

STATE	PROJECT NUMBER	SHEET NO.
MISSISSIPPI	BR-0037-04(064)	1

GENERAL INDEX

INCLUDED THIS PROJECT	BEGIN WITH SHEET
<input checked="" type="checkbox"/> ROADWAY	1
<input type="checkbox"/> PERMANENT SIGNS	1001
<input type="checkbox"/> TRAFFIC SIGNALS	2001
<input type="checkbox"/> ITS COMPONENTS	3001
<input type="checkbox"/> LIGHTING	4001
<input type="checkbox"/> (RESERVED)	5001
<input checked="" type="checkbox"/> ROADWAY STANDARD DWGS	6001
<input type="checkbox"/> BOX CULVERT STD. DRAWINGS (LRFD)	7001
<input type="checkbox"/> BOX CULVERT STD. DRAWINGS (STD. SPEC.)	7501
<input checked="" type="checkbox"/> BRIDGE	8001
<input type="checkbox"/> CROSS SECTIONS	9001

BRIDGE STRUCTURES REQ'D.

BOX BRIDGES REQ'D.

STATE OF MISSISSIPPI

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

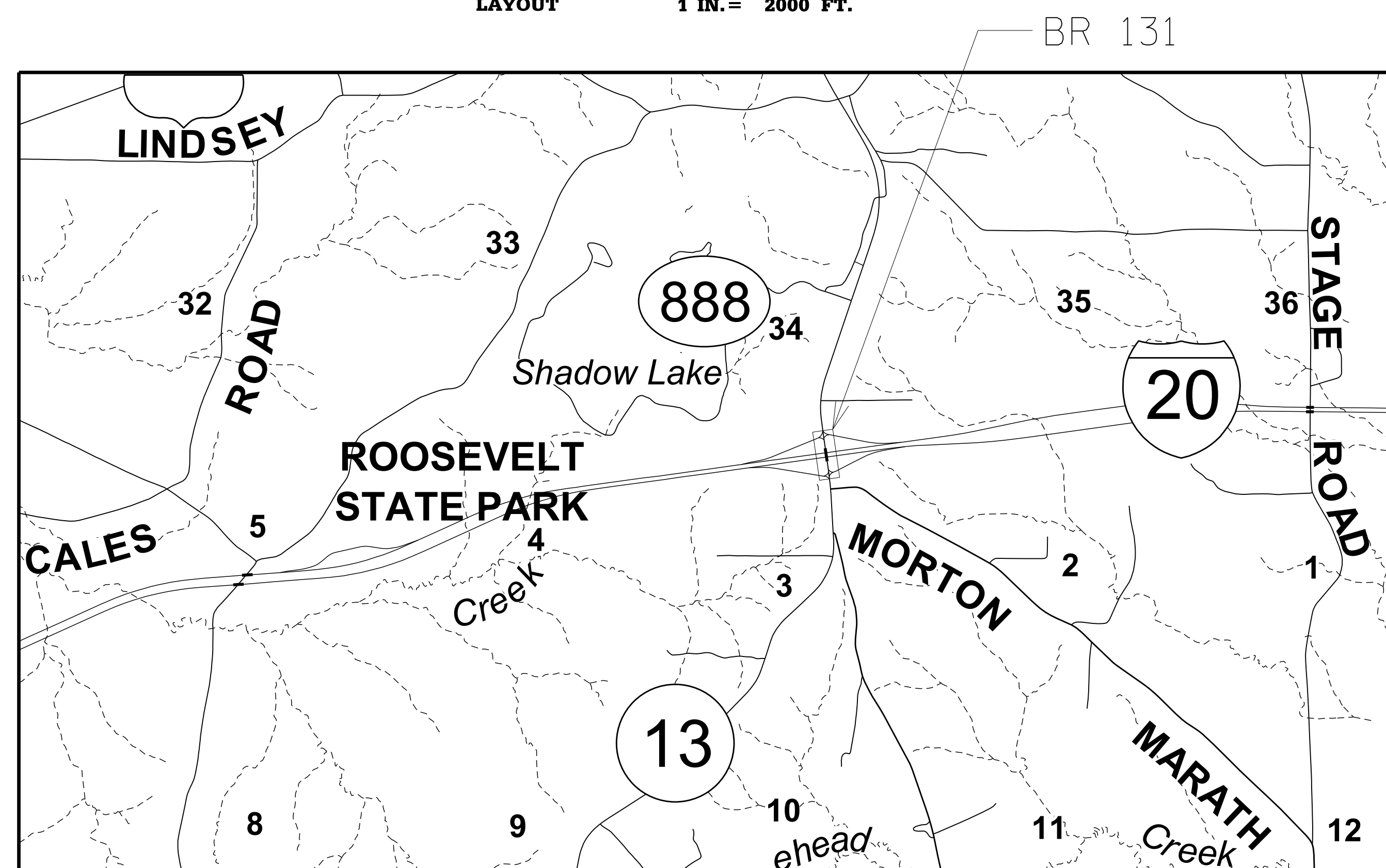
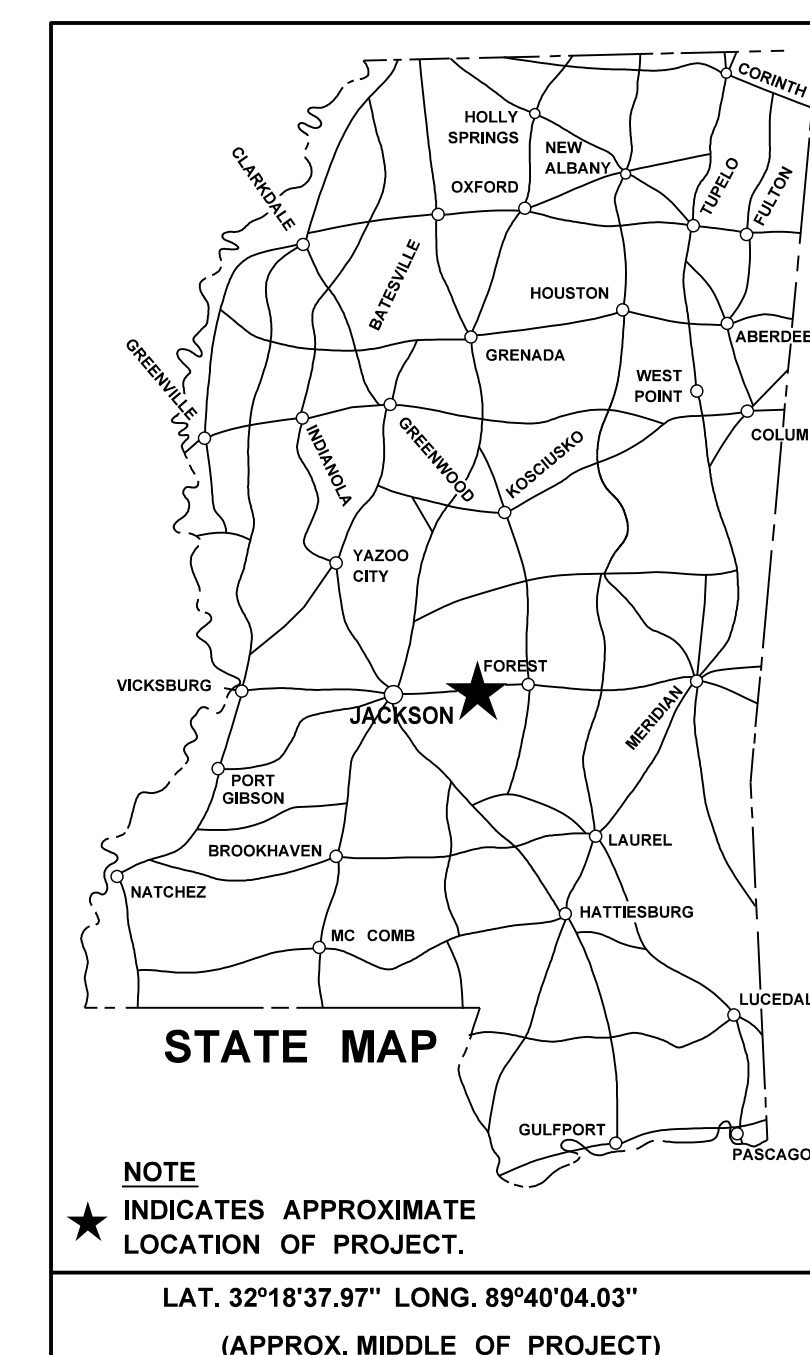
PLAN AND PROFILE OF PROPOSED STATE HIGHWAY FEDERAL AID PROJECT NO. BR-0037-04(064)

SR 13 OVER I-20 (BRIDGE 131) SCOTT COUNTY

FMS CON. NO. 107868/301000

SCALES

PLAN	1 IN. = 100 FT.
PROFILE	HOR. 1 IN. = 100 FT.
	VERT. 1 IN. = 10 FT.
LAYOUT	1 IN. = 2000 FT.



