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**PROJECT: 15BPR.20**

**CONTRACT: C204202**

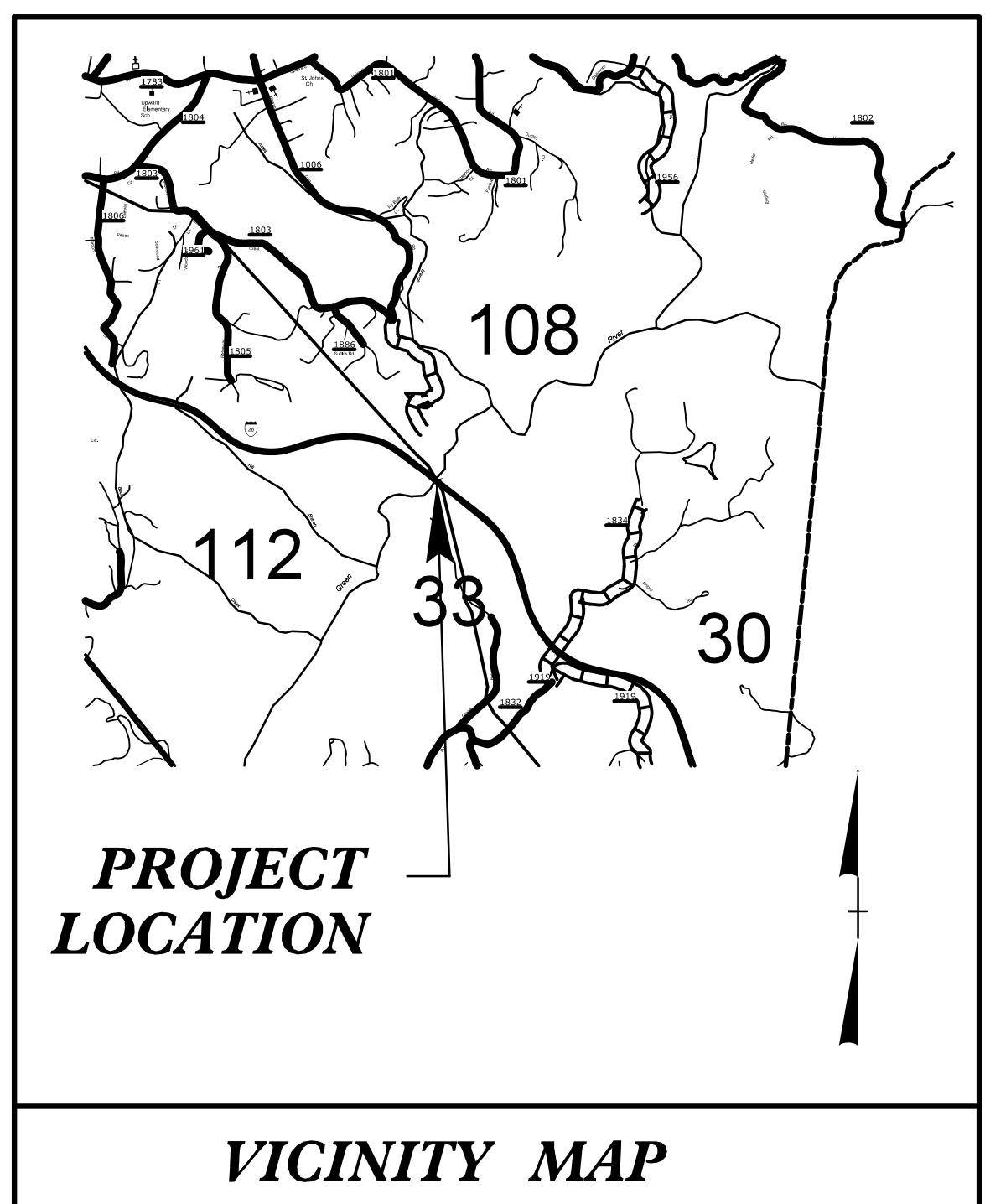
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**HENDERSON COUNTY**

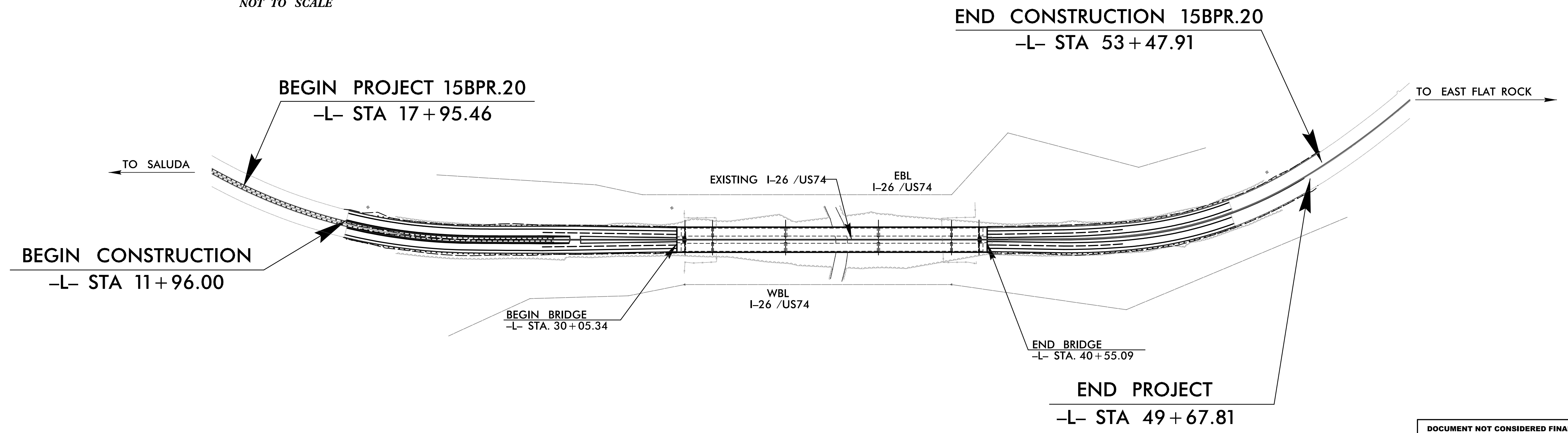
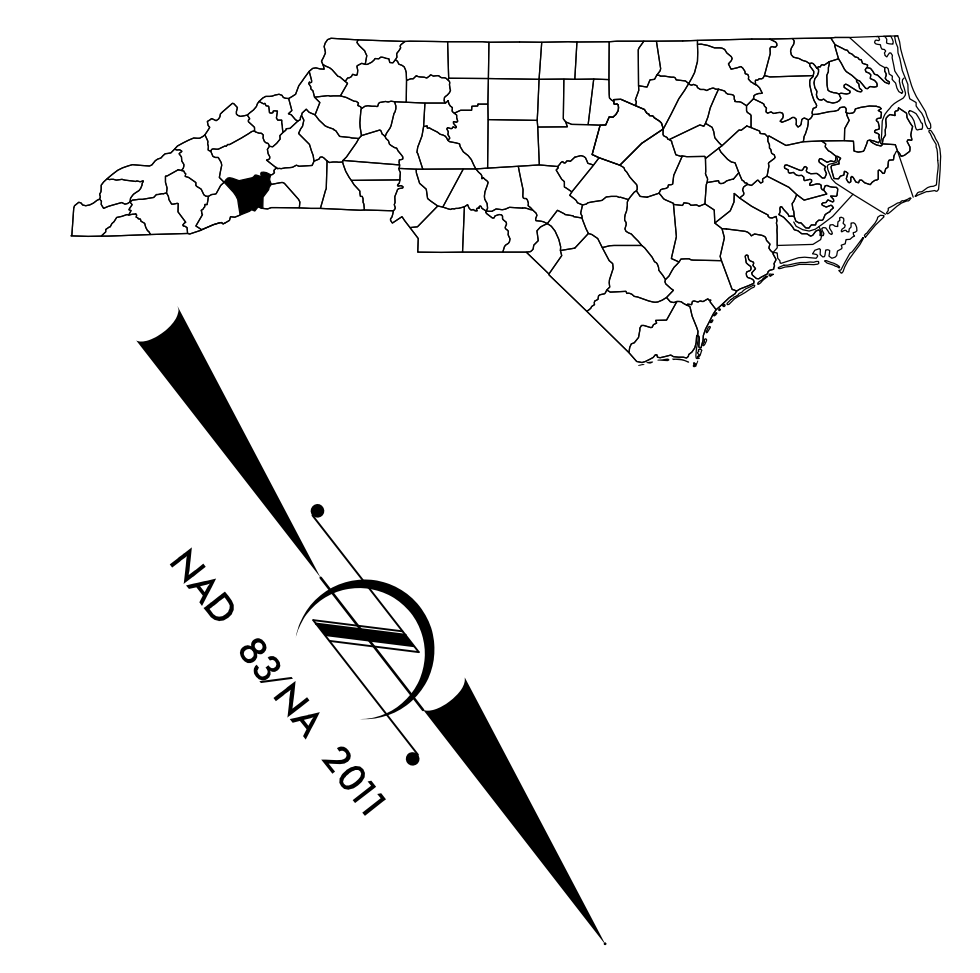
**LOCATION: I-26/US74 OVER GREEN RIVER BETWEEN US25 AND SR1142**

**TYPE OF WORK: GRADING, DRAINAGE, PAVING, WIDENING AND REHABILITATION OF BRIDGE NOS. 440108 AND 440112**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	15BPR.20	1	129
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
15BPR.20	-	P.E.	
15BPR.20	-	CONST.	



NOT TO SCALE



DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

**DESIGN DATA**

ADT 2016 =	39,000
ADT 2038 =	N/A
K =	N/A %
D =	N/A %
T =	N/A %
V =	60 MPH
* TTST N/A	DUAL N/A
FUNC CLASS =	FREWAY
STATEWIDE TIER	

**PROJECT LENGTH**

LENGTH ROADWAY PROJECT 15BPR.20 =	0.534 MILES
LENGTH STRUCTURE PROJECT 15BPR.20 =	0.209 MILES
TOTAL LENGTH PROJECT 15BPR.20 =	0.743 MILES

Prepared in the Office of:  
**AECOM**  
NC FIRM LICENSE No: F-0342  
701 Corporate Center Drive, Suite 475  
Raleigh, NC 27601  
(919) 854-6200 (919) 854-6259(FAX)

2018 STANDARD SPECIFICATIONS

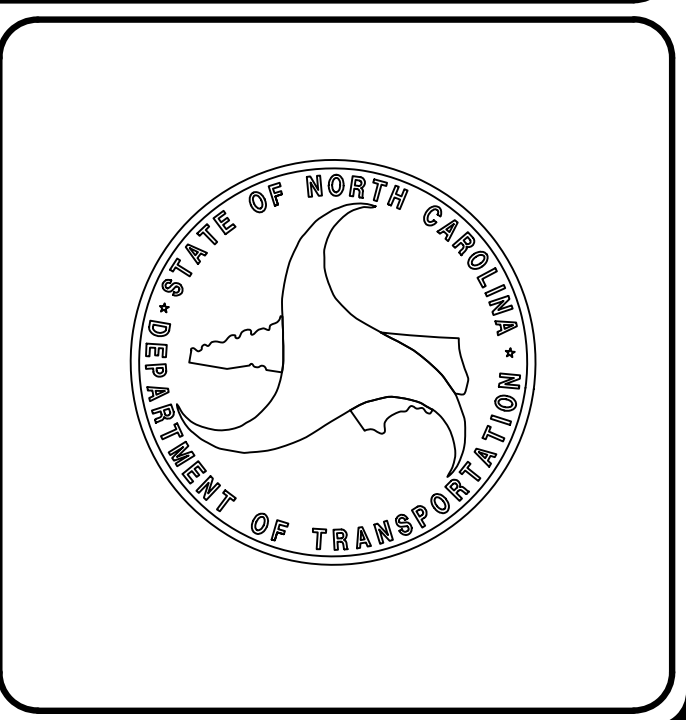
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LETTING DATE:  
MARCH 16, 2021

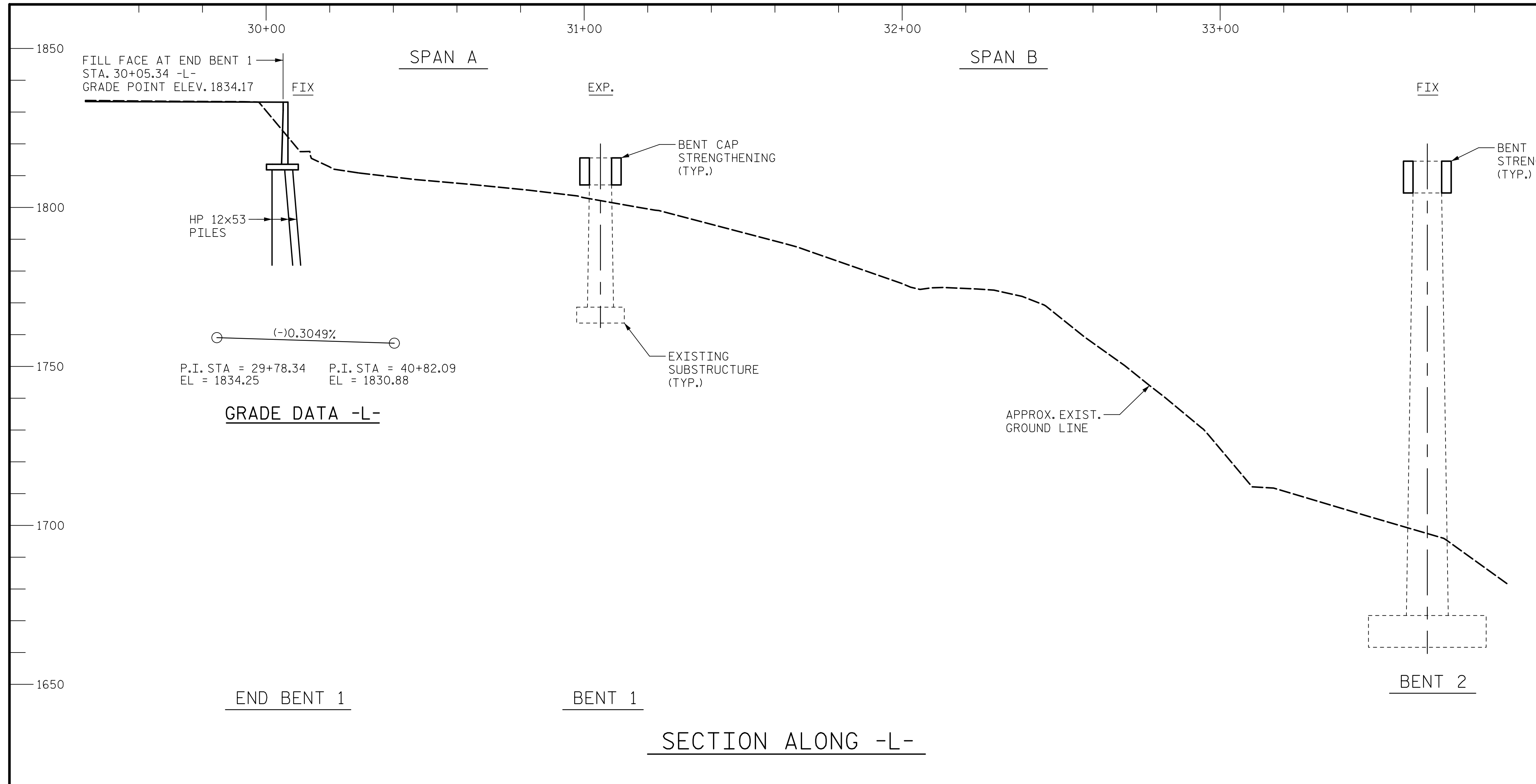
<b>JOHN SLOAN, PE</b> PROJECT MANAGER
<b>NEIL DEAN, PE</b> PROJECT DESIGN ENGINEER
<b>KEVIN FISCHER, PE</b> NCDOT CONTACT

**STRUCTURE DESIGN ENGINEER**

**JOHN SLOAN** P.E.  
SIGNATURE:



DATE: 2/27/2020 TIME: 3:46:00 PM  
USER: MerchAssessm... Drawings\01\_003\_15BPR20\_SMU\_G01.dgn



**LEGEND**

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————	PROPOSED
////	DEMOLITION

**NOTES:**

BENT CAP STRENGTHENING NOT SHOWN IN PLAN VIEW FOR CLARITY.

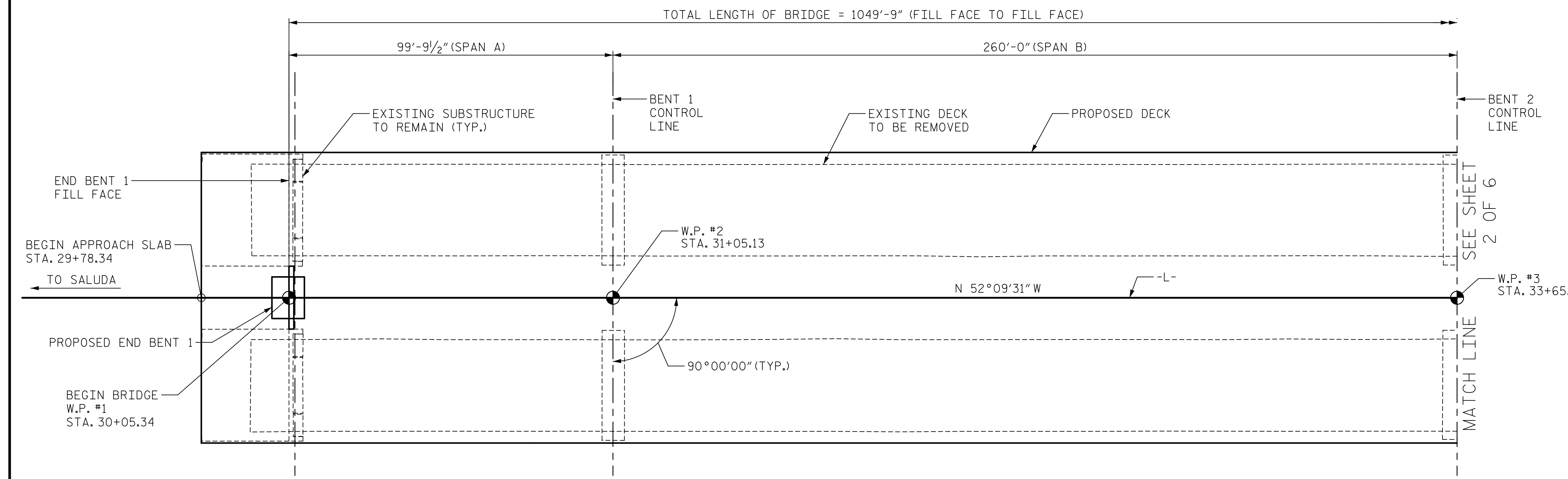
BRIDGE ORIENTATION CONFORMS TO THE ORIGINAL DESIGN PLANS.

**ABBREVIATIONS:**

ADJ	ADJACENT
BRG	BEARING
BT	BENT
CONST	CONSTRUCTION
C	CENTERLINE
CY	CUBIC YARDS
EA	EACH
EB	END BENT
EBL	EASTBOUND LANE
ELEV	ELEVATION
EXIST	EXISTING
EXP	EXPANSION
FCM	FRACTURE CRITICAL MEMBER
FIX	FIXED
FRC	FIBER REINFORCED CONCRETE
GDR	GIRDER
ICT	INTERMEDIATE CONTRACT TIME
JT	JOINT
LF	LINEAR FOOT (FEET)
MIN	MINIMUM
P	PLATE
PPC	POLYESTER POLYMER CONCRETE
PT	POST-TENSIONING
SY	SQUARE YARD(S)
TYP	TYPICAL
WBL	WESTBOUND LANE
WP	WORK POINT

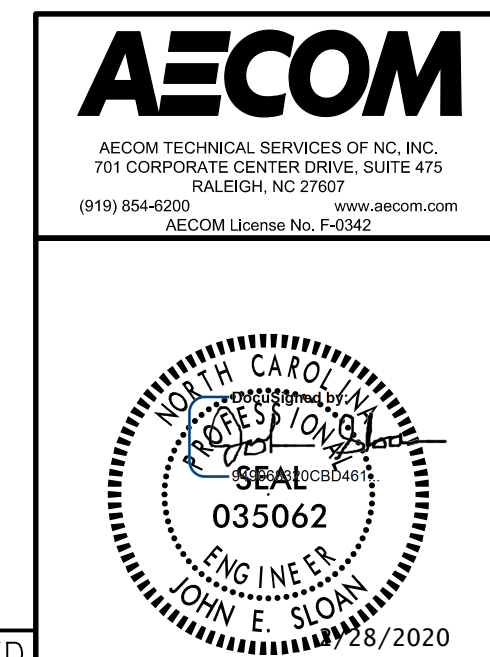
I HEREBY CERTIFY THAT THIS STRUCTURE WAS REHABILITATED ACCORDING TO THESE PLANS OR AS NOTED HEREIN.

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



DRAWN BY : S. STREDNAK	DATE : 11/2018
CHECKED BY : J. SLOAN	DATE : 11/2018
DESIGNED BY : N. BROWN/D. TUTTLE	DATE : 11/2018
DESIGN CHECKED BY : J. SLOAN/J. LIU	DATE : 11/2018

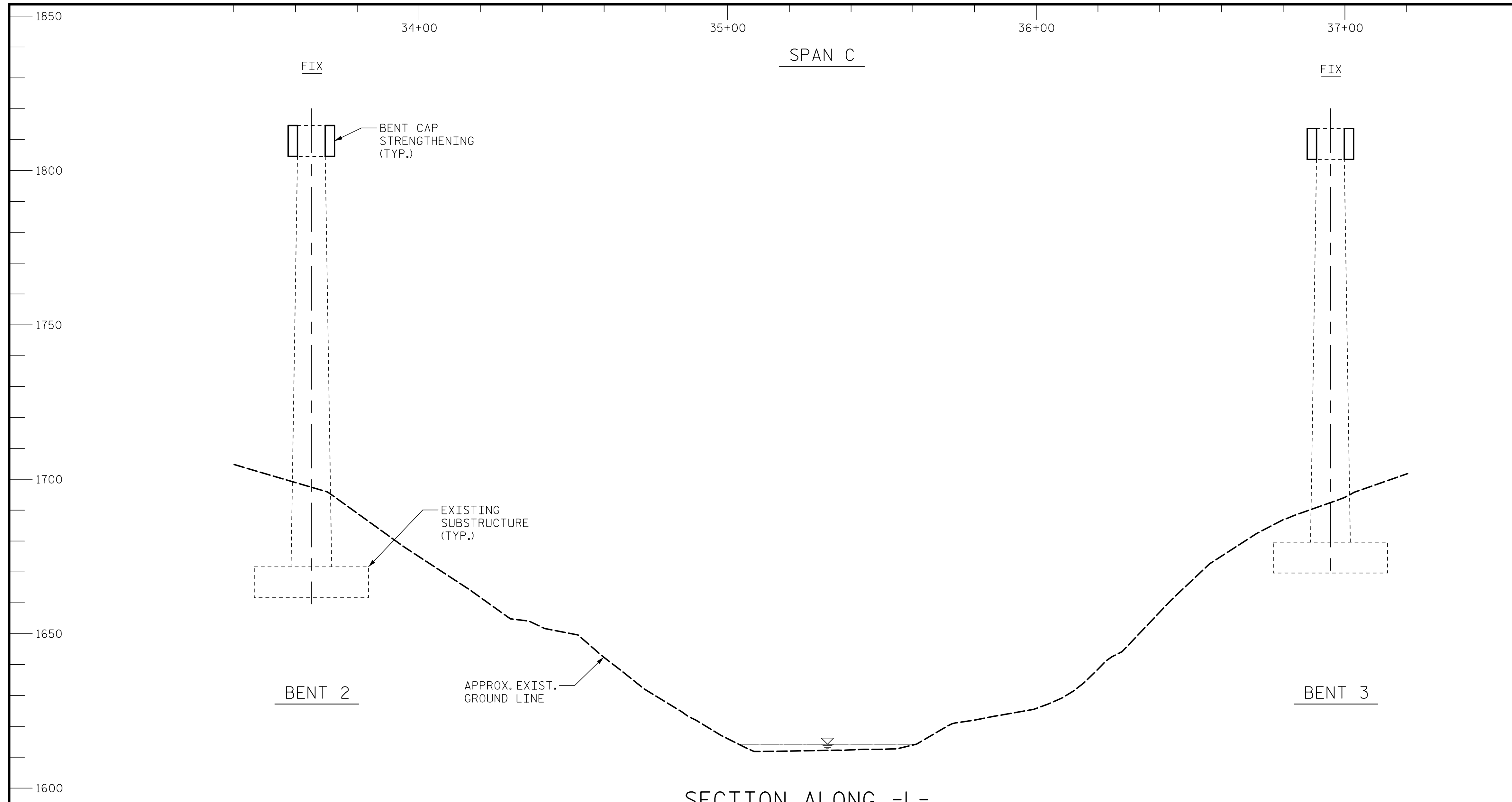
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PROJECT NO. 15BPR.20  
HENDERSON COUNTY  
 STATION: 35+30.22 -L-  
 SHEET 1 OF 6 WIDENING AND REHABILITATION OF BRIDGE NOS. 440108 & 440112

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						
GENERAL DRAWING FOR BRIDGE WIDENING AND REHAB ON I-26/US74 OVER GREEN RIVER BETWEEN US25 AND SR1142						
REVISIONS					SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-2
1			3			TOTAL SHEETS
2			4			129

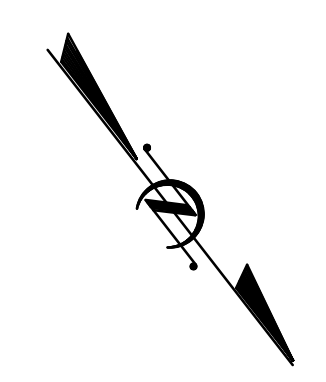
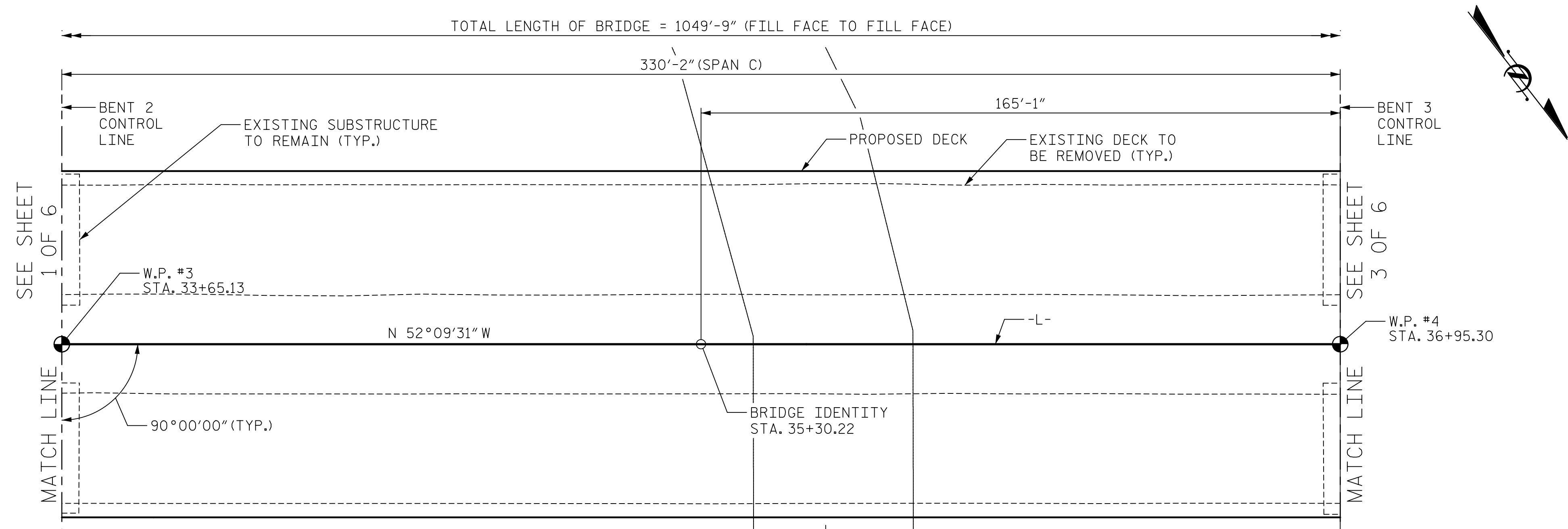
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————	PROPOSED
▨	DEMOLITION

**NOTES:**  
 BENT CAP STRENGTHENING NOT SHOWN IN PLAN VIEW FOR CLARITY.  
 BRIDGE ORIENTATION CONFORMS TO THE ORIGINAL DESIGN PLANS.



DRAWN BY : S. STREDNAK	DATE : 11/2018
CHECKED BY : J. SLOAN	DATE : 11/2018
DESIGNED BY : N. BROWN/D. TUTTLE	DATE : 11/2018
DESIGN CHECKED BY : J. SLOAN/J. LIU	DATE : 11/2018

**PLAN**

GREEN RIVER

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PROJECT NO. 15BPR.20  
HENDERSON COUNTY  
 STATION: 35+30.22 -L-  
 SHEET 2 OF 6 WIDENING AND REHABILITATION OF BRIDGE NOS. 440108 & 440112

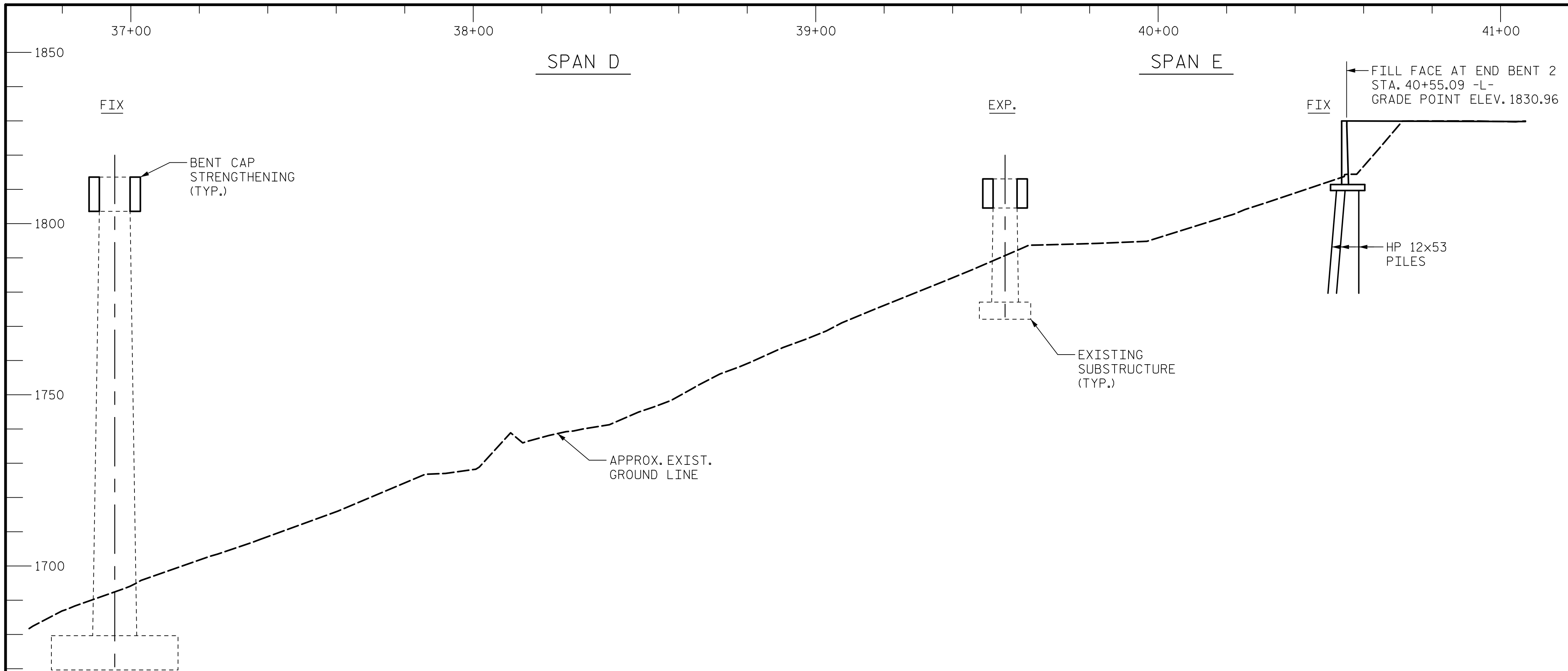


STATE OF NORTH CAROLINA  
**DEPARTMENT OF TRANSPORTATION**  
 RALEIGH

GENERAL DRAWING  
 FOR BRIDGE WIDENING AND REHAB ON I-26/US74 OVER GREEN RIVER BETWEEN US25 AND SR1142

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

USER: ArchResearch  
DGN: R:\Structures\04 Drawings\01\_005\_15BPR\20\_SML\_G02.dgn



**LEGEND**

----- EXISTING  
 \_\_\_\_\_ PROPOSED  
 [Hatched Box] DEMOLITION

**GRADE DATA -L-**

P.I. STA = 29+78.34      P.I. STA = 40+82.09  
 EL = 1834.25      EL = 1830.88

(-0.3049%)

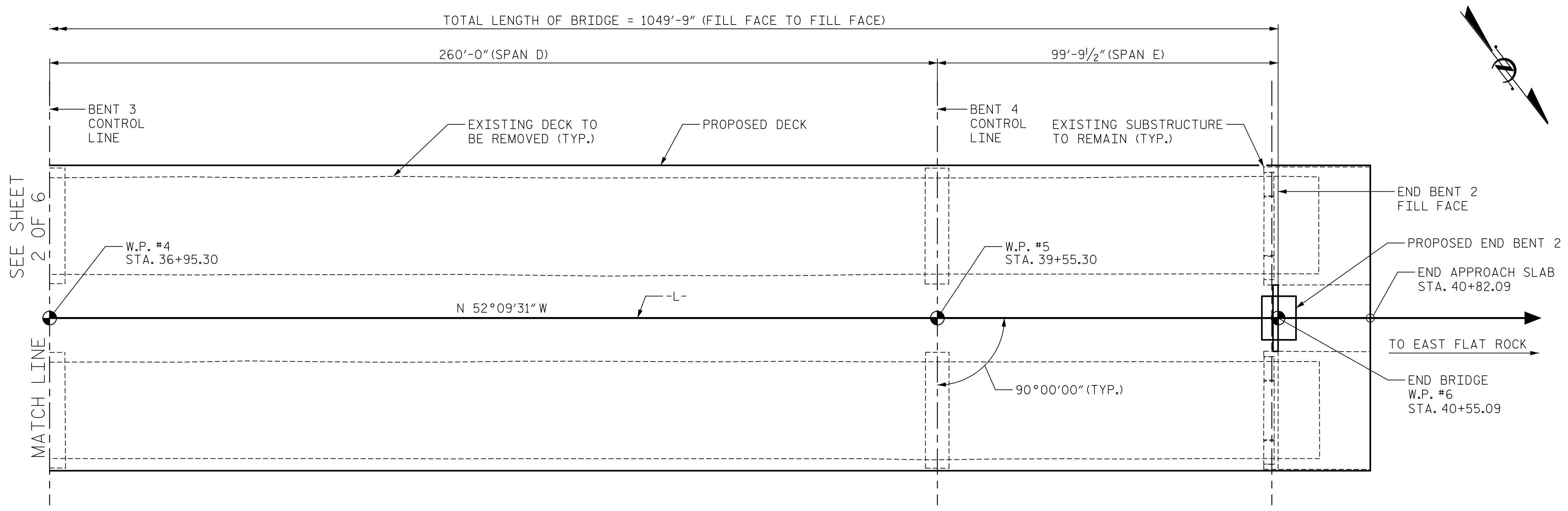
**NOTES:**

BENT CAP STRENGTHENING NOT SHOWN IN PLAN VIEW FOR CLARITY.

BRIDGE ORIENTATION CONFORMS TO THE ORIGINAL DESIGN PLANS.

BENT 3      BENT 4      END BENT 2

**SECTION ALONG -L-**



**PLAN**

PROJECT NO. 15BPR.20  
HENDERSON COUNTY  
 STATION: 35+30.22 -L-  
 WIDENING AND REHABILITATION OF BRIDGE NOS. 440108 & 440112



STATE OF NORTH CAROLINA  
**DEPARTMENT OF TRANSPORTATION**  
 RALEIGH

GENERAL DRAWING  
 FOR BRIDGE WIDENING AND REHAB ON I-26/US74 OVER GREEN RIVER BETWEEN US25 AND SR1142

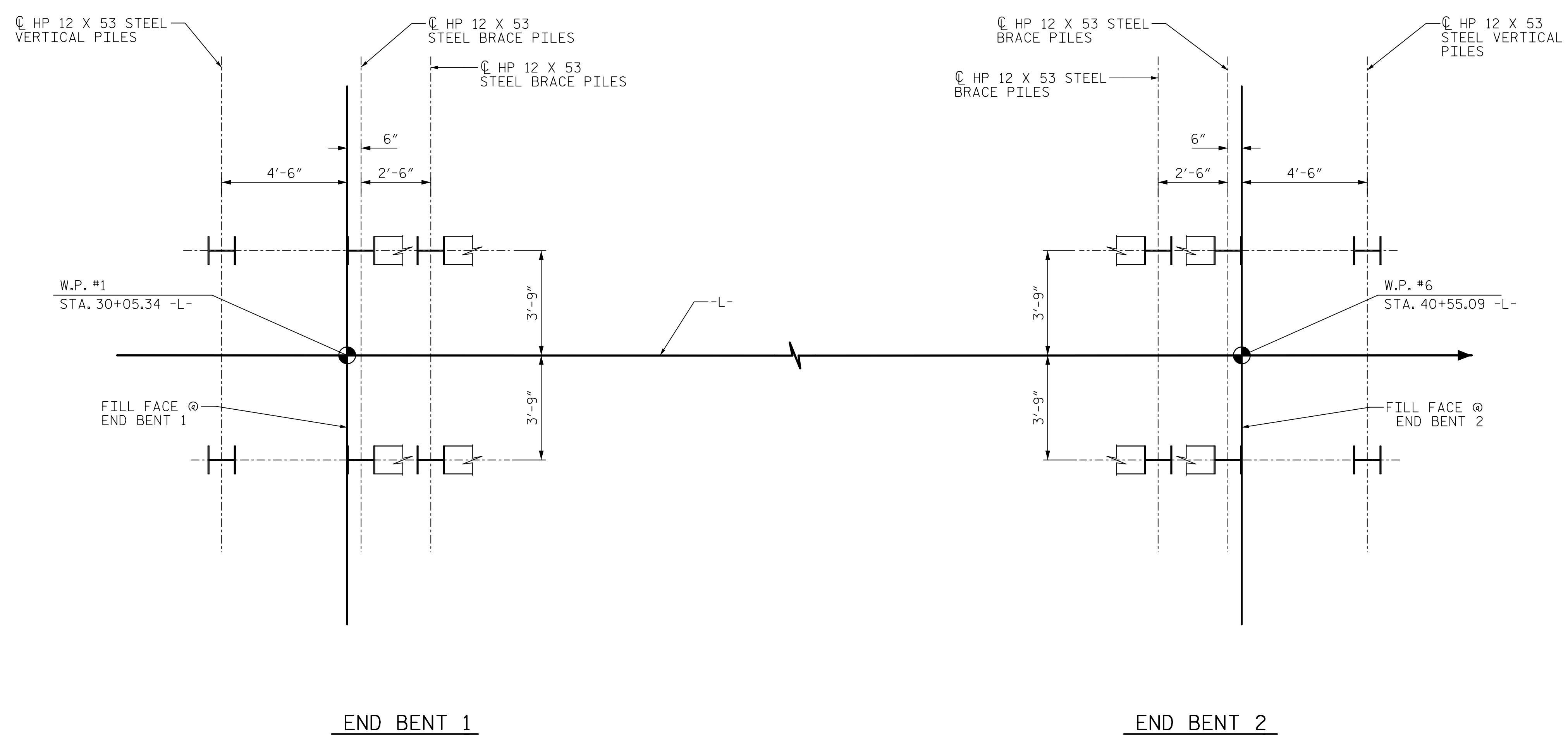
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NO.	BY:	DATE:	NO.	BY:	DATE:	S-4
1			3			TOTAL SHEETS
2			4			129

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DRAWN BY : S. STREDNAK	DATE : 11/2018
CHECKED BY : J. SLOAN	DATE : 11/2018
DESIGNED BY : N. BROWN/D. TUTTLE	DATE : 11/2018
DESIGN CHECKED BY : J. SLOAN/J. LIU	DATE : 11/2018

USER: MeritAssessm... Drawings\01\_007\_15BPR.20\_SMU\_603.dgn

DATE: 2/27/2020  
TIME: 3:46:53 PM



### FOUNDATION LAYOUT

DIMENSIONS LOCATING END BENT PILES ARE SHOWN TO CENTERLINE PILES.  
EXISTING PILES IN ADJACENT END BENTS NOT SHOWN.  
BRACE PILES ARE TO BE BATTERED AT 3:12.

### FOUNDATION NOTES

FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.  
PILES AT END BENT No. 1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 75 TONS PER PILE.  
DRIVE PILES AT END BENT No. 1 TO A REQUIRED DRIVING RESISTANCE OF 125 TONS PER PILE.  
DRILLED-IN PILES MAYBE REQUIRED FOR END BENT No. 1. EXCAVATE HOLES AT PILE LOCATIONS TO ELEVATION 1803.0 FT. FOR PILE EXCAVATION, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.  
PILES AT END BENT No. 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 75 TONS PER PILE.  
DRIVE PILES AT END BENT No. 2 TO A REQUIRED DRIVING RESISTANCE OF 125 TONS PER PILE.  
DRILLED-IN PILES ARE REQUIRED FOR END BENT No. 2 EXCAVATE HOLES AT PILE LOCATIONS TO ELEVATION 1800 FT. FOR PILE EXCAVATION, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.  
STEEL H-PILE POINTS ARE REQUIRED FOR STEEL H-PILES AT END BENT Nos. 1 AND 2. FOR STEEL PILE POINTS, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.  
IF DRILLED IN PILES ARE REQUIRED, CONCRETE IS REQUIRED TO FILL HOLES FOR PILE EXCAVATION AT END BENT Nos. 1 AND 2.

PROJECT NO. 15BPR.20  
HENDERSON COUNTY  
STATION: 35+30.22 -L-

SHEET 4 OF 6



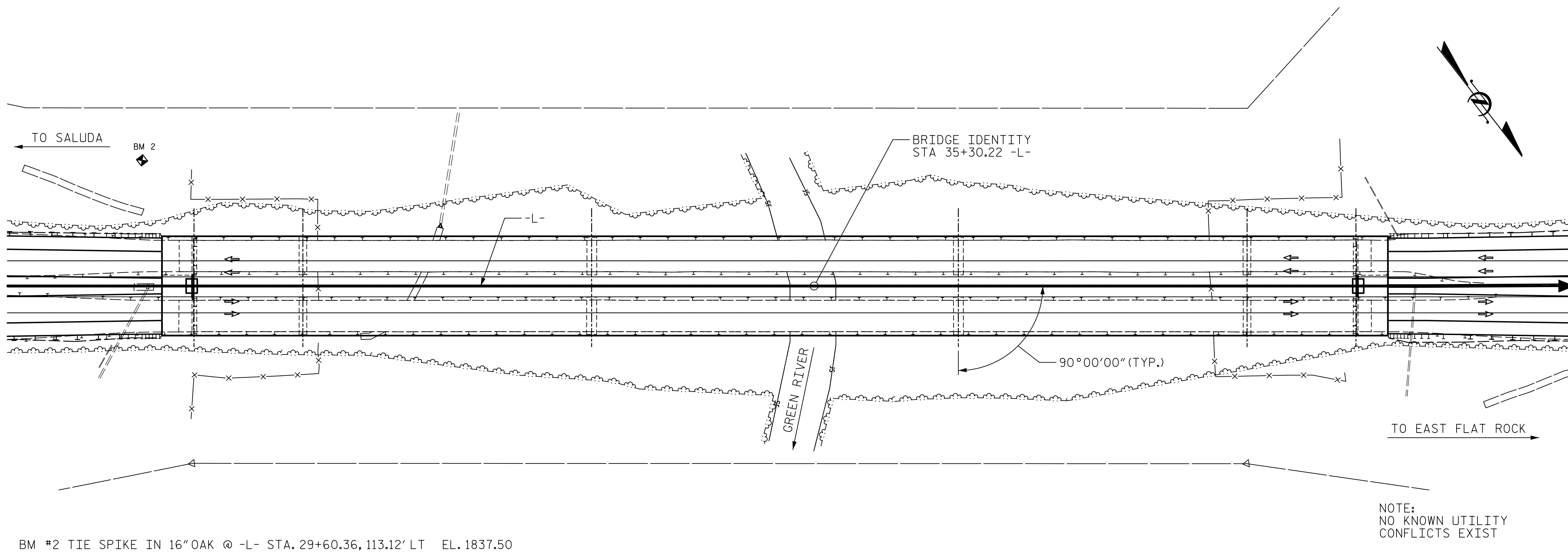
STATE OF NORTH CAROLINA  
**DEPARTMENT OF TRANSPORTATION**  
RALEIGH  
  
GENERAL DRAWING  
FOR BRIDGE WIDENING AND  
REHAB ON I-26/US74  
OVER GREEN RIVER  
BETWEEN US25 AND SR1142

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5
1			3			TOTAL SHEETS
2			4			129

DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED

DRAWN BY : K.M. DONALD	DATE : 02/2019
CHECKED BY : G.R. COLS	DATE : 02/2019
DESIGNED BY : K.M. DONALD	DATE : 01/2019
DESIGN CHECKED BY : G.R. COLS	DATE : 01/2019

USER: \\ncrs\resourced\don\_k\Structurals\04\_Drawings\01\_009\_15BPR.20\_SMU\_FL.dgn



BM #2 TIE SPIKE IN 16" OAK @ -L- STA. 29+60.36, 113.12' LT EL. 1837.50

NOTE:  
NO KNOWN UTILITY  
CONFLICTS EXIST

### LOCATION SKETCH

### GENERAL SCOPE OF WORK

THIS SCOPE OF WORK IS NOT LISTED IN CHRONOLOGICAL ORDER. FOR DEMOLITION AND CONSTRUCTION SEQUENCE, SEE DEMOLITION AND CONSTRUCTION SEQUENCE SHEETS.

REHABILITATE AND STRENGTHEN THE EXISTING GIRDERS. PERFORM STEEL REPAIRS. ADD COVER PLATES, SPLICE PLATES, AND TRANSVERSE STIFFENERS.

REHABILITATE THE EXISTING BEARINGS AT BENTS 1 AND 4.

CONSTRUCT NEW END BENT SEGMENTS BETWEEN THE EXISTING END BENTS AT BOTH ENDS OF THE BRIDGE. INSTALL PILES, CONCRETE PILE FOOTINGS, AND END BENT WALLS.

INSTALL EXTERNAL POST-TENSIONING AT THE BENTS TO STRENGTHEN THE EXISTING BENT CAPS.

CONNECT THE EXISTING BRIDGES TOGETHER WITH PROPOSED DIAPHRAGMS IN BAY 2. INSTALL NEW STRINGERS IN BAY 2.

DEMOLISH THE EXISTING BRIDGE DECK AND APPROACH SLAB IN STAGES. INSTALL NEW SHEAR STUDS TO THE EXISTING GIRDER TOP FLANGES.

INSTALL THE PROPOSED BRIDGE DECK, FULLY COMPOSITE WITH THE EXISTING GIRDERS. INSTALL NEW APPROACH SLABS. INSTALL PERMANENT BARRIER RAILS AT THE OVERHANG AND THE MEDIAN.

INSTALL A PPC OVERLAY OVER THE PROPOSED BRIDGE DECK AND APPROACH SLABS.

PARTIALLY COAT THE GIRDERS AS SHOWN IN THE PLANS. COAT THE BEARINGS AT BENTS 1 AND 4 EXPANSION JOINTS. COAT BENTS 1 AND 4. COAT THE BASE OF BENTS 2 AND 3.

APPLY SILANE TREATMENT TO EXISTING EXPOSED PORTIONS OF END BENTS.

FOR FURTHER DETAILS, SEE PLANS, SPECIAL PROVISIONS, AND PAY ITEMS.

### GENERAL NOTES:

ASSUMED LIVE LOAD ON THE COMPLETED BRIDGE = SIX LANES HL-93 OR ALTERNATE LOADING.

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

THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.

THIS BRIDGE SHALL BE CONSTRUCTED USING TOP-DOWN CONSTRUCTION METHODS. THE USE OF A TEMPORARY CAUSEWAY OR WORK BRIDGE IS NOT PERMITTED.

NO HYDRAULIC ANALYSIS HAS BEEN PERFORMED FOR THE GREEN RIVER AND NO HYDRAULIC DATA IS SHOWN.

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

EXISTING DIMENSIONS AND BRIDGE CONDITION ARE FROM THE BEST INFORMATION AVAILABLE AND ARE SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR. 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 OF TRANSPORTATION OR AECOM FOR ANY DELAYS OR ADDITIONAL COSTS INCURRED BASED ON DIFFERENCES BETWEEN THAT SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

THE CONTRACTOR SHALL FIELD VERIFY STATIONS, DIMENSIONS, AND ELEVATIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

REHABILITATION OF THE EXISTING BRIDGE SHALL BE PERFORMED IN A MANNER THAT PREVENTS DEBRIS FROM FALLING INTO THE WATER OR THE SURROUNDING GROUND. THE CONTRACTOR SHALL SUBMIT DEMOLITION PLANS FOR ANY DEMOLITION WORK IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.

ALL DIMENSIONS ARE FOR THE STRUCTURE AT A TEMPERATURE OF 60 DEGREES FAHRENHEIT. INSTALLATION OF JOINTS AND REHABILITATION OF BEARINGS SHALL BE PERFORMED AT A TEMPERATURE BETWEEN 40 AND 90 DEGREES FAHRENHEIT. THE CONTRACTOR SHALL MAKE ADJUSTMENTS AS DIRECTED BY THE ENGINEER FOR INSTALLATION AT TEMPERATURES OTHER THAN 60 DEGREES. SUCH ADJUSTMENTS OR PROCEDURES SHALL BE INDICATED IN ALL WORKING DRAWING SUBMITTALS.

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

FOR CLEANING AND PAINTING OF EXISTING WEATHERING STEEL AND PAINTING CONTAINMENT, SEE SPECIAL PROVISIONS.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF THE BRIDGE FROM THE DATE OF AVAILABILITY UNTIL THE COMPLETION OF THE CONTRACT.

THE CONCRETE IN THE BRIDGE DECK SHALL CONTAIN FLY ASH OR GROUND GRANULATED BLAST FURNACE SLAG AT THE SUBSTITUTION RATE SPECIFIED IN ARTICLE 1024-1 AND IN ACCORDANCE WITH ARTICLES 1024-5 AND 1024-6 OF THE STANDARD SPECIFICATIONS. NO PAYMENT WILL BE MADE FOR THIS SUBSTITUTION AS IT IS CONSIDERED INCIDENTAL TO THE COST OF THE REINFORCED CONCRETE DECK SLAB.

CONTRACTOR SHALL USE EXCLUDER PLATES AT STAY IN PLACE FORMS IN SPANS B THRU D TO PREVENT CONCRETE FROM FILLING THE FORM TROUGHS.

CONTRACTOR SHALL TIE THE BRIDGE DECK IN ACCORDANCE WITH SECTION 710-6 OF THE STANDARD SPECIFICATIONS.

DECK CONCRETE IN SPANS A, E, AND INTEGRAL APPROACH SLABS SHALL BE CLASS AA.

DECK CONCRETE IN SPANS B THRU D AND BARRIER RAIL CONCRETE IN ALL SPANS SHALL BE ALL LIGHTWEIGHT. FOR DETAILS, SEE SPECIAL PROVISIONS. THE MAXIMUM PLASTIC DENSITY SHALL BE 105 PCF AND THE MAXIMUM HARDENED DENSITY SHALL BE 100 PCF.

ALL LIGHT WEIGHT DECK CONCRETE IN SPANS B-D SHALL CONTAIN 4.0 LBS/CY OF POLYOLEFIN MACROFIBERS. FOR DETAILS, SEE SPECIAL PROVISIONS.

FLOORBEAMS IN BAY 2 AND FLOORBEAM RETROFITS IN BAYS 1 AND 3 ARE FRACTURE CRITICAL AND SHALL BE FABRICATED IN ACCORDANCE WITH AASHTO/AWS D1.5. THESE FLOORBEAMS SHALL BE ASTM A709 HPS 50W.

ALL SHAPES (EXCEPT FLOORBEAMS) AND PLATES SHALL BE AASHTO M270 GRADE 50W.

ALL BOLTS SHALL BE 7/8" DIAMETER ASTM F3125 GRADE 325 WITH STANDARD HOLES, UNLESS NOTED OTHERWISE.

CONTRACTOR SHALL DEMOLISH THE EXISTING STRUCTURE USING CLEAN SAW CUTS. MECHANICAL CLAWS AND JACKHAMMERS SHALL NOT BE UTILIZED UNLESS SPECIFICALLY AUTHORIZED.

CONTRACTOR MAY NOT WELD TO THE EXISTING STRUCTURAL STEEL UNLESS SPECIFICALLY DIRECTED.

THE CONTRACTOR'S ATTENTION IS DRAWN TO THE FACT THAT THE DISTANCES BETWEEN GIRDERS 2 AND 3 WERE MEASURED DURING THE FIELD INSPECTION IN DECEMBER, 2018. THE DISTANCE BETWEEN FACES OF GIRDER WEBS WAS MEASURED TO BE A MAXIMUM OF 30'-1 3/8" AND A MINIMUM OF 29'-9 1/8". ALL DIMENSIONS SHOWN ON THE PROPOSED REHABILITATION PLANS ARE BASED ON THE THEORETICAL BRIDGE GEOMETRY SHOWN IN THE ORIGINAL PLANS. CONTRACTOR SHALL FIELD MEASURE THE STRUCTURE AND DEVELOP THE GEOMETRY OF THE PROPOSED MEMBERS BASED ON THE ACTUAL FIELD DIMENSIONS OF THE BRIDGE, WITH THE APPROVAL OF THE ENGINEER.

MECHANICAL SPLICES SHALL DEVELOP 1.25 TIMES THE YIELD STRENGTH OF THE BARS THAT ARE LPTED. USE MECHANICAL SPLICES THAT ARE APPROVED BY THE NCDOT MATERIALS AND TESTS UNIT.

THE FOLLOWING NOTES APPLY TO THE DRILLING AND GROUTING OF DOWEL REINFORCEMENT INTO THE EXISTING STRUCTURE:

USE NCDOT APPROVED MATERIAL.

CLEANING OF HOLES, HOLE SIZE, AND INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S LITERATURE.

USE GROUT AND DEVELOPMENT LENGTH THAT DEVELOPS 1.25 TIMES THE YIELD STRENGTH OF THE BAR.

USE GROUND PENETRATING RADAR TO LOCATE EXISTING REINFORCEMENT PRIOR TO DRILLING HOLES. LOCATION OF BARS SHALL BE ADJUSTED SLIGHTLY IF REQUIRED TO AVOID EXISTING REINFORCEMENT.

ALL TEMPORARY CONCRETE BARRIERS ON THE BRIDGE SHALL BE ANCHORED TO THE DECK. FOR DETAILS, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

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

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR PPC MATERIALS AND PLACING & FINISHING PPC OVERLAY, SEE POLYESTER POLYMER CONCRETE OVERLAY SPECIAL PROVISIONS.

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

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

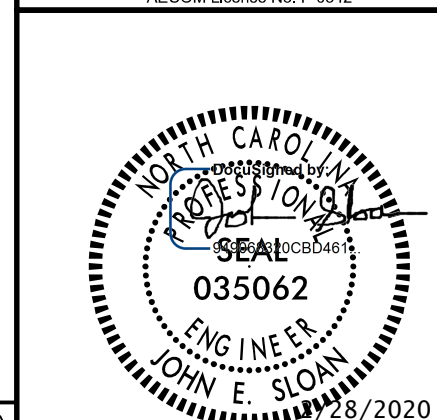
AT ALL LOCATIONS WHERE NEW STEEL IS INSTALLED, ALL MATING SURFACES SHALL BE CLEANED TO MEET SSPC SP-6 CRITERIA.

PROJECT NO. 15BPR.20

HENDERSON COUNTY

STATION: 35+30.22 -L-

WIDENING AND REHABILITATION  
SHEET 5 OF 6 OF BRIDGE NOS. 440108 & 440112



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

GENERAL DRAWING  
FOR BRIDGE WIDENING AND  
REHAB ON I-26/US74  
OVER GREEN RIVER  
BETWEEN US25 AND SR1142

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-6
1			3			TOTAL SHEETS
2			4			129

DOCUMENT NOT CONSIDERED  
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SIGNATURES COMPLETED

DRAWN BY : S. STREDNAK	DATE : 11/2018
CHECKED BY : J. SLOAN	DATE : 11/2018
DESIGNED BY : N. BROWN/D. TUTTLE	DATE : 11/2018
DESIGN CHECKED BY : J. SLOAN/J. LIU	DATE : 11/2018

DATE: 8/27/2020 TIME: 3:46:41 PM  
USER: Merch Research, Drawings\01\_0116BPR.20\_SML\_GD4.dgn

DATE: 3/2/2021  
TIME: 2:26:50 PM

### TOTAL BILL OF MATERIAL

	REMOVAL OF EXISTING STRUCTURES AT STA. 35+30.22 -L-	ASBESTOS ASSESSMENT	FOUNDATION EXCAVATION FOR END BENT 1 AT STA. 35+30.22 -L-	FOUNDATION EXCAVATION FOR END BENT 2 AT STA. 35+30.22 -L-	PILE EXCAVATION IN SOIL	PILE EXCAVATION NOT IN SOIL	REINFORCED CONCRETE DECK SLAB	GROOVING BRIDGE FLOORS	CLASS A CONCRETE	REINFORCING STEEL	APPROX 1,087,000 LBS. STRUCTURAL STEEL	CLEANING AND PAINTING EXISTING WEATHERING STEEL	POLLUTION CONTROL	PILE DRIVING EQUIPMENT SETUP FOR HP12X53 STEEL PILES	HP12X53 STEEL PILES	STEEL PILE POINTS
	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM	LF.	LF.	SQ. FT.	SQ. FT.	CU. YD.	LBS.	LUMP SUM	LUMP SUM	LUMP SUM	EA.	LIN. FT.	EA.
SUPERSTRUCTURE							23,357	85,495								
END BENT 1					48	12			26	3,608				6	150	6
BENT 1																
BENT 2																
BENT 3																
BENT 4																
END BENT 2					54	6			26	3,608				6	90	6
REHABILITATION																
TOTAL	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM	102	18	23,357	85,495	52	7,216	LUMP SUM	LUMP SUM	LUMP SUM	12	240	12

### TOTAL BILL OF MATERIAL

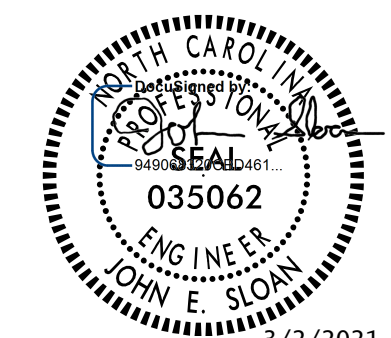
	CONCRETE BARRIER RAIL (ALL-LIGHT WEIGHT CONCRETE)	CONCRETE MEDIAN BARRIER (ALL-LIGHT WEIGHT CONCRETE)	MOLDED RUBBER SEGMENTAL EXPANSION JOINTS	PAINTING CONTAINMENT	POST-TENSIONING BARS	POST-TENSIONING ANCHORAGE	ACCESS & FALL PROTECTION	POLYESTER POLYMER CONCRETE MATERIALS	PLACING AND FINISHING POLYESTER POLYMER CONCRETE OVERLAY	FIBER REINFORCED CONCRETE DECK SLAB (ALL-LIGHTWEIGHT CONCRETE)	SILANE TREATMENTS	SURFACE PREPARATION FOR SILANE
	LIN. FT.	LIN. FT.	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM	CU. YDS.	SQ. YDS.	SQ. FT.	SQ. FT.	SQ. FT.
SUPERSTRUCTURE	2,207.50	1,097.25						285	10,250	75,343		
END BENT 1											1,900	1,900
BENT 1												
BENT 2												
BENT 3												
BENT 4												
END BENT 2											1,900	1,900
REHABILITATION												
TOTAL	2,207.50	1,097.25	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM	285	10,250	75,343	3,800	3,800

### TOTAL BILL OF MATERIAL

	BEARING REPAIRS	GUSSET PLATE RETROFIT	WELD REPAIR (W1)	WELD REPAIR (W2)	WELD REPAIR (W3)	WELD REPAIR (W4)	HOLE REPAIR (TYPE I)	HOLE REPAIR (TYPE II)	HOLE REPAIR (TYPE III)	PACK RUST REPAIR (TYPE I)	PACK RUST REPAIR (TYPE II)	SHOTBLASTING BRIDGE DECK	BRIDGE WASHING
	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM	EA.	EA.	EA.	EA.	EA.	SQ. YDS.	EA.
SUPERSTRUCTURE												10,250	30
END BENT 1													
BENT 1													
BENT 2													
BENT 3													
BENT 4													
END BENT 2													
REHABILITATION							5	12	3	1	17	6	
TOTAL	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM	5	12	3	1	17	6	10,250 30

PROJECT NO. 15BPR.20  
HENDERSON COUNTY  
 STATION: 35+30.22 -L-

SHEET 6 OF 6



STATE OF NORTH CAROLINA  
**DEPARTMENT OF TRANSPORTATION**  
 RALEIGH

GENERAL DRAWING  
 FOR BRIDGE WIDENING AND  
 REHAB ON I-26/US74  
 OVER GREEN RIVER  
 BETWEEN US25 AND SR1142

DRAWN BY : H. ROSEMOND      DATE : 02/2020  
 CHECKED BY : J. E. SLOAN      DATE : 02/2020  
 DESIGNED BY : G. COLS      DATE : 02/2020  
 DESIGN CHECKED BY : J. E. SLOAN      DATE : 02/2020

DOCUMENT NOT CONSIDERED  
 FINAL UNLESS ALL  
 SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-7
1			3			TOTAL SHEETS
2			4			129

USER: p100004 R:\Structures\04 Drawings\01\_013\_15BPR.20\_SML\605.dgn

DATE: 2/27/2020  
TIME: 3:46:57 PM

LOAD AND RESISTANCE FACTOR RATING (LRFR) SUMMARY FOR STEEL GIRDERS																								
LEVEL	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING #	MINIMUM RATING FACTORS (RF)	TONS = W x RF	STRENGTH I LIMIT STATE										SERVICE II LIMIT STATE					COMMENT NUMBER			
						MOMENT					SHEAR					MOMENT								
						LIVE-LOAD FACTORS (γ <sub>LL</sub> )	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	LIVE-LOAD FACTORS (γ <sub>LL</sub> )	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN		GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD RATING	HL-93 (INVENTORY)	N/A	①	1.25	--	1.75	FEM	1.25	B	I	258.18	FEM	4.26	B	I	0.000	1.30	FEM	2.85	B	I	104.16		
	HL-93 (OPERATING)	N/A		1.62	--	1.35	FEM	1.62	B	I	258.18	FEM	5.52	C	I	387.958	1.00	FEM	3.71	B	I	104.16		
	HS-20 (INVENTORY)	36.000	②	3.51	126.252	1.75	FEM	3.51	B	I	205.98	FEM	7.66	B	I	0.250	1.30	FEM	5.31	B	I	104.16		
	HS-20 (OPERATING)	36.000		4.55	163.820	1.35	FEM	4.55	B	I	205.98	FEM	9.93	B	I	0.250	1.00	FEM	6.90	B	I	104.16		
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SH		4.79	59.834	1.40	FEM	4.79	B	I	258.18	FEM	16.00	C	I	387.958	1.30	FEM	8.48	B	I	104.16		
		S3C	21.500		3.67	78.964	1.40	FEM	3.67	B	I	258.18	FEM	11.08	C	I	493.288	1.30	FEM	5.75	B	I	104.16	
		S3A	22.750		3.78	86.058	1.40	FEM	3.78	B	I	258.18	FEM	11.52	C	I	493.288	1.30	FEM	5.99	B	I	104.16	
		S4A	26.750		3.37	90.058	1.40	FEM	3.37	B	I	258.18	FEM	9.95	C	I	493.288	1.30	FEM	5.17	B	I	104.16	
		S5A	30.500		3.13	109.208	1.40	FEM	3.13	B	I	258.18	FEM	9.05	B	I	0.250	1.30	FEM	4.68	B	I	104.16	
	TRUCK TRACTOR SEMI-TRAILER (TTST)	S6A	34.500		2.90	103.177	1.40	FEM	2.90	B	I	258.18	FEM	8.26	B	I	0.250	1.30	FEM	4.28	B	I	104.16	
		S7B	38.500		2.65	105.904	1.40	FEM	2.65	B	I	258.18	FEM	7.60	C	I	493.288	1.30	FEM	3.85	B	I	104.16	
		S7A	40.000		2.71	113.727	1.40	FEM	2.71	B	I	258.18	FEM	7.64	B	I	0.250	1.30	FEM	3.94	B	I	104.16	
		T4A	28.250		3.27	107.864	1.40	FEM	3.27	B	I	258.18	FEM	9.68	C	I	493.288	1.30	FEM	5.00	B	I	104.16	
		T5B	32.000		3.04	100.620	1.40	FEM	3.04	B	I	258.18	FEM	8.86	C	I	493.288	1.30	FEM	4.54	B	I	104.16	
	T6A	36.000		2.83	117.692	1.40	FEM	2.83	B	I	258.18	FEM	8.19	C	I	493.288	1.30	FEM	4.18	B	I	104.16		
	T7A	40.000		2.65	106.037	1.40	FEM	2.65	B	I	258.18	FEM	7.64	C	I	493.288	1.30	FEM	3.87	B	I	104.16		
	T7B	40.000		2.66	106.316	1.40	FEM	2.66	B	I	258.18	FEM	7.61	C	I	493.288	1.30	FEM	3.92	B	I	104.16		
FATIGUE	HL-93 (INVENTORY)	γ <sub>LL</sub> =0.80	③	2.18																				

**LOAD FACTORS:**

DESIGN LOAD RATING FACTORS	LIMIT STATE	γ <sub>DC</sub>	γ <sub>DW</sub>
	STRENGTH I	1.25	1.50
	SERVICE II	1.00	1.00

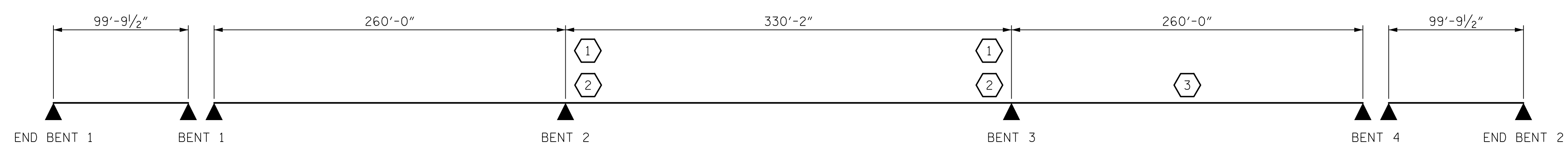
**NOTES:**

MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE II LIMIT STATES.  
ALLOWABLE STRESS FOR SERVICE II LIMIT STATE ARE AS REQUIRED FOR DESIGN.

**COMMENTS:**

- LOAD RATING INCLUDES 1" PPC OVERLAY.
- 
- 
- 

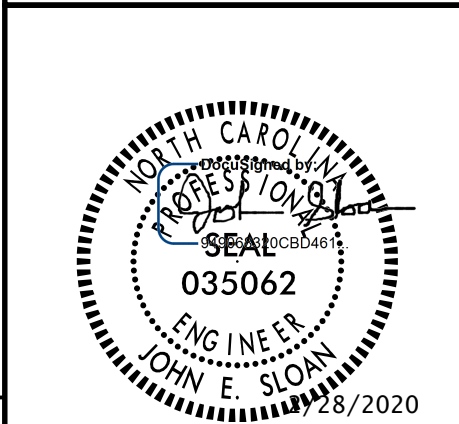
① CONTROLLING LOAD RATING	GIRDER LOCATION
① DESIGN LOAD RATING (HL-93)	I - INTERIOR GIRDER EL - EXTERIOR LEFT GIRDER ER - EXTERIOR RIGHT GIRDER
② DESIGN LOAD RATING (HS-20)	
③ LEGAL LOAD RATING **	
** SEE CHART FOR VEHICLE TYPE	



LRFR SUMMARY

PROJECT NO. 15BPR.20  
HENDERSON COUNTY  
 STATION: 35+30.22 -L-

SHEET 1 OF 3



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE  
 LRFR SUMMARY FOR  
 STEEL GIRDERS  
 (INTERSTATE TRAFFIC)

ASSEMBLED BY : N. BROWN DATE : 04/2019  
 CHECKED BY : J. LIU/J. SLOAN DATE : 04/2019  
 DRAWN BY : MAA 1/08 REV. 11/12/08RRR MAA/GM  
 CHECKED BY : GM/DI 2/08 REV. 10/1/11 MAA/GM  
 REV. 12/17 MAA/THC

DOCUMENT NOT CONSIDERED  
 FINAL UNLESS ALL  
 SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-8
1			3			TOTAL SHEETS
2			4			129

USER: Merch Research  
 DGN: R:\Structures\04 Drawings\01\_015\_15BPR20\_SML\_LRFR1.dgn



## LOAD AND RESISTANCE FACTOR RATING (LRFR) SUMMARY FOR STEEL FLOOR BEAMS

LEVEL	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING #	MINIMUM RATING FACTORS (RF)	TONS = W x RF	STRENGTH I LIMIT STATE															SERVICE II LIMIT STATE					COMMENT NUMBER			
						MOMENT					SHEAR					AXIAL					MOMENT								
						LIVE-LOAD FACTORS (γ <sub>LL</sub> )	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	BAY LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	BAY LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	BAY LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	LIVE-LOAD FACTORS (γ <sub>LL</sub> )	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN		BAY LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD RATING	HL-93 (INVENTORY)	N/A	①	1.43	--	1.75	FEM	1.73	C	1	188.66	FEM	3.81	C	2	165.08	FEM	1.43	C	2	188.66	1.30	FEM	2.21	C	3	188.66		
	HL-93 (OPERATING)	N/A		1.70	--	1.35	FEM	2.24	C	2	165.08	FEM	4.94	C	2	165.08	FEM	1.70	C	2	165.08	1.00	FEM	3.01	B	3	212.25		
	HS-20 (INVENTORY)	36.000	②	1.45	52,156	1.75	FEM	1.89	C	2	165.08	FEM	3.81	C	2	165.08	FEM	1.45	C	2	165.08	1.30	FEM	2.86	C	3	188.66		
	HS-20 (OPERATING)	36.000		2.06	74,019	1.35	FEM	3.06	C	3	188.66	FEM	6.43	B	2	94.33	FEM	2.06	C	2	165.08	1.00	FEM	3.90	C	3	188.66		
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SH		2.65	33,064	1.40	FEM	5.33	C	1	188.66	FEM	11.07	B	2	0.00	FEM	2.65	C	2	165.08	1.30	FEM	5.45	C	3	188.66		
		S3C		2.23	48,040	1.40	FEM	3.46	C	1	188.66	FEM	7.08	B	2	0.00	FEM	2.23	C	2	165.08	1.30	FEM	3.53	C	3	188.66		
		S3A		2.19	49,791	1.40	FEM	3.33	C	1	188.66	FEM	6.83	B	2	94.33	FEM	2.19	C	2	165.08	1.30	FEM	3.39	C	3	188.66		
		S4A		2.08	55,599	1.40	FEM	3.06	C	1	188.66	FEM	6.28	B	2	94.33	FEM	2.08	C	2	165.08	1.30	FEM	3.13	C	3	188.66		
		S5A		1.97	68,897	1.40	FEM	2.75	C	1	188.66	FEM	5.62	B	2	94.33	FEM	1.97	C	2	165.08	1.30	FEM	2.81	C	3	188.66		
	TRUCK TRACTOR SEMI-TRAILER (TTST)	S6A		1.89	67,365	1.40	FEM	2.57	C	1	188.66	FEM	5.25	B	2	94.33	FEM	1.89	C	2	165.08	1.30	FEM	2.63	C	3	188.66		
		S7B		③	1.81	72,479	1.40	FEM	2.39	C	1	188.66	FEM	4.89	C	2	165.08	FEM	1.81	C	2	188.66	1.30	FEM	2.44	B	3	0.00	
		S7A		1.82	76,480	1.40	FEM	2.41	C	1	188.66	FEM	4.97	C	2	165.08	FEM	1.82	C	2	188.66	1.30	FEM	2.47	B	3	0.00		
		T4A		2.07	68,343	1.40	FEM	3.09	C	1	188.66	FEM	6.42	C	2	165.08	FEM	2.07	C	2	165.08	1.30	FEM	3.16	C	3	188.66		
		T5B		1.96	64,874	1.40	FEM	2.80	C	1	188.66	FEM	5.68	C	2	165.08	FEM	1.96	C	2	165.08	1.30	FEM	2.86	B	3	0.00		
	T6A		1.90	79,124	1.40	FEM	2.62	C	3	235.83	FEM	5.40	C	2	165.08	FEM	1.90	C	2	165.08	1.30	FEM	2.68	B	3	0.00			
	T7A		1.84	73,520	1.40	FEM	2.52	C	3	235.83	FEM	5.20	C	2	165.08	FEM	1.84	C	2	165.08	1.30	FEM	2.59	C	3	188.66			
	T7B		1.89	75,536	1.40	FEM	2.65	C	1	188.66	FEM	5.62	B	2	94.33	FEM	1.89	C	2	165.08	1.30	FEM	2.70	C	3	188.66			
FATIGUE	HL-93 (INVENTORY)	γ <sub>LL</sub> =0.80																											

DATE: 2/27/2020  
TIME: 3:56:54 PM

**LOAD FACTORS:**

DESIGN LOAD RATING FACTORS	LIMIT STATE	γ <sub>DC</sub>	γ <sub>DW</sub>
	STRENGTH I	1.25	1.50
	SERVICE II	1.00	1.00

**NOTES:**

MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE II LIMIT STATES.  
ALLOWABLE STRESS FOR SERVICE II LIMIT STATE ARE AS REQUIRED FOR DESIGN.

**COMMENTS:**

1. LOAD RATING INCLUDES 1" PPC OVERLAY.
- 2.
- 3.
- 4.

# CONTROLLING LOAD RATING

① DESIGN LOAD RATING (HL-93)

② DESIGN LOAD RATING (HS-20)

③ LEGAL LOAD RATING \*\*

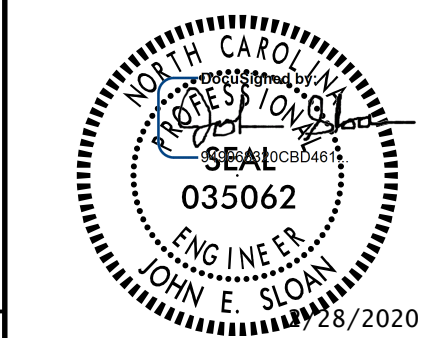
\*\* SEE CHART FOR VEHICLE TYPE



LRFR SUMMARY

PROJECT NO. 15BPR.20  
HENDERSON COUNTY  
 STATION: 35+30.22 -L-

SHEET 2 OF 3



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE  
 LRFR SUMMARY FOR  
 STEEL FLOORBEAMS  
 (INTERSTATE TRAFFIC)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-9
1			3			TOTAL SHEETS
2			4			129

DOCUMENT NOT CONSIDERED  
 FINAL UNLESS ALL  
 SIGNATURES COMPLETED

USER: Merch Research  
 DGN: R:\Structures\04 Drawings\01\_DIT\_15BPR.20\_SML\_LRFR.dgn

ASSEMBLED BY : N. BROWN	DATE : 04/2019
CHECKED BY : J. LIU/J. SLOAN	DATE : 04/2019
DRAWN BY : MAA 1/08	REV. 11/12/08RRR MAA/GM
CHECKED BY : GM/DI 2/08	REV. 10/1/11 MAA/GM
	REV. 12/17 MAA/THC

DATE: 2/27/2020  
TIME: 3:42:12 PM

LOAD AND RESISTANCE FACTOR RATING (LRFR) SUMMARY FOR STEEL STRINGERS																											
LEVEL	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING #	MINIMUM RATING FACTORS (RF)	TONS = W x RF	STRENGTH I LIMIT STATE															SERVICE II LIMIT STATE					COMMENT NUMBER	
						MOMENT					SHEAR					AXIAL					MOMENT						
						LIVE-LOAD FACTORS (γ <sub>LL</sub> )	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	STRINGER NUMBER	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	STRINGER NUMBER	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	STRINGER NUMBER	DISTANCE FROM LEFT END OF SPAN (ft)	LIVE-LOAD FACTORS (γ <sub>LL</sub> )	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN		STRINGER NUMBER
DESIGN LOAD RATING	HL-93 (INVENTORY)	N/A	①	2.57	--	1.75	FEM	3.99	B	8	7.88	FEM	4.21	C	8	0.00	FEM	12.41	C	5	319.34	1.30	FEM	2.57	B	3	48.69
	HL-93 (OPERATING)	N/A		3.36	--	1.35	FEM	5.20	B	8	7.88	FEM	5.46	C	8	210.47	FEM	15.63	D	4	246.50	1.00	FEM	3.36	D	6	119.09
	HS-20 (INVENTORY)	36.000	②	3.44	123.881	1.75	FEM	4.62	B	8	7.88	FEM	5.58	C	8	92.36	FEM	15.78	C	6	12.79	1.30	FEM	3.44	D	3	119.09
	HS-20 (OPERATING)	36.000		4.47	161.081	1.35	FEM	6.03	B	8	7.88	FEM	7.23	C	8	92.36	FEM	15.78	C	6	12.79	1.00	FEM	4.47	D	6	119.09
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SH		5.65	70.628	1.40	FEM	7.10	B	8	7.88	FEM	11.15	D	4	167.05	FEM	15.78	C	6	12.79	1.30	FEM	5.65	B	8	56.99
		S3C		3.68	79.039	1.40	FEM	4.62	B	8	7.88	FEM	8.22	B	7	92.36	FEM	13.38	D	4	246.50	1.30	FEM	3.68	B	8	7.88
		S3A		3.60	82.010	1.40	FEM	4.53	B	8	7.88	FEM	8.09	D	7	92.36	FEM	13.70	D	4	246.50	1.30	FEM	3.60	B	8	7.88
		S4A		3.47	92.825	1.40	FEM	4.37	B	8	7.88	FEM	7.77	B	2	92.36	FEM	15.78	C	6	12.79	1.30	FEM	3.47	B	8	7.88
		S5A		3.20	111.790	1.40	FEM	3.99	B	8	7.88	FEM	7.15	B	8	116.61	FEM	15.62	D	4	246.50	1.30	FEM	3.20	B	8	7.88
		S6A		3.07	109.089	1.40	FEM	3.86	B	8	7.88	FEM	6.64	B	8	167.05	FEM	11.26	C	6	168.62	1.30	FEM	3.07	B	8	7.88
		S7B		2.92	116.755	1.40	FEM	3.80	B	8	7.88	FEM	6.31	B	8	167.05	FEM	15.78	C	6	12.79	1.30	FEM	2.92	D	6	119.09
		S7A		2.98	124.998	1.40	FEM	3.86	B	8	7.88	FEM	6.50	B	8	119.70	FEM	15.78	C	6	12.79	1.30	FEM	2.98	D	6	119.09
	TRUCK TRACTOR SEMI-TRAILER (TTST)	T4A		3.60	118.960	1.40	FEM	4.53	B	8	7.88	FEM	7.76	B	8	167.05	FEM	15.78	C	6	12.79	1.30	FEM	3.60	B	8	7.88
		T5B		3.27	108.161	1.40	FEM	4.45	B	8	7.88	FEM	7.64	B	2	167.05	FEM	15.78	C	6	12.79	1.30	FEM	3.27	D	6	119.09
	T6A		3.15	131.020	1.40	FEM	4.25	B	8	7.88	FEM	7.24	B	8	96.30	FEM	15.78	C	6	12.79	1.30	FEM	3.15	D	6	119.09	
	T7A		2.98	119.046	1.40	FEM	4.29	B	8	7.88	FEM	6.91	B	8	142.81	FEM	15.78	C	6	12.79	1.30	FEM	2.98	D	6	119.09	
	T7B		3.25	129.805	1.40	FEM	4.08	B	1	56.99	FEM	6.40	B	8	167.05	FEM	15.78	C	6	12.79	1.30	FEM	3.25	B	8	56.99	

**LOAD FACTORS:**

DESIGN LOAD RATING FACTORS	LIMIT STATE	γ <sub>DC</sub>	γ <sub>DW</sub>
	STRENGTH I	1.25	1.50
	SERVICE II	1.00	1.00

**NOTES:**

MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE II LIMIT STATES.  
ALLOWABLE STRESS FOR SERVICE II LIMIT STATE ARE AS REQUIRED FOR DESIGN.

**COMMENTS:**

- LOAD RATING INCLUDES 1" PPC OVERLAY.
- 
- 
- 

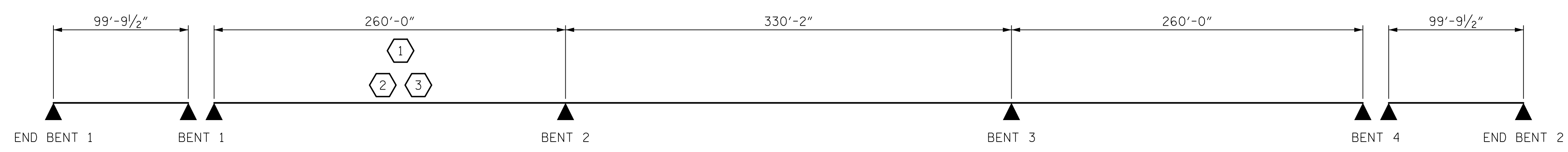
# CONTROLLING LOAD RATING

① DESIGN LOAD RATING (HL-93)

② DESIGN LOAD RATING (HS-20)

③ LEGAL LOAD RATING \*\*

\*\* SEE CHART FOR VEHICLE TYPE



LRFR SUMMARY

PROJECT NO. 15BPR.20  
HENDERSON COUNTY  
 STATION: 35+30.22 -L-

SHEET 3 OF 3



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE  
 LRFR SUMMARY FOR  
 STEEL STRINGERS  
 (INTERSTATE TRAFFIC)

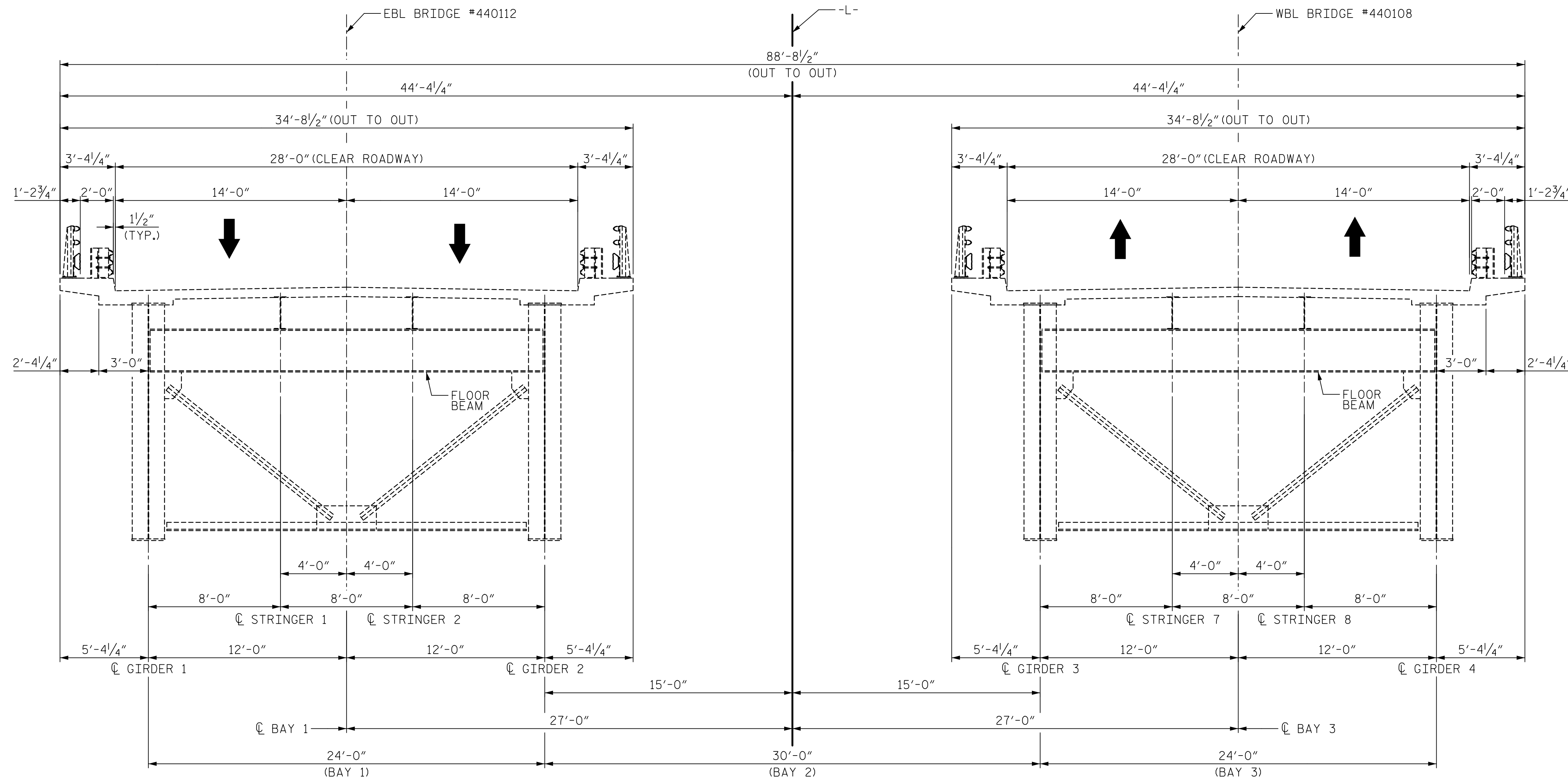
ASSEMBLED BY : N. BROWN	DATE : 04/2019
CHECKED BY : J. LIU/J. SLOAN	DATE : 04/2019
DRAWN BY : MAA 1/08	REV. 11/12/08RRR MAA/GM
CHECKED BY : GM/DI 2/08	REV. 10/1/11 MAA/GM
	REV. 12/17 MAA/THC

DOCUMENT NOT CONSIDERED  
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 SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-10
1			3			TOTAL SHEETS
2			4			129

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DATE: 2/27/2020  
TIME: 3:16:28 PM



EXISTING STRUCTURE

PROJECT NO. 15BPR.20  
HENDERSON COUNTY  
 STATION: 35+30.22 -L-

SHEET 2 OF 12

**LEGEND**  
 - - - - - EXISTING  
 ——— PROPOSED  
 ▨ DEMOLITION

DRAWN BY : H.T. ROSEMOND DATE : 11/2018  
 CHECKED BY : J.E. SLOAN DATE : 11/2018  
 DESIGNED BY : N. BROWN/D. TUTTLE DATE : 11/2018  
 DESIGN CHECKED BY : J. SLOAN/J. LIU DATE : 11/2018

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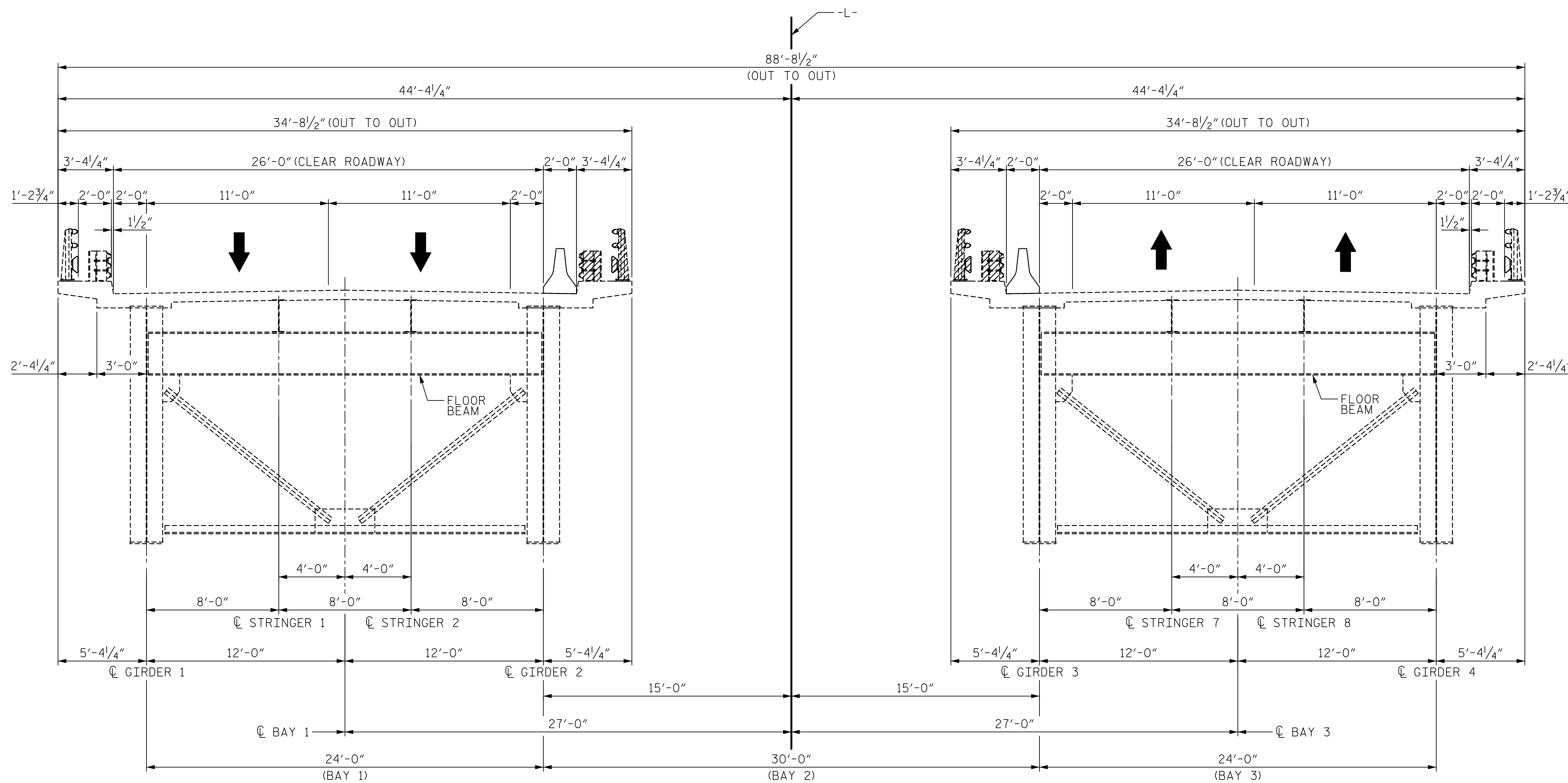
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE  
 DEMOLITION  
 & CONSTRUCTION  
 SEQUENCE  
 EXISTING STRUCTURE

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-12
1			3			TOTAL SHEETS
2			4			129

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DATE: 2/27/2020  
TIME: 3:07:58 PM



### STAGE IA CONSTRUCTION

1. INSTALL ANCHORED TEMPORARY BARRIERS AT GIRDERS 2 AND 3.
2. DEMOLISH EXISTING BARRIER RAILS AT THE OVERHANGS OF GIRDERS 2 AND 3.

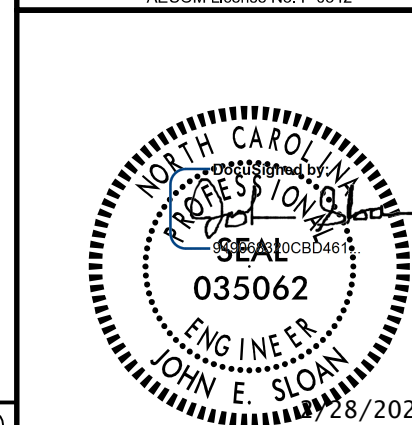
PROJECT NO. 15BPR.20  
HENDERSON COUNTY  
 STATION: 35+30.22 -L-

SHEET 3 OF 12

#### LEGEND

- EXISTING
- PROPOSED
- ▨ DEMOLITION

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 CHECKED BY : J.E. SLOAN DATE : 11/2018  
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STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

SUPERSTRUCTURE  
 DEMOLITION  
 & CONSTRUCTION  
 SEQUENCE  
 STAGE IA

#### REVISIONS

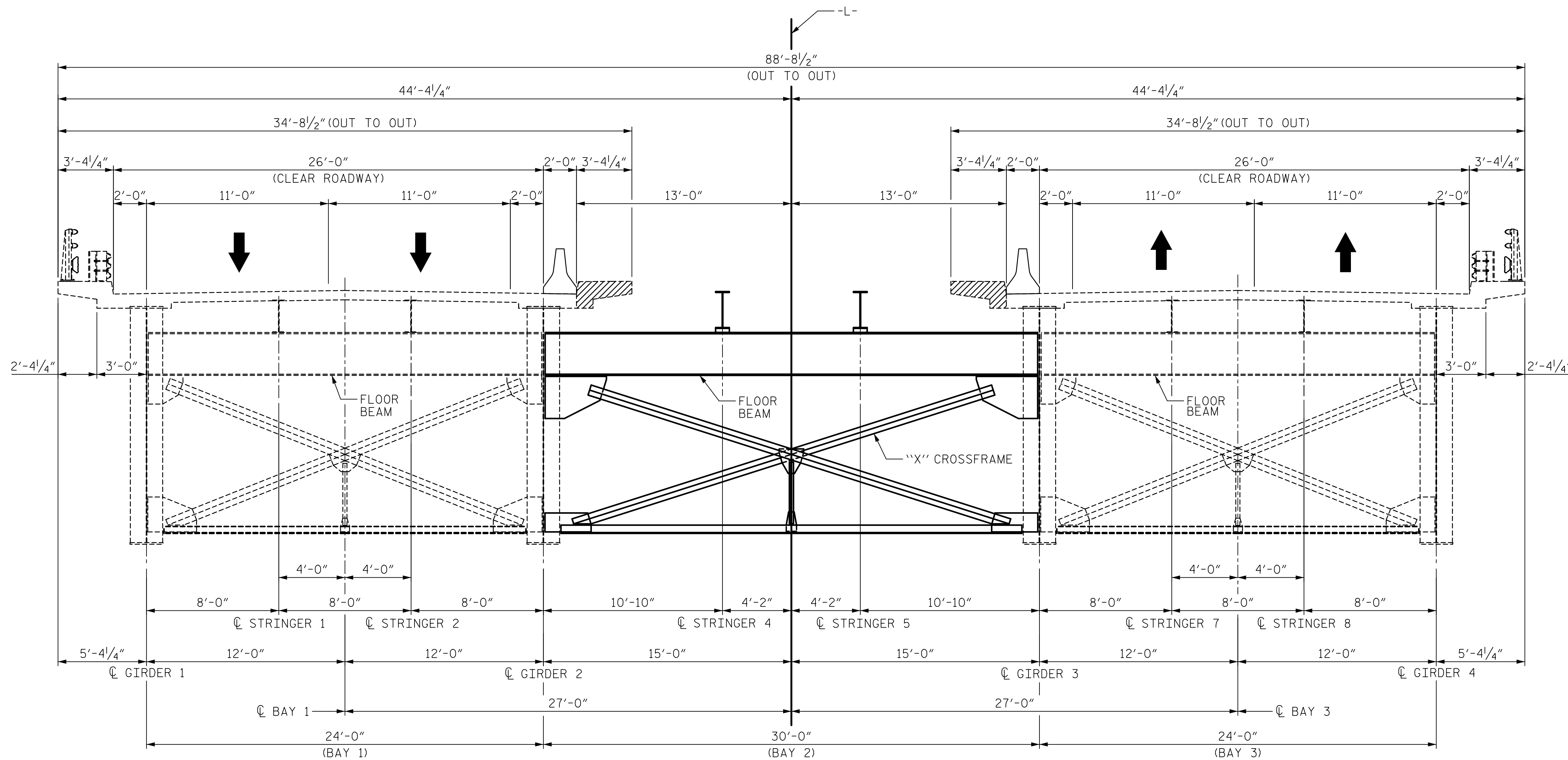
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SHEET NO.  
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USER: Arch Rosemond Drawings\01\_025\_15BPR.20\_SNU\_LDCS.dgn

DATE: 2/27/2020  
TIME: 3:47:47 PM



**STAGE IB CONSTRUCTION (1 OF 2)**

3. INSTALL FLOORBEAM CONNECTION RETROFIT IN BAYS 1 AND 3, CROSSFRAMES AT BENTS AND END BENTS, AND FLOORBEAMS BETWEEN GIRDERS 2 AND 3 TO CONNECT THE TWO SUPERSTRUCTURES. INSTALL STRINGERS 4 AND 5 BETWEEN GIRDERS 2 AND 3.
4. DEMOLISH EXISTING OVERHANGS AT GIRDERS 2 AND 3.

