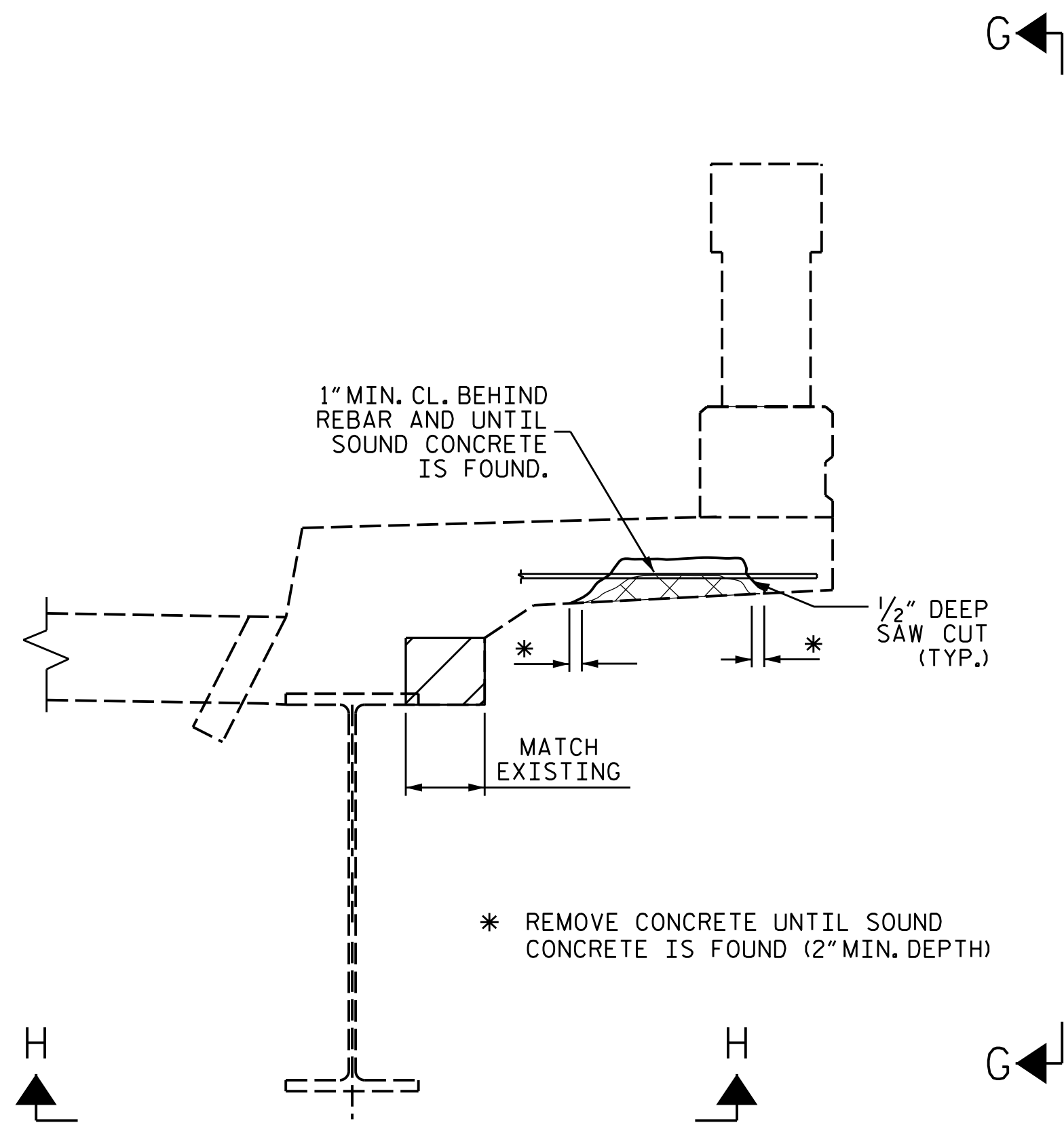


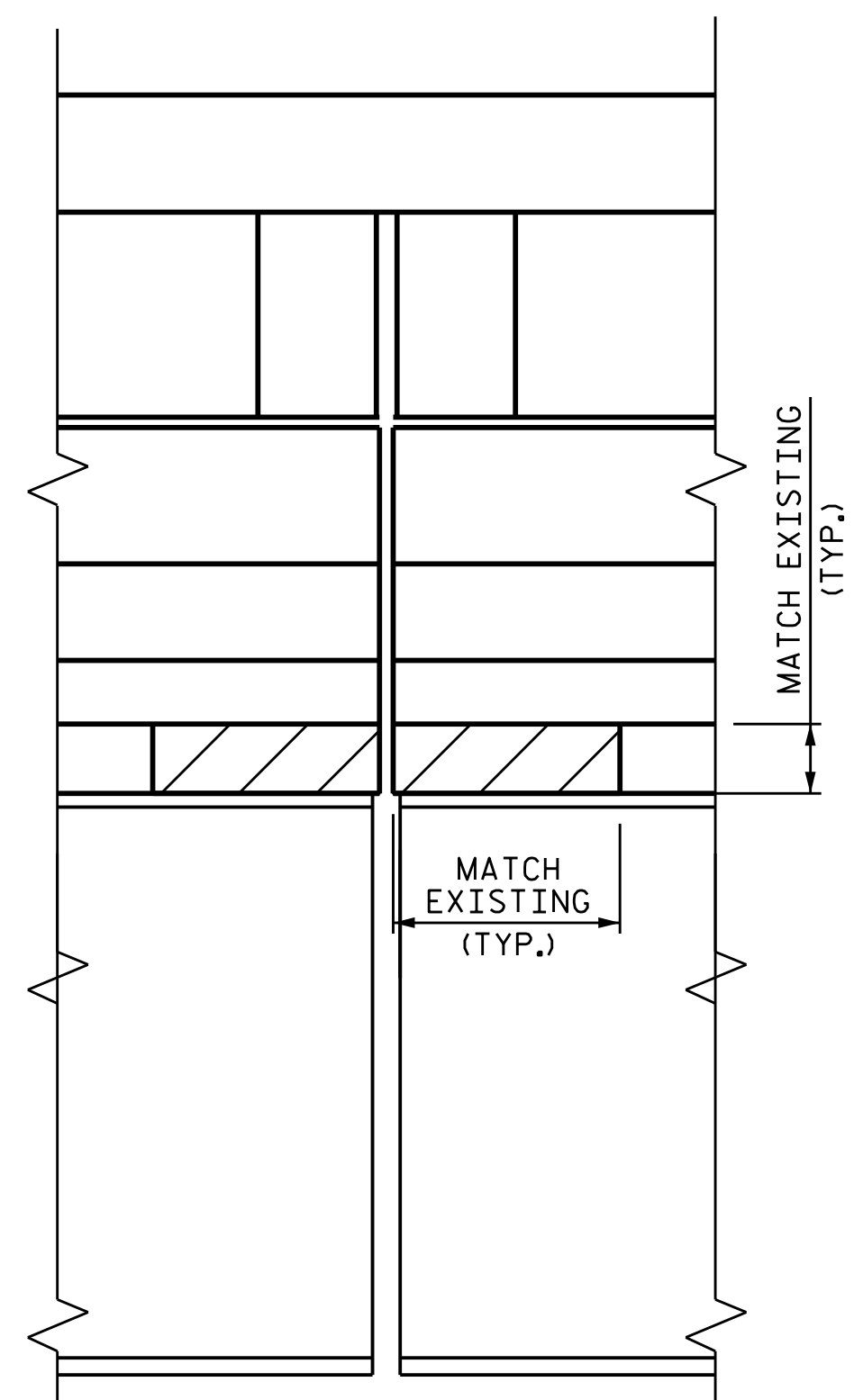
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with their signature on that page.**

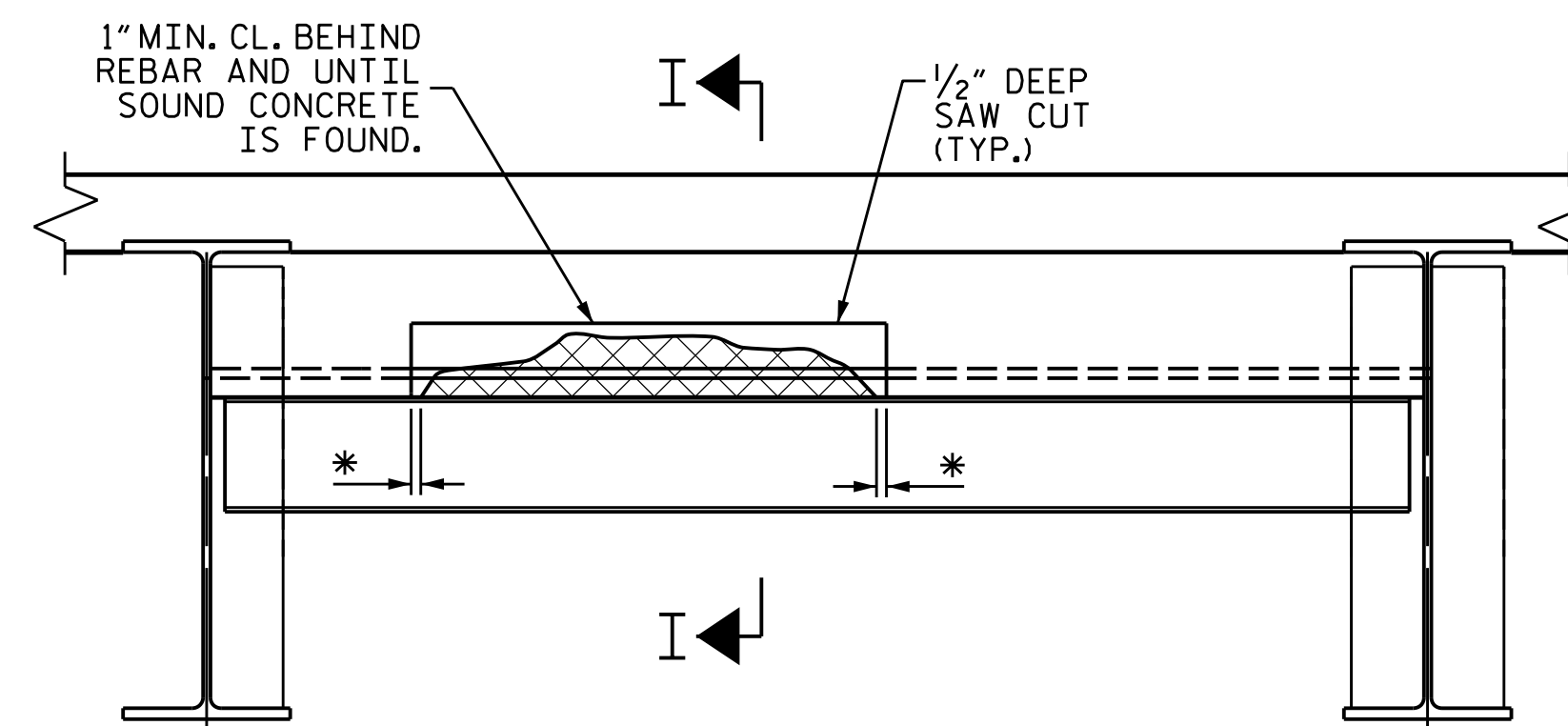
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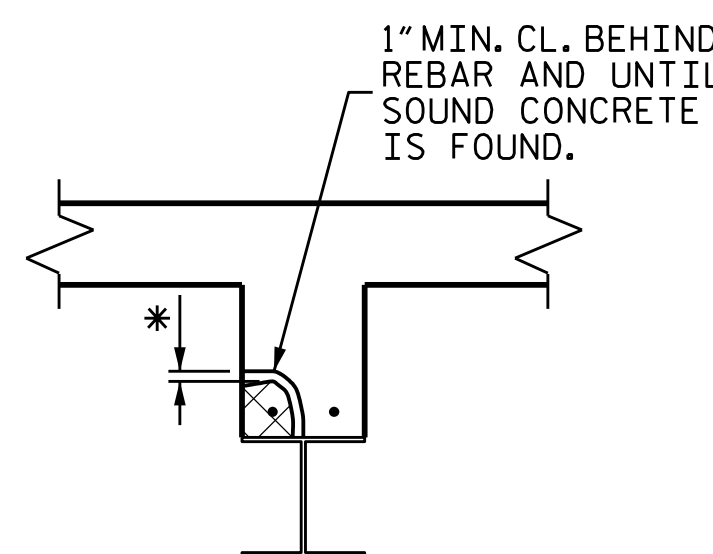
TYPICAL SECTION
(UTILITIES NOT SHOWN FOR CLARITY)



SECTION G-G



TYPICAL SECTION



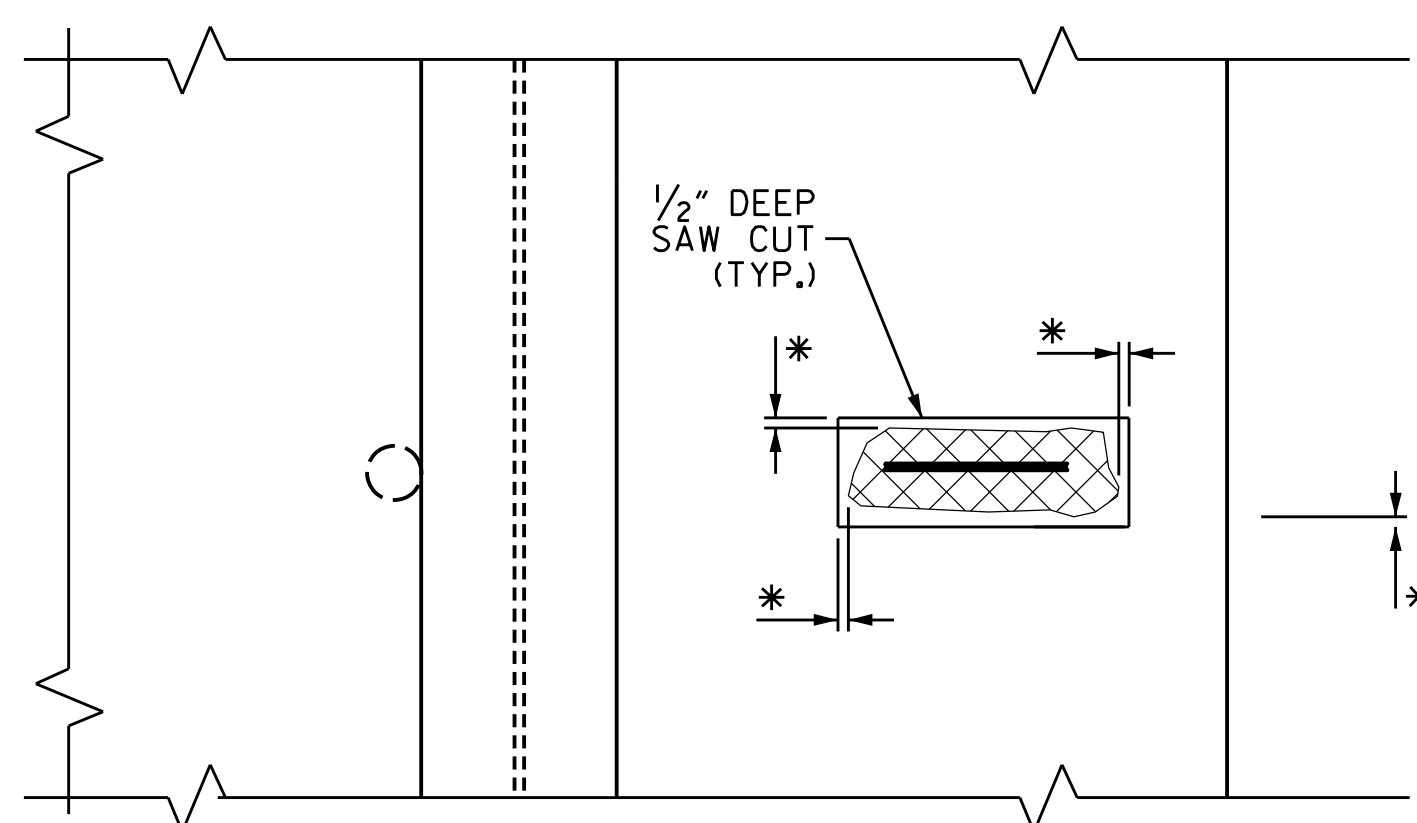
SECTION I-I

* REMOVE CONCRETE UNTIL SOUND CONCRETE IS FOUND (2" MIN. DEPTH)

DAMAGED AREA

NOTE:
EXISTING REBAR TO REMAIN IN PLACE. CLEAN AND REPAIR AS NECESSARY.

DAMAGED AREA CONCRETE IN THIS AREA SHALL BE REPAIRED AND FORMED TO MATCH EXISTING.



SECTION H-H

OVERHANG DETAILS

NOTES

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.

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 SHEET S1-25.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR AREAS TO BE REPAIRED, SEE "UNDERSIDE DECK REPAIRS" SHEETS.

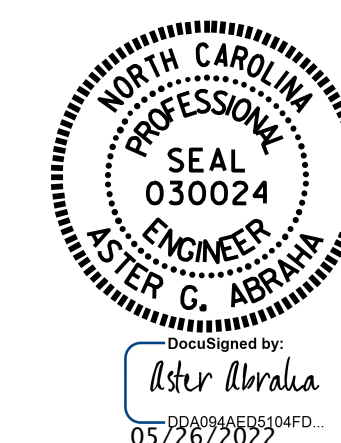
THE CONTRACTOR SHALL SUBMIT WORKING DRAWINGS TO THE ENGINEER FOR APPROVAL PRIOR TO STARTING WORK FOR TEMPORARY FORMWORK. FOR SUBMITTALS OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

UPON REMOVAL OF TEMPORARY FORMWORK, ALL VOIDS AND HONEYCOMBS ON THE UNDERSIDE OF DECK SURFACE SHALL BE FILLED WITH THE SAME MATERIAL AS USED FOR THE PATCH, AND FINISHED TO CONFORM TO THE SURROUNDING CONCRETE SURFACE.

NO FORMWORK SHALL BE LEFT IN PLACE.

INTERIOR DIAPHRAGM REPAIR DETAILS

PROJECT NO. 15BPR.47
EDGEcombe COUNTY
BRIDGE NO. 320051



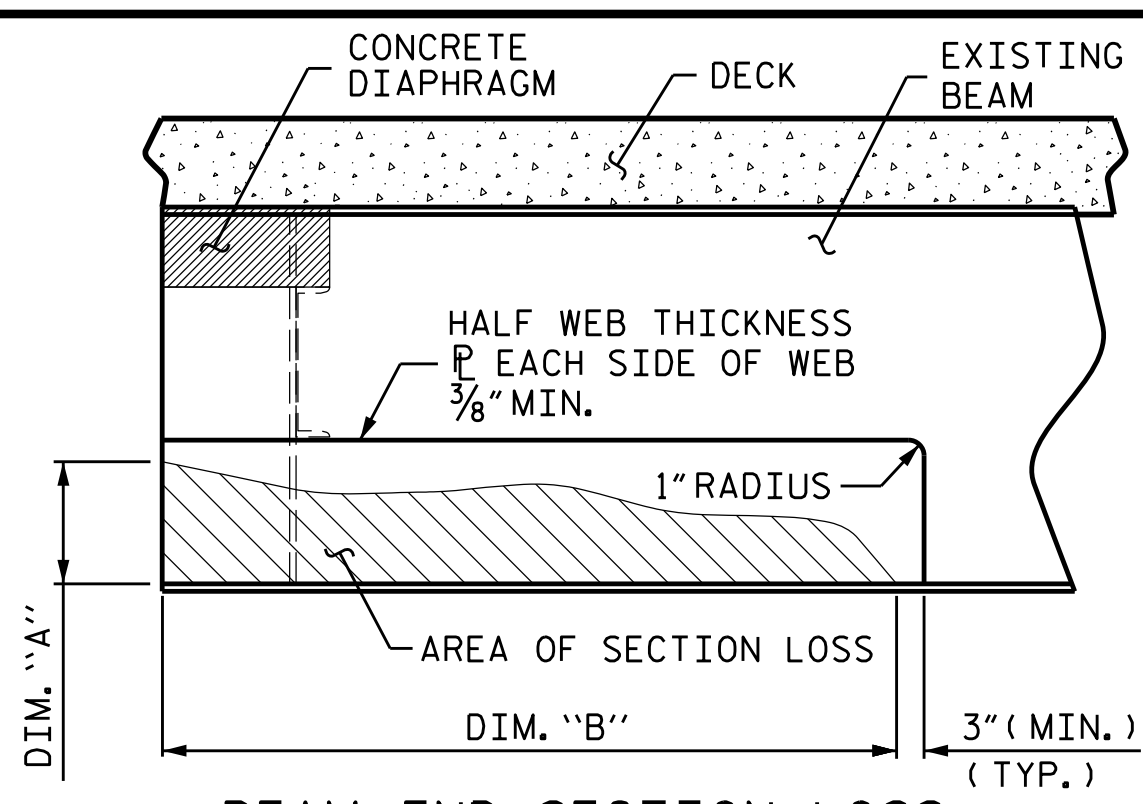
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

OVERHANG & DIAPHRAGM
REPAIR DETAILS

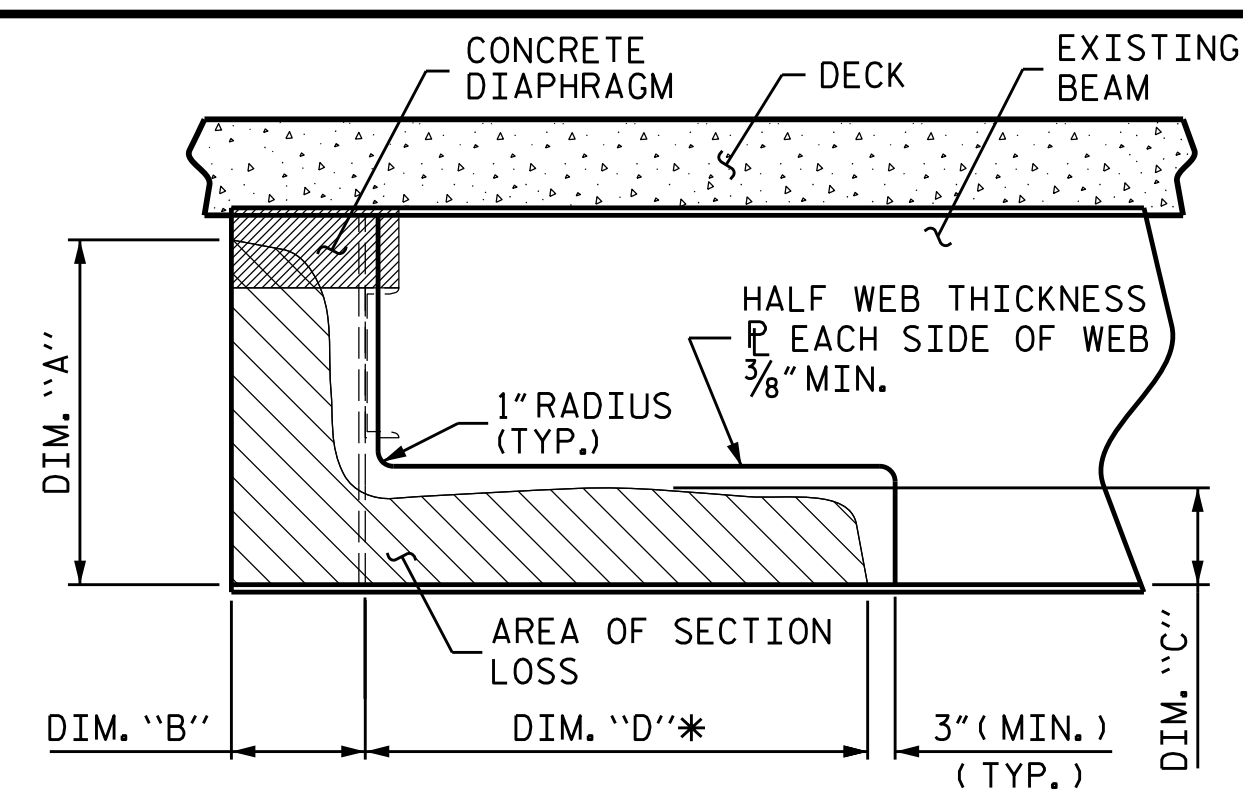
DRAWN BY : A. Y. GODFREY DATE : 01/2022
CHECKED BY : G. AYES DATE : 02/2022

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

| REVISIONS | | | | | | SHEET NO. |
|-----------|-----|-------|-----|-----|-------|--------------|
| NO. | BY: | DATE: | NO. | BY: | DATE: | S1-26 |
| 1 | | | 3 | | | TOTAL SHEETS |
| 2 | | | 4 | | | 31 |

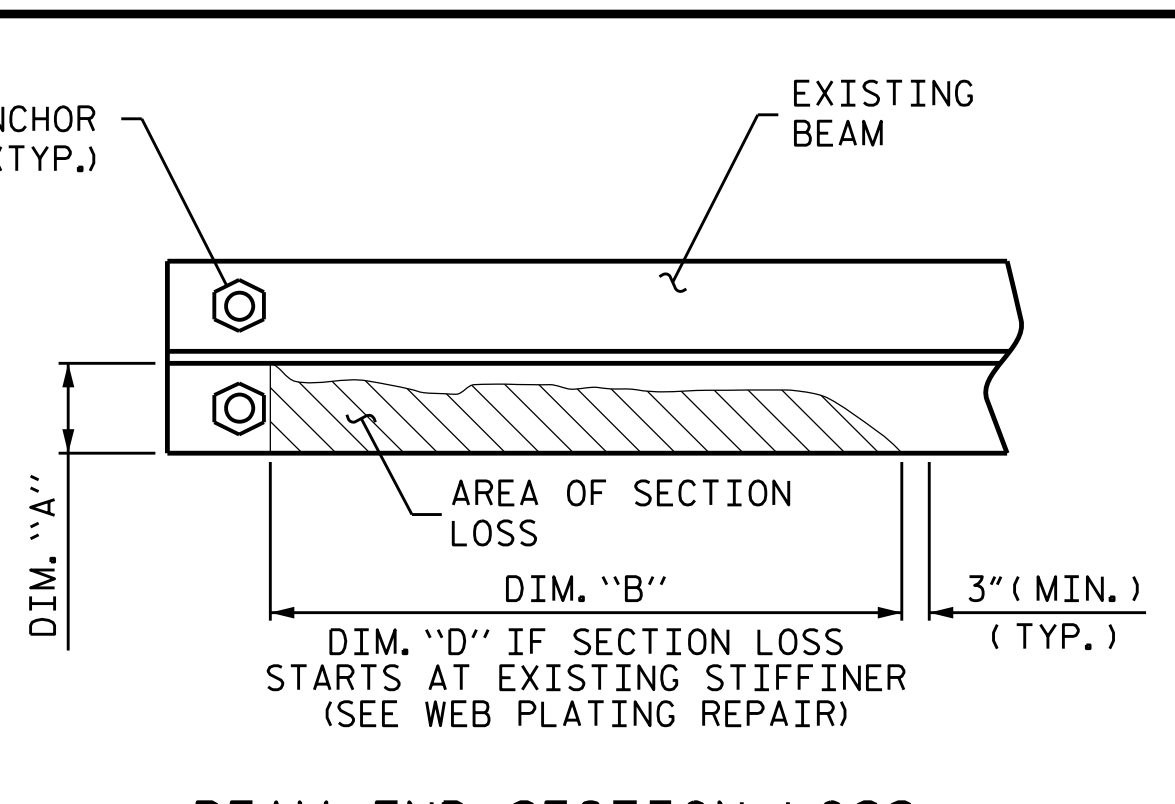


BEAM END SECTION LOSS AND PLATING REPAIR ("W" REPAIR)

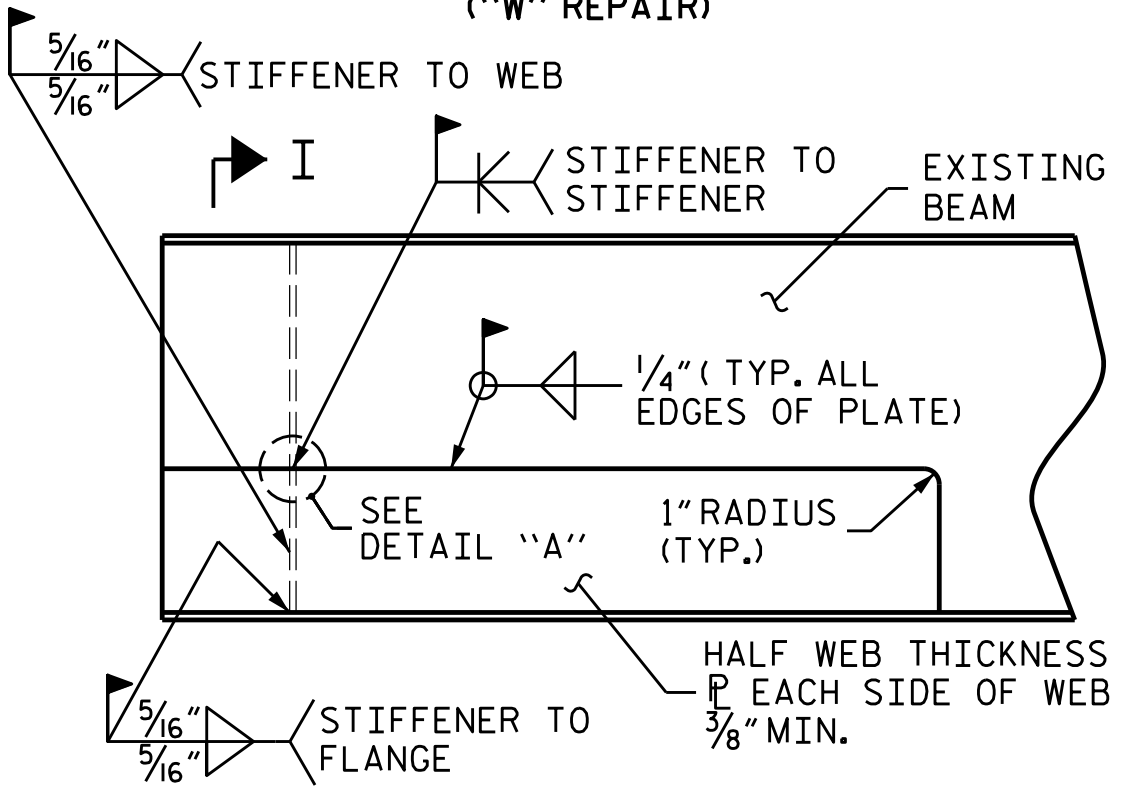


BEAM END SECTION LOSS AND PLATING REPAIR ("W" REPAIR)

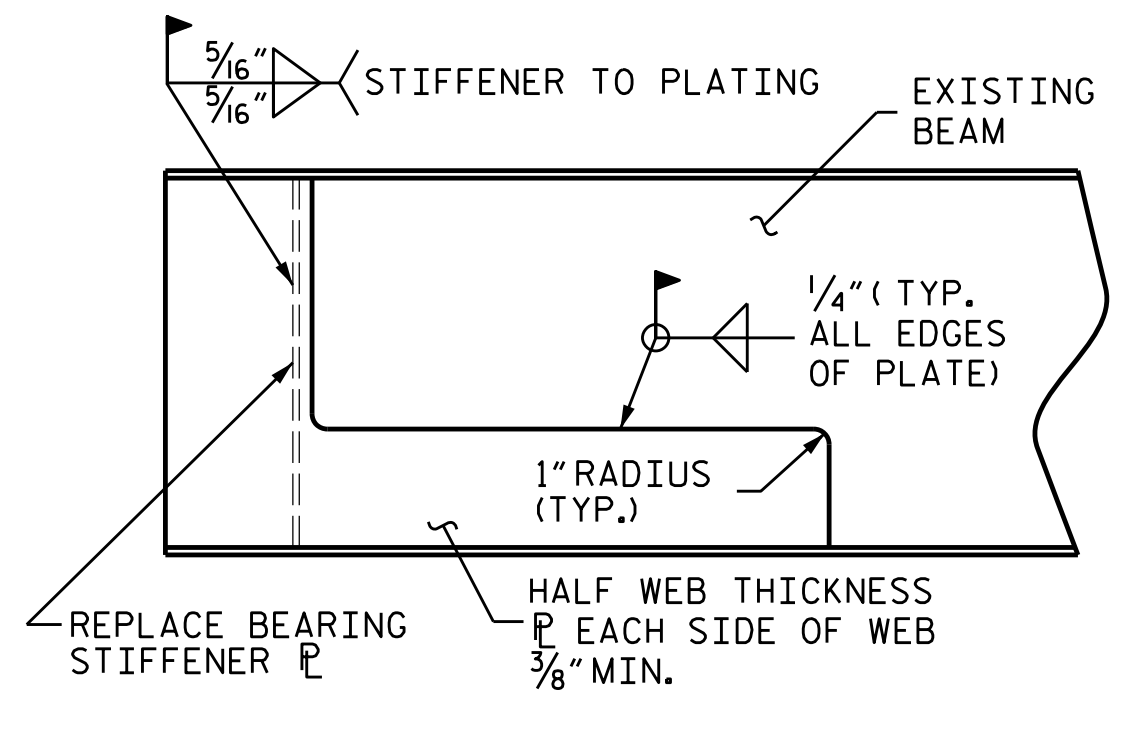
* IF NO DIM "A" OR "B" THEN PLACE REPAIR PLATE ADJACENT TO STIFFENER.



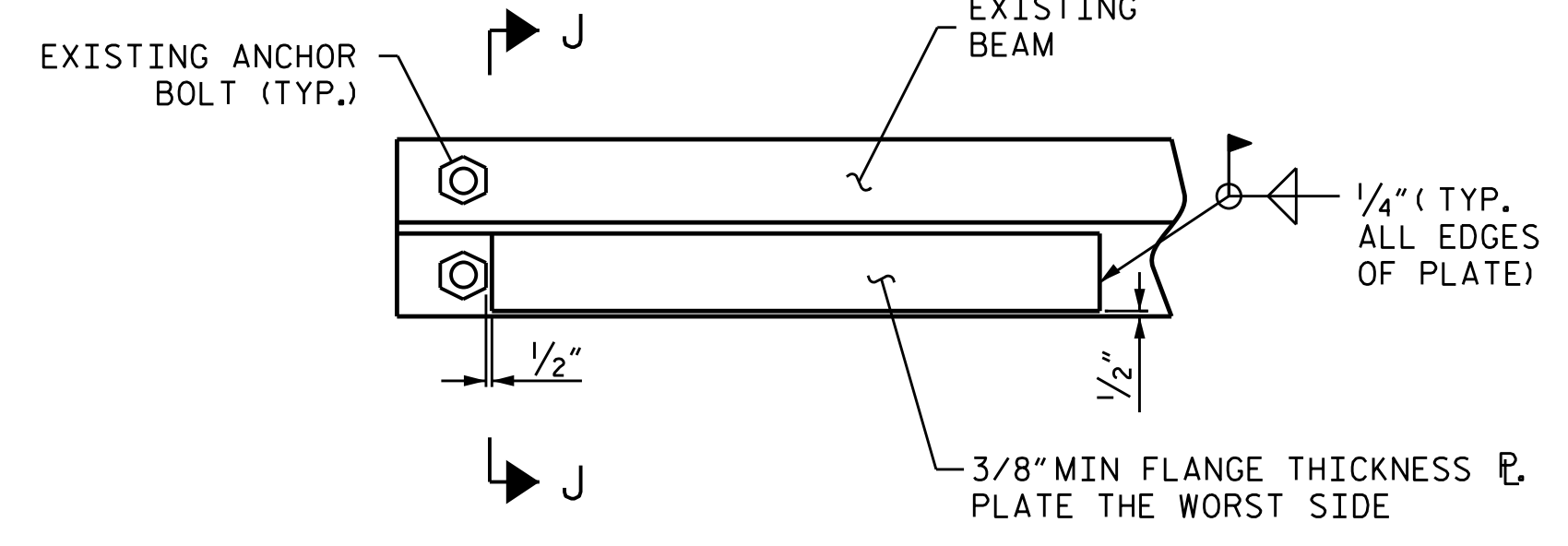
BEAM END SECTION LOSS AND PLATING REPAIR ("F" REPAIR)



SECTION LOSS BEAM PLATING REPAIR ("W" REPAIR)



SECTION LOSS BEAM PLATING REPAIR ("W" REPAIR)



SECTION LOSS BEAM PLATING REPAIR ("F" REPAIR)

BEAM END PLATING REPAIR

BEAM PLATING REPAIR NOTES

ALL CONDITIONS AND DIMENSIONS SHALL BE FIELD VERIFIED PRIOR TO FABRICATION OR INSTALLATION OF ANY COMPONENTS.

REPAIR PLATES SHALL BE NEW, AND SHALL BE THE SAME GRADE OF THE EXISTING STEEL MEMBER OR BETTER.

REPAIR SEQUENCE:

COORDINATE WITH MATERIALS AND TEST UNIT AT LEAST 4 DAYS PRIOR TO ANTICIPATED WORK.

REMOVE LIVE LOAD FROM REPAIR AREA BY EITHER CLOSING BRIDGE TO TRAFFIC OR SHIFTING TRAFFIC AWAY FROM REPAIR AREA.

IF NECESSARY, REMOVE EXISTING STIFFENER TO INSTALL WELDED PLATE REPAIR. REPLACE WITH A NEW STIFFENER PLATE OF SIMILAR SIZE.

IF BEAM DETERIORATION EXTENDS INTO THE CONCRETE DIAPHRAGM THEN CHIP AWAY CONCRETE TO DETERMINE THE EXTENT OF THE DAMAGE.

IF PAINTING THE STEEL, CLEAN AND BLAST STEEL AS REQUIRED, PRIOR TO PERFORMING STEEL REPAIRS. OTHERWISE, MECHANICALLY CLEAN RUST, SCALE, AND EXISTING PAINT TO AT LEAST 3" BEYOND REPAIR AREA.

PRIME ENTIRE REPAIR AREA AND REPAIR PLATES WITH AN ORGANIC ZINC PRIMER PRIOR TO WELDING NEW PLATES. REMOVE PRIMER IN WELD AREA.

ONE PLATE SHALL BE PLACED, AS INDICATED ON EACH SIDE OF THE BEAM WEB. ONE OF THE PLATES SHALL BE A MINIMUM OF 1" TALLER AND WIDER THAN THE OTHER WEB PLATE TO OFFSET THE WEB PLATE WELDING LOCATIONS ON THE EXISTING BEAM WEB.

EACH PLATE SHALL BE APPROXIMATELY ONE-HALF THE ORIGINAL THICKNESS OF THE BEAM WEB, WITH A MINIMUM OF 3/8"

FULLY WELD ALONG TOP AND SIDES OF THE PLATES AS SHOWN.

ALL WELDING SHALL BE IN ACCORDANCE WITH CURRENT APPLICABLE AWS AND NCDOT STANDARD SPECIFICATIONS.

ALL WELDS SHALL BE INSPECTED AND TESTED BY THE NCDOT MATERIALS AND TEST UNIT IN ACCORDANCE WITH THE CURRENT AWS BRIDGE WELDING CODE AND STANDARD SPECIFICATIONS.

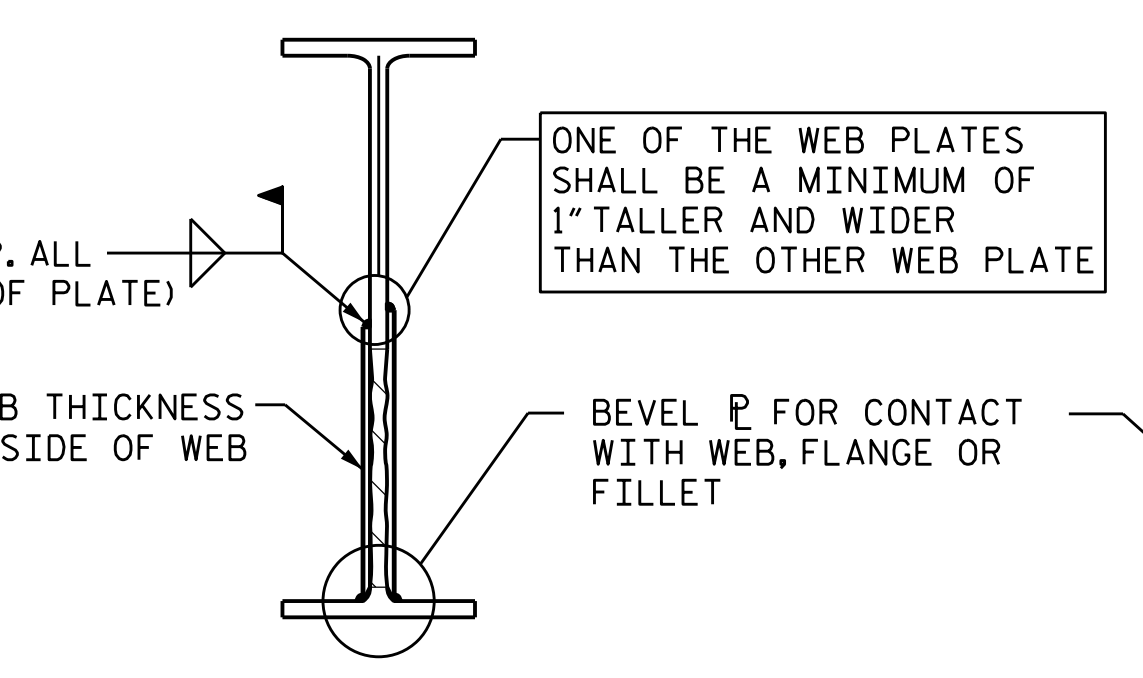
IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS, AFTER REPAIR, GRIND ALL WELDS FLUSH, AND THOROUGHLY CLEAN AREA TO REMOVE DEBRIS AND OILS FROM THE REPAIR PROCESS.

CLEANING AND PAINTING OF REPAIRED STRUCTURAL STEEL SHALL BE PERFORMED AS PART OF THE OVERALL CLEANING AND PAINTING CONTRACT.

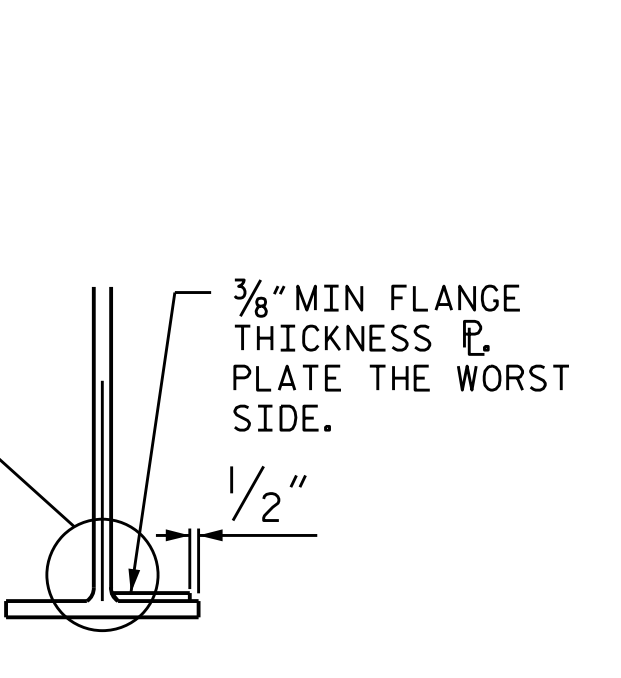
FOR CLEANING AND PAINTING, SEE PAINTING EXISTING STRUCTURE SPECIAL PROVISIONS.

AFTER BEAMS ARE REPAIRED AND PAINTED, ANY CONCRETE REMOVED FROM THE BENT DIAPHRAGMS SHALL BE RECAST. ANY REINFORCING STEEL CUT DURING THE REMOVAL PROCESS SHALL BE SPLICED WITH A SIMILAR SIZE BAR WITH AT LEAST A ONE FOOT SPLICE TO THE EXISTING STEEL. NO SEPARATE PAYMENT SHALL BE MADE FOR CONCRETE AND REINFORCING STEEL AS THIS IS CONSIDERED INCIDENTAL TO THE PAY ITEM "BEAM REPAIR". FOR BEAM REPAIR, SEE SPECIAL PROVISIONS.

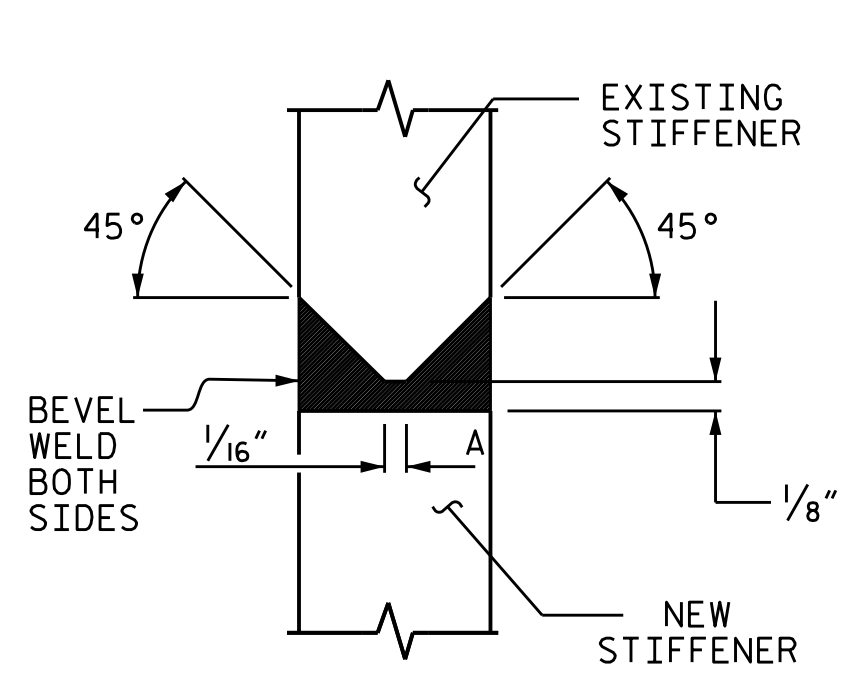
REMOVE ALL TRAFFIC CONTROL DEVICES.



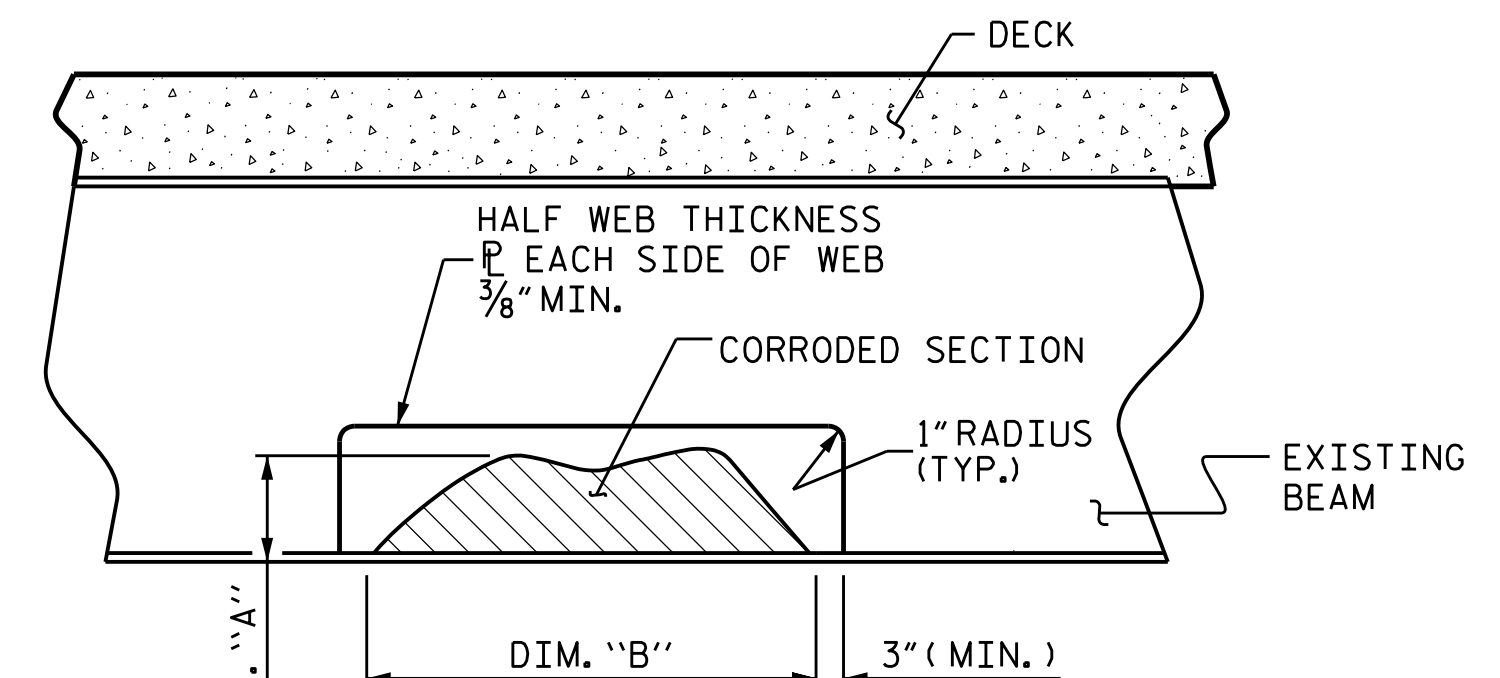
SECTION I-I



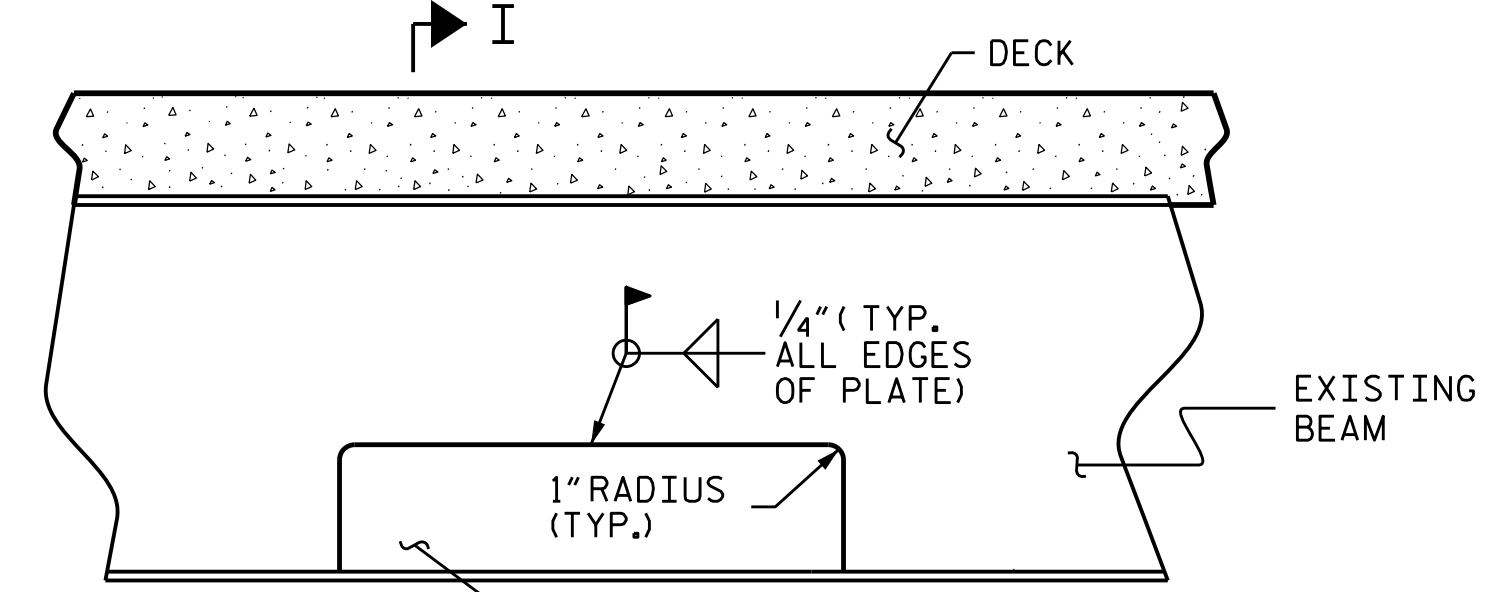
SECTION J-J



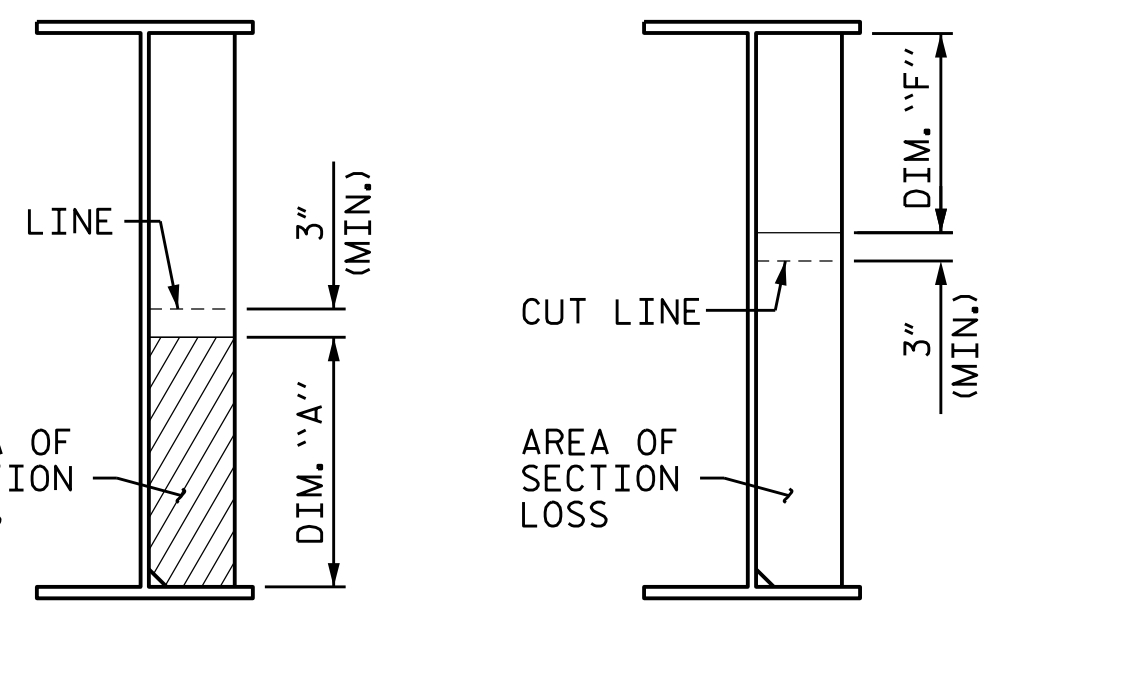
DETAIL "A"



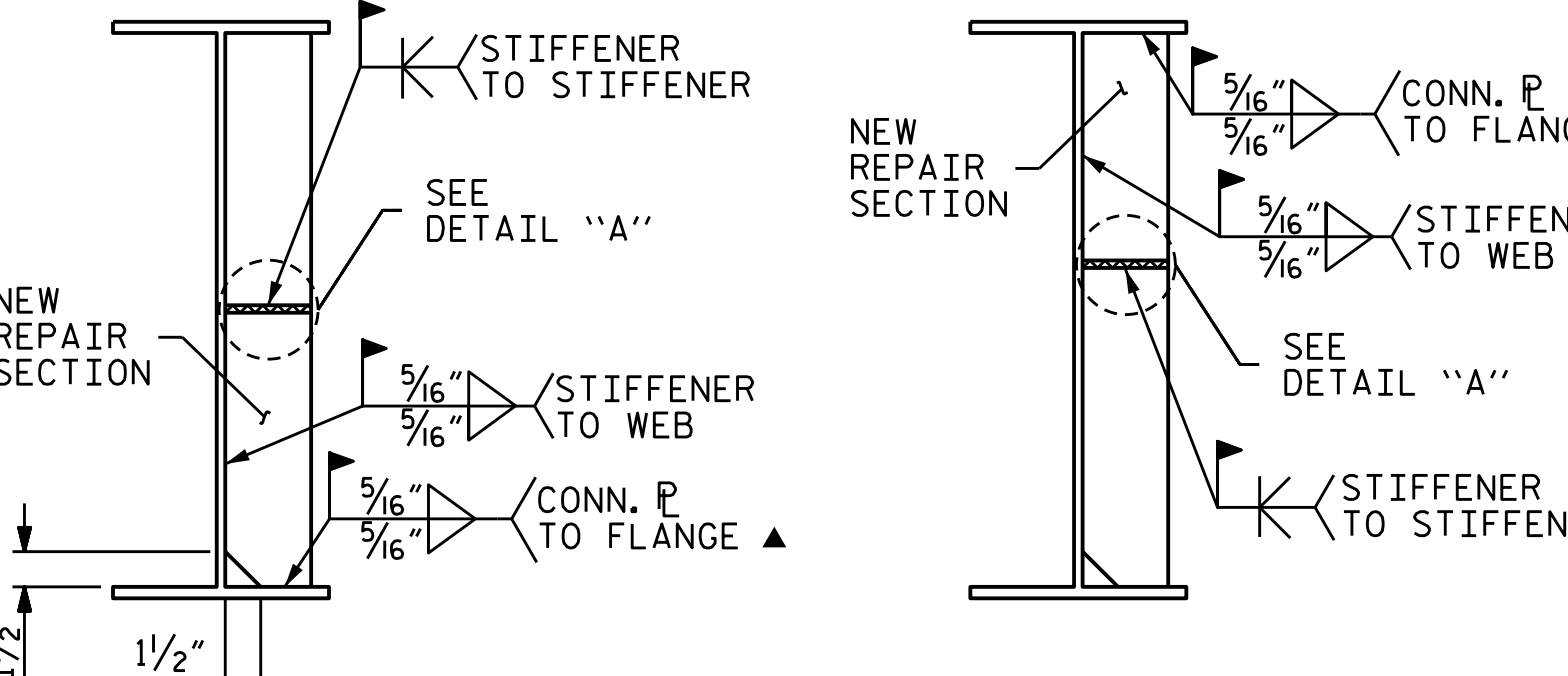
INTERMEDIATE SECTION LOSS BEAM PLATING REPAIR



INTERMEDIATE SECTION LOSS BEAM PLATING REPAIR



STIFFENER/CONN. PLATE SECTION LOSS ("S" REPAIR)

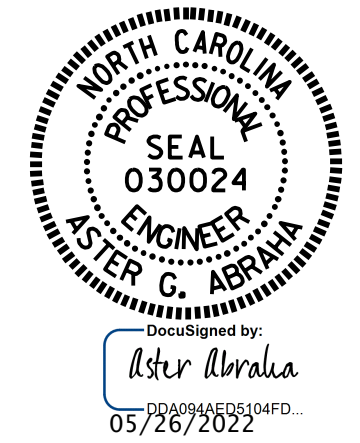


STIFFENER/CONN. PLATE SECTION REPAIR
▲ FOR STIFFENERS, MILL TO BEAR AND DO NOT WELD ("S" REPAIR)

STIFFENER/CONNECTOR PLATE REPAIR

INTERMEDIATE BEAM PLATING REPAIR

PROJECT NO. 15BPR.47
EDGEcombe COUNTY
BRIDGE NO. 320051

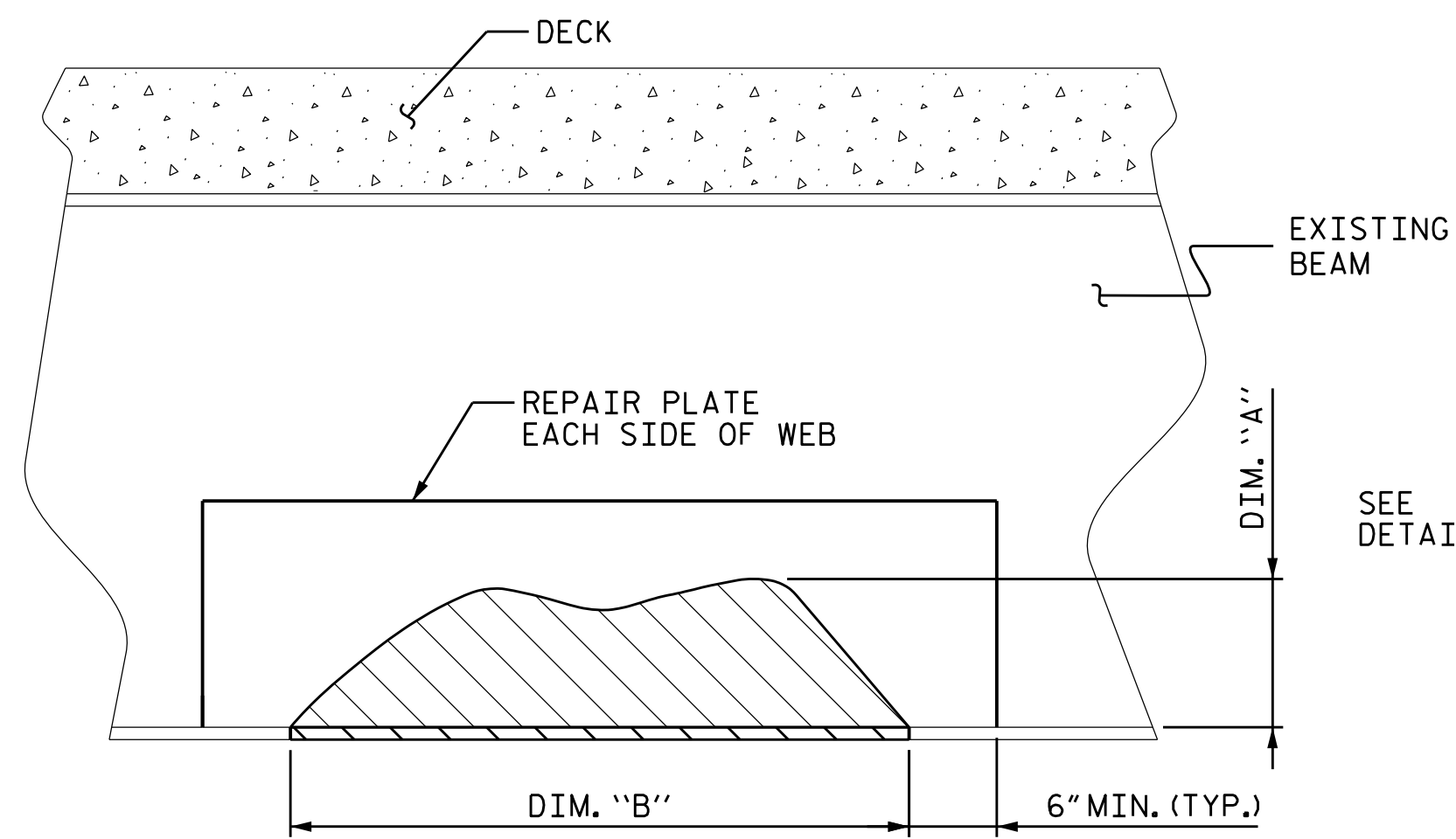


STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

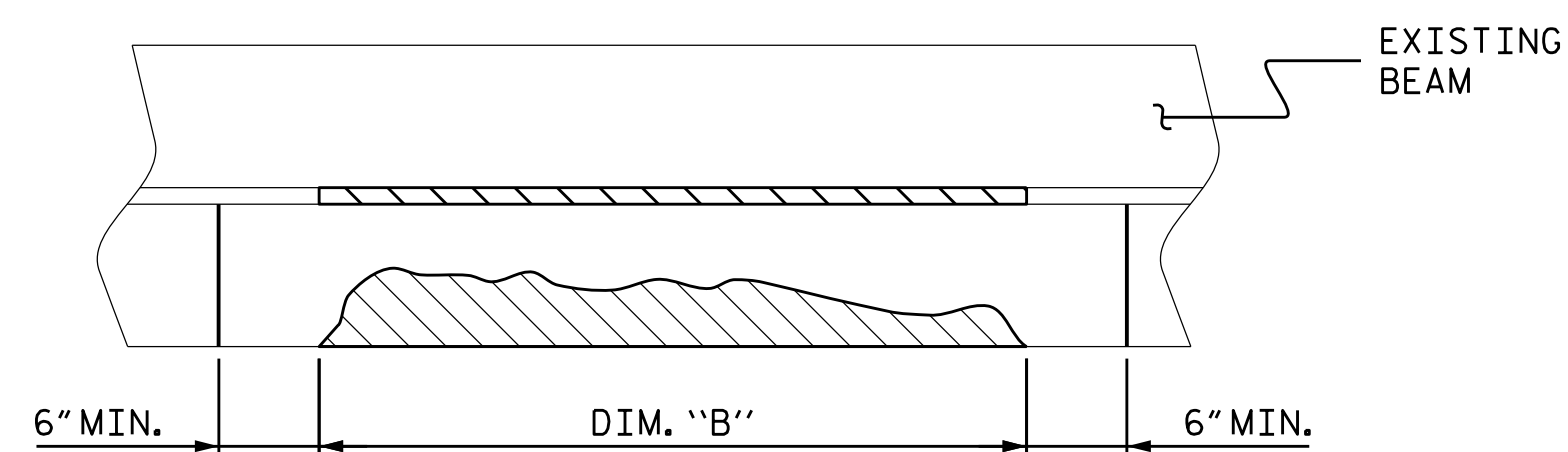
BEAM PLATING REPAIR DETAILS

DRAWN BY : A. Y. GODFREY DATE : 11/2021
CHECKED BY : G. AYES DATE : 02/2022

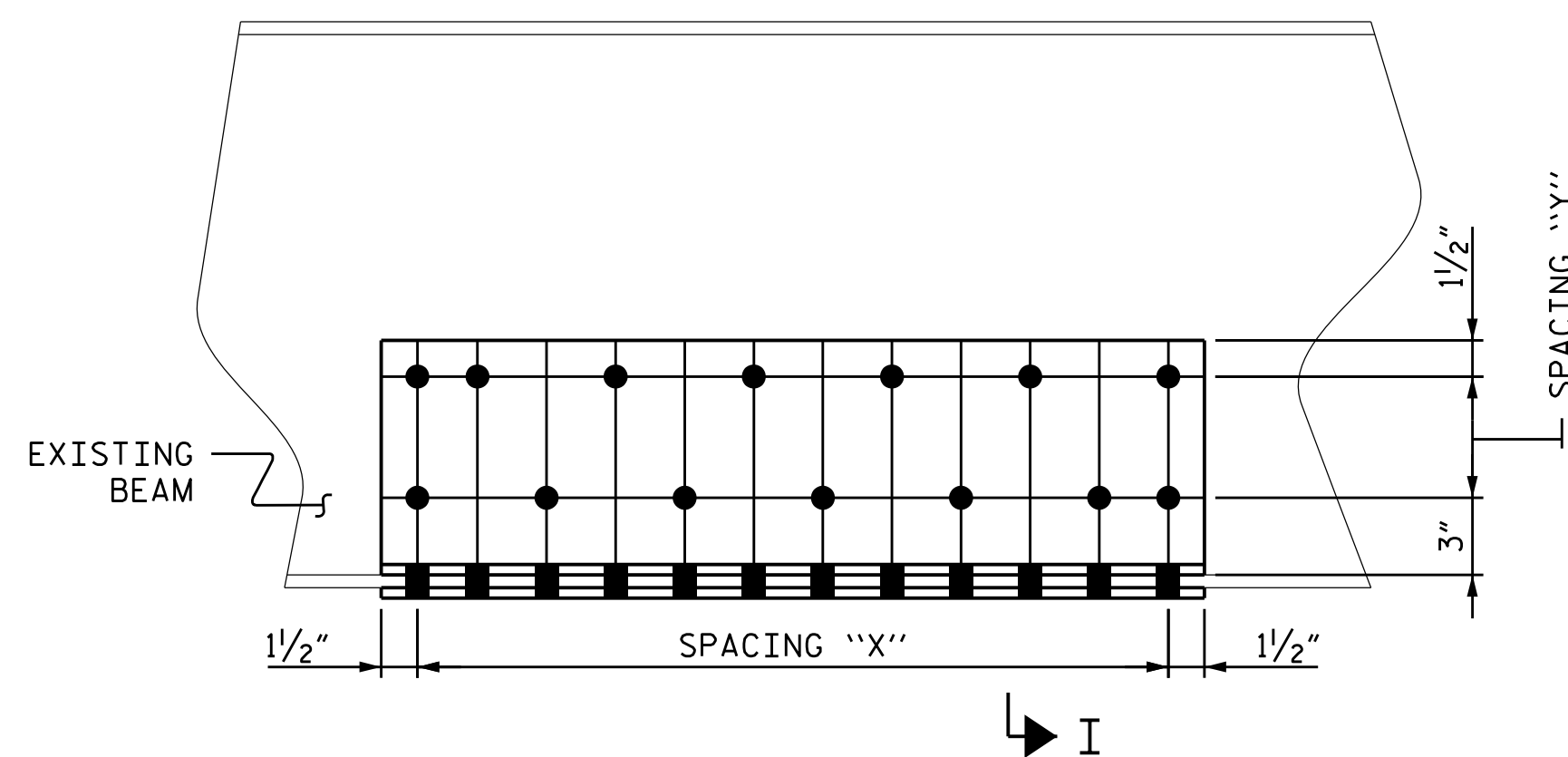
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|-----------|-----|-------|-----|-----|-------|-----------------|
| NO. | BY: | DATE: | NO. | BY: | DATE: | S1-27 |
| 1 | | | 3 | | | TOTAL SHEETS 31 |
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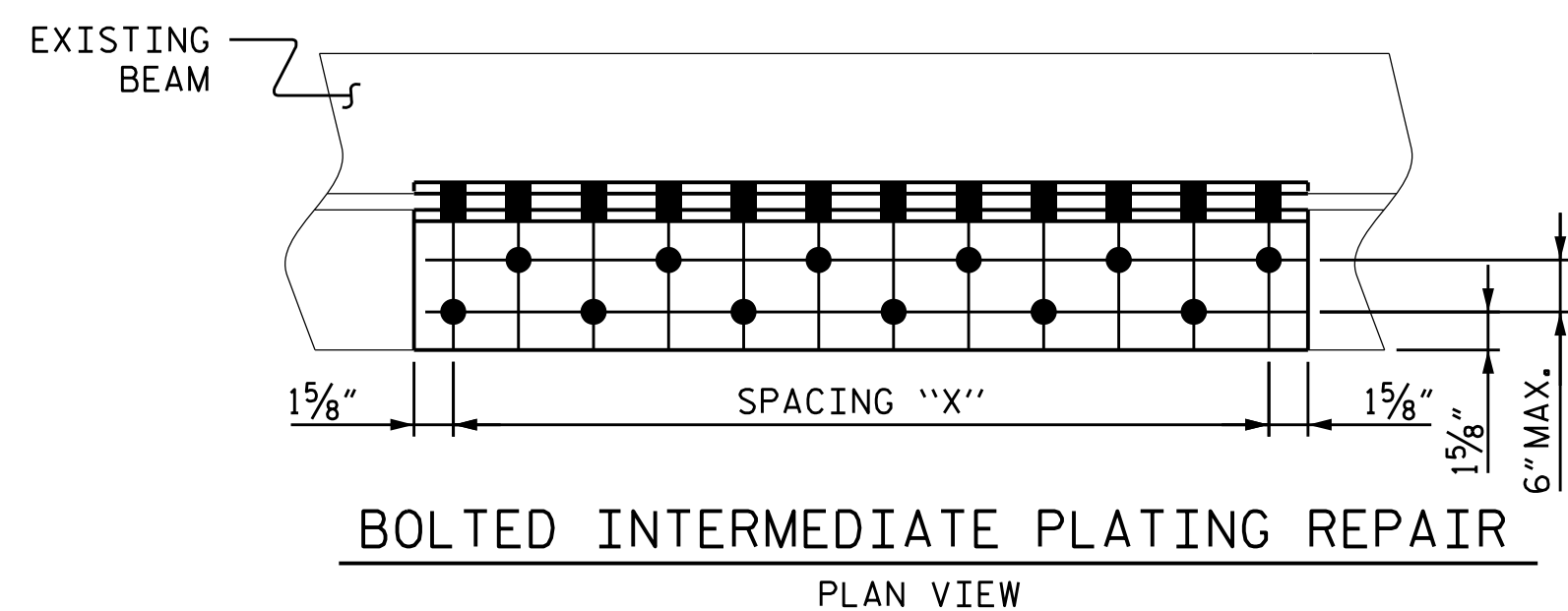
INTERMEDIATE SECTION LOSS
ELEVATION VIEW



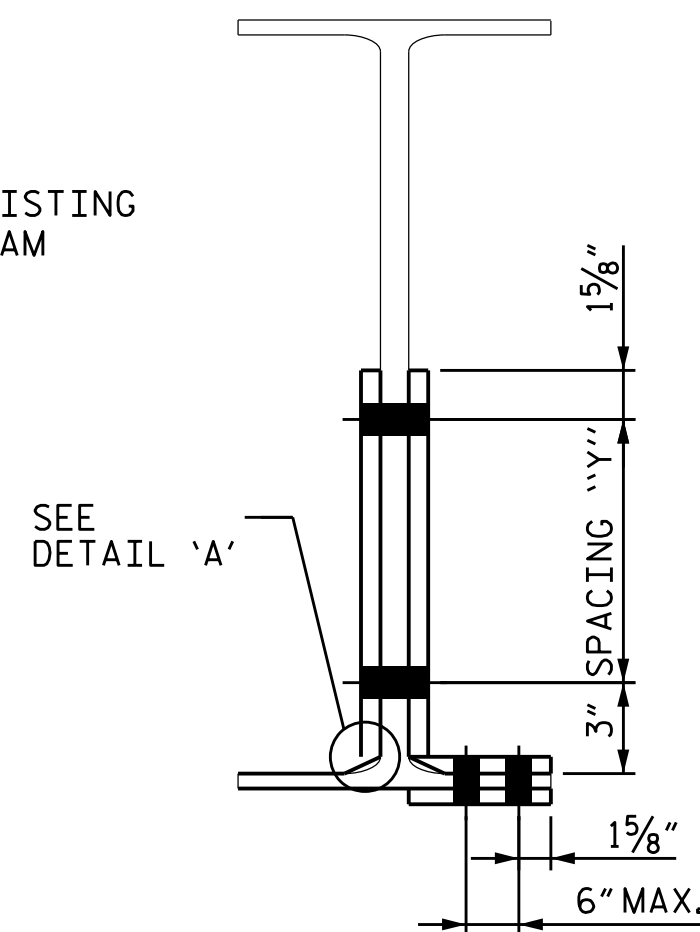
INTERMEDIATE SECTION LOSS
PLAN VIEW



BOLTED INTERMEDIATE PLATING REPAIR
ELEVATION VIEW



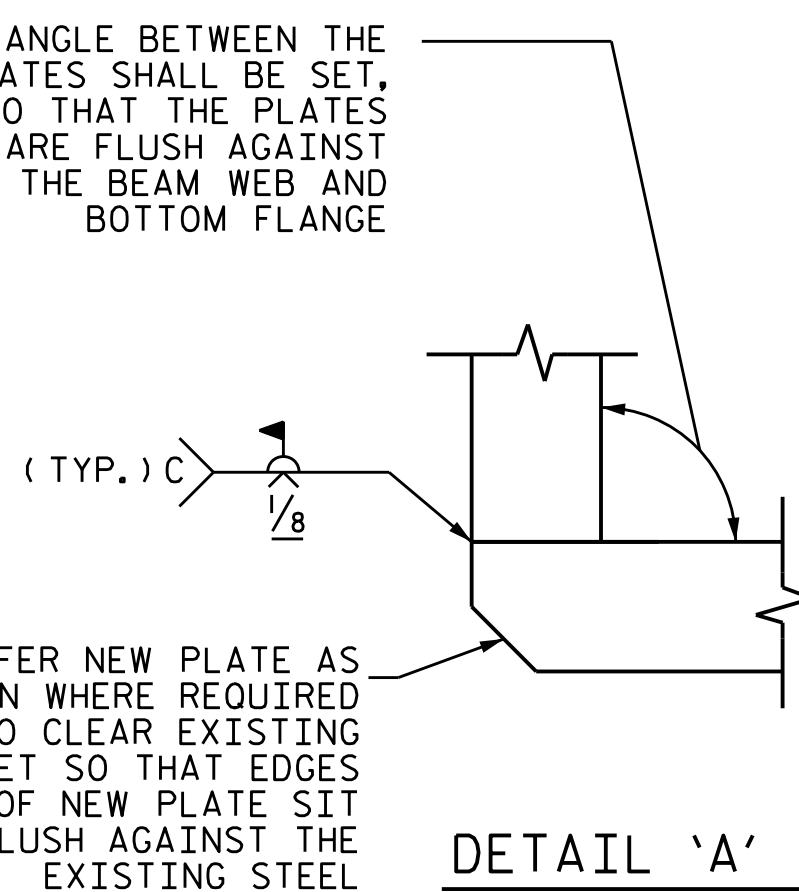
BOLTED INTERMEDIATE PLATING REPAIR
PLAN VIEW



SECTION I-I

THE ANGLE BETWEEN THE PLATES SHALL BE SET, SO THAT THE PLATES ARE FLUSH AGAINST THE BEAM WEB AND BOTTOM FLANGE

CHAMFER NEW PLATE AS SHOWN WHERE REQUIRED TO CLEAR EXISTING FILLET SO THAT EDGES OF NEW PLATE SIT FLUSH AGAINST THE EXISTING STEEL



DETAIL 'A'

BOLTED BEAM PLATING REPAIR NOTES

ALL CONDITIONS AND DIMENSIONS SHALL BE FIELD VERIFIED PRIOR TO FABRICATION OR INSTALLATION OF ANY COMPONENTS.

THE CONTRACTOR SHALL SUBMIT WORKING DRAWINGS TO THE ENGINEER FOR APPROVAL PRIOR TO FABRICATING STRUCTURAL STEEL ITEMS. FOR WORKING DRAWING SUBMITTALS, SEE SPECIAL PROVISIONS.

REPAIR PLATES SHALL BE MINIMUM 36 KSI STEEL AND MATCH THE EXISTING STEEL TYPE.

FOR BEAMS WITH AN EXISTING WEB THICKNESS OF 1/2" OR LESS, THE MINIMUM REPAIR PLATE THICKNESS SHALL BE 1/2". FOR BEAMS WITH AN EXISTING WEB THICKNESS GREATER THAN 1/2", THE MINIMUM REPAIR PLATE THICKNESS SHALL BE 3/4".

ALL BOLTS SHALL BE GALVANIZED ASTM A325 3/4" DIAMETER BOLTS. ALL BOLT HOLES SHALL BE 13/16" IN DIAMETER. ALL NUTS SHALL BE GALVANIZED AND MEET ASTM A194.

TENSION ON THE BOLTS SHALL BE CALIBRATED USING DIRECT TENSION INDICATOR WASHERS (DTIS) IN ACCORDANCE WITH ARTICLE 440-8 OF THE NCDOT STANDARD SPECIFICATIONS. DTIS SHALL MEET ASTM F959.

MINIMUM BOLT SPACING IS 2.5". MAXIMUM BOLT SPACING IS 6" FOR "X" SPACING, 12" FOR "Y" SPACING. MINIMUM EDGE DISTANCE IS 1 1/8", UNLESS NOTED OTHERWISE.

THE EPOXY MASTIC USED FOR THIS WORK SHALL BE COMPATIBLE WITH THE PAINT SYSTEM USED AND SHALL BE APPROVED BY THE NCDOT MATERIALS AND TEST UNIT. THE EPOXY MASTIC WILL BE ACCEPTED ON THE BASIS OF THE MANUFACTURER'S WRITTEN CERTIFICATION THAT THE BATCH MEETS THEIR PRODUCT SPECIFICATION.

ONE FABRICATED SECTION SHALL BE PLACED, AS SHOWN, ON EACH SIDE OF THE BEAM WEB.

BOLT HEADS SHALL BE ON EXTERIOR FACE OF FASCIA BEAMS AND THE BOTTOM OF THE BOTTOM FLANGE.

ADDITIONAL BOLTS MAY BE REQUIRED AT PLATE CORNERS TO MAINTAIN EDGE DISTANCES.

ALL WELDING SHALL BE IN ACCORDANCE WITH CURRENT APPLICABLE AWS AND NCDOT STANDARD SPECIFICATIONS.

ALL WELDS SHALL BE INSPECTED AND TESTED BY THE NCDOT MATERIALS AND TEST UNIT IN ACCORDANCE WITH THE CURRENT AWS BRIDGE WELDING CODE AND STANDARD SPECIFICATIONS.

IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS, AFTER REPAIR, GRIND ALL WELDS FLUSH, AND THOROUGHLY CLEAN AREA TO REMOVE DEBRIS AND OILS FROM THE REPAIR PROCESS.

FOR CLEANING AND PAINTING, SEE SPECIAL PROVISIONS.

REPAIR SEQUENCE:

COORDINATE WITH MATERIALS AND TEST UNIT AT LEAST FOUR (4) DAYS PRIOR TO ANTICIPATED WORK.

REMOVE LIVE LOAD FROM REPAIR AREA BY EITHER CLOSING BRIDGE TO TRAFFIC OR SHIFTING TRAFFIC AWAY FROM REPAIR AREA.

IF NECESSARY, REMOVE EXISTING STIFFENER TO INSTALL BOLTED PLATE REPAIR, FOLLOWING SECTION 1072 OF THE STANDARD SPECIFICATIONS. REPLACE WITH A NEW STIFFENER PLATE OF SIMILAR SIZE.

IF BEAM DETERIORATION EXTENDS INTO THE CONCRETE DIAPHRAGM THEN CHIP AWAY CONCRETE TO DETERMINE THE EXTENT OF THE DAMAGE.

MECHANICALLY CLEAN RUST, SCALE, AND EXISTING PAINT TO AT LEAST 3" BEYOND REPAIR AREA.

PRIME ENTIRE REPAIR AREA AND REPAIR PLATES WITH AN ORGANIC ZINC PRIMER PRIOR TO BOLTING NEW PLATES.

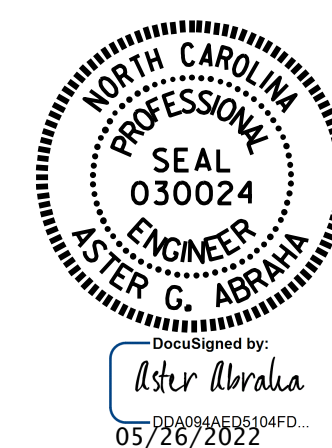
ALL AREAS OF SECTION LOSS AND PITTING SHALL BE FILLED WITH METAL EPOXY FILLER JUST PRIOR TO INSTALLING NEW REPAIR PLATES.

PRIOR TO PLACEMENT OF THE PLATES, APPLY WET EPOXY MASTIC AROUND THE TOP AND SIDES OF THE PLATE FACE THAT IS TO BE IN CONTACT WITH THE BEAM. AMOUNT OF EPOXY MASTIC SHALL BE SUFFICIENT TO SEAL THE PLATE INTERFACE AND THE BEAM AFTER BOLTS ARE TIGHTENED. NO EPOXY MASTIC SHALL BE PLACED ALONG THE BOTTOM EDGE OF THE PLATE. WHILE THE MASTIC IS STILL WET, PLATES SHALL BE PUT IN PLACE AND BOLTS PROPERLY TIGHTENED.

AFTER BEAMS ARE REPAIRED AND PAINTED, ANY CONCRETE REMOVED FROM THE BENT DIAPHRAGMS SHALL BE RECAST. ANY REINFORCING STEEL CUT DURING THE REMOVAL PROCESS SHALL BE SPLICED WITH A SIMILAR SIZE BAR WITH AT LEAST A ONE FOOT SPLICE TO THE EXISTING STEEL. NO SEPARATE PAYMENT SHALL BE MADE FOR CONCRETE AND REINFORCING STEEL AS THIS IS CONSIDERED INCIDENTAL TO THE PAY ITEM "BEAM REPAIR". FOR BEAM REPAIR, SEE SPECIAL PROVISIONS.

REMOVE ALL TRAFFIC CONTROL DEVICES.

PROJ. NO. 15BPR.47
EDGEcombe COUNTY
 BRIDGE NO. 320051



| | | | | | |
|--|-----|-------|-----|-----|-----------------------|
| STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH | | | | | |
| STANDARD BOLTED BEAM PLATING REPAIR DETAILS | | | | | |
| REVISIONS | | | | | |
| NO. | BY: | DATE: | NO. | BY: | DATE: |
| 1 | | | 3 | | |
| 2 | | | 4 | | |
| SHEET NO. S1-28 | | | | | TOTAL SHEETS 31 |

| | | | |
|----------------|---------------|--------|---------|
| ASSEMBLED BY : | A. Y. GODFREY | DATE : | 01/2022 |
| CHECKED BY : | G. AYES | DATE : | 02/2022 |
| DRAWN BY : | DAC 08/18 | | |
| CHECKED BY : | | | |

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 SIGNATURES COMPLETED

BRIDGE JACKING NOTES:

THIS DETAIL IS A GENERIC EXAMPLE OF A JACKING SCHEME AND DOES NOT NECESSARILY REPRESENT SPECIFIC CONDITIONS AT A PARTICULAR BRIDGE. ACTUAL BRIDGE GEOMETRIES, DIMENSIONS, AND CONDITIONS MAY DIFFER FROM THIS DETAIL. PRIOR TO BEGINNING WORK, THE CONTRACTOR SHALL INVESTIGATE THE BRIDGES ON THE PROJECT AND DEVELOP A JACKING PLAN TO BE SUBMITTED FOR REVIEW AND APPROVAL. SEE BRIDGE JACKING SPECIAL PROVISION.

PRIOR TO BRIDGE JACKING OPERATIONS, THE ENGINEER AND CONTRACTOR SHALL INSPECT THE STRUCTURE FOR ANY NOTABLE DEFECTS TO THE PRIMARY AND SECONDARY STRUCTURAL MEMBERS. ALL NOTABLE DEFECTS SHALL BE DOCUMENTED AND REPORTED TO THE AREA BRIDGE MAINTENANCE ENGINEER PRIOR TO COMMENCEMENT OF ANY BRIDGE JACKING. THE CONTRACTOR SHALL PROVIDE SAFE AND SUFFICIENT ACCESS TO ALL STRUCTURAL MEMBERS FOR THE ENGINEER TO ESTABLISH PROPER DOCUMENTATION.

PRIOR TO JACKING, THE CONTRACTOR SHALL ENSURE THERE ARE NO OBSTACLES PREVENTING THE BEAM FROM BEING LIFTED.

THE BEAM SHALL BE LIFTED ENOUGH THAT THE BEAM CLEARS THE BEARINGS AND ALL LOAD IS SUPPORTED BY THE JACKS. AFTER JACKING IS COMPLETE, THE CONTRACTOR SHALL PROVIDE FOR A METHOD TO REMOVE THE JACKS AND SUPPORT THE BEAM FOR DEAD AND LIVE LOAD DURING THE REPAIR OPERATIONS. IF THE JACKS REMAIN IN PLACE DURING THE ENTIRE JACKING AND REPAIR OPERATION, THEY SHALL HAVE MECHANICAL LOCK OFF CAPABILITIES.

IF, DURING THE JACKING PROCESS, OR WHILE THE BEAM IS BEING SUPPORTED, THE BEAM SHIFTS FROM ITS ORIGINAL POSITION, ALL WORK SHALL CEASE AND THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY.

BEARINGS ADJACENT TO THE BEAM BEING JACKED MAY BE LOOSENED TO DECREASE THE RESISTANCE OF THE DECK SLAB DURING JACKING. ALL BEARINGS LOOSENED SHALL BE TIGHTENED BACK AFTER REPAIR OPERATIONS ARE COMPLETED AND THE JACKS AND BLOCKING HAVE BEEN REMOVED.

THE MAXIMUM DIFFERENTIAL BETWEEN ADJACENT BEAMS THAT ARE BEING JACKED IS $\frac{1}{8}$ ".

LOADS PROVIDED IN THE "BRIDGE JACKING TABLE" ARE SHOWN FOR INFORMATIONAL PURPOSES ONLY. THE CONTRACTOR'S ENGINEER SHALL DETERMINE THE EXPECTED LOADS TO BE LIFTED DURING THE BRIDGE JACKING OPERATIONS.

THE CONTRACTOR SHALL SUBMIT WORKING DRAWINGS AND CALCULATIONS OF THE JACKING PROCEDURE(S) SEALED BY A PROFESSIONAL ENGINEER IN THE STATE OF NORTH CAROLINA TO THE ENGINEER FOR APPROVAL PRIOR TO BRIDGE JACKING OPERATIONS.

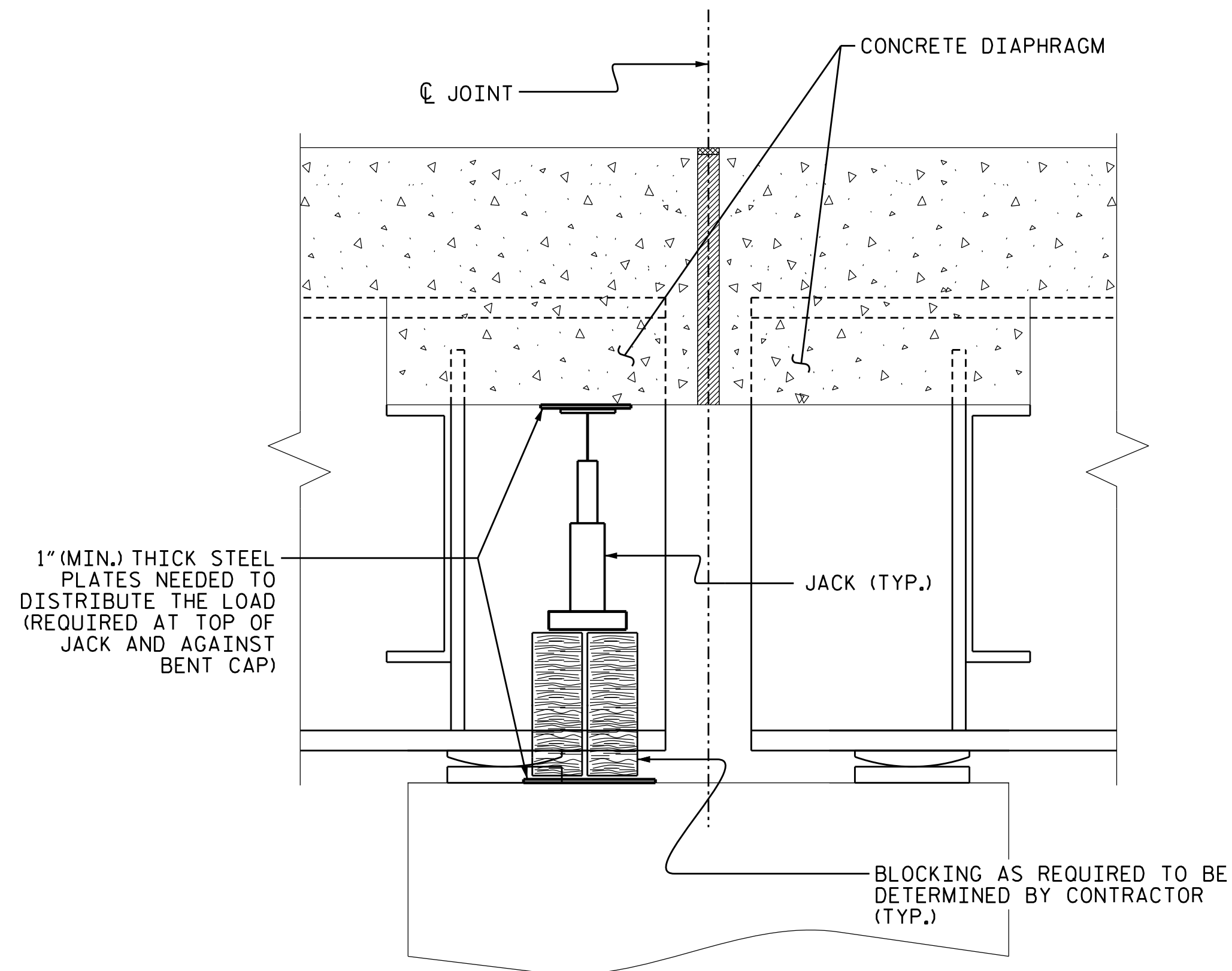
FOR TYPE I OR TYPE II BRIDGE JACKING, SEE SPECIAL PROVISIONS.

FOR WORKING DRAWING SUBMITTALS, SEE SPECIAL PROVISIONS.

ANY STEEL THAT HAS BEEN WELDED TO THE EXISTING STRUCTURE SHALL REMAIN IN PLACE.

TYPE II BRIDGE JACKING SHALL BE DONE WITH A HYDRULIC JACKING SYSTEM THAT LIFTS EACH BEAM ALONG ENTIRE SPAN END WITH EQUAL FORCE AND AT AN EQUAL RATE.

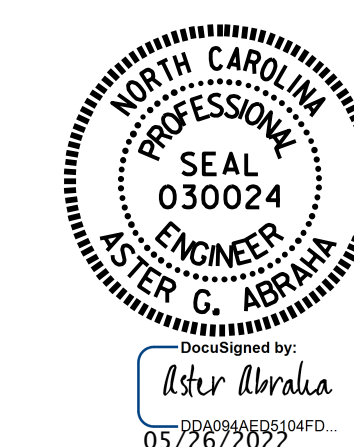
THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING ANY DAMAGE CAUSED TO THE EXISTING STRUCTURE BY BRIDGE JACKING OPERATIONS AT NO ADDITIONAL COST TO THE DEPARTMENT.



SECTION THRU DIAPHRAGM

| BRIDGE JACKING TABLE | | | |
|-----------------------------|------|---------|---------------------|
| LOCATION | SPAN | BEAM(S) | BRIDGE JACKING TYPE |
| BENT 3 | C | 1 | TYPE I |
| BENT 4 | E | 1, 2 | TYPE I |

PROJ. NO. 15BPR.47
EDGEcombe COUNTY
 BRIDGE NO. 320051



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
**BRIDGE JACKING
 DETAILS**

ASSEMBLED BY : A.Y. GODFREY DATE : 01/2022
 CHECKED BY : G. AYES DATE : 02/2022
 DRAWN BY : NAP 08/18
 CHECKED BY :

5/26/2022
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| REVISIONS | | | | | | SHEET NO. |
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| NO. | BY: | DATE: | NO. | BY: | DATE: | S1-29 |
| 1 | | | 3 | | | TOTAL SHEETS |
| 2 | | | 4 | | | 31 |

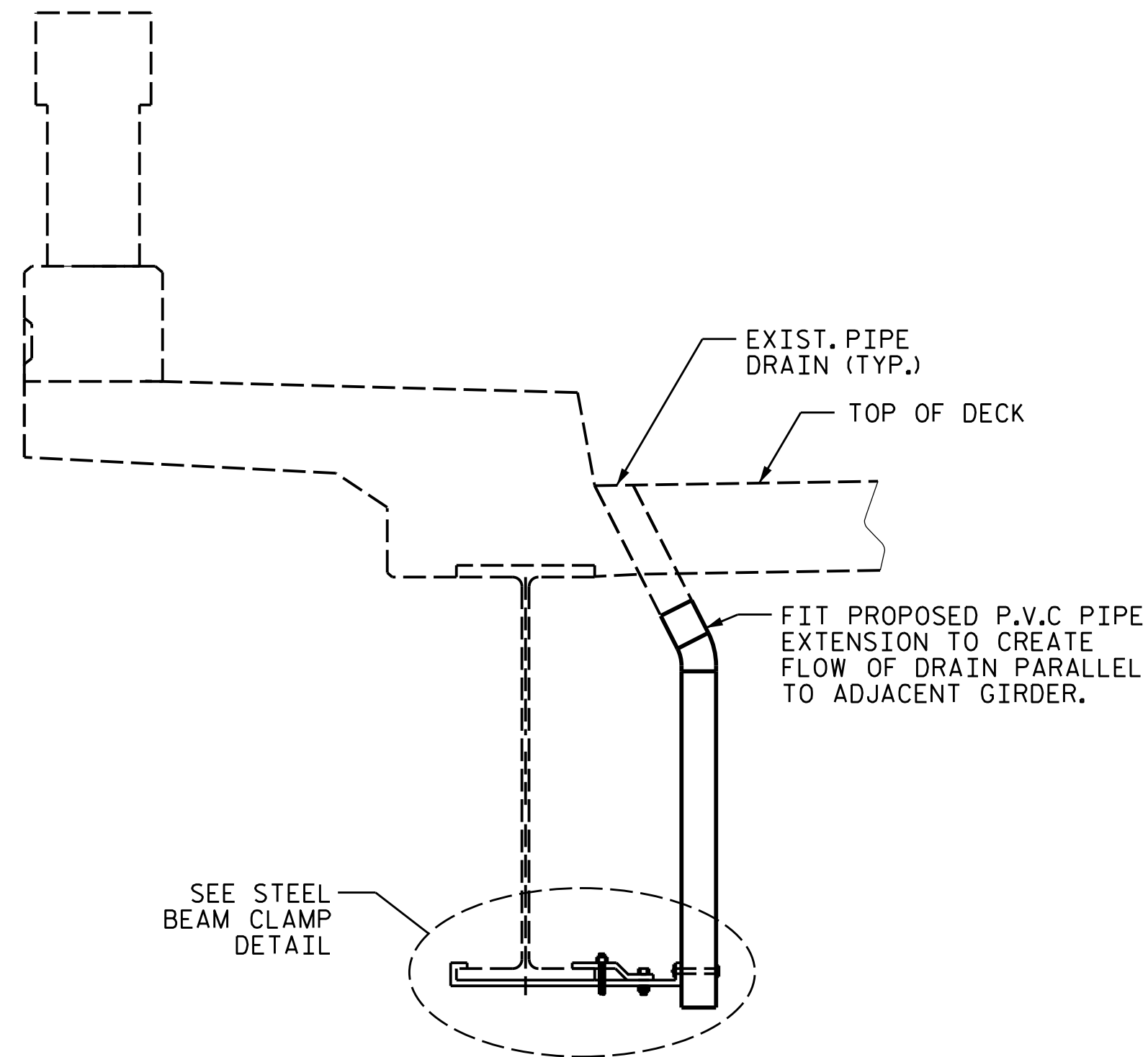
NOTES:

COUPLING IN DRAIN PIPE WILL BE PERMITTED AS APPROVED BY THE ENGINEER.

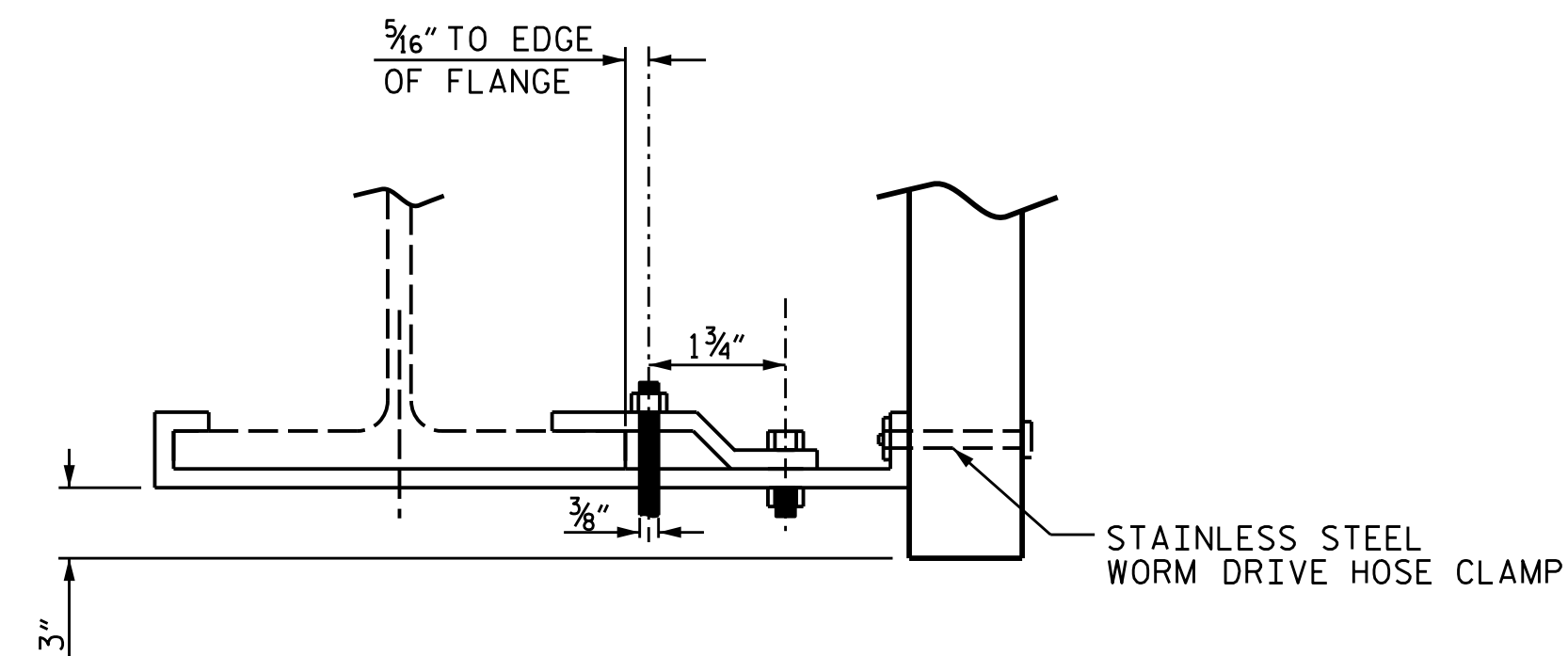
BOLT SIZE TO BE SAME AS DIAPHRAGM AND CROSSFRAME CONNECTIONS. STAINLESS STEEL WORM HOSE CLAMP SHALL BE COMMERCIAL QUALITY.

PIPE AND ALL PLATES SHALL CONFORM TO AASHTO M270 GRADE 36 STEEL OR APPROVED EQUAL. PIPE SHALL CONFORM TO ASTM A53, TYPE S. ALL HOLD DOWN-BOLTS AND NUTS SHALL BE AASHTO M164. WASHERS SHALL CONFORM TO AASHTO M293. ALL ANCHOR STUDS SHALL CONFORM TO AASHTO M163 GRADES 1010 THRU 1020 OR APPROVED EQUAL.

UPON COMPLETION OF SHOP FABRICATION, ALL STEEL PARTS, INCLUDING BOLTS AND WASHERS, SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.



