



FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

PROJECT NO. R-3300A
NEW HANOVER COUNTY
 STATION: 232+80.54 -L1-

(LEFT LANE)

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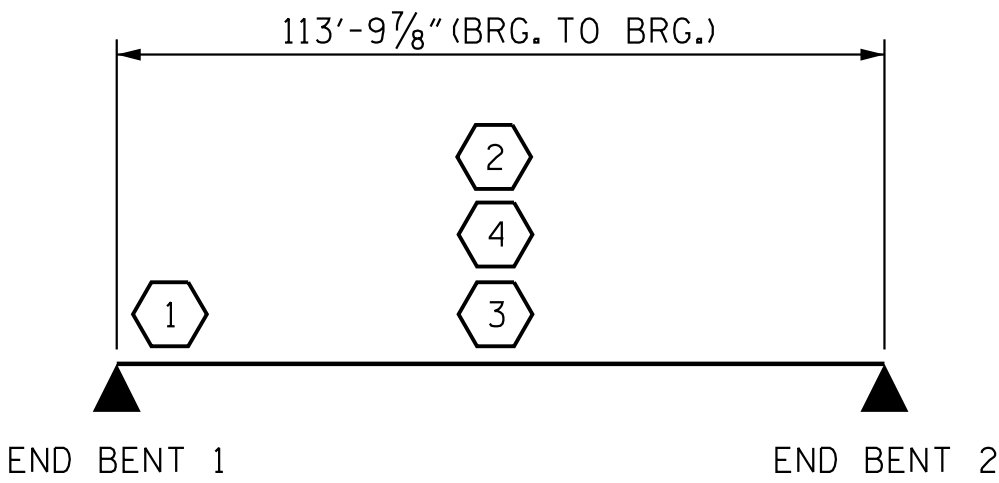
DESIGN
ENGINEER
OF RECORD: J.T. KELVINGTON DATE : 04/22/25

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LOAD AND RESISTANCE FACTOR RATING (LRFR) SUMMARY FOR PRESTRESSED CONCRETE GIRDERS																								
LEVEL		VEHICLE	WEIGHT	CONTROLLING LOAD RATING ⬡	MINIMUM RATING FACTOR (RF)	TONS = W X RF	STRENGTH I LIMIT STATE										SERVICE III LIMIT STATE						COMMENT NUMBER	
							LIVE LOAD FACTORS (LL)	MOMENT					SHEAR					LIVE LOAD FACTORS (LL)	MOMENT					
								DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (FT)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDRE LOCATION	DISTANCE FROM LEFT END OF SPAN (FT)		DISTRIBUTION FACTOR (DF)	RATING FACTOR	SPAN	GIRDER LOCATION		DISTANCE FROM LEFT END OF SPAN (FT)
DESIGN LOAD RATING		HL-93 (INVENTORY)	N/A	⬡1	1.26	--	1.75	0.731	1.38	A	EL	58.20	0.726	1.26	A	I	4.80	0.80	0.731	1.33	A	EL	58.20	
		HL-93 (OPERATING)	N/A		1.66	--	1.35	0.731	1.78	A	EL	58.20	0.726	1.66	A	I	4.80	N/A	--	--	--	--	--	
		HS-20 (INVENTORY)	36.000	⬡2	1.73	62.3	1.75	0.731	1.99	A	EL	58.20	0.726	1.80	A	I	4.80	0.80	0.731	1.73	A	EL	58.20	
		HS-20 (OPERATING)	36.000		2.37	85.3	1.35	0.731	2.58	A	EL	58.20	0.726	2.37	A	I	4.80	N/A	--	--	--	--	--	
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH	13,500		4.63	62.5	1.40	0.731	6.00	A	EL	58.20	0.726	5.85	A	I	4.80	0.80	0.731	4.63	A	EL	58.20	
		SNGARBS2	20,000		3.31	66.2	1.40	0.731	4.30	A	EL	58.20	0.726	4.04	A	I	4.80	0.80	0.731	3.31	A	EL	58.20	
		SNAGRIS2	22,000		3.09	68.0	1.40	0.731	4.00	A	EL	58.20	0.726	3.71	A	I	4.80	0.80	0.731	3.09	A	EL	58.20	
		SNCOTTS3	27,250		2.30	62.7	1.40	0.731	2.98	A	EL	58.20	0.726	2.86	A	I	4.80	0.80	0.731	2.30	A	EL	58.20	
		SNAGGRS4	34,925		1.87	65.3	1.40	0.731	2.43	A	EL	58.20	0.726	2.29	A	I	4.80	0.80	0.731	1.87	A	EL	58.20	
		SNS5A	35,550		1.83	65.1	1.40	0.731	2.38	A	EL	58.20	0.726	2.29	A	I	4.80	0.80	0.731	1.83	A	EL	58.20	
		SNS6A	39,950		1.66	66.3	1.40	0.731	2.15	A	EL	58.20	0.726	2.06	A	I	4.80	0.80	0.731	1.66	A	EL	58.20	
		SNS7B	42,000		1.58	66.4	1.40	0.731	2.05	A	EL	58.20	0.726	1.99	A	I	4.80	0.80	0.731	1.58	A	EL	58.20	
	TRUCK TRACTOR (TTST)	TNAGRIT3	33,000		2.02	66.7	1.40	0.731	2.62	A	EL	58.20	0.726	2.49	A	I	4.80	0.80	0.731	2.02	A	EL	58.20	
		TNT4A	33,075		2.02	66.8	1.40	0.731	2.62	A	EL	58.20	0.726	2.45	A	I	4.80	0.80	0.731	2.02	A	EL	58.20	
		TNT6A	41,600		1.63	67.8	1.40	0.731	2.12	A	EL	58.20	0.726	2.07	A	I	4.80	0.80	0.731	1.63	A	EL	58.20	
		TNT7A	42,000		1.63	68.5	1.40	0.731	2.12	A	EL	58.20	0.726	2.04	A	I	4.80	0.80	0.731	1.63	A	EL	58.20	
		TNT7B	42,000		1.66	69.7	1.40	0.731	2.16	A	EL	58.20	0.726	1.96	A	I	4.80	0.80	0.731	1.66	A	EL	58.20	
		TNAGRIT4	43,000		1.60	68.8	1.40	0.731	2.08	A	EL	58.20	0.726	1.90	A	I	4.80	0.80	0.731	1.60	A	EL	58.20	
		TNAGT5A	45,000	⬡3	1.52	68.4	1.40	0.731	1.97	A	EL	58.20	0.726	1.86	A	I	4.80	0.80	0.731	1.52	A	EL	58.20	
		TNAGT5B	45,000		1.51	68.0	1.40	0.731	1.96	A	EL	58.20	0.726	1.81	A	I	4.80	0.80	0.731	1.51	A	EL	58.20	
EMERGENCY VEHICLE (EV)	EV2	28,750		2.33	67.0	1.30	0.731	3.02	A	EL	58.20	0.726	2.79	A	I	4.80	0.80	0.731	2.33	A	EL	58.20		
	EV3	43,000	⬡4	1.54	66.2	1.30	0.731	1.99	A	EL	58.20	0.726	1.84	A	I	4.80	0.80	0.731	1.54	A	EL	58.20		

GIRDER PROPERTIES
MODIFIED 56"PRESTRESSED CONCRETE GIRDER
AREA = 759 SQ. IN. WEIGHT = 791 LB/FT. Y _{BOTTOM} = 27.82 IN. Y _{TOP} = 28.18 IN. I _{xx} = 317,731 IN. ⁴ I _{yy} = 42,980 IN. ⁴ V/S = 3.40 IN.



LRFR SUMMARY

Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

ASSEMBLED BY : J. GUERRERO
CHECKED BY : A.L. BOYKIN

DATE : 08/01/21
DATE : 09/04/24

DRAWN BY : MAA
CHECKED BY : GM/DI

1/08
2/08

REV. 11/12/08RR
REV. 10/1/11
REV. 04/23

MAA/GM
MAA/GM
BNB/AAI

DESIGN ENGINEER
OF RECORD:

J.T. KELVINGTON
DATE : 04/22/25

LOAD FACTORS:

DESIGN LOAD RATING FACTORS	LIMIT STATE	γ _{DC}	γ _{DW}
	STRENGTH I	1.25	1.50
	SERVICE III	1.00	1.00

NOTES:

MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE III LIMIT STATES.

ALLOWABLE STRESSES FOR SERVICE III LIMIT STATE ARE AS REQUIRED FOR DESIGN.

SPAN SHOWN IN LRFR SUMMARY CORRESPONDS TO COMPOSITE DEAD LOAD AND LIVE LOAD MODEL USED FOR ANALYSIS AND DESIGN.

CONTROLLING LOAD RATING

1

DESIGN LOAD RATING (HL-93)

2

DESIGN LOAD RATING (HS-20)

3

LEGAL LOAD RATING **

4

EMERGENCY VEHICLE LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

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

PROJECT NO. R-3300A

NEW HANOVER COUNTY

STATION: 232+80.54 -L1-

SHEET 6 OF 6

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Joe Kelvington 4/29/2025
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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
LRFR SUMMARY FOR
PRESTRESSED
CONCRETE GIRDERS
(NON-INTERSTATE TRAFFIC)
(LEFT LANE)

REVISIONS						SHEET NO. S03-06
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 32
2			4			

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STD. NO. LRFR1



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE

TYPICAL SECTION

(LEFT LANE)



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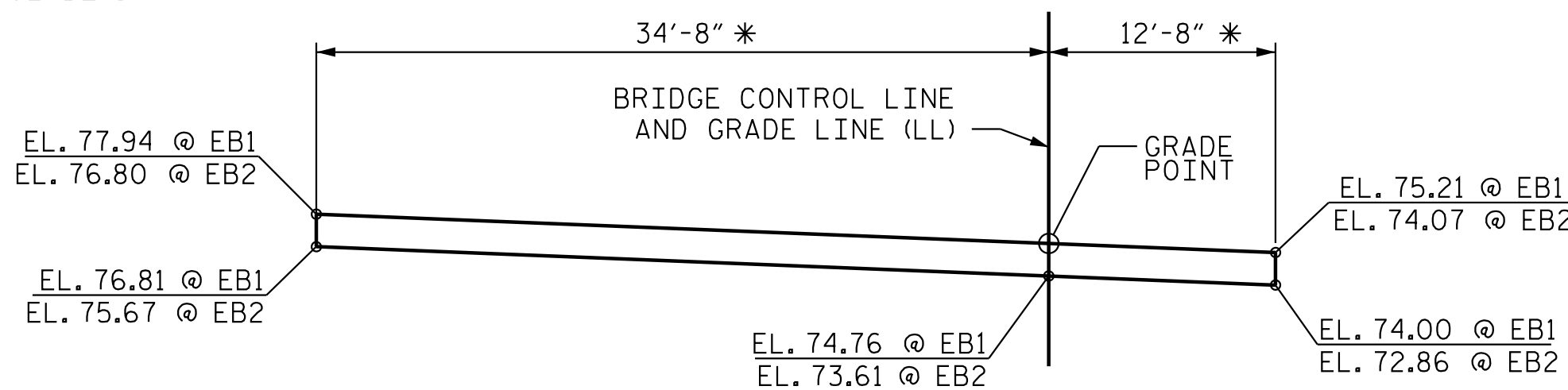
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INTEGRAL DIAPHRAGM HALF-SECTION REINFORCEMENT AT FILL FACE

INTEGRAL DIAPHRAGM HALF-SECTION REINFORCEMENT AT FRONT FACE

TYPICAL SECTION

(GIRDERS ARE PARALLEL TO LONG CHORD. HORIZONTAL
DIMENSIONS TO GIRDER CENTERLINES
ARE NORMAL TO THE GIRDER.)



INTEGRAL DIAPHRAGM APPROACH SLAB BLOCKOUT

* DENOTES RADIAL DIMENSION

NOTES

- DENOTES CONTINUOUS LONGITUDINAL DECK REINFORCEMENT.
- DENOTES NON-CONTINUOUS LONGITUDINAL DECK REINFORCEMENT.
- SEE "TYPICAL SECTION DETAILS", SHEET 3 OF 3, FOR ADDITIONAL NOTES.
- (2 BR) DENOTES 2 BAR RUN.
- * DENOTES RADIAL DIMENSION.
- ** #4 S1 MAY BE REPOSITIONED AS NECESSARY TO CLEAR CONFLICTS W/ PRESTRESSED GIRDERS.
- Δ DENOTES MEASURED ALONG FILL FACE, SEE "PLAN OF SPAN DETAILS - DIAPHRAGMS".
- (EF) DENOTES EACH FACE.
- FOR SECTION A-A AND SECTION B-B, SEE "TYPICAL SECTION DETAILS", SHT. 3 OF 3.
- (EF) DENOTES EACH FACE OF DIAPHRAGM.

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NEW HANOVER COUNTY
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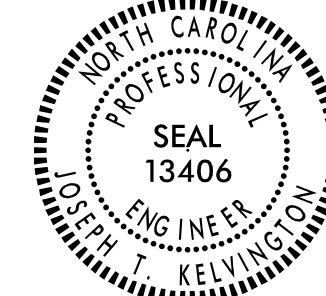
SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE

TYPICAL SECTION

(LEFT LANE)

REVISIONS						SHEET NO. S03-08
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 32
2			4			



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SECTION @ END BENT 1 SHOWN. SECTION @ END BENT 2 SIMILAR.
SEE "PLAN OF SPAN DETAILS - DIAPHRAGMS", SH. 2 OF 4

K7 LENGTH MUST BE AT LEAST 3" FROM OUTSIDE WING
AND EDGE OF APPROACH SLAB NOTCH.

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

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

NO CHAMFER IS REQUIRED ON CORNERS OF GIRDER BUILDUPS.

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

*5 S7 BARS PROJECTION FROM GIRDER FLANGES MAY BE FIELD BENT, AS NECESSARY, TO CLEAR THE 1'-2" X 10" PAVEMENT NOTCH.

- (A) SLOPE TOP SURFACE OF DIAPHRAGM BETWEEN THE EDGE OF SUPERSTRUCTURE AND OUTSIDE EDGE OF WING WALL AT A RATE OF 2% NORMAL TO FILL FACE TO DRAIN WATER AWAY FROM THE FILL FACE.
- (B) BOTTOM OF OVERHANG ELEV'S. @ FRONT FACE OF END BENT DIAPHRAGM AND OUTSIDE EDGE OF DECK SLAB.

<u>LOCATION</u>	<u>ELEV.</u>
END BENT 1 (LT.)	76.89
END BENT 1 (RT.)	74.17
END BENT 2 (LT.)	75.82
END BENT 2 (RT.)	73.09



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SHEET 3 OF 3

STATE OF NORTH CAROLINA
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RALEIGH
SUPERSTRUCTURE

TYPICAL SECTION
(DETAILS)

(LEFT LANE)

REVISIONS						SHEET NO. S03-09
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801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

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ENGINEER
OF RECORD: J.T. KELVINGTON DATE : 04/22/25

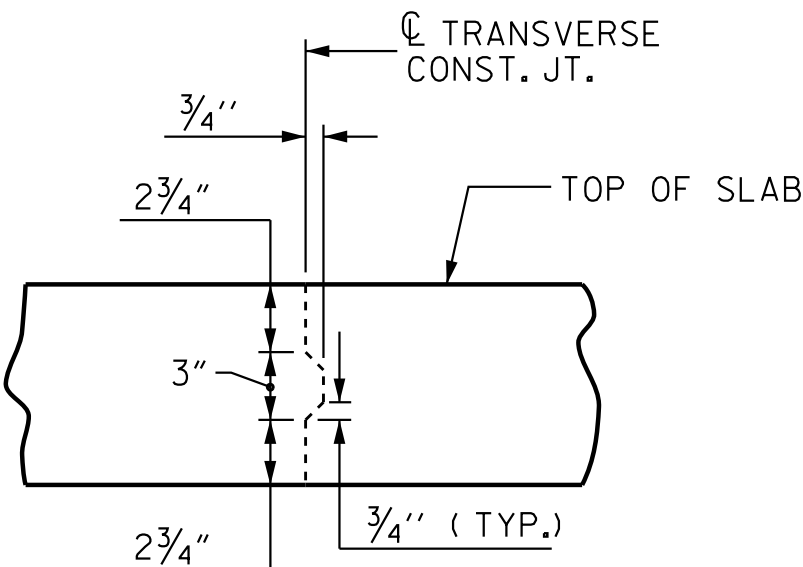
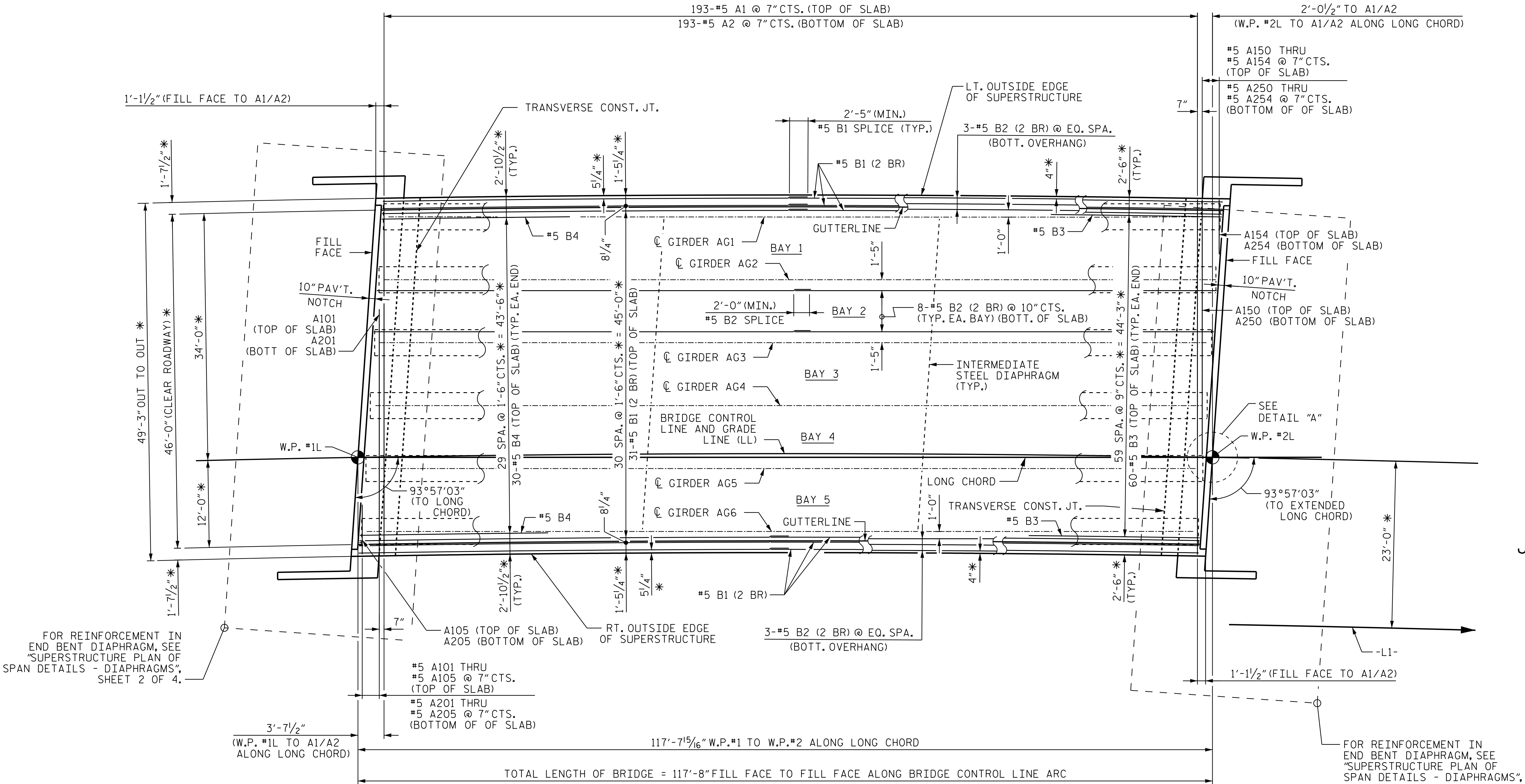


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NOTE: #5B3 AND #5B4 SHOWN ARE TO BE PROVIDED AT BOTH END BENTS. SET #5B3 AND #5B4 1'-0" CLEAR OF FILL FACE @ EA. END BENT.

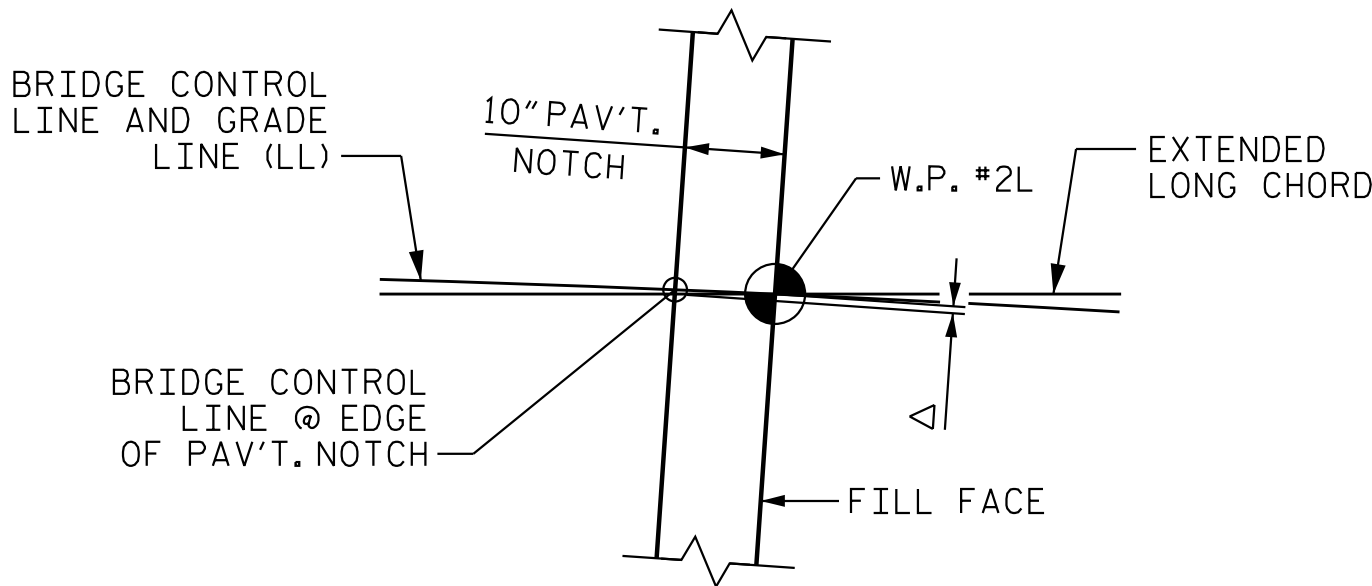
FOR BARRIER RAIL DETAILS AND REINFORCING STEEL, SEE "CONCRETE BARRIER RAIL".



NOTE: REINFORCING STEEL IN SLAB NOT SHOWN. LONGITUDINAL REINFORCING STEEL SHALL BE CONTINUOUS THRU JOINT

PLAN OF SPAN

NOTES: (2 BR) DENOTES TWO BAR RUN
* DENOTES RADIAL DIMENSION



DETAIL "A"

W.P.#2L SHOWN / W.P.#1L SIMILAR
WORK LINE TO BENT CONTROL LINE OFFSET, Δ

LOCATION Δ
END BENT 1 7/8"
END BENT 2 1/2"



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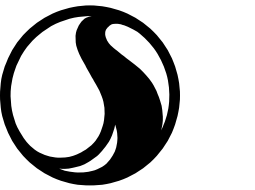
SHEET 1 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE

PLAN OF SPAN

(LEFT LANE)

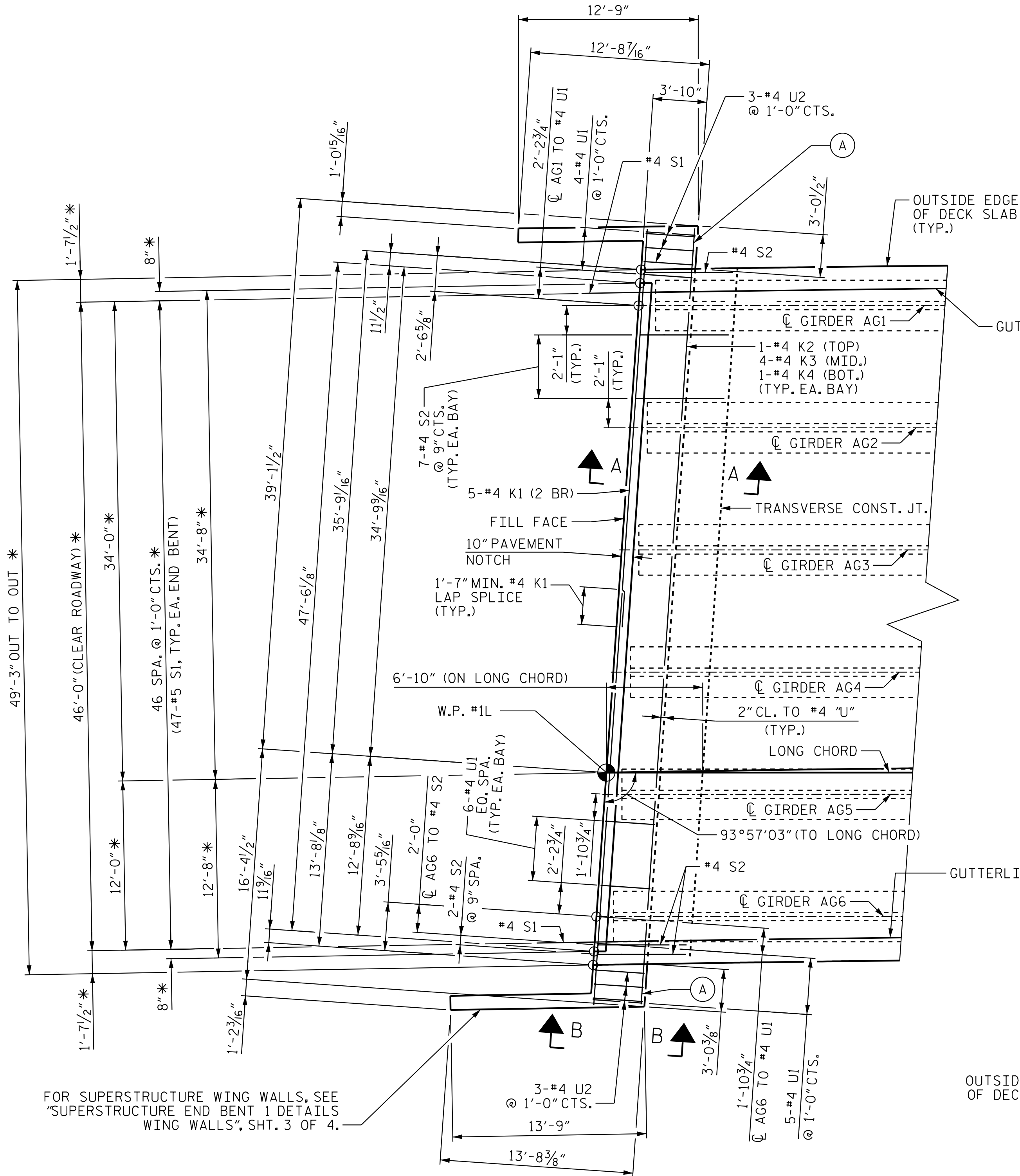
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2			4			



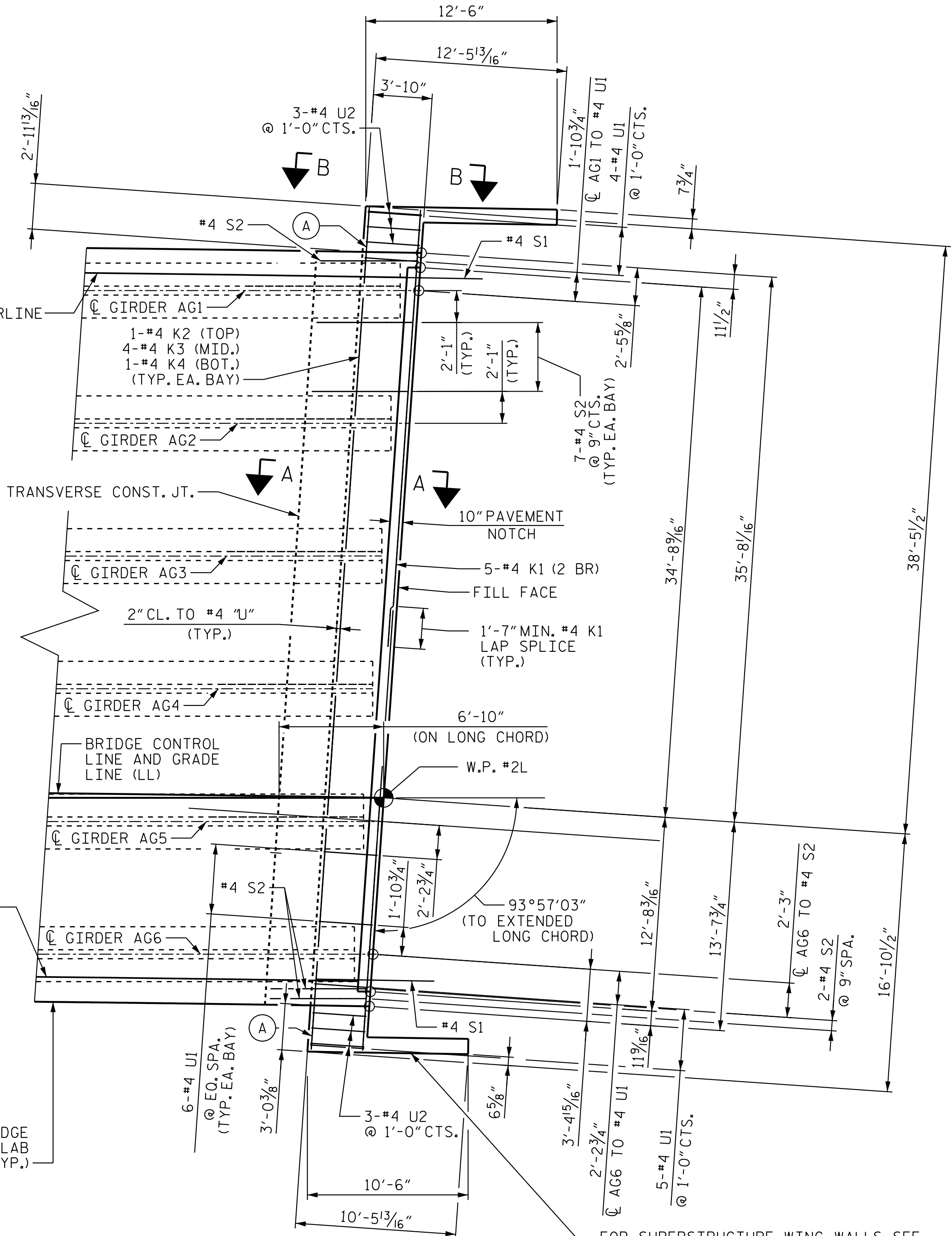
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801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
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END BENT 1
DIAPHRAGM REINFORCING
DETAIL



END BENT 2
DIAPHRAGM REINFORCING
DETAIL

NOTES

* DENOTES RADIAL DIMENSION.

REINFORCEMENT IN DECK AND
BARRIER RAIL NOT SHOWN FOR CLARITY.

FOR SECTION A-A & SECTION B-B, SEE
"TYPICAL SECTION (DETAILS)" SHEET 3 OF 3.

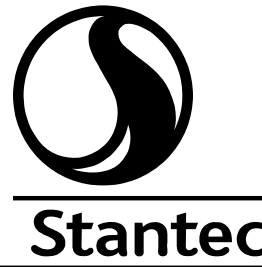
(2 BR) DENOTES TWO BAR RUN.

Ⓐ DIAPHRAGM BARS

LEFT OVERHANG		
ROW	FILL FACE	FRONT FACE
(1) TOP	4-#4 K7 @ 1'-0" CTS.	
(2)	#4 K7	#4 K7
(3)	#4 K1	#4 K5
(4)	#4 K1	#4 K5
(5)	#4 K1	#4 K5
(6)	#4 K1	#4 K5
(7) BOT	#4 K1	#4 K6
RIGHT OVERHANG		
ROW	FILL FACE	FRONT FACE
(1) TOP	4-#4 K7 @ 1'-0" CTS.	
(2)	#4 K7	#4 K7
(3)	#4 K1	#4 K8
(4)	#4 K1	#4 K8
(5)	#4 K1	#4 K8
(6)	#4 K1	#4 K8
(7) BOT	#4 K1	#4 K9

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SHEET 2 OF 4



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801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-8866
Fax. (919) 851-7024
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License No. F-0672

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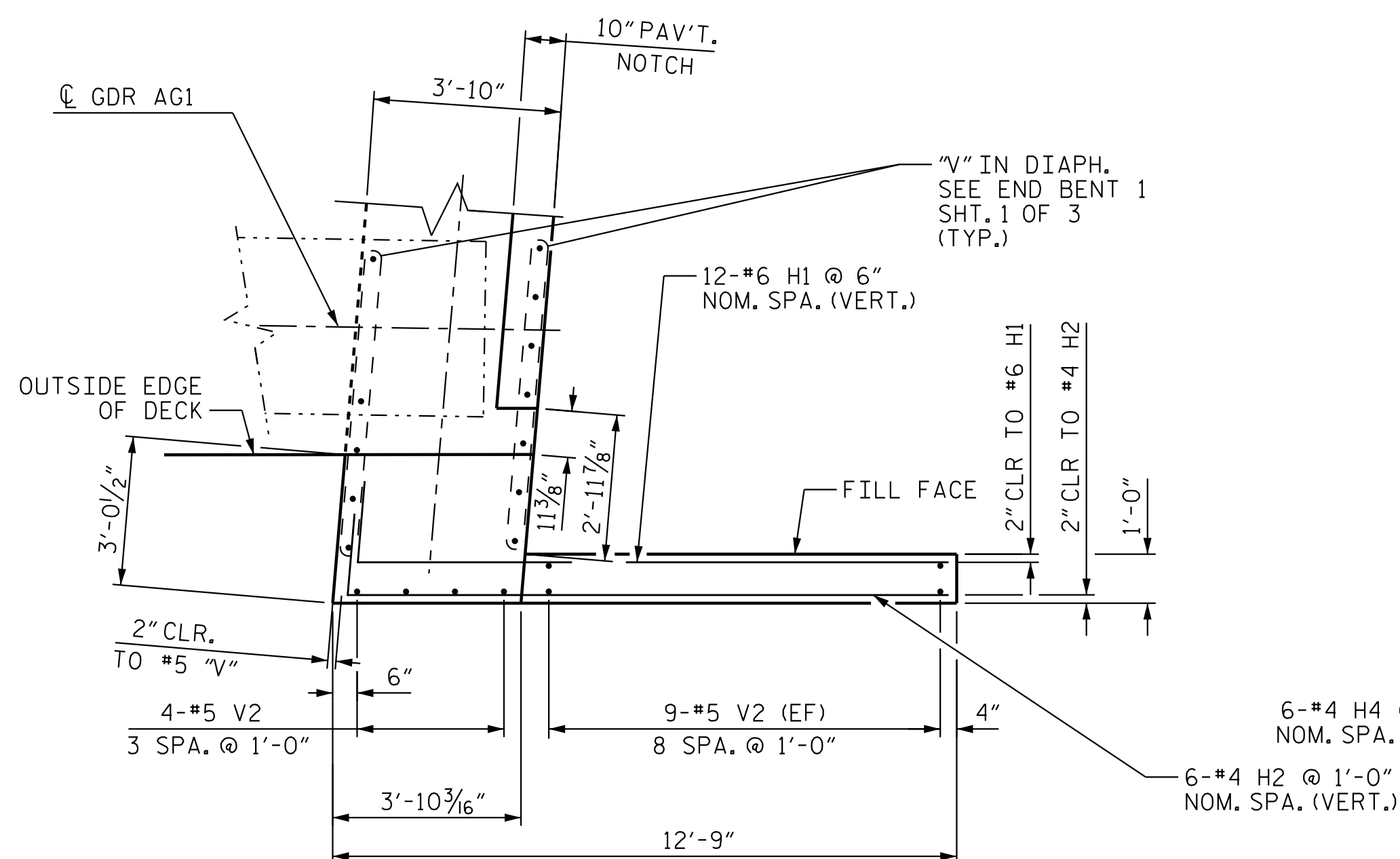
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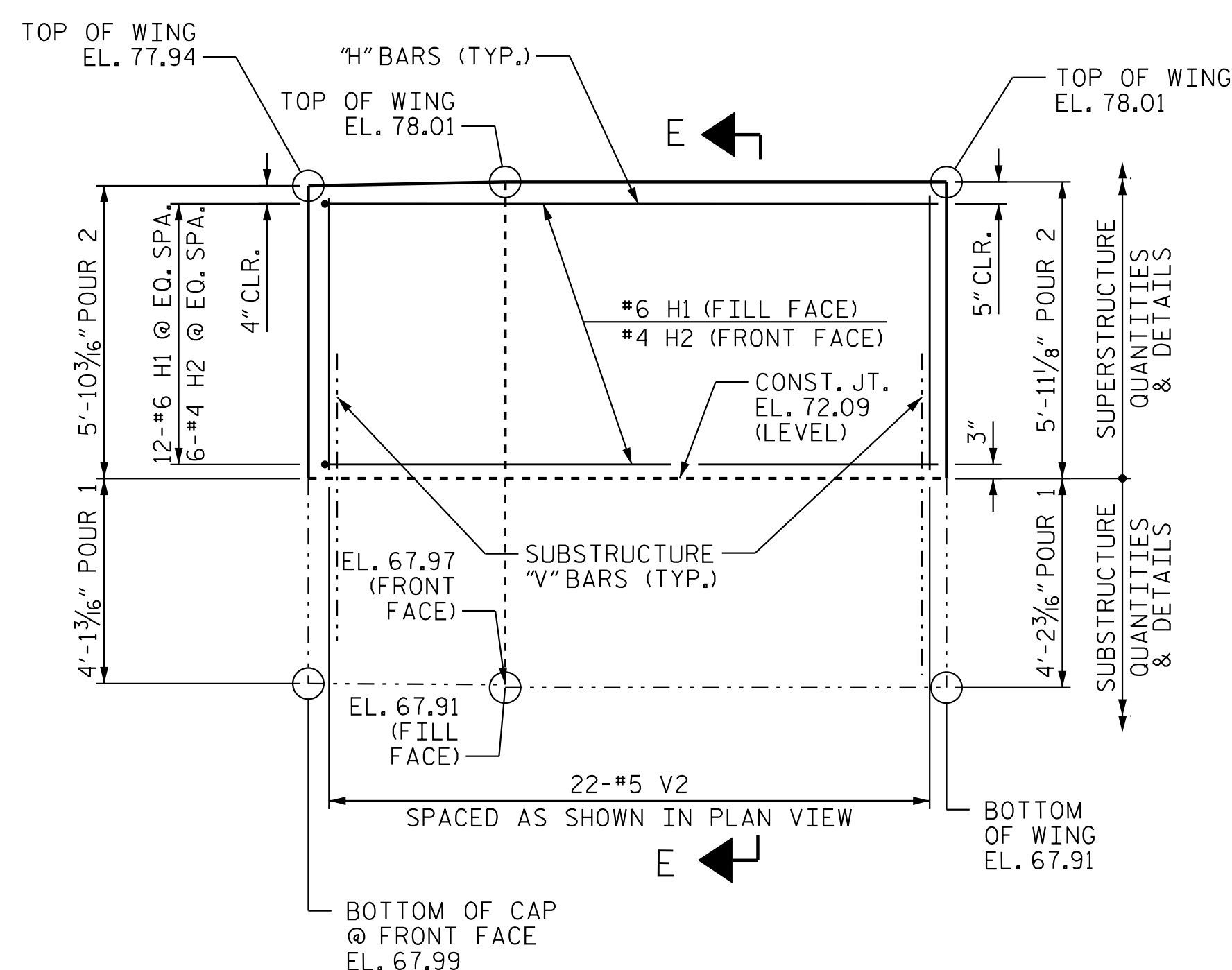
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STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH SUPERSTRUCTURE						SHEET NO. S03-11	
PLAN OF SPAN DETAILS-DIAPHRAGMS						TOTAL SHEETS 32	
REVISIONS							
NO.	BY:	DATE:	NO.	BY:	DATE:		
1			3				
2			4				

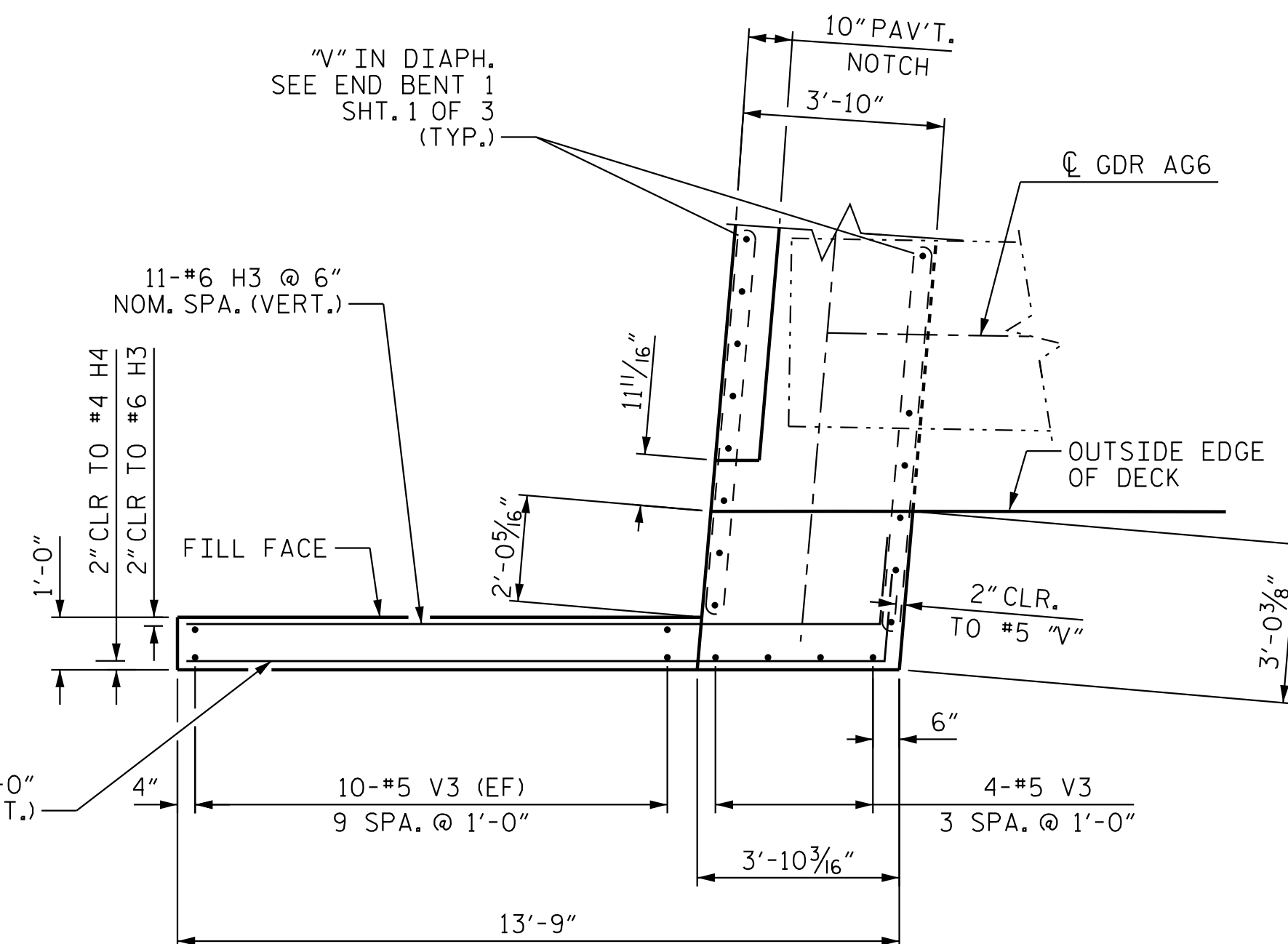


PLAN OF LEFT WING (W1)

NOTE:
DIAPHRAGM REINFORCING STEEL NOT SHOWN FOR CLARITY.
FOR DIAPHRAGM REINFORCEMENT, SEE "PLAN OF SPAN DETAILS - DIAPHRAGMS"

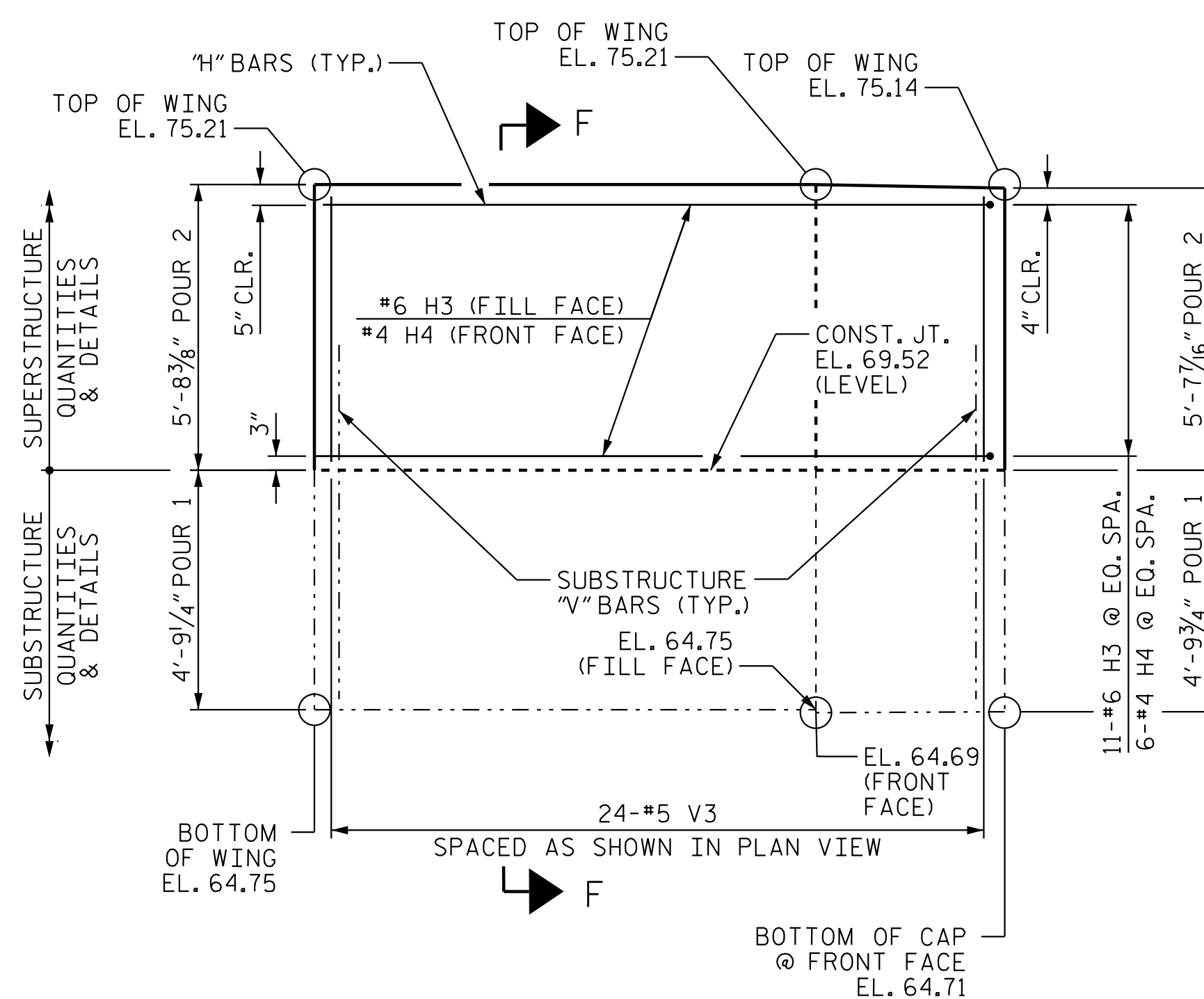
ELEVATION OF LEFT WING (W1)

WING DETAILS

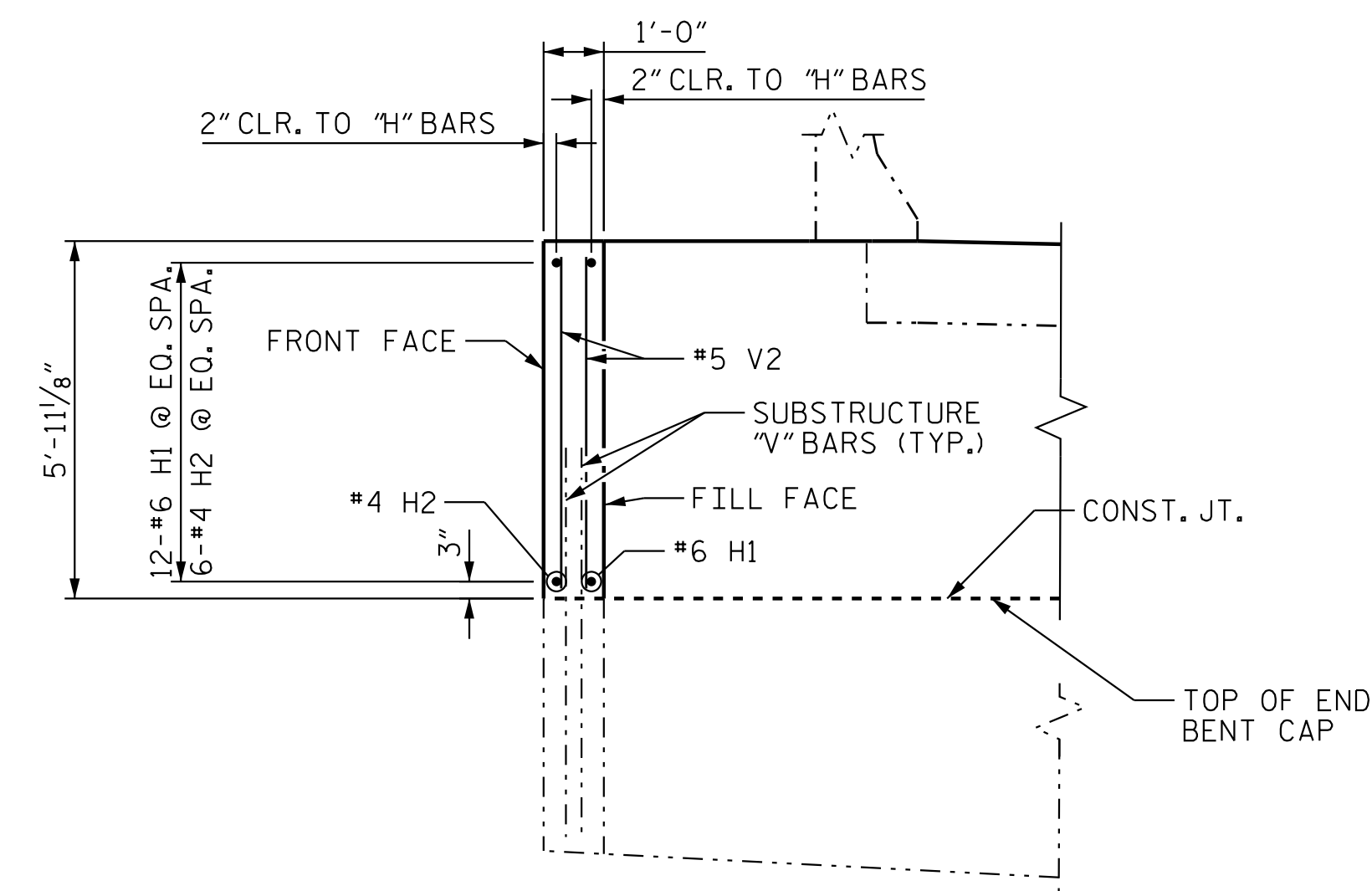


PLAN OF RIGHT WING (W2)

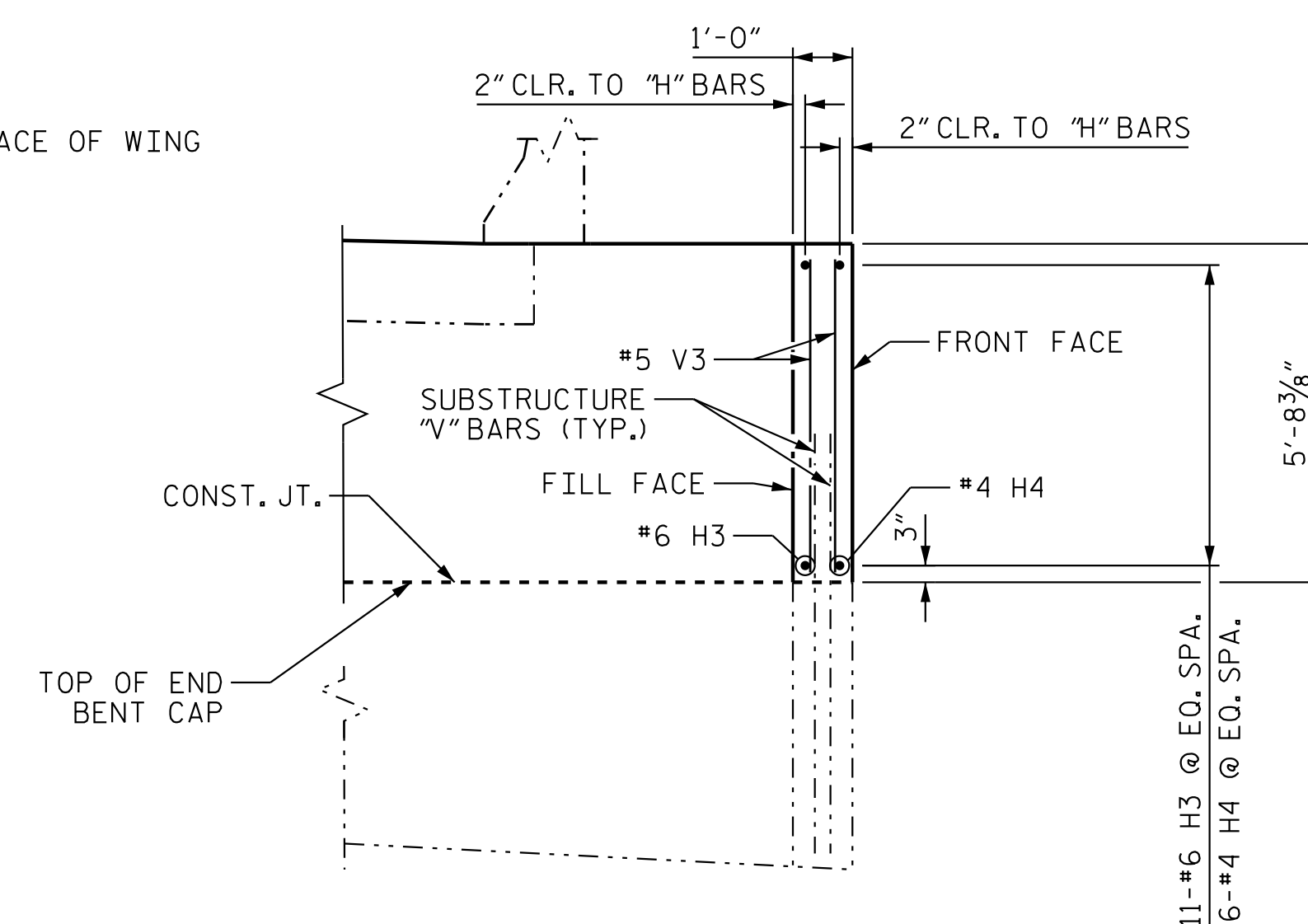
NOTE: (EF) DENOTES EACH FACE OF WING

ELEVATION OF RIGHT WING (W2)

NOTE:
THIS SHEET PROVIDES DETAILS
RELEVANT FOR SUPERSTRUCTURE.
FOR SUBSTRUCTURE QTY'S & DETAILS,
REFER TO SHEETS S03-25 & S03-28.



SECTION E-E



SECTION F-F

PROJECT NO. R-3300A
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SHEET 3 OF 4



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801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6886
Fax. (919) 851-7024
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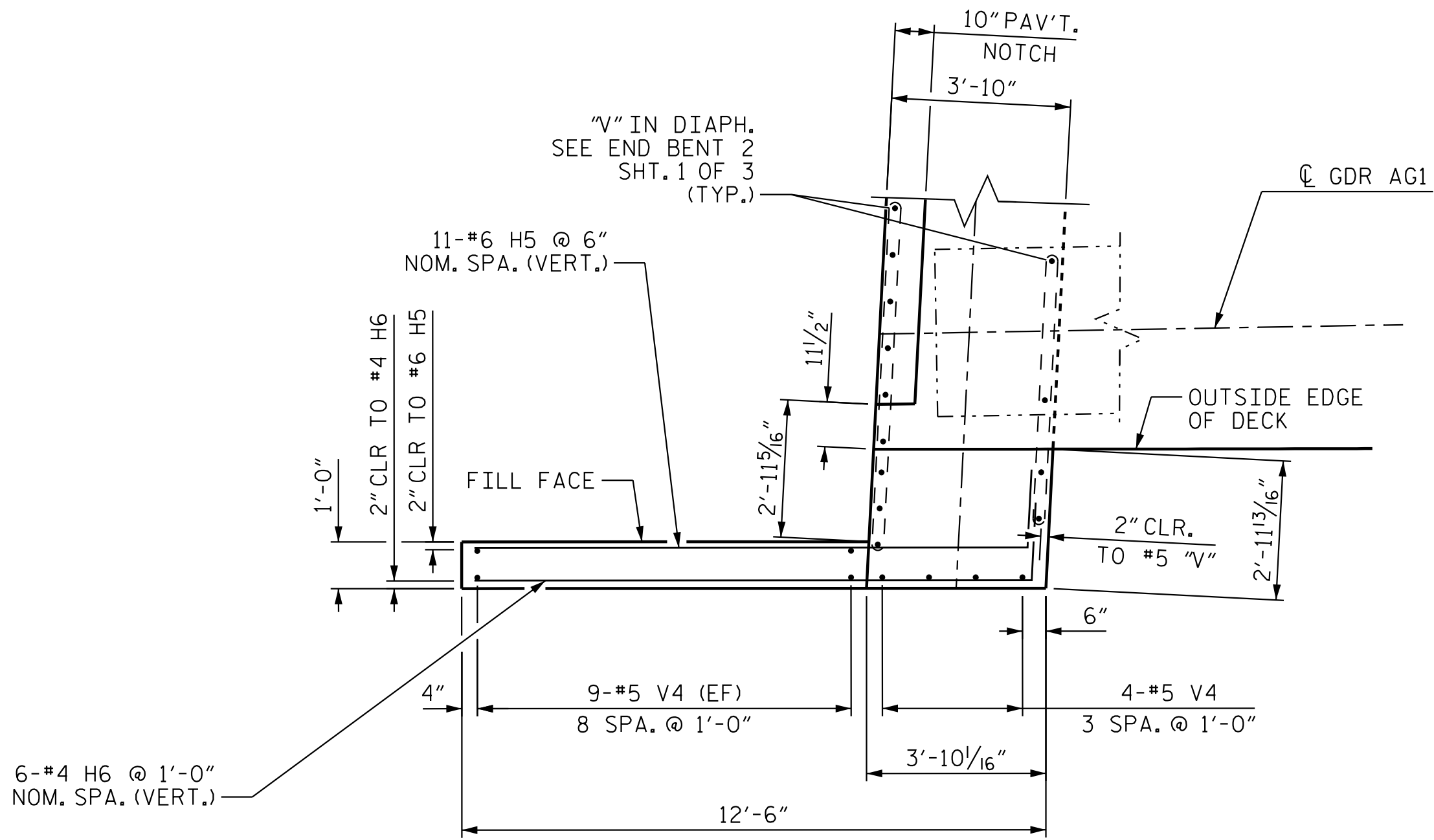
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STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH SUPERSTRUCTURE PLAN OF SPAN DETAILS WING WALLS @ END BENT 1 (LEFT LANE)						SHEET NO. S03-1
REVISIONS						TOTAL SHEETS 32
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			

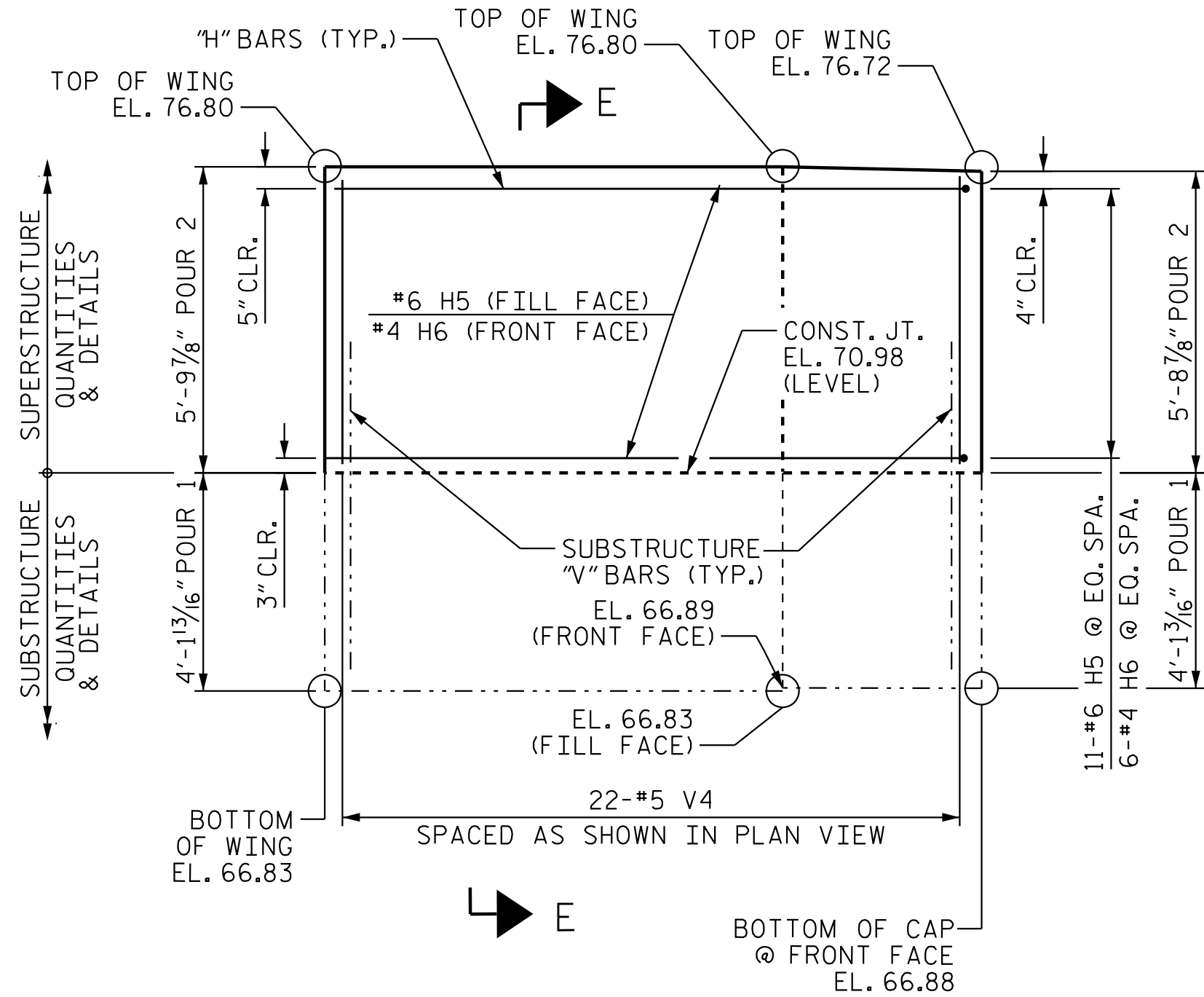
4/29/2025 4:33:41PM jgelle

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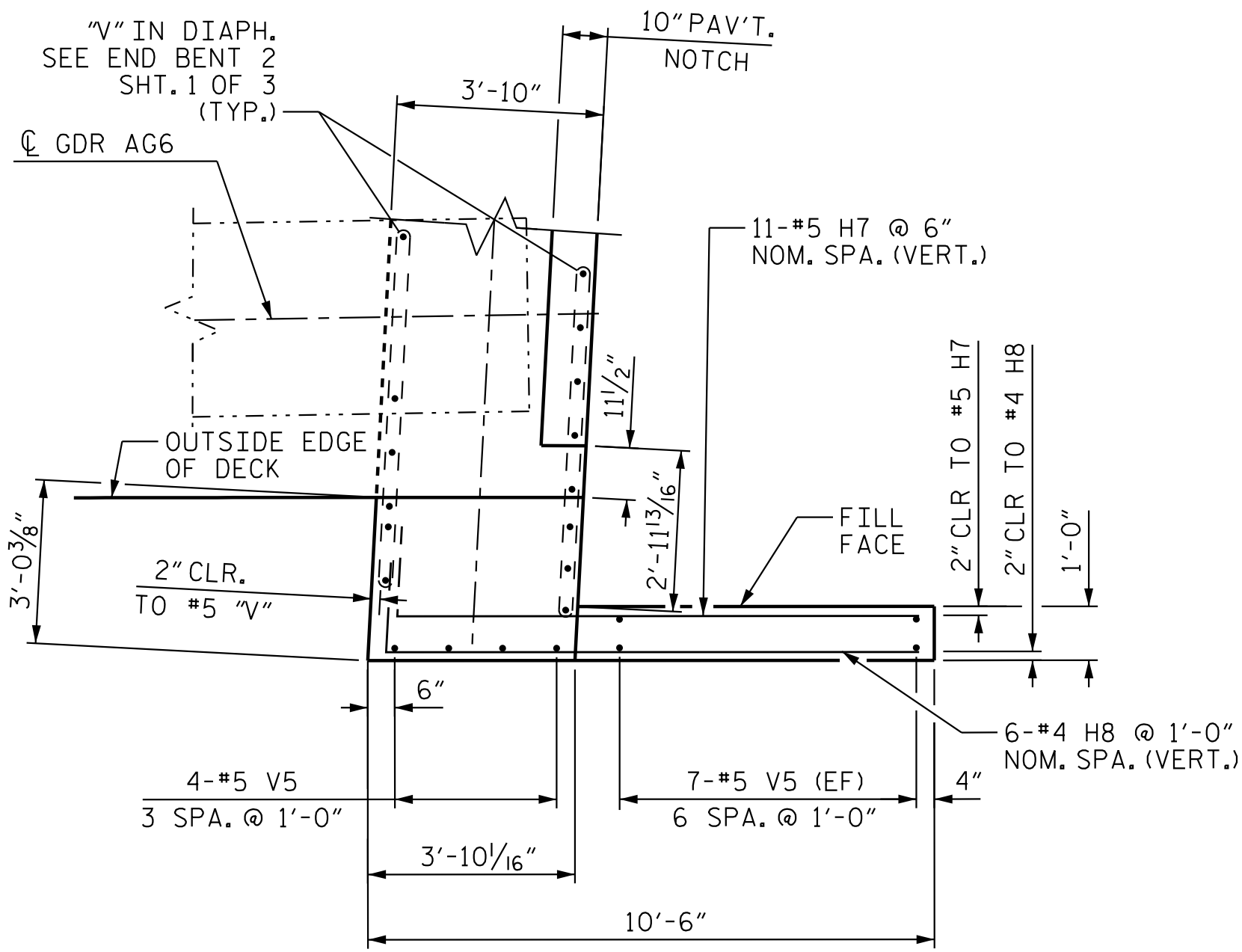


PLAN OF LEFT WING (W3)

NOTE:
DIAPHRAGM REINFORCING STEEL NOT SHOWN FOR CLARITY.
FOR DIAPHRAGM REINFORCEMENT, SEE "PLAN OF SPAN DETAILS - DIAPHRAGMS"

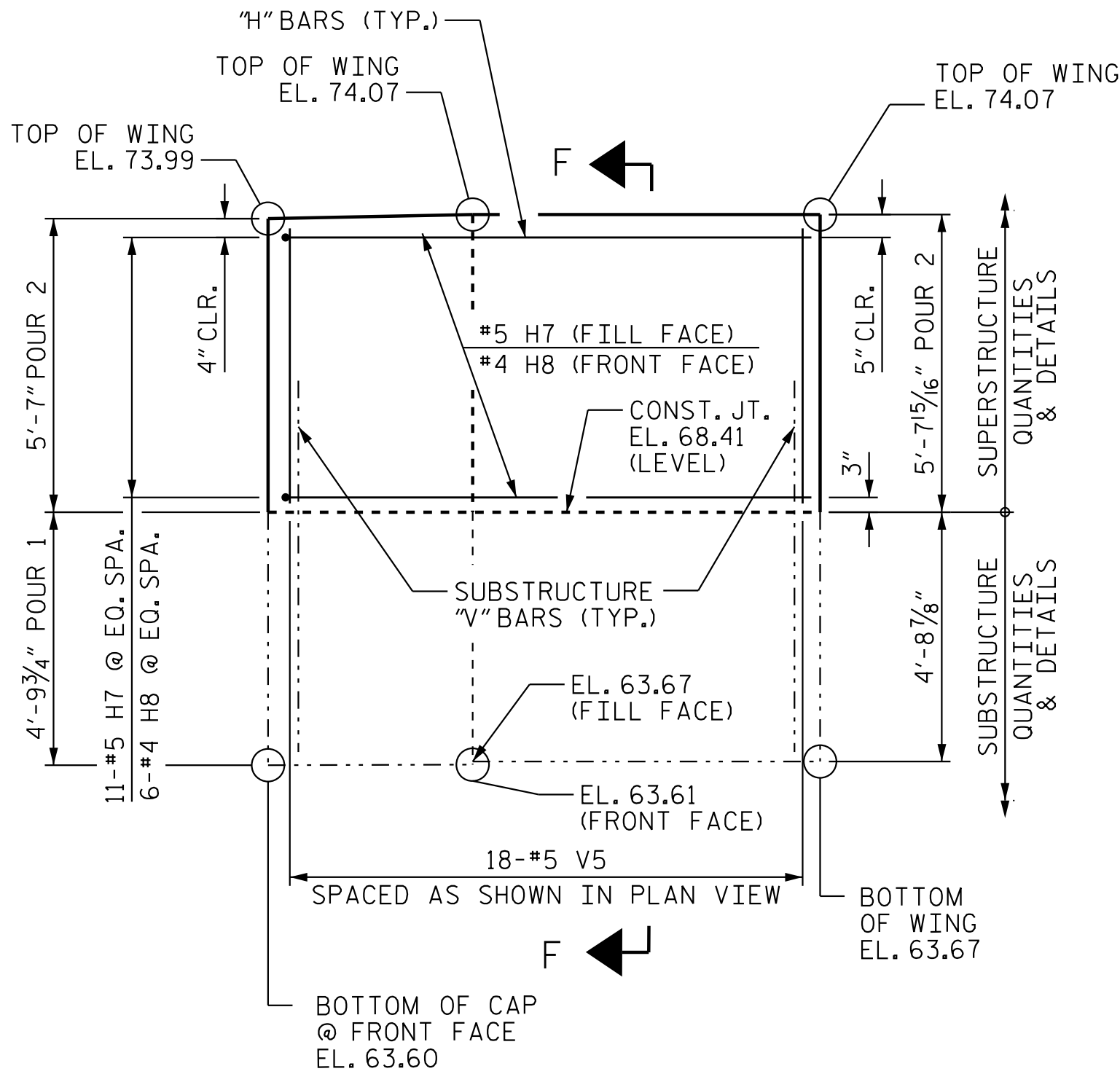


ELEVATION OF LEFT WING (W3)



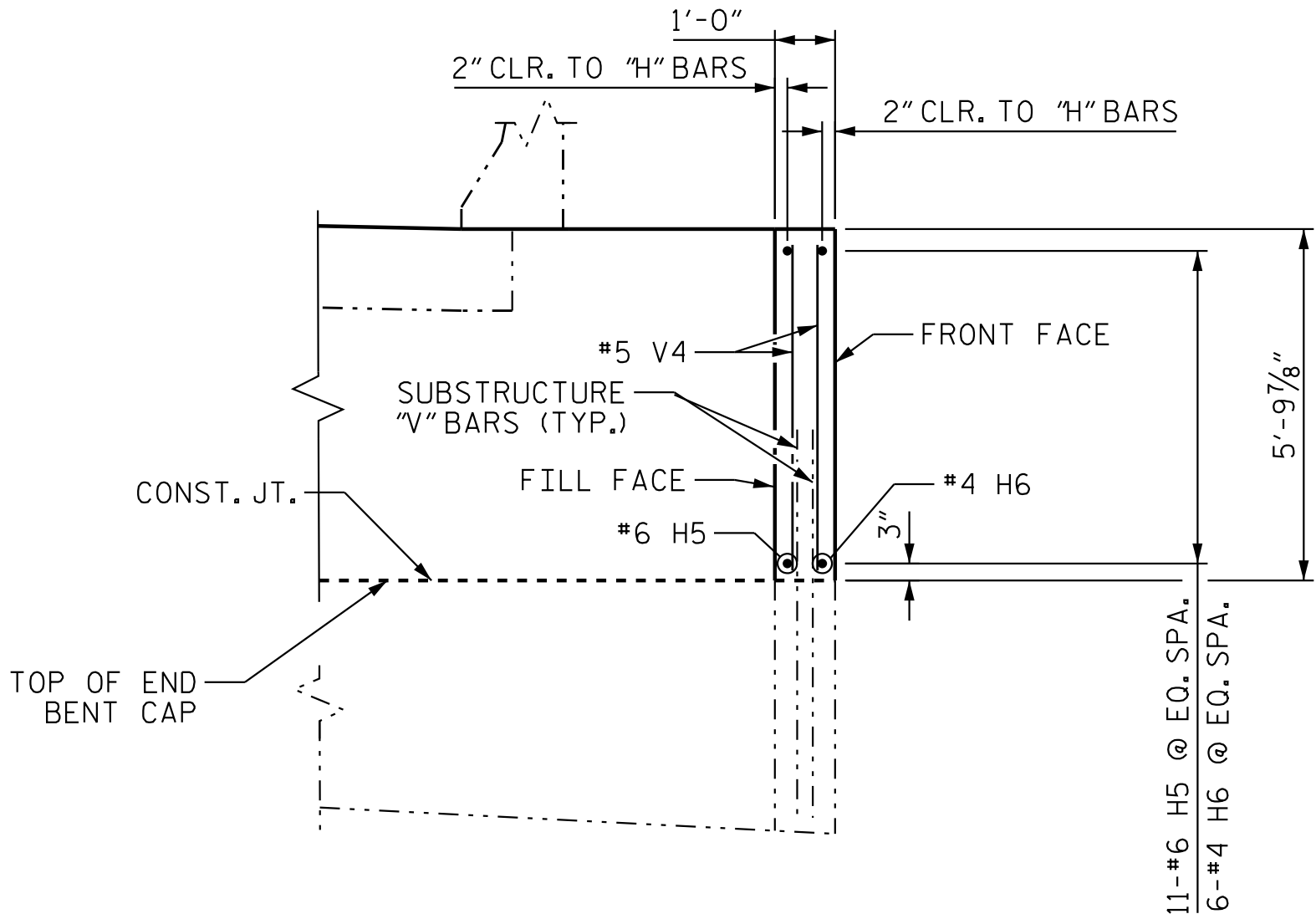
PLAN OF RIGHT WING (W4)

NOTE: (EF) DENOTES
EACH FACE
OF WING

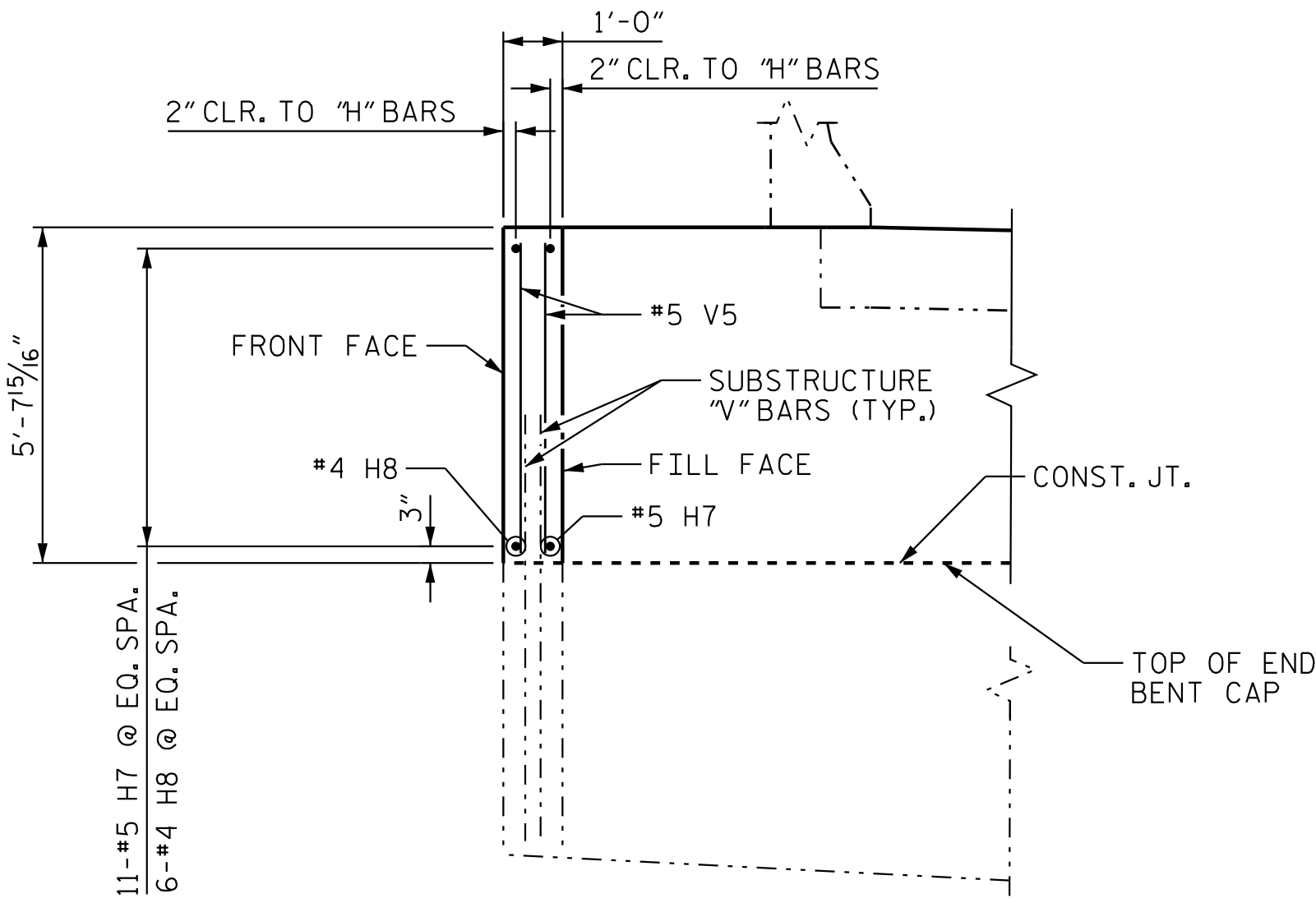


ELEVATION OF RIGHT WING (W4)

NOTE:
THIS SHEET PROVIDES DETAILS
RELEVANT FOR SUPERSTRUCTURE.
FOR SUBSTRUCTURE QTY'S & DETAILS,
REFER TO SHEETS S03-25 & S03-28.



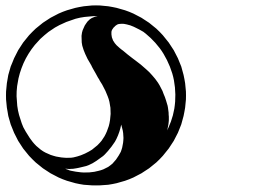
SECTION E-E



SECTION F-F

PROJECT NO. R-3300A
NEW HANOVER COUNTY
STATION: 232+80.54 -L1-

SHEET 4 OF 4



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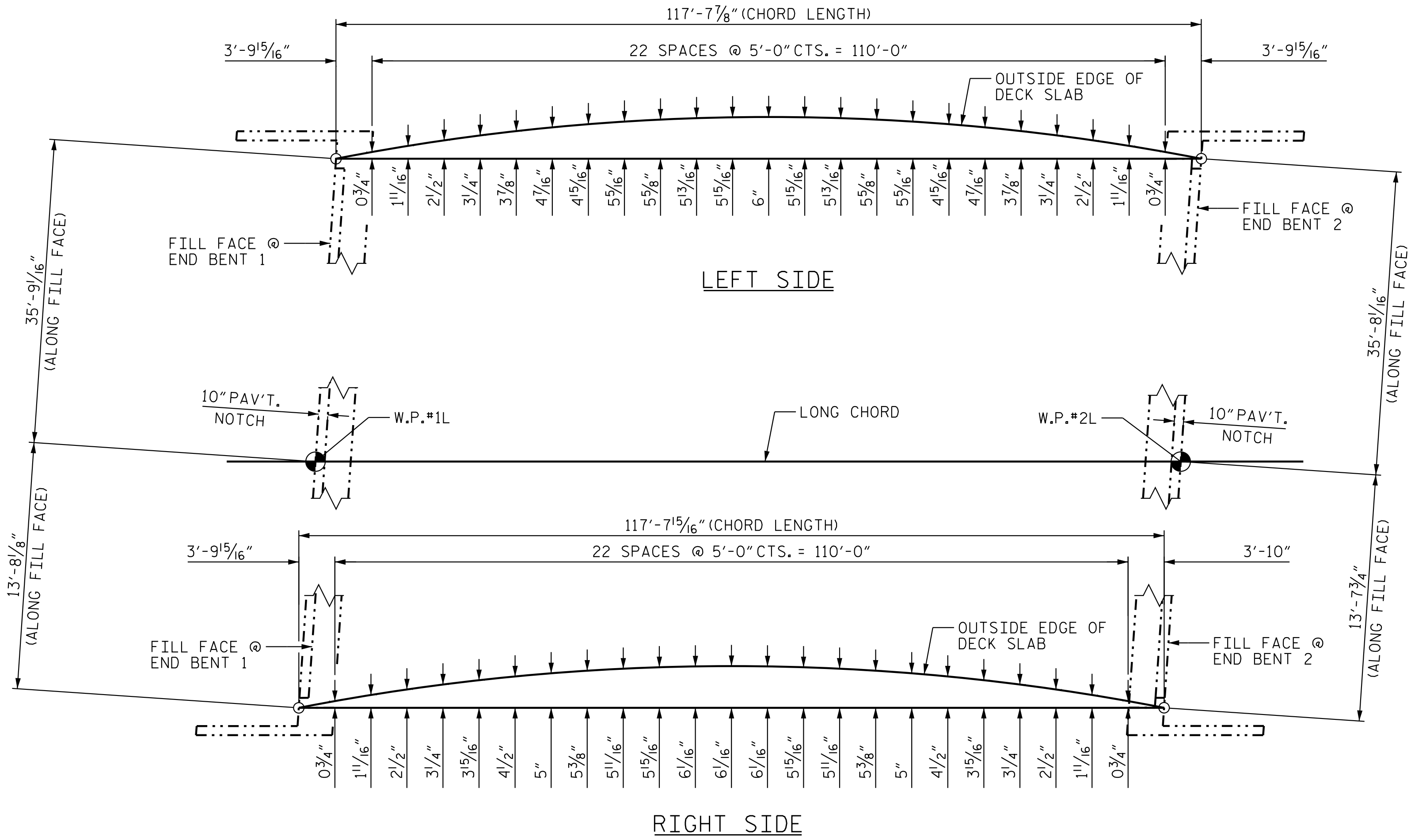


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FINAL UNLESS ALL
SIGNATURES COMPLETED

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH SUPERSTRUCTURE PLAN OF SPAN DETAILS WING WALLS @ END BENT 2 (LEFT LANE)						SHEET NO. S03-13	
REVISIONS						TOTAL SHEETS 32	
NO.	BY:	DATE:	NO.	BY:	DATE:		
1			3				
2			4				

NOTE:
ARC OFFSETS ARE TAKEN ALONG THE OUTSIDE EDGE OF SUPERSTRUCTURE.



ARC OFFSETS - SPAN A

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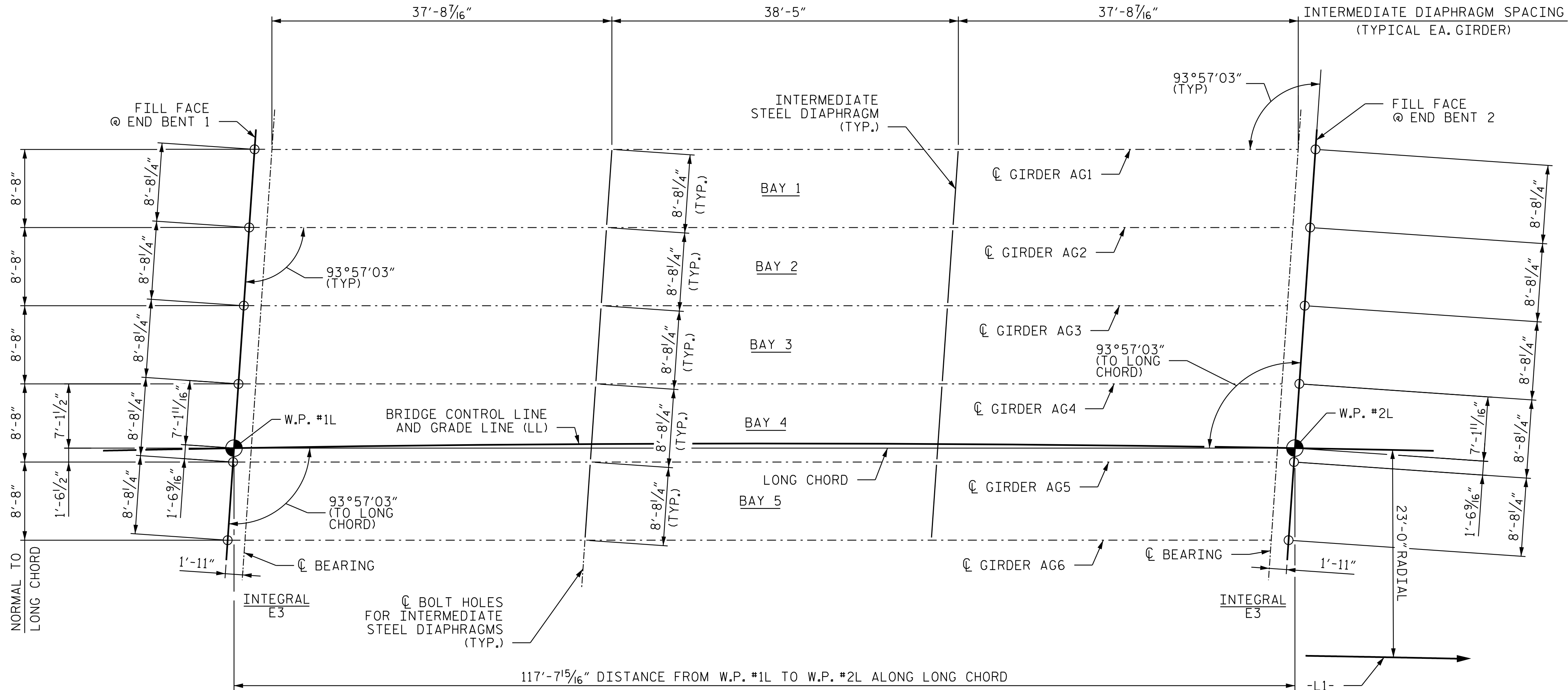
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STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH SUPERSTRUCTURE ARC OFFSETS (LEFT LANE)						SHEET NO. S03-14	
REVISIONS						TOTAL SHEETS 32	
NO.	BY:	DATE:	NO.	BY:	DATE:		
1			3				
2			4				

4/29/2025 4:33:43 PM jgelle

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FRAMING PLAN

NOTES:

ALL DIMENSIONS ARE HORIZONTAL OR VERTICAL UNLESS NOTED.

REFER TO 'PLAN OF SPAN DETAILS - DIAPHRAGMS' FOR END BENT DIAPHRAGMS.

SEE TYPICAL SECTION FOR END BENT DIAPHRAGM DETAILS.

E3 DENOTES ELASTOMERIC BEARING. SEE ELASTOMERIC BEARING DETAILS.

GIRDERS ARE PARALLEL TO LONG CHORD.

FOR INTERMEDIATE STEEL DIAPHRAGMS, SEE "INTERMEDIATE STEEL DIAPHRAGMS FOR MODIFIED 56" PRESTRESSED CONCRETE GIRDERS."

PROJECT NO. R-3300A
NEW HANOVER COUNTY
STATION: 232+80.54 -L1-



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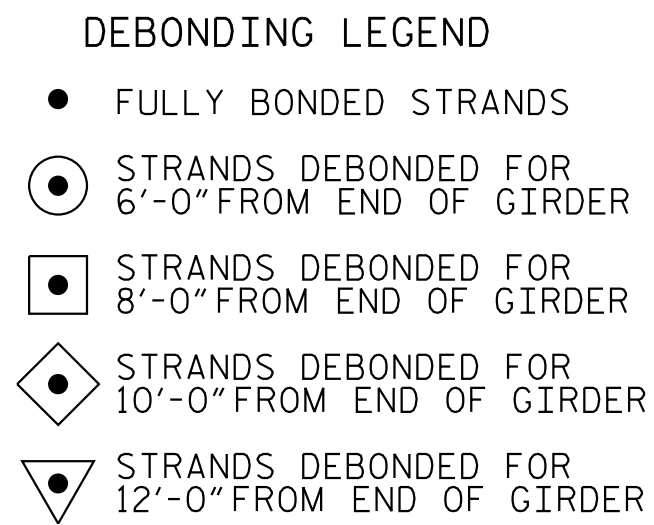
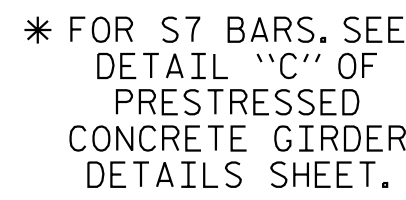
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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE

FRAMING PLAN

(LEFT LANE)

REVISIONS						SHEET NO. S03-15
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 32
2			4			



NOTE: STIRRUPS MAY BE REPOSITIONED SLIGHTLY AS NECESSARY TO CLEAR FORMED HOLES.

DESIGN
ENGINEER
OF RECORD: J.T. KELVINGTON DATE: 04/22/25



A circular professional engineer seal for the State of North Carolina. The outer ring contains the text "NORTH CAROLINA" at the top and "JOSEPH T. KELVINGTON" at the bottom. The inner ring contains the text "PROFESSIONAL" at the top and "ENGINEER" at the bottom. In the center, the text "SEAL" and "13406" are displayed.

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Joe Kellington 4/29/2025
847C9D3780774AF

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Diagram illustrating five types of reinforcement bars (1-5) with their dimensions. All dimensions are out-to-out.

- Bar 1:** L-shaped bar. Top horizontal leg: 8". Vertical leg: 4'-10".
- Bar 2:** U-shaped bar. Top horizontal leg: 5". Vertical leg: 4'-0". Bottom horizontal leg: 10 1/2".
- Bar 3:** Z-shaped bar. Top horizontal leg: 11 3/4". Vertical leg: 4 13/16". Bottom horizontal leg: 1'-8".
- Bar 4:** U-shaped bar. Top horizontal leg: 7 1/2". Vertical leg: 3'-0 1/2".
- Bar 5:** U-shaped bar. Top horizontal leg: 6". Vertical leg: 4'-2". Bottom horizontal leg: 4".

ALL BAR DIMENSIONS ARE OUT-TO-OUT

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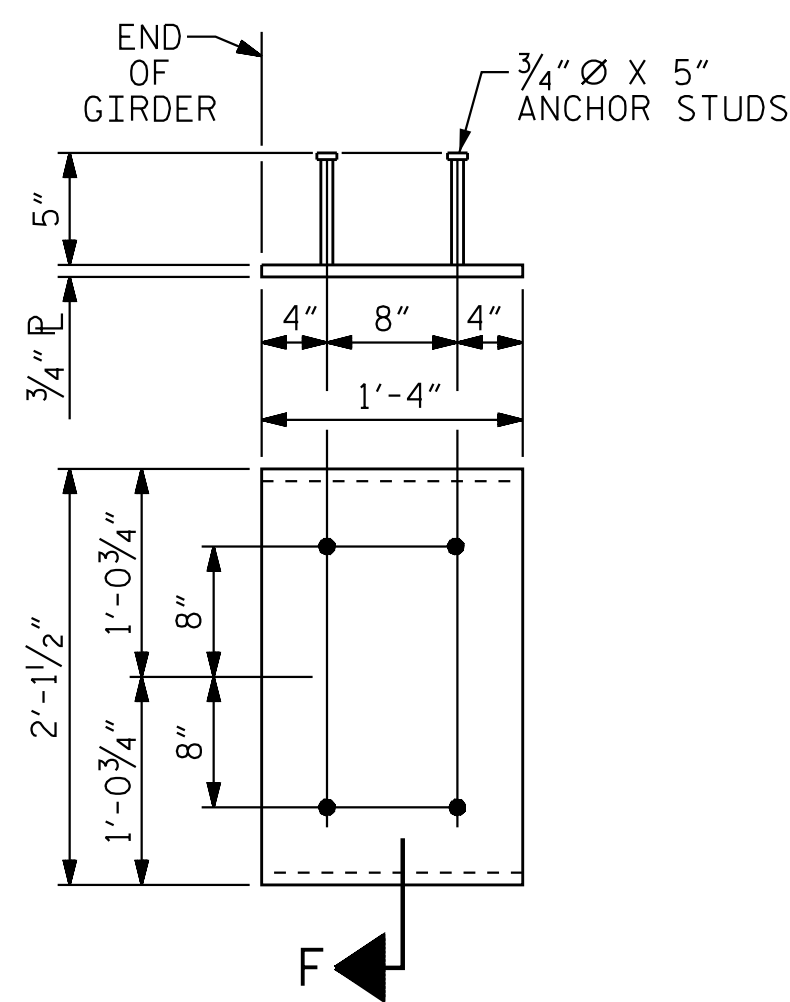
SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE
MODIFIED 56" PRESTRESSED
CONCRETE GIRDER

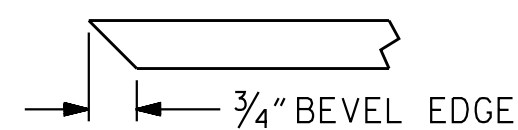
(LEFT LANE)

REVISIONS						SHEET NO. S03-16
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 32
2			4			



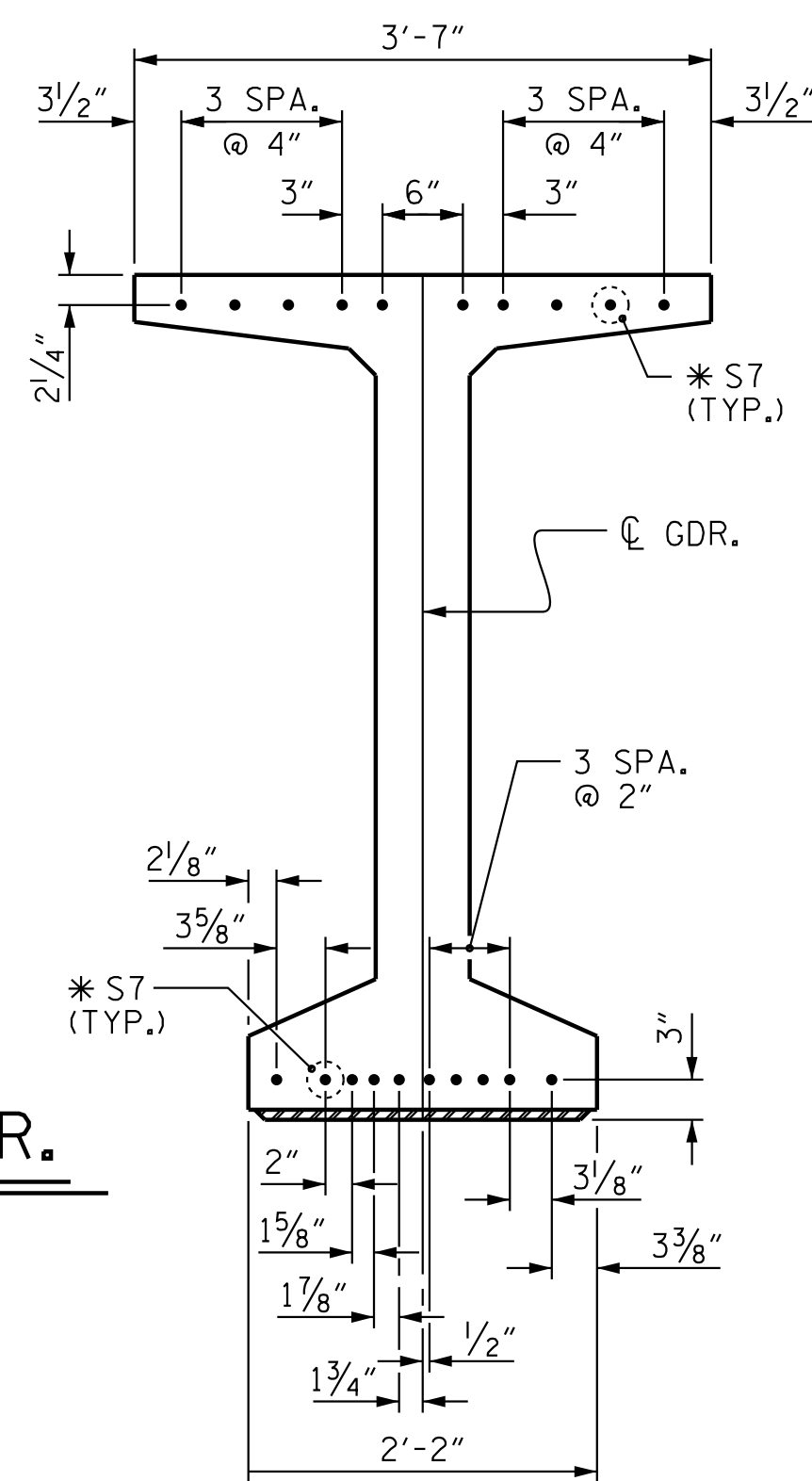
EMBEDDED PLATE "B-1" DETAILS
FOR MODIFIED 56" PRESTRESSED CONC. GDR.

(2 REQ'D PER GIRDER)

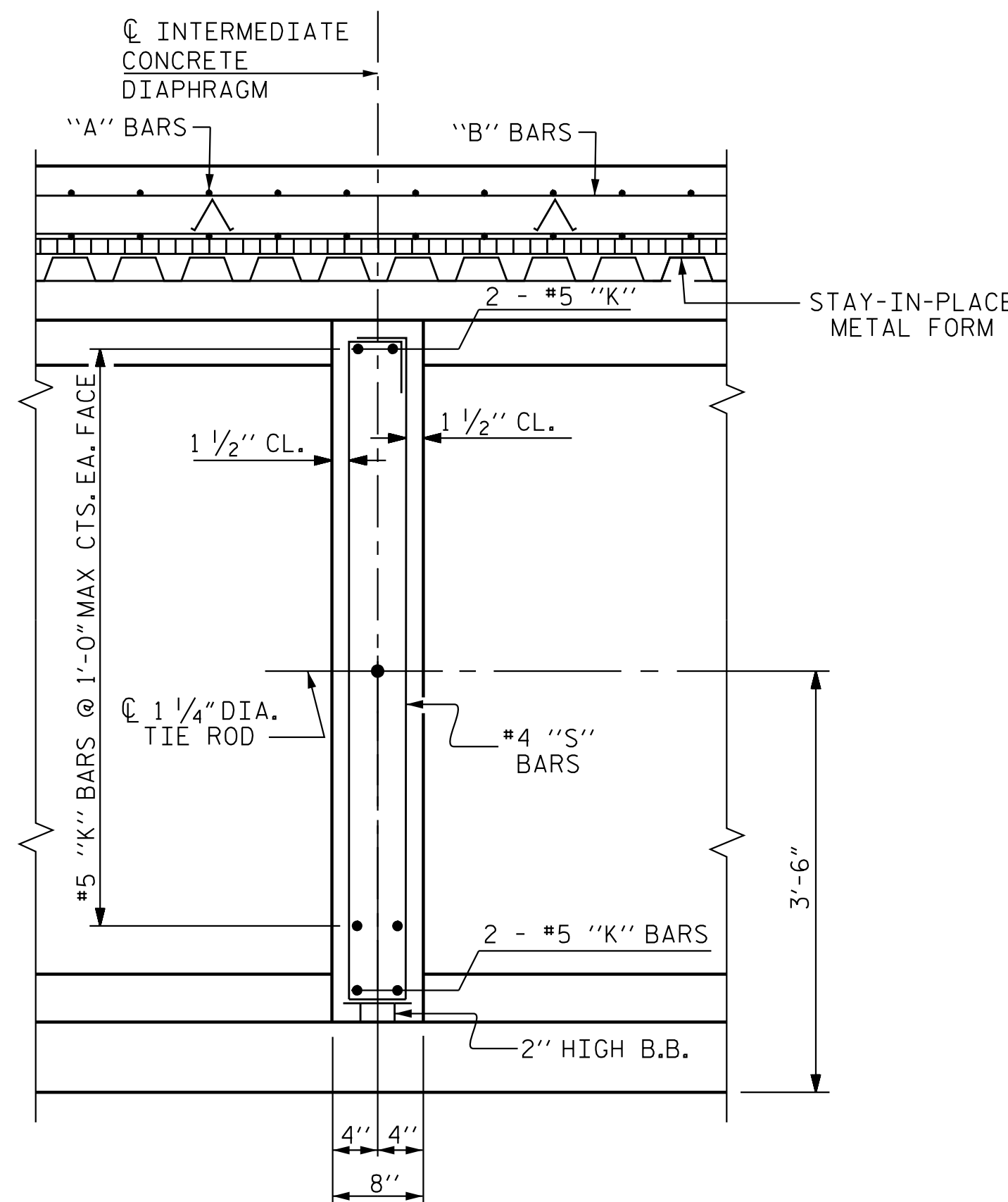


SECTION ``F''

(SEE NOTES)

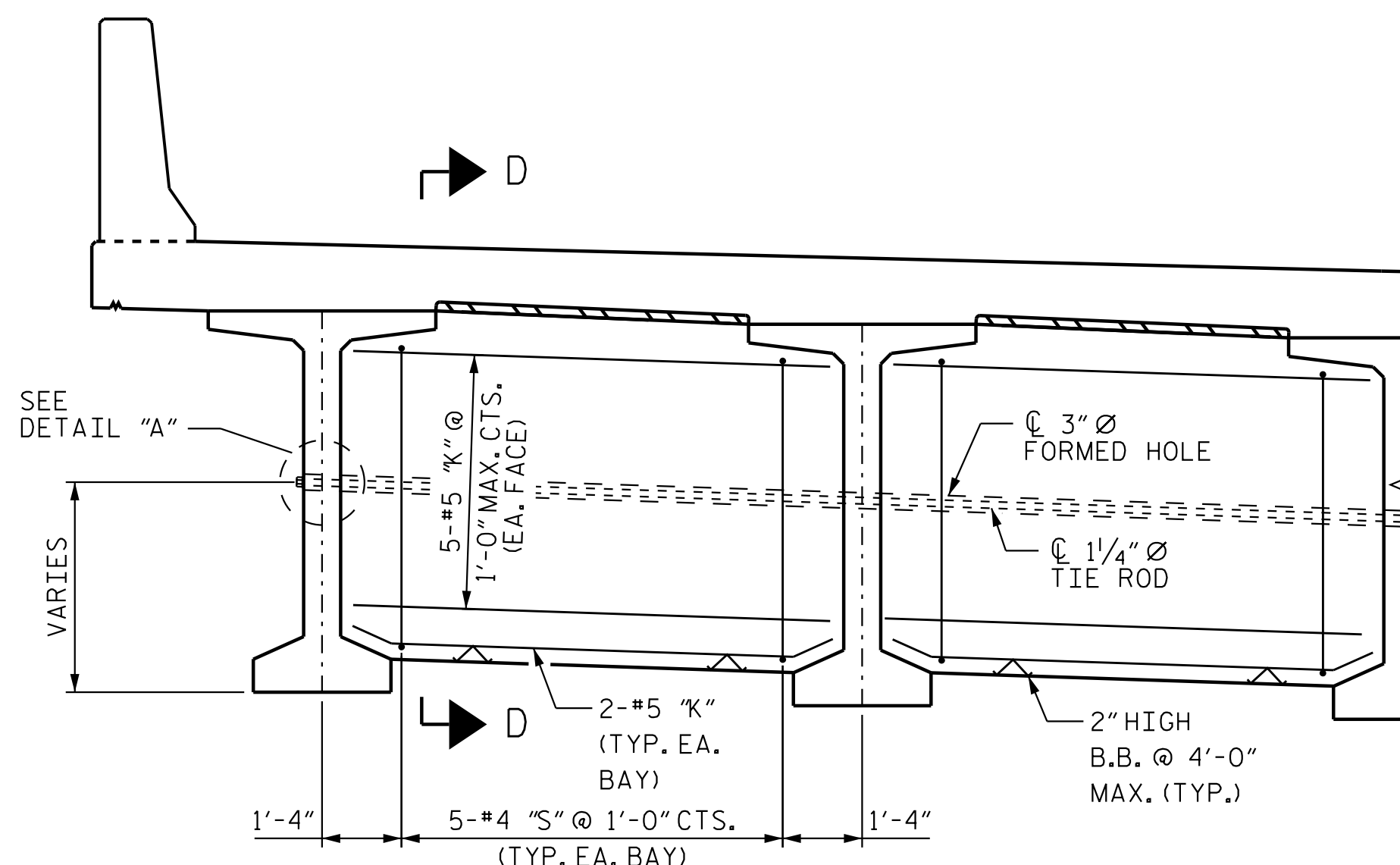


DETAIL ``C''

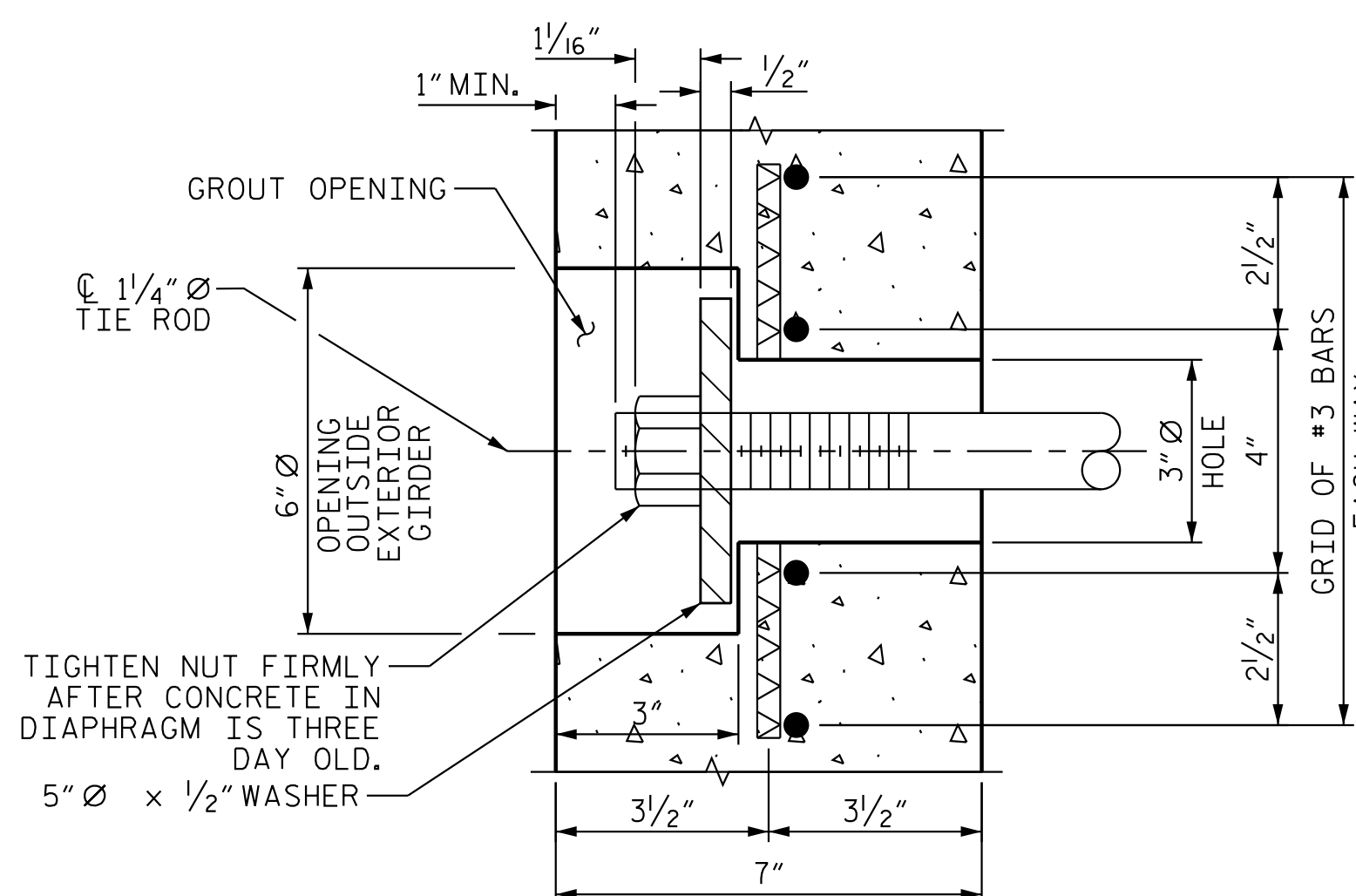


SECTION D-D

SECTION THRU CAST-IN-PLACE
CONCRETE INTERMEDIATE DIAPHRAGM

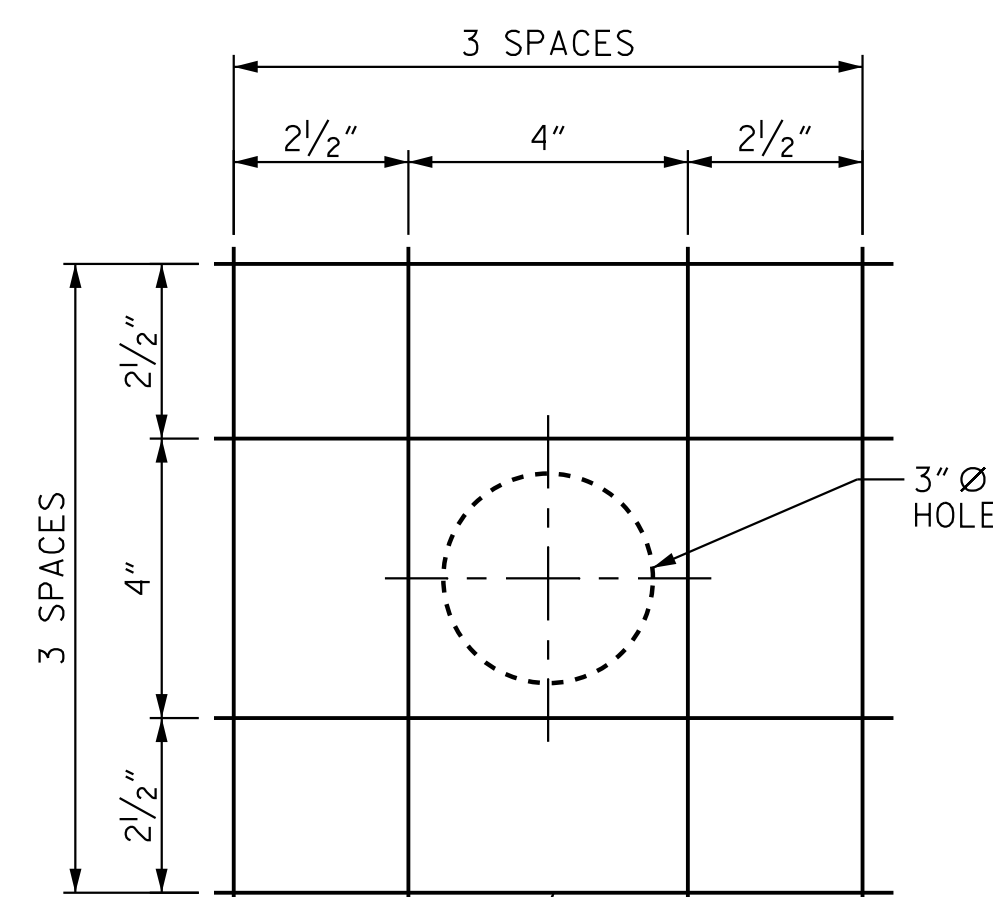


PART - SECTION AT OPTIONAL CAST-IN-PLACE
CONCRETE INTERMEDIATE DIAPHRAGM



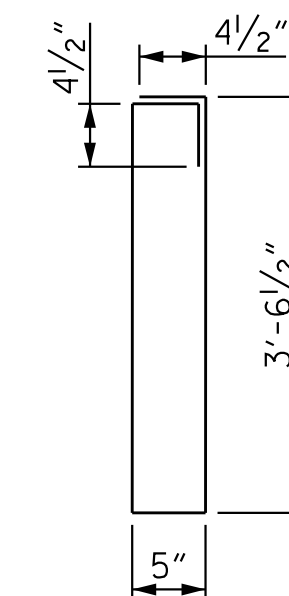
DETAIL "A"

WEIGHT OF #3 BARS ARE NOT
INCLUDED IN THE BILL OF
MATERIAL.



#3 BAR GRID

TACK WELDS, IF USED, SHALL
NOT REDUCE THE AREA OF
THE #3 BARS



#4 "S" BAR

PROJECT NO. R-3300A
NEW HANOVER COUNTY
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SHEET 2 OF 3

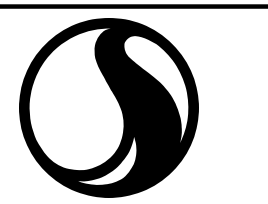


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Joe Kelvington 4/29/202

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STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						
STANDARD MODIFIED 56" PRESTRESSED CONCRETE GIRDER DETAILS						
(LEFT LANE)						
REVISIONS						SHEET NO. S03-1
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2			4			

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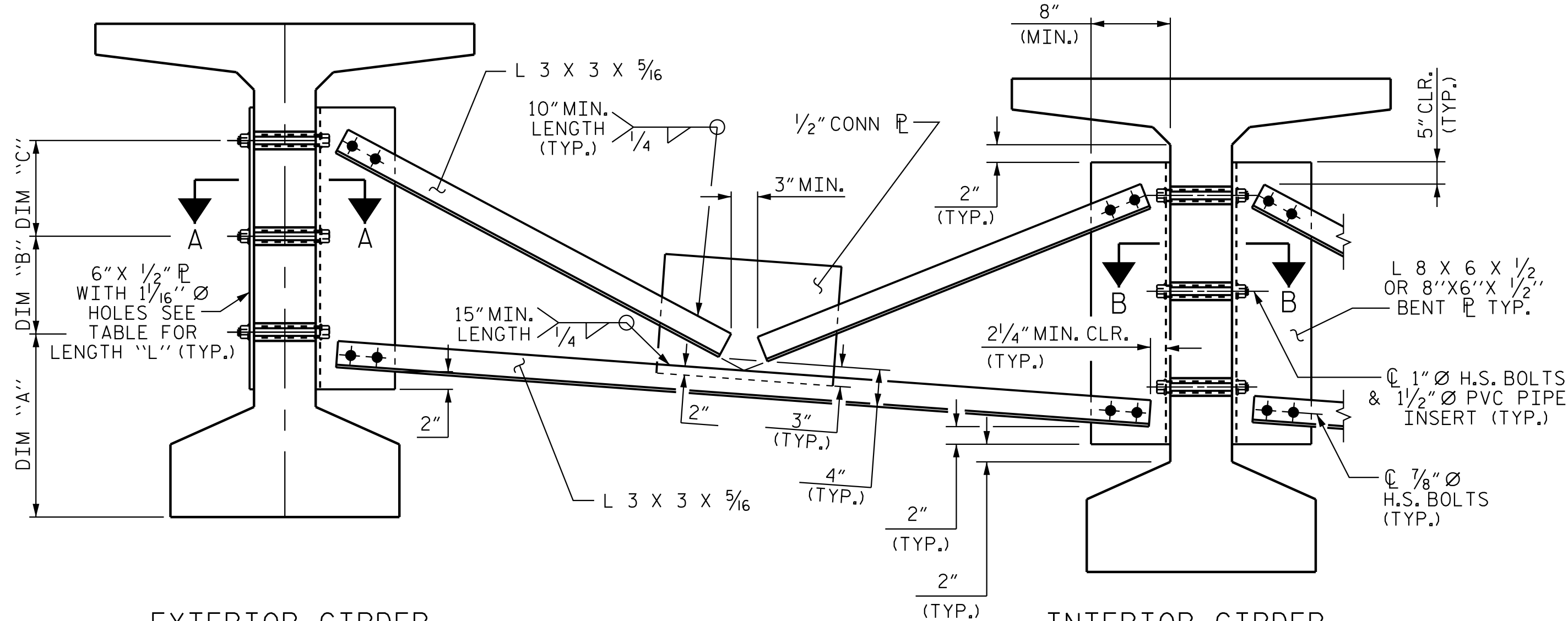
DRAWN BY : EEM 11/91
CHECKED BY : VAP 11/91

REV. 1/15	MAA/TMG
REV. 2/15	MAA/TMG
REV. 12/17	MAA/THC

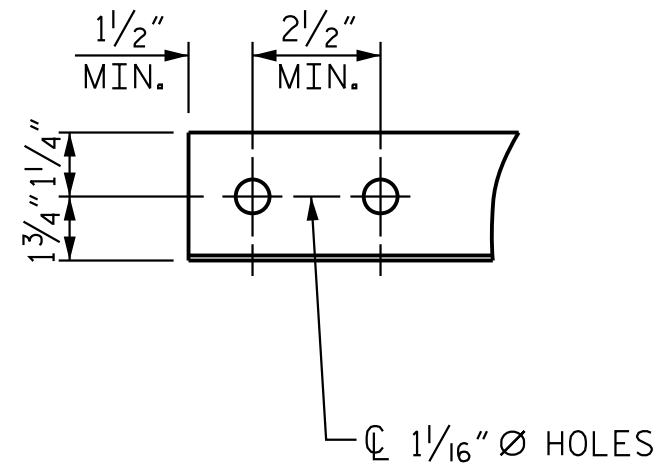
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ENGINEER
OF RECORD: J.T. KELVINGTON DATE : 04/22/25

4/29/2025 4:33:47 PM jgelle

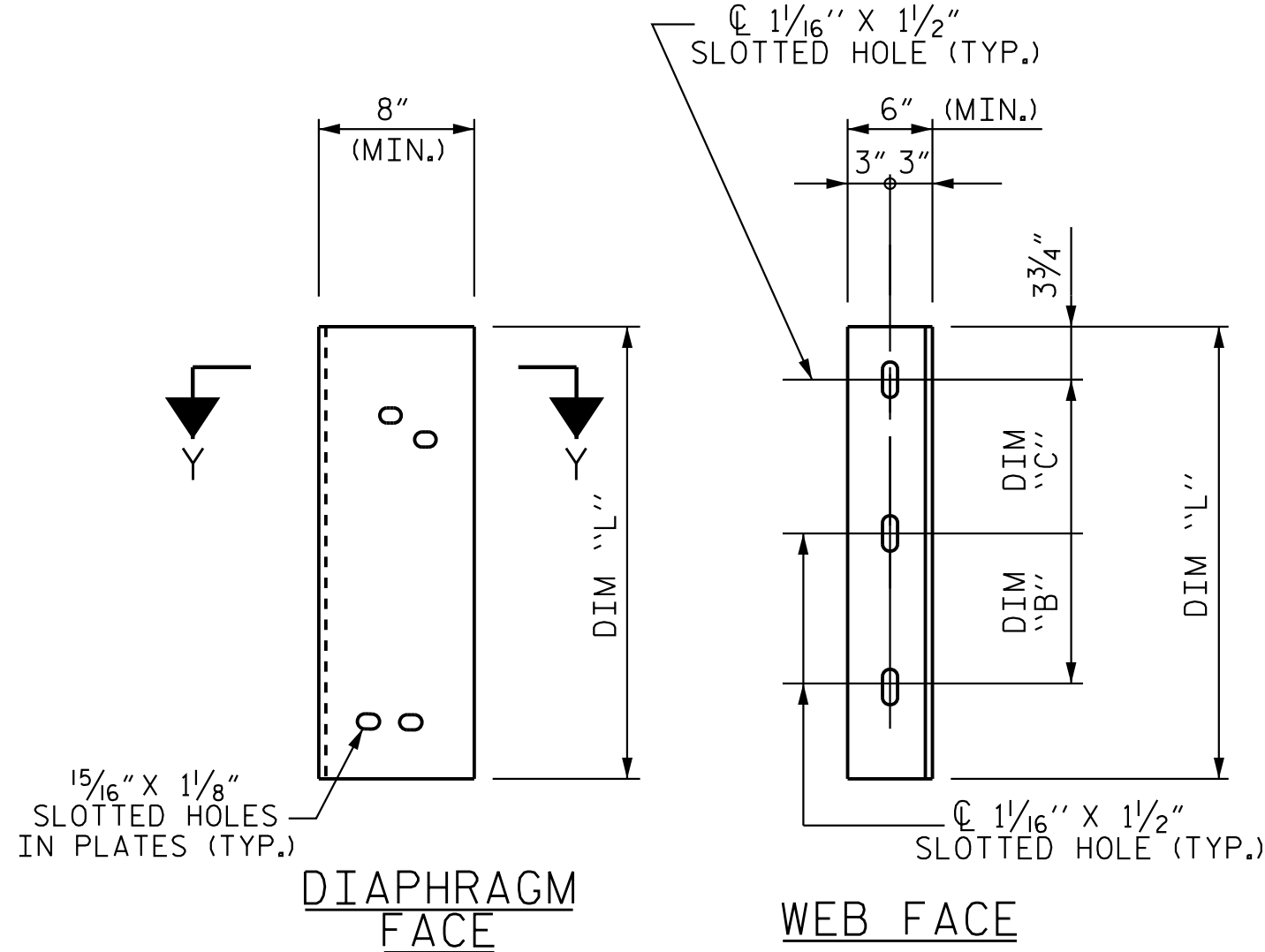
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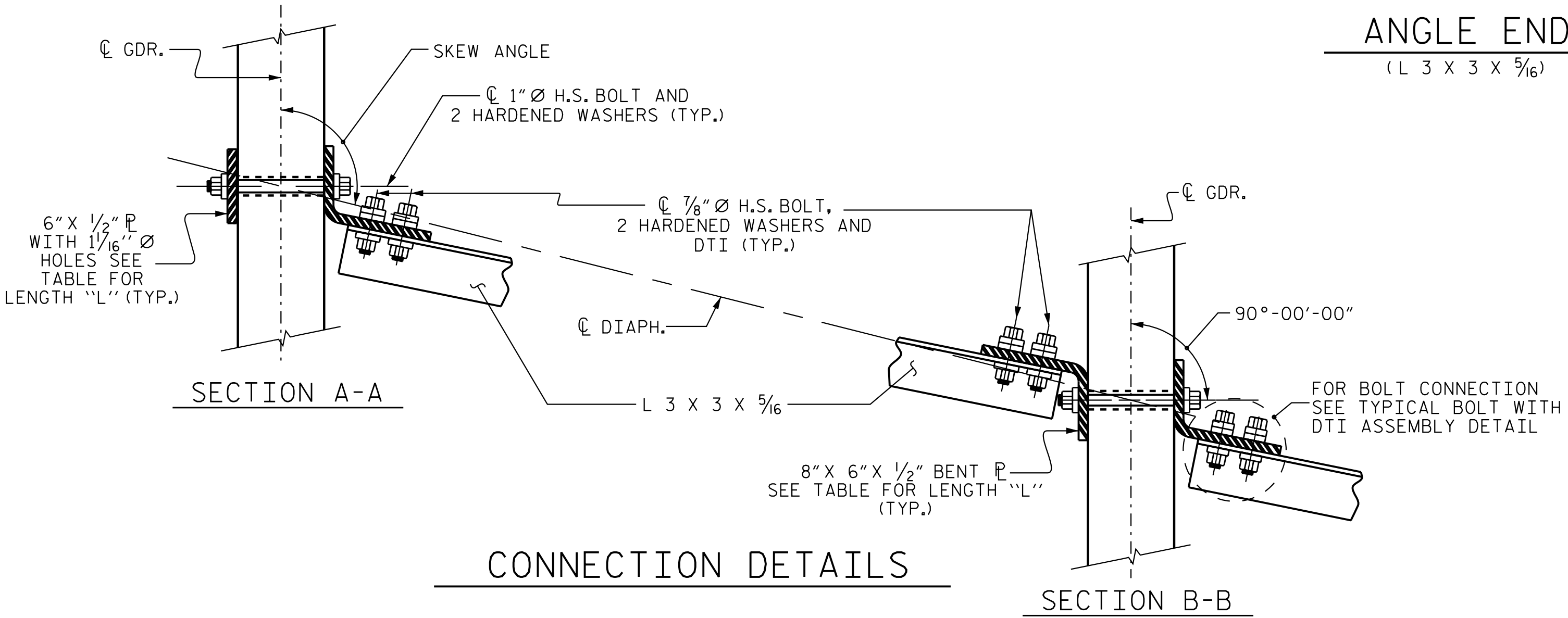
PART SECTION AT INTERMEDIATE DIAPHRAGM
MODIFIED 56" PRESTRESSED CONC. GDR. SHOWN



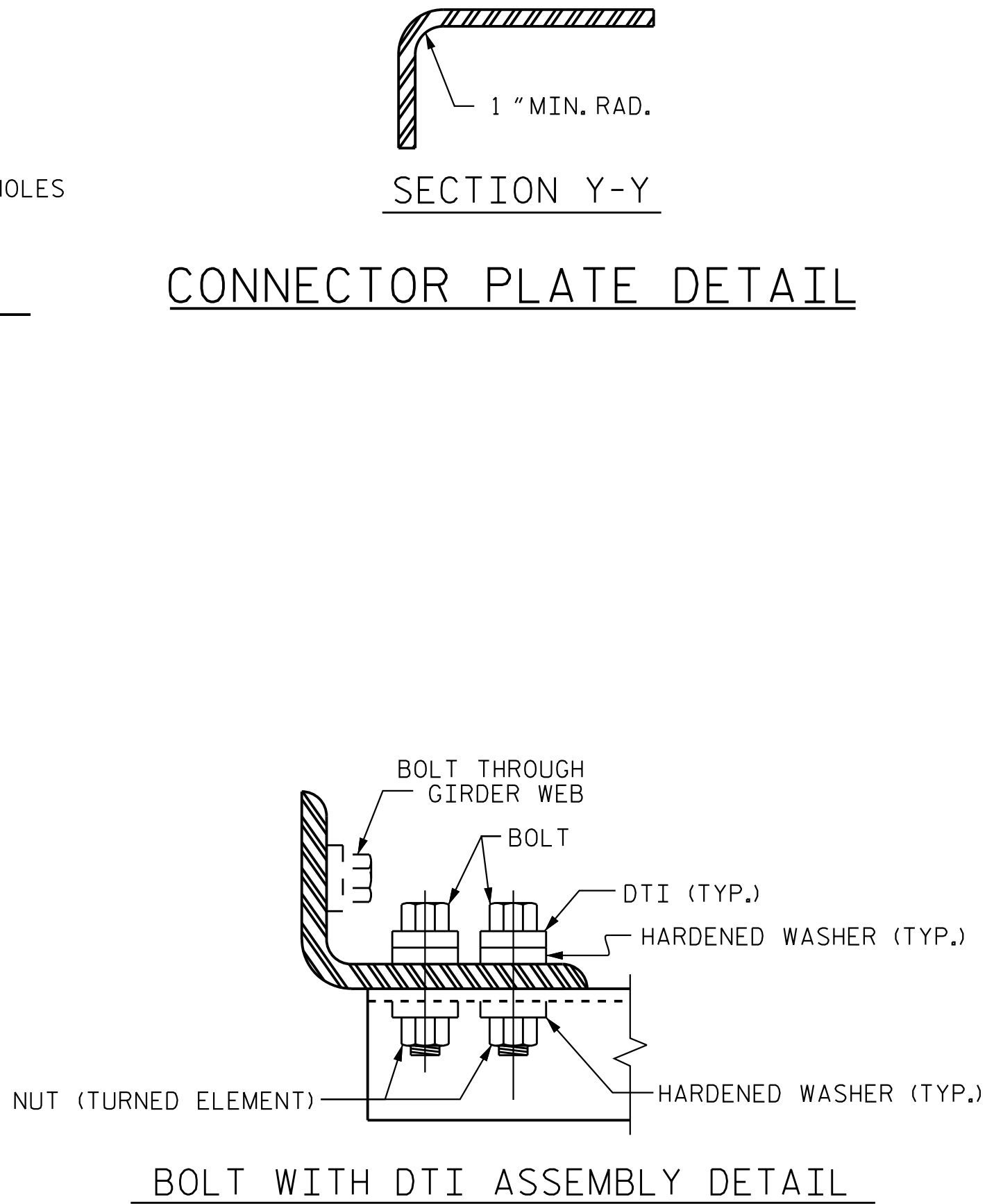
ANGLE END
(L 3 x 3 x 5/16)



CONNECTOR PLATE DETAIL



CONNECTION DETAILS



BOLT WITH DTI ASSEMBLY DETAIL

STRUCTURAL STEEL NOTES

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

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

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

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

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

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

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

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

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

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

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

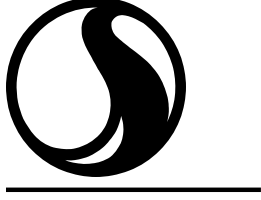
THE COST OF THE STEEL DIAPHRAGMS AND ASSEMBLIES SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE GIRDERS.