PROJECT NO. 15BPR.20  
HENDERSON COUNTY  
 STATION: 35+30.22 -L-

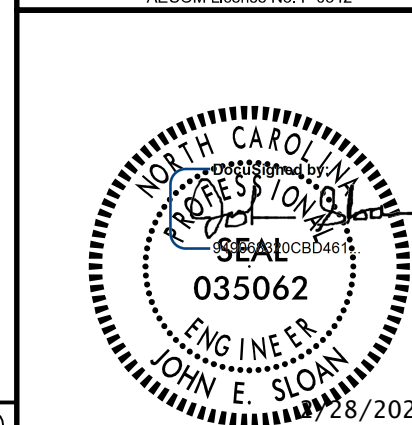
SHEET 4 OF 12

"X" CROSSFRAMES AT BENTS AND END BENTS SHOWN. FOR INTERMEDIATE CROSSFRAMES, SEE SHEET 5 OF 12.

**LEGEND**

- EXISTING
- PROPOSED
- ▨ DEMOLITION

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 DESIGN CHECKED BY : J. SLOAN/J. LIU DATE : 11/2018



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

SUPERSTRUCTURE  
 DEMOLITION  
 & CONSTRUCTION  
 SEQUENCE  
 STAGE IB

REVISIONS

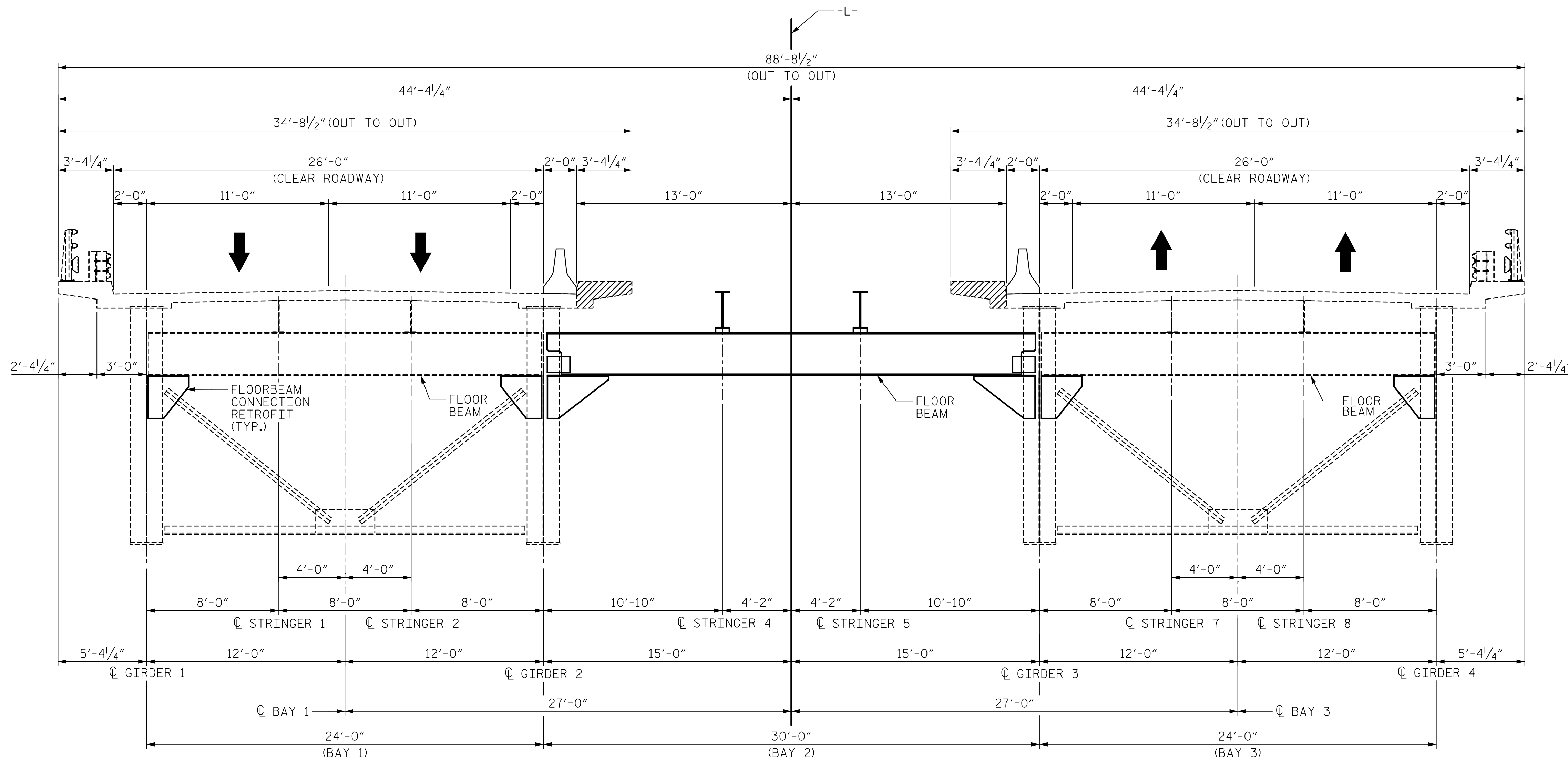
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SHEET NO.  
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STAGE IB CONSTRUCTION (2 OF 2)

PROJECT NO. 15BPR.20  
 HENDERSON COUNTY  
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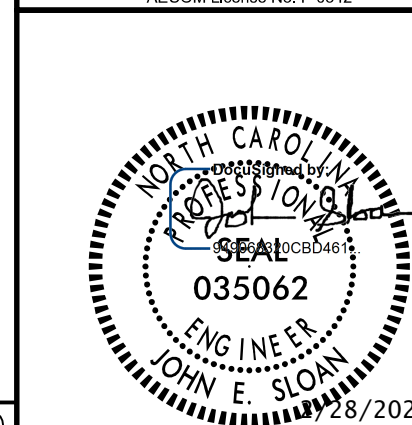
SHEET 5 OF 12

INTERMEDIATE CROSSFRAMES SHOWN FOR "X" CROSSFRAMES AT BENTS AND END BENTS, SEE SHEET 4 OF 12.

LEGEND

- EXISTING
- PROPOSED
- ▨ DEMOLITION

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 DESIGN CHECKED BY : J. SLOAN/J. LIU DATE : 11/2018



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

SUPERSTRUCTURE  
 DEMOLITION  
 & CONSTRUCTION  
 SEQUENCE  
 STAGE IB

REVISIONS

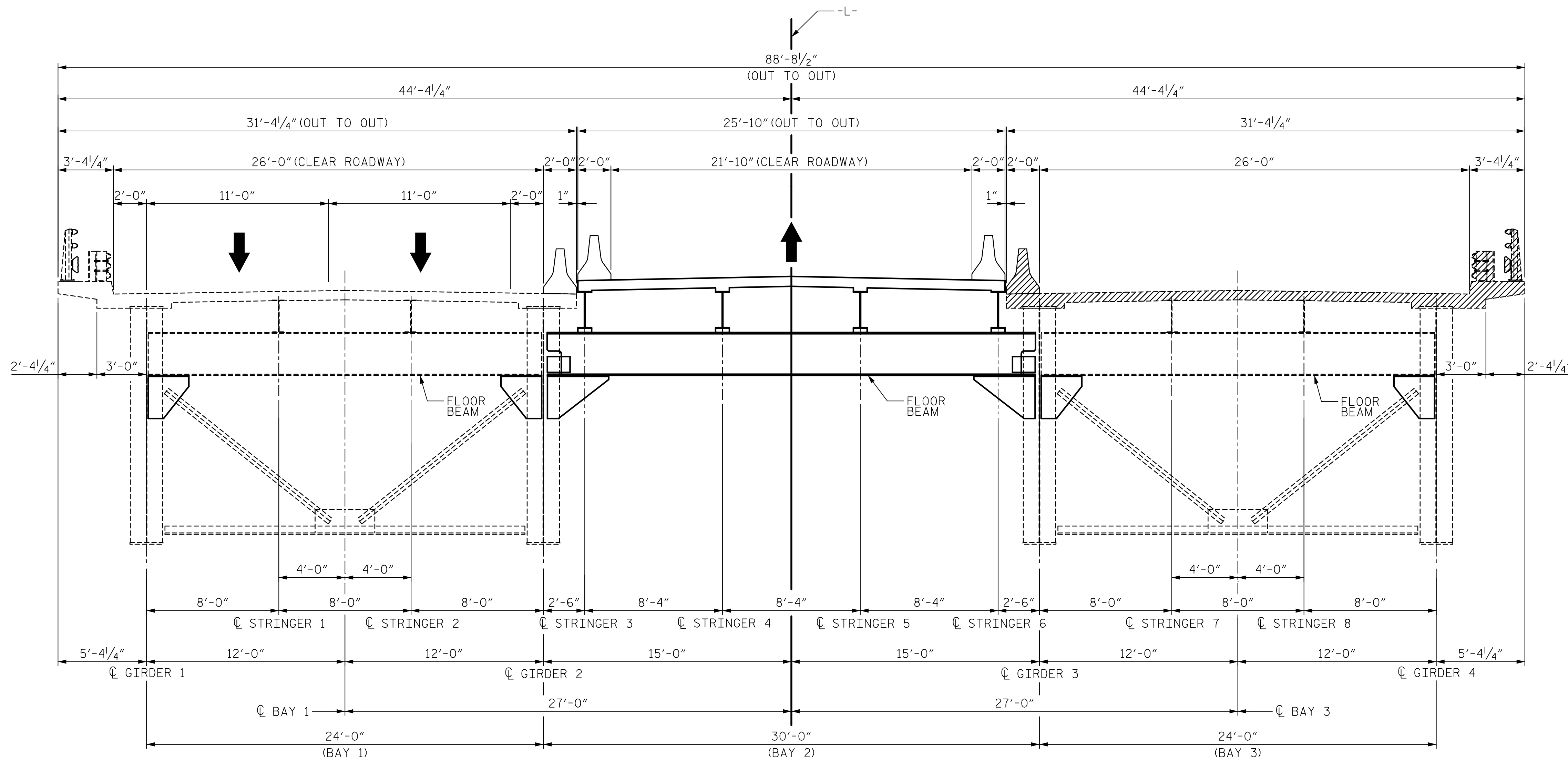
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SHEET NO.  
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TIME: 3:46:03 PM



### STAGE IIA CONSTRUCTION

5. INSTALL STRINGERS 3 AND 6. COMPLETE GIRDERS 2 AND 3 REHAB AND STRENGTHENING PRIOR TO PLACING BAY 2 DECK FORMWORK. COMPLETE WELD REPAIR #W3 ON GIRDER 4.
6. POUR BAY 2 CONCRETE DECK.
7. INSTALL ANCHORED TEMPORARY BARRIERS AT STRINGERS 3 AND 6.
8. SHIFT WESTBOUND TRAFFIC TO A SINGLE LANE IN BAY 2.
9. REMOVE ANCHORED TEMPORARY BARRIER IN BAY 3 THAT WAS INSTALLED IN STAGE IA. DEMOLISH EXISTING BARRIER AND CONCRETE DECK IN BAY 3.

PROJECT NO. 15BPR.20

HENDERSON COUNTY

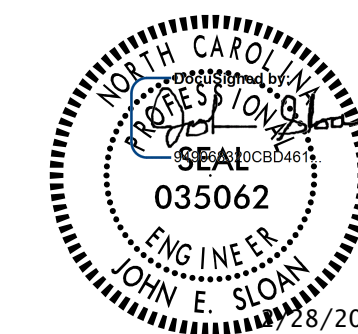
STATION: 35+30.22 -L-

SHEET 6 OF 12

#### LEGEND

- EXISTING
- PROPOSED
- ▨ DEMOLITION

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STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

SUPERSTRUCTURE  
& CONSTRUCTION  
SEQUENCE  
STAGE IIA

#### REVISIONS

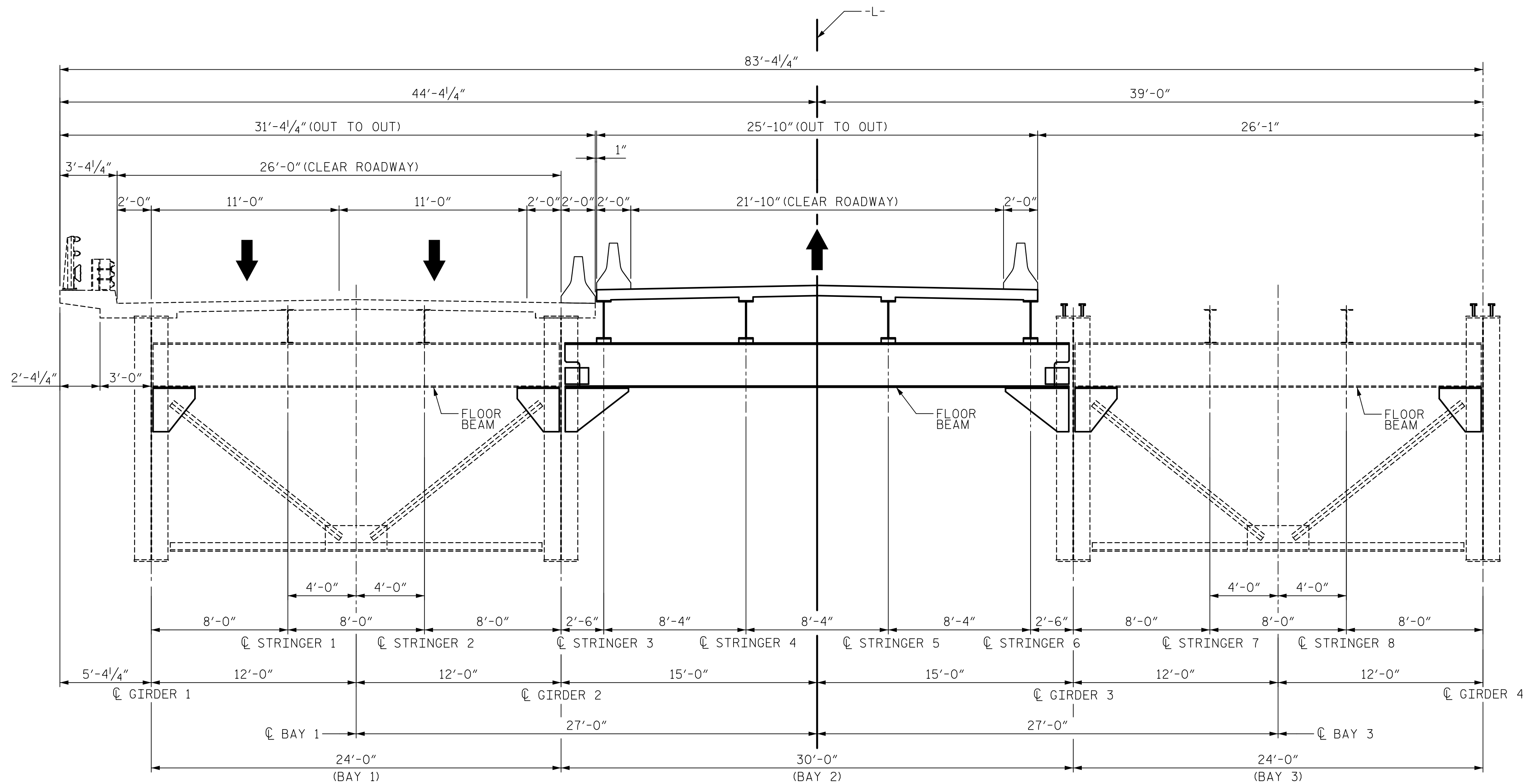
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SHEET NO.  
S-16  
TOTAL SHEETS  
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TIME: 3:06:42 PM



**STAGE IIB CONSTRUCTION**

- INSTALL SHEAR STUDS AND TOP FLANGE WEB GAP DETAILS ON THE TOP FLANGE OF GIRDERS 3 AND 4. COMPLETE GIRDER 4 STRENGTHENING AND REHABILITATION PRIOR TO INSTALLING STAGE II DECK FORMWORK.

PROJECT NO. 15BPR.20  
HENDERSON COUNTY  
 STATION: 35+30.22 -L-

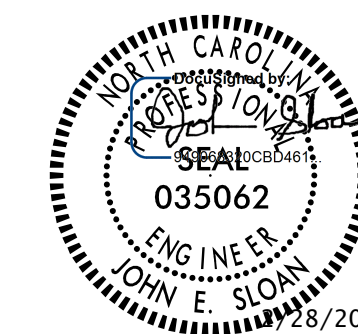
SHEET 7 OF 12

**LEGEND**

- EXISTING
- PROPOSED
- ▨ DEMOLITION

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STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

SUPERSTRUCTURE  
 & DEMOLITION  
 CONSTRUCTION  
 SEQUENCE  
 STAGE IIB

REVISIONS

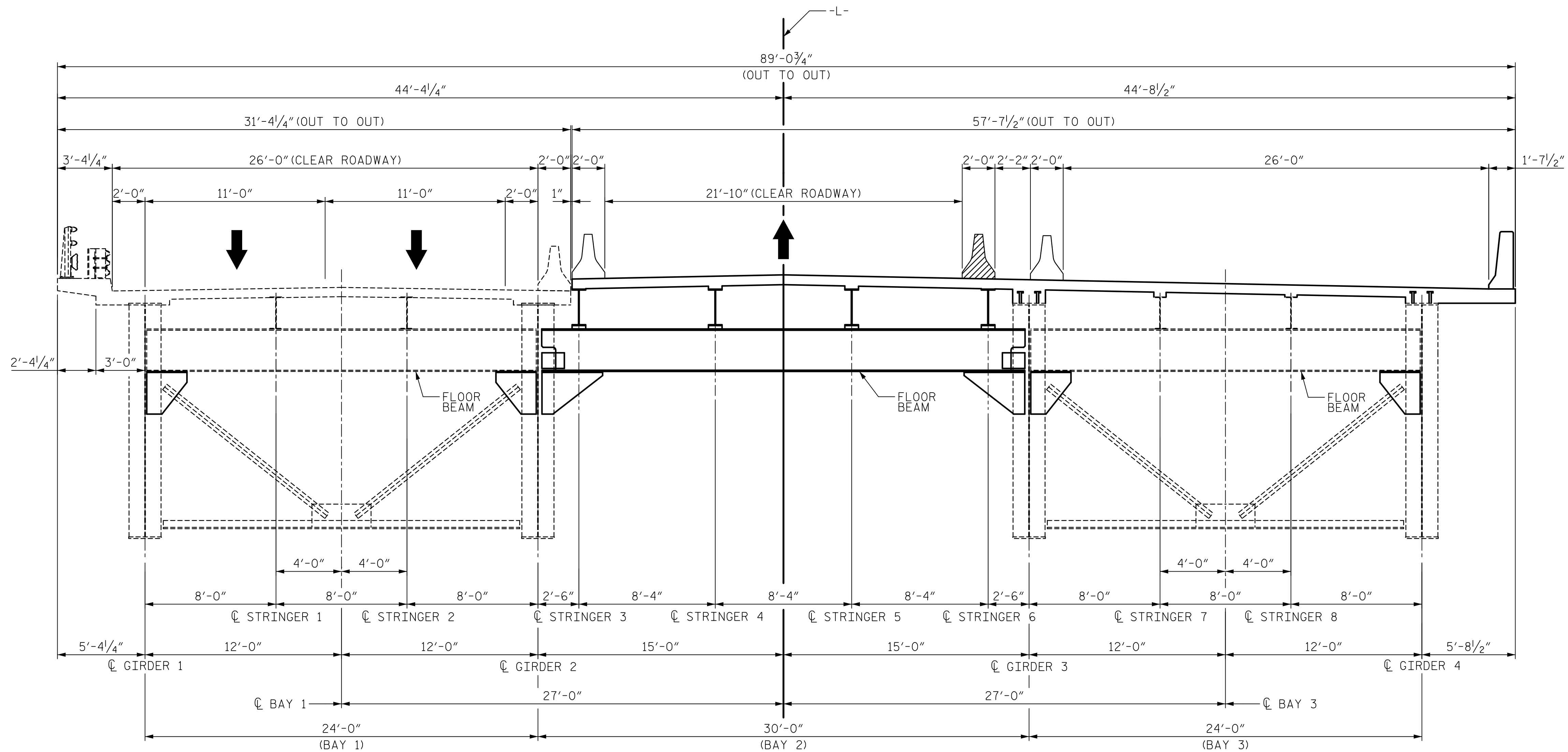
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SHEET NO.  
 S-17  
 TOTAL SHEETS  
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TIME: 3:46:20 PM



### STAGE IIC CONSTRUCTION

11. POUR CONCRETE DECK IN BAY 3.
12. INSTALL PERMANENT BARRIER AT GIRDER 4 OVERHANG.
13. SHIFT ANCHORED TEMPORARY MEDIAN BARRIER FROM STRINGER 6 TO GIRDER 3.

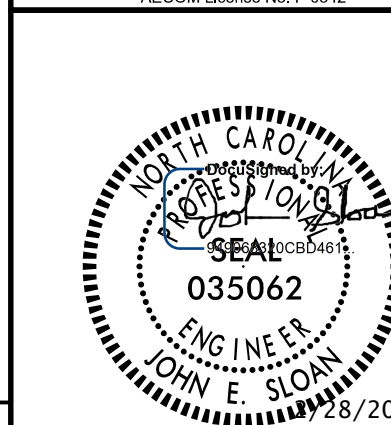
PROJECT NO. 15BPR.20  
HENDERSON COUNTY  
 STATION: 35+30.22 -L-

SHEET 8 OF 12

#### LEGEND

- EXISTING
- PROPOSED
- ▨ DEMOLITION

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 DESIGN CHECKED BY : J. SLOAN/J. LIU      DATE : 11/2018



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SUPERSTRUCTURE  
 DEMOLITION  
 & CONSTRUCTION  
 SEQUENCE  
 STAGE IIC

#### REVISIONS

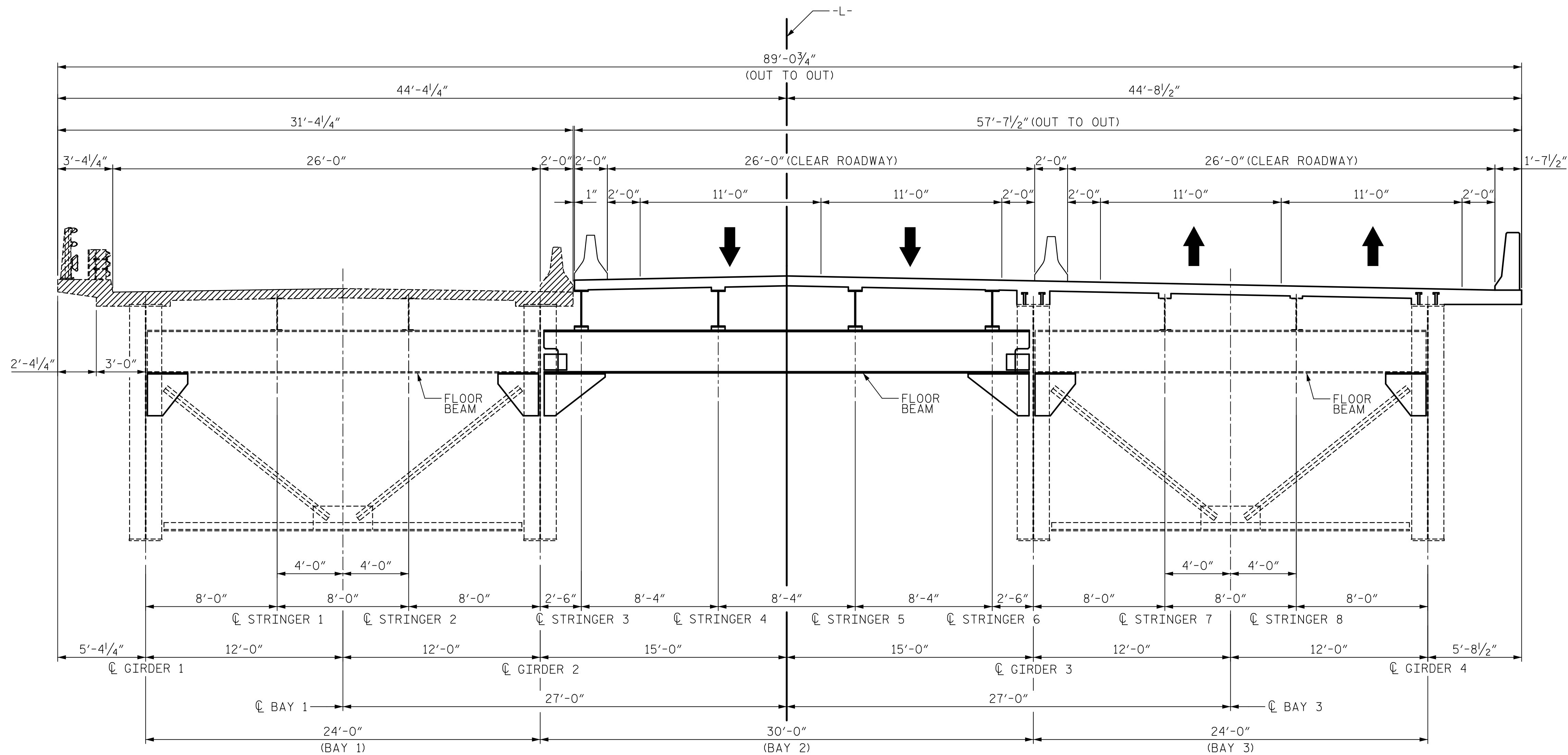
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SHEET NO.  
 S-18  
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DATE: 2/27/2020  
TIME: 3:06:24 PM



### STAGE IIIA CONSTRUCTION

14. SHIFT WESTBOUND TRAFFIC TO BAY 3.
15. SHIFT EASTBOUND TRAFFIC TO BAY 2.
16. REMOVE ANCHORED TEMPORARY BARRIER AT GIRDER 2. DEMOLISH EXISTING BARRIER AND CONCRETE DECK IN BAY 1.

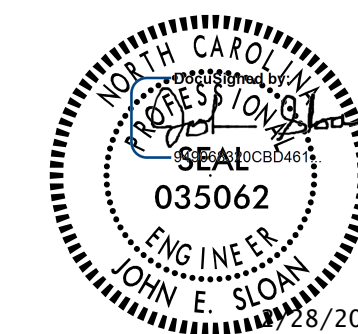
PROJECT NO. 15BPR.20  
HENDERSON COUNTY  
 STATION: 35+30.22 -L-

SHEET 9 OF 12

#### LEGEND

- EXISTING
- PROPOSED
- ▨ DEMOLITION

DRAWN BY : H.T. ROSEMOND DATE : 11/2018  
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 DESIGN CHECKED BY : J. SLOAN/J. LIU DATE : 11/2018



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SUPERSTRUCTURE  
 DEMOLITION  
 & CONSTRUCTION  
 SEQUENCE  
 STAGE IIIA

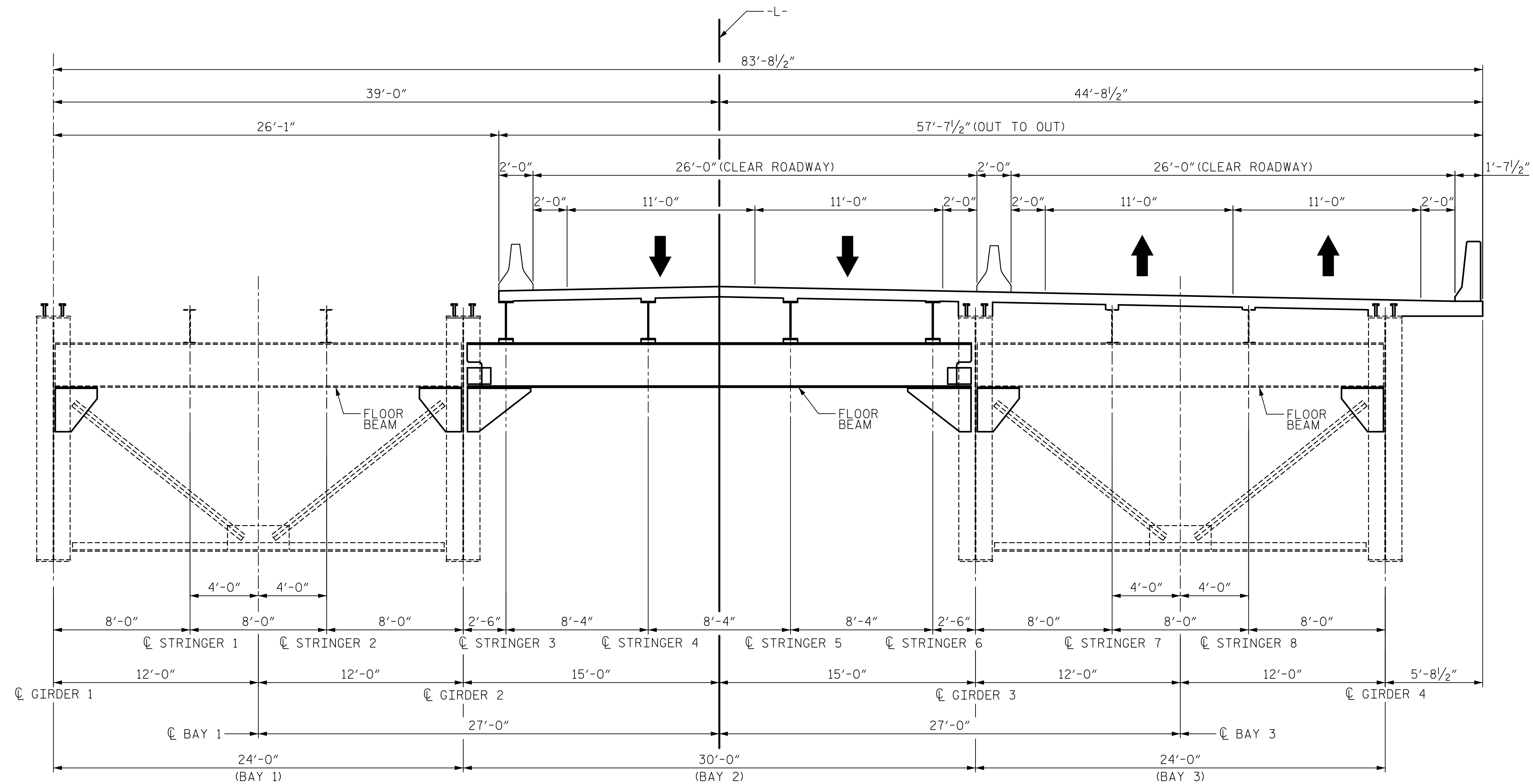
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SHEET NO.  
 S-19  
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 129

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### STAGE IIIB CONSTRUCTION

17. INSTALL SHEAR STUDS AND TOP FLANGE WEB GAP DETAILS ON THE TOP FLANGE OF GIRDERS 1 AND 2. COMPLETE GIRDER 1 STRENGTHENING AND REHABILITATION PRIOR TO INSTALLING STAGE III DECK FORMWORK.

PROJECT NO. 15BPR.20  
HENDERSON COUNTY  
 STATION: 35+30.22 -L-

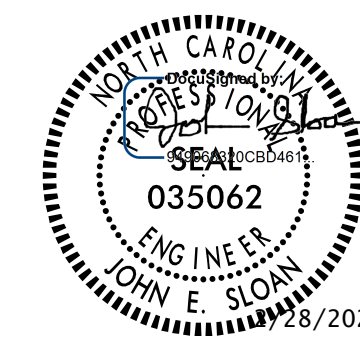
SHEET 10 OF 12

#### LEGEND

- EXISTING
- PROPOSED
- ▨ DEMOLITION

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 CHECKED BY : J.E. SLOAN DATE : 11/2018  
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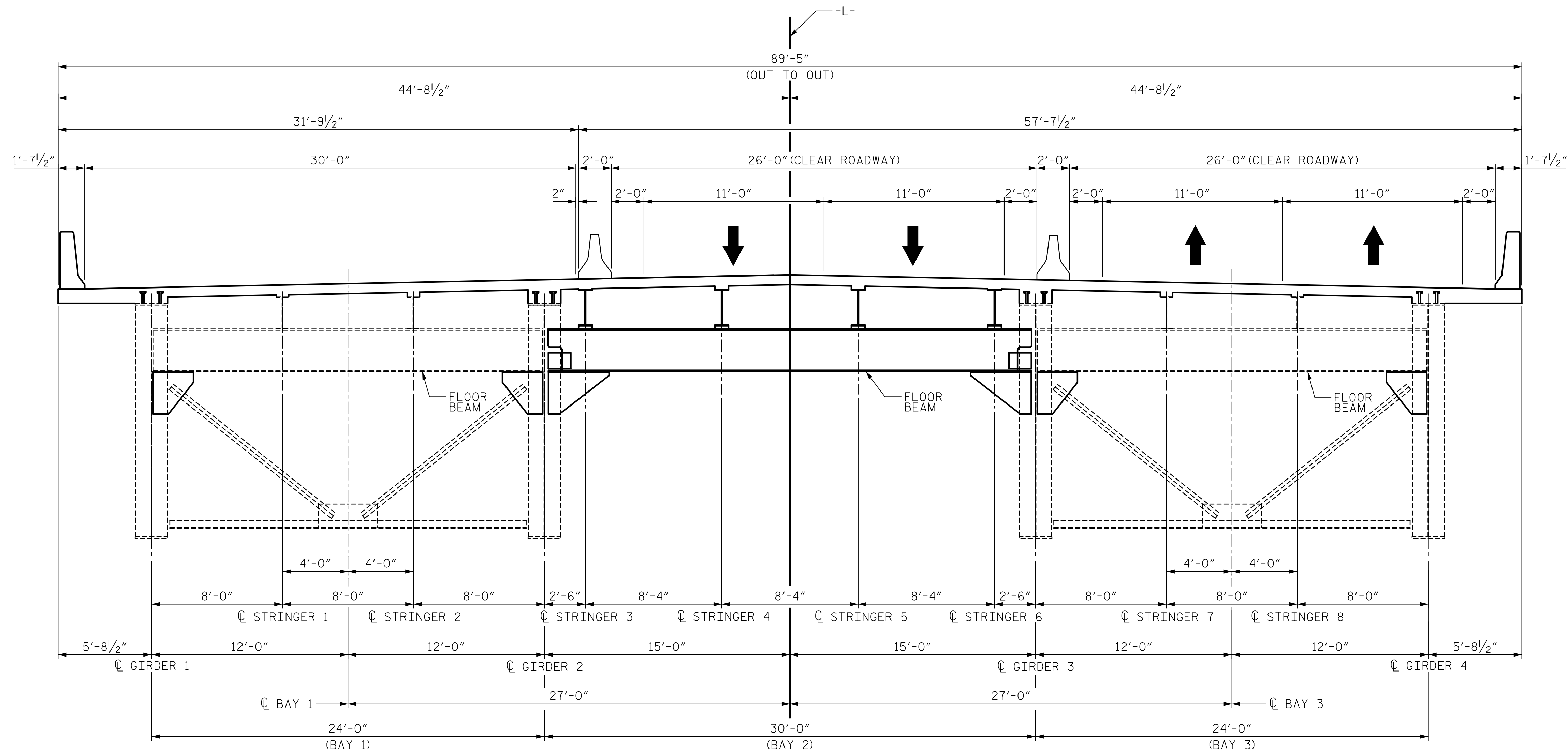
SUPERSTRUCTURE  
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 STAGE IIIB

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DATE: 2/27/2020  
TIME: 3:06:45 PM



**STAGE III C CONSTRUCTION**

- 18. POUR CONCRETE DECK IN BAY 1.
- 19. INSTALL PERMANENT BARRIER AT GIRDER 1 OVERHANG.

PROJECT NO. 15BPR.20  
HENDERSON COUNTY  
 STATION: 35+30.22 -L-

SHEET 11 OF 12

**LEGEND**

- EXISTING
- PROPOSED
- ▨ DEMOLITION

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 CHECKED BY : J.E. SLOAN DATE : 11/2018  
 DESIGNED BY : N. BROWN/D. TUTTLE DATE : 11/2018  
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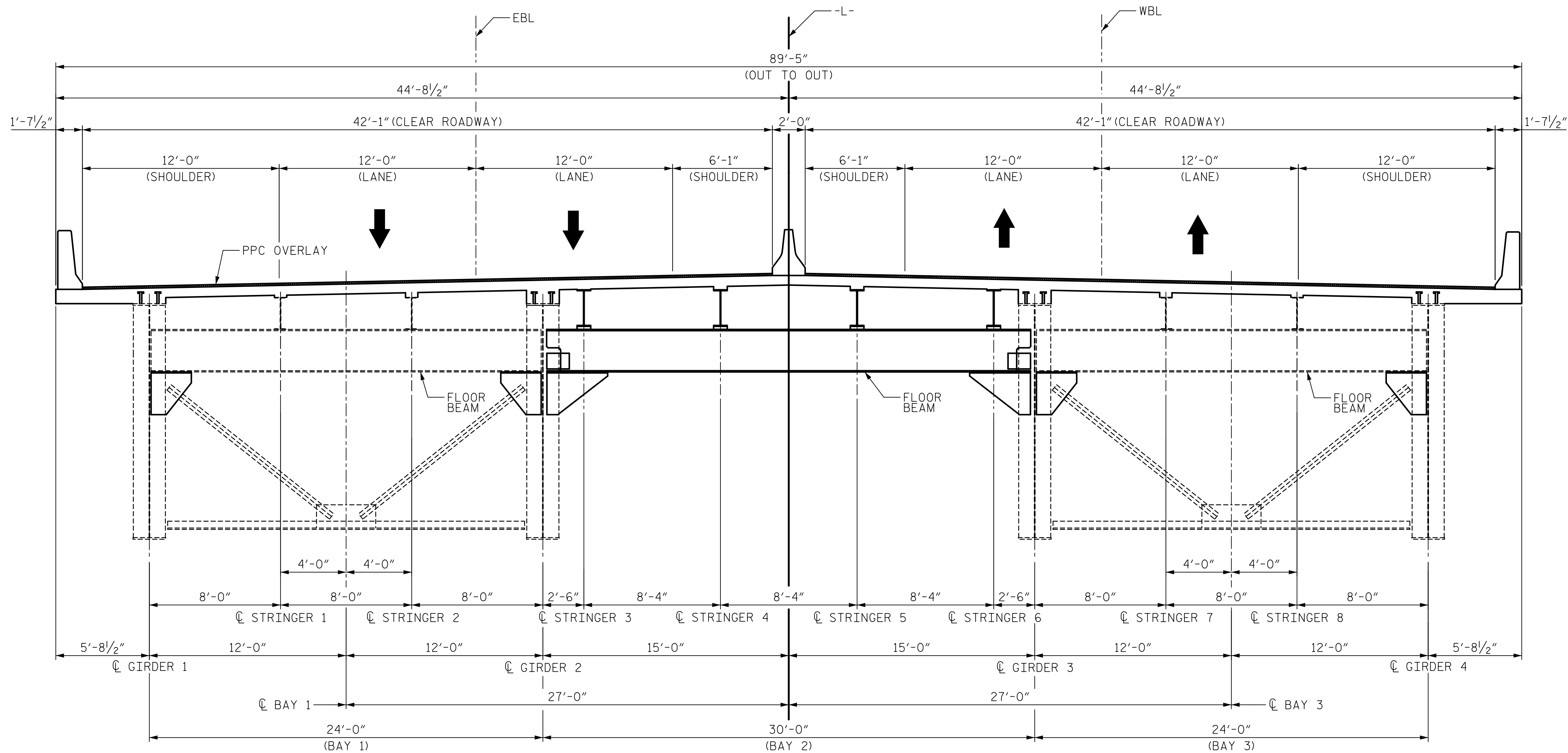
STATE OF NORTH CAROLINA  
 JOHN E. SLOAN  
 ENGINEER  
 035062  
 2/28/2020

STATE OF NORTH CAROLINA  
**DEPARTMENT OF TRANSPORTATION**  
 RALEIGH

**SUPERSTRUCTURE  
 & DEMOLITION  
 CONSTRUCTION  
 SEQUENCE  
 STAGE III C**

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-21
1			3			TOTAL SHEETS
2			4			129

DATE: 2/27/2020  
TIME: 3:05:53 PM



### FINAL STAGE CONSTRUCTION

20. REMOVE ANCHORED TEMPORARY BARRIERS AT STRINGER 3 AND GIRDER 3.
21. INSTALL PERMANENT MEDIAN BARRIER AND PPC OVERLAY.
22. SHIFT LANES TO FINAL CONFIGURATION.

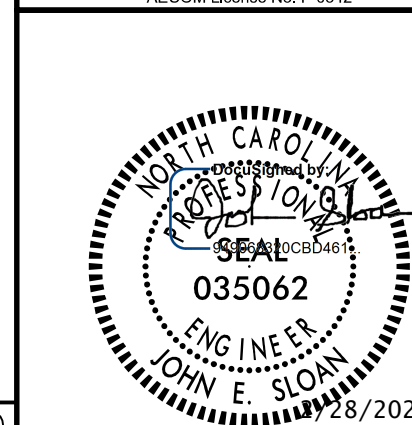
PROJECT NO. 15BPR.20  
HENDERSON COUNTY  
 STATION: 35+30.22 -L-

SHEET 12 OF 12

#### LEGEND

- EXISTING
- PROPOSED
- ▨ DEMOLITION

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 CHECKED BY : J.E. SLOAN DATE : 11/2018  
 DESIGNED BY : N. BROWN/ D. TUTTLE DATE : 11/2018  
 DESIGN CHECKED BY : J. SLOAN/J. LIU DATE : 11/2018



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

SUPERSTRUCTURE  
 DEMOLITION  
 & CONSTRUCTION  
 SEQUENCE  
 FINAL STAGE

#### REVISIONS

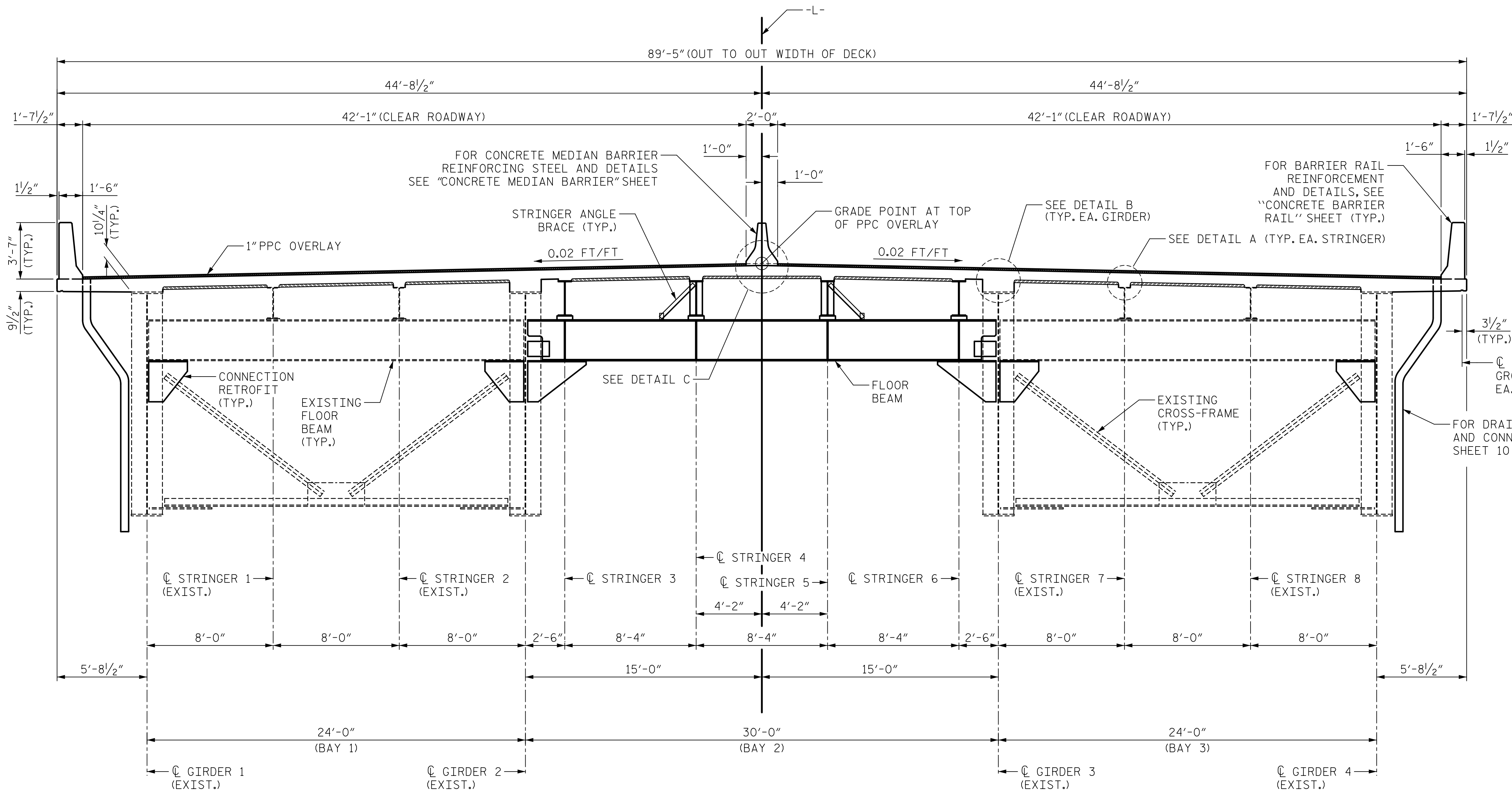
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SHEET NO.  
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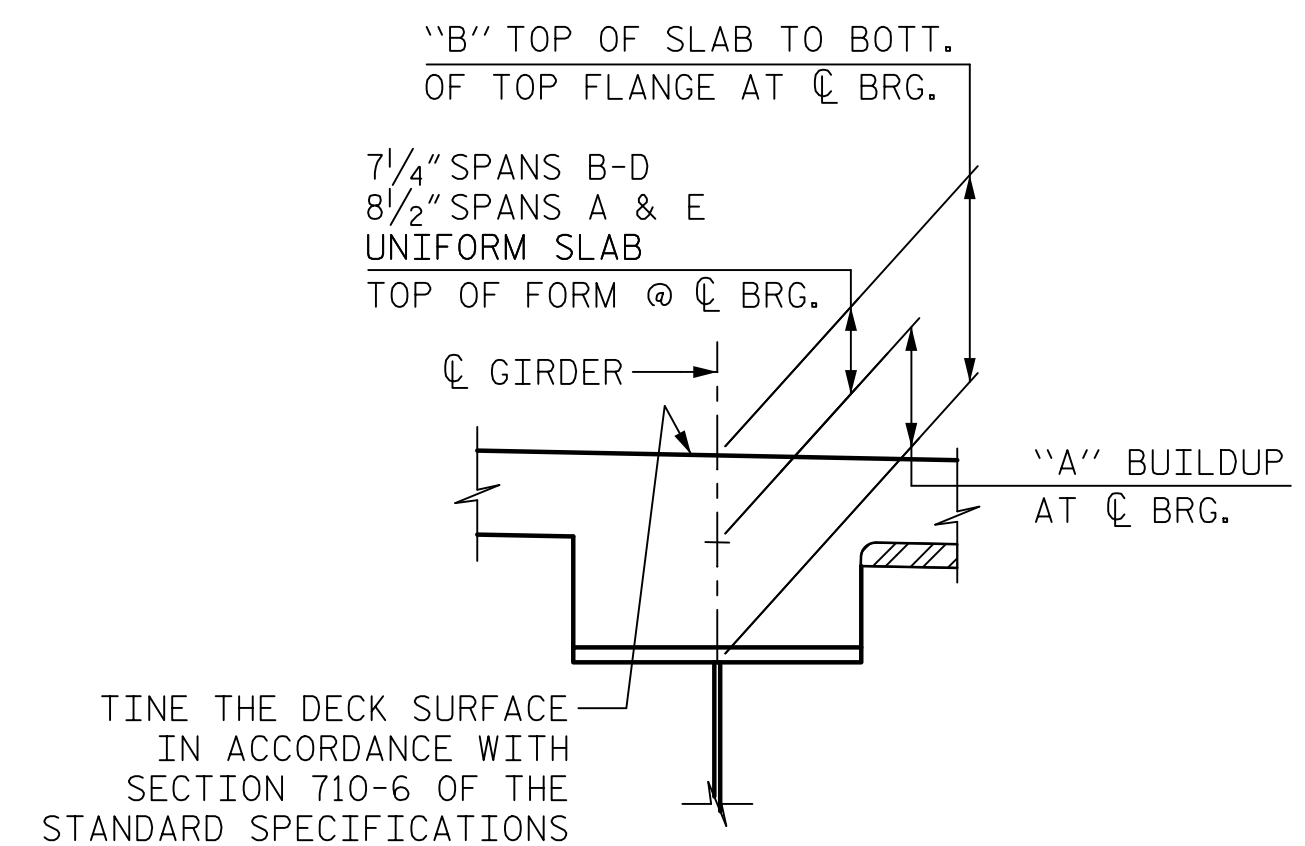
**NOTES:**

FOR PPC OVERLAY DETAILS, SEE SHEET 10 OF 10.

FOR "X" CROSSFRAME DIAPHRAGMS AT BENTS AND END BENTS, SEE SHEET 2 OF 10.

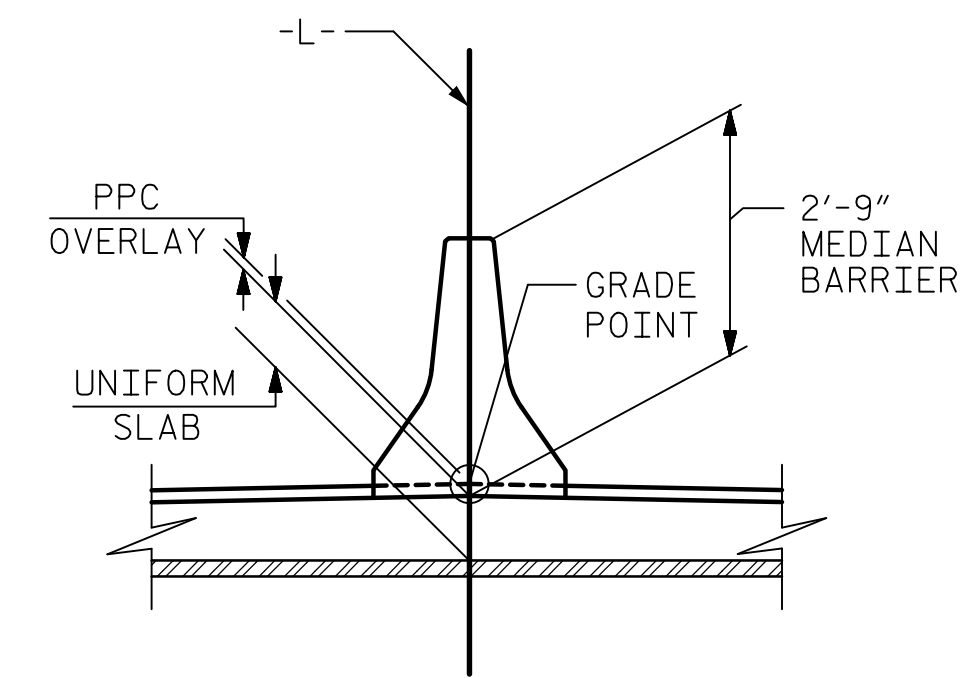
FOR STRINGER BUILDUP, DETAIL A, SEE SHEET 2 OF 10.

CONTRACTOR SHALL TINE THE DECK AND GROOVE THE PPC OVERLAY. FOR DETAILS, SEE SPECIAL PROVISIONS.



**TYPICAL SECTION**  
(CROSSFRAMES SHOWN TYPICAL OF INTERMEDIATE CROSSFRAMES)

**DETAIL B AT GIRDER**  
(PPC OVERLAY NOT SHOWN FOR CLARITY)  
(DIMENSIONS SHOWN DO NOT INCLUDE PPC OVERLAY)



**DETAIL C**  
THE GRADE POINT IS AT THE TOP OF THE PPC OVERLAY

ESTIMATED GIRDER BUILDUP DIM "A"								
GIRDER	CENTERLINE OF BEARING BUILDUP AT CROSSFRAME POINTS *							
	A1	A5	1	12	26	37	E1	E5
1 & 4	5"	4 1/2"	6 3/4"	7 1/4"	6 1/4"	7 1/2"	5 1/2"	4 3/4"
2 & 3	10 3/4"	10 1/4"	1'-0 1/2"	1'-1"	1'-0"	1'-1 1/4"	11 1/4"	11 1/4"

ESTIMATED TOP OF SLAB TO BOTTOM OF TOP FLANGE DIM "B"								
GIRDER	CENTERLINE OF BEARING BUILDUP AT CROSSFRAME POINTS *							
	A1	A5	1	12	26	37	E1	E5
1 & 4	1'-1 1/2"	1'-1"	1'-2"	1'-2 1/2"	1'-1 1/2"	1'-2 3/4"	1'-2"	1'-1 1/4"
2 & 3	1'-7 1/4"	1'-6 3/4"	1'-7 3/4"	1'-8 1/4"	1'-7 1/4"	1'-8 1/2"	1'-7 3/4"	1'-7 3/4"

\* VALUES REPORTED TO NEAREST 1/4"

PROJECT NO. 15BPR.20  
HENDERSON COUNTY  
STATION: 35+30.22 -L-

SHEET 1 OF 10



STATE OF NORTH CAROLINA  
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SUPERSTRUCTURE  
TYPICAL SECTION  
FINAL STAGE  
AND PPC OVERLAY

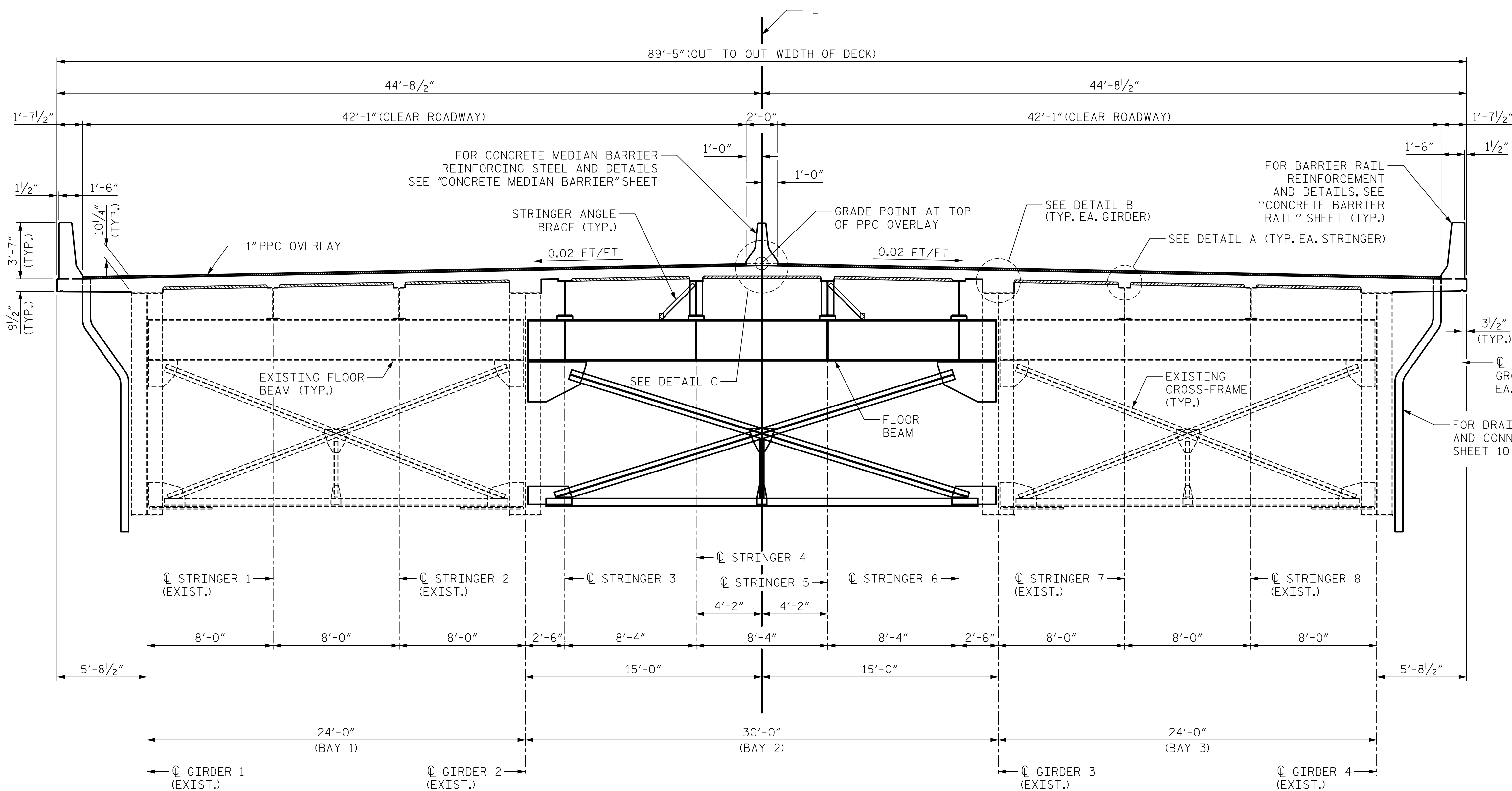
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FINAL UNLESS ALL  
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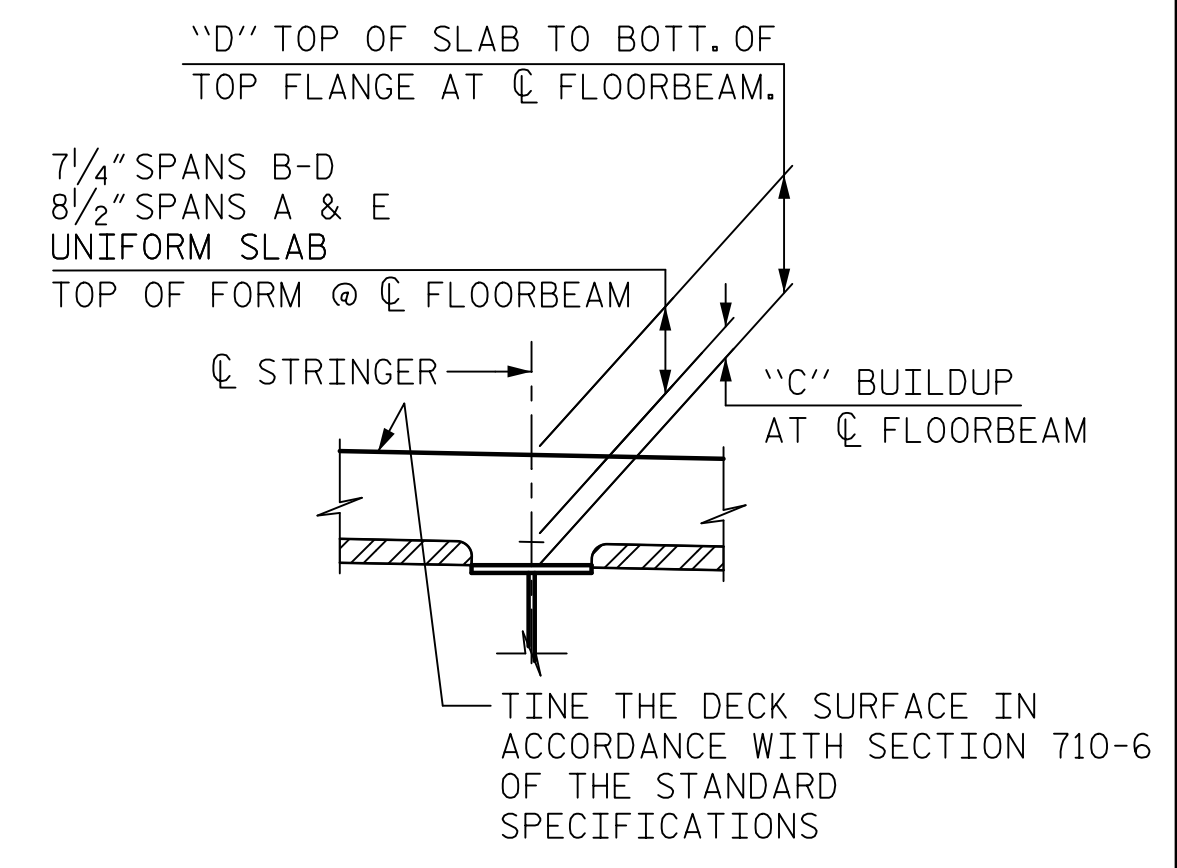
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NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 129
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DGN: R:\Structures\04

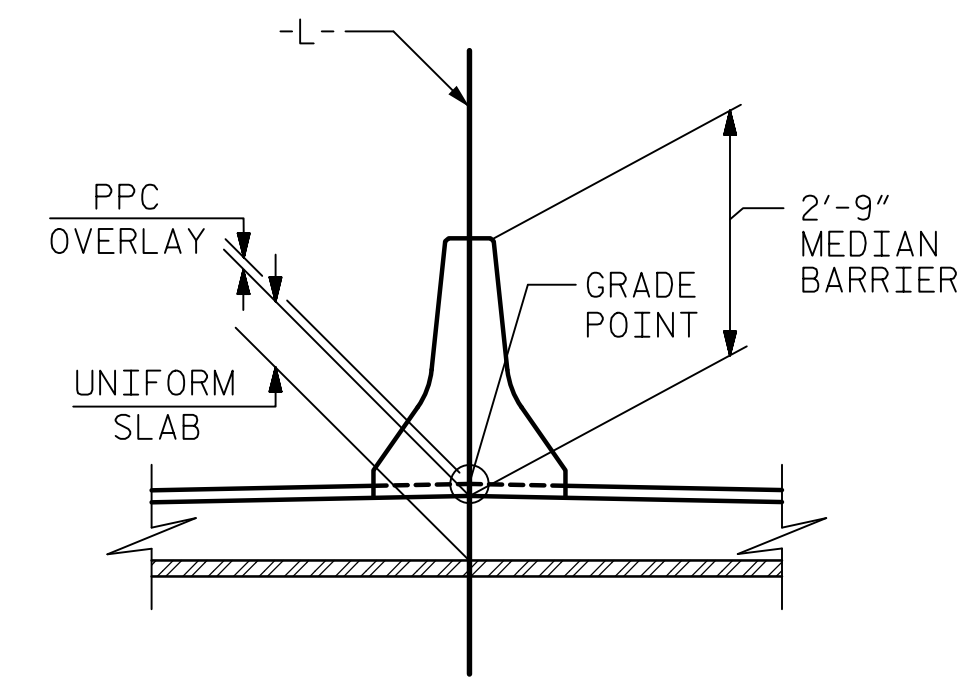


**NOTES:**  
 FOR PPC OVERLAY DETAILS, SEE SHEET 10 OF 10.  
 FOR INTERMEDIATE CROSSFRAMES, SEE SHEET 1 OF 10.  
 FOR GIRDER BUILDUP, DETAIL B, SEE SHEET 1 OF 10.  
 CONTRACTOR SHALL TINE THE DECK AND GROOVE THE PPC OVERLAY. FOR DETAILS, SEE SPECIAL PROVISIONS.



**DETAIL A AT STRINGER**  
 (PPC OVERLAY NOT SHOWN FOR CLARITY)  
 (DIMENSIONS SHOWN DO NOT INCLUDE PPC OVERLAY)

**TYPICAL SECTION**  
 (CROSSFRAMES SHOWN TYPICAL OF CROSSFRAMES AT BENTS)



**DETAIL C**  
 THE GRADE POINT IS AT THE TOP OF THE PPC OVERLAY

ESTIMATED STRINGER BUILDUP DIM "C"								
STRINGER	BUILDUP AT CENTERLINE OF FLOORBEAM AT CROSSFRAME POINTS *							
	A1	A5	1	12	26	37	E1	E5
1 & 8	2 3/4"	2 1/4"	3 1/4"	3 3/4"	2 1/2"	4"	3 1/4"	2 1/2"
2 & 7	4 3/4"	4"	5"	5 1/2"	4 1/2"	5 3/4"	5 1/4"	4 1/2"
3 & 6	2 3/4"	2 1/4"	2 1/2"	3"	2"	3 1/4"	3 1/4"	2 1/2"
4 & 5	4 3/4"	4 1/4"	4 1/2"	5 1/4"	4"	5 1/4"	5 1/4"	4 1/2"

ESTIMATED STRINGER TOP OF SLAB TO BOTTOM OF TOP FLANGE DIM "D"								
STRINGER	BUILDUP AT CENTERLINE OF FLOORBEAM AT CROSSFRAME POINTS *							
	A1	A5	1	12	26	37	E1	E5
1 & 8	11 1/4"	10 3/4"	10 1/2"	11"	9 3/4"	11 1/4"	11 3/4"	11"
2 & 7	1'-1 1/4"	1'-0 1/2"	1'-0 1/4"	1'-0 3/4"	11 3/4"	1'-1"	1'-1 3/4"	1'-1"
3 & 6	11 1/4"	10 3/4"	9 3/4"	10 1/4"	9 1/4"	10 1/2"	11 3/4"	11"
4 & 5	1'-1 1/4"	1'-1 3/4"	11 3/4"	1'-0 1/2"	11 1/4"	1'-0 1/2"	1'-1 3/4"	1'-1"

\* VALUES REPORTED TO NEAREST 1/4"

PROJECT NO. 15BPR.20  
HENDERSON COUNTY  
 STATION: 35+30.22 -L-

SHEET 2 OF 10



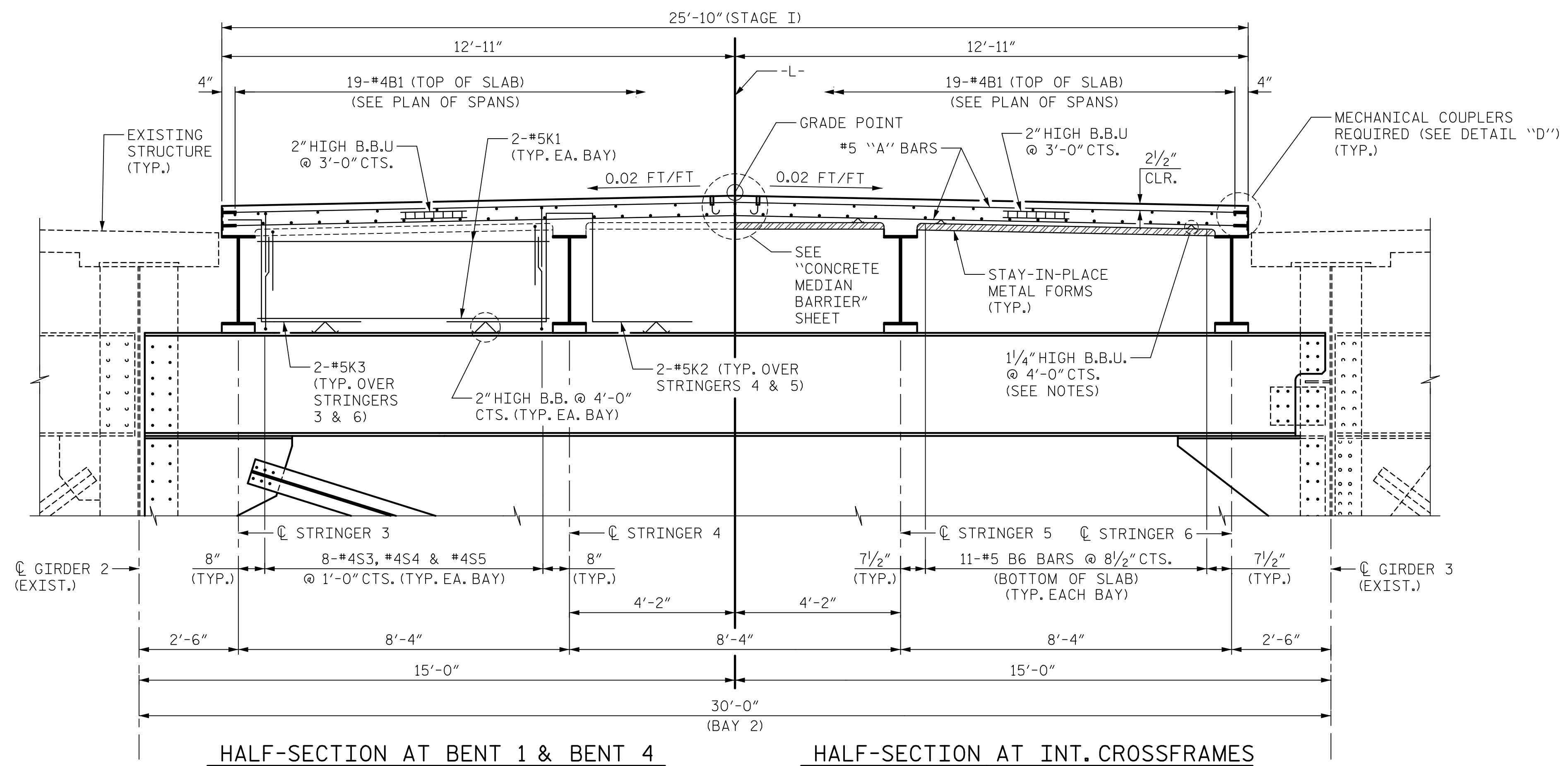
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE  
 TYPICAL SECTION  
 FINAL STAGE  
 AND PPC OVERLAY

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-24
1			3			TOTAL SHEETS
2			4			129

DOCUMENT NOT CONSIDERED  
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 SIGNATURES COMPLETED

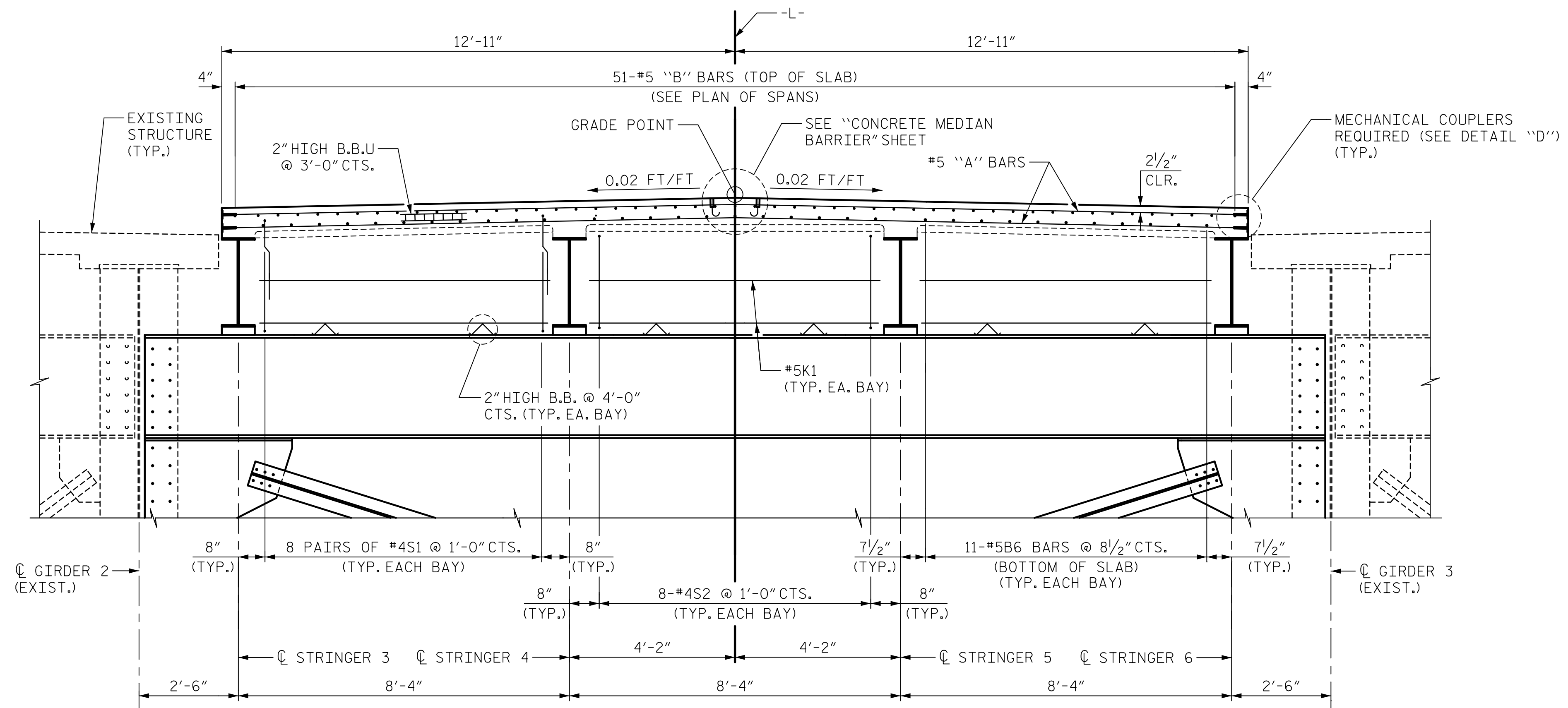
DRAWN BY : S. STREDAK DATE : 4/2019  
 CHECKED BY : J. SLOAN DATE : 4/2019  
 DESIGNED BY : N. BROWN/D. TUTTLE DATE : 4/2019  
 DESIGN CHECKED BY : J. SLOAN/J. LIU DATE : 4/2019

DATE: 2/27/2020  
TIME: 3:56:16 PM



HALF-SECTION AT BENT 1 & BENT 4      HALF-SECTION AT INT. CROSSFRAMES

**TYPICAL SECTION**  
FOR ADDITIONAL DIMENSIONS, SEE SHEET 1.



**TYPICAL SECTION AT END BENT**  
FOR ADDITIONAL DIMENSIONS, SEE SHEET 1 AND SECTION ABOVE.

**NOTES:**

PROVIDE 1/4" HIGH BEAM BOLSTERS UPPER AT 4'-0" CTS. ATOP OF METAL STAY-IN-PLACE FORMS TO SUPPORT THE BOTTOM MAT OF "A" BARS.  
FOR EACH STAGE, PREVIOUSLY CAST CONCRETE IN A CONTINUOUS UNIT SHALL ATTAINED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI BEFORE ADDITIONAL CONCRETE IS CAST IN THE UNIT.  
FOR DETAIL "D", SEE SHEET 10 OF 10.

USER: HrcH\Rosemond, Dgn: R:\Structures\04 Drawings\01\_049\_15BPR.20\_SMT\_123.dgn

DRAWN BY : M. K. TOM	DATE : 1/2019
CHECKED BY : G. R. COLS	DATE : 1/2019
DESIGNED BY : H. R. ROSEMOND	DATE : 1/2019
DESIGN CHECKED BY : J. SLOAN/J. LIU	DATE : 1/2019

PROJECT NO. 15BPR.20  
HENDERSON COUNTY  
STATION: 35+30.22 -L-  
SHEET 3 OF 10

**AECOM**  
AECOM TECHNICAL SERVICES OF NC, INC.  
701 CORPORATE CENTER DRIVE, SUITE 475  
RALEIGH, NC 27607  
(919) 854-6200 www.aecom.com  
AECOM License No. F-0342

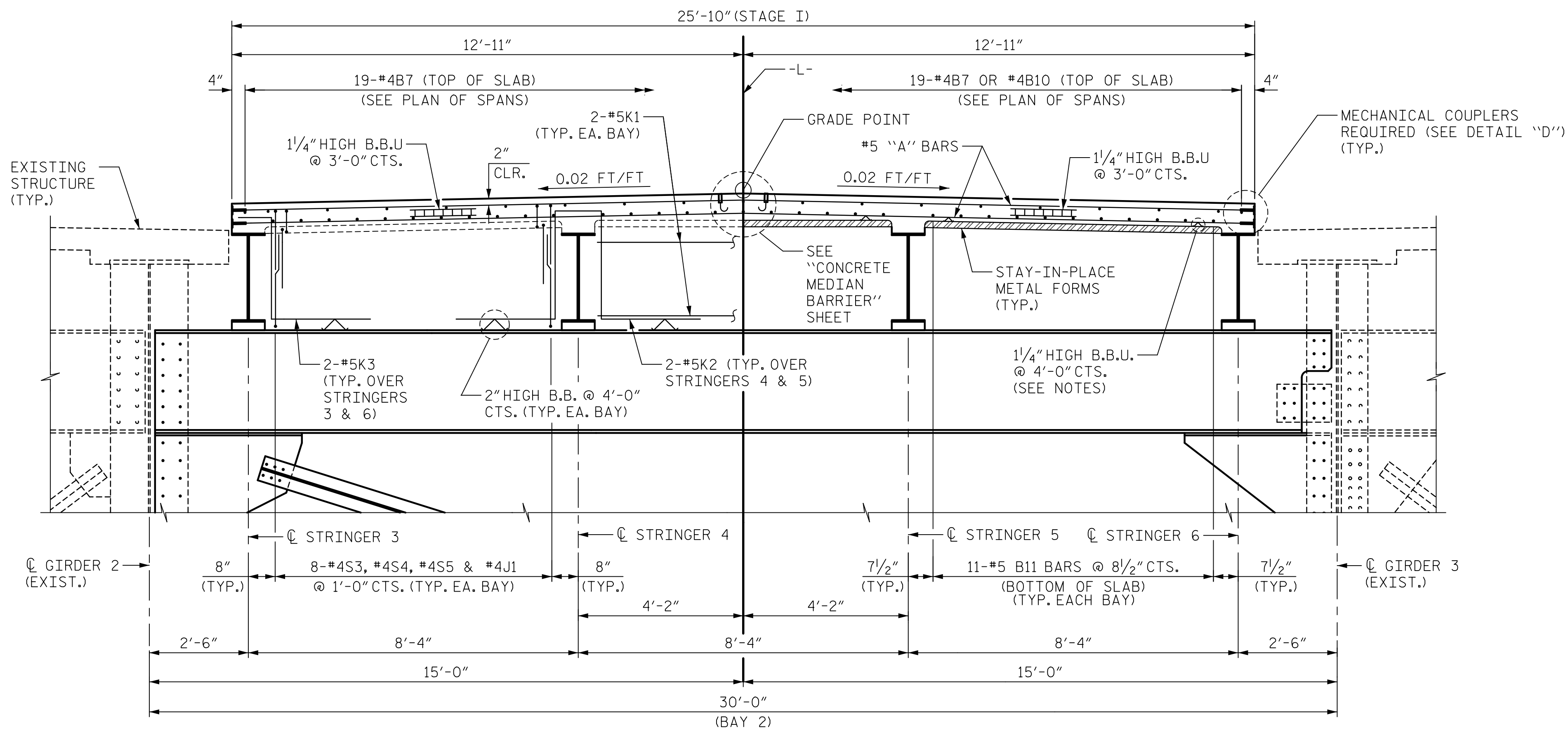
STATE OF NORTH CAROLINA  
Professional Engineer  
JOHN E. SLOAN  
035062  
2/28/2020

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE					
TYPICAL SECTION STAGE I SPANS A & E					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. S-25					TOTAL SHEETS 129

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



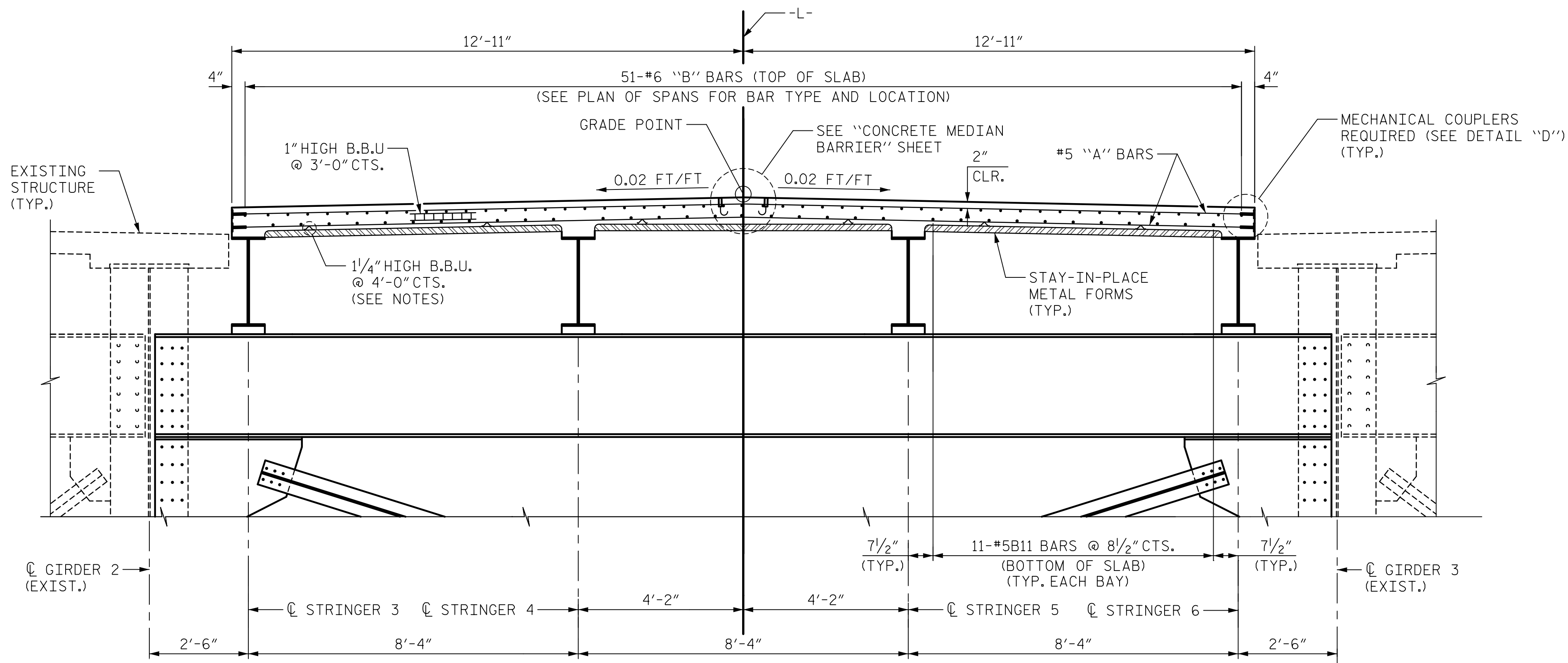
DATE: 2/27/2020  
TIME: 3:55:56 PM



HALF-SECTION AT BENT 1 & BENT 4      HALF-SECTION AT INT. CROSSFRAME

**TYPICAL SECTION**

FOR ADDITIONAL DIMENSIONS, SEE SHEET 1.



**TYPICAL SECTION AT BENTS 2 AND 3**

FOR ADDITIONAL DIMENSIONS, SEE SHEET 1.

**NOTES:**

PROVIDE 1/4" HIGH BEAM BOLSTERS UPPER AT 4'-0" CTS. ATOP OF METAL STAY-IN-PLACE FORMS TO SUPPORT THE BOTTOM MAT OF "A" BARS.

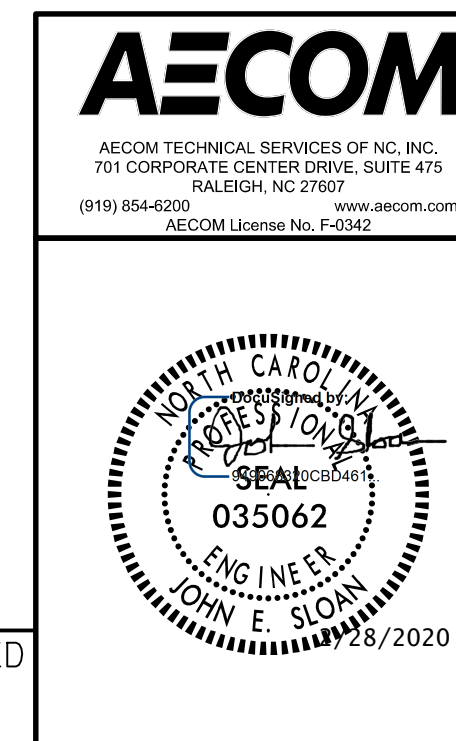
FOR EACH STAGE, PREVIOUSLY CAST CONCRETE IN A CONTINUOUS UNIT SHALL ATTAINED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI BEFORE ADDITIONAL CONCRETE IS CAST IN THE UNIT.

FOR DETAIL "D", SEE SHEET 10 OF 10.

USER: MrcH\Resmond\Drawings\01\_051\_15BPR20\_SMLT\S4.dgn

DRAWN BY : M. K. TOM      DATE : 1/2019  
 CHECKED BY : G. R. COLS      DATE : 1/2019  
 DESIGNED BY : H. T. ROSEMOND      DATE : 1/2019  
 DESIGN CHECKED BY : J. SLOAN/J. LIU      DATE : 1/2019

DOCUMENT NOT CONSIDERED  
 FINAL UNLESS ALL  
 SIGNATURES COMPLETED



PROJECT NO. 15BPR.20  
HENDERSON COUNTY  
 STATION: 35+30.22 -L-

SHEET 4 OF 10

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

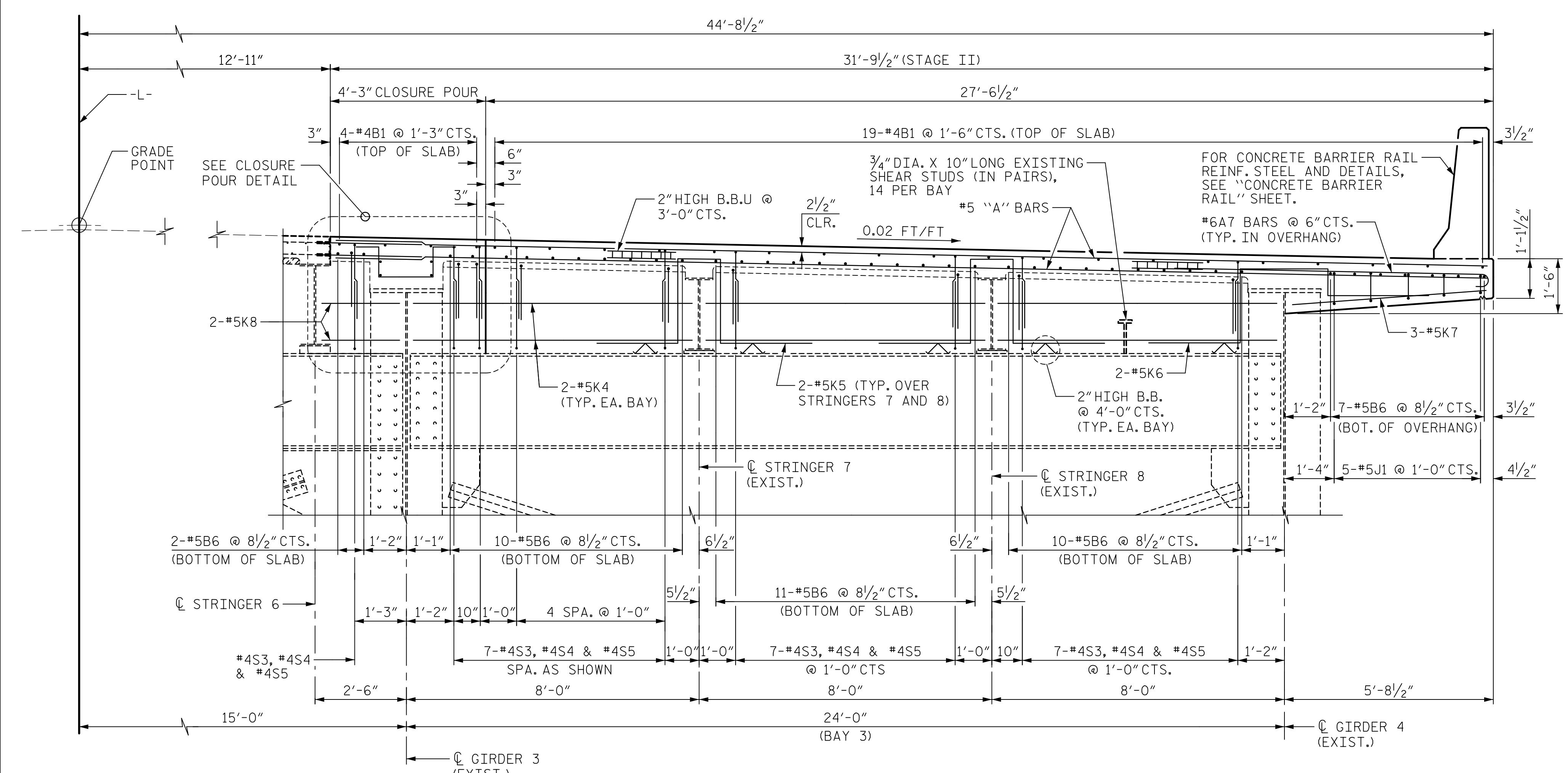
SUPERSTRUCTURE

TYPICAL SECTION  
 STAGE I  
 SPANS B-D

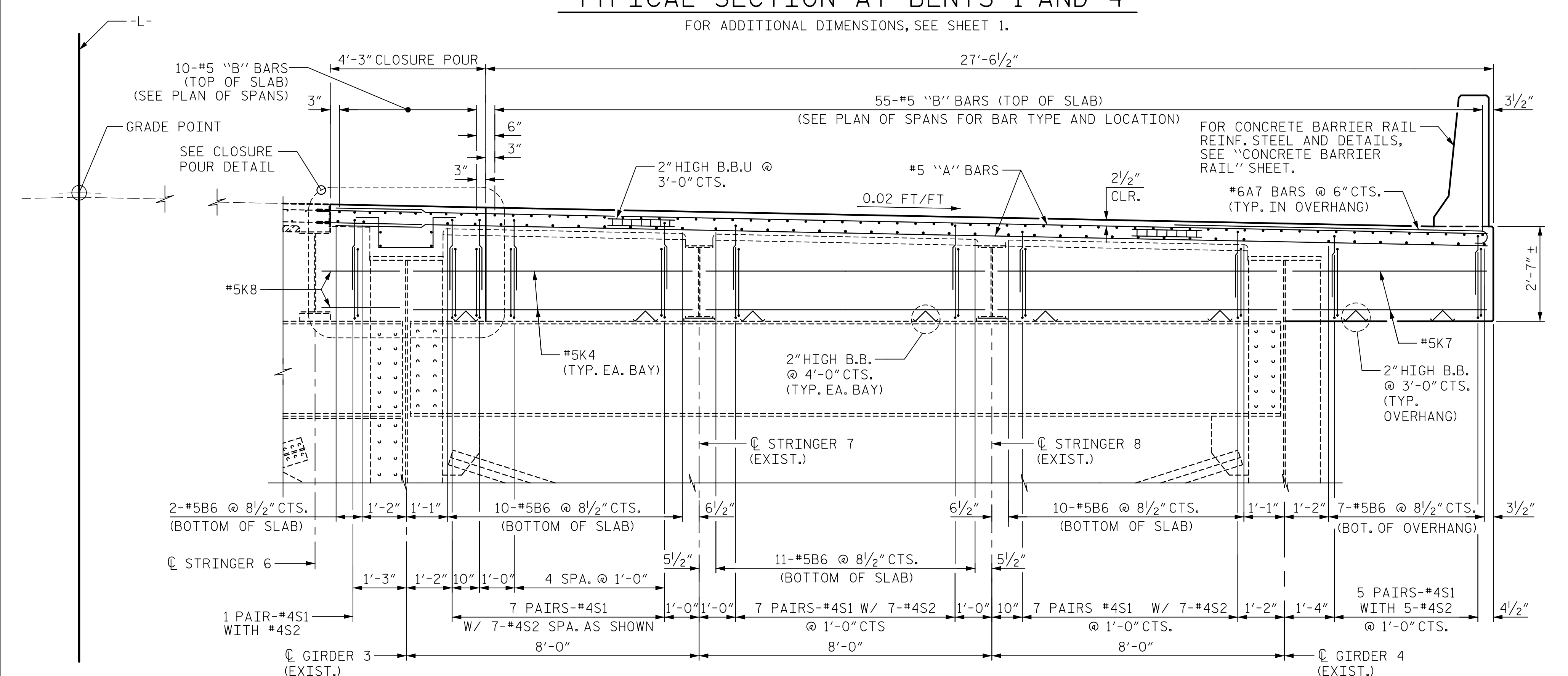
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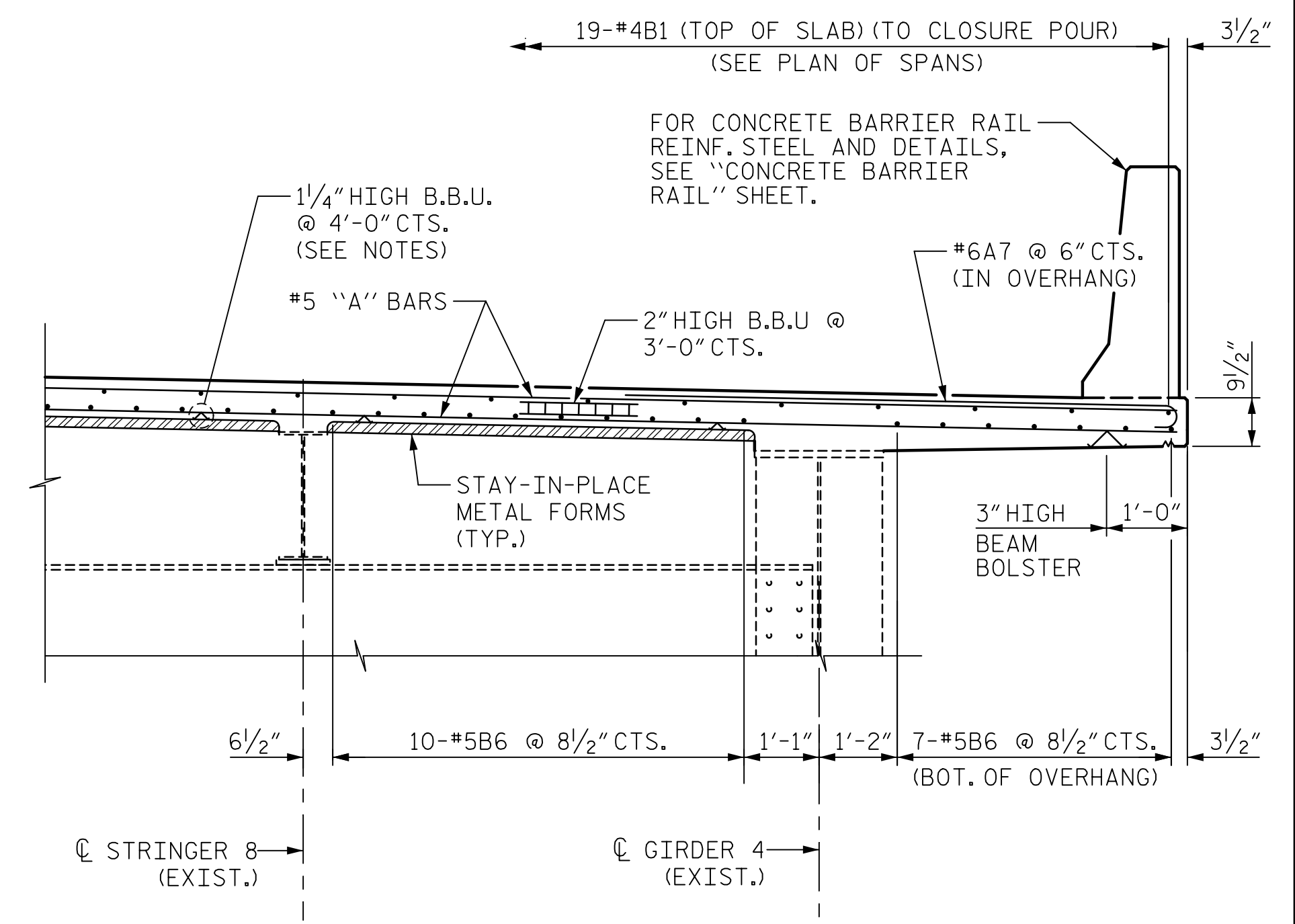
**TYPICAL SECTION AT BENTS 1 AND 4**  
FOR ADDITIONAL DIMENSIONS, SEE SHEET 1.



