
- UNDERSIDE OF DECK/OVERHANG REPAIR
- ERI EPOXY RESIN INJECTION

| REPAIR QUANTITY TABLE                 |          |        |                 |        | UNDERSIDE OF DECK REPAIR        |          |           |          |           |
|---------------------------------------|----------|--------|-----------------|--------|---------------------------------|----------|-----------|----------|-----------|
| TOP OF DECK REPAIR                    | SPAN H   |        | APPROACH SLAB 2 |        | SHOTCRETE REPAIR                | ESTIMATE |           | ACTUAL   |           |
|                                       | ESTIMATE | ACTUAL | ESTIMATE        | ACTUAL |                                 | AREA SF  | VOLUMN CF | AREA SF  | VOLUMN CF |
| FINE MILLING                          | 224 SY   |        | 78 SY           |        | UNDERSIDE OF DECK               | 0.0      | 0.0       |          |           |
| HYDRO-DEMOLITION OF BRIDGE DECK       | 224 SY   |        | 78 SY           |        | OVERHANG DIAPHRAGMS             | 0.0      | 0.0       |          |           |
| CLASS II SURFACE PREPARATION          | 0.0 SY   |        | 0.0 SY          |        | UNDERSIDE OF OVERHANG           | 0.0      | 0.0       |          |           |
| CLASS III SURFACE PREPARATION         | 0.0 SY   |        | 0.0 SY          |        | INTERIOR DIAPHRAGMS             | 0.0      | 0.0       |          |           |
| LATEX MODIFIED CONCRETE - VES OVERLAY | 16.3 CY  |        | 5.7 CY          |        |                                 |          |           | ESTIMATE | ACTUAL    |
| PLACING & FINISHING LMC - VES OVERLAY | 224 SY   |        | 78 SY           |        |                                 |          |           |          |           |
| BRIDGE JOINT DEMOLITION               | 37 SF    |        | 15 SF           |        | UNDERSIDE EPOXY RESIN INJECTION | 0.0 LF   |           |          |           |
| GROOVING BRIDGE FLOORS                | 1755 SF  |        | 672 SF          |        |                                 |          |           |          |           |

VALUES IN CHART REPRESENT ESTIMATED UNDERSIDE OF DECK REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEAR TO SAWCUT. FOR REPAIR DETAILS, SEE "OVERHANG UNDERSIDE REPAIR DETAILS" SHEET.

PAYMENT FOR CLASS II AND CLASS III SURFACE PREPARATION IS BASED ON THE SQUARE YARDS OF ADDITIONAL DEMOLITION REQUIRED FOLLOWING HYDRO-DEMOLITION OF THE BRIDGE DECK. SEE "OVERLAY SURFACE PREPARATION" SPECIAL PROVISION.

PROJECT NO. I-5889B  
BUNCOMBE COUNTY  
 BRIDGE NO. 100352

SHEET 8 OF 8



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

PLAN OF SPANS  
 SPAN H AND  
 APPROACH SLAB

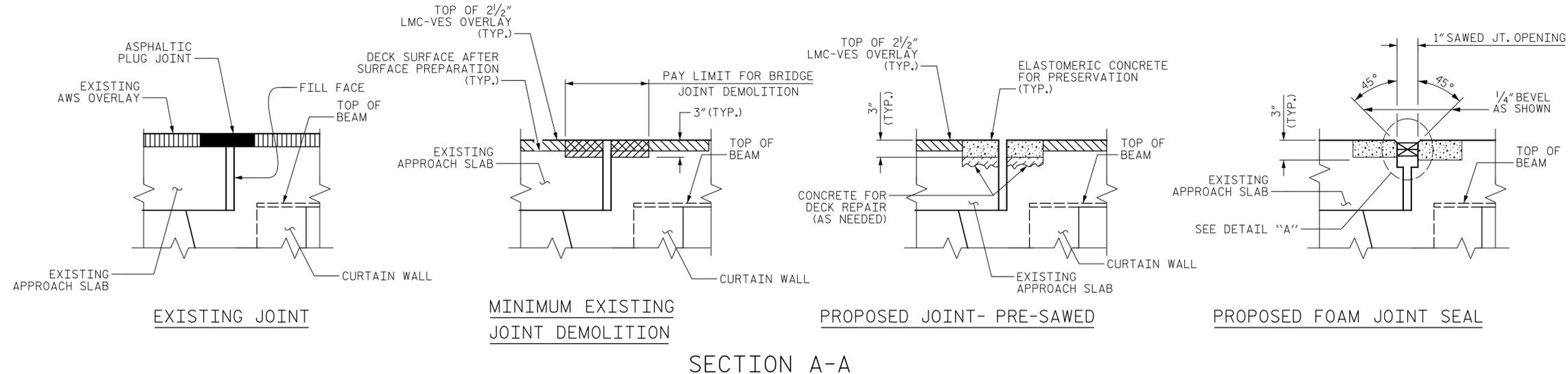
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 CHECKED BY : J. YANNACCONE DATE : 6/2022



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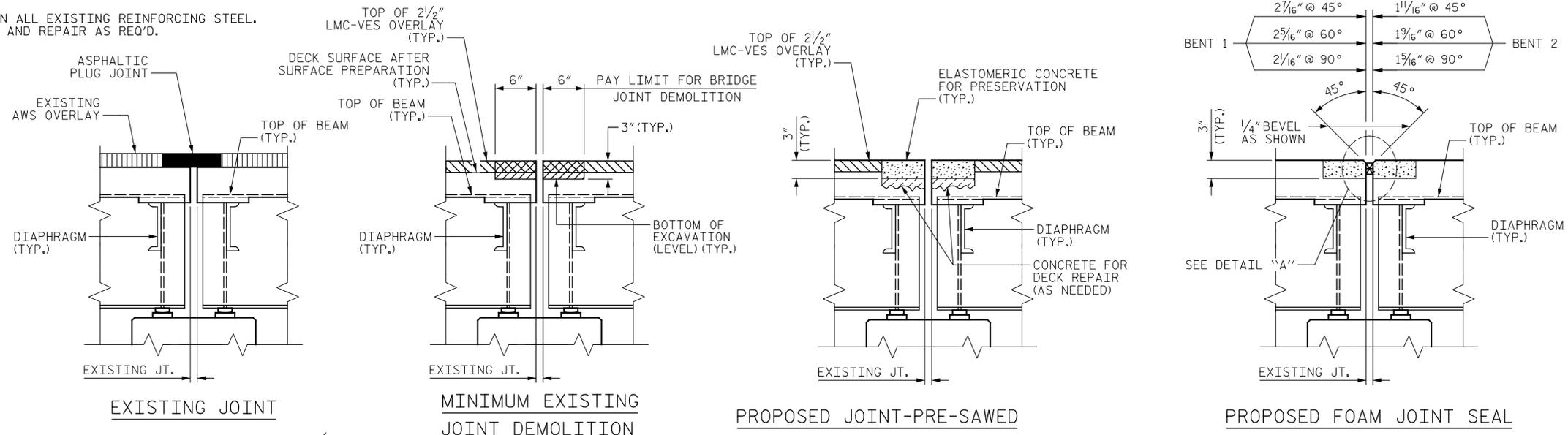
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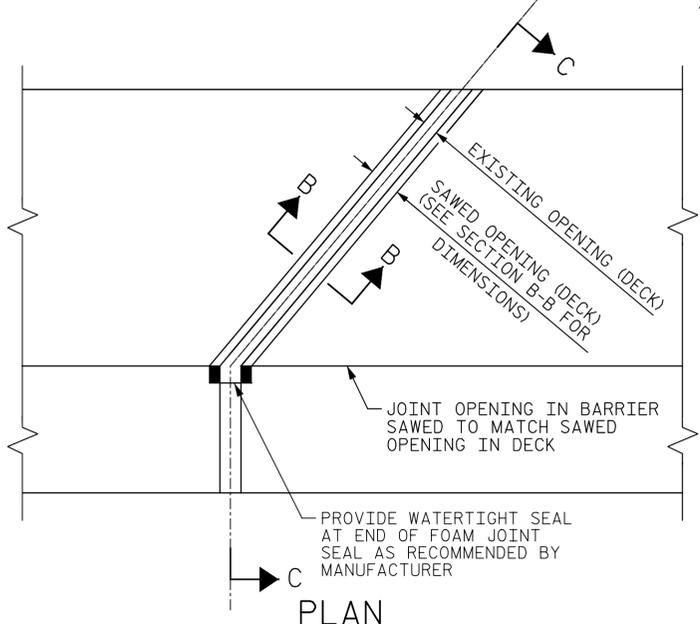


SECTION A-A

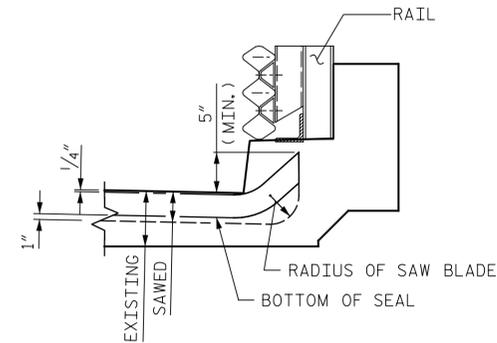
NOTE: RETAIN ALL EXISTING REINFORCING STEEL. CLEAN AND REPAIR AS REQ'D.



SECTION B-B



PLAN

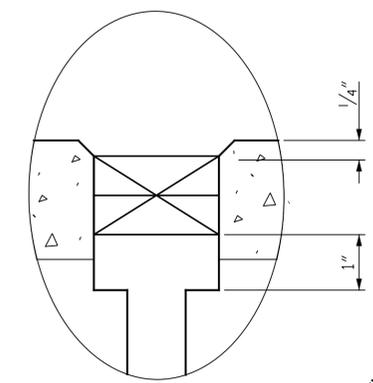


SECTION C-C

FOAM JOINT SEAL SHALL BE FACTORY FORMED OR CUT, HEAT WELDED AND TURNED UP PARALLEL TO SLOPED FACE OF CURB.

| LOCATION   | ELASTOMERIC CONCRETE FOR PRESERVATION | FOAM JOINT SEALS FOR PRESERVATION |
|------------|---------------------------------------|-----------------------------------|
|            | CU. FT.                               | LIN. FT.                          |
| END BENT 1 | 8.4                                   | 31.0                              |
| BENT 1     | 9.1                                   | 38.5                              |
| BENT 2     | 9.1                                   | 38.5                              |
| BENT 3     | 9.1                                   | 38.5                              |
| BENT 4     | 9.1                                   | 38.5                              |
| BENT 5     | 9.1                                   | 38.5                              |
| BENT 6     | 9.1                                   | 38.5                              |
| BENT 7     | 9.1                                   | 38.5                              |
| END BENT 2 | 8.4                                   | 31.0                              |
| * TOTAL    | 80.5                                  | 331.5                             |

\* BASED ON MINIMUM BLOCKOUT SHOWN



DETAIL "A"

**NOTES:**  
 FINAL JOINT SEALS SHALL NOT BE INSTALLED UNTIL THE OVERLAY OR SEALANT WORK IS COMPLETE.

THE CONTRACTOR SHALL FIELD VERIFY THE EXISTING JOINT OPENING PRIOR TO ORDERING JOINT SEAL MATERIAL. IF THE ACTUAL JOINT OPENING VARIES FROM THE OPENING INDICATED IN THE DETAILS BY MORE THAN 1/4", NOTIFY THE ENGINEER.

THE MANUFACTURER IS TO PROVIDE THE NOMINAL UNCOMPRESSED SEAL WIDTH OF THE FOAM JOINT SEAL FOR THE SIZE OF THE OPENING ON THE PLANS AND ACCOMMODATE THE MINIMUM EXPANSION SHOWN ON THE PLANS.

FOAM JOINTS SHALL BE INSTALLED AS PER THE MANUFACTURER'S RECOMMENDATIONS.

THE CONTRACTOR SHALL TAKE CARE DURING JOINT REHAB OPERATIONS NOT TO DROP ANY MATERIAL BELOW THE BRIDGE WITHOUT PROTECTIVE DEVICES BELOW TO CATCH THE MATERIAL. ANY MATERIAL THAT FALLS BELOW THE BRIDGE SHALL BE CONTAINED, REMOVED AND DISPOSED OF BY THE CONTRACTOR AT NO EXTRA COST TO THE DEPARTMENT. IF THE ENGINEER DETERMINES THAT THE PROTECTIVE DEVICES ARE NOT ADEQUATE OR NOT BEING EMPLOYED, THE WORK SHALL BE SUSPENDED UNTIL ADEQUATE PROTECTION IS PROVIDED.

FOR EXCAVATION BELOW THE BOTTOM OF THE PLANNED JOINT DEMOLITION, CONCRETE FOR DECK REPAIR SHALL BE PLACED IN THE EXCAVATED AREA TO THE ELEVATION AT THE BOTTOM OF THE PROPOSED ELASTOMERIC CONCRETE FOR PRESERVATION HEADERS AS SHOWN.

THE FINAL SURFACE OF THE JOINT DEMOLITION AREA PRIOR TO PLACEMENT OF CONCRETE REPAIR MATERIAL OR ELASTOMERIC CONCRETE SHOULD BE REASONABLY FLAT AND LEVEL. THE ENGINEER SHALL DETERMINE THE ACCEPTABILITY OF THE SURFACE PRIOR TO PLACEMENT OF REPAIR CONCRETE OR ELASTOMERIC CONCRETE.

THE CONTRACTOR WILL NOT BE PERMITTED TO FORM THE JOINT IN LIEU OF SAWING THE JOINT.

THE INSTALLED FOAM JOINTS SHALL BE WATERTIGHT.

THE CONTRACTOR SHALL SAW CUT TO A NOMINAL DEPTH OF 1/2" BUT REINFORCING STEEL SHALL NOT BE DAMAGED. CONTRACTOR SHALL REMOVE SURFACE CONCRETE TO VERIFY THAT SAWCUT DEPTH WILL NOT DAMAGE EXISTING REINFORCING STEEL.

QUANTITIES SHOWN IN THE ELASTOMERIC CONCRETE FOR PRESERVATION TABLE ARE BASED ON THE MINIMUM JOINT DEMOLITION SHOWN.

FOR BRIDGE JOINT DEMOLITION, SEE SPECIAL PROVISIONS.

FOR ELASTOMERIC CONCRETE FOR PRESERVATION, SEE SPECIAL PROVISIONS.

FOR FOAM JOINT SEALS FOR PRESERVATION, SEE SPECIAL PROVISIONS.

PROJECT NO. I-5889B  
BUNCOMBE COUNTY  
 BRIDGE NO. 100352

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

JOINT DETAILS



DocuSigned by:  
 Eric B. Nelson 7/25/2022

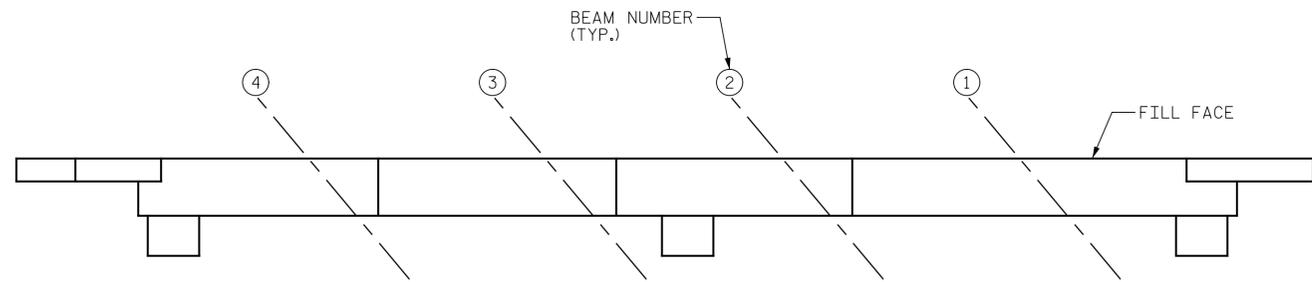
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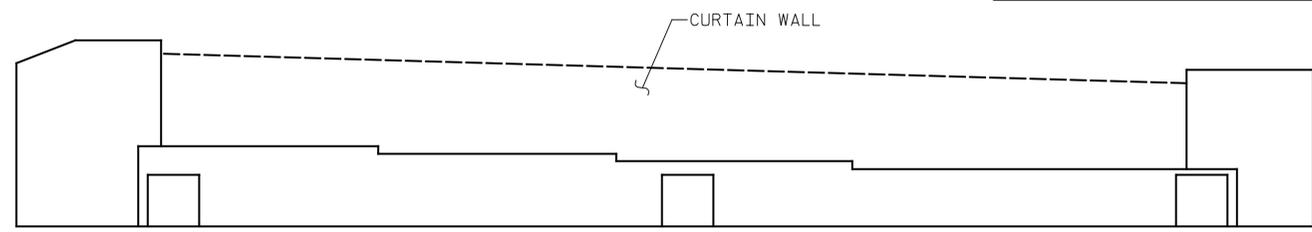
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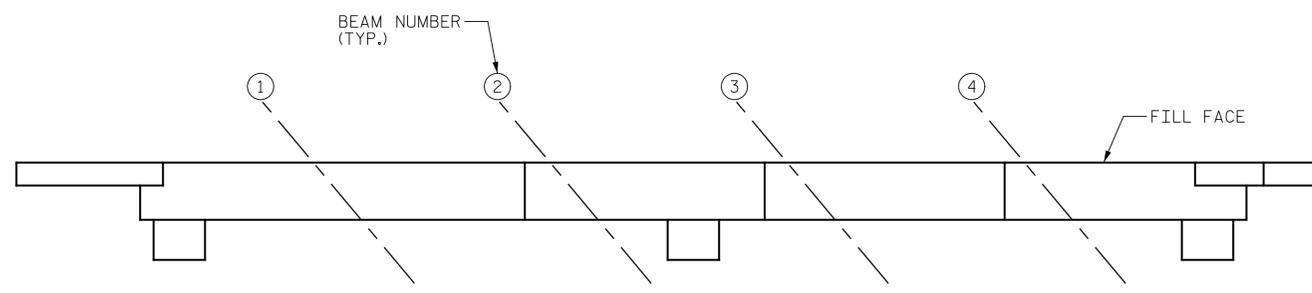
PLAN

NO REPAIRS NOTED FOR END BENT 1 DURING FIELD SCOPING. THE CONTRACTOR AND ENGINEER SHALL INSPECT END BENT 1 PRIOR TO BEGINNING WORK.



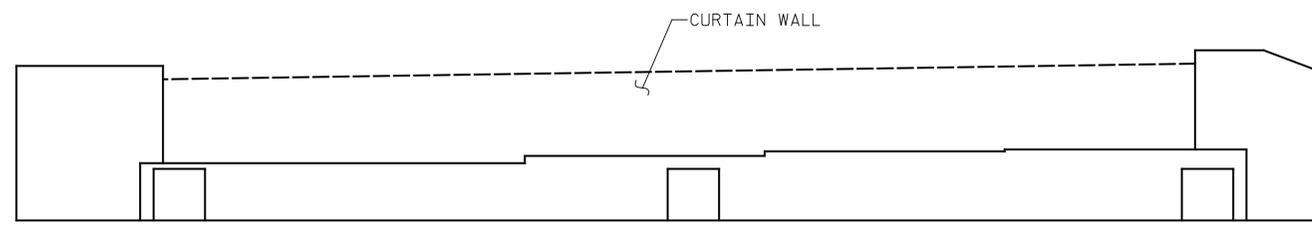
ELEVATION  
END BENT 1

- SHOTCRETE REPAIR
- CONCRETE REPAIR (FORM & POUR)
- ERI - EPOXY RESIN INJECTION



PLAN

NO REPAIRS NOTED FOR END BENT 2 DURING FIELD SCOPING. THE CONTRACTOR AND ENGINEER SHALL INSPECT END BENT 2 PRIOR TO BEGINNING WORK.



ELEVATION  
END BENT 2

AS-BUILT REPAIR QUANTITY TABLE

| END BENT 1 REPAIRS    | QUANTITIES |           |         |           |           |
|-----------------------|------------|-----------|---------|-----------|-----------|
|                       | ESTIMATE   |           | ACTUAL  |           |           |
| SHOTCRETE REPAIRS     | AREA SF    | VOLUME CF | AREA SF | DEPTH FT  | VOLUME CF |
| CAP                   | 0.0        | 0.0       |         |           |           |
| CURTAIN WALL          | 0.0        | 0.0       |         |           |           |
| CONCRETE REPAIRS      | 0.0        | 0.0       |         |           |           |
| EPOXY RESIN INJECTION |            | LENGTH LF |         | LENGTH LF |           |
| CAP                   |            | 0.0       |         |           |           |
| CURTAIN WALL          |            | 0.0       |         |           |           |

| END BENT 2 REPAIRS    | QUANTITIES |           |         |           |           |
|-----------------------|------------|-----------|---------|-----------|-----------|
|                       | ESTIMATE   |           | ACTUAL  |           |           |
| SHOTCRETE REPAIRS     | AREA SF    | VOLUME CF | AREA SF | DEPTH FT  | VOLUME CF |
| CAP                   | 0.0        | 0.0       |         |           |           |
| CURTAIN WALL          | 0.0        | 0.0       |         |           |           |
| CONCRETE REPAIRS      | 0.0        | 0.0       |         |           |           |
| EPOXY RESIN INJECTION |            | LENGTH LF |         | LENGTH LF |           |
| CAP                   |            | 0.0       |         |           |           |
| CURTAIN WALL          |            | 0.0       |         |           |           |

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM OF 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUALITIES ENTERED INTO THE AS-BUILT REPAIR QUANTITY TABLE.

CONTRACTOR SHALL SAW CUT TO A MINIMUM DEPTH OF 1/2" BUT REINFORCING STEEL SHALL NOT BE DAMAGED

CONTRACTOR SHALL REMOVE SURFACE CONCRETE TO VERIFY THAT SAW CUT DEPTH WILL NOT DAMAGE EXISTING REINFORCING STEEL.

CONTRACTOR SHALL SAW CUT THE REPAIR AREAS SO THAT THE CORNERS ARE SQUARE AS INDICATED ON THE DETAILS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

SHOTCRETE REPAIRS MAY BE REPLACED WITH CONCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

PROJECT NO. I-5889B  
BUNCOMBE COUNTY  
 BRIDGE NO. 100352



DocuSigned by:  
*Eric B. Nelson* 7/25/2022  
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STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

END BENT 1 & 2

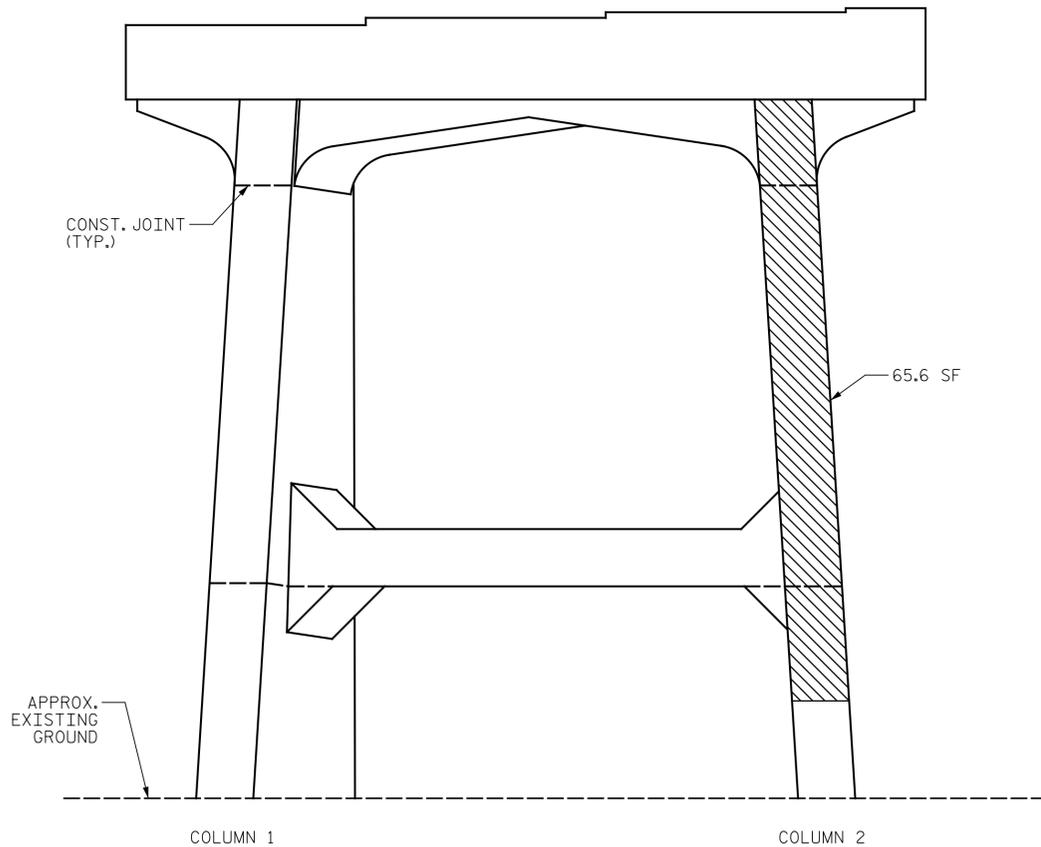
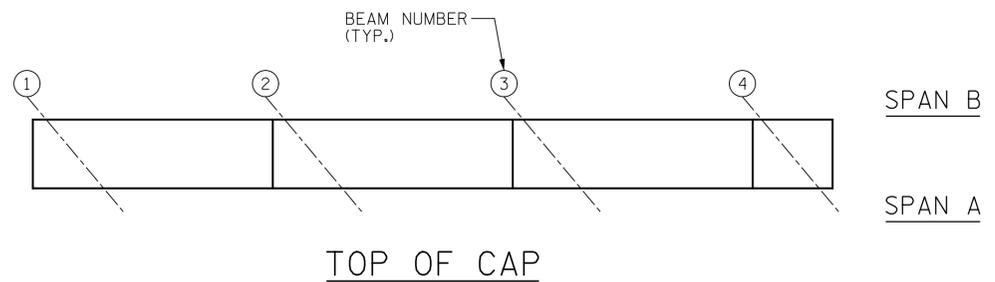
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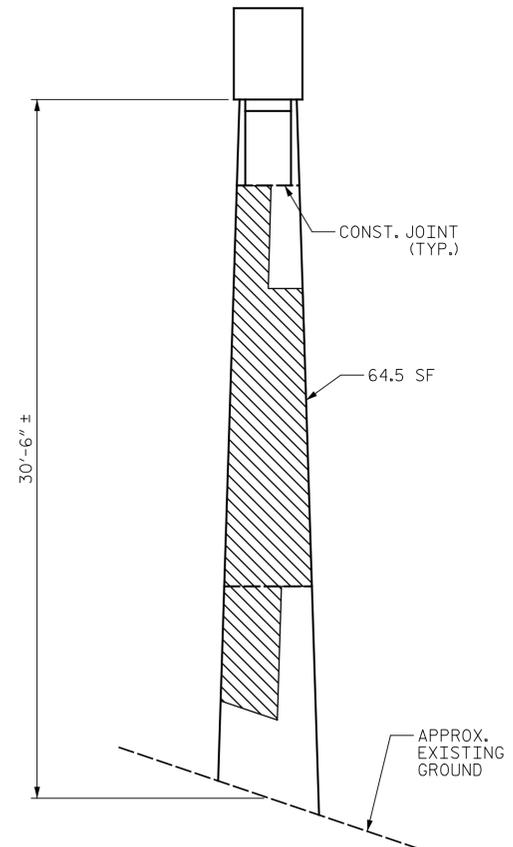
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ELEVATION



END VIEW  
(COLUMN 2)

| AS-BUILT REPAIR QUANTITY TABLE |            |           |           |          |           |
|--------------------------------|------------|-----------|-----------|----------|-----------|
| BENT 1 REPAIRS                 | QUANTITIES |           |           |          |           |
|                                | ESTIMATE   |           | ACTUAL    |          |           |
| SHOTCRETE REPAIRS              | AREA SF    | VOLUME CF | AREA SF   | DEPTH FT | VOLUME CF |
| CAP                            | 0.0        | 0.0       |           |          |           |
| COLUMN                         | 196.3      | 98.2      |           |          |           |
| STRUT                          | 18.9       | 9.5       |           |          |           |
| CONCRETE REPAIRS               | 0.0        | 0.0       |           |          |           |
| EPOXY RESIN INJECTION          |            | LENGTH LF | LENGTH LF |          |           |
| CAP                            |            | 0.0       |           |          |           |
| COLUMN                         |            | 0.0       |           |          |           |
| STRUT                          |            | 0.0       |           |          |           |
| EPOXY COATING                  |            | SQ. FT    | SQ. FT    |          |           |
| TOP OF BENT CAP                |            | 103       |           |          |           |

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM OF 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

**NOTES:**

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE BASED ON THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ENTER THE ACTUAL QUANTITIES INTO THE AS-BUILT REPAIR QUANTITY TABLE.

FOR REPAIRS, SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.  
 FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.  
 FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.  
 SHOTCRETE REPAIRS MAY BE REPLACED WITH CONCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

CONTRACTOR SHALL SAW CUT TO A MINIMUM DEPTH OF 1/2" BUT REINFORCING STEEL SHALL NOT BE DAMAGED. CONTRACTOR SHALL REMOVE SURFACE CONCRETE TO VERIFY THAT SAW CUT DEPTH WILL NOT DAMAGE EXISTING REINFORCING STEEL.

CONTRACTOR SHALL SAW CUT THE REPAIR AREAS SO THAT THE CORNERS ARE SQUARE AS INDICATED ON THE DETAILS.

CLEAN AND REMOVE DEBRIS FROM THE TOP OF THE CAP AND APPLY EPOXY PROTECTIVE COATING. EPOXY COATING SHALL BE APPLIED TO THE TOP SURFACE OF THE CAP. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAP BENEATH THE MASONRY PLATES. FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

WHEN COLUMN REPAIRS ARE INDICATED TO GROUND LINE, EXTEND REPAIR ONE (1) FOOT MIN. BELOW GROUND LINE.

- SHOTCRETE REPAIR
- CONCRETE REPAIR (FORM & POUR)
- ERI - EPOXY RESIN INJECTION

PROJECT NO. I-5889B  
BUNCOMBE COUNTY  
 BRIDGE NO. 100352

SHEET 1 OF 2



DocuSigned by:  
*Eric B. Nelson* 7/25/2022  
AC8892119074CD

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

BENT 1  
 SPAN A SIDE

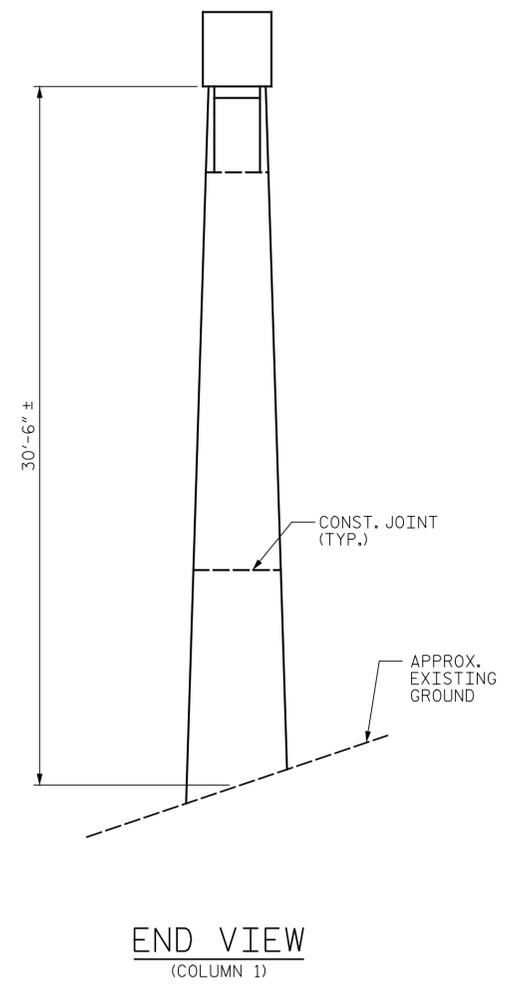
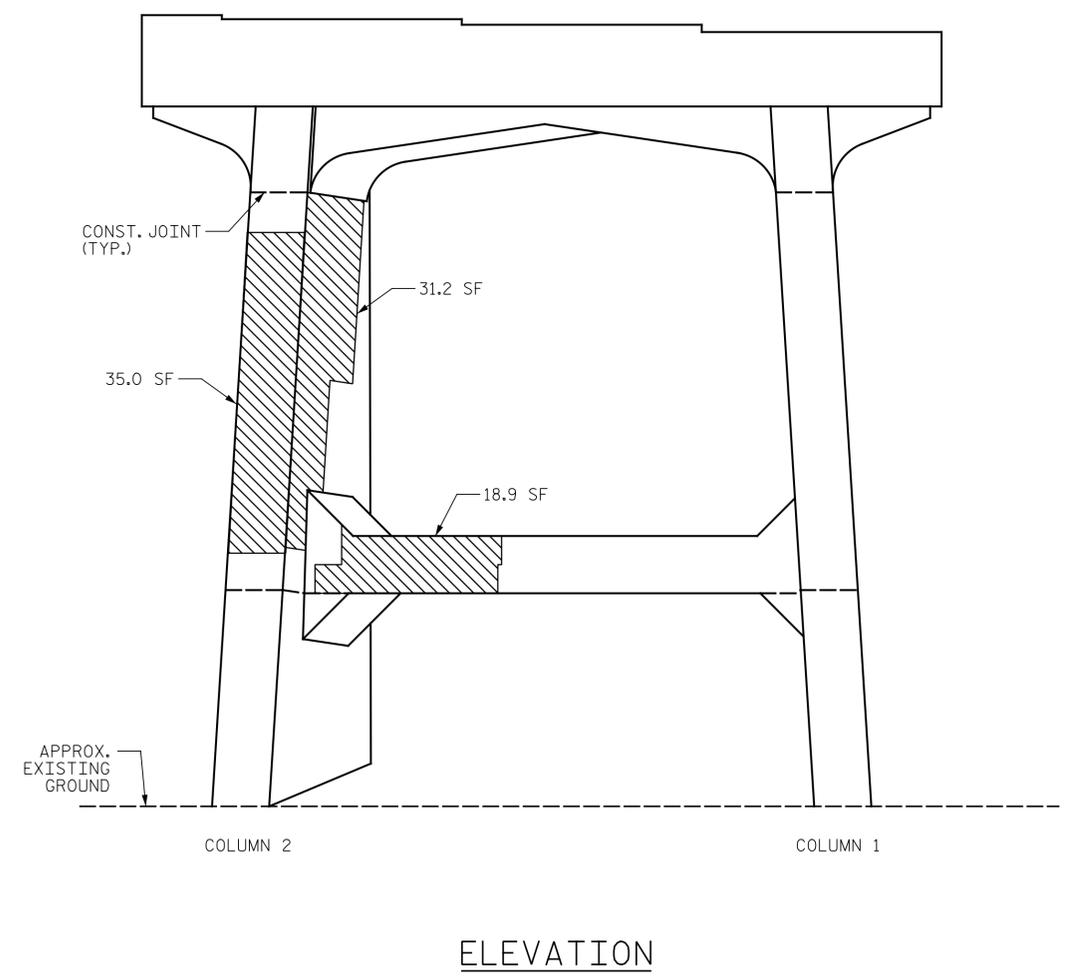
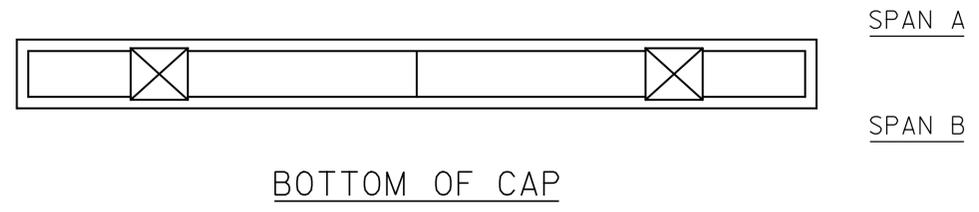
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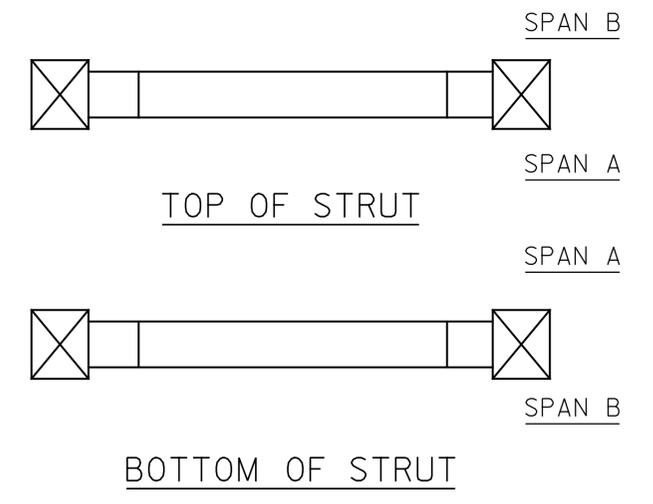
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CLEAN AND REMOVE DEBRIS FROM THE TOP OF THE CAP AND APPLY EPOXY PROTECTIVE COATING. EPOXY COATING SHALL BE APPLIED TO THE TOP SURFACE OF THE CAP. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAP BENEATH THE MASONRY PLATES. FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

WHEN COLUMN REPAIRS ARE INDICATED TO GROUND LINE, EXTEND REPAIR ONE (1) FOOT MIN. BELOW GROUND LINE.



PROJECT NO. I-5889B  
BUNCOMBE COUNTY  
 BRIDGE NO. 100352

SHEET 2 OF 2



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**BENT 1  
 SPAN B SIDE**

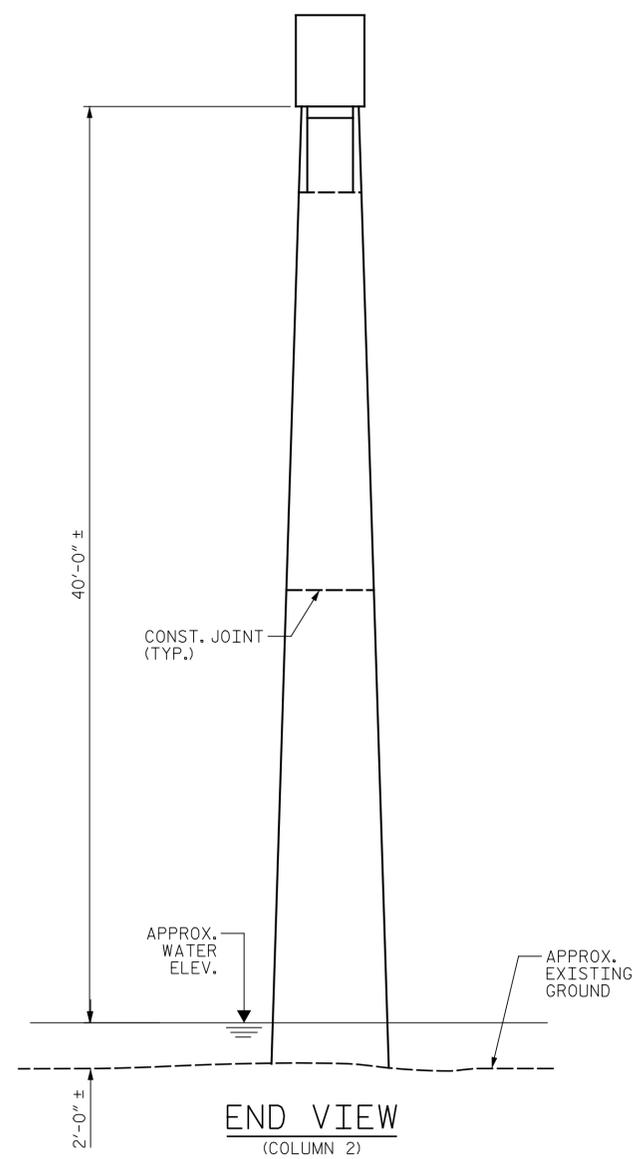
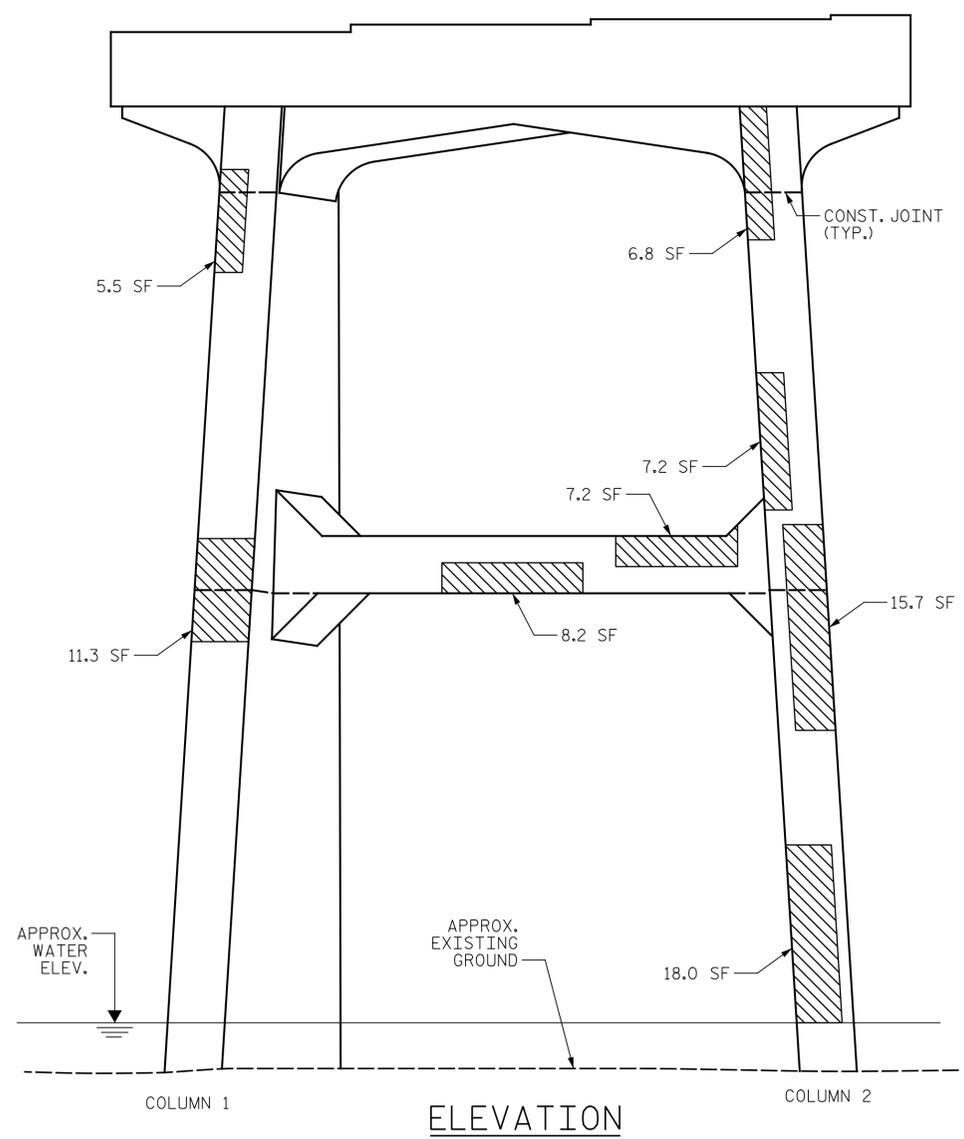
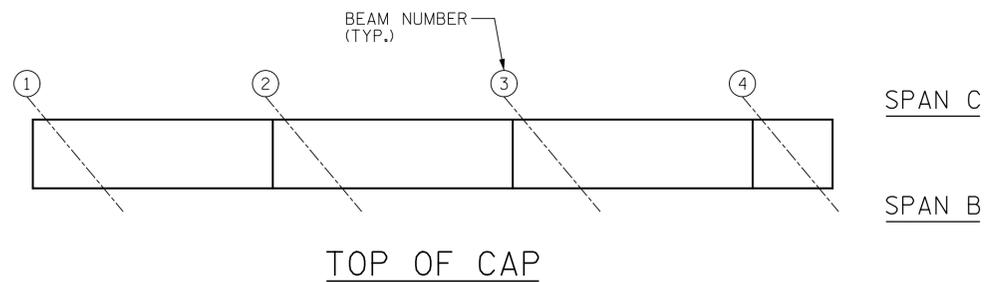
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| AS-BUILT REPAIR QUANTITY TABLE |            |           |           |          |           |
|--------------------------------|------------|-----------|-----------|----------|-----------|
| BENT 2 REPAIRS                 | QUANTITIES |           |           |          |           |
|                                | ESTIMATE   |           | ACTUAL    |          |           |
| SHOTCRETE REPAIRS              | AREA SF    | VOLUME CF | AREA SF   | DEPTH FT | VOLUME CF |
| CAP                            | 0.0        | 0.0       |           |          |           |
| COLUMN                         | 88.4       | 44.2      |           |          |           |
| STRUT                          | 36.8       | 18.4      |           |          |           |
| CONCRETE REPAIRS               | 0.0        | 0.0       |           |          |           |
| EPOXY RESIN INJECTION          |            | LENGTH LF | LENGTH LF |          |           |
| CAP                            |            | 0.0       |           |          |           |
| COLUMN                         |            | 0.0       |           |          |           |
| STRUT                          |            | 0.0       |           |          |           |
| EPOXY COATING                  |            | SQ. FT    | SQ. FT    |          |           |
| TOP OF BENT CAP                |            | 103       |           |          |           |

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM OF 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

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CONTRACTOR SHALL SAW CUT THE REPAIR AREAS SO THAT THE CORNERS ARE SQUARE AS INDICATED ON THE DETAILS.