TABLE

GIRDER TYPE	DIM "A"	DIM "B"	DIM "C"	DIM "L"
MODIFIED 56" PREST. CONC. GDR.	1'-9"	10 7/8"	10 7/8"	2'-8"

PROJECT NO. R-3300A
NEW HANOVER COUNTY
STATION: 232+80.54 -L1-

SHEET 3 OF 3



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DRAWN BY : RWW 11/09
CHECKED BY : GM 11/09

REV. 10/11/11
REV. 12/17

MAA/GM
MAA/THC

DESIGN
ENGINEER
OF RECORD: J.T. KELVINGTON DATE : 04/22/25



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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD

INTERMEDIATE
STEEL DIAPHRAGMS FOR
MODIFIED 56" PRESTRESSED
CONCRETE GIRDERS
(LEFT LANE)

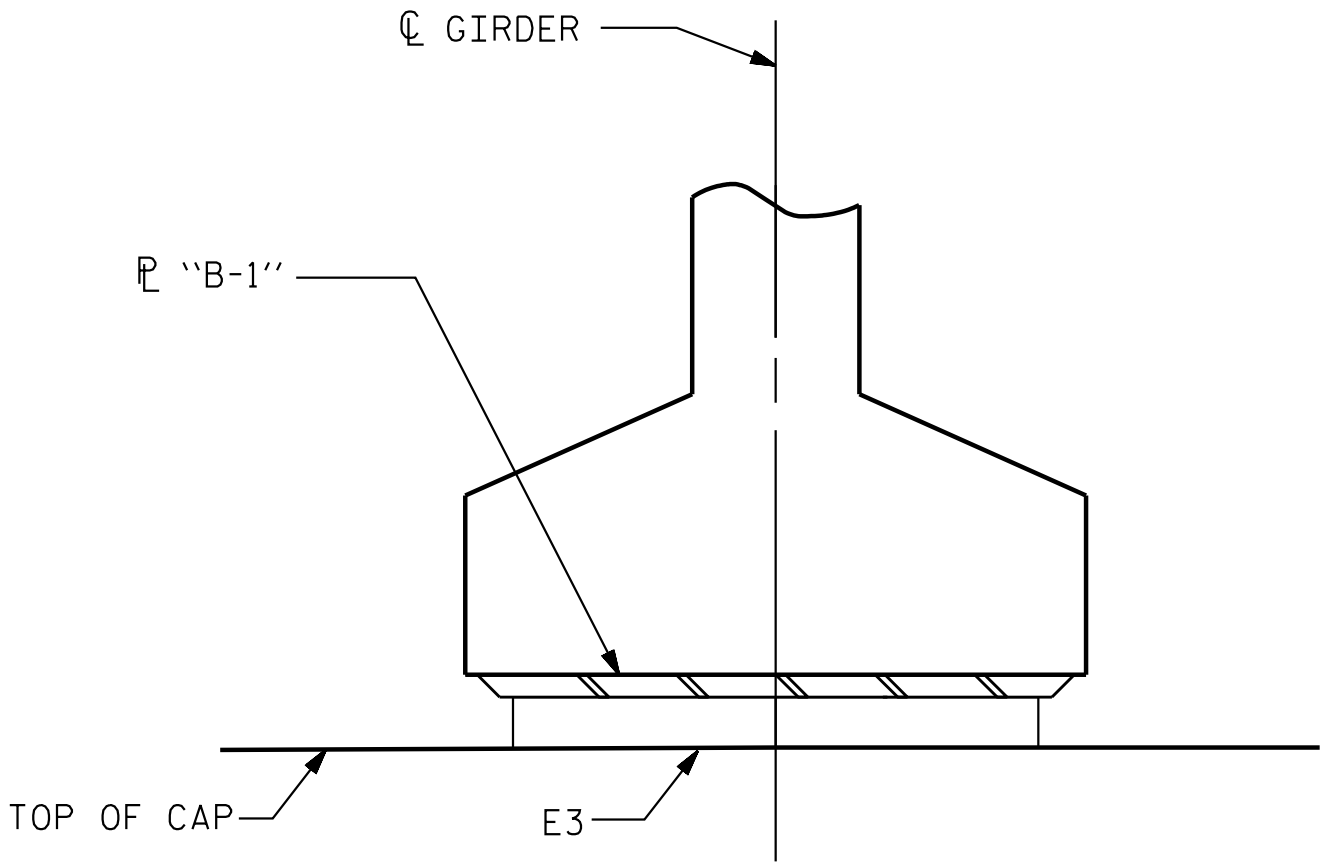
REVISIONS						SHEET NO. S03- 18
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1			3			TOTAL SHEETS 32
2			4			

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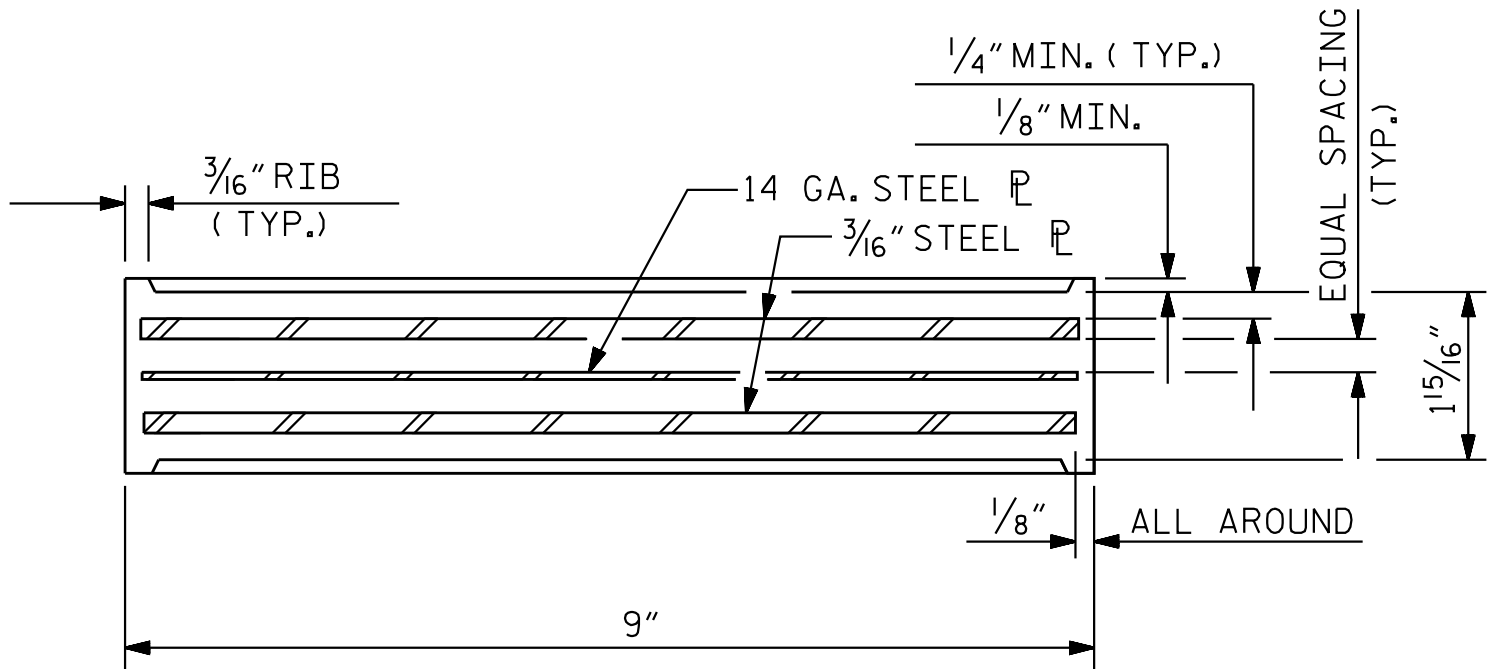
NOTES

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

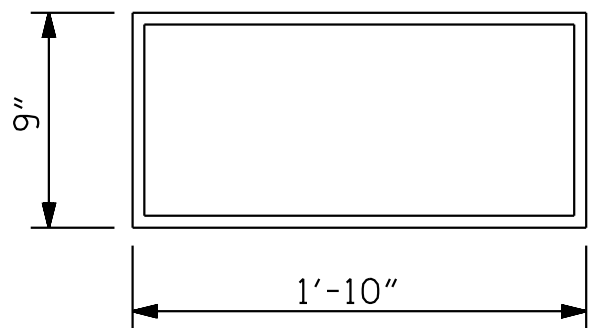
FOR STEEL REINFORCED ELASTOMERIC BEARINGS, SEE STANDARD SPECIFICATIONS.



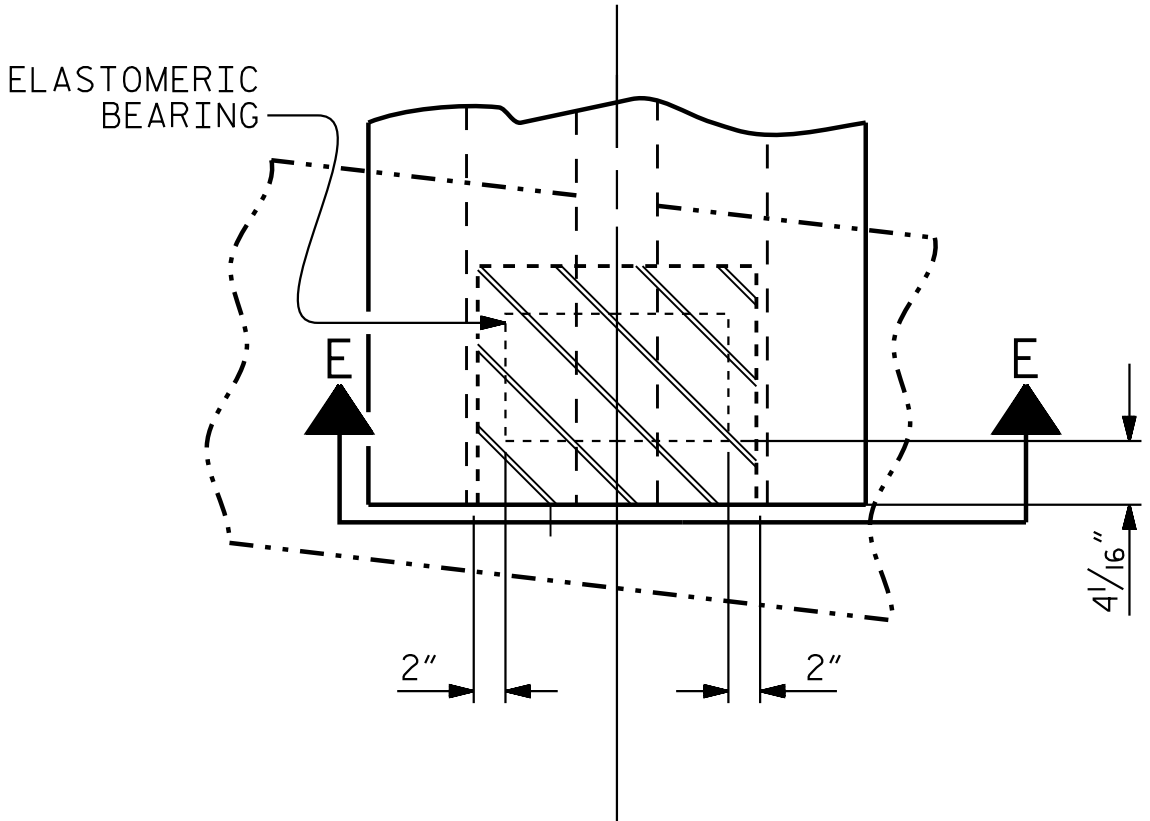
INTEGRAL
SECTION E-E



TYPICAL SECTION OF ELASTOMERIC BEARINGS



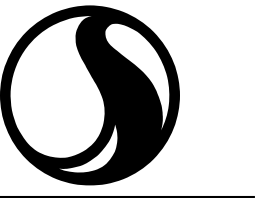
E3 (12 REQ'D)
PLAN VIEW OF ELASTOMERIC BEARING
TYPE IV



TYPICAL PLAN
(SHOWING INTEGRAL END BENT)

MAXIMUM ALLOWABLE SERVICE LOADS	
D.L.+L.L. (NO IMPACT)	
TYPE IV	225 k

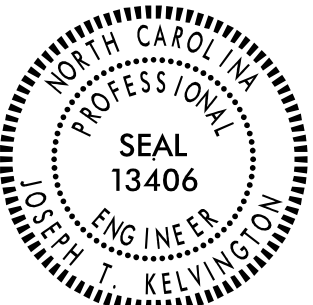
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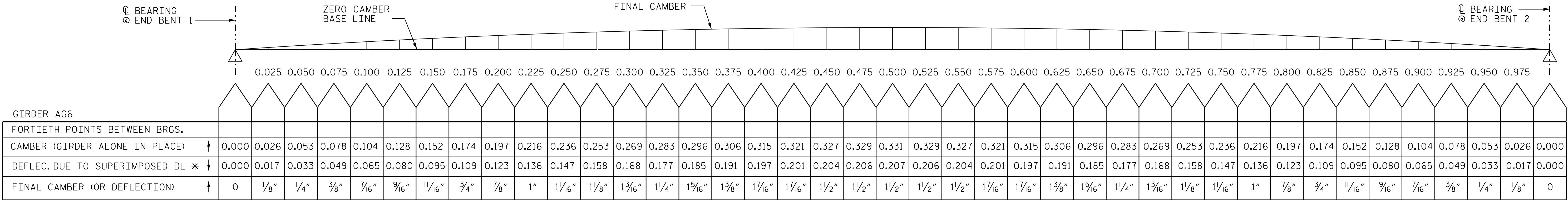
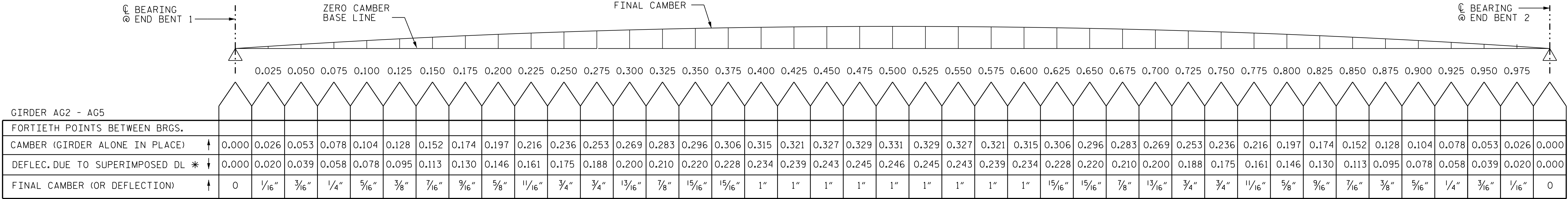
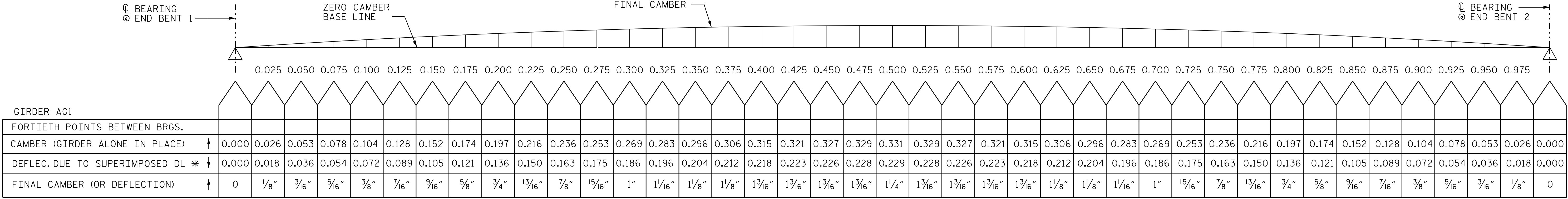
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
ELASTOMERIC
BEARING DETAILS
PRESTRESSED CONCRETE
GIRDER SUPERSTRUCTURE
(LEFT LANE)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S03-19
1			3			TOTAL SHEETS 32
2			4			

STD. NO. EB3

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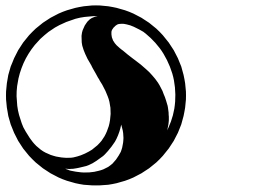
* INCLUDES FUTURE WEARING SURFACE IN SUPERIMPOSED DEAD LOAD.

SCHEMATIC CAMBER ORDINATES

ALL VALUES ARE SHOWN IN DECIMALS OF A FOOT EXCEPT "FINAL CAMBER (OR DEFLECTION)" WHICH IS SHOWN IN INCHES.

(+) FINAL CAMBER INDICATES NET UPWARD DISPLACEMENT.

PROJECT NO. R-3300A
NEW HANOVER COUNTY
STATION: 232+80.54 -L1-



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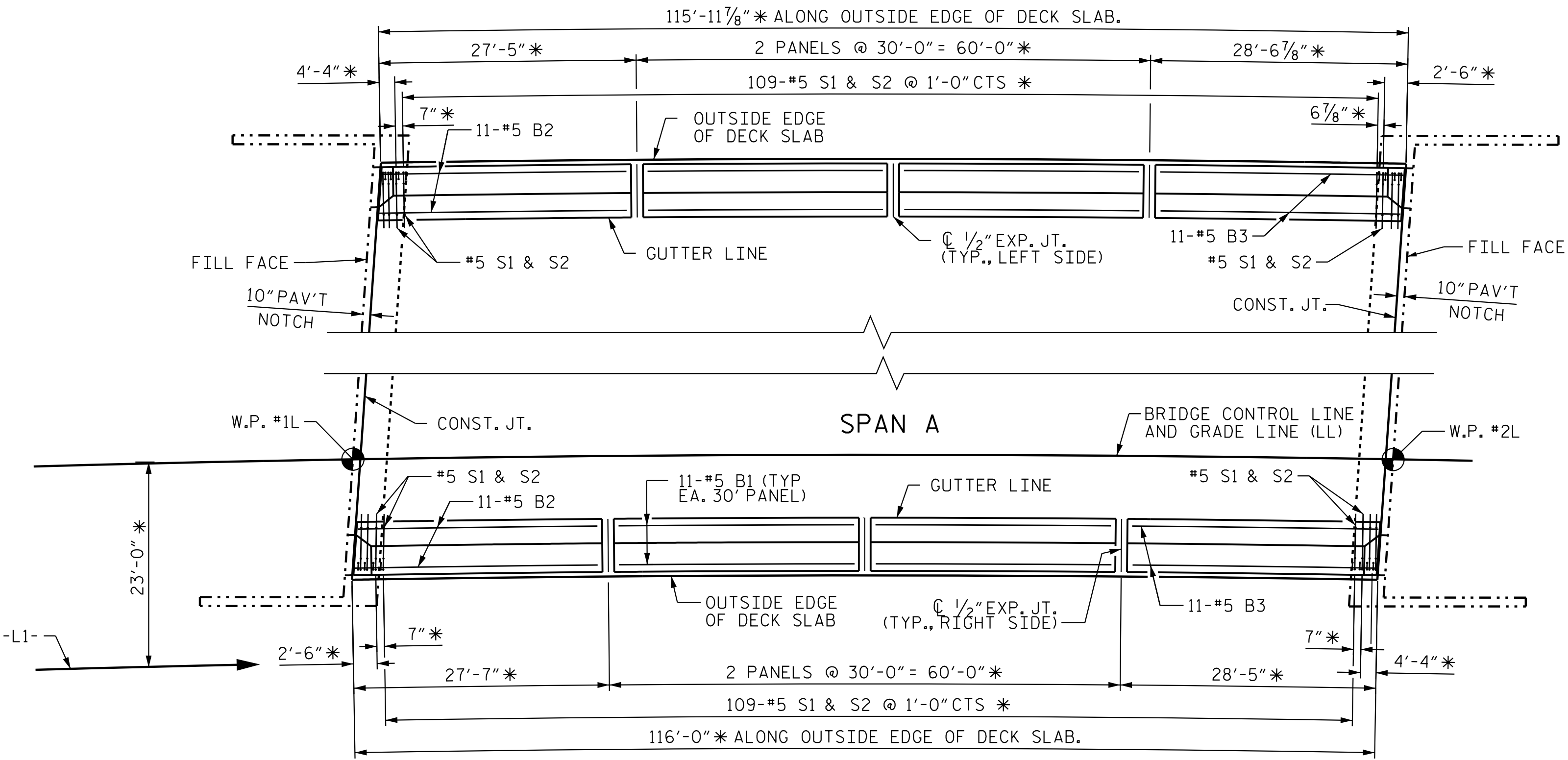
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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE

DEAD LOAD
DEFLECTIONS

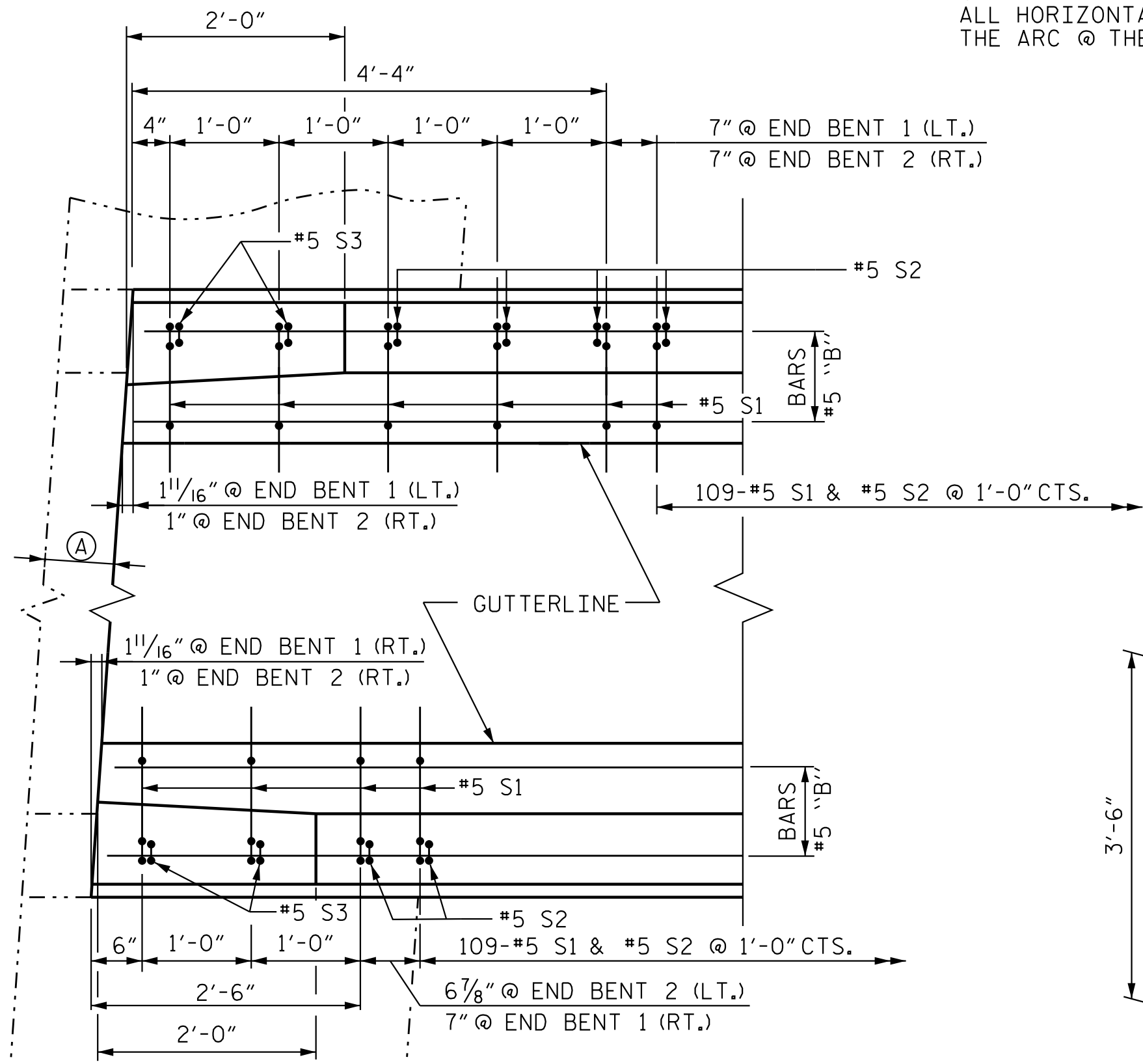
(LEFT LANE)

REVISIONS						SHEET NO. S03-20
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 32
2			4			



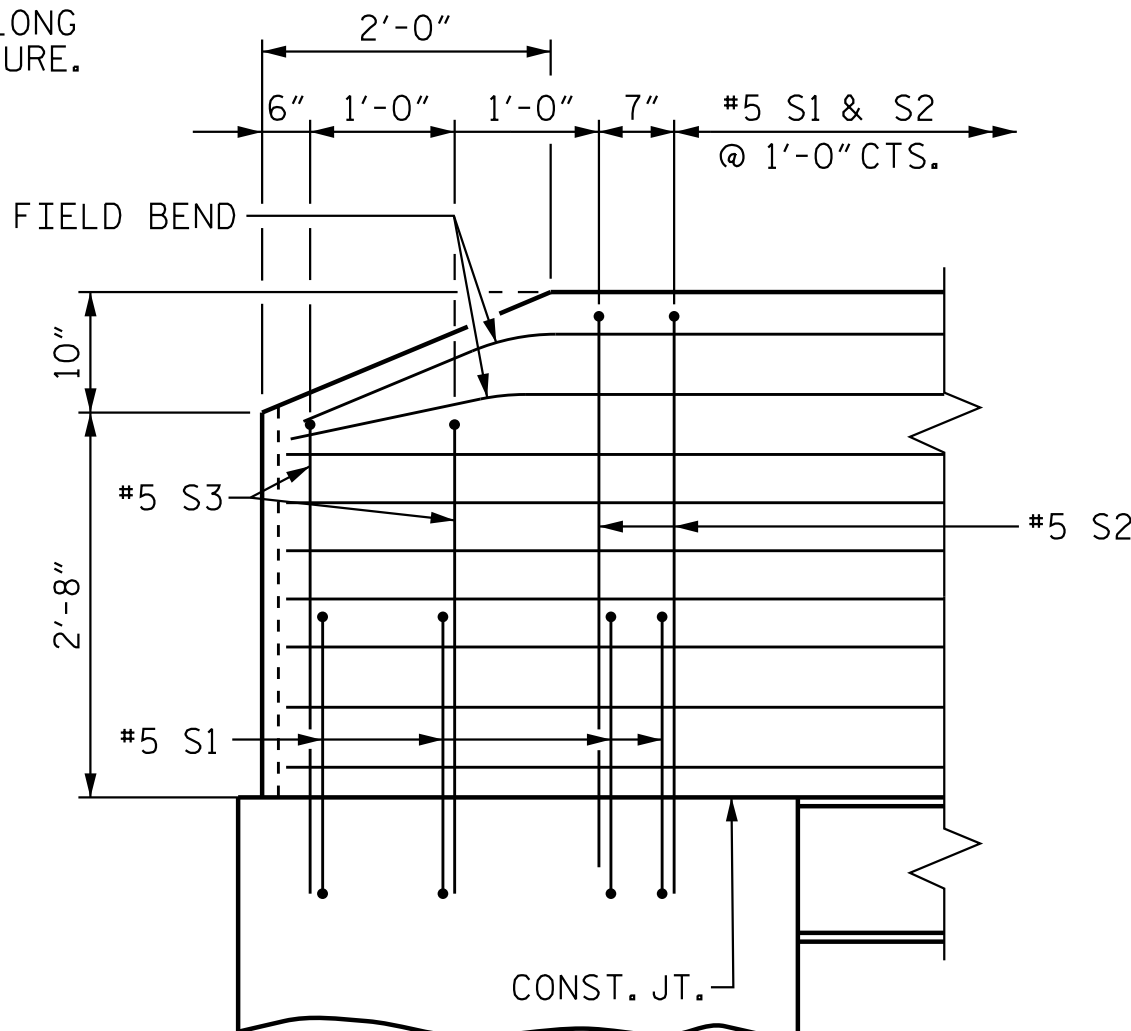
BARRIER RAIL PLAN

* ARC DIMENSION
ALL HORIZONTAL DIMENSIONS ARE MEASURED ALONG
THE ARC @ THE OUTSIDE EDGE OF SUPERSTRUCTURE.



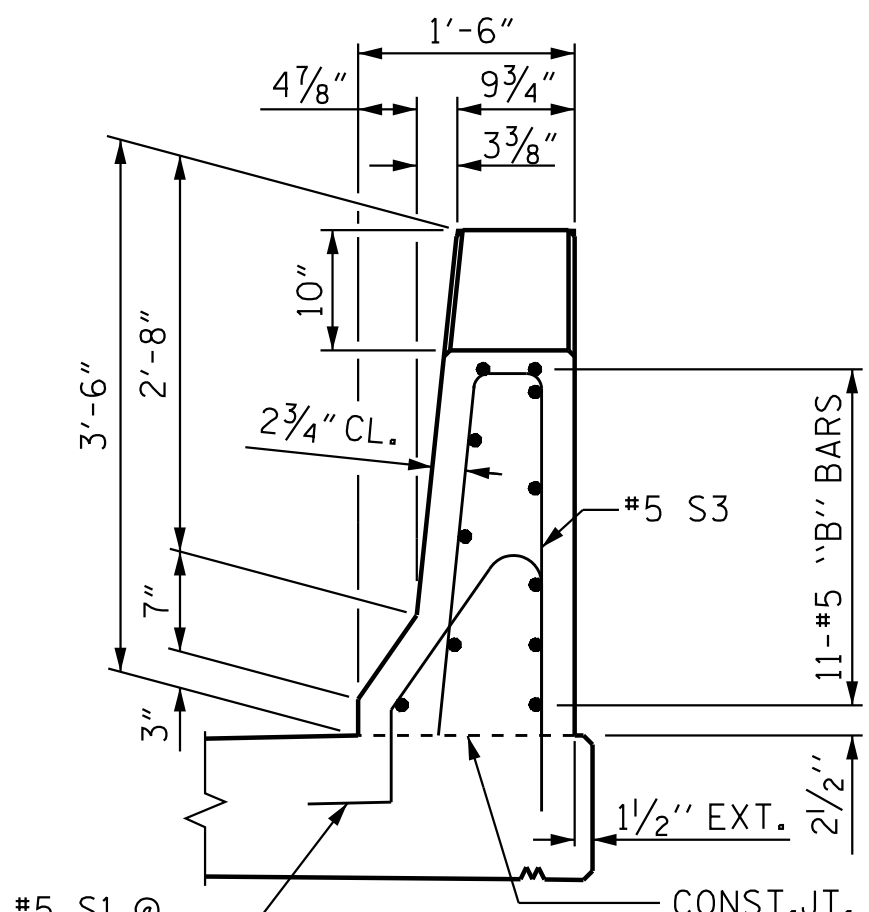
PLAN

(A) 10" PAVEMENT NOTCH



SIDE VIEW

LEFT SIDE @ END BENT 2/ RIGHT
SIDE @ END BENT 1 SHOWN.
OTHER LOCATIONS SIMILAR.



END VIEW

END OF RAIL DETAILS

END BENT 1 SHOWN END BENT 2 TYP. BY ROTATION

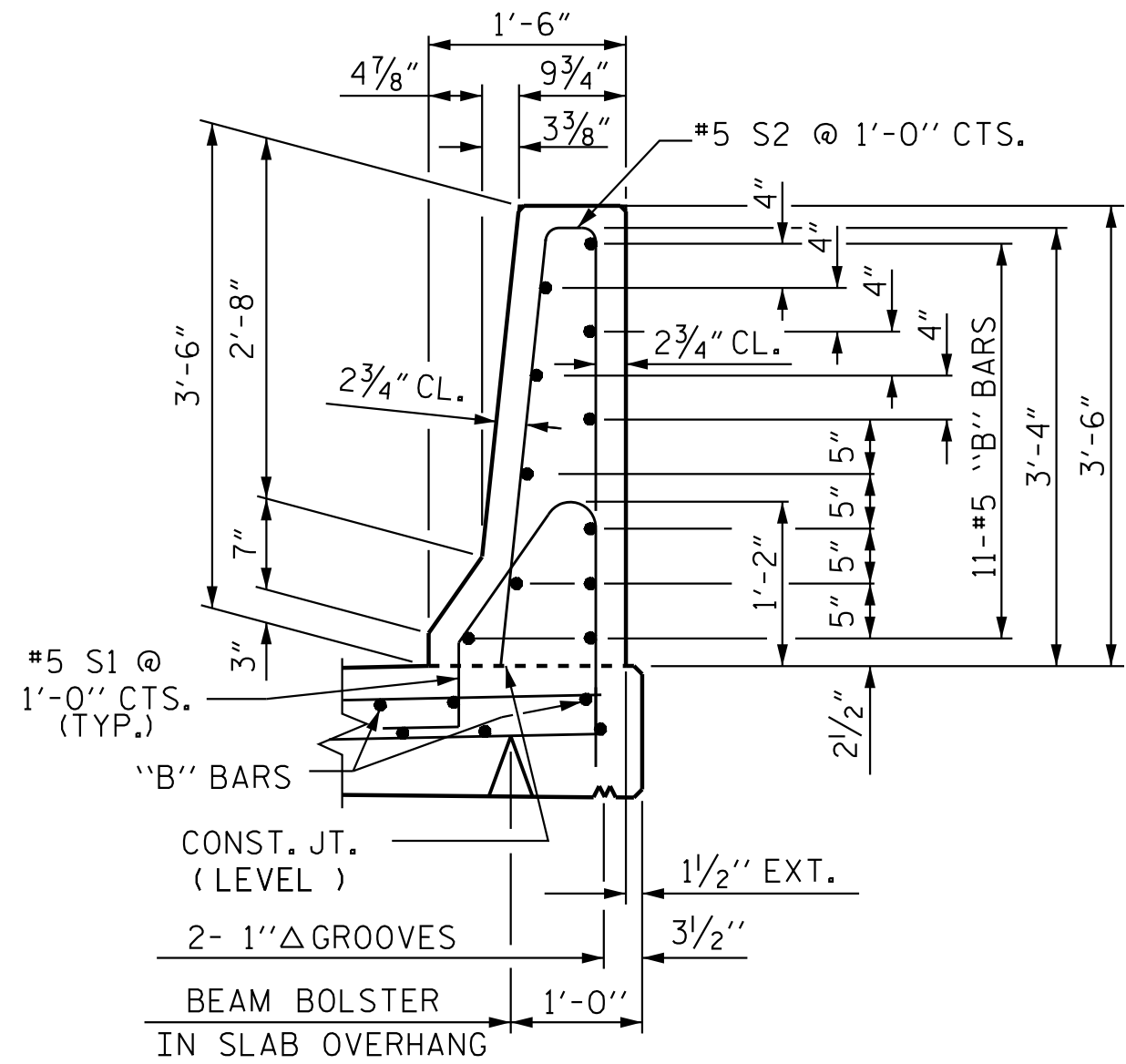
NOTES

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

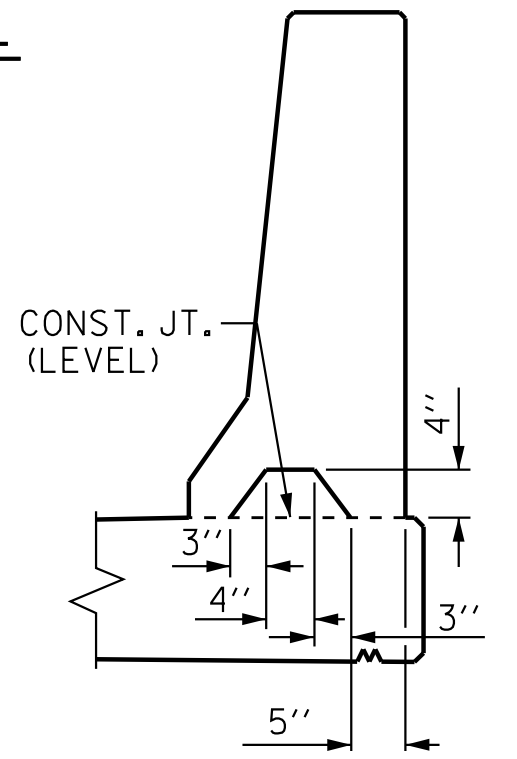
ALL REINFORCING STEEL IN BARRIER RAILS
SHALL BE EPOXY COATED.

GROOVED CONTRACTION JOINTS, 1/2" IN DEPTH, SHALL
BE TOOLED IN ALL EXPOSED FACES OF THE BARRIER
RAIL AND IN ACCORDANCE WITH ARTICLE 825-10(B)
OF THE STANDARD SPECIFICATIONS. THE CONTRACTION
JOINT SHALL BE LOCATED AT EACH THIRD POINT
BETWEEN BARRIER RAIL EXPANSION JOINTS.

THE JOINT IN THE DECK SLAB SHALL BE SAWED
PRIOR TO CASTING OF THE BARRIER RAIL.

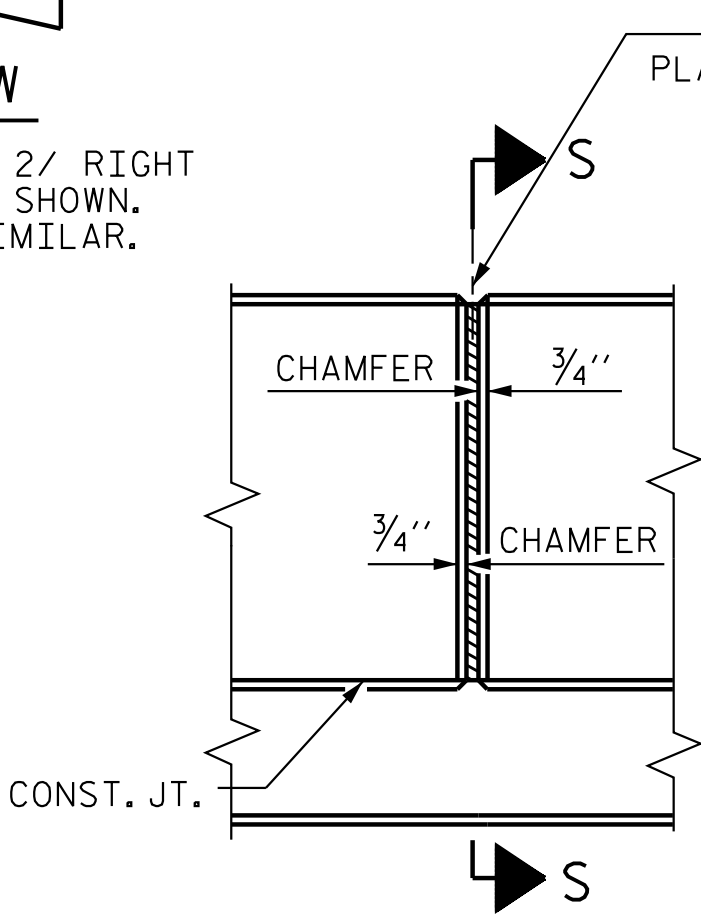


SECTION THRU RAIL



SECTION S-S

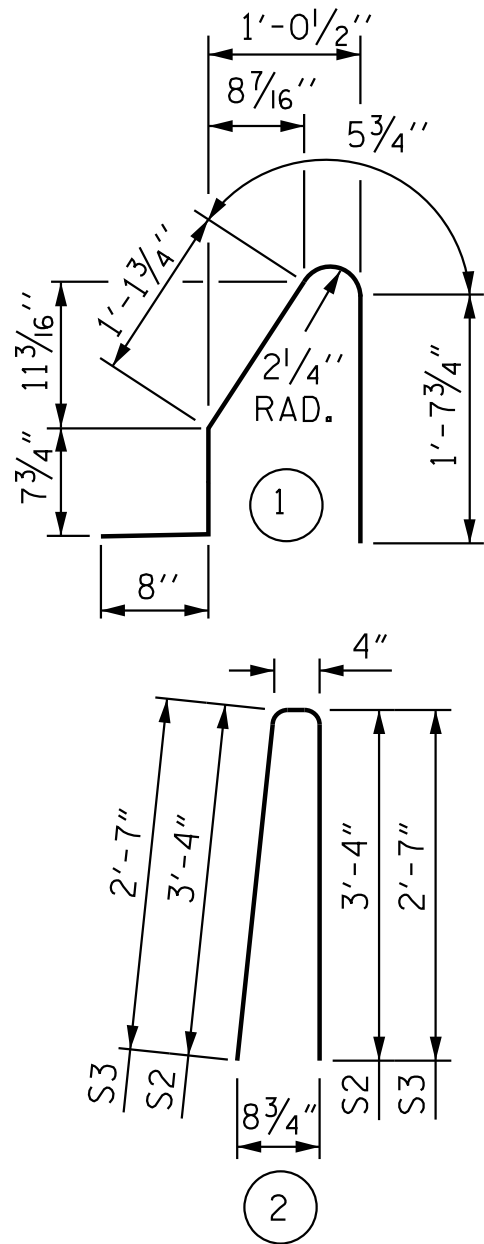
AT DAM IN OPEN JOINT
(THIS IS TO BE USED ONLY
WHEN SLIP FORM IS USED)



ELEVATION AT EXPANSION JOINTS

BARRIER RAIL DETAILS

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL

FOR CONCRETE BARRIER RAIL ONLY

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* B1	44	#5	STR	29'-7"	1,358
* B2	22	#5	STR	27'-1"	621
* B3	22	#5	STR	27'-11"	641
* S1	234	#5	1	4'-7"	1,119
* S2	226	#5	2	7'-0"	1,650
* S3	8	#5	2	5'-6"	46

* EPOXY COATED REINFORCING STEEL	5,435 LBS.
CLASS AA CONCRETE	31.5 CU. YDS.
CONCRETE BARRIER RAIL	232.0 LIN. FT.

PROJECT NO. R-3300A
NEW HANOVER COUNTY
STATION: 232+80.54 -L1-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
CONCRETE
BARRIER RAIL

(LEFT LANE)

REVISIONS						SHEET NO. S03- 21
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1			3			TOTAL SHEETS 32
2			4			

STD. NO. CBR1



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License No. F-0672

ASSEMBLED BY : J. GUERRERO DATE : 08/01/21
CHECKED BY : A.L. BOYKIN DATE : 09/04/24

DRAWN BY : ARB 5/87
CHECKED BY : SJD 9/87

REV. 7/12
REV. 6/13
REV. 12/17

MAA/GM
MAA/GM
MAA/GM

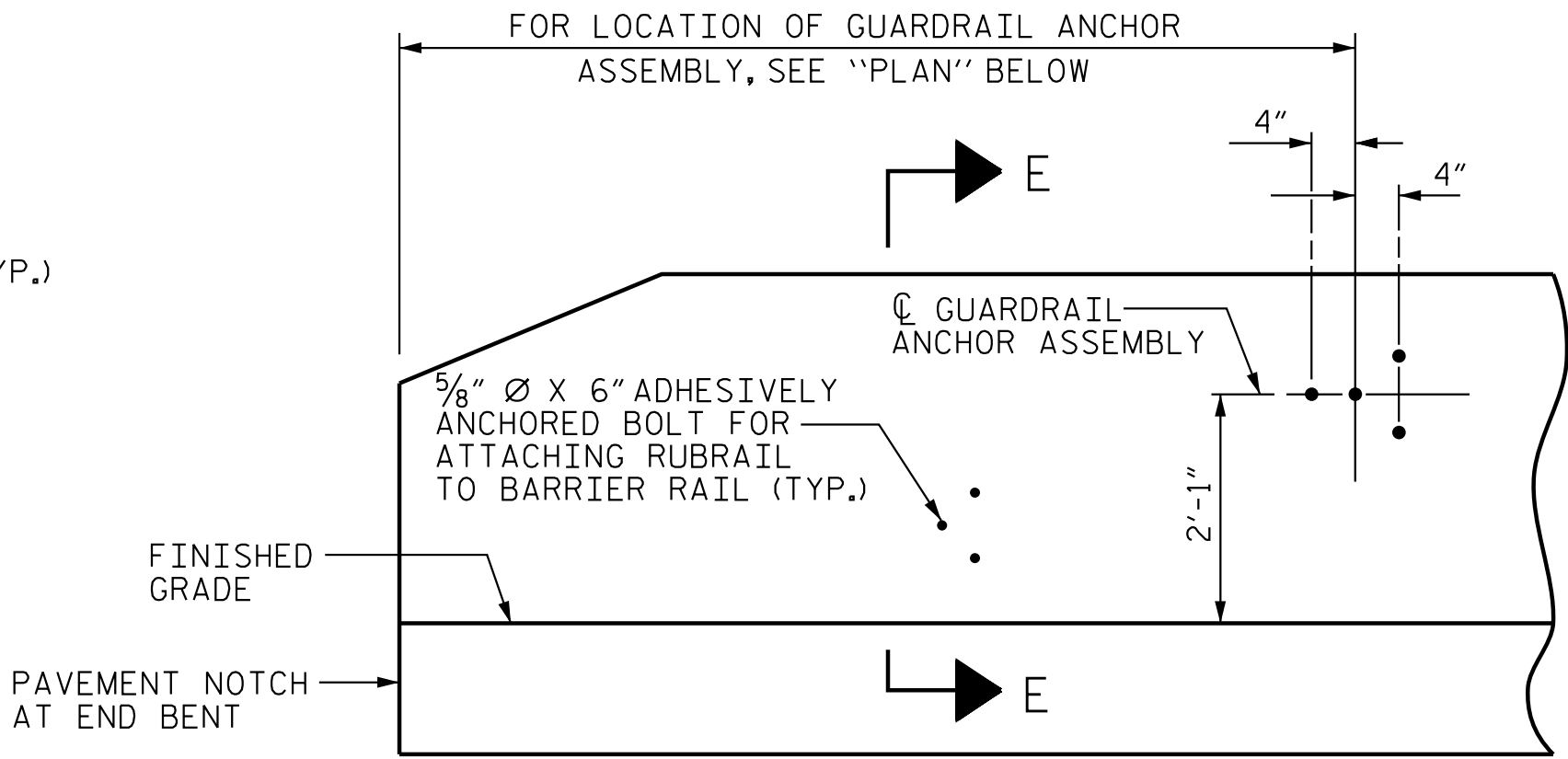
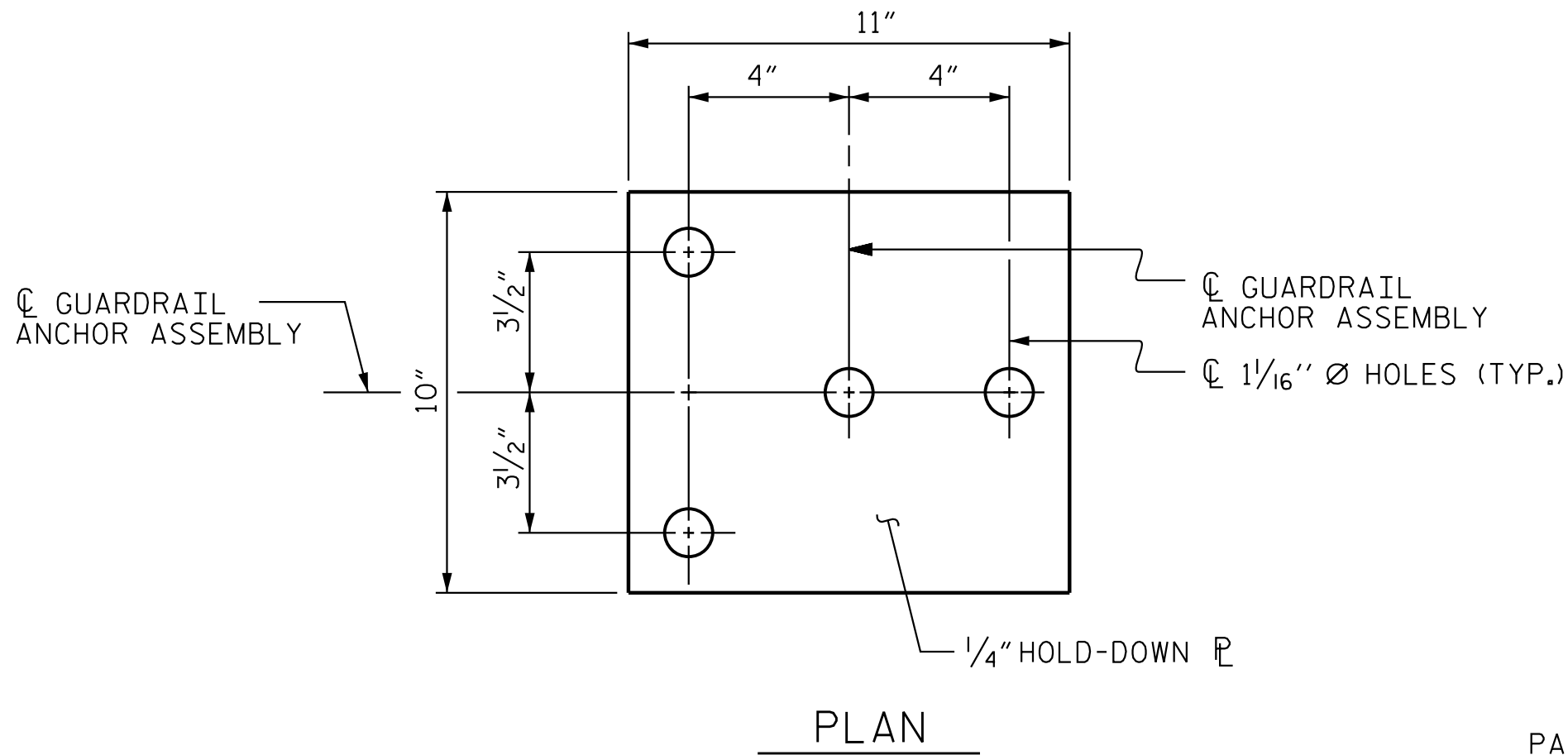
DESIGN
ENGINEER
OF RECORD

J.T. KELVINGTON DATE : 04/22/25

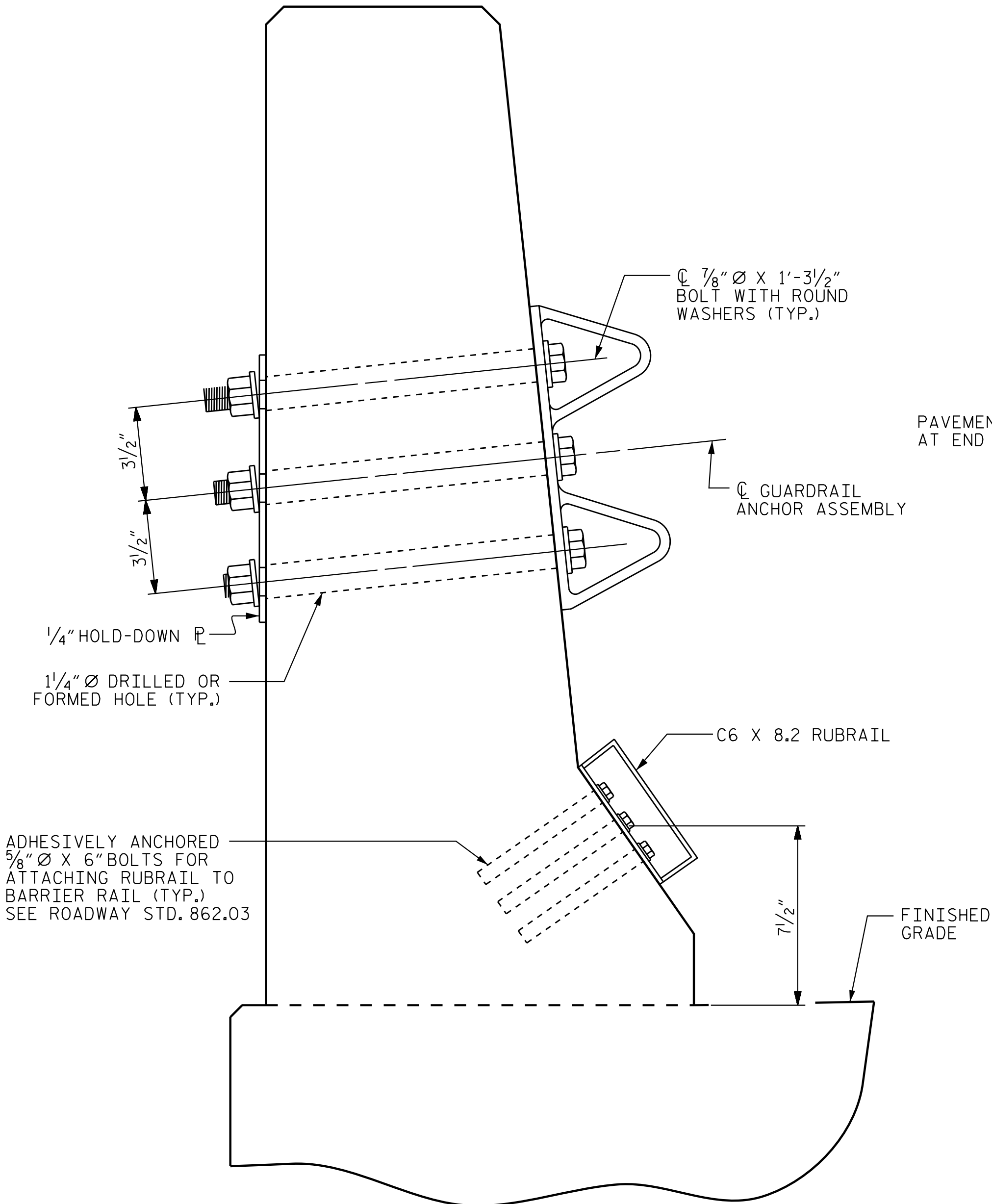


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Joe Kelvington 4/29/2025

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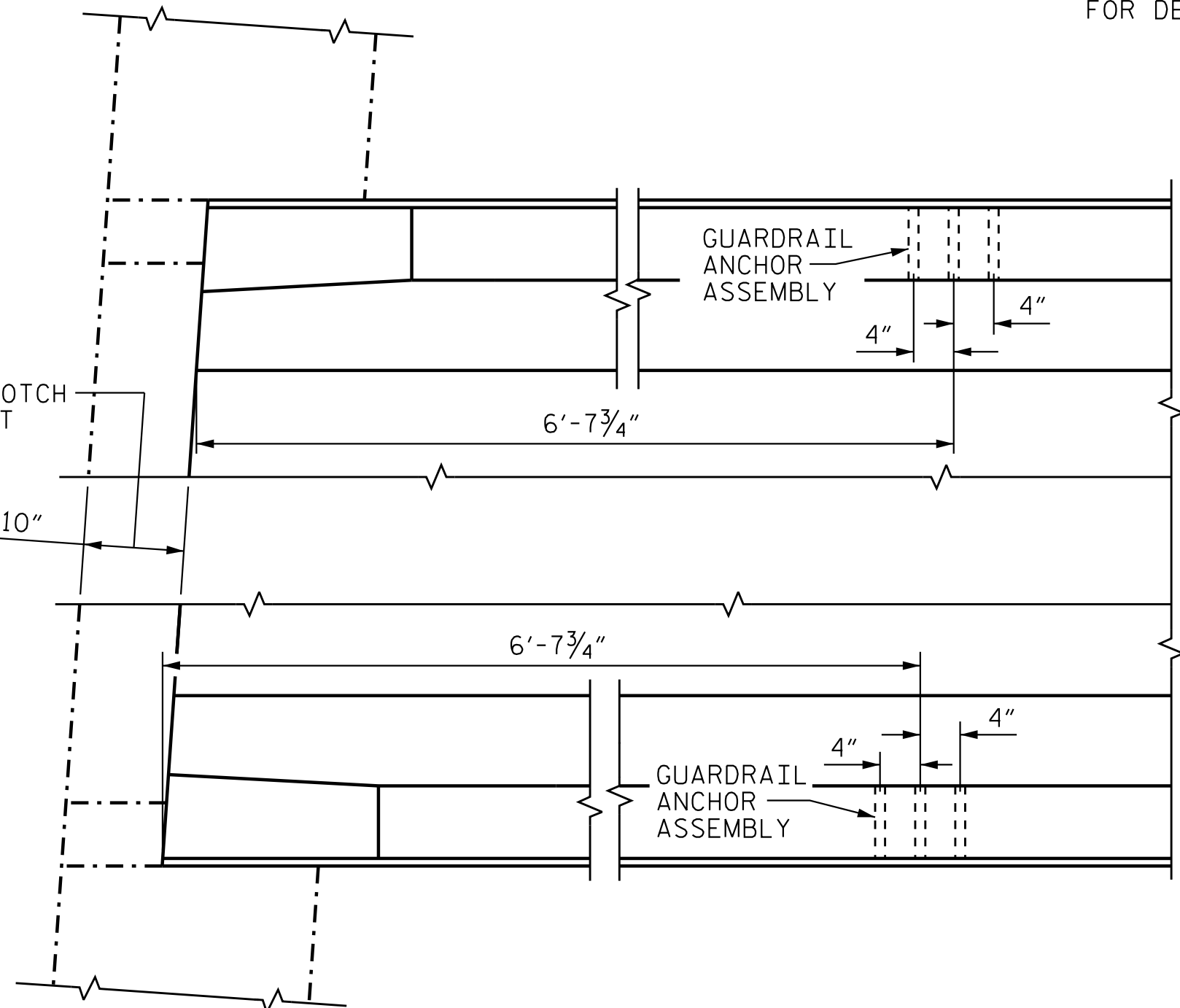


ELEVATION



SECTION E-E

GUARDRAIL ANCHOR ASSEMBLY DETAILS



PLAN

LOCATION OF ANCHORS FOR GUARDRAIL

END BENT #1 SHOWN, END BENT #2 SIMILAR.

NOTES

THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A 1/4" HOLD-DOWN PLATE AND 4 - 1/8" Ø BOLTS WITH NUTS AND WASHERS, RUBRAIL, AND ADHESIVELY ANCHORED BOLTS.

THE HOLD-DOWN PLATE SHALL CONFORM TO AASHTO M270 GRADE 36. AFTER FABRICATION, THE HOLD-DOWN PLATE SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH AASHTO M111.

BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. NUTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M291. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 1/8" Ø GALVANIZED BOLTS, NUTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)

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

AFTER INSTALLATION, THE EXPOSED THREAD OF THE BOLT SHALL BE BURRED WITH A SHARP POINTED TOOL.

THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR CONCRETE BARRIER RAIL.

THE 1 1/4" Ø HOLES SHALL BE FORMED OR DRILLED WITH A CORE BIT. IMPACT TOOLS WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.

THE C6 X 8.2 RUBRAIL IS TO BE ADHESIVELY ANCHORED TO THE RAIL USING THREE 5/8" Ø X 6" BOLTS WITH WASHERS. LEVEL ONE FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE 5/8" Ø BOLT IS 12 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE STANDARD SPECIFICATIONS. SEE ROADWAY STANDARD 862.03 FOR DETAILS AND LOCATION OF THE RUBRAIL.



SKETCH SHOWING POINTS OF ATTACHMENTS

* DENOTES GUARDRAIL ANCHOR ASSEMBLY

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NEW HANOVER COUNTY
STATION: 232+80.54 -L1-



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ASSEMBLED BY : J. GUERRERO DATE : 08/01/21
CHECKED BY : A.L. BOYKIN DATE : 09/04/24

DRAWN BY : TLA 5/06
CHECKED BY : GM 5/06

REV. 7/12
REV. 6/13
REV. 12/17

MAA/GM
MAA/GM
MAA/THC

DESIGN ENGINEER
OF RECORD: J.T. KELVINGTON DATE : 04/22/25



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Joe Kelvington 4/29/2025

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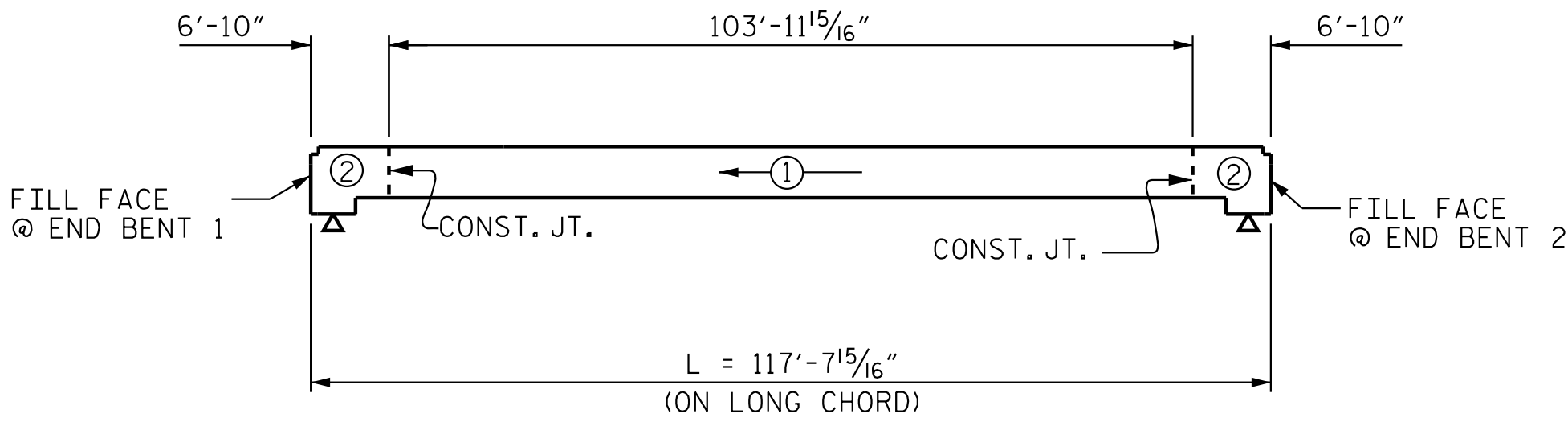
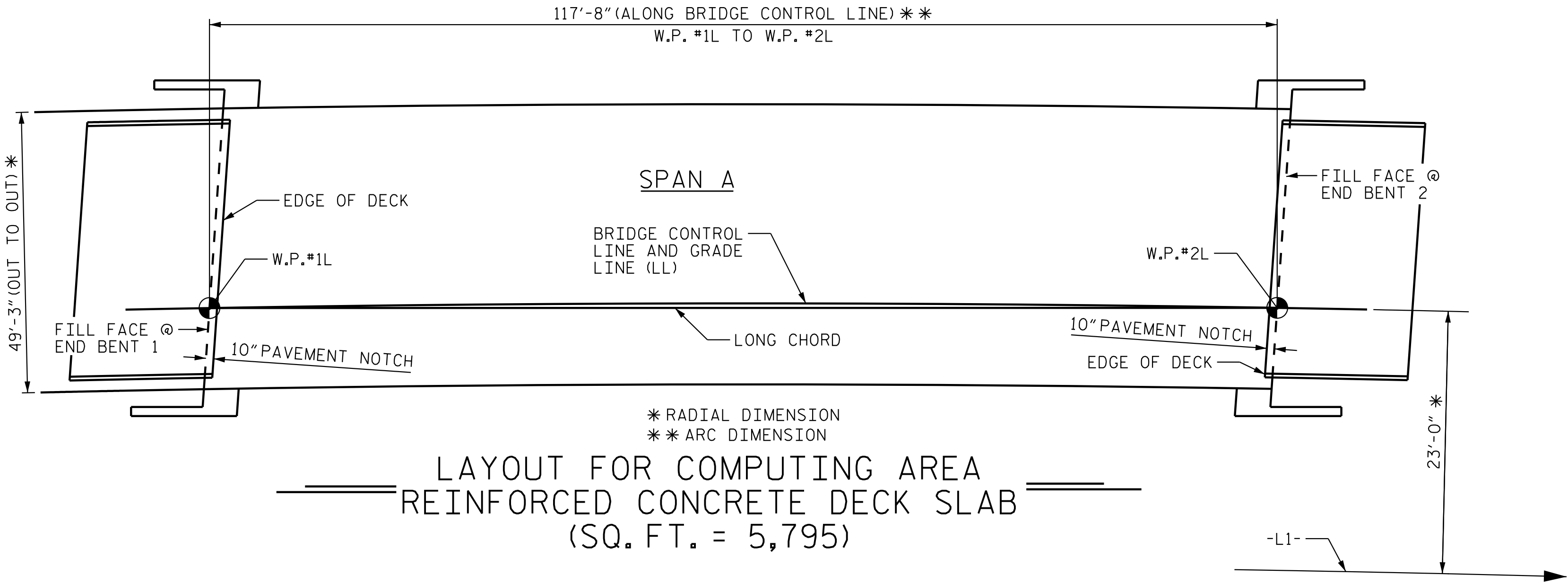
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
GUARDRAIL ANCHORAGE
FOR BARRIER RAIL

(LEFT LANE)

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2			4			

STD. NO. GRA2



POURING SEQUENCE

(DIMENSIONS SHOWN ARE ALONG LONG CHORD)

③ = INDICATES POUR NUMBER AND DIRECTION OF POUR

SUPERSTRUCTURE REINFORCING STEEL LENGTHS ARE BASED ON THE FOLLOWING MINIMUM SPLICE LENGTHS

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

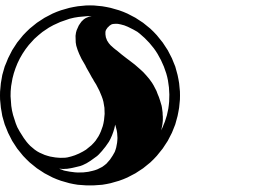
SUPERSTRUCTURE BILL OF MATERIAL

	CLASS AA CONCRETE	REINFORCING STEEL	EPOXY COATED REINFORCING STEEL
	(CU. YDS.)	(LBS.)	(LBS.)
POUR #1	163.8	18,722	20,144
POUR #2A (EB1)	50.6		
POUR #2B (EB2)	49.7		
TOTALS **	264.1		

**QUANTITIES FOR BARRIER RAIL ARE NOT INCLUDED

GROOVING BRIDGE FLOORS

APPROACH SLABS	2,093 SQ.FT.
BRIDGE DECK	4,988 SQ.FT.
TOTAL	7,081 SQ.FT.



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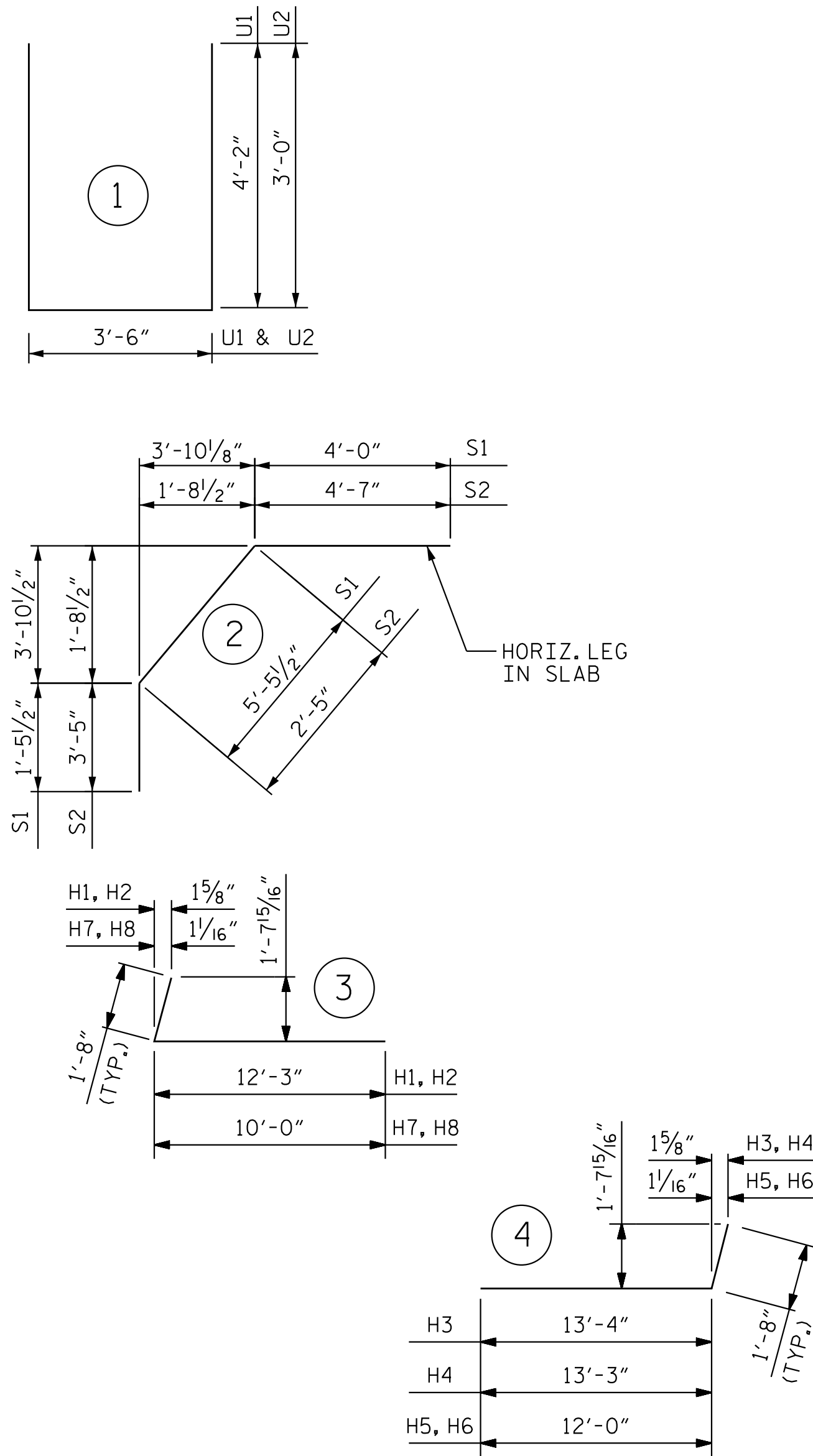
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CHECKED BY : A.L. BOYKIN DATE : 09/04/24

DESIGN ENGINEER OF RECORD: J.T. KELVINGTON DATE : 04/22/25

REINFORCING BAR SCHEDULE

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	193	#5	STR.	48'-10"	9,830
A2	193	#5	STR.	48'-10"	9,830
* A101	1	#5	STR.	42'-6"	44
* A102	1	#5	STR.	34'-1"	36
* A103	1	#5	STR.	25'-7"	27
* A104	1	#5	STR.	17'-2"	18
* A105	1	#5	STR.	8'-9"	9
A201	1	#5	STR.	42'-6"	44
A202	1	#5	STR.	34'-1"	36
A203	1	#5	STR.	25'-7"	27
A204	1	#5	STR.	17'-2"	18
A205	1	#5	STR.	8'-9"	9
* A150	1	#5	STR.	42'-2"	44
* A151	1	#5	STR.	33'-8"	35
* A152	1	#5	STR.	25'-3"	26
* A153	1	#5	STR.	16'-9"	17
* A154	1	#5	STR.	8'-4"	9
A250	1	#5	STR.	42'-2"	44
A251	1	#5	STR.	33'-8"	35
A252	1	#5	STR.	25'-3"	26
A253	1	#5	STR.	16'-9"	17
A254	1	#5	STR.	8'-4"	9
* B1	70	#5	STR.	59'-1"	4,314
B2	92	#5	STR.	58'-10"	5,645
* B3	120	#5	STR.	23'-4"	2,920
* B4	60	#5	STR.	25'-7"	1,601
H1	12	#6	3	13'-11"	251
H2	6	#4	3	13'-11"	56
H3	11	#6	4	15'-0"	248
H4	6	#4	4	14'-11"	60
H5	11	#6	4	13'-8"	226
H6	6	#4	4	13'-8"	55
H7	11	#5	3	11'-8"	134
H8	6	#4	3	11'-8"	47
K1	20	#4	STR.	28'-4"	379
K2	10	#4	STR.	4'-9"	32
K3	40	#4	STR.	7'-8"	205
K4	10	#4	STR.	6'-2"	41
K5	8	#4	STR.	4'-8"	25
K6	2	#4	STR.	3'-11"	5
K7	24	#4	STR.	3'-5"	55
K8	8	#4	STR.	5'-6"	29
K9	2	#4	STR.	4'-10"	6
* S1	94	#4	2	10'-11"	685
* S2	76	#4	2	10'-5"	529
U1	78	#4	1	11'-10"	617
U2	12	#4	1	9'-6"	76
V2	22	#5	STR.	5'-7"	128
V3	24	#5	STR.	5'-4"	133
V4	22	#5	STR.	5'-5"	125
V5	18	#5	STR.	5'-3"	99
REINFORCING STEEL				18,722	LBS
* EPOXY COATED REINFORCING STEEL				20,144	LBS

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

PROJECT NO. R-3300A
NEW HANOVER COUNTY
STATION: 232+80.54 -L1-

STATE OF NORTH CAROLINA
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RALEIGH
SUPERSTRUCTURE

BILL OF MATERIAL

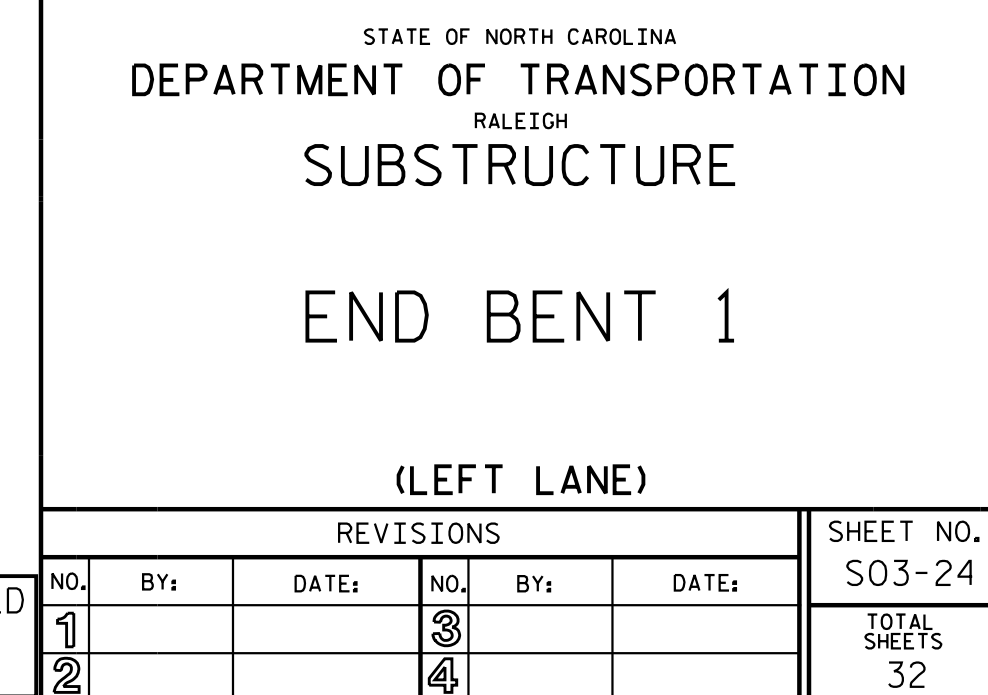
(LEFT LANE)

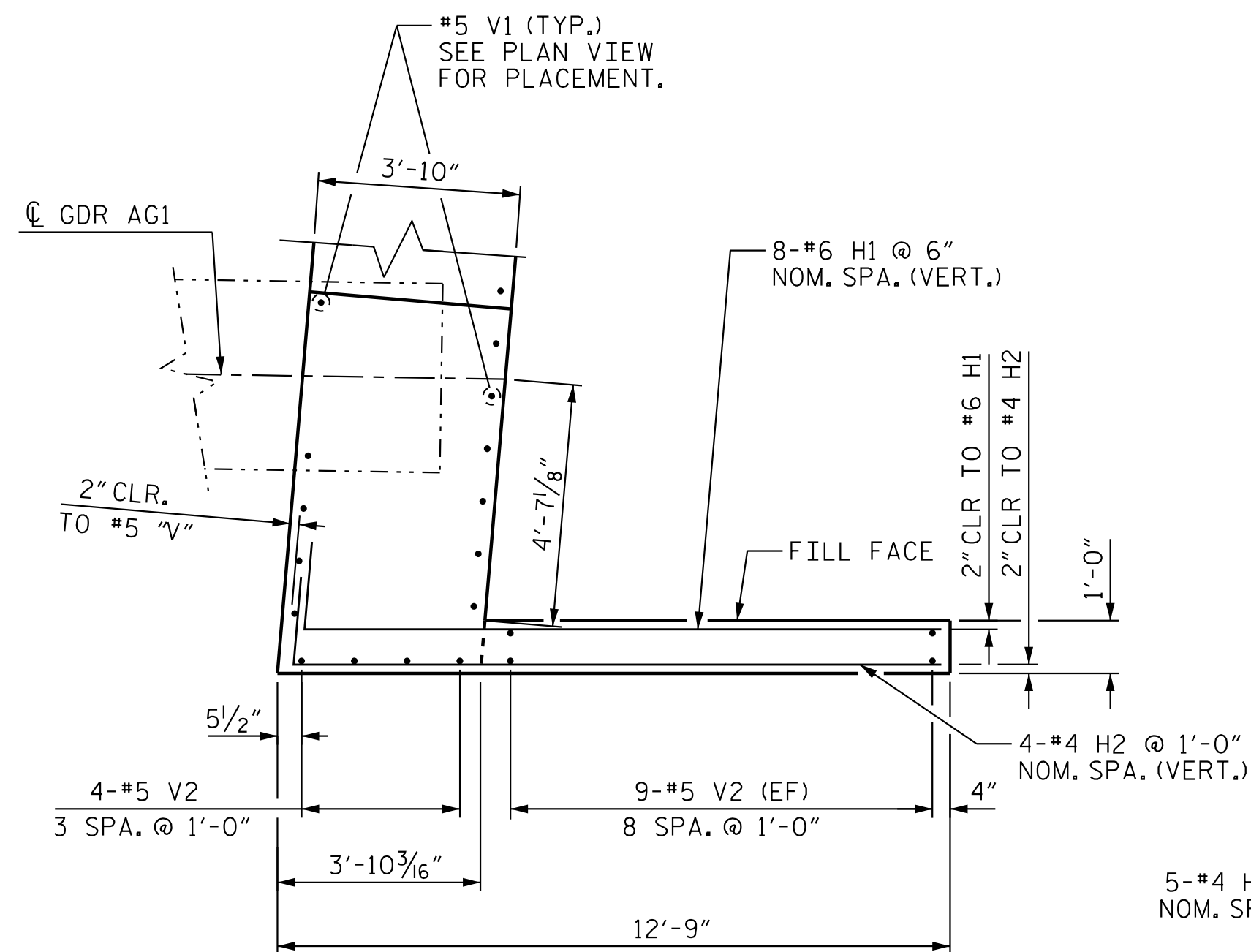


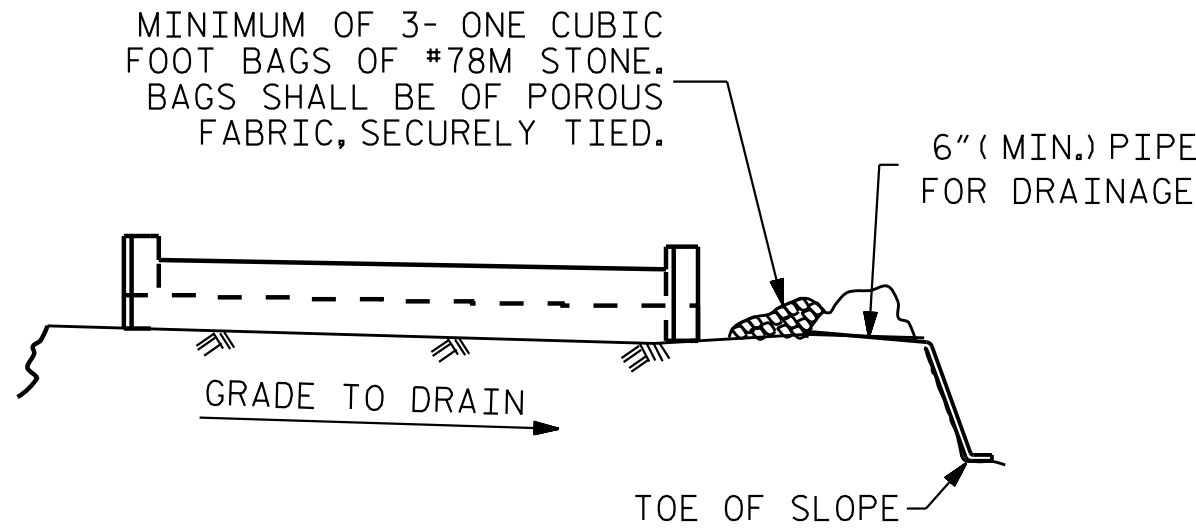
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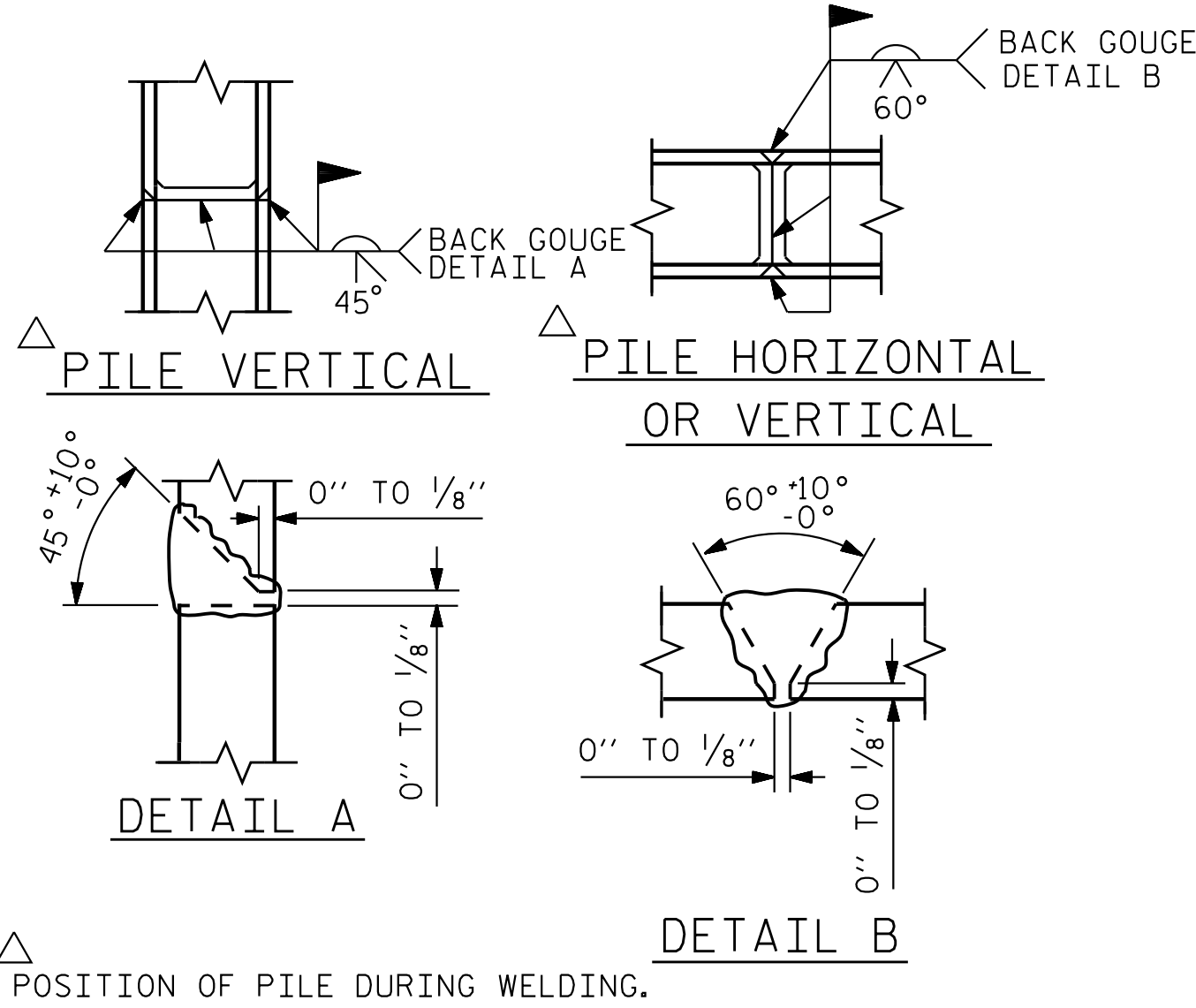


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

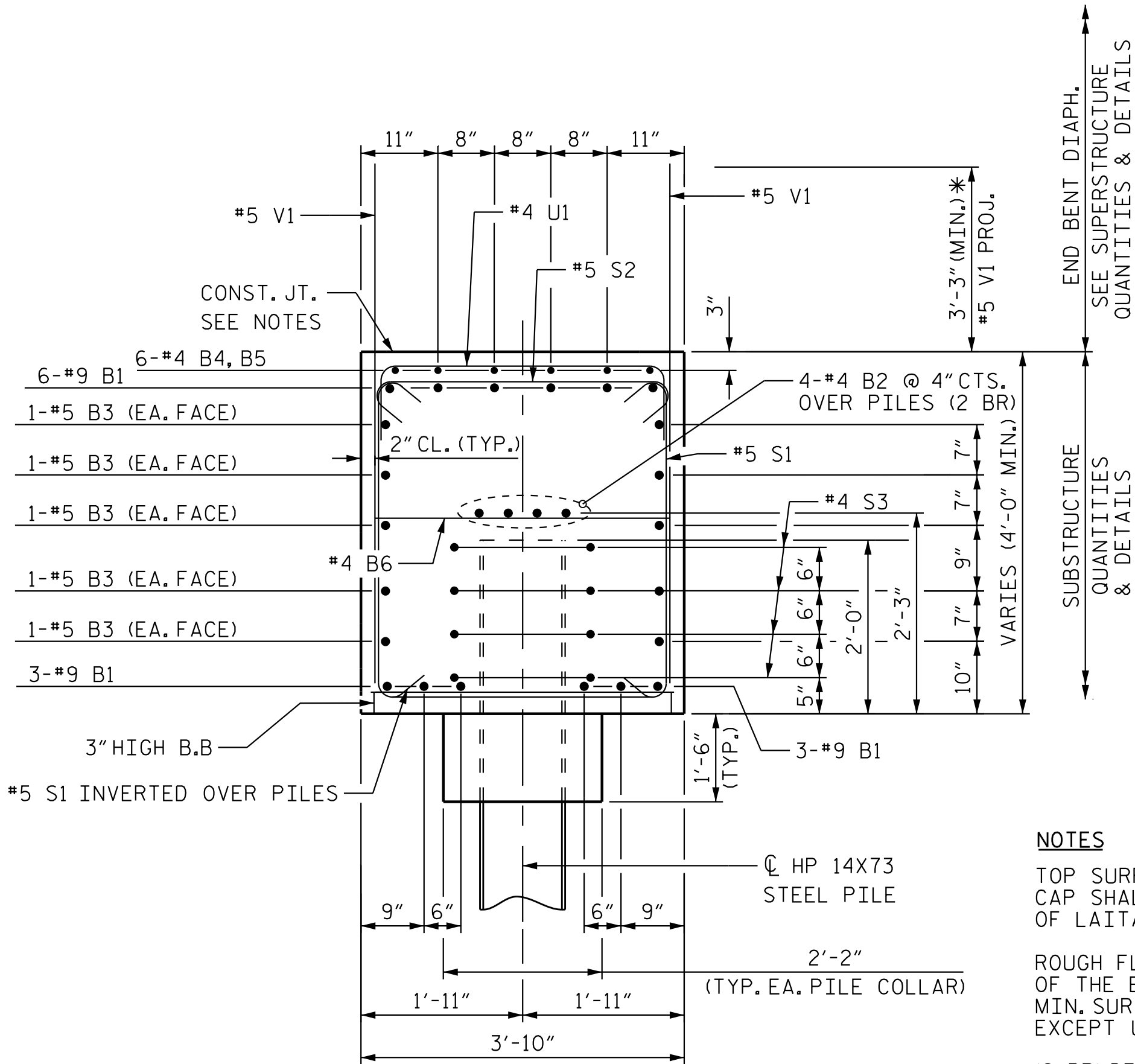
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR EFFECTIVENESS.

NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT



PILE SPLICE DETAILS



SECTION A-A

SEE 'END BENT 1'SHEET 1 OF 3

NOTES

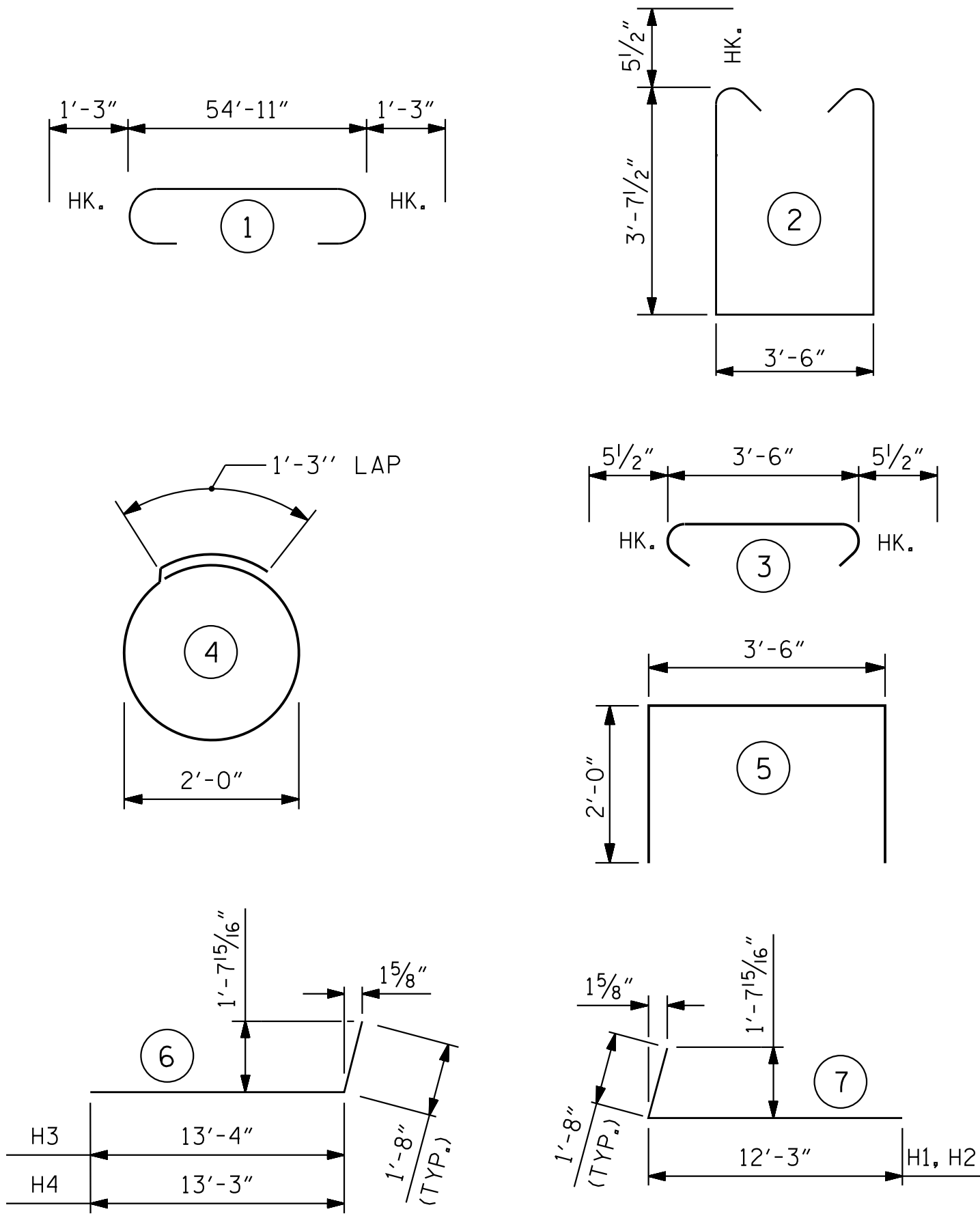
TOP SURFACE AREAS OF THE END BENT CAP SHALL BE KEPT CLEAN AND FREE OF LAITANCE.

ROUGH FLOAT AND ROUGHEN THE TOP OF THE END BENT CAP TO PROVIDE MIN. SURFACE AMPLITUDE OF 1/4", EXCEPT UNDER BEARING AREAS.

(2 BR) DENOTES 2 BAR RUN.

* 3'-7"± MAX. PROTECTION, SET V1 BAR 2" CLEAR (MIN.) FROM BOTTOM OF CAP.

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

END BENT 1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	12	#9		57'-5"	2343
B2	8	#4	STR	28'-0"	150
B3	10	#5	STR	54'-11"	573
B4	30	#4	STR	5'-11"	119
B5	6	#4	STR	10'-8"	43
B6	14	#4	STR	3'-6"	33

H1	8	#6	7	13'-11"	167
H2	4	#4	7	13'-11"	37
H3	10	#6	6	15'-0"	225
H4	6	#4	6	14'-11"	60

S1	73	#5	2	11'-8"	888
S2	64	#5	3	4'-5"	295
S3	36	#4	4	7'-7"	182

U1	40	#4	5	7'-6"	200
----	----	----	---	-------	-----

V1	98	#5	STR.	7'-5"	758
V2	22	#5	STR.	6'-8"	153
V3	24	#5	STR.	7'-2"	179

REINFORCING STEEL LBS. 6,405

CLASS A CONCRETE BREAKDOWN:
POUR #1: CAP, LOWER PART OF WINGS AND COLLARS C.Y. 38.9

CLASS A CONCRETE TOTAL C.Y. 38.9

PROJECT NO. R-3300A
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SHEET 3 OF 3



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STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH SUBSTRUCTURE					
END BENT 1 DETAILS (LEFT LANE)					
REVISIONS			SHEET NO.		
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TOTAL SHEETS			32		



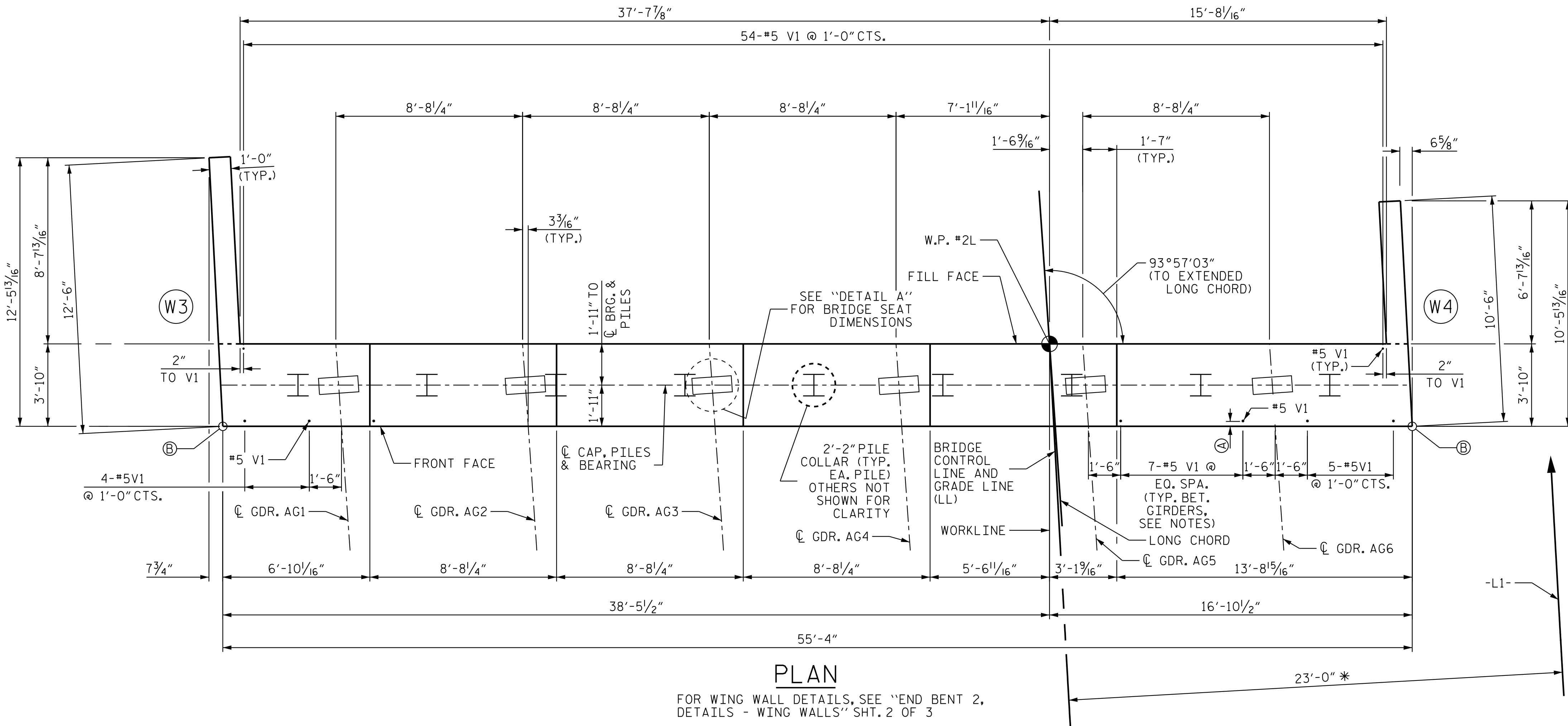
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DRAWN BY : J. GUERRERO DATE : 08/01/21
CHECKED BY : A.L. BOYKIN DATE : 09/04/24

DESIGN ENGINEER OF RECORD: J.T. KELVINGTON DATE : 04/22/25

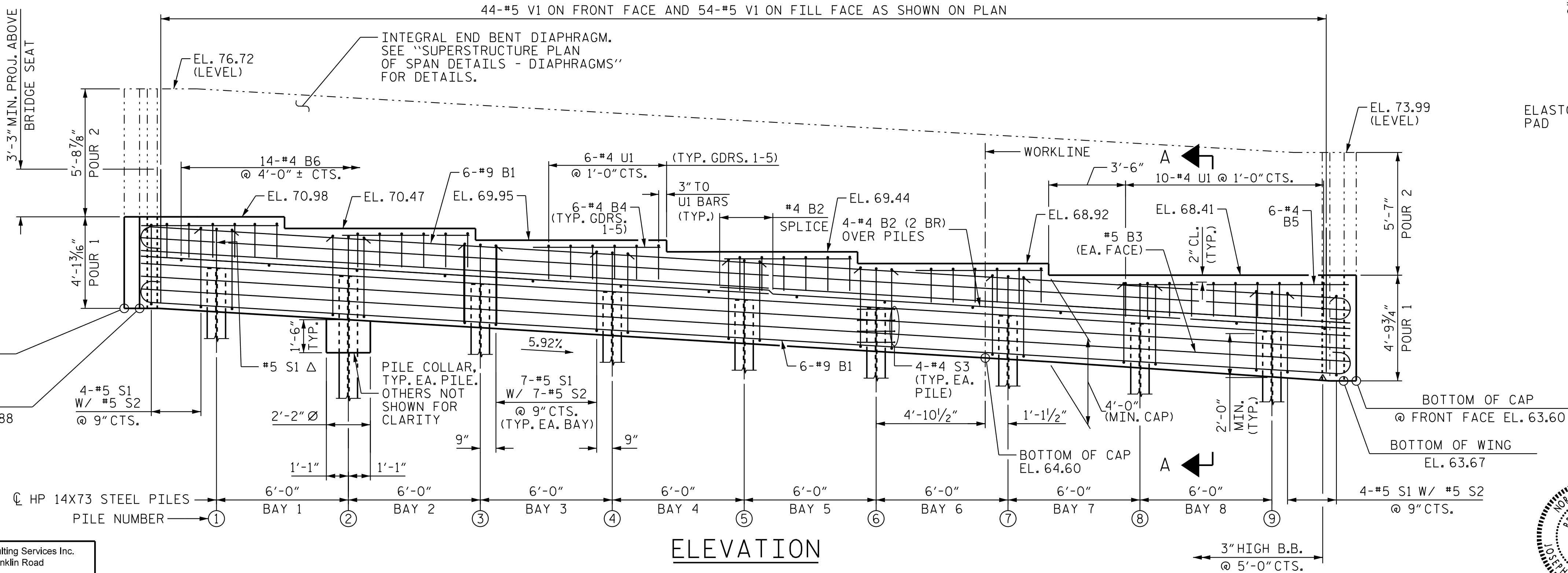
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PLAN

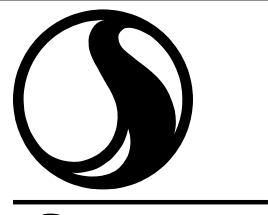
FOR WING WALL DETAILS, SEE "END BENT 2, DETAILS - WING WALLS" SHT. 2 OF 3



ELEVATION

PILE CUTOFF ELEVATIONS	
PILE	ELEVATION
P1	68.67
P2	68.31
P3	67.96
P4	67.60
P5	67.25
P6	66.89
P7	66.53
P8	66.18
P9	65.82

SPLICE LENGTH	
#4 B2	2'-5"



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DESIGN ENGINEER OF RECORD : J.T. KELVINGTON DATE : 04/22/25

NOTES

(2 BR) DENOTES 2 BAR RUN.

* RADIAL DIMENSION

△ INVERT S1 STIRRUP OVER EA. PILE.

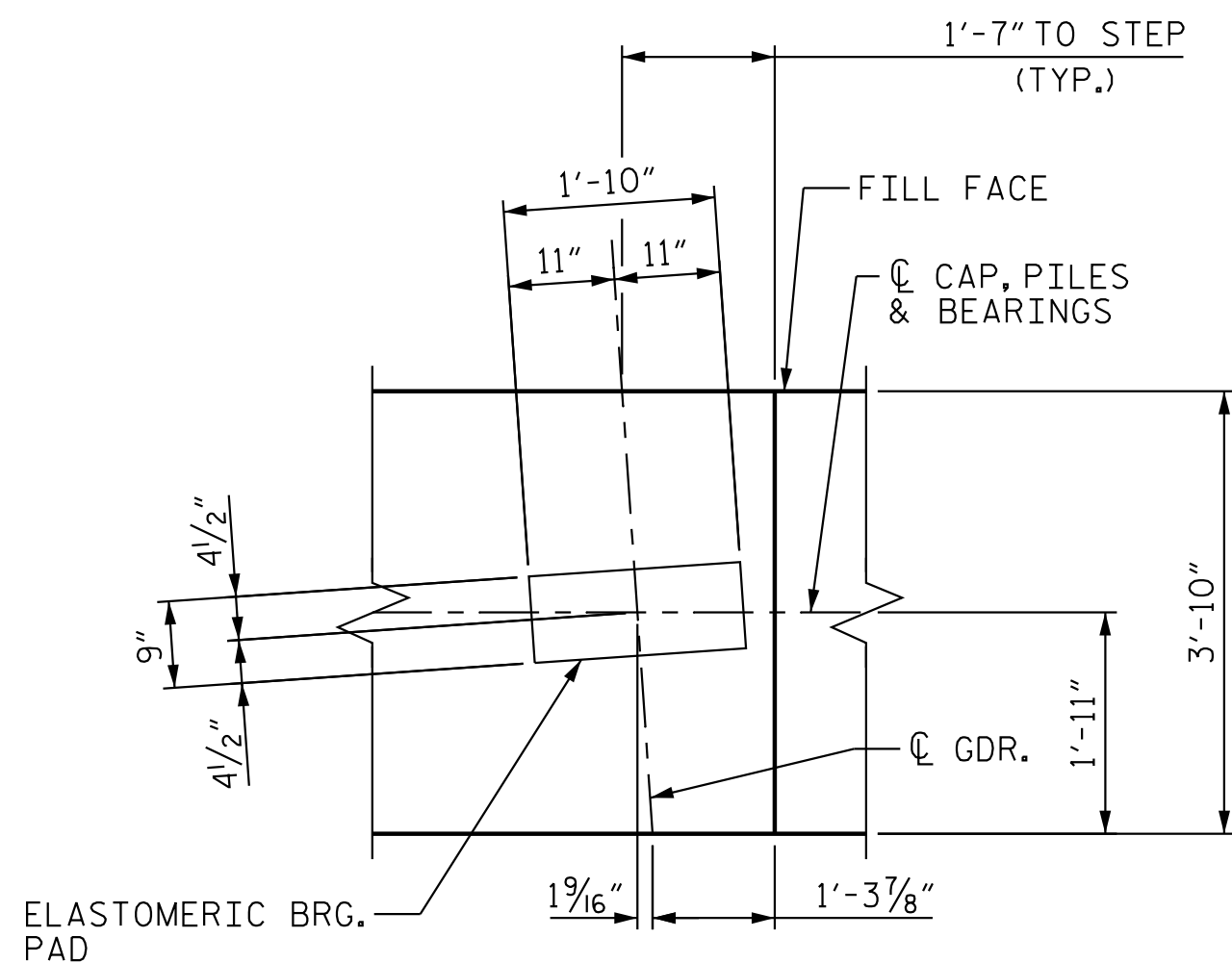
Ⓐ 2" CLR. TO ALL V1 BARS.

Ⓑ BOTTOM OF CAP ELE. TAKEN @ THIS POINT.

Ⓒ 3" FROM TOP OF CAP TO Ⓒ
#4 "B", TYP. FOR GIRDERS 1-6.

FOR SECTION A-A, SEE "END BENT 2 DETAILS" SHT. 3 OF 3.

INSTALL THE 6" DIA. DRAIN PIPE THROUGH THE WING WALL AS REQUIRED FOR REINFORCED BRIDGE APPROACH FILLS, SEE ROADWAY PLANS FOR ADDITIONAL DETAILS. REINFORCING STEEL IN THE WING WALL MAY BE SHIFTED AS NECESSARY TO CLEAR THE DRAIN PIPE.



DETAIL A

DIMENSIONS TYPICAL FOR EACH BEARING

PROJECT NO. R-3300A
NEW HANOVER COUNTY
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SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE

END BENT 2

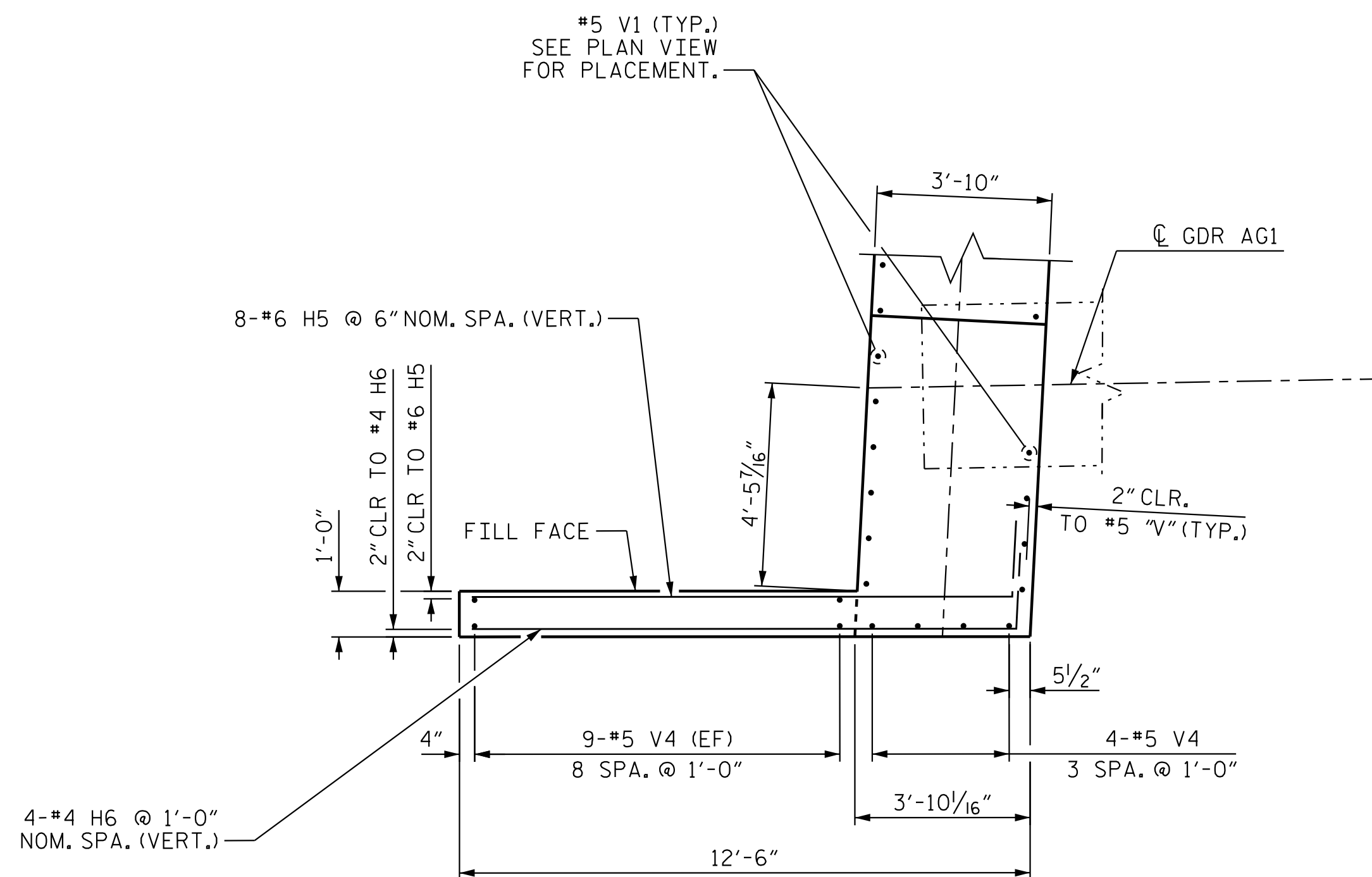
(LEFT LANE)

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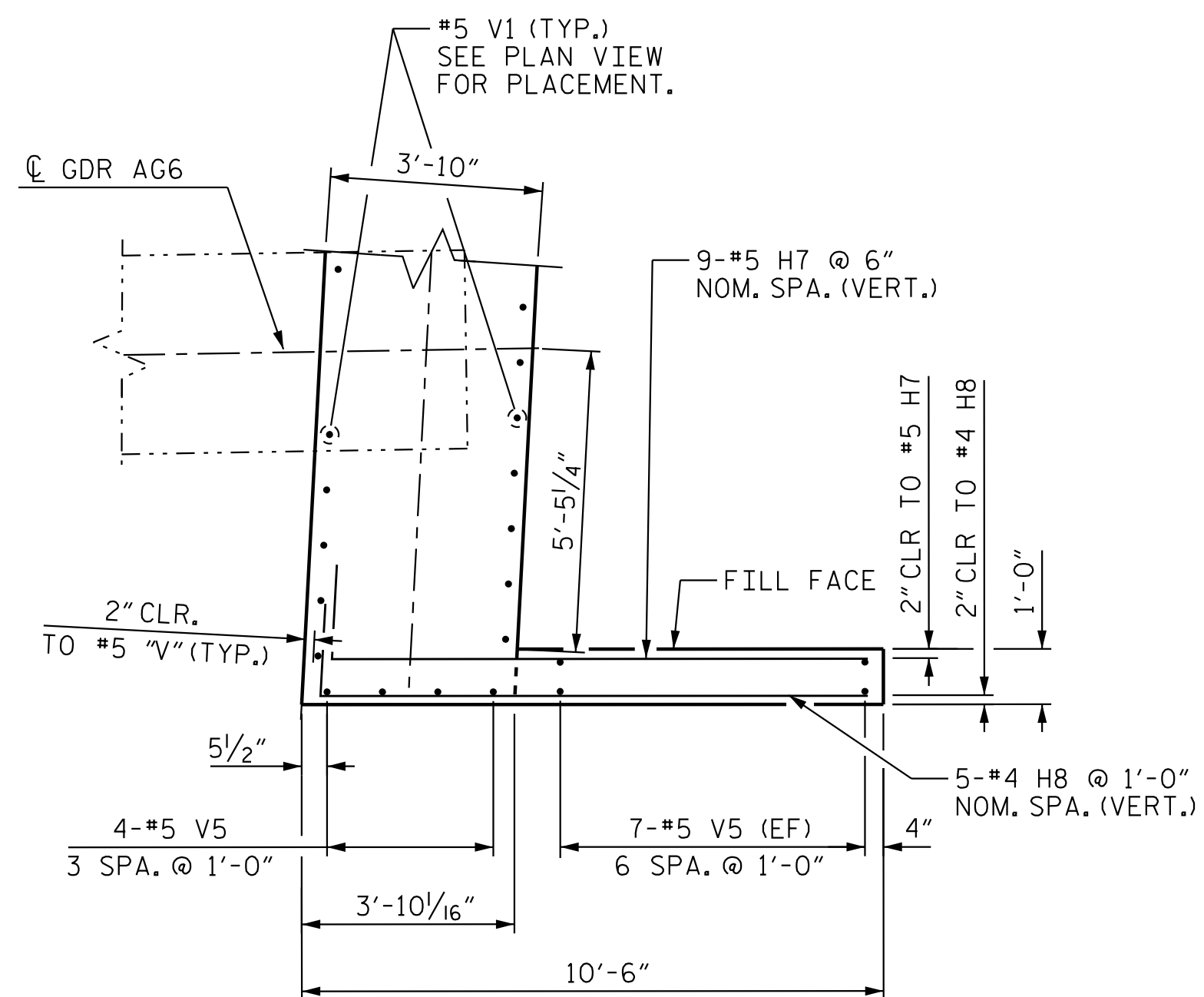


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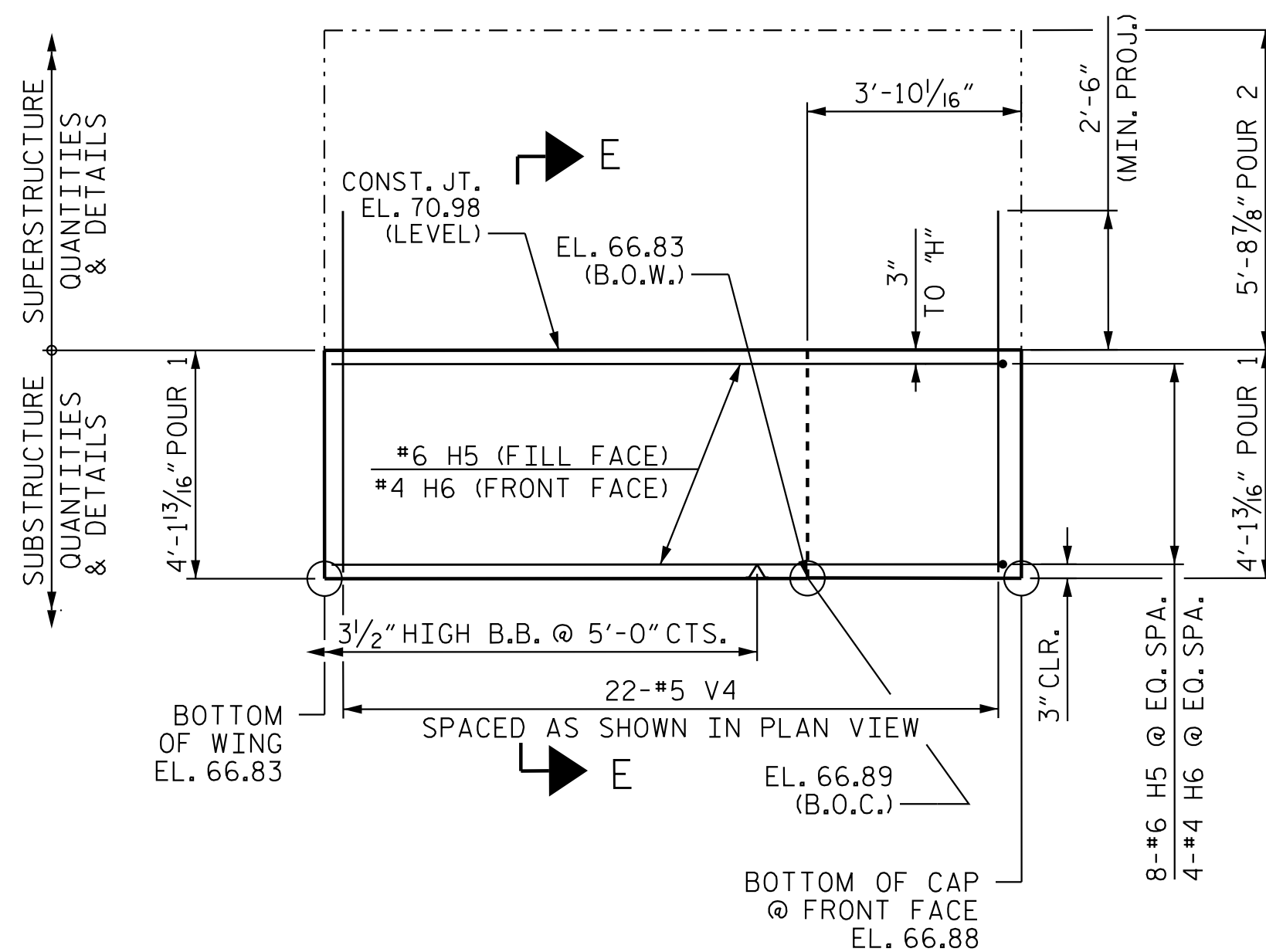


PLAN OF LEFT WING (W3)

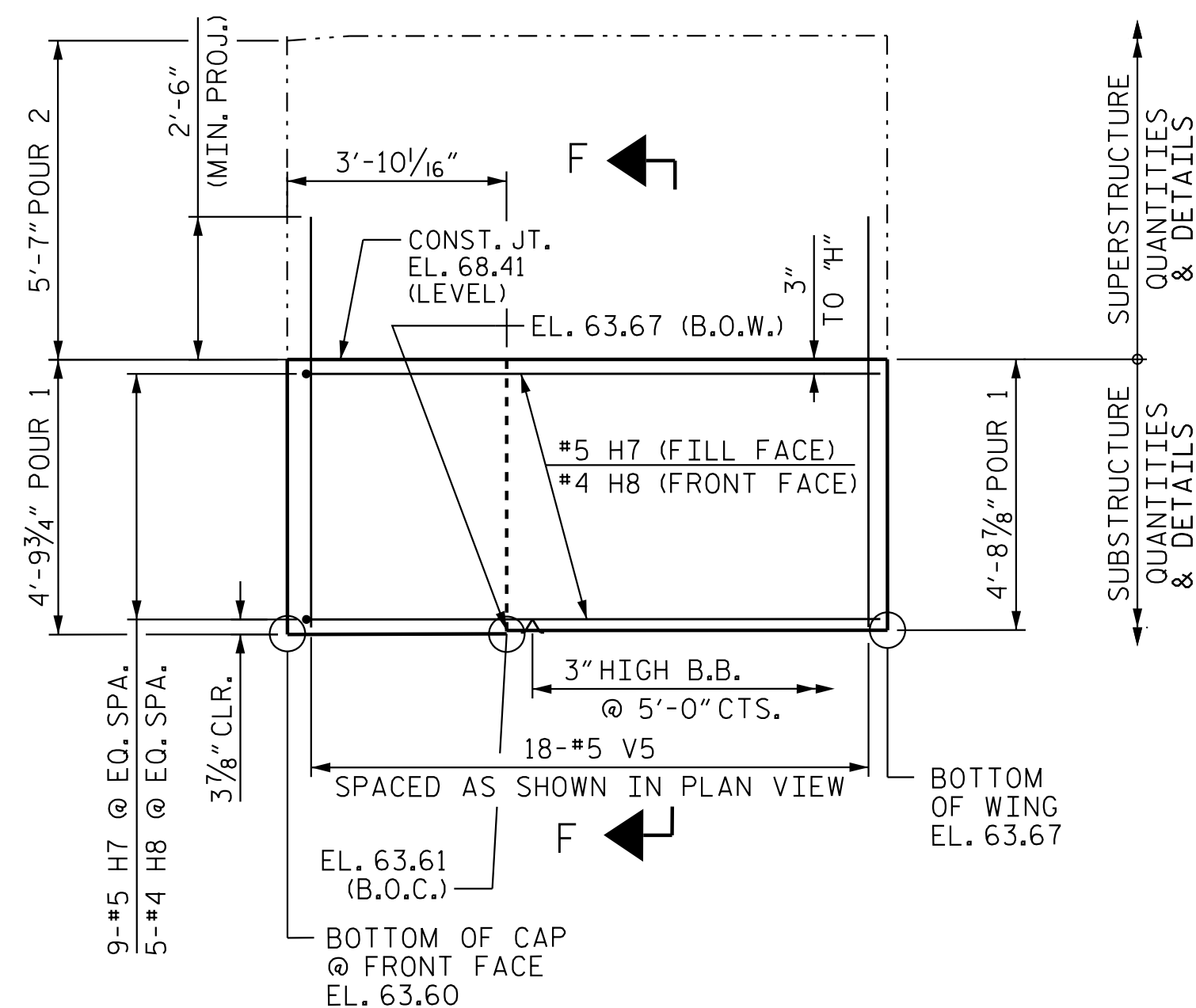


PLAN OF RIGHT WING (W4)

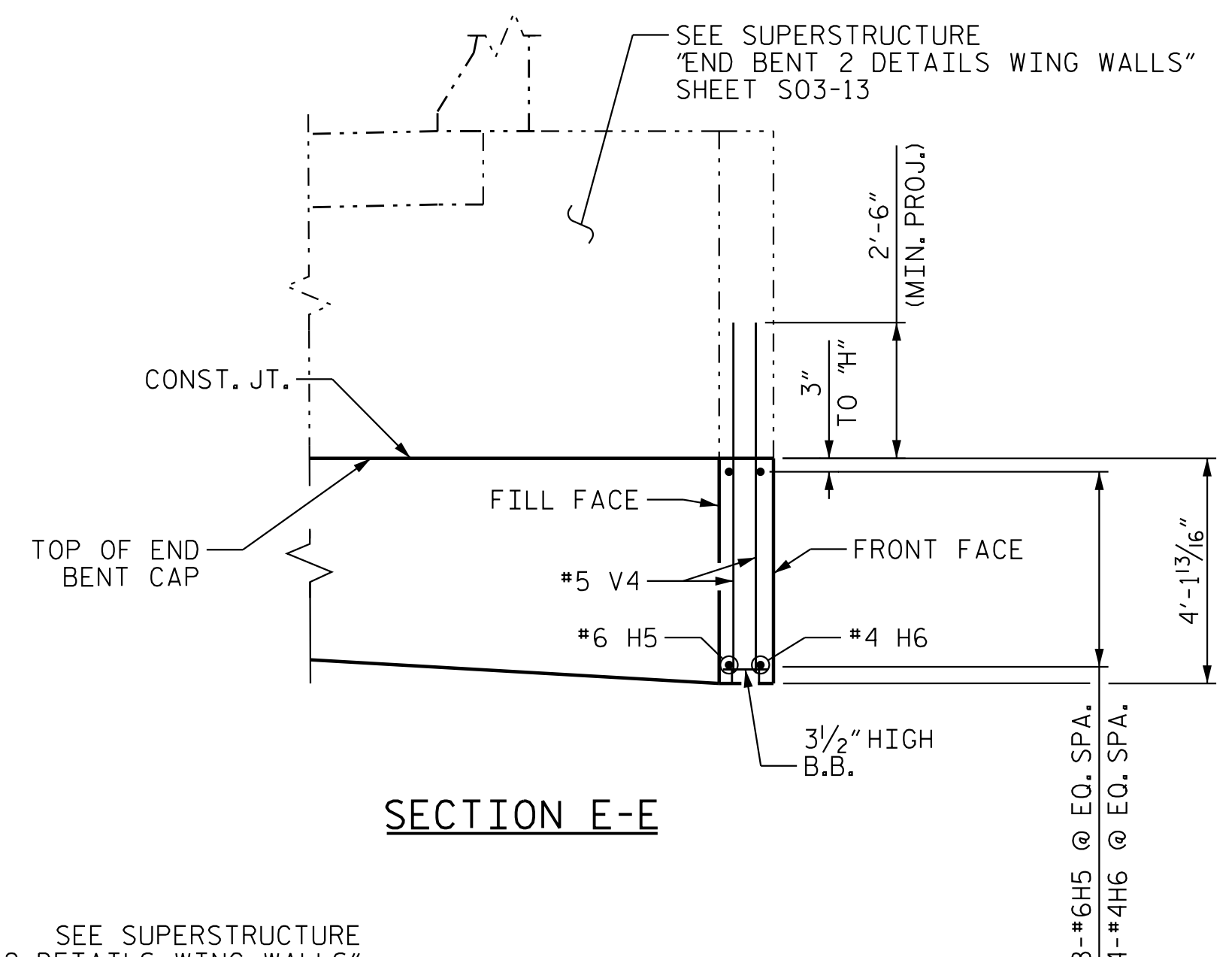
(EF) DENOTES EACH FACE OF WING
(B.O.C.) DENOTES BOTTOM OF CAP ELEVATION
(B.O.W.) DENOTES BOTTOM OF WING ELEVATION



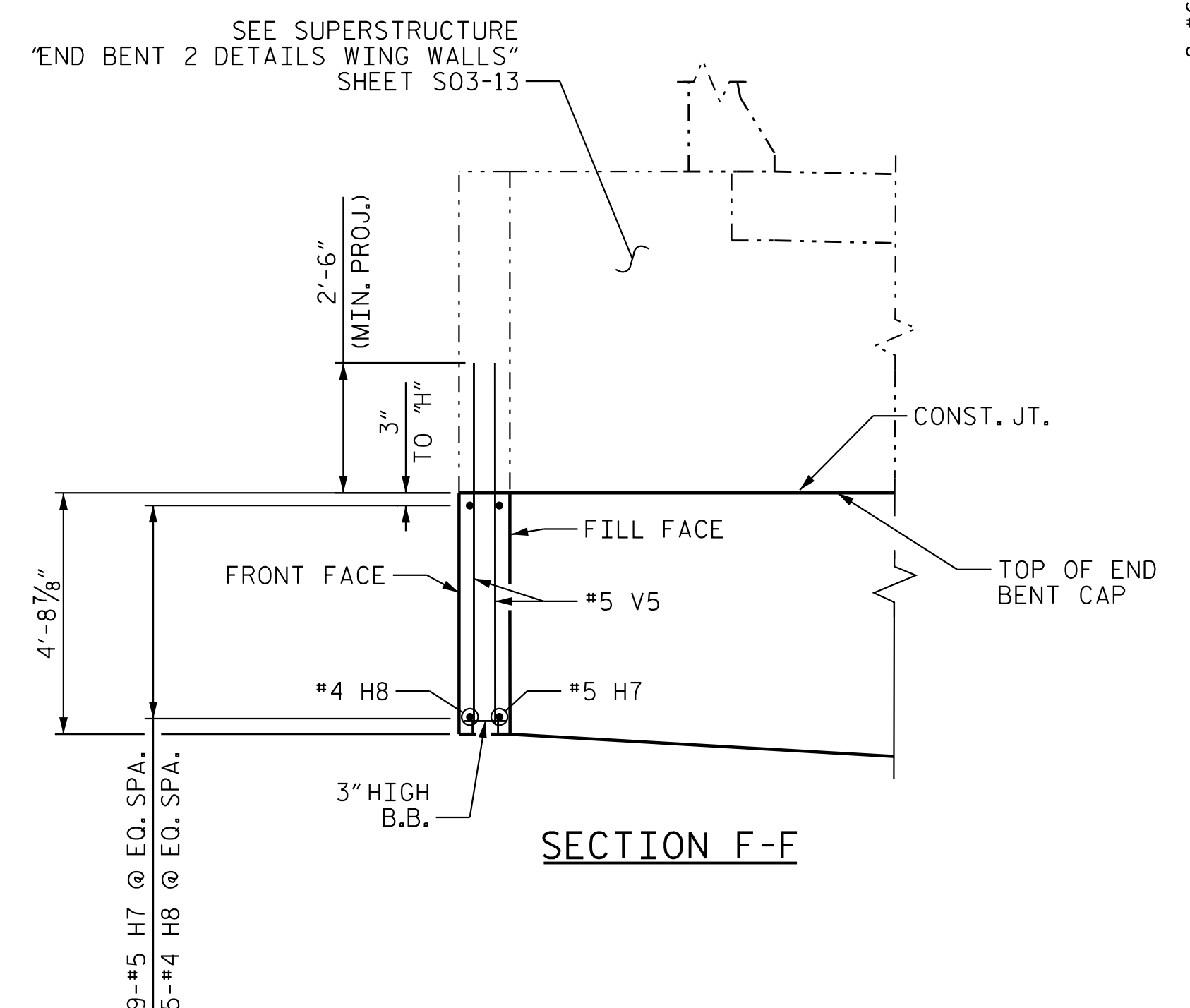
ELEVATION OF LEFT WING (W3)

ELEVATION OF RIGHT WING (W4)

NOTE:
THIS SHEET PROVIDES DETAILS
RELEVANT FOR SUBSTRUCTURE,
FOR SUPERSTRUCTURE QTY'S & DETAILS.
REFER TO SHEET S03-13.