**TYPICAL SECTION AT END BENT**  
FOR ADDITIONAL DIMENSIONS, SEE SHEET 1 AND SECTION ABOVE.

**NOTES:**

FOR NOTES, SEE SHEET 2 OF 10.  
FOR CLOSURE POUR DETAIL, SEE SHEET 10 OF 10.  
THE BAYS 1 AND 3 FLOORBEAMS HAVE 3/4" DIAMETER X 10" LONG SHEAR STUDS ON THE TOP FLANGE FROM THE 1993 REHABILITATION. CONTRACTOR SHALL PRESERVE AND RETAIN THE STUDS ON THE FLOORBEAMS.



**PART TYPICAL SECTION AT INT. CROSSFRAME**

PROJECT NO. 15BPR.20  
HENDERSON COUNTY  
STATION: 35+30.22 -L-  
SHEET 5 OF 10



STATE OF NORTH CAROLINA  
**DEPARTMENT OF TRANSPORTATION**  
RALEIGH  
SUPERSTRUCTURE  
**TYPICAL SECTION**  
STAGE II  
SPANS A & E

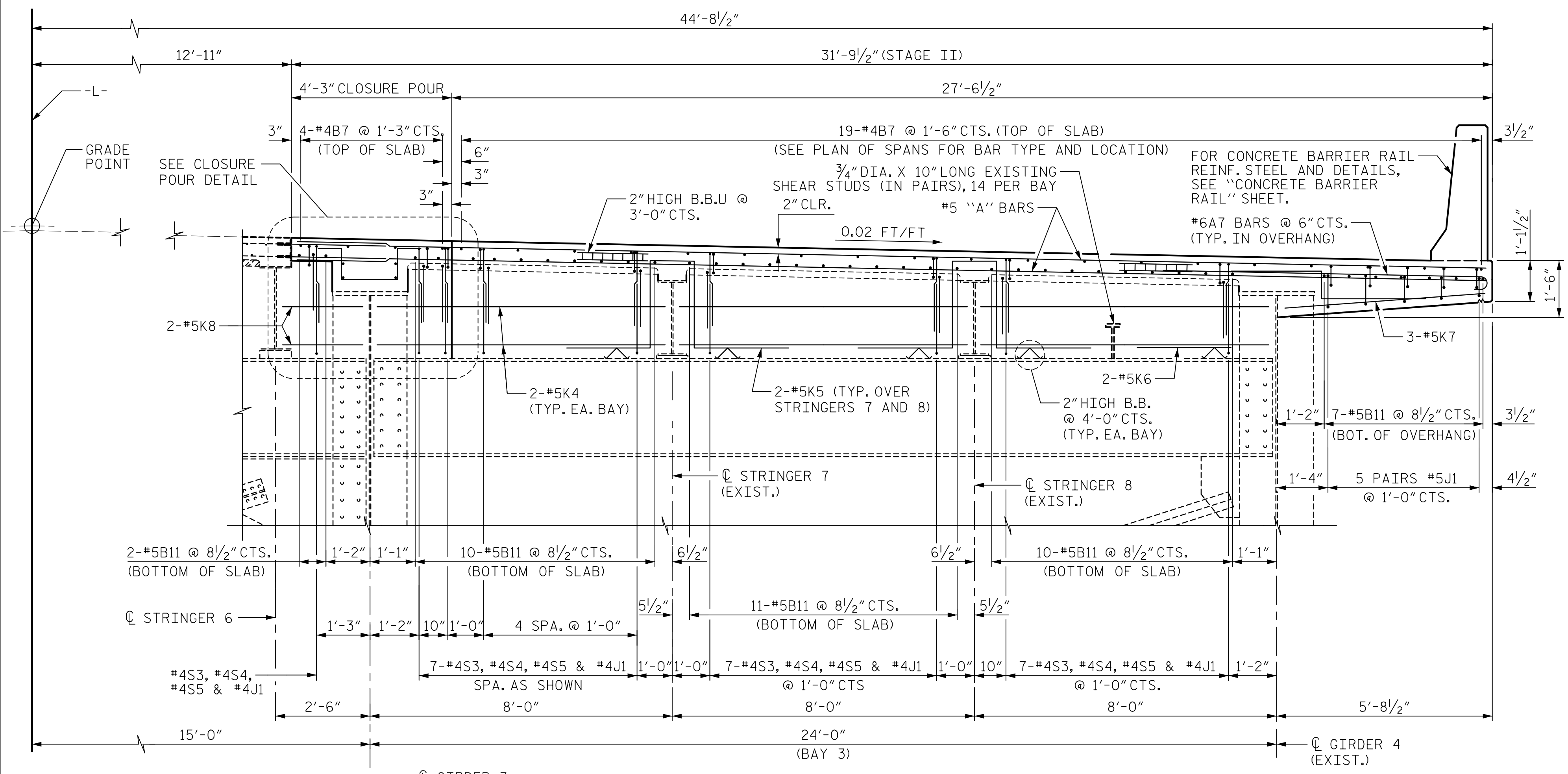
DRAWN BY : M.K. TOM DATE : 1/2019  
CHECKED BY : J.E. SLOAN DATE : 1/2019  
DESIGNED BY : H.T. ROSEMOND DATE : 1/2019  
DESIGN CHECKED BY : J. SLOAN/J. LIU DATE : 1/2019

DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED

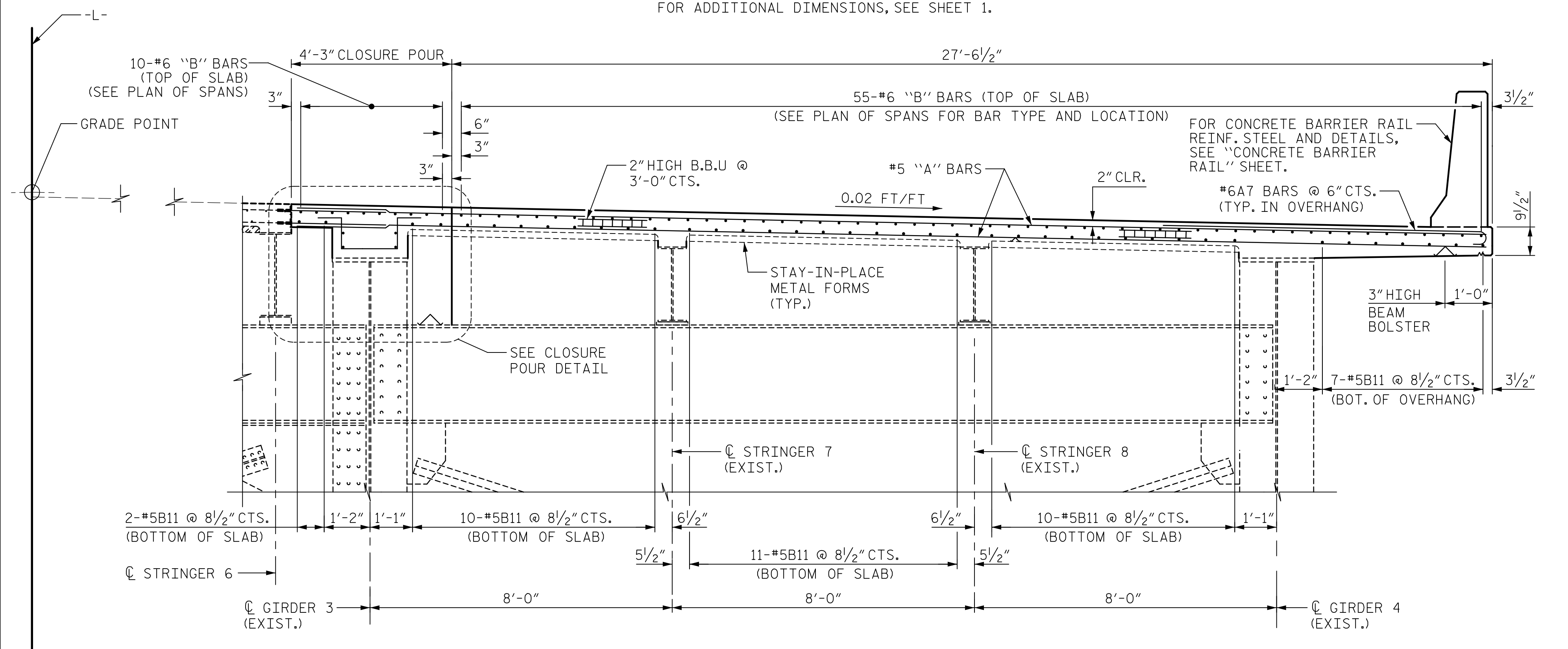
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TIME: 3:58:45 PM

USER: Cheryl Rosemond  
DGN: R:\Structures\04 Drawings\401\_055\_15BPR.20\_SMT\_156.dgn



**TYPICAL SECTION AT BENTS 1 & 4**  
FOR ADDITIONAL DIMENSIONS, SEE SHEET 1.



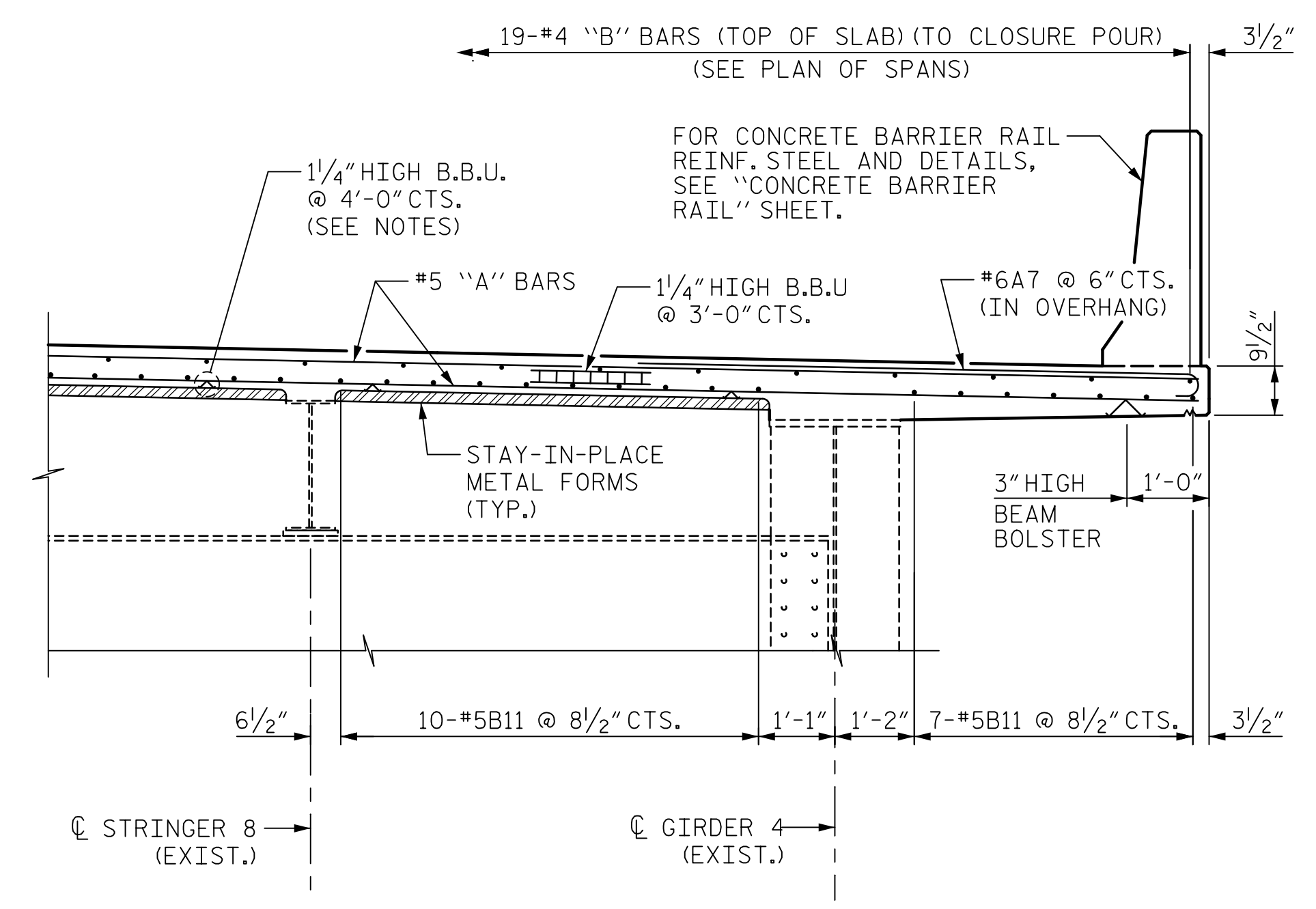
**TYPICAL SECTION AT BENTS 2 & 3**  
FOR ADDITIONAL DIMENSIONS, SEE SHEET 1 AND SECTION ABOVE.

**NOTES:**

FOR NOTES, SEE SHEET 2 OF 10.

FOR CLOSURE POUR DETAIL, SEE SHEET 10 OF 10.

THE BAYS 1 AND 3 FLOORBEAMS HAVE 3/4\"/>



**PART TYPICAL SECTION AT INT. CROSSFRAME**

DRAWN BY : M. K. TOM	DATE : 1/2019
CHECKED BY : G. R. COLS	DATE : 1/2019
DESIGNED BY : H. T. ROSEMOND	DATE : 1/2019
DESIGN CHECKED BY : J. SLOAN/J. LIU	DATE : 1/2019

DOCUMENT NOT CONSIDERED  
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SIGNATURES COMPLETED



PROJECT NO. 15BPR.20  
HENDERSON COUNTY  
STATION: 35+30.22 -L-

SHEET 6 OF 10

STATE OF NORTH CAROLINA  
**DEPARTMENT OF TRANSPORTATION**  
RALEIGH

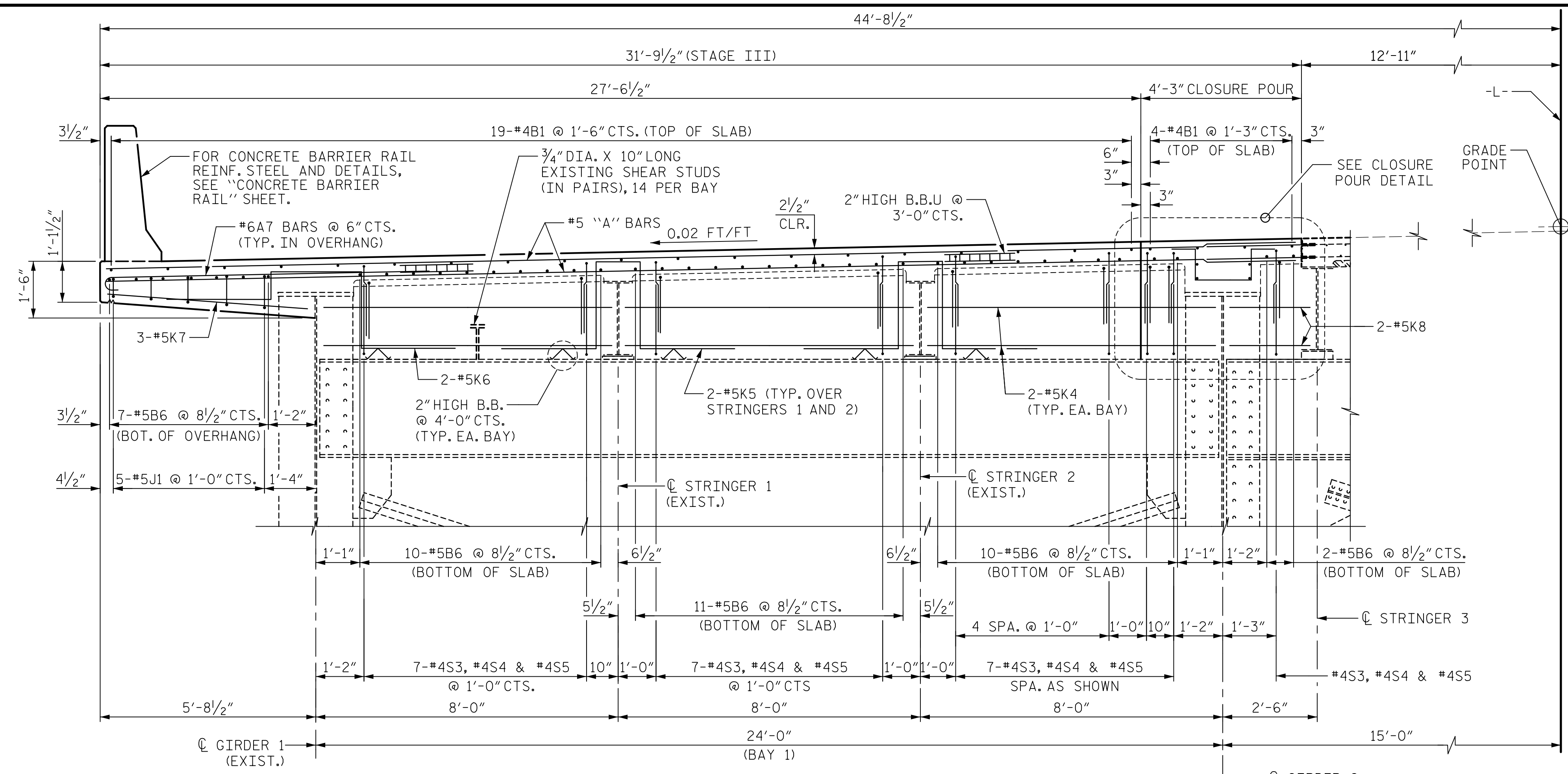
SUPERSTRUCTURE

**TYPICAL SECTION**  
STAGE II  
SPANS B-D

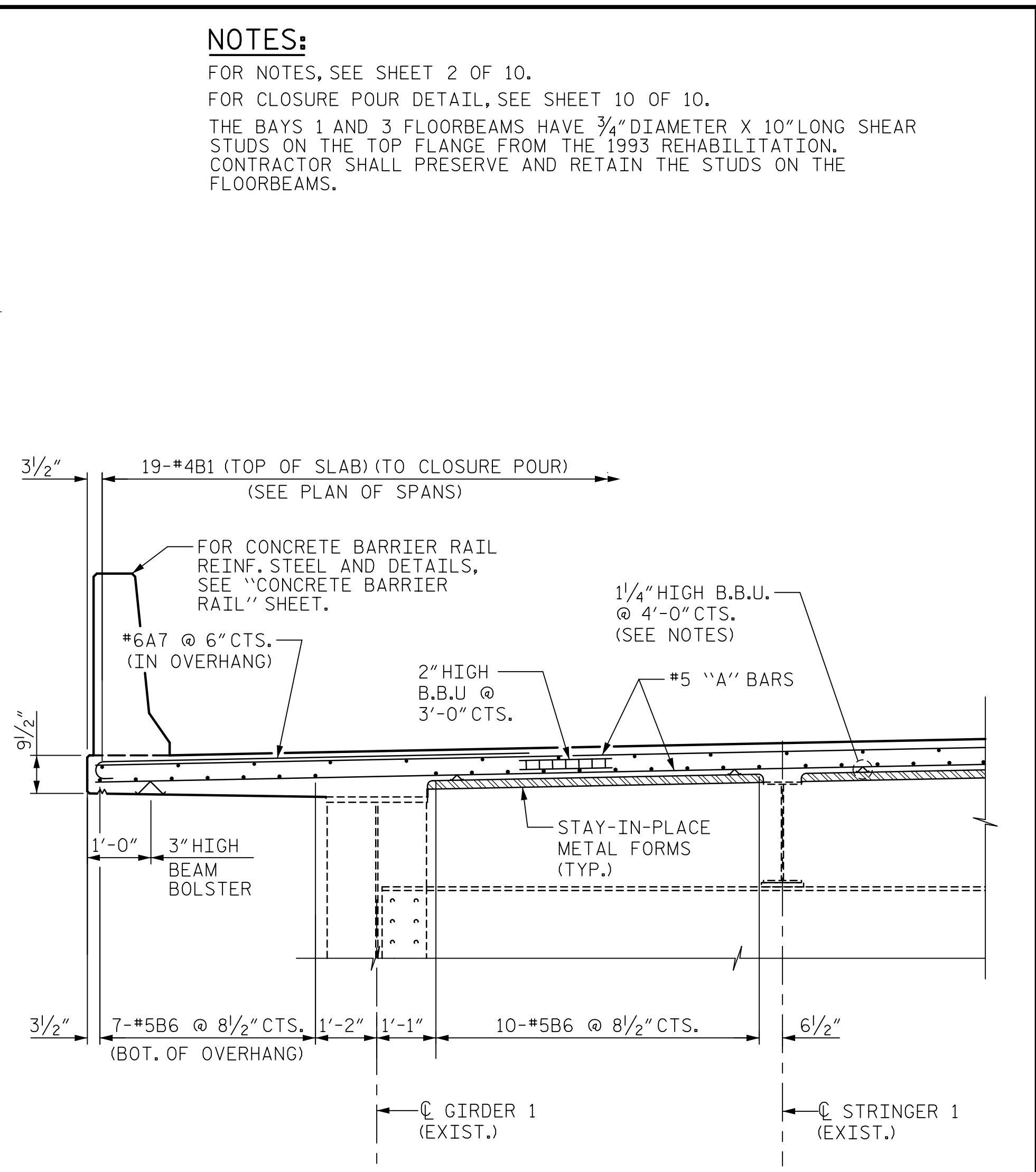
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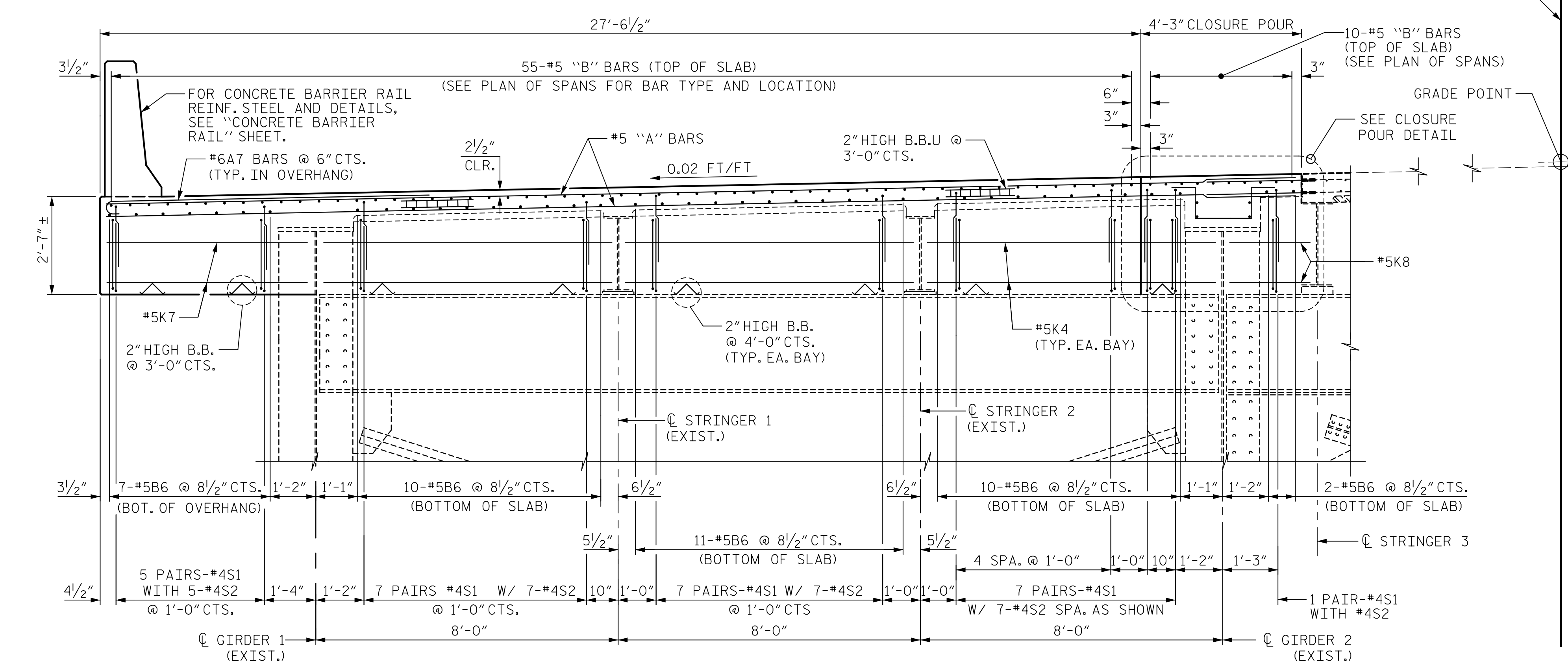
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**TYPICAL SECTION AT BENTS 1 AND 4**  
FOR ADDITIONAL DIMENSIONS, SEE SHEET 1.



**PART TYPICAL SECTION AT INT. CROSSFRAME**



**TYPICAL SECTION AT END BENT**  
FOR ADDITIONAL DIMENSIONS, SEE SHEET 1 AND SECTION ABOVE.

**NOTES:**  
FOR NOTES, SEE SHEET 2 OF 10.  
FOR CLOSURE POUR DETAIL, SEE SHEET 10 OF 10.  
THE BAYS 1 AND 3 FLOORBEAMS HAVE 3/4" DIAMETER X 10" LONG SHEAR STUDS ON THE TOP FLANGE FROM THE 1993 REHABILITATION. CONTRACTOR SHALL PRESERVE AND RETAIN THE STUDS ON THE FLOORBEAMS.

PROJECT NO. 15BPR.20  
HENDERSON COUNTY  
STATION: 35+30.22 -L-  
SHEET 7 OF 10



STATE OF NORTH CAROLINA  
**DEPARTMENT OF TRANSPORTATION**  
RALEIGH  
SUPERSTRUCTURE  
**TYPICAL SECTION**  
STAGE III  
SPANS A & E

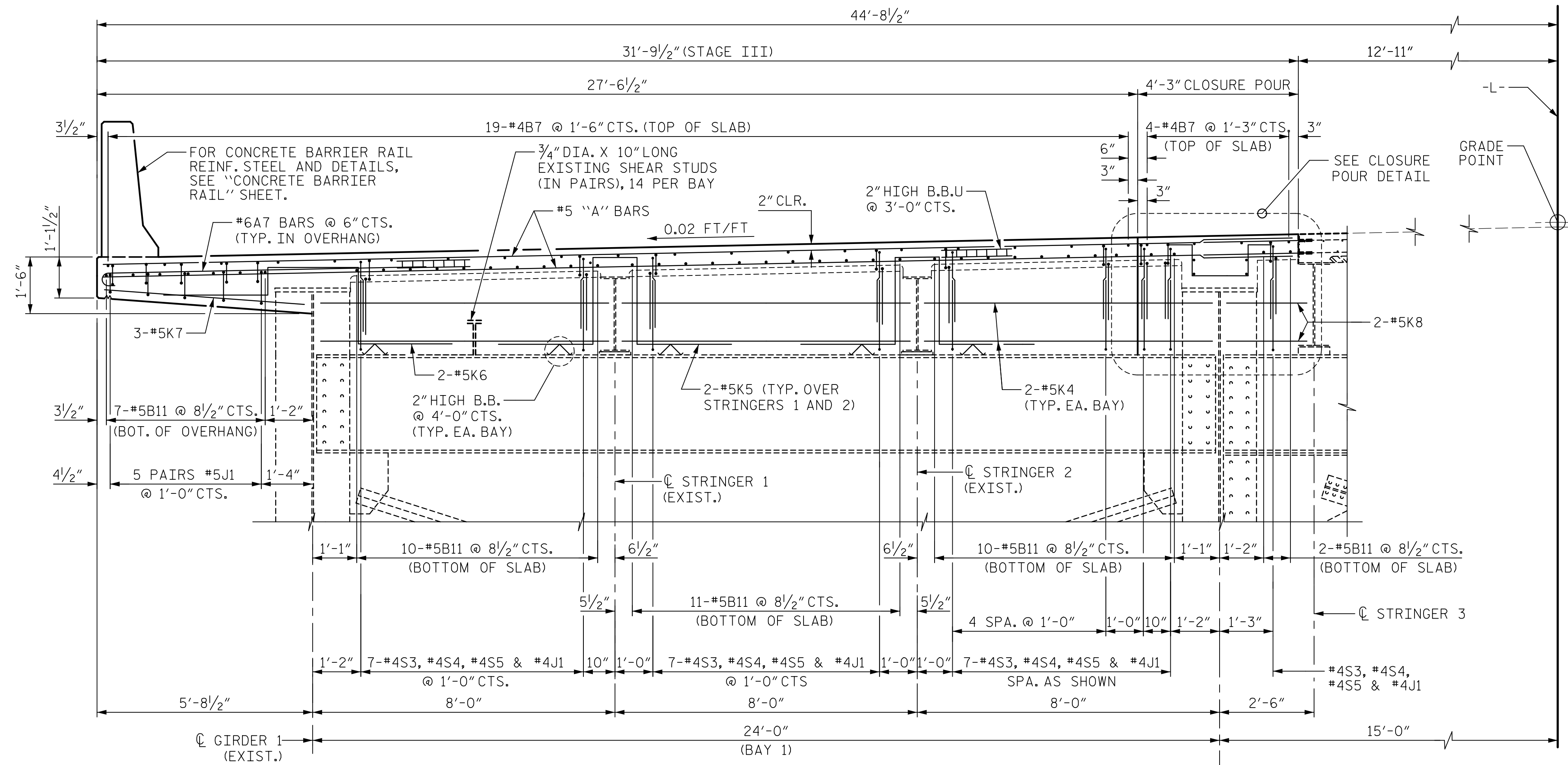
DRAWN BY: M.K. TOM DATE: 1/2019  
CHECKED BY: G.R. COLS DATE: 1/2019  
DESIGNED BY: H.T. ROSEMOND DATE: 1/2019  
DESIGN CHECKED BY: J. SLOAN/J. LIU DATE: 1/2019

DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
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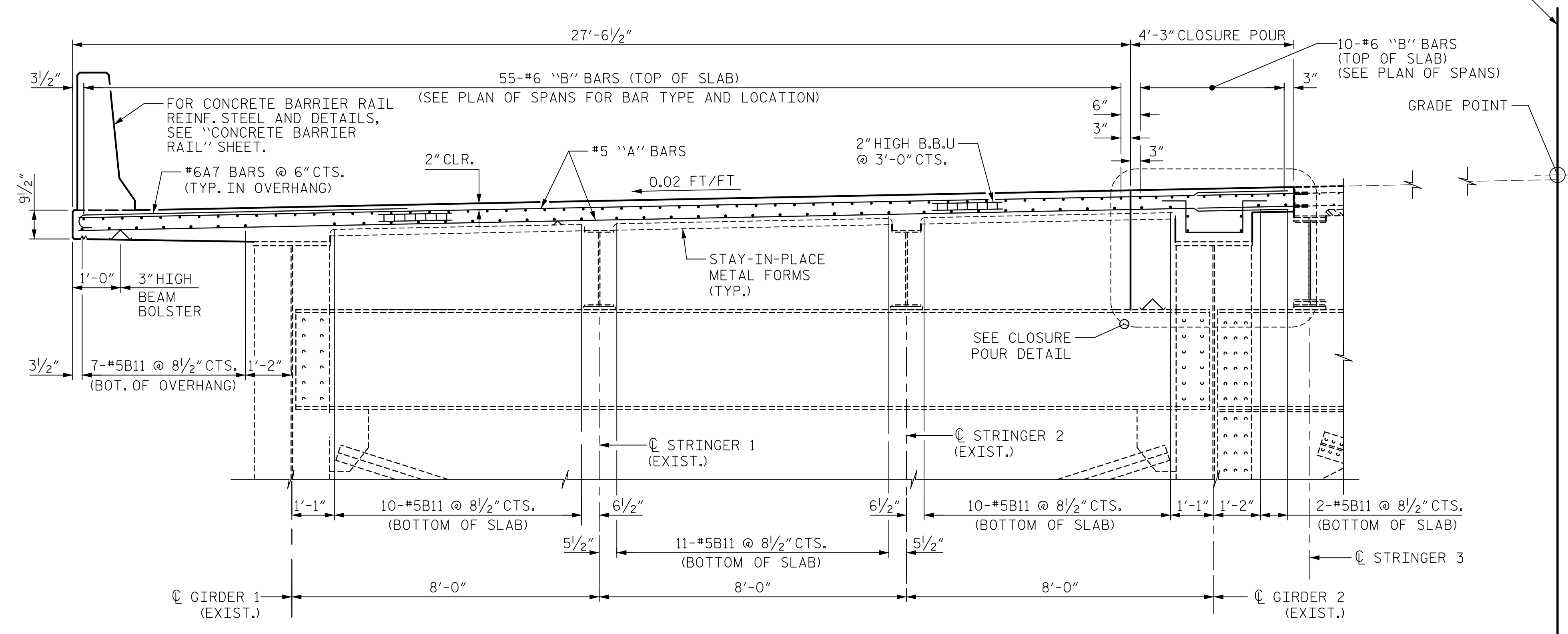
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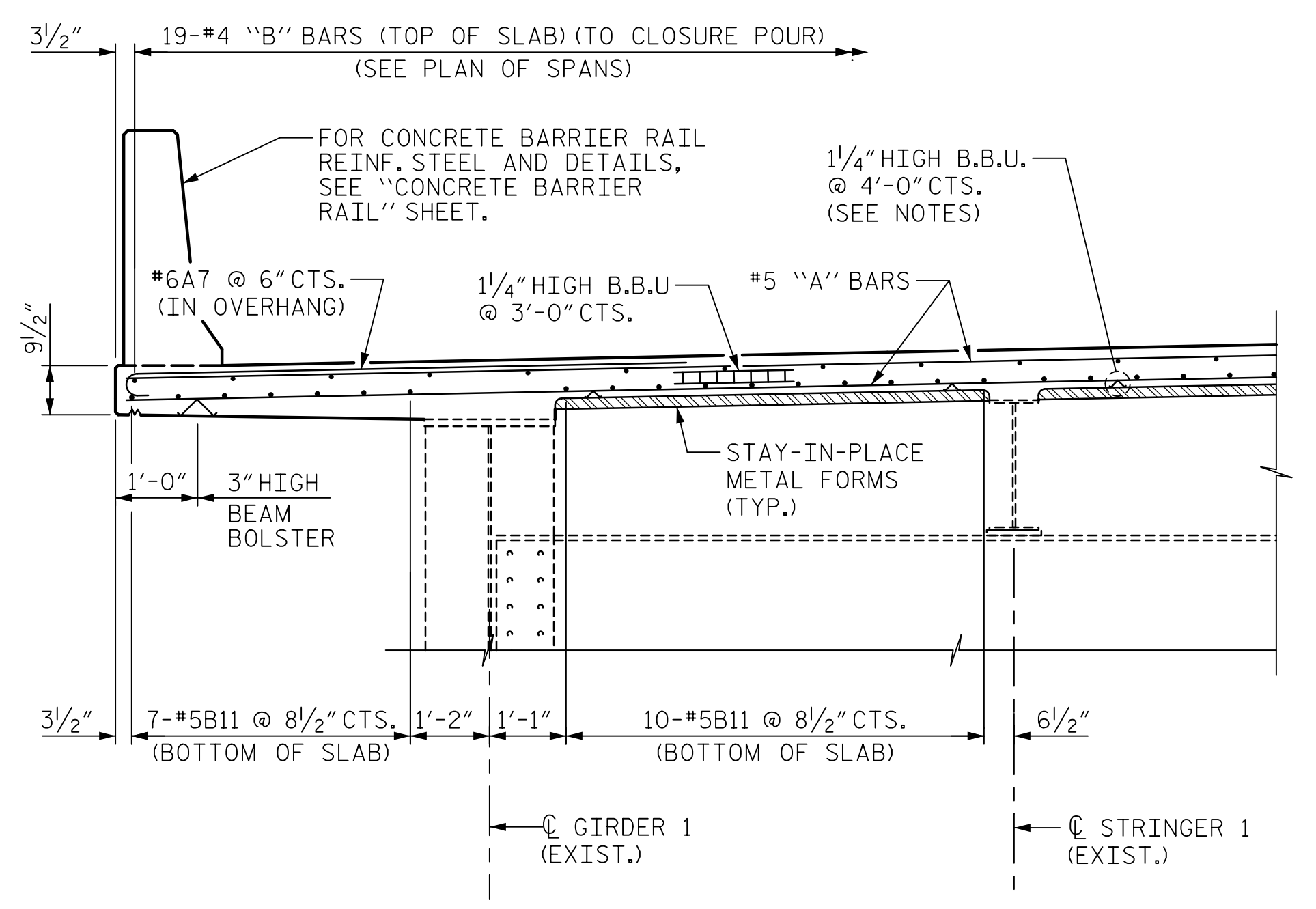


**TYPICAL SECTION AT BENTS 1 & 4**  
FOR ADDITIONAL DIMENSIONS, SEE SHEET 1.



**TYPICAL SECTION AT BENTS 2 & 3**  
FOR ADDITIONAL DIMENSIONS, SEE SHEET 1 SEE SECTION ABOVE.

**NOTES:**  
FOR NOTES, SEE SHEET 2 OF 10.  
FOR CLOSURE POUR DETAIL, SEE SHEET 10 OF 10.  
THE BAYS 1 AND 3 FLOORBEAMS HAVE 3/4\"/>



**PART TYPICAL SECTION AT INT. CROSSFRAME**

DRAWN BY : M.K. TOM DATE : 1/2019  
CHECKED BY : G.R. COLS DATE : 1/2019  
DESIGNED BY : H.T. ROSEMOND DATE : 1/2019  
DESIGN CHECKED BY : J. SLOAN/J. LIU DATE : 1/2019

DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED



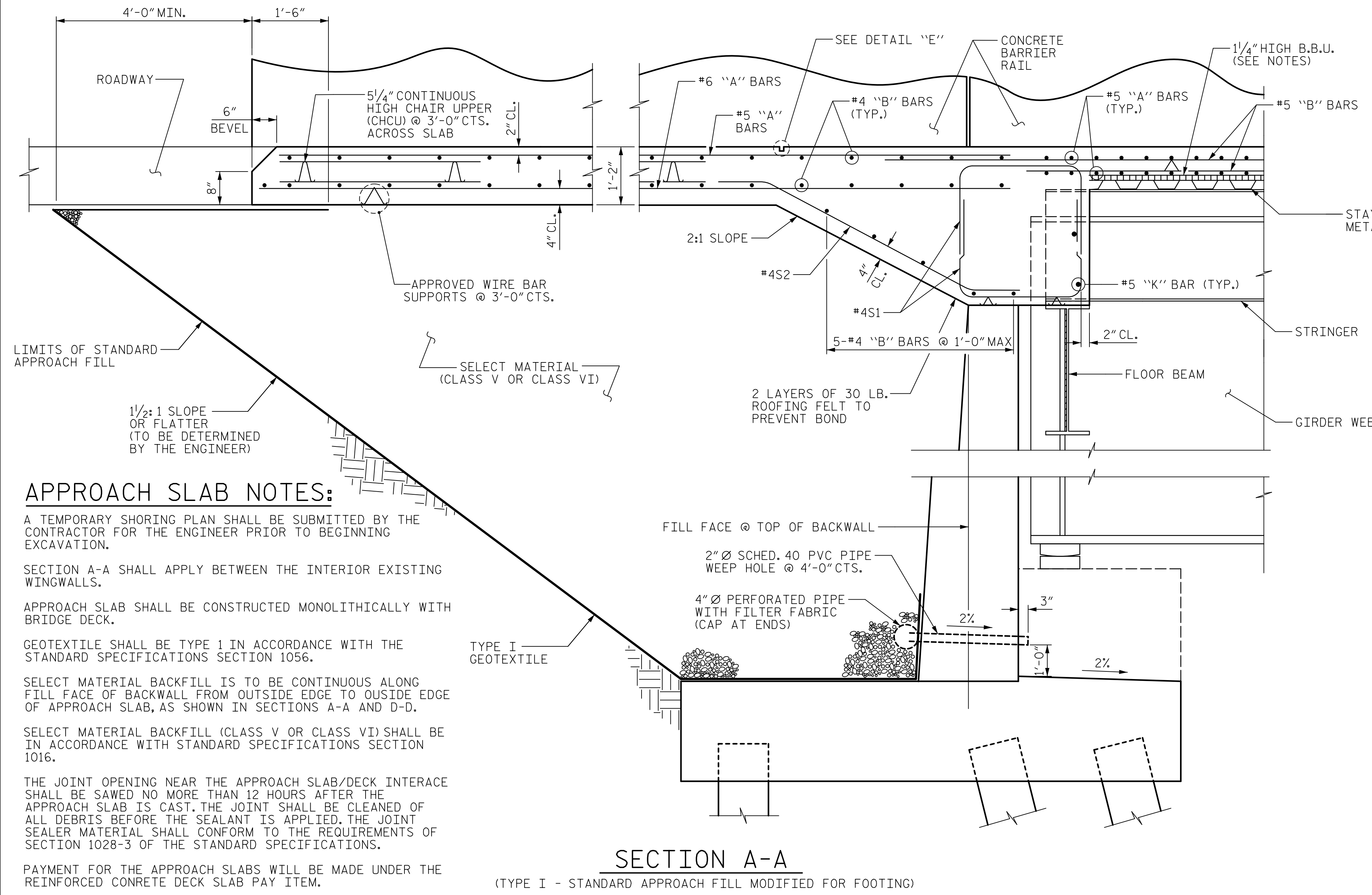
PROJECT NO. 15BPR.20  
HENDERSON COUNTY  
STATION: 35+30.22 -L-  
SHEET 8 OF 10

STATE OF NORTH CAROLINA  
**DEPARTMENT OF TRANSPORTATION**  
RALEIGH  
SUPERSTRUCTURE  
**TYPICAL SECTION**  
STAGE III  
SPANS B-D

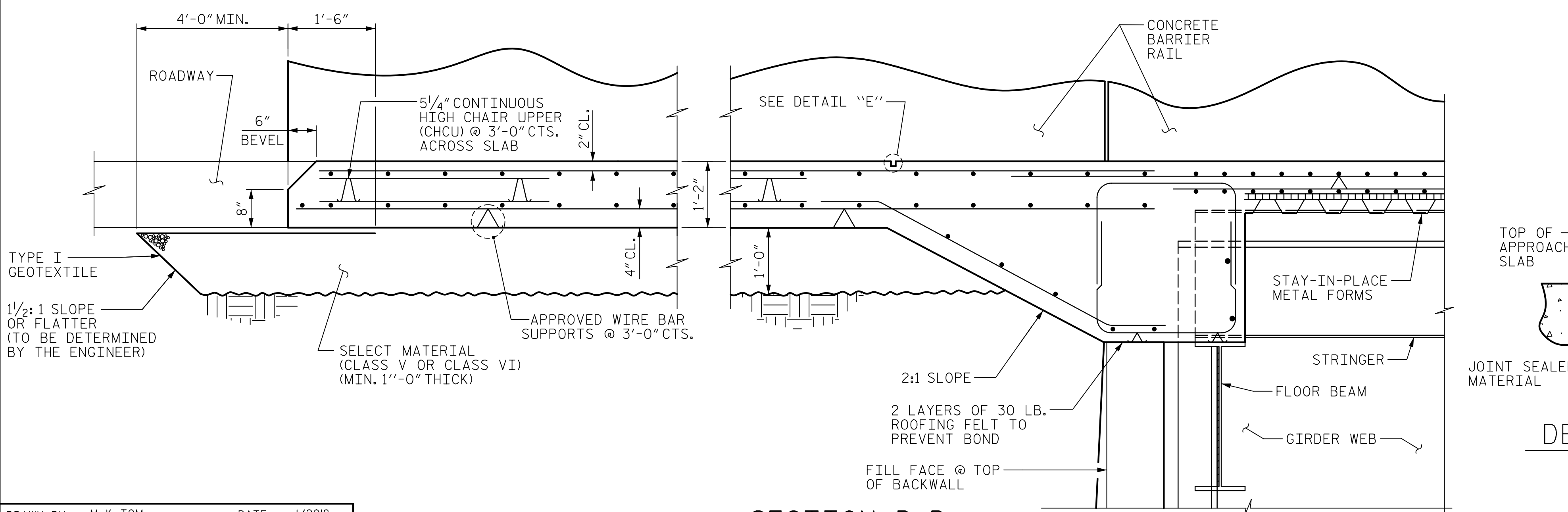
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NO.	BY:	DATE:	NO.	BY:	DATE:	S-30
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DATE: 2/27/2020 TIME: 3:50:42 PM

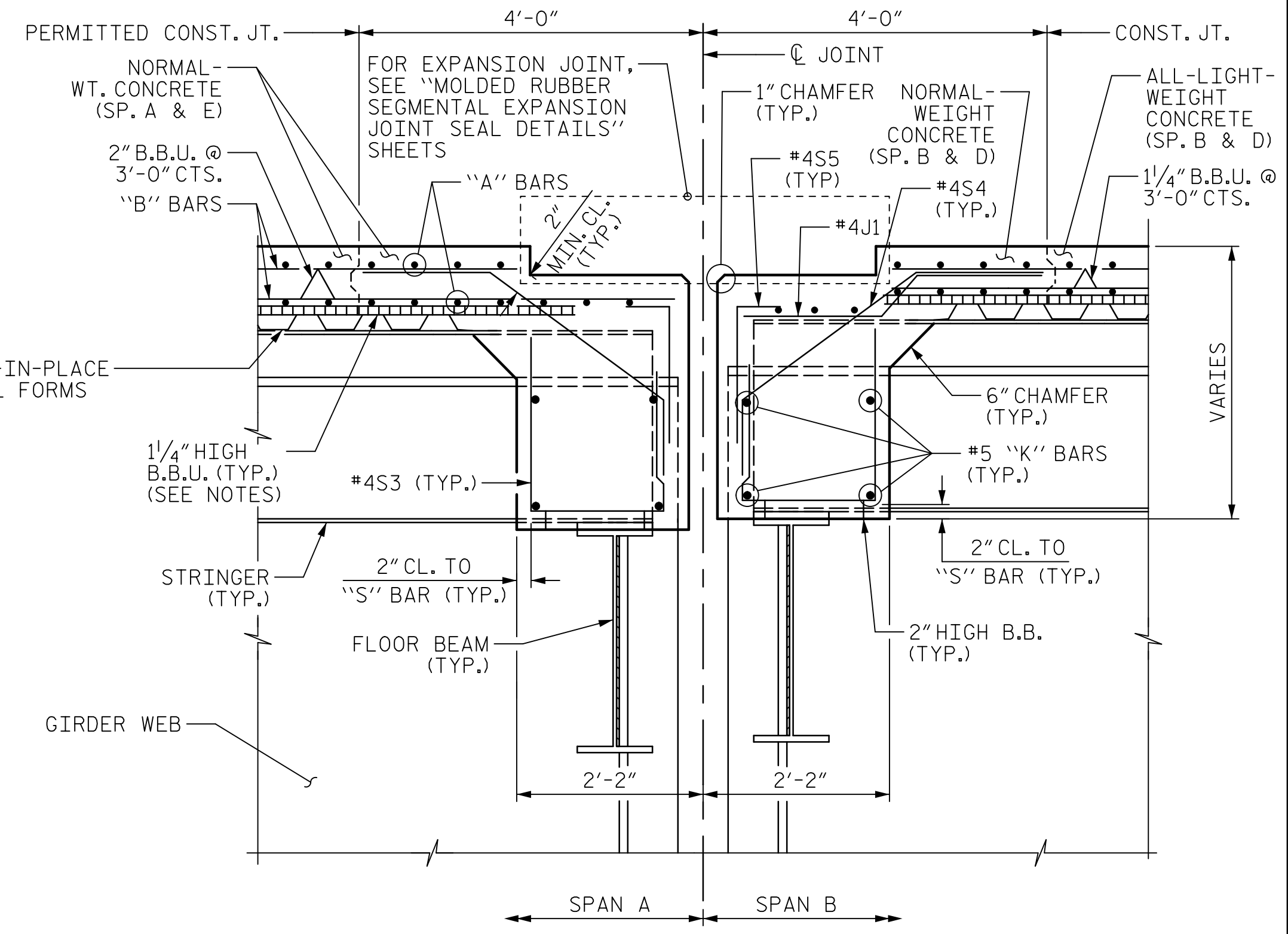
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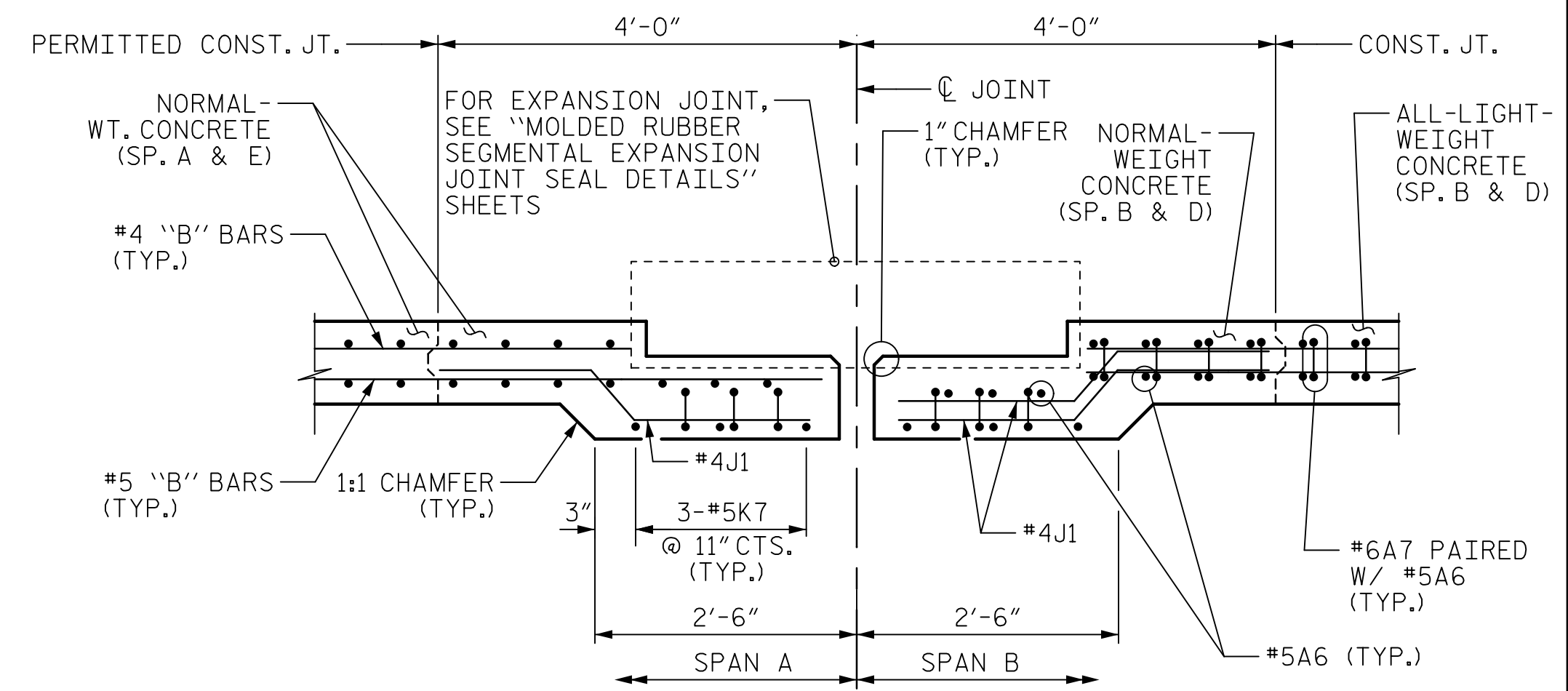
**SECTION A-A**  
(TYPE I - STANDARD APPROACH FILL MODIFIED FOR FOOTING)



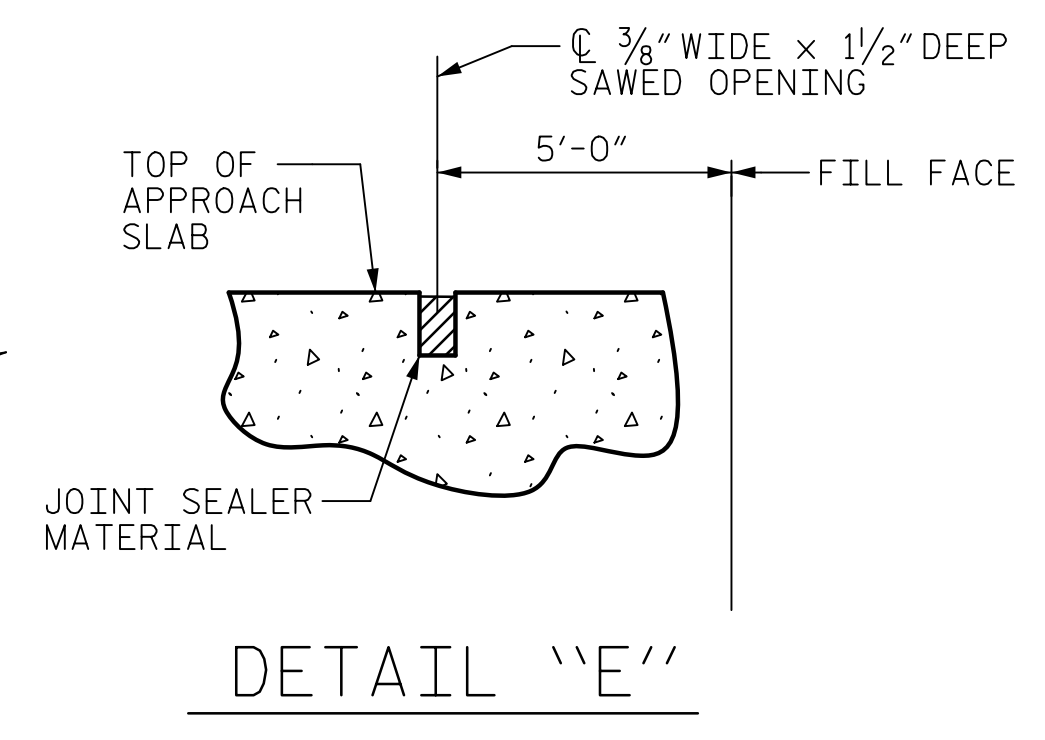
**SECTION D-D**  
SEE SECTION A-A ABOVE FOR REINFORCING DETAILS



**SECTION B-B**  
SHOWN AT BENT 1 DIAPHRAGM



**SECTION C-C**  
SHOWN AT BENT 1 THICKENED SLAB END AT OVERHANG



**DETAIL 'E'**

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DRAWN BY : M.K. TOM DATE : 1/2018  
 CHECKED BY : G.R. COLS DATE : 1/2018  
 DESIGNED BY : H.T. ROSEMOND DATE : 1/2018  
 DESIGN CHECKED BY : J. SLOAN/J. LIU DATE : 1/2018

PROJECT NO. 15BPR.20  
HENDERSON COUNTY  
 STATION: 35+30.22 -L-  
 SHEET 9 OF 10

**AECOM**  
 AECOM TECHNICAL SERVICES OF NC, INC.  
 701 CORPORATE CENTER DRIVE, SUITE 475  
 RALEIGH, NC 27607  
 (919) 854-6200 www.aecom.com  
 AECOM License No. F-0342

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

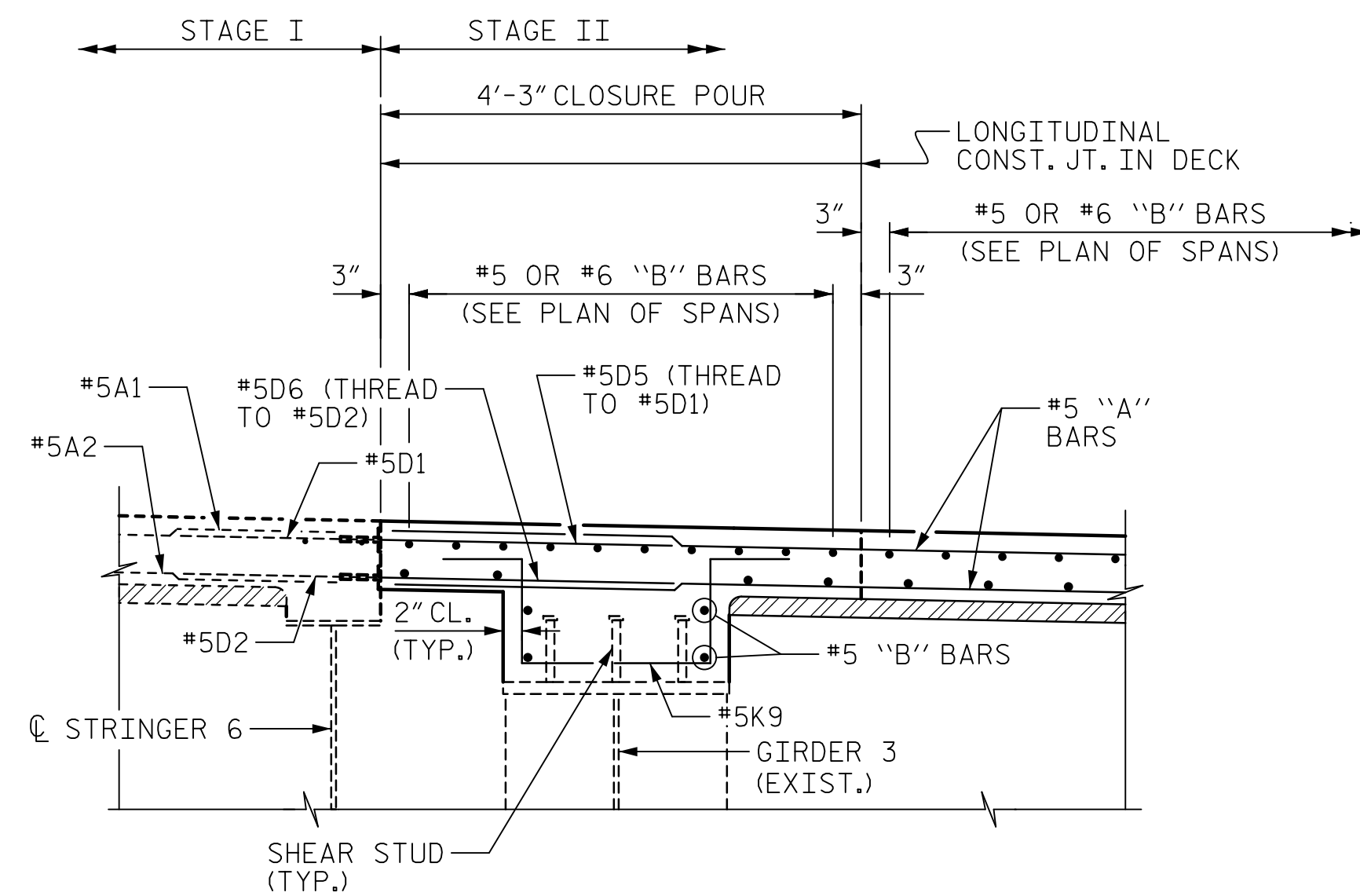
SEAL  
 JOHN E. SLOAN  
 ENGINEER  
 035062  
 2/28/2020

SUPERSTRUCTURE

**TYPICAL SECTION DETAILS**

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-31	
1			3			TOTAL SHEETS	
2			4			129	

DATE: 2/27/2020  
TIME: 3:20:22 PM



**CLOSURE POUR DETAIL**

FOR BUILDUP HEIGHTS, SEE SHEET 1.  
(SHOWN AT GIRDER 3 FOR STAGE II,  
SIMILAR AT GIRDER 2 IN STAGE III)

**CLOSURE POUR NOTES:**

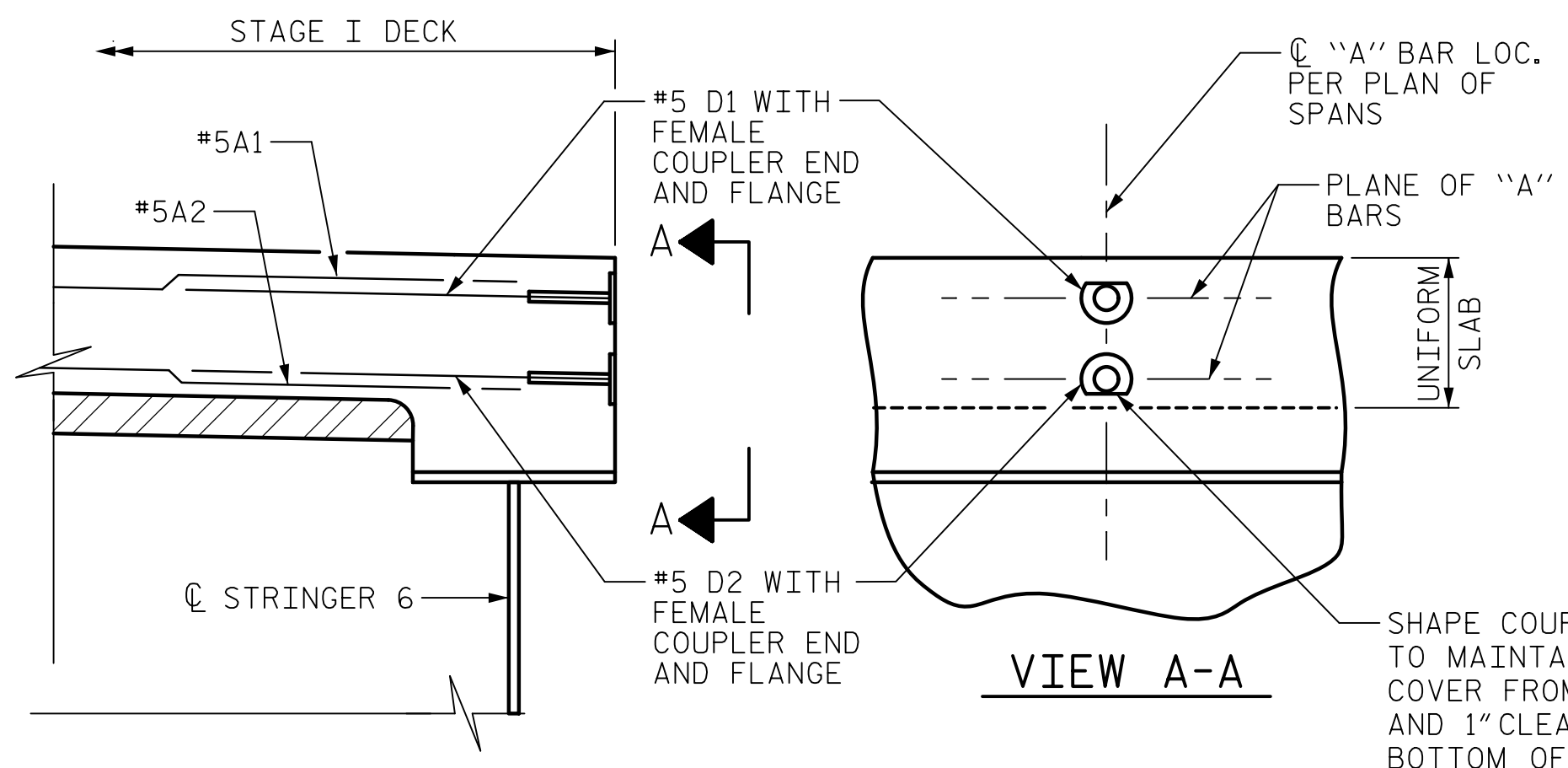
PLACE LONGITUDINAL "B" BARS WITHIN THE CLOSURE POUR AFTER CONCRETE ON BOTH SIDES OF THE CLOSURE POUR HAS ACHIEVED A CONCRETE STRENGTH OF 3 KSI.

KEEP "D" CLOSURE POUR DOWELS AND "A" BARS IN STAGE II OR III FREE OF CONTACT WITH EACH OTHER UNTIL THE CONCRETE ON BOTH SIDES OF THE CLOSURE POUR HAS ACHIEVED A CONCRETE STRENGTH OF 3 KSI.

PRIOR TO PLACING THE CLOSURE POUR CONCRETE, THE "D", "K", AND "A" TRANSVERSE BARS IN THE CLOSURE POUR SHALL BE CONNECTED SECURELY TOGETHER AND CONNECTED SECURELY TO THE LONGITUDINAL "B" BARS.

BEFORE PURCHASING SHEAR STUDS AND BUILDUP REINFORCEMENT #5K9 BARS, CONTRACTOR SHALL EVALUATE THE CAMBER AND DEFLECTIONS OF THE GIRDERS UTILIZING THE AS-SURVEYED GIRDER GEOMETRY. CONTRACTOR SHALL DETERMINE SHEAR STUD HEIGHT AND #5K9 BAR LENGTH BASED ON THE EXISTING GIRDER GEOMETRY.

AT GIRDERS 2 AND 3, CONTRACTOR SHALL MAINTAIN 2" CLEAR COVER FROM THE TOP OF THE #5K9 BAR TO THE TOP OF THE SLAB, AND THE #5K9 BAR SHALL OVERLAP THE STUD A MINIMUM OF 6". AT GIRDERS 1 AND 4, CONTRACTOR SHALL MAINTAIN 2" CLEAR COVER FROM THE TOP OF THE SHEAR STUD TO THE TOP OF THE SLAB.



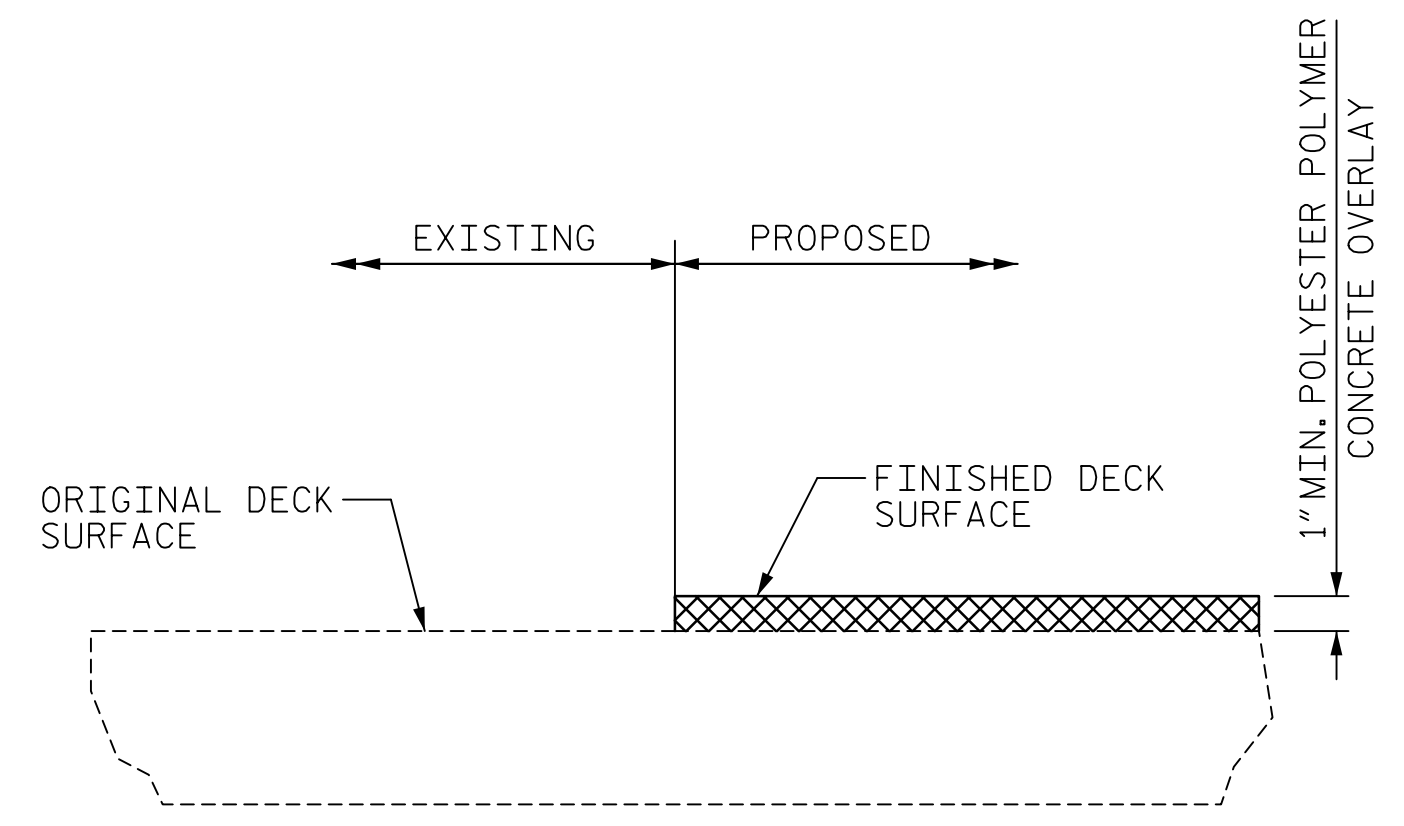
**DETAIL "D"**

"B" BARS IN DECK NOT SHOWN

**COUPLER NOTES:**

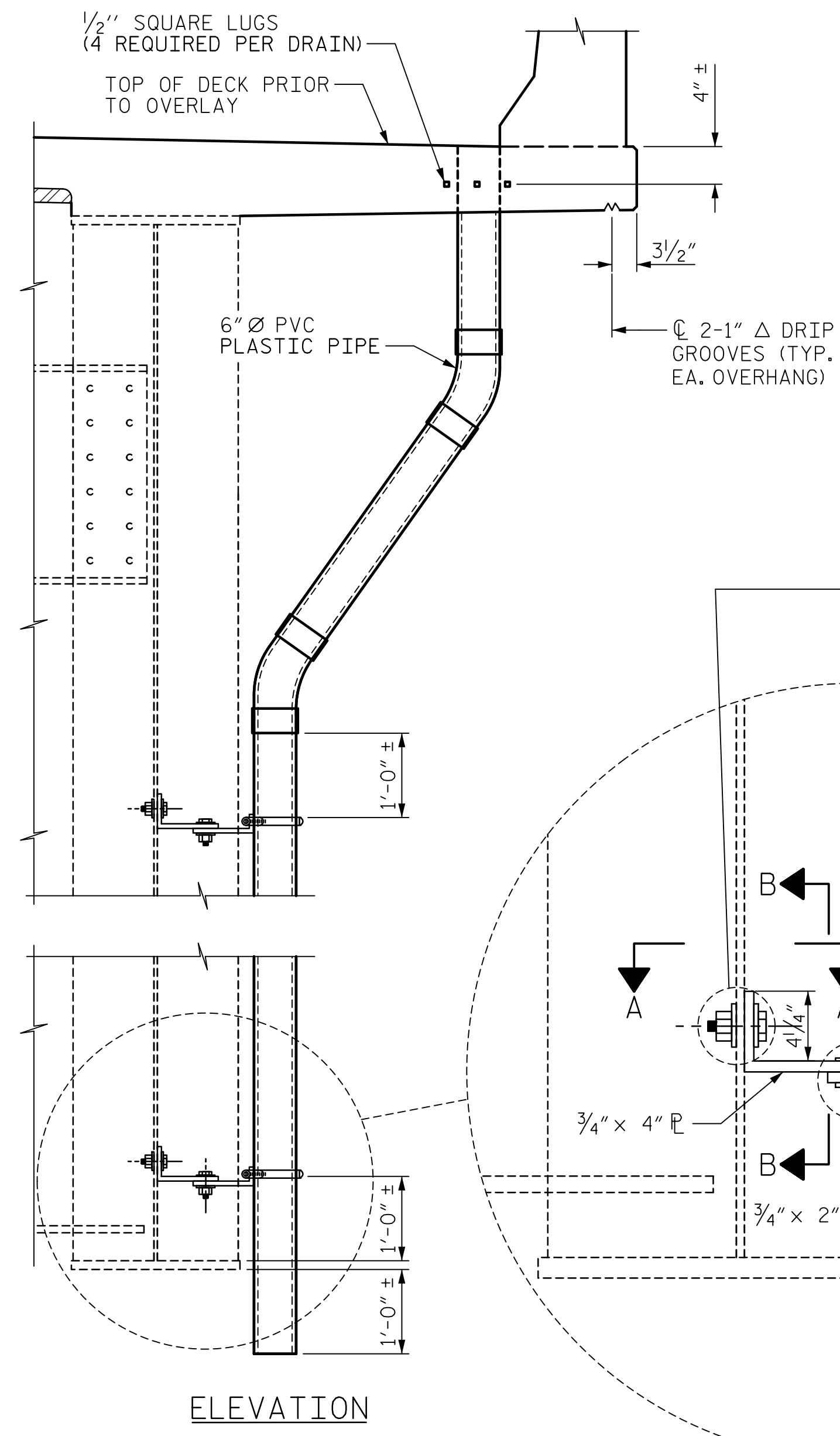
FOR MECHANICAL COUPLERS, SEE SPECIAL PROVISIONS.

THE CONTRACTOR SHALL SUBMIT WORKING DRAWINGS FOR THE COUPLER SYSTEM FOR ALL COUPLERS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING THAT MALE AND FEMALE THREADS MATCH PRIOR TO INSTALLATION AND WILL BE RESPONSIBLE FOR ANY ADDITIONAL COST ASSOCIATED WITH MATCHING THREADS. THE WEIGHT OF THE COUPLER FLANGE AND THREADS IS CONSIDERED INCIDENTAL TO THE WEIGHT OF THE REINFORCING AND THE COST IS INCIDENTAL TO THE COST OF THE REINFORCED CONCRETE DECK SLAB, OR REINFORCED CONCRETE DECK SLAB (ALL LIGHTWEIGHT CONCRETE).



**DETAIL FOR POLYESTER POLYMER CONCRETE OVERLAY**

DRAWN BY : H. T. ROSEMOND	DATE : 11/2018
CHECKED BY : G. R. COLS	DATE : 11/2018
DESIGNED BY : M. K. TOM	DATE : 11/2018
DESIGN CHECKED BY : G. R. COLS	DATE : 11/2018



**DRAIN PIPE CONNECTION DETAILS**

(TOTAL ASSEMBLIES REQUIRED = 390)

**DRAIN NOTES:**

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

TOP OF FLOOR DRAIN TO BE SET 3/8" BELOW SURFACE OF SLAB.

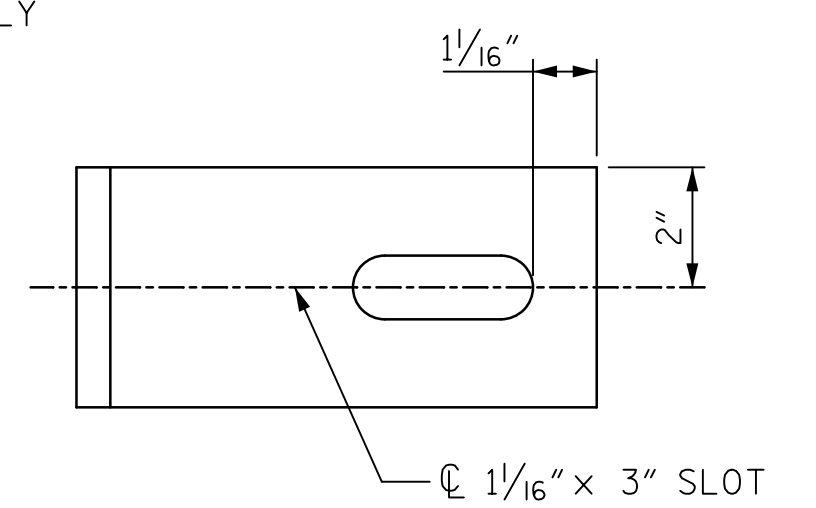
4 - 1/2" SQUARE LUGS TO BE GLUED TO THE PVC PLASTIC PIPE AT EQUAL SPACES AROUND THE PIPE DRAIN APPROXIMATELY 4" FROM THE TOP OF THE PIPE.

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

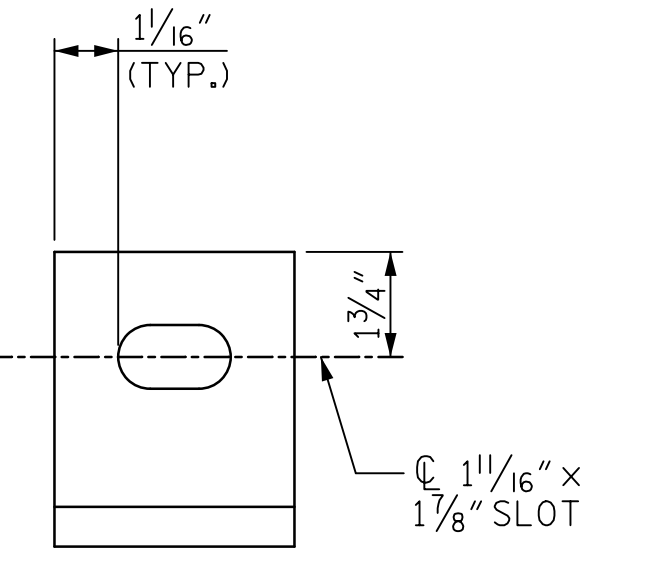
PVC DECK DRAINS SHALL BE COLORED TO MATCH THE PAINTED EXTERIOR STEEL GIRDERS. THE CONTRACTOR SHALL SUBMIT A METHOD AND SAMPLES TO THE ENGINEER FOR APPROVAL PRIOR TO ORDERING MATERIALS. NO SEPARATE PAYMENT SHALL BE MADE FOR PAINTING PVC DECK DRAINS AS THIS IS CONSIDERED INCIDENTAL TO PAY ITEM FOR REINFORCED CONCRETE DECK SLAB.

THE 6" Ø PVC PLASTIC PIPE AND FITTINGS SHALL BE SCHEDULE 40 AND CONFORM TO ASTM D1785.

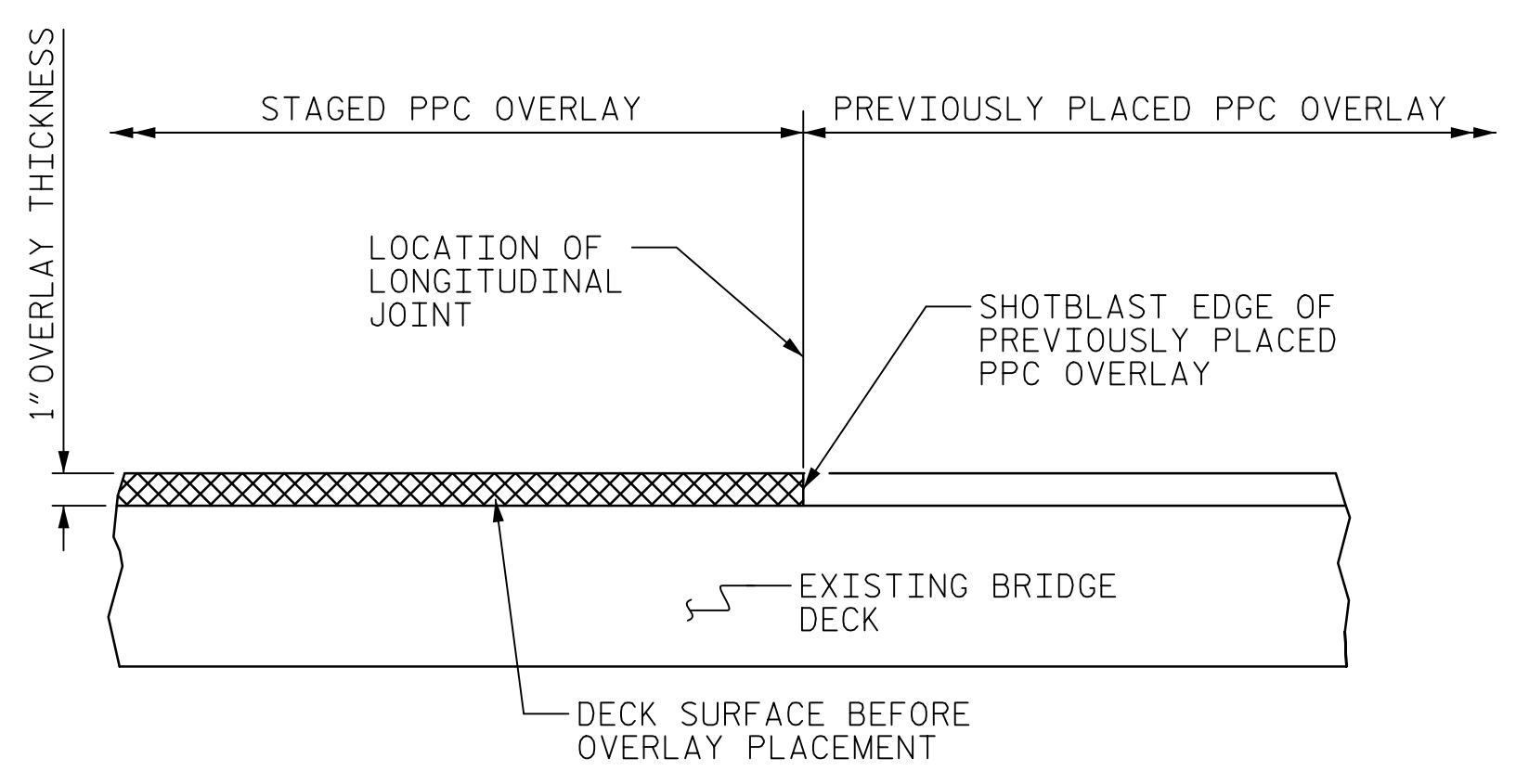
PLATES SHALL CONFORM TO AASTHO M270 GRADE 36 STEEL OR APPROVED EQUAL.



**SECTION A-A**



**SECTION B-B**



**STAGED PPC OVERLAY JOINT**

(AS NEEDED)

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PROJECT NO. 15BPR.20  
HENDERSON COUNTY  
STATION: 35+30.22 -L-

SHEET 10 OF 10



STATE OF NORTH CAROLINA  
**DEPARTMENT OF TRANSPORTATION**  
RALEIGH

SUPERSTRUCTURE

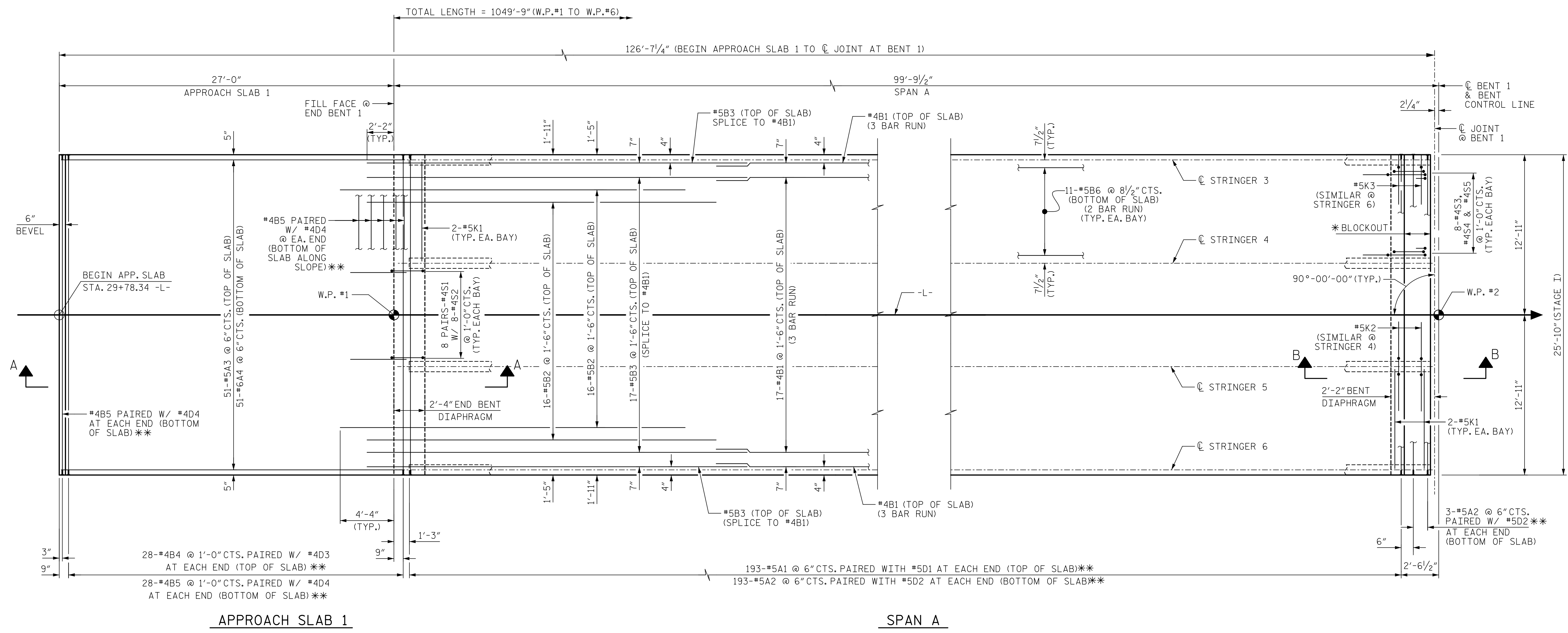
**TYPICAL SECTION DETAILS**

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1			3			TOTAL SHEETS 129
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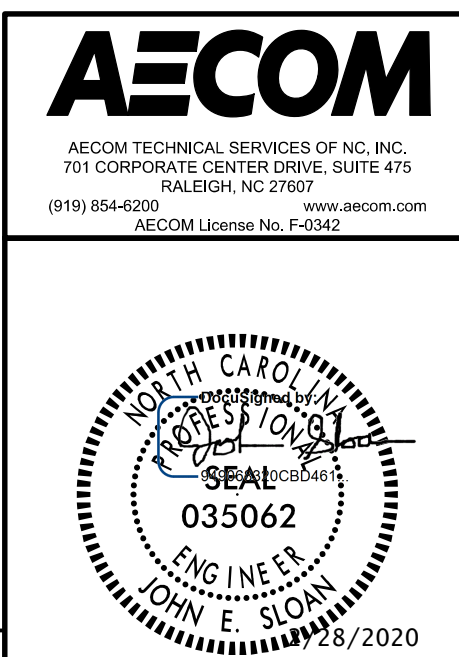
PLAN OF APPROACH SLAB 1 AND SPAN A

**NOTES:**

- FOR POURING SEQUENCE AND DIRECTION, AND TRANSVERSE CONTRUCTION JOINT DETAIL AND LOCATION, SEE "POURING SEQUENCE" SHEET.
- INTERMEDIATE STEEL DIAPHRAGMS NOT SHOWN FOR CLARITY, FOR LOCATION, SEE "FRAMING PLAN" SHEETS.
- MECHANICAL COUPLERS FOR MEDIAN BARRIER REQUIRED BUT NOT SHOWN. SEE "CONCRETE MEDIAN BARRIER" SHEET FOR LOCATION AND DETAILS.
- \* FOR BLOCKOUT DIMENSIONS, SEE "MOLDED RUBBER SEGMENTAL EXPANSION JOINT" DETAILS SHEETS.
- \*\* FOR MECHANICAL COUPLERS FOR STAGED CONSTRUCTION, SEE TYPICAL SECTION SHEETS AND TYPICAL SECTION DETAILS SHEETS.
- FOR MINIMUM SPLICE LENGTHS SEE "SUPERSTRUCTURE BILL OF MATERIAL" SHEETS.

PROJECT NO. 15BPR.20  
HENDERSON COUNTY  
 STATION: 35+30.22 -L-

SHEET 1 OF 13



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE  
 PLAN OF SPANS  
 APPROACH 1 & SPAN A  
 STAGE I

DRAWN BY : H.T. ROSEMOND	DATE : 12/2018
CHECKED BY : G.R. COLS	DATE : 12/2018
DESIGNED BY : H.T. ROSEMOND	DATE : 12/2018
DESIGN CHECKED BY : G.R. COLS	DATE : 12/2018

DOCUMENT NOT CONSIDERED  
 FINAL UNLESS ALL  
 SIGNATURES COMPLETED

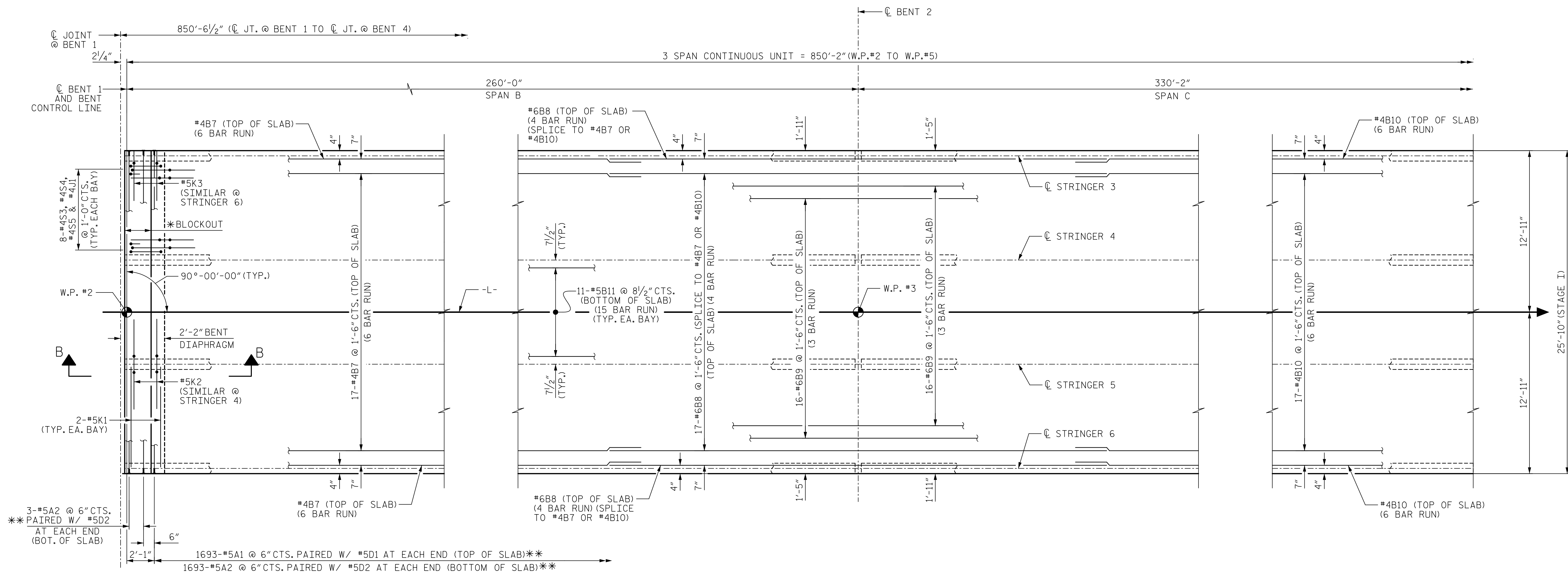
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NO.	BY:	DATE:	NO.	BY:	DATE:	S-33
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DATE: 2/27/2020  
TIME: 3:23:45 PM

USER: MchRosenmond  
DN: R:\Structures\04\_Drawings\01\_067\_15BPR20\_SMU\_S2.dgn

TOTAL LENGTH = 1049'-9" (W.P.#1 TO W.P.#6)



**NOTES:**

FOR POURING SEQUENCE AND DIRECTION, AND TRANSVERSE CONSTRUCTION JOINT DETAIL AND LOCATION, SEE "POURING SEQUENCE" SHEET.

INTERMEDIATE STEEL DIAPHRAGMS NOT SHOWN FOR CLARITY, FOR LOCATION, SEE "FRAMING PLAN" SHEETS.

MECHANICAL COUPLERS FOR MEDIAN BARRIER REQUIRED BUT NOT SHOWN, SEE "CONCRETE MEDIAN BARRIER" SHEET FOR LOCATION AND DETAILS.

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\*\*FOR MECHANICAL COUPLERS FOR STAGED CONSTRUCTION, SEE TYPICAL SECTION SHEETS AND TYPICAL SECTION DETAILS SHEETS.

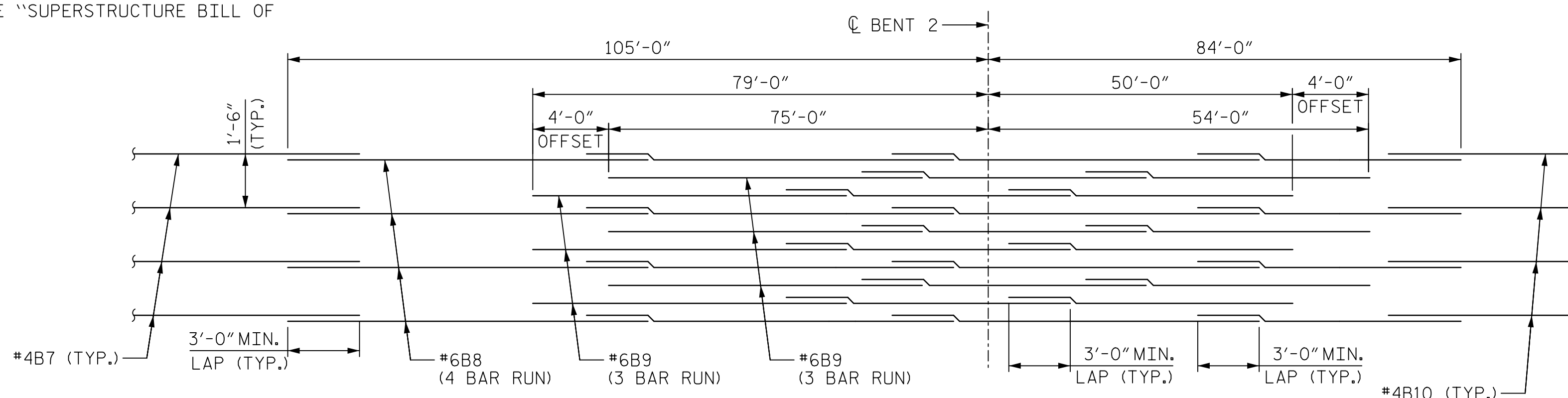
FOR MINIMUM SPLICE LENGTHS, SEE "SUPERSTRUCTURE BILL OF MATERIAL" SHEETS.

