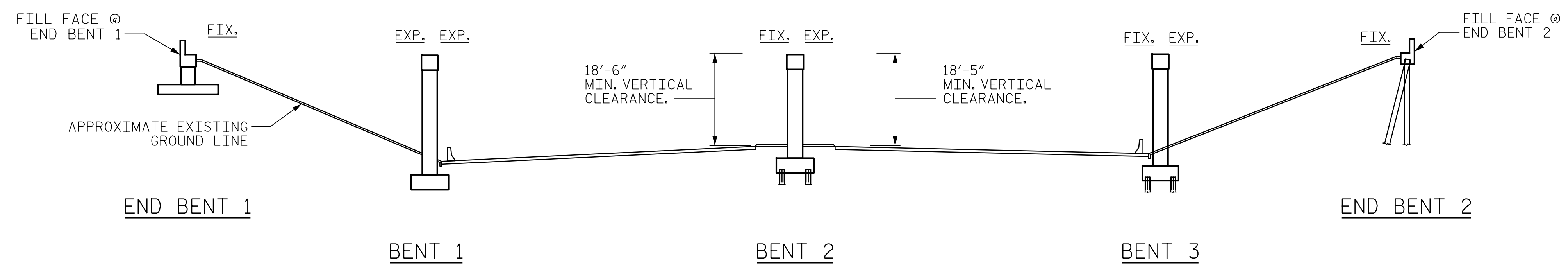


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SECTION ALONG BRIDGE GRADE LINE
 (SECTION AT BENTS AND END BENTS ARE AT RIGHT ANGLES)

NOTE:
 GENERAL DRAWING INFORMATION IS TAKEN FROM THE ORIGINAL PLANS AND THE ROUTINE INSPECTION REPORT DATED 07/20/2020.

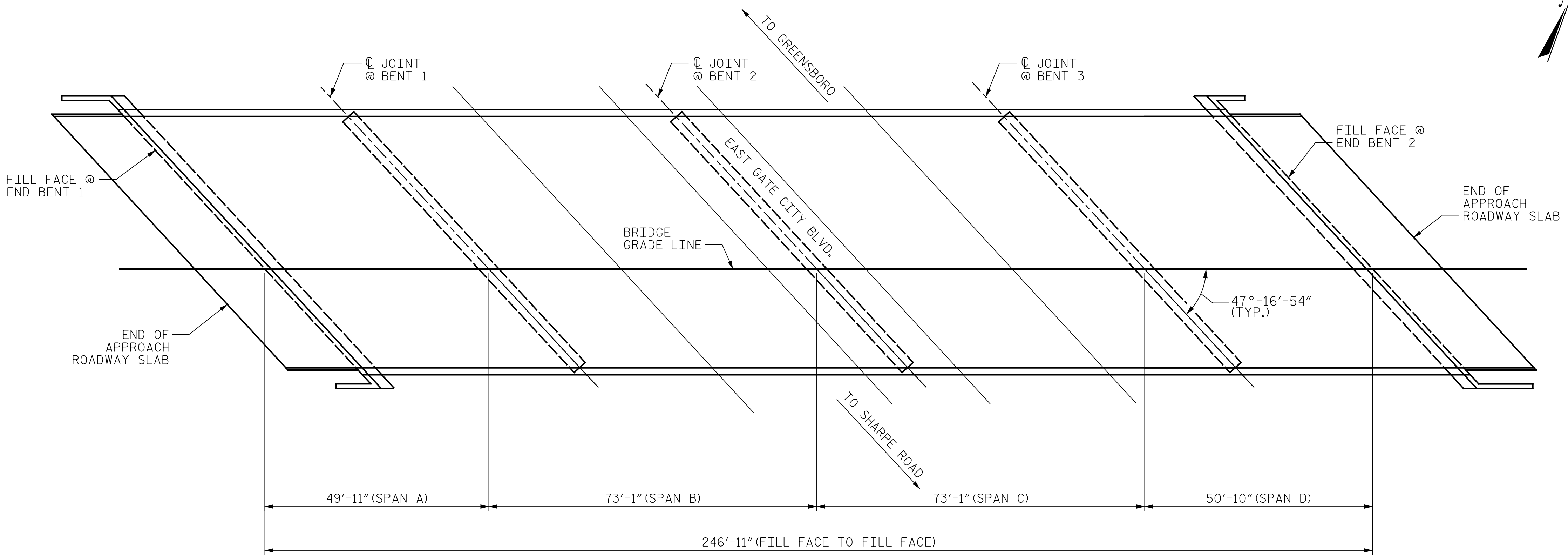
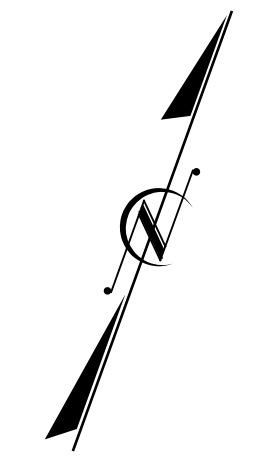
BRIDGE ORIENTATION CONFORMS TO THE EXISTING BRIDGE PLANS AND ROUTINE INSPECTION REPORT.

SCOPE OF WORK

- REPOSITION SOLE PLATES AND BEARING PADS.
- PARTIALLY REMOVE TOP OF BRIDGE DECK CONCRETE BY FINE MILLING AND SHOTBLASTING METHODS.
- OVERLAY PREPARED TOP OF BRIDGE DECK WITH POLYMER CONCRETE (PC).
- REPLACE EXISTING JOINT GLAND OF EXPANSION JOINT SEAL.
- REMOVE EXISTING EXPANSION JOINT SEAL AND INSTALL FOAM JOINT SEAL.
- REMOVE EXISTING COMPRESSION JOINT SEALS AND INSTALL FOAM JOINT SEALS.
- GROOVE PC BRIDGE DECK.
- CLEAN AND PAINT EXISTING WEATHERING STEEL BEAM ENDS.
- REMOVE DEBRIS FROM TOP OF EXISTING END BENT AND BENT CAPS AND APPLY EPOXY COATING.

CONSTRUCTION SEQUENCE

ALL WORK REQUIRING BRIDGE JACKING SHALL BE COMPLETED BEFORE ANY JOINT REPAIRS OR GIRDER END PAINTING BEGINS.



PLAN
 (PILES NOT SHOWN FOR CLARITY)

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

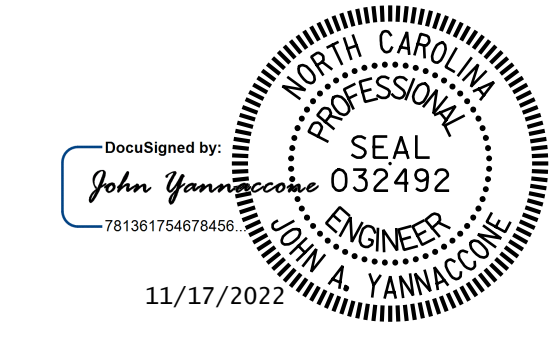
RESIDENT ENGINEER _____ DATE _____

PROJECT NO. I-5955
GUILFORD COUNTY
 BRIDGE NO. 400367

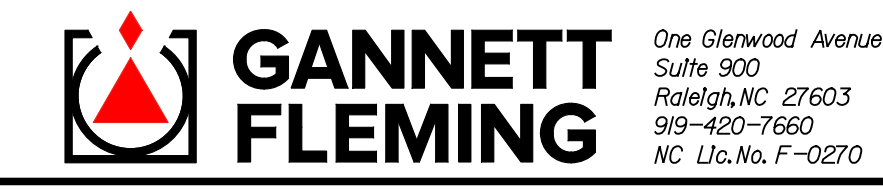
SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE ON I-40 WBL
 OVER SR 4240 (EAST GATE CITY BOULEVARD)



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



DRAWN BY : J. PARROT/J. MYA DATE : 10/2022
 CHECKED BY : J. YANNAKONE DATE : 10/2022

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2			4			127

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LOCATION SKETCH

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

BRIDGE COORDINATES	
LATITUDE	LONGITUDE
36°-03'-06.70"	79°-44'-06.42"

GENERAL NOTES

SEE TRANSPORTATION MANAGEMENT PLANS FOR LANE WIDTHS, SEQUENCING AND OTHER TRAFFIC CONTROL MEASURES FOR STAGING OF OVERLAY SURFACE PREPARATION AND POLYMER CONCRETE (PC) PLACEMENT.

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

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

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

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

WORK ON THE BRIDGE SHALL BE PERFORMED SO AS NOT TO ALLOW DEBRIS TO FALL BELOW, EXCEPT WHERE THE CONTRACTOR'S PLAN USED PLATFORMS, NETS, SCREEN 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. ANY DAMAGE TO EXISTING REINFORCING STEEL DURING CONTRACTOR'S OPERATIONS SHALL BE REPAIRED AS DIRECTED BY THE ENGINEER AND PERFORMED AT NO ADDITIONAL COST TO THE DEPARTMENT.

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

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

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

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

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

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

ALL PAVEMENT MARKING WILL BE IN ACCORDANCE WITH THE TRANSPORTATION MANAGEMENT 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 LANES SHALL BE KEPT FREE AND CLEAR OF DEBRIS.

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

FOR SHOTBLASTING BRIDGE DECK AND CLASS II SURFACE PREPARATION, SEE OVERLAY SURFACE PREPARATION FOR POLYMER CONCRETE SPECIAL PROVISION.

FOR FINE MILLING, SEE SPECIAL PROVISIONS.

FOR CONCRETE DECK REPAIR FOR PC OVERLAY, PC MATERIALS, AND PLACING AND FINISHING PC OVERLAY, SEE POLYMER CONCRETE BRIDGE DECK OVERLAY SPECIAL PROVISION.

FOR EXPANSION JOINT SEAL REPAIR, SEE SPECIAL PROVISIONS.

FOR FOAM JOINT SEALS FOR PRESERVATION, SEE SPECIAL PROVISIONS.

FOR EPOXY COATING AND DEBRIS REMOVAL, SEE SPECIAL PROVISIONS.

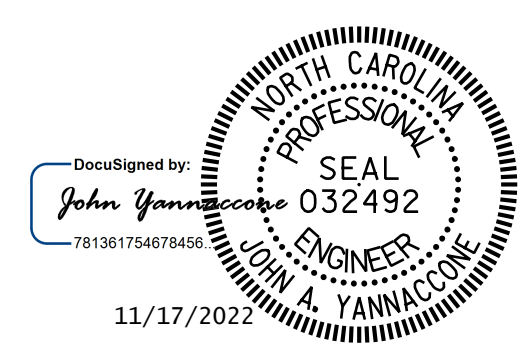
FOR PAINTING EXISTING WEATHERING STEEL STRUCTURE, SEE SPECIAL PROVISIONS.

FOR PAINTING CONTAINMENT AND POLLUTION CONTROL, SEE PAINTING EXISTING WEATHERING STEEL STRUCTURE SPECIAL PROVISION.

FOR REPOSITIONING BEARINGS, SEE SPECIAL PROVISIONS.

PROJECT NO. I-5955
GUILFORD COUNTY
 BRIDGE NO. 400367

SHEET 2 OF 2



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE ON I-40 WBL
 OVER SR 4240 (EAST GATE
 CITY BOULEVARD)

DRAWN BY : J. MYA DATE : 10/2022
 CHECKED BY : J. YANNACCONE DATE : 10/2022

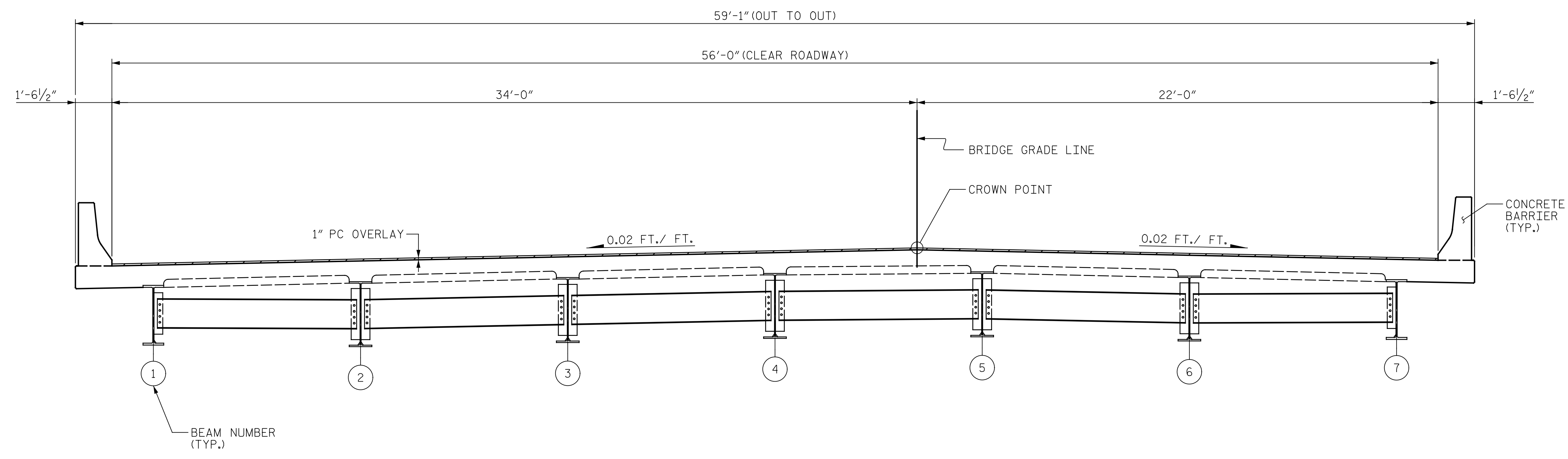


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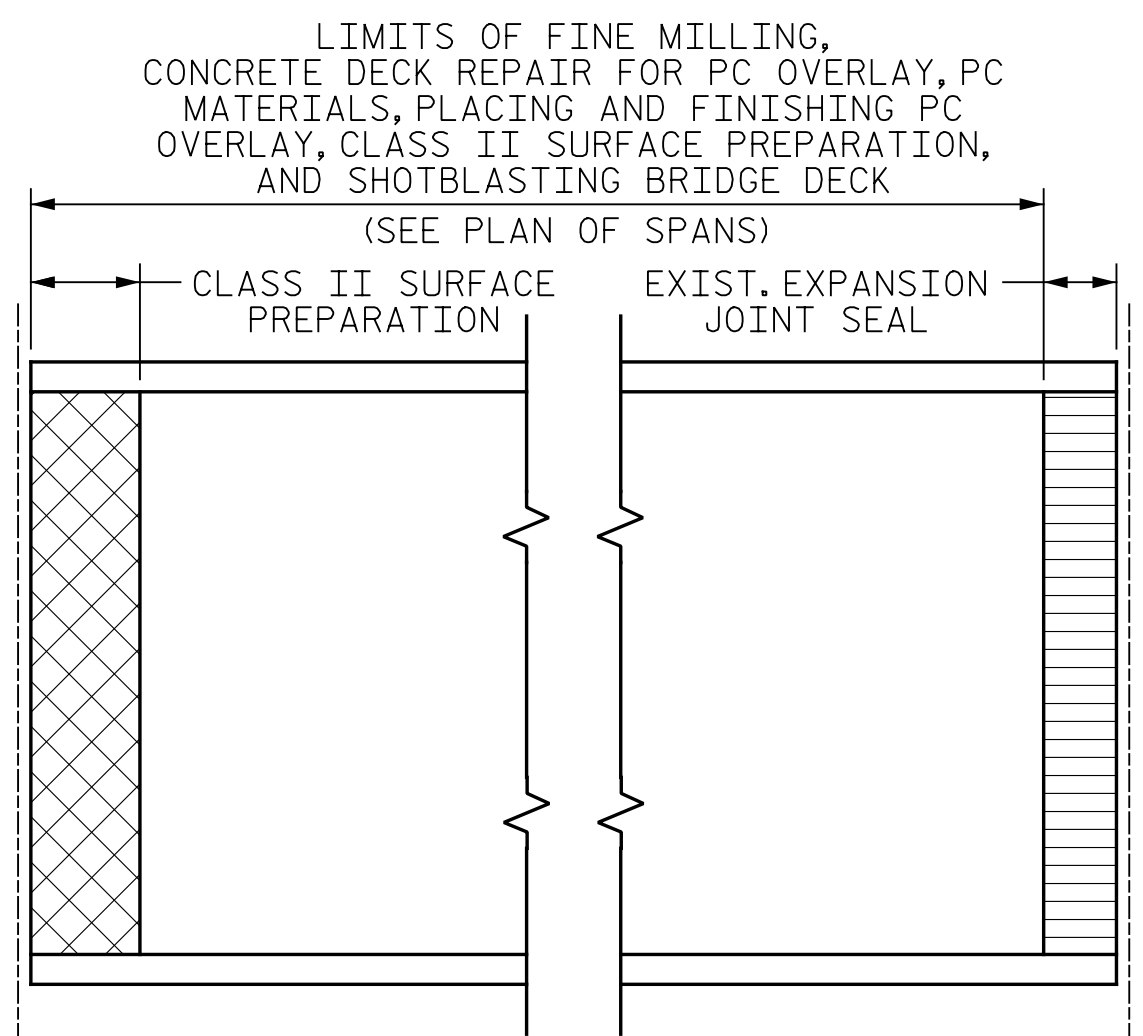
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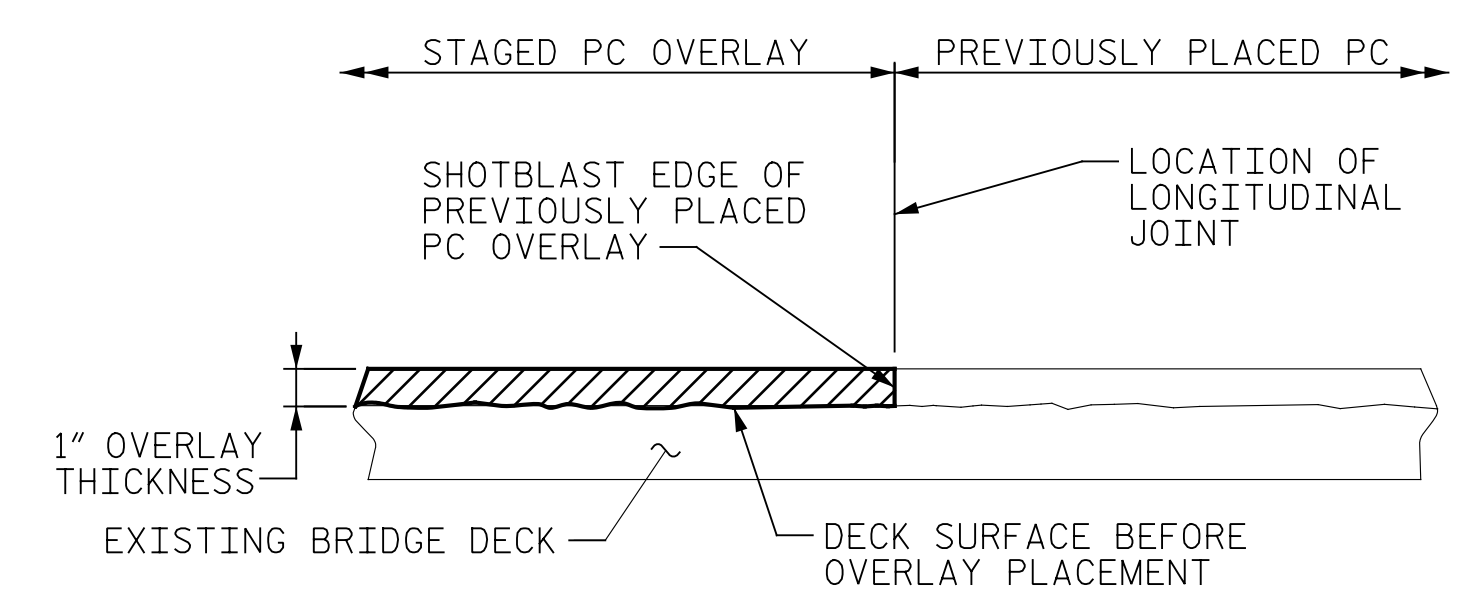
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SEE TRANSPORTATION MANAGEMENT PLANS FOR LANE WIDTHS, SEQUENCING AND OTHER TRAFFIC CONTROL MEASURES FOR STAGING OF OVERLAY SURFACE PREPARATION AND PC PLACEMENT.



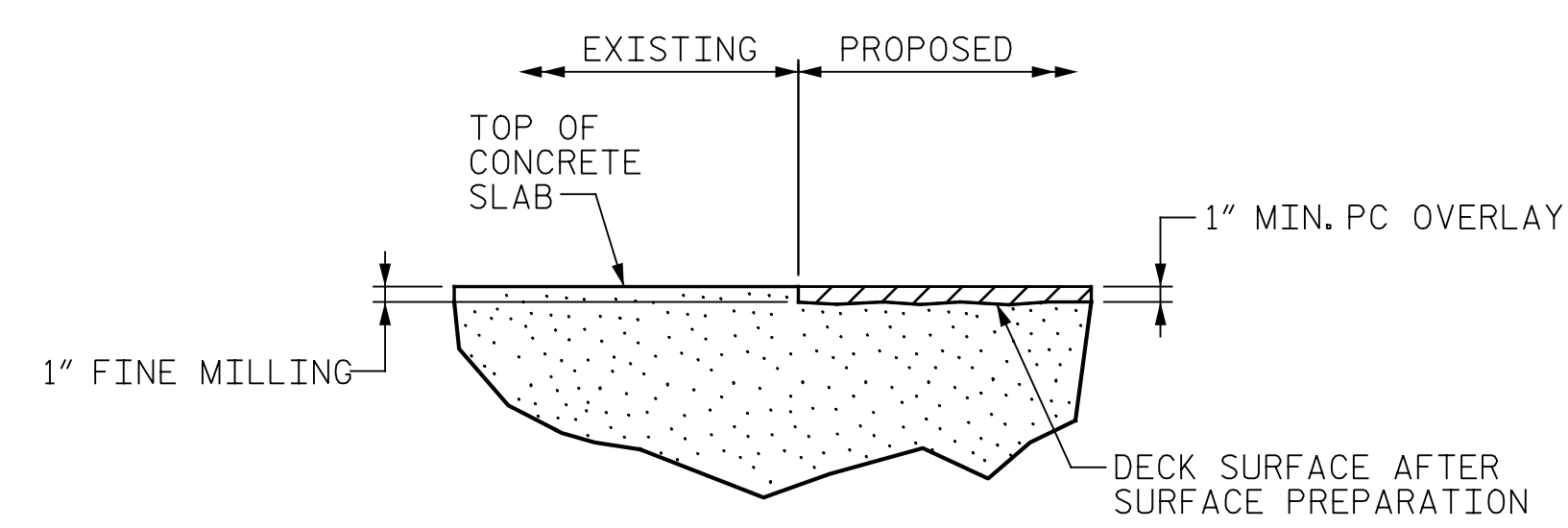
TYPICAL SECTION
(PROPOSED)



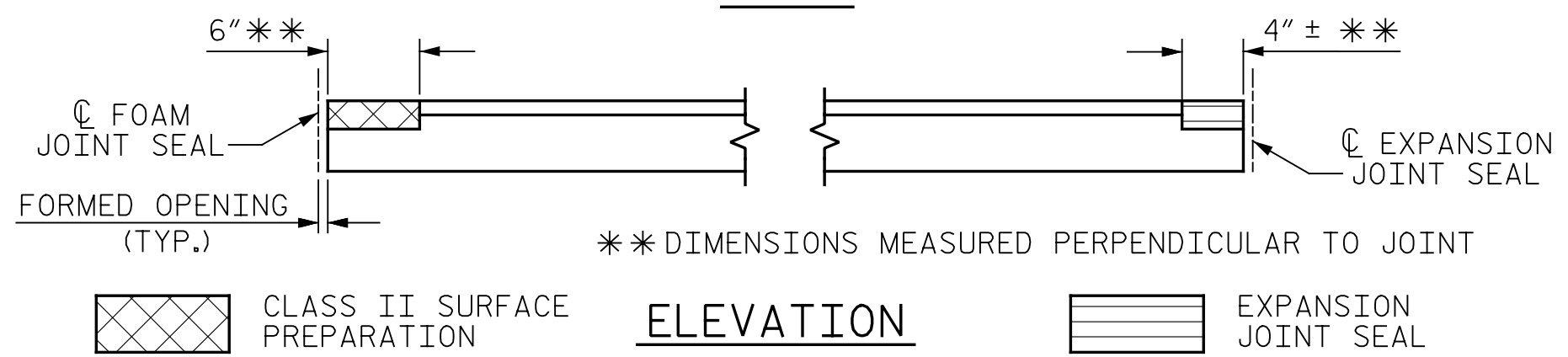
PLAN



STAGED PC OVERLAY CONSTRUCTION JOINT



DETAIL OF POLYMER CONCRETE OVERLAY



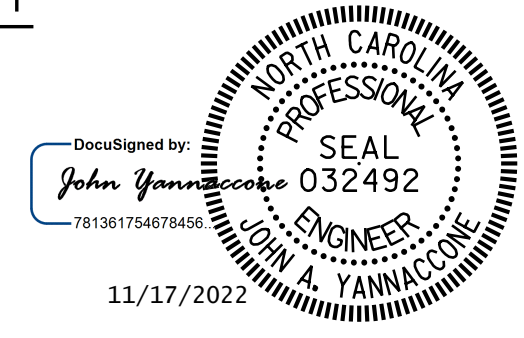
** DIMENSIONS MEASURED PERPENDICULAR TO JOINT

ELEVATION

PAY LIMITS FOR OVERLAY BID ITEMS

DRAWN BY: J. HARRIS DATE: 10/2022
CHECKED BY: J. YANNACCONE DATE: 10/2022

PROJECT NO. I-5955
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BRIDGE NO. 400367



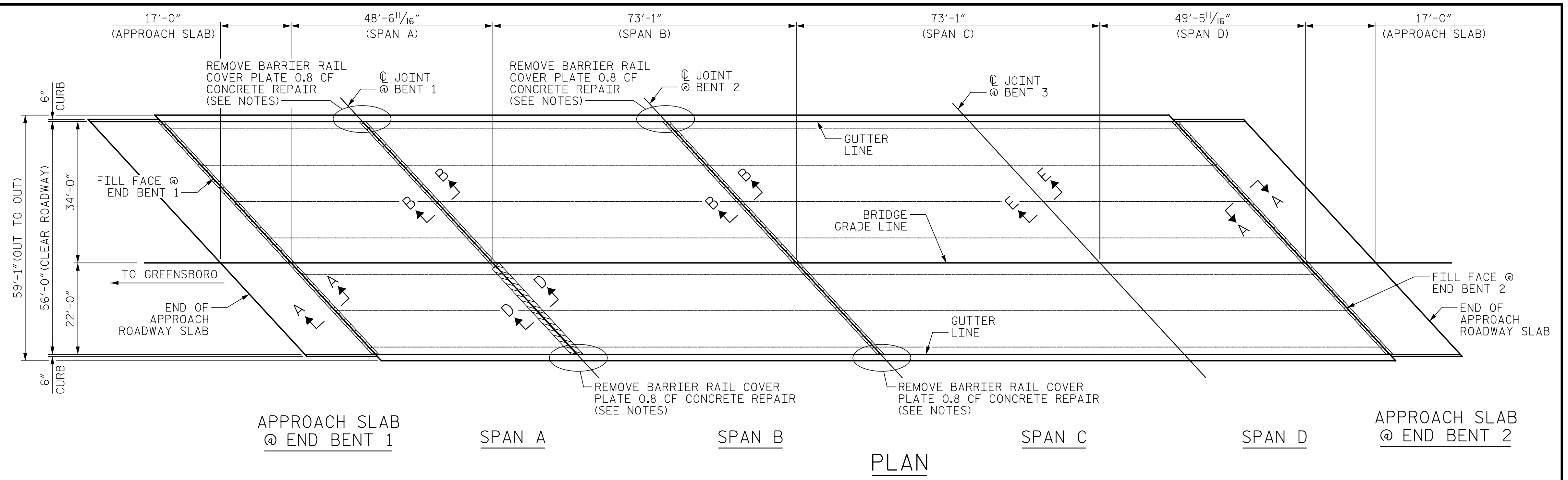
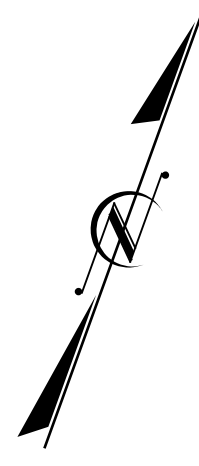
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
TYPICAL SECTION AND SURFACE PREPARATION DETAILS



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REPAIR QUANTITY TABLE		
TOP OF DECK REPAIR		
	ESTIMATE	ACTUAL
FINE MILLING	APPR. SLAB @ EB1	101.5 SY
	SPAN A	301.0 SY
	SPAN B	450.9 SY
	SPAN C	447.9 SY
	SPAN D	303.7 SY
	APPR. SLAB @ EB2	101.5 SY
CLASS II SURFACE PREPARATION	APPR. SLAB @ EB1	4.2 SY
	SPAN A	6.8 SY
	SPAN B	2.6 SY
	SPAN C	0.0 SY
	SPAN D	4.2 SY
APPR. SLAB @ EB2	4.2 SY	
CONCRETE WORK FOR JOINT REPLACEMENT	APPR. SLAB @ EB1	0 SF
	SPAN A	30 SF
	SPAN B	107 SF
	SPAN C	77 SF
	SPAN D	0 SF
APPR. SLAB @ EB2	0 SF	
PC MATERIALS	APPR. SLAB @ EB1	3.5 CY
	SPAN A	10.5 CY
	SPAN B	15.7 CY
	SPAN C	15.6 CY
	SPAN D	10.5 CY
	APPR. SLAB @ EB2	3.5 CY
PLACING AND FINISHING PC OVERLAY	APPR. SLAB @ EB1	101.5 SY
	SPAN A	301.0 SY
	SPAN B	450.9 SY
	SPAN C	447.9 SY
	SPAN D	303.7 SY
	APPR. SLAB @ EB2	101.5 SY
GROOVING BRIDGE FLOORS	APPR. SLAB @ EB1	805 SF
	SPAN A	2467 SF
	SPAN B	3780 SF
	SPAN C	3791 SF
	SPAN D	2527 SF
	APPR. SLAB @ EB2	805 SF
CONCRETE REPAIR	SPAN A	0.8 CF
	SPAN B	1.6 CF
	SPAN C	0.8 CF
	SPAN D	0.0 CF

REPAIR QUANTITY TABLE					
UNDERSIDE OF DECK REPAIR					
SHOTCRETE REPAIRS		ESTIMATE		ACTUAL	
		AREA SF	VOLUME CF	AREA SF	VOLUME CF
UNDERSIDE OF DECK	SPAN A	0.0	0.0		
	SPAN B	0.0	0.0		
	SPAN C	0.0	0.0		
	SPAN D	0.0	0.0		
OVERHANG DIAPHRAGMS	SPAN A	0.0	0.0		
	SPAN B	0.0	0.0		
	SPAN C	0.0	0.0		
	SPAN D	0.0	0.0		
UNDERSIDE OF OVERHANG	SPAN A	0.0	0.0		
	SPAN B	0.0	0.0		
	SPAN C	0.0	0.0		
	SPAN D	0.0	0.0		
INTERIOR DIAPHRAGMS	SPAN A	0.0	0.0		
	SPAN B	0.0	0.0		
	SPAN C	0.0	0.0		
	SPAN D	0.0	0.0		
UNDERSIDE EPOXY RESIN INJECTION			ESTIMATE		ACTUAL
	SPAN A	0.0	0.0 LF		
	SPAN B	0.0	0.0 LF		
	SPAN C	0.0	0.0 LF		
	SPAN D	0.0	0.0 LF		

NOTES:

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

PAYMENT FOR CLASS II SURFACE PREPARATION IS BASED UPON SQUARE YARDS OF ADDITIONAL DEMOLITION REQUIRED FOLLOWING FINE MILLING OF BRIDGE DECK, SEE "OVERLAY SURFACE PREPARATION FOR POLYMER CONCRETE" SPECIAL PROVISION.

CONCRETE COVER FOR TOP BARS IN THE DECK SLAB IS 2 1/2" PER THE EXISTING BRIDGE PLANS.

FOR SECTION A-A, B-B AND D-D, SEE "FOAM JOINT SEALS" SHEET.

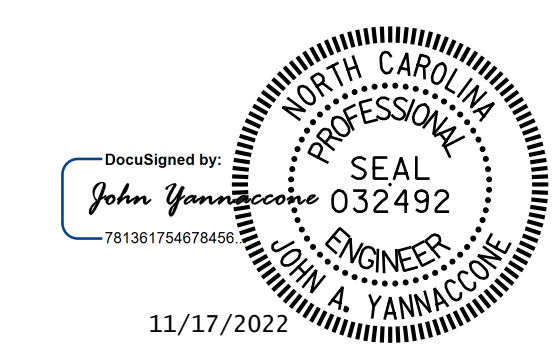
FOR SECTION E-E, SEE "EXPANSION JOINT SEAL DETAILS" SHEET.

AFTER REMOVAL OF THE BARRIER RAIL COVER PLATE, FILL THE RECESS IN THE BARRIER WITH A POLYMER MODIFIED CEMENT MORTAR CONFORMING TO THE CONCRETE REPAIR SPECIAL PROVISION. SHAPE THE SURFACE OF THE REPAIR TO CONFORM TO THE GEOMETRY OF THE BARRIER RAIL.

FOR CONCRETE WORK FOR JOINT REPLACEMENT, SEE SPECIAL PROVISIONS.