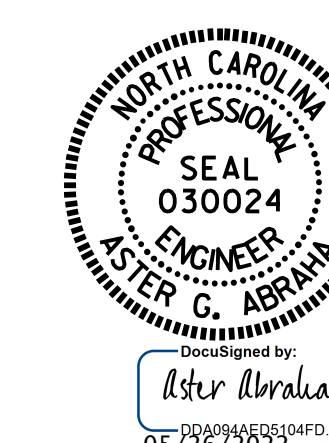
DECK DRAIN EXTENSION DETAIL



STEEL BEAM CLAMP DETAIL

| QUANTITY OF DECK DRAIN EXTENSIONS (EA.) | | |
|---|----------|--------|
| LOCATION | ESTIMATE | ACTUAL |
| SPAN A | 0 | |
| SPAN B | 16 | |
| SPAN C | 16 | |
| SPAN D | 16 | |
| SPAN E | 16 | |
| SPAN F | 16 | |
| TOTAL | 80 | |

PROJECT NO. 15BPR.47
EDGEcombe COUNTY
 BRIDGE NO. 320051



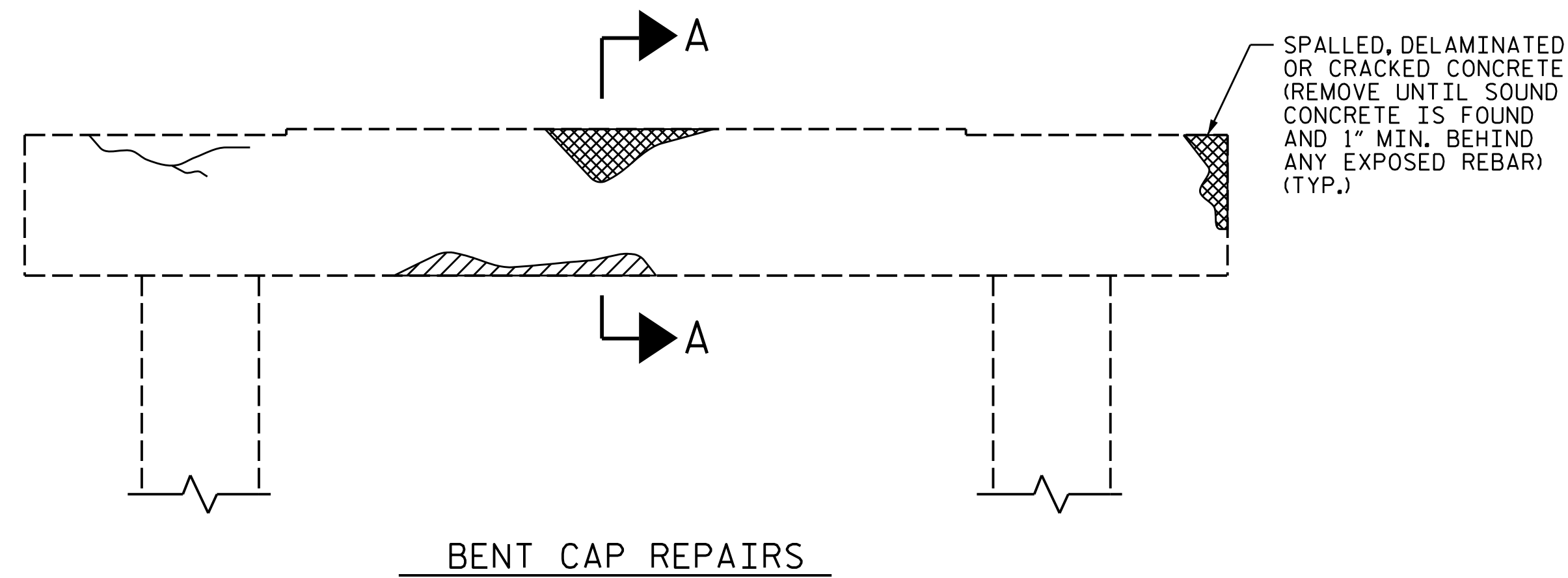
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

DECK DRAIN
 EXTENSION DETAILS

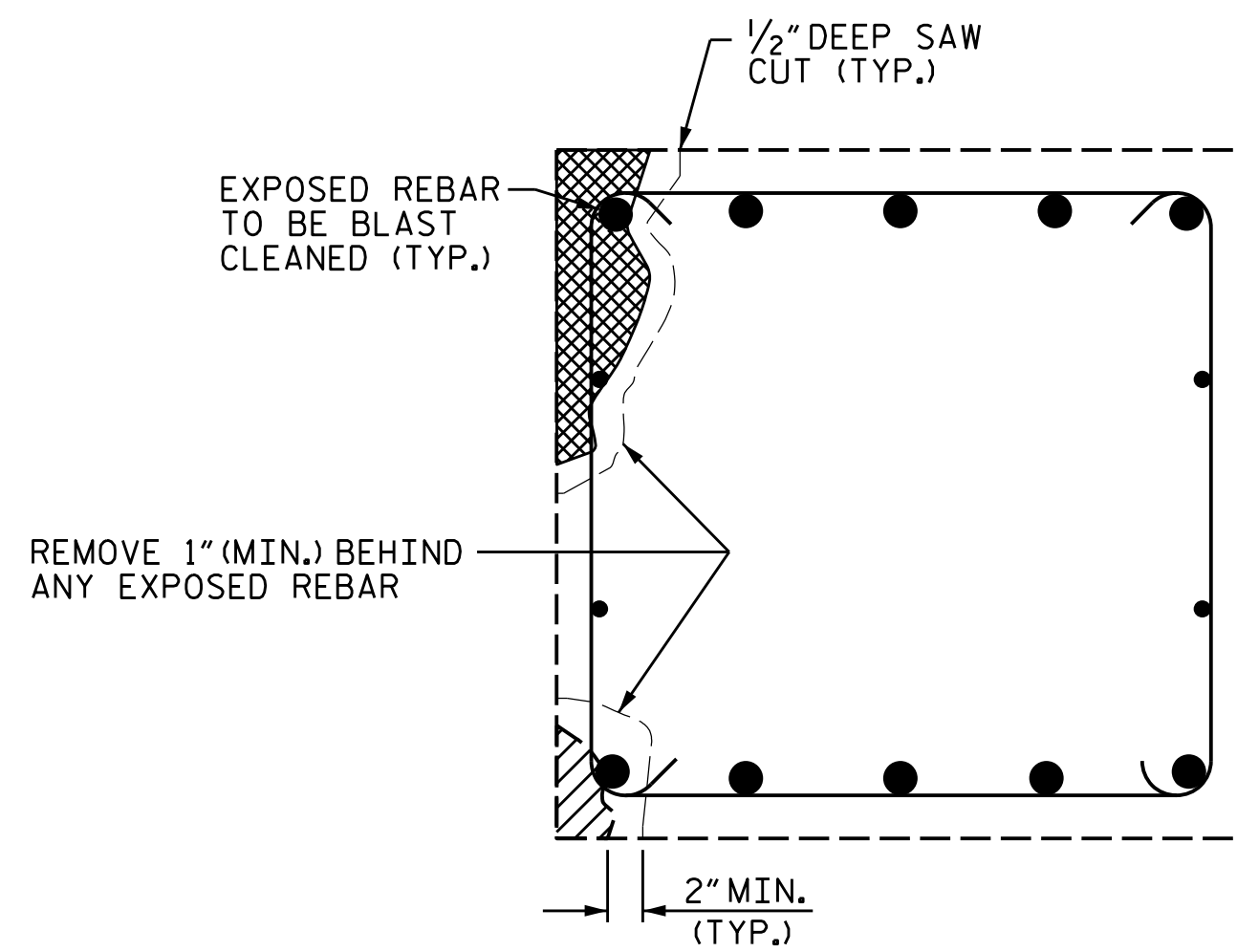
DRAWN BY : A. Y. GODFREY DATE : 01/2022
 CHECKED BY : G. AYES DATE : 02/2022

DOCUMENT NOT CONSIDERED
 FINAL UNLESS ALL
 SIGNATURES COMPLETED

| REVISIONS | | | | | | SHEET NO. |
|-----------|-----|-------|-----|-----|-------|--------------|
| NO. | BY: | DATE: | NO. | BY: | DATE: | S1-30 |
| 1 | | | 3 | | | TOTAL SHEETS |
| 2 | | | 4 | | | 31 |

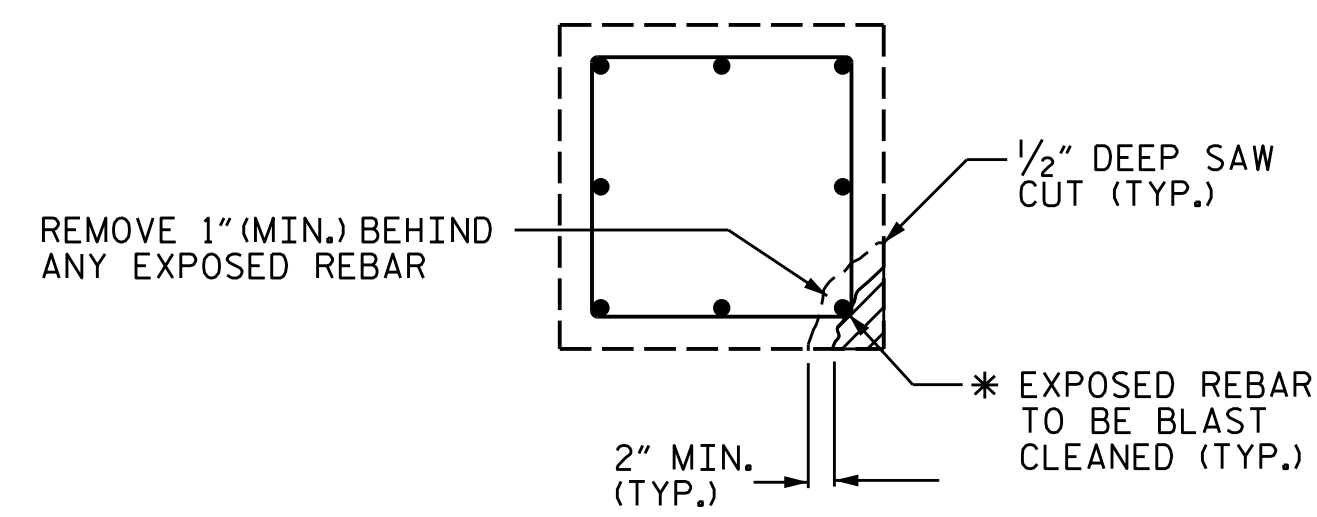


BENT CAP REPAIRS



SECTION A-A

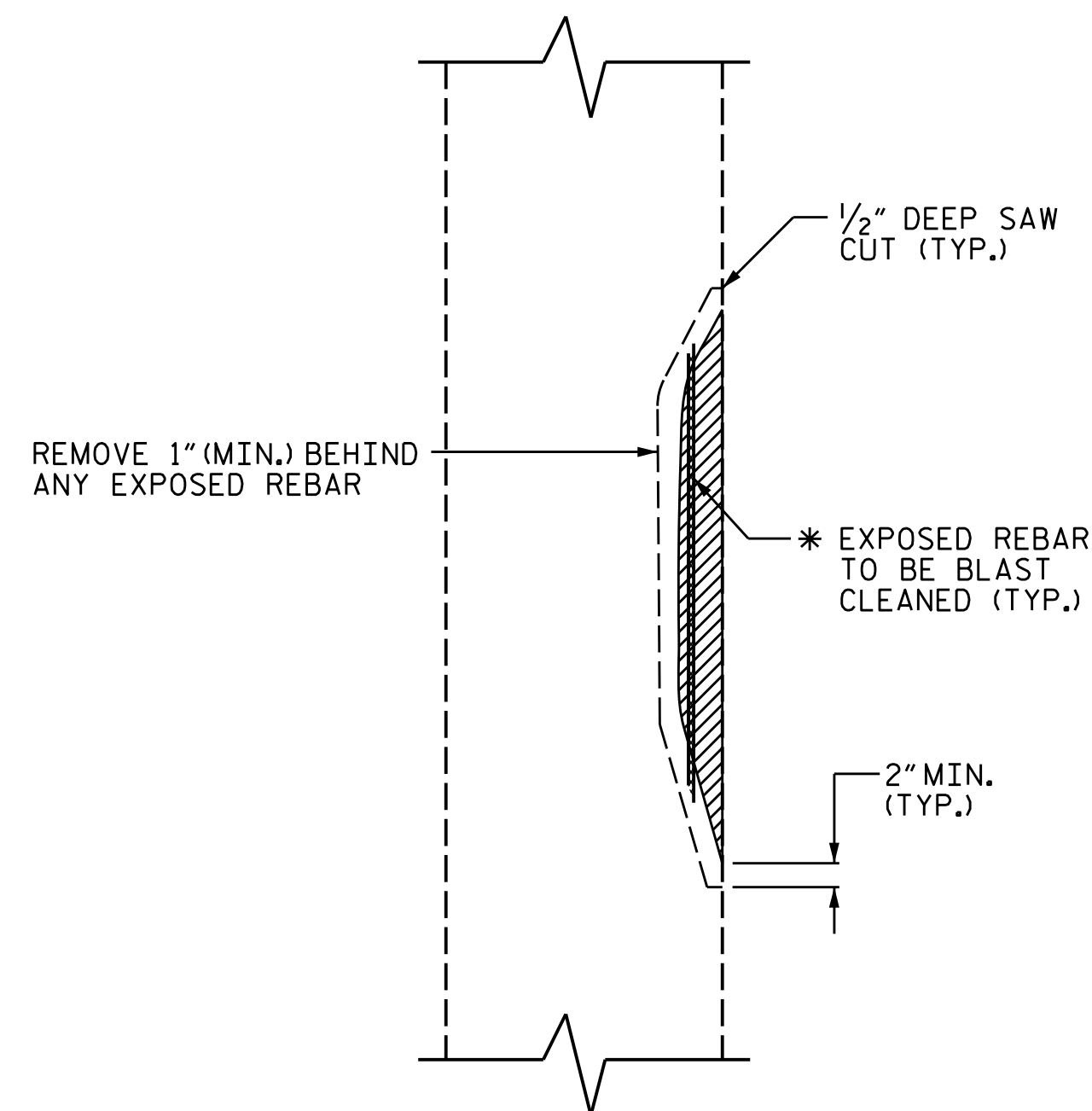
CAP REPAIR



PLAN OF COLUMN

REPAIR KEY

- SHOTCRETE REPAIR AREA
- CONCRETE REPAIR AREA (FORM AND POUR)

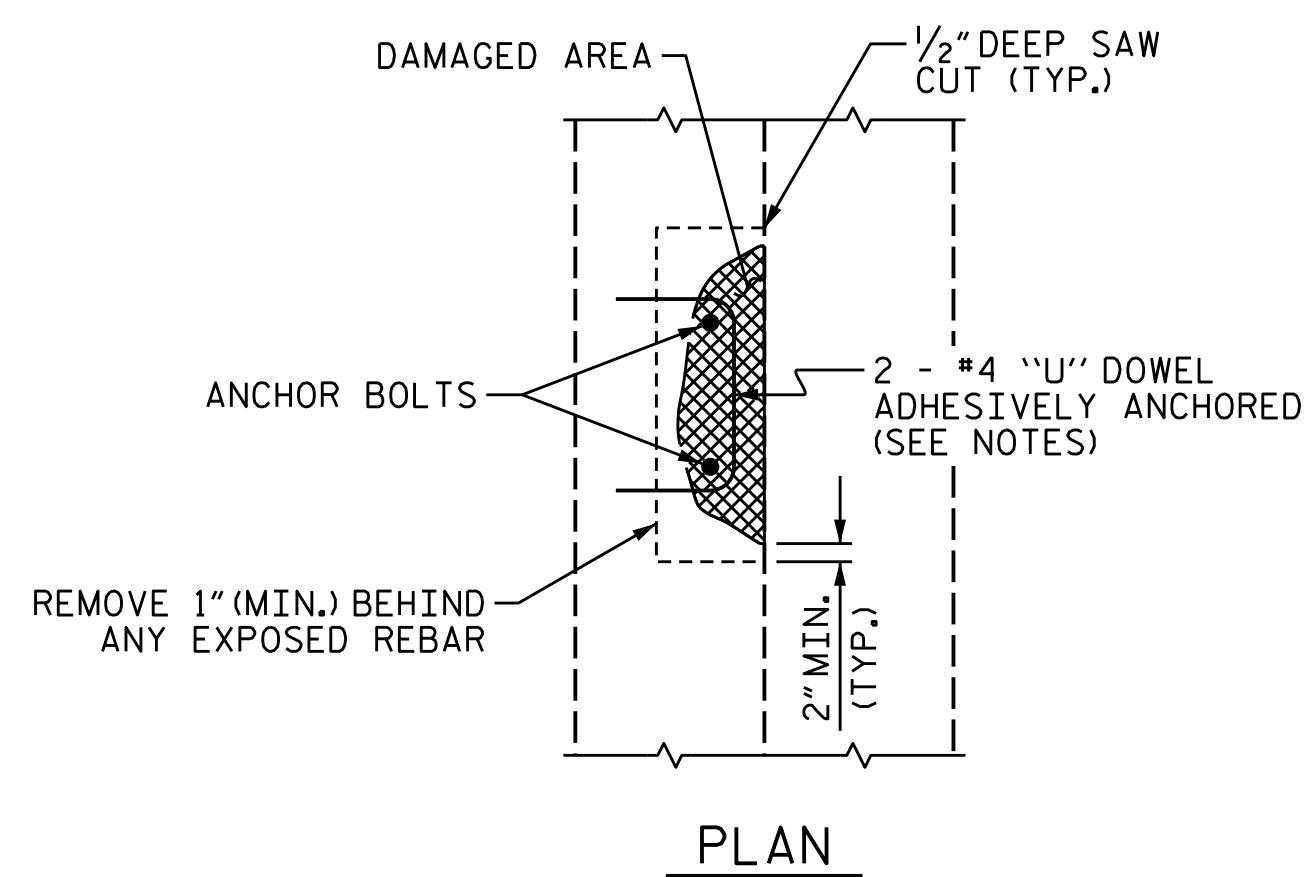


ELEVATION OF COLUMN

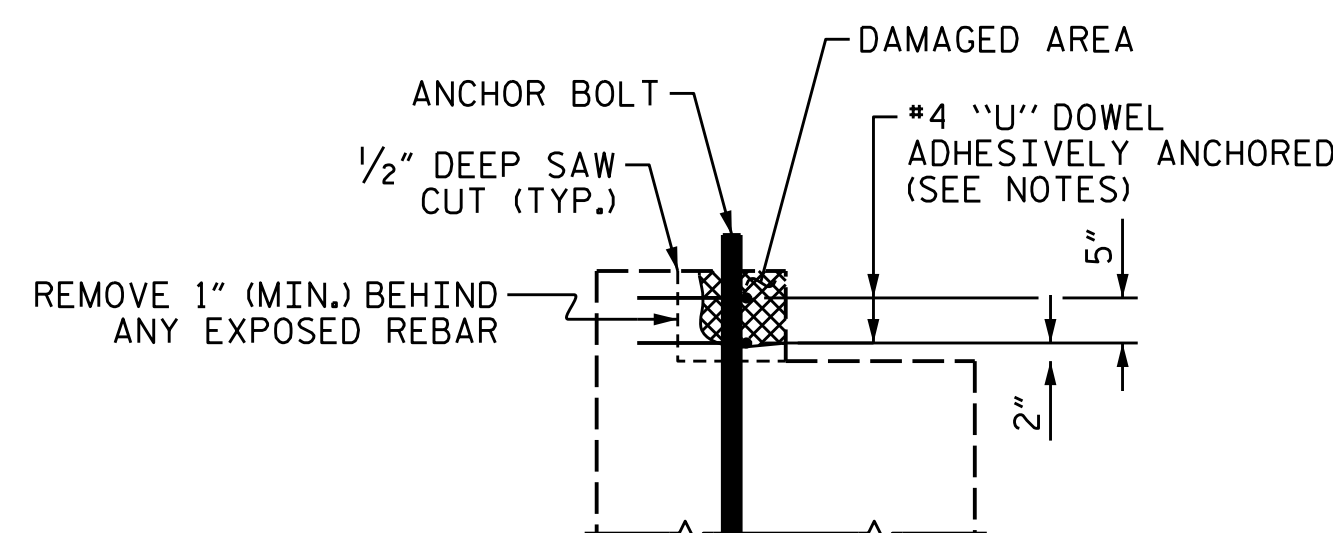
COLUMN REPAIR

* REPAIR LENGTH SHALL NOT EXCEED 10 FEET.

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



PLAN



ELEVATION

PEDESTAL WALL REPAIR

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 CIRCUMFERENCE 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, BUT NO MORE THAN 1/2 OF THE CIRCUMFERENCE SHALL BE REMOVED AT ONE TIME. IF REMOVAL EXTENDS MORE THAN 1/2" BEHIND THE MAIN REINFORCING BARS, NOTIFY THE ENGINEER PRIOR TO PROCEEDING. ON COLUMNS AND PILES, NO MORE THAN 10 VERTICAL FEET MAY BE EXPOSED AT ONE TIME BEFORE PLACEMENT OF REPAIR CONCRETE.

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.

THE #4 "U" DOWELS ARE REQUIRED ONLY AROUND THE ANCHOR BOLTS. THE EXISTING REINFORCING STEEL IN THE PEDESTAL WALL SHALL BE CLEANED, STRAIGHTENED AND REMAIN IN PLACE.

FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE STANDARD SPECIFICATIONS.

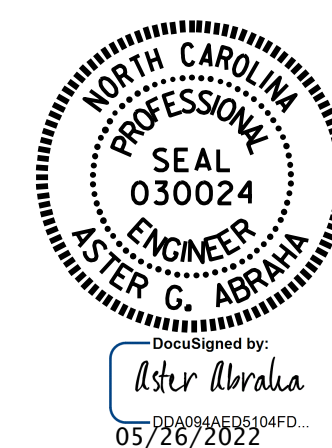
COAT ALL REPAIR SURFACE AREAS ON THE TOP OF CAPS, INCLUDING CHAMFERS, WITH EPOXY PROTECTIVE COATING, OVERLAPPING THE REPAIR AREA BY A MINIMUM OF 3" ON ALL POSSIBLE SIDES.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

CLEAN ALL EXPOSED REINFORCING BARS AND PRESTRESSED STRANDS IN ACCORDANCE WITH APPROPRIATE SPECIAL PROVISIONS. FOR BARS WITH MORE THAN 10% SECTION LOSS, SPLICE AND SECURELY TIE SUPPLEMENTAL REINFORCING BARS AS NEEDED, NOTE AND PROVIDE DETAILED DOCUMENTATION, INCLUDING LOCATION AND SEVERITY, OF ALL DAMAGE TO PRESTRESSED STRANDS THAT EXCEEDS 10% SECTION LOSS. IF FIVE OR MORE STRANDS ARE DAMAGED, NOTIFY THE ENGINEER PRIOR TO PLACEMENT OF REPAIR MATERIAL.

PROJECT NO. 15BPR.47
EDGEcombe COUNTY
 BRIDGE NO. 320051



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 TYPICAL CAP
 AND COLUMN
 REPAIR DETAILS

ASSEMBLED BY : S. T. S./A.Y.G. DATE : 02/2022
 CHECKED BY : G. AYES DATE : 02/2022
 DRAWN BY : NAP 8/18
 CHECKED BY :

DOCUMENT NOT CONSIDERED
 FINAL UNLESS ALL
 SIGNATURES COMPLETED

| REVISIONS | | | | | | SHEET NO. |
|-----------|-----|-------|-----|-----|-------|--------------------|
| NO. | BY: | DATE: | NO. | BY: | DATE: | S1-31 |
| 1 | | | 3 | | | TOTAL SHEETS 31 |
| 2 | | | 4 | | | |

SCOPE OF WORK

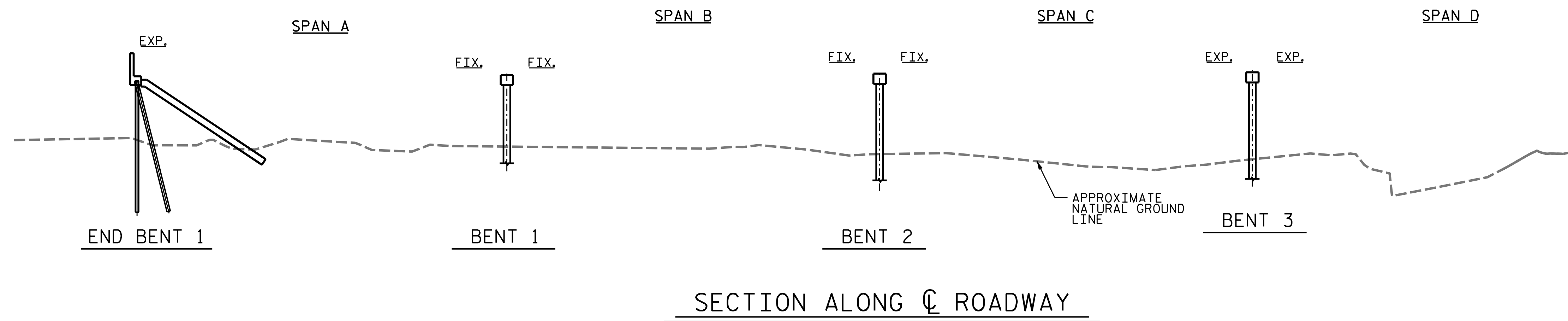
- BRIDGE DECK SURFACE PREPARATION.
- APPLY SILANE DECK TREATMENT TO PREPARED BRIDGE DECK SURFACE

NOTES

GENERAL DRAWING INFORMATION IS TAKEN FROM THE ORIGINAL PLANS AND THE ROUTINE INSPECTION REPORT DATED 05/24/2021.

BRIDGE ORIENTATION CONFORMS TO THE ORIGINAL BRIDGE PLANS.

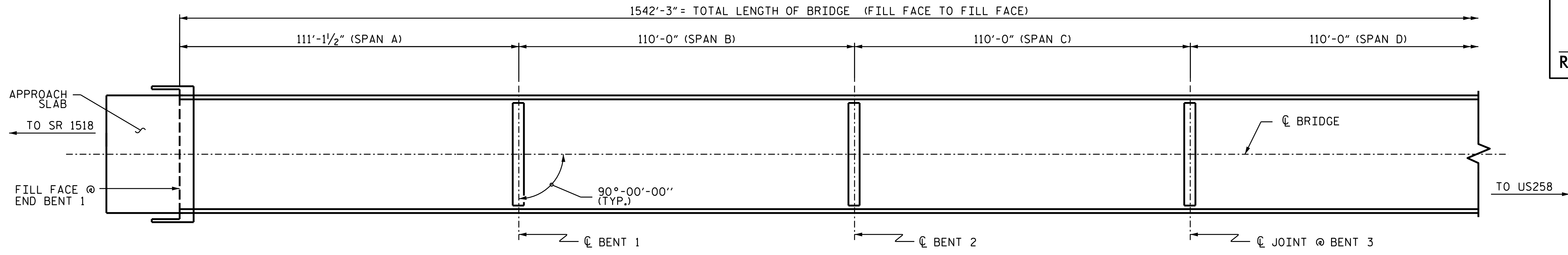
EXISTING JOINTS AND DECK DRAINS SHALL BE SEALED PRIOR TO BEGINNING SURFACE PREPARATIONS OF THE BRIDGE DECK. THE CONTRACTOR SHALL TAKE CARE THAT ANY CONSTRUCTION DEBRIS THAT COLLECTS IN THE DRAINS IS CONTAINED. DRAINS IN SHOULDERS OF ADJACENT TRAVEL LANE(S) SHALL BE KEPT FREE AND CLEAR OF DEBRIS.



SECTION ALONG CL ROADWAY

I hereby certify that this structure was rehabilitated according to these plans or as noted therein.

Resident Engineer _____ Date _____

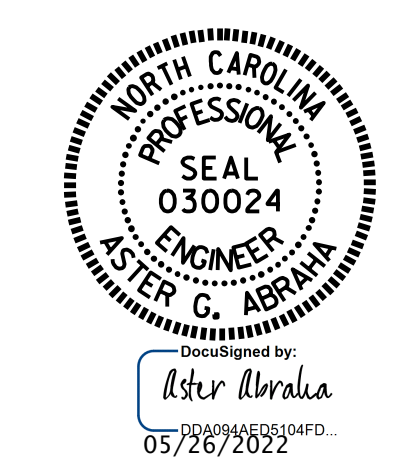
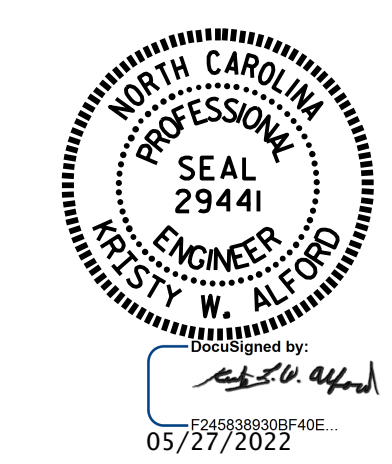


PLAN

(PILES NOT SHOWN FOR CLARITY)

PROJECT NO. 15BPR.47
EDGECOMBE COUNTY
 BRIDGE NO. 320345

SHEET 1 OF 2



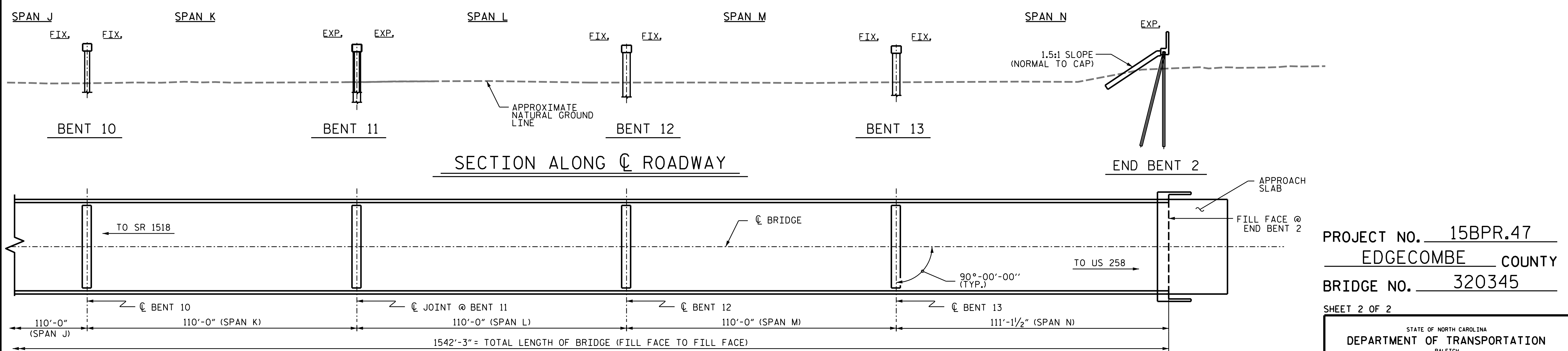
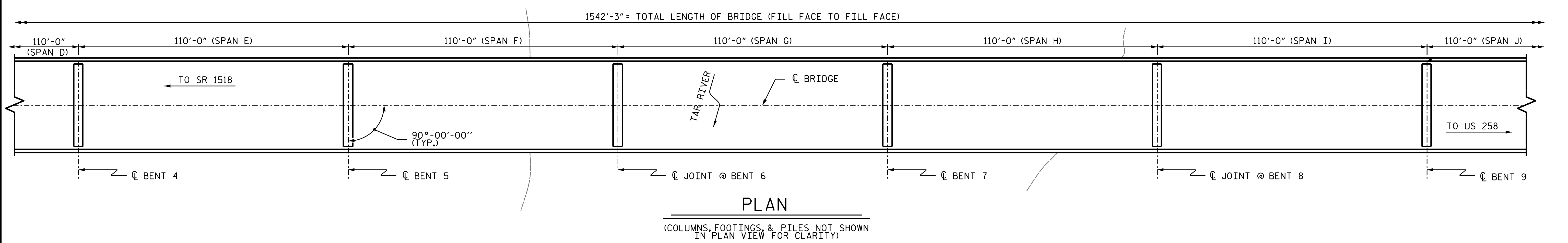
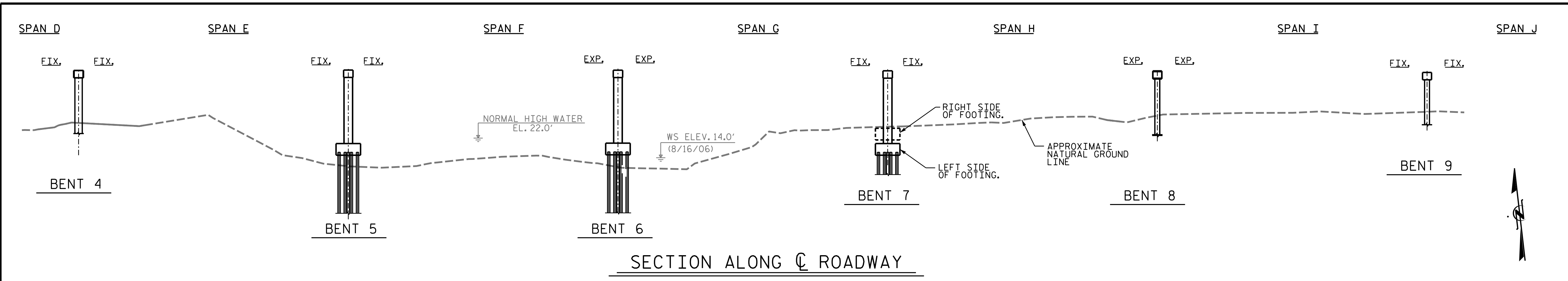
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE 345 ON SR 1537
 BETWEEN SR 1518 AND US 258
 OVER THE TAR RIVER

DRAWN BY : S. T. SANDOR/A. Y. GODFREY DATE : 01/2022
 CHECKED BY : S. WANCE DATE : 01/2022

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

| REVISIONS | | | | | | SHEET NO. |
|-----------|-----|-------|-----|-----|-------|--------------|
| NO. | BY: | DATE: | NO. | BY: | DATE: | S2-1 |
| 1 | | | 3 | | | TOTAL SHEETS |
| 2 | | | 4 | | | 4 |



PROJECT NO. 15BPR.47
 EDGECOMBE COUNTY
 BRIDGE NO. 320345

SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE 345 ON SR 1537
 BETWEEN SR 1518 AND US 258
 OVER THE TAR RIVER



DOCUMENT NOT TO BE CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

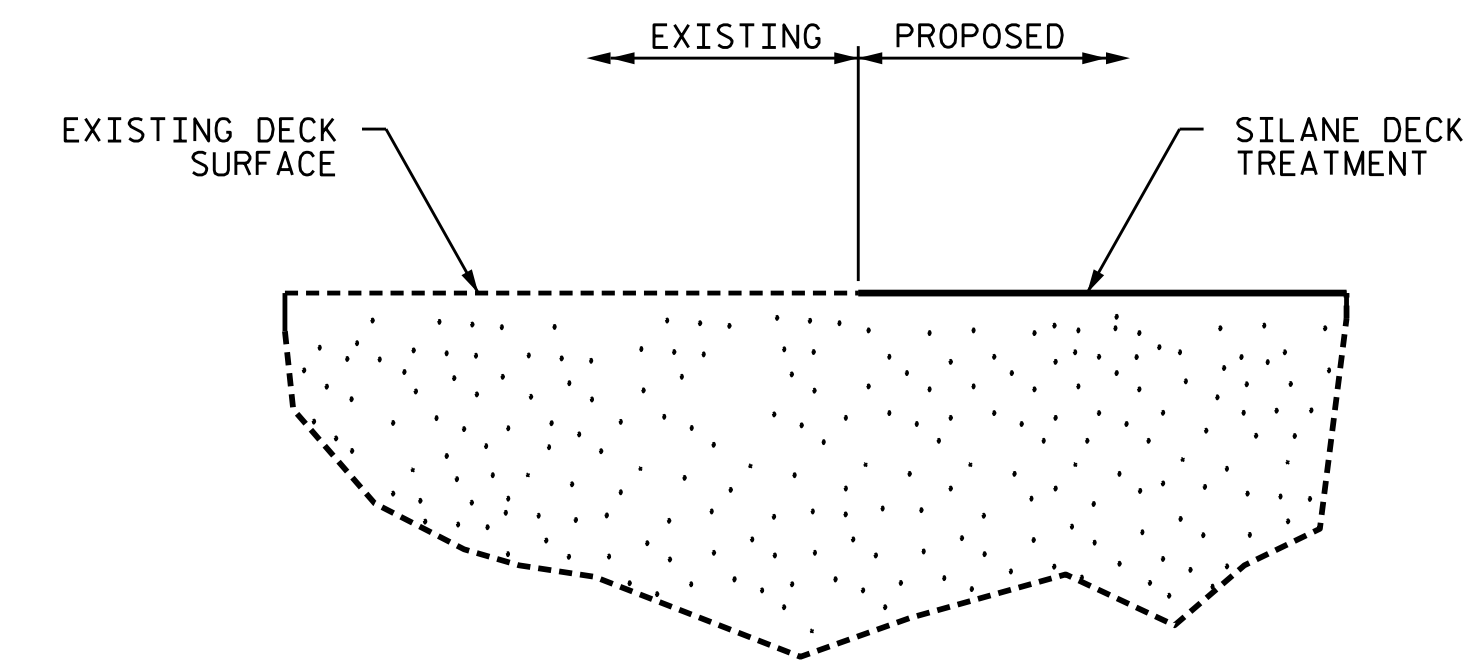
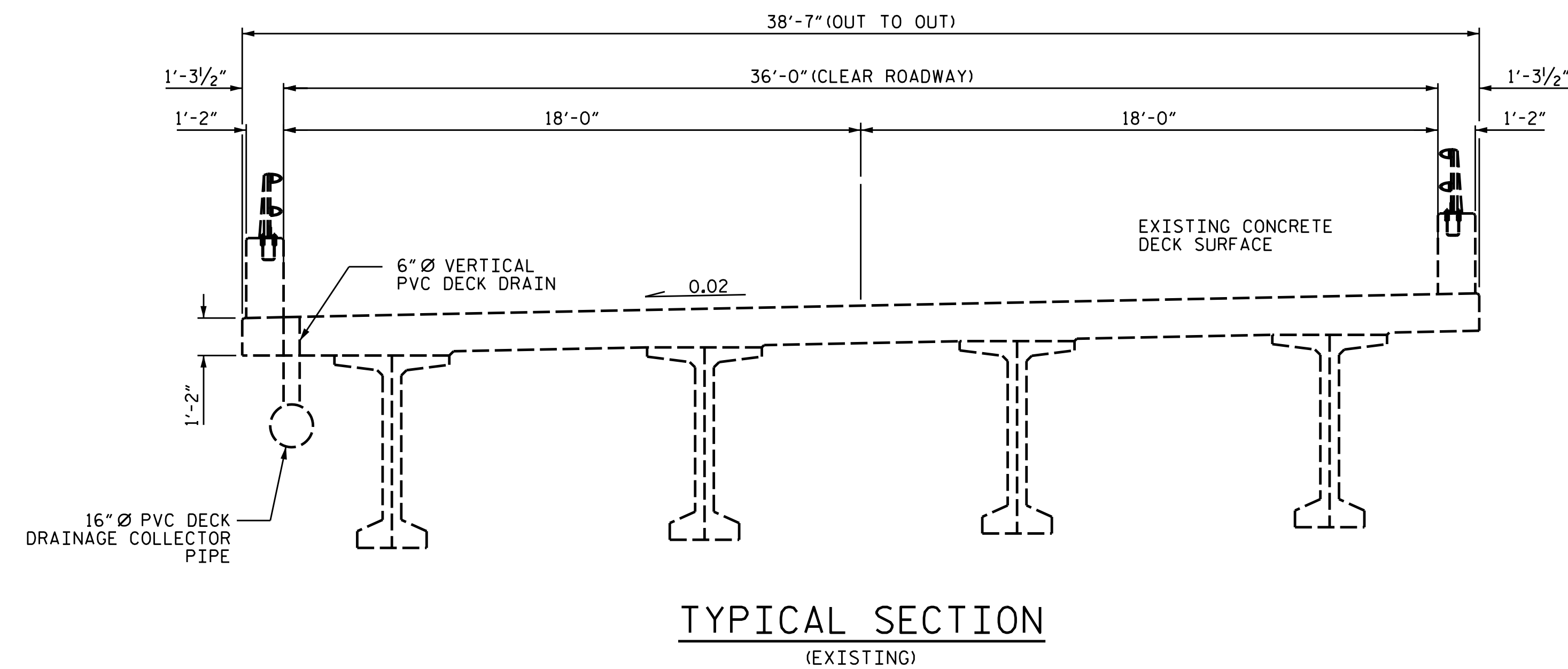
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|-----------|-----|-------|-----|-----|-------|--------------|
| NO. | BY: | DATE: | NO. | BY: | DATE: | S2-2 |
| 1 | | | 3 | | | TOTAL SHEETS |
| 2 | | | 4 | | | 4 |

DRAWN BY : S. T. SANDOR / A. Y. GODFREY DATE : 01/2022
 CHECKED BY : S. WANCE DATE : 01/2022

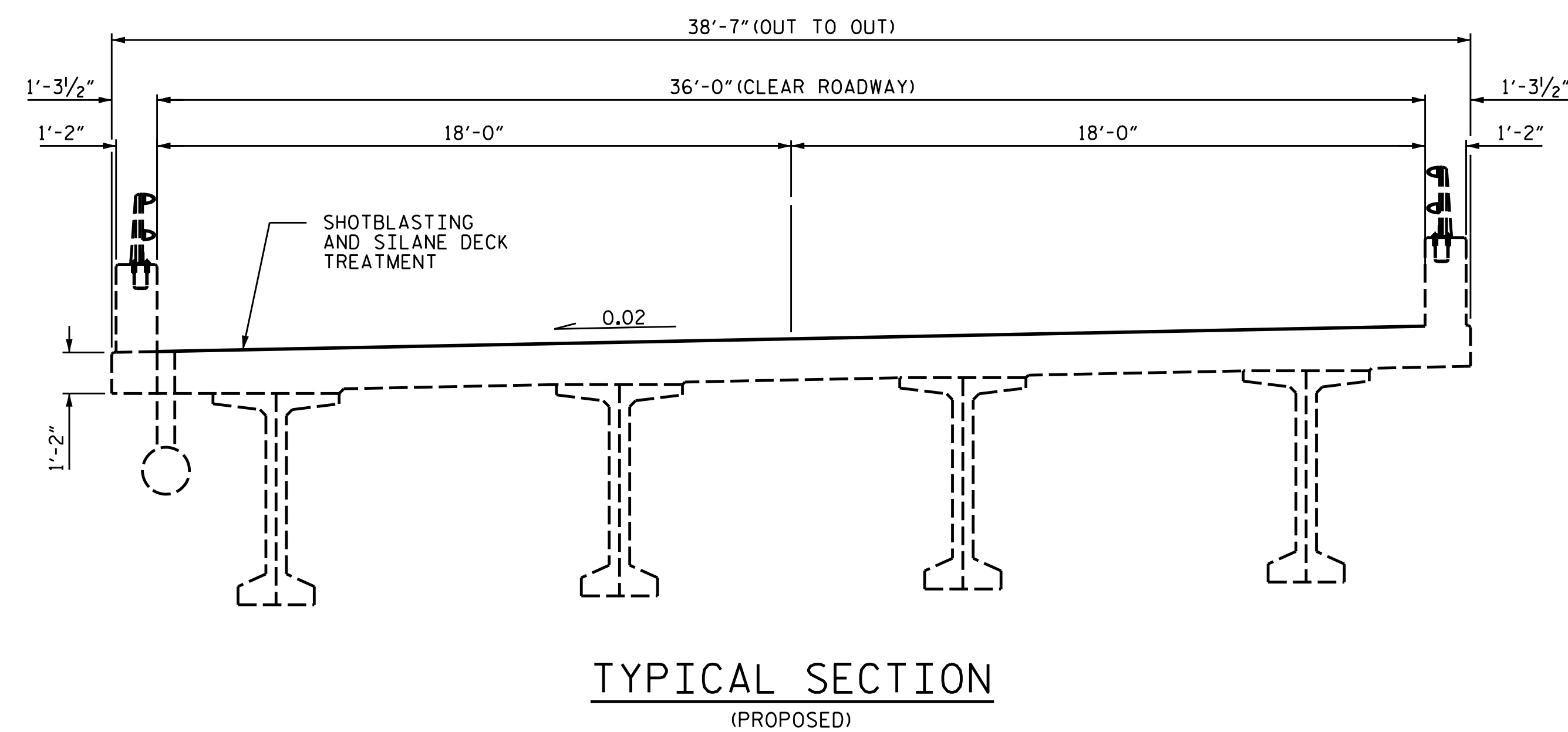
NOTES

SEE TRAFFIC MANAGEMENT PLANS FOR LANE WIDTH, SEQUENCING AND OTHER TRAFFIC CONTROL MEASURES FOR STAGING OF SURFACE PREPARATION AND SILANE DECK TREATMENT.

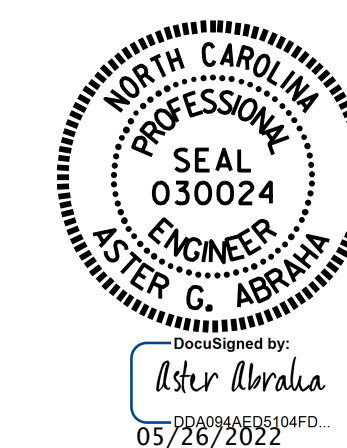
PROTECT TRAFFIC FROM REBOUND, DUST, OVERSPRAY, AND CONSTRUCTION ACTIVITIES. PROVIDE APPROPRIATE SHIELDING, AS REQUIRED AND/OR DIRECTED BY THE ENGINEER.



SILANE DECK TREATMENT DETAIL



PROJECT NO. 15BPR.47
EDGEcombe COUNTY
 BRIDGE NO. 320345



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUPERSTRUCTURE
 TYPICAL SECTION
 & SILANE DECK
 TREATMENT**

DRAWN BY : S. T. SANDOR / A. Y. GODFREY DATE : 01/2022
 CHECKED BY : S. WANCE DATE : 01/2022

DOCUMENT NOT CONSIDERED
 FINAL UNLESS ALL
 SIGNATURES COMPLETED

| REVISIONS | | | | | | SHEET NO. |
|-----------|-----|-------|-----|-----|-------|--------------|
| NO. | BY: | DATE: | NO. | BY: | DATE: | S2-3 |
| 1 | | | 3 | | | TOTAL SHEETS |
| 2 | | | 4 | | | 4 |

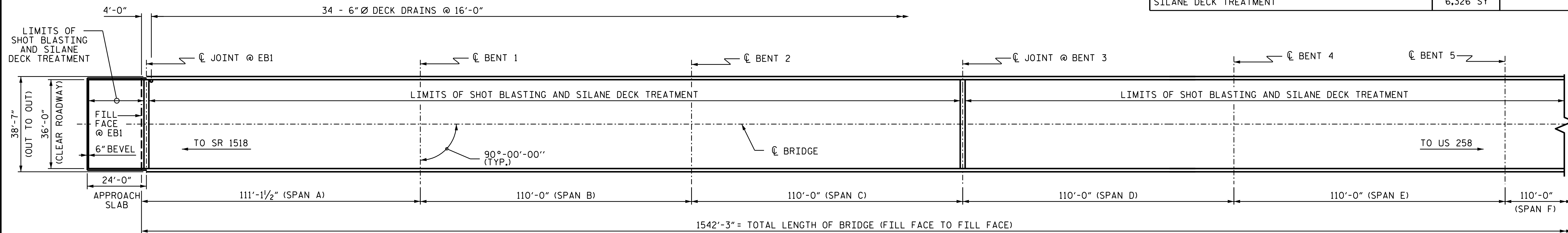
SUMMARY OF QUANTITIES FOR
BRIDGE DECK AND APPROACH SLAB

| | ESTIMATE | ACTUAL |
|--|----------|--------|
| CONCRETE DECK REPAIR FOR SILANE DECK TREATMENT | 0.0 SY | |
| SHOTBLASTING BRIDGE DECK | 6,326 SY | |
| SILANE DECK TREATMENT | 6,326 SY | |

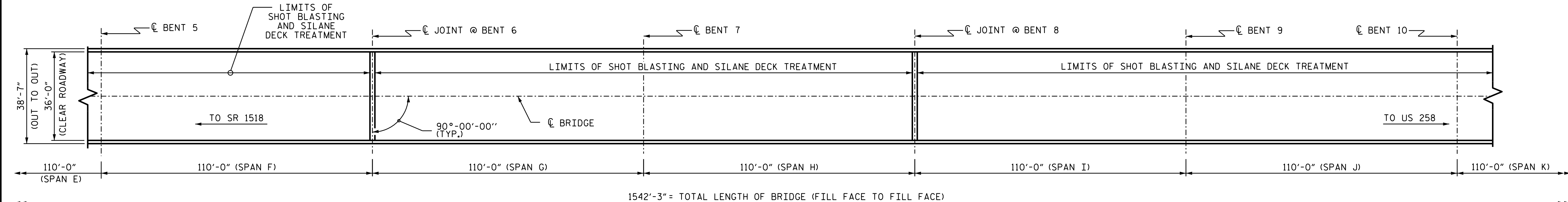
NOTES

SEE SPECIAL PROVISIONS FOR SILANE DECK TREATMENT.

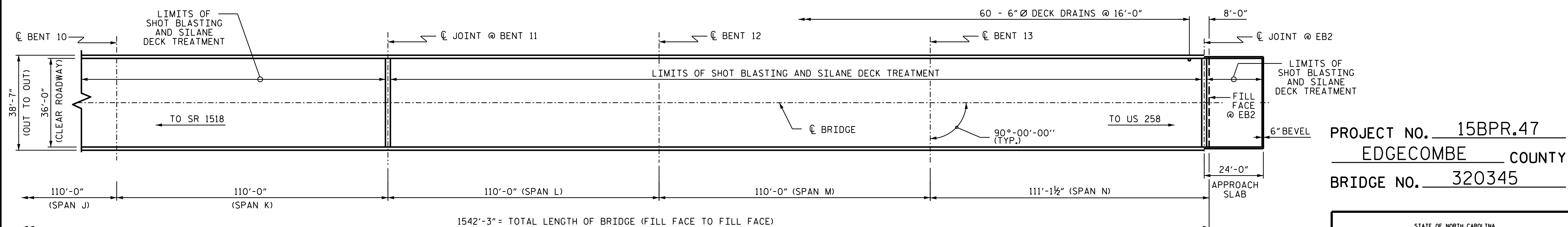
 - SHOTBLASTING BRIDGE DECK AND SILANE DECK TREATMENT



PLAN



PLAN



PLAN

PROJECT NO. 15BPR.47
EDGECOMBE COUNTY
 BRIDGE NO. 320345

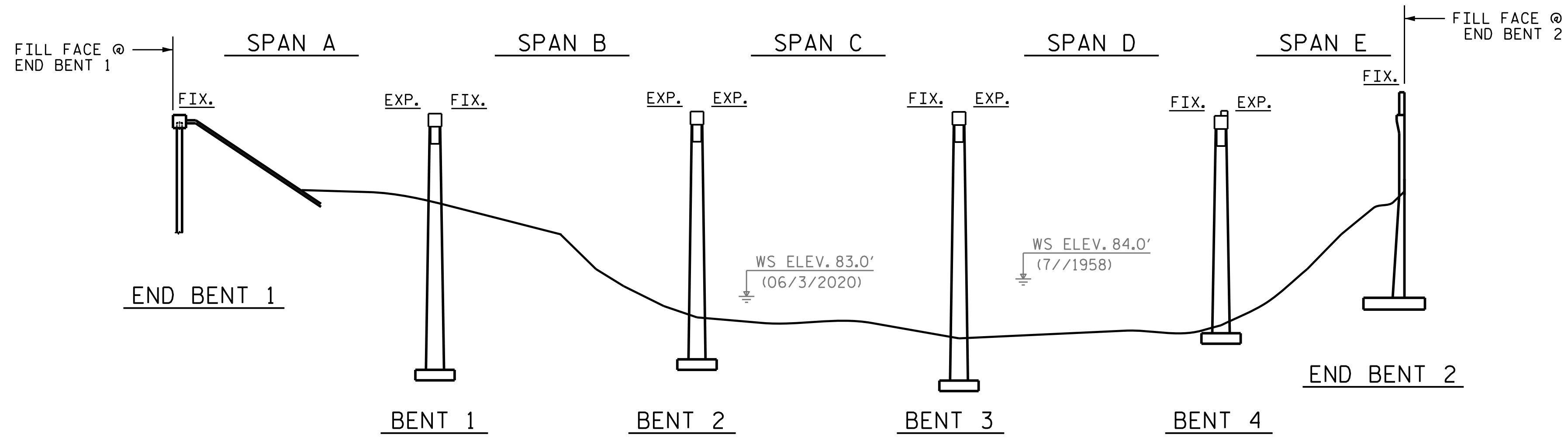


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
SILANE DECK TREATMENT

DRAWN BY : S. T. SANDOR/A. Y. GODFREY DATE : 01/2022
 CHECKED BY : S. WANCE DATE : 01/2021

DOCUMENT NOT CONSIDERED
 FINAL UNLESS ALL
 SIGNATURES COMPLETED

| REVISIONS | | | | | | SHEET NO. |
|-----------|-----|-------|-----|-----|-------|--------------|
| NO. | BY: | DATE: | NO. | BY: | DATE: | S2-4 |
| 1 | | | 3 | | | TOTAL SHEETS |
| 2 | | | 4 | | | 4 |



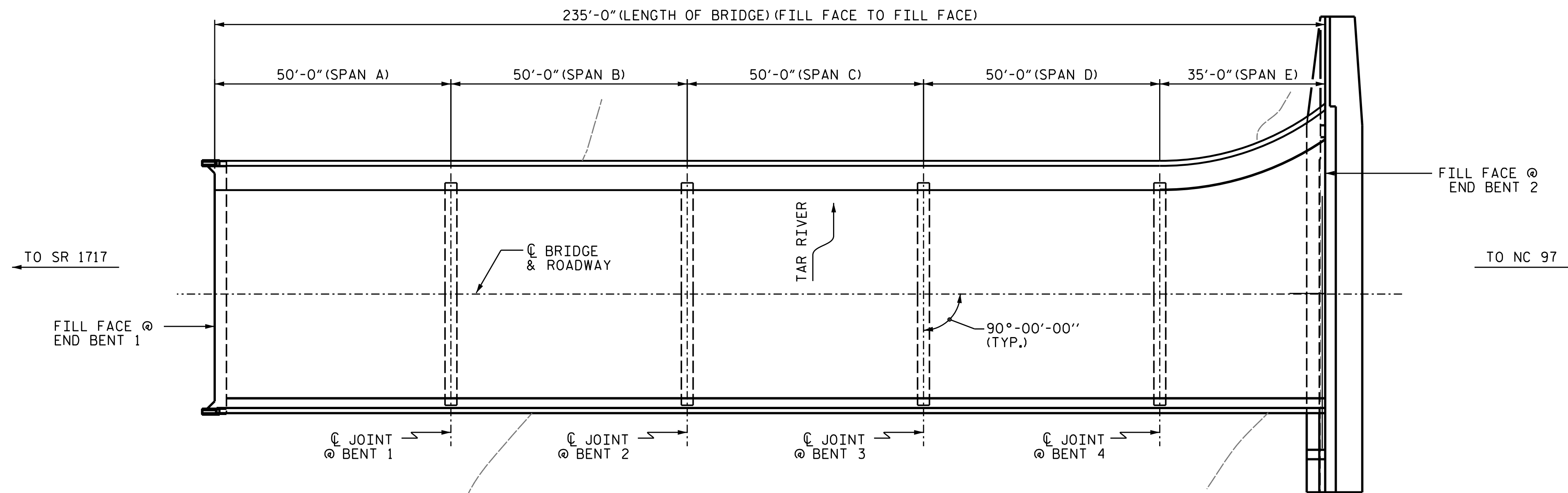
SECTION ALONG C ROADWAY

SCOPE OF WORK

- PARTIALLY REMOVE TOP OF BRIDGE DECK CONCRETE BY SCARIFICATION AND HYDRO-DEMOLITION METHODS.
- PERFORM CONCRETE DECK REPAIRS IN PREPARED AREAS.
- OVERLAY PREPARED TOP OF BRIDGE DECK WITH LATEX MODIFIED CONCRETE (LMC).
- DEMOLISH EXISTING BRIDGE DECK JOINTS.
- RECONSTRUCT BRIDGE JOINTS AND INSTALL POURABLE JOINT SEALANT.
- GROOVE LATEX MODIFIED CONCRETE BRIDGE DECK.
- RETROFIT EXISTING RAIL WITH 2 BAR METAL RAIL.
- CLEAN, REPAIR AND PAINT EXISTING STRUCTURAL STEEL.
- CLEAN AND PAINT EXISTING BEARINGS WITH HRCSA.
- REMOVE UNSOUND CONCRETE AND PROPERLY PREPARE AREAS FOR CONCRETE AND SHOTCRETE REPAIRS.
- PERFORM CONCRETE AND SHOTCRETE REPAIRS.
- MILL AND PAVE ASPHALT ROADWAY APPROACHES.

NOTES

PROFILE INFORMATION IS TAKEN FROM ORIGINAL PLANS AND THE ROUTINE INSPECTION, DATED 06/03/2020.
 BRIDGE ORIENTATION CONFORMS TO EXISTING BRIDGE PLANS.

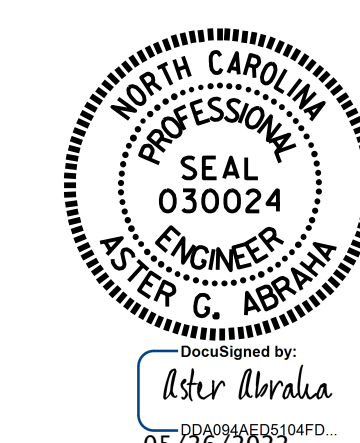


PLAN

(COLUMNS, FOOTINGS AND PILES NOT SHOWN IN PLAN VIEW FOR CLARITY)

I hereby certify that this structure was rehabilitated according to these plans or as noted therein.
 Resident Engineer _____ Date _____

PROJECT NO. 15BPR.47
NASH COUNTY
 BRIDGE NO. 630039

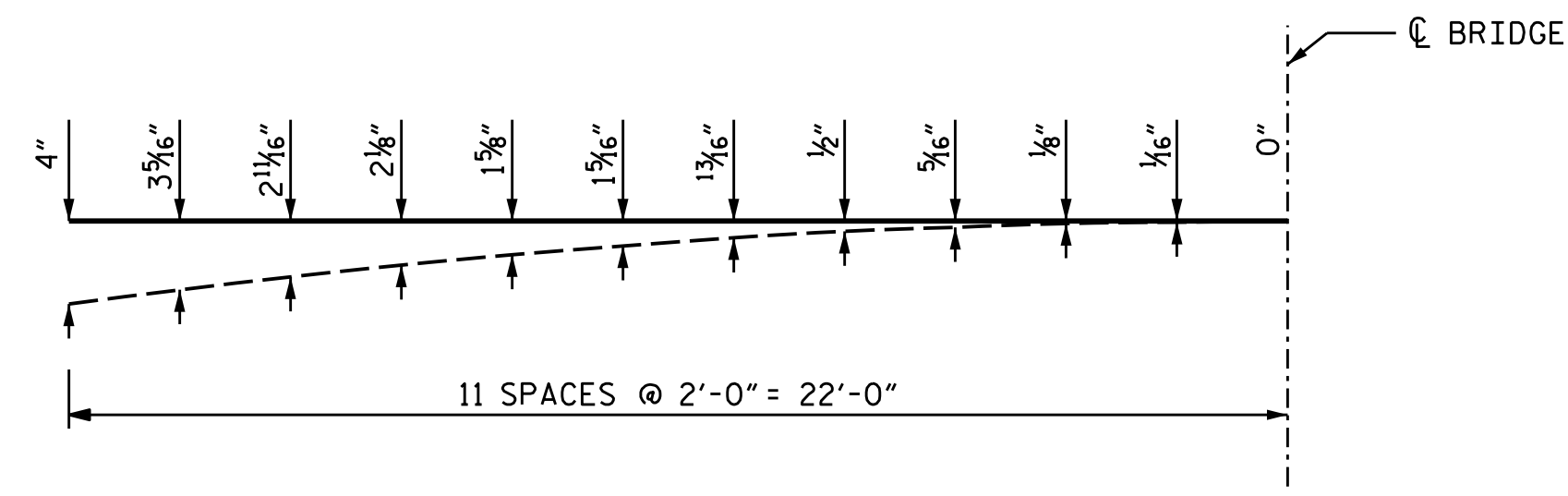


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
GENERAL DRAWING
 FOR BRIDGE 39
 OVER TAR RIVER
 ON SR 1714
 (NASHVILLE ROAD)

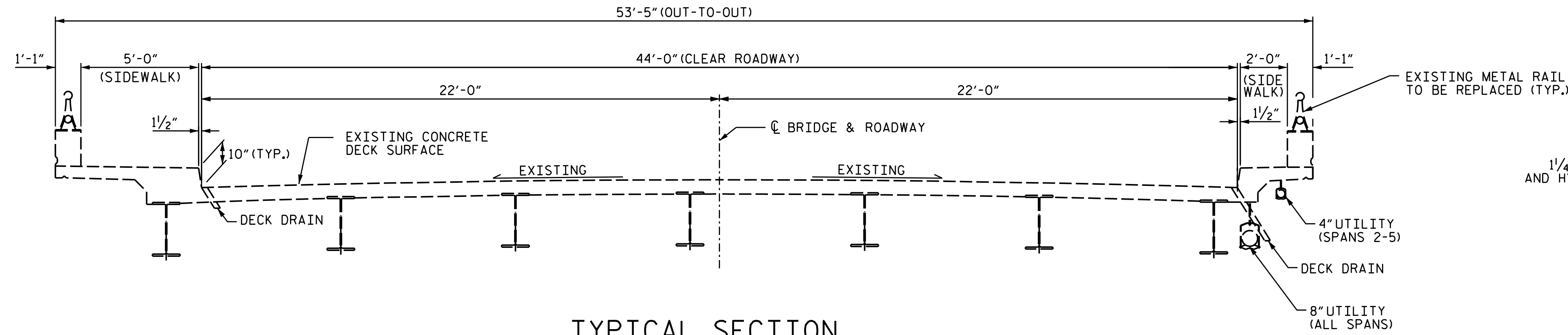
DRAWN BY : S. T. SANDOR/A. Y. GODFREY DATE : 01/2022
 CHECKED BY : S. WANCE DATE : 03/2022

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

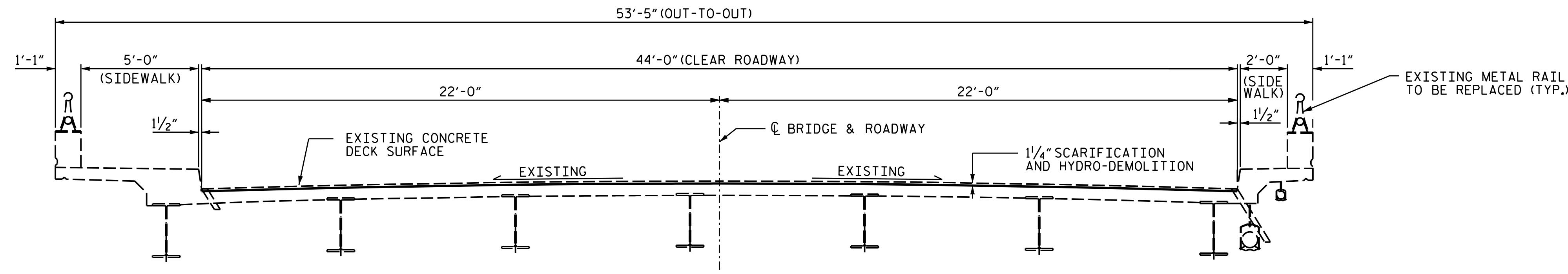
| REVISIONS | | | | | | SHEET NO. |
|-----------|-----|-------|-----|-----|-------|-----------------|
| NO. | BY: | DATE: | NO. | BY: | DATE: | |
| 1 | | | 3 | | | S3-1 |
| 2 | | | 4 | | | TOTAL SHEETS 33 |



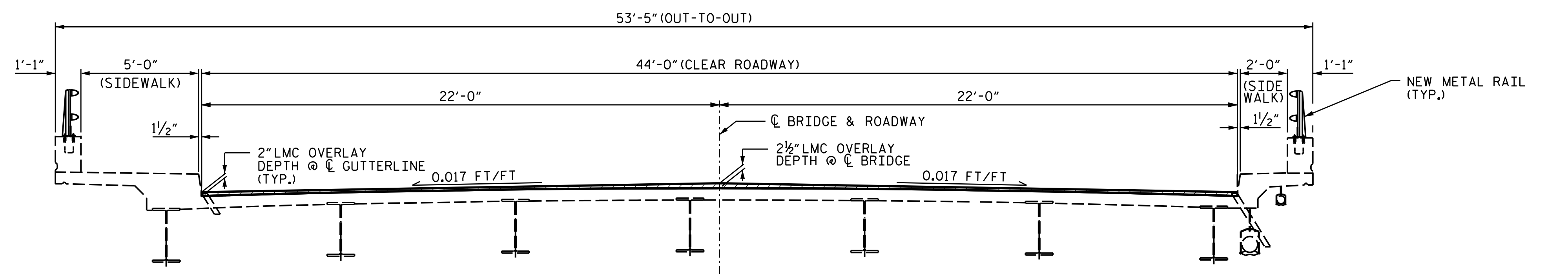
EXISTING CROWN DIAGRAM



TYPICAL SECTION
(EXISTING SPANS A-D)



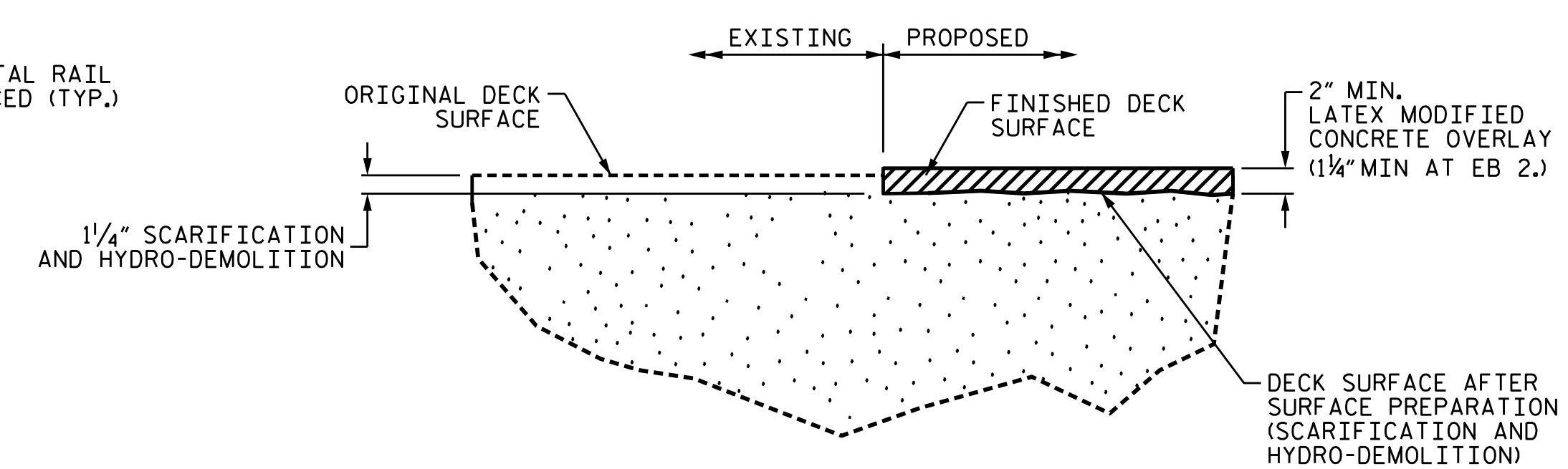
TYPICAL SECTION
(DECK PREPARATION SPANS A-D)



TYPICAL SECTION
(PROPOSED SPANS A-D)

NOTES

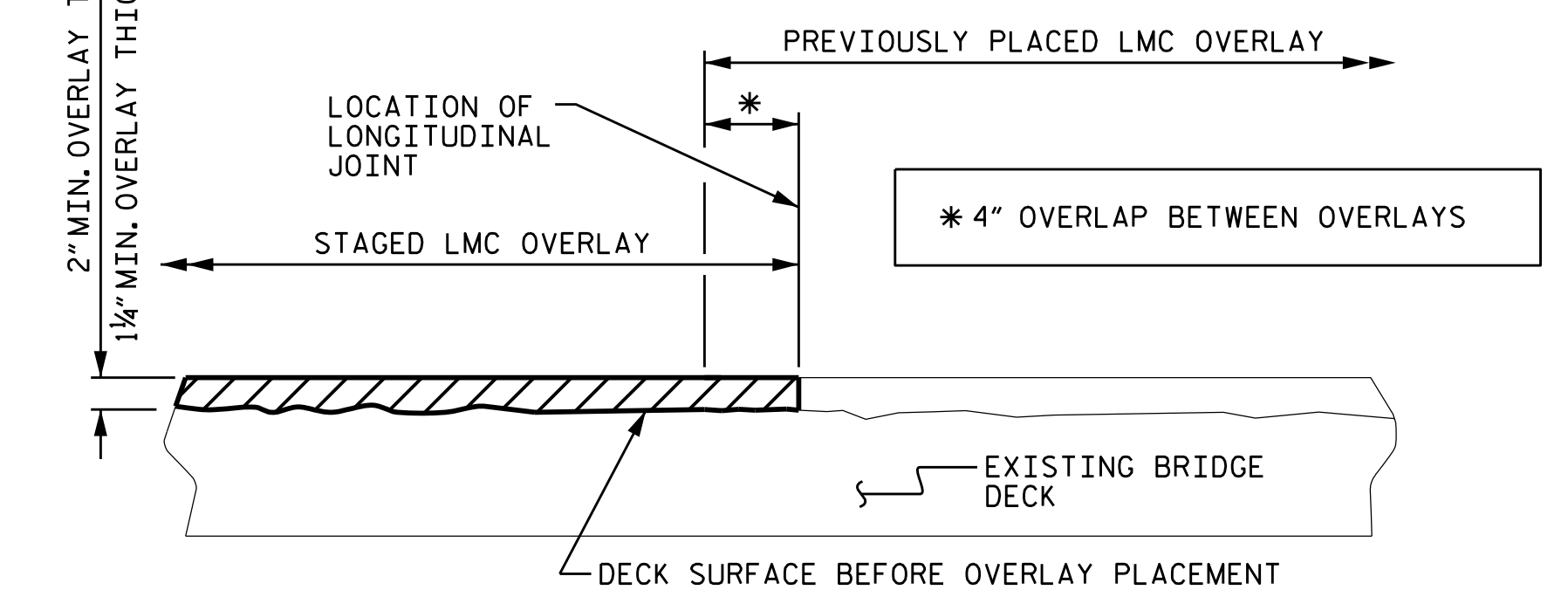
- WHEN PREPARING THE SURFACE FOR LMC OVERLAY ADJACENT TO THE PREVIOUSLY PLACED LMC STAGE, THE PREVIOUSLY PLACED LMC SHALL BE SAW-CUT TO THE FULL DEPTH OF THE LMC AT THE CENTERLINE OF THE BRIDGE AND ALL LMC IN THE 4" OVERLAY SHALL BE REMOVED WITH HAND TOOLS PRIOR TO PLACEMENT OF LMC IN THE SECOND STAGE.
- SEE TRAFFIC MANAGEMENT PLANS FOR LANE WIDTHS, SEQUENCING AND OTHER TRAFFIC CONTROL MEASURES FOR STAGING OF OVERLAY SURFACE PREPARATION AND LMC OVERLAY PLACEMENT.
- THE EXISTING TOP OF SLAB DOES NOT FOLLOW A STRAIGHT SLOPE FROM THE GUTTERLINE TO CL OF BRIDGE. EXISTING SLOPE SHOWN IN CROWN DIAGRAM. SCARIFICATION AND HYDRO-DEMOLITION SHALL BE A CONSTANT DEPTH OF 1/4". DEPTH OF LMC OVERLAY WILL VARY FROM A MINIMUM OF 2" AT GUTTERLINE TO 2 1/2" AT CL OF BRIDGE TO CREATE PROPOSED STRAIGHT SLOPE CROWN.
- THE CONTRACTOR SHALL SUBMIT FOR REVIEW AND APPROVAL A PLAN FOR SCARIFICATION/HYDRO-DEMOLITION, SURFACE PREPARATION, LMC OVERLAY PLACEMENT AND FINISHING TO ATTAIN THE FINAL SURFACE SLOPE AS INDICATED.



DETAIL FOR LATEX MODIFIED CONCRETE OVERLAY

(FINISHED SURFACE OF THE LATEX MODIFIED CONCRETE OVERLAY IS APPROX.)

2" MIN. OVERLAY THICKNESS AT EB2
1/4" MIN. OVERLAY THICKNESS AT EB2



STAGED LMC OVERLAY JOINT
(AS NEEDED)

PROJECT NO. 15BPR.47
NASH COUNTY
 BRIDGE NO. 630039

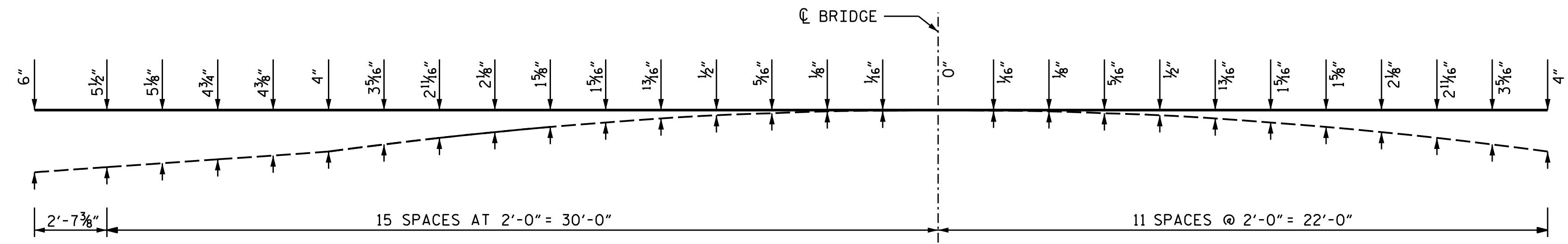
SHEET 1 OF 2



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

DRAWN BY : S. T. SANDOR/A. Y. GODFREY DATE : 01/2022
 CHECKED BY : S. WANCE DATE : 03/2022

| REVISIONS | | | | | | SHEET NO. |
|-----------|-----|-------|-----|-----|-------|--------------|
| NO. | BY: | DATE: | NO. | BY: | DATE: | S3-2 |
| 1 | | | 3 | | | TOTAL SHEETS |
| 2 | | | 4 | | | 33 |



EXISTING CROWN DIAGRAM

NOTES

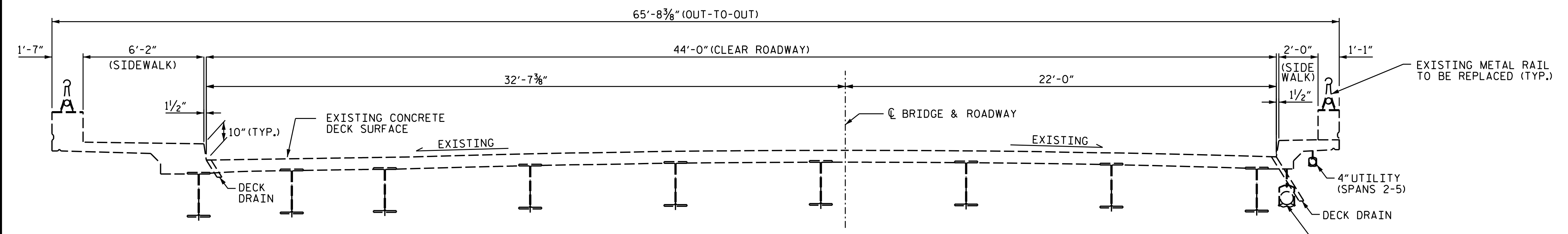
FOR "DETAIL FOR LATEX MODIFIED CONCRETE OVERLAY" AND "STAGED LMC OVERLAY JOINT" SEE SHEET 1 OF 2.

WHEN PREPARING THE SURFACE FOR LMC OVERLAY ADJACENT TO THE PREVIOUSLY PLACED LMC STAGE, THE PREVIOUSLY PLACED LMC SHALL BE SAW-CUT TO THE FULL DEPTH OF THE LMC AT THE CENTERLINE OF THE BRIDGE AND ALL LMC IN THE 4" OVERLAY SHALL BE REMOVED WITH HAND TOOLS PRIOR TO PLACEMENT OF LMC IN THE SECOND STAGE.

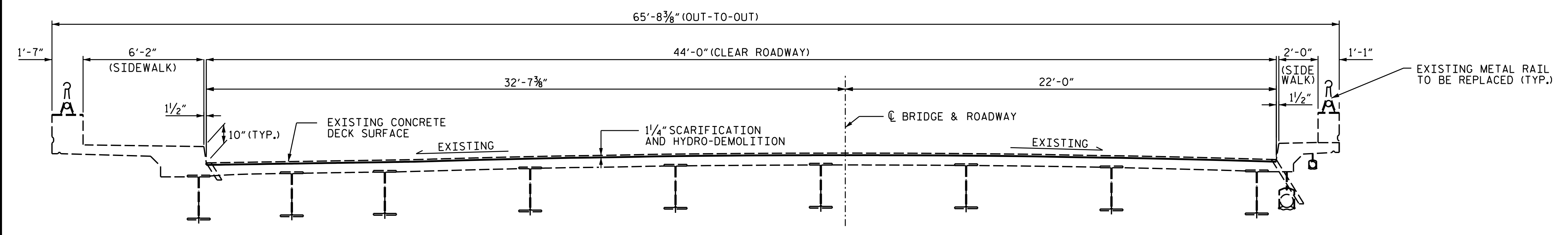
SEE TRAFFIC MANAGEMENT PLANS FOR LANE WIDTHS, SEQUENCING AND OTHER TRAFFIC CONTROL MEASURES FOR STAGING OF OVERLAY SURFACE PREPARATION AND LMC OVERLAY PLACEMENT.

THE EXISTING TOP OF SLAB DOES NOT FOLLOW A STRAIGHT SLOPE FROM THE GUTTERLINE TO C OF BRIDGE. EXISTING SLOPE SHOWN IN CROWN DIAGRAM. SCARIFICATION AND HYDRO-DEMOLITION SHALL BE A CONSTANT DEPTH OF $1\frac{1}{4}$ ". DEPTH OF LMC OVERLAY WILL VARY FROM A MINIMUM OF $1\frac{1}{4}$ " AT LEFT GUTTERLINE TO $2\frac{1}{2}$ " AT C OF BRIDGE TO CREATE PROPOSED STRAIGHT SLOPE CROWN.

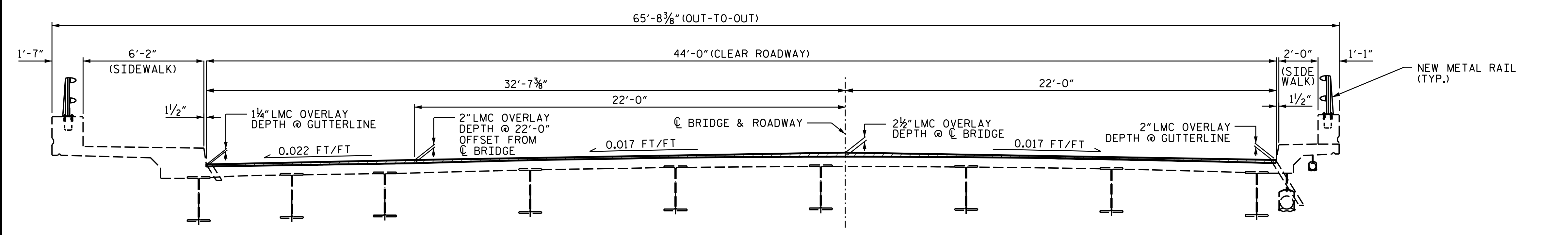
THE CONTRACTOR SHALL SUBMIT FOR REVIEW AND APPROVAL A PLAN FOR SCARIFICATION/-HYDRO-DEMOLITION, SURFACE PREPARATION, LMC OVERLAY PLACEMENT AND FINISHING TO ATTAIN THE FINAL SURFACE SLOPE AS INDICATED.



TYPICAL SECTION
EXISTING (@ END BENT 2)



TYPICAL SECTION
(DECK PREPARATION @ END BENT 2)



TYPICAL SECTION
(PROPOSED @ END BENT 2)

PROJECT NO. 15BPR.47
 NASH COUNTY
 BRIDGE NO. 630039
 SHEET 2 OF 2



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

TYPICAL SECTION
 AND SURFACE
 PREPARATION DETAILS

DRAWN BY : S. T. SANDOR/A. Y. GODFREY DATE : 04/2022
 CHECKED BY : S. WANCE DATE : 04/2022

| REVISIONS | | | | | | SHEET NO. |
|-----------|-----|-------|-----|-----|-------|-----------------|
| NO. | BY: | DATE: | NO. | BY: | DATE: | |
| 1 | | | 3 | | | S3-3 |
| 2 | | | 4 | | | TOTAL SHEETS 33 |

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SUMMARY OF QUANTITIES FOR SPAN A

| | ESTIMATE | ACTUAL |
|---|------------|--------|
| SCARIFYING BRIDGE DECK | 241.9 SY | |
| HYDRO-DEMOLITION OF BRIDGE DECK | 241.9 SY | |
| CLASS II SURFACE PREPARATION | 28.0 SY | |
| CLASS III SURFACE PREPARATION | 0.0 SY | |
| LATEX MODIFIED CONCRETE OVERLAY | 18.7 CY | |
| PLACING AND FINISHING LATEX MODIFIED CONCRETE OVERLAY | 241.9 SY | |
| GROOVING BRIDGE DECK | 2,015.4 SF | |
| BRIDGE JOINT DEMOLITION | 20.2 SF | |

QUANTITIES FOR LMC OVERLAY ARE BASED ON OVERLAY DEPTH PLUS AN ADDITIONAL 1/4" TO ACCOUNT FOR IRREGULARITIES IN HYDRO-DEMOLITION/SCARIFICATION PROCESSES.

NOTES:

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

THE BOUNDARIES OF AREAS IDENTIFIED FOR CLASS II (PARTIAL DEPTH) SURFACE PREPARATION ARE APPROXIMATE AND MAY NOT REFLECT ACTUAL CONDITIONS THAT WILL BE ENCOUNTERED AT THE PROJECT SITE.

PAYMENT FOR CLASS II AND CLASS III SURFACE PREP. BASED UPON SQUARE FEET OF ADDITIONAL DEMOLITION REQUIRED FOLLOWING HYDRO-DEMOLITION OF BRIDGE DECK, SEE LMC OVERLAY SURFACE PREPARATION SPECIAL PROVISION.

EXISTING JOINTS AND DECK DRAINS SHALL BE SEALED PRIOR TO BEGINNING SURFACE PREPARATION OF THE BRIDGE DECK. THE CONTRACTOR SHALL TAKE CARE THAT ANY CONSTRUCTION DEBRIS THAT COLLECTS IN THE DRAINS IS CONTAINED. DRAINS IN SHOULDERS OF ADJACENT TRAVEL LANE(S) SHALL BE KEPT FREE AND CLEAR OF DEBRIS.

WORK ON THE BRIDGE SHALL BE PERFORMED SO AS NOT TO ALLOW DEBRIS TO FALL BELOW, EXCEPT WHERE THE CONTRACTOR'S PLAN USE 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.

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 OVERLAY OF BRIDGE WITH LATEX MODIFIED CONCRETE OVERLAY, SEE SPECIAL PROVISIONS.

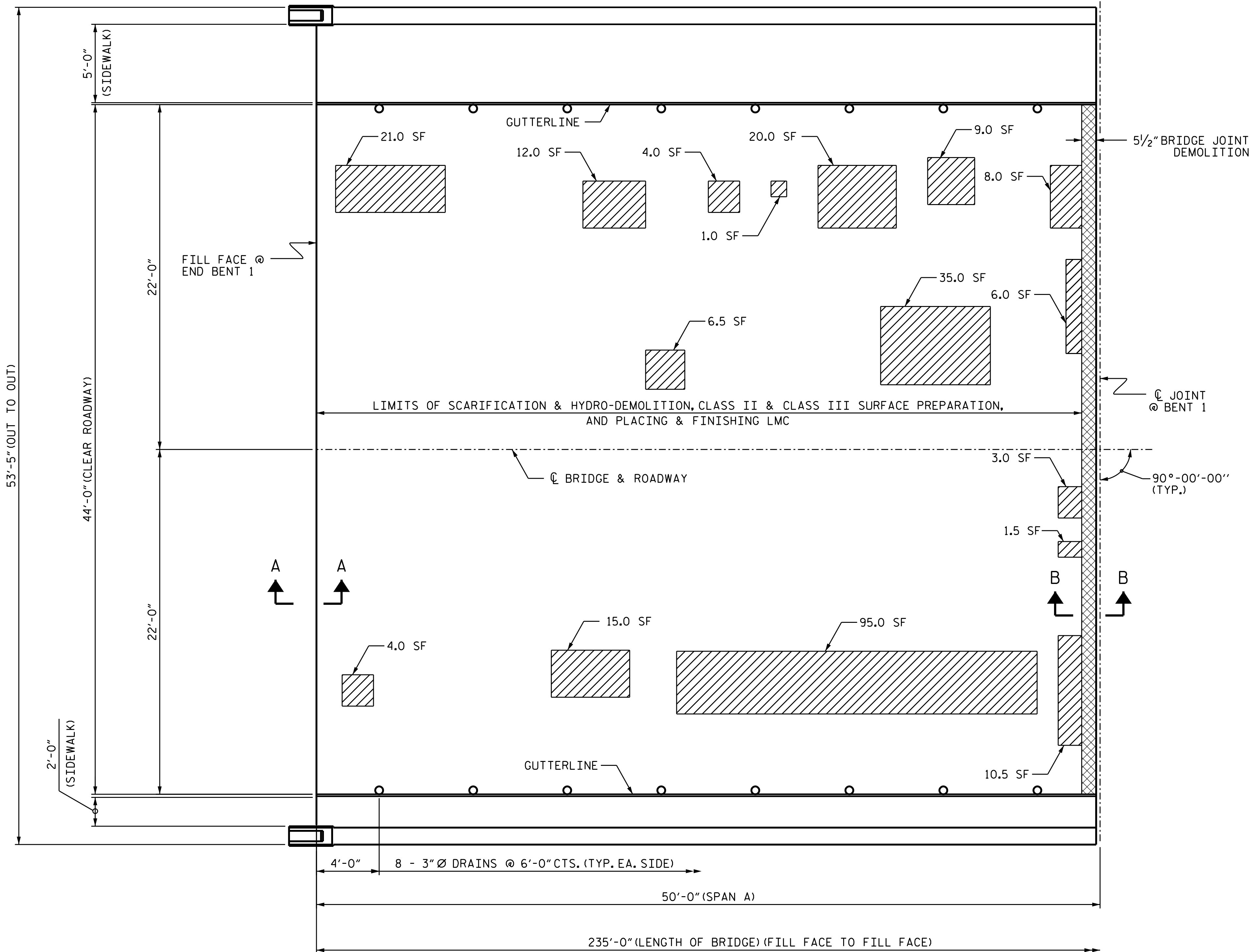
FOR LMC OVERLAY SURFACE PREPARATION, SEE SPECIAL PROVISIONS.

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

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

FOR BRIDGE JOINT DEMOLITION, SEE SPECIAL PROVISIONS.

FOR DECK REPAIR DETAILS, SEE "DECK REPAIR DETAILS" SHEET S3-21.

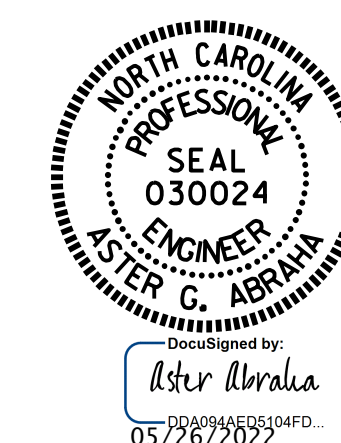


PLAN OF SPAN A
(SEE SHEET NO. S3-13 FOR SECTIONS A-A AND B-B)

- SCARIFYING AND HYDRO-DEMOLITION OF BRIDGE DECK FOR LMC OVERLAY
- APPROX. AREA CLASS II SURFACE PREPARATION
- BRIDGE JOINT DEMOLITION

PROJECT NO. 15BPR.47
NASH COUNTY
BRIDGE NO. 630039

SHEET 1 OF 5



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SURFACE PREPARATION
SPAN A

DRAWN BY : S. T. SANDOR/A. Y. GODFREY DATE : 01/2022
CHECKED BY : S. WANCE DATE : 03/2022

| NO. | REVISIONS | | | NO. | REVISIONS | | | SHEET NO. |
|-----|-----------|-------|--|-----|-----------|-------|-----------------|-----------|
| | BY: | DATE: | | | BY: | DATE: | | |
| 1 | | | | 3 | | | S3-4 | |
| 2 | | | | 4 | | | TOTAL SHEETS 33 | |

SUMMARY OF QUANTITIES FOR SPAN B

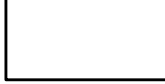
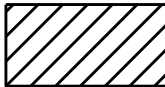

| | ESTIMATE | ACTUAL |
|---|------------|--------|
| SCARIFYING BRIDGE DECK | 239.5 SY | |
| HYDRO-DEMOLITION OF BRIDGE DECK | 239.5 SY | |
| CLASS II SURFACE PREPARATION | 45.6 SY | |
| CLASS III SURFACE PREPARATION | 0.0 SY | |
| LATEX MODIFIED CONCRETE OVERLAY | 19.8 CY | |
| PLACING AND FINISHING LATEX MODIFIED CONCRETE OVERLAY | 239.5 SY | |
| GROOVING BRIDGE DECK | 1,994.5 SF | |
| BRIDGE JOINT DEMOLITION | 40.3 SF | |

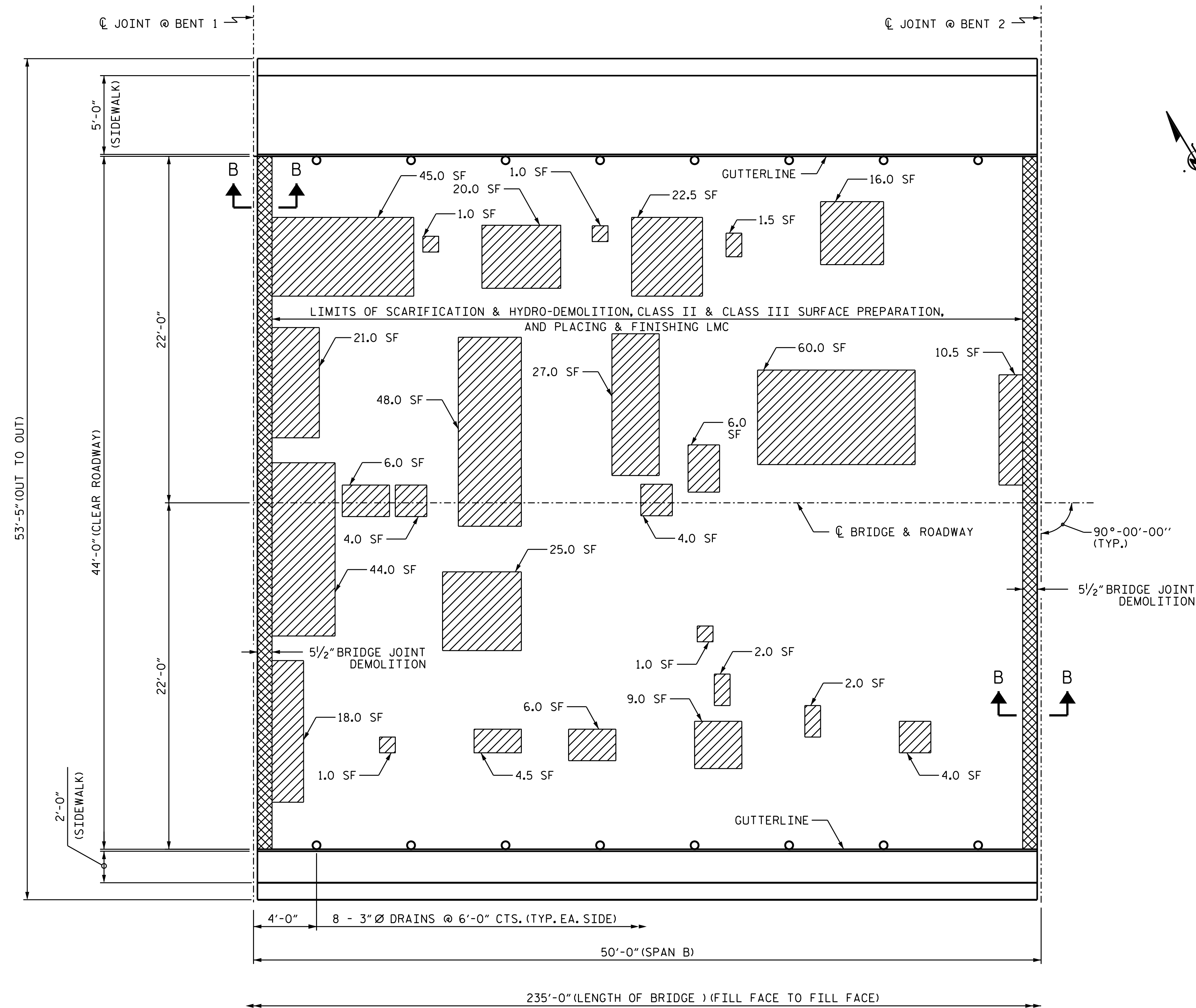
QUANTITIES FOR LMC OVERLAY ARE BASED ON OVERLAY DEPTH PLUS AN ADDITIONAL 1/4" TO ACCOUNT FOR IRREGULARITIES IN HYDRO-DEMOLITION/SCARIFICATION PROCESSES.

NOTES:

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

FOR ADDITIONAL NOTES, SEE SHEET 1 OF 5.

-  - SCARIFYING AND HYDRO-DEMOLITION OF BRIDGE DECK FOR LMC OVERLAY
-  - APPROX. AREA CLASS II SURFACE PREPARATION
-  - BRIDGE JOINT DEMOLITION

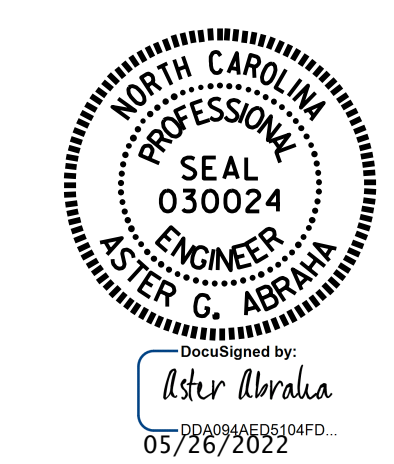


PLAN OF SPAN B

(SEE SHEET NO. S3-13 FOR SECTION B-B)

PROJECT NO. 15BPR.47
 NASH COUNTY
 BRIDGE NO. 630039

SHEET 2 OF 5



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SURFACE PREPARATION
 SPAN B**

DRAWN BY : S. T. SANDOR/A. Y. GODFREY DATE : 10/2021
 CHECKED BY : S. WANCE DATE : 03/2022

| NO. | REVISIONS | | | NO. | REVISIONS | | | SHEET NO. |
|-----|-----------|-------|--|-----|-----------|-------|--|-----------------|
| | BY: | DATE: | | | BY: | DATE: | | |
| 1 | | | | 3 | | | | S3-5 |
| 2 | | | | 4 | | | | TOTAL SHEETS 33 |

SUMMARY OF QUANTITIES FOR SPAN C

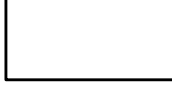
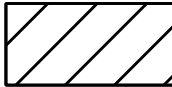

| | ESTIMATE | ACTUAL |
|---|------------|--------|
| SCARIFYING BRIDGE DECK | 239.5 SY | |
| HYDRO-DEMOLITION OF BRIDGE DECK | 239.5 SY | |
| CLASS II SURFACE PREPARATION | 0.0 SY | |
| CLASS III SURFACE PREPARATION | 0.0 SY | |
| LATEX MODIFIED CONCRETE OVERLAY | 16.6 CY | |
| PLACING AND FINISHING LATEX MODIFIED CONCRETE OVERLAY | 239.5 SY | |
| GROOVING BRIDGE DECK | 1,994.5 SF | |
| BRIDGE JOINT DEMOLITION | 40.3 SF | |

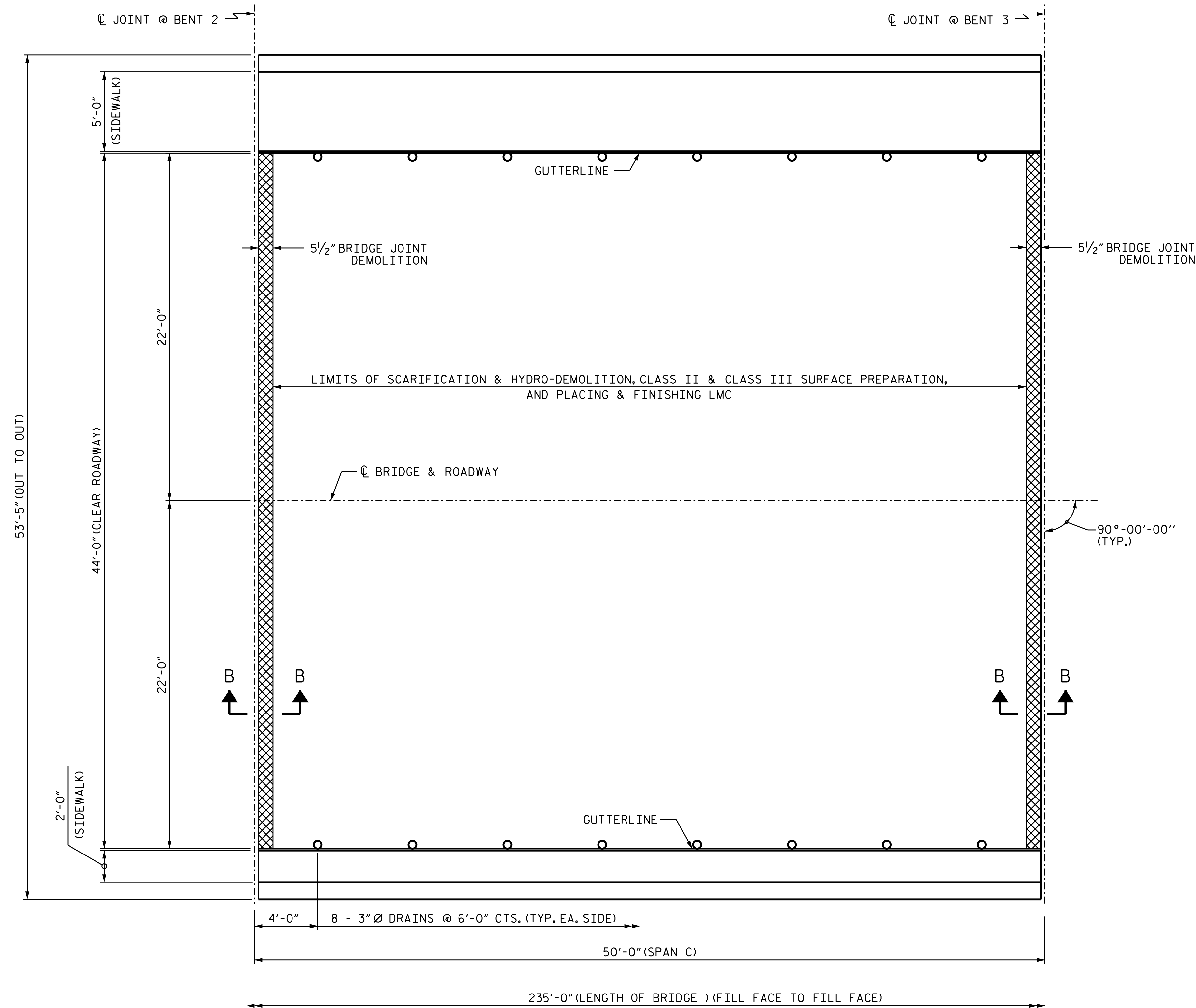
QUANTITIES FOR LMC OVERLAY ARE BASED ON OVERLAY DEPTH PLUS AN ADDITIONAL 1/4" TO ACCOUNT FOR IRREGULARITIES IN HYDRO-DEMOLITION/SCARIFICATION PROCESSES.

NOTES:

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

FOR ADDITIONAL NOTES, SEE SHEET 1 OF 5.

-  - SCARIFYING AND HYDRO-DEMOLITION OF BRIDGE DECK FOR LMC OVERLAY
-  - APPROX. AREA CLASS II SURFACE PREPARATION
-  - BRIDGE JOINT DEMOLITION



PLAN OF SPAN C
(SEE SHEET NO. S3-13 FOR SECTION B-B)

PROJECT NO. 15BPR.47
NASH COUNTY
BRIDGE NO. 630039

SHEET 3 OF 5



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SURFACE PREPARATION
SPAN C

DRAWN BY : S. T. SANDOR/A. Y. GODFREY DATE : 01/2022
CHECKED BY : S. WANCE DATE : 03/2022

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|-----------|-----|-------|-----|-----|-------|-----------------|
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| 1 | | | 3 | | | S3-6 |
| 2 | | | 4 | | | TOTAL SHEETS 33 |

SUMMARY OF QUANTITIES FOR SPAN D

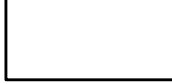
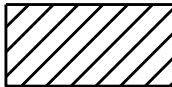

| | ESTIMATE | ACTUAL |
|---|------------|--------|
| SCARIFYING BRIDGE DECK | 239.5 SY | |
| HYDRO-DEMOLITION OF BRIDGE DECK | 239.5 SY | |
| CLASS II SURFACE PREPARATION | 1.0 SY | |
| CLASS III SURFACE PREPARATION | 0.0 SY | |
| LATEX MODIFIED CONCRETE OVERLAY | 16.7 CY | |
| PLACING AND FINISHING LATEX MODIFIED CONCRETE OVERLAY | 239.5 SY | |
| GROOVING BRIDGE DECK | 1,994.5 SF | |
| BRIDGE JOINT DEMOLITION | 40.3 SF | |

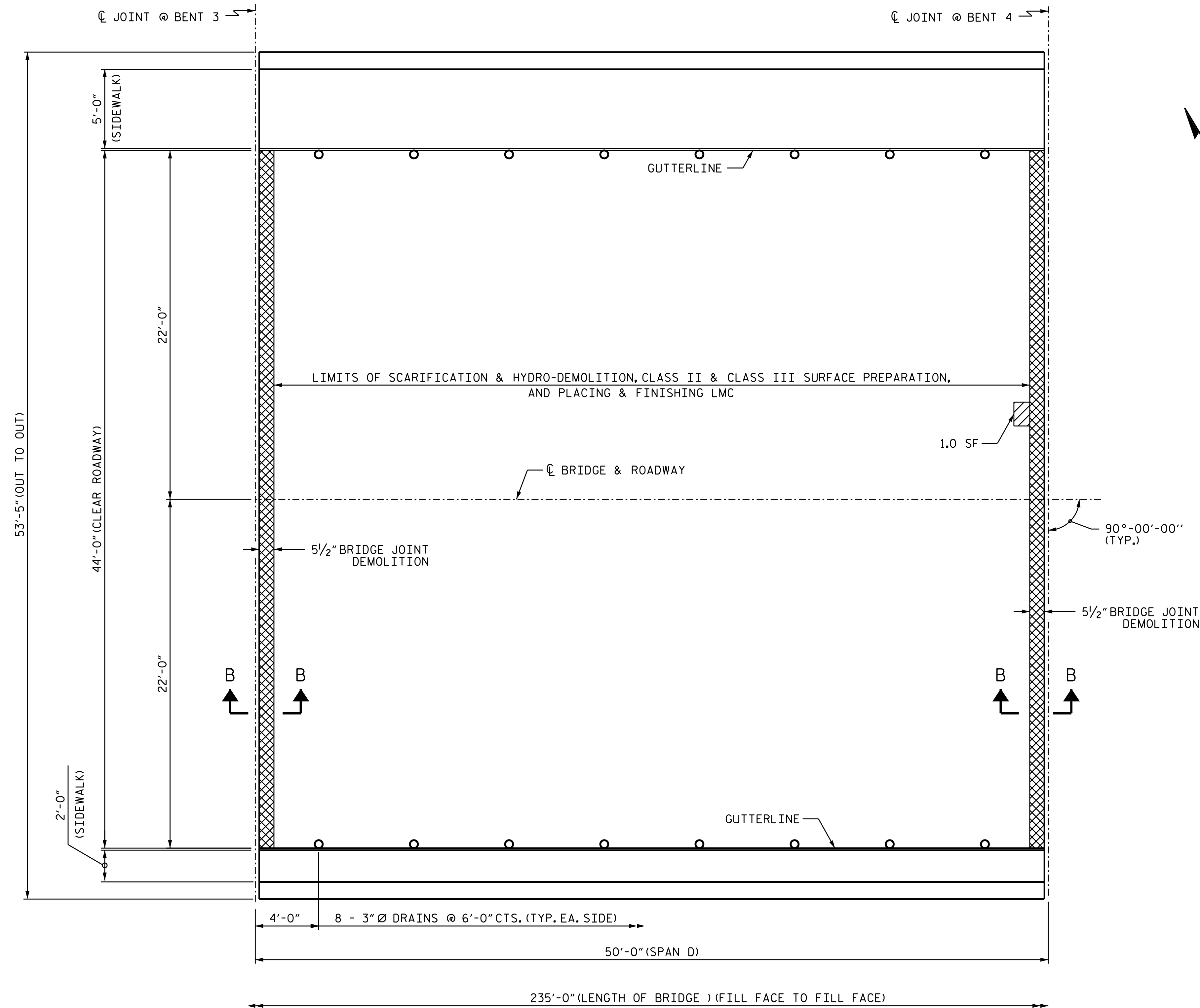
QUANTITIES FOR LMC OVERLAY ARE BASED ON OVERLAY DEPTH PLUS AN ADDITIONAL 1/4" TO ACCOUNT FOR IRREGULARITIES IN HYDRO-DEMOLITION/SCARIFICATION PROCESSES.