SPAN B

SPAN C

**PARTIAL PLAN OF SPANS B AND C**

(FOR LOCATIONS OF #6B8 & #6B9 OVER BENT 2, SEE LAYOUT DETAIL BELOW.)



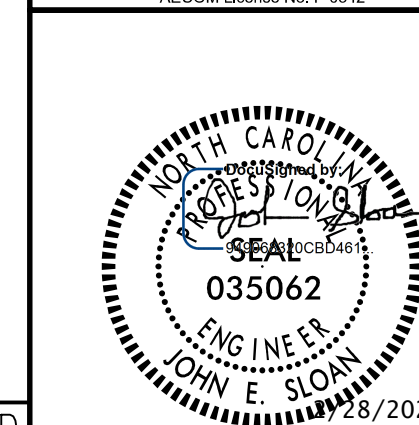
**TOP OF SLAB "B" BAR REINFORCEMENT LAYOUT OVER BENT 2**

DRAWN BY : M.K. TOM	DATE : 1/2019
CHECKED BY : G.R. COLS	DATE : 1/2019
DESIGNED BY : H.T. ROSEMOND	DATE : 1/2019
DESIGN CHECKED BY : G.R. COLS	DATE : 1/2019

DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED

PROJECT NO. 15BPR.20  
HENDERSON COUNTY  
STATION: 35+30.22 -L-

SHEET 2 OF 13

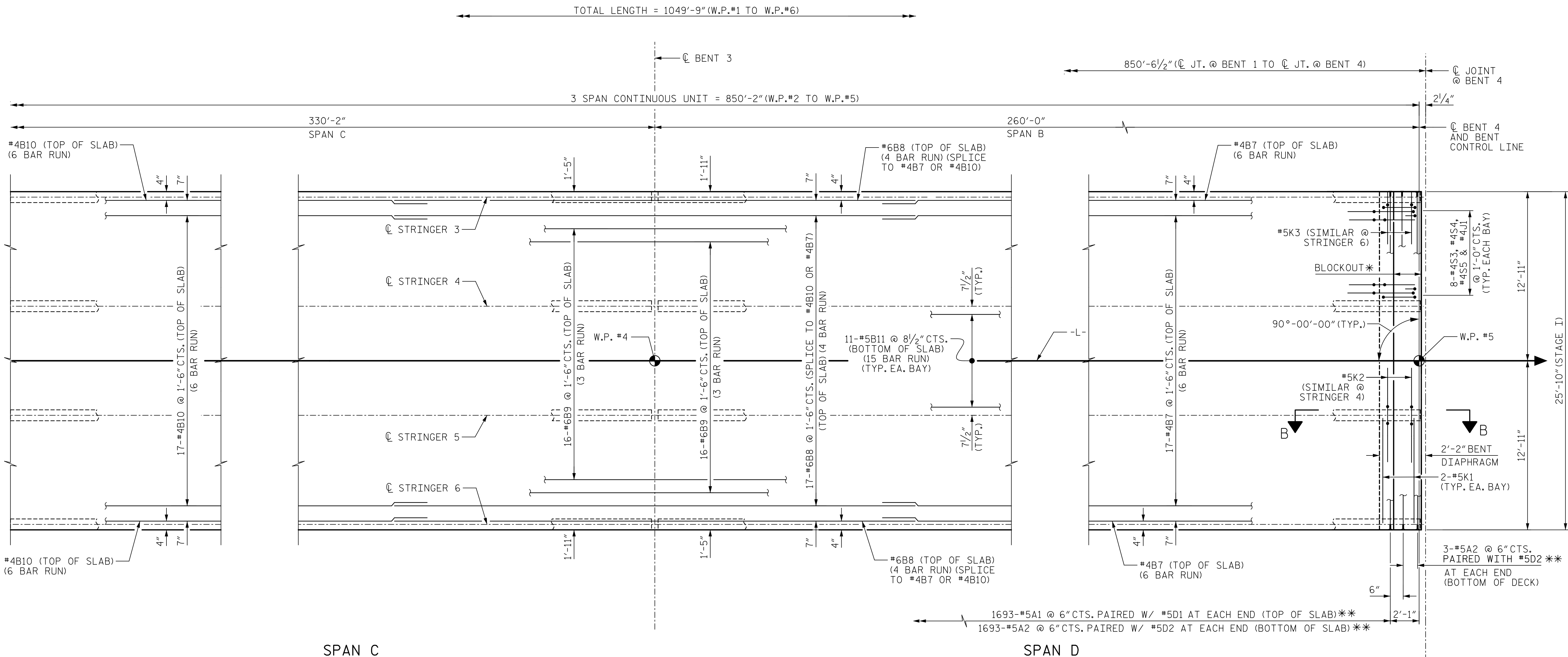


STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

SUPERSTRUCTURE  
PLAN OF SPANS  
SPAN B & PART SPAN C  
STAGE I

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-34
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**NOTES:**

FOR POURING SEQUENCE AND DIRECTION, AND TRANSVERSE CONTRUCTION JOINT DETAIL AND LOCATION, SEE "POURING SEQUENCE" SHEET.

INTERMEDIATE STEEL DIAPHRAGMS NOT SHOWN FOR CLARITY, FOR LOCATION, SEE "FRAMING PLAN" SHEETS.

MECHANICAL COUPLERS FOR MEDIAN BARRIER REQUIRED BUT NOT SHOWN, SEE "CONCRETE MEDIAN BARRIER" SHEET FOR LOCATION AND DETAILS.

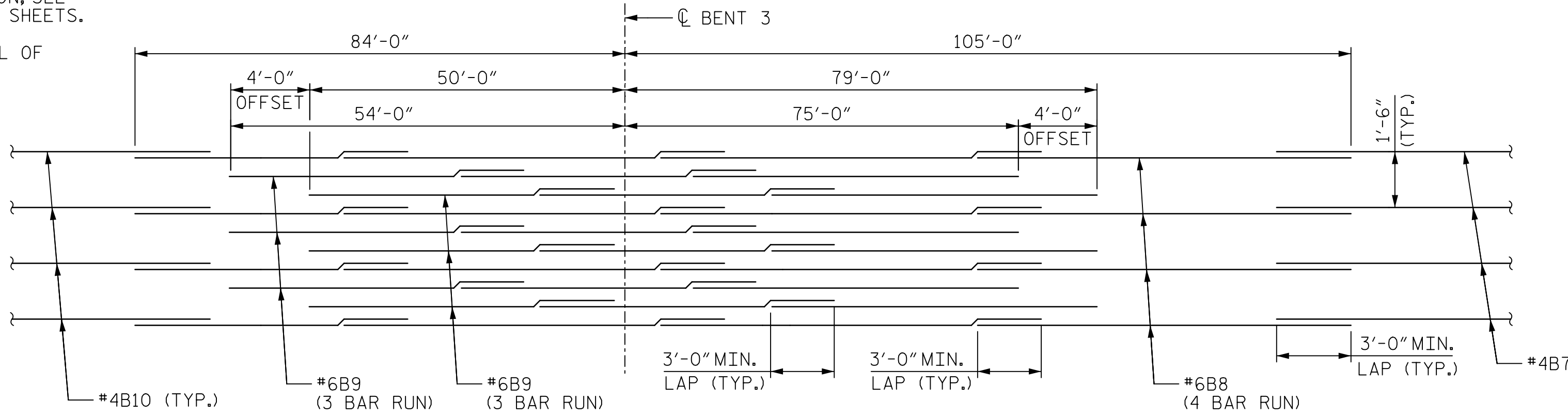
\*\*FOR BLOCKOUT DIMENSIONS, SEE "MOLDED RUBBER SEGMENTAL EXPANSION JOINT" DETAILS SHEETS.

\*\*FOR MECHANICAL COUPLERS FOR DECK STAGED CONSTRUCTION, SEE TYPICAL SECTION SHEETS AND TYPICAL SECTION DETAILS SHEETS.

FOR MINIMUM SPLICE LENGTHS, SEE "SUPERSTRUCTURE BILL OF MATERIAL" SHEETS.

**PARTIAL PLAN OF SPANS C AND D**

FOR LOCATIONS OF #6B8 & #6B9 OVER BENT 3, SEE LAYOUT DETAIL BELOW.



**TOP OF SLAB "B" BAR REINFORCEMENT LAYOUT OVER BENT 3**

PROJECT NO. 15BPR.20  
HENDERSON COUNTY  
 STATION: 35+30.22 -L-

SHEET 3 OF 13



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE  
 PLAN OF SPANS  
 PART SPAN C & SPAN D  
 STAGE I

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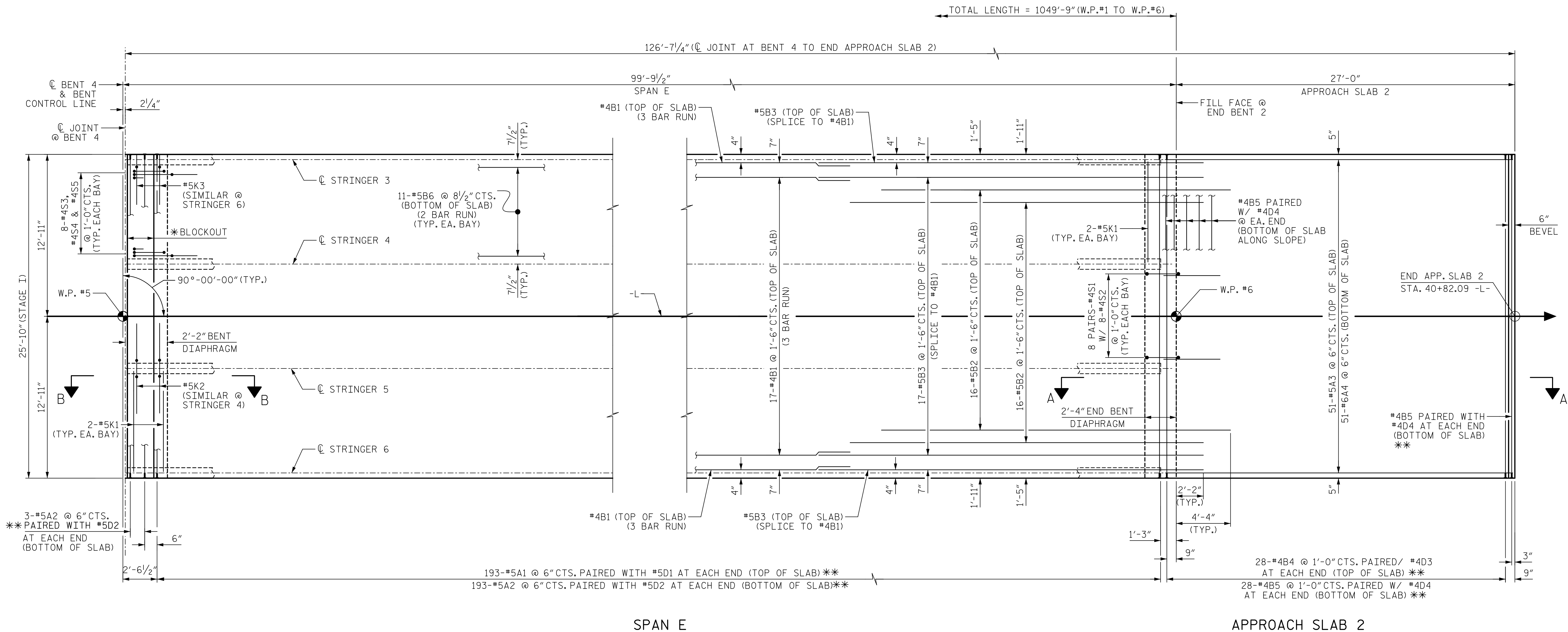
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 CHECKED BY : G.R. COLS DATE : 1/2019  
 DESIGNED BY : H.T. ROSEMOND DATE : 1/2019  
 DESIGN CHECKED BY : G.R. COLS DATE : 1/2019

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**PLAN OF SPAN E AND APPROACH SLAB 2**

**NOTES:**

FOR POURING SEQUENCE AND DIRECTION, AND TRANSVERSE CONSTRUCTION JOINT DETAIL AND LOCATION, SEE "POURING SEQUENCE" SHEET.

INTERMEDIATE STEEL DIAPHRAGMS NOT SHOWN FOR CLARITY, FOR LOCATION, SEE "FRAMING PLAN" SHEETS.

MECHANICAL COUPLERS FOR MEDIAN BARRIER REQUIRED BUT NOT SHOWN, SEE "CONCRETE MEDIAN BARRIER" SHEET FOR LOCATION AND DETAILS.

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\* FOR MECHANICAL COUPLERS FOR DECK STAGED CONSTRUCTION, SEE TYPICAL SECTION SHEETS AND TYPICAL SECTION DETAILS SHEETS.

FOR MINIMUM SPLICE LENGTHS, SEE "SUPERSTRUCTURE BILL OF MATERIAL" SHEETS.

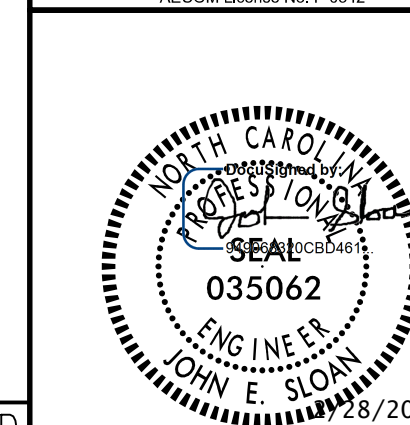
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PROJECT NO. 15BPR.20

HENDERSON COUNTY

STATION: 35+30.22 -L-

SHEET 4 OF 13



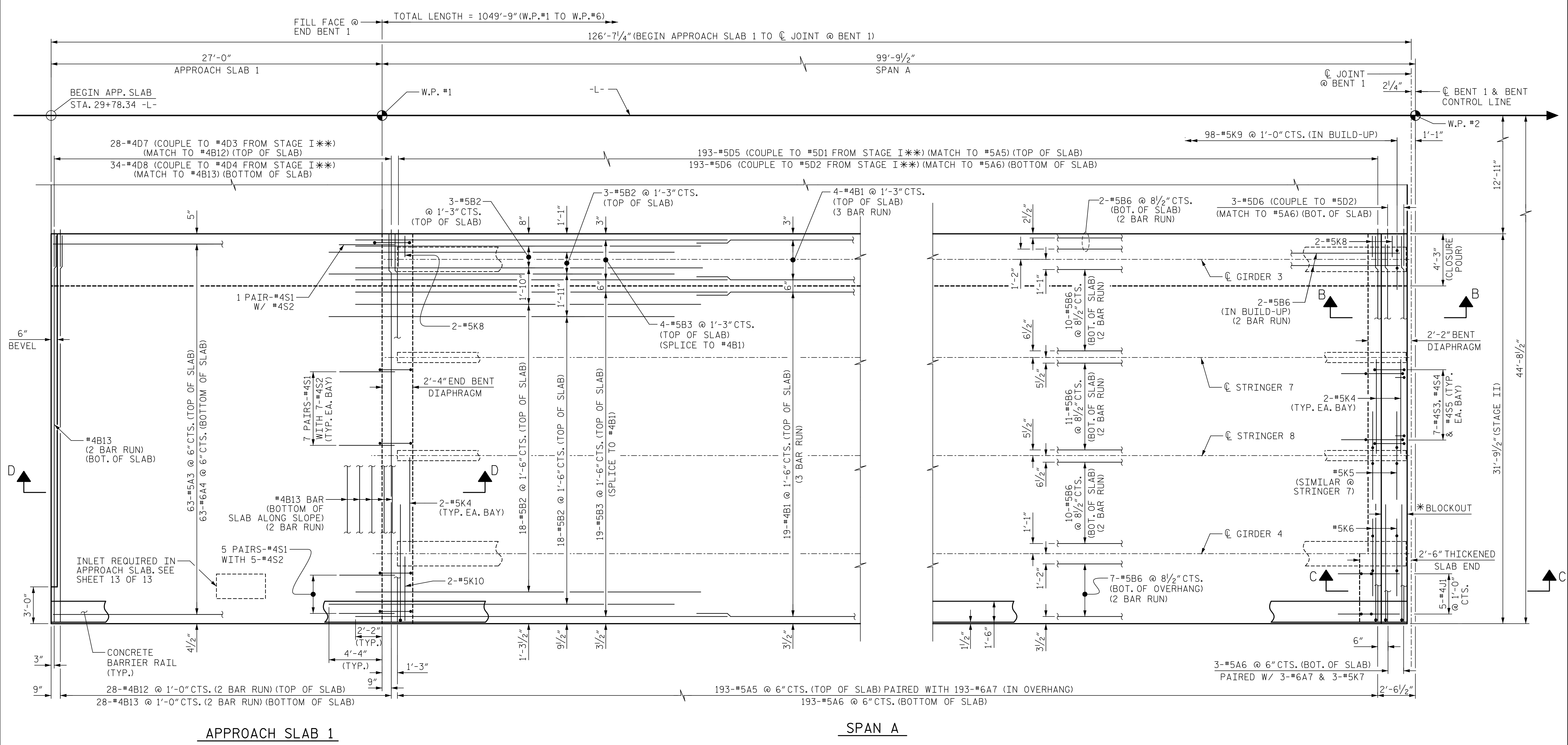
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

SUPERSTRUCTURE  
PLAN OF SPANS  
SPAN E & APPROACH 2  
STAGE I

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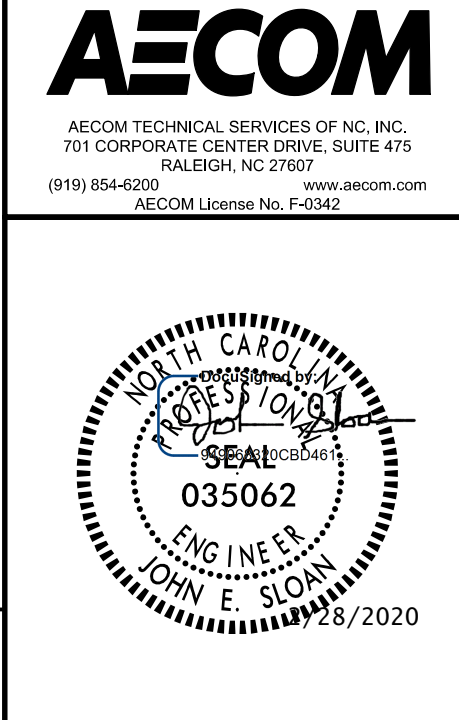
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PLAN OF APPROACH SLAB 1 AND SPAN A

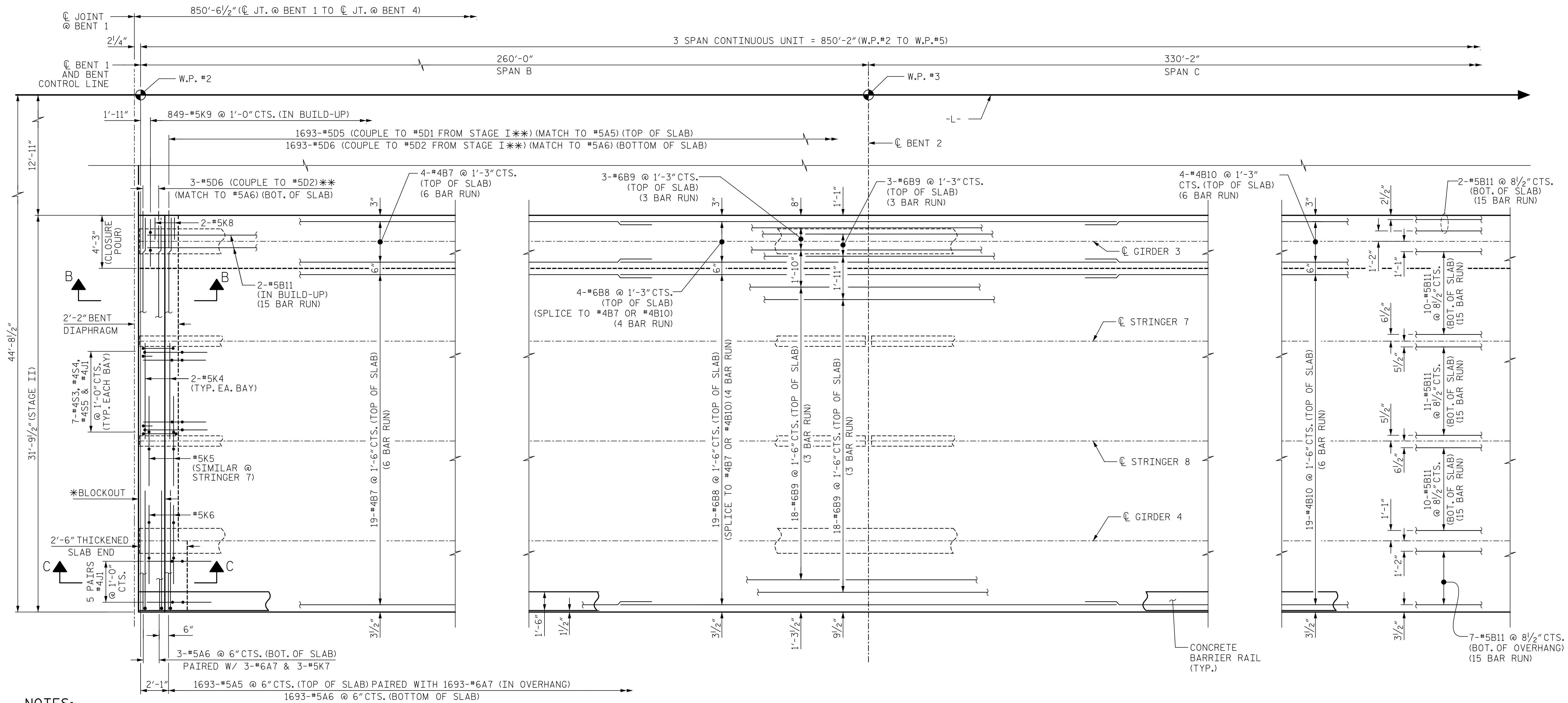
PROJECT NO. 15BPR.20  
HENDERSON COUNTY  
 STATION: 35+30.22 -L-  
 SHEET 5 OF 13



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

SUPERSTRUCTURE  
 PLAN OF SPANS  
 APPROACH 1 & SPAN A  
 & SPAN A  
 STAGE II

DOCUMENT NOT CONSIDERED  
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**NOTES:**

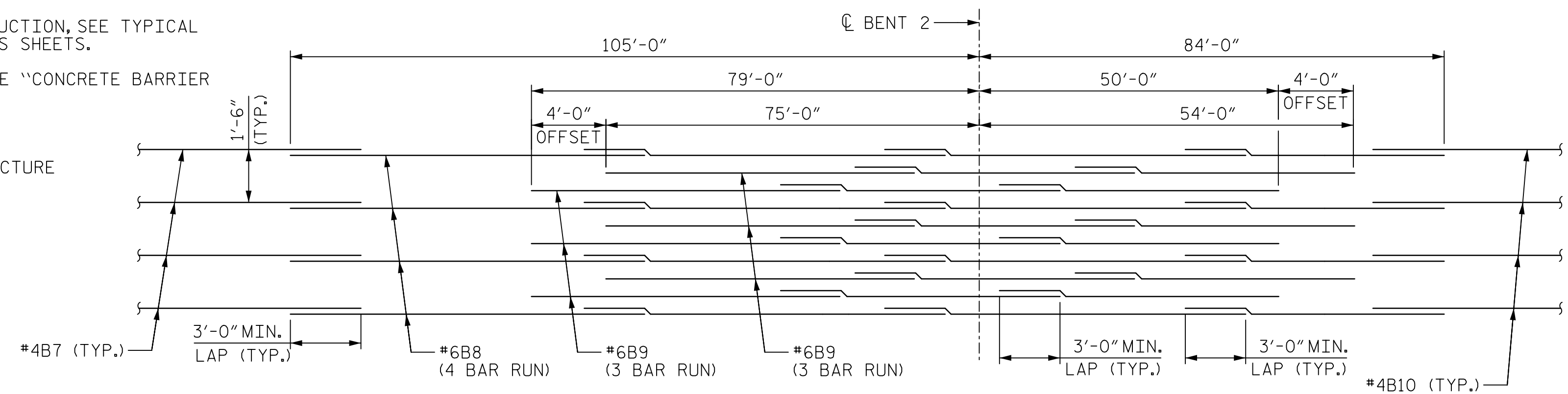
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- INTERMEDIATE STEEL DIAPHRAGMS NOT SHOWN FOR CLARITY, FOR LOCATION, SEE "FRAMING PLAN" SHEETS.
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- \*\* FOR MECHANICAL COUPLERS FOR STAGED CONSTRUCTION, SEE TYPICAL SECTION SHEETS AND TYPICAL SECTION DETAILS SHEETS.
- FOR BARRIER RAIL REINFORCING NOT SHOWN, SEE "CONCRETE BARRIER RAIL" SHEET.
- FOR DECK DRAIN LOCATIONS, SEE SHEET 13.
- FOR MINIMUM SPLICE LENGTHS, SEE "SUPERSTRUCTURE BILL OF MATERIAL" SHEETS.

SPAN B

**PARTIAL PLAN OF SPANS B AND C**

FOR LOCATIONS OF #6B8 & #6B9, SEE LAYOUT DETAIL BELOW

SPAN C



**TOP OF SLAB "B" BAR REINFORCEMENT LAYOUT OVER BENT 2**

PROJECT NO. 15BPR.20

HENDERSON COUNTY

STATION: 35+30.22 -L-

SHEET 6 OF 13



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

SUPERSTRUCTURE

PLAN OF SPANS  
PART SPAN B & SPAN C  
STAGE II

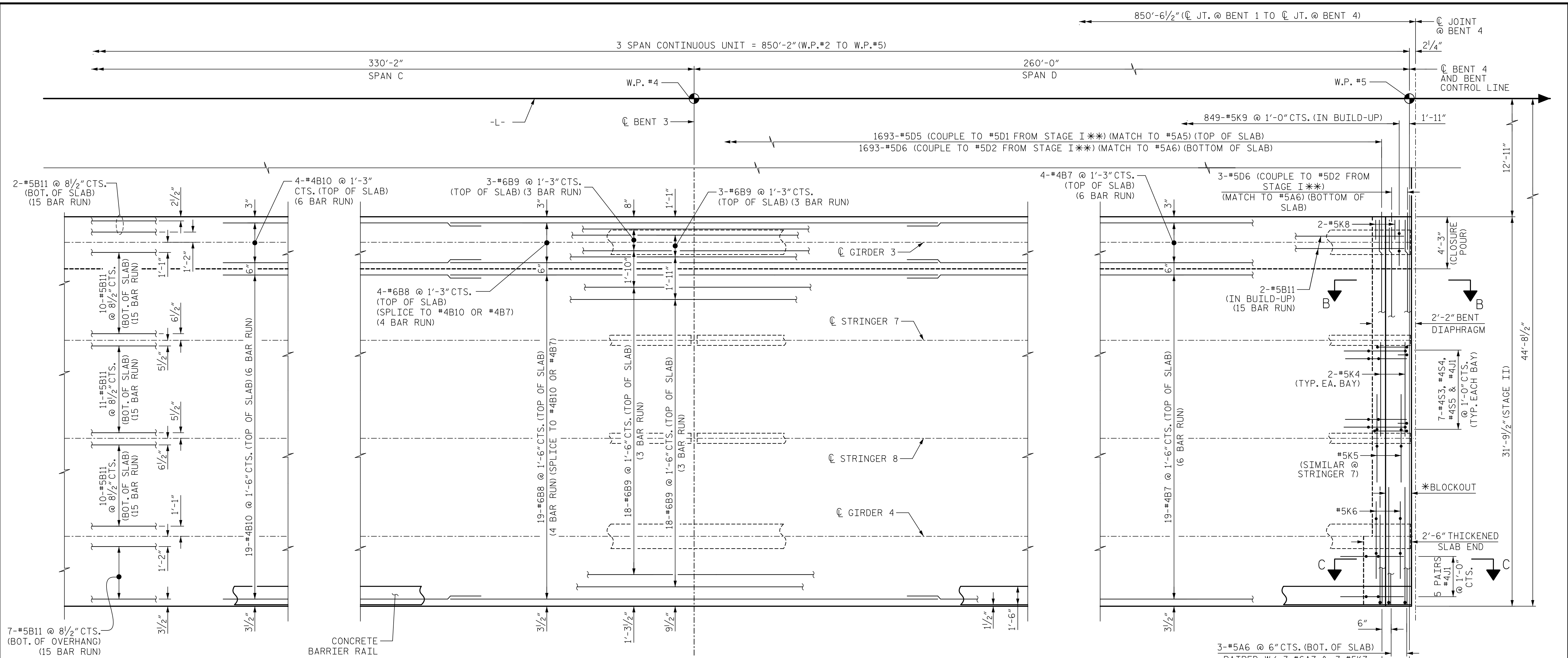
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 CHECKED BY : G.R. COLS DATE : 1/2019  
 DESIGNED BY : H.T. ROSEMOND DATE : 1/2019  
 DESIGN CHECKED BY : G.R. COLS DATE : 1/2019

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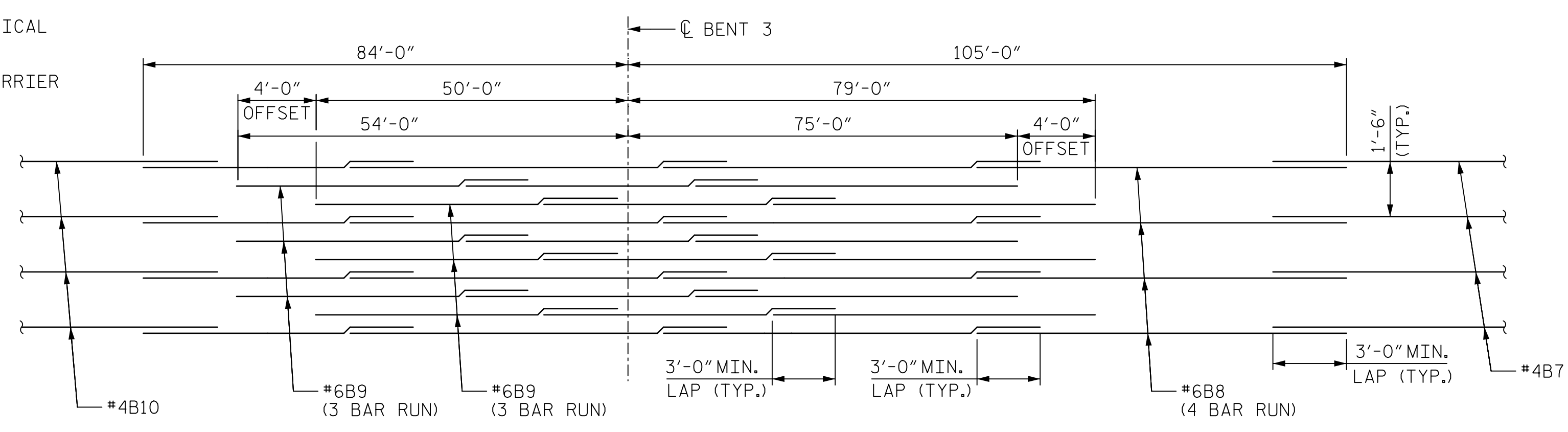
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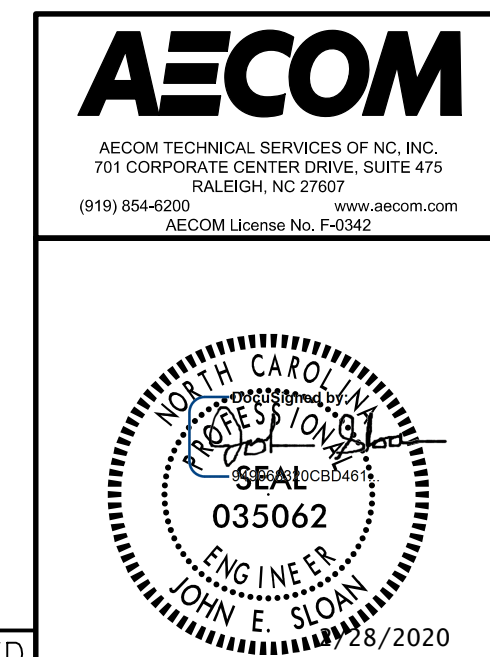
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 FOR POURING SEQUENCE AND DIRECTION, AND TRANSVERSE CONSTRUCTION JOINT DETAIL AND LOCATION, SEE "POURING SEQUENCE" SHEET.  
 INTERMEDIATE STEEL DIAPHRAGMS NOT SHOWN FOR CLARITY, FOR LOCATION, SEE "FRAMING PLAN" SHEETS.  
 \*FOR BLOCKOUT DIMENSIONS, SEE "MOLDED RUBBER SEGMENTAL EXPANSION JOINT" DETAILS SHEETS.  
 \*\*FOR MECHANICAL COUPLERS FOR STAGED CONSTRUCTION, SEE TYPICAL SECTION SHEETS AND TYPICAL SECTION DETAILS SHEETS.  
 FOR BARRIER RAIL REINFORCING NOT SHOWN, SEE "CONCRETE BARRIER RAIL" SHEET.  
 FOR DECK DRAIN LOCATIONS, SEE SHEET 13.  
 FOR MINIMUM SPLICE LENGTHS, SEE "SUPERSTRUCTURE BILL OF MATERIAL" SHEETS.

**SPAN C**  
**PARTIAL PLAN OF SPANS C AND D**  
 FOR LOCATIONS OF #6B8 & #6B9, SEE LAYOUT DETAIL BELOW



**TOP OF SLAB "B" BAR REINFORCEMENT LAYOUT OVER BENT 3**

PROJECT NO. 15BPR.20  
HENDERSON COUNTY  
 STATION: 35+30.22 -L-  
 SHEET 7 OF 13



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE  
 PLAN OF SPANS  
 PART SPAN C & SPAN D  
 STAGE II

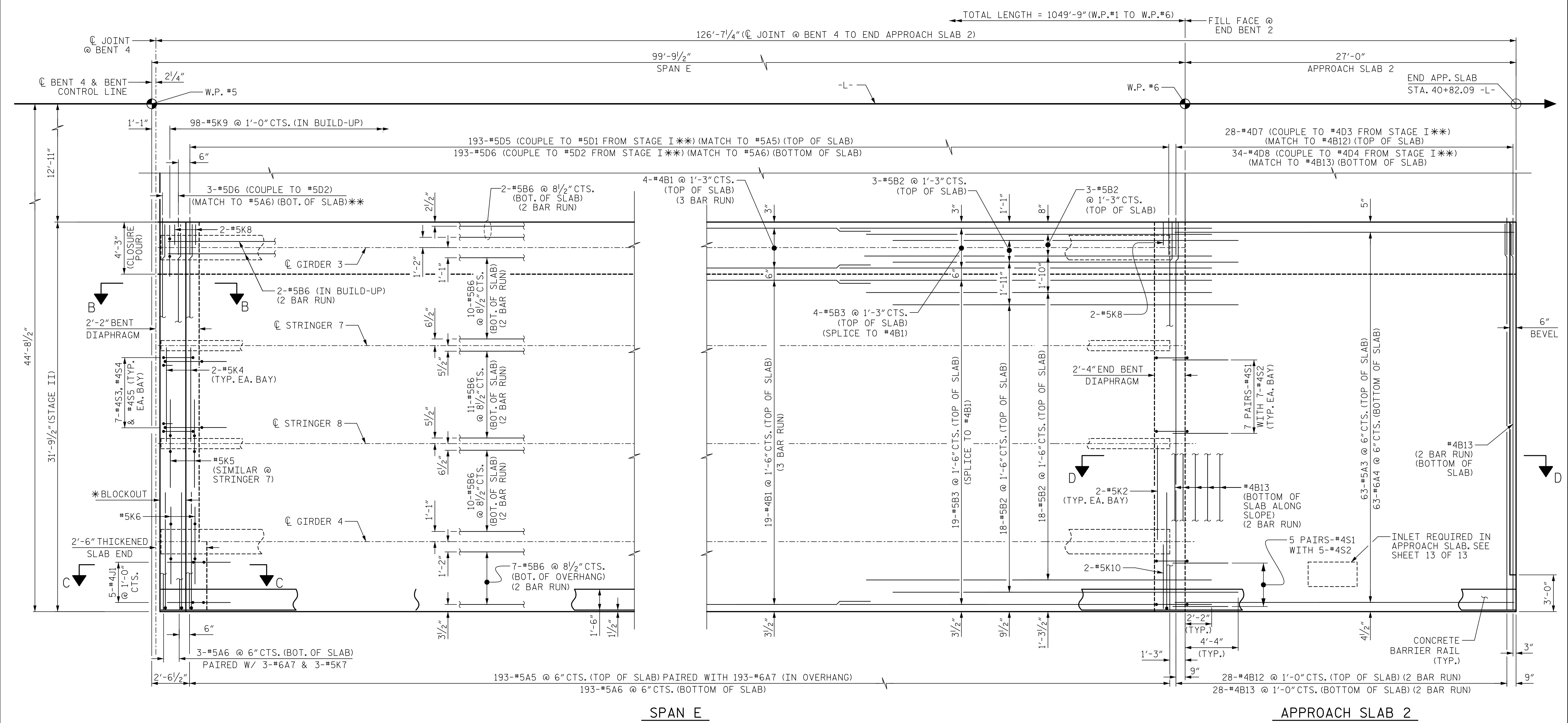
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DATE: 2/27/2020  
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**PLAN OF SPAN E AND APPROACH SLAB 2**

**NOTES:**

- FOR POURING SEQUENCE AND DIRECTION, AND TRANSVERSE CONTRACTION JOINT DETAIL AND LOCATION, SEE "POURING SEQUENCE" SHEET.
- INTERMEDIATE STEEL DIAPHRAGMS NOT SHOWN FOR CLARITY, FOR LOCATION, SEE "FRAMING PLAN" SHEETS.
- \*FOR BLOCKOUT DIMENSIONS, SEE "MOLDED RUBBER SEGMENTAL EXPANSION JOINT" DETAILS SHEETS.
- \*\*FOR MECHANICAL COUPLERS FOR STAGED CONSTRUCTION, SEE TYPICAL SECTION SHEETS AND TYPICAL SECTION DETAILS SHEETS.
- FOR BARRIER RAIL REINFORCING NOT SHOWN, SEE "CONCRETE BARRIER RAIL" SHEET.
- FOR DECK DRAIN LOCATIONS, SEE SHEET 13.
- FOR MINIMUM SPLICE LENGTHS, SEE "SUPERSTRUCTURE BILL OF MATERIAL" SHEETS.

DRAWN BY : H.T. ROSEMOND	DATE : 12/2018
CHECKED BY : G.R. COLS	DATE : 12/2018
DESIGNED BY : H.T. ROSEMOND	DATE : 12/2018
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PROJECT NO. 15BPR.20  
 HENDERSON COUNTY  
 STATION: 35+30.22 -L-

SHEET 8 OF 13

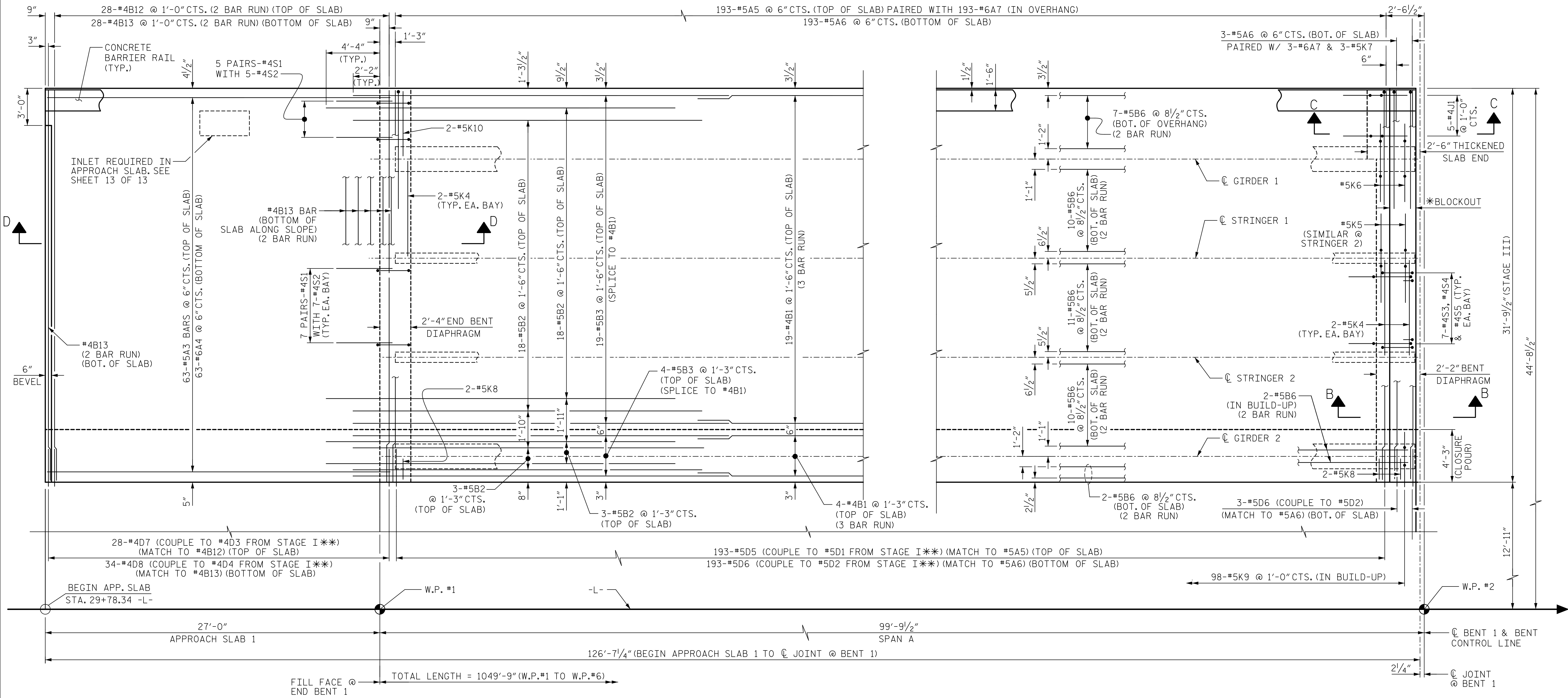


STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE  
 PLAN OF SPANS  
 SPAN E & APPROACH 2  
 STAGE II

DOCUMENT NOT CONSIDERED  
 FINAL UNLESS ALL  
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**SPAN A**

**PLAN OF APPROACH SLAB 1 AND SPAN A**

**NOTES:**

- FOR POURING SEQUENCE AND DIRECTION, AND TRANSVERSE CONSTRUCTION JOINT DETAIL AND LOCATION, SEE "POURING SEQUENCE" SHEET.
- INTERMEDIATE STEEL DIAPHRAGMS NOT SHOWN FOR CLARITY, FOR LOCATION, SEE "FRAMING PLAN" SHEETS.
- \* FOR BLOCKOUT DIMENSIONS, SEE "MOLDED RUBBER SEGMENTAL EXPANSION JOINT" DETAILS SHEETS.
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- FOR BARRIER RAIL REINFORCING NOT SHOWN, SEE "CONCRETE BARRIER RAIL" SHEET.
- FOR DECK DRAIN LOCATIONS, SEE SHEET 13.
- FOR MINIMUM SPLICE LENGTHS, SEE "SUPERSTRUCTURE BILL OF MATERIAL" SHEETS.

DRAWN BY : H.T. ROSEMOND	DATE : 12/2018
CHECKED BY : G.R. COLS	DATE : 12/2018
DESIGNED BY : H.T. ROSEMOND	DATE : 12/2018
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PROJECT NO. 15BPR.20  
 HENDERSON COUNTY  
 STATION: 35+30.22 -L-

SHEET 9 OF 13



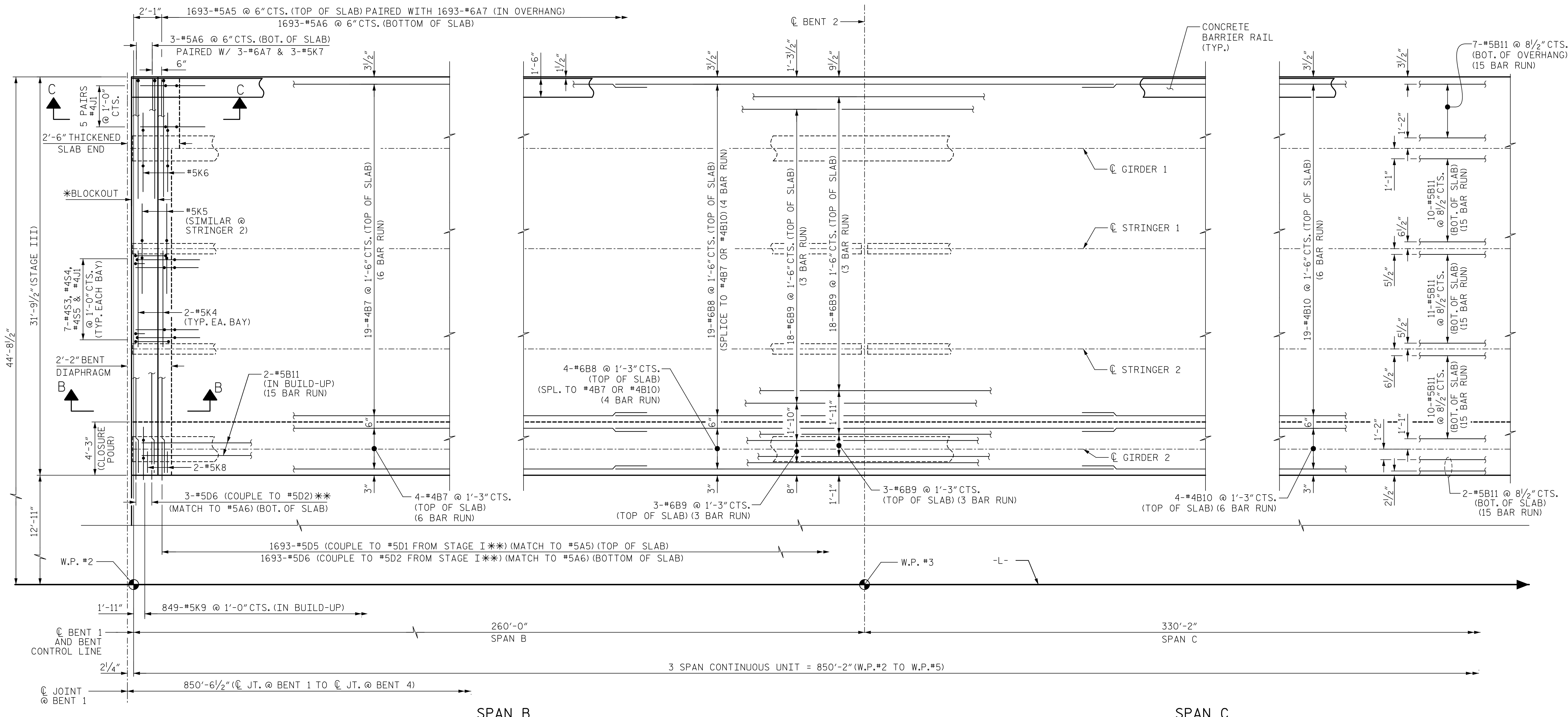
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE  
 PLAN OF SPANS  
 APPROACH 1 & SPAN A  
 STAGE III

DOCUMENT NOT CONSIDERED  
 FINAL UNLESS ALL  
 SIGNATURES COMPLETED

REVISIONS						SHEET NO.
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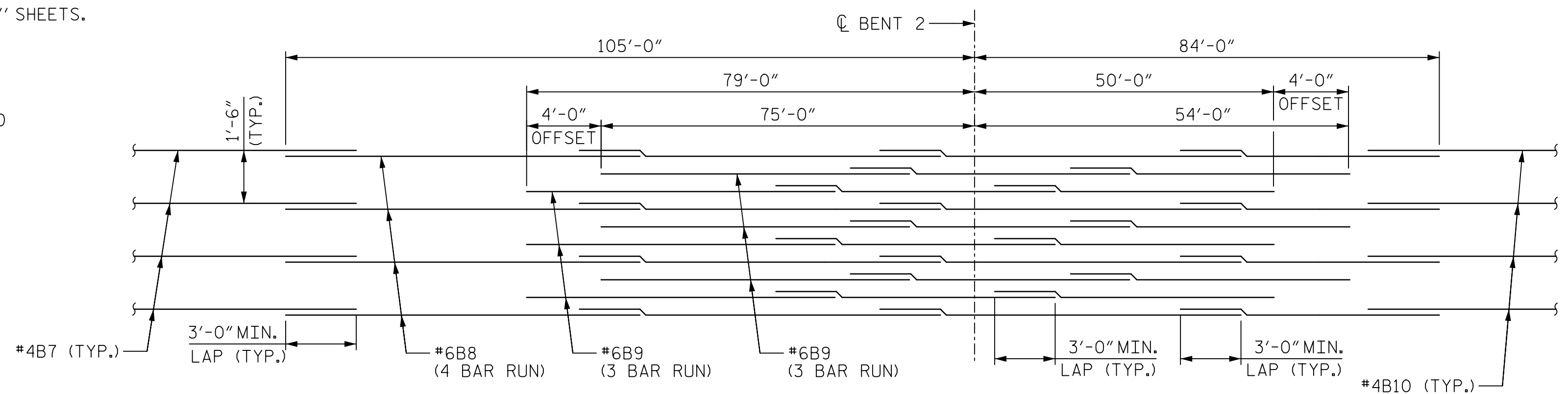


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- FOR POURING SEQUENCE AND DIRECTION, AND TRANSVERSE CONSTRUCTION JOINT DETAIL AND LOCATION, SEE "POURING SEQUENCE" SHEET.
- INTERMEDIATE STEEL DIAPHRAGMS NOT SHOWN FOR CLARITY, FOR LOCATION, SEE "FRAMING PLAN" SHEETS.
- \* FOR BLOCKOUT DIMENSIONS, SEE "MOLDED RUBBER SEGMENTAL EXPANSION JOINT" DETAILS SHEETS.
- \*\* FOR MECHANICAL COUPLERS FOR STAGED CONSTRUCTION, SEE TYPICAL SECTION SHEETS AND TYPICAL SECTION DETAILS SHEETS.
- FOR BARRIER RAIL REINFORCING NOT SHOWN, SEE "CONCRETE BARRIER RAIL" SHEET.
- FOR DECK DRAIN LOCATIONS, SEE SHEET 13.
- FOR MINIMUM SPLICE LENGTHS, SEE "SUPERSTRUCTURE BILL OF MATERIAL" SHEETS.

**PARTIAL PLAN OF SPANS B AND C**

FOR LOCATIONS OF #6B8 AND #6B9, SEE LAYOUT DETAIL BELOW



TOP OF SLAB "B" BAR REINFORCEMENT LAYOUT OVER BENT 2

PROJECT NO. 15BPR.20  
HENDERSON COUNTY  
 STATION: 35+30.22 -L-

SHEET 10 OF 13



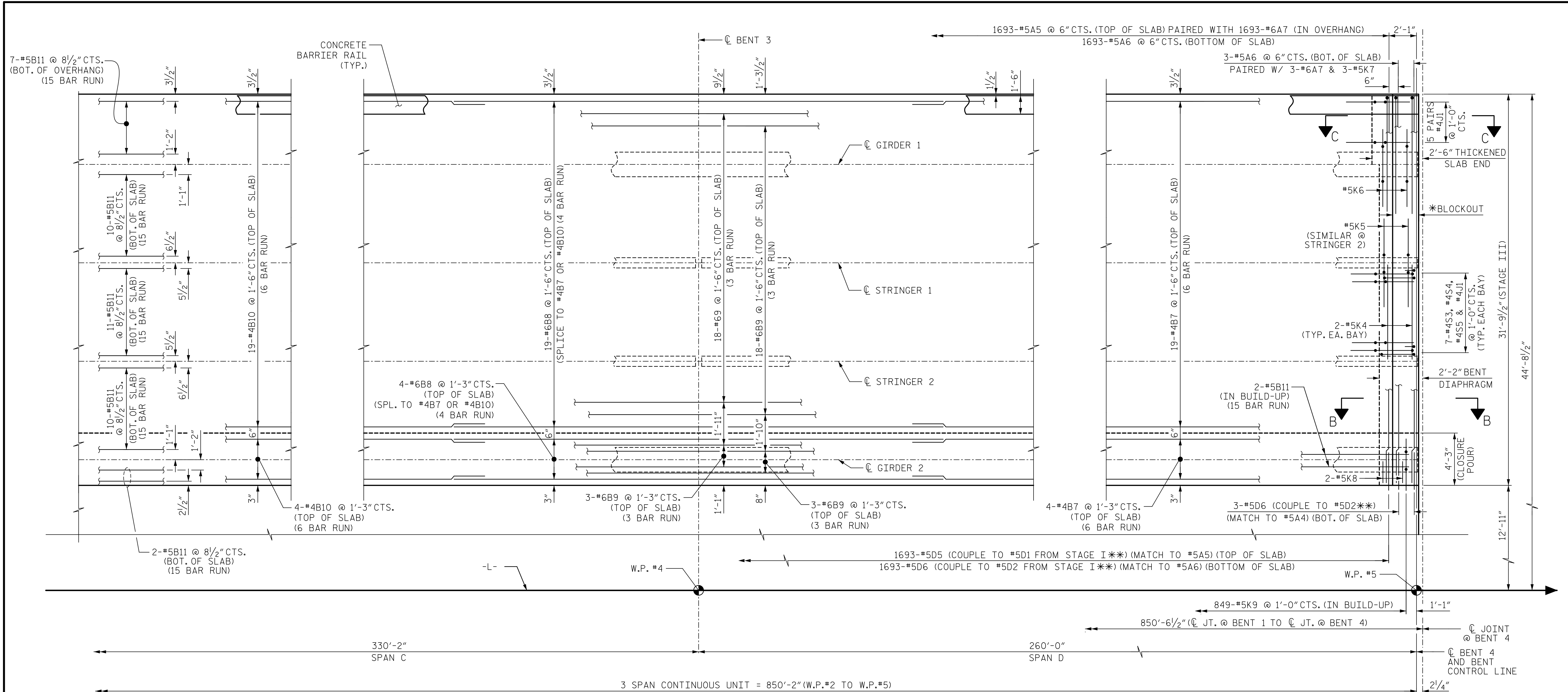
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE  
 PLAN OF SPANS  
 SPAN B & PART SPAN C  
 STAGE III

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-42
1			3			TOTAL SHEETS
2			4			129

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DRAWN BY: M. K. TOM	DATE: 1/2019
CHECKED BY: G. R. COLS	DATE: 1/2019
DESIGNED BY: H. T. ROSEMOND	DATE: 12/2019
DESIGN CHECKED BY: G. R. COLS	DATE: 1/2019

DATE: 2/27/2020 TIME: 3:24:58 PM  
USER: Meryl Rosemond DOB: R:\Structures\04 Drawings\401\_085\_15BPR\20\_SMU\_S11.dgn



SPAN C

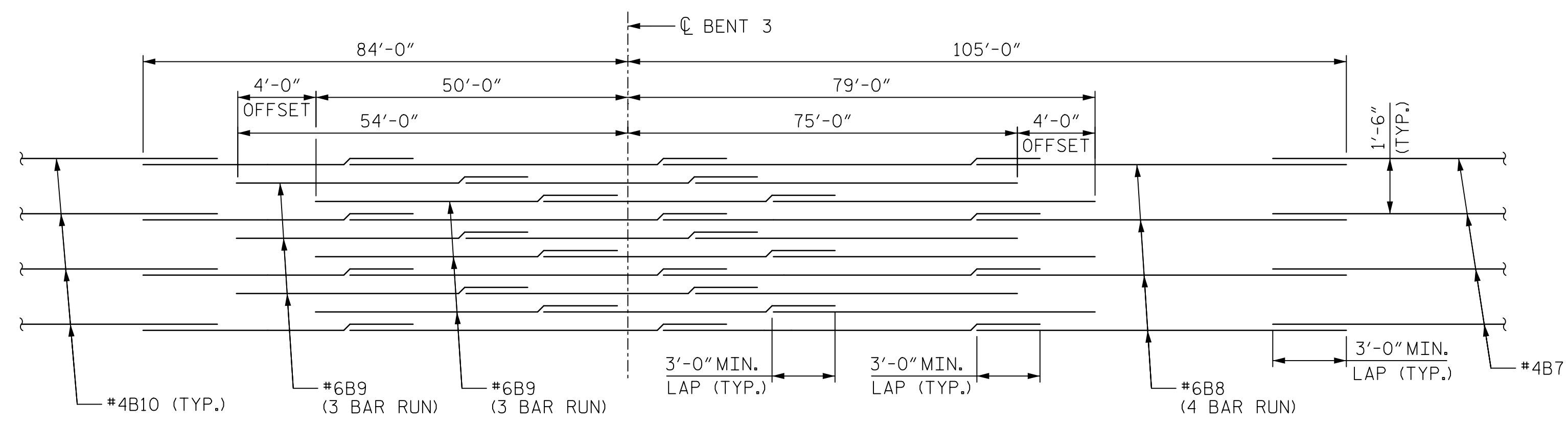
SPAN D

**NOTES:**

- FOR POURING SEQUENCE AND DIRECTION, AND TRANSVERSE CONTRUCTION JOINT DETAIL AND LOCATION, SEE "POURING SEQUENCE" SHEET.
- INTERMEDIATE STEEL DIAPHRAGMS NOT SHOWN FOR CLARITY, FOR LOCATION, SEE "FRAMING PLAN" SHEETS.
- \* FOR BLOCKOUT DIMENSIONS, SEE "MOLDED RUBBER SEGMENTAL EXPANSION JOINT" DETAILS SHEETS.
- \*\* FOR MECHANICAL COUPLERS FOR STAGED CONSTRUCTION, SEE TYPICAL SECTION SHEETS AND TYPICAL SECTION DETAILS SHEETS.
- FOR BARRIER RAIL REINFORCING NOT SHOWN, SEE "CONCRETE BARRIER RAIL" SHEET.
- FOR DECK DRAIN LOCATIONS, SEE SHEET 13.
- FOR MINIMUM SPLICE LENGTHS, SEE "SUPERSTRUCTURE BILL OF MATERIAL" SHEETS.

**PARTIAL PLAN OF SPANS C AND D**

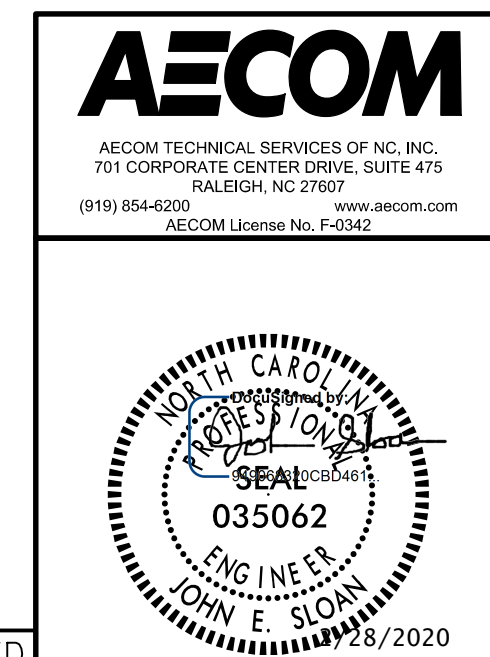
FOR LOCATIONS OF #6B8 AND #6B9 SEE LAYOUT DETAIL BELOW



TOP OF SLAB "B" BAR REINFORCEMENT LAYOUT OVER BENT 3

PROJECT NO. 15BPR.20  
HENDERSON COUNTY  
 STATION: 35+30.22 -L-

SHEET 11 OF 13



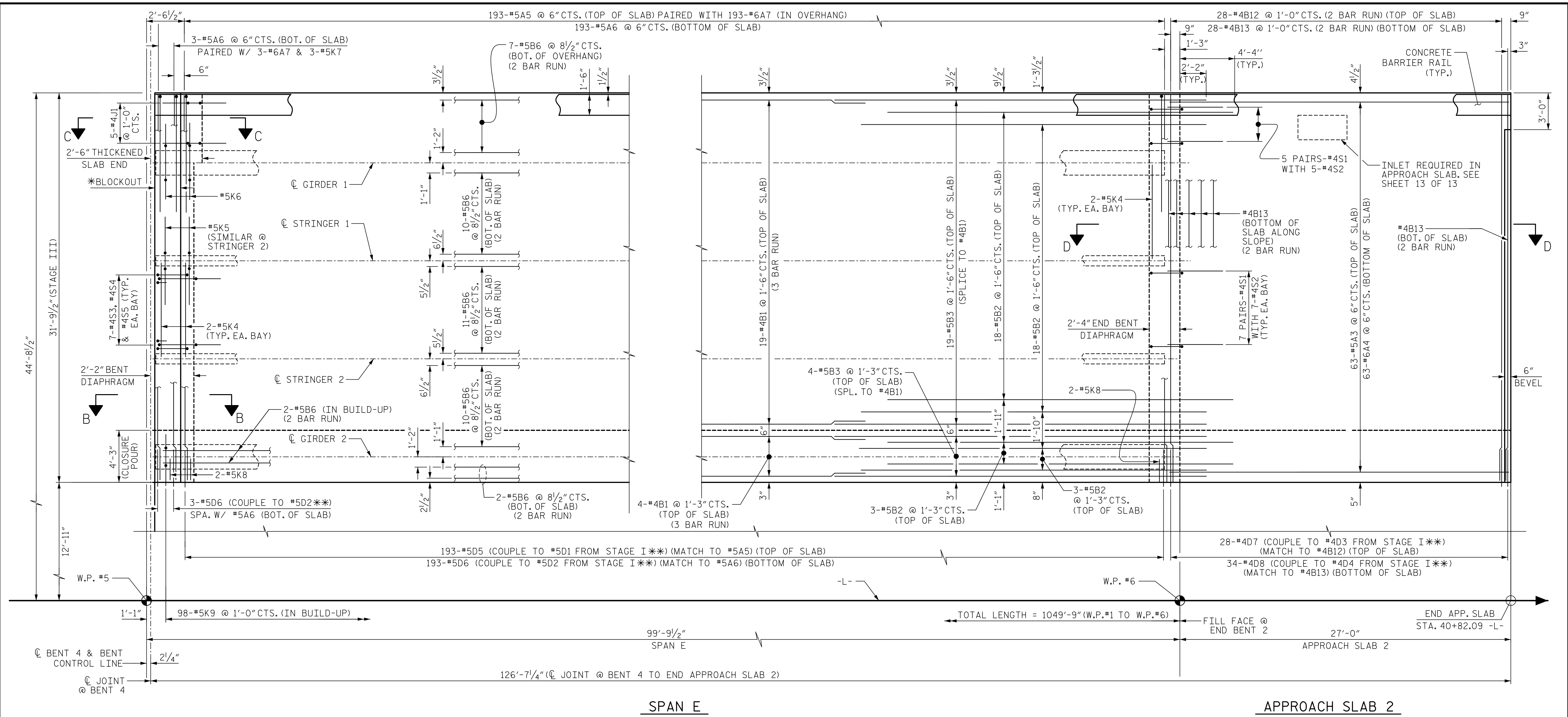
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE  
 PLAN OF SPANS  
 PART SPAN C & SPAN D  
 STAGE III

DRAWN BY : M.K. TOM	DATE : 1/2019
CHECKED BY : G.R. COLS	DATE : 1/2019
DESIGNED BY : H.T. ROSEMOND	DATE : 12/2019
DESIGN CHECKED BY : G.R. COLS	DATE : 1/2019

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-43
1			3			TOTAL SHEETS
2			4			129

DATE: 2/27/2020  
TIME: 3:25:06 PM



**NOTES:**

FOR POURING SEQUENCE AND DIRECTION, AND TRANSVERSE CONTRACTION JOINT DETAIL AND LOCATION, SEE "POURING SEQUENCE" SHEET.

INTERMEDIATE STEEL DIAPHRAGMS NOT SHOWN FOR CLARITY, FOR LOCATION, SEE "FRAMING PLAN" SHEETS.

\* FOR BLOCKOUT DIMENSIONS, SEE "MOLDED RUBBER SEGMENTAL EXPANSION JOINT" DETAILS SHEETS.

\*\* FOR MECHANICAL COUPLERS FOR STAGED CONSTRUCTION, SEE TYPICAL SECTION SHEETS AND TYPICAL SECTION DETAILS SHEETS.

FOR BARRIER RAIL REINFORCING NOT SHOWN, SEE "CONCRETE BARRIER RAIL" SHEET.

FOR DECK DRAIN LOCATIONS, SEE SHEET 13.

FOR MINIMUM SPLICE LENGTHS, SEE "SUPERSTRUCTURE BILL OF MATERIAL" SHEETS.

**PLAN OF SPAN E AND APPROACH SLAB 2**

PROJECT NO. 15BPR.20

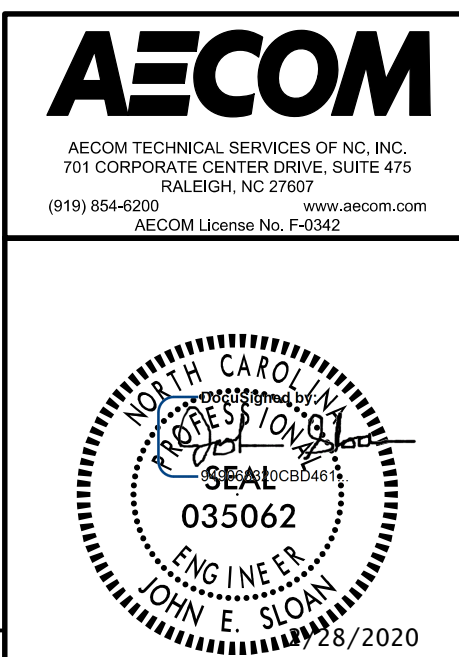
HENDERSON COUNTY

STATION: 35+30.22 -L-

SHEET 12 OF 13

DRAWN BY : H.T. ROSEMOND	DATE : 12/2018
CHECKED BY : G.R. COLS	DATE : 12/2018
DESIGNED BY : H.T. ROSEMOND	DATE : 12/2018
DESIGN CHECKED BY : G.R. COLS	DATE : 12/2018

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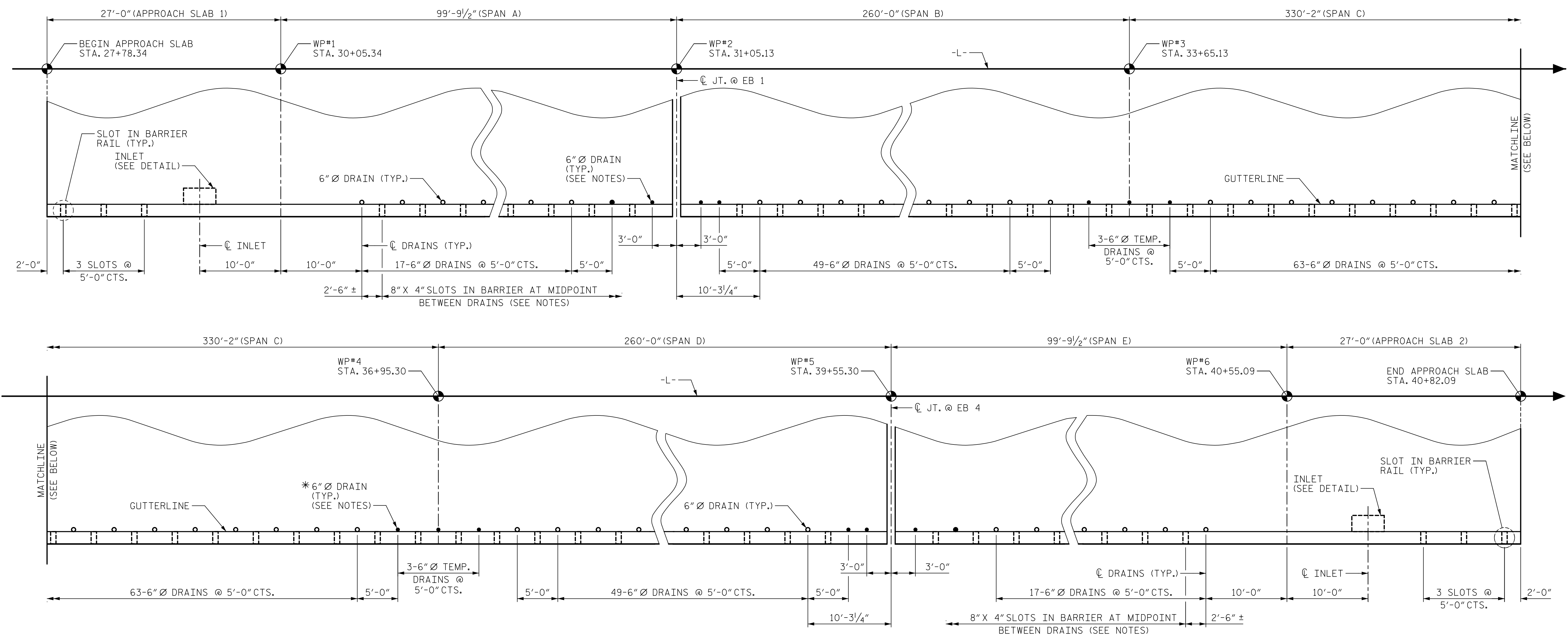


STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
SUPERSTRUCTURE  
PLAN OF SPANS  
SPAN E & APPROACH 2  
STAGE III

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-44
1			3			TOTAL SHEETS
2			4			129

DATE: 2/28/2020 TIME: 11:27:56 AM

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**DECK DRAIN AND BARRIER RAIL SLOT LOCATIONS**  
SHOWN ON RIGHT SIDE, LEFT SIDE SIMILAR

**DECK DRAIN NOTES:**

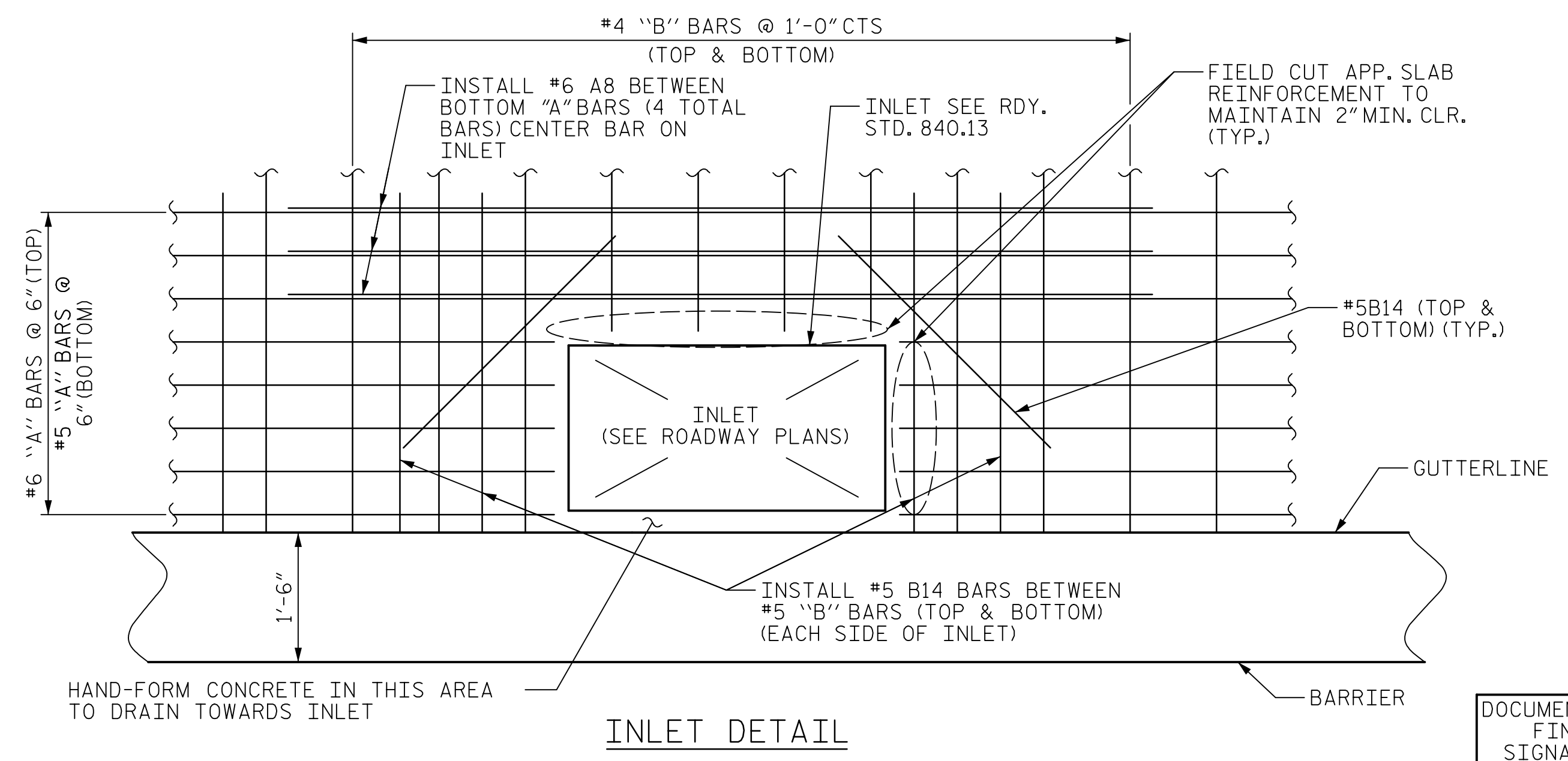
FOR CONTROL OF HYDRAULIC SPREAD ON BRIDGE DECK AND TEMPORARY DRAINAGE DURING CONSTRUCTION, SEE SPECIAL PROVISIONS.

DECK REINFORCEMENT MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO CLEAR DRAINS.

6" Ø DRAINS SHALL BE INSTALLED IN ACCORDANCE WITH THE DETAIL ON "TYPICAL SECTION" SHEET 10 OF 10.

6" Ø DRAIN DESIGNATED BY A SOLID CIRCLE SHALL NOT DISCHARGE OVER THE BENT PLAN LIMITS PLUS 5FT EACH SIDE. SEE SPECIAL PROVISIONS.

SLOTS SHALL BE FORMED IN BARRIER AT MIDPOINT BETWEEN DECK DRAINS FOR THE FULL LENGTH OF THE BRIDGE EXCEPT AS NOTED ON APPROACH SLABS. SLOTS SHALL FILLED AT COMPLETION OF CONSTRUCTION. SEE "CONCRETE BARRIER RAIL" SHEET FOR DETAILS.



DRAWN BY : M.K. TOM	DATE : 4/2019
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DESIGNED BY : G.R. COLS	DATE : 4/2019
DESIGN CHECKED BY : J.SLOAN/C.SMITH	DATE : 4/2019

PROJECT NO. 15BPR.20  
HENDERSON COUNTY  
STATION: 35+30.22 -L-

SHEET 13 OF 13



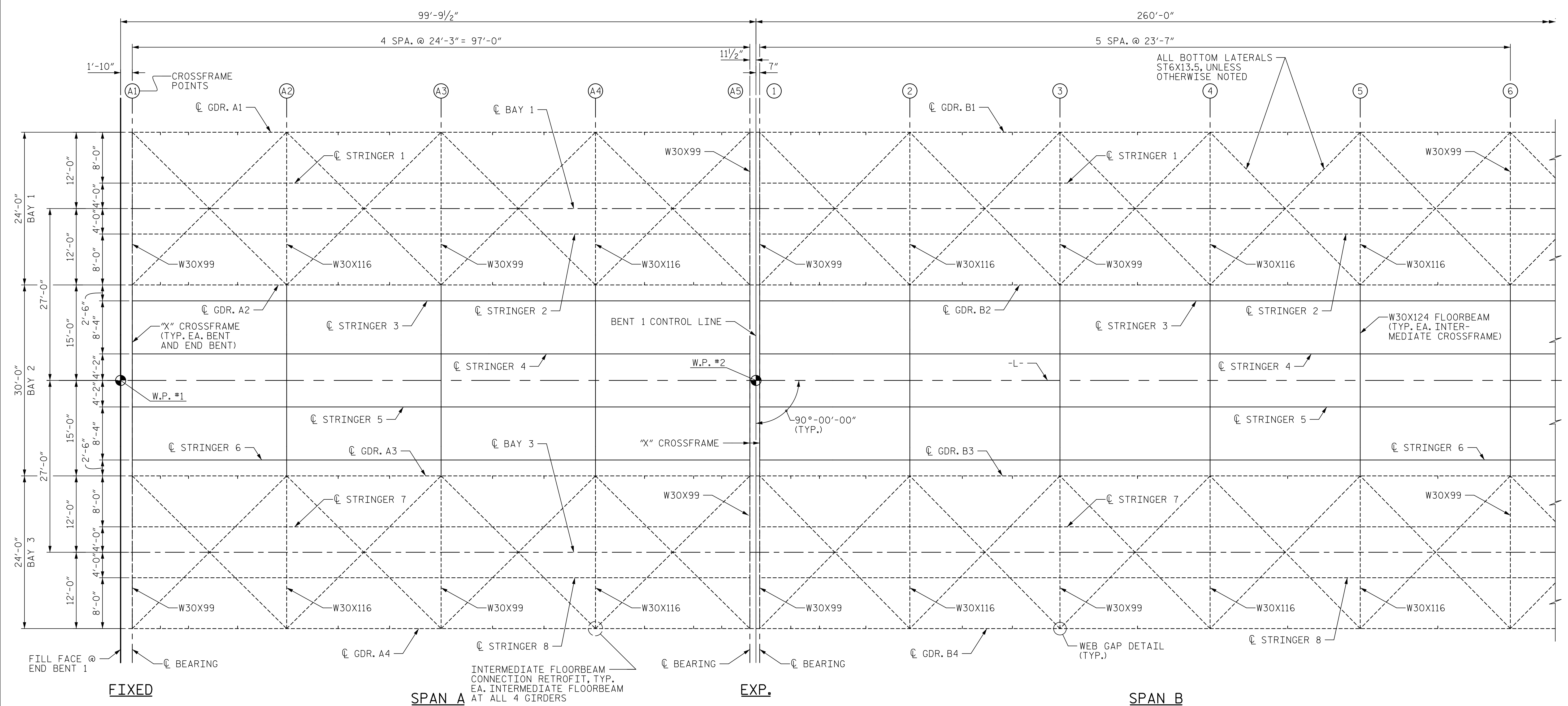
STATE OF NORTH CAROLINA  
**DEPARTMENT OF TRANSPORTATION**  
RALEIGH  
SUPERSTRUCTURE  
**PLAN OF SPANS**



REVISIONS						SHEET NO. S-45
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 129
2			4			

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TIME: 3:25:57 PM



**NOTES:**

PROPOSED STRINGERS IN BAY 2 SHALL BE 3 SPAN CONTINUOUS BETWEEN CROSSFRAME POINTS 1-4 AND 34-37. ALL OTHER STRINGERS SHALL BE 2 SPAN CONTINUOUS. PROPOSED STRINGERS IN BAY 2 SHALL BE W27X84.

EXISTING STRINGERS IN BAYS 1 AND 3 SHALL HAVE SHEAR STUDS WELDED TO THE TOP FLANGE. FOR DETAILS, SEE "FLOORBEAM AND STRINGER DETAILS" SHEET.

FOR X CROSSFRAME DETAILS, SEE "BAY 2 'X' CROSSFRAME DETAILS" SHEETS.

FOR W30X124 FLOORBEAMS AT INTERMEDIATE CROSSFRAMES, SEE "BAY 2 FLOORBEAM CONNECTION DETAILS" SHEET.

FOR INTERMEDIATE FLOORBEAM CONNECTION RETROFIT IN BAYS 1 AND 3, SEE "FLOORBEAM CONNECTION RETROFIT DETAILS" SHEET.

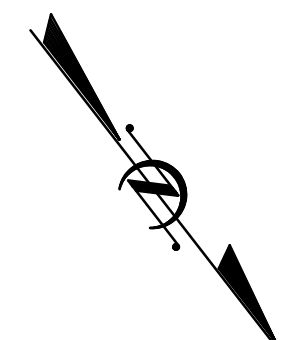
FOR GIRDER DETAILS INCLUDING ADDITIONAL STIFFENERS, SPLICE PLATES, COVER PLATES, SHEAR STUDS, AND WEB GAP DETAILS, SEE GIRDER ELEVATION SHEETS.

FOR STRUCTURAL STEEL REPAIRS, SEE "STRUCTURAL STEEL REPAIRS" SHEETS. FOR BEARING REPAIRS, SEE "BEARING REPAIRS" SHEETS.

BAY 2 CATWALKS NOT SHOWN FOR CLARITY. FOR CATWALK DETAILS, SEE "ACCESS AND FALL PROTECTION" SHEETS.

X CROSSFRAMES SHALL BE INSTALLED ON THE SPAN SIDE OF THE BEARING STIFFENER AT END BENTS 1 AND 2, OPPOSITE FROM THE BACKWALL. X CROSS FRAMES SHALL BE INSTALLED ON THE SPAN SIDE OF THE BEARING STIFFENER AT BENTS 1 AND 4, OPPOSITE FROM THE JOINT.

### FRAMING PLAN



PROJECT NO. 15BPR.20  
HENDERSON COUNTY  
 STATION: 35+30.22 -L-

SHEET 1 OF 5



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE  
 FRAMING PLAN

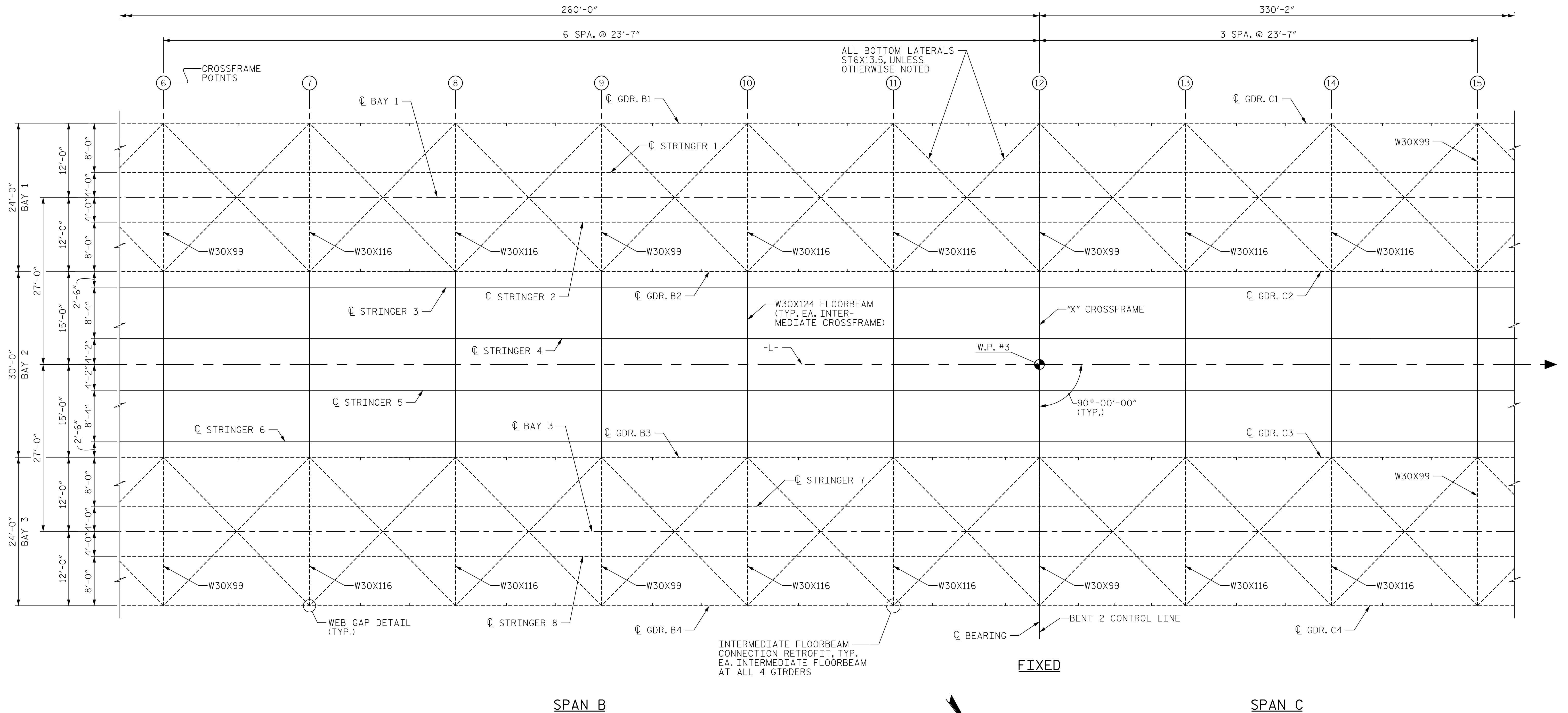


DRAWN BY: M. TOM DATE: 11/2018  
 CHECKED BY: J. SLOAN DATE: 11/2018  
 DESIGNED BY: N. BROWN/D. TUTTLE DATE: 12/2018  
 DESIGN CHECKED BY: J. LIU/J. SLOAN DATE: 12/2018

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-46
1			3			TOTAL SHEETS
2			4			129

DATE: 2/27/2020  
TIME: 3:25:40 PM



### FRAMING PLAN

PROJECT NO. 15BPR.20  
HENDERSON COUNTY  
 STATION: 35+30.22 -L-

SHEET 2 OF 5



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

SUPERSTRUCTURE

FRAMING PLAN



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-47
1			3			TOTAL SHEETS
2			4			129

DOCUMENT NOT CONSIDERED  
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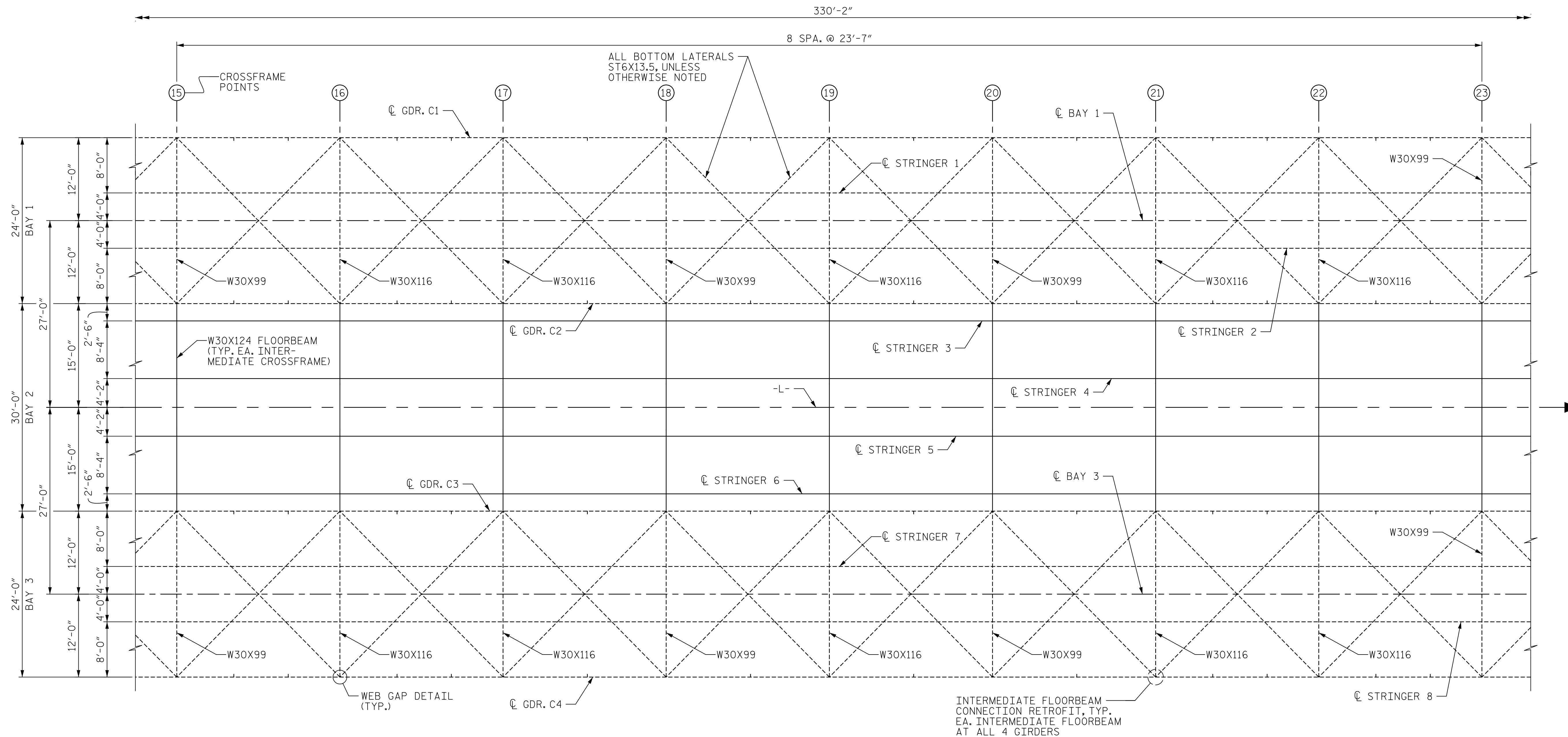
FOR NOTES, SEE SHEET 1 OF 5.

DRAWN BY : M. TOM	DATE : 11/2018
CHECKED BY : J. SLOAN	DATE : 11/2018
DESIGNED BY : N. BROWN/D. TUTTLE	DATE : 12/2018
DESIGN CHECKED BY : J. LIU/J. SLOAN	DATE : 12/2018

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DATE: 2/27/2020  
TIME: 3:25:45 PM

USER: MerchAssessm... Drawings\401\_095\_15BPR20\_SMU\_FF3.dgn



SPAN C  
FRAMING PLAN

PROJECT NO. 15BPR.20  
HENDERSON COUNTY  
STATION: 35+30.22 -L-

SHEET 3 OF 5

**AECOM**  
AECOM TECHNICAL SERVICES OF NC, INC.  
701 CORPORATE CENTER DRIVE, SUITE 475  
RALEIGH, NC 27607  
(919) 854-6200 www.aecom.com  
AECOM License No. F-0342

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

SUPERSTRUCTURE

FRAMING PLAN



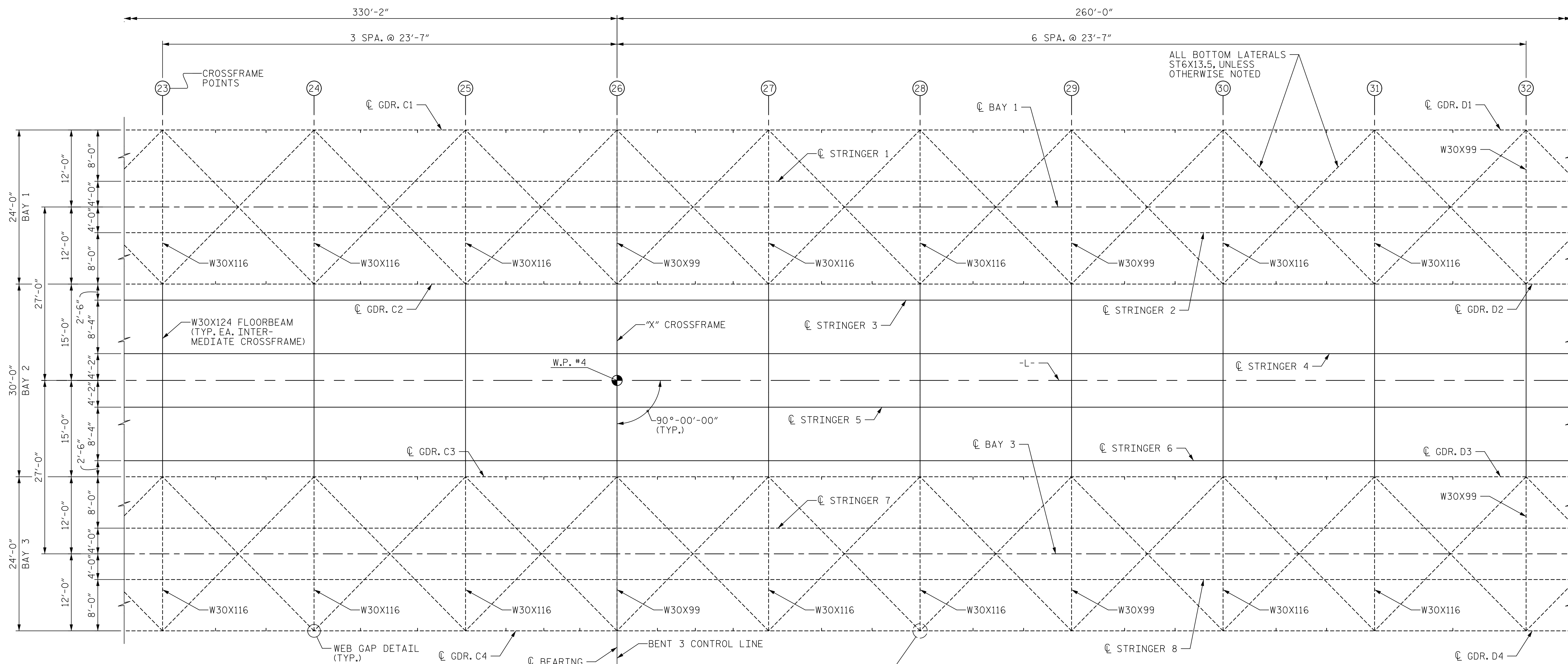
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NO.	BY:	DATE:	NO.	BY:	DATE:	S-48
1			3			TOTAL SHEETS
2			4			129

FOR NOTES, SEE SHEET 1 OF 5.

DRAWN BY : M. TOM	DATE : 11/2018
CHECKED BY : J. SLOAN	DATE : 11/2018
DESIGNED BY : N. BROWN/D. TUTTLE	DATE : 12/2018
DESIGN CHECKED BY : J. LIU/J. SLOAN	DATE : 12/2018

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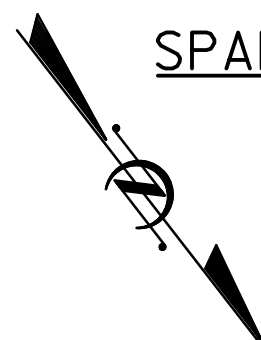
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TIME: 3:25:55 PM



SPAN C

SPAN D

### FRAMING PLAN



PROJECT NO. 15BPR.20  
HENDERSON COUNTY  
 STATION: 35+30.22 -L-

SHEET 4 OF 5

**AECOM**  
AECOM TECHNICAL SERVICES OF NC, INC.  
 701 CORPORATE CENTER DRIVE, SUITE 475  
 RALEIGH, NC 27607  
 (919) 854-6200 www.aecom.com  
 AECOM License No. F-0342



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE  
 FRAMING PLAN

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-49
1			3			TOTAL SHEETS
2			4			129

FOR NOTES, SEE SHEET 1 OF 5.