CLEAN AND REMOVE DEBRIS FROM THE TOP OF THE CAP AND APPLY EPOXY PROTECTIVE COATING. EPOXY COATING SHALL BE APPLIED TO THE TOP SURFACE OF THE CAP. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAP BENEATH THE MASONRY PLATES. FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.  
WHEN COLUMN REPAIRS ARE INDICATED TO GROUND LINE, EXTEND REPAIR ONE (1) FOOT MIN. BELOW GROUND LINE.

- SHOTCRETE REPAIR
- CONCRETE REPAIR (FORM & POUR)
- ERI - EPOXY RESIN INJECTION

PROJECT NO. I-5889B  
BUNCOMBE COUNTY  
BRIDGE NO. 100352

SHEET 1 OF 2



DocuSigned by:  
*Eric B. Nelson* 7/25/2022  
AC2802116074C0

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

BENT 2  
SPAN B SIDE

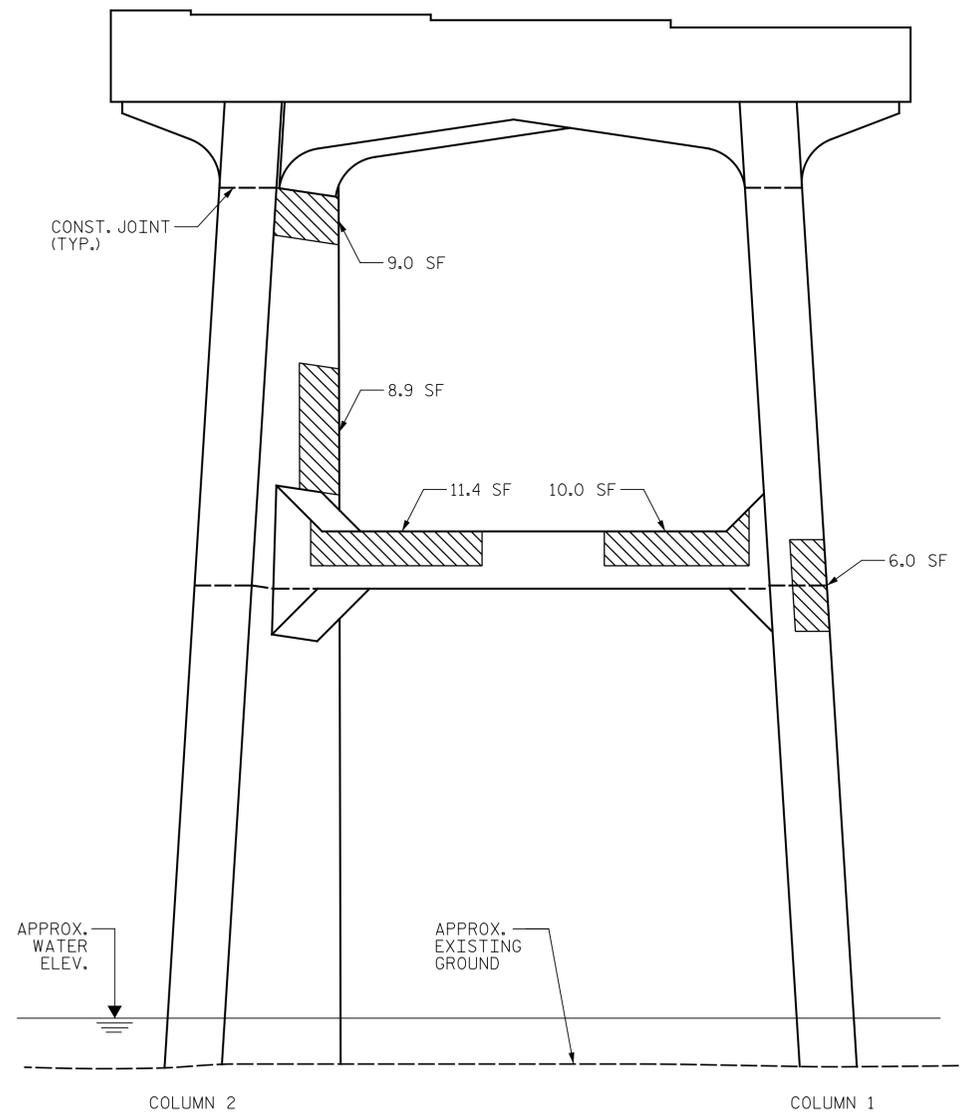
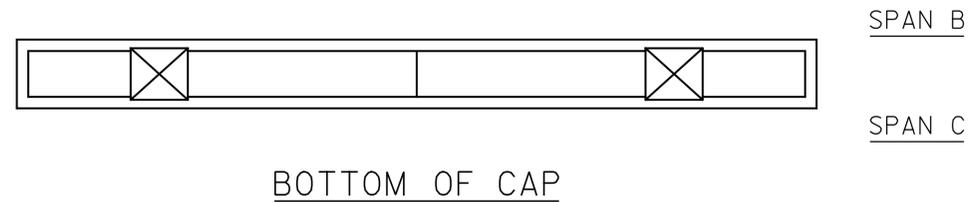
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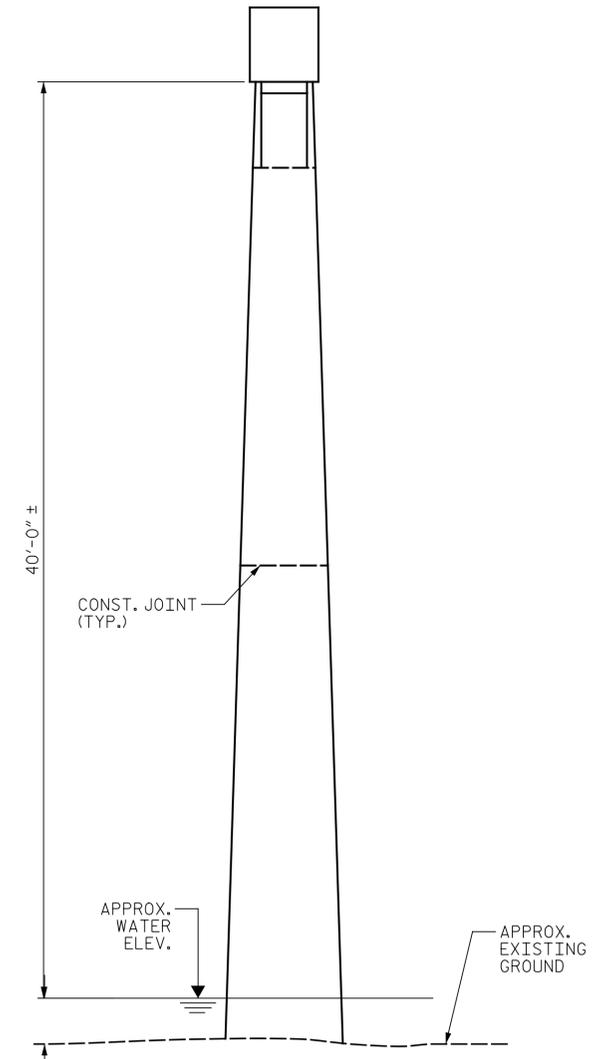
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ELEVATION



END VIEW  
(COLUMN 1)

**NOTES:**

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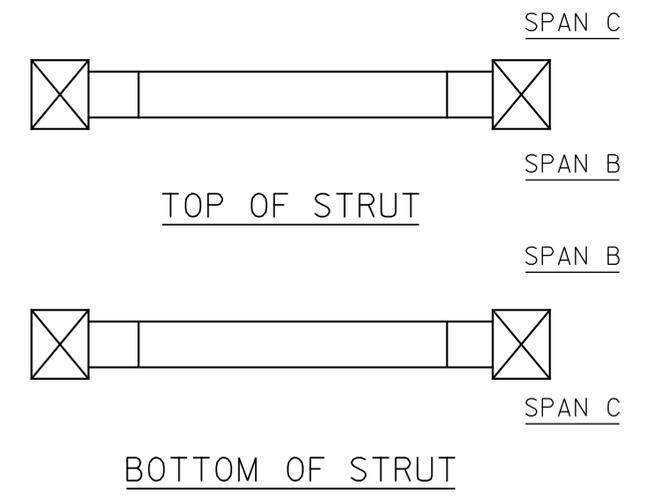
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FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

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- SHOTCRETE REPAIR
- CONCRETE REPAIR (FORM & POUR)
- ERI - EPOXY RESIN INJECTION



PROJECT NO. I-5889B  
BUNCOMBE COUNTY  
 BRIDGE NO. 100352

SHEET 2 OF 2



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

BENT 2  
 SPAN C SIDE

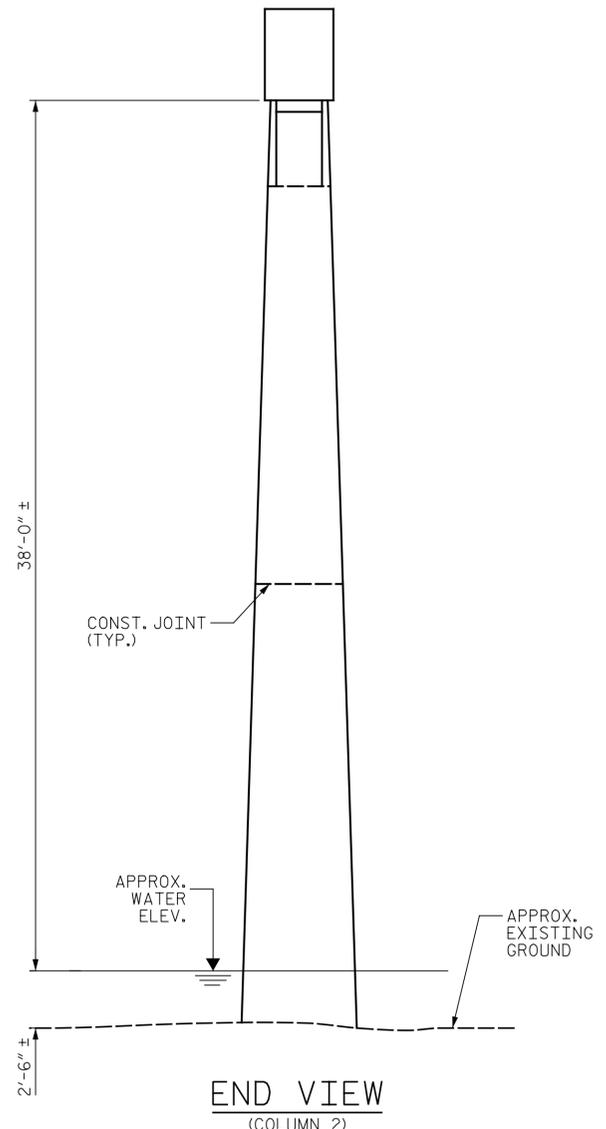
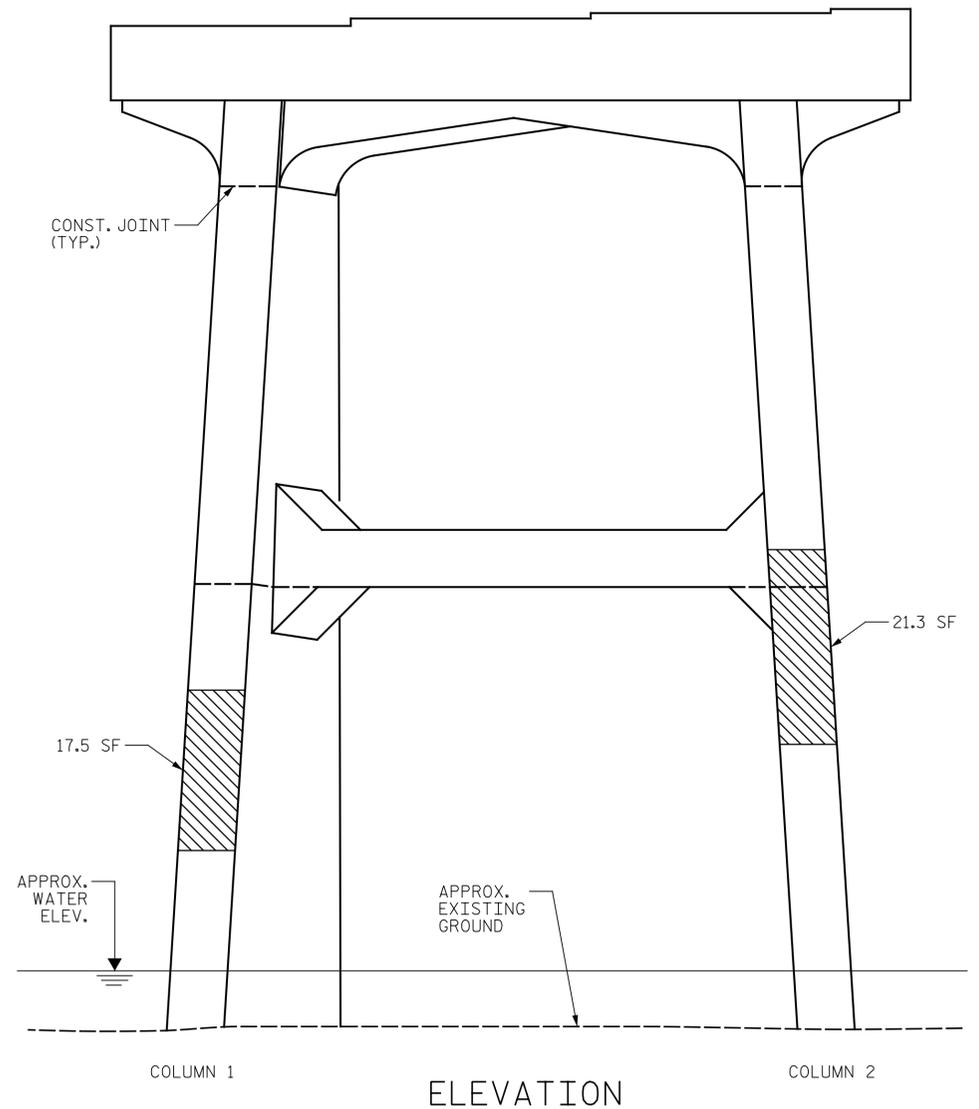
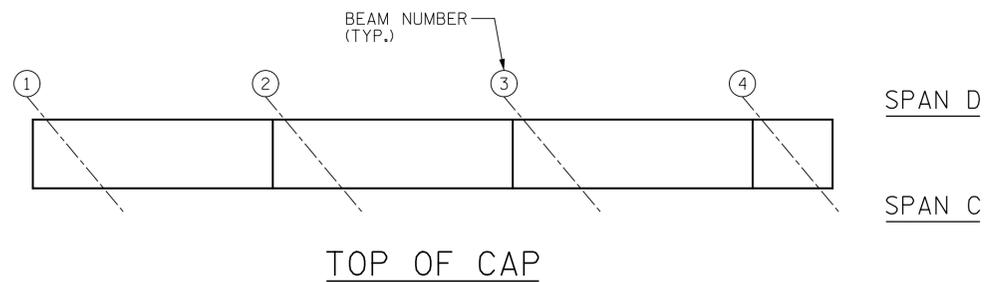
DRAWN BY : J. HARRIS DATE : 6/2022  
 CHECKED BY : J. YANACCONO DATE : 6/2022



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AS-BUILT REPAIR QUANTITY TABLE

| BENT 3 REPAIRS        | QUANTITIES |           |           |          |           |
|-----------------------|------------|-----------|-----------|----------|-----------|
|                       | ESTIMATE   |           | ACTUAL    |          |           |
| SHOTCRETE REPAIRS     | AREA SF    | VOLUME CF | AREA SF   | DEPTH FT | VOLUME CF |
| CAP                   | 0.0        | 0.0       |           |          |           |
| COLUMN                | 38.8       | 19.4      |           |          |           |
| STRUT                 | 0.0        | 0.0       |           |          |           |
| CONCRETE REPAIRS      | 0.0        | 0.0       |           |          |           |
| EPOXY RESIN INJECTION | LENGTH LF  |           | LENGTH LF |          |           |
| CAP                   | 0.0        |           |           |          |           |
| COLUMN                | 0.0        |           |           |          |           |
| STRUT                 | 0.0        |           |           |          |           |
| EPOXY COATING         | SQ. FT     |           | SQ. FT    |          |           |
| TOP OF BENT CAP       | 103        |           |           |          |           |

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM OF 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE BASED ON THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ENTER THE ACTUAL QUANTITIES INTO THE AS-BUILT REPAIR QUANTITY TABLE.

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FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

WHEN COLUMN REPAIRS ARE INDICATED TO GROUND LINE, EXTEND REPAIR ONE (1) FOOT MIN. BELOW GROUND LINE.

- SHOTCRETE REPAIR
- CONCRETE REPAIR (FORM & POUR)
- ERI - EPOXY RESIN INJECTION

PROJECT NO. I-5889B  
BUNCOMBE COUNTY  
 BRIDGE NO. 100352

SHEET 1 OF 2

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

BENT 3  
 SPAN C SIDE



DocuSigned by:  
 Eric B. Nelson  
 7/25/2022

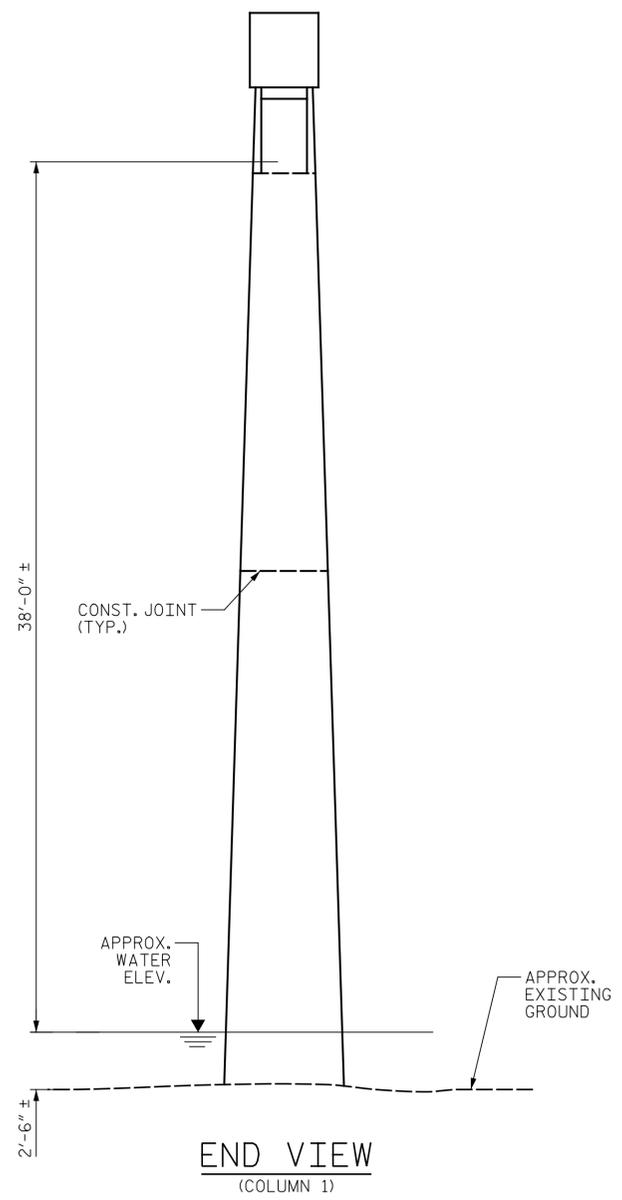
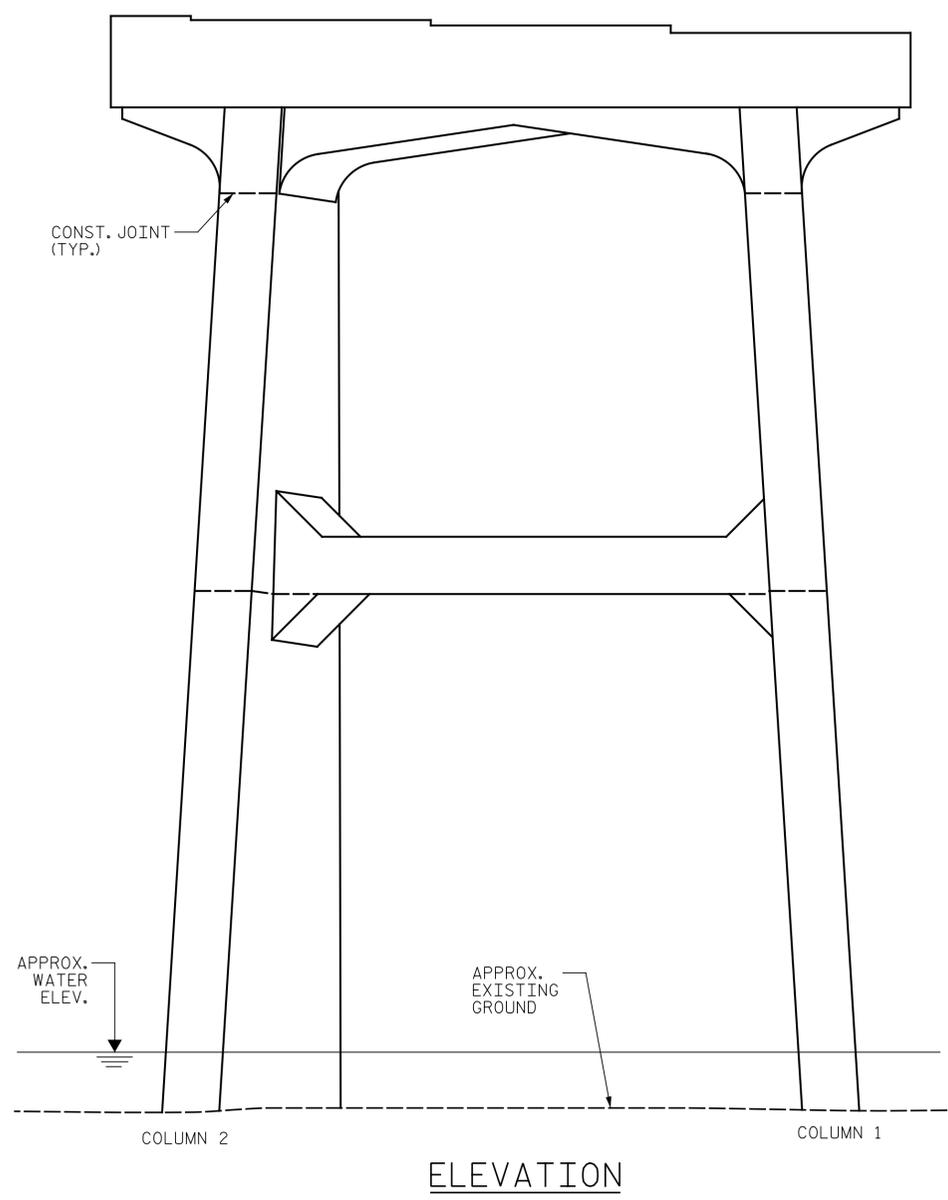
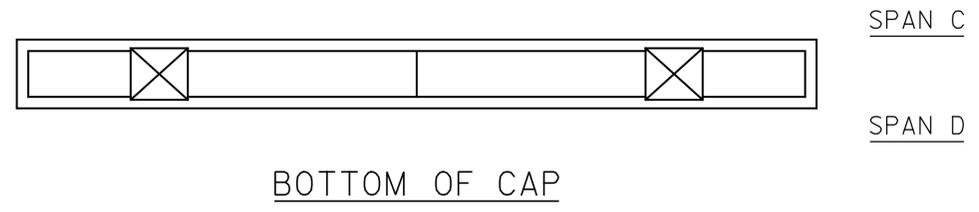


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DRAWN BY : J. HARRIS DATE : 6/2022  
 CHECKED BY : J. YANACCONE DATE : 6/2022

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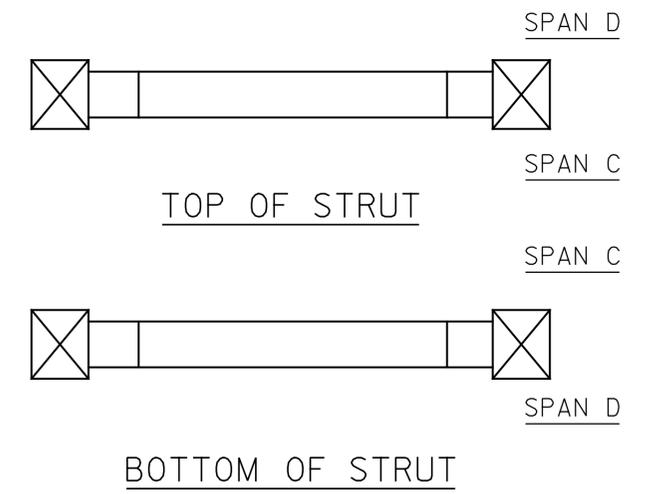
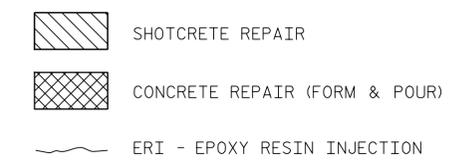
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PROJECT NO. I-5889B  
BUNCOMBE COUNTY  
 BRIDGE NO. 100352

SHEET 2 OF 2



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

BENT 3  
 SPAN D SIDE

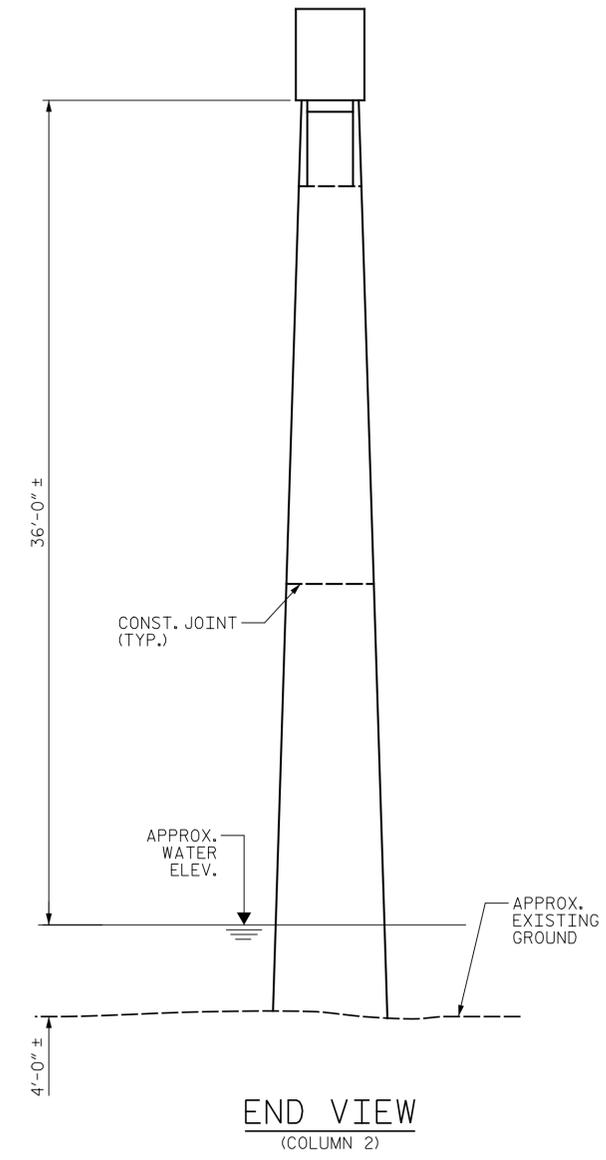
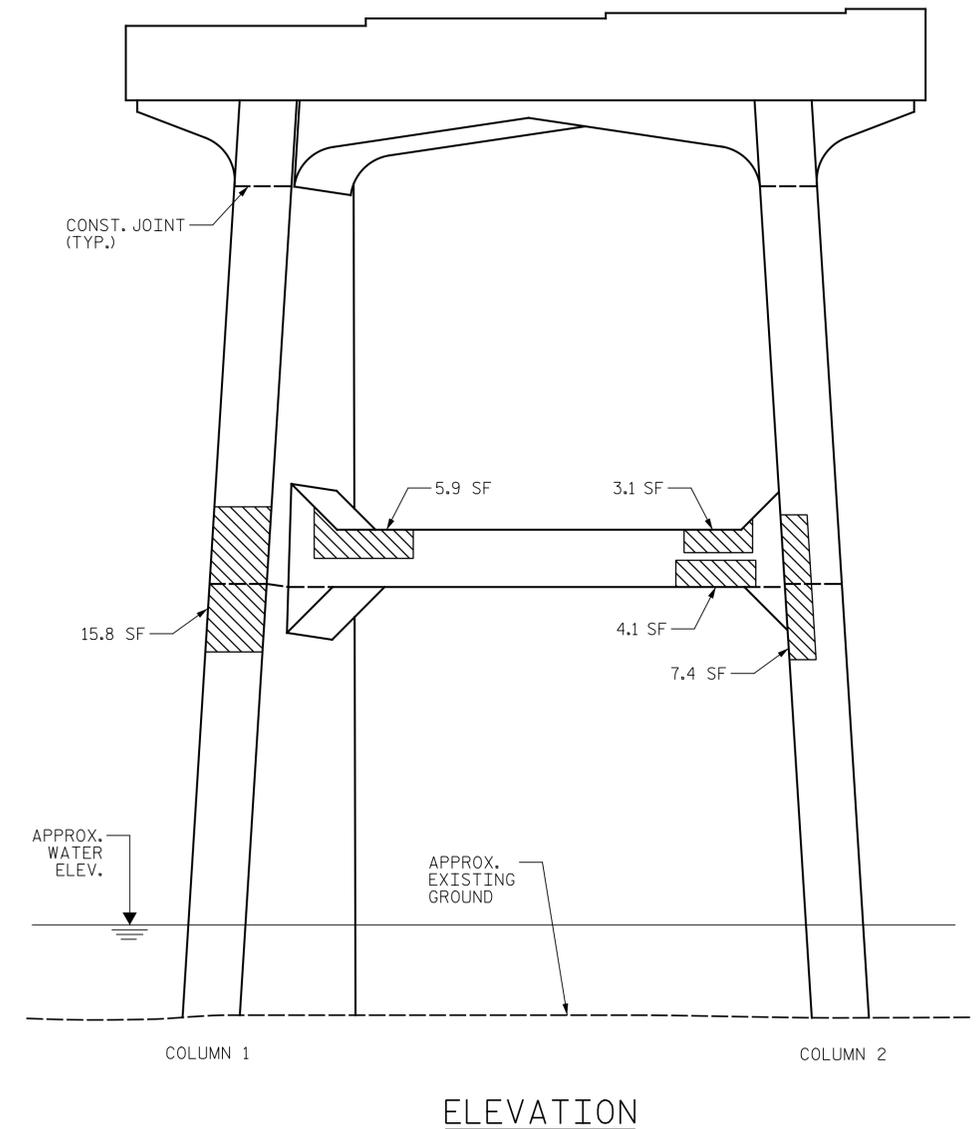
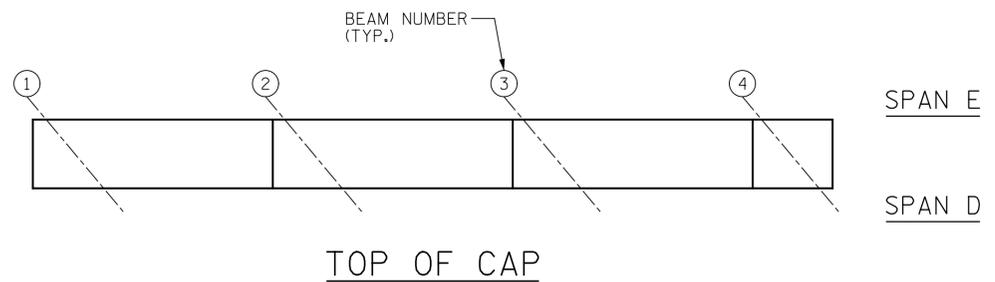
DRAWN BY : J. HARRIS DATE : 6/2022  
 CHECKED BY : J. YANACCONI DATE : 6/2022



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| AS-BUILT REPAIR QUANTITY TABLE |            |           |           |          |           |
|--------------------------------|------------|-----------|-----------|----------|-----------|
| BENT 4 REPAIRS                 | QUANTITIES |           |           |          |           |
|                                | ESTIMATE   |           | ACTUAL    |          |           |
| SHOTCRETE REPAIRS              | AREA SF    | VOLUME CF | AREA SF   | DEPTH FT | VOLUME CF |
| CAP                            | 0.0        | 0.0       |           |          |           |
| COLUMN                         | 72.7       | 36.4      |           |          |           |
| STRUT                          | 19.8       | 9.9       |           |          |           |
| CONCRETE REPAIRS               | 0.0        | 0.0       |           |          |           |
| EPOXY RESIN INJECTION          |            | LENGTH LF | LENGTH LF |          |           |
| CAP                            |            | 0.0       |           |          |           |
| COLUMN                         |            | 0.0       |           |          |           |
| STRUT                          |            | 0.0       |           |          |           |
| EPOXY COATING                  |            | SQ. FT    | SQ. FT    |          |           |
| TOP OF BENT CAP                |            | 103       |           |          |           |

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM OF 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

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- SHOTCRETE REPAIR
- CONCRETE REPAIR (FORM & POUR)
- ERI - EPOXY RESIN INJECTION

PROJECT NO. I-5889B  
BUNCOMBE COUNTY  
 BRIDGE NO. 100352

SHEET 1 OF 2



DocuSigned by:  
 Eric B. Nelson  
 7/25/2022

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

BENT 4  
 SPAN D SIDE

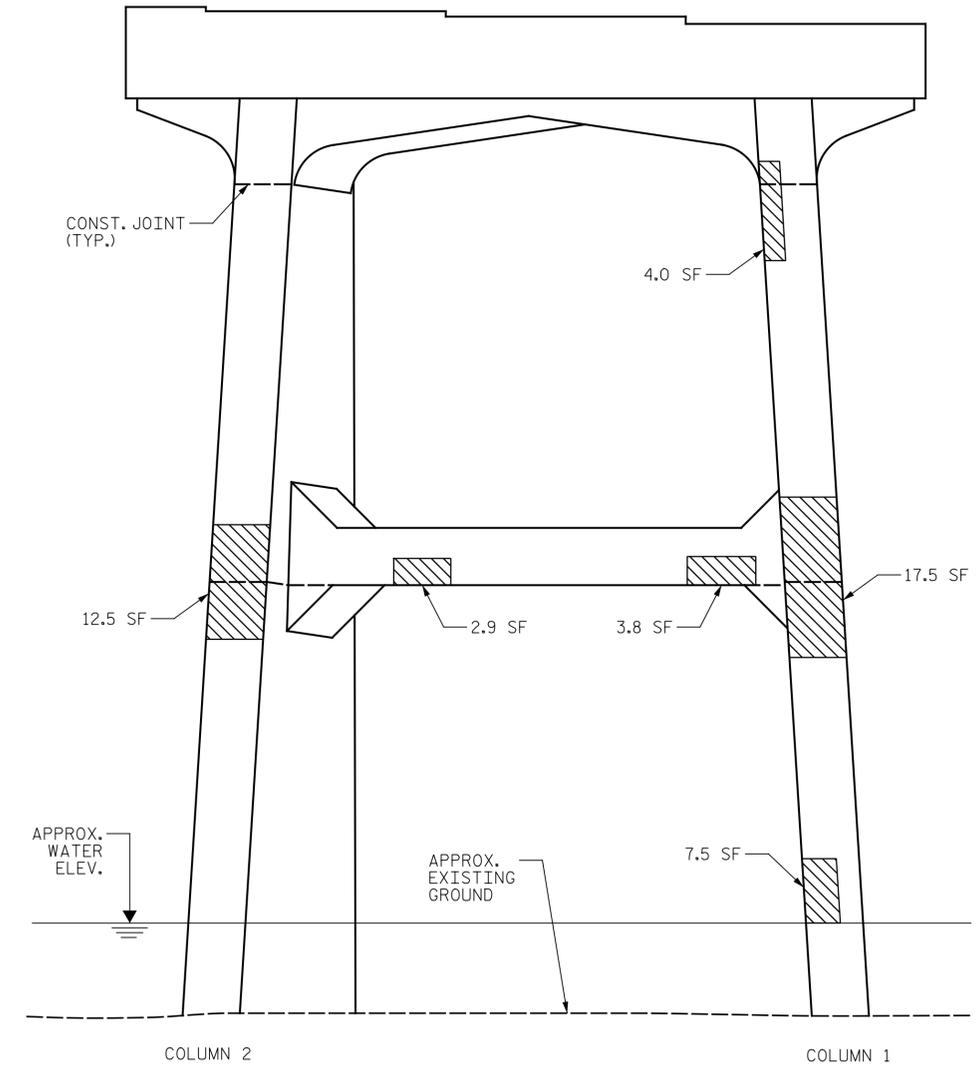
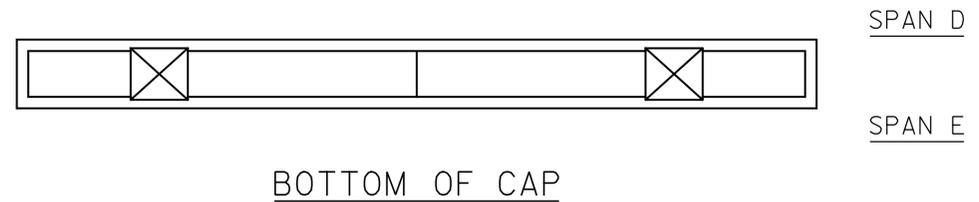
DRAWN BY : J. HARRIS DATE : 6/2022  
 CHECKED BY : J. YANACCONI DATE : 6/2022



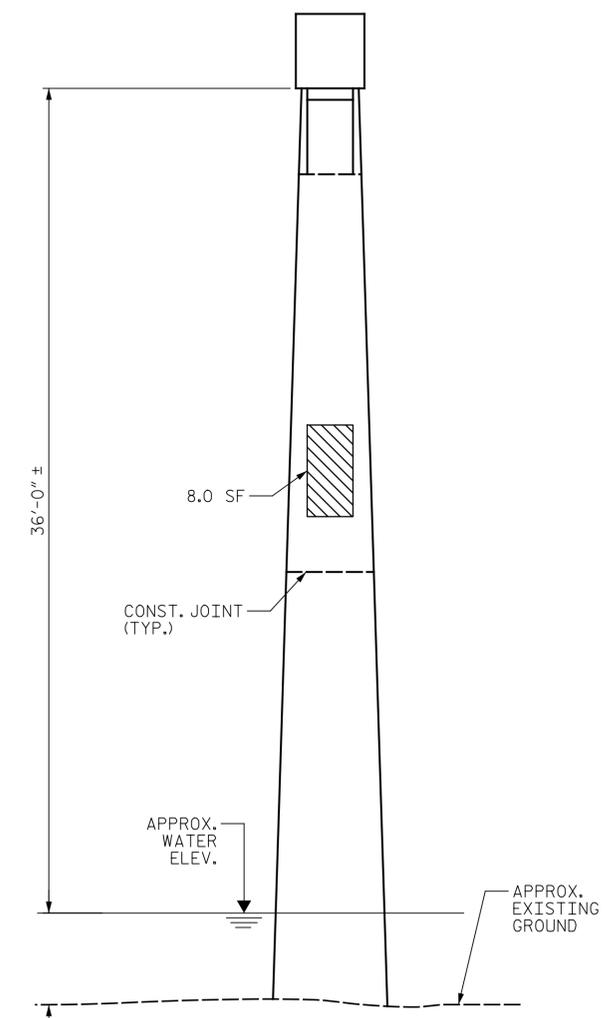
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ELEVATION



END VIEW  
(COLUMN 1)

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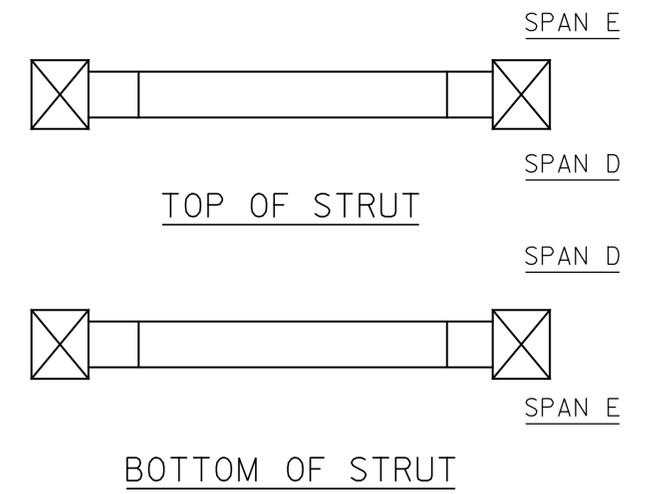
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PROJECT NO. I-5889B  
BUNCOMBE COUNTY  
 BRIDGE NO. 100352