NOTES:

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

FOR ADDITIONAL NOTES, SEE SHEET 1 OF 5.

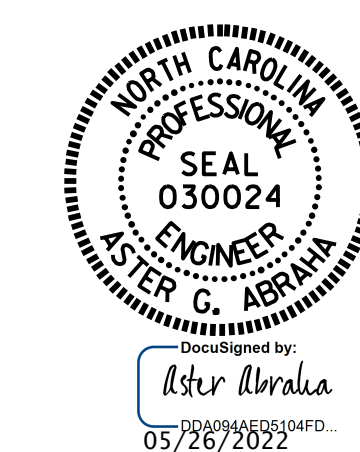
-  - SCARIFYING AND HYDRO-DEMOLITION OF BRIDGE DECK FOR LMC OVERLAY
-  - APPROX. AREA CLASS II SURFACE PREPARATION
-  - BRIDGE JOINT DEMOLITION



PLAN OF SPAN D
(SEE SHEET NO. S3-13 FOR SECTION B-B)

PROJECT NO. 15BPR.47
NASH COUNTY
BRIDGE NO. 630039

SHEET 4 OF 5



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SURFACE PREPARATION
SPAN D

DRAWN BY : S. T. SANDOR / A. Y. GODFREY DATE : 01/2022
CHECKED BY : S. WANCE DATE : 03/2022

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| 1 | | | 3 | | | S3-7 |
| 2 | | | 4 | | | TOTAL SHEETS 33 |

SUMMARY OF QUANTITIES FOR SPAN E

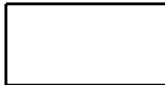
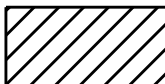

| | ESTIMATE | ACTUAL |
|---|-----------|--------|
| SCARIFYING BRIDGE DECK | 181.8 SY | |
| HYDRO-DEMOLITION OF BRIDGE DECK | 181.8 SY | |
| CLASS II SURFACE PREPARATION | 1.0 SY | |
| CLASS III SURFACE PREPARATION | 0.0 SY | |
| LATEX MODIFIED CONCRETE OVERLAY | 12.4 CY | |
| PLACING AND FINISHING LATEX MODIFIED CONCRETE OVERLAY | 181.8 SY | |
| GROOVING BRIDGE DECK | 1525.4 SF | |
| BRIDGE JOINT DEMOLITION | 20.2 SF | |

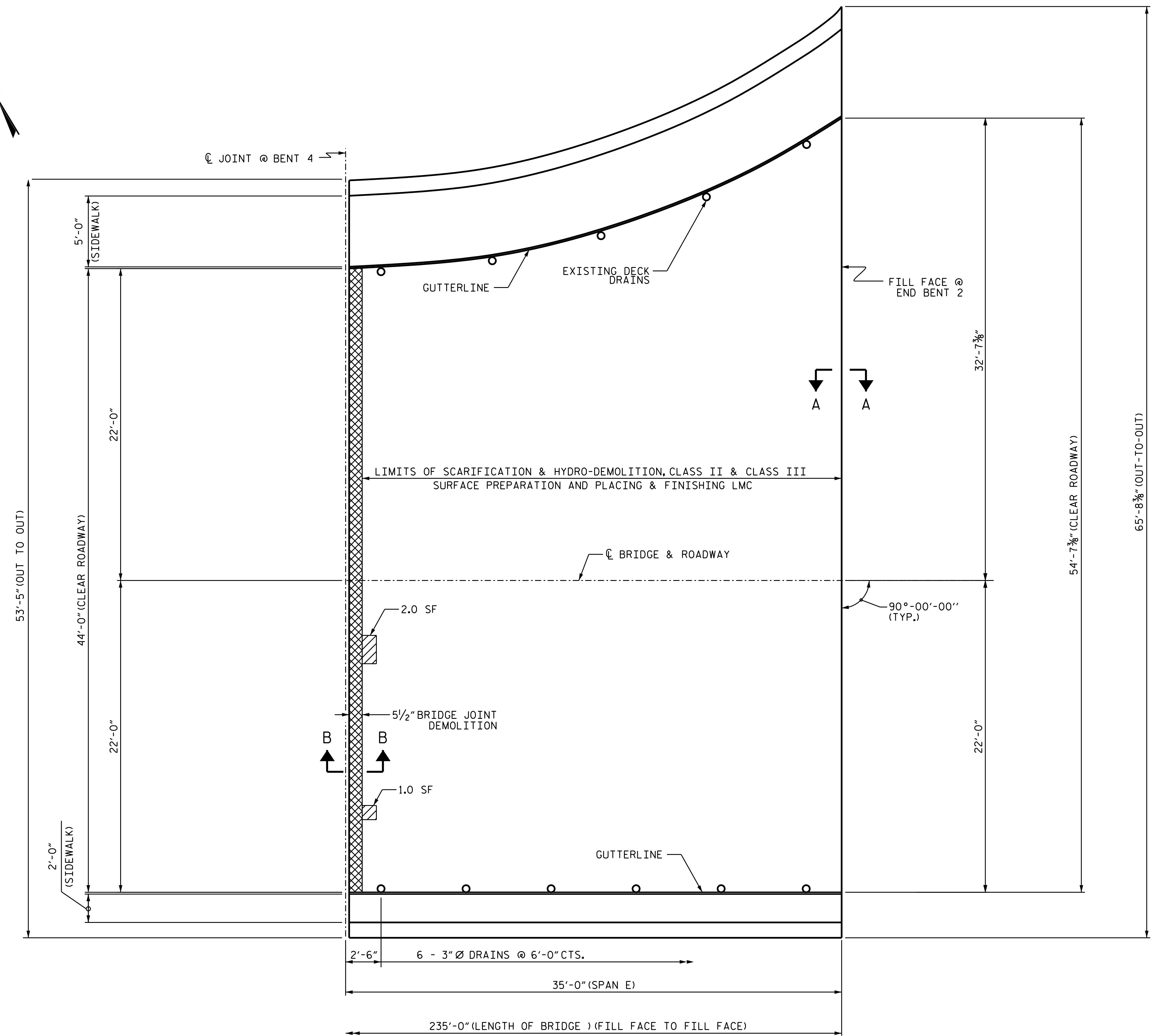
QUANTITIES FOR LMC OVERLAY ARE BASED ON OVERLAY DEPTH PLUS AN ADDITIONAL 1/4" TO ACCOUNT FOR IRREGULARITIES IN HYDRO-DEMOLITION/SCARIFICATION PROCESSES.

NOTES:

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

FOR ADDITIONAL NOTES, SEE SHEET 1 OF 5.

-  - SCARIFYING AND HYDRO-DEMOLITION OF BRIDGE DECK FOR LMC OVERLAY
-  - APPROX. AREA CLASS II SURFACE PREPARATION
-  - BRIDGE JOINT DEMOLITION

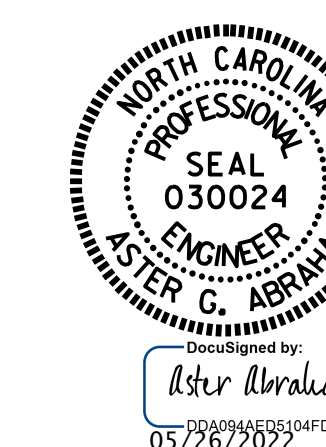


PLAN OF SPAN E

(SEE SHEET NO. S3-13 FOR SECTIONS A-A AND B-B)

PROJECT NO. 15BPR.47
 NASH COUNTY
 BRIDGE NO. 630039

SHEET 5 OF 5



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SURFACE PREPARATION
 SPAN E

DRAWN BY : S. T. SANDOR/A. Y. GODFREY DATE : 10/2021
 CHECKED BY : S. WANCE DATE : 03/2022

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|-----------|-----|-------|-----|-----|-------|--------------|
| NO. | BY: | DATE: | NO. | BY: | DATE: | S3-8 |
| 1 | | | 3 | | | TOTAL SHEETS |
| 2 | | | 4 | | | 33 |

REPAIR QUANTITY TABLE

| UNDERSIDE OF DECK REPAIRS - SPAN A | QUANTITIES | | | |
|------------------------------------|------------|-----------|---------|-----------|
| | ESTIMATE | | ACTUAL | |
| SHOTCRETE REPAIRS | AREA SF | VOLUME CF | AREA SF | VOLUME CF |
| UNDERSIDE OF DECK | 0.0 | 0.0 | | |
| CONCRETE BENT DIAPHRAGM | 4.2 | 2.1 | | |
| OVERHANG | 1.7 | 0.6 | | |
| CONCRETE REPAIRS | AREA SF | VOLUME CF | AREA SF | VOLUME CF |
| UNDERSIDE OF DECK | 0.0 | 0.0 | | |
| CONCRETE BENT DIAPHRAGM | 0.0 | 0.0 | | |
| OVERHANG | 0.0 | 0.0 | | |

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 2" CL TO SAWCUT. SEE REPAIR DETAILS.

NOTES:

THE LOCATIONS AND DIMENSIONS OF THE AREAS FOR REPAIR ARE BASED ON THE BEST INFORMATION AVAILABLE. THE CONTRACTOR, IN CONJUNCTION WITH THE ENGINEER, SHALL VERIFY THE LOCATION AND EXTENT OF REPAIR AREAS PRIOR TO STEEL FABRICATION. 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 ENTER THE ACTUAL QUANTITIES INTO THE REPAIR QUANTITY TABLE.

FOR BEAM PLATING REPAIR, SEE "BEAM PLATING REPAIR DETAILS" SHEET.

FOR BOLTED STEEL PLATE REPAIRS SEE "BOLTED BEAM PLATING REPAIR DETAILS" SHEET.

FOR BEAM END CUT-OUT REPAIR SEE "BEAM END AND INTERMEDIATE REPAIR DETAILS" SHEET.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

CONCRETE REPAIRS MAY BE SUBSTITUTED IN LIEU OF SHOTCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

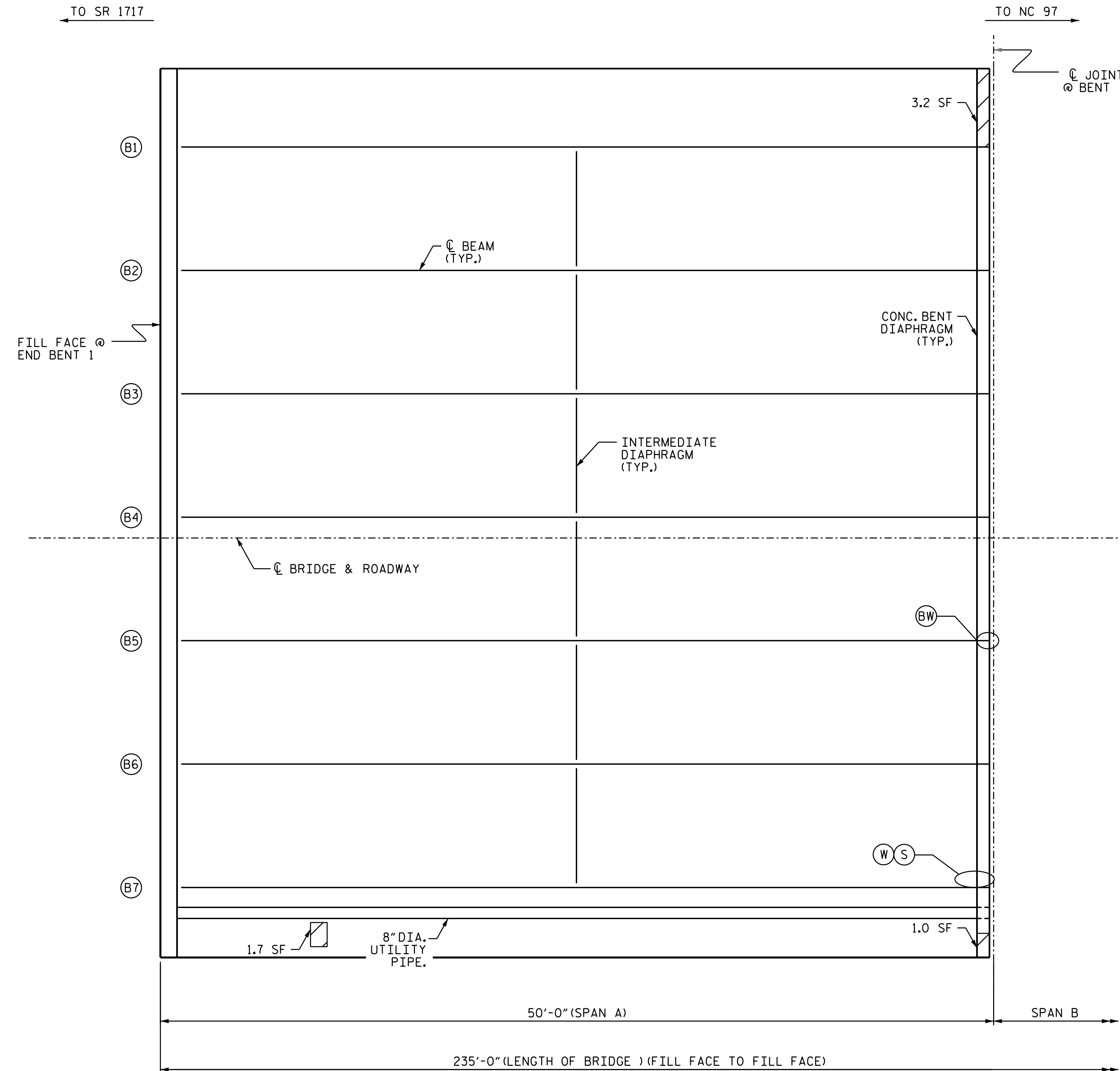
FOR UNDERSIDE OF DECK REPAIRS, SEE "DECK REPAIR DETAILS" SHEET S3-20.

FOR OVERHANG REPAIRS, SEE "OVERHANG & DIAPHRAGM REPAIR DETAILS" SHEET S3-21.

FOR DIAPHRAGM REPAIRS SEE "OVERHANG & DIAPHRAGM REPAIR DETAILS" SHEET.

- CONCRETE REPAIR AREA
- SHOTCRETE REPAIR AREA

- (B#) BEAM NUMBER
- (W) WEB PLATING REPAIR
- (S) STIFFENER REPAIR
- (F) BOTTOM FLANGE PLATING REPAIR
- (BW) BOLTED WEB PLATE REPAIR
- (BF) BOLTED FLANGE PLATE REPAIR
- (BE) BEAM END CUT-OUT REPAIR
- (KA) KEEPER ANGLE ASSEMBLY



BEAM REPAIR QUANTITY TABLE

| BOLTED STEEL PLATES | | STEEL PLATES | | STIFFENER | | STEEL DIAPHRAGM | | BEAM END CUT-OUT | |
|-----------------------------|--------|--------------|--------|-----------|--------|-----------------|--------|------------------|--------|
| LBS. | | LBS. | | LBS. | | LBS. | | LBS. | |
| ESTIMATE | ACTUAL | ESTIMATE | ACTUAL | ESTIMATE | ACTUAL | ESTIMATE | ACTUAL | ESTIMATE | ACTUAL |
| 53.6 | | 19.1 | | 5.8 | | 0 | | 0 | |
| STEEL KEEPER ANGLE ASSEMBLY | | | | | | | | | |
| EA. | | | | | | | | | |
| ESTIMATE | | ACTUAL | | | | | | | |
| 0 | | | | | | | | | |

SPAN A (UNDERSIDE)

| STEEL REPAIR LOCATIONS | | | | | | | |
|------------------------|------|------|----------|----------|----------|----------|----------|
| REPAIR TYPE | SPAN | BEAM | LOCATION | DIM. "A" | DIM. "B" | DIM. "C" | DIM. "D" |
| BW | A | 5 | BENT 1 | 8 1/2" | 10" | - | - |
| W | A | 7 | BENT 1 | 3" | 12" | - | - |
| S | A | 7 | BENT 1 | 8" | - | - | - |
| | | | | | | | |
| | | | | | | | |

(SEE SHEETS S3-22 THRU S3-24 FOR BEAM REPAIR DETAILS AND DIMENSIONS.)

PROJECT NO. 15BPR.47
NASH COUNTY
 BRIDGE NO. 630039

SHEET 1 OF 5



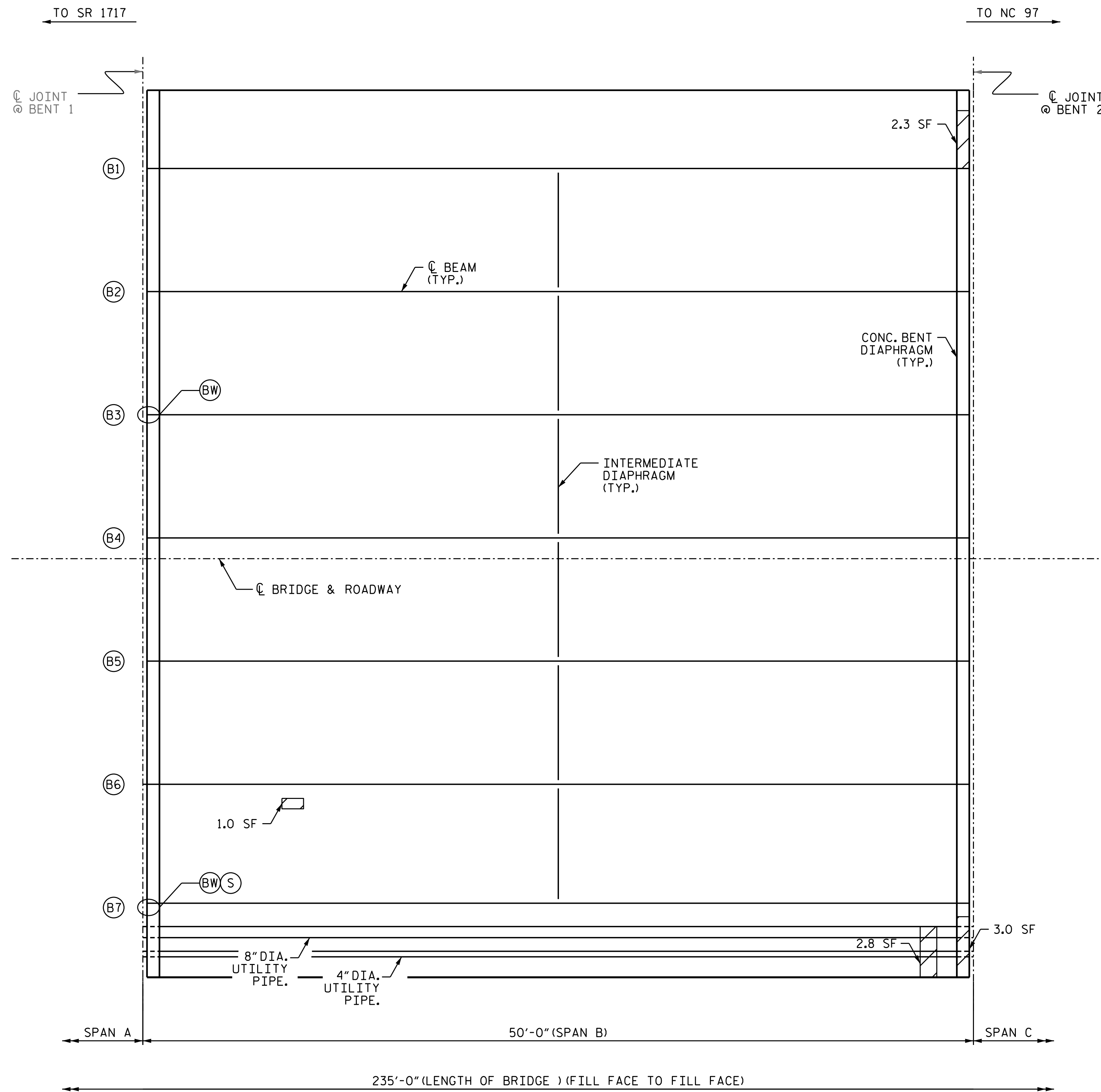
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

UNDERSIDE DECK REPAIRS SPAN A

DRAWN BY : A. Y. GODFREY DATE : 01/2022
 CHECKED BY : S. WANCE DATE : 03/2022

| NO. | REVISIONS | | | NO. | REVISIONS | | | SHEET NO. |
|-----|-----------|-------|--|-----|-----------|-------|--|-----------------|
| | BY: | DATE: | | | BY: | DATE: | | |
| 1 | | | | 3 | | | | S3-9 |
| 2 | | | | 4 | | | | TOTAL SHEETS 33 |

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- CONCRETE REPAIR AREA
- SHOTCRETE REPAIR AREA
- (B*) BEAM NUMBER
- (W) WEB PLATING REPAIR
- (S) STIFFENER REPAIR
- (F) BOTTOM FLANGE PLATING REPAIR
- (BW) BOLTED WEB PLATE REPAIR
- (BF) BOLTED FLANGE PLATE REPAIR
- (BE) BEAM END CUT-OUT REPAIR

REPAIR QUANTITY TABLE

| UNDERSIDE OF DECK REPAIRS - SPAN B | QUANTITIES | | | |
|------------------------------------|------------|-----------|---------|-----------|
| | ESTIMATE | | ACTUAL | |
| SHOTCRETE REPAIRS | AREA SF | VOLUME CF | AREA SF | VOLUME CF |
| UNDERSIDE OF DECK | 1.0 | 0.5 | | |
| CONCRETE BENT DIAPHRAGM | 5.3 | 2.7 | | |
| OVERHANG | 2.8 | 1.0 | | |
| CONCRETE REPAIRS | AREA SF | VOLUME CF | AREA SF | VOLUME CF |
| UNDERSIDE OF DECK | 0.0 | 0.0 | | |
| CONCRETE BENT DIAPHRAGM | 0.0 | 0.0 | | |
| OVERHANG | 0.0 | 0.0 | | |

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 2" CL TO SAWCUT. SEE REPAIR DETAILS.

NOTES:

THE LOCATIONS AND DIMENSIONS OF THE AREAS FOR REPAIR ARE BASED ON THE BEST INFORMATION AVAILABLE. THE CONTRACTOR, IN CONJUNCTION WITH THE ENGINEER, SHALL VERIFY THE LOCATION AND EXTENT OF REPAIR AREAS PRIOR TO STEEL FABRICATION. 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 ENTER THE ACTUAL QUANTITIES INTO THE REPAIR QUANTITY TABLE.

FOR ADDITIONAL NOTES, SEE SHEET 1 OF 5.

STEEL REPAIR LOCATIONS

| REPAIR TYPE | SPAN | BEAM | LOCATION | DIM. "A" | DIM. "B" | DIM. "C" | DIM. "D" |
|-------------|------|------|----------|----------|----------|----------|----------|
| BW | B | 3 | BENT 1 | 8½" | 10" | - | - |
| BW | B | 7 | BENT 1 | 8½" | 10" | - | - |
| S | B | 7 | BENT 1 | 4" | - | - | - |
| | | | | | | | |
| | | | | | | | |

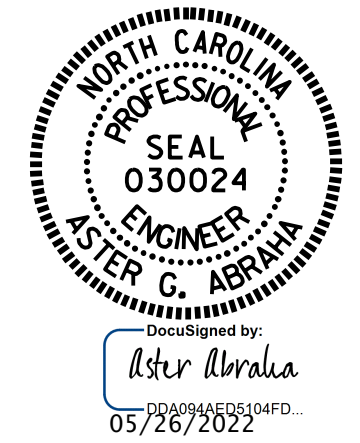
(SEE SHEETS S3-22 THRU S3-24 FOR BEAM REPAIR DETAILS AND DIMENSIONS.)

BEAM REPAIR QUANTITY TABLE

| BOLTED STEEL PLATES | | STEEL PLATES | | STIFFENER | | STEEL DIAPHRAGM | | BEAM END CUT-OUT | |
|-----------------------------|--------|--------------|--------|-----------|--------|-----------------|--------|------------------|--------|
| LBS. | | LBS. | | LBS. | | LBS. | | LBS. | |
| ESTIMATE | ACTUAL | ESTIMATE | ACTUAL | ESTIMATE | ACTUAL | ESTIMATE | ACTUAL | ESTIMATE | ACTUAL |
| 107.2 | | 19.1 | | 3.7 | | 0 | | 0 | |
| STEEL KEEPER ANGLE ASSEMBLY | | | | | | | | | |
| EA. | | | | | | | | | |
| ESTIMATE | | ACTUAL | | ESTIMATE | | ACTUAL | | ESTIMATE | |
| 0 | | | | | | | | | |

PROJECT NO. 15BPR.47
NASH COUNTY
 BRIDGE NO. 630039

SHEET 2 OF 5



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

UNDERSIDE DECK REPAIRS SPAN B

DRAWN BY : A. Y. GODFREY DATE : 01/2022
 CHECKED BY : S. WANCE DATE : 03/2022

| NO. | REVISIONS | | | NO. | REVISIONS | | | SHEET NO. |
|-----|-----------|-------|--|-----|-----------|-------|--|-----------------|
| | BY: | DATE: | | | BY: | DATE: | | |
| 1 | | | | 3 | | | | S3-10 |
| 2 | | | | 4 | | | | TOTAL SHEETS 33 |

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REPAIR QUANTITY TABLE

| UNDERSIDE OF DECK REPAIRS - SPAN C | QUANTITIES | | | |
|------------------------------------|------------|-----------|---------|-----------|
| | ESTIMATE | | ACTUAL | |
| SHOTCRETE REPAIRS | AREA SF | VOLUME CF | AREA SF | VOLUME CF |
| UNDERSIDE OF DECK | 0.0 | 0.0 | | |
| CONCRETE BENT DIAPHRAGM | 11.3 | 5.7 | | |
| OVERHANG | 8.8 | 3.0 | | |
| CONCRETE REPAIRS | AREA SF | VOLUME CF | AREA SF | VOLUME CF |
| UNDERSIDE OF DECK | 0.0 | 0.0 | | |
| CONCRETE BENT DIAPHRAGM | 0.0 | 0.0 | | |
| OVERHANG | 0.0 | 0.0 | | |

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 2" CL TO SAWCUT. SEE REPAIR DETAILS.

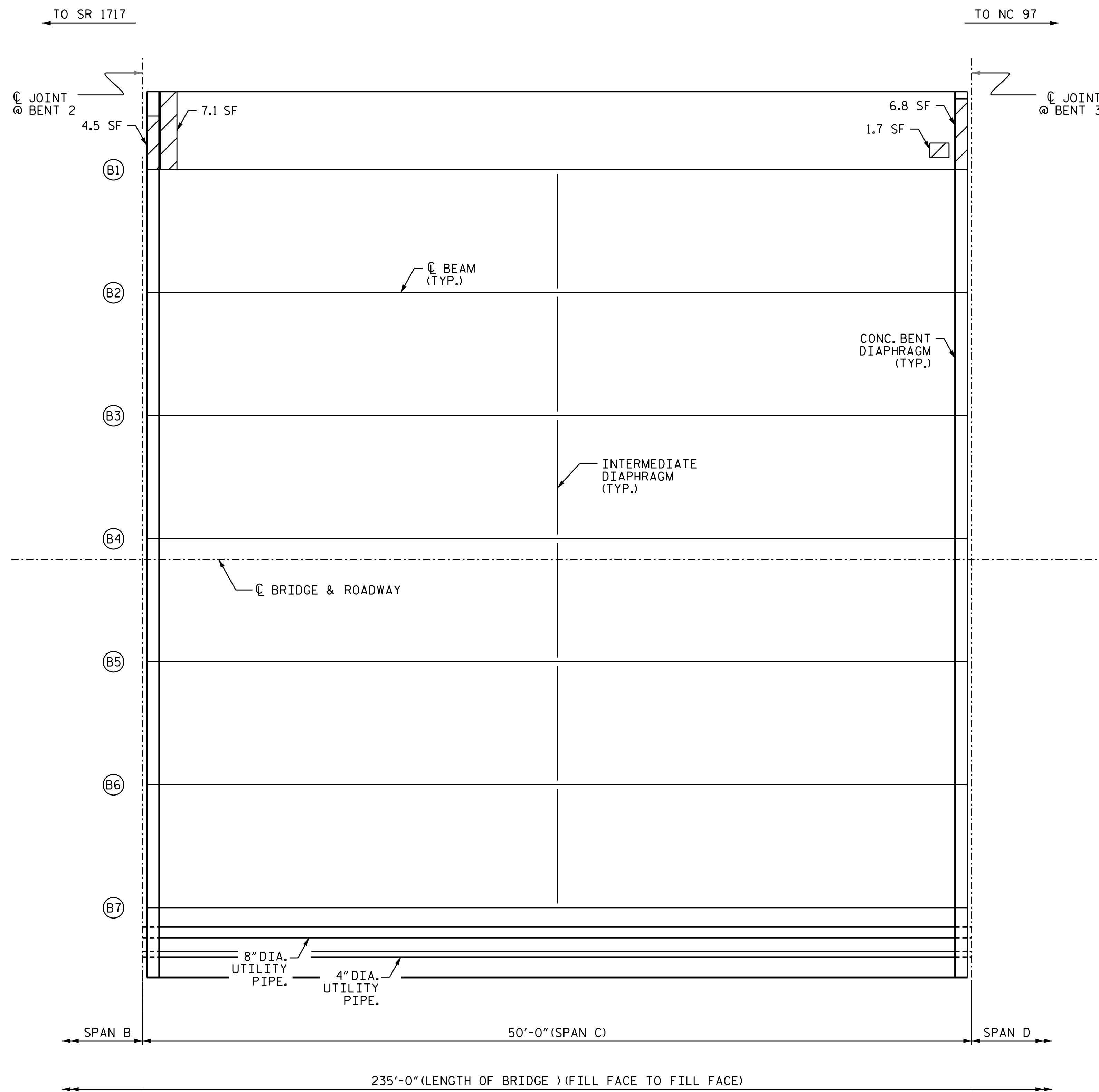
NOTES:

THE LOCATIONS AND DIMENSIONS OF THE AREAS FOR REPAIR ARE BASED ON THE BEST INFORMATION AVAILABLE. THE CONTRACTOR, IN CONJUNCTION WITH THE ENGINEER, SHALL VERIFY THE LOCATION AND EXTENT OF REPAIR AREAS PRIOR TO STEEL FABRICATION. 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 ENTER THE ACTUAL QUANTITIES INTO THE REPAIR QUANTITY TABLE.

FOR ADDITIONAL NOTES, SEE SHEET 1 OF 5.

- CONCRETE REPAIR AREA
- SHOTCRETE REPAIR AREA

- (B#) BEAM NUMBER
- (W) WEB PLATING REPAIR
- (S) STIFFENER REPAIR
- (F) BOTTOM FLANGE PLATING REPAIR
- (BW) BOLTED WEB PLATE REPAIR
- (BF) BOLTED FLANGE PLATE REPAIR
- (BE) BEAM END CUT-OUT REPAIR
- (KA) KEEPER ANGLE ASSEMBLY



BEAM REPAIR QUANTITY TABLE

| BOLTED STEEL PLATES | | STEEL PLATES | | STIFFENER | | STEEL DIAPHRAGM | | BEAM END CUT-OUT | |
|-----------------------------|--------|--------------|--------|-----------|--------|-----------------|--------|------------------|--------|
| LBS. | | LBS. | | LBS. | | LBS. | | LBS. | |
| ESTIMATE | ACTUAL | ESTIMATE | ACTUAL | ESTIMATE | ACTUAL | ESTIMATE | ACTUAL | ESTIMATE | ACTUAL |
| 0.0 | | 0.0 | | 0.0 | | 0.0 | | 0.0 | |
| STEEL KEEPER ANGLE ASSEMBLY | | | | | | | | | |
| EA. | | | | | | | | | |
| ESTIMATE | | | | | ACTUAL | | | | |
| 0 | | | | | | | | | |

PROJECT NO. 15BPR.47
NASH COUNTY
 BRIDGE NO. 630039

SHEET 3 OF 5



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

UNDERSIDE DECK REPAIRS SPAN C

SPAN C (UNDERSIDE)

STEEL REPAIR LOCATIONS

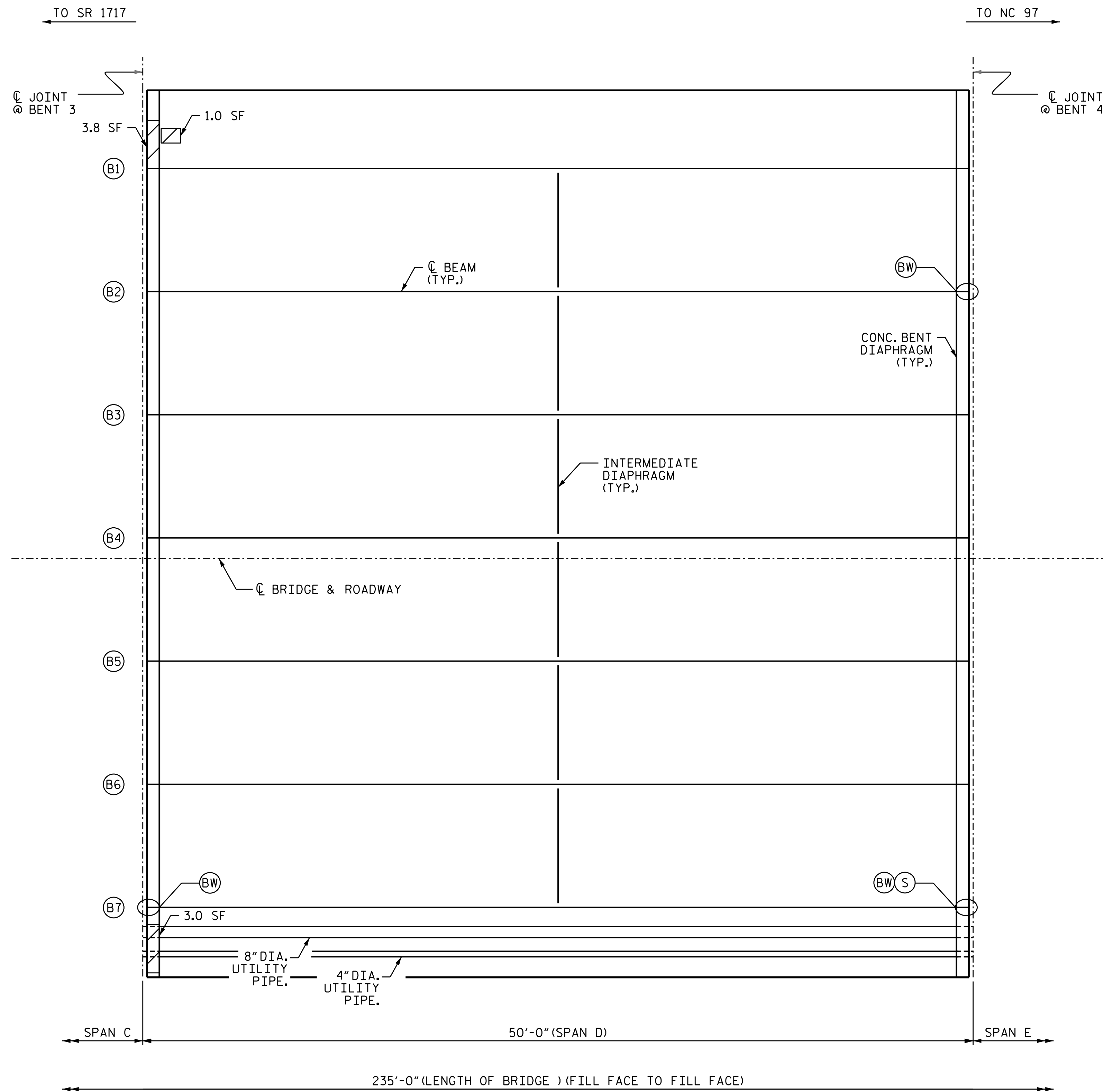
| REPAIR TYPE | SPAN | BEAM | LOCATION | DIM. "A" | DIM. "B" | DIM. "C" | DIM. "D" |
|-------------|------|------|----------|----------|----------|----------|----------|
| | | | | | | | |

(SEE SHEETS S3-22 THRU S3-24 FOR BEAM REPAIR DETAILS AND DIMENSIONS.)

DRAWN BY : A. Y. GODFREY DATE : 01/2022
 CHECKED BY : S. WANCE DATE : 03/2022

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| 1 | | | 3 | | | TOTAL SHEETS |
| 2 | | | 4 | | | 33 |



- CONCRETE REPAIR AREA
- SHOTCRETE REPAIR AREA
- (B#) BEAM NUMBER
- (W) WEB PLATING REPAIR
- (S) STIFFENER REPAIR
- (F) BOTTOM FLANGE PLATING REPAIR
- (BW) BOLTED WEB PLATE REPAIR
- (BF) BOLTED FLANGE PLATE REPAIR
- (BE) BEAM END CUT-OUT REPAIR
- (KA) KEEPER ANGLE ASSEMBLY

REPAIR QUANTITY TABLE

| UNDERSIDE OF DECK REPAIRS - SPAN D | QUANTITIES | | | |
|------------------------------------|------------|-----------|---------|-----------|
| | ESTIMATE | | ACTUAL | |
| SHOTCRETE REPAIRS | AREA SF | VOLUME CF | AREA SF | VOLUME CF |
| UNDERSIDE OF DECK | 0.0 | 0.0 | | |
| CONCRETE BENT DIAPHRAGM | 6.8 | 2.3 | | |
| OVERHANG | 1.0 | 0.5 | | |
| CONCRETE REPAIRS | AREA SF | VOLUME CF | AREA SF | VOLUME CF |
| UNDERSIDE OF DECK | 0.0 | 0.0 | | |
| CONCRETE BENT DIAPHRAGM | 0.0 | 0.0 | | |
| OVERHANG | 0.0 | 0.0 | | |

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 2" CL TO SAWCUT. SEE REPAIR DETAILS.

NOTES:
 THE LOCATIONS AND DIMENSIONS OF THE AREAS FOR REPAIR ARE BASED ON THE BEST INFORMATION AVAILABLE. THE CONTRACTOR, IN CONJUNCTION WITH THE ENGINEER, SHALL VERIFY THE LOCATION AND EXTENT OF REPAIR AREAS PRIOR TO STEEL FABRICATION. 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 ENTER THE ACTUAL QUANTITIES INTO THE REPAIR QUANTITY TABLE.
 FOR ADDITIONAL NOTES, SEE SHEET 1 OF 5.

STEEL REPAIR LOCATIONS

| REPAIR TYPE | SPAN | BEAM | LOCATION | DIM. "A" | DIM. "B" | DIM. "C" | DIM. "D" |
|-------------|------|------|----------|----------|----------|----------|----------|
| BW | D | 7 | BENT 3 | 8½" | 10" | - | - |
| BW | D | 2 | BENT 4 | 8½" | 10" | - | - |
| BW | D | 7 | BENT 4 | 8½" | 10" | - | - |
| S | D | 7 | BENT 4 | 3" | - | - | - |

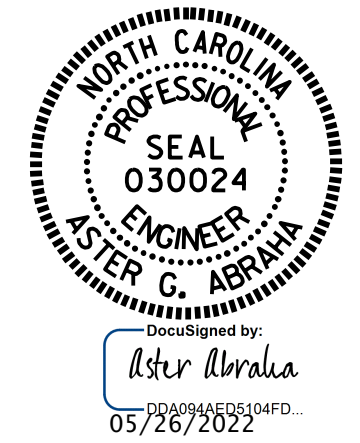
(SEE SHEETS S3-22 THRU S3-24 FOR BEAM REPAIR DETAILS AND DIMENSIONS.)

BEAM REPAIR QUANTITY TABLE

| BOLTED STEEL PLATES | | STEEL PLATES | | STIFFENER | | STEEL DIAPHRAGM | | BEAM END CUT-OUT | |
|-----------------------------|--------|--------------|--------|-----------|--------|-----------------|--------|------------------|--------|
| LBS. | | LBS. | | LBS. | | LBS. | | LBS. | |
| ESTIMATE | ACTUAL | ESTIMATE | ACTUAL | ESTIMATE | ACTUAL | ESTIMATE | ACTUAL | ESTIMATE | ACTUAL |
| 160.8 | | 0.0 | | 3.2 | | 0.0 | | 0.0 | |
| STEEL KEEPER ANGLE ASSEMBLY | | | | | | | | | |
| EA. | | | | | | | | | |
| ESTIMATE | | ACTUAL | | ESTIMATE | | ACTUAL | | ESTIMATE | |
| 0 | | | | | | | | | |

PROJECT NO. 15BPR.47
NASH COUNTY
 BRIDGE NO. 630039

SHEET 4 OF 5



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

UNDERSIDE DECK REPAIRS SPAN D

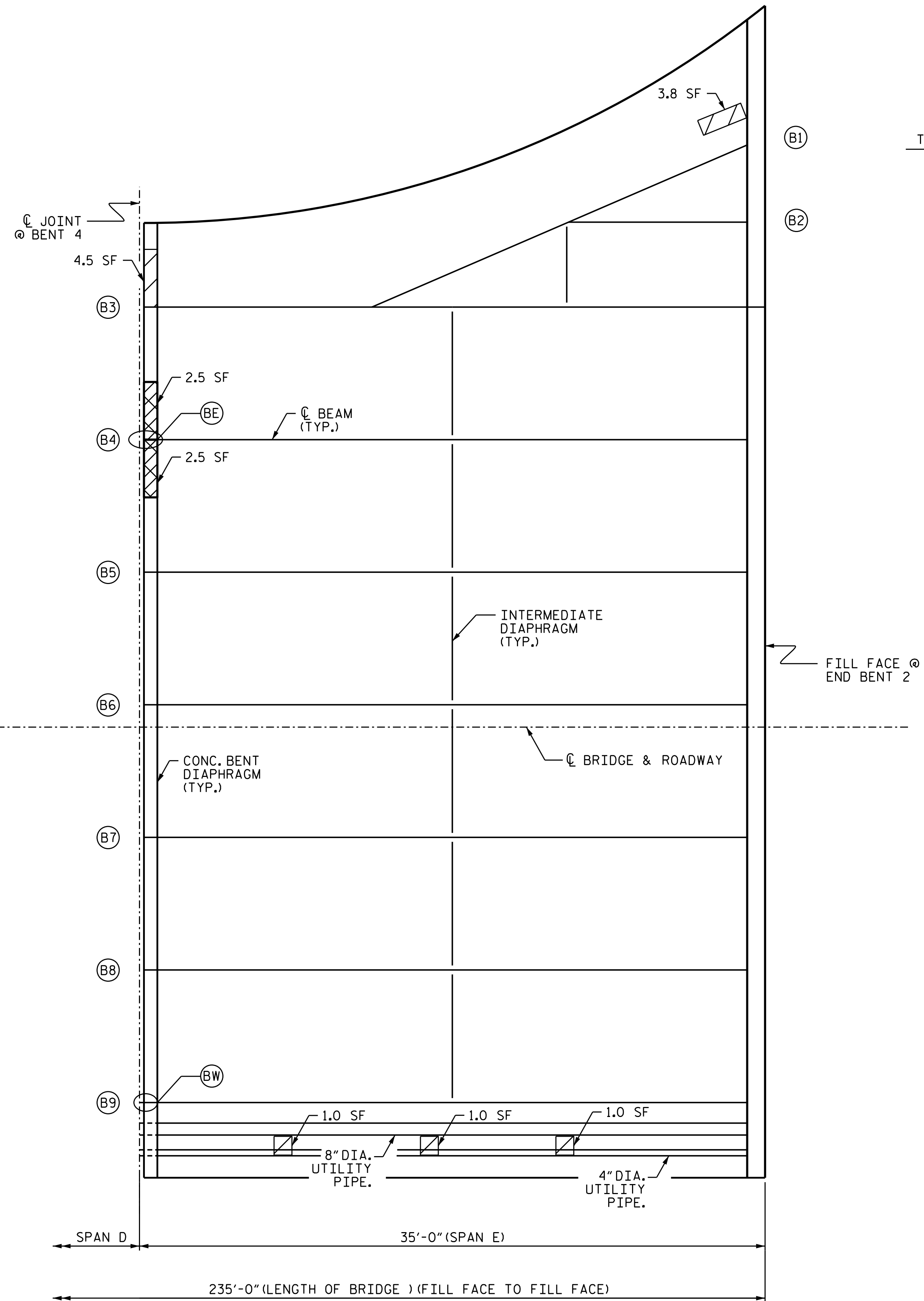
DRAWN BY : A. Y. GODFREY DATE : 01/2022
 CHECKED BY : S. WANCE DATE : 03/2022

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|-----------|-----|-------|-----|-----|-------|-----------------|
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| 1 | | | 3 | | | S3-12 |
| 2 | | | 4 | | | TOTAL SHEETS 33 |

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← TO SR 1717

TO NC 97 →



- CONCRETE REPAIR AREA
- SHOTCRETE REPAIR AREA
- (B#) BEAM NUMBER
- (W) WEB PLATING REPAIR
- (S) STIFFENER REPAIR
- (F) BOTTOM FLANGE PLATING REPAIR
- (BW) BOLTED WEB PLATE REPAIR
- (BF) BOLTED FLANGE PLATE REPAIR
- (BE) BEAM END CUT-OUT REPAIR
- (KA) KEEPER ANGLE ASSEMBLY

REPAIR QUANTITY TABLE

| UNDERSIDE OF DECK REPAIRS - SPAN E | QUANTITIES | | | |
|------------------------------------|------------|-----------|---------|-----------|
| | ESTIMATE | | ACTUAL | |
| SHOTCRETE REPAIRS | AREA SF | VOLUME CF | AREA SF | VOLUME CF |
| UNDERSIDE OF DECK | 0.0 | 0.0 | | |
| CONCRETE BENT DIAPHRAGM | 4.5 | 1.5 | | |
| OVERHANG | 6.8 | 2.3 | | |
| CONCRETE REPAIRS | AREA SF | VOLUME CF | AREA SF | VOLUME CF |
| UNDERSIDE OF DECK | 0.0 | 0.0 | | |
| CONCRETE BENT DIAPHRAGM | 5.0 | 5.9 | | |
| OVERHANG | 0.0 | 0.0 | | |

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 2" CL TO SAWCUT. SEE REPAIR DETAILS.

NOTES:

THE LOCATIONS AND DIMENSIONS OF THE AREAS FOR REPAIR ARE BASED ON THE BEST INFORMATION AVAILABLE. THE CONTRACTOR, IN CONJUNCTION WITH THE ENGINEER, SHALL VERIFY THE LOCATION AND EXTENT OF REPAIR AREAS PRIOR TO STEEL FABRICATION. 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 ENTER THE ACTUAL QUANTITIES IN THE REPAIR QUANTITY TABLE.

FOR ADDITIONAL NOTES, SEE SHEET 1 OF 5.

STEEL REPAIR LOCATIONS

| REPAIR TYPE | SPAN | BEAM | LOCATION | DIM. "A" | DIM. "B" | DIM. "C" | DIM. "D" |
|-------------|------|------|----------|----------|----------|----------|----------|
| BE | E | 4 | BENT 4 | 4" | 12" | - | - |
| BW | E | 9 | BENT 4 | 8½" | 12" | - | - |

(SEE SHEETS S3-22 THRU S3-24 FOR BEAM REPAIR DETAILS AND DIMENSIONS.)

BEAM REPAIR QUANTITY TABLE

| BOLTED STEEL PLATES | | STEEL PLATES | | STIFFENER | | STEEL DIAPHRAGM | | BEAM END CUT-OUT | |
|-----------------------------|--------|--------------|--------|-----------|--------|-----------------|--------|------------------|--------|
| LBS. | | LBS. | | LBS. | | LBS. | | LBS. | |
| ESTIMATE | ACTUAL | ESTIMATE | ACTUAL | ESTIMATE | ACTUAL | ESTIMATE | ACTUAL | ESTIMATE | ACTUAL |
| 62.5 | | 0.0 | | 0.0 | | 0.0 | | 77.5 | |
| STEEL KEEPER ANGLE ASSEMBLY | | | | | | | | | |
| EA. | | | | | | | | | |
| ESTIMATE | | ACTUAL | | | | | | | |
| 0 | | | | | | | | | |

PROJECT NO. 15BPR.47
NASH COUNTY
 BRIDGE NO. 630039

SHEET 5 OF 5



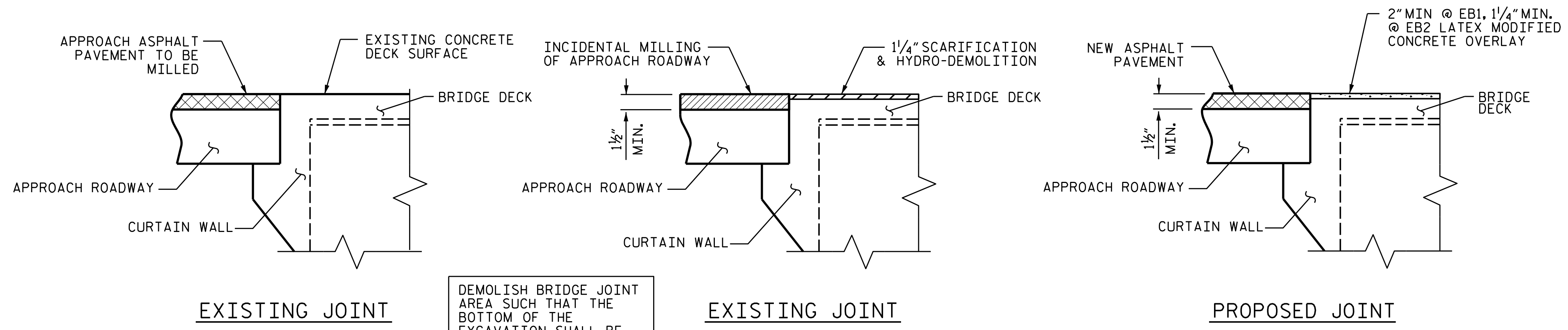
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

UNDERSIDE DECK REPAIRS SPAN E

| REVISIONS | | | | | | SHEET NO. |
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| NO. | BY: | DATE: | NO. | BY: | DATE: | S3-13 |
| 1 | | | 3 | | | TOTAL SHEETS |
| 2 | | | 4 | | | 33 |

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DRAWN BY : A. Y. GODFREY DATE : 01/2022
 CHECKED BY : S. WANCE DATE : 03/2022



DEMOLISH BRIDGE JOINT AREA SUCH THAT THE BOTTOM OF THE EXCAVATION SHALL BE REASONABLY FLAT AND LEVEL AND TO THE NECESSARY DEPTH, SUCH THAT ELASTOMERIC CONCRETE SHALL BE FOUNDED ON CONCRETE OR REPAIR CONCRETE SUBSTRATE, NOT LATEX MODIFIED CONCRETE.

IF THE EMBEDDED PORTION OF THE EXISTING PLASTIC WATERSTOP IS EXPOSED DURING REMOVAL OF UNSOUND CONCRETE, OR IF UNSOUND CONCRETE IS REMOVED WITHIN 2" OF THE WATERSTOP, THE ENTIRE CONCRETE DEPTH TO THE WATERSTOP SHALL BE REMOVED. IF SUCH EXCAVATION EXTENDS MORE THAN 2" BELOW THE BOTTOM OF THE PLANNED ELASTOMERIC CONCRETE HEADER, AS SHOWN, APPROVED REPAIR CONCRETE SHALL BE PLACED IN THE EXCAVATED AREA TO THE ELEVATION AT THE BOTTOM OF THE ELASTOMERIC CONCRETE.

NOTES:

CONTRACTOR SHALL FIELD VERIFY THE EXISTING FORMED OPENING PRIOR TO OBTAINING JOINT MATERIAL. IF ACTUAL JOINT OPENINGS VARIES FROM THE OPENING INDICATED IN DETAIL MORE THAN 1/4" NOTIFY ENGINEER. REVISION TO THE JOINT SEAL SIZE MAY BE NECESSARY.

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.

UNLESS NOTED OTHERWISE RETAIN ALL EXISTING REINFORCING STEEL. CLEAN AND REPAIR AS NEEDED.

ALL EXPOSED ENDS OF CUT BARS SHALL BE COATED WITH EPOXY PRIOR TO THE NEW JOINT MATERIAL INSTALLATION.

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

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

FOR POURABLE SILICONE EXPANSION JOINT SEALS, SEE SPECIAL PROVISIONS.

FOR ELASTOMERIC CONCRETE FOR PRESERVATION, SEE SPECIAL PROVISIONS.

SILICONE JOINT SEALANT AND BACKER ROD SHALL BE INSTALLED AS PER MANUFACTURER'S RECOMMENDATION.

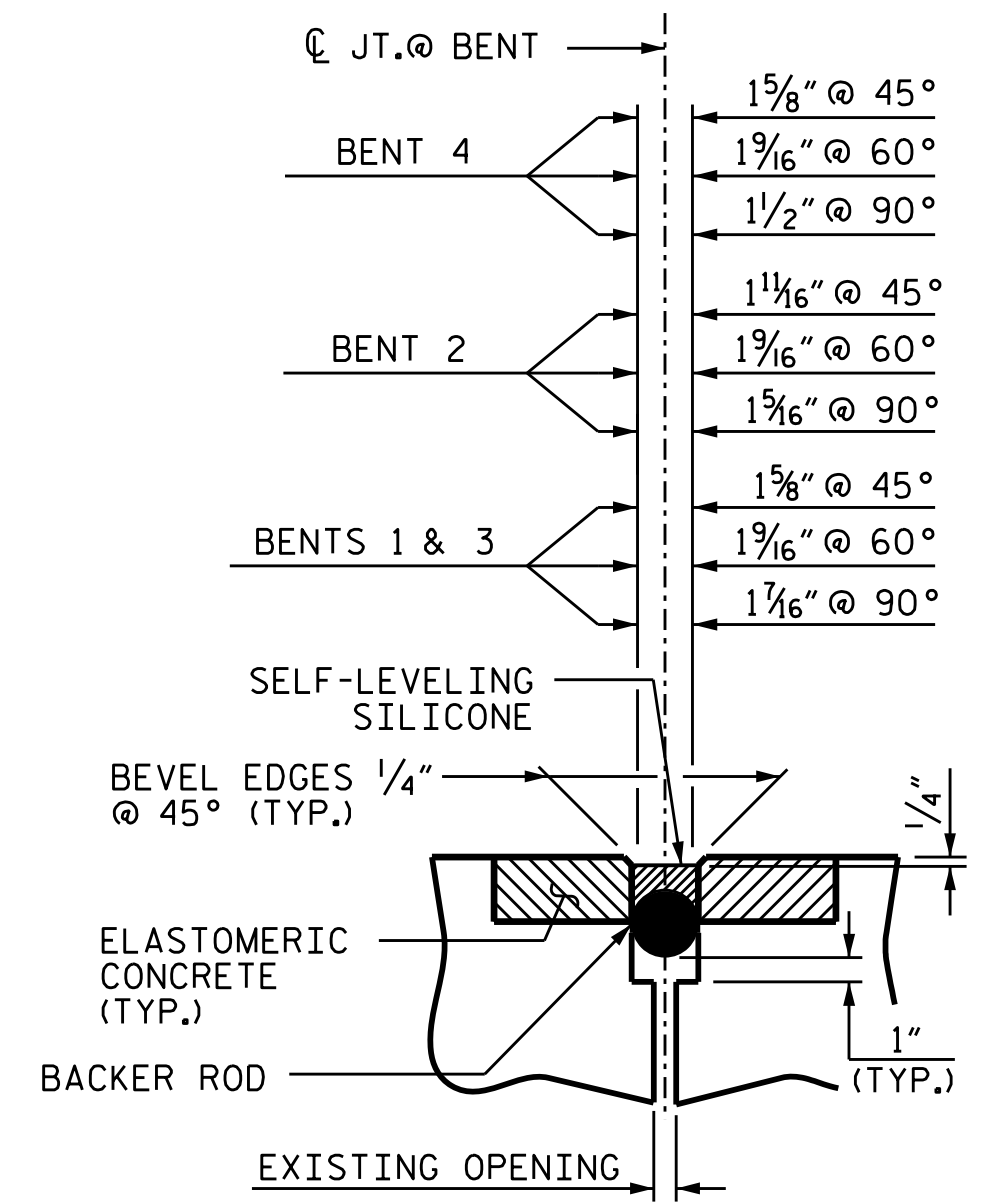
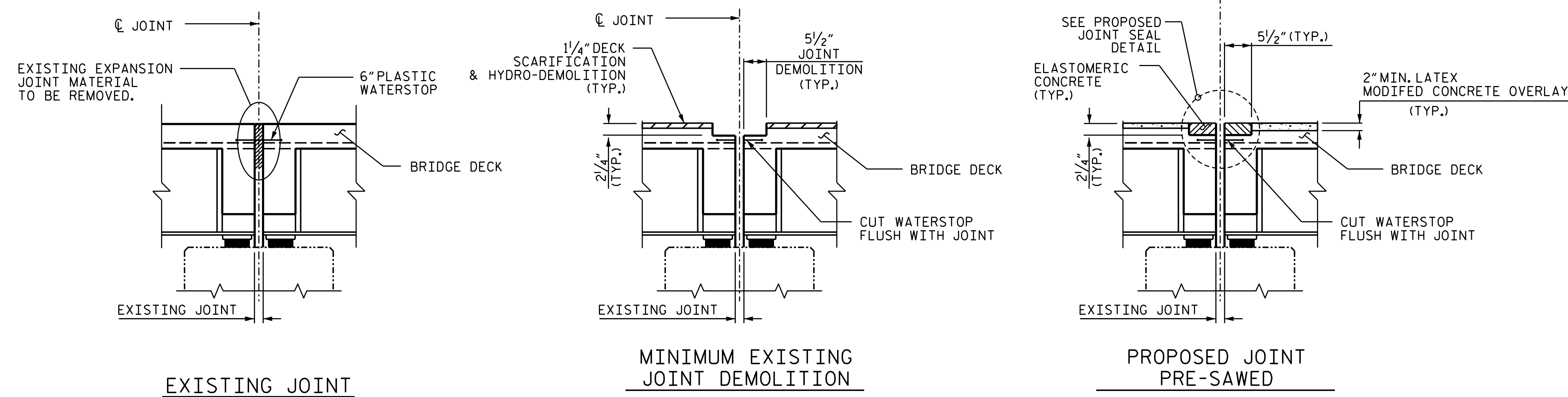
THE INSTALLATION OF JOINT SEAL SHALL BE WATERTIGHT.

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

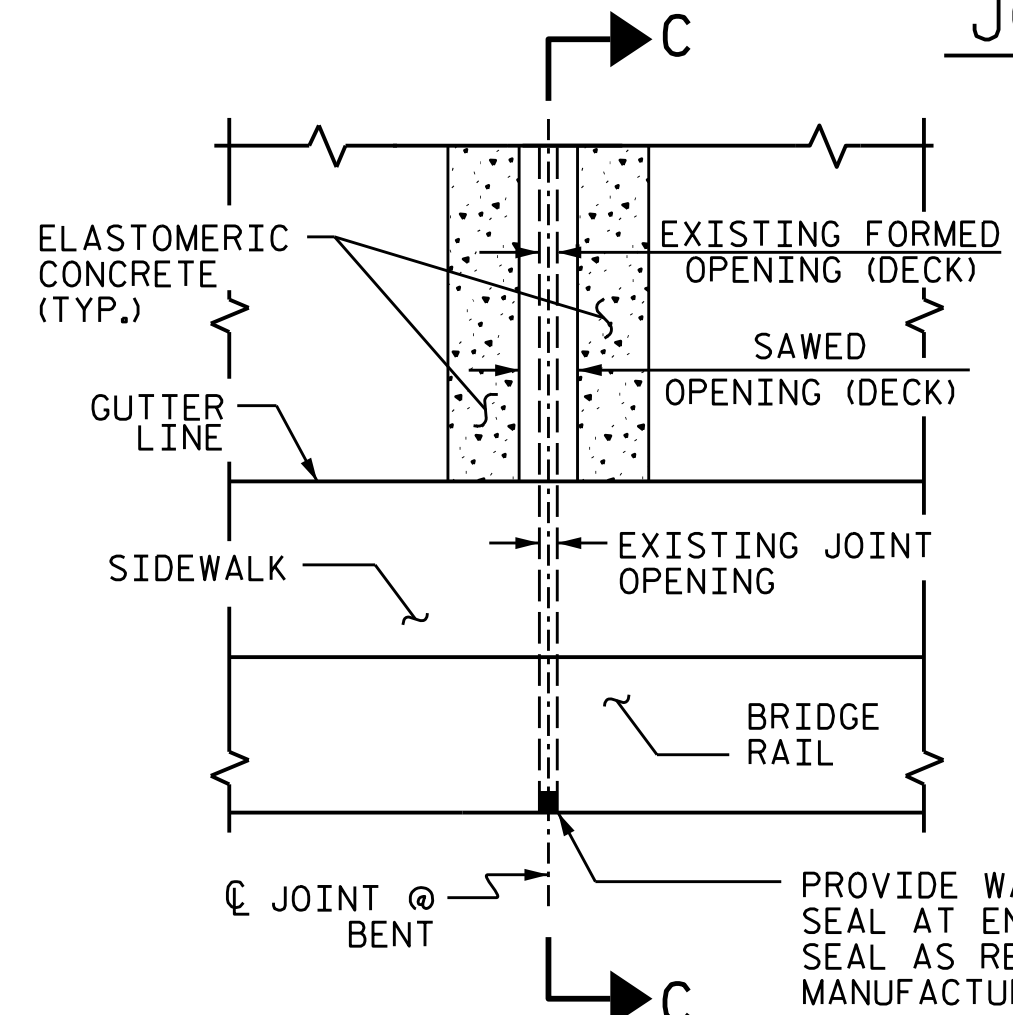
DURING JOINT INSTALLATION PROCEDURE, THE JOINT AND SURROUNDING AREA SHALL BE KEPT CLEAN AND FREE OF DEBRIS.

FOR BRIDGE JOINT DEMOLITION, SEE SPECIAL PROVISIONS.

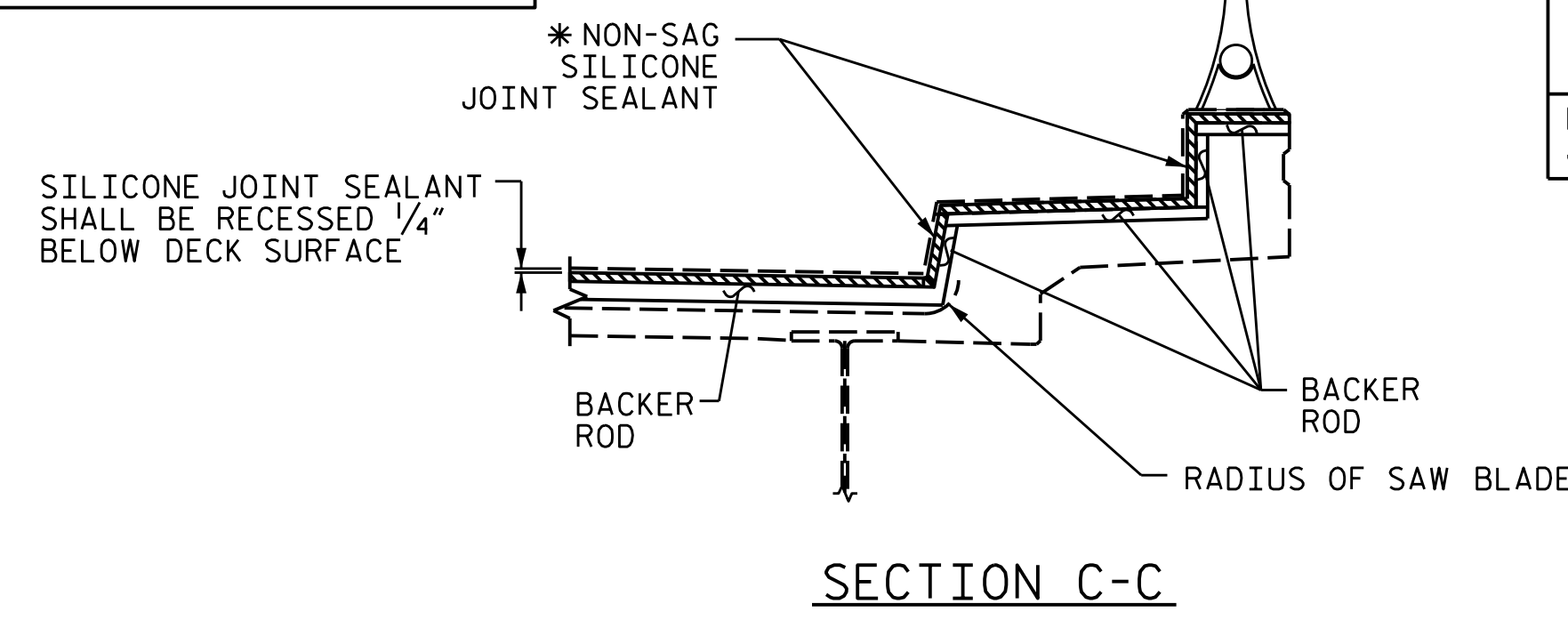
JOINT INSTALLATION SEQUENCE AT END BENTS (SECTION A-A)



JOINT INSTALLATION SEQUENCE AT BENTS (SECTION B-B)



*NON-SAG SILICONE JOINT SEALANT TO BE PLACED AND ALLOWED TO SET, PRIOR TO PLACEMENT OF SELF-LEVELING SILICONE JOINT SEALANT.



| SUMMARY OF QUANTITIES | | |
|---------------------------------------|----------|--------|
| | ESTIMATE | ACTUAL |
| ELASTOMERIC CONCRETE FOR PRESERVATION | 30.3 CF | |
| POURABLE SILICONE JOINT SEALANT | 231.7 LF | |

PROJECT NO. 15BPR.47
NASH COUNTY
 BRIDGE NO. 630039



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

JOINT REPAIR DETAILS

DRAWN BY : A. Y. GODFREY DATE : 01/2022
 CHECKED BY : S. WANCE DATE : 03/2022

| REVISIONS | | | | | | SHEET NO. |
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| NO. | BY: | DATE: | NO. | BY: | DATE: | S3-14 |
| 1 | | | 3 | | | TOTAL SHEETS |
| 2 | | | 4 | | | 33 |

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NOTES

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

UNLESS OTHERWISE REQUIRED IN THE CONTRACT DOCUMENTS, THE CONTRACTOR HAS THE OPTION TO USE AN ALTERNATE TO THE 2 BAR METAL RAIL. THE ALTERNATE RAIL SHALL MEET THE REQUIREMENTS OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS AND MUST BE LISTED ON THE DEPARTMENT'S APPROVED PRODUCTS LIST (APL) UNDER "2 BAR METAL RAIL ALTERNATE". ADJUSTMENTS TO THE CONCRETE PARAPET WILL NOT BE ALLOWED.

ALUMINUM RAILS

MATERIAL FOR POSTS, BASES AND RAILS, EXPANSION BARS AND CLAMP BARS SHALL BE ASTM B-221 ALLOY 6061-T6. MATERIAL FOR RIVETS SHALL BE ASTM B316 ALLOY 6061-T6. RIVETS SHALL BE STANDARD BUTTON HEAD AND CONE POINT COLD DRIVEN AS PER DRAWING.

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

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

GALVANIZED STEEL RAILS

MATERIAL AND GALVANIZING ARE TO CONFORM TO THE FOLLOWING SPECIFICATIONS:

POST, POST BASES, RAILS, EXPANSION BARS AND CLAMP BARS: AASHTO M270 GRADE 36 STRUCTURAL STEEL - GALVANIZED TO AASHTO M111.

RIVETS: RIVETS SHALL MEET THE REQUIREMENTS OF ASTM A502 FOR GRADE 1 RIVETS.

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

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

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

GENERAL NOTES

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

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

CAP SCREWS SHALL BE ASTM F593 ALLOY 305 STAINLESS STEEL. WASHERS SHALL MEET THE REQUIREMENTS OF ASTM F844 EXCEPT THEY SHALL BE MADE FROM ALLOY 304 STAINLESS STEEL.

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

METAL RAIL POSTS SHALL BE SET NORMAL TO CURB GRADE.

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

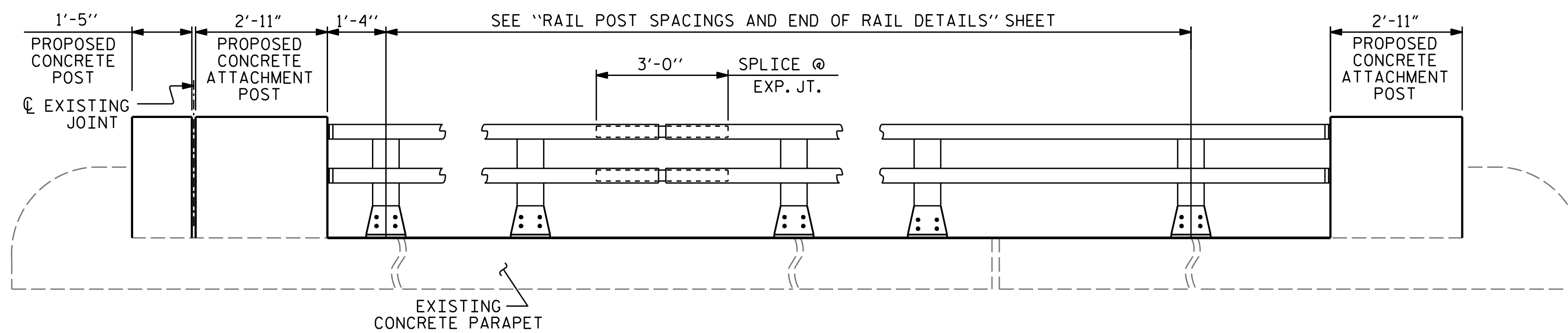
CURVED RAIL USAGE: WHERE RAILS ARE TO BE USED ON BRIDGES ON HORIZONTAL AND/OR VERTICAL CURVATURE THE CONTRACTOR MAY, AT HIS OPTION, HAVE THE REQUIRED CURVATURE IN THE RAIL FORMED IN THE SHOP OR IN THE FIELD. IN EITHER EVENT, THE RAIL SHALL CONFORM WITHOUT BUCKLING OR KINKING TO THE REQUIRED CURVATURE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

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

SHIMS SHALL BE USED AS NECESSARY FOR POST ALIGNMENT.

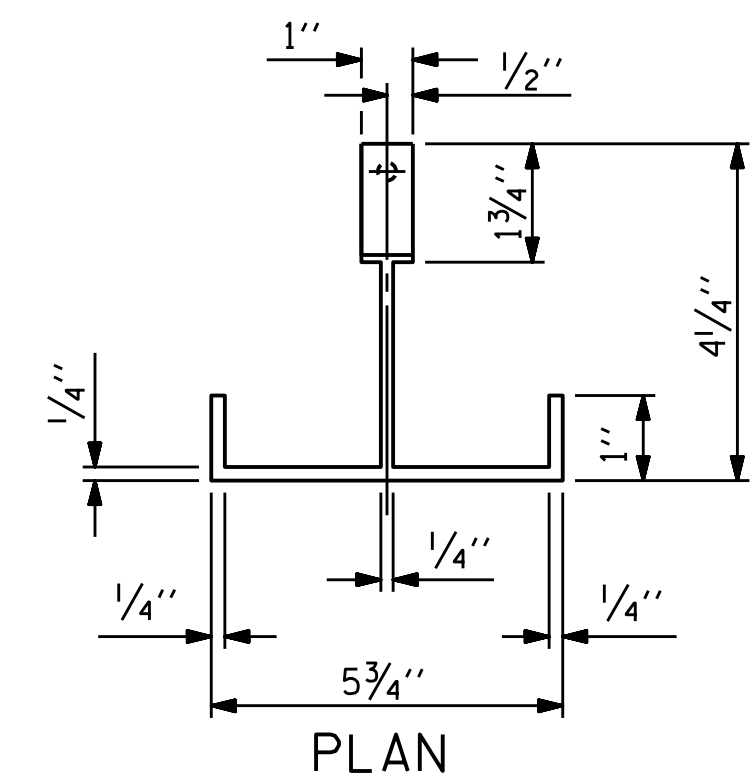
ALLOY 6351-T5 MAY BE SUBSTITUTED FOR ALLOY 6061-T6 WHERE APPLICABLE.

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

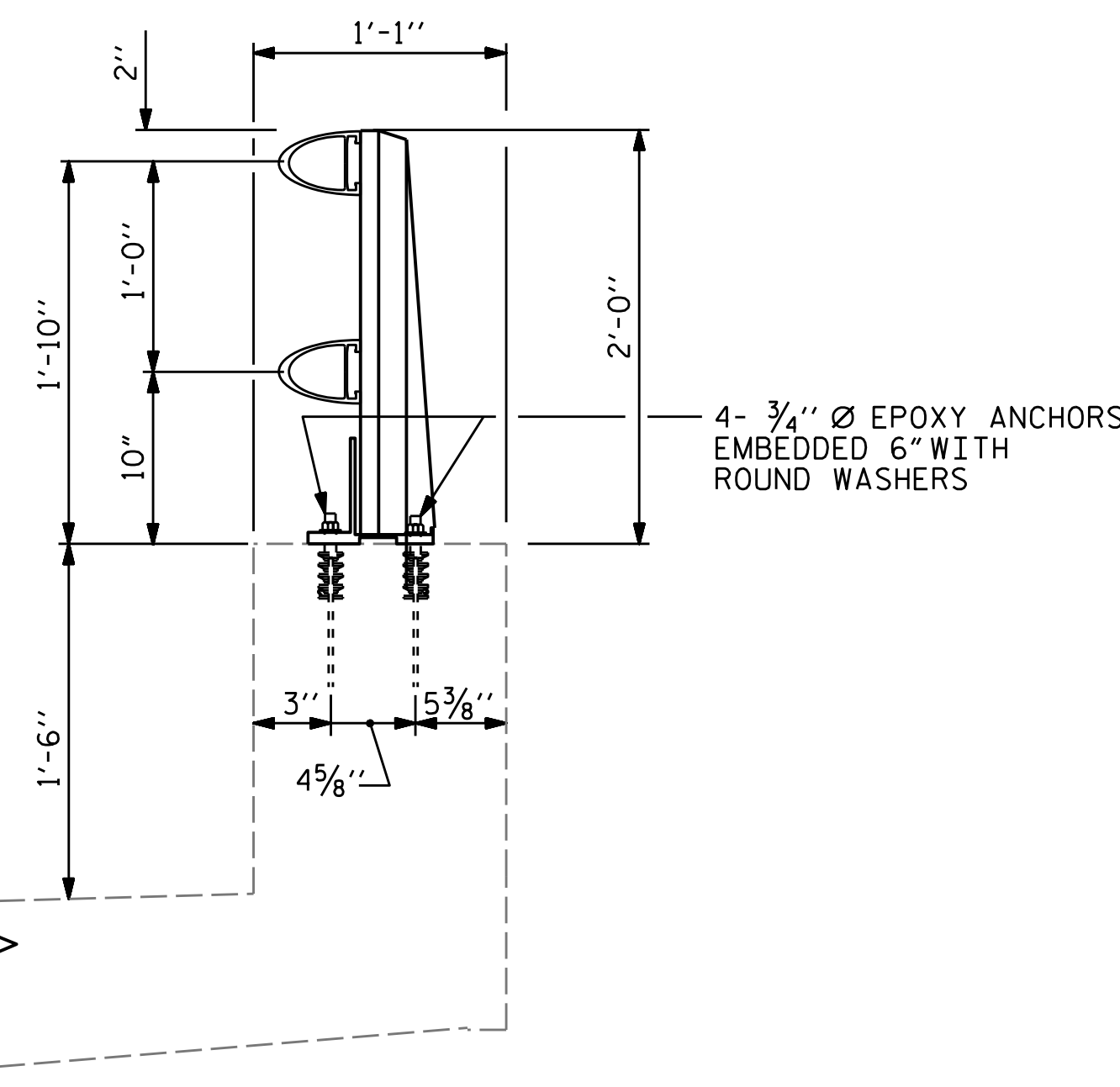


ELEVATION

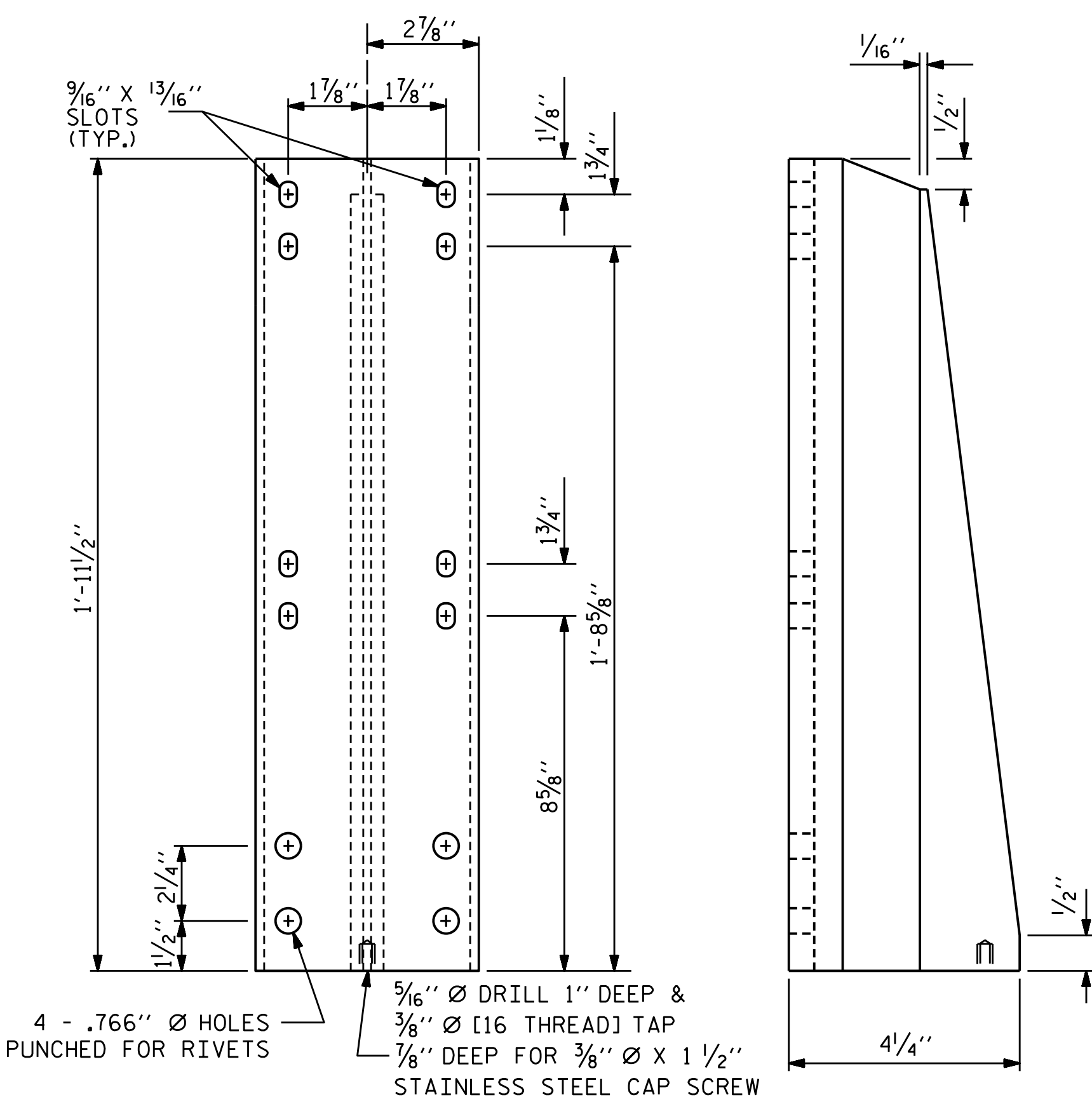
NOTE : FOR ATTACHMENT OF METAL RAIL TO END POST, SEE STANDARD NO. BMR2.



PLAN



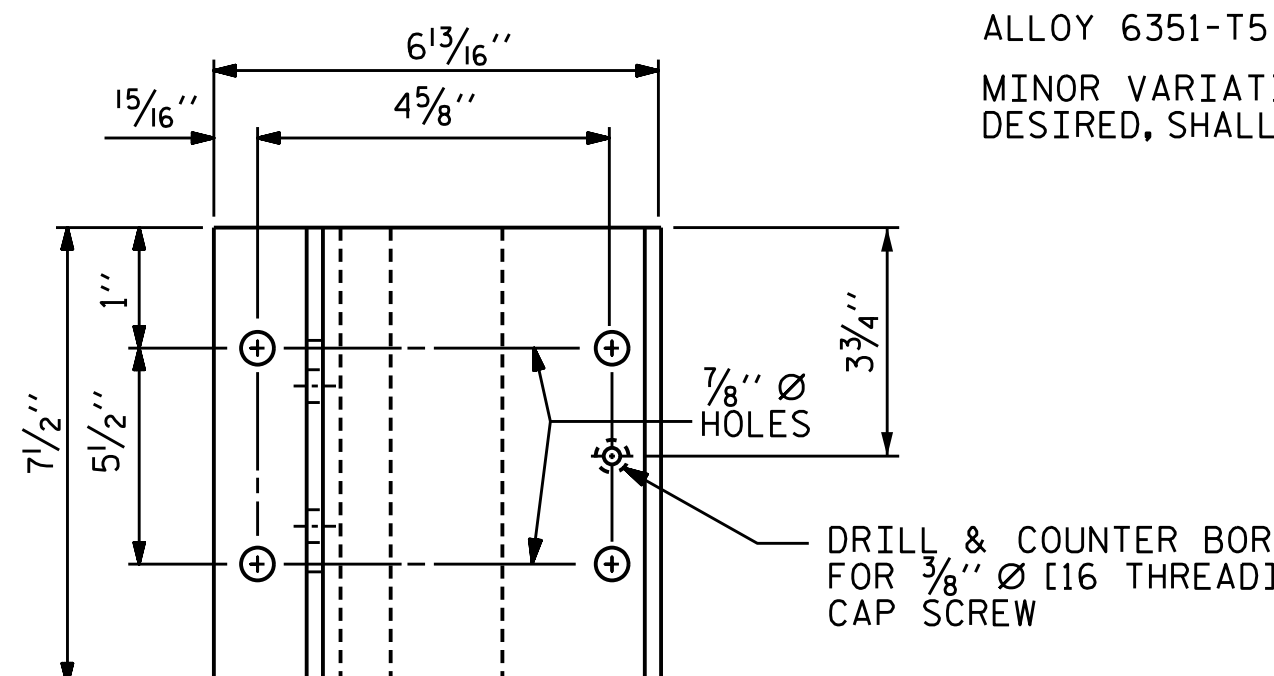
SECTION THRU PARAPET AND RAIL



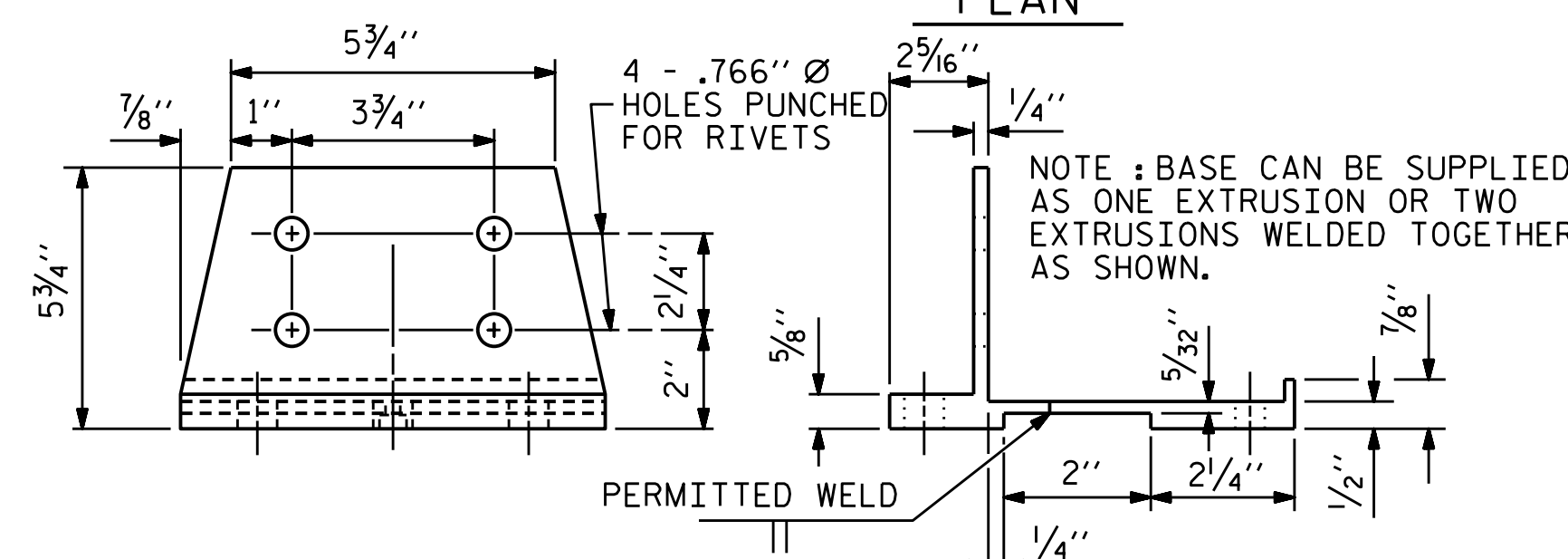
FRONT ELEVATION

SIDE ELEVATION

DETAILS OF POST



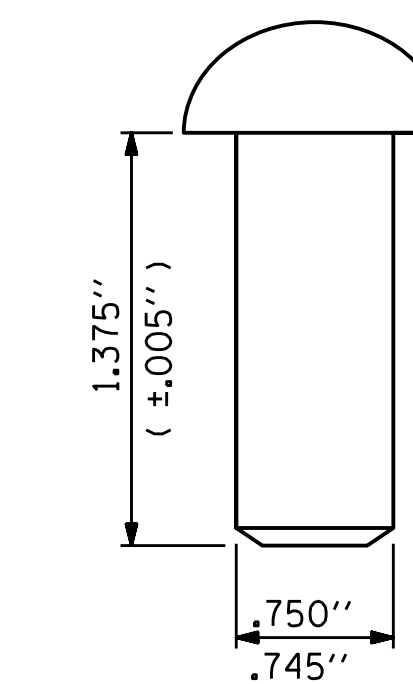
PLAN



FRONT ELEVATION

SIDE ELEVATION

POST BASE DETAILS

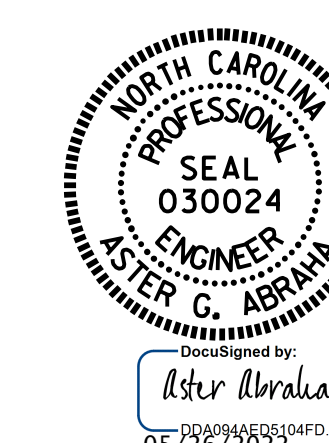


RIVET DETAIL

PAY LENGTH = 451.2 LIN. FT.

PROJECT NO. 15BPR.47
 NASH COUNTY
 STATION: 630039

SHEET 1 OF 4



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 2 BAR METAL RAIL

| | |
|-----------------------------|---------------------|
| ASSEMBLED BY : A. G. ABRAHA | DATE : 05/2022 |
| CHECKED BY : A. Y. GODFREY | DATE : 05/2022 |
| DRAWN BY : EEM 6/94 | REV. 10/1/11 MAA/GM |
| CHECKED BY : RCW 6/94 | REV. 6/13 MAA/GM |
| | REV. 12/17 MAA/THC |

DOCUMENT NOT CONSIDERED
 FINAL UNLESS ALL
 SIGNATURES COMPLETED

| REVISIONS | | | | | | SHEET NO. |
|-----------|-----|-------|-----|-----|-------|--------------|
| NO. | BY: | DATE: | NO. | BY: | DATE: | S3-15 |
| 1 | | | 3 | | | TOTAL SHEETS |
| 2 | | | 4 | | | 33 |

STD. NO. BMR3

NOTES

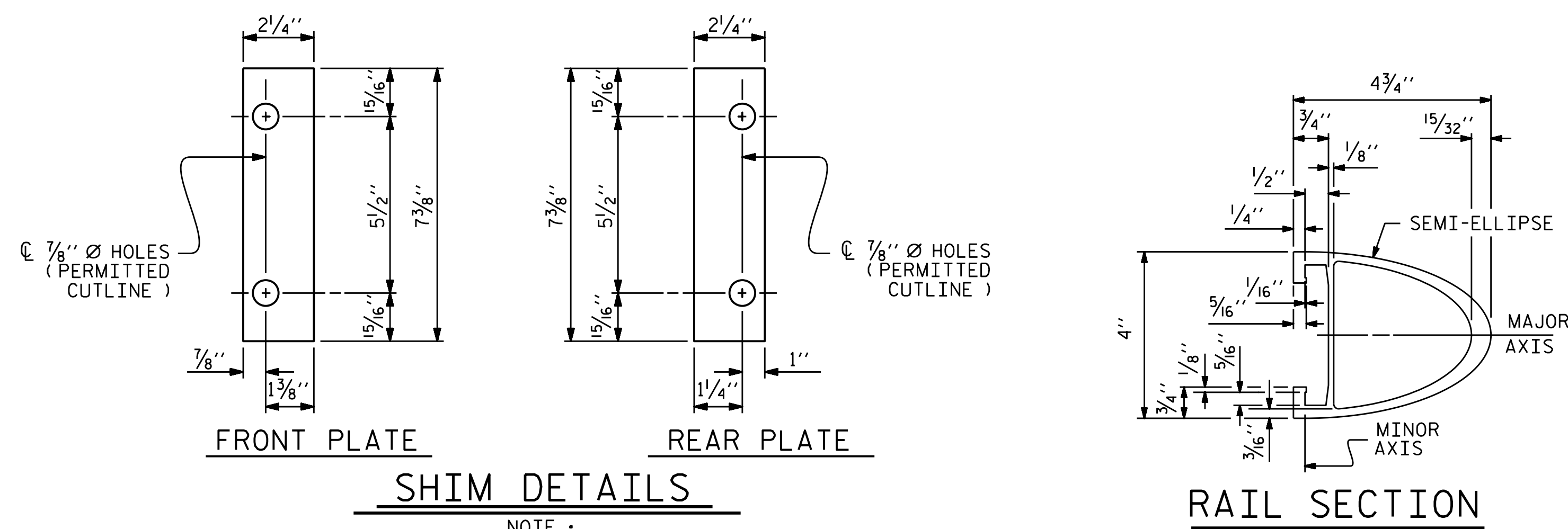
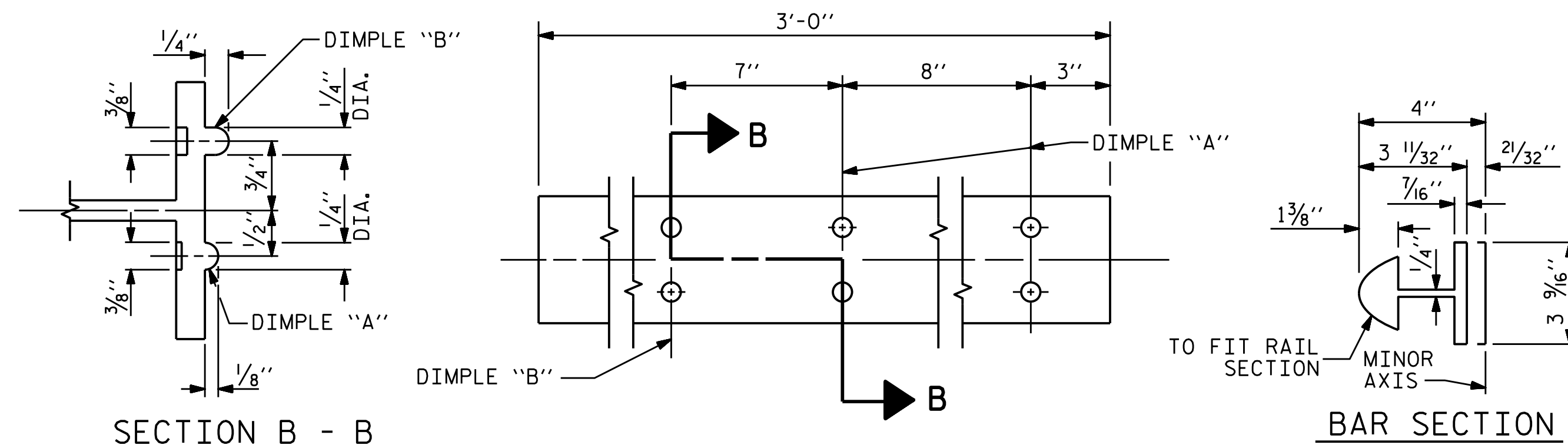
STRUCTURAL CONCRETE ANCHOR ASSEMBLY

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

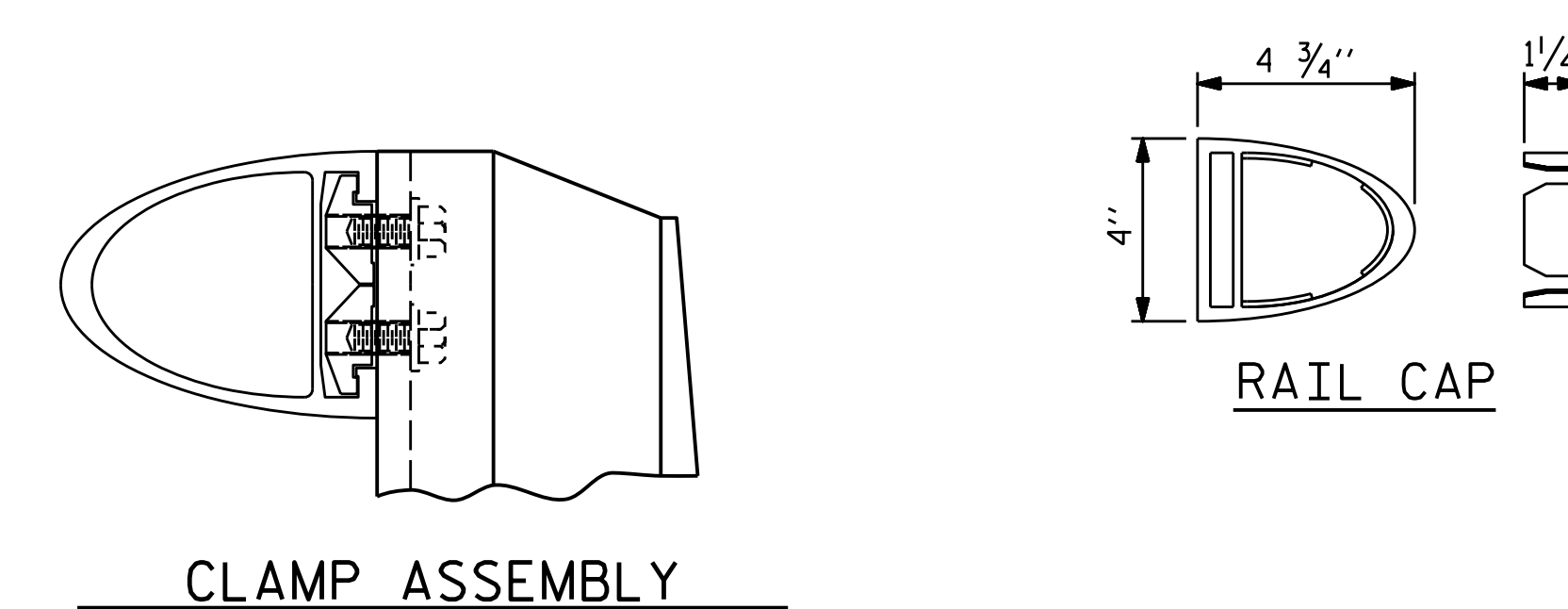
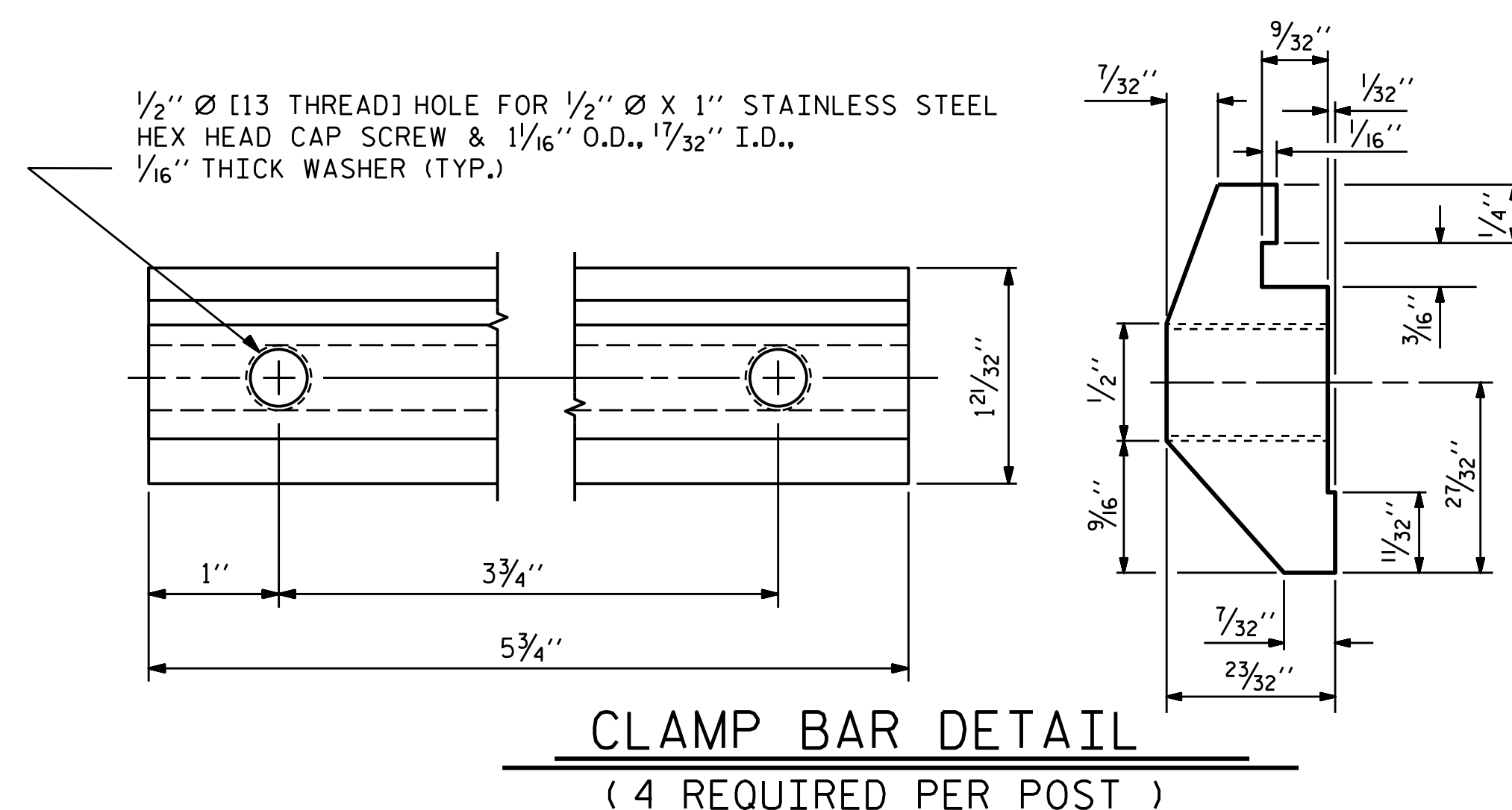
- A. FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF AASHTO M169, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 2" FOR 3/4" FERRULES.
- B. 4 - 3/4" Ø X 2 1/2" BOLTS WITH WASHERS. BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLTS AND WASHERS SHALL BE GALVANIZED. AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 3/4" Ø X 2 1/2" GALVANIZED BOLTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.
- C. WIRE STRUT SHOWN IN THE CONCRETE ANCHOR ASSEMBLY DETAIL IS THE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100,000 PSI. AS AN OPTION, A 7/16" Ø WIRE STRUT WITH A MINIMUM TENSILE STRENGTH OF 90,000 PSI IS ACCEPTABLE.
- D. THE METAL RAIL ANCHOR ASSEMBLIES TO BE HOT DIPPED GALVANIZED TO CONFORM TO REQUIREMENTS OF AASHTO M111.
- E. THE COST OF THE METAL RAIL ANCHOR ASSEMBLY WITH BOLTS AND WASHERS COMPLETE IN PLACE SHALL BE INCLUDED IN THE PRICE BID FOR LINEAR FEET OF METAL RAIL.
- F. BOLTS TO BE TIGHTENED ONE-HALF TURN WITH A WRENCH FROM A FINGER-TIGHT POSITION.