TO JACKSON

TO FOREST



DESIGN CONTROL

MPH = V (SPEED DESIGN)

ADT () = : ADT () =

DHV = : D = % T = %

PERMITS ACQUIRED BY MDOT

WETLANDS AND WATERS PERMITS		
	WATERS	WETLANDS
NATIONWIDE #14	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
NATIONWIDE (OTHER)*	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
GENERAL*	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
INDIVIDUAL (404)*	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

STORMWATER PERMIT

Y REQUIRED, CNDI SUBMITTED BY MDOT (DISTURBED AREA = 5 ACRES)

S REQUIRED, SCNDI TO BE SUBMITTED BY CONTRACTOR (1 TO 4.99 ACRES)

N NO STORMWATER PERMIT REQUIRED (<1 ACRE)

APPROVED BY: _____

CONVENTIONAL SYMBOLS

COUNTY LINE	-----
TOWN CORPORATION LINE	-----
SECTION LINE	-----
EXISTING ROAD OR TRAVELED WAY	-----
PROPOSED ROAD OR TRAVELED WAY	-----
RAILROAD	-----
SURVEY LINE	-----
BRIDGES	-----

EQUATIONS

LENGTH DATA

LENGTH OF ROADWAY	FT.	MI.
LENGTH OF BRIDGES	FT.	MI.
LENGTH OF PROJECT (NET)	FT.	MI.
LENGTH OF EXCEPTIONS	FT.	MI.
LENGTH OF PROJECT (GROSS)	FT.	MI.

EXCEPTIONS

P S & E DATE: 08/06/2019

APPROVED: _____
 DEPUTY EXECUTIVE DIRECTOR / CHIEF ENGINEER

 EXECUTIVE DIRECTOR



9/29/2019 3:15 PM TITLE.DGN

1st O.REV.


STATE	PROJECT NO.
MISS	BR-0037-04(064)

SUMMARY OF QUANTITIES (SHEET 1)

PAY ITEM NO.	PAY ITEM	UNIT	SCOTT : 107868-301000	
			Prelim	Final
618-A001	Maintenance of Traffic	LS	1	
619-A1002	Temporary Traffic Stripe, Continuous White	LF	530	
619-A2002	Temporary Traffic Stripe, Continuous Yellow	LF	265	
619-A4001	Temporary Traffic Stripe, Skip Yellow	LF	265	
619-D1001	Standard Roadside Construction Signs, Less than 10 Square Feet	SF	32	
619-D2001	Standard Roadside Construction Signs, 10 Square Feet or More	SF	463	
907-619-E3001	Changeable Message Sign	EA	7	①
619-G4001	Barricades, Type III, Double Faced	LF	24	
619-G4005	Barricades, Type III, Single Faced	LF	96	
619-G7001	Warning Lights, Type "B"	EA	12	
620-A001	Mobilization	LS	1	
626-C001	6" Thermoplastic Double Drop Edge Stripe, Continuous White	LF	530	
626-D002	6" Thermoplastic Double Drop Traffic Stripe, Skip Yellow	LF	265	
626-E002	6" Thermoplastic Double Drop Traffic Stripe, Continuous Yellow	LF	265	
627-L001	Two-Way Yellow Reflective High Performance Raised Markers	EA	7	⚠

① LOCATION OF CHANGEABLE MESSAGE SIGNS TO BE DETERMINED BY THE ENGINEER.



REMOVED PAY ITEM #619-C7001 AND ADDED PAY ITEM # 627-L001.	By	MISSISSIPPI DEPARTMENT OF TRANSPORTATION		
	Revision	SUMMARY OF QUANTITIES		
09/04/2019	Date	PROJ NO: BR-0037-04(064)	 Working Number SQ-1	
	Date	FILENAME: SQ		Sheet Number 4
	Design Team	E.GREEN	Checked	Date

1st O.REV.