SHEET 2 OF 2

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

BENT 4  
 SPAN E SIDE

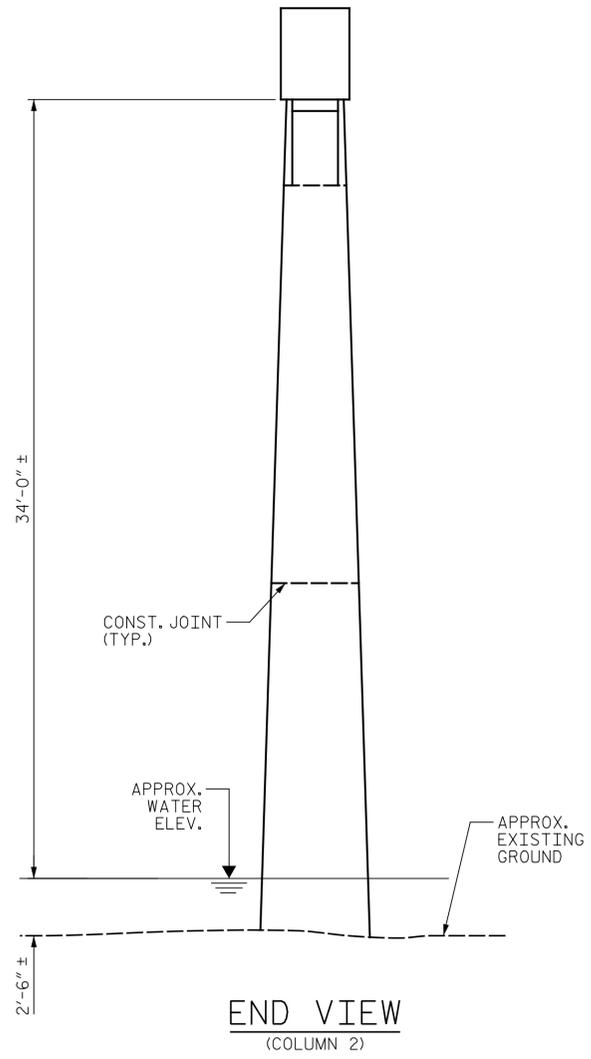
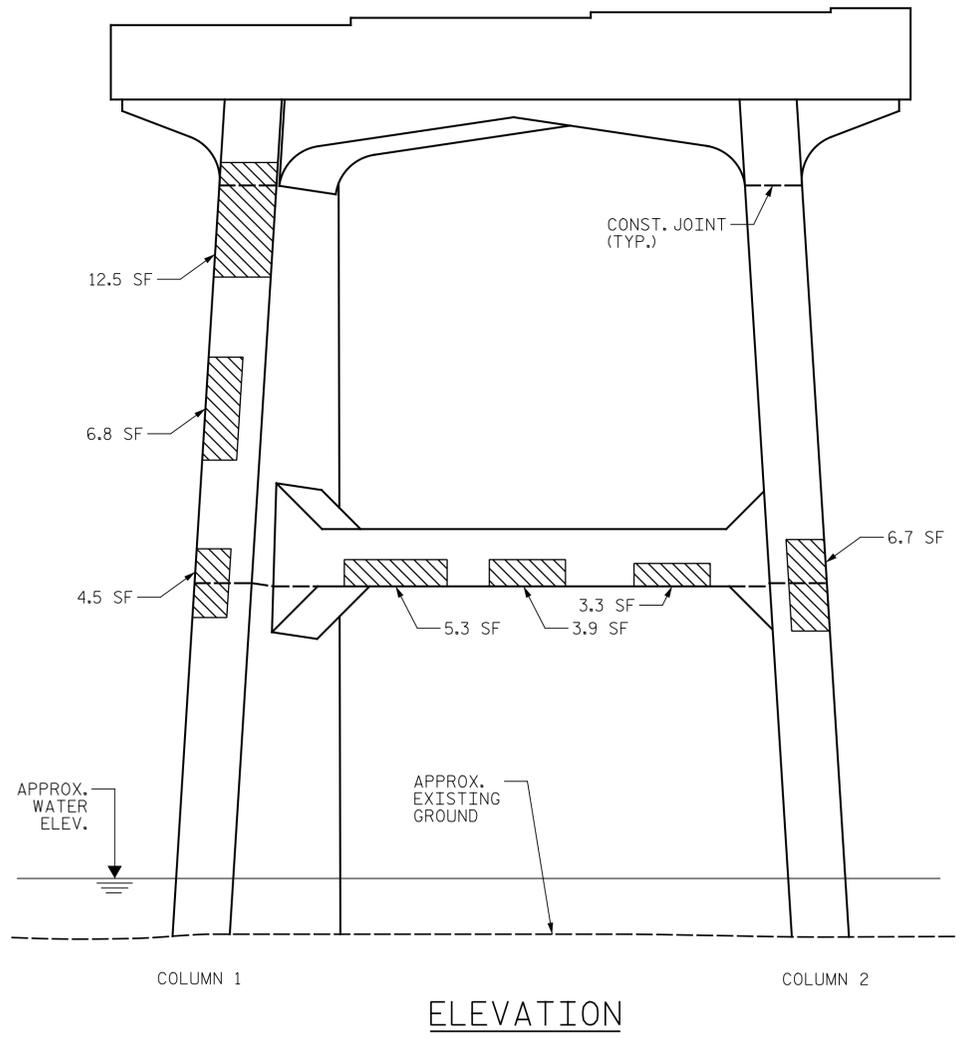
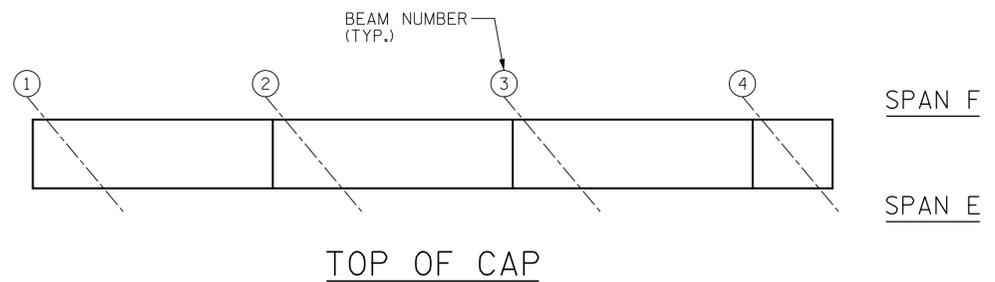


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DRAWN BY : J. HARRIS DATE : 6/2022  
 CHECKED BY : J. YANNAKONE DATE : 6/2022

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AS-BUILT REPAIR QUANTITY TABLE

| BENT 5 REPAIRS        | QUANTITIES |           |           |          |           |
|-----------------------|------------|-----------|-----------|----------|-----------|
|                       | ESTIMATE   |           | ACTUAL    |          |           |
| SHOTCRETE REPAIRS     | AREA SF    | VOLUME CF | AREA SF   | DEPTH FT | VOLUME CF |
| CAP                   | 0.0        | 0.0       |           |          |           |
| COLUMN                | 30.5       | 15.3      |           |          |           |
| STRUT                 | 21.5       | 10.8      |           |          |           |
| CONCRETE REPAIRS      | 0.0        | 0.0       |           |          |           |
| EPOXY RESIN INJECTION | LENGTH LF  |           | LENGTH LF |          |           |
| CAP                   | 0.0        |           |           |          |           |
| COLUMN                | 0.0        |           |           |          |           |
| STRUT                 | 0.0        |           |           |          |           |
| EPOXY COATING         | SQ. FT     |           | SQ. FT    |          |           |
| TOP OF BENT CAP       | 103        |           |           |          |           |

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM OF 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

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PROJECT NO. I-5889B  
BUNCOMBE COUNTY  
 BRIDGE NO. 100352

SHEET 1 OF 2



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

BENT 5  
 SPAN E SIDE

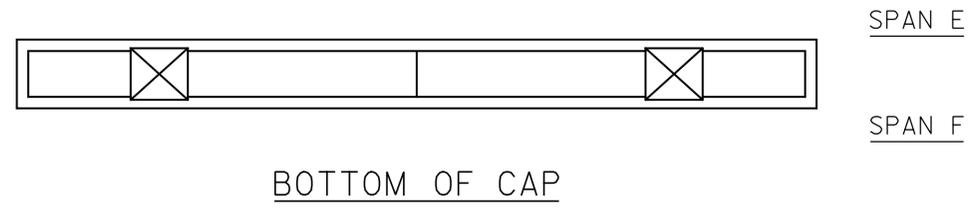
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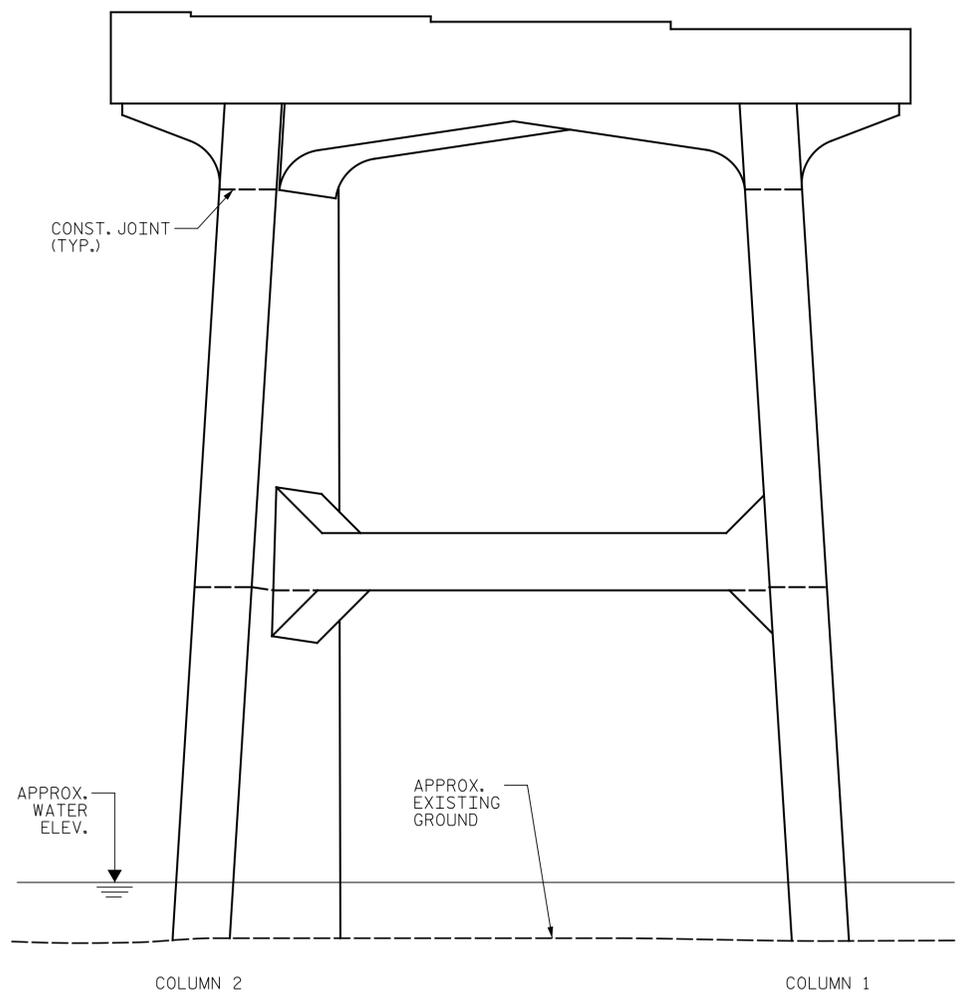
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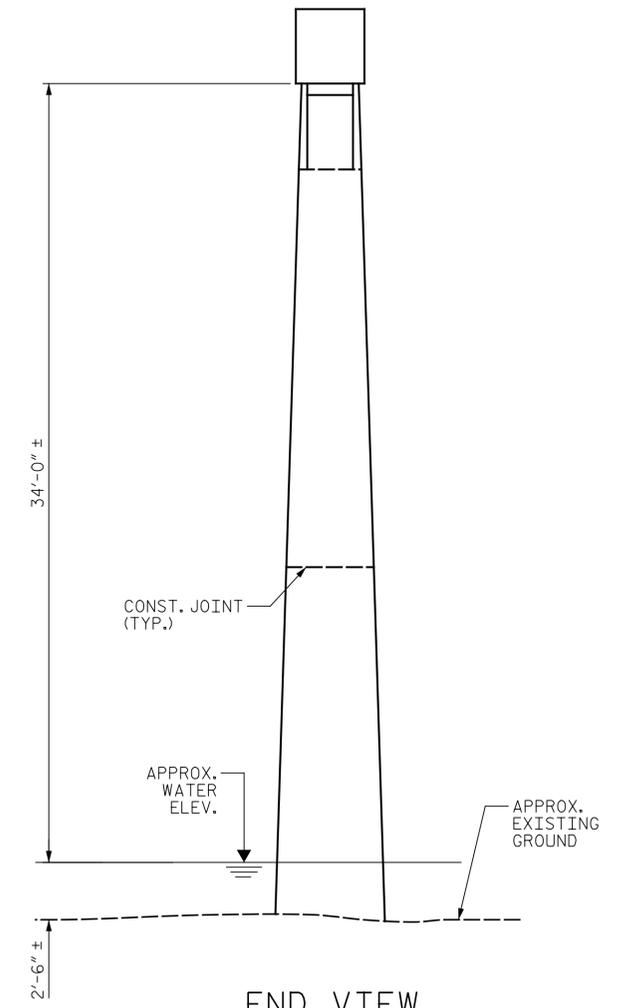
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BOTTOM OF CAP



ELEVATION



END VIEW  
(COLUMN 1)

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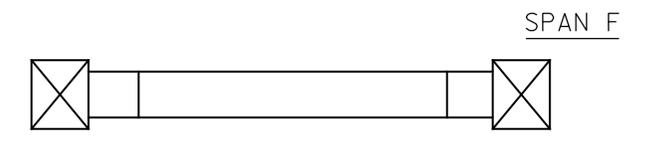
CONTRACTOR SHALL SAW CUT THE REPAIR AREAS SO THAT THE CORNERS ARE SQUARE AS INDICATED ON THE DETAILS.

CLEAN AND REMOVE DEBRIS FROM THE TOP OF THE CAP AND APPLY EPOXY PROTECTIVE COATING. EPOXY COATING SHALL BE APPLIED TO THE TOP SURFACE OF THE CAP. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAP BENEATH THE MASONRY PLATES. FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

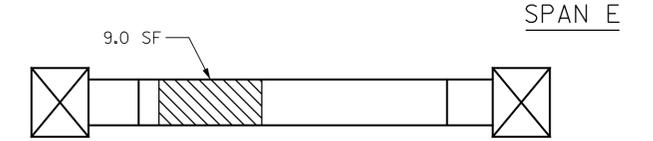
FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

WHEN COLUMN REPAIRS ARE INDICATED TO GROUND LINE, EXTEND REPAIR ONE (1) FOOT MIN. BELOW GROUND LINE.

-  SHOTCRETE REPAIR
-  CONCRETE REPAIR (FORM & POUR)
-  ERI - EPOXY RESIN INJECTION



TOP OF STRUT



BOTTOM OF STRUT

PROJECT NO. I-5889B  
BUNCOMBE COUNTY  
 BRIDGE NO. 100352

SHEET 2 OF 2



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

BENT 5  
 SPAN F SIDE

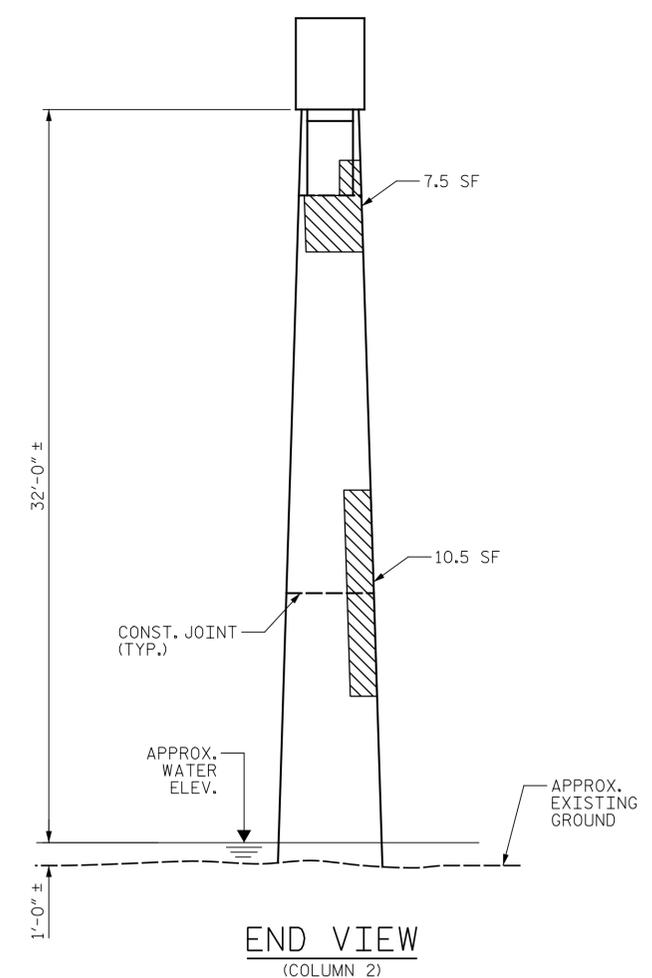
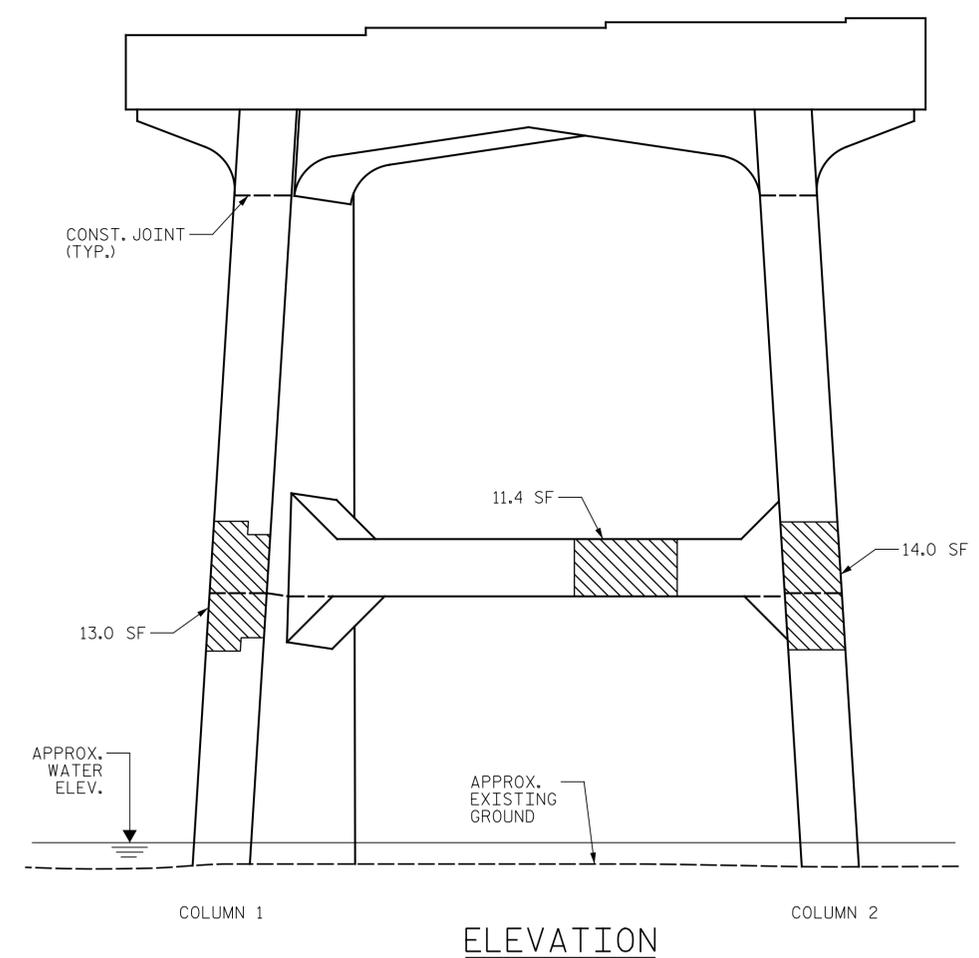
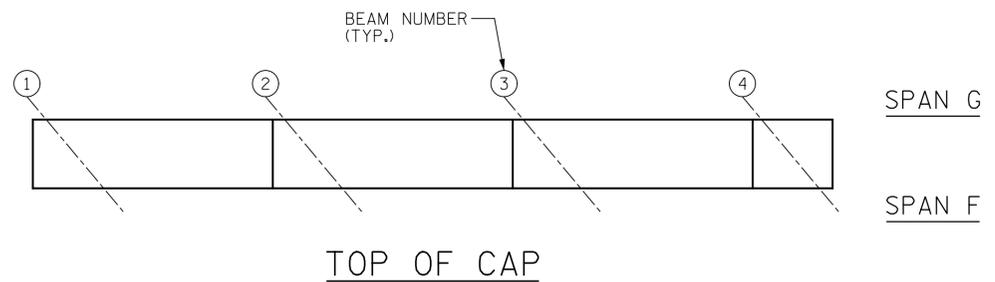
DRAWN BY : J. HARRIS DATE : 6/2022  
 CHECKED BY : J. YANACCONE DATE : 6/2022



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| AS-BUILT REPAIR QUANTITY TABLE |            |           |           |          |           |
|--------------------------------|------------|-----------|-----------|----------|-----------|
| BENT 6 REPAIRS                 | QUANTITIES |           |           |          |           |
|                                | ESTIMATE   |           | ACTUAL    |          |           |
| SHOTCRETE REPAIRS              | AREA SF    | VOLUME CF | AREA SF   | DEPTH FT | VOLUME CF |
| CAP                            | 0.0        | 0.0       |           |          |           |
| COLUMN                         | 52.0       | 26.0      |           |          |           |
| STRUT                          | 11.4       | 5.7       |           |          |           |
| CONCRETE REPAIRS               | 0.0        | 0.0       |           |          |           |
| EPOXY RESIN INJECTION          | LENGTH LF  |           | LENGTH LF |          |           |
| CAP                            | 0.0        |           |           |          |           |
| COLUMN                         | 0.0        |           |           |          |           |
| STRUT                          | 0.0        |           |           |          |           |
| EPOXY COATING                  | SQ. FT     |           | SQ. FT    |          |           |
| TOP OF BENT CAP                | 103        |           |           |          |           |

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM OF 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

**NOTES:**  
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FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

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- SHOTCRETE REPAIR
- CONCRETE REPAIR (FORM & POUR)
- ERI - EPOXY RESIN INJECTION

PROJECT NO. I-5889B  
BUNCOMBE COUNTY  
 BRIDGE NO. 100352

SHEET 1 OF 2



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

BENT 6  
 SPAN F SIDE

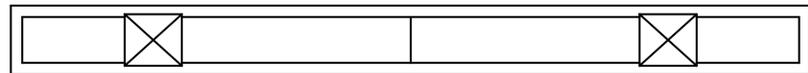
DRAWN BY : J. HARRIS DATE : 6/2022  
 CHECKED BY : J. YANACCONO DATE : 6/2022



| NO. | REVISIONS |       |       | SHEET NO.                    |
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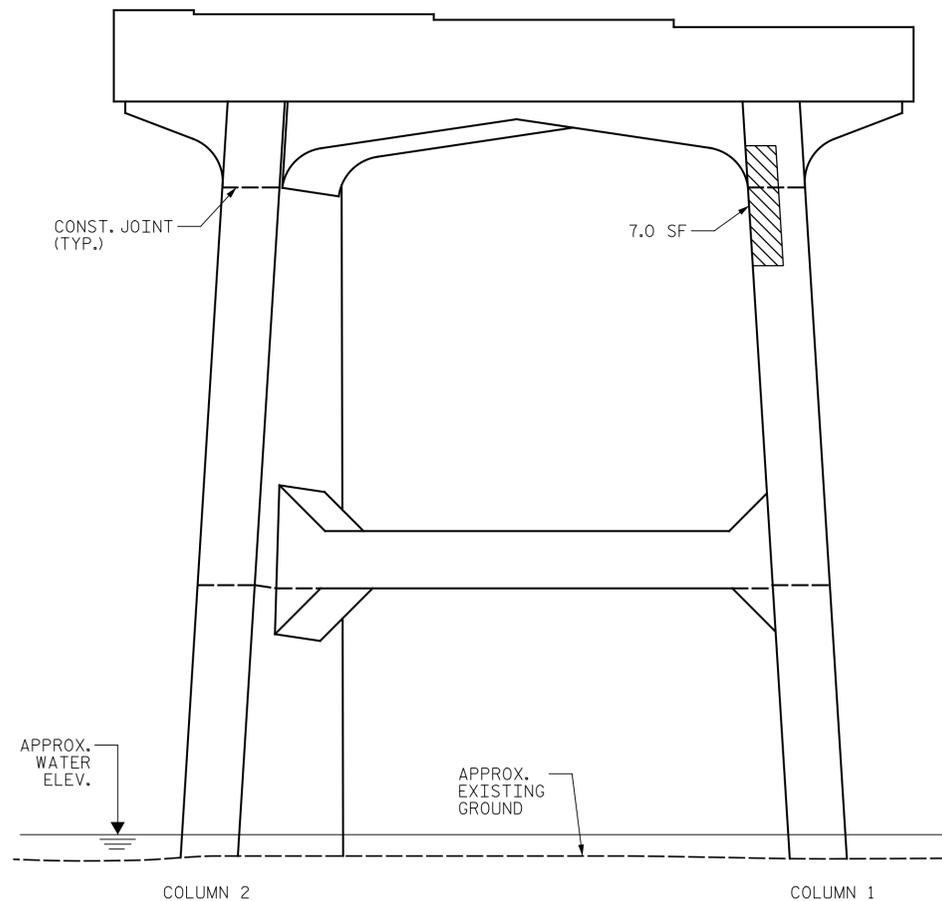
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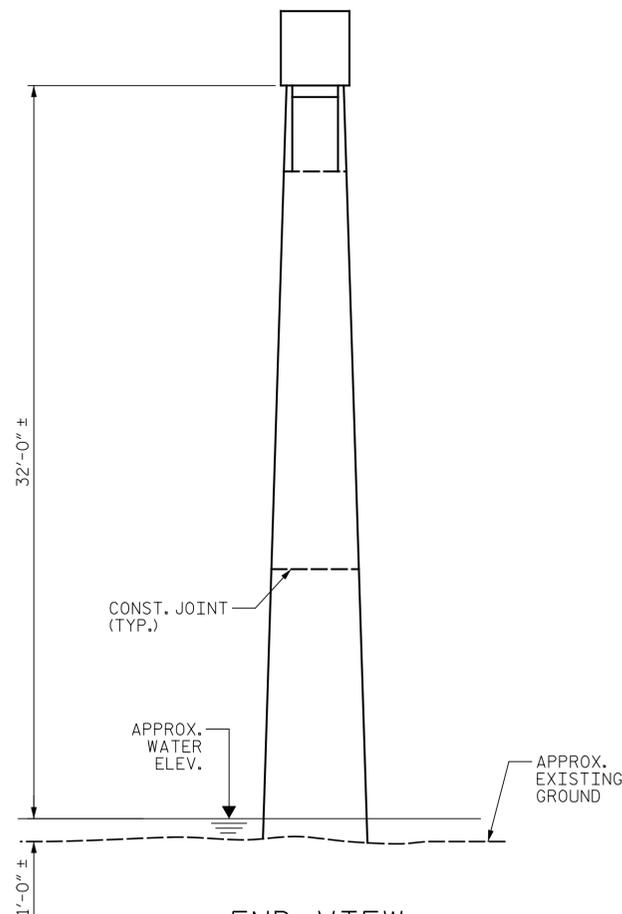
SPAN F

SPAN G

BOTTOM OF CAP



ELEVATION



END VIEW  
(COLUMN 1)

NOTES:

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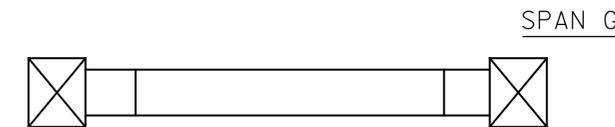
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SHOTCRETE REPAIR

CONCRETE REPAIR (FORM & POUR)

ERI - EPOXY RESIN INJECTION

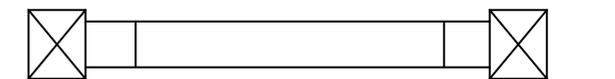


SPAN G

SPAN F

TOP OF STRUT

SPAN F



SPAN G

BOTTOM OF STRUT

PROJECT NO. I-5889B  
BUNCOMBE COUNTY  
 BRIDGE NO. 100352

SHEET 2 OF 2

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

BENT 6  
 SPAN G SIDE



DocuSigned by:  
 Eric B. Nelson  
 7/25/2022

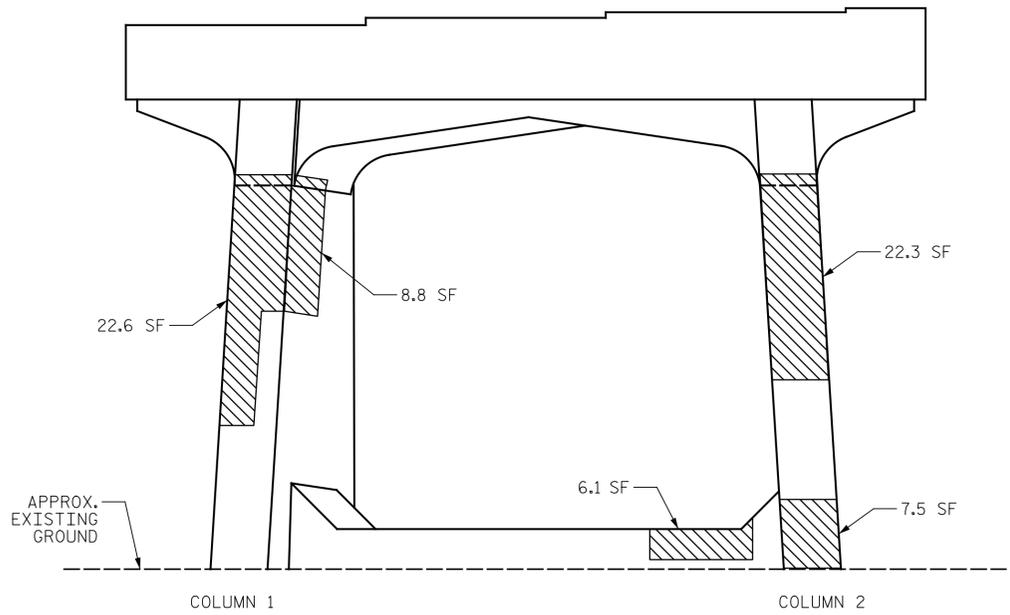
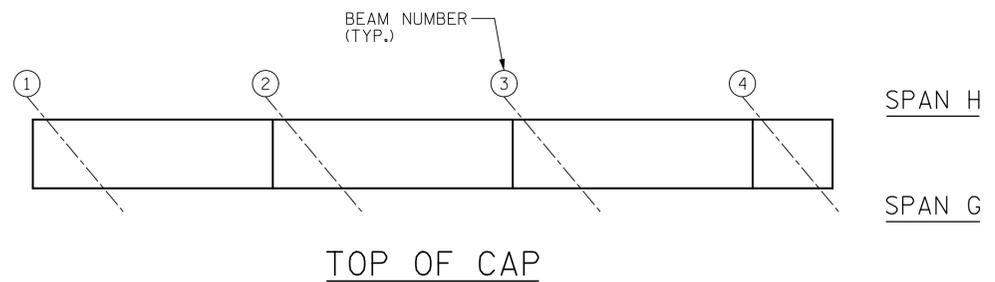


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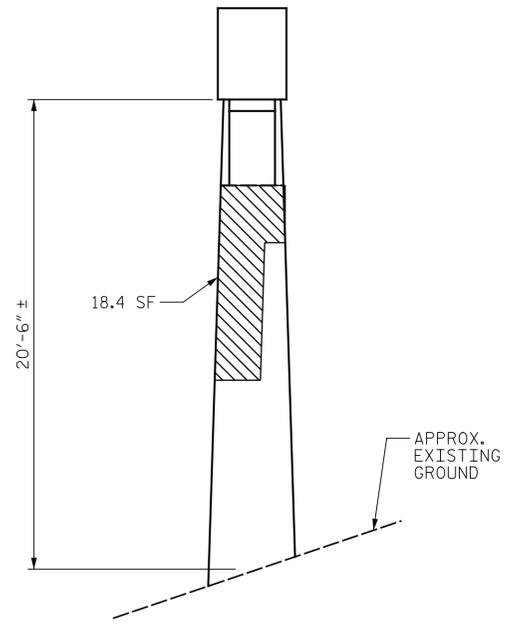
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DRAWN BY : J. HARRIS DATE : 6/2022  
 CHECKED BY : J. YANACCONO DATE : 6/2022

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ELEVATION



END VIEW  
(COLUMN 2)

AS-BUILT REPAIR QUANTITY TABLE

| BENT 7 REPAIRS        | QUANTITIES |           |         |           |           |
|-----------------------|------------|-----------|---------|-----------|-----------|
|                       | ESTIMATE   |           | ACTUAL  |           |           |
| SHOTCRETE REPAIRS     | AREA SF    | VOLUME CF | AREA SF | DEPTH FT  | VOLUME CF |
| CAP                   | 0.0        | 0.0       |         |           |           |
| COLUMN                | 93.5       | 46.8      |         |           |           |
| STRUT                 | 11.4       | 5.7       |         |           |           |
| CONCRETE REPAIRS      | 0.0        | 0.0       |         |           |           |
| EPOXY RESIN INJECTION |            | LENGTH LF |         | LENGTH LF |           |
| CAP                   |            | 0.0       |         |           |           |
| COLUMN                |            | 0.0       |         |           |           |
| STRUT                 |            | 0.0       |         |           |           |
| EPOXY COATING         |            | SQ. FT    |         | SQ. FT    |           |
| TOP OF BENT CAP       |            | 103       |         |           |           |

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- CONCRETE REPAIR (FORM & POUR)
- ERI - EPOXY RESIN INJECTION

PROJECT NO. I-5889B  
BUNCOMBE COUNTY  
 BRIDGE NO. 100352

SHEET 1 OF 2

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

BENT 7  
 SPAN G SIDE



DocuSigned by:  
 Eric B. Nelson 7/25/2022  
 ACB808219074CD

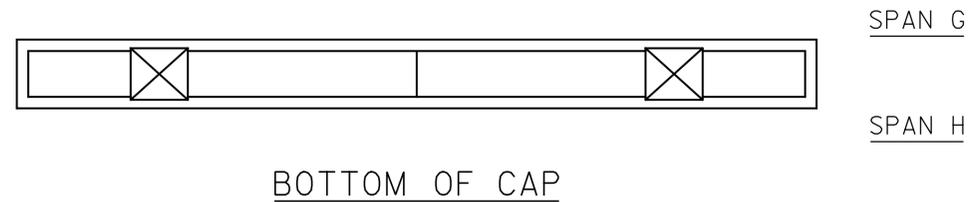
DRAWN BY : J. HARRIS DATE : 6/2022  
 CHECKED BY : J. YANACCONO DATE : 6/2022



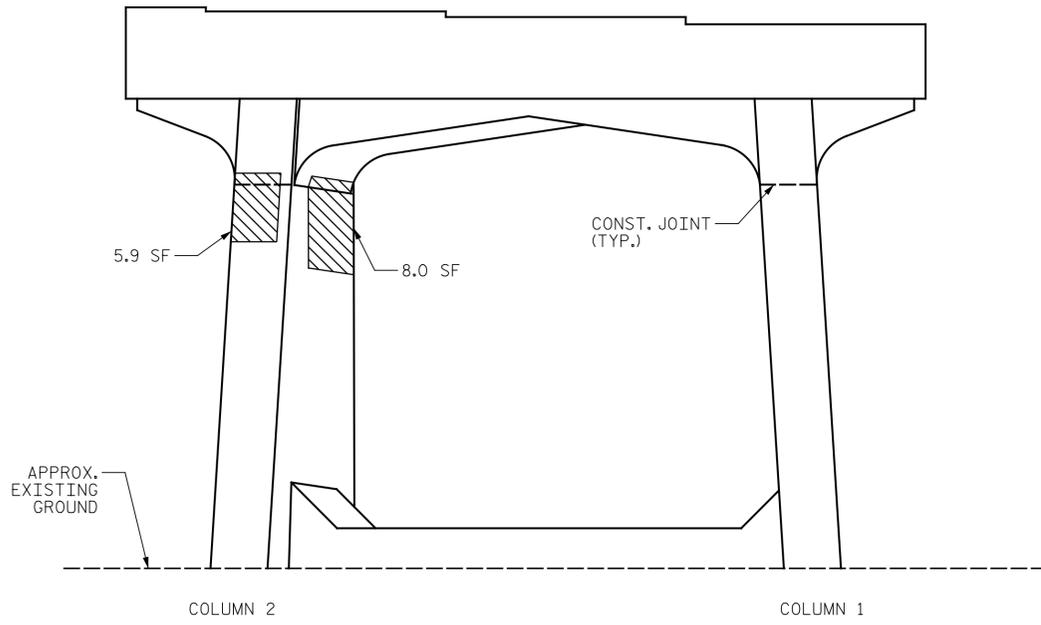
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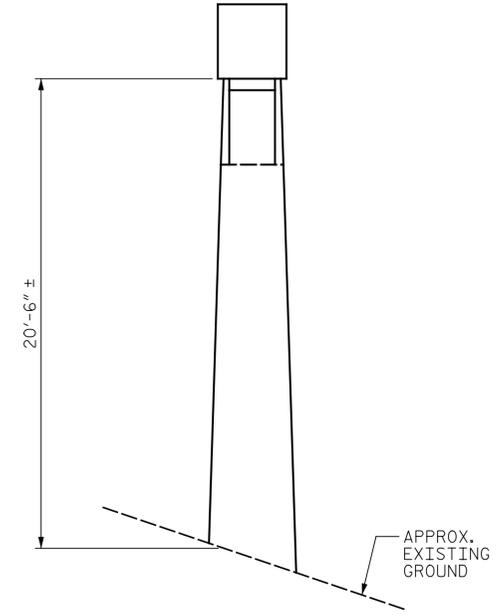
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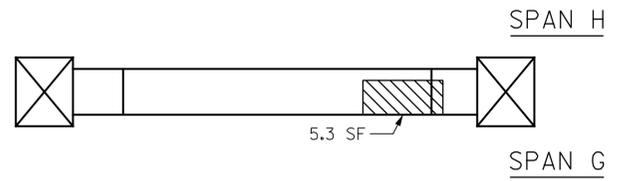
BOTTOM OF CAP



ELEVATION



END VIEW  
(COLUMN 1)



TOP OF STRUT

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PROJECT NO. I-5889B  
BUNCOMBE COUNTY  
 BRIDGE NO. 100352

SHEET 2 OF 2



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**BENT 7**  
**SPAN H SIDE**

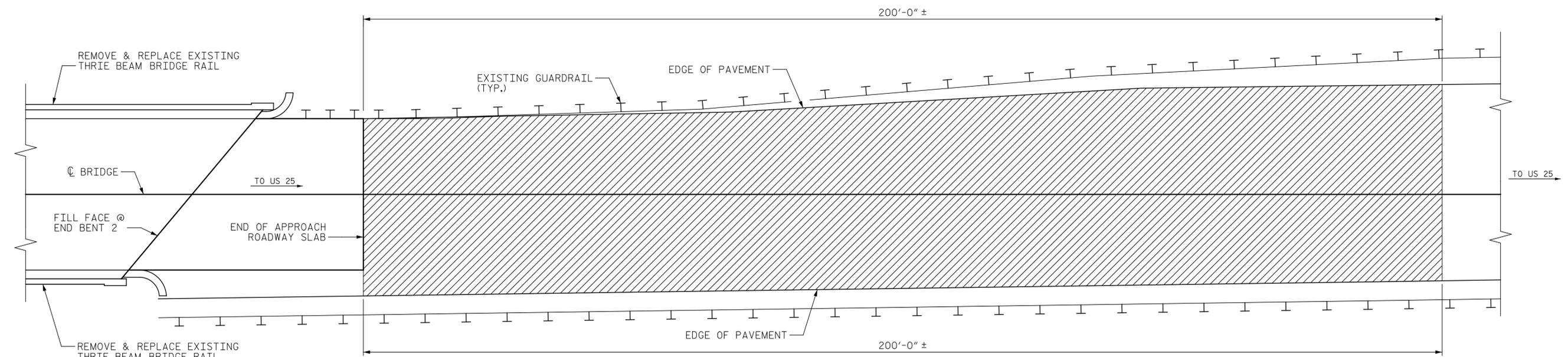
DRAWN BY : J. HARRIS DATE : 6/2022  
 CHECKED BY : J. YANACCONO DATE : 6/2022



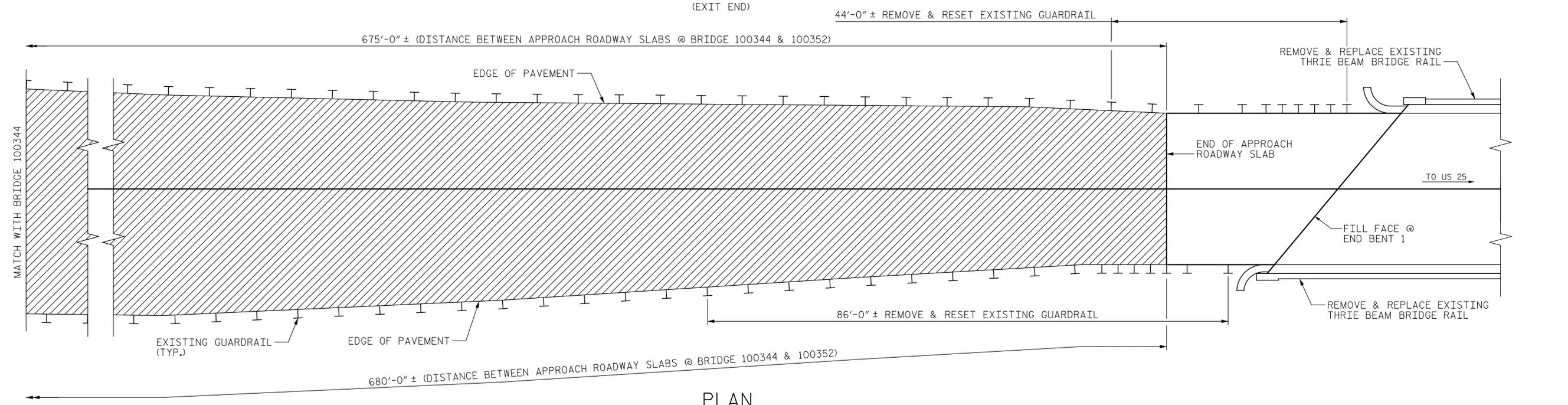
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PLAN  
(EXIT END)



PLAN  
(APPROACH END)

| SUMMARY OF QUANTITIES             |          |        |
|-----------------------------------|----------|--------|
| DESCRIPTION                       | ESTIMATE | ACTUAL |
| FINE MILLING                      | 2185 SY  |        |
| REMOVE & RESET EXISTING GUARDRAIL | 130 LF   |        |

FINE MILLING

**NOTES:**  
 FINE MILLING - EXISTING APPROACH ASPHALT PAVEMENT TO BE MILLED AS NECESSARY TO ATTAIN MINIMUM 1/2" DEPTH OF NEW ASPHALT PAVEMENT, NEW ASPHALT PAVEMENT SHALL BE OF THICKNESS NECESSARY TO CREATE A SMOOTH TRANSITION BETWEEN THE ROADWAY AND THE BRIDGE NECK, NEW ASPHALT PAVING THICKNESS MAY EXCEED 1/2" DUE TO THE SETTLEMENT OF THE EXISTING APPROACH.

FOR ADDITIONAL DETAILS ON ASPHALT SURFACE COURSE, REPLACEMENT OF GUARDRAIL AND EROSION CONTROL MEASURES, SEE ROADWAY PLANS.

DRAWN BY : J. MYA DATE : 6/2022  
 CHECKED BY : J. YANACCONE DATE : 6/2022

PROJECT NO. I-5889B  
BUNCOMBE COUNTY  
 BRIDGE NO. 100352

SHEET 1 OF 2

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**APPROACH MILLING  
 AND TYPICAL ROADWAY  
 SECTIONS**



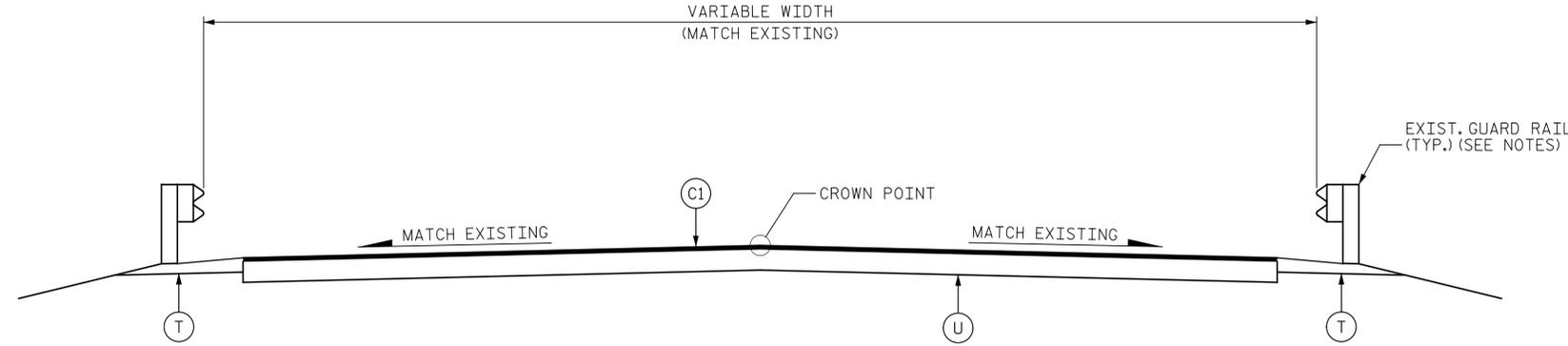
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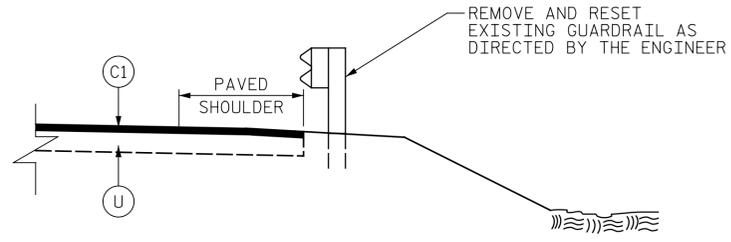
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| PAVEMENT SCHEDULE |  |
|-------------------|--|
| C1                | PROP. APPROX. 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5D, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. |
| M                 | FINE MILLING   |
| T                 | SHOULDER RECONSTRUCTION  |
| U                 | EXISTING PAVEMENT  |

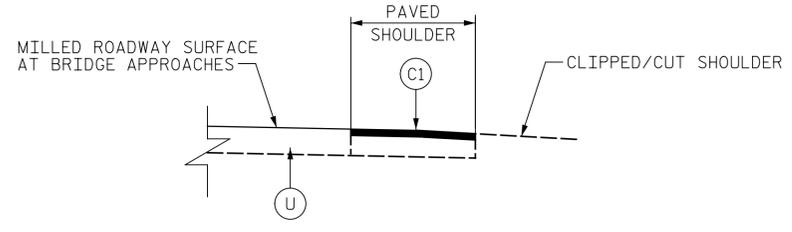
**NOTES:**  
 DETAIL DOES NOT APPLY TO OGAFD AND ULTRA-THIN BONDED WEARING COURSE.  
 BACKFILL SHOULDER WITH APPROVED MATERIAL.  
 REMOVE AND RESET EXISTING GUARDRAIL TO FACILITATE PLACEMENT OF ASPHALT PAVEMENT.  
 FOR ASPHALT CONCRETE SURFACE COURSE AND SHOULDER RECONSTRUCTION, SEE ROADWAY PLANS.