SECTION E-E



SECTION F-F

PROJECT NO. R-3300A
NEW HANOVER COUNTY
 STATION: 232+80.54 -L1-

SHEET 2 OF 3



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ENGINEER
OF RECORD: J.T. KELVINGTON DATE: 04/22/25



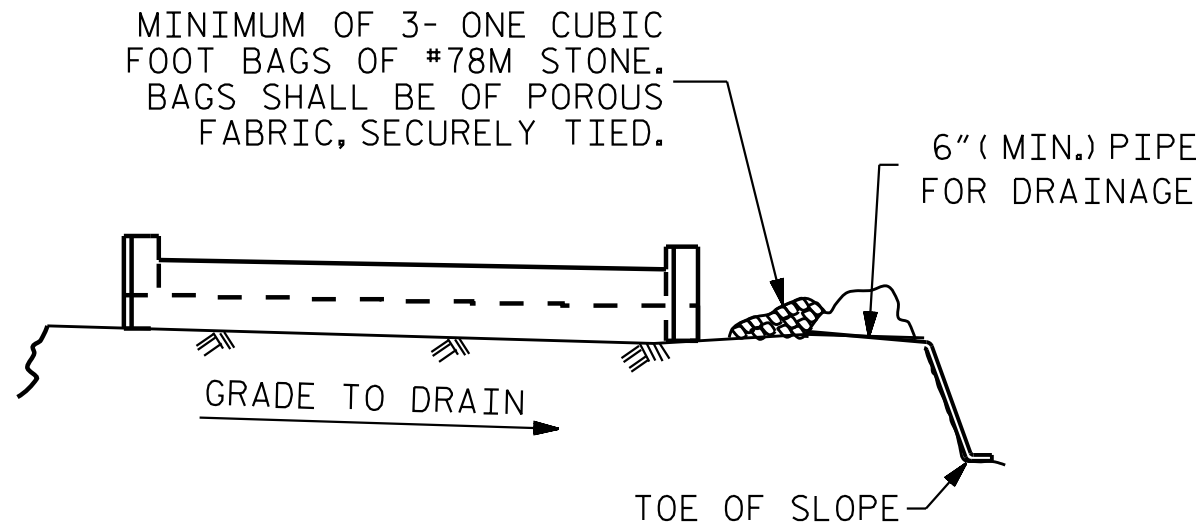
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Joe Kelvington 4/29/2025

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SIGNATURES COMPLETED

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH SUBSTRUCTURE END BENT 2 DETAILS WING WALLS (LEFT LANE)						SHEET NO. S03-28
REVISIONS						TOTAL SHEETS 32
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			

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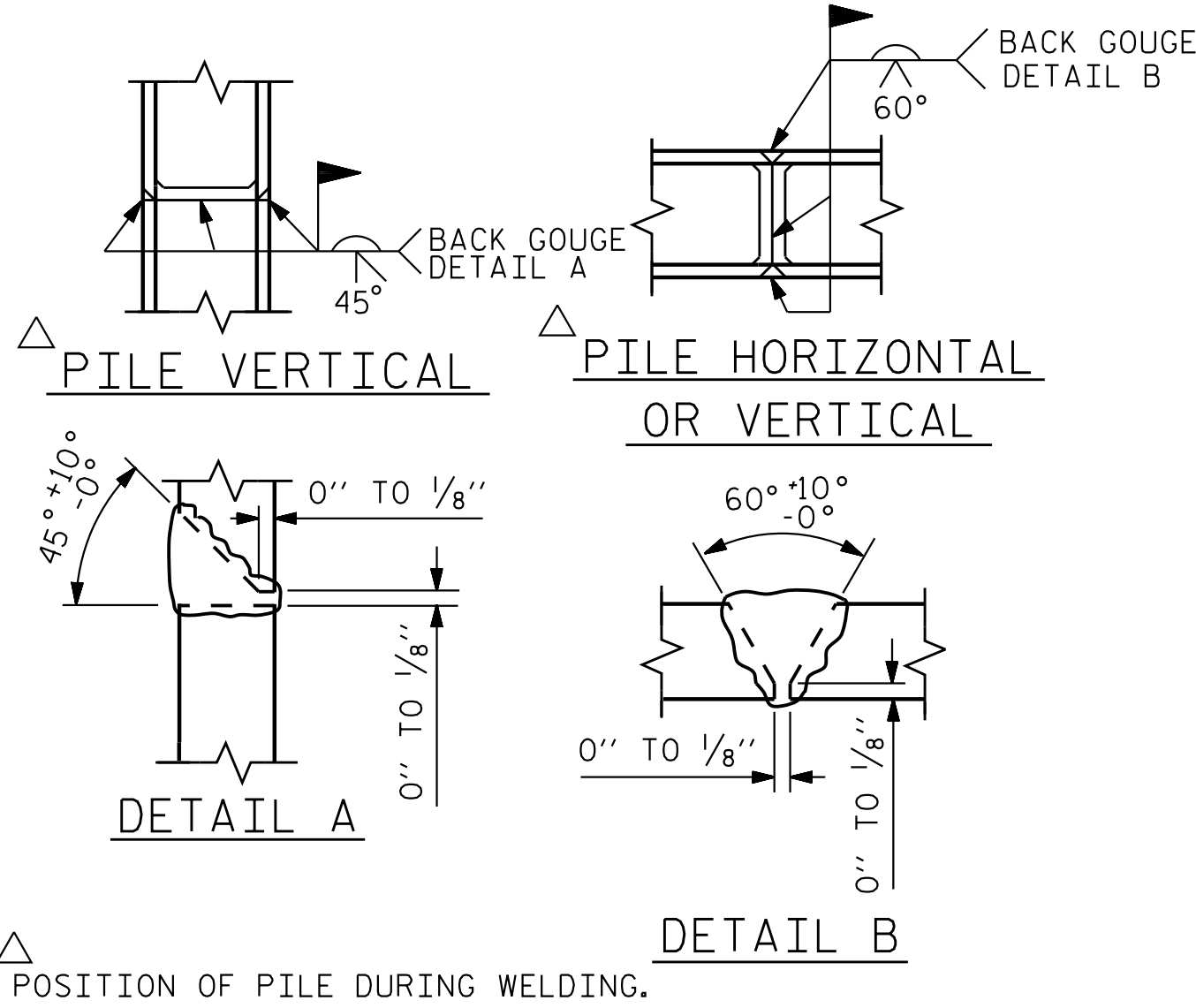


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

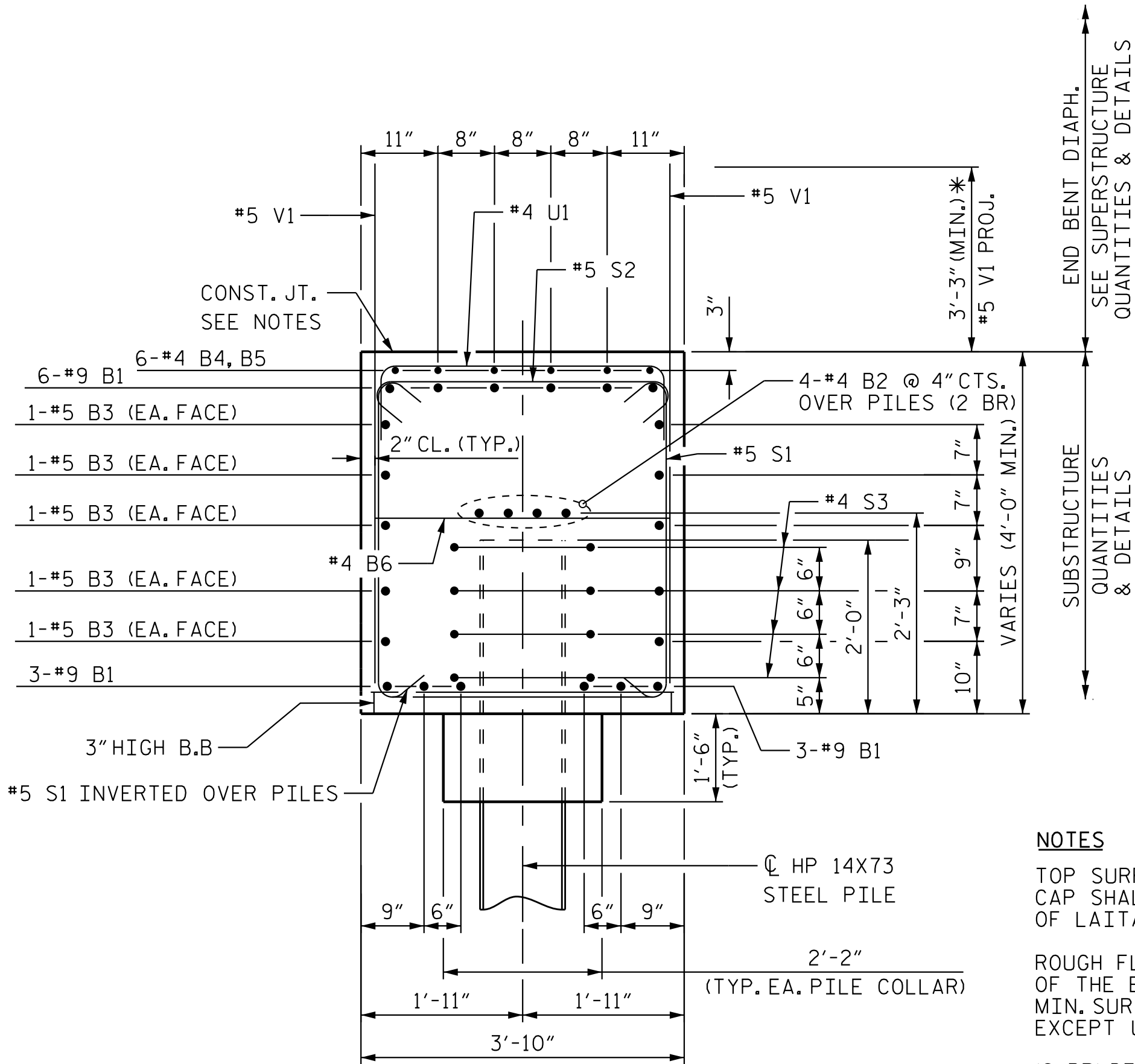
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR EFFECTIVENESS.

NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT



PILE SPLICE DETAILS



SECTION A-A

SEE 'END BENT 2" SHEET 1 OF 3

NOTES

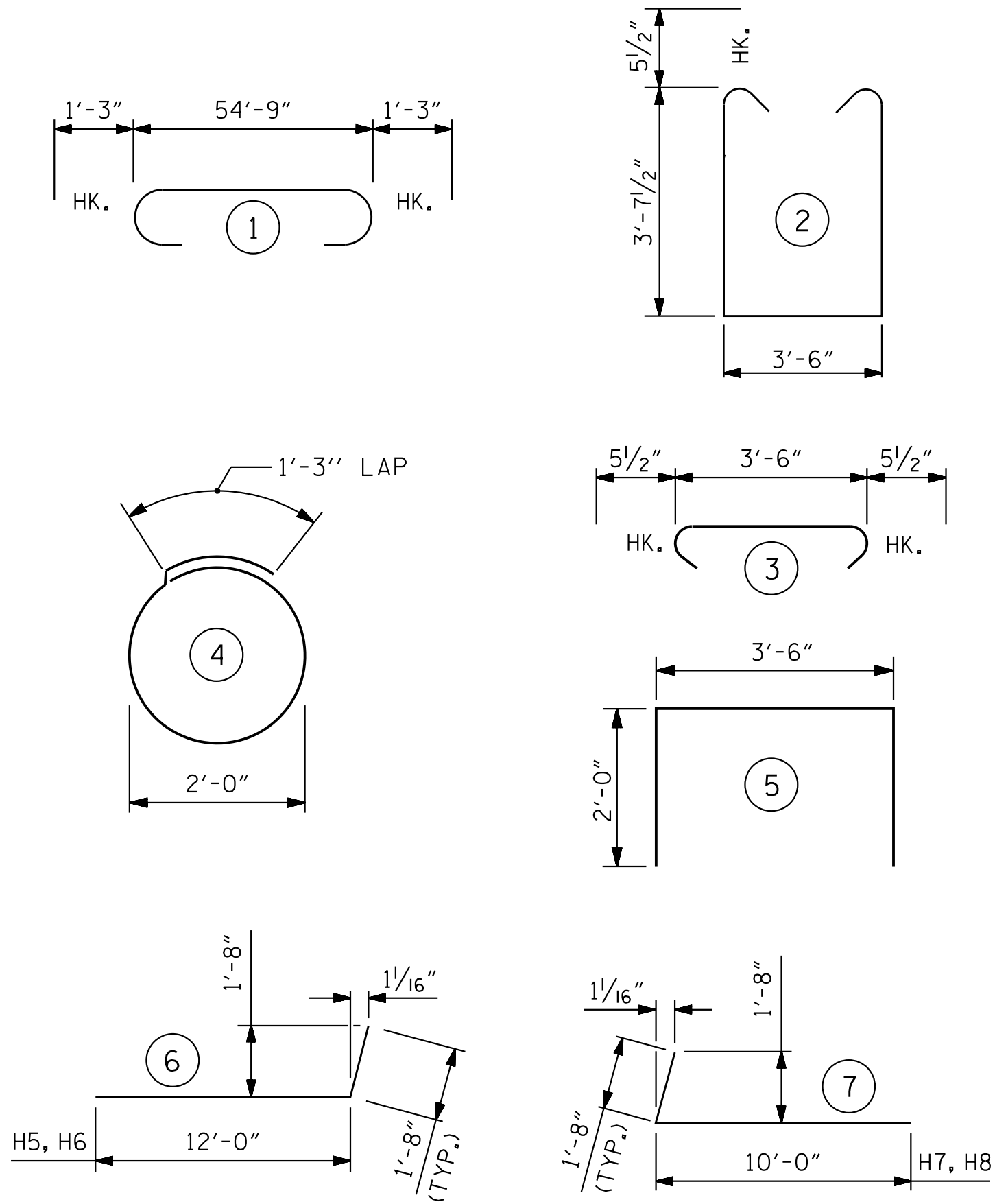
TOP SURFACE AREAS OF THE END BENT CAP SHALL BE KEPT CLEAN AND FREE OF LAITANCE.

ROUGH FLOAT AND ROUGHEN THE TOP OF THE END BENT CAP TO PROVIDE MIN. SURFACE AMPLITUDE OF 1/4", EXCEPT UNDER BEARING AREAS.

(2 BR) DENOTES 2 BAR RUN.

* 3'-7"± MAX. PROTECTION, SET V1 BAR 2" CLEAR (MIN.) FROM BOTTOM OF CAP.

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

END BENT 2

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	12	#9		57'-3"	2336
B2	8	#4	STR	27'-11"	149
B3	10	#5	STR	54'-9"	571
B4	30	#4	STR	5'-8"	114
B5	6	#4	STR	10'-5"	42
B6	14	#4	STR	3'-6"	33

H5	8	#6	6	13'-8"	164
H6	4	#4	6	13'-8"	37
H7	9	#5	7	11'-8"	110
H8	5	#4	7	11'-8"	39

S1	73	#5	2	11'-8"	888
S2	64	#5	3	4'-5"	295
S3	36	#4	4	7'-7"	182

U1	40	#4	5	7'-6"	200
----	----	----	---	-------	-----

V1	98	#5	STR.	7'-4"	750
V4	22	#5	STR.	6'-7"	151
V5	18	#5	STR.	7'-2"	135

REINFORCING STEEL LBS. 6,196

CLASS A CONCRETE BREAKDOWN:
POUR #1: CAP, LOWER PART OF WINGS AND COLLARS C.Y. 38.0

CLASS A CONCRETE TOTAL C.Y. 38.0

PROJECT NO. R-3300A
NEW HANOVER COUNTY
STATION: 232+80.54 -L1-

SHEET 3 OF 3



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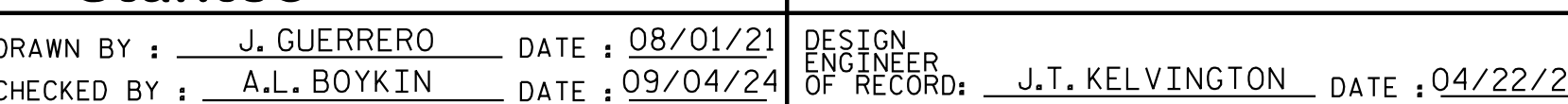
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH SUBSTRUCTURE					
END BENT 2 DETAILS (LEFT LANE)					
REVISIONS			SHEET NO.		
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2			4		
TOTAL SHEETS					32



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OPTIONAL POURING DETAIL

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

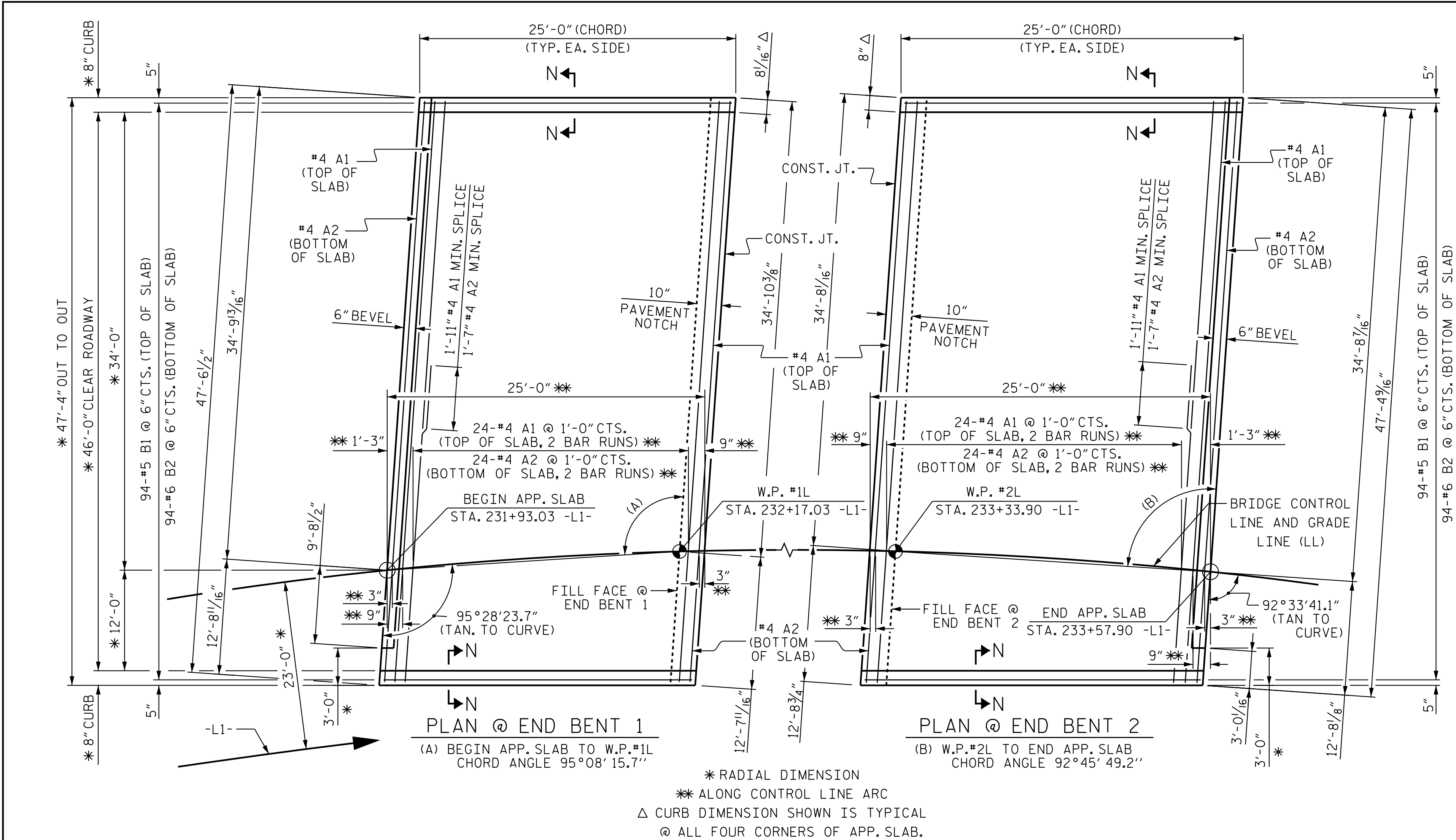
SLOPE PROTECTION DETAILS

(LEFT LANE)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S03-30
1			3			TOTAL SHEETS
2			4			32

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NOTES

FOR BRIDGE APPROACH FILL DETAILS AND NOTES, SEE SHEET 2 OF 2.

FOR SECTION THROUGH THE APPROACH SLAB, SEE "BRIDGE APPROACH SLAB DETAILS", SHT. 2 OF 2.

BILL OF MATERIAL

FOR ONE APPROACH SLAB (2 REQ'D)

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	52	#4	STR	24'-8"	857
A2	52	#4	STR	24'-6"	851
* B1	94	#5	STR	24'-2"	2,344
B2	94	#6	STR	24'-8"	3,446

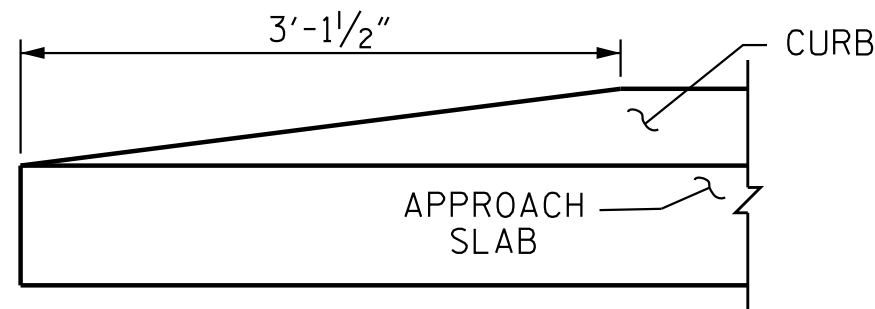
REINFORCING STEEL 4,297 LBS.

* EPOXY COATED REINFORCING STEEL 3,201 LBS.

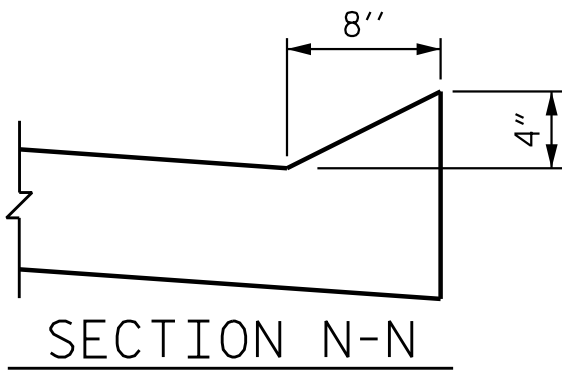
CLASS AA CONCRETE 51.1 C. Y.

SPLICE LENGTHS

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

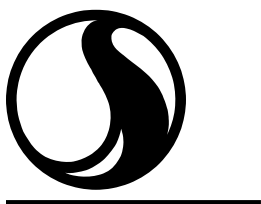


END OF CURB WITHOUT
SHOULDER BERM GUTTER



PROJECT NO. R-3300A
NEW HANOVER COUNTY
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SHEET 1 OF 2



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DRAWN BY : FCJ 11/88
CHECKED BY : ARB 11/88

REV. 6/13
REV. 12/17
REV. 5/18

MAA/GM
MAA/THC
MAA/THC

DESIGN
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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

BRIDGE APPROACH SLAB
FOR INTEGRAL ABUTMENT
WITH FLEXIBLE PAVEMENT

(LEFT LANE)

REVISIONS						SHEET NO. S03-31
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2			4			

STD. NO. BAS5



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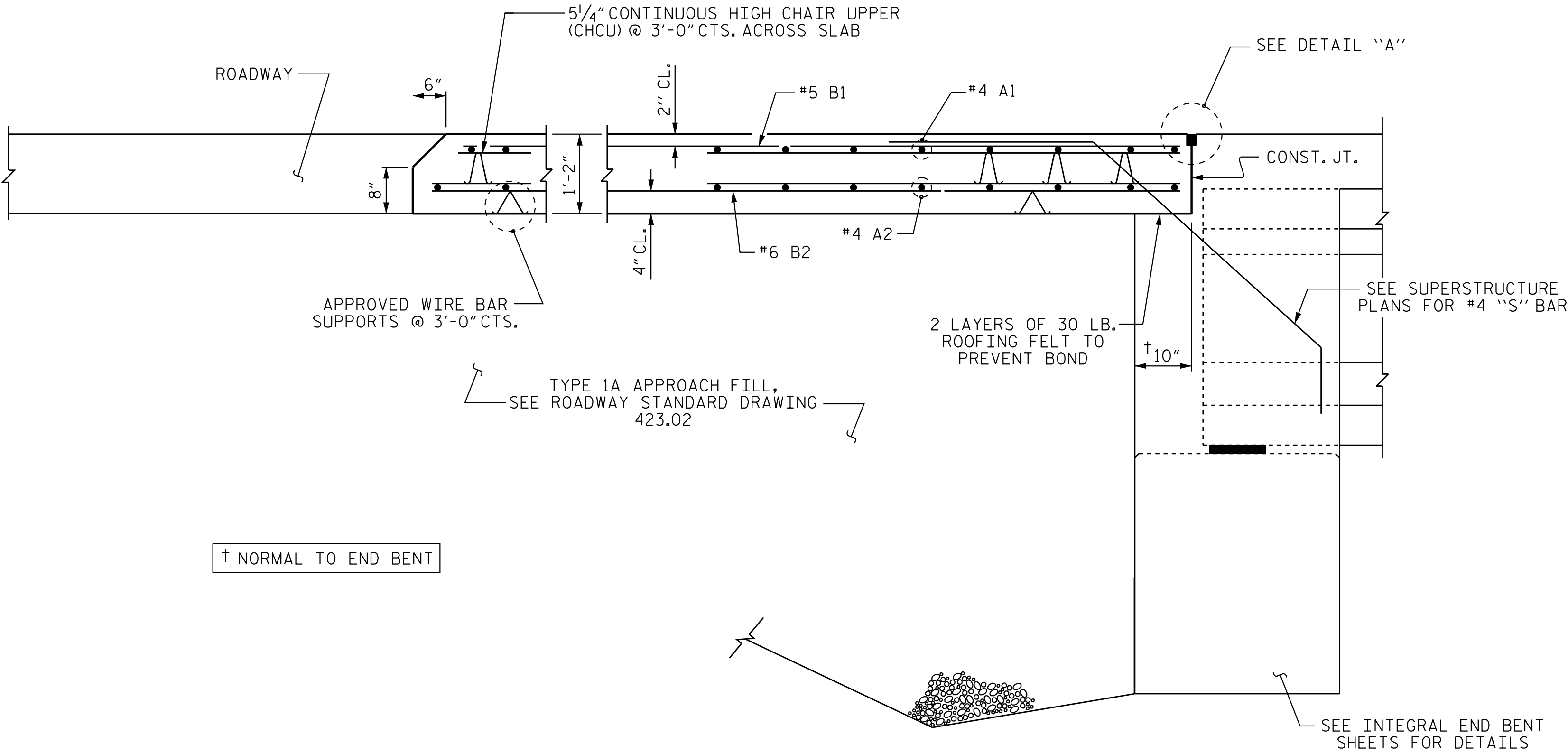
ASSEMBLED BY : J. GUERRERO DATE : 08/01/21
CHECKED BY : A.L. BOYKIN DATE : 09/04/24

DRAWN BY : TLA 10/05
CHECKED BY : GM 5/06

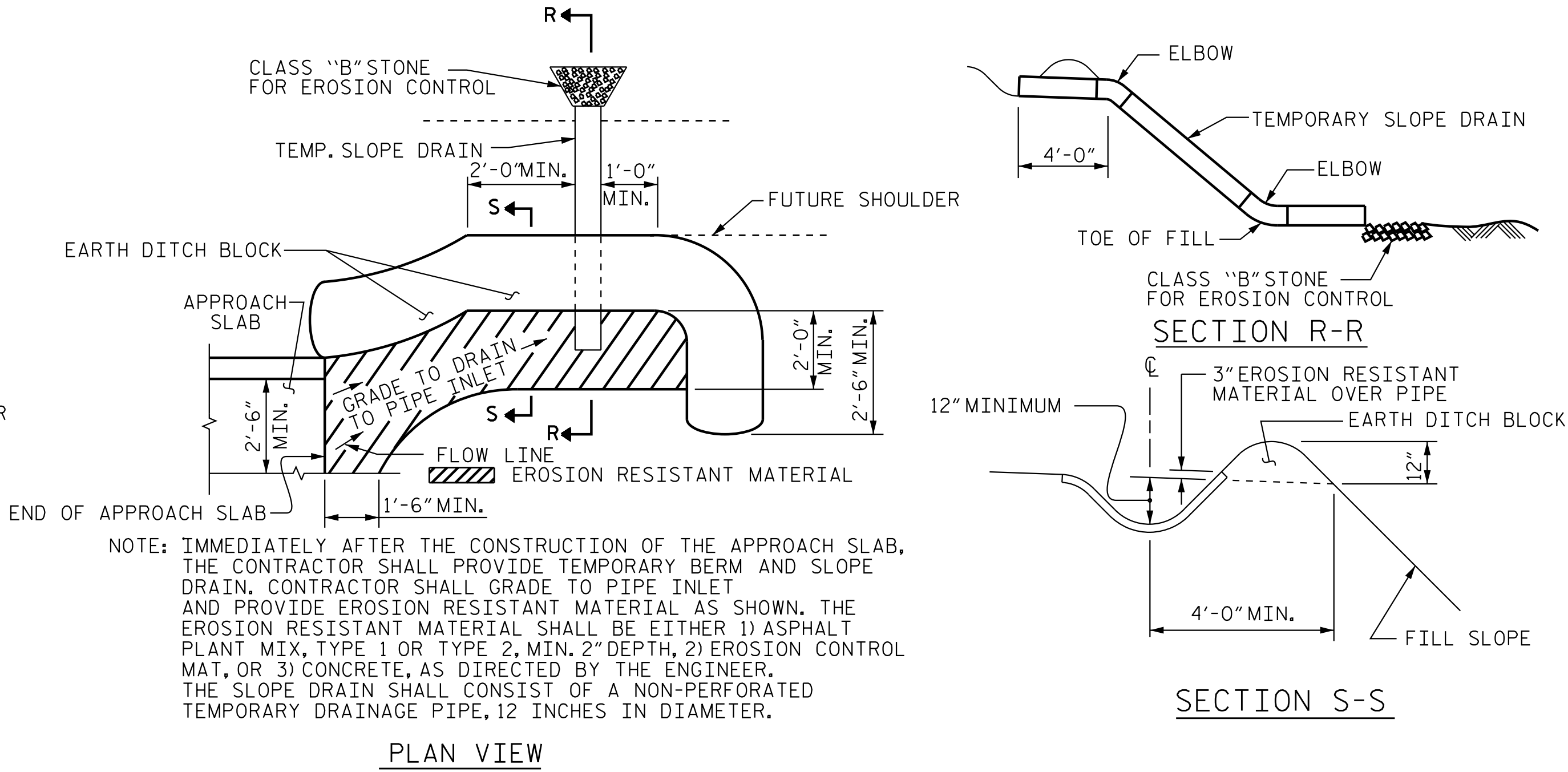
REV. 12/21/11
REV. 6/13
REV. 12/17

MAA/GM
MAA/GM
MAA/THC

DESIGN
ENGINEER
OF RECORD: J.T. KELVINGTON DATE : 04/22/25



SECTION THRU SLAB



TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)

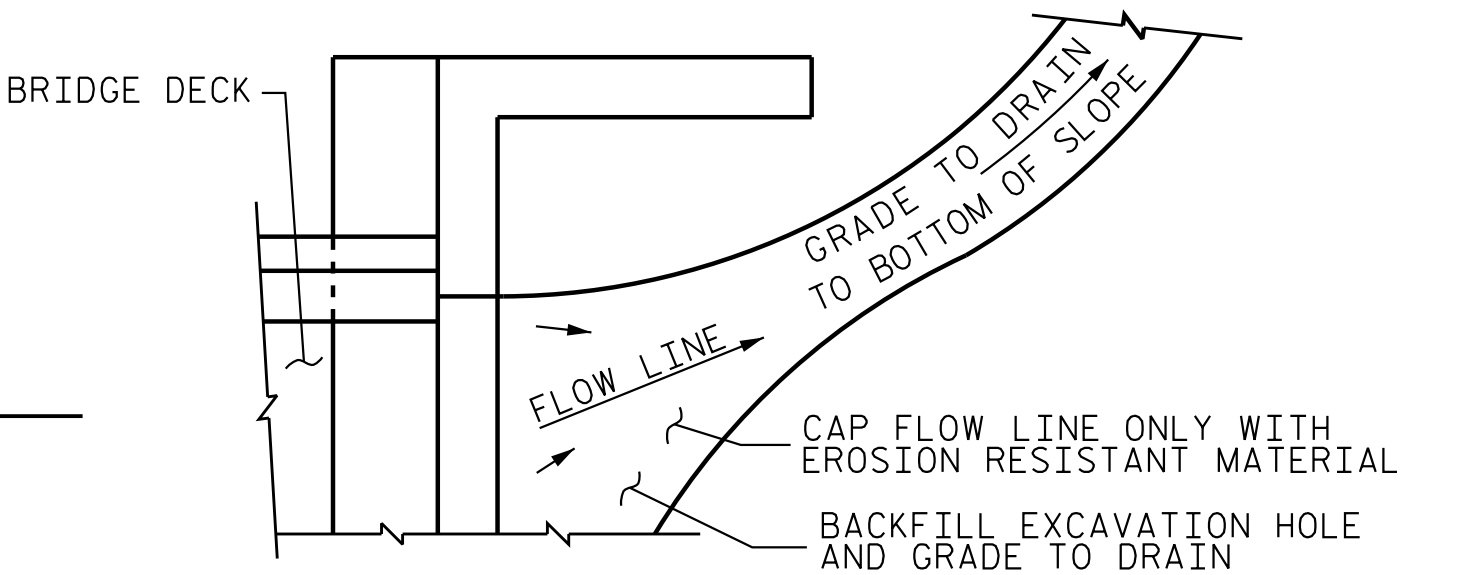
NOTES

FOR BRIDGE APPROACH FILL, SEE ROADWAY PLANS.

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

AREA BETWEEN WINGWALL AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE AND SHALL BE PAVED. SEE ROADWAY PLANS.

THE JOINT AT THE APPROACH SLAB/DECK INTERFACE SHALL BE SAWED NO MORE THAN 12 HOURS AFTER THE APPROACH SLAB IS CAST. THE JOINT SHALL BE CLEANED OF ALL DEBRIS BEFORE THE SEALANT IS APPLIED. THE JOINT SEALER SHALL CONFORM TO THE REQUIREMENTS OF SECTION 1028-3 OF THE STANDARD SPECIFICATIONS.



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

TEMPORARY DRAINAGE DETAIL

PROJECT NO. R-3300A
NEW HANOVER COUNTY
STATION: 232+80.54 -L1-

SHEET 2 OF 2



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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
BRIDGE APPROACH
SLAB DETAILS

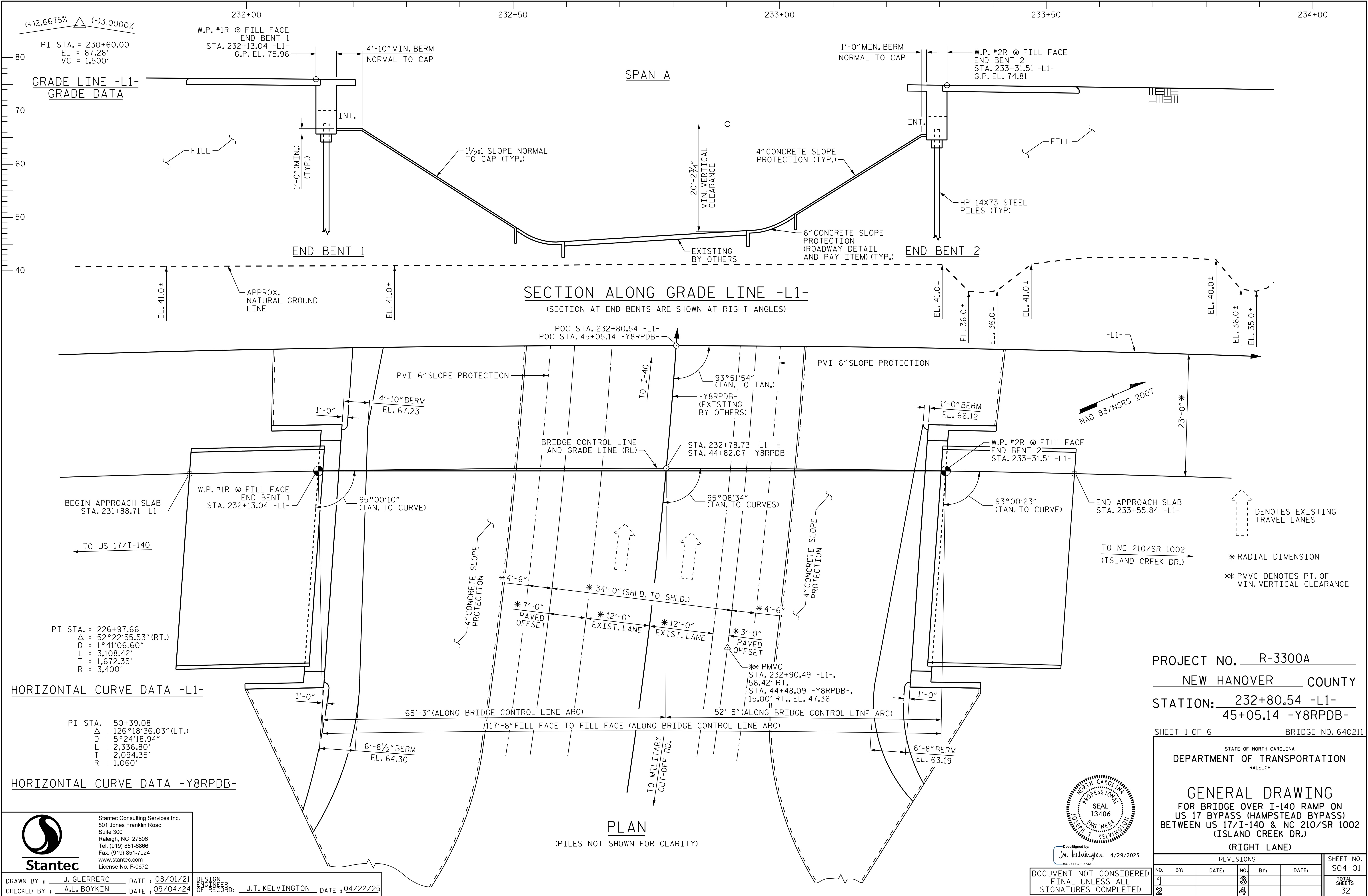
(LEFT LANE)

REVISIONS						SHEET NO. S03-32
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 32
2			4			

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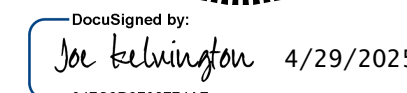
1. FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.
2. SEE ROADWAY PLANS AND SECTION 235 OF THE STANDARD SPECIFICATIONS FOR THE SETTLEMENT GAUGES AND SURCHARGE REQUIRED AT END BENTS NO.1 AND 2.
3. OBSERVE A 3 MONTH WAITING PERIOD AFTER CONSTRUCTING THE EMBANKMENT TO FINAL GRADE PLUS 5 FT OF SURCHARGE MATERIAL BEFORE BEGINNING END BENT CONSTRUCTION AT END BENTS NO.1 AND 2. FOR BRIDGE WAITING PERIODS, SEE ROADWAY PLANS AND SECTION 235 OF THE STANDARD SPECIFICATIONS.
4. APPROACH EMBANKMENT CONSTRUCTION MUST BE COMPLETED IN STAGES FOR SHORT TERM SLOPE STABILITY. TOTAL WAITING PERIOD INCLUDING ALL STAGES IS 9 MONTHS. SEE ROADWAY PLANS FOR EMBANKMENT CONSTRUCTION STAGE DETAILS.

SHEET 2 OF 6



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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

**FOR BRIDGE OVER I-140 RAMP ON
US 17 BYPASS (HAMSTEAD BYPASS)
BETWEEN US17/I-140 & NC 210/SR 1002
(ISLAND CREEK RD.)
(RIGHT LANE)**

SUMMARY OF PILE INFORMATION/INSTALLATION

(Blank entries indicate item is not applicable to structure)

End Bent / Bent No, Pile(s) #-(-#) (e.g., "Bent 1, Piles 1-5")	Number of Piles per Line	Factored Resistance per Pile KIPS	Pile Cut-Off (Top of Pile) Elevation FT	Estimated Pile Length per Pile FT	Scour Critical Elevation FT	Driven Piles			Predrilling for Piles **			Drilled-In Piles		
						Minimum Pile Tip (Tip No Higher Than) Elevation FT	Required Driving Resistance (RDR)* per pile KIPS	Pile Redrives Quantity EACH	Predrilling Length per Pile LIN FT	Predrilling Elevation (Elevation Not To Predrill Below) FT	Maximum Predrilling Diameter INCHES	Pile Excavation (Bottom of Hole) Elevation FT	Pile Excavation Not In Soil per Pile LIN FT	Pile Excavation In Soil per Pile LIN FT
End Bent 1, Piles 1-8	9	290	See Substructure Plans	70			485	4						
End Bent 2, Piles 1-8	9	300	See Substructure Plans	65			500	4						
TOTAL QUANTITY:								8						

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

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

PILE DESIGN INFORMATION

(Blank entries indicate item is not applicable to structure)

End Bent / Bent No, Pile(s) #(-#) (e.g., "Bent 1, Piles 1-5")	Factored Axial Load per Pile KIPS	Factored Drag Load per Pile KIPS	Factored Dead Load * per Pile KIPS	Dynamic Resistance Factor	Nominal Drag Resistance per Pile KIPS	Nominal Scour Resistance per Pile KIPS
End Bent 1, Piles 1-8	290			0.6		
End Bent 2, Piles 1-8	300			0.6		

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

SUMMARY OF PILE ACCESSORIES

(Blank entries indicate item is not applicable to structure)

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

SUMMARY OF DPT/PILE ORDER LENGTHS

(Blank entries indicate item is not applicable to structure)

Dynamic Pile Testing (DPT)		
End Bent / Bent No (e.g., "Bent 1 - Bent 3")	DPT Test Pile Length FT	DPT Testing Quantity EACH
End Bent 1	75	1
End Bent 2	70	
TOTAL QUANTITY:		1

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

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

PROJECT NO. R-3300A

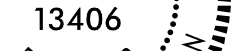
NEW HANOVER COUNTY

STATION: 232+78.73 -L1-

SHEET 3 OF 6

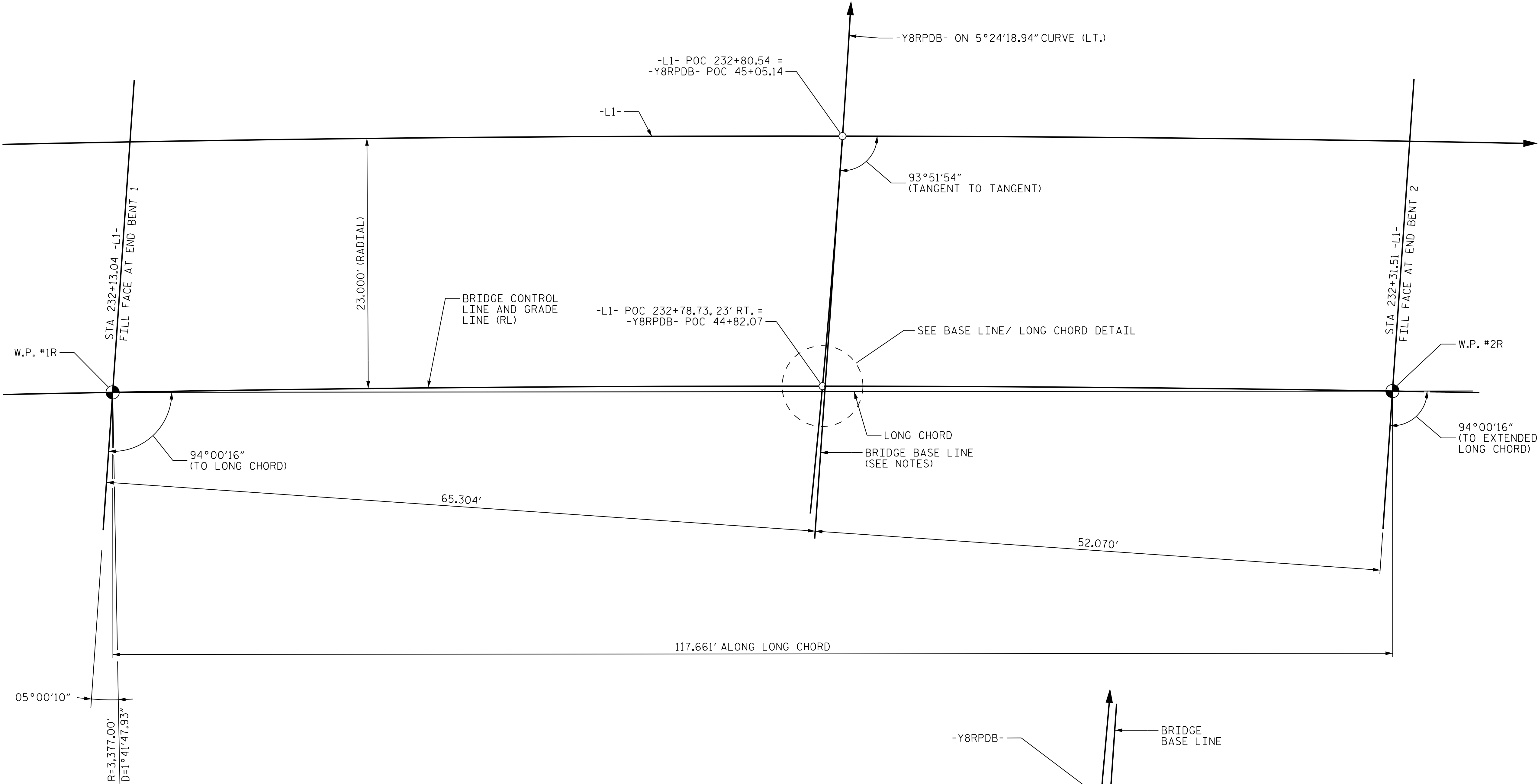
NOTES:

1. The Pile Foundation Tables are based on the bridge substructure design and foundation recommendations sealed by a North Carolina Professional Engineer (Jeremy R. Hamm, #039779) on 03/09/2025.
2. Total Pile Driving Equipment Setup quantity (not shown in Pile Foundation Tables) equals the number of driven piles, i.e., the number of piles with a Required Driving Resistance.
3. The Engineer may adjust the quantity for DPT Testing and Pipe Pile Plates when necessary.

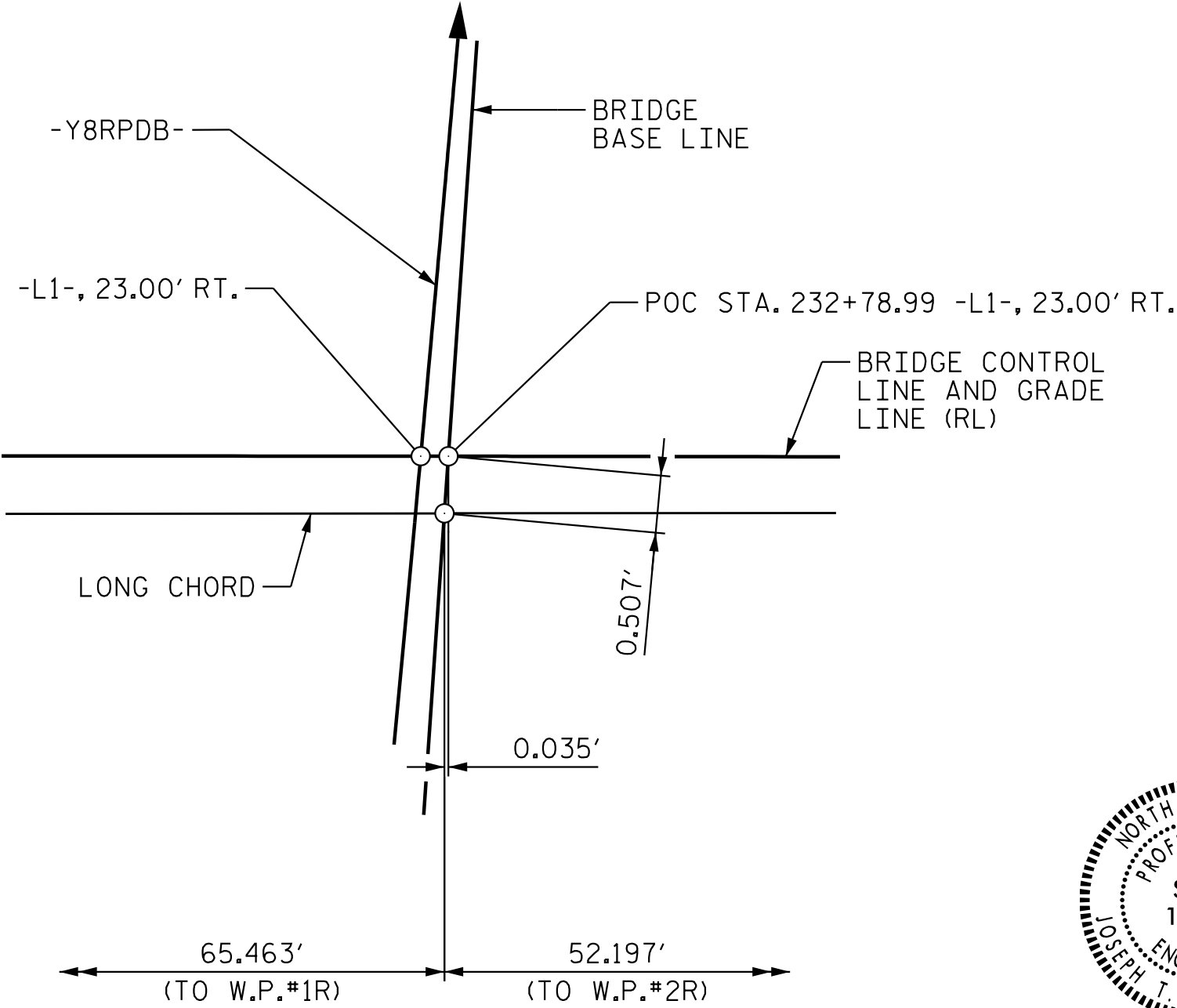
	STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH PILE FOUNDATION TABLES																										
Drawn/signed by:  4/22/2025 847CHD37907ANF...	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="6" style="text-align: center;">REVISIONS</th> <th style="text-align: center;">SHEET NO. S04-03</th> </tr> <tr> <th style="width: 10%;">NO.</th> <th style="width: 15%;">BY:</th> <th style="width: 15%;">DATE:</th> <th style="width: 10%;">NO.</th> <th style="width: 15%;">BY:</th> <th style="width: 15%;">DATE:</th> <th rowspan="3" style="text-align: center; vertical-align: middle;">TOTAL SHEETS 32</th> </tr> <tr> <td style="text-align: center;">1</td> <td></td> <td></td> <td style="text-align: center;">3</td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">2</td> <td></td> <td></td> <td style="text-align: center;">4</td> <td></td> <td></td> </tr> </table>	REVISIONS						SHEET NO. S04-03	NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS 32	1			3			2			4		
REVISIONS						SHEET NO. S04-03																					
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LONG CHORD LAYOUT



BASE LINE/ LONG CHORD DETAIL

NOTES:
END BENTS ARE PARALLEL TO BRIDGE BASE LINE.
BRIDGE BASE LINE IS TANGENT TO -Y8RPDB- AT
POC STA. 45+05.14 = POC STA. 232+80.54 -L1-.

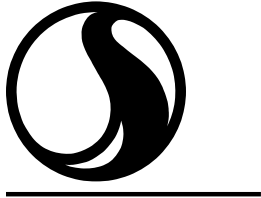
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NEW HANOVER COUNTY
STATION: 232+80.54 -L1-

SHEET 4 OF 6



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STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
GENERAL DRAWING FOR BRIDGE OVER I-140 RAMP ON US 17 BYPASS (HAMPS TEAD BYPASS) BETWEEN US 17/I-140 & NC 210/SR 1002 (ISLAND CREEK DR.) (RIGHT LANE)					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. S04-04					TOTAL SHEETS 32

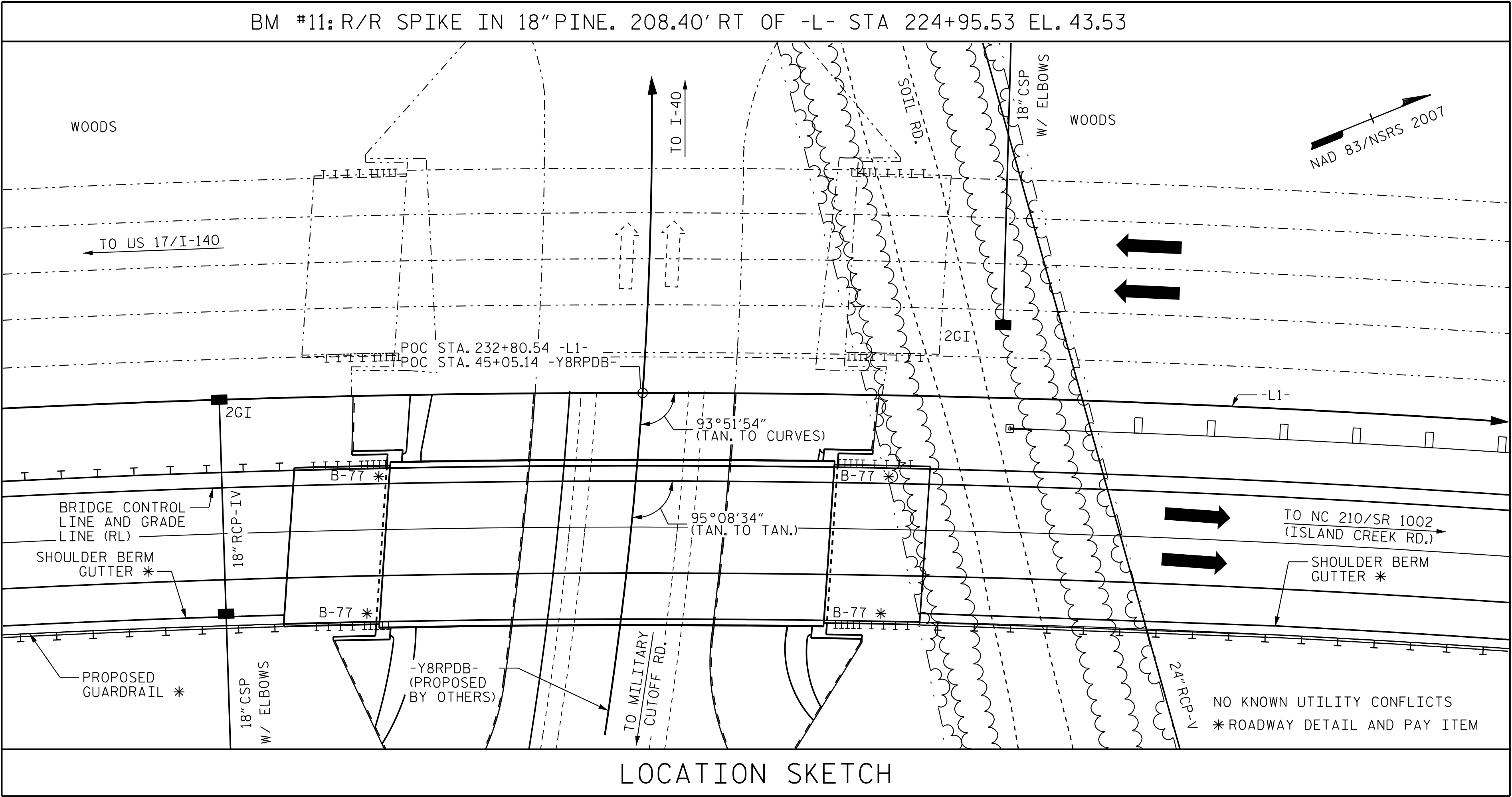


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Raleigh, NC 27606
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TOTAL BILL OF MATERIAL															
	REINFORCED CONCRETE DECK SLAB	GROOVING BRIDGE FLOORS	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	PILE DRIVING EQUIPMENT SETUP FOR HP 14X73 STEEL PILES	HP 14x73 STEEL PILES		PILE REDRIVES	DYNAMIC PILE TESTING (DPT)	CONCRETE BARRIER RAIL	4" SLOPE PROTECTION	ELASTOMERIC BEARINGS	MODIFIED 56" PRESTRESSED CONC. GIRDERS	
	SQ.FT.	SQ.FT.	CU.YDS.	LUMP SUM	LBS.	EA.	NO.	LIN.FT.	EA.	EA.	LIN.FT.	SQ.YDS.	LUMP SUM	NO.	LIN. FT.
SUPERSTRUCTURE	5,089	6,067		LUMP SUM							232.00		LUMP SUM	5	576.3
END BENT NO.1			35.2		5,788	8	8	560.0	4			457			
END BENT NO.2			34.9		5,728	8	8	520.0	4			352			
TOTAL	5,089	6,067	70.1	LUMP SUM	11,516	16	16	1,080.0	8	1	232.00	809	LUMP SUM	5	576.3

NOTES

ASSUMED LIVE LOAD = 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.

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

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

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

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

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

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

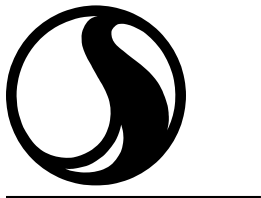
FOR MODIFIED 56" PRESTRESSED CONCRETE GIRDER, SEE SPECIAL PROVISIONS.

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

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

PROJECT NO. R-3300A
NEW HANOVER COUNTY
STATION: 232+80.54 -L1-

SHEET 5 OF 6



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801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
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DRAWN BY : J. GUERRERO DATE : 08/01/21
CHECKED BY : A.L. BOYKIN DATE : 09/04/24

DESIGN ENGINEER OF RECORD: J.T. KELVINGTON DATE : 04/22/25



Designed by J.T. Kelvington 4/29/2025

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
FOR BRIDGE OVER I-140 RAMP ON
US 17 BYPASS (HAMPSTEAD BYPASS)
BETWEEN US 17/I-140 & NC 210/SR 1002
(ISLAND CREEK DR.)
(RIGHT LANE)

REVISIONS						SHEET NO. S04-05
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 32
2			4			

DESIGN LOAD RATING FACTORS	LIMIT STATE	γ _{DC}	γ _{DW}
	STRENGTH I	1.25	1.50
	SERVICE III	1.00	1.00

NOTES:

MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE III LIMIT STATES.

ALLOWABLE STRESSES FOR SERVICE III LIMIT STATE ARE AS REQUIRED FOR DESIGN.

SPAN SHOWN IN LRFR SUMMARY CORRESPONDS TO COMPOSITE DEAD LOAD AND LIVE LOAD MODEL USED FOR ANALYSIS AND DESIGN.

CONTROLLING LOAD RATING

1 DESIGN LOAD RATING (HL-93)

2 DESIGN LOAD RATING (HS-20)

3 LEGAL LOAD RATING **

4 EMERGENCY VEHICLE LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

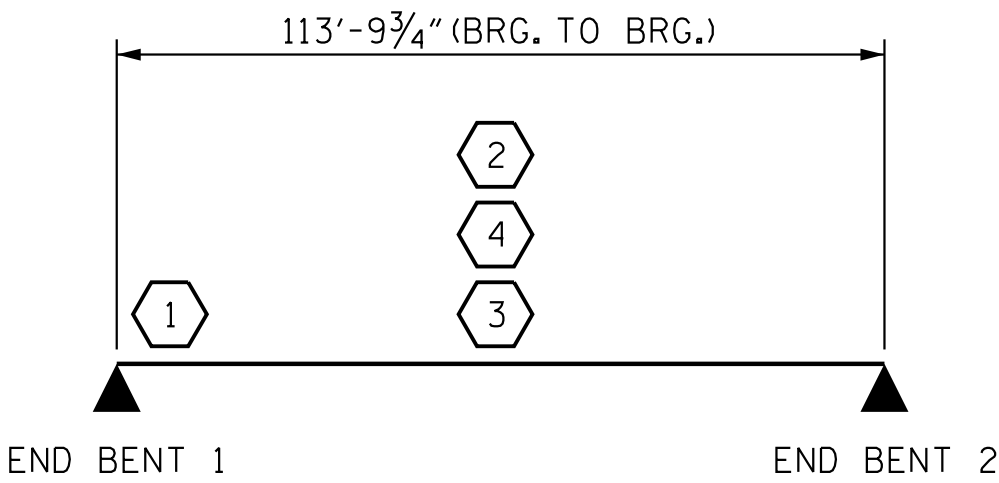
GIRDER LOCATION

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

GIRDER PROPERTIES

MODIFIED 56"PRESTRESSED
CONCRETE GIRDER

AREA = 759 SQ. IN.
WEIGHT = 791 LB/FT.
Y_{BOTTOM} = 27.82 IN.
Y_{TOP} = 28.18 IN.
I_{xx} = 317,731 IN.⁴
I_{yy} = 42,980 IN.⁴
V/S = 3.40 IN.



LRFR SUMMARY

PROJECT NO. R-3300A

NEW HANOVER COUNTY

STATION: 232+80.54 -L1-

SHEET 6 OF 6

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Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
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ASSEMBLED BY : J. GUERRERO
CHECKED BY : A.L. BOYKIN
DATE : 08/01/21
DATE : 09/04/24

DRAWN BY : MAA
CHECKED BY : GM/DI
1/08
2/08

REV. 11/12/08RR
REV. 10/1/11
REV. 04/23

MAA/GM
BNB/AAI

DESIGN
ENGINEER
OF RECORD: J.T. KELVINGTON
DATE : 04/22/25

DocuSigned by
Joe Kelvington
4/29/2025
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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
LRFR SUMMARY FOR
PRESTRESSED
CONCRETE GIRDERS
(NON-INTERSTATE TRAFFIC)
(RIGHT LANE)

REVISIONS						SHEET NO. S04-06
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 32
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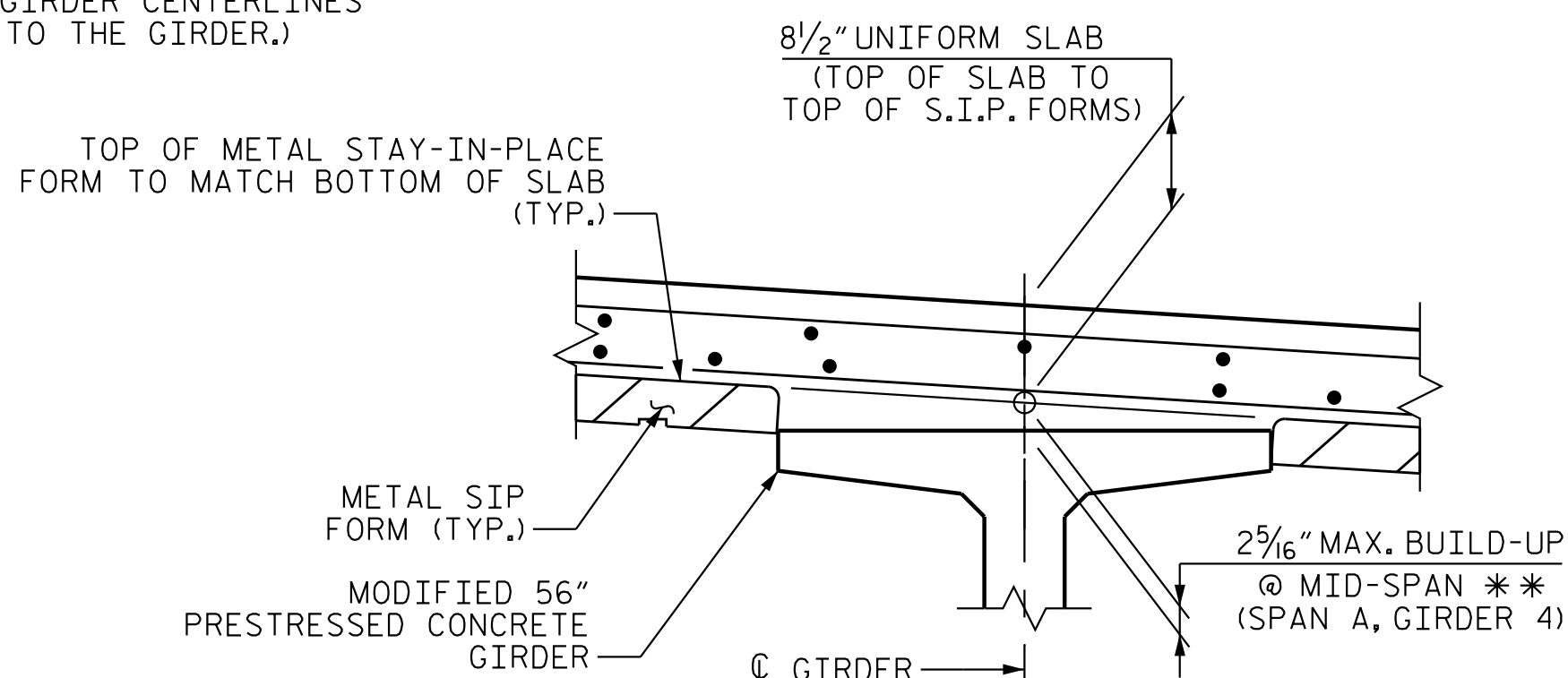
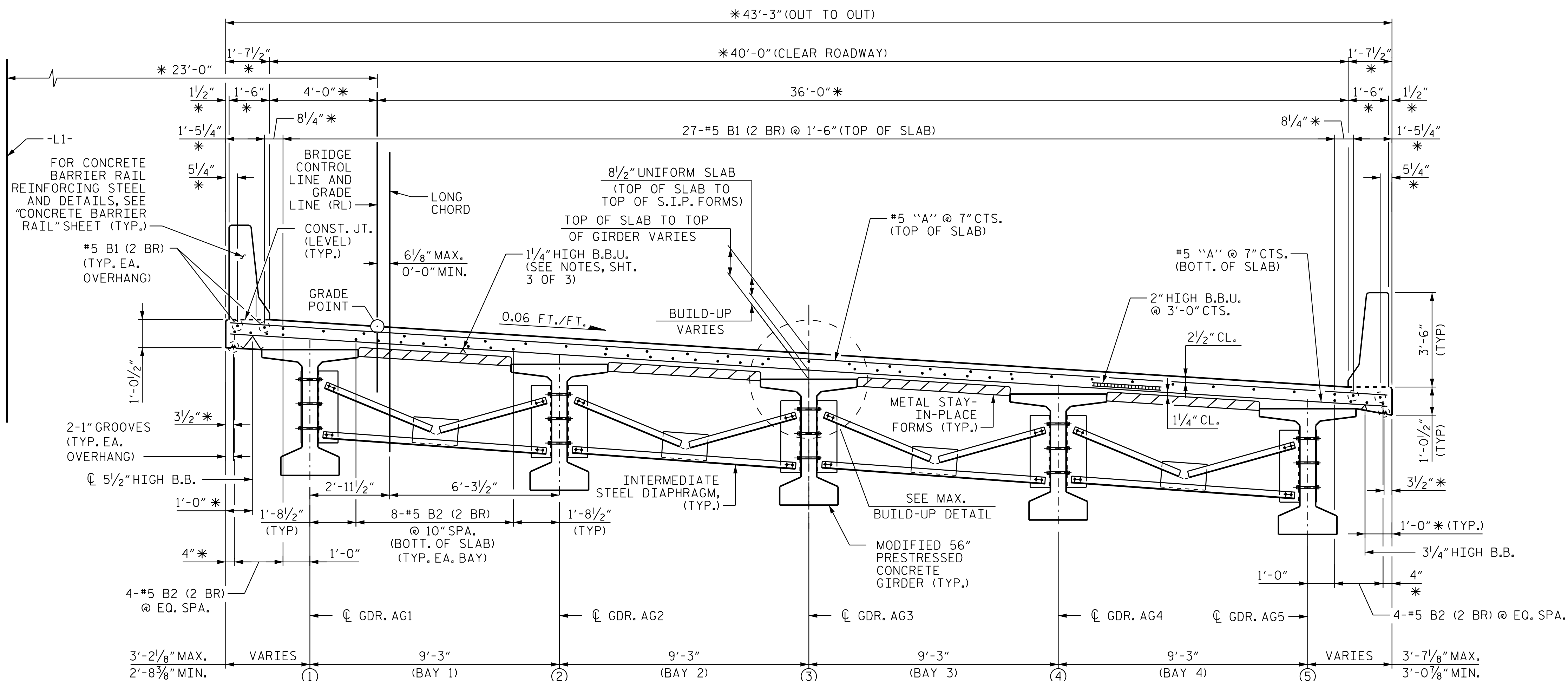
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ENGINEER
OF RECORD: J.T. KELVINGTON DATE : 04/22/25

TYPICAL SECTION AT INTERMEDIATE DIAPHRAGM

(GIRDERS ARE PARALLEL TO LONG CHORD. HORIZONTAL
DIMENSIONS TO GIRDER CENTERLINES
ARE NORMAL TO THE GIRDER.)



** BASED ON PREDICTED FINAL
CAMBER AND THEORETICAL GRADE LINE ELEVATIONS.

MAXIMUM BUILD-UP DETAIL AT MID-SPAN

NOTES

- DENOTES CONTINUOUS LONGITUDINAL DECK REINFORCEMENT.
- DENOTES NON-CONTINUOUS LONGITUDINAL DECK REINFORCEMENT.
- SEE "TYPICAL SECTION DETAILS", SHEET 3 OF 3, FOR ADDITIONAL NOTES.

(2 BR) DENOTES 2 BAR RUN.

* DENOTES RADIAL DIMENSION.

FOR INTERMEDIATE STEEL DIAPHRAGM
DETAILS, SEE "INTERMEDIATE STEEL
DIAPHRAGMS FOR MODIFIED 56"
PRESTRESSED CONCRETE GIRDERS"
SHEET.

PROJECT NO. R-3300A
NEW HANOVER COUNTY
STATION: 232+80.54 -L1-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING TYPICAL SECTION

(RIGHT LANE)

REVISIONS						SHEET NO. S04-07
NO.	BY:	DATE:	NO.	BY:	DATE:	
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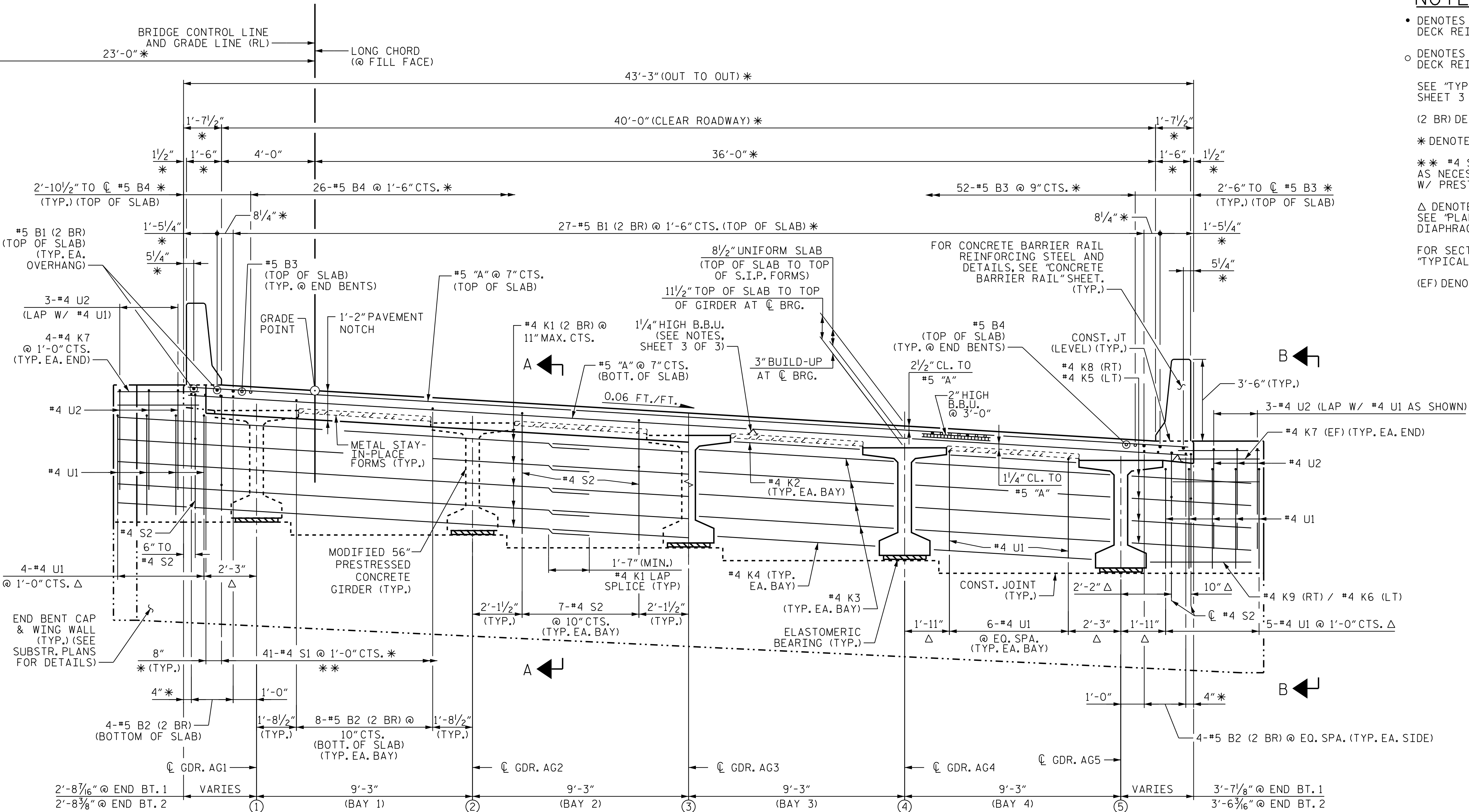
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DESIGN ENGINEER OF RECORD: J.T. KELVINGTON DATE : 04/22/25

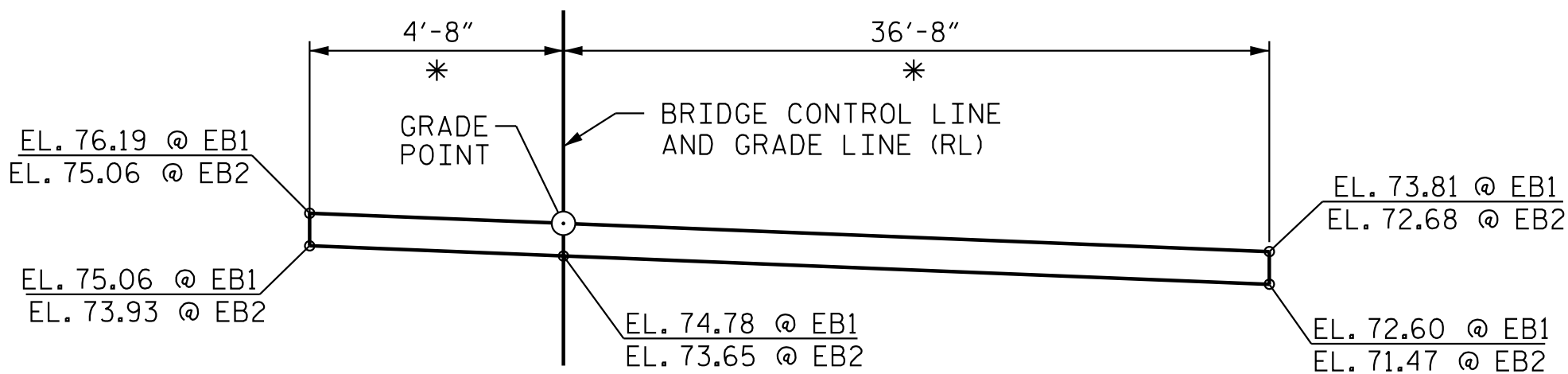


INTEGRAL DIAPHRAGM
HALF-SECTION REINFORCEMENT
AT FILL FACE

TYPICAL SECTION

(GIRDERS ARE PARALLEL TO LONG CHORD. HORIZONTAL DIMENSIONS TO GIRDER CENTERLINES ARE NORMAL TO THE GIRDER.)

INTEGRAL DIAPHRAGM
HALF-SECTION REINFORCEMENT
AT FRONT FACE



INTEGRAL DIAPHRAGM
APPROACH SLAB BLOCKOUT
ALONG FILL FACE



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NOTES

- DENOTES CONTINUOUS LONGITUDINAL DECK REINFORCEMENT.
- DENOTES NON-CONTINUOUS LONGITUDINAL DECK REINFORCEMENT.
- SEE "TYPICAL SECTION DETAILS", SHEET 3 OF 3, FOR ADDITIONAL NOTES.
- (2 BR) DENOTES 2 BAR RUN.
- * DENOTES RADIAL DIMENSION.
- ** #4 S1 MAY BE REPOSITIONED AS NECESSARY TO CLEAR CONFLICTS W/ PRESTRESSED GIRDERS.
- Δ DENOTES MEASURED ALONG FILL FACE, SEE "PLAN OF SPAN DETAILS - DIAPHRAGMS".
- FOR SECTION A-A AND SECTION B-B, SEE "TYPICAL SECTION DETAILS", SHT. 3 OF 3.
- (EF) DENOTES EACH FACE OF DIAPHRAGM.

PROJECT NO. R-3300A
NEW HANOVER COUNTY
STATION: 232+80.54 -L1-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

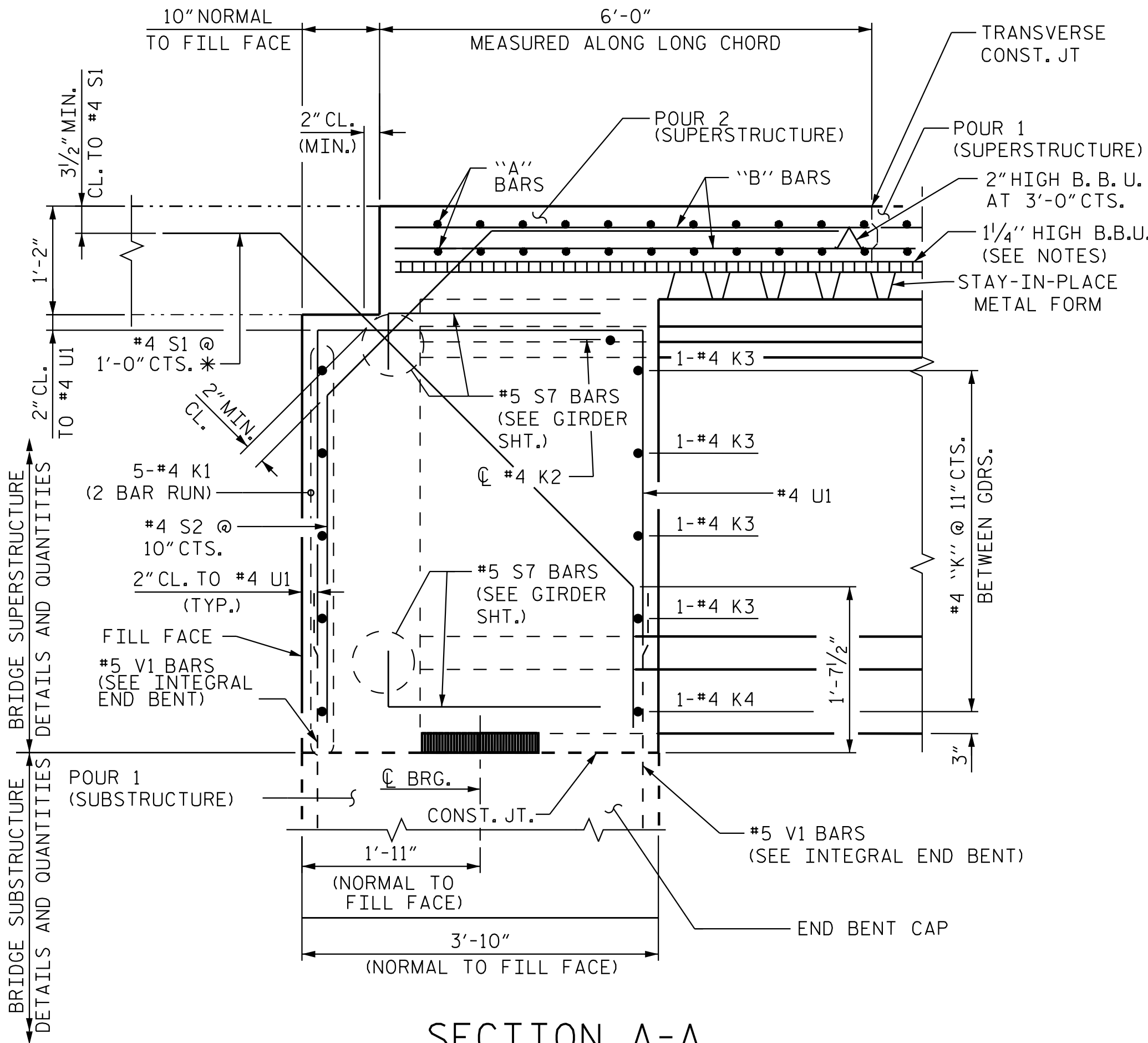
TYPICAL SECTION

(RIGHT LANE)

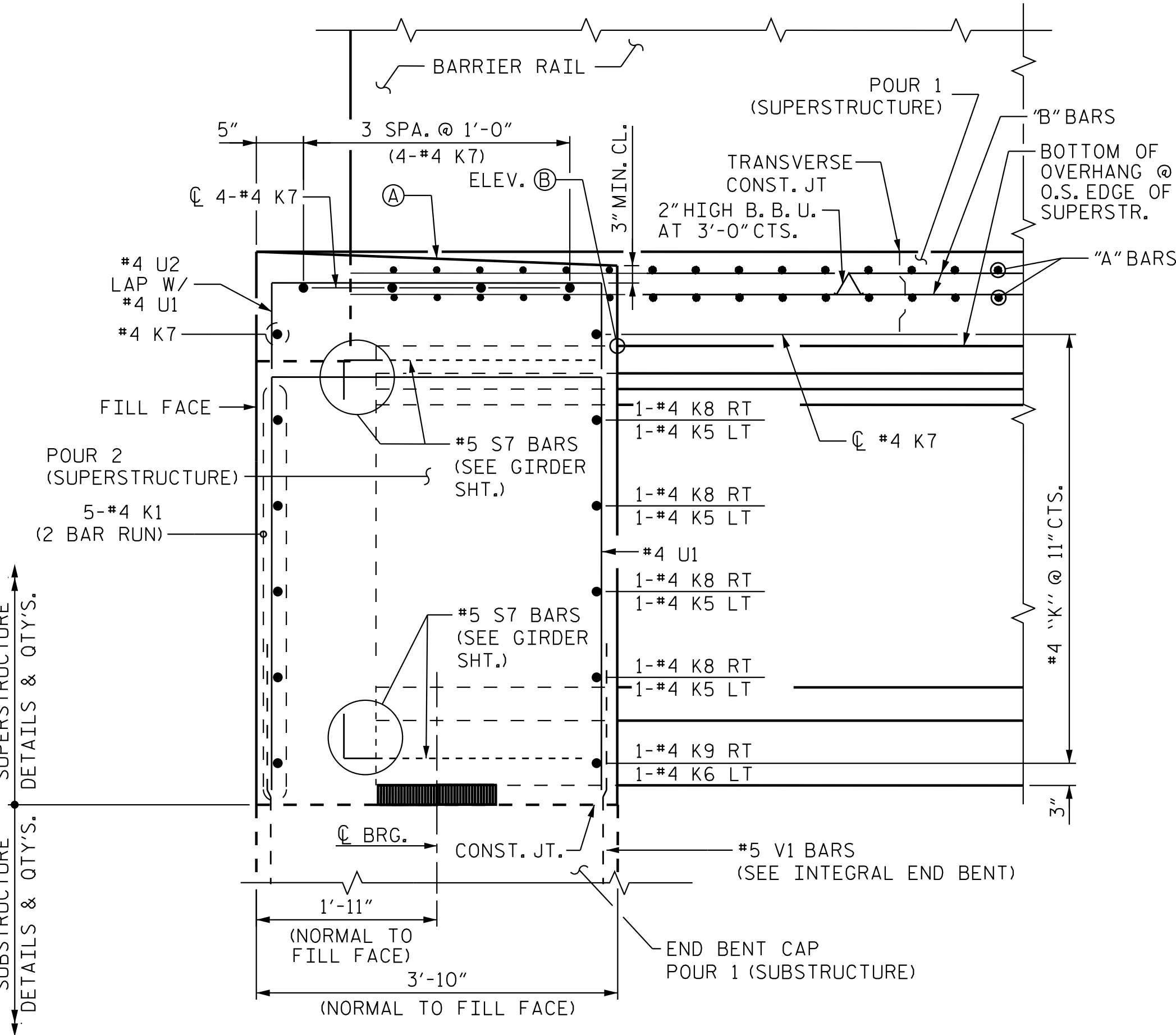
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1			3			TOTAL SHEETS 32
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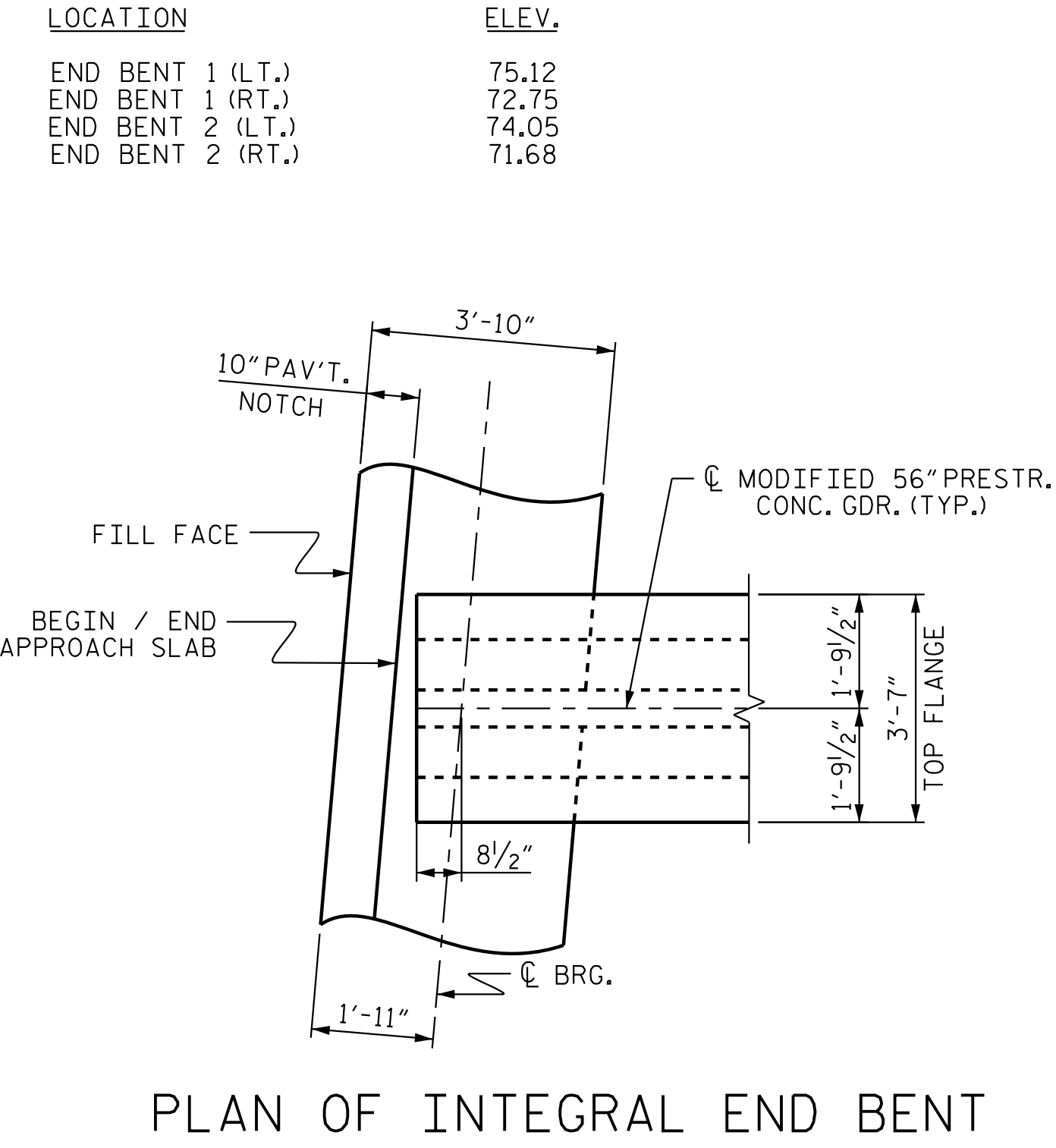
SECTION A-A
SECTION THRU INTEGRAL END BENT DIAPHRAGM
WORK WITH "PLAN OF SPAN DETAILS - DIAPHRAGMS", SH. 2 OF 4



SECTION B-B
SECTION THRU INTEGRAL END BENT DIAPHRAGM BEYOND EXTERIOR GIRDER
SEE "PLAN OF SPAN DETAILS - DIAPHRAGMS", SH. 2 OF 4
SECTION @ END BENT 1 SHOWN. SECTION @ END BENT 2 SIMILAR.
SEE "PLAN OF SPAN DETAILS - DIAPHRAGMS", SH. 2 OF 4
K7 LENGTH MUST BE AT LEAST 3" FROM OUTSIDE WING
AND EDGE OF APPROACH SLAB NOTCH.

NOTES

- PROVIDE 1/4" HIGH BEAM BOLSTERS UPPER AT 4'-0" CTS. ATOP THE METAL STAY-IN-PLACE FORMS TO SUPPORT THE BOTTOM MAT OF "A" BARS. WHEN USING REMOVABLE FORMS, PROVIDE CONTINUOUS HIGH CHAIRS FOR METAL DECK (C.H.C.M.) @ 4'-0" CTS. WITH A HEIGHT TO SUPPORT THE BOTTOM MAT OF "A" BARS A CLEAR DISTANCE OF 2 1/2" ABOVE THE TOP OF THE REMOVABLE FORM.
- LONGITUDINAL STEEL MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO AVOID INTERFERENCE WITH STIRRUPS IN PRESTRESSED CONCRETE GIRDERS.
- NO CHAMFER IS REQUIRED ON CORNERS OF GIRDER BUILUPS.
- PREVIOUSLY CAST CONCRETE IN THE UNIT SHALL HAVE ATTAINED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI BEFORE ADDITIONAL CONCRETE IS CAST IN THE UNIT EXCEPT AS NOTED IN THE PLANS.
- #5 S7 BARS PROJECTIING FROM GIRDER FLANGES MAY BE FIELD BENT, AS NECESSARY, TO CLEAR THE 1'-2" X 10" PAVEMENT NOTCH.
- (A) SLOPE TOP SURFACE OF DIAPHRAGM BETWEEN THE EDGE OF SUPERSTRUCTURE AND OUTSIDE EDGE OF WING WALL AT A RATE OF 2% NORMAL TO FILL FACE TO DRAIN WATER AWAY FROM THE FILL FACE.
- (B) BOTTOM OF OVERHANG ELEV'S. @ FRONT FACE OF END BENT DIAPHRAGM AND OUTSIDE EDGE OF DECK SLAB.



PROJECT NO. R-3300A
NEW HANOVER COUNTY
STATION: 232+80.54 -L1-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE

TYPICAL SECTION
(DETAILS)
(RIGHT LANE)

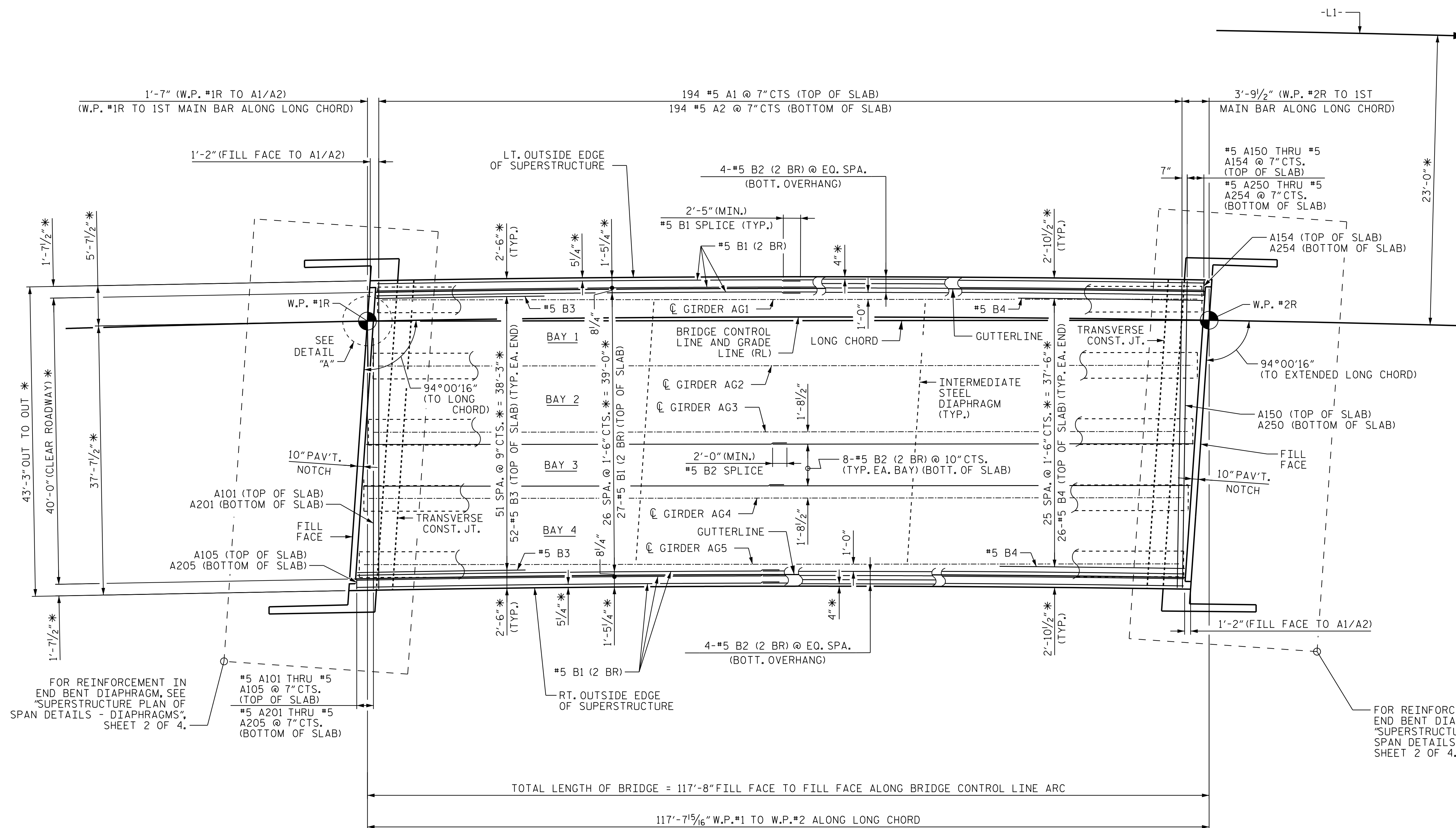
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1			3			TOTAL SHEETS 32
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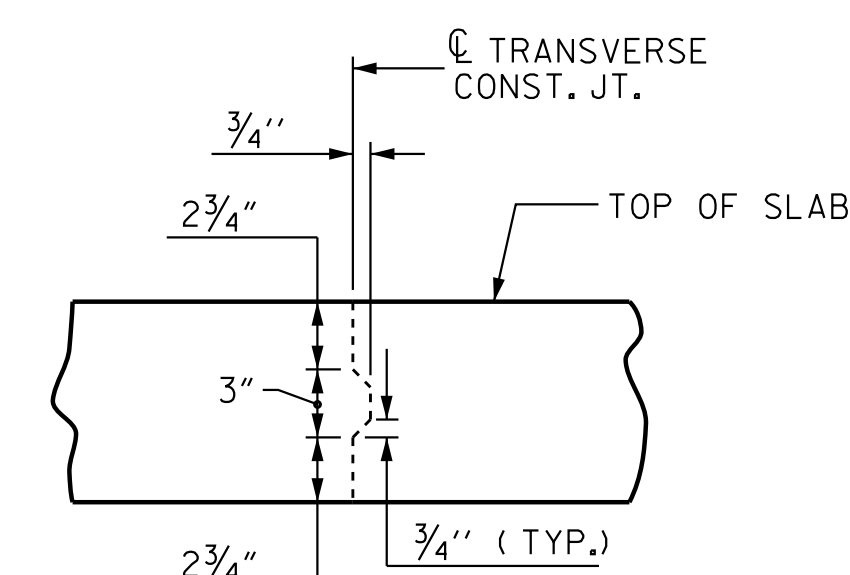
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Suite 300
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DRAWN BY : J. GUERRERO DATE : 08/01/21
CHECKED BY : A.L. BOYKIN DATE : 09/04/24
DESIGN
ENGINEER
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NOTE: #5B3 AND #5B4 SHOWN ARE TO BE PROVIDED AT BOTH END BENTS. SET #5B3 AND #5B4 1'-0" CLEAR OF FILL FACE @ EA. END BENT.

FOR BARRIER RAIL DETAILS
AND REINFORCING STEEL, SEE
"CONCRETE BARRIER RAIL".



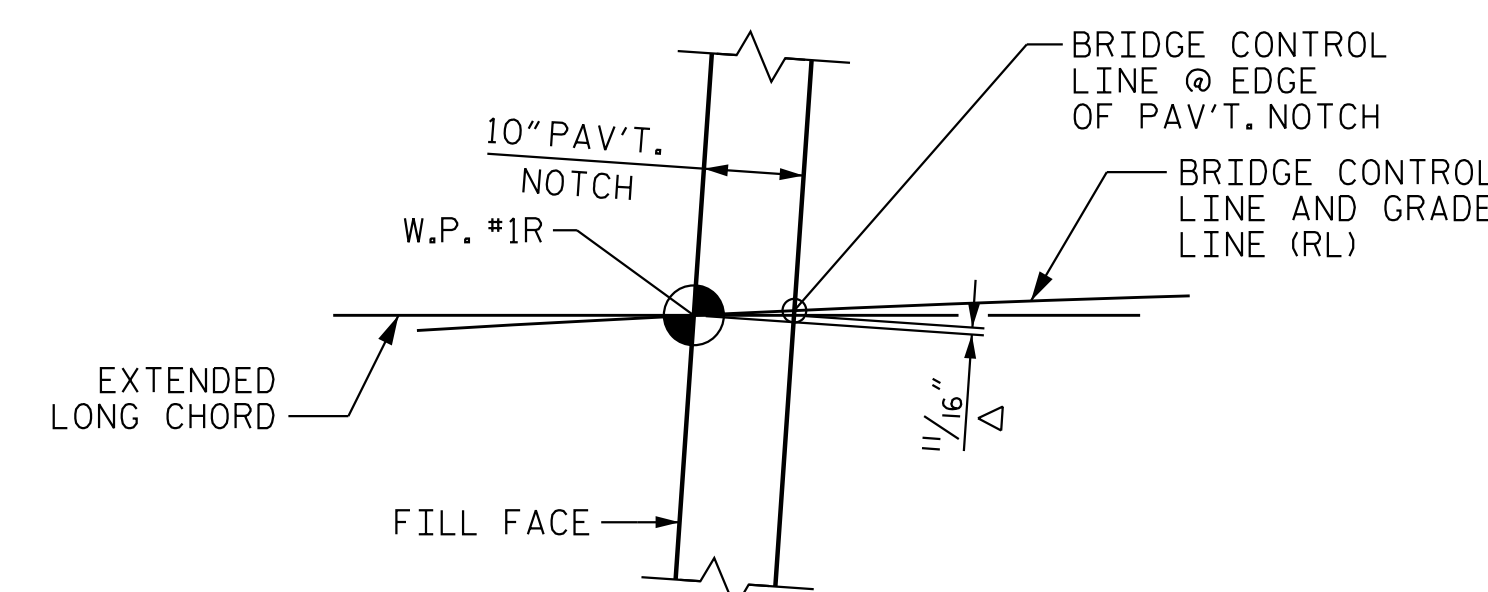
TRANSVERSE
CONSTRUCTION
JOINT IN DECK SLAB

NOTE: REINFORCING STEEL IN SLAB
NOT SHOWN. LONGITUDINAL
REINFORCING STEEL SHALL BE
CONTINUOUS THRU JOINT

— FOR REINFORCEMENT IN
END BENT DIAPHRAGM, SEE
"SUPERSTRUCTURE PLAN OF
SPAN DETAILS - DIAPHRAGMS",
SHEET 2 OF 4.

PLAN OF SPAN

NOTE: (2 BR) DENOTES TWO BAR RUN
* DENOTES RADIAL DIMENSION



DETAIL "A"

W.P.#1R SHOWN / W.P.#2R SIMILAR
WORK LINE TO BENT CONTROL LINE OFFSET, Δ

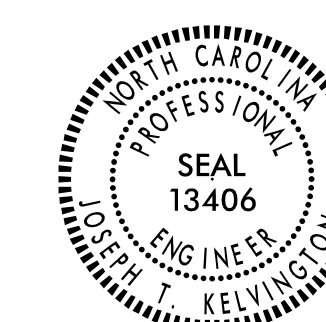
LOCATION	Δ
END BENT 1	$7/8"$
END BENT 2	$1/2"$



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ENGINEER
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Joe Kelvington 4/29/202

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PROJECT NO. R-3300A
NEW HANOVER COUNTY
 STATION: 232+80.54 -L1-

SHEET 1 OF 4

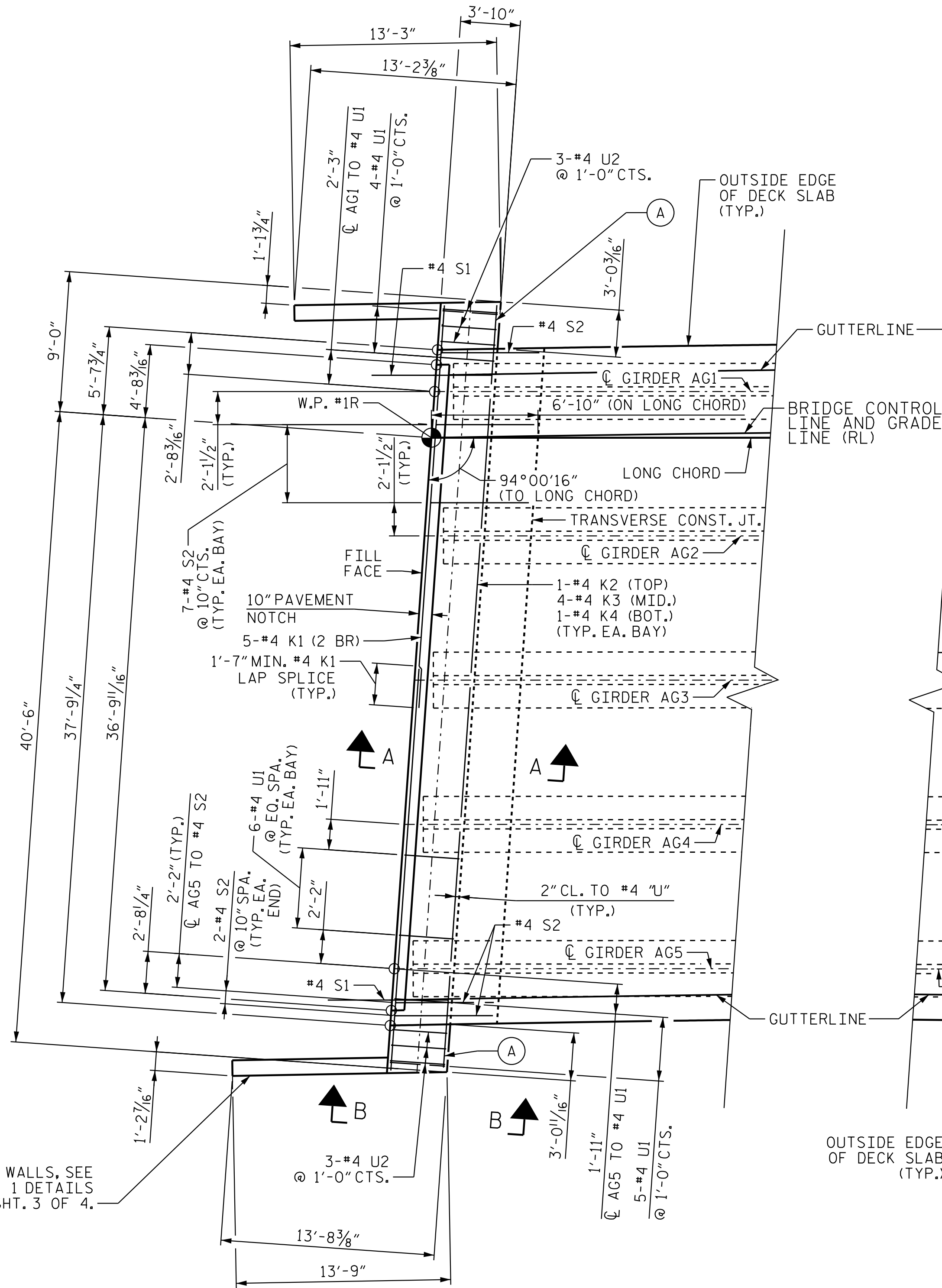
STATE OF NORTH CAROLINA
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RALEIGH

RALEIGH
SUPERSTRUCTURE

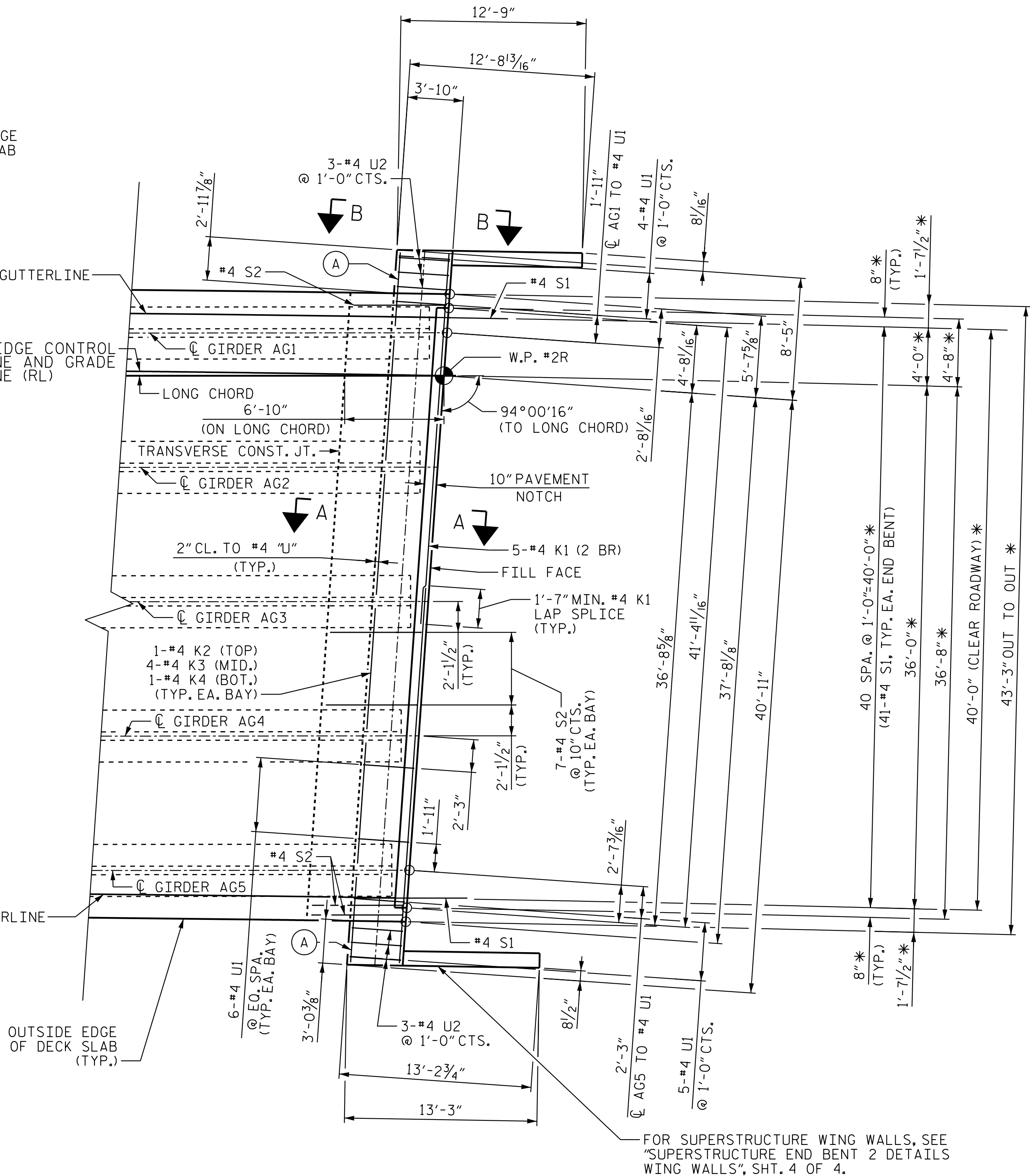
PLAN OF SPAN

(RIGHT LANE)

REVISIONS						SHEET NO. S04-10
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 32
2			4			



END BENT 1
DIAPHRAGM REINFORCING
DETAIL



END BENT 2
DIAPHRAGM REINFORCING
DETAIL

NOTES

* DENOTES RADIAL DIMENSION.

REINFORCEMENT IN DECK AND
BARRIER RAIL NOT SHOWN FOR CLARITY.

FOR SECTION A-A & SECTION B-B, SEE
"TYPICAL SECTION (DETAILS)" SHEET 3 OF 3.

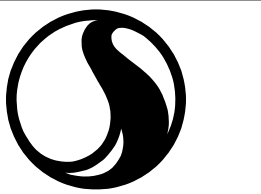
(2 BR) DENOTES TWO BAR RUN.

Ⓐ DIAPHRAGM BARS

LEFT OVERHANG		
ROW	FILL FACE	FRONT FACE
(1) TOP	4-#4 K7 @ 1'-0" CTS.	
(2)	#4 K7	#4 K7
(3)	#4 K1	#4 K5
(4)	#4 K1	#4 K5
(5)	#4 K1	#4 K5
(6)	#4 K1	#4 K5
(7) BOT	#4 K1	#4 K6
RIGHT OVERHANG		
ROW	FILL FACE	FRONT FACE
(1) TOP	4-#4 K7 @ 1'-0" CTS.	
(2)	#4 K7	#4 K7
(3)	#4 K1	#4 K8
(4)	#4 K1	#4 K8
(5)	#4 K1	#4 K8
(6)	#4 K1	#4 K8
(7) BOT	#4 K1	#4 K9

PROJECT NO. R-3300A
NEW HANOVER COUNTY
STATION: 232+80.54 -L1-

SHEET 2 OF 4



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Suite 300
Raleigh, NC 27606
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Fax. (919) 851-7024
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ENGINEER
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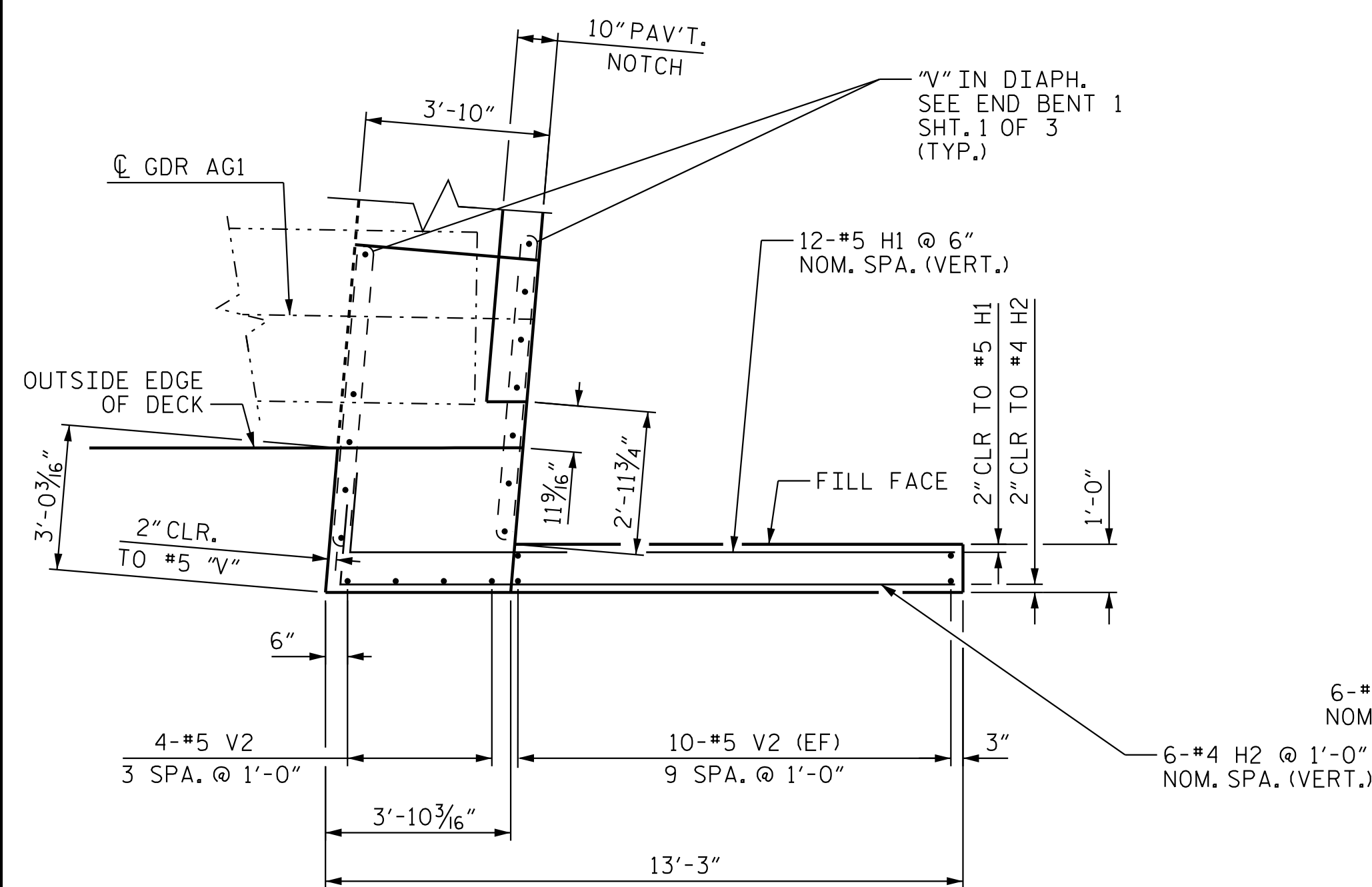
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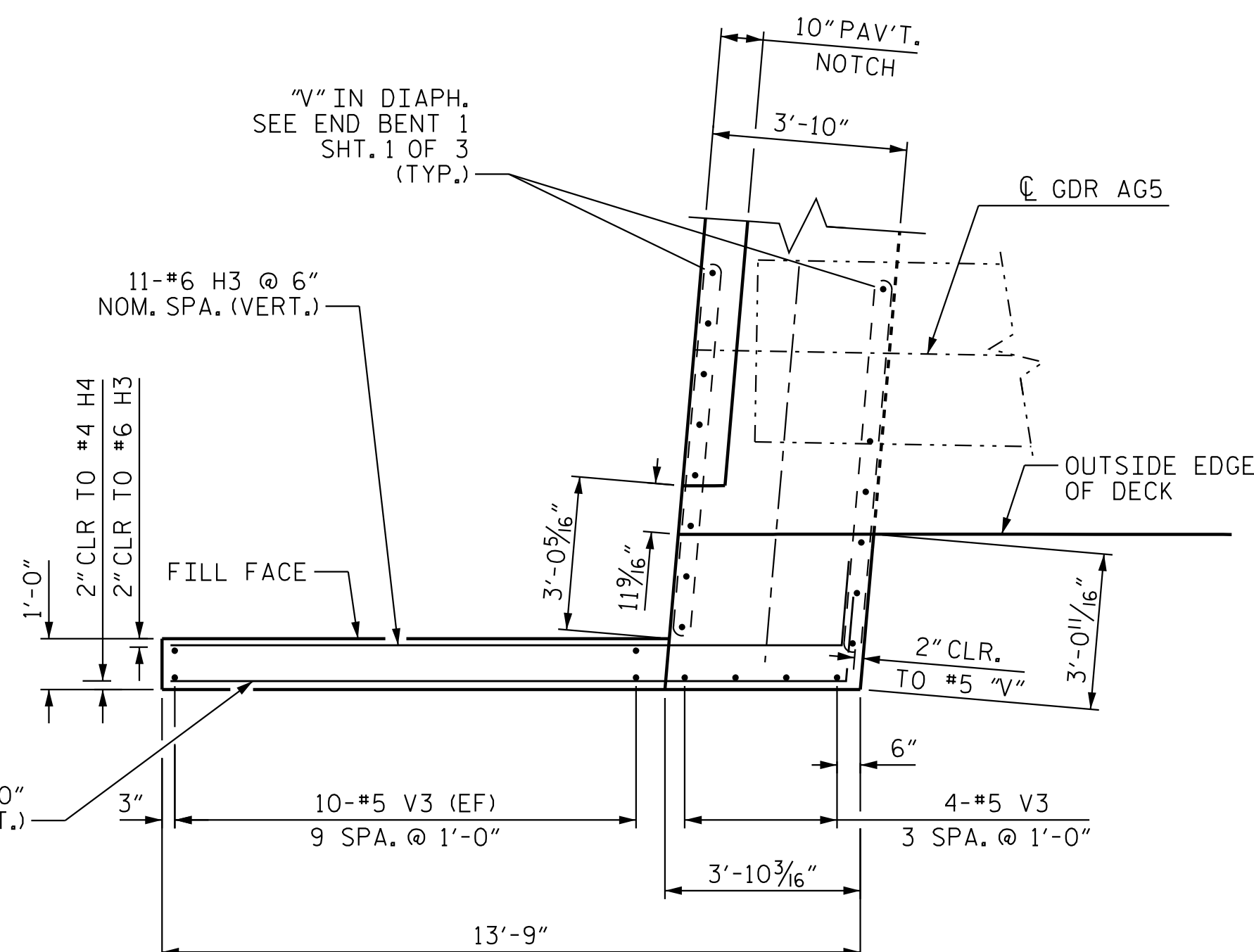
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE

PLAN OF SPAN
DETAILS-DIAPHRAGMS
(RIGHT LANE)

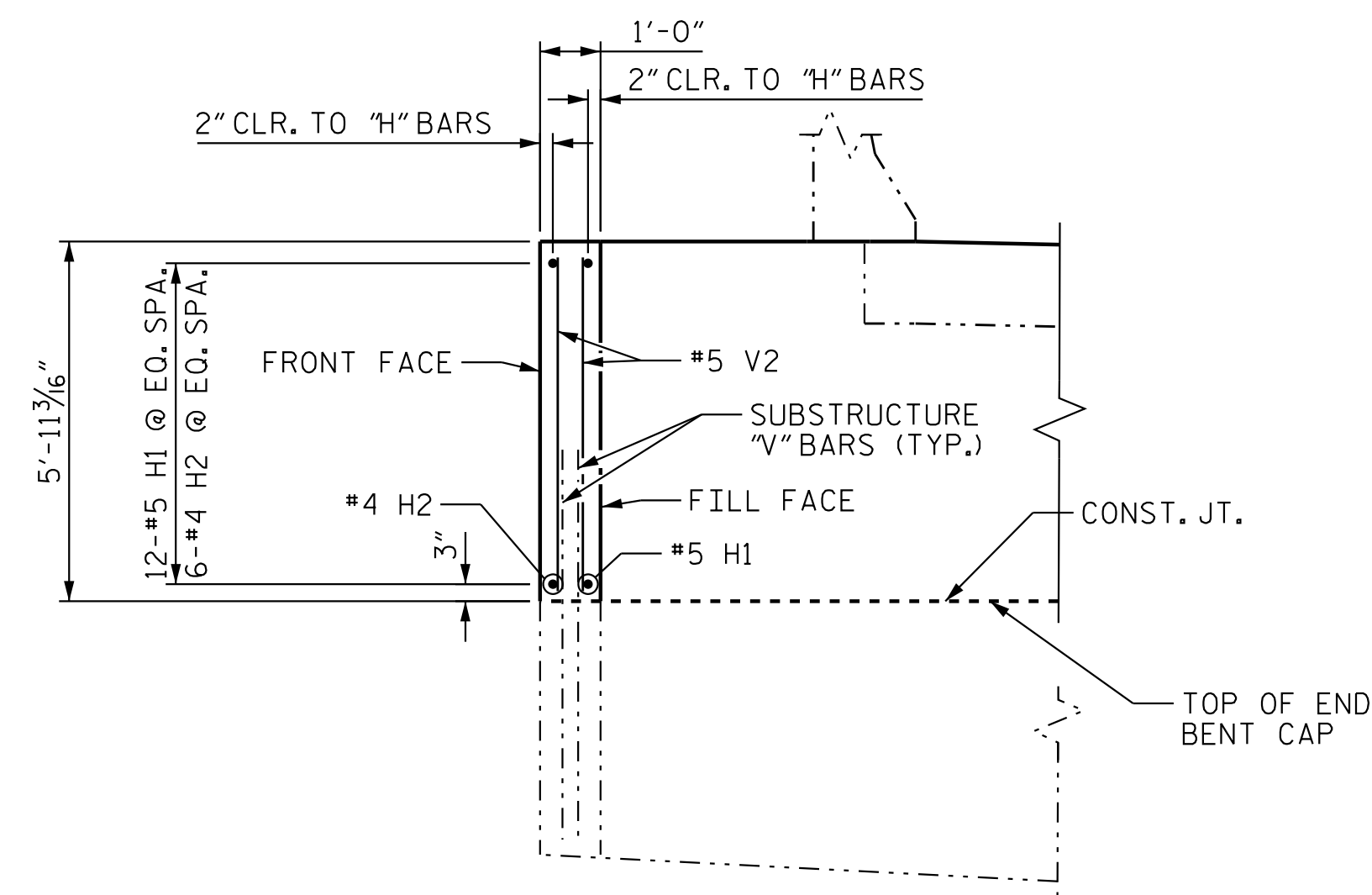
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NO.	BY:	DATE:	NO.	BY:	DATE:	
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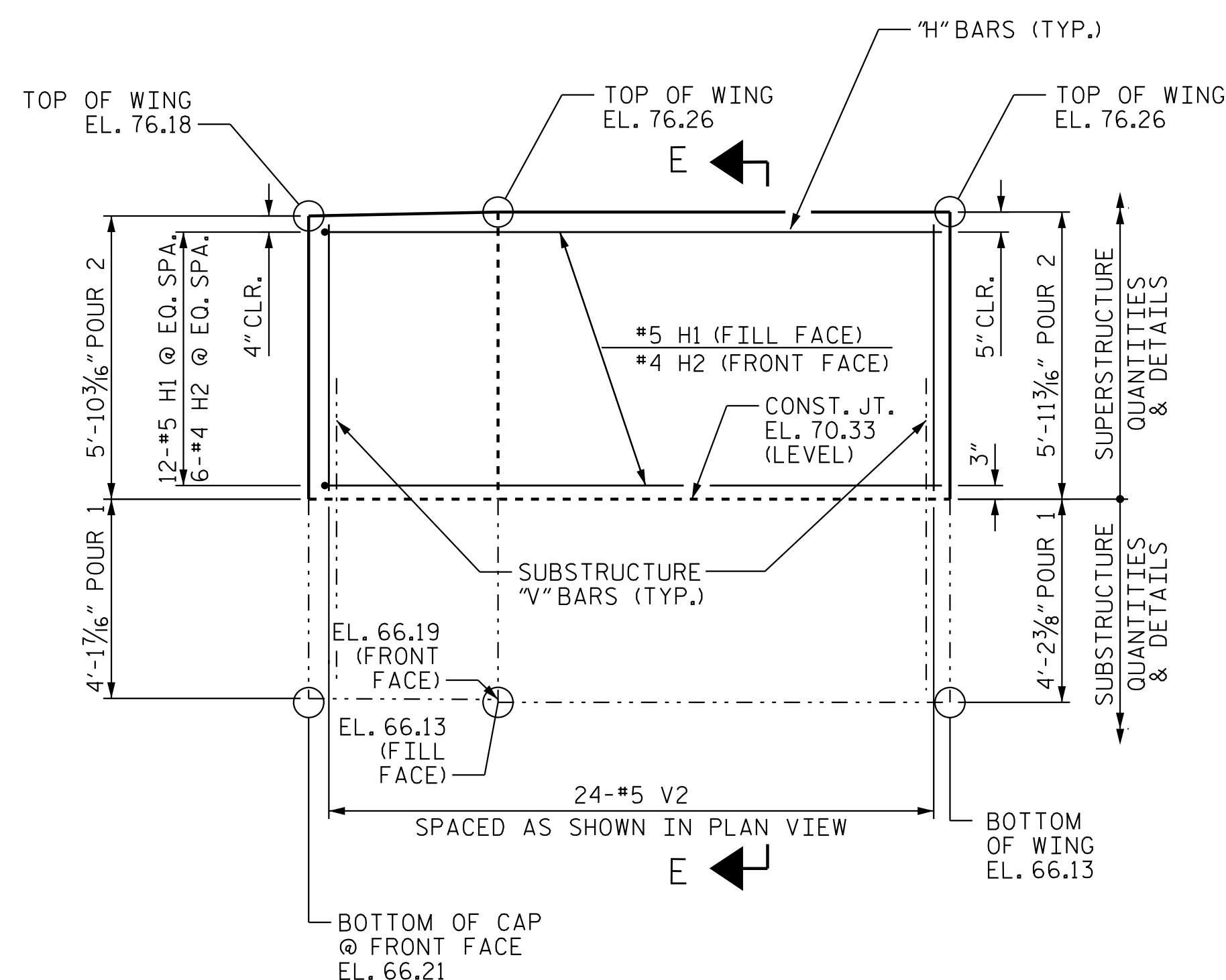
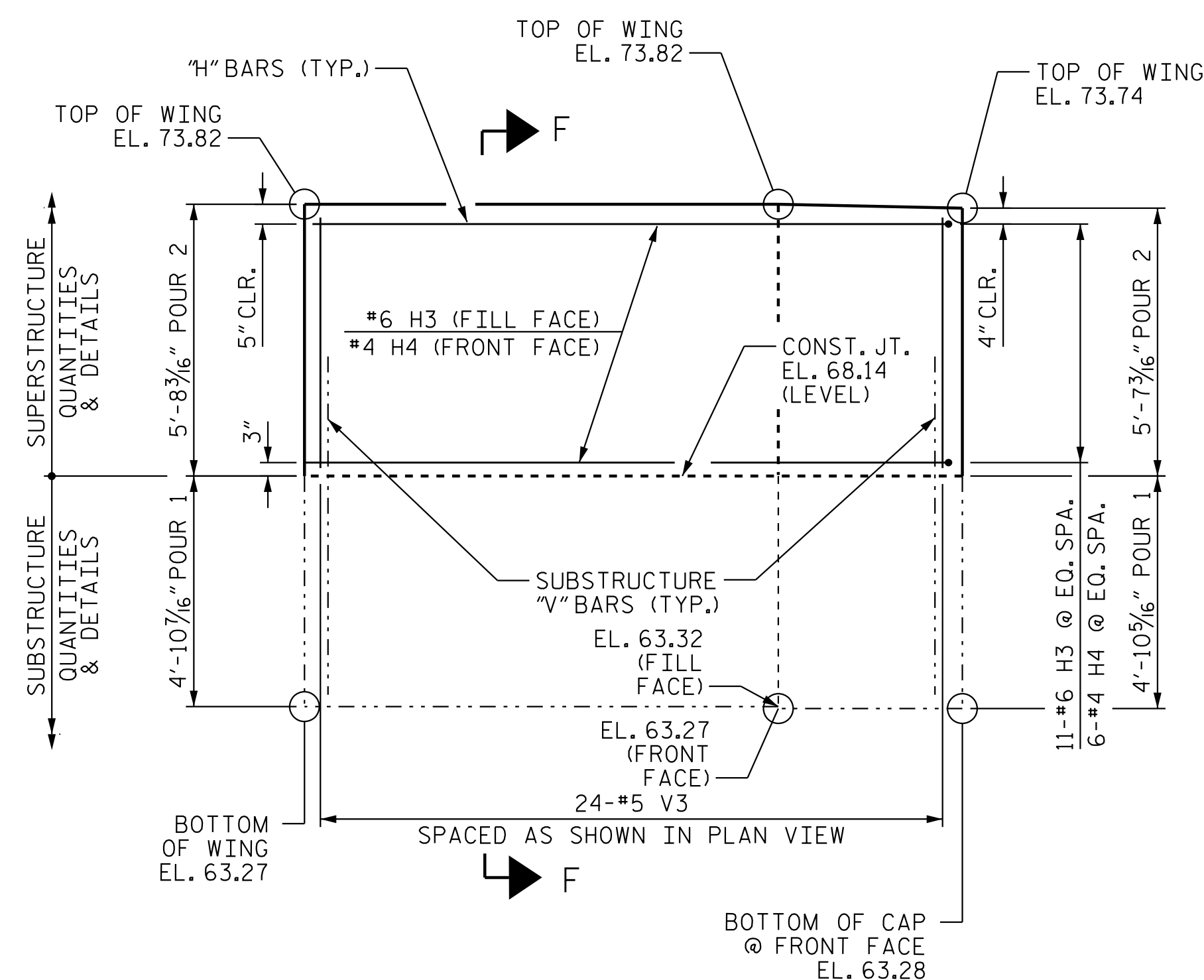
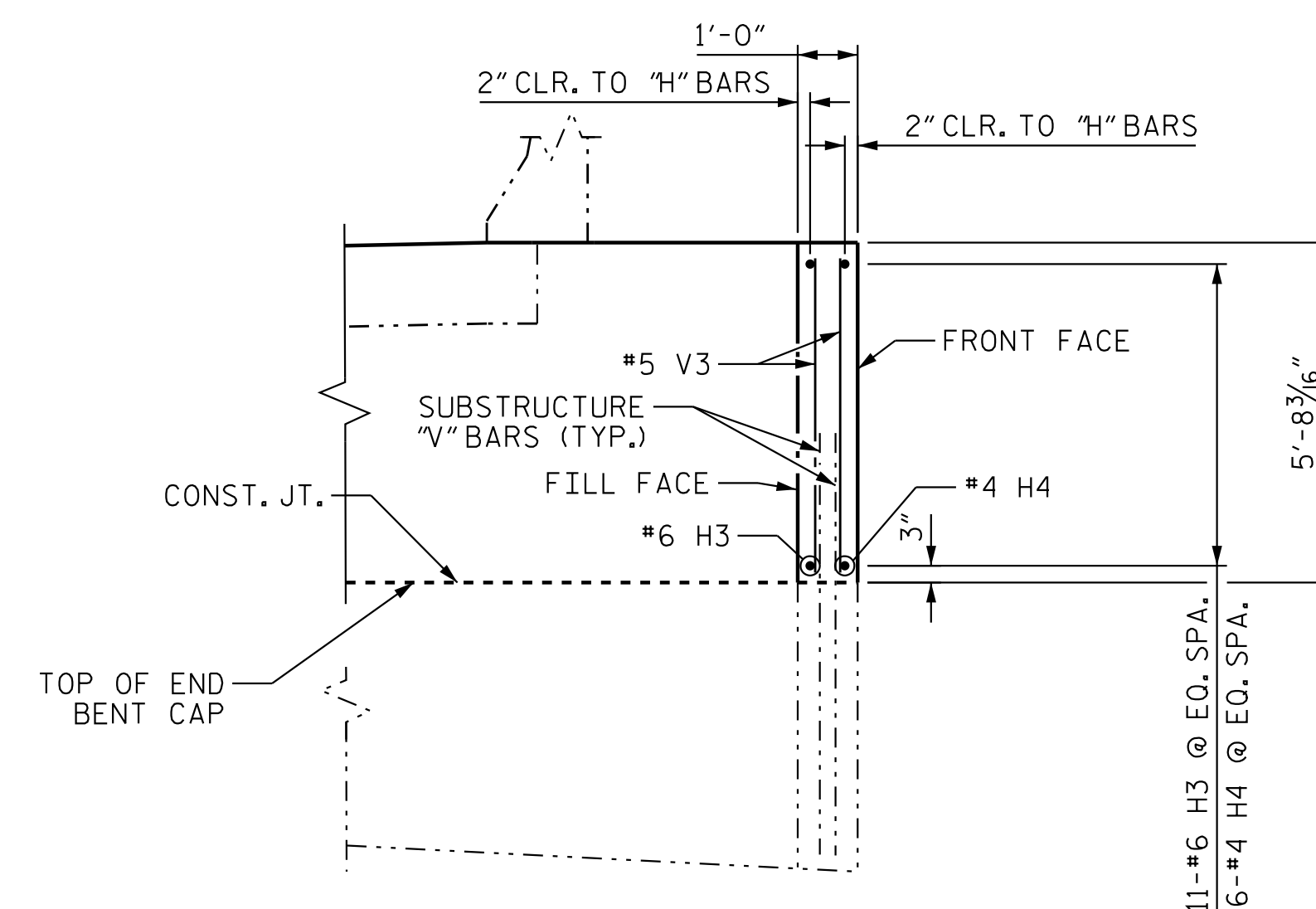
PLAN OF LEFT WING (W1)



PLAN OF RIGHT WING (W2)



SECTION E-E

ELEVATION OF LEFT WING (W1)ELEVATION OF RIGHT WING (W2)

SECTION F-F

PROJECT NO. R-3300A
NEW HANOVER COUNTY
 STATION: 232+80.54 -L1-

SHEET 3 OF 4



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ENGINEER
OF RECORD: J.T. KELVINGTON DATE : 04/22/25

NOTE: (EF) DENOTES EACH FACE OF WING

NOTE:
THIS SHEET PROVIDES DETAILS
RELEVANT FOR SUPERSTRUCTURE.
FOR SUBSTRUCTURE QTY'S & DETAILS,
REFER TO SHEETS S04-25 & S04-28.