SIGNS REQUIRED

SIGN NO.	SIZE	UNIT AREA SQ.FT.	QUAN. REQ'D.	TOTAL SIGN AREA SQ.FT.	REMARKS
G20 - 1	60" X 24"	10.00			ROAD WORK NEXT X X MILES
G20 - 2	48" X 24"	8.00	6	48	END ROAD WORK
G20 - 4	36" X 18"	4.50			PILOT CAR FOLLOW ME
M1 - 1	24" X 24"	4.00			1 OR 2 DIGIT
M1 - 1	30" X 24"	5.00			3 DIGIT
M1 - 4	24" X 24"	4.00			1 OR 2 DIGIT
M1 - 4	30" X 24"	5.00			3 DIGIT
M1 - 5	24" X 24"	4.00			1 OR 2 DIGIT
M1 - 5	30" X 24"	5.00			3 DIGIT
M3 - 1	24" X 12"	2.00			NORTH- 1 OR 2 DIGIT RTE. MARKER
M3 - 1	30" X 15"	3.13			NORTH- 3 DIGIT RTE. MARKER
M3 - 2	24" X 12"	2.00			EAST- 1 OR 2 DIGIT RTE. MARKER
M3 - 2	30" X 15"	3.13			EAST- 3 DIGIT RTE. MARKER
M3 - 3	24" X 12"	2.00			SOUTH- 1 OR 2 DIGIT RTE. MARKER
M3 - 3	30" X 15"	3.13			SOUTH- 3 DIGIT RTE. MARKER
M3 - 4	24" X 12"	2.00			WEST- 1 OR 2 DIGIT RTE. MARKER
M3 - 4	30" X 15"	3.13			WEST- 3 DIGIT RTE. MARKER
M4 - 8	24" X 12"	2.00			DETOUR- 1 OR 2 DIGIT RTE. MARKER
M4 - 8	30" X 15"	3.13			DETOUR- 3 DIGIT RTE. MARKER
M4 - 9	48" X 36"	12.00			DETOUR
M4 - 9L	48" X 36"	12.00			DETOUR
M4 - 9BL	48" X 36"	12.00			DETOUR
M4 - 9SL	48" X 36"	12.00			DETOUR
M4 - 9BSL	48" X 36"	12.00			DETOUR
M4 - 9R	48" X 36"	12.00			DETOUR
M4 - 9BR	48" X 36"	12.00			DETOUR
M4 - 9SR	48" X 36"	12.00			DETOUR
M4 - 9BSR	48" X 36"	12.00			DETOUR
M4 - 10L	48" X 18"	6.00			DETOUR
M4 - 10R	48" X 18"	6.00			DETOUR
M4 - 5	24" X 12"	2.00			TO
M5 - 1L	21" X 15"	2.19			
M5 - 1R	21" X 15"	2.19			
M5 - 2L	21" X 15"	2.19			
M5 - 2R	21" X 15"	2.19			
M6 - 1L	21" X 15"	2.19			
M6 - 1R	21" X 15"	2.19			
M6 - 2L	21" X 15"	2.19			
M6 - 2R	21" X 15"	2.19			
M6 - 3	21" X 15"	2.19			
R1 - 1	36" OCTAGON	7.46			STOP
R1 - 1	48" OCTAGON	13.25	2	26.5	STOP
R1 - 2	48" X 48" X 48"	6.93			YIELD
R1 - 2	60" X 60" X 60"	10.83			YIELD

SIGNS REQUIRED (CONT'D)