- FINE MILLING AND SHOTBLASTING OF BRIDGE DECK
- CLASS II SURFACE PREPARATION
- UNDERSIDE OF DECK REPAIR
- CONCRETE WORK FOR JOINT REPLACEMENT

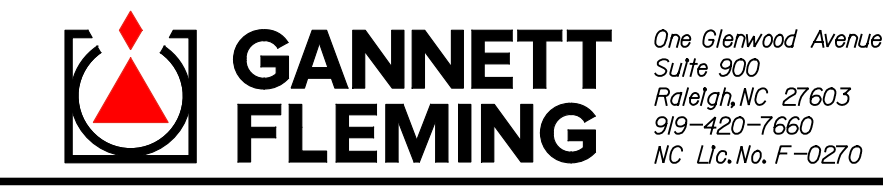
PROJECT NO. I-5955
GUILFORD COUNTY
 BRIDGE NO. 400367



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

PLAN OF SPANS

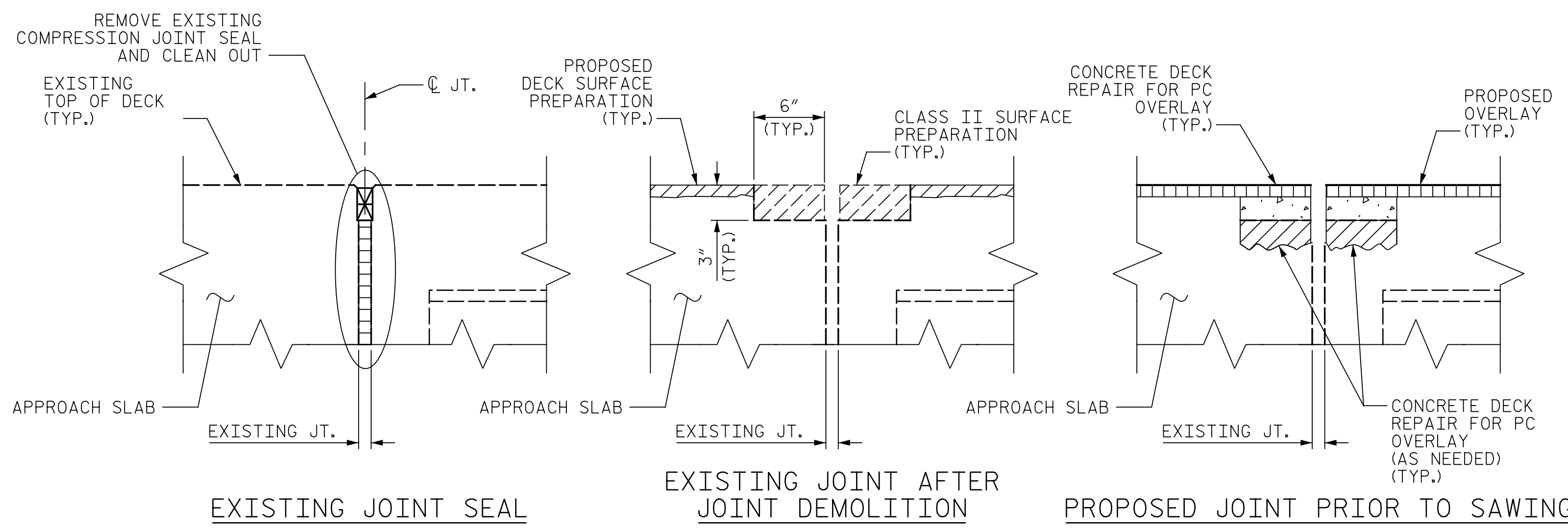
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 CHECKED BY: J. YANNACCONE DATE: 10/2022



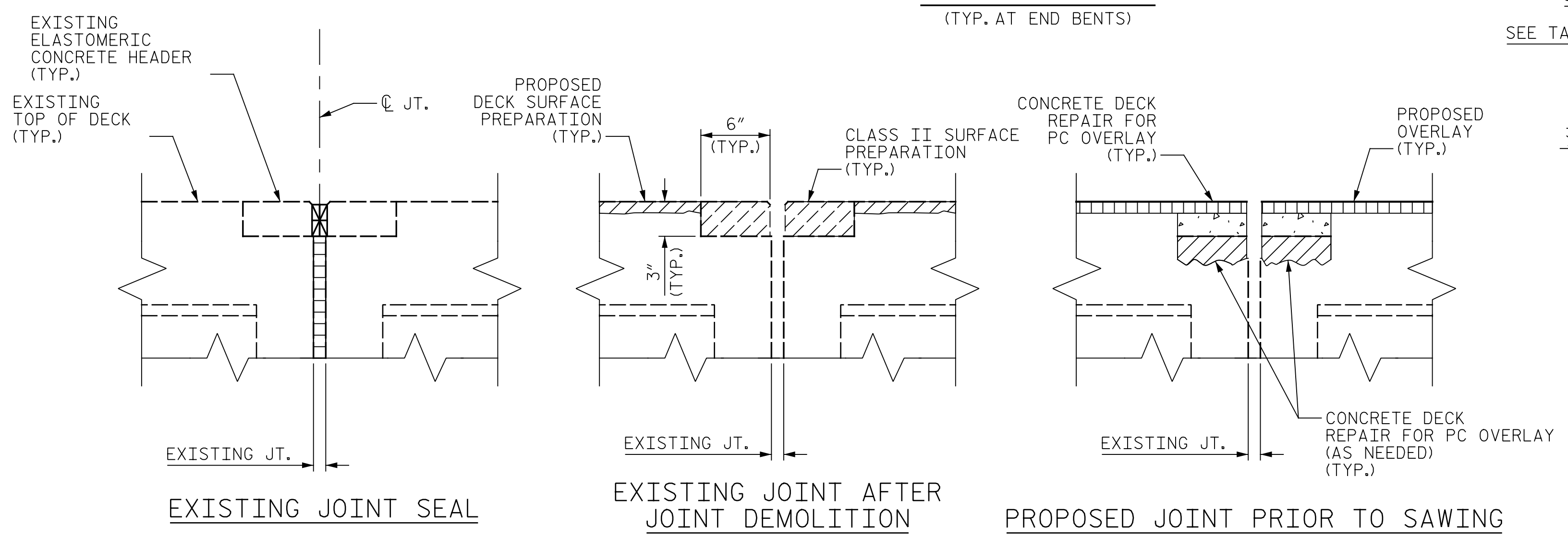
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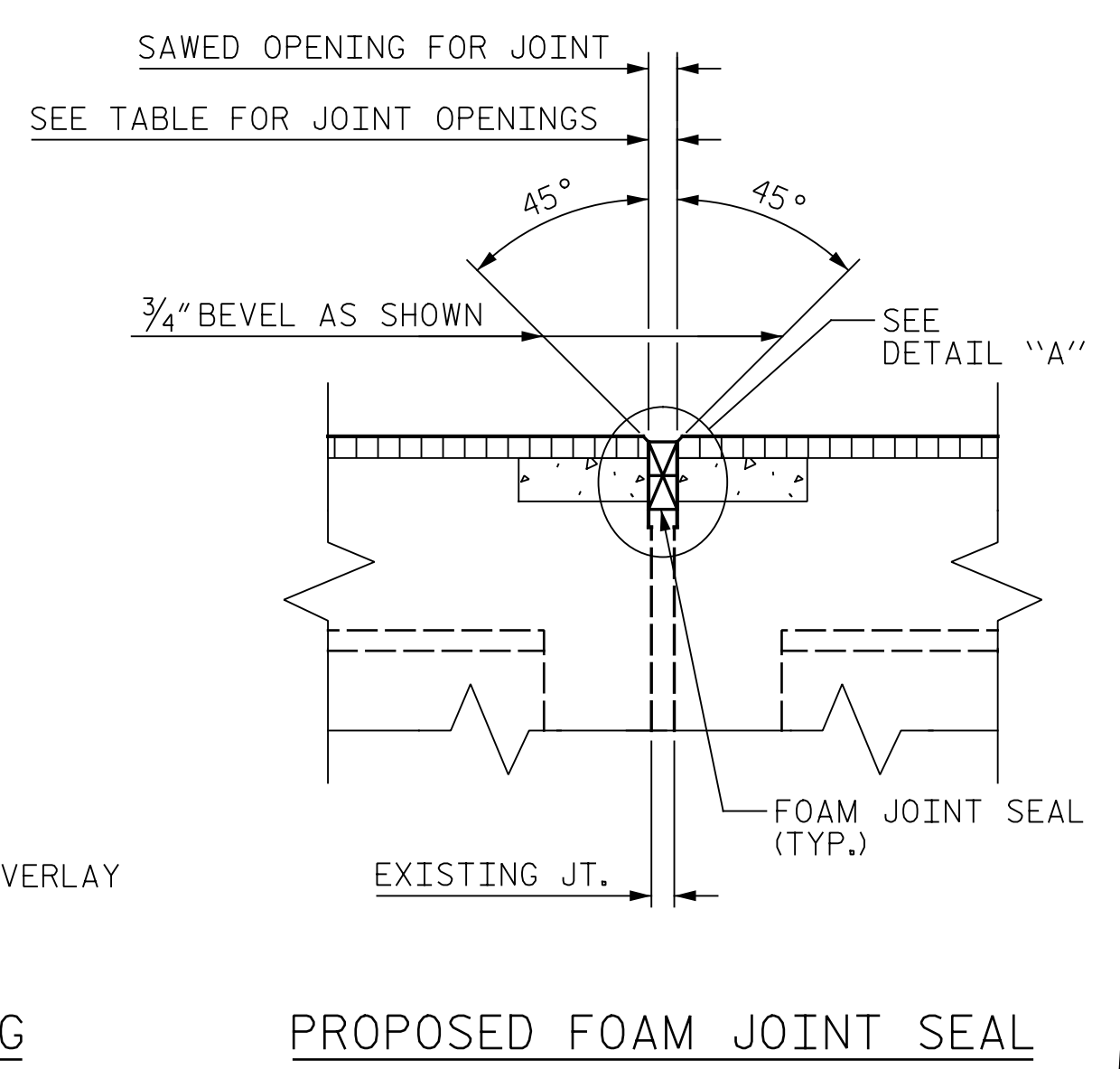
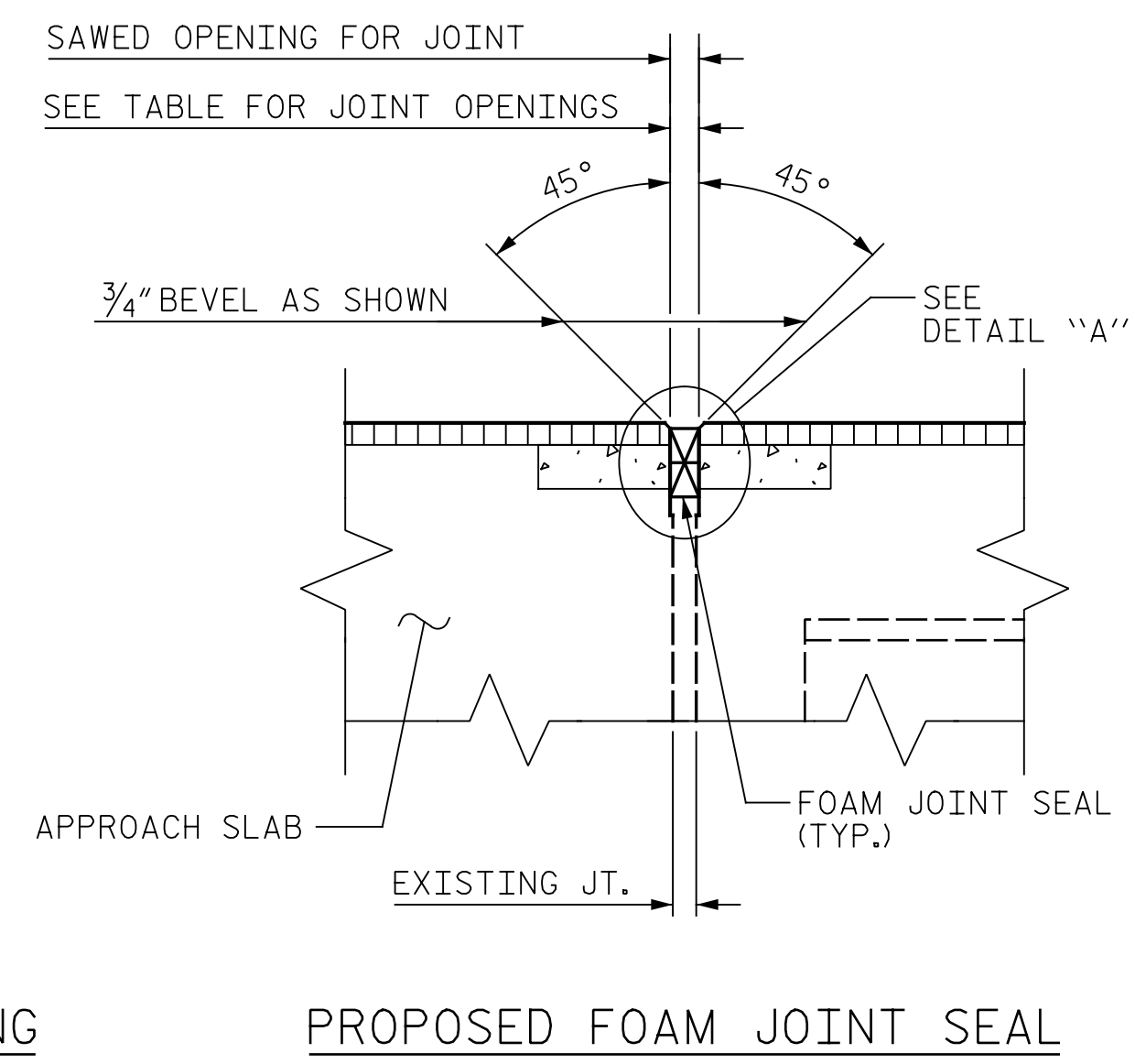
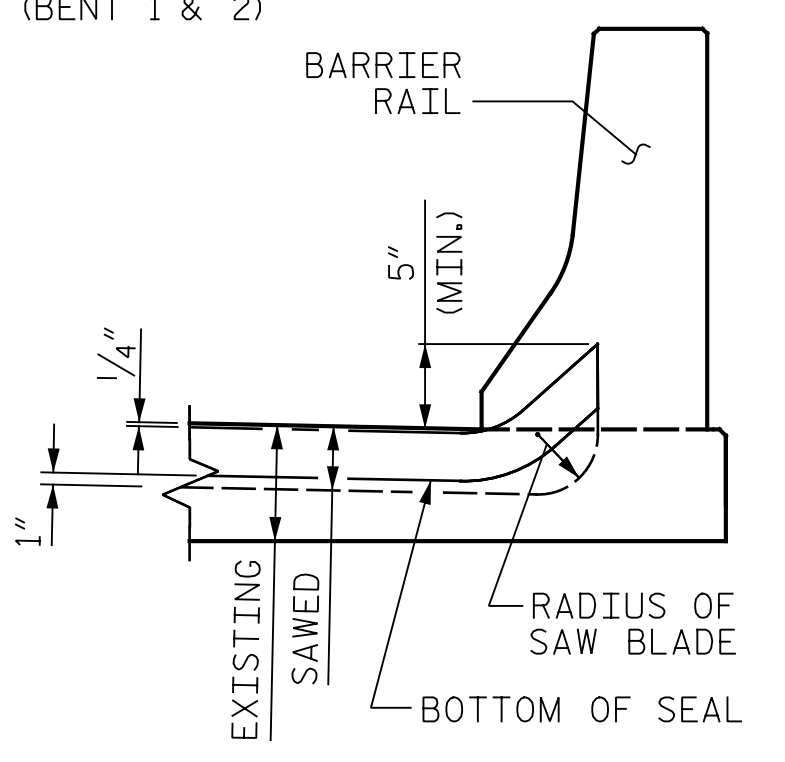
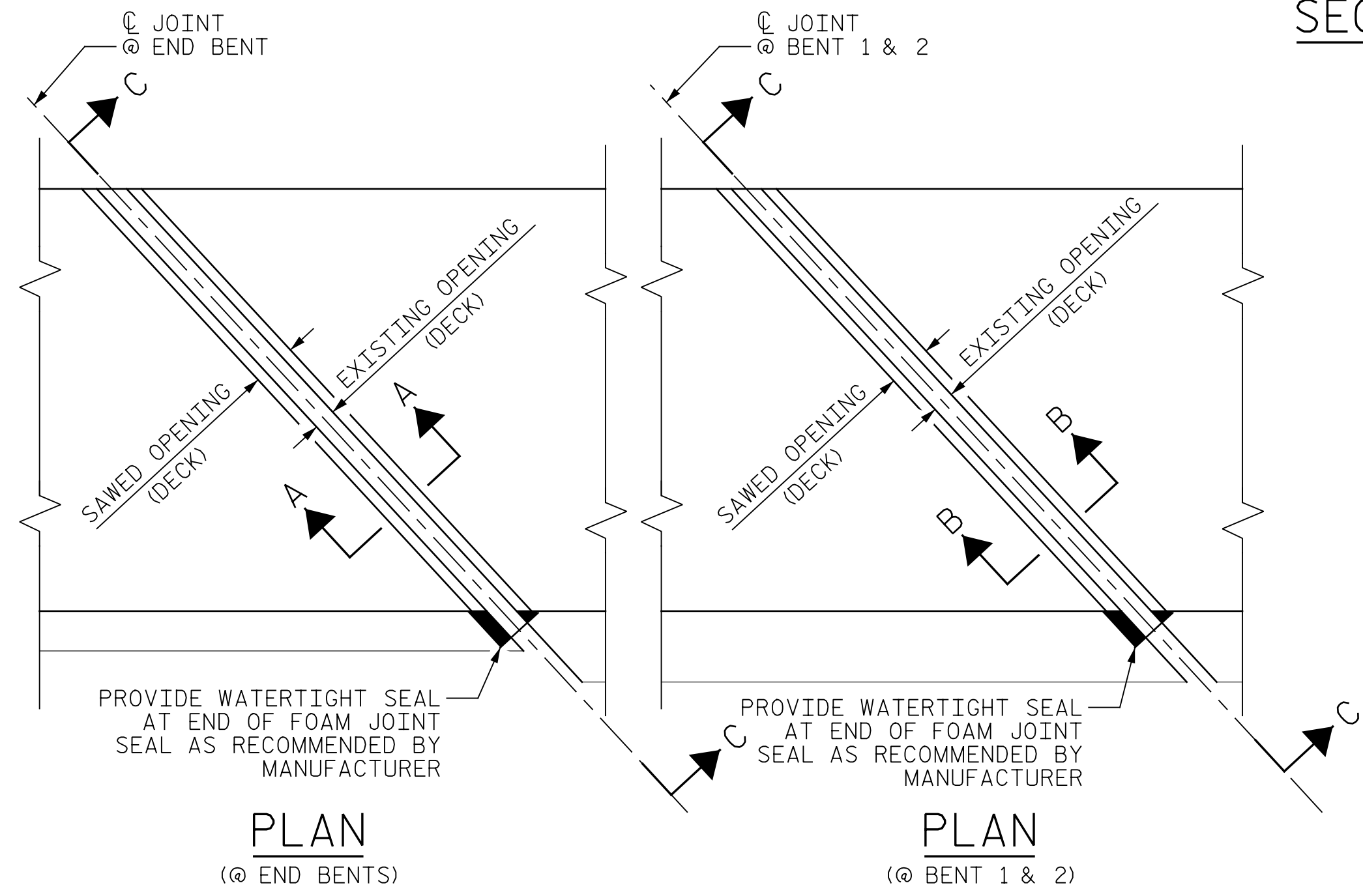
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SECTION A-A
(TYP. AT END BENTS)

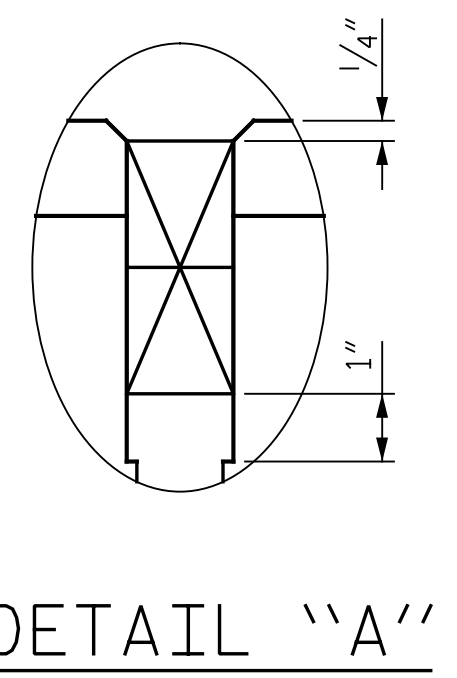


SECTION B-B
(BENT 1 & 2)



NOTES:

FINAL JOINT SEALS SHALL NOT BE INSTALLED UNTIL THE OVERLAY OR SEALANT WORK IS COMPLETE.
 THE CONTRACTOR SHALL FIELD VERIFY THE EXISTING JOINT OPENING PRIOR TO ORDERING JOINT SEAL MATERIAL. IF THE ACTUAL JOINT OPENING VARIES FROM THE OPENING INDICATED IN THE DETAILS BY MORE THAN 1/4", NOTIFY THE ENGINEER.
 THE MANUFACTURER IS TO PROVIDE THE NOMINAL UNCOMPRESSED SEAL WIDTH OF THE FOAM JOINT SEAL FOR THE SIZE OF THE OPENING ON THE PLANS AND ACCOMMODATE THE MINIMUM EXPANSION SHOWN ON THE PLANS.
 FOAM JOINTS SHALL BE INSTALLED AS PER THE MANUFACTURER'S RECOMMENDATIONS.
 THE CONTRACTOR SHALL TAKE CARE DURING JOINT REHAB OPERATIONS NOT TO DROP ANY MATERIAL BELOW THE BRIDGE WITHOUT PROTECTIVE DEVICES BELOW TO CATCH THE MATERIAL. ANY MATERIAL THAT FALLS BELOW THE BRIDGE SHALL BE CONTAINED, REMOVED AND DISPOSED OF BY THE CONTRACTOR AT NO EXTRA COST TO THE DEPARTMENT. IF THE ENGINEER DETERMINES THAT THE PROTECTIVE DEVICES ARE NOT ADEQUATE OR NOT BEING EMPLOYED, THE WORK SHALL BE SUSPENDED UNTIL ADEQUATE PROTECTION IS PROVIDED.
 THE CONTRACTOR WILL NOT BE PERMITTED TO FORM THE JOINT IN LIEU OF SAWING THE JOINT.
 THE INSTALLED FOAM JOINTS SHALL BE WATERTIGHT.
 THE CONTRACTOR SHALL SAW CUT TO A NOMINAL DEPTH OF 1/2" BUT REINFORCING STEEL SHALL NOT BE DAMAGED. CONTRACTOR SHALL REMOVE SURFACE CONCRETE TO VERIFY THAT SAWCUT DEPTH WILL NOT DAMAGE EXISTING REINFORCING STEEL.
 QUANTITIES SHOWN IN THE ELASTOMERIC CONCRETE FOR PRESERVATION TABLE ARE BASED ON THE MINIMUM JOINT DEMOLITION SHOWN.
 FOR EXCAVATION BELOW THE BOTTOM OF PLANNED JOINT DEMOLITION, CONCRETE FOR DECK REPAIR SHALL BE PLACED IN THE EXCAVATED AREA TO THE ELEVATION AT THE BOTTOM OF THE PROPOSED ELASTOMERIC CONCRETE FOR PRESERVATION HEADERS SHOWN.
 FOR CLASS II SURFACE PREPARATION, SEE OVERLAY SURFACE PREPARATION FOR POLYMER CONCRETE SPECIAL PROVISION.
 FOR CONCRETE DECK REPAIR FOR PC OVERLAY, SEE SPECIAL PROVISIONS.
 NO SEPARATE PAYMENT WILL BE MADE FOR REMOVING THE EXISTING MEDIAN AND BARRIER RAIL COVER PLATES. THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT PRICE BID FOR "FOAM JOINT SEALS FOR PRESERVATION".
 FOR SECTION D-D, SEE SHEET 2 OF 2.
 CLEAN AND REMOVE DEBRIS FROM THE TOP OF THE BENT CAPS AND APPLY EPOXY PROTECTIVE COATING. EPOXY COATING SHALL BE APPLIED TO THE TOP SURFACE OF THE CAPS. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAPS BENEATH THE ELASTOMERIC BEARINGS. FOR EPOXY COATING, SEE SPECIAL PROVISIONS.



SAWS JOINT OPENING TABLE

LOCATION	SAWS JT. OPENING TABLE (PERPENDICULAR TO JT.)		
	AT 45°	AT 60°	AT 90°
END BENT 1	1 ⁵ / ₁₆ "	1 ⁵ / ₁₆ "	1 ⁵ / ₁₆ "
BENT 1	2 ¹³ / ₁₆ "	2 ¹¹ / ₁₆ "	2 ¹ / ₂ "
END BENT 2	1 ⁹ / ₁₆ "	1 ⁹ / ₁₆ "	1 ⁹ / ₁₆ "

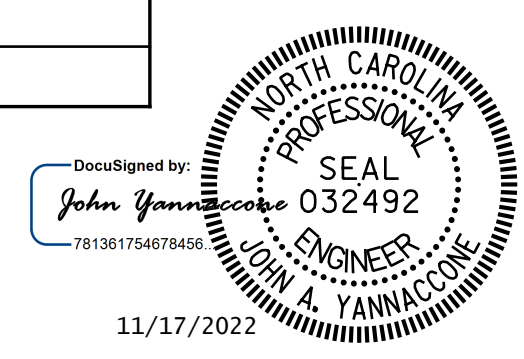
SUMMARY OF QUANTITIES

LOCATION	FOAM JOINT SEALS FOR PRESERVATION		CONCRETE DECK REPAIR FOR PC OVERLAY		EPOXY COATING	
	ESTIMATED (LIN. FT.)	ACTUAL (LIN. FT.)	ESTIMATED (SQ. YDS.)	ACTUAL (SQ. YDS.)	ESTIMATED (SQ. FT.)	ACTUAL (SQ. FT.)
END BENT 1	78.5		8.5		184	
BENT 1	46.5		5.2		144	
END BENT 2	78.5		8.5		184	

PROJECT NO. I-5955
GUILFORD COUNTY
 BRIDGE NO. 400367

SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
FOAM JOINT SEALS



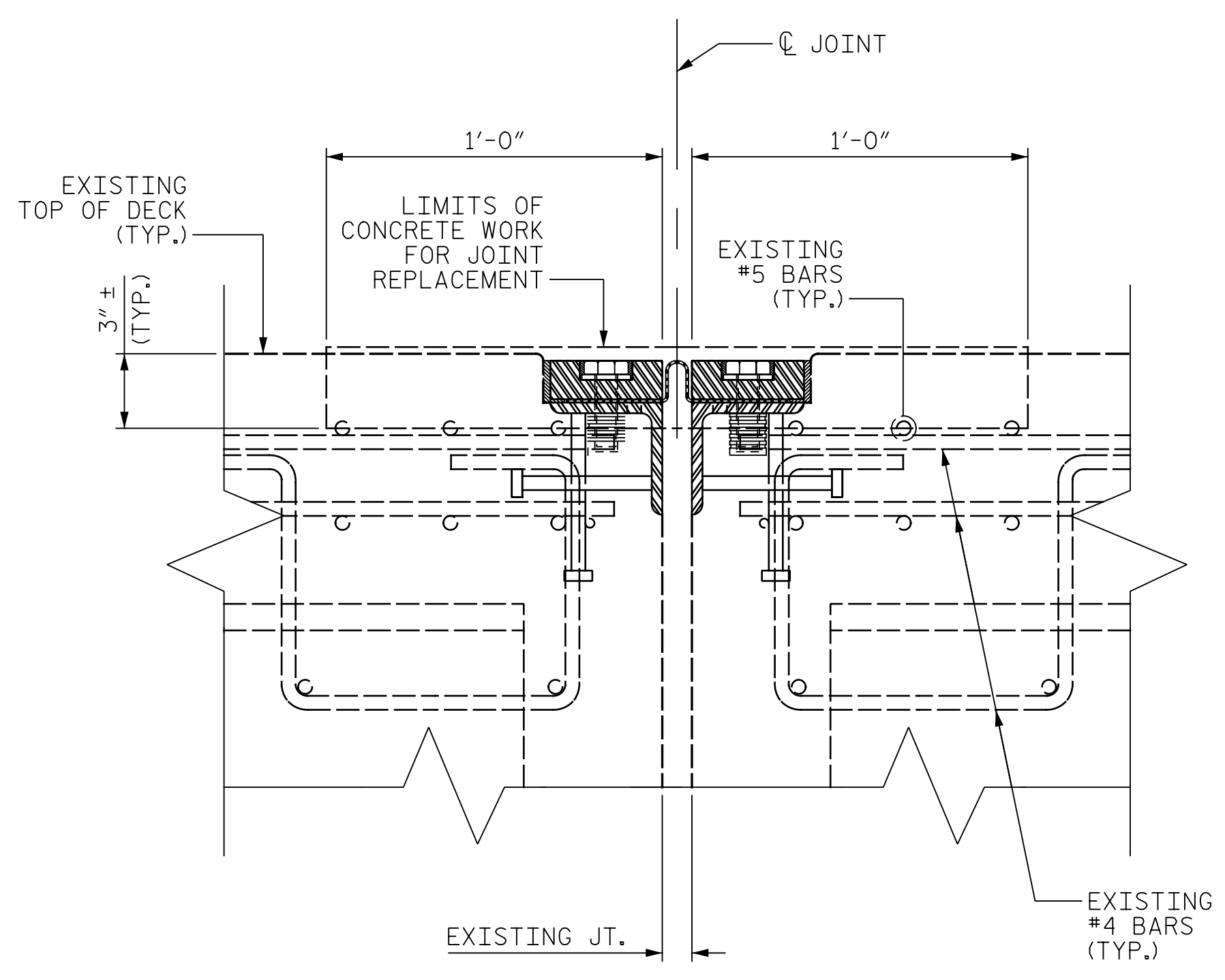
DRAWN BY: J. MYA DATE: 10/2022
 CHECKED BY: J. YANNACCONE DATE: 10/2022



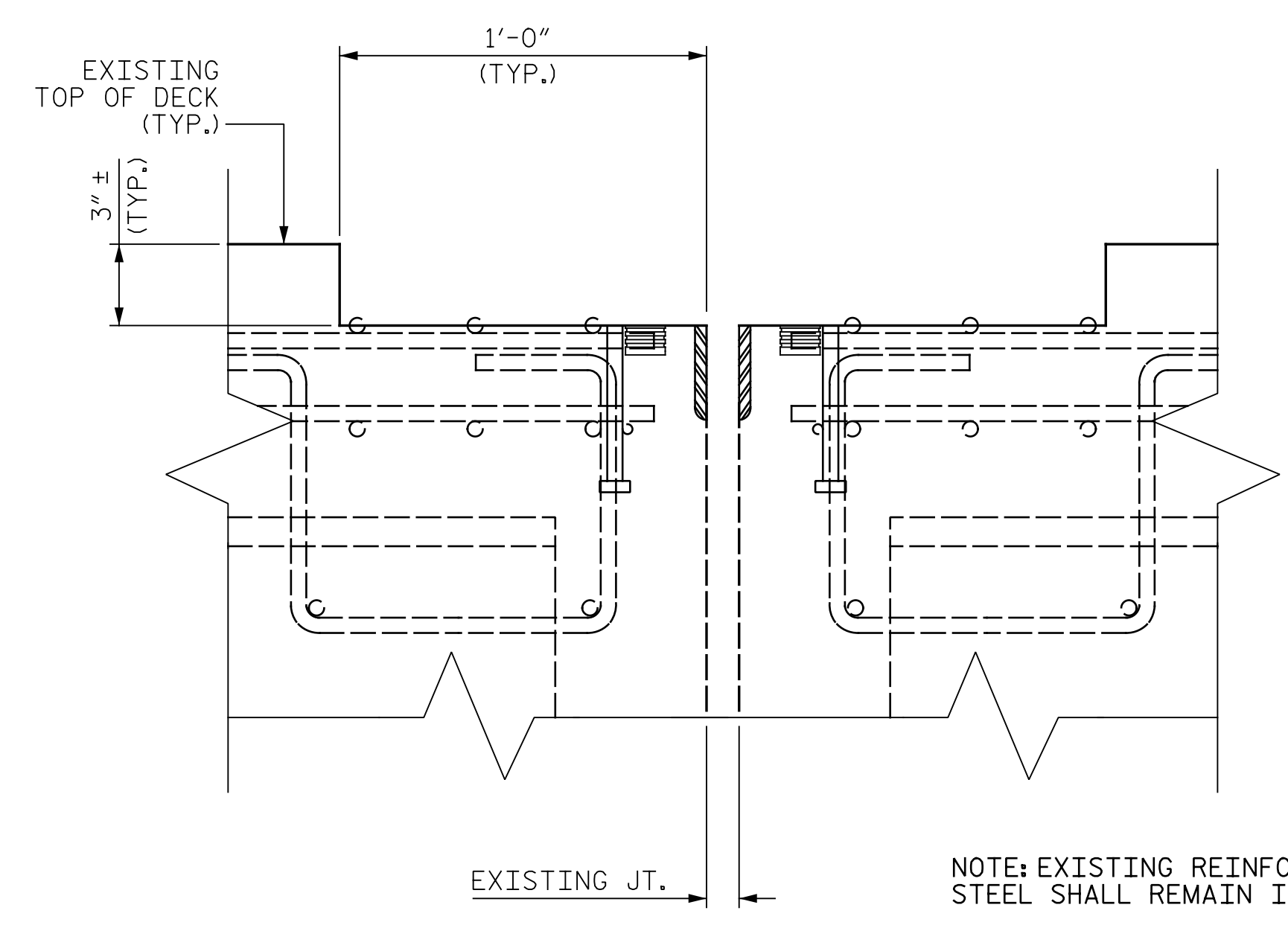
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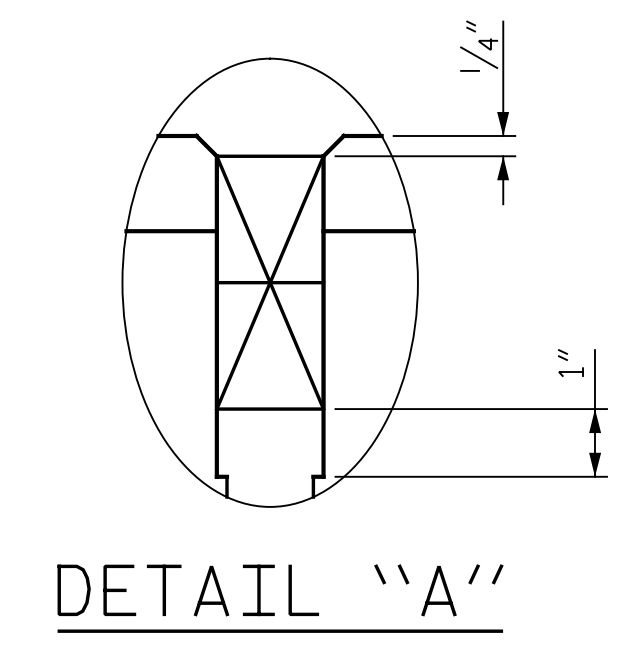


EXISTING EXPANSION JOINT SEAL



EXISTING JOINT AFTER JOINT DEMOLITION

NOTE: EXISTING REINFORCING STEEL SHALL REMAIN IN PLACE.