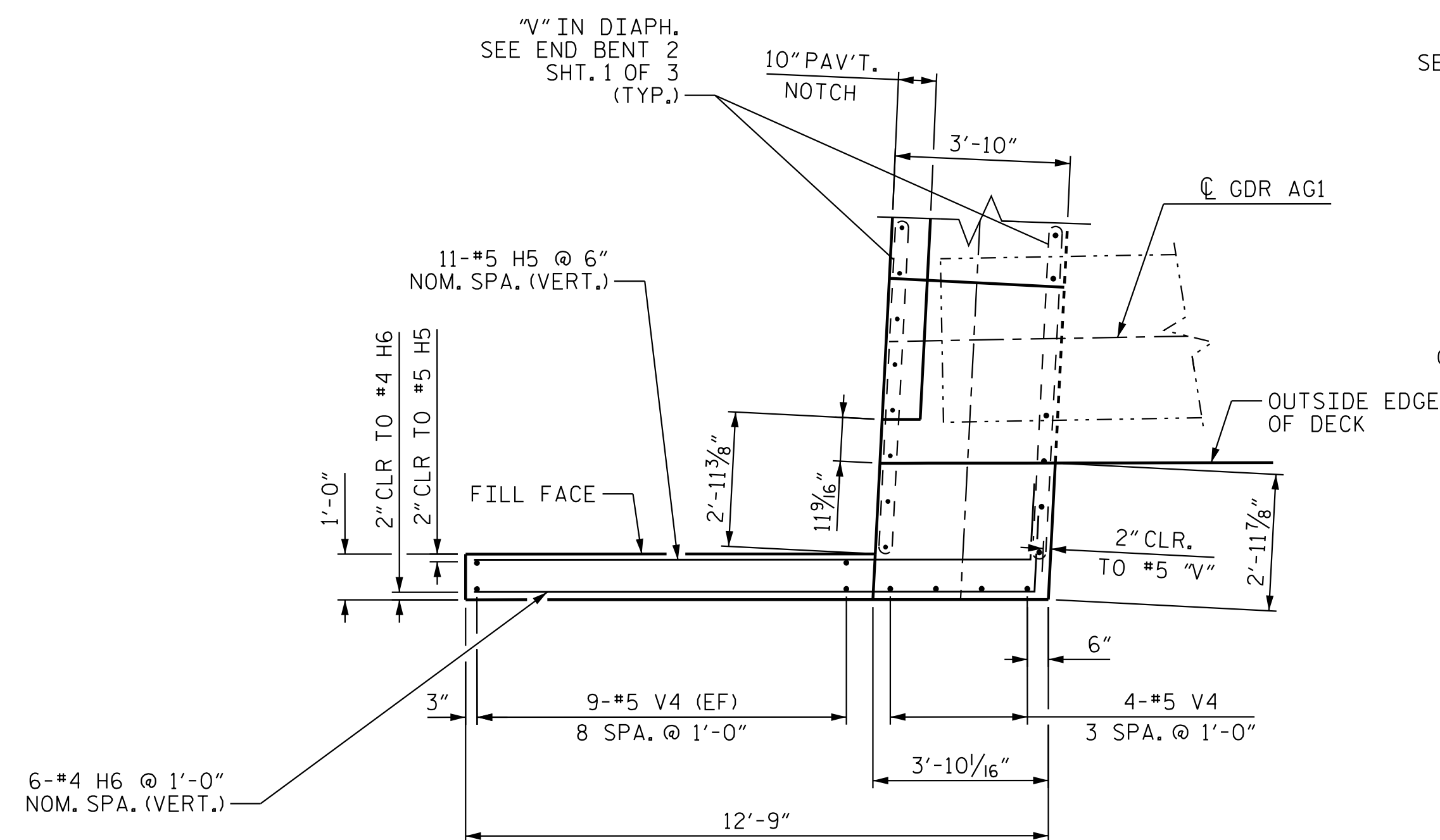


DocuSigned by:
Joe Kelvington 4/29/202

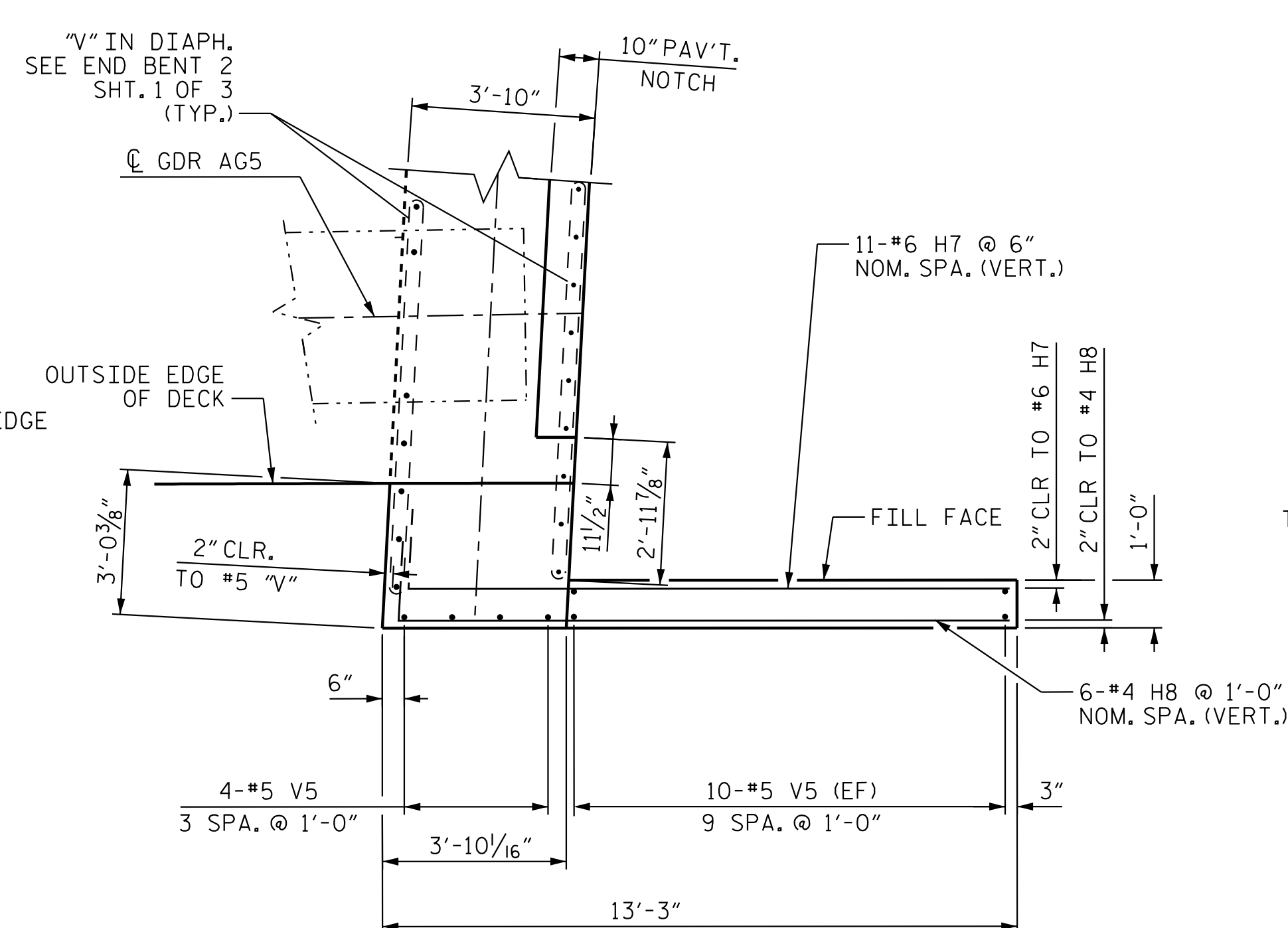
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SIGNATURES COMPLETED

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
PLAN OF SPAN DETAILS
WING WALLS
@ END BENT 1
(RIGHT LANE)

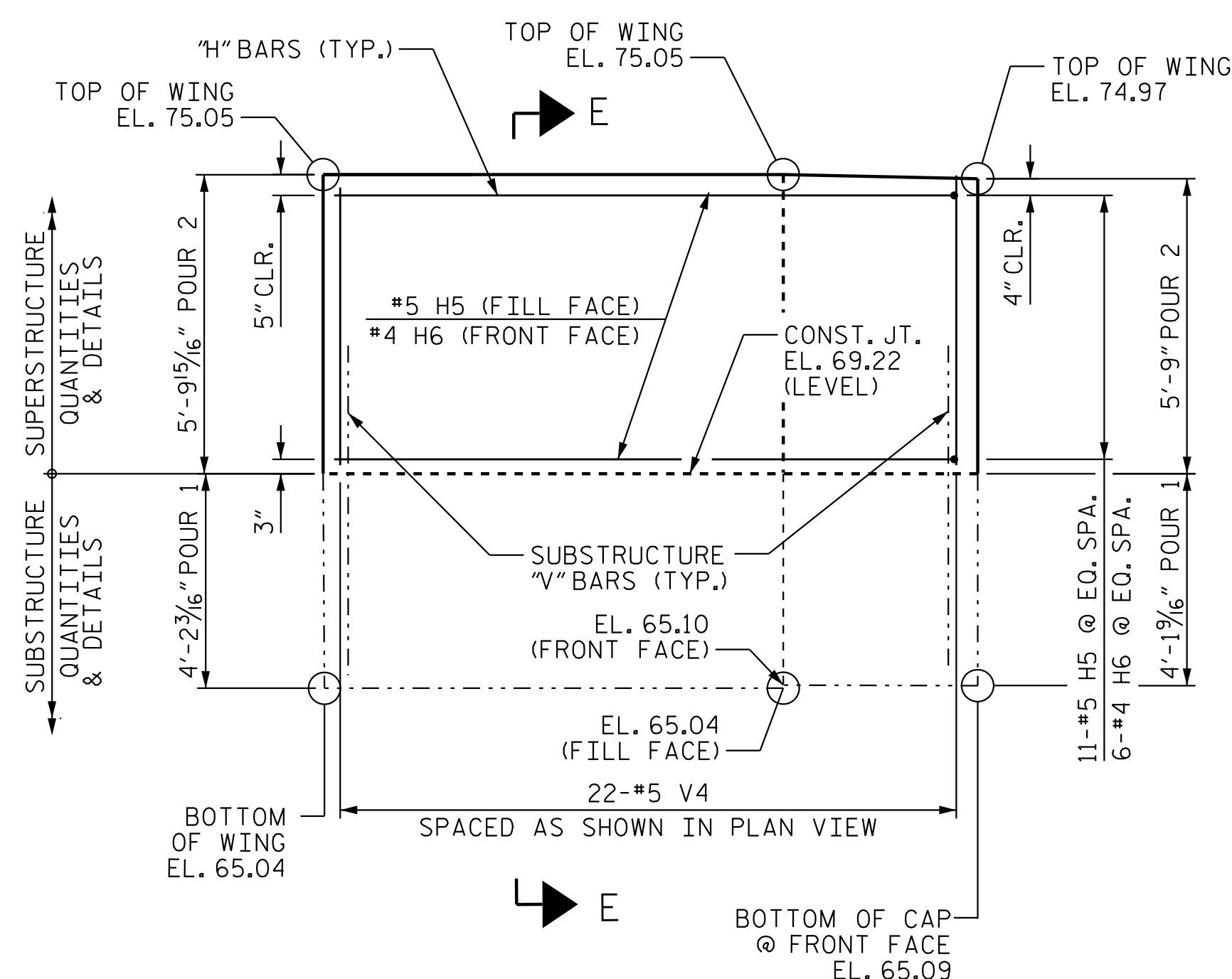
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S04-12
1			3			TOTAL SHEETS 32
2			4			



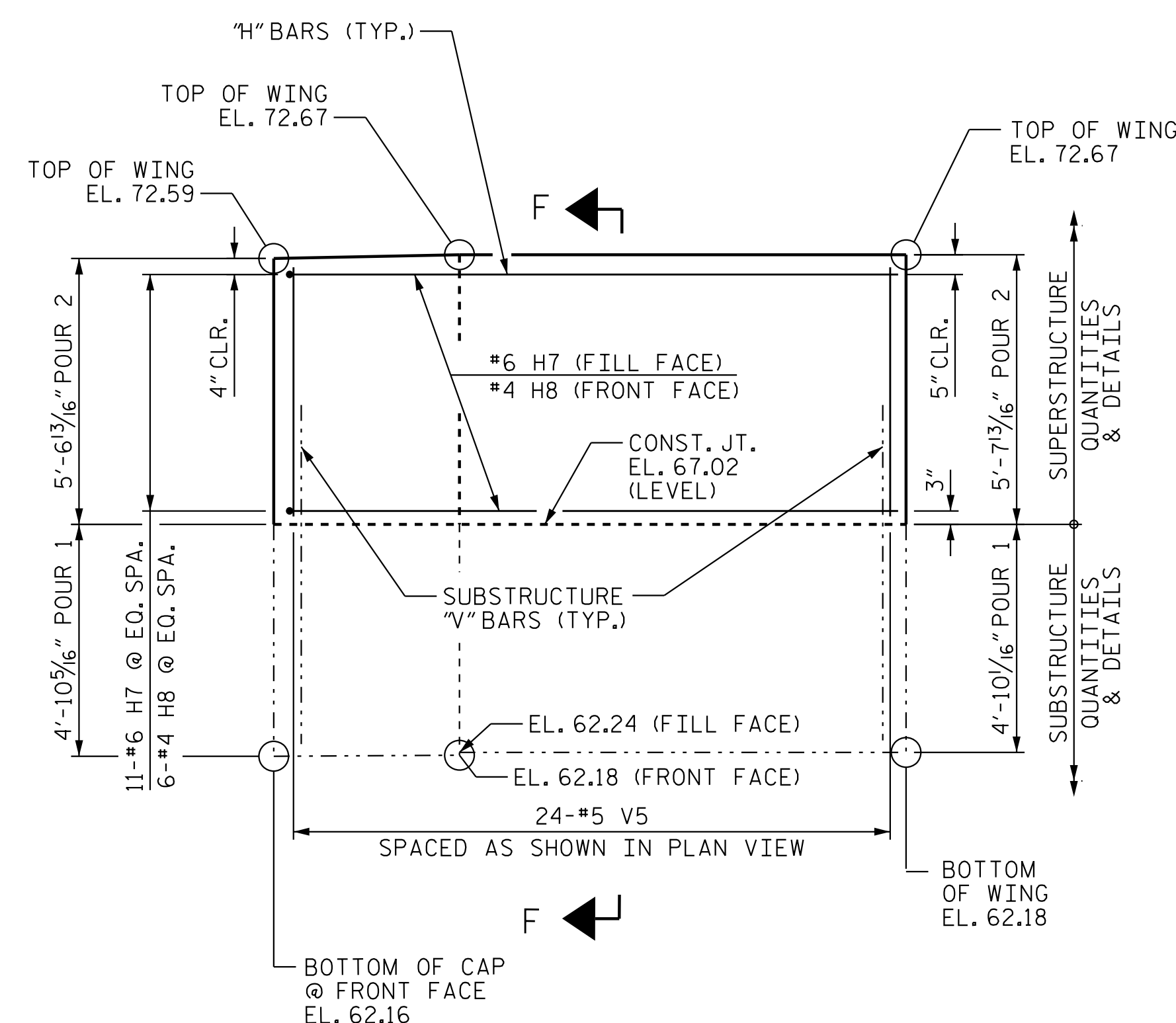
PLAN OF LEFT WING (W3)



PLAN OF RIGHT WING (W4)

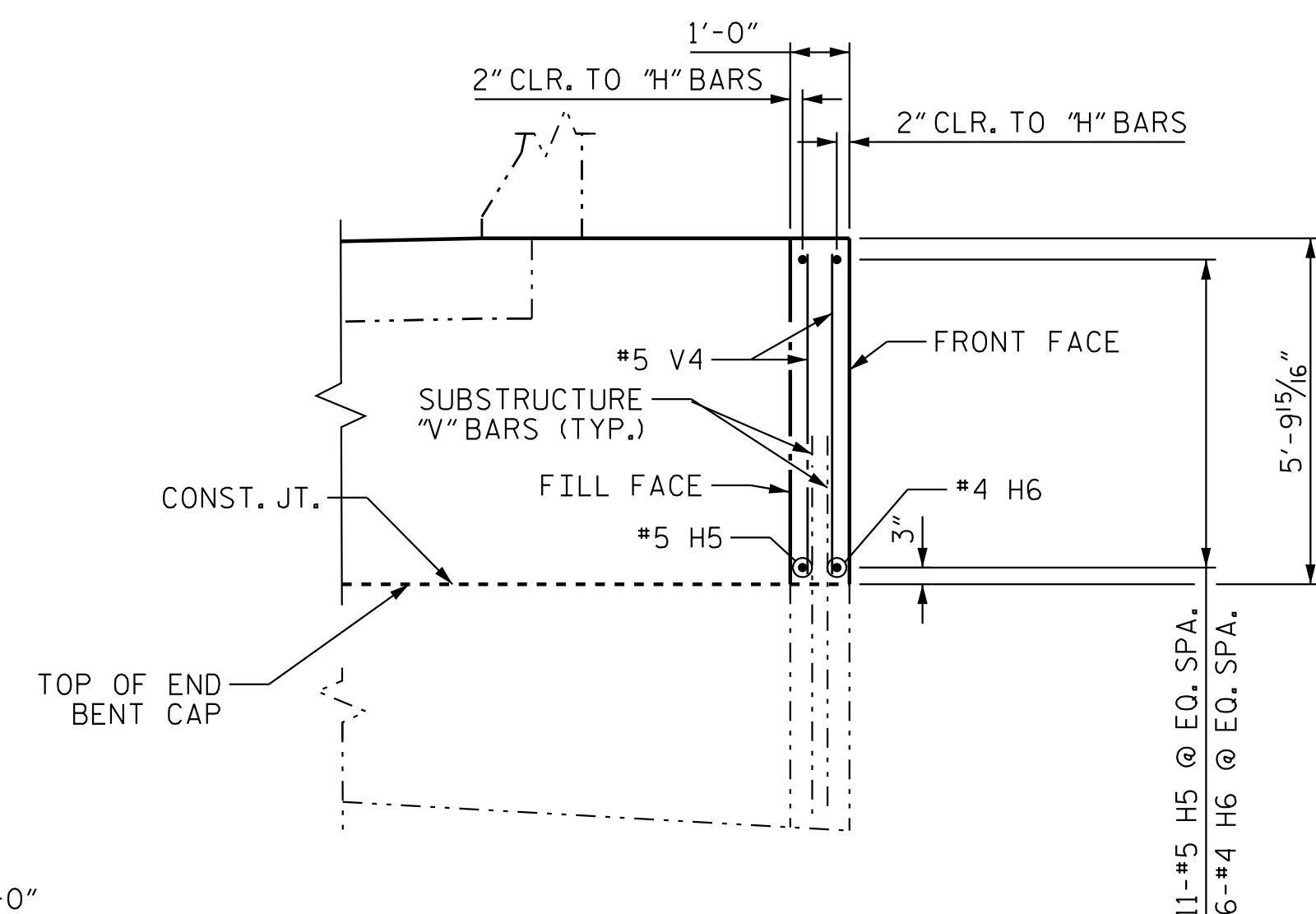


ELEVATION OF LEFT WING (W3)

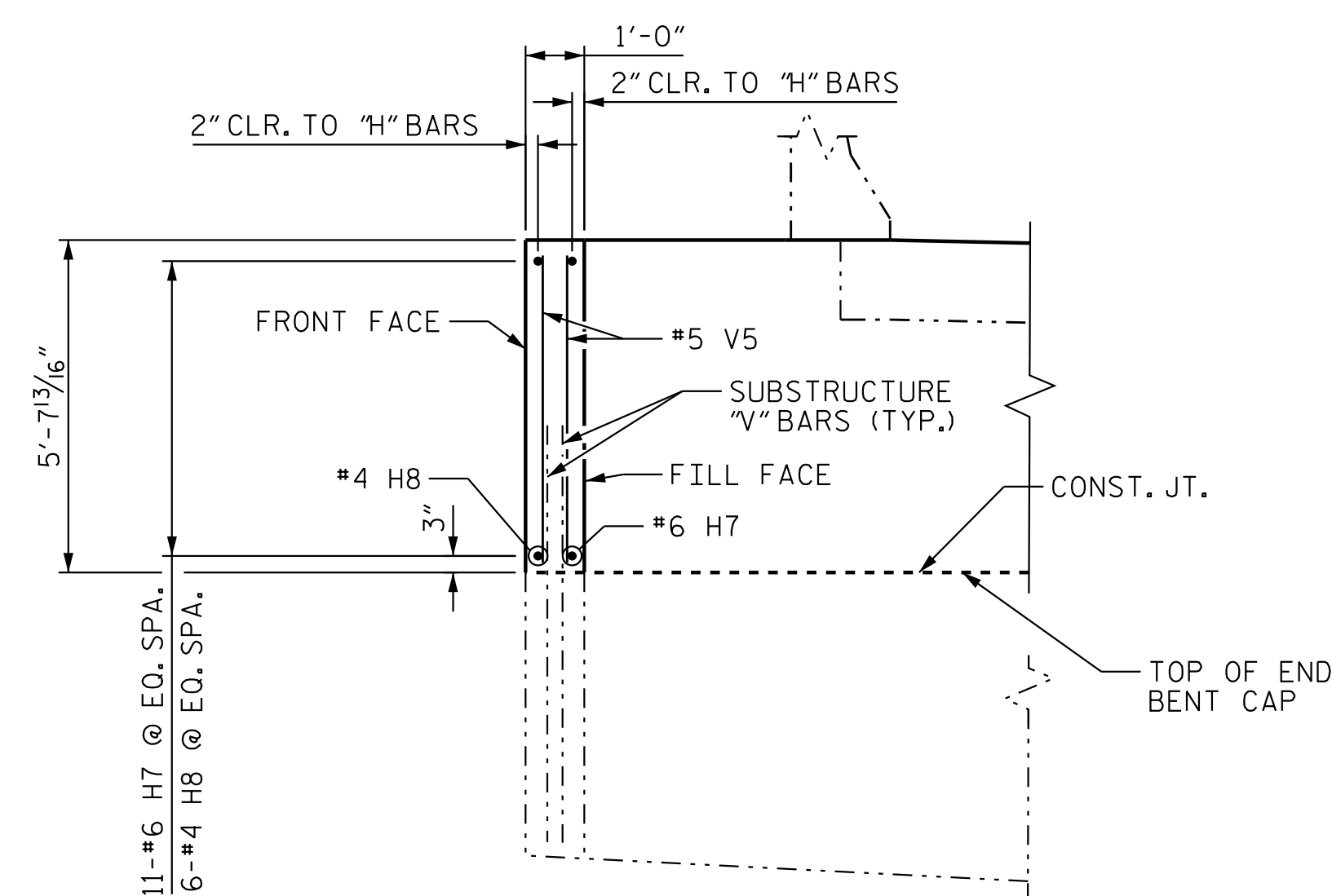


ELEVATION OF RIGHT WING (W4)

NOTE:
THIS SHEET PROVIDES DETAILS
RELEVANT FOR SUPERSTRUCTURE.
FOR SUBSTRUCTURE QTY'S & DETAILS,
REFER TO SHEETS S04-25 & S04-28.



SECTION E-E



SECTION F-F

PROJECT NO. R-3300A
NEW HANOVER COUNTY
 STATION: 232+80.54 -L1-

SHEET 4 OF 4



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NOTE: (EF) DENOTES EACH FACE OF WING

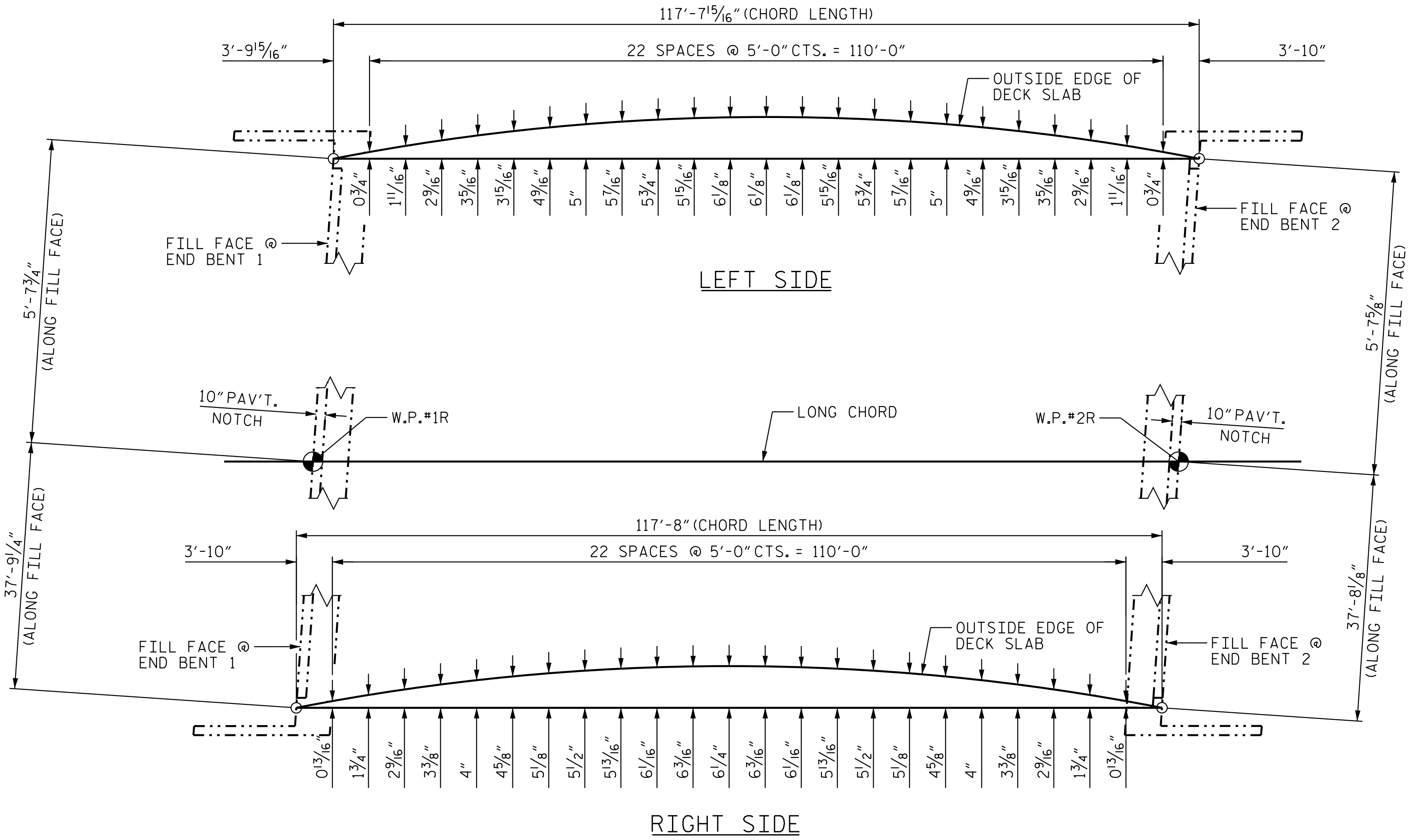


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SHEET 4 OF 4						
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH SUPERSTRUCTURE PLAN OF SPAN DETAILS WING WALLS @ END BENT 2 (RIGHT LANE)						
REVISIONS						
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			SHEET NO. S04-13 TOTAL SHEETS 32
2			4			

NOTE:
ARC OFFSETS ARE TAKEN ALONG THE OUTSIDE EDGE OF SUPERSTRUCTURE.



ARC OFFSETS - SPAN A

PROJECT NO. R-3300A
NEW HANOVER COUNTY
STATION: 232+80.54 -L1-



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DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE

ARC OFFSETS

(RIGHT LANE)

REVISIONS						SHEET NO. S04-14
NO.	BY:	DATE:	NO.	BY:	DATE:	
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2			4			

NOTES:

ALL DIMENSIONS ARE HORIZONTAL OR VERTICAL UNLESS NOTED.

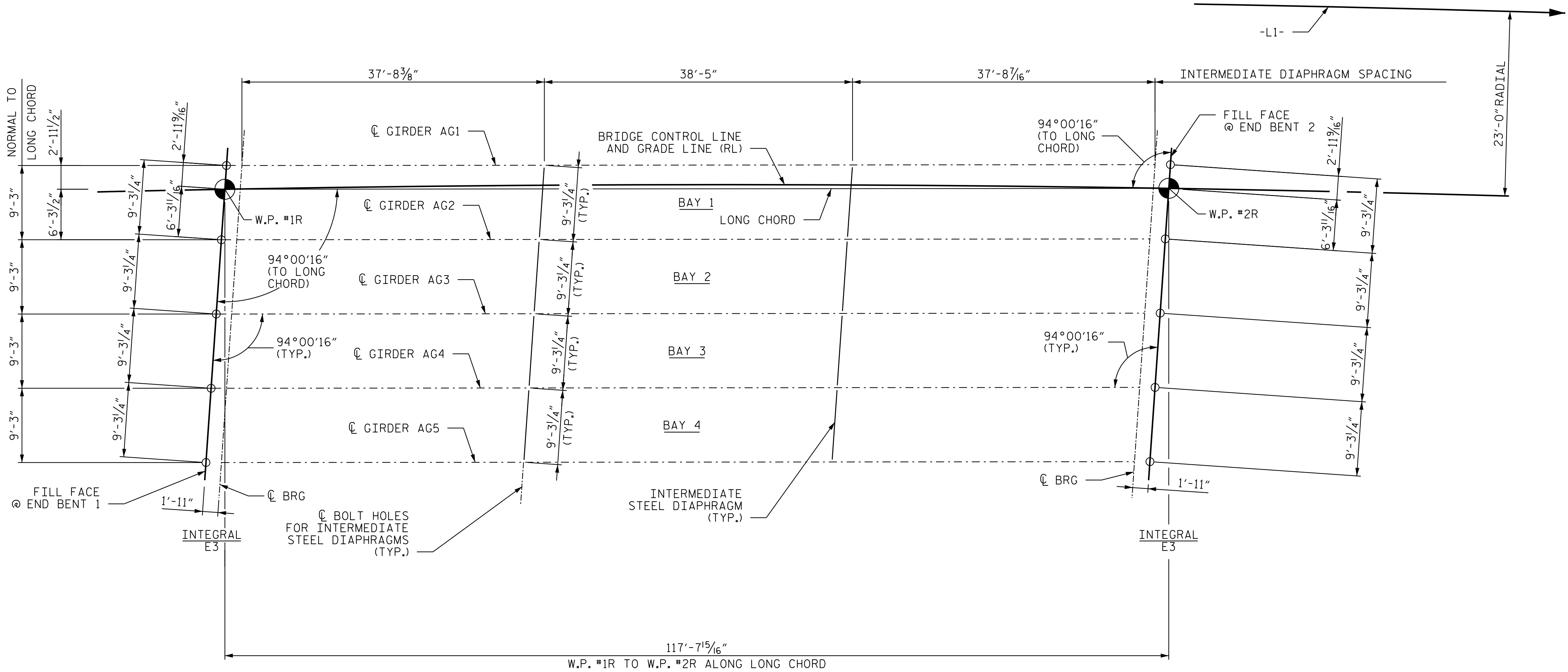
REFER TO "PLAN OF SPAN DETAILS - DIAPHRAGMS" FOR END BENT DIAPHRAGMS.

SEE TYPICAL SECTION FOR END BENT DIAPHRAGM DETAILS.

E3 DENOTES ELASTOMERIC BEARING. SEE ELASTOMERIC BEARING DETAILS.

GIRDERS ARE PARALLEL TO LONG CHORD.

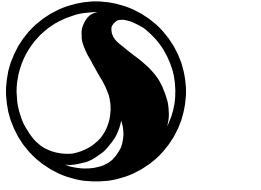
FOR INTERMEDIATE STEEL DIAPHRAGMS, SEE "INTERMEDIATE STEEL DIAPHRAGMS FOR MODIFIED 56" PRESTRESSED CONCRETE GIRDERS."



FRAMING PLAN

PROJECT NO. R-3300A
NEW HANOVER COUNTY
STATION: 232+80.54 -L1-

SHEET 1 OF 1



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DESIGN ENGINEER OF RECORD: J.T. KELVINGTON DATE : 04/22/25



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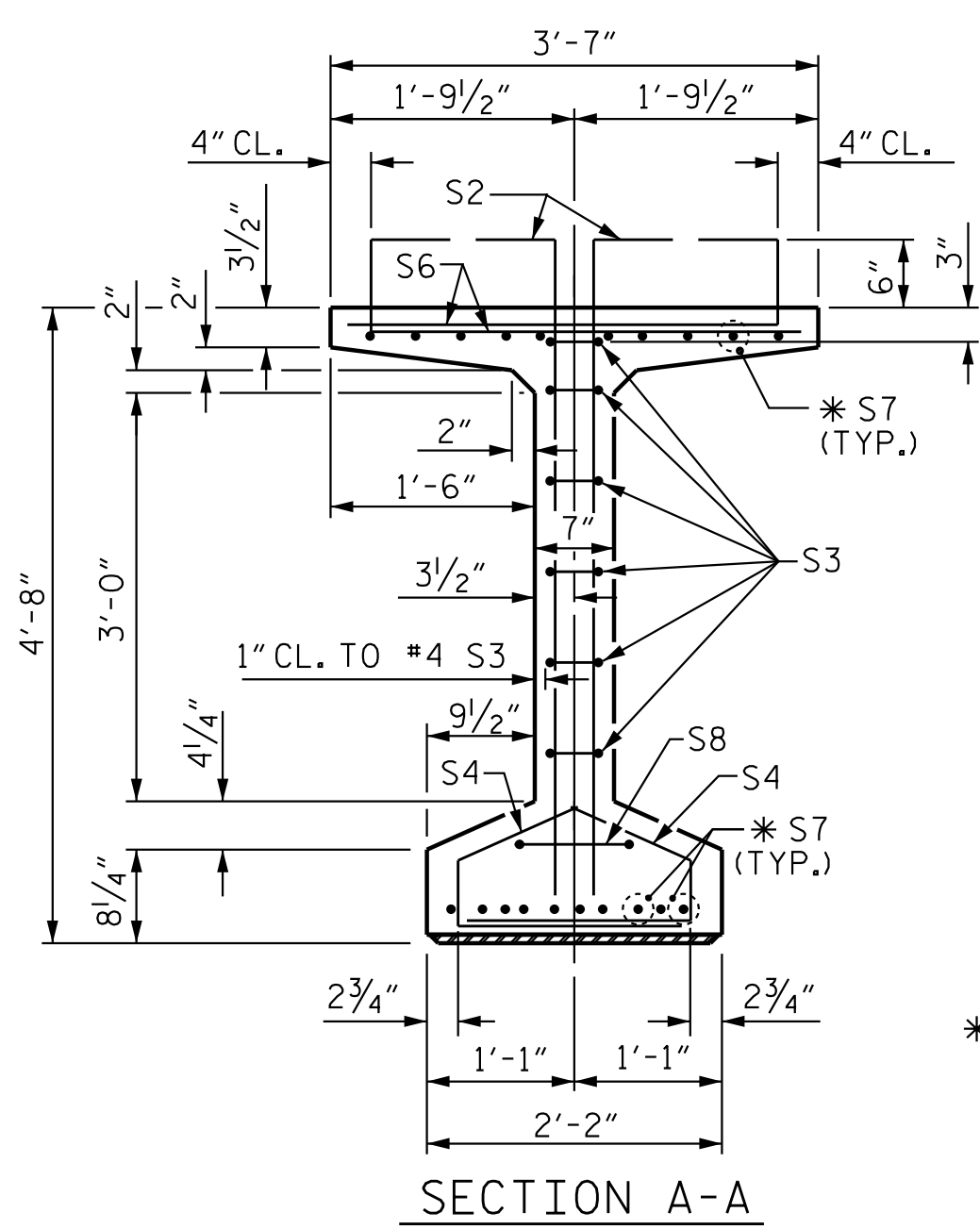
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DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE

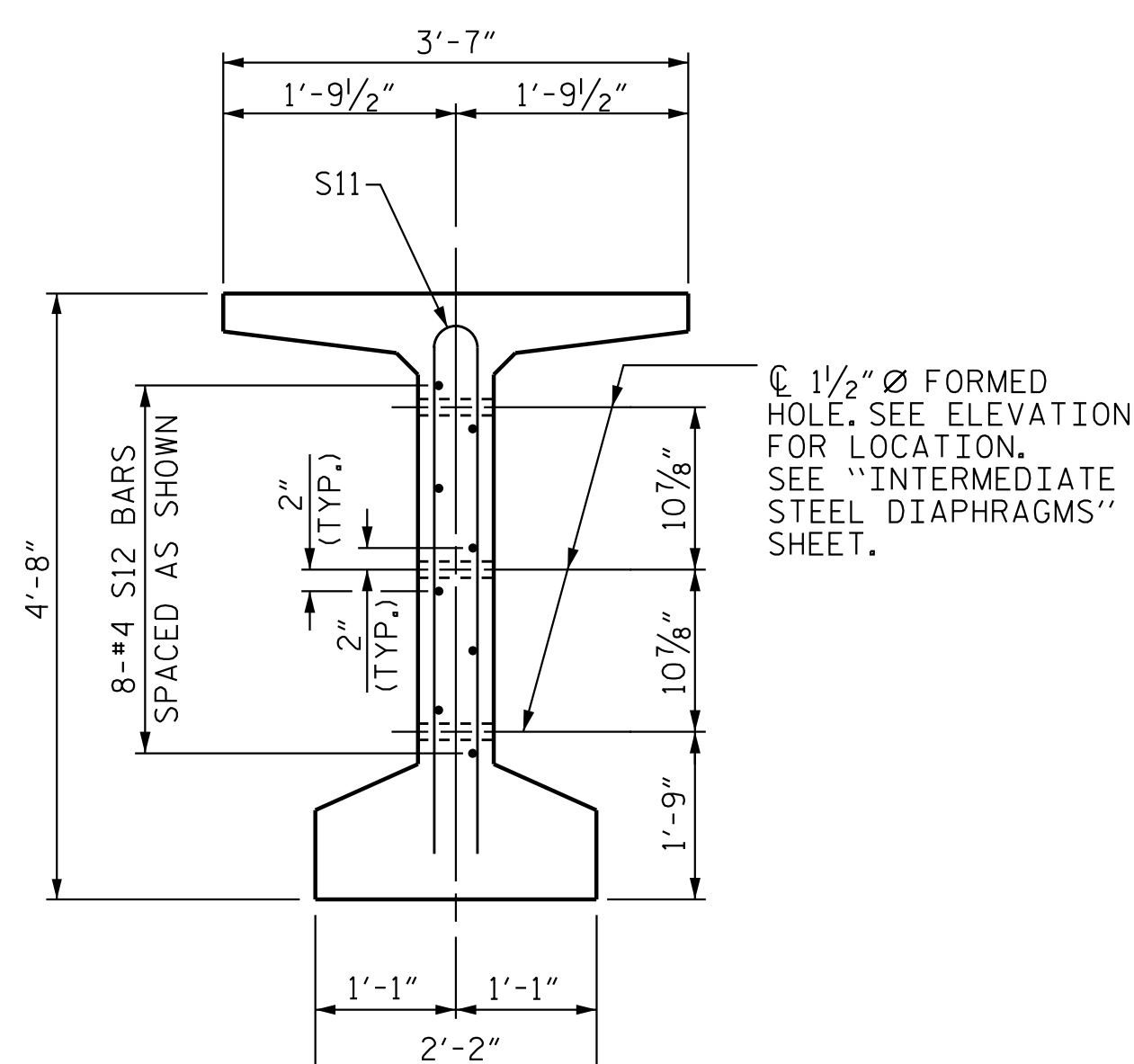
FRAMING PLAN

(RIGHT LANE)

REVISIONS						SHEET NO. S04-15
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 32
2			4			



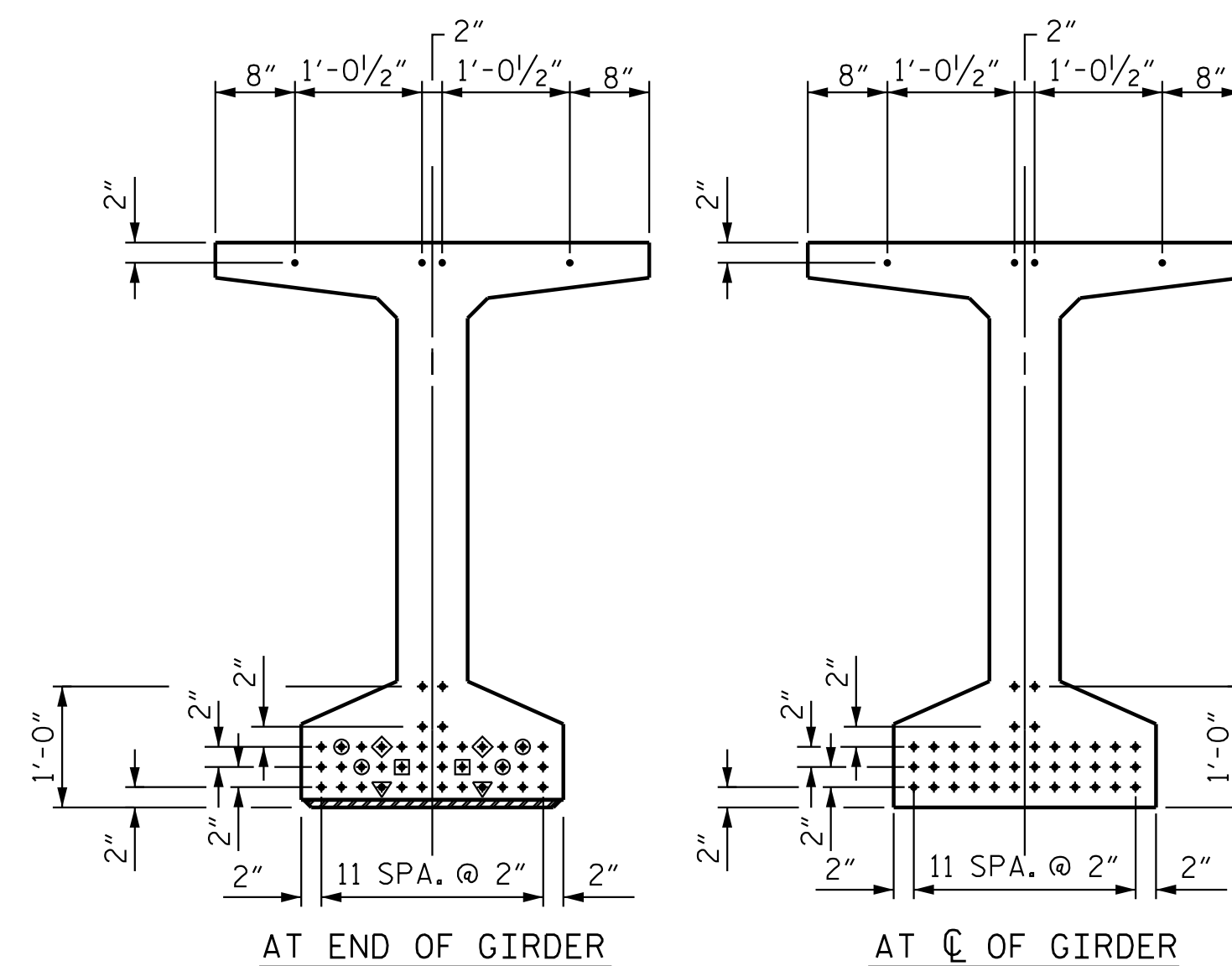
* FOR S7 BARS. SEE
DETAIL "C" OF
PRESTRESSED
CONCRETE GIRDER
DETAILS SHEET.



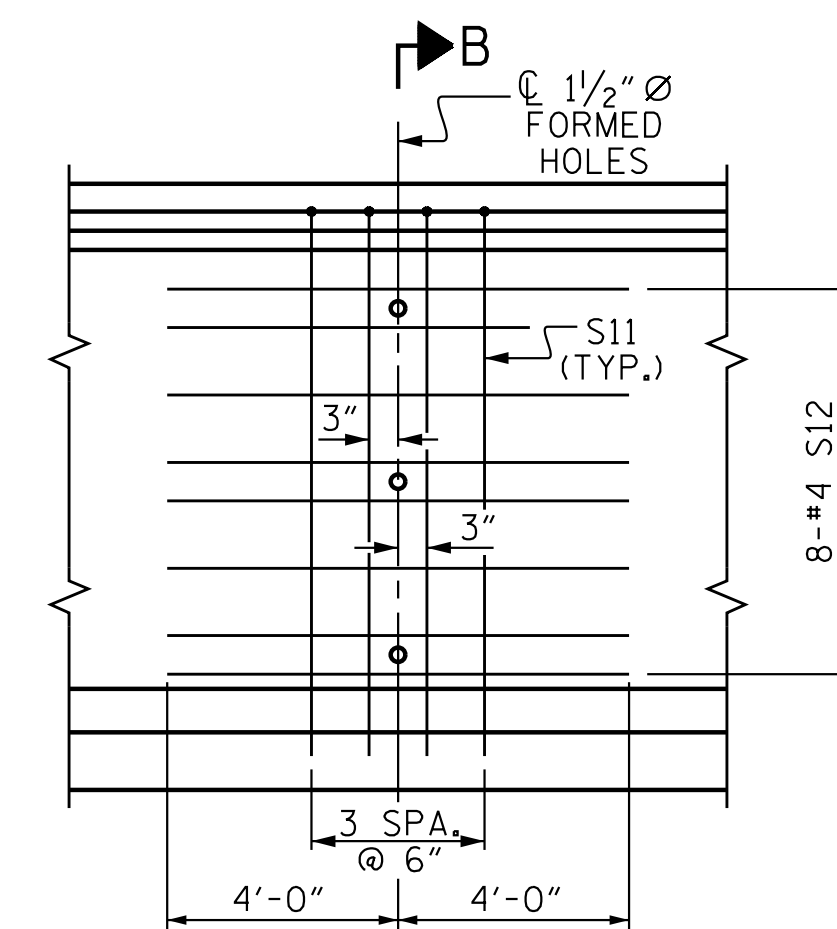
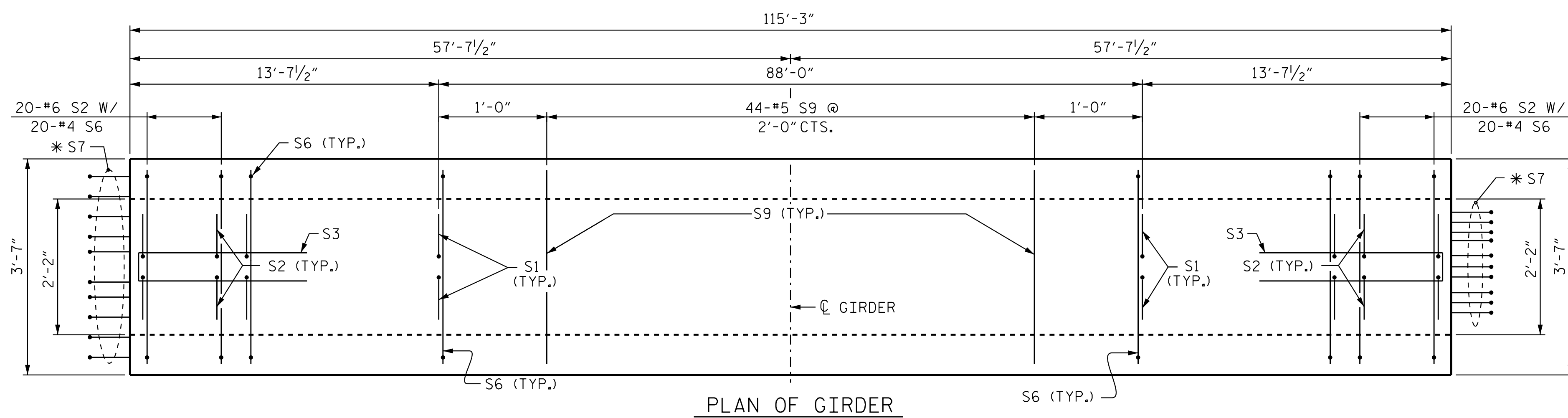
(S1, S6 AND S9 BARS NOT SHOWN)

DEBONDING LEGEND

- FULLY BONDED STRANDS
- STRANDS DEBONDED FOR 6'-0" FROM END OF GIRDER
- ◼ STRANDS DEBONDED FOR 8'-0" FROM END OF GIRDER
- ◊ STRANDS DEBONDED FOR 10'-0" FROM END OF GIRDER
- ◐ STRANDS DEBONDED FOR 12'-0" FROM END OF GIRDER

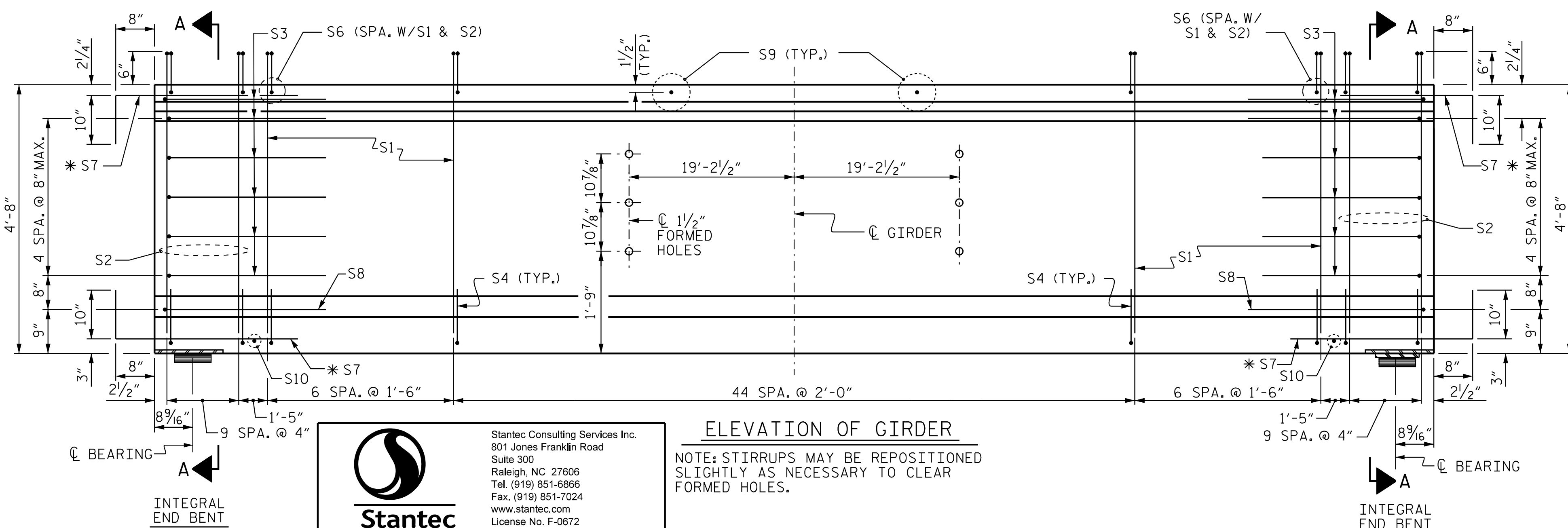


0.6" Ø LOW RELAXATION STRAND LAYOUT



PARTIAL ELEVATION
SHOWING INTERMEDIATE STEEL DIAPHRAGM
REINFORCING STEEL FOR GIRDERS AG1-AG5

QUANTITIES FOR ONE GIRDER			
	REINFORCING STEEL	9,500 PSI CONCRETE	0.6" Ø L.R. STRAND
	LB.	C.Y.	No.
	2.123	22.5	44
GIRDERS REQUIRED			
NUMBER	LENGTH	TOTAL LENGTH	
5	115'-3"	576'-3"	



NOTE: STIRRUPS MAY BE REPOSITIONED SLIGHTLY AS NECESSARY TO CLEAR FORMED HOLES.



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0.6" Ø L. R. GRADE 270 STRANDS

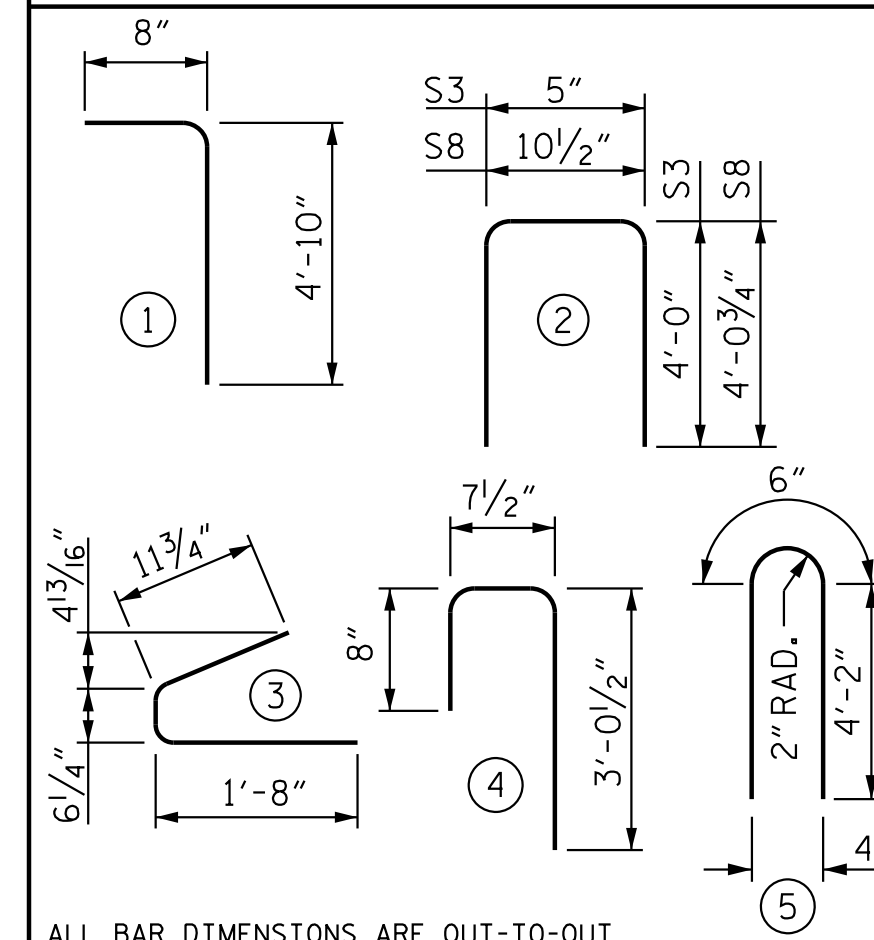
AREA (SQUARE INCHES)	ULTIMATE STRENGTH (LBS. PER STRAND)	APPLIED PRESTRESS (LBS. PER STRAND)
0.217	58,600	43,950

REINFORCING STEEL FOR ONE GDR

BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
S1	114	#5	1	5'-6"	654
S2	40	#6	1	5'-6"	330
S3	12	#4	2	8'-5"	67
S4	68	#4	3	3'-2"	144
S6	154	#4	4	4'-4"	446
* S7	40	#5	STR	3'-8"	153
S8	2	#5	2	9'-0"	19
S9	44	#5	STR	3'-3"	149
S10	2	#3	STR	1'-10"	1
S11	8	#5	5	8'-10"	74
S12	16	#4	STR	8'-0"	86

* NOTE: S7 BARS SHALL BE BENT BEFORE SHIPMENT. HEAT BENDING SHALL NOT BE ALLOWED.

BAR TYPES



PROJECT NO. R-3300A
NEW HANOVER COUNTY
 STATION: 232+80.54 -L1-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

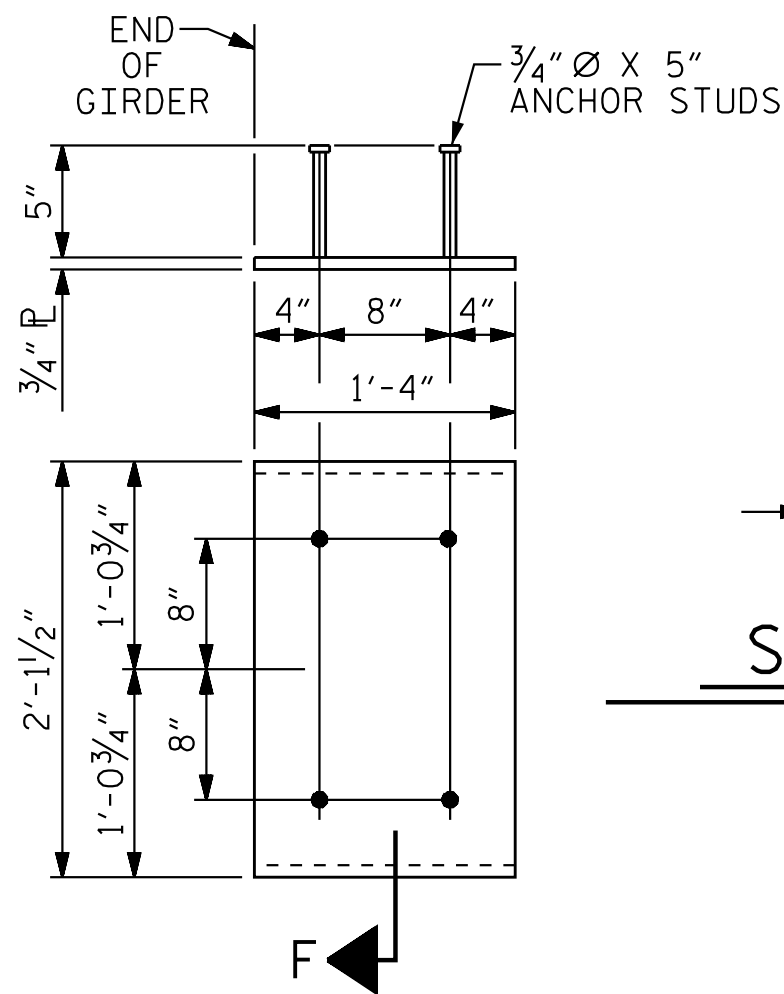
SUPERSTRUCTURE
MODIFIED 56" PRESTRESSED
CONCRETE GIRDER

(RIGHT LANE

REVISIONS						SHEET NO. S04-16
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 32
2			4			

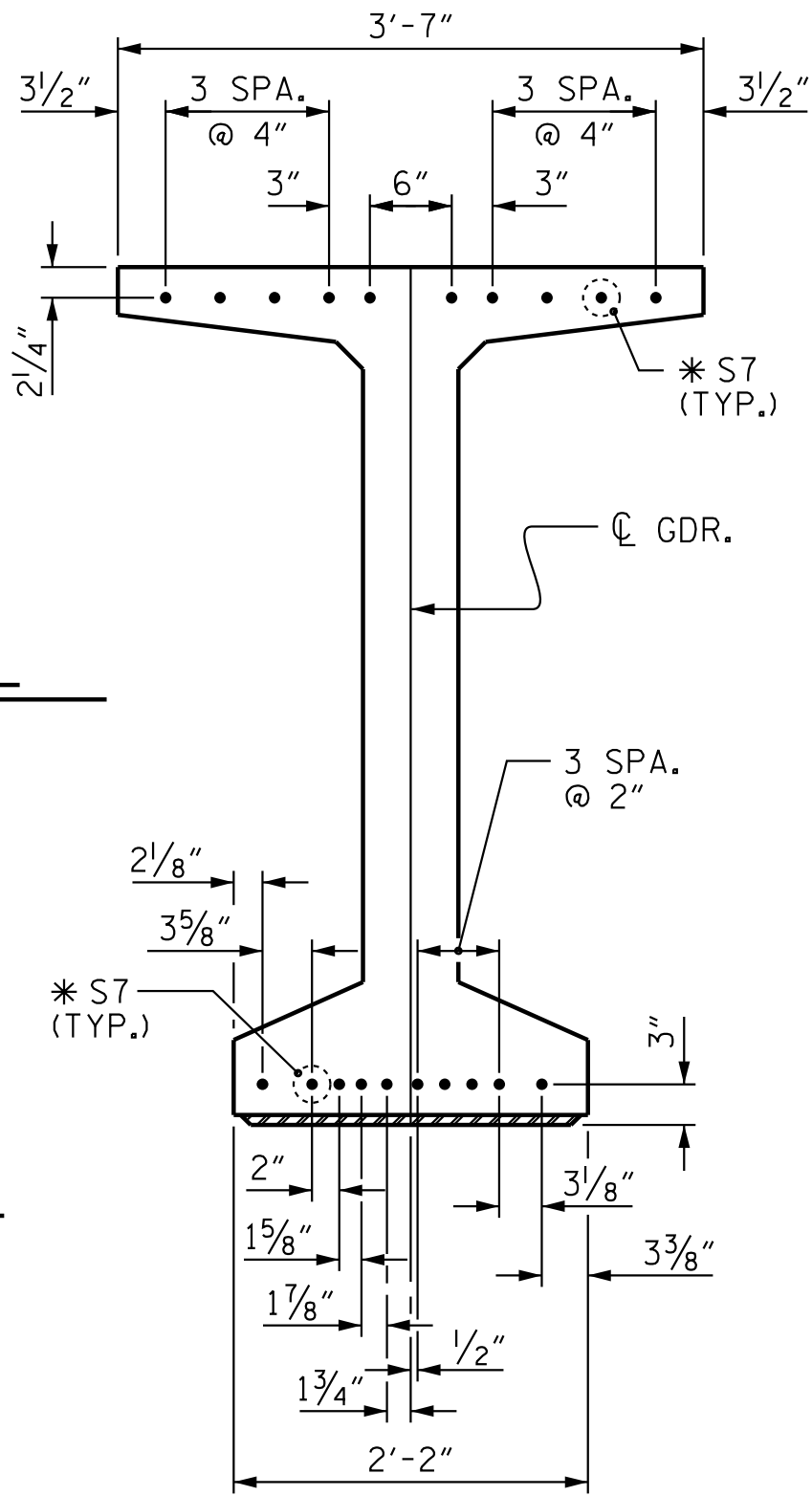
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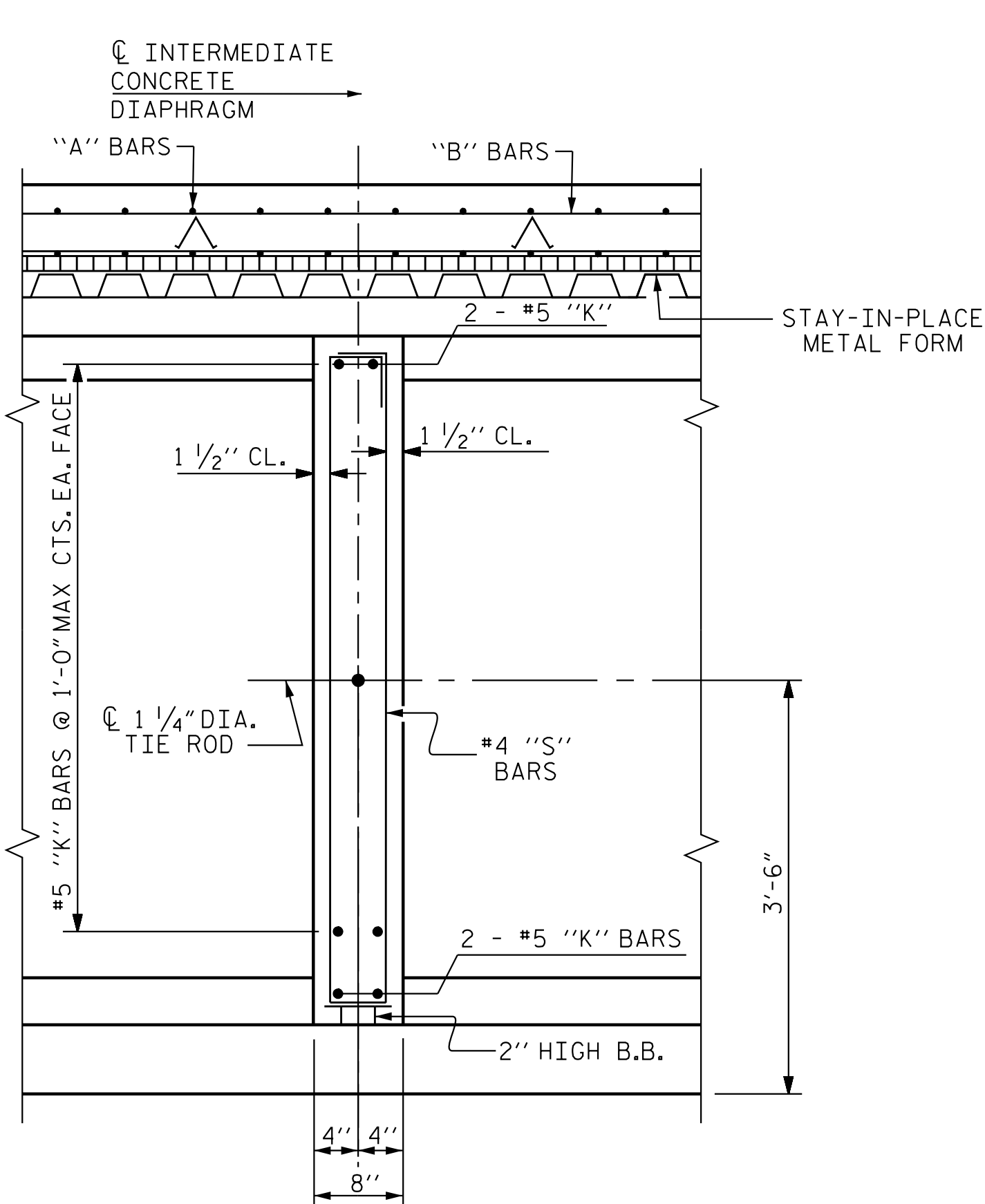


SECTION "F"
(SEE NOTES)

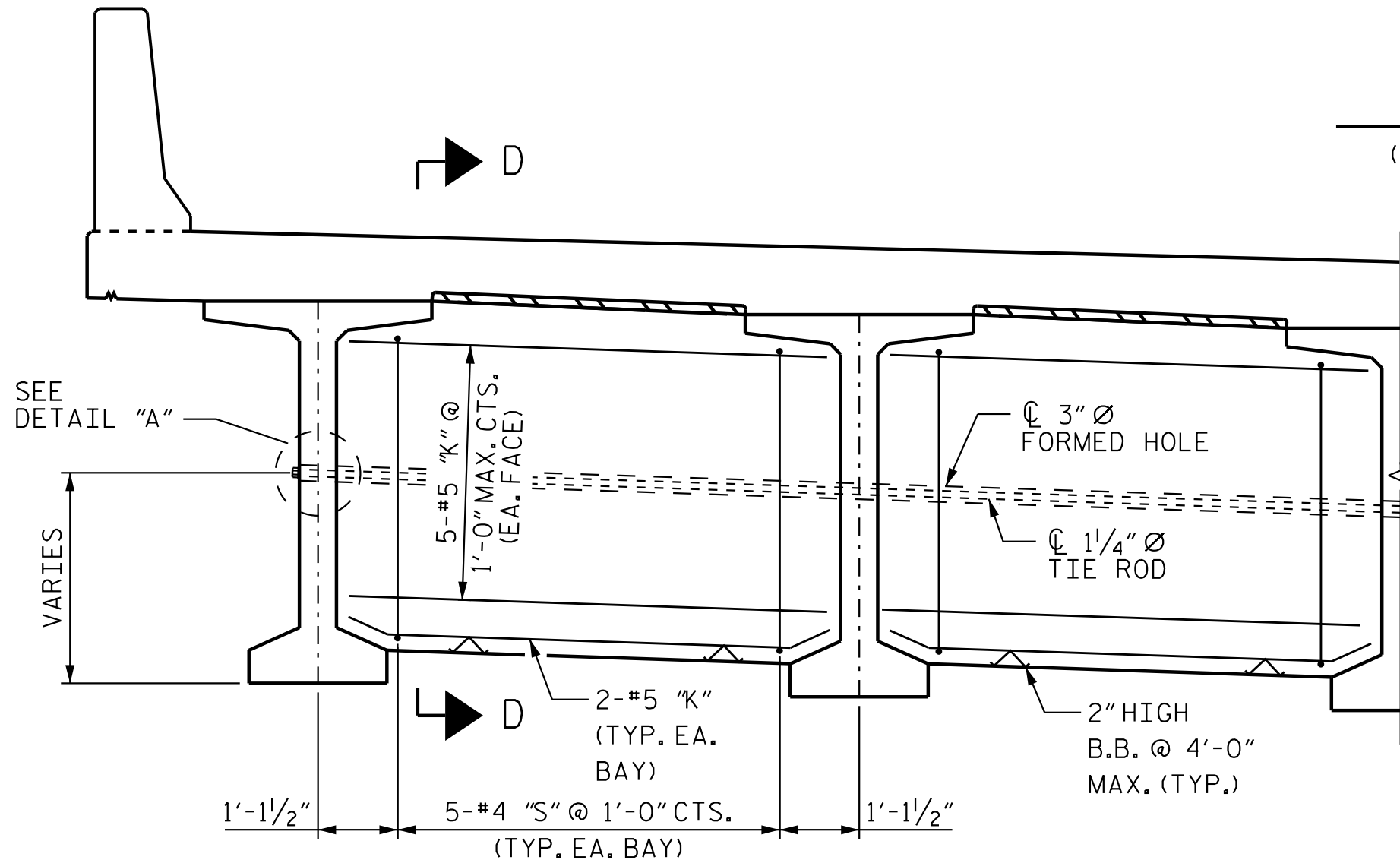
EMBEDDED PLATE "B-1" DETAILS
FOR MODIFIED 56" PRESTRESSED CONC. GDR.
(2 REQ'D PER GIRDER)



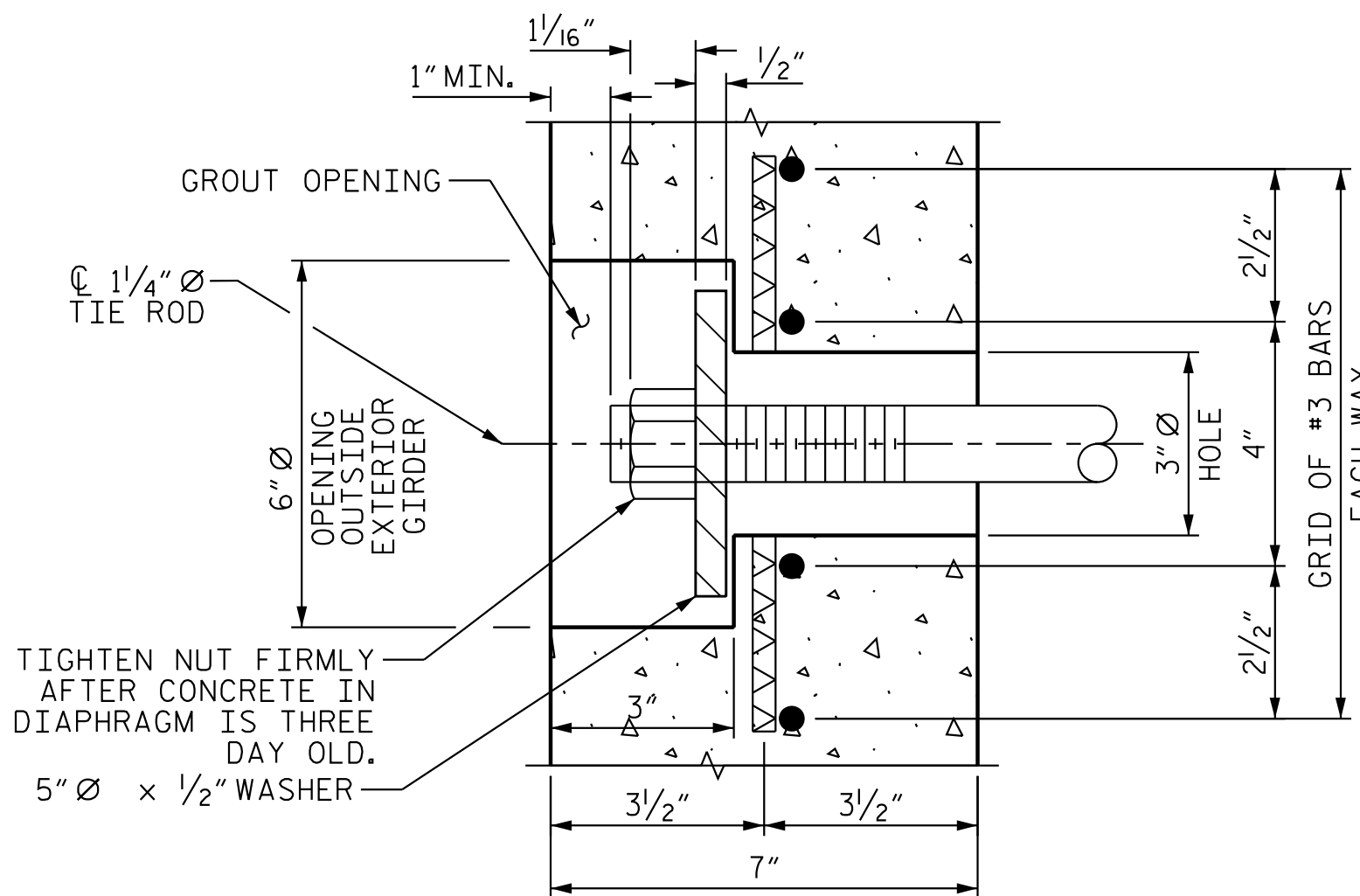
DETAIL "C"
(FOR 56" MODIFIED BULB TEES)



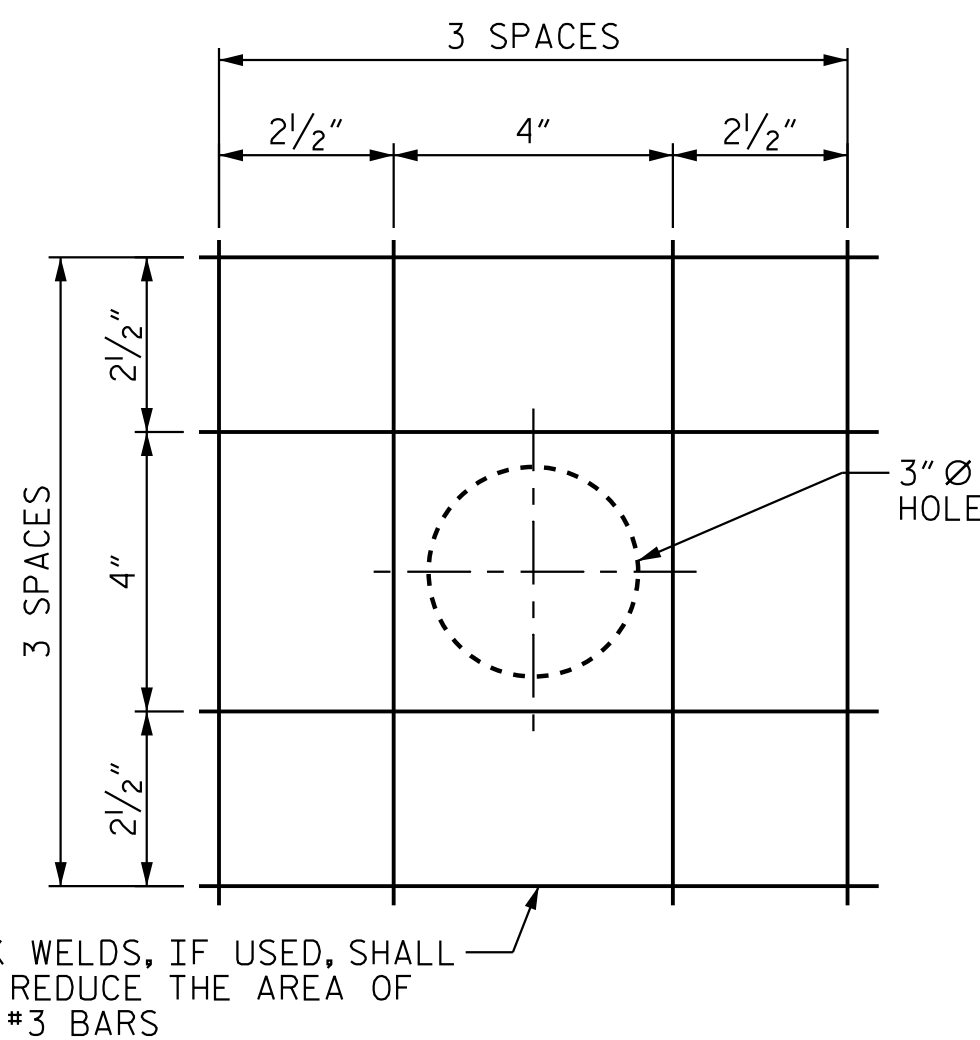
SECTION D-D
SECTION THRU CAST-IN-PLACE
CONCRETE INTERMEDIATE DIAPHRAGM



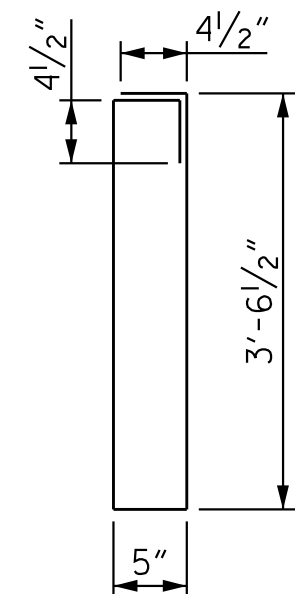
PART - SECTION AT OPTIONAL CAST-IN-PLACE
CONCRETE INTERMEDIATE DIAPHRAGM



DETAIL "A"
GROUTED RECESS FOR END OF TIE ROD



#3 BAR GRID



#4 "S" BAR

NOTES

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

ALL REINFORCING STEEL SHALL BE GRADE 60.

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

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

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

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE GIRDER SHALL BE DONE WHEN CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 7,500 PSI.

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

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

A 2" x 2" CHAMFER IS ALLOWED AT THE INTERSECTION OF THE WEB AND THE BOTTOM FLANGE OF THE 56" MODIFIED BULB TEES ONLY.

PRESTRESSED CONCRETE (GIRDERS, PRECAST DECK PANELS) SHALL CONTAIN CALCIUM NITRITE CORROSION INHIBITOR. SEE ARTICLE 1078-4(H) OF STANDARD SPECIFICATIONS FOR CALCIUM NITRITE CORROSION INHIBITOR.

OPTIONAL CONCRETE INTERMEDIATE DIAPHRAGMS

TEMPORARY STRUTS SHALL BE PLACED BETWEEN PRESTRESSED GIRDERS ADJACENT TO THE DIAPHRAGMS AND THE NUTS ON THE 1/4" Ø TIE RODS SHALL BE FULLY TIGHTENED BEFORE DIAPHRAGMS ARE CAST. STRUTS SHALL REMAIN IN PLACE 3 DAYS AFTER CONCRETE IS PLACED. THE TIE RODS SHALL BE RE-TIGHTENED AFTER THE STRUTS HAVE BEEN REMOVED.

CONCRETE IN INTERMEDIATE DIAPHRAGMS MAY BE CLASS A IN LIEU OF CLASS AA. PAYMENT SHALL BE MADE UNDER THE UNIT CONTRACT PRICE FOR REINFORCED CONCRETE DECK SLAB.

PROJECT NO. R-3300A
NEW HANOVER COUNTY
STATION: 232+80.54 -L1-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
MODIFIED 56" PRESTRESSED
CONCRETE GIRDER DETAILS

(RIGHT LANE)

REVISIONS			REVISIONS			SHEET NO. S04-17
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STD. NO. PCG9



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DRAWN BY : EEM 11/91
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REV. 1/15
REV. 2/15
REV. 12/17

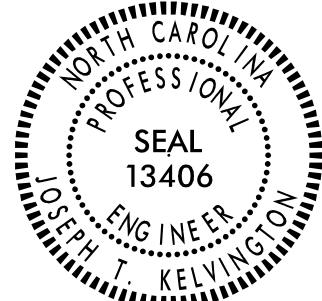
MAA/TMG
MAA/TMG
MAA/THC

ASSEMBLED BY : J. GUERRERO
CHECKED BY : A.L. BOYKIN

DATE : 08/01/18
DATE : 09/04/24

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ENGINEER
OF RECORD: J.T. KELVINGTON DATE : 04/22/25

WEIGHT OF #3 BARS ARE NOT
INCLUDED IN THE BILL OF
MATERIAL.

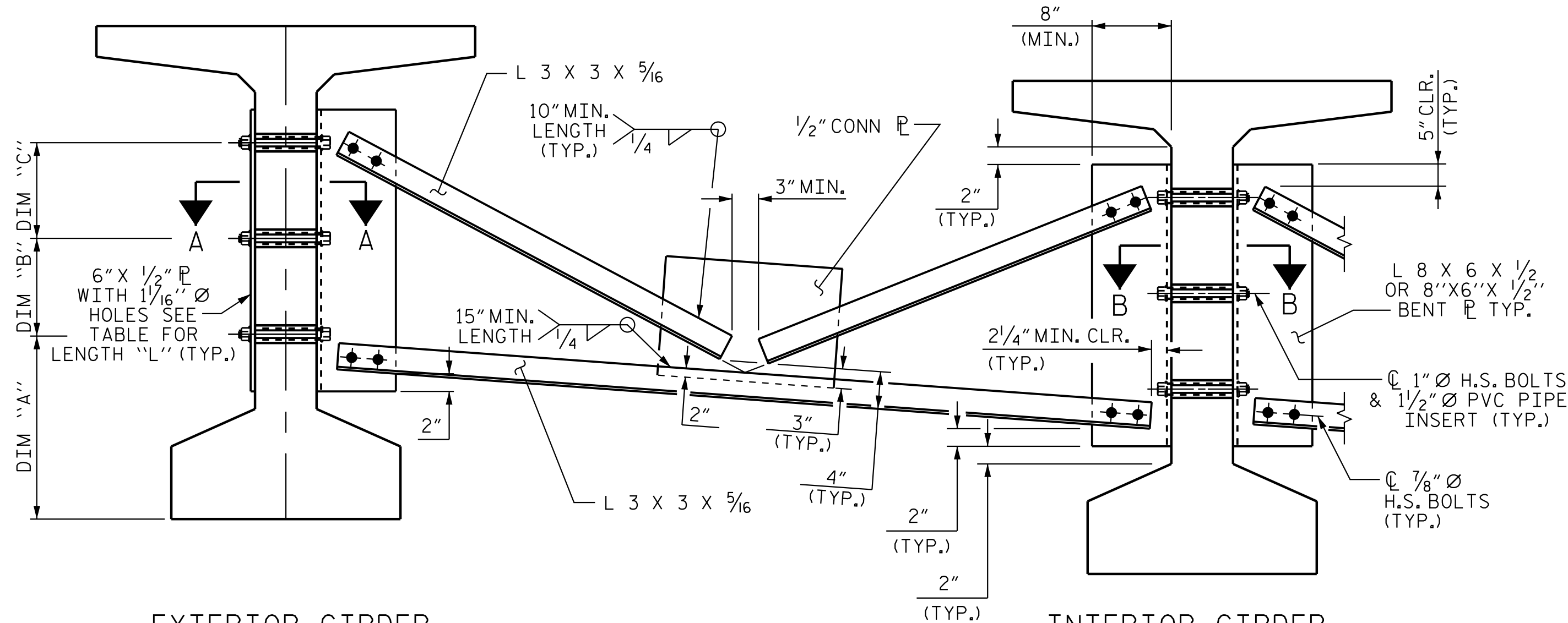


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Joe Kelvington 4/29/2025
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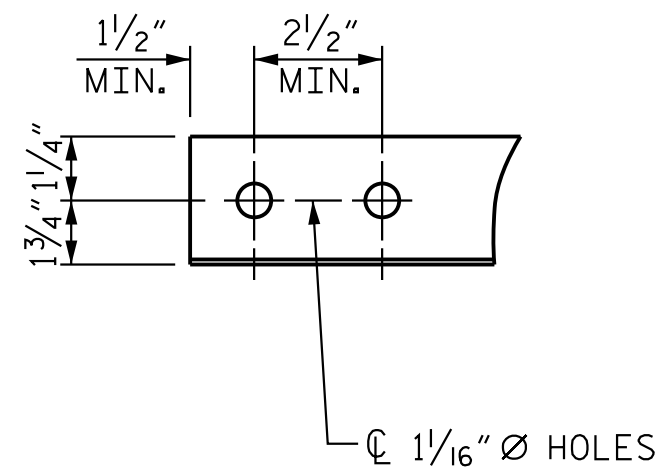
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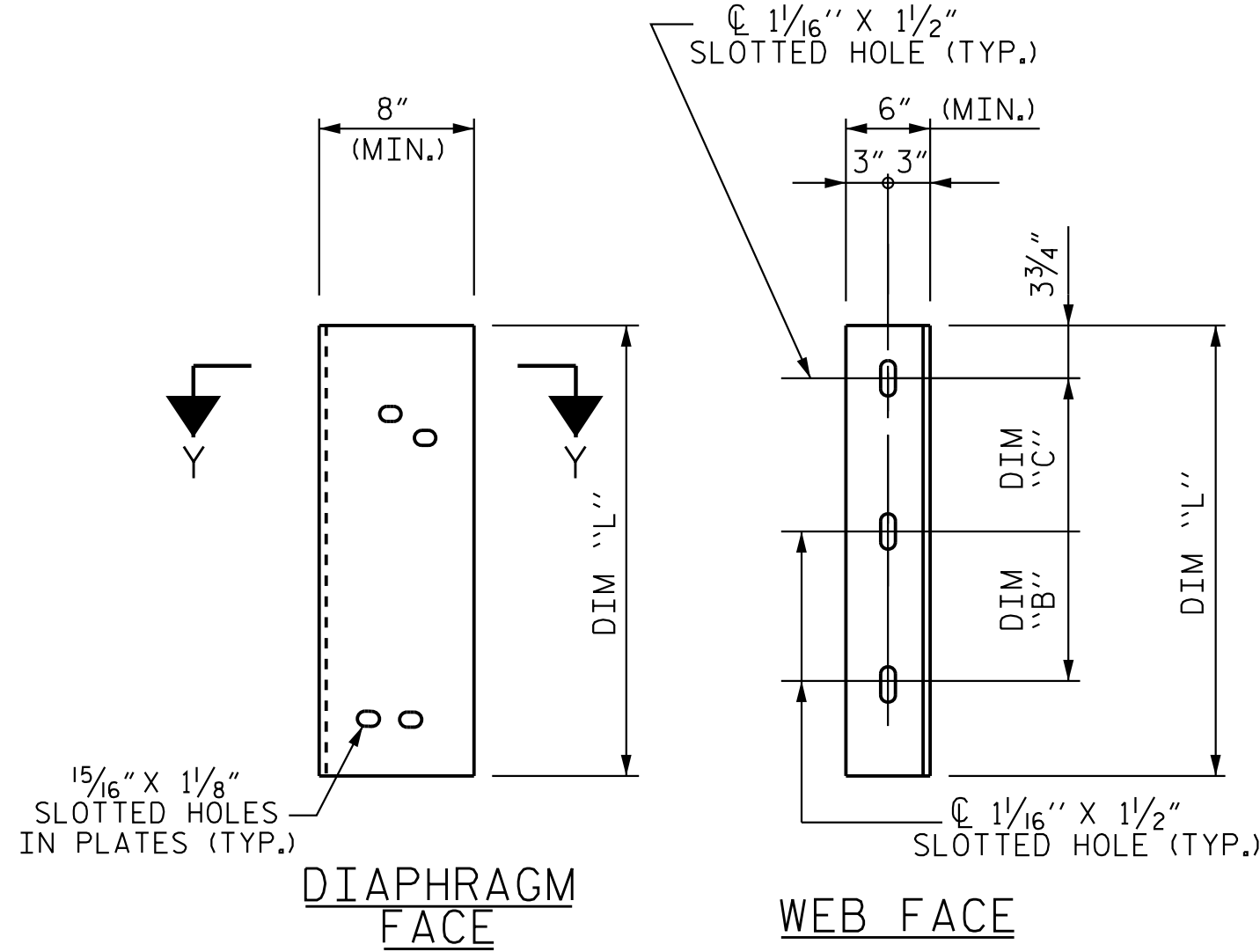
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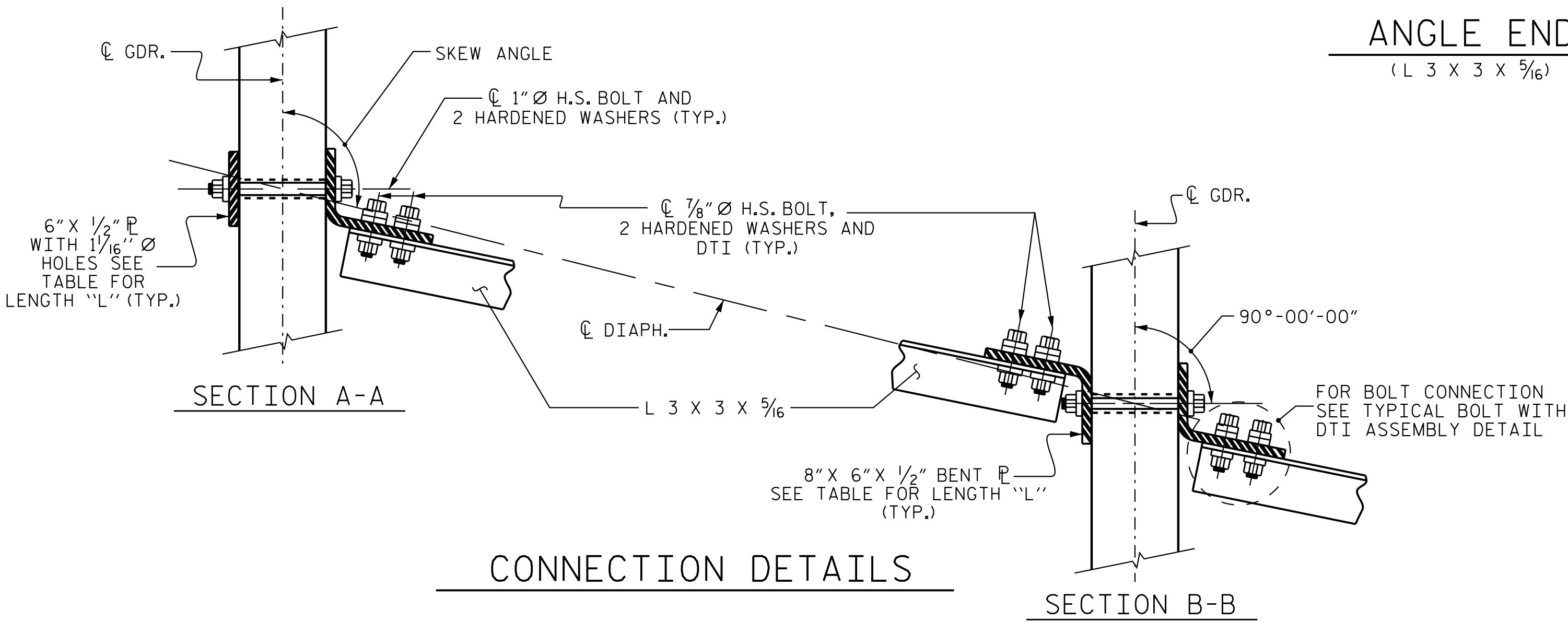
PART SECTION AT INTERMEDIATE DIAPHRAGM
MODIFIED 56" PRESTRESSED CONC. GDR.



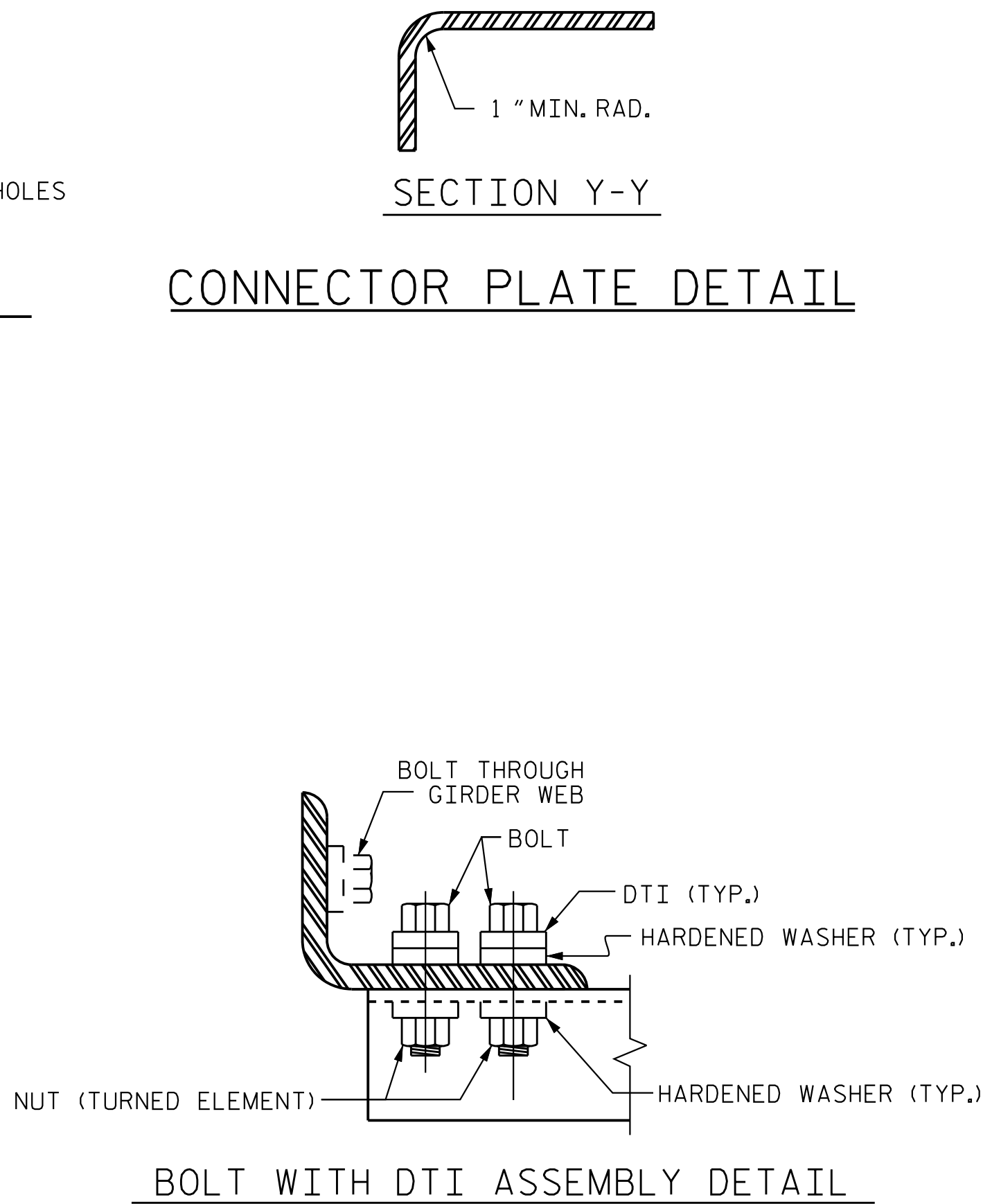
ANGLE END
(L 3 X 3 X 5/16)



CONNECTOR PLATE DETAIL



CONNECTION DETAILS



BOLT WITH DTI ASSEMBLY DETAIL

STRUCTURAL STEEL NOTES

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

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

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

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

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

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

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

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

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

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

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

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

TABLE

GIRDER TYPE	DIM "A"	DIM "B"	DIM "C"	DIM "L"
MODIFIED 56" PREST. CONC. GDR.	1'-9"	10 7/8"	10 7/8"	2'-8"

PROJECT NO. R-3300A
NEW HANOVER COUNTY
STATION: 232+80.54 -L1-

SHEET 3 OF 3



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CHECKED BY : GM 11/09

REV. 10/11/11
REV. 12/17
MAA/GM
MAA/THC

ASSEMBLED BY : D. NORSWORTHY
CHECKED BY : A.L. BOYKIN
DATE : 08/01/18
DATE : 09/04/24

DESIGN
ENGINEER
OF RECORD: J.T. KELVINGTON
DATE : 04/22/25



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STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH STANDARD						SHEET NO. S04-18		
INTERMEDIATE STEEL DIAPHRAGMS FOR MODIFIED 56" PRESTRESSED CONCRETE GIRDERS (RIGHT LANE)						TOTAL SHEETS 32		
REVISIONS								
NO.	BY:	DATE:	NO.	BY:	DATE:			
1			3					
2			4					

4/29/2025 2:04:05 PM jgeille

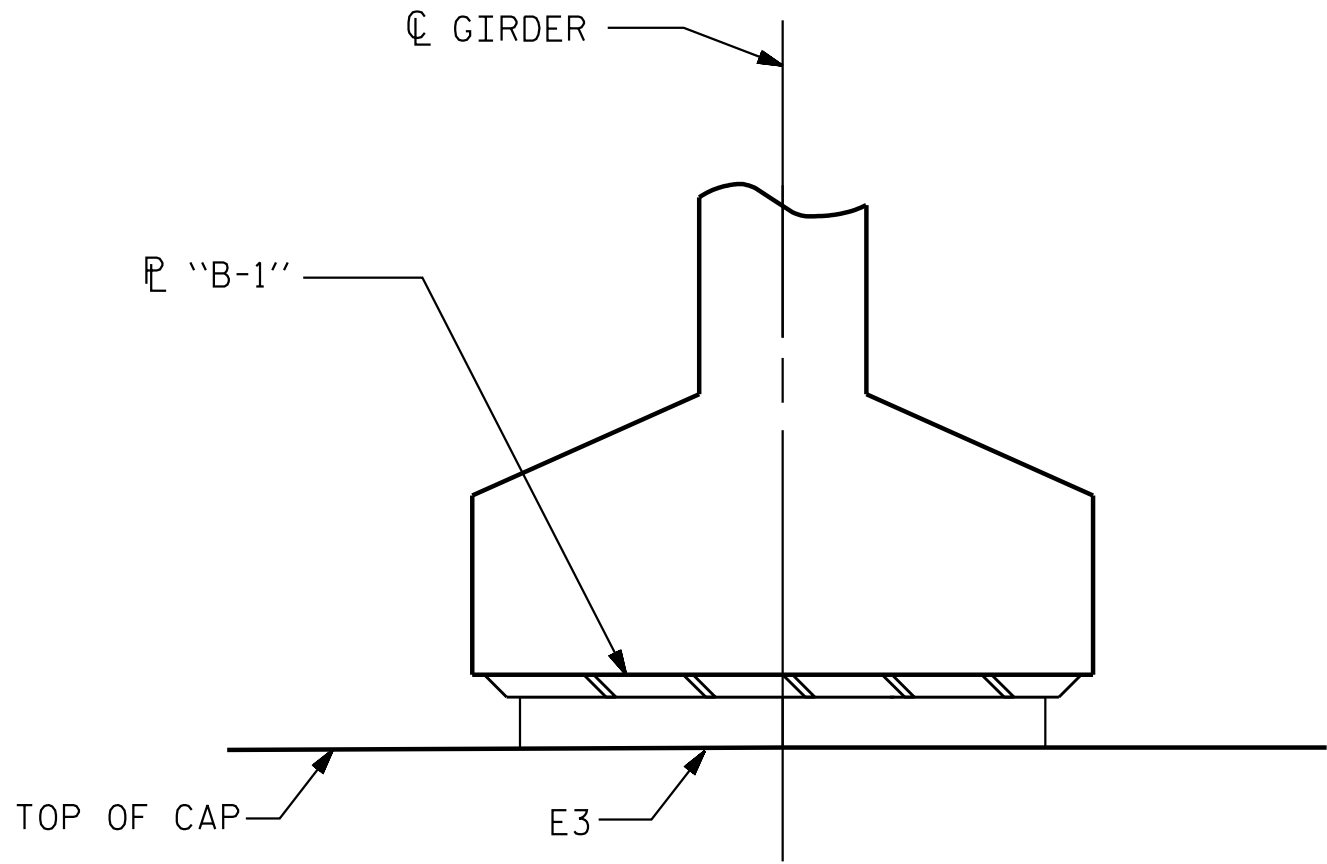
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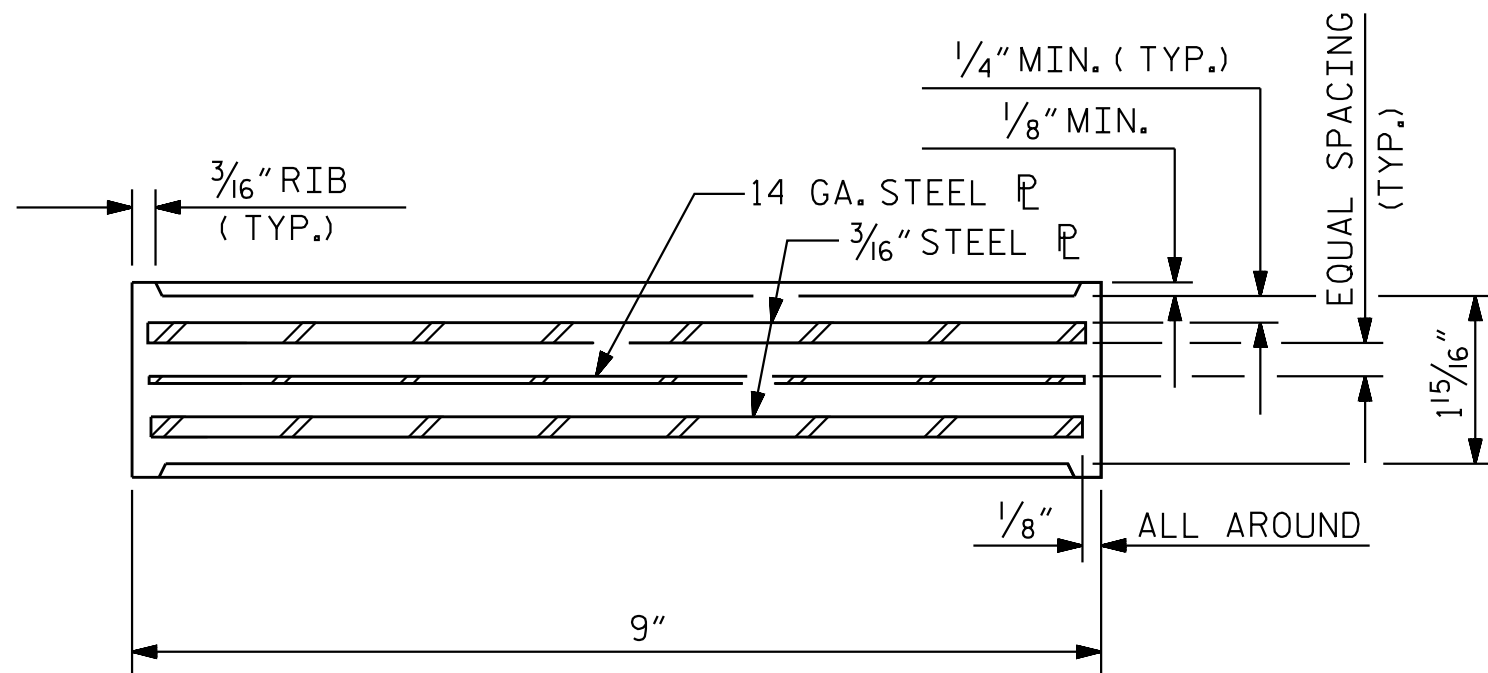
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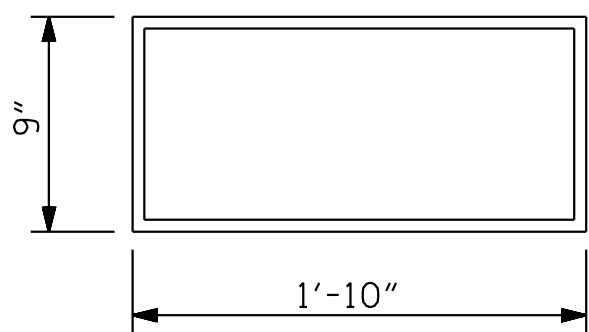
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OF RECORD: J.T. KELVINGTON DATE : 04/22/25



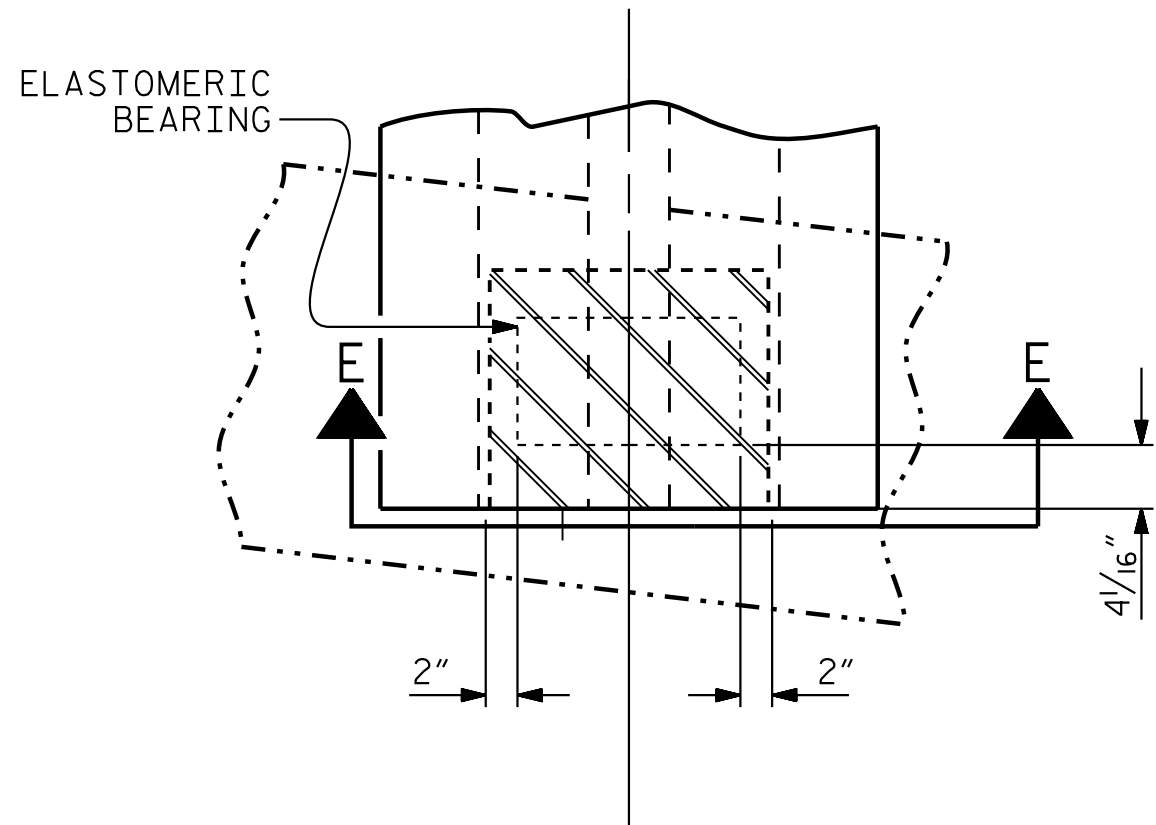
INTEGRAL
SECTION E-E



TYPICAL SECTION OF ELASTOMERIC BEARINGS



E3 (10 REQ'D)
PLAN VIEW OF ELASTOMERIC BEARING
TYPE IV



TYPICAL PLAN
(SHOWING INTEGRAL END BENT)

MAXIMUM ALLOWABLE
SERVICE LOADS

D.L.+L.L. (NO IMPACT)

TYPE IV || 225 k

NOTES

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

FOR STEEL REINFORCED ELASTOMERIC BEARINGS, SEE STANDARD SPECIFICATIONS.

PROJECT NO. R-3300A
NEW HANOVER COUNTY
STATION: 232+80.54 -L1-

SHEET 1 OF 1



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Joe Kelvington 4/29/2025
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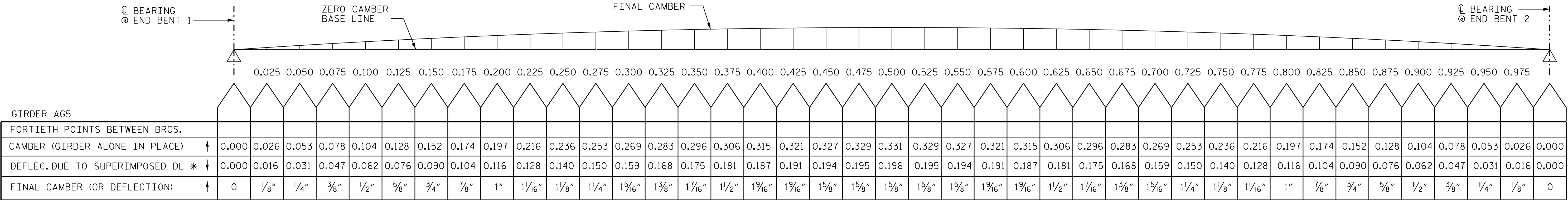
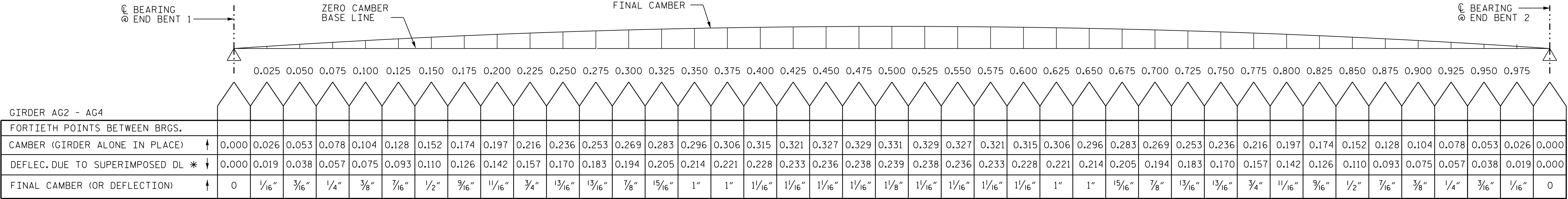
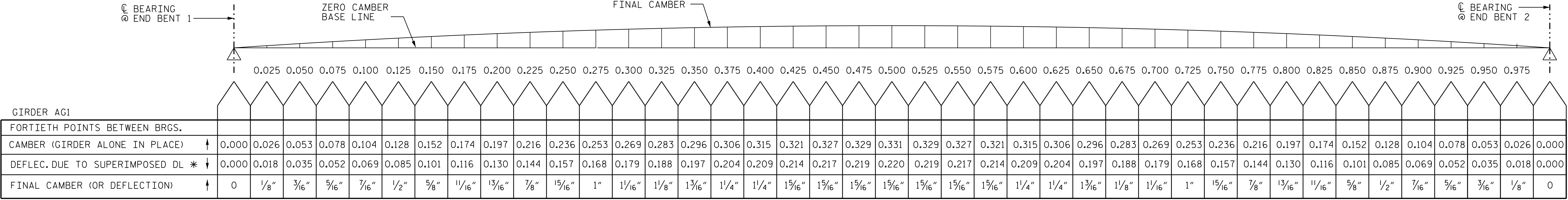
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
ELASTOMERIC
BEARING DETAILS
PRESTRESSED CONCRETE
GIRDER SUPERSTRUCTURE
(RIGHT LANE)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S04-19
1			3			TOTAL SHEETS 32
2			4			

STD. NO. EB3

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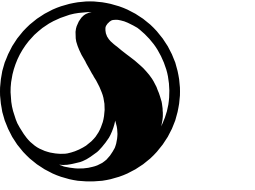
* INCLUDES FUTURE WEARING SURFACE IN SUPERIMPOSED DEAD LOAD.

SCHEMATIC CAMBER ORDINATES

ALL VALUES ARE SHOWN IN DECIMALS OF A FOOT EXCEPT "FINAL CAMBER (OR DEFLECTION)" WHICH IS SHOWN IN INCHES.

(+) FINAL CAMBER INDICATES NET UPWARD DISPLACEMENT.

PROJECT NO. R-3300A
NEW HANOVER COUNTY
STATION: 232+80.54 -L1-



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CHECKED BY : A.L. BOYKIN DATE : 09/04/24

DESIGN ENGINEER OF RECORD: J.T. KELVINGTON DATE : 04/22/25



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Joe Kelvington 4/29/2025
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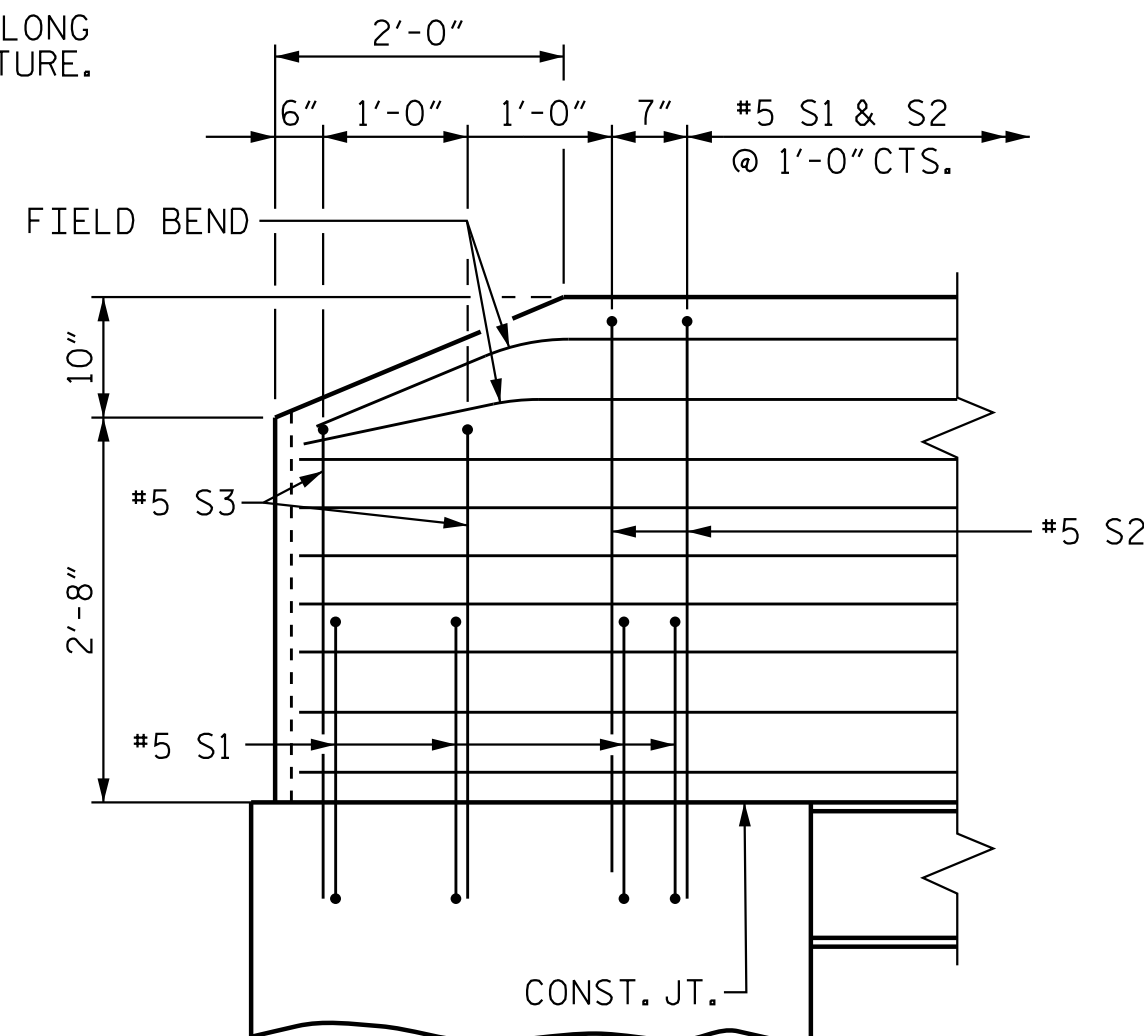
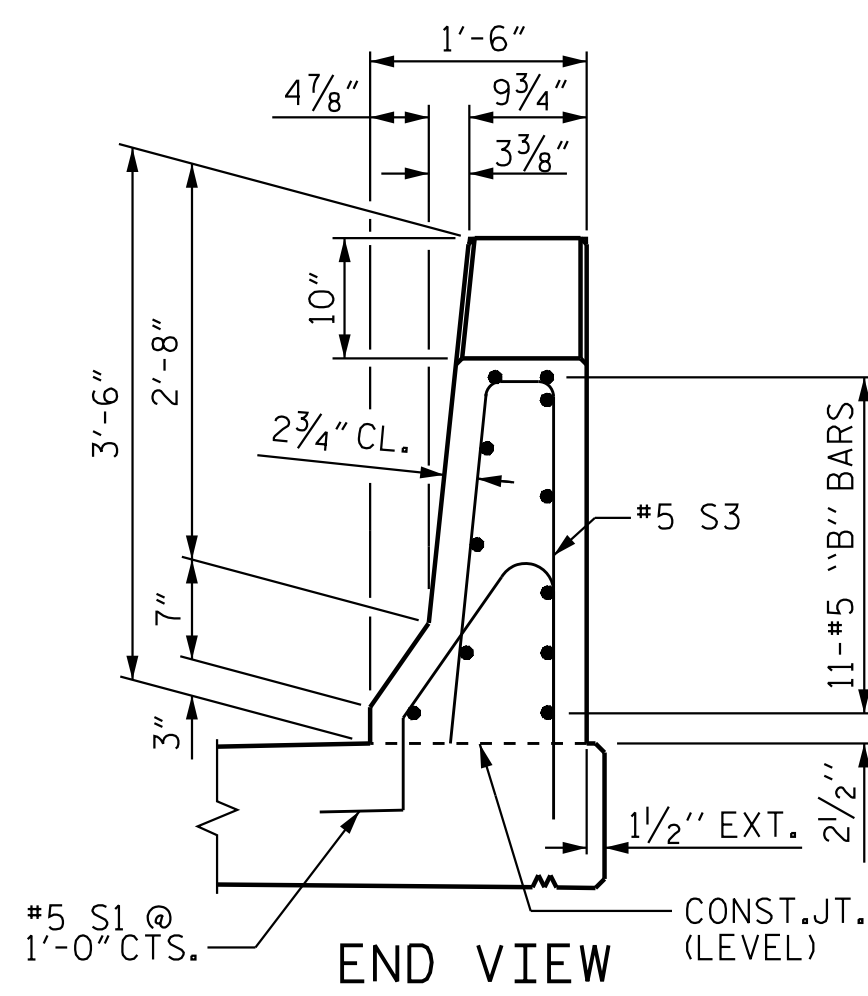
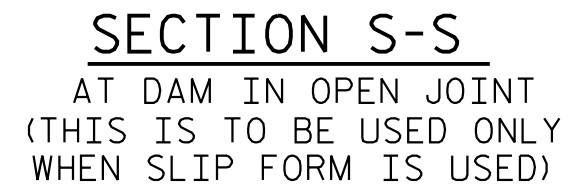
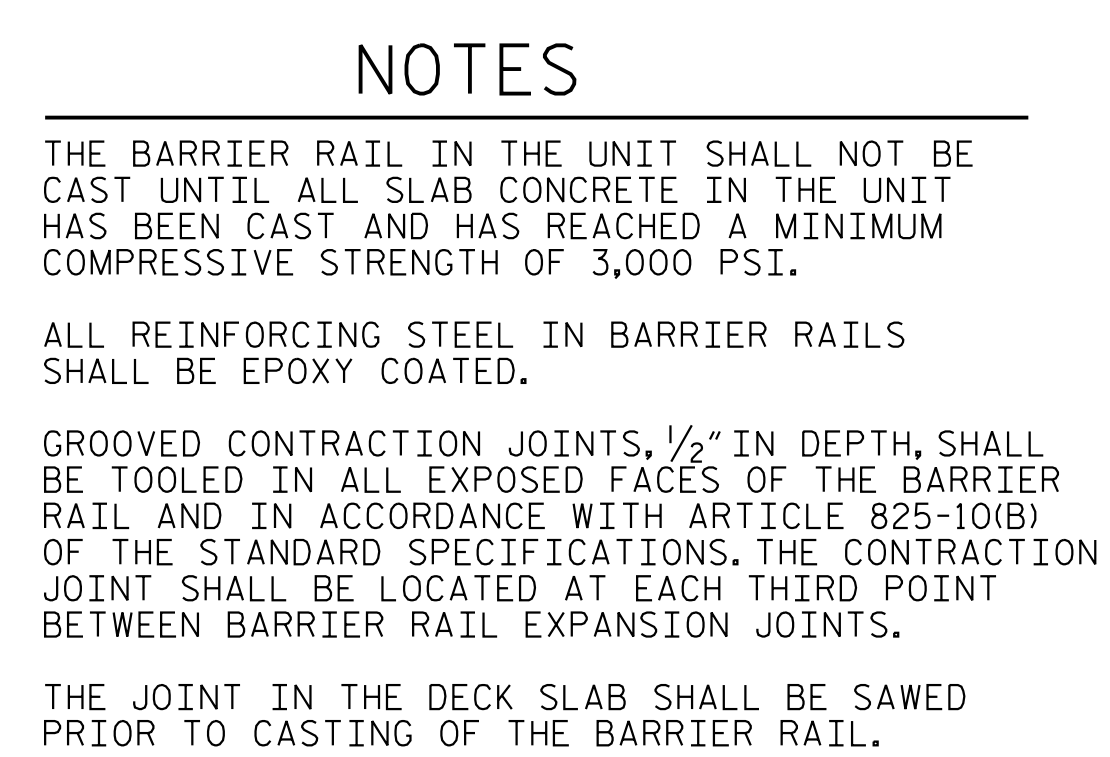
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RALEIGH
SUPERSTRUCTURE

DEAD LOAD
DEFLECTIONS

(RIGHT LANE)

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LEFT SIDE @ END BENT 2/ RIGHT
SIDE @ END BENT 1 SHOWN.
OTHER LOCATIONS SIMILAR.



END BENT 1 SHOWN END BENT 2 TYP. BY ROTATION

PROJECT NO. R-3300A
NEW HANOVER COUNTY
 STATION: 232+80.54 -L1-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
CONCRETE
BARRIER RAIL

STD. NO. CBR1

 Stantec	Stantec Consulting Services Inc. 801 Jones Franklin Road Suite 300 Raleigh, NC 27606 Tel. (919) 851-6866 Fax. (919) 851-7024 www.stantec.com License No. F-0672		DESIGN ENGINEER OF RECORD: <u>J.T. KELVINGTON</u> DATE <u>04/22/25</u>
	ASSEMBLED BY : J. GUERRERO DATE : 08/01/21 CHECKED BY : A.L. BOYKIN DATE : 09/04/24		
DRAWN BY : ARB 5/87 CHECKED BY : SJD 9/87	REV. 7/12 REV. 6/13 REV. 12/17	MAA/GM MAA/GM MAA/GM	

NOTES

THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A 1/4" HOLD-DOWN PLATE AND 4 - 1/8" Ø BOLTS WITH NUTS AND WASHERS, RUBRAIL, AND ADHESIVELY ANCHORED BOLTS.

THE HOLD-DOWN PLATE SHALL CONFORM TO AASHTO M270 GRADE 36. AFTER FABRICATION, THE HOLD-DOWN PLATE SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH AASHTO M111.

BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. NUTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M291. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 1/8" Ø GALVANIZED BOLTS, NUTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)

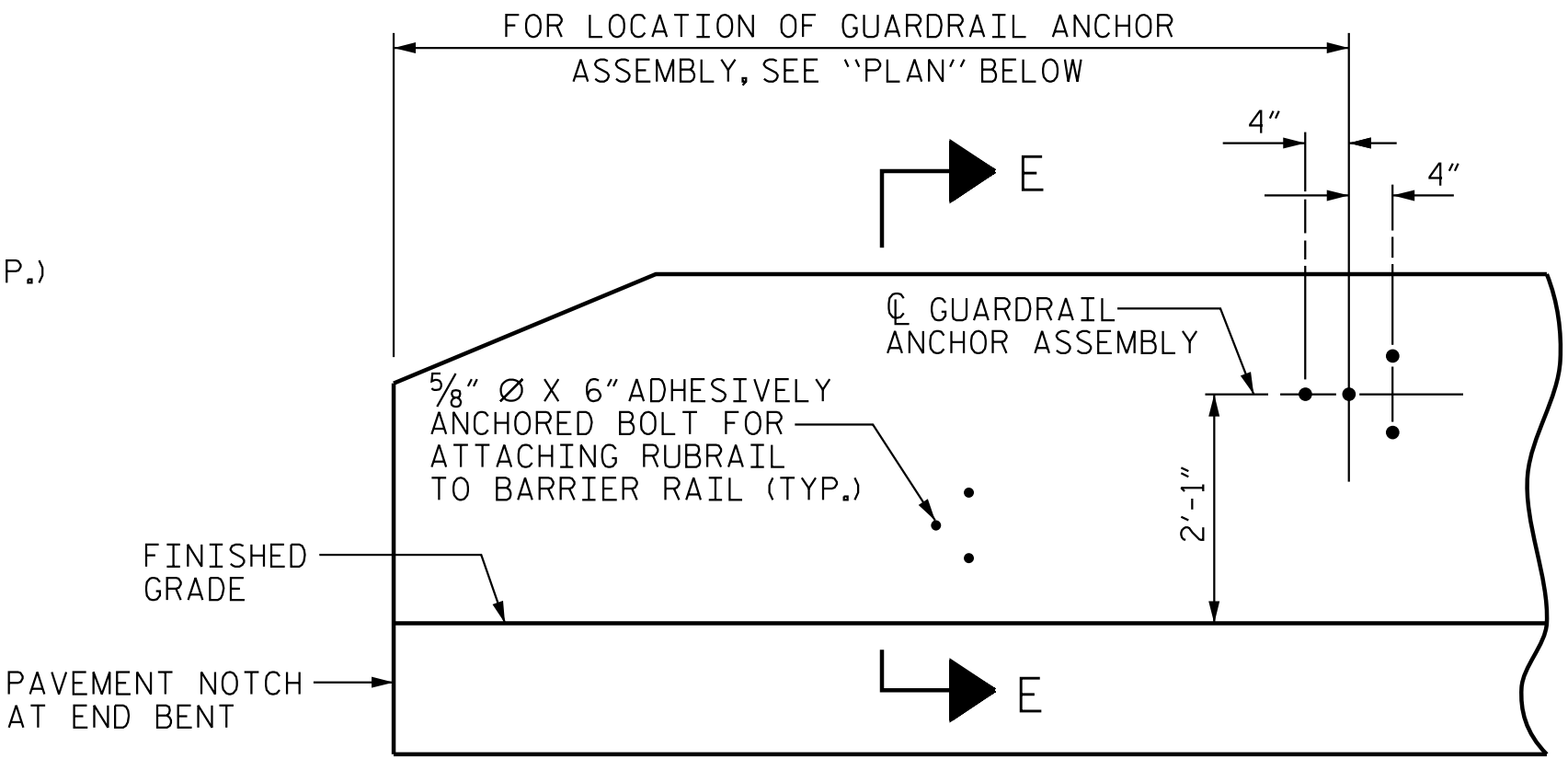
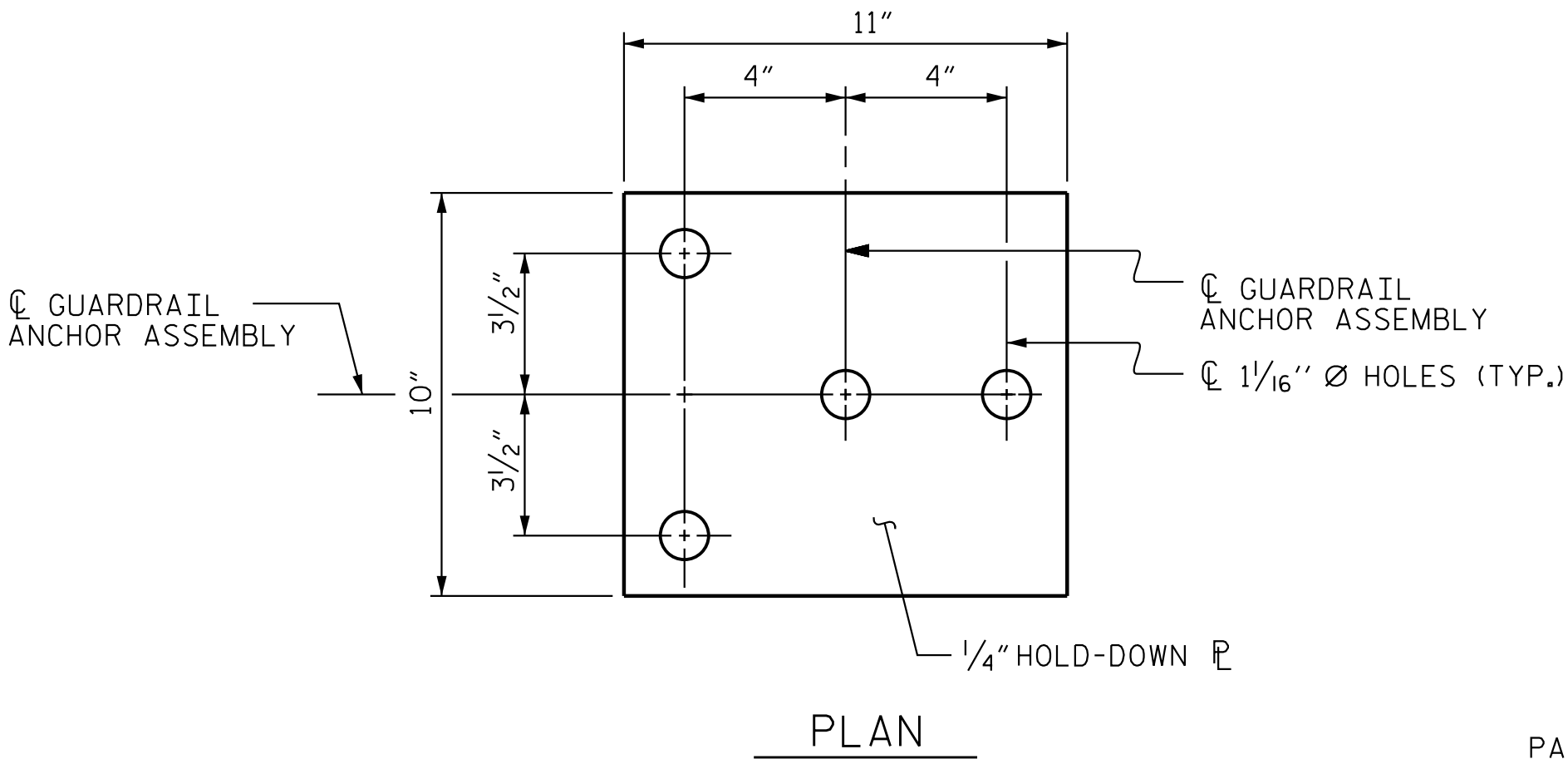
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

AFTER INSTALLATION, THE EXPOSED THREAD OF THE BOLT SHALL BE BURRED WITH A SHARP POINTED TOOL.