SIGN NO.	SIZE	UNIT AREA SQ.FT.	QUAN. REQ'D.	TOTAL SIGN AREA SQ.FT.	REMARKS
R1 - 3	18" X 9"	1.13			3-WAY, 4 WAY ETC.
R1 - 3	24" X 12"	2.00			3-WAY, 4 WAY ETC.
R2 - 1	24" X 30"	5.00			SPEED LIMIT
R2 - 1	36" X 48"	12.00			SPEED LIMIT
R2 - 1	48" X 60"	20.00			SPEED LIMIT
R3 - 1	36" X 36"	9.00			
R3 - 1	48" X 48"	16.00			
R3 - 2	36" X 36"	9.00			
R3 - 2	48" X 48"	16.00			
R3 - 4	36" X 36"	9.00			
R3 - 4	48" X 48"	16.00			
R3 - 5L	30" X 36"	7.50			ONLY
R3 - 5R	30" X 36"	7.50			ONLY
R3 - 6L	30" X 36"	7.50			
R3 - 6R	30" X 36"	7.50			
R3 - 7L	30" X 30"	6.25			LEFT LANE MUST TURN LEFT
R3 - 7R	30" X 30"	6.25			RIGHT LANE MUST TURN RIGHT
R4 - 1	24" X 30"	5.00			DO NOT PASS
R4 - 1	48" X 60"	20.00			DO NOT PASS
R4 - 2	24" X 30"	5.00			PASS WITH CARE
R4 - 2	48" X 60"	20.00			PASS WITH CARE
R4 - 7	48" X 60"	20.00			
R4 - 8	48" X 60"	20.00			
R5 - 1	48" X 48"	16.00			DO NOT ENTER
R5 - 1a	42" X 30"	8.75			WRONG WAY
R6 - 1L	36" X 12"	3.00			ONE WAY
R6 - 1R	36" X 12"	3.00			ONE WAY
R6 - 2L	24" X 30"	5.00			ONE WAY
R6 - 2R	24" X 30"	5.00			ONE WAY
R11 - 2	48" X 30"	10.00	2	20	ROAD CLOSED
R11 - 3a	60" X 30"	12.50			ROAD CLOSED XX MILES AHEAD
R11 - 3b	60" X 30"	12.50			BRIDGE OUT XX MILES AHEAD
R11 - 4	60" X 30"	12.50			ROAD CLOSED TO THRU TRAFFIC
R12 - 1	36" X 48"	12.00			WEIGHT LIMIT XX TONS
R16 - 3	36" X 48"	12.00			WHEN WORKERS ARE PRESENT SPEEDING FINES DOUBLED
R16 - 3	48" X 60"	20.00			WHEN WORKERS ARE PRESENT SPEEDING FINES DOUBLED
W1 - 1L	48" X 48"	16.00			
W1 - 1R	48" X 48"	16.00			
W1 - 2L	48" X 48"	16.00			
W1 - 2R	48" X 48"	16.00			
W1 - 3L	48" X 48"	16.00			
W1 - 3R	48" X 48"	16.00			
W1 - 4aL	48" X 48"	16.00			
W1 - 4aR	48" X 48"	16.00			
W1 - 5L	48" X 48"	16.00			
W1 - 5R	48" X 48"	16.00			
W1 - 6L	48" X 24"	8.00			
W1 - 6L	60" X 30"	12.50			
W1 - 6R	48" X 24"	8.00			
W1 - 6R	60" X 30"	12.50			
W1 - 7	48" X 24"	8.00			

SIGNS REQUIRED (CONT'D)

SIGN NO.	SIZE	UNIT AREA SQ.FT.	QUAN. REQ'D.	TOTAL SIGN AREA SQ.FT.	REMARKS
W1 - 7	60" X 30"	12.50			
W1 - 8L	18" X 24"	3.00			
W1 - 8L	36" X 48"	12.00			
W1 - 8R	18" X 24"	3.00			
W1 - 8R	36" X 48"	12.00			
W1 - 9L	48" X 48"	16.00			
W1 - 9R	48" X 48"	16.00			
W3 - 1a	48" X 48"	16.00			
W3 - 2a	48" X 48"	16.00			
W3 - 3	48" X 48"	16.00			
W3 - 5	48" X 48"	16.00			SPEED REDUCTION
W4 - 1L	48" X 48"	16.00			
W4 - 1R	48" X 48"	16.00			
W4 - 2L	48" X 48"	16.00			
W4 - 2R	48" X 48"	16.00			
W5 - 1a	48" X 48"	16.00			PAVEMENT NARROWS
W6 - 1	48" X 48"	16.00			
W6 - 2	48" X 48"	16.00			
W6 - 3	48" X 48"	16.00			
W8 - 1	48" X 48"	16.00			BUMP
W8 - 4	48" X 48"	16.00			SOFT SHOULDER
W8 - 6	48" X 48"	16.00			TRUCK CROSSING
W8 - 7	48" X 48"	16.00			LOOSE GRAVEL
W8 - 9	48" X 48"	16.00			LOW SHOULDER
W8 - 11	36" X 36"	9.00			UNEVEN LANES
W8 - 12	48" X 48"	16.00			NO CENTER STRIPE
W10 - 1	36" DIA.	7.07			XX MPH
W10 - 1	48" DIA.	12.56			XX MPH
W13 - 1	24" X 24"	4.00			NO PASSING ZONE
W14 - 3	36" X 48" X 48"	5.56			NO PASSING ZONE
W14 - 3	48" X 64" X 64"	9.89			NO PASSING ZONE
W16 - 2	24" X 18"	3.00			XXX FEET
W19 - 2	48" X 48"	16.00			BRIDGE MAY ICE IN COLD WEATHER
W20 - 1	48" X 48"	16.00	14	224	ADVANCE ROAD WORK
W20 - 1	36" X 36"	9.00			ADVANCE ROAD WORK
W20 - 2	48" X 48"	16.00			ADVANCE DETOUR
W20 - 3	48" X 48"	16.00	12	192	ADVANCE ROAD CLOSED
W20 - 4	48" X 48"	16.00			ADVANCE ONE-LN. RD.
W20 - 4B	48" X 48"	16.00			ADVANCE ONE-LN. BR.
W20 - 5L	48" X 48"	16.00			ADVANCE LT. LN. CLOSED
W20 - 5R	48" X 48"	16.00			ADVANCE RT. LN. CLOSED
W20 - 7a	48" X 48"	16.00			
W21 - 1	36" X 36"	9.00			WORKERS
W21 - 1a	36" X 36"	9.00			WORKERS