NOTES

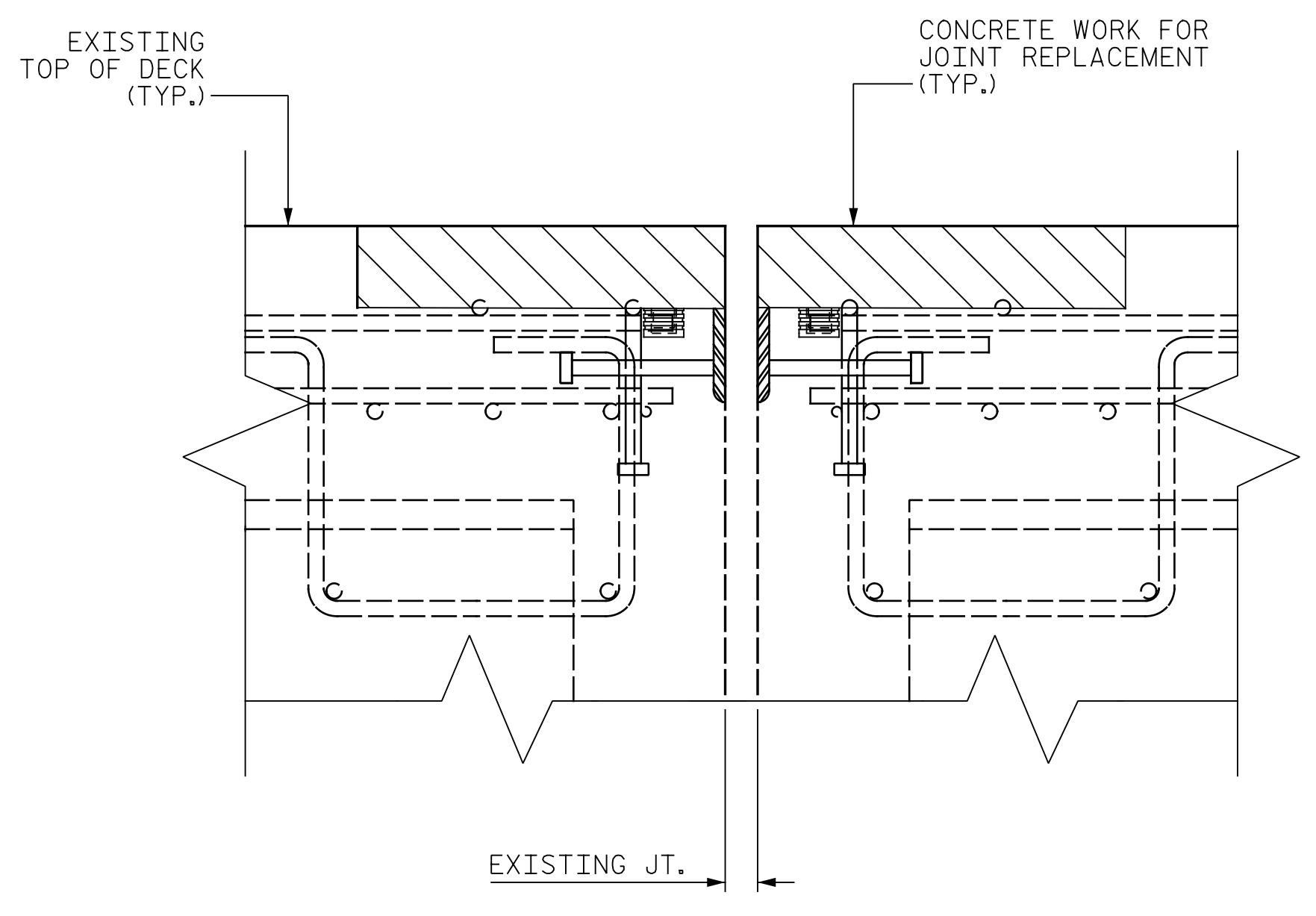
ALL HORIZONTAL DIMENSIONS ARE MEASURED PERPENDICULAR TO THE JOINT UNLESS NOTED OTHERWISE.
 CLEAN AND REMOVE DEBRIS FROM THE TOP OF THE BENT CAP AND APPLY EPOXY PROTECTIVE COATING. EPOXY COATING SHALL BE APPLIED TO THE TOP SURFACE OF THE CAP. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAPS BENEATH THE ELASTOMERIC BEARINGS AND MASONRY PLATES. FOR EPOXY COATING, SEE SPECIAL PROVISIONS.
 FOR ADDITIONAL NOTES, SEE SHEET 1 OF 2.

SUMMARY OF QUANTITIES

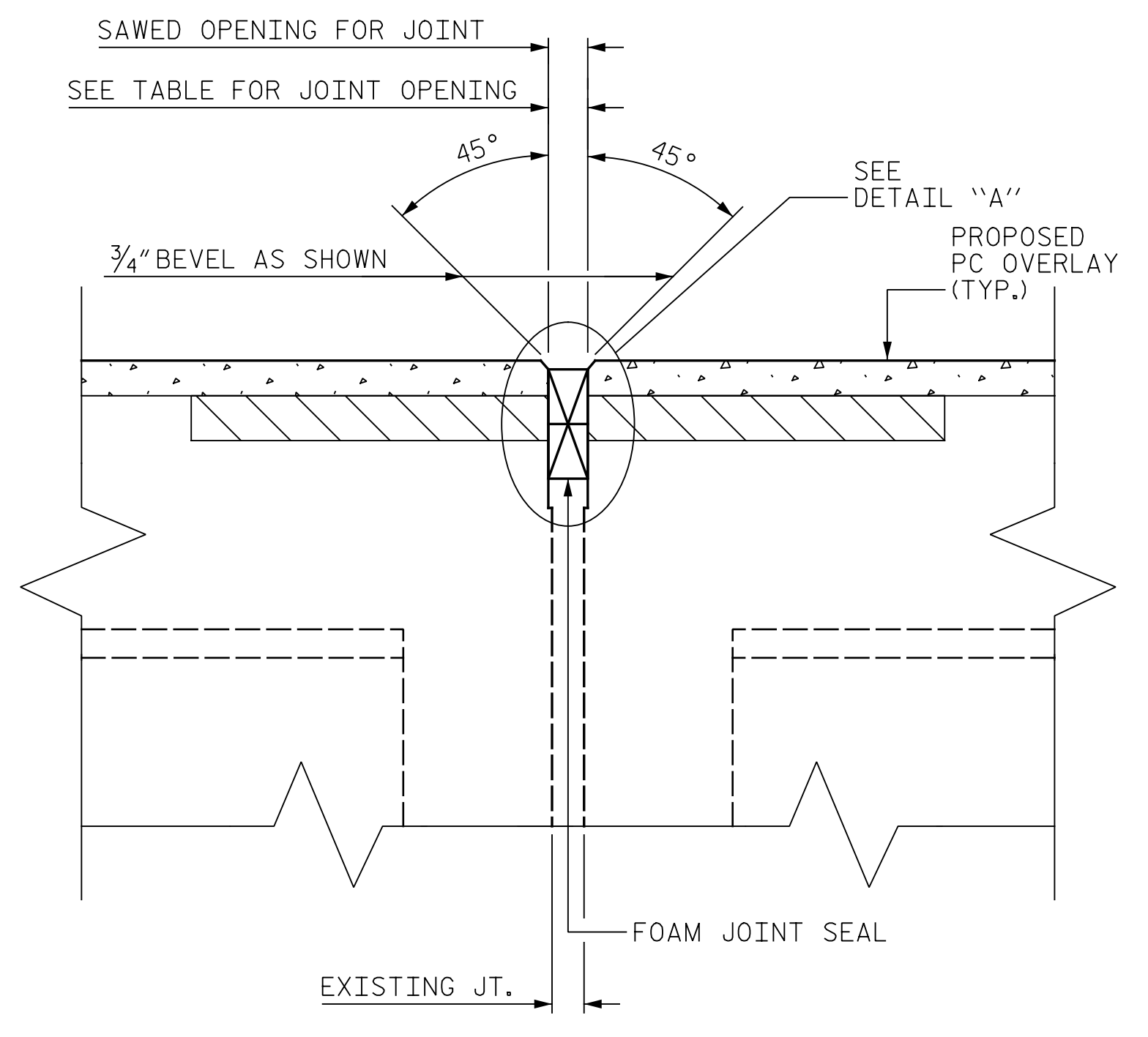
LOCATION	FOAM JOINT SEALS FOR PRESERVATION		EPOXY COATING	
	ESTIMATED (LIN. FT)	ACTUAL (LIN. FT)	ESTIMATED (SQ. FT)	ACTUAL (SQ. FT)
BENT 1	30.0		93	
BENT 2	78.5		237	

SAWED JOINT OPENING TABLE

LOCATION	SAWED JT. OPENING TABLE (PERPENDICULAR TO JT.)		
	AT 45°	AT 60°	AT 90°
BENT 1	2 ¹³ / ₁₆ "	2 ¹ / ₁₆ "	2 ¹ / ₂ "
BENT 2	2 ³ / ₄ "	2 ¹ / ₁₆ "	2 ⁹ / ₁₆ "



PROPOSED JOINT PRIOR TO SAWING

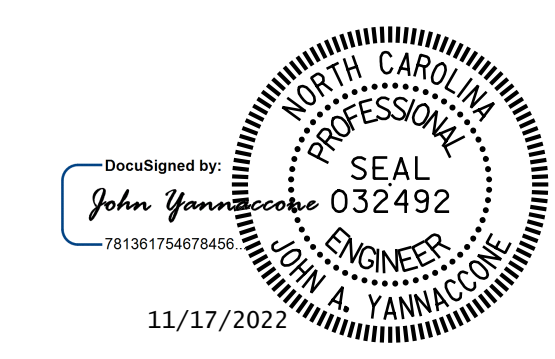


PROPOSED FOAM JOINT SEAL

SECTION D-D
 (BENT 1 & 2)

PROJECT NO. I-5955
 GUILFORD COUNTY
 BRIDGE NO. 400367
 SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 FOAM JOINT SEALS



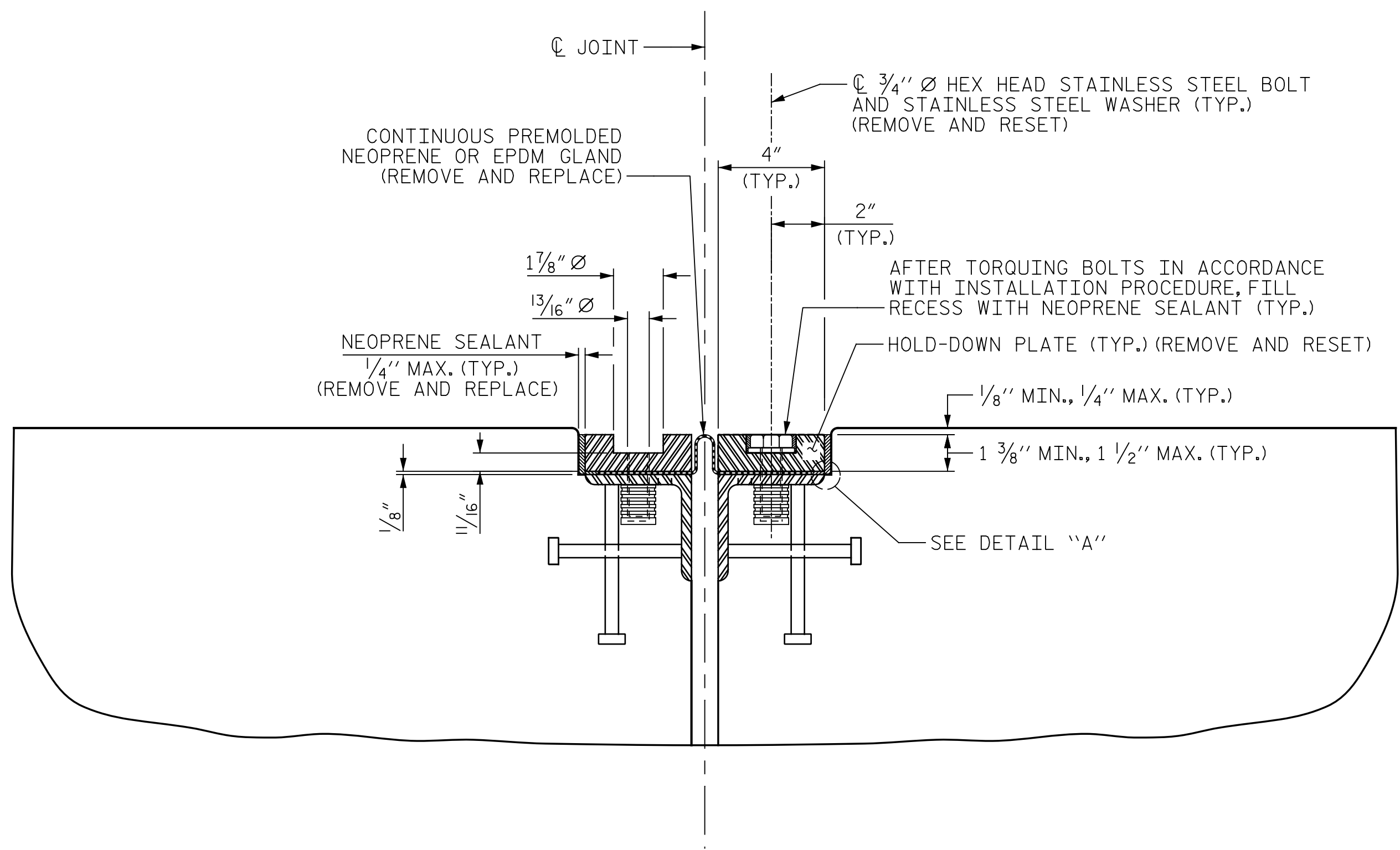
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 CHECKED BY: J. YANNAACONE DATE: 10/2022



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SECTION D-D

SECTION NORMAL TO JOINT -- STEEL SUPERSTRUCTURE

REPAIR INSTALLATION PROCEDURE

LOOSEN THE EXISTING BOLTS AND HOLD DOWN PLATES TO REMOVE AND REPLACE THE EXISTING GLAND. REMOVE THE EXISTING NEOPRENE SEALANT AND CLEAN THE EXISTING BASE ANGLE OR OIL, GREASE AND OTHER LATENTS.

LAY THE NEW GLAND ON THE BASE ANGLE AND FIELD MARK THE NEW GLAND FOR THE BOLT HOLES. HOLES IN THE NEW GLAND SHALL BE PUNCHED 7/8" IN DIAMETER WITH A HAND PINCH.

IN ORDER TO CHECK THE PROPER ALIGNMENT, PLACE THE NEW GLAND HOLD-DOWN PLATES ON THE BASE ANGLE. DO NOT APPLY NEW NEOPRENE SEALANT. BOLT THE HOLD-DOWN PLATES TO THE BASE ANGLE, BUT DO NOT TIGHTEN. THE ENGINEER WILL INSPECT THE JOINT SEAL DEVICE FOR PROPER ALIGNMENT.

AFTER INSPECTION, REMOVE THE HOLD DOWN PLATES AND NEW GLAND. APPLY NEW NEOPRENE SEALANT TO THE BASE ANGLE IN ACCORDANCE WITH THE "INSTALLATION SKETCH". PLACE NEW GLAND AND HOLD-DOWN PLATES ON THE BASE ANGLE. BOLT THE HOLD-DOWN PLATES TO THE BASE ANGLE ASSEMBLY AND TORQUE THE BOLTS TO 88 FT-LBS WITH A TORQUE WRENCH. CHECK THE TORQUE AFTER THREE (3) HOURS AND, IF NECESSARY, RETIGHTEN TO 88 FT-LBS. A FINAL CHECK SHALL BE MADE AT SEVEN (7) DAYS. TORQUE SHALL NOT BE LESS THAN 80 FT-LBS AFTER SEVEN (7) DAYS.

AFTER PROPER TORQUING, CLEAN THE BOLT HOLE RECESSES AND THE RECESS BETWEEN THE JOINT SEAL DEVICE AND CONCRETE. COMPLETELY FILL THESE RECESSES WITH NEW NEOPRENE SEALANT.

GENERAL NOTES

ALL HOLD-DOWN BOLTS SHALL CONFORM TO ASTM F593 ALLOY 304 STAINLESS STEEL AND WASHERS SHALL CONFORM TO ASTM F844 EXCEPT THEY SHALL BE MADE FROM ALLOY 304 STAINLESS STEEL.

A PREMOLDED CORRUGATED OR NON-CORRUGATED GLAND SHALL BE USED FOR JOINTS SKEWED BETWEEN 50° THRU 130°. FOR JOINTS SKEWED LESS THAN 50° OR MORE THAN 130°, ONLY A CORRUGATED GLAND SHALL BE USED.

THE FINISHED EXPANSION SEAL DEVICE SHALL BE A MINIMUM 1/8" AND A MAXIMUM OF 1/4" BELOW THE TOP OF SLAB.

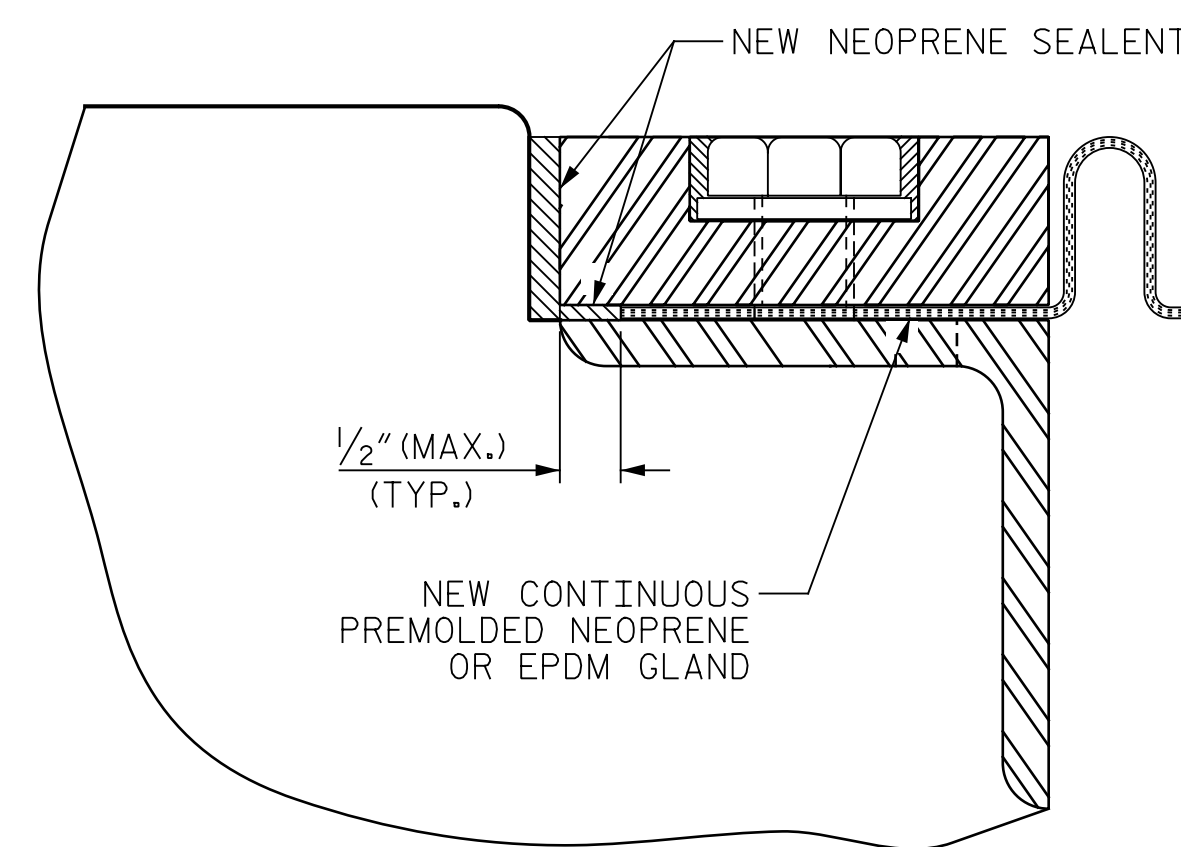
FOR EXPANSION JOINT SEAL REPAIR, SEE SPECIAL PROVISIONS.

NO SEPARATE PAYMENT WILL BE MADE FOR REMOVING AND REINSTALLING MEDIAN AND BARRIER RAIL COVER PLATES. THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT PRICE BID FOR "EXPANSION JOINT SEAL REPAIR".

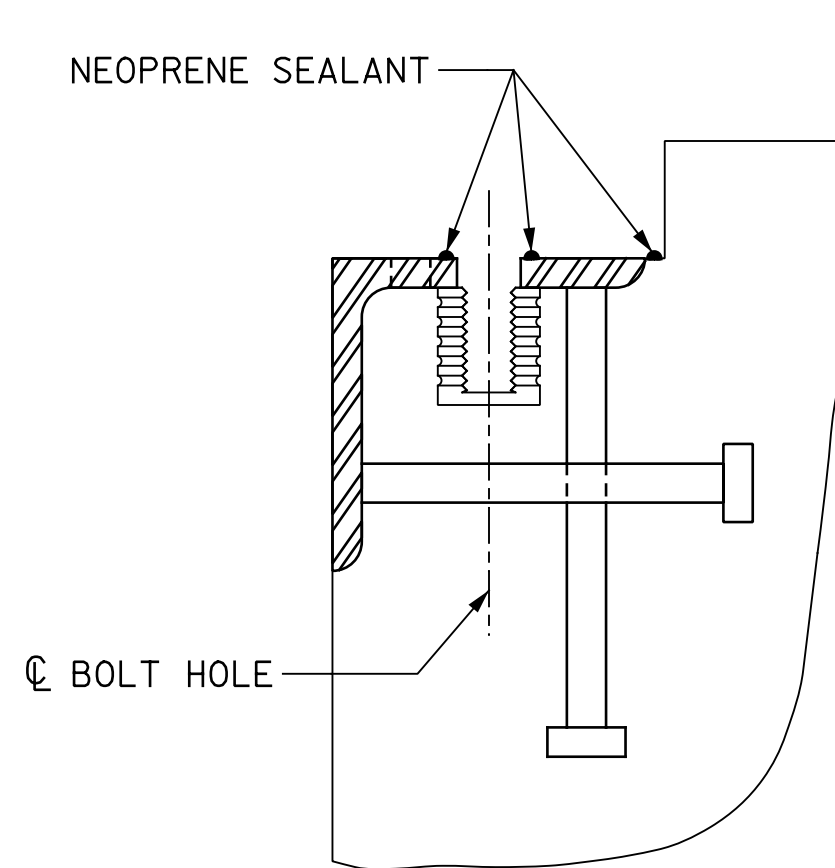
CLEAN AND REMOVE DEBRIS FROM THE TOP OF THE BENT CAP AND APPLY EPOXY PROTECTIVE COATING. EPOXY COATING SHALL BE APPLIED TO THE TOP SURFACE OF THE CAPS. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAPS BENEATH THE ELASTOMERIC BEARINGS. FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

MOVEMENT AND SETTING AT JOINT					
LOCATION	SKEW ANGLE	TOTAL MOVEMENT (ALONG ϕ RDWY)	PERPENDICULAR JOINT OPENING AT 45° F	PERPENDICULAR JOINT OPENING AT 60° F	PERPENDICULAR JOINT OPENING AT 90° F
BENT 3	47°-16'-54"	3/8"	1 5/8"	1 1/6"	1 1/2"

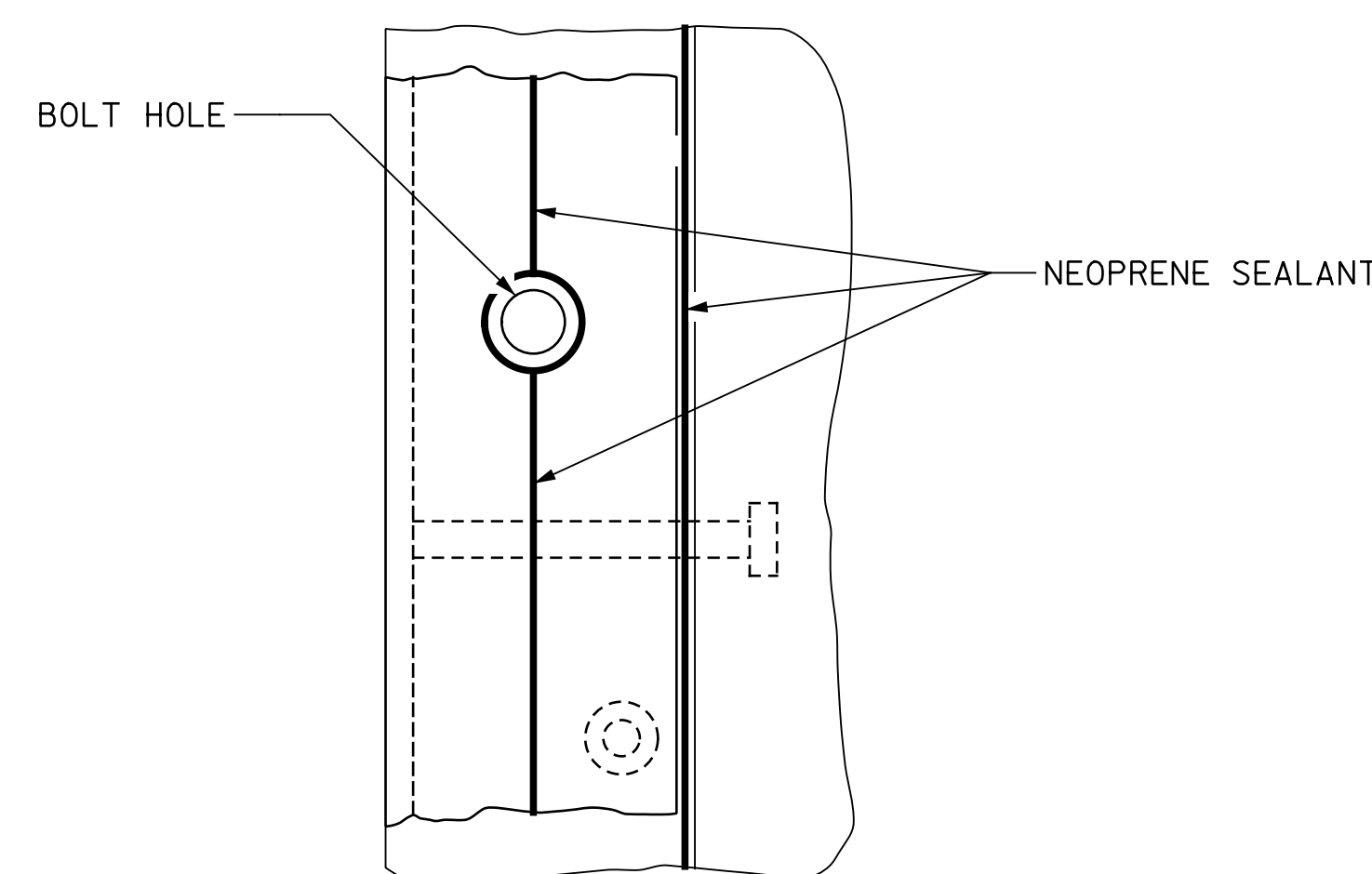
SUMMARY OF QUANTITIES				
LOCATION (EAST BOUND LANES)	EXPANSION JOINT SEAL REPAIRS		EPOXY COATING	
	ESTIMATED (LIN. FT)	ACTUAL (LIN. FT)	ESTIMATED (SQ. FT)	ACTUAL (SQ. FT)
BENT 1	78.5		237	



DETAIL A



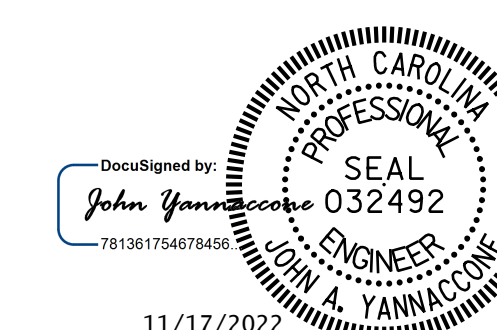
CROSS SECTION



CROSS SECTION

INSTALLATION SKETCH

PROJECT NO. I-5955
GUILFORD COUNTY
 BRIDGE NO. 400367



11/17/2022

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

EXPANSION JOINT SEAL DETAILS

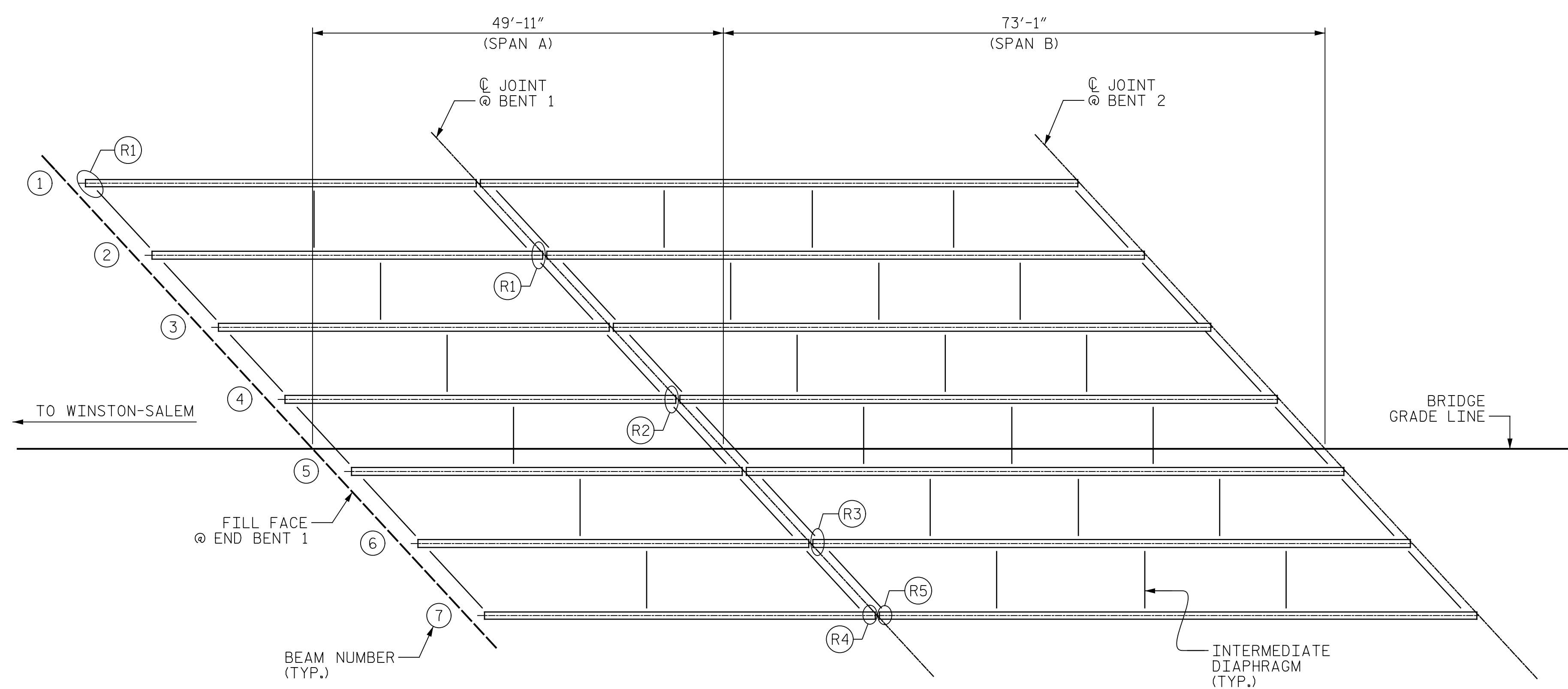
DRAWN BY : J. MYA DATE : 10/2022
 CHECKED BY : J. YANNACCONE DATE : 10/2022



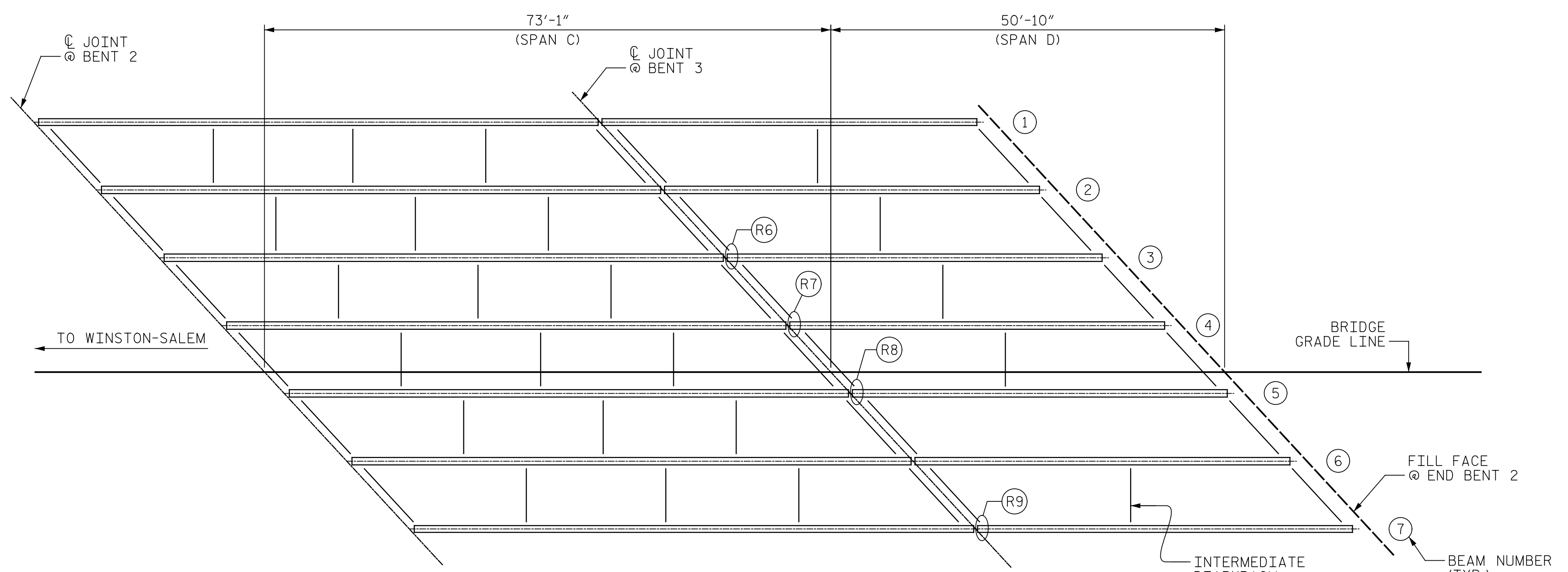
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BEARING REPOSITIONING LOCATIONS
(OTHER LOCATIONS MAY EXIST, SEE NOTES)



BEARING REPOSITIONING LOCATIONS
(OTHER LOCATIONS MAY EXIST, SEE NOTES)

REPAIR QUANTITY TABLE		
REPOSITIONING BEARINGS		
	ESTIMATE	ACTUAL
REPOSITIONING SOLE PLATES	5 EA	
REPOSITIONING BEARING PLATES	4 EA	

(R#) REPOSITIONING SOLE PLATE / BEARING PAD

NOTES

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

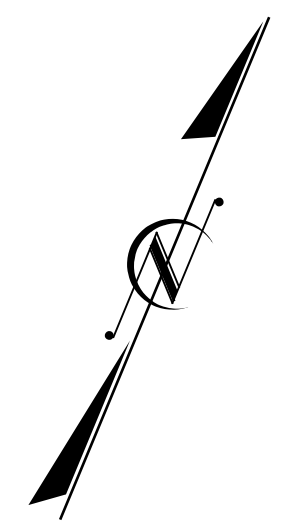
FOR REPOSITIONING BEARINGS, SEE SPECIAL PROVISIONS AND "BEARING REPOSITIONING DETAILS" SHEET.

FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS.

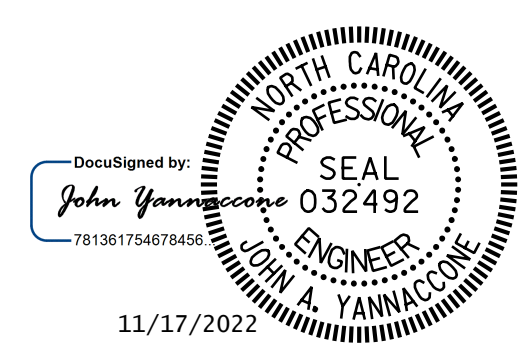
FOR BRIDGE JACKING DETAILS, SEE "JACKING DETAILS" SHEET.

THE REPAIR QUANTITIES REPORTED IN THE TABLE ARE ONLY AN ESTIMATE. THE CONTRACTOR AND ENGINEER SHALL INSPECT THE BEARINGS TO DETERMINE THE BEST REPAIR OPTION AND CORRESPONDING PAY ITEM FOR EACH BEARING THAT REQUIRES REPOSITIONING.

SOLE PLATES AND BEARING PADS SHALL BE REPOSITIONED BEFORE ANY JOINT REPAIRS OR GIRDER END PAINTING BEGINS.



PROJECT NO. I-5955
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 BRIDGE NO. 400367



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

BEARING REPOSITIONING LOCATIONS

DRAWN BY : J. MYA DATE : 10/2022
 CHECKED BY : J. YANNAKONNE DATE : 10/2022



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R1



R5



R2



R6



R3



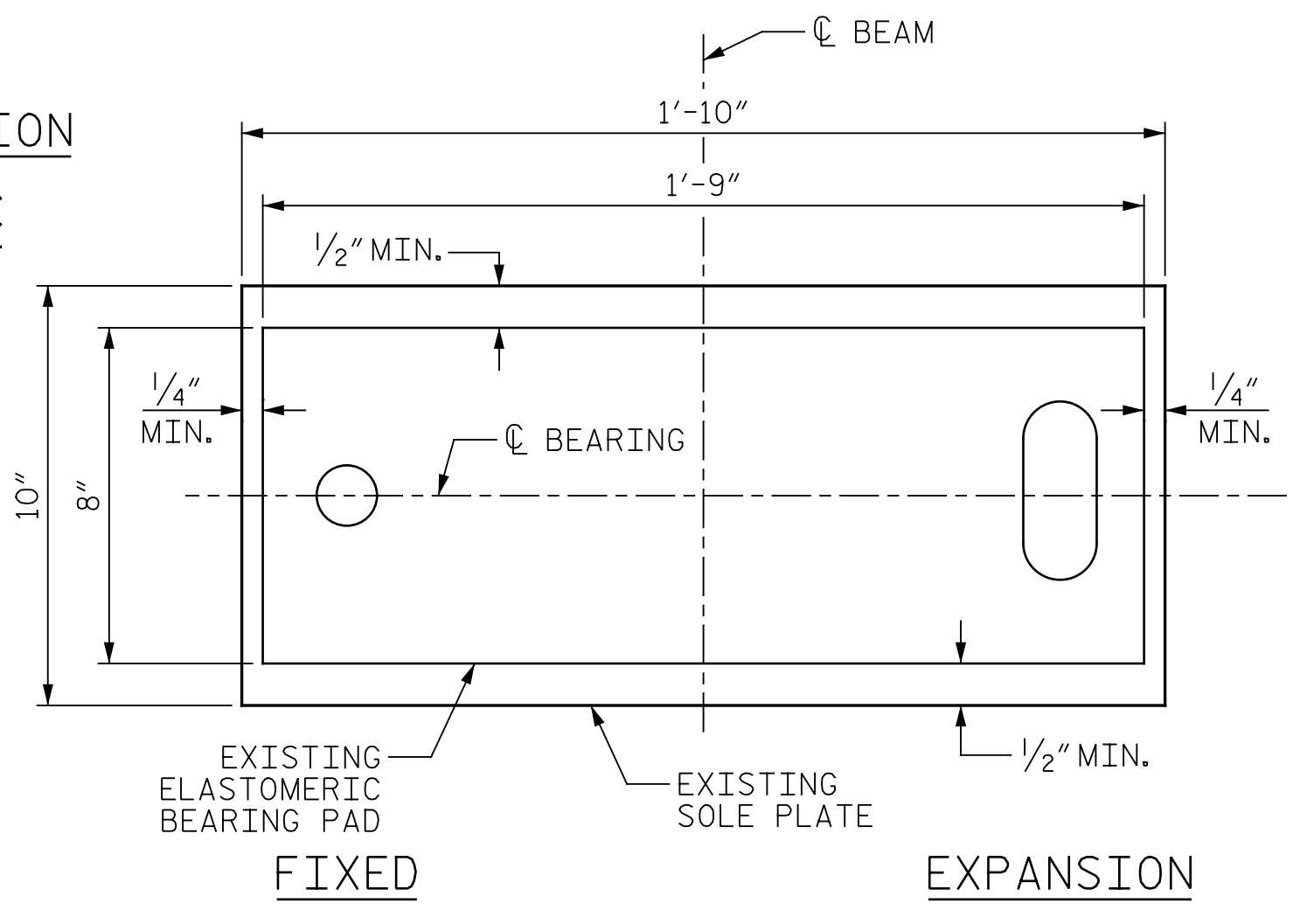
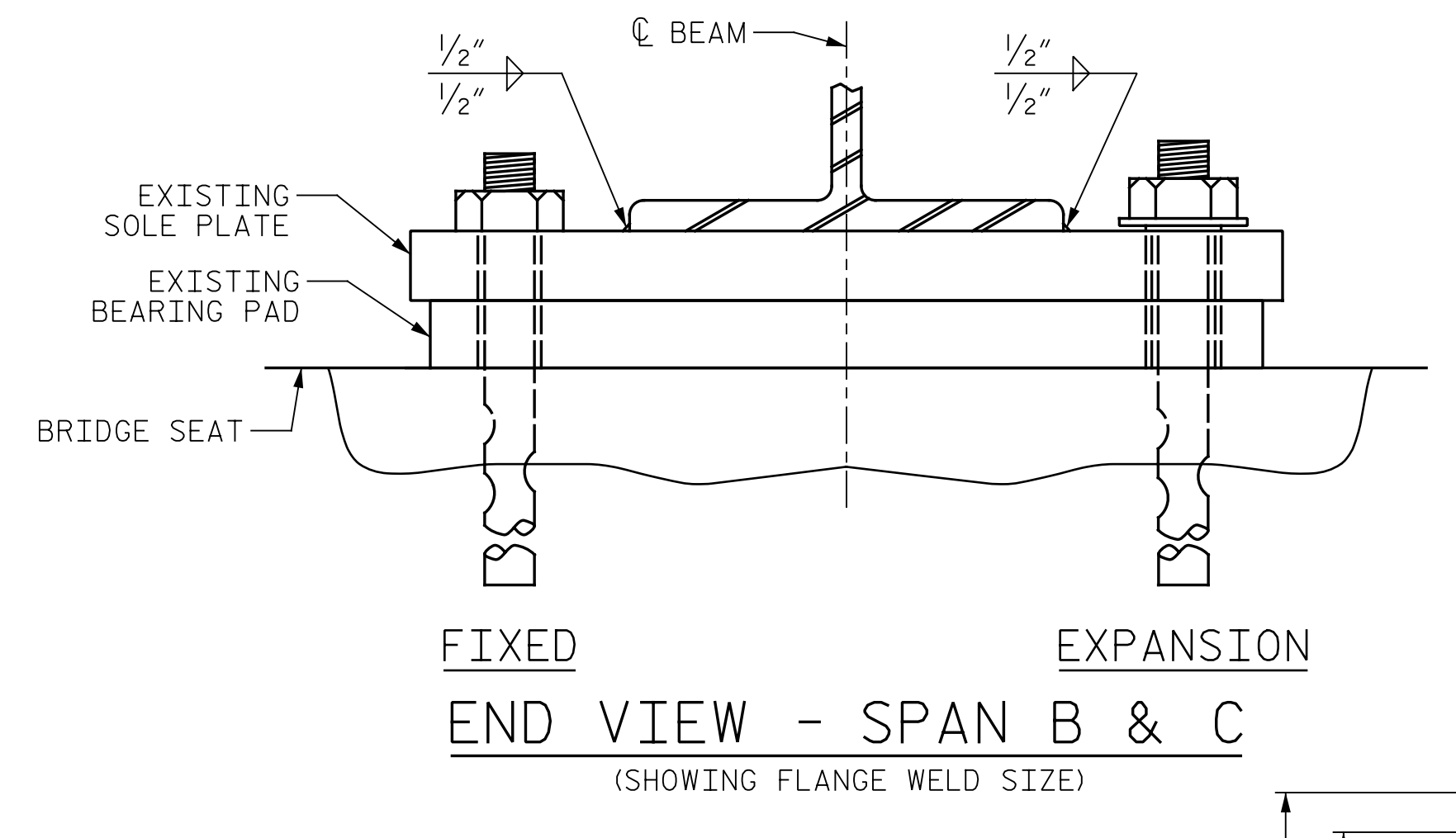
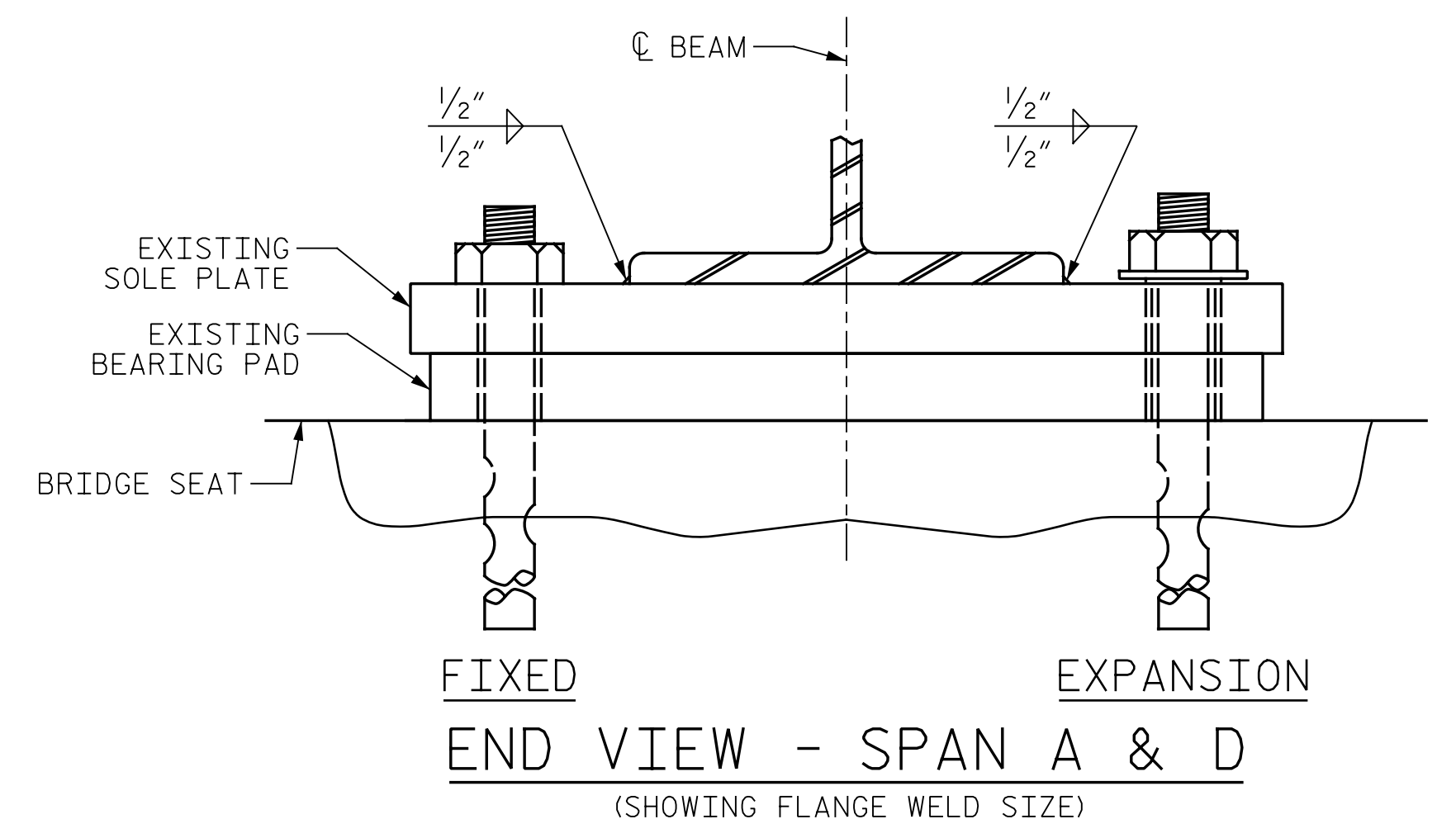
R7



R4



R8



NOTES:
 THE GIRDERS SHALL BE JACKED AND THE BEARING PAD SHALL BE REPOSITIONED IN ORDER TO MEET THE MINIMUM CLEARANCES SHOWN IN THE BEARING ORIENTATION DETAIL. DUE TO THE DEFORMED ANCHOR BOLTS, ONE THE FOLLOWING MEANS MAY BE REQUIRED TO ACCOMPLISH THIS TASK:

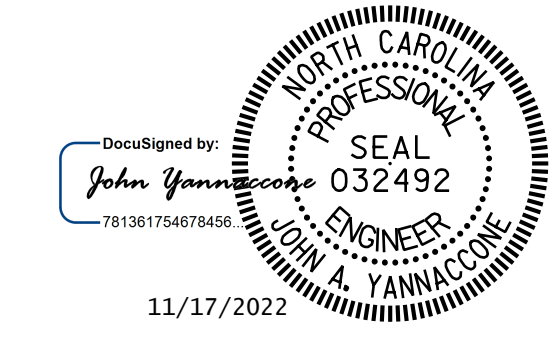
1. DETACH THE EXISTING SOLE PLATE FROM THE GIRDER AND REPOSITION THE SOLE PLATE.
 2. REPOSITIONING THE BEARING PAD.
- THE CONTRACTOR MAY PROPOSE ALTERNATE METHODS, PROVIDED DETAILS ARE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL.

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

FOR REPOSITIONING BEARINGS, SEE SPECIAL PROVISIONS.

BEARING ORIENTATION DETAIL
 (SHOWING MINIMUM REQUIRED CLEARANCES)

PROJECT NO. I-5955
GUILFORD COUNTY
 BRIDGE NO. 400367



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

BEARING REPOSITIONING DETAILS

BEARING PHOTOGRAPHS
 (FOR BEARING LOCATIONS, SEE "BEARING REPOSITIONING LOCATIONS" SHEET)



R9

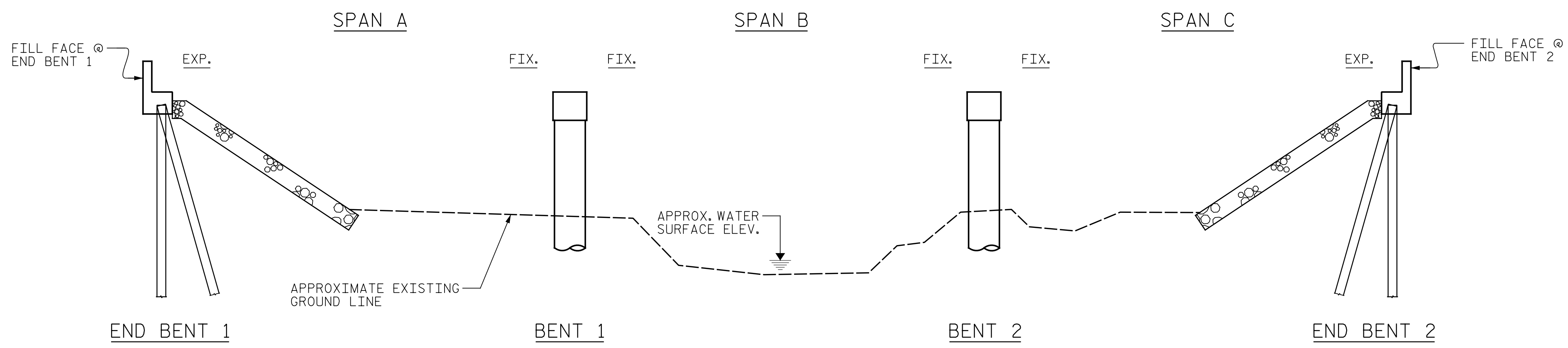
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 CHECKED BY: J. YANNACCONE DATE: 10/2022



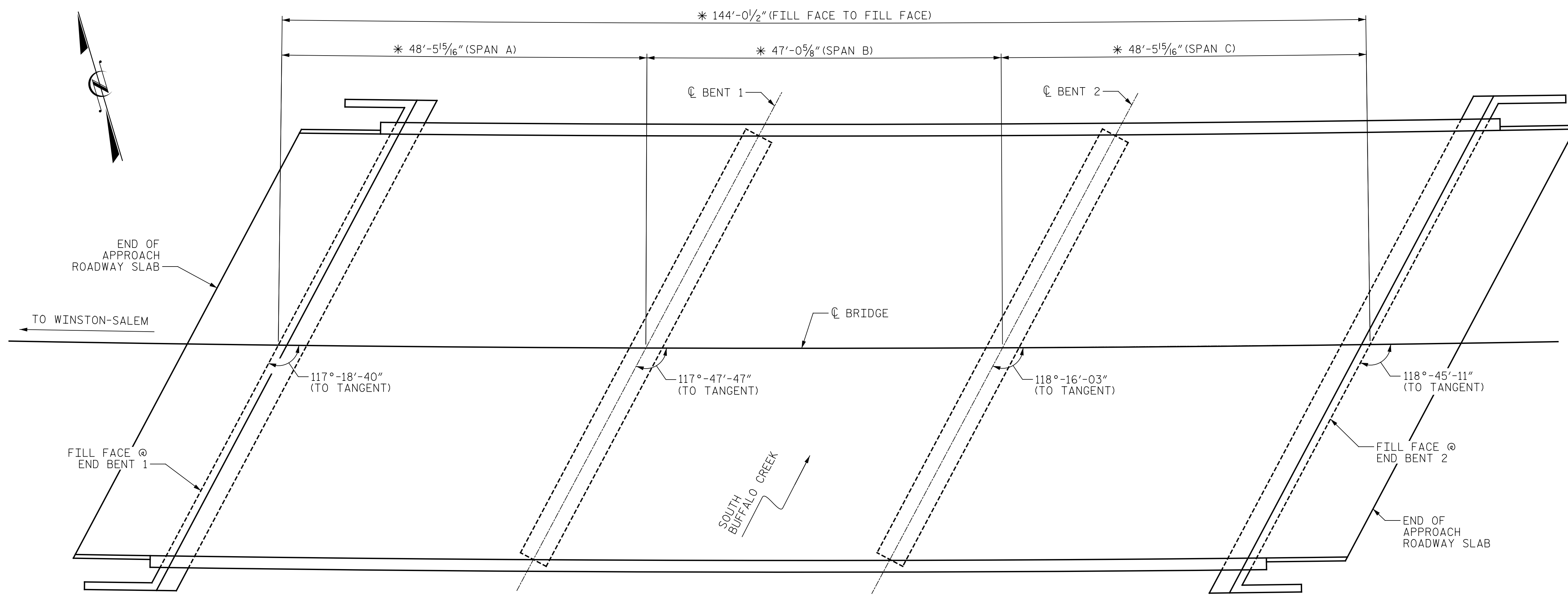
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SECTION ALONG Q BRIDGE
(SECTION AT BENTS AND END BENTS ARE AT RIGHT ANGLES)



PLAN
(PILES NOT SHOWN FOR CLARITY)

NOTE:
GENERAL DRAWING INFORMATION IS TAKEN FROM THE ORIGINAL PLANS AND THE ROUTINE INSPECTION REPORT DATED 07/23/2022

BRIDGE ORIENTATION CONFORMS TO THE EXISTING BRIDGE PLANS AND ROUTINE INSPECTION REPORT.

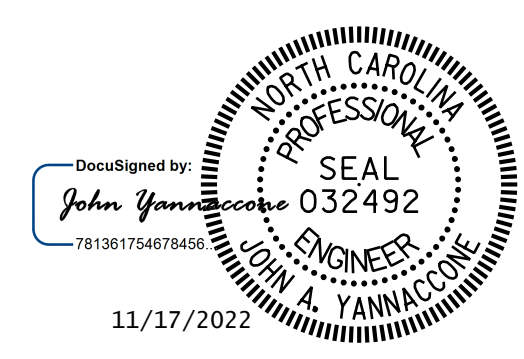
- SCOPE OF WORK**
- PARTIALLY REMOVE TOP OF BRIDGE DECK CONCRETE BY FINE MILLING AND SHOTBLASTING METHODS.
 - OVERLAY PREPARED TOP OF BRIDGE DECK WITH POLYMER CONCRETE (PC).
 - REPLACE EXISTING JOINT GLAND OF EXPANSION JOINT SEALS.
 - GROOVE PC BRIDGE DECK.
 - REMOVE DEBRIS FROM TOP OF EXISTING END BENT CAPS AND APPLY EPOXY COATING.
 - REMOVE VEGETATION FROM STRUCTURE.

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GUILFORD COUNTY
BRIDGE NO. 400678

SHEET 1 OF 2

STATE OF NORTH CAROLINA
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RALEIGH

GENERAL DRAWING
FOR BRIDGE ON I-40 WBL
OVER SOUTH BUFFALO CREEK



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

RESIDENT ENGINEER _____ DATE _____



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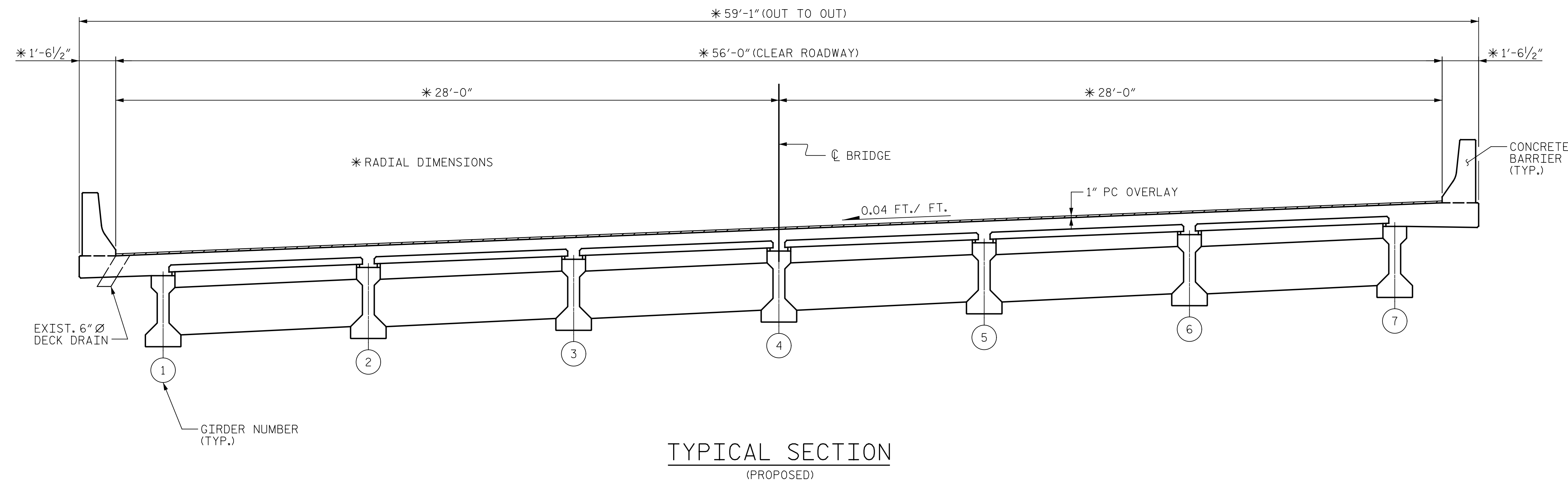
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* DIMENSIONS MEASURED ALONG ARC

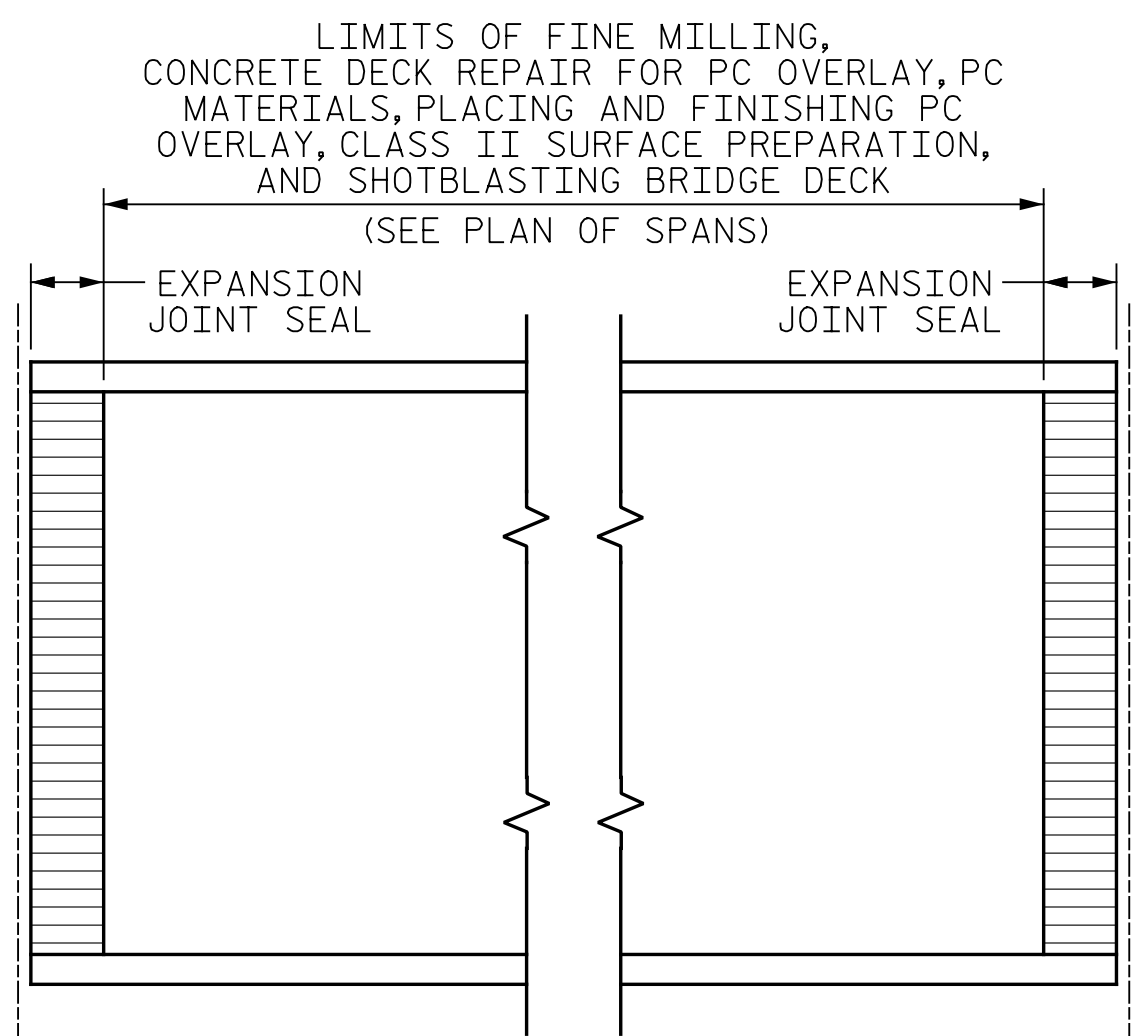
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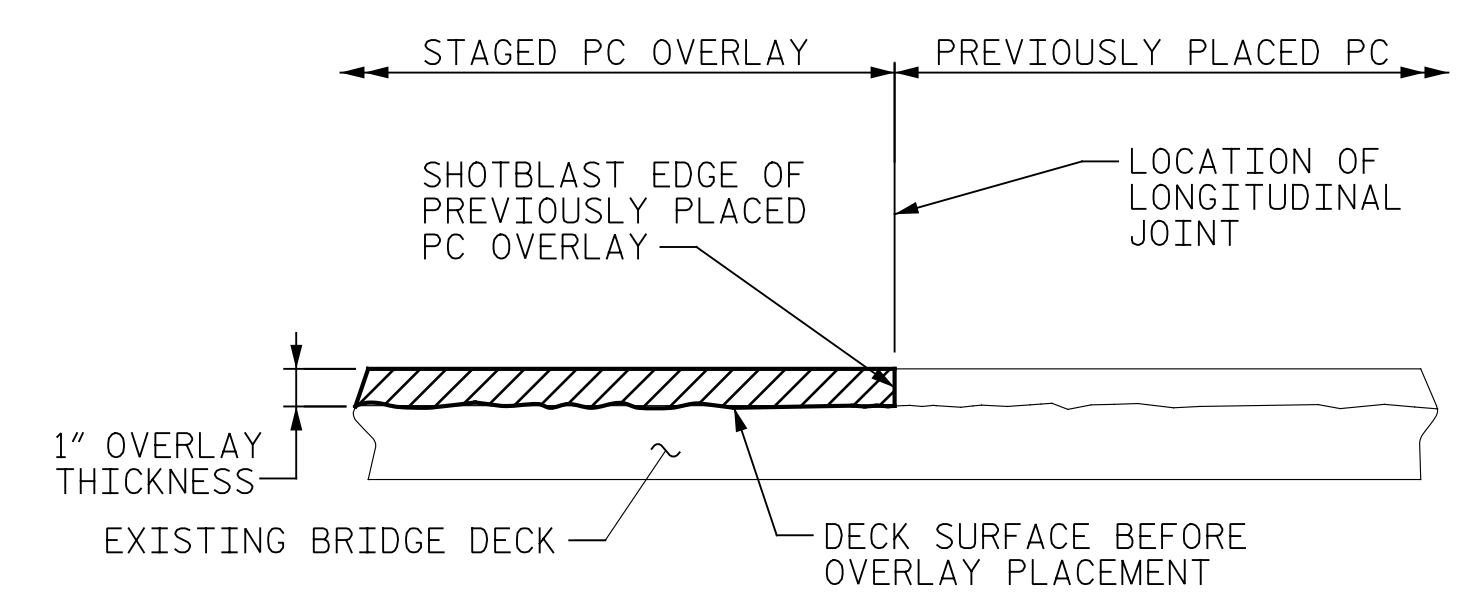
NOTES:
 SEE TRANSPORTATION MANAGEMENT PLANS FOR LANE WIDTHS, SEQUENCING AND OTHER TRAFFIC CONTROL MEASURES FOR STAGING OF OVERLAY SURFACE PREPARATION AND PC PLACEMENT.