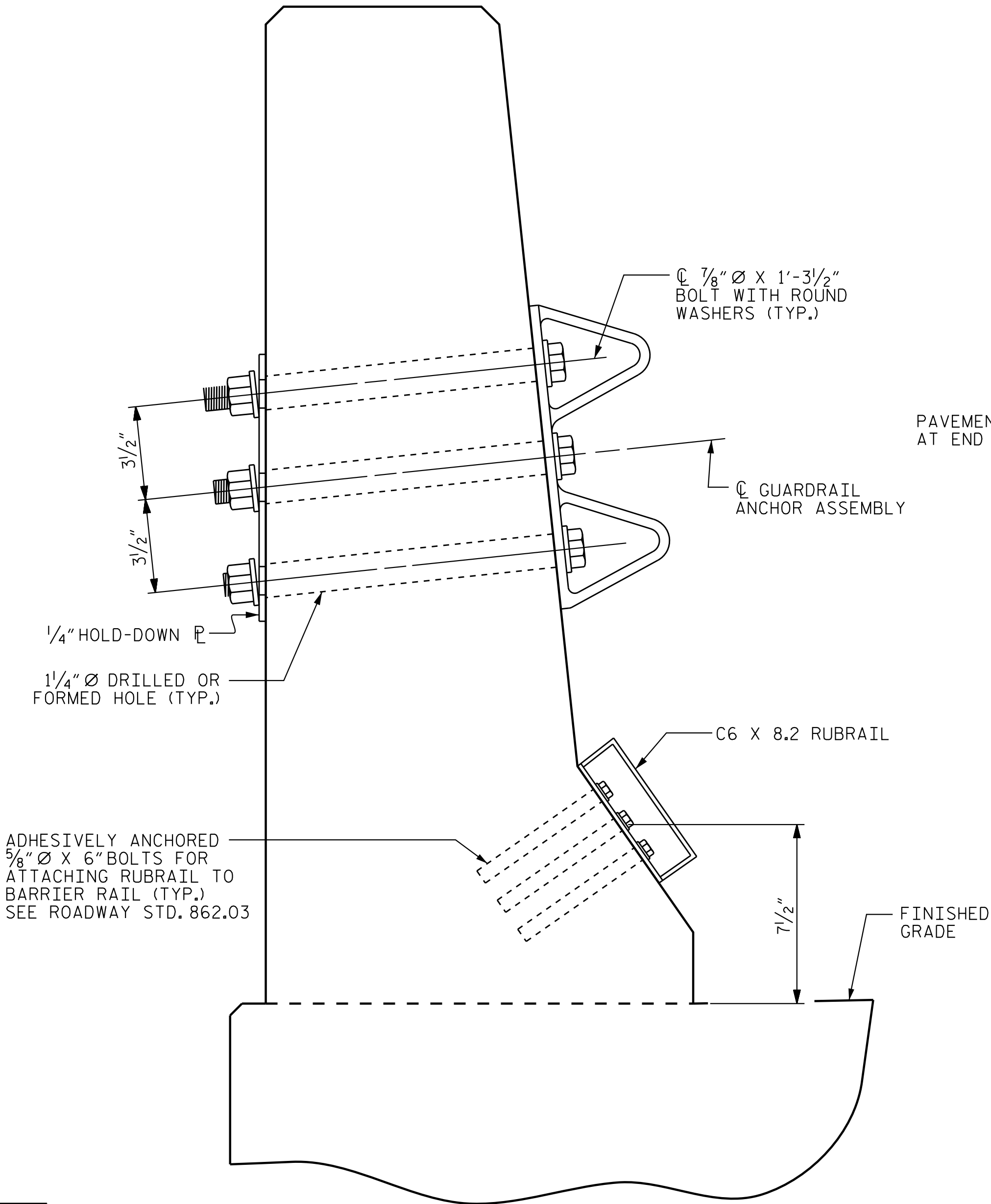
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR CONCRETE BARRIER RAIL.

THE 1 1/4" Ø HOLES SHALL BE FORMED OR DRILLED WITH A CORE BIT. IMPACT TOOLS WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.

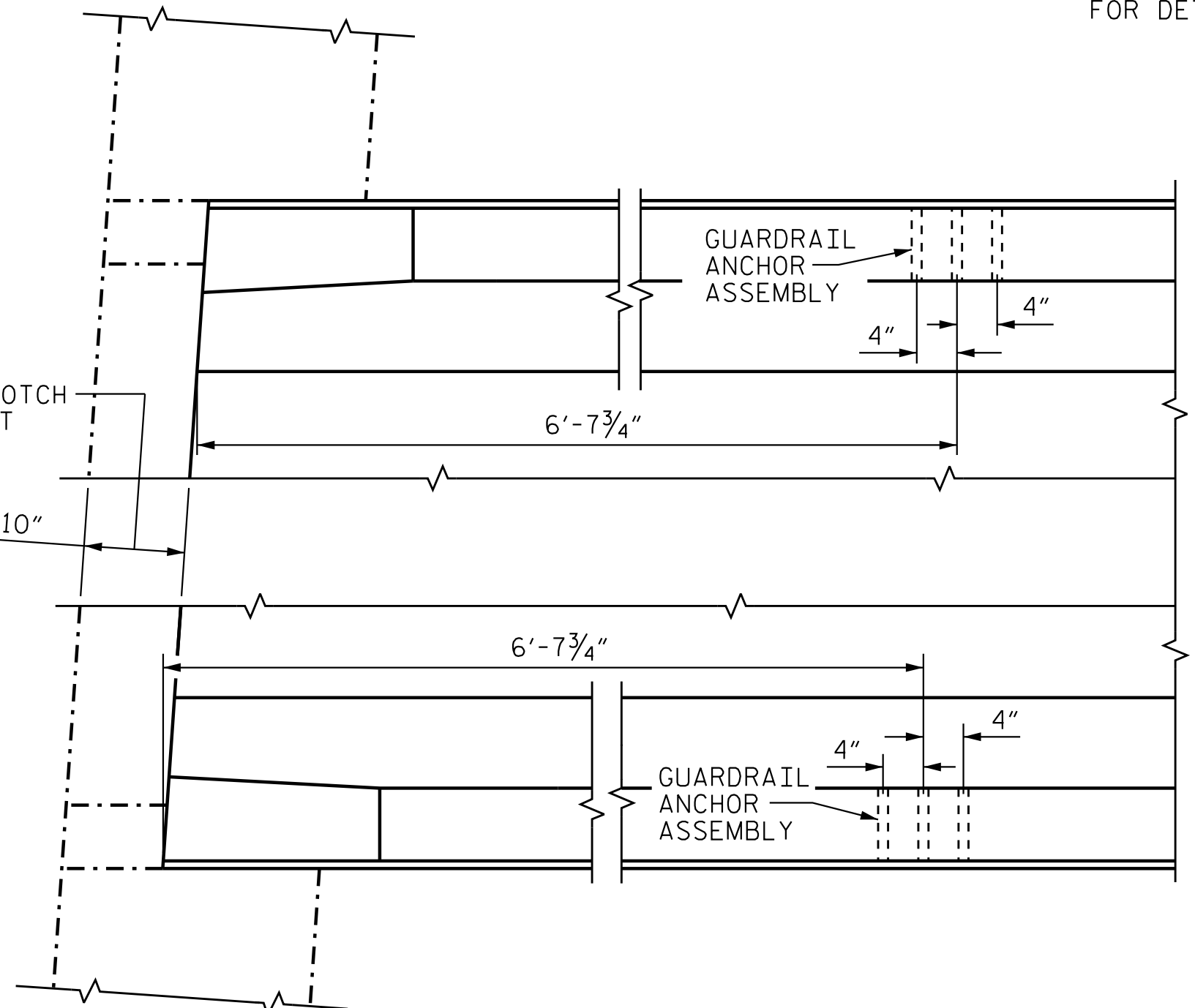
THE C6 X 8.2 RUBRAIL IS TO BE ADHESIVELY ANCHORED TO THE RAIL USING THREE 5/8" Ø X 6" BOLTS WITH WASHERS. LEVEL ONE FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE 5/8" Ø BOLT IS 12 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE STANDARD SPECIFICATIONS. SEE ROADWAY STANDARD 862.03 FOR DETAILS AND LOCATION OF THE RUBRAIL.



ELEVATION



SECTION E-E
GUARDRAIL ANCHOR ASSEMBLY DETAILS



LOCATION OF ANCHORS FOR GUARDRAIL

END BENT #1 SHOWN, END BENT #2 SIMILAR.



SKETCH SHOWING POINTS OF ATTACHMENTS

* DENOTES GUARDRAIL ANCHOR ASSEMBLY

PROJECT NO. R-3300A
NEW HANOVER COUNTY
STATION: 232+80.54 -L1-



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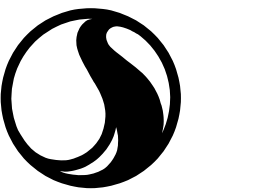
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
GUARDRAIL ANCHORAGE
FOR BARRIER RAIL

(RIGHT LANE)

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STD. NO. GRA2



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DRAWN BY : TLA 5/06
CHECKED BY : GM 5/06

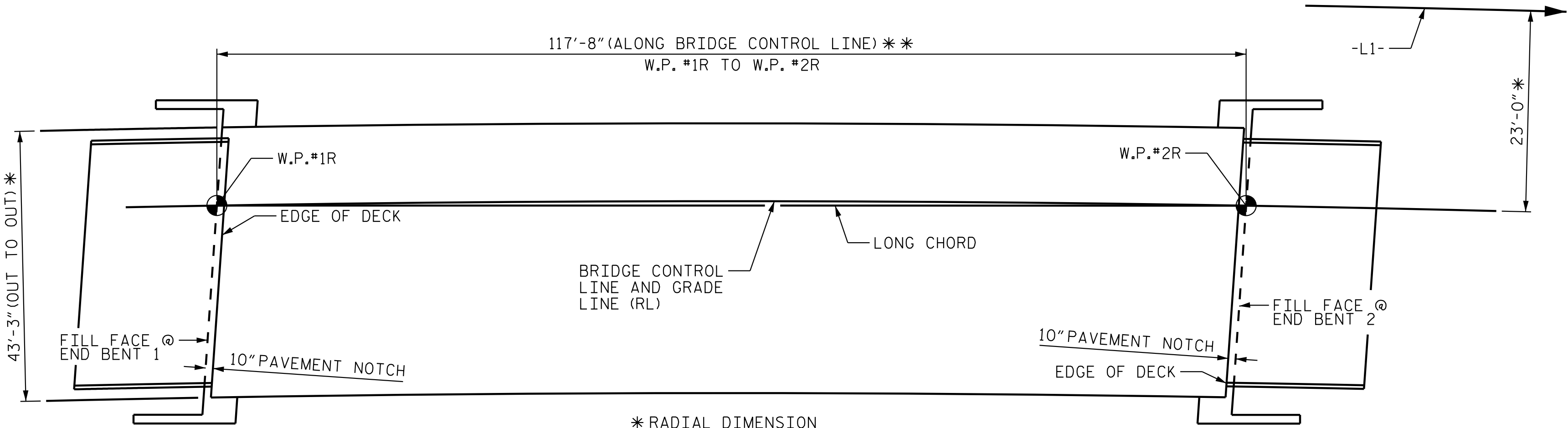
REV. 7/12
REV. 6/13
REV. 12/17

MAA/GM
MAA/GM
MAA/THC

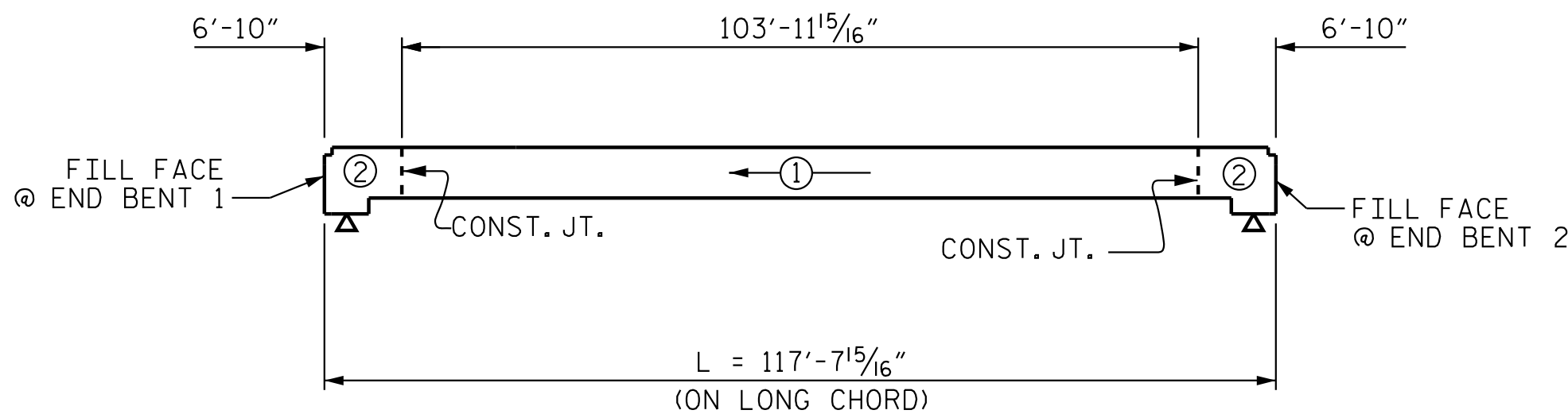
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LAYOUT FOR COMPUTING AREA REINFORCED CONCRETE DECK SLAB (SQ. FT. = 5,089)



POURING SEQUENCE

(DIMENSIONS SHOWN ARE ALONG LONG CHORD)

⊕ → = INDICATES POUR NUMBER
AND DIRECTION OF POUR

SUPERSTRUCTURE REINFORCING STEEL
LENGTHS ARE BASED ON THE
FOLLOWING MINIMUM SPLICE LENGTHS

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

SUPERSTRUCTURE BILL OF MATERIAL

	CLASS AA CONCRETE	REINFORCING STEEL	EPOXY COATED REINFORCING STEEL
	(CU. YDS.)	(LBS.)	(LBS.)
POUR #1	143.7	16,675	17,678
POUR #2A (EB1)	45.8		
POUR #2B (EB2)	45.3		
TOTALS **	234.8		

**QUANTITIES FOR BARRIER RAIL ARE NOT INCLUDED

GROOVING BRIDGE FLOORS

APPROACH SLABS	1,788 SQ.FT.
BRIDGE DECK	4,279 SQ.FT.
TOTAL	6,067 SQ.FT.



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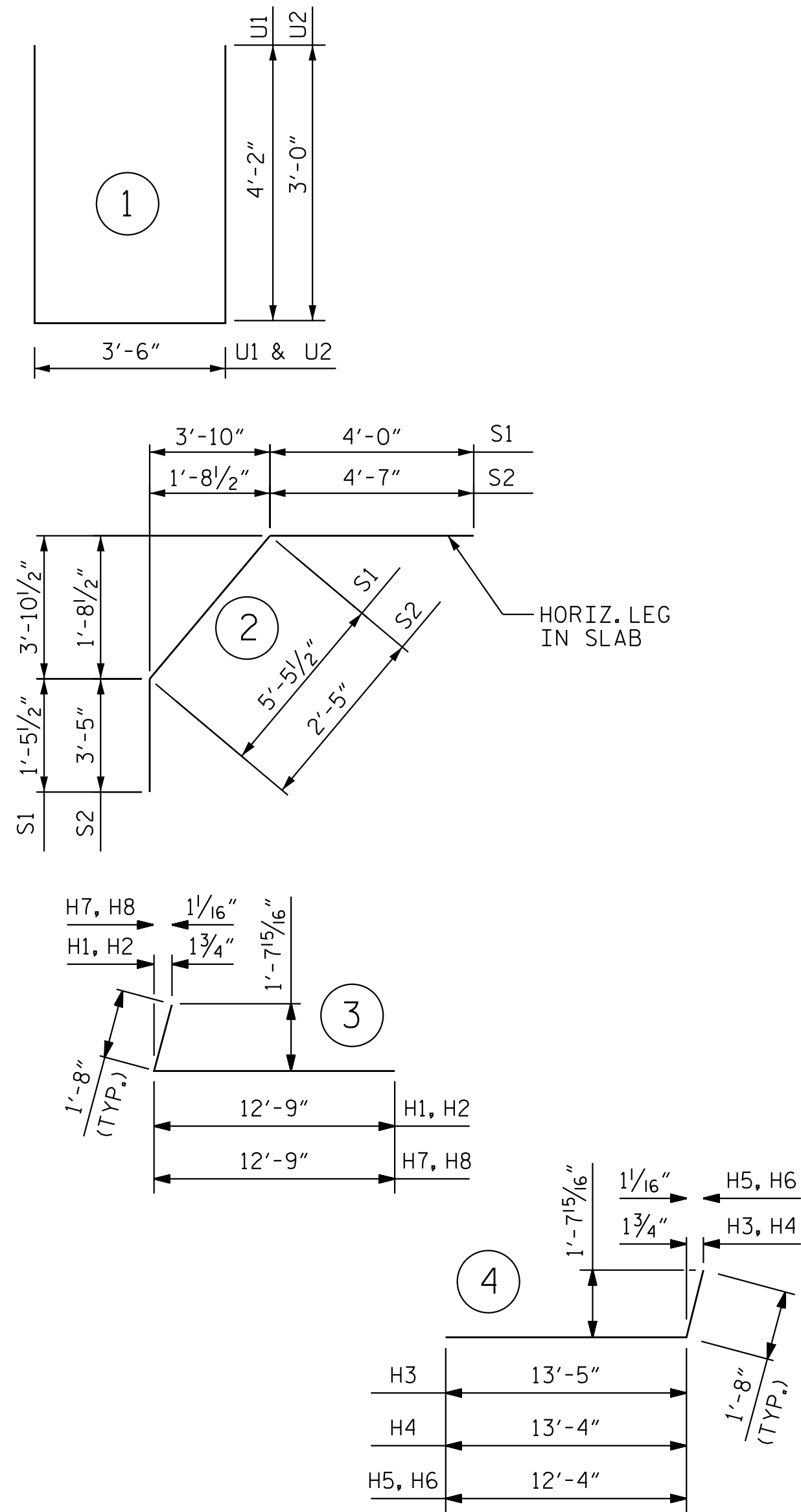
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DESIGN
ENGINEER
OF RECORD: J.T. KELVINGTON DATE : 04/22/25

REINFORCING BAR SCHEDULE

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	194	#5	STR.	42'-10"	8,667
A2	194	#5	STR.	42'-10"	8,667
* A101	1	#5	STR.	36'-4"	38
* A102	1	#5	STR.	28'-1"	29
* A103	1	#5	STR.	19'-9"	21
* A104	1	#5	STR.	11'-5"	12
* A105	1	#5	STR.	3'-1"	3
A201	1	#5	STR.	36'-4"	38
A202	1	#5	STR.	28'-1"	29
A203	1	#5	STR.	19'-9"	21
A204	1	#5	STR.	11'-5"	12
A205	1	#5	STR.	3'-1"	3
* A150	1	#5	STR.	36'-6"	38
* A151	1	#5	STR.	28'-2"	29
* A152	1	#5	STR.	19'-10"	21
* A153	1	#5	STR.	11'-6"	12
* A154	1	#5	STR.	3'-2"	3
A250	1	#5	STR.	36'-6"	38
A251	1	#5	STR.	28'-2"	29
A252	1	#5	STR.	19'-10"	21
A253	1	#5	STR.	11'-6"	12
A254	1	#5	STR.	3'-1"	3
* B1	62	#5	STR.	59'-1"	3,821
B2	80	#5	STR.	58'-10"	4,909
* B3	104	#5	STR.	23'-6"	2,549
* B4	52	#5	STR.	25'-11"	1,406
H1	12	#5	3	14'-5"	180
H2	6	#4	3	14'-5"	58
H3	11	#6	4	15'-1"	249
H4	6	#4	4	15'-0"	60
H5	11	#5	4	14'-0"	161
H6	6	#4	4	14'-0"	56
H7	11	#6	3	14'-5"	238
H8	6	#4	3	14'-5"	58
K1	20	#4	STR.	25'-4"	338
K2	8	#4	STR.	5'-4"	29
K3	32	#4	STR.	8'-4"	178
K4	8	#4	STR.	6'-9"	36
K5	8	#4	STR.	4'-10"	26
K6	2	#4	STR.	4'-2"	6
K7	24	#4	STR.	3'-7"	57
K8	8	#4	STR.	5'-8"	30
K9	2	#4	STR.	5'-0"	7
* S1	82	#4	2	10'-11"	598
* S2	62	#4	2	10'-5"	431
U1	66	#4	1	11'-10"	522
U2	12	#4	1	9'-6"	76
V2	24	#5	STR.	5'-7"	139
V3	24	#5	STR.	5'-4"	133
V4	22	#5	STR.	5'-5"	125
V5	24	#5	STR.	5'-3"	131
REINFORCING STEEL				16,675	LBS
* EPOXY COATED REINFORCING STEEL				17,678	LBS

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

PROJECT NO. R-3300A
NEW HANOVER COUNTY
STATION: 232+80.54 -L1-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE

BILL OF MATERIAL

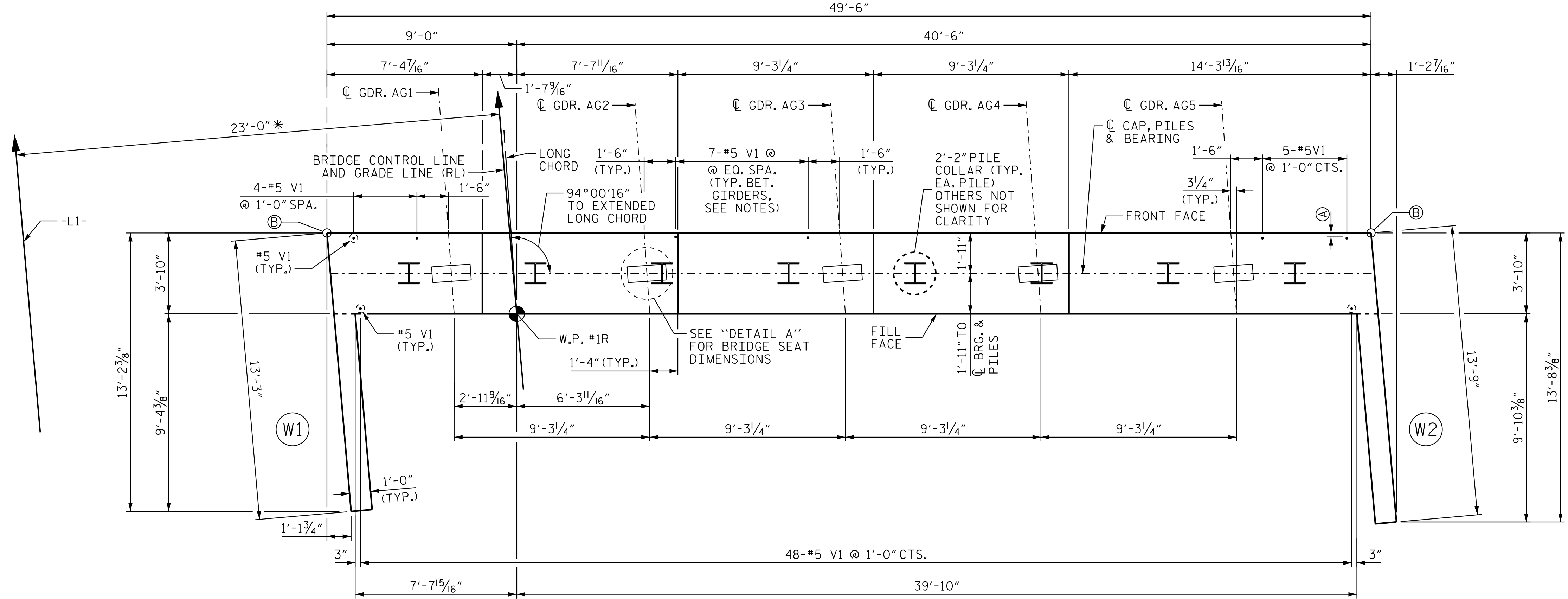
(RIGHT LANE)

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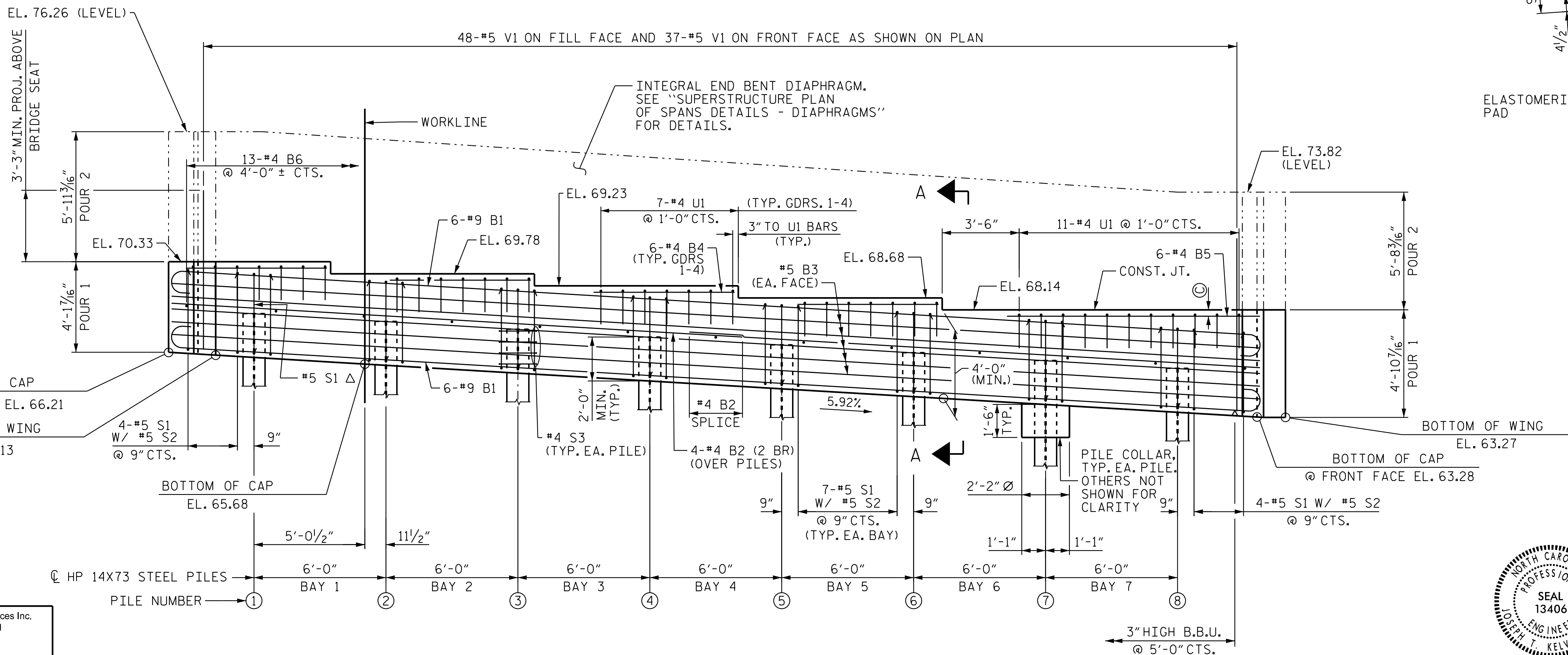
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PLAN

FOR WING WALL DETAILS, SEE "END BENT 1, DETAILS - WING WALLS" SHT. 2 OF 3



ELEVATION

NOTES

(2 BR) DENOTES 2 BAR RUN.

* RADIAL DIMENSION

Δ INVERT S1 STIRRUP OVER EA. PILE.

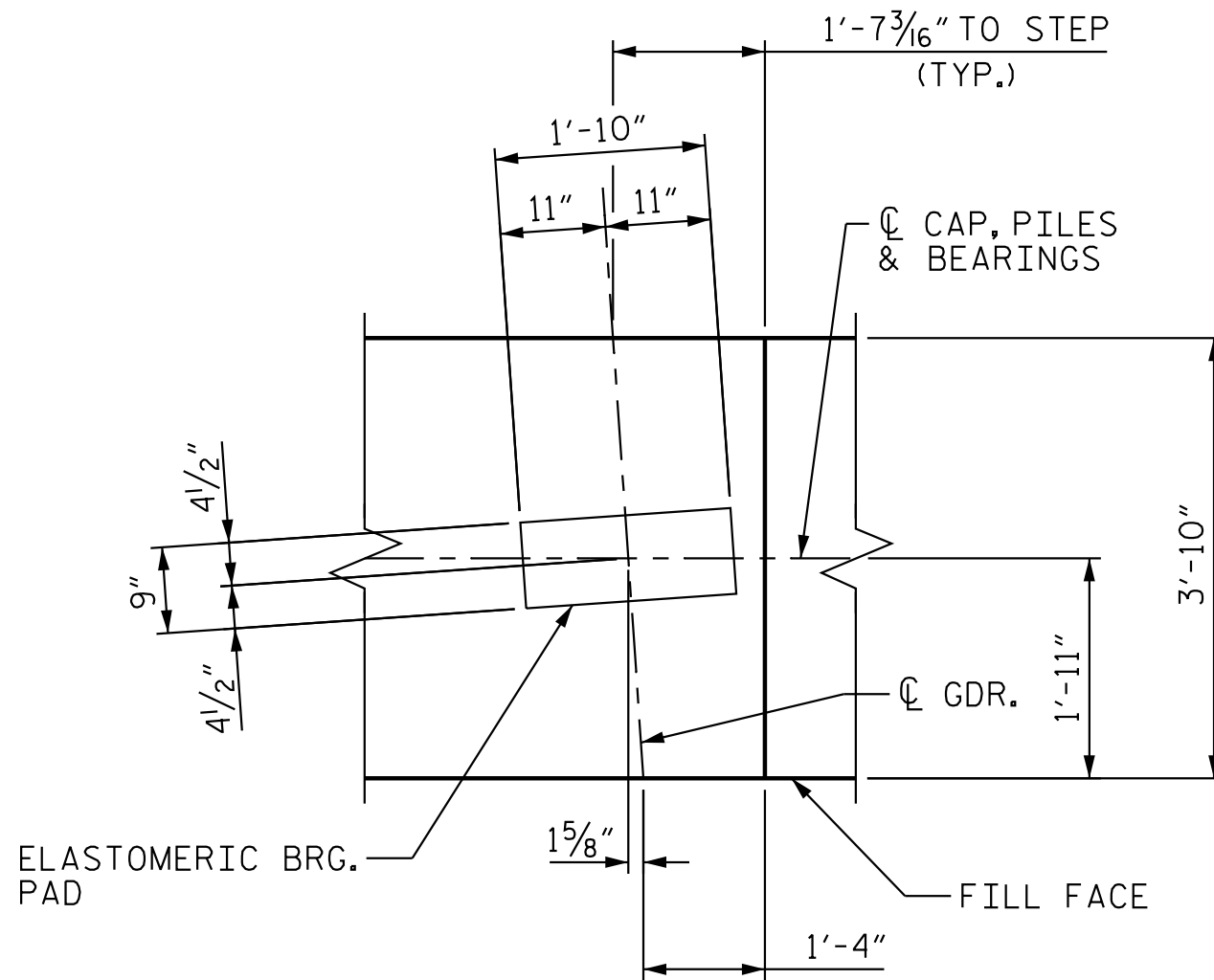
Ⓐ 2" CLR. TO ALL V1 BARS.

Ⓑ BOTTOM OF CAP ELEV. TAKEN @ THIS POINT.

Ⓒ 3" FROM TOP OF CAP TO Ⓒ #4 "B", TYP. FOR GIRDERS 1-5.

FOR SECTION A-A, SEE "END BENT 1 DETAILS" SHT. 3 OF 3.

INSTALL THE 6" DIA. DRAIN PIPE THROUGH THE WING WALL AS REQUIRED FOR REINFORCED BRIDGE APPROACH FILLS, SEE ROADWAY PLANS FOR ADDITIONAL DETAILS. REINFORCING STEEL IN THE WING WALL MAY BE SHIFTED AS NECESSARY TO CLEAR THE DRAIN PIPE.



DETAIL A

DIMENSIONS TYPICAL FOR EACH BEARING

PROJECT NO. R-3300A
NEW HANOVER COUNTY
STATION: 232+80.54 -L1-

SHEET 1 OF 3

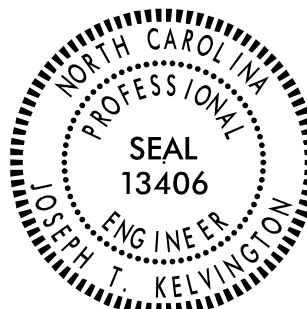
STATE OF NORTH CAROLINA
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RALEIGH
SUBSTRUCTURE

END BENT 1

(RIGHT LANE)

REVISIONS

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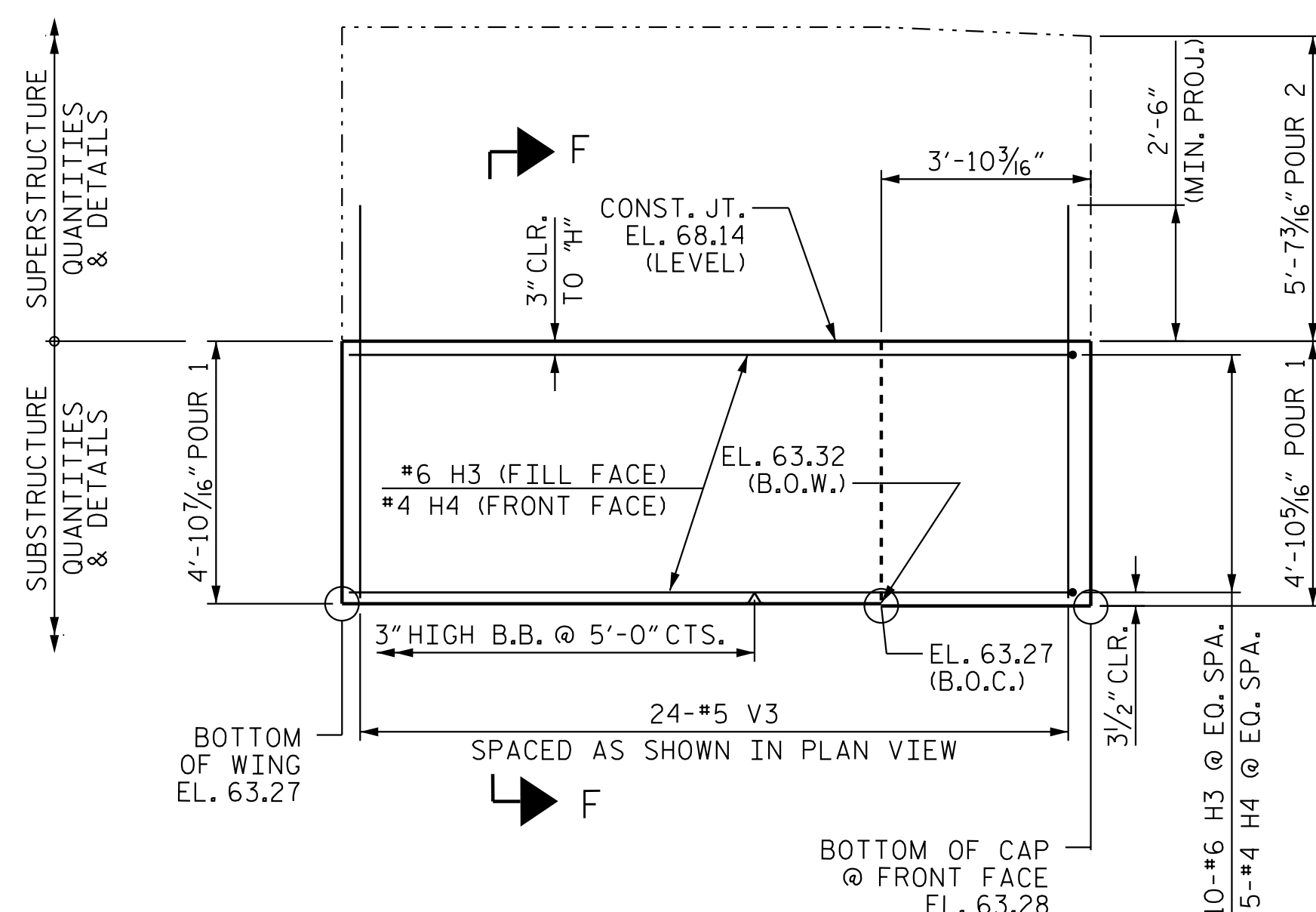
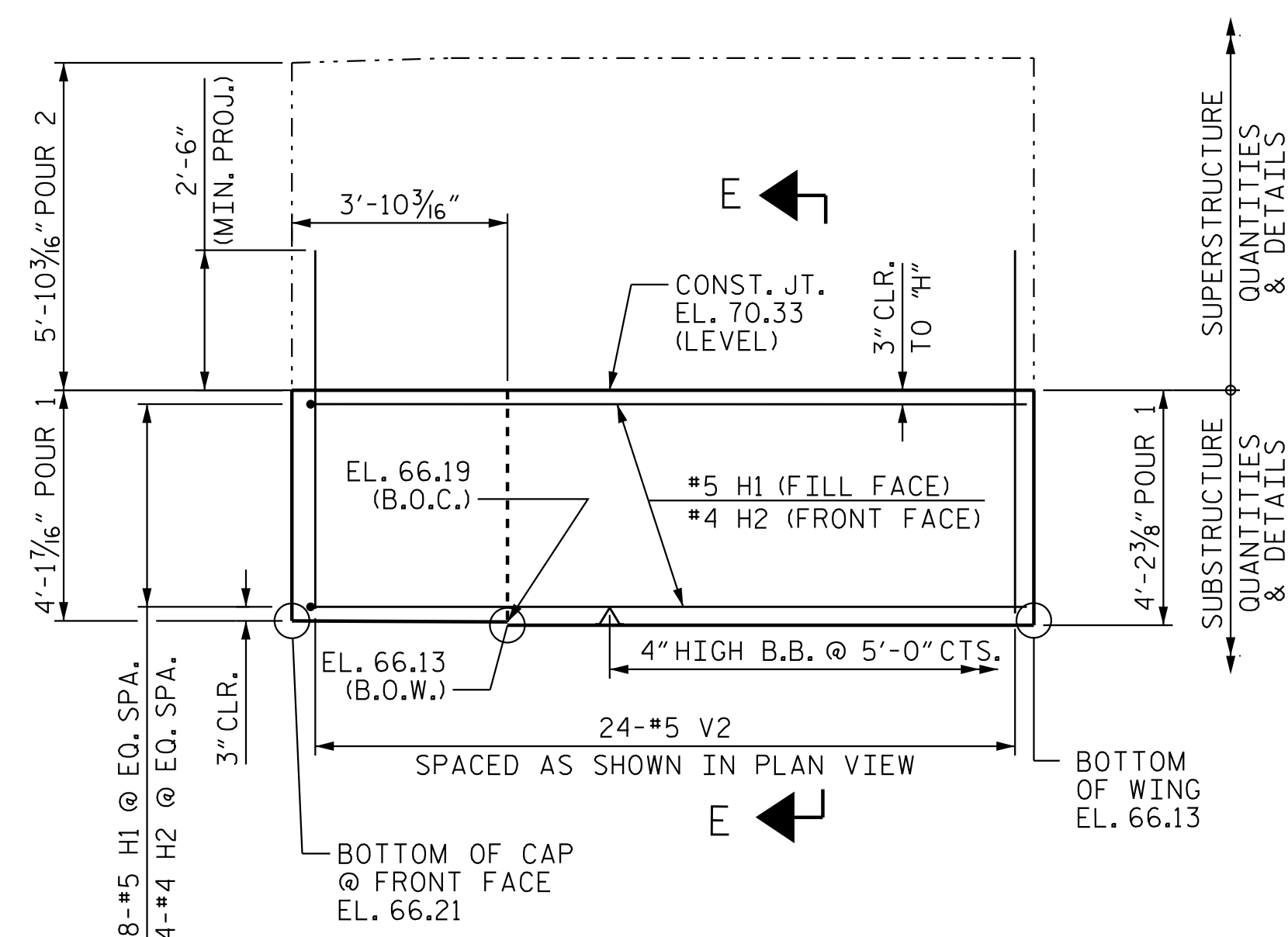
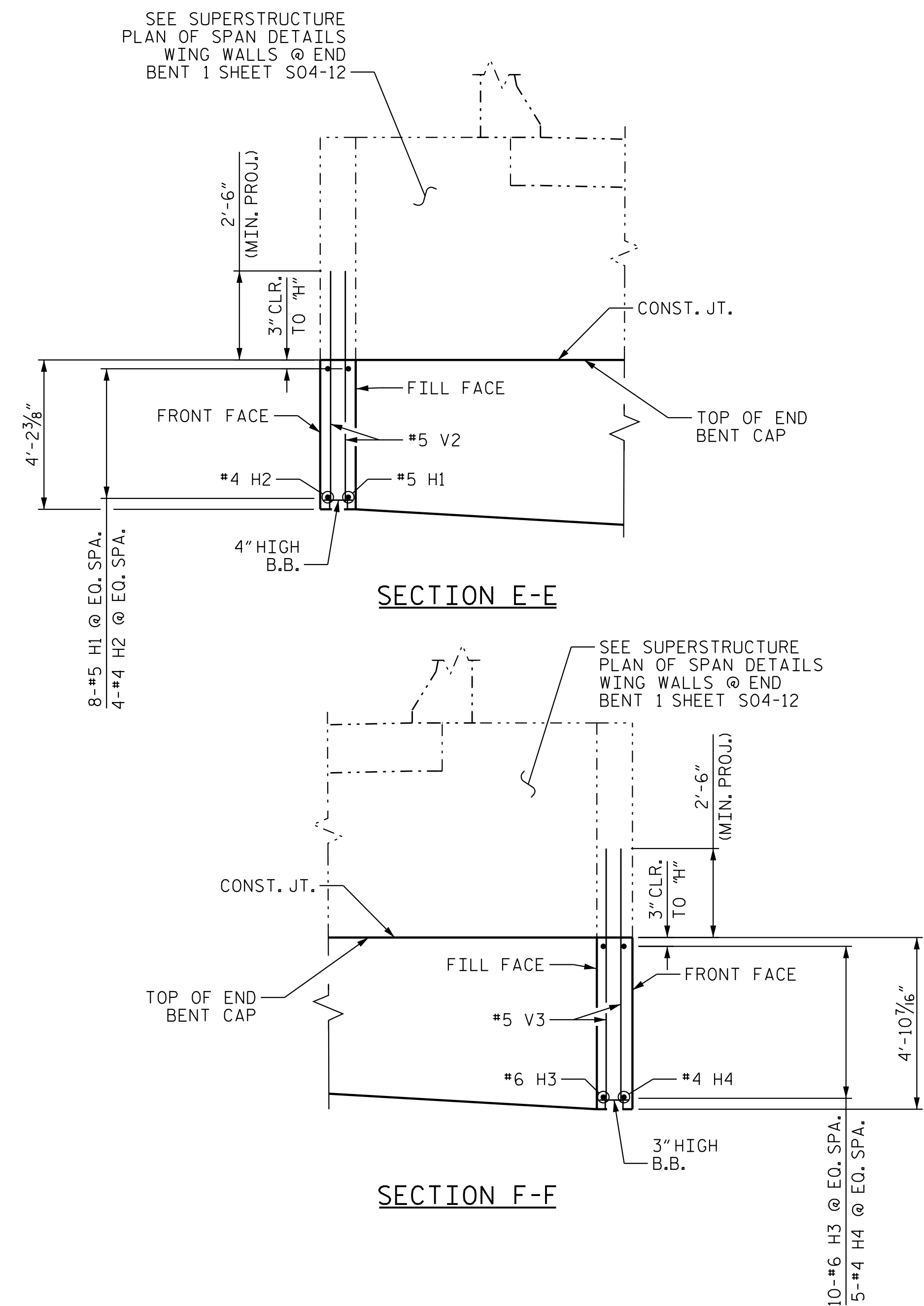
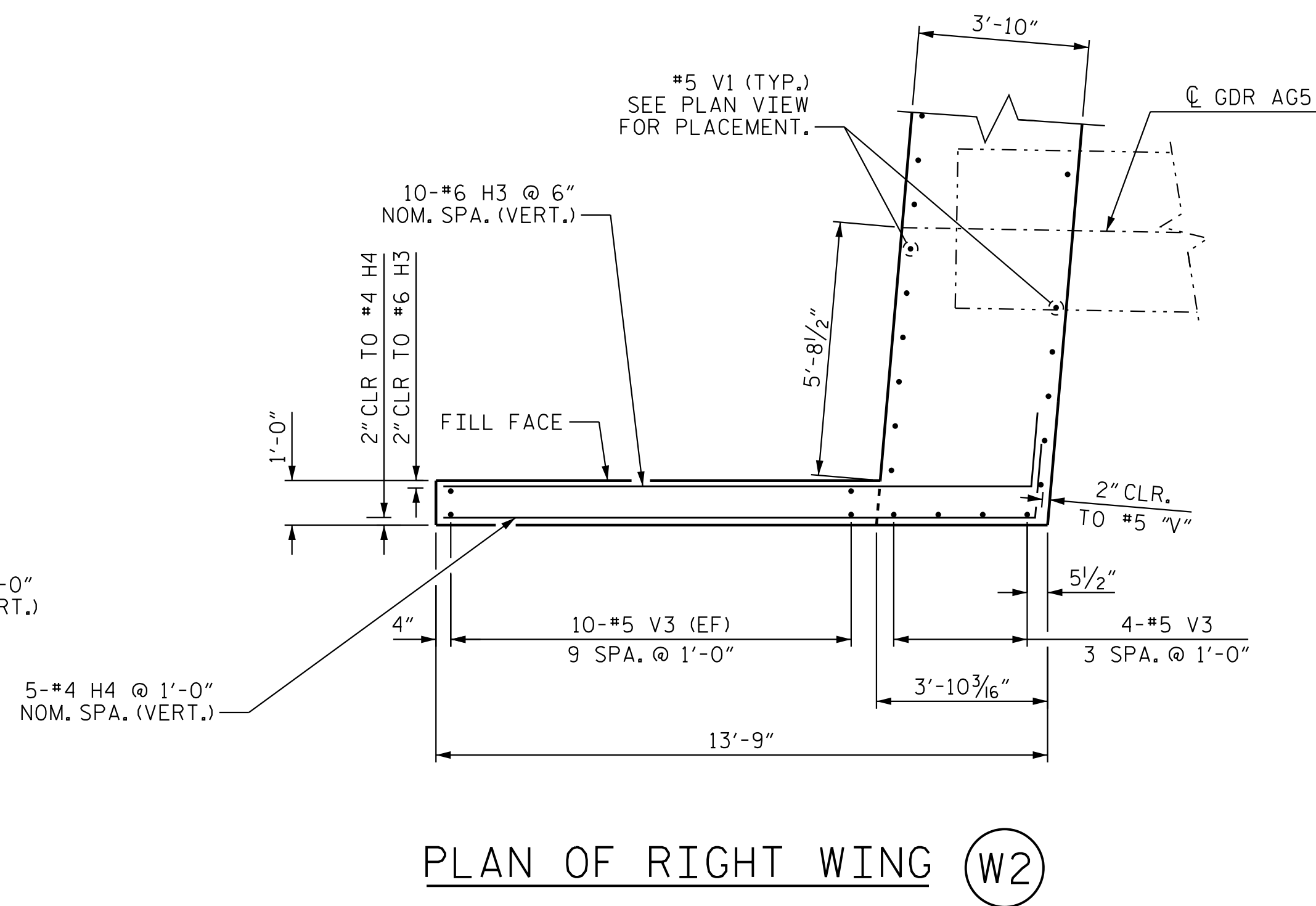
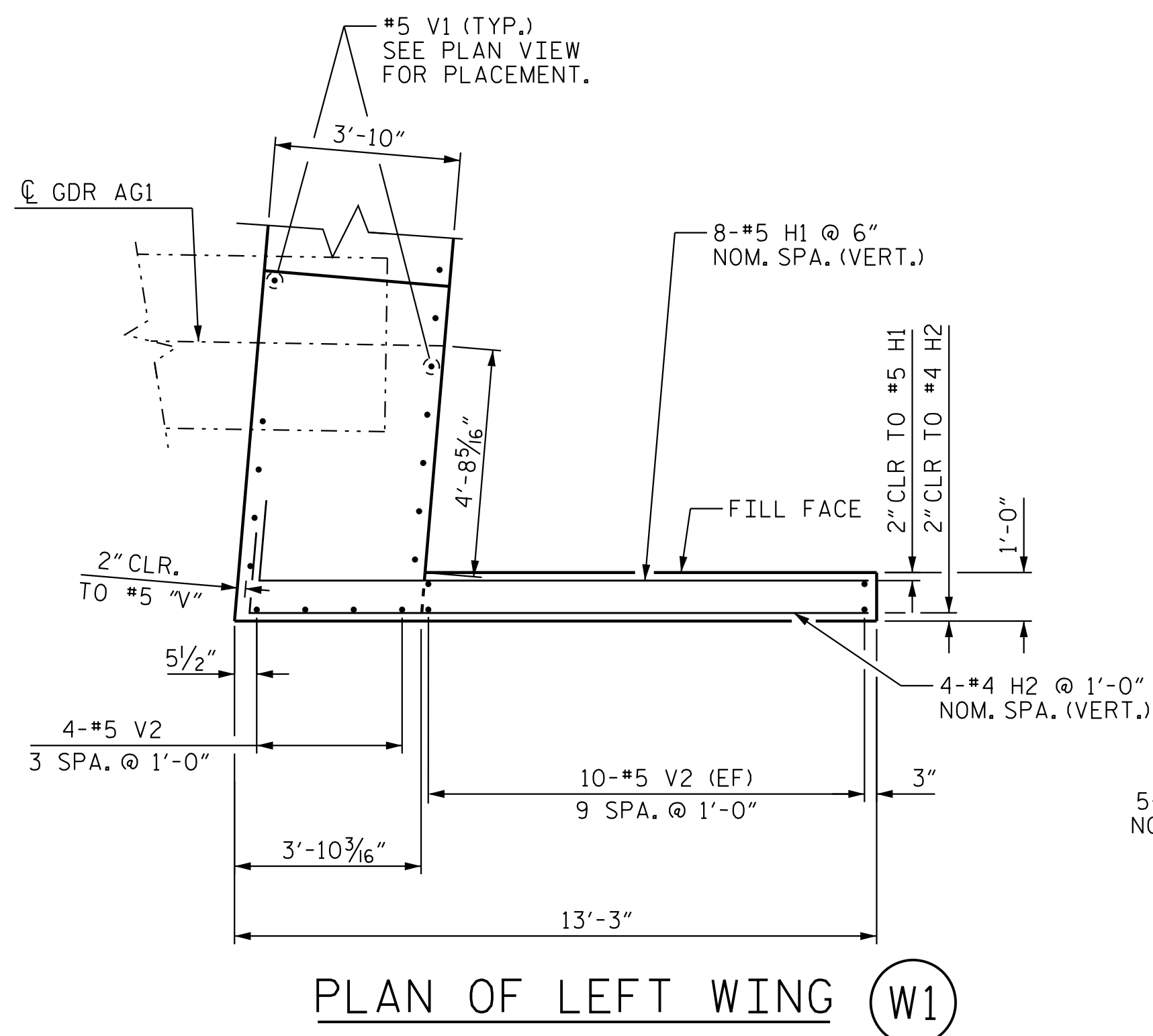
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SPLICE LENGTH

#4 B2	2'-5"
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ELEVATION OF LEFT WING (W1)

ELEVATION OF RIGHT WING (W2)

WING DETAILS

(EF) DENOTES EACH FACE OF WING
(B.O.C.) DENOTES BOTTOM OF CAP ELEVATION
(B.O.W.) DENOTES BOTTOM OF WING ELEVATION

NOTE:
THIS SHEET PROVIDES DETAILS
RELEVANT FOR SUBSTRUCTURE,
FOR SUPERSTRUCTURE QTY'S & DETAILS.
REFER TO SHEETS S04-12 & S04-13.



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801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
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 STATION: 232+80.54 -L1-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE

END BENT 1 DETAILS
WING WALLS

(RIGHT LANE)

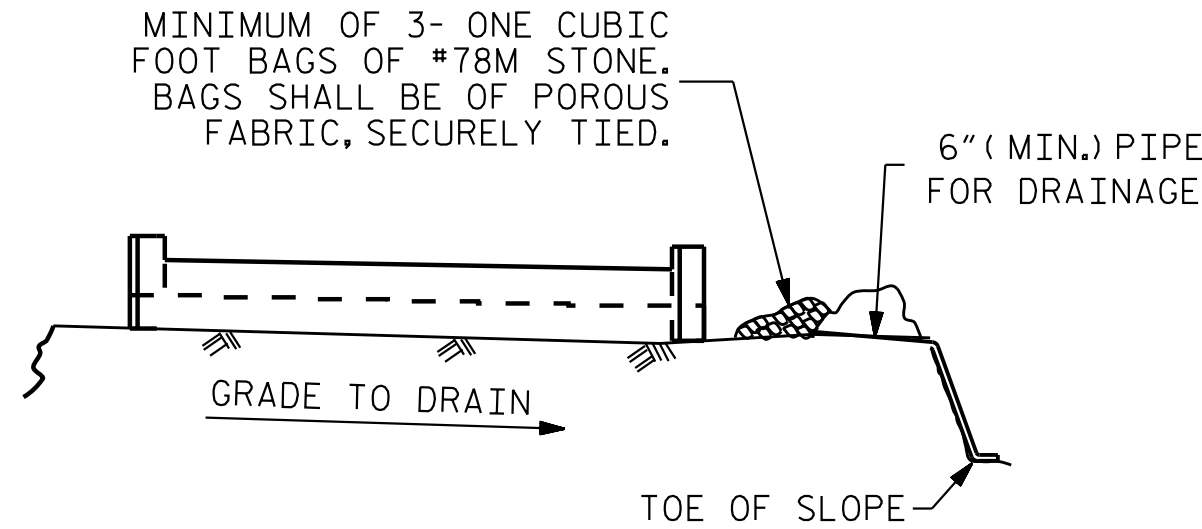
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S04-25

TOTAL
SHEETS
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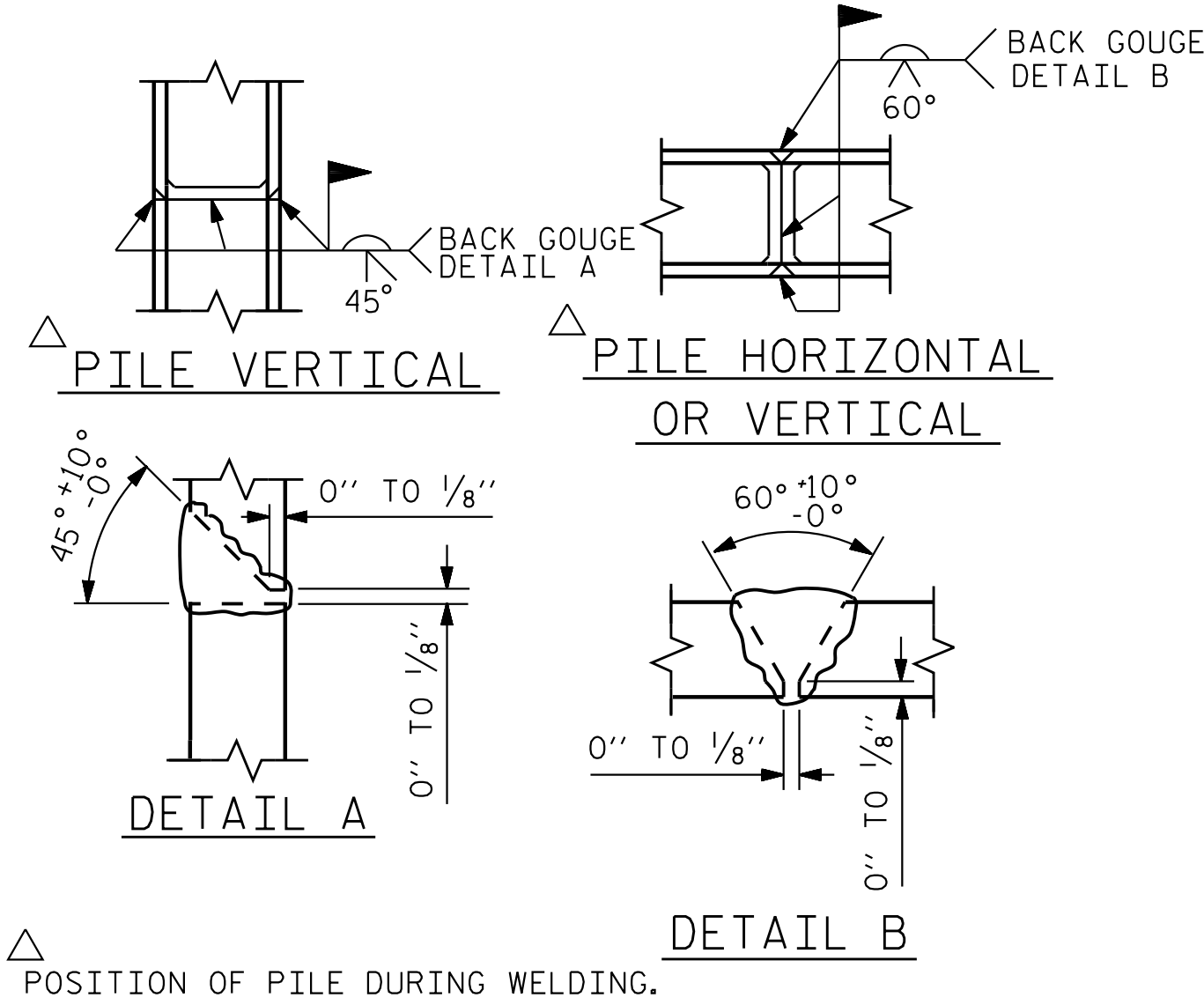


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

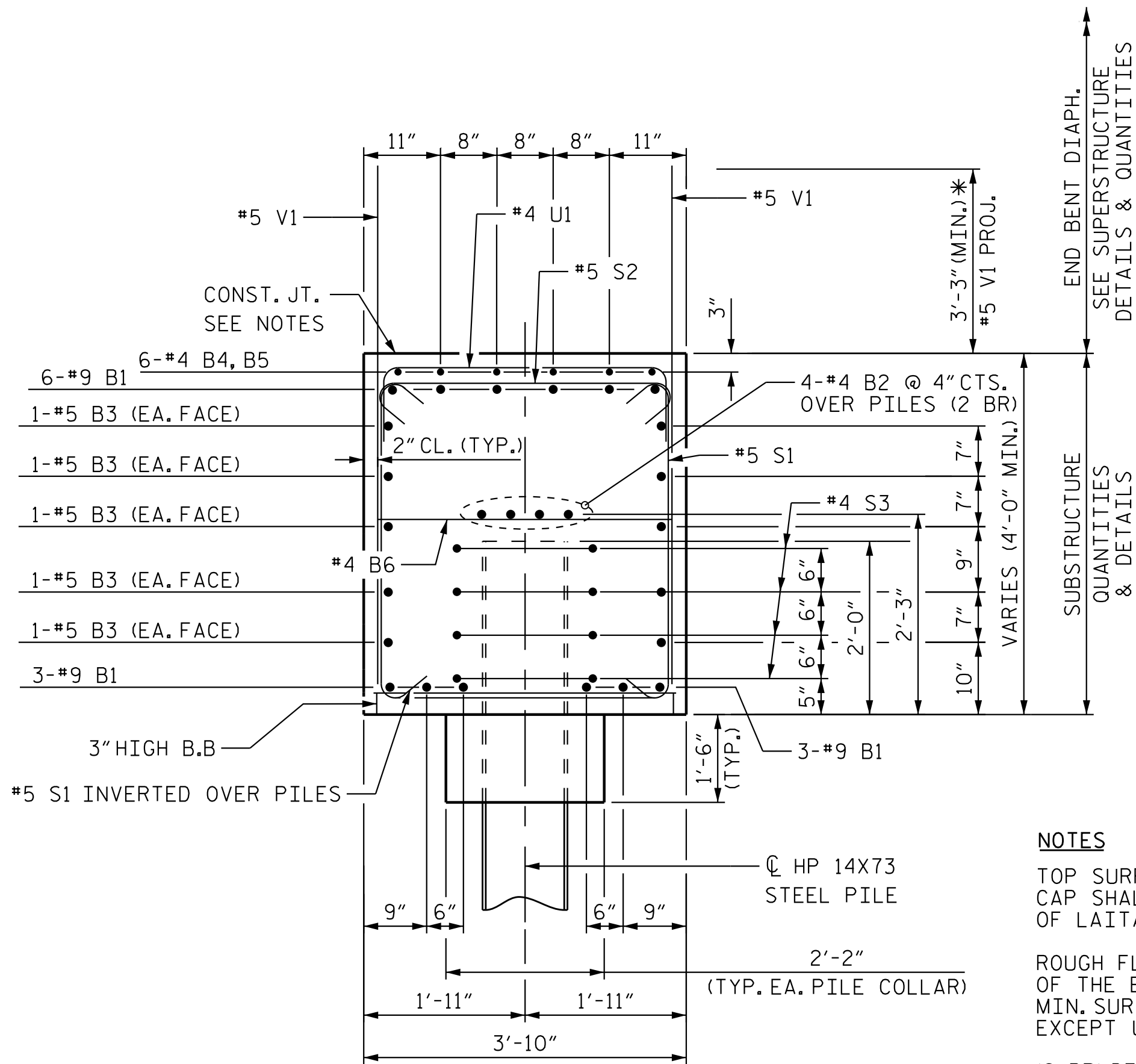
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR EFFECTIVENESS.

NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT



PILE SPLICE DETAILS



SECTION A-A

SEE 'END BENT 1' SHEET 1 OF 3

NOTES

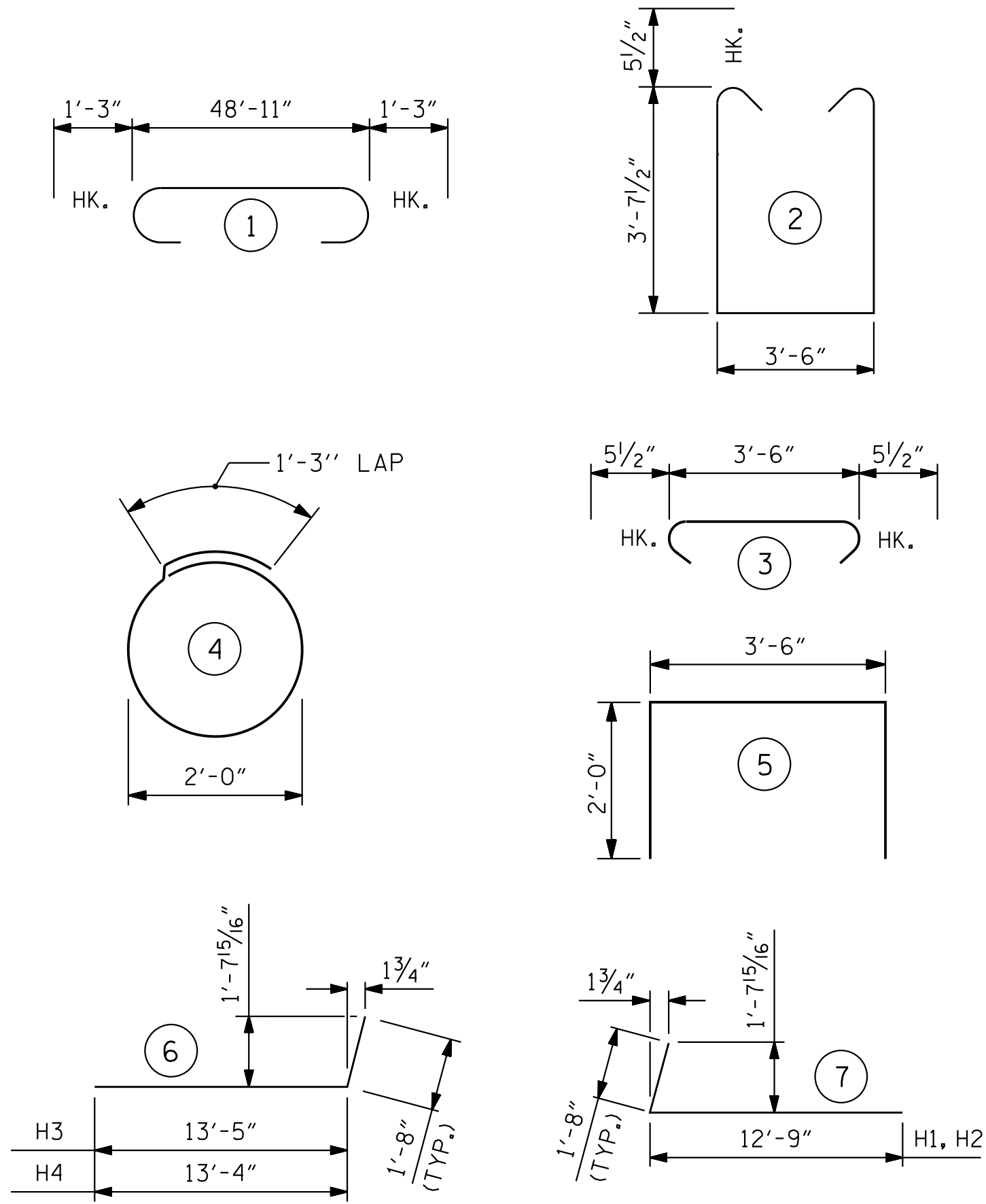
TOP SURFACE AREAS OF THE END BENT CAP SHALL BE KEPT CLEAN AND FREE OF LAITANCE.

ROUGH FLOAT AND ROUGHEN THE TOP OF THE END BENT CAP TO PROVIDE MIN. SURFACE AMPLITUDE OF 1/4", EXCEPT UNDER BEARING AREAS.

(2 BR) DENOTES 2 BAR RUN.

* 3'-7"± MAX. PROTECTION, SET V1 BAR 2" CLEAR (MIN.) FROM BOTTOM OF CAP.

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

END BENT 1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	12	#9	1	51'-5"	2098
B2	8	#4	STR.	25'-0"	134
B3	10	#5	STR.	48'-11"	510
B4	24	#4	STR.	6'-5"	103
B5	6	#4	STR.	11'-6"	46
B6	13	#4	STR.	3'-6"	30

H1	8	#5	7	14'-5"	120
H2	4	#4	7	14'-5"	39
H3	10	#6	6	15'-1"	227
H4	5	#4	6	15'-0"	50

S1	65	#5	2	11'-8"	791
S2	57	#5	3	4'-5"	263
S3	32	#4	4	7'-7"	162

U1	39	#4	5	7'-6"	195
----	----	----	---	-------	-----

V1	85	#5	STR.	7'-7"	672
V2	24	#5	STR.	6'-8"	167
V3	24	#5	STR.	7'-3"	181

REINFORCING STEEL					5,788
-------------------	--	--	--	--	-------

CLASS A CONCRETE BREAKDOWN:					
POUR #1: CAP, LOWER PART OF WINGS AND COLLARS					C.Y. 35.2

CLASS A CONCRETE TOTAL					C.Y. 35.2
------------------------	--	--	--	--	-----------

PROJECT NO. R-3300A
NEW HANOVER COUNTY
STATION: 232+80.54 -L1-

SHEET 3 OF 3



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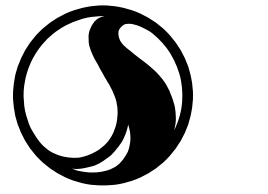
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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE

END BENT 1 DETAILS

(RIGHT LANE)

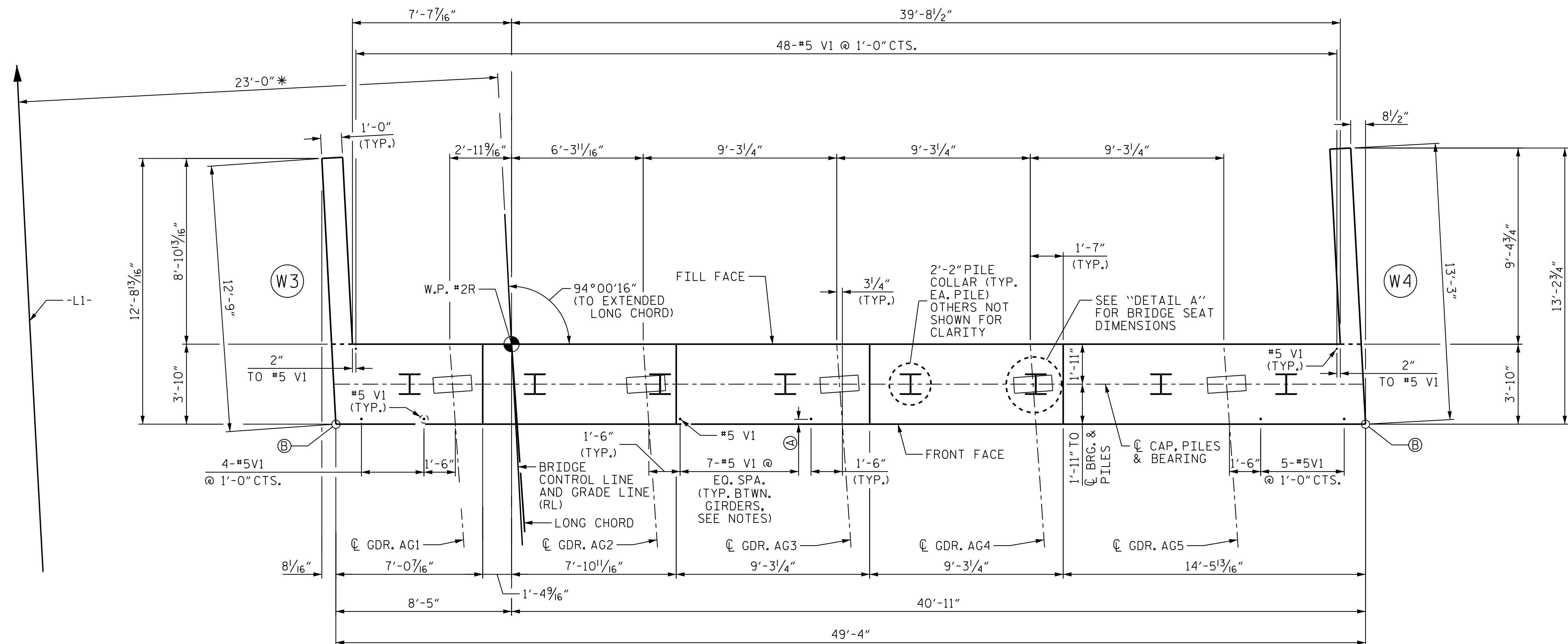
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DRAWN BY : J. GUERRERO DATE : 08/01/21
CHECKED BY : A.L. BOYKIN DATE : 09/04/24

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ENGINEER
OF RECORD: J.T. KELVINGTON DATE : 04/22/25

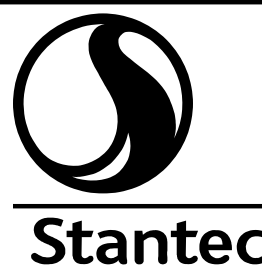


PLAN

FOR WING WALL DETAILS, SEE "END BENT 2,
DETAILS - WING WALLS" SHT. 2 OF 3

TOP OF PILE ELEVATIONS	
PILE	ELEVATION
P1	66.88
P2	66.52
P3	66.16
P4	65.81
P5	65.45
P6	65.10
P7	64.74
P8	64.38

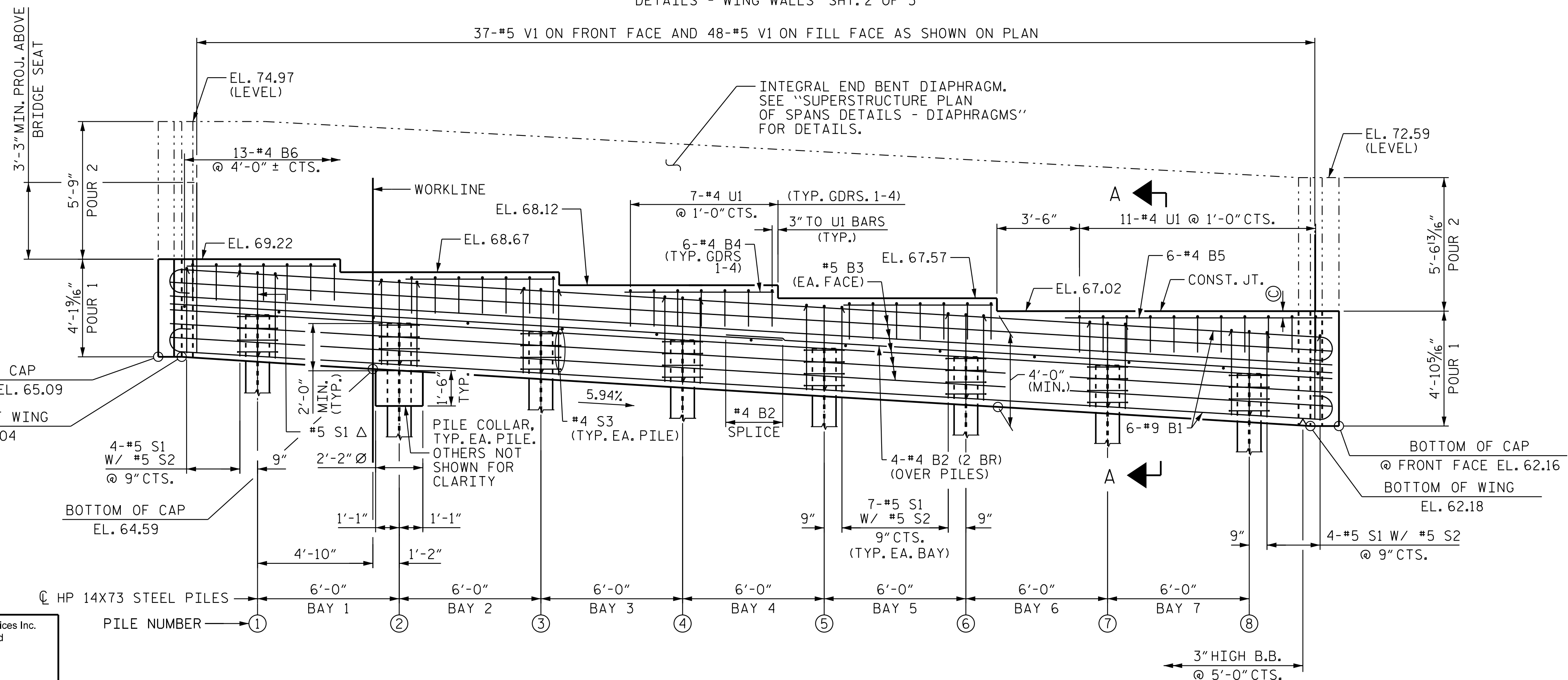
SPLICE LENGTH	
#4 B2	2'-5"



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ENGINEER
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ELEVATION

NOTES

(2 BR) DENOTES 2 BAR RUN.

* RADIAL DIMENSION

Δ INVERT S1 STIRRUP OVER EA. PILE.

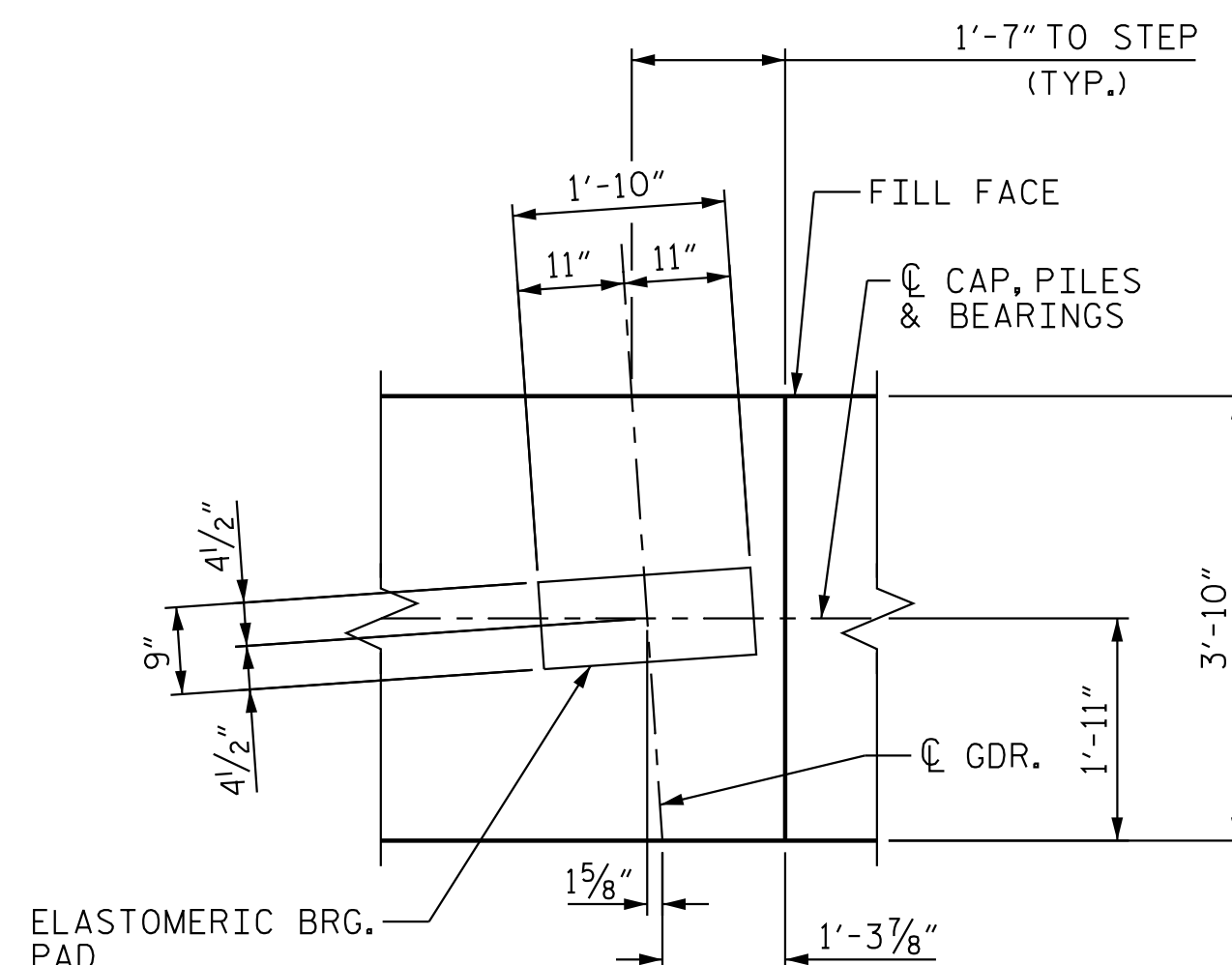
Ⓐ 2" CLR. TO ALL V1 BARS.

⑧ BOTTOM OF CAP ELE. TAKEN @ THIS POINT.

© 3" FROM TOP OF CAP TO C
#4 "B". TYP. FOR GIRDERS 1

FOR SECTION A-A, SEE "END BENT 2 DETAILS"
SHT. 3 OF 3.

INSTALL THE 6" DIA. DRAIN PIPE THROUGH THE WING WALL AS REQUIRED FOR REINFORCED BRIDGE APPROACH FILLS, SEE ROADWAY PLANS FOR ADDITIONAL DETAILS. REINFORCING STEEL IN THE WING WALL MAY BE SHIFTED AS NECESSARY TO CLEAR THE DRAIN PIPE.



DETAIL A

PROJECT NO. R-3300A
NEW HANOVER COUNTY
 STATION: 232+80.54 -L1-

SHEET 1 OF 3



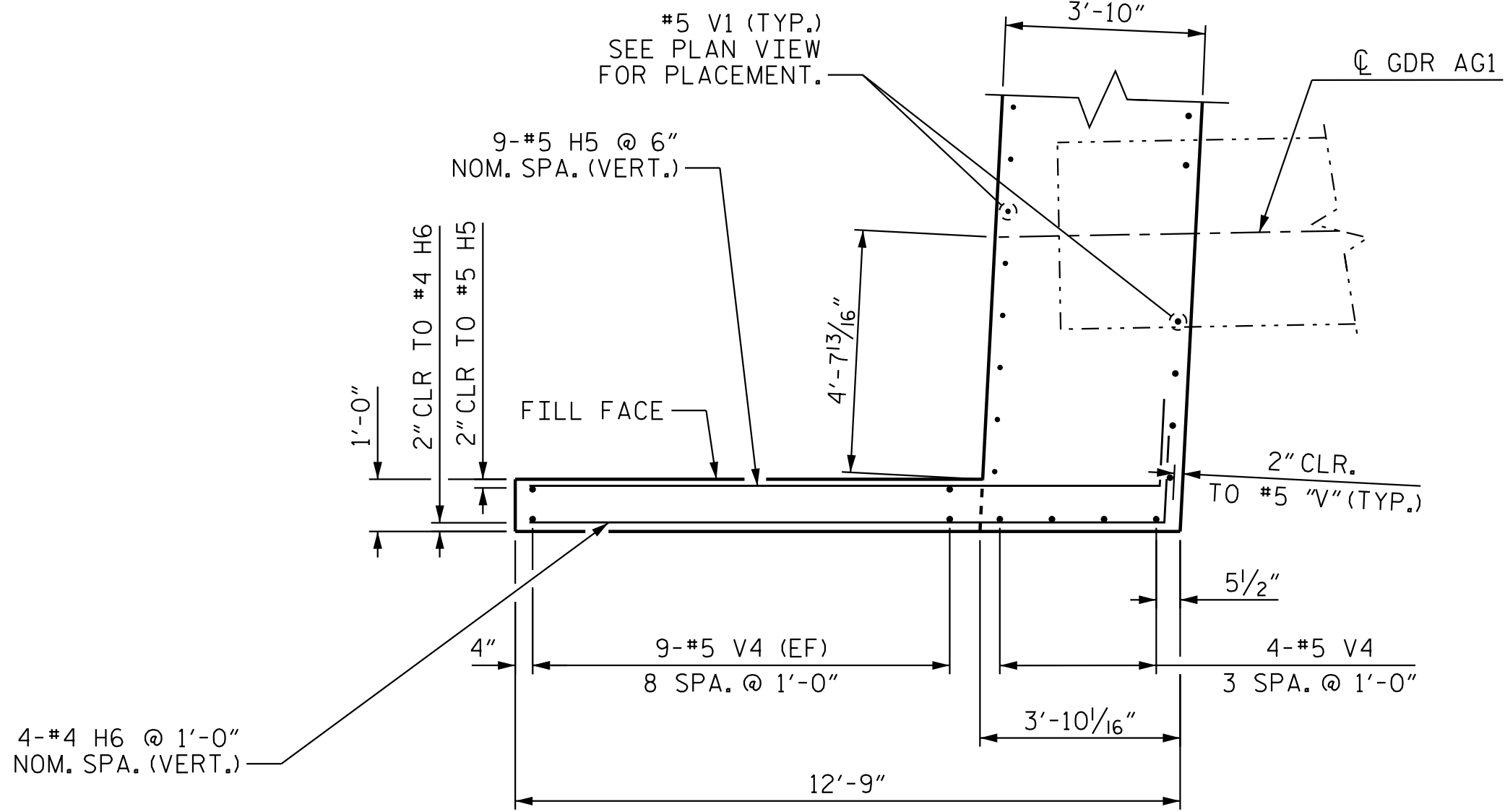
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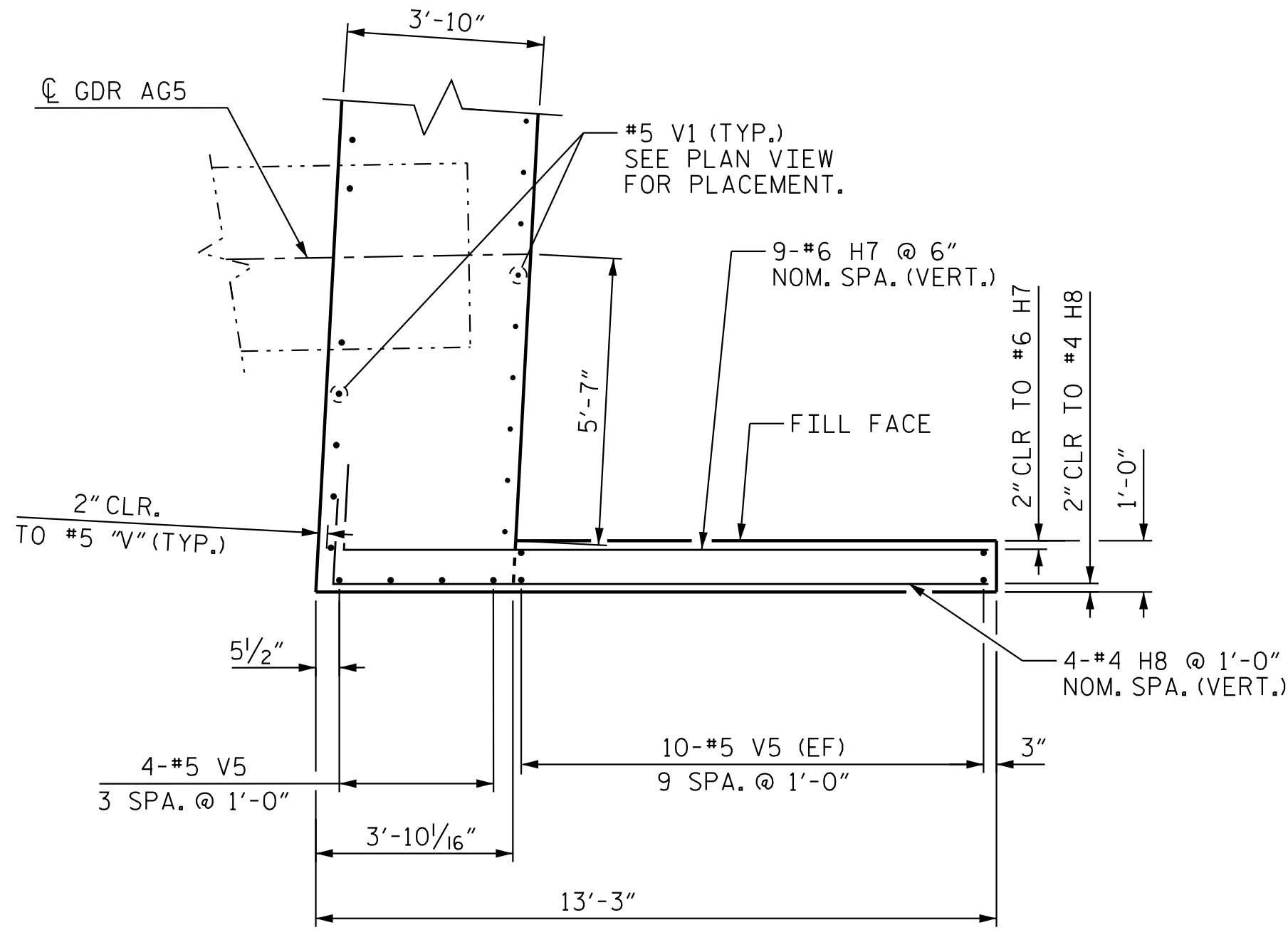
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE

END BENT 2

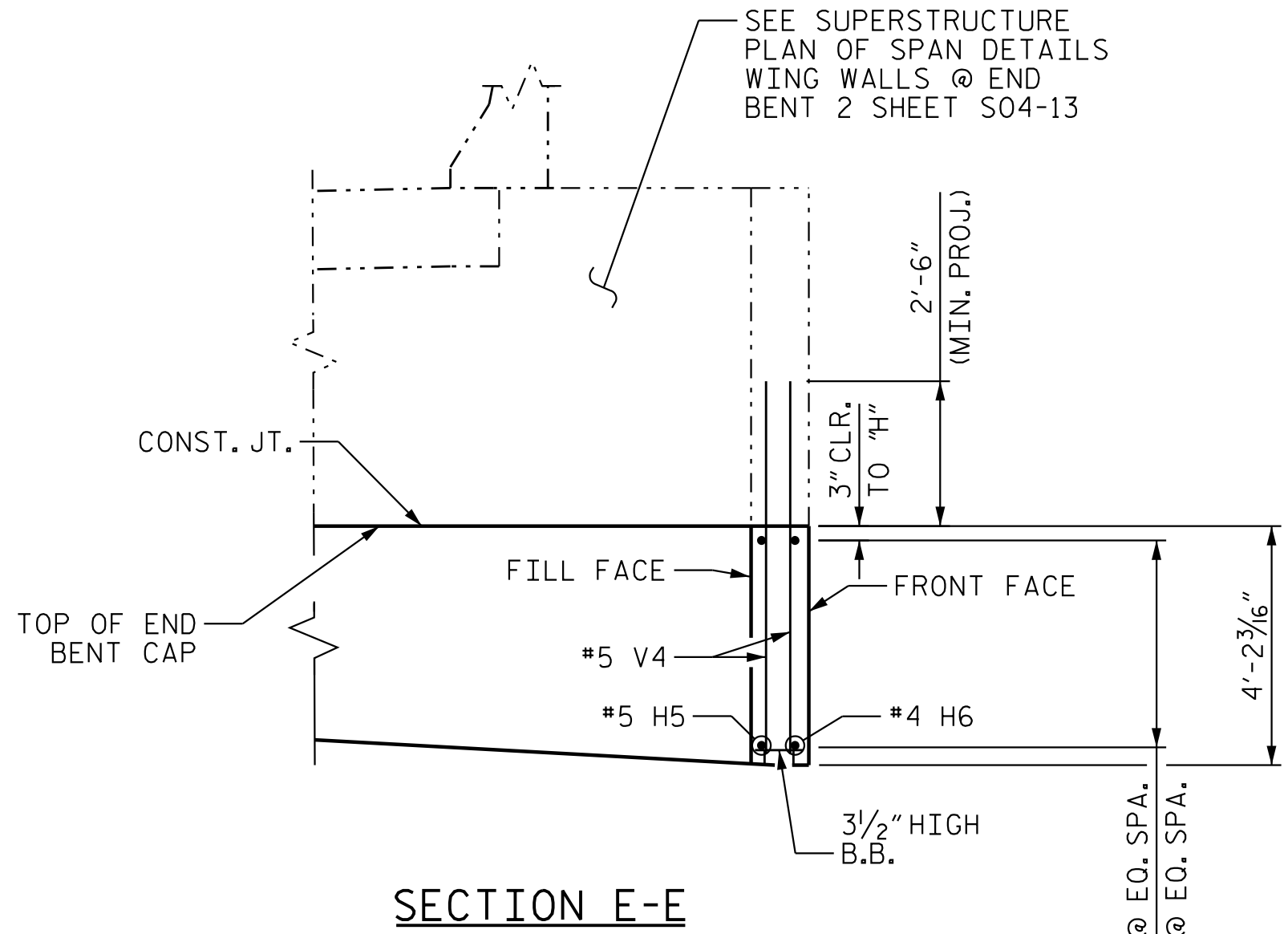
(RIGHT LANE)



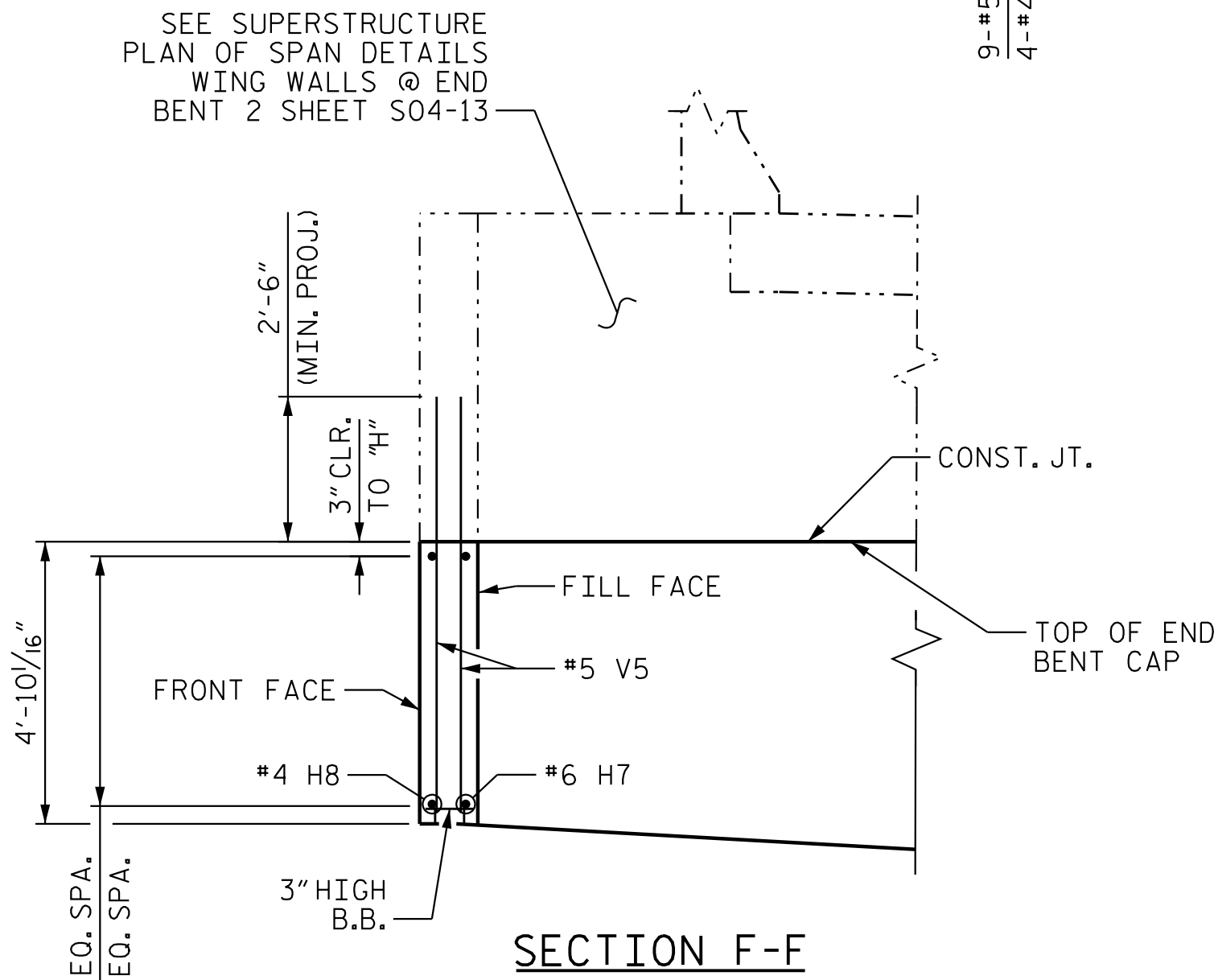
PLAN OF LEFT WING (W3)



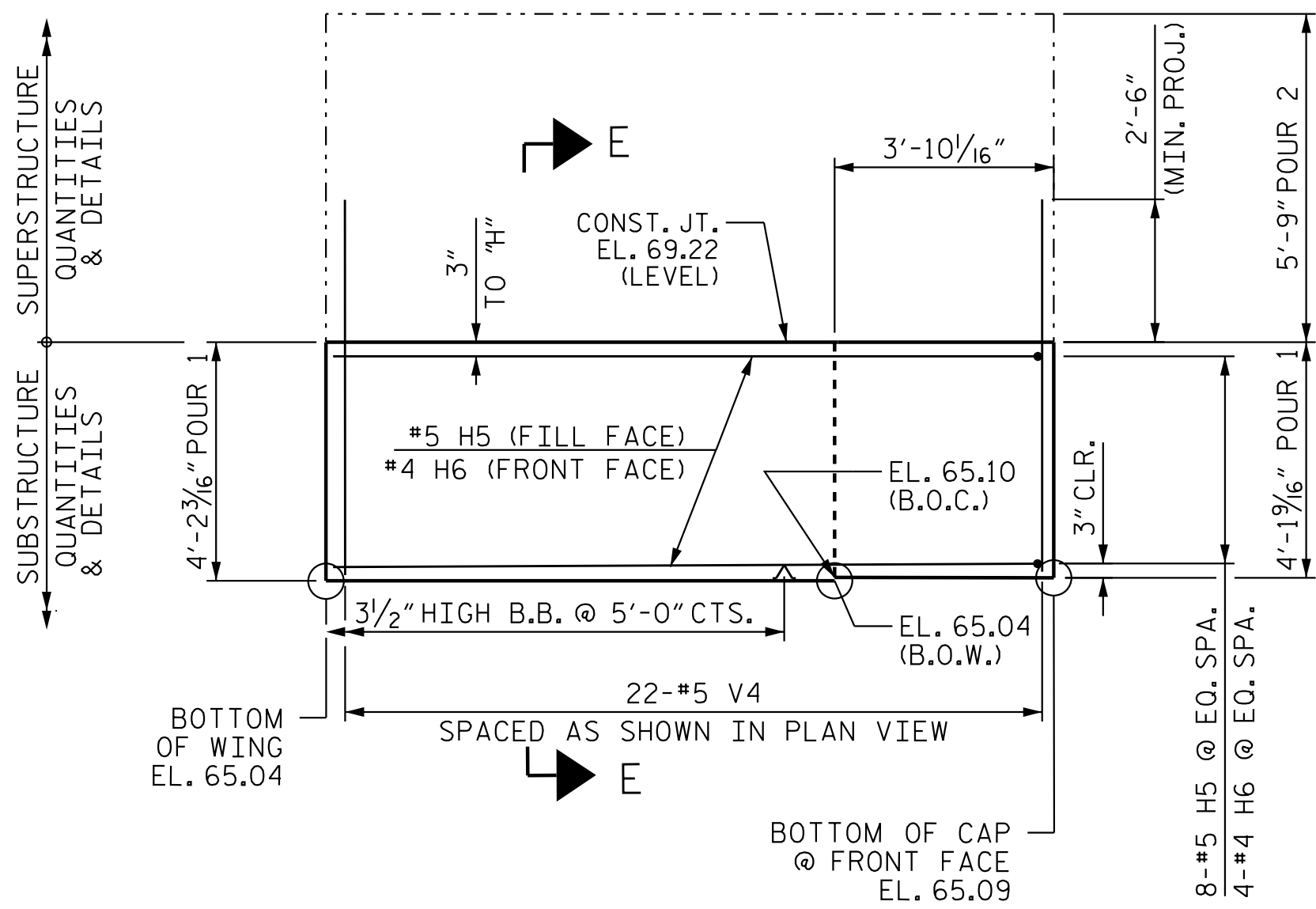
PLAN OF RIGHT WING (W4)



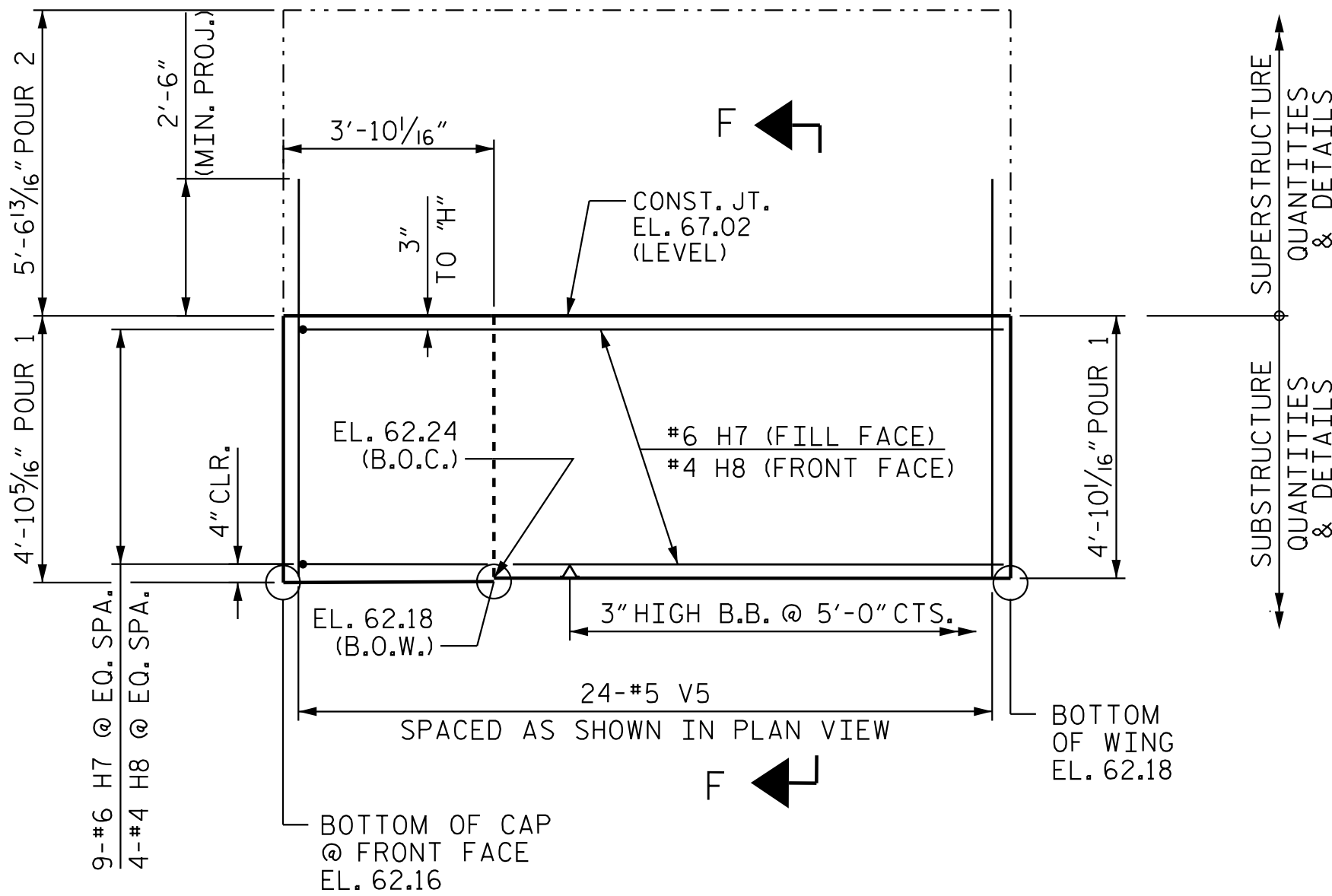
SECTION E-E



SECTION F-F



ELEVATION OF LEFT WING (W3)



ELEVATION OF RIGHT WING (W4)

WING DETAILS

(EF) DENOTES EACH FACE OF WING
(B.O.C.) DENOTES BOTTOM OF CAP ELEVATION
(B.O.W.) DENOTES BOTTOM OF WING ELEVATION

NOTE:
THIS SHEET PROVIDES DETAILS
RELEVANT FOR SUBSTRUCTURE,
FOR SUPERSTRUCTURE QTY'S & DETAILS.
REFER TO SHEETS S04-12 & S04-13.



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PROJECT NO. R-3300A
NEW HANOVER COUNTY
STATION: 232+80.54 -L1-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE

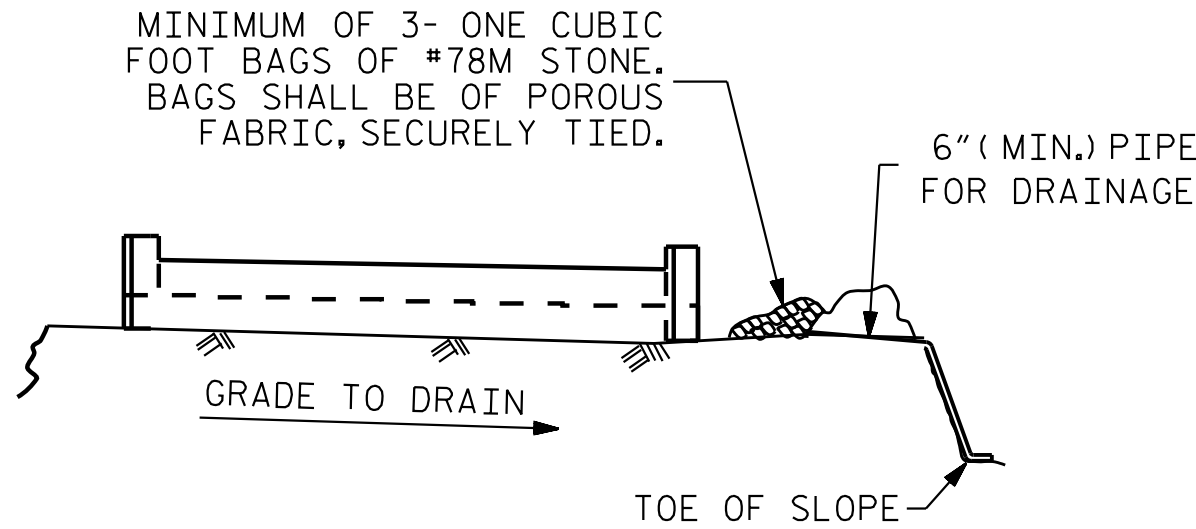
END BENT 2 DETAILS
WING WALLS

(RIGHT LANE)

REVISIONS						SHEET NO. S04-28
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 32
2			4			

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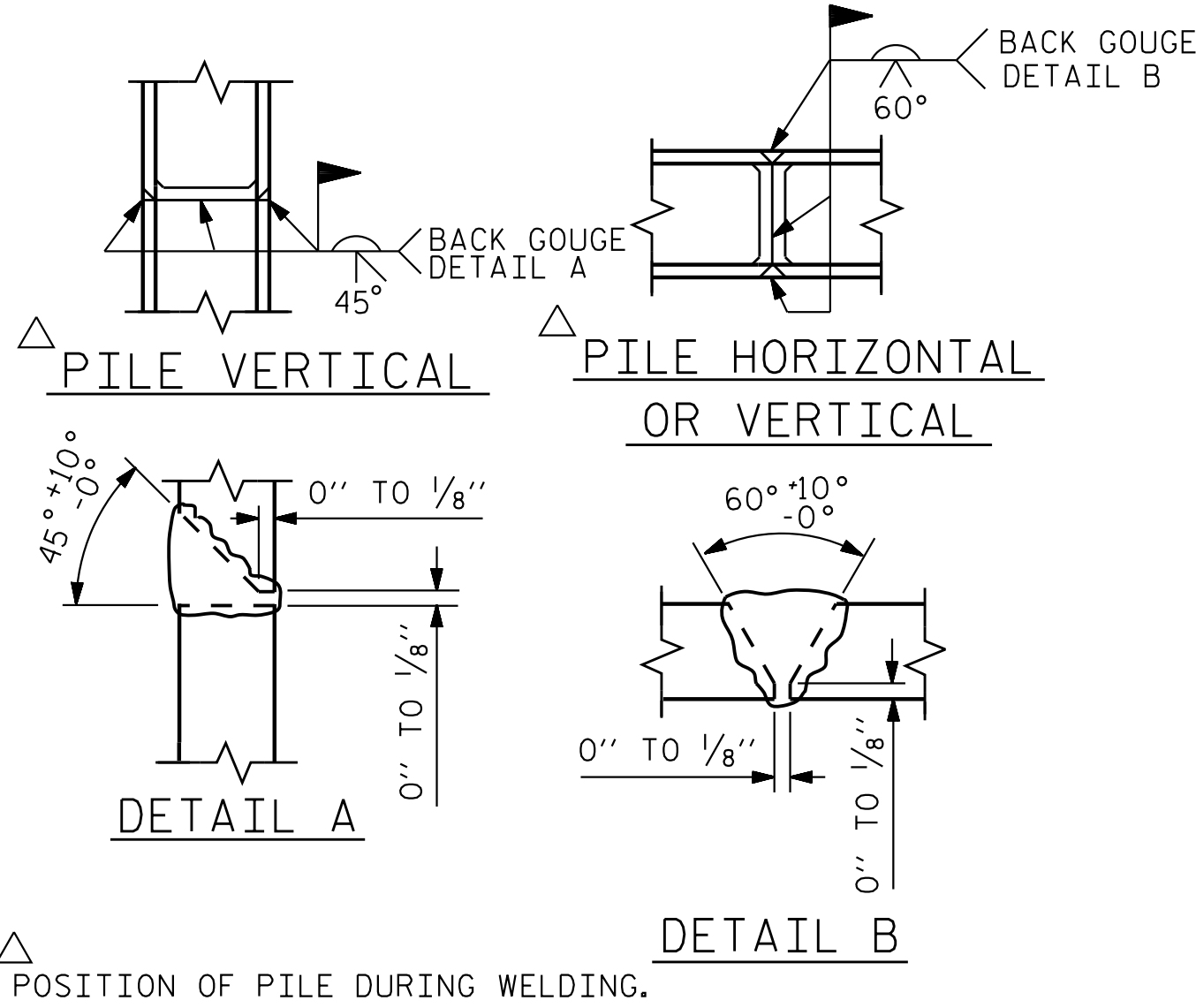


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

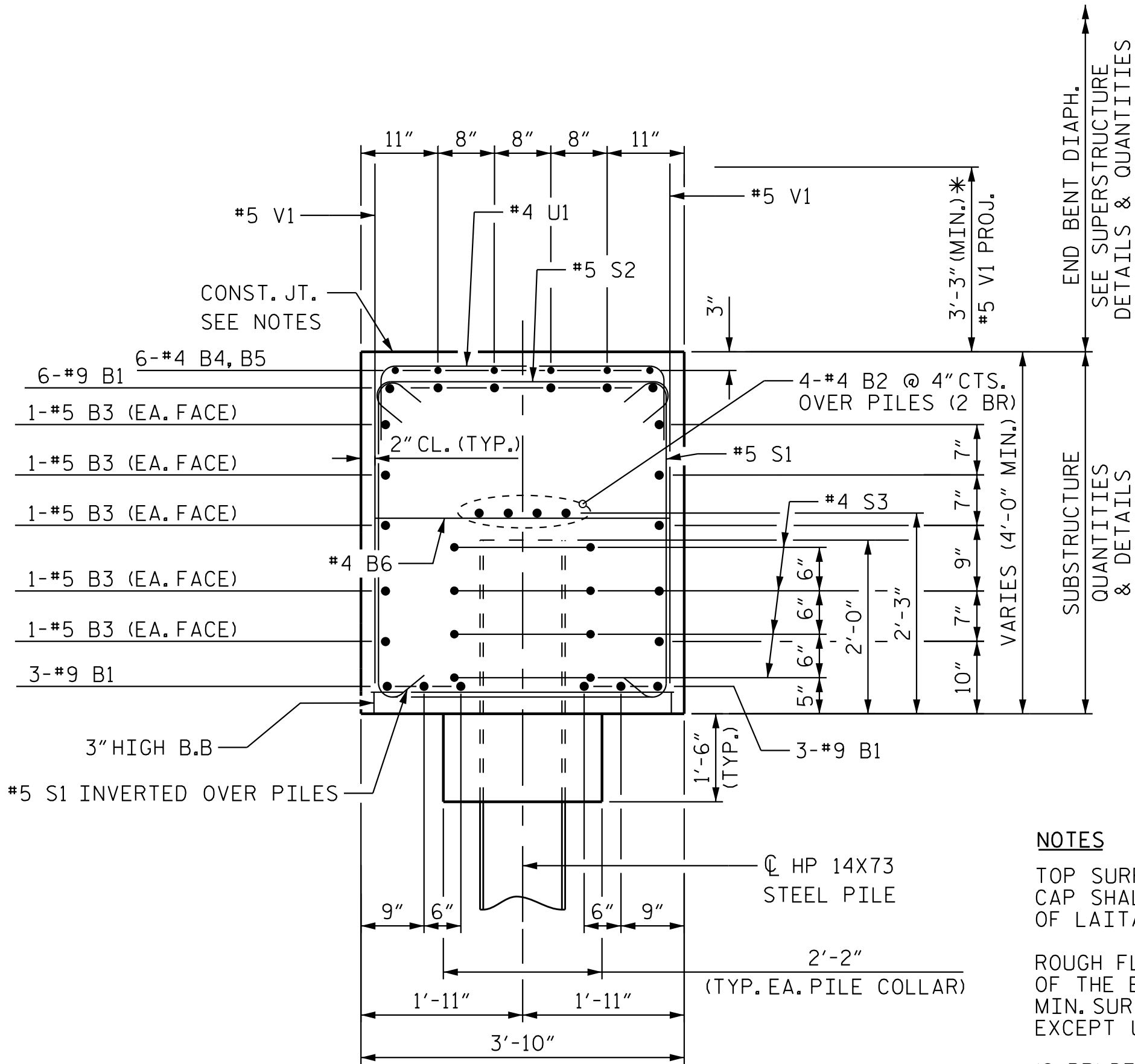
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR EFFECTIVENESS.

NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT



PILE SPLICE DETAILS



NOTES

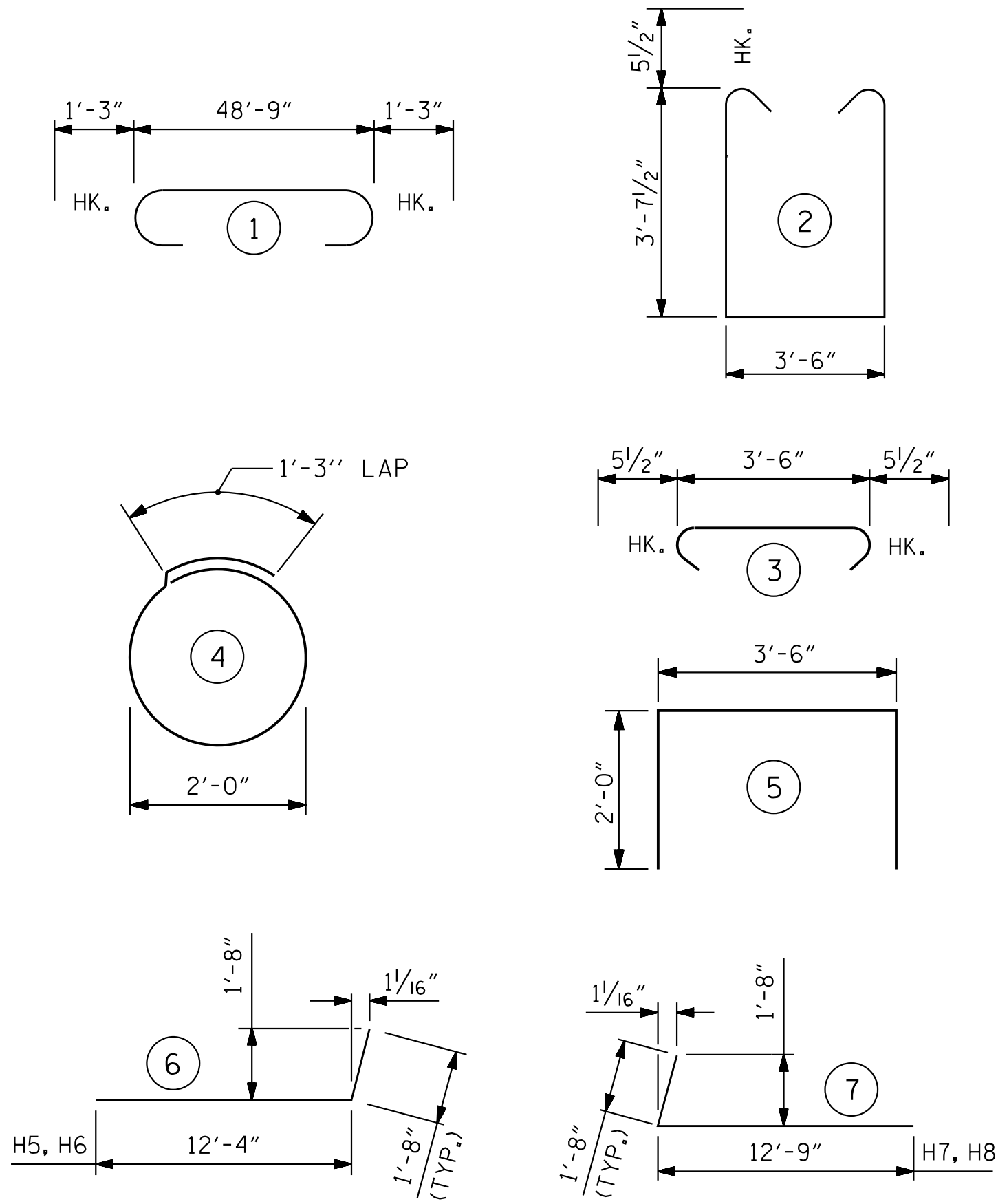
TOP SURFACE AREAS OF THE END BENT CAP SHALL BE KEPT CLEAN AND FREE OF LAITANCE.

ROUGH FLOAT AND ROUGHEN THE TOP OF THE END BENT CAP TO PROVIDE MIN. SURFACE AMPLITUDE OF 1/4", EXCEPT UNDER BEARING AREAS.

(2 BR) DENOTES 2 BAR RUN.

* 3'-7"± MAX. PROTECTION, SET V1 BAR 2" CLEAR (MIN.) FROM BOTTOM OF CAP.

BAR TYPES



BILL OF MATERIAL

END BENT 2

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	12	#9	1	51'-3"	2091
B2	8	#4	STR.	24'-11"	133
B3	10	#5	STR.	48'-9"	508
B4	24	#4	STR.	6'-4"	102
B5	6	#4	STR.	11'-4"	45
B6	13	#4	STR.	3'-6"	30
H5	9	#5	6	14'-0"	131
H6	4	#4	6	14'-0"	37
H7	9	#6	7	14'-5"	195
H8	4	#4	7	14'-5"	39
S1	65	#5	2	11'-8"	791
S2	57	#5	3	4'-5"	263
S3	32	#4	4	7'-7"	162
U1	39	#4	5	7'-6"	195
V1	85	#5	STR.	7'-7"	672
V4	22	#5	STR.	6'-8"	153
V5	24	#5	STR.	7'-3"	181

REINFORCING STEEL LBS. 5,728

CLASS A CONCRETE BREAKDOWN:
POUR #1: CAP, LOWER PART OF WINGS AND COLLARS C.Y. 34.9

CLASS A CONCRETE TOTAL C.Y. 34.9

PROJECT NO. R-3300A
NEW HANOVER COUNTY
STATION: 232+80.54 -L1-

SHEET 3 OF 3



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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE

END BENT 2 DETAILS

(RIGHT LANE)

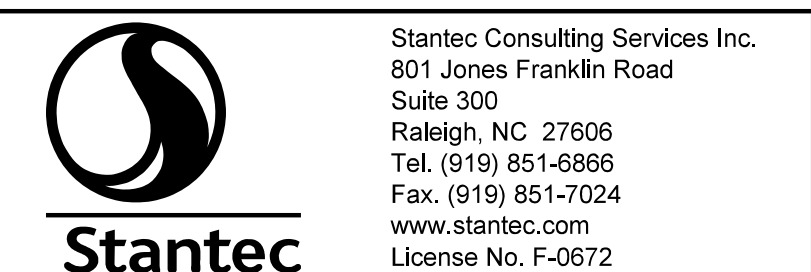
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			S04- 29		
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DRAWN BY : J. GUERRERO DATE : 08/01/21
CHECKED BY : A.L. BOYKIN DATE : 09/04/24

DESIGN ENGINEER OF RECORD: J.T. KELVINGTON DATE : 04/22/25



DESIGN
ENGINEER
OF RECORD: J.T. KELVINGTON DATE : 04/22/25

1/2"/FT. SLOPE NORMAL TO CAP

KEEP FREE OF CONCRETE AND SEAL WITH JOINT SEALER OR GRAY LOW MODULUS SILICONE SEALANT

1/2"

SLOPE 1 1/2:1 NORMAL TO CAP

4"

2"

WELDED WIRE FABRIC 6 X 6 - W1.4 X W1.4

P. JT. MAT'L. (CONCRETE DEBONDING AGENT ON TOP OF EXP. MAT'L.)

TOE OF SLOPE PROTECTION

3'-0" MAX.

PERMITTED CONST. JT.

2'-6"

12"

EXTEND WELDED WIRE FABRIC BEYOND TOE WALL

SEE ROADWAY PLANS FOR DRAINAGE DITCH DETAILS

SECTION B-B

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DEPARTMENT OF TRANSPORTATION
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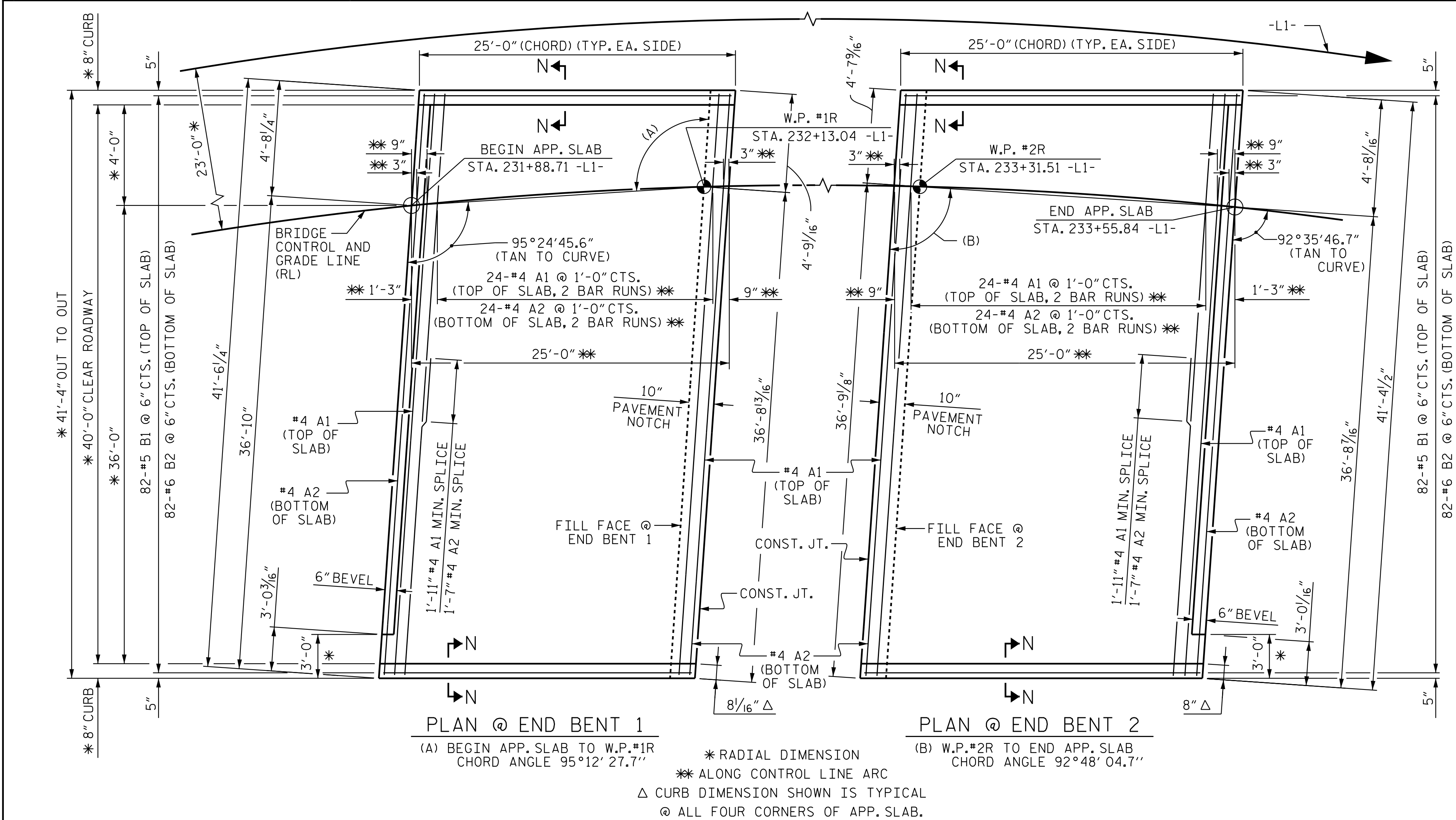
SLOPE PROTECTION DETAILS

(RIGHT LANE)

REVISIONS						SHEET NO. S04-30
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1			3			
2			4			

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NOTES

FOR BRIDGE APPROACH FILL DETAILS AND NOTES, SEE SHEET 2 OF 2.

FOR SECTION THROUGH THE APPROACH SLAB, SEE 'BRIDGE APPROACH SLAB DETAILS', SHT. 2 OF 2.

BILL OF MATERIAL

FOR ONE APPROACH SLAB (2 REQ'D)

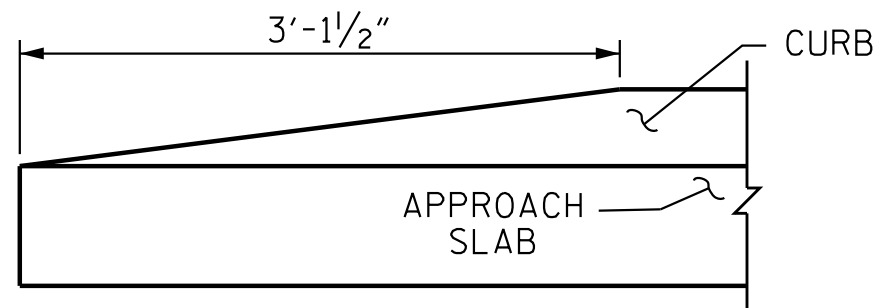
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	52	#4	STR	21'-8"	753
A2	52	#4	STR	21'-6"	747
* B1	82	#5	STR	24'-2"	2067
B2	82	#6	STR	24'-8"	3038

REINFORCING STEEL	LBS.	3,785
* EPOXY COATED REINFORCING STEEL	LBS.	2,820

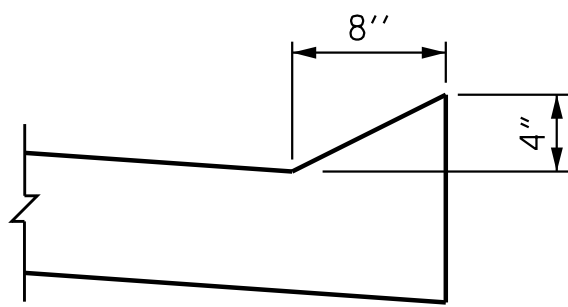
CLASS AA CONCRETE	C. Y.	44.7
-------------------	-------	------

SPLICE LENGTHS

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



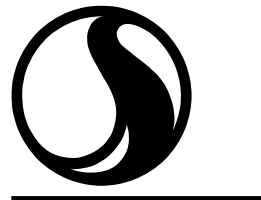
END OF CURB WITHOUT
SHOULDER BERM GUTTER



SECTION N-N

PROJECT NO. R-3300A
NEW HANOVER COUNTY
STATION: 232+80.54 -L1-

SHEET 1 OF 2



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ASSEMBLED BY : J. GUERRERO DATE : 08/01/21
CHECKED BY : A.L. BOYKIN DATE : 09/04/24

DRAWN BY : FCJ 11/88
CHECKED BY : ARB 11/88

REV. 6/13
REV. 12/17
REV. 5/18

MAA/GM
MAA/THC
MAA/THC

DESIGN
ENGINEER
OF RECORD:

J.T. KELVINGTON DATE : 04/22/25



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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
BRIDGE APPROACH SLAB
FOR INTEGRAL ABUTMENT
WITH FLEXIBLE PAVEMENT
(RIGHT LANE)

REVISIONS						SHEET NO. S04-31
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STD. NO. BAS5

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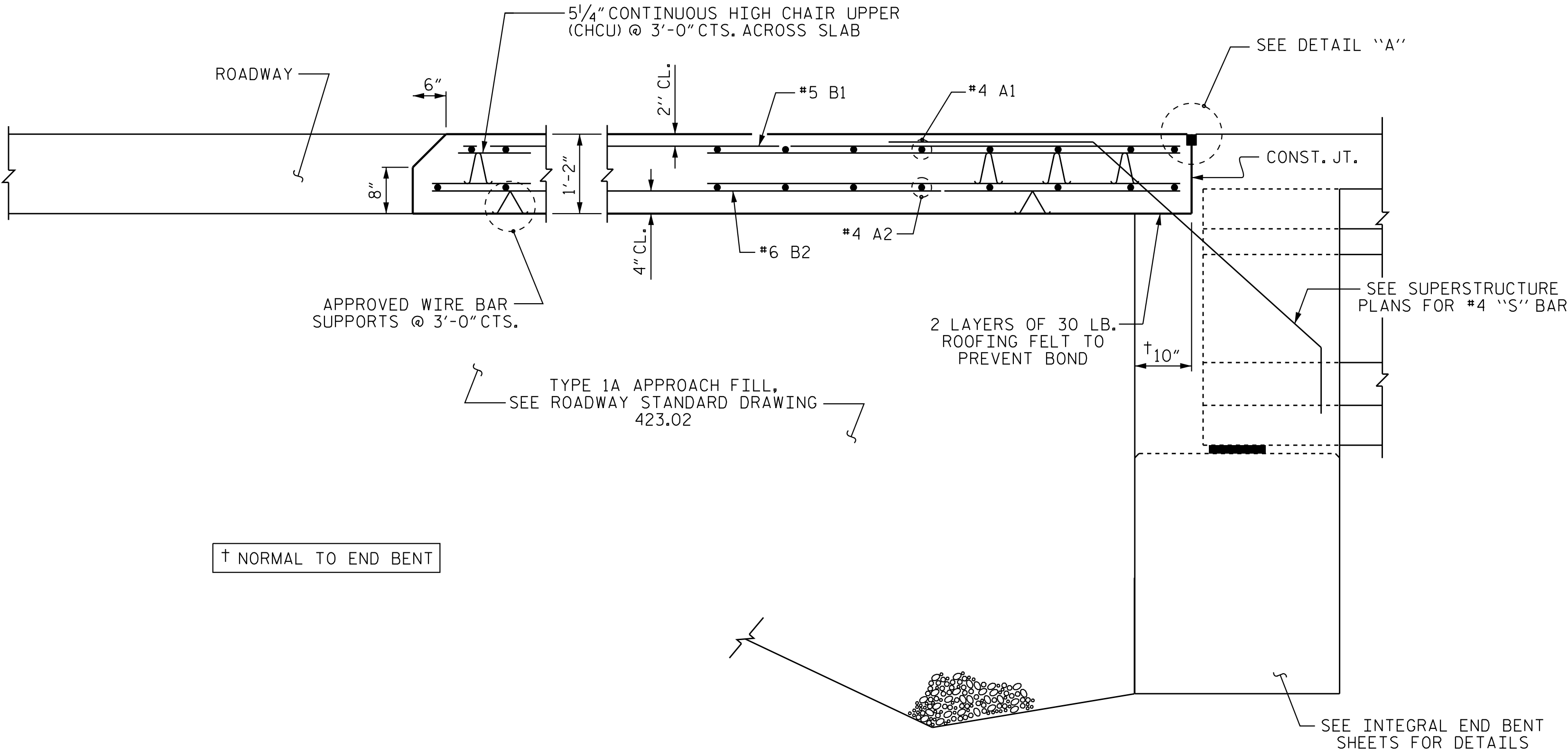
ASSEMBLED BY : J. GUERRERO DATE : 08/01/21
CHECKED BY : A.L. BOYKIN DATE : 09/04/24

DRAWN BY : TLA 10/05
CHECKED BY : GM 5/06

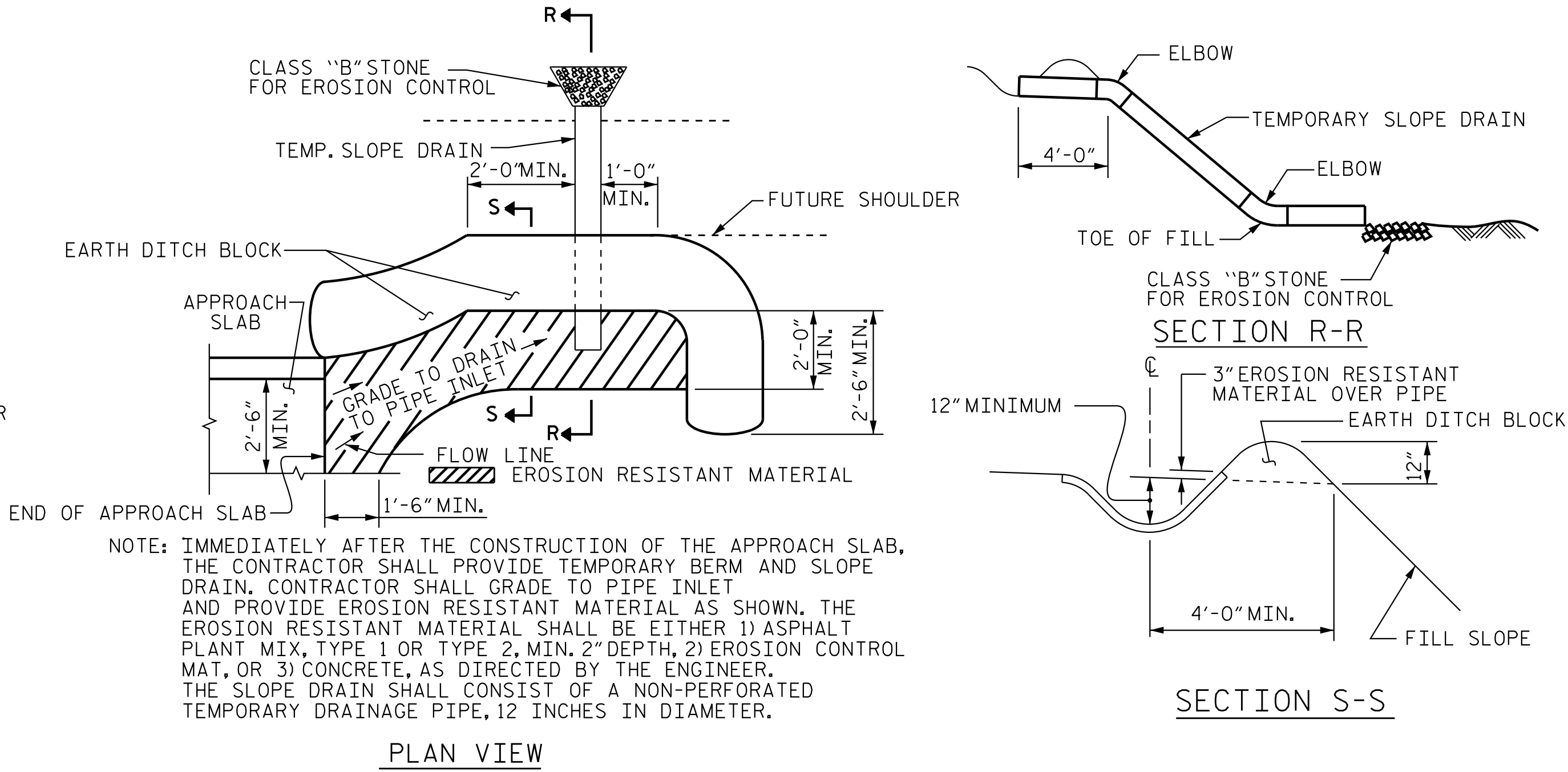
REV. 12/21/11
REV. 6/13
REV. 12/17

MAA/GM
MAA/GM
MAA/THC

DESIGN
ENGINEER
OF RECORD: J.T. KELVINGTON DATE : 04/22/25



SECTION THRU SLAB



TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)

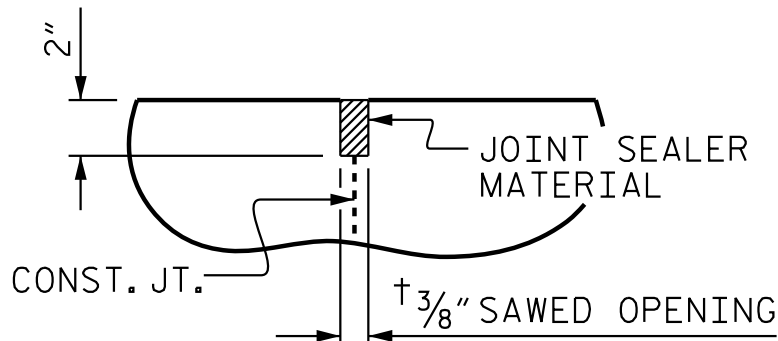
NOTES

FOR BRIDGE APPROACH FILL, SEE ROADWAY PLANS.