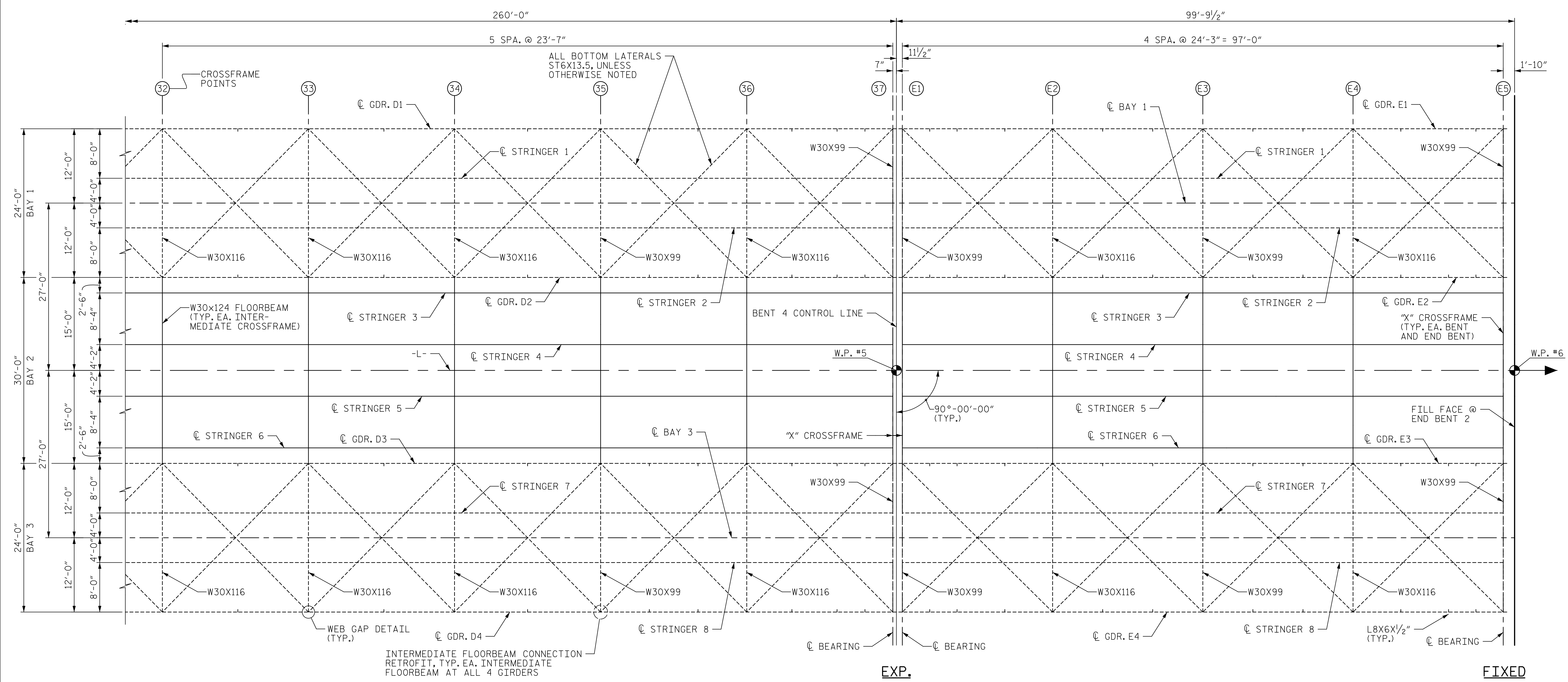
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 DESIGN CHECKED BY : J. LIU/J. SLOAN DATE : 12/2018

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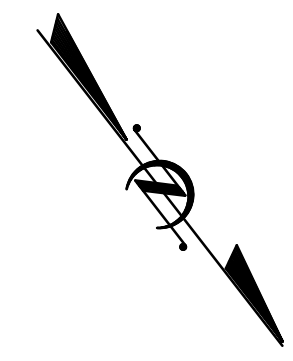
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TIME: 3:26:08 PM



SPAN D

SPAN E

FRAMING PLAN



PROJECT NO. 15BPR.20  
 HENDERSON COUNTY  
 STATION: 35+30.22 -L-

SHEET 5 OF 5

FOR NOTES, SEE SHEET 1 OF 5.

DRAWN BY : M. TOM	DATE : 11/2018
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DESIGN CHECKED BY : J. LIU/J. SLOAN	DATE : 12/2018



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE  
 FRAMING PLAN

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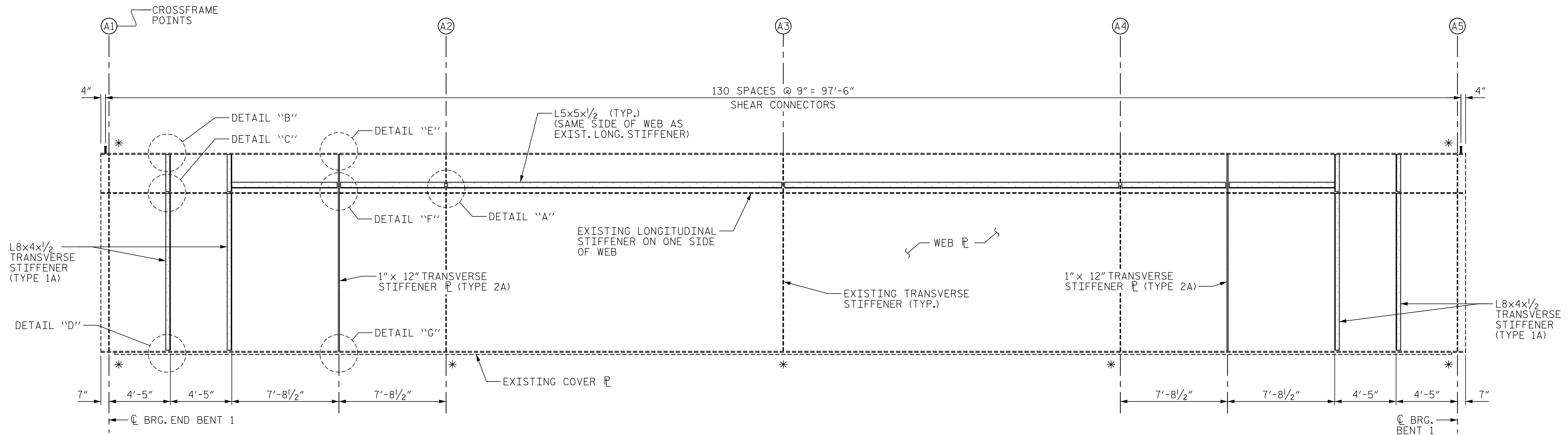
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-50
1			3			TOTAL SHEETS
2			4			129

\* WEB GAP DETAIL, SEE "WEB GAP RETROFIT DETAILS" SHEETS.

FOR DETAILS "B", "C", AND "D" SHOWING TYPE 1 TRANSVERSE STIFFENERS, SEE TYPE 1 TRANSVERSE STIFFENER SHEET.

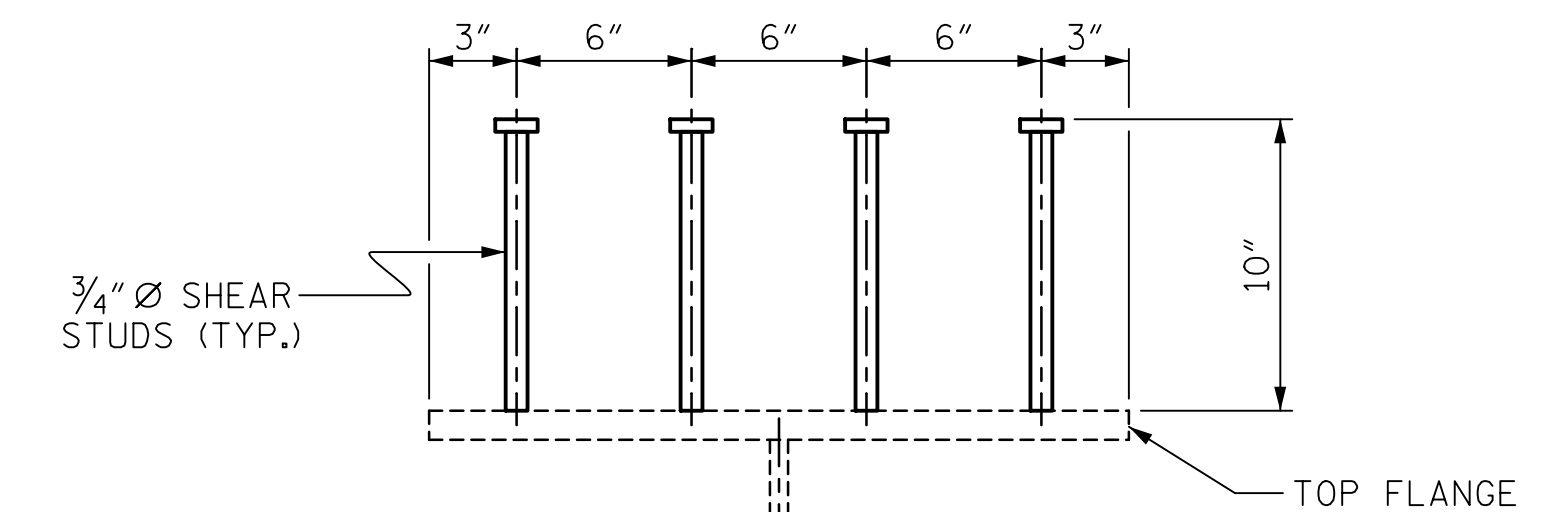
FOR DETAILS "E", "F", AND "G" SHOWING TYPE 2 TRANSVERSE STIFFENERS, SEE TYPE 2 TRANSVERSE STIFFENERS SHEETS.

DATE: 2/27/2020  
TIME: 3:26:50 PM

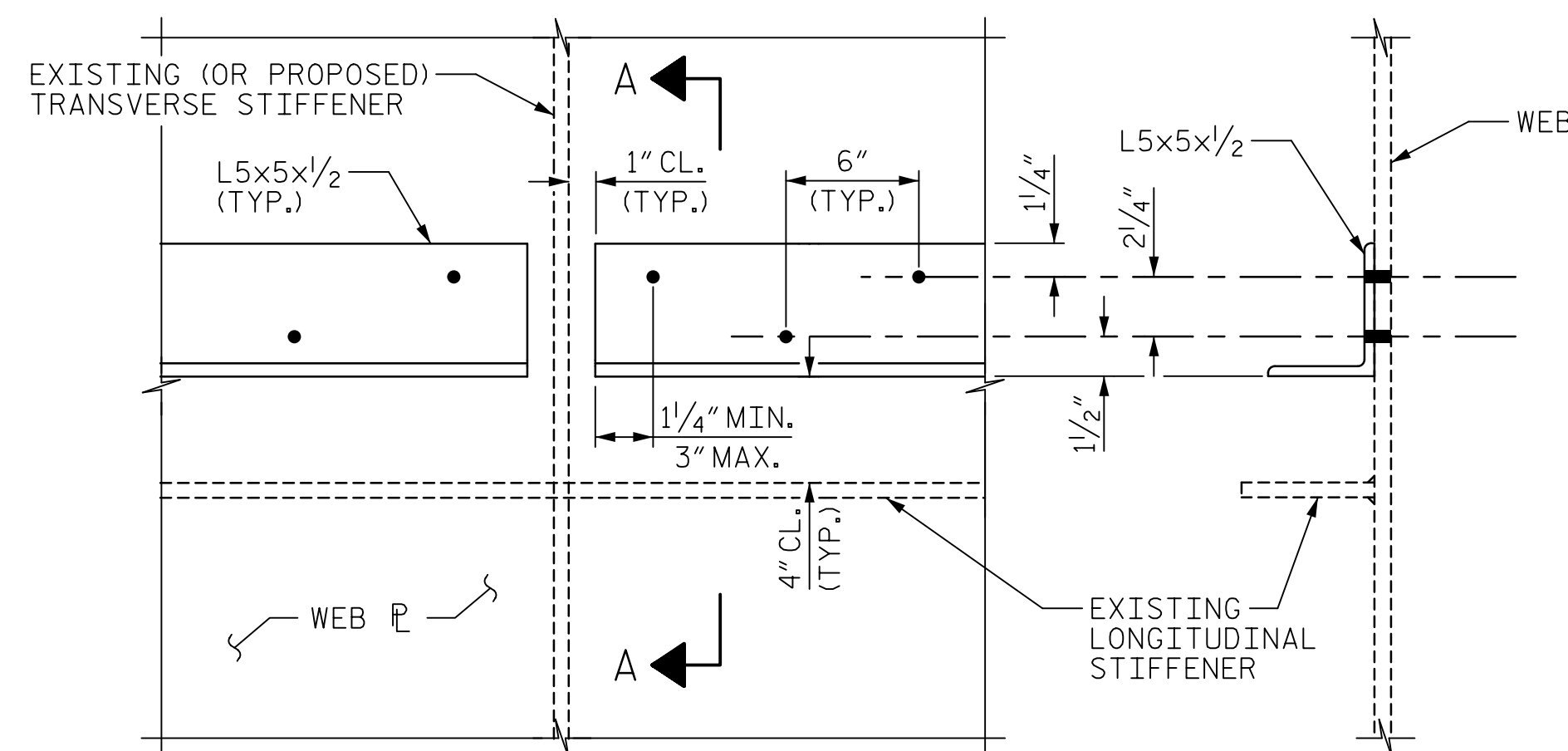


**SPAN A**

GIRDERS 2 & 4 NORTH FACE SHOWN.  
GIRDERS 1 & 3 SOUTH FACE SIMILAR (MIRRORED).



**SHEAR CONNECTOR DETAIL**

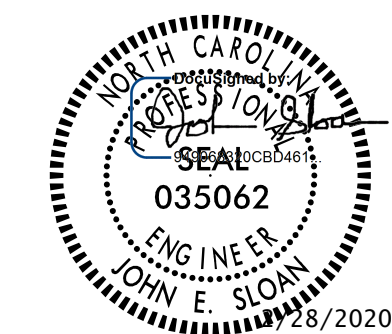


**DETAIL A**

**SECTION A-A**

PROJECT NO. 15BPR.20  
HENDERSON COUNTY  
STATION: 35+30.22 -L-

SHEET 1 OF 11



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

SUPERSTRUCTURE

SPAN A  
GIRDER ELEVATION

REVISIONS

NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO.  
S-51  
TOTAL SHEETS  
129

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DRAWN BY : M.K. TOM DATE : 1/2019  
CHECKED BY : J.E. SLOAN DATE : 2/2019  
DESIGNED BY : D. RITACCO DATE : 2/2019  
DESIGN CHECKED BY : J.E. SLOAN DATE : 2/2019

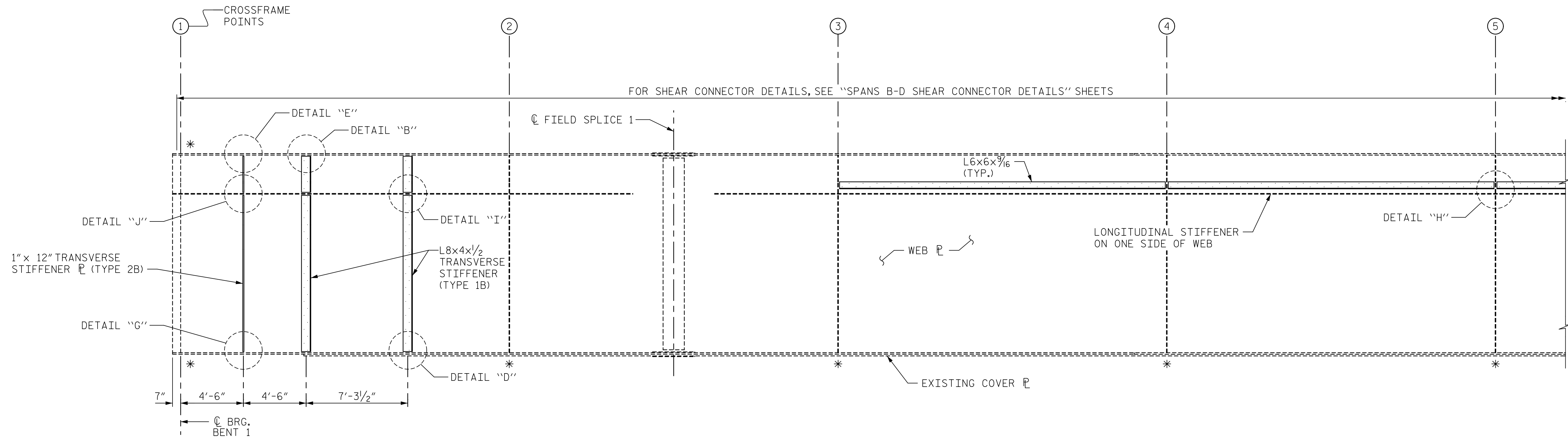
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\* WEB GAP DETAIL, SEE "WEB GAP RETROFIT DETAILS" SHEETS.

FOR DETAILS "B", "C", AND "D" SHOWING TYPE 1 TRANSVERSE STIFFENERS, SEE TYPE 1 TRANSVERSE STIFFENER SHEET.

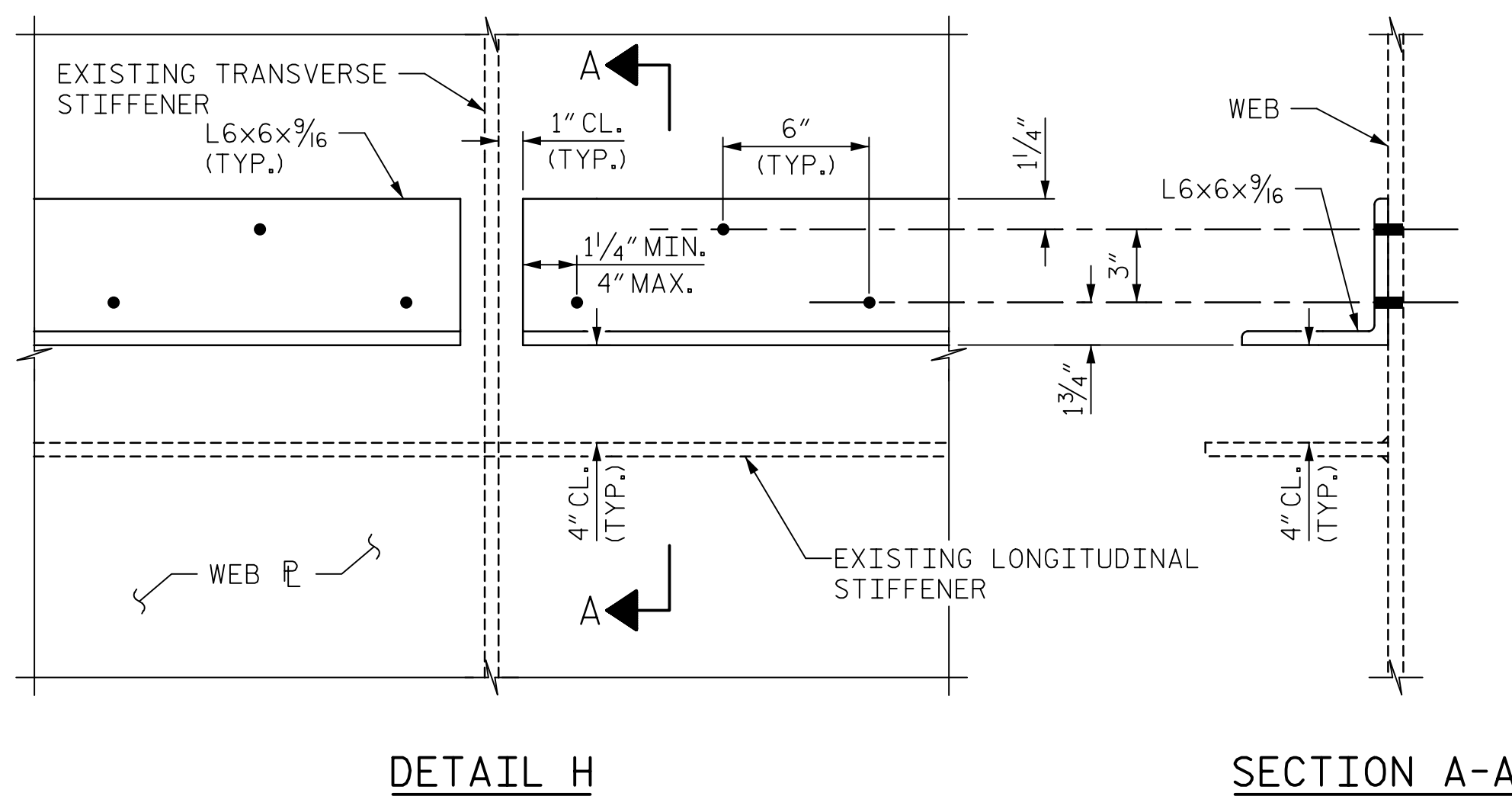
FOR DETAILS "E", "F", AND "G" SHOWING TYPE 2 TRANSVERSE STIFFENERS, SEE TYPE 2 TRANSVERSE STIFFENERS SHEETS.

DATE: 2/27/2020  
TIME: 3:26:57 PM



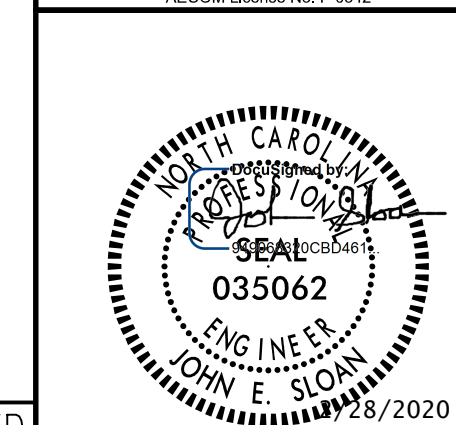
### PARTIAL SPAN B

GIRDERS 2 & 4 NORTH FACE SHOWN.  
GIRDERS 1 & 3 SOUTH FACE SIMILAR (MIRRORED).



PROJECT NO. 15BPR.20  
HENDERSON COUNTY  
STATION: 35+30.22 -L-

SHEET 2 OF 11



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

SUPERSTRUCTURE

PARTIAL SPAN B  
GIRDER ELEVATION

REVISIONS

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1			3		
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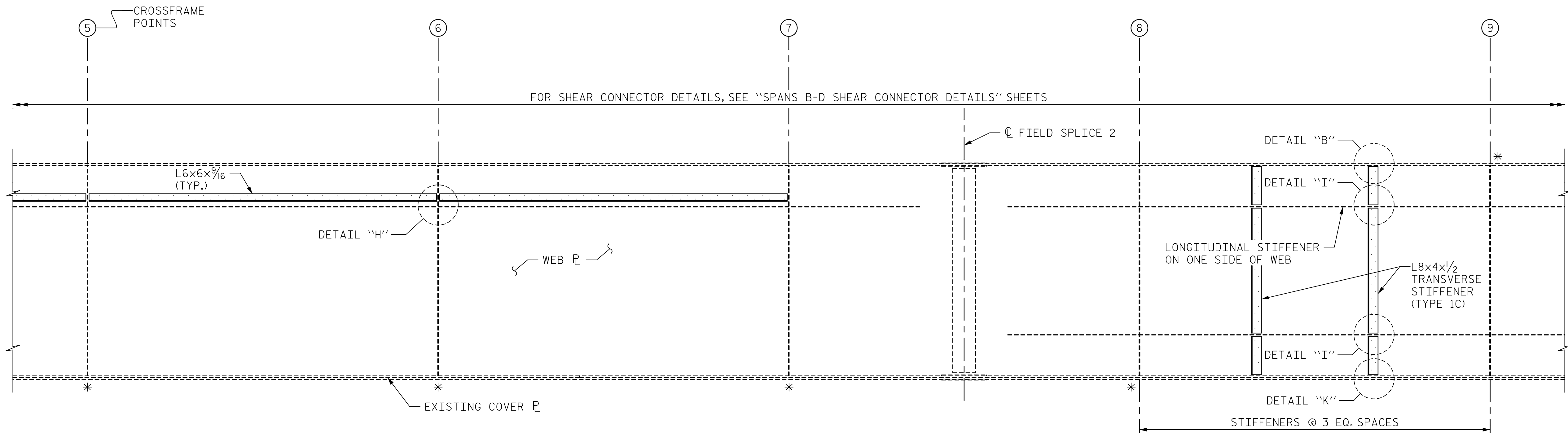
SHEET NO.  
S-52  
TOTAL SHEETS  
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CHECKED BY : J.E. SLOAN DATE : 2/2019  
DESIGNED BY : N. BROWN/D. TUTTLE DATE : 2/2019  
DESIGN CHECKED BY : J. SLOAN/J. LIU DATE : 2/2019

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\* WEB GAP DETAIL, SEE "WEB GAP RETROFIT DETAILS" SHEETS.



**PARTIAL SPAN B**  
 GIRDERS 2 & 4 NORTH FACE SHOWN.  
 GIRDERS 1 & 3 SOUTH FACE SIMILAR (MIRRORED).

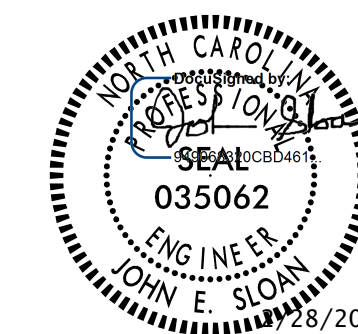
**NOTES:**

FOR DETAIL "H", SEE SHEET 2 OF 11.

FOR DETAILS "B", "I", AND "K" SHOWING TYPE 1 TRANSVERSE STIFFENERS, SEE TYPE 1 TRANSVERSE STIFFENER SHEET.

PROJECT NO. 15BPR.20  
HENDERSON COUNTY  
 STATION: 35+30.22 -L-

SHEET 3 OF 11



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

SUPERSTRUCTURE

PARTIAL SPAN B  
 GIRDER ELEVATION

REVISIONS

NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
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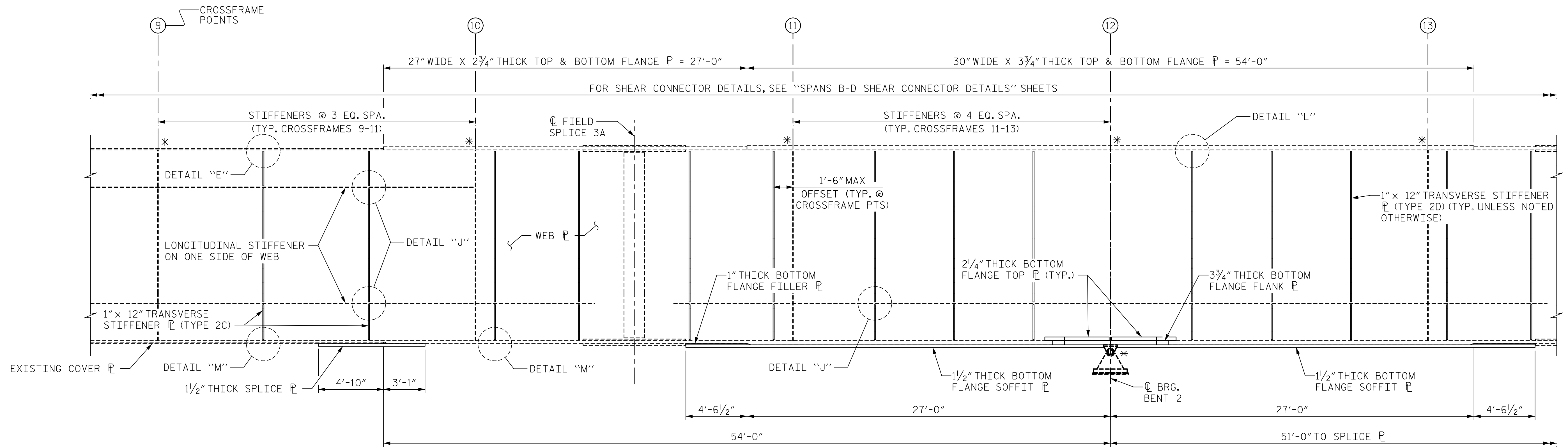
SHEET NO.  
 S-53  
 TOTAL SHEETS  
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DOCUMENT NOT CONSIDERED  
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 SIGNATURES COMPLETED

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 DESIGNED BY : N. BROWN/D. TUTTLE DATE : 2/2019  
 DESIGN CHECKED BY : J. SLOAN/J. LIU DATE : 2/2019

DATE: 2/27/2020 TIME: 3:25:40 PM

USER: \\nc\resourced\Drawings\01\_05\_15BPR20\_SML\GE3.dgn



**PARTIAL SPAN B**  
GIRDERS 2 & 4 NORTH FACE SHOWN.  
GIRDERS 1 & 3 SOUTH FACE SIMILAR (MIRRORED).

**PARTIAL SPAN C**  
GIRDERS 2 & 4 NORTH FACE SHOWN.  
GIRDERS 1 & 3 SOUTH FACE SIMILAR (MIRRORED).

**NOTES:**

FOR DETAILS "E", "J", "L", AND "M" SHOWING TYPE 2 TRANSVERSE STIFFENERS, SEE TYPE 2 TRANSVERSE STIFFENERS SHEETS.

FOR SPLICE SEE "SPLICE DETAILS" SHEET.

FOR BOTTOM FLANGE COVER SEE "BENTS 2 & 3 BOTTOM FLANGE COVER DETAILS" SHEETS.

TRANSVERSE STIFFENERS SHALL BE EQUALLY SPACED BETWEEN CROSSFRAME POINTS AS SHOWN ON THE OPPOSITE SIDE OF THE WEB FROM THE EXISTING TRANSVERSE STIFFENER. TRANSVERSE STIFFENERS AT CROSSFRAME POINTS 10, 11, 13, AND 14 MAY BE OFFSET UP TO 1'-6" FROM THE CROSSFRAME POINT.

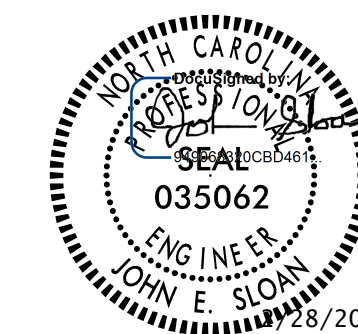
LOCATION OF STIFFENERS ADJACENT TO FIELD SPLICE MAY BE ADJUSTED SLIGHTLY TO AVOID CONFLICT WITH THE APPROVAL OF THE ENGINEER.

PROJECT NO. 15BPR.20  
HENDERSON COUNTY  
STATION: 35+30.22 -L-

SHEET 4 OF 11

DRAWN BY : M.K. TOM DATE : 1/2019  
CHECKED BY : J.E. SLOAN DATE : 2/2019  
DESIGNED BY : N. BROWN/D. TUTTLE DATE : 2/2019  
DESIGN CHECKED BY : J. SLOAN/J. LIU DATE : 2/2019

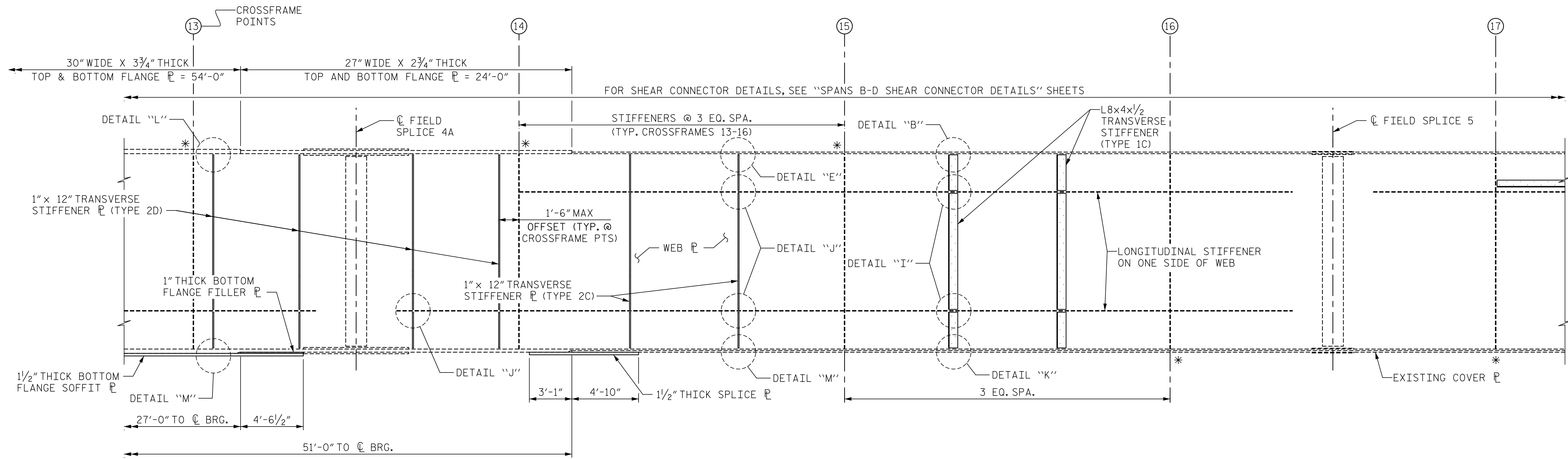
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SIGNATURES COMPLETED



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
SUPERSTRUCTURE  
PARTIAL SPANS B & C  
GIRDER ELEVATION

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-54
1			3			TOTAL SHEETS
2			4			129

DATE: 2/27/2020 TIME: 3:25:45 PM  
USER: MchR/Reswood DOB: R:\Structures\04 Drawings\01\01\_15BPR.20\_SMLU.GE.dgn



**PARTIAL SPAN C**

GIRDERS 2 & 4 NORTH FACE SHOWN.  
GIRDERS 1 & 3 SOUTH FACE SIMILAR (MIRRORED).

**NOTES:**

FOR DETAILS "B", "I", AND "K" SHOWING TYPE 1 TRANSVERSE STIFFENERS, SEE TYPE 1 TRANSVERSE STIFFENER SHEET.

FOR DETAILS "E", "J", "L", AND "M" SHOWING TYPE 2 TRANSVERSE STIFFENERS, SEE TYPE 2 TRANSVERSE STIFFENERS SHEETS.

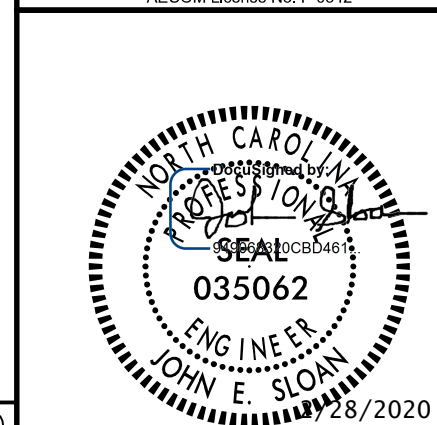
FOR SPLICE SEE "SPLICE DETAILS" SHEET.

FOR BOTTOM FLANGE COVER SEE "BENTS 2 & 3 BOTTOM FLANGE COVER DETAILS" SHEETS.

LOCATION OF STIFFENERS ADJACENT TO FIELD SPLICE MAY BE ADJUSTED SLIGHTLY TO AVOID CONFLICT WITH THE APPROVAL OF THE ENGINEER.

PROJECT NO. 15BPR.20  
HENDERSON COUNTY  
STATION: 35+30.22 -L-

SHEET 5 OF 11



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

SUPERSTRUCTURE

PARTIAL SPAN C  
GIRDER ELEVATION

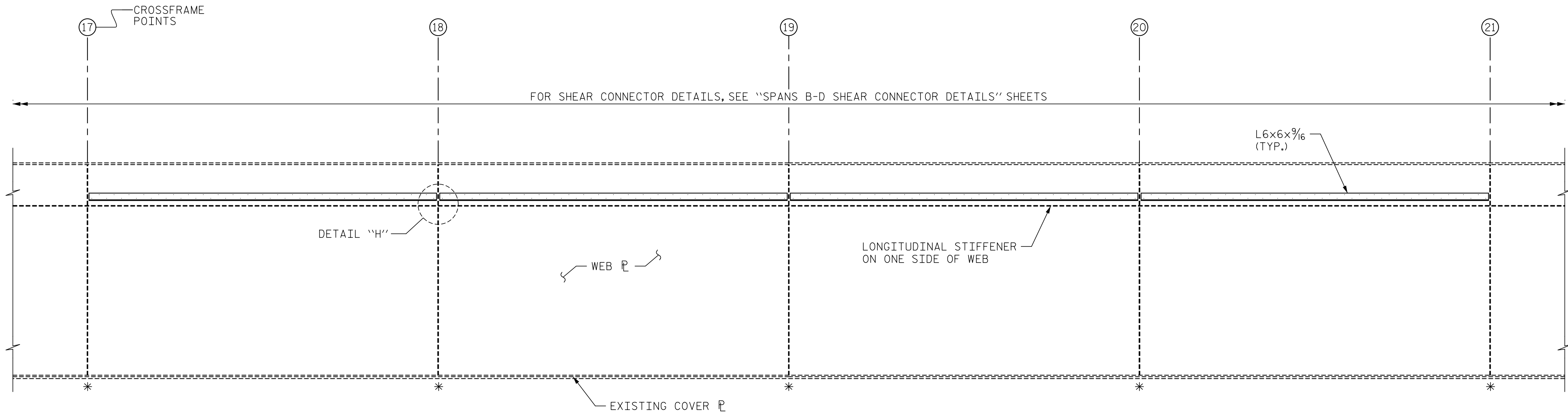
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NO.	BY:	DATE:	NO.	BY:	DATE:	S-55
1			3			TOTAL SHEETS
2			4			129

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CHECKED BY : J.E. SLOAN	DATE : 2/2019
DESIGNED BY : N. BROWN/D. TUTTLE	DATE : 2/2019
DESIGN CHECKED BY : J. SLOAN/J. LIU	DATE : 2/2019

DATE: 2/27/2020 TIME: 3:26:58 PM USER: MrcH/Resmead DOB: R:\Structures\04 Drawings\01\_09\_18\BPR20\_SML\GE5.dgn

\* WEB GAP DETAIL, SEE "WEB GAP RETROFIT DETAILS" SHEETS.



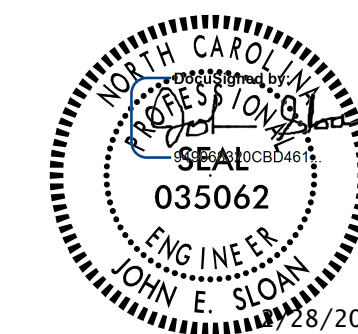
**PARTIAL SPAN C**  
 GIRDERS 2 & 4 NORTH FACE SHOWN.  
 GIRDERS 1 & 3 SOUTH FACE SIMILAR (MIRRORED).

**NOTES:**

FOR DETAIL "H", SEE SHEET 2 OF 11.

PROJECT NO. 15BPR.20  
HENDERSON COUNTY  
 STATION: 35+30.22 -L-

SHEET 6 OF 11



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

SUPERSTRUCTURE

PARTIAL SPAN C  
 GIRDER ELEVATION

REVISIONS

NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO.  
 S-56  
 TOTAL SHEETS  
 129

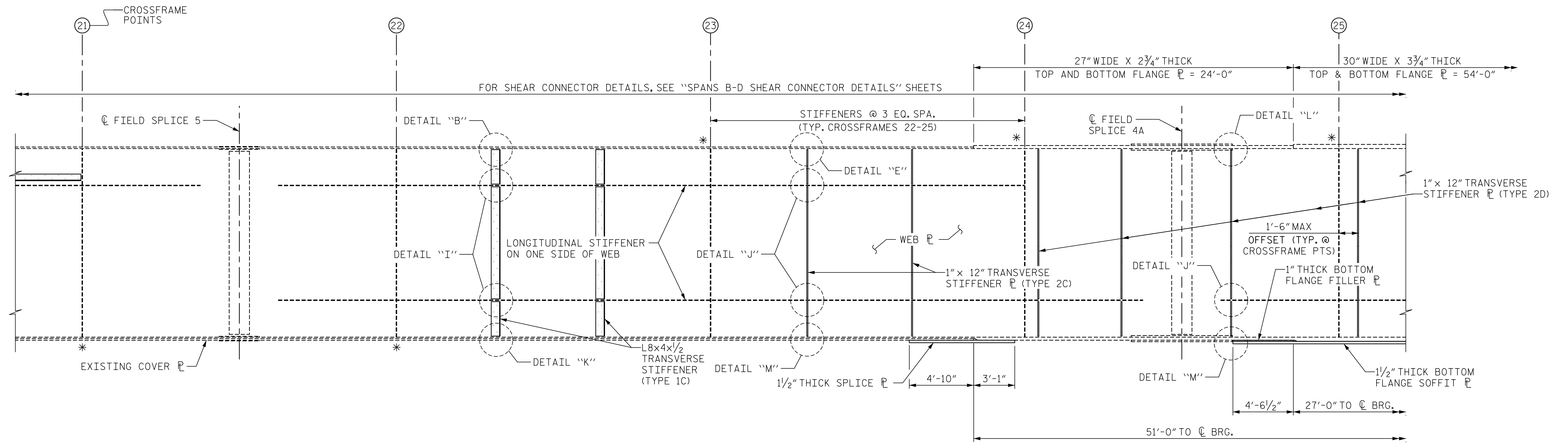
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DRAWN BY : M.K. TOM	DATE : 1/2019
CHECKED BY : J.E. SLOAN	DATE : 2/2019
DESIGNED BY : N. BROWN/D. TUTTLE	DATE : 2/2019
DESIGN CHECKED BY : J. SLOAN/J. LIU	DATE : 2/2019

DATE: 2/27/2020  
 TIME: 3:27:05 PM

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\* WEB GAP DETAIL, SEE "WEB GAP RETROFIT DETAILS" SHEETS.



### PARTIAL SPAN C

GIRDERS 2 & 4 NORTH FACE SHOWN.  
GIRDERS 1 & 3 SOUTH FACE SIMILAR (MIRRORED).

#### NOTES:

FOR DETAILS "B", "I", AND "K" SHOWING TYPE 1 TRANSVERSE STIFFENERS, SEE TYPE 1 TRANSVERSE STIFFENER SHEET.

FOR DETAILS "E", "J", "L", AND "M" SHOWING TYPE 1 TRANSVERSE STIFFENERS, SEE TYPE 1 TRANSVERSE STIFFENER SHEET.

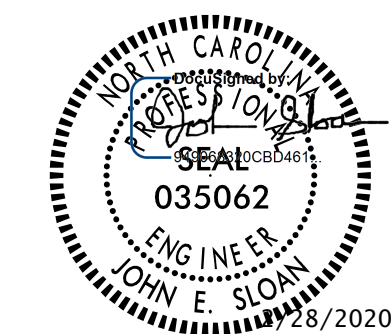
FOR SPLICE PLATE, SEE "SPLICE PLATE DETAILS" SHEET.

FOR BOTTOM FLANGE COVER PLATE, SEE "BENTS 2 & 3 BOTTOM FLANGE COVER PLATE DETAILS" SHEETS.

LOCATION OF STIFFENERS ADJACENT TO FIELD SPLICE MAY BE ADJUSTED SLIGHTLY TO AVOID CONFLICT WITH THE APPROVAL OF THE ENGINEER.

PROJECT NO. 15BPR.20  
HENDERSON COUNTY  
STATION: 35+30.22 -L-

SHEET 7 OF 11



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

SUPERSTRUCTURE

PARTIAL SPAN C  
GIRDER ELEVATION

REVISIONS

NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO.  
S-57  
TOTAL SHEETS  
129

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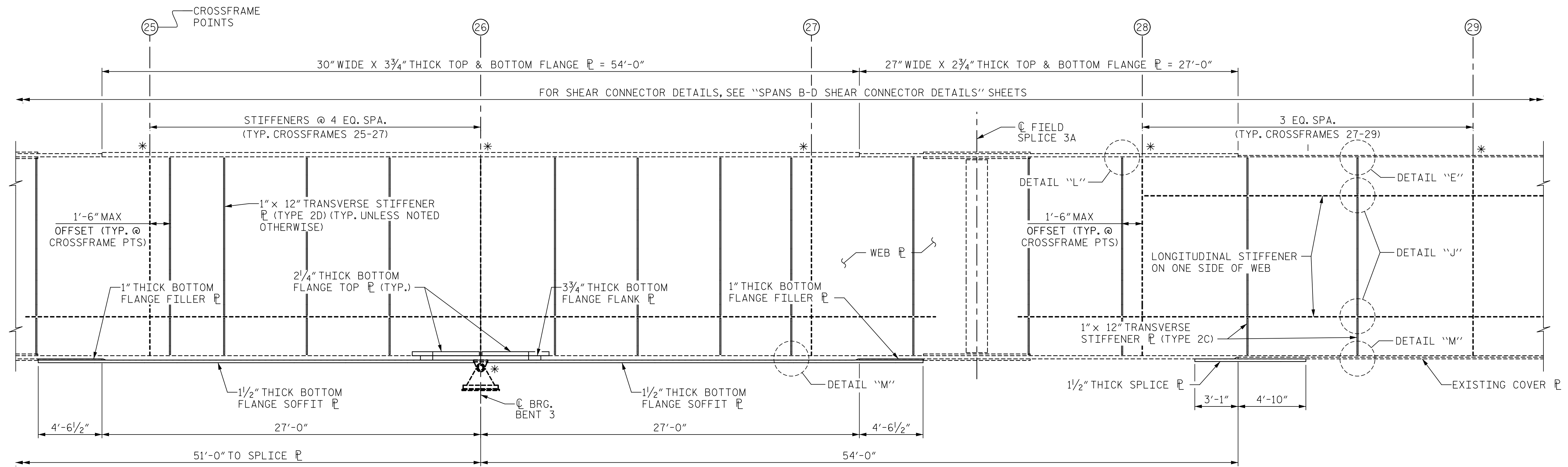
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DESIGNED BY : N. BROWN/D. TUTTLE DATE : 2/2019  
DESIGN CHECKED BY : J. SLOAN/J. LIU DATE : 2/2019

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TIME: 3:28:55 PM

USER: MchRessmond  
DGN: R:\Structures\04 Drawings\01\13\_15BPR.20\_SML\DET.dgn



DATE: 2/27/2020  
TIME: 3:25:23 PM



**PARTIAL SPAN C**  
GIRDERS 2 & 4 NORTH FACE SHOWN.  
GIRDERS 1 & 3 SOUTH FACE SIMILAR (MIRRORED).

**PARTIAL SPAN D**  
GIRDERS 2 & 4 NORTH FACE SHOWN.  
GIRDERS 1 & 3 SOUTH FACE SIMILAR (MIRRORED).

**NOTES:**

FOR DETAILS "E", "J", "L", AND "M" SHOWING TYPE 1 TRANSVERSE STIFFENERS, SEE TYPE 1 TRANSVERSE STIFFENER SHEET.

FOR SPLICE SEE "SPLICE DETAILS" SHEET.

FOR BOTTOM FLANGE COVER SEE "BENTS 2 & 3 BOTTOM FLANGE COVER DETAILS" SHEETS.

TRANSVERSE STIFFENERS SHALL BE EQUALLY SPACED BETWEEN CROSSFRAME POINTS AS SHOWN ON THE OPPOSITE SIDE OF THE WEB FROM THE EXISTING TRANSVERSE STIFFENER. TRANSVERSE STIFFENERS AT CROSSFRAME POINTS 24, 25, 27, AND 28 MAY BE OFFSET UP TO 1'-6" FROM THE CROSSFRAME POINT.

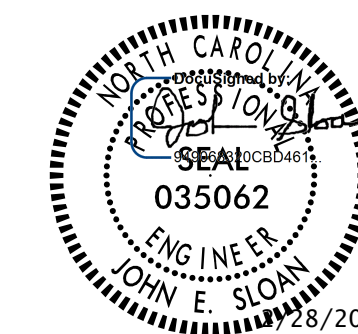
LOCATION OF STIFFENERS ADJACENT TO FIELD SPLICE MAY BE ADJUSTED SLIGHTLY TO AVOID CONFLICT WITH THE APPROVAL OF THE ENGINEER.

PROJECT NO. 15BPR.20  
HENDERSON COUNTY  
STATION: 35+30.22 -L-

SHEET 8 OF 11

DRAWN BY : M.K. TOM DATE : 1/2019  
CHECKED BY : J.E. SLOAN DATE : 2/2019  
DESIGNED BY : N. BROWN/D. TUTTLE DATE : 2/2019  
DESIGN CHECKED BY : J. SLOAN/J. LIU DATE : 2/2019

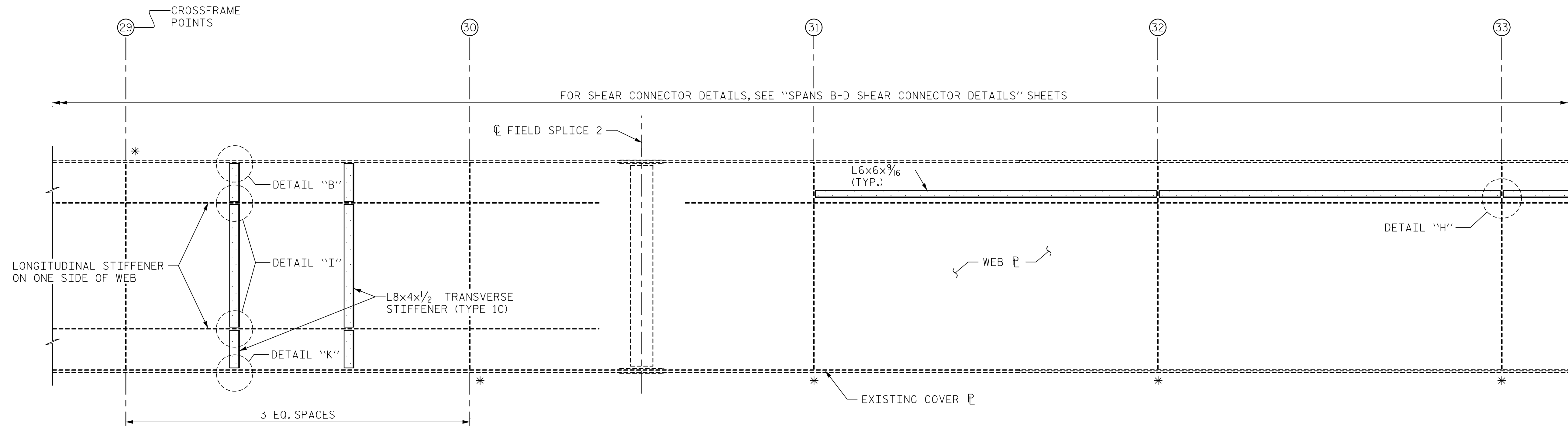
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STATE OF NORTH CAROLINA  
**DEPARTMENT OF TRANSPORTATION**  
RALEIGH  
SUPERSTRUCTURE  
**PARTIAL SPANS C & D**  
GIRDER ELEVATION

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-58
1			3			TOTAL SHEETS
2			4			129

\* WEB GAP DETAIL, SEE "WEB GAP RETROFIT DETAILS" SHEETS.



**PARTIAL SPAN D**  
 GIRDERS 2 & 4 NORTH FACE SHOWN.  
 GIRDERS 1 & 3 SOUTH FACE SIMILAR (MIRRORED).

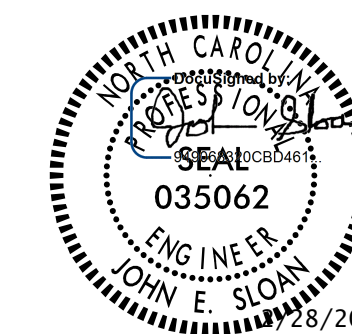
**NOTES:**

FOR DETAILS "B", "I", AND "K" SHOWING TYPE 1 TRANSVERSE STIFFENERS, SEE TYPE 1 TRANSVERSE STIFFENER SHEET.

FOR DETAIL "H", SEE SHEET 2 OF 11.

PROJECT NO. 15BPR.20  
HENDERSON COUNTY  
 STATION: 35+30.22 -L-

SHEET 9 OF 11



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

SUPERSTRUCTURE

PARTIAL SPAN D  
 GIRDER ELEVATION

REVISIONS

NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO.  
 S-59  
 TOTAL SHEETS  
 129

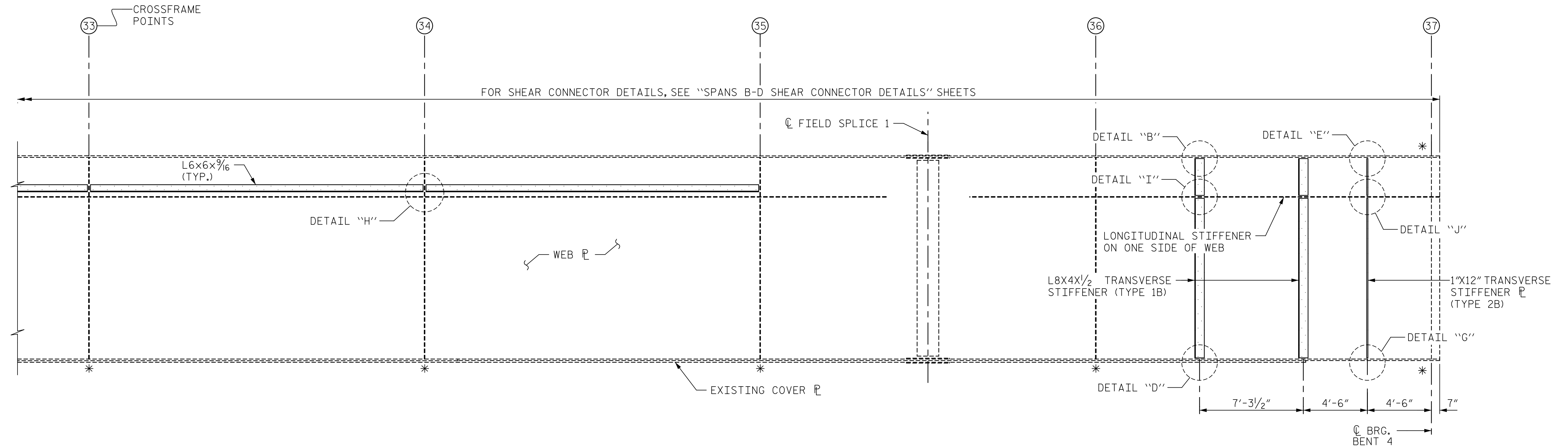
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CHECKED BY : J.E. SLOAN	DATE : 2/2019
DESIGNED BY : N. BROWN/D. TUTTLE	DATE : 2/2019
DESIGN CHECKED BY : J. SLOAN/J. LIU	DATE : 2/2019

DATE: 2/27/2020 TIME: 3:27:57 PM

USER: NorthCarolina\jts\Drawings\01\15BPR.20\_SML\_GES.dgn

\* WEB GAP DETAIL, SEE "WEB GAP RETROFIT DETAILS" SHEETS.



**PARTIAL SPAN D**

GIRDERS 2 & 4 NORTH FACE SHOWN.  
GIRDERS 1 & 3 SOUTH FACE SIMILAR (MIRRORED).

**NOTES:**

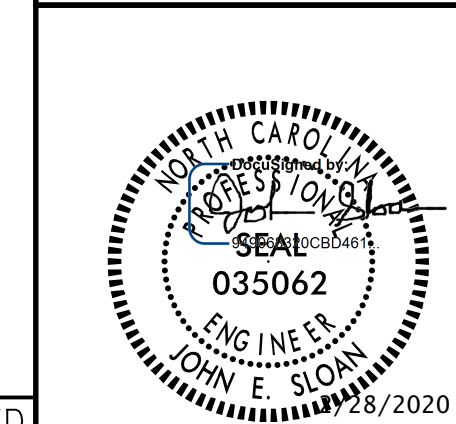
FOR DETAILS "B", "D", AND "I" SHOWING TYPE 1 TRANSVERSE STIFFENERS, SEE TYPE 1 TRANSVERSE STIFFENER SHEET.

FOR DETAILS "E", "J", AND "G" SHOWING TYPE 1 TRANSVERSE STIFFENERS, SEE TYPE 1 TRANSVERSE STIFFENER SHEET.

FOR DETAIL "H", SEE SHEET 2 OF 11.

PROJECT NO. 15BPR.20  
HENDERSON COUNTY  
STATION: 35+30.22 -L-

SHEET 10 OF 11



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

SUPERSTRUCTURE

PARTIAL SPAN D  
GIRDER ELEVATION

REVISIONS

NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO.  
S-60  
TOTAL SHEETS  
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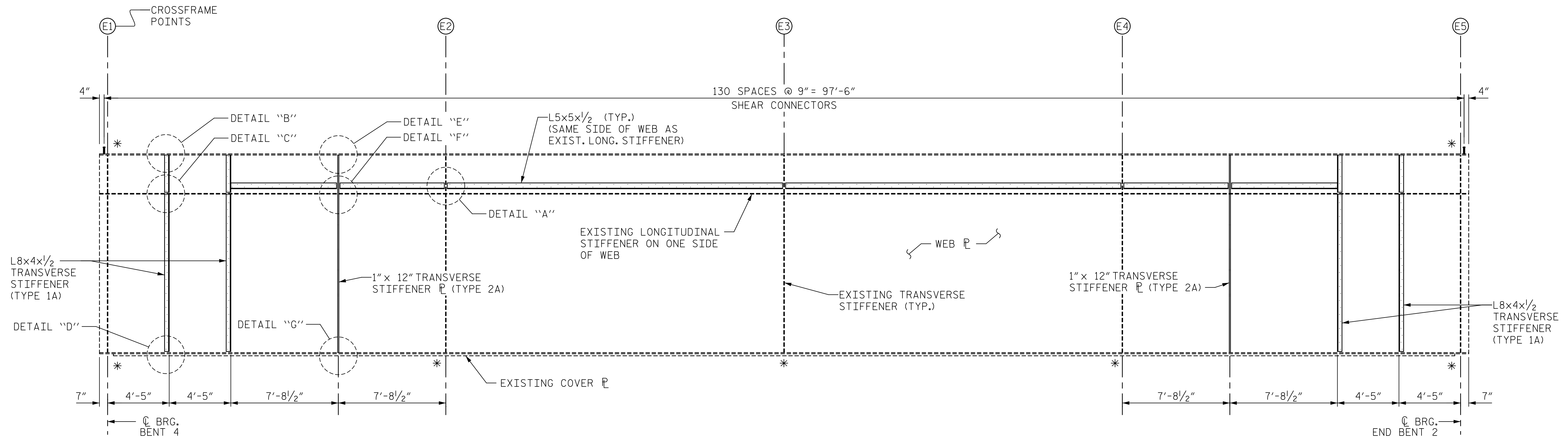
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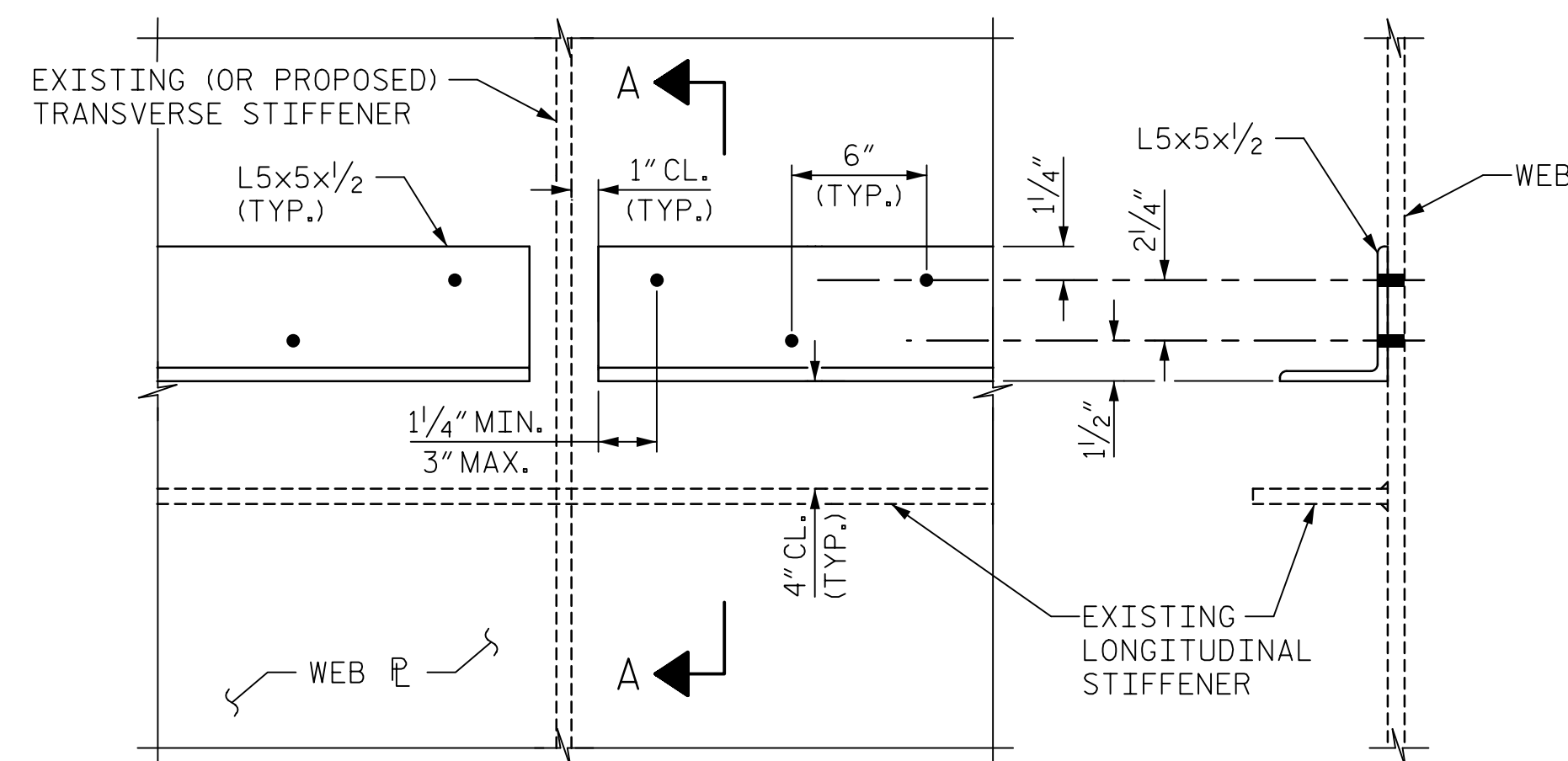
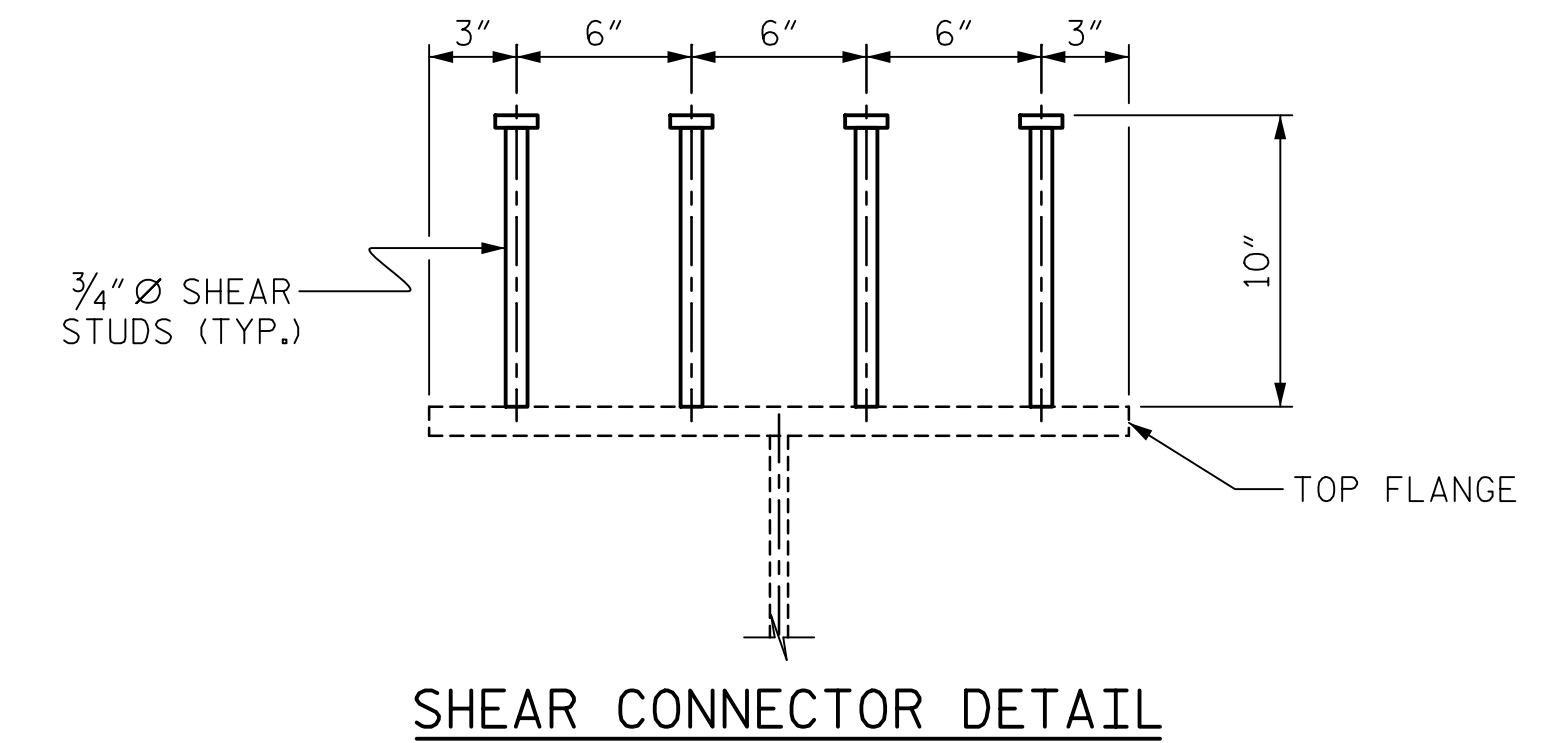
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CHECKED BY : J.E. SLOAN	DATE : 2/2019
DESIGNED BY : N. BROWN/D. TUTTLE	DATE : 2/2019
DESIGN CHECKED BY : J. SLOAN/J. LIU	DATE : 2/2019

\* WEB GAP DETAIL, SEE "WEB GAP RETROFIT DETAILS" SHEETS.  
 FOR DETAILS "B", "C", AND "D" SHOWING TYPE 1 TRANSVERSE STIFFENERS, SEE TYPE 1 TRANSVERSE STIFFENERS SHEET.  
 FOR DETAILS "E", "F", AND "G" SHOWING TYPE 2 TRANSVERSE STIFFENERS, SEE TYPE 2 TRANSVERSE STIFFENERS SHEETS.

DATE: 2/27/2020  
TIME: 3:25:57 PM



**SPAN E**  
 GIRDERS 2 & 4 NORTH FACE SHOWN.  
 GIRDERS 1 & 3 SOUTH FACE SIMILAR (MIRRORED).

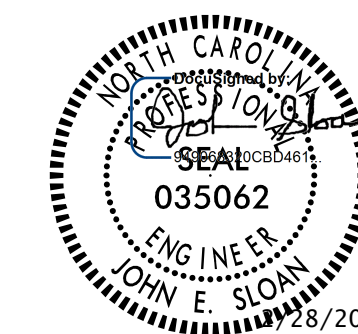


**DETAIL A**

**SECTION A-A**

PROJECT NO. 15BPR.20  
HENDERSON COUNTY  
 STATION: 35+30.22 -L-

SHEET 11 OF 11



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

SUPERSTRUCTURE

**SPAN E  
 GIRDER ELEVATION**

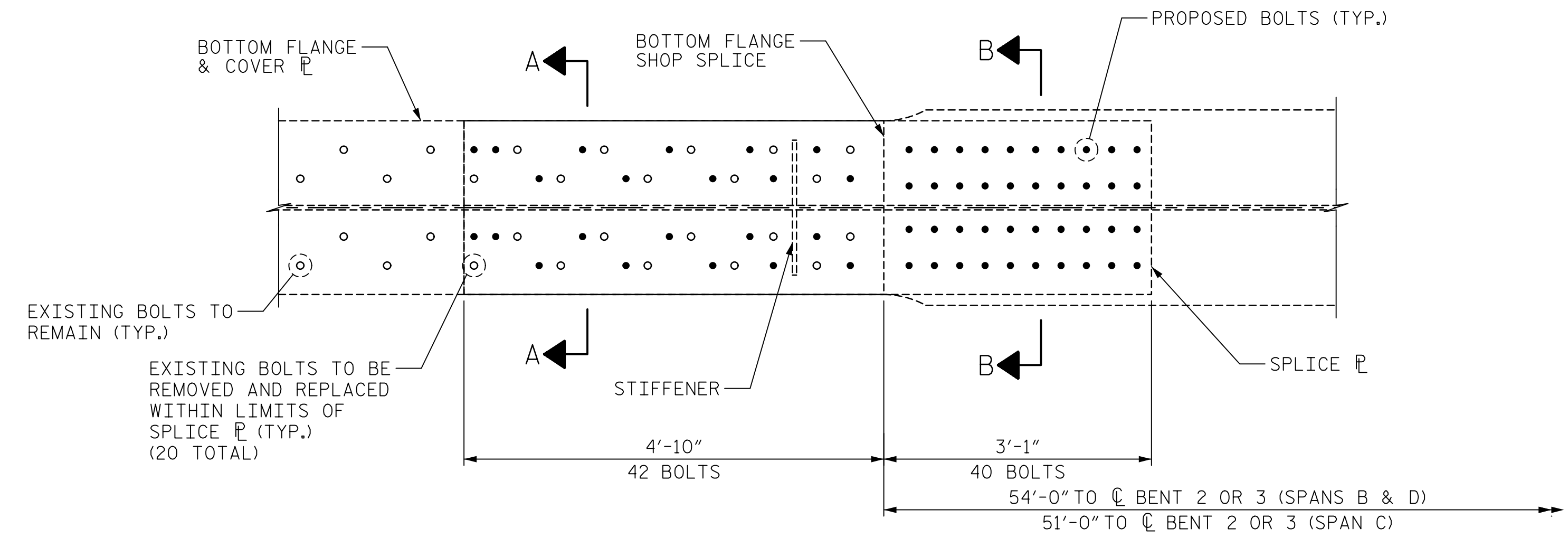
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 DESIGNED BY : D. RITACCO DATE : 2/2019  
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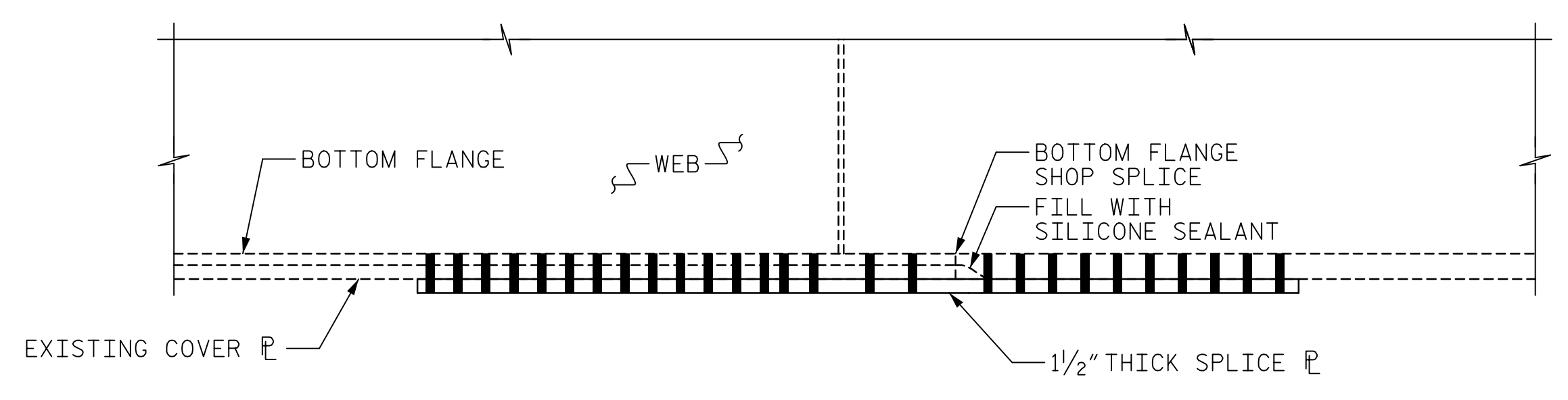
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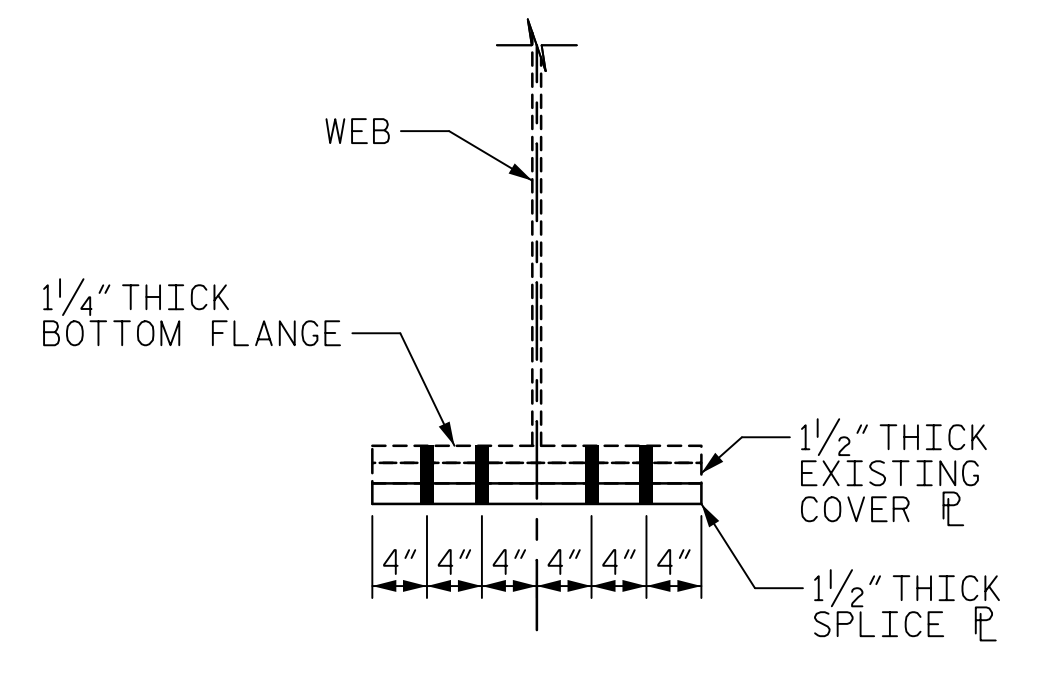
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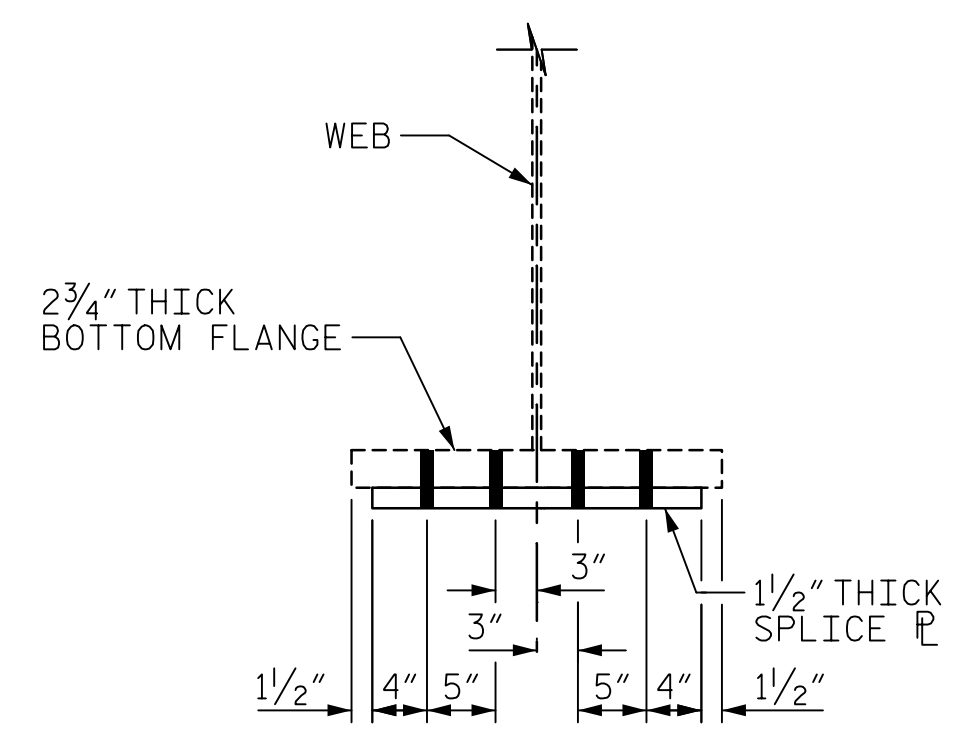
BOTTOM FLANGE PLAN VIEW



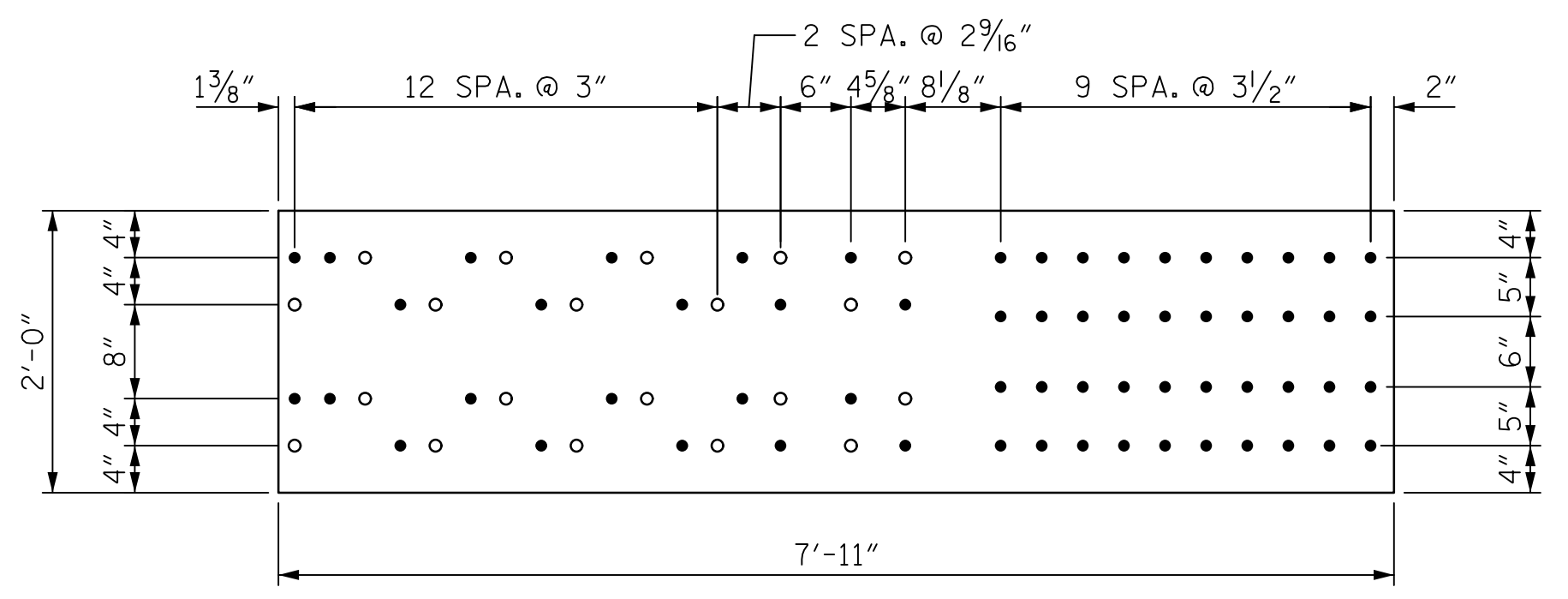
ELEVATION VIEW



SECTION A-A



SECTION B-B

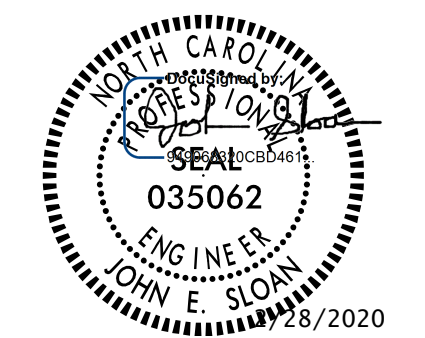


SPLICE PLATE

SEE 1993 REHAB PLANS FOR EXISTING BOLT SPACING. STAGGER PROPOSED BOLTS AS SHOWN AROUND EXISTING BOLTS. CONTRACTOR SHALL FIELD MEASURE ALL EXISTING BOLTS AND VERIFY LOCATION PRIOR TO FABRICATION.

PROJECT NO. 15BPR.20  
HENDERSON COUNTY  
 STATION: 35+30.22 -L-

SHEET 1 OF 3



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE  
 SPLICE PLATE DETAILS

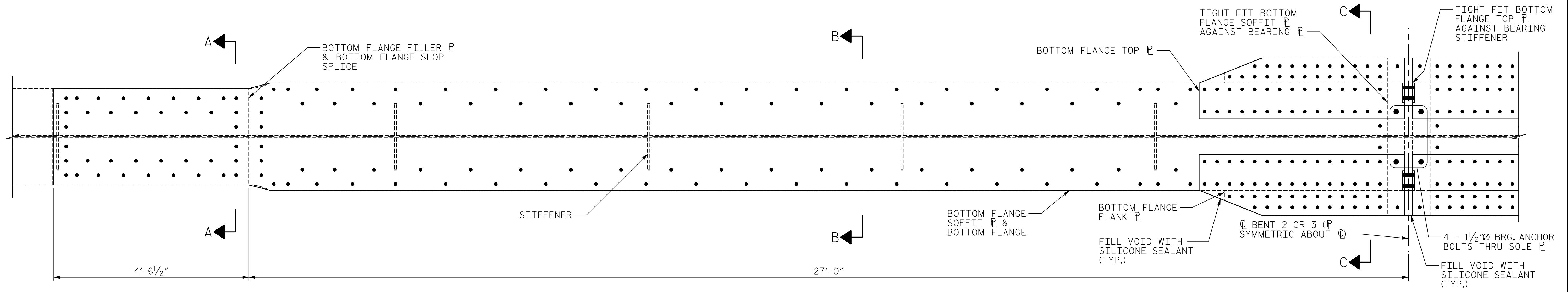
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DESIGNED BY : N. BROWN/D. TUTTLE	DATE : 2/2019
DESIGN CHECKED BY : J. SLOAN/J. LIU	DATE : 2/2019

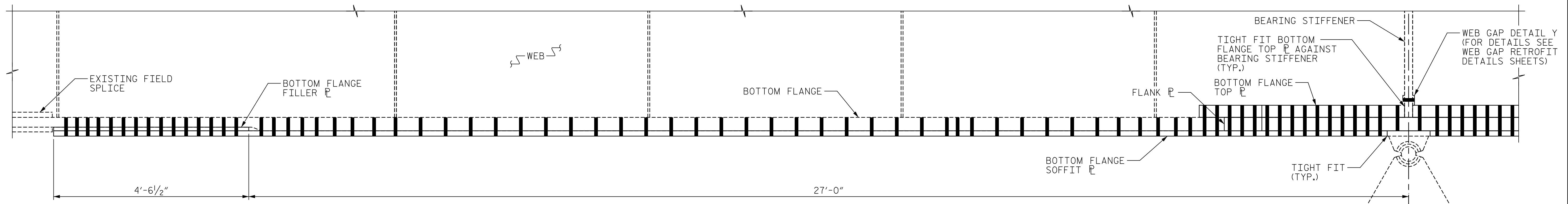
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DATE: 2/27/2020  
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**BOTTOM FLANGE PLAN VIEW**  
TYPICAL ALL GIRDERS

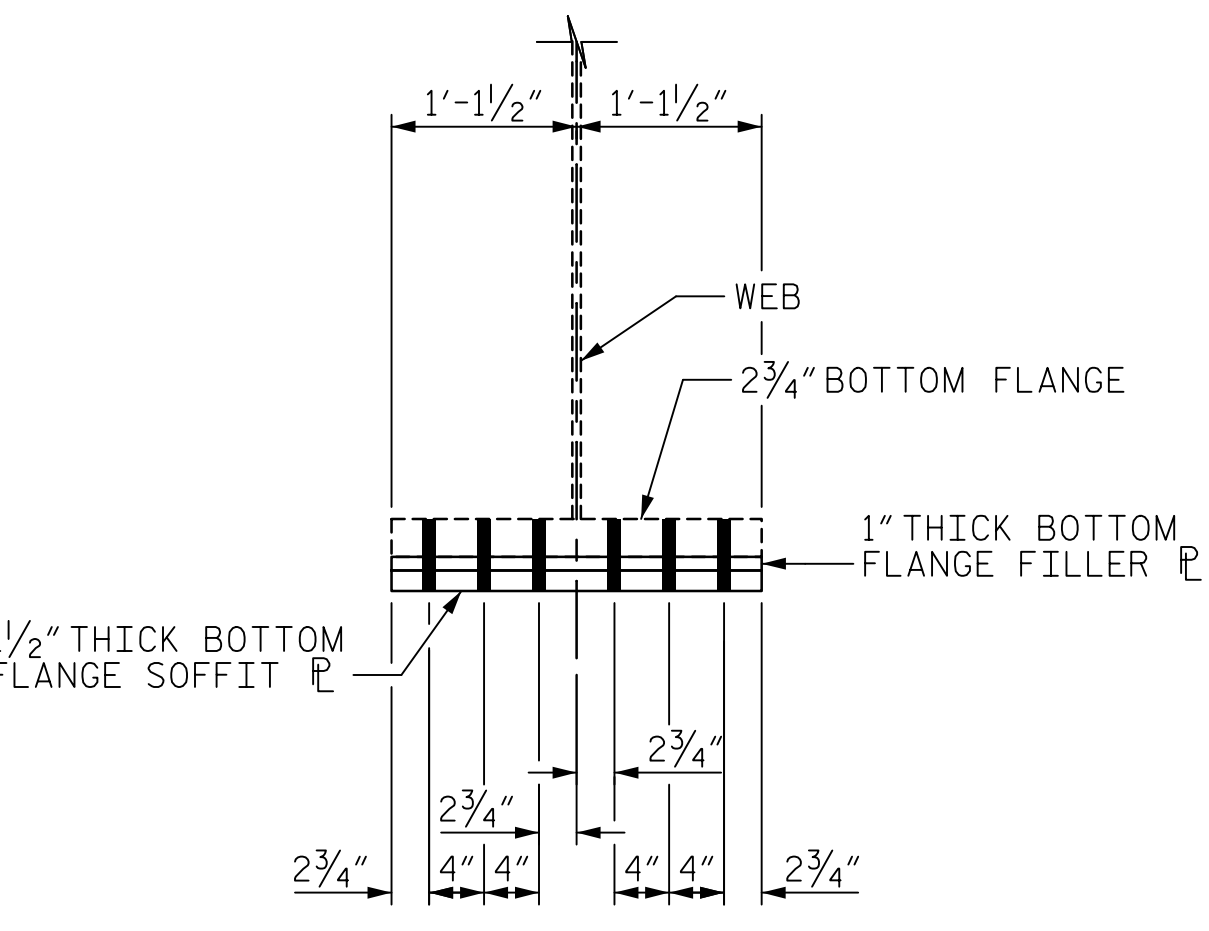
\* LATERAL BRACING GUSSET PLATE NOT SHOWN FOR CLARITY. HOLES SHALL BE DRILLED IN THE BOTTOM FLANGE AND PLATES SHALL BE INSTALLED WITHOUT REMOVING THE GUSSET PLATE. CONTRACTOR MAY DRILL HOLES FORM BELOW THE FLANGE.



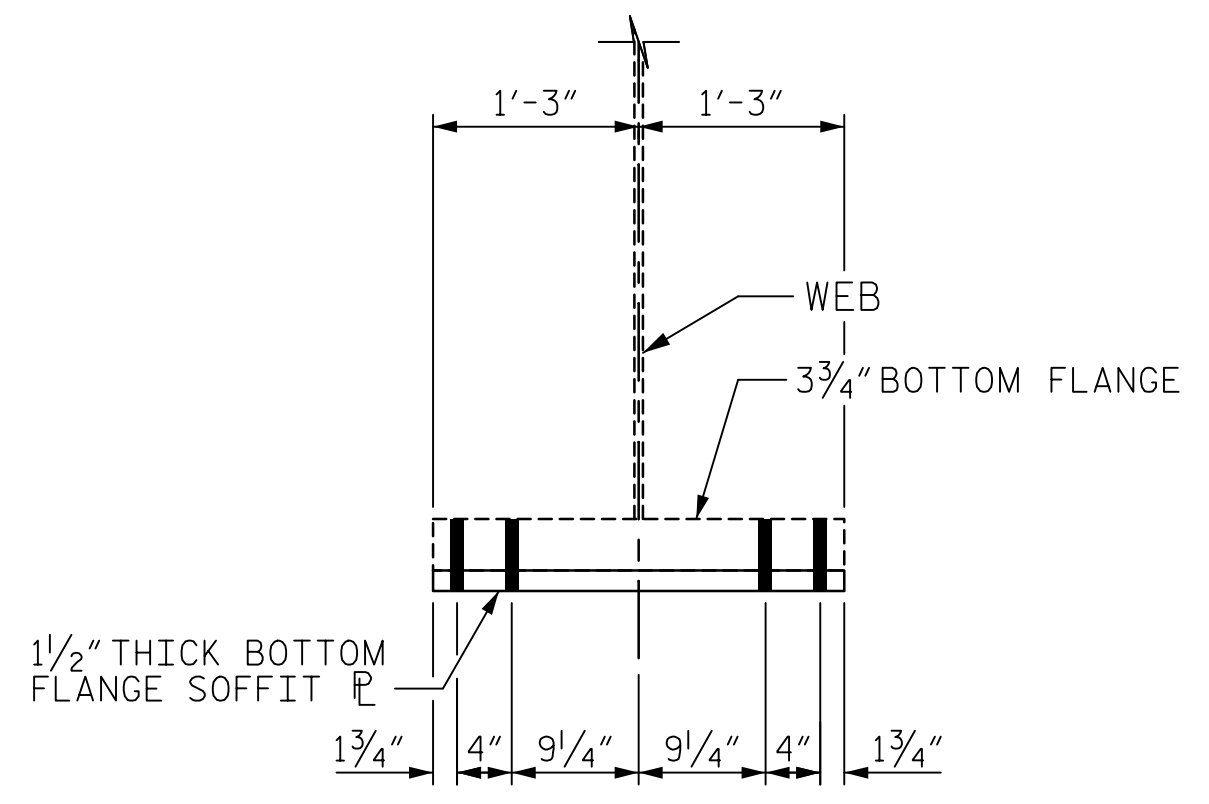
**BOTTOM FLANGE ELEVATION VIEW**  
TYPICAL ALL GIRDERS

**NOTES:**  
PLACE SILICONE SEALANT AT CORNERS AND JOINTS AS DIRECTED BY THE ENGINEER.  
WHEN INSTALLING THE BOTTOM FLANGE TOP PLATES, THE CONTRACTOR MAY ONLY REMOVE A SINGLE 1/2" DIAMETER BEARING ANCHOR BOLT AT A TIME. CONTRACTOR SHALL REINSTALL THE ANCHOR BOLT WITH THE TOP PLATE BEFORE REMOVING ANOTHER BOLT.