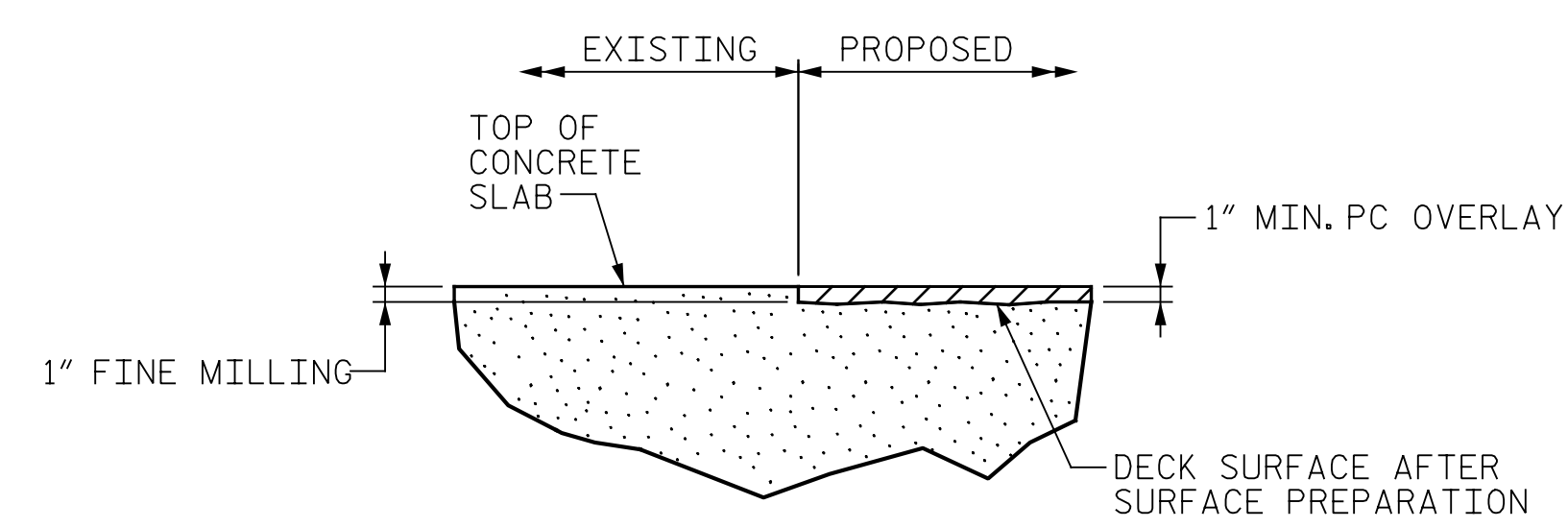
TYPICAL SECTION
(PROPOSED)



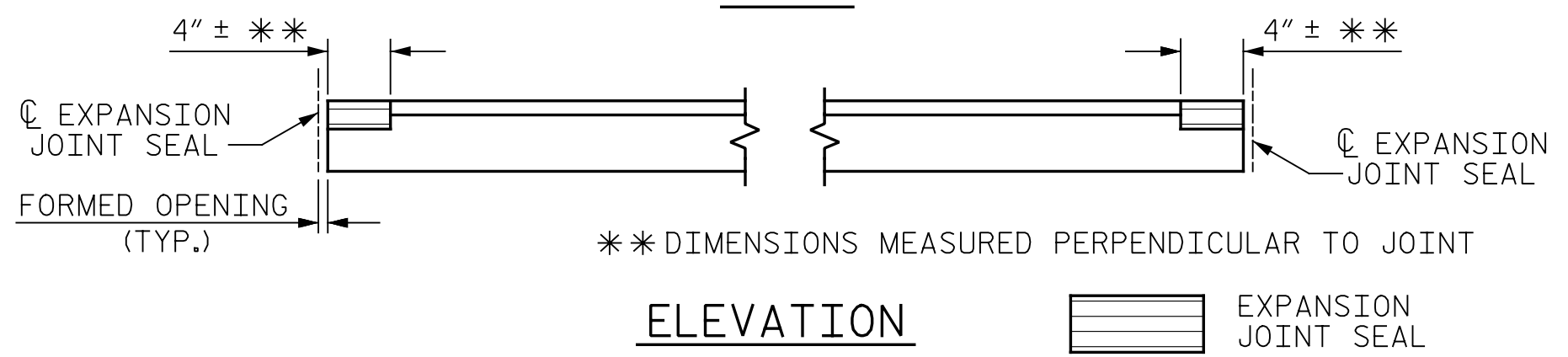
PLAN



STAGED PC OVERLAY CONSTRUCTION JOINT



DETAIL OF POLYMER CONCRETE OVERLAY

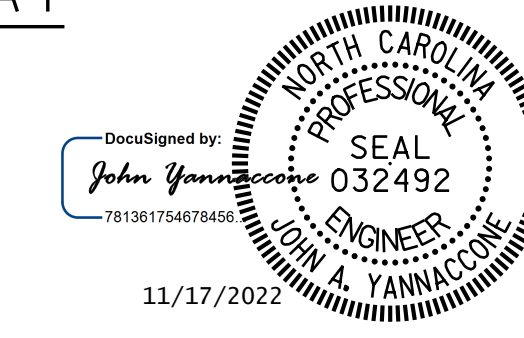


ELEVATION

PROJECT NO. I-5955
GUILFORD COUNTY
 BRIDGE NO. 400678

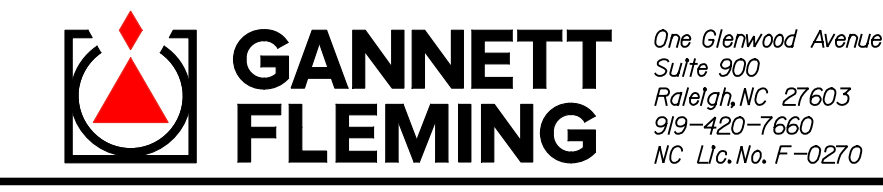
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

TYPICAL SECTION AND SURFACE PREPARATION DETAILS



PAY LIMITS FOR OVERLAY BID ITEMS

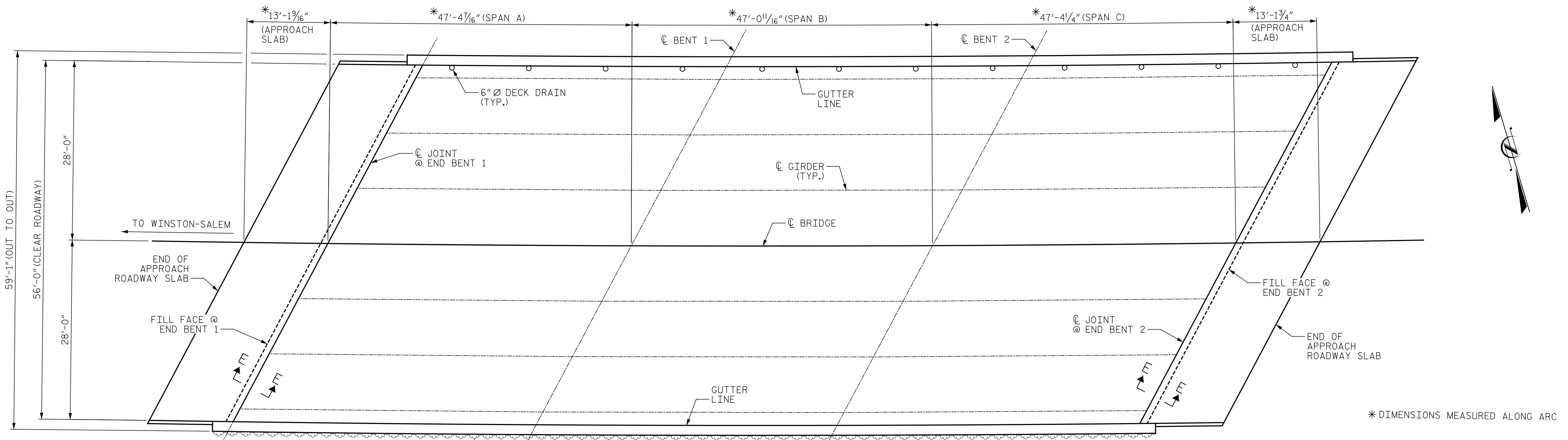
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APPROACH SLAB @ END BENT 1 SPAN A VEGETATION TO BE REMOVED SPAN B SPAN C APPROACH SLAB @ END BENT 2

PLAN

REPAIR QUANTITY TABLE

TOP OF DECK REPAIR		ESTIMATE	ACTUAL	UNDERSIDE OF DECK REPAIR			
				SHOTCRETE REPAIRS		ESTIMATE	ACTUAL
				AREA SF	VOLUME CF	AREA SF	VOLUME CF
FINE MILLING	APPR. SLAB @ EB1	75.7 SY		UNDERSIDE OF DECK			
	SPAN A	291.5 SY		SPAN A	0.0	0.0	
	SPAN B	292.8 SY		SPAN B	0.0	0.0	
	SPAN C	291.4 SY		SPAN C	0.0	0.0	
CLASS II SURFACE PREPARATION	APPR. SLAB @ EB2	75.7 SY		OVERHANG DIAPHRAGMS			
	SPAN A	0.0 SY		SPAN A	0.0	0.0	
	SPAN B	0.0 SY		SPAN B	0.0	0.0	
	SPAN C	0.0 SY		SPAN C	0.0	0.0	
PC MATERIALS	APPR. SLAB @ EB1	2.6 CY		UNDERSIDE OF OVERHANG			
	SPAN A	10.1 CY		SPAN A	0.0	0.0	
	SPAN B	10.2 CY		SPAN B	0.0	0.0	
	SPAN C	10.1 CY		SPAN C	0.0	0.0	
PLACING AND FINISHING PC OVERLAY	APPR. SLAB @ EB2	2.6 CY		INTERIOR DIAPHRAGMS			
	SPAN A	75.7 SY		SPAN A	0.0	0.0	
	SPAN B	291.5 SY		SPAN B	0.0	0.0	
	SPAN C	291.4 SY		SPAN C	0.0	0.0	
GROOVING BRIDGE FLOORS	APPR. SLAB @ EB1	75.7 SY		UNDERSIDE EPOXY RESIN INJECTION			
	SPAN A	2473 SF		SPAN A	0.0 LF		
	SPAN B	2494 SF		SPAN B	0.0 LF		
	SPAN C	2472 SF		SPAN C	0.0 LF		
APPR. SLAB @ EB2		625 SF					
APPR. SLAB @ EB1		625 SF					

NOTES:

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

PAYMENT FOR CLASS II SURFACE PREPARATION IS BASED UPON SQUARE YARDS OF ADDITIONAL DEMOLITION REQUIRED FOLLOWING FINE MILLING OF BRIDGE DECK, SEE "OVERLAY SURFACE PREPARATION FOR PC OVERLAY" SPECIAL PROVISION.

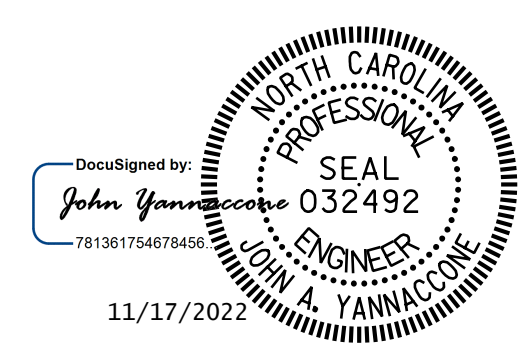
CONCRETE COVER FOR TOP BARS IN THE DECK SLAB IS 1/2" PER THE EXISTING BRIDGE PLANS.

FOR SECTION E-E, SEE "EXPANSION JOINT SEAL DETAILS" SHEET.

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

- FINE MILLING AND SHOTBLASTING OF BRIDGE DECK
- CLASS II SURFACE PREPARATION
- UNDERSIDE OF DECK REPAIR

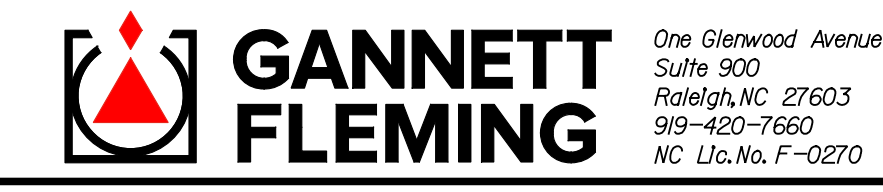
PROJECT NO. I-5955
GUILFORD COUNTY
 BRIDGE NO. 400678



STATE OF NORTH CAROLINA
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 RALEIGH

PLAN OF SPANS

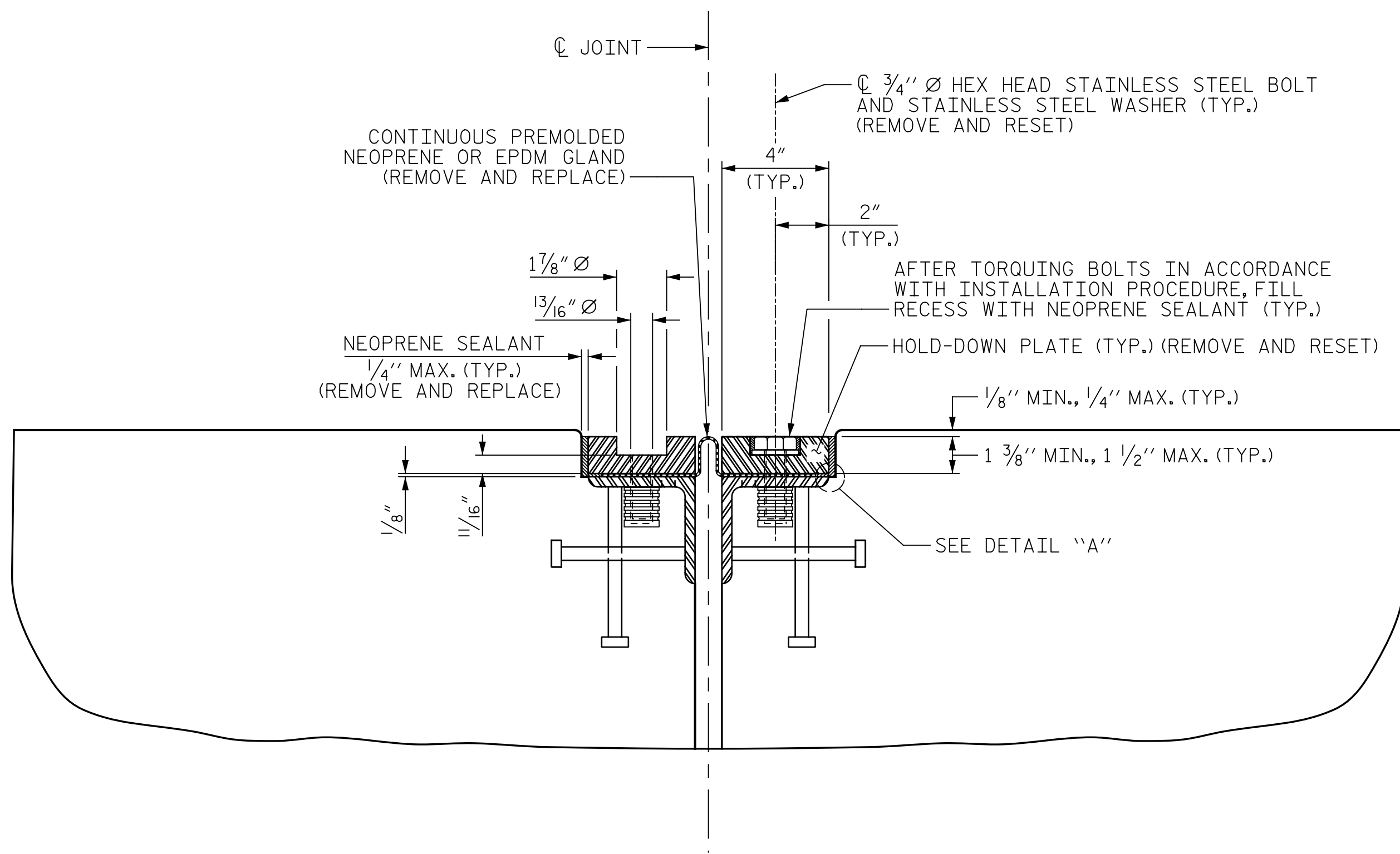
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SECTION E-E

SECTION NORMAL TO JOINT -- STEEL SUPERSTRUCTURE

REPAIR INSTALLATION PROCEDURE

LOOSEN THE EXISTING BOLTS AND HOLD-DOWN PLATES TO REMOVE AND REPLACE THE EXISTING GLAND. REMOVE THE EXISTING NEOPRENE SEALANT AND CLEAN THE EXISTING BASE ANGLE OF OIL, GREASE AND OTHER LATENTS.

LAY THE NEW GLAND ON THE BASE ANGLE AND FIELD MARK THE NEW GLAND FOR THE BOLT HOLES. HOLES IN THE NEW GLAND SHALL BE PUNCHED 7/8" IN DIAMETER WITH A HAND PUNCH.

IN ORDER TO CHECK FOR PROPER ALIGNMENT, PLACE THE NEW GLAND HOLD-DOWN PLATES ON THE BASE ANGLE. DO NOT APPLY NEW NEOPRENE SEALANT. BOLT THE HOLD-DOWN PLATES TO THE BASE ANGLE, BUT DO NOT TIGHTEN. THE ENGINEER WILL INSPECT THE JOINT SEAL DEVICE FOR PROPER ALIGNMENT.

AFTER INSPECTION, REMOVE THE HOLD-DOWN PLATES AND NEW GLAND. APPLY NEW NEOPRENE SEALANT TO THE BASE ANGLE IN ACCORDANCE WITH THE "INSTALLATION SKETCH". PLACE NEW GLAND AND HOLD-DOWN PLATES ON THE BASE ANGLE. BOLT THE HOLD-DOWN PLATES TO THE BASE ANGLE ASSEMBLY AND TORQUE THE BOLTS TO 88 FT-LBS WITH A TORQUE WRENCH. CHECK THE TORQUE AFTER THREE (3) HOURS AND, IF NECESSARY, RETIGHTEN TO 88 FT-LBS. A FINAL CHECK SHALL BE MADE AT SEVEN (7) DAYS. TORQUE SHALL NOT BE LESS THAN 80 FT-LBS AFTER SEVEN (7) DAYS.

AFTER PROPER TORQUING, CLEAN THE BOLT HOLE RECESSES AND THE RECESS BETWEEN THE JOINT SEAL DEVICE AND CONCRETE. COMPLETELY FILL THESE RECESSES WITH NEW NEOPRENE SEALANT.

GENERAL NOTES

ALL HOLD-DOWN BOLTS SHALL CONFORM TO ASTM F593 ALLOY 304 STAINLESS STEEL AND WASHERS SHALL CONFORM TO ASTM F844 EXCEPT THEY SHALL BE MADE FROM ALLOY 304 STAINLESS STEEL.

A PREMOLDED CORRUGATED OR NON-CORRUGATED GLAND SHALL BE USED FOR JOINTS SKEWED BETWEEN 50° THRU 130°. FOR JOINTS SKEWED LESS THAN 50° OR MORE THAN 130°, ONLY A CORRUGATED GLAND SHALL BE USED.

THE FINISHED EXPANSION SEAL DEVICE SHALL BE A MINIMUM 1/8" AND A MAXIMUM OF 1/4" BELOW THE TOP OF SLAB.

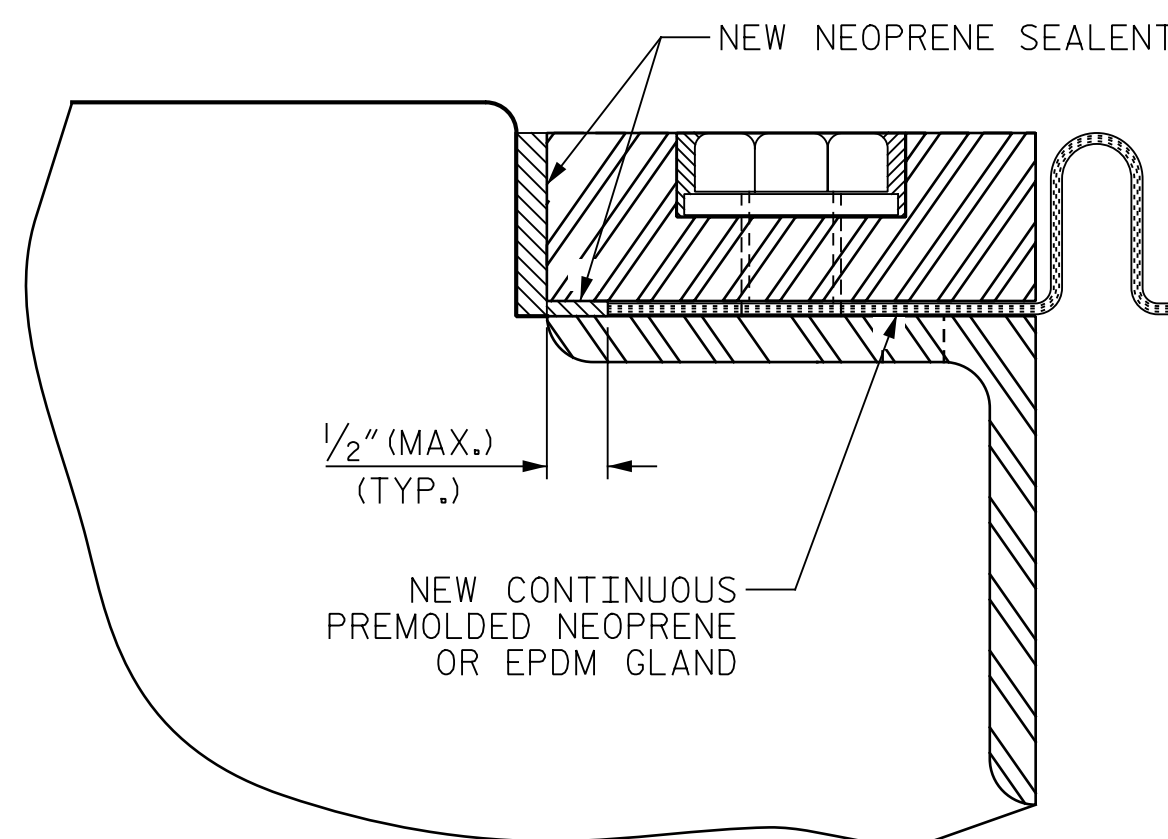
FOR EXPANSION JOINT SEAL REPAIR, SEE SPECIAL PROVISIONS.

NO SEPARATE PAYMENT WILL BE MADE FOR REMOVING AND REINSTALLING MEDIAN AND BARRIER RAIL COVER PLATES. THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT PRICE BID FOR "EXPANSION JOINT SEAL REPAIR".

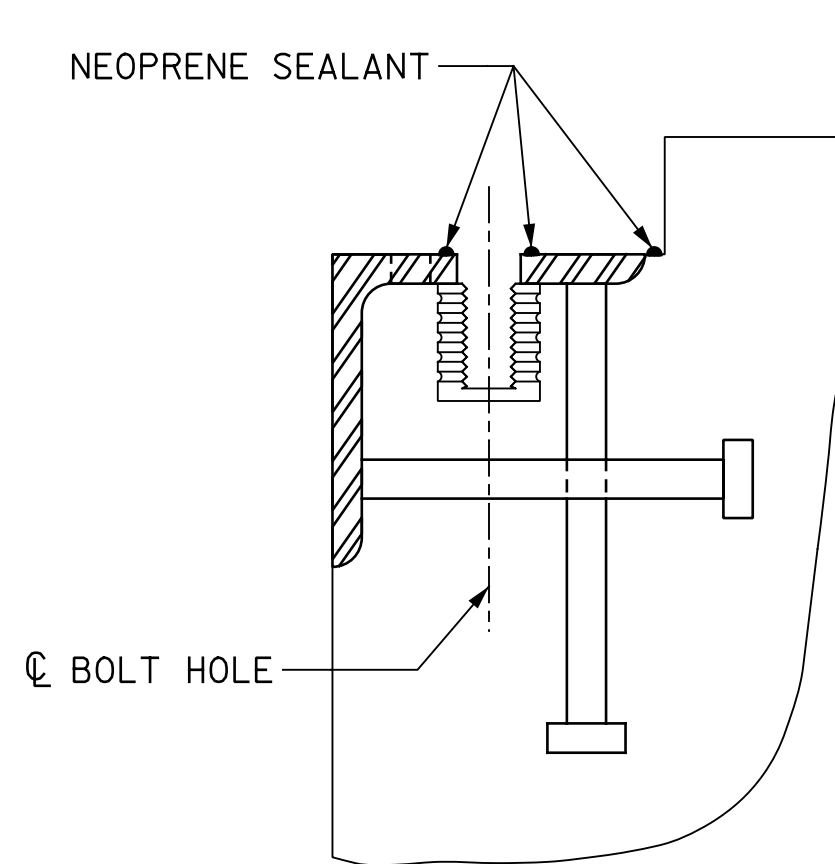
CLEAN AND REMOVE DEBRIS FROM THE TOP OF THE END BENT CAPS AND APPLY EPOXY PROTECTIVE COATING. EPOXY COATING SHALL BE APPLIED TO THE TOP SURFACE OF THE CAPS. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAPS BENEATH THE ELASTOMERIC BEARINGS. FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

MOVEMENT AND SETTING AT JOINT					
LOCATION	SKEW ANGLE	TOTAL MOVEMENT (ALONG CL RDWY)	PERPENDICULAR JOINT OPENING AT 45° F	PERPENDICULAR JOINT OPENING AT 60° F	PERPENDICULAR JOINT OPENING AT 90° F
END BENT 1	117°-18'-40"	7/16"	13/16"	3/4"	9/16"
END BENT 2	118°-45'-11"	7/16"	23/16"	2 1/8"	1 15/16"

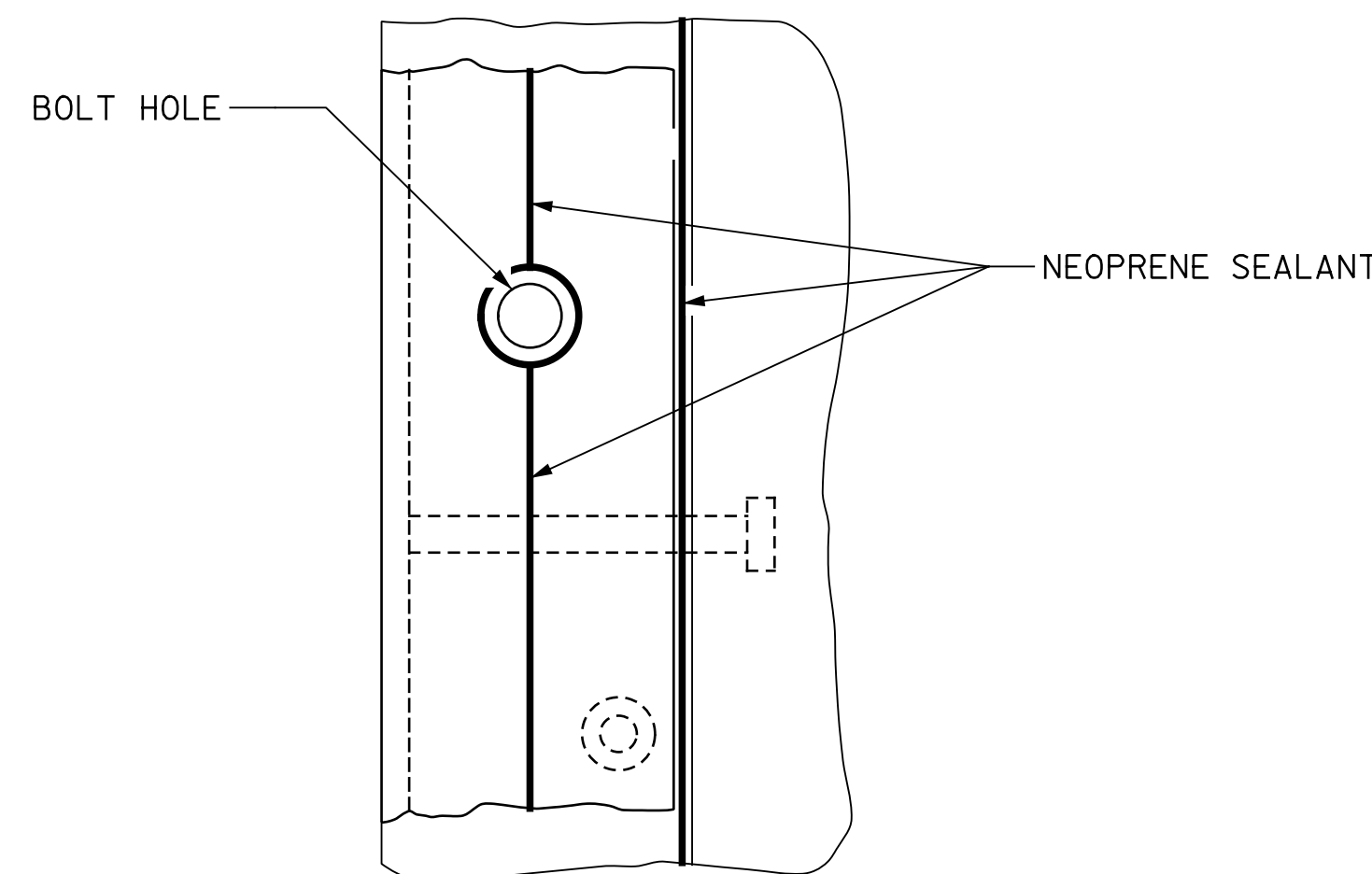
SUMMARY OF QUANTITIES				
LOCATION	EXPANSION JOINT SEAL REPAIRS		EPOXY COATING	
	ESTIMATED (LIN. FT)	ACTUAL (LIN. FT)	ESTIMATED (SQ. FT)	ACTUAL (SQ. FT)
END BENT 1	65.0		164	
END BENT 2	65.0		164	



DETAIL A



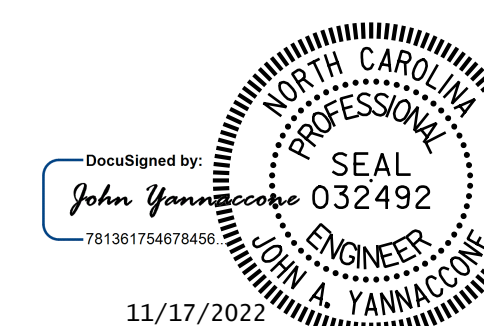
CROSS SECTION



CROSS SECTION

INSTALLATION SKETCH

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EXPANSION JOINT SEAL DETAILS

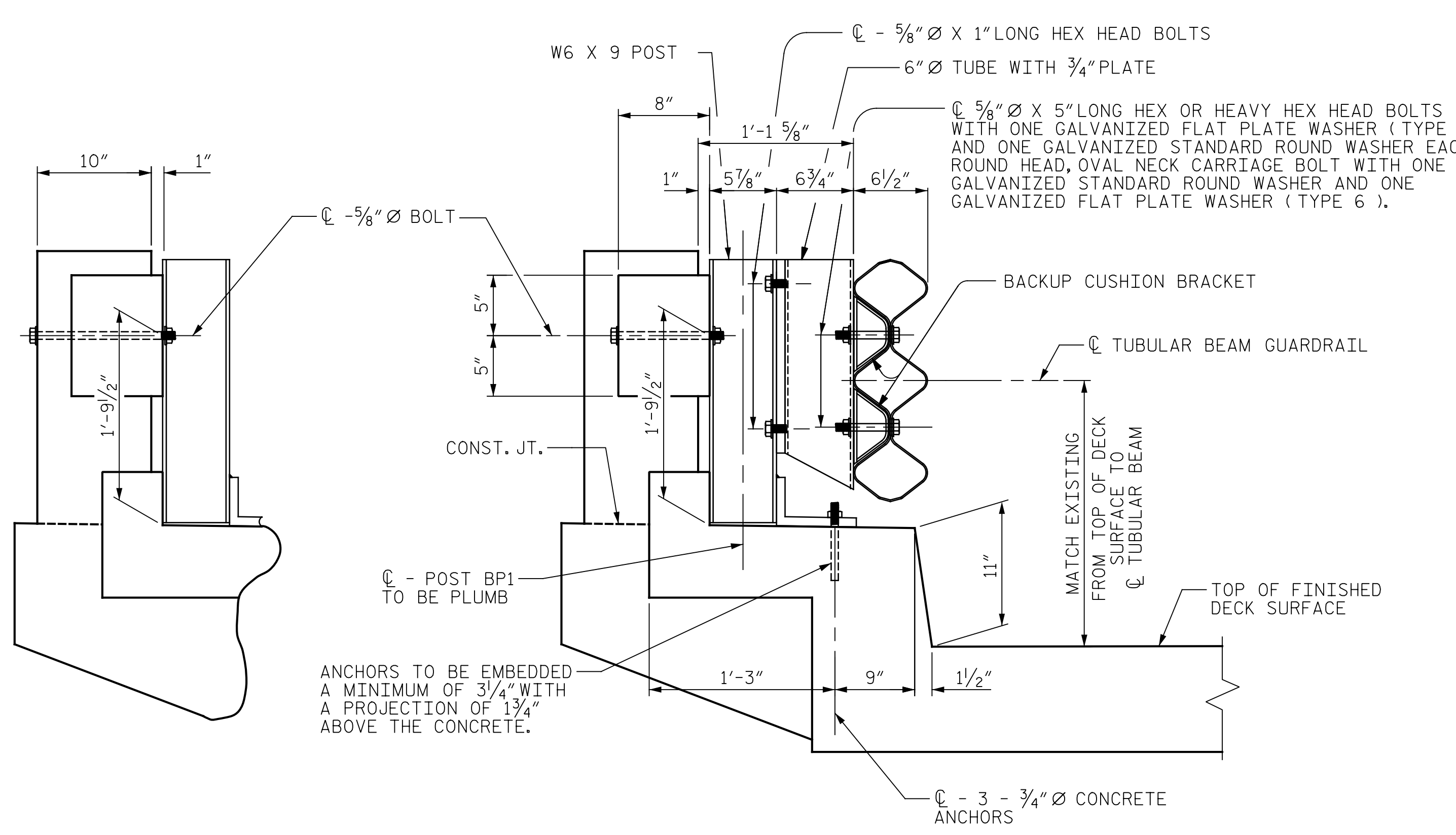
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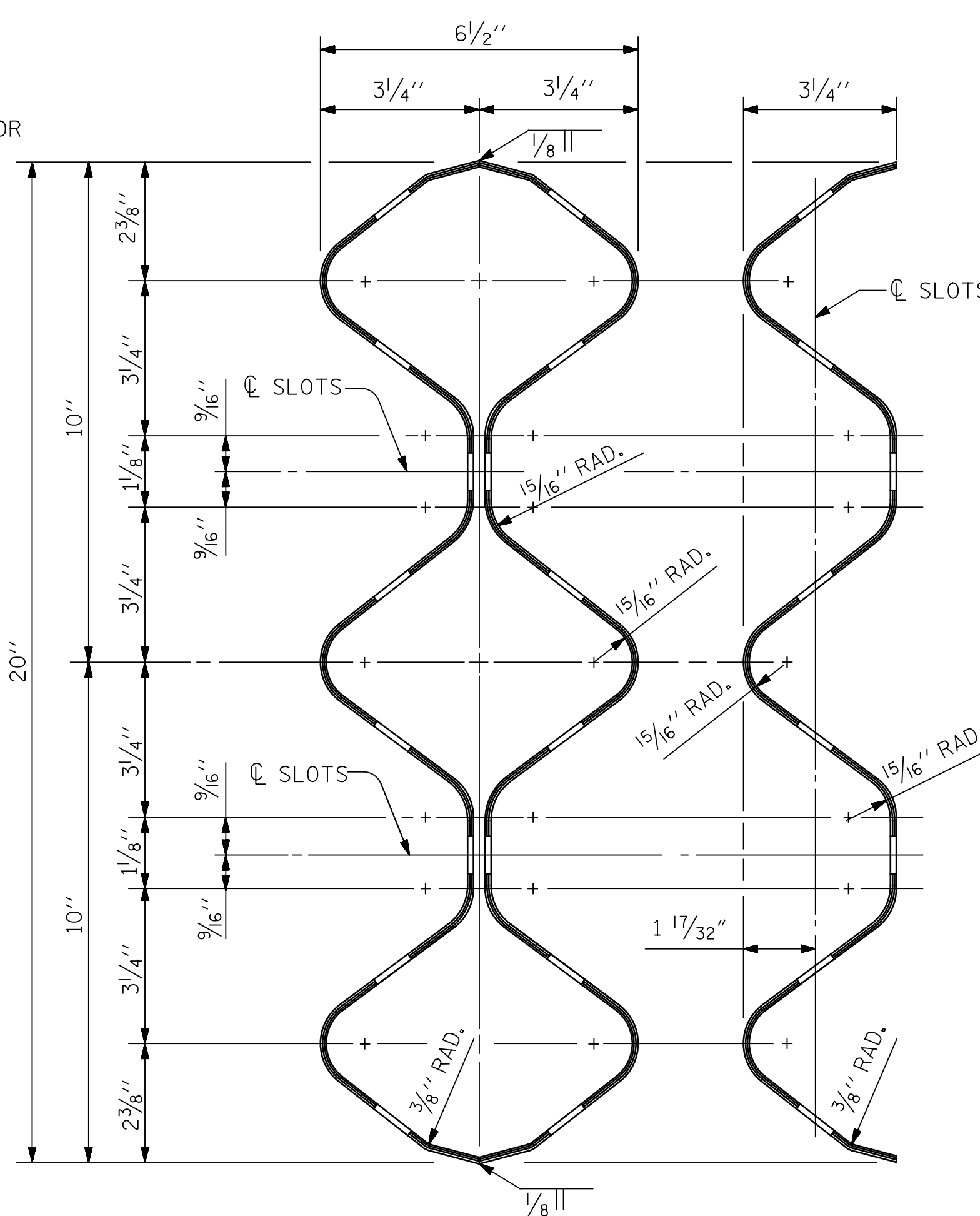
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BOLT THRU CONCRETE POST BOLT THRU CONCRETE RAIL
RETROFIT EXISTING RAIL WITH TUBULAR BEAM GUARDRAIL
 (WITHOUT WEARING SURFACE)



CONCRETE ANCHOR NOTES:

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

NOTES:

TUBULAR BEAM POSTS ARE TO BE MOUNTED AGAINST THE EXISTING CONCRETE RAIL.
 HOLES FOR THE 5/8" DIAMETER BOLTS, THRU THE EXISTING CONCRETE RAIL OR POST, SHALL BE 3/4" DIAMETER.
 3/4" AND 5/8" DIAMETER BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A-307 AND SHALL BE GALVANIZED TO CONFORM TO THE REQUIREMENTS OF ASTM A-153

GENERAL NOTES:

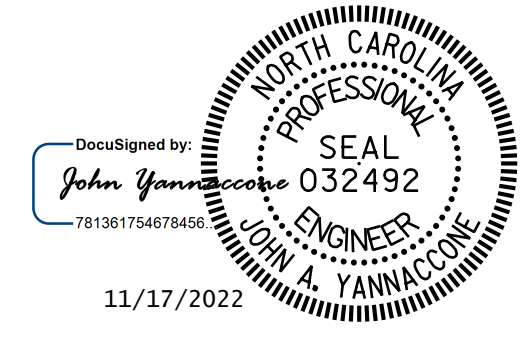
- THE 20" TRIPLE TUBULAR CORRUGATED BEAM RAIL SECTION SHALL BE FABRICATED BY WELDING TWO (2) 20" TRIPLE CORRUGATED BEAM RAIL ELEMENTS AS SHOWN AND THE GUARDRAIL SHALL CONFORM TO THE NCDOT STANDARD SPECIFICATIONS EXCEPT AS NOTED AND SHOWN ON THE PLANS.
- 20" TRIPLE TUBULAR CORRUGATED BEAM RAIL SHALL BE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

- ALL CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.
- VERTICAL SLOTS IN THE 6" TUBE ALLOW FOR SOME VERTICAL ADJUSTMENT OF RAIL HEIGHT IN ORDER TO OBTAIN THE CENTERLINE OF RAIL HEIGHT OF 2'-1" ABOVE RIDING SURFACE.
- THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT AASHTO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES". ELECTROSLAG WELDING WILL NOT BE PERMITTED.
- LAP BEAM RAIL JOINTS IN DIRECTION OF TRAFFIC.
- THE EXISTING DIMENSIONS AND BRIDGE CONDITIONS ARE FROM THE BEST INFORMATION AVAILABLE. PRIOR TO FABRICATION OF THE RAIL SYSTEM, THE CONTRACTOR SHALL FIELD VERIFY THE INFORMATION SHOWN ON THE PLANS AND NOTIFY THE ENGINEER IF ACTUAL DIMENSIONS AND CONDITIONS DIFFER.