SIGNS REQUIRED (CONT'D)

SIGN NO.	SIZE	UNIT AREA SQ.FT.	QUAN. REQ'D.	TOTAL SIGN AREA SQ.FT.	REMARKS
W21 - 2	36" X 36"	9.00			FRESH OIL (TAR)
W21 - 3	48" X 48"	16.00			ADVANCE ROAD MACHINERY
W21 - 5	48" X 48"	16.00			SHOULDER WORK
W21 - 6	36" X 36"	9.00			SURVEY CREW
W24 - 1L	48" X 48"	16.00			
W24 - 1R	48" X 48"	16.00			
W24 - 1AL	48" X 48"	16.00			
W24 - 1AR	48" X 48"	16.00			
W24 - 1BL	48" X 48"	16.00			
W24 - 1BR	48" X 48"	16.00			
VP - 1L	12" X 36"	3.00			
VP - 1R	12" X 36"	3.00			
OM - 3L	12" X 36"	3.00			
OM - 3R	12" X 36"	3.00			
TOTAL SIGN AREA LESS THAN 10 SQ. FT.					48 SQ. FT.
TOTAL SIGN AREA 10 SQ. FT. OR MORE					462.5 SQ. FT.

NOTES

- 1 INTERSTATE ROUTE MARKER
- 2 UNITED STATES ROUTE MARKER
- 3 STATE ROUTE MARKER
- 4 COLORS OF CARDINAL DIRECTION MARKERS AND DIRECTIONAL ARROWS SHALL BE APPROPRIATE TO MATCH ACCOMPANYING ROUTE MARKERS.
- 5 BLACK STRIPES ON YELLOW BACKGROUND
- 6 INTERSTATE USE ONLY
- 7 TOP OF SIGN - BLACK LETTERING ON ORANGE BACKGROUND, BOTTOM OF SIGN - BLACK LETTERING ON WHITE BACKGROUND

THE BACKGROUND OF ALL WARNING SIGNS ("W" SERIES) EXCEPT W10-1 SHALL BE ORANGE. THE W10-1 BACKGROUND SHALL BE YELLOW IN ALL CASES.