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

AREA BETWEEN WINGWALL AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE AND SHALL BE PAVED. SEE ROADWAY PLANS.

THE JOINT AT THE APPROACH SLAB/DECK INTERFACE SHALL BE SAWED NO MORE THAN 12 HOURS AFTER THE APPROACH SLAB IS CAST. THE JOINT SHALL BE CLEANED OF ALL DEBRIS BEFORE THE SEALANT IS APPLIED. THE JOINT SEALER SHALL CONFORM TO THE REQUIREMENTS OF SECTION 1028-3 OF THE STANDARD SPECIFICATIONS.



DETAIL "A"



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Joe Kelvington 4/29/2025
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PROJECT NO. R-3300A
NEW HANOVER COUNTY
STATION: 232+80.54 -L1-

SHEET 2 OF 2

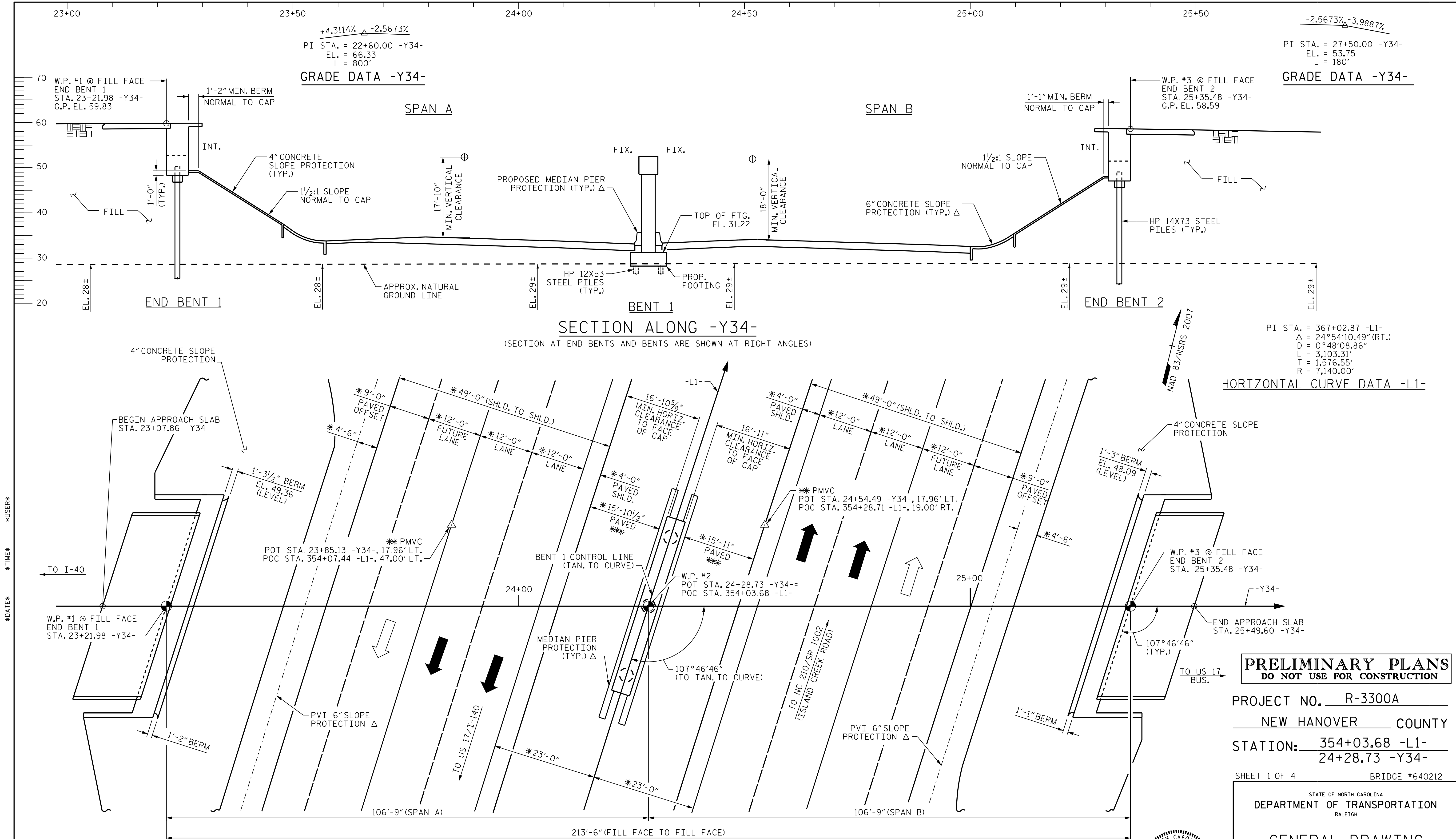
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
BRIDGE APPROACH
SLAB DETAILS

(RIGHT LANE)

REVISIONS						SHEET NO. S04-32
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 32
2			4			

STD. NO. BAS5



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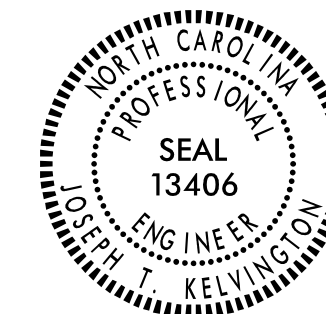
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DRAWN BY : N. D'AIUTO DATE : 07/25/18
CHECKED BY : E. M. MURR DATE : 12/03/18

DESIGN
ENGINEER
OF RECORD : J. T. KELVINGTON DATE : 04/22/25

PLAN
(PILES NOT SHOWN FOR CLARITY)

* RADIAL DIMENSION
** PMVC DENOTES PT. OF MIN. VERTICAL CLEARANCE
*** MIN. HORIZ. CLEARANCE TO FACE OF PIER PROTECTION
 Δ ROADWAY DETAIL AND PAY ITEM



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PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PROJECT NO. R-3300A
NEW HANOVER COUNTY
STATION: 354+03.68 -L1-
24+28.73 -Y34-

SHEET 1 OF 4 BRIDGE #640212

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

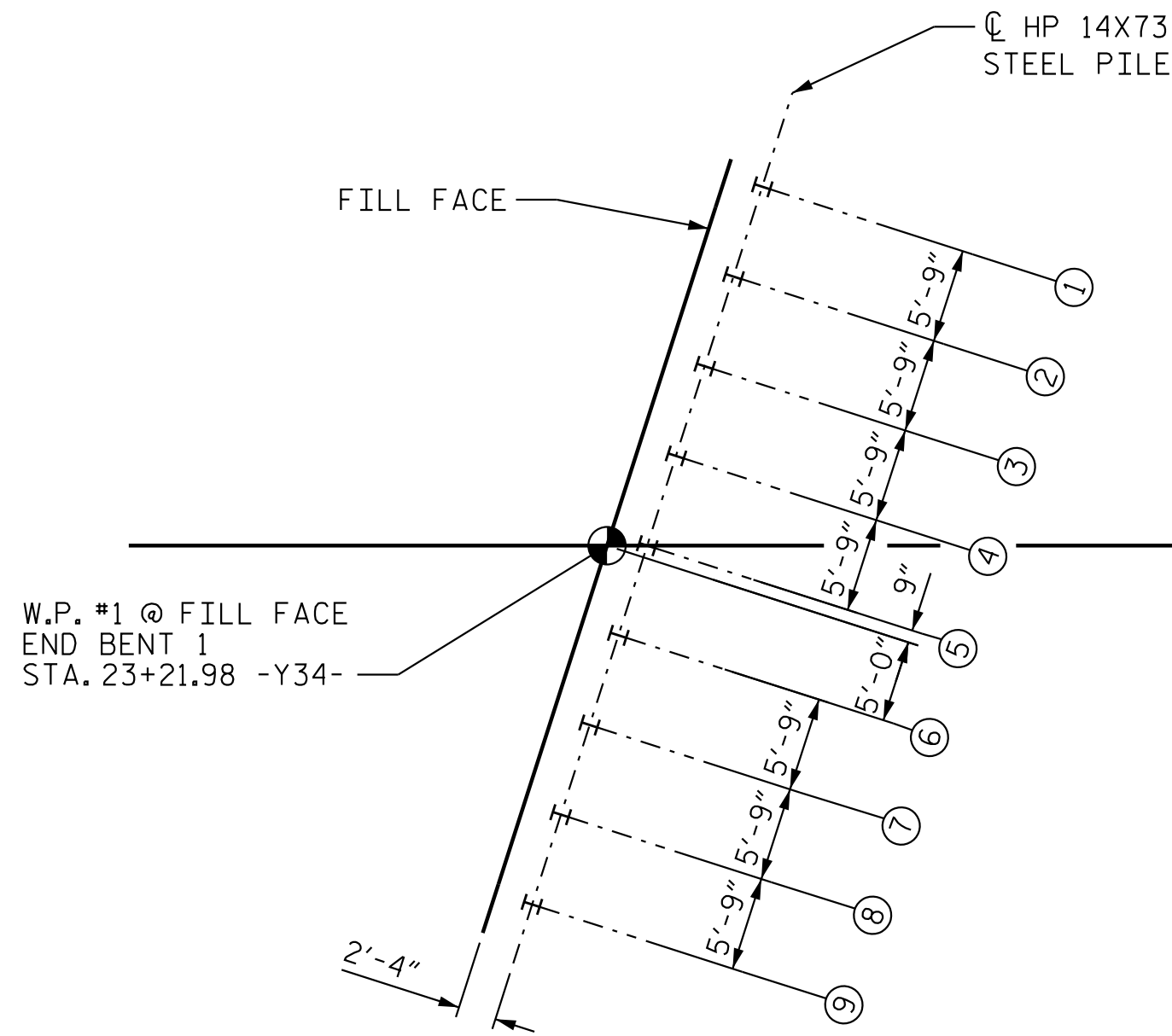
GENERAL DRAWING
BRIDGE ON SR 1336 (SIDBURY RD.)
OVER US 17 BYPASS BETWEEN
US 17/I-140 AND NC 210/SR1002

REVISIONS						SHEET NO. S05-01
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 34
2			4			

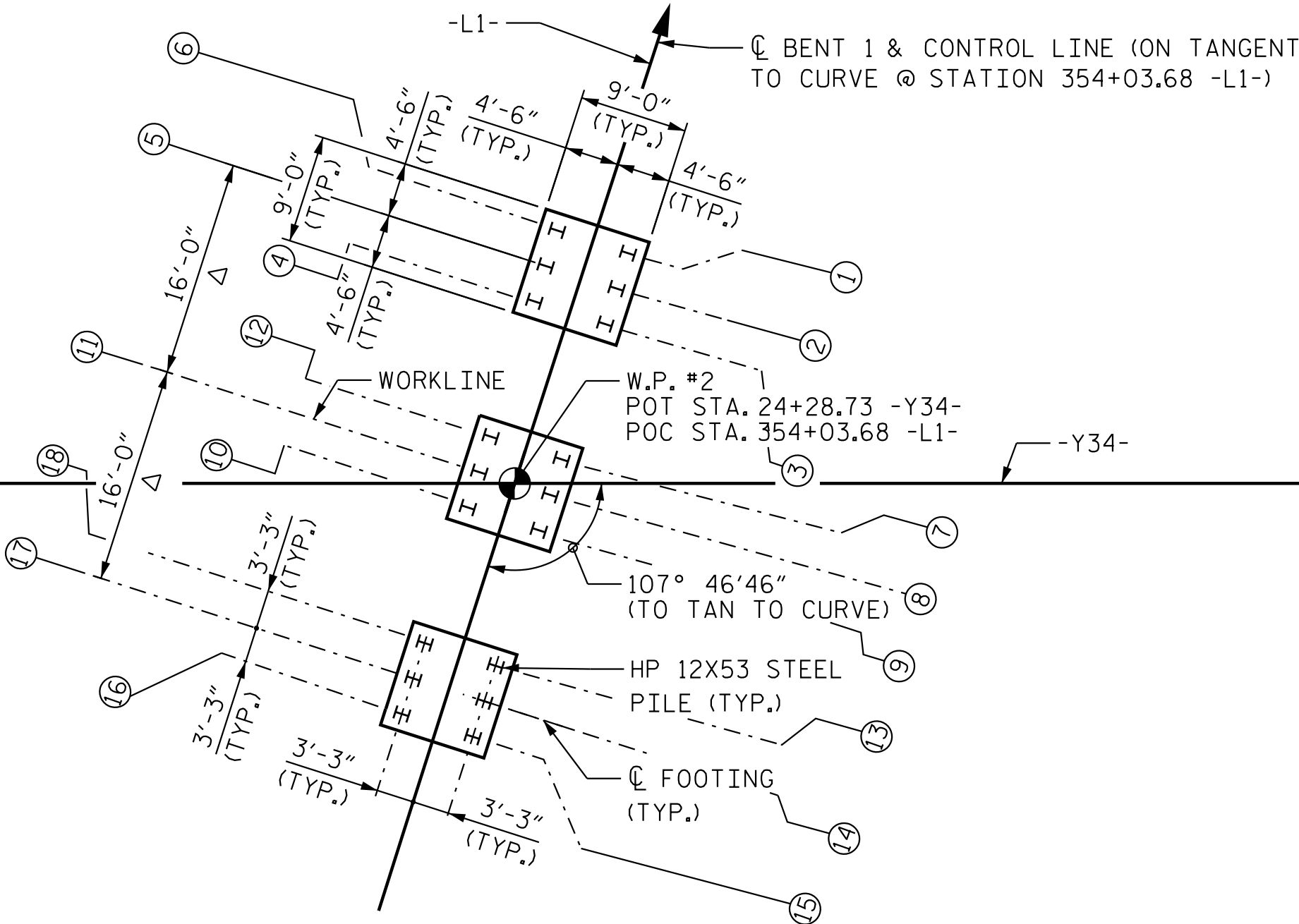
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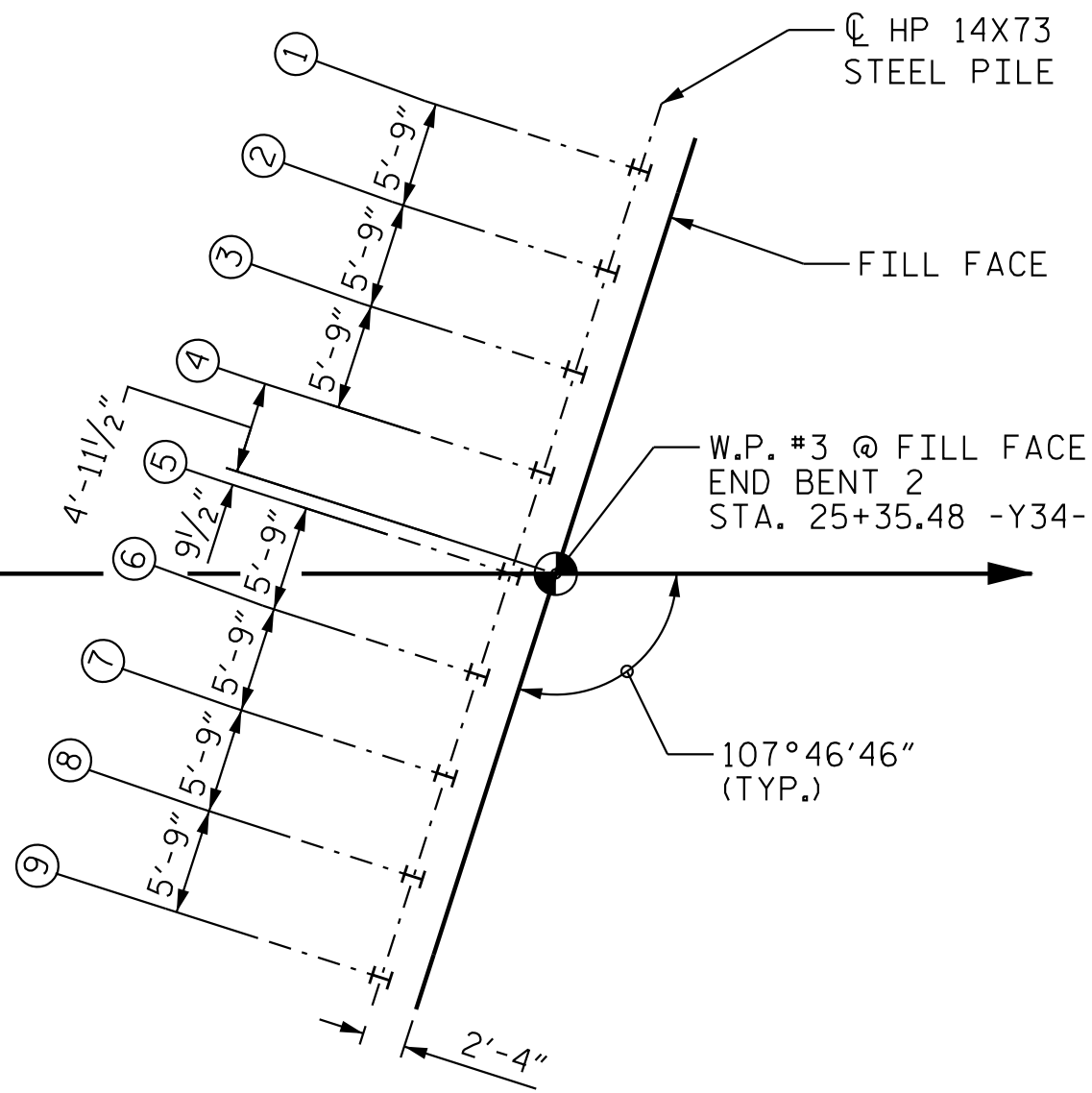
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END BENT 1



BENT 1



END BENT 2

FOUNDATION LAYOUT

Δ WORKLINE TO CL FOOTING ALONG
CL BENT1 AND BENT CONTROL LINE.

NOTES:

- FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.
- SEE ROADWAY PLANS AND SECTION 235 OF THE STANDARD SPECIFICATIONS FOR THE SETTLEMENT GAUGES REQUIRED AT END BENTS NO.1 AND 2.
- OBSERVE A 2 MONTH WAITING PERIOD AFTER CONSTRUCTING THE EMBANKMENT TO FINAL GRADE PLUS 2 FT OF SURCHARGE MATERIAL BEFORE BEGINNING END BENT CONSTRUCTION AT END BENTS NO.1 AND 2. FOR BRIDGE WAITING PERIODS, SEE ROADWAY PLANS AND SECTION 235 OF THE STANDARD SPECIFICATIONS.
- APPROACH EMBANKMENT CONSTRUCTION AT END BENT NO.1 MUST BE COMPLETED IN STAGES FOR SHORT TERM SLOPE STABILITY. TOTAL WAITING PERIOD INCLUDING ALL STAGES IS 4 MONTHS AT END BENT NO.1. SEE ROADWAY PLANS FOR EMBANKMENT CONSTRUCTION STAGE DETAILS.
- APPROACH EMBANKMENT CONSTRUCTION AT END BENT NO.2 MUST BE COMPLETED IN STAGES FOR SHORT TERM SLOPE STABILITY. TOTAL WAITING PERIOD INCLUDING ALL STAGES IS 3 MONTHS AT END BENT NO.2. SEE ROADWAY PLANS FOR EMBANKMENT CONSTRUCTION STAGE DETAILS.
- IT HAS BEEN ESTIMATED THAT A HAMMER WITH AN EQUIVALENT RATED ENERGY IN THE RANGE OF 55 TO 75 FT-KIPS PER BLOW WILL BE REQUIRED TO DRIVE PILES AT END BENTS NO.1 AND 2 AND BENT NO.1. THIS ESTIMATED ENERGY RANGE DOES NOT RELEASE THE CONTRACTOR FROM PROVIDING DRIVING EQUIPMENT IN ACCORDANCE WITH SUBARTICLE 450-3(D)(2) OF THE STANDARD SPECIFICATIONS.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

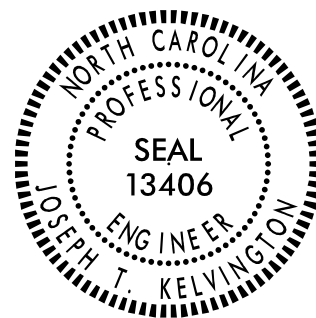
PROJECT NO. R-3300A
NEW HANOVER COUNTY
STATION: 24+28.73 -Y34-

SHEET 2 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

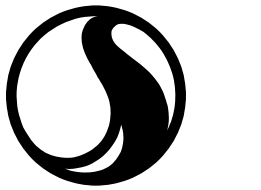
GENERAL DRAWING

BRIDGE ON SR 1336 (SIDBURY RD.)
OVER US 17 BYPASS BETWEEN
US 17/I-140 AND NC 210/SR1002



DOCUMENT NOT CONSIDERED
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SIGNATURES COMPLETED

REVISIONS						SHEET NO. S05-02
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1			3			TOTAL SHEETS 34
2			4			



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801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
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DRAWN BY : J. E. HAGENBUSH DATE : 08/02/18
CHECKED BY : E. M. MURR DATE : 12/03/18

DESIGN
ENGINEER
OF RECORD: J. T. KELVINGTON DATE : 04/22/25

SUMMARY OF PILE INFORMATION / INSTALLATION

(BLANK ENTRIES INDICATE ITEM IS NOT APPLICABLE TO STRUCTURE)

END BENT / BENT NO. PILE (s) #-(*) (e.g., 'BENT 1, PILES 1-5')	NUMBER OF PILES PER LINE	FACTORED RESISTANCE PER PILE KIPS	PILE CUT-OFF (TOP OF PILE) ELEVATION FT	ESTIMATED PILE LENGTH PER PILE FT	SCOUR CRITICAL ELEVATION FT	DRIVEN PILES			PREDRILLING FOR PILES **			DRILLED-IN PILES		
						MIN. PILE TIP (TIP NO HIGHER THAN) ELEV FT	REQUIRED DRIVING RESISTANCE (RDR)** PER PILE KIPS	TOTAL PILE REDRIVES QUANTITY EACH	PREDRILLING LENGTH PER PILE LIN FT	PREDRILLING ELEVATION (ELEV NOT TO PREDRILL BELOW) FT	MAXIMUM PREDRILLING DIA INCHES	PILE EXCAVATION (BOTTOM OF HOLE) ELEV FT	PILE EXC NOT IN SOIL PER PILE LIN FT	PILE EXC IN SOIL PER PILE LIN FT
END BENT 1, PILES 1-9	9	230	SEE SUBSTRUCTURE PLANS	60			385	5						
BENT 1, PILES 1-18	18	220	SEE SUBSTRUCTURE PLANS	40		-8.3	370	9						
END BENT 2, PILES 1-9	9	230	SEE SUBSTRUCTURE PLANS	65			385	5						
TOTAL QUANTITY:								19						

* RDR= $\frac{\text{FACTORED RESISTANCE} + \text{FACTORED DRAG LOAD} + \text{FACTORED DEAD LOAD}}{\text{DYNAMIC RESISTANCE FACTOR}}$ + NORMAL DOWNDRAG RESISTANCE + $\frac{\text{NORMAL SCOUR RESISTANCE}}{\text{SCOUR RESISTANCE FACTOR}}$

** PREDRILLING FOR PILES IS REQUIRED FOR END BENTS/ BENT WITH A PREDRILLING LENGTH AND AT THE CONTRACTOR'S OPTION FOR END BENTS/ BENTS WITH PREDRILLING INFORMATION BUT NO PREDRILLING LENGTH.

SUMMARY OF DPT / PILE ORDER LENGTHS

(BLANK ENTRIES INDICATE ITEM IS NOT APPLICABLE TO STRUCTURE)

DYNAMIC PILE TESTING (DPT)			PILE ORDER LENGTHS FOR CONCRETE PILES	
END BENT / BENT NO. (e.g., 'BENT 1 - BENT 3')	DPT TEST PILE LENGTH FT	DPT TESTING QUANTITY EACH	END BENT / BENT NO. (e.g., 'BENT 1 - BENT 3')	PILE ORDER LENGTH BASIS * EST OR DPT
END BENT 1	65	1		
BENT 1	45			
END BENT 2	70			
TOTAL QUANTITY:		1		

* EST = PILE ORDER LENGTHS FROM ESTIMATED PILE LENGTHS; DPT = PILE ORDER LENGTHS BASED ON DYNAMIC PILE TESTING. FOR GROUPS OF END BENTS/BENTS WITH PILE ORDER LENGTHS BASED ON DPT TESTING, THE FIRST END BENT/ BENT NO. LISTED FOR EACH GROUP IS THE REPRESENTATIVE END BENT/ BENT WITH THE DPT.

PILE DESIGN INFORMATON

(BLANK ENTRIES INDICATE ITEM IS NOT APPLICABLE TO STRUCTURE)

END BENT / BENT NO. PILE (s) #-(*) (e.g., 'BENT 1, PILES 1-5')	FACTORED AXIAL LOAD PER PILE KIPS	FACTORED DRAG LOAD PER PILE KIPS	FACTORED DEAD LOAD * PER PILE KIPS	DRYAMIC RESISTANCE FACTOR	NOMINAL DRAG RESISTANCE PER PILE KIPS	NOMINAL SCOUR RESISTANCE PER PILE KIPS
END BENT 1, PILES 1-9	221			0.6		
BENT 1, PILES 1-18	220			0.6		
END BENT 2, PILES 1-9	221			0.6		

* FACTORED DEAD LOAD IS FACTORED WEIGHT OF PILE ABOVE THE GROUND LINE.

SUMMARY OF PILE ACCESSORIES

(BLANK ENTRIES INDICATE ITEM IS NOT APPLICABLE TO STRUCTURE)

END BENT / BENT NO. PILE (s) #-(*) (e.g., 'BENT 1, PILES 1-5')	PIPE PILE PLATES EACH	STEEL PILE POINTS		
		PIPE PILE CUTTING SHOES EACH	PIPE PILE CONICAL POINTS EACH	H-PILE POINTS EACH
TOTAL QUANTITY:				

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PROJECT NO. R-3300A
NEW HANOVER COUNTY
STATION: 24+28.73 -Y34-

SHEET 3 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

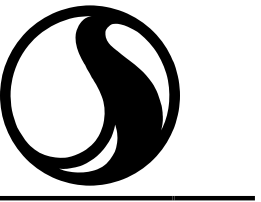
PILE FOUNDATION TABLES



DocuSigned by
Joe Kelvington
4/22/2025

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REVISIONS						SHEET NO. S05-03
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 34
2			4			

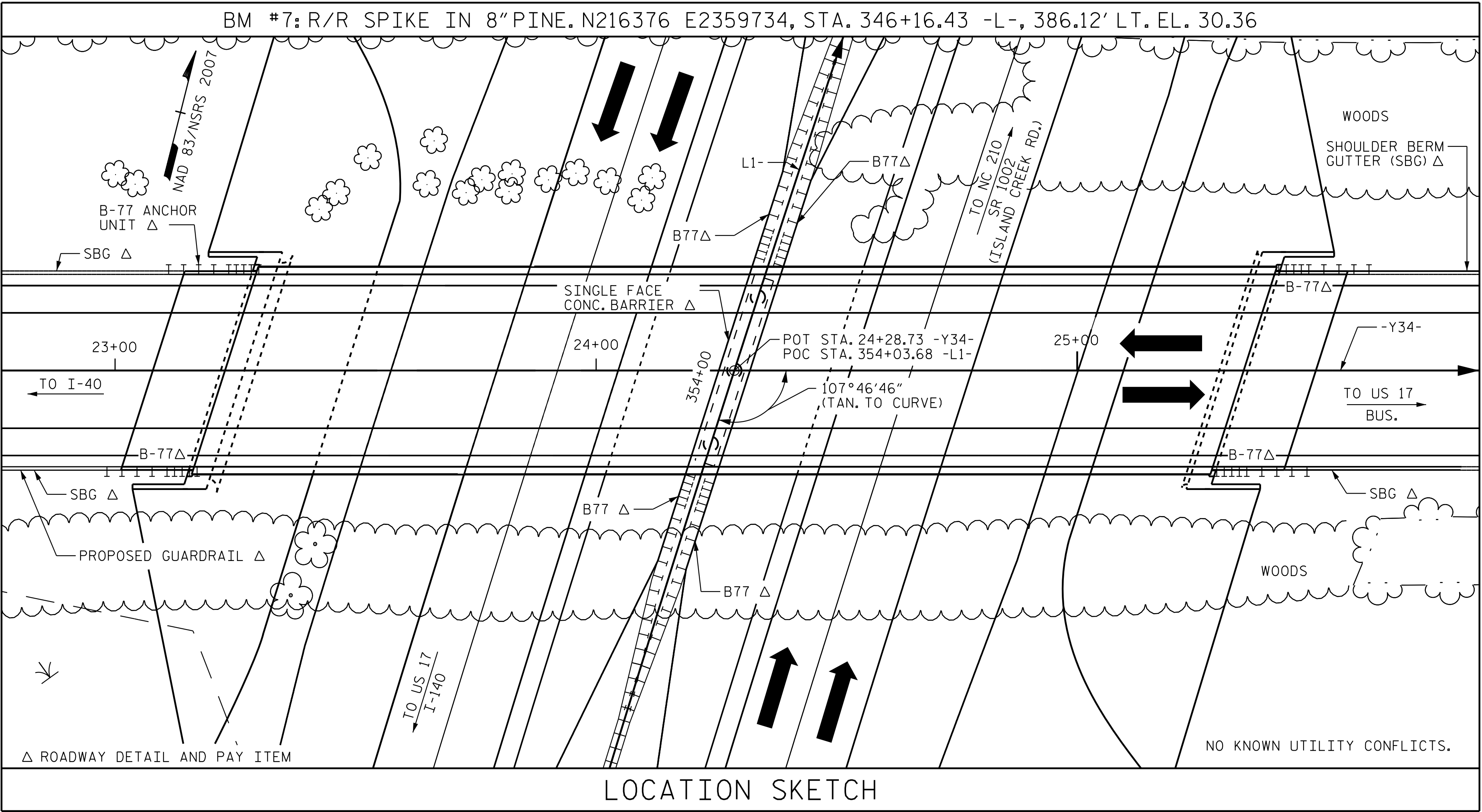


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801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
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DRAWN BY : J. B. GEILE DATE : 10/24/21
CHECKED BY : TBD DATE : XX/XX/25
DESIGN ENGINEER OF RECORD: J. T. KELVINGTON DATE : 04/22/25

NOTES:

1. THE PILE FOUNDATON TABLES ARE BASED ON THE BRIDGE SUBSTRUCTURE DESIGN AND FOUNDATON RECOMMENDATONS SEALED BY A NORTH CAROLINA PROFESSIONAL ENGINEER (JEREMY R. HAMM, *039779) ON 03/09/2025.
2. TOTAL PILE DRIVING EQUIPMENT SETUP QUANTITY (NOT SHOWN IN PILE FOUNDATON TABLES) EQUALS THE NUMBER OF DRIVEN PILES, I.E., THE NUMBER OF PILES WITH A REQUIRED DRIVING RESISTANCE.
3. THE ENGINEER MAY ADJUST THE QUANTITY FOR DPT TESING AND PIPE PILES PLATES WHEN NECESSARY.



NOTES:

- ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.
- THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.
- THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.
- FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.
- FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
- FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.
- FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.
- FOR GROUT STRUCTURES, SEE SPECIAL PROVISIONS.
- PRESTRESSED CONCRETE DECK PANELS MAY BE USED IN LIEU OF METAL STAY-IN-PLACE FORMS IN ACCORDANCE WITH ARTICLE 420-3 OF THE STANDARD SPECIFICATIONS.
- REMOVABLE FORMS MAY BE USED IN LIEU OF METAL STAY-IN-PLACE FORMS IN ACCORDANCE WITH ARTICLE 420-3 OF THE STANDARD SPECIFICATIONS.
- NEEDLE BEAMS WILL NOT BE ALLOWED UNLESS OTHERWISE CALLED FOR ON THE PLANS OR APPROVED BY THE ENGINEER.
- FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

TOTAL BILL OF MATERIAL																				
	FOUNDATION EXCAVATION FOR BENT	REINFORCED CONCRETE DECK SLAB	GROOVING BRIDGE FLOORS	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	SPIRAL COLUMN REINFORCING STEEL	MODIFIED 72" PRESTRESSED CONCRETE GIRDERS		PILE DRIVING EQUIPMENT SETUP FOR HP 12x53 STEEL PILES	PILE DRIVING EQUIPMENT SETUP FOR HP 14x73 STEEL PILES	HP 12x53 STEEL PILES		HP 14x73 STEEL PILES		PILE REDRIVES	DYNAMIC PILE TESTING	CONCRETE BARRIER RAIL	4"SLOPE PROTECTION	ELASTOMERIC BEARINGS
	LUMP SUM	SQ.FT.	SQ.FT.	CU.YDS.	LUMP SUM	LBS.	LBS.	NO.	LIN.FT.	EA.	EA.	NO.	LIN.FT.	NO.	LIN.FT.	EACH	EACH	LIN.FT.	SQ.YDS.	LUMP SUM
SUPERSTRUCTURE		9,234	8,802		LUMP SUM			8	836.83									423.5		LUMP SUM
END BENT NO.1				41.1		6,020					9			9	540.00	5			482	
BENT NO.1	LUMP SUM			75.6		12,376	1,146			18		18	720.00			9				
END BENT NO.2				41.6		6,016					9			9	585.00	5			493	
TOTAL	LUMP SUM	9,234	8,802	158.3	LUMP SUM	24,412	1,146	8	836.83	18	18	18	720.00	18	1,125.00	19	1	423.5	975	LUMP SUM

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

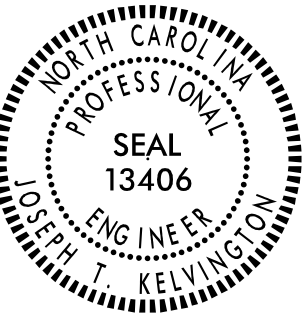
PROJECT NO. R-3300A
NEW HANOVER COUNTY
STATION: 24+28.73 -Y34-

SHEET 4 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

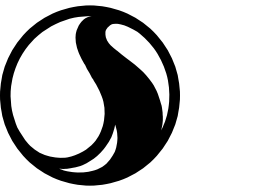
GENERAL DRAWING

BRIDGE ON SR 1336 (SIDBURY RD.)
OVER US 17 BYPASS BETWEEN
US 17/I-140 AND NC 210/SR1002



DOCUMENT NOT CONSIDERED
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SIGNATURES COMPLETED

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Tel. (919) 851-8866
Fax. (919) 851-7024
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DRAWN BY : J. E. HAGENBUSH DATE : 08/02/18
CHECKED BY : E. M. MURR DATE : 12/03/18

DESIGN ENGINEER OF RECORD: J. T. KELVINGTON DATE : 04/22/25

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LOAD AND RESISTANCE FACTOR RATING (LRFR) SUMMARY FOR PRESTRESSED CONCRETE GIRDERS																								
LEVEL	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING ⬡	MINIMUM RATING FACTORS (RF)	TONS = W x RF	STRENGTH I LIMIT STATE										SERVICE III LIMIT STATE						COMMENT NUMBER		
						LIVE-LOAD FACTORS (γ _{LL})	MOMENT					SHEAR					LIVE-LOAD FACTORS (γ _{LL})	MOMENT						
							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)		DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION		DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD RATING	HL-93 (INVENTORY)	N/A	⬡1	1.29	--	1.75	1.00	1.38	A	EL	51.60	1.099	1.29	A	I	9.80	0.80	1.00	1.39	A	EL	51.60		
	HL-93 (OPERATING)	N/A		1.70	--	1.35	1.00	1.79	A	EL	51.60	1.099	1.70	A	I	9.80	N/A	--	--	--	--	--		
	HS-20 (INVENTORY)	36.000	⬡2	1.78	64.1	1.75	1.00	1.95	A	EL	51.60	1.099	1.78	A	I	9.80	0.80	1.00	1.96	A	EL	51.60		
	HS-20 (OPERATING)	36.000		2.33	83.9	1.35	1.00	2.53	A	EL	51.60	1.099	2.33	A	I	9.80	N/A	--	--	--	--	--		
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SN5H	13.500		4.70	63.5	1.40	1.00	5.85	A	EL	51.60	1.099	5.69	A	I	9.80	0.80	1.00	4.70	A	EL	51.60	
		SNGARBS2	20.000		3.37	67.4	1.40	1.00	4.20	A	EL	51.60	1.099	3.95	A	I	9.80	0.80	1.00	3.37	A	EL	51.60	
		SNAGRIS2	22.000		3.14	69.1	1.40	1.00	3.90	A	EL	51.60	1.099	3.63	A	I	9.80	0.80	1.00	3.14	A	EL	51.60	
		SNCOTTS3	27.250		2.32	63.2	1.40	1.00	2.88	A	EL	51.60	1.099	2.78	A	I	9.80	0.80	1.00	2.32	A	EL	51.60	
		SNAGGRS4	34.925		1.90	66.4	1.40	1.00	2.36	A	EL	51.60	1.099	2.25	A	I	9.80	0.80	1.00	1.90	A	EL	51.60	
		SNS5A	35.550		1.86	66.1	1.40	1.00	2.31	A	EL	51.60	1.099	2.25	A	I	9.80	0.80	1.00	1.86	A	EL	51.60	
		SNS6A	39.950		1.69	67.5	1.40	1.00	2.10	A	EL	51.60	1.099	2.03	A	I	9.80	0.80	1.00	1.69	A	EL	51.60	
		SNS7B	42.000		1.60	67.2	1.40	1.00	2.00	A	EL	51.60	1.099	1.97	A	I	9.80	0.80	1.00	1.60	A	EL	51.60	
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.000		2.06	68.0	1.40	1.00	2.56	A	EL	51.60	1.047	2.45	A	I	9.80	0.80	1.00	2.06	A	EL	51.60	
		TNT4A	33.075		1.70	56.2	1.40	1.00	2.11	A	EL	51.60	1.047	1.93	A	I	9.80	0.80	1.00	1.70	A	EL	51.60	
		TNT6A	41.600		1.63	67.8	1.40	1.00	2.03	A	EL	51.60	1.047	1.88	A	I	9.80	0.80	1.00	1.63	A	EL	51.60	
		TNT7A	42.000		1.53	64.3	1.40	1.00	1.91	A	EL	51.60	1.047	1.78	A	I	9.80	0.80	1.00	1.53	A	EL	51.60	
		TNT7B	42.000		2.06	86.5	1.40	1.00	2.56	A	EL	51.60	1.047	2.40	A	I	9.80	0.80	1.00	2.06	A	EL	51.60	
		TNAGRIT4	43.000	⬡3	1.55	66.7	1.40	1.00	1.92	A	EL	51.60	1.047	1.84	A	I	9.80	0.80	1.00	1.55	A	EL	51.60	
		TNAGT5A	45.000		1.66	74.7	1.40	1.00	2.07	A	EL	51.60	1.047	2.06	A	I	9.80	0.80	1.00	1.66	A	EL	51.60	
		TNAGT5B	45.000		1.67	75.2	1.40	1.00	2.07	A	EL	51.60	1.047	2.02	A	I	9.80	0.80	1.00	1.67	A	EL	51.60	
EMERGENCY VEHICLE (EV)	EV2	28.750		2.37	68.1	1.30	1.00	3.18	A	EL	51.60	1.099	2.95	A	I	9.80	0.80	1.00	2.37	A	EL	51.60		
	EV3	43.000	⬡4	1.56	67.1	1.30	1.00	2.09	A	EL	51.60	1.099	1.95	A	I	9.80	0.80	1.00	1.56	A	EL	51.60		

LOAD FACTORS:

DESIGN LOAD RATING FACTORS	LIMIT STATE	γ _{DC}	γ _{DW}
	STRENGTH I	1.25	1.50
	SERVICE III	1.00	1.00

NOTES:

MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE III LIMIT STATES.

ALLOWABLE STRESSES FOR SERVICE III LIMIT STATE ARE AS REQUIRED FOR DESIGN.

SPANS SHOWN IN THE LRFR SUMMARY CORRESPOND TO THE COMPOSITE DEAD LOAD AND LIVE LOAD MODEL USED FOR ANALYSIS AND DESIGN.

⬡ CONTROLLING LOAD RATING

⬡1 DESIGN LOAD RATING (HL-93)

⬡2 DESIGN LOAD RATING (HS-20)

⬡3 LEGAL LOAD RATING **

⬡4 EMERGENCY VEHICLE LOAD RATING **

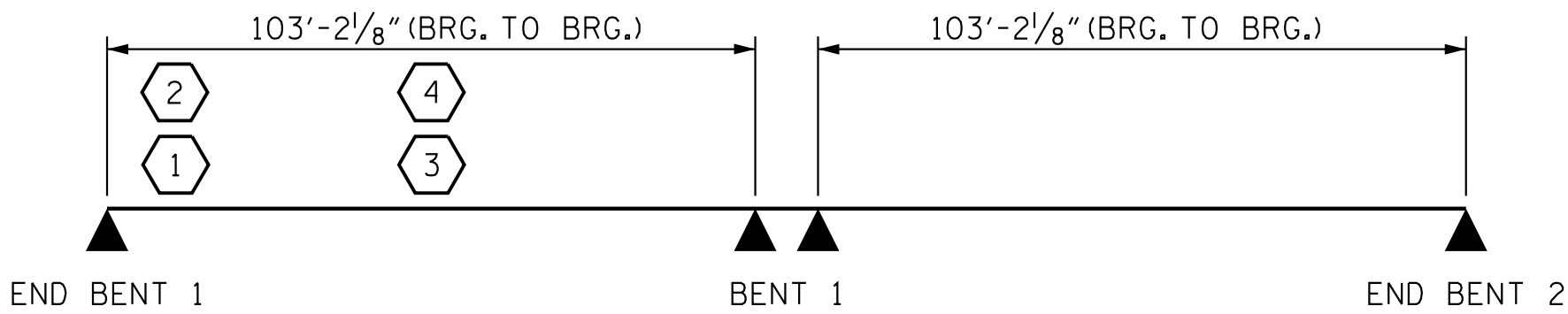
** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

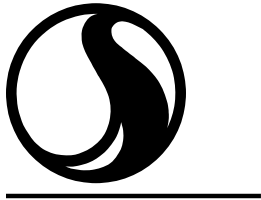
I - INTERIOR GIRDER
EL - EXTERIOR LEFT GIRDER
ER - EXTERIOR RIGHT GIRDER

PRELIMINARY PLANS
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PROJECT NO. R-3300A
NEW HANOVER COUNTY
STATION: 24+28.73 -Y34-



LRFR SUMMARY

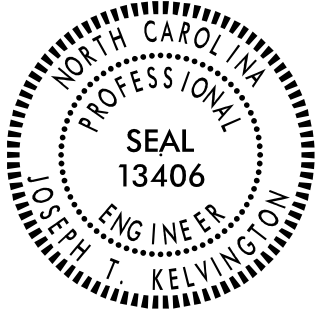


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Suite 300
Raleigh, NC 27606
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ASSEMBLED BY : E. M. MURR
CHECKED BY : J. T. KELVINGTON
DATE : 08/19/19
DATE : 02/17/25

DRAWN BY : MAA 1/08
CHECKED BY : GM/DI 2/08
REV. 11/2/08RR MAA/GM
REV. 10/1/11 MAA/GM
REV. 12/17 MAA/THC

DESIGN
ENGINEER
OF RECORD: J. T. KELVINGTON
DATE : 04/22/25



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

REVISIONS						SHEET NO. S05-05
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 34
2			4			

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STD. NO. LRFR1

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801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

DRAWN BY : E. M. MURR DATE : 08/26/19
CHECKED BY : J. T. KELVINGTON DATE : 02/17/25

DESIGN ENGINEER OF RECORD: J. T. KELVINGTON DATE : 04/22/25

FOR CONCRETE BARRIER RAIL
REINFORCING STEEL AND
DETAILS, SEE "CONCRETE
BARRIER RAIL" SHEET, (TYP.)

#5 B5 (2 BR)
(TYP. EA. OVERHANG)

3/4" HIGH B.B.

4" (TYP.)

CL GDR. 1

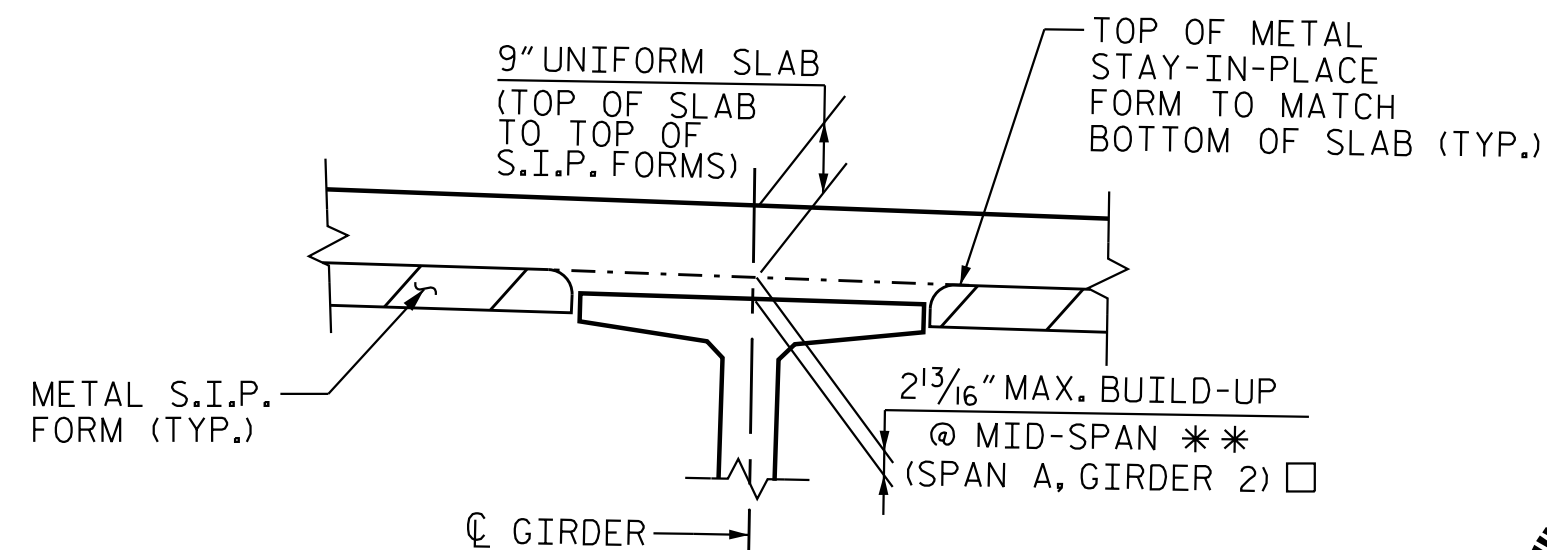
HALF-SECTION AT
INTERMEDIATE DIAPHRAGM

TYPICAL SECTION

□ NOTE: MAX. BUILD-UP IS TYPICAL FOR ALL
INTERIOR GIRDER FOR BOTH SPANS.

* BASED ON PREDICTED FINAL CAMBER AND
THEORETICAL GRADE LINE ELEVATIONS.

HALF-SECTION AT
INTERIOR BENT



MAXIMUM
BUILD-UP DETAIL
AT MIDSPAN



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FINAL UNLESS ALL
SIGNATURES COMPLETED

NOTES:

• DENOTES CONTINUOUS LONGITUDINAL
DECK REINFORCEMENT.

° DENOTES NON-CONTINUOUS
LONGITUDINAL DECK REINFORCEMENT.

SEE "SUPERSTRUCTURE TYPICAL SECTION",
SHEET 3 OF 3 FOR NOTES.

** FOR INTERMEDIATE STEEL DIAPHRAGM
DETAILS, SEE "INTERMEDIATE STEEL
DIAPHRAGMS FOR 72" MODIFIED BULB TEE
PRESTRESSED CONCRETE GIRDERS" SHEET.

(2 BR) DENOTES 2 BAR RUN.

(3 BR) DENOTES 3 BAR RUN.

- ① 5-#5 B8 (2 BR) @
9 1/2" CTS. (BOTTOM
OF SLAB) (TYP. EA.
OVERHANG)
- ② 5-#5 B2 (3 BR) @
9 1/2" CTS. (BOTTOM
OF SLAB) (TYP. EA.
OVERHANG).

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PROJECT NO. R-3300A

NEW HANOVER COUNTY

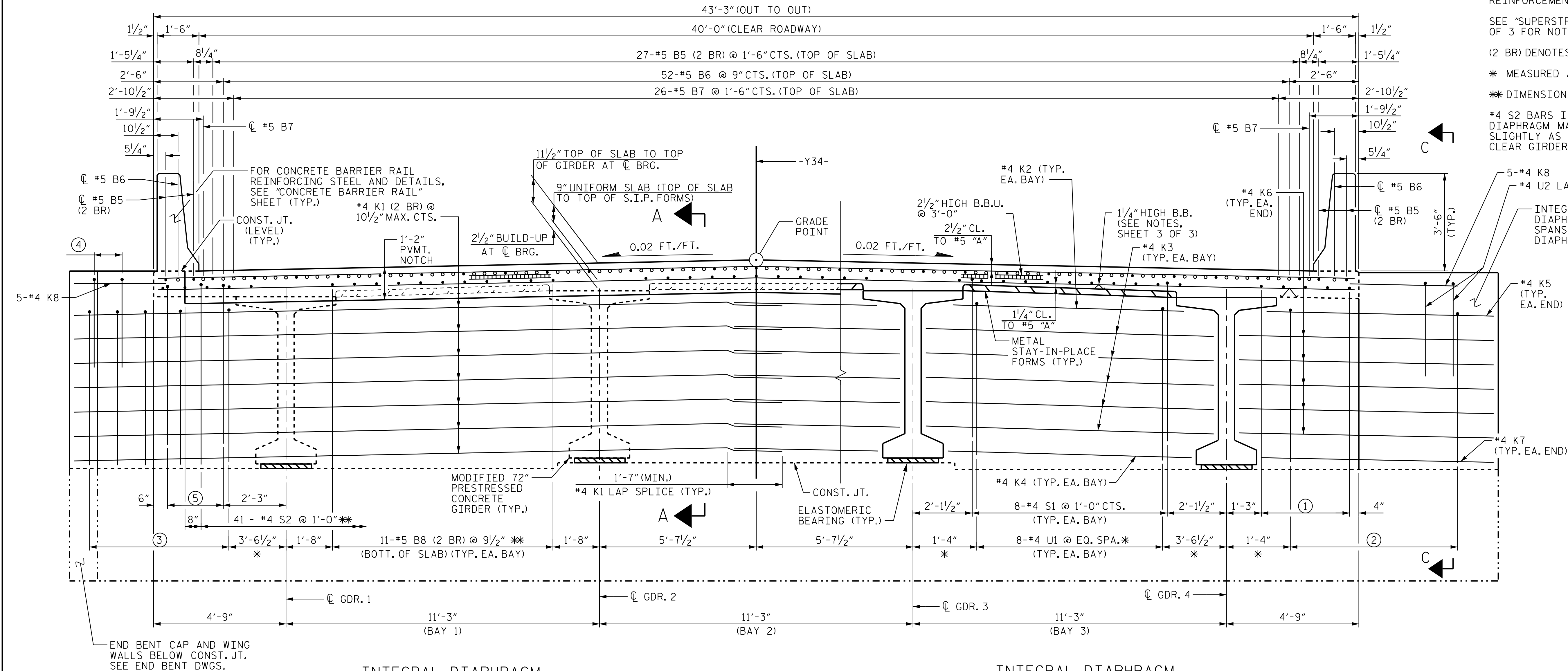
STATION: 24+28.73 -Y34-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
TYPICAL SECTION

REVISIONS						SHEET NO. S5-06
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 34
2			4			

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NOTES:

- DENOTES CONTINUOUS LONGITUDINAL DECK REINFORCEMENT.
- DENOTES NON-CONTINUOUS LONGITUDINAL DECK REINFORCEMENT.

SEE "SUPERSTRUCTURE TYPICAL SECTION", SHEET 3 OF 3 FOR NOTES.

(2 BR) DENOTES 2 BAR RUN.

* MEASURED ALONG END BENT FILL FACE

** DIMENSION NORMAL TO -Y34-

#4 S2 BARS IN THE INTEGRAL DIAPHRAGM MAY BE REPOSITIONED SLIGHTLY AS NECESSARY TO CLEAR GIRDERS.

PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION

PROJECT NO. R-3300A

NEW HANOVER COUNTY

STATION: 24+28.73 -Y34-

SHEET 2 OF 3

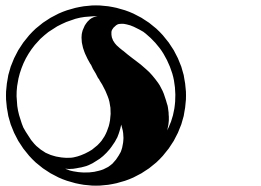
STATE OF NORTH CAROLINA
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SUPERSTRUCTURE TYPICAL SECTION

REVISIONS						SHEET NO. S05-07
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 34
2			4			



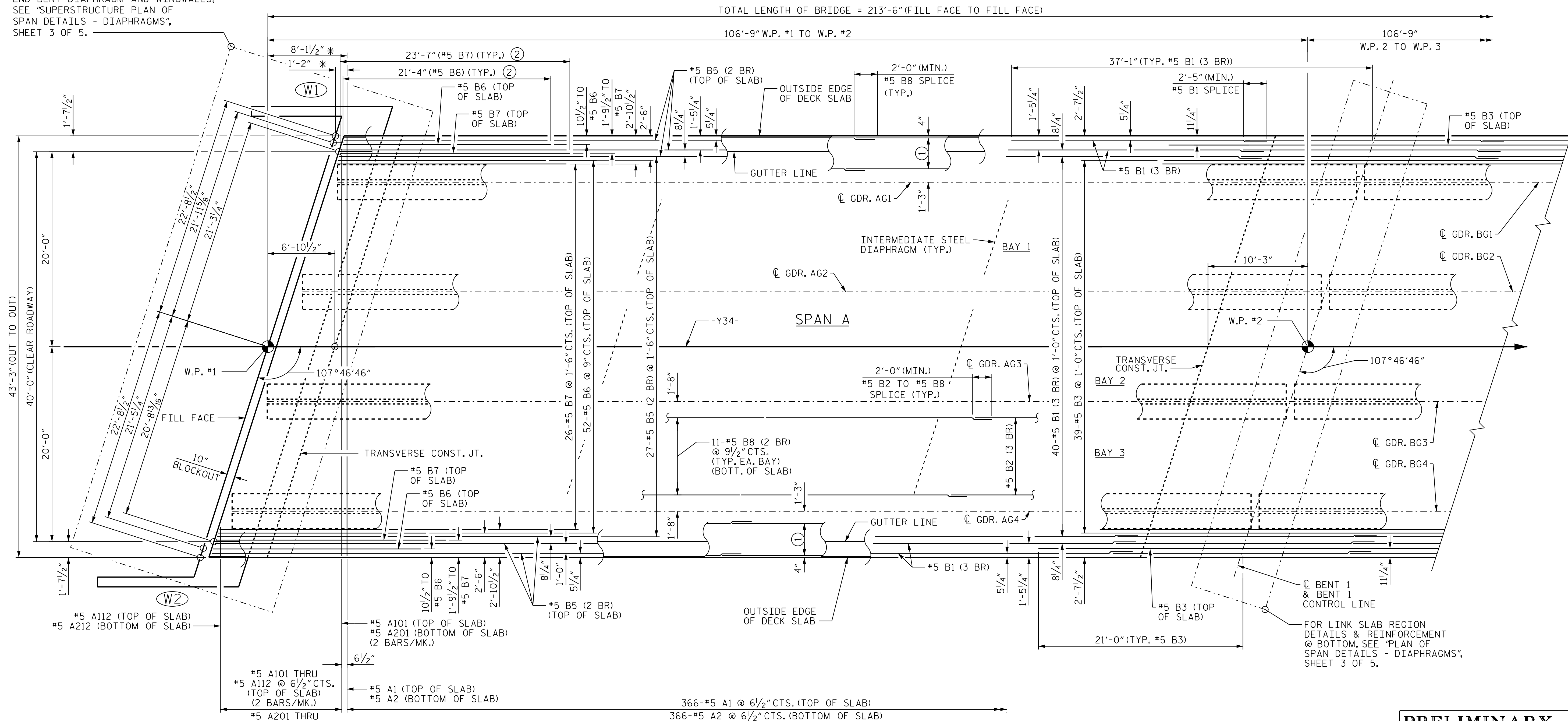
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FOR REINFORCEMENT IN
END BENT DIAPHRAGM AND WINGWALLS,
SEE "SUPERSTRUCTURE PLAN OF
SPAN DETAILS - DIAPHRAGMS",
SHEET 3 OF 5. _____



PLAN OF SPAN

NOTES:

WING WALLS W1 AND W2 SHALL MATCH PLAN DIMENSIONS SHOWN ON END BENT 1 DRAWINGS. WING WALL CONCRETE AND REINFORCING STEEL ABOVE THE HORIZONTAL CONSTRUCTION JOINT AT THE TOP OF THE END BENT CAP IS INCLUDED IN QUANTITIES FOR REINFORCED CONCRETE DECK SLAB.

(2 BR) DENOTES TWO BAR RUN.

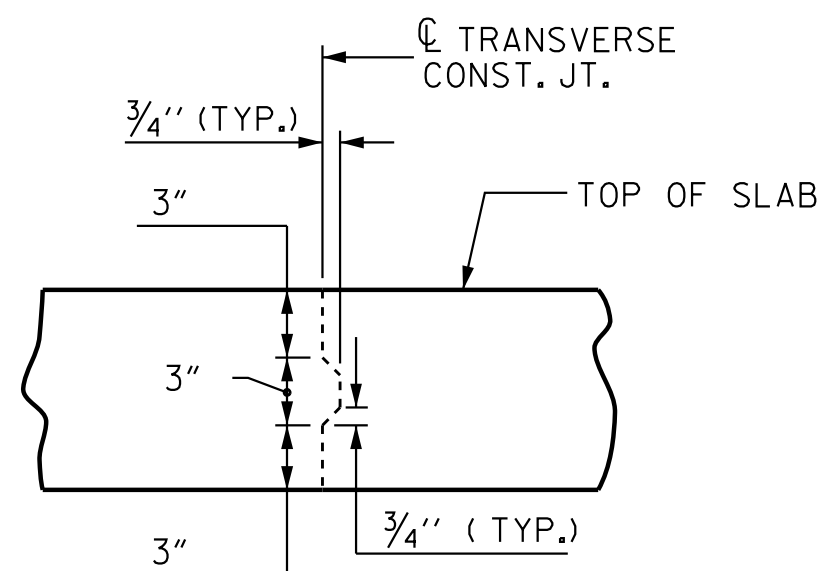
(3 BR) DENOTES THREE BAR RUN.

- ① 5-#5 B8 (2 BR) @ 9/2" CTS.
(BOTT. OF SLAB) (TYP. EA. OVERHANG)
- ② PLACE #5 B6 & #5 B7 2" MIN. CLEAR
FROM THE EDGE OF THE 10" BLOCKOUT.

* DIMENSIONS TO #5 A1, #5 A2

TRANSVERSE CONSTRUCTION JOINT IN DECK SLAB

NOTE: REINFORCING STEEL IN DECK SLAB NOT SHOWN.
LONGITUDINAL REINFORCING STEEL SHALL BE
CONTINUOUS THRU JOINT.



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PROJECT NO. R-3300A

NEW HANOVER COUNTY

STATION: 24+28.73 -Y34-

SHEET 1 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

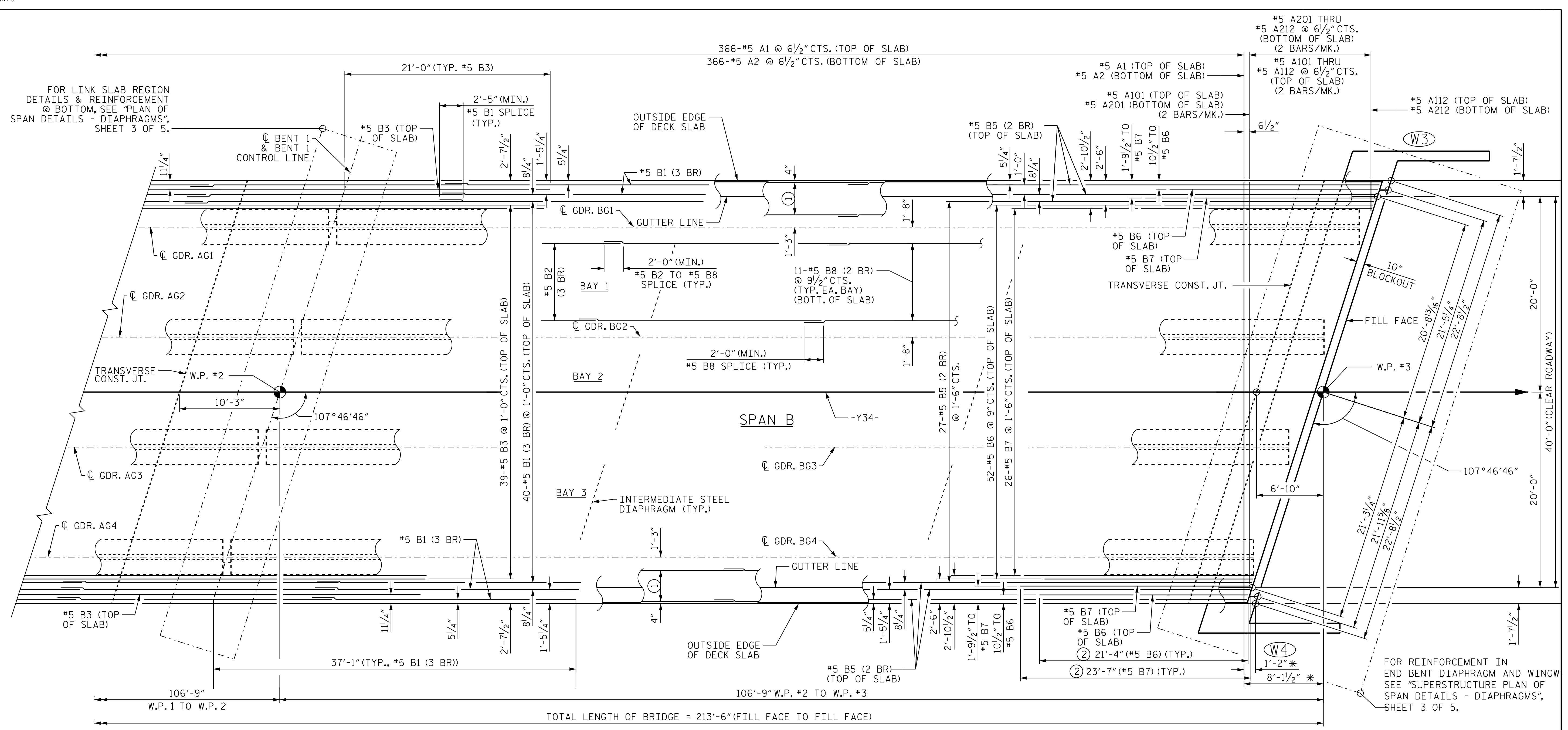
PLAN OF SPAN
(SPAN A)

REVISIONS							SHEET NO. S05-0
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS	
1			3			34	
2			4				



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PLAN OF SPAN
SPAN B

NOTES:

- WING WALLS W1 AND W2 SHALL MATCH PLAN DIMENSIONS SHOWN ON END BENT 1 DRAWINGS. WING WALL CONCRETE AND REINFORCING STEEL ABOVE THE HORIZONTAL CONSTRUCTION JOINT AT THE TOP OF THE END BENT CAP IS INCLUDED IN QUANTITIES FOR REINFORCED CONCRETE DECK SLAB.
- (2 BR) DENOTES TWO BAR RUN.
- (3 BR) DENOTES THREE BAR RUN.
- ① 5-#5 B8 (2 BR) @ 9 1/2" CTS. (BOTT. OF SLAB) (TYP. EA. OVERHANG)
- ② PLACE #5 B6 & #5 B7 2" MIN. CLEAR FROM THE EDGE OF THE 10" BLOCKOUT.
- * DIMENSIONS TO #5 A1, #5 A2

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PROJECT NO. R-3300A
NEW HANOVER COUNTY
STATION: 24+28.73 -Y34-

SHEET 2 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF SPAN
(SPAN B)

REVISIONS						SHEET NO. S05-10
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2			4			

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DATE : 08/30/19
DATE : 02/24/25

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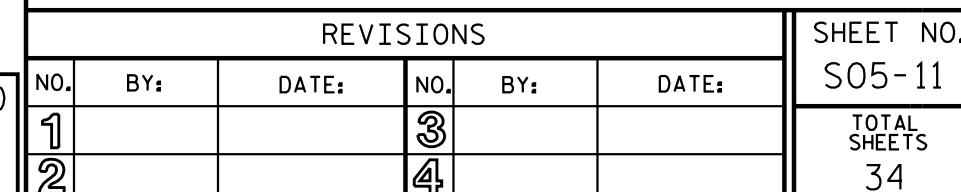
J. T. KELVINGTON

DATE : 04/22/25

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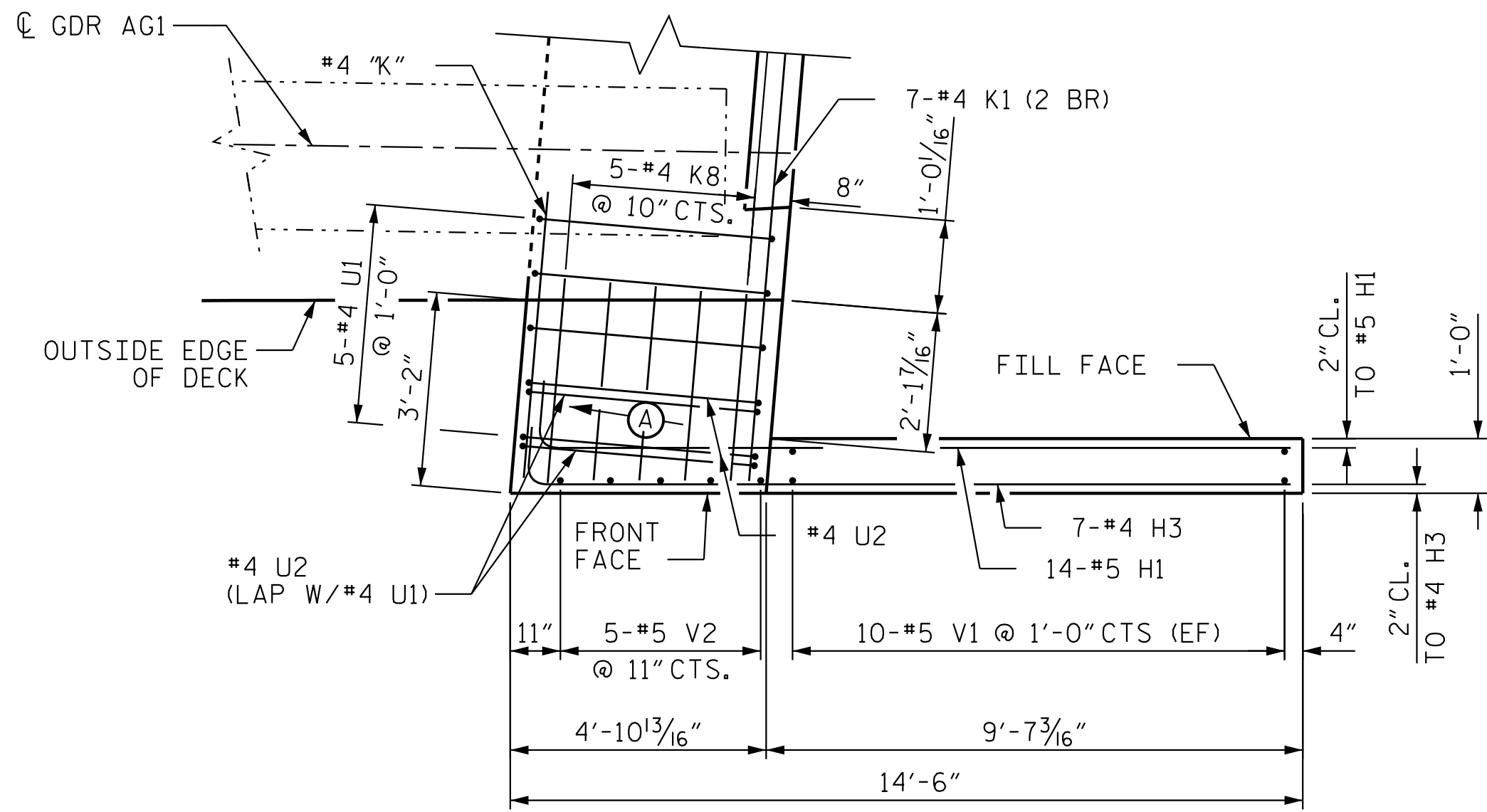


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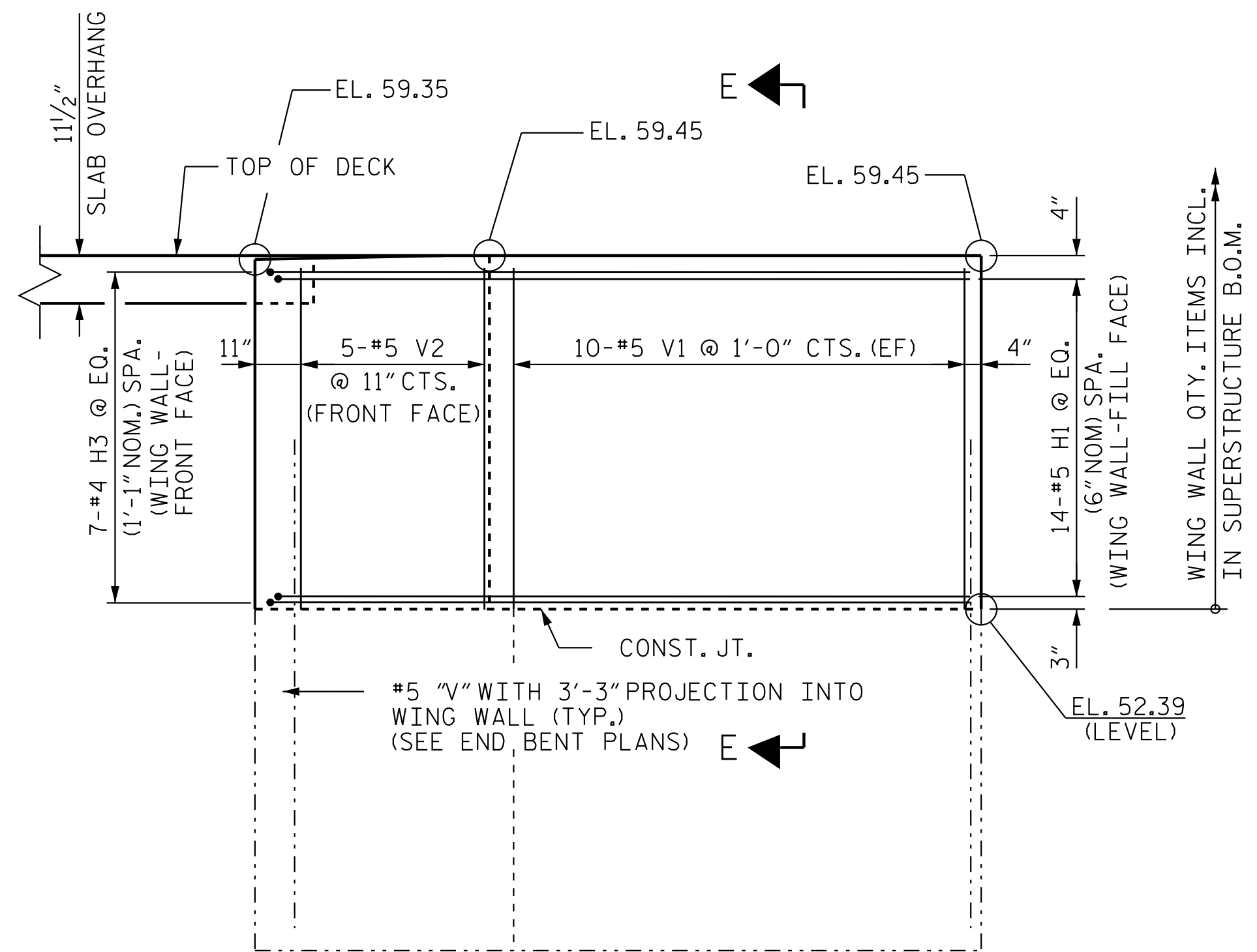
PLAN OF LEFT WING (W1)

NOTE:
DIAPHRAGM REINFORCING STEEL NOT SHOWN FOR CLARITY.
FOR DIAPHRAGM REINFORCEMENT, SEE "PLAN OF SPAN DETAILS - DIAPHRAGMS"

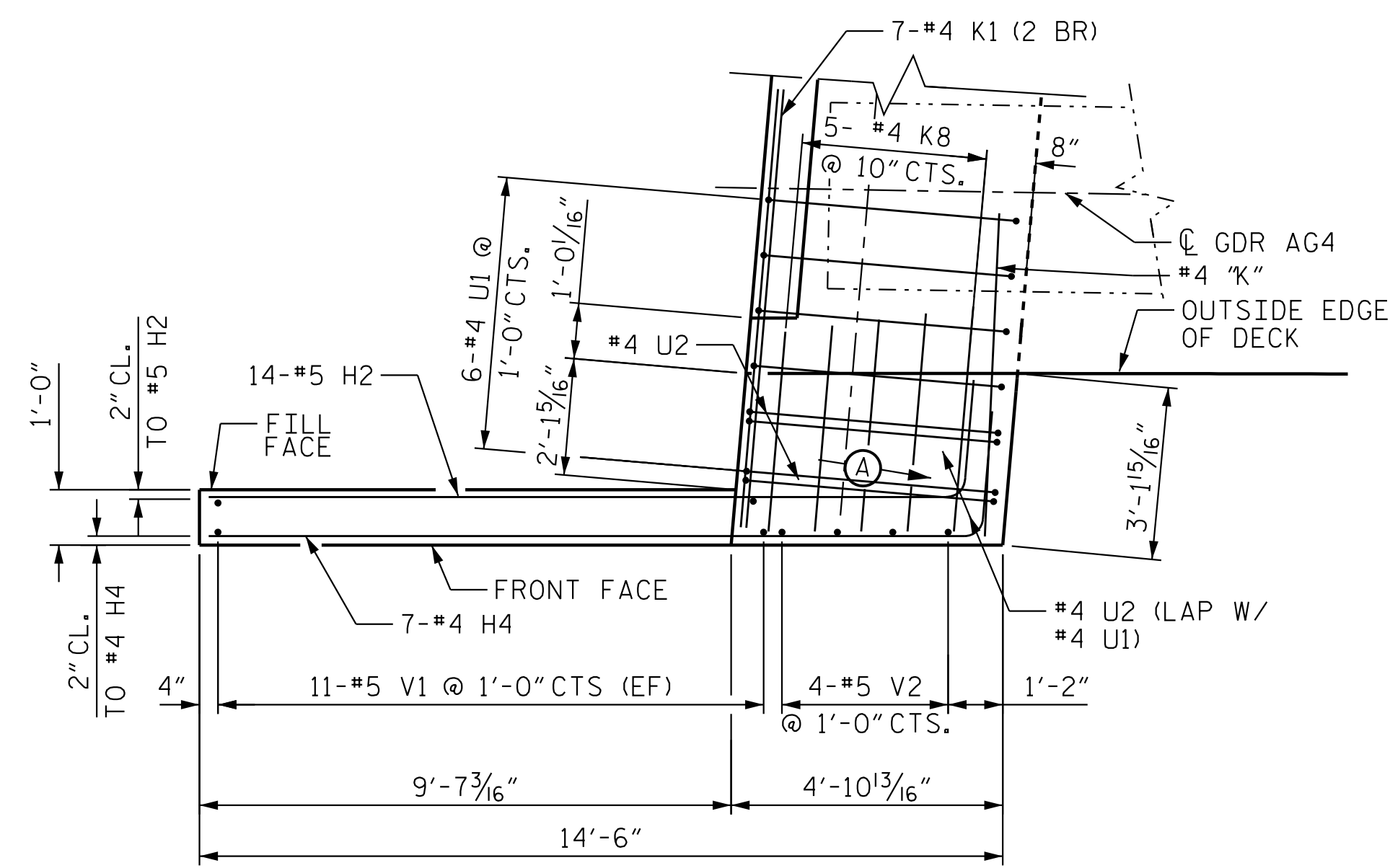
← A — SLOPE TOP OF WALL BETWEEN EDGE OF DECK AND OUTSIDE FACE OF WING TRANSVERSELY @ 0.02% FROM FILL FACE TO FRONT FACE OF THE CAP.

(EF) DENOTES EACH FACE.

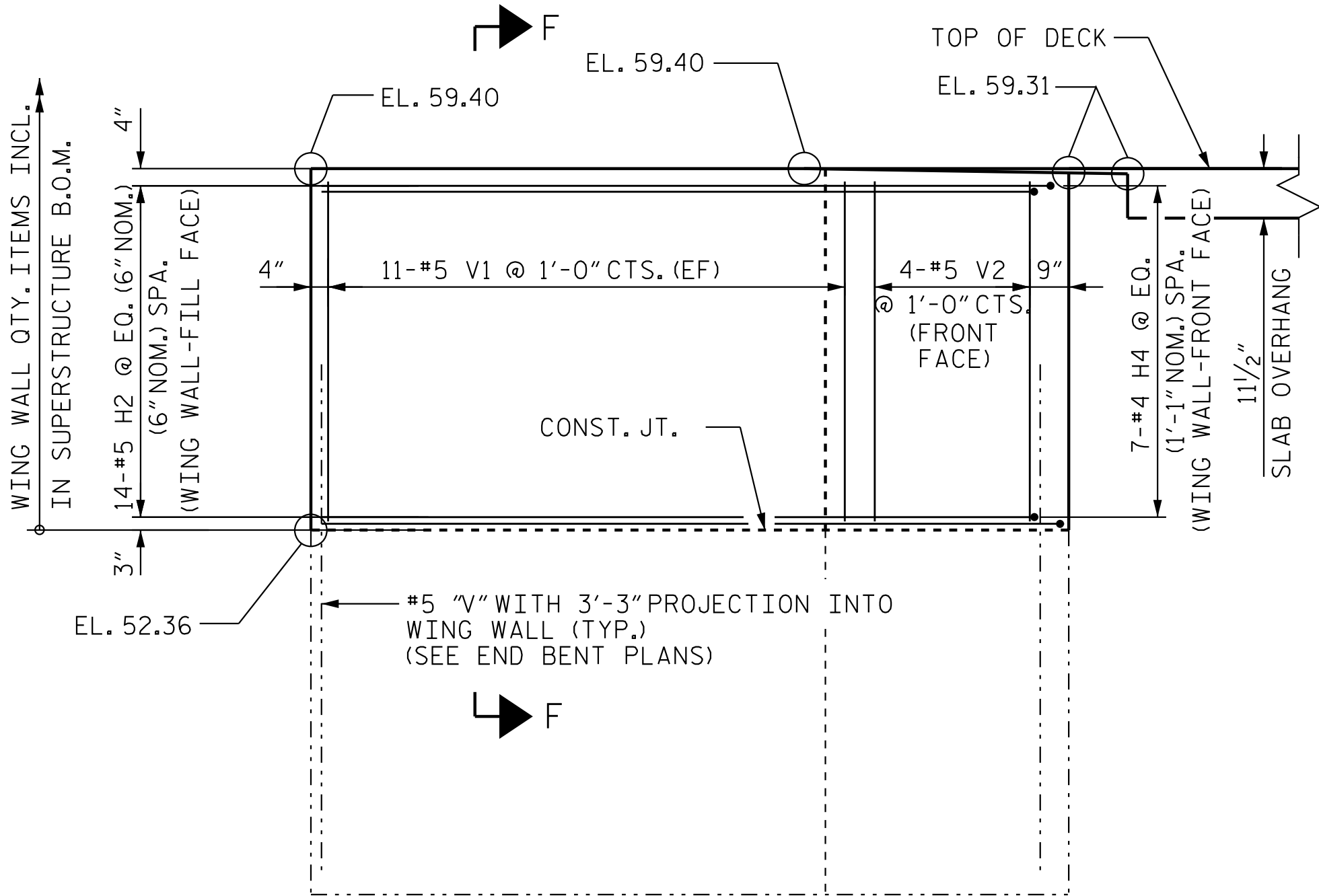
(2 BR) DENOTES 2 BAR RUN.



ELEVATION OF LEFT WING (W1)

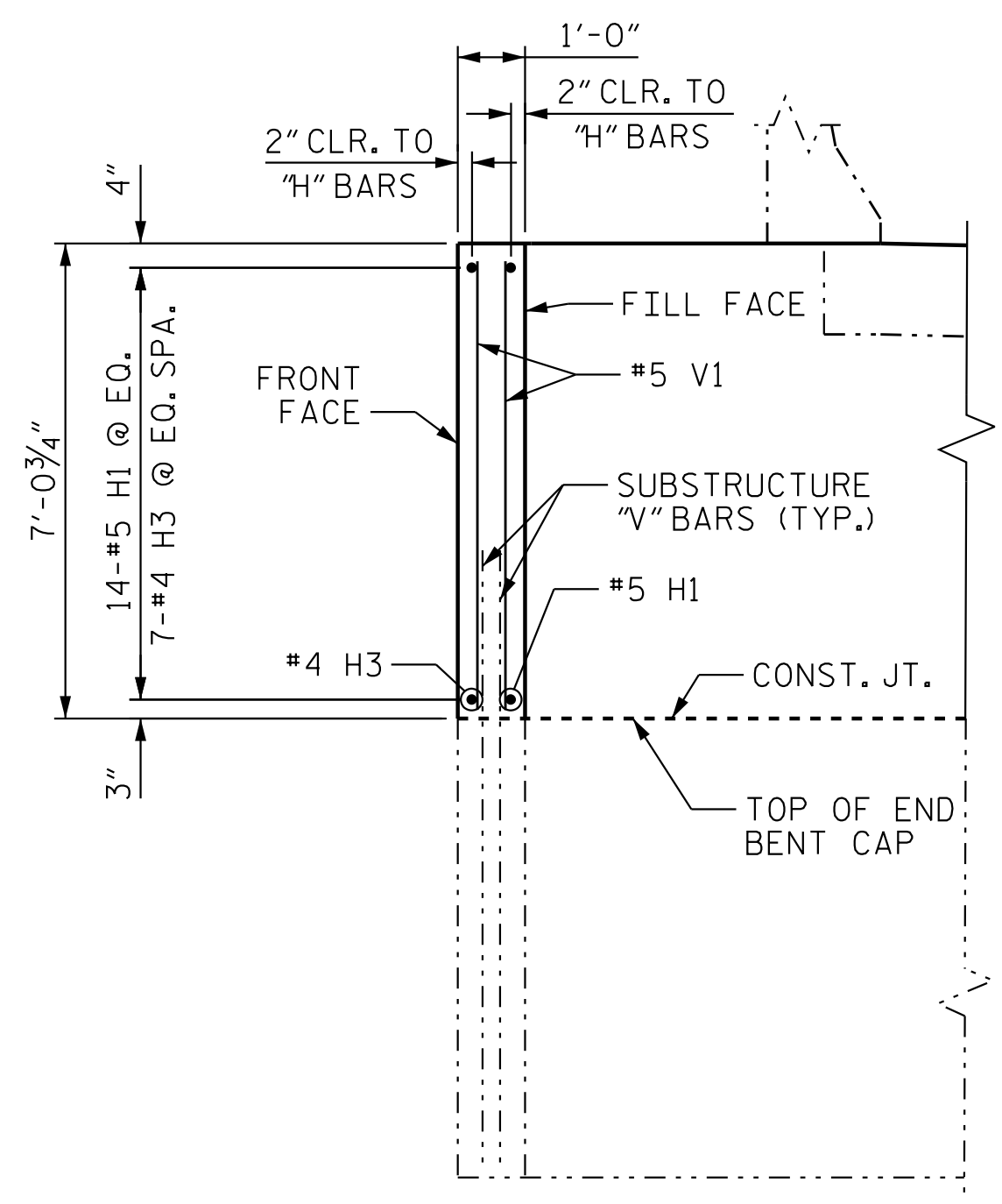


PLAN OF RIGHT WING (W2)

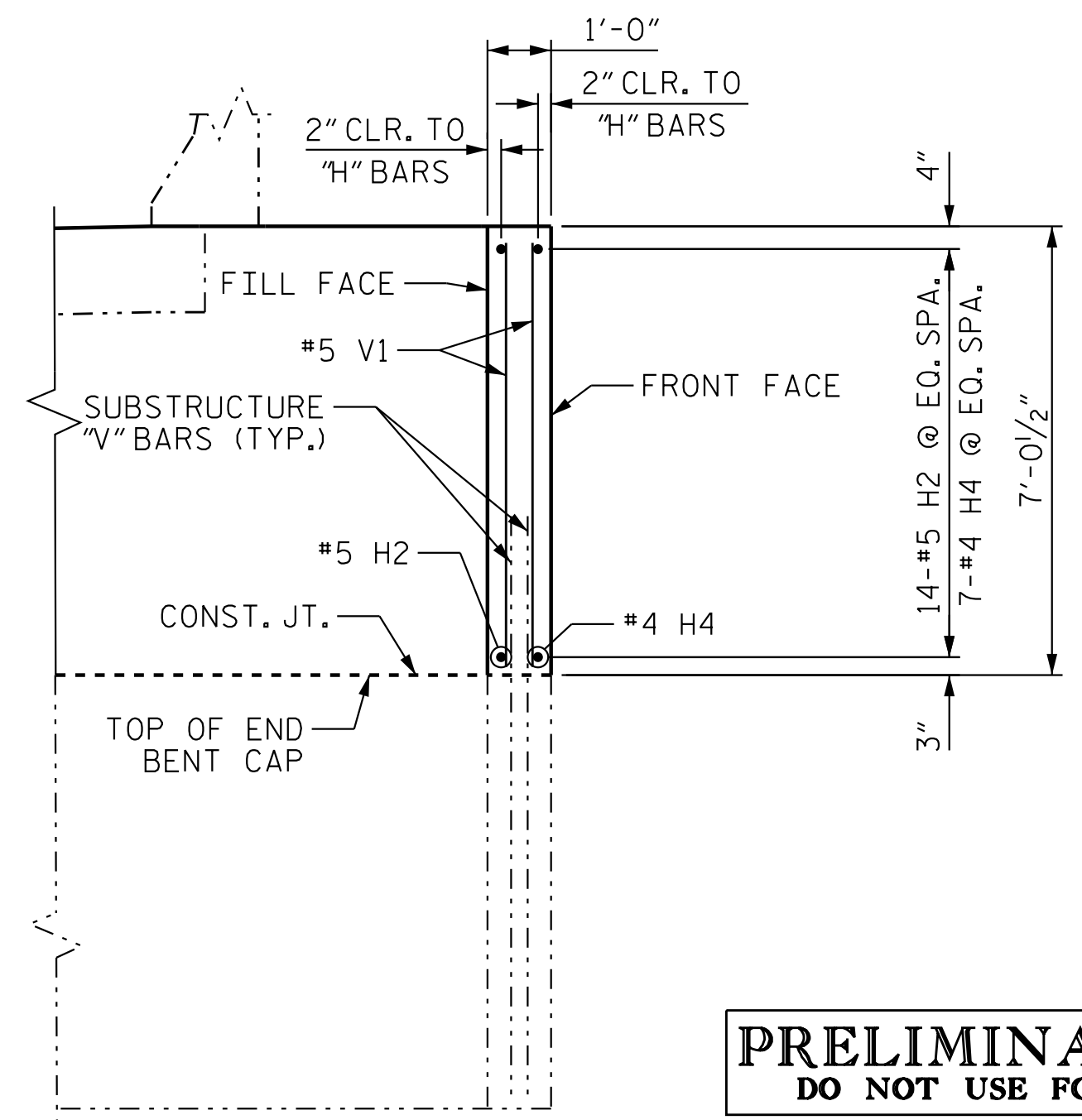


ELEVATION OF RIGHT WING (W2)

WING DETAILS



SECTION E-E



SECTION F-F

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

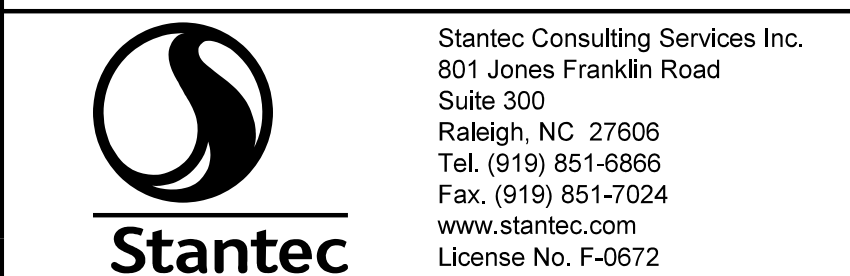
PROJECT NO. R-3300A
NEW HANOVER COUNTY
STATION: 24+28.73 -Y34-

SHEET 4 OF 5



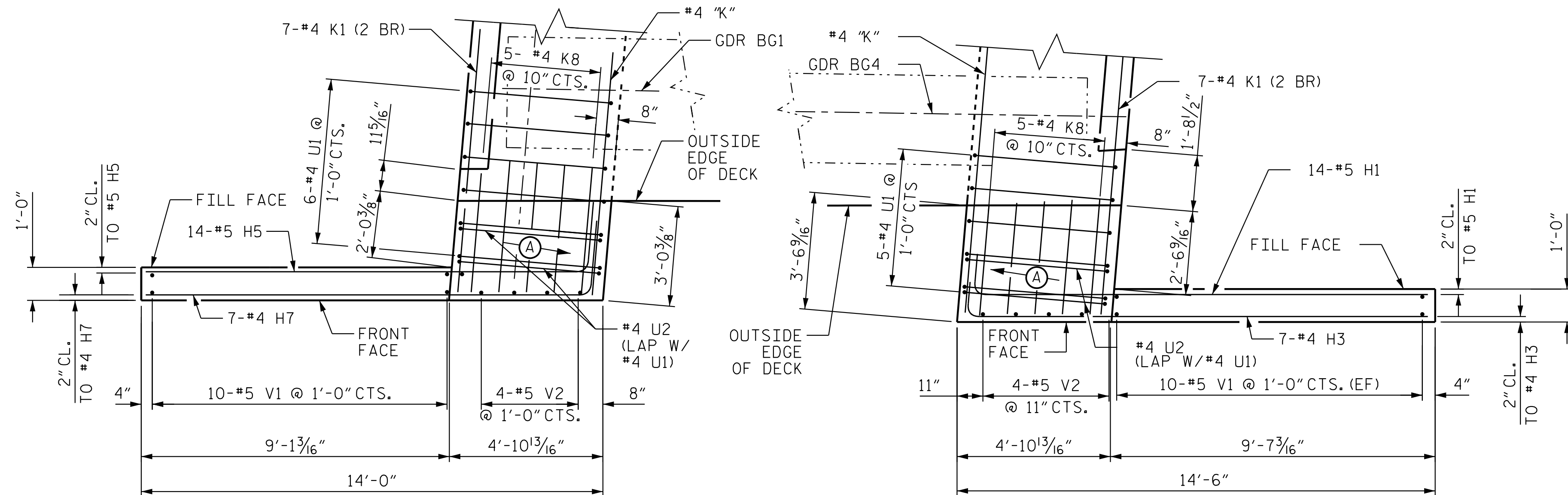
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
PLAN OF SPAN DETAILS WING WALLS @ END BENT 1					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. S05-12					TOTAL SHEETS 34

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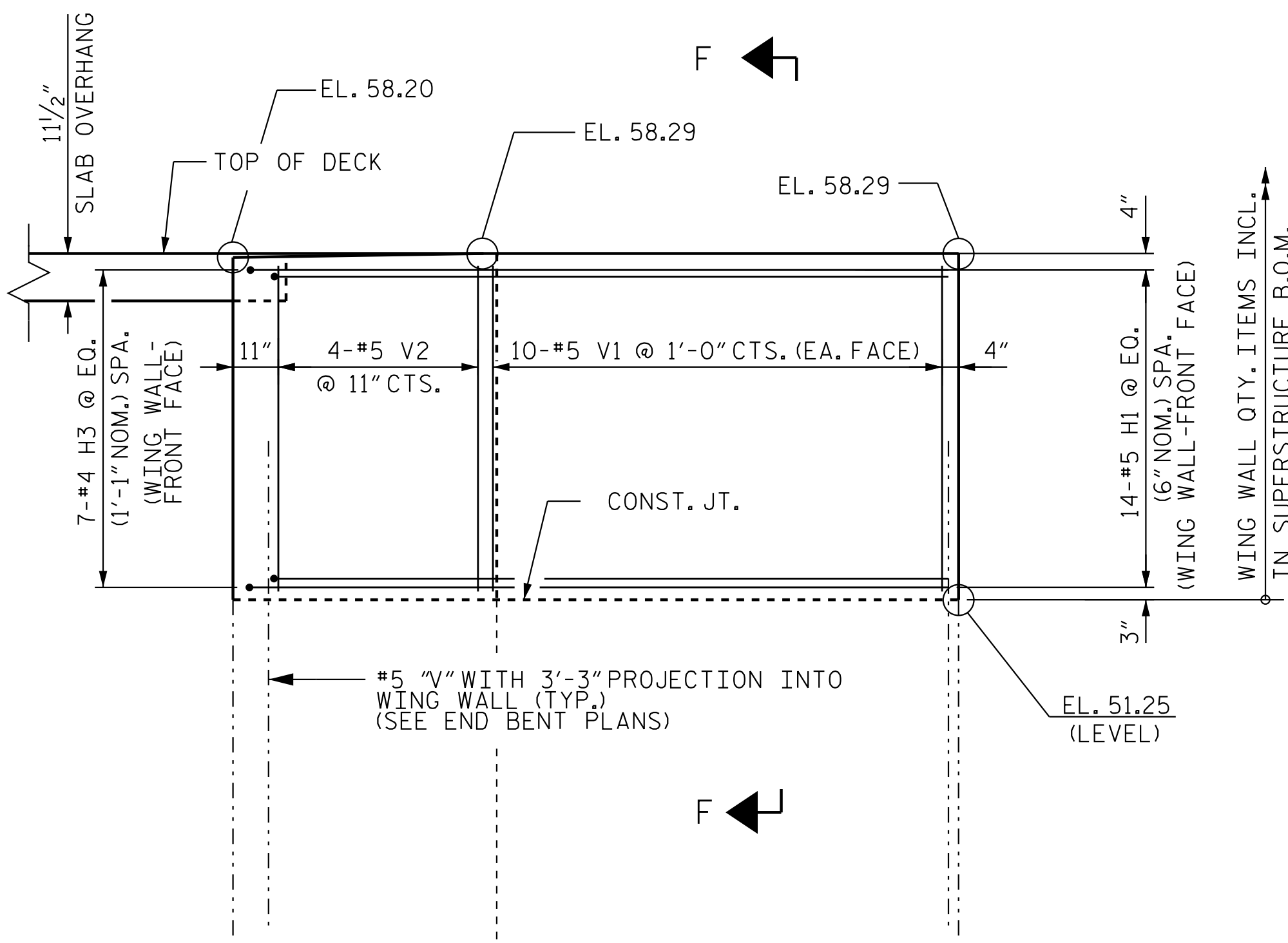
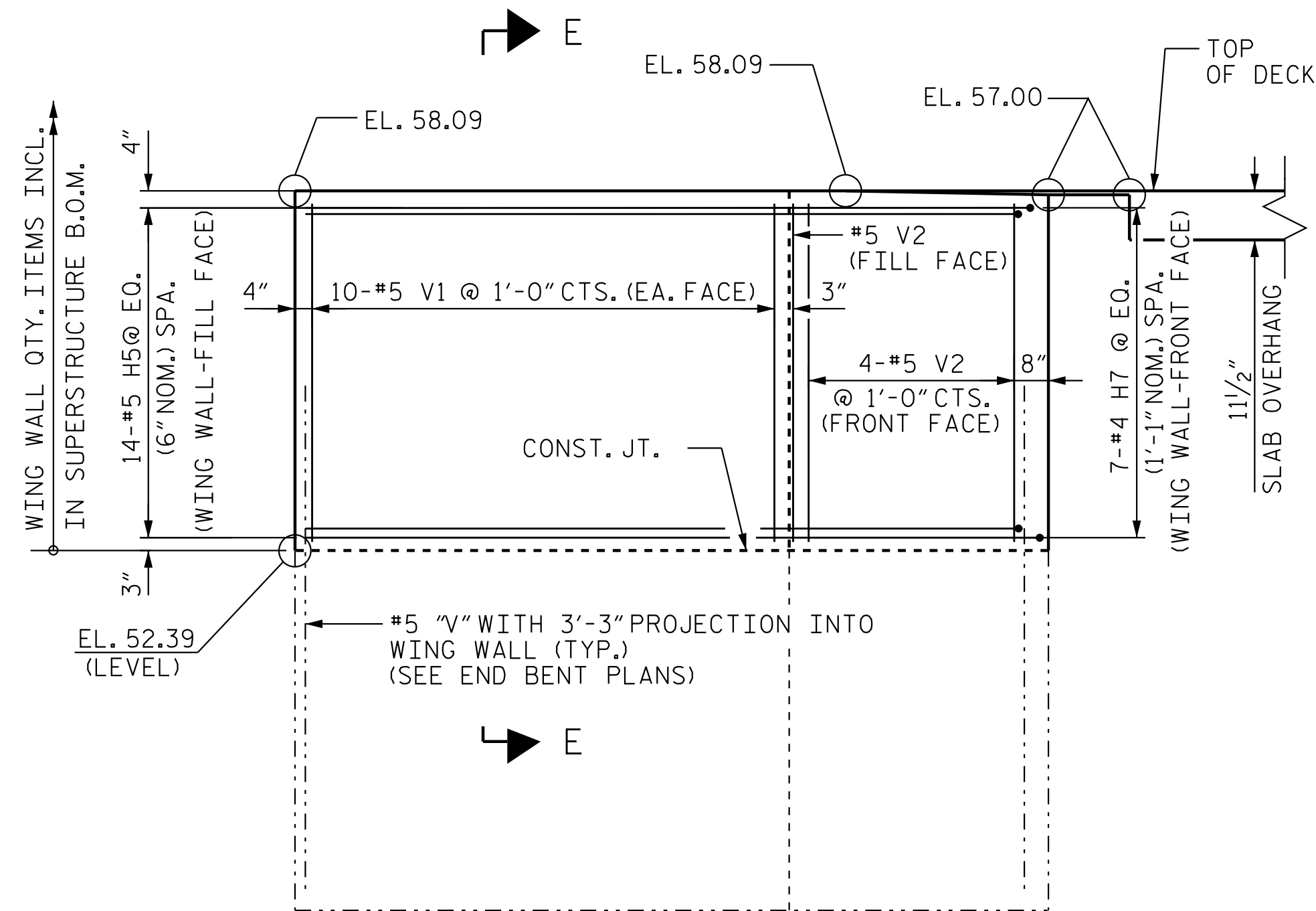


NOTE:
DIAPHRAGM REINFORCING STEEL NOT SHOWN FOR CLARITY.
FOR DIAPHRAGM REINFORCEMENT, SEE "PLAN OF SPAN DETAILS - DIAPHRAGMS"

—(A)— SLOPE TOP OF WALL BETWEEN EDGE OF DECK AND OUTSIDE FACE OF WING
TRANSVERSELY @ 0.02% FROM FILL FACE TO FRONT FACE OF THE CAP.

(EF) DENOTES EACH FACE.

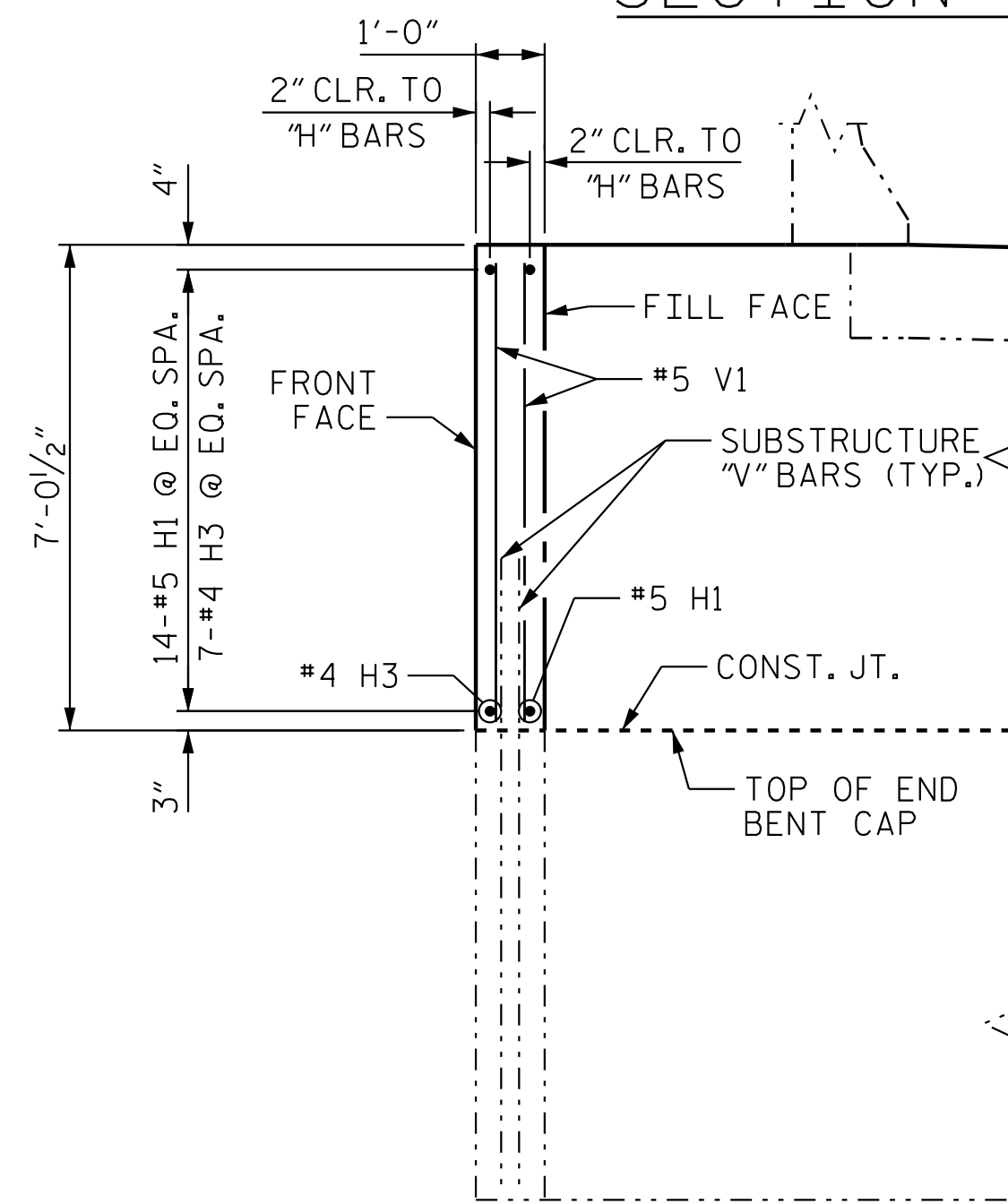
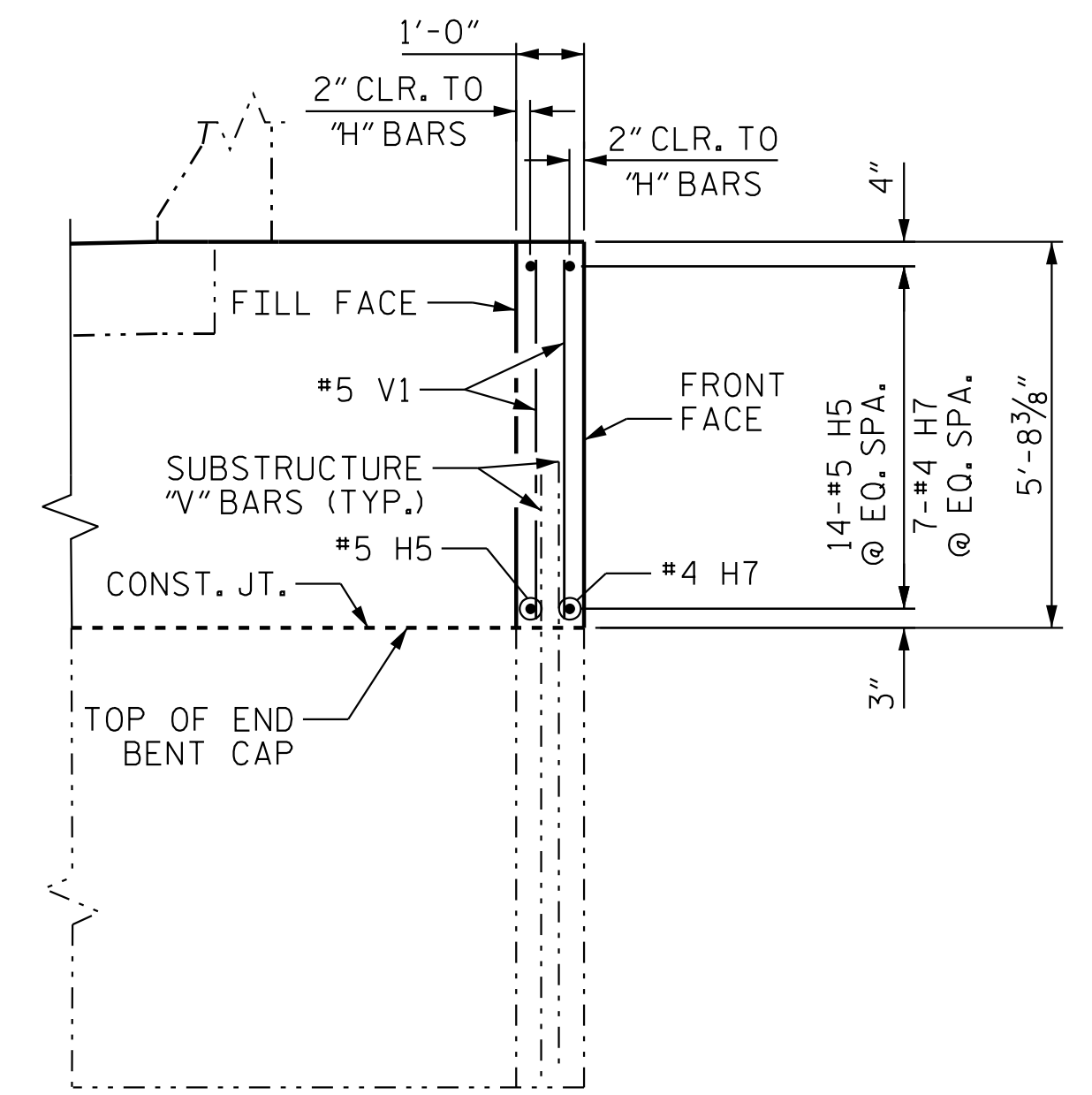
(2 BR) DENOTES 2 BAR RUN.



ELEVATION OF LEFT WING (W3)

ELEVATION OF RIGHT WING (W4)

WING DETAILS



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PROJECT NO. R-3300A
NEW HANOVER COUNTY
 STATION: 24+28.73 -Y34-

SHEET 5 OF 5



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF SPAN
DETAILS
WING WALLS
@ END BENT 2

REVISIONS						SHEET NO. S05-13
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 34
2			4			

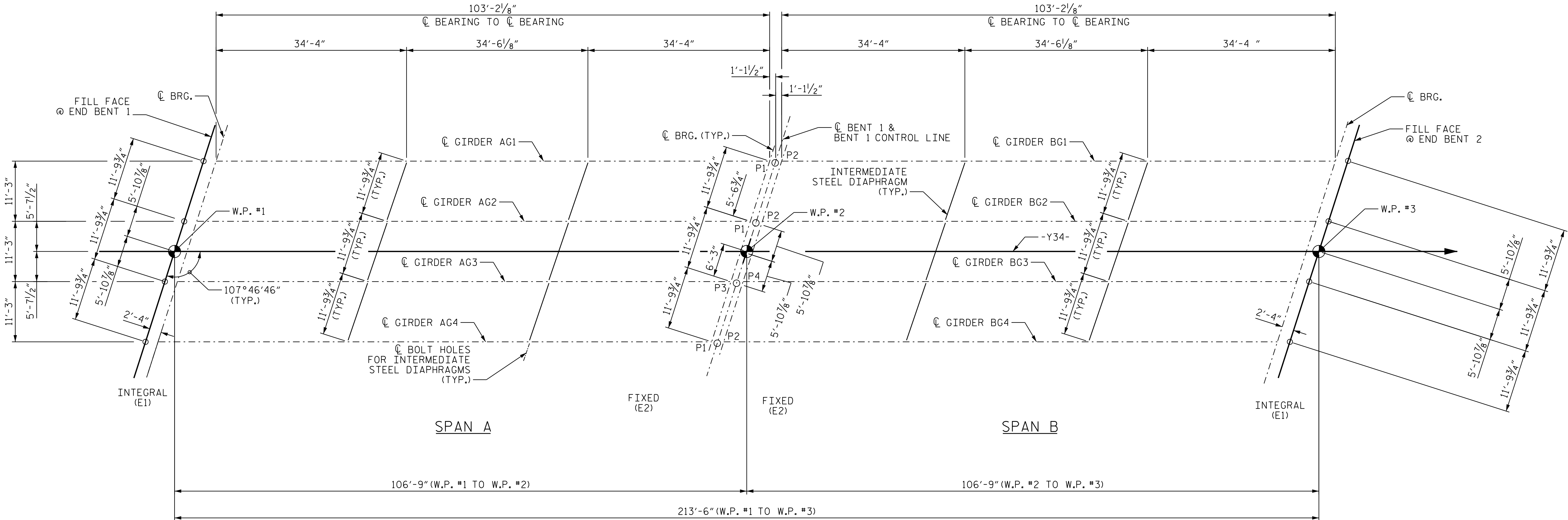
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FRAMING PLAN

NOTES:

ALL DIMENSIONS ARE HORIZONTAL OR VERTICAL UNLESS NOTED.

REFER TO PLAN OF SPAN DETAILS FOR END BENT DIAPHRAGMS.

SEE TYPICAL SECTION FOR END BENT DIAPHRAGM DETAILS.

E1,E2 DEFINES PLACEMENT OF ELASTOMERIC BEARINGS. SEE ELASTOMERIC BEARING DETAILS.

FOR INTERMEDIATE STEEL DIAPHRAGMS, SEE "INTERMEDIATE STEEL DIAPHRAGMS FOR 72"PRESTRESSED CONCRETE GIRDERS".

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STATION: 24+28.73 -Y34-



STATE OF NORTH CAROLINA
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RALEIGH
SUPERSTRUCTURE

FRAMING PLAN

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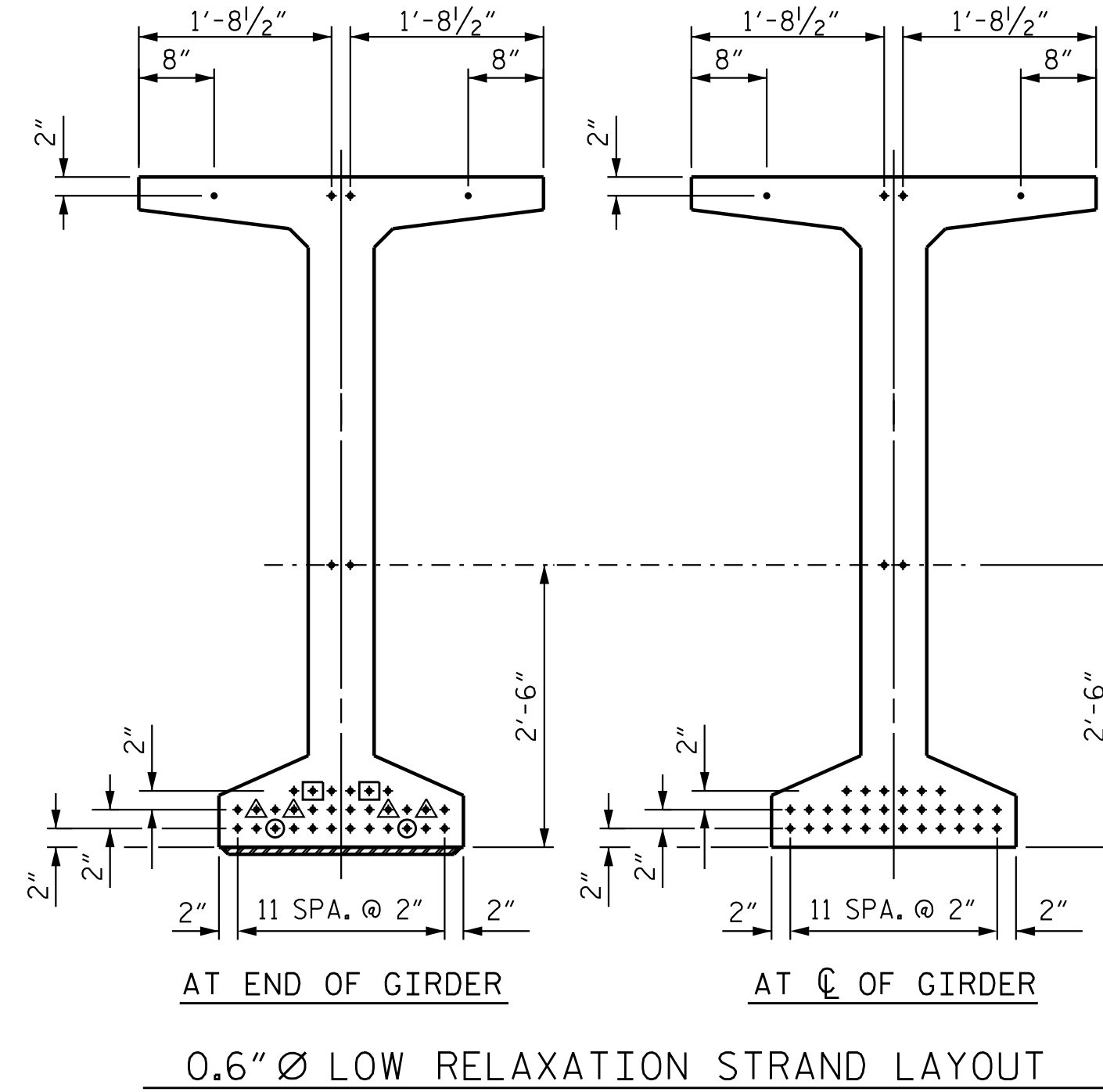
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DRAWN BY : J. B. GEILLE DATE : 07/17/18
CHECKED BY : E. M. MURR DATE : 12/03/18

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BAR TYPES

Diagram illustrating five types of reinforcement bars (1-5) with their dimensions. All dimensions are out-to-out.

- Bar 1:** Straight bar. Width: 8". Length: 6'-2".
- Bar 2:** U-bar. Width: 5". Length: 4'-0".
- Bar 3:** Z-bar. Width: 8". Length: 1'-8".
- Bar 4:** U-bar. Width: 7 1/2". Length: 3'-0 1/2".
- Bar 5:** U-bar. Width: 6". Length: 5'-6".

ALL BAR DIMENSIONS ARE OUT-TO-OUT



QUANTITIES FOR ONE GIRDER			
	REINFORCING STEEL	8,000 PSI CONCRETE	0.6" Ø L.R. STRANDS
	LB.	C.Y.	No.
	2189	22.4	36
GIRDERS REQUIRED			
NUMBER		LENGTH	TOTAL LENGTH
AG1 THRU AG4		104'-7 ¹ / ₄ "	418'-5"
BG1 THRU BG4		104'-7 ¹ / ₄ "	418'-5"

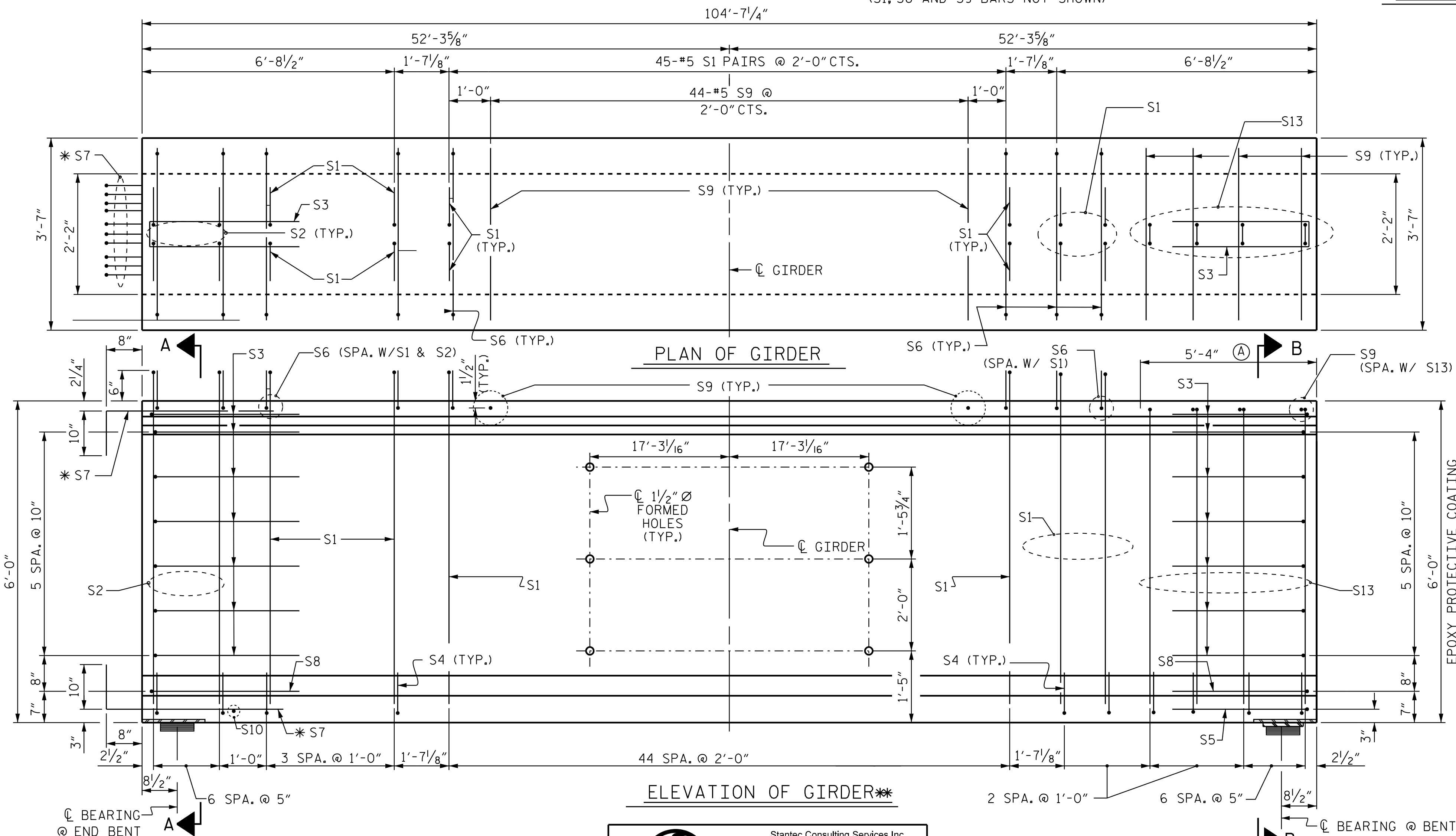
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 STATION: 24+28.73 -Y34-

SHEET 1 OF 3

STANDARD
72" PRESTRESSED CONCRETE
MODIFIED BULB TEE
LINK SLAB
SPANS A & B

REVISIONS						SHEET NO. S05-15
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 34
2			4			

STD. NO. PCG8



NOTE: FIX (A) LINK SLAB ZONE. DO NOT RAKE
TOP OF GIRDER IN THIS ZONE.
** SPAN A SHOWN, SPAN B SIMILAR BY ROTATION

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Joe Kelvington 5/6/2025
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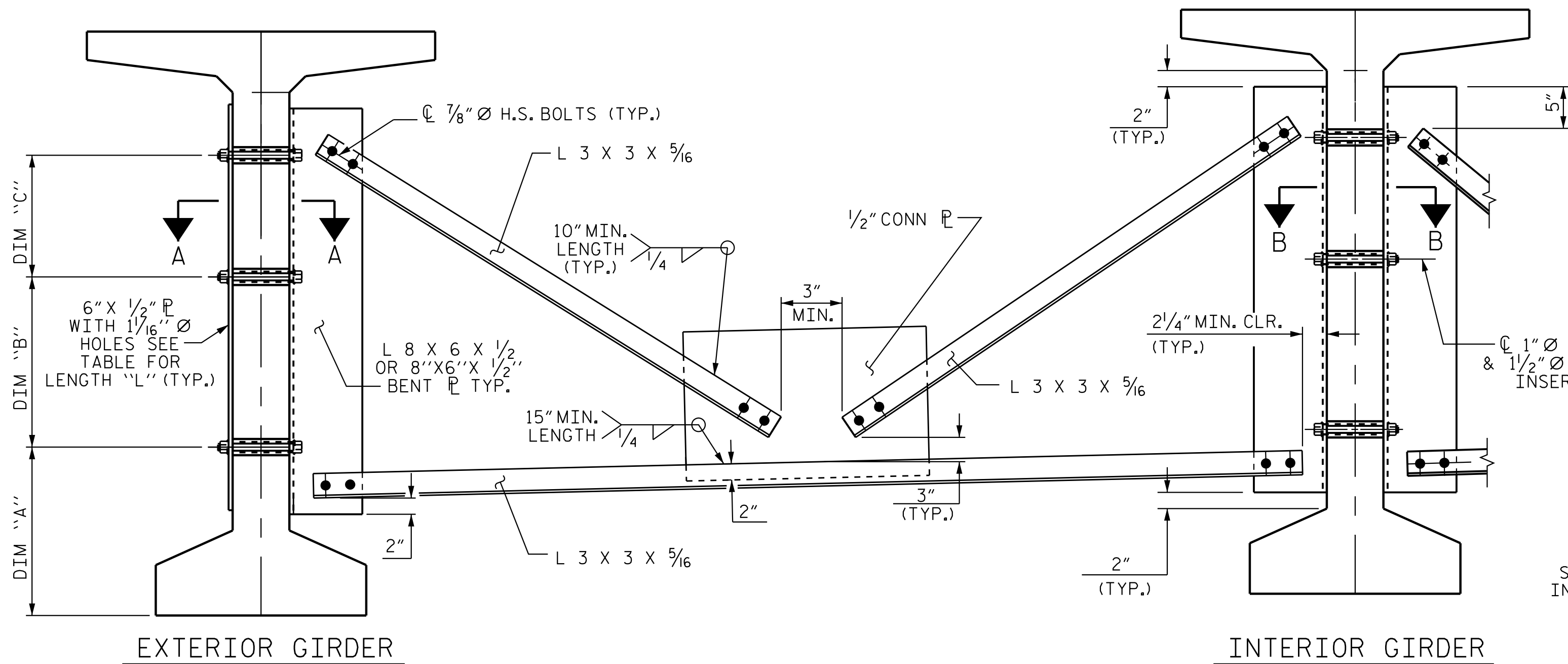
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ASSEMBLED BY : J. E. HAGENBUSH		DATE : 08/02/18	
CHECKED BY : E. M. MURR		DATE : 12/03/18	
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CHECKED BY : VAP	2/6/97	REV. 1/15	MAA/TMG
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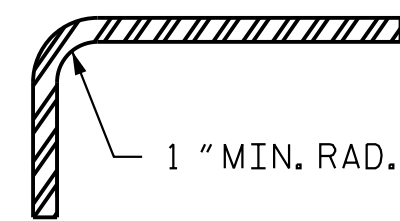
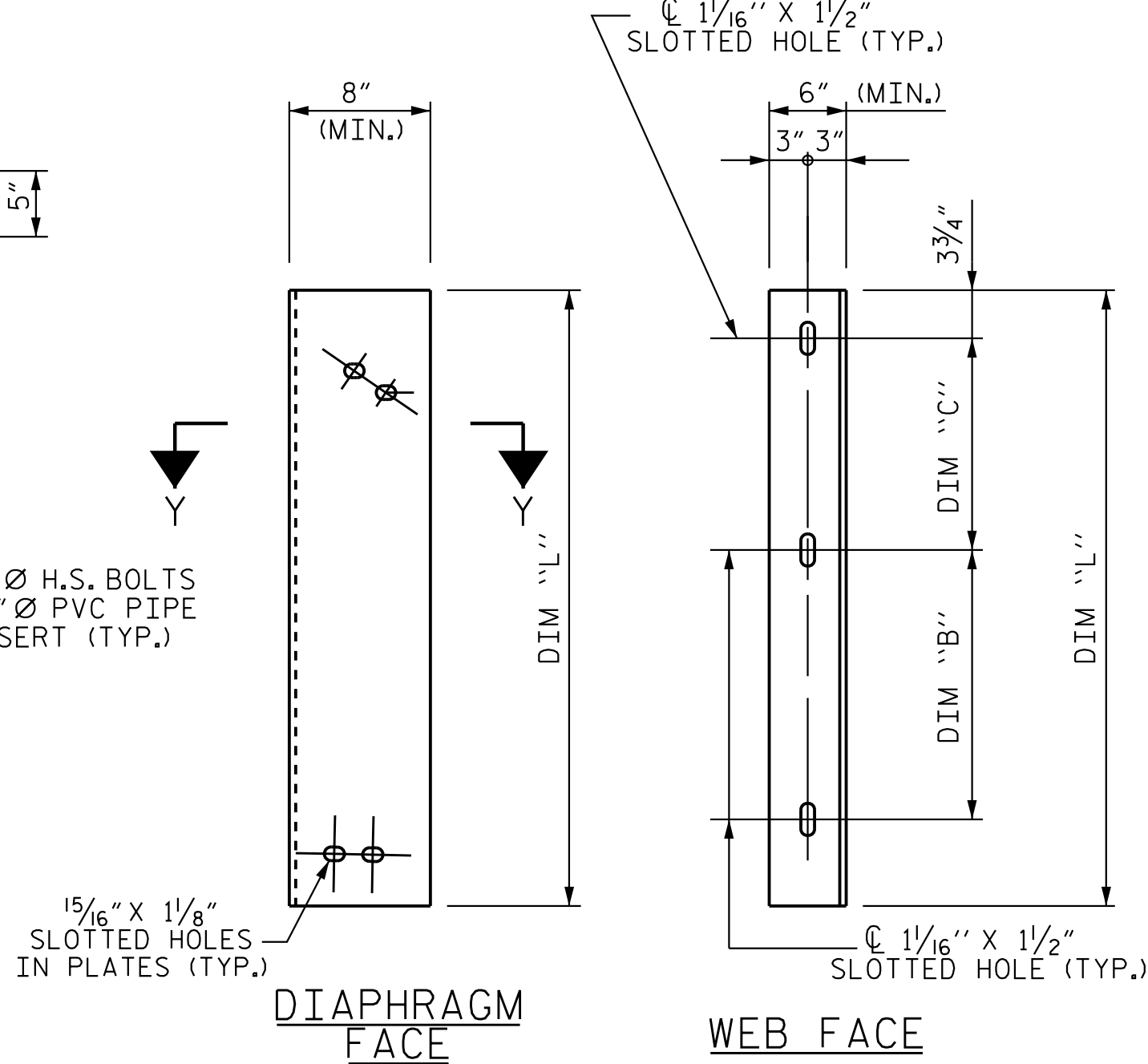
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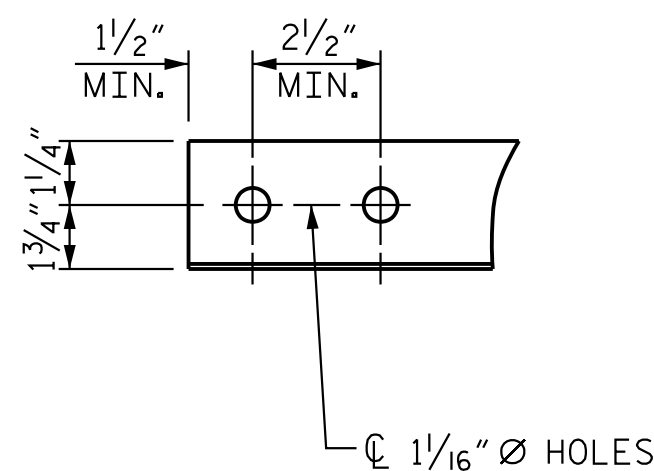
PART SECTION AT INTERMEDIATE DIAPHRAGM

(MODIFIED 72" PRESTRESSED CONCRETE GIRDER)
(72" BULB TEE GIRDER SHOWN)



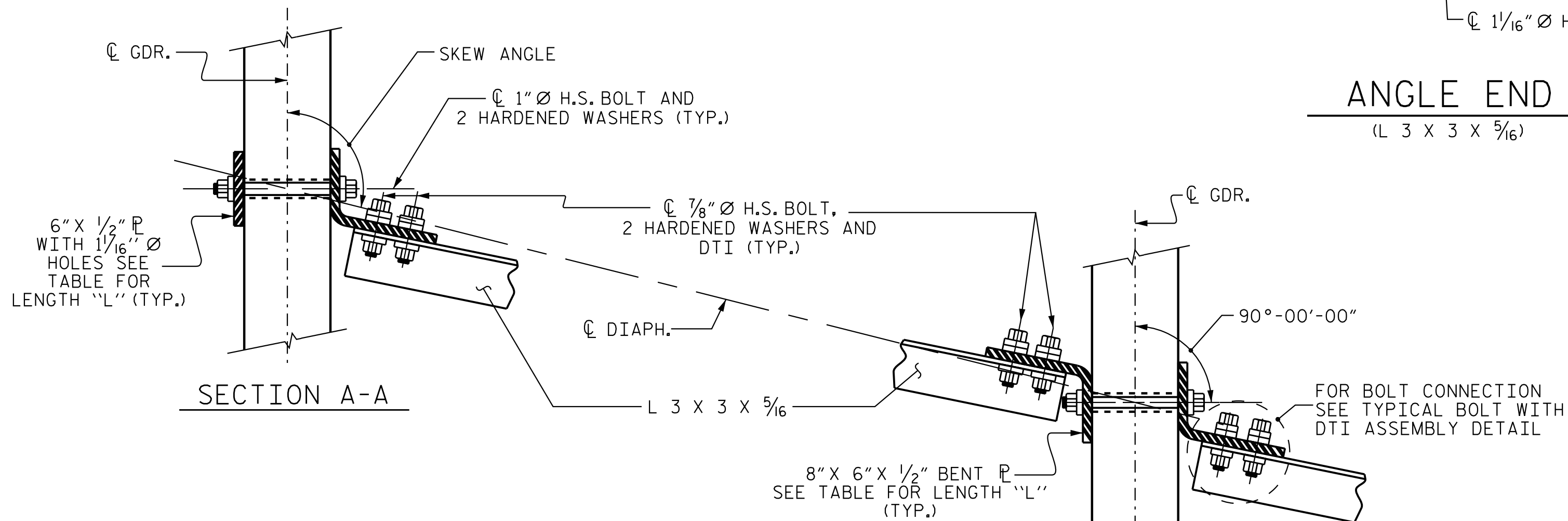
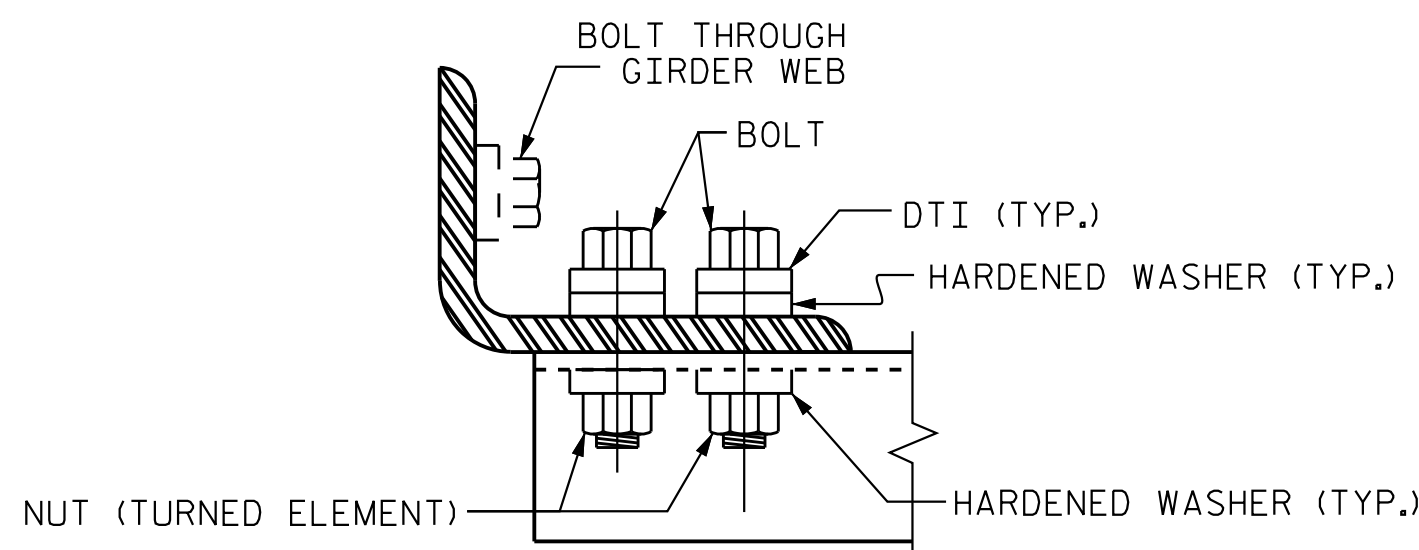
SECTION Y-Y

CONNECTOR PLATE DETAIL



ANGLE END

(L 3 x 3 x 5/16)



CONNECTION DETAILS

(90° < SKEW < 110° SHOWN
70° ≤ SKEW < 90° SIM.)