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GUILFORD COUNTY
 BRIDGE NO. 400299, 400339 & 400340

SHEET 1 OF 4

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

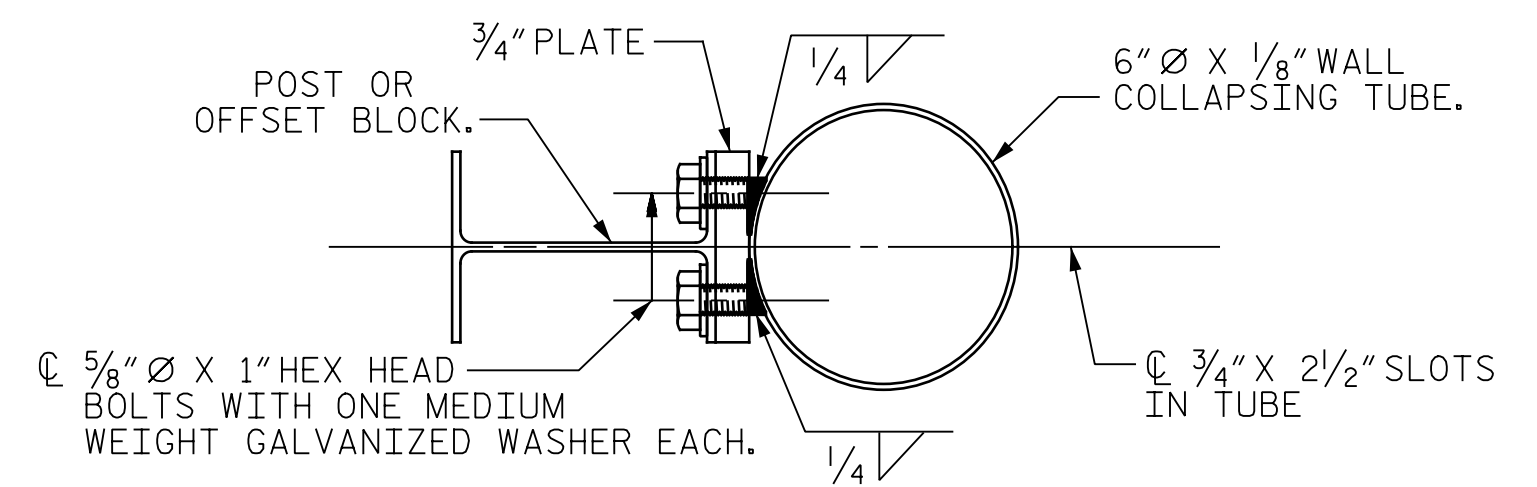


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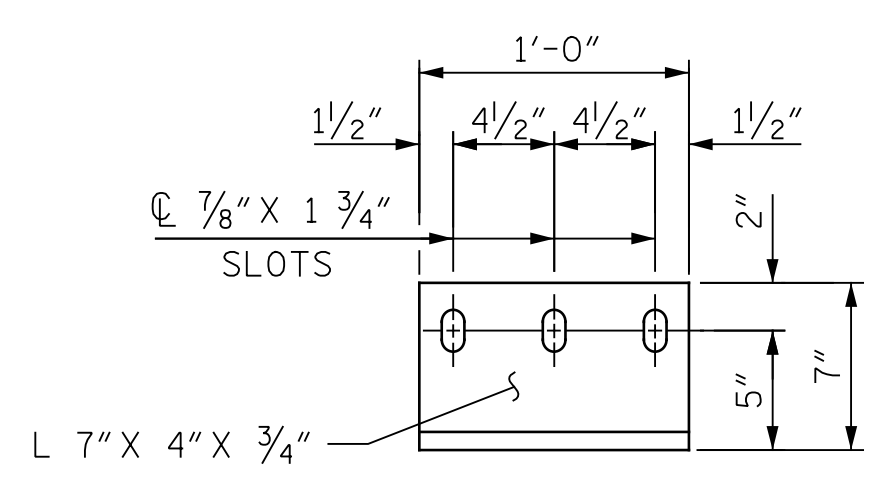
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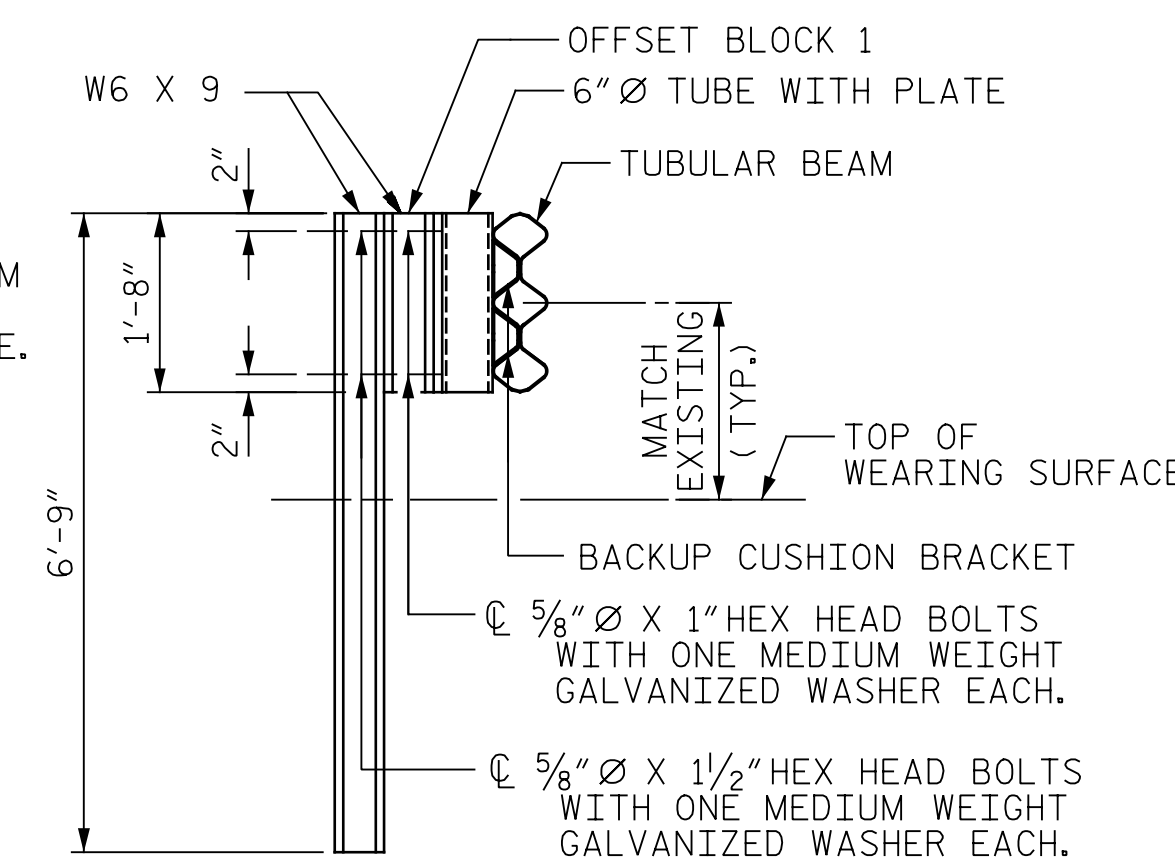


DETAIL SHOWING CONNECTION OF 6" Ø TUBE TO POST OR OFFSET BLOCK

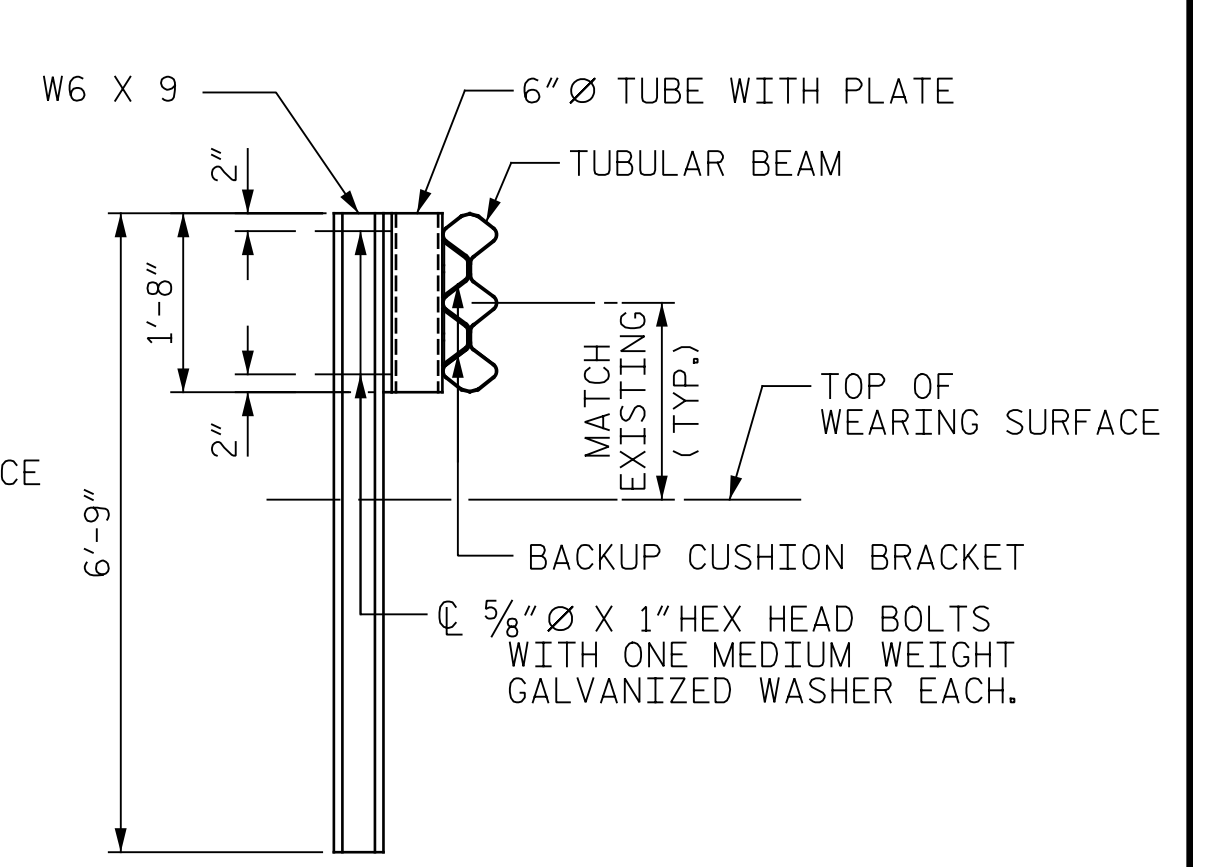


PLAN OF ANGLE

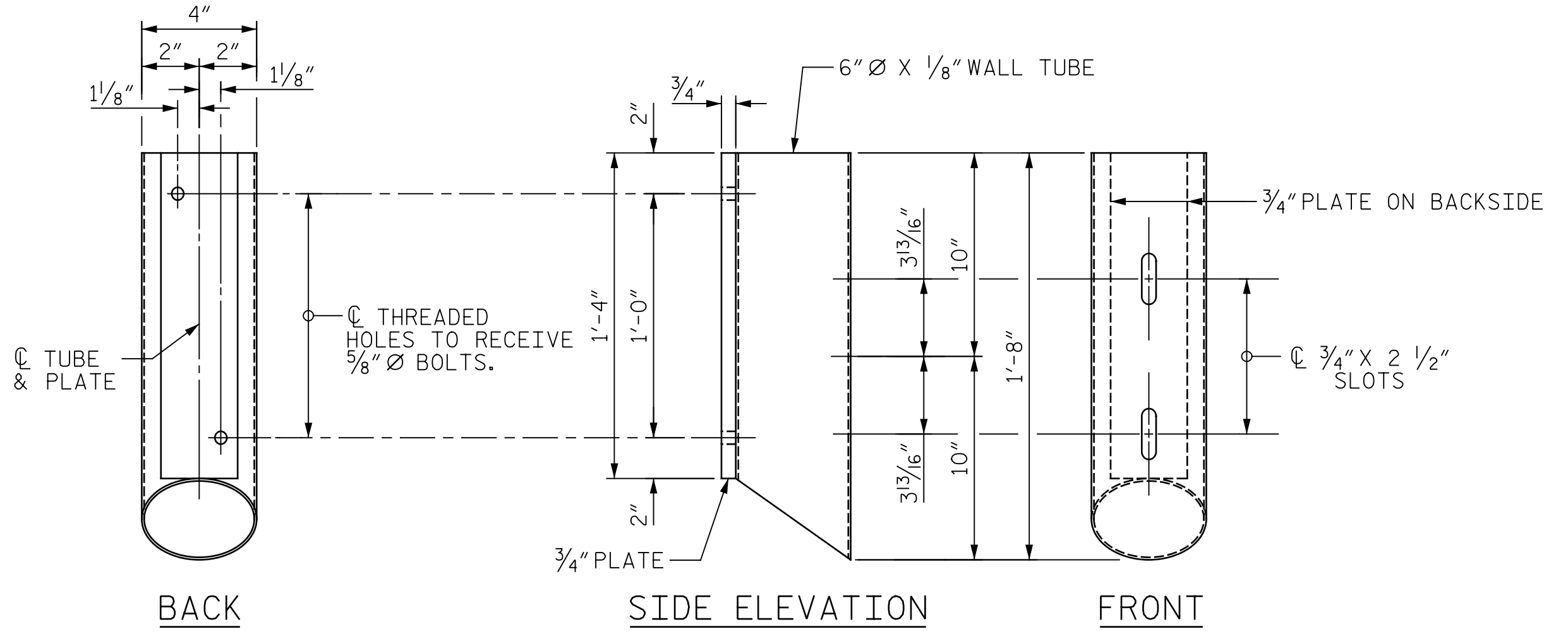
NOTE A: HEIGHT OF POST BP1 (DIMENSION A) SHALL BE DETERMINED IN THE FIELD SO THAT THE DISTANCE BETWEEN THE C OF THE TUBULAR BEAM AND THE TOP OF SLAB OR TOP OF FINISHED DECK SURFACE MATCHES THE EXISTING DISTANCE.
 NOTE B: SLOT TO BE DRILLED ON SIDE OF WEB FACING "ONCOMING TRAFFIC".



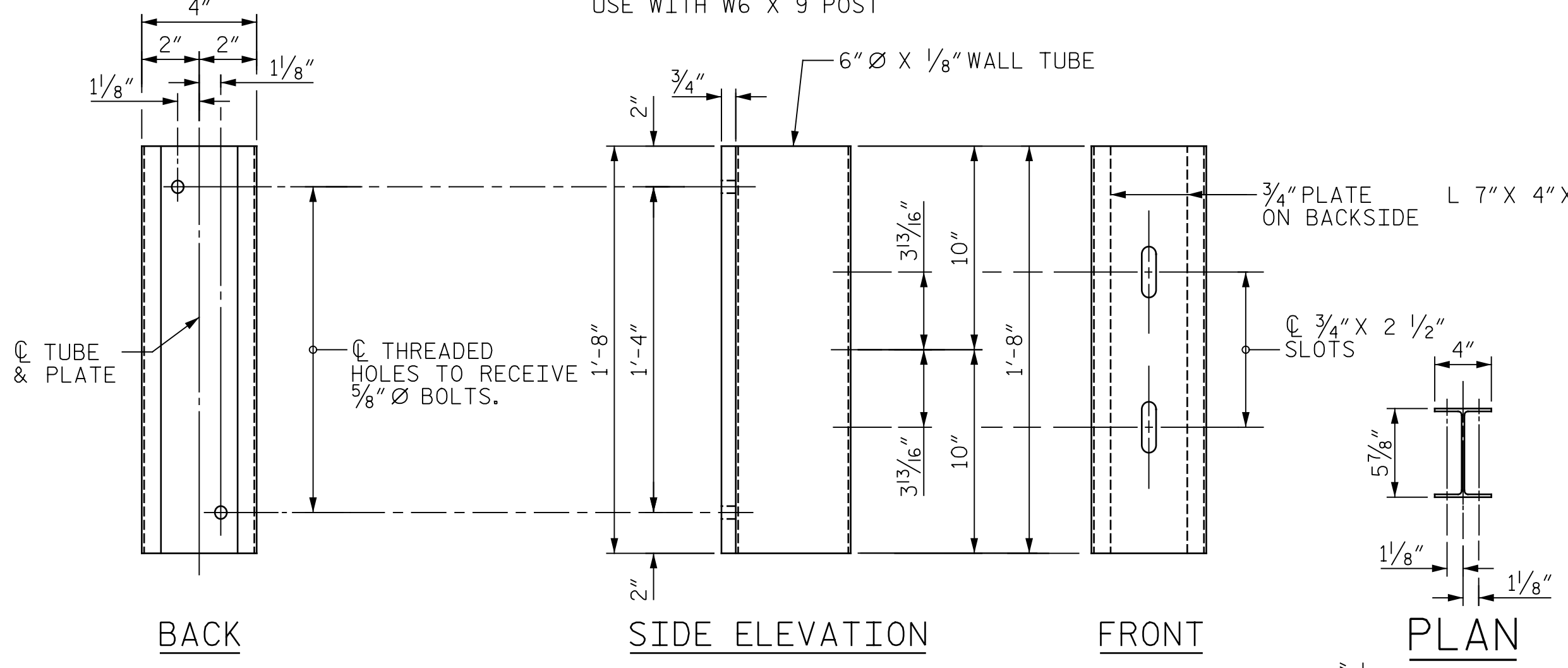
POST "EP1"
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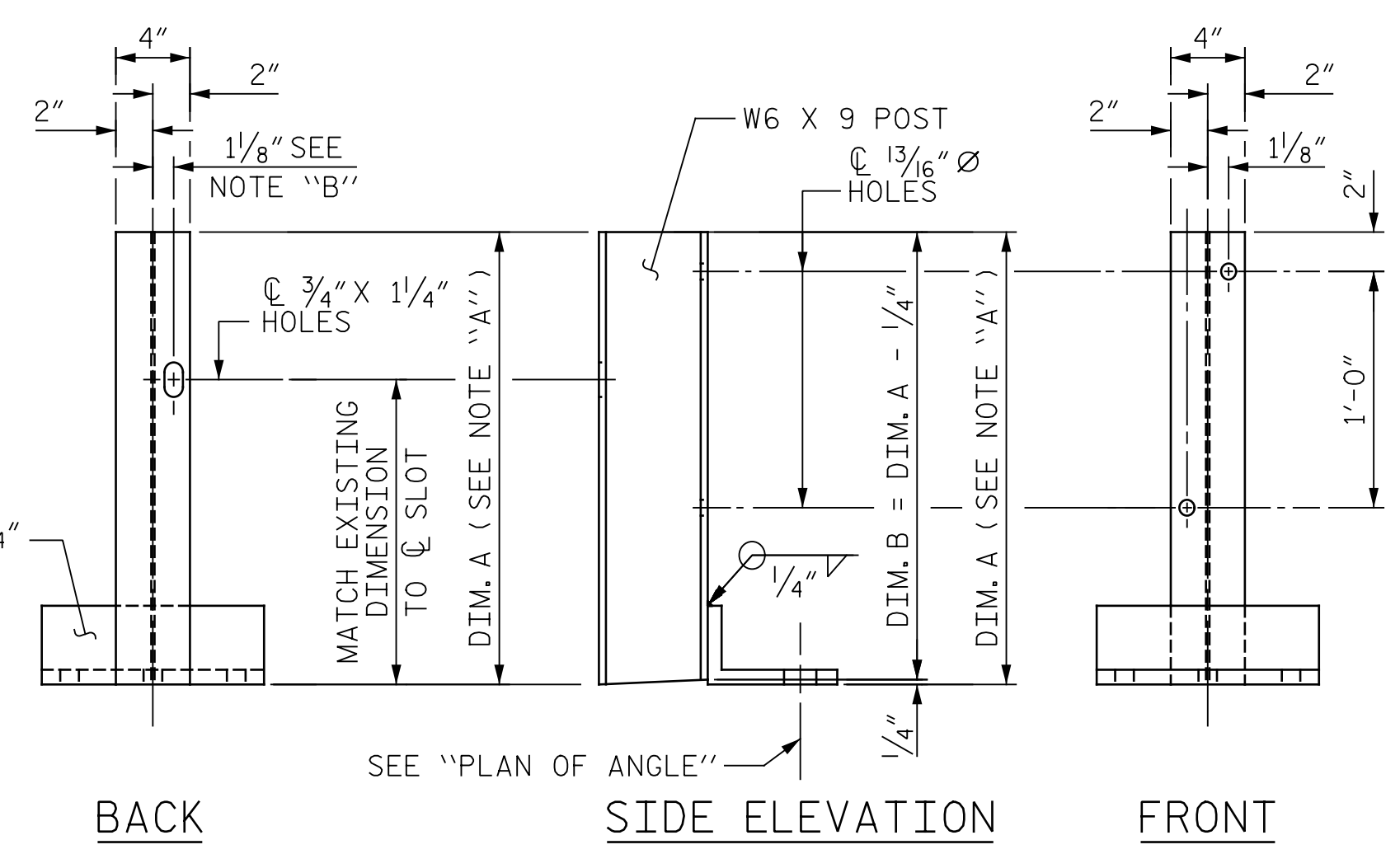
POST "EP2"
(USE AS NEEDED ALONG APPROACH ROADWAY SLAB)



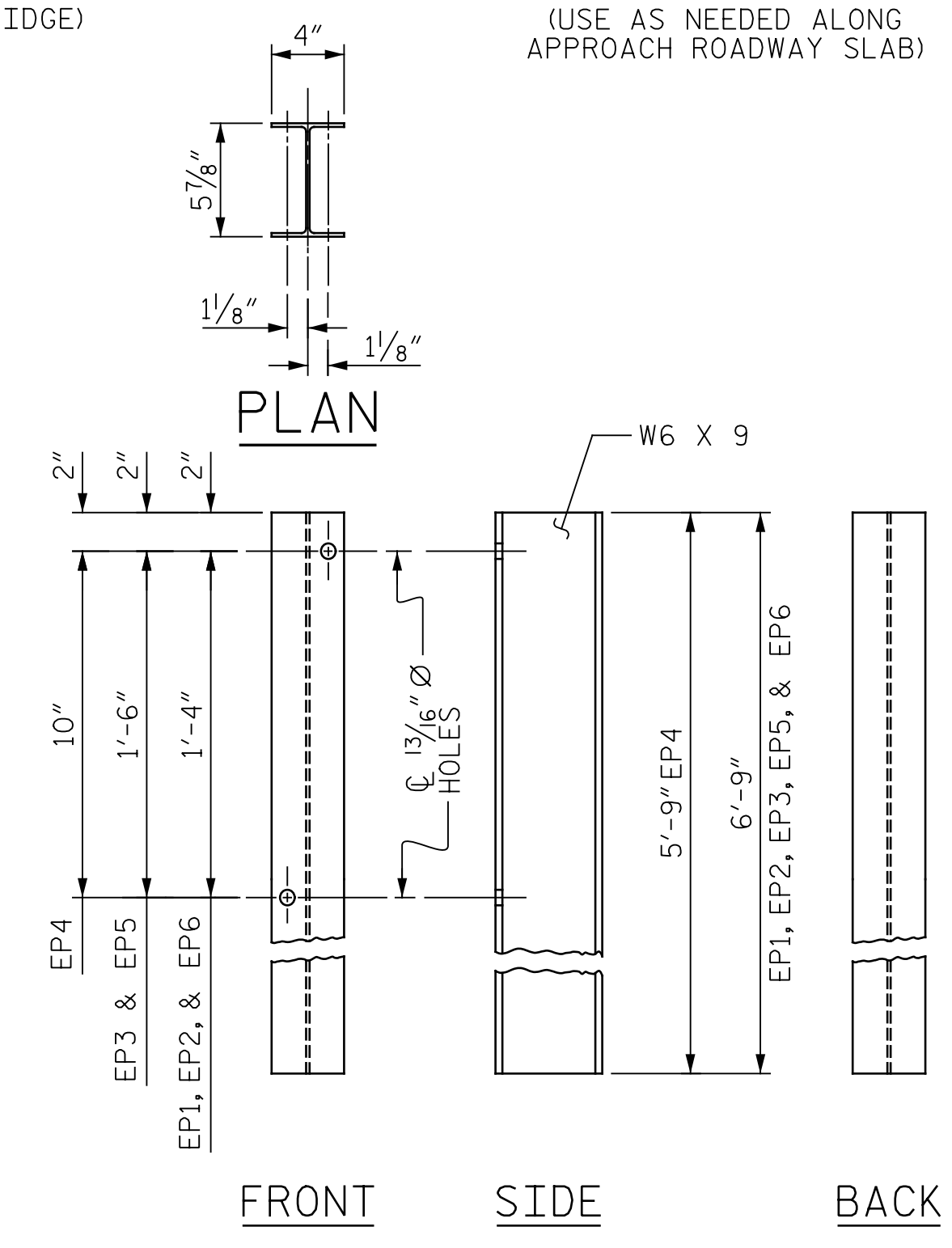
6" Ø TUBE DETAILS
USE WITH W6 X 9 POST



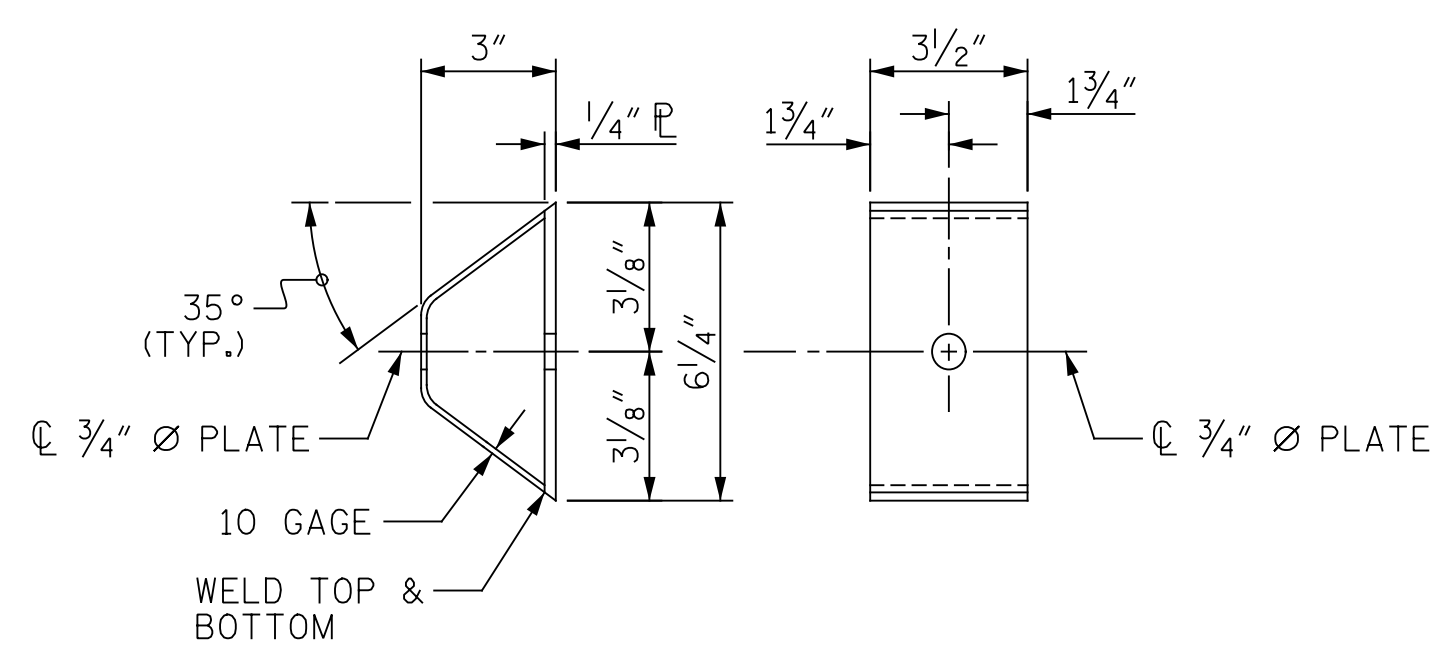
6" Ø TUBE DETAILS
USE WITH POST "EP1 & EP2"



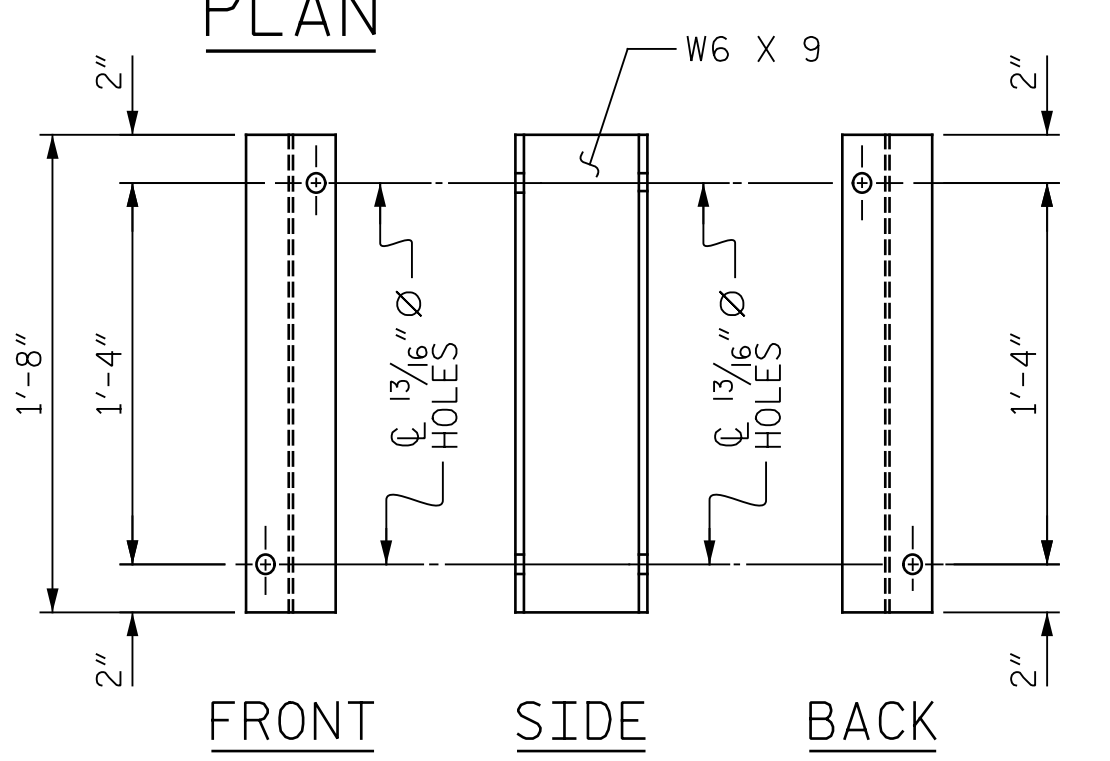
W6 X 9 POST DETAILS



DETAIL OF POST EP1 & EP2

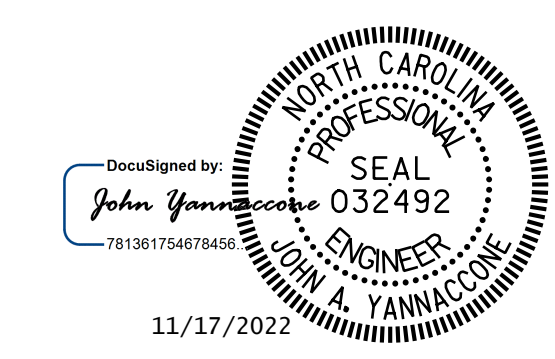
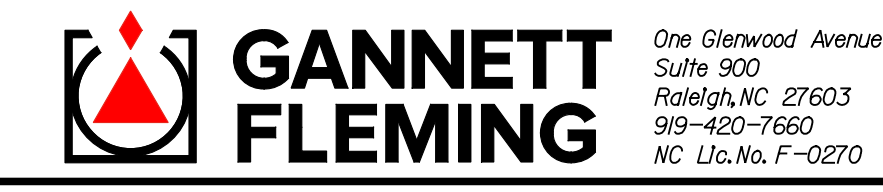


BACKUP CUSHION BRACKET



DETAILS OF OFFSET BLOCK 1
USE WITH POST "EP1"