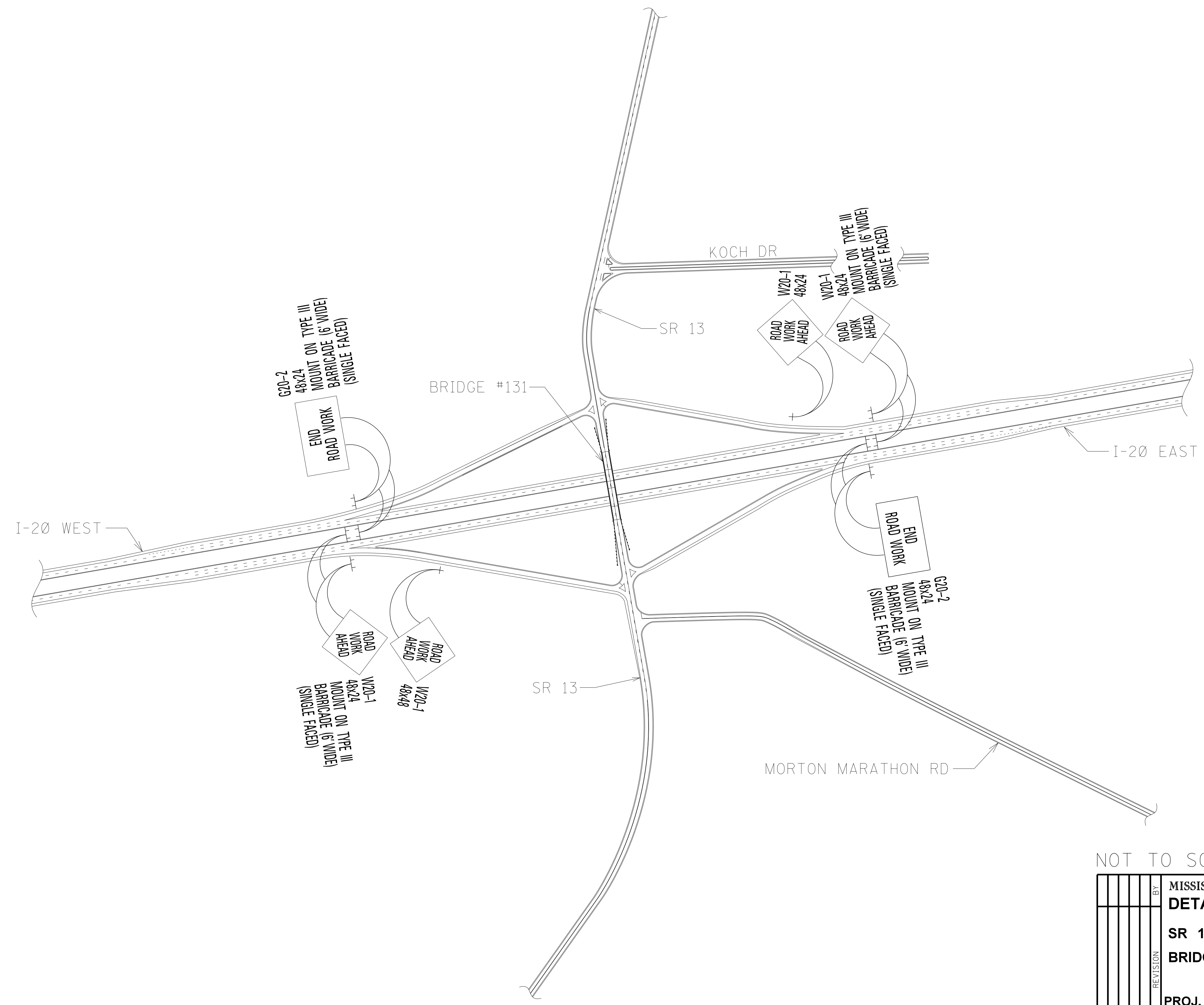
9/20/2019 3:15 PM TCP-Q.dgn		ADDED 2 C00-2 & CHANGED TOTAL SIGN AREA		REVISION		BY		MISSISSIPPI DEPARTMENT OF TRANSPORTATION	
DATE		DESIGN TEAM		CHECKED		DATE		<p>ESTIMATED QUANTITIES FOR TRAFFIC CONTROL SIGNS</p> <p>PROJ. NO.: BR-0037-04(064) COUNTY: SCOTT</p> <p>FILENAME: TCP-Q.dgn</p>	
SHEET NUMBER		WORKING NUMBER		TCP-Q		SHEET NUMBER		 <p>5</p>	

9/20/2019 3:15 PM TCP-Q.dgn


STATE	PROJECT NO.
MISS.	BR-0037-04(064)