**TYPICAL SECTION**  
 CLIP/CUT/FILL SHOULDERS PER NCDOT STANDARD DRAWING 560.01 & 560.02 BEFORE RE-INSTALLING GUARDRAIL IN AREAS AS DIRECTED BY THE ENGINEER.

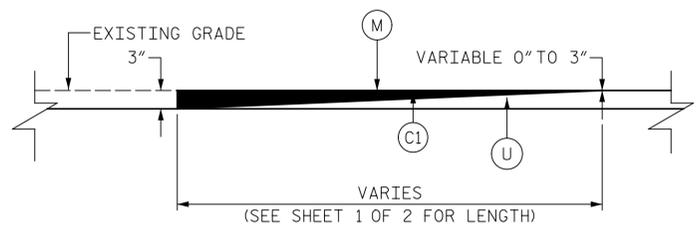


**GUARDRAIL DETAIL**  
 TO BE USED AT VARIOUS LOCATIONS

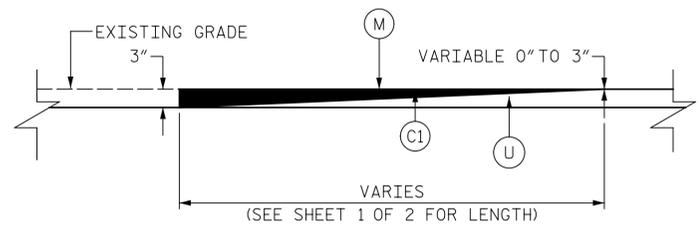


**SHOULDER DETAIL AT BRIDGE APPROACHES**

1. REMOVE PAVED SHOULDER MATERIAL.
  2. COMPACT SUBGRADE.
  3. PLACE SURFACE COURSE (S9.5D) ON COMPACTED SUBGRADE UP TO MILLED SURFACE FOR BRIDGE APPROACHES. TYPICAL FOR BOTH SIDES OF ROADWAY.
- PAYMENT FOR THE REMOVAL OF THE PAVED SHOULDER AND COMPACTION OF THE SUBGRADE IS INCIDENTAL TO THE PLACEMENT OF S9.5D.



**MILLING DETAIL AT BRIDGE APPROACH**



**DETAIL TO TIE INTO EXISTING PAVEMENT**

THE CONTRACTOR'S ATTENTION IS DIRECTED TO THE FACT THAT HE WILL BE REQUIRED TO MILL THE EXISTING ASPHALT PAVEMENT TO ENSURE A PROPER TIE-IN WITH THE EXISTING SURFACE AT THE BEGINNING AND END OF EACH MAP TO BE RESURFACED WITH ASPHALT CONC. SURFACE COURSE, TYPE S9.5D.  
 THIS WILL BE PAID FOR AS FINE MILLING.

PROJECT NO. I-5889B  
BUNCOMBE COUNTY  
 BRIDGE NO. 100352

SHEET 2 OF 2



DocuSigned by:  
 Eric B. Nelson 7/25/2022

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**APPROACH MILLING AND TYPICAL ROADWAY SECTIONS**

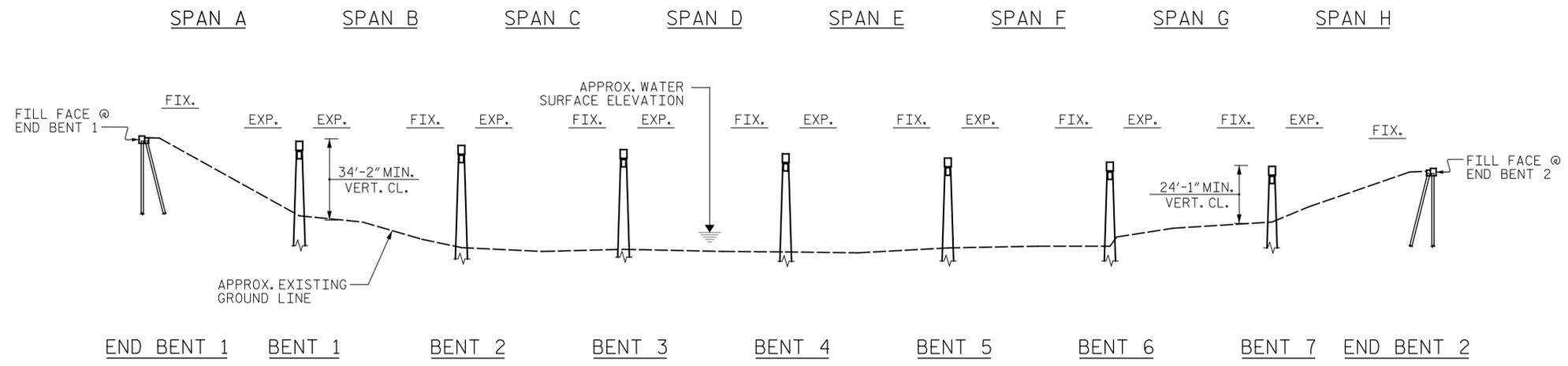
DRAWN BY: J. HARRIS DATE: 6/2022  
 CHECKED BY: J. YANNACCONE DATE: 6/2022



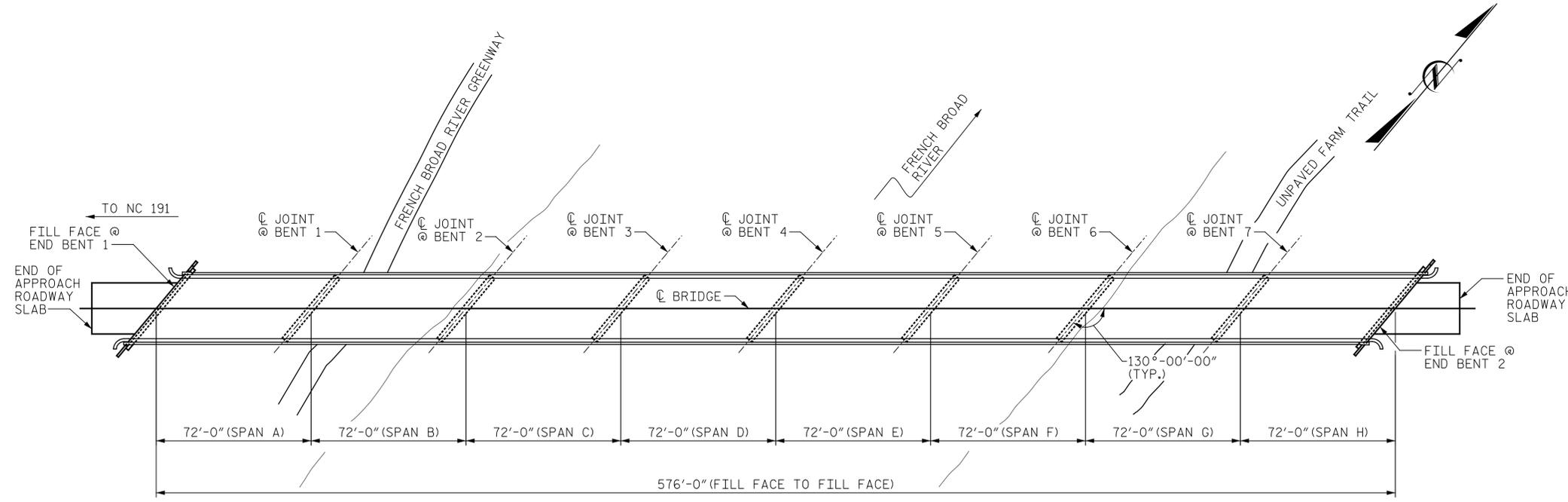
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**SECTION ALONG C BRIDGE**  
 (SECTION AT BENTS AND END BENTS ARE AT RIGHT ANGLES)



**PLAN**  
 (PILES NOT SHOWN FOR CLARITY)

**NOTE:**  
 GENERAL DRAWING INFORMATION IS TAKEN FROM THE ORIGINAL PLANS AND THE ROUTINE INSPECTION REPORT DATED 10/22/2019.  
 BRIDGE ORIENTATION CONFORMS TO THE EXISTING BRIDGE PLANS AND ROUTINE INSPECTION REPORT.

- SCOPE OF WORK**
- PROVIDE PEDESTRIAN PROTECTION FOR THE FRENCH BROAD RIVER GREENWAY.
  - REMOVE ASPHALT WEARING SURFACE AND PARTIALLY REMOVE TOP OF BRIDGE DECK CONCRETE BY FINE MILLING AND HYDRO-DEMOLITION.
  - OVERLAY PREPARED TOP OF BRIDGE DECK WITH VERY EARLY STRENGTH LATEX MODIFIED CONCRETE (LMC-VES).
  - REMOVE EXISTING JOINT MATERIAL AND INSTALL FOAM JOINTS.
  - GROOVE LMC-VES BRIDGE DECK.
  - REMOVE AND REPLACE EXISTING TUBULAR TRIPLE CORRUGATED STEEL BEAM BRIDGE RAIL.
  - REMOVE AND REPLACE EXISTING STEEL BEAM GUARDRAIL AND GUARDRAIL ANCHOR UNITS.
  - MILL AND REPAVE ASPHALT APPROACH ROADWAYS.
  - REMOVE DEBRIS FROM TOP OF EXISTING BENT CAPS AND APPLY EPOXY COATING.
  - EPOXY RESIN INJECTION OF CONCRETE CRACKS.
  - REMOVE UNSOUND CONCRETE AND PROPERLY PREPARE EXISTING END BENT AND BENT AREAS FOR SHOTCRETE AND CONCRETE REPAIRS.

I HEREBY CERTIFY THAT THIS STRUCTURE WAS REHABILITATED ACCORDING TO THESE PLANS OR AS NOTED HEREIN.

RESIDENT ENGINEER \_\_\_\_\_ DATE \_\_\_\_\_

PROJECT NO. I-5889B  
BUNCOMBE COUNTY  
 BRIDGE NO. 100356

SHEET 1 OF 2

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**GENERAL DRAWING**  
 FOR BRIDGE ON I-40 WBL OVER  
 FRENCH BROAD RIVER,  
 FRENCH BROAD RIVER GREENWAY  
 & FARM TRAIL



DocuSigned by:  
 Eric B. Nelson 7/25/2022  
 AC6999211920ACD...



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DRAWN BY : M. LEE / J. HARRIS DATE : 6/2022  
 CHECKED BY : J. YANNACCONE DATE : 6/2022

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**LOCATION SKETCH**

INFORMATION INDICATED ON THE LOCATION SKETCH SHALL BE CONSIDERED GENERAL INFORMATION ONLY. CONTRACTOR SHALL CONFIRM, THROUGH OTHER SOURCES, SPECIFIC INFORMATION REGARDING BRIDGES, ROADWAYS, UTILITIES, THE SURROUNDING AREA, AND ANY OTHER ASPECTS THAT MAY BE NECESSARY TO PERFORM AND COMPLETE THE PROJECT.

| BRIDGE COORDINATES |                |
|--------------------|----------------|
| LATITUDE           | LONGITUDE      |
| 35°-33'-36.26"     | 82°-35'-34.47" |

**GENERAL NOTES**

SEE TRANSPORTATION MANAGEMENT PLANS FOR LANE WIDTHS, SEQUENCING AND OTHER TRAFFIC CONTROL MEASURES FOR STAGING OF OVERLAY SURFACE PREPARATION AND LATEX MODIFIED CONCRETE -VERY EARLY STRENGTH (LMC-VES) PLACEMENT.

FOR NEW ASPHALT PLACEMENT, SEE STANDARD SPECIFICATIONS.

THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT DUE TO THE NATURE OF PRESERVATION PROJECTS, THE EXTENT OF WORK CANNOT ALWAYS BE ACCURATELY DETERMINED PRIOR TO COMMENCEMENT OF WORK. REPAIR LOCATIONS AND ESTIMATES OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS.

EXISTING DIMENSIONS AND BRIDGE CONDITION ARE FROM THE BEST INFORMATION AVAILABLE. THE CONTRACTOR SHALL FIELD VERIFY THE INFORMATION SHOWN ON THE PLANS AND NOTIFY THE ENGINEER IF ACTUAL DIMENSIONS AND CONDITIONS DIFFER.

THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT FOR ANY DELAYS OR ADDITIONAL COST INCURRED BASED ON DIFFERENCES BETWEEN WHAT IS SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

IT IS THE CONTRACTOR'S RESPONSIBILITY TO FOLLOW ALL STATE AND FEDERAL SAFETY REQUIREMENTS.

WORK ON THE BRIDGE SHALL BE PERFORMED SO AS NOT TO ALLOW DEBRIS TO FALL BELOW, EXCEPT WHERE THE CONTRACTOR'S PLAN USES PLATFORMS, NETS, SCREENS OR OTHER PROTECTIVE DEVICES TO CATCH THE MATERIAL. THE CONTRACTOR SHALL SUBMIT PLANS FOR CONSTRUCTION IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS AND THE PROJECT SPECIAL PROVISIONS.

THE CONTRACTOR SHALL PERFORM ALL WORK WITH CARE SO THAT THE EXISTING STRUCTURE WHICH IS TO REMAIN IN PLACE WILL NOT BE DAMAGED. IF THE CONTRACTOR DAMAGES ANY PART OF THE EXISTING STRUCTURE WHICH IS TO REMAIN IN PLACE, THE DAMAGED AREA SHALL BE REPAIRED OR REPLACED IN A MANNER SATISFACTORY TO THE ENGINEER AT NO ADDITIONAL COST TO THE DEPARTMENT.

ANY DAMAGE TO EXISTING REINFORCING STEEL, DURING CONTRACTOR'S OPERATIONS, SHALL BE REPAIRED AS DIRECTED BY THE ENGINEER AND PERFORMED AT NO ADDITIONAL COST TO THE DEPARTMENT.

FOR CONTROL OF TRAFFIC AND LIMITS ON PHASING OF CONSTRUCTION, SEE TRANSPORTATION MANAGEMENT PLANS.

PRIOR TO BEGINNING WORK, THE CONTRACTOR SHALL SUBMIT FOR REVIEW AND APPROVAL A COMPLETE SEQUENCE OF TASKS FOR EACH OPERATION AFFECTING THE BRIDGE SURFACE AND/OR TRAFFIC.

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

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR PEDESTRIAN PROTECTION, SEE SPECIAL PROVISIONS.

FOR WORK IN, OVER OR ADJACENT TO NAVIGABLE WATERS, SEE SPECIAL PROVISIONS.

FOR WATERCRAFT SAFETY, SEE SPECIAL PROVISIONS.

FOR TEMPORARY RIVER TRAFFIC WARNING SIGNS, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

ALL PAVEMENT MARKING WILL BE IN ACCORDANCE WITH THE TRANSPORTATION MANAGEMENT PLANS.

LONGITUDINAL CONSTRUCTION JOINTS OF OVERLAYS SHALL BE LOCATED ALONG THE CENTERLINE OR EDGE OF TRAVEL LANES.

FOR LATEX MODIFIED CONCRETE - VERY EARLY STRENGTH AND PLACING AND FINISHING LATEX MODIFIED CONCRETE - VERY EARLY STRENGTH, SEE LATEX MODIFIED CONCRETE - VERY EARLY STRENGTH SPECIAL PROVISIONS.

FOR FINE MILLING BRIDGE DECK, HYDRO-DEMOLITION OF BRIDGE DECK, CLASS II AND CLASS III SURFACE PREPARATION, SEE LMC OVERLAY SURFACE PREPARATION SPECIAL PROVISIONS.

THE CONTRACTOR MUST COLLECT, TREAT AND DISPOSE OF RUN-OFF WATER FROM THE HYDRO-DEMOLITION PROCESS, SEE LMC OVERLAY SURFACE PREPARATION SPECIAL PROVISION.

THE CONTRACTOR SHALL TAKE CARE DURING JOINT REHAB OPERATIONS NOT TO DROP ANY MATERIAL BELOW THE BRIDGE WITHOUT PROTECTIVE DEVICES BELOW TO CATCH THE MATERIAL. ANY MATERIAL THAT FALLS BELOW THE BRIDGE SHALL BE CONTAINED, REMOVED AND DISPOSED OF BY THE CONTRACTOR AT NO EXTRA COST TO THE DEPARTMENT. IF THE ENGINEER DETERMINES THAT PROTECTIVE DEVICES ARE NOT ADEQUATE OR NOT BEING EMPLOYED, THE WORK SHALL BE SUSPENDED UNTIL ADEQUATE PROTECTION IS PROVIDED.

FOR ELASTOMERIC CONCRETE FOR PRESERVATION, SEE SPECIAL PROVISIONS.

FOR BRIDGE JOINT DEMOLITION, SEE SPECIAL PROVISIONS.

FOR FOAM JOINT SEALS FOR PRESERVATION, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

FOR EPOXY COATING AND DEBRIS REMOVAL, SEE SPECIAL PROVISIONS.

FOR FINE MILLING, SEE SPECIAL PROVISIONS.

FOR REMOVAL AND REPLACEMENT OF TUBULAR BEAM GUARDRAIL, SEE SPECIAL PROVISIONS.

PROJECT NO. I-5889B  
BUNCOMBE COUNTY  
 BRIDGE NO. 100356

SHEET 2 OF 2



DocuSigned by:  
 Eric B. Nelson  
 7/25/2022

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**GENERAL DRAWING**  
 FOR BRIDGE ON I-40 WBL OVER  
 FRENCH BROAD RIVER,  
 FRENCH BROAD RIVER GREENWAY  
 & FARM TRAIL

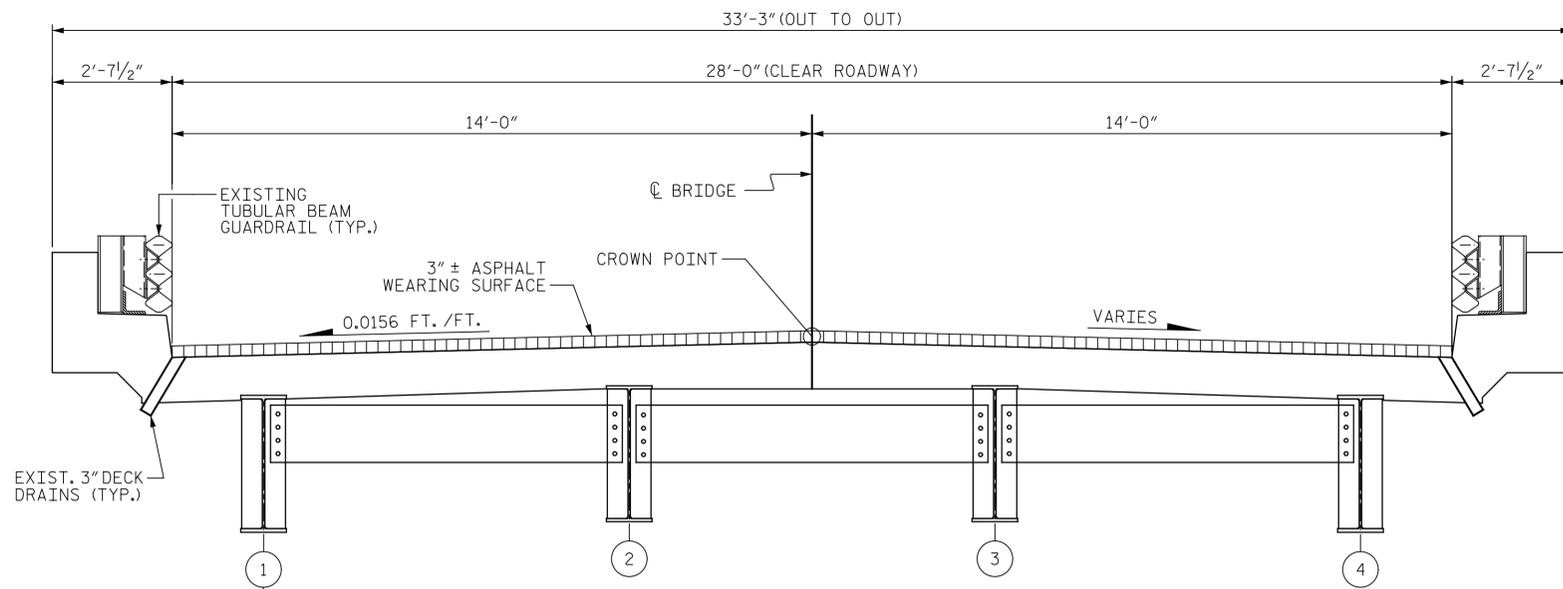
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 CHECKED BY : J. YANNACCONE DATE : 6/2022



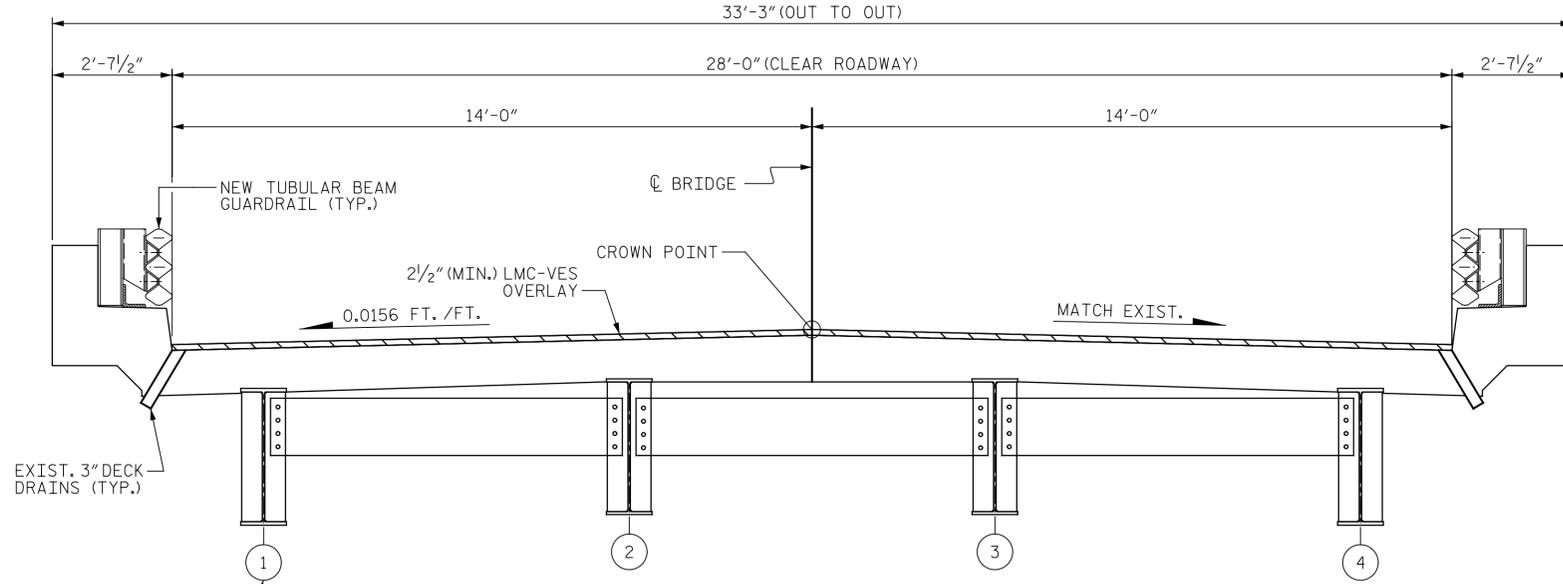
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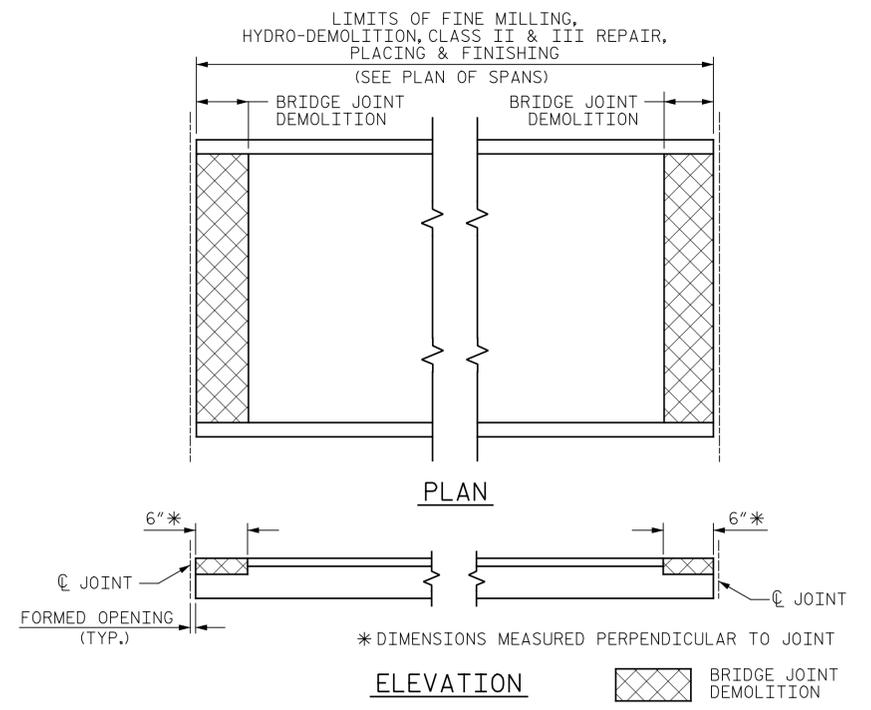
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TYPICAL SECTION  
(EXISTING)



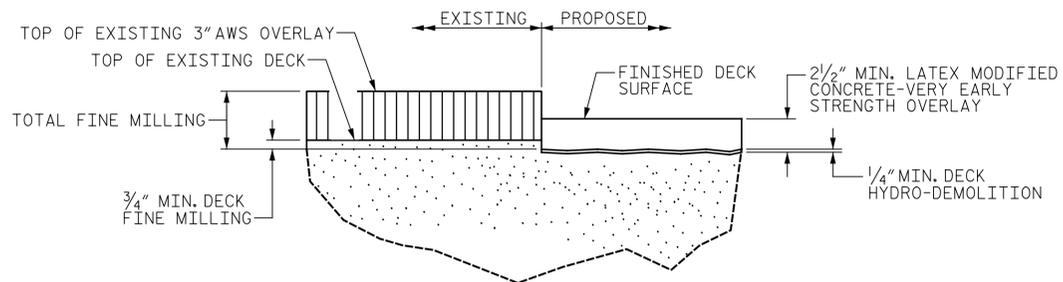
TYPICAL SECTION  
(PROPOSED)



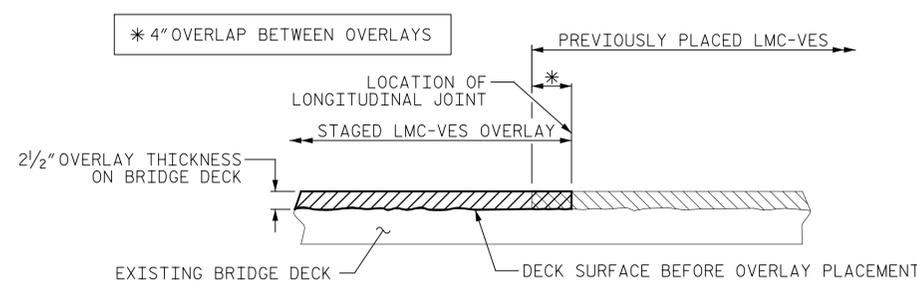
PAY LIMITS FOR OVERLAY BID ITEMS

NOTES:

SEE TRAFFIC MANAGEMENT PLANS FOR LANE WIDTHS, SEQUENCING, AND OTHER TRAFFIC CONTROL MEASURES FOR STAGING OF OVERLAY SURFACE PREPARATION AND LMC PLACEMENT.  
 WHEN PREPARING THE SURFACE FOR LMC-VES OVERLAY ADJACENT TO A PREVIOUSLY PLACED LMC-VES STAGE, THE PREVIOUSLY PLACED LMC-VES SHALL BE REMOVED FOR A DISTANCE OF 4 INCHES FROM THE LMC-VES EDGE. THE SURFACE OF THE NEW STAGE AREA, ALONG WITH THE 4 INCH OVERLAY AREA, SHALL BE PREPARED AS PER THE OVERLAY SURFACE PREPARATION SPECIAL PROVISIONS. NEW LMC-VES SHALL BE PLACED IN THE 4-INCH OVERLAP, AS PART OF THE NEW LMC-VES STAGE PLACEMENT.



DETAIL FOR LMC-VES OVERLAY



SECTION THRU DECK  
STAGED LMC-VES OVERLAY JOINT



PROJECT NO. I-5889B  
 BUNCOMBE COUNTY  
 BRIDGE NO. 100356

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 TYPICAL SECTION AND  
 SURFACE PREPARATION  
 DETAILS

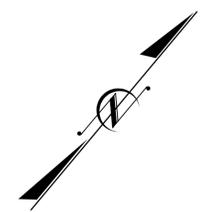
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**NOTES:**

REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

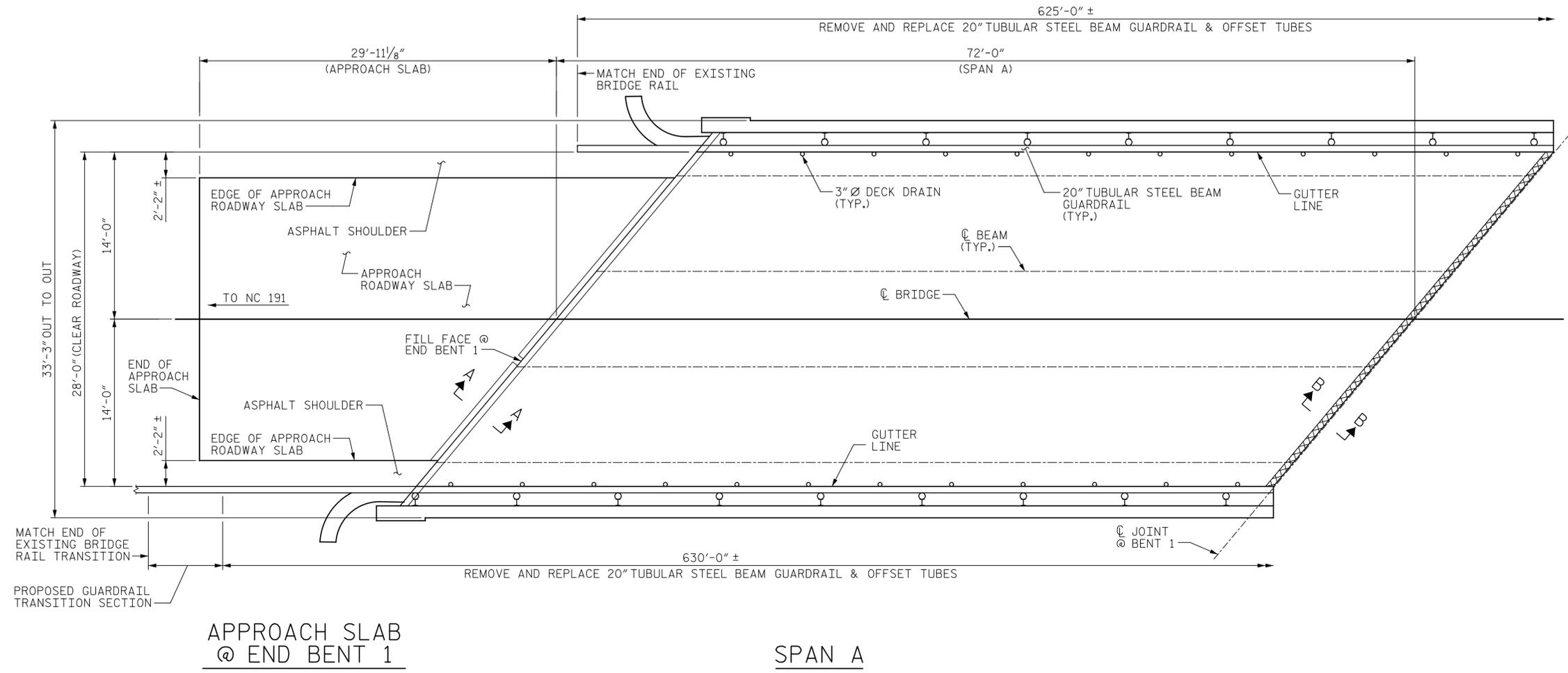
CONCRETE COVER FOR TOP BARS IN THE DECK SLAB IS 1 1/16" PER THE EXISTING BRIDGE PLANS.

FOR SECTION A-A AND B-B, SEE "JOINT DETAILS" SHEET.

FOR FINE MILLING, SEE SPECIAL PROVISIONS.

THE CONTRACTOR SHALL REMOVE AND REPLACE THE 20" TUBULAR STEEL BEAM GUARDRAIL. THE ENGINEER WILL SELECT THOSE SECTIONS OF THE EXISTING GUARDRAIL SUITABLE FOR FUTURE USE AND TRANSPORT THEM TO A STOCKPILE FOR THE USE OF THE DEPARTMENT. THE REMAINING GUARDRAIL SECTIONS SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE PROJECT.

FOR DIMENSIONS OF TUBULAR BEAM GUARDRAIL, POST AND TUBES, SEE "TUBULAR BEAM GUARDRAIL DETAILS" SHEET.



| BRIDGE RAIL QUANTITIES<br>(FOR ENTIRE BRIDGE) |         |
|---|---------|
| REMOVE 20" TUBULAR STEEL BEAM GUARDRAIL       | 1275 LF |
| 20" TUBULAR STEEL BEAM GUARDRAIL              | 1255 LF |
| REMOVE AND REPLACE W 6X9 POSTS                | 0 EA    |
| W-TR STEEL BEAM GUARDRAIL TRANSITION SECTIONS | 3 EA    |

- BRIDGE JOINT DEMOLITION
- APPROX. CLASS II SURFACE PREPARATION
- APPROX. CLASS III SURFACE PREPARATION
- UNDERSIDE OF DECK/OVERHANG REPAIR
- ERI EPOXY RESIN INJECTION

APPROACH SLAB @ END BENT 1
SPAN A

| TOP OF DECK REPAIR                    | APPROACH SLAB 1 |        | SPAN A   |        | UNDERSIDE OF DECK REPAIR |           |          |           |
|---------------------------------------|-----------------|--------|----------|--------|--------------------------|-----------|----------|-----------|
|                                       | ESTIMATE        | ACTUAL | ESTIMATE | ACTUAL | SHOTCRETE REPAIR         |           | ESTIMATE | ACTUAL    |
|                                       |                 |        |          |        | AREA SF                  | VOLUMN CF | AREA SF  | VOLUMN CF |
| FINE MILLING                          | 78 SY           |        | 224 SY   |        | 0.0                      | 0.0       |          |           |
| HYDRO-DEMOLITION OF BRIDGE DECK       | 78 SY           |        | 224 SY   |        | 0.0                      | 0.0       |          |           |
| CLASS II SURFACE PREPARATION          | 0.0 SY          |        | 0.0 SY   |        | 0.0                      | 0.0       |          |           |
| CLASS III SURFACE PREPARATION         | 0.0 SY          |        | 0.0 SY   |        | 0.0                      | 0.0       |          |           |
| LATEX MODIFIED CONCRETE - VES OVERLAY | 5.7 CY          |        | 16.3 SF  |        |                          |           |          |           |
| PLACING & FINISHING LMC - VES OVERLAY | 78 SY           |        | 224 SY   |        |                          |           |          |           |
| BRIDGE JOINT DEMOLITION               | 15 SF           |        | 37 SF    |        |                          |           |          |           |
| GROOVING BRIDGE FLOORS                | 672 SF          |        | 1755 SF  |        |                          |           |          |           |
|                                       |                 |        |          |        |                          |           | ESTIMATE | ACTUAL    |
|                                       |                 |        |          |        |                          |           | 0.0 LF   |           |

VALUES IN CHART REPRESENT ESTIMATED UNDERSIDE OF DECK REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEAR TO SAWCUT. FOR REPAIR DETAILS, SEE "OVERHANG UNDERSIDE REPAIR DETAILS" SHEET.

PAYMENT FOR CLASS II AND CLASS III SURFACE PREPARATION IS BASED ON THE SQUARE YARDS OF ADDITIONAL DEMOLITION REQUIRED FOLLOWING HYDRO-DEMOLITION OF THE BRIDGE DECK. SEE "OVERLAY SURFACE PREPARATION" SPECIAL PROVISION.

PROJECT NO. I-5889B  
BUNCOMBE COUNTY  
 BRIDGE NO. 100356

SHEET 1 OF 8

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
  
**PLAN OF SPANS  
 SPAN A AND  
 APPROACH SLAB**



DRAWN BY: J. HARRIS DATE: 6/2022  
 CHECKED BY: J. YANACCONO DATE: 6/2022



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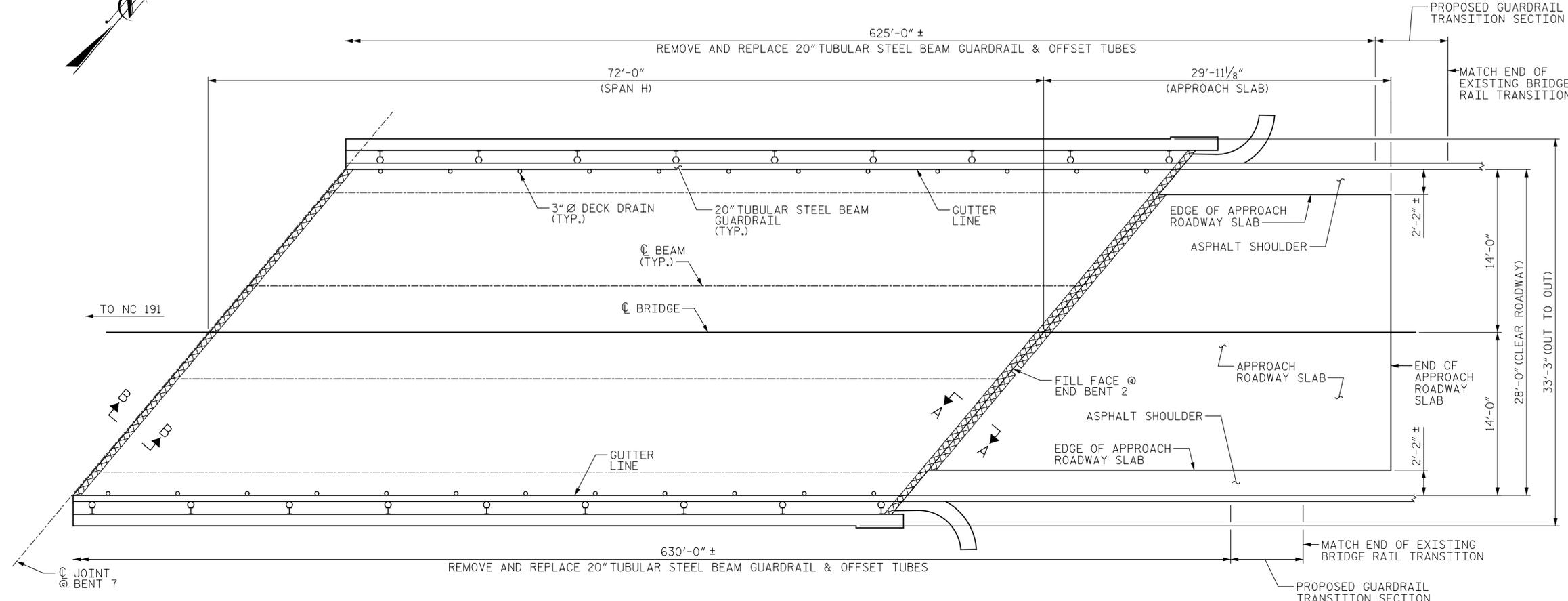
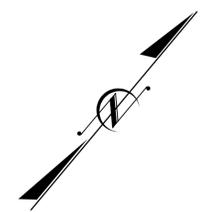








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**NOTES:**

REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

CONCRETE COVER FOR TOP BARS IN THE DECK SLAB IS 1 1/16" PER THE EXISTING BRIDGE PLANS.

FOR SECTION A-A AND B-B, SEE "JOINT DETAILS" SHEET.

FOR FINE MILLING, SEE SPECIAL PROVISIONS.

THE CONTRACTOR SHALL REMOVE AND REPLACE THE 20" TUBULAR STEEL BEAM GUARDRAIL. THE ENGINEER WILL SELECT THOSE SECTIONS OF THE EXISTING GUARDRAIL SUITABLE FOR FUTURE USE AND TRANSPORT THEM TO A STOCKPILE FOR THE USE OF THE DEPARTMENT. THE REMAINING GUARDRAIL SECTIONS SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE PROJECT.

FOR DIMENSIONS OF TUBULAR BEAM GUARDRAIL, POST AND TUBES, SEE "TUBULAR BEAM GUARDRAIL DETAILS" SHEET.

SPAN H

APPROACH SLAB @ END BENT 2

- BRIDGE JOINT DEMOLITION
- APPROX. CLASS II SURFACE PREPARATION
- APPROX. CLASS III SURFACE PREPARATION
- UNDERSIDE OF DECK/OVERHANG REPAIR
- ERI EPOXY RESIN INJECTION

| REPAIR QUANTITY TABLE                 |          |        |                 |        | UNDERSIDE OF DECK REPAIR        |          |           |          |           |
|---------------------------------------|----------|--------|-----------------|--------|---------------------------------|----------|-----------|----------|-----------|
| TOP OF DECK REPAIR                    | SPAN H   |        | APPROACH SLAB 2 |        | SHOTCRETE REPAIR                | ESTIMATE |           | ACTUAL   |           |
|                                       | ESTIMATE | ACTUAL | ESTIMATE        | ACTUAL |                                 | AREA SF  | VOLUMN CF | AREA SF  | VOLUMN CF |
| FINE MILLING                          | 224 SY   |        | 78 SY           |        | UNDERSIDE OF DECK               | 0.0      | 0.0       |          |           |
| HYDRO-DEMOLITION OF BRIDGE DECK       | 224 SY   |        | 78 SY           |        | OVERHANG DIAPHRAGMS             | 0.0      | 0.0       |          |           |
| CLASS II SURFACE PREPARATION          | 0.0 SY   |        | 0.0 SY          |        | UNDERSIDE OF OVERHANG           | 0.0      | 0.0       |          |           |
| CLASS III SURFACE PREPARATION         | 0.0 SY   |        | 0.0 SY          |        | INTERIOR DIAPHRAGMS             | 0.0      | 0.0       |          |           |
| LATEX MODIFIED CONCRETE - VES OVERLAY | 16.3 CY  |        | 5.7 CY          |        |                                 |          |           | ESTIMATE | ACTUAL    |
| PLACING & FINISHING LMC - VES OVERLAY | 224 SY   |        | 78 SY           |        |                                 |          |           |          |           |
| BRIDGE JOINT DEMOLITION               | 37 SF    |        | 15 SF           |        | UNDERSIDE EPOXY RESIN INJECTION | 0.0 LF   |           |          |           |
| GROOVING BRIDGE FLOORS                | 1755 SF  |        | 672 SF          |        |                                 |          |           |          |           |

VALUES IN CHART REPRESENT ESTIMATED UNDERSIDE OF DECK REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEAR TO SAWCUT. FOR REPAIR DETAILS, SEE "OVERHANG UNDERSIDE REPAIR DETAILS" SHEET.