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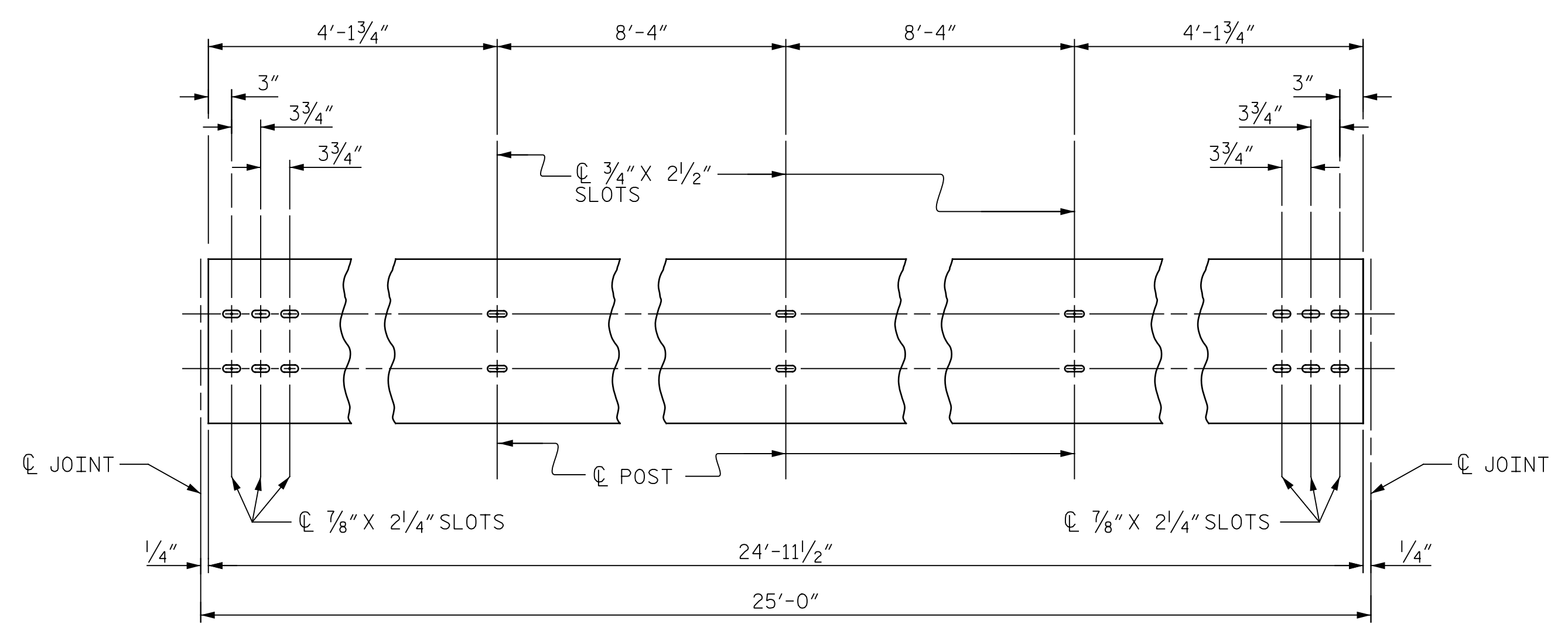


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GUILFORD COUNTY
 BRIDGE NO. 400299, 400339 & 400340
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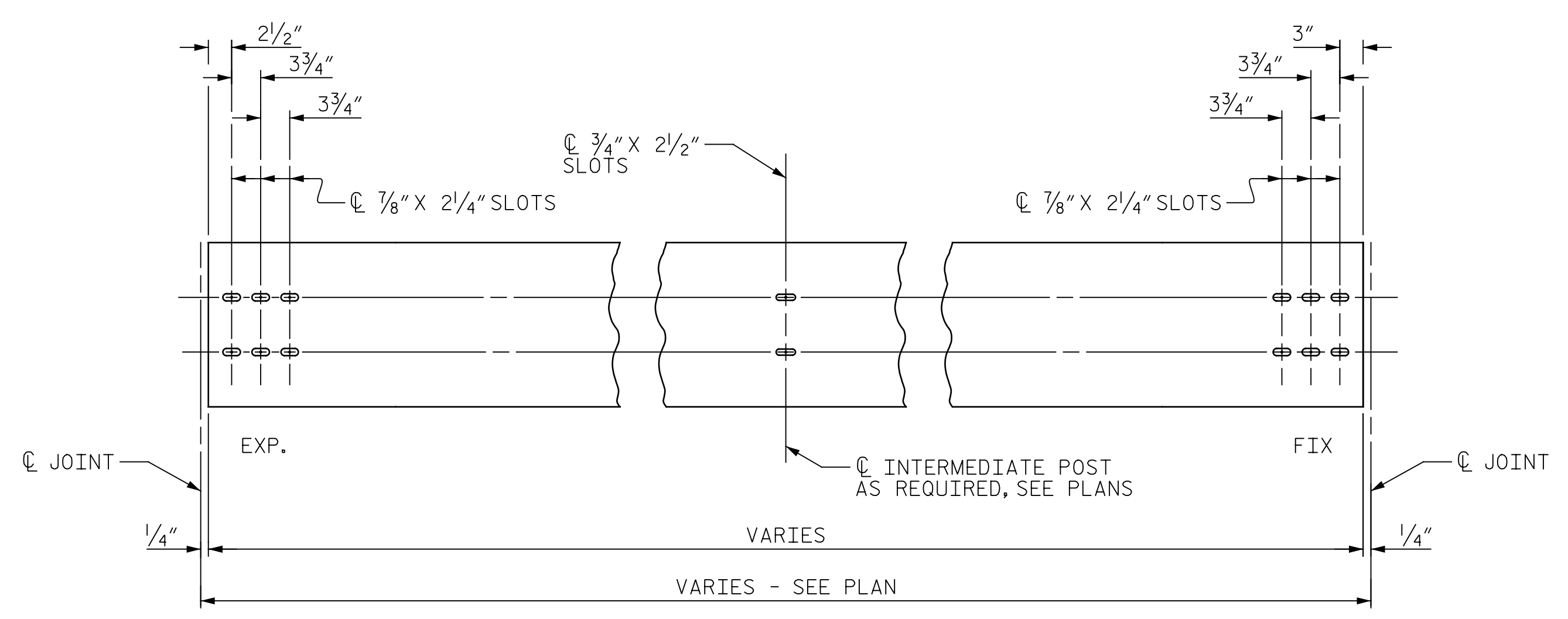
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH		TUBULAR BEAM GUARDRAIL DETAILS	
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**ELEVATION TUBULAR BEAM
STANDARD RAIL**

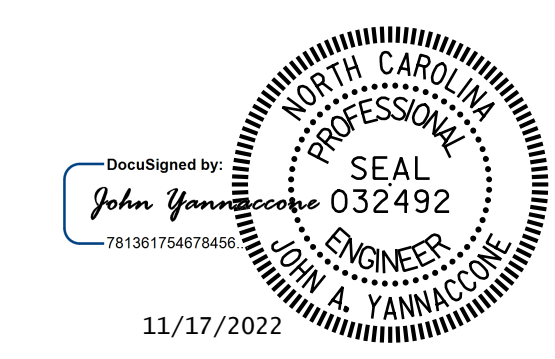


**ELEVATION TUBULAR BEAM
EXPANSION RAIL FOR TYPE 1 SPLICE**

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 BRIDGE NO. 400299, 400339 & 400340
 SHEET 3 OF 4

STATE OF NORTH CAROLINA
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**TUBULAR BEAM
 GUARDRAIL DETAILS**

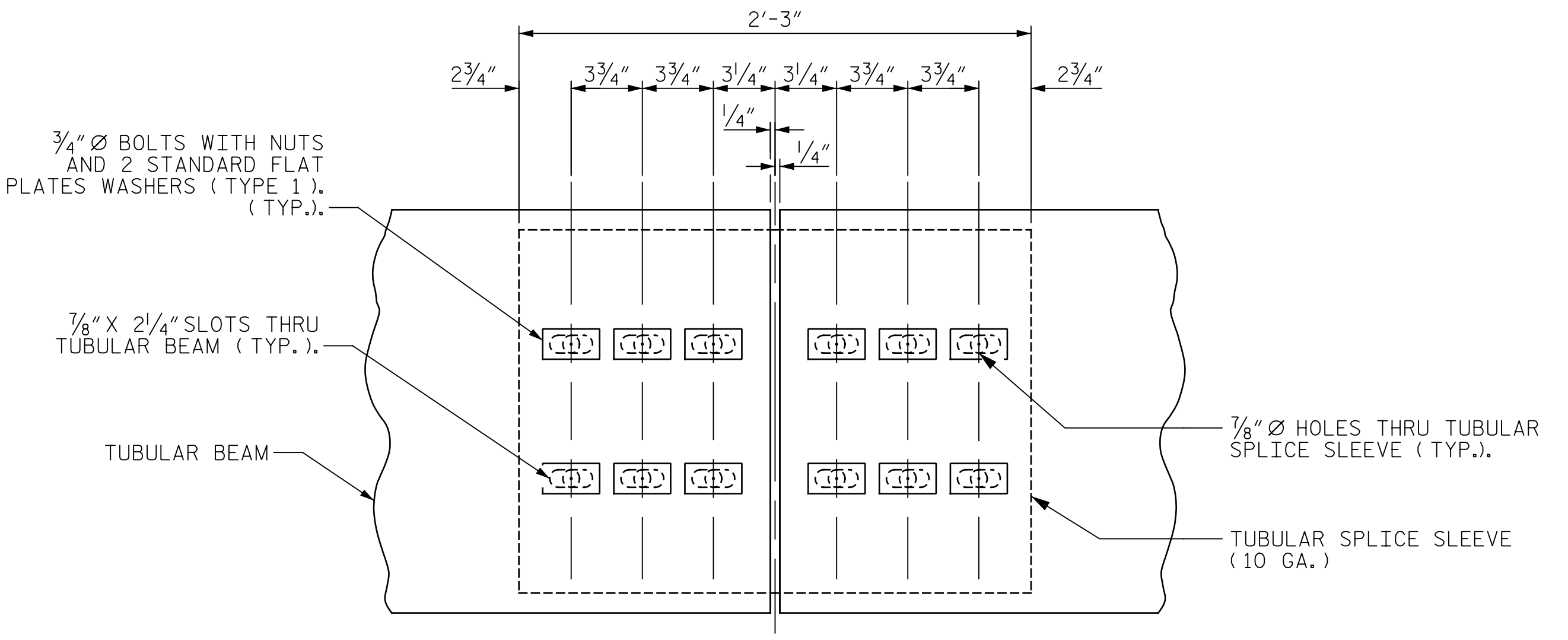


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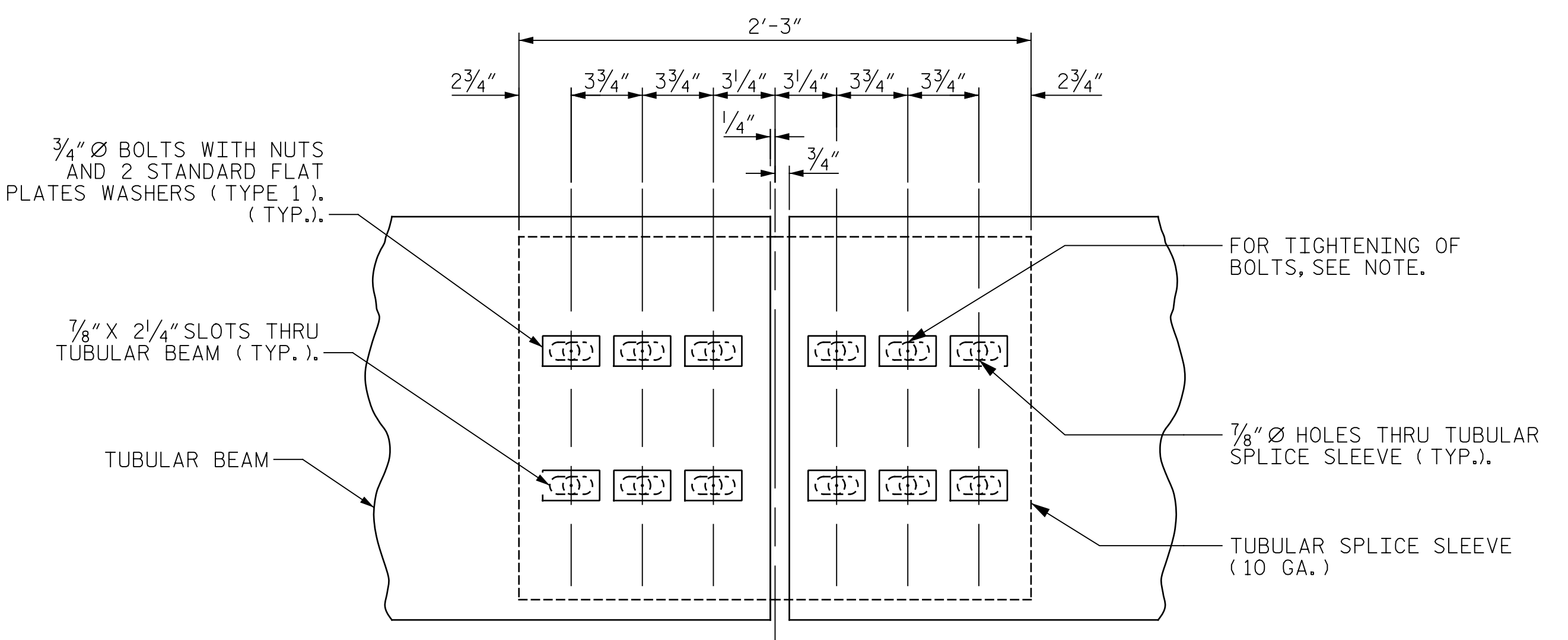
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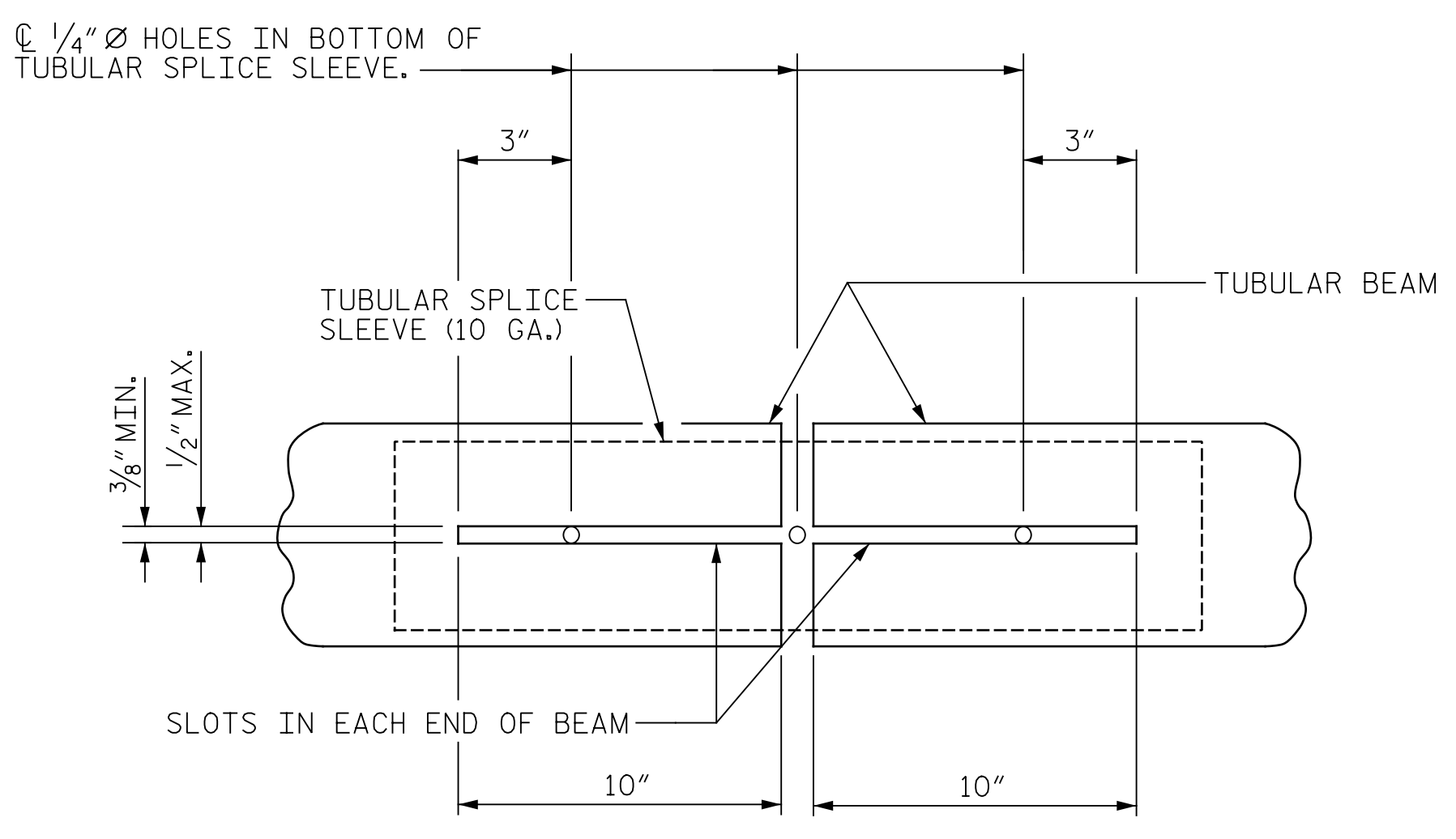


FIXED SPLICE BETWEEN POST (TYPE 1)
TUBULAR BEAM SPLICE

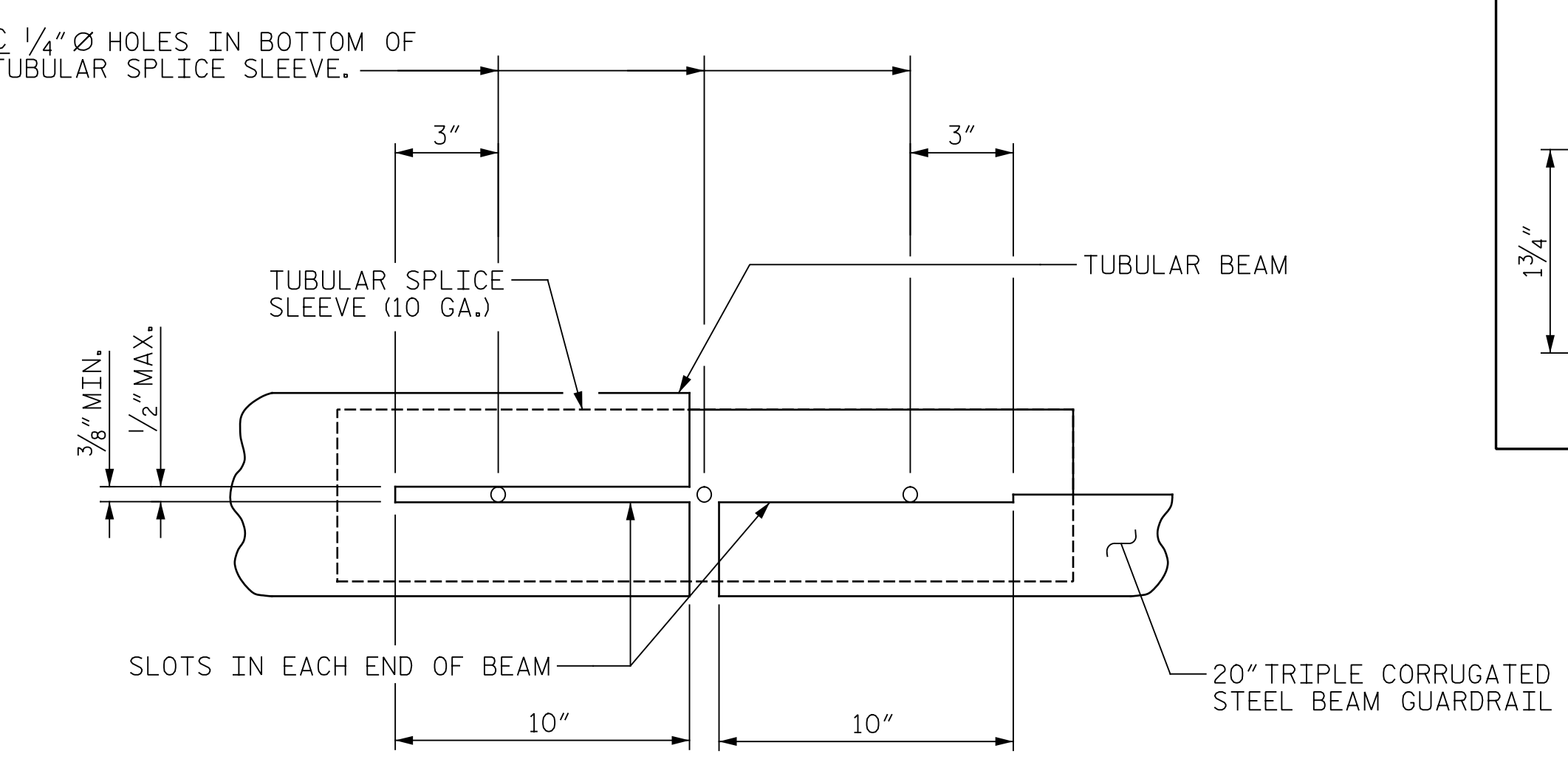


EXPANSION SPLICE BETWEEN POST (TYPE 1)
TUBULAR BEAM SPLICE

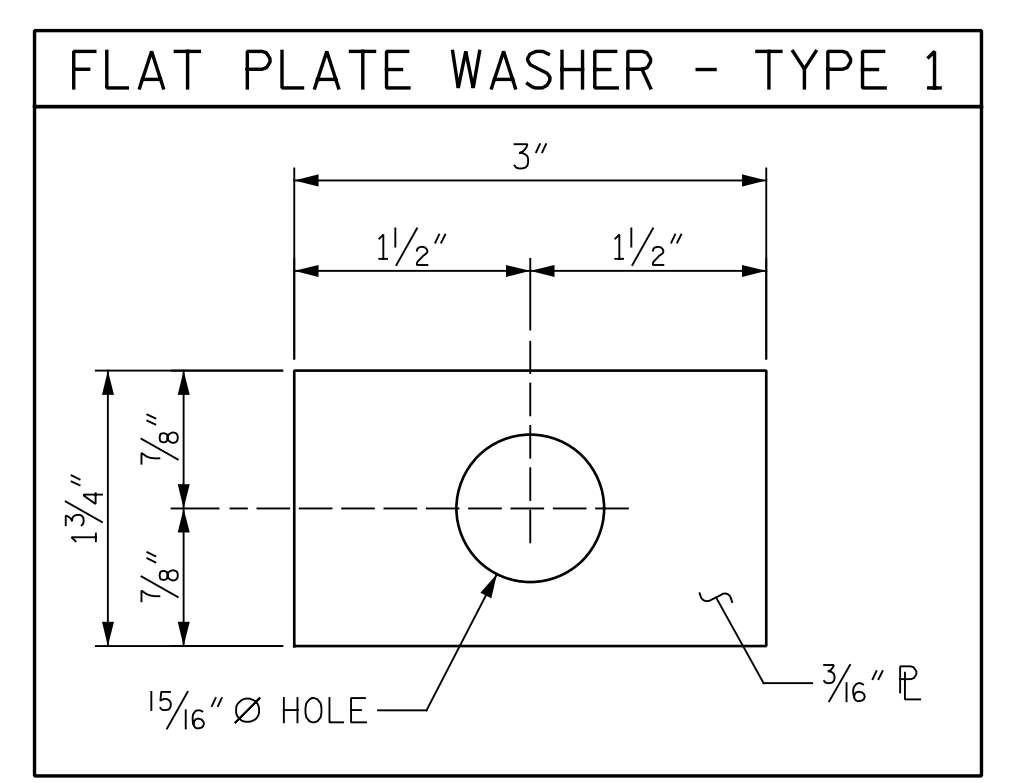
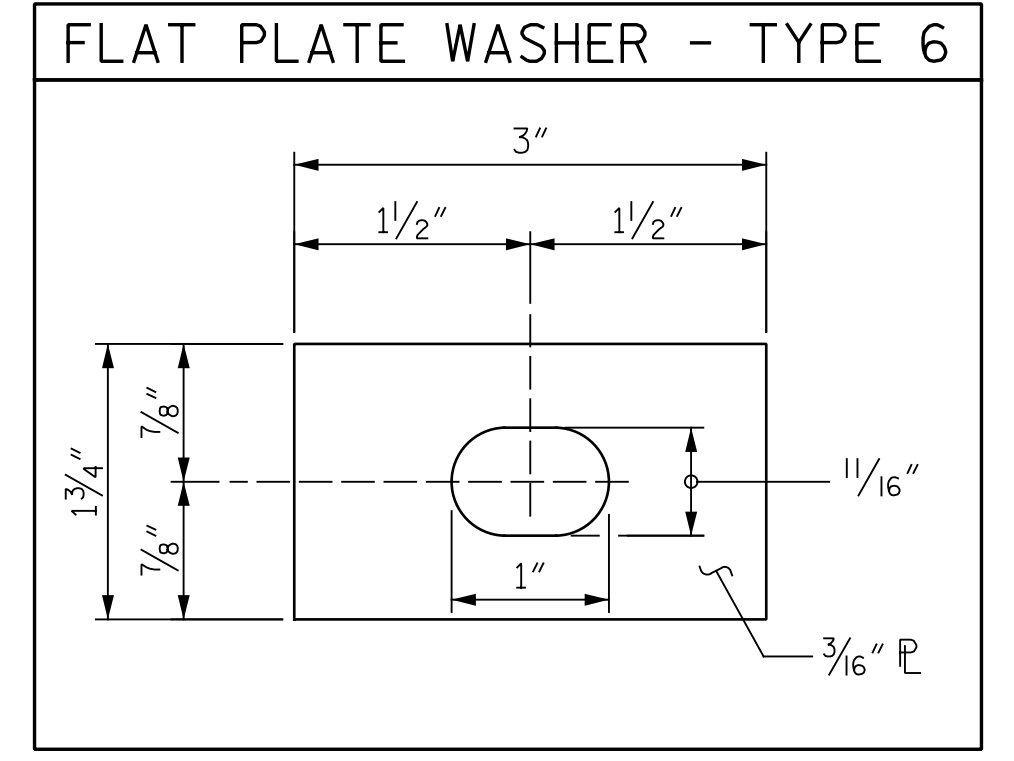
NOTE:
BOLTS ON EXPANSION SIDE OF TUBULAR BEAM SPLICE SHALL BE TIGHTENED FINGER TIGHT. DOUBLE NUTS SHALL BE USED AND TIGHTENED AGAINST EACH OTHER TO PREVENT THE NUTS FROM BECOMING LOOSE ON THE BOLT.



BOTTOM VIEW OF TUBULAR BEAM SPLICE



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

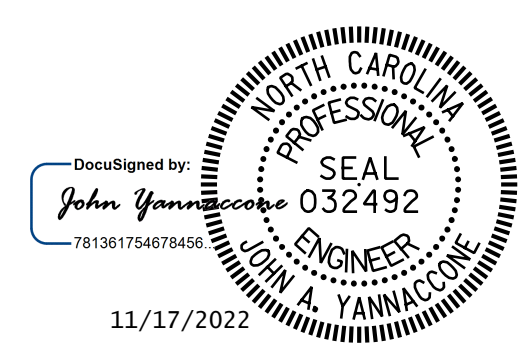


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SHEET 4 OF 4

STATE OF NORTH CAROLINA
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TUBULAR BEAM GUARDRAIL DETAILS



11/17/2022

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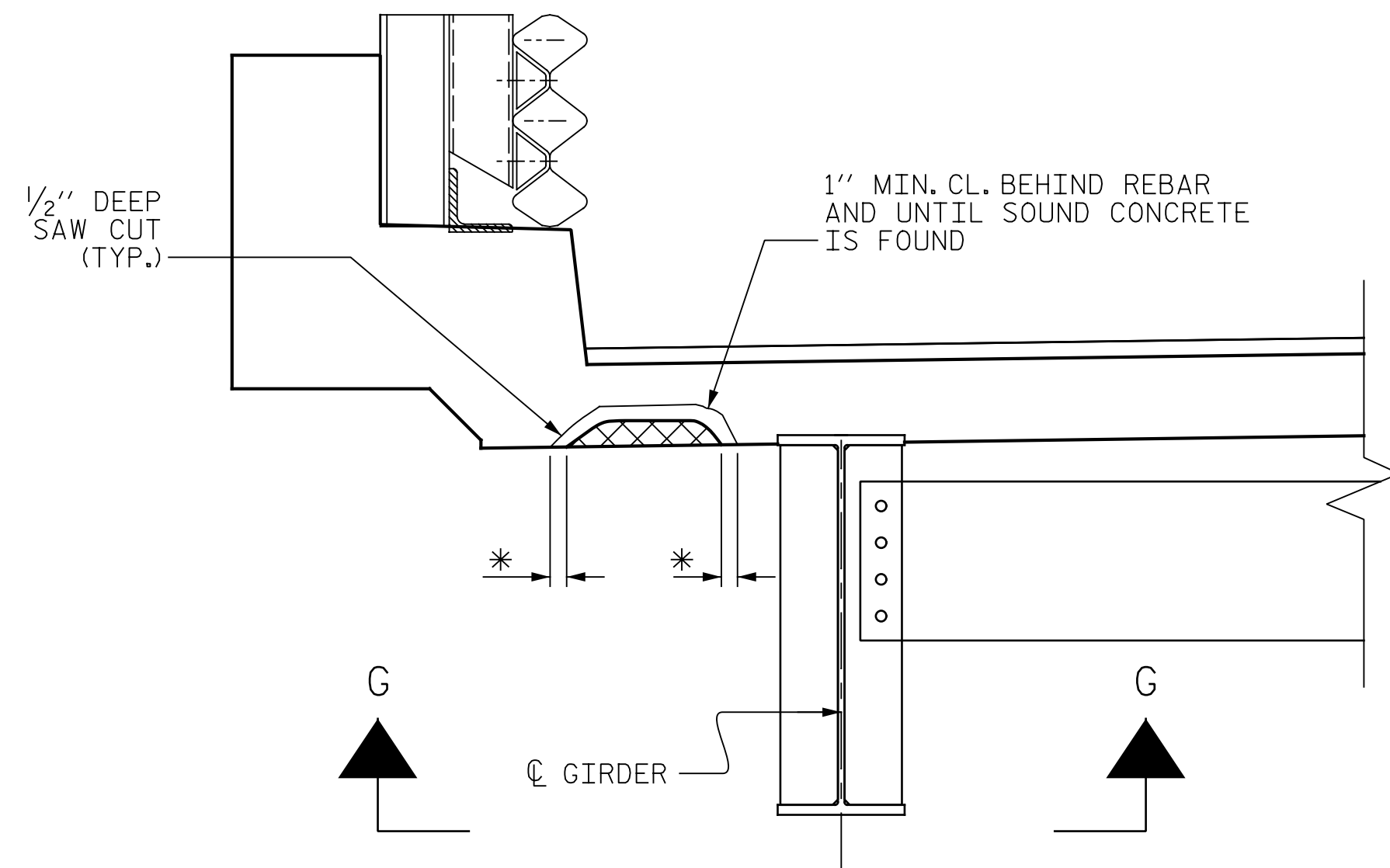
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TOTAL SHEETS 127

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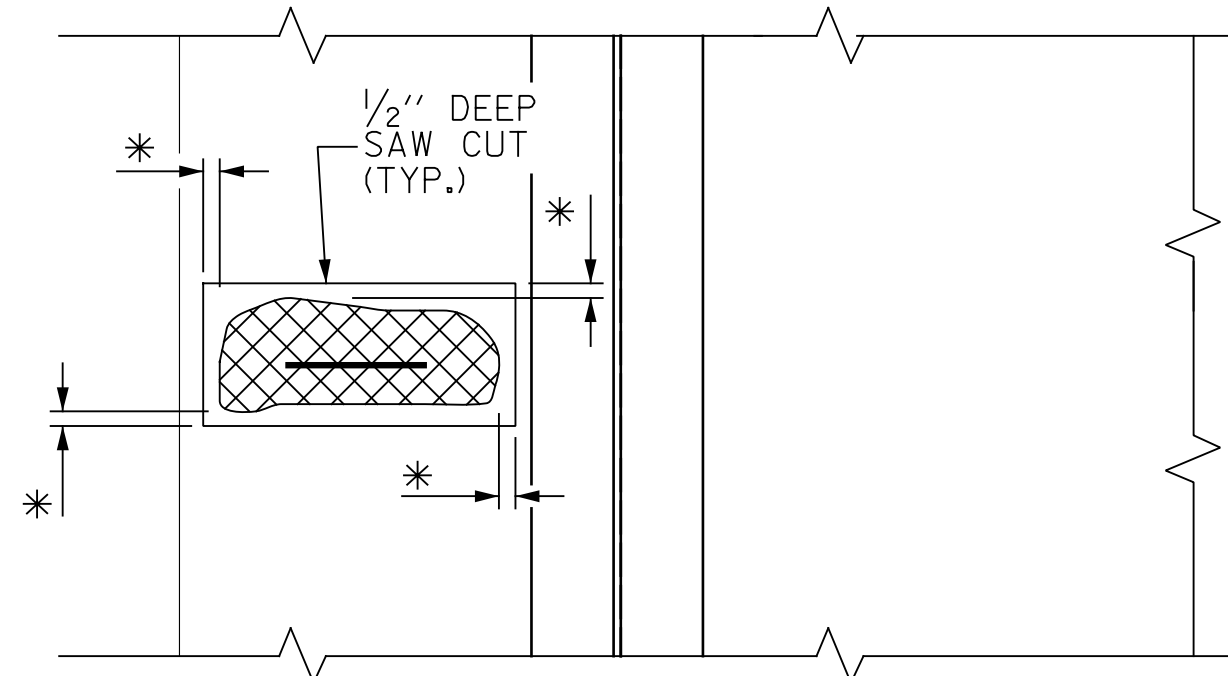
NOTES

- CONTRACTOR SHALL REMOVE SURFACE CONCRETE TO VERIFY THAT SAWCUT DEPTH WILL NOT DAMAGE EXISTING REINFORCING STEEL.
- CONTRACTOR SHALL SAW CUT TO A NOMINAL DEPTH OF 1/2" BUT REINFORCING STEEL SHALL NOT BE DAMAGED.
- CONTRACTOR SHALL SAW CUT THE REPAIR AREAS SO THAT THE CORNERS ARE SQUARE AS INDICATED ON THE DETAILS.
- FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS..