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

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



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



PROJECT NO. 15BPR.47
NASH COUNTY
BRIDGE NO. 630039

SHEET 2 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

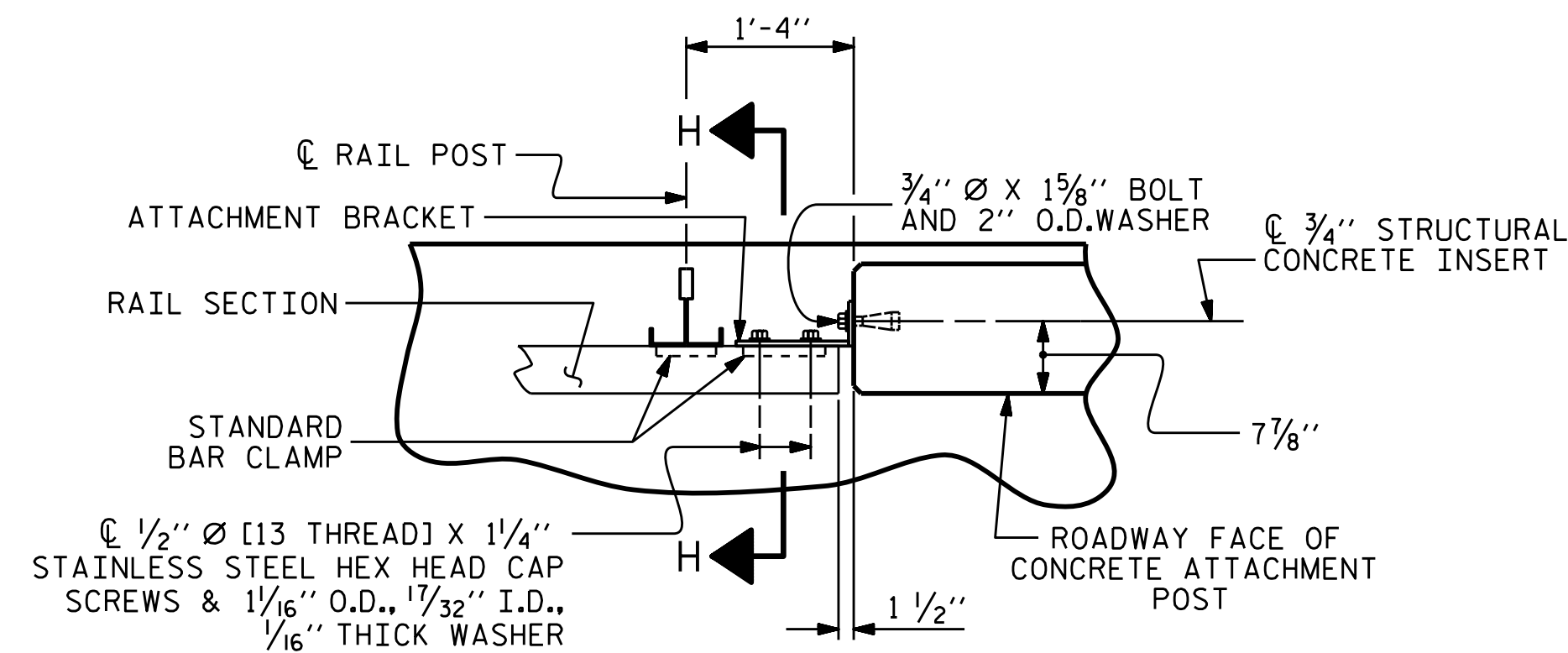
2 BAR METAL RAIL



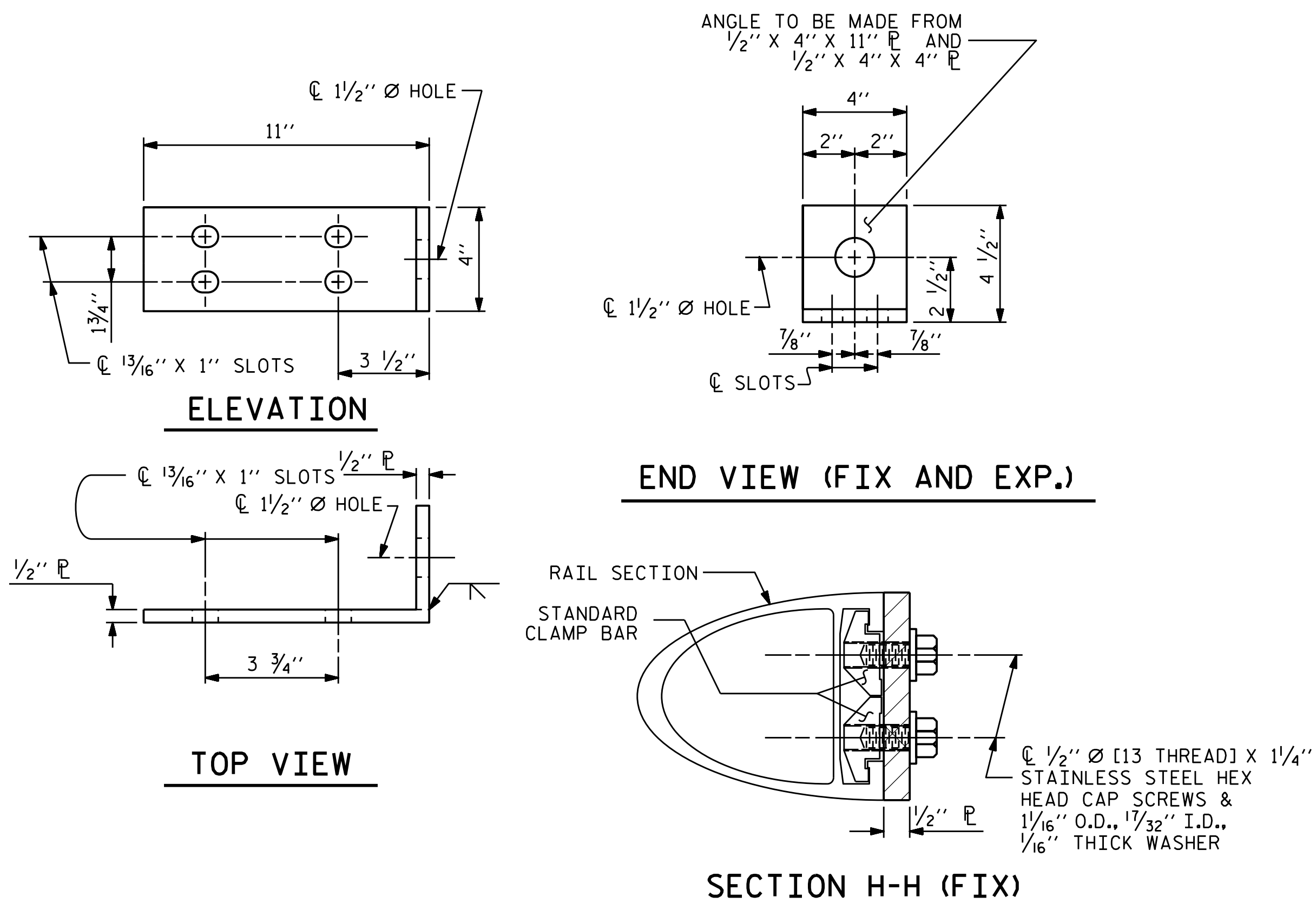
| | |
|----------------------------|----------------------|
| ASSEMBLED BY : A. ABRAHA | DATE : 05/2022 |
| CHECKED BY : A. Y. GODFREY | DATE : 05/2022 |
| DRAWN BY : EEM 6/94 | REV. 8/16/99 MAB/LES |
| CHECKED BY : RCW 6/94 | REV. 5/1/06R KMM/GM |
| | REV. 10/1/11 MAA/GM |

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

| REVISIONS | | | | | | SHEET NO. |
|-----------|-----|-------|-----|-----|-------|--------------|
| NO. | BY: | DATE: | NO. | BY: | DATE: | S3-16 |
| 1 | | | 3 | | | TOTAL SHEETS |
| 2 | | | 4 | | | 33 |



PLAN - RAIL AND ATTACHMENT POST



DETAILS FOR ATTACHING METAL RAIL TO END POST

NOTES

STRUCTURAL CONCRETE INSERT

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

- A. FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF AASHTO M169, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 1/2".
- B. 1 - 3/4" Ø X 1 5/8" BOLT WITH WASHER. BOLT SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLT AND WASHER SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLT AND WASHER MAY BE USED AS AN ALTERNATE FOR THE 3/4" Ø X 1 5/8" GALVANIZED BOLT AND WASHER. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)
- C. WIRE STRUT SHOWN IN THE CONCRETE INSERT ASSEMBLY DETAIL IS THE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100,000 PSI. AS AN OPTION, A 7/16" Ø WIRE STRUT WITH A MINIMUM TENSILE STRENGTH OF 90,000 PSI IS ACCEPTABLE.

NOTES

METAL RAIL TO ATTACHMENT POST CONNECTION

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

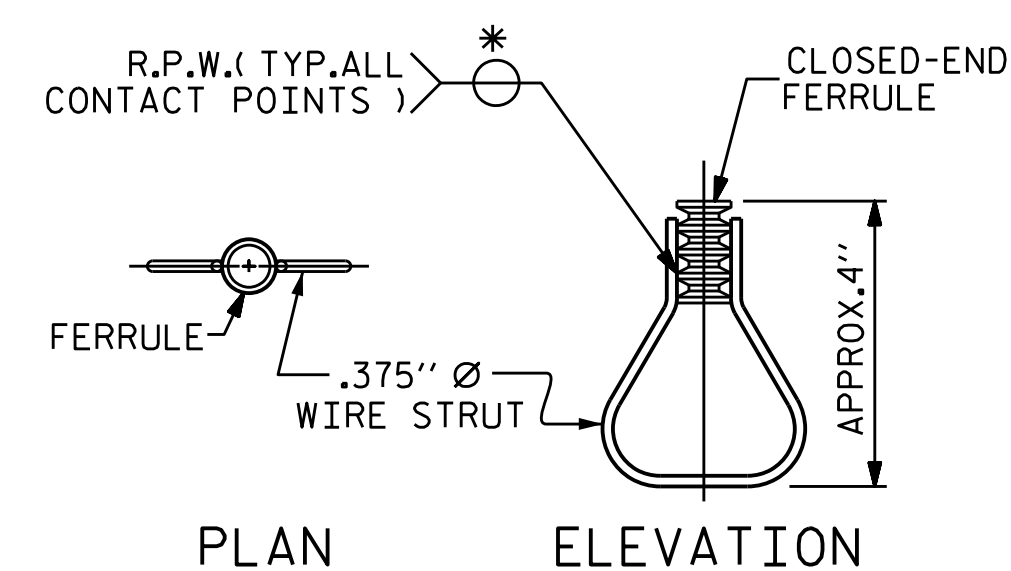
- A. 1/2" PLATES SHALL CONFORM TO AASHTO M270 GRADE 36 AND SHALL BE GALVANIZED AFTER FABRICATION.
- B. 3/4" STRUCTURAL CONCRETE INSERT SHALL HAVE A WORKING LOAD SHEAR CAPACITY OF 4800 LBS. THE FERRULES SHALL ENGAGE A 3/4" Ø X 1 5/8" BOLT WITH 2" O.D. WASHER IN PLACE. THE 3/4" Ø X 1 5/8" BOLT SHALL HAVE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

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

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

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

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



STRUCTURAL CONCRETE INSERT

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

PROJECT NO. 15BPR.47
NASH COUNTY
 BRIDGE No. 630039

SHEET 3 OF 4



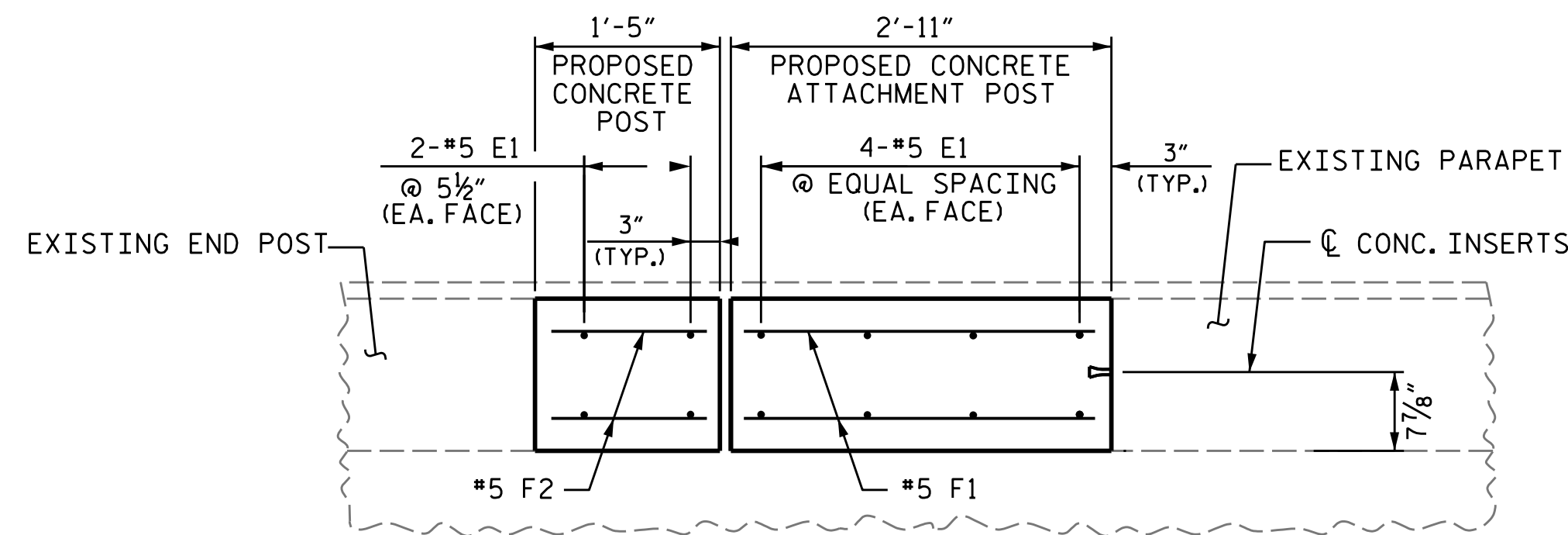
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD

END OF RAIL DETAILS
 FOR TWO BAR METAL RAILS

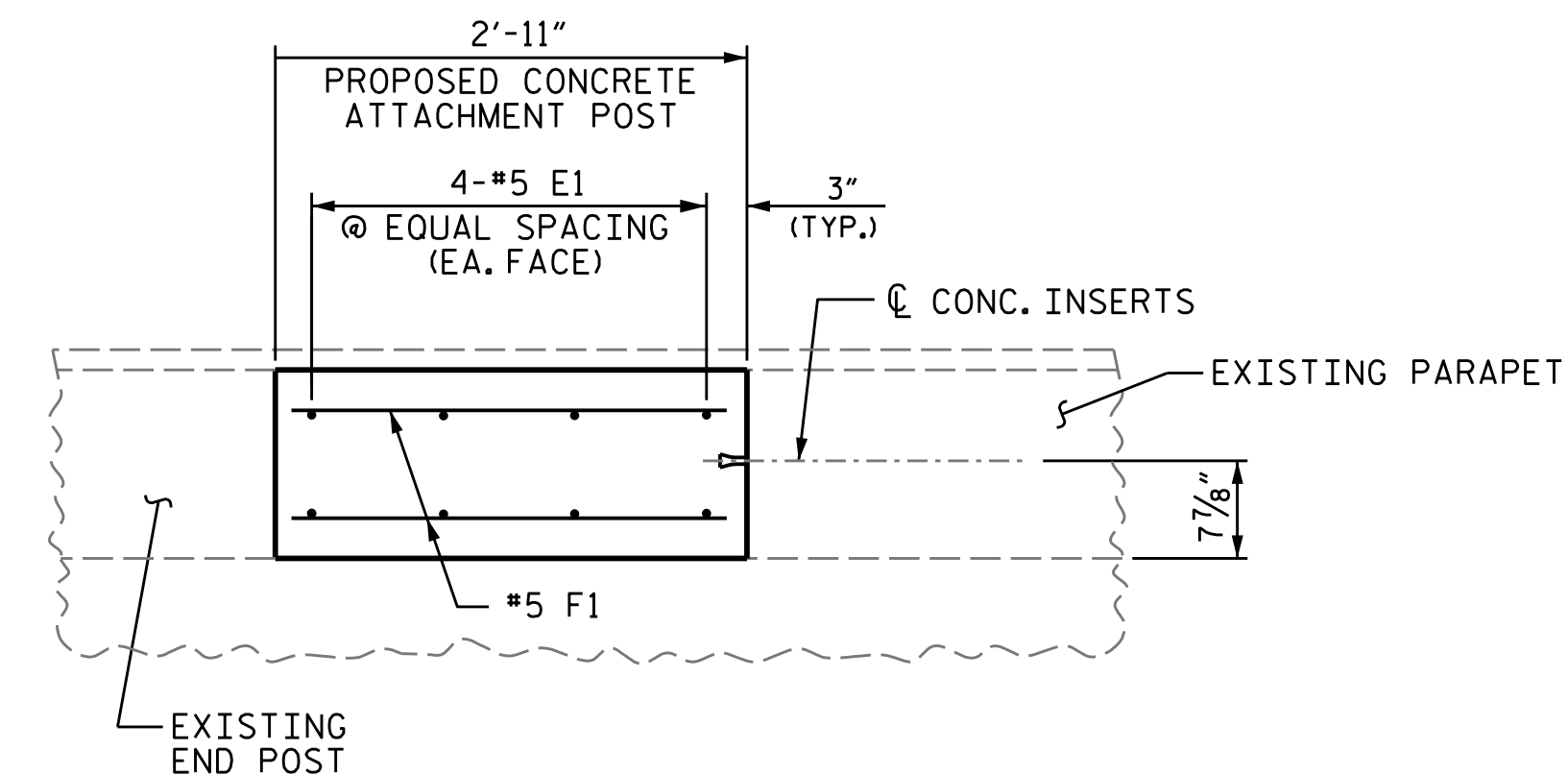
| | |
|----------------------------|---------------------|
| ASSEMBLED BY : A. ABRAHA | DATE : 05/2022 |
| CHECKED BY : A. Y. GODFREY | DATE : 05/2022 |
| DRAWN BY : FCJ 1/88 | REV. 5/1/06 TLA/GM |
| CHECKED BY : CRK 3/89 | REV. 10/1/11 MAA/GM |
| | REV. 12/17 MAA/THC |

| REVISIONS | | | | | | SHEET NO. |
|-----------|-----|-------|-----|-----|-------|--------------|
| NO. | BY: | DATE: | NO. | BY: | DATE: | TOTAL SHEETS |
| 1 | | | 3 | | | 33 |
| 2 | | | 4 | | | 33 |

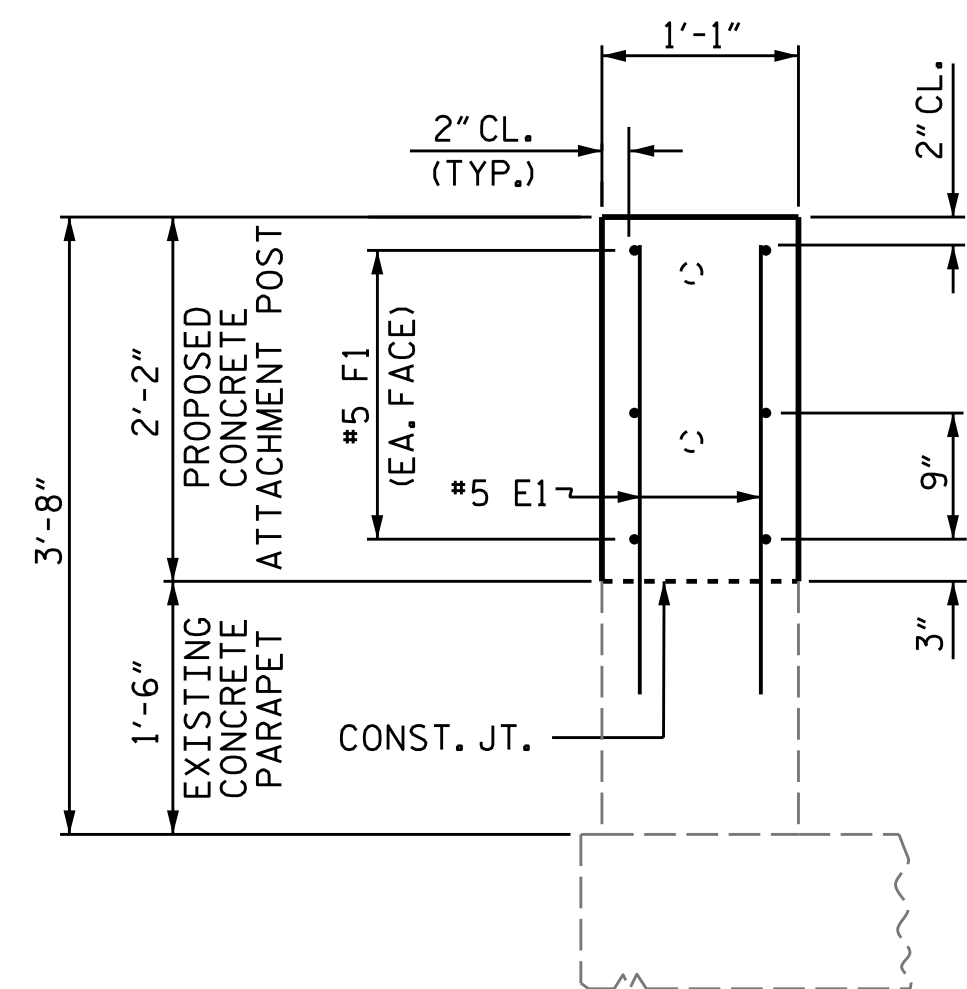
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



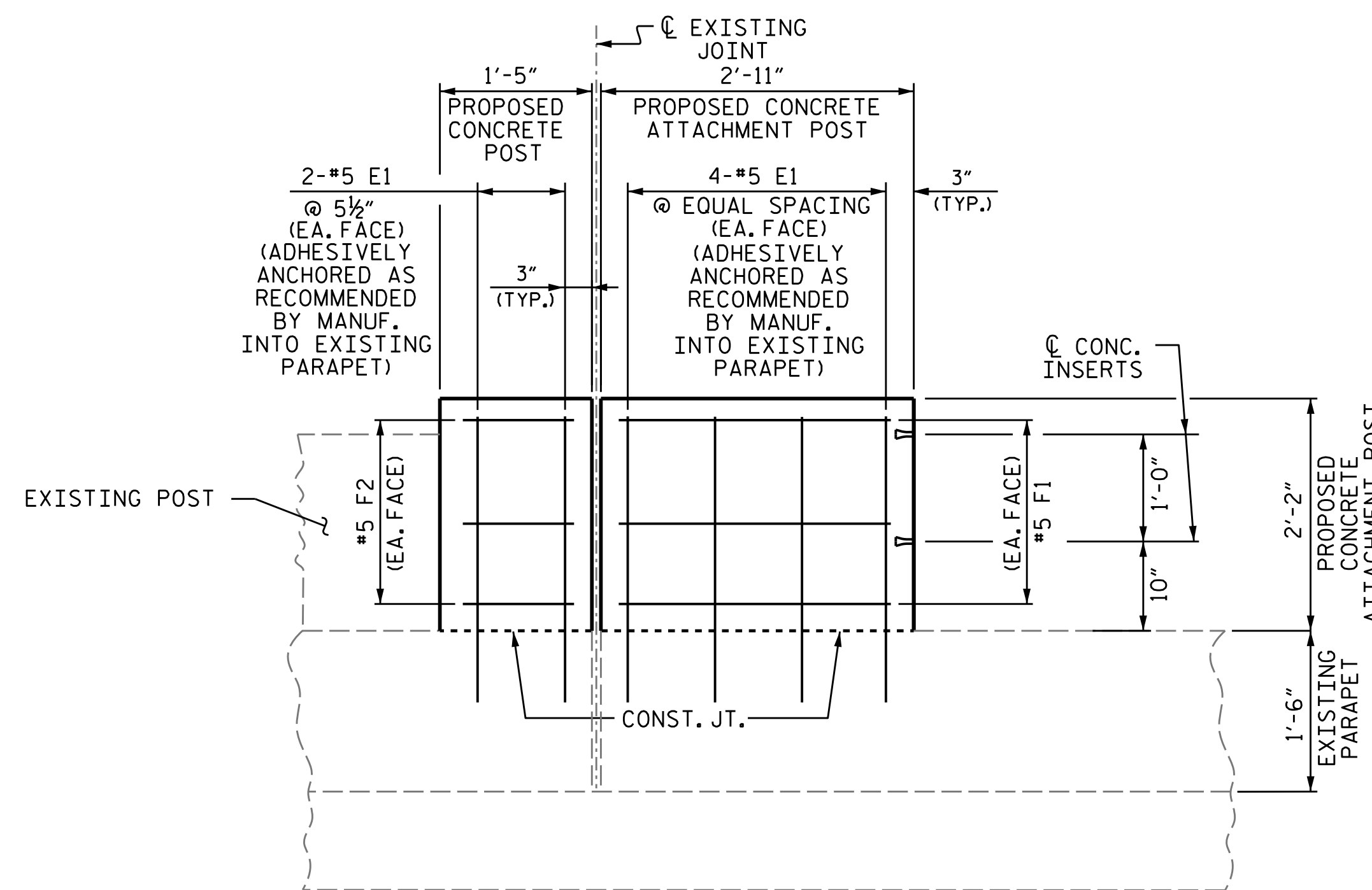
PLAN OF METAL RAIL ATTACHMENT POST AT BEGINNING OF BRIDGE



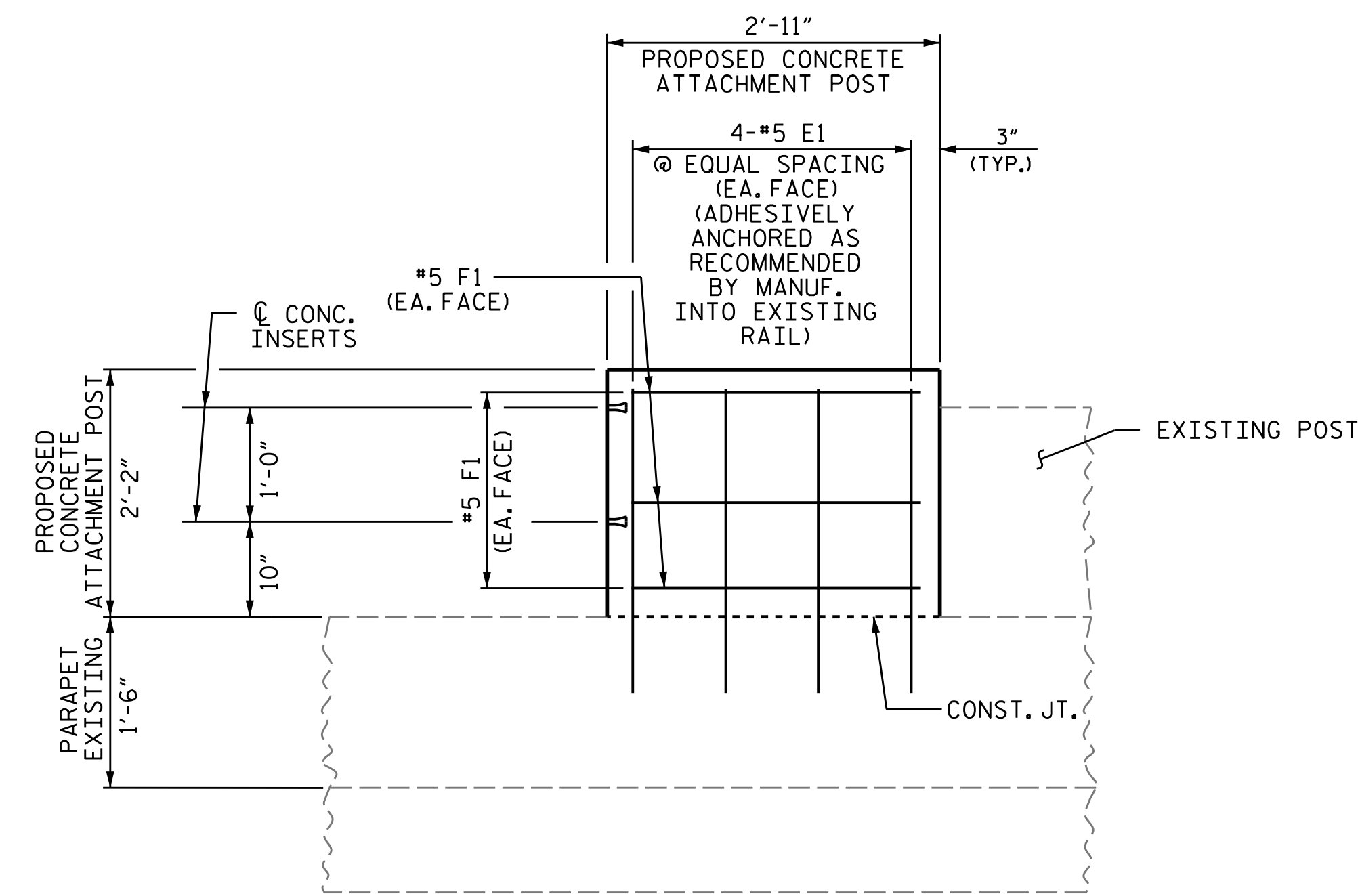
PLAN OF METAL RAIL ATTACHMENT POST AT END OF BRIDGE



END VIEW



ELEVATION AT BEGINNING OF BRIDGE



ELEVATION AT END OF BRIDGE

NOTES

ALL REINFORCING STEEL IN THE ATTACHMENT POSTS SHALL BE EPOXY COATED.

THE #5 E1 BARS SHALL BE INSTALLED USING AN ADHESIVE ANCHORING SYSTEM. THE YIELD LOAD FOR THE #5 E1 BARS IS 18.6 KIPS.

THE CONCRETE ATTACHMENT POSTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH SECTION 460 OF THE STANDARD SPECIFICATIONS AND WILL BE MEASURED AND PAID FOR AS THE NUMBER OF LINEAR FEET OF 1'-1" x 2'-2" CONCRETE ATTACHMENT POST.

BILL OF MATERIAL FOR ONE ATTACHMENT POST (4 REQ'D.)

| BAR | NO. | SIZE | TYPE | LENGTH | WEIGHT |
|-----|-----|------|------|--------|--------|
| *E1 | 8 | #5 | STR | 2'-8" | 23 |
| *F1 | 6 | #5 | STR | 2'-6" | 16 |

| | |
|----------------------------------|---------------|
| * EPOXY COATED REINFORCING STEEL | 39 |
| CLASS AA CONCRETE | .3 C.Y. |
| CONCRETE ATTACHMENT POST TOTAL | 11.7 LIN. FT. |

BILL OF MATERIAL FOR ONE CONCRETE POST (2 REQ'D.)

| BAR | NO. | SIZE | TYPE | LENGTH | WEIGHT |
|-----|-----|------|------|--------|--------|
| *E1 | 4 | #5 | STR | 2'-8" | 11.1 |
| *F2 | 6 | #5 | STR | 1'-1" | 6.8 |

| | |
|----------------------------------|--------------|
| * EPOXY COATED REINFORCING STEEL | 17.9 |
| CLASS AA CONCRETE | .2 C.Y. |
| CONCRETE POST TOTAL | 2.8 LIN. FT. |

PROJECT NO. 15BPR.47
NASH COUNTY
BRIDGE No. 630039

SHEET 4 OF 4



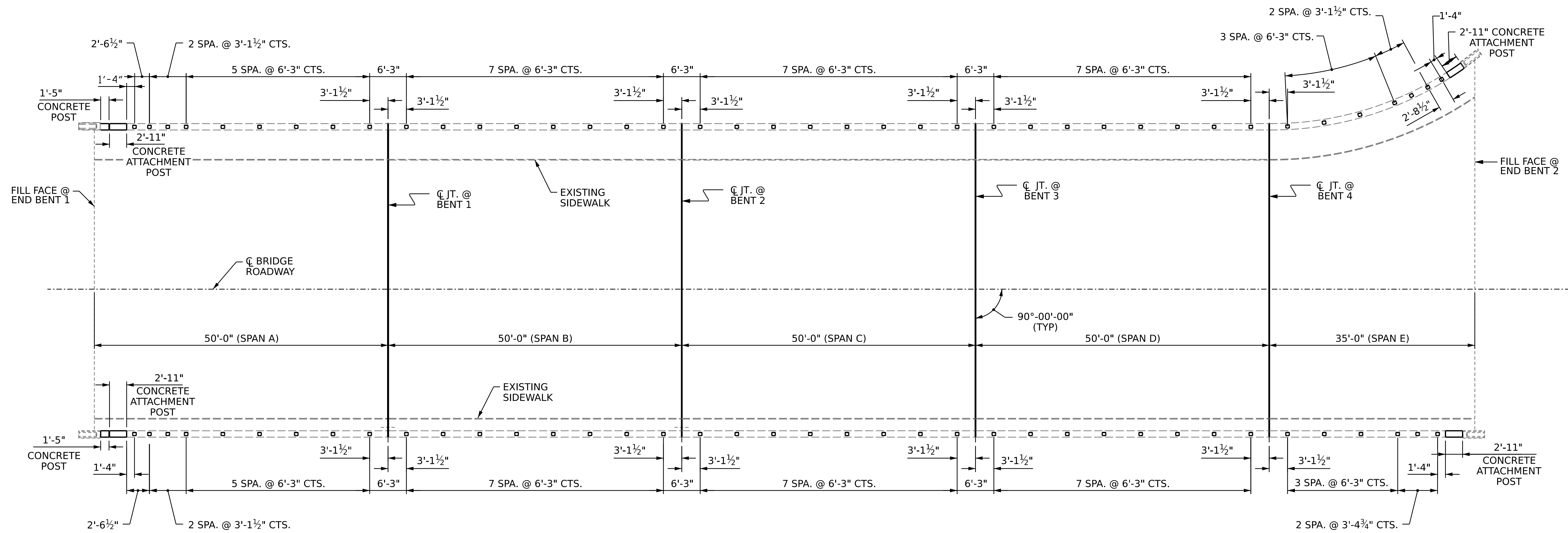
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

ATTACHMENT POSTS FOR BRIDGE RAIL

DRAWN BY : A. ABRAHA DATE : 05/2022
CHECKED BY : A. Y. GODFREY DATE : 05/2022

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

| REVISIONS | | | | | | SHEET NO. |
|-----------|-----|-------|-----|-----|-------|-----------------|
| NO. | BY: | DATE: | NO. | BY: | DATE: | |
| 1 | | | 3 | | | S3-18 |
| 2 | | | 4 | | | TOTAL SHEETS 33 |



PLAN OF RAIL POST SPACING

PROJECT NO. **15BPR.47**
NASH COUNTY
 BRIDGE NO. **630039**



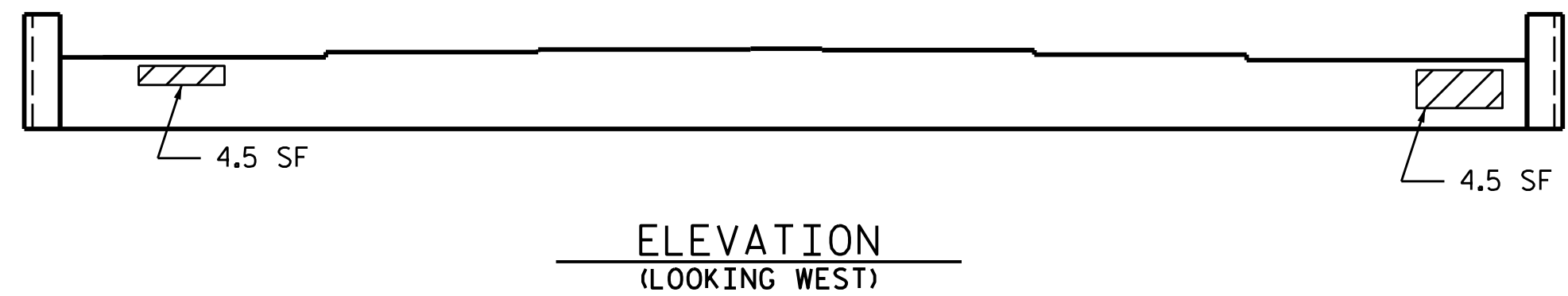
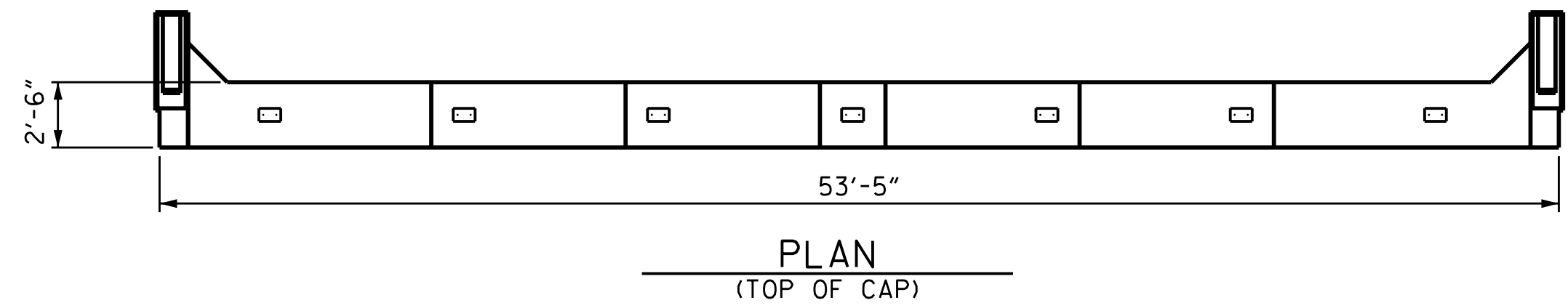
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

RAIL POST SPACING

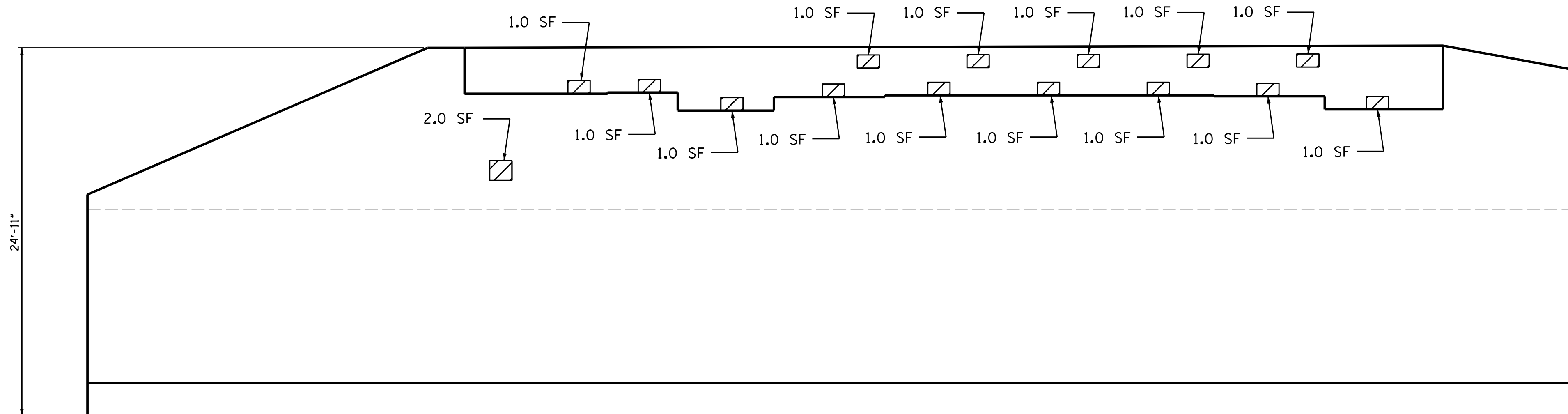
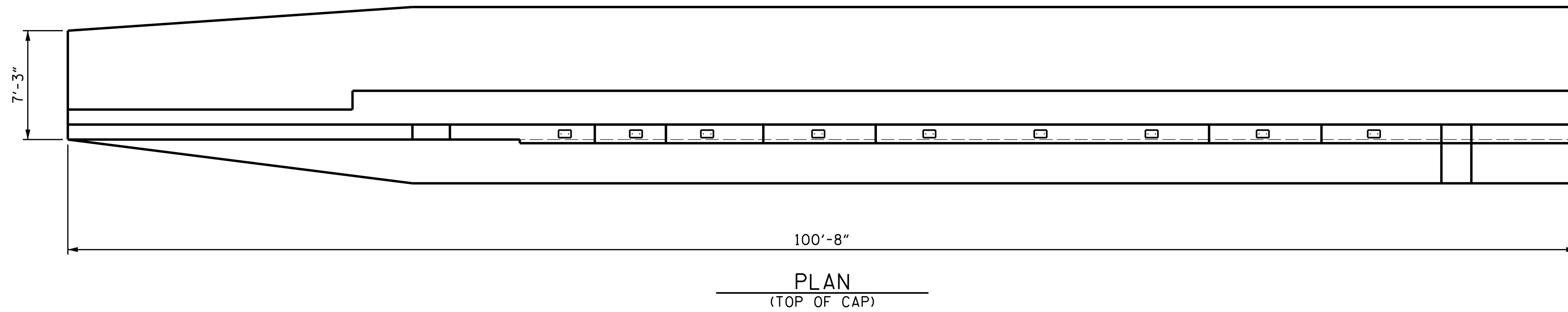
DRAWN BY : A. G. ABRAHA DATE : 5/2022
 CHECKED BY : A. Y. GODFREY DATE : 5/2022
 DESIGN ENGINEER OF RECORD: _____ DATE : _____

DOCUMENT NOT CONSIDERED
 FINAL UNLESS ALL
 SIGNATURES COMPLETED

| REVISIONS | | | | | | SHEET NO. |
|-----------|-----|-------|-----|-----|-------|--------------|
| NO. | BY: | DATE: | NO. | BY: | DATE: | S3-19 |
| 1 | | | 3 | | | TOTAL SHEETS |
| 2 | | | 4 | | | 33 |



END BENT 1



END BENT 2

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 INSPECTOR OR ENGINEER, THE CONTRACTOR SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

FOR CAP AND COLUMN REPAIR DETAILS, SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET S3-27.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

CONCRETE REPAIRS MAY BE SUBSTITUTED IN LIEU OF SHOTCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

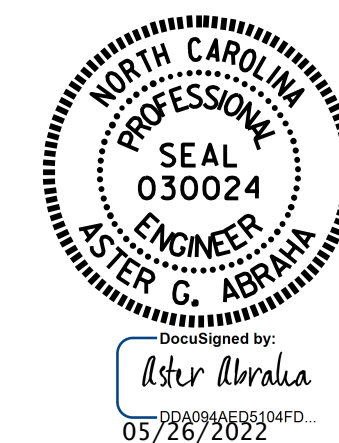
- CONCRETE REPAIRS
- SHOTCRETE REPAIRS

REPAIR QUANTITY TABLE

| REPAIRS END BENT 1 & 2 | QUANTITIES | | | |
|---------------------------|------------|-----------|---------|-----------|
| | ESTIMATE | | ACTUAL | |
| SHOTCRETE REPAIRS | AREA SF | VOLUME CF | AREA SF | VOLUME CF |
| CAP (VERTICAL FACE) | 25.0 | 12.5 | | |
| CAP (HORIZONTAL, CORNER) | 0.0 | 0.0 | | |
| COLUMN | 0.0 | 0.0 | | |
| CONCRETE REPAIRS | AREA SF | VOLUME CF | AREA SF | VOLUME CF |
| CAP (VERTICAL FACE) | 0.0 | 0.0 | | |
| CAP (HORIZONTAL, CORNER) | 0.0 | 0.0 | | |
| COLUMN | 0.0 | 0.0 | | |

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

PROJECT NO. 15BPR.47
NASH COUNTY
 BRIDGE NO. 630039

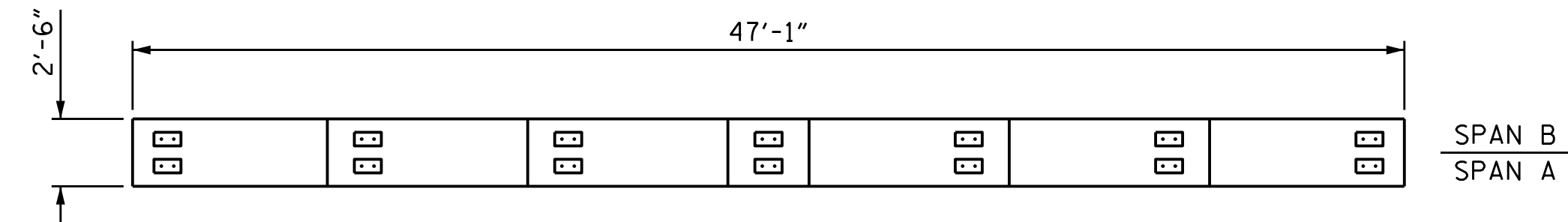


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
**SUBSTRUCTURE
 REPAIR
 END BENT 1 &
 END BENT 2**

DRAWN BY : S. T. SANDOR/A. Y. GODFREY DATE : 01/2022
 CHECKED BY : S. WANCE DATE : 03/2022

DOCUMENT NOT CONSIDERED
 FINAL UNLESS ALL
 SIGNATURES COMPLETED

| REVISIONS | | | | | | SHEET NO. |
|-----------|-----|-------|-----|-----|-------|-----------------|
| NO. | BY: | DATE: | NO. | BY: | DATE: | |
| 1 | | | 3 | | | S3-20 |
| 2 | | | 4 | | | TOTAL SHEETS 33 |



PLAN
(TOP OF CAP)

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 INSPECTOR OR ENGINEER, THE CONTRACTOR SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

FOR CAP AND COLUMN REPAIR DETAILS, SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET S3-27.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

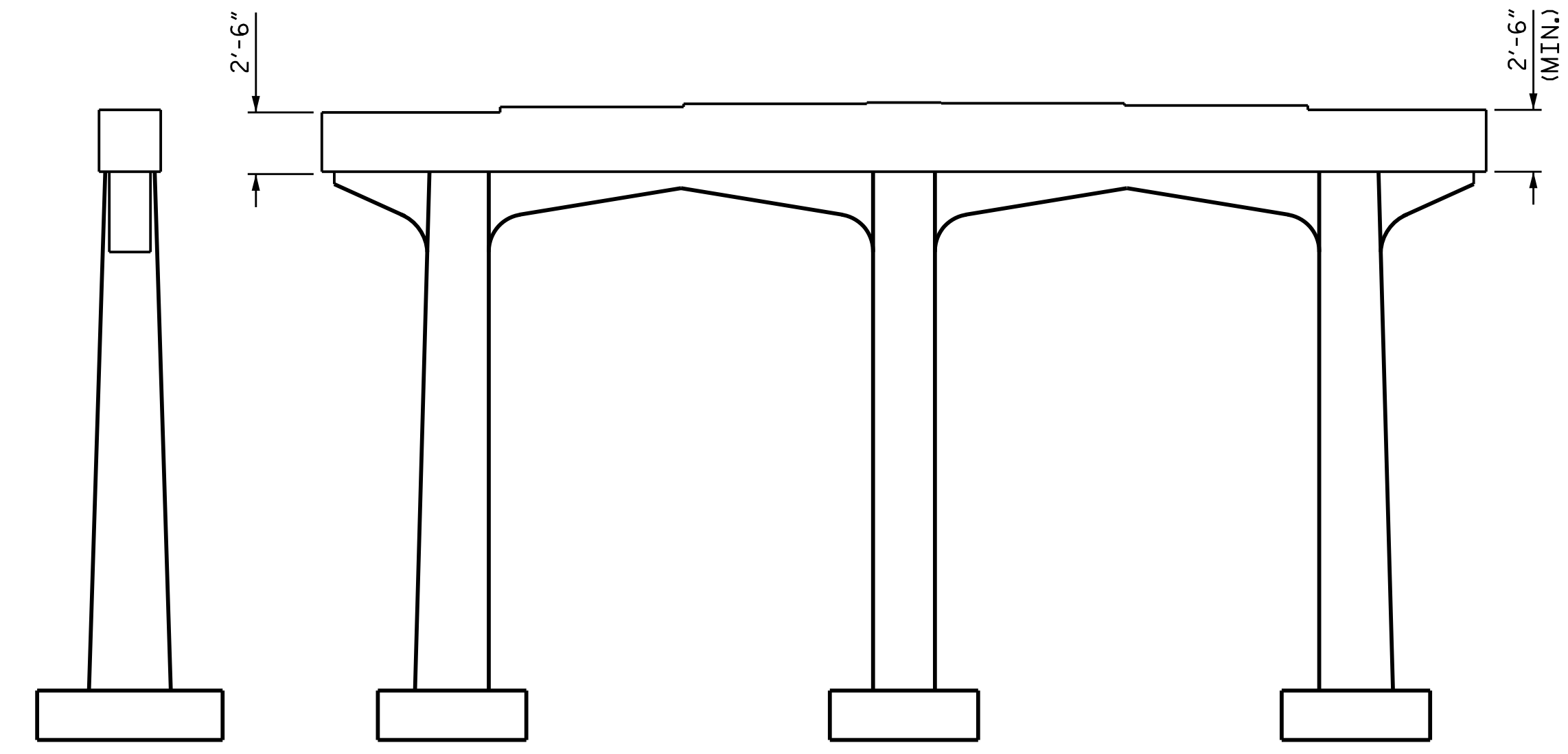
CONCRETE REPAIRS MAY BE SUBSTITUTED IN LIEU OF SHOTCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

- CONCRETE REPAIRS
- SHOTCRETE REPAIRS

REPAIR QUANTITY TABLE

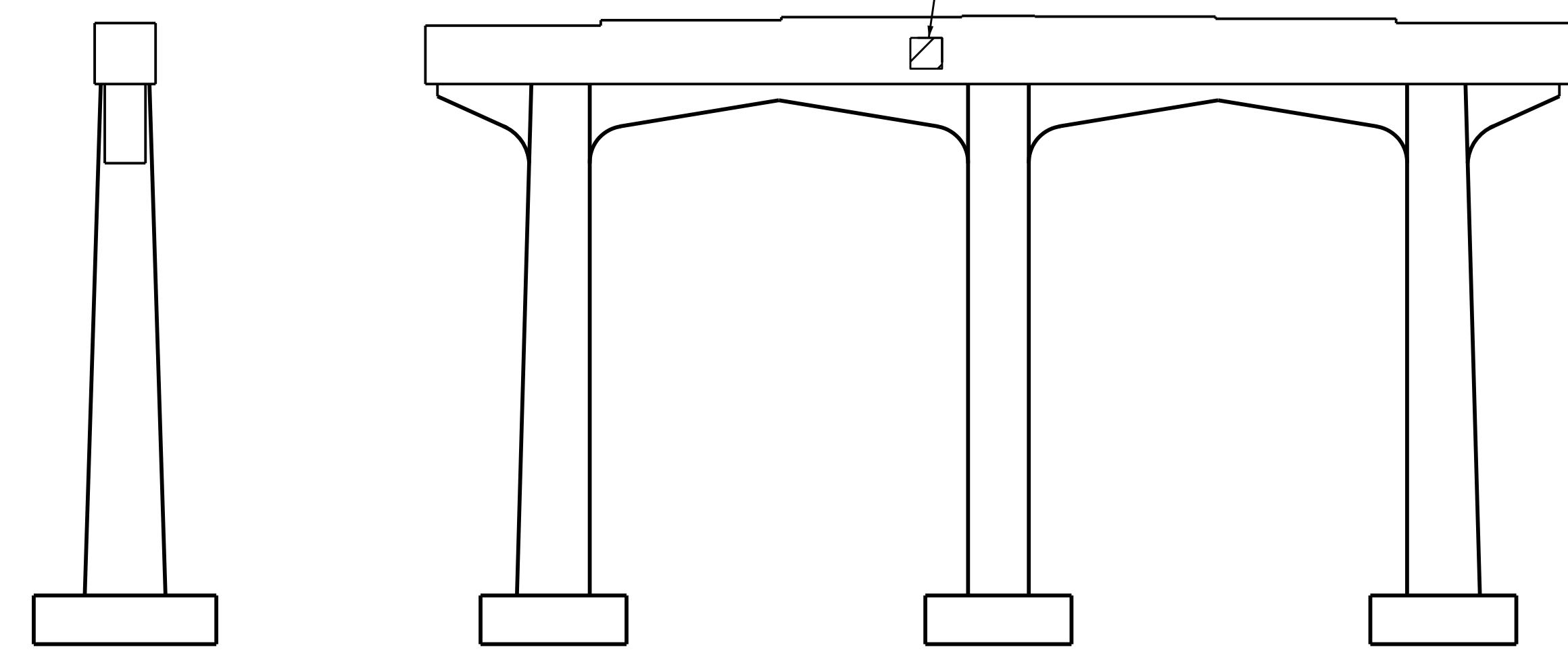
| BENT 1 | QUANTITIES | | | |
|-----------------------|------------|-----------|---------|-----------|
| | ESTIMATE | | ACTUAL | |
| SHOTCRETE REPAIR | AREA SF | VOLUME CF | AREA SF | VOLUME CF |
| CAP (VERTICAL FACE) | 1.0 | 0.5 | | |
| CAP (HORIZONTAL FACE) | 0.0 | 0.0 | | |
| COLUMN | 0.0 | 0.0 | | |
| CONCRETE REPAIR | | | | |
| CAP (VERTICAL FACE) | 0.0 | 0.0 | | |
| CAP (HORIZONTAL FACE) | 0.0 | 0.0 | | |
| COLUMN | 0.0 | 0.0 | | |

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



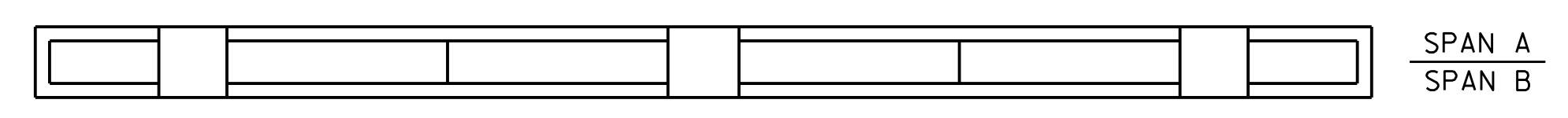
END VIEW
NORTH FACE
(LOOKING SOUTH)

ELEVATION
WEST FACE
(LOOKING EAST)



END VIEW
SOUTH FACE
(LOOKING NORTH)

ELEVATION
EAST FACE
(LOOKING WEST)



PLAN
(BOTTOM OF CAP)

PROJECT NO. 15BPR.47
NASH COUNTY
 BRIDGE NO. 630039

SHEET 1 OF 4



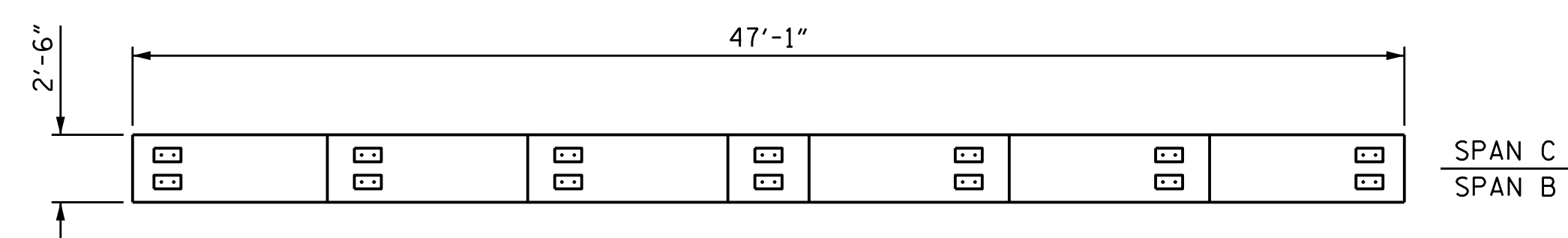
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUBSTRUCTURE
 BENT 1**

DRAWN BY : S. T. SANDOR/A. Y. GODFREY DATE : 11/2021
 CHECKED BY : S. WANCE DATE : 03/2022

DOCUMENT NOT CONSIDERED
 FINAL UNLESS ALL
 SIGNATURES COMPLETED

| REVISIONS | | | | | | SHEET NO. |
|-----------|-----|-------|-----|-----|-------|--------------|
| NO. | BY: | DATE: | NO. | BY: | DATE: | S3-21 |
| 1 | | | 3 | | | TOTAL SHEETS |
| 2 | | | 4 | | | 33 |



PLAN
TOP OF CAP

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 INSPECTOR OR ENGINEER, THE CONTRACTOR SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

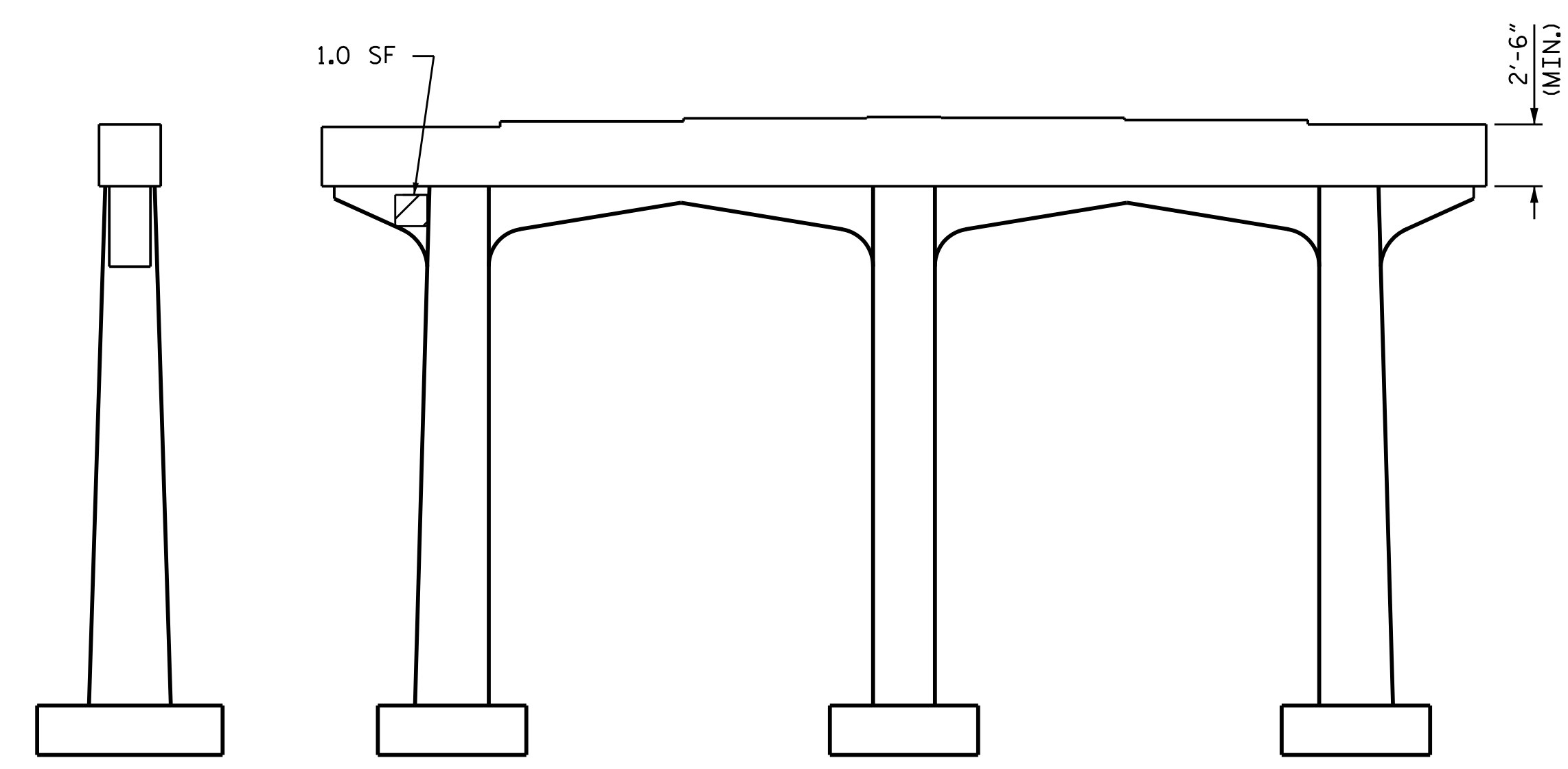
FOR ADDITIONAL NOTES, SEE SHEET 1 OF 4.

- CONCRETE REPAIRS
- SHOTCRETE REPAIRS

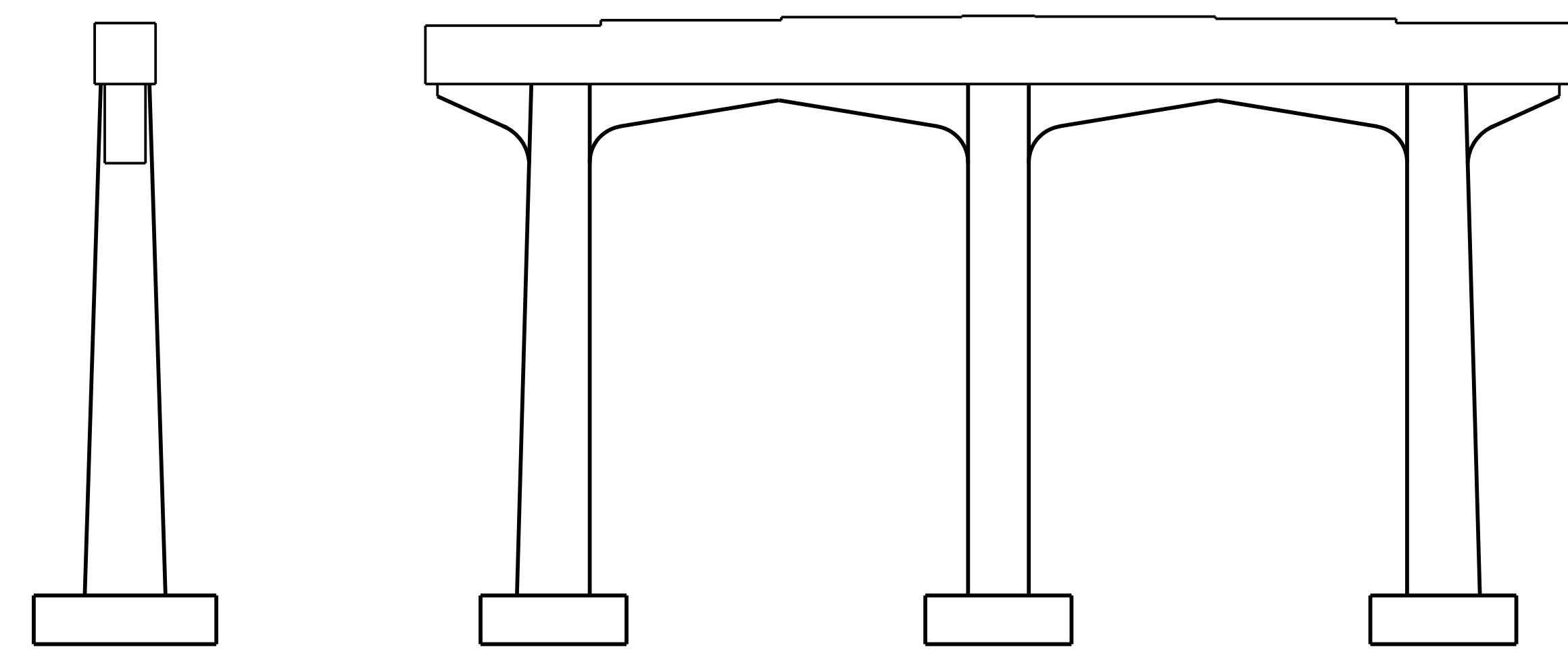
REPAIR QUANTITY TABLE

| BENT 2 | QUANTITIES | | | |
|------------------------|------------|-----------|---------|-----------|
| | ESTIMATE | | ACTUAL | |
| SHOTCRETE REPAIR | AREA SF | VOLUME CF | AREA SF | VOLUME CF |
| CAP (VERTICAL FACE) | 1.0 | 0.5 | | |
| CAP (HORIZONTAL FACE) | 0.0 | 0.0 | | |
| COLUMN | 0.0 | 0.0 | | |
| CONCRETE REPAIR | | | | |
| CAP (VERTICAL FACE) | 0.0 | 0.0 | | |
| CAP (HORIZONTAL FACE) | 0.0 | 0.0 | | |
| COLUMN | 0.0 | 0.0 | | |

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



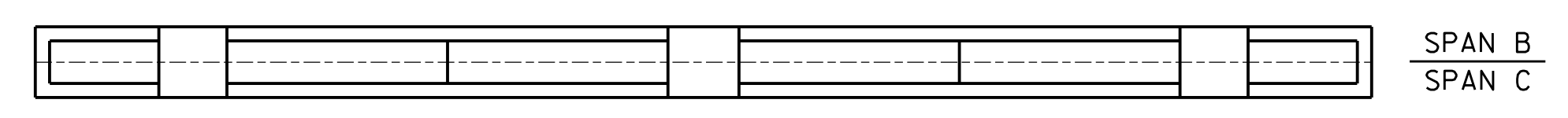
ELEVATION
WEST FACE
(LOOKING EAST)



ELEVATION
EAST FACE
(LOOKING WEST)

END VIEW
NORTH FACE
(LOOKING SOUTH)

END VIEW
SOUTH FACE
(LOOKING NORTH)



PLAN
BOTTOM OF CAP

PROJECT NO. 15BPR.47
NASH COUNTY
 BRIDGE NO. 630039

SHEET 2 OF 4



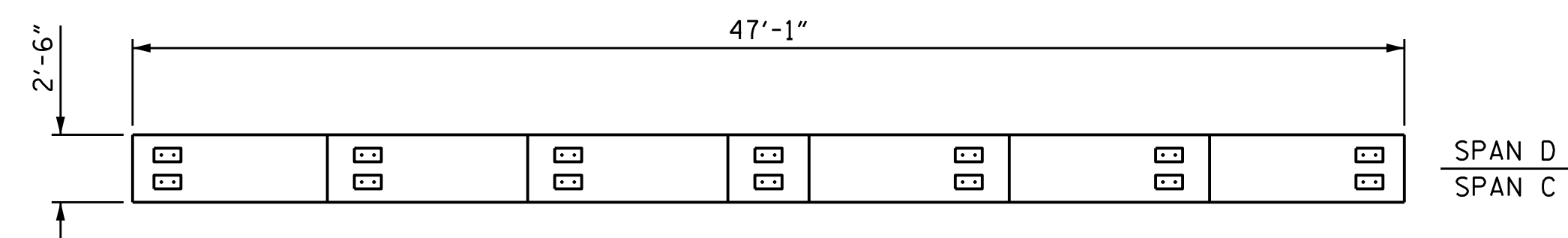
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUBSTRUCTURE
 BENT 2**

DRAWN BY : S. T. SANDOR/A. Y. GODFREY DATE : 11/2021
 CHECKED BY : S. WANCE DATE : 03/2022

DOCUMENT NOT CONSIDERED
 FINAL UNLESS ALL
 SIGNATURES COMPLETED

| REVISIONS | | | | | | SHEET NO. |
|-----------|-----|-------|-----|-----|-------|--------------|
| NO. | BY: | DATE: | NO. | BY: | DATE: | S3-22 |
| 1 | | | 3 | | | TOTAL SHEETS |
| 2 | | | 4 | | | 33 |



PLAN
TOP OF CAP

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 INSPECTOR OR ENGINEER, THE CONTRACTOR SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

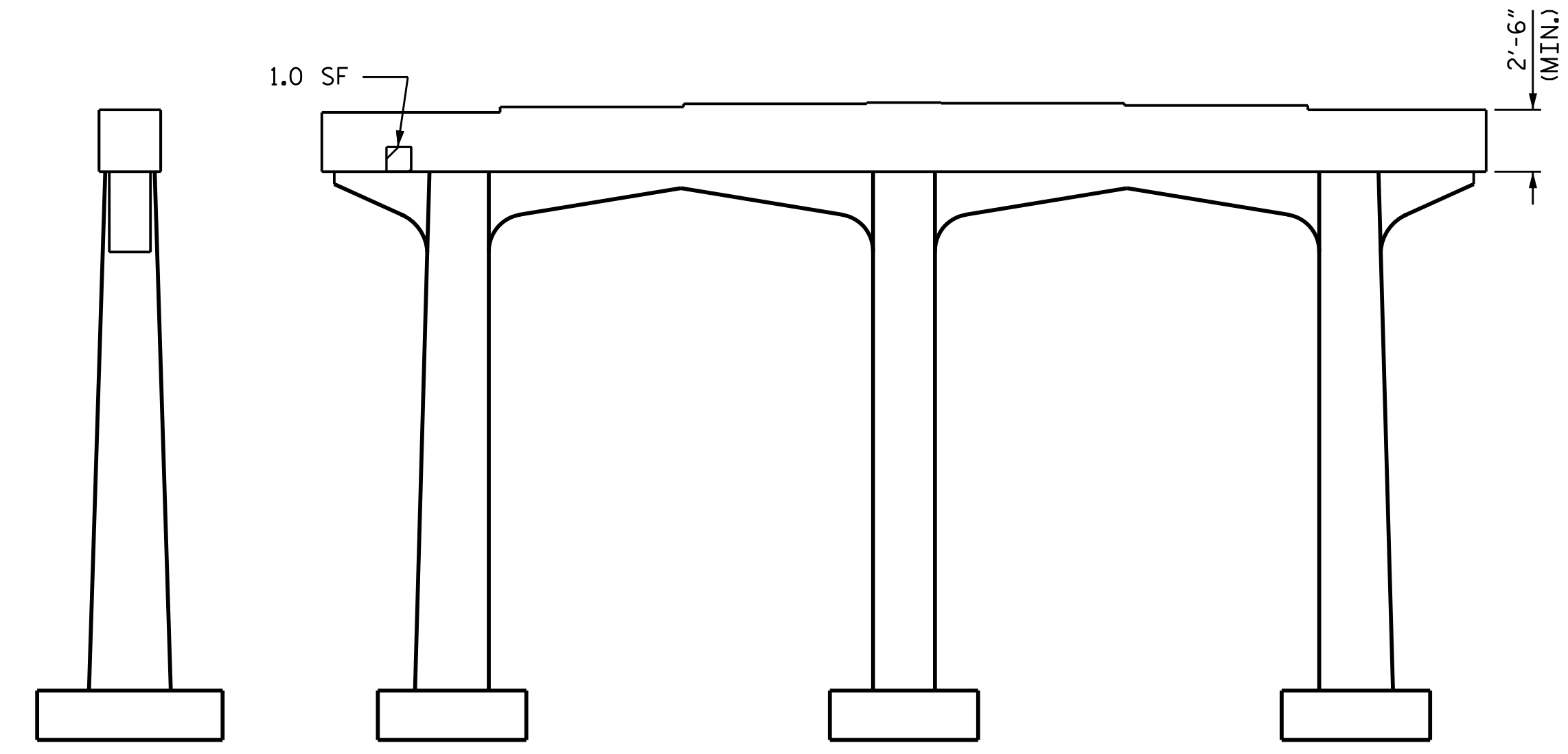
FOR ADDITIONAL NOTES, SEE SHEET 1 OF 4.

- CONCRETE REPAIRS
- SHOTCRETE REPAIRS

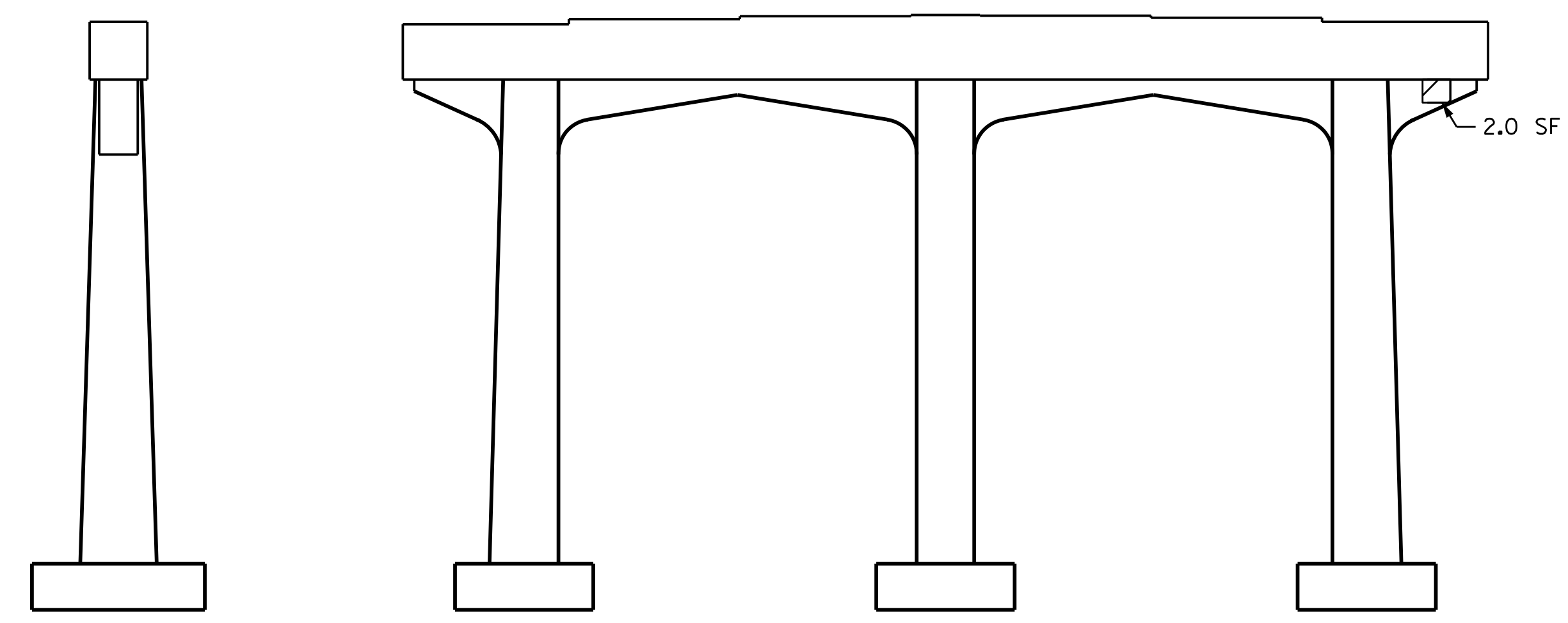
REPAIR QUANTITY TABLE

| BENT 3 | QUANTITIES | | | |
|-----------------------|------------|-----------|---------|-----------|
| | ESTIMATE | | ACTUAL | |
| SHOTCRETE REPAIR | AREA SF | VOLUME CF | AREA SF | VOLUME CF |
| CAP (VERTICAL FACE) | 3.0 | 1.5 | | |
| CAP (HORIZONTAL FACE) | 0.0 | 0.0 | | |
| COLUMN | 0.0 | 0.0 | | |
| CONCRETE REPAIR | | | | |
| CAP (VERTICAL FACE) | 0.0 | 0.0 | | |
| CAP (HORIZONTAL FACE) | 0.0 | 0.0 | | |
| COLUMN | 0.0 | 0.0 | | |

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



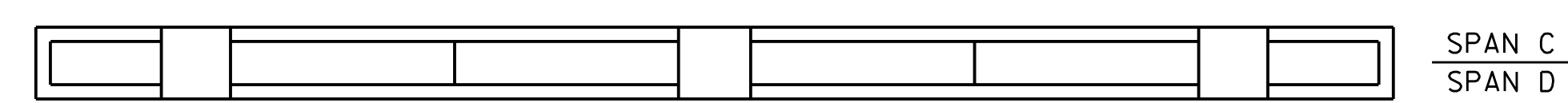
ELEVATION
WEST FACE
(LOOKING EAST)



ELEVATION
EAST FACE
(LOOKING WEST)

END VIEW
NORTH FACE
(LOOKING SOUTH)

END VIEW
SOUTH FACE
(LOOKING NORTH)



PLAN
BOTTOM OF CAP

PROJECT NO. 15BPR.47
NASH COUNTY
 BRIDGE NO. 630039

SHEET 3 OF 4



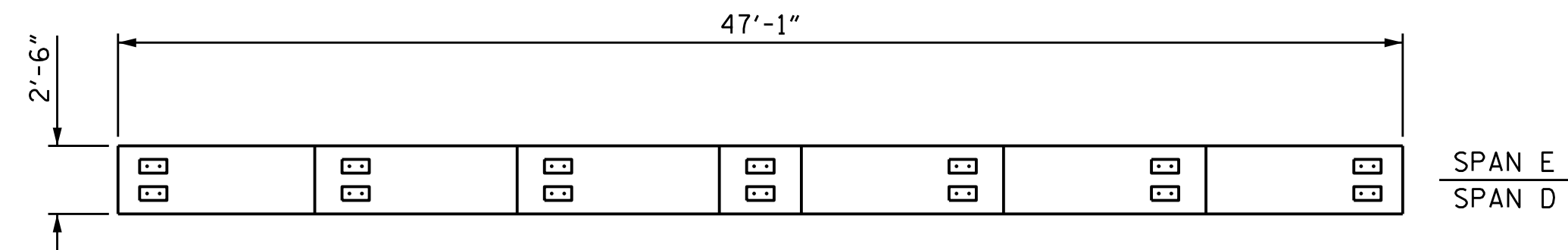
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUBSTRUCTURE
 BENT 3**

DRAWN BY : S. T. SANDOR/A. Y. GODFREY DATE : 11/2021
 CHECKED BY : S. WANCE DATE : 03/2022

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 SIGNATURES COMPLETED

| REVISIONS | | | | | | SHEET NO. |
|-----------|-----|-------|-----|-----|-------|--------------|
| NO. | BY: | DATE: | NO. | BY: | DATE: | S3-23 |
| 1 | | | 3 | | | TOTAL SHEETS |
| 2 | | | 4 | | | 33 |



PLAN
TOP OF CAP

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 INSPECTOR OR ENGINEER, THE CONTRACTOR SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

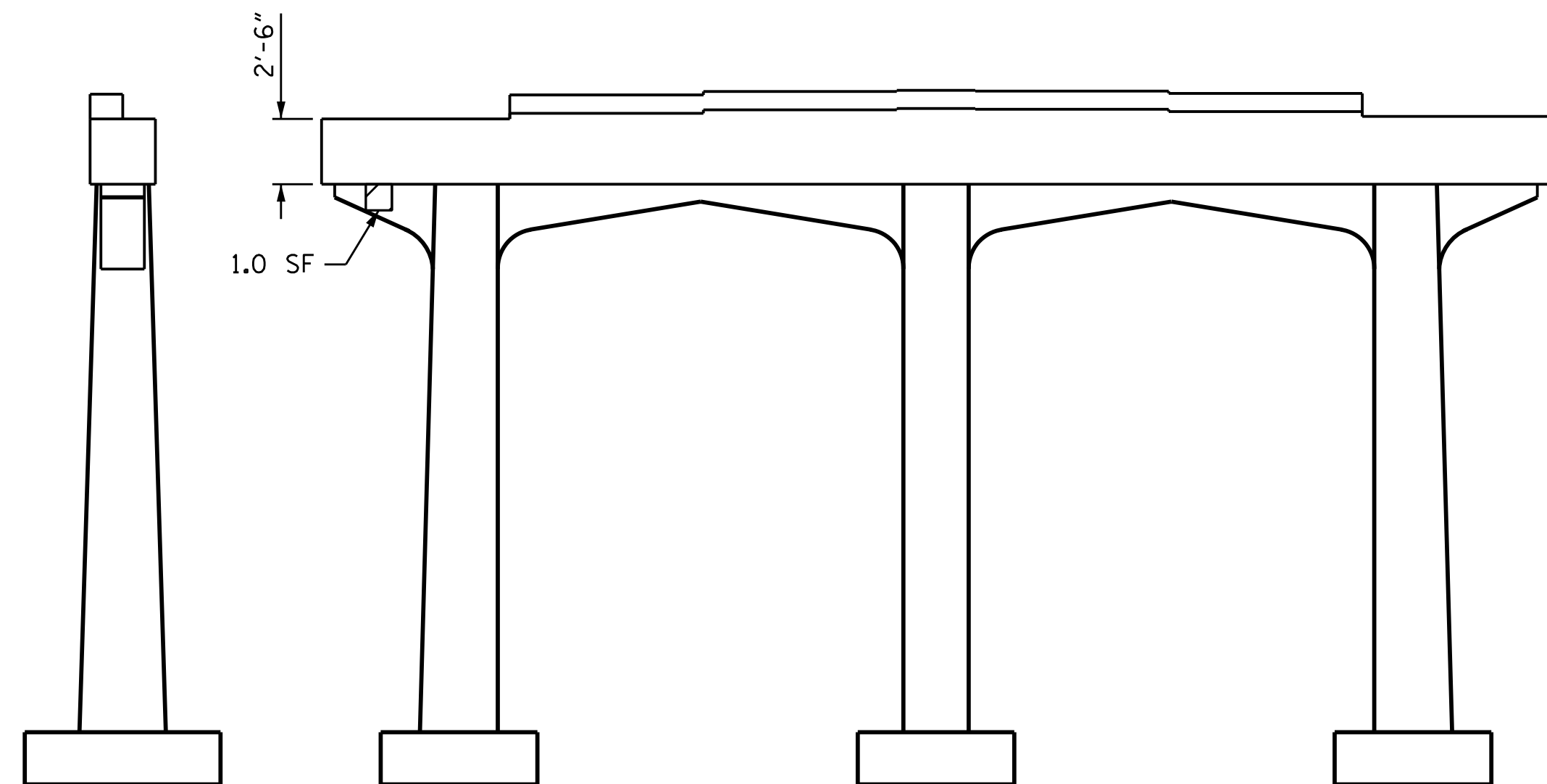
FOR ADDITIONAL NOTES, SEE SHEET 1 OF 4.

- CONCRETE REPAIRS
- SHOTCRETE REPAIRS

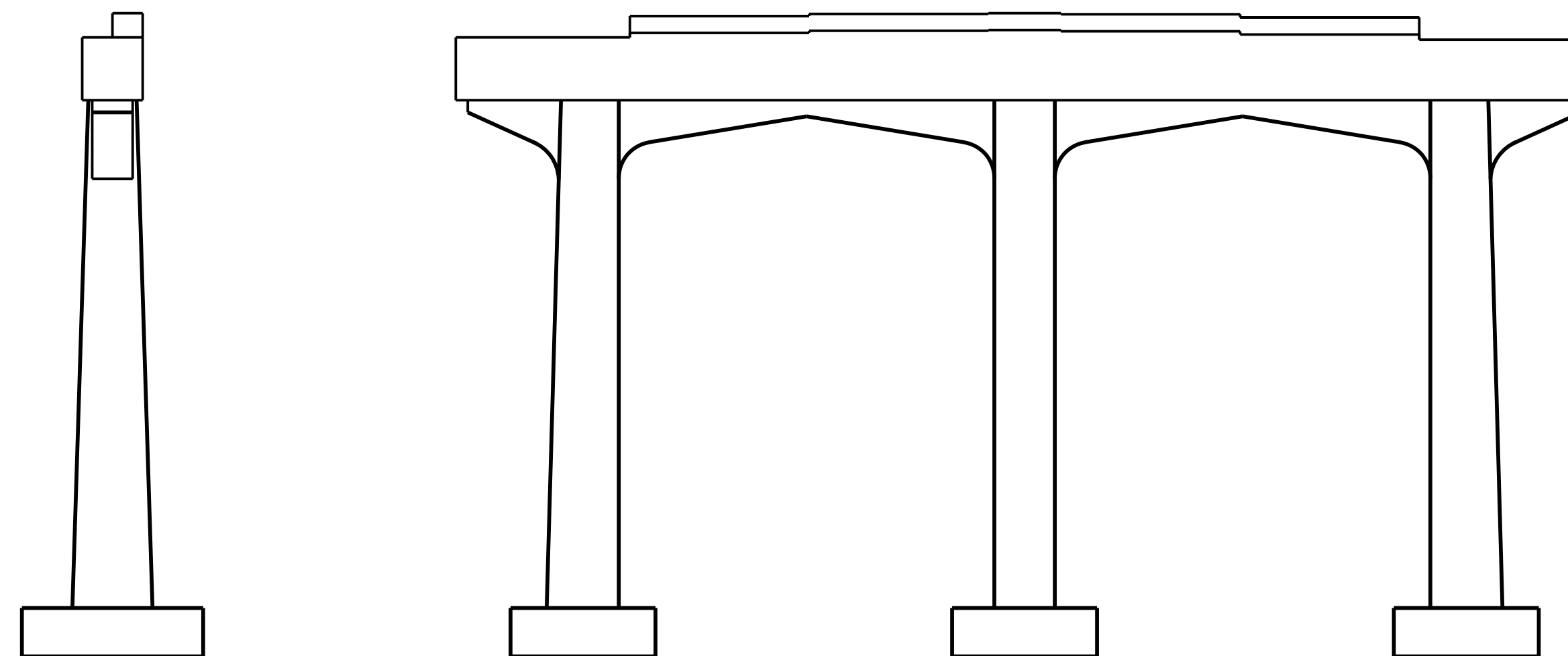
REPAIR QUANTITY TABLE

| BENT 4 | QUANTITIES | | | |
|-----------------------|------------|-----------|---------|-----------|
| | ESTIMATE | | ACTUAL | |
| SHOTCRETE REPAIR | AREA SF | VOLUME CF | AREA SF | VOLUME CF |
| CAP (VERTICAL FACE) | 1.0 | 0.5 | | |
| CAP (HORIZONTAL FACE) | 0.0 | 0.0 | | |
| COLUMN | 0.0 | 0.0 | | |
| CONCRETE REPAIR | | | | |
| CAP (VERTICAL FACE) | 0.0 | 0.0 | | |
| CAP (HORIZONTAL FACE) | 0.0 | 0.0 | | |
| COLUMN | 0.0 | 0.0 | | |

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



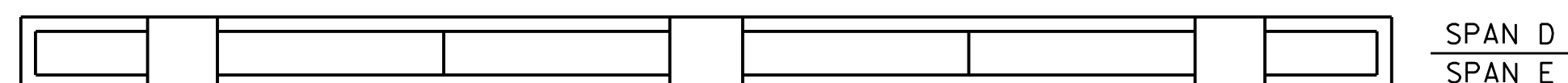
ELEVATION
WEST FACE
(LOOKING EAST)



ELEVATION
EAST FACE
(LOOKING WEST)

END VIEW
NORTH FACE
(LOOKING SOUTH)

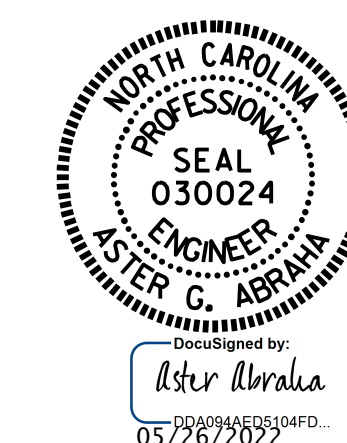
END VIEW
SOUTH FACE
(LOOKING NORTH)



PLAN
BOTTOM OF CAP

PROJECT NO. 15BPR.47
NASH COUNTY
 BRIDGE NO. 630039

SHEET 4 OF 4



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 BENT 4

| REVISIONS | | | | | | SHEET NO. |
|-----------|-----|-------|-----|-----|-------|--------------|
| NO. | BY: | DATE: | NO. | BY: | DATE: | S3-24 |
| 1 | | | 3 | | | TOTAL SHEETS |
| 2 | | | 4 | | | 33 |

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

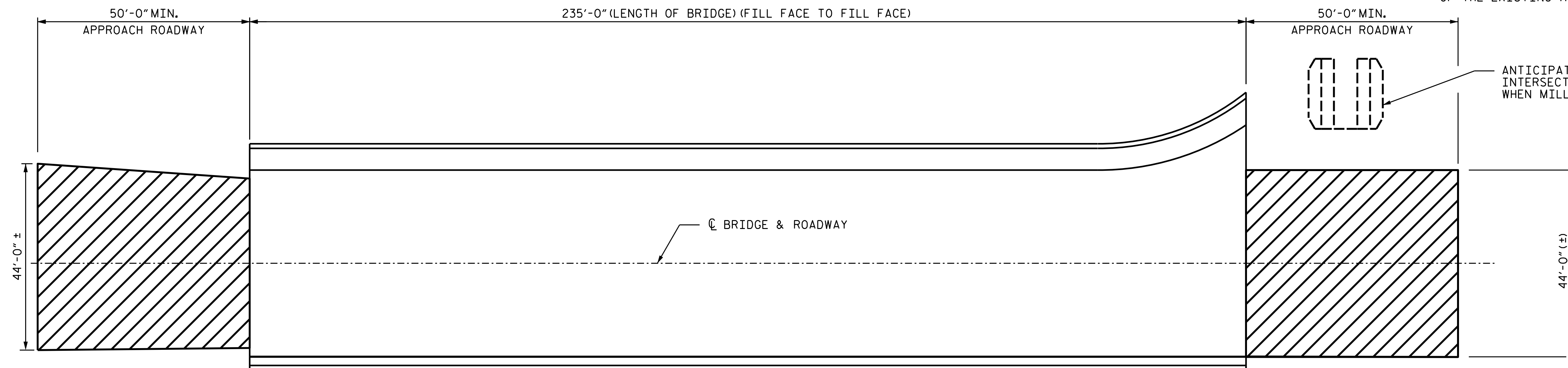
DRAWN BY : S. T. SANDOR/A. Y. GODFREY DATE : 11/2021
 CHECKED BY : S. WANCE DATE : 03/2022

NOTES

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

← TO SR 1717

TO NC 97 →

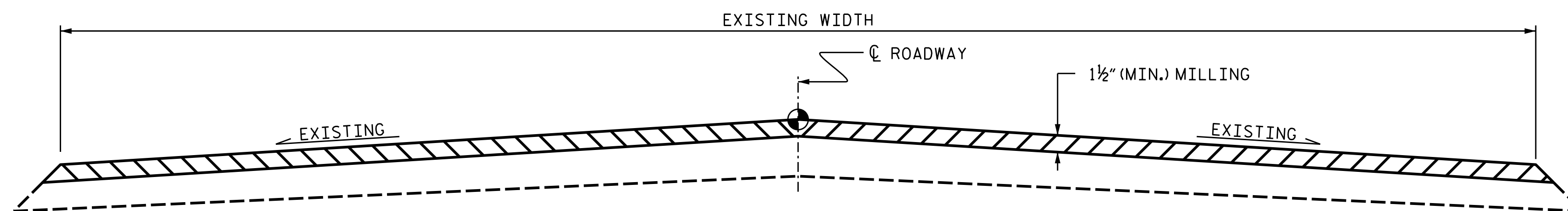


PLAN

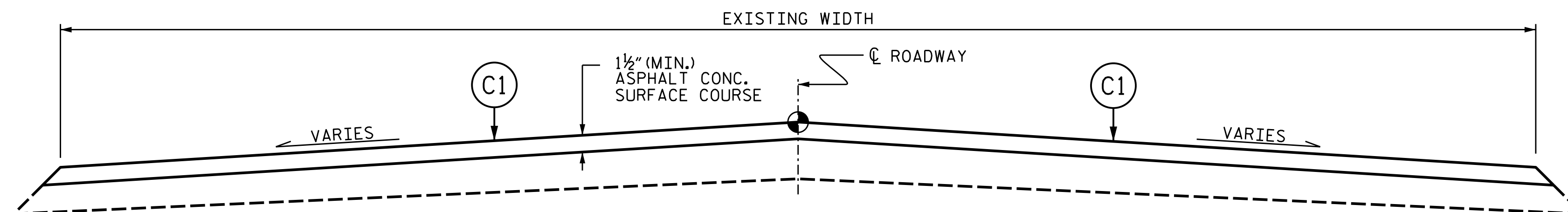
C1 PROPOSED VARIABLE DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 1/2" IN DEPTH OR GREATER THAN 2" DEPTH.

INCIDENTAL MILLING

| SUMMARY OF QUANTITIES | | |
|---|-----------|--------|
| | ESTIMATE | ACTUAL |
| INCIDENTAL MILLING | 477.8 SY | |
| ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B | 60.0 TONS | |
| ASPHALT BINDER FOR PLANT MIX | 5.0 TONS | |



TYPICAL ROADWAY MILLING SECTION



TYPICAL PROPOSED ROADWAY SECTION

PROJECT NO. 15BPR.47
NASH COUNTY
 BRIDGE NO. 630039

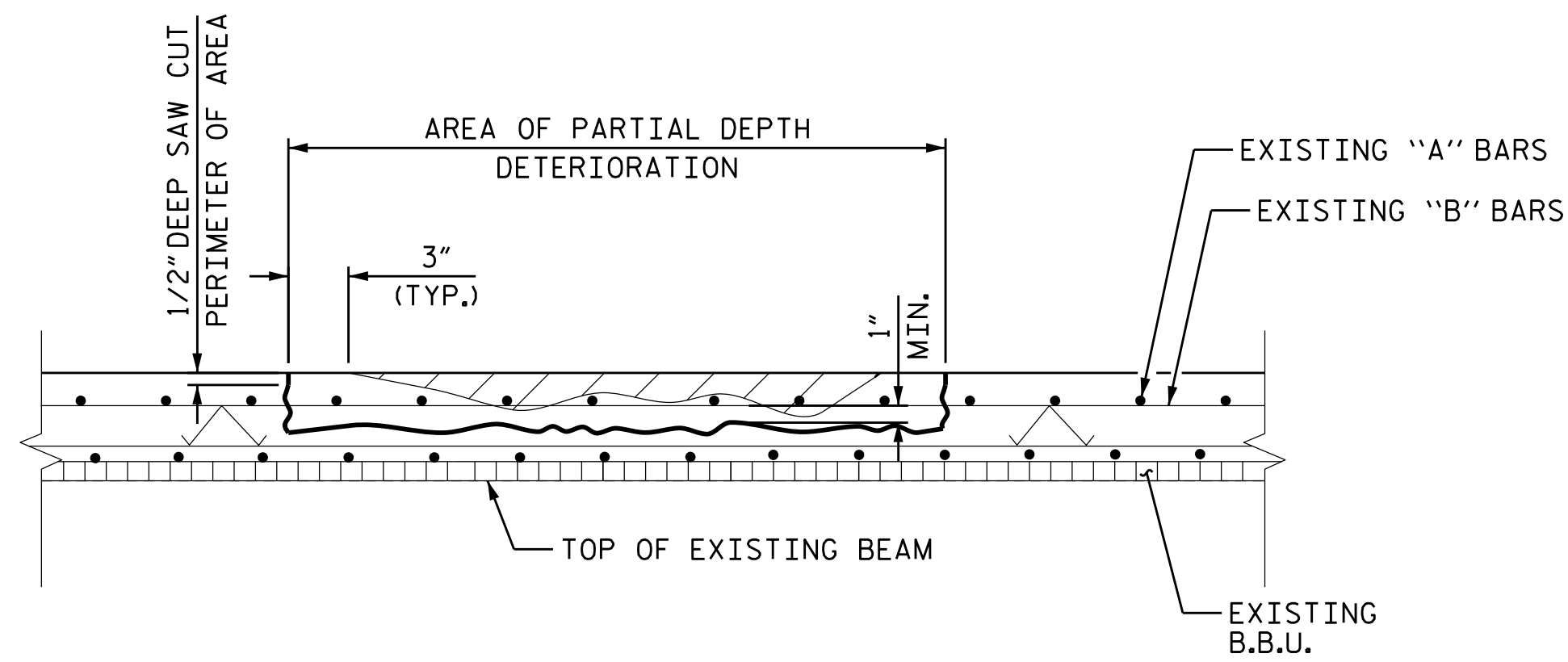


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
**APPROACH MILLING
 & TYPICAL ROADWAY
 SECTIONS**

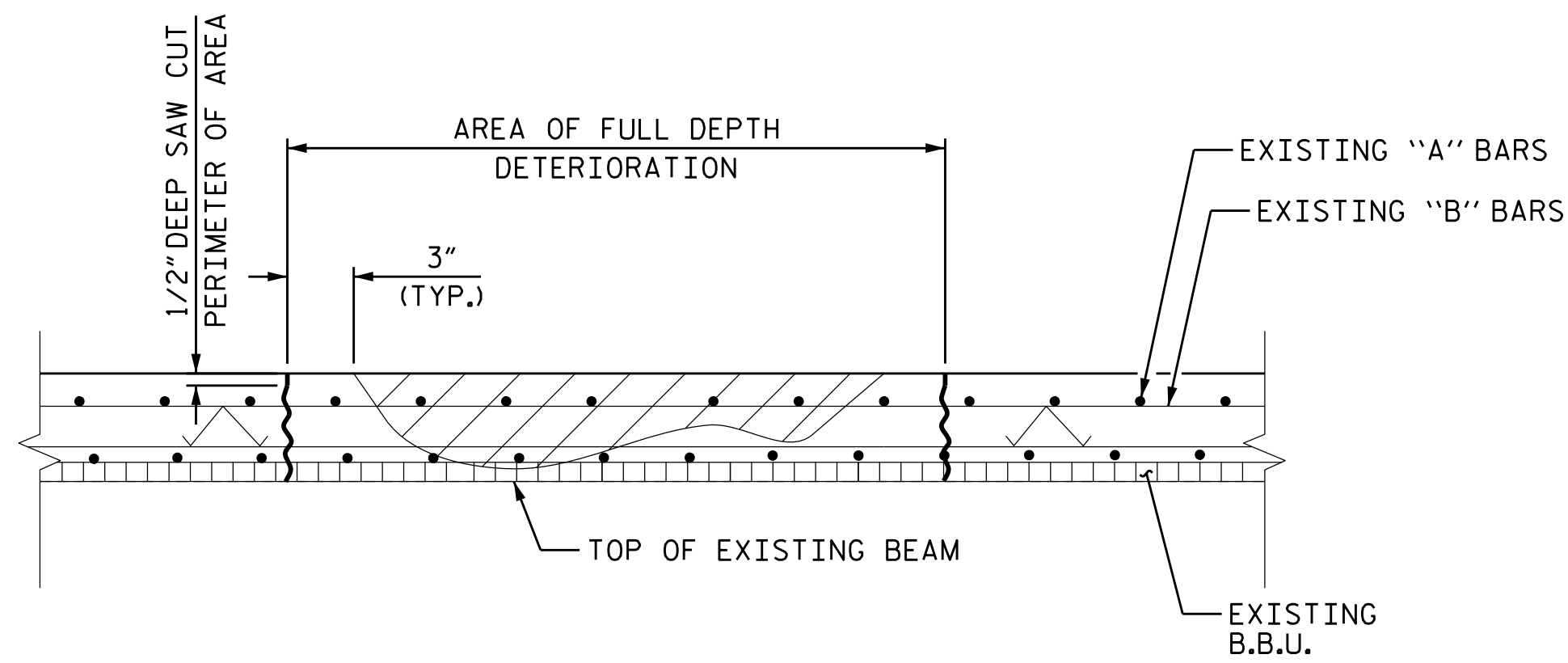
DRAWN BY : A. Y. GODFREY DATE : 01/2022
 CHECKED BY : S. WANCE DATE : 03/2022

DOCUMENT NOT CONSIDERED
 FINAL UNLESS ALL
 SIGNATURES COMPLETED

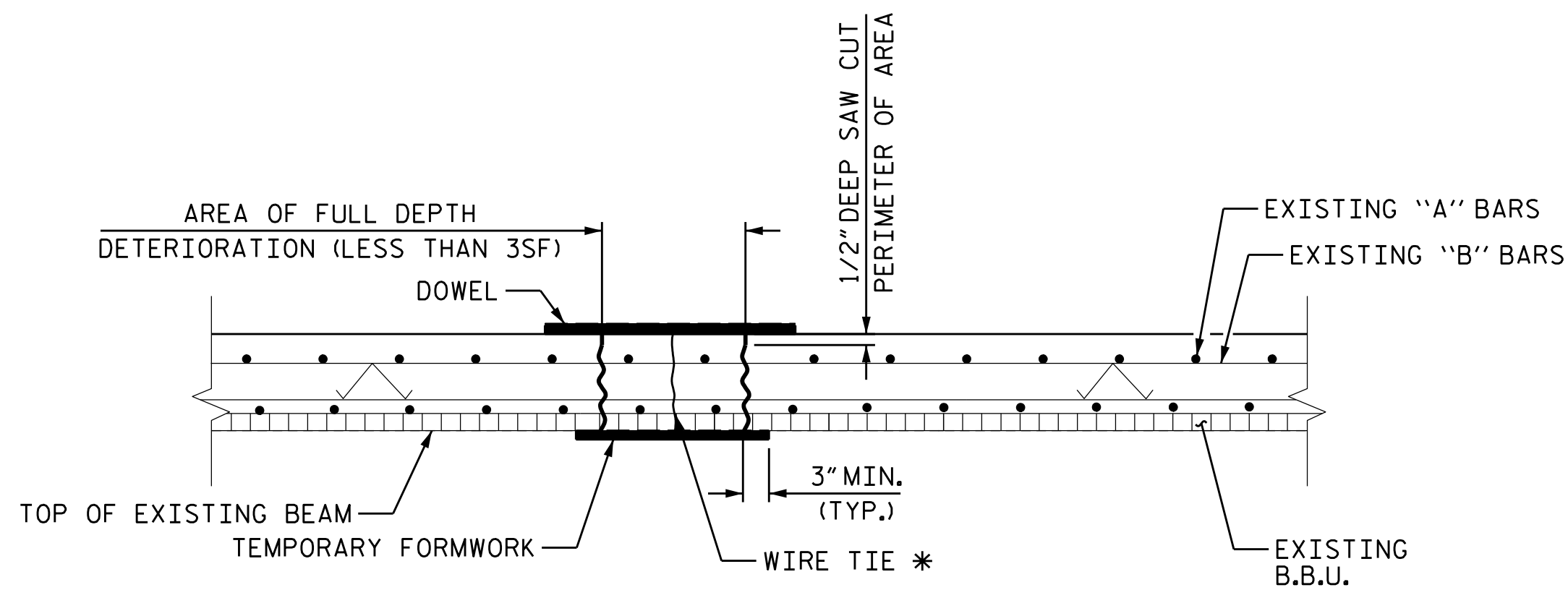
| REVISIONS | | | | | | SHEET NO. |
|-----------|-----|-------|-----|-----|-------|-----------------|
| NO. | BY: | DATE: | NO. | BY: | DATE: | |
| 1 | | | 3 | | | S3-25 |
| 2 | | | 4 | | | TOTAL SHEETS 33 |



CLASS II (PARTIAL DEPTH) REPAIR



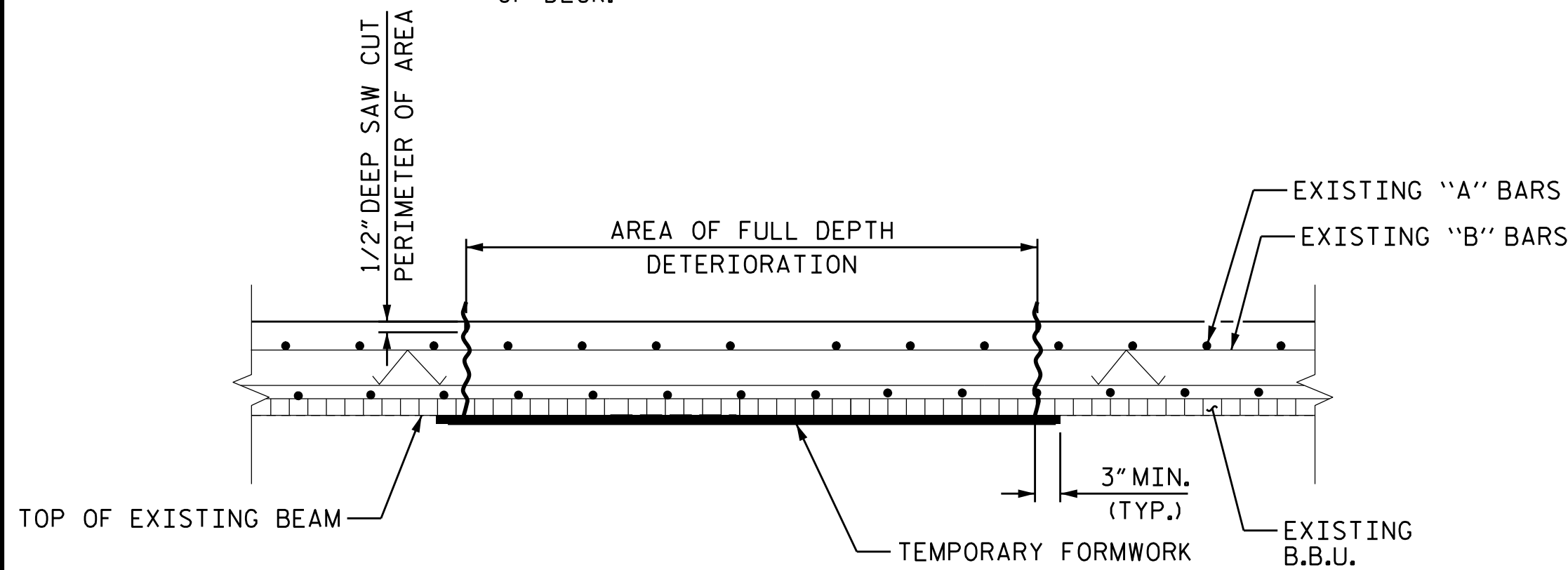
CLASS III (FULL DEPTH) REPAIR



FULL DEPTH REPAIR WITH TEMPORARY FORMWORK

(FOR AREAS OF DETERIORATION EQUAL TO OR LESS THAN 3SF)

* WIRE TIE TO BE KNOTTED BELOW TEMPORARY FORMWORK AND ATTACHED TO DOWEL THAT IS WIDER THAN FORMED FULL DEPTH HOLE. ROTATE DOWEL TO TIGHTEN FORMWORK AGAINST BOTTOM OF DECK.