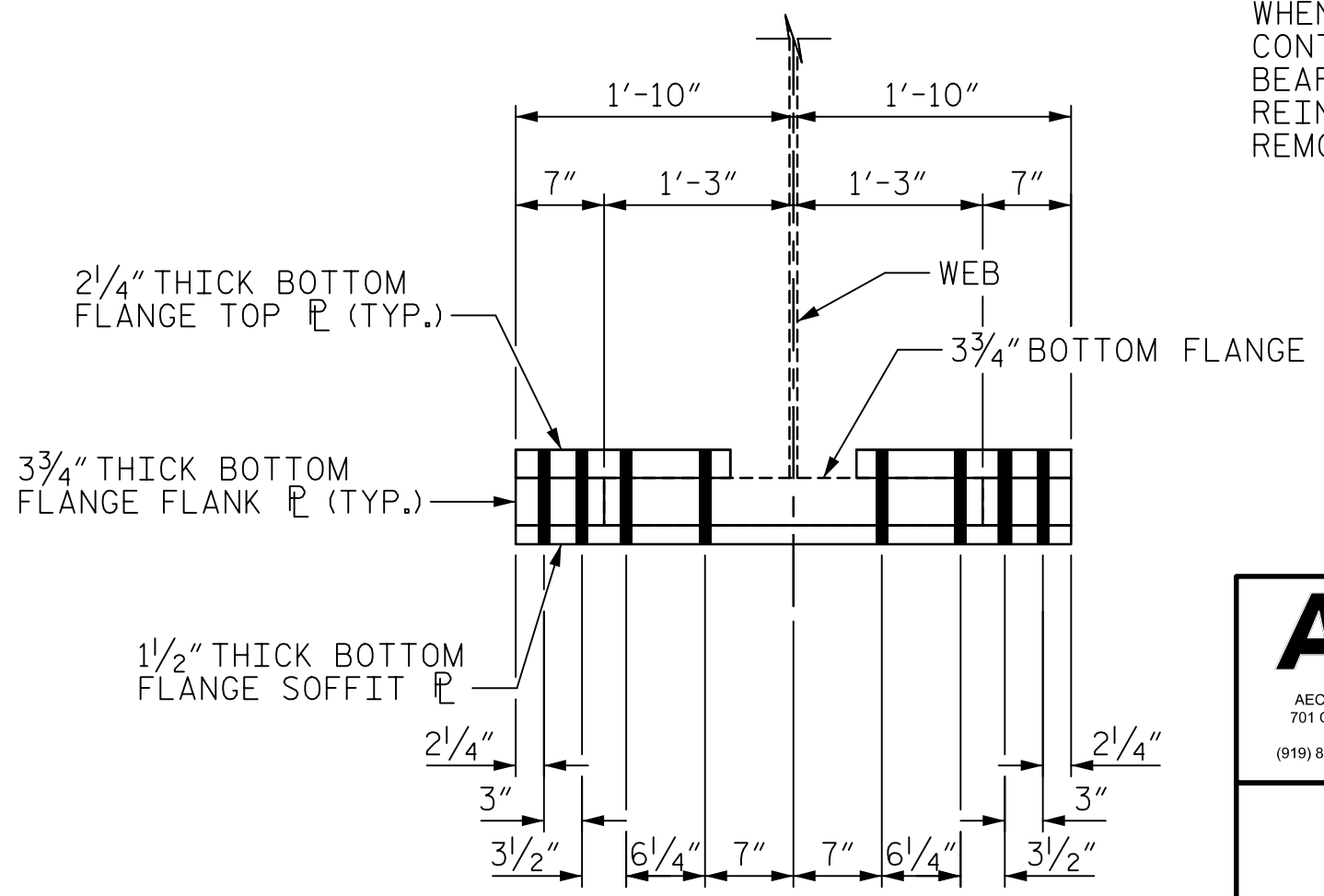
PROJECT NO. 15BPR.20  
HENDERSON COUNTY  
STATION: 35+30.22 -L-  
SHEET 2 OF 3



**SECTION A-A**



**SECTION B-B**



**SECTION C-C**



STATE OF NORTH CAROLINA  
**DEPARTMENT OF TRANSPORTATION**  
RALEIGH  
SUPERSTRUCTURE  
**BENTS 2 & 3**  
**BOTTOM FLANGE**  
**COVER PLATES**

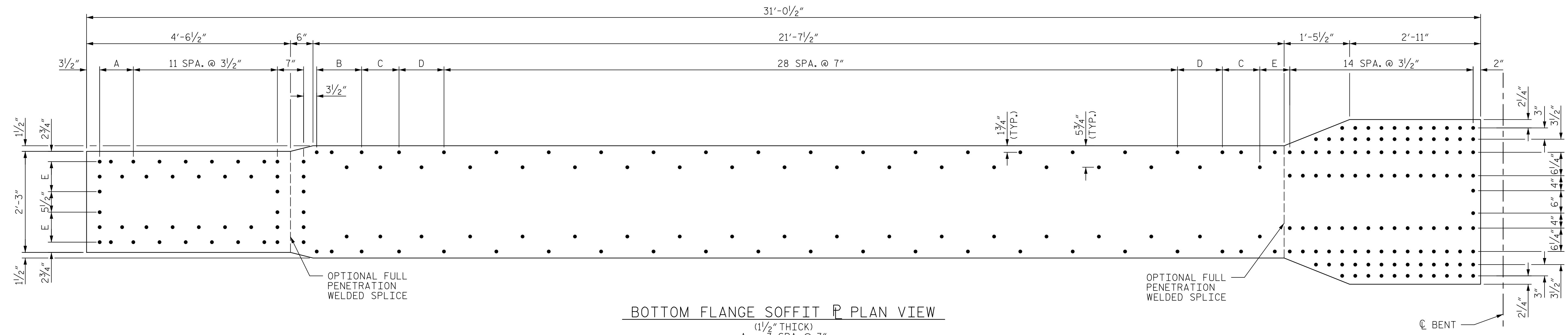
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DESIGNED BY : N. BROWN/D. TUTTLE DATE : 2/2019  
DESIGN CHECKED BY : J. SLOAN/J. LIU DATE : 2/2019

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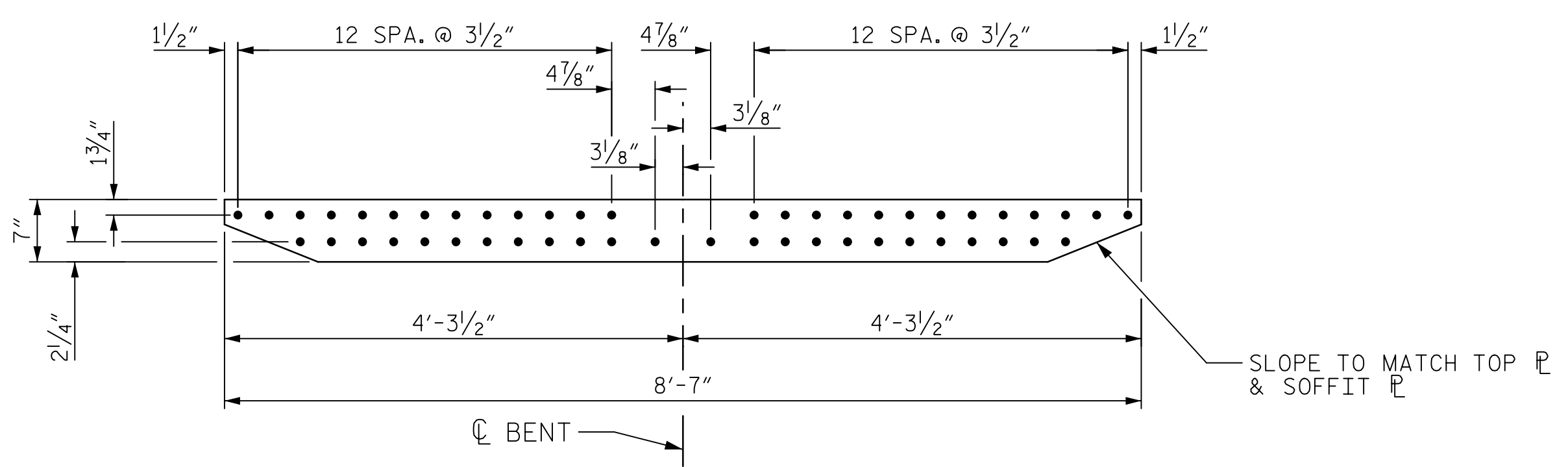
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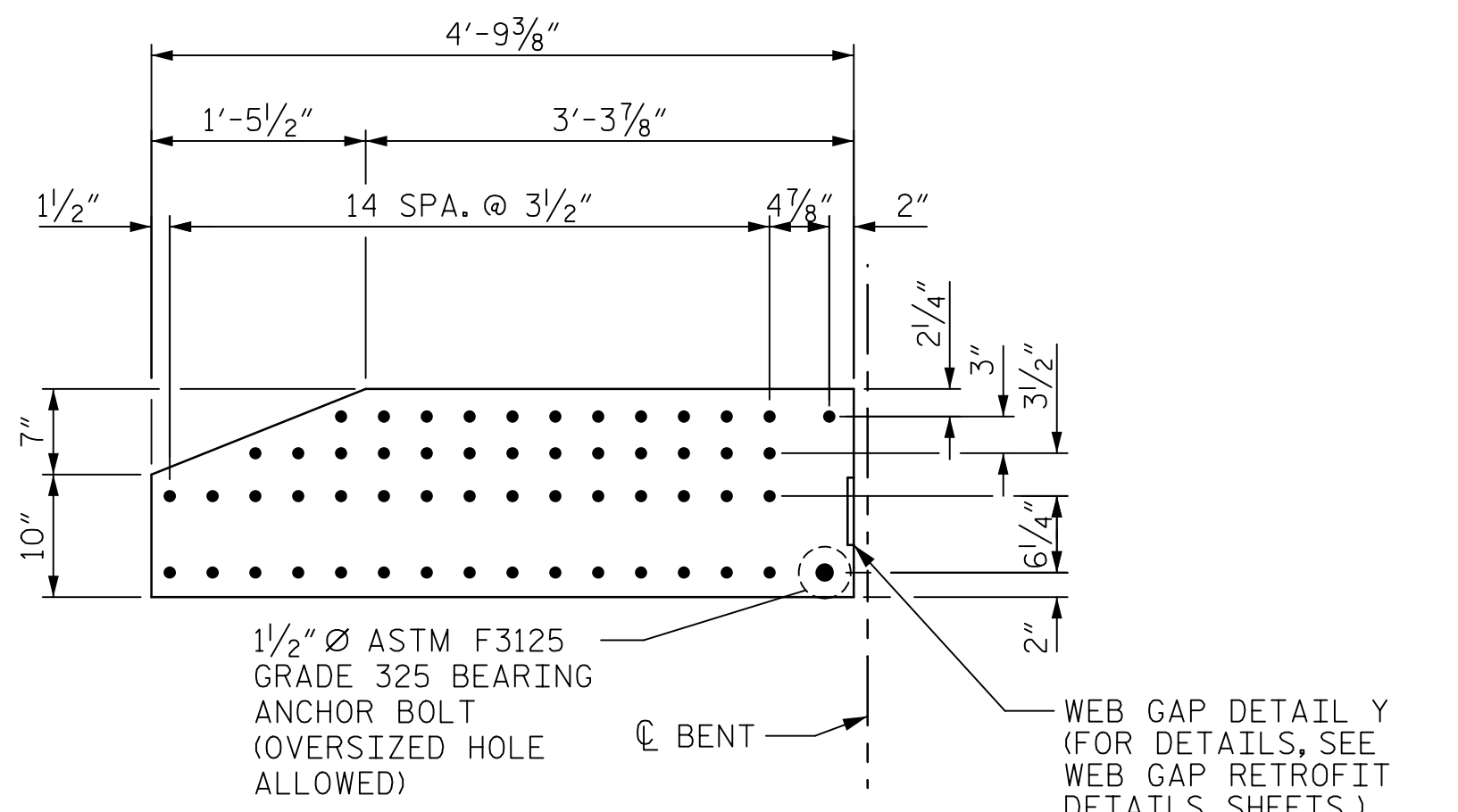


**BOTTOM FLANGE SOFFIT P PLAN VIEW**

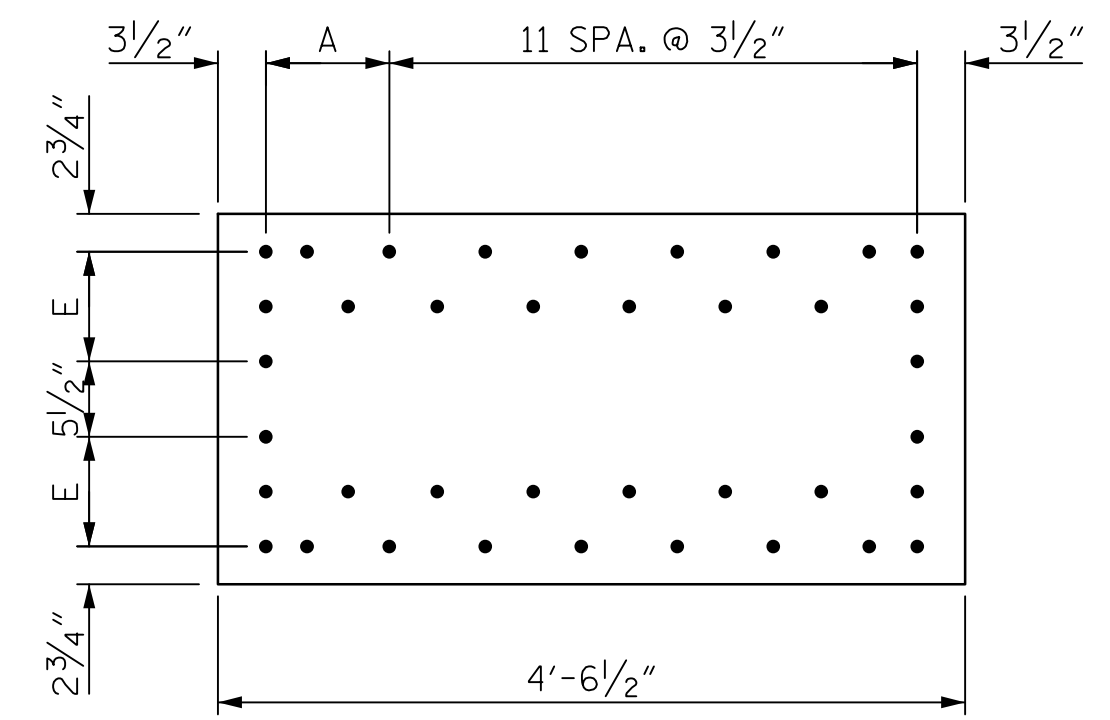
- (1/2" THICK)
- A. 3 SPA. @ 3"
  - B. 3 SPA. @ 4"
  - C. 2 SPA. @ 5"
  - D. 2 SPA. @ 6"
  - E. 2 SPA. @ 4"



**BOTTOM FLANGE FLANK P PLAN VIEW**  
(3 3/4" THICK)



**BOTTOM FLANGE TOP P PLAN VIEW**  
(2 1/4" THICK)



**BOTTOM FLANGE FILLER P PLAN VIEW**

- (1" THICK)
- A. 3 SPA. @ 3"
  - E. 2 SPA. @ 4"

PROJECT NO. 15BPR.20  
HENDERSON COUNTY  
 STATION: 35+30.22 -L-

SHEET 3 OF 3



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE  
 BENTS 2 & 3  
 BOTTOM FLANGE  
 COVER PLATE DETAILS

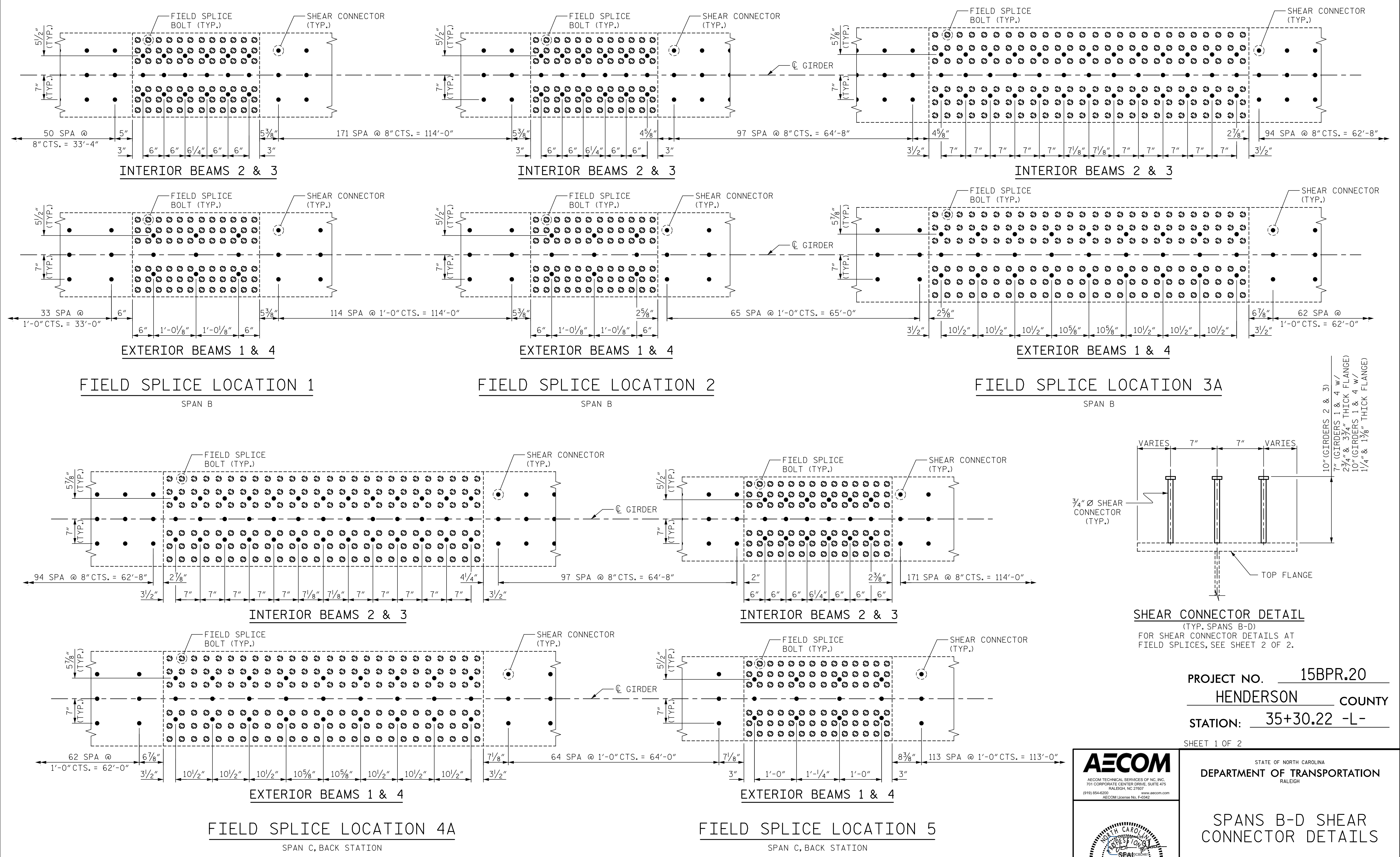
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NO.	BY:	DATE:	NO.	BY:	DATE:	S-64
1			3			TOTAL SHEETS
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 DESIGNED BY : N. BROWN/D. TUTTLE DATE : 2/2019  
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DRAWN BY : M. CATER  
CHECKED BY : J. SLOAN  
DESIGNED BY : D. TUTTLE  
DESIGN CHECKED BY : J. SLOAN

DATE : 10/2019  
DATE : 10/2019  
DATE : 10/2019  
DATE : 10/2019

**LEGEND**  
 ● EXISTING BOLT  
 ● SHEAR CONNECTOR

DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED

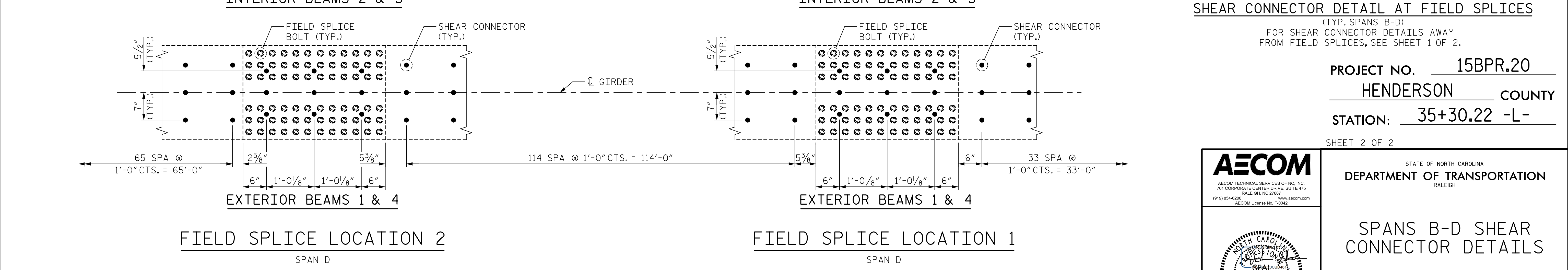
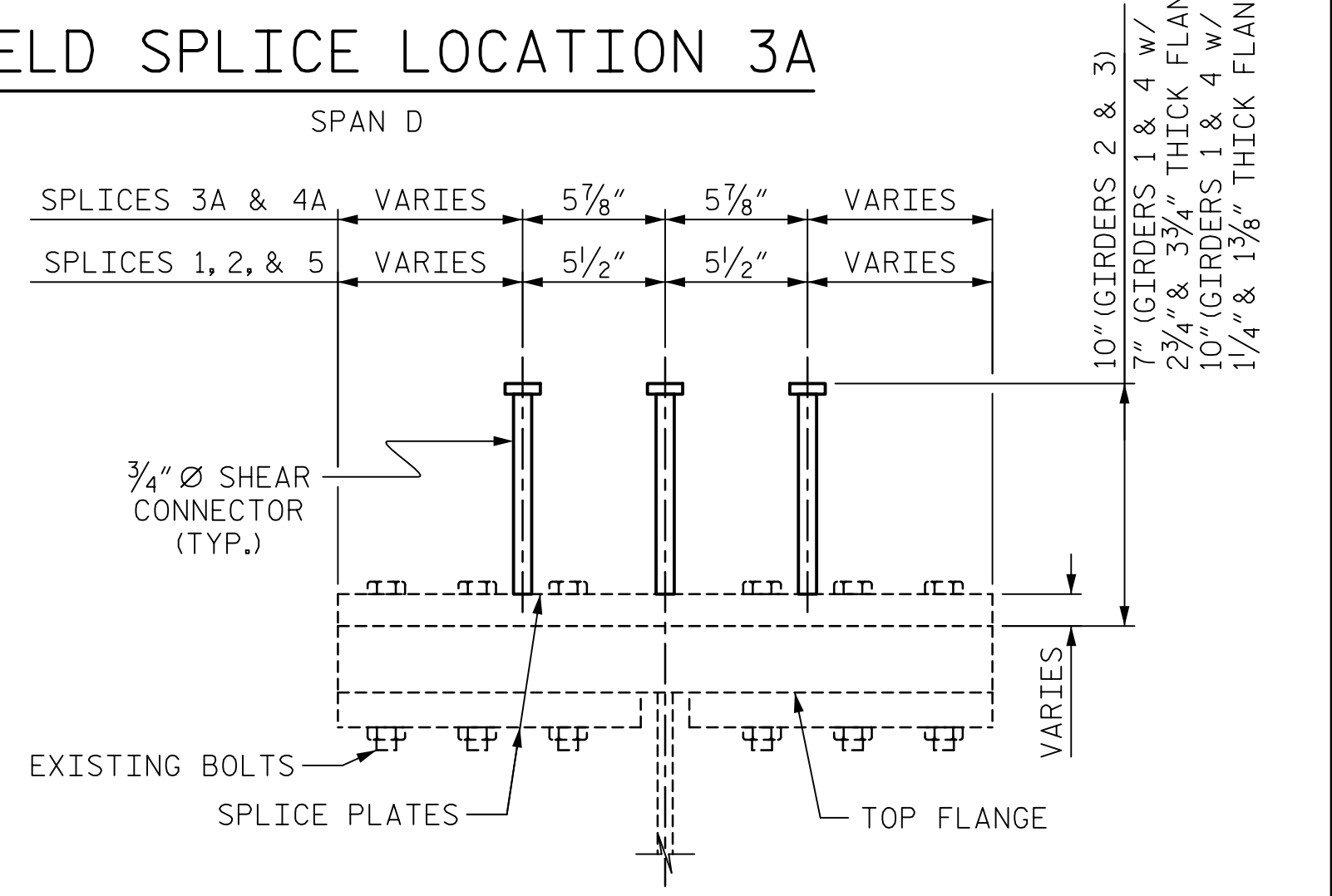
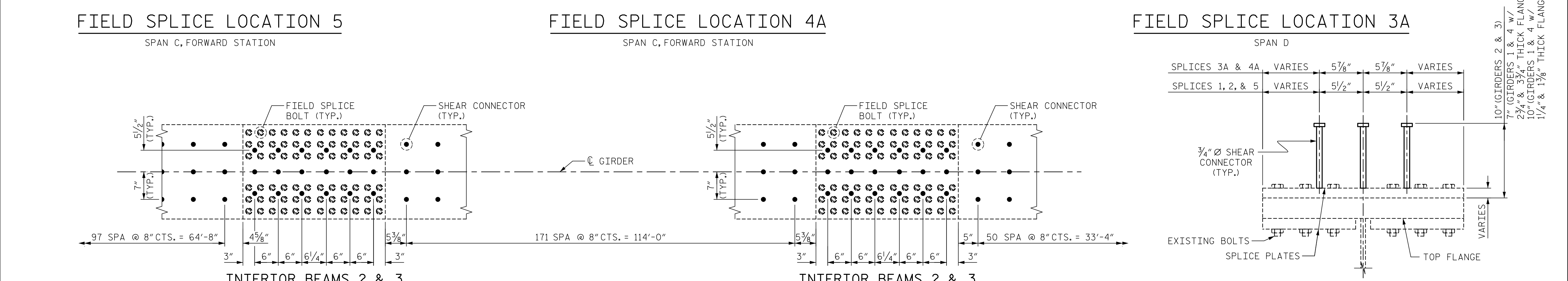
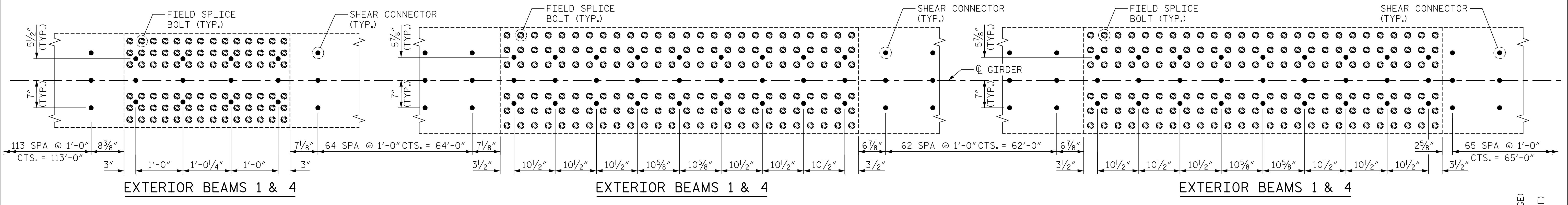
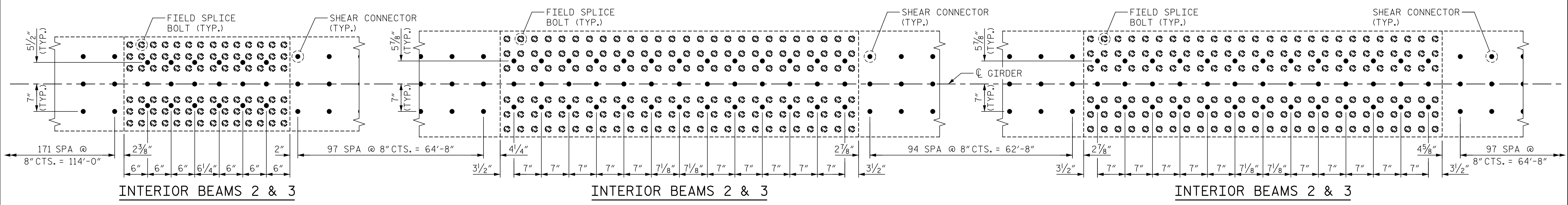


PROJECT NO. 15BPR.20  
HENDERSON COUNTY  
 STATION: 35+30.22 -L-  
 SHEET 1 OF 2

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SPANS B-D SHEAR CONNECTOR DETAILS					
SHEET NO. S-65					
TOTAL SHEETS 129					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		



DATE: 2/27/2020  
TIME: 3:28:42 PM



**LEGEND**

- EXISTING BOLT
- SHEAR CONNECTOR

**REVISIONS**

NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

**PROJECT NO.** 15BPR.20  
**HENDERSON COUNTY**  
**STATION:** 35+30.22 -L-  
 SHEET 2 OF 2

**SPANS B-D SHEAR CONNECTOR DETAILS**

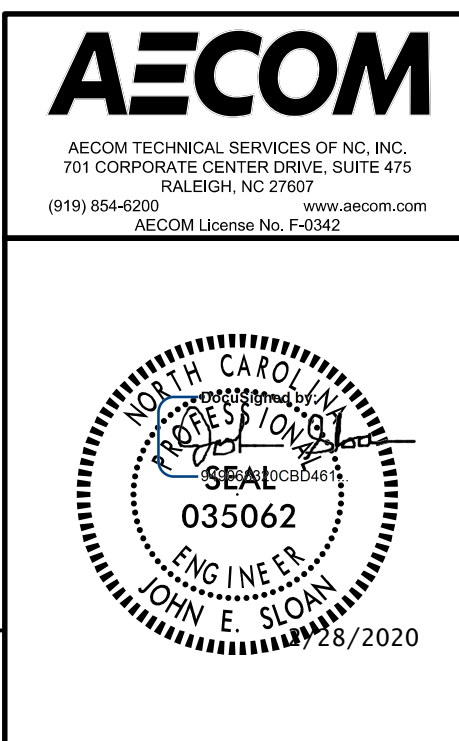
**DATE:** 10/2019  
**DESIGNED BY:** J. SLOAN  
**CHECKED BY:** J. SLOAN  
**DESIGN CHECKED BY:** J. SLOAN

**DATE:** 10/2019  
**DATE:** 10/2019  
**DATE:** 10/2019  
**DATE:** 10/2019

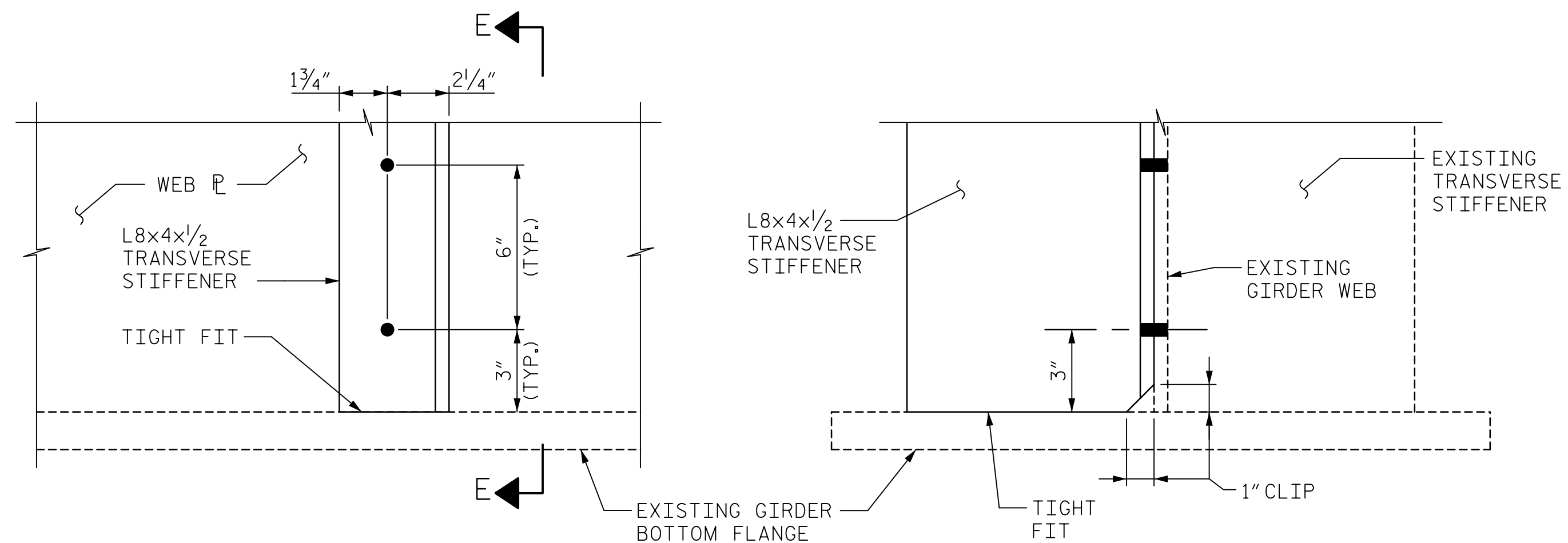
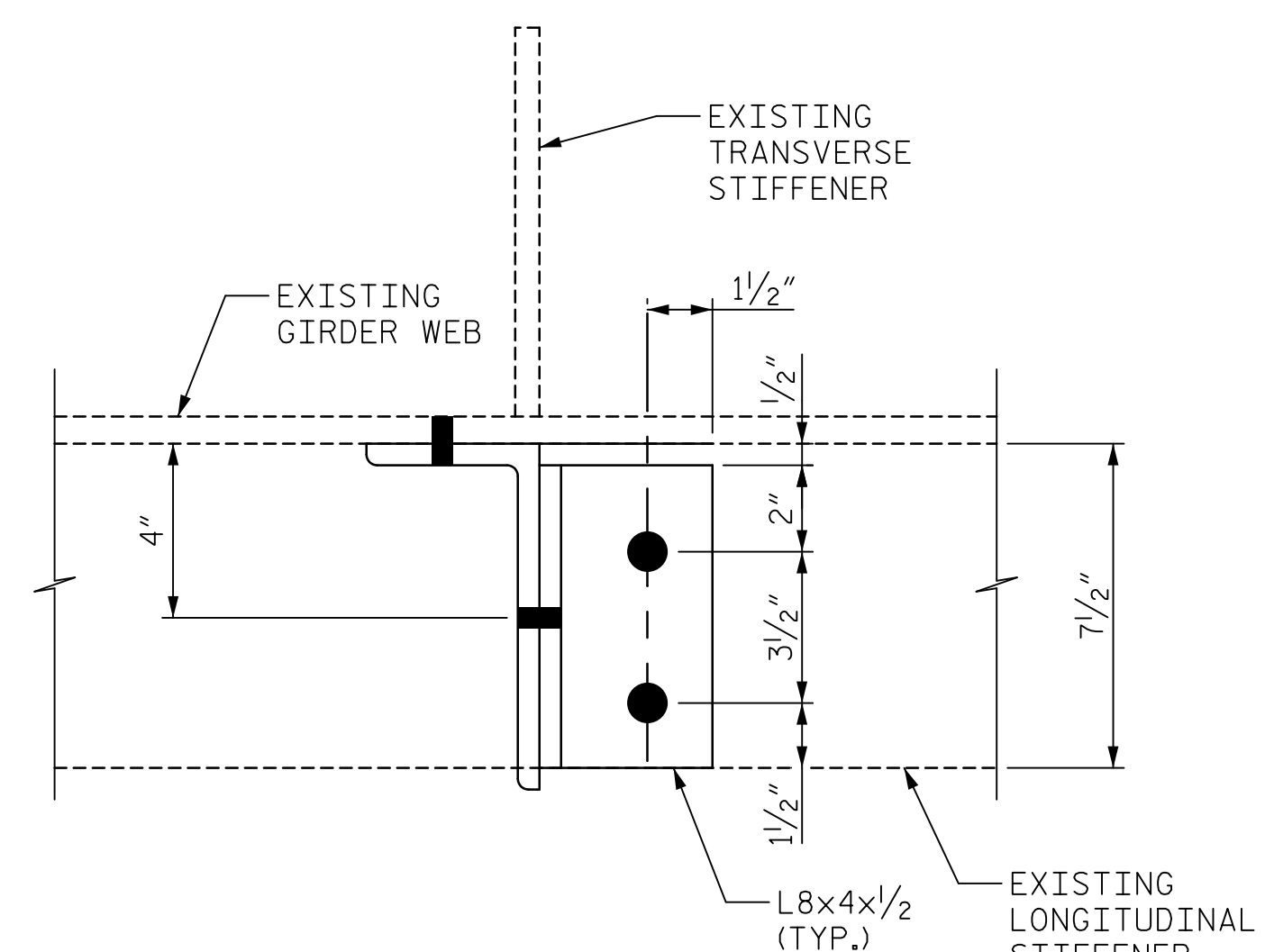
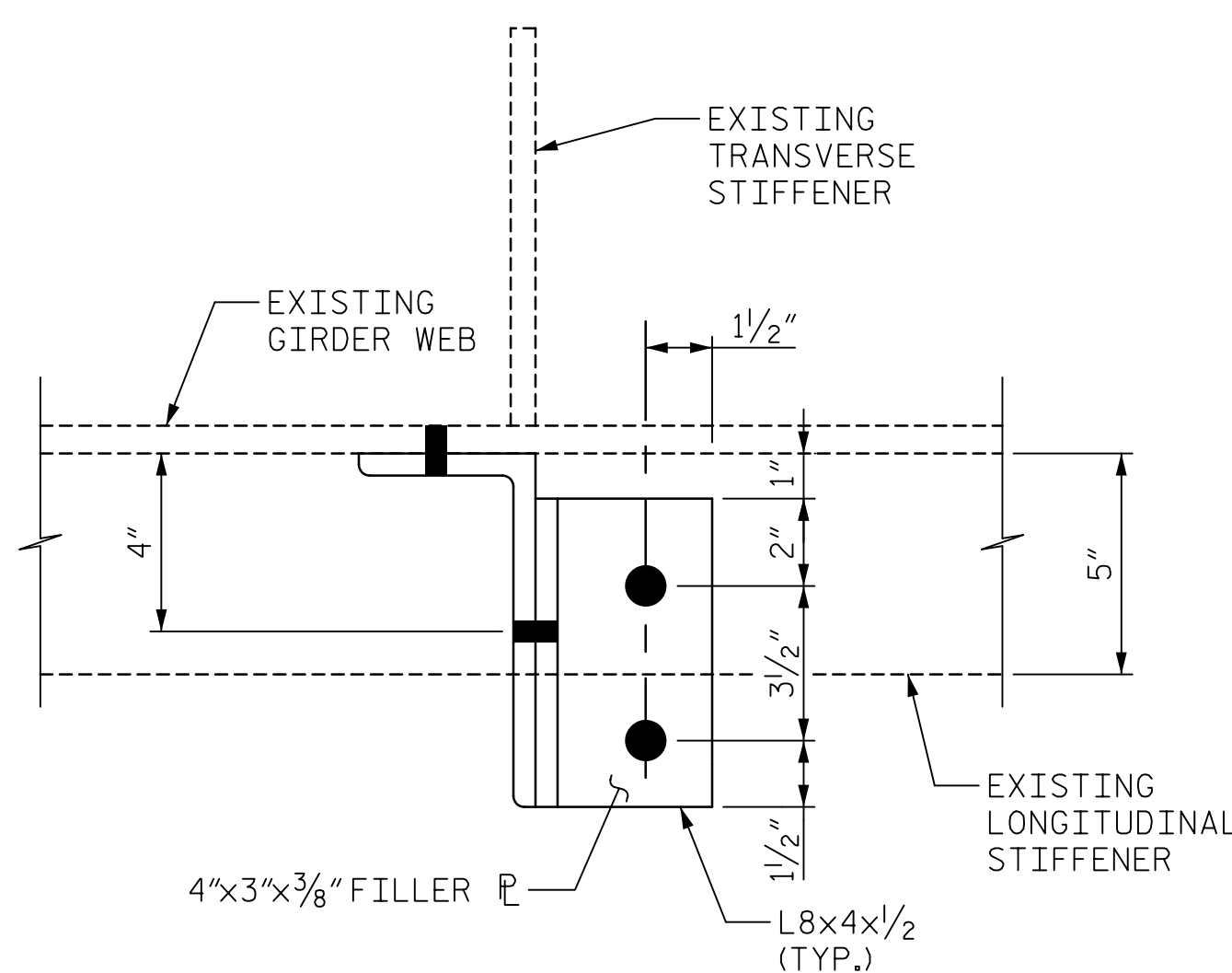
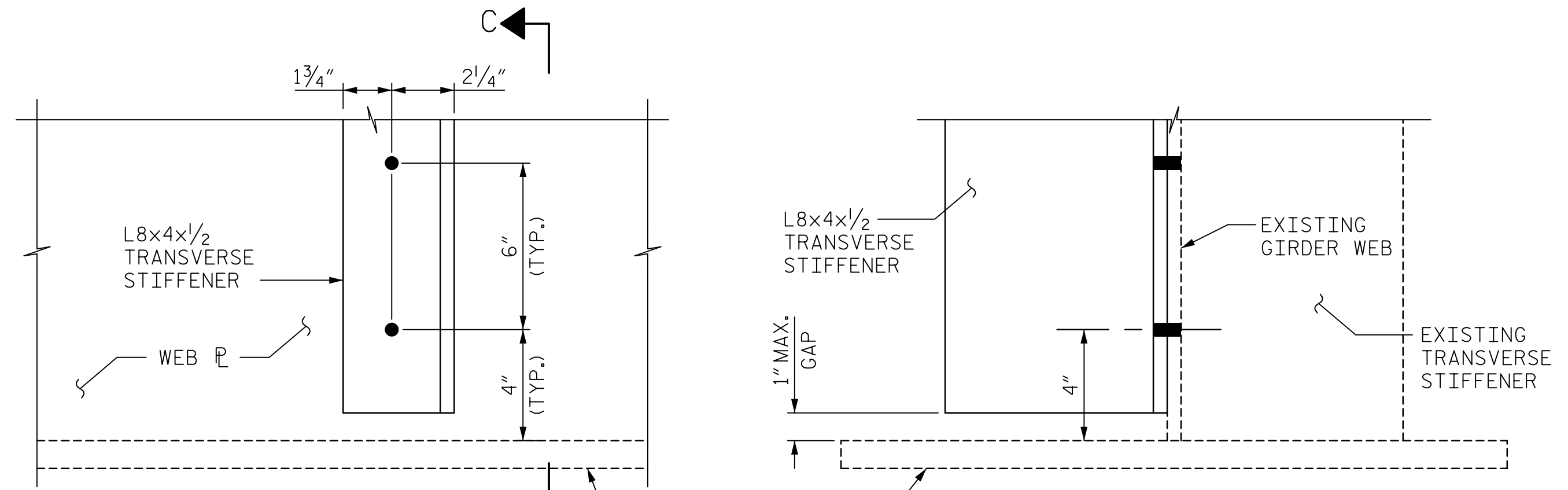
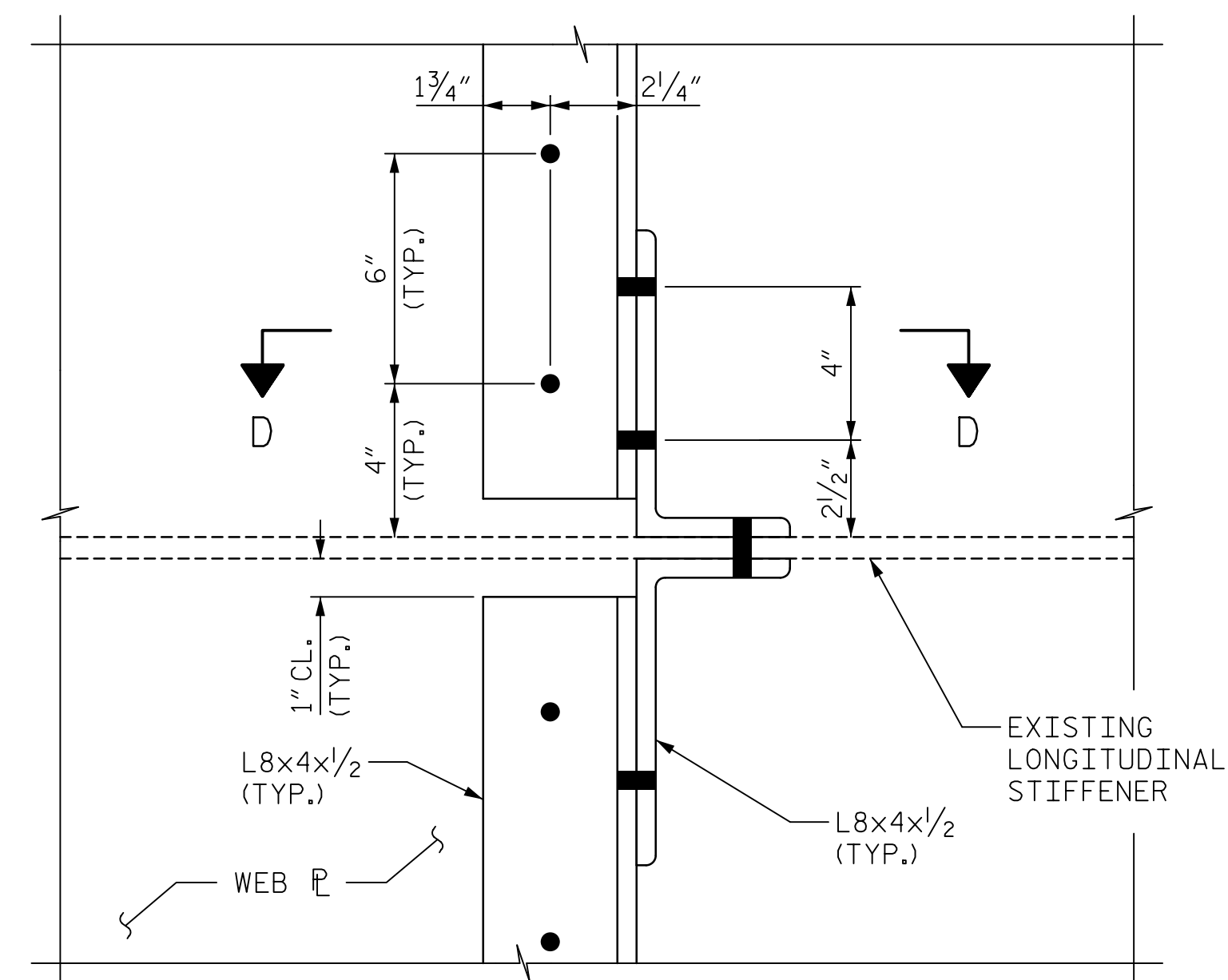
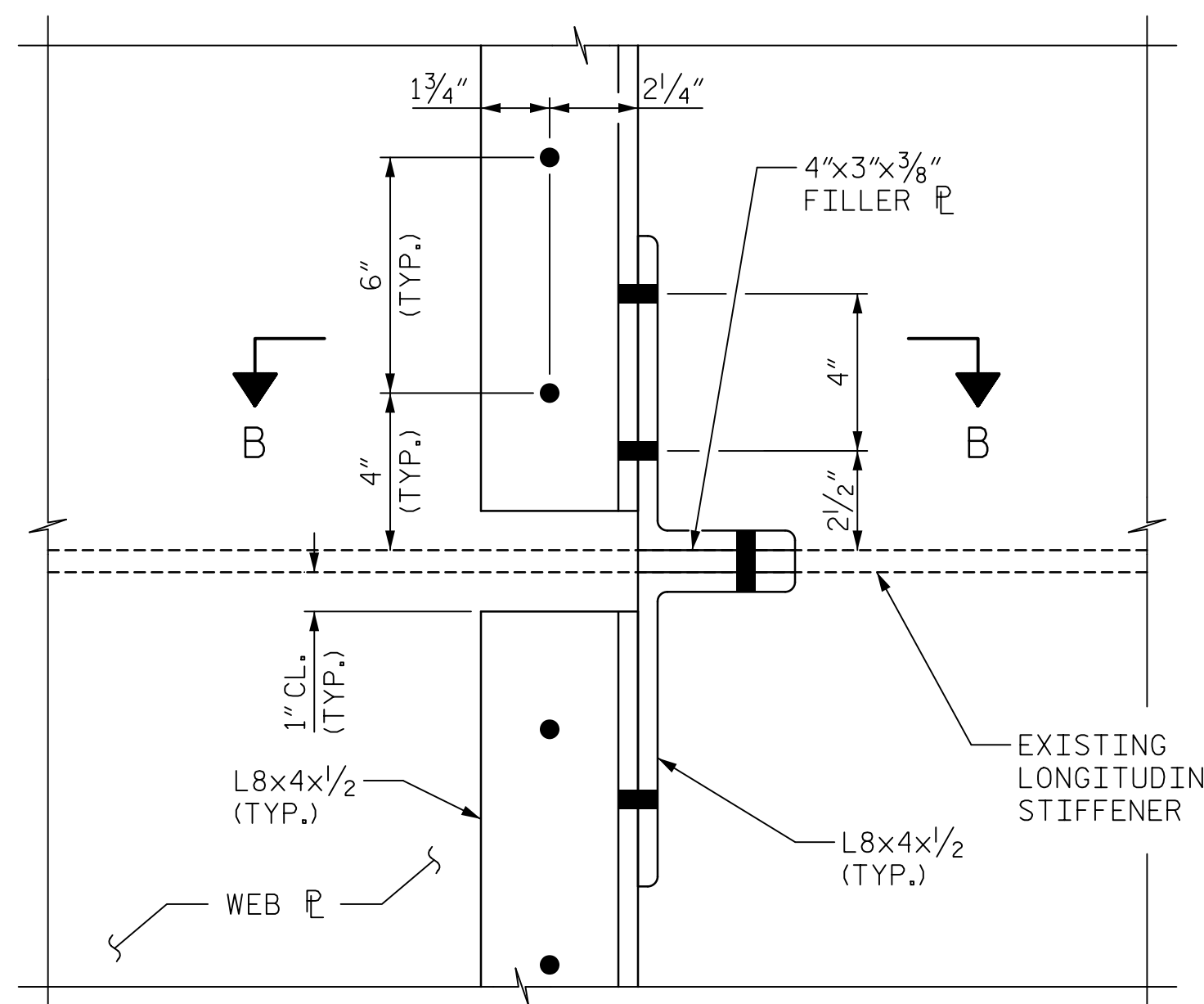
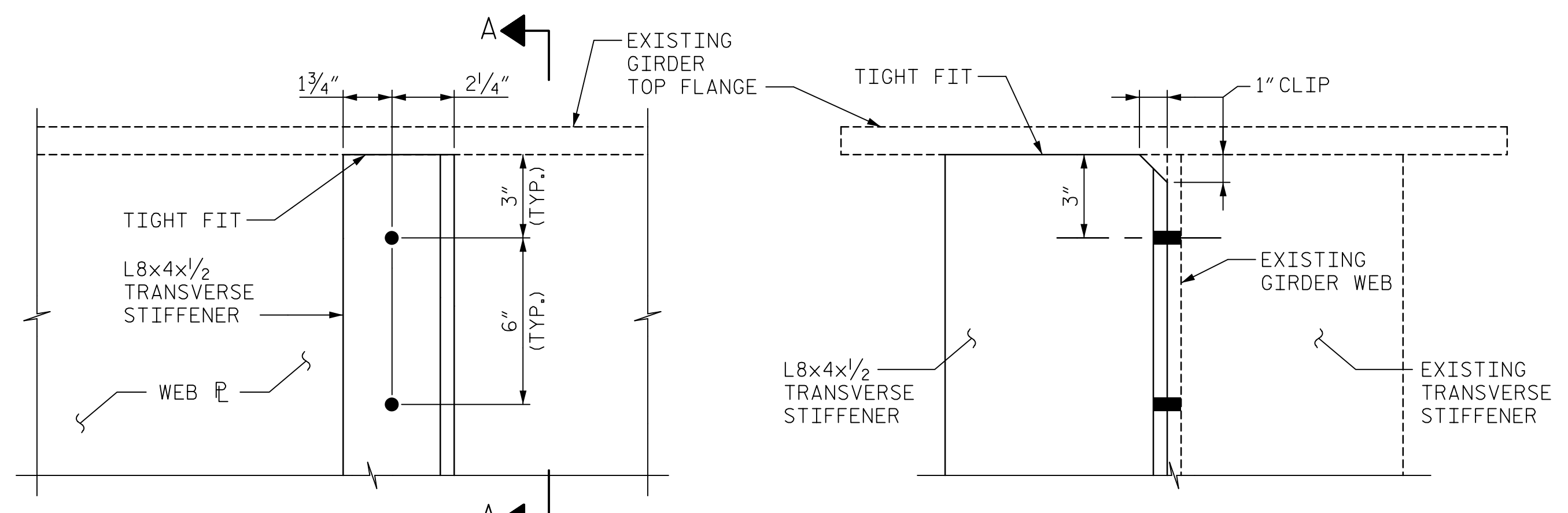
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**SHEET NO.** S-66  
**TOTAL SHEETS** 129

USER: MerchAssessm... Drawings\401\_L127\_15BPR20\_SML\0616.dgn



DATE: 2/27/2020  
TIME: 3:28:57 PM



APPLICABLE DETAILS			
STIFFENER TYPE	CONNECTION DETAIL LOCATION		
	TOP FLANGE	STIFFENER	BOT FLANGE
1A	B	C	D
1B	B	I	D
1C	B	I	K

PROJECT NO. 15BPR.20  
HENDERSON COUNTY  
 STATION: 35+30.22 -L-

**NOTE:**  
 STIFFENERS SHALL BE BOLTED TO THE WEB ALONG THE FULL HEIGHT WITH A MAXIMUM SPACING OF 6".

**TYPE 1 L8X4X1/2 TRANSVERSE STIFFENER DESCRIPTIONS:**

- 1A TRANSVERSE STIFFENER IN SPANS A AND E COINCIDING WITH A TOP LONGITUDINAL STIFFENER
- 1B TRANSVERSE STIFFENER IN SPANS B-D COINCIDING WITH A TOP LONGITUDINAL STIFFENER
- 1C TRANSVERSE STIFFENER IN SPANS B-D COINCIDING WITH TOP AND BOTTOM LONGITUDINAL STIFFENERS



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE  
**TYPE 1 TRANSVERSE STIFFENERS**

DRAWN BY : S.G. STREDNAK  
 CHECKED BY : J.E. SLOAN  
 DESIGNED BY : J.E. SLOAN  
 DESIGN CHECKED BY : J. LIU

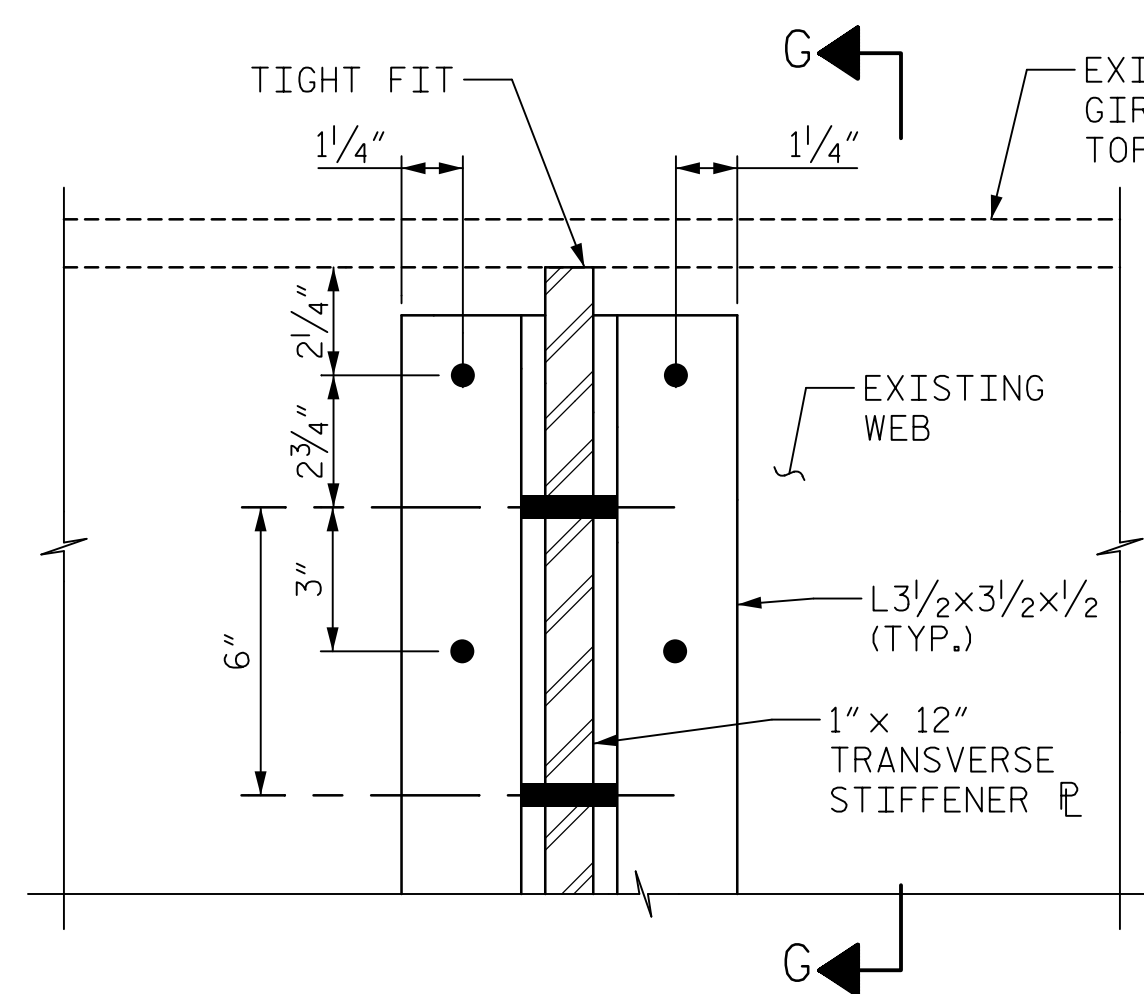
DATE : 03/2019  
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DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

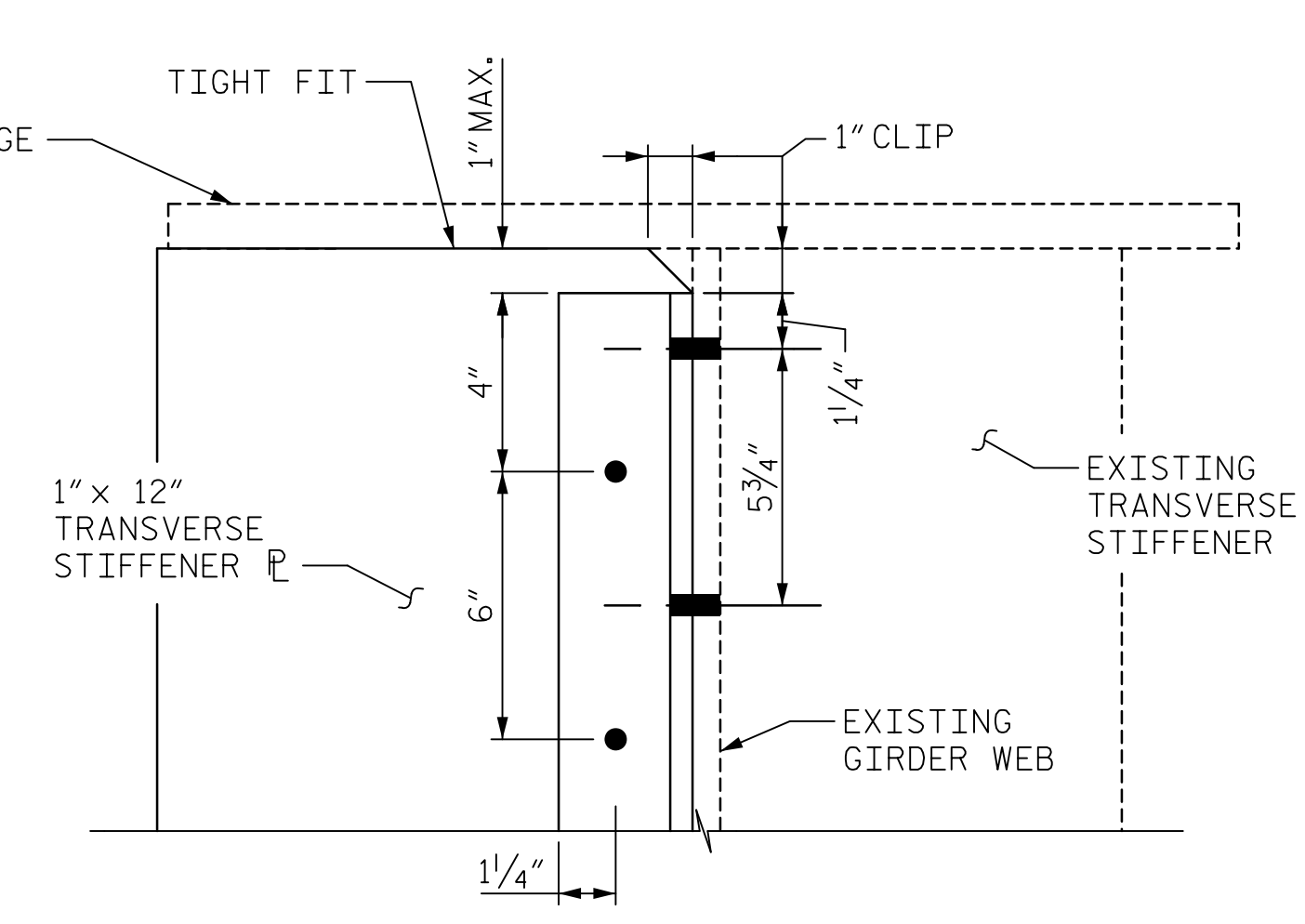
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NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 129
2			4			

USER: Merch Research  
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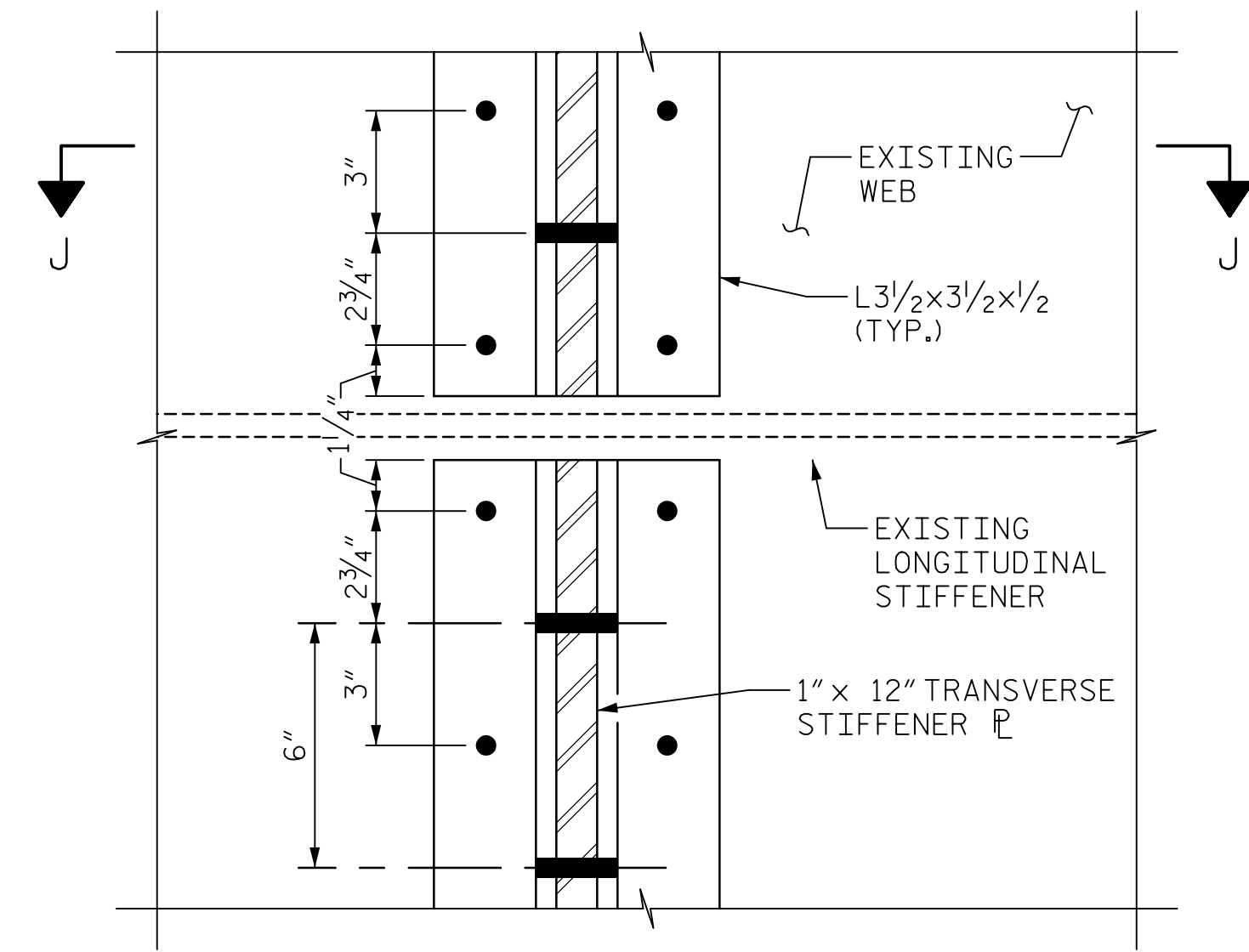
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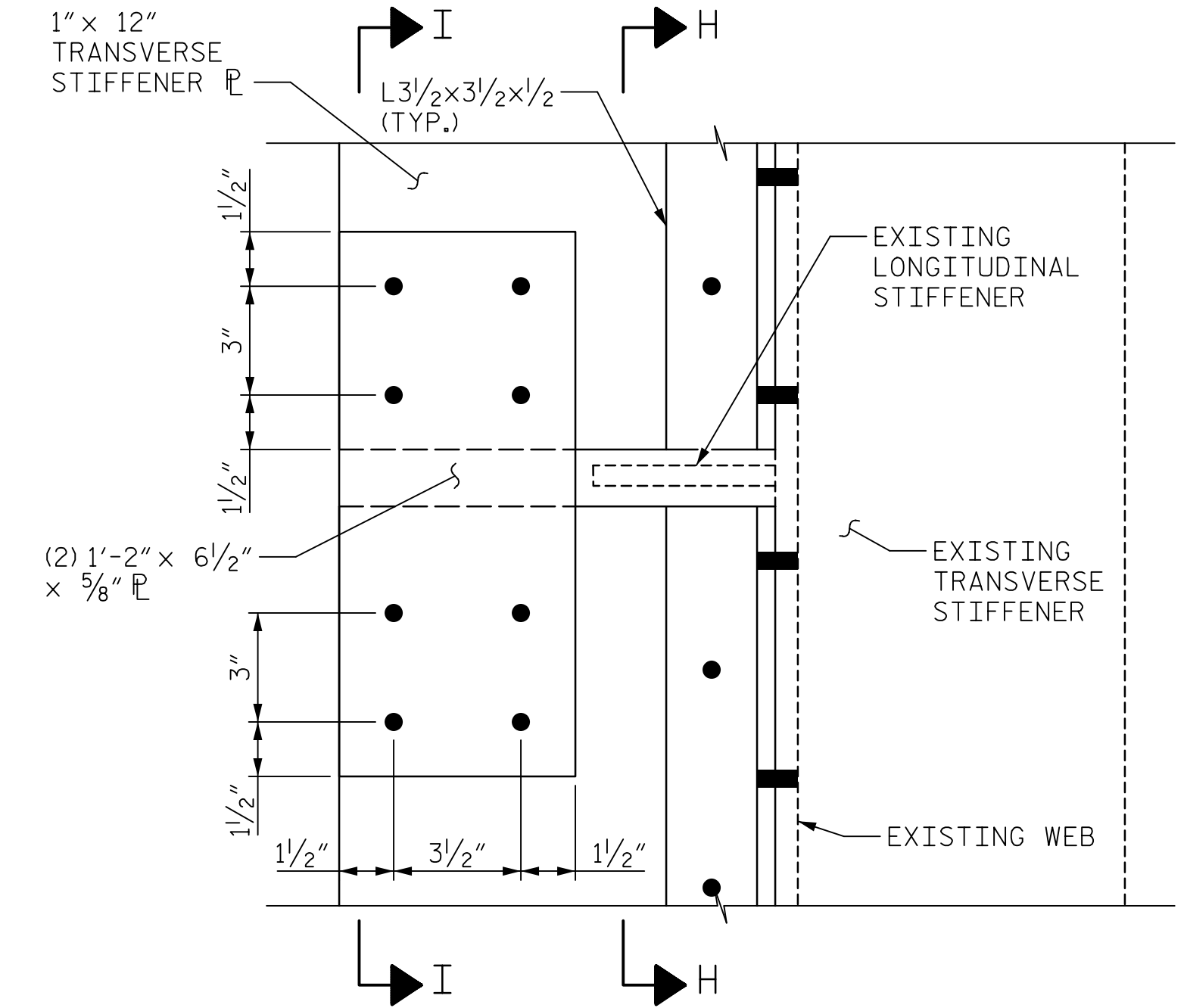
**DETAIL E**  
(APPLIES TO TYPE 2A, 2B & 2C)



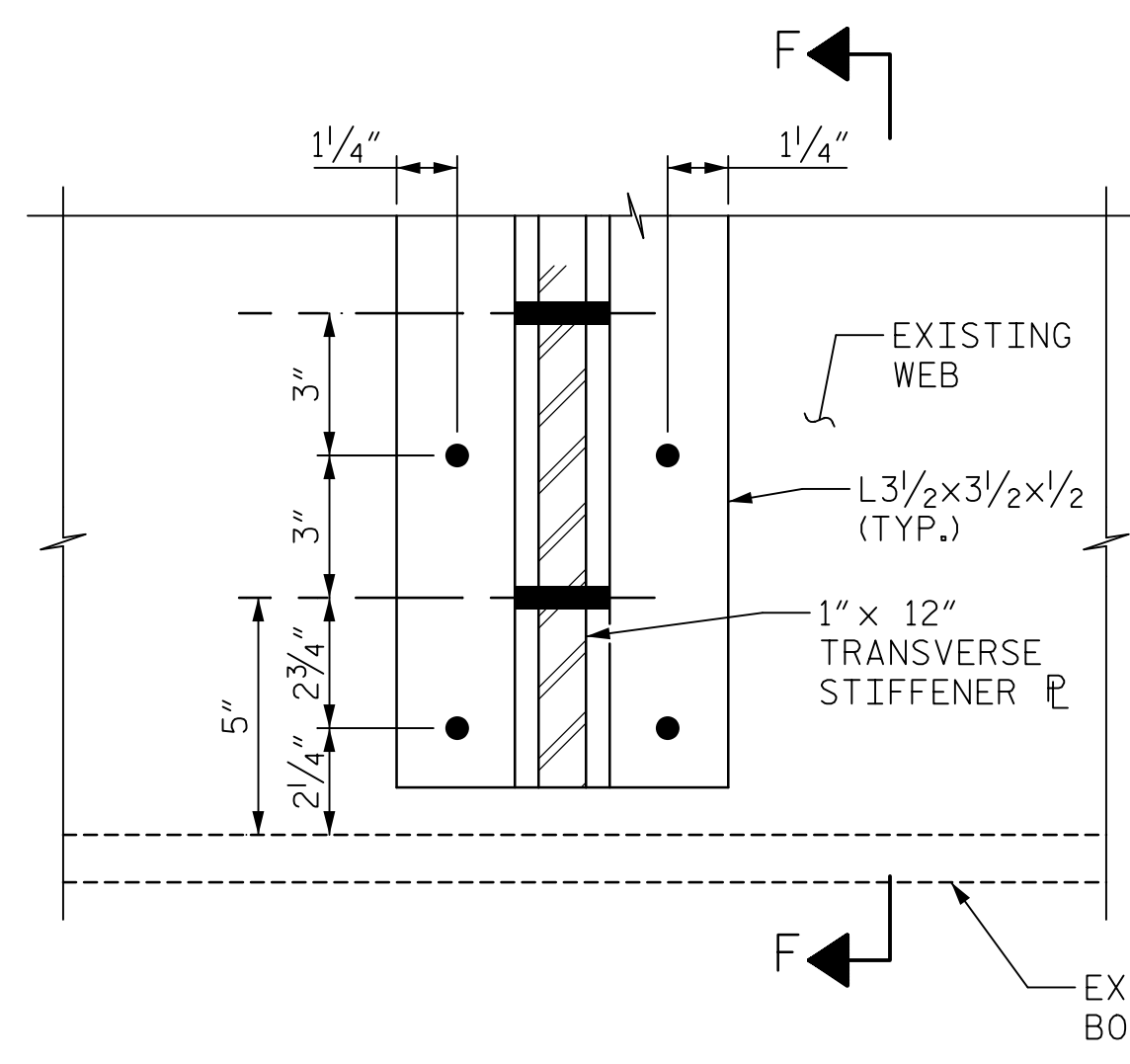
**SECTION G-G**



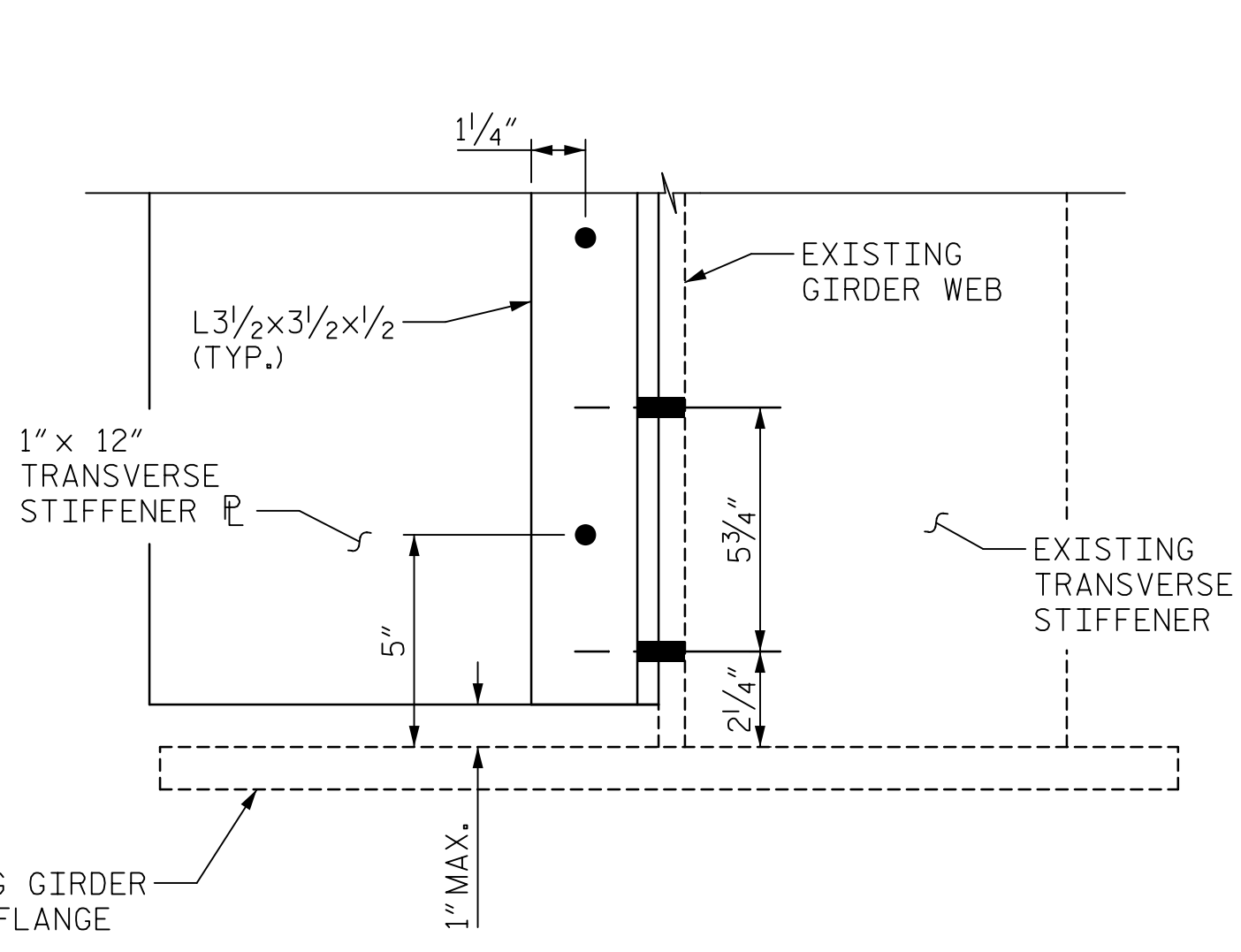
**VIEW H-H**



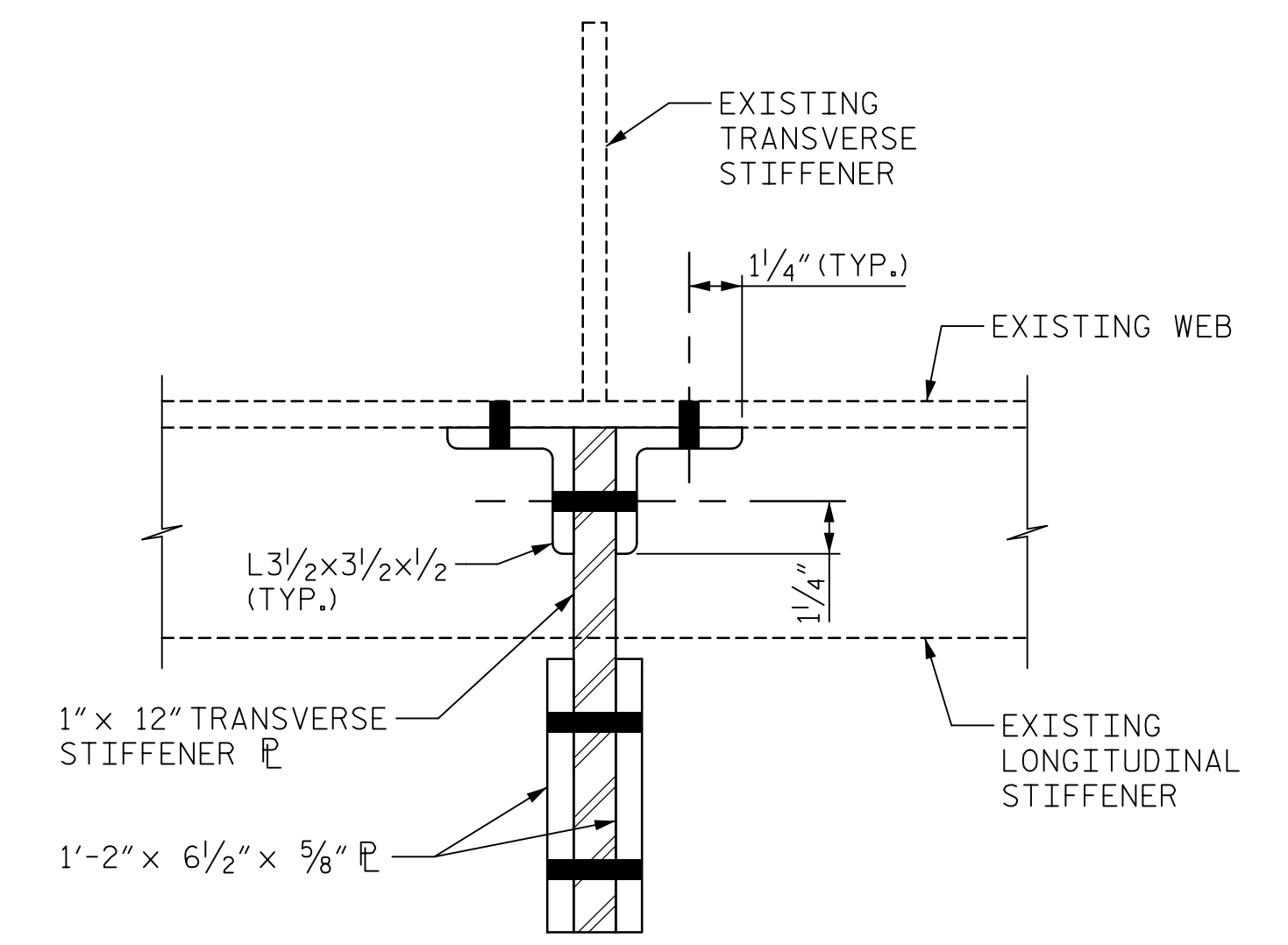
**GIRDER SECTION VIEW**



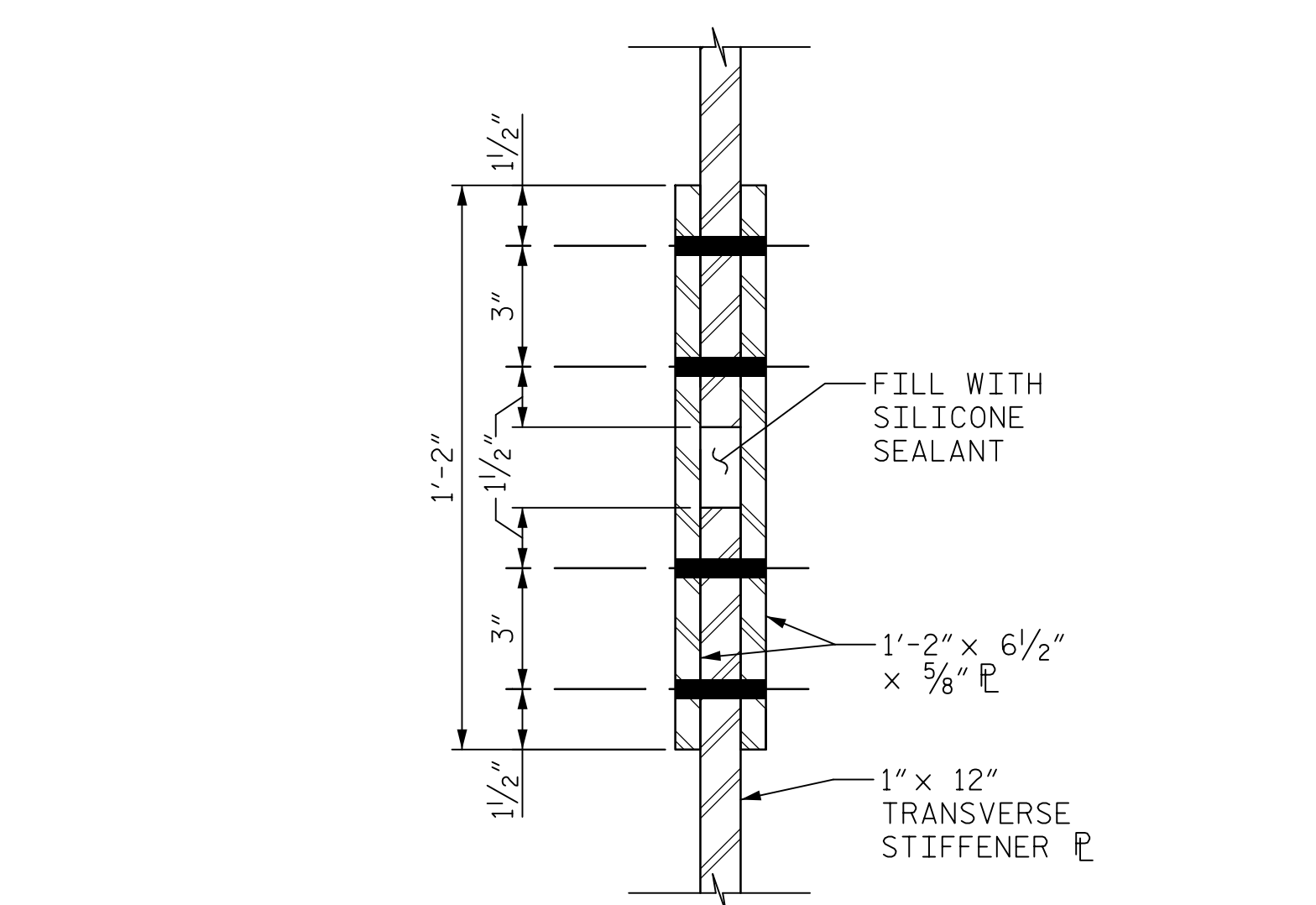
**DETAIL G**  
(APPLIES TO TYPE 2A & 2B)



**SECTION F-F**



**SECTION J-J**



**VIEW I-I**

**DETAIL F**  
(APPLIES TO TYPE 2A)

APPLICABLE DETAILS			
STIFFENER TYPE	CONNECTION DETAIL LOCATION		
	TOP FLANGE	STIFFENER	BOT FLANGE
2A	E	F	G
2B	E	J	G
2C	E	J	M
2D	L	J	M

**TYPE 2 12"x1" TRANSVERSE STIFFENER P DESCRIPTIONS:**

- 2A TRANSVERSE STIFFENER IN SPANS A AND E COINCIDING WITH A TOP LONGITUDINAL STIFFENER
- 2B TRANSVERSE STIFFENER IN SPANS B-D COINCIDING WITH A TOP LONGITUDINAL STIFFENER
- 2C TRANSVERSE STIFFENER IN SPANS B-D COINCIDING WITH TOP AND BOTTOM LONGITUDINAL STIFFENERS
- 2D TRANSVERSE STIFFENER IN SPANS B-D COINCIDING WITH A BOTTOM LONGITUDINAL STIFFENER

**NOTES:**  
L3/2X3/2X1/2 SHALL BE BOLTED TO THE WEB AND THE STIFFENER ALONG THE FULL HEIGHT WITH A MAXIMUM SPACING OF 6". BOLTS CONNECTING TO THE WEB AND STIFFENER SHALL ALTERNATE AT 3" SPACING.