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CHECKED BY : E. M. MURR DATE : 12/03/18

DRAWN BY : RWW 11/09
CHECKED BY : GM 11/09

REV. 10/11/11
REV. 12/17

MAA/GM
MAA/THC

DESIGN
ENGINEER
OF RECORD: J. T. KELVINGTON DATE : 04/22/25

STRUCTURAL STEEL NOTES

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

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

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

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

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

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

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

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

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

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

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

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

TABLE

GIRDER TYPE	DIM "A"	DIM "B"	DIM "C"	DIM "L"
72" BULB TEE	1'-5"	2'-0"	1'-5 3/4"	4'-2"

NOTE:
THE 1 1/2" HOLES IN GIRDER SHOULD BE LOCATED TO NOT INTERFERE WITH STRANDS

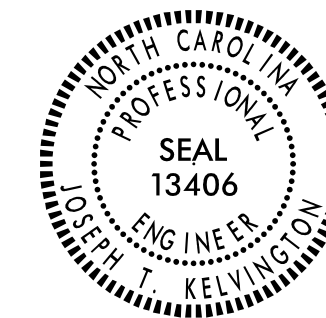
PRELIMINARY PLANS
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PROJECT NO. R-3300A

NEW HANOVER COUNTY

STATION: 24+28.73 -Y34-

SHEET 3 OF 3



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

INTERMEDIATE
STEEL DIAPHRAGMS
FOR MODIFIED 72"
PRESTRESSED CONCRETE
GIRDERS

REVISIONS

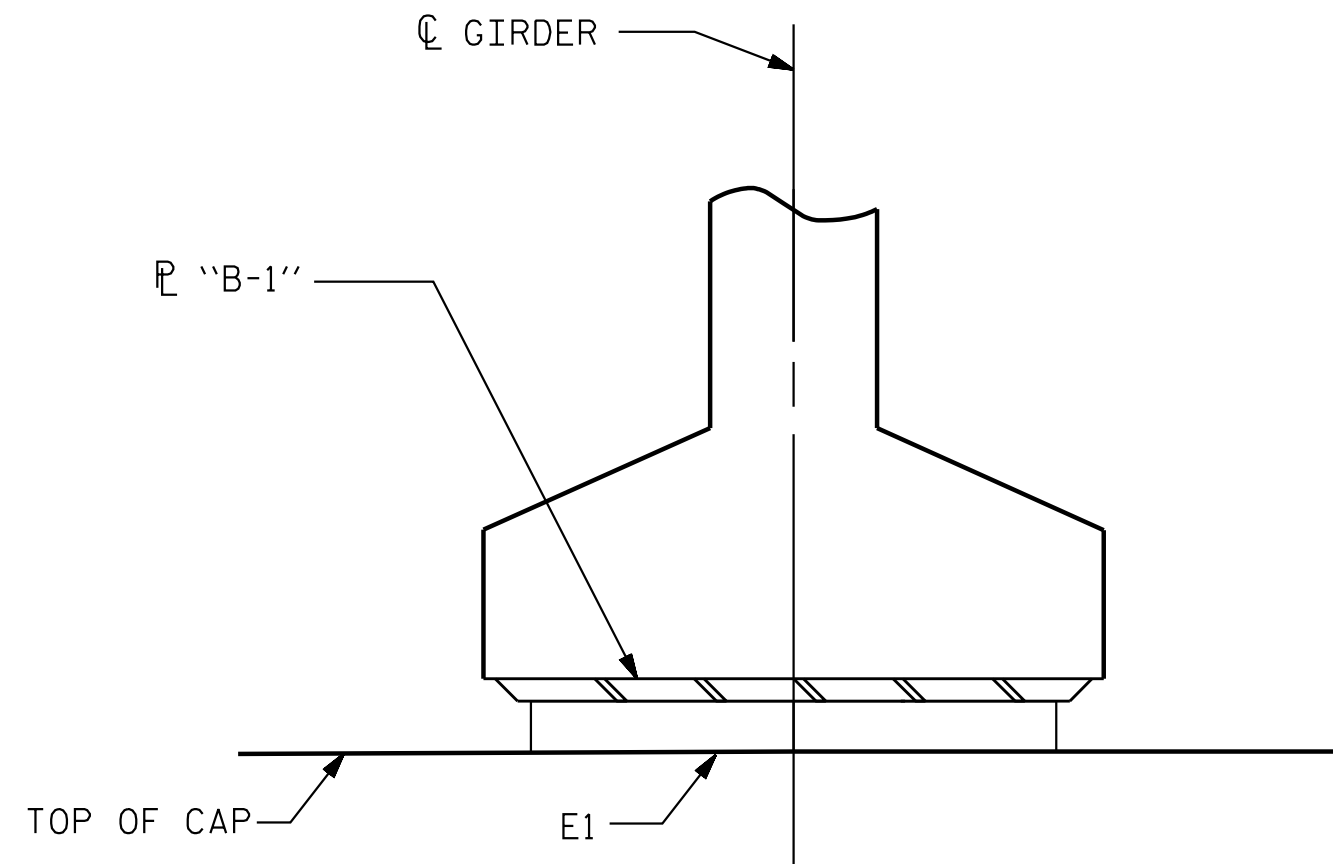
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SHEET NO.
S05-17

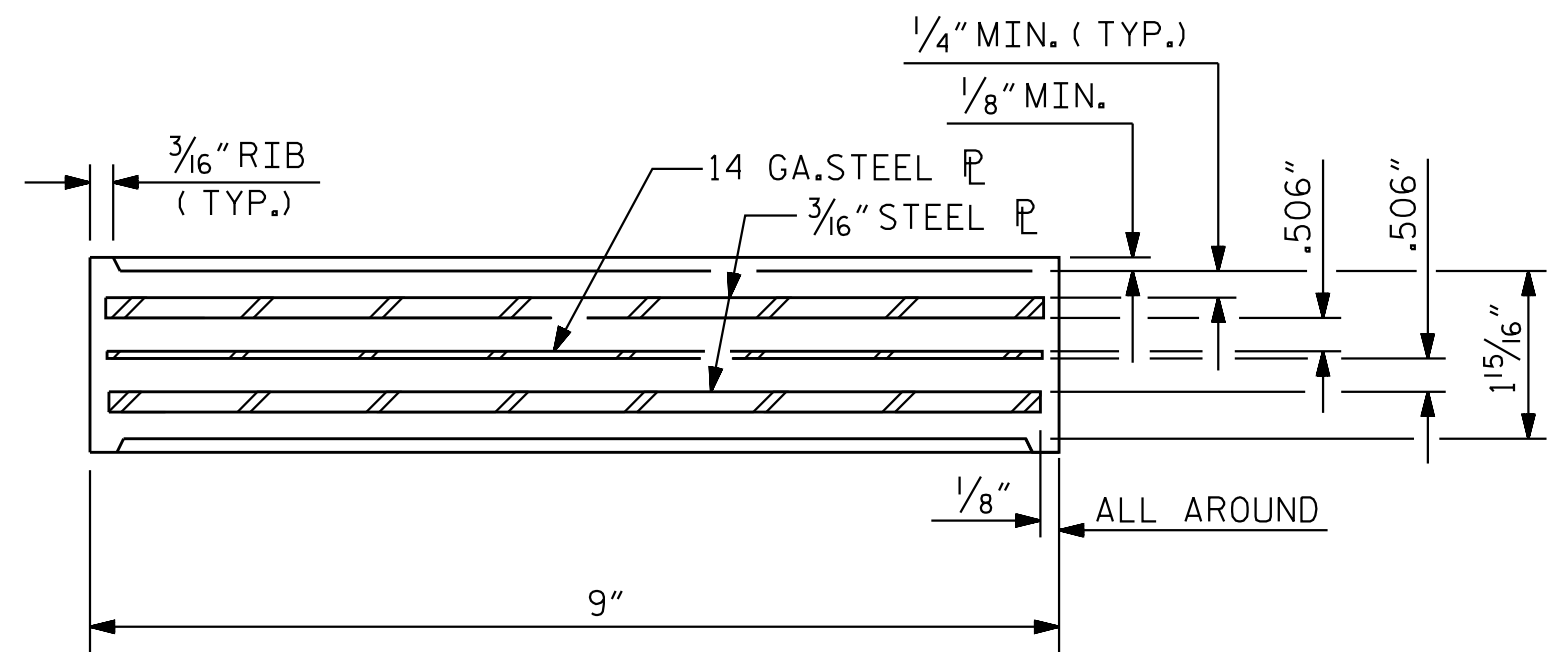
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SHEETS
34

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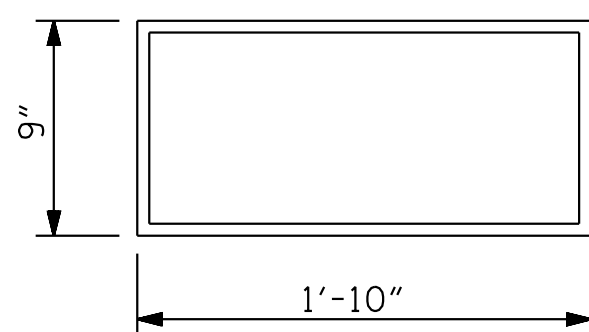
STD. NO. PCG11



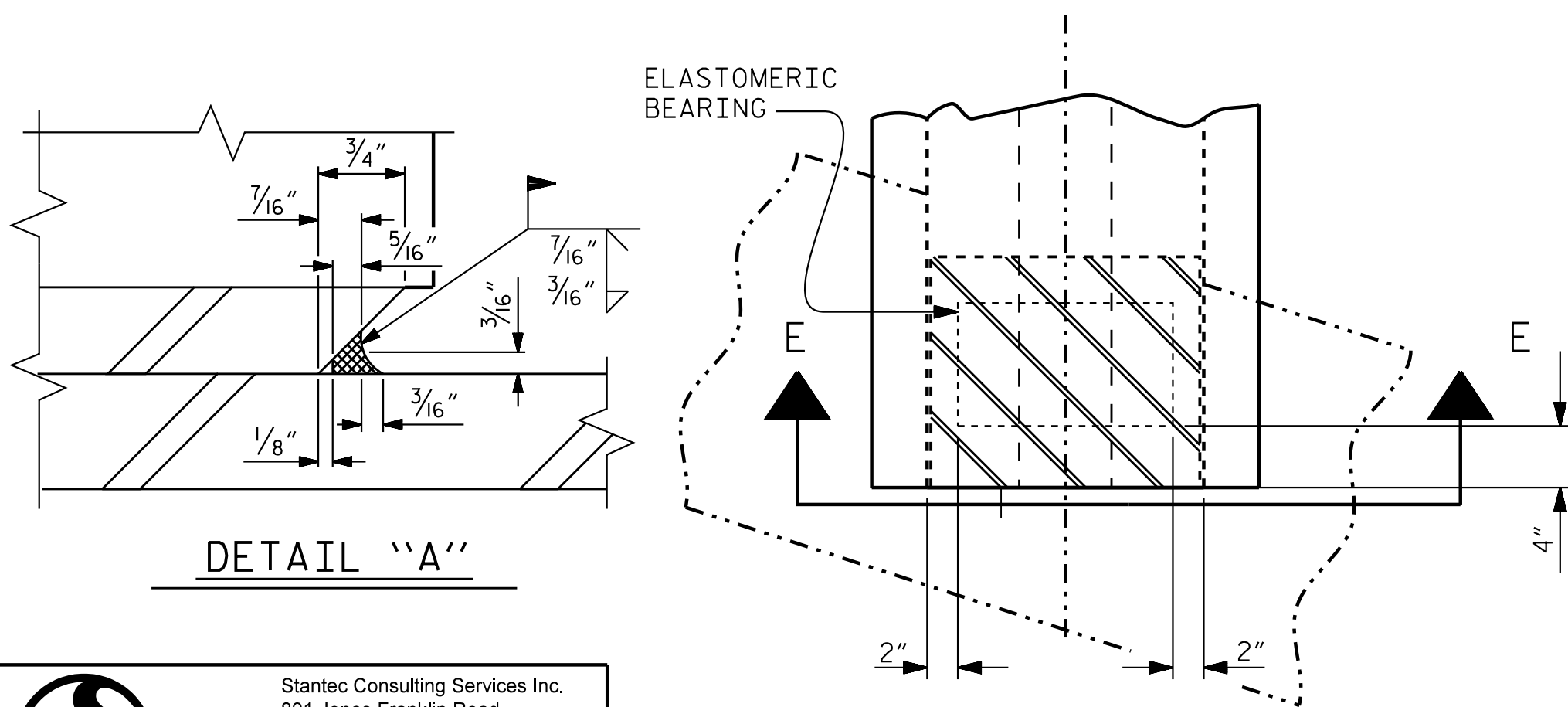
INTEGRAL
SECTION E-E



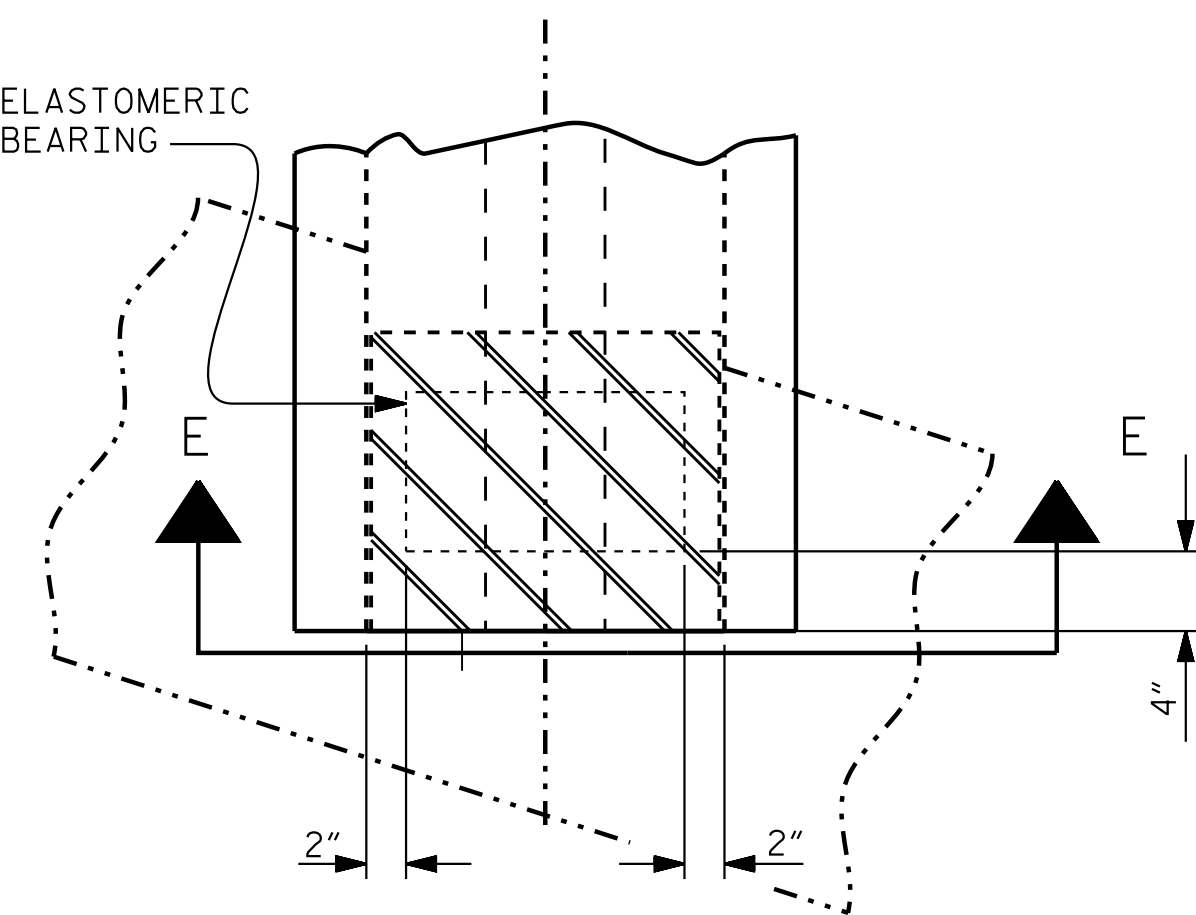
TYPICAL SECTION OF ELASTOMERIC BEARINGS



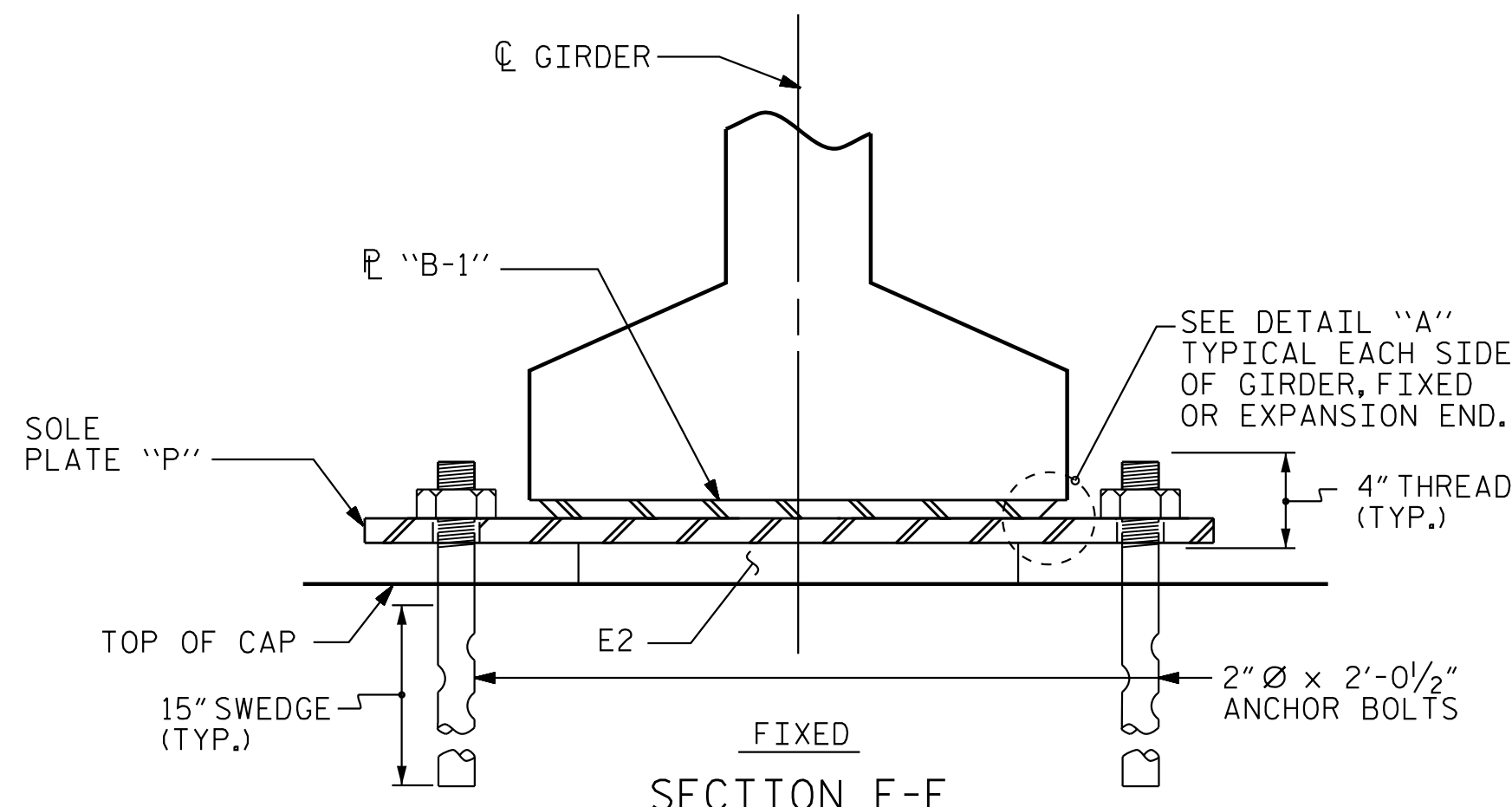
E1 (8 REQ'D)
PLAN VIEW OF ELASTOMERIC BEARING
TYPE IV



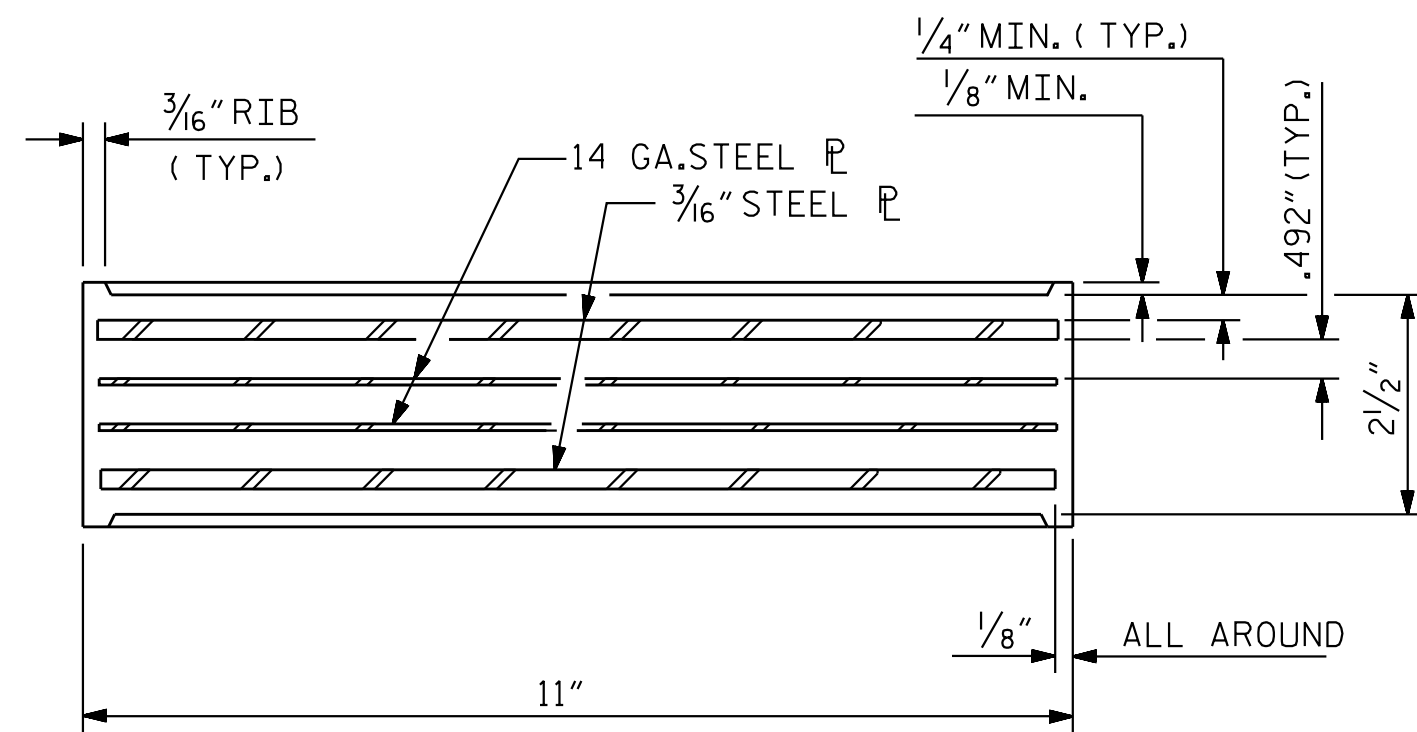
DETAIL "A"



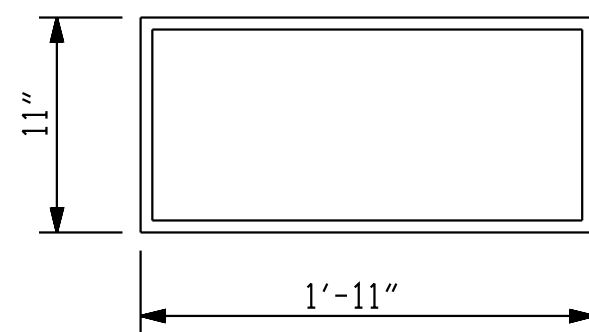
TYPICAL PLAN
(SHOWING INTEGRAL END BENT)



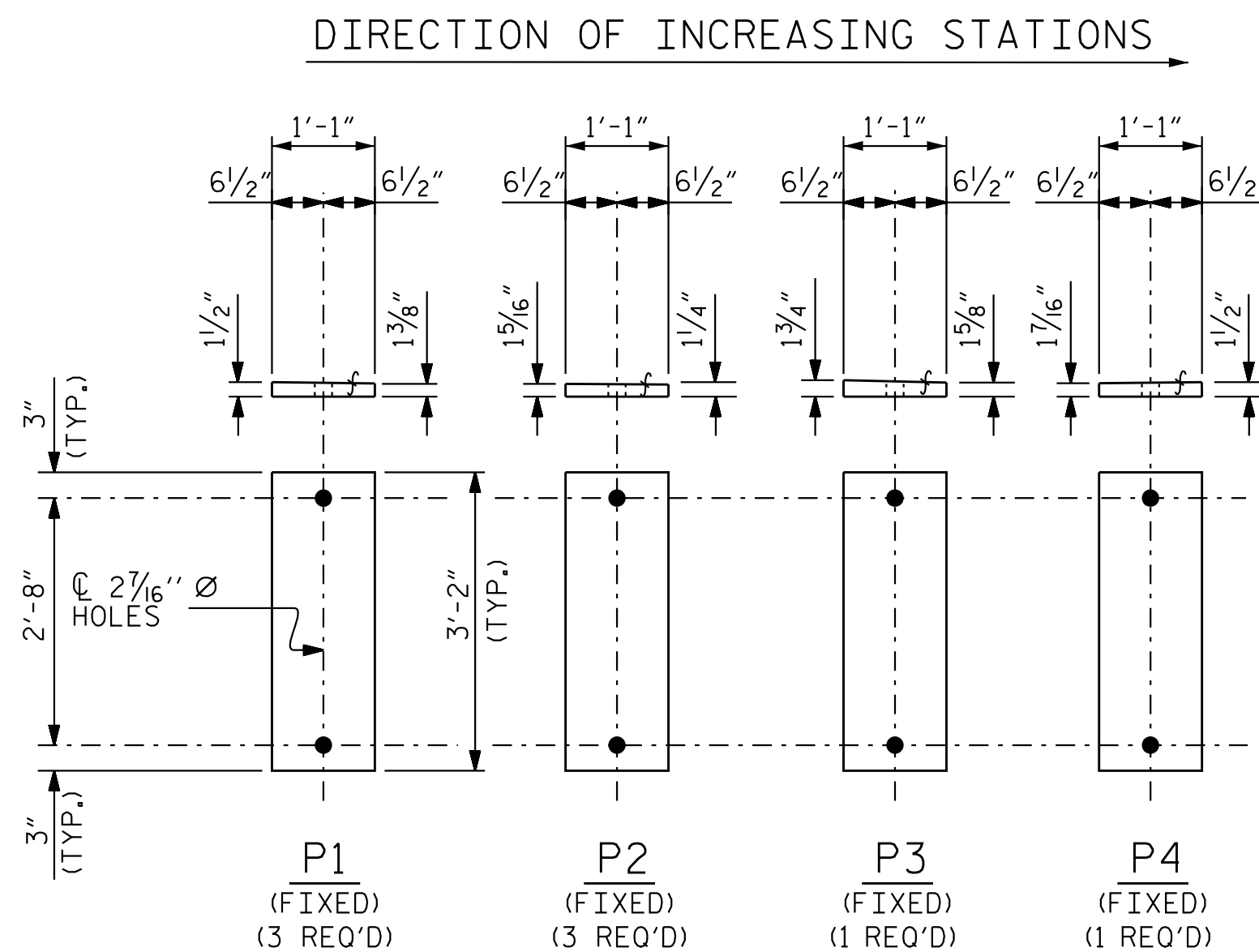
SECTION F-F



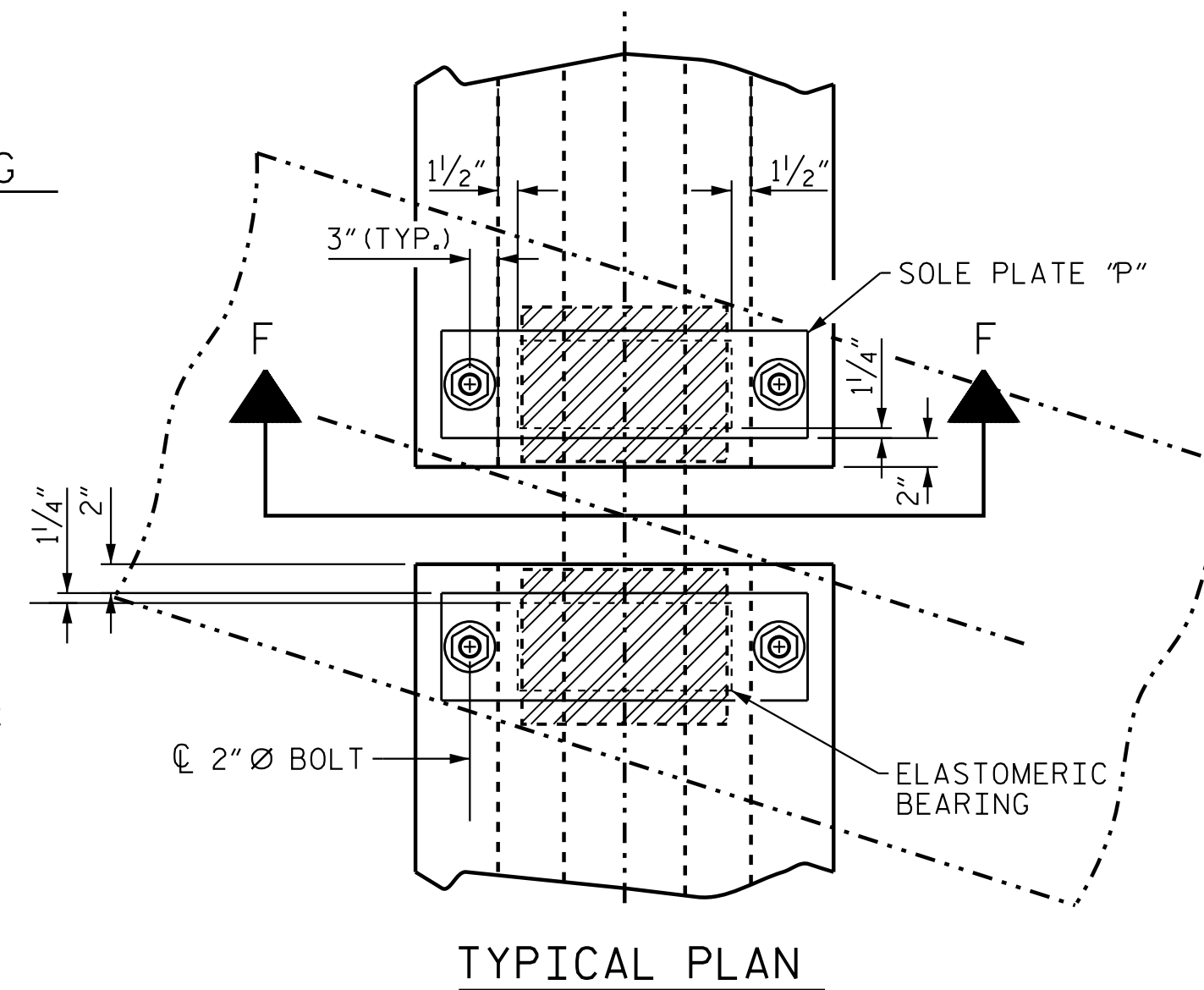
TYPICAL SECTION OF ELASTOMERIC BEARINGS



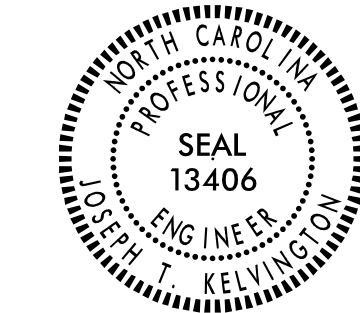
E2 (8 REQ'D)
PLAN VIEW OF ELASTOMERIC BEARING
TYPE VI



SOLE PLATE DETAILS



TYPICAL PLAN



NOTES

AT ALL FIXED POINTS OF SUPPORT, NUTS FOR ANCHOR BOLTS ARE TO BE TIGHTENED FINGER TIGHT AND THEN BACKED OFF 1/2 TURN. THE THREAD OF THE NUT AND BOLT SHALL THEN BE BURRED WITH A SHARP POINTED TOOL.

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

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

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

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

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

ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.

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

ALL SOLE PLATES SHALL BE AASHTO M270 GRADE 36.

FOR STEEL REINFORCED ELASTOMERIC BEARINGS, SEE STANDARD SPECIFICATIONS.

MAXIMUM ALLOWABLE SERVICE LOADS

D.L.+L.L. (NO IMPACT)

TYPE IV	225 k
TYPE VI	420 k

PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION

PROJECT NO. R-3300A
NEW HANOVER COUNTY
STATION: 24+28.73 -Y34-

SHEET 1 OF 1

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD

ELASTOMERIC BEARING DETAILS

PRESTRESSED CONCRETE GIRDER
SUPERSTRUCTURE

REVISIONS						SHEET NO. S05-18
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 34
2			4			

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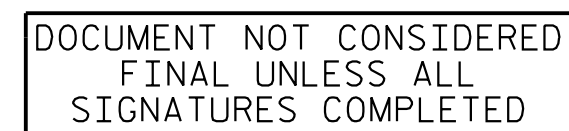
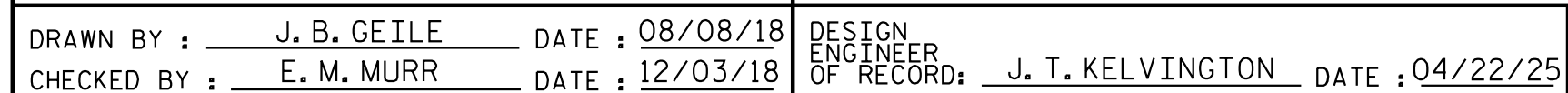
ASSEMBLED BY : J. B. GETLE
CHECKED BY : E. M. MURR
DATE : 08/08/18
DATE : 12/03/18

DRAWN BY : EEM 2/97
CHECKED BY : VAP 2/97
REV. 6/13
REV. 1/15
REV. 12/17
AAC/MAA
MAA/TMG
MAA/THC

DESIGN
ENGINEER
OF RECORD: J. T. KELVINGTON
DATE : 04/22/25



(+) FINAL CAMBER INDICATES NET UPWARD DISPLACEMENT.

STATION: 24+28.73 -Y34-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RAILROAD
SUPERSTRUCTURE
DEAD LOAD
DEFLECTIONS
SPAN A AND SPAN B

4/29/2025 2:04:19 PM jgelle
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ASSEMBLED BY : J. E. HAGENBUSH DATE : 07/26/18
CHECKED BY : E. M. MURR DATE : 12/03/18

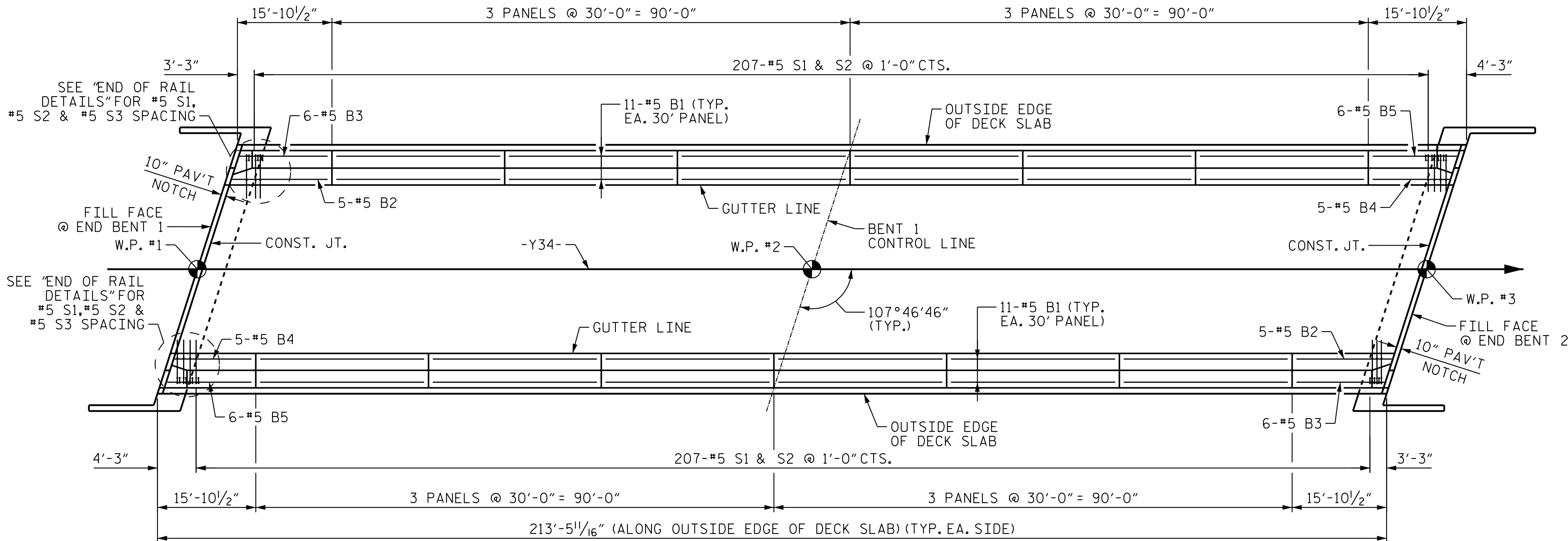
DRAWN BY : MAA 5/10
CHECKED BY : GM 5/10

REV. 1/15 MAA/TMG
REV. 12/17 MAA/THC
REV. 5/18 MAA/THC

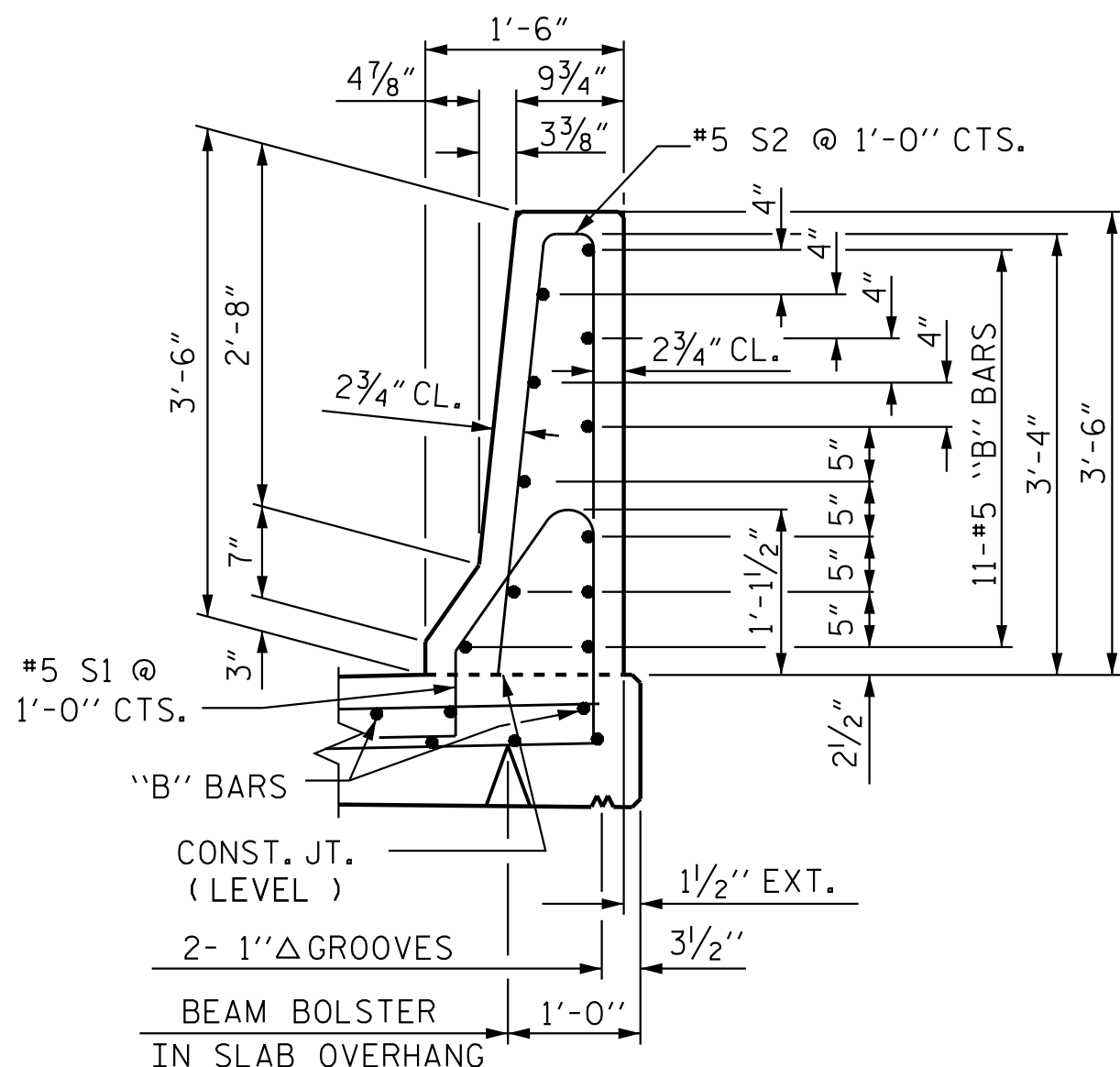
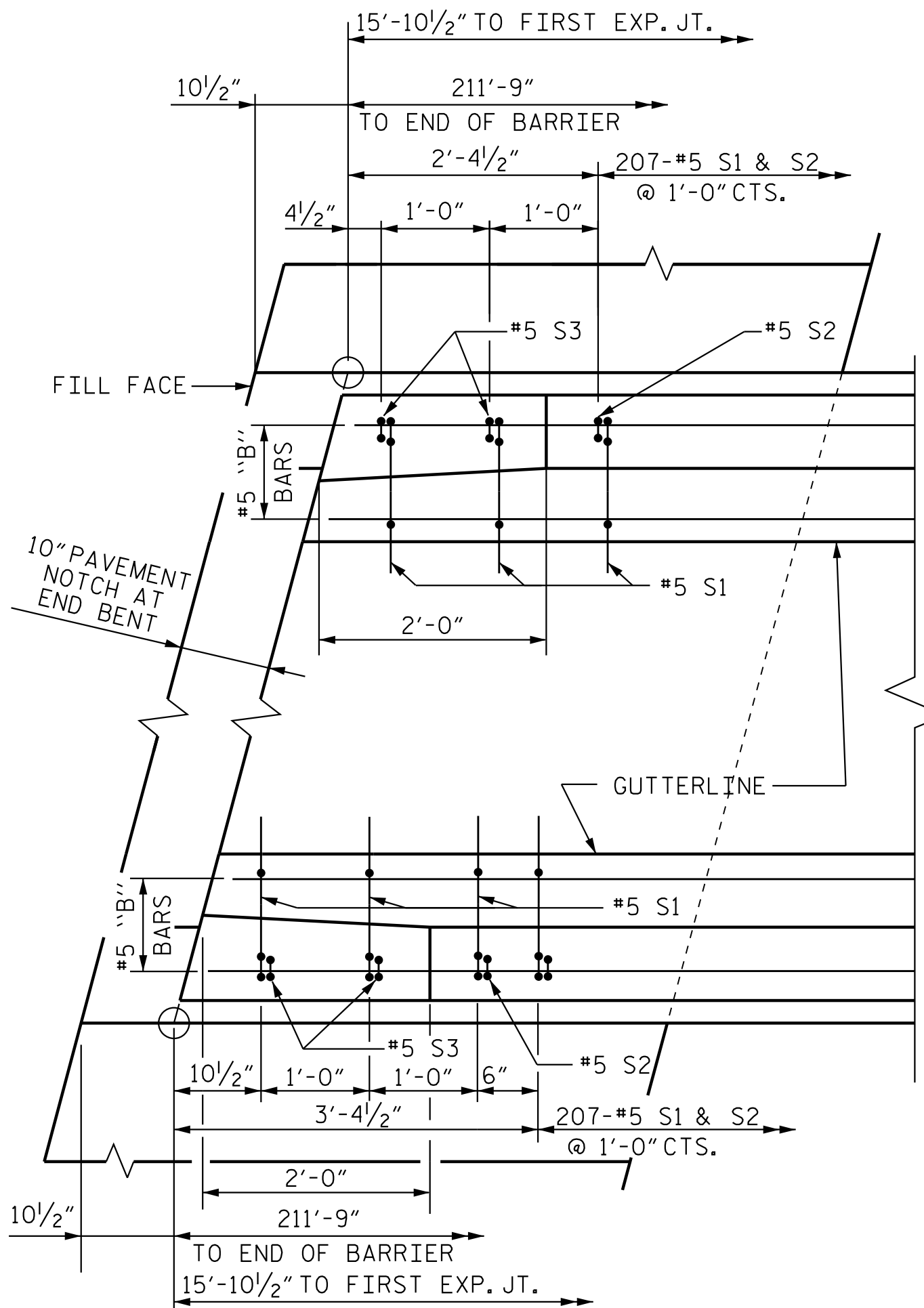
DESIGN ENGINEER OF RECORD: J. T. KELVINGTON DATE : 04/22/25

SPAN A

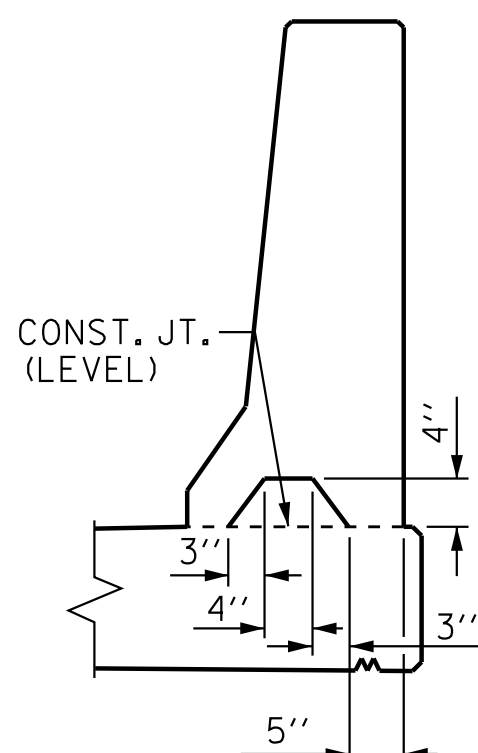
SPAN B



BARRIER RAIL PLAN

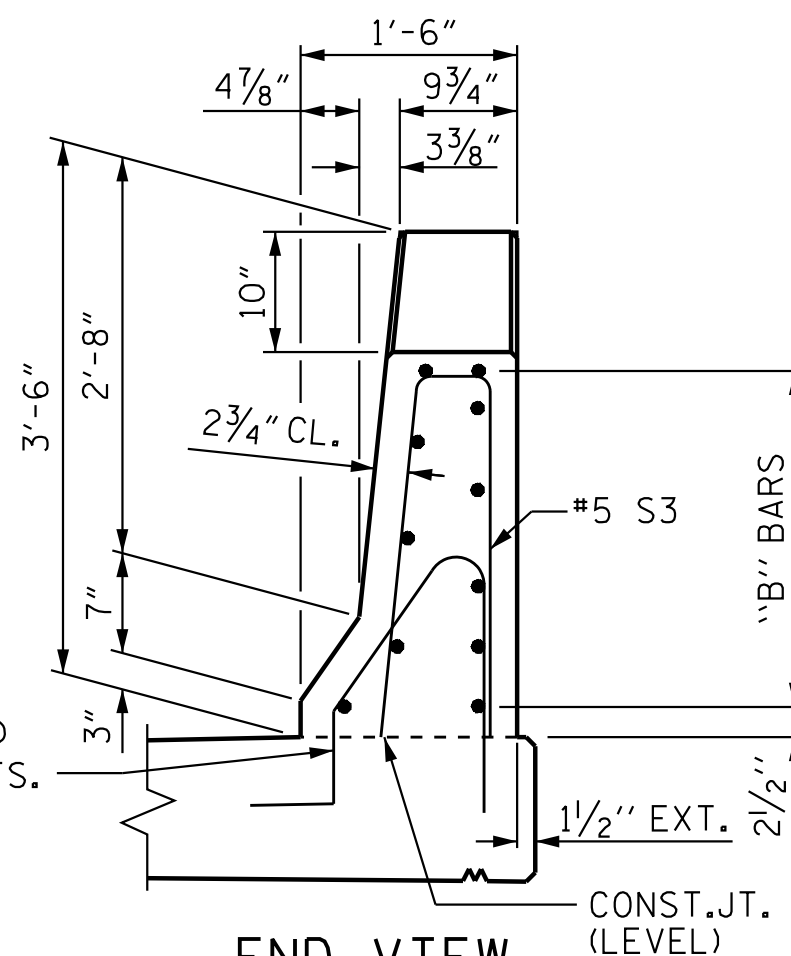


SECTION THRU RAIL

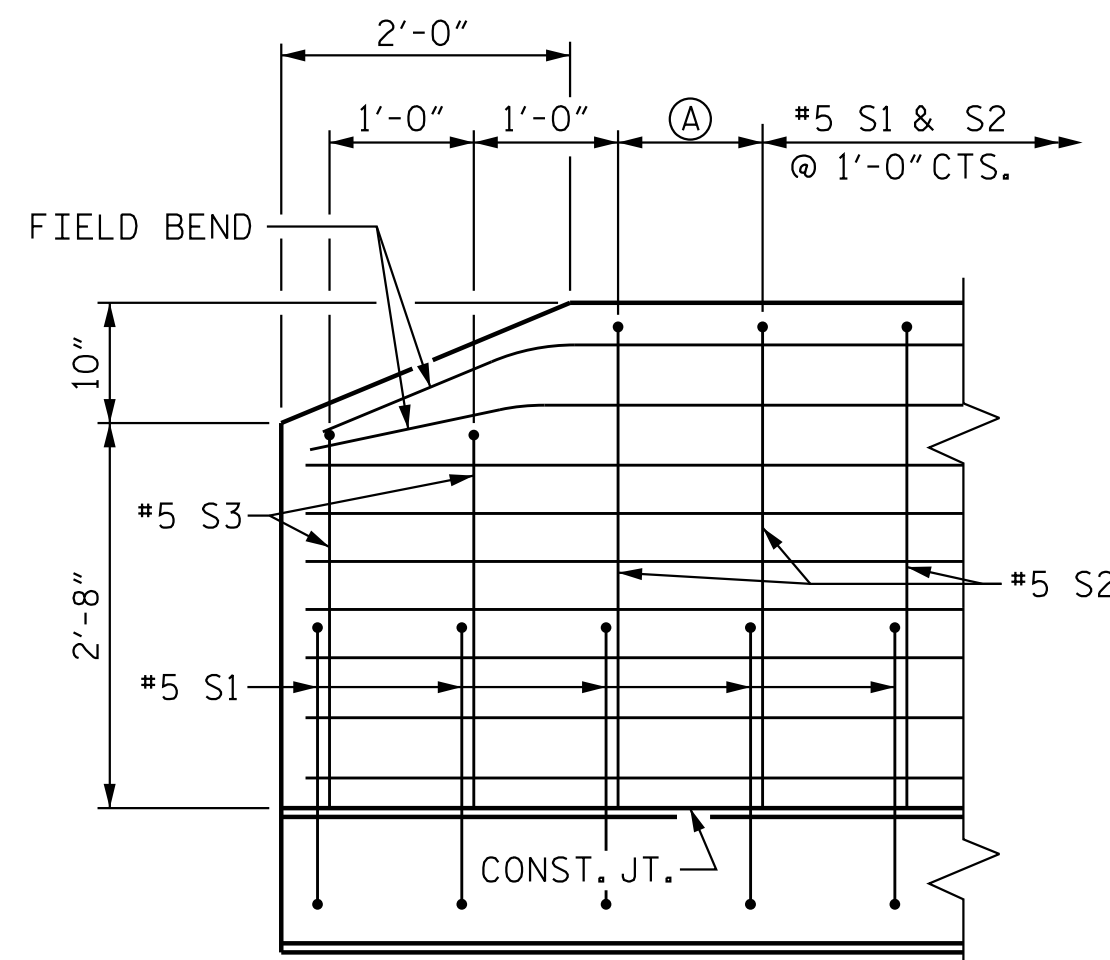


SECTION S-S

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

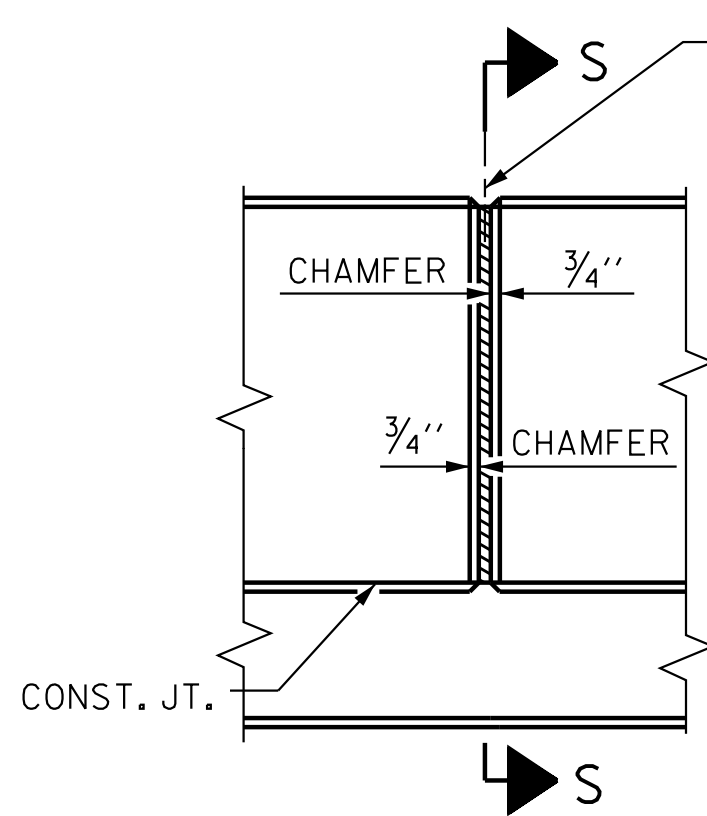


END VIEW



SIDE VIEW

(A) VARIES, SEE SPACING IN PLAN VIEWS
RIGHT SIDE @ END BENT 1 SHOWN, OTHER SIDE
VIEWS ARE SIMILAR.



ELEVATION AT EXPANSION JOINTS

BARRIER RAIL DETAILS

NOTES

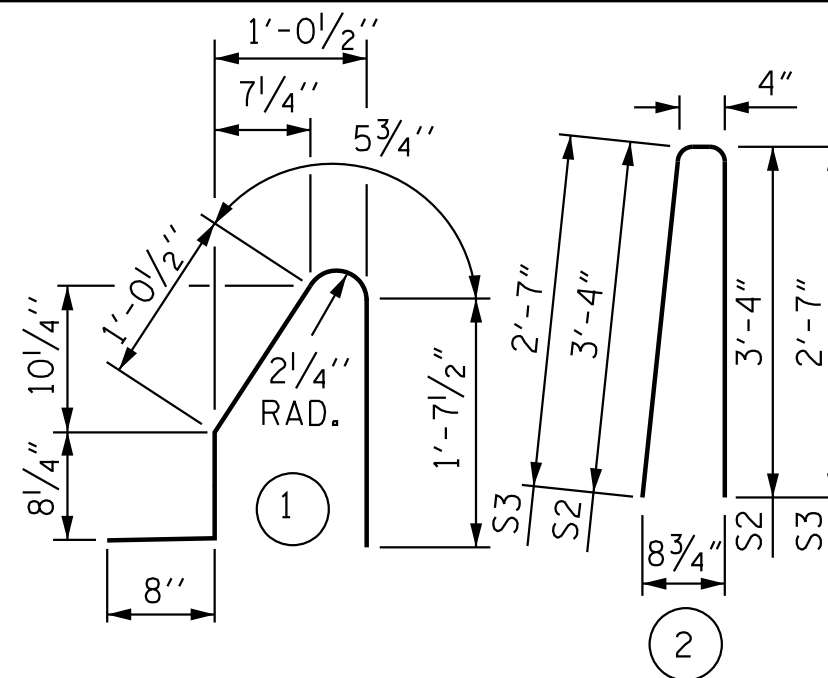
THE BARRIER RAIL IN THE UNIT SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE IN THAT UNIT HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.

ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.

GROOVED CONTRACTION JOINTS, 1/2" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE BARRIER RAIL AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. THE CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN BARRIER RAIL EXPANSION JOINTS.

THE JOINT IN THE DECK SLAB SHALL BE SAWED PRIOR TO CASTING TO BARRIER RAIL.

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL

FOR CONCRETE BARRIER RAIL ONLY

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* B1	132	#5	STR	29'-7"	4073
* B2	10	#5	STR	15'-10"	165
* B3	12	#5	STR	15'-6"	194
* B4	10	#5	STR	15'-0"	156
* B5	12	#5	STR	15'-4"	192
* S1	424	#5	1	4'-6"	1990
* S2	416	#5	2	7'-0"	3037
* S3	8	#5	2	5'-6"	46

* EPOXY COATED REINFORCING STEEL	9,853 LBS.
CLASS AA CONCRETE	57.6 CU. YDS.
CONCRETE BARRIER RAIL	423.5 LIN. FT.

PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION

PROJECT NO. R-3300A

NEW HANOVER COUNTY

STATION: 24+28.73 -Y34-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
CONCRETE
BARRIER RAIL



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REVISIONS						SHEET NO. S05-20
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 34
2			4			

STD. NO. CBR1

NOTES

THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A 1/4" HOLD-DOWN PLATE AND 4 - 1/8" Ø BOLTS WITH NUTS AND WASHERS, RUBRAIL, AND ADHESIVELY ANCHORED BOLTS.

THE HOLD-DOWN PLATE SHALL CONFORM TO AASHTO M270 GRADE 36. AFTER FABRICATION, THE HOLD-DOWN PLATE SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH AASHTO M111.

BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. NUTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M291. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 1/8" Ø GALVANIZED BOLTS, NUTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)

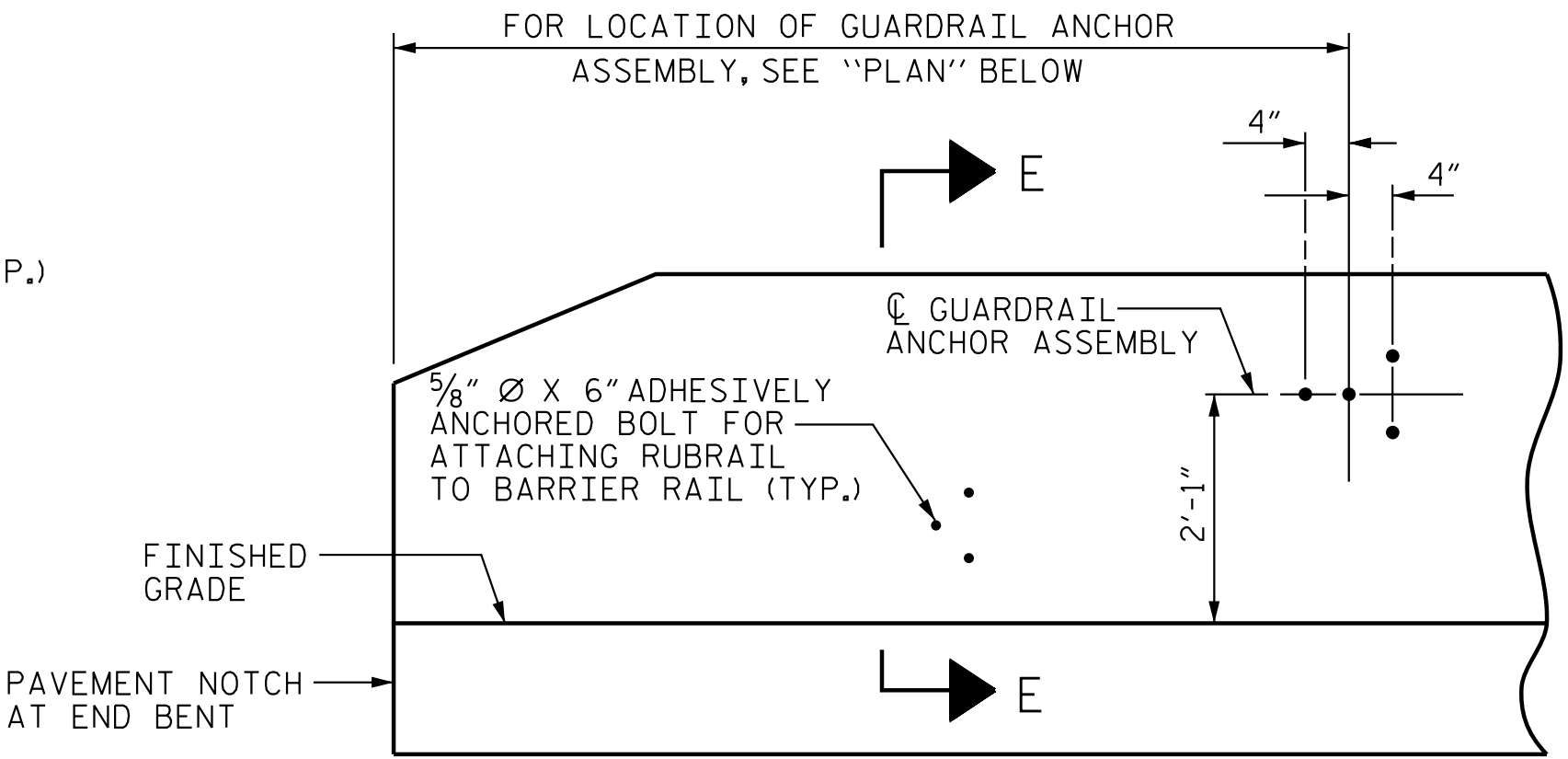
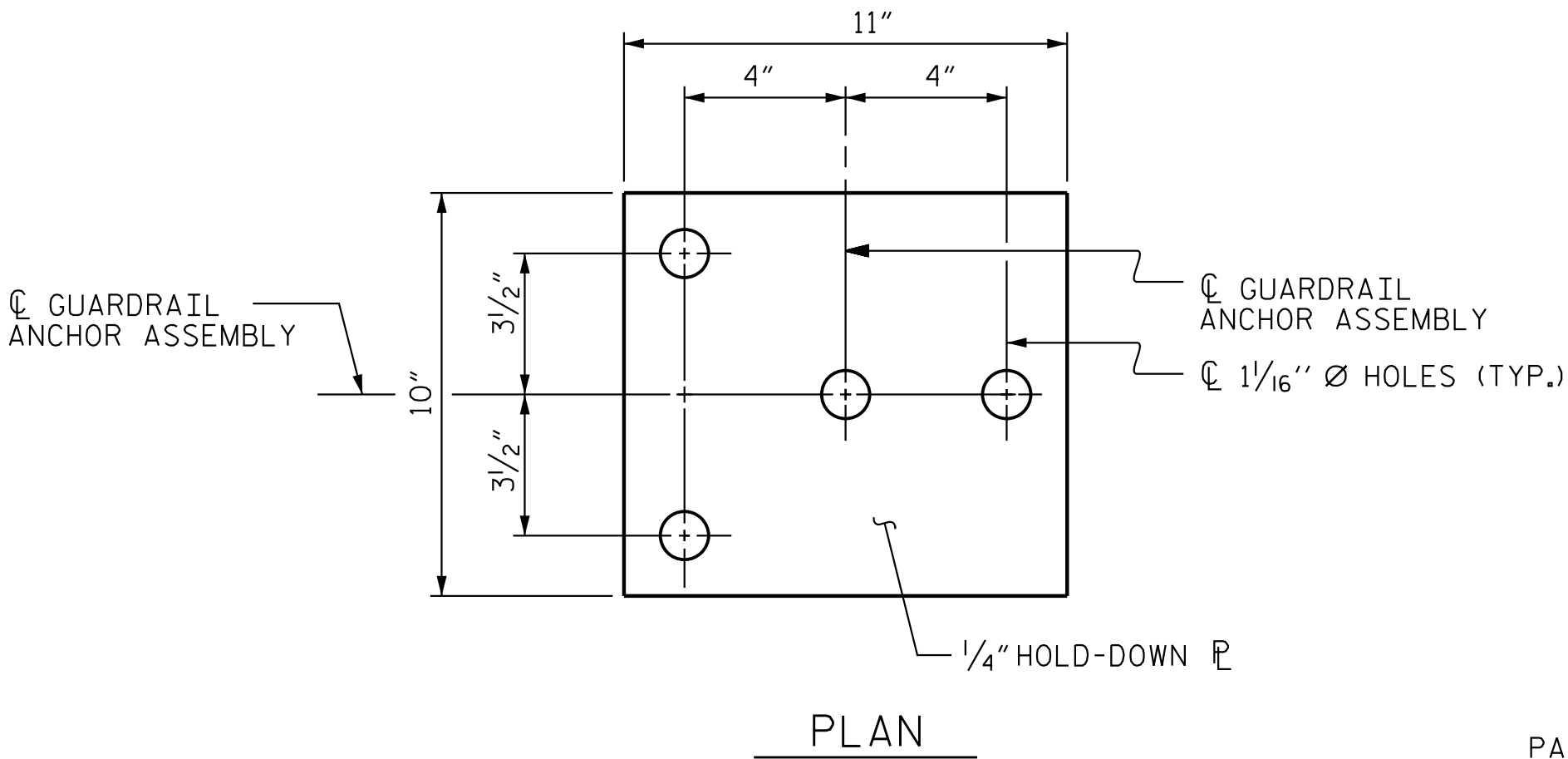
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

AFTER INSTALLATION, THE EXPOSED THREAD OF THE BOLT SHALL BE BURRED WITH A SHARP POINTED TOOL.

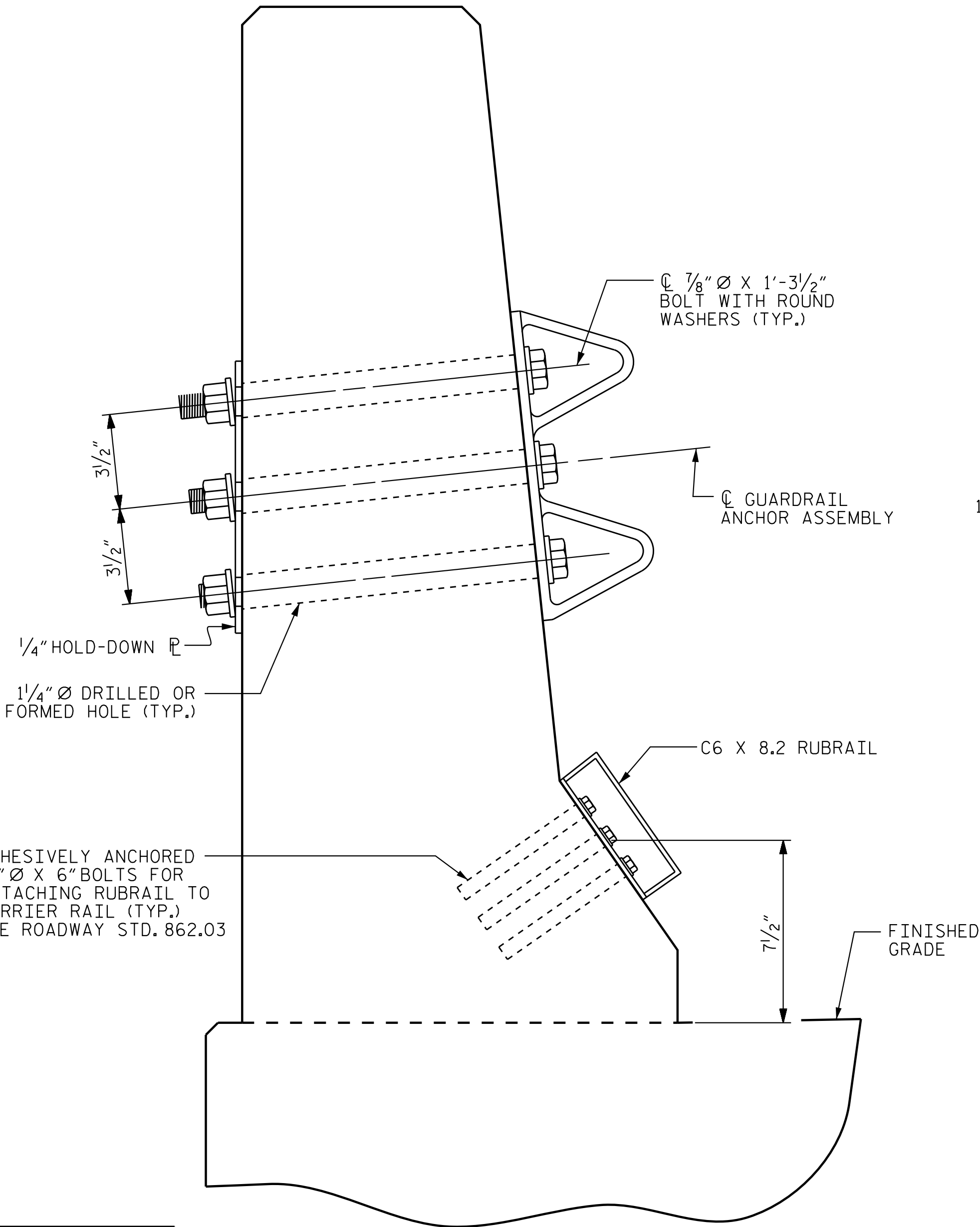
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR CONCRETE BARRIER RAIL.

THE 1 1/4" Ø HOLES SHALL BE FORMED OR DRILLED WITH A CORE BIT. IMPACT TOOLS WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.

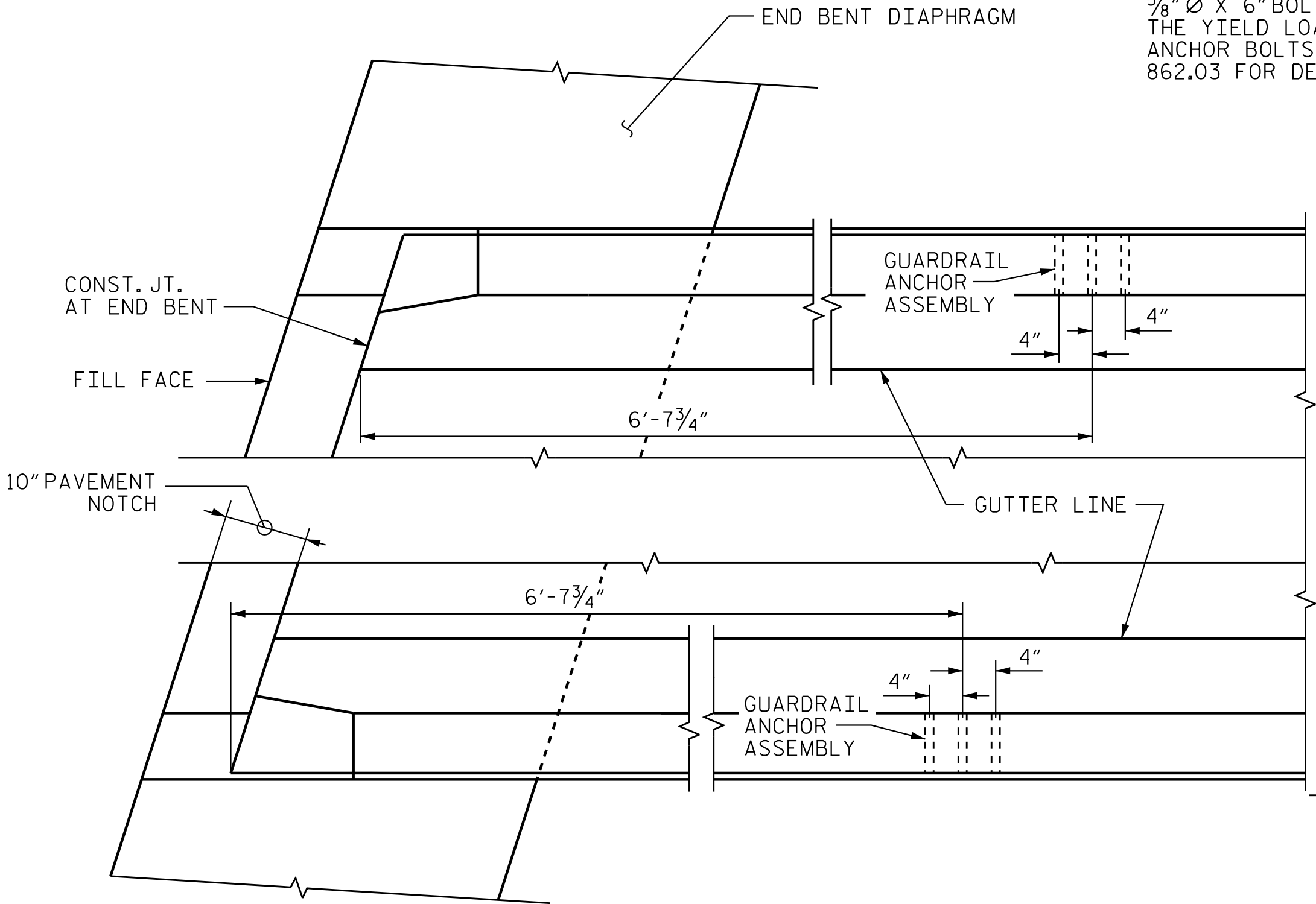
THE C6 X 8.2 RUBRAIL IS TO BE ADHESIVELY ANCHORED TO THE RAIL USING THREE 5/8" Ø X 6" BOLTS WITH WASHERS. LEVEL ONE FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE 5/8" Ø BOLT IS 12 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE STANDARD SPECIFICATIONS. SEE ROADWAY STANDARD 862.03 FOR DETAILS AND LOCATION OF THE RUBRAIL.



ELEVATION



SECTION E-E
GUARDRAIL ANCHOR ASSEMBLY DETAILS



LOCATION OF ANCHORS FOR GUARDRAIL

END BENT #1 SHOWN, END BENT #2 SIMILAR.



SKETCH SHOWING POINTS OF ATTACHMENTS

* DENOTES GUARDRAIL ANCHOR ASSEMBLY

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PROJECT NO. R-3300A
NEW HANOVER COUNTY
STATION: 24+28.73 -Y34-



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD

GUARDRAIL ANCHORAGE
FOR BARRIER RAIL

REVISIONS						SHEET NO. S05-21
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 34
2			4			

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STD. NO. GRA2



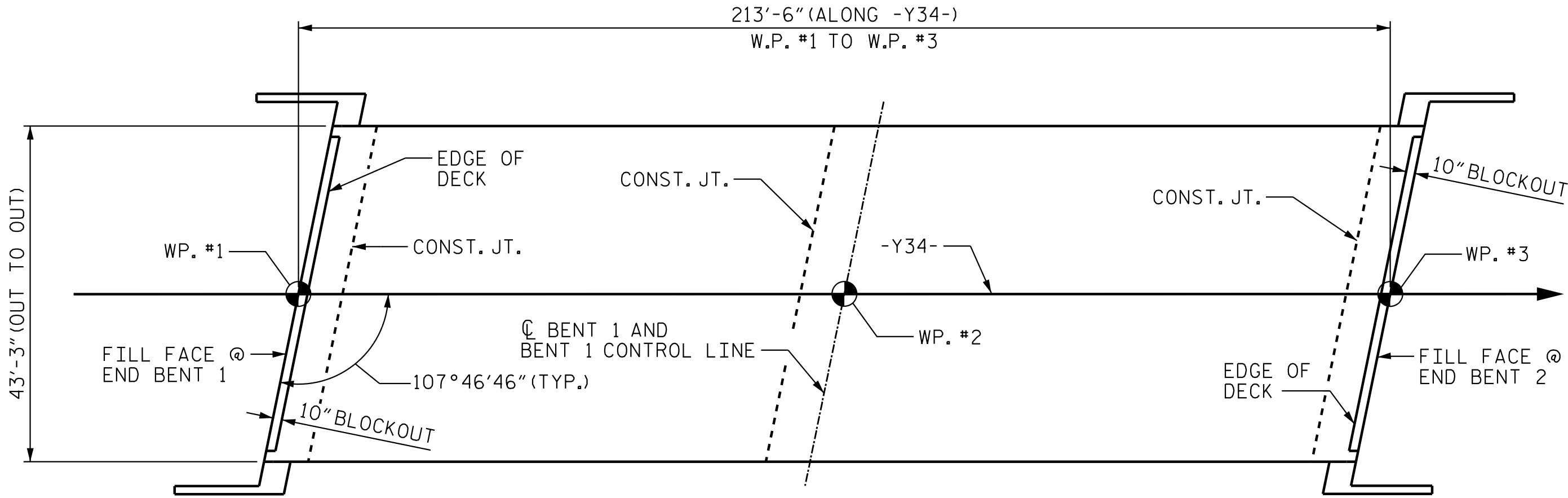
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ASSEMBLED BY : J. E. HAGENBUSH DATE : 08/01/18
CHECKED BY : E. M. MURR DATE : XX/XX/XX

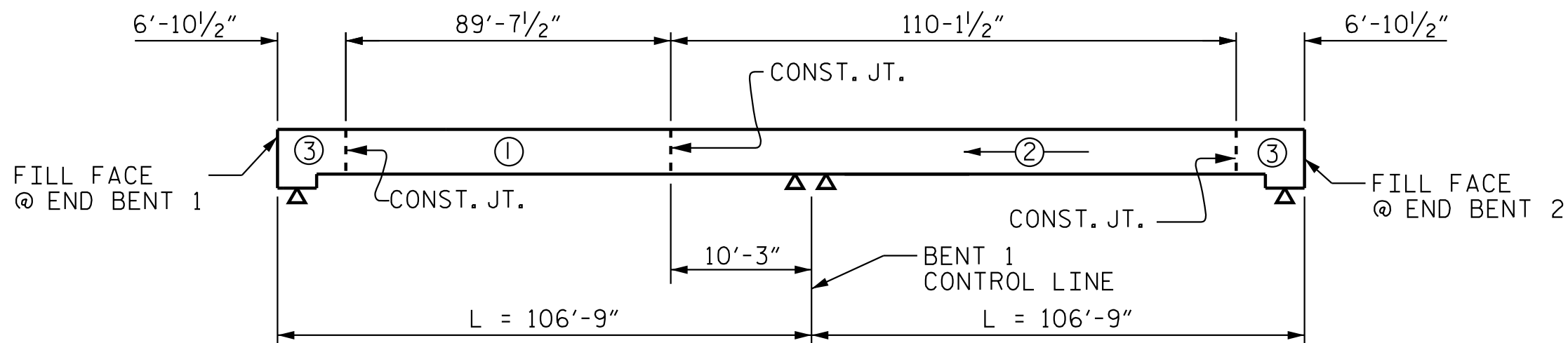
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CHECKED BY : GM 5/06 REV. 6/13 MAA/GM
REV. 12/17 MAA/THC

DESIGN ENGINEER
OF RECORD: J. T. KELVINGTON DATE : 04/22/25

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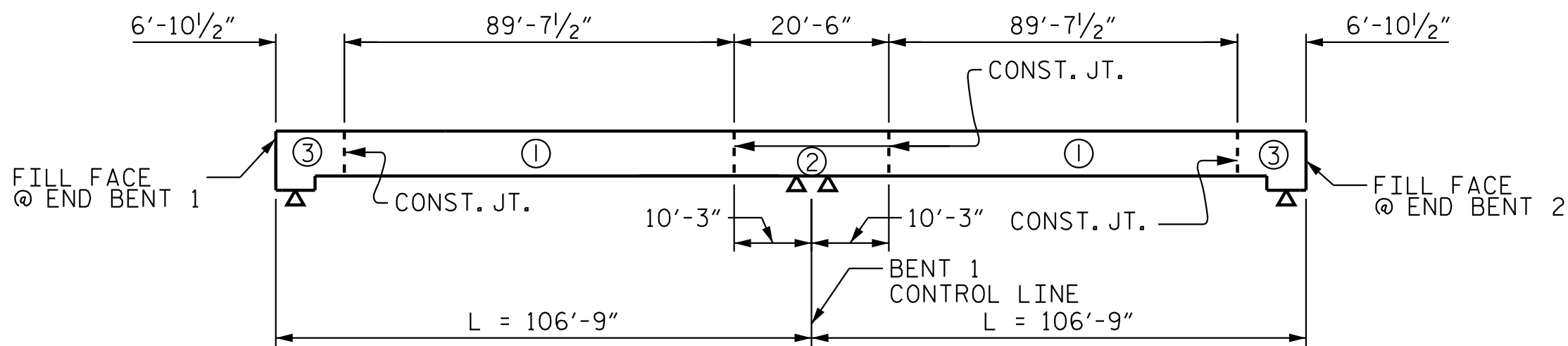


LAYOUT FOR COMPUTING AREA
REINFORCED CONCRETE DECK SLAB
(SQ. FT. = 9,234)



POURING SEQUENCE
PRESTRESSED CONCRETE SUPERSTRUCTURE

⊕ → = INDICATES POUR NUMBER
AND DIRECTION OF POUR



OPTIONAL POURING SEQUENCE
PRESTRESSED CONCRETE SUPERSTRUCTURE

POUR ② CAN NOT BE STARTED UNTIL BOTH
ADJACENT ① POURS REACH A MINIMUM OF 3000 PSI

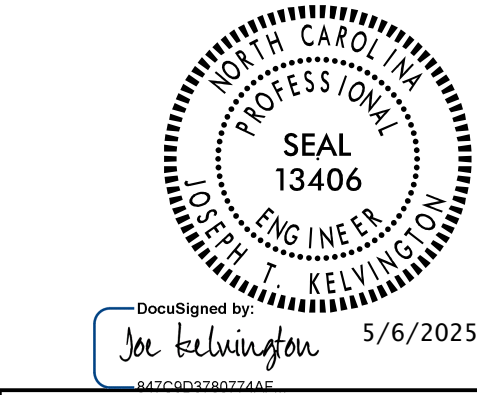
SUPERSTRUCTURE BILL OF MATERIAL			
	CLASS AA CONCRETE	REINFORCING STEEL	EPOXY COATED REINFORCING STEEL
	(CU. YDS.)	(LBS.)	(LBS.)
POUR #1	124.6	32,988	32,425
POUR #2	153.1		
POUR #3	136.9		
TOTALS **	414.6	32,988	32,425

**QUANTITIES FOR BARRIER RAIL ARE NOT INCLUDED

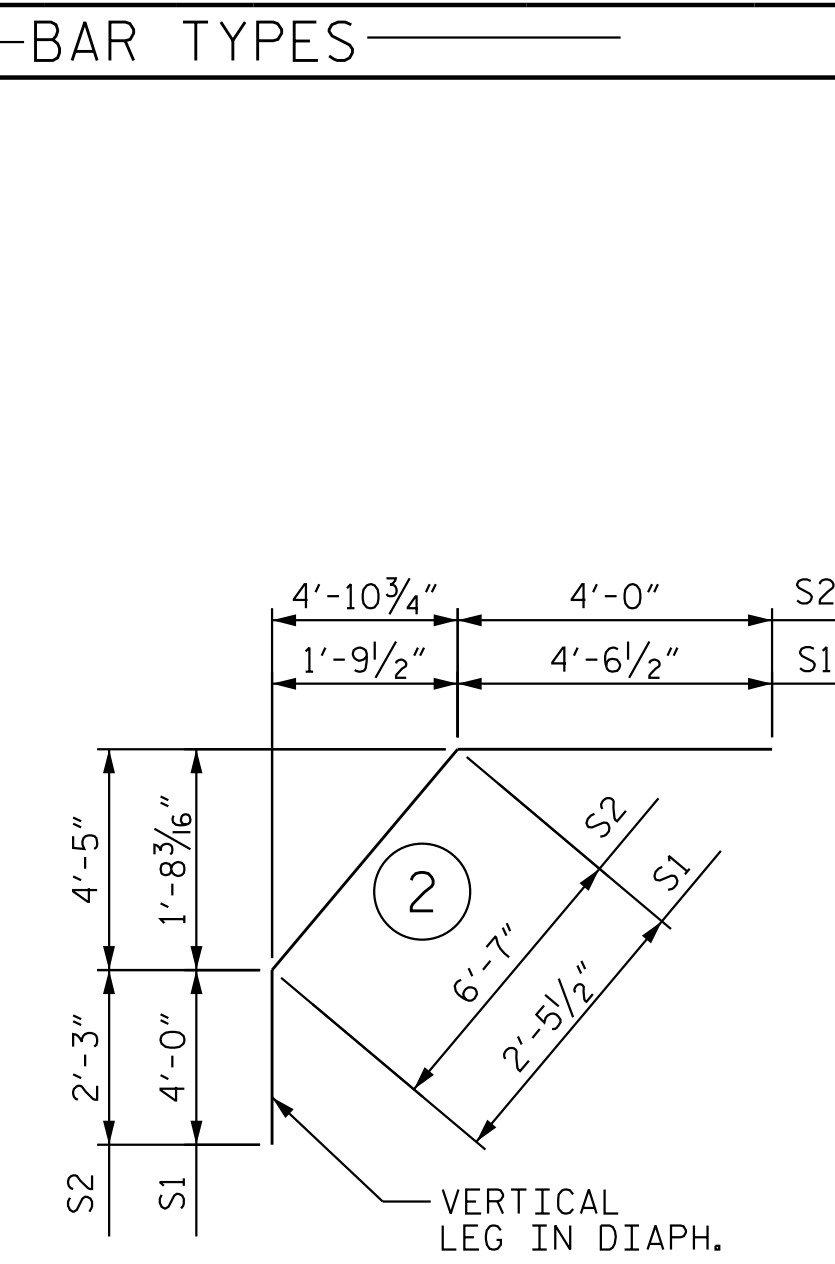
SUPERSTRUCTURE REINFORCING STEEL LENGTHS ARE BASED ON THE FOLLOWING MINIMUM SPLICE LENGTHS					
BAR SIZE	EXCEPT APPROACH SLABS, PARAPET, AND BARRIER RAIL		APPROACH SLABS		PARAPET AND BARRIER RAIL
	EPOXY COATED	UNCOATED	EPOXY COATED	UNCOATED	
#4	1'-11"	1'-7"	1'-11"	1'-7"	2'-6"
#5	2'-5"	2'-0"	2'-5"	2'-0"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

REINFORCING BAR SCHEDULE					
SPANS A & B					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	366	#5	STR	42'-11"	16,383
A2	366	#5	STR	42'-11"	16,383
* A101	4	#5	STR	40'-0"	167
* A102	4	#5	STR	36'-8"	153
* A103	4	#5	STR	33'-3"	139
* A104	4	#5	STR	29'-11"	125
* A105	4	#5	STR	26'-6"	111
* A106	4	#5	STR	23'-1"	96
* A107	4	#5	STR	19'-9"	82
* A108	4	#5	STR	16'-4"	68
* A109	4	#5	STR	13'-0"	54
* A110	4	#5	STR	9'-7"	40
* A111	4	#5	STR	6'-3"	26
* A112	4	#5	STR	2'-10"	12
A201	4	#5	STR	39'-11"	167
A202	4	#5	STR	36'-7"	153
A203	4	#5	STR	33'-2"	138
A204	4	#5	STR	29'-10"	124
A205	4	#5	STR	26'-5"	110
A206	4	#5	STR	23'-1"	96
A207	4	#5	STR	19'-8"	82
A208	4	#5	STR	16'-3"	68
A209	4	#5	STR	12'-11"	54
A210	4	#5	STR	9'-6"	40
A211	4	#5	STR	6'-2"	26
A212	4	#5	STR	2'-9"	11
* B1	132	#5	STR	26'-4"	3625
B2	129	#5	STR	22'-6"	3027
* B3	41	#5	STR	42'-0"	1796
B4	38	#5	STR	52'-10"	2094
* B5	124	#5	STR	35'-9"	4624
* B6	108	#5	STR	21'-4"	2403
* B7	56	#5	STR	23'-7"	1377
B8	172	#5	STR	38'-0"	6817
H1	28	#5	3	15'-5"	450
H2	14	#5	4	15'-11"	232
H3	14	#4	3	15'-8"	146
H4	7	#4	4	15'-8"	73
H5	14	#5	4	15'-5"	225
H7	7	#4	4	15'-2"	71
K1	28	#4	STR	26'-5"	494
K2	6	#4	STR	7'-7"	30
K3	30	#4	STR	10'-8"	214
K4	6	#4	STR	9'-2"	37
K5	4	#4	STR	5'-9"	15
K6	20	#4	STR	7'-4"	98
K7	4	#4	STR	6'-6"	17
K8	20	#4	STR	3'-5"	46
* S1	60	#4	2	11'-0"	441
* S2	82	#4	2	12'-10"	703
U1	70	#4	1	15'-4"	717
U2	8	#4	1	10'-4"	55
V1	80	#5	STR	6'-8"	556
V2	18	#5	STR	6'-7"	124
REINFORCING STEEL				32,988	LBS
* EPOXY COATED REINFORCING STEEL				32,425	LBS

GROOVING BRIDGE FLOORS	
APPROACH SLABS	1,019 SQ.FT.
BRIDGE DECK	7,783 SQ.FT.
TOTAL	8,802 SQ.FT.



DOCUMENT NOT CONSIDERED
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ALL BAR DIMENSIONS ARE OUT TO OUT.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PROJECT NO. R-3300A
NEW HANOVER COUNTY
STATION: 24+28.73 -Y34-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
BILL OF MATERIAL

REVISIONS						SHEET NO. S05-22
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 34
2			4			



DRAWN BY : E. M. MURR DATE : 08/30/19
CHECKED BY : J. T. KELVINGTON DATE : 03/06/25
DESIGN
ENGINEER
OF RECORD: J. T. KELVINGTON DATE : 04/22/25

NOTES:

(2 BR) DENOTES 2 BAR RUN

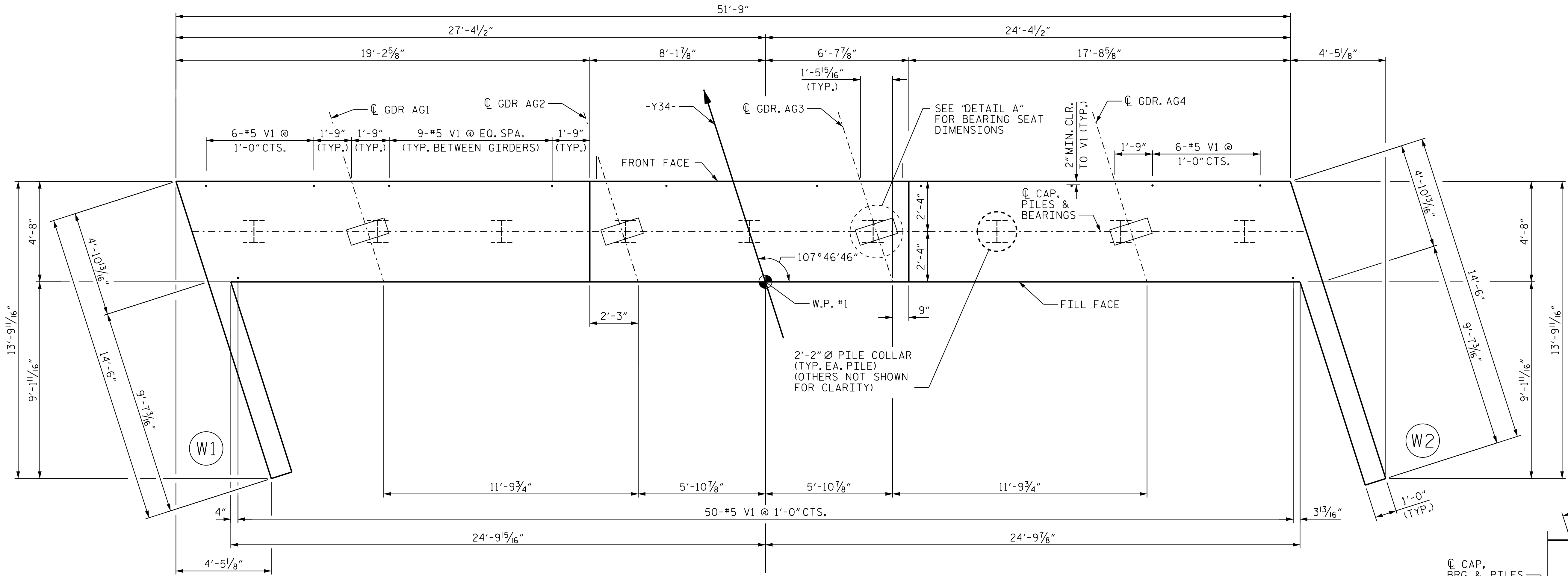
SEE SHEET 2 OF 3 FOR WING WALL REINFORCEMENT.

FOR PILE SPICE DETAILS, SEE SHEET 3 OF 3.

PILES SHALL BE CUTOFF AT EL. 50.35.

INSTALL THE 6"Ø DRAIN PIPE THROUGH THE WINGWALL AS REQUIRED FOR REINFORCED BRIDGE APPROACH FILLS, SEE THE ROADWAY PLANS. REINFORCING STEEL IN THE WINGWALL MAY BE SHIFTED AS NECESSARY TO CLEAR THE DRAIN PIPE.

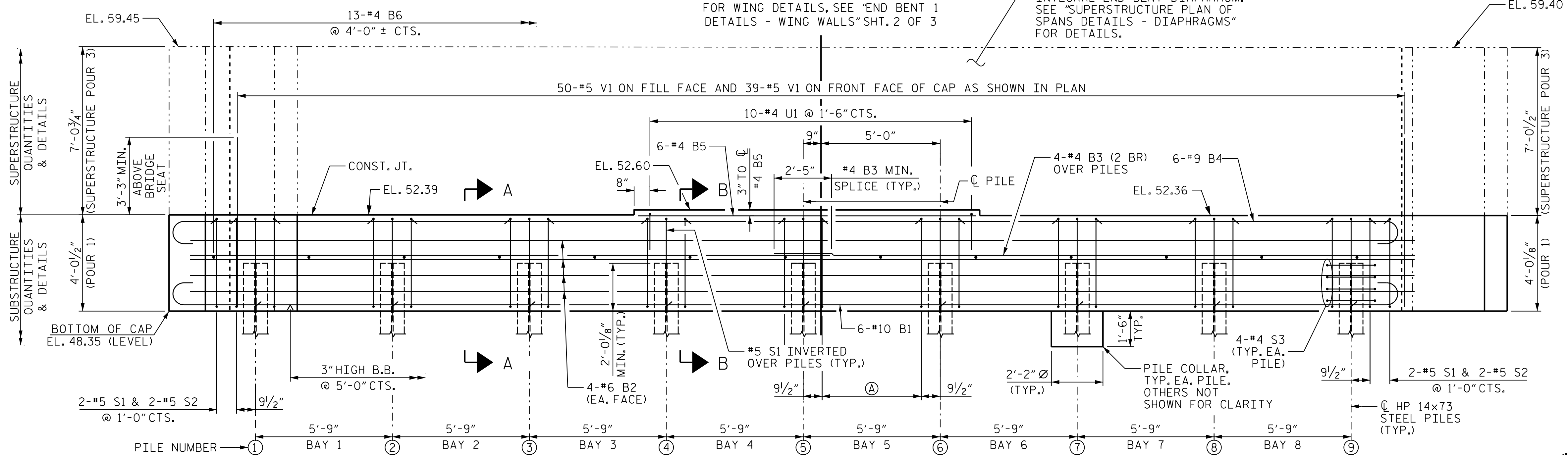
STIRRUPS IN THE CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.



PLAN

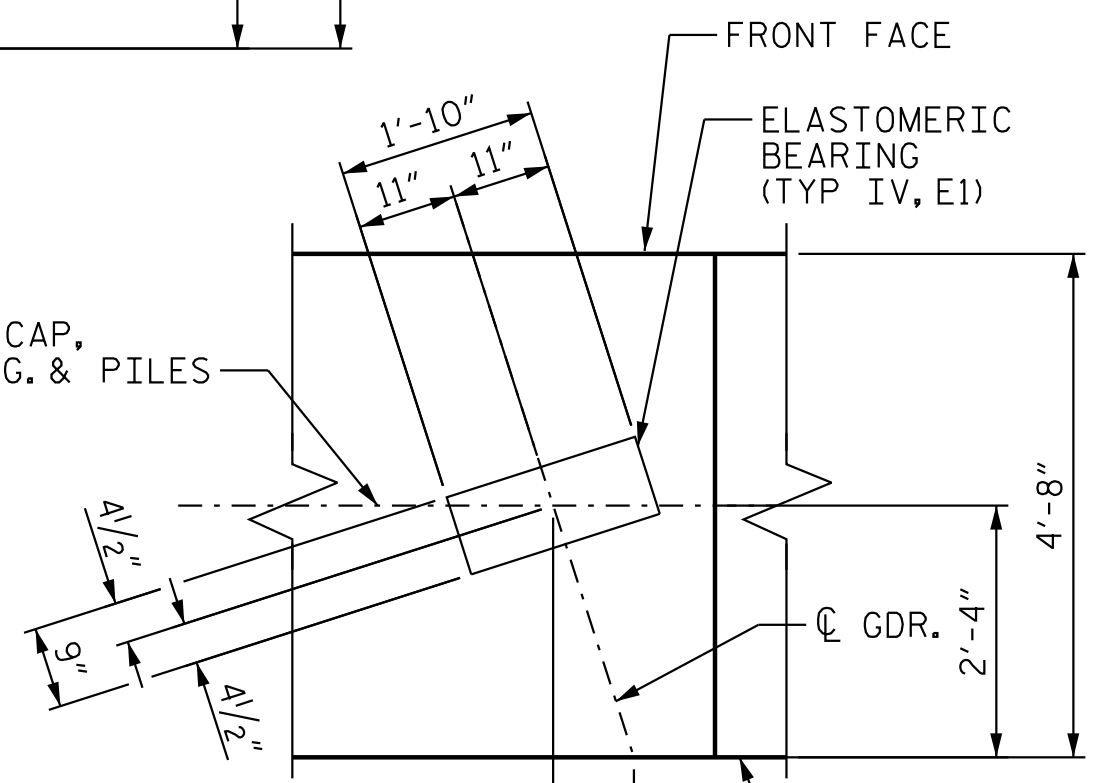
FOR WING DETAILS, SEE "END BENT 1 DETAILS - WING WALLS" SHT. 2 OF 3

INTEGRAL END BENT DIAPHRAGM. SEE "SUPERSTRUCTURE PLAN OF SPANS DETAILS - DIAPHRAGMS" FOR DETAILS.



ELEVATION

WING WALLS NOT SHOWN FOR CLARITY



DETAIL A

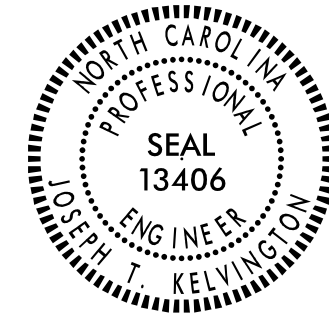
DIMENSIONS TYPICAL FOR EACH BEARING

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PROJECT NO. R-3300A
NEW HANOVER COUNTY
STATION: 24+28.73 -Y34-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE
END BENT 1



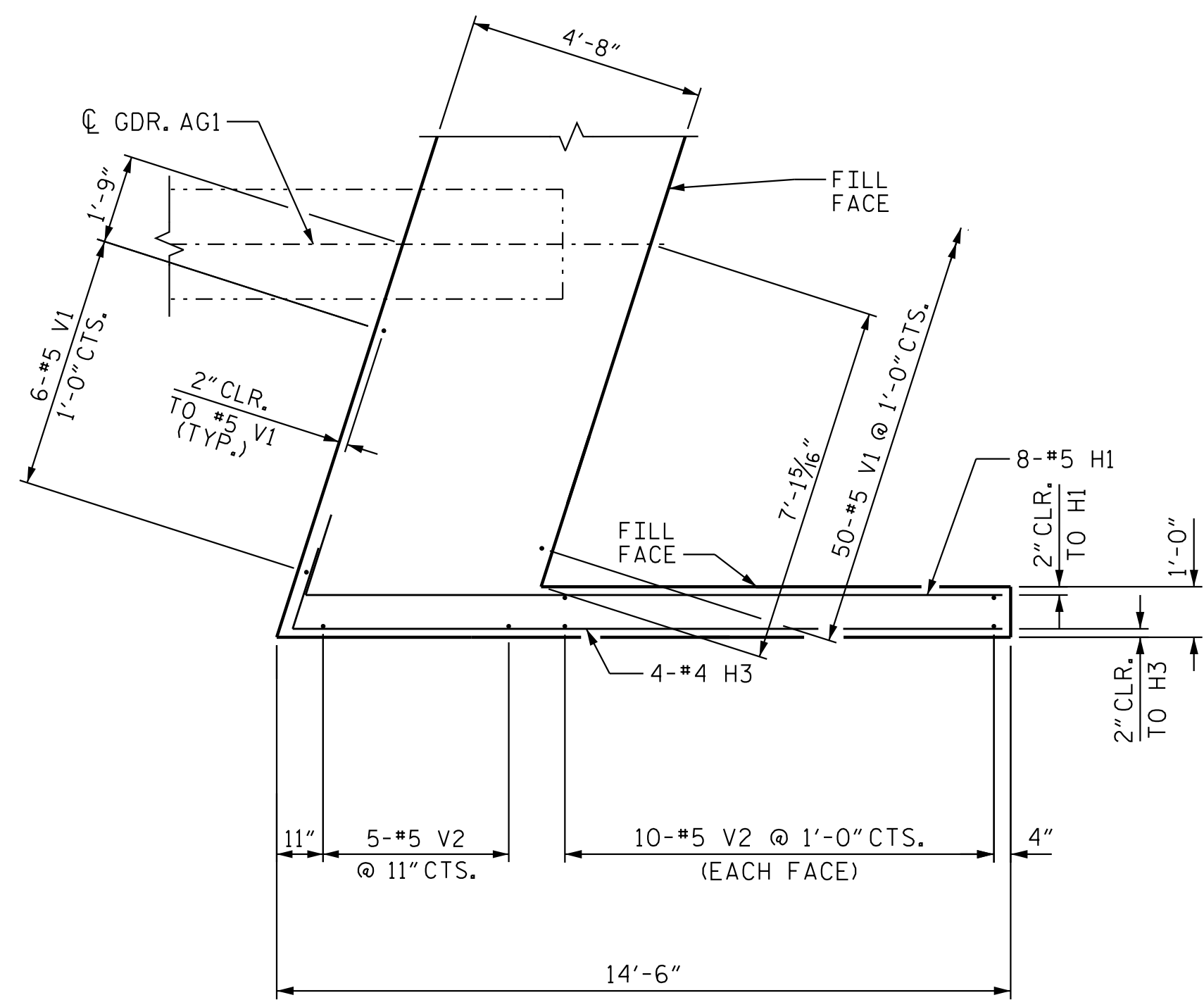
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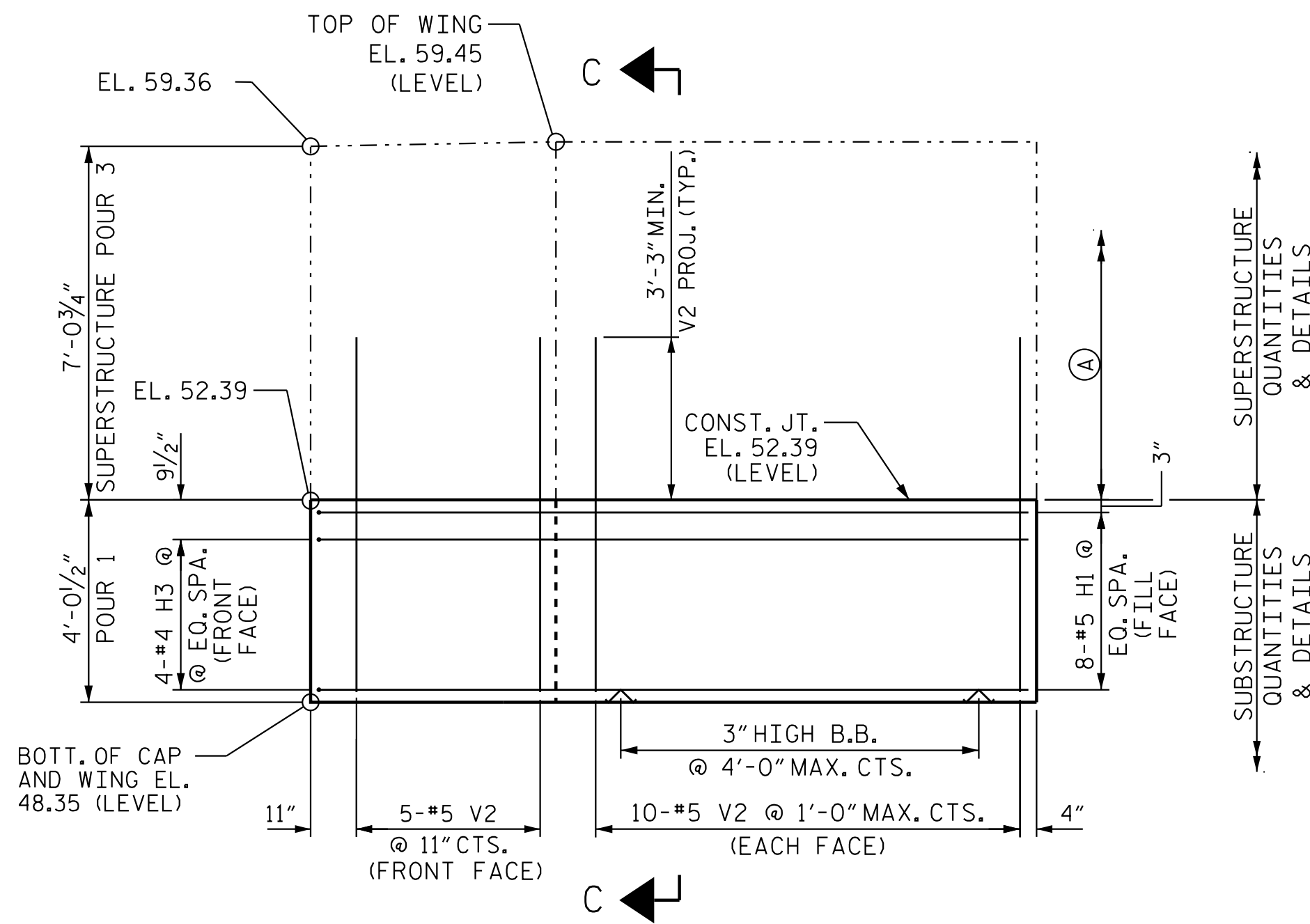
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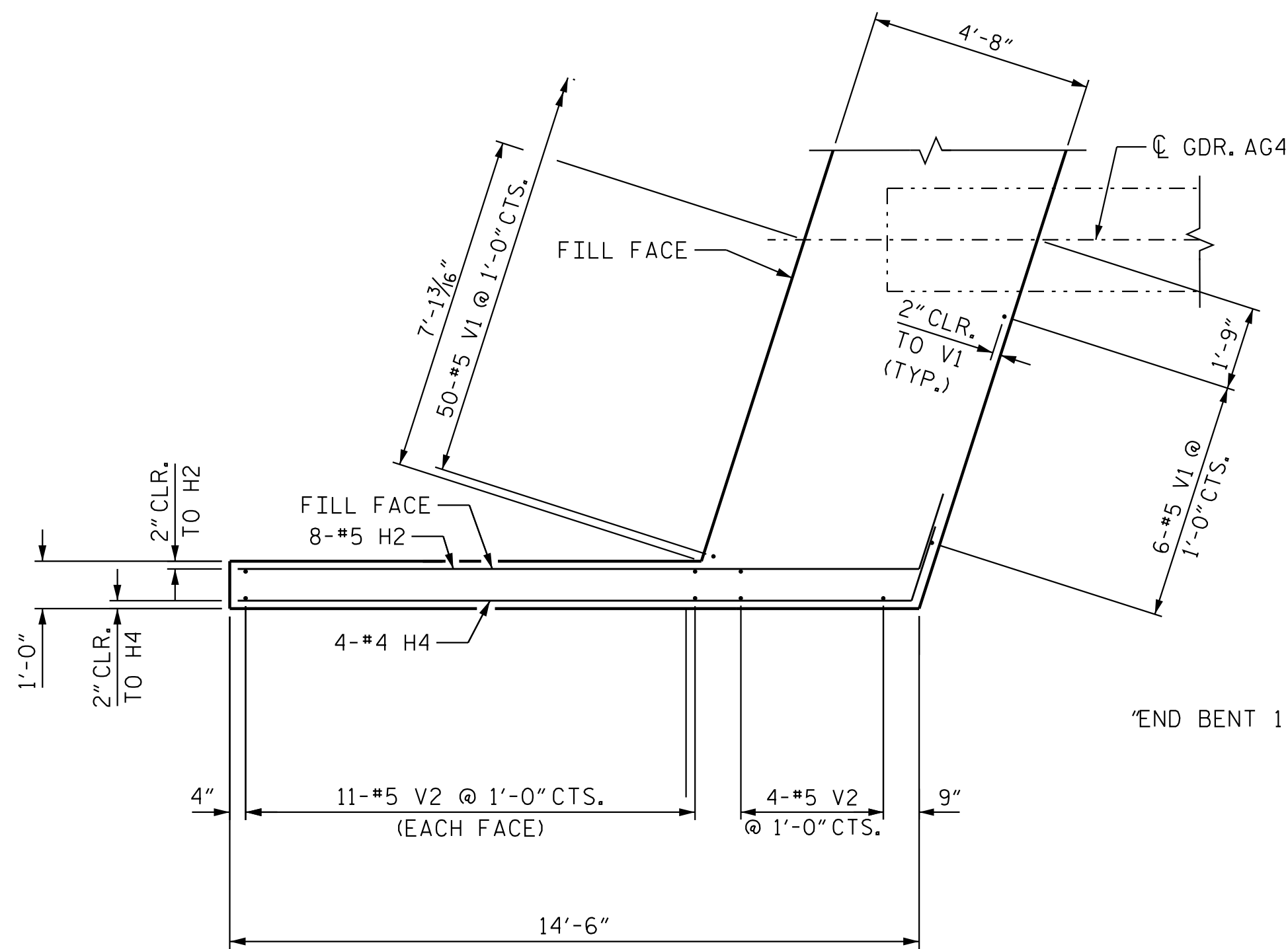


PLAN OF LEFT WING (W1)

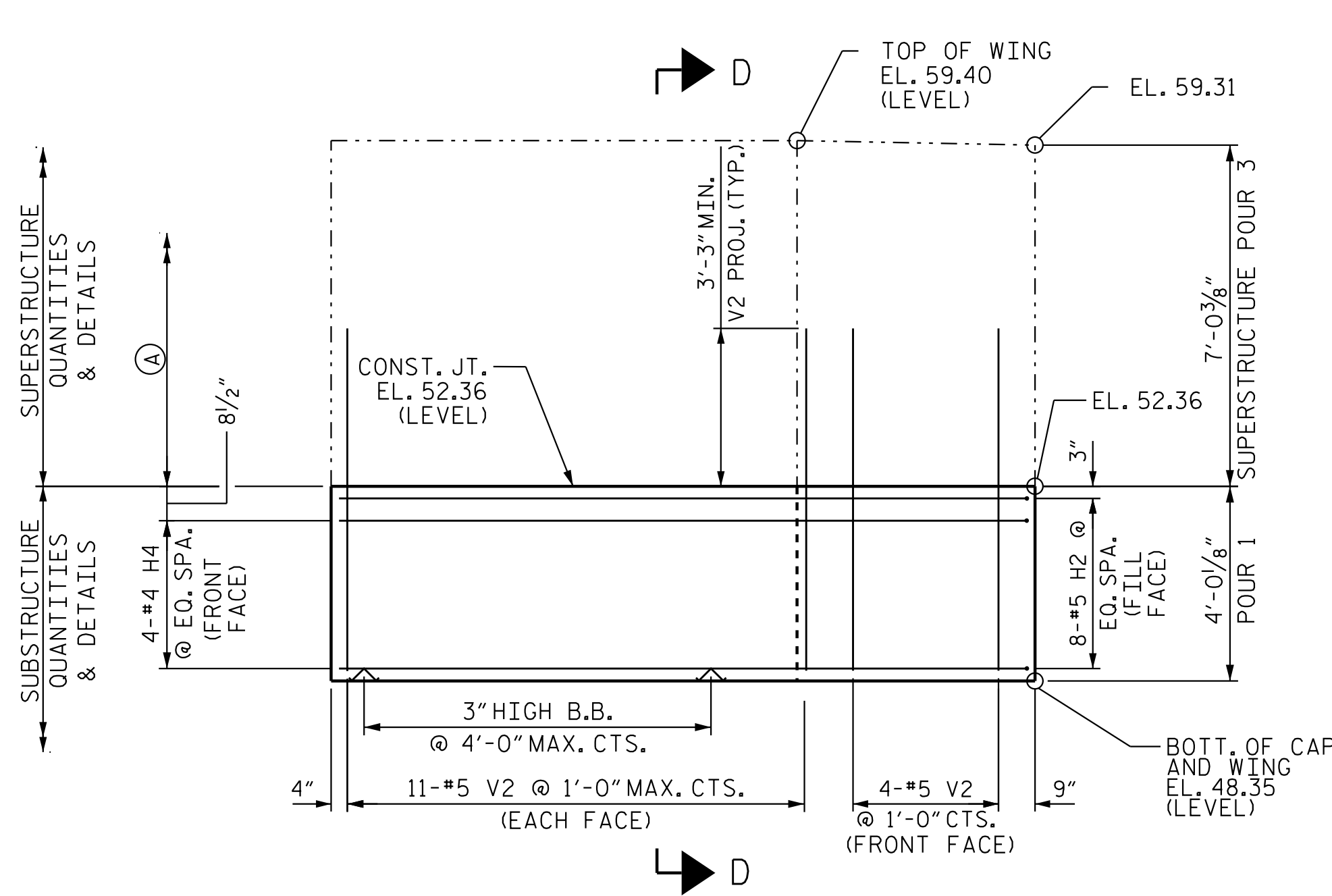
NOTE: CAP REINFORCEMENT NOT SHOWN FOR CLARITY.



ELEVATION OF LEFT WING (W1)



PLAN OF RIGHT WING (W2)

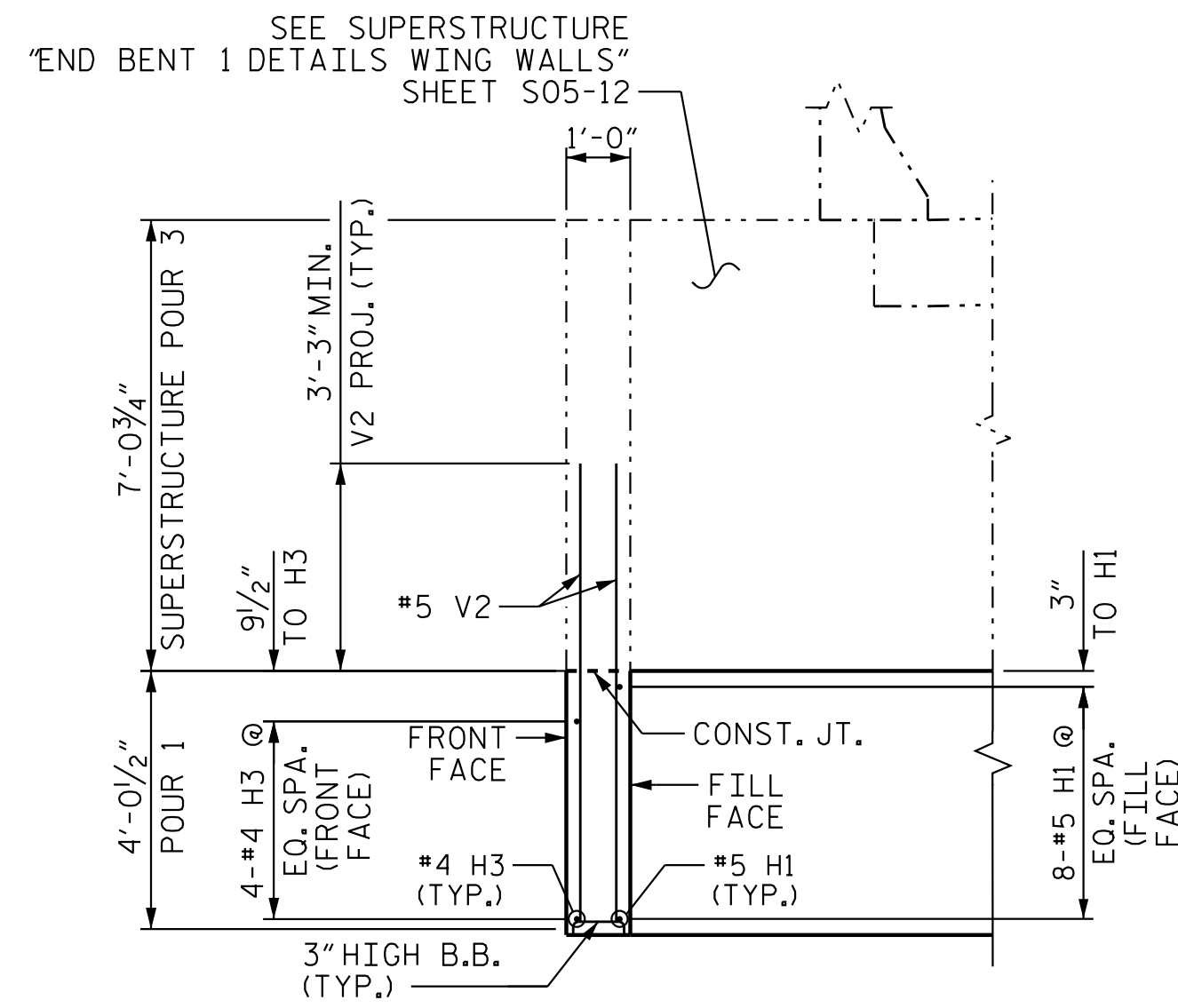


ELEVATION OF RIGHT WING (W2)

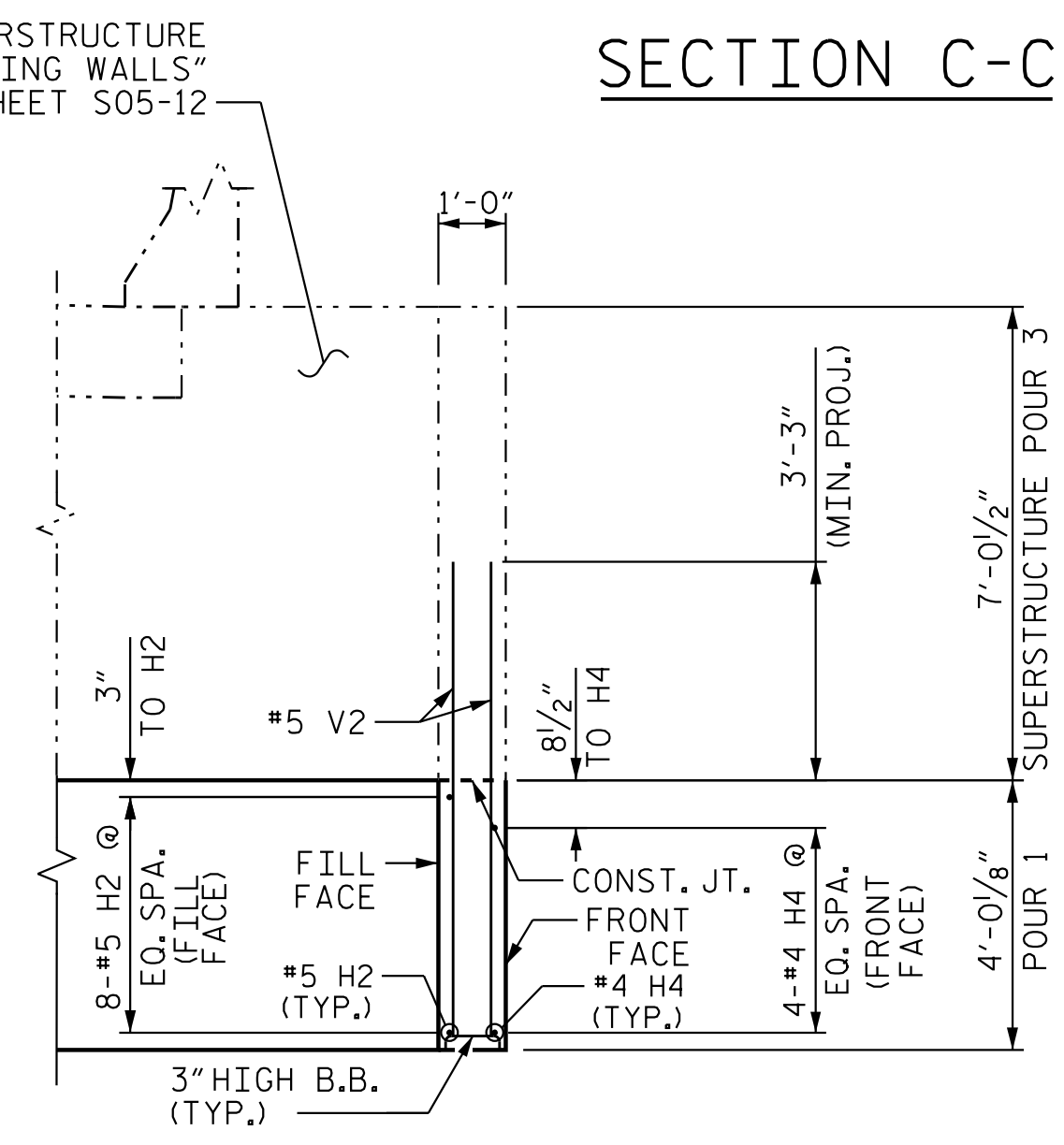
NOTE:

TOP SURFACE OF END BENT CAP BETWEEN EDGE OF DECK SLAB AND END OF CAP SHALL BE ROUGHENED BY RAKING THE SURFACE AT THE CONST. JT., A MINIMUM OF 1/4".

- Ⓐ WING WALL QUANTITIES ABOVE THE CONST. JT. ARE INCLUDED IN THE BRIDGE SUPERSTRUCTURE. SEE SUPERSTRUCTURE PLANS.