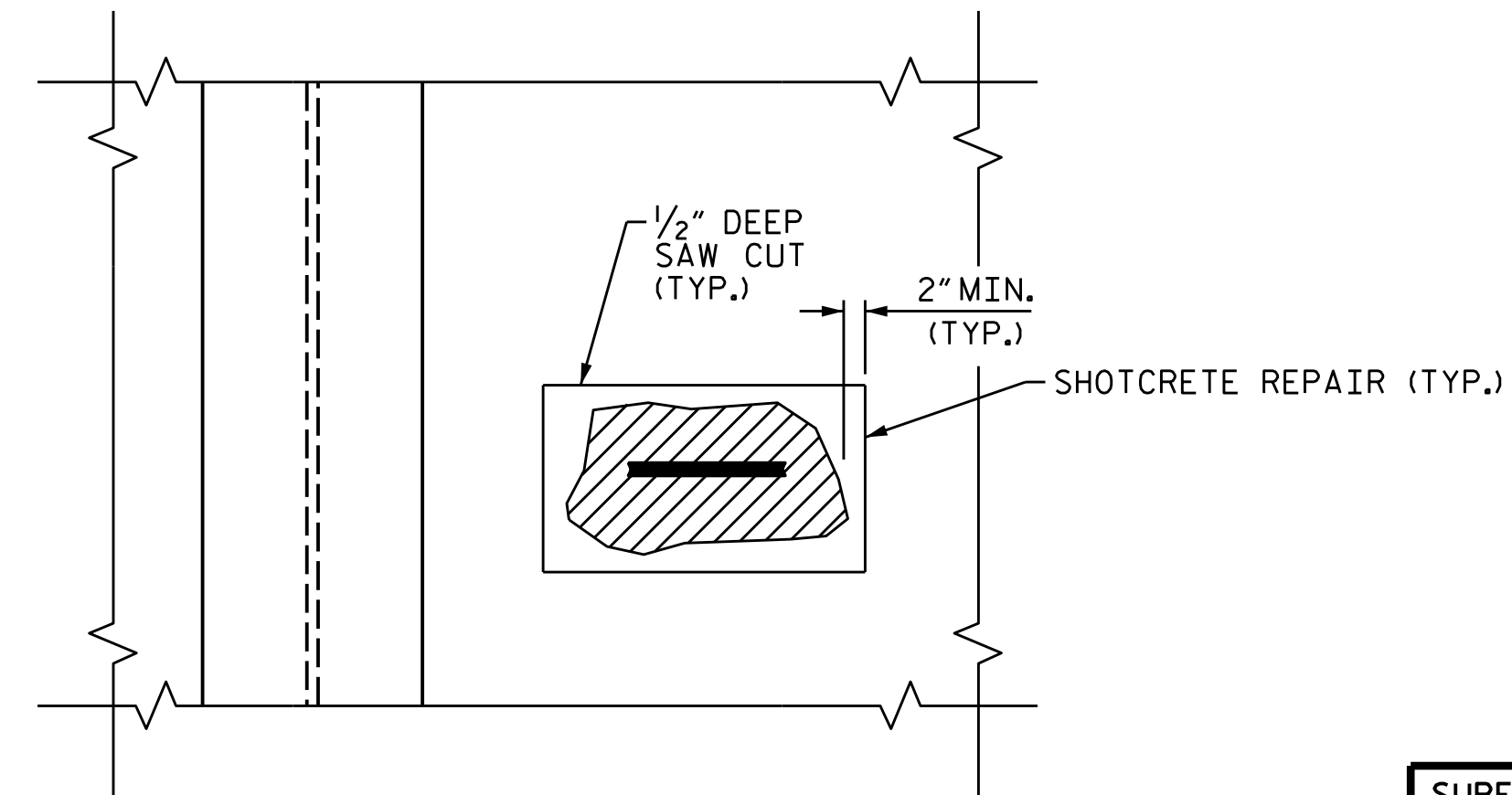


FULL DEPTH REPAIR WITH TEMPORARY FORMWORK

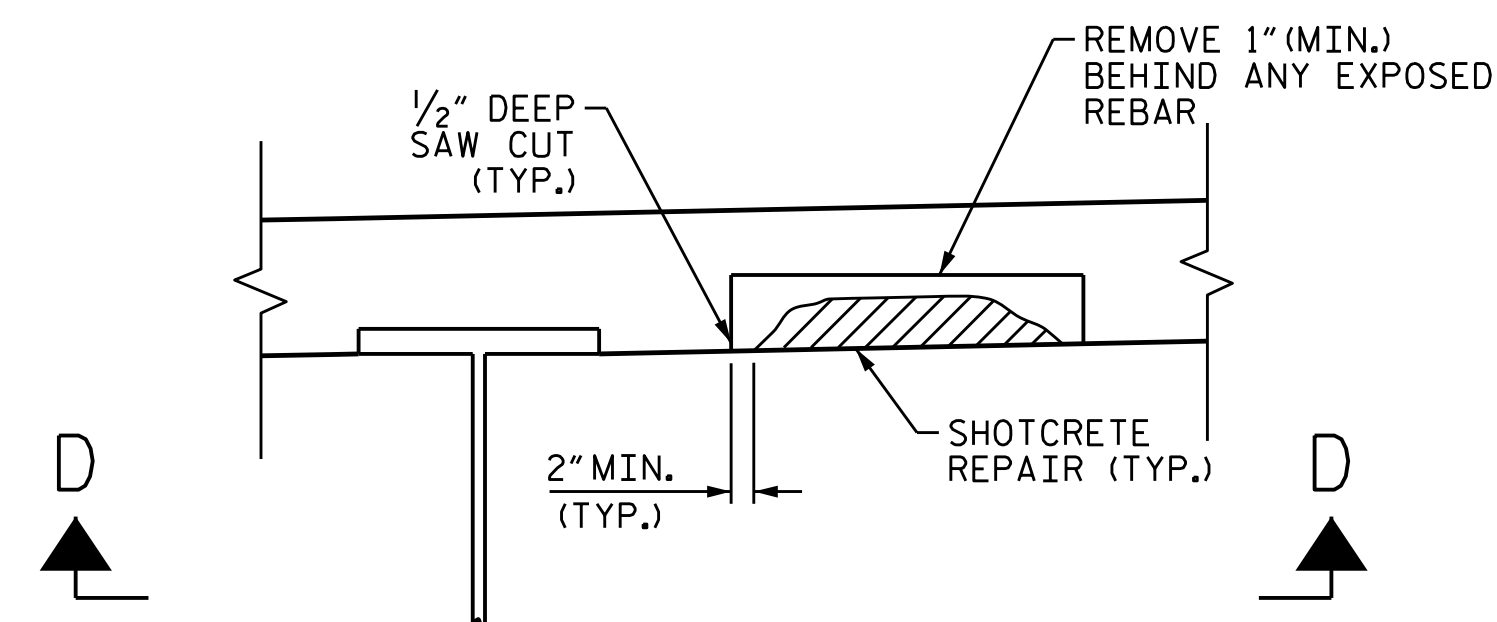
(FOR AREAS OF DETERIORATION GREATER THAN 3SF)



AREA OF DETERIORATION

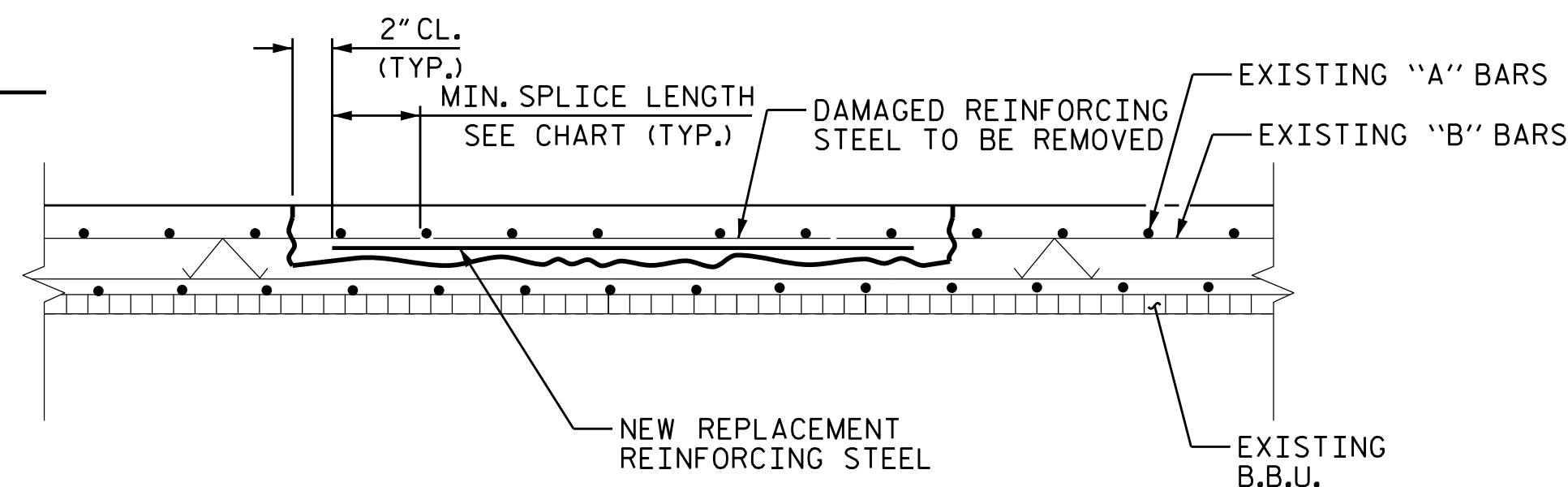


SECTION D-D



TYPICAL SECTION

UNDERSIDE OF DECK REPAIR



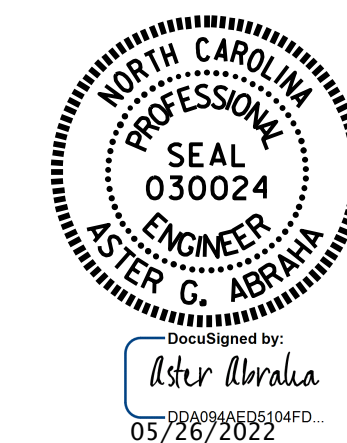
REINFORCING STEEL REPAIR

NOTES

- FOR AREAS TO BE REPAIRED, SEE "PLAN OF SPAN" SHEETS.
- ALL DECK REPAIRS SHALL BE COMPLETED PRIOR TO PLACEMENT OF OVERLAY.
- FOR CLASS II AND CLASS III SURFACE PREPARATION, SEE "OVERLAY SURFACE PREPARATIONS" SPECIAL PROVISION.
- FOR CONCRETE FOR DECK REPAIR, SEE SPECIAL PROVISIONS.
- FOR SHOTCRETE REPAIR, SEE SPECIAL PROVISIONS.
- THE CONTRACTOR SHALL SUBMIT WORKING DRAWINGS TO THE ENGINEER FOR APPROVAL PRIOR TO STARTING WORK FOR TEMPORARY FORMWORK. FOR SUBMITTALS OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
- UPON REMOVAL OF TEMPORARY FORMWORK, ALL VOIDS AND HONEYCOMBS ON THE UNDERSIDE OF DECK SURFACE SHALL BE FILLED WITH THE SAME MATERIAL AS USED FOR THE PATCH, AND FINISHED TO CONFORM TO THE SURROUNDING CONCRETE SURFACE.
- NO FORMWORK SHALL BE LEFT IN PLACE.

| BAR SIZE | SUPERSTRUCTURE EXCEPT APPROACH SLABS, PARAPET, AND BARRIER RAIL | | APPROACH SLABS | | PARAPET AND BARRIER RAIL |
|----------|---|----------|----------------|----------|--------------------------|
| | EPOXY COATED | UNCOATED | EPOXY COATED | UNCOATED | |
| #4 | 1'-11" | 1'-7" | 1'-11" | 1'-7" | 2'-6" |
| #5 | 2'-5" | 2'-0" | 2'-5" | 2'-0" | 3'-1" |
| #6 | 2'-10" | 2'-5" | 3'-7" | 2'-5" | 3'-8" |
| #7 | 4'-2" | 2'-9" | | | |
| #8 | 4'-9" | 3'-2" | | | |

PROJECT NO. 15BPR.47
NASH COUNTY
 BRIDGE NO. 630039

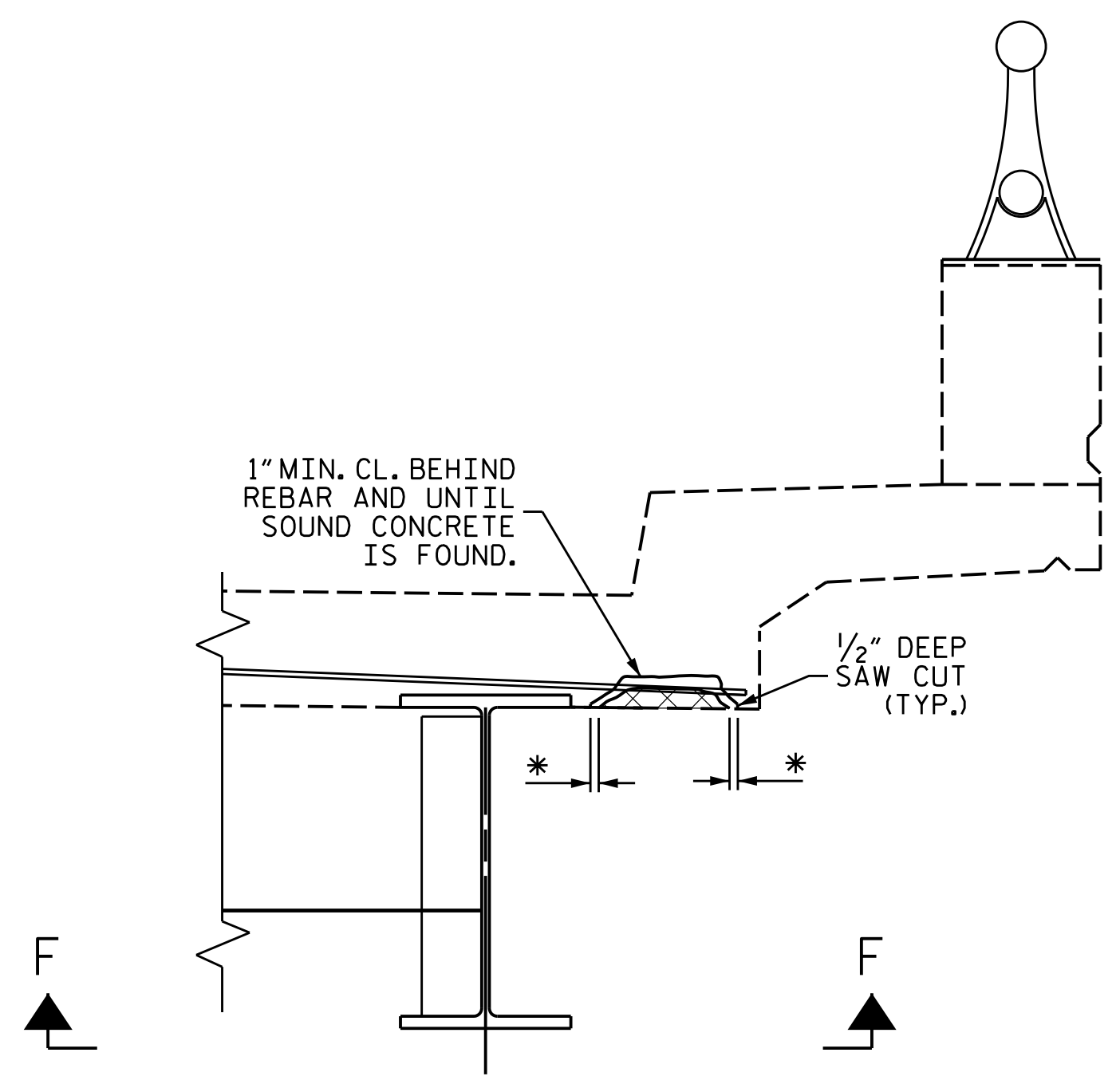


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
DECK REPAIR DETAILS

ASSEMBLED BY : S. T. S./A.Y.G. DATE : 01/2022
 CHECKED BY : S. WANCE DATE : 03/2022
 DRAWN BY : NAP 9/18
 CHECKED BY :

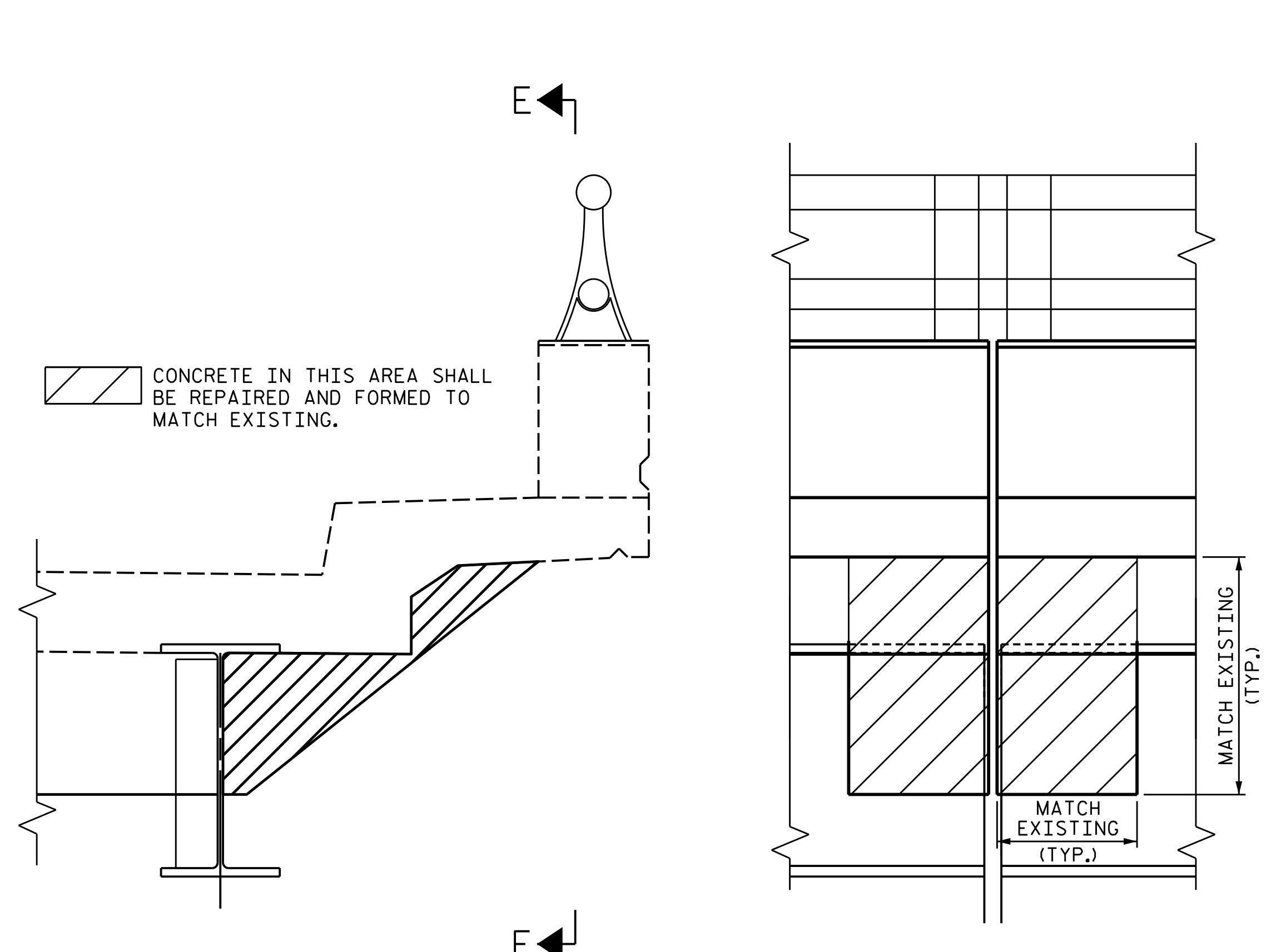
DOCUMENT NOT CONSIDERED
 FINAL UNLESS ALL
 SIGNATURES COMPLETED

| REVISIONS | | | | | | SHEET NO. |
|-----------|-----|-------|-----|-----|-------|-----------------|
| NO. | BY: | DATE: | NO. | BY: | DATE: | |
| 1 | | | 3 | | | S3-26 |
| 2 | | | 4 | | | TOTAL SHEETS 33 |

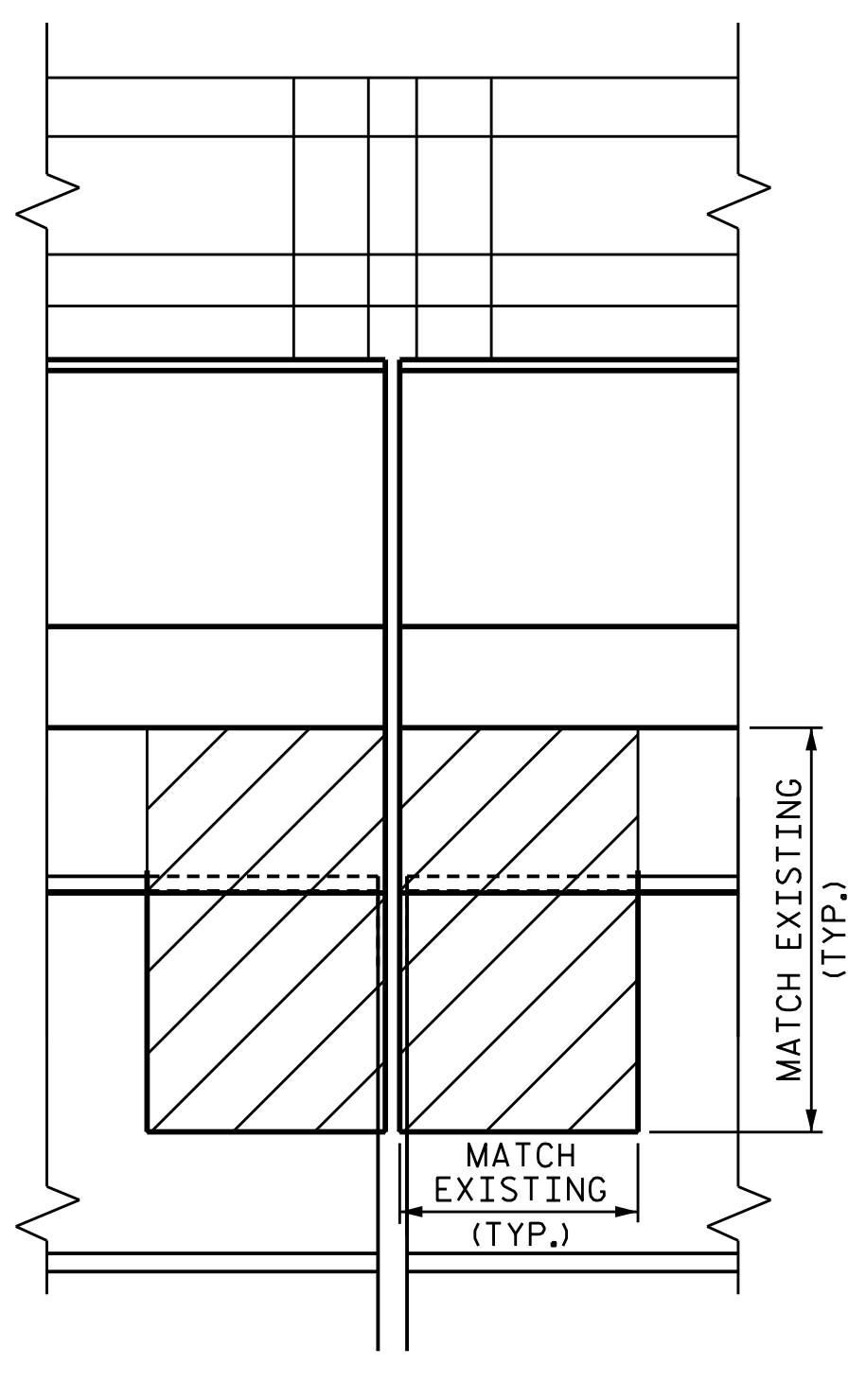


DAMAGED AREA

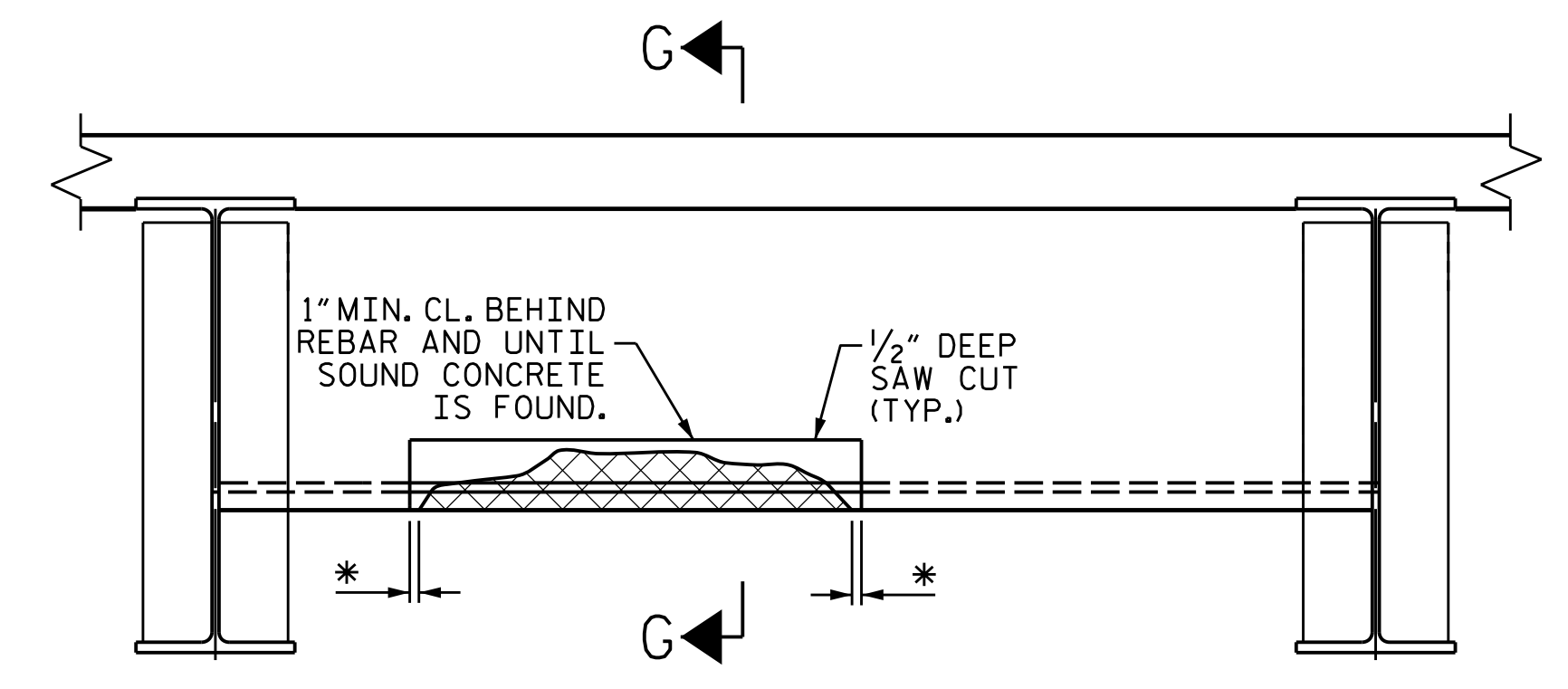
* REMOVE CONCRETE UNTIL SOUND CONCRETE IS FOUND (2" MIN. DEPTH)



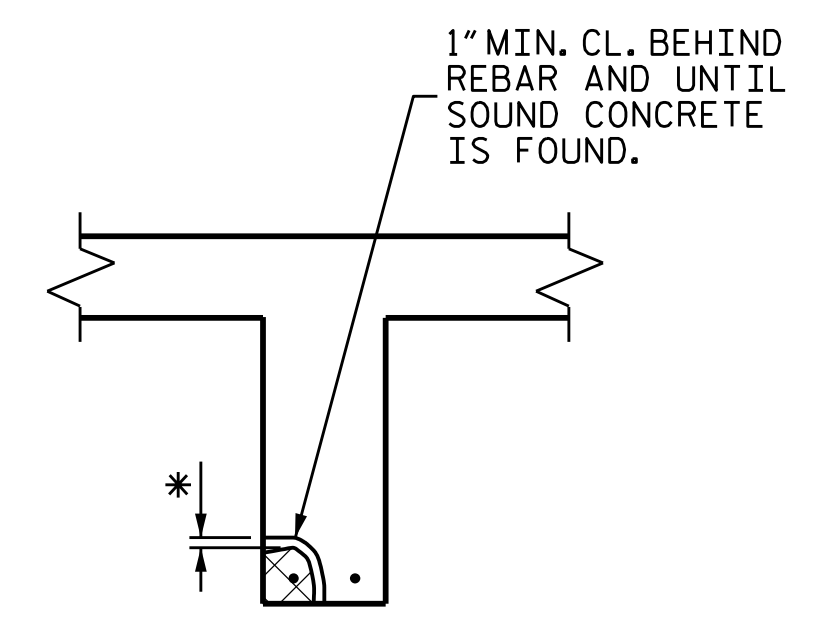
TYPICAL SECTION
(RT. SIDE SHOWN. LT. SIDE SIMILAR.)
(UTILITIES NOT SHOWN)



SECTION E-E



TYPICAL SECTION

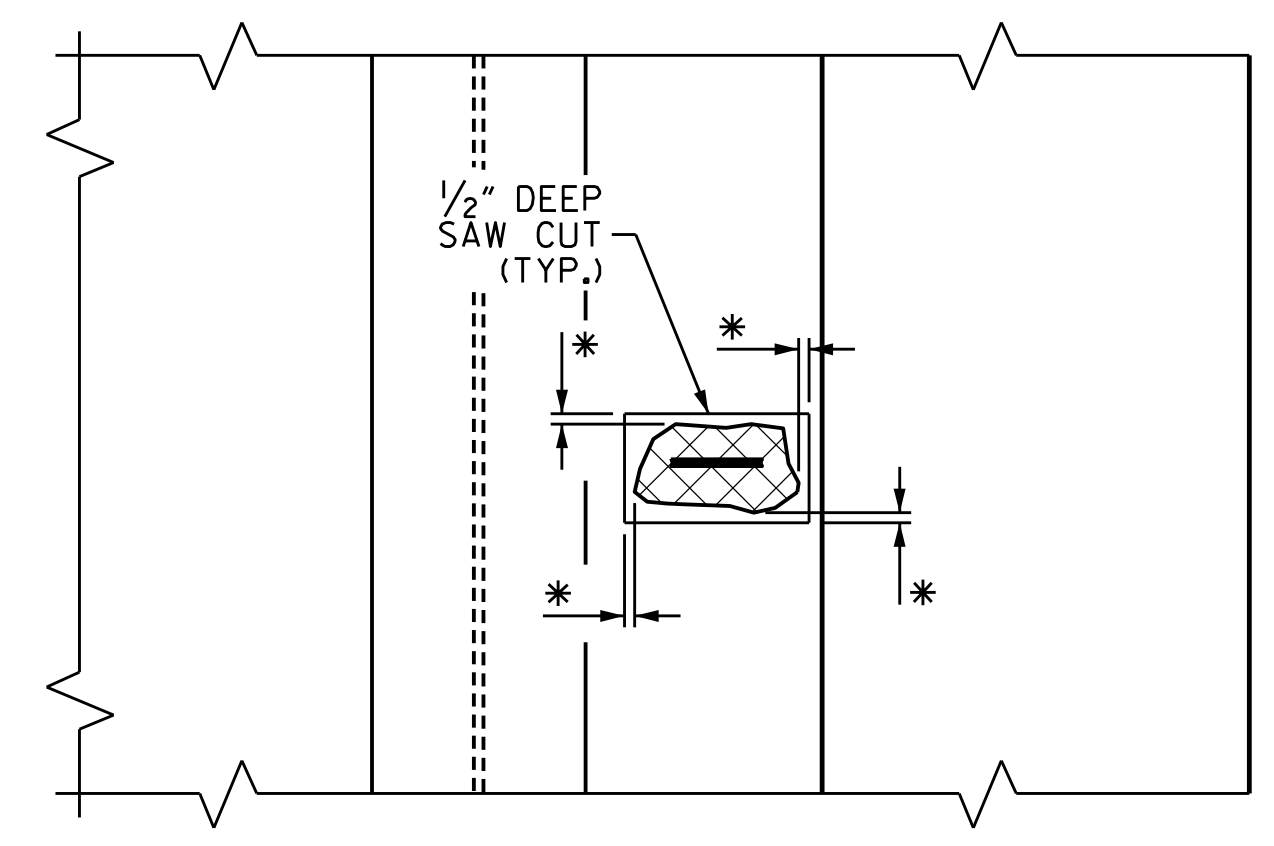


SECTION G-G

* REMOVE CONCRETE UNTIL SOUND CONCRETE IS FOUND (2" MIN. DEPTH)

DAMAGED AREA

NOTE:
EXISTING REBAR TO REMAIN IN PLACE. CLEAN AND REPAIR AS NECESSARY.



SECTION F-F

OVERHANG DETAILS

NOTE: OVERHANG DIAPHRAGMS TO BE REPAIRED, ARE SHOWN ON "UNDERSIDE DECK REPAIRS" SHEETS.

OVERHANG DIAPHRAGM REPAIR DETAILS

NOTES

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.

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 SHEET S1-10.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR AREAS TO BE REPAIRED, SEE "UNDERSIDE DECK REPAIRS" SHEET.

THE CONTRACTOR SHALL SUBMIT WORKING DRAWINGS TO THE ENGINEER FOR APPROVAL PRIOR TO STARTING WORK FOR TEMPORARY FORMWORK. FOR SUBMITTALS OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

UPON REMOVAL OF TEMPORARY FORMWORK, ALL VOIDS AND HONEYCOMBS ON THE UNDERSIDE OF DECK SURFACE SHALL BE FILLED WITH THE SAME MATERIAL AS USED FOR THE PATCH, AND FINISHED TO CONFORM TO THE SURROUNDING CONCRETE SURFACE.

NO FORMWORK SHALL BE LEFT IN PLACE.

INTERIOR DIAPHRAGM REPAIR DETAILS

PROJECT NO. 15BPR.47
NASH COUNTY
 BRIDGE NO. 630039



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

OVERHANG & DIAPHRAGM REPAIR DETAILS

DRAWN BY : A. Y. GODFREY DATE : 01/2022
 CHECKED BY : S. WANCE DATE : 03/2022

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

| REVISIONS | | | | | | SHEET NO. |
|-----------|-----|-------|-----|-----|-------|--------------|
| NO. | BY: | DATE: | NO. | BY: | DATE: | S3-27 |
| 1 | | | 3 | | | TOTAL SHEETS |
| 2 | | | 4 | | | 33 |

BEAM PLATING REPAIR NOTES

ALL CONDITIONS AND DIMENSIONS SHALL BE FIELD VERIFIED PRIOR TO FABRICATION OR INSTALLATION OF ANY COMPONENTS.

REPAIR PLATES SHALL BE NEW, AND SHALL BE THE SAME GRADE OF THE EXISTING STEEL MEMBER OR BETTER.

REPAIR SEQUENCE:

COORDINATE WITH MATERIALS AND TEST UNIT AT LEAST 4 DAYS PRIOR TO ANTICIPATED WORK.

REMOVE LIVE LOAD FROM REPAIR AREA BY EITHER CLOSING BRIDGE TO TRAFFIC OR SHIFTING TRAFFIC AWAY FROM REPAIR AREA.

IF NECESSARY, REMOVE EXISTING STIFFENER TO INSTALL WELDED PLATE REPAIR. REPLACE WITH A NEW STIFFENER PLATE OF SIMILAR SIZE.

IF BEAM DETERIORATION EXTENDS INTO THE CONCRETE DIAPHRAGM THEN CHIP AWAY CONCRETE TO DETERMINE THE EXTENT OF THE DAMAGE.

IF PAINTING THE STEEL, CLEAN AND BLAST STEEL AS REQUIRED, PRIOR TO PERFORMING STEEL REPAIRS. OTHERWISE, MECHANICALLY CLEAN RUST, SCALE, AND EXISTING PAINT TO AT LEAST 3" BEYOND REPAIR AREA.

PRIME ENTIRE REPAIR AREA AND REPAIR PLATES WITH AN ORGANIC ZINC PRIMER PRIOR TO WELDING NEW PLATES. REMOVE PRIMER IN WELD AREA.

ONE PLATE SHALL BE PLACED, AS INDICATED ON EACH SIDE OF THE BEAM WEB. ONE OF THE PLATES SHALL BE A MINIMUM OF 1" TALLER AND WIDER THAN THE OTHER WEB PLATE TO OFFSET THE WEB PLATE WELDING LOCATIONS ON THE EXISTING BEAM WEB.

EACH PLATE SHALL BE APPROXIMATELY ONE-HALF THE ORIGINAL THICKNESS OF THE BEAM WEB, WITH A MINIMUM OF 3/8"

FULLY WELD ALONG TOP AND SIDES OF THE PLATES AS SHOWN.

ALL WELDING SHALL BE IN ACCORDANCE WITH CURRENT APPLICABLE AWS AND NCDOT STANDARD SPECIFICATIONS.

ALL WELDS SHALL BE INSPECTED AND TESTED BY THE NCDOT MATERIALS AND TEST UNIT IN ACCORDANCE WITH THE CURRENT AWS BRIDGE WELDING CODE AND STANDARD SPECIFICATIONS.

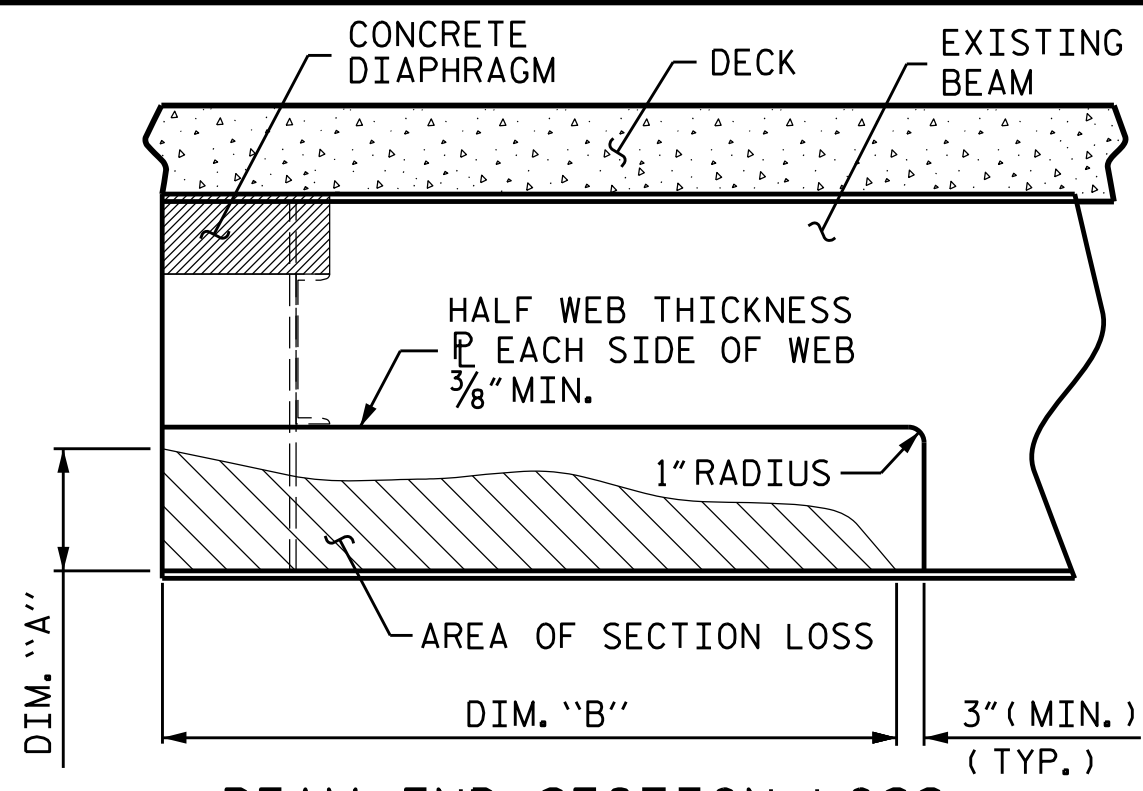
IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS, AFTER REPAIR, GRIND ALL WELDS FLUSH, AND THOROUGHLY CLEAN AREA TO REMOVE DEBRIS AND OILS FROM THE REPAIR PROCESS.

CLEANING AND PAINTING OF REPAIRED STRUCTURAL STEEL SHALL BE PERFORMED AS PART OF THE OVERALL CLEANING AND PAINTING CONTRACT.

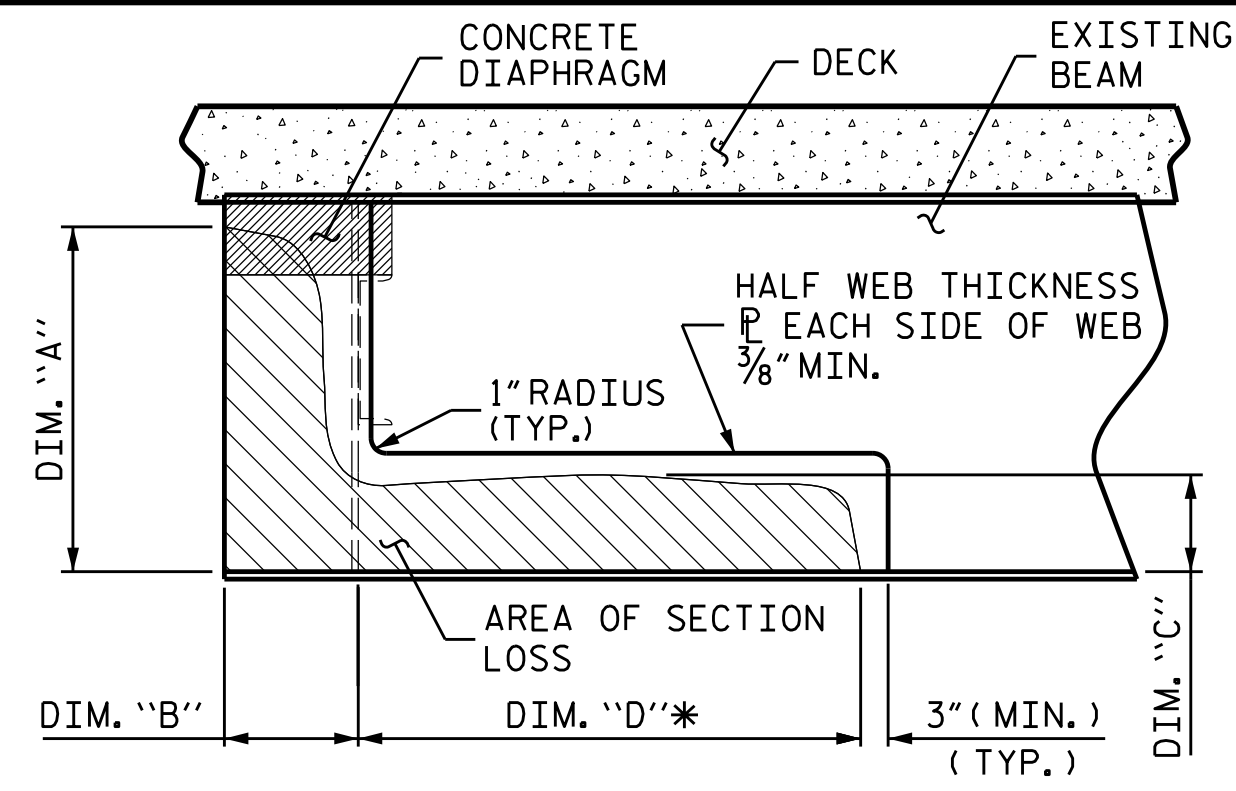
FOR CLEANING AND PAINTING, SEE PAINTING EXISTING STRUCTURE SPECIAL PROVISIONS.

AFTER BEAMS ARE REPAIRED AND PAINTED, ANY CONCRETE REMOVED FROM THE BENT DIAPHRAGMS SHALL BE RECAST. ANY REINFORCING STEEL CUT DURING THE REMOVAL PROCESS SHALL BE SPLICED WITH A SIMILAR SIZE BAR WITH AT LEAST A ONE FOOT SPLICE TO THE EXISTING STEEL. NO SEPARATE PAYMENT SHALL BE MADE FOR CONCRETE AND REINFORCING STEEL AS THIS IS CONSIDERED INCIDENTAL TO THE PAY ITEM "BEAM REPAIR". FOR BEAM REPAIR, SEE SPECIAL PROVISIONS.

REMOVE ALL TRAFFIC CONTROL DEVICES.

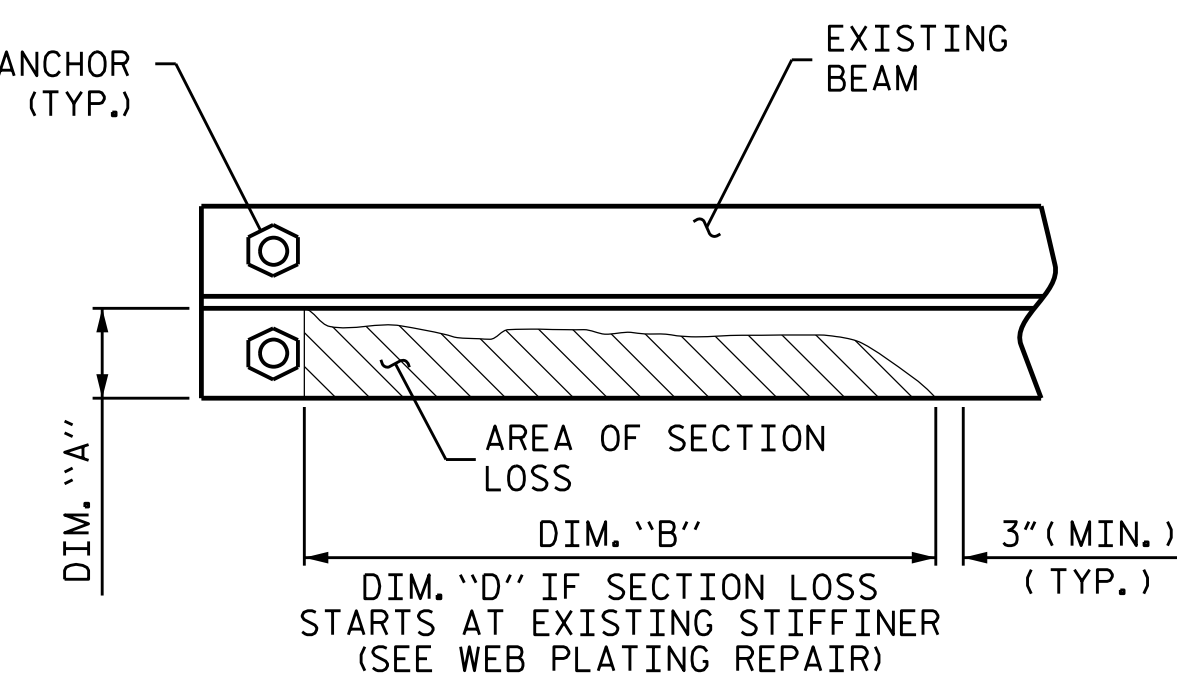


BEAM END SECTION LOSS AND PLATING REPAIR
(*W REPAIR)

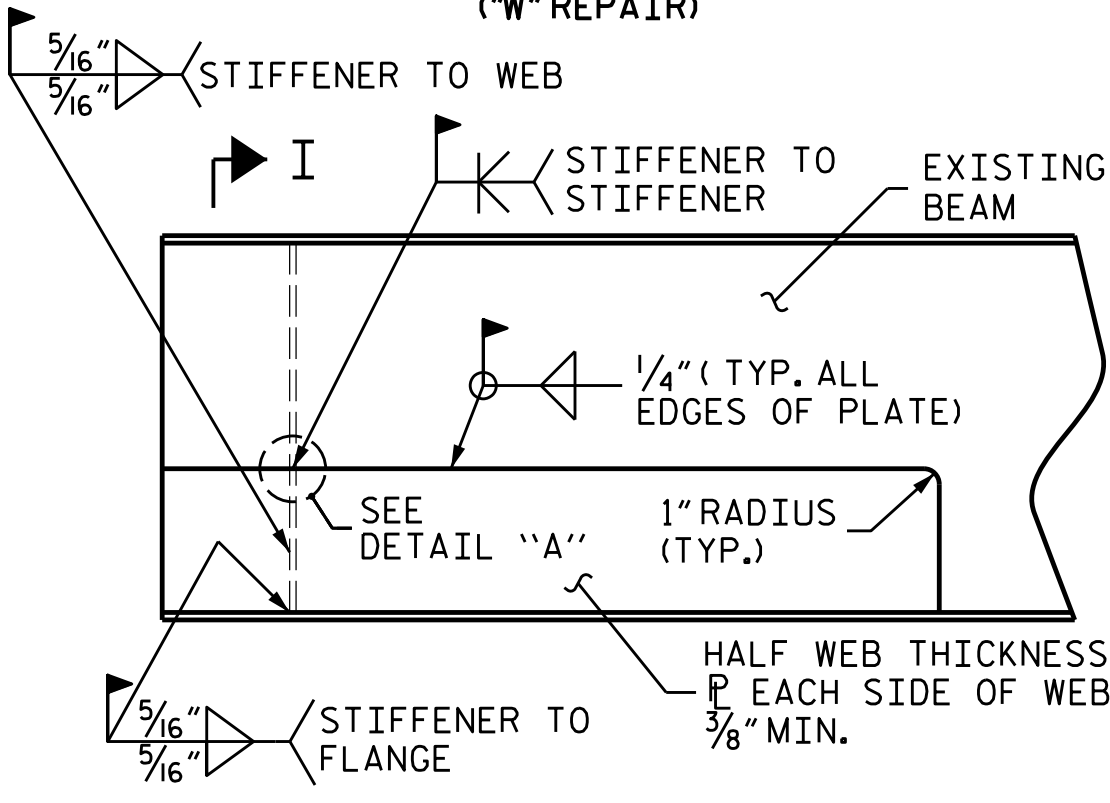


BEAM END SECTION LOSS AND PLATING REPAIR
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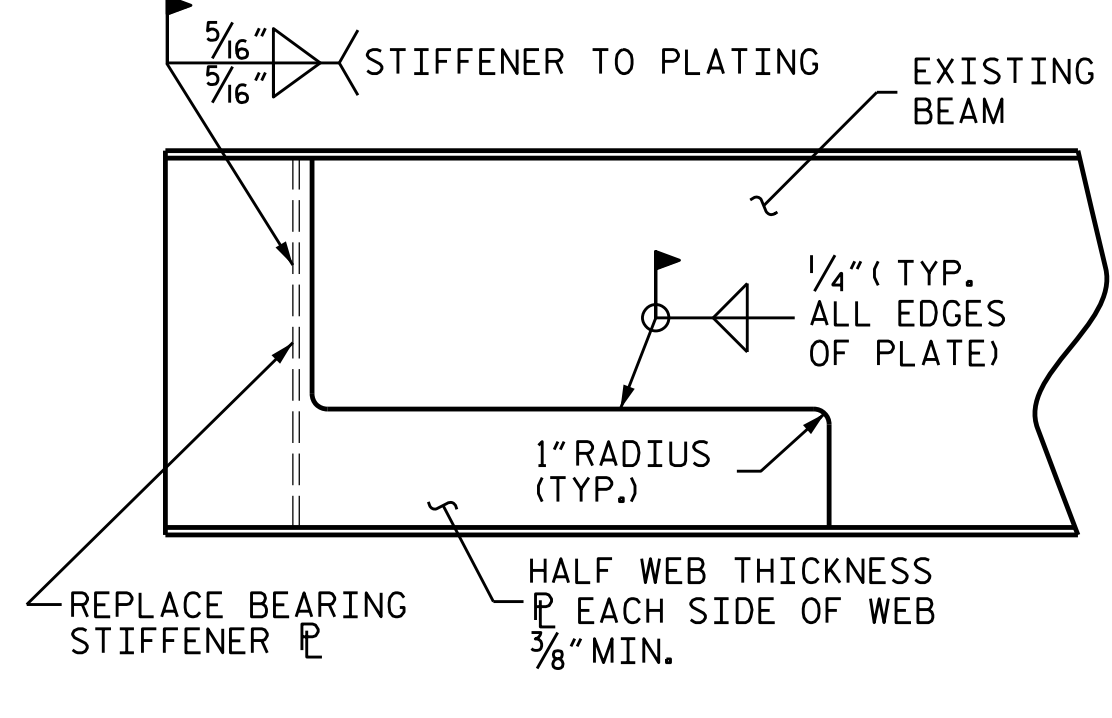
* IF NO DIM "A" OR "B" THEN PLACE REPAIR PLATE ADJACENT TO STIFFENER.



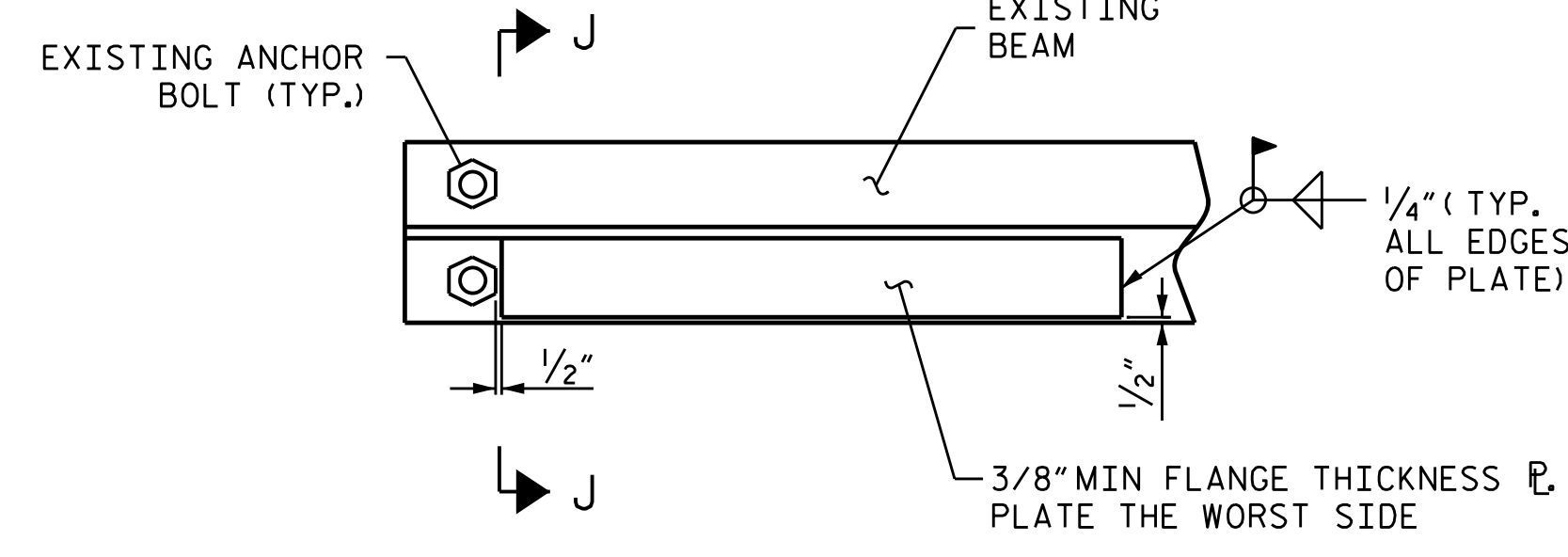
BEAM END SECTION LOSS AND PLATING REPAIR
(*F REPAIR)



SECTION LOSS BEAM PLATING REPAIR
(*W REPAIR)

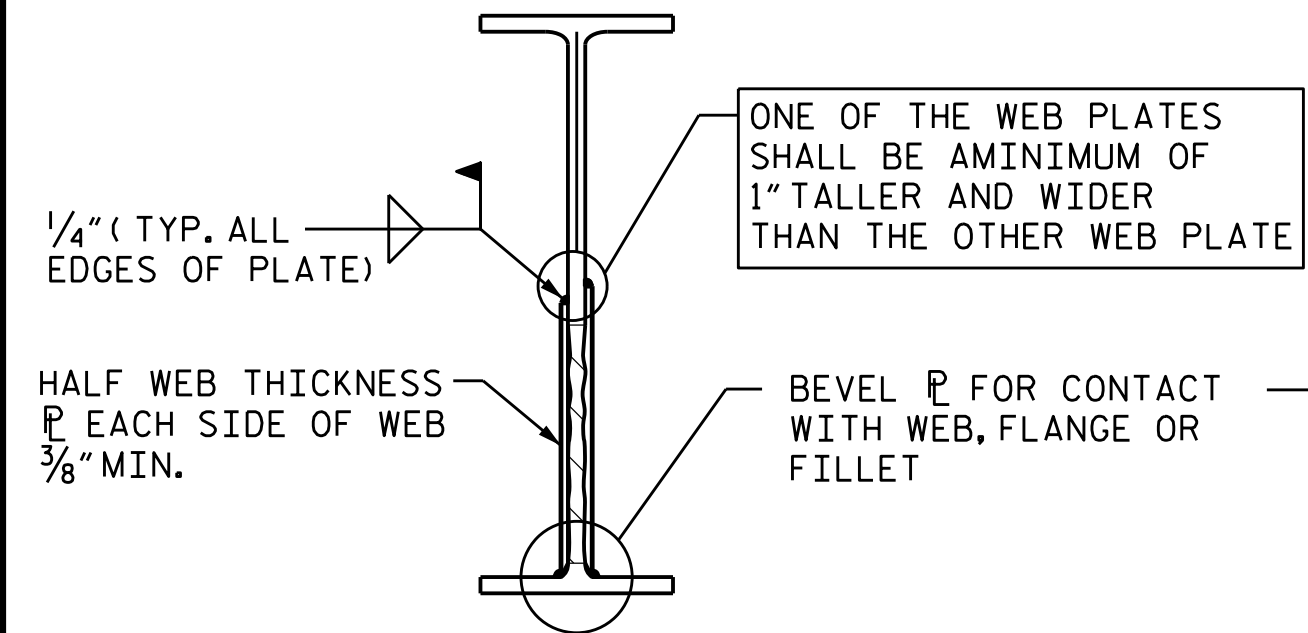


SECTION LOSS BEAM PLATING REPAIR
(*W REPAIR)

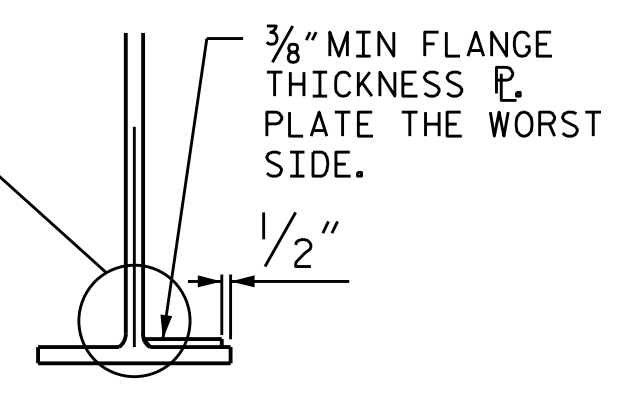


SECTION LOSS BEAM PLATING REPAIR
(*F REPAIR)

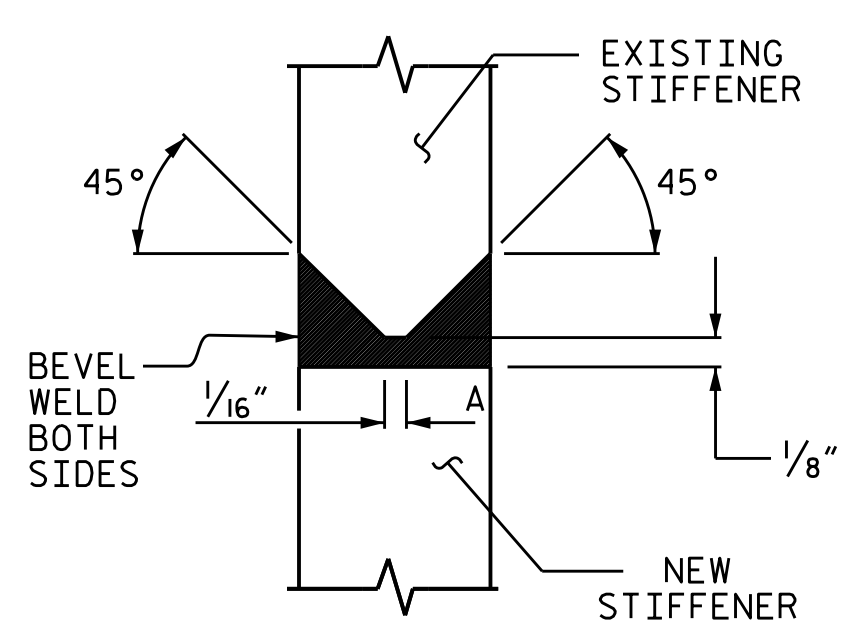
BEAM END PLATING REPAIR



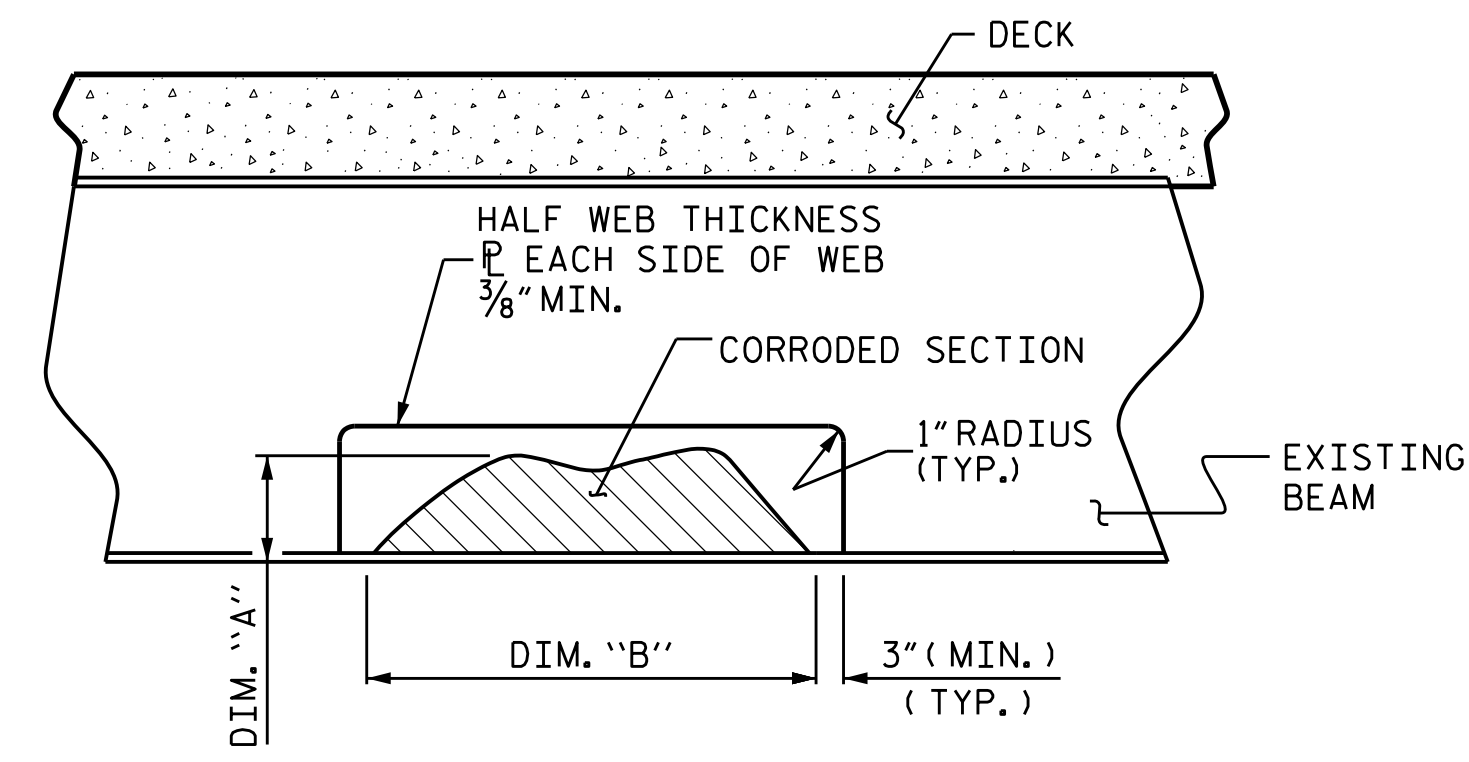
SECTION I-I



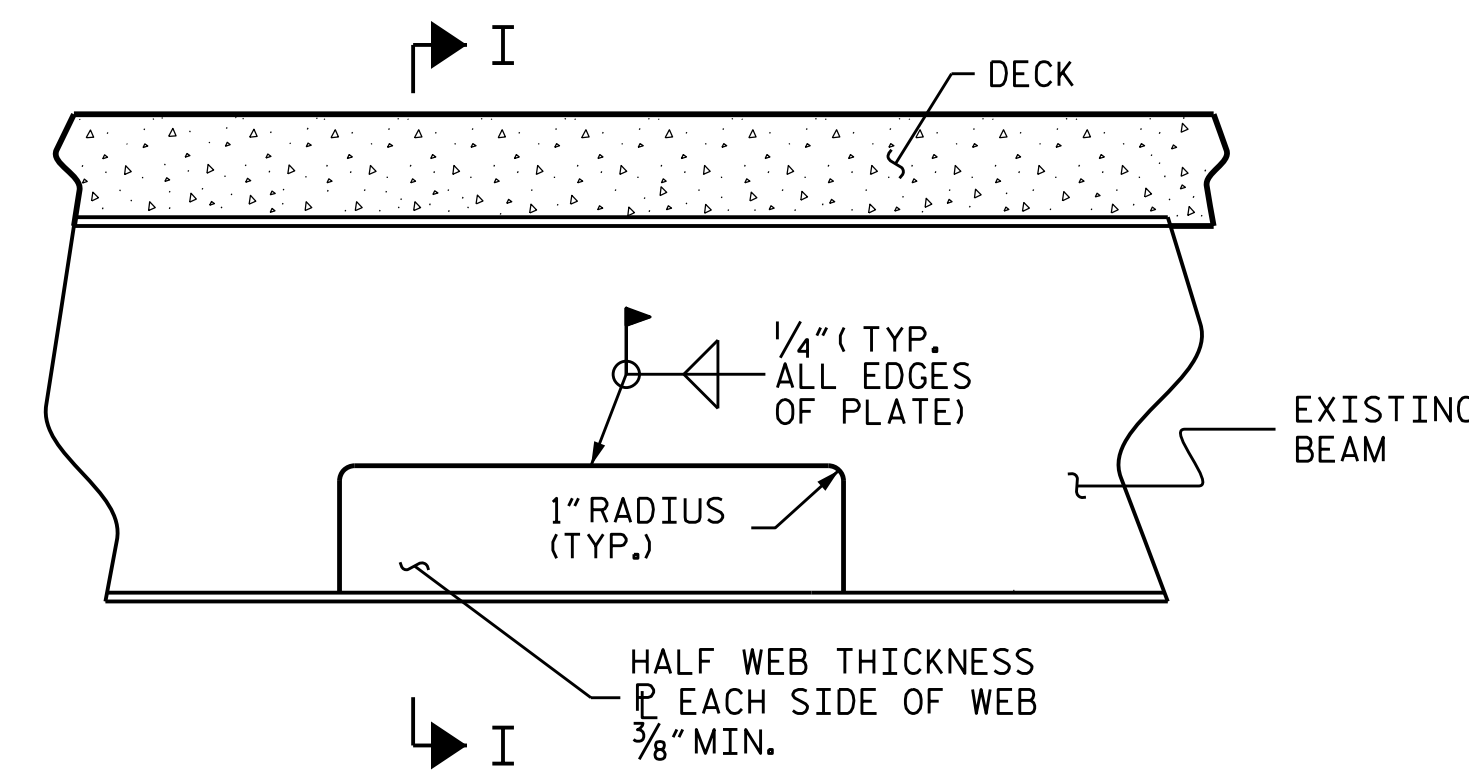
SECTION J-J



DETAIL "A"

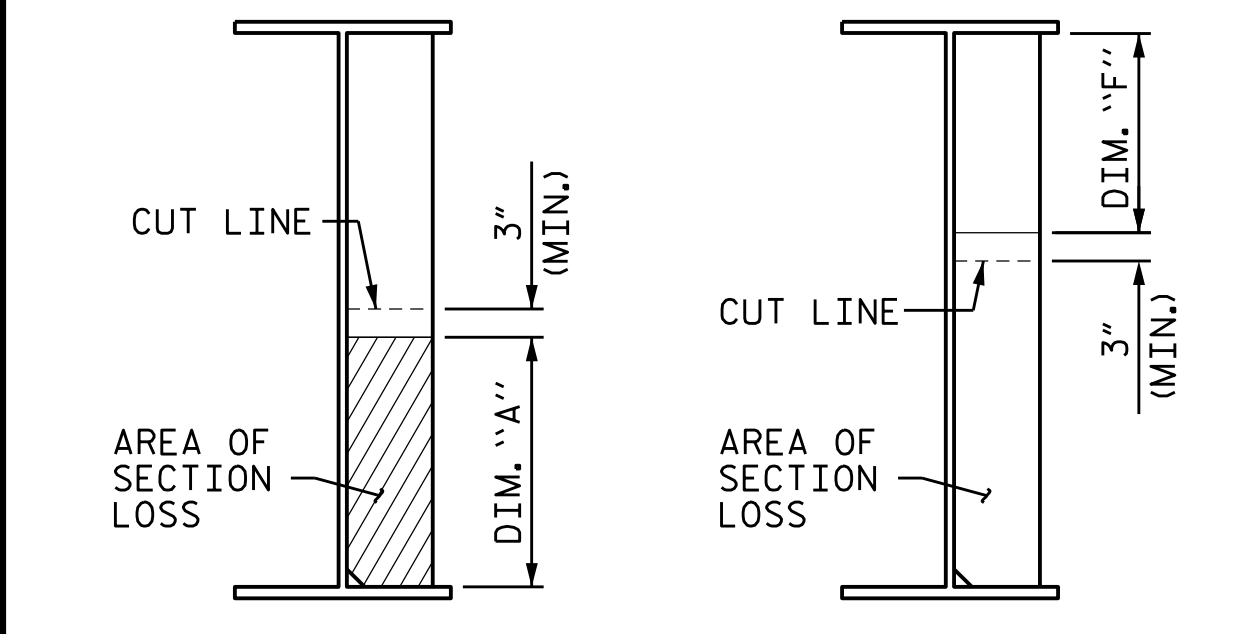


INTERMEDIATE SECTION LOSS BEAM PLATING REPAIR

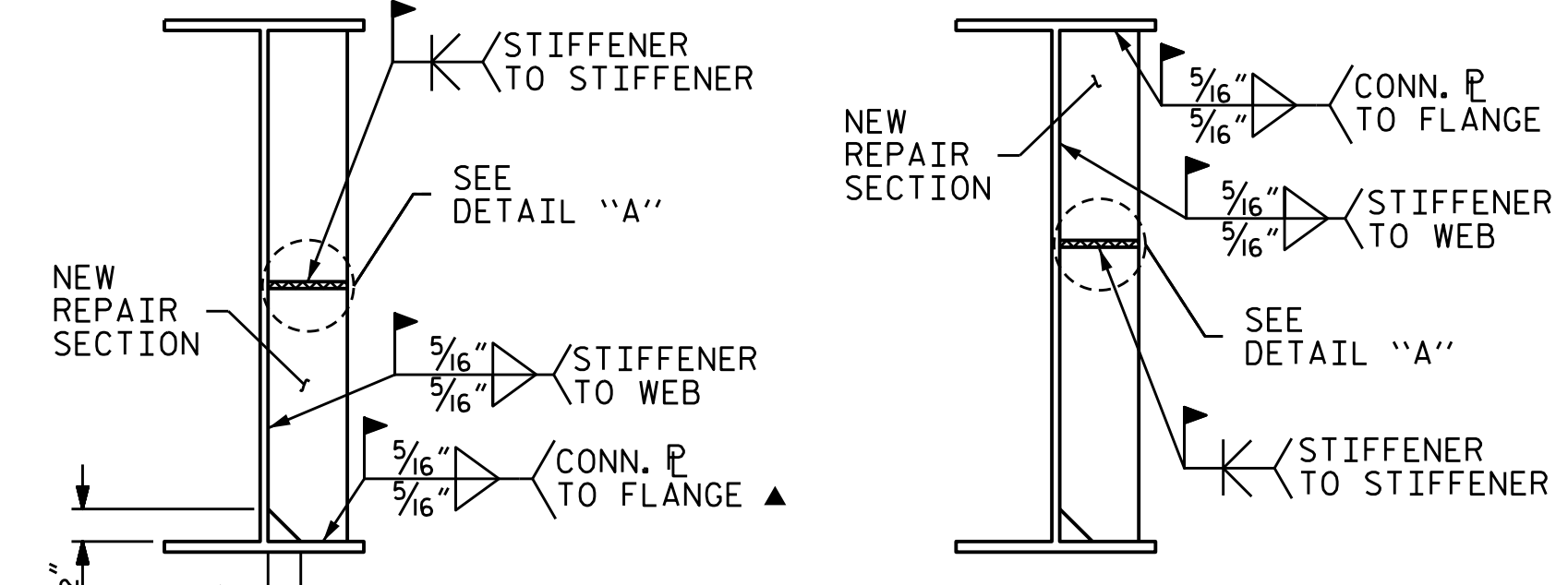


INTERMEDIATE SECTION LOSS BEAM PLATING REPAIR

INTERMEDIATE BEAM PLATING REPAIR



STIFFENER/CONN. P SECTION LOSS
(*S REPAIR)



STIFFENER/CONN. P SECTION REPAIR
▲ FOR STIFFENERS, MILL TO BEAR AND DO NOT WELD (*S REPAIR)

STIFFENER/CONNECTOR PLATE REPAIR

PROJECT NO. 15BPR.47
NASH COUNTY
BRIDGE NO. 630039

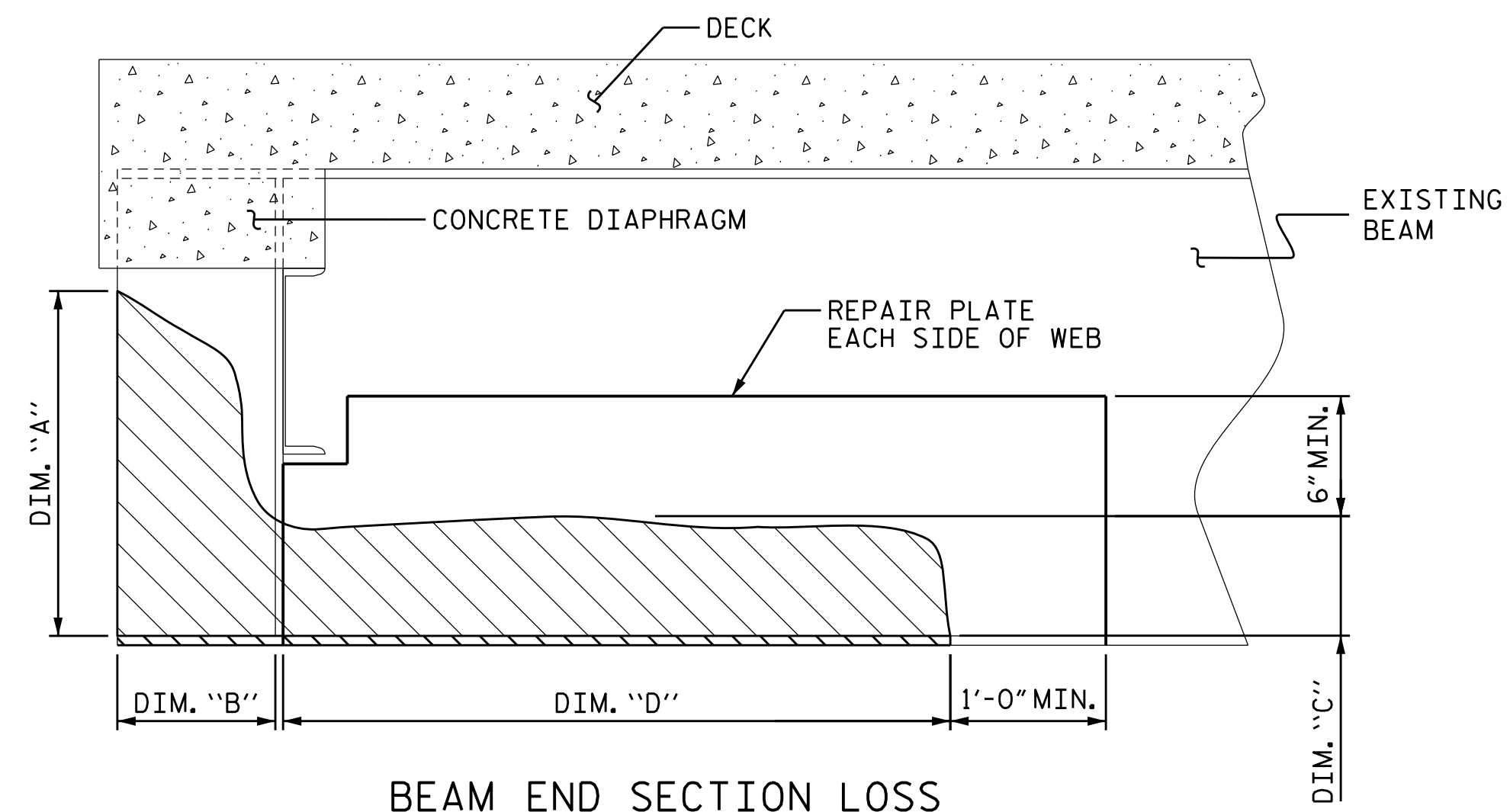


STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

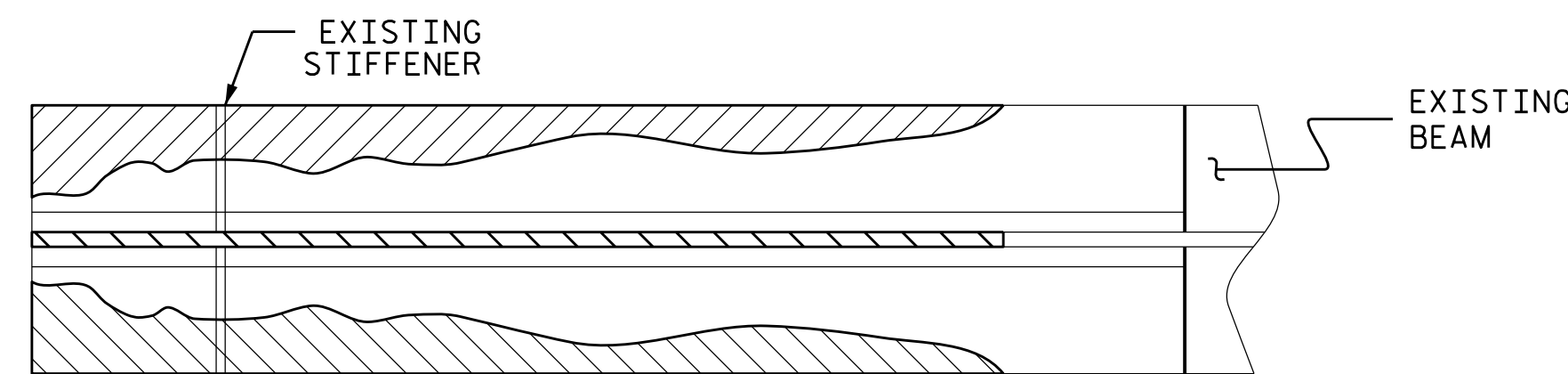
BEAM PLATING REPAIR DETAILS

DRAWN BY : A. Y. GODFREY DATE : 11/2021
CHECKED BY : S. WANCE DATE : 03/2022

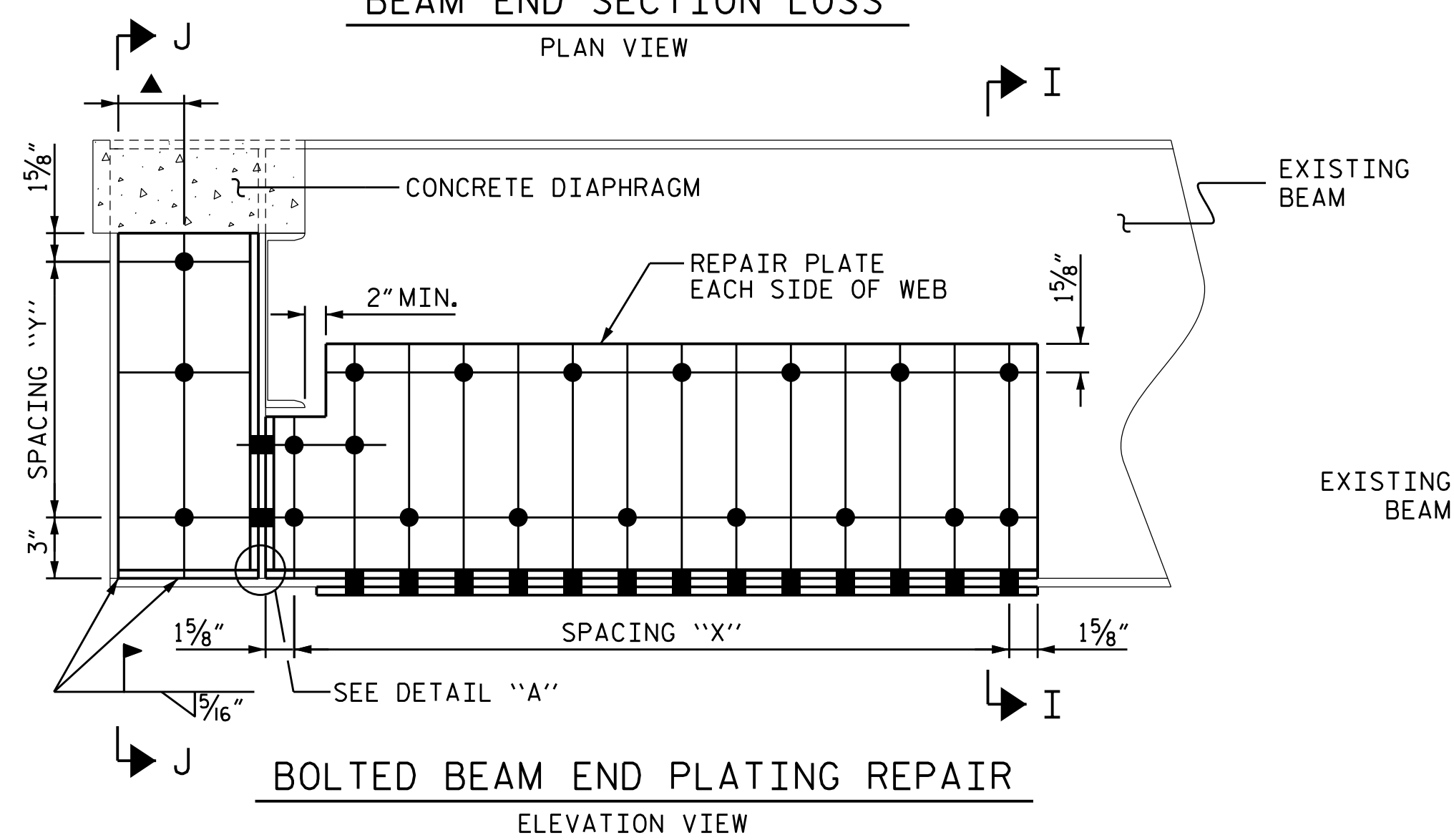
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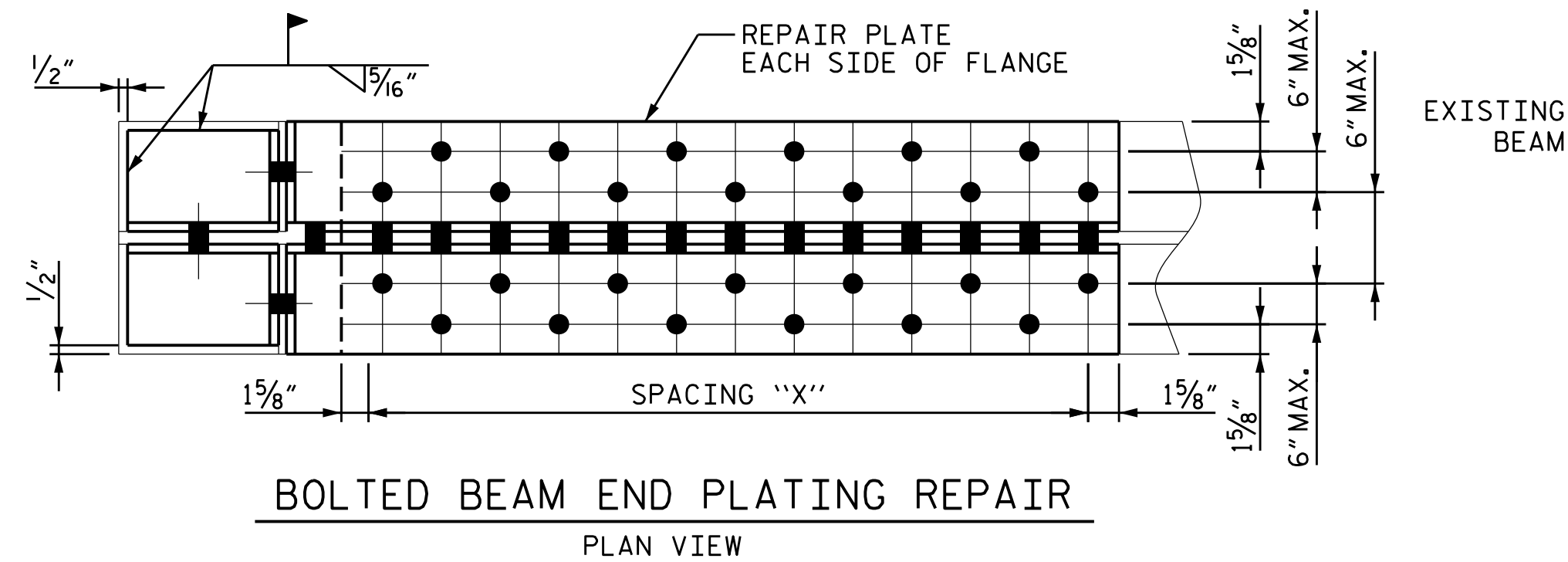
BEAM END SECTION LOSS
ELEVATION VIEW



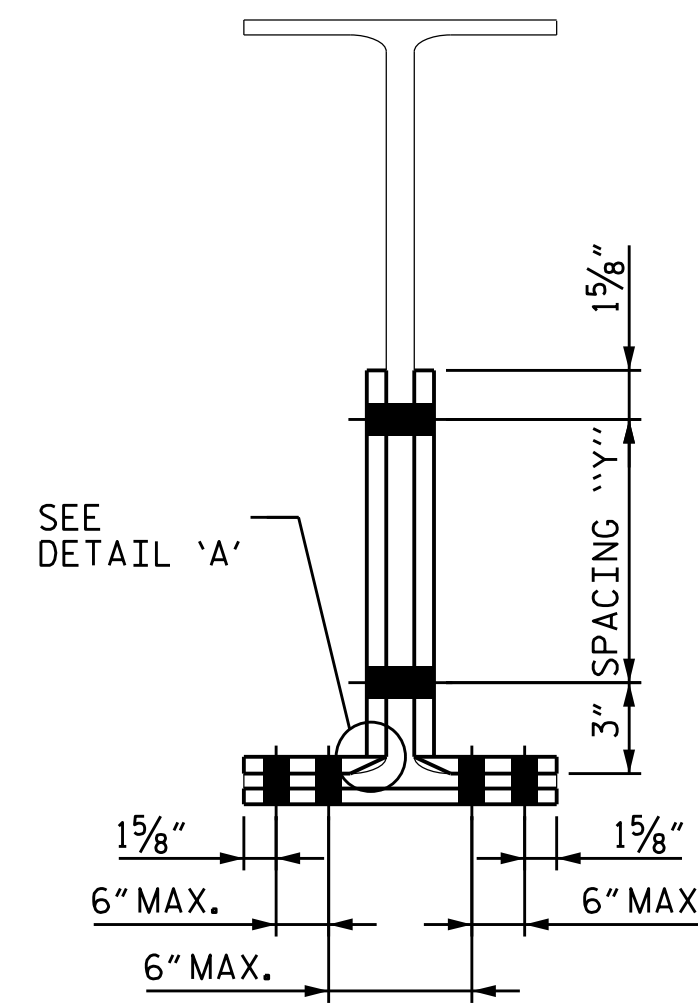
BEAM END SECTION LOSS
PLAN VIEW



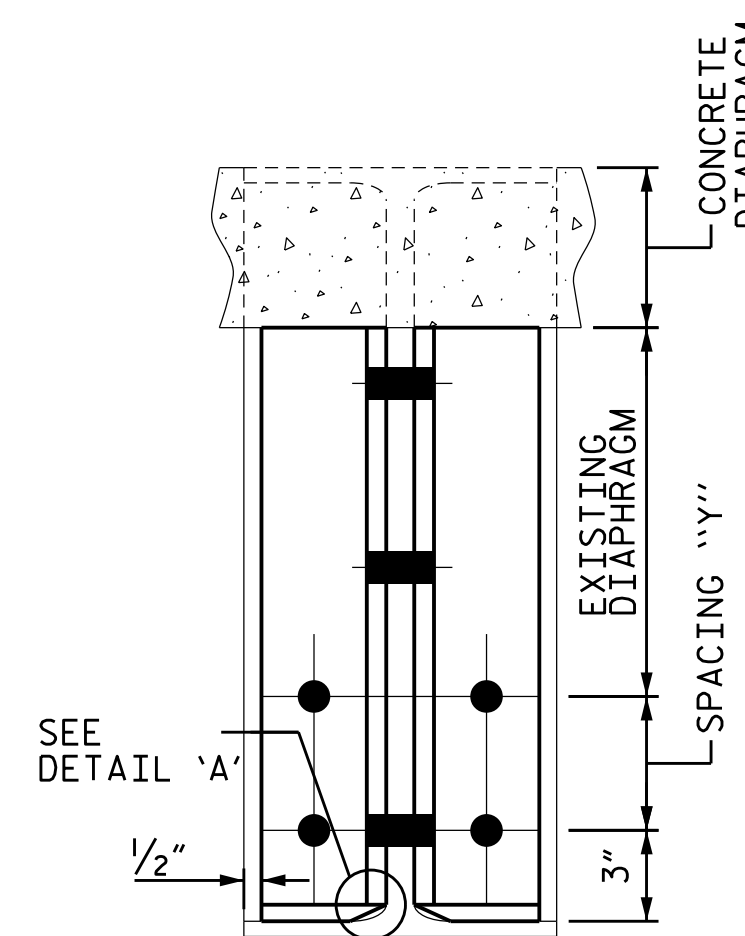
BOLTED BEAM END PLATING REPAIR
ELEVATION VIEW



BOLTED BEAM END PLATING REPAIR
PLAN VIEW



SECTION I-I



SECTION J-J

BOLTS TO BE CENTERED VERTICALLY FROM BEARING STIFFENER TO END OF BEAM. IF THIS DISTANCE IS >8", TWO (2) COLUMNS OF BOLTS ARE REQUIRED.

THE ANGLE BETWEEN THE PLATES SHALL BE SET, SO THAT THE PLATES ARE FLUSH AGAINST THE BEAM WEB AND BOTTOM FLANGE

CHAMFER NEW PLATE AS SHOWN WHERE REQUIRED TO CLEAR EXISTING FILLET SO THAT EDGES OF NEW PLATE SIT FLUSH AGAINST THE EXISTING STEEL

DETAIL 'A'

BOLTED BEAM PLATING REPAIR NOTES

ALL CONDITIONS AND DIMENSIONS SHALL BE FIELD VERIFIED PRIOR TO FABRICATION OR INSTALLATION OF ANY COMPONENTS.

THE CONTRACTOR SHALL SUBMIT WORKING DRAWINGS TO THE ENGINEER FOR APPROVAL PRIOR TO FABRICATING STRUCTURAL STEEL ITEMS. FOR WORKING DRAWING SUBMITTALS, SEE SPECIAL PROVISIONS.

REPAIR PLATES SHALL BE MINIMUM 36 KSI STEEL AND MATCH THE EXISTING STEEL TYPE.

FOR BEAMS WITH AN EXISTING WEB THICKNESS OF 1/2" OR LESS, THE MINIMUM REPAIR PLATE THICKNESS SHALL BE 1/2". FOR BEAMS WITH AN EXISTING WEB THICKNESS GREATER THAN 1/2", THE MINIMUM REPAIR PLATE THICKNESS SHALL BE 3/4".

ALL BOLTS SHALL BE GALVANIZED ASTM A325 3/4" DIAMETER BOLTS. ALL BOLT HOLES SHALL BE 13/16" IN DIAMETER.

ALL NUTS SHALL BE GALVANIZED AND MEET ASTM A194.

TENSION ON THE BOLTS SHALL BE CALIBRATED USING DIRECT TENSION INDICATOR WASHERS (DTIS) IN ACCORDANCE WITH ARTICLE 440-8 OF THE NCDOT STANDARD SPECIFICATIONS. DTIS SHALL MEET ASTM F959.

MINIMUM BOLT SPACING IS 2.5". MAXIMUM BOLT SPACING IS 6" FOR "X" SPACING, 12" FOR "Y" SPACING. MINIMUM EDGE DISTANCE IS 1 5/8", UNLESS NOTED OTHERWISE.

THE EPOXY MASTIC USED FOR THIS WORK SHALL BE COMPATIBLE WITH THE PAINT SYSTEM USED AND SHALL BE APPROVED BY THE NCDOT MATERIALS AND TEST UNIT. THE EPOXY MASTIC WILL BE ACCEPTED ON THE BASIS OF THE MANUFACTURER'S WRITTEN CERTIFICATION THAT THE BATCH MEETS THEIR PRODUCT SPECIFICATION.

ONE FABRICATED SECTION SHALL BE PLACED, AS SHOWN, ON EACH SIDE OF THE BEAM WEB.

BOLT HEADS SHALL BE ON EXTERIOR FACE OF FASCIA BEAMS AND THE BOTTOM OF THE BOTTOM FLANGE.

ADDITIONAL BOLTS MAY BE REQUIRED AT PLATE CORNERS TO MAINTAIN EDGE DISTANCES.

ALL WELDING SHALL BE IN ACCORDANCE WITH CURRENT APPLICABLE AWS AND NCDOT STANDARD SPECIFICATIONS.

ALL WELDS SHALL BE INSPECTED AND TESTED BY THE NCDOT MATERIALS AND TEST UNIT IN ACCORDANCE WITH THE CURRENT AWS BRIDGE WELDING CODE AND STANDARD SPECIFICATIONS.

IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS, AFTER REPAIR, GRIND ALL WELDS FLUSH, AND THOROUGHLY CLEAN AREA TO REMOVE DEBRIS AND OILS FROM THE REPAIR PROCESS.

FOR CLEANING AND PAINTING, SEE SPECIAL PROVISIONS.

REPAIR SEQUENCE:

COORDINATE WITH MATERIALS AND TEST UNIT AT LEAST FOUR (4) DAYS PRIOR TO ANTICIPATED WORK.

REMOVE LIVE LOAD FROM REPAIR AREA BY EITHER CLOSING BRIDGE TO TRAFFIC OR SHIFTING TRAFFIC AWAY FROM REPAIR AREA.

IF NECESSARY, REMOVE EXISTING STIFFENER TO INSTALL BOLTED PLATE REPAIR, FOLLOWING SECTION 1072 OF THE STANDARD SPECIFICATIONS. REPLACE WITH A NEW STIFFENER PLATE OF SIMILAR SIZE.

IF BEAM DETERIORATION EXTENDS INTO THE CONCRETE DIAPHRAGM THEN CHIP AWAY CONCRETE TO DETERMINE THE EXTENT OF THE DAMAGE.

MECHANICALLY CLEAN RUST, SCALE, AND EXISTING PAINT TO AT LEAST 3" BEYOND REPAIR AREA.

PRIME ENTIRE REPAIR AREA AND REPAIR PLATES WITH AN ORGANIC ZINC PRIMER PRIOR TO BOLTING NEW PLATES.

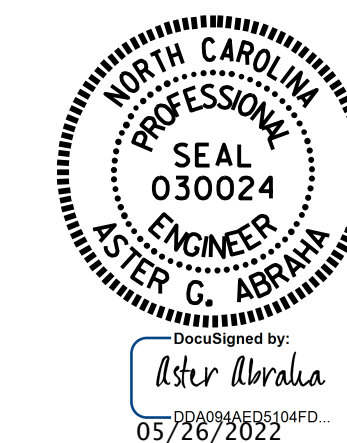
ALL AREAS OF SECTION LOSS AND PITTING SHALL BE FILLED WITH METAL EPOXY FILLER JUST PRIOR TO INSTALLING NEW REPAIR PLATES.

PRIOR TO PLACEMENT OF THE PLATES, APPLY WET EPOXY MASTIC AROUND THE TOP AND SIDES OF THE PLATE FACE THAT IS TO BE IN CONTACT WITH THE BEAM. AMOUNT OF EPOXY MASTIC SHALL BE SUFFICIENT TO SEAL THE PLATE INTERFACE AND THE BEAM AFTER BOLTS ARE TIGHTENED. NO EPOXY MASTIC SHALL BE PLACED ALONG THE BOTTOM EDGE OF THE PLATE. WHILE THE MASTIC IS STILL WET, PLATES SHALL BE PUT IN PLACE AND BOLTS PROPERLY TIGHTENED.

AFTER BEAMS ARE REPAIRED AND PAINTED, ANY CONCRETE REMOVED FROM THE BENT DIAPHRAGMS SHALL BE RECAST. ANY REINFORCING STEEL CUT DURING THE REPAIR PROCESS SHALL BE SPLICED WITH A SIMILAR SIZE BAR WITH AT LEAST A ONE FOOT SPLICE TO THE EXISTING STEEL. NO SEPARATE PAYMENT SHALL BE MADE FOR CONCRETE AND REINFORCING STEEL AS THIS IS CONSIDERED INCIDENTAL TO THE PAY ITEM "BEAM REPAIR". FOR BEAM REPAIR, SEE SPECIAL PROVISIONS.

REMOVE ALL TRAFFIC CONTROL DEVICES.