PAYMENT FOR CLASS II AND CLASS III SURFACE PREPARATION IS BASED ON THE SQUARE YARDS OF ADDITIONAL DEMOLITION REQUIRED FOLLOWING HYDRO-DEMOLITION OF THE BRIDGE DECK. SEE "OVERLAY SURFACE PREPARATION" SPECIAL PROVISION.

PROJECT NO. I-5889B  
BUNCOMBE COUNTY  
 BRIDGE NO. 100356

SHEET 8 OF 8

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

PLAN OF SPANS  
 SPAN H AND  
 APPROACH SLAB



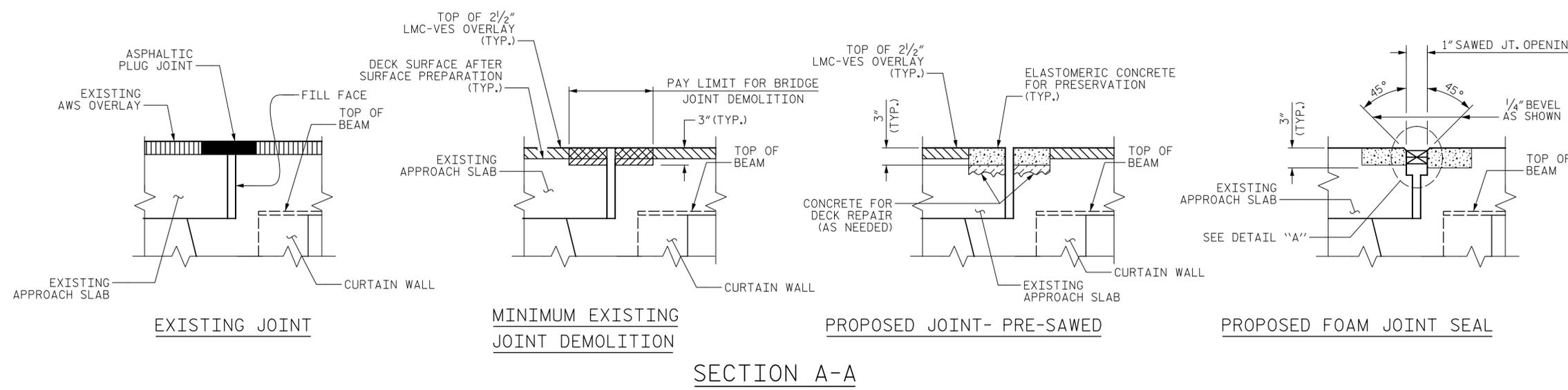
DRAWN BY: J. HARRIS DATE: 6/2022  
 CHECKED BY: J. YANACCONI DATE: 6/2022



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| REVISIONS |     |       |     |     |       | SHEET NO.        |
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| 1         |     |       | 3   |     |       | S6-11            |
| 2         |     |       | 4   |     |       | TOTAL SHEETS 133 |

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**NOTES:**

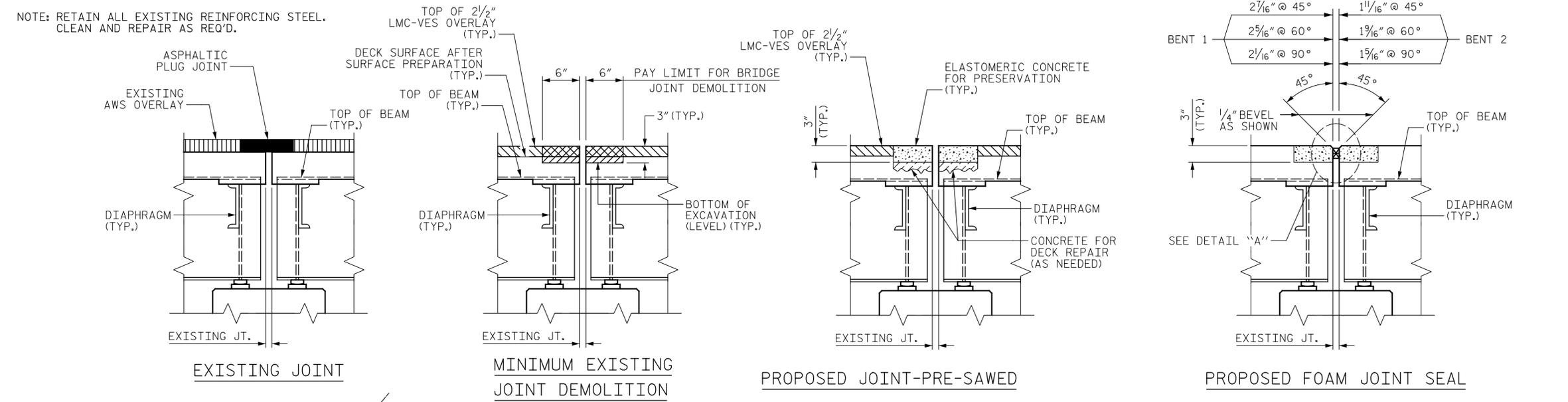
FINAL JOINT SEALS SHALL NOT BE INSTALLED UNTIL THE OVERLAY OR SEALANT WORK IS COMPLETE.

THE CONTRACTOR SHALL FIELD VERIFY THE EXISTING JOINT OPENING PRIOR TO ORDERING JOINT SEAL MATERIAL. IF THE ACTUAL JOINT OPENING VARIES FROM THE OPENING INDICATED IN THE DETAILS BY MORE THAN 1/4", NOTIFY THE ENGINEER.

THE MANUFACTURER IS TO PROVIDE THE NOMINAL UNCOMPRESSED SEAL WIDTH OF THE FOAM JOINT SEAL FOR THE SIZE OF THE OPENING ON THE PLANS AND ACCOMMODATE THE MINIMUM EXPANSION SHOWN ON THE PLANS.

FOAM JOINTS SHALL BE INSTALLED AS PER THE MANUFACTURER'S RECOMMENDATIONS.

THE CONTRACTOR SHALL TAKE CARE DURING JOINT REHAB OPERATIONS NOT TO DROP ANY MATERIAL BELOW THE BRIDGE WITHOUT PROTECTIVE DEVICES BELOW TO CATCH THE MATERIAL. ANY MATERIAL THAT FALLS BELOW THE BRIDGE SHALL BE CONTAINED, REMOVED AND DISPOSED OF BY THE CONTRACTOR AT NO EXTRA COST TO THE DEPARTMENT. IF THE ENGINEER DETERMINES THAT THE PROTECTIVE DEVICES ARE NOT ADEQUATE OR NOT BEING EMPLOYED, THE WORK SHALL BE SUSPENDED UNTIL ADEQUATE PROTECTION IS PROVIDED.



NOTE: RETAIN ALL EXISTING REINFORCING STEEL. CLEAN AND REPAIR AS REQ'D.

FOR EXCAVATION BELOW THE BOTTOM OF THE PLANNED JOINT DEMOLITION, CONCRETE FOR DECK REPAIR SHALL BE PLACED IN THE EXCAVATED AREA TO THE ELEVATION AT THE BOTTOM OF THE PROPOSED ELASTOMERIC CONCRETE FOR PRESERVATION HEADERS AS SHOWN.

THE FINAL SURFACE OF THE JOINT DEMOLITION AREA PRIOR TO PLACEMENT OF CONCRETE REPAIR MATERIAL OR ELASTOMERIC CONCRETE SHOULD BE REASONABLY FLAT AND LEVEL. THE ENGINEER SHALL DETERMINE THE ACCEPTABILITY OF THE SURFACE PRIOR TO PLACEMENT OF REPAIR CONCRETE OR ELASTOMERIC CONCRETE.

THE CONTRACTOR WILL NOT BE PERMITTED TO FORM THE JOINT IN LIEU OF SAWING THE JOINT.

THE INSTALLED FOAM JOINTS SHALL BE WATERTIGHT.

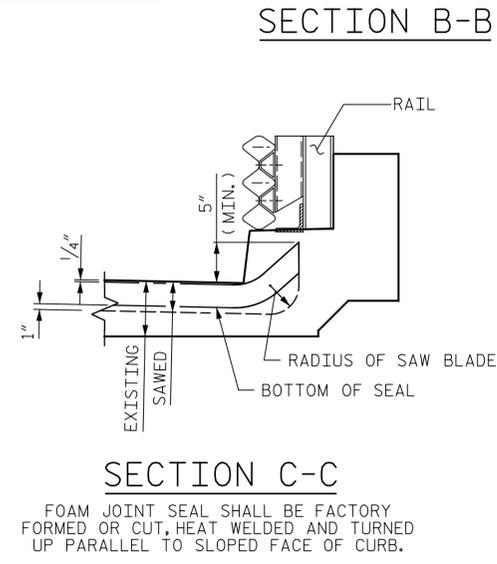
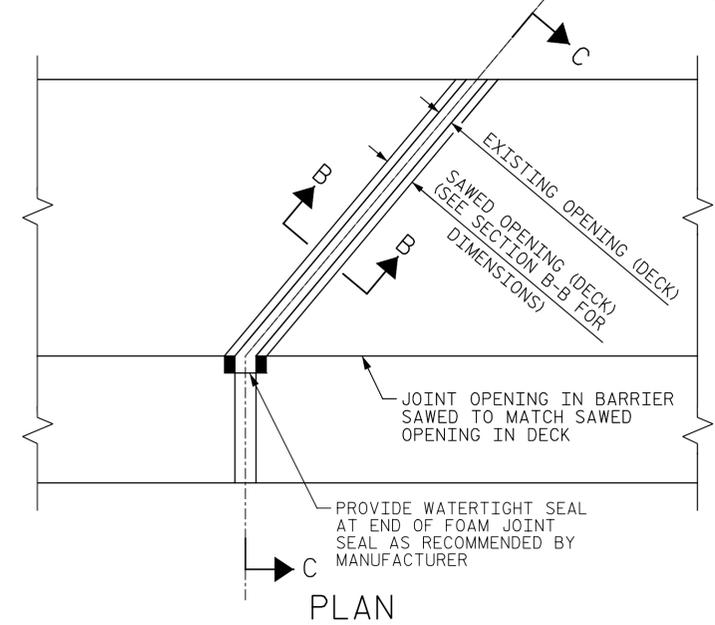
THE CONTRACTOR SHALL SAW CUT TO A NOMINAL DEPTH OF 1/2" BUT REINFORCING STEEL SHALL NOT BE DAMAGED. CONTRACTOR SHALL REMOVE SURFACE CONCRETE TO VERIFY THAT SAWCUT DEPTH WILL NOT DAMAGE EXISTING REINFORCING STEEL.

QUANTITIES SHOWN IN THE ELASTOMERIC CONCRETE FOR PRESERVATION TABLE ARE BASED ON THE MINIMUM JOINT DEMOLITION SHOWN.

FOR BRIDGE JOINT DEMOLITION, SEE SPECIAL PROVISIONS.

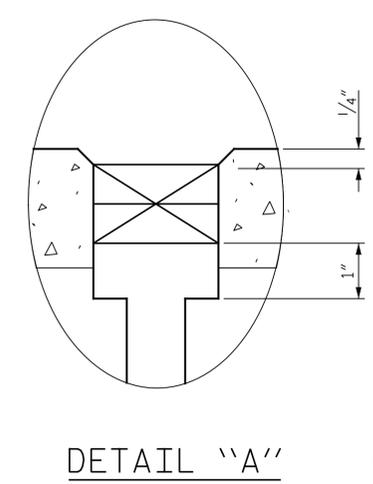
FOR ELASTOMERIC CONCRETE FOR PRESERVATION, SEE SPECIAL PROVISIONS.

FOR FOAM JOINT SEALS FOR PRESERVATION, SEE SPECIAL PROVISIONS.



| LOCATION   | ELASTOMERIC CONCRETE FOR PRESERVATION | FOAM JOINT SEALS FOR PRESERVATION |
|------------|---------------------------------------|-----------------------------------|
|            | CU. FT.                               | LIN. FT.                          |
| END BENT 1 | 8.4                                   | 31.0                              |
| BENT 1     | 9.1                                   | 38.5                              |
| BENT 2     | 9.1                                   | 38.5                              |
| BENT 3     | 9.1                                   | 38.5                              |
| BENT 4     | 9.1                                   | 38.5                              |
| BENT 5     | 9.1                                   | 38.5                              |
| BENT 6     | 9.1                                   | 38.5                              |
| BENT 7     | 9.1                                   | 38.5                              |
| END BENT 2 | 8.4                                   | 31.0                              |
| * TOTAL    | 80.5                                  | 331.5                             |

\* BASED ON MINIMUM BLOCKOUT SHOWN



PROJECT NO. I-5889B  
BUNCOMBE COUNTY  
 BRIDGE NO. 100356

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**JOINT DETAILS**

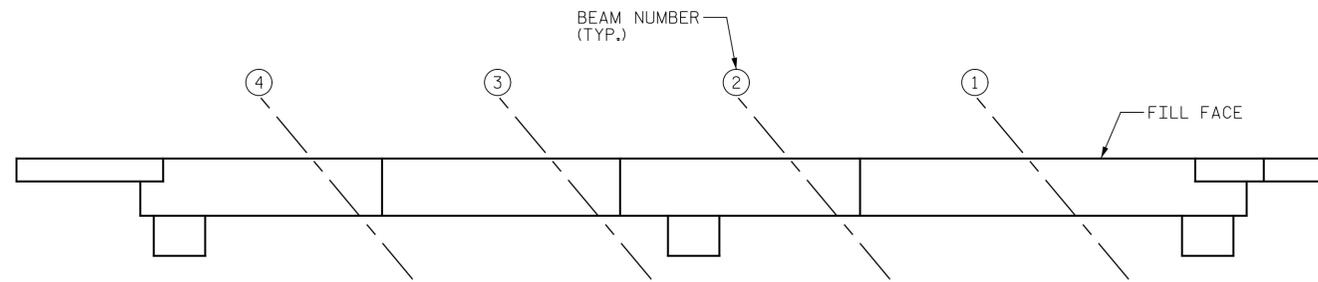
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 CHECKED BY: J. YANNAACONE DATE: 6/2022



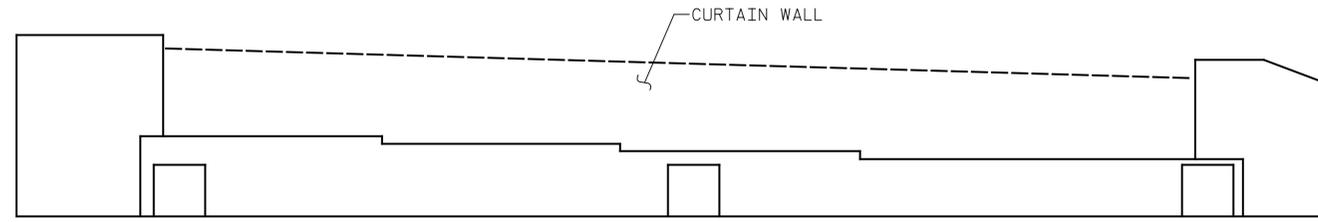
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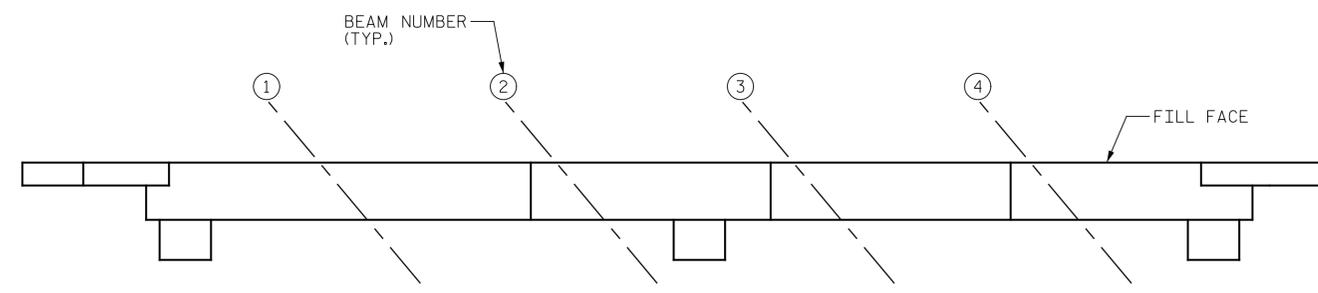
PLAN

NO REPAIRS NOTED FOR END BENT 1 DURING FIELD SCOPING. THE CONTRACTOR AND ENGINEER SHALL INSPECT END BENT 1 PRIOR TO BEGINNING WORK.



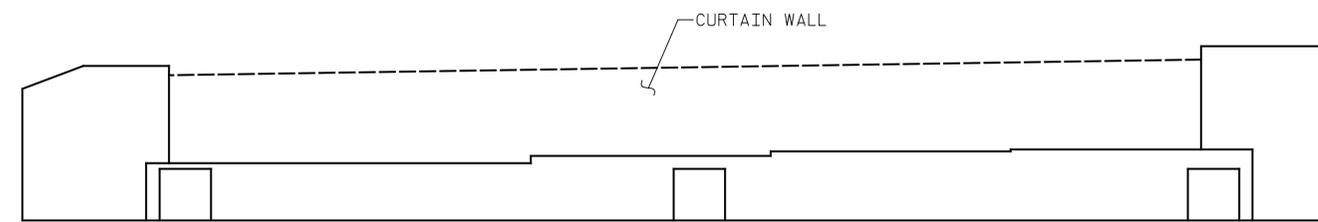
ELEVATION  
END BENT 1

-  SHOTCRETE REPAIR
-  CONCRETE REPAIR (FORM & POUR)
-  ERI - EPOXY RESIN INJECTION



PLAN

NO REPAIRS NOTED FOR END BENT 2 DURING FIELD SCOPING. THE CONTRACTOR AND ENGINEER SHALL INSPECT END BENT 2 PRIOR TO BEGINNING WORK.



ELEVATION  
END BENT 2

AS-BUILT REPAIR QUANTITY TABLE

| END BENT 1 REPAIRS    | QUANTITIES |           |           |          |           |
|-----------------------|------------|-----------|-----------|----------|-----------|
|                       | ESTIMATE   |           | ACTUAL    |          |           |
| SHOTCRETE REPAIRS     | AREA SF    | VOLUME CF | AREA SF   | DEPTH FT | VOLUME CF |
| CAP                   | 0.0        | 0.0       |           |          |           |
| CURTAIN WALL          | 0.0        | 0.0       |           |          |           |
| CONCRETE REPAIRS      | 0.0        | 0.0       |           |          |           |
| EPOXY RESIN INJECTION |            | LENGTH LF | LENGTH LF |          |           |
| CAP                   |            | 0.0       |           |          |           |
| CURTAIN WALL          |            | 0.0       |           |          |           |

| END BENT 2 REPAIRS    | QUANTITIES |           |           |          |           |
|-----------------------|------------|-----------|-----------|----------|-----------|
|                       | ESTIMATE   |           | ACTUAL    |          |           |
| SHOTCRETE REPAIRS     | AREA SF    | VOLUME CF | AREA SF   | DEPTH FT | VOLUME CF |
| CAP                   | 0.0        | 0.0       |           |          |           |
| CURTAIN WALL          | 0.0        | 0.0       |           |          |           |
| CONCRETE REPAIRS      | 0.0        | 0.0       |           |          |           |
| EPOXY RESIN INJECTION |            | LENGTH LF | LENGTH LF |          |           |
| CAP                   |            | 0.0       |           |          |           |
| CURTAIN WALL          |            | 0.0       |           |          |           |

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM OF 2" CLEARANCE TO SAWCUT. SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUALITIES ENTERED INTO THE AS-BUILT REPAIR QUANTITY TABLE.

CONTRACTOR SHALL SAW CUT TO A MINIMUM DEPTH OF 1/2" BUT REINFORCING STEEL SHALL NOT BE DAMAGED

CONTRACTOR SHALL REMOVE SURFACE CONCRETE TO VERIFY THAT SAW CUT DEPTH WILL NOT DAMAGE EXISTING REINFORCING STEEL.

CONTRACTOR SHALL SAW CUT THE REPAIR AREAS SO THAT THE CORNERS ARE SQUARE AS INDICATED ON THE DETAILS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

SHOTCRETE REPAIRS MAY BE REPLACED WITH CONCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

PROJECT NO. I-5889B  
BUNCOMBE COUNTY  
 BRIDGE NO. 100356



DocuSigned by:  
Eric B. Nelson  
7/25/2022  
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STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

END BENT 1 & 2

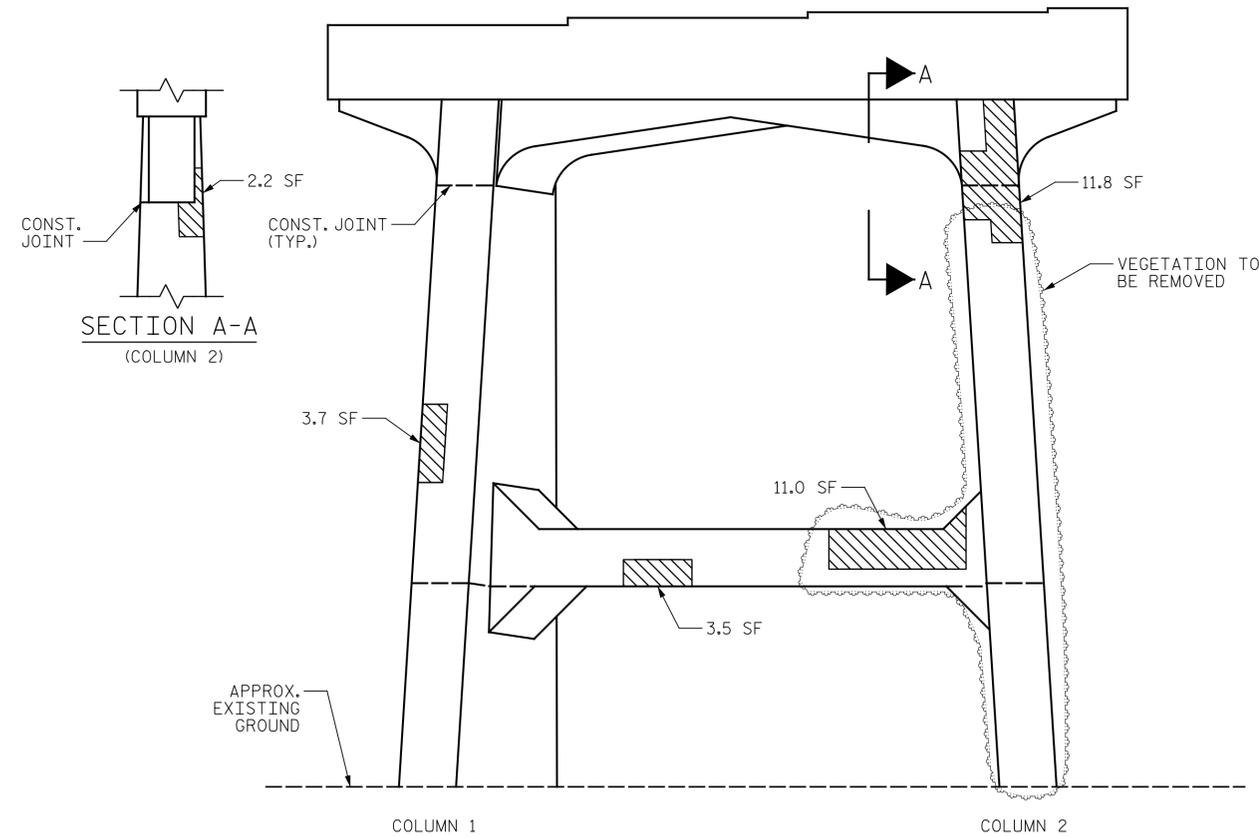
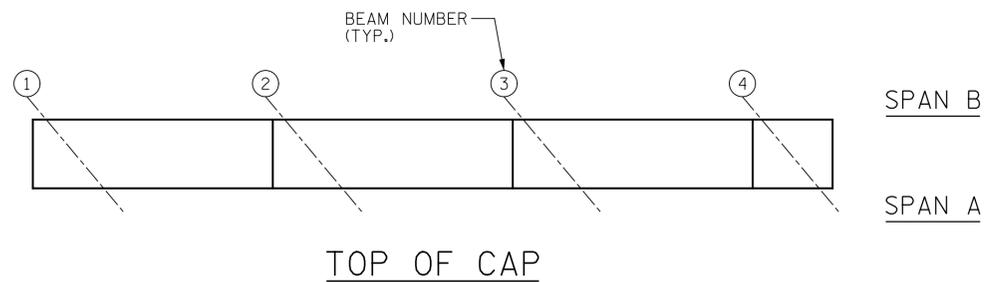
DRAWN BY : J. HARRIS DATE : 6/2022  
 CHECKED BY : J. YANACCONO DATE : 6/2022



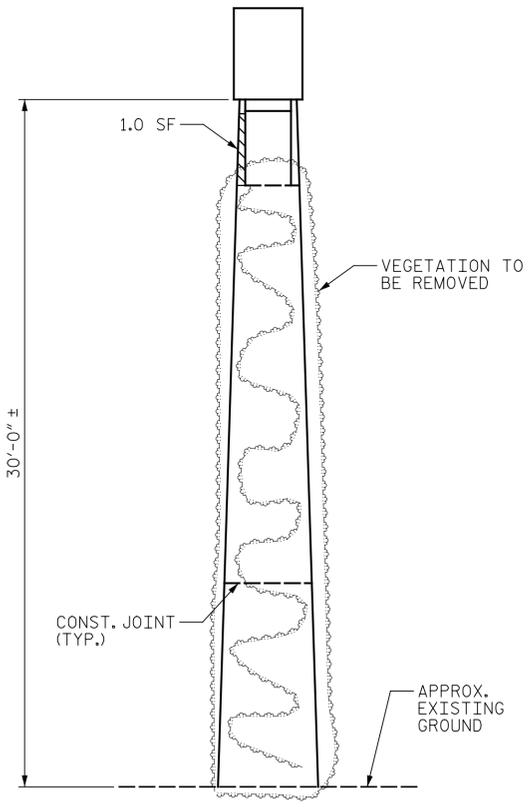
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**ELEVATION**



**END VIEW**  
(COLUMN 2)

| AS-BUILT REPAIR QUANTITY TABLE |            |           |           |          |           |
|--------------------------------|------------|-----------|-----------|----------|-----------|
| BENT 1 REPAIRS                 | QUANTITIES |           |           |          |           |
|                                | ESTIMATE   |           | ACTUAL    |          |           |
| SHOTCRETE REPAIRS              | AREA SF    | VOLUME CF | AREA SF   | DEPTH FT | VOLUME CF |
| CAP                            | 0.0        | 0.0       |           |          |           |
| COLUMN                         | 22.4       | 11.2      |           |          |           |
| STRUT                          | 37.6       | 18.8      |           |          |           |
| CONCRETE REPAIRS               | 0.0        | 0.0       |           |          |           |
| EPOXY RESIN INJECTION          |            | LENGTH LF | LENGTH LF |          |           |
| CAP                            |            | 0.0       |           |          |           |
| COLUMN                         |            | 0.0       |           |          |           |
| STRUT                          |            | 0.0       |           |          |           |
| EPOXY COATING                  |            | SQ. FT    | SQ. FT    |          |           |
| TOP OF BENT CAP                |            | 103       |           |          |           |

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM OF 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

**NOTES:**  
 REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE BASED ON THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ENTER THE ACTUAL QUANTITIES INTO THE AS-BUILT REPAIR QUANTITY TABLE.

FOR REPAIRS, SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.  
 FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.  
 FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

SHOTCRETE REPAIRS MAY BE REPLACED WITH CONCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

CONTRACTOR SHALL SAW CUT TO A MINIMUM DEPTH OF 1/2" BUT REINFORCING STEEL SHALL NOT BE DAMAGED. CONTRACTOR SHALL REMOVE SURFACE CONCRETE TO VERIFY THAT SAW CUT DEPTH WILL NOT DAMAGE EXISTING REINFORCING STEEL.

CONTRACTOR SHALL SAW CUT THE REPAIR AREAS SO THAT THE CORNERS ARE SQUARE AS INDICATED ON THE DETAILS.

CLEAN AND REMOVE DEBRIS FROM THE TOP OF THE CAP AND APPLY EPOXY PROTECTIVE COATING. EPOXY COATING SHALL BE APPLIED TO THE TOP SURFACE OF THE CAP. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAP BENEATH THE MASONRY PLATES. FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

WHEN COLUMN REPAIRS ARE INDICATED TO GROUND LINE, EXTEND REPAIR ONE (1) FOOT MIN. BELOW GROUND LINE

FOR REMOVAL OF VEGETATION, SEE EPOXY COATING AND DEBRIS REMOVAL SPECIAL PROVISION.

- SHOTCRETE REPAIR
- CONCRETE REPAIR (FORM & POUR)
- ERI - EPOXY RESIN INJECTION

PROJECT NO. I-5889B  
BUNCOMBE COUNTY  
 BRIDGE NO. 100356

SHEET 1 OF 2



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**BENT 1**  
SPAN A SIDE

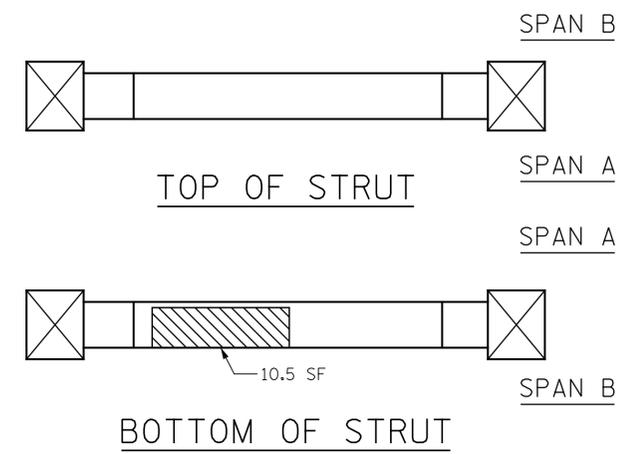
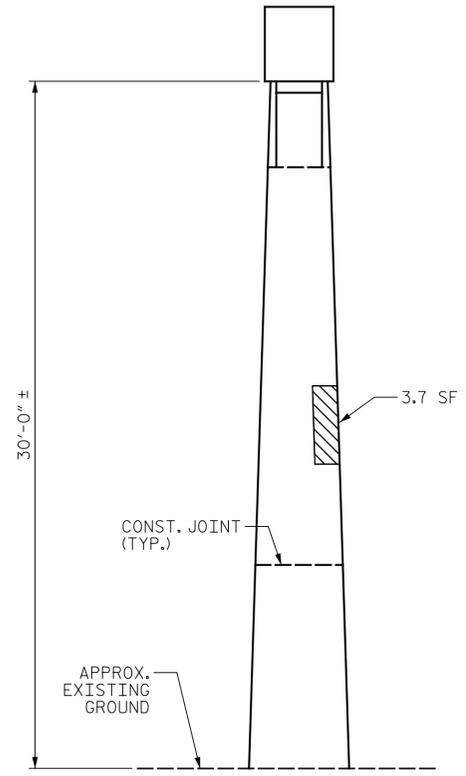
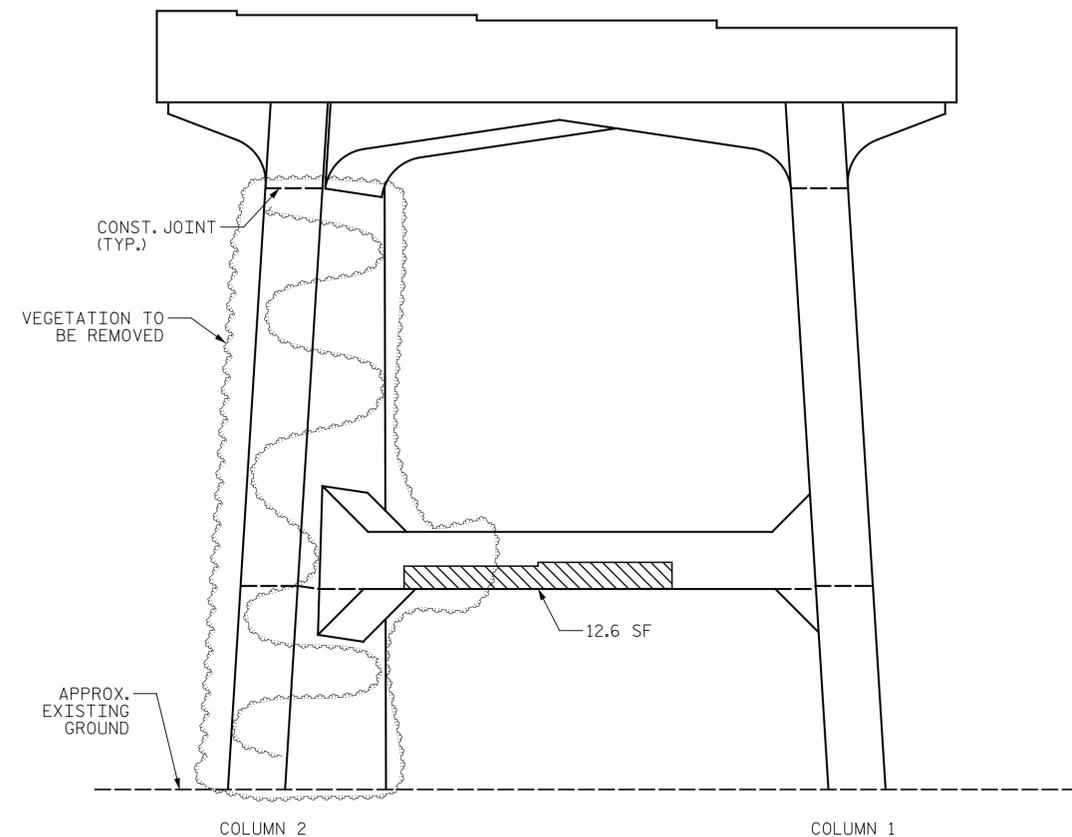
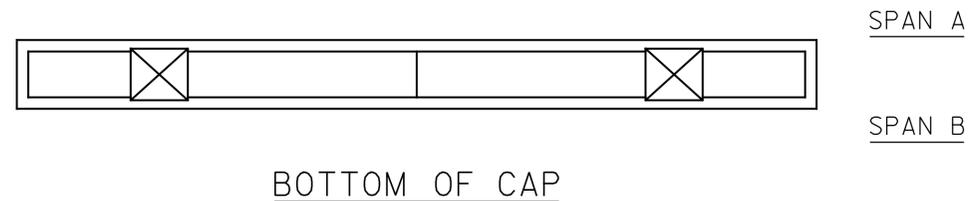
DRAWN BY : J. HARRIS DATE : 6/2022  
 CHECKED BY : J. YANACCONO DATE : 6/2022



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**NOTES:**

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE BASED ON THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ENTER THE ACTUAL QUANTITIES INTO THE AS-BUILT REPAIR QUANTITY TABLE.

FOR REPAIRS, SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

SHOTCRETE REPAIRS MAY BE REPLACED WITH CONCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

CONTRACTOR SHALL SAW CUT TO A MINIMUM DEPTH OF 1/2" BUT REINFORCING STEEL SHALL NOT BE DAMAGED. CONTRACTOR SHALL REMOVE SURFACE CONCRETE TO VERIFY THAT SAW CUT DEPTH WILL NOT DAMAGE EXISTING REINFORCING STEEL.

CONTRACTOR SHALL SAW CUT THE REPAIR AREAS SO THAT THE CORNERS ARE SQUARE AS INDICATED ON THE DETAILS.

CLEAN AND REMOVE DEBRIS FROM THE TOP OF THE CAP AND APPLY EPOXY PROTECTIVE COATING. EPOXY COATING SHALL BE APPLIED TO THE TOP SURFACE OF THE CAP. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAP BENEATH THE MASONRY PLATES. FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

WHEN COLUMN REPAIRS ARE INDICATED TO GROUND LINE, EXTEND REPAIR ONE (1) FOOT MIN. BELOW GROUND LINE

FOR REMOVAL OF VEGETATION, SEE EPOXY COATING AND DEBRIS REMOVAL SPECIAL PROVISION.

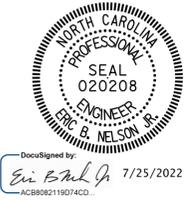
- SHOTCRETE REPAIR
- CONCRETE REPAIR (FORM & POUR)
- ERI - EPOXY RESIN INJECTION

PROJECT NO. I-5889B  
BUNCOMBE COUNTY  
 BRIDGE NO. 100356

SHEET 2 OF 2

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

BENT 1  
 SPAN B SIDE



DocuSigned by:  
*Eric B. Nelson Jr.* 7/25/2022  
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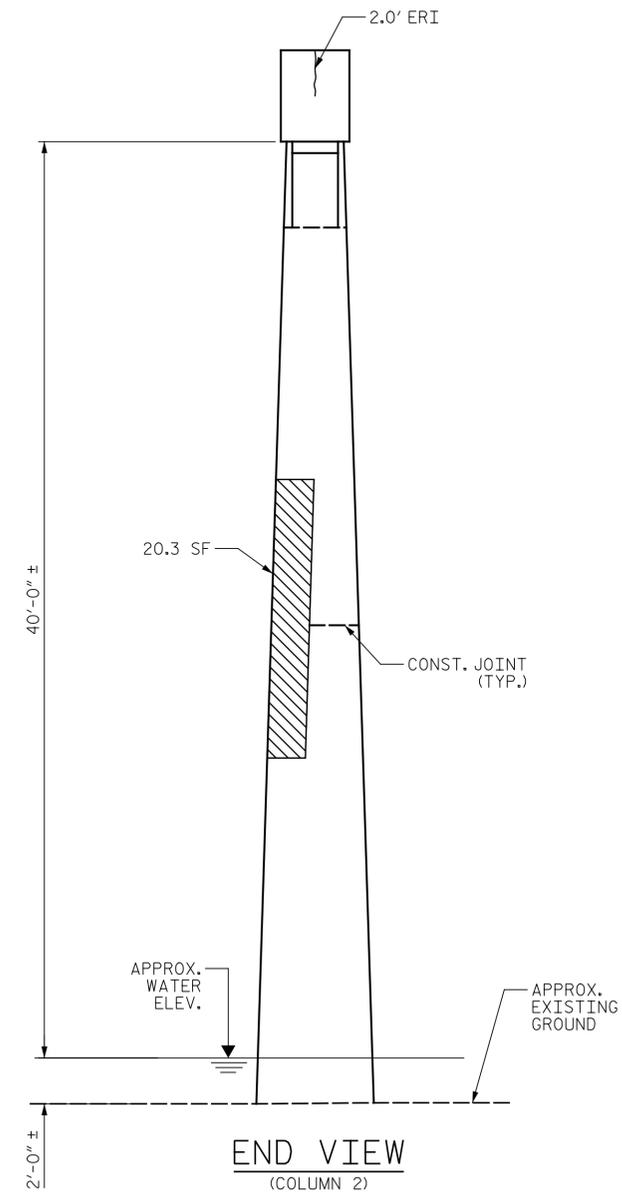
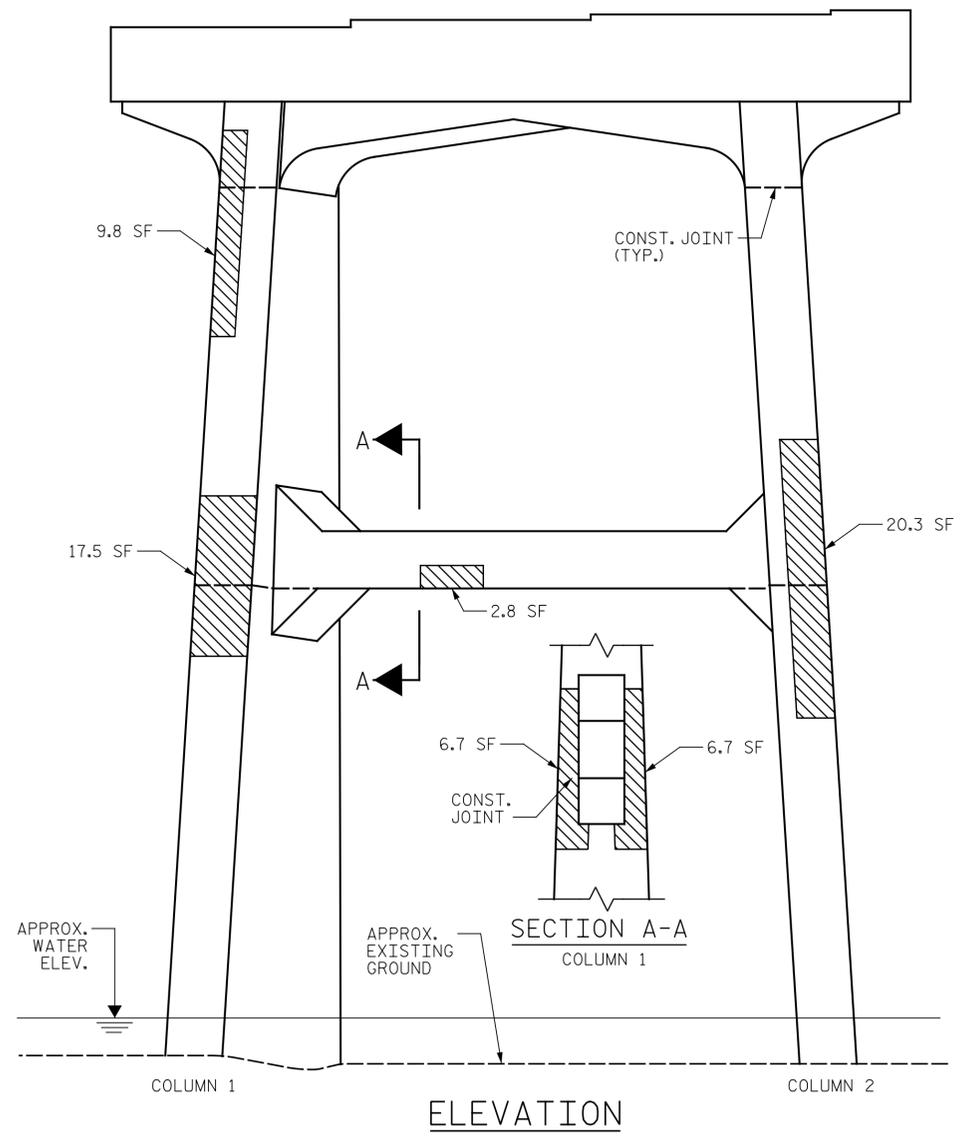
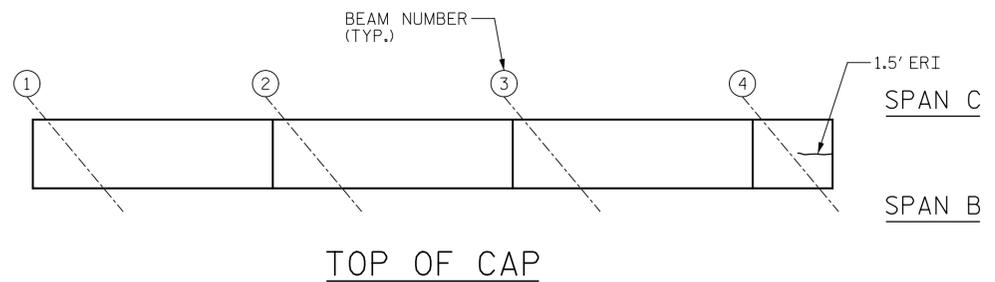


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DRAWN BY : J. HARRIS DATE : 6/2022  
 CHECKED BY : J. YANACCONO DATE : 6/2022

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| AS-BUILT REPAIR QUANTITY TABLE |            |           |           |          |           |
|--------------------------------|------------|-----------|-----------|----------|-----------|
| BENT 2 REPAIRS                 | QUANTITIES |           |           |          |           |
|                                | ESTIMATE   |           | ACTUAL    |          |           |
| SHOTCRETE REPAIRS              | AREA SF    | VOLUME CF | AREA SF   | DEPTH FT | VOLUME CF |
| CAP                            | 0.0        | 0.0       |           |          |           |
| COLUMN                         | 147.8      | 73.9      |           |          |           |
| STRUT                          | 7.4        | 3.7       |           |          |           |
| CONCRETE REPAIRS               | 0.0        | 0.0       |           |          |           |
| EPOXY RESIN INJECTION          |            | LENGTH LF | LENGTH LF |          |           |
| CAP                            |            | 3.5       |           |          |           |
| COLUMN                         |            | 0.0       |           |          |           |
| STRUT                          |            | 0.0       |           |          |           |
| EPOXY COATING                  |            | SQ. FT    | SQ. FT    |          |           |
| TOP OF BENT CAP                |            | 103       |           |          |           |

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM OF 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

**NOTES:**  
 REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE BASED ON THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ENTER THE ACTUAL QUANTITIES INTO THE AS-BUILT REPAIR QUANTITY TABLE.