DRAWN BY : S.G. STREDAK	DATE : 03/2019
CHECKED BY : J.E. SLOAN	DATE : 03/2019
DESIGNED BY : J.E. SLOAN	DATE : 03/2019
DESIGN CHECKED BY : J. LIU	DATE : 03/2019

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PROJECT NO. 15BPR.20  
HENDERSON COUNTY  
STATION: 35+30.22 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA  
**DEPARTMENT OF TRANSPORTATION**  
RALEIGH

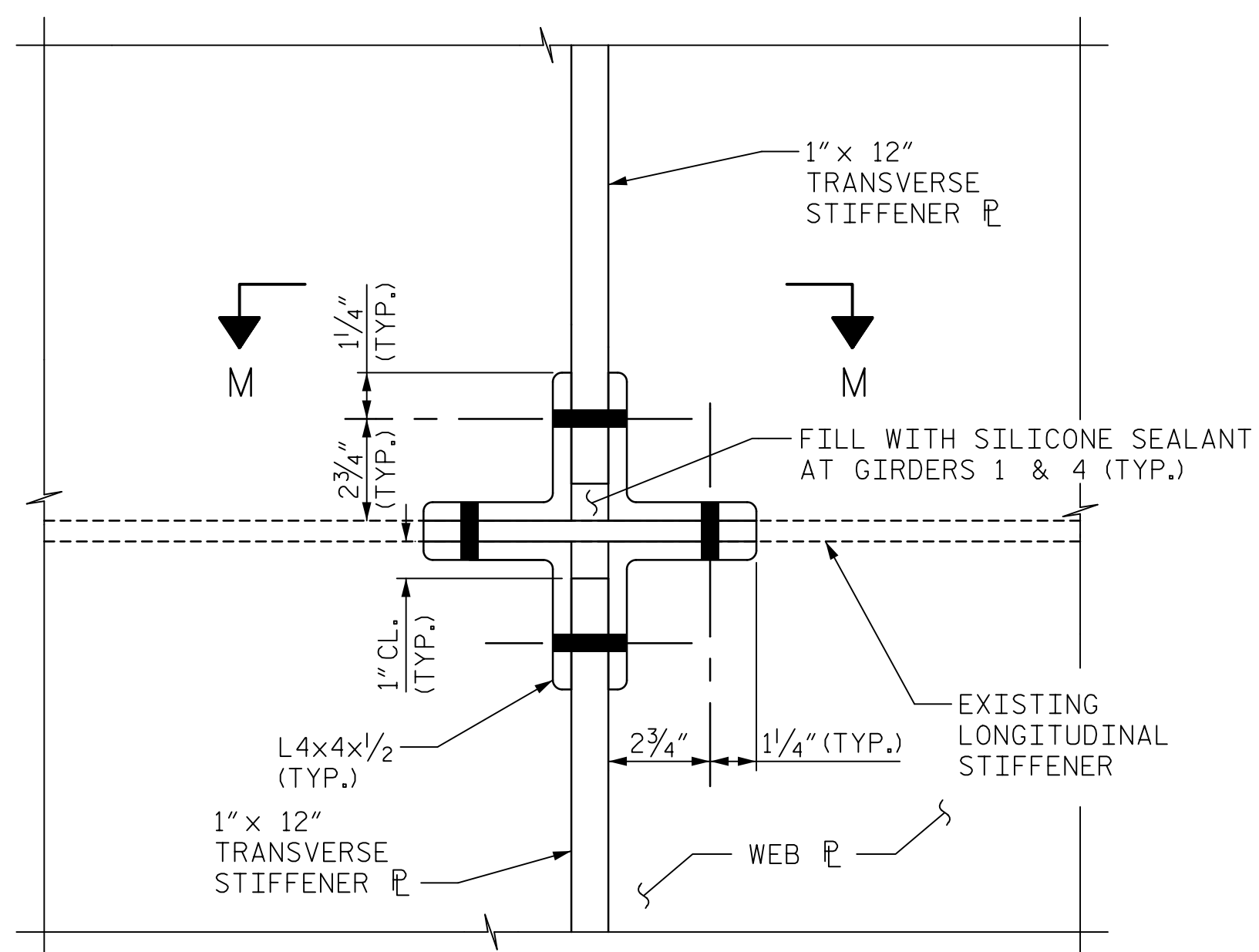
**SUPERSTRUCTURE**

**TYPE 2 TRANSVERSE STIFFENERS**

REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
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2			4		

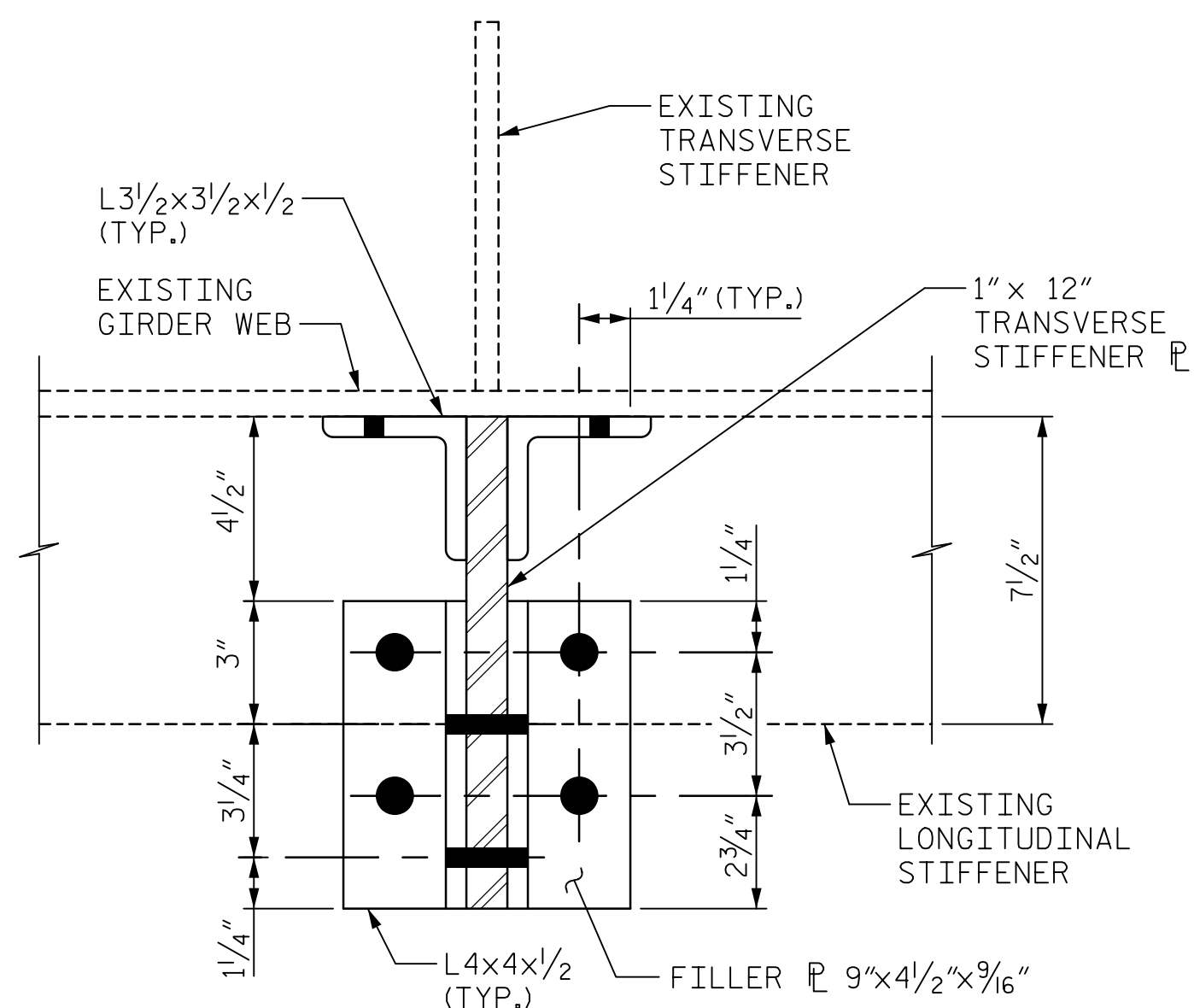
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TOTAL SHEETS 129

DATE: 02/07/2020  
TIME: 3:25:05 PM

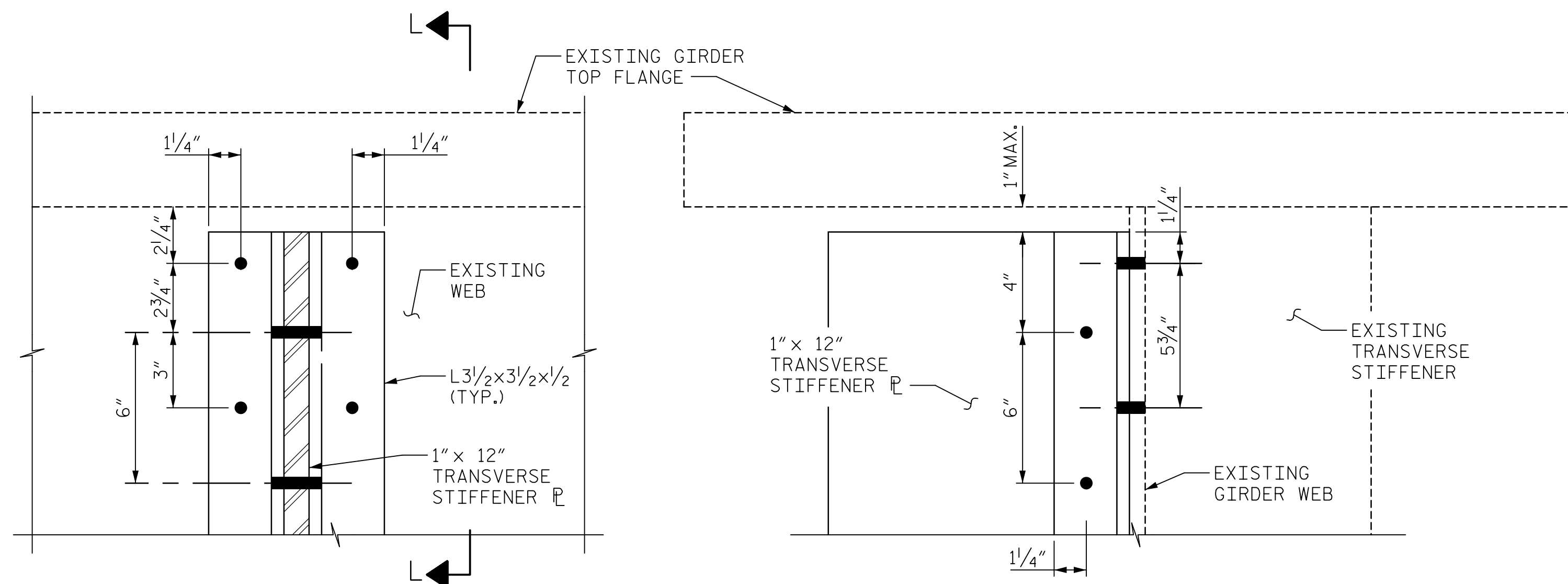


**DETAIL J**

(APPLIES TO TYPE 2B, 2C & 2D)  
(L3/2x3/2x1/2 NOT SHOWN FOR CLARITY)



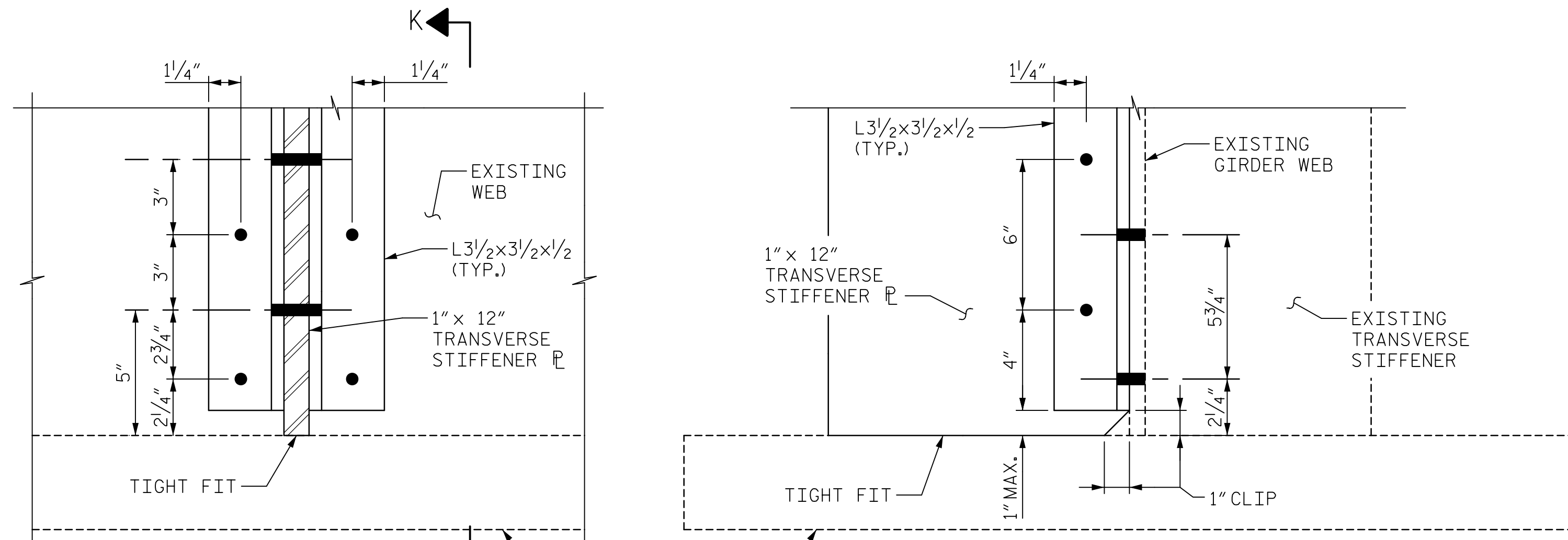
**SECTION M-M**



**DETAIL L**

(APPLIES TO TYPE 2D)

**SECTION L-L**



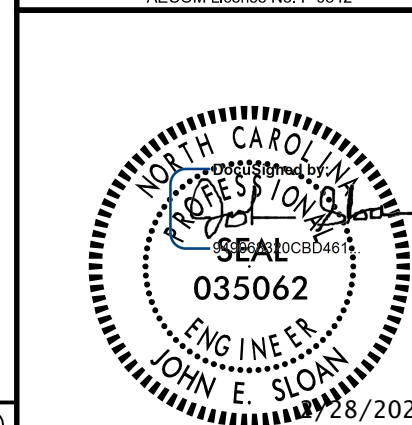
**DETAIL M**

(APPLIES TO TYPE 2C & 2D)

**SECTION K-K**

PROJECT NO. 15BPR.20  
HENDERSON COUNTY  
STATION: 35+30.22 -L-

SHEET 2 OF 2



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

SUPERSTRUCTURE

TYPE 2 TRANSVERSE STIFFENERS

REVISIONS

NO.	BY:	DATE:	NO.	BY:	DATE:
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2			4		

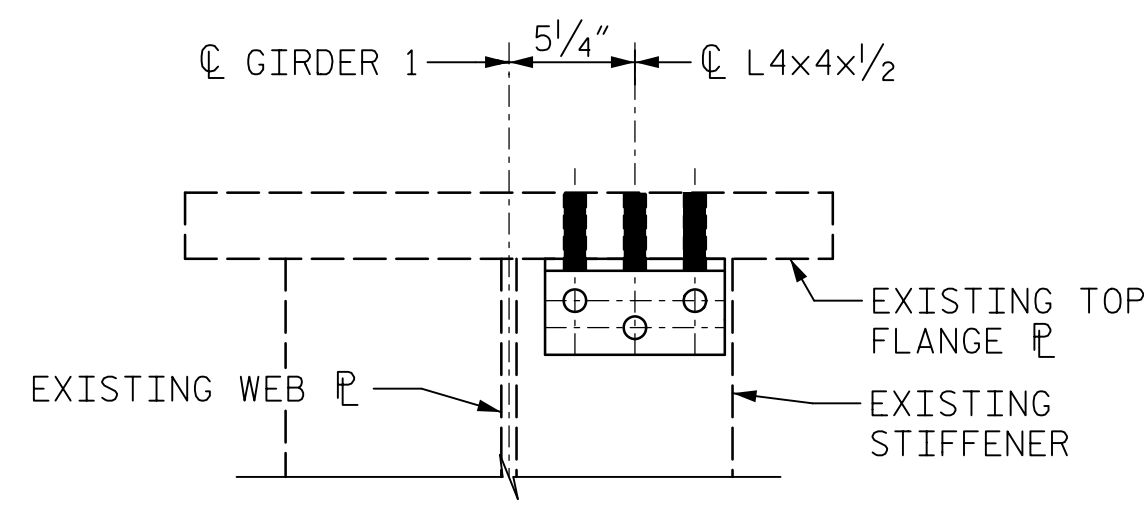
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S-69  
TOTAL SHEETS  
129

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FINAL UNLESS ALL  
SIGNATURES COMPLETED

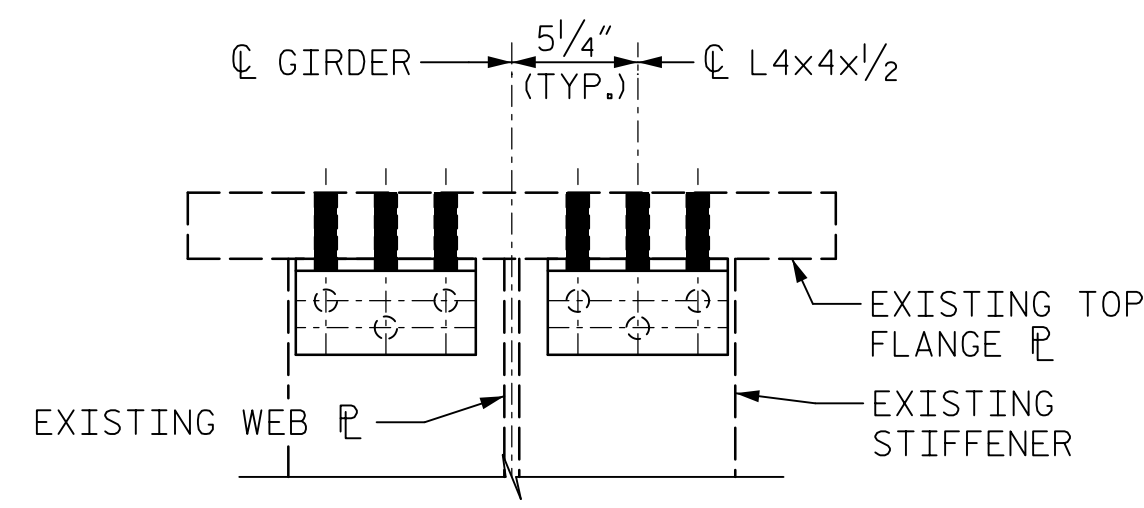
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CHECKED BY : J.E. SLOAN DATE : 03/2019  
DESIGNED BY : J.E. SLOAN DATE : 03/2019  
DESIGN CHECKED BY : J. LIU DATE : 03/2019

USER: MergeResourced... Drawings\01\_133\_15BPR20\_SML\63.dgn

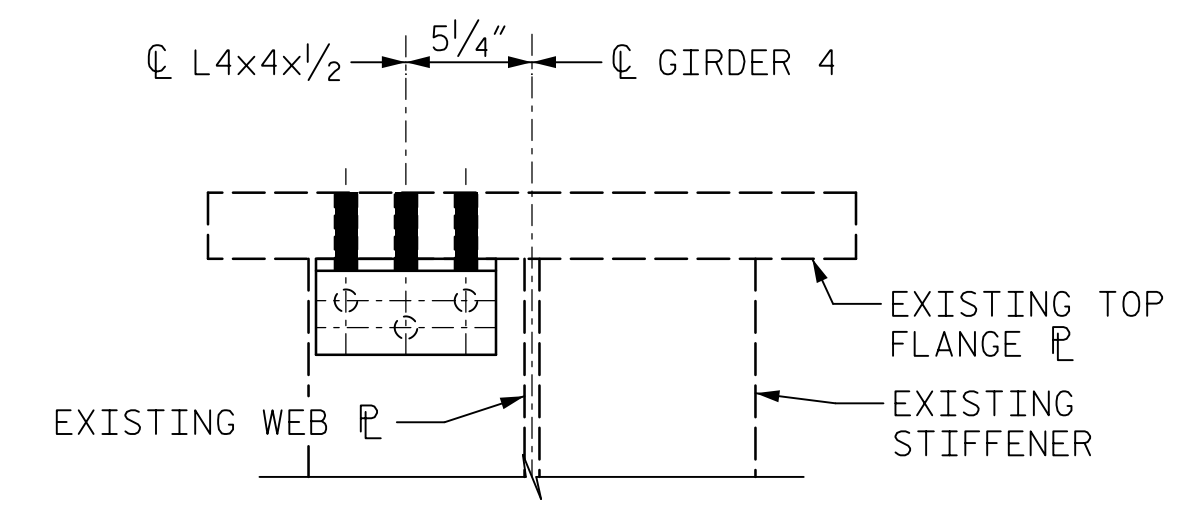
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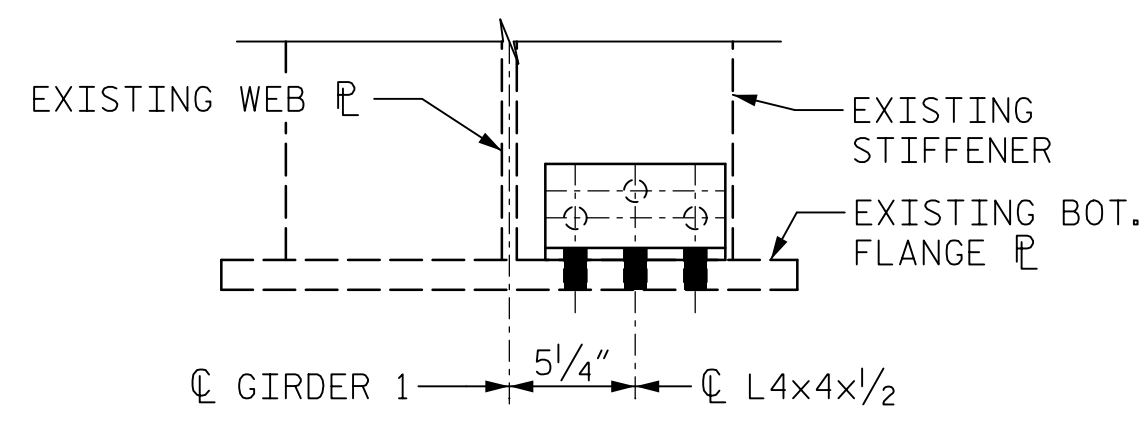
WEB GAP DETAIL Q



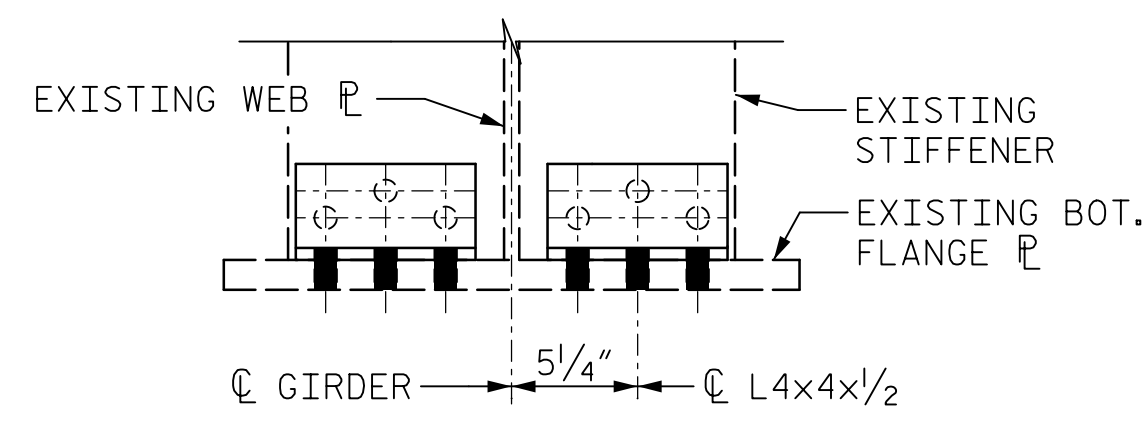
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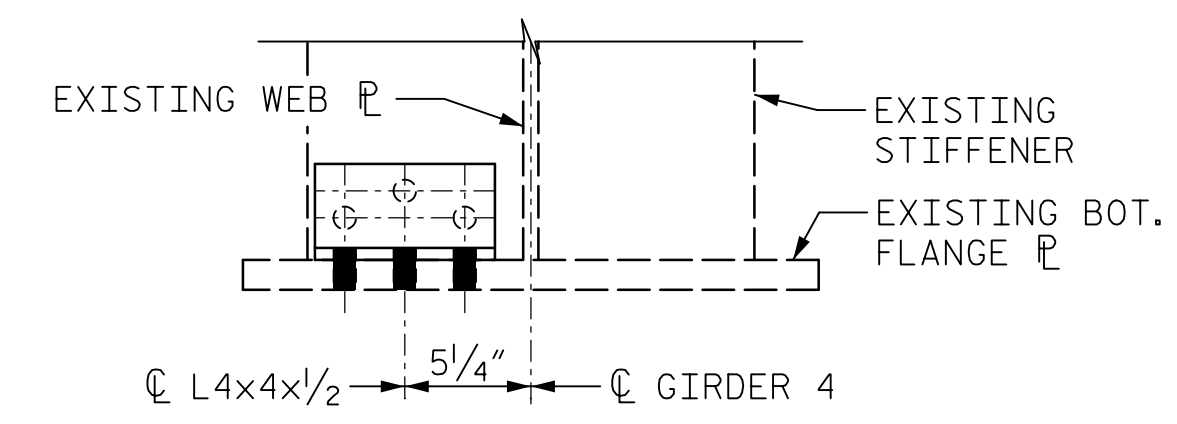
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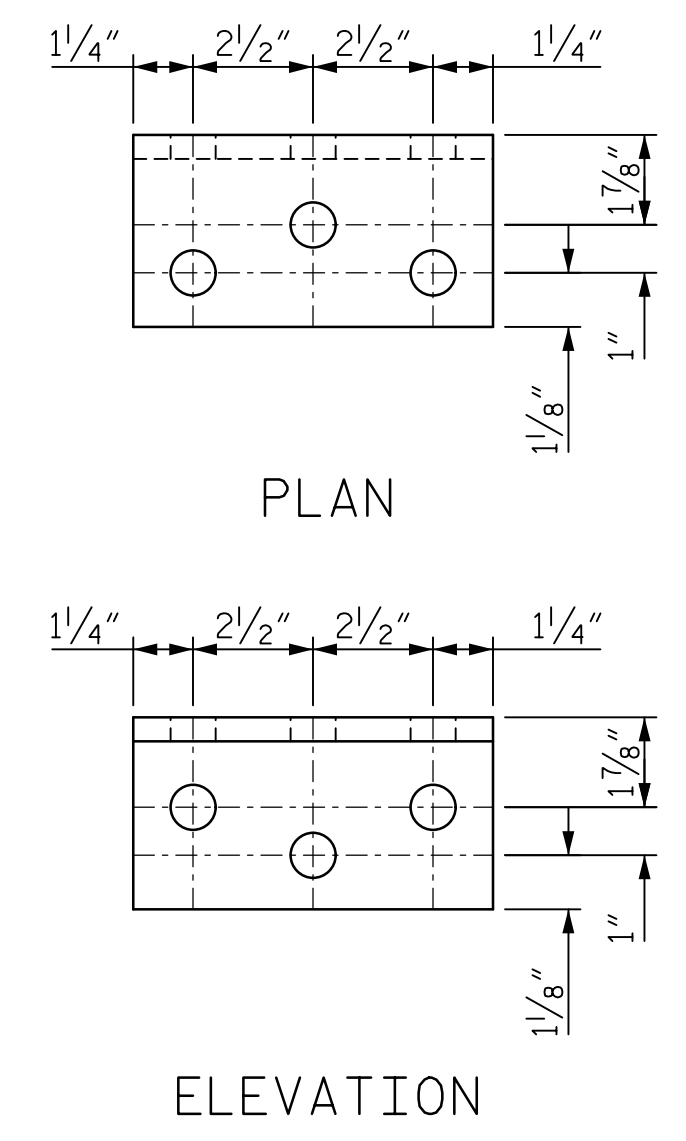
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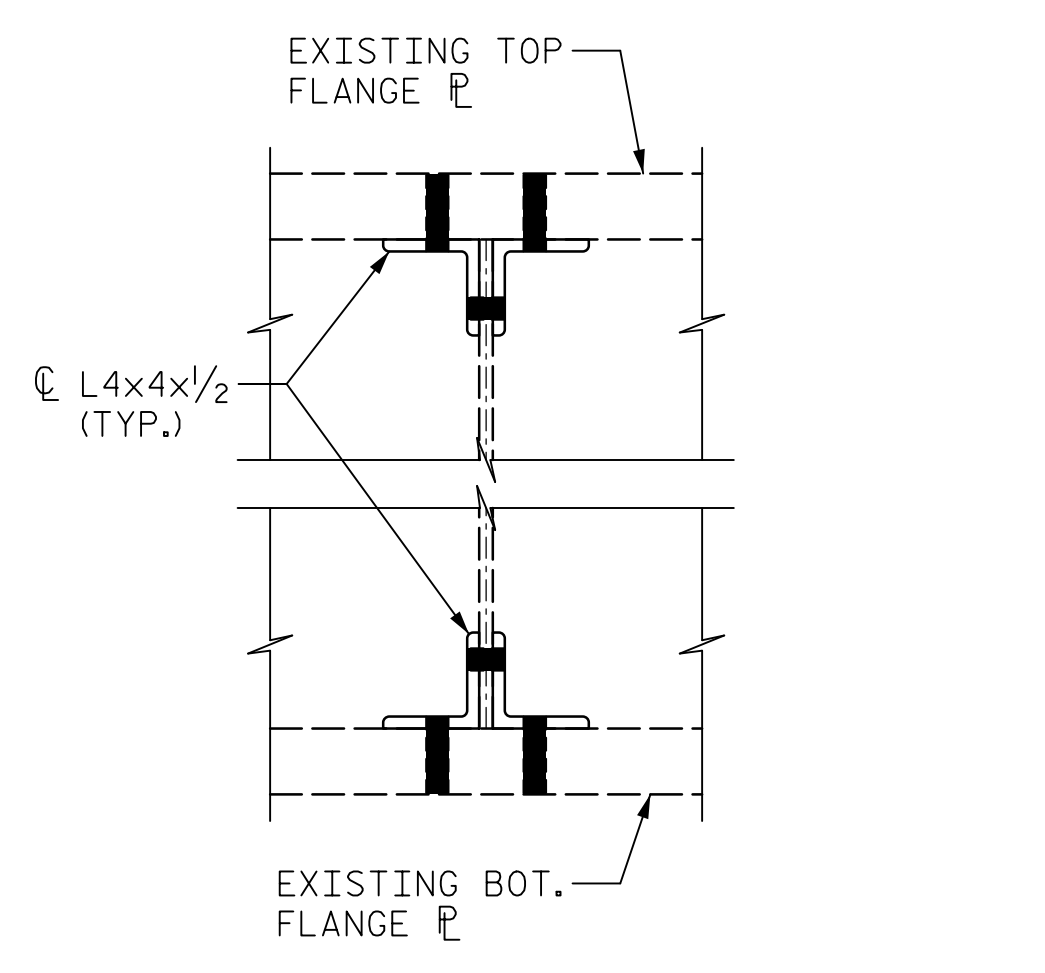
WEB GAP DETAIL T



WEB GAP DETAIL V



L4x4x1/2 DETAIL



SECTION THRU L4x4x1/2

NOTES:

ALL WEB GAP DETAILS LOOKING UPSTATION.  
THE WEB GAP DETAIL IS A BOLTED ANGLE CONNECTION BETWEEN THE EXISTING STIFFENER AND THE TENSION FLANGE AT CROSSFRAME LOCATIONS. THIS DETAIL SHALL CONNECT EXISTING STIFFENERS AT CROSSFRAMES TO THE FLANGE IN ORDER TO PREVENT DISTORTION INDUCED FATIGUE. THE EXISTING CROSSFRAME STIFFENERS ARE ALREADY WELDED TO THE COMPRESSION FLANGE. THE WEB GAP DETAIL SHALL CONNECT THE CROSSFRAME STIFFENER TO THE TENSION FLANGE.

CROSSFRAME POINT	WEB GAP DETAIL ID LOCATIONS			
	GIRDER 1	GIRDER 2	GIRDER 3	GIRDER 4
A1	Q	S	S	U
A2	R	T	T	V
A3	R	T	T	V
A4	R	T	T	V
A5	Q	S	S	U
1	Q	S	S	U
2	R	T	T	V
3	R	T	T	V
4	R	T	T	V
5	R	T	T	V
6	R	T	T	V
7	R	T	T	V
8	R	T	T	V
9	Q	S	S	U
10	Q	S	S	U
11	Q	S	S	U
12	Q	S	S	U
13	Q	S	S	U
14	Q	S	S	U
15	Q	S	S	U
16	R	T	T	V
17	R	T	T	V
18	R	T	T	V
19	R	T	T	V
20	R	T	T	V
21	R	T	T	V
22	R	T	T	V
23	Q	S	S	U
24	Q	S	S	U
25	Q	S	S	U
26	Q	S	S	U
27	Q	S	S	U
28	Q	S	S	U
29	Q	S	S	U
30	R	T	T	V
31	R	T	T	V
32	R	T	T	V
33	R	T	T	V
34	R	T	T	V
35	R	T	T	V
36	R	T	T	V
37	Q	S	S	U
E1	Q	S	S	U
E2	R	T	T	V
E3	R	T	T	V
E4	R	T	T	V
E5	Q	S	S	U

PROJECT NO. 15BPR.20  
HENDERSON COUNTY  
 STATION: 35+30.22 -L-

SHEET 1 OF 4

**AECOM**  
AECOM TECHNICAL SERVICES OF NC, INC.  
 701 CORPORATE CENTER DRIVE, SUITE 475  
 RALEIGH, NC 27607  
 (919) 854-6200 www.aecom.com  
 AECOM License No. F-0342

STATE OF NORTH CAROLINA  
 JOHN E. SLOAN  
 ENGINEER  
 035062  
 01/28/2020

STATE OF NORTH CAROLINA  
**DEPARTMENT OF TRANSPORTATION**  
 RALEIGH

SUPERSTRUCTURE

**STRUCTURAL STEEL  
 WEB GAP RETROFIT  
 DETAILS**

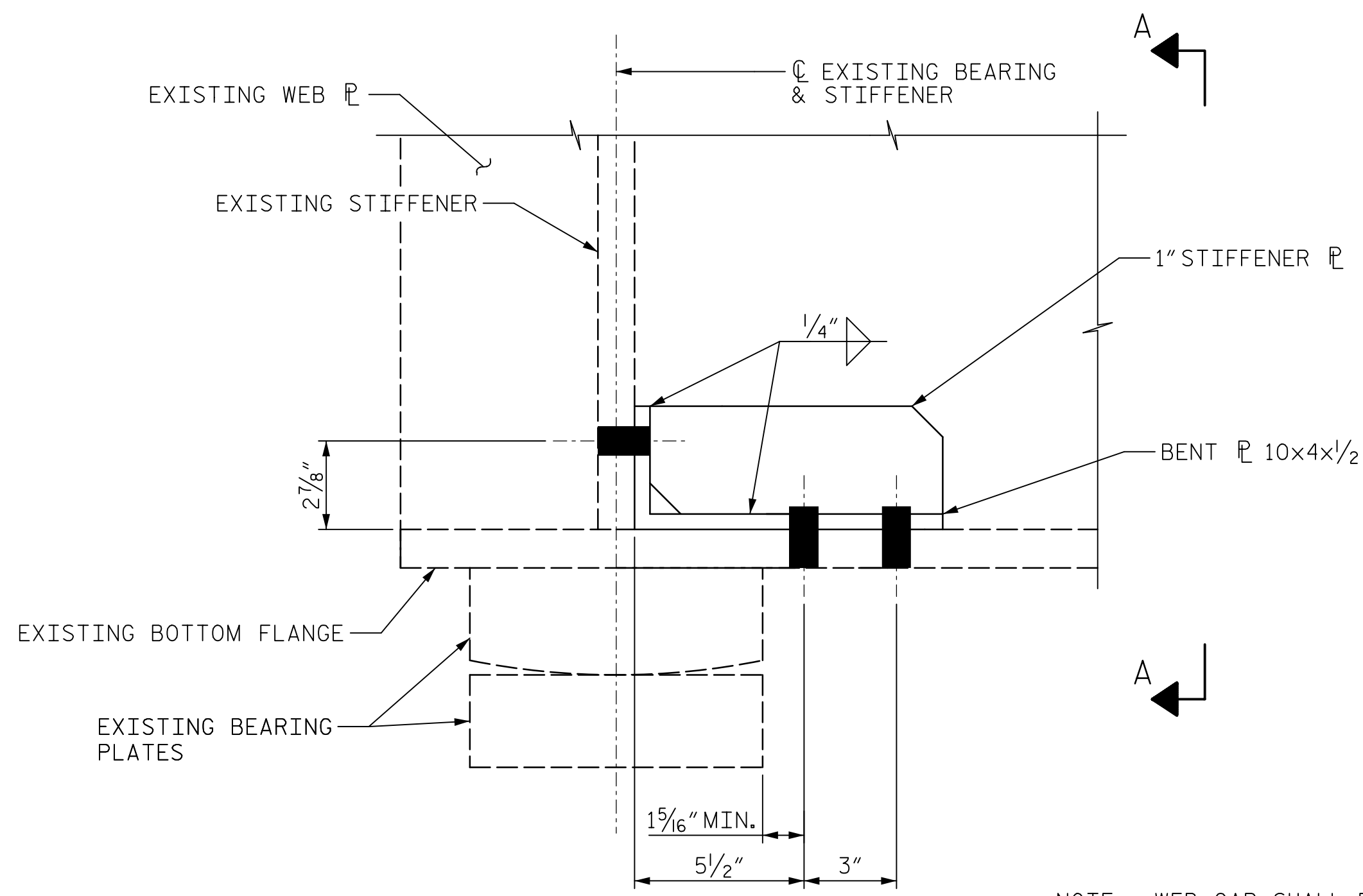
REVISIONS						SHEET NO. S-70
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 129
2			4			

DRAWN BY : S.G. STREDNAK DATE : 01/2019  
 CHECKED BY : J.E. SLOAN DATE : 01/2019  
 DESIGNED BY : D.S. TUTTLE DATE : 01/2019  
 DESIGN CHECKED BY : J. LIU DATE : 01/2019

DOCUMENT NOT CONSIDERED  
 FINAL UNLESS ALL  
 SIGNATURES COMPLETED

DATE: 2/27/2020 TIME: 3:25:27 PM

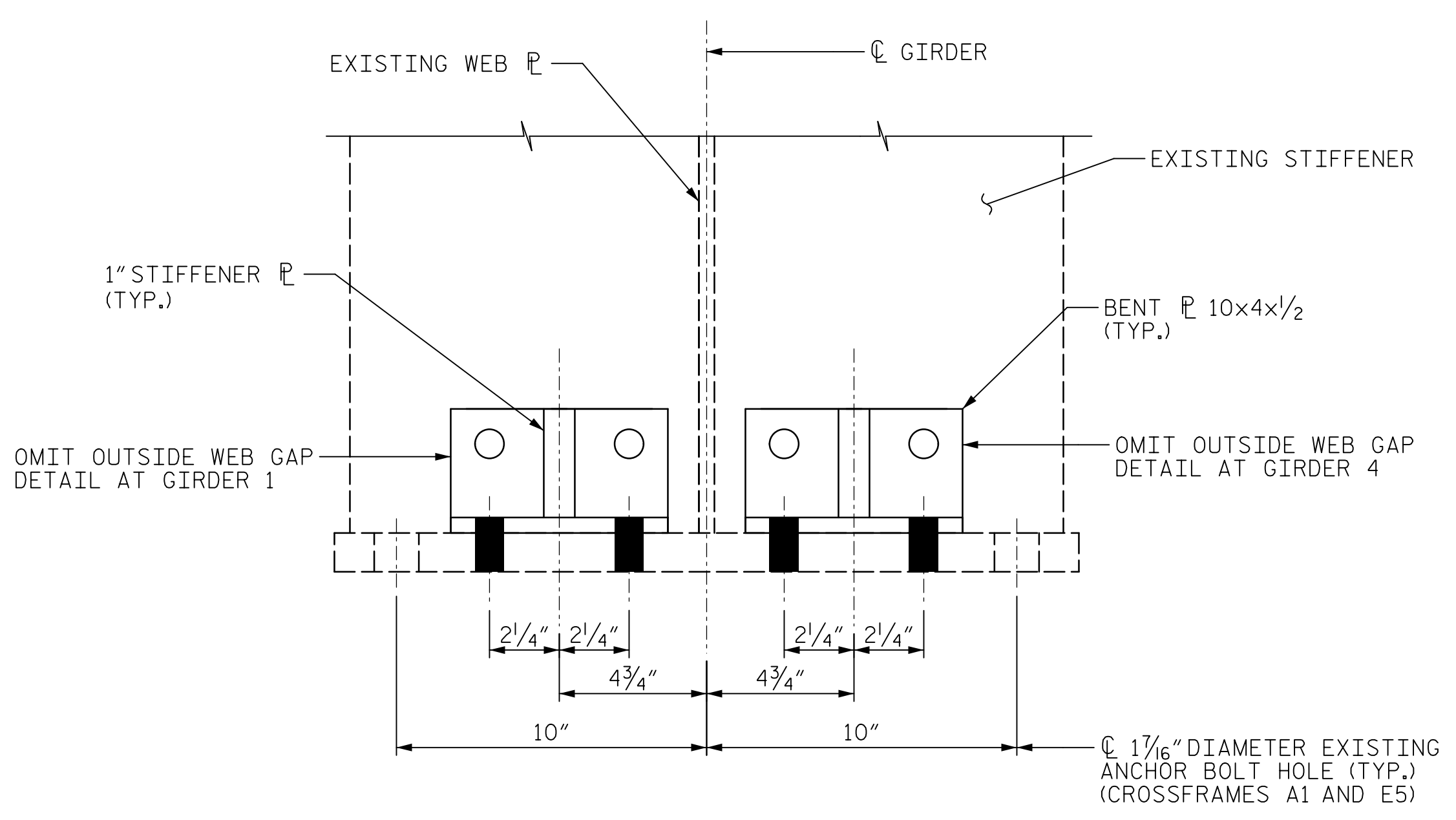
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**ELEVATION**

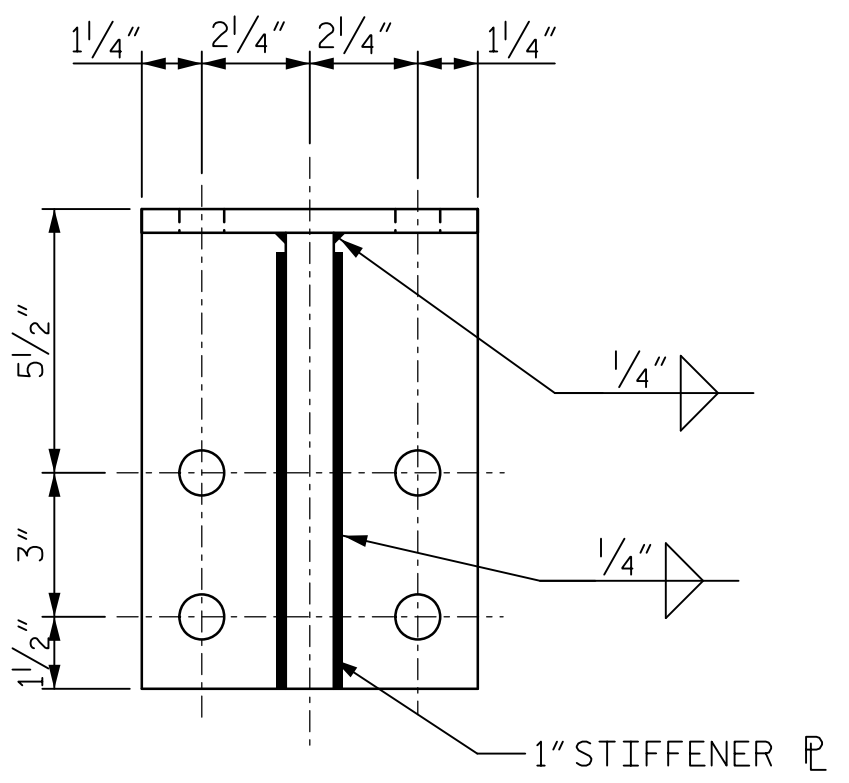
SHOWN AT CROSSFRAME POINT A1. SIMILAR AT CROSSFRAME POINTS A5, E1, & E5.

NOTE: WEB GAP SHALL BE INSTALLED AHEAD STATION OF THE EXISTING STIFFENER AT CROSSFRAMES A1 AND E1 AND BACK STATION OF THE EXISTING STIFFENER AT CROSSFRAMES A5 AND E5.



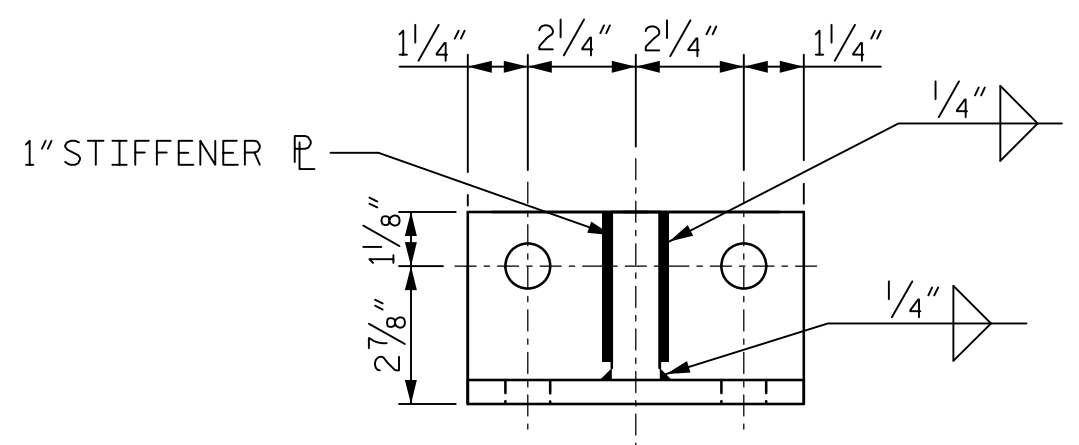
**VIEW A-A**

CROSSFRAME POINT	WEB GAP DETAIL ID LOCATIONS			
	GIRDER 1	GIRDER 2	GIRDER 3	GIRDER 4
A1	W	W	W	W
A5	W	W	W	W
E1	W	W	W	W
E5	W	W	W	W

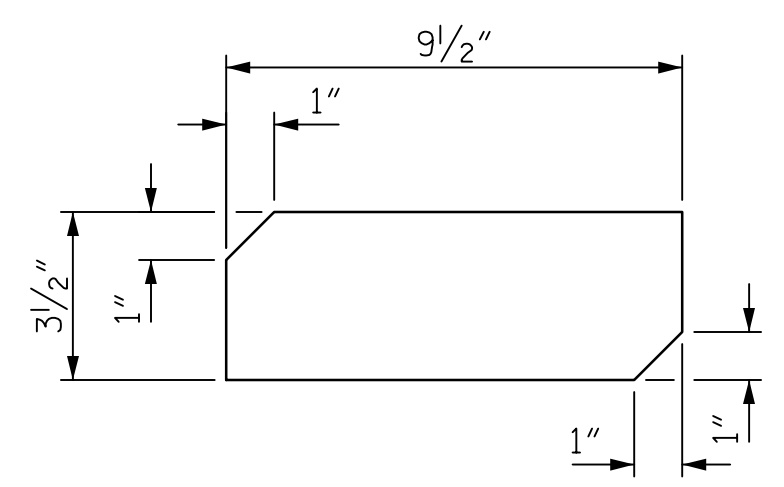


**PLAN**

**WEB GAP DETAIL W**



**ELEVATION**



**1" STIFFENER PLATE**

**BENT PLATE 10x4x1/2 DETAIL**

DRAWN BY : M. CATER	DATE : 10/2019
CHECKED BY : J.E. SLOAN	DATE : 10/2019
DESIGNED BY : H. ROSEMOND	DATE : 10/2019
DESIGN CHECKED BY : J. SLOAN	DATE : 10/2019

PROJECT NO. 15BPR.20  
HENDERSON COUNTY  
 STATION: 35+30.22 -L-

SHEET 2 OF 4



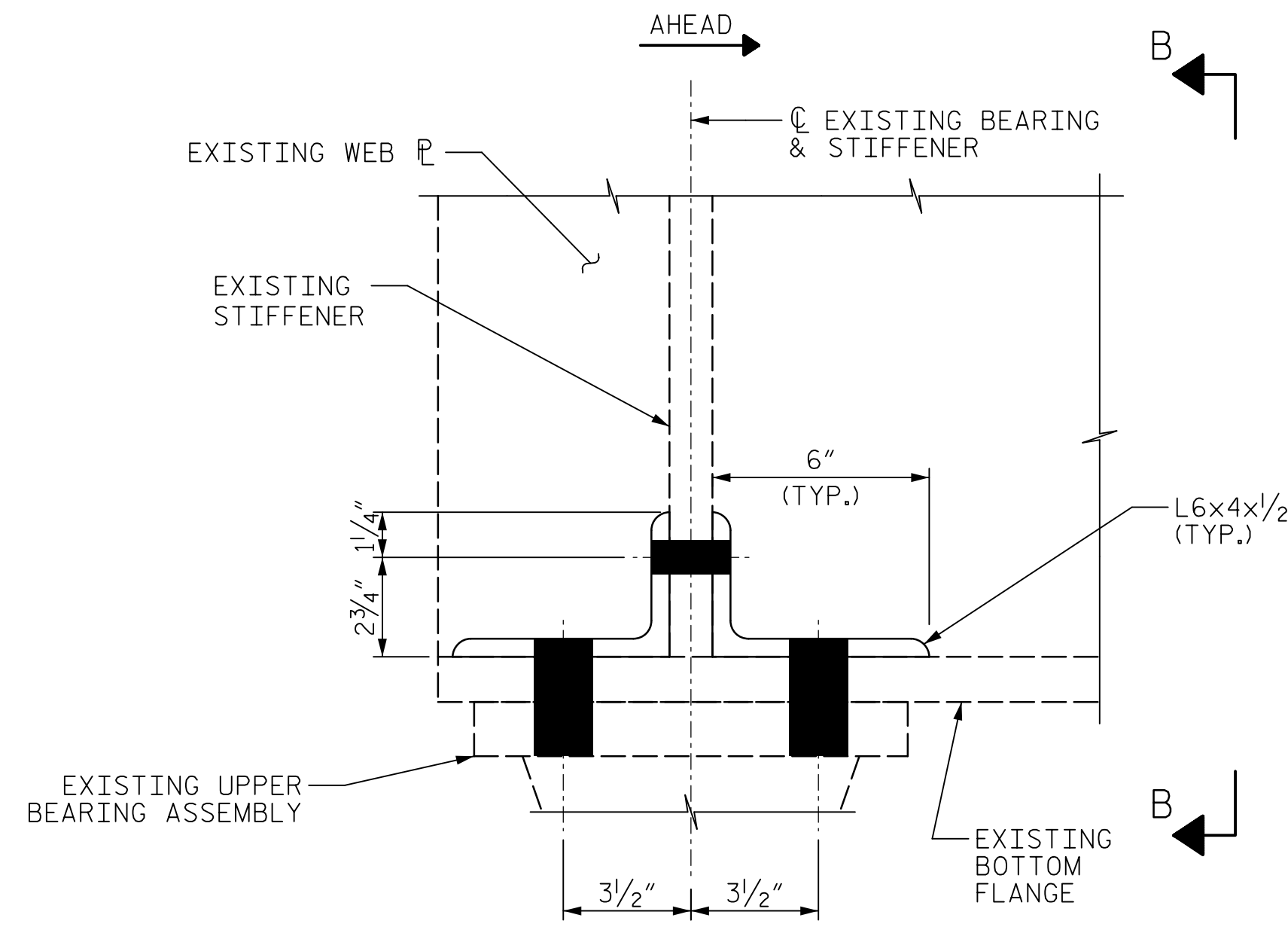
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE

**STRUCTURAL STEEL  
 WEB GAP RETROFIT  
 DETAILS**

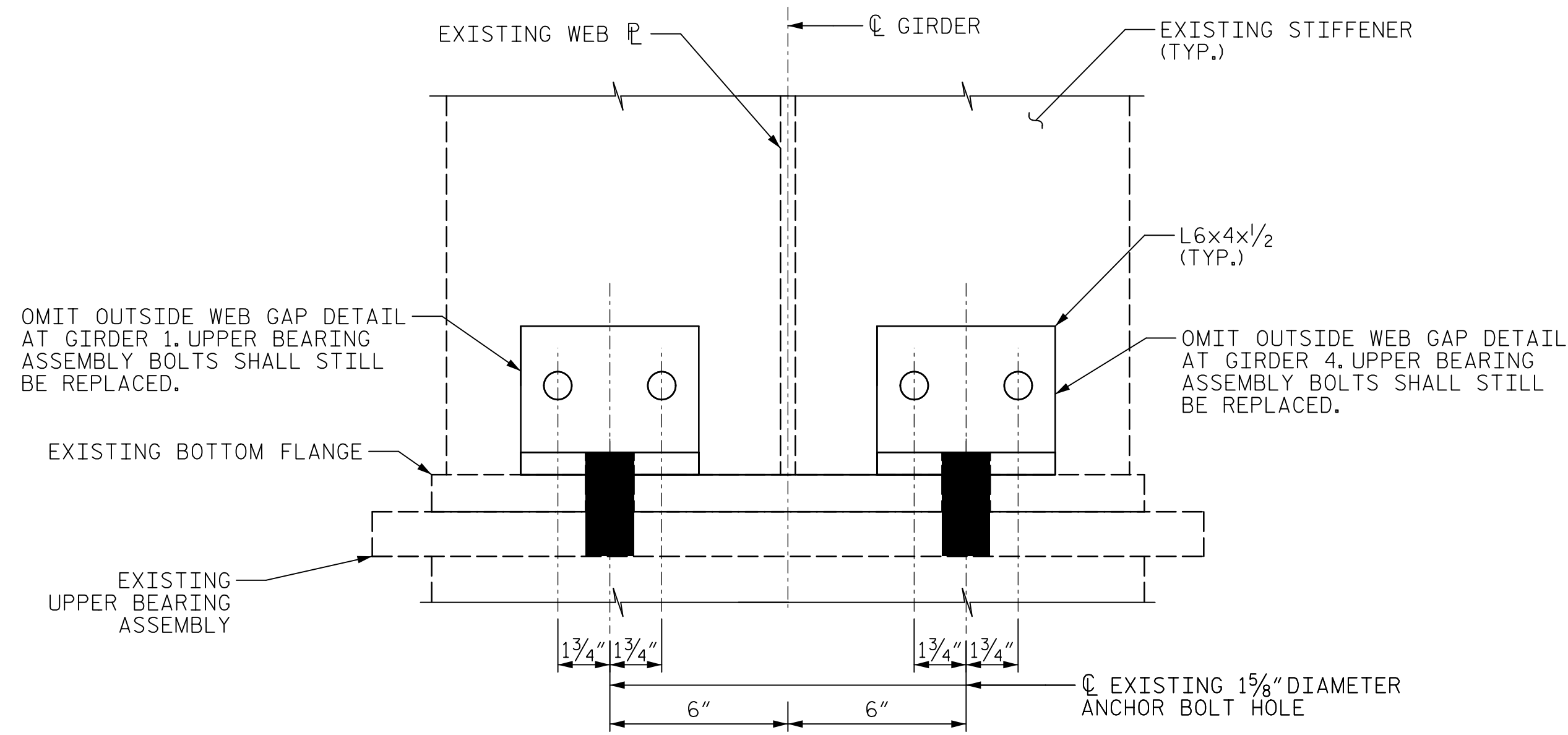
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-71
1			3			TOTAL SHEETS
2			4			129

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CROSSFRAME POINT	WEB GAP DETAIL ID LOCATIONS			
	GIRDER 1	GIRDER 2	GIRDER 3	GIRDER 4
1	X	X	X	X
37	X	X	X	X



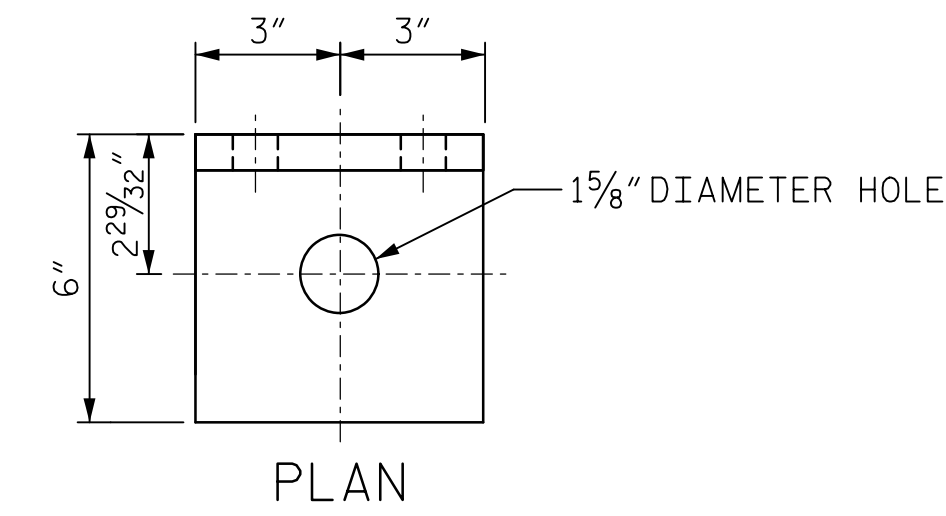
**ELEVATION**  
SHOWN AT CROSSFRAME POINT 1,  
SIMILAR AT CROSSFRAME POINT 37.  
(MIRRORED)



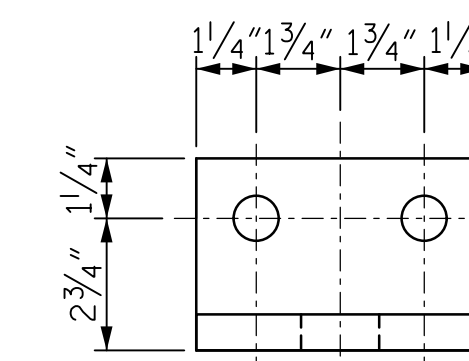
**VIEW B-B**

NOTE: INSTALL NEW ASTM F3125 GRADE 325 1/2" BOLTS TO FIT CONNECTION THRU UPPER BEARING ASSEMBLY, BOTTOM FLANGE, AND ANGLE. REMOVE ONE BOLT AT A TIME AND REINSTALL WITH ANGLE PRIOR TO REMOVING OTHER BOLTS.

WEB GAP DETAIL X



**PLAN**

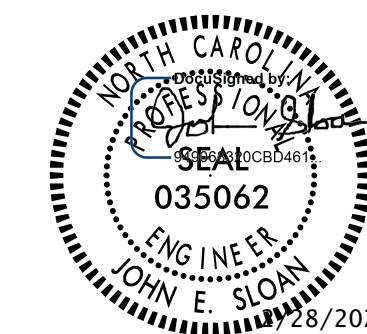


**ELEVATION**

L6x4x1/2 DETAIL

PROJECT NO. 15BPR.20  
HENDERSON COUNTY  
STATION: 35+30.22 -L-

SHEET 3 OF 4



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
SUPERSTRUCTURE

**STRUCTURAL STEEL  
WEB GAP RETROFIT  
DETAILS**

REVISIONS						SHEET NO. S-72
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 129
2			4			

DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED

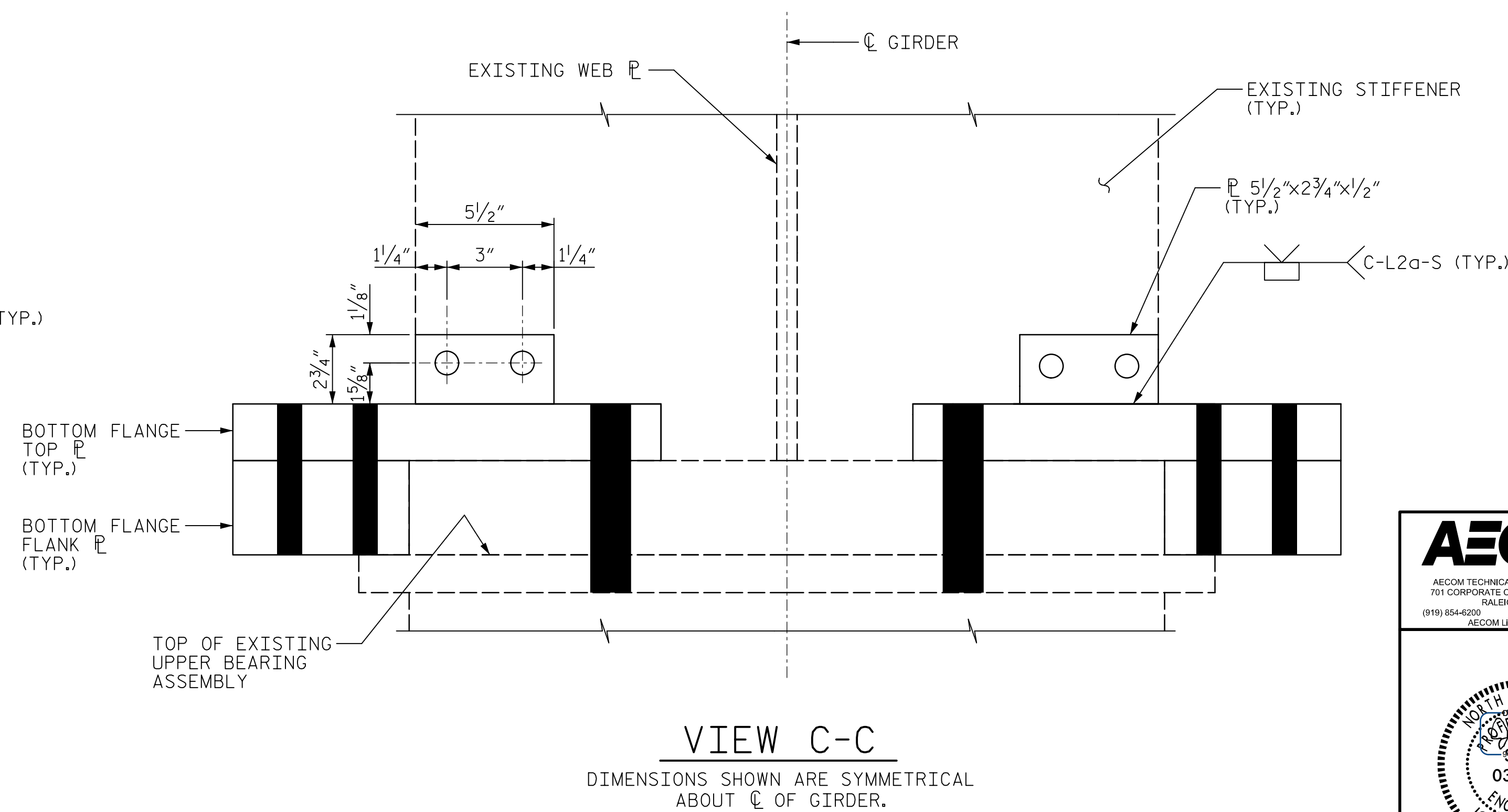
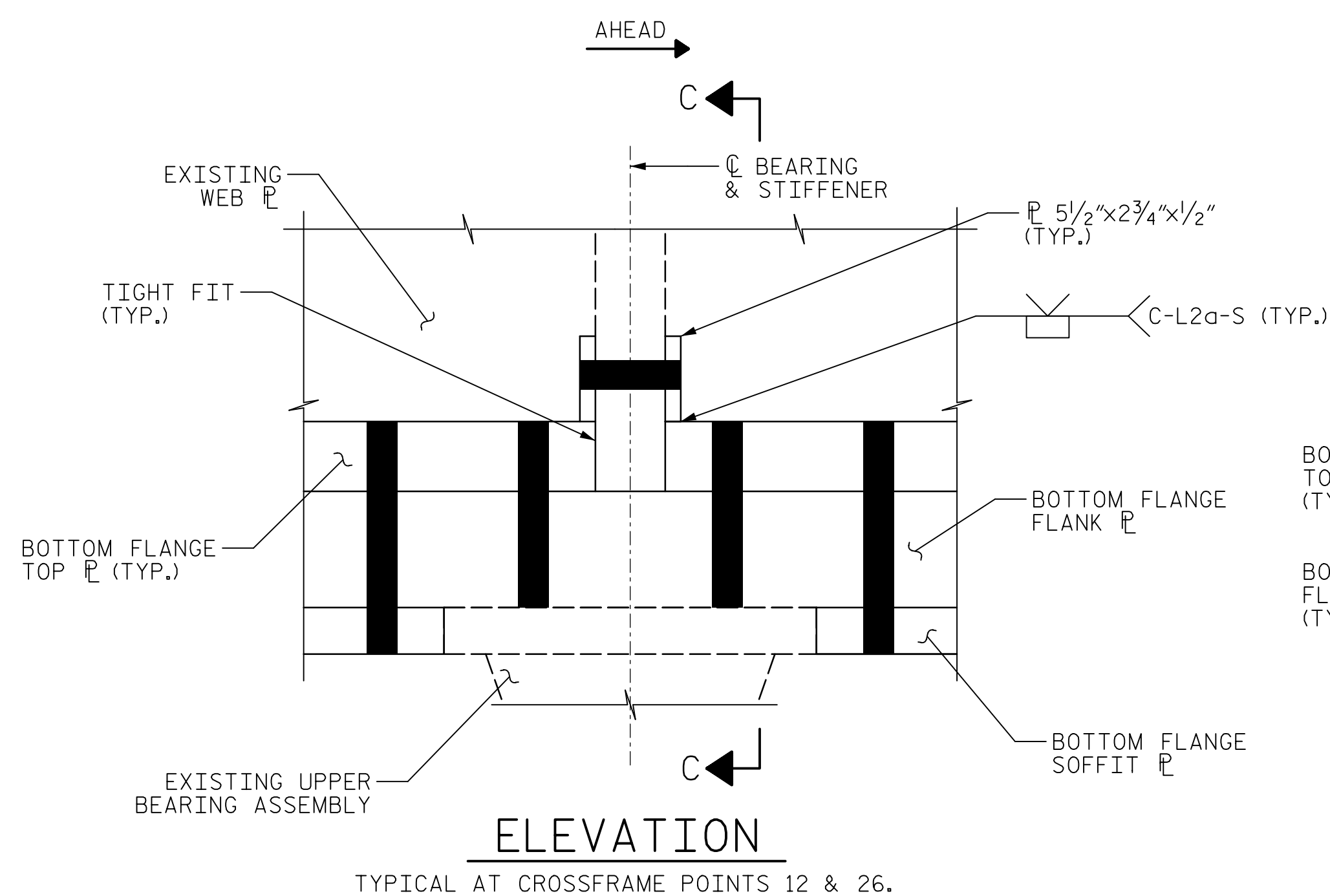
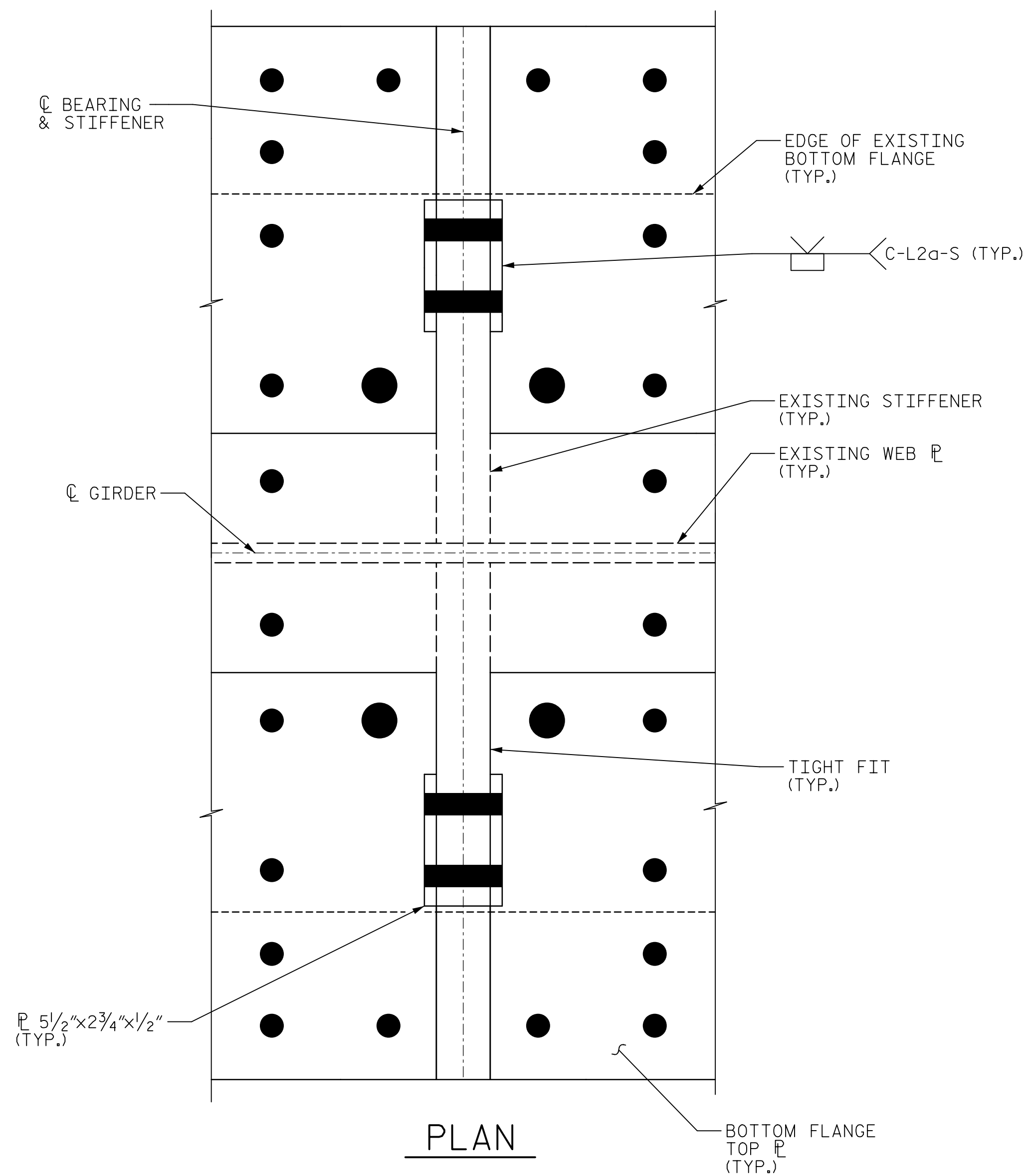
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CHECKED BY : J.E. SLOAN	DATE : 10/2019
DESIGNED BY : H. ROSEMOND	DATE : 10/2019
DESIGN CHECKED BY : J. SLOAN	DATE : 10/2019

DATE: 2/27/2020  
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DATE: 2/27/2020  
TIME: 3:25:45 PM

USER: Merit Rosemond  
DGN: R:\Structures\04 Drawings\01\135\_15BPR20\_SML\BRC.dgn



WEB GAP DETAIL Y

CROSSFRAME POINT	WEB GAP DETAIL ID LOCATIONS			
	GIRDER 1	GIRDER 2	GIRDER 3	GIRDER 4
12	Y	Y	Y	Y
26	Y	Y	Y	Y

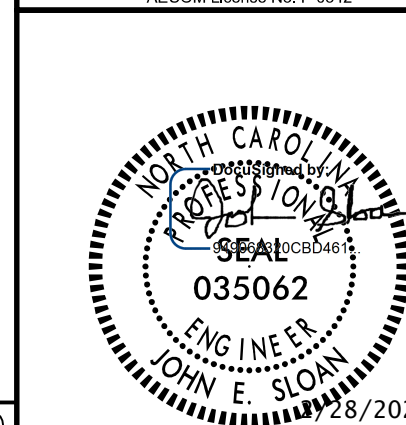
NOTES:

PLACE SILICONE SEALANT AT CORNERS AND JOINTS AS DIRECTED BY THE ENGINEER.

WHEN INSTALLING THE BOTTOM FLANGE TOP PLATES, THE CONTRACTOR MAY ONLY REMOVE A SINGLE 1/2" DIAMETER BEARING ANCHOR BOLT AT A TIME. CONTRACTOR SHALL REINSTALL THE ANCHOR BOLT WITH THE TOP PLATE BEFORE REMOVING ANOTHER BOLT.

PROJECT NO. 15BPR.20  
 HENDERSON COUNTY  
 STATION: 35+30.22 -L-

SHEET 4 OF 4



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE

STRUCTURAL STEEL  
 WEB GAP RETROFIT  
 DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-73
1			3			TOTAL SHEETS
2			4			129

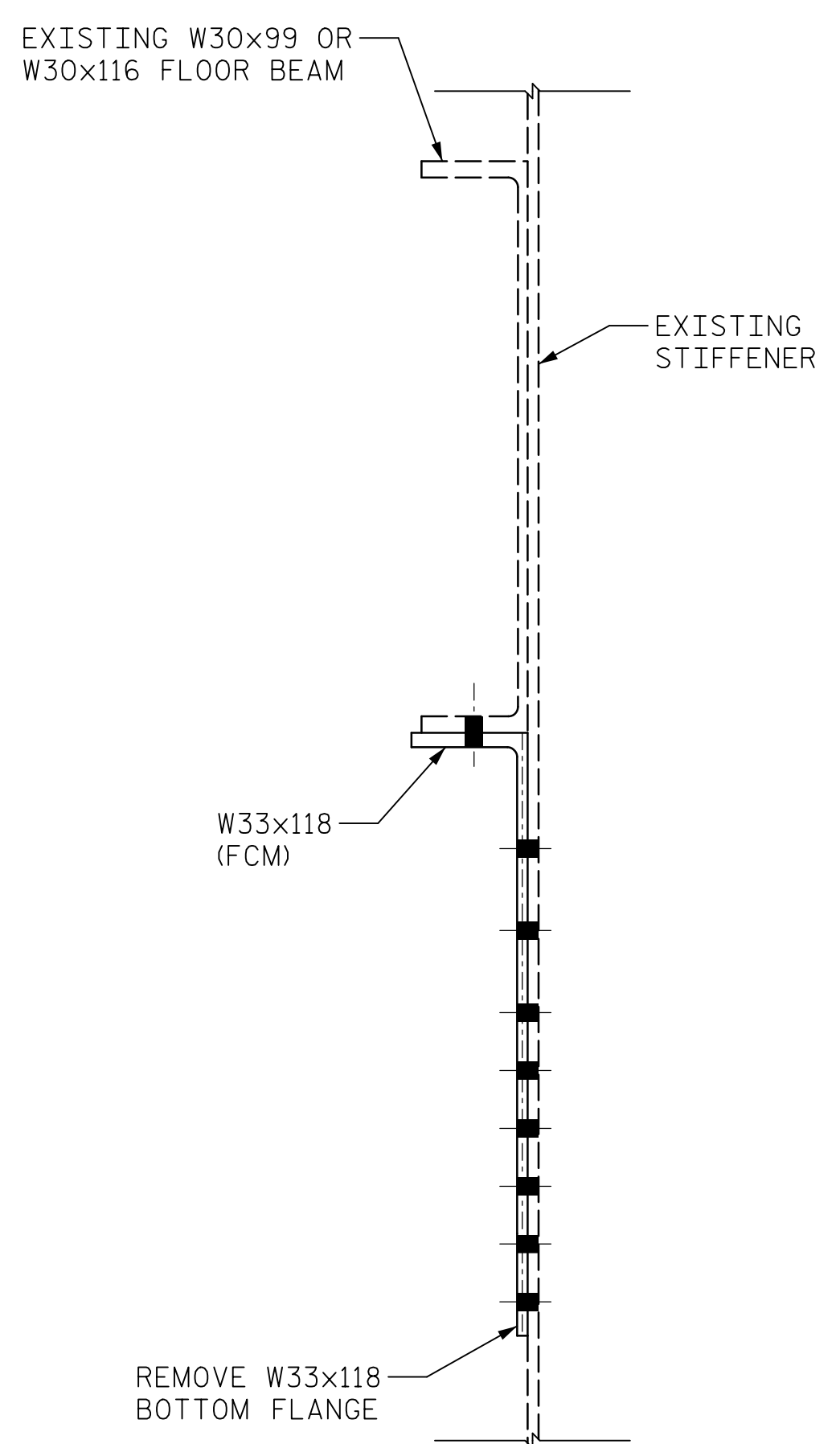
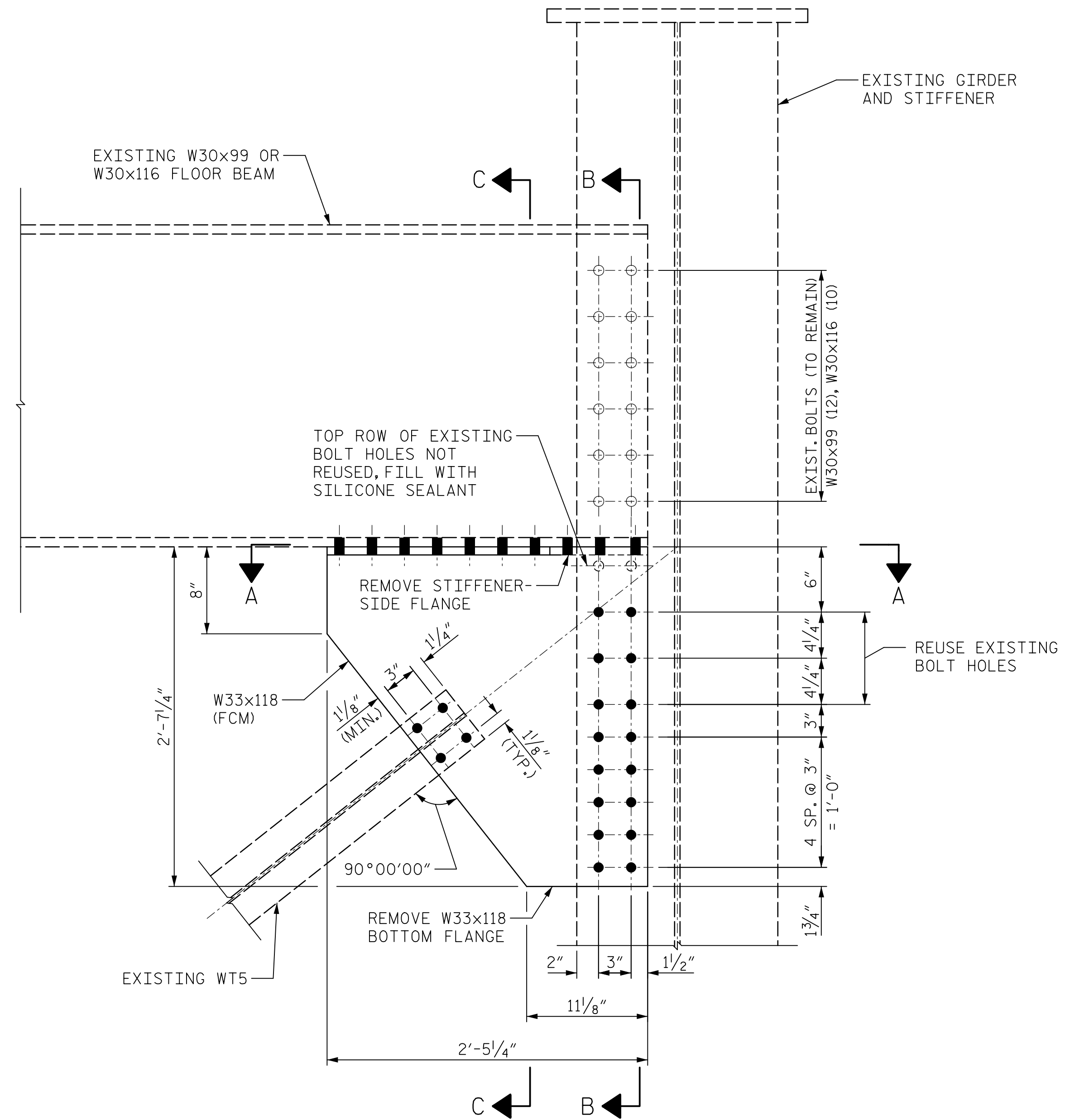
DRAWN BY : M. CATER	DATE : 10/2019
CHECKED BY : J.E. SLOAN	DATE : 10/2019
DESIGNED BY : H. ROSEMOND	DATE : 10/2019
DESIGN CHECKED BY : J. SLOAN	DATE : 10/2019

DOCUMENT NOT CONSIDERED  
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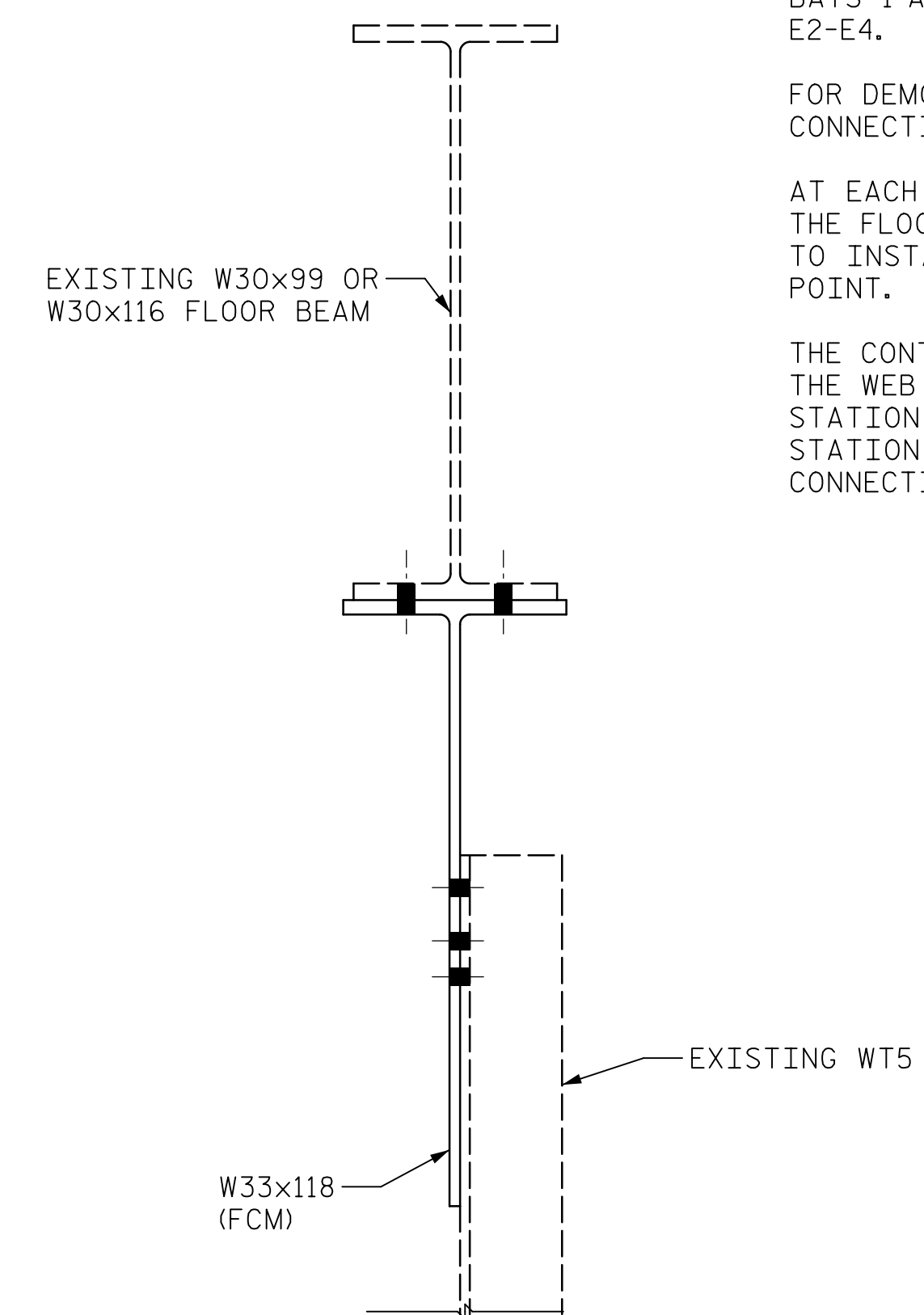


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TIME: 10:22:27 AM

USER: Merit Research  
DN: R:\Structures\04 Drawings\401\ST\_16BPR20\_SML\05.dgn



SECTION B-B



SECTION C-C

**NOTES:**

REPLACE THE EXISTING 3/8" THICK GUSSET PLATE THAT CONNECTS THE EXISTING FLOORBEAM, TRANSVERSE STIFFENER, AND WT5 DIAPHRAGM DIAGONAL. USE THE CORBEL SECTION SHOWN TO REPLACE THE EXISTING GUSSET PLATES IN BAYS 1 AND 3. THIS DETAIL APPLIES AT ALL EXISTING K FRAME LOCATIONS IN BAYS 1 AND 3 -- CROSSFRAME POINTS A2-A4, 2-11, 13-25, 27-36, & E2-E4.

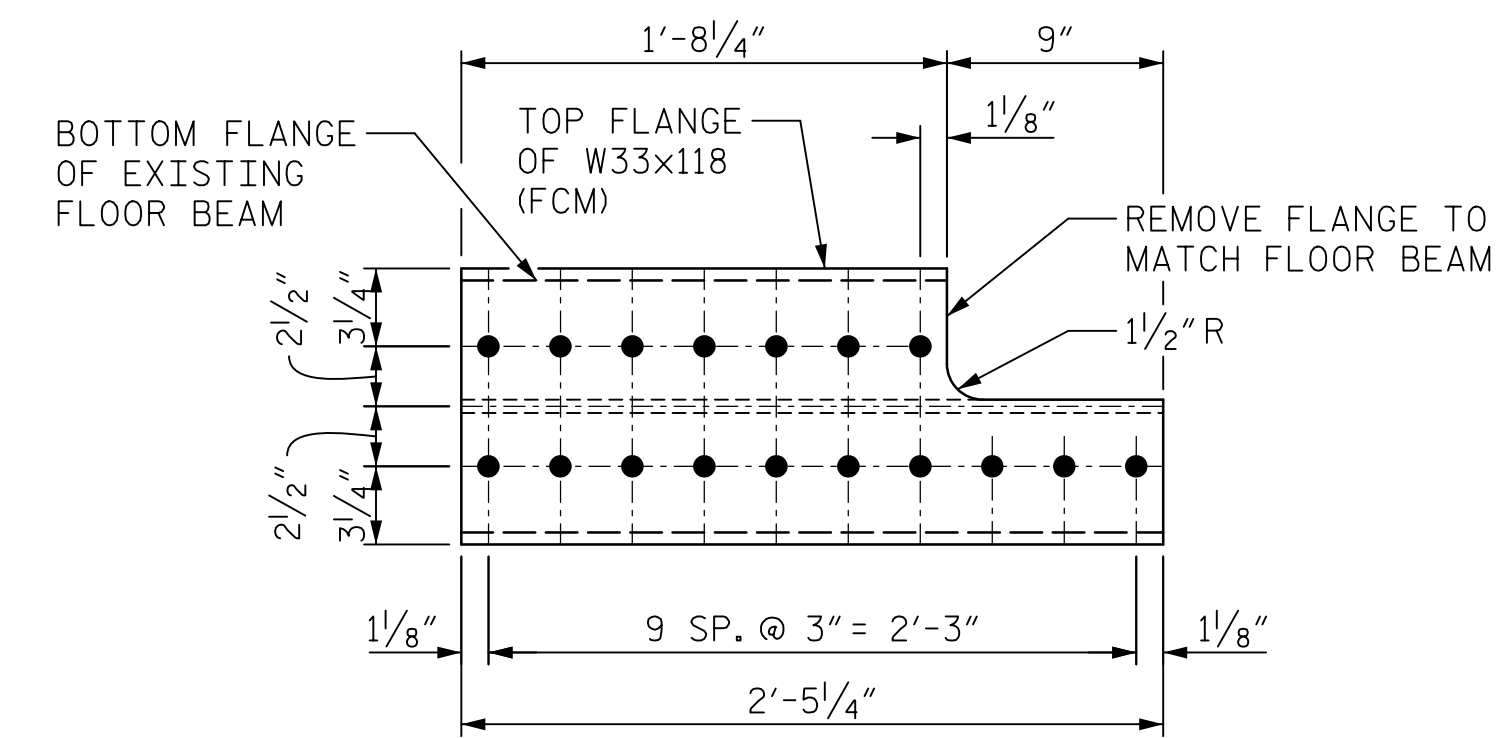
FOR DEMOLITION AND CONSTRUCTION SEQUENCE, SEE "FLOORBEAM CONNECTION RETROFIT SEQUENCE" SHEET.

AT EACH CROSSFRAME POINT, COMPLETE THE INSTALLATION OF THE FLOORBEAM CONNECTION RETROFIT IN BAYS 1 AND 3 PRIOR TO INSTALLING THE BAY 2 FLOORBEAM AT THAT CROSSFRAME POINT.

THE CONTRACTOR'S ATTENTION IS BROUGHT TO THE FACT THAT THE WEB OF THE EXISTING FLOORBEAM IS LOCATED AHEAD STATION OF THE STIFFENER AT SOME LOCATIONS AND BACK STATION OF THE STIFFENER AT OTHER LOCATIONS. W33x118 CONNECTION RETROFIT SHALL BE FABRICATED TO MATCH.

**FLOOR BEAM CONNECTION RETROFIT DETAIL**

(AT GIRDER 2 SHOWN, OTHER GIRDERS SIMILAR)



SECTION A-A

PROJECT NO. 15BPR.20  
HENDERSON COUNTY  
 STATION: 35+30.22 -L-

SHEET 1 OF 2

**AECOM**  
AECOM TECHNICAL SERVICES OF NC, INC.  
 701 CORPORATE CENTER DRIVE, SUITE 475  
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 (919) 854-6200 www.aecom.com  
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STATE OF NORTH CAROLINA  
 JOHN E. SLOAN  
 ENGINEER  
 035062  
 02/28/2020

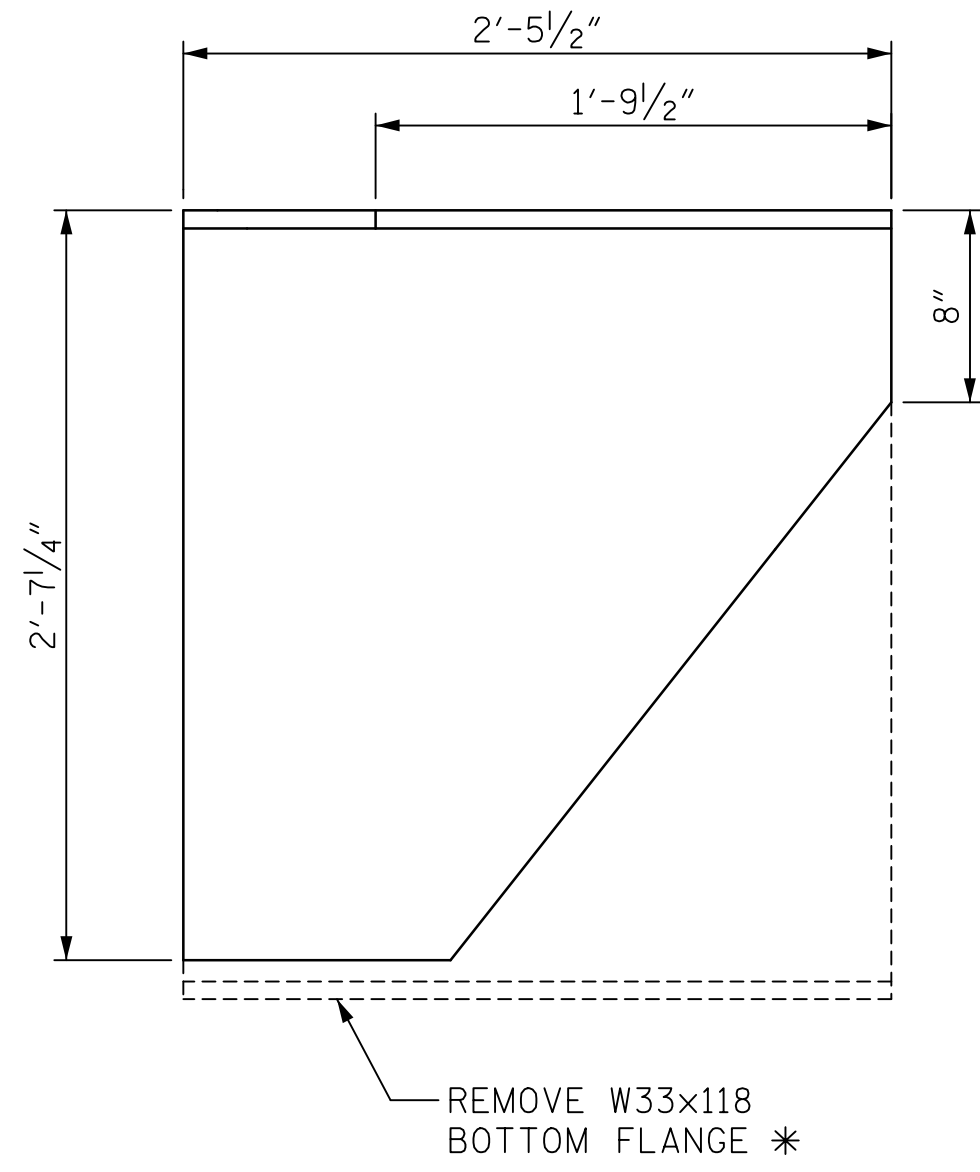
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE  
 STRUCTURAL STEEL  
 FLOOR BEAM CONNECTION  
 RETROFIT DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-74
1			3			TOTAL SHEETS
2			4			129

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

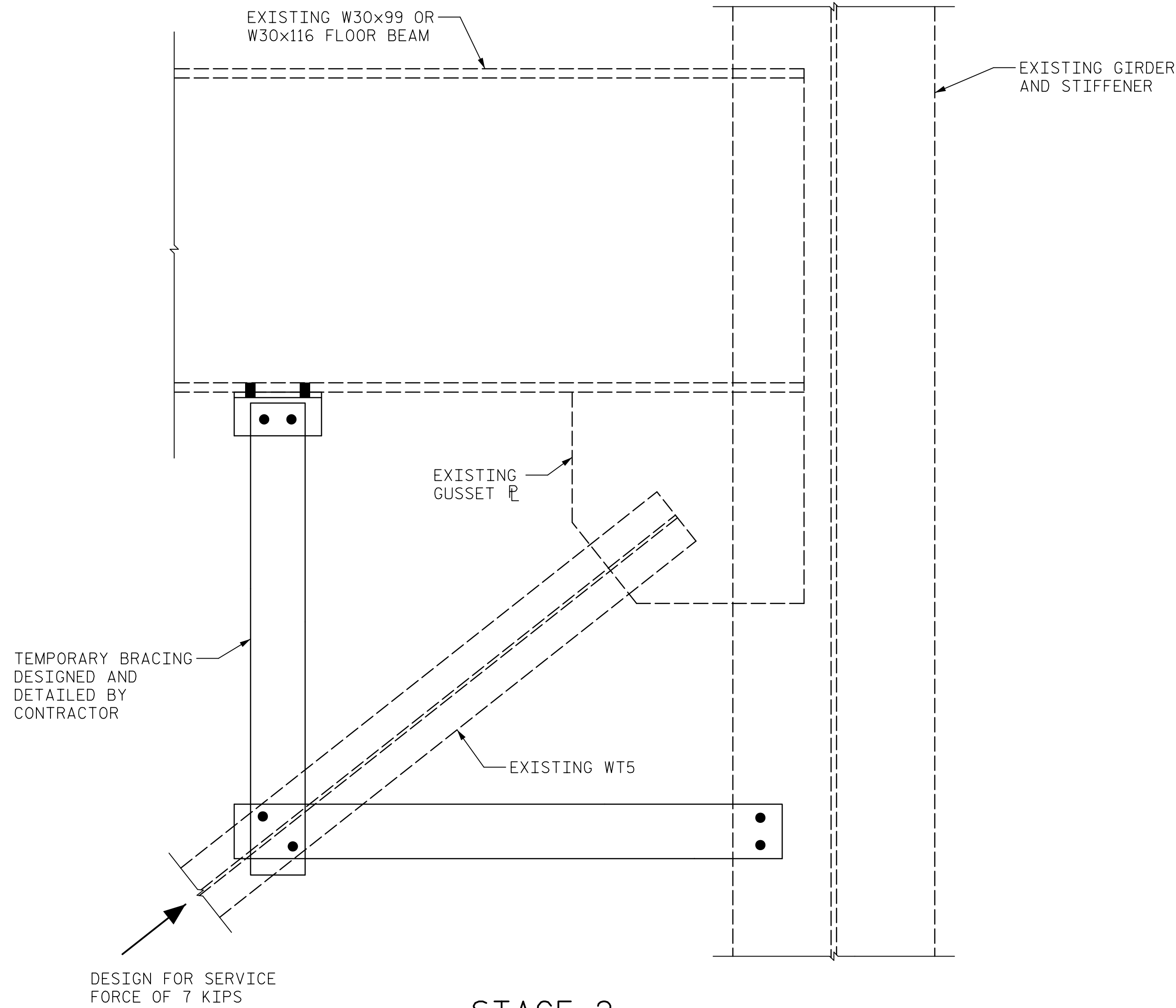
DRAWN BY : S.G. STREDNAK DATE : 04/2019  
 CHECKED BY : J.E. SLOAN DATE : 04/2019  
 DESIGNED BY : D.S. TUTTLE DATE : 04/2019  
 DESIGN CHECKED BY : J. LIU DATE : 04/2019

DATE: 2/27/2020  
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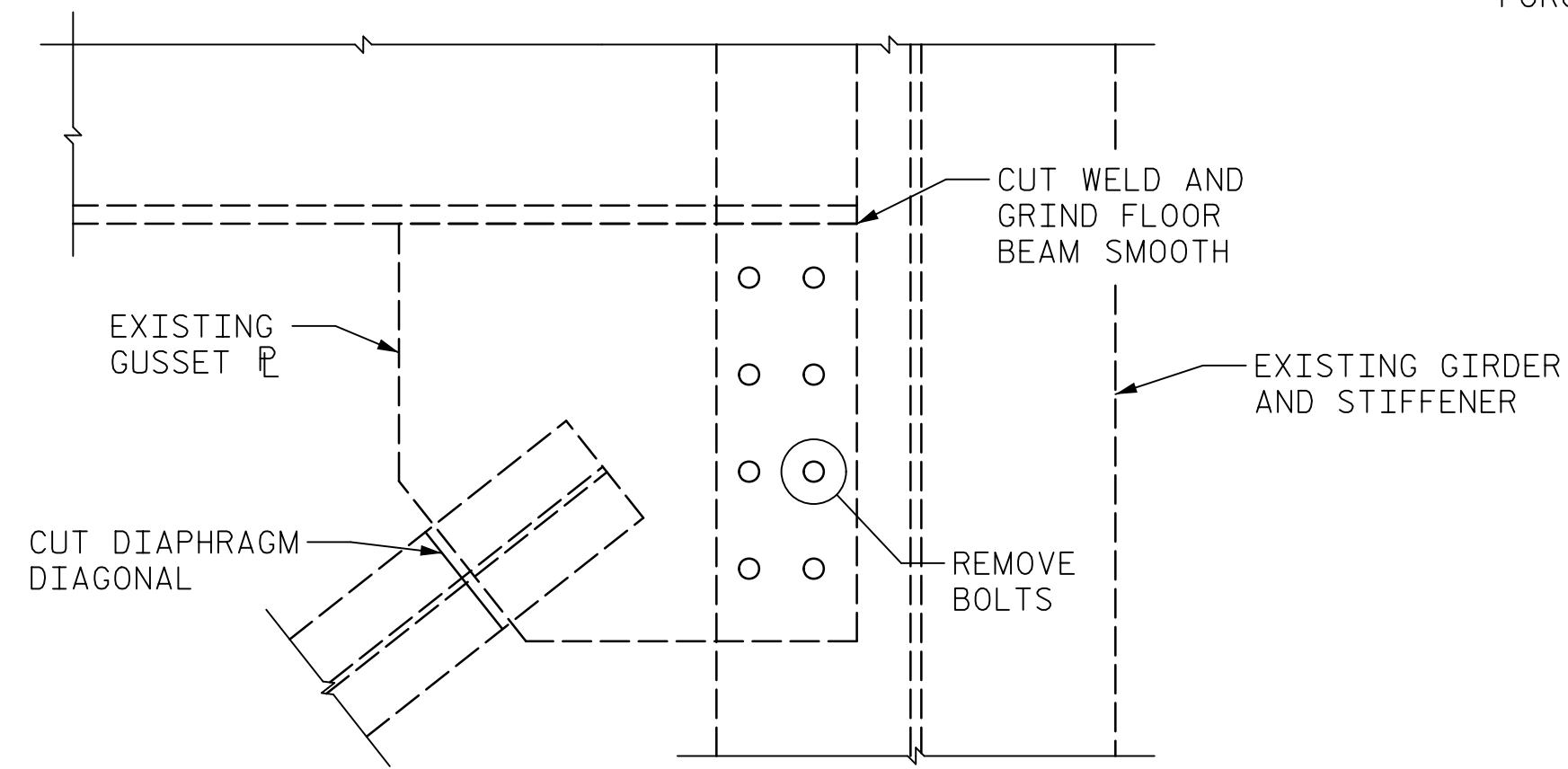


**STAGE 1**

\* CONTRACTOR MAY BUILD UP THE TEE SECTION USING THE SAME SIZE PLATES AND A FULL PENETRATION WELD BETWEEN THE FLANGE AND THE WEB.

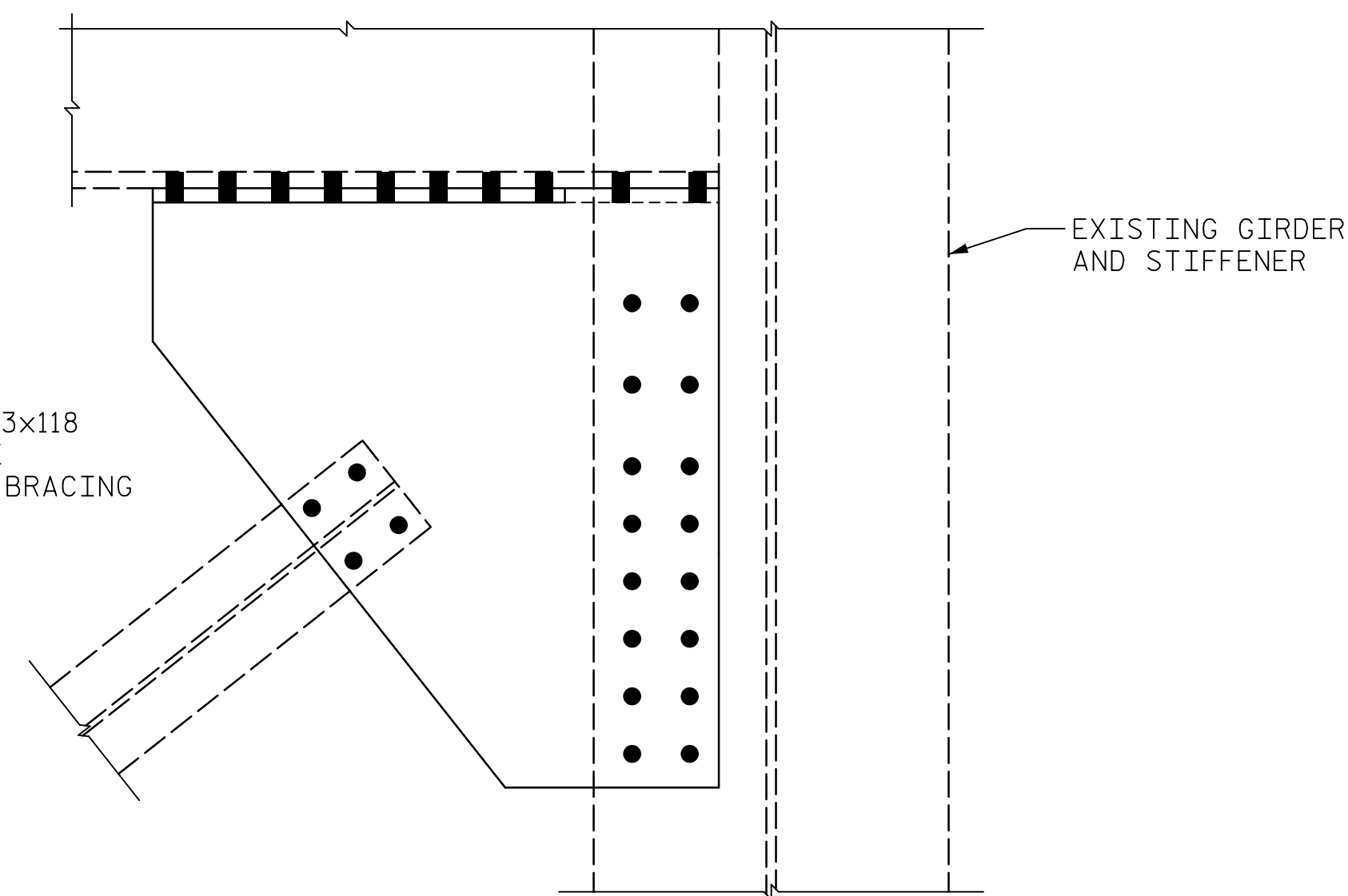


**STAGE 2**



**STAGE 3**

INSTALL W33x118 AND REMOVE TEMPORARY BRACING



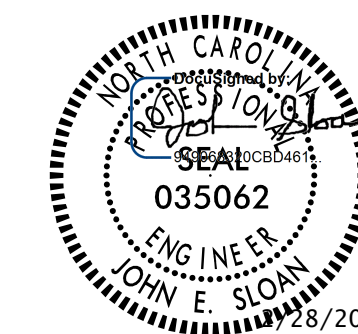
**STAGE 4**

**FLOOR BEAM CONNECTION RETROFIT CONSTRUCTION SEQUENCE**

1. PREPARE THE W33X118 CORBEL SECTION IN THE SHOP.
2. INSTALL DIAPHRAGM DIAGONAL SUPPORTS.
3. CUT THE DIAPHRAGM DIAGONAL AT THE EDGE OF THE GUSSET PLATE.
4. REMOVE THE BOLTS FROM THE EXISTING GUSSET PLATE.
5. CUT THE EXISTING GUSSET PLATE FROM THE FLOORBEAM AND GRIND THE FLOORBEAM FLANGE SMOOTH.
6. CLEAN CONTACT SURFACES TO SSPC-SP6 OR BETTER.
7. SET THE W33X118 SECTION IN PLACE.
8. INSTALL BOLTS TO CONNECT THE CORBEL TO THE GIRDER TRANSVERSE STIFFENER, THE FLOORBEAM, AND THE DIAPHRAGM DIAGONAL.
9. AFTER CUTTING THE DIAPHRAGM DIAGONAL, COMPLETE THE INSTALLATION OF THE FLOORBEAM CONNECTION RETROFIT IN ITS ENTIRETY AT ONE LOCATION BEFORE CUTTING A DIAGONAL AT ANOTHER LOCATION, INCLUDING THE OPPOSITE DIAGONAL AT THE SAME FLOORBEAM.