PROJECT NO. 15BPR.47
NASH COUNTY
 BRIDGE NO. 630039

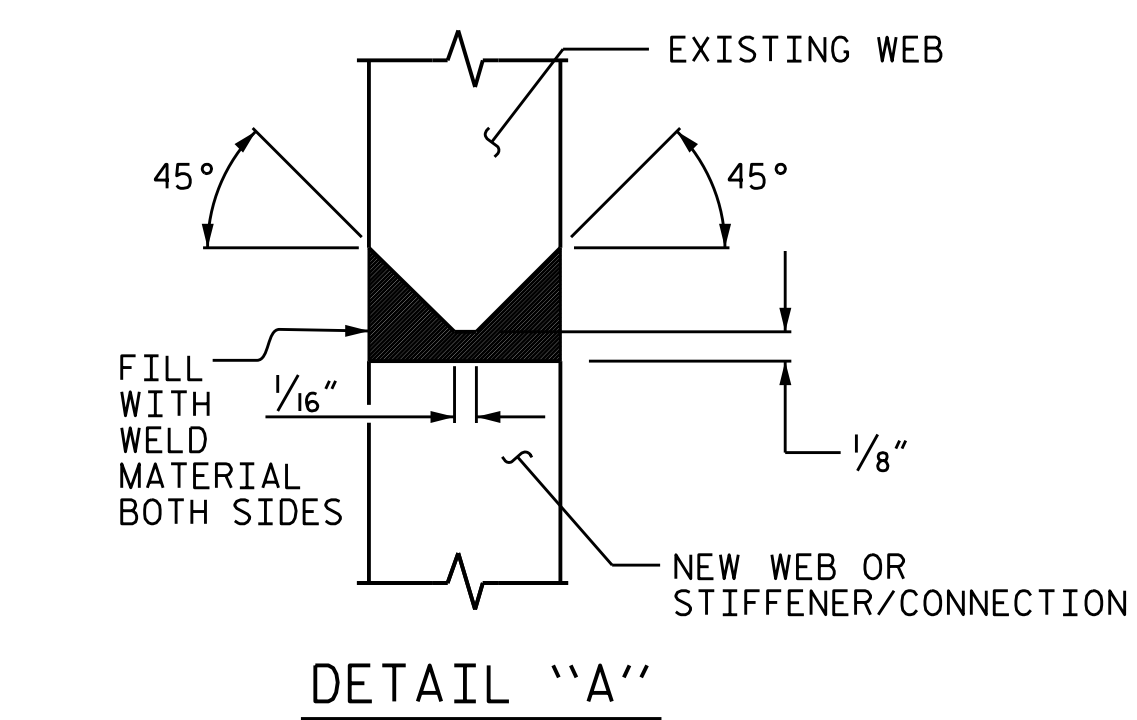
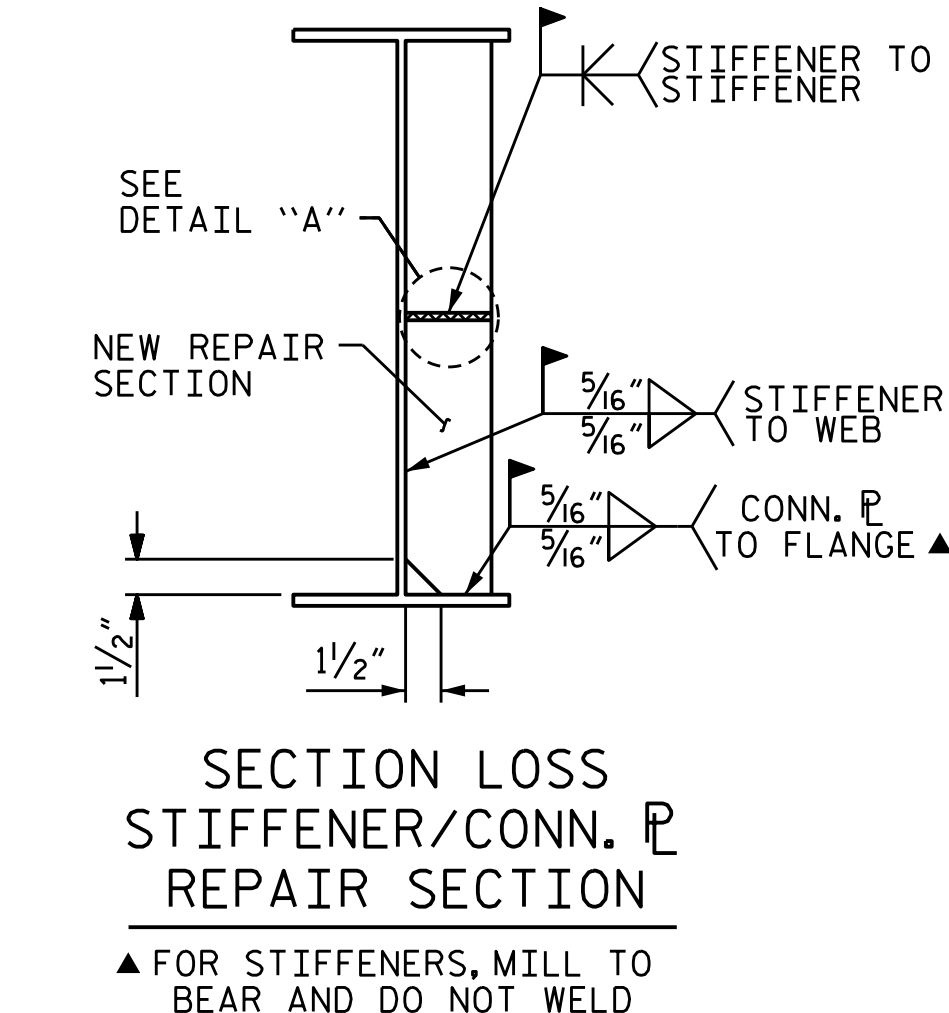
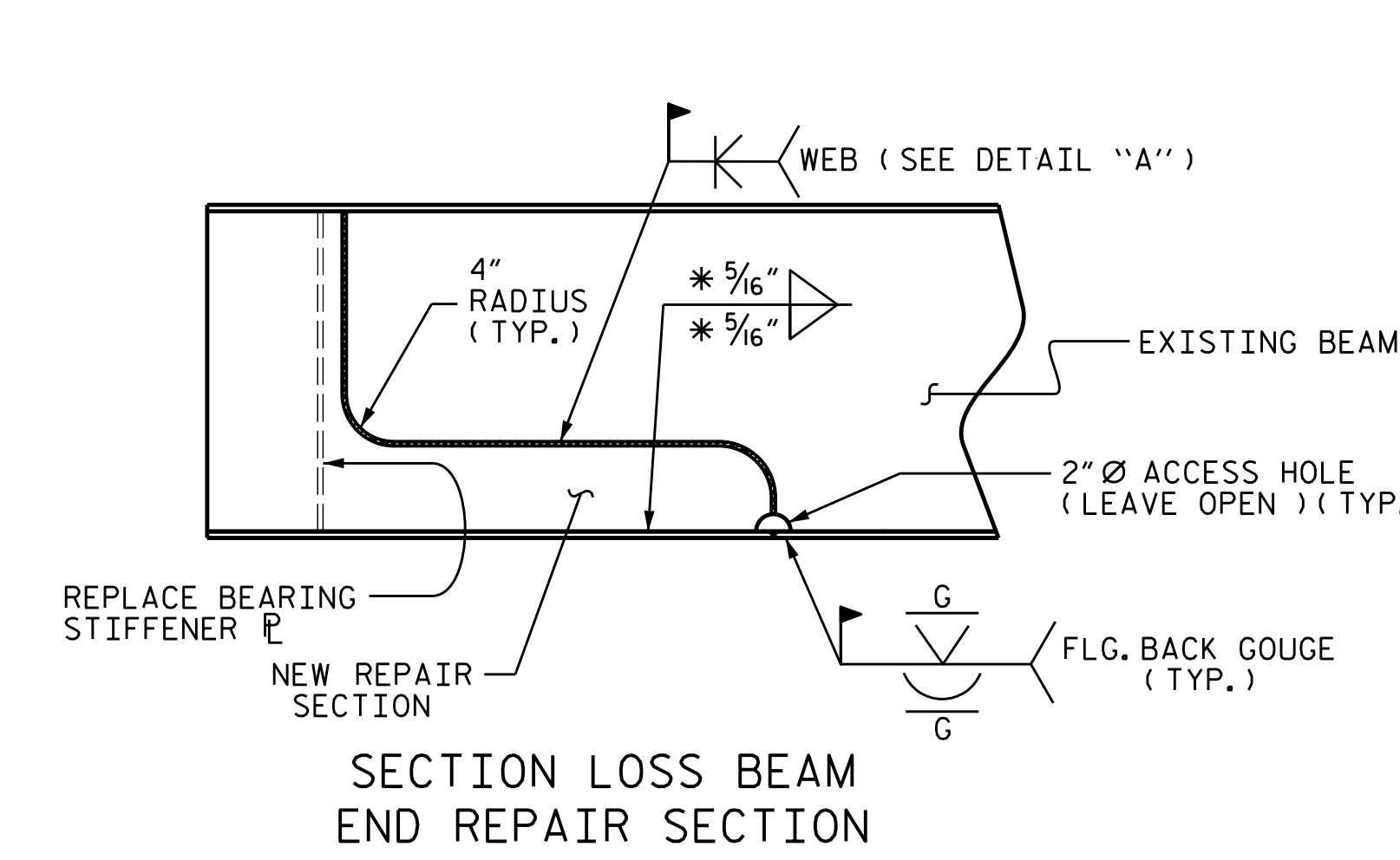
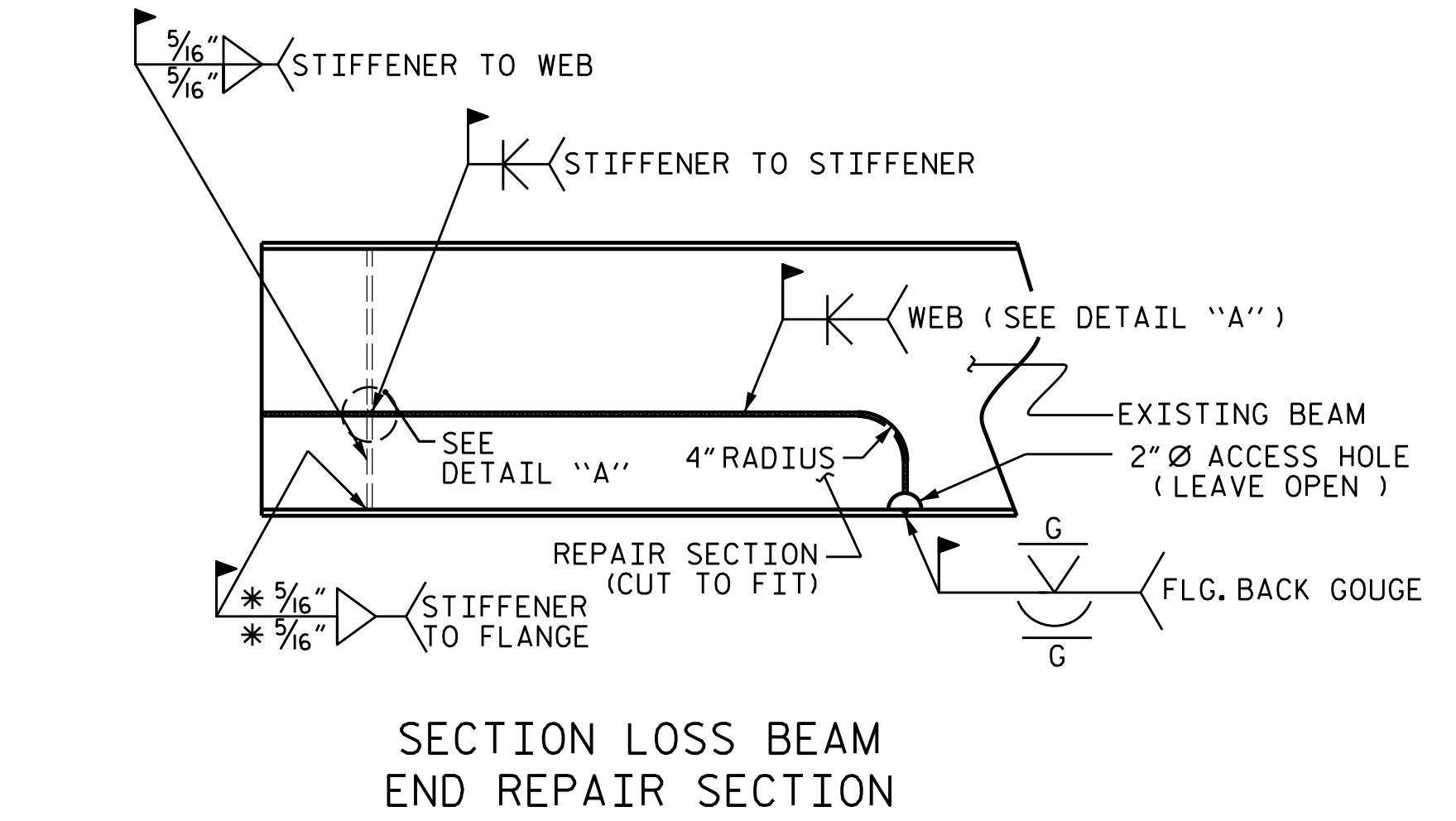
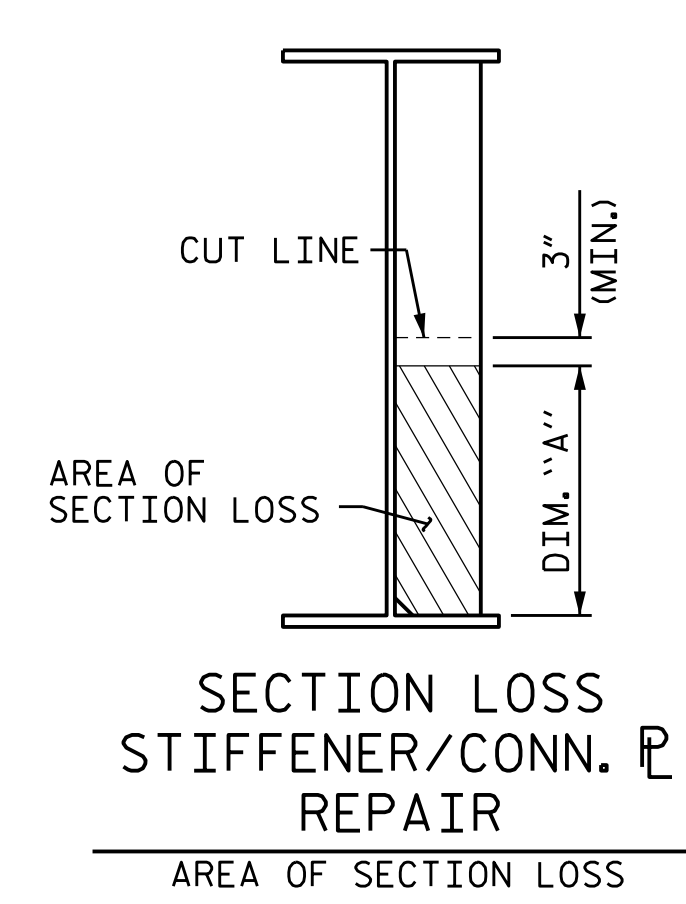
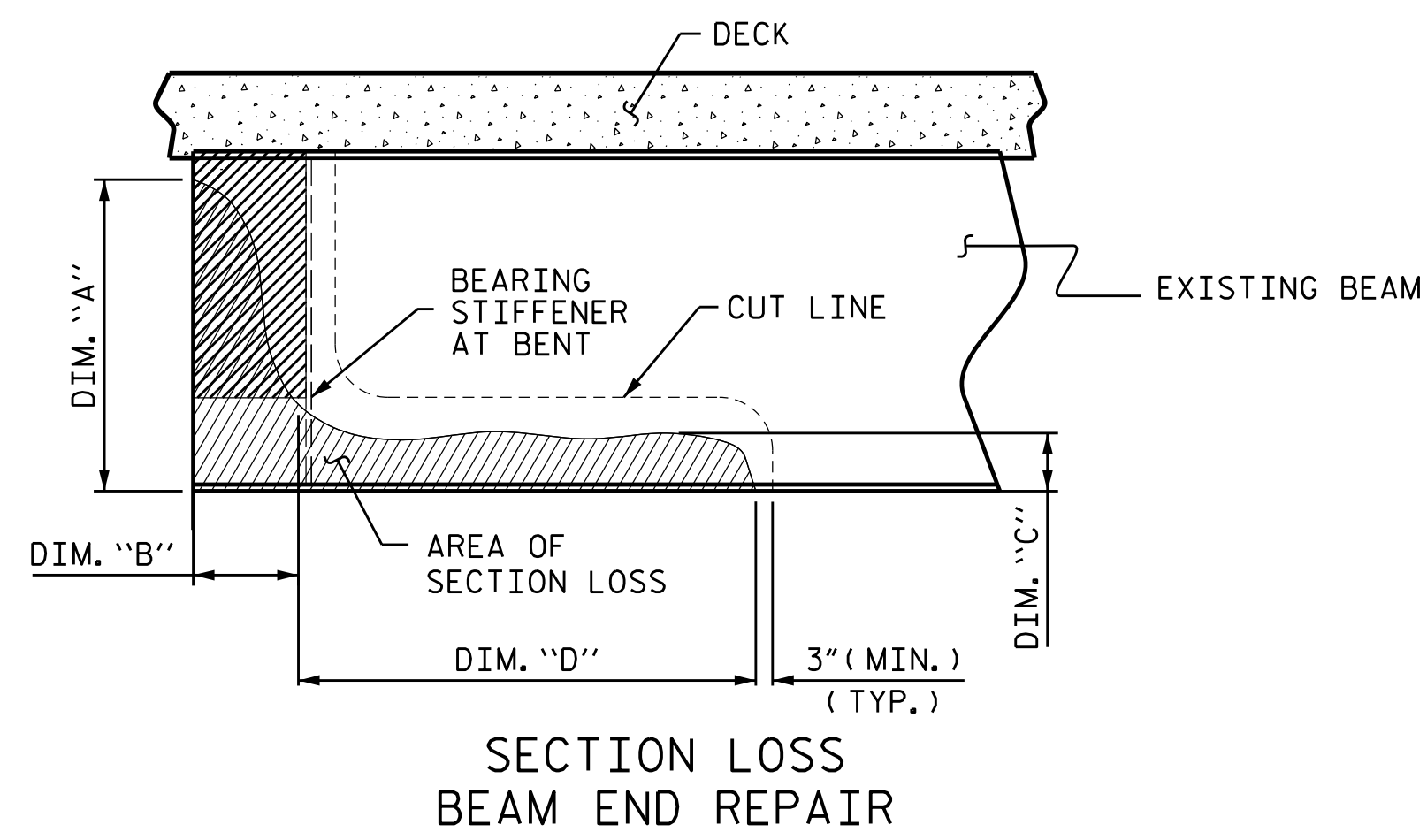
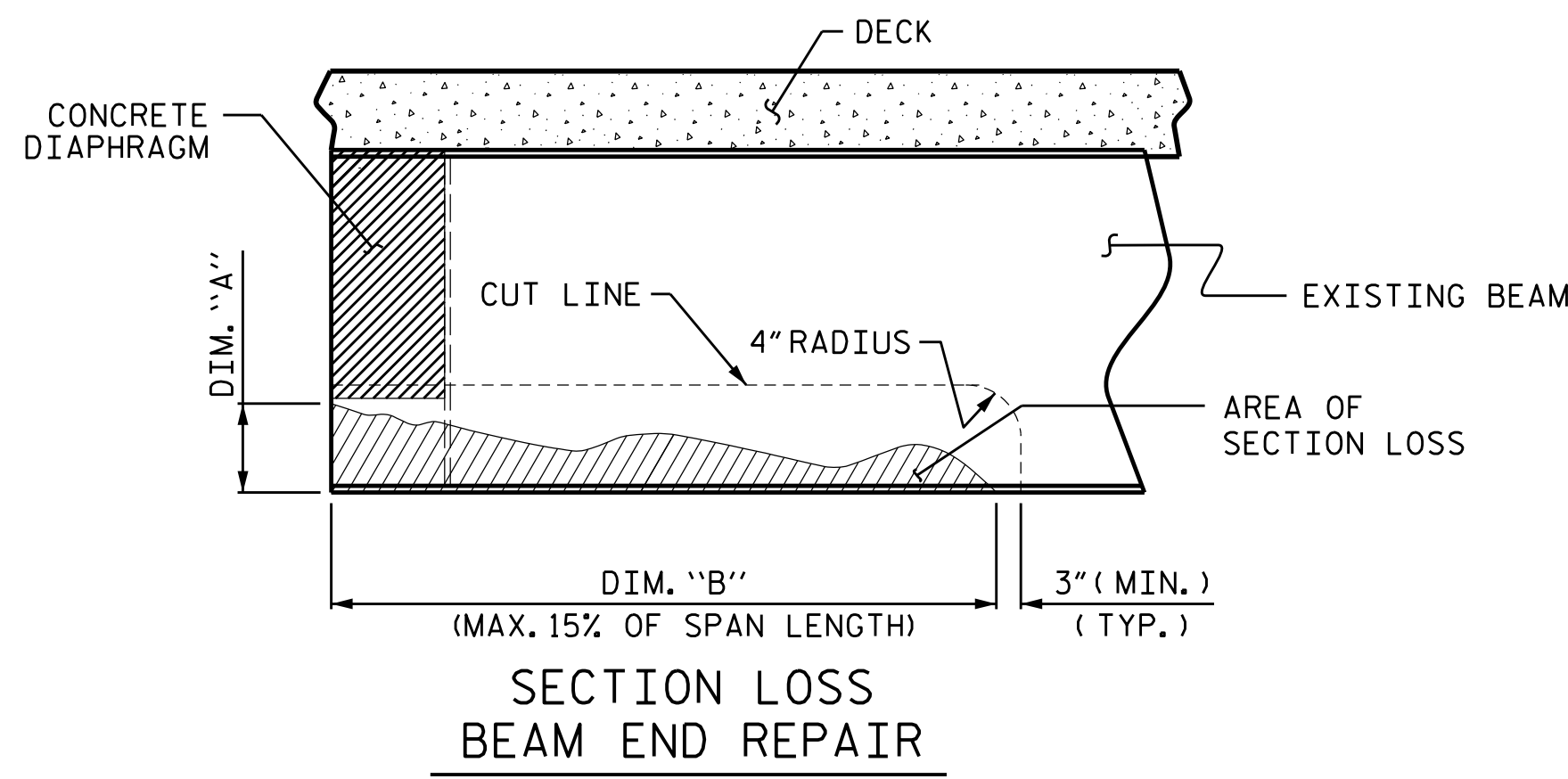


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 BOLTED BEAM PLATING
 REPAIR DETAILS

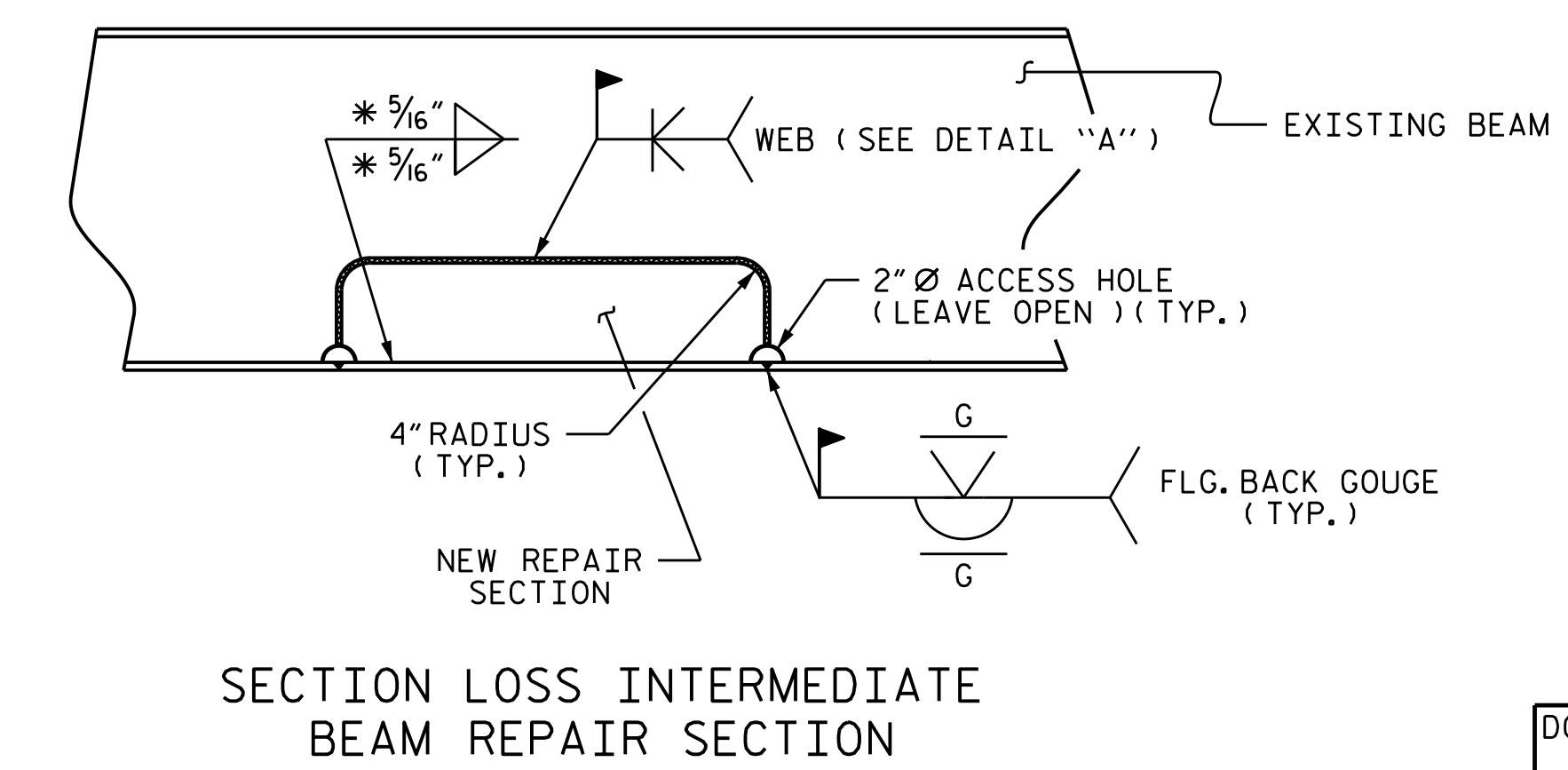
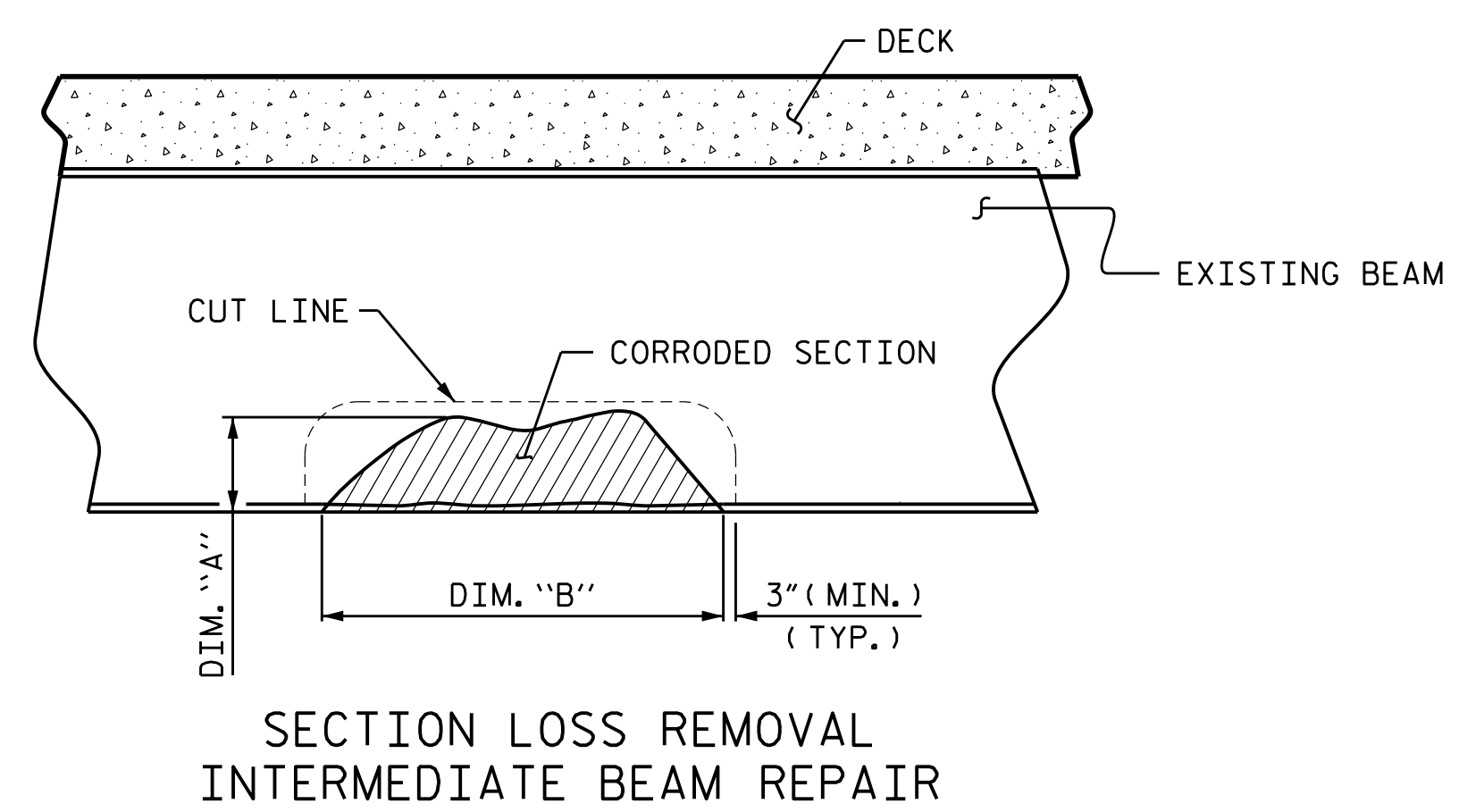
ASSEMBLED BY : A. Y. GODFREY DATE : 11/2021
 CHECKED BY : S. WANCE DATE : 03/2022
 DRAWN BY : DAC 08/18
 CHECKED BY :

DOCUMENT NOT CONSIDERED
 FINAL UNLESS ALL
 SIGNATURES COMPLETED

| REVISIONS | | | | | | SHEET NO. S3-29 |
|-----------|-----|-------|-----|-----|-------|--------------------|
| NO. | BY: | DATE: | NO. | BY: | DATE: | |
| 1 | | | 3 | | | TOTAL SHEETS 33 |
| 2 | | | 4 | | | |



* NOT NEEDED IF REPAIRED SECTION IS CUT FROM A ROLLED BEAM



NOTES

AFTER THE STRUCTURAL STEEL HAS BEEN BLASTED AND PRIMED, THE STRUCTURAL STEEL AND BEARING SHALL BE INSPECTED FOR EXCESSIVE SECTION LOSS. AREAS THAT EXHIBIT AN EXCESS OF 35% SECTION LOSS SHALL BE REVIEWED BY THE ENGINEER TO DETERMINE IF AREA OF SECTION LOSS SHOULD BE REPAIRED.

AS DETERMINED BY THE ENGINEER, AREAS WITH EXCESSIVE SECTION LOSS OR AREAS WITH TEMPORARY REPAIRS SHALL BE REMOVED AND THE BEAMS SHALL BE REPAIRED AS INDICATED ON THIS PLAN SHEET. CONTRACTOR AND ENGINEER TO DETERMINE ACTUAL DIMENSIONS OF AREA TO BE REMOVED AND REPLACED. REMOVE CONCRETE BENT DIAPHRAGMS AS NEEDED TO EVALUATE LIMITS OF REPAIR.

AREAS WITH EXCESSIVE SECTION LOSS, IN ADDITION TO THOSE INDICATED ON PLAN SHEETS, MIGHT BE ENCOUNTERED, THE CONTRACTOR SHALL HAVE ADDITIONAL REPAIR MATERIALS ON HAND OR READILY AVAILABLE, SO ADDITIONAL AREAS OF EXCESSIVE SECTION LOSS MAY BE REPAIRED IN A TIMELY MANNER.

PAYMENT FOR THE SECTION REPAIR SHALL BE BASED ON THAT AMOUNT OF REPAIR ACTUALLY PERFORMED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER.

PROVIDE RUN-OFF WELD TABS, WHERE APPLICABLE, TO PROVIDE PROPER WELD START AND TERMINATION. SEE NCDOT M&T FIELD WELD MANUAL AND AWS D1.5 SECTION 3.12.

GOUGES AND INDENTIONS FROM IMPACT ON GIRDERS SHALL BE GROUND SMOOTH PRIOR TO BLASTING AND PAINTING OPERATION.

- ROLLED BEAM END REPAIR SEQUENCE**
1. REMOVE LIVE LOAD FROM REPAIR AREA BY EITHER CLOSING BRIDGE TO TRAFFIC OR SHIFTING TRAFFIC AWAY FROM REPAIR AREA.
 2. REMOVE DEAD LOAD FROM BEAM BY JACKING AND BLOCKING. CONTRACTOR SHALL SUBMIT JACKING PLAN FOR APPROVAL, PRIOR TO BEGINNING WORK. FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS.
 3. STEEL DIAPHRAGM CHANNELS AND/OR STIFFENERS MAY BE TEMPORARILY REMOVED, IF NECESSARY, AND REPLACED AFTER BEAM REPAIR.
 4. IF BEAM DETERIORATION EXTENDS INTO THE CONCRETE DIAPHRAGM THEN CHIP AWAY CONCRETE TO DETERMINE THE EXTENT OF THE DAMAGE, CUT OUT BY APPROPRIATE MEANS THE DAMAGED BEAM AREA AND/OR BEARING STIFFENER.
 5. MECHANICALLY CLEAN RUST, SCALE, AND EXISTING PAINT TO AT LEAST 3" BEYOND REPAIR AREA.
 6. INSTALL NEW CUT-TO-FIT SECTION. REPLACEMENT CUT-TO-FIT BEAM SECTION SHALL BE NEW AND FROM SIMILAR SIZE ROLLED BEAM OR APPROVED EQUIVALENT PLATES. THE GRADE OF STEEL SHALL BE AASHTO M270, GRADE 36 OR BETTER, FULLY WELD ALONG NEW BEAM SECTION AS SHOWN.
 7. ALL WELDING SHALL BE IN ACCORDANCE WITH CURRENT APPLICABLE AWS AND NCDOT STANDARD SPECIFICATIONS.
 8. ALL WELDS WILL BE INSPECTED AND TESTED BY THE NCDOT MATERIALS AND TEST UNIT IN ACCORDANCE WITH THE CURRENT AWS BRIDGE WELDING CODE AND STANDARD SPECIFICATIONS.
 9. IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS, AFTER REPAIR, GRIND ALL WELDS FLUSH, THOROUGHLY CLEAN AREA TO REMOVE DEBRIS AND OILS FROM REPAIR PROCESS.
 10. CLEANING AND PAINTING OF REPAIRED STRUCTURAL STEEL SHALL BE PERFORMED AS PART OF THE OVERALL CLEANING AND PAINTING CONTRACT.
 11. FOR CLEANING AND PAINTING, SEE PAINTING EXISTING STRUCTURE SPECIAL PROVISIONS.
 12. AFTER GIRDERS ARE REPAIRED AND PAINTED, ANY CONCRETE REMOVED FROM THE BENT DIAPHRAGMS SHALL BE CAST BACK. ANY REINFORCING STEEL CUT DURING THE REMOVAL PROCESS SHALL BE SPLICED WITH A SIMILAR SIZE BAR WITH AT LEAST A ONE FOOT SPLICE TO THE EXISTING STEEL. NO SEPARATE PAYMENT SHALL BE MADE FOR CONCRETE AND REINFORCING STEEL AS THIS IS CONSIDERED INCIDENTAL TO THE PAY ITEM "BEAM REPAIR". FOR BEAM REPAIR, SEE SPECIAL PROVISIONS.
 13. LOWER SPAN TO BEAR; CHECK FOR DISTRESS.
 14. IF ORIGINAL WELD BETWEEN BOTTOM OF FLANGE AND EXISTING BEARING PLATE WAS CUT, THEN WELD BOTTOM FLANGE OF NEW CUT OUT REPAIR TO EXISTING BEARING PLATES USING 1/4" WELD. IF NECESSARY, USE STEEL KEEPER ANGLE ASSEMBLY TO SECURE BEAM CUT OUT REPAIR TO CAP. SEE "STEEL KEEPER ANGLE ASSEMBLY DETAILS".
 15. REMOVE JACKING EQUIPMENT AND TEMPORARY SUPPORTS.
 16. REMOVE ALL TRAFFIC CONTROL DEVICES.

PROJECT NO. 15BPR.47
 NASH COUNTY
 BRIDGE NO. 630039



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| STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH | | | | | |
| BEAM END AND INTERMEDIATE REPAIR DETAILS | | | | | |
| REVISIONS | | | | | |
| NO. | BY: | DATE: | NO. | BY: | DATE: |
| 1 | | | 3 | | |
| 2 | | | 4 | | |
| SHEET NO. S3-30 | | | | | TOTAL SHEETS 33 |

DRAWN BY : A. Y. GODFREY DATE : 01/2022
 CHECKED BY : S. WANCE DATE : 03/2022

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

BRIDGE JACKING NOTES:

THIS DETAIL IS A GENERIC EXAMPLE OF A JACKING SCHEME AND DOES NOT NECESSARILY REPRESENT SPECIFIC CONDITIONS AT A PARTICULAR BRIDGE. ACTUAL BRIDGE GEOMETRIES, DIMENSIONS, AND CONDITIONS MAY DIFFER FROM THIS DETAIL. PRIOR TO BEGINNING WORK, THE CONTRACTOR SHALL INVESTIGATE THE BRIDGES ON THE PROJECT AND DEVELOP A JACKING PLAN TO BE SUBMITTED FOR REVIEW AND APPROVAL. SEE BRIDGE JACKING SPECIAL PROVISION.

PRIOR TO BRIDGE JACKING OPERATIONS, THE ENGINEER AND CONTRACTOR SHALL INSPECT THE STRUCTURE FOR ANY NOTABLE DEFECTS TO THE PRIMARY AND SECONDARY STRUCTURAL MEMBERS. ALL NOTABLE DEFECTS SHALL BE DOCUMENTED AND REPORTED TO THE AREA BRIDGE MAINTENANCE ENGINEER PRIOR TO COMMENCEMENT OF ANY BRIDGE JACKING. THE CONTRACTOR SHALL PROVIDE SAFE AND SUFFICIENT ACCESS TO ALL STRUCTURAL MEMBERS FOR THE ENGINEER TO ESTABLISH PROPER DOCUMENTATION.

PRIOR TO JACKING, THE CONTRACTOR SHALL ENSURE THERE ARE NO OBSTACLES PREVENTING THE BEAM FROM BEING LIFTED.

THE BEAM SHALL BE LIFTED ENOUGH THAT THE BEAM CLEARS THE BEARINGS AND ALL LOAD IS SUPPORTED BY THE JACKS. AFTER JACKING IS COMPLETE, THE CONTRACTOR SHALL PROVIDE FOR A METHOD TO REMOVE THE JACKS AND SUPPORT THE BEAM FOR DEAD AND LIVE LOAD DURING THE REPAIR OPERATIONS. IF THE JACKS REMAIN IN PLACE DURING THE ENTIRE JACKING AND REPAIR OPERATION, THEY SHALL HAVE MECHANICAL LOCK OFF CAPABILITIES.

IF, DURING THE JACKING PROCESS, OR WHILE THE BEAM IS BEING SUPPORTED, THE BEAM SHIFTS FROM ITS ORIGINAL POSITION, ALL WORK SHALL CEASE AND THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY.

BEARINGS ADJACENT TO THE BEAM BEING JACKED MAY BE LOOSENED TO DECREASE THE RESISTANCE OF THE DECK SLAB DURING JACKING. ALL BEARINGS LOOSENED SHALL BE TIGHTENED BACK AFTER REPAIR OPERATIONS ARE COMPLETED AND THE JACKS AND BLOCKING HAVE BEEN REMOVED.

THE MAXIMUM DIFFERENTIAL BETWEEN ADJACENT BEAMS THAT ARE BEING JACKED IS $1/8"$.

LOADS PROVIDED IN THE "BRIDGE JACKING TABLE" ARE SHOWN FOR INFORMATIONAL PURPOSES ONLY. THE CONTRACTOR'S ENGINEER SHALL DETERMINE THE EXPECTED LOADS TO BE LIFTED DURING THE BRIDGE JACKING OPERATIONS.

THE CONTRACTOR SHALL SUBMIT WORKING DRAWINGS AND CALCULATIONS OF THE JACKING PROCEDURE(S) SEALED BY A PROFESSIONAL ENGINEER IN THE STATE OF NORTH CAROLINA TO THE ENGINEER FOR APPROVAL PRIOR TO BRIDGE JACKING OPERATIONS.

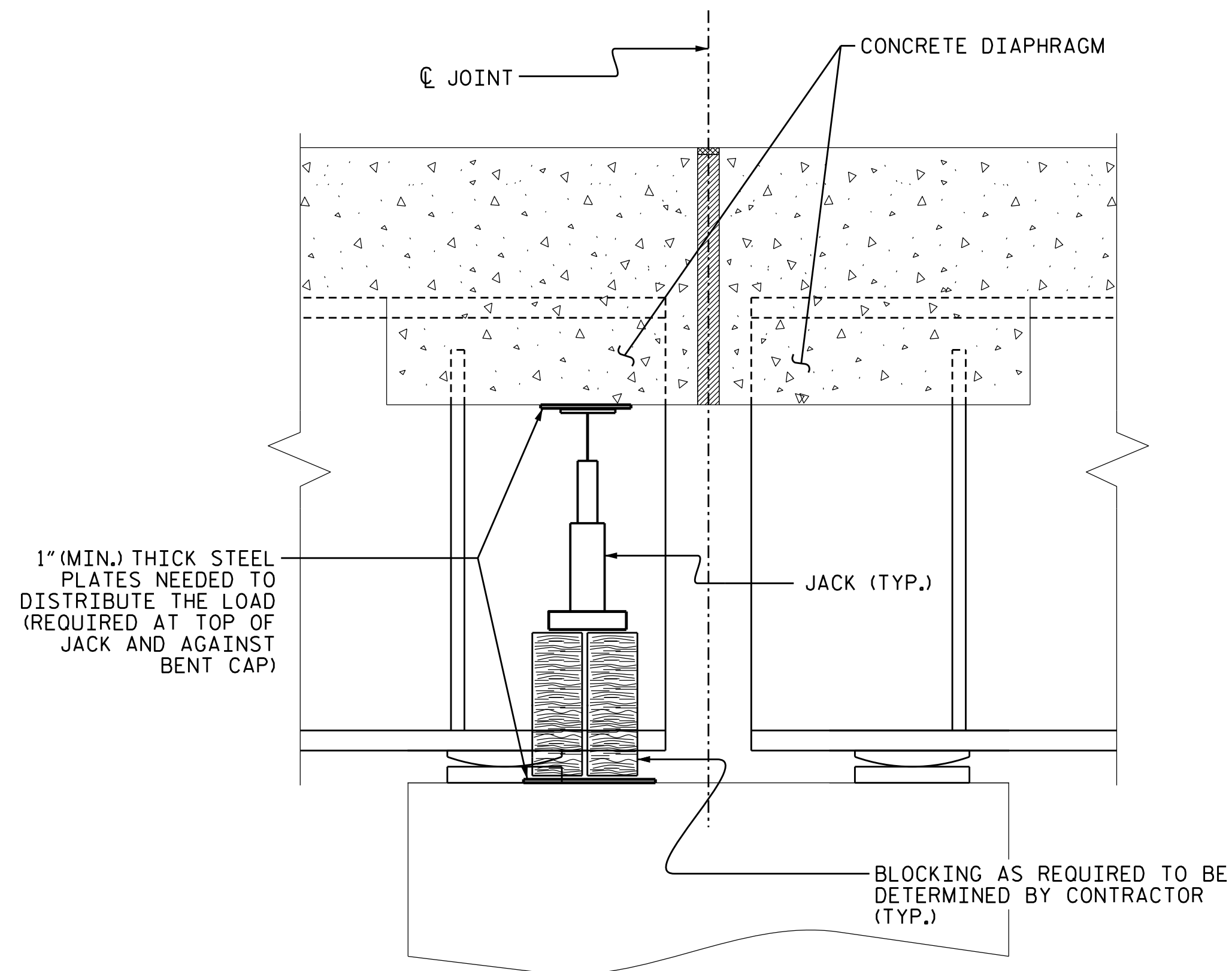
FOR TYPE I OR TYPE II BRIDGE JACKING, SEE SPECIAL PROVISIONS.

FOR WORKING DRAWING SUBMITTALS, SEE SPECIAL PROVISIONS.

ANY STEEL THAT HAS BEEN WELDED TO THE EXISTING STRUCTURE SHALL REMAIN IN PLACE.

TYPE II BRIDGE JACKING SHALL BE DONE WITH A HYDRULIC JACKING SYSTEM THAT LIFTS EACH BEAM ALONG ENTIRE SPAN END WITH EQUAL FORCE AND AT AN EQUAL RATE.

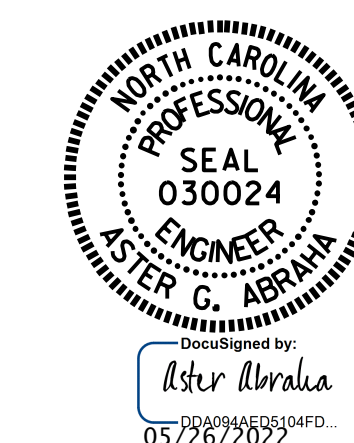
THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING ANY DAMAGE CAUSED TO THE EXISTING STRUCTURE BY BRIDGE JACKING OPERATIONS AT NO ADDITIONAL COST TO THE DEPARTMENT.



SECTION THRU DIAPHRAGM

| BRIDGE JACKING TABLE | | | |
|-----------------------------|------|---------|---------------------|
| LOCATION | SPAN | BEAM(S) | BRIDGE JACKING TYPE |
| BENT 4 | E | 1 | TYPE I |
| | | | |

PROJ. NO. 15BPR.47
NASH COUNTY
 BRIDGE NO. 630039



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STANDARD

**BRIDGE JACKING
 DETAILS**

ASSEMBLED BY : A.Y. GODFREY DATE : 01/2022
 CHECKED BY : S. WANCE DATE : 03/2022
 DRAWN BY : NAP 08/18
 CHECKED BY :

5/26/2022
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| NO. | BY: | DATE: | NO. | BY: | DATE: | S3-31 |
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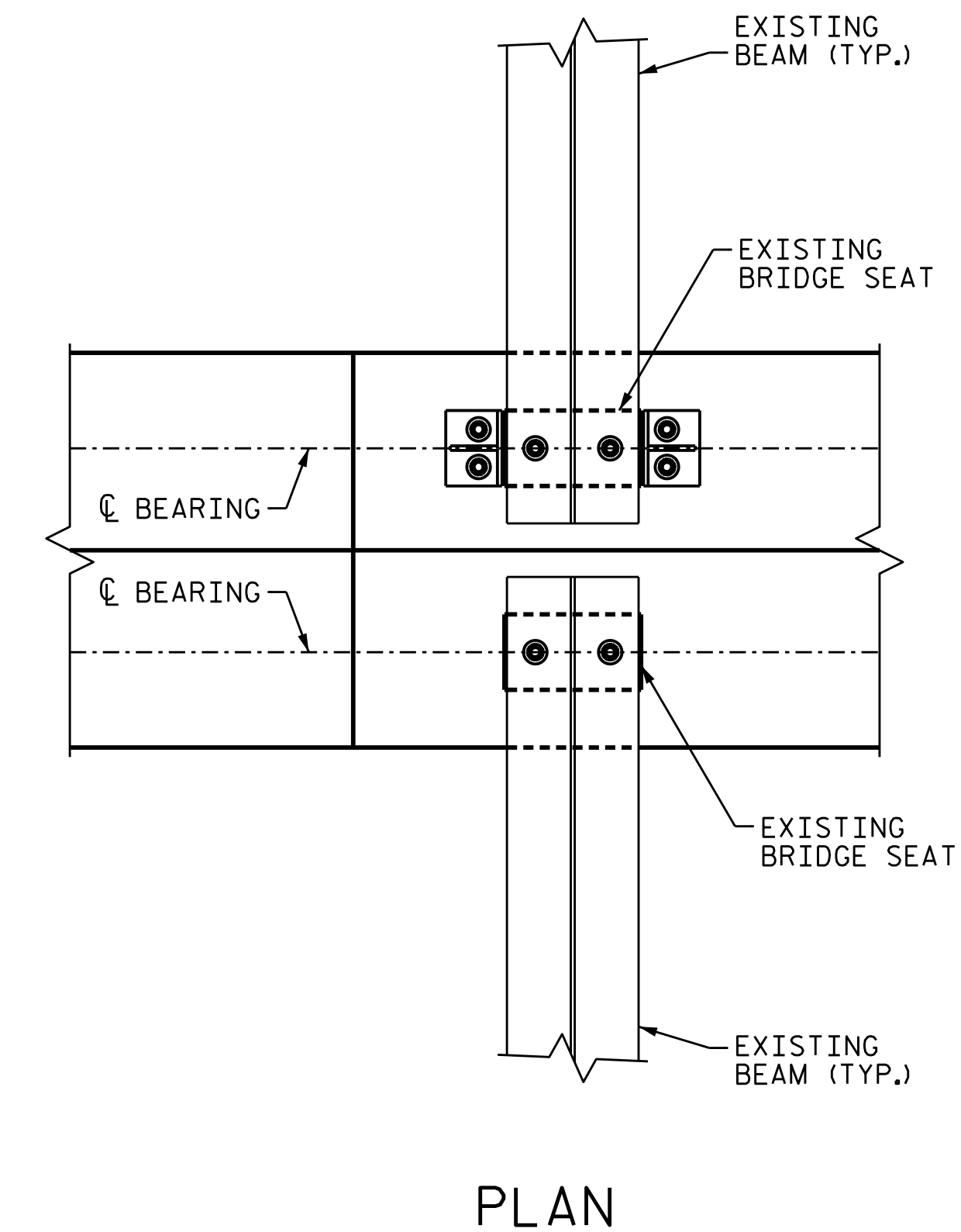
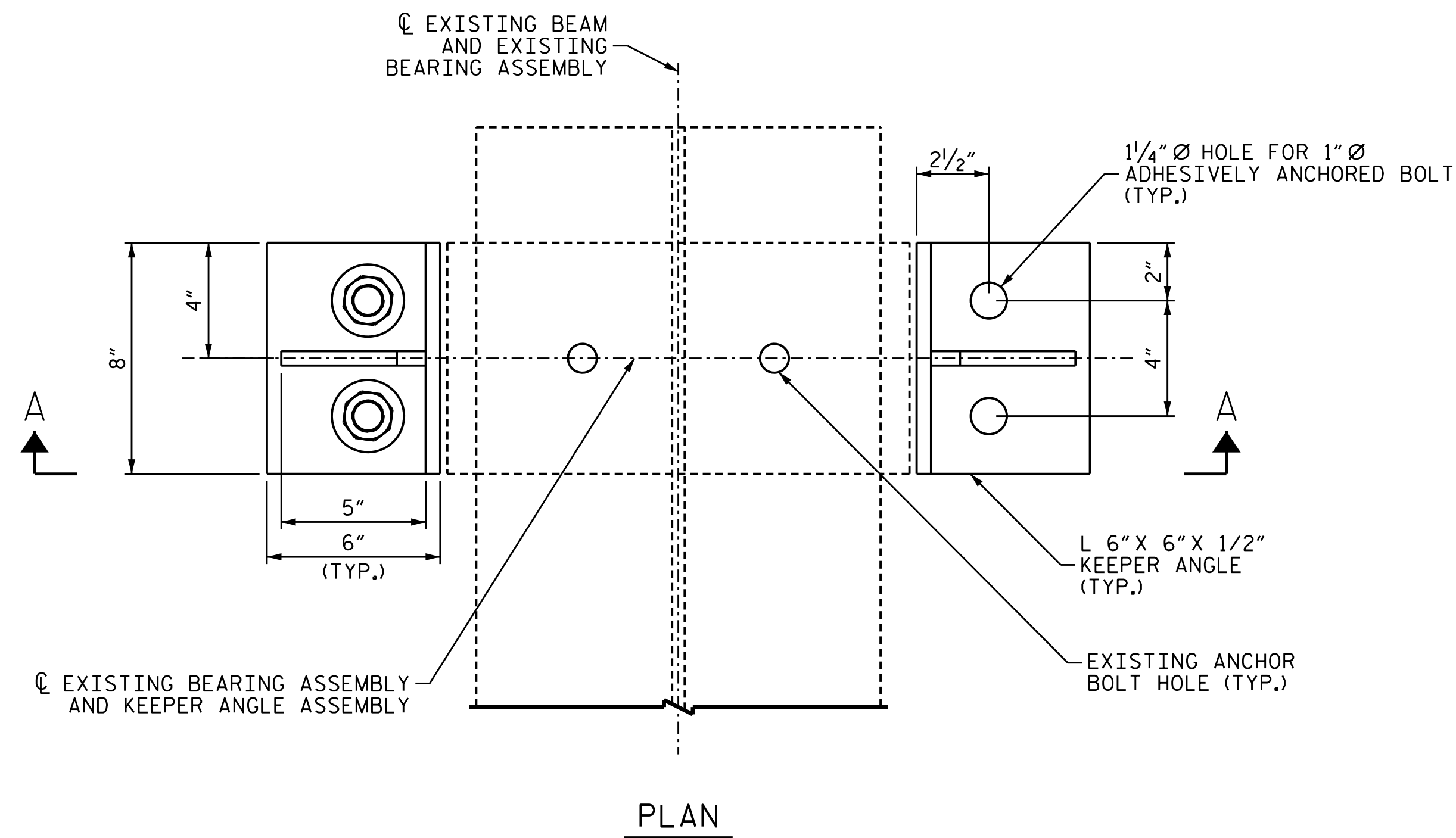
NOTES

STRUCTURAL STEEL SHALL BE AASHTO GRADE 36 OR GREATER.

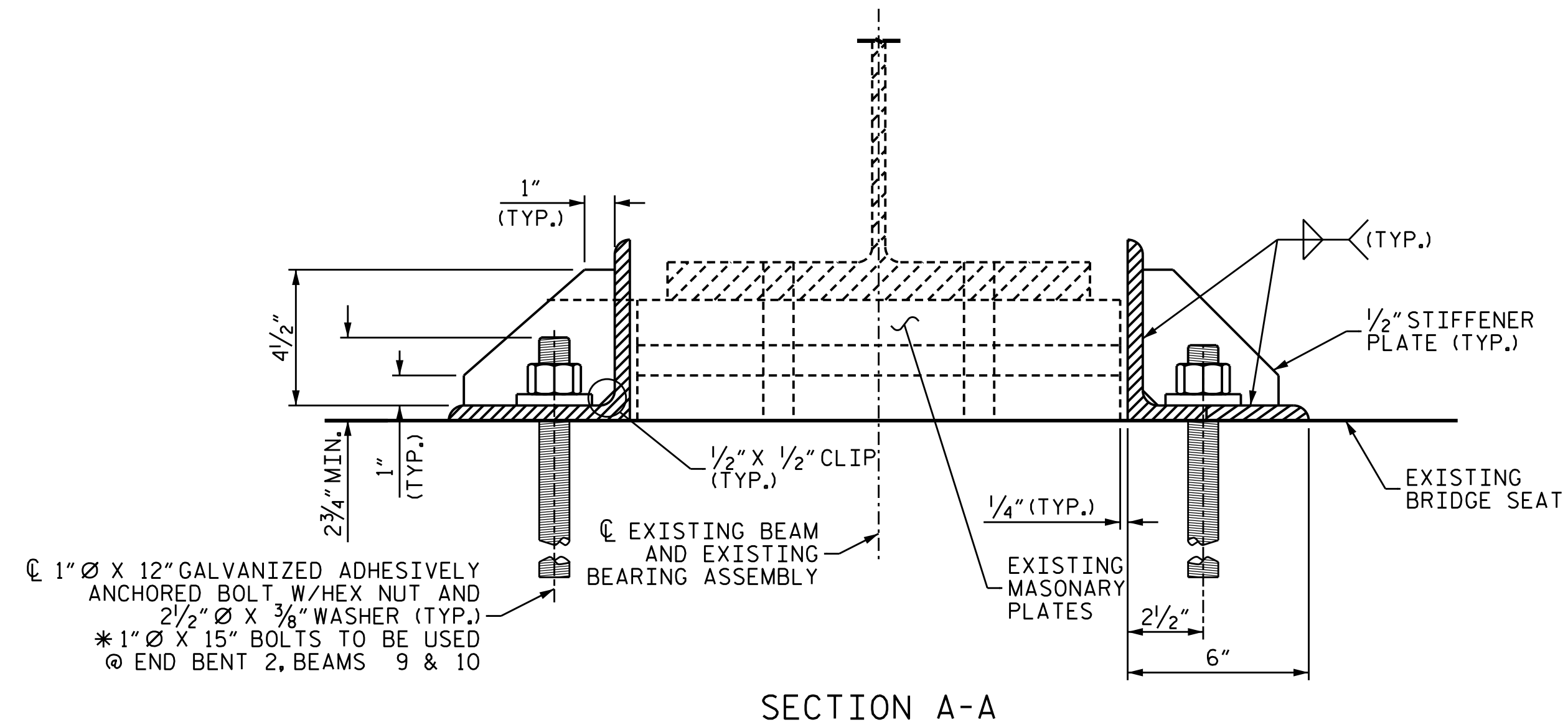
STRUCTURAL STEEL, ANCHOR BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

ANCHOR BOLTS SHALL MEET THE REQUIREMENTS OF ASTM A449. NUTS SHALL MEET THE REQUIREMENTS OF AASHTO M291-DH OR AASHTO M292-2H. WASHERS SHALL MEET THE REQUIREMENTS OF AASHTO M293. SHOP DRAWINGS ARE NOT REQUIRED FOR ANCHOR BOLTS, NUTS AND WASHERS. SHOP INSPECTION IS REQUIRED.

ANCHOR BOLTS MAY BE ADHESIVELY ANCHORED, SEE STANDARD SPECIFICATIONS. NO FIELD TESTING REQUIRED.



USE KEEPER ANGLE IF NECESSARY, SHOWN AT BENT 4 BEAM 2 SPAN E.



C 1" O X 12" GALVANIZED ADHESIVELY ANCHORED BOLT W/HEX NUT AND 2 1/2" O X 3/8" WASHER (TYP.)
* 1" O X 15" BOLTS TO BE USED @ END BENT 2, BEAMS 9 & 10

STEEL KEEPER ANGLE ASSEMBLY DETAILS

PROJECT NO. 15BPR.47
NASH COUNTY
 BRIDGE NO. 630039



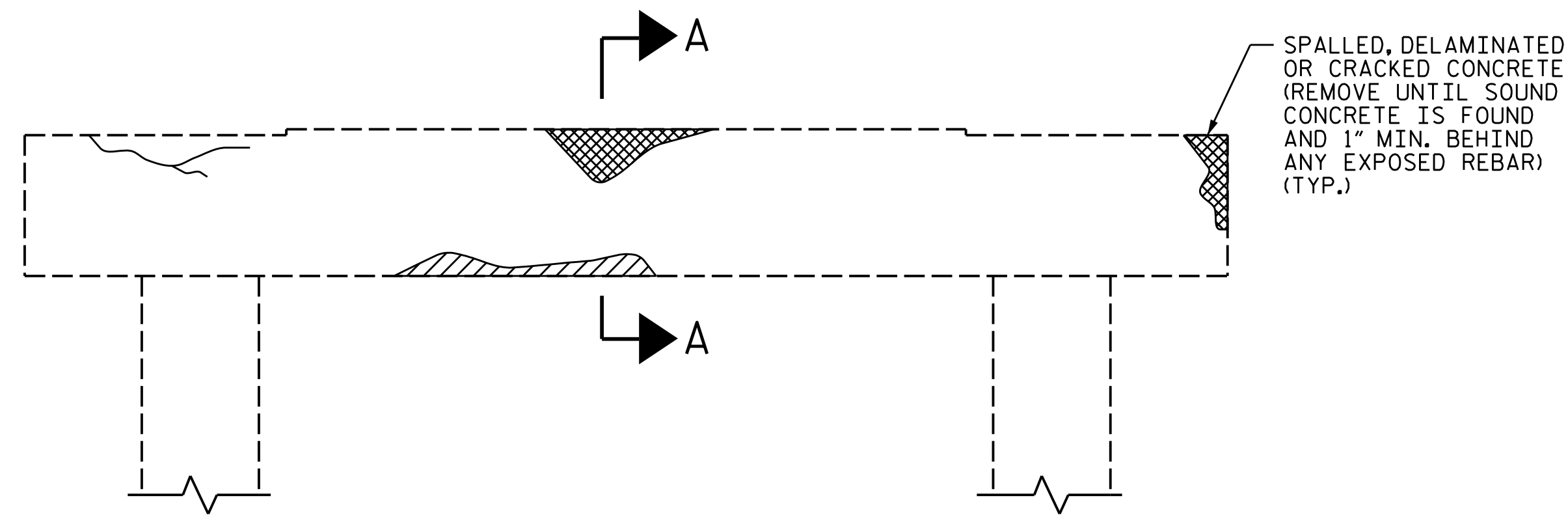
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STEEL KEEPER ANGLE ASSEMBLY DETAILS

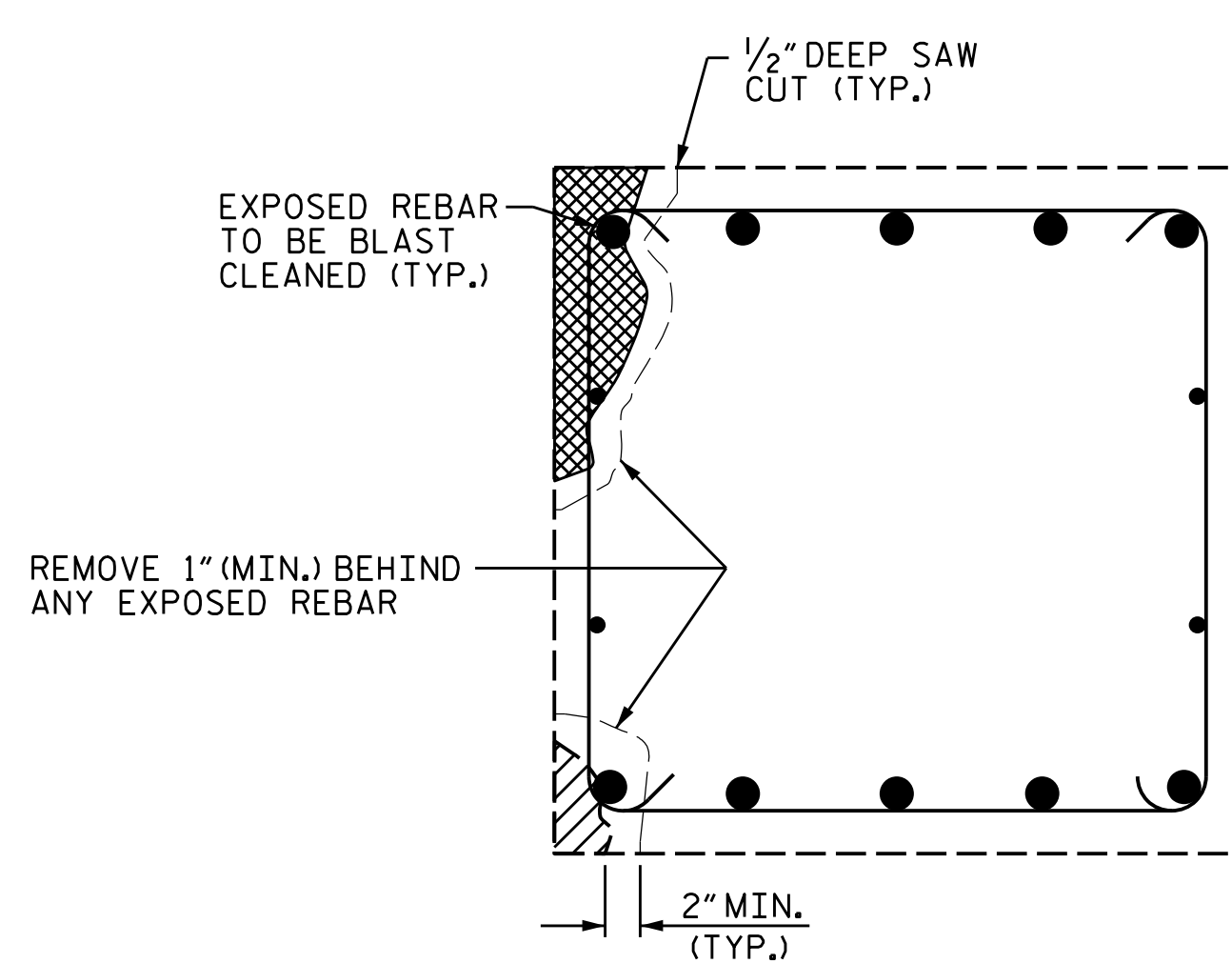
DRAWN BY : A. Y. GODFREY DATE : 01/2022
 CHECKED BY : S. WANCE DATE : 03/2022

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

| REVISIONS | | | | | | SHEET NO. |
|-----------|-----|-------|-----|-----|-------|--------------|
| NO. | BY: | DATE: | NO. | BY: | DATE: | S3-32 |
| 1 | | | 3 | | | TOTAL SHEETS |
| 2 | | | 4 | | | 33 |

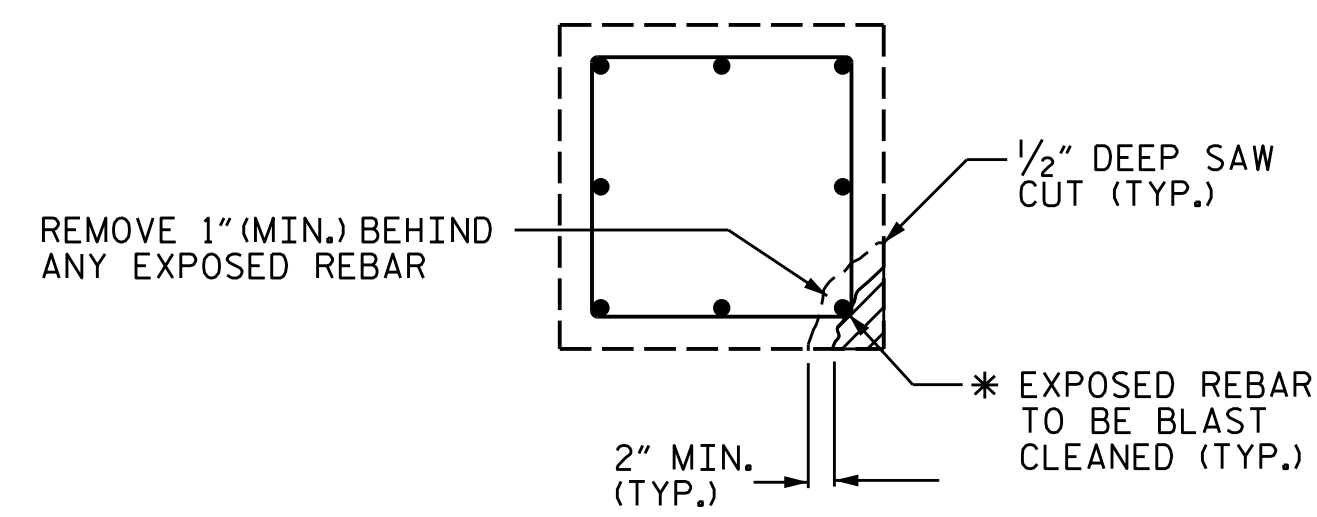


BENT CAP REPAIRS



SECTION A-A

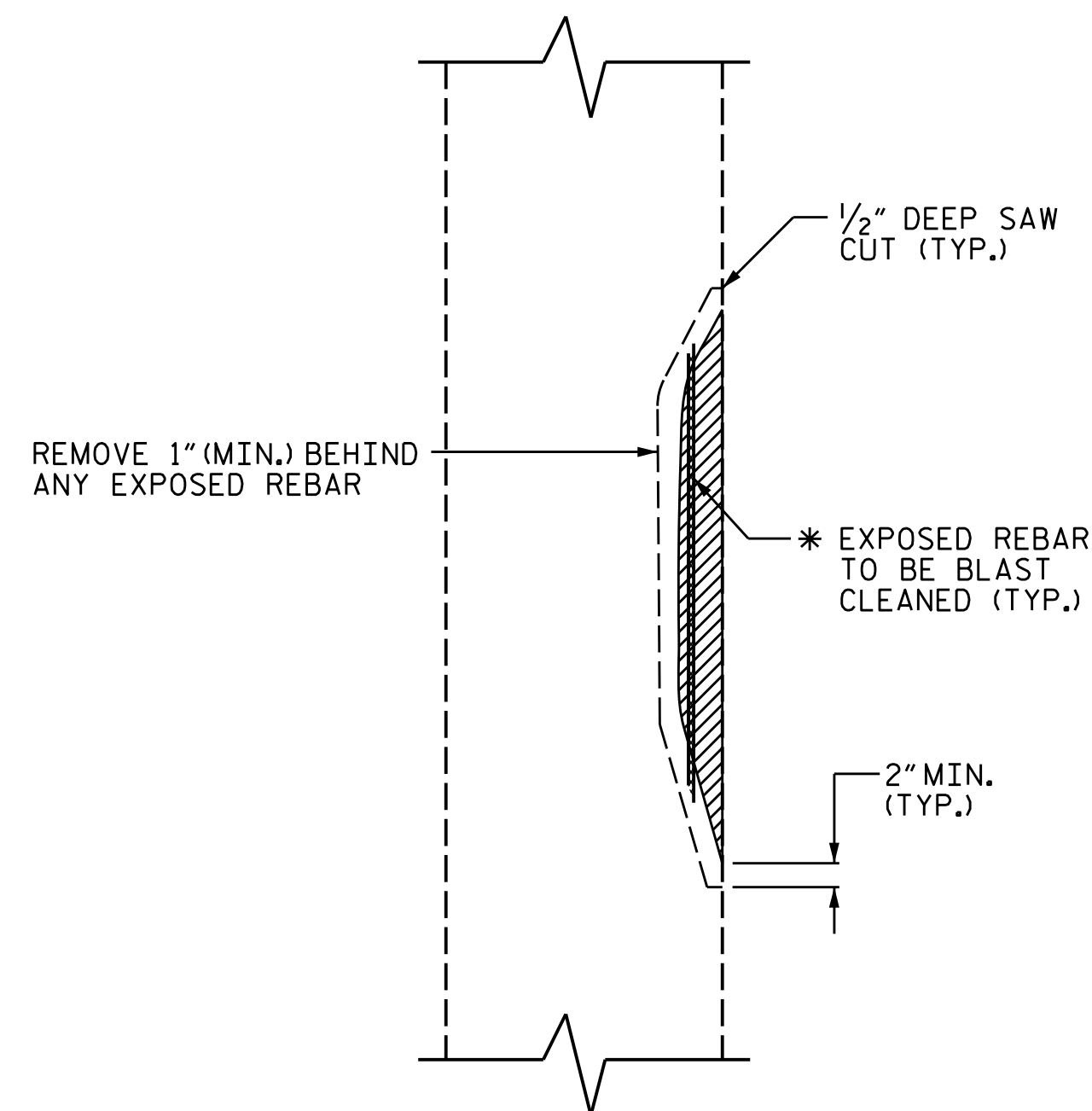
CAP REPAIR



PLAN OF COLUMN



REPAIR KEY

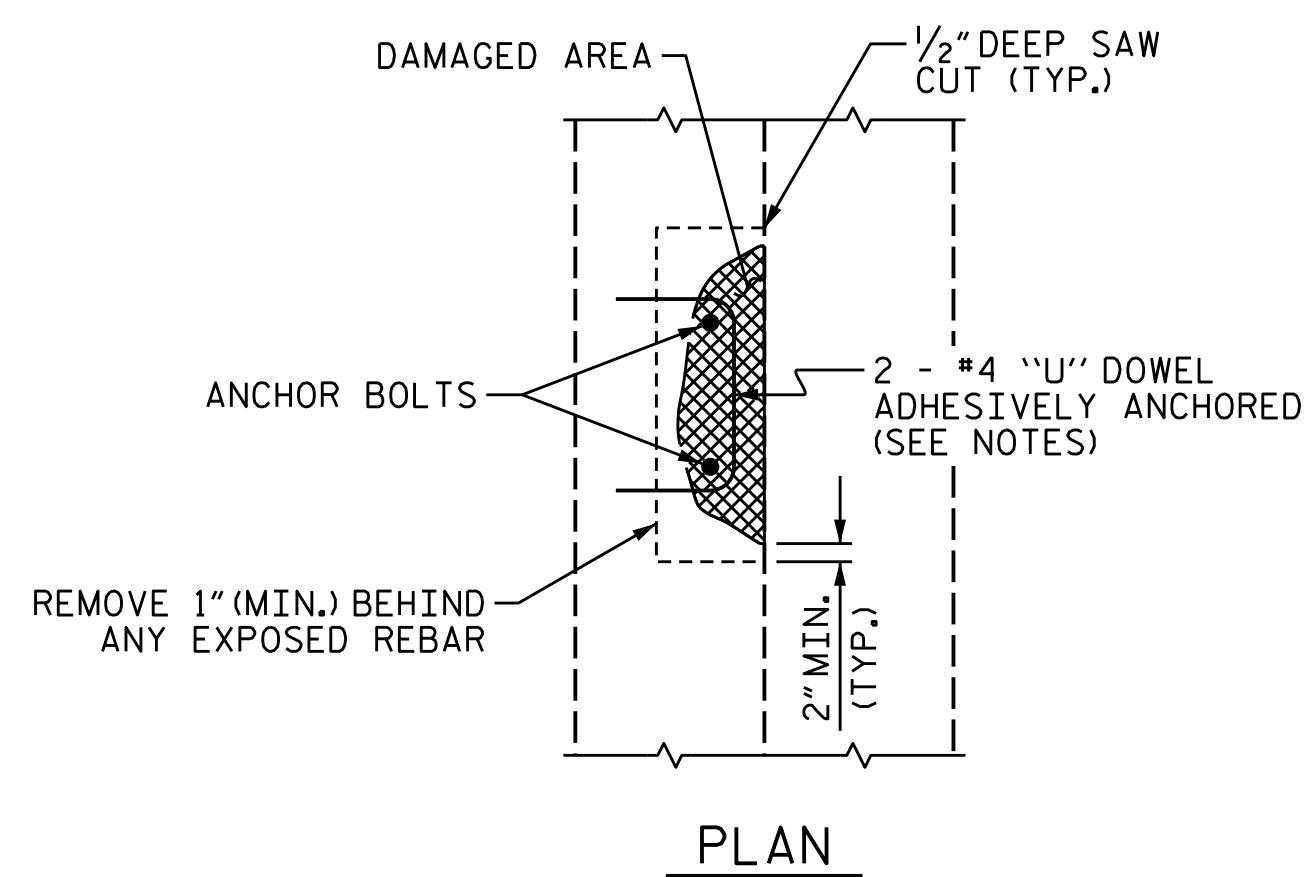


ELEVATION OF COLUMN

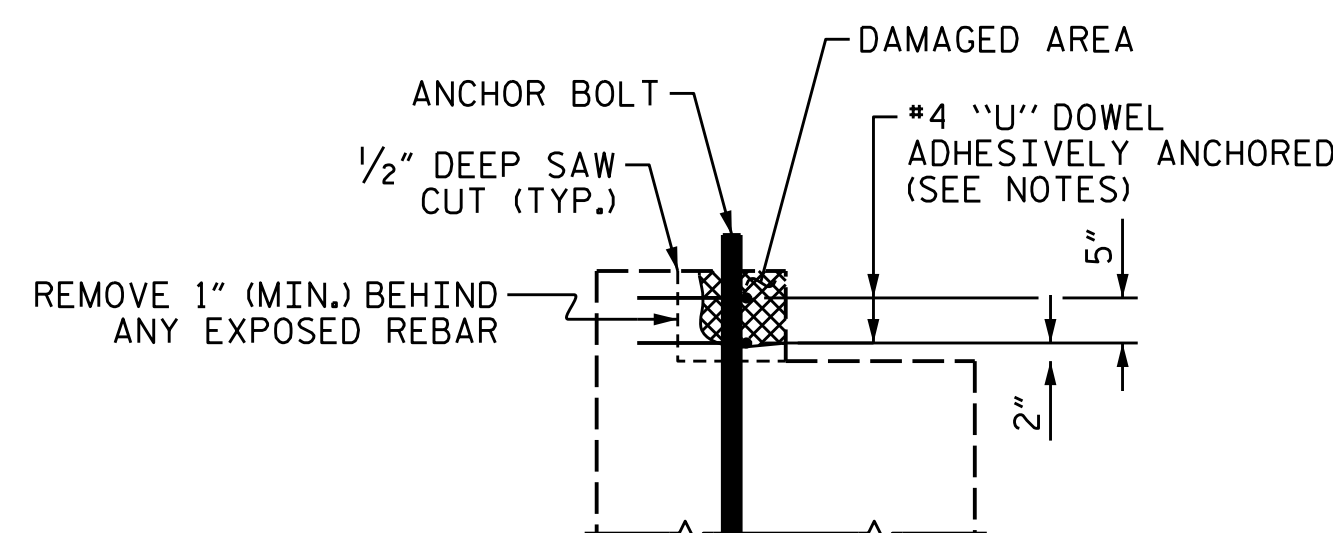
COLUMN REPAIR

* REPAIR LENGTH SHALL NOT EXCEED 10 FEET.

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



PLAN



ELEVATION

PEDESTAL WALL REPAIR

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 CIRCUMFERENCE 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, BUT NO MORE THAN 1/2 OF THE CIRCUMFERENCE SHALL BE REMOVED AT ONE TIME. IF REMOVAL EXTENDS MORE THAN 1 1/2" BEHIND THE MAIN REINFORCING BARS, NOTIFY THE ENGINEER PRIOR TO PROCEEDING. ON COLUMNS AND PILES, NO MORE THAN 10 VERTICAL FEET MAY BE EXPOSED AT ONE TIME BEFORE PLACEMENT OF REPAIR CONCRETE.

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.

THE #4 "U" DOWELS ARE REQUIRED ONLY AROUND THE ANCHOR BOLTS. THE EXISTING REINFORCING STEEL IN THE PEDESTAL WALL SHALL BE CLEANED, STRAIGHTENED AND REMAIN IN PLACE.

FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE STANDARD SPECIFICATIONS.

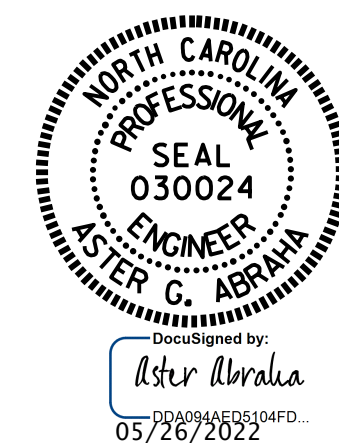
COAT ALL REPAIR SURFACE AREAS ON THE TOP OF CAPS, INCLUDING CHAMFERS, WITH EPOXY PROTECTIVE COATING, OVERLAPPING THE REPAIR AREA BY A MINIMUM OF 3" ON ALL POSSIBLE SIDES.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

CLEAN ALL EXPOSED REINFORCING BARS AND PRESTRESSED STRANDS IN ACCORDANCE WITH APPROPRIATE SPECIAL PROVISIONS. FOR BARS WITH MORE THAN 10% SECTION LOSS, SPLICE AND SECURELY TIE SUPPLEMENTAL REINFORCING BARS AS NEEDED, NOTE AND PROVIDE DETAILED DOCUMENTATION, INCLUDING LOCATION AND SEVERITY, OF ALL DAMAGE TO PRESTRESSED STRANDS THAT EXCEEDS 10% SECTION LOSS. IF FIVE OR MORE STRANDS ARE DAMAGED, NOTIFY THE ENGINEER PRIOR TO PLACEMENT OF REPAIR MATERIAL.

PROJECT NO. 15BPR.47
 NASH COUNTY
 BRIDGE NO. 630039

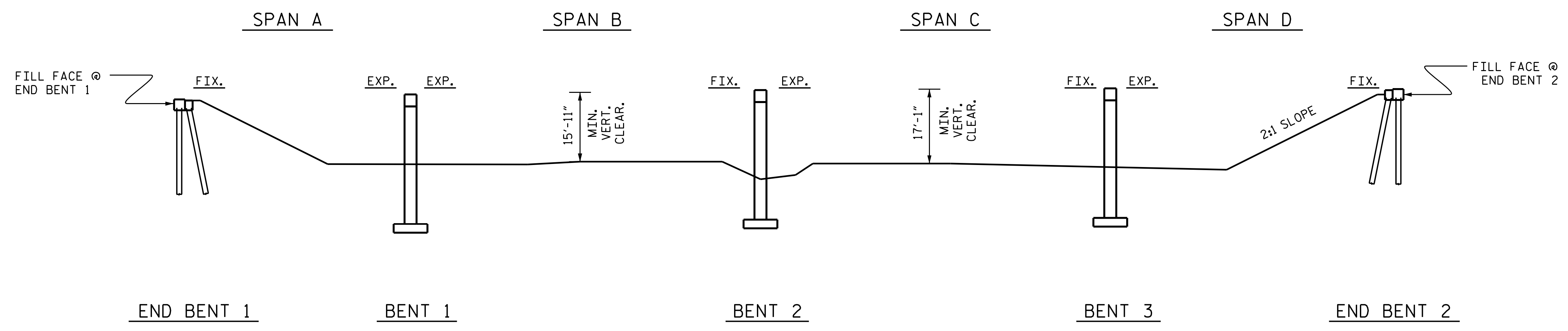


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 TYPICAL CAP
 AND COLUMN
 REPAIR DETAILS

ASSEMBLED BY : S. T. S./A.Y.G. DATE : 03/2022
 CHECKED BY : S. WANCE DATE : 03/2022
 DRAWN BY : NAP 8/18
 CHECKED BY :

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| 1 | | | 3 | | | TOTAL SHEETS |
| 2 | | | 4 | | | 33 |



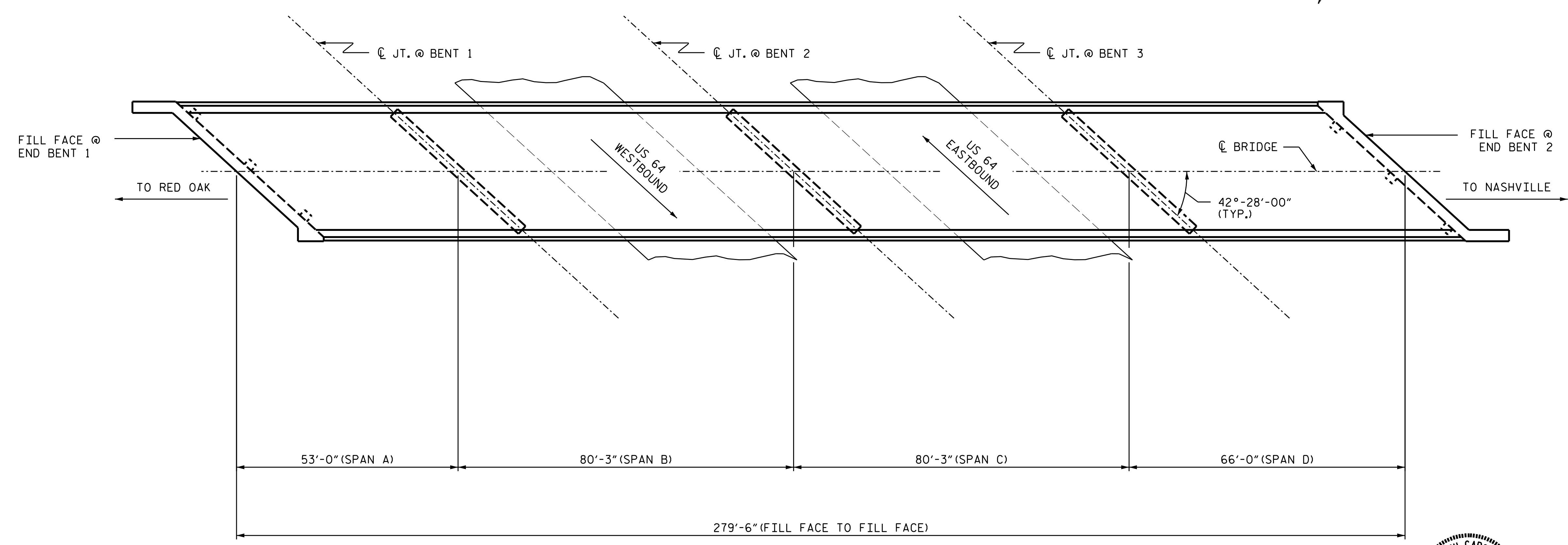
- ### SCOPE OF WORK
- PARTIALLY REMOVE TOP OF BRIDGE DECK CONCRETE BY SCARIFICATION AND HYDRO-DEMOLITION METHODS.
 - PERFORM DECK REPAIRS IN PREPARED AREAS.
 - OVERLAY PREPARED TOP OF BRIDGE DECK WITH LATEX MODIFIED CONCRETE (LMC).
 - DEMOLISH EXISTING BRIDGE DECK JOINTS.
 - RECONSTRUCT BRIDGE JOINTS AND INSTALL ELASTOMERIC CONCRETE AND POURABLE SILICONE JOINT SEALANT.
 - GROOVE LATEX MODIFIED CONCRETE BRIDGE DECK.
 - CLEAN, REPAIR AND PAINT EXISTING STRUCTURAL STEEL.
 - CLEAN AND PAINT EXISTING BEARINGS WITH HRCSA.
 - REMOVE UNSOUND CONCRETE AND PROPERLY PREPARE AREAS FOR SHOTCRETE REPAIRS.
 - PERFORM SHOTCRETE REPAIRS.
 - MILL AND PAVE ASPHALT ROADWAY APPROACHES.

NOTES

PROFILE INFORMATION IS TAKEN FROM ORIGINAL PLANS AND THE ROUTINE INSPECTION REPORT DATED 9/30/2020.

BRIDGE ORIENTATION CONFORMS TO THE EXISTING BRIDGE PLANS.

SECTION ALONG CL ROADWAY



I hereby certify that this structure was rehabilitated according to these plans or as noted therein.

Resident Engineer _____ Date _____

PROJECT NO. 15BPR.47
NASH COUNTY
 BRIDGE NO. 630123



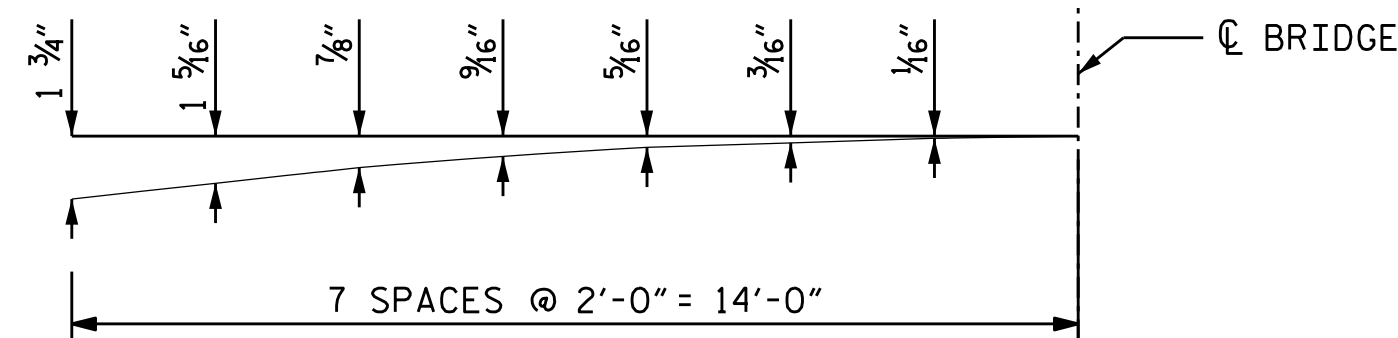
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE 123
 OVER US HIGHWAY 64
 BETWEEN NASHVILLE
 AND RED OAK.

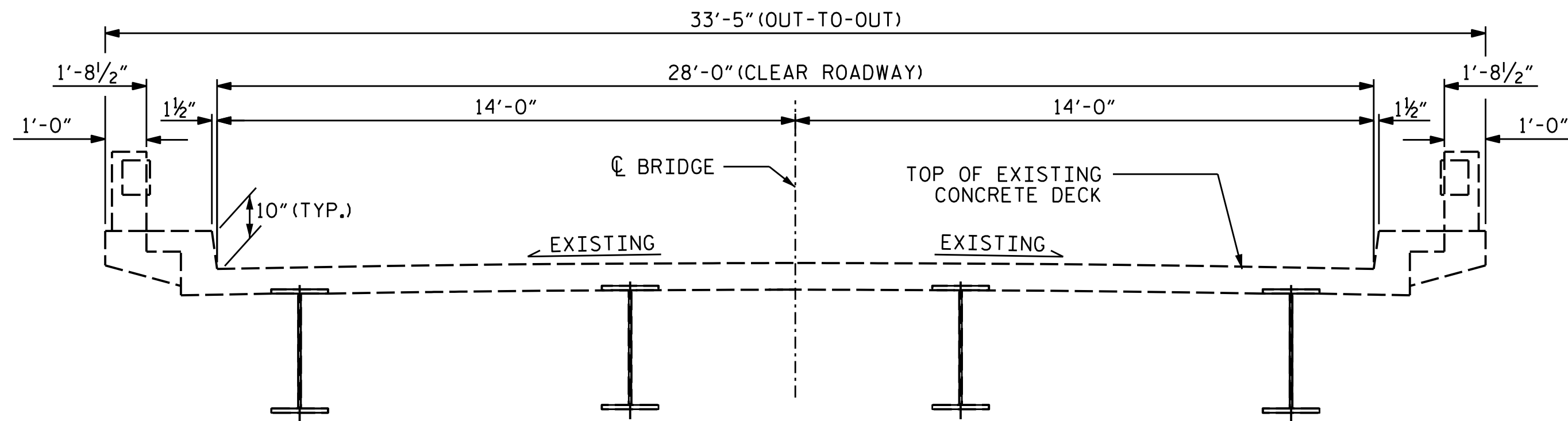
DRAWN BY : A. Y. GODFREY DATE : 01/2022
 CHECKED BY : S. WANCE DATE : 03/2022

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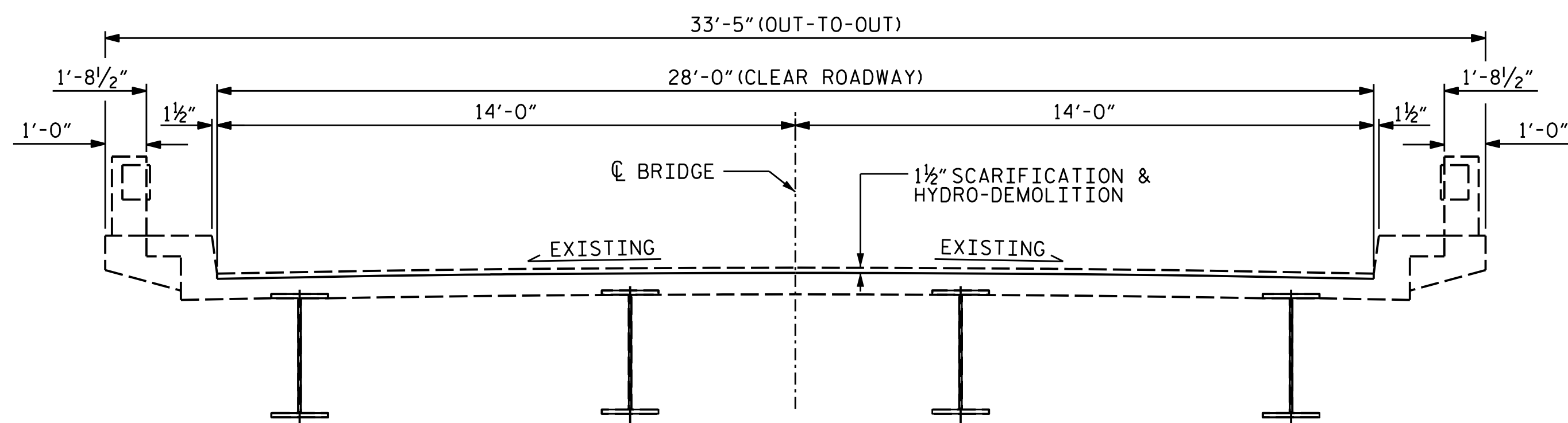
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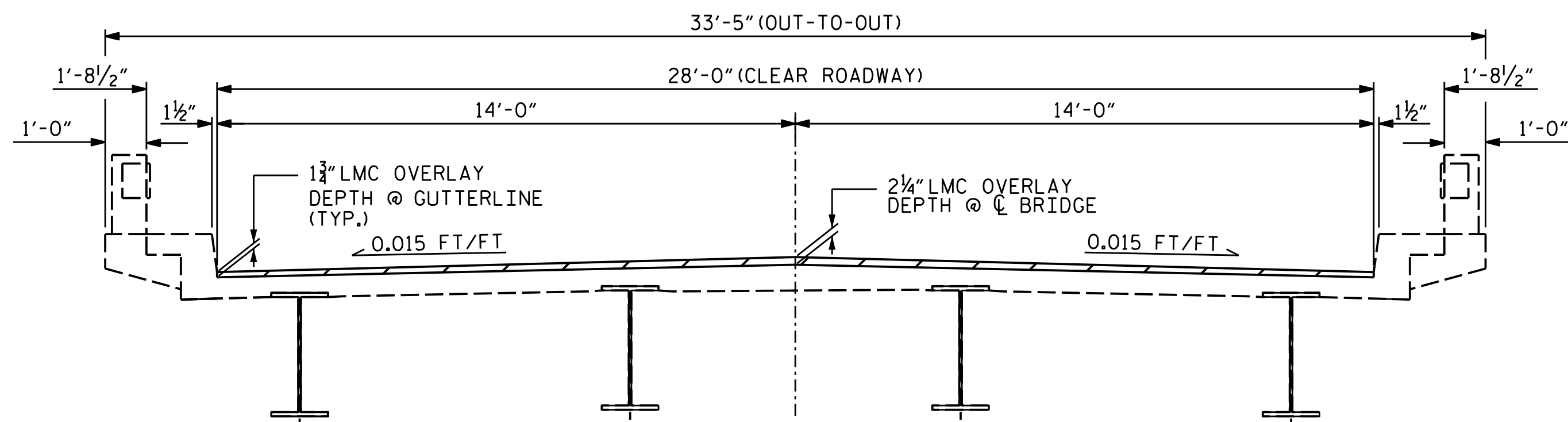
EXISTING CROWN DIAGRAM



TYPICAL SECTION
(EXISTING)



TYPICAL SECTION
(DECK PREPARATION)



TYPICAL SECTION
(PROPOSED)

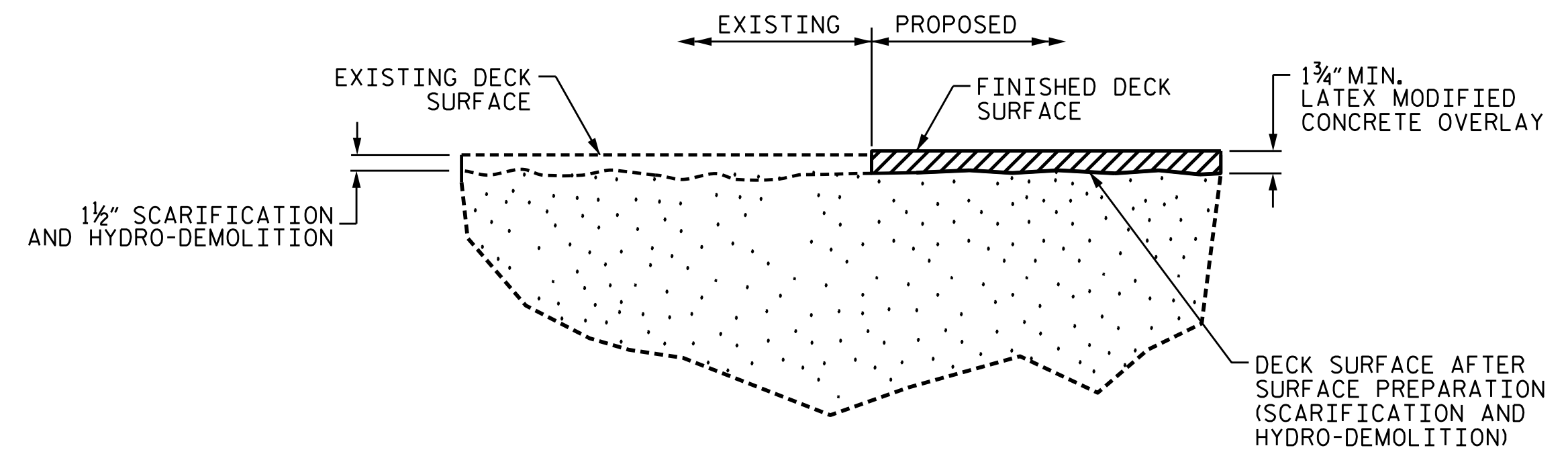
NOTES

WHEN PREPARING THE SURFACE FOR LMC OVERLAY ADJACENT TO THE PREVIOUSLY PLACED LMC STAGE, THE PREVIOUSLY PLACED LMC SHALL BE SAW-CUT TO THE FULL DEPTH OF THE LMC AT THE CENTERLINE OF THE BRIDGE AND ALL LMC IN THE 4" OVERLAP SHALL BE REMOVED WITH HAND TOOLS PRIOR TO PLACEMENT OF LMC IN THE SECOND STAGE.

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

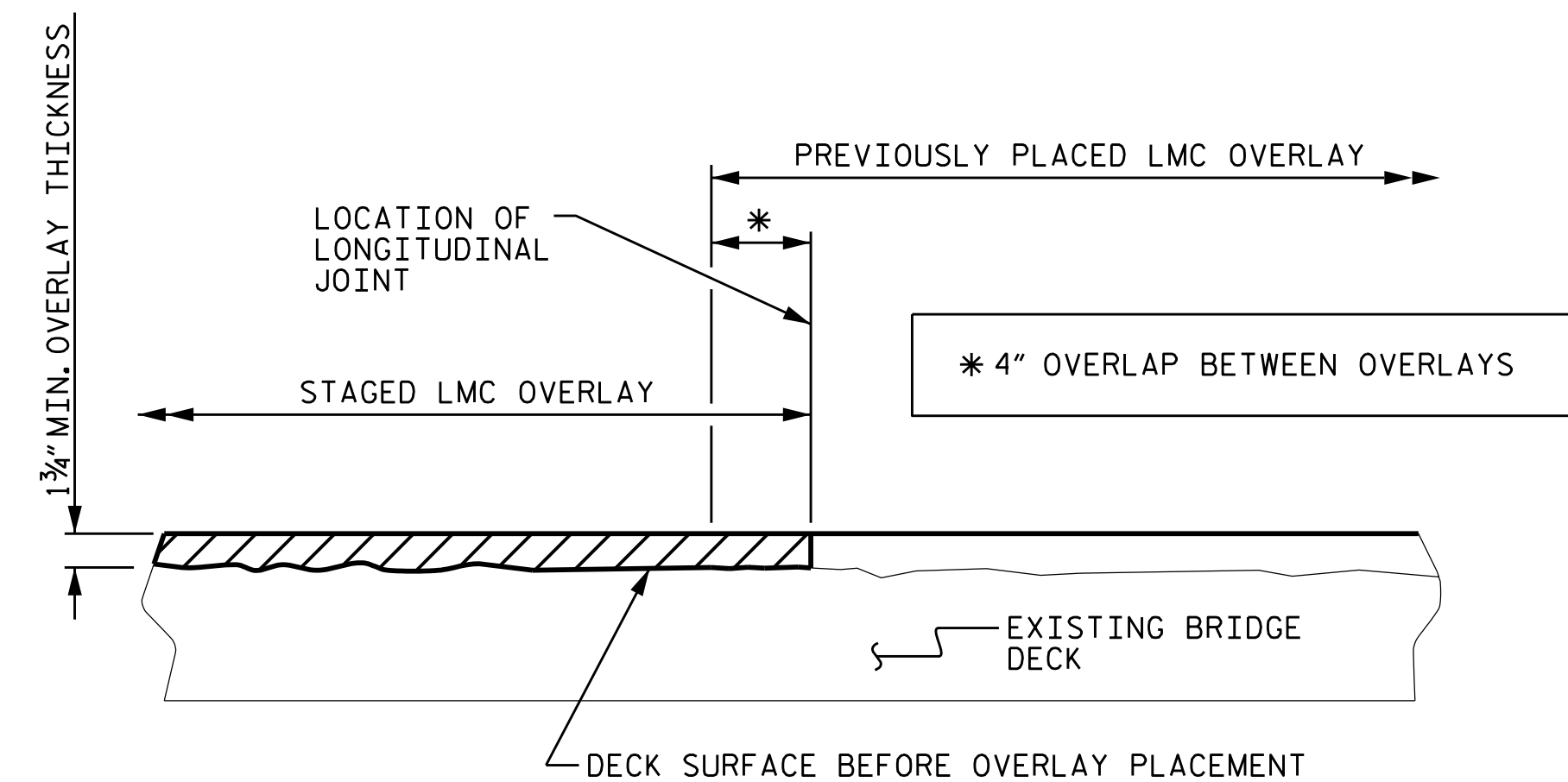
THE EXISTING TOP OF SLAB DOES NOT FOLLOW A STRAIGHT SLOPE FROM GUTTERLINE TO CL OF BRIDGE. EXISTING SLOPE SHOW IN CROWN DIAGRAM. SCARIFICATION AND HYDRO-DEMOLITION SHALL BE A CONSTANT DEPTH OF 1 1/2". DEPTH OF LMC OVERLAY WILL VARY FROM A MINIMUM OF 1 3/4" AT GUTTERLINE TO 2 1/4" AT CL OF BRIDGE TO CREATE PROPOSED STRAIGHT SLOPE CROWN.

THE CONTRACTOR SHALL SUBMIT FOR REVIEW AND APPROVAL A PLAN FOR SCARIFICATION/HYDRO-DEMOLITION, SURFACE PREPARATION, LMC OVERLAY PLACEMENT AND FINISHING TO ATTAIN THE FINAL SURFACE SLOPE AS INDICATED.



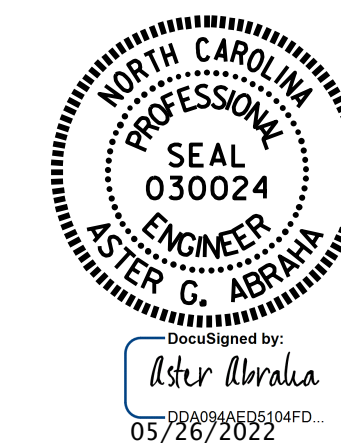
DETAIL FOR LATEX MODIFIED CONCRETE OVERLAY

(FINISHED SURFACE OF THE LATEX MODIFIED CONCRETE OVERLAY IS APPROX.)



STAGED LMC OVERLAY JOINT
(AS NEEDED)

PROJECT NO. 15BPR.47
NASH COUNTY
BRIDGE NO. 630123



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

DRAWN BY : A. Y. GODFREY DATE : 04/2022
CHECKED BY : S. WANCE DATE : 04/2022

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

SUMMARY OF QUANTITIES FOR SPAN A

| | ESTIMATE | ACTUAL |
|---|-----------|--------|
| SCARIFYING BRIDGE DECK | 162.5 SY | |
| HYDRO-DEMOLITION OF BRIDGE DECK | 162.5 SY | |
| CLASS II SURFACE PREPARATION | 14.6 SY | |
| CLASS III SURFACE PREPARATION | 1.1 SY | |
| LATEX MODIFIED CONCRETE OVERLAY | 11.4 CY | |
| PLACING AND FINISHING LATEX MODIFIED CONCRETE OVERLAY | 162.5 SY | |
| GROOVING BRIDGE DECK | 1296.6 SF | |
| BRIDGE JOINT DEMOLITION | 19.0 SF | |

QUANTITIES FOR LMC OVERLAY ARE BASED ON OVERLAY DEPTH PLUS AN ADDITIONAL 1/4" TO ACCOUNT FOR IRREGULARITIES IN HYDRO-DEMOLITION/SCARIFICATION PROCESSES.

NOTES:

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

THE BOUNDARIES OF AREAS IDENTIFIED FOR CLASS II (PARTIAL DEPTH) SURFACE PREPARATION ARE APPROXIMATE AND MAY NOT REFLECT ACTUAL CONDITIONS THAT WILL BE ENCOUNTERED AT THE PROJECT SITE.

THE BOUNDARIES OF AREAS IDENTIFIED FOR CLASS III (FULL DEPTH) SURFACE PREPARATION ARE APPROXIMATE. THE CONTRACTOR SHALL PROVIDE A METHOD OF HANDLING UNEXPECTED BLOW THROUGH OF THE DECK, SEE CLASS III CONTAINMENT SYSTEM DETAIL.

PAYMENT FOR CLASS II AND CLASS III SURFACE PREP. BASED UPON SQUARE FEET OF ADDITIONAL DEMOLITION REQUIRED FOLLOWING HYDRO-DEMOLITION OF BRIDGE DECK, SEE LMC OVERLAY SURFACE PREPARATION SPECIAL PROVISION.

EXISTING JOINTS AND DECK DRAINS SHALL BE SEALED PRIOR TO BEGINNING SURFACE PREPARATION OF THE BRIDGE DECK. THE CONTRACTOR SHALL TAKE CARE THAT ANY CONSTRUCTION DEBRIS THAT COLLECTS IN THE DRAINS IS CONTAINED. DRAINS IN SHOULDERS OF ADJACENT TRAVEL LANE(S) SHALL BE KEPT FREE AND CLEAR OF DEBRIS.

WORK ON THE BRIDGE SHALL BE PERFORMED SO AS NOT TO ALLOW DEBRIS TO FALL BELOW, EXCEPT WHERE THE CONTRACTOR'S PLAN USE 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.

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 OVERLAY OF BRIDGE WITH LATEX MODIFIED CONCRETE OVERLAY, SEE SPECIAL PROVISIONS.

FOR LMC OVERLAY SURFACE PREPARATION, SEE 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.

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

FOR BRIDGE JOINT DEMOLITION, SEE SPECIAL PROVISIONS.

FOR DECK REPAIR DETAILS, SEE "DECK REPAIR DETAILS" SHEET S4-15.