FOR REPAIRS, SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.  
 FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.  
 FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.  
 SHOTCRETE REPAIRS MAY BE REPLACED WITH CONCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

CONTRACTOR SHALL SAW CUT TO A MINIMUM DEPTH OF 1/2" BUT REINFORCING STEEL SHALL NOT BE DAMAGED. CONTRACTOR SHALL REMOVE SURFACE CONCRETE TO VERIFY THAT SAW CUT DEPTH WILL NOT DAMAGE EXISTING REINFORCING STEEL.

CONTRACTOR SHALL SAW CUT THE REPAIR AREAS SO THAT THE CORNERS ARE SQUARE AS INDICATED ON THE DETAILS.

CLEAN AND REMOVE DEBRIS FROM THE TOP OF THE CAP AND APPLY EPOXY PROTECTIVE COATING. EPOXY COATING SHALL BE APPLIED TO THE TOP SURFACE OF THE CAP. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAP BENEATH THE MASONRY PLATES. FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.  
 WHEN COLUMN REPAIRS ARE INDICATED TO GROUND LINE, EXTEND REPAIR ONE (1) FOOT MIN. BELOW GROUND LINE.

- SHOTCRETE REPAIR
- CONCRETE REPAIR (FORM & POUR)
- ERI - EPOXY RESIN INJECTION

PROJECT NO. I-5889B  
BUNCOMBE COUNTY  
 BRIDGE NO. 100356

SHEET 1 OF 2



DocuSigned by:  
 Eric B. Nelson  
 7/25/2022

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

BENT 2  
 SPAN B SIDE

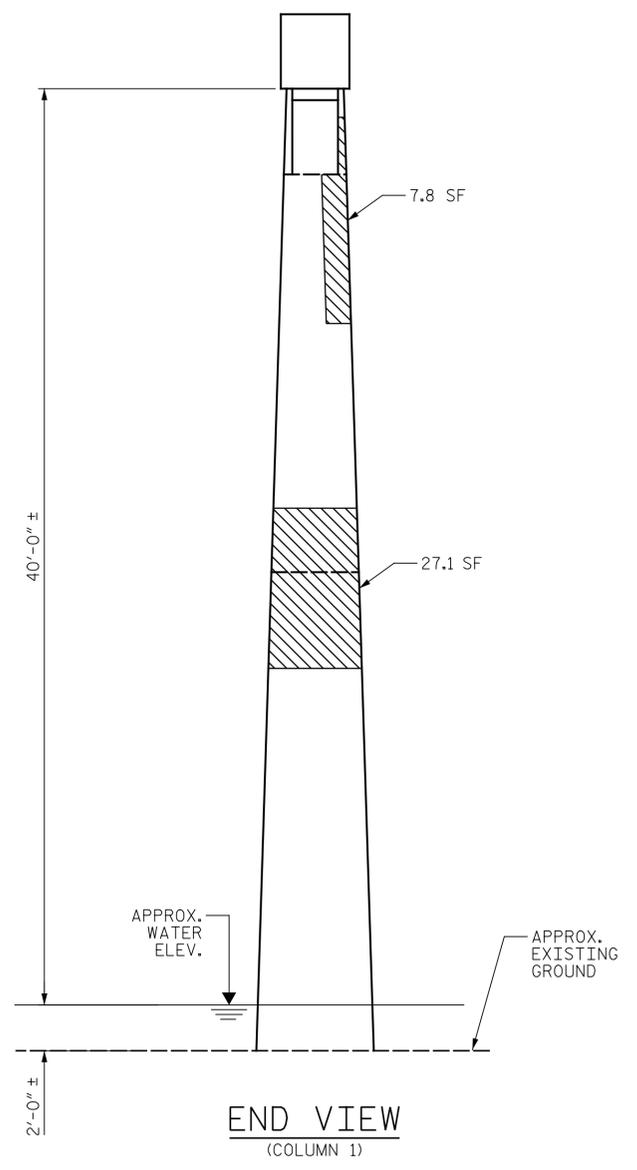
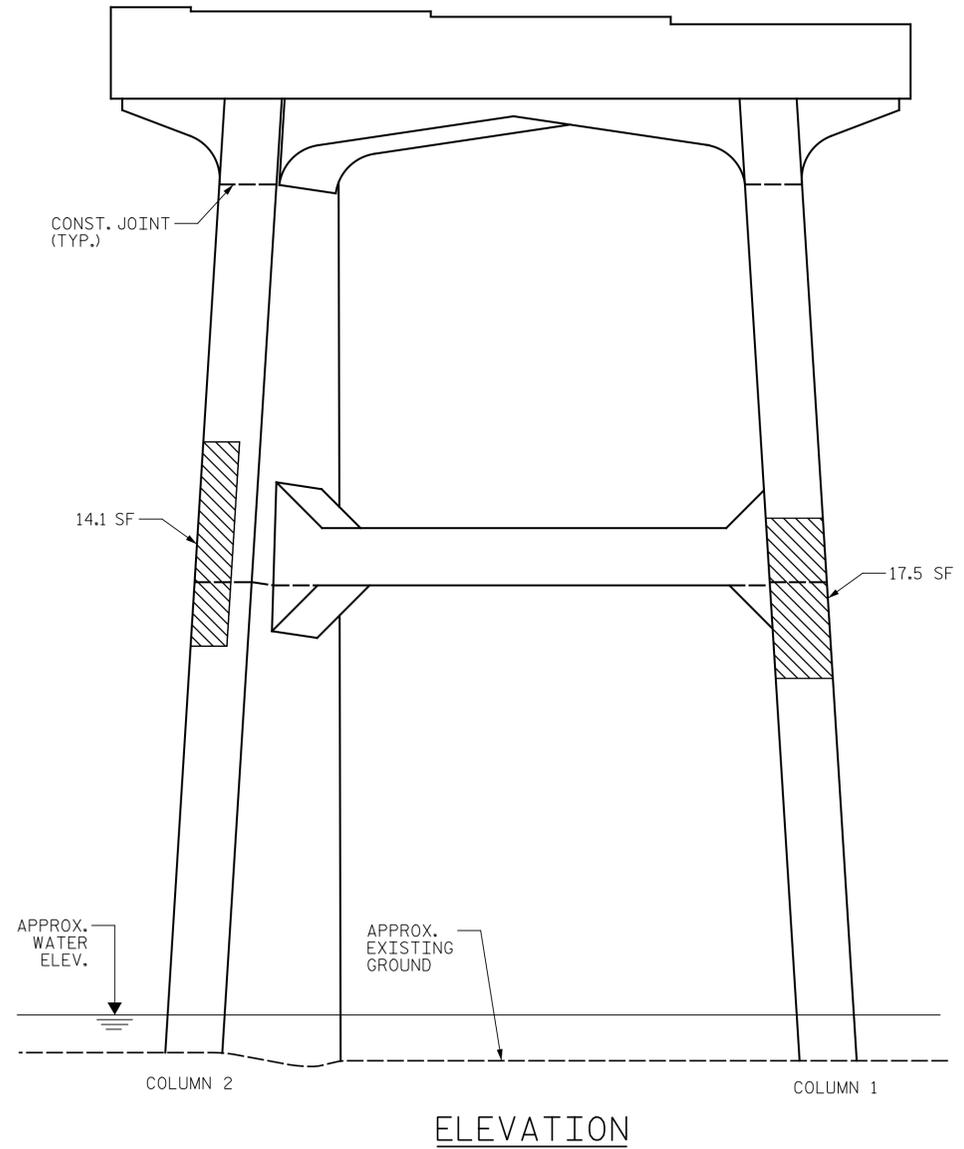
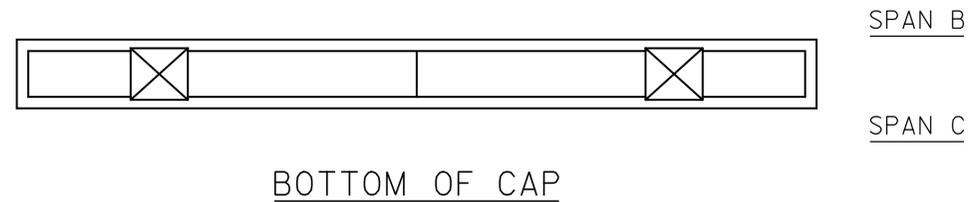
DRAWN BY: J. HARRIS DATE: 6/2022  
 CHECKED BY: J. YANACCONO DATE: 6/2022



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**NOTES:**

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE BASED ON THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ENTER THE ACTUAL QUANTITIES INTO THE AS-BUILT REPAIR QUANTITY TABLE.

FOR REPAIRS, SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

SHOTCRETE REPAIRS MAY BE REPLACED WITH CONCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

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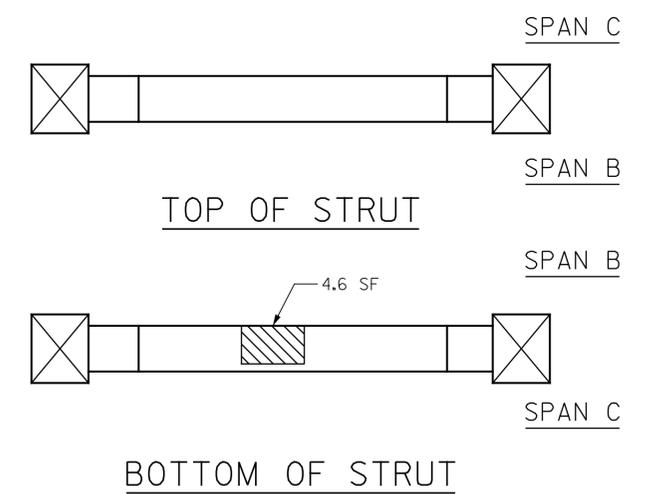
CONTRACTOR SHALL SAW CUT THE REPAIR AREAS SO THAT THE CORNERS ARE SQUARE AS INDICATED ON THE DETAILS.

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FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

WHEN COLUMN REPAIRS ARE INDICATED TO GROUND LINE, EXTEND REPAIR ONE (1) FOOT MIN. BELOW GROUND LINE.

- SHOTCRETE REPAIR
- CONCRETE REPAIR (FORM & POUR)
- ERI - EPOXY RESIN INJECTION



PROJECT NO. I-5889B

BUNCOMBE COUNTY

BRIDGE NO. 100356

SHEET 2 OF 2



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

BENT 2  
 SPAN C SIDE

DRAWN BY : J. HARRIS DATE : 6/2022

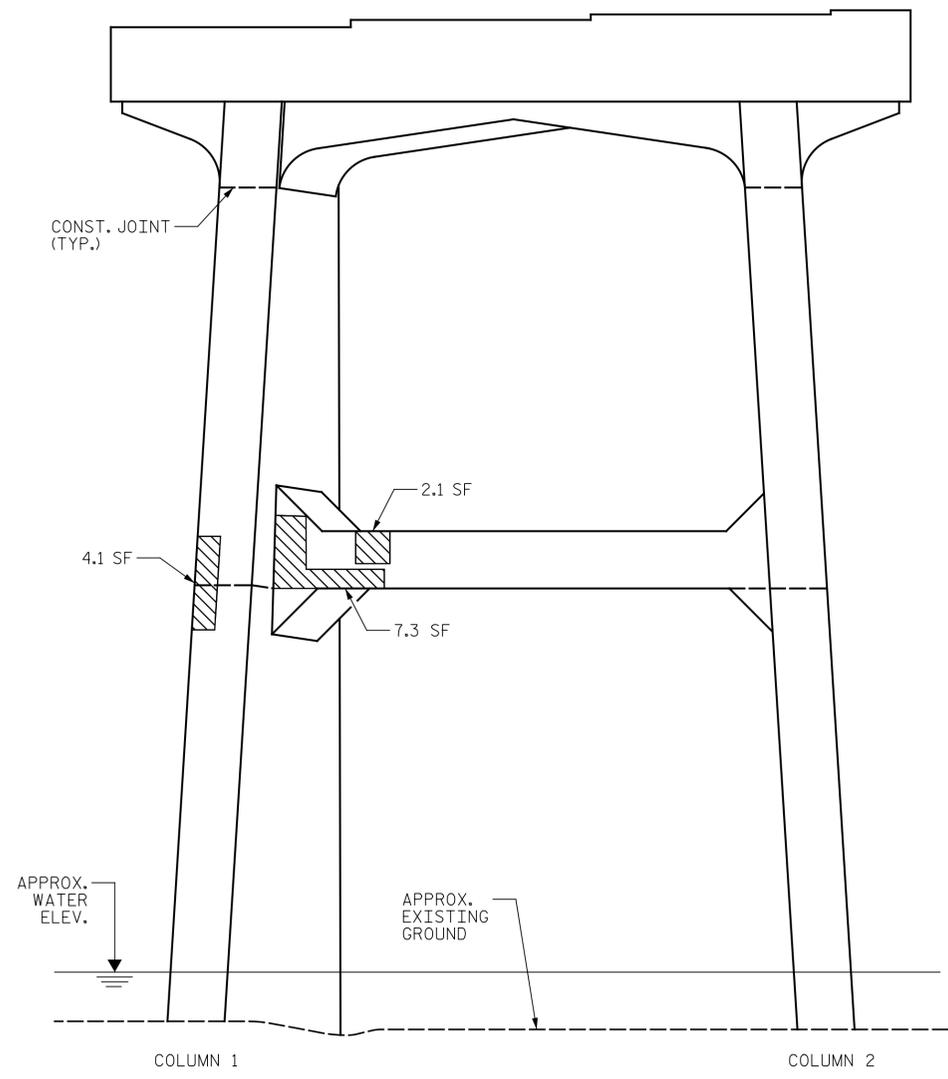
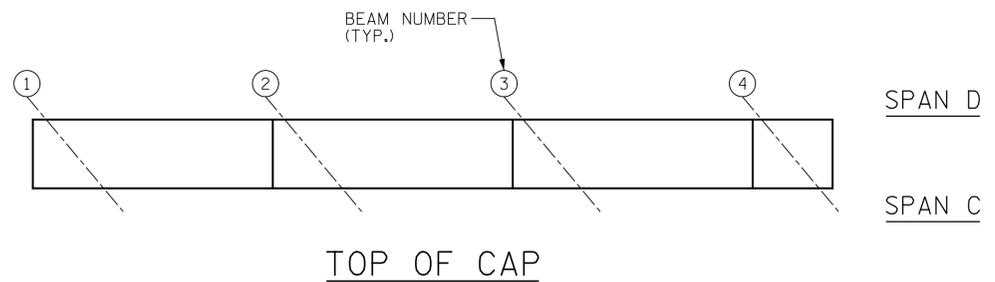
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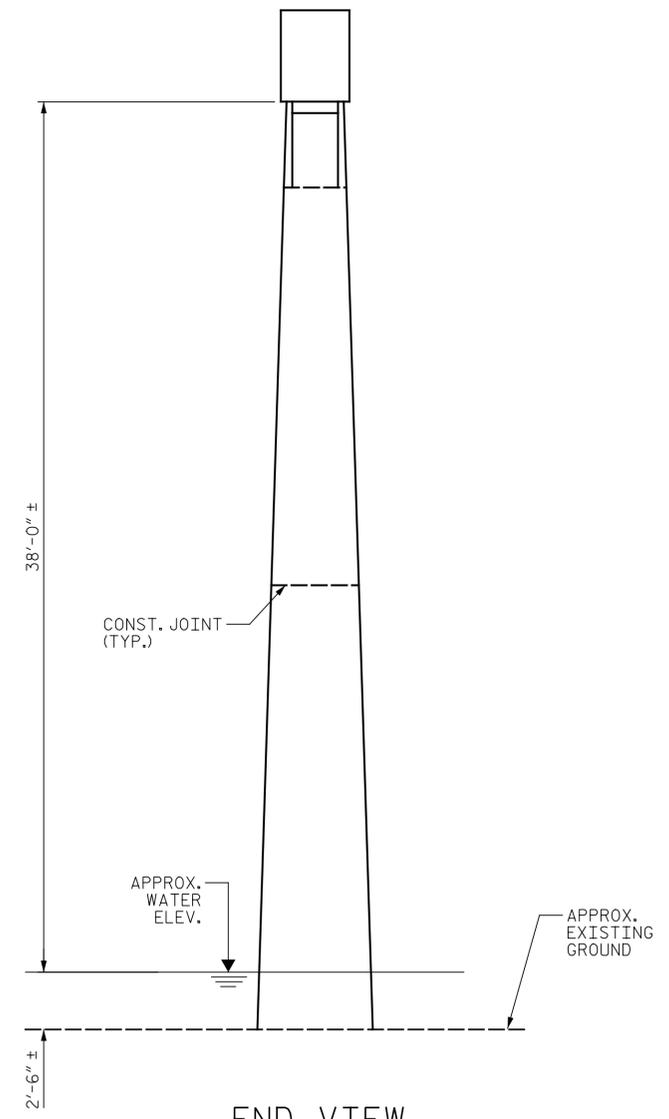
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ELEVATION



END VIEW  
(COLUMN 2)

| AS-BUILT REPAIR QUANTITY TABLE |            |           |           |          |           |
|--------------------------------|------------|-----------|-----------|----------|-----------|
| BENT 3 REPAIRS                 | QUANTITIES |           |           |          |           |
|                                | ESTIMATE   |           | ACTUAL    |          |           |
| SHOTCRETE REPAIRS              | AREA SF    | VOLUME CF | AREA SF   | DEPTH FT | VOLUME CF |
| CAP                            | 0.0        | 0.0       |           |          |           |
| COLUMN                         | 23.2       | 11.6      |           |          |           |
| STRUT                          | 38.9       | 19.5      |           |          |           |
| CONCRETE REPAIRS               | 0.0        | 0.0       |           |          |           |
| EPOXY RESIN INJECTION          |            | LENGTH LF | LENGTH LF |          |           |
| CAP                            |            | 0.0       |           |          |           |
| COLUMN                         |            | 0.0       |           |          |           |
| STRUT                          |            | 0.0       |           |          |           |
| EPOXY COATING                  |            | SQ. FT    | SQ. FT    |          |           |
| TOP OF BENT CAP                |            | 103       |           |          |           |

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM OF 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

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REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE BASED ON THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ENTER THE ACTUAL QUANTITIES INTO THE AS-BUILT REPAIR QUANTITY TABLE.

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- SHOTCRETE REPAIR
- CONCRETE REPAIR (FORM & POUR)
- ERI - EPOXY RESIN INJECTION

PROJECT NO. I-5889B  
BUNCOMBE COUNTY  
 BRIDGE NO. 100356

SHEET 1 OF 2



DocuSigned by:  
 Eric B. Nelson  
 7/25/2022  
 ACB8892118074CD

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

BENT 3  
 SPAN C SIDE

DRAWN BY : J. HARRIS DATE : 6/2022  
 CHECKED BY : J. YANACCONE DATE : 6/2022

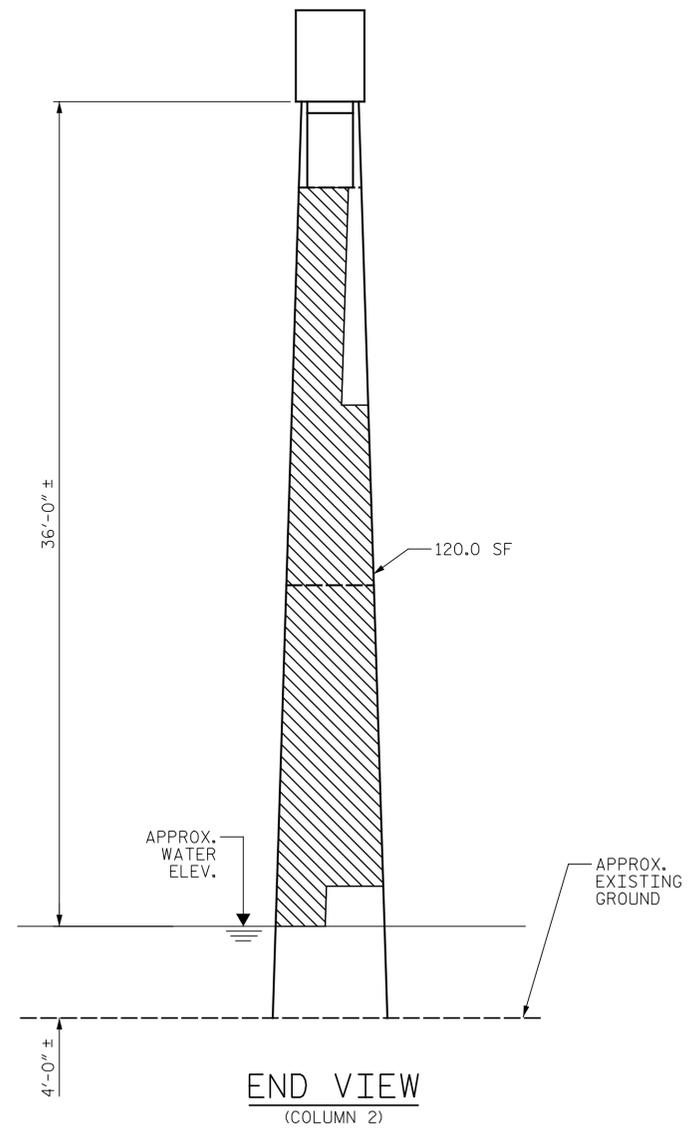
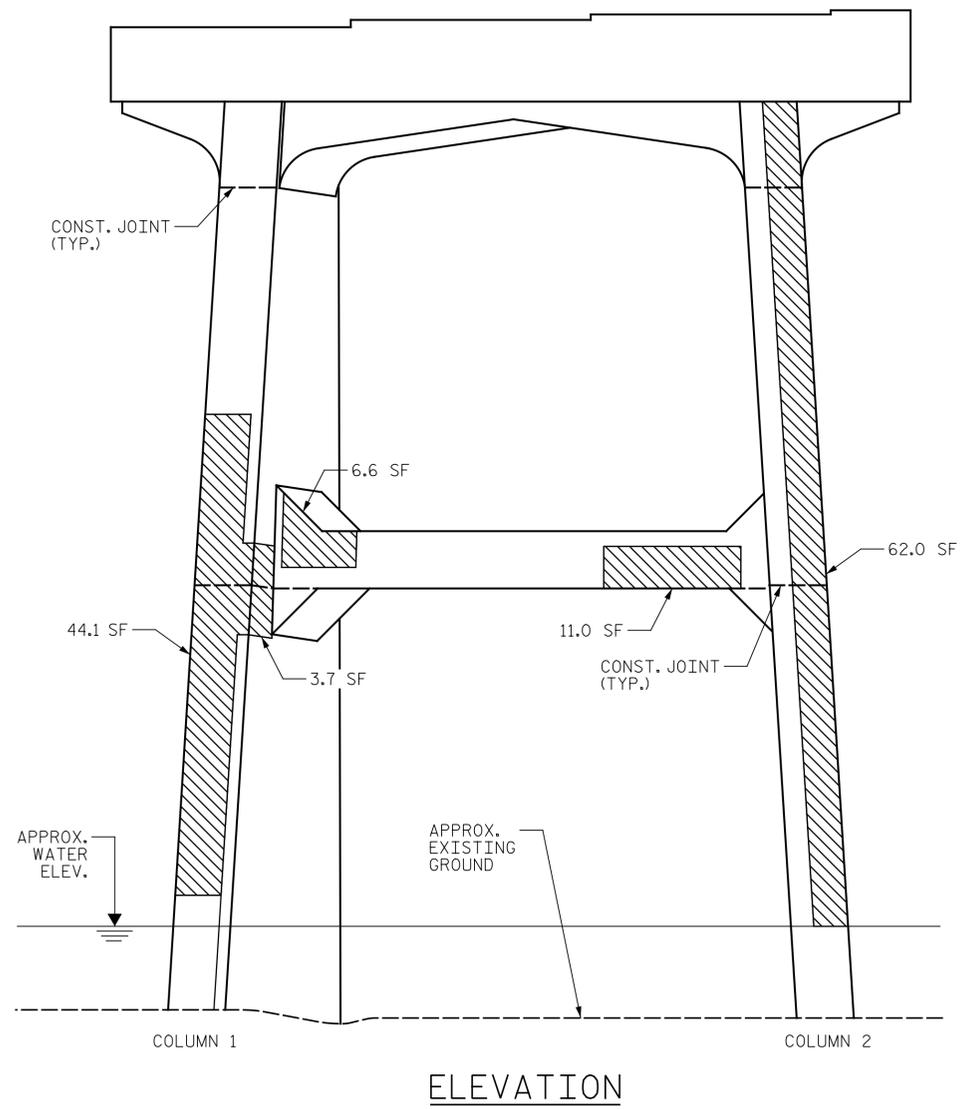
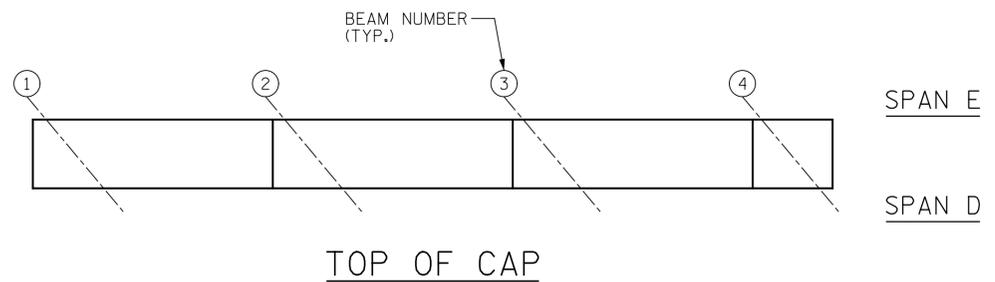


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| AS-BUILT REPAIR QUANTITY TABLE |            |           |           |          |           |
|--------------------------------|------------|-----------|-----------|----------|-----------|
| BENT 4 REPAIRS                 | QUANTITIES |           |           |          |           |
|                                | ESTIMATE   |           | ACTUAL    |          |           |
| SHOTCRETE REPAIRS              | AREA SF    | VOLUME CF | AREA SF   | DEPTH FT | VOLUME CF |
| CAP                            | 0.0        | 0.0       |           |          |           |
| COLUMN                         | 421.1      | 210.6     |           |          |           |
| STRUT                          | 36.1       | 18.1      |           |          |           |
| CONCRETE REPAIRS               | 0.0        | 0.0       |           |          |           |
| EPOXY RESIN INJECTION          |            | LENGTH LF | LENGTH LF |          |           |
| CAP                            |            | 0.0       |           |          |           |
| COLUMN                         |            | 0.0       |           |          |           |
| STRUT                          |            | 0.0       |           |          |           |
| EPOXY COATING                  |            | SQ. FT    | SQ. FT    |          |           |
| TOP OF BENT CAP                |            | 103       |           |          |           |

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM OF 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

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FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.  
 WHEN COLUMN REPAIRS ARE INDICATED TO GROUND LINE, EXTEND REPAIR ONE (1) FOOT MIN. BELOW GROUND LINE.

- SHOTCRETE REPAIR
- CONCRETE REPAIR (FORM & POUR)
- ERI - EPOXY RESIN INJECTION

PROJECT NO. I-5889B  
BUNCOMBE COUNTY  
 BRIDGE NO. 100356

SHEET 1 OF 2

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

BENT 4  
 SPAN D SIDE



DocuSigned by:  
*Eric B. Nelson* 7/25/2022  
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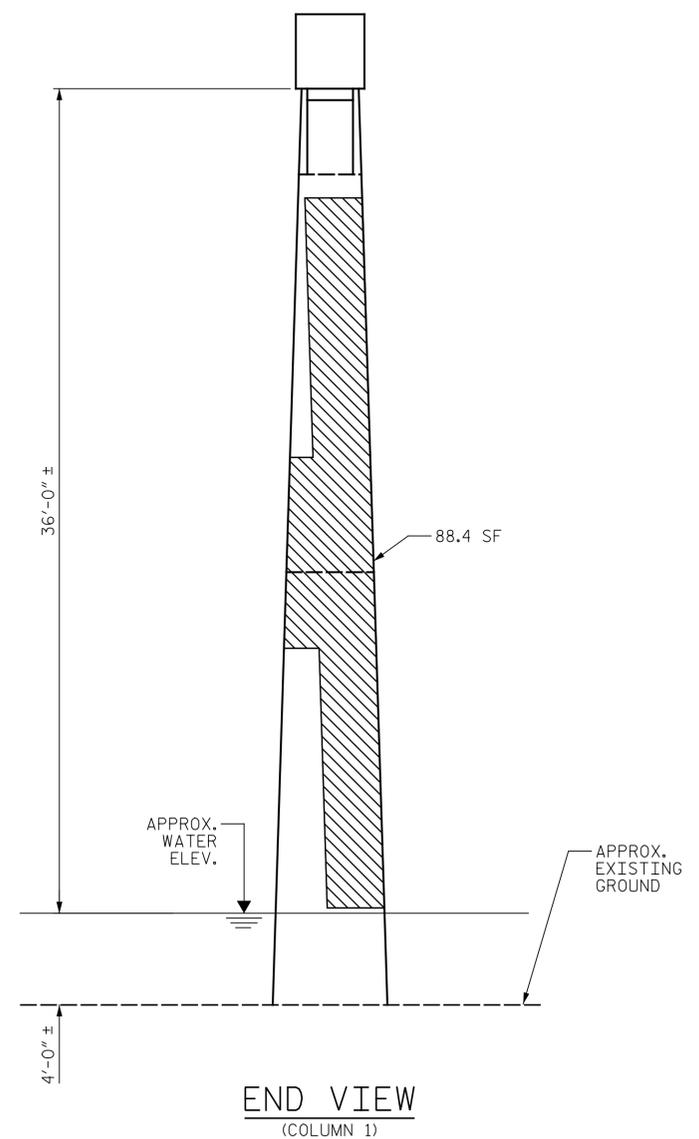
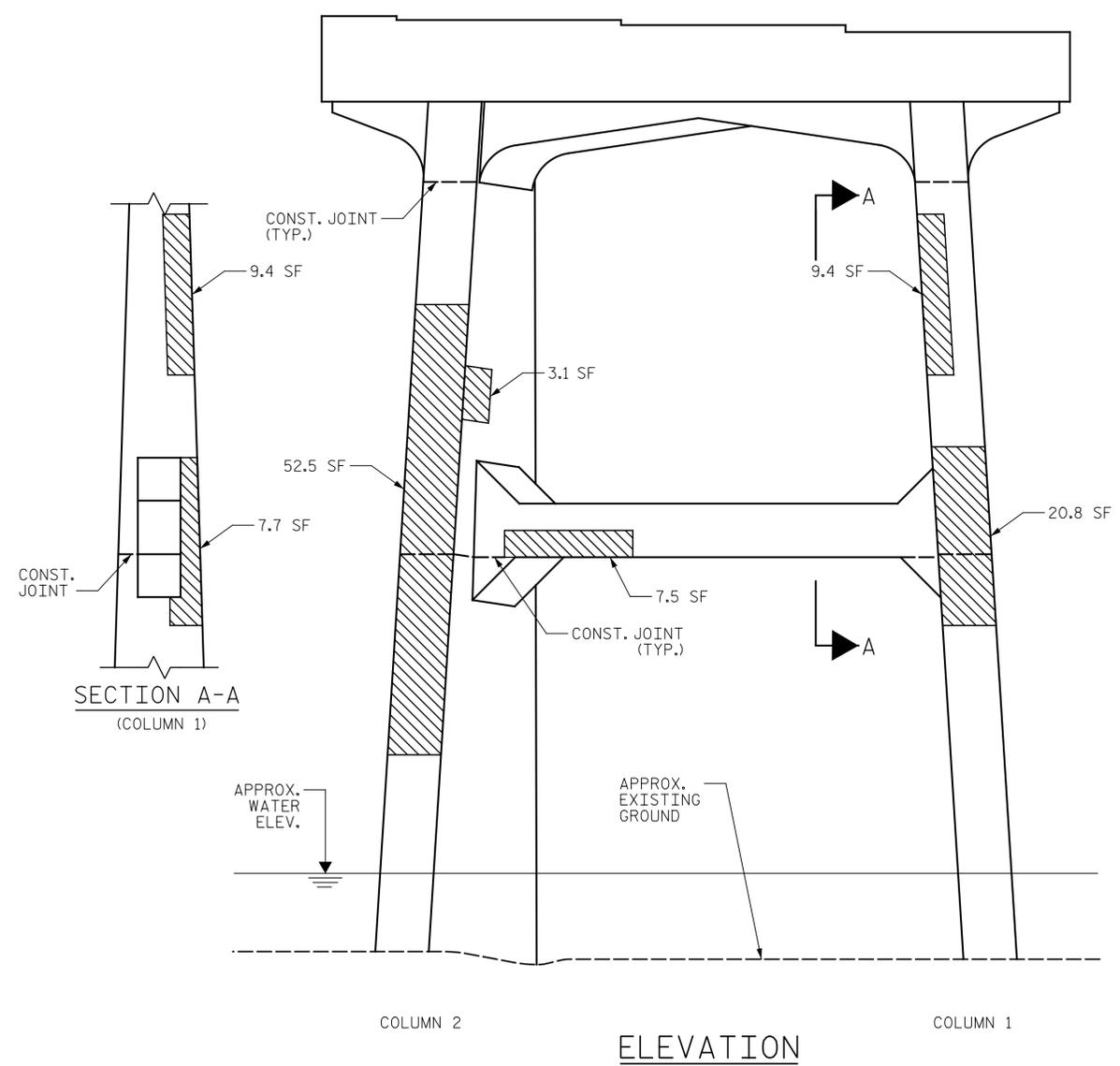
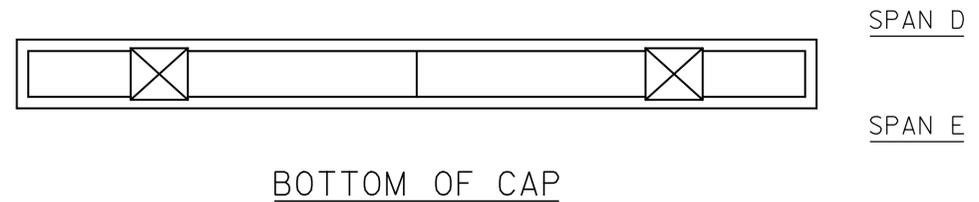


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DRAWN BY: J. HARRIS DATE: 6/2022  
 CHECKED BY: J. YANNACCONE DATE: 6/2022

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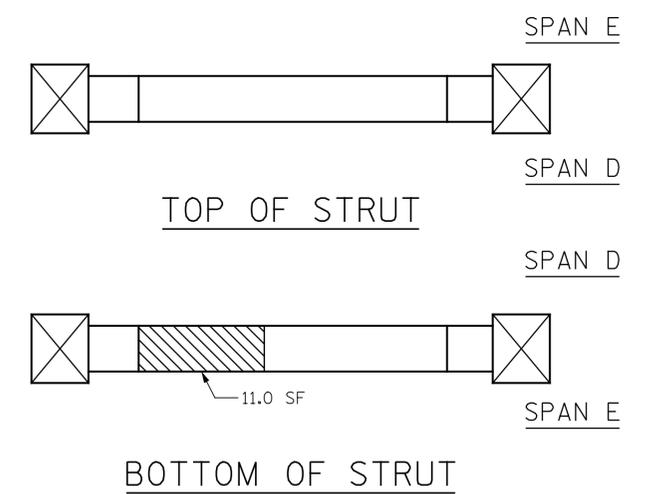
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- SHOTCRETE REPAIR
- CONCRETE REPAIR (FORM & POUR)
- ERI - EPOXY RESIN INJECTION



PROJECT NO. I-5889B  
BUNCOMBE COUNTY  
 BRIDGE NO. 100356

SHEET 2 OF 2



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**BENT 4**  
**SPAN E SIDE**

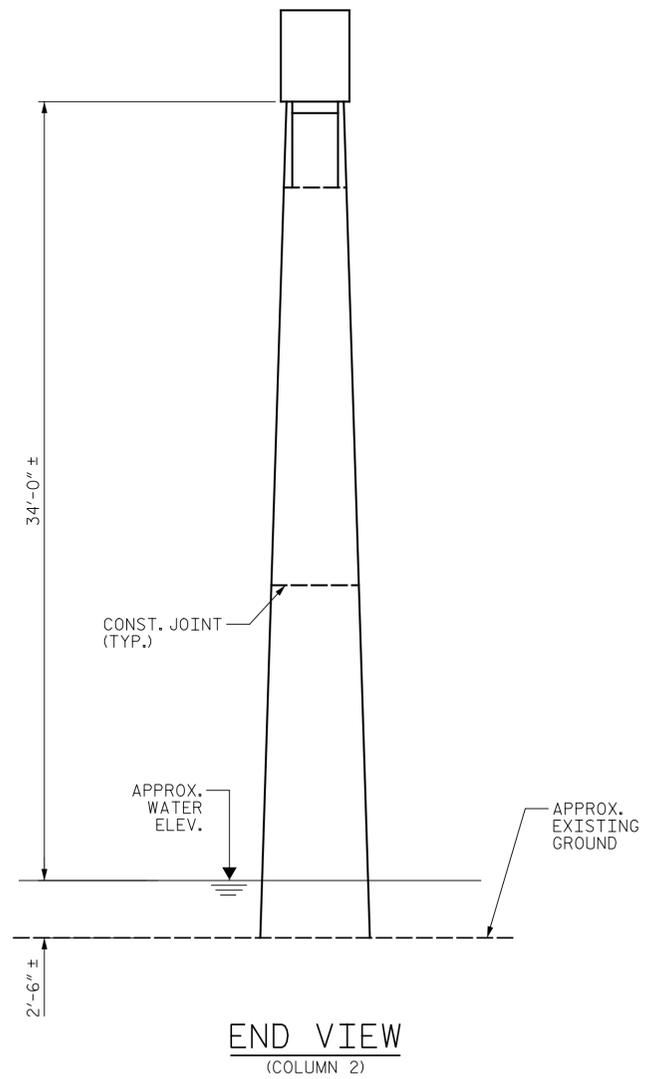
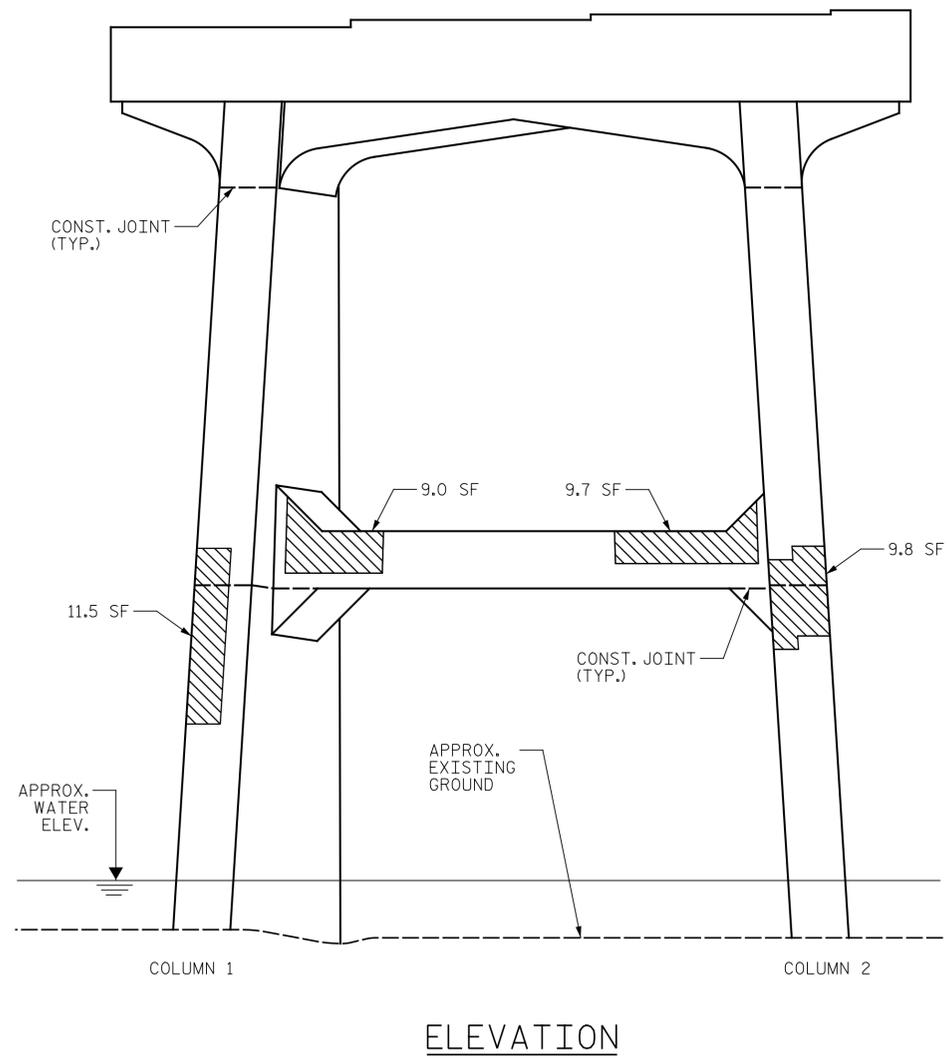
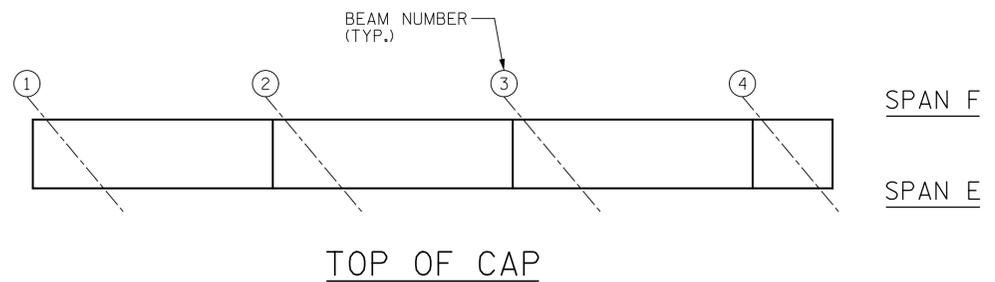
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| AS-BUILT REPAIR QUANTITY TABLE |            |           |           |          |           |
|--------------------------------|------------|-----------|-----------|----------|-----------|
| BENT 5 REPAIRS                 | QUANTITIES |           |           |          |           |
|                                | ESTIMATE   |           | ACTUAL    |          |           |
| SHOTCRETE REPAIRS              | AREA SF    | VOLUME CF | AREA SF   | DEPTH FT | VOLUME CF |
| CAP                            | 0.0        | 0.0       |           |          |           |
| COLUMN                         | 54.2       | 27.1      |           |          |           |
| STRUT                          | 36.3       | 18.2      |           |          |           |
| CONCRETE REPAIRS               | 0.0        | 0.0       |           |          |           |
| EPOXY RESIN INJECTION          |            | LENGTH LF | LENGTH LF |          |           |
| CAP                            |            | 0.0       |           |          |           |
| COLUMN                         |            | 0.0       |           |          |           |
| STRUT                          |            | 0.0       |           |          |           |
| EPOXY COATING                  |            | SQ. FT    | SQ. FT    |          |           |
| TOP OF BENT CAP                |            | 103       |           |          |           |

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM OF 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

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PROJECT NO. I-5889B  
BUNCOMBE COUNTY  
 BRIDGE NO. 100356