PROJECT NO. 15BPR.20  
HENDERSON COUNTY  
 STATION: 35+30.22 -L-

SHEET 2 OF 2



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE  
 STRUCTURAL STEEL  
 FLOOR BEAM CONNECTION  
 RETROFIT SEQUENCE

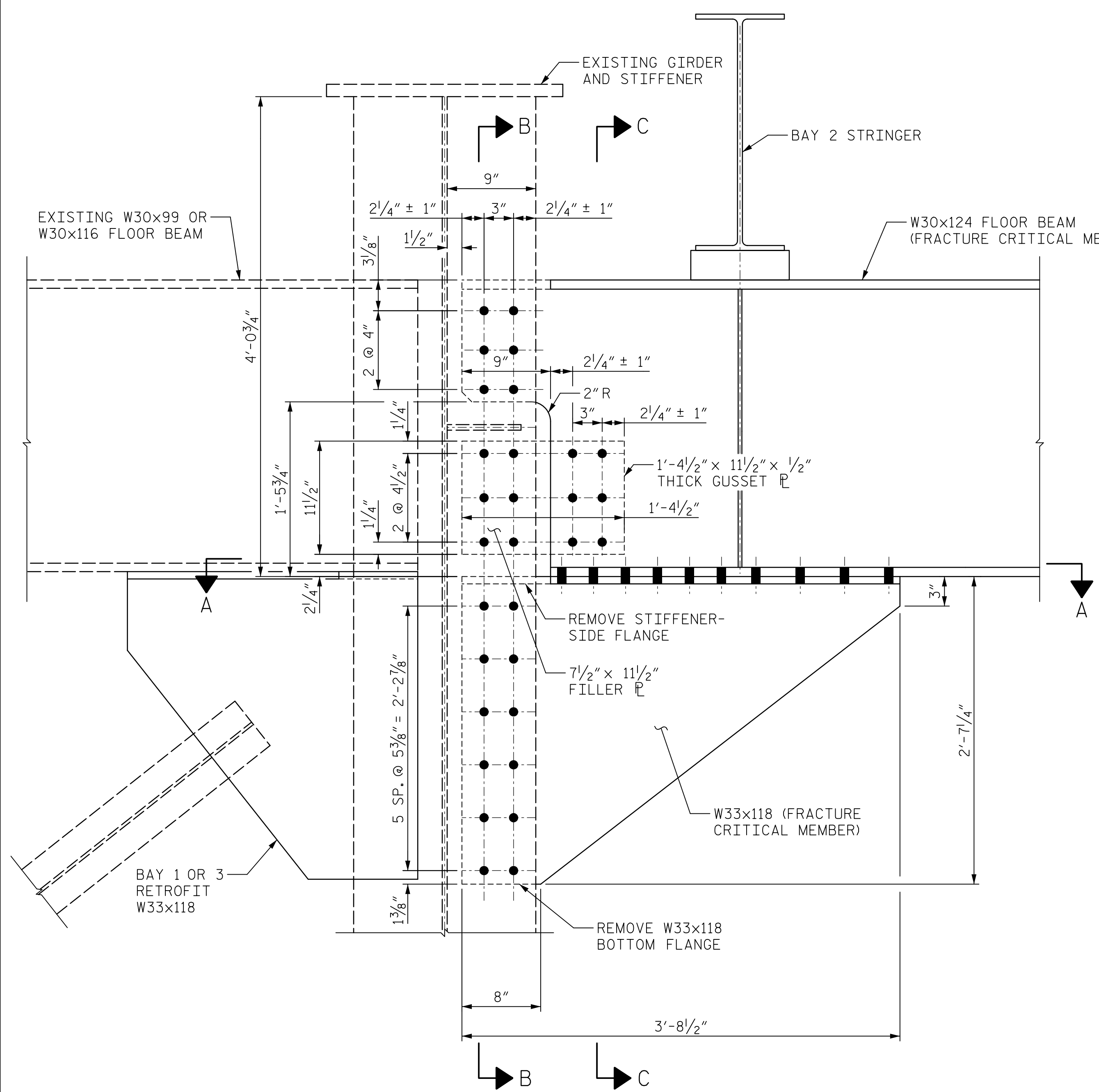
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NO.	BY:	DATE:	NO.	BY:	DATE:	S-75
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2			4			129

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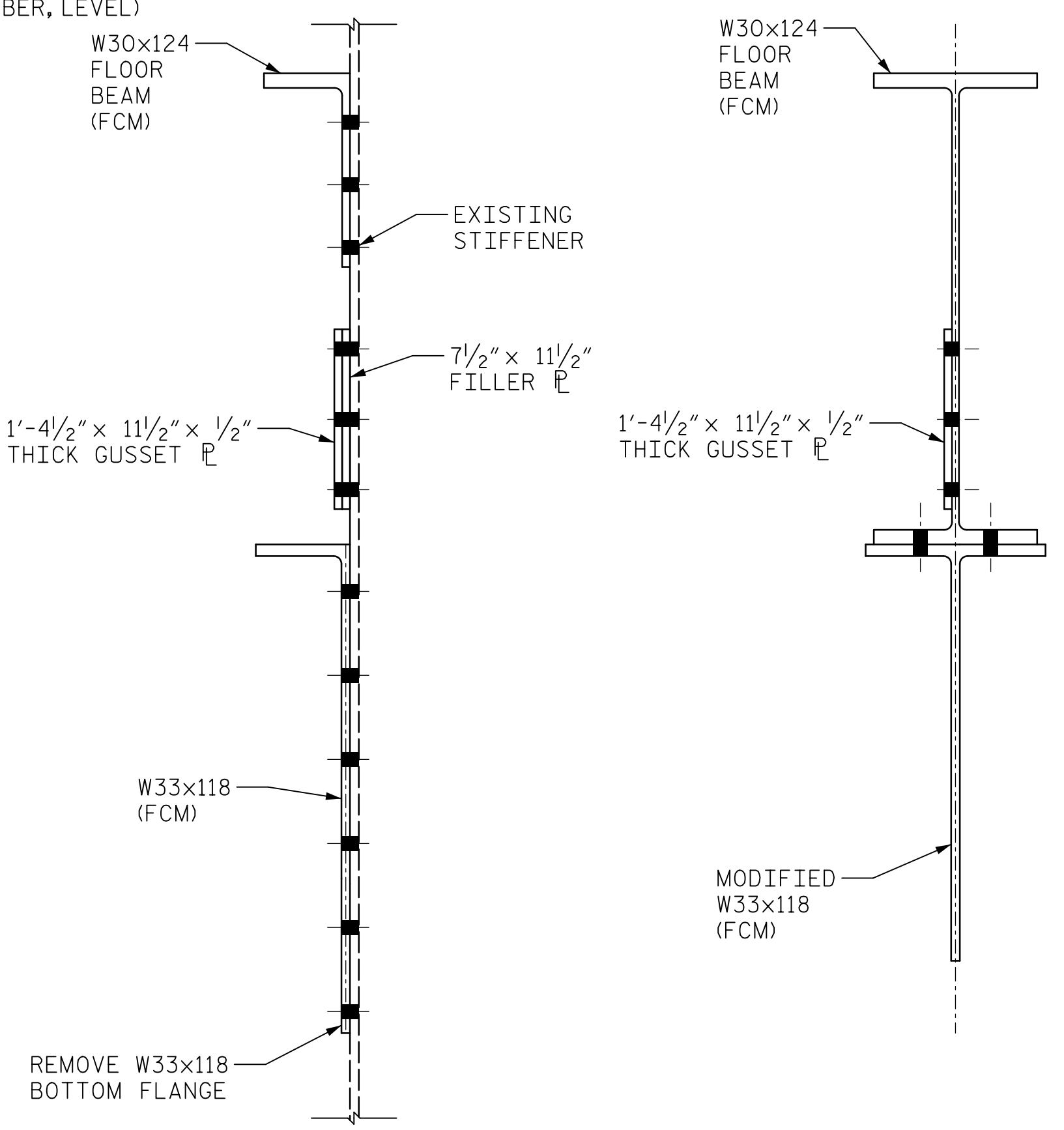
DRAWN BY : S.G. STREDNAK      DATE : 04/2019  
 CHECKED BY : J.E. SLOAN      DATE : 04/2019  
 DESIGNED BY : D.S. TUTTLE      DATE : 04/2019  
 DESIGN CHECKED BY : J. LIU      DATE : 04/2019

USER: Merit\_Passmore; Path: R:\Structures\04 Drawings\401\_139\_15BPR20\_SML06.dgn

DATE: 02/07/2020  
TIME: 3:30:41 PM



**BAY 2 FLOOR BEAM CONNECTION DETAIL**  
(LOOKING UPSTAIR AT GIRDER 2 SHOWN, GIRDER 3 OPPOSITE HAND)



**SECTION B-B**      **SECTION C-C**

WEB DISTANCES *		
PANEL POINT	BOTTOM OF GIRDER	TOP OF GIRDER
A1	30'-0 <sup>5</sup> / <sub>16</sub> "	30'-0 <sup>5</sup> / <sub>16</sub> "
A5	29'-11 <sup>9</sup> / <sub>16</sub> "	29'-11 <sup>1</sup> / <sub>2</sub> "
1	29'-11 <sup>1</sup> / <sub>16</sub> "	29'-10 <sup>7</sup> / <sub>8</sub> "
2	29'-11 <sup>1</sup> / <sub>4</sub> "	29'-11 <sup>7</sup> / <sub>16</sub> "
3	29'-11 <sup>3</sup> / <sub>8</sub> "	29'-11"
4	29'-11 <sup>11</sup> / <sub>16</sub> "	30'-0 <sup>1</sup> / <sub>16</sub> "
5	29'-11 <sup>7</sup> / <sub>8</sub> "	30'-0 <sup>1</sup> / <sub>8</sub> "
6	30'-0 <sup>1</sup> / <sub>8</sub> "	30'-0 <sup>1</sup> / <sub>2</sub> "
7	30'-0 <sup>1</sup> / <sub>2</sub> "	30'-1"
8	30'-0 <sup>9</sup> / <sub>16</sub> "	30'-1"
9	30'-1"	30'-1 <sup>9</sup> / <sub>16</sub> "
10	30'-1 <sup>1</sup> / <sub>8</sub> "	30'-1 <sup>9</sup> / <sub>16</sub> "
11	30'-0 <sup>3</sup> / <sub>4</sub> "	30'-1 <sup>1</sup> / <sub>4</sub> "
12	29'-11 <sup>7</sup> / <sub>16</sub> "	29'-11 <sup>1</sup> / <sub>16</sub> "
13	29'-11 <sup>1</sup> / <sub>8</sub> "	29'-10 <sup>11</sup> / <sub>16</sub> "
14	29'-10 <sup>3</sup> / <sub>16</sub> "	29'-9 <sup>3</sup> / <sub>16</sub> "
15	29'-10"	29'-9 <sup>1</sup> / <sub>4</sub> "
16	29'-9 <sup>5</sup> / <sub>8</sub> "	29'-9 <sup>5</sup> / <sub>16</sub> "
17	29'-9 <sup>9</sup> / <sub>16</sub> "	29'-9 <sup>5</sup> / <sub>8</sub> "
18	29'-9 <sup>9</sup> / <sub>16</sub> "	29'-9 <sup>1</sup> / <sub>8</sub> "
19	29'-9 <sup>7</sup> / <sub>16</sub> "	29'-9 <sup>1</sup> / <sub>4</sub> "
20	29'-9 <sup>3</sup> / <sub>4</sub> "	29'-9 <sup>5</sup> / <sub>16</sub> "
21	29'-9 <sup>1</sup> / <sub>8</sub> "	29'-9 <sup>1</sup> / <sub>2</sub> "
22	29'-10 <sup>3</sup> / <sub>8</sub> "	29'-9 <sup>3</sup> / <sub>8</sub> "
23	29'-10 <sup>1</sup> / <sub>16</sub> "	29'-9 <sup>5</sup> / <sub>8</sub> "
24	29'-10 <sup>3</sup> / <sub>8</sub> "	29'-10"
25	29'-11 <sup>3</sup> / <sub>16</sub> "	29'-11 <sup>3</sup> / <sub>4</sub> "
26	29'-11 <sup>1</sup> / <sub>8</sub> "	30'-0 <sup>1</sup> / <sub>16</sub> "
27	30'-0 <sup>1</sup> / <sub>16</sub> "	30'-0 <sup>5</sup> / <sub>8</sub> "
28	30'-0 <sup>1</sup> / <sub>8</sub> "	30'-1 <sup>1</sup> / <sub>16</sub> "
29	30'-0 <sup>3</sup> / <sub>4</sub> "	30'-1 <sup>1</sup> / <sub>8</sub> "
30	30'-0 <sup>5</sup> / <sub>16</sub> "	30'-0 <sup>3</sup> / <sub>4</sub> "
31	30'-0 <sup>13</sup> / <sub>16</sub> "	30'-1 <sup>1</sup> / <sub>16</sub> "
32	30'-0 <sup>1</sup> / <sub>4</sub> "	30'-0 <sup>9</sup> / <sub>16</sub> "
33	29'-11 <sup>5</sup> / <sub>16</sub> "	30'-0 <sup>9</sup> / <sub>16</sub> "
34	29'-11 <sup>5</sup> / <sub>16</sub> "	29'-11 <sup>3</sup> / <sub>8</sub> "
35	29'-11"	29'-10 <sup>7</sup> / <sub>8</sub> "
36	29'-11 <sup>3</sup> / <sub>16</sub> "	29'-10 <sup>1</sup> / <sub>8</sub> "
37	29'-10 <sup>3</sup> / <sub>4</sub> "	29'-10 <sup>9</sup> / <sub>16</sub> "
E1	29'-11"	29'-11"
E5	30'-0 <sup>7</sup> / <sub>16</sub> "	30'-0 <sup>7</sup> / <sub>16</sub> "

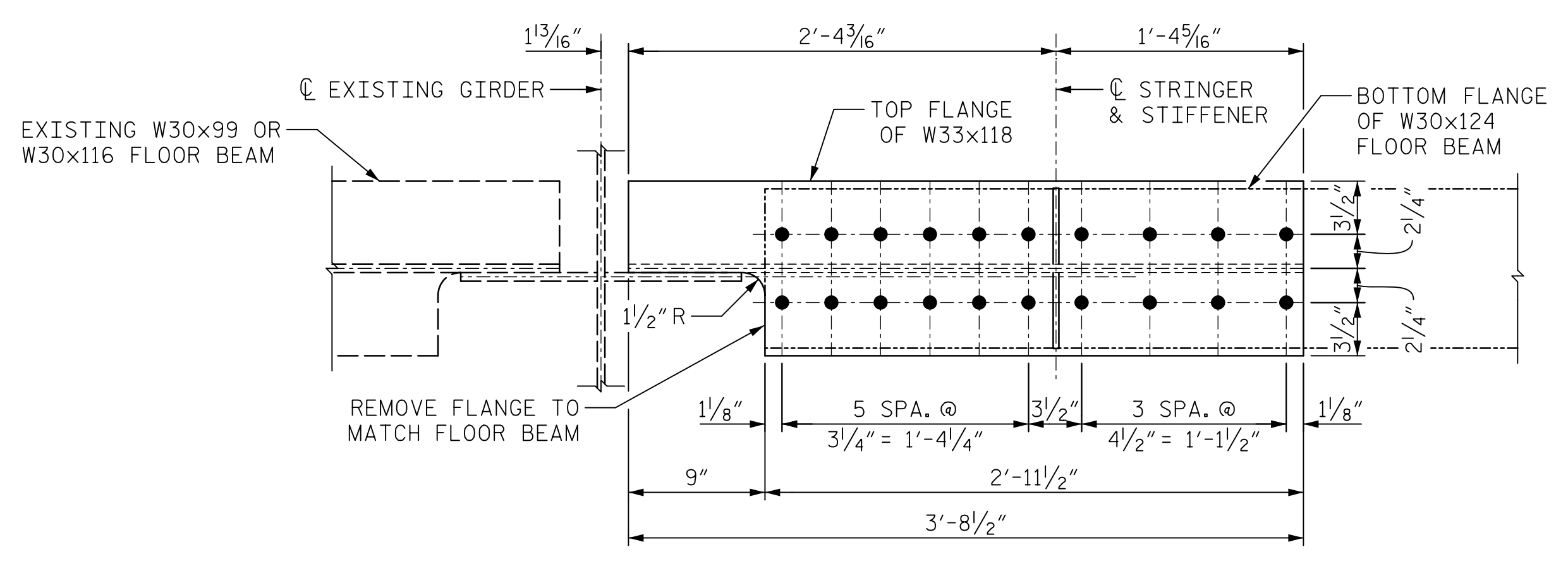
\* APPROXIMATE FACE TO FACE OF WEB FIELD MEASUREMENTS BETWEEN GIRDERS 2 AND 3.

FIELD-MEASURED VALUES TAKEN DECEMBER 2018 AND SHALL BE CONSIDERED REPRESENTATIVE ONLY. CONTRACTOR SHALL FIELD-VERIFY ALL MEASUREMENTS BETWEEN GIRDERS 2 AND 3 PRIOR TO ORDERING AND FABRICATION OF BAY 2 CROSSFRAMES. THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT OR AECOM FOR ANY DIFFERENCES BETWEEN VALUES PRESENTED ON THE PLANS AND ACTUAL CONDITIONS.

**NOTES:**

- FILLER PLATE SHALL BE THE SAME THICKNESS AS FLOOR BEAM WEB.
- BOLT LOCATIONS MAY BE ADJUSTED ACCORDING TO FIELD CONDITIONS WITHIN THE LIMITS OF THE MIN./MAX. DIMENSIONS SHOWN.
- CONTRACTOR MAY REPLACE THE W33x118 USING A BUILT-UP SECTION WITH THE SAME SIZE PLATES AND A FULL PENETRATION WELD BETWEEN THE FLANGE AND THE WEB.
- CONTRACTOR SHALL INSTALL THE BAY 1 OR 3 RETROFIT W33x118 PRIOR TO INSTALLING THE FLOOR BEAM AT EACH CROSS FRAME POINT.
- CONTRACTOR SHALL INSTALL FLOOR BEAMS AS SHOWN IN BAY 2 AT INTERMEDIATE CROSS FRAMES A2-A4, 2-11, 13-25, 27-36, AND E2-E4.

PROJECT NO. 15BPR.20  
HENDERSON COUNTY  
 STATION: 35+30.22 -L-



**SECTION A-A**

DRAWN BY : S. STREDAK      DATE : 04/2019  
 CHECKED BY : J. SLOAN      DATE : 04/2019  
 DESIGNED BY : D. TUTTLE/N. BROWN      DATE : 04/2019  
 DESIGN CHECKED BY : J. LIU/J. SLOAN      DATE : 04/2019

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STATE OF NORTH CAROLINA  
**DEPARTMENT OF TRANSPORTATION**  
 RALEIGH

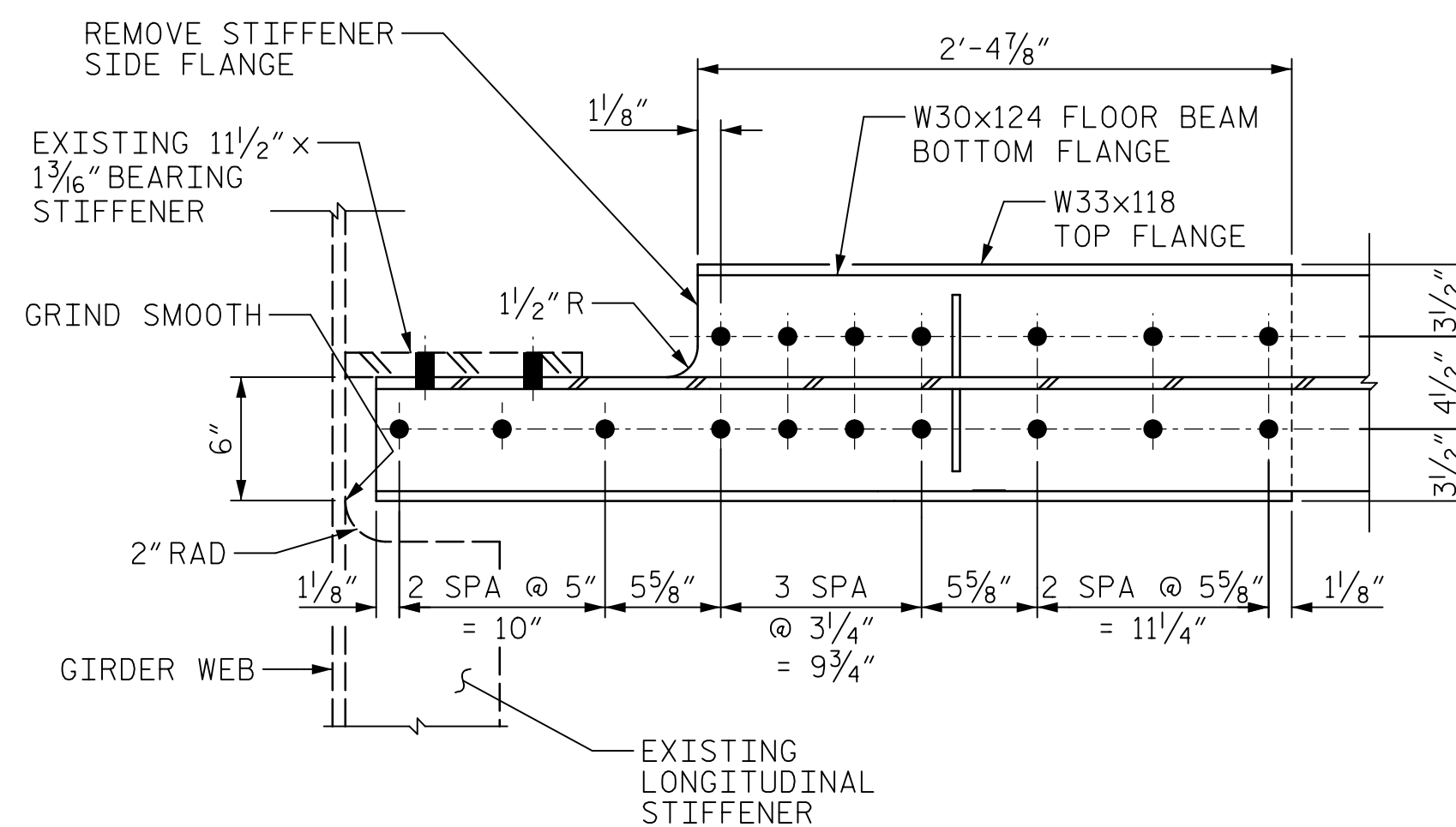
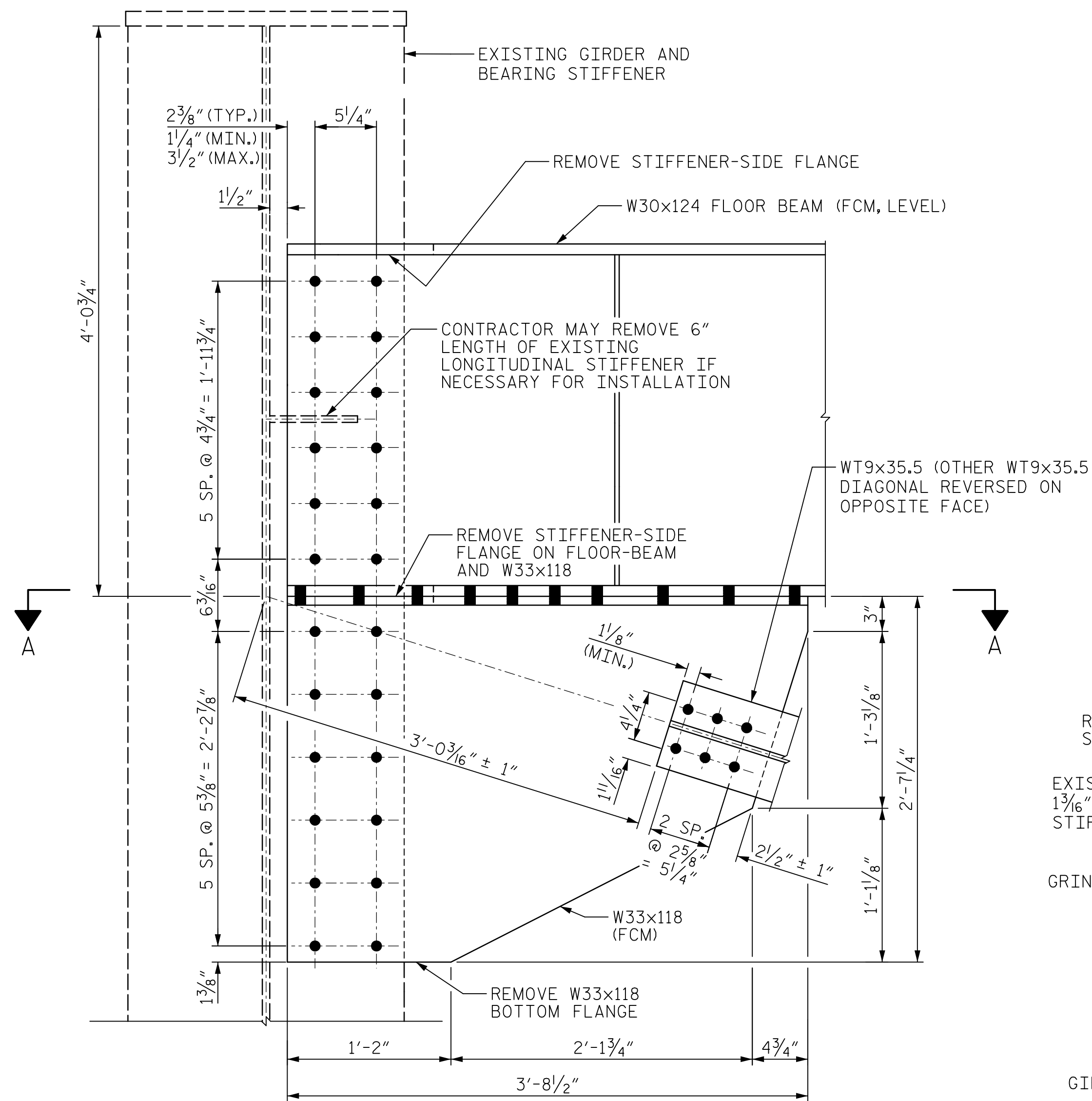
SUPERSTRUCTURE

**STRUCTURAL STEEL**  
**BAY 2 FLOOR BEAM**  
**CONNECTION DETAILS**

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-76
1			3			TOTAL SHEETS
2			4			129

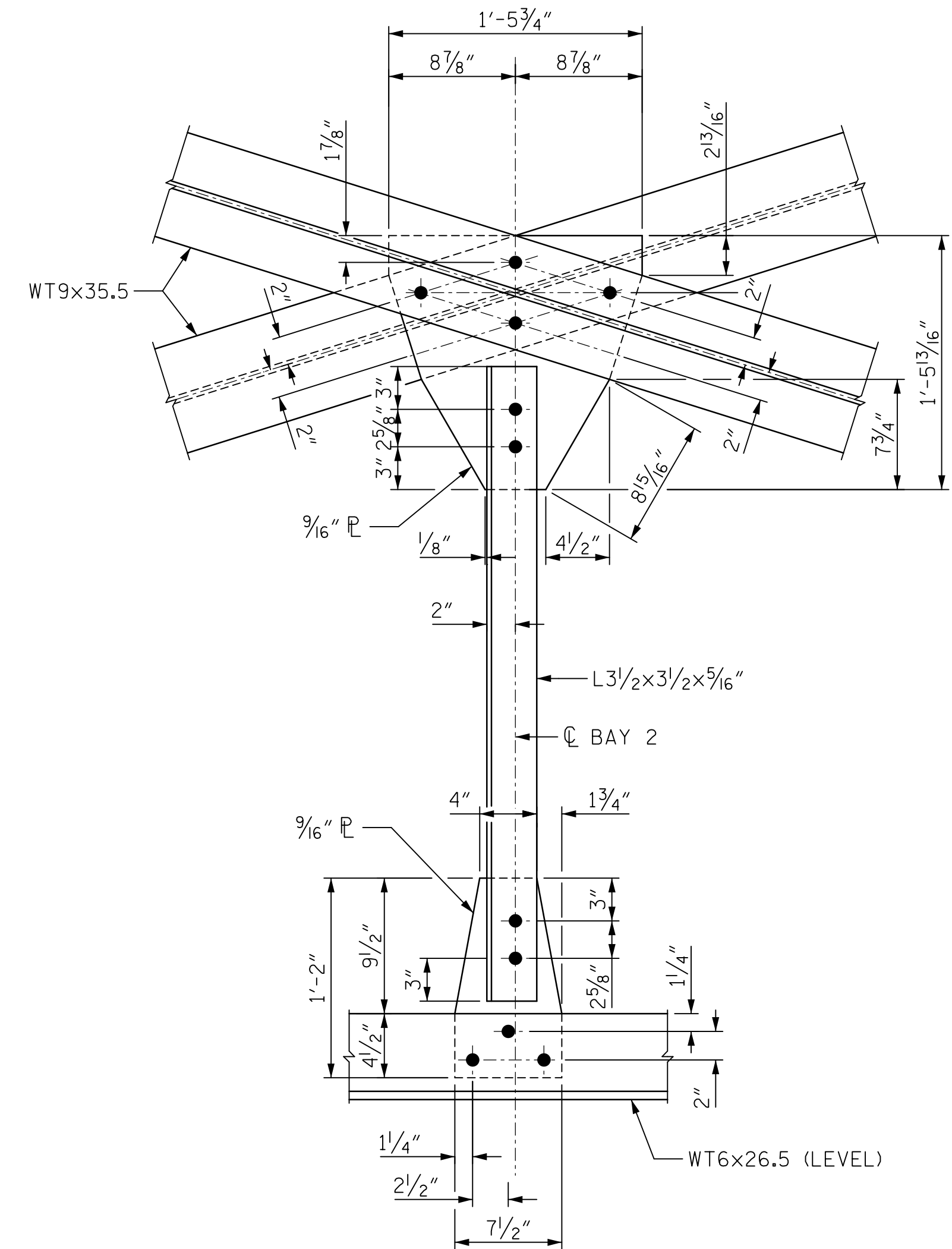
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DATE: 02/07/2020  
TIME: 3:50:20 PM



**SECTION A-A**

CONTRACTOR MAY LEAVE THE EXISTING LONGITUDINAL STIFFENER IN PLACE AND INSTALL THE X CROSSFRAME ON THE OPPOSITE FACE OF THE TRANSVERSE BEARING STIFFENER.



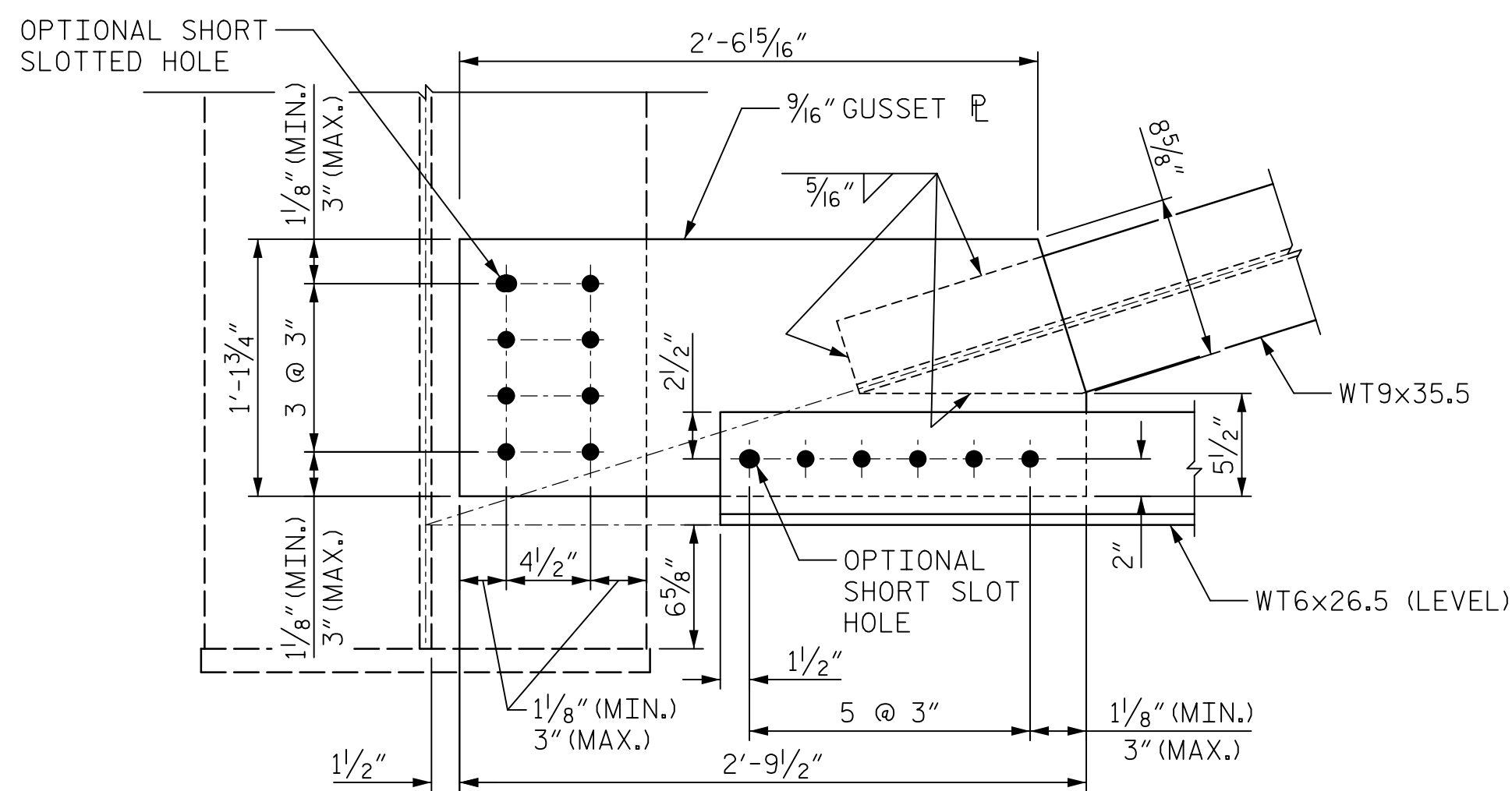
**TYPICAL BOTTOM LATERAL AND STRUT CONNECTION DETAILS**

(AT END BENTS 1 & 2 AND BENTS 1, 2, 3 & 4)  
(CROSSFRAMES A1, A5, 1, 12, 26, 37, E1 & E5)

**NOTES:**

BOLT LOCATIONS MAY BE ADJUSTED ACCORDING TO FIELD CONDITIONS WITHIN THE LIMITS OF THE MIN./MAX. DIMENSIONS SHOWN.

DIAPHRAGM MEMBERS AND FLOORBEAMS AT BENTS 1 AND 4 SHALL BE PAINTED. FOR DETAILS, SEE STRUCTURAL STEEL REPAIR SHEETS AND SPECIAL PROVISIONS.



**"X" CROSSFRAME CONNECTION DETAIL**

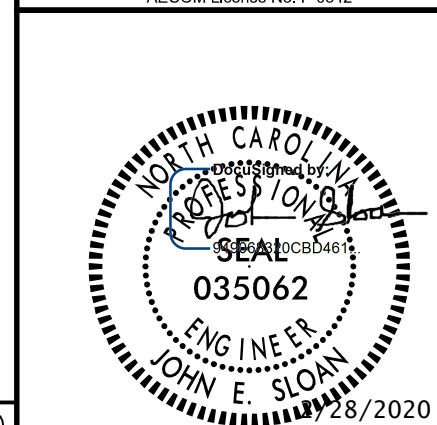
(AT BENTS 1 & 4, AND END BENTS 1 & 2)  
(CROSSFRAMES A1, A5, 1, 37, E1 & E5)

PROJECT NO. 15BPR.20

HENDERSON COUNTY

STATION: 35+30.22 -L-

SHEET 1 OF 2



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

SUPERSTRUCTURE

STRUCTURAL STEEL  
BAY 2 "X" CROSSFRAME  
DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-77
1			3			TOTAL SHEETS
2			4			129

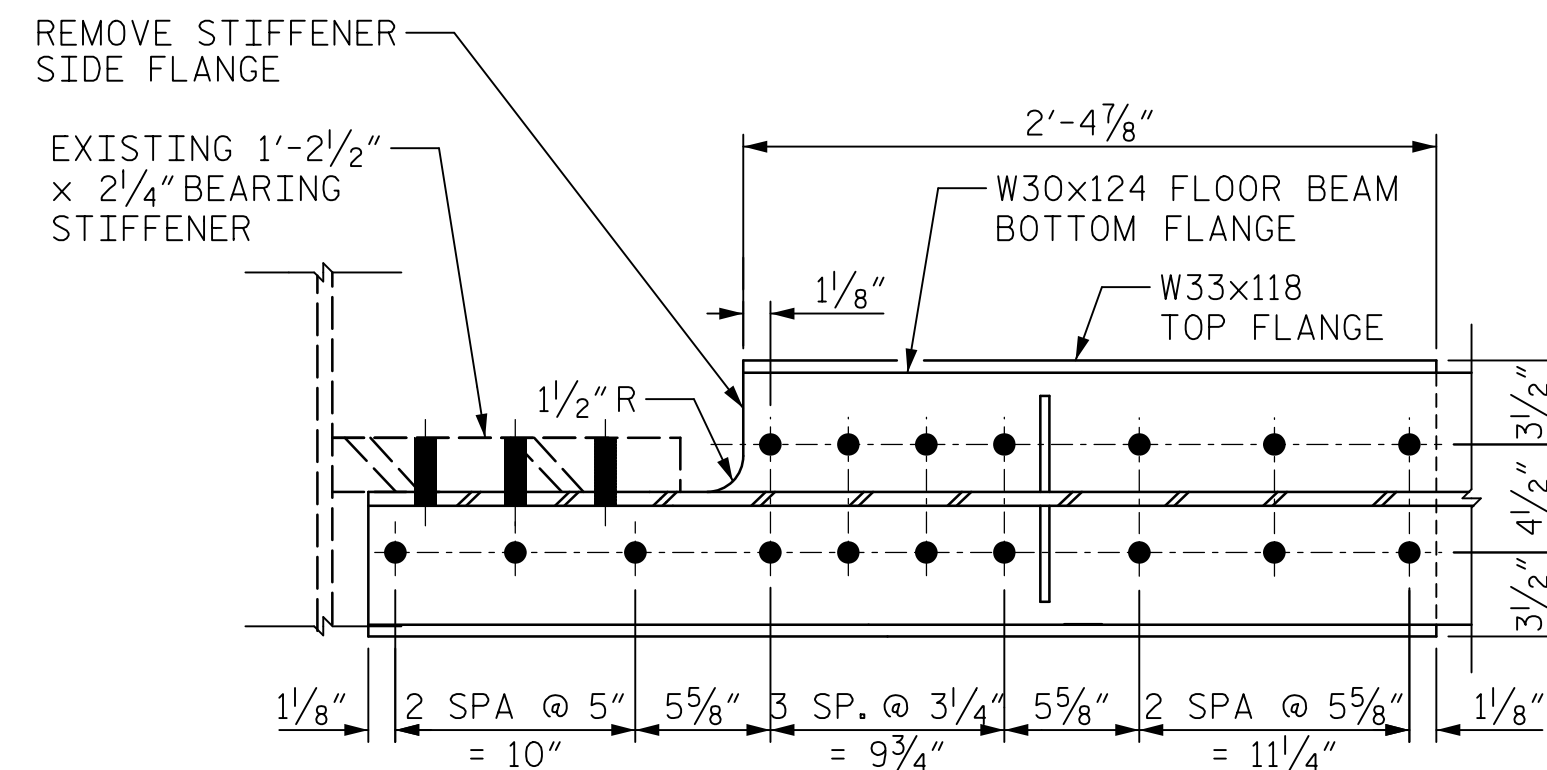
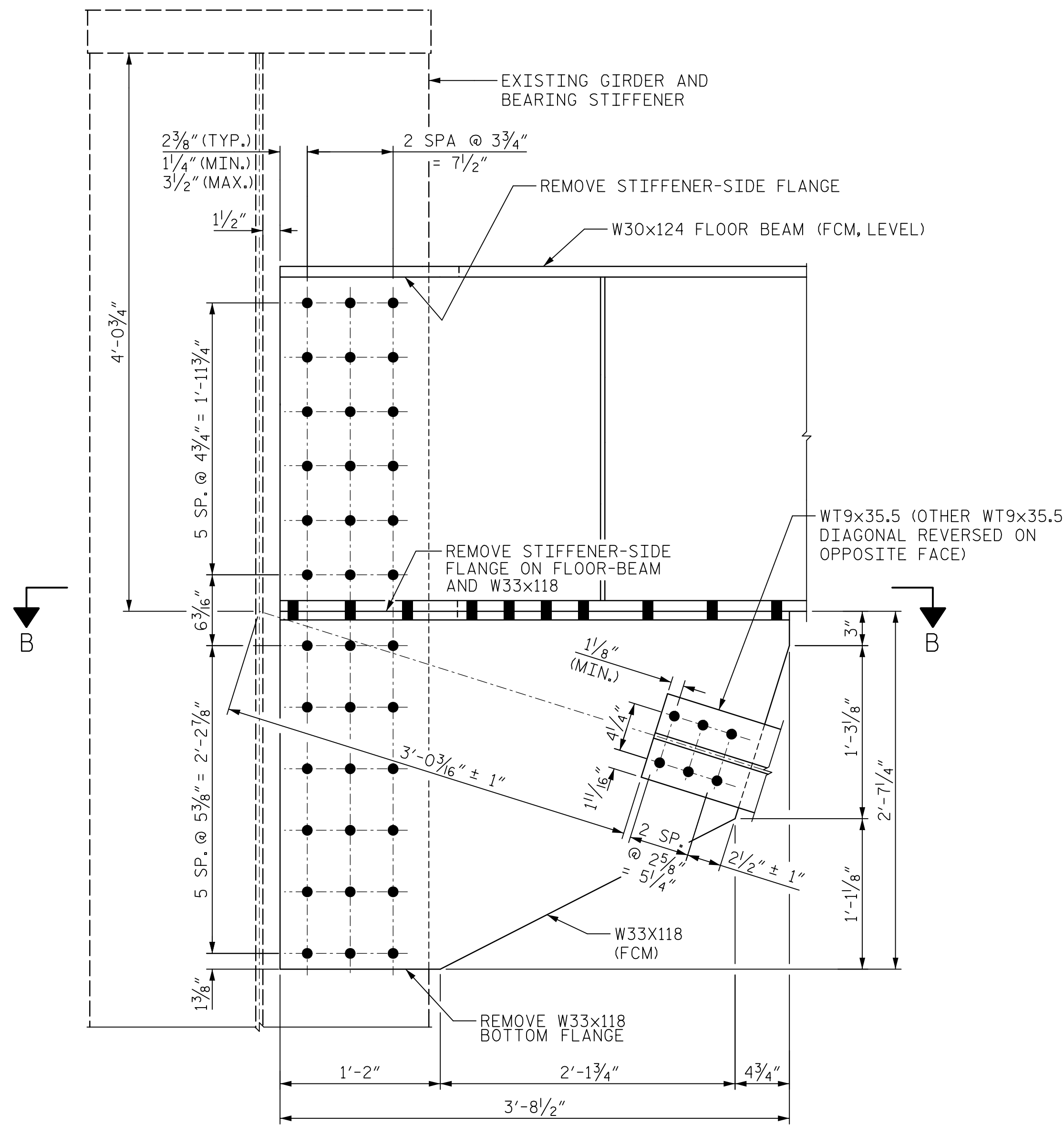
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DRAWN BY : H. ROSEMOND	DATE : 02/2020
CHECKED BY : J. SLOAN	DATE : 02/2020
DESIGNED BY : D. TUTTLE	DATE : 05/2019
DESIGN CHECKED BY : J. SLOAN	DATE : 02/2020

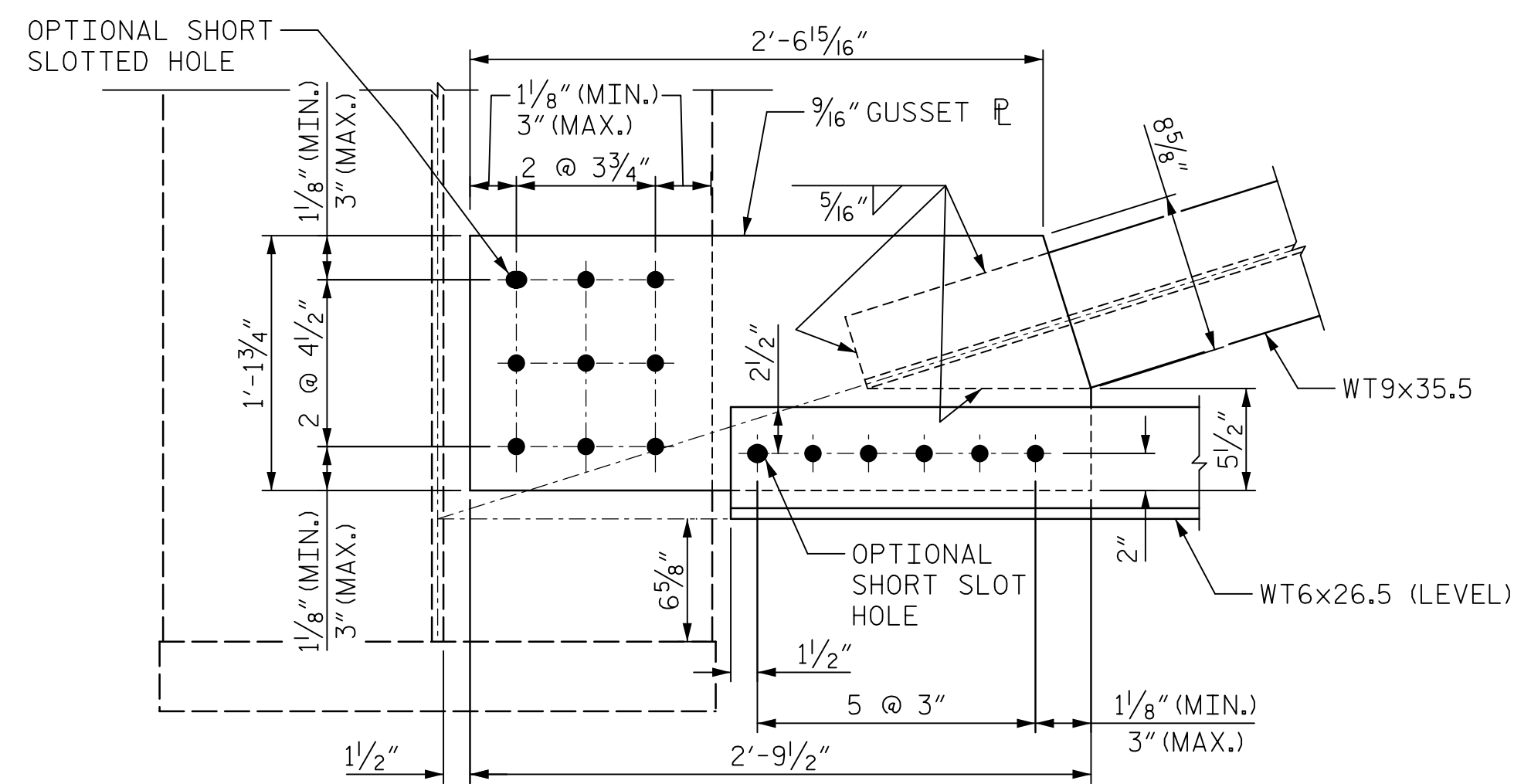
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TIME: 3:50:35 PM

USER: Merch Rosemond  
DIR: R:\Structurals\04 Drawings\401\_43\_15BPR20\_SML\BBA.dgn



SECTION B-B



"X" CROSSFRAME CONNECTION DETAIL

(AT BENTS 2 & 3)  
(CROSSFRAMES 12 & 26)

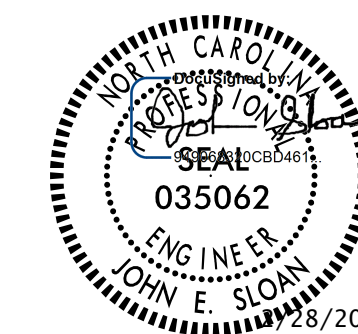
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CHECKED BY : J. SLOAN	DATE : 02/2020
DESIGNED BY : D. TUTTLE	DATE : 05/2019
DESIGN CHECKED BY : J. SLOAN	DATE : 10/2019

**NOTES:**

FOR ADDITIONAL WT9x35.5 AND WT6x26.5 CONNECTION DETAILS AT THE CENTERLINE OF BAY 2, SEE "TYPICAL BOTTOM LATERAL AND STRUT CONNECTION DETAILS" ON SHEET 1 OF 2.

PROJECT NO. 15BPR.20  
HENDERSON COUNTY  
STATION: 35+30.22 -L-

SHEET 2 OF 2



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
SUPERSTRUCTURE

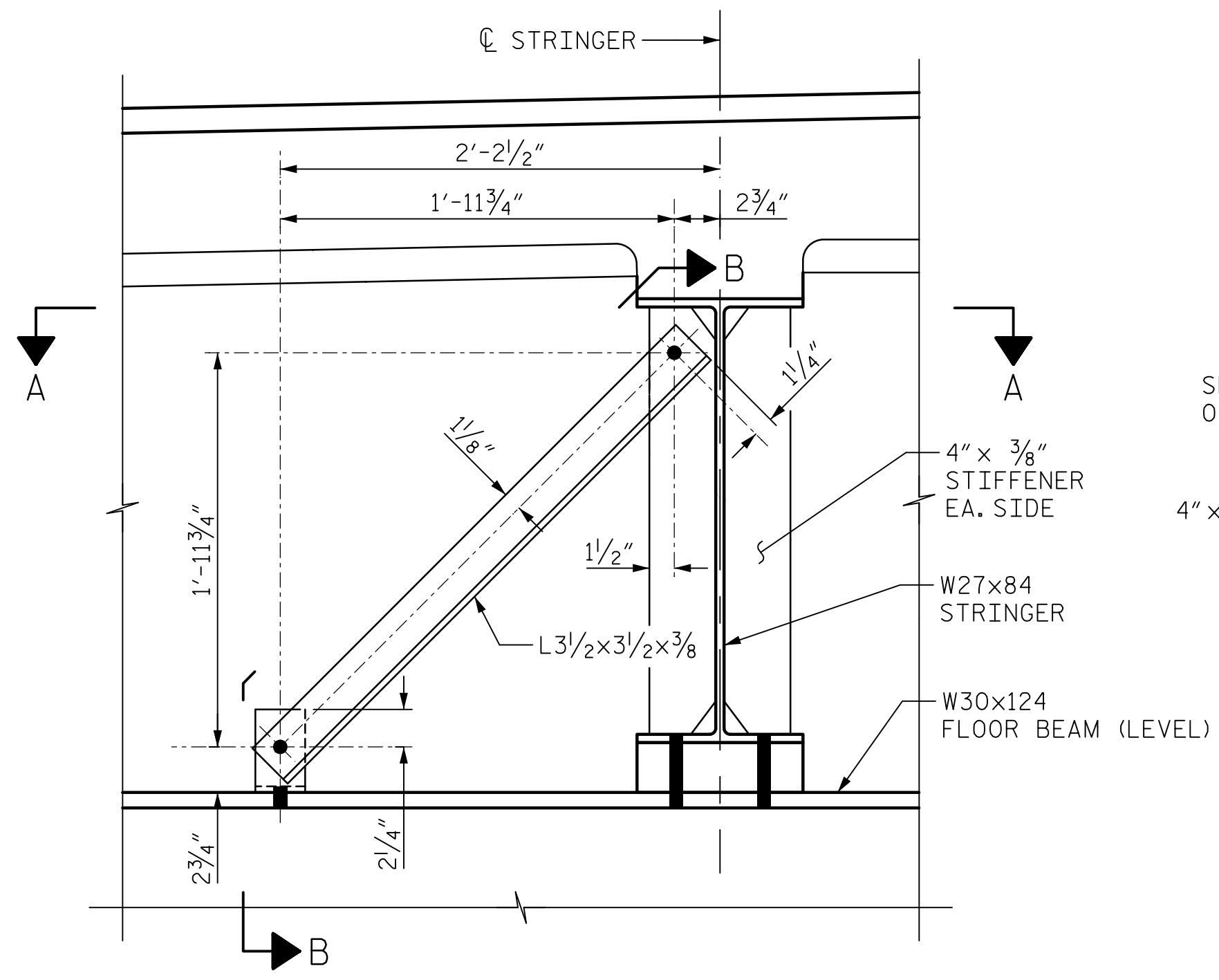
STRUCTURAL STEEL  
BAY 2 "X" CROSSFRAME  
DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-78
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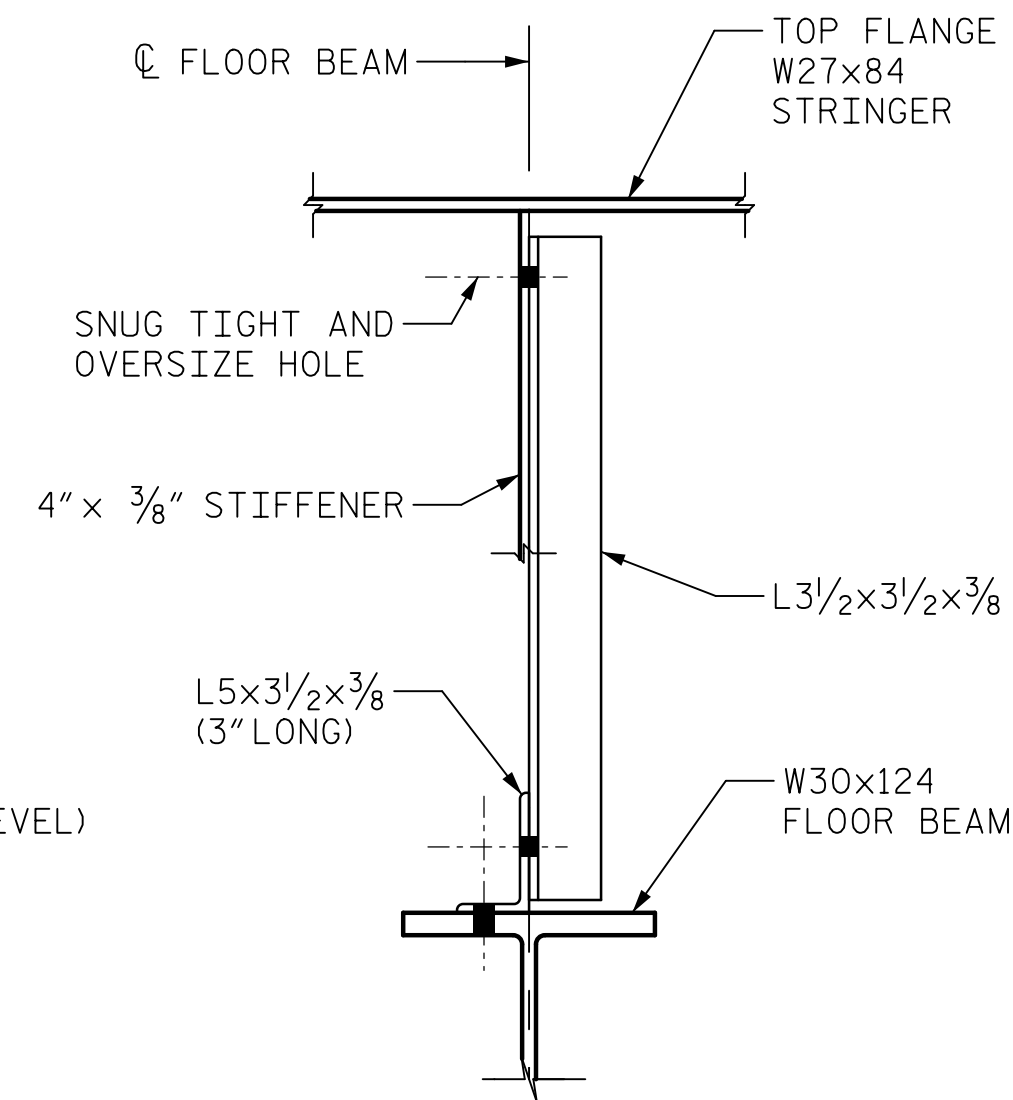
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FINAL UNLESS ALL  
SIGNATURES COMPLETED



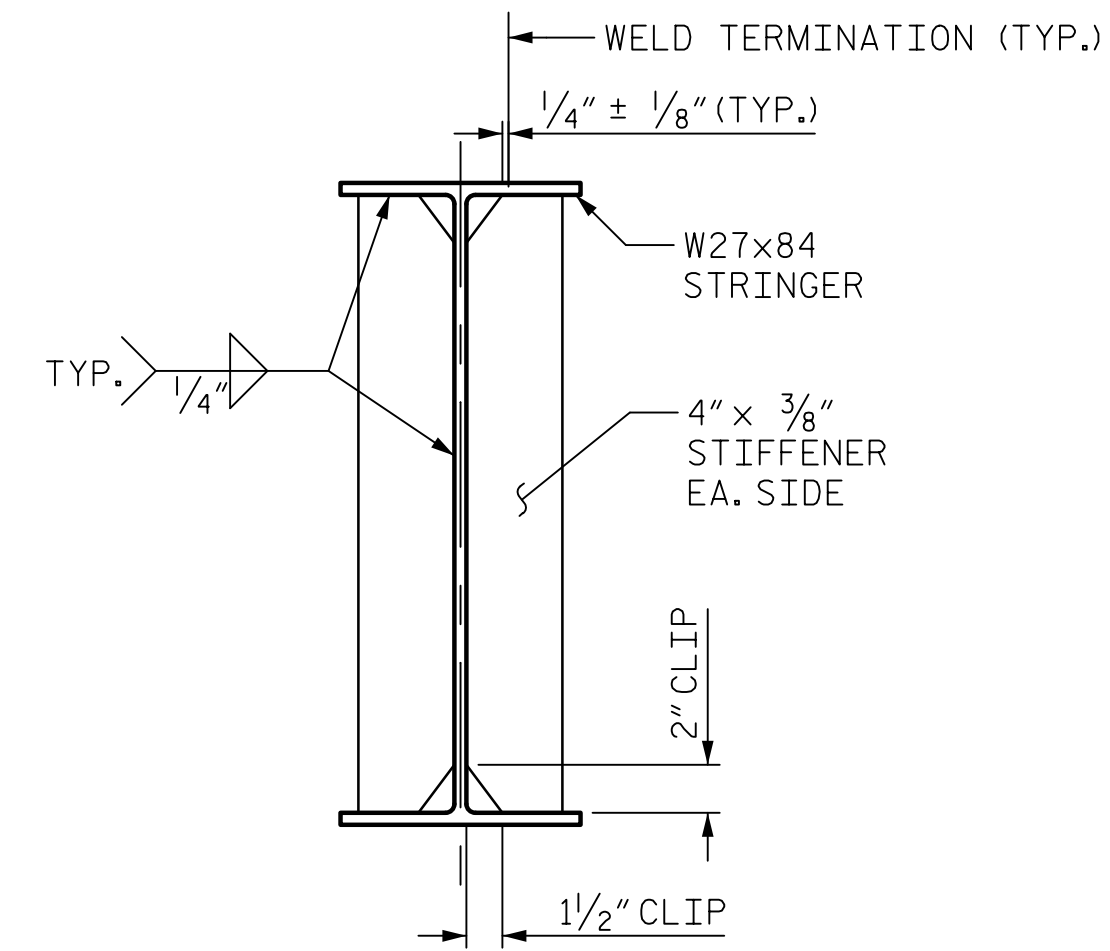
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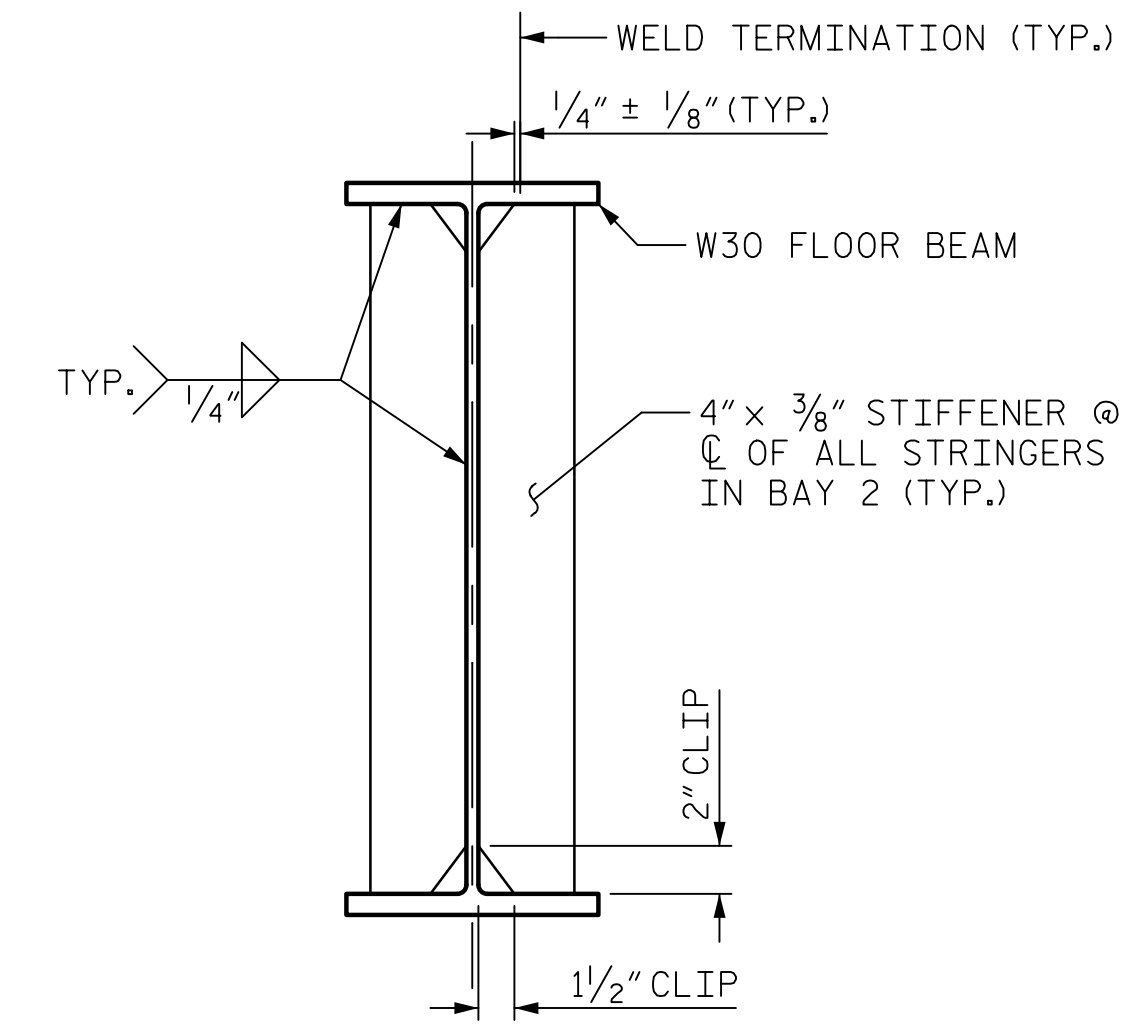
**STRINGER ANGLE BRACE DETAIL**  
(STRINGER 4 SHOWN, STRINGER 5 OPPOSITE HAND)



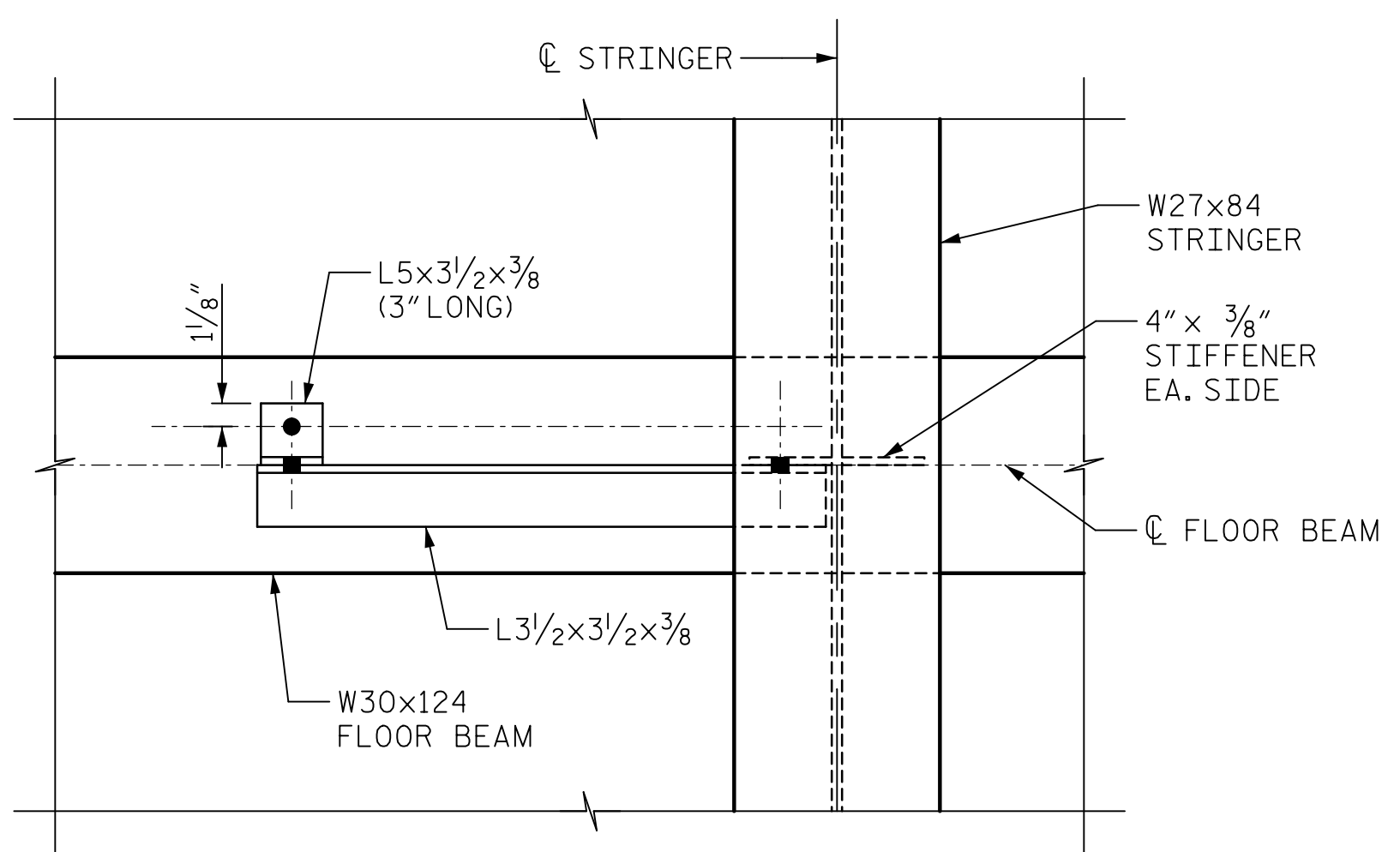
**VIEW B-B**



**STRINGER STIFFENER**  
LOCATED AT CENTERLINE OF EACH FLOORBEAM



**FLOOR BEAM STIFFENER**



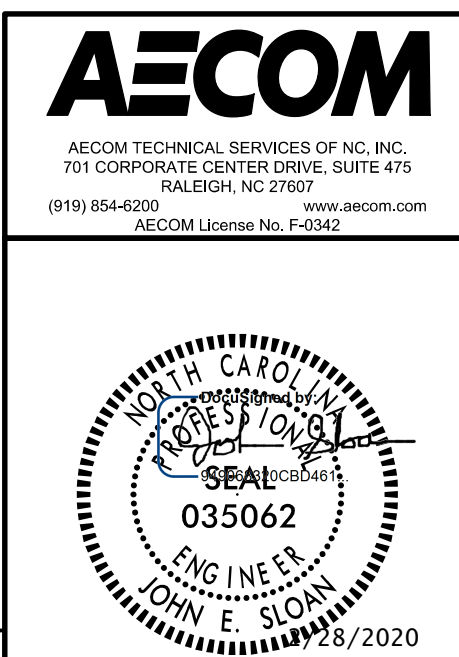
**SECTION A-A**

NOTES:  
STRINGER ANGLE BRACE AND STIFFENERS SHALL BE INSTALLED AT CROSSFRAME POINTS A2, A4, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31, 33, 35, E2 AND E4 ON STRINGERS 4 AND 5.

PROJECT NO. 15BPR.20  
HENDERSON COUNTY  
STATION: 35+30.22 -L-

DRAWN BY : S.G. STREDAK      DATE : 03/2019  
CHECKED BY : J.E. SLOAN      DATE : 03/2019  
DESIGNED BY : J.E. SLOAN      DATE : 03/2019  
DESIGN CHECKED BY : J. LIU      DATE : 03/2019

DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

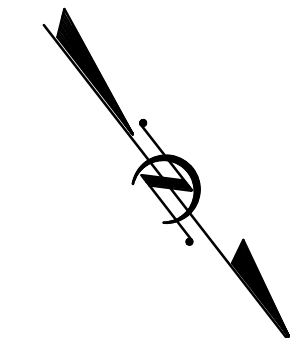
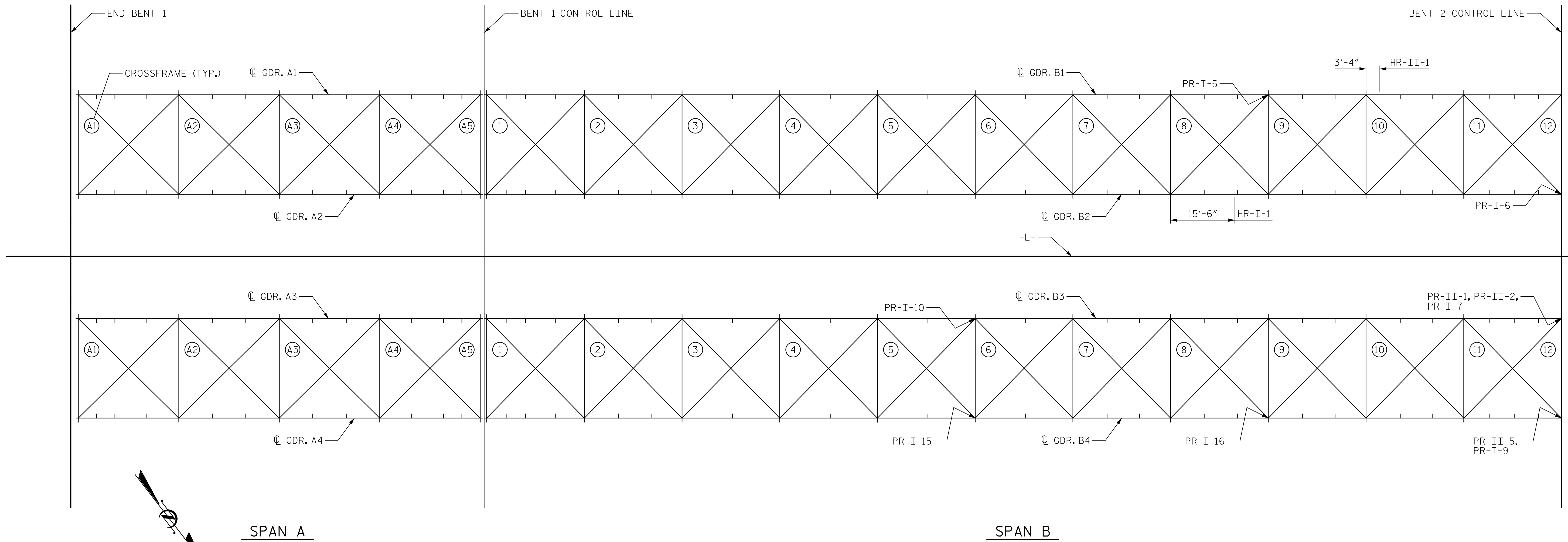
SUPERSTRUCTURE

STRUCTURAL STEEL  
BAY 2 FLOOR BEAM &  
STRINGER DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-80
1			3			TOTAL SHEETS
2			4			129

USER: NorthCarolina\Drawings\01\_JR\_15BPR.20\_SML01.dgn

DATE: 2/27/2020  
TIME: 3:54:07 PM



STEEL DEFECT LOCATION SKETCH

PROJECT NO. 15BPR.20  
HENDERSON COUNTY  
 STATION: 35+30.22 -L-

SHEET 1 OF 14



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 REHABILITATION  
 STRUCTURAL STEEL  
 REPAIRS

DRAWN BY : M. TOM DATE : 2/2019  
 CHECKED BY : G. COLS DATE : 2/2019  
 DESIGNED BY : J. SLOAN DATE : 2/2019  
 DESIGN CHECKED BY : E. ZHOU DATE : 2/2019

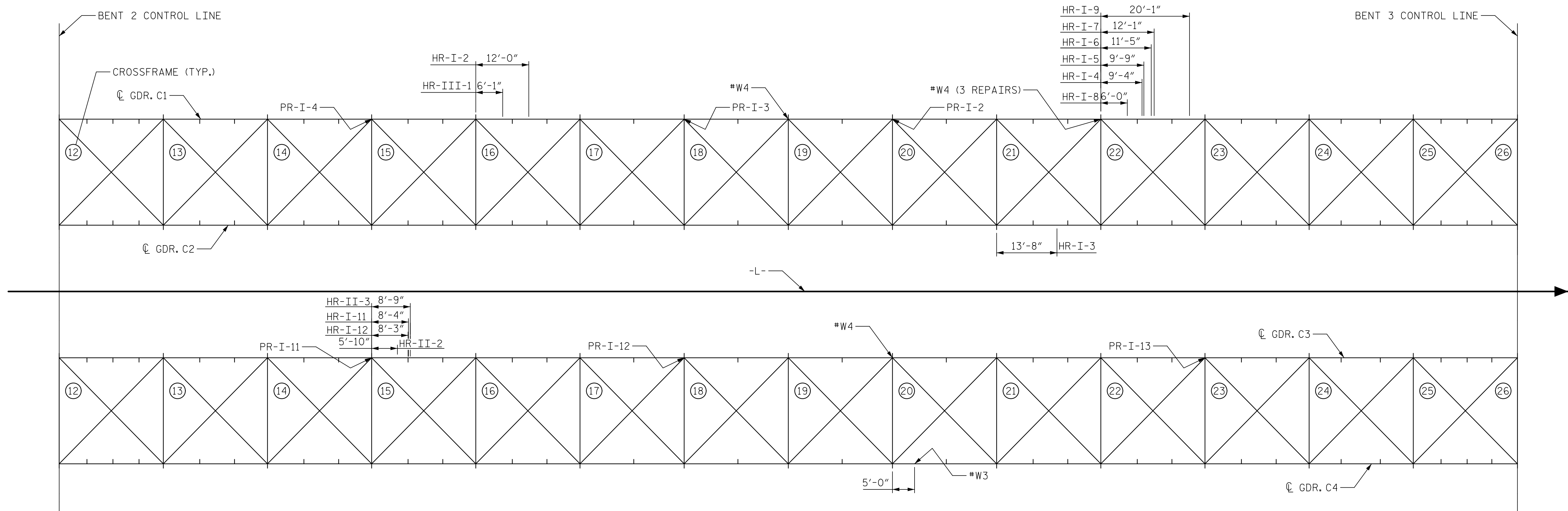
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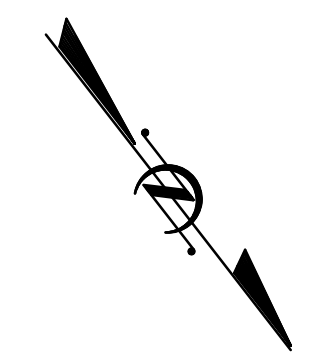


DATE: 2/18/2021  
TIME: 8:52:45 AM



SPAN C

STEEL DEFECT LOCATION SKETCH



PROJECT NO. 15BPR.20  
HENDERSON COUNTY  
 STATION: 35+30.22 -L-

SHEET 2 OF 14



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 REHABILITATION  
 STRUCTURAL STEEL  
 REPAIRS

DRAWN BY : M. TOM DATE : 2/2019  
 CHECKED BY : G. COLS DATE : 2/2019  
 DESIGNED BY : J. SLOAN DATE : 2/2019  
 DESIGN CHECKED BY : E. ZHOU DATE : 2/2019

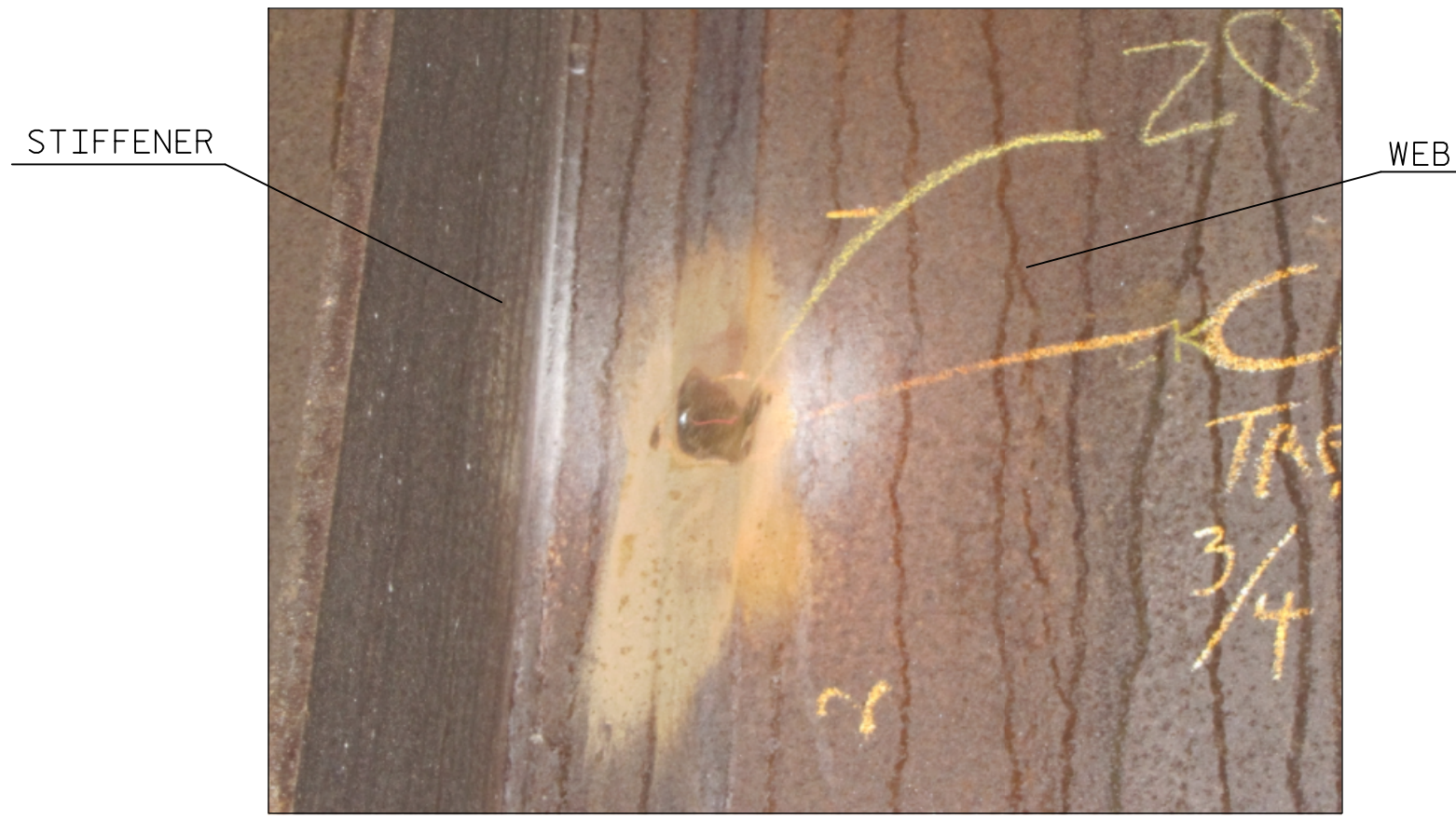
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REVISIONS						SHEET NO.
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USER: p156274 R:\Structures\04 Drawings\01\15\15BPR.20\_SML\_SRD.dgn



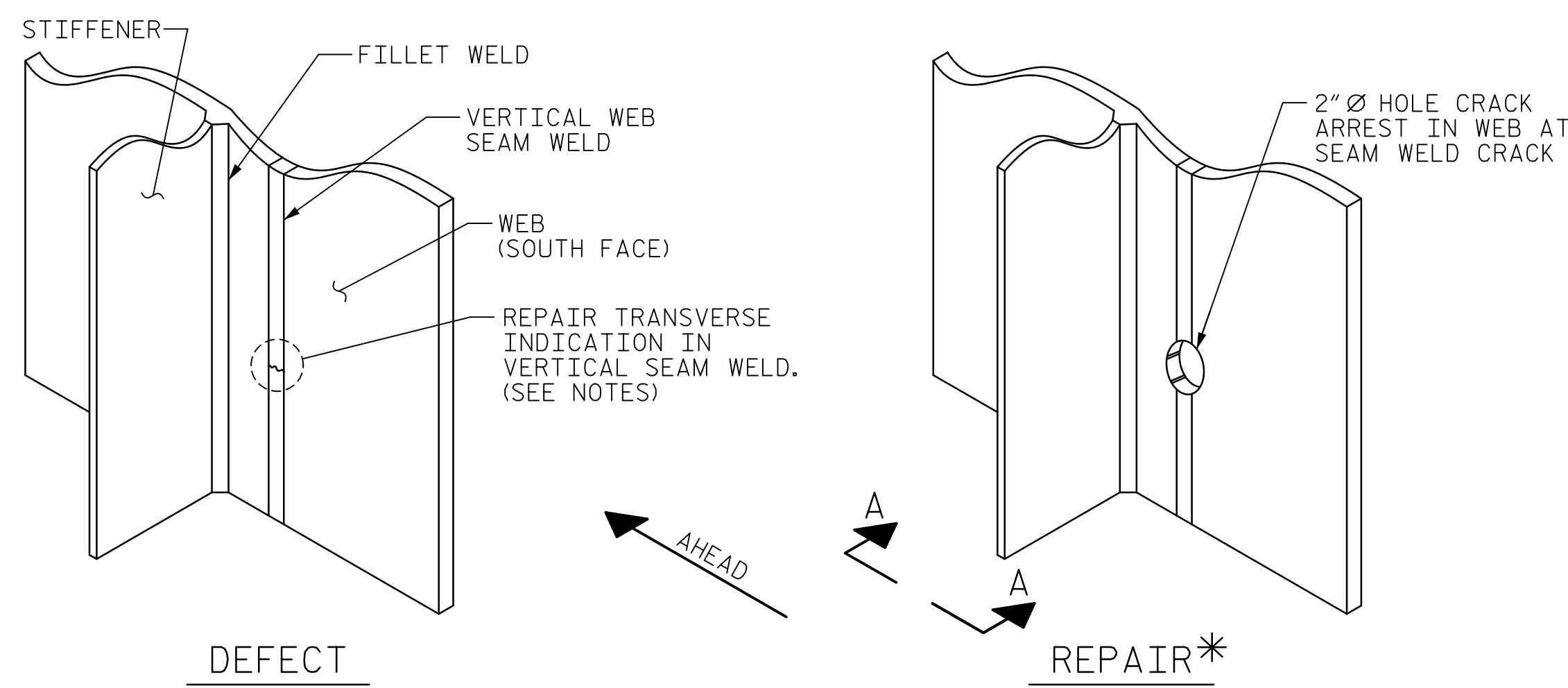
**NOTES:**  
FOR WELD REPAIRS, SEE SPECIAL PROVISIONS.  
FOR PAY ITEMS, SEE SHEET 14 OF 14.



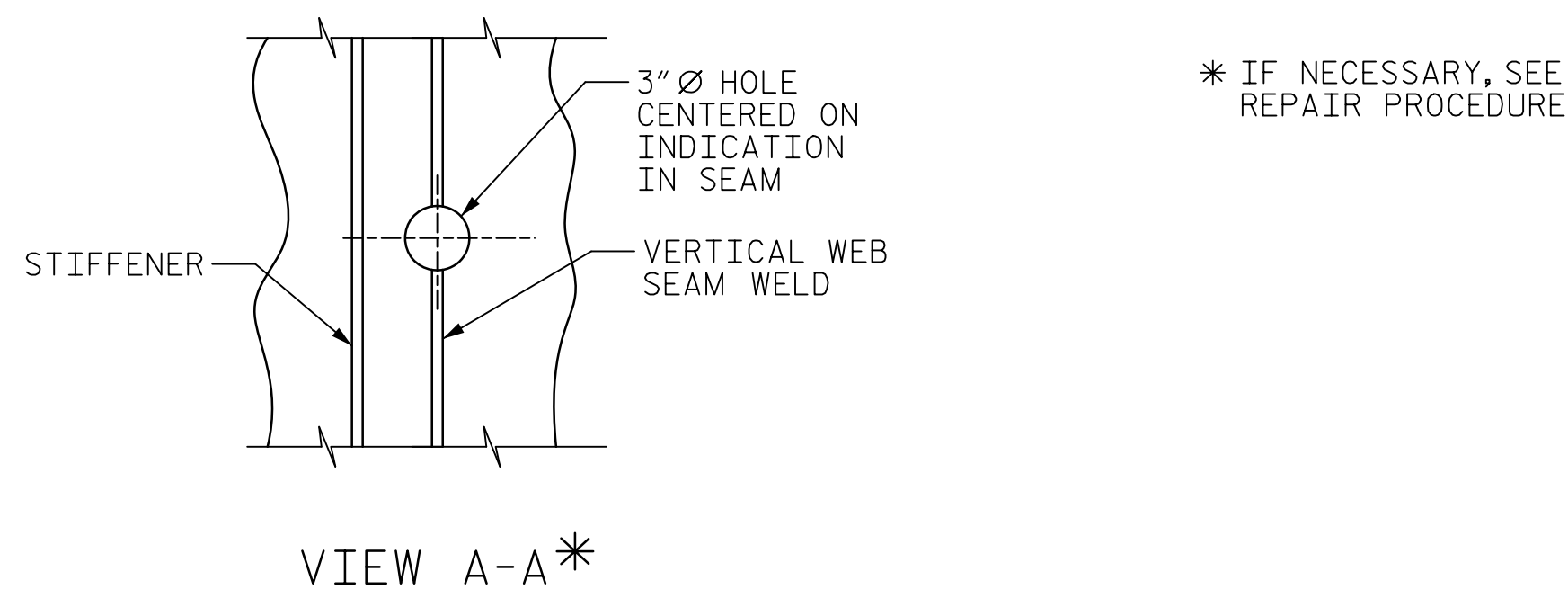
PHOTO



PHOTO

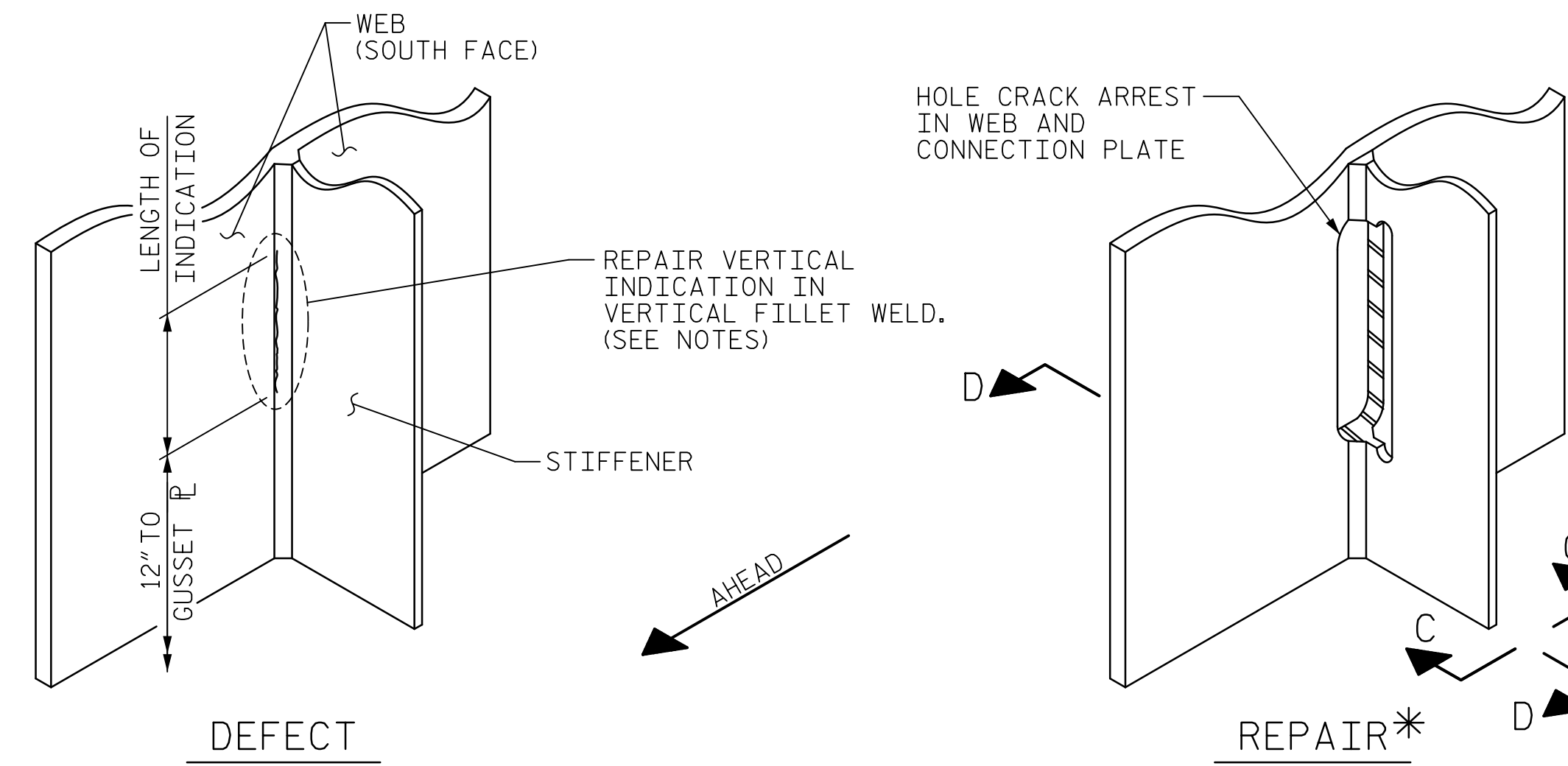


ISOMETRIC VIEW

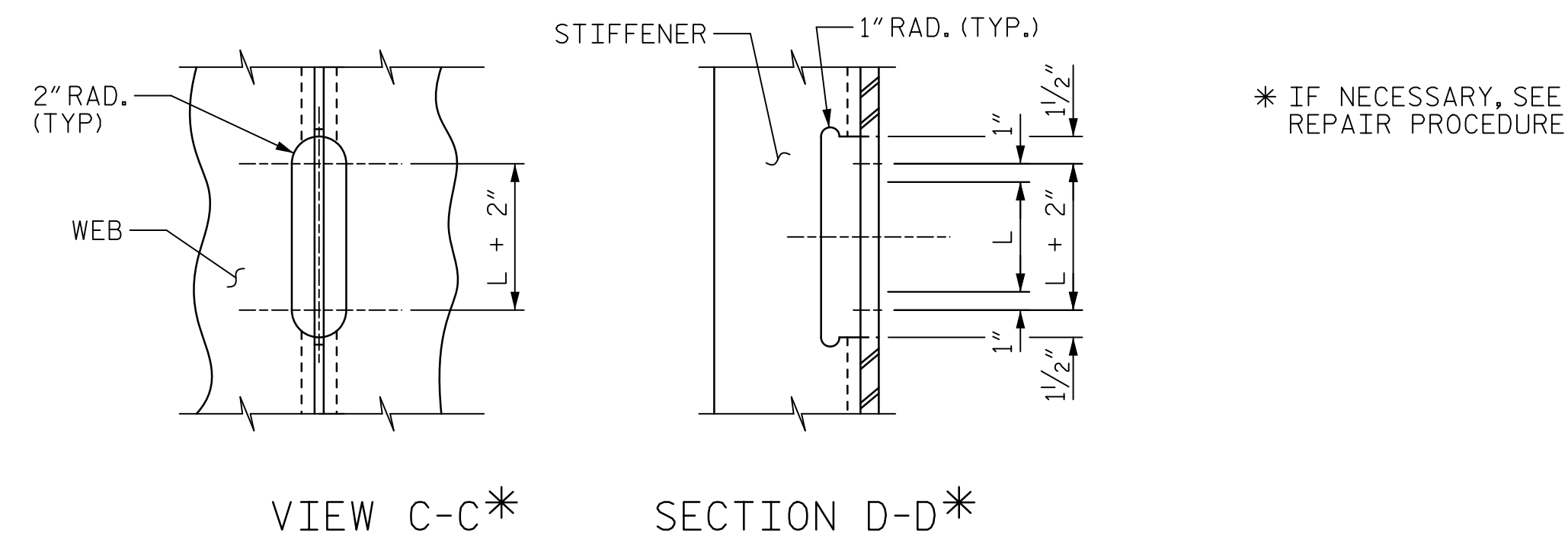


**WELD REPAIR #W1**

- LOCATION SPAN D GIRDER 2, 12'-0" WEST OF CROSSFRAME 26, 9'-10" ABOVE BOTTOM FLANGE.
- REPAIR PROCEDURE:
- CONTRACTOR SHALL ASSIST ENGINEER TO PERFORM NDT AND DETERMINE EXISTENCE AND EXTENTS OF CRACKING.
  - CONTRACTOR SHALL REMOVE EXISTING CRACK BY GRINDING WITH A SMOOTH PROFILE UP TO 1/8" DEEP OR A DEPTH AS DIRECTED BY ENGINEER.
  - IF ENGINEER DETERMINES NECESSARY AFTER NDT, CONTRACTOR SHALL DRILL A 2" Ø CRACK ARREST HOLE CENTERED AT SEAM WELD.
  - ENGINEER SHALL CHECK ALONG HOLE BORE FROM BOTH SIDES OF GIRDER WEB TO ASSURE COMPLETE REMOVAL OF EXISTING CRACK.
  - CONTRACTOR SHALL GRIND SMOOTH HOLE BORE FOR ANY SURFACE SCRATCHES OR NOTCHES PER INSTRUCTIONS OF ENGINEER.



ISOMETRIC VIEW

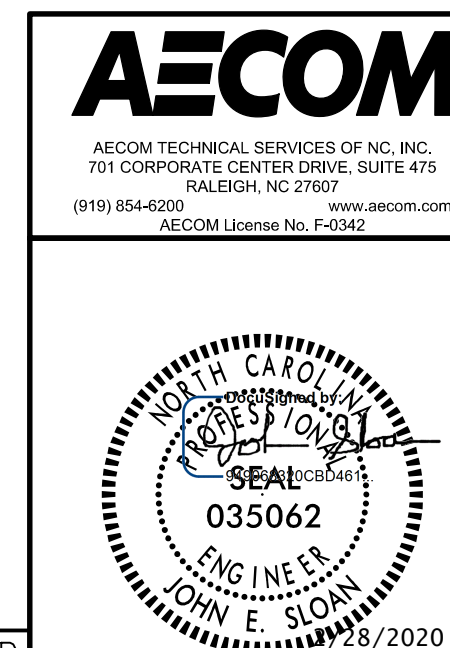


**WELD REPAIR #W2**

- LOCATION SPAN D GIRDER 2, WEST SIDE OF CROSSFRAME 33.
- REPAIR PROCEDURE:
- CONTRACTOR SHALL ASSIST ENGINEER TO PERFORM NDT AND DETERMINE EXISTENCE AND EXTENTS OF CRACKING.
  - CONTRACTOR SHALL REMOVE EXISTING CRACK BY GRINDING WITH A SMOOTH PROFILE UP TO 1/8" DEEP OR A DEPTH AS DIRECTED BY ENGINEER.
  - IF ENGINEER DETERMINES NECESSARY AFTER NDT, CONTRACTOR SHALL CUT OUT GIRDER WEB AND CONNECTION PLATE AS SHOWN.
  - ENGINEER SHALL CHECK ALONG CUTOUT FROM BOTH SIDES OF GIRDER WEB TO ASSURE COMPLETE REMOVAL OF EXISTING CRACK.
  - CONTRACTOR SHALL GRIND SMOOTH EDGES OF CUTOUT FOR ANY SURFACE SCRATCHES OR NOTCHES PER INSTRUCTIONS OF ENGINEER.

PROJECT NO. 15BPR.20  
HENDERSON COUNTY  
STATION: 35+30.22 -L-

SHEET 4 OF 14



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
REHABILITATION  
STRUCTURAL STEEL  
REPAIRS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-84
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2			4			129

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SIGNATURES COMPLETED

DATE: 2/27/2020  
TIME: 3:57:53 PM

USER: Merch\Rosemond  
DGN: R:\Structures\04 Drawings\01\15BPR20\_SML-SR4.dgn

DRAWN BY : H. ROSEMOND	DATE : 2/2019
CHECKED BY : G. COLS	DATE : 2/2019
DESIGNED BY : J. SLOAN	DATE : 2/2019
DESIGN CHECKED BY : E. ZHOU	DATE : 2/2019