SECTION C-C



SECTION D-D

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PROJECT NO. R-3300A
NEW HANOVER COUNTY
STATION: 24+28.73 -Y34-

SHEET 2 OF 3



STATE OF NORTH CAROLINA
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RALEIGH
SUBSTRUCTURE

END BENT 1 DETAILS
WING WALLS

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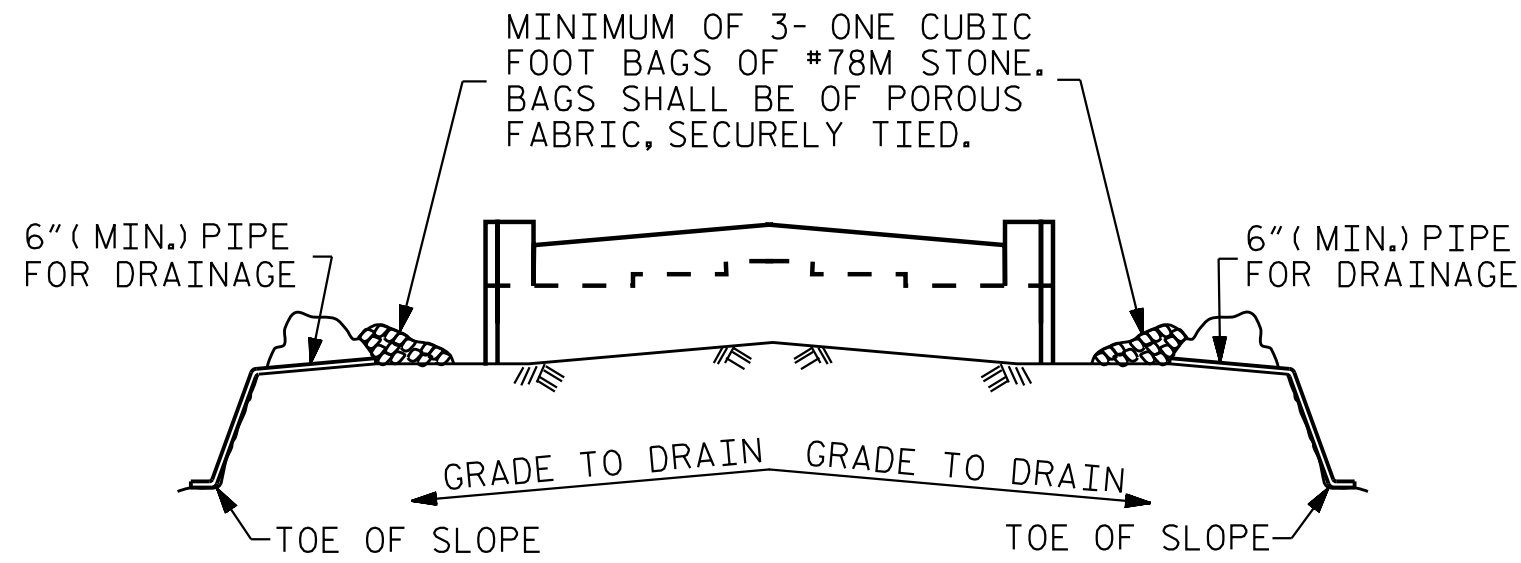
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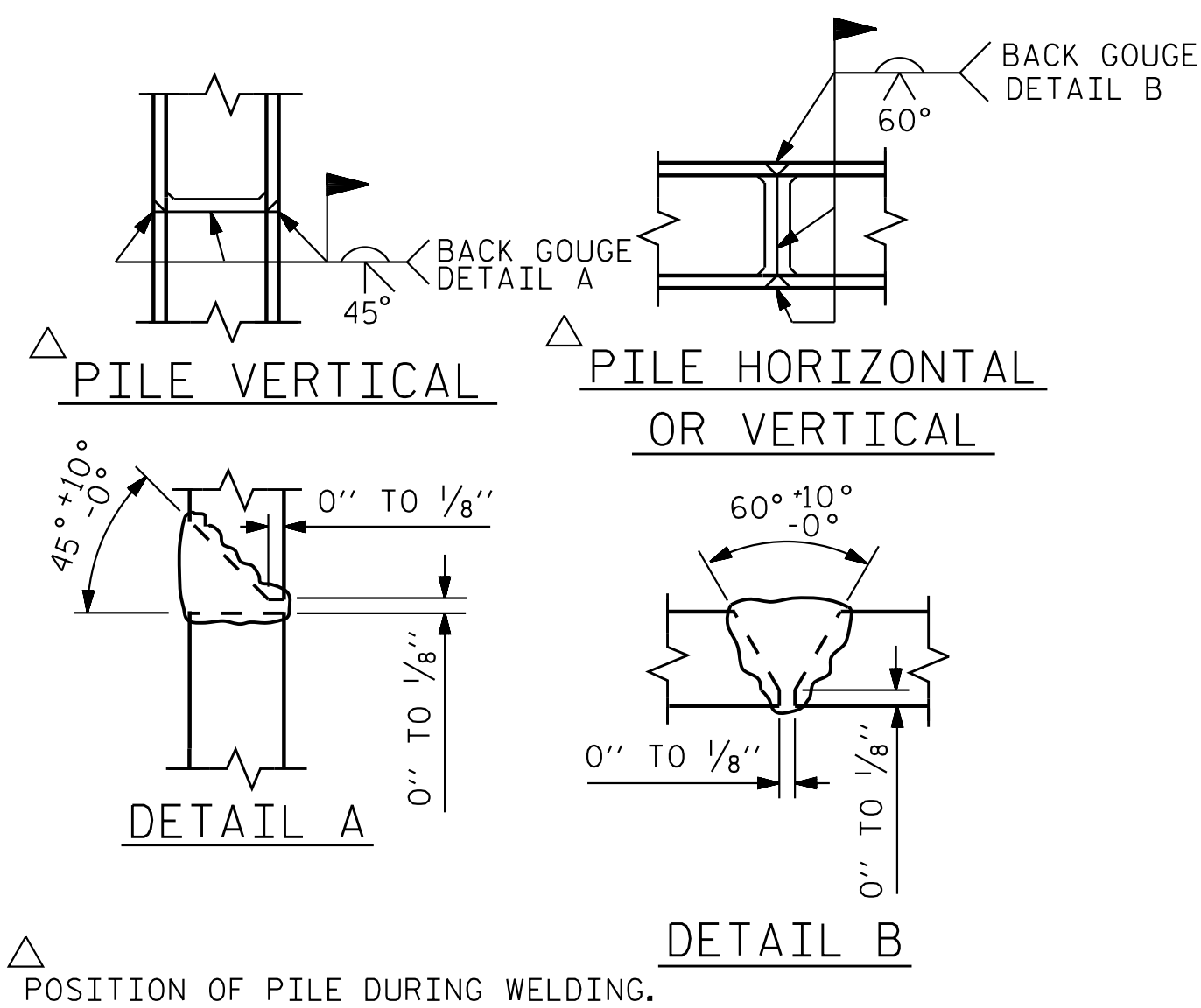


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

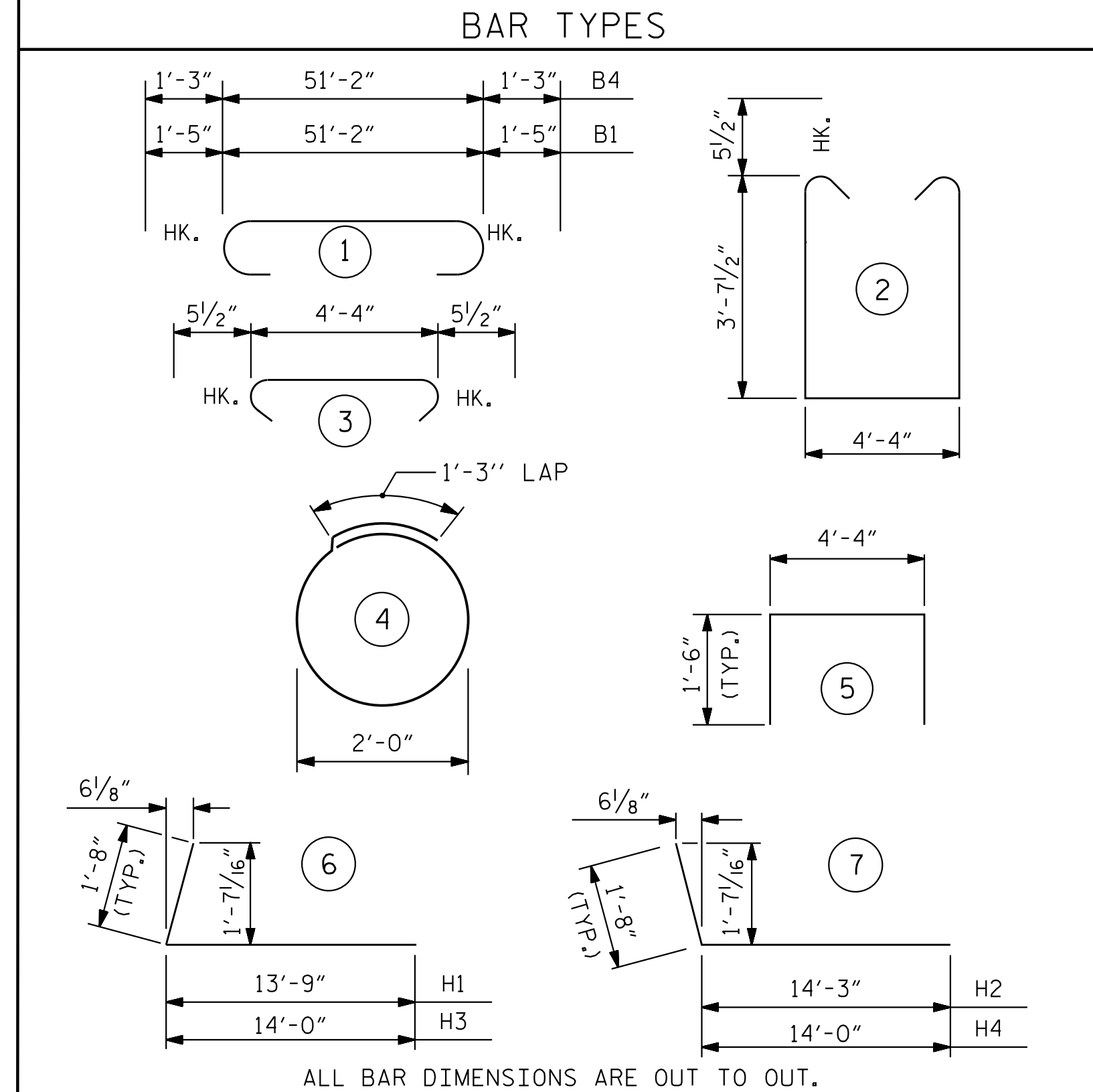
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR EFFECTIVENESS.

NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT



PILE SPLICE DETAILS



BILL OF MATERIAL

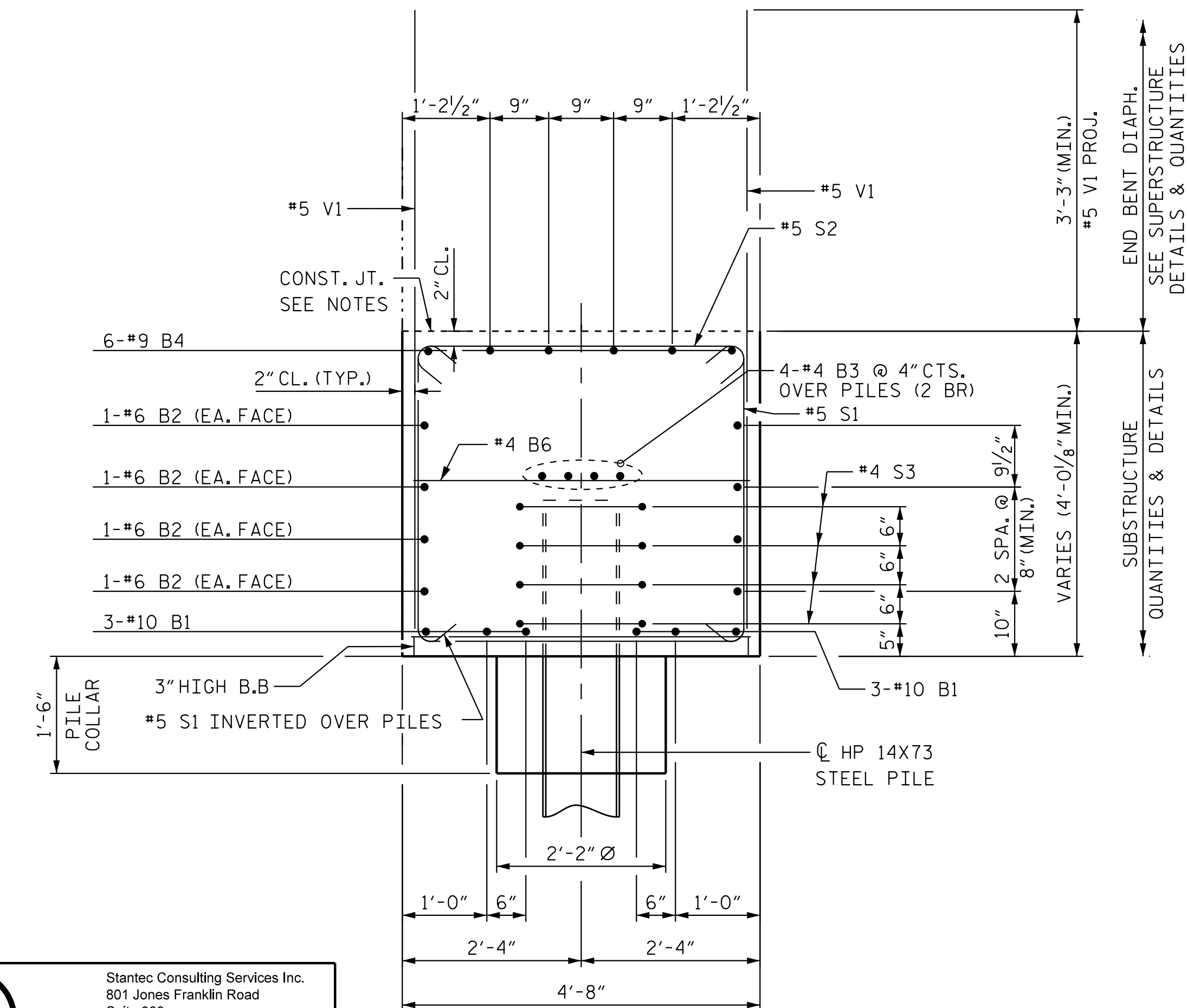
END BENT 1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	6	#10	1	54'-0"	1,394
B2	8	#6	STR	50'-8"	609
B3	8	#4	STR	26'-7"	142
B4	6	#9	1	53'-8"	1,095
B5	6	#4	STR	14'-5"	58
B6	13	#4	STR	4'-4"	38
H1	8	#5	6	15'-5"	129
H2	8	#5	7	15'-11"	133
H3	4	#4	6	15'-8"	42
H4	4	#4	7	15'-8"	42
S1	61	#5	2	12'-6"	795
S2	52	#5	3	5'-3"	285
S3	36	#4	4	7'-7"	182
U1	10	#4	5	7'-4"	49
V1	89	#5	STR	7'-4"	681
V2	51	#5	STR	6'-6"	346

REINFORCING STEEL LBS. 6,020

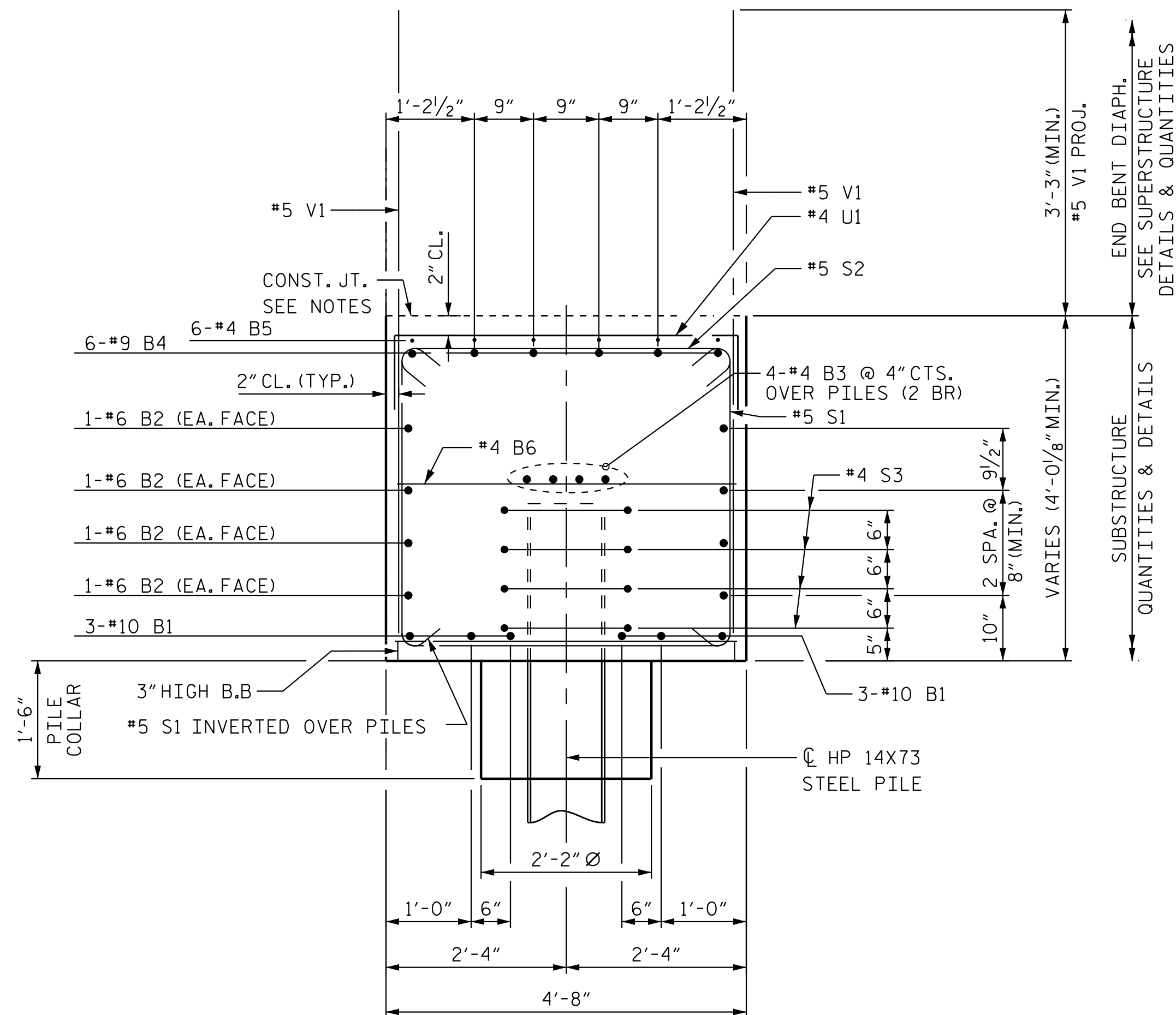
CLASS A CONCRETE BREAKDOWN:
POUR #1: CAP, COLLARS, & WINGS C.Y. 41.1

CLASS A CONCRETE TOTAL C.Y. 41.1



SECTION A-A

SEE "END BENT 1" SHEET 1 OF 3



SECTION B-B

SEE "END BENT 1" SHEET 1 OF 3

NOTES:

TOP SURFACE AREAS OF THE END BENT CAP AND WINGS, EXCLUDING THE BEARING AREA, SHALL BE ROUGHENED BY RAKING TO A DEPTH OF 1/4"

TOP SURFACE AREAS OF THE END BENT CAP SHALL BE KEPT CLEAN FREE OF LAITANCE.

(2 BR) DENOTES 2 BAR RUN.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PROJECT NO. R-3300A

NEW HANOVER COUNTY

STATION: 24+28.73 -Y34-

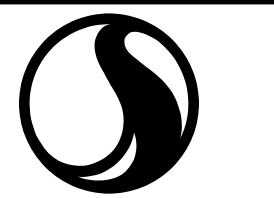
SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE

END BENT 1 DETAILS

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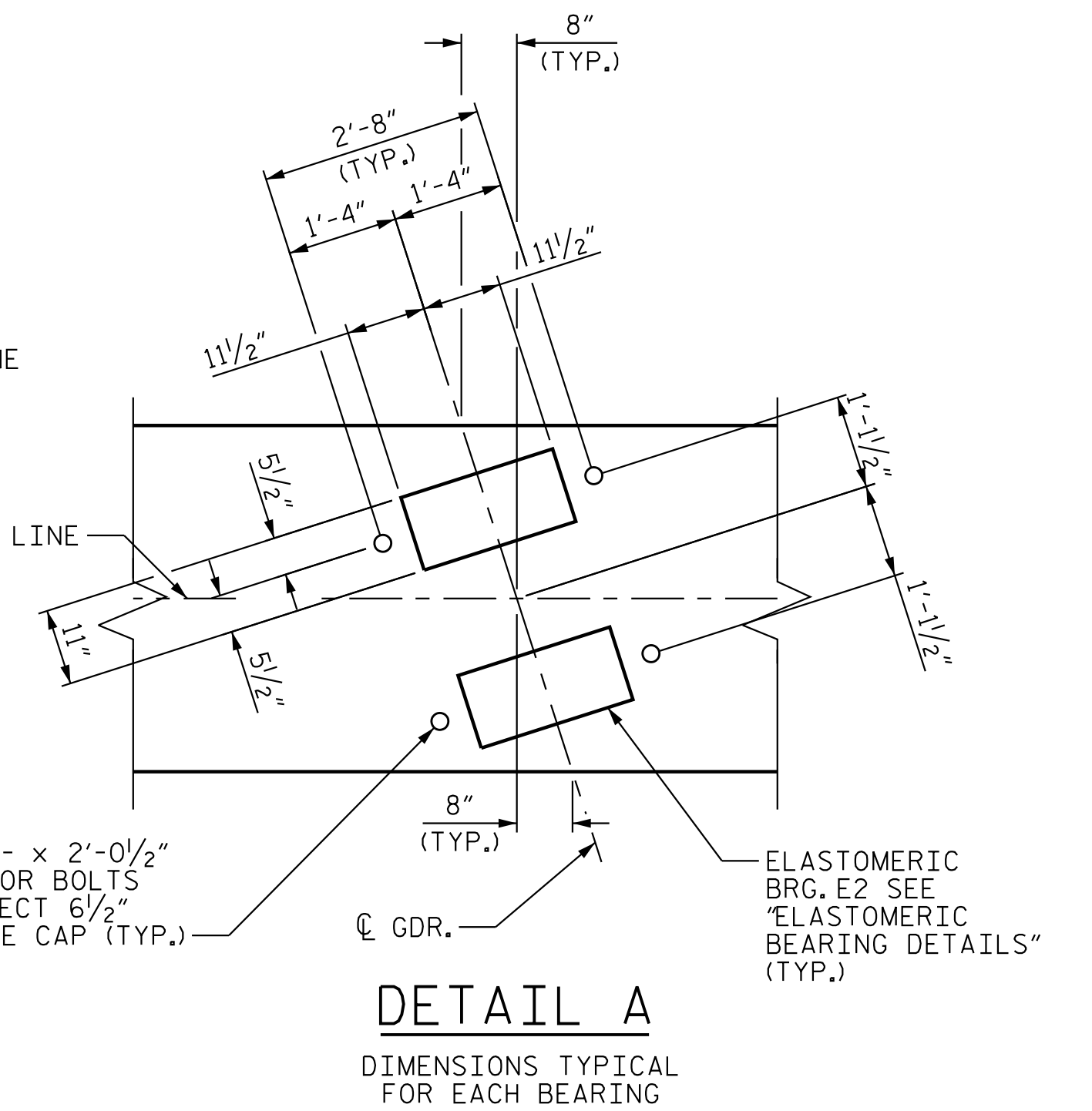
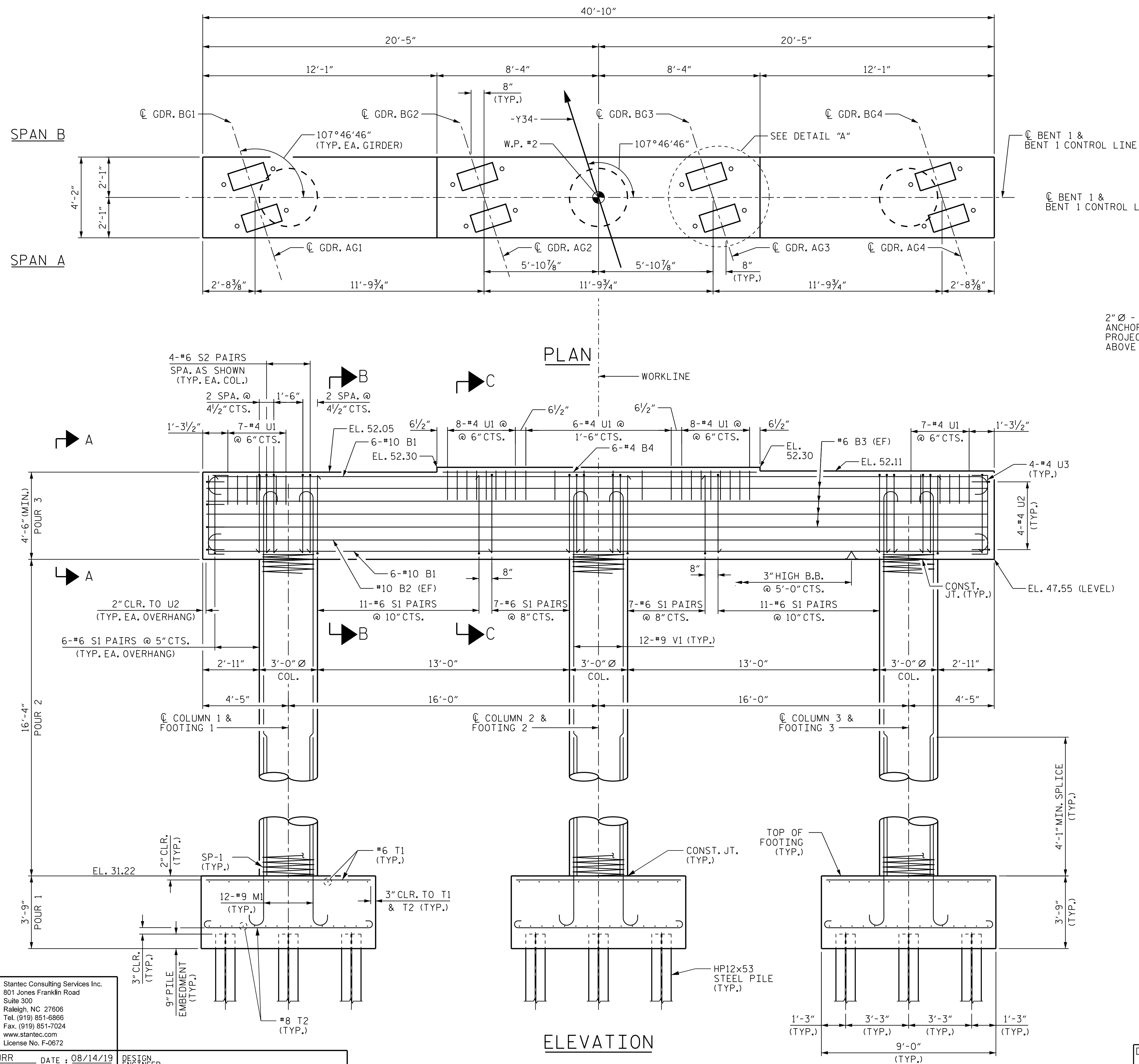
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NOTES:

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

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

FOR VIEW A-A, SECTION B-B, AND SECTION C-C, SEE BENT 1 SHEET 3 OF 3.

INVERT EVERY OTHER #6 S1 STIRRUP PAIR.

(EF) DENOTES EACH FACE OF THE CAP.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PROJECT NO. R-3300A
NEW HANOVER COUNTY
STATION: 24+28.73 -Y34-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE

BENT 1



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ALL DIMENSIONS AND DETAILS SHOWN FOR FOOTINGS ARE
TYPICAL FOR EACH FOOTING UNLESS NOTED OTHERWISE.



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OF RECORD: J. T. KELVINGTON DATE : 04/22/25



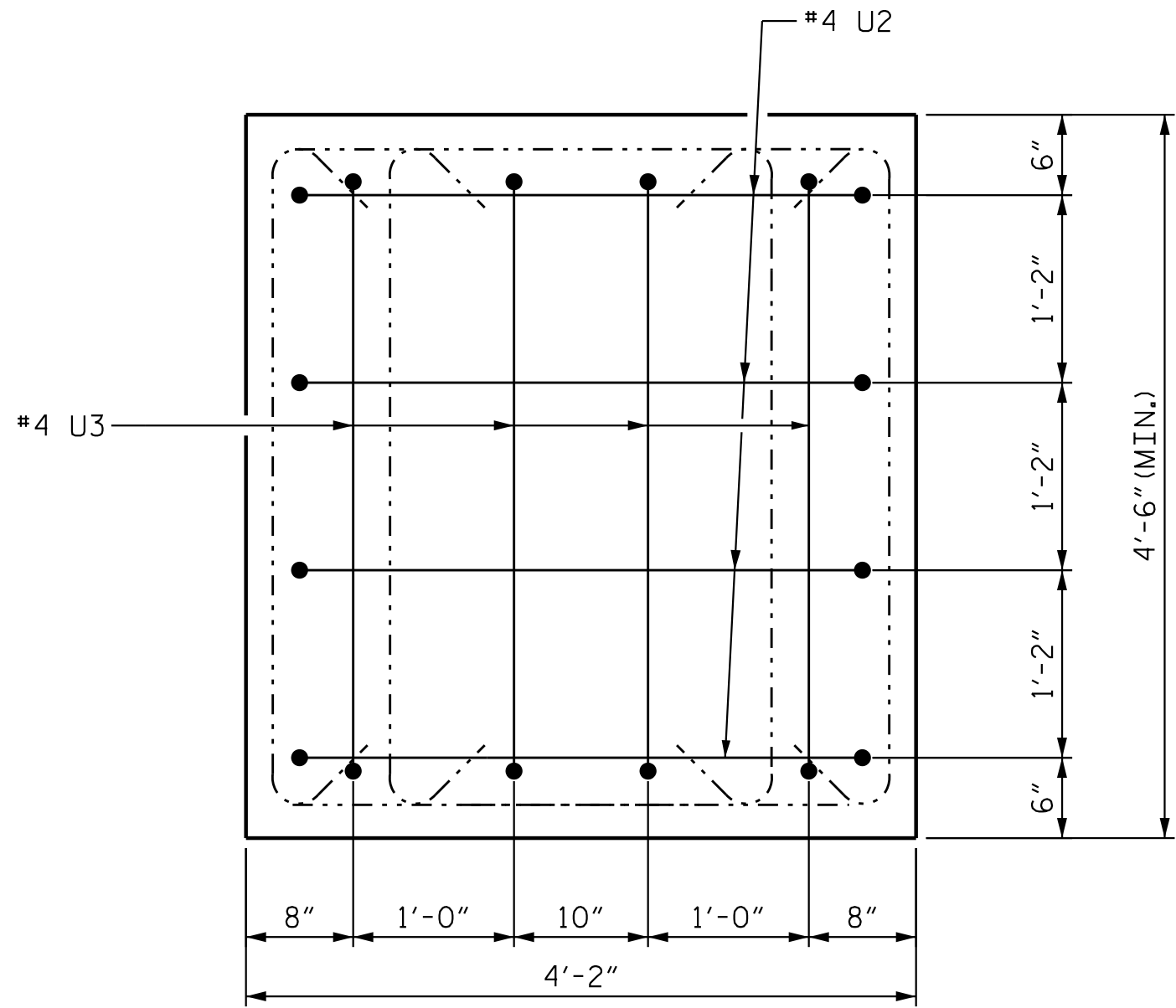
PROJECT NO. R-3300A
NEW HANOVER COUNTY
 STATION: 24+28.73 -Y34-

BENT 1 DETAILS

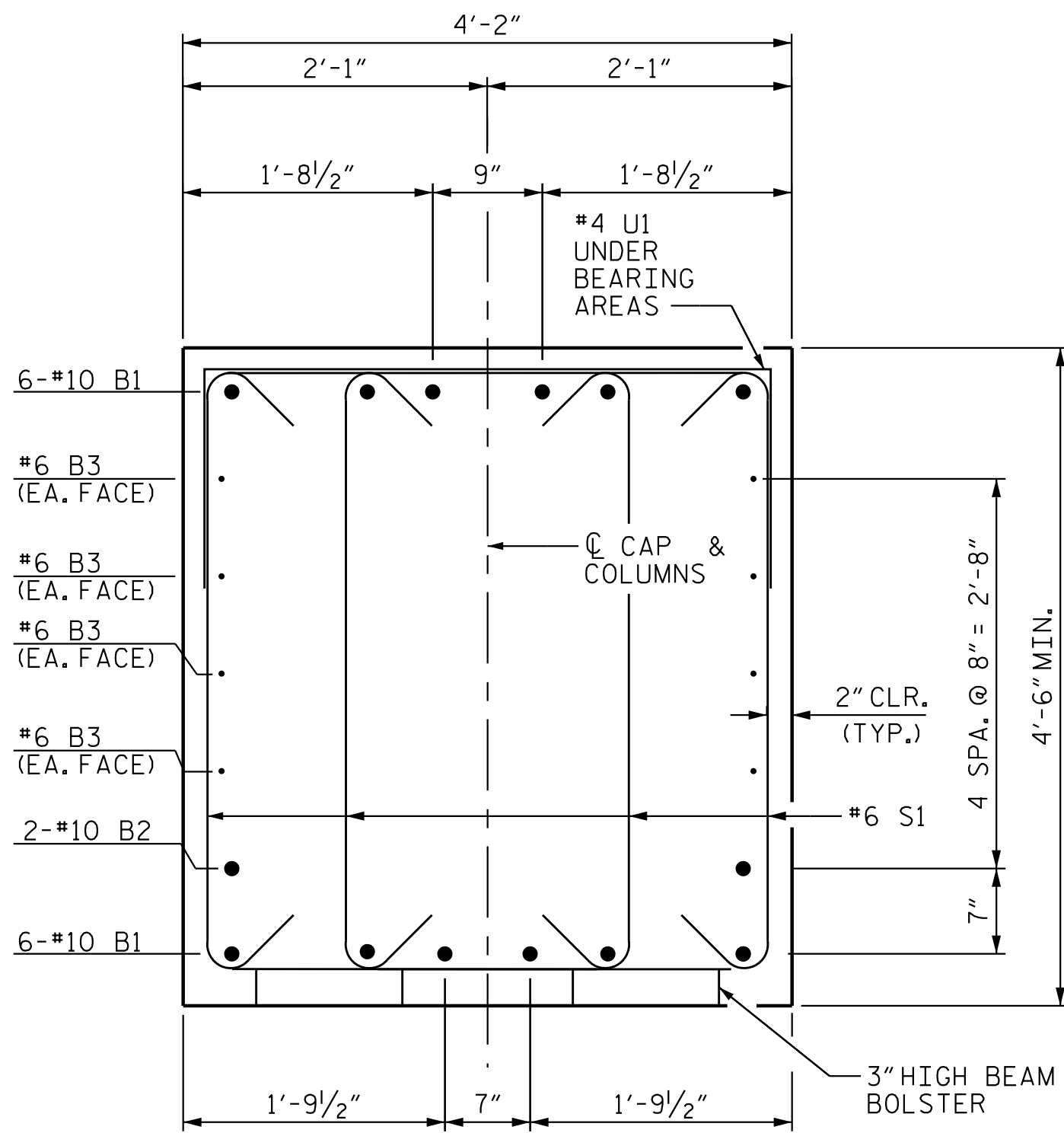
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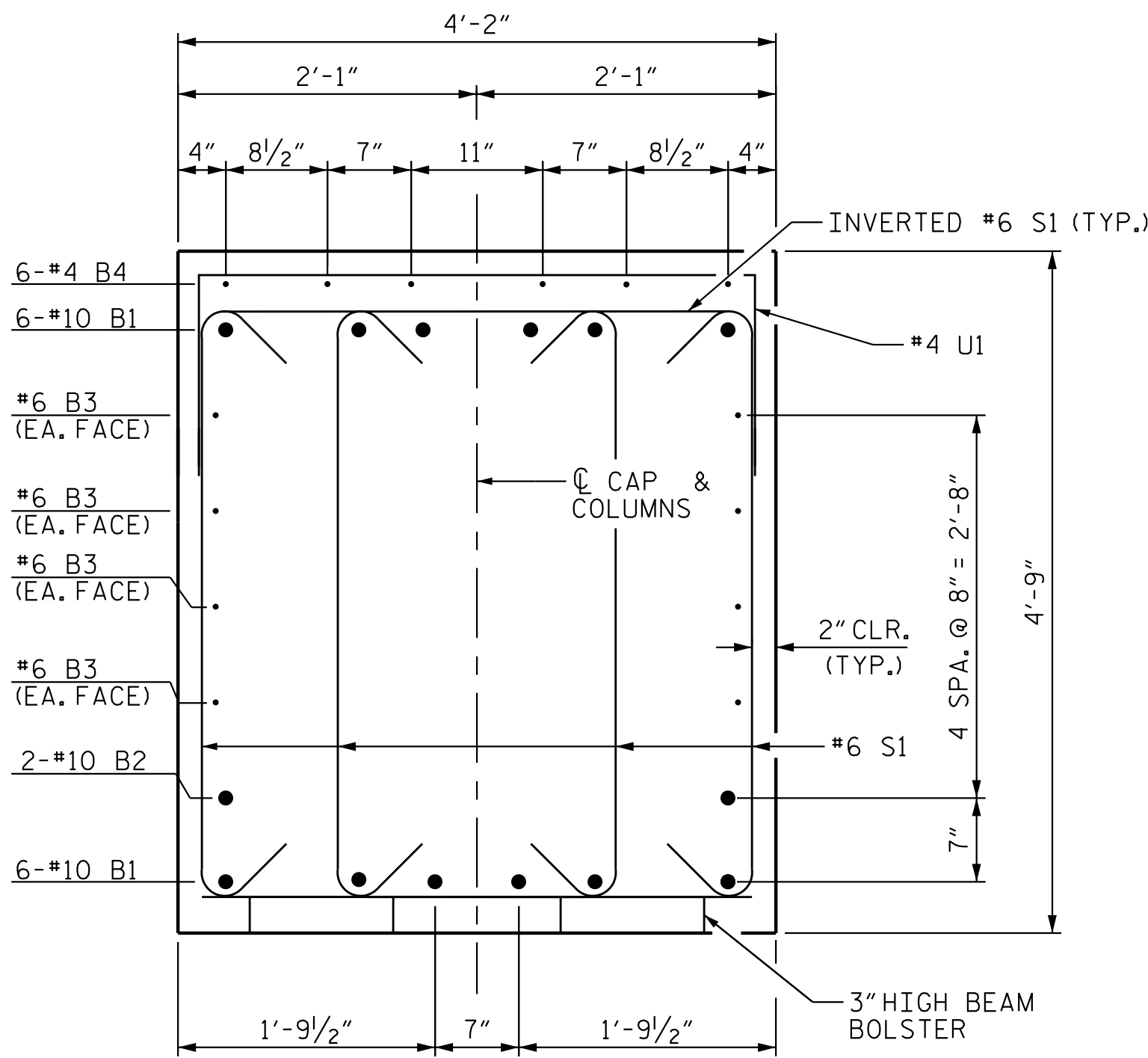


VIEW A-A



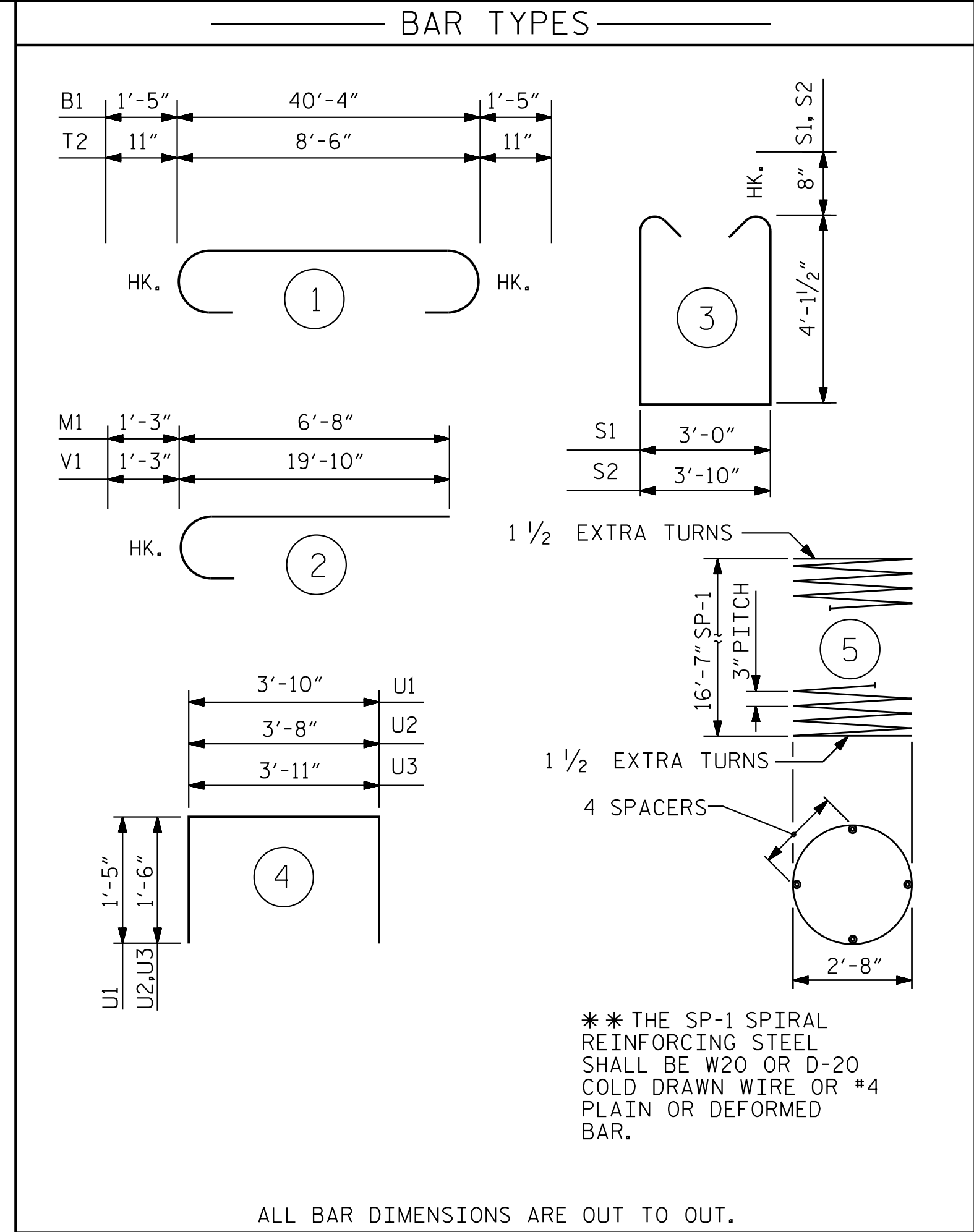
SECTION B-B

SHIFT B1 BARS AS NECESSARY TO CLEAR ANCHOR BOLTS.

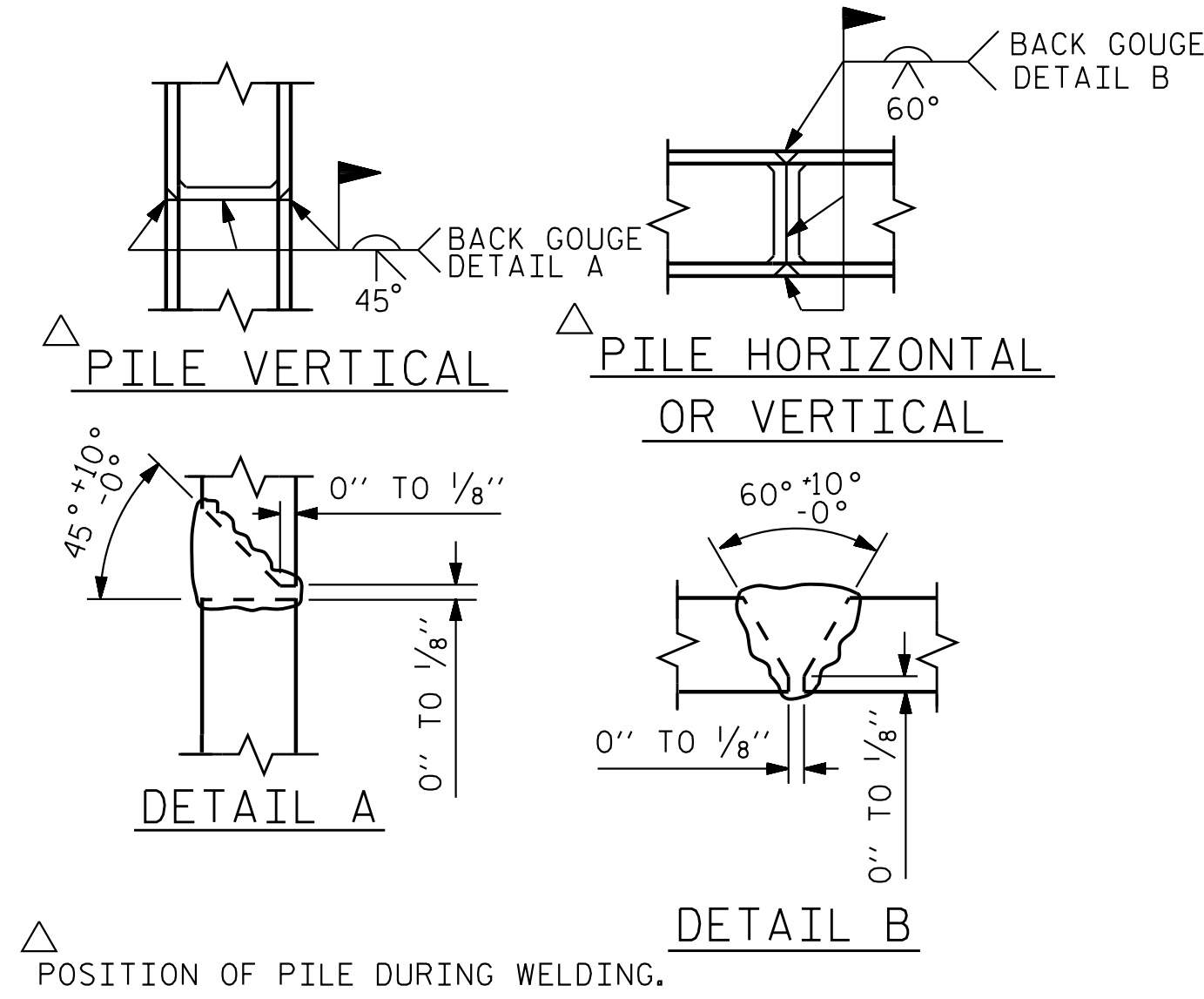


SECTION C-C

SHIFT B1 BARS AS NECESSARY TO CLEAR ANCHOR BOLTS.



BILL OF MATERIAL					
BENT #1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	12	#10	1	43'-2"	2,229
B2	2	#10	STR	40'-0"	344
B3	8	#6	STR	40'-4"	485
B4	6	#4	STR	16'-4"	65
M1	36	#9	2	7'-11"	969
S1	96	#6	3	12'-7"	1,814
S2	24	#6	3	13'-5"	484
T1	54	#6	STR	8'-6"	689
T2	90	#8	1	10'-4"	2,483
U1	36	#4	4	6'-8"	160
U2	8	#4	4	6'-8"	36
U3	8	#4	4	6'-11"	37
V1	36	#9	2	21'-1"	2,581
REINFORCING STEEL				LBS.	12,376
SP-1	3	**	5	572'-1"	1,146
SPIRAL COLUMN					
REINFORCING STEEL				LBS.	1,146
CLASS A CONCRETE BREAKDOWN					
POUR #1 FOOTINGS				C. Y.	33.7
POUR #2 COLUMNS				C. Y.	12.8
POUR #3 CAP				C. Y.	29.1
TOTAL CLASS A CONC.				C. Y.	75.6



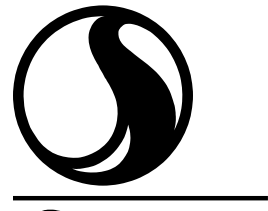
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PROJECT NO. R-3300A
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STATION: 24+28.73 -Y34-

SHEET 3 OF 3

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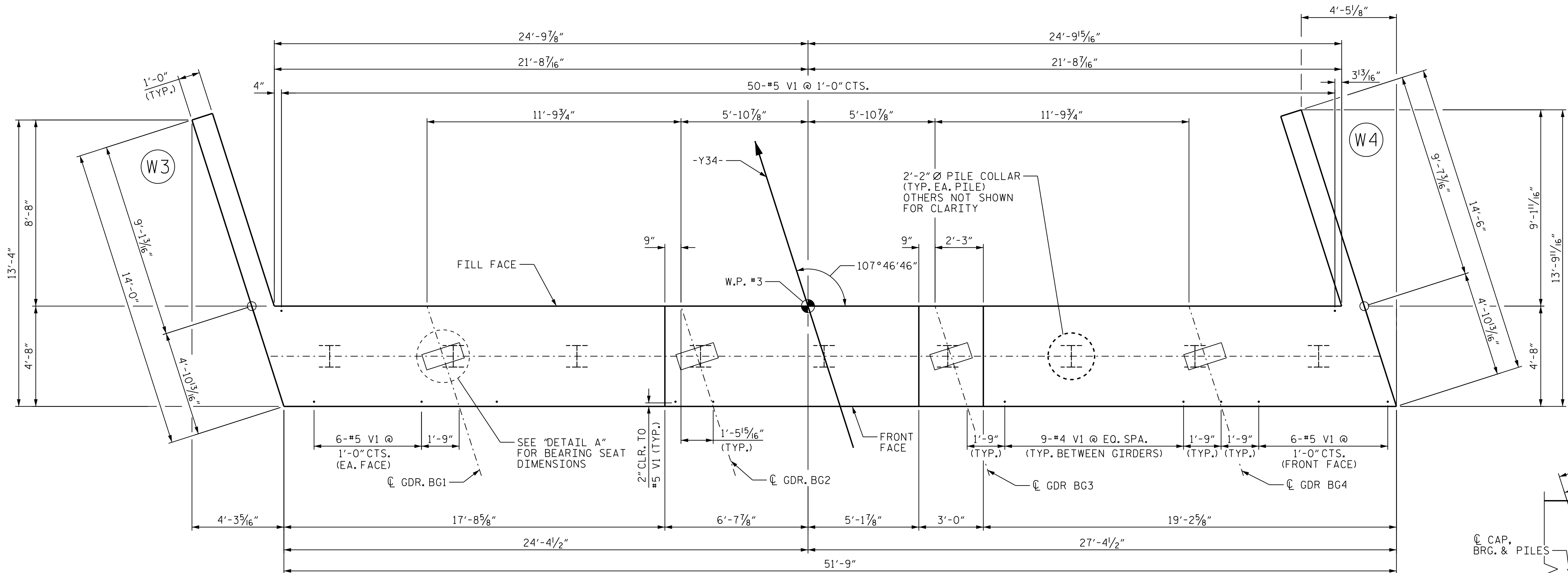
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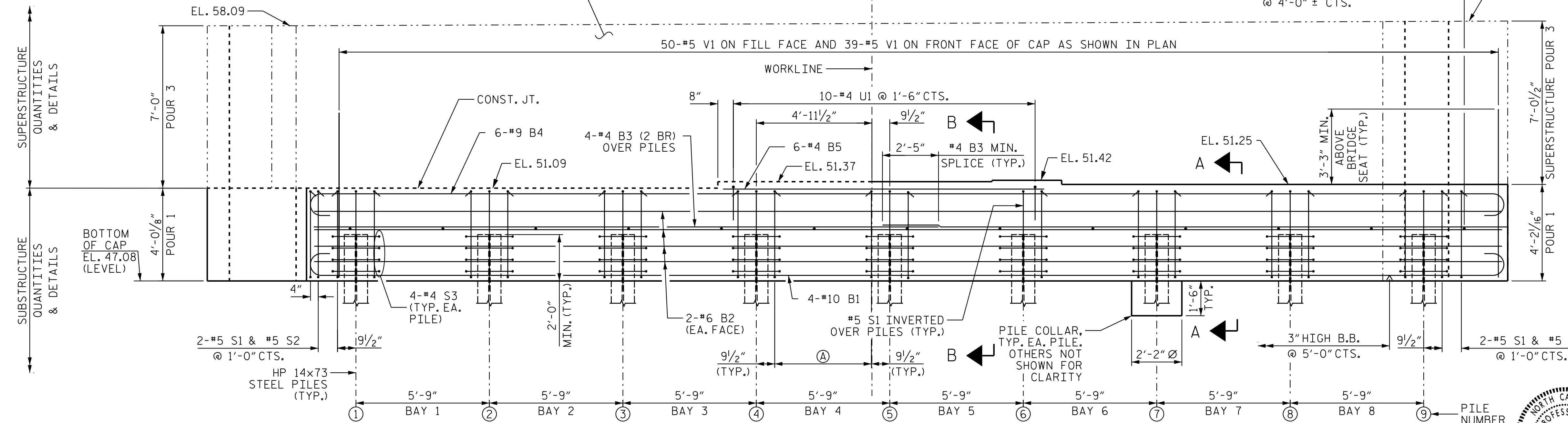
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PLAN

FOR WING DETAILS, SEE "END BENT 2
DETAILS - WING WALLS" SHT. 2 OF 3

INTEGRAL END BENT DIAPHRAGM.
SEE "SUPERSTRUCTURE PLAN OF
SPANS DETAILS - DIAPHRAGMS"
FOR DETAILS.



ELEVATION

WING WALLS NOT SHOWN FOR CLARITY

NOTES:

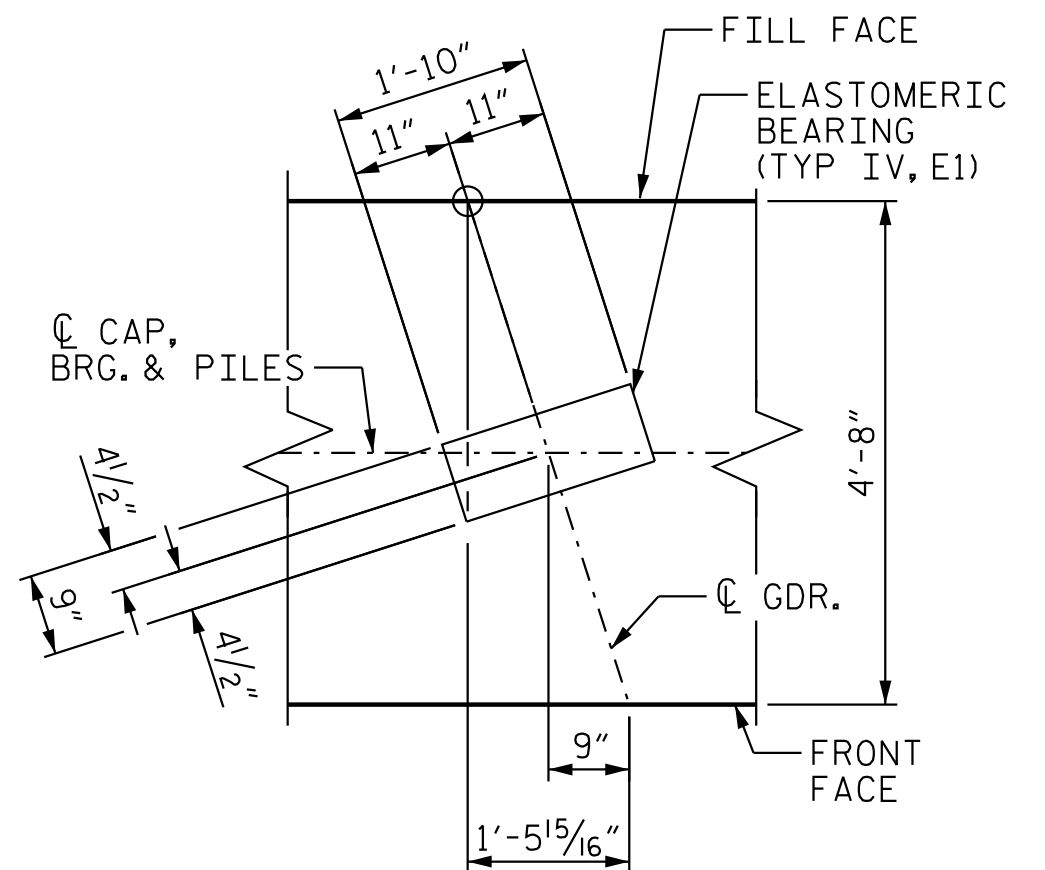
(2 BR) DENOTES 2 BAR RUN
SEE SHEET 2 OF 3 FOR WING WALL
REINFORCEMENT.

FOR PILE SPLICE DETAILS, SEE
SHEET 3 OF 3.

PILES SHALL BE CUTOFF AT
EL. 49.08.

INSTALL THE 6" Ø DRAIN
PIPE THROUGH THE WINGWALL AS
REQUIRED FOR REINFORCED BRIDGE
APPROACH FILLS. SEE THE ROADWAY
PLANS. REINFORCING STEEL IN THE
WINGWALL MAY BE SHIFTED AS
NECESSARY TO CLEAR THE DRAIN
PIPE.

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



DETAIL A

DIMENSIONS TYPICAL FOR
EACH BEARING

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PROJECT NO. R-3300A
NEW HANOVER COUNTY
STATION: 24+28.73 -Y34-

SHEET 1 OF 3

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SUBSTRUCTURE
END BENT 2

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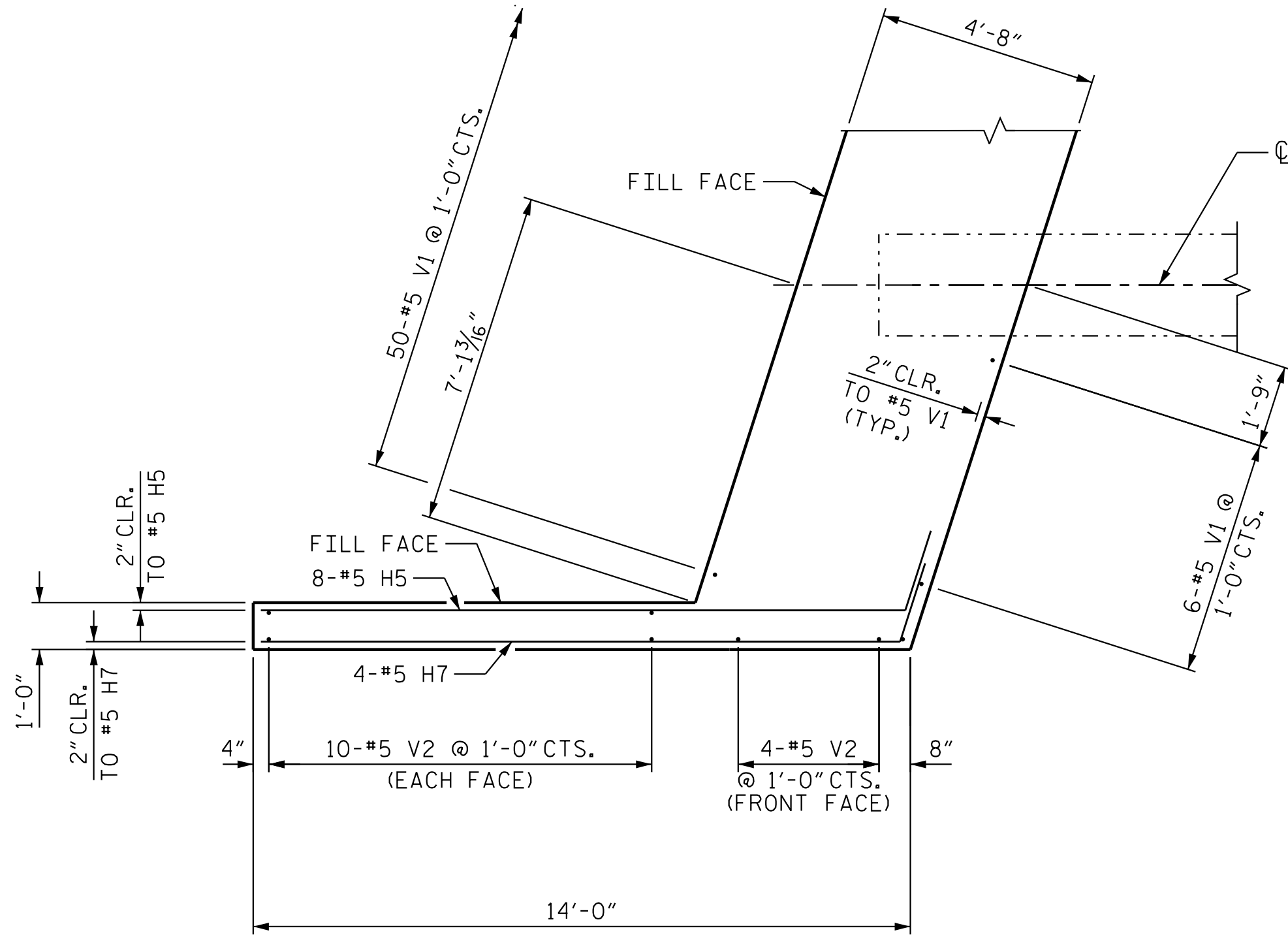
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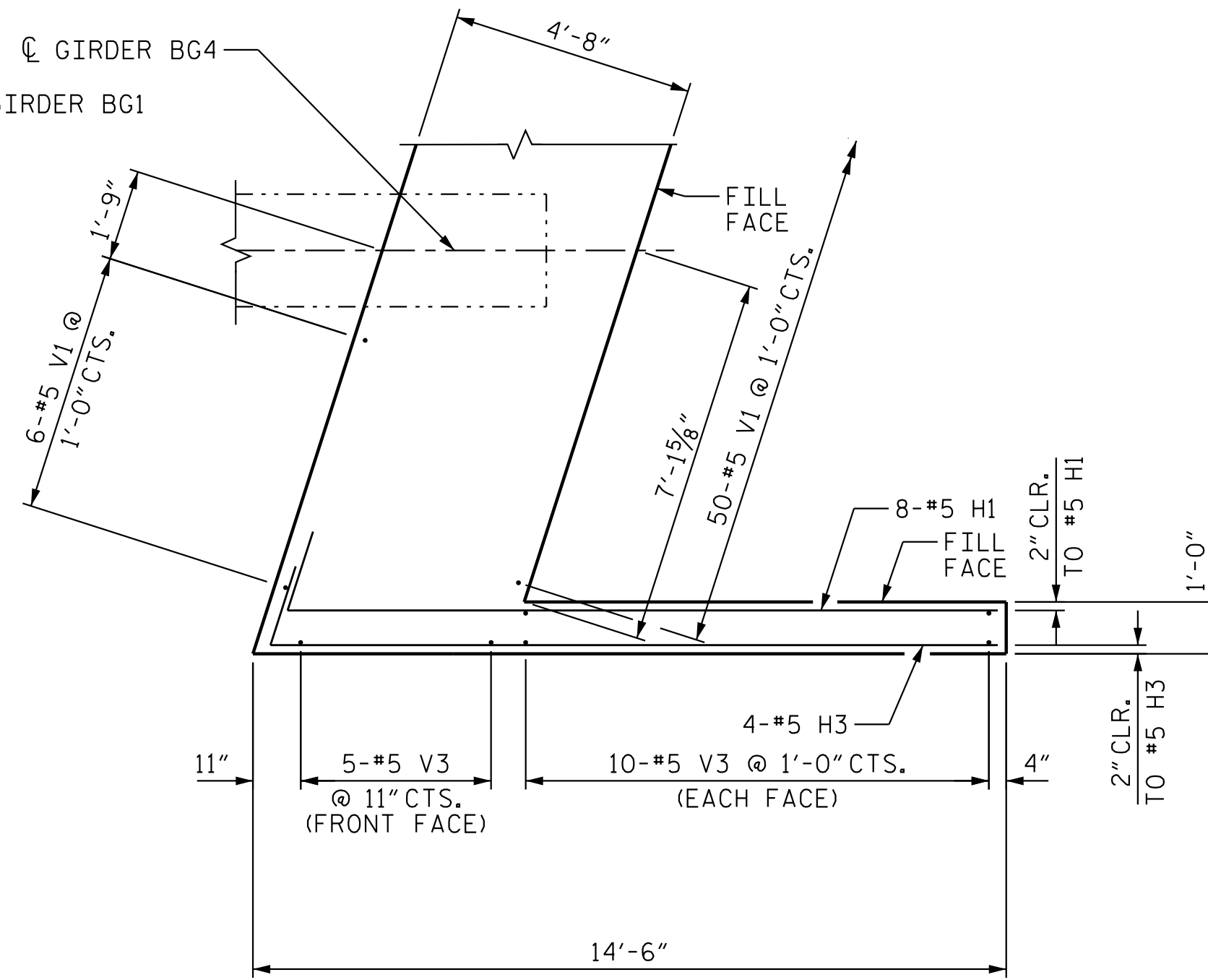
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④ 6-#5 S1 & 6-#5 S2 @
10" CTS. (TYP. EA. BAY)

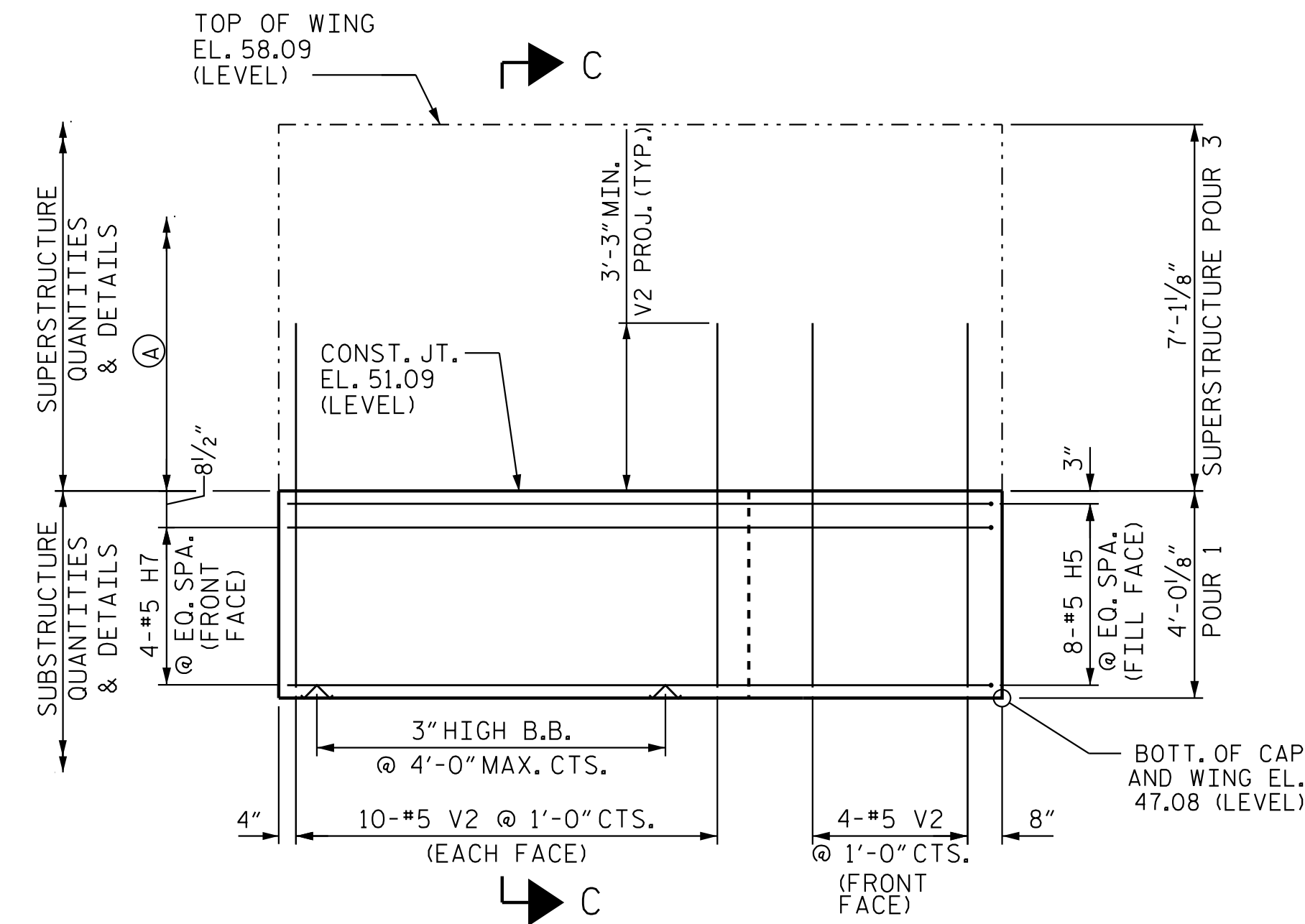
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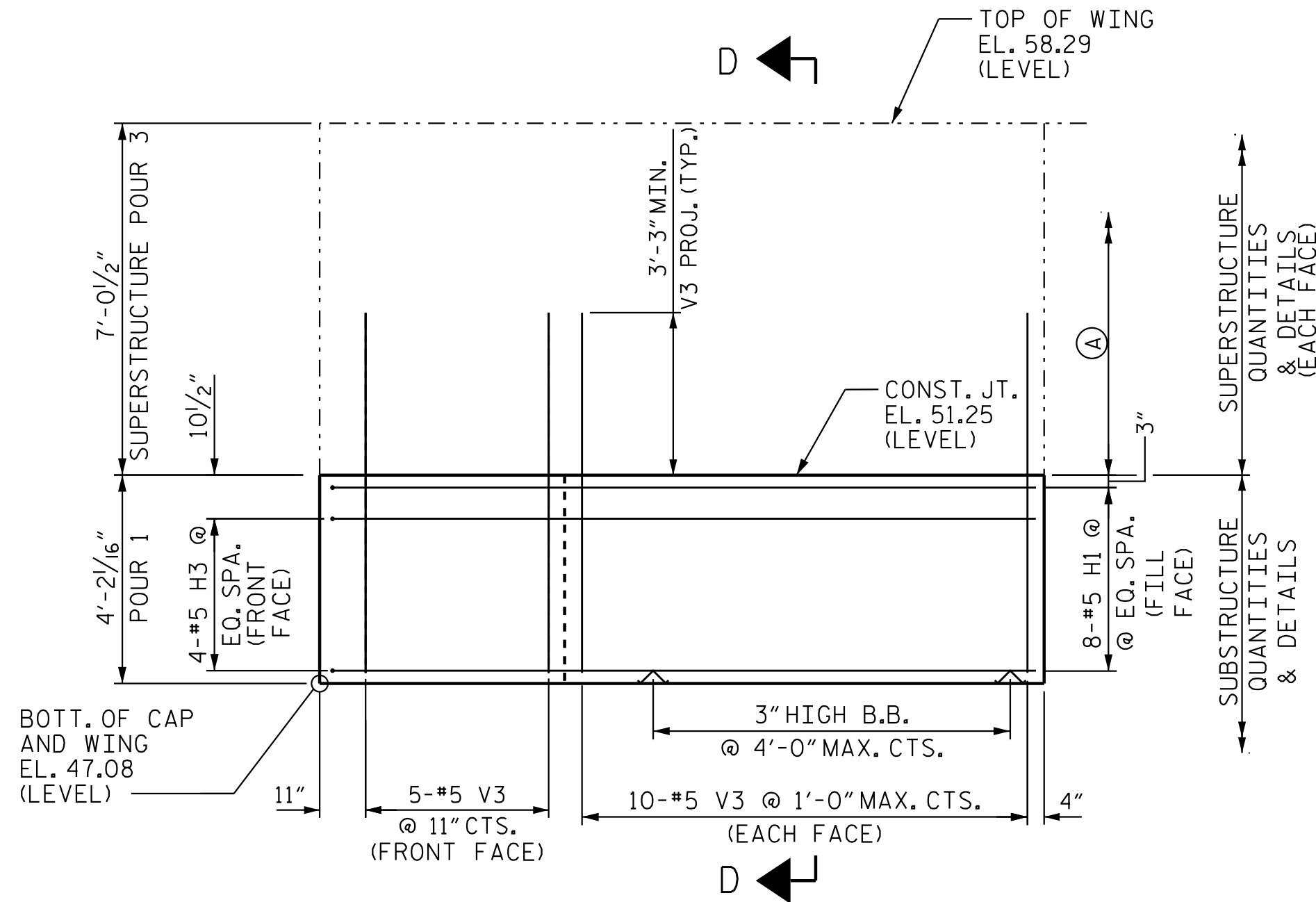
PLAN OF LEFT WING (W3)



PLAN OF RIGHT WING (W4)



ELEVATION OF LEFT WING (W3)



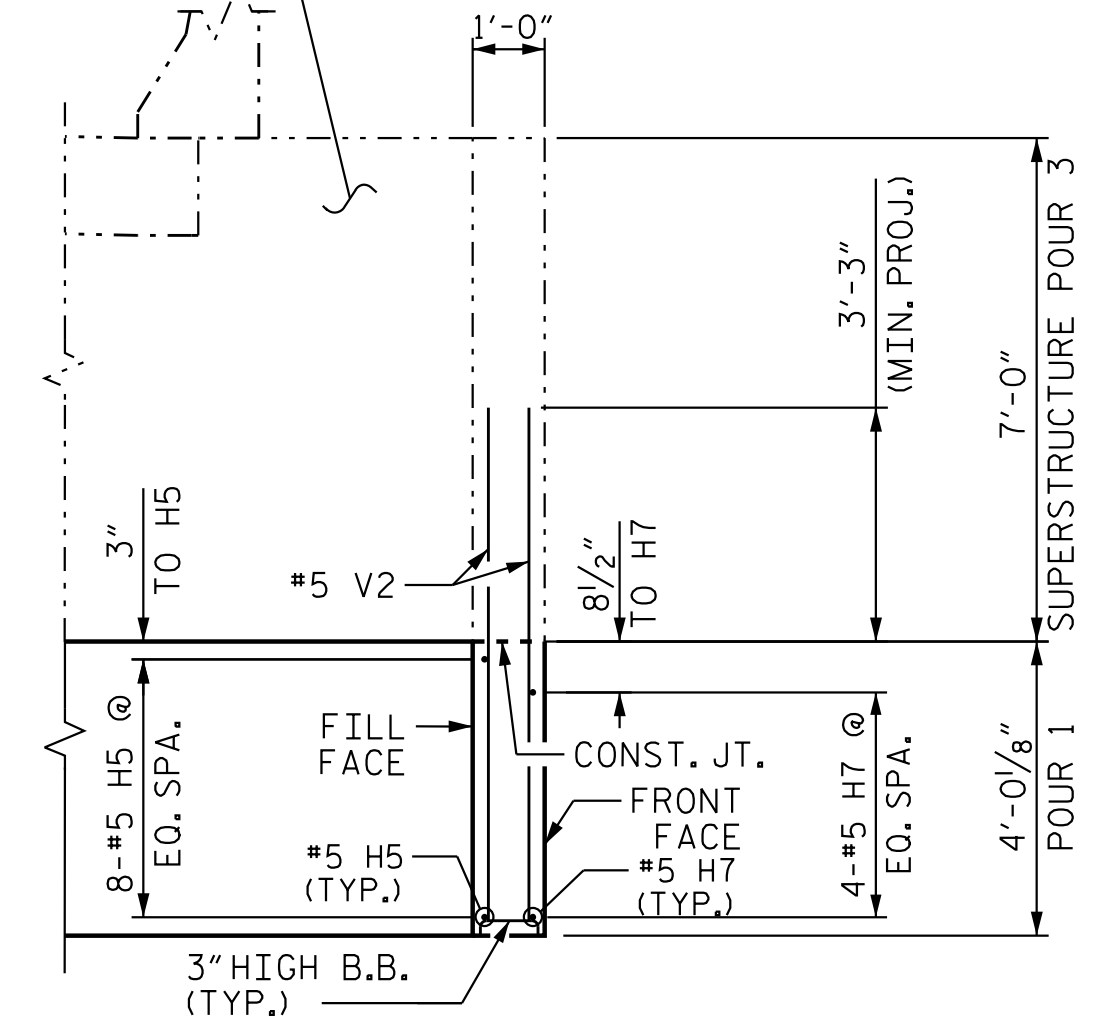
ELEVATION OF RIGHT WING (W4)

NOTE:

TOP SURFACE OF END BENT CAP BETWEEN EDGE OF DECK SLAB AND END OF CAP SHALL BE ROUGHENED BY RAKING THE SURFACE AT THE CONST. JT., A MINIMUM OF 1/4"/FT.

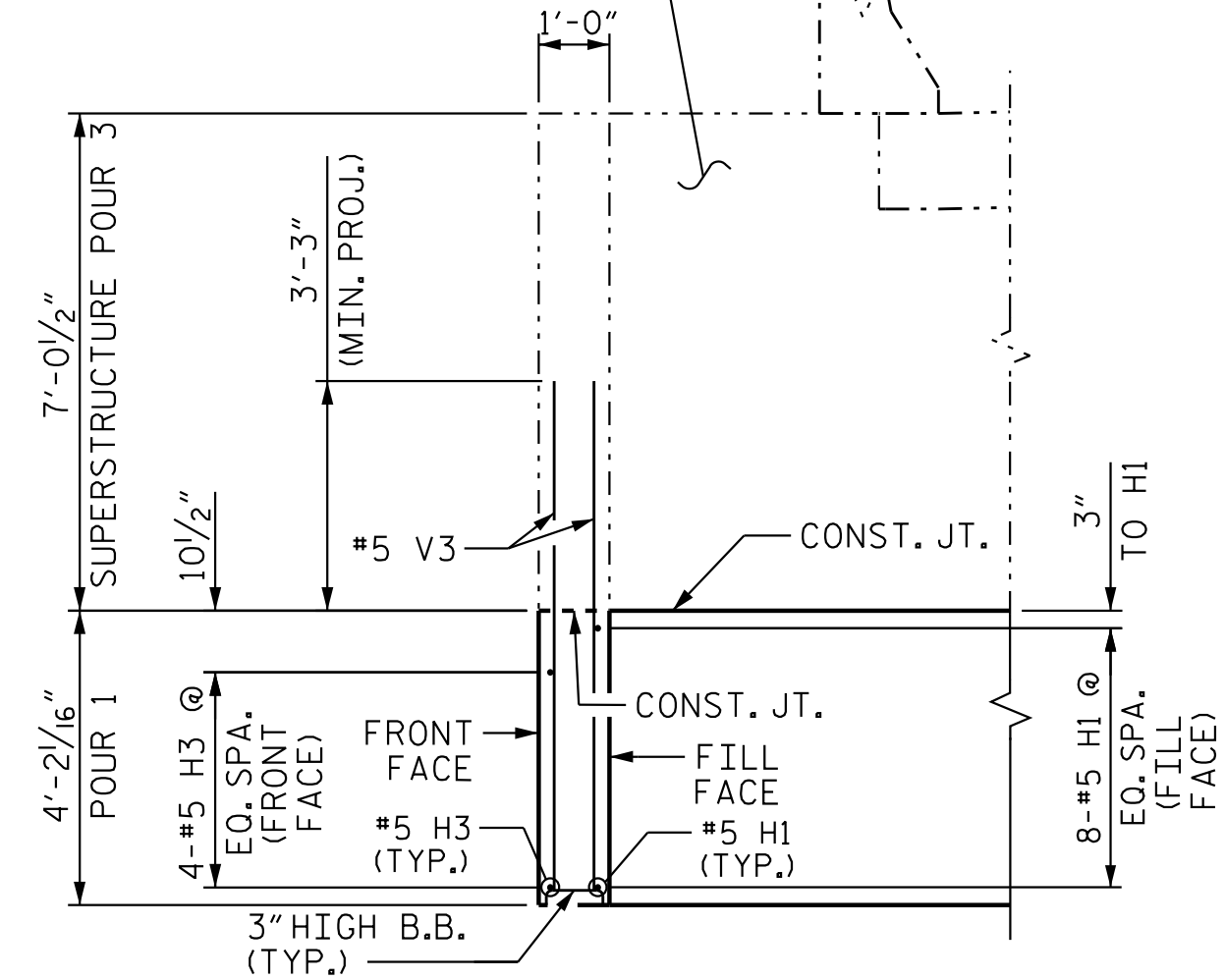
(A) WING WALL DETAILS & QUANTITIES ABOVE THE CONST. JT. ARE INCLUDED IN THE BRIDGE SUPERSTRUCTURE. SEE SUPERSTRUCTURE PLANS.

SEE SUPERSTRUCTURE
"END BENT 2 DETAILS WING WALLS"
SHEET S05-13



SECTION C-C

SEE SUPERSTRUCTURE
"END BENT 2 DETAILS WING WALLS"
SHEET S05-13

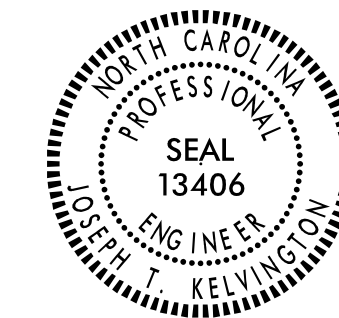


SECTION D-D

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PROJECT NO. R-3300A
NEW HANOVER COUNTY
STATION: 24+28.73 -Y34-

SHEET 2 OF 3

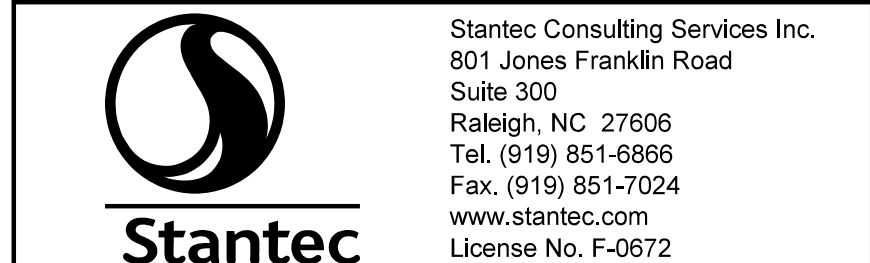


STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE

END BENT 2 DETAILS
WING WALLS

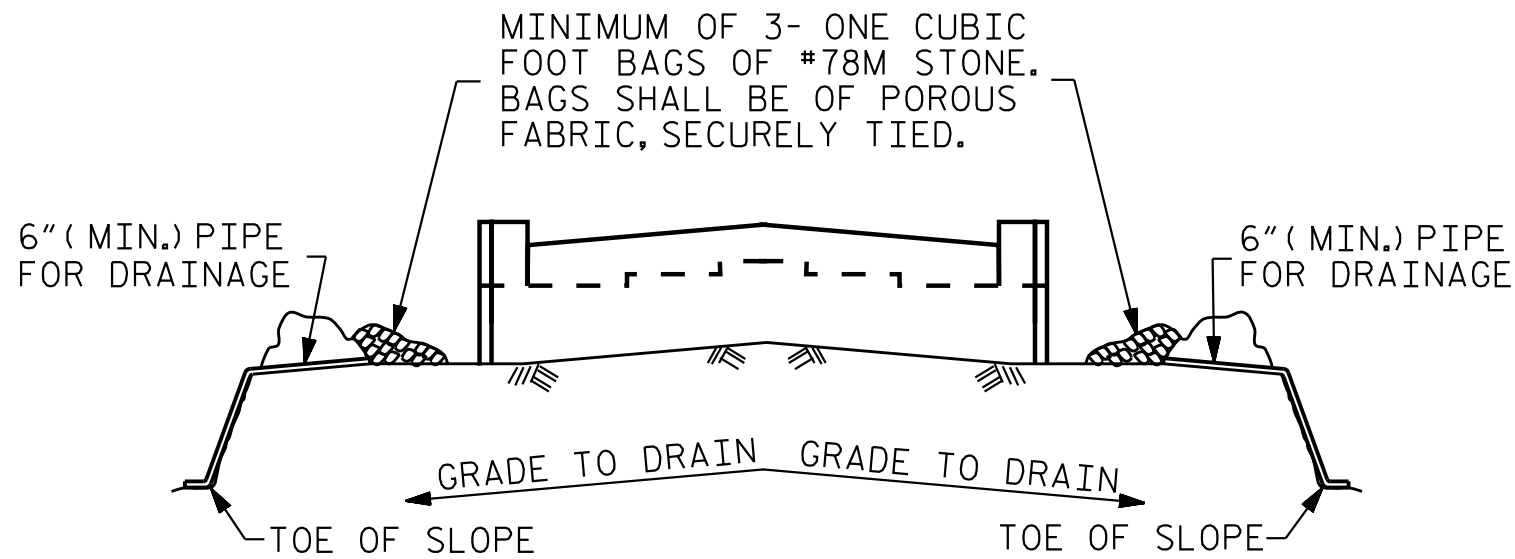
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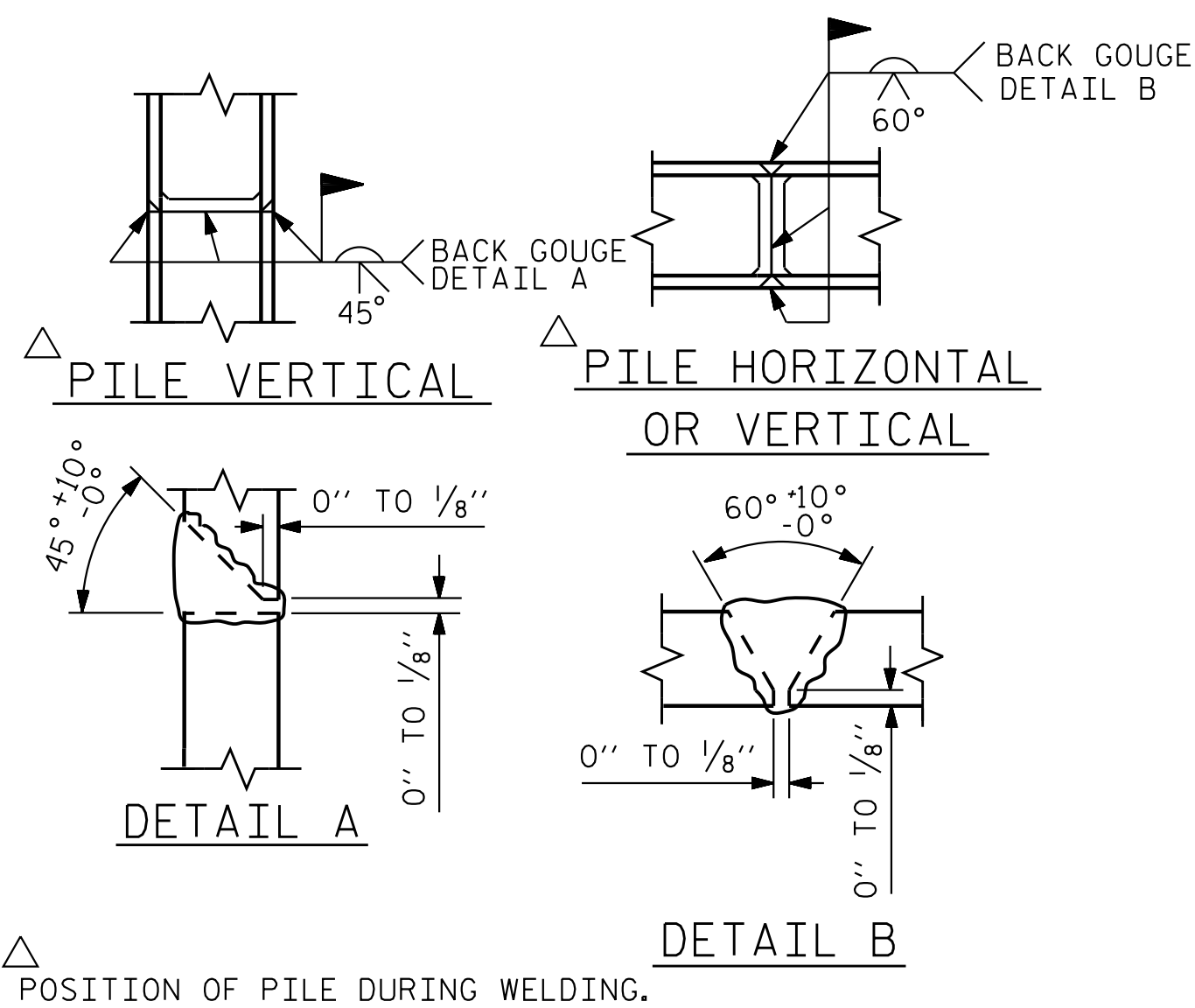


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

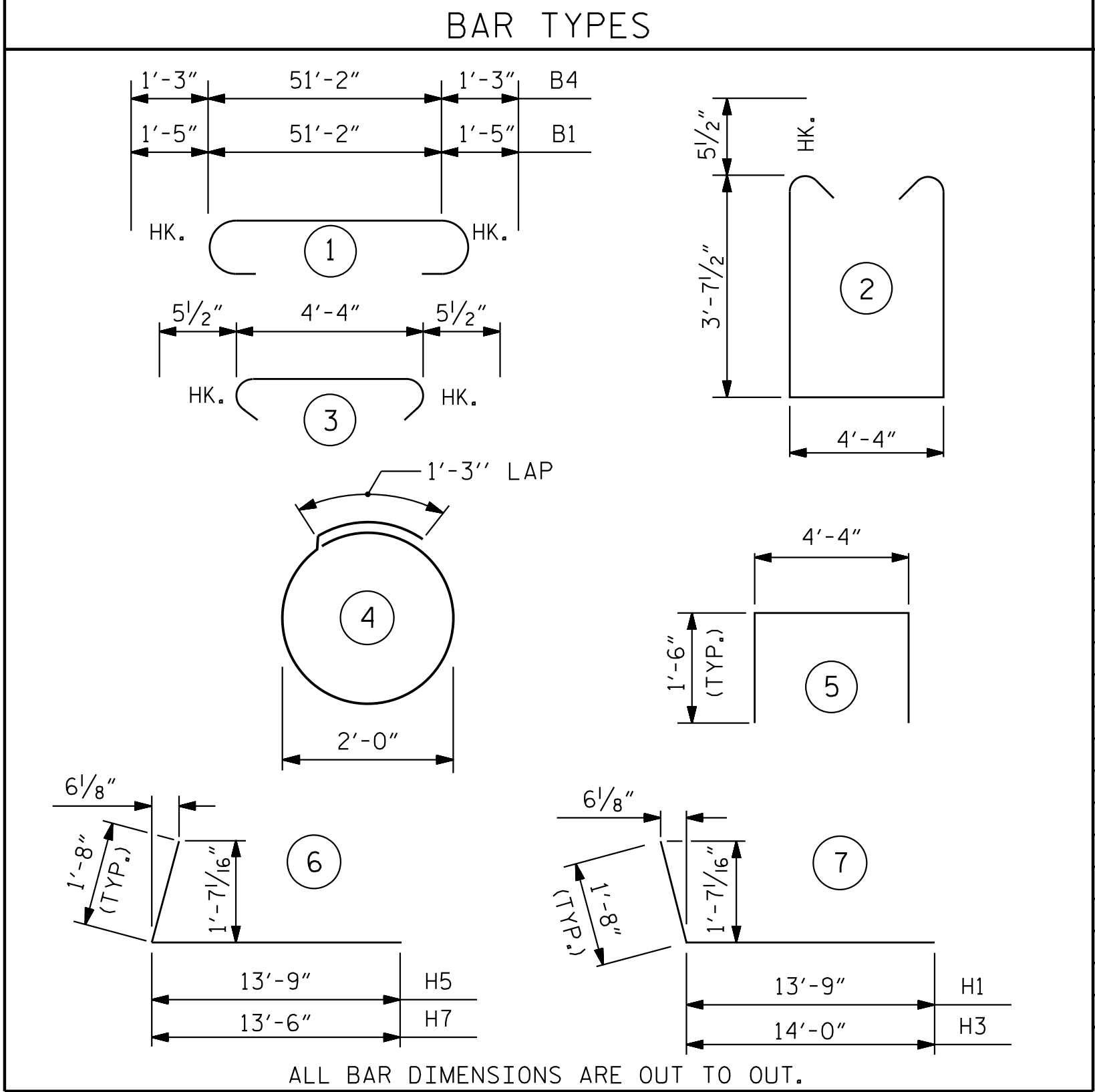
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR EFFECTIVENESS.

NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

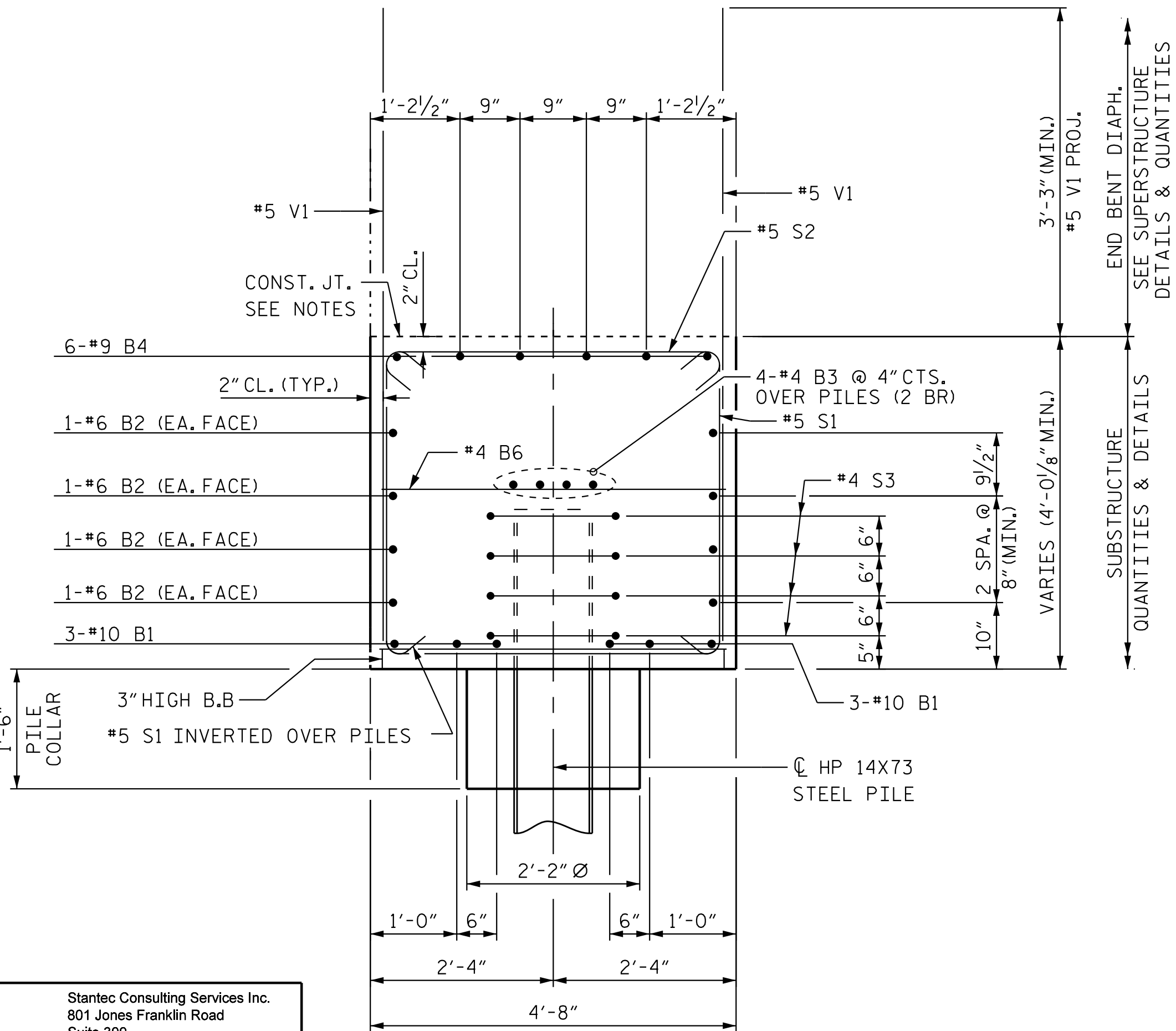
TEMPORARY DRAINAGE AT END BENT



PILE SPLICE DETAILS

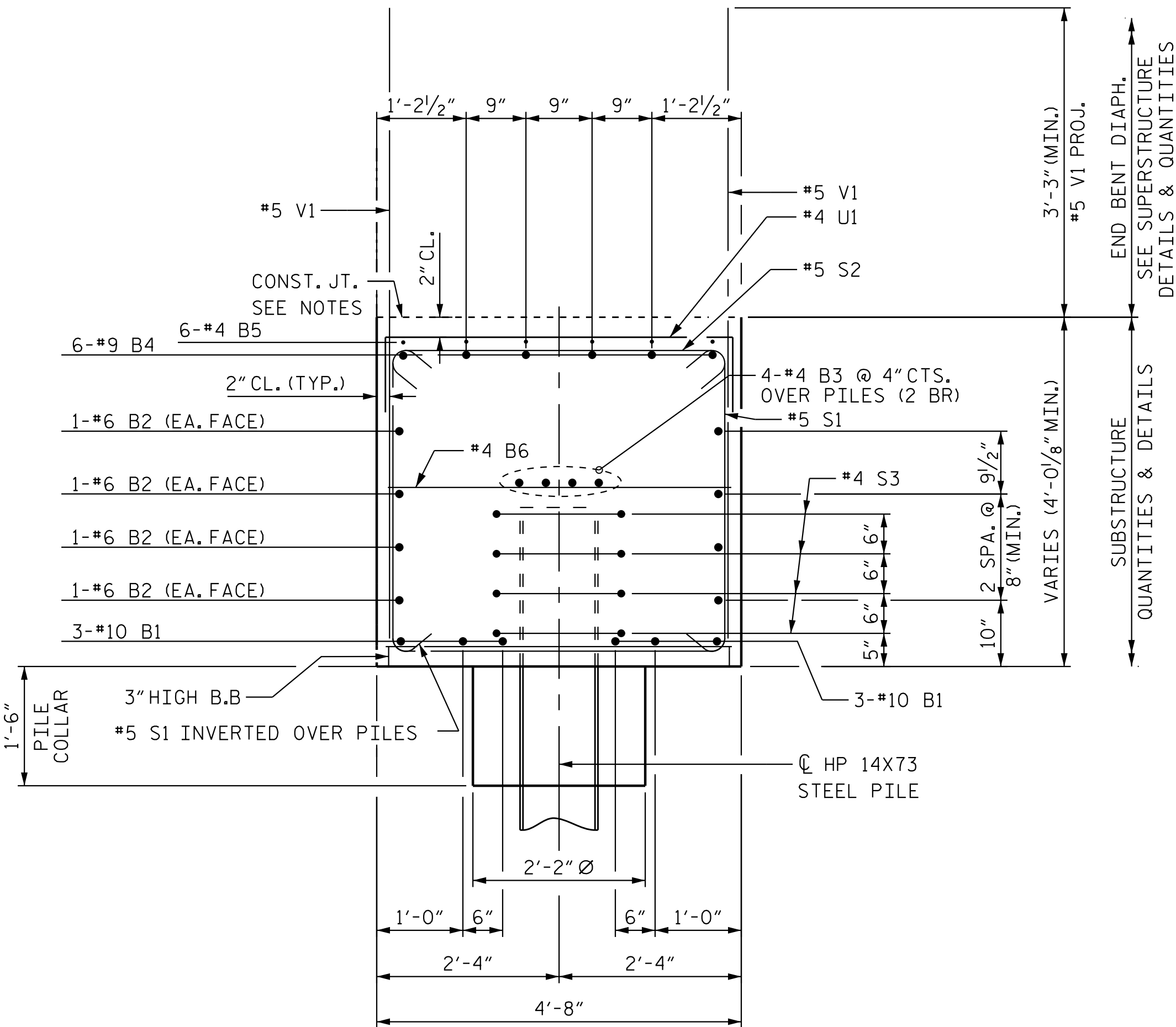


BILL OF MATERIAL					
END BENT 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	6	#10	1	54'-0"	1,394
B2	8	#6	STR	50'-8"	609
B3	8	#4	STR	26'-7"	142
B4	6	#9	1	53'-8"	1,095
B5	6	#4	STR	14'-3"	57
B6	13	#4	STR	4'-4"	38
H1	8	#5	6	15'-5"	129
H3	4	#4	6	15'-8"	42
H5	8	#5	7	15'-5"	129
H7	4	#4	7	15'-2"	41
S1	61	#5	2	12'-6"	795
S2	52	#5	3	5'-3"	285
S3	36	#4	4	7'-7"	182
U1	10	#4	5	7'-4"	49
V1	89	#5	STR	7'-6"	696
V2	24	#5	STR	6'-5"	161
V3	25	#5	STR	6'-7"	172
REINFORCING STEEL					LBS. 6,016
CLASS A CONCRETE BREAKDOWN:					
POUR #1: CAP, COLLARS, & WINGS					C.Y. 41.6
CLASS A CONCRETE TOTAL					C.Y. 41.6



SECTION A-A

SEE 'END BENT 2' SHEET 1 OF 3



SECTION B-B

SEE 'END BENT 2' SHEET 1 OF 3

NOTES:

TOP SURFACE AREAS OF THE END BENT CAP SHALL BE KEPT CLEAN AND FREE OF LAITANCE.

TOP SURFACE AREAS OF THE END BENT CAP AND WINGS, EXCLUDING THE BEARING AREA, SHALL BE ROUGHENED BY RAKING TO A DEPTH OF 1/4".

(2 BR) DENOTES 2 BAR RUN.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PROJECT NO. R-3300A

NEW HANOVER COUNTY

STATION: 24+28.73 -Y34-

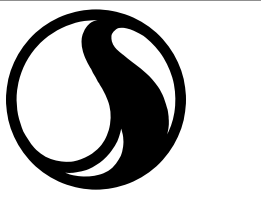
SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE

END BENT 2 DETAILS

REVISIONS						SHEET NO. S05-31
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 34
2			4			

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801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
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DRAWN BY : E. M. MURR DATE : 10/01/19
CHECKED BY : J. T. KELVINGTON DATE : 03/12/25

DESIGN ENGINEER OF RECORD : J. T. KELVINGTON DATE : 04/22/25

4/29/2025 2:03:35 PM jgelle

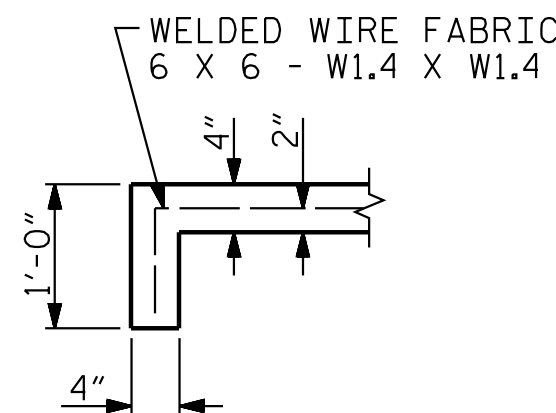
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Fax. (919) 851-7024
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DESIGN ENGINEER OF RECORD : J. T. KELVINGTON DATE : 04/22/25

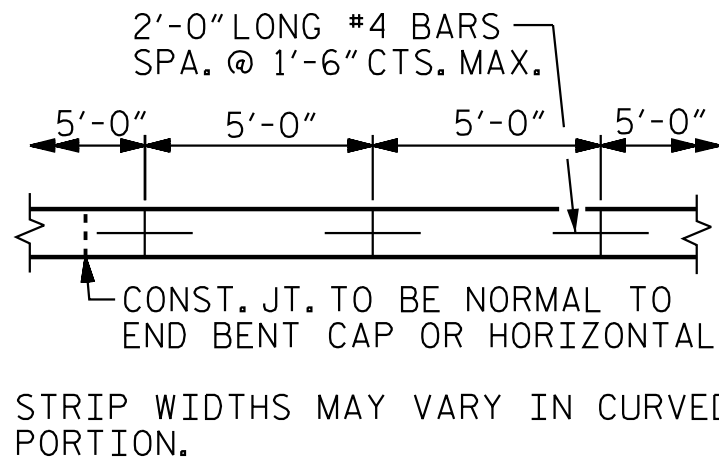
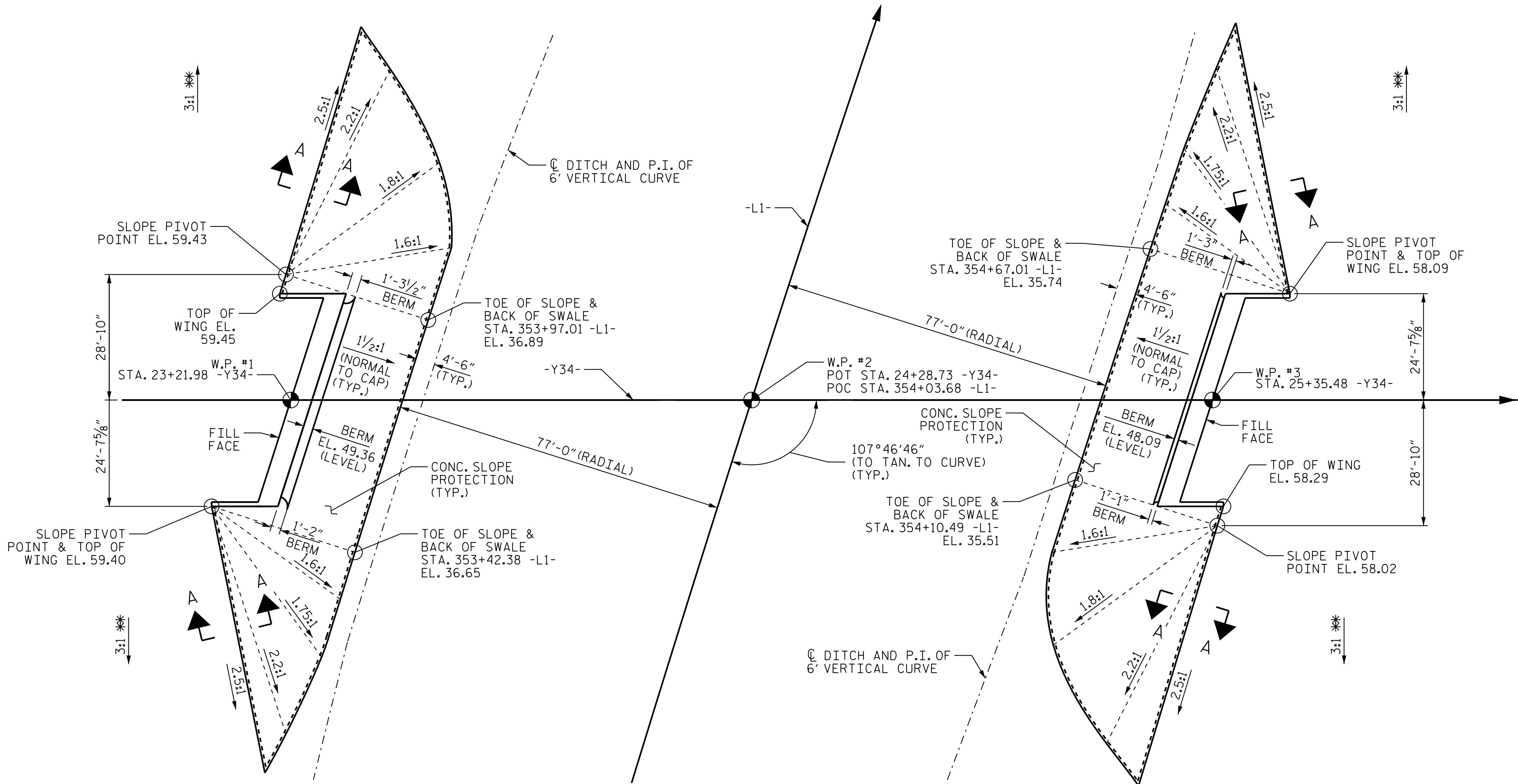


SECTION A-A

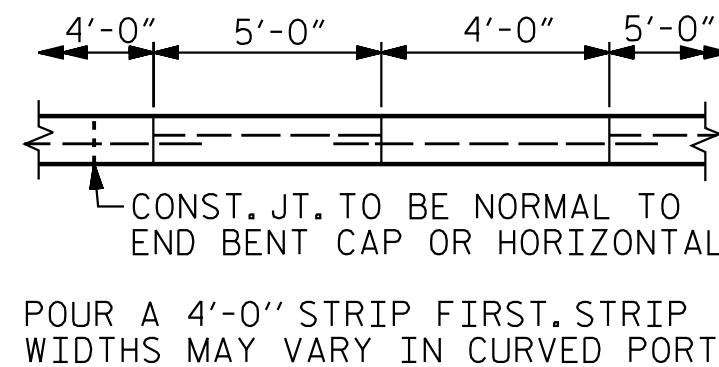
ELEVATIONS SHOWN ARE AT TOP SURFACE OF SLOPE PAVING
(SEE POINT A ON SECTION ALONG CL SURVEY WHEN FILL CATCHES DITCH)

*** TRANSITION FROM $2\frac{1}{2}:1$ SLOPE PROTECTION TO MATCH 3:1 FILL SLOPES PERP. TO -Y34-

PLAN



POURING DETAIL



OPTIONAL POURING DETAIL

GENERAL NOTES

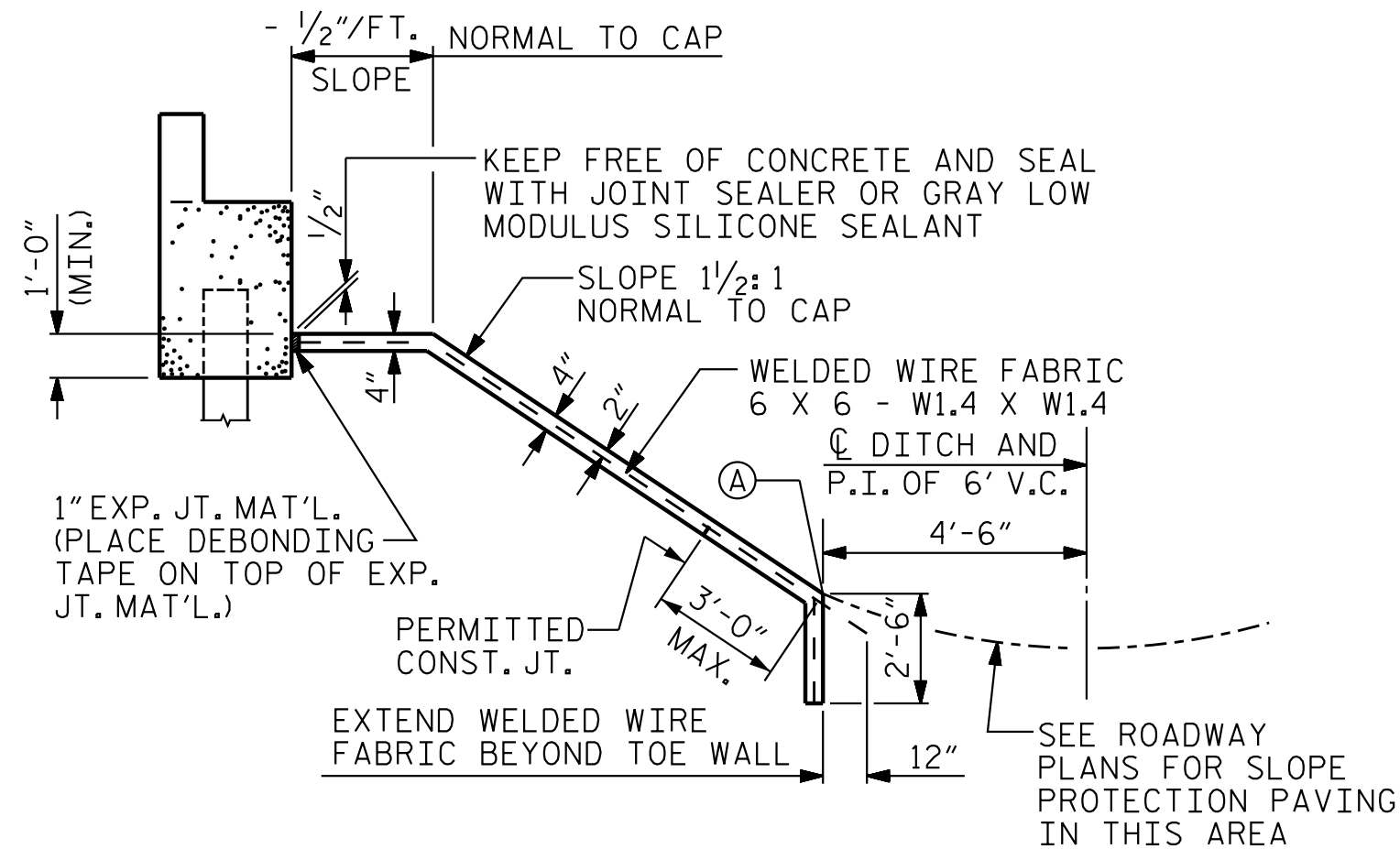
SLOPE PROTECTION SHALL BE PLACED UNDER THE ENDS OF THE BRIDGE AS SHOWN IN THE DETAILS. STRAIGHT EDGING WILL NOT BE REQUIRED UNLESS, IN THE OPINION OF THE ENGINEER, VISUAL INSPECTION INDICATES A NEED FOR IT. MEASUREMENT AND PAYMENT SHALL BE AS PRESCRIBED IN SECTION 462 OF THE STANDARD SPECIFICATIONS. FOR BERM WIDTH, SEE GENERAL DRAWING.

ALTERNATE "A"

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

BRIDGE @ STA. 30+17.11 -Y31-	4 INCH SLOPE PROTECTION	* WELDED WIRE FABRIC 60 INCHES WIDE
	SQUARE YARDS	APPROX. L.F.
END BENT 1	482	964
END BENT 2	493	986
TOTAL	975	1,950

* QUANTITY SHOWN IS BASED ON 5' POURS.



SECTION ALONG CL SURVEY WHEN FILL CATCHES IN DITCH

DETAILS FOR ALTERNATE "A"

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PROJECT NO. R-3300A
NEW HANOVER COUNTY
STATION: 24+28.73 -Y34-



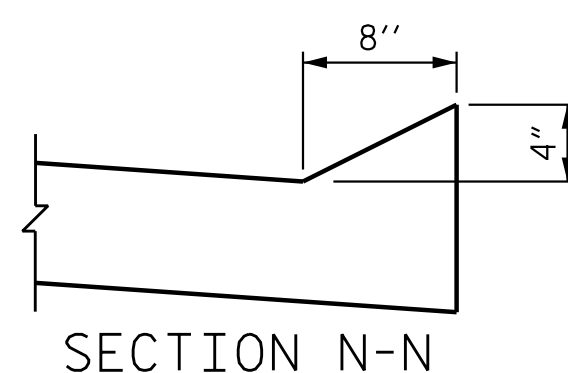
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
SLOPE PROTECTION
DETAILS

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

REVISIONS						SHEET NO. S05-32
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 34
2			4			



*** DIMENSIONS ARE SYMMETRICAL ABOUT
-Y34- AND ARE TYP. @ BEGIN AND END APPROACH SLAB.



THE JOINT AT THE APPROACH SLAB/DECK INTERFACE SHALL BE SAWED NO MORE THAN 12 HOURS AFTER THE APPROACH SLAB IS CAST. THE JOINT SHALL BE CLEANED OF ALL DEBRIS BEFORE THE SEALANT IS APPLIED. THE JOINT SEALER MATERIAL SHALL CONFORM TO THE REQUIREMENTS OF SECTION 1028-3 OF THE STANDARD SPECIFICATIONS.

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

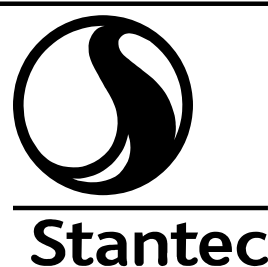
PROJECT NO. R-3300A
NEW HANOVER COUNTY
 STATION: 24+28.73 -Y34-

BRIDGE APPROACH SLAB
FOR INTEGRAL ABUTMENT
WITH FLEXIBLE PAVEMENT

REVISIONS						SHEET NO. S05-33
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 34
2			4			



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Fax. (919) 851-7024
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ASSEMBLED BY : E. M. MURR
CHECKED BY : J. T. KELVINGTON

DATE : 08/19/19
DATE : 03/12/25

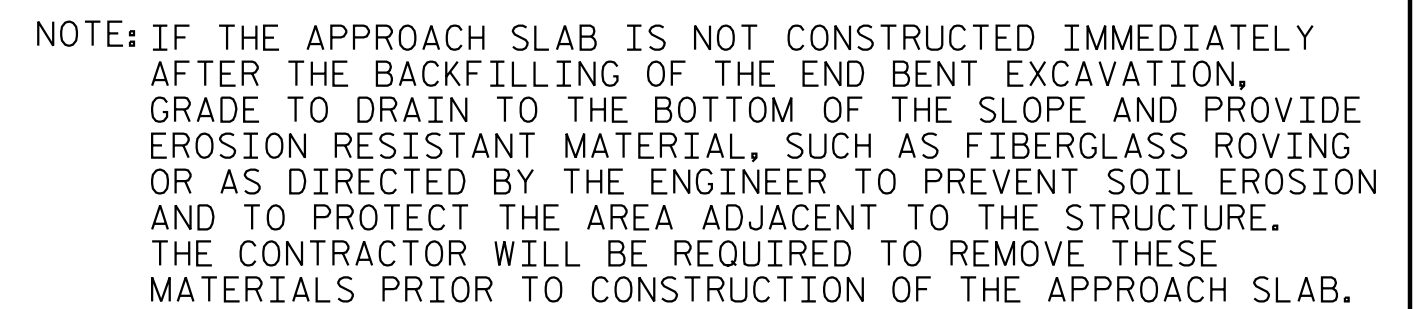
DRAWN BY : TLA 10/05
CHECKED BY : GM 5/06

REV. 6/13	MAA/GM
REV. 12/17	MAA/THC
REV. 06/19	BNB/THC

DESIGN
ENGINEER
OF RECORD: J. T. KELVINGTON DATE: 04/22/25



(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)



TEMPORARY DRAINAGE DETAIL

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PROJECT NO. R-3300A

NEW HANOVER COUNTY

STATION: 24+28.73 -Y34-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

BRIDGE APPROACH
SLAB DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S05-34
1			3			TOTAL SHEETS 34
2			4			

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ASSEMBLED BY : E. M. MURR	DATE : 08/19/19
CHECKED BY : J. T. KELVINGTON	DATE : 03/12/25

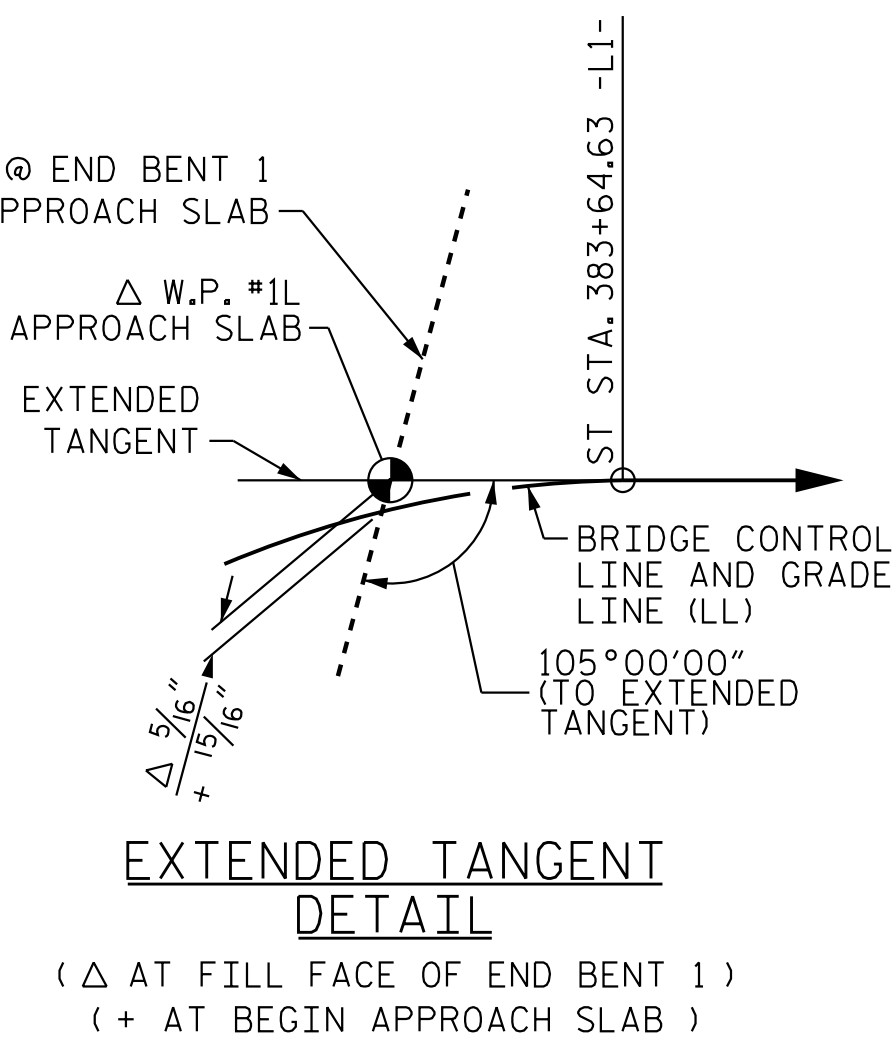
DRAWN BY :	FCJ	11/88
CHECKED BY :	ARB	11/88

REV. 6/13
REV. 12/17
REV. 5/18

MAA/GM
MAA/THC
MAA/THC

M	DESIGN
C	ENGINEER
C	OF RECORD

ENGINEER OF RECORD: J. T. KELVINGTON DATE: 04/22/25



PIs STA. = 382+74.64
 Os = 0°32'30.0"
 Ls = 135.00'
 LT = 90.00'
 ST = 45.00'

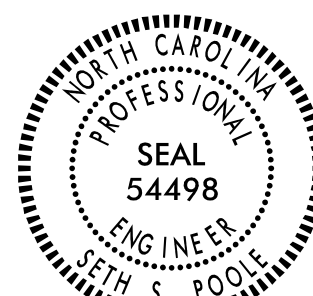
DESIGN DISCHARGE	1,470 C.F.S
FREQUENCY	50 YR.
DESIGN HIGH WATER EL.	11.00

DRAINAGE AREA	3.69 SQ. MI
BASE DISCHARGE (Q100)	1,660 C.F.S
BASE HIGH WATER EL.	11.30

OVERTOPPING DISCHARGE	15,900 C.F.S
FREQUENCY	500+ YR.
OVERTOPPING EL.	21.60
STATION	382+19.32 SAG POINT

PROJECT NO. R-3300A
NEW HANOVER COUNTY
 STATION: 384+20.26 -L1-

SHEET 1 OF 4



Signed by: 5/5/2021

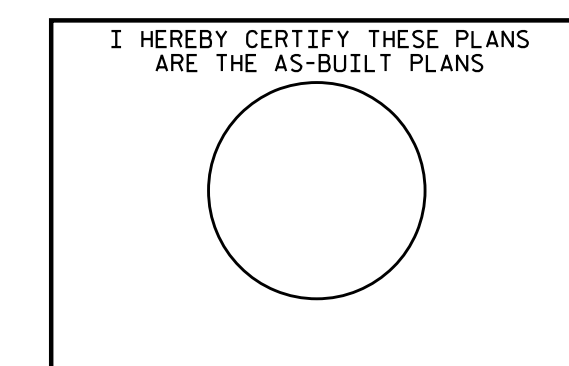
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SIGNATURES COMPLETED

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

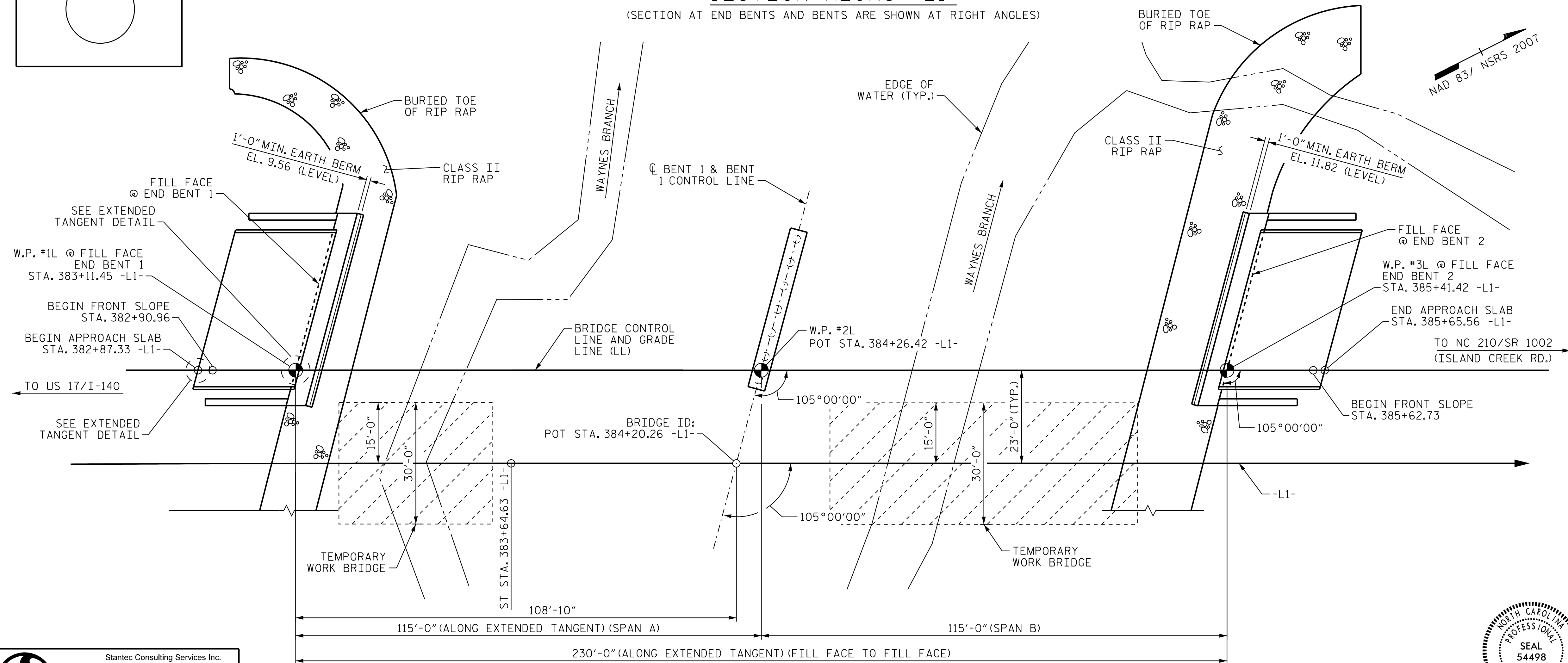
GENERAL DRAWING

FOR BRIDGE OVER WAYNES BRANCH ON
US 17 BYPASS (HAMPSTEAD BYPASS)
BETWEEN SR 1336 (SIDBURY RD) &
SR 1573 (HARRISON CREEK RD)

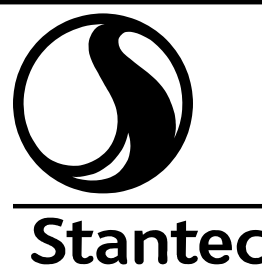
(LEFT LANE)



(SECTION AT END BENTS AND BENTS ARE SHOWN AT RIGHT ANGLES)



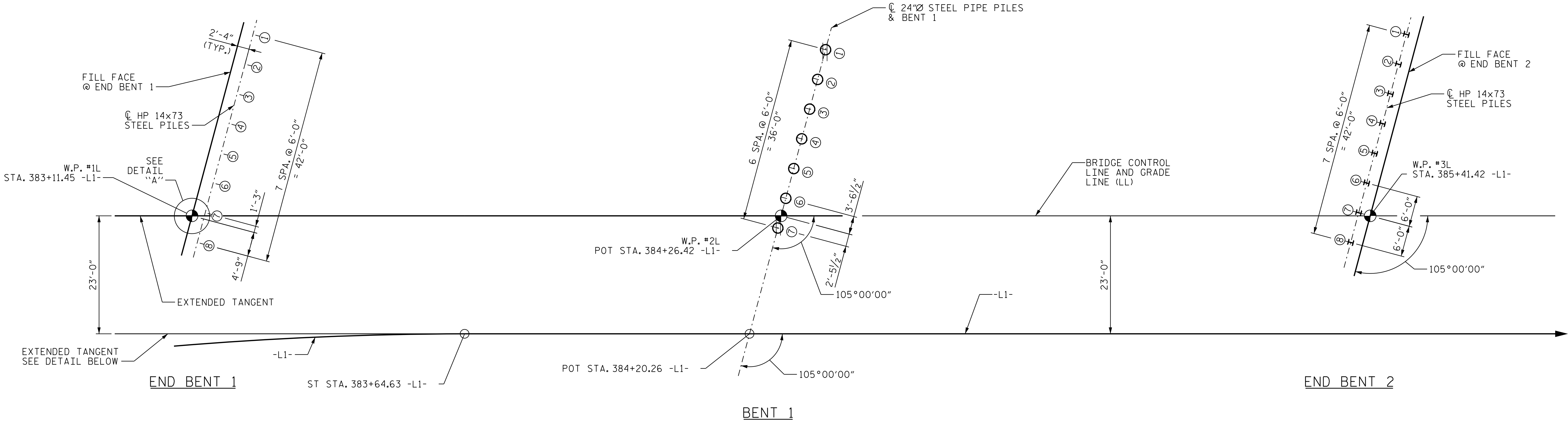
(PILES NOT SHOWN FOR CLARITY)



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801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
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DRAWN BY : J. GUERRERO DATE : 10/24/18
CHECKED BY : S. S. POOLE DATE : 12/20/24

DESIGN
ENGINEER
OF RECORD: S. S. POOLE DATE: 04/23/25



FOUNDATION LAYOUT

NOTES

1. FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.
2. SEE ROADWAY PLANS AND SECTION 235 OF THE STANDARD SPECIFICATIONS FOR THE SETTLEMENT GAUGES REQUIRED AT END BENTS NO.1 AND 2.
3. OBSERVE A 2 MONTH WAITING PERIOD AFTER CONSTRUCTING THE EMBANKMENT TO FINAL GRADE BEFORE BEGINNING END BENT CONSTRUCTION AT END BENT NO.1. FOR BRIDGE WAITING PERIODS, SEE ROADWAY PLANS AND SECTION 235 OF THE STANDARD SPECIFICATIONS.
4. OBSERVE A 1 MONTH WAITING PERIOD AFTER CONSTRUCTING THE EMBANKMENT TO FINAL GRADE BEFORE BEGINNING END BENT CONSTRUCTION AT END BENT NO.2. FOR BRIDGE WAITING PERIODS, SEE ROADWAY PLANS AND SECTION 235 OF THE STANDARD SPECIFICATIONS.
5. IT HAS BEEN ESTIMATED THAT A HAMMER WITH AN EQUIVALENT RATED ENERGY IN THE RANGE OF 65 TO 125 FT-KIPS PER BLOW WILL BE REQUIRED TO DRIVE PILES BENT NO.1. THIS ESTIMATED ENERGY RANGE DOES NOT RELEASE THE CONTRACTOR FROM PROVIDING DRIVING EQUIPMENT IN ACCORDANCE WITH SUBARTICLE 450-3(D)(2) OF THE STANDARD SPECIFICATIONS

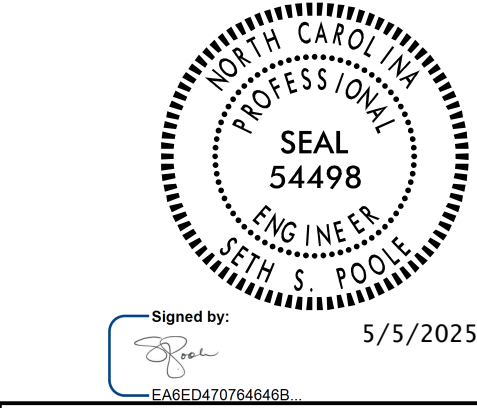
PROJECT NO. R-3300A
NEW HANOVER COUNTY
STATION: 384+20.26 -L1-

SHEET 2 OF 4



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DESIGN ENGINEER OF RECORD: S. S. POOLE DATE : 04/23/25



Seal 54498
S. S. POOLE
5/5/2025

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE OVER WAYNES BRANCH ON
US 17 BYPASS BETWEEN US 17/I-140
AND NC 210/SR 1002 (ISLAND CREEK RD.)

(LEFT LANE)

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S06-02	
1			3			TOTAL SHEETS	
2			4			37	