PROJECT NO. 15BPR.47
 NASH COUNTY
 BRIDGE NO. 630123

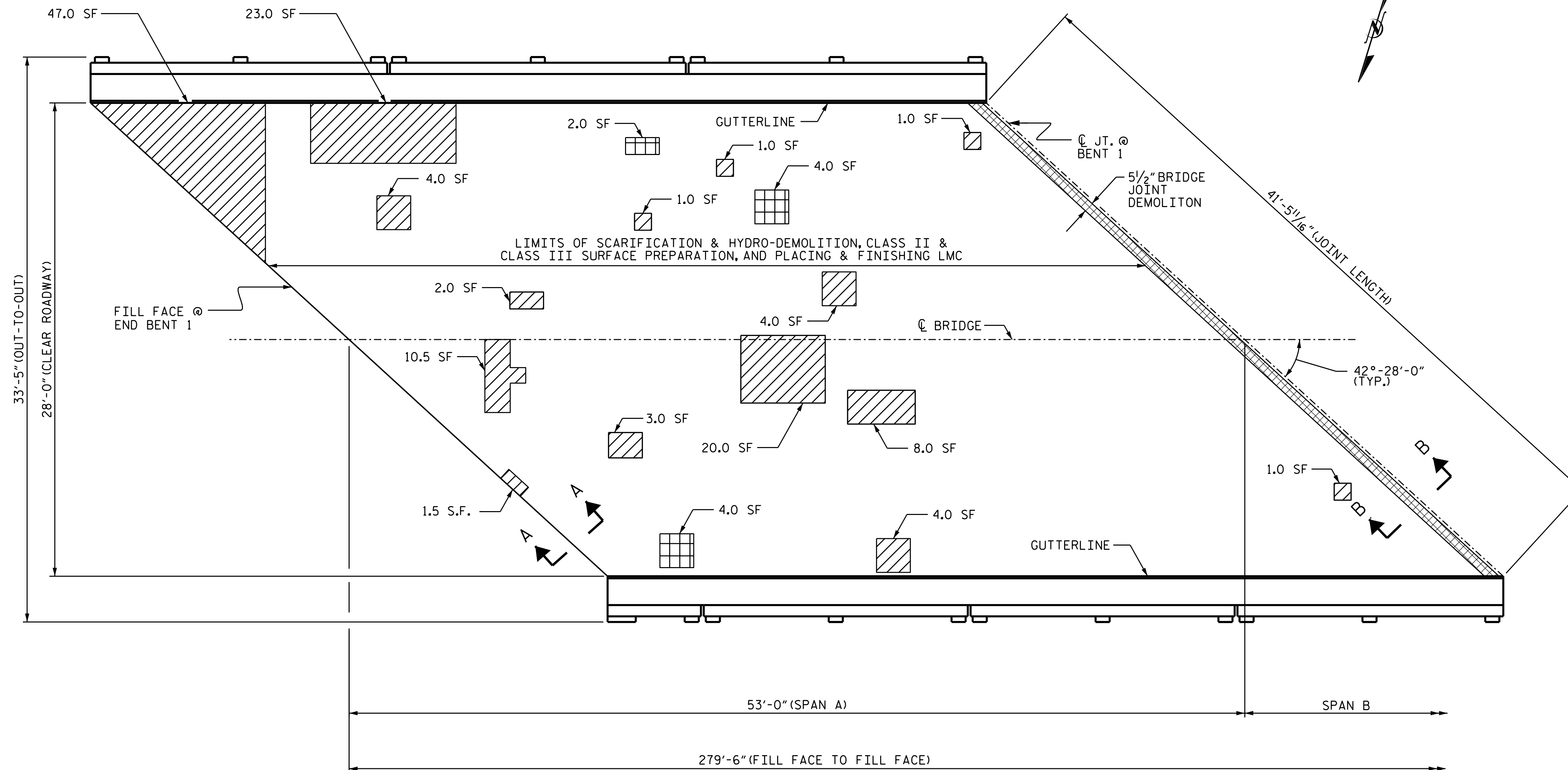
SHEET 1 OF 4



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SURFACE PREPARATION
 SPAN A

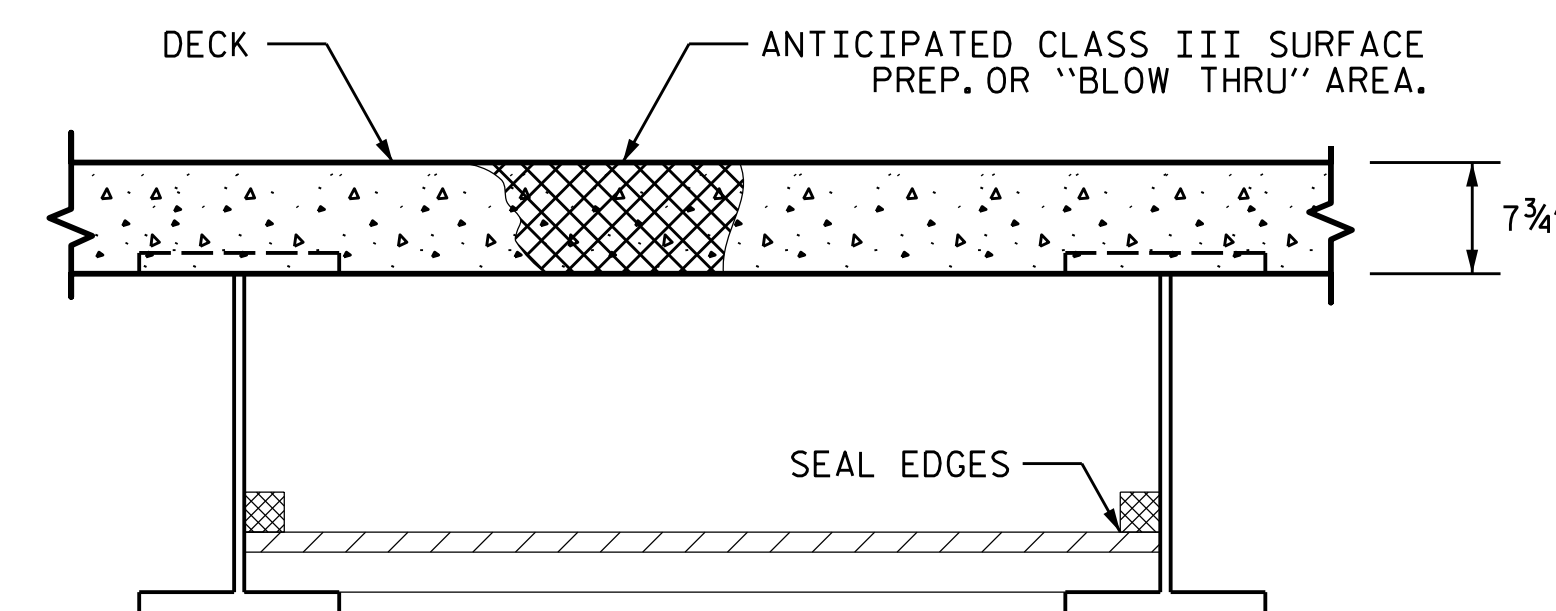
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PLAN OF SPAN A

(SEE SHEET NO. S4-09 FOR SECTIONS A-A AND B-B)



TYP. "BLOW THRU" CONTAINMENT AND FORMWORK

A METHOD TO CAPTURE WATER AND DEBRIS FROM BLOW THRU DURING HYDRO-DEMOLITION SHALL BE INSTALLED IN AREAS INDICATED AS CLASS III SURFACE PREPARATION.

SUBMIT DETAILS OF PROPOSED FORM WORK FOR APPROVAL PRIOR TO BEGINNING WORK.

COST FOR INSTALLING AND REMOVING FORM WORK SHALL BE INCIDENTAL TO THE PRICE PER SQ. YARD OF HYDRO DEMOLITION.

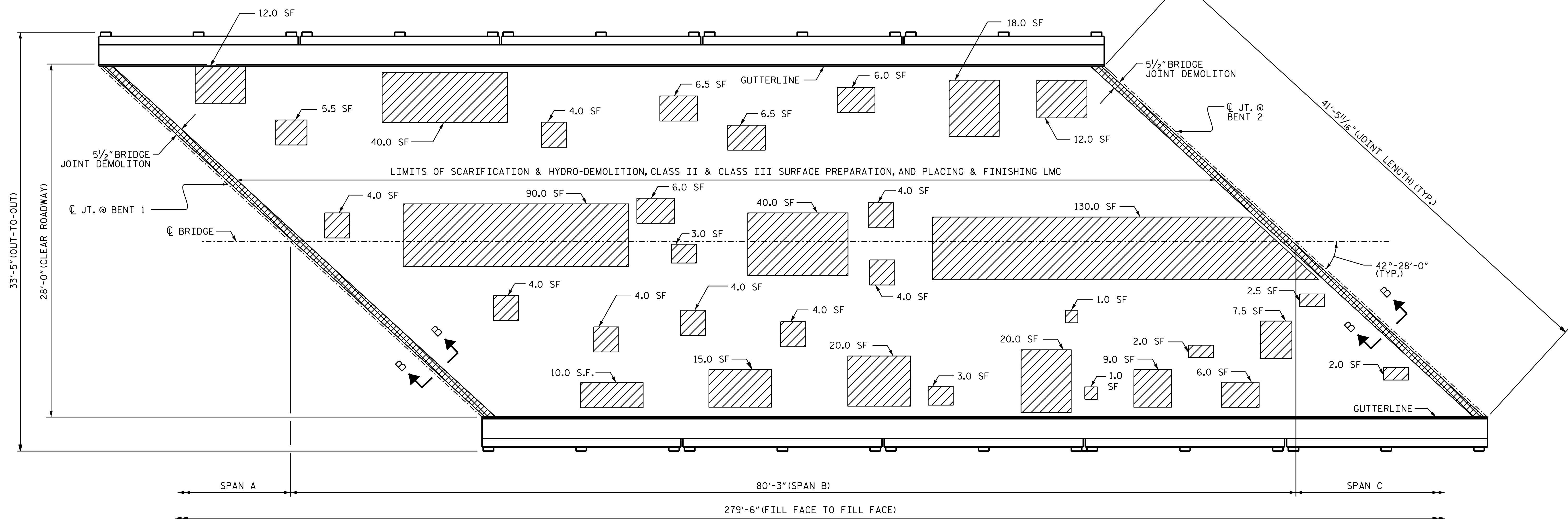
- SCARIFYING AND HYDRO-DEMOLITION OF BRIDGE DECK FOR LMC OVERLAY
- APPROX. AREA CLASS II SURFACE PREPARATION
- APPROX. AREA CLASS III SURFACE PREPARATION
- BRIDGE JOINT DEMOLITION

DRAWN BY : S. T. SANDOR/A. Y. GODFREY DATE : 01/2022
 CHECKED BY : S. WANCE DATE : 03/2022

SUMMARY OF QUANTITIES FOR SPAN B

| | ESTIMATE | ACTUAL |
|---|-----------|--------|
| SCARIFYING BRIDGE DECK | 245.0 SY | |
| HYDRO-DEMOLITION OF BRIDGE DECK | 245.0 SY | |
| CLASS II SURFACE PREPARATION | 56.3 SY | |
| CLASS III SURFACE PREPARATION | 0.0 SY | |
| LATEX MODIFIED CONCRETE OVERLAY | 19.2 CY | |
| PLACING AND FINISHING LATEX MODIFIED CONCRETE OVERLAY | 245.0 SY | |
| GROOVING BRIDGE DECK | 1958.6 SF | |
| BRIDGE JOINT DEMOLITION | 38.0 SF | |

QUANTITIES FOR LMC OVERLAY ARE BASED ON OVERLAY DEPTH PLUS AN ADDITIONAL 1/4" TO ACCOUNT FOR IRREGULARITIES IN HYDRO-DEMOLITION/SCARIFICATION PROCESSES.



PLAN OF SPAN B
(SEE SHEET NO. S4-09 FOR SECTIONS B-B)



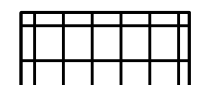

PROJECT NO. 15BPR.47
NASH COUNTY
BRIDGE NO. 630123

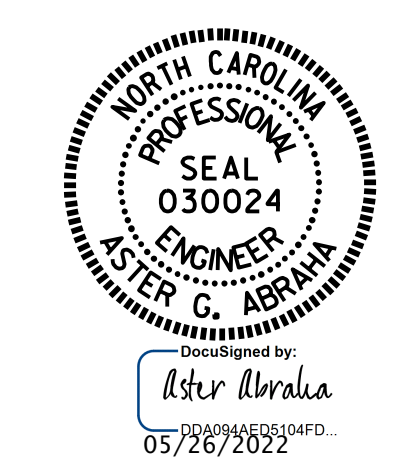
SHEET 2 OF 4

NOTES:

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

FOR ADDITIONAL NOTES, SEE SHEET 1 OF 4.

-  - SCARIFYING AND HYDRO-DEMOLITION OF BRIDGE DECK FOR LMC OVERLAY
-  - APPROX. AREA CLASS II SURFACE PREPARATION
-  - APPROX. AREA CLASS III SURFACE PREPARATION
-  - BRIDGE JOINT DEMOLITION



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

**SURFACE PREPARATION
SPAN B**

DRAWN BY : S. T. SANDOR/A. Y. GODFREY DATE : 02/2022
CHECKED BY : S. WANCE DATE : 03/2022

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

REPAIR QUANTITY TABLE

| UNDERSIDE OF DECK REPAIRS - SPAN A & B | QUANTITIES | | | |
|--|------------|-----------|---------|-----------|
| | ESTIMATE | | ACTUAL | |
| SHOTCRETE REPAIRS | AREA SF | VOLUME CF | AREA SF | VOLUME CF |
| UNDERSIDE OF DECK | 0.0 | 0.0 | | |
| INTERIOR DIAPHRAGM | 72.8 | 24.3 | | |
| OVERHANG | 0.0 | 0.0 | | |
| CONCRETE REPAIRS | AREA SF | VOLUME CF | AREA SF | VOLUME CF |
| UNDERSIDE OF DECK | 0.0 | 0.0 | | |
| INTERIOR DIAPHRAGM | 0.0 | 0.0 | | |
| OVERHANG | 0.0 | 0.0 | | |

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 2" CL TO SAWCUT. SEE REPAIR DETAILS.

NOTES:

THE LOCATIONS AND DIMENSIONS OF THE AREAS FOR REPAIR ARE BASED ON THE BEST INFORMATION AVAILABLE. THE CONTRACTOR, IN CONJUNCTION WITH THE ENGINEER, SHALL VERIFY THE LOCATION AND EXTENT OF REPAIR AREAS PRIOR TO STEEL FABRICATION. 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 ENTER THE ACTUAL QUANTITIES INTO THE REPAIR QUANTITY TABLE.

FOR BEAM PLATING REPAIR, SEE "BEAM PLATING REPAIR DETAILS" SHEET S4-17.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.


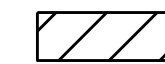

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

CONCRETE REPAIRS MAY BE SUBSTITUTED IN LIEU OF SHOTCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

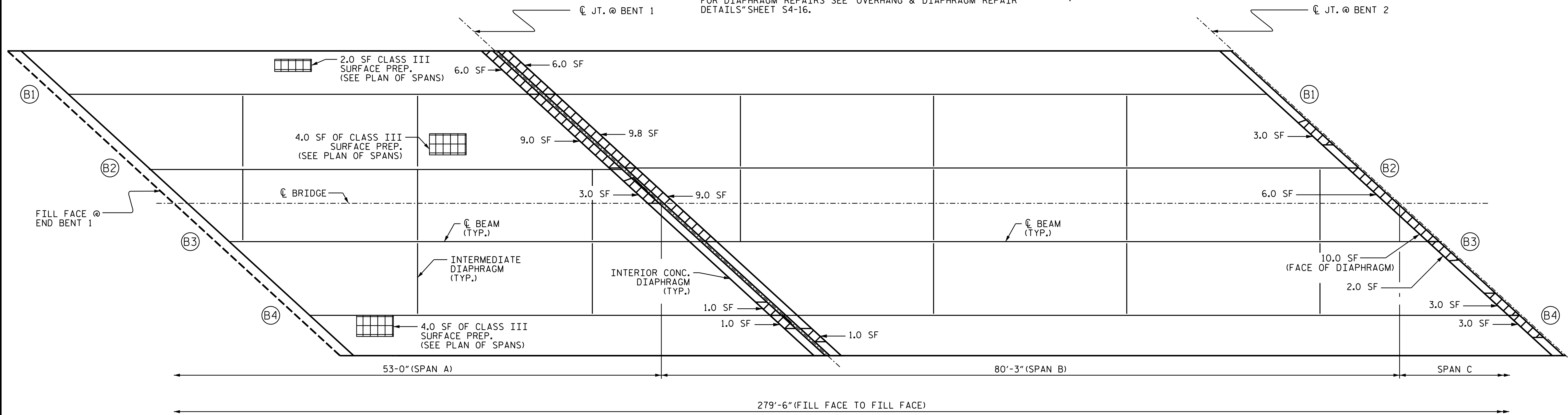
FOR UNDERSIDE OF DECK REPAIRS, SEE "DECK REPAIR DETAILS" SHEET S4-15.

FOR OVERHANG REPAIRS, SEE "OVERHANG & DIAPHRAGM REPAIR DETAILS" SHEET S4-16.

FOR DIAPHRAGM REPAIRS SEE "OVERHANG & DIAPHRAGM REPAIR DETAILS" SHEET S4-16.

-  - CONCRETE REPAIR AREA
-  - SHOTCRETE REPAIR AREA
-  - APPROX. AREA CLASS III SURFACE PREPARATION

- (B*) BEAM NUMBER
- (W) WEB PLATING REPAIR
- (S) STIFFENER REPAIR
- (F) BOTTOM FLANGE PLATING REPAIR
- (BW) BOLTED WEB PLATE REPAIR
- (BF) BOLTED FLANGE PLATE REPAIR



SPANS A & B (UNDERSIDE)

BEAM REPAIR QUANTITY TABLE

| BOLTED STEEL PLATES | | STEEL PLATES | | STIFFENER | | STEEL DIAPHRAGM | | BEAM END CUT-OUT | |
|---------------------|--------|--------------|--------|-----------|--------|-----------------|--------|------------------|--------|
| LBS. | | LBS. | | LBS. | | LBS. | | LBS. | |
| ESTIMATE | ACTUAL | ESTIMATE | ACTUAL | ESTIMATE | ACTUAL | ESTIMATE | ACTUAL | ESTIMATE | ACTUAL |
| 0.0 | | 0.0 | | 0.0 | | 0.0 | | 0.0 | |

ANTICIPATED STEEL REPAIR LOCATIONS

| REPAIR TYPE | SPAN | BEAM | LOCATION | DIM. "A" | DIM. "B" | DIM. "C" | DIM. "D" |
|-------------|------|------|----------|----------|----------|----------|----------|
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

(SEE SHEETS S4-17 FOR BEAM REPAIR DETAILS AND DIMENSIONS.)

PROJECT NO. 15BPR.47
NASH COUNTY
 BRIDGE NO. 630123

SHEET 1 OF 2



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

UNDERSIDE DECK REPAIRS SPANS A AND B

DRAWN BY : S. T. SANDOR/A. Y. GODFREY DATE : 01/2022
 CHECKED BY : S. WANCE DATE : 03/2022


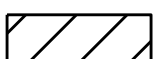

DOCUMENT NOT CONSIDERED
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SIGNATURES COMPLETED

| REVISIONS | | | | | | SHEET NO. |
|-----------|-----|-------|-----|-----|-------|--------------|
| NO. | BY: | DATE: | NO. | BY: | DATE: | S4-07 |
| 1 | | | 3 | | | TOTAL SHEETS |
| 2 | | | 4 | | | 18 |

NOTES:

THE LOCATIONS AND DIMENSIONS OF THE AREAS FOR REPAIR ARE BASED ON THE BEST INFORMATION AVAILABLE. THE CONTRACTOR, IN CONJUNCTION WITH THE ENGINEER, SHALL VERIFY THE LOCATION AND EXTENT OF REPAIR AREAS PRIOR TO STEEL FABRICATION. 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 ENTER THE ACTUAL QUANTITIES INTO THE REPAIR QUANTITY TABLE.

FOR ADDITIONAL NOTES, SEE SHEET 1 OF 2.

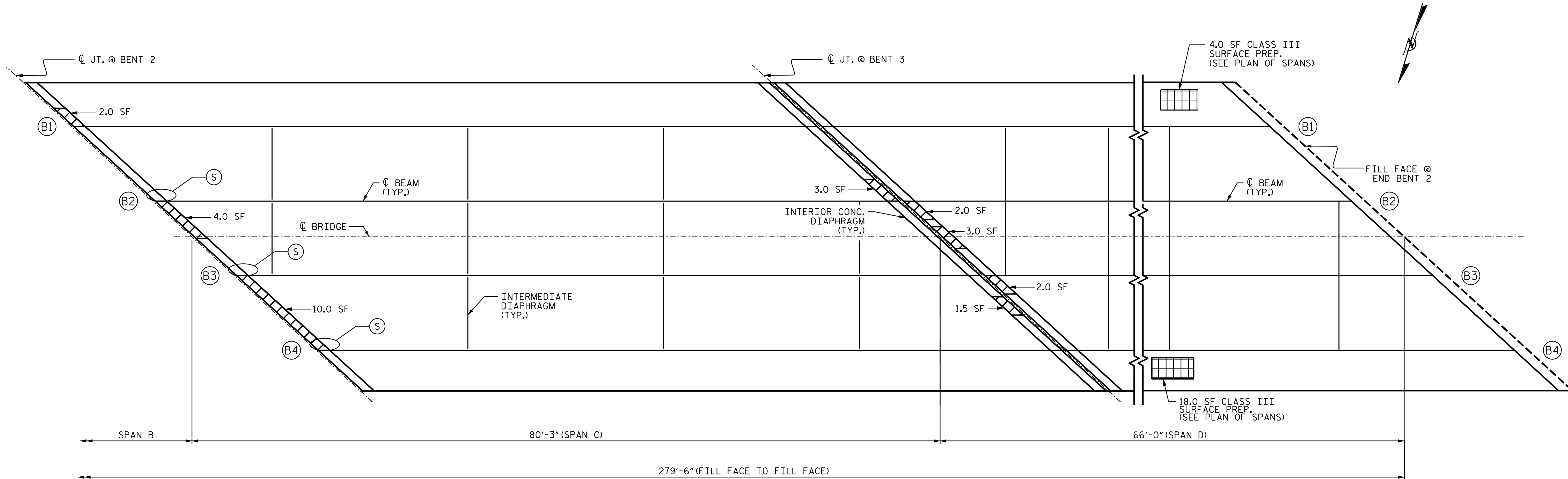
-  - CONCRETE REPAIR AREA
-  - SHOTCRETE REPAIR AREA
-  - APPROX. AREA CLASS III SURFACE PREPARATION

- (B#) BEAM NUMBER
- (W) WEB PLATING REPAIR
- (S) STIFFENER REPAIR
- (F) BOTTOM FLANGE PLATING REPAIR
- (BW) BOLTED WEB PLATE REPAIR
- (BF) BOLTED FLANGE PLATE REPAIR

REPAIR QUANTITY TABLE

| UNDERSIDE OF DECK REPAIRS - SPAN C & D | QUANTITIES | | | |
|--|------------|-----------|---------|-----------|
| | ESTIMATE | | ACTUAL | |
| SHOTCRETE REPAIRS | AREA SF | VOLUME CF | AREA SF | VOLUME CF |
| UNDERSIDE OF DECK | 0.0 | 0.0 | | |
| INTERIOR DIAPHRAGM | 27.5 | 9.2 | | |
| OVERHANG | 0.0 | 0.0 | | |
| CONCRETE REPAIRS | AREA SF | VOLUME CF | AREA SF | VOLUME CF |
| UNDERSIDE OF DECK | 0.0 | 0.0 | | |
| INTERIOR DIAPHRAGM | 0.0 | 0.0 | | |
| OVERHANG | 0.0 | 0.0 | | |

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 2" CL TO SAWCUT. SEE REPAIR DETAILS.



SPANS C & D
(UNDERSIDE)

BEAM REPAIR QUANTITY TABLE

| BOLTED STEEL PLATES | | STEEL PLATES | | STIFFENER | | STEEL DIAPHRAGM | | BEAM END CUT-OUT | |
|---------------------|--------|--------------|--------|-----------|--------|-----------------|--------|------------------|--------|
| LBS. | | LBS. | | LBS. | | LBS. | | LBS. | |
| ESTIMATE | ACTUAL | ESTIMATE | ACTUAL | ESTIMATE | ACTUAL | ESTIMATE | ACTUAL | ESTIMATE | ACTUAL |
| 0.0 | | 0.0 | | 42.3 | | 0.0 | | 0.0 | |

STEEL REPAIR LOCATIONS

| REPAIR TYPE | SPAN | BEAM | LOCATION | DIM. "A" | DIM. "B" | DIM. "C" | DIM. "D" |
|-------------|------|------|----------|----------|----------|----------|----------|
| S | C | 2 | BENT 2 | 11' | - | - | - |
| S | C | 3 | BENT 2 | 11' | - | - | - |
| S | C | 4 | BENT 2 | 11' | - | - | - |

(SEE SHEETS S4-17 FOR BEAM REPAIR DETAILS AND DIMENSIONS.)

PROJECT NO. 15BPR.47
NASH COUNTY
 BRIDGE NO. 630123

SHEET 2 OF 2



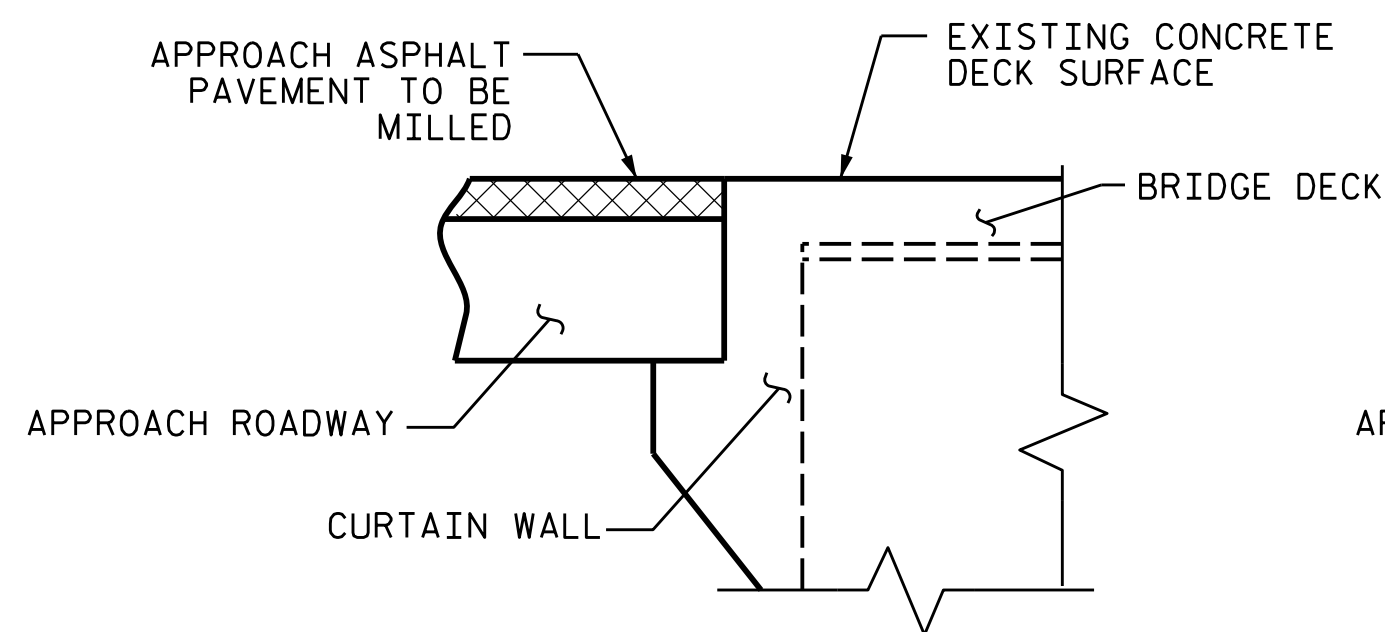
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**UNDERSIDE
 DECK REPAIRS
 SPANS C AND D**

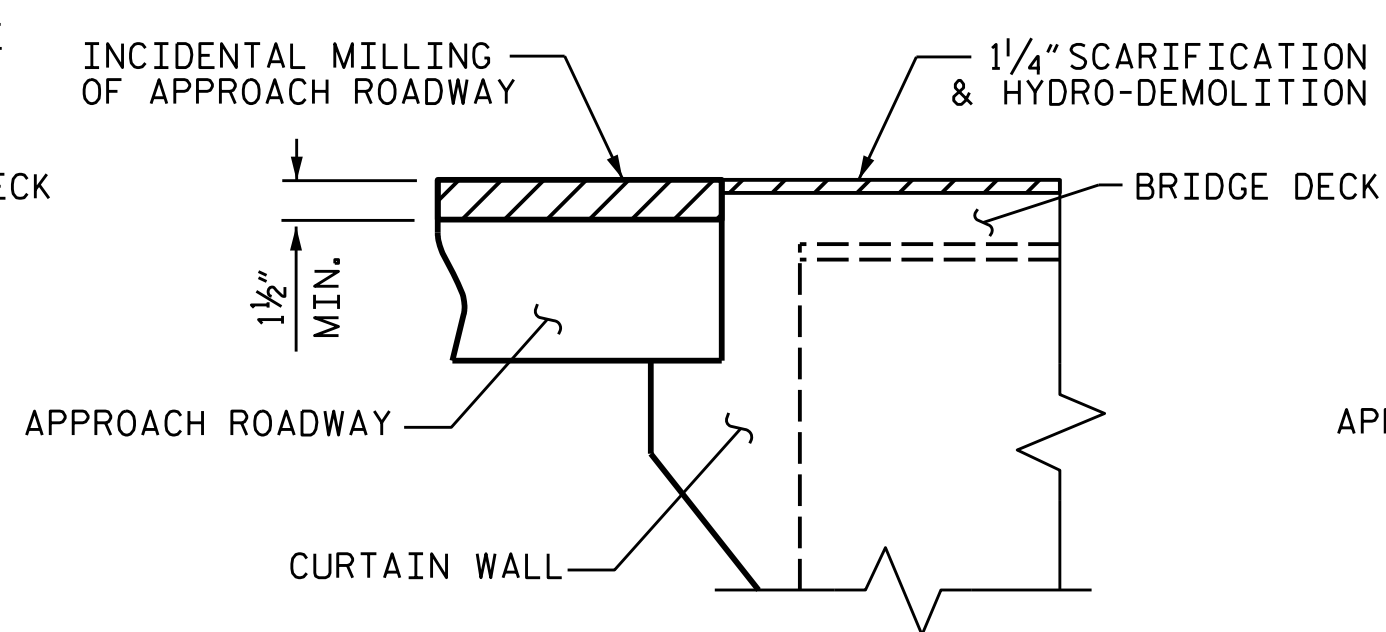
DRAWN BY : A. Y. GODFREY DATE : 01/2022
 CHECKED BY : S. WANCE DATE : 03/2022

DOCUMENT NOT CONSIDERED
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 SIGNATURES COMPLETED

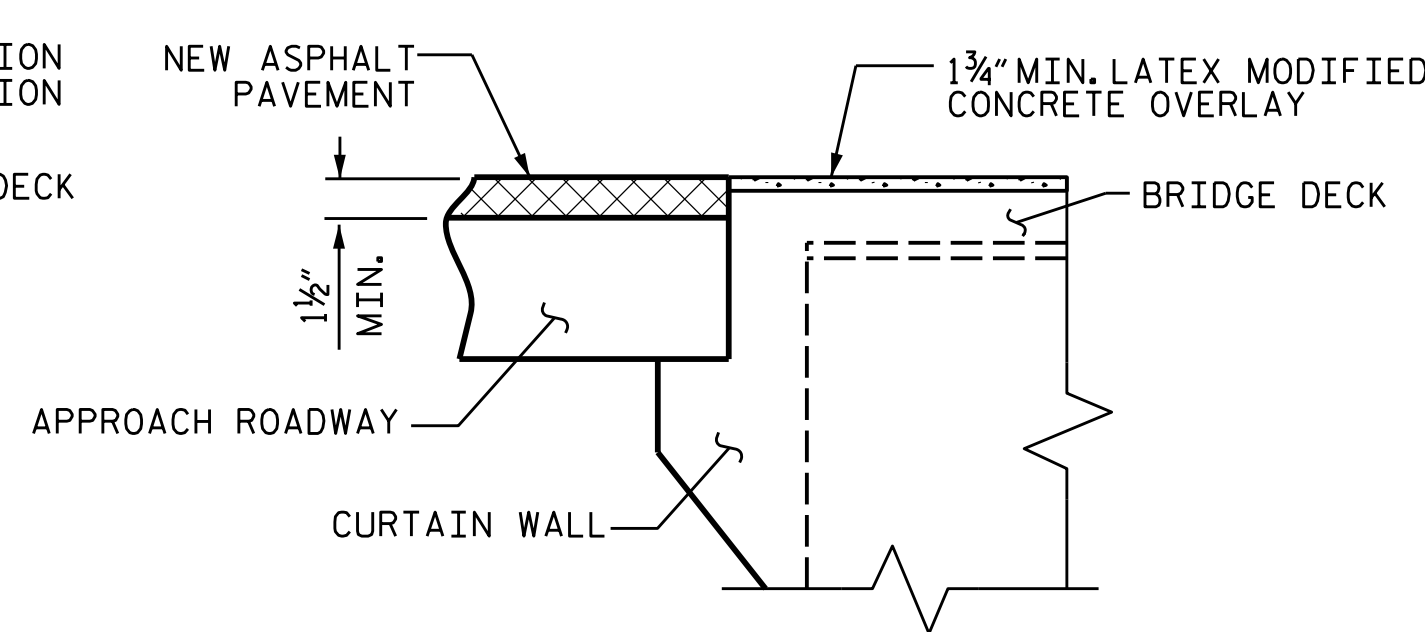
| REVISIONS | | | | | | SHEET NO. |
|-----------|-----|-------|-----|-----|-------|-----------------|
| NO. | BY: | DATE: | NO. | BY: | DATE: | |
| 1 | | | 3 | | | S4-08 |
| 2 | | | 4 | | | TOTAL SHEETS 18 |



EXISTING JOINT



EXISTING JOINT

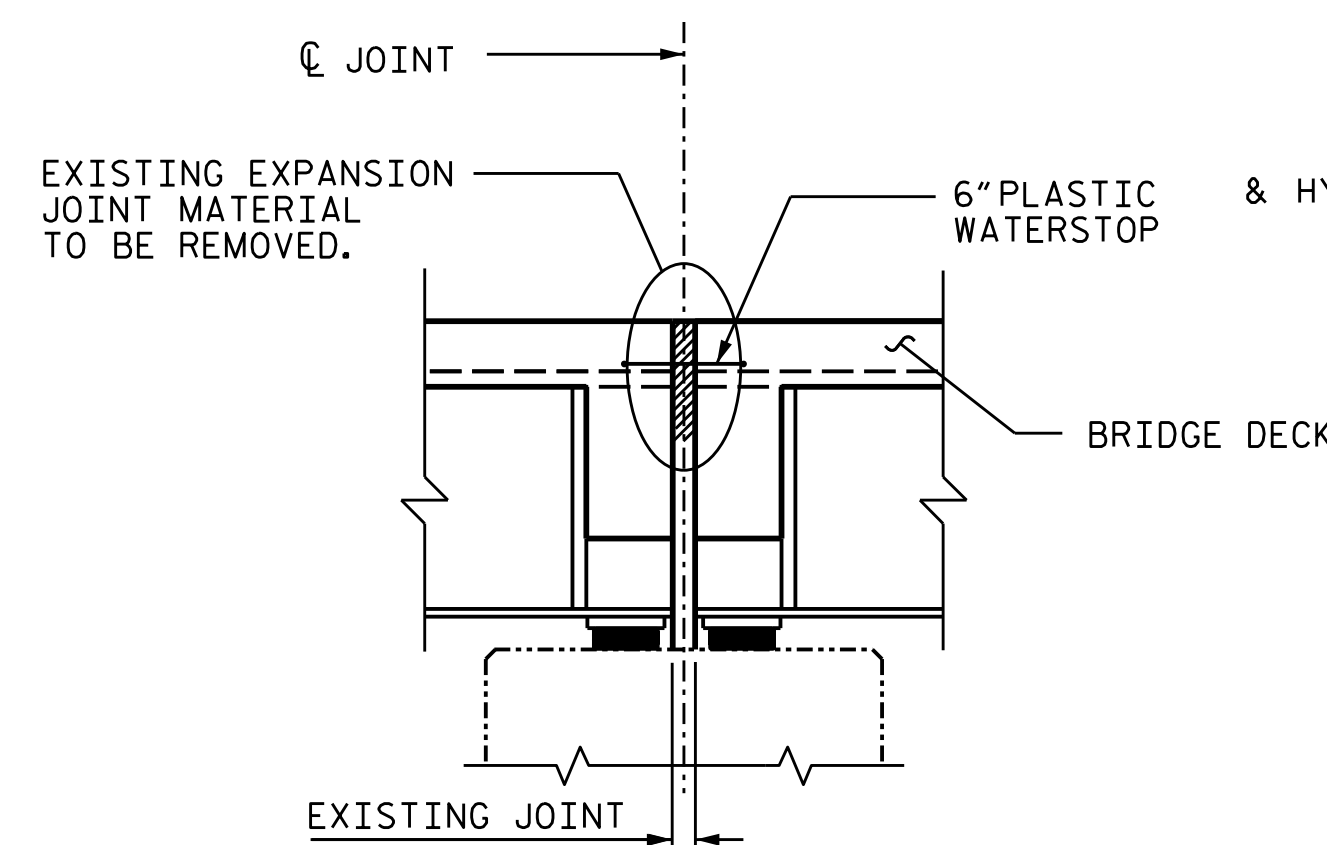


PROPOSED JOINT

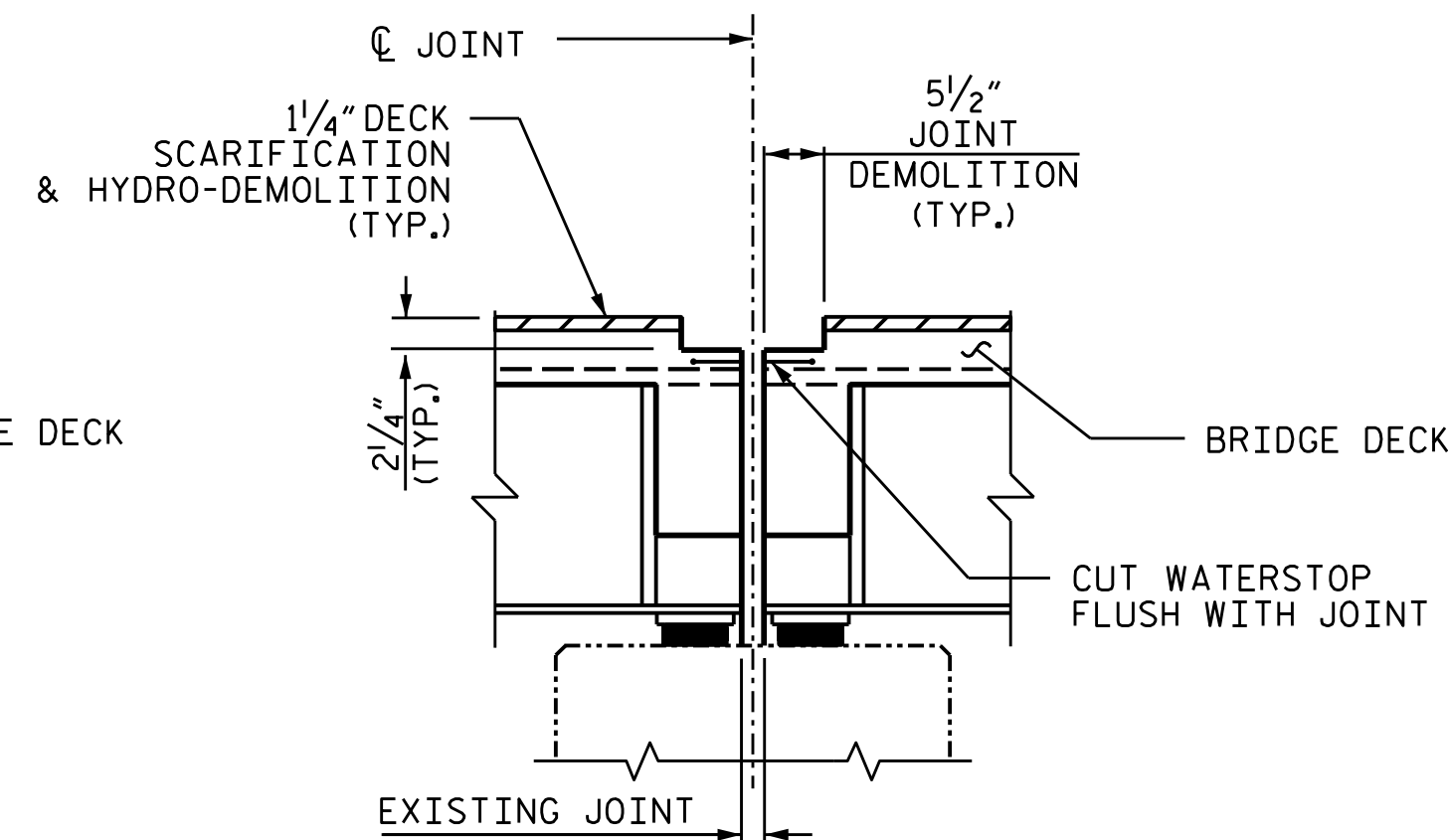
DEMOLISH BRIDGE JOINT AREA SUCH THAT THE BOTTOM OF THE EXCAVATION SHALL BE REASONABLY FLAT AND LEVEL AND TO THE NECESSARY DEPTH, SUCH THAT ELASTOMERIC CONCRETE SHALL BE FOUNDED ON CONCRETE OR REPAIR CONCRETE SUBSTRATE, NOT LATEX MODIFIED CONCRETE.

IF THE EMBEDDED PORTION OF THE EXISTING PLASTIC WATERSTOP IS EXPOSED DURING REMOVAL OF UNSOUND CONCRETE, OR IF UNSOUND CONCRETE IS REMOVED WITHIN 2" OF THE WATERSTOP, THE ENTIRE CONCRETE DEPTH TO THE WATERSTOP SHALL BE REMOVED. IF SUCH EXCAVATION EXTENDS MORE THAN 2" BELOW THE BOTTOM OF THE PLANNED ELASTOMERIC CONCRETE HEADER, AS SHOWN, APPROVED REPAIR CONCRETE SHALL BE PLACED IN THE EXCAVATED AREA TO THE ELEVATION AT THE BOTTOM OF THE ELASTOMERIC CONCRETE.

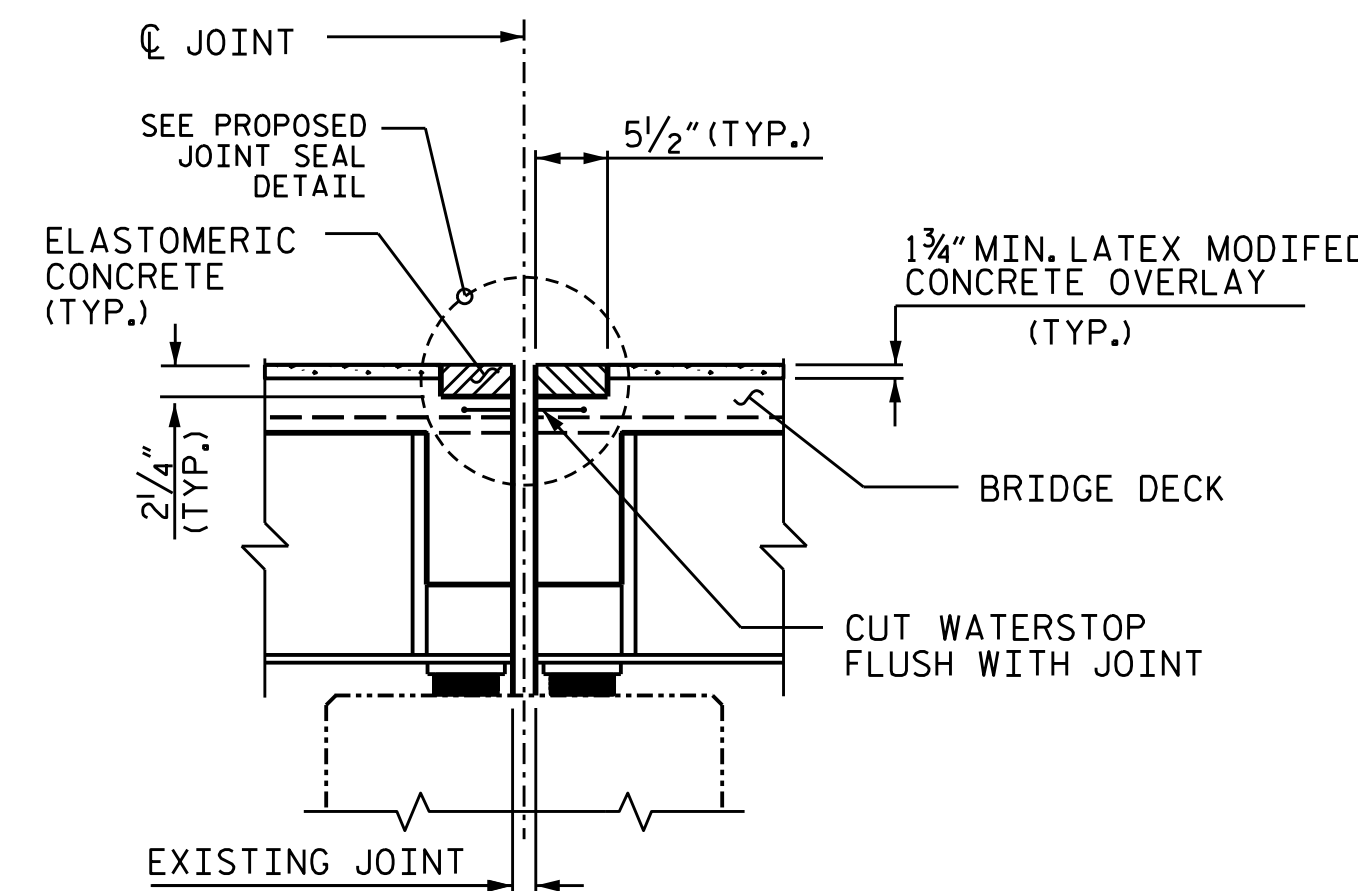
JOINT INSTALLATION SEQUENCE AT END BENTS (SECTION A-A)



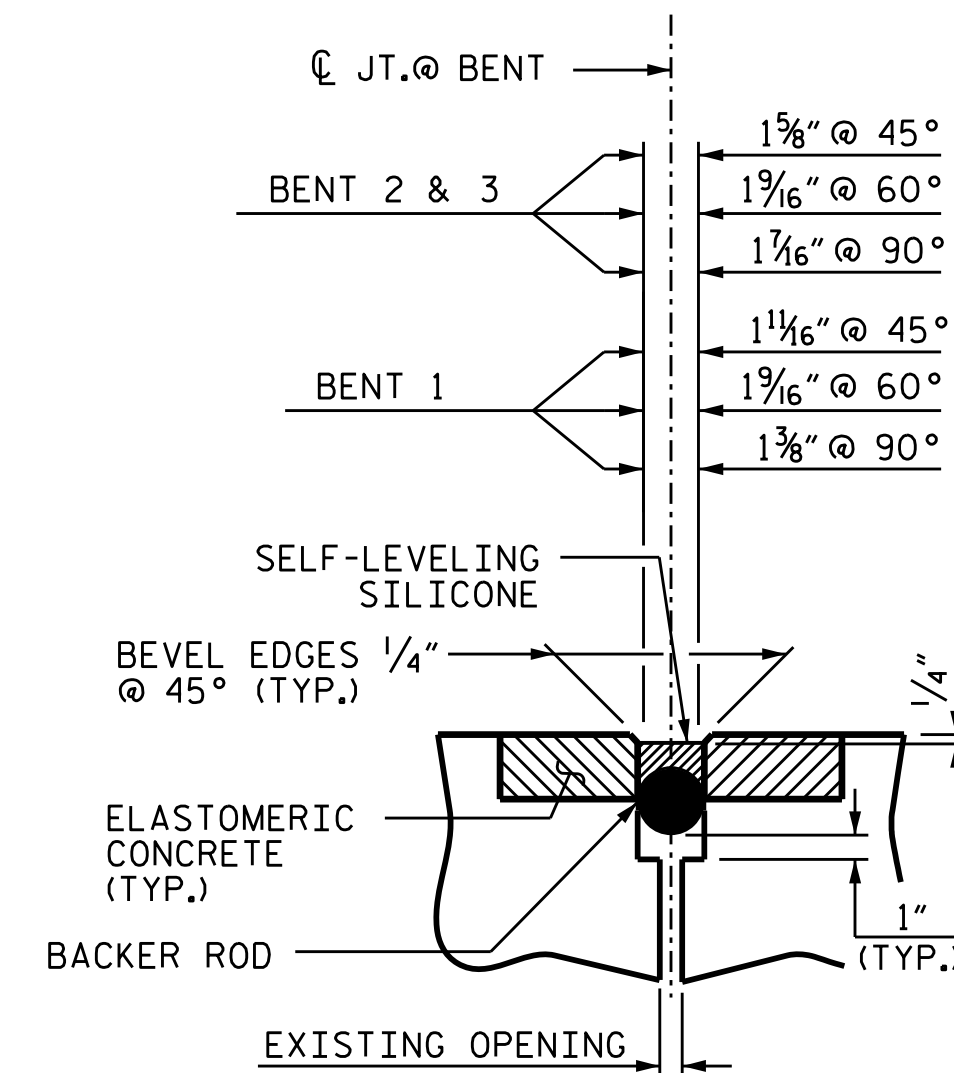
EXISTING JOINT



MINIMUM EXISTING JOINT DEMOLITION

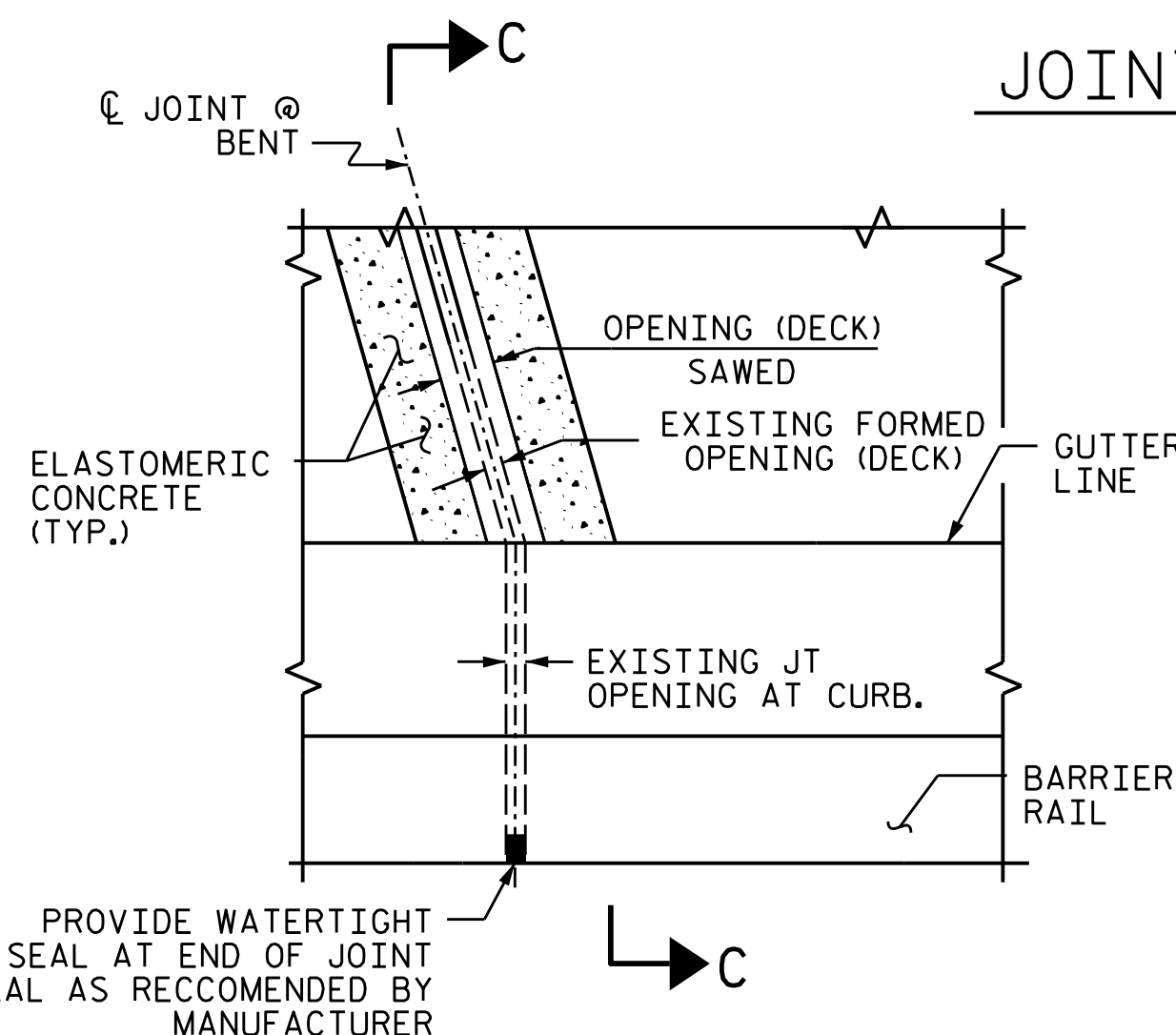


PROPOSED JOINT PRE-SAWED



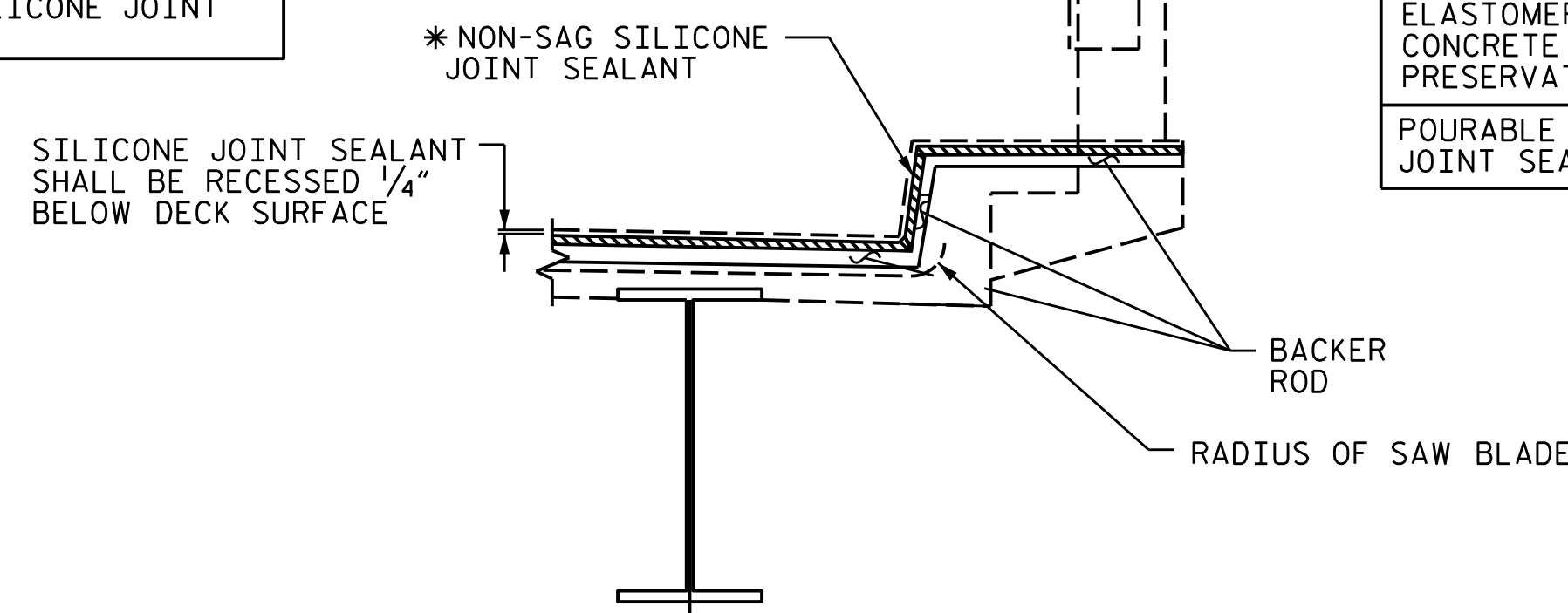
PROPOSED JOINT SEAL DETAIL (WITH SAWED DIMENSIONS)

JOINT INSTALLATION SEQUENCE AT BENTS (JOINTS SECTION B-B)



PLAN AT BENT

*NON-SAG SILICONE JOINT SEALANT TO BE PLACED AND ALLOWED TO SET, PRIOR TO PLACEMENT OF SELF-LEVELING SILICONE JOINT SEALANT.



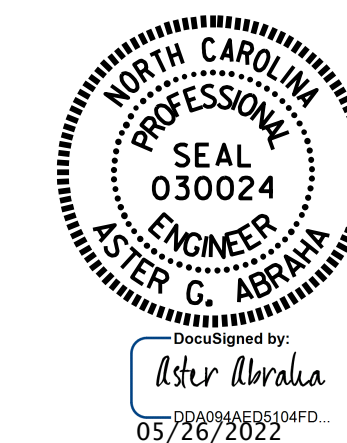
JOINT DETAILS AT CURB

SECTION C-C

SUMMARY OF QUANTITIES

| | ESTIMATE | ACTUAL |
|---------------------------------------|----------|--------|
| ELASTOMERIC CONCRETE FOR PRESERVATION | 21.4 CF | |
| POURABLE SILICONE JOINT SEALANT | 145.7 LF | |

PROJECT NO. 15BPR.47
 NASH COUNTY
 BRIDGE NO. 630123



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

JOINT REPAIR DETAILS

| REVISIONS | | | | | | SHEET NO. |
|-----------|-----|-------|-----|-----|-------|--------------|
| NO. | BY: | DATE: | NO. | BY: | DATE: | S4-09 |
| 1 | | | 3 | | | TOTAL SHEETS |
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DRAWN BY : A. Y. GODFREY DATE : 01/2022
 CHECKED BY : S. WANCE DATE : 03/2022

NOTES:

CONTRACTOR SHALL FIELD VERIFY THE EXISTING FORMED OPENING PRIOR TO OBTAINING JOINT MATERIAL. IF ACTUAL JOINT OPENINGS VARIES FROM THE OPENING INDICATED IN DETAIL MORE THAN 1/4" NOTIFY ENGINEER. REVISION TO THE JOINT SEAL SIZE MAY BE NECESSARY.

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.

UNLESS NOTED OTHERWISE RETAIN ALL EXISTING REINFORCING STEEL. CLEAN AND REPAIR AS NEEDED.

ALL EXPOSED ENDS OF CUT BARS SHALL BE COATED WITH EPOXY PRIOR TO THE NEW JOINT MATERIAL INSTALLATION.

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

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

FOR POURABLE SILICONE EXPANSION JOINT SEALS, SEE SPECIAL PROVISIONS.

FOR ELASTOMERIC CONCRETE FOR PRESERVATION, SEE SPECIAL PROVISIONS.

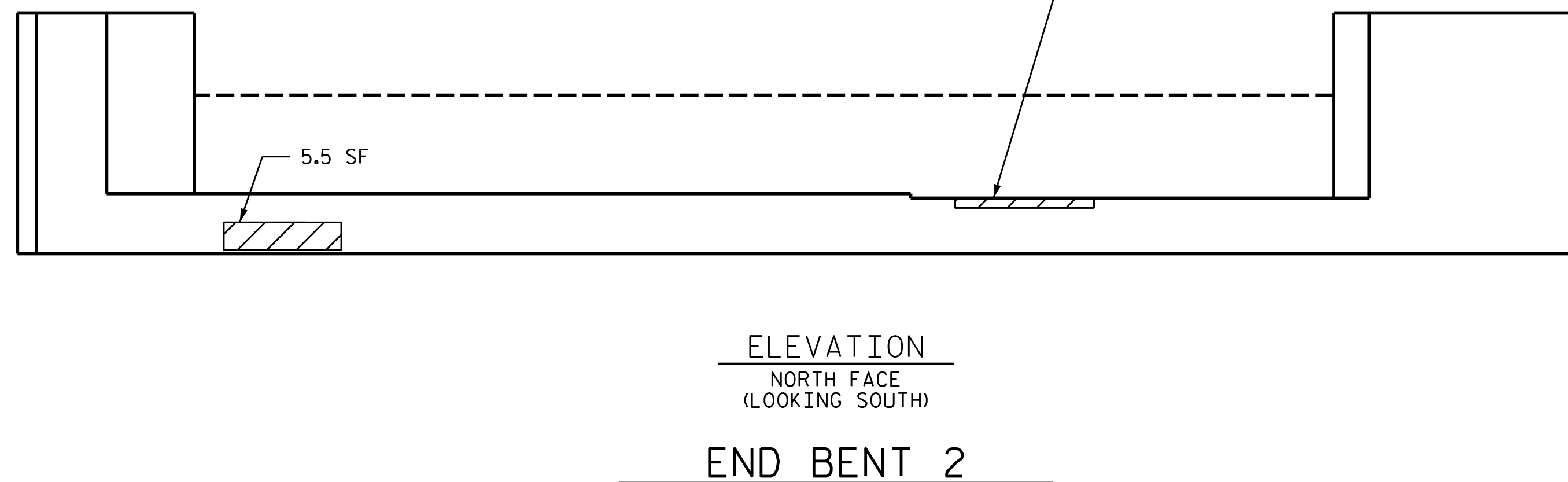
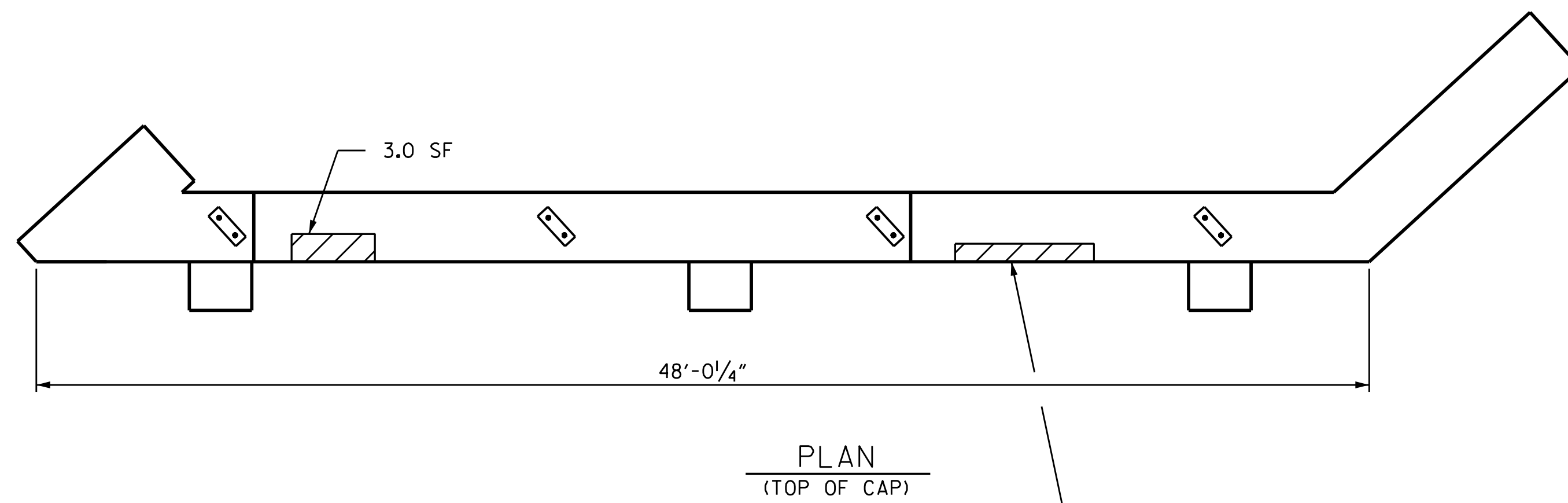
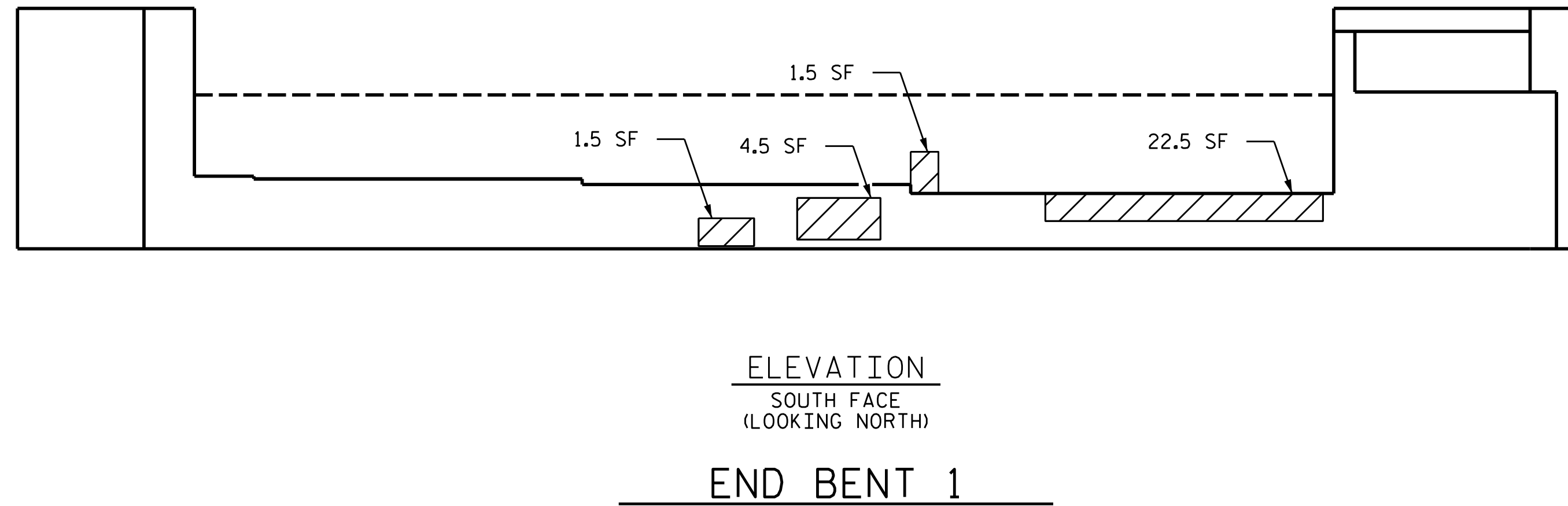
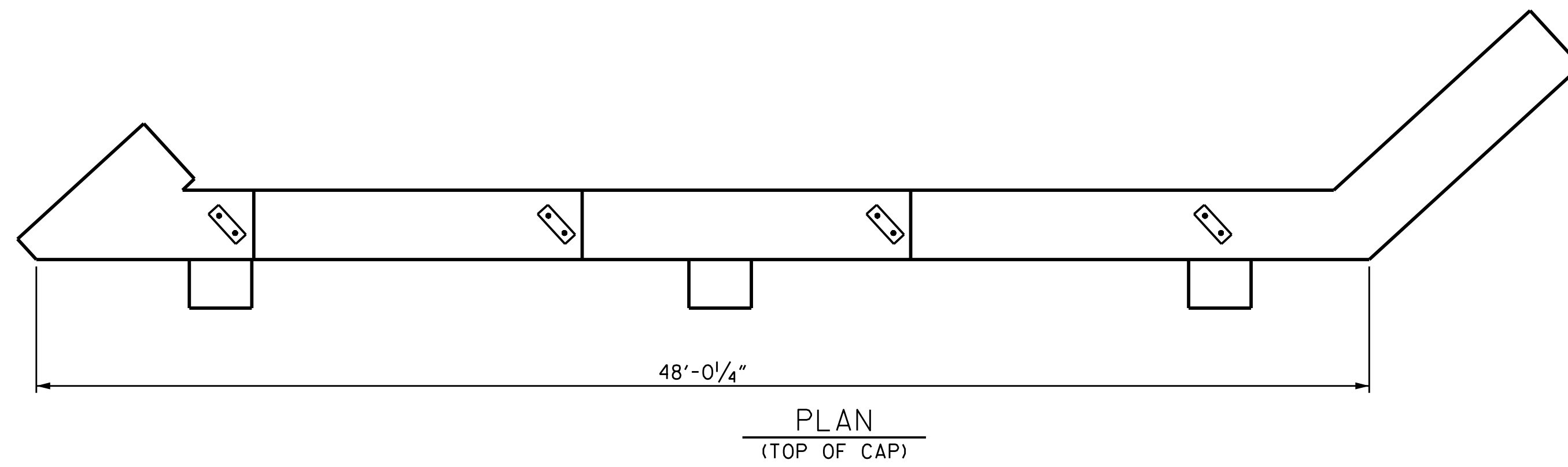
SILICONE JOINT SEALANT AND BACKER ROD SHALL BE INSTALLED AS PER MANUFACTURER'S RECOMMENDATION.

THE INSTALLATION OF JOINT SEAL SHALL BE WATERTIGHT.

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

DURING JOINT INSTALLATION PROCEDURE, THE JOINT AND SURROUNDING AREA SHALL BE KEPT CLEAN AND FREE OF DEBRIS.

FOR BRIDGE JOINT DEMOLITION, SEE SPECIAL PROVISIONS.



| REPAIR QUANTITY TABLE | | | | |
|---------------------------|------------|-----------|---------|-----------|
| REPAIRS END BENT 1 & 2 | QUANTITIES | | | |
| | ESTIMATE | | ACTUAL | |
| SHOTCRETE REPAIRS | AREA SF | VOLUME CF | AREA SF | VOLUME CF |
| CAP (VERTICAL FACE) | 35.5 | 17.8 | | |
| CAP (HORIZONTAL, CORNER) | 9.0 | 4.5 | | |
| COLUMN | 0.0 | 0.0 | | |
| CONCRETE REPAIRS | | | AREA SF | VOLUME CF |
| CAP (VERTICAL FACE) | 0.0 | 0.0 | | |
| CAP (HORIZONTAL, CORNER) | 0.0 | 0.0 | | |
| COLUMN | 0.0 | 0.0 | | |

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 2" CL TO SAWCUT. SEE REPAIR DETAILS.

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 INSPECTOR OR ENGINEER, THE CONTRACTOR SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ENTER THE ACTUAL QUANTITIES INTO THE REPAIR QUANTITY TABLE.

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

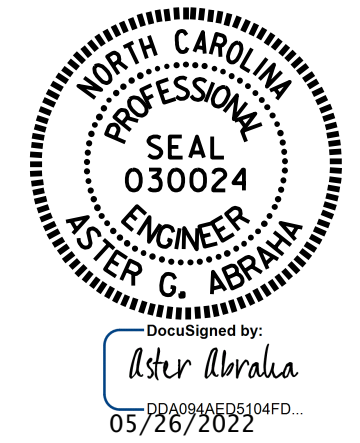
FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

CONCRETE REPAIRS MAY BE SUBSTITUTED IN LIEU OF SHOTCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

- CONCRETE REPAIRS
- SHOTCRETE REPAIRS

PROJECT NO. 15BPR.47
NASH COUNTY
 BRIDGE NO. 630123



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUBSTRUCTURE
 REPAIR
 END BENT 1 &
 END BENT 2**

DRAWN BY : A. Y. GODFREY DATE : 01/2022
 CHECKED BY : S. WANCE DATE : 03/2022

| NO. | REVISIONS | | | SHEET NO. |
|-----|-----------|-------|-----|-----------------|
| | BY: | DATE: | NO. | |
| 1 | | | 3 | S4-10 |
| 2 | | | 4 | TOTAL SHEETS 18 |

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NOTES:


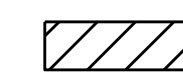
REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE INSPECTOR OR ENGINEER, THE CONTRACTOR SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ENTER THE ACTUAL QUANTITIES INTO THE REPAIR QUANTITY TABLE.

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

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

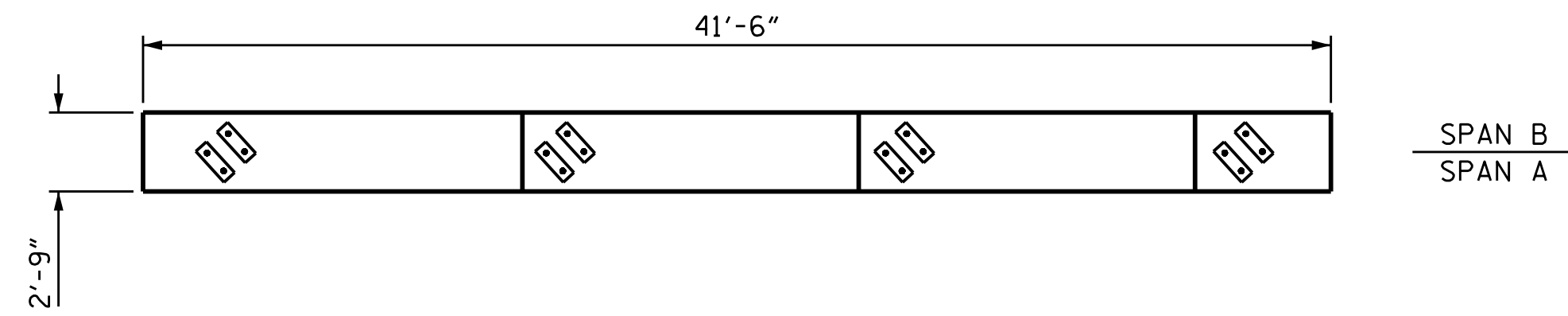
CONCRETE REPAIRS MAY BE SUBSTITUTED IN LIEU OF SHOTCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

-  - CONCRETE REPAIRS
-  - SHOTCRETE REPAIRS

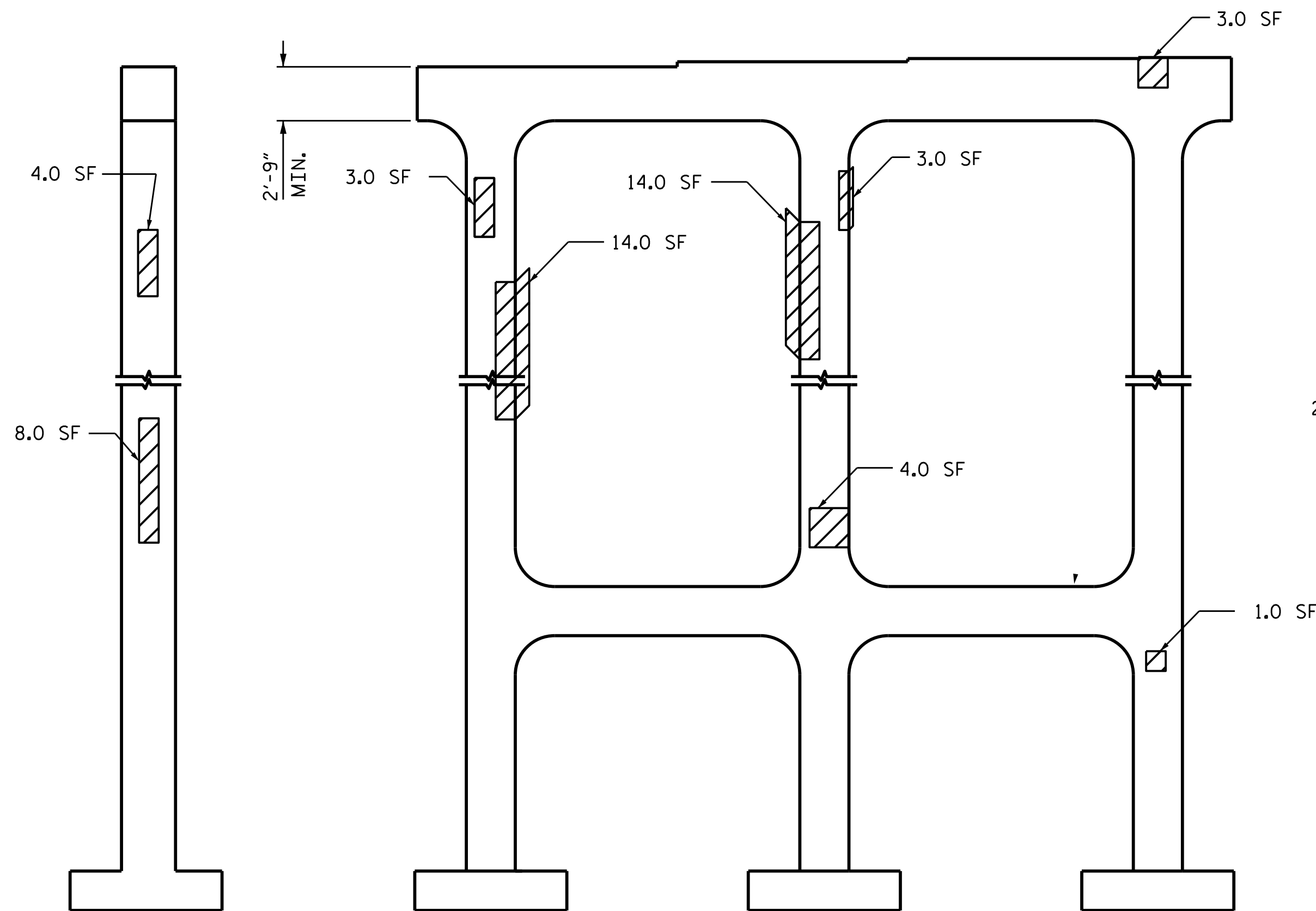
REPAIR QUANTITY TABLE

| BENT 1 | QUANTITIES | | | |
|-----------------------|------------|-----------|---------|-----------|
| | ESTIMATE | | ACTUAL | |
| SHOTCRETE REPAIR | AREA SF | VOLUME CF | AREA SF | VOLUME CF |
| CAP (VERTICAL FACE) | 6.0 | 3.0 | | |
| CAP (HORIZONTAL FACE) | 2.3 | 1.2 | | |
| COLUMN AND STRUTS | 97.5 | 49.0 | | |
| CONCRETE REPAIR | | | | |
| CAP (VERTICAL FACE) | 0.0 | 0.0 | | |
| CAP (HORIZONTAL FACE) | 0.0 | 0.0 | | |
| COLUMN AND STRUTS | 0.0 | 0.0 | | |

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



PLAN
TOP OF CAP

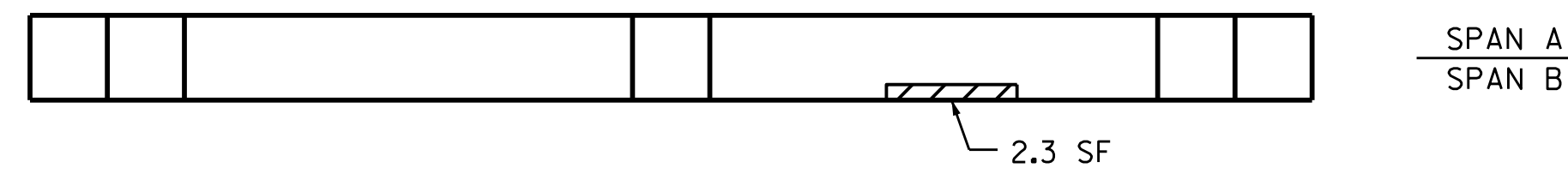


END VIEW
EAST FACE

ELEVATION
NORTH FACE

END VIEW
WEST FACE

ELEVATION
SOUTH FACE



PLAN
BOTTOM OF CAP

DRAWN BY : S. T. SANDOR/A. Y. GODFREY DATE : 09/2021
CHECKED BY : S. WANCE DATE : 03/2022

PROJECT NO. 15BPR.47
NASH COUNTY
BRIDGE NO. 630123

SHEET 1 OF 3



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
BENT 1

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| REVISIONS | | | | | | SHEET NO. |
|-----------|-----|-------|-----|-----|-------|--------------|
| NO. | BY: | DATE: | NO. | BY: | DATE: | S4-11 |
| 1 | | | 3 | | | TOTAL SHEETS |
| 2 | | | 4 | | | 18 |

NOTES:

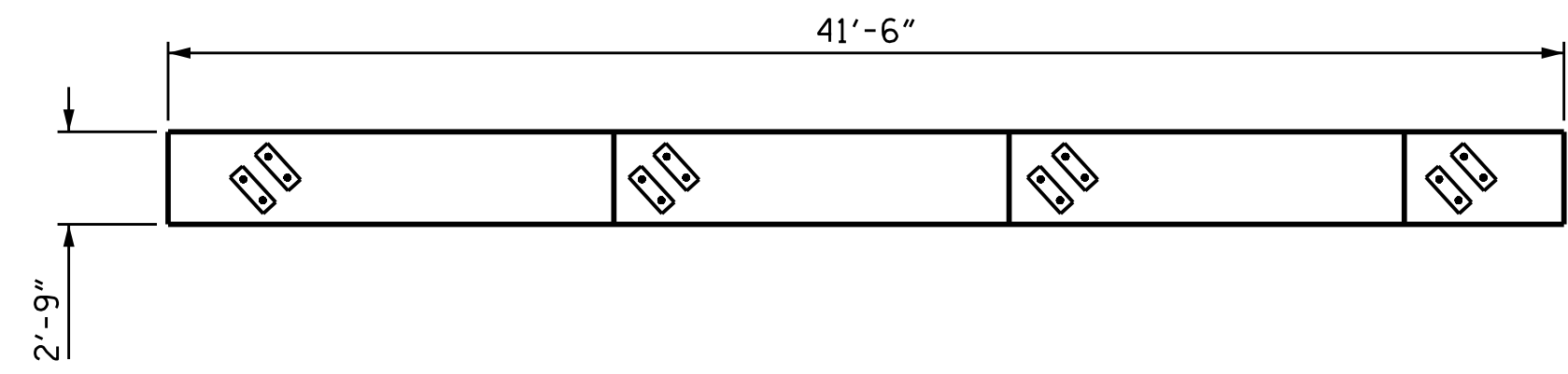
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FOR ADDITIONAL NOTES, SEE SHEET 1 OF 3.

REPAIR QUANTITY TABLE

| BENT 2 | QUANTITIES | | | |
|-----------------------|------------|-----------|---------|-----------|
| | ESTIMATE | | ACTUAL | |
| SHOTCRETE REPAIR | AREA SF | VOLUME CF | AREA SF | VOLUME CF |
| CAP (VERTICAL FACE) | 44.0 | 22.0 | | |
| CAP (HORIZONTAL FACE) | 12.0 | 6.0 | | |
| COLUMN AND STRUTS | 97.0 | 49.5 | | |
| CONCRETE REPAIR | | | | |
| CAP (VERTICAL FACE) | 0.0 | 0.0 | | |
| CAP (HORIZONTAL FACE) | 0.0 | 0.0 | | |
| COLUMN AND STRUTS | 0.0 | 0.0 | | |

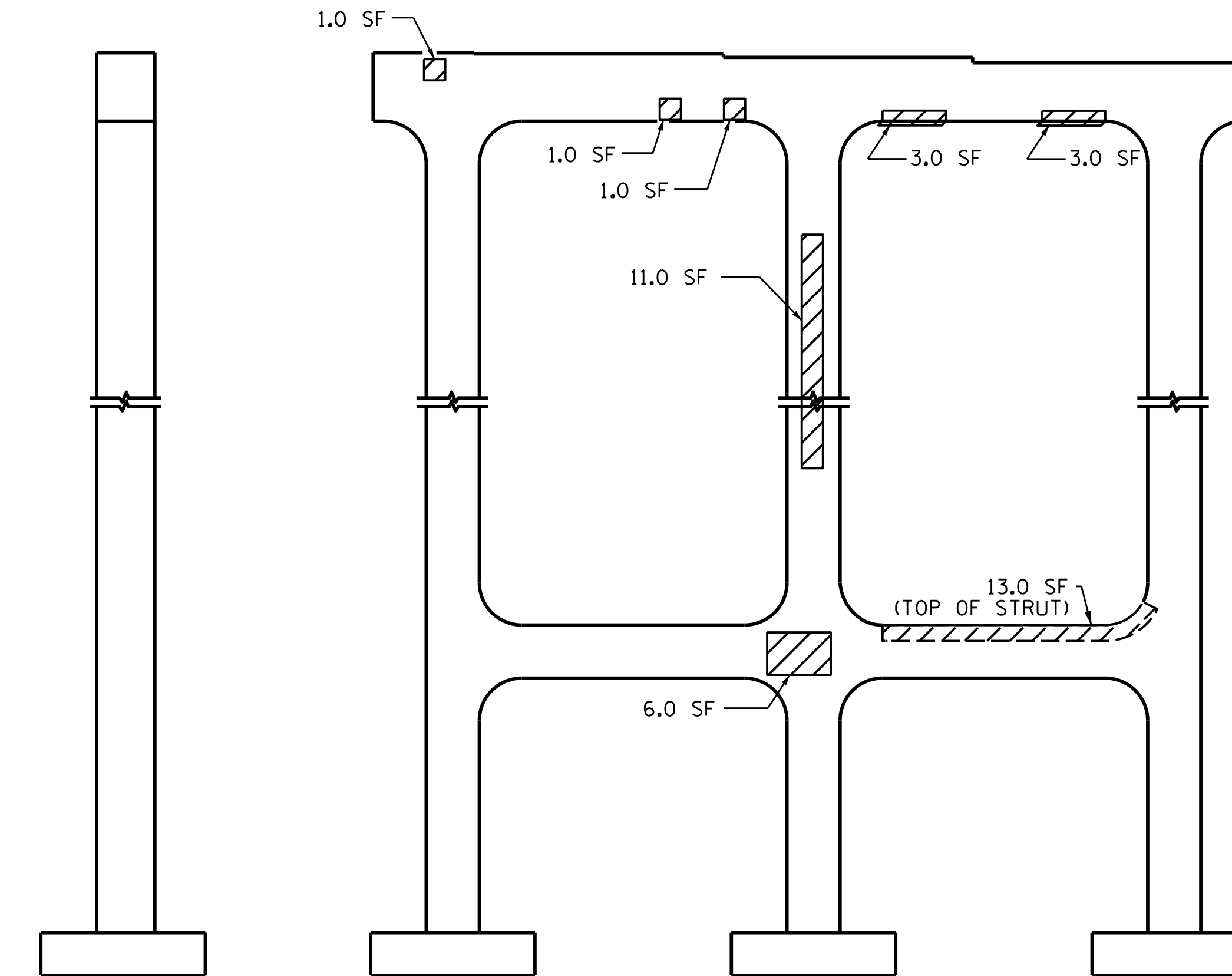
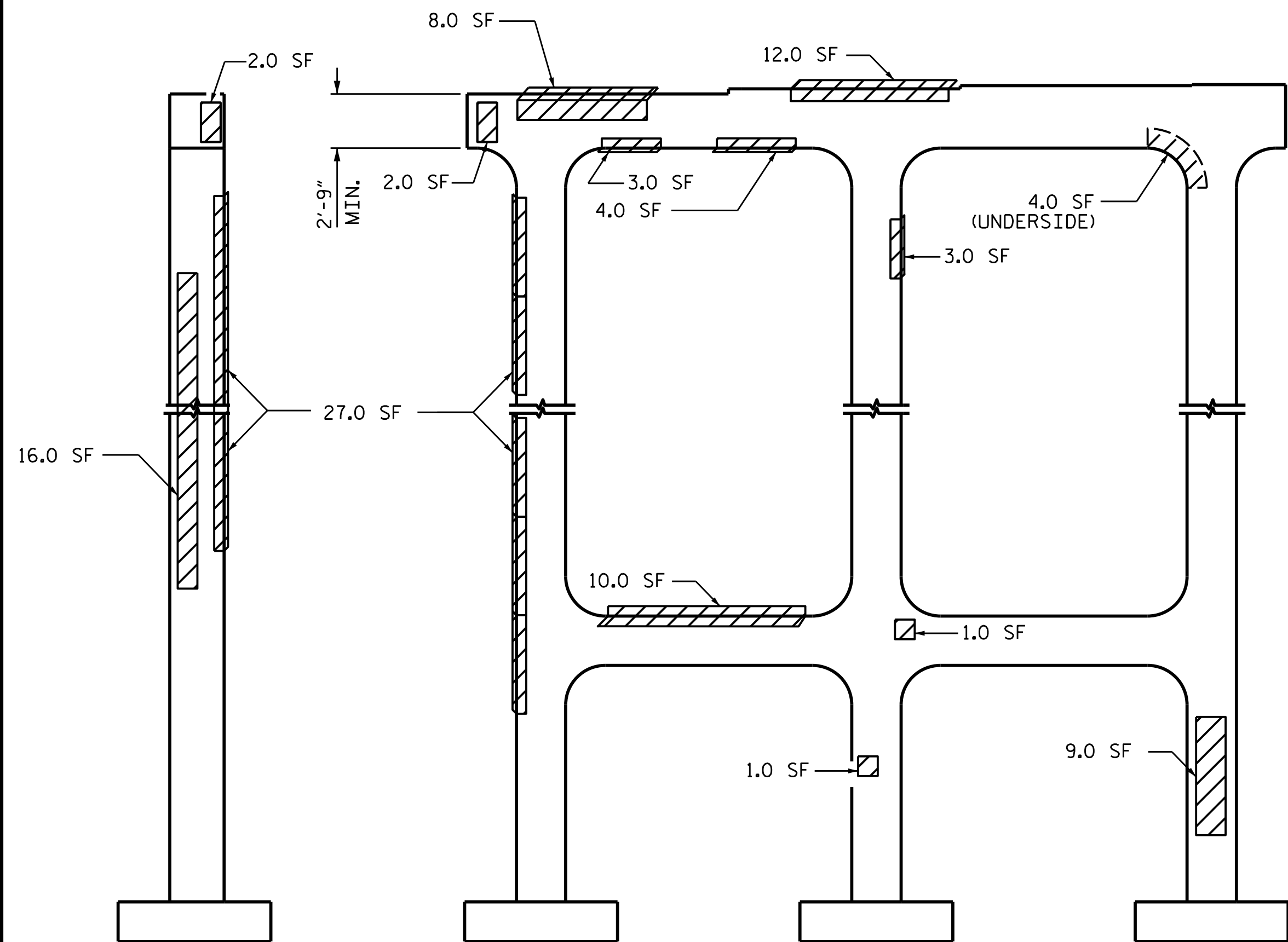
VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 2" CLEARANCE TO SAWCUT. SEE REPAIR DETAILS.



SPAN C
SPAN B

- CONCRETE REPAIRS
- SHOTCRETE REPAIRS

PLAN
TOP OF CAP

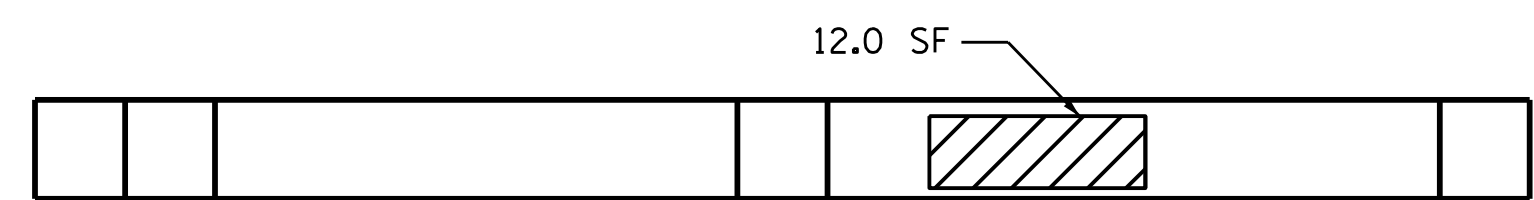


END VIEW
EAST FACE

ELEVATION
NORTH FACE

END VIEW
WEST FACE

ELEVATION
SOUTH FACE



SPAN B
SPAN C

PLAN
BOTTOM OF CAP

PROJECT NO. 15BPR.47
NASH COUNTY
 BRIDGE NO. 630123

SHEET 2 OF 3



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE BENT 2

DRAWN BY : S. T. SANDOR/A. Y. GODFREY DATE : 01/2022
 CHECKED BY : S. WANCE DATE : 03/2022

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| REVISIONS | | | | | | SHEET NO. |
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| NO. | BY: | DATE: | NO. | BY: | DATE: | S4-12 |
| 1 | | | 3 | | | TOTAL SHEETS |
| 2 | | | 4 | | | 18 |

NOTES:

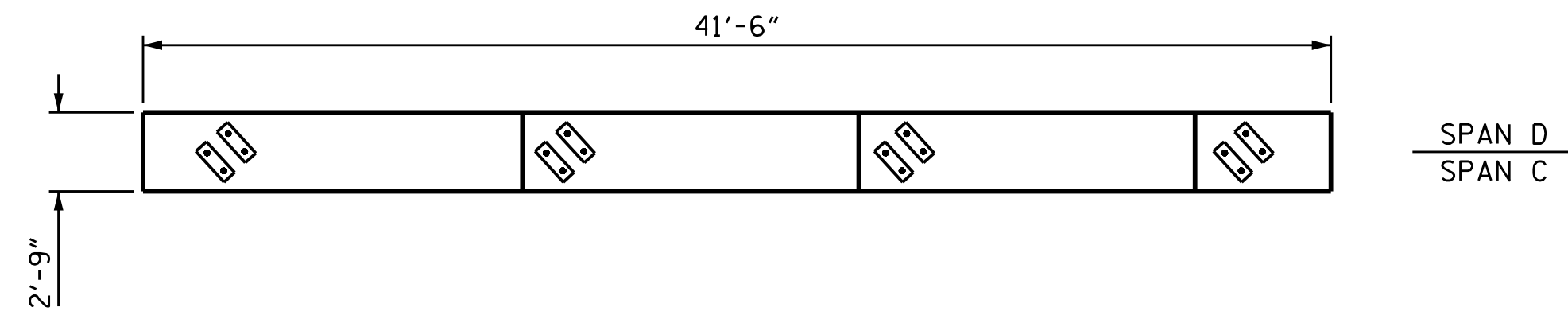
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FOR ADDITIONAL NOTES, SEE SHEET 1 OF 3.

REPAIR QUANTITY TABLE

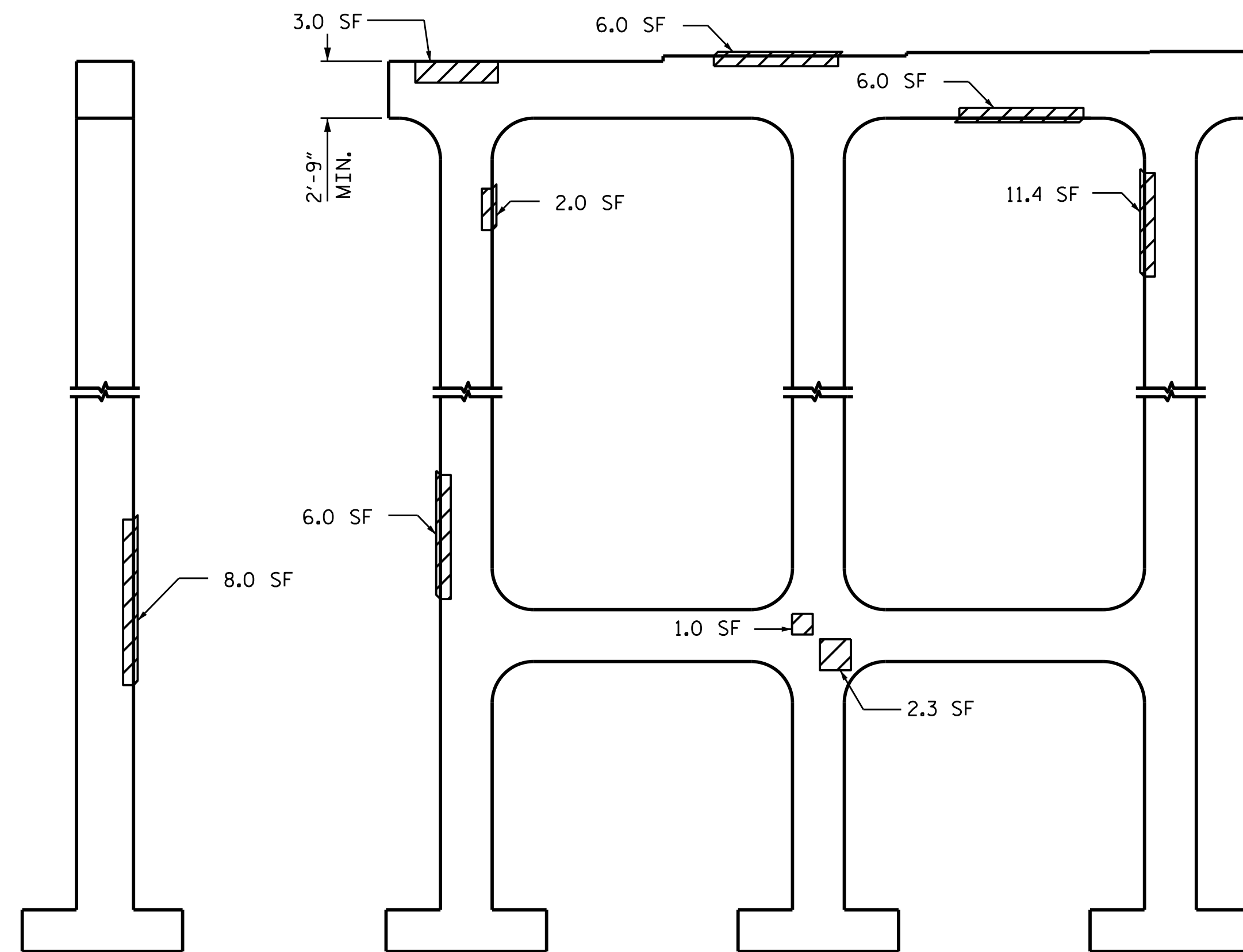
| BENT 3 | QUANTITIES | | | |
|-----------------------|------------|-----------|---------|-----------|
| | ESTIMATE | | ACTUAL | |
| SHOTCRETE REPAIR | AREA SF | VOLUME CF | AREA SF | VOLUME CF |
| CAP (VERTICAL FACE) | 3.0 | 1.5 | | |
| CAP (HORIZONTAL FACE) | 15.0 | 7.5 | | |
| COLUMN AND STRUTS | 78.2 | 39.1 | | |
| CONCRETE REPAIR | | | | |
| CAP (VERTICAL FACE) | 0.0 | 0.0 | | |
| CAP (HORIZONTAL FACE) | 0.0 | 0.0 | | |
| COLUMN AND STRUTS | 0.0 | 0.0 | | |

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



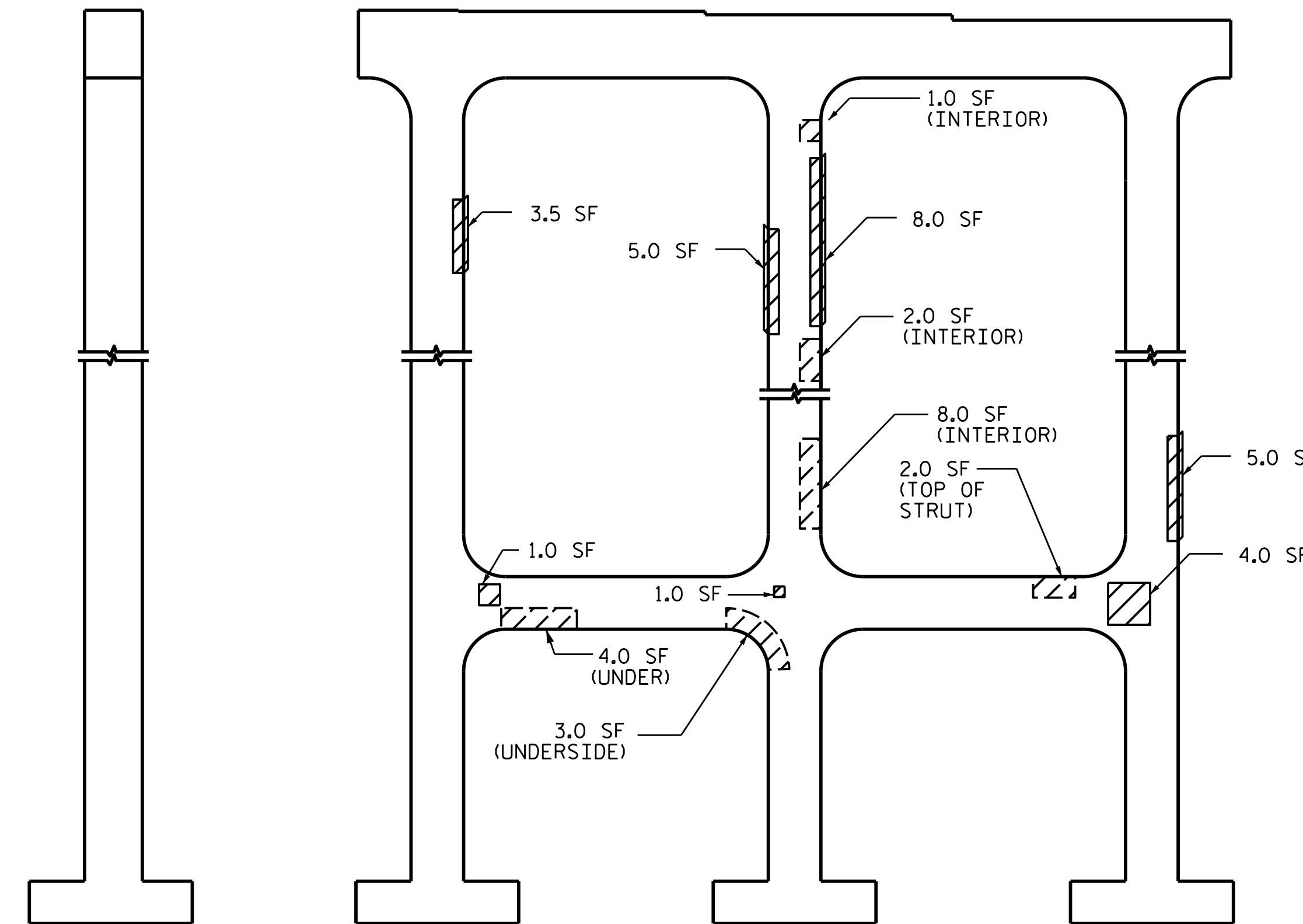
PLAN
TOP OF CAP

- CONCRETE REPAIRS
- SHOTCRETE REPAIRS



END VIEW
EAST FACE

ELEVATION
NORTH FACE



END VIEW
WEST FACE

ELEVATION
SOUTH FACE



PLAN
BOTTOM OF CAP

PROJECT NO. 15BPR.47
NASH COUNTY
 BRIDGE NO. 630123

SHEET 3 OF 3



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE BENT 3

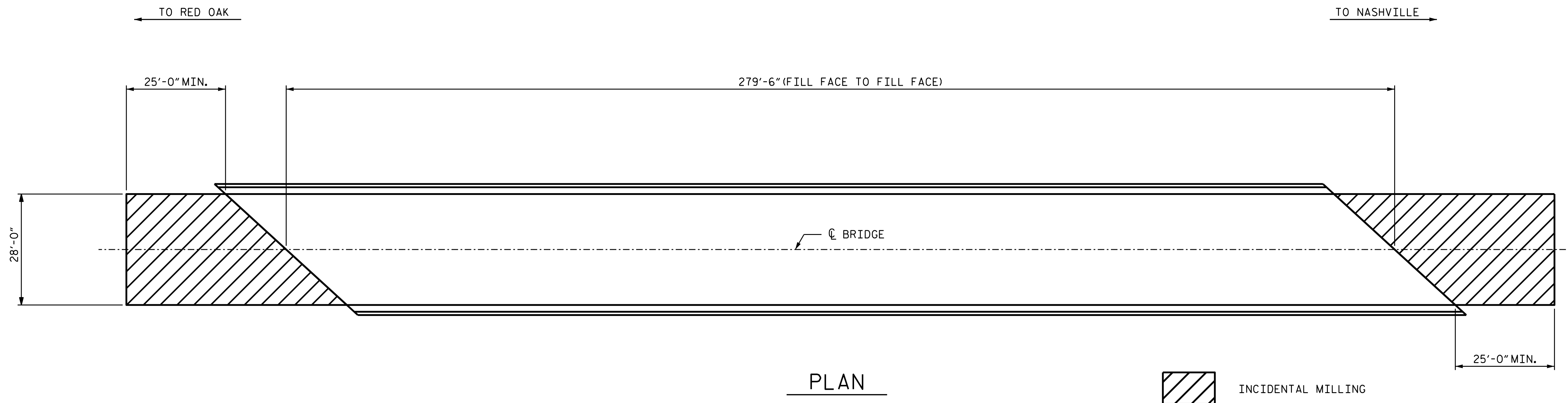
DRAWN BY : S. T. SANDOR/A. Y. GODFREY DATE : 01/2022
 CHECKED BY : S. WANCE DATE : 03/2022

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| REVISIONS | | | | | | SHEET NO. |
|-----------|-----|-------|-----|-----|-------|--------------|
| NO. | BY: | DATE: | NO. | BY: | DATE: | S4-13 |
| 1 | | | 3 | | | TOTAL SHEETS |
| 2 | | | 4 | | | 18 |

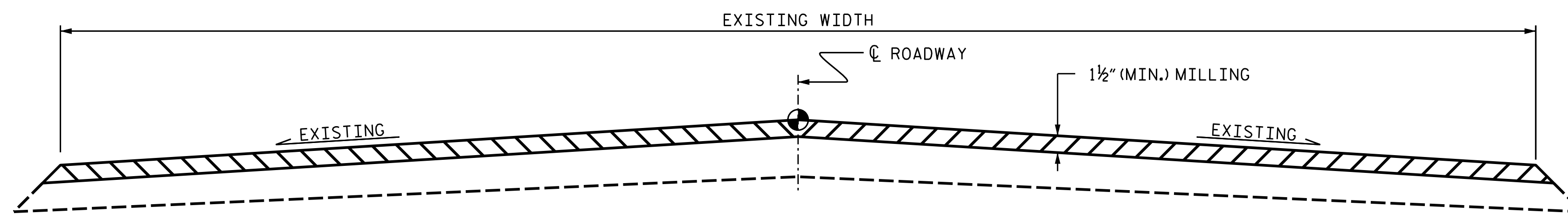
NOTES

INCIDENTAL MILLING - EXISTING APPROACH ASPHALT PAVING TO BE MILLED AS NECESSARY TO ATTAIN MINIMUM 1½" DEPTH OF NEW ASPHALT PAVING. NEW ASPHALT PAVEMENT SHALL BE OF THICKNESS NECESSARY TO PROVIDE A SMOOTH TRANSITION BETWEEN THE ROADWAY AND THE BRIDGE DECK. THE NEW ASPHALT PAVEMENT THICKNESS MAY EXCEED 1½" DUE TO SETTLEMENT OF THE EXISTING APPROACH.