TYPICAL SECTION

* REMOVE CONCRETE UNTIL SOUND CONCRETE IS FOUND (1" MIN. DEPTH)



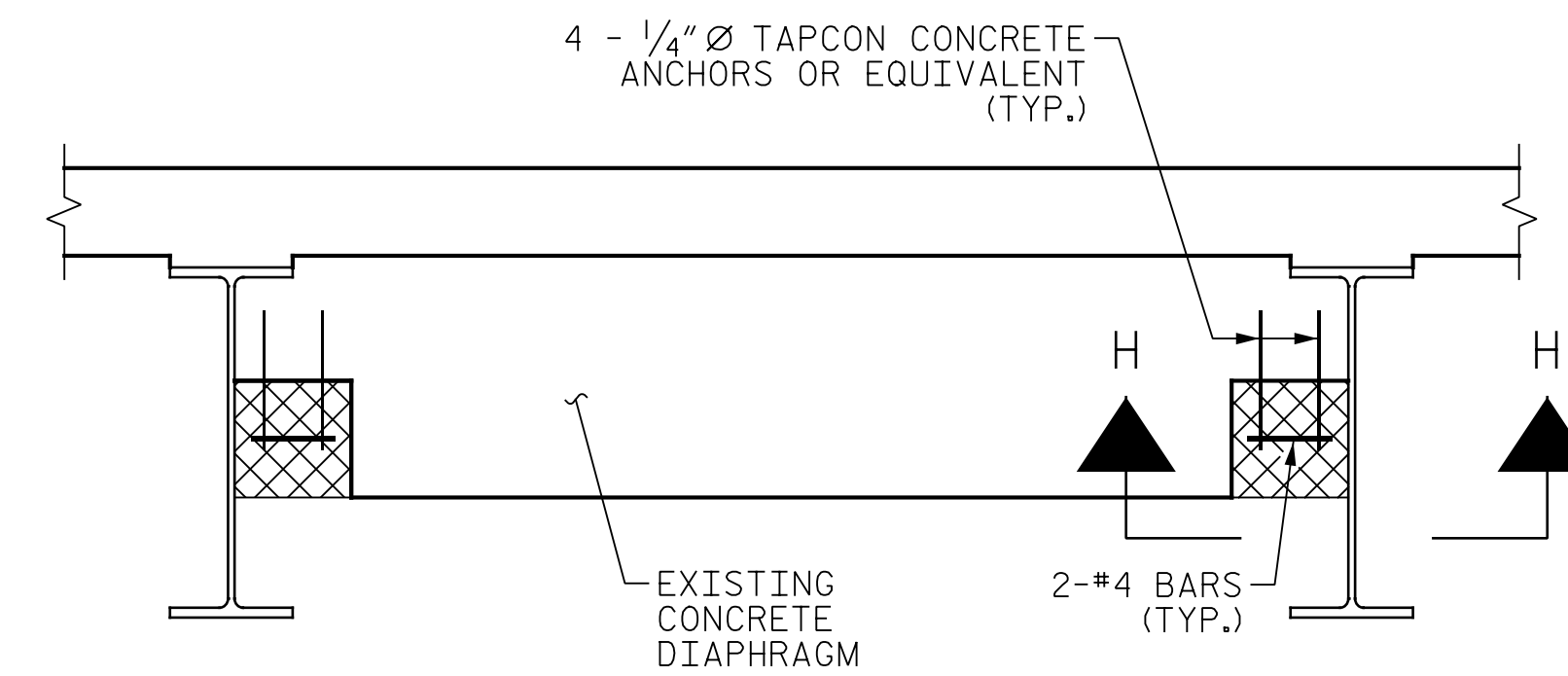
SECTION G=G

OVERHANG DETAILS

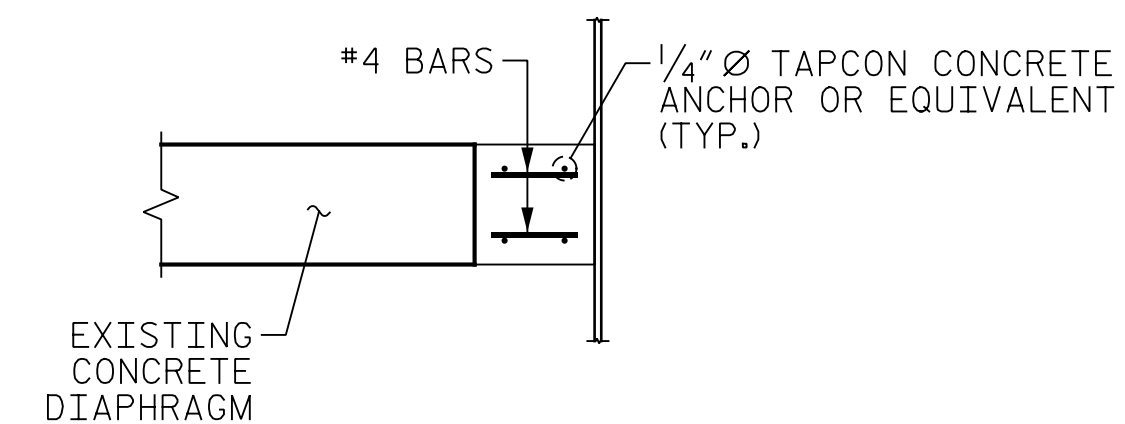
* REMOVE CONCRETE UNTIL SOUND CONCRETE IS FOUND (1" MIN. DEPTH)



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



ELEVATION

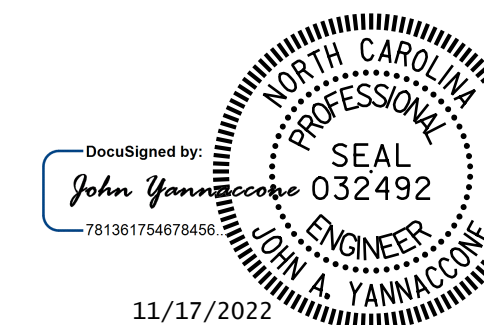


SECTION H-H

INTERMEDIATE DIAPHRAGM REPAIR

(BRIDGE #400299)

PROJECT NO. I-5955
GUILFORD COUNTY
 BRIDGE NO. 400285, 400299,
400329, 400339 & 400340



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
**OVERHANG AND
 UNDERSIDE
 REPAIR DETAILS**

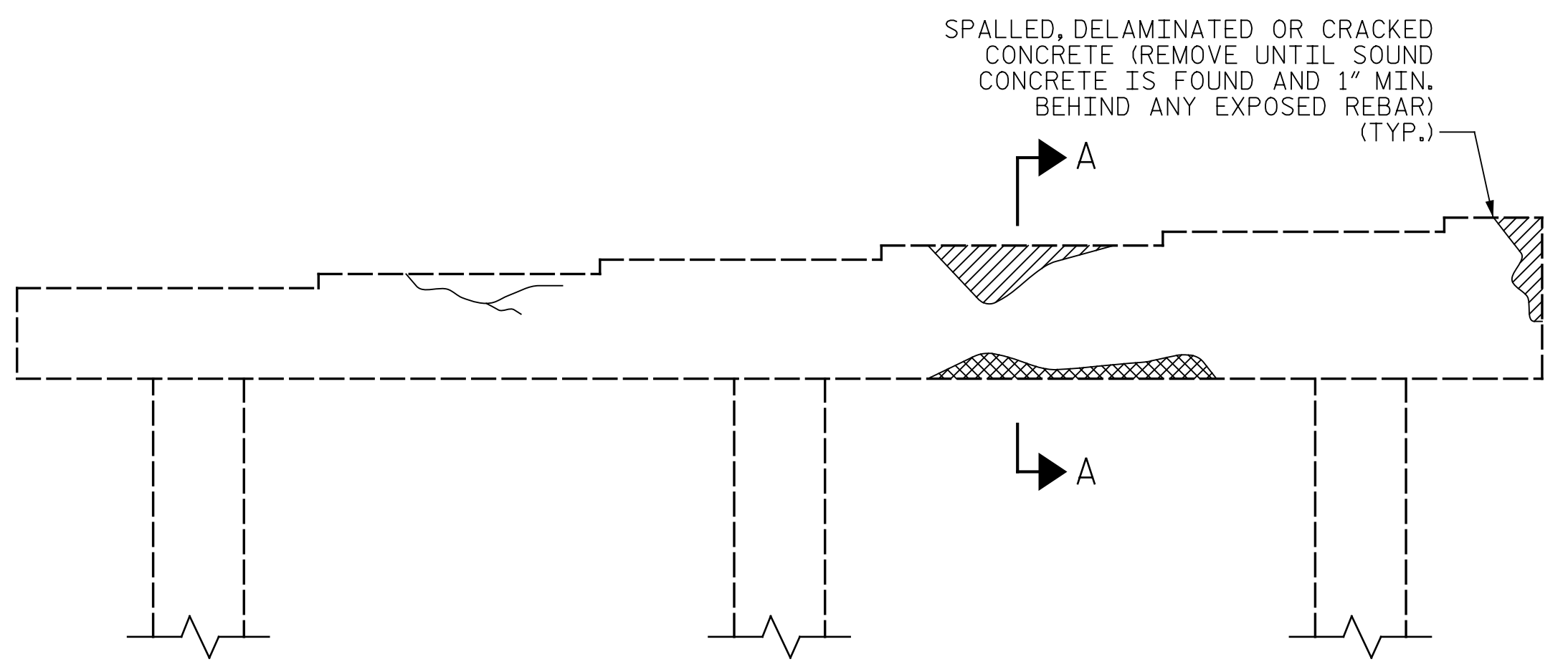
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 CHECKED BY : J. YANNACCONE DATE : 10/2022



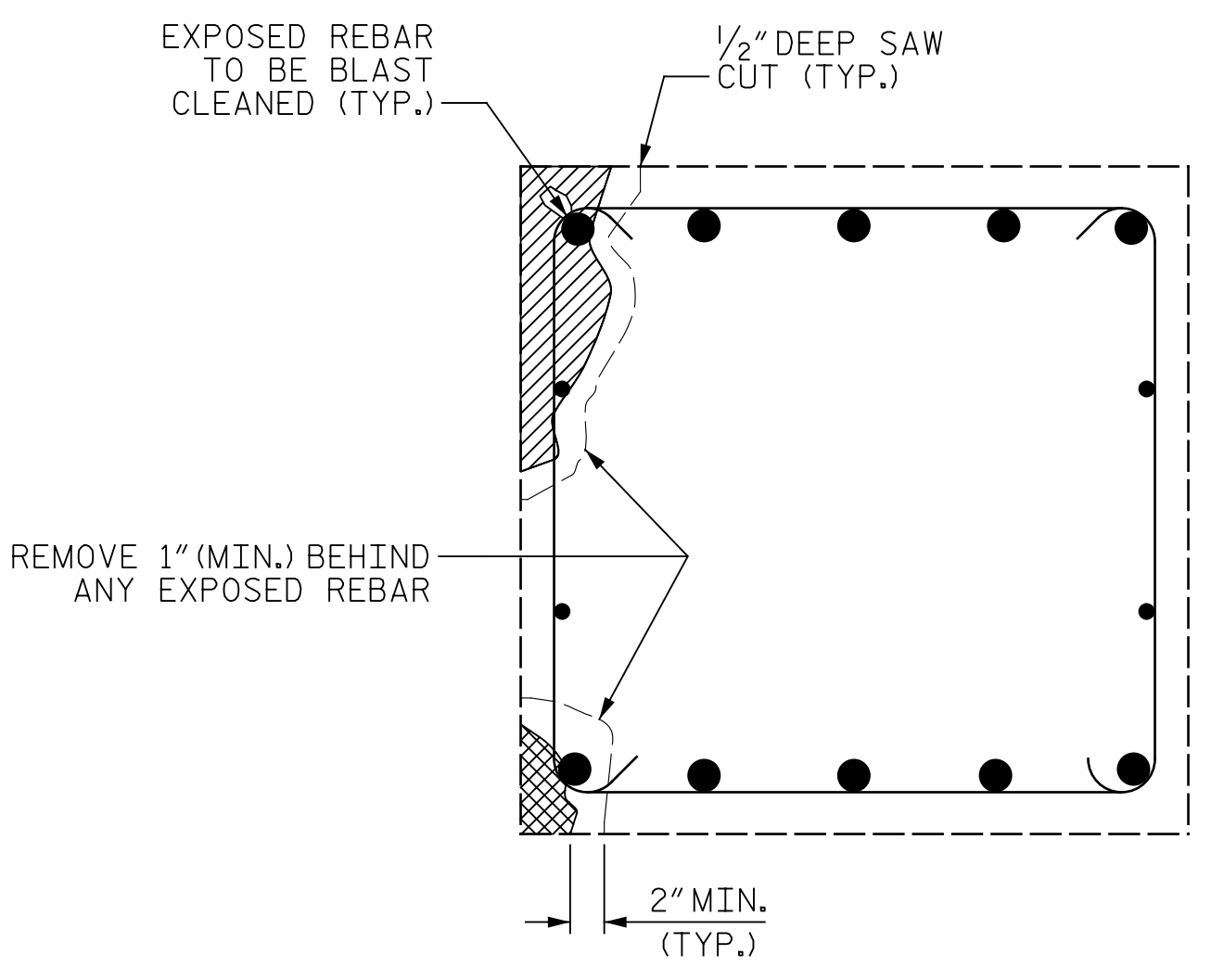
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1			3			TOTAL SHEETS
2			4			127

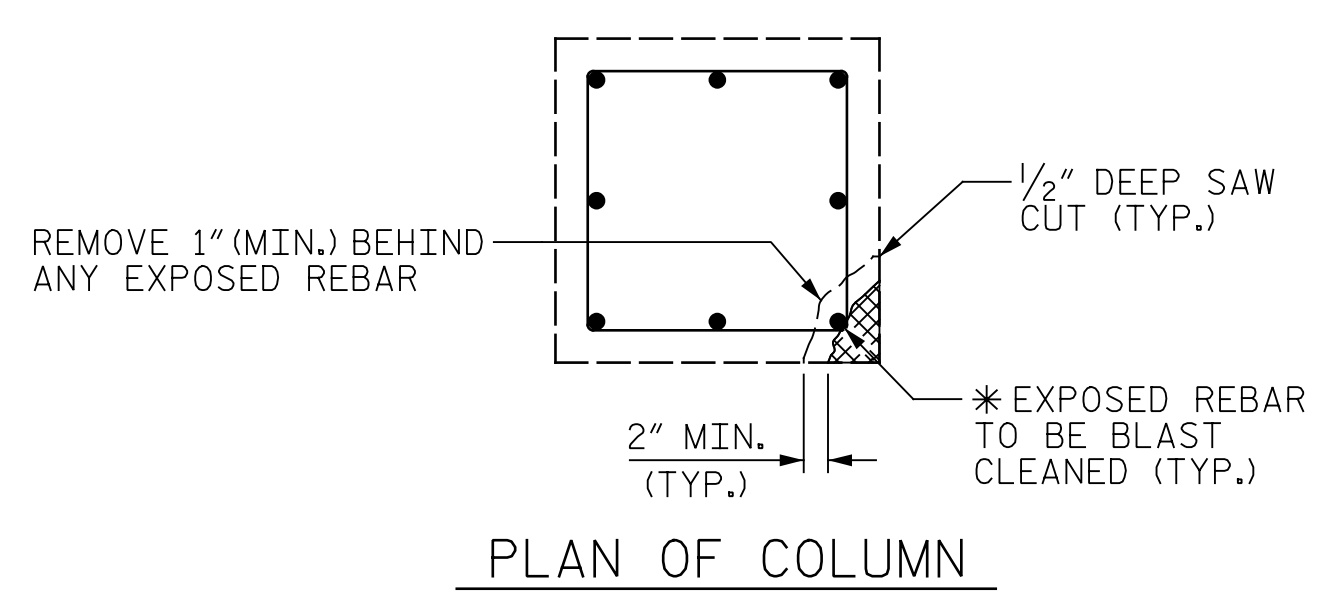
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BENT CAP REPAIRS
 (BRIDGE #400285 SHOWN. BRIDGE #400299, 400339 & 400340 SIMILAR.)



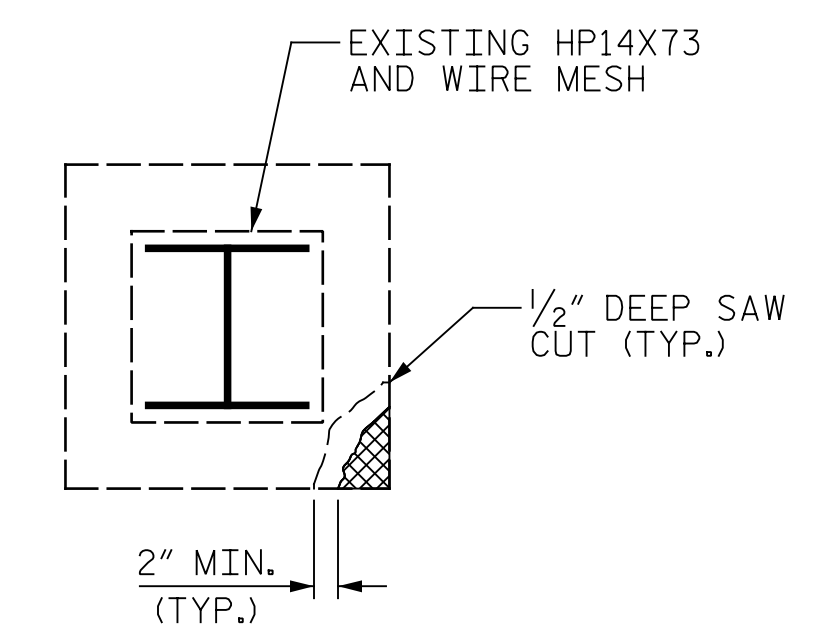
SECTION A-A



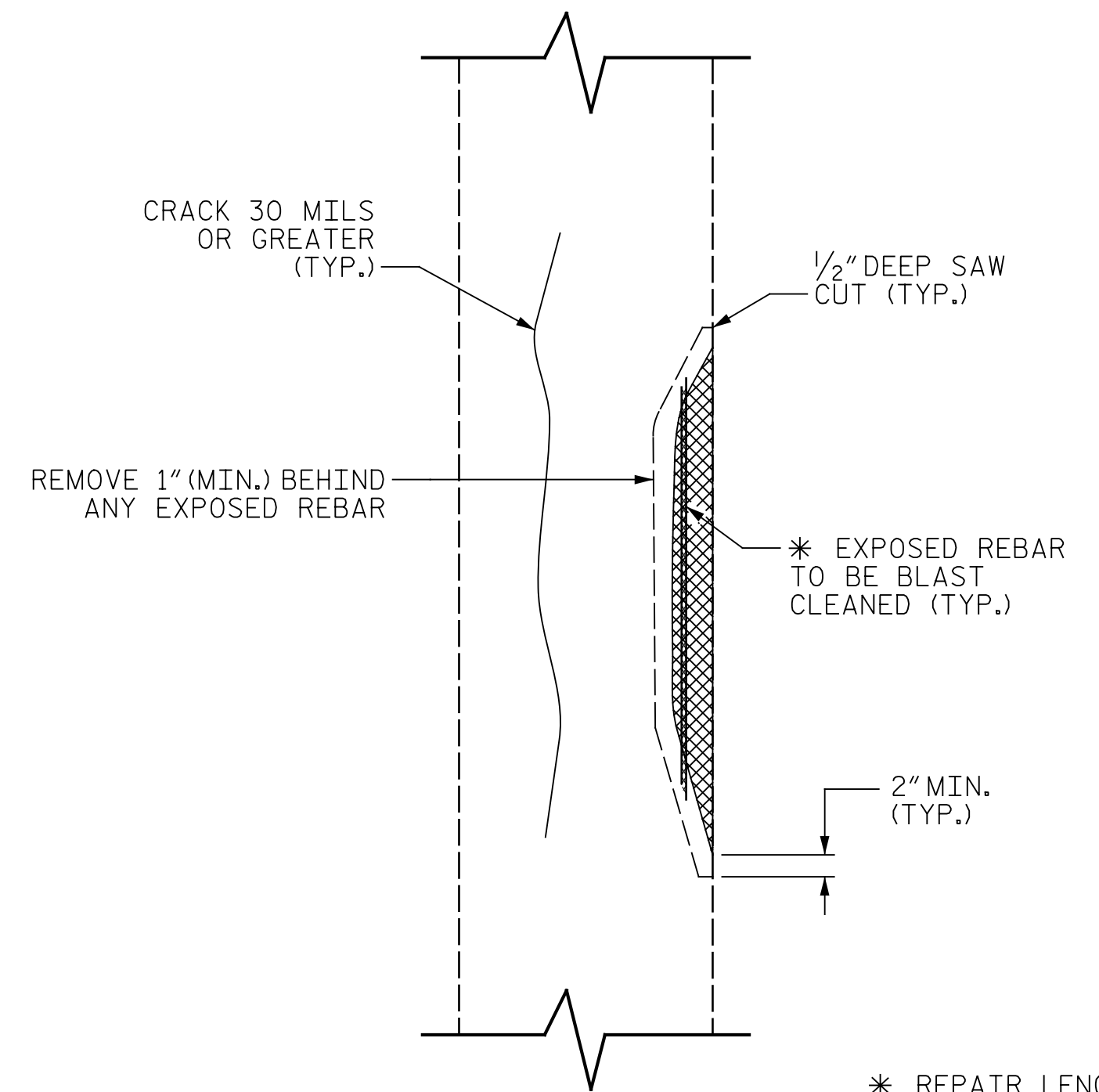
PLAN OF COLUMN

REPAIR KEY

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



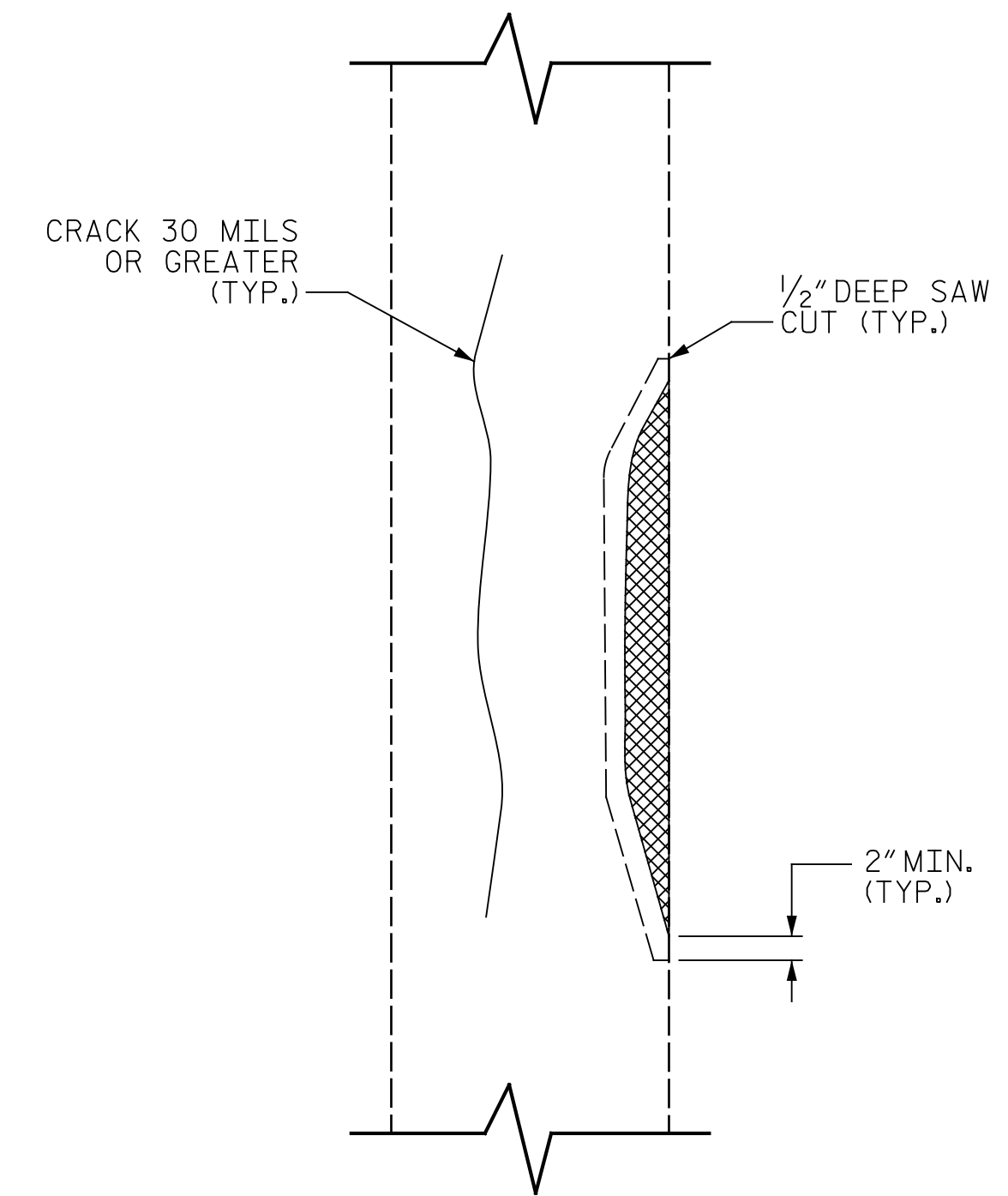
PLAN OF COLUMN



ELEVATION OF COLUMN
COLUMN REPAIR
 (BRIDGE #400285)

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

* REPAIR LENGTH SHALL NOT EXCEED 10 FEET.



ELEVATION OF COLUMN
COLUMN REPAIR
 (BRIDGE #400299, 400339 & 400340)

NOTES:

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

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

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

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

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

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

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

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

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

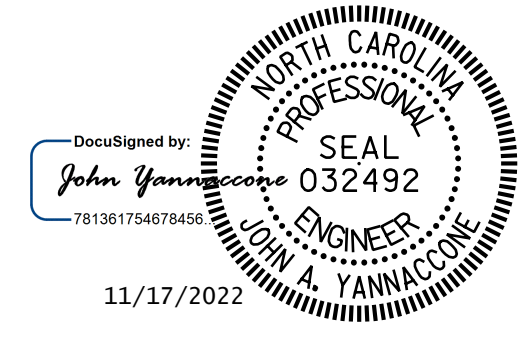
FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY PROTECTIVE COATING, SEE SPECIAL PROVISIONS.

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

FOR THE REPAIRS ON THE PILE COLUMNS, ANCHOR PATCH MATERIAL USING 1/4" GALVANIZED BOLTS, EPOXY ANCHORED WITH 2" EMBEDMENT. PLACE IN A 6" GRID.

PROJECT NO. I-5955
GUILFORD COUNTY
 BRIDGE NO. 400285, 400299,
400339 & 400340



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

TYPICAL CAP AND COLUMN REPAIR DETAILS

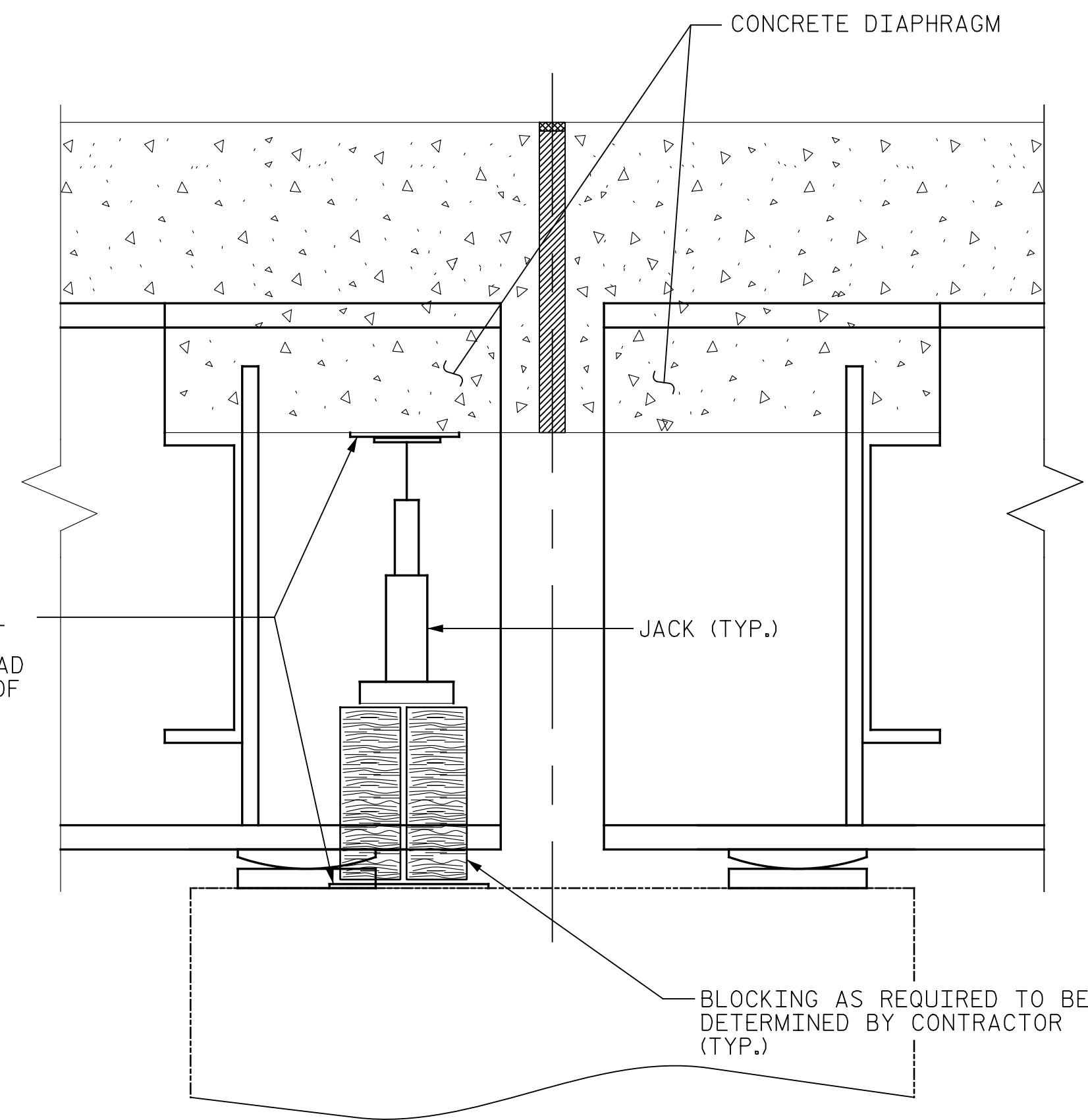
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 CHECKED BY: J. YANNACCONE DATE: 10/2022



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SECTION THRU DIAPHRAGM
 BRIDGE JACKING DETAILS

BRIDGE JACKING TABLE					
PRELIMINARY GIRDER REACTIONS (MAXIMUM)					
BRIDGE NO.	SPAN	LOCATION	GIRDER	BRIDGE JACKING TYPE	DEAD LOAD (DC+DW) (KIPS)
400299	A	BENT 1	ALL	I	22
400299	B	BENT 1	ALL	I	22
400299	B	BENT 2	ALL	I	22
400299	C	BENT 2	ALL	I	22
400329	B	BENT 2	ALL	I	53
400329	C	BENT 2	ALL	I	43
400339	C	END BENT	ALL	I	23
400340	A	END BENT	ALL	I	22
400364	A	BENT 1	ALL	I	45
400364	B	BENT 1	ALL	I	59
400364	C	BENT 3	ALL	I	59
400364	D	BENT 3	ALL	I	39
400367	A	BENT 1	ALL	I	39
400367	B	BENT 1	ALL	I	59
400367	C	BENT 3	ALL	I	59
400367	D	BENT 3	ALL	I	40

NOTE: LOADS ARE UNFACTORED

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.

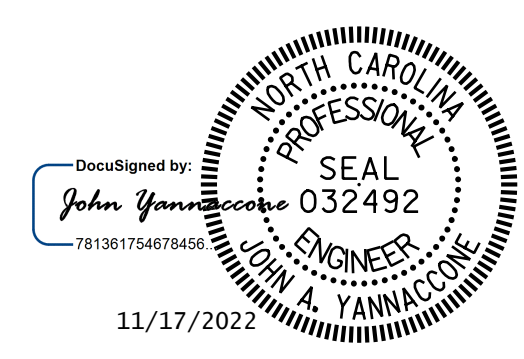
FOR WORKING DRAWING SUBMITTALS, SEE SPECIAL PROVISIONS.

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

TYPE II BRIDGE JACKING SHALL BE DONE WITH A HYDRUALIC 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.

PROJECT NO. I-5955
GUILFORD COUNTY
 BRIDGE NO. 400299, 400329, 400339
400340, 400364 & 400367



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

JACKING DETAILS

DRAWN BY : J. MYA DATE : 10/2022
 CHECKED BY : J. YANNACCONE DATE : 10/2022



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NO.	BY:	DATE:	NO.	BY:	DATE:	SD-7
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2			4			127

STANDARD NOTES

DESIGN DATA:

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

MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2018 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N. C. DEPARTMENT OF TRANSPORTATION.

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

CONCRETE:

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

CONCRETE CHAMFERS:

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

DOWELS:

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

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

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

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

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

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

REINFORCING STEEL:

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

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

STRUCTURAL STEEL:

AT THE CONTRACTOR'S OPTION, HE MAY SUBSTITUTE $\frac{7}{8}$ " \emptyset SHEAR STUDS FOR THE $\frac{3}{4}$ " \emptyset STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - $\frac{7}{8}$ " \emptyset STUDS FOR 4 - $\frac{3}{4}$ " \emptyset STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF $\frac{7}{8}$ " \emptyset STUDS ALONG THE BEAM AS SHOWN FOR $\frac{3}{4}$ " \emptyset STUDS BASED ON THE RATIO OF 3 - $\frac{7}{8}$ " \emptyset STUDS FOR 4 - $\frac{3}{4}$ " \emptyset STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-0".

EXCEPT AT THE INTERIOR SUPPORTS OF CONTINUOUS BEAMS WHERE THE COVER PLATE IS IN CONTACT WITH BEARING PLATE, THE CONTRACTOR MAY, AT HIS OPTION, SUBSTITUTE FOR THE COVER PLATES DESIGNATED ON THE PLANS COVER PLATES OF THE EQUIVALENT AREA PROVIDED THESE PLATES ARE AT LEAST $\frac{5}{16}$ " IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2" OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ANSI/AASHTO/AWS "BRIDGE WELDING CODE". ELECTROSLAG WELDING WILL NOT BE PERMITTED.

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

HANDRAILS AND POSTS:

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

METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. FINIS AND OTHER DEFORMATIONS RESULTING FROM CASTING OR OTHERWISE SHALL BE REMOVED IN A MANNER SO THAT A UNIFORM COLORING OF THE COMPLETED CASTING SHALL BE OBTAINED. CASTINGS WITH DISCOLORATIONS OR OF NON-UNIFORM COLORING WILL NOT BE ACCEPTED. CERTIFIED MILL REPORTS ARE REQUIRED FOR METAL RAILS AND POSTS.

SPECIAL NOTES:

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

ENGLISH

JANUARY, 1990