SHEET 1 OF 2

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

BENT 5  
 SPAN E SIDE

| REVISIONS |     |       |     |     |       | SHEET NO.    |
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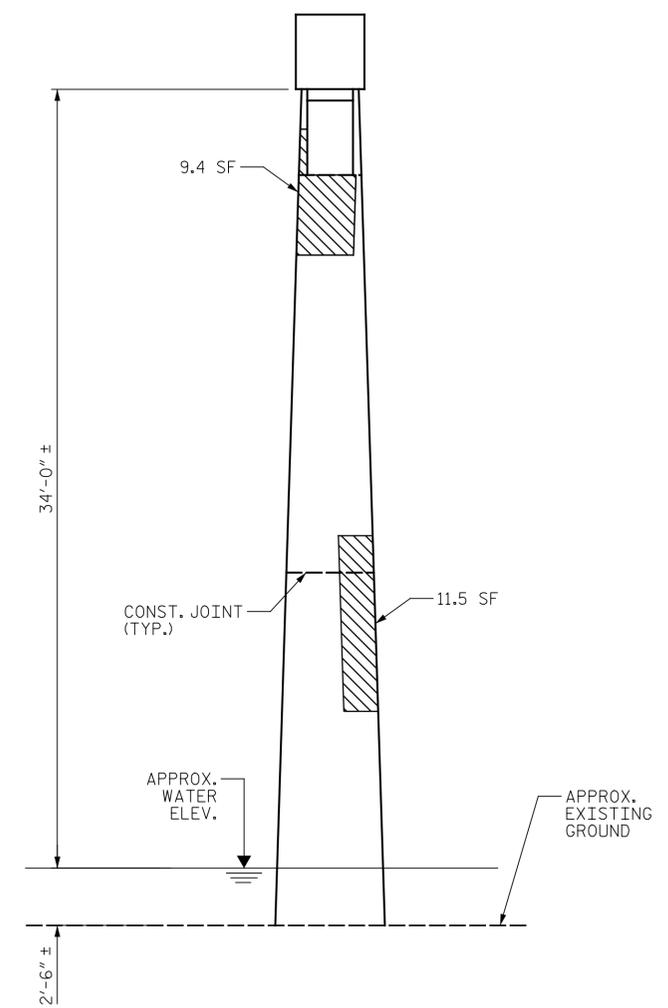
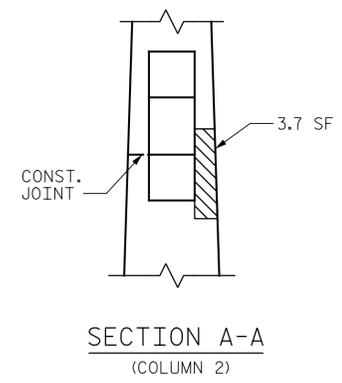
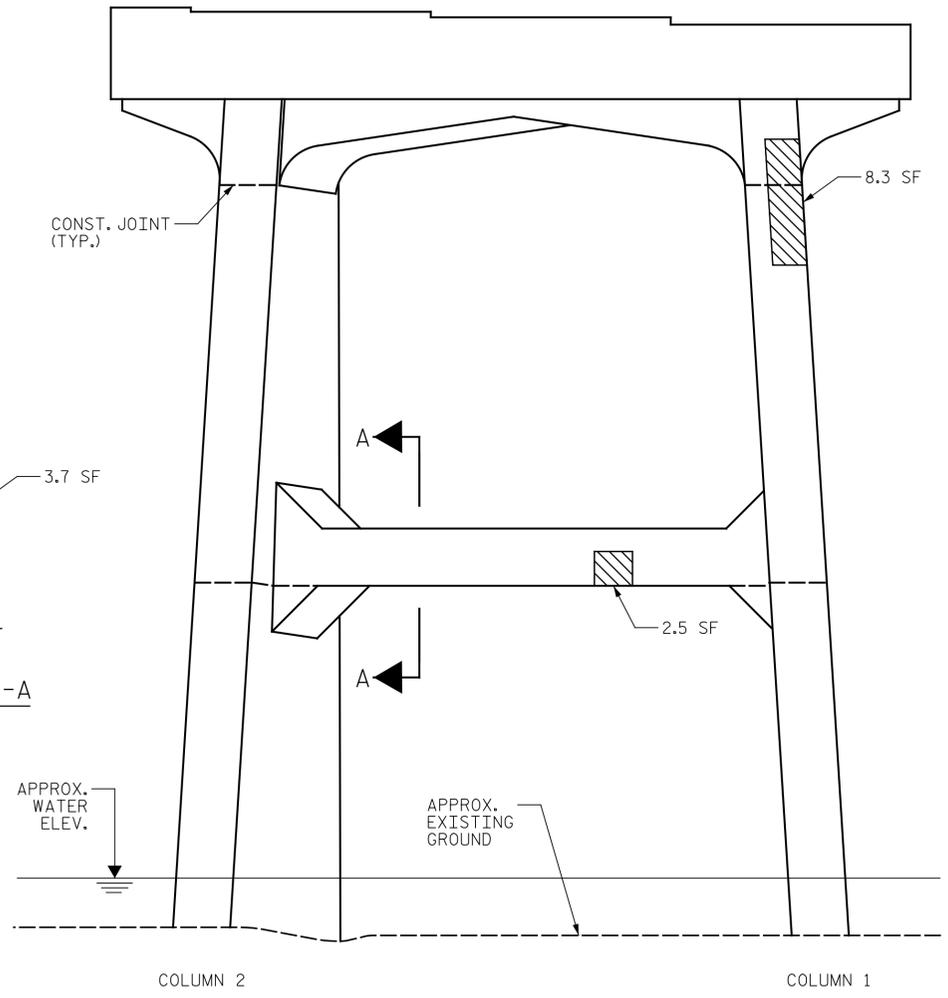
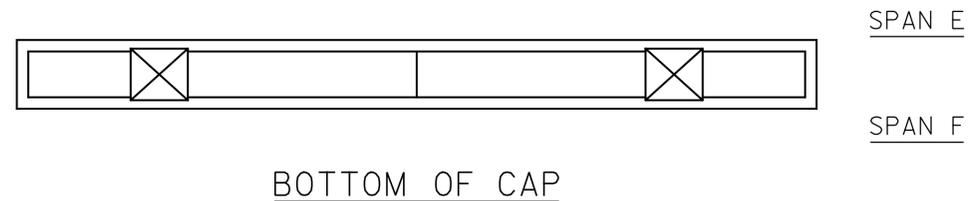
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 Eric B. Nelson  
 7/25/2022



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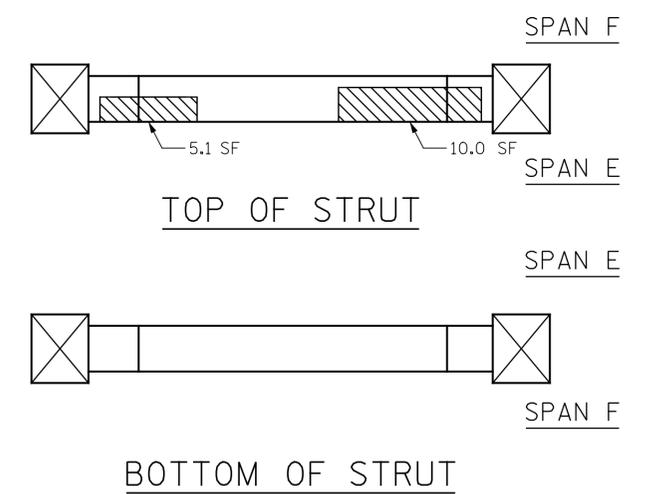
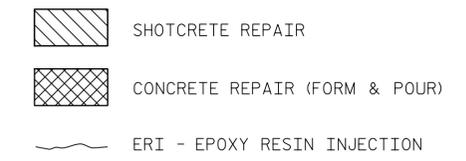
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FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

WHEN COLUMN REPAIRS ARE INDICATED TO GROUND LINE, EXTEND REPAIR ONE (1) FOOT MIN. BELOW GROUND LINE.



PROJECT NO. I-5889B  
BUNCOMBE COUNTY  
 BRIDGE NO. 100356

SHEET 2 OF 2

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

BENT 5  
SPAN F SIDE

| REVISIONS |     |       |     |     |       | SHEET NO.    |
|-----------|-----|-------|-----|-----|-------|--------------|
| NO.       | BY: | DATE: | NO. | BY: | DATE: | S6-23        |
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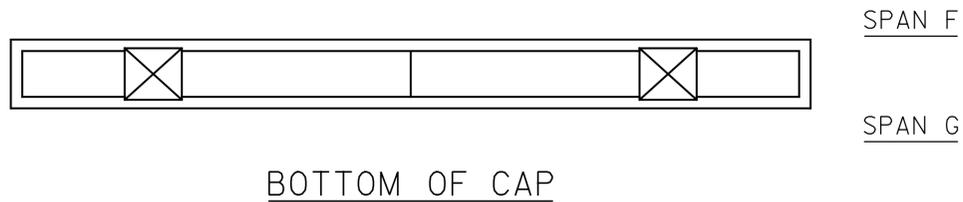


DRAWN BY : J. HARRIS DATE : 6/2022  
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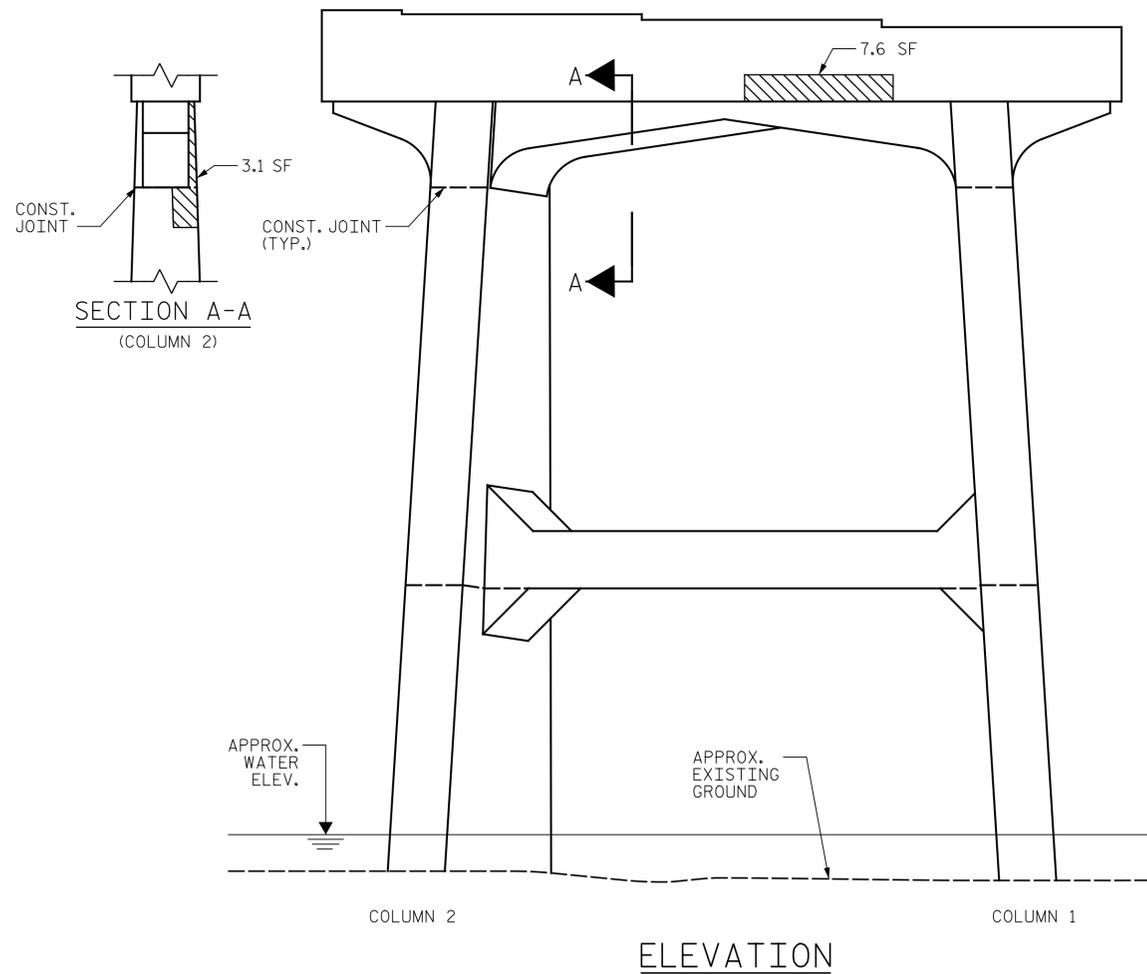
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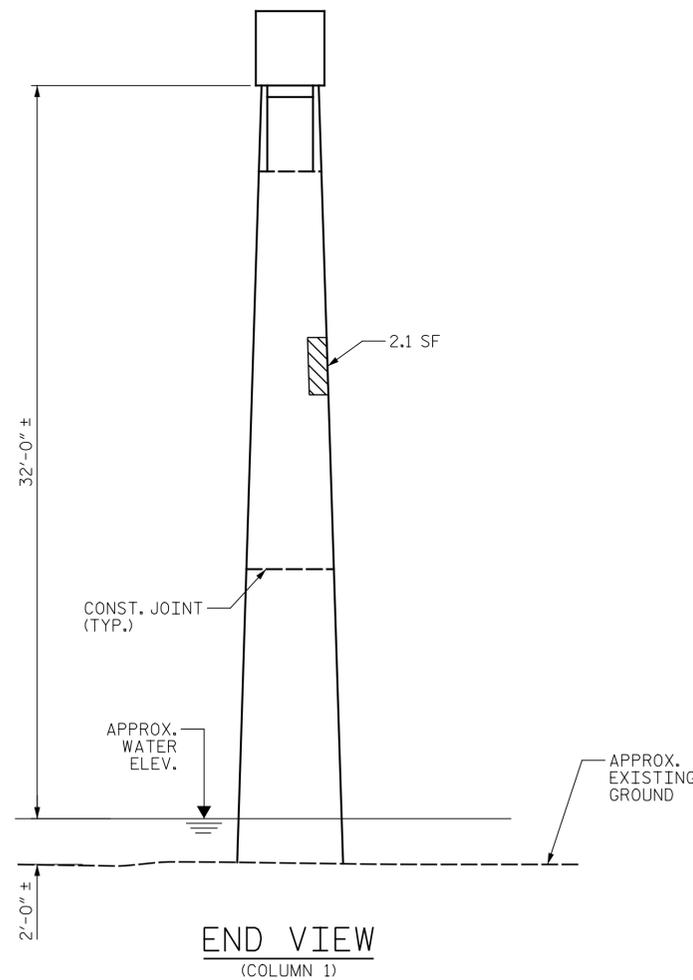
BOTTOM OF CAP

SPAN F

SPAN G



ELEVATION



END VIEW  
(COLUMN 1)

NOTES:

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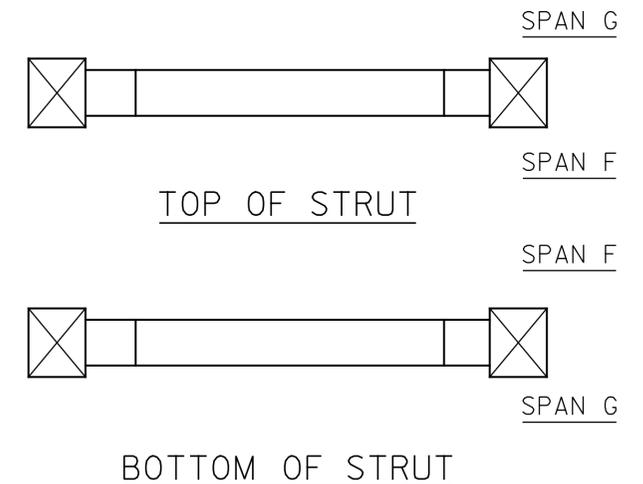
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- SHOTCRETE REPAIR
- CONCRETE REPAIR (FORM & POUR)
- ERI - EPOXY RESIN INJECTION



TOP OF STRUT

BOTTOM OF STRUT

PROJECT NO. I-5889B  
BUNCOMBE COUNTY  
 BRIDGE NO. 100356

SHEET 2 OF 2

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

BENT 6  
 SPAN G SIDE



DocuSigned by:  
 Eric B. Nelson 7/25/2022

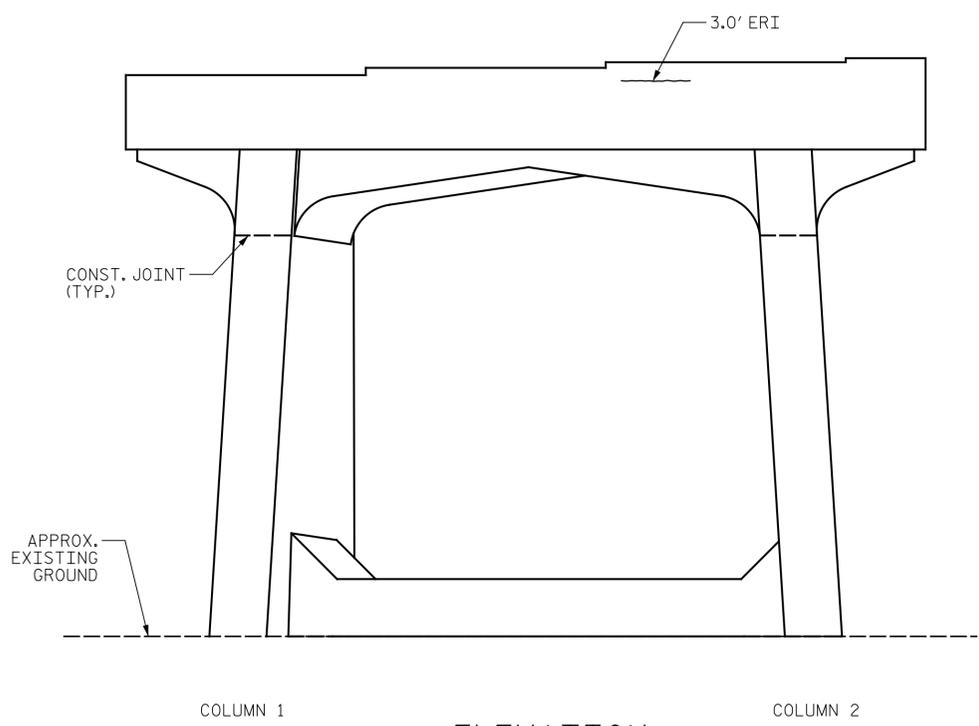
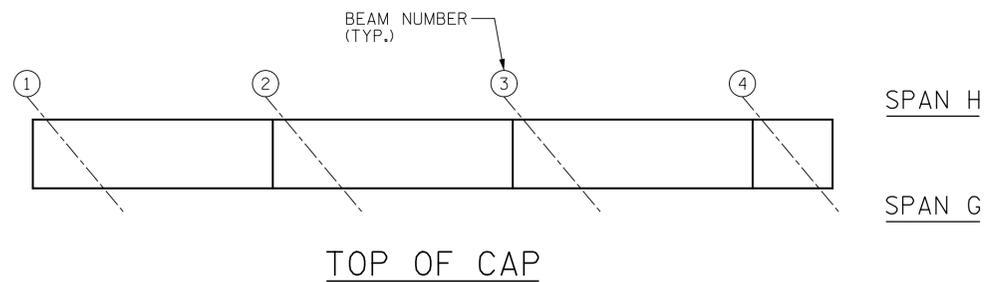


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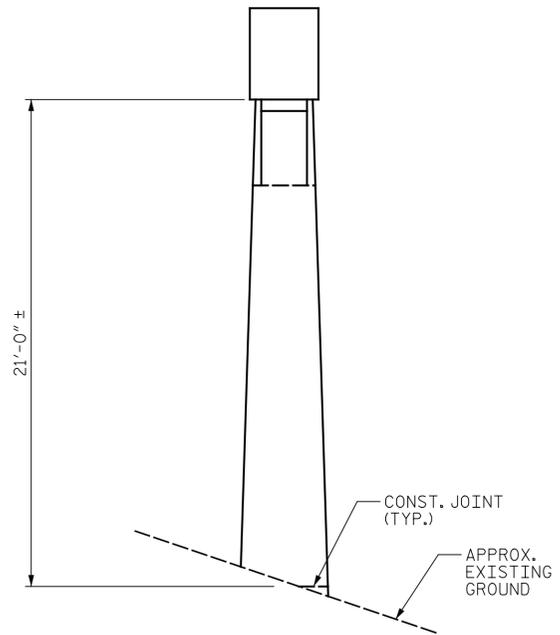
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DRAWN BY : J. HARRIS DATE : 6/2022  
 CHECKED BY : J. YANACCONO DATE : 6/2022

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ELEVATION



END VIEW  
(COLUMN 2)

| AS-BUILT REPAIR QUANTITY TABLE |            |           |           |          |           |
|--------------------------------|------------|-----------|-----------|----------|-----------|
| BENT 7 REPAIRS                 | QUANTITIES |           |           |          |           |
|                                | ESTIMATE   |           | ACTUAL    |          |           |
| SHOTCRETE REPAIRS              | AREA SF    | VOLUME CF | AREA SF   | DEPTH FT | VOLUME CF |
| CAP                            | 0.0        | 0.0       |           |          |           |
| COLUMN                         | 0.0        | 0.0       |           |          |           |
| STRUT                          | 0.0        | 0.0       |           |          |           |
| CONCRETE REPAIRS               | 0.0        | 0.0       |           |          |           |
| EPOXY RESIN INJECTION          |            | LENGTH LF | LENGTH LF |          |           |
| CAP                            |            | 3.0       |           |          |           |
| COLUMN                         |            | 0.0       |           |          |           |
| STRUT                          |            | 0.0       |           |          |           |
| EPOXY COATING                  |            | SQ. FT    | SQ. FT    |          |           |
| TOP OF BENT CAP                |            | 103       |           |          |           |

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM OF 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

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-  ERI - EPOXY RESIN INJECTION

PROJECT NO. I-5889B  
BUNCOMBE COUNTY  
BRIDGE NO. 100356

SHEET 1 OF 2



DocuSigned by:  
*Eric B. Nelson* 7/25/2022  
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STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

BENT 7  
SPAN G SIDE

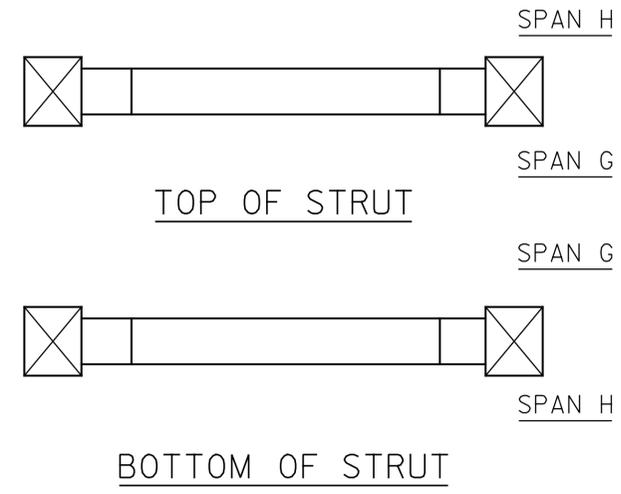
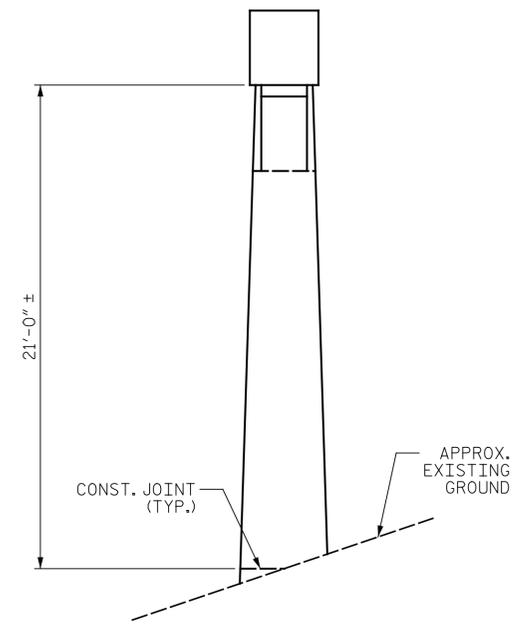
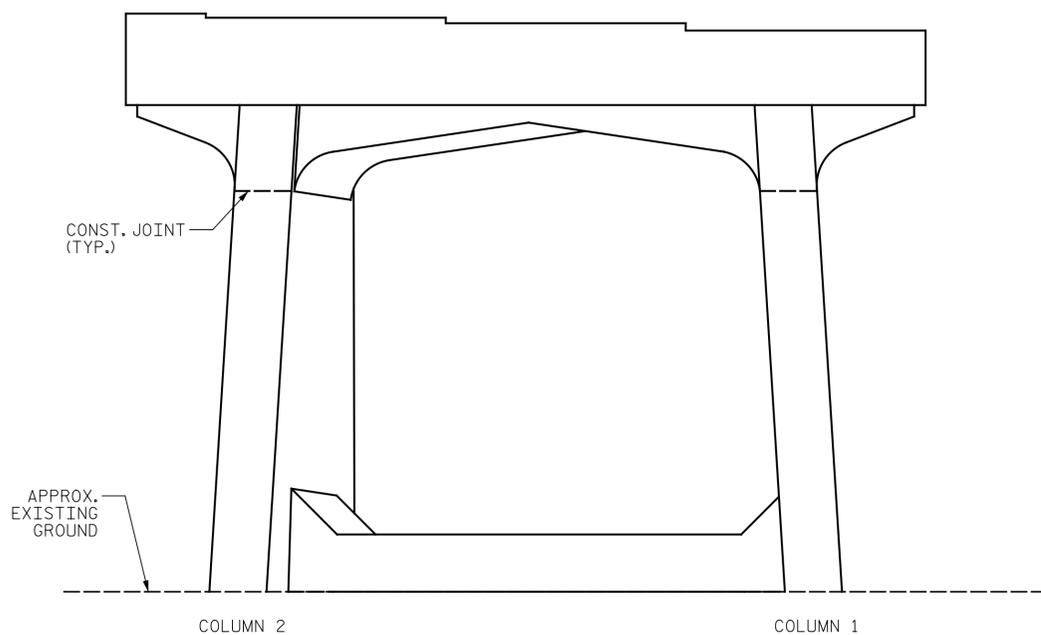
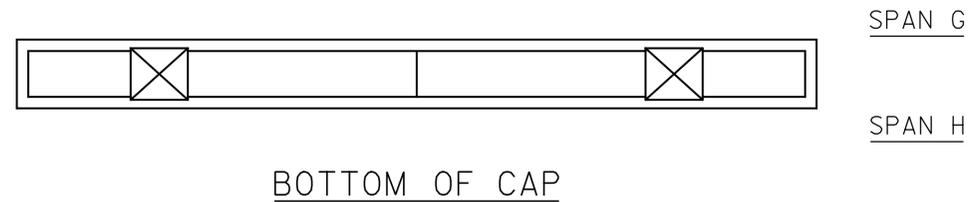
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CHECKED BY : J. YANACCONE DATE : 6/2022



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PROJECT NO. I-5889B  
BUNCOMBE COUNTY  
 BRIDGE NO. 100356

SHEET 2 OF 2

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

BENT 7  
SPAN H SIDE



DocuSigned by:  
*Eric B. Nelson* 7/25/2022  
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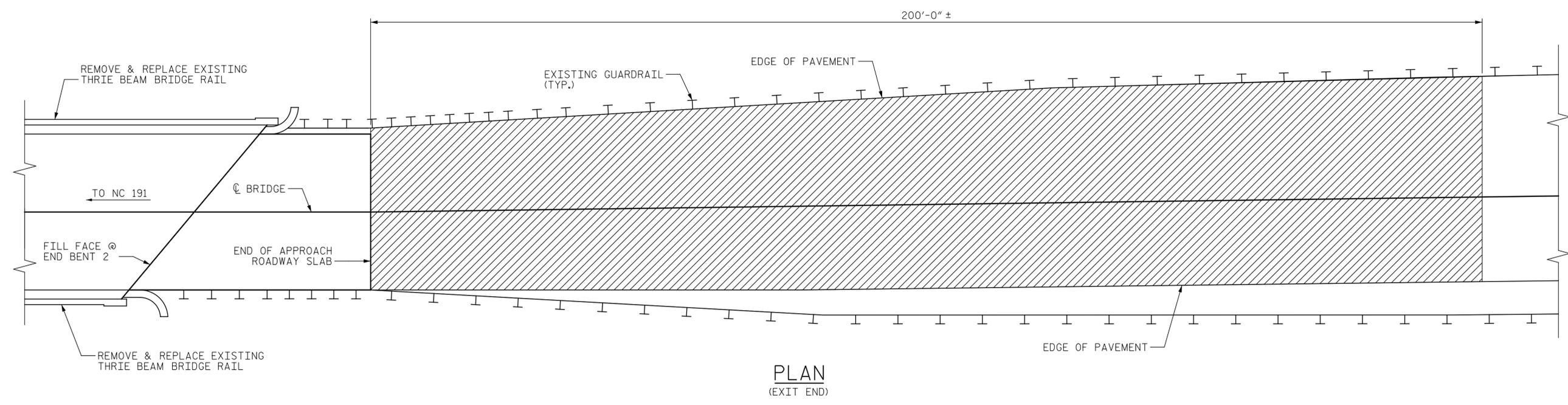


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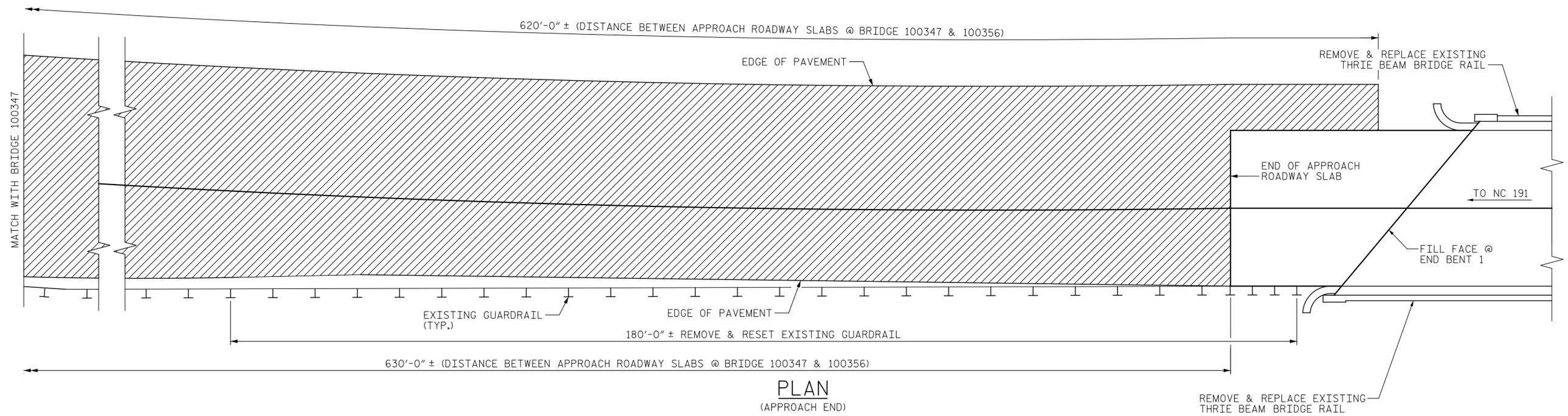
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PLAN  
(EXIT END)



PLAN  
(APPROACH END)

| SUMMARY OF QUANTITIES             |          |        |
|-----------------------------------|----------|--------|
| DESCRIPTION                       | ESTIMATE | ACTUAL |
| FINE MILLING                      | 2265 SY  |        |
| REMOVE & RESET EXISTING GUARDRAIL | 180 LF   |        |

**NOTES:**  
 FINE MILLING - EXISTING APPROACH ASPHALT PAVEMENT TO BE MILLED AS NECESSARY TO ATTAIN MINIMUM 1/2" DEPTH OF NEW ASPHALT PAVEMENT, NEW ASPHALT PAVEMENT SHALL BE OF THICKNESS NECESSARY TO CREATE A SMOOTH TRANSITION BETWEEN THE ROADWAY AND THE BRIDGE NECK, NEW ASPHALT PAVING THICKNESS MAY EXCEED 1/2" DUE TO THE SETTLEMENT OF THE EXISTING APPROACH.

FOR ADDITIONAL DETAILS ON ASPHALT SURFACE COURSE, REPLACEMENT OF GUARDRAIL AND EROSION CONTROL MEASURES, SEE ROADWAY PLANS.

FINE MILLING

PROJECT NO. I-5889B  
BUNCOMBE COUNTY  
 BRIDGE NO. 100356

SHEET 1 OF 2

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**APPROACH MILLING  
 AND TYPICAL ROADWAY  
 SECTIONS**



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 Eric B. Nelson 7/25/2022  
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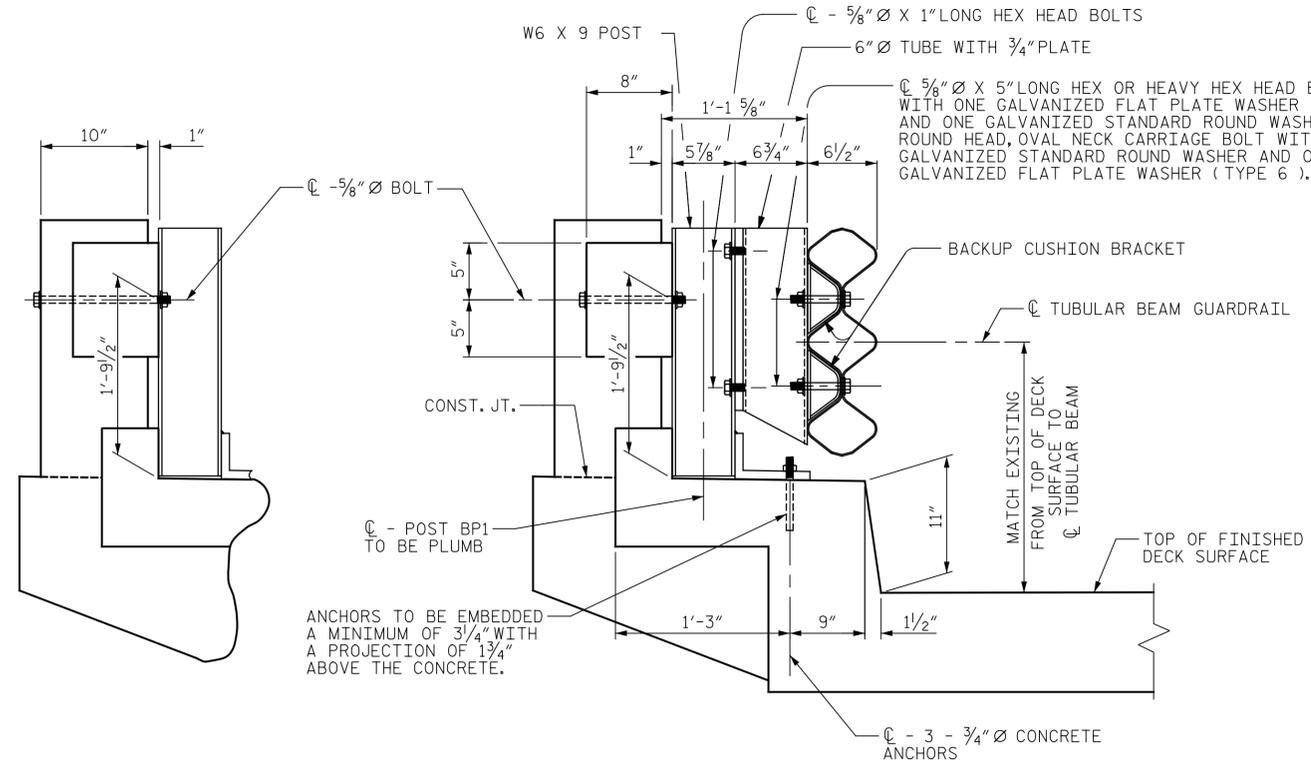
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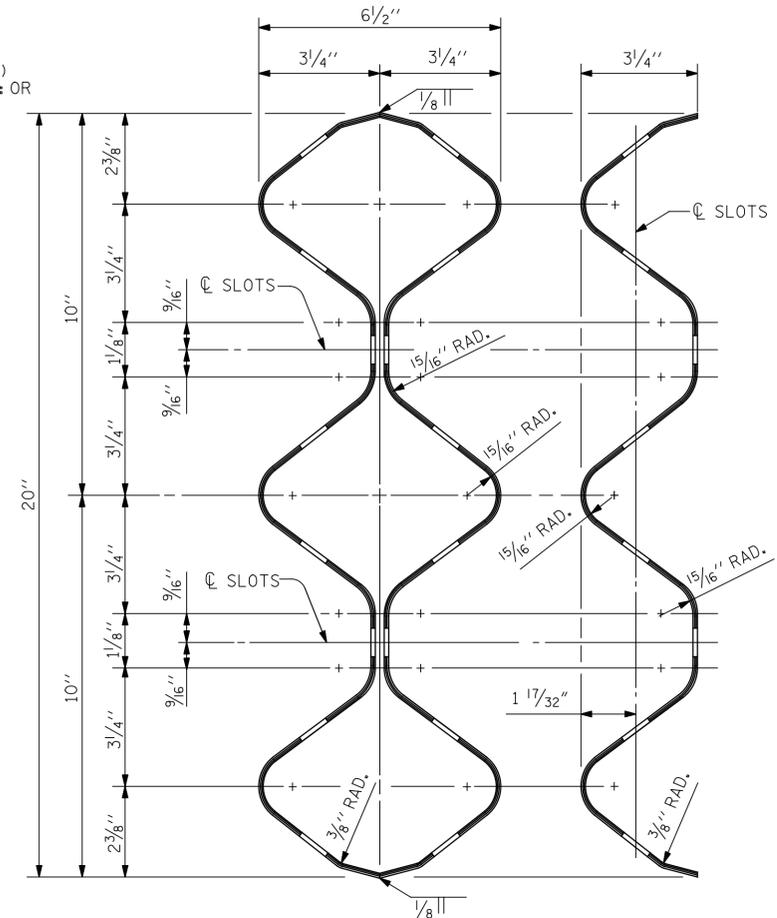
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BOLT THRU CONCRETE POST

BOLT THRU CONCRETE RAIL

**RETROFIT EXISTING RAIL WITH TUBULAR BEAM GUARDRAIL  
( WITHOUT WEARING SURFACE )**



SECTION THRU TUBULAR BEAM

SECTION THRU 20" TRIPLE CORRUGATED BEAM

**CONCRETE ANCHOR NOTES:**

- FOR ADHESIVELY ANCHORED BOLTS OR DOWELS, SEE STANDARD SPECIFICATIONS.
  - THE 3/4" DIAMETER ANCHOR BOLTS SHALL BE TESTED USING LEVEL 2 FIELD TESTING AS SHOWN IN THE STANDARD SPECIFICATIONS. THE YIELD LOAD OF THE 3/4" DIAMETER ANCHOR IS 10 KIPS.
  - THE SUCCESSFULLY TESTED ANCHOR MAY BE USED IN THE FINAL RAIL ASSEMBLY, IF APPROPRIATELY LOCATED. IF NOT SO LOCATED, OR IF THE ANCHOR FAILS THE TEST, THE TEST AREA SHALL BE REPAIRED AS DAMAGED CONCRETE, SEE "GENERAL NOTES".
- EMBEDMENT SHOWN ON THE PLANS IS A MINIMUM, BUT THE MANUFACTURER'S RECOMMENDATIONS SHALL BE FOLLOWED.
- THE 3/4" DIAMETER CONCRETE ANCHOR SHALL CONSIST OF A STUD, THREADED ON ONE END, WITH NUT AND WASHERS. THE ANCHOR SHALL BE GALVANIZED TO CONFORM TO THE REQUIREMENTS OF ASTM A-153.
- AT THE CONTRACTOR'S OPTION, STAINLESS STEEL ANCHORS MAY BE USED AS AN ALTERNATE FOR THE GALVANIZED CONCRETE ANCHORS. THEY SHALL MEET OR EXCEED THE MECHANICAL REQUIREMENTS FOR THE GALVANIZED ANCHORS. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.
- EXPANSION ANCHORS WILL NOT BE PERMITTED.
- FOR ANCHOR BOLTS, SEE STANDARD SPECIFICATIONS.

**NOTES:**

TUBULAR BEAM POSTS ARE TO BE MOUNTED AGAINST THE EXISTING CONCRETE RAIL.

HOLES FOR THE 5/8" DIAMETER BOLTS, THRU THE EXISTING CONCRETE RAIL OR POST, SHALL BE 3/4" DIAMETER.

3/4" AND 5/8" DIAMETER BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A-307 AND SHALL BE GALVANIZED TO CONFORM TO THE REQUIREMENTS OF ASTM A-153

**GENERAL NOTES:**

- THE 20" TRIPLE TUBULAR CORRUGATED BEAM RAIL SECTION SHALL BE FABRICATED BY WELDING TWO (2) 20" TRIPLE CORRUGATED BEAM RAIL ELEMENTS AS SHOWN AND THE GUARDRAIL SHALL CONFORM TO THE NCDOT STANDARD SPECIFICATIONS EXCEPT AS NOTED AND SHOWN ON THE PLANS.
- 20" TRIPLE TUBULAR CORRUGATED BEAM RAIL SHALL BE 10 GAGE.
- POSTS, BASE ANGLES AND/OR BASE PLATES, 6" DIA. TUBES, AND OFFSET BLOCKS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A-36. SHIMS SHALL MEET THE REQUIREMENTS OF ASTM A-570 GRADE 33 OR A-611 GRADE C.
- POSTS, BASE ANGLES AND/OR BASE PLATES, TUBES, BLOCKS AND SHIMS SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A-123.
- POSTS ARE TO BE PLUMB. SHIMS MAY BE USED BENEATH THE ROADWAY EDGE OF THE BASE ANGLES AND/OR BASE PLATES AS NECESSARY FOR POST ALIGNMENT. PROVIDE ONE 1/8" AND TWO 1/16" STEEL SHIMS FOR 25% OF THE POSTS ON THE BRIDGE.
- "BP" POST HEIGHT TO BE DETERMINED IN THE FIELD BY THE CONTRACTOR.
- PROPOSED RAIL POST MAY BE SHIFTED SLIGHTLY TO CLEAR REINFORCING STEEL. STANDARD SLOTS MAY BE USED IN THE RAIL TO ALLOW ADJUSTMENT.
- HOLES SHALL BE DRILLED HORIZONTAL OR VERTICAL USING A ROTARY DRILL OR A ROTARY IMPACT DRILL. IMPACT TOOLS WILL NOT BE PERMITTED. CARBIDE TIPPED BITS SHALL BE USED UNLESS REINFORCING STEEL IS ENCOUNTERED. AN APPROPRIATE BIT FOR DRILLING THROUGH REINFORCING STEEL SHALL BE USED WHEN NECESSARY. THE CONTRACTOR SHALL BE PREPARED TO DRILL THROUGH REINFORCING STEEL AT TIMES.
- POST SPACINGS AS SHOWN ON THE PLANS SHALL BE CHECKED BEFORE HOLES ARE DRILLED IN THE 20" TRIPLE TUBULAR CORRUGATED BEAM RAIL. STANDARD SLOTS WILL BE ALLOWED. FIELD PUNCHING OF THE HOLES OR SLOTS WILL NOT BE PERMITTED.
- A SEALANT WILL BE REQUIRED IN THE AREA OF THE ANCHOR BOLTS AND WILL BE PLACED IN THE FOLLOWING MANNER:
  - BEFORE THE BASE PLATE HAS BEEN SET IN PLACE, IF THE GROUT DOES NOT COMPLETELY FILL THE ANCHOR HOLE, SEAL THE AREA AROUND EACH CONCRETE ANCHOR BOLT TO KEEP MOISTURE FROM ENTERING THE HOLE.
  - AFTER THE BASE PLATE HAS BEEN SET IN PLACE AND BEFORE THE WASHERS AND NUTS HAVE BEEN PLACED ON THE BOLT, SEAL THE HOLE REMAINING AROUND THE ANCHOR BOLT.
 THE SEALANT SHALL BE A ONE-COMPONENT POLYSULFIDE GUN GRADE MEETING FEDERAL SPECIFICATION TT-S-230. SEALANT SHALL BE GRAY IN COLOR AND APPLIED ACCORDING TO THE MANUFACTURER'S RECOMMENDATION. THE FOLLOWING SEALANTS MEET THE ABOVE REQUIREMENTS:
  - "SONOLASTIC ONE PART", MANUFACTURED BY SONNEBORN-DESOTO CO., DES PLAINES, ILLINOIS, 60018.
  - "THOROSPAN ONE COMPONENT", MANUFACTURED BY STANDARD DRY WALL PRODUCTS, INC., MIAMI, FLORIDA, 33166.
  - "HORNFLX ONE COMPONENT", MANUFACTURED BY W. R. GRACE AND CO., CAMBRIDGE, MASSACHUSETTS, 02140.
- ALL CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.
- VERTICAL SLOTS IN THE 6" TUBE ALLOW FOR SOME VERTICAL ADJUSTMENT OF RAIL HEIGHT IN ORDER TO OBTAIN THE CENTERLINE OF RAIL HEIGHT OF 2'-1" ABOVE RIDING SURFACE.
- THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT AASHTO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES". ELECTROSLAG WELDING WILL NOT BE PERMITTED.
- LAP BEAM RAIL JOINTS IN DIRECTION OF TRAFFIC.
- THE EXISTING DIMENSIONS AND BRIDGE CONDITIONS ARE FROM THE BEST INFORMATION AVAILABLE. PRIOR TO FABRICATION OF THE RAIL SYSTEM, THE CONTRACTOR SHALL FIELD VERIFY THE INFORMATION SHOWN ON THE PLANS AND NOTIFY THE ENGINEER IF ACTUAL DIMENSIONS AND CONDITIONS DIFFER.