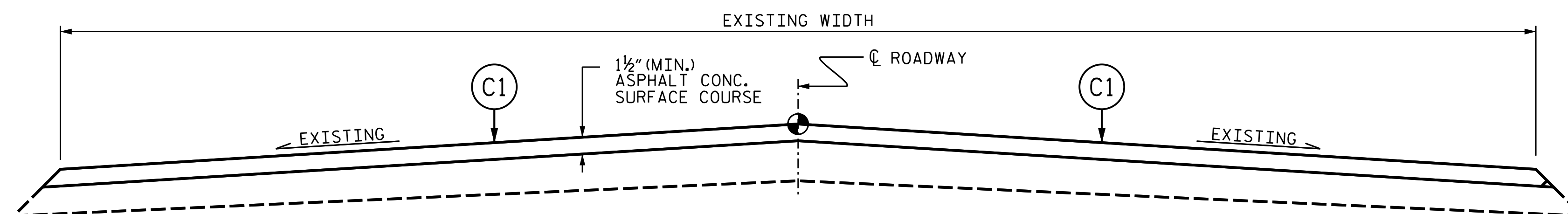


C1 PROPOSED VARIABLE DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 1½" IN DEPTH OR GREATER THAN 2" DEPTH.

| SUMMARY OF QUANTITIES | | |
|---|-----------|--------|
| | ESTIMATE | ACTUAL |
| INCIDENTAL MILLING | 250.8 SY | |
| ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B | 30.0 TONS | |
| ASPHALT BINDER FOR PLANT MIX | 5.0 TONS | |

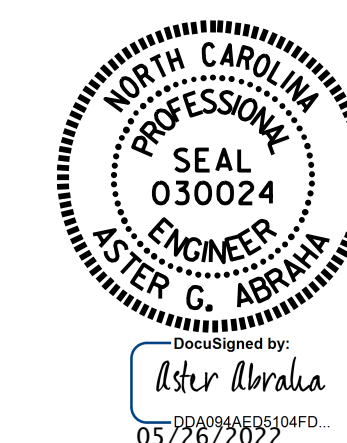


TYPICAL ROADWAY MILLING SECTION



TYPICAL PROPOSED ROADWAY SECTION

PROJECT NO. 15BPR.47
NASH COUNTY
 BRIDGE NO. 630123



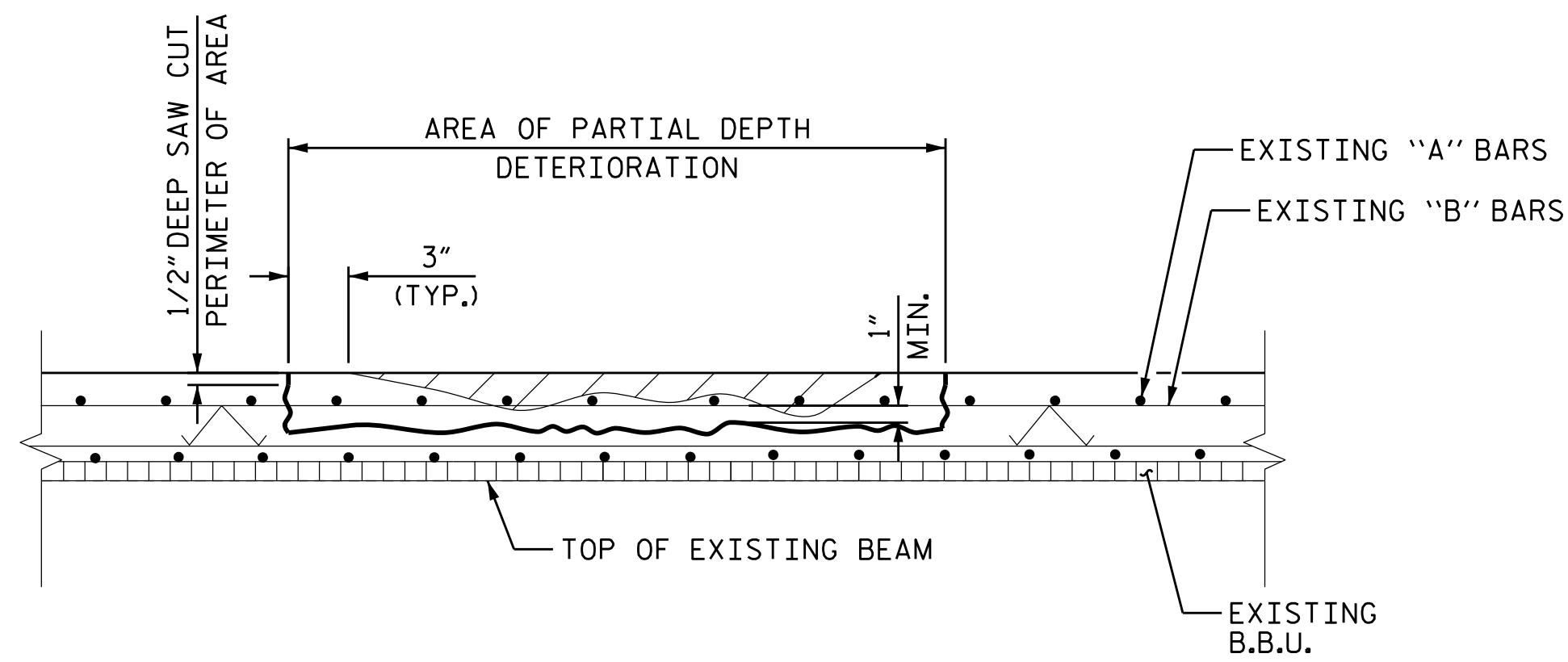
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

APPROACH MILLING & TYPICAL ROADWAY SECTIONS

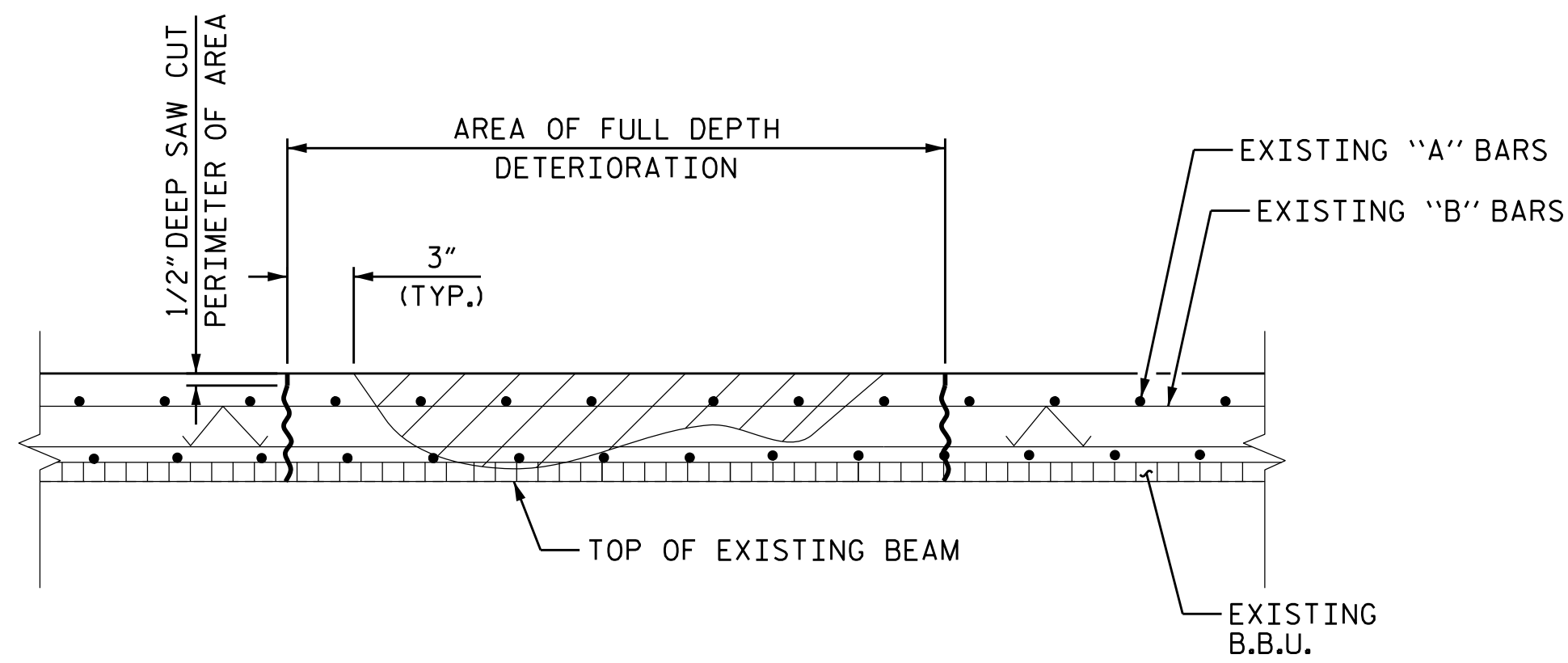
DRAWN BY : A. Y. GODFREY DATE : 01/2022
 CHECKED BY : S. WANCE DATE : 03/2022

DOCUMENT NOT CONSIDERED
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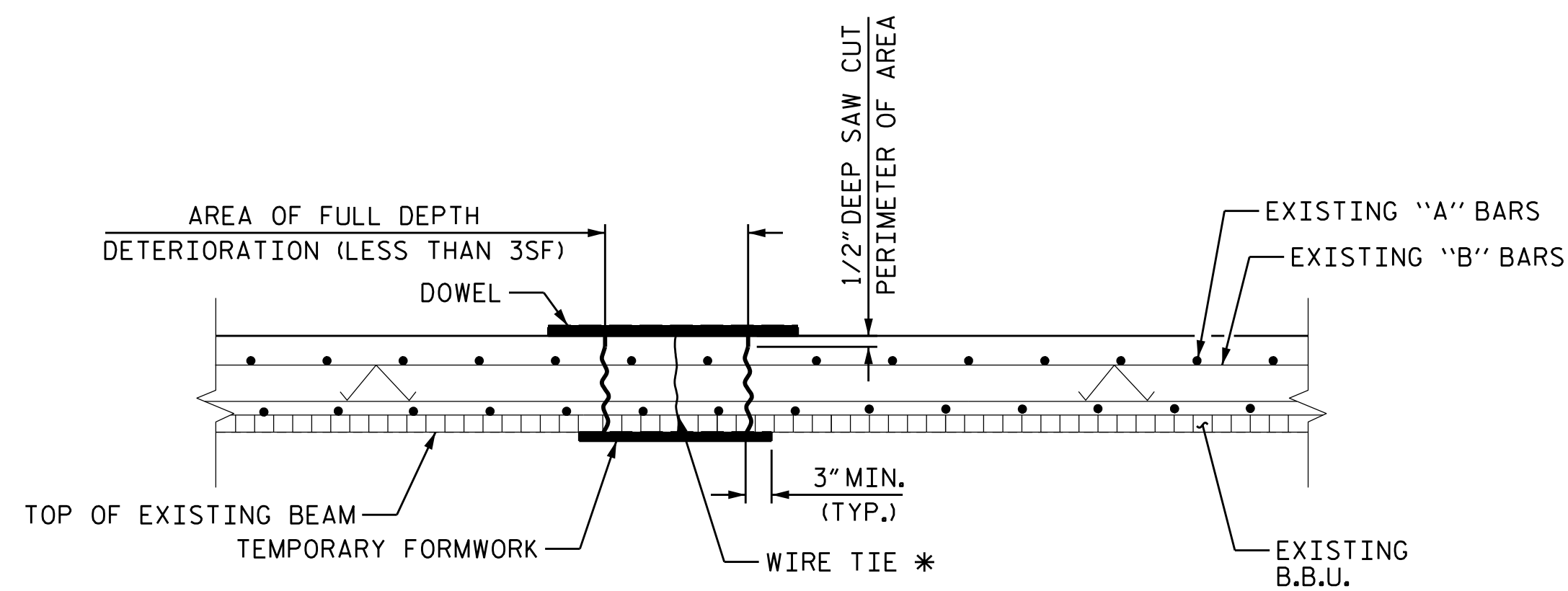
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|-----------|-----|-------|-----|-----|-------|--------------|
| NO. | BY: | DATE: | NO. | BY: | DATE: | S4-14 |
| 1 | | | 3 | | | TOTAL SHEETS |
| 2 | | | 4 | | | 18 |



CLASS II (PARTIAL DEPTH) REPAIR



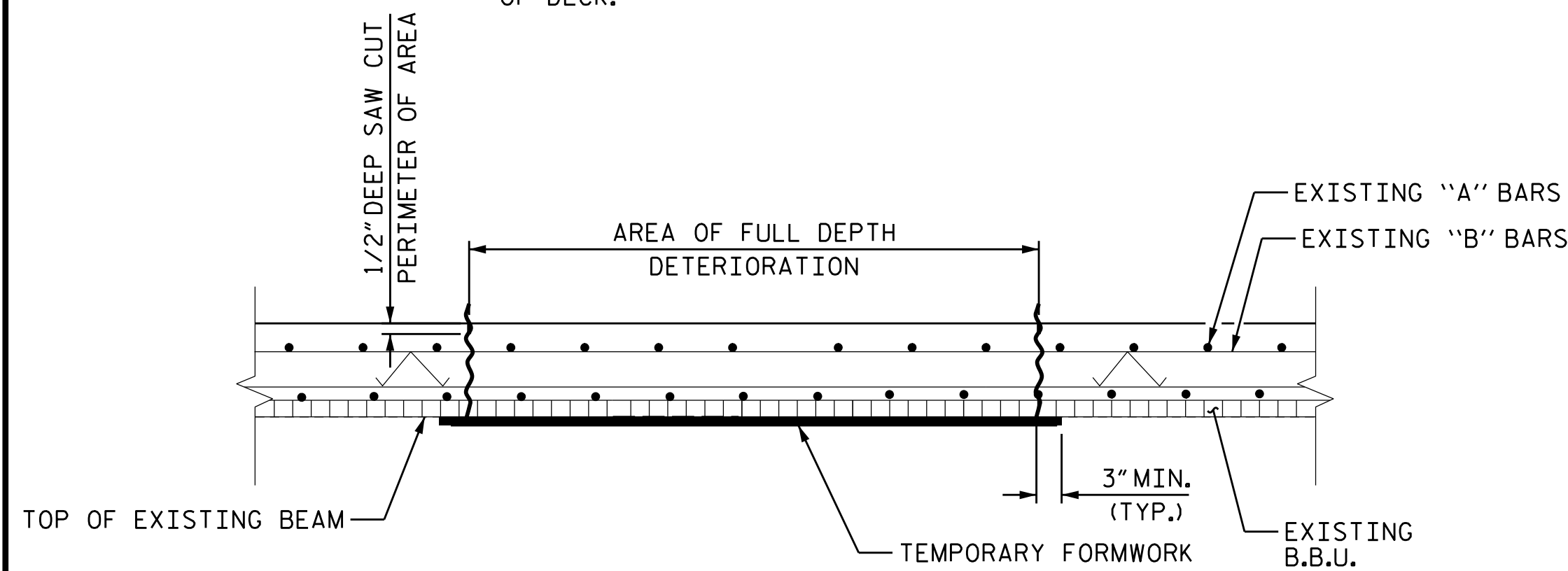
CLASS III (FULL DEPTH) REPAIR



FULL DEPTH REPAIR WITH TEMPORARY FORMWORK

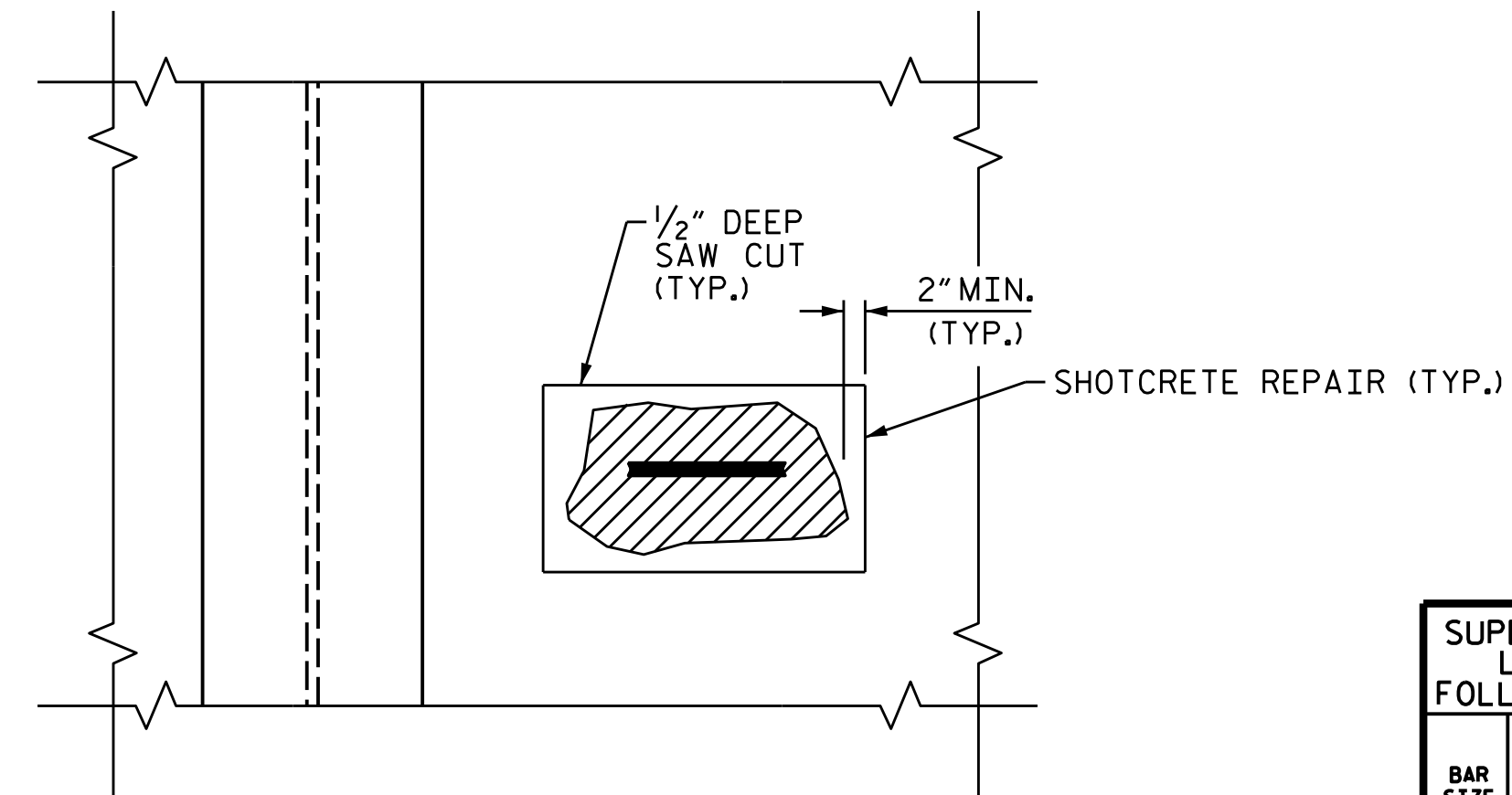
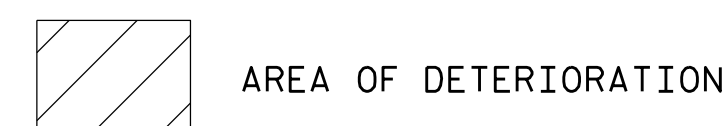
(FOR AREAS OF DETERIORATION EQUAL TO OR LESS THAN 3SF)

* WIRE TIE TO BE KNOTTED BELOW TEMPORARY FORMWORK AND ATTACHED TO DOWEL THAT IS WIDER THAN FORMED FULL DEPTH HOLE. ROTATE DOWEL TO TIGHTEN FORMWORK AGAINST BOTTOM OF DECK.

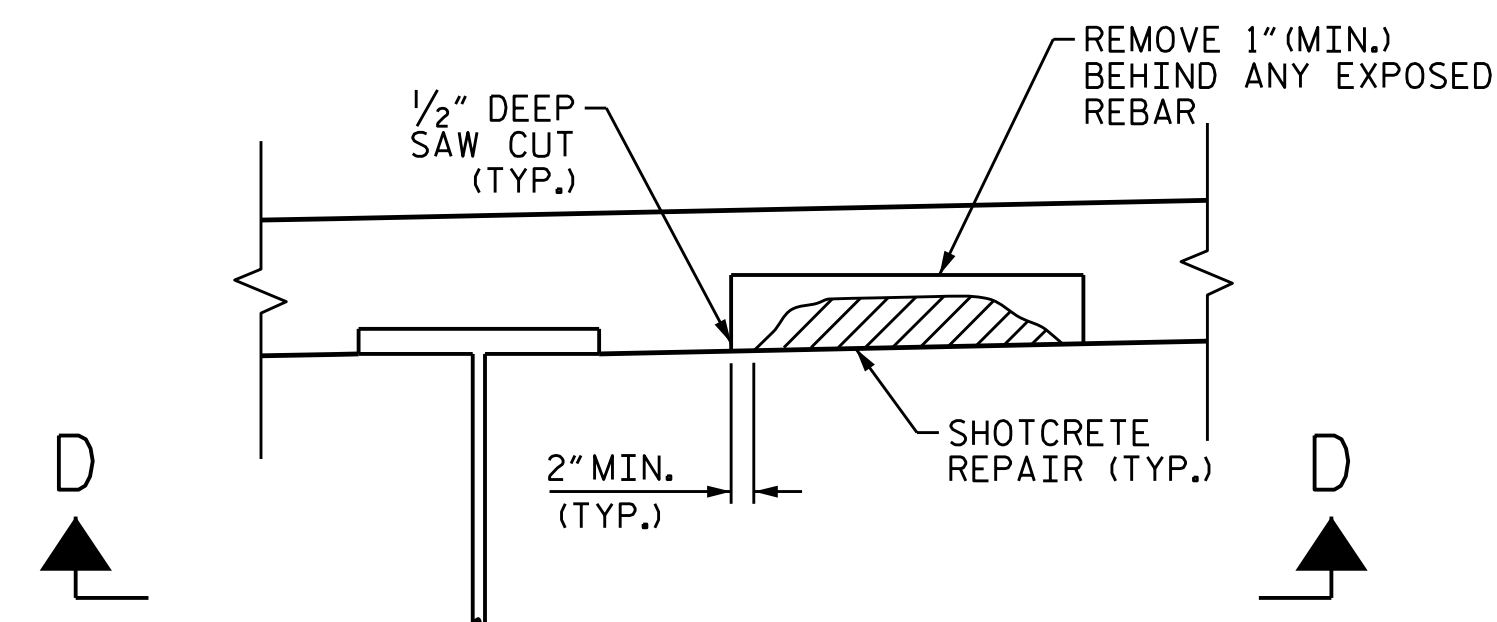


FULL DEPTH REPAIR WITH TEMPORARY FORMWORK

(FOR AREAS OF DETERIORATION GREATER THAN 3SF)

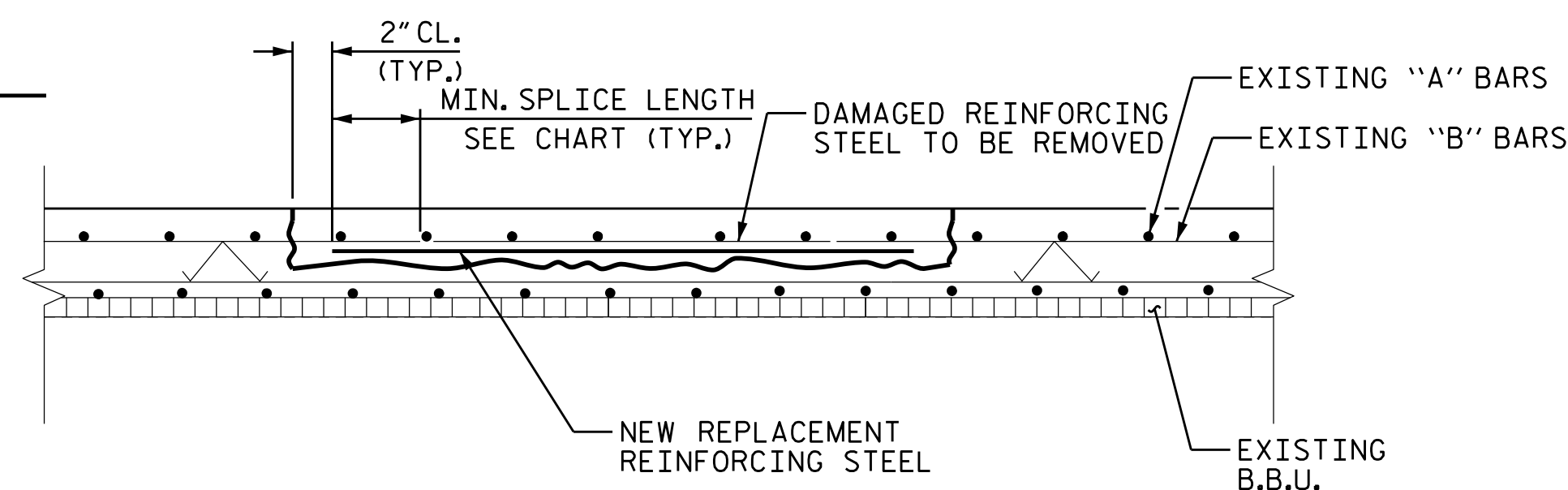


SECTION D-D



TYPICAL SECTION

UNDERSIDE OF DECK REPAIR



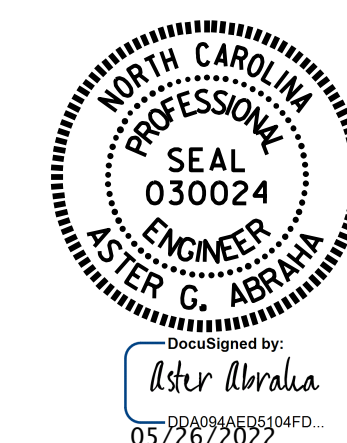
REINFORCING STEEL REPAIR

NOTES

- FOR AREAS TO BE REPAIRED, SEE "PLAN OF SPAN" SHEETS.
- ALL DECK REPAIRS SHALL BE COMPLETED PRIOR TO PLACEMENT OF OVERLAY.
- FOR CLASS II AND CLASS III SURFACE PREPARATION, SEE "OVERLAY SURFACE PREPARATIONS" SPECIAL PROVISION.
- FOR CONCRETE FOR DECK REPAIR, SEE SPECIAL PROVISIONS.
- FOR SHOTCRETE REPAIR, SEE SPECIAL PROVISIONS.
- THE CONTRACTOR SHALL SUBMIT WORKING DRAWINGS TO THE ENGINEER FOR APPROVAL PRIOR TO STARTING WORK FOR TEMPORARY FORMWORK. FOR SUBMITTALS OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
- UPON REMOVAL OF TEMPORARY FORMWORK, ALL VOIDS AND HONEYCOMBS ON THE UNDERSIDE OF DECK SURFACE SHALL BE FILLED WITH THE SAME MATERIAL AS USED FOR THE PATCH, AND FINISHED TO CONFORM TO THE SURROUNDING CONCRETE SURFACE.
- NO FORMWORK SHALL BE LEFT IN PLACE.

| BAR SIZE | SUPERSTRUCTURE REINFORCING STEEL LENGTHS ARE BASED ON THE FOLLOWING MINIMUM SPLICE LENGTHS | | | | |
|----------|--|----------|----------------|----------|--------------------------|
| | SUPERSTRUCTURE EXCEPT SLABS, PARAPET, AND BARRIER RAIL | | APPROACH SLABS | | PARAPET AND BARRIER RAIL |
| | EPOXY COATED | UNCOATED | EPOXY COATED | UNCOATED | |
| #4 | 1'-11" | 1'-7" | 1'-11" | 1'-7" | 2'-6" |
| #5 | 2'-5" | 2'-0" | 2'-5" | 2'-0" | 3'-1" |
| #6 | 2'-10" | 2'-5" | 3'-7" | 2'-5" | 3'-8" |
| #7 | 4'-2" | 2'-9" | | | |
| #8 | 4'-9" | 3'-2" | | | |

PROJECT NO. 15BPR.47
NASH COUNTY
 BRIDGE NO. 630123



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
DECK REPAIR DETAILS

ASSEMBLED BY : S. T. S./A.Y.G. DATE : 01/2022
 CHECKED BY : S. WANCE DATE : 03/2022
 DRAWN BY : NAP 9/18
 CHECKED BY :

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| REVISIONS | | | | | | SHEET NO. |
|-----------|-----|-------|-----|-----|-------|-----------------|
| NO. | BY: | DATE: | NO. | BY: | DATE: | |
| 1 | | | 3 | | | S4-15 |
| 2 | | | 4 | | | TOTAL SHEETS 18 |

NOTES

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.

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 SHEET S1-10.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

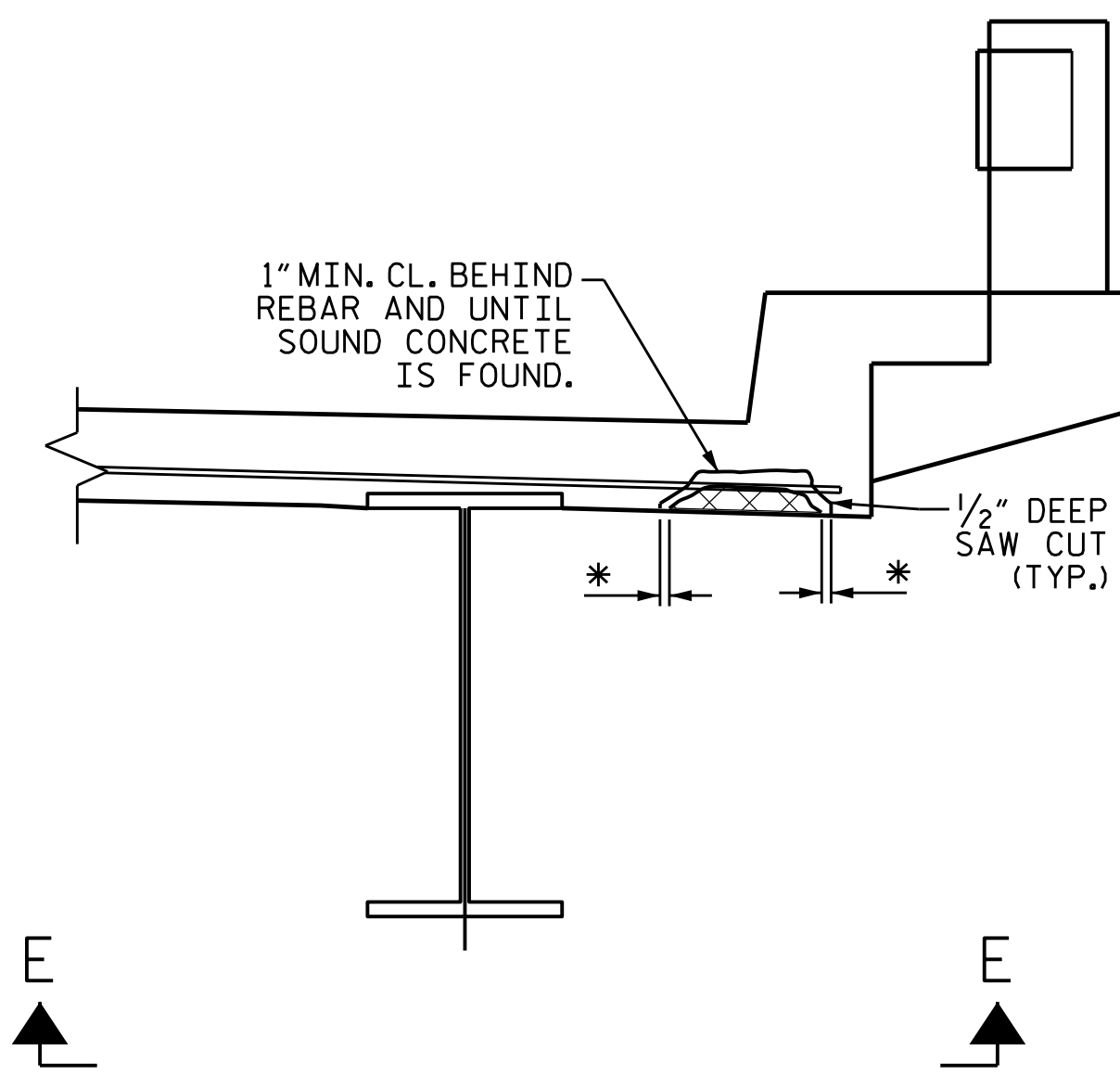
FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR AREAS TO BE REPAIRED, SEE "UNDERSIDE DECK REPAIRS" SHEETS.

THE CONTRACTOR SHALL SUBMIT WORKING DRAWINGS TO THE ENGINEER FOR APPROVAL PRIOR TO STARTING WORK FOR TEMPORARY FORMWORK. FOR SUBMITTALS OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

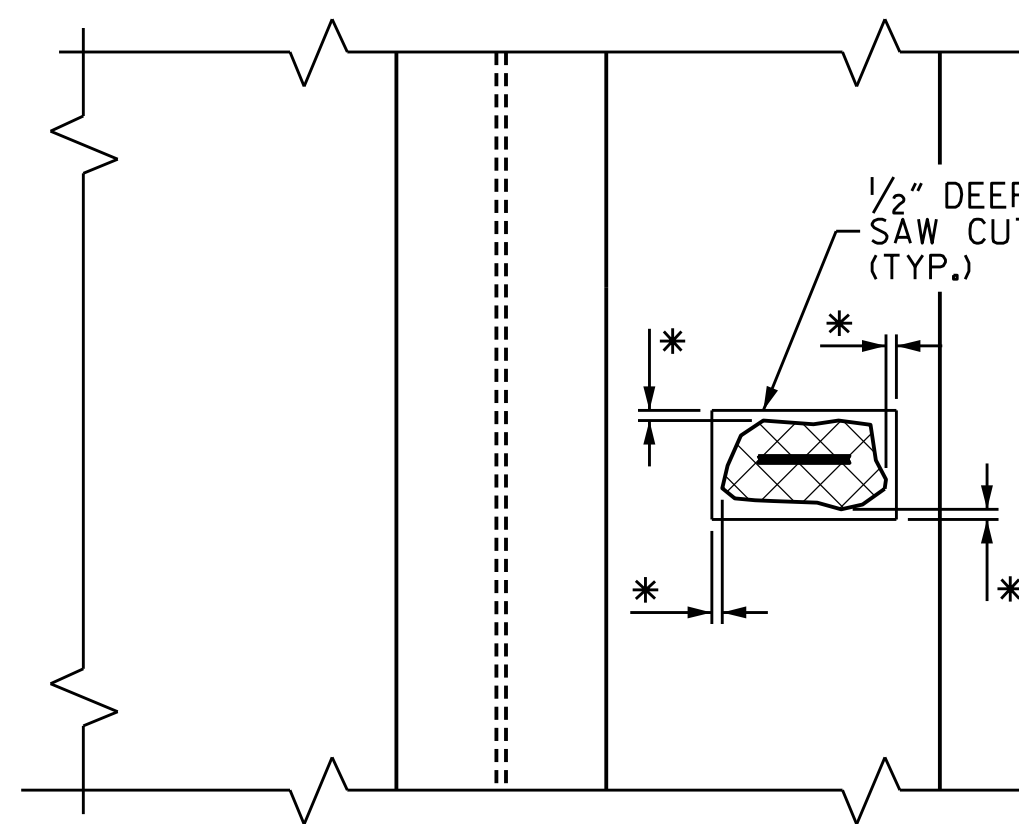
UPON REMOVAL OF TEMPORARY FORMWORK, ALL VOIDS AND HONEYCOMBS ON THE UNDERSIDE OF DECK SURFACE SHALL BE FILLED WITH THE SAME MATERIAL AS USED FOR THE PATCH, AND FINISHED TO CONFORM TO THE SURROUNDING CONCRETE SURFACE.

NO FORMWORK SHALL BE LEFT IN PLACE.



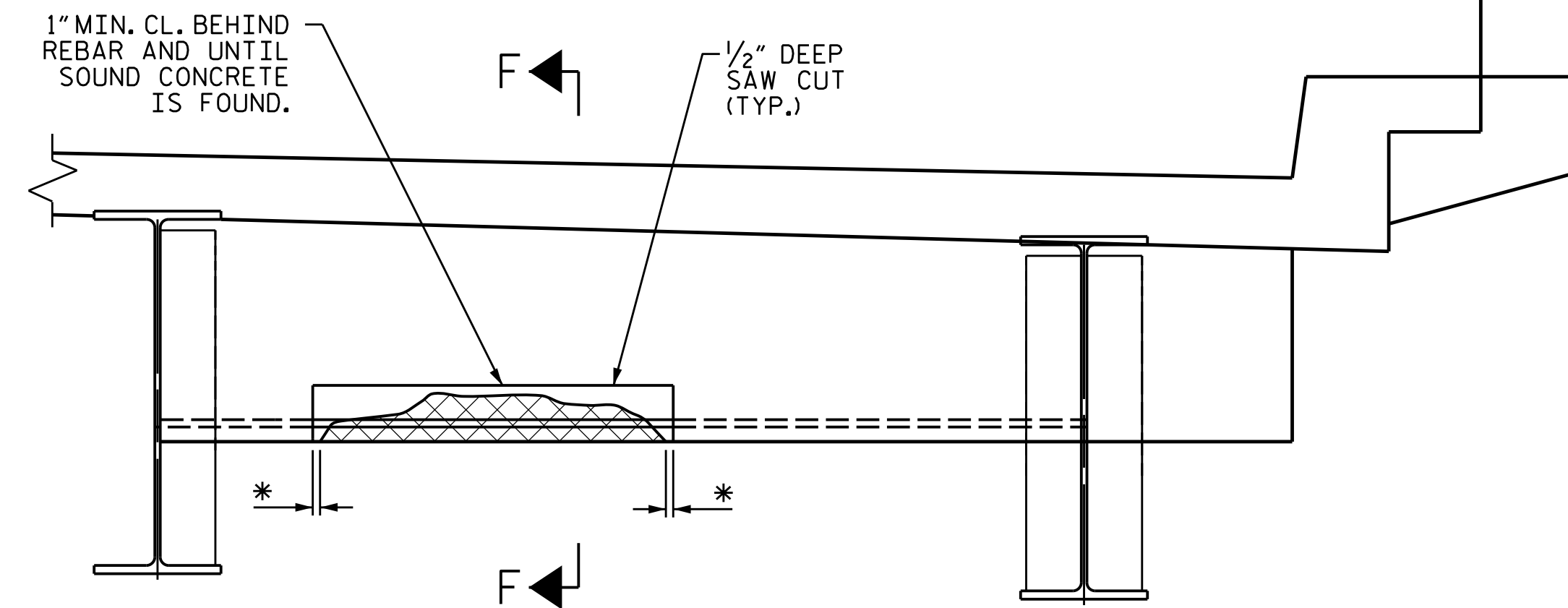
TYPICAL SECTION

DAMAGED AREA * REMOVE CONCRETE UNTIL SOUND CONCRETE IS FOUND (2" MIN. DEPTH)



SECTION E-E

OVERHANG DETAILS

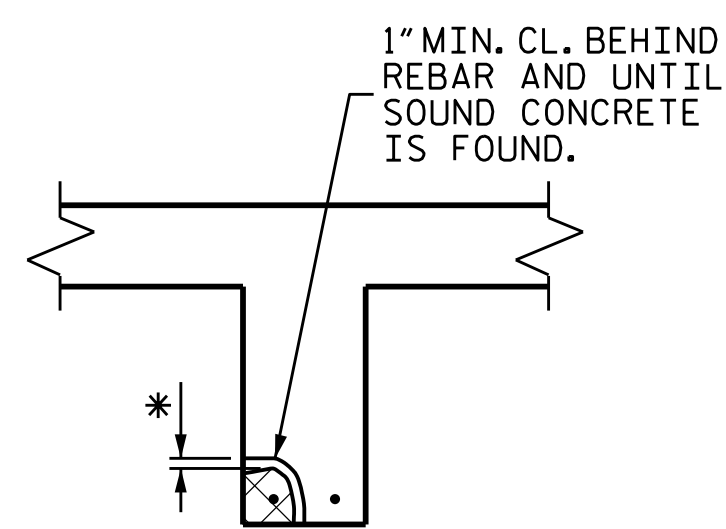


TYPICAL SECTION

* REMOVE CONCRETE UNTIL SOUND CONCRETE IS FOUND (2" MIN. DEPTH)

DAMAGED AREA

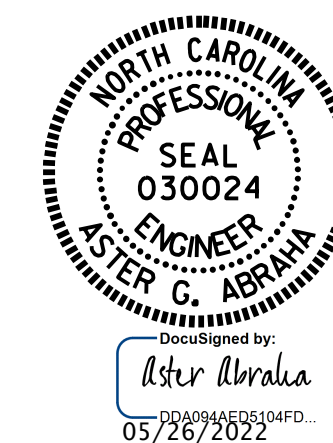
NOTE:
EXISTING REBAR TO REMAIN
IN PLACE. CLEAN AND
REPAIR AS NECESSARY.



SECTION F-F

INTERIOR DIAPHRAGM REPAIR DETAILS

PROJECT NO. 15BPR.47
NASH COUNTY
BRIDGE NO. 630123



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

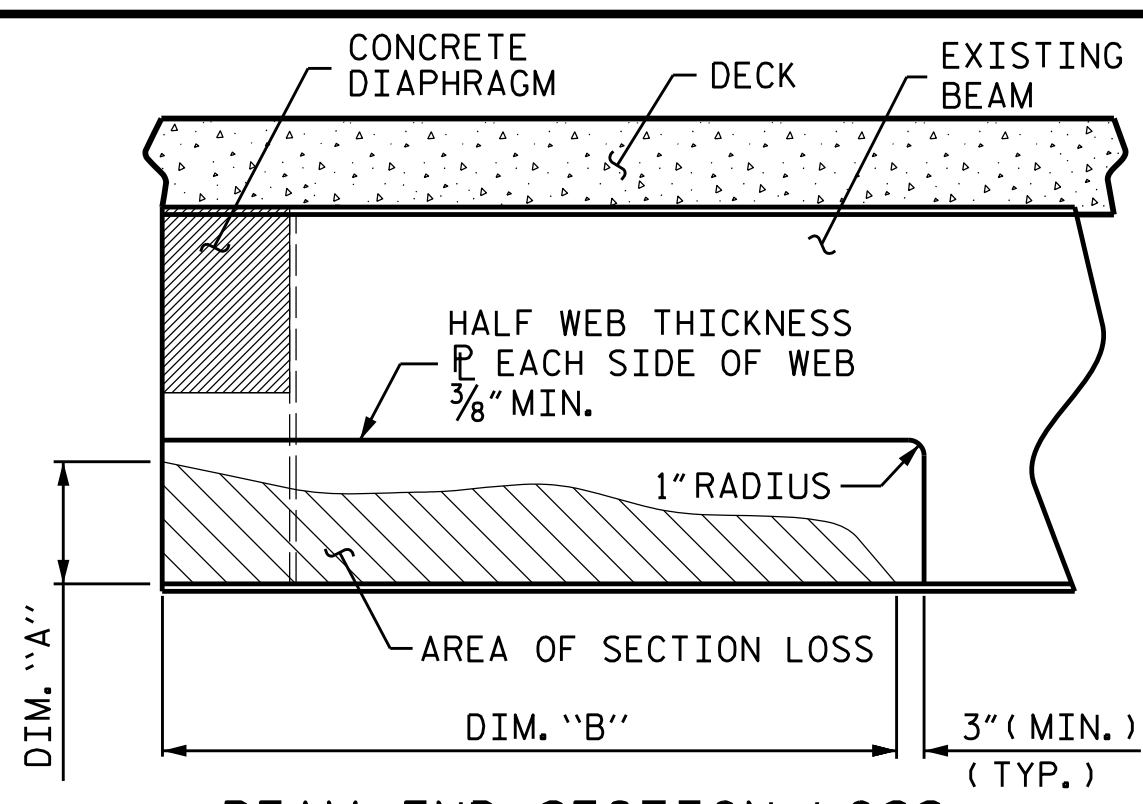
**OVERHANG & DIAPHRAGM
REPAIR DETAILS**

DRAWN BY : A. Y. GODFREY DATE : 02/2022
CHECKED BY : S. WANCE DATE : 03/2022

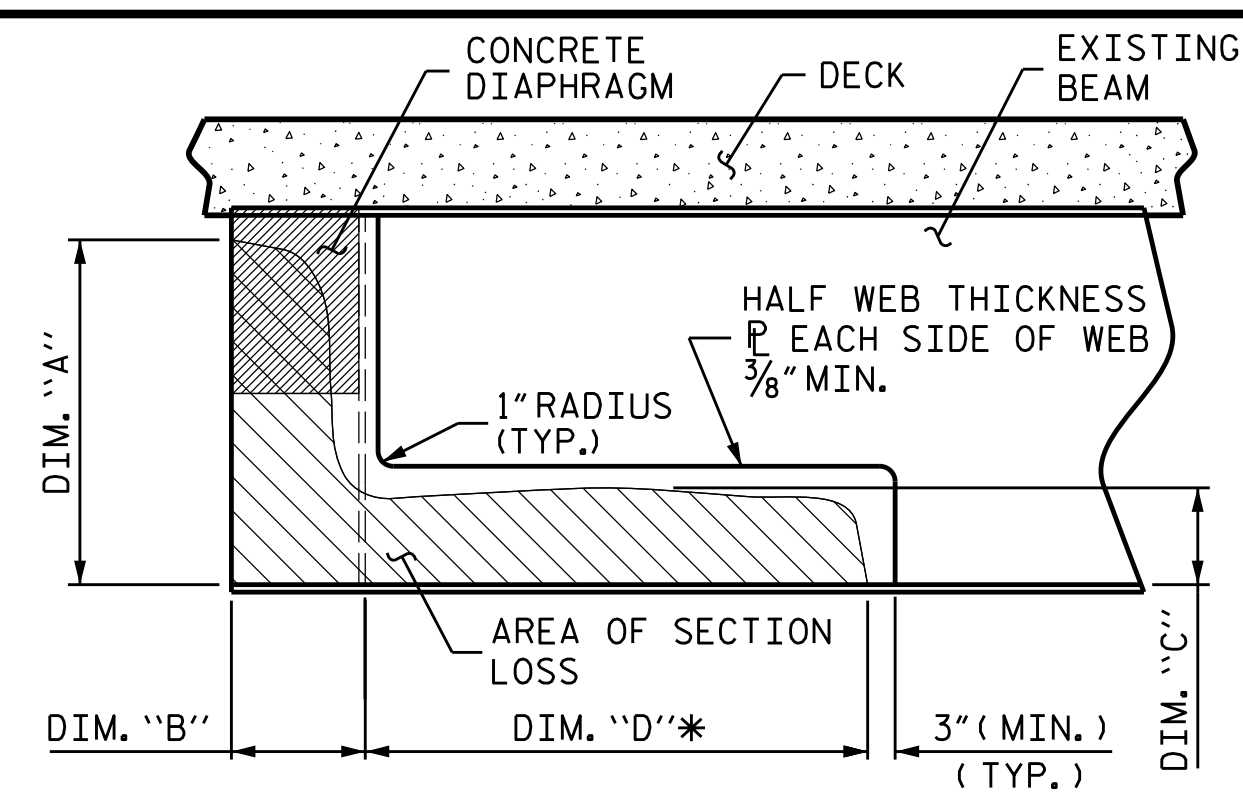
5/26/2022
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aygodfrey

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FINAL UNLESS ALL
SIGNATURES COMPLETED

| REVISIONS | | | | | | SHEET NO. |
|-----------|-----|-------|-----|-----|-------|--------------|
| NO. | BY: | DATE: | NO. | BY: | DATE: | S4-16 |
| 1 | | | 3 | | | TOTAL SHEETS |
| 2 | | | 4 | | | 18 |

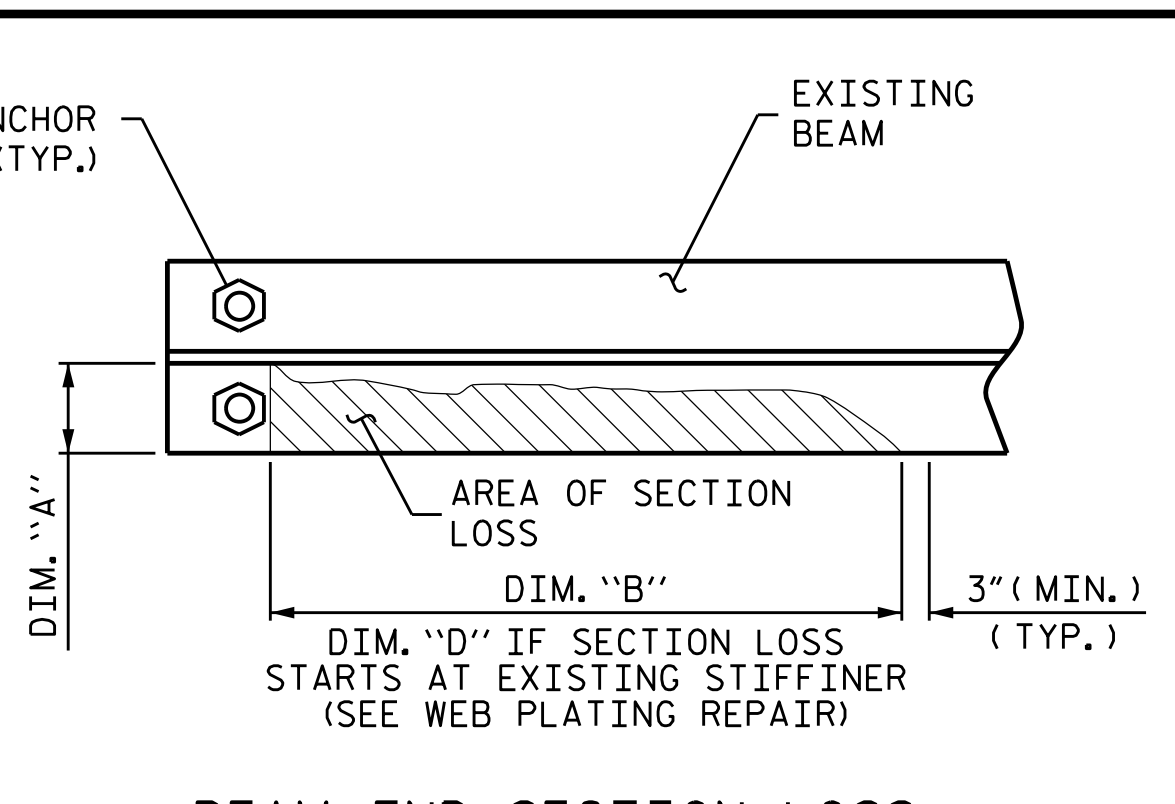


BEAM END SECTION LOSS AND PLATING REPAIR ("W" REPAIR)

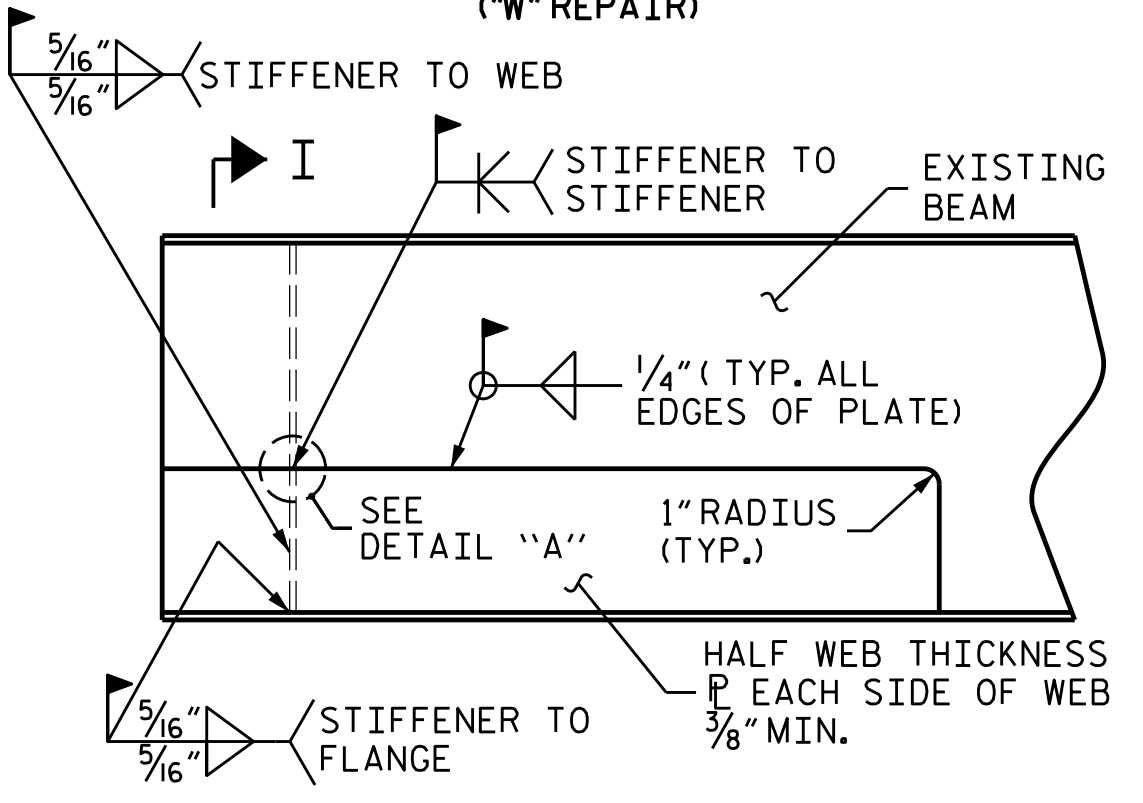


BEAM END SECTION LOSS AND PLATING REPAIR ("F" REPAIR)

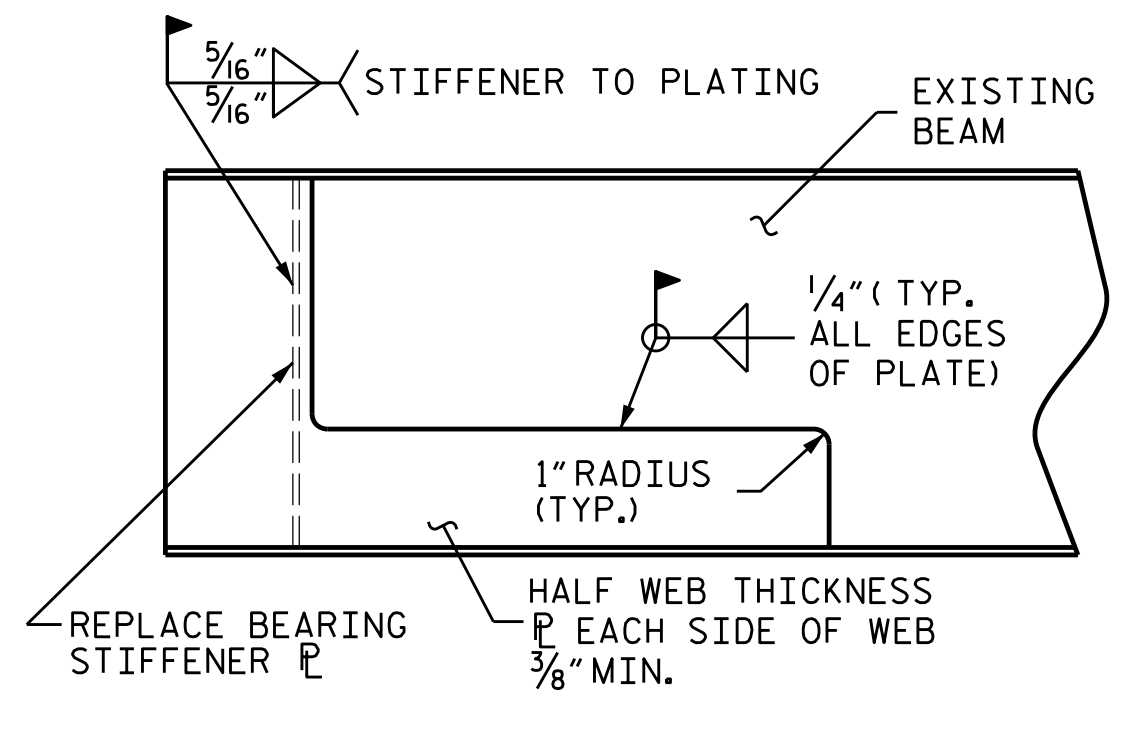
* IF NO DIM "A" OR "B" THEN PLACE REPAIR PLATE ADJACENT TO STIFFENER.



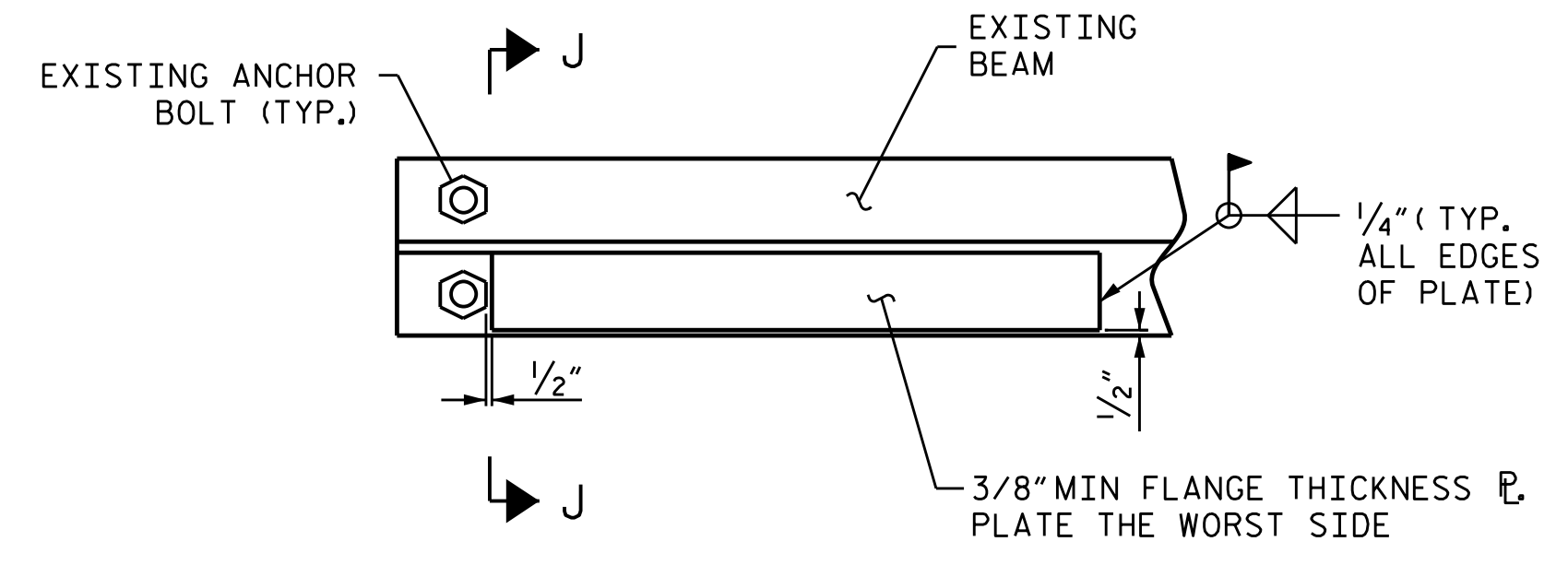
BEAM END SECTION LOSS AND PLATING REPAIR ("F" REPAIR)



SECTION LOSS BEAM PLATING REPAIR ("W" REPAIR)



SECTION LOSS BEAM PLATING REPAIR ("W" REPAIR)



SECTION LOSS BEAM PLATING REPAIR ("F" REPAIR)

BEAM END PLATING REPAIR

BEAM PLATING REPAIR NOTES

ALL CONDITIONS AND DIMENSIONS SHALL BE FIELD VERIFIED PRIOR TO FABRICATION OR INSTALLATION OF ANY COMPONENTS.

REPAIR PLATES SHALL BE NEW, AND SHALL BE THE SAME GRADE OF THE EXISTING STEEL MEMBER OR BETTER.

REPAIR SEQUENCE:

COORDINATE WITH MATERIALS AND TEST UNIT AT LEAST 4 DAYS PRIOR TO ANTICIPATED WORK.

REMOVE LIVE LOAD FROM REPAIR AREA BY EITHER CLOSING BRIDGE TO TRAFFIC OR SHIFTING TRAFFIC AWAY FROM REPAIR AREA.

IF NECESSARY, REMOVE EXISTING STIFFENER TO INSTALL WELDED PLATE REPAIR. REPLACE WITH A NEW STIFFENER PLATE OF SIMILAR SIZE.

IF BEAM DETERIORATION EXTENDS INTO THE CONCRETE DIAPHRAGM THEN CHIP AWAY CONCRETE TO DETERMINE THE EXTENT OF THE DAMAGE.

IF PAINTING THE STEEL, CLEAN AND BLAST STEEL AS REQUIRED, PRIOR TO PERFORMING STEEL REPAIRS. OTHERWISE, MECHANICALLY CLEAN RUST, SCALE, AND EXISTING PAINT TO AT LEAST 3" BEYOND REPAIR AREA.

PRIME ENTIRE REPAIR AREA AND REPAIR PLATES WITH AN ORGANIC ZINC PRIMER PRIOR TO WELDING NEW PLATES. REMOVE PRIMER IN WELD AREA.

ONE PLATE SHALL BE PLACED, AS INDICATED ON EACH SIDE OF THE BEAM WEB. ONE OF THE PLATES SHALL BE A MINIMUM OF 1" TALLER AND WIDER THAN THE OTHER WEB PLATE TO OFFSET THE WEB PLATE WELDING LOCATIONS ON THE EXISTING BEAM WEB.

EACH PLATE SHALL BE APPROXIMATELY ONE-HALF THE ORIGINAL THICKNESS OF THE BEAM WEB, WITH A MINIMUM OF 3/8"

FULLY WELD ALONG TOP AND SIDES OF THE PLATES AS SHOWN.

ALL WELDING SHALL BE IN ACCORDANCE WITH CURRENT APPLICABLE AWS AND NCDOT STANDARD SPECIFICATIONS.

ALL WELDS SHALL BE INSPECTED AND TESTED BY THE NCDOT MATERIALS AND TEST UNIT IN ACCORDANCE WITH THE CURRENT AWS BRIDGE WELDING CODE AND STANDARD SPECIFICATIONS.

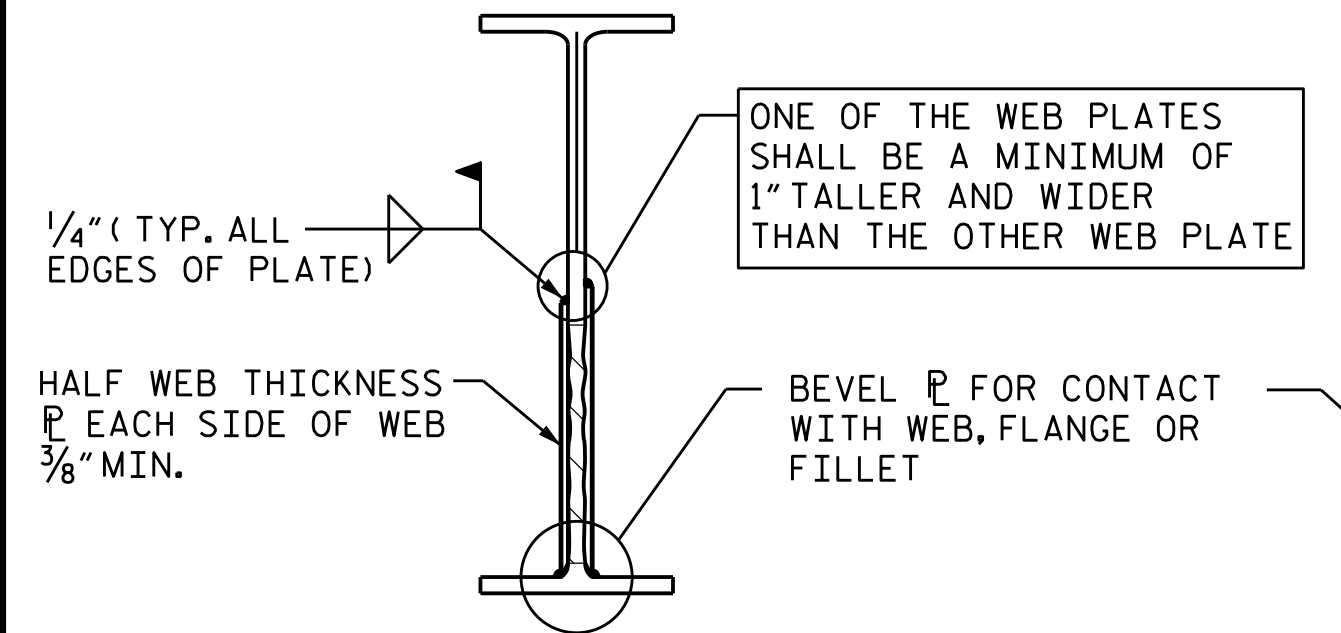
IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS, AFTER REPAIR, GRIND ALL WELDS FLUSH, AND THOROUGHLY CLEAN AREA TO REMOVE DEBRIS AND OILS FROM THE REPAIR PROCESS.

CLEANING AND PAINTING OF REPAIRED STRUCTURAL STEEL SHALL BE PERFORMED AS PART OF THE OVERALL CLEANING AND PAINTING CONTRACT.

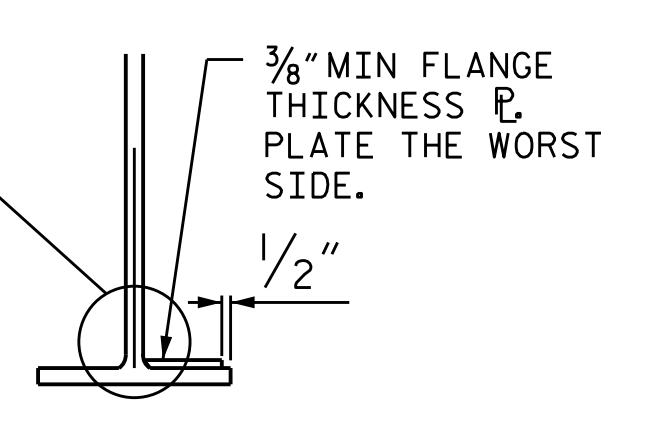
FOR CLEANING AND PAINTING, SEE PAINTING EXISTING STRUCTURE SPECIAL PROVISIONS.

AFTER BEAMS ARE REPAIRED AND PAINTED, ANY CONCRETE REMOVED FROM THE BENT DIAPHRAGMS SHALL BE RECAST. ANY REINFORCING STEEL CUT DURING THE REMOVAL PROCESS SHALL BE SPLICED WITH A SIMILAR SIZE BAR WITH AT LEAST A ONE FOOT SPLICE TO THE EXISTING STEEL. NO SEPARATE PAYMENT SHALL BE MADE FOR CONCRETE AND REINFORCING STEEL AS THIS IS CONSIDERED INCIDENTAL TO THE PAY ITEM "BEAM REPAIR". FOR BEAM REPAIR, SEE SPECIAL PROVISIONS.

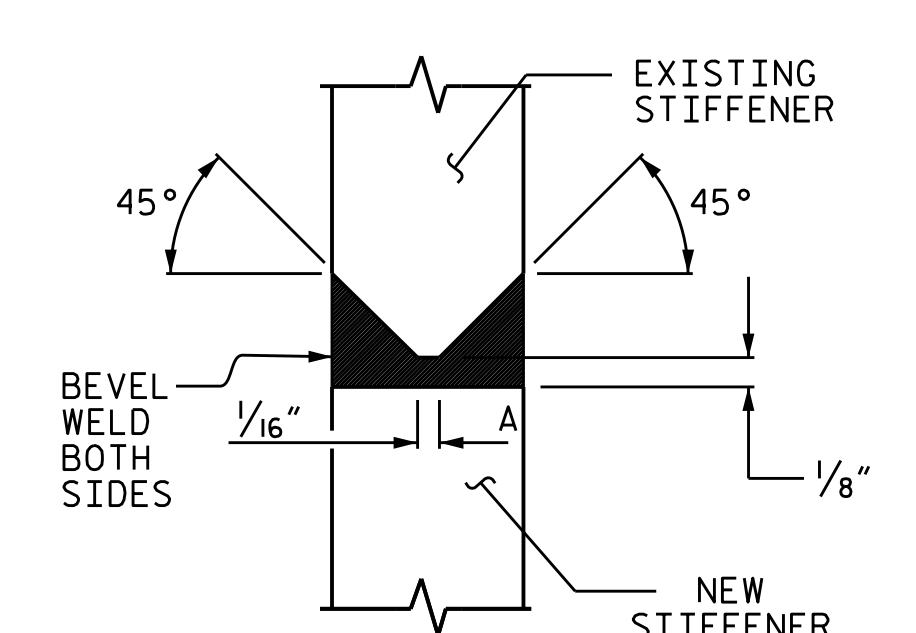
REMOVE ALL TRAFFIC CONTROL DEVICES.



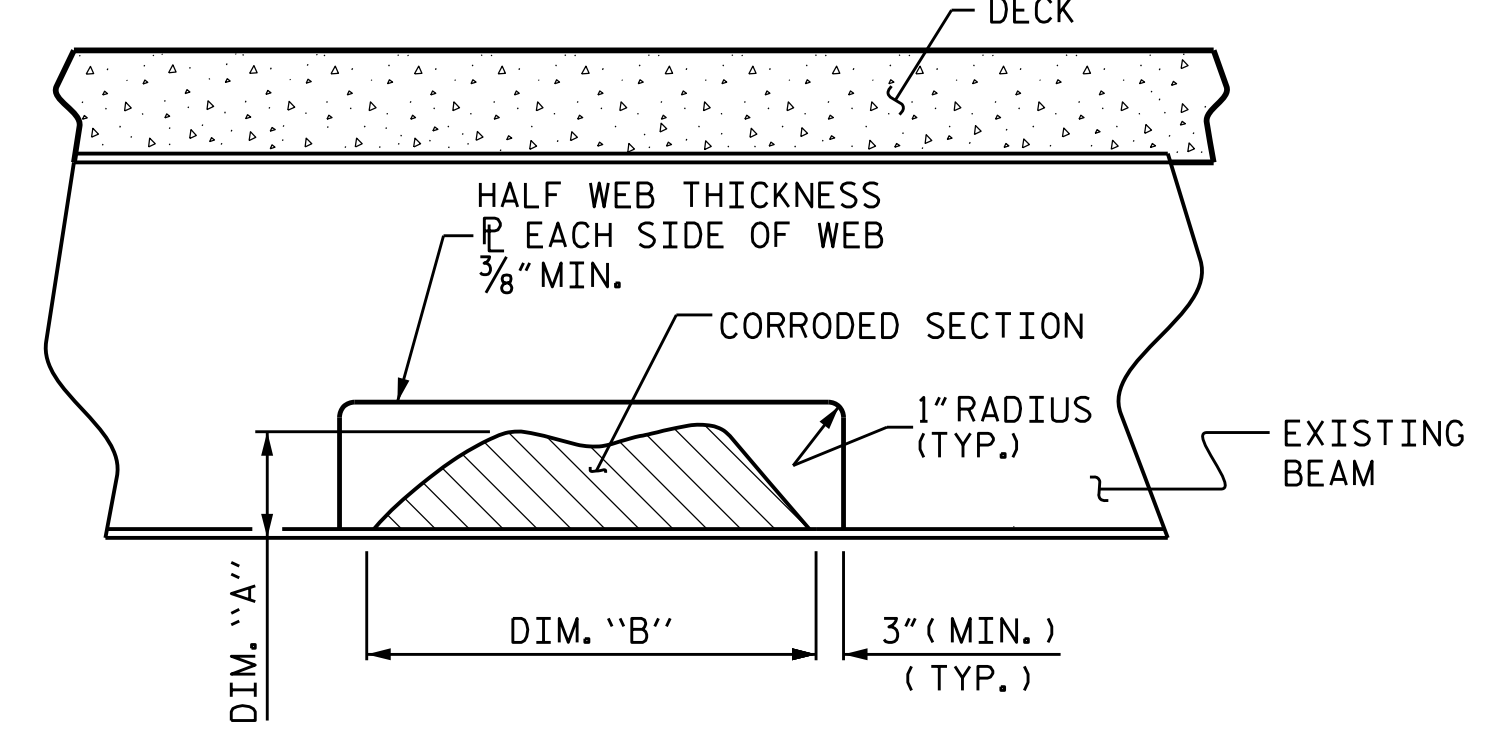
SECTION I-I



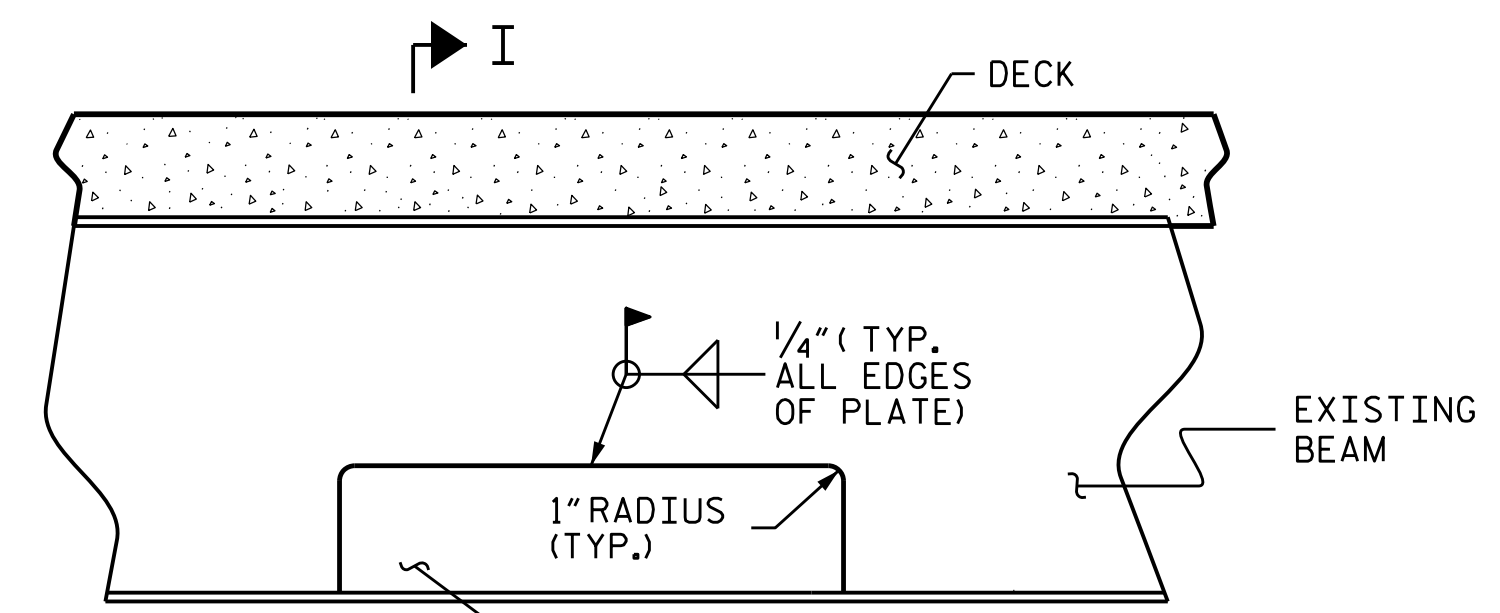
SECTION J-J



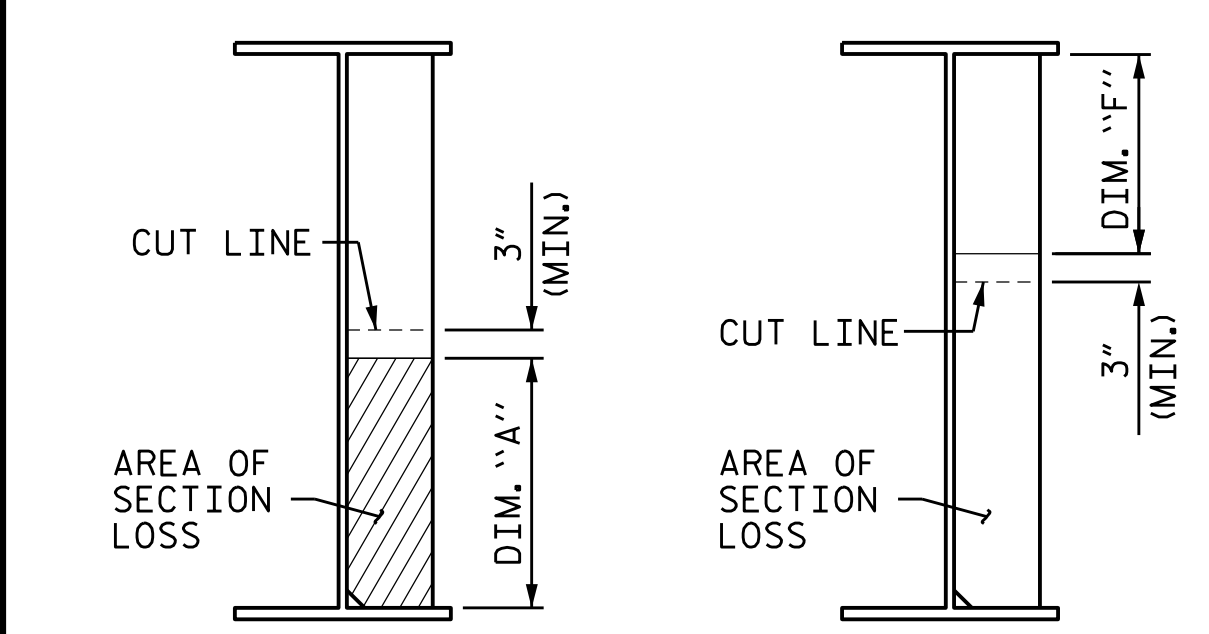
DETAIL "A"



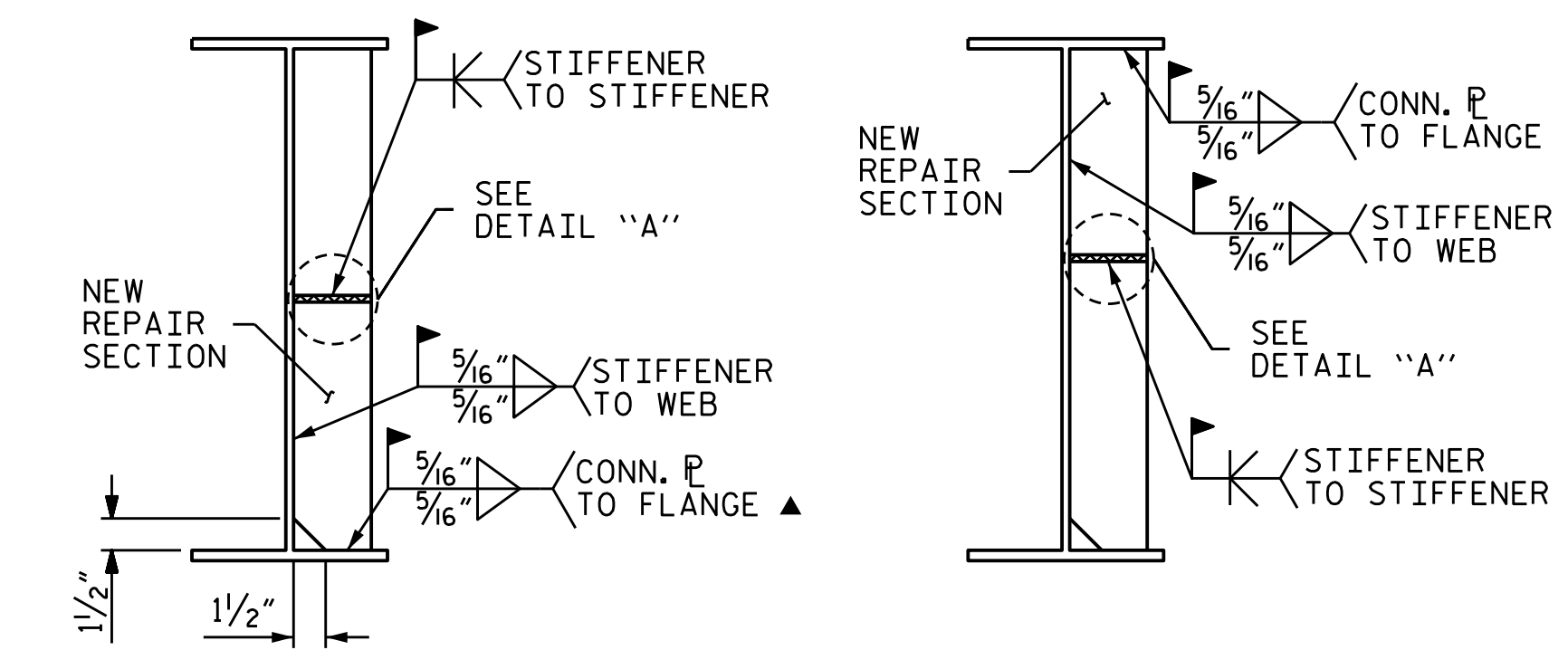
INTERMEDIATE SECTION LOSS BEAM PLATING REPAIR



INTERMEDIATE SECTION LOSS BEAM PLATING REPAIR



STIFFENER/CONN. PLATE SECTION LOSS ("S" REPAIR)



STIFFENER/CONN. PLATE SECTION REPAIR
▲ FOR STIFFENERS, MILL TO BEAR AND DO NOT WELD ("S" REPAIR)

STIFFENER/CONNECTOR PLATE REPAIR

DRAWN BY : A. Y. GODFREY DATE : 11/2021
CHECKED BY : S. WANCE DATE : 03/2022

5/26/2022
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aygodfrey

PROJECT NO. 15BPR.47
NASH COUNTY
BRIDGE NO. 630123

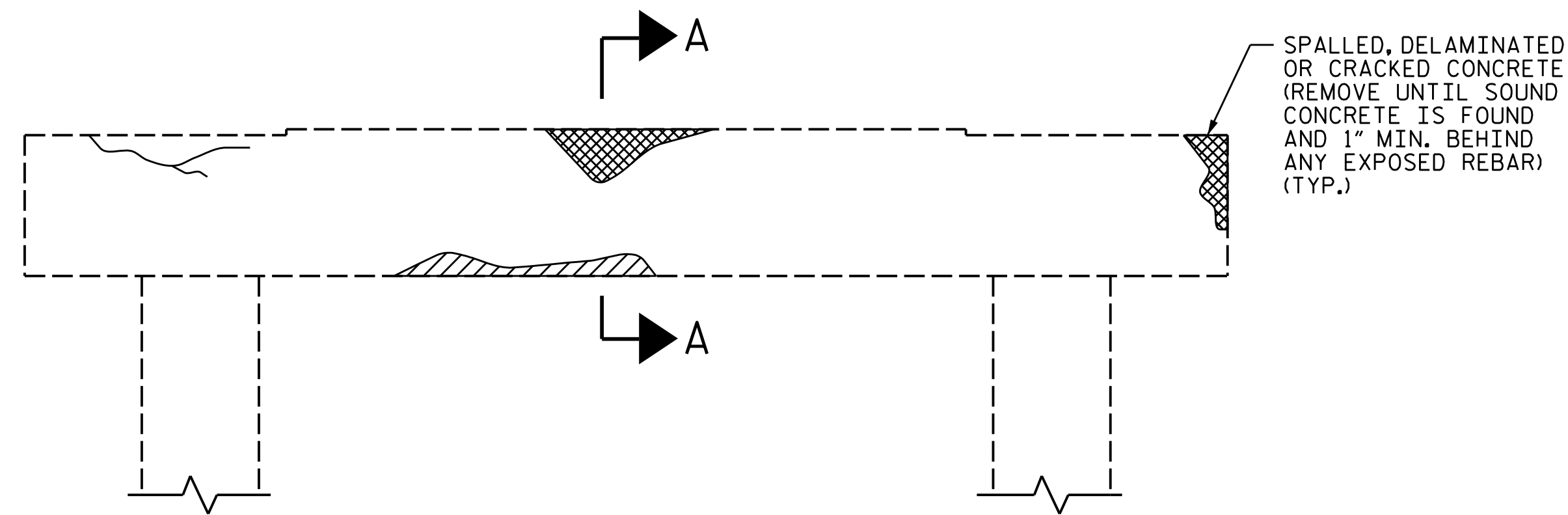


STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

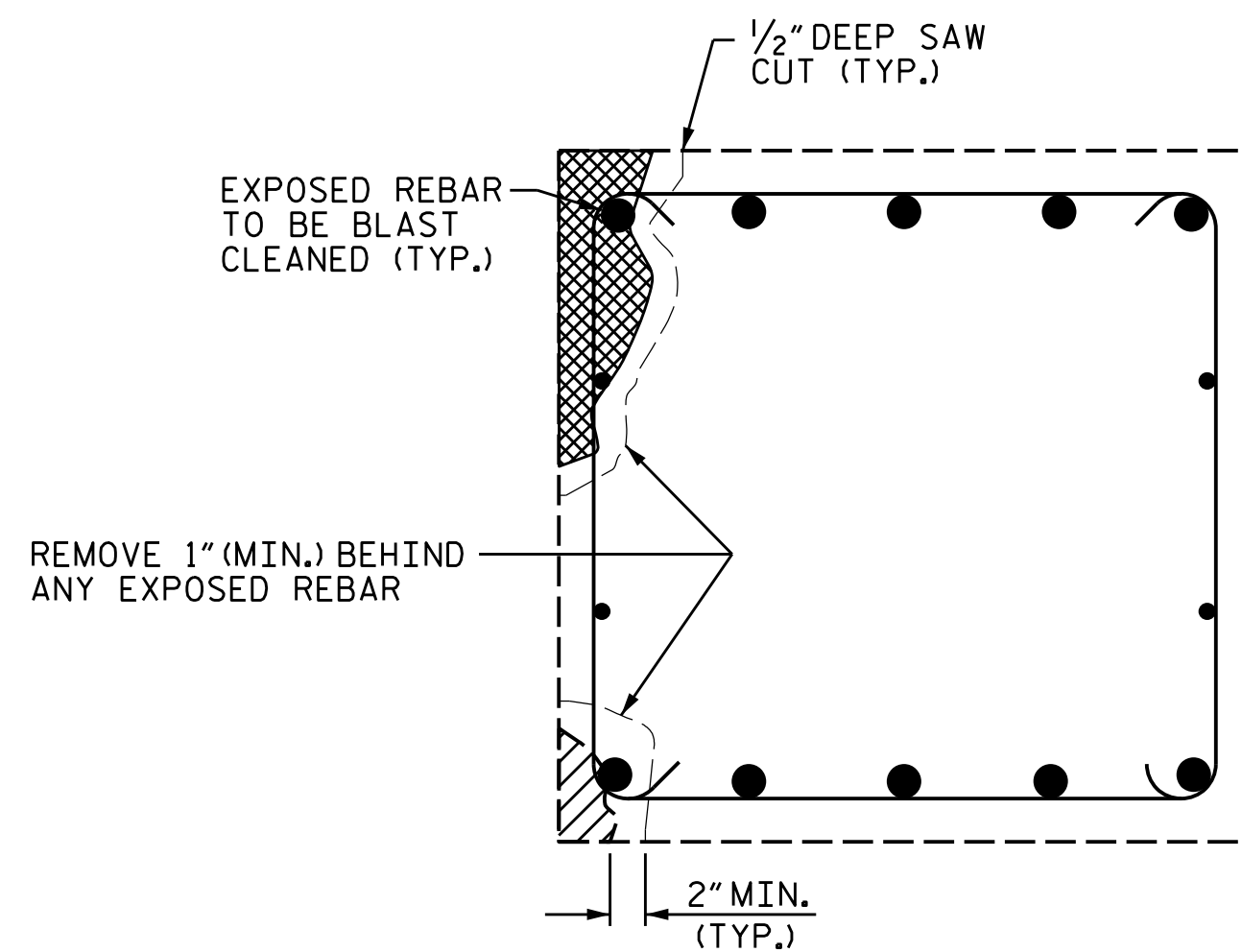
BEAM PLATING REPAIR DETAILS

| REVISIONS | | | | | | SHEET NO. |
|-----------|-----|-------|-----|-----|-------|--------------|
| NO. | BY: | DATE: | NO. | BY: | DATE: | S4-17 |
| 1 | | | 3 | | | TOTAL SHEETS |
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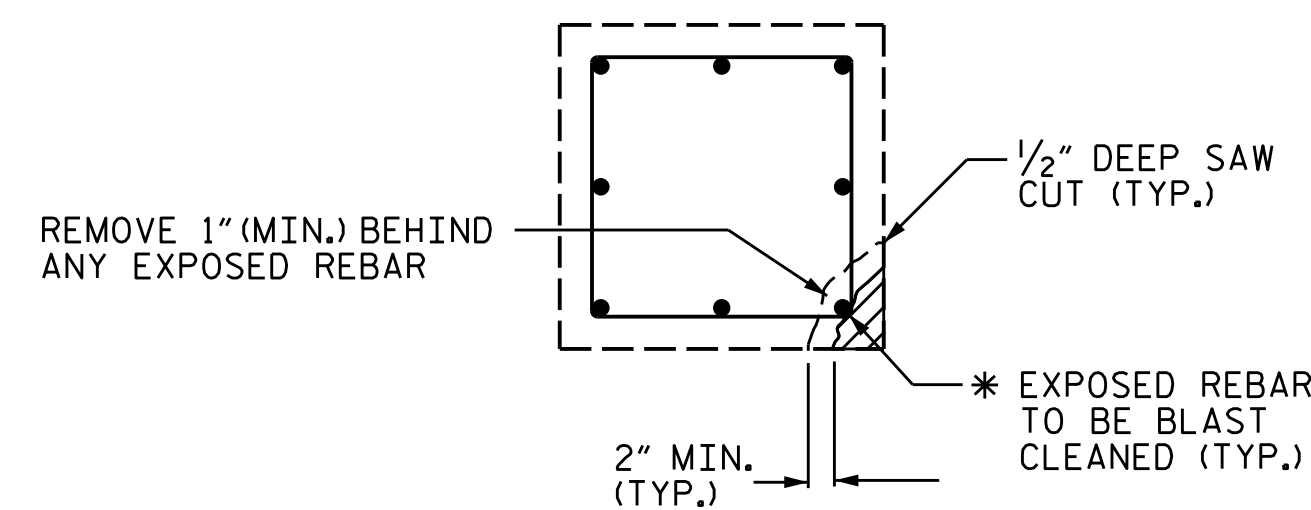


BENT CAP REPAIRS



SECTION A-A

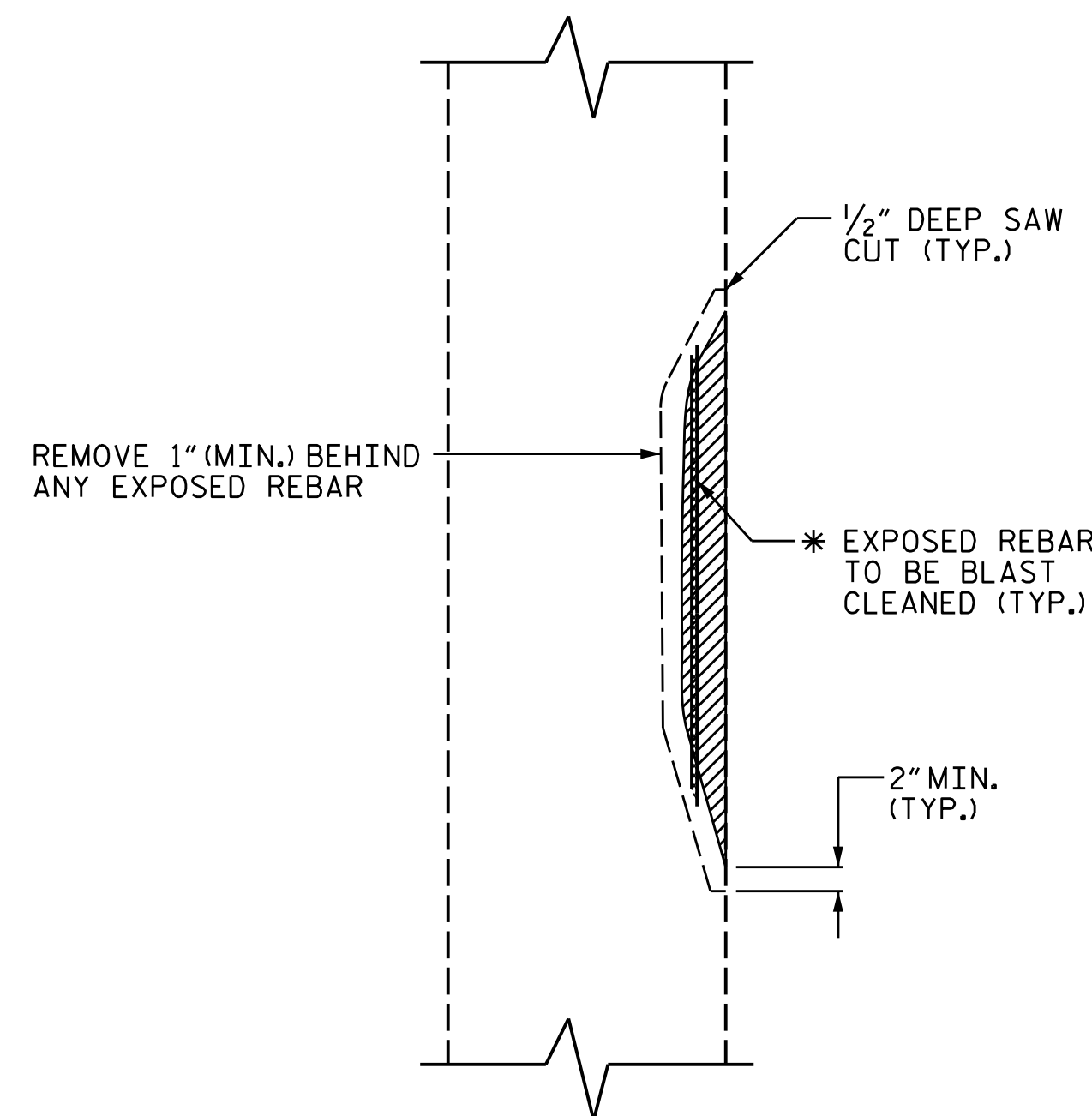
CAP REPAIR



PLAN OF COLUMN

REPAIR KEY

- SHOTCRETE REPAIR AREA
- CONCRETE REPAIR AREA (FORM AND POUR)

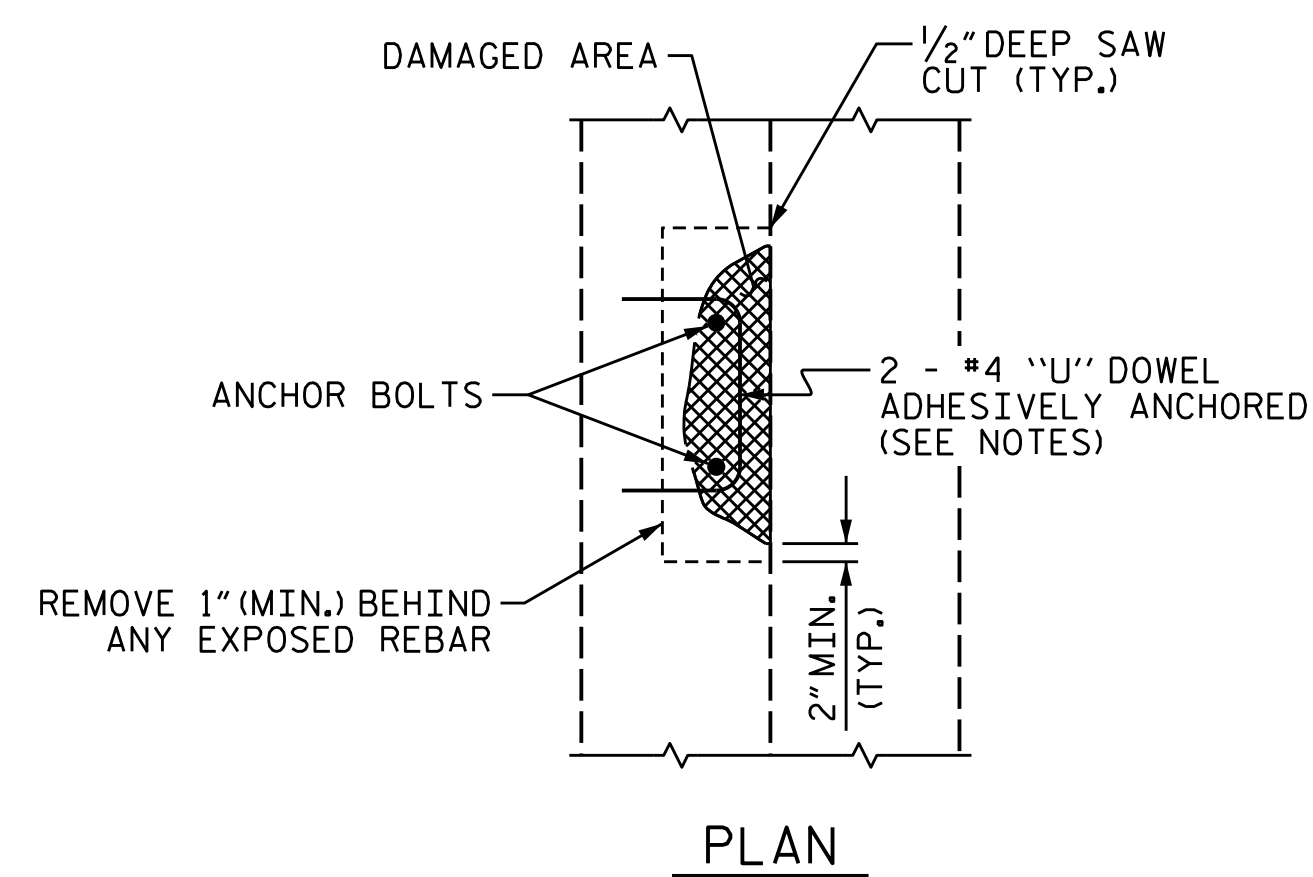


ELEVATION OF COLUMN

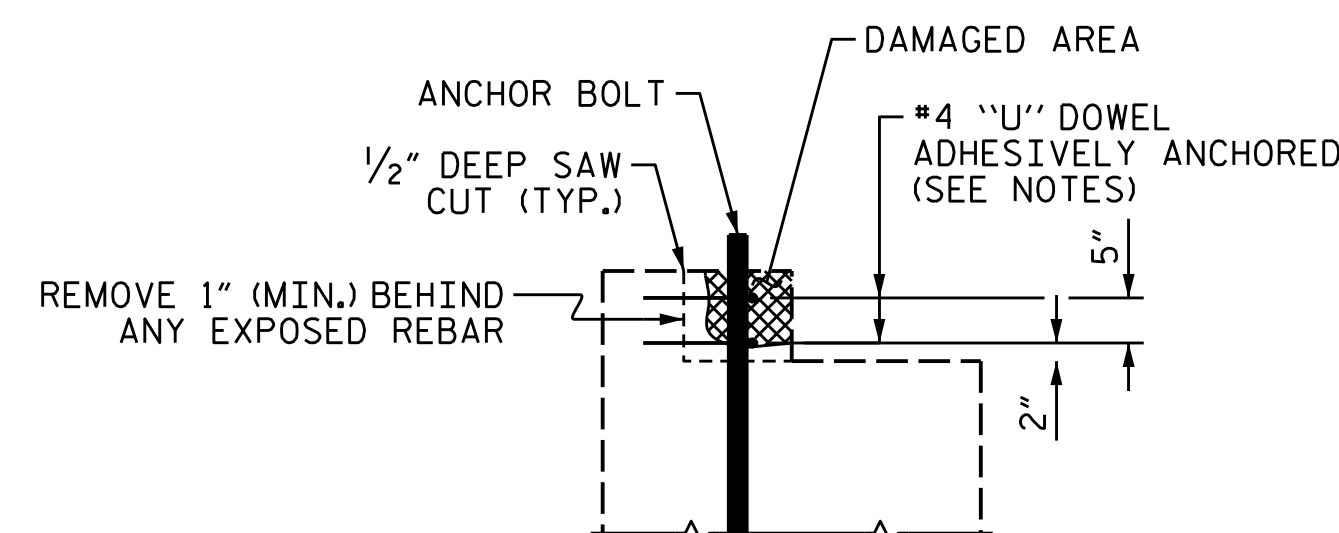
COLUMN REPAIR

* REPAIR LENGTH SHALL NOT EXCEED 10 FEET.

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



PLAN



ELEVATION

PEDESTAL WALL REPAIR

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 CIRCUMFERENCE 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, BUT NO MORE THAN 1/2 OF THE CIRCUMFERENCE SHALL BE REMOVED AT ONE TIME. IF REMOVAL EXTENDS MORE THAN 1 1/2" BEHIND THE MAIN REINFORCING BARS, NOTIFY THE ENGINEER PRIOR TO PROCEEDING. ON COLUMNS AND PILES, NO MORE THAN 10 VERTICAL FEET MAY BE EXPOSED AT ONE TIME BEFORE PLACEMENT OF REPAIR CONCRETE.

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.

THE #4 "U" DOWELS ARE REQUIRED ONLY AROUND THE ANCHOR BOLTS. THE EXISTING REINFORCING STEEL IN THE PEDESTAL WALL SHALL BE CLEANED, STRAIGHTENED AND REMAIN IN PLACE.

FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE STANDARD SPECIFICATIONS.

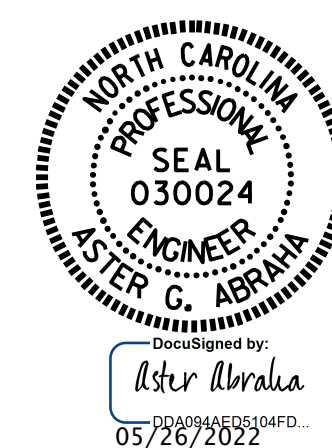
COAT ALL REPAIR SURFACE AREAS ON THE TOP OF CAPS, INCLUDING CHAMFERS, WITH EPOXY PROTECTIVE COATING, OVERLAPPING THE REPAIR AREA BY A MINIMUM OF 3" ON ALL POSSIBLE SIDES.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

CLEAN ALL EXPOSED REINFORCING BARS AND PRESTRESSED STRANDS IN ACCORDANCE WITH APPROPRIATE SPECIAL PROVISIONS. FOR BARS WITH MORE THAN 10% SECTION LOSS, SPLICE AND SECURELY TIE SUPPLEMENTAL REINFORCING BARS AS NEEDED, NOTE AND PROVIDE DETAILED DOCUMENTATION, INCLUDING LOCATION AND SEVERITY, OF ALL DAMAGE TO PRESTRESSED STRANDS THAT EXCEEDS 10% SECTION LOSS. IF FIVE OR MORE STRANDS ARE DAMAGED, NOTIFY THE ENGINEER PRIOR TO PLACEMENT OF REPAIR MATERIAL.

PROJECT NO. 15BPR.47
NASH COUNTY
 BRIDGE NO. 630123



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 TYPICAL CAP
 AND COLUMN
 REPAIR DETAILS

| REVISIONS | | | | | | SHEET NO. |
|-----------|-----|-------|-----|-----|-------|--------------|
| NO. | BY: | DATE: | NO. | BY: | DATE: | S4-18 |
| 1 | | | 3 | | | TOTAL SHEETS |
| 2 | | | 4 | | | 18 |

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ASSEMBLED BY : S. T. S./A.Y.G. DATE : 03/2022
 CHECKED BY : S. WANCE DATE : 03/2022
 DRAWN BY : NAP 8/18
 CHECKED BY :