PROJECT NO. I-5889B  
BUNCOMBE COUNTY  
 BRIDGE NO. 100334, 100339, 100344  
100347, 100352 & 100356

SHEET 1 OF 4



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**TUBULAR BEAM  
 GUARDRAIL DETAILS**

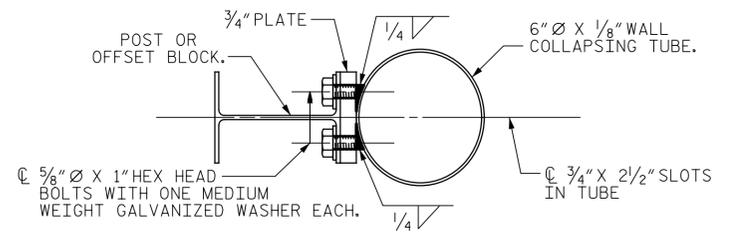
DRAWN BY: J. MYA DATE: 6/2022  
 CHECKED BY: J. YANACCONO DATE: 6/2022



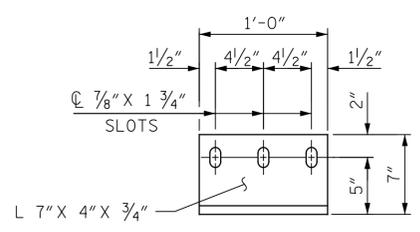
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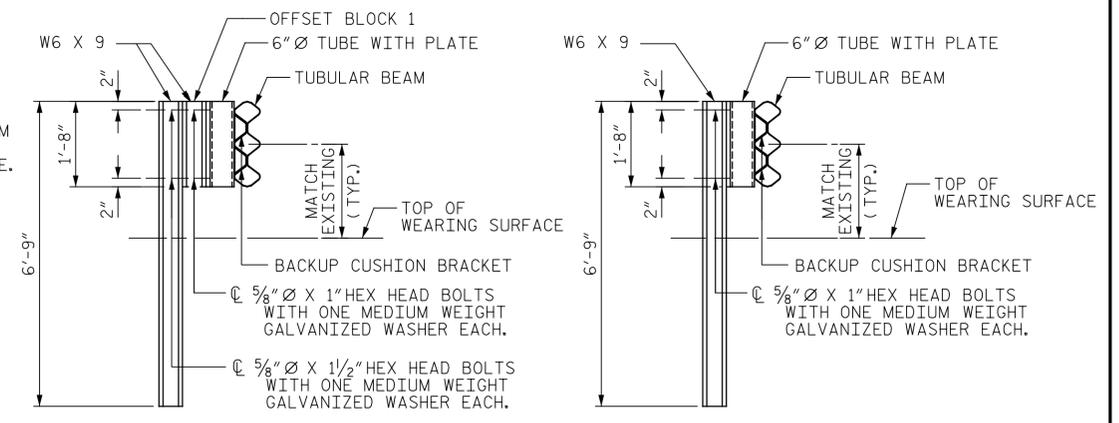


DETAIL SHOWING CONNECTION OF 6" Ø TUBE TO POST OR OFFSET BLOCK



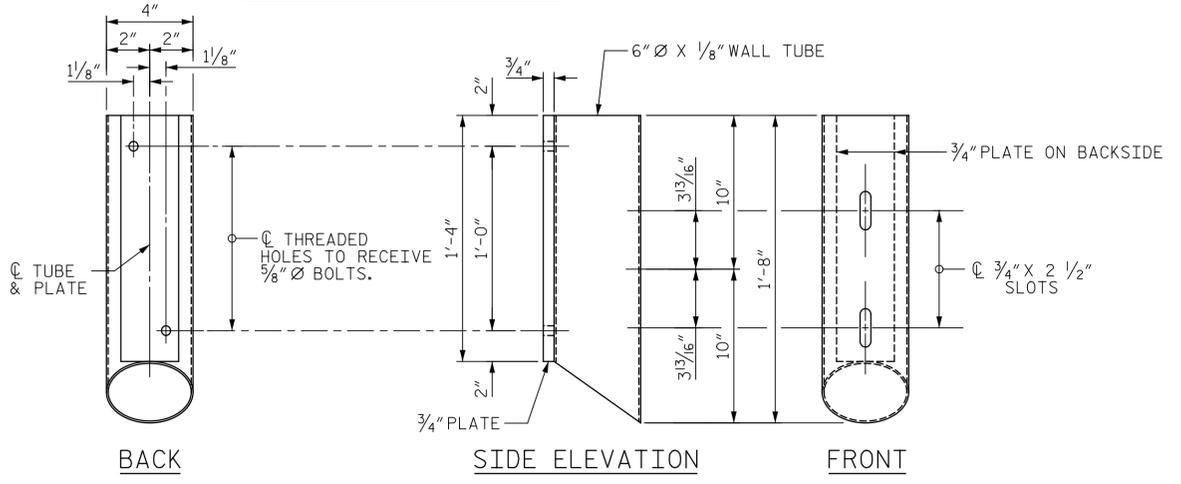
PLAN OF ANGLE

NOTE A: HEIGHT OF POST BP1 (DIMENSION A) SHALL BE DETERMINED IN THE FIELD SO THAT THE DISTANCE BETWEEN THE C OF THE TUBULAR BEAM AND THE TOP OF SLAB OR TOP OF FINISHED DECK SURFACE MATCHES THE EXISTING DISTANCE.  
 NOTE B: SLOT TO BE DRILLED ON SIDE OF WEB FACING "ONCOMING TRAFFIC".

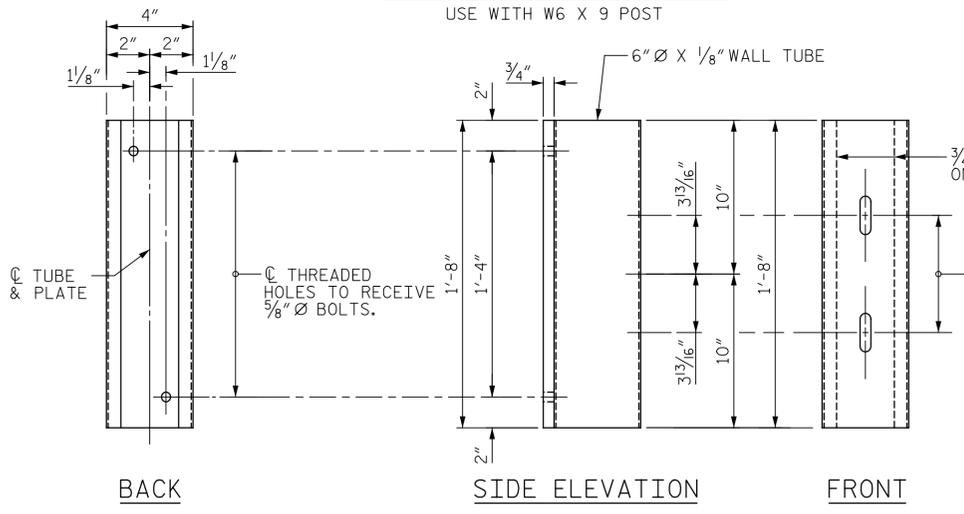


POST "EP1" (USE AS NEEDED AT END OF BRIDGE)

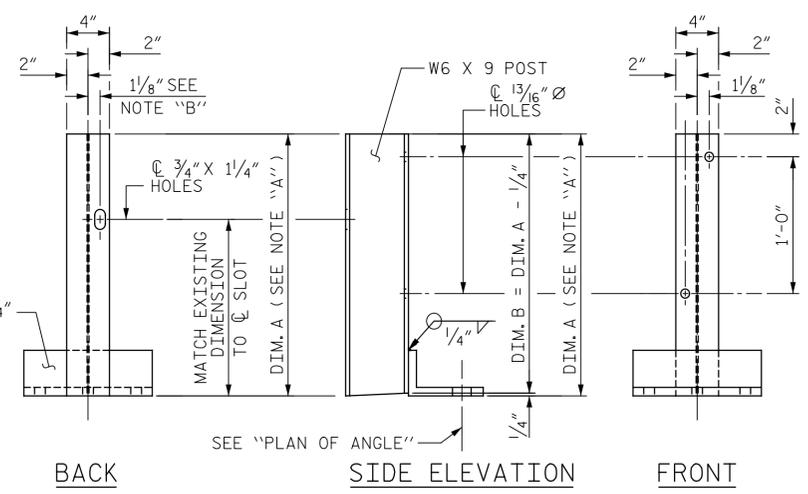
POST "EP2" (USE AS NEEDED ALONG APPROACH ROADWAY SLAB)



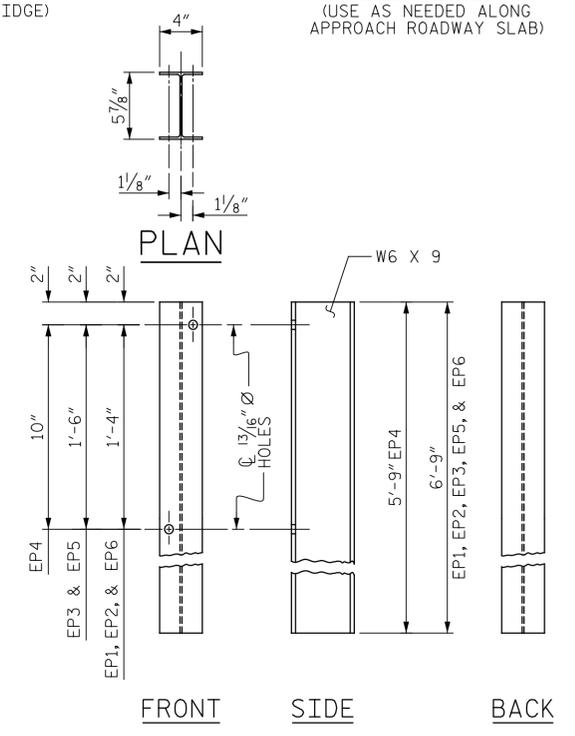
6" Ø TUBE DETAILS USE WITH W6 X 9 POST



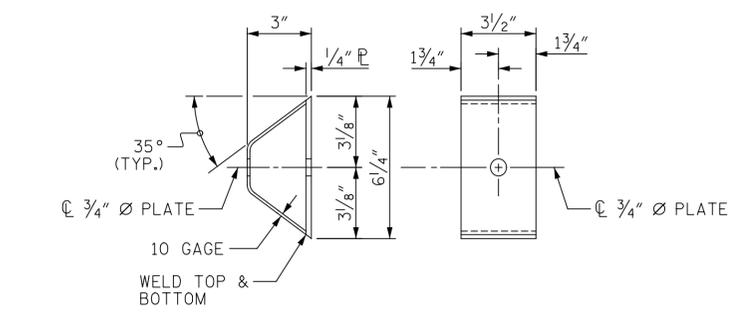
6" Ø TUBE DETAILS USE WITH POST "EP1 & EP2"



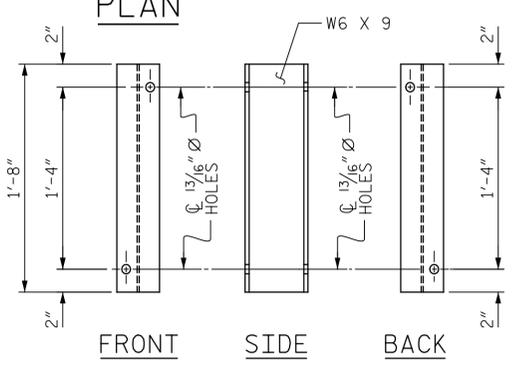
W6 X 9 POST DETAILS



DETAIL OF POST EP1 & EP2



BACKUP CUSHION BRACKET



DETAILS OF OFFSET BLOCK 1 USE WITH POST "EP1"

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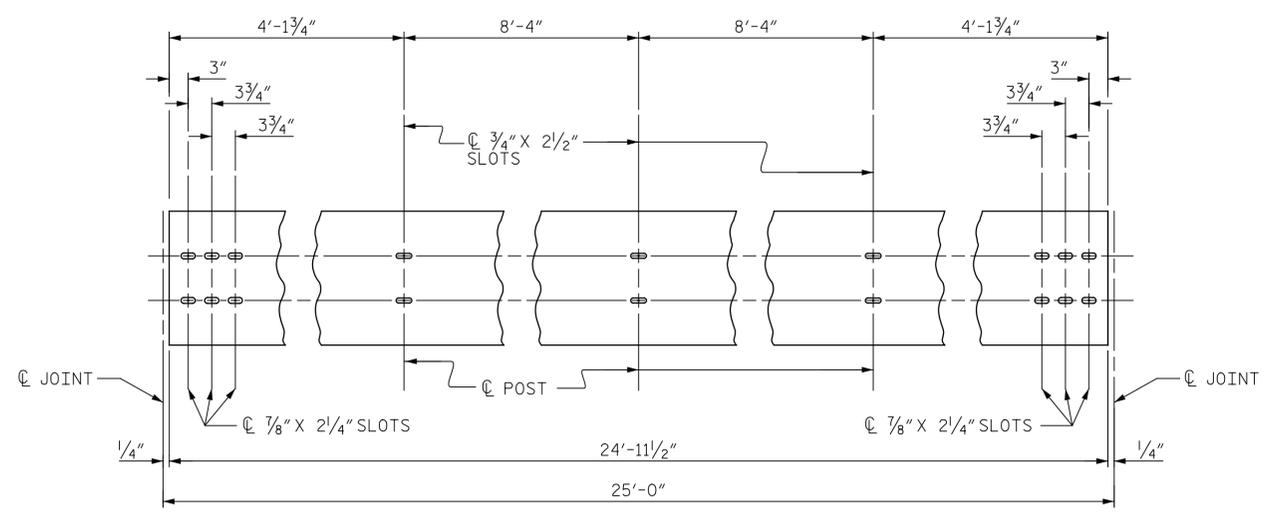
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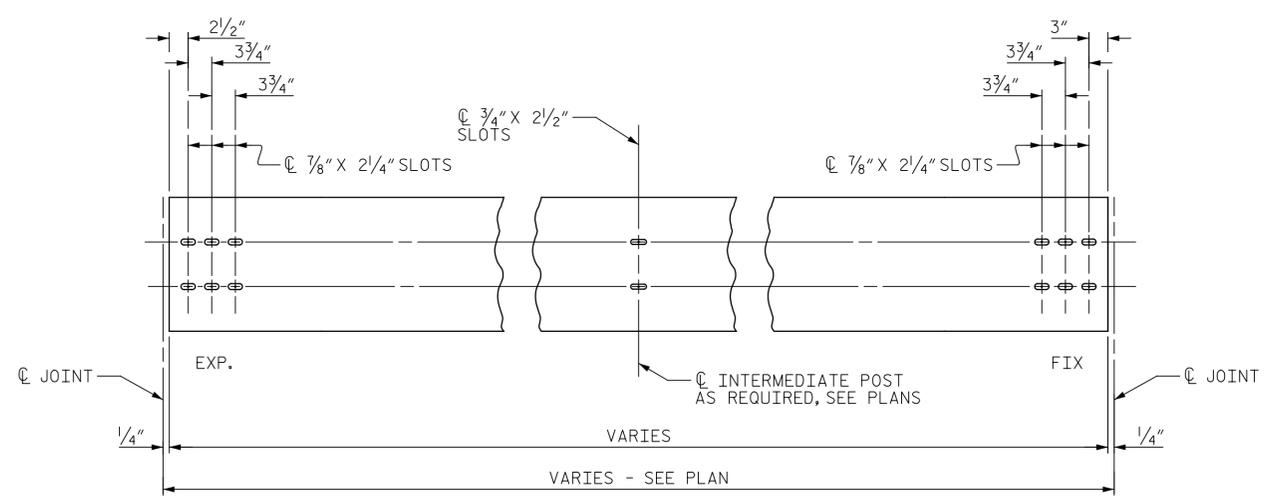
PROJECT NO. I-5889B  
 BUNCOMBE COUNTY  
 BRIDGE NO. 100334, 100339, 100344, 100347, 100352 & 100356  
 SHEET 2 OF 4

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|--|-----|-------|-----|-----|--|
| STATE OF NORTH CAROLINA<br>DEPARTMENT OF TRANSPORTATION<br>RALEIGH |     |       |     |     |  |
| TUBULAR BEAM<br>GUARDRAIL DETAILS                                  |     |       |     |     |  |
| REVISIONS  |     |       |     |     |  |
| NO.  | BY: | DATE: | NO. | BY: | DATE:                                    |
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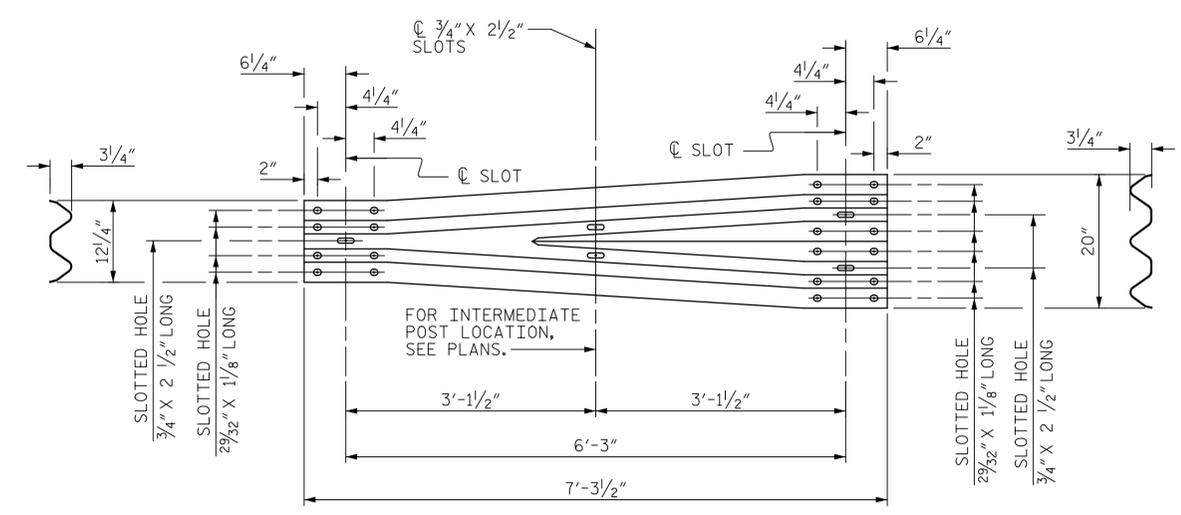
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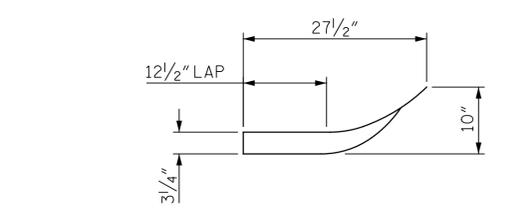
**ELEVATION TUBULAR BEAM  
STANDARD RAIL**



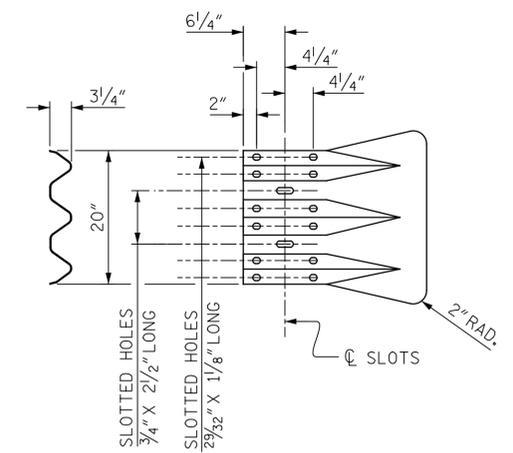
**ELEVATION TUBULAR BEAM  
EXPANSION RAIL FOR TYPE 1 SPLICE**



**W-TR GUARDRAIL TRANSITIONAL SECTION**



**TRIPLE CORRUGATED GUARDRAIL  
TERMINAL SECTION**



PROJECT NO. I-5889B  
BUNCOMBE COUNTY  
 BRIDGE NO. 100334, 100339, 100344  
100347, 100352 & 100356  
 SHEET 3 OF 4

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**TUBULAR BEAM  
 GUARDRAIL DETAILS**



DocuSigned by  
 Eric B. Nelson  
 7/25/2022

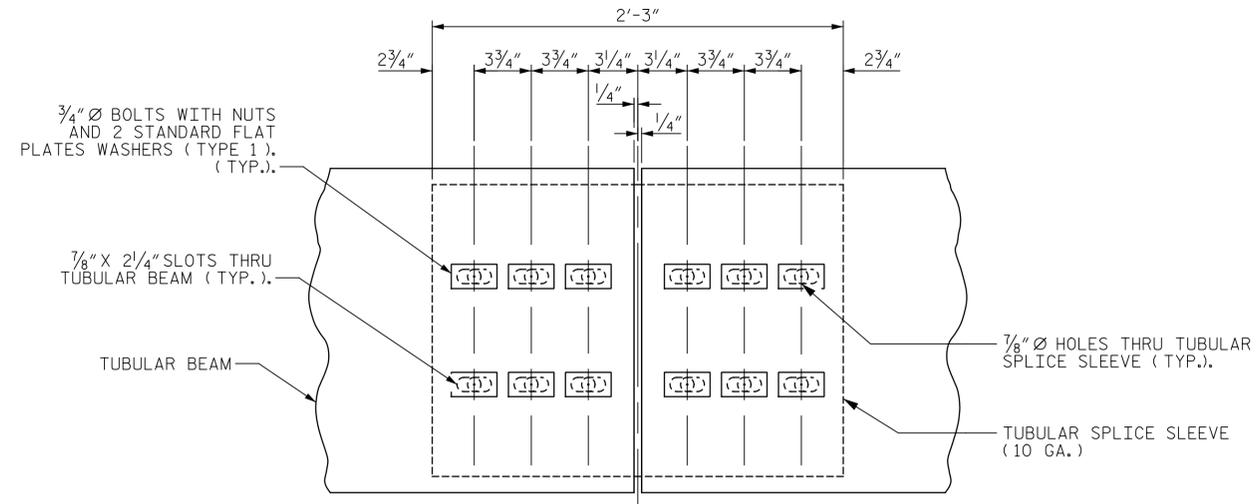


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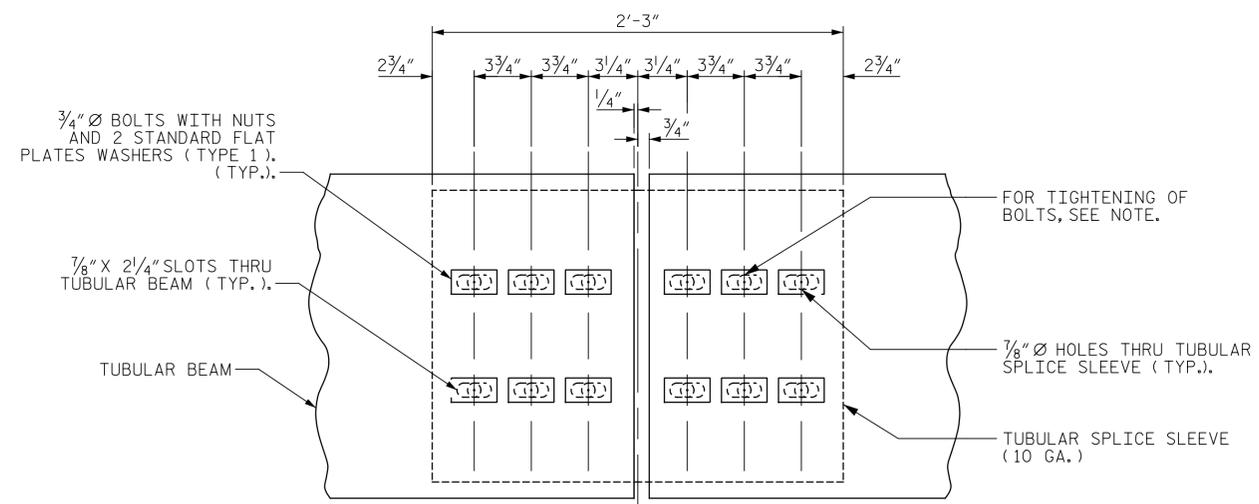
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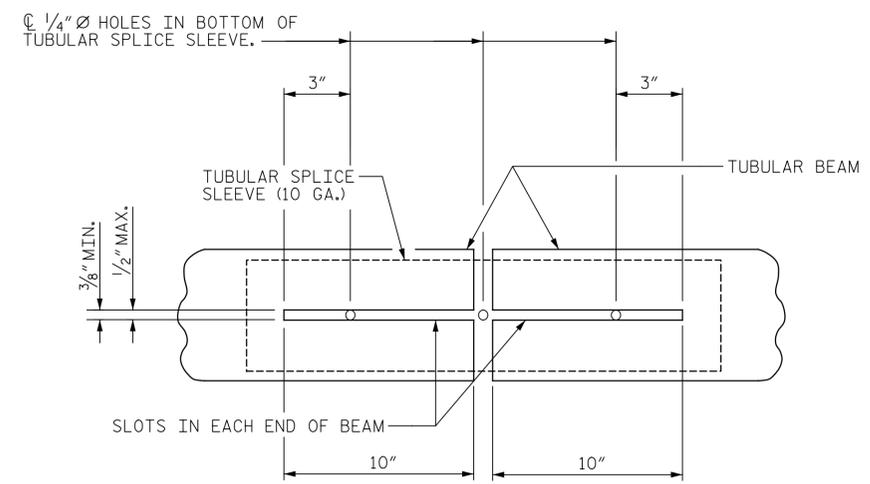


**FIXED SPLICE BETWEEN POST (TYPE 1)**  
TUBULAR BEAM SPLICE

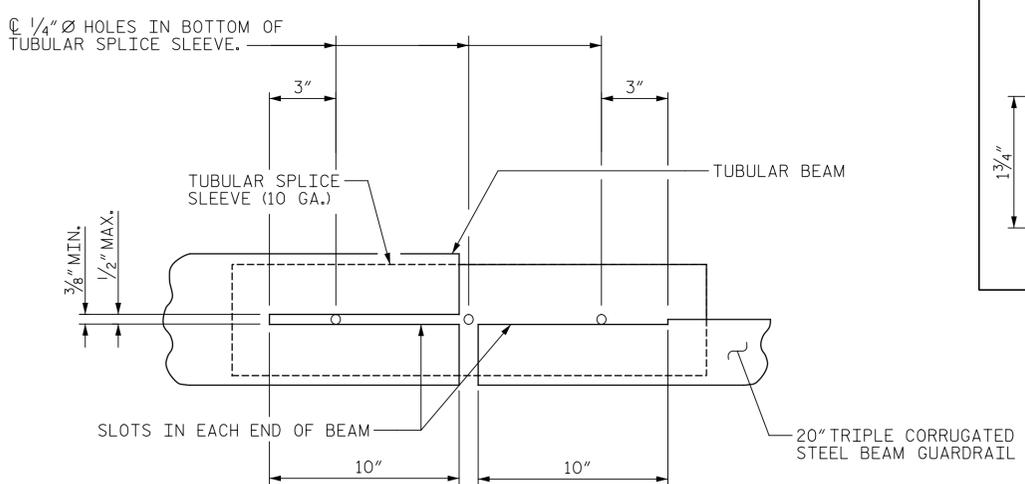


**EXPANSION SPLICE BETWEEN POST (TYPE 1)**  
TUBULAR BEAM SPLICE

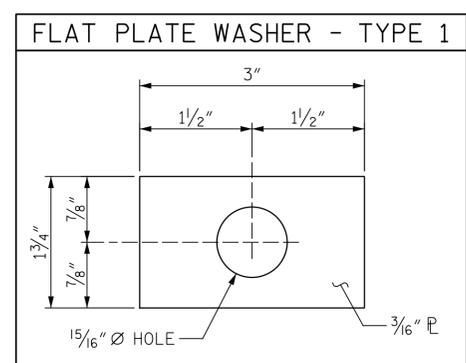
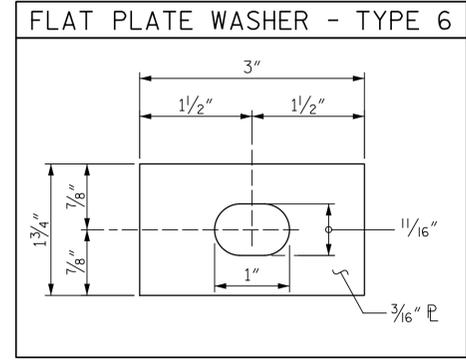
**NOTE:**  
 BOLTS ON EXPANSION SIDE OF TUBULAR BEAM SPLICE SHALL BE TIGHTENED FINGER TIGHT. DOUBLE NUTS SHALL BE USED AND TIGHTENED AGAINST EACH OTHER TO PREVENT THE NUTS FROM BECOMING LOOSE ON THE BOLT.



**BOTTOM VIEW OF TUBULAR BEAM SPLICE**



**BOTTOM VIEW OF TUBULAR AND 20" TRIPLE CORRUGATED STEEL BEAM SPLICE**



PROJECT NO. I-5889B  
BUNCOMBE COUNTY  
 BRIDGE NO. 100334, 100339, 100344,  
100347, 100352 & 100356

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**TUBULAR BEAM GUARDRAIL DETAILS**

| REVISIONS |     |       |     |     |       | SHEET NO.    |
|-----------|-----|-------|-----|-----|-------|--------------|
| NO.       | BY: | DATE: | NO. | BY: | DATE: | SD-4         |
| 1         |     |       | 3   |     |       | TOTAL SHEETS |
| 2         |     |       | 4   |     |       | 129          |



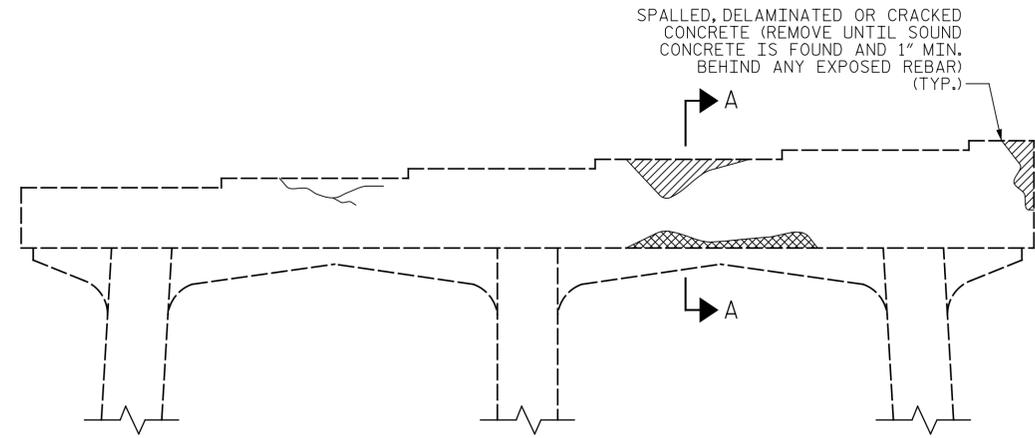
DocuSigned by:  
 Eric B. Nelson  
 7/25/2022



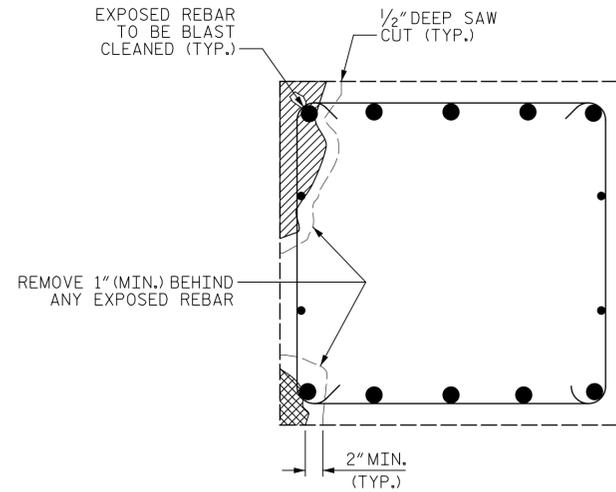
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 CHECKED BY: J. YANNAACONE DATE: 6/2022

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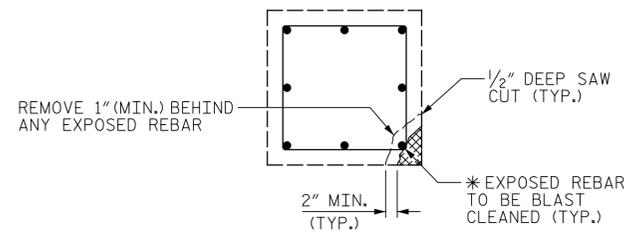


BENT CAP REPAIRS

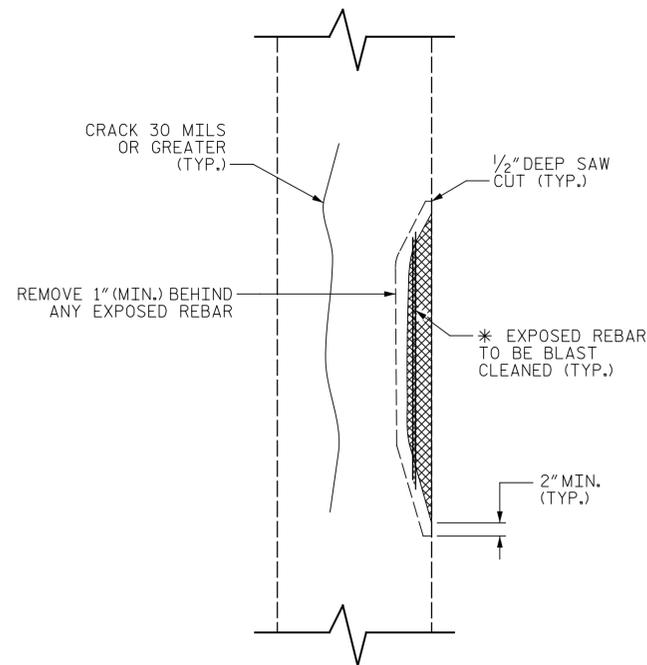


CAP REPAIR

SECTION A-A



PLAN OF COLUMN



ELEVATION OF COLUMN  
COLUMN REPAIR

\* REPAIR LENGTH SHALL NOT EXCEED 10 FEET.

- REPAIR KEY**
- CONCRETE REPAIR AREA (FORM AND POUR)
  - SHOTCRETE REPAIR AREA
  - EPOXY RESIN INJECTION (ERI)

| SPLICE LENGTH TABLE |                       |
|---------------------|-----------------------|
| BAR SIZE            | MINIMUM SPLICE LENGTH |
| #4                  | 2'-4"                 |
| #5                  | 2'-9"                 |
| #6                  | 4'-0"                 |
| #7                  | 5'-3"                 |
| #8                  | 6'-9"                 |
| #9                  | 8'-6"                 |
| #10                 | 10'-11"               |
| #11                 | 13'-4"                |

**NOTES:**

TYPICAL BENT CAP REPAIRS ARE SHOWN. REPAIR DETAILS SIMILAR FOR END BENT CAPS AND STRUTS.

THE METHOD USED TO DELINEATE THE AREAS OF UNSOUND CONCRETE TO BE REPAIRED SHALL NOT PERMANENTLY MARK THE CONCRETE, LEAVE ANY RESIDUE AFTER REMOVAL OR REQUIRE HARSH CHEMICALS TO REMOVE.

THE CONTRACTOR SHALL REMOVE THE DETERIORATED CONCRETE IN ACCORDANCE WITH THE GUIDELINES SET IN THESE NOTES, IN THE SPECIAL PROVISIONS AND THE STANDARD SPECIFICATIONS.

REMOVE UNSOUND CONCRETE TO THE EXTENT NECESSARY, MINIMUM OF 1" BEHIND REBAR AND MINIMUM OF 2" CLEARANCE TO SAWCUT.

NO MORE THAN ONE-THIRD OF THE CAP OR COLUMN CROSS SECTIONAL AREA SHALL BE REMOVED AT ONE TIME. SHOULD IT BECOME NECESSARY TO REMOVE MORE THAN 30% OF A CAP OR COLUMN CROSS SECTIONAL AREA, NOTIFY THE ENGINEER PRIOR TO PROCEEDING.

SIMULTANEOUS REMOVAL OF UNSOUND CONCRETE MAY BE PERMITTED ON MORE THAN ONE FACE OF A CAP AND/OR COLUMN, IF THE AREAS OF REMOVAL ARE NOT ADJACENT TO OR DIRECTLY OPPOSITE ONE ANOTHER. IF REMOVAL EXTENDS MORE THAN 1 1/2" BEHIND THE MAIN REINFORCING BARS, NOTIFY THE ENGINEER PRIOR TO PROCEEDING.

REINFORCING STEEL WHICH IS DETERMINED BY THE ENGINEER TO BE REPLACED, SHALL BE REMOVED TO A POINT WHERE IT IS SOUND. THE PATCH SHALL EXTEND A SUFFICIENT DISTANCE BEYOND THIS POINT TO DEVELOP A SPLICE LENGTH SPECIFIED IN THE TABLE ON THIS SHEET.

COAT ALL REPAIR SURFACE AREAS ON THE TOP OF CAPS, INCLUDING CHAMFERS, WITH EPOXY PROTECTIVE COATING, OVERLAPPING THE REPAIR AREA BY A MINIMUM OF 3" ON ALL POSSIBLE SIDES.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY PROTECTIVE COATING, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION (ERI), SEE SPECIAL PROVISIONS.

PROJECT NO. I-5889B  
BUNCOMBE COUNTY  
 BRIDGE NO. 100334, 100339, 100344,  
100347, 100352 & 100356



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**TYPICAL CAP  
AND COLUMN  
REPAIR DETAILS**

DRAWN BY : J. MYA DATE : 6/2022  
 CHECKED BY : J. YANACCONE DATE : 6/2022



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| NO.       | BY: | DATE: | NO. | BY: | DATE: | SD-5         |
| 1         |     |       | 3   |     |       | TOTAL SHEETS |
| 2         |     |       | 4   |     |       | 129          |



## STANDARD NOTES

### DESIGN DATA:

|   |                                  |
|---|----------------------------------|
| SPECIFICATIONS - - - - -  | A.A.S.H.T.O. (CURRENT)           |
| LIVE LOAD - - - - -   | SEE PLANS                        |
| IMPACT ALLOWANCE - - - - -  | SEE A.A.S.H.T.O.                 |
| STRESS IN EXTREME FIBER OF<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 A.A.S.H.T.O.                 |
| 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 2018 "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  $\frac{3}{4}$ " WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO  $1\frac{1}{2}$ " RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A  $\frac{1}{4}$ " FINISHING TOOL UNLESS OTHERWISE REQUIRED ON PLANS; AND CORNERS OF EXPANSION JOINTS IN THE ROADWAY FACES AND TOPS OF CURBS AND SIDEWALKS SHALL BE ROUNDED TO A  $\frac{1}{4}$ " RADIUS WITH A FINISHING STONE OR TOOL UNLESS OTHERWISE REQUIRED ON PLANS.

### DOWELS:

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

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

BRIDGES SHALL BE BUILT ON THE GRADE OR VERTICAL CURVE SHOWN ON PLANS. SLABS, CURBS AND PARAPETS SHALL CONFORM TO THE GRADE OR CURVE.

ALL DIMENSIONS WHICH ARE GIVEN IN SECTION AND ARE AFFECTED BY DEAD LOAD DEFLECTIONS ARE DIMENSIONS AT CENTER LINE OF BEARING UNLESS OTHERWISE NOTED ON PLANS. IN SETTING FORMS FOR STEEL BEAM BRIDGES AND PRESTRESSED CONCRETE GIRDER BRIDGES, ADJUSTMENTS SHALL BE MADE DUE TO THE DEAD LOAD DEFLECTIONS FOR THE ELEVATIONS SHOWN. WHERE BLOCKS ARE SHOWN OVER BEAMS FOR BUILDING UP TO THE SLAB, THE VERTICAL DIMENSIONS OF THE BLOCKS SHALL BE ADJUSTED BETWEEN BEARINGS TO COMPENSATE FOR DEAD LOAD DEFLECTIONS, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER. WHERE BOTTOM OF SLAB IS IN LINE WITH BOTTOM OF TOP FLANGES, DEPTH OF SLAB BETWEEN BEARINGS SHALL BE ADJUSTED TO COMPENSATE FOR DEAD LOAD DEFLECTION, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER.

IN SETTING FALSEWORK AND FORMS FOR REINFORCED CONCRETE SPANS, AN ALLOWANCE SHALL BE MADE FOR DEAD LOAD DEFLECTIONS, SETTLEMENT OF FALSEWORK, AND PERMANENT CAMBER WHICH SHALL BE PROVIDED FOR IN ADDITION TO THE ELEVATIONS SHOWN. AFTER REMOVAL OF THE FALSEWORK, THE FINISHED STRUCTURES SHALL CONFORM TO THE PROFILE AND ELEVATIONS SHOWN ON THE PLANS AND CONSTRUCTION ELEVATIONS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR FALSEWORK OR FORMS FOR BRIDGE SUPERSTRUCTURE AND ANY STRUCTURE OR PARTS OF A STRUCTURE AS NOTED ON THE PLANS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE CONSTRUCTION OF THE FALSEWORK OR FORMS IS STARTED.

### REINFORCING STEEL:

ALL REINFORCING STEEL SHALL BE DEFORMED. DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED IN THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE OUT TO OUT AS INDICATED ON PLANS.

WIRE BAR SUPPORTS SHALL BE PROVIDED FOR REINFORCING STEEL WHERE INDICATED ON THE PLANS. WHEN BAR SUPPORT PIECES ARE PLACED IN CONTINUOUS LINES, THEY SHALL BE SO PLACED THAT THE ENDS OF THE SUPPORTING WIRES SHALL BE LAPPED TO LOCK LEGS ON ADJOINING PIECES.

### STRUCTURAL STEEL:

AT THE CONTRACTOR'S OPTION, HE MAY SUBSTITUTE  $\frac{7}{8}$ "  $\emptyset$  SHEAR STUDS FOR THE  $\frac{3}{4}$ "  $\emptyset$  STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 -  $\frac{7}{8}$ "  $\emptyset$  STUDS FOR 4 -  $\frac{3}{4}$ "  $\emptyset$  STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF  $\frac{7}{8}$ "  $\emptyset$  STUDS ALONG THE BEAM AS SHOWN FOR  $\frac{3}{4}$ "  $\emptyset$  STUDS BASED ON THE RATIO OF 3 -  $\frac{7}{8}$ "  $\emptyset$  STUDS FOR 4 -  $\frac{3}{4}$ "  $\emptyset$  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  $\frac{5}{16}$ " IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2" OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ANSI/AASHTO/AWS "BRIDGE WELDING CODE". ELECTROSLAG WELDING WILL NOT BE PERMITTED.

WITH THE SOLE EXCEPTION OF EDGES AT SURFACES WHICH BEAR ON OTHER SURFACES, ALL SHARP EDGES AND ENDS OF SHAPES AND PLATES SHALL BE SLIGHTLY ROUNDED BY SUITABLE MEANS TO A RADIUS OF APPROXIMATELY  $\frac{1}{16}$ " INCH OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE PRIOR TO PAINTING, GALVANIZING, OR METALLIZING.

### HANDRAILS AND POSTS:

METAL STANDARDS AND FACES OF THE CONCRETE END POSTS FOR THE METAL RAIL SHALL BE SET NORMAL TO THE GRADE OF THE CURB, UNLESS OTHERWISE SHOWN ON PLANS. THE METAL RAIL AND TOPS OF CONCRETE POSTS USED WITH THE ALUMINUM RAIL SHALL BE BUILT PARALLEL TO THE GRADE OF THE CURB.

METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. 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.

ENGLISH

JANUARY, 1990