ROADWAY PLAN DIVISION
MISSISSIPPI DEPARTMENT OF TRANSPORTATION

9/29/2019 3:15 PM DCS-1.dgn

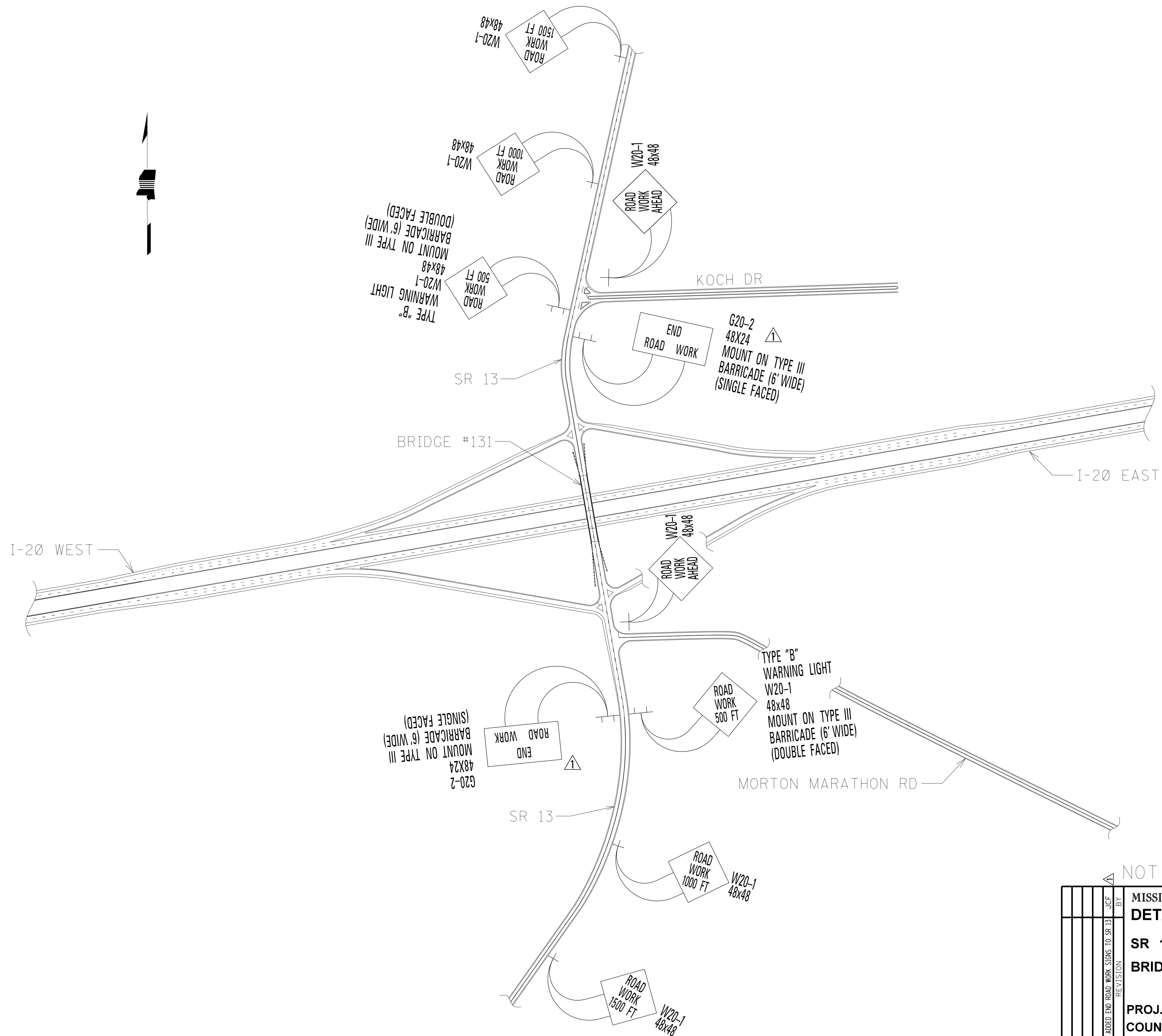


NOT TO SCALE


MISSISSIPPI DEPARTMENT OF TRANSPORTATION DETAILED CONSTRUCTION SIGNING		 WORKING NUMBER DCS-1 SHEET NUMBER 6
SR 13 OVER I-20 BRIDGE REPAIR PROJ. NO.: BR-0037-04(064) COUNTY: SCOTT		
DATE	FILENAME: DCS-1.dgn	
DESIGN TEAM	E. GREEN	CHECKED
		DATE 5/14/19

STATE	PROJECT NO.
MISS.	BR-0037-04(064)

1st O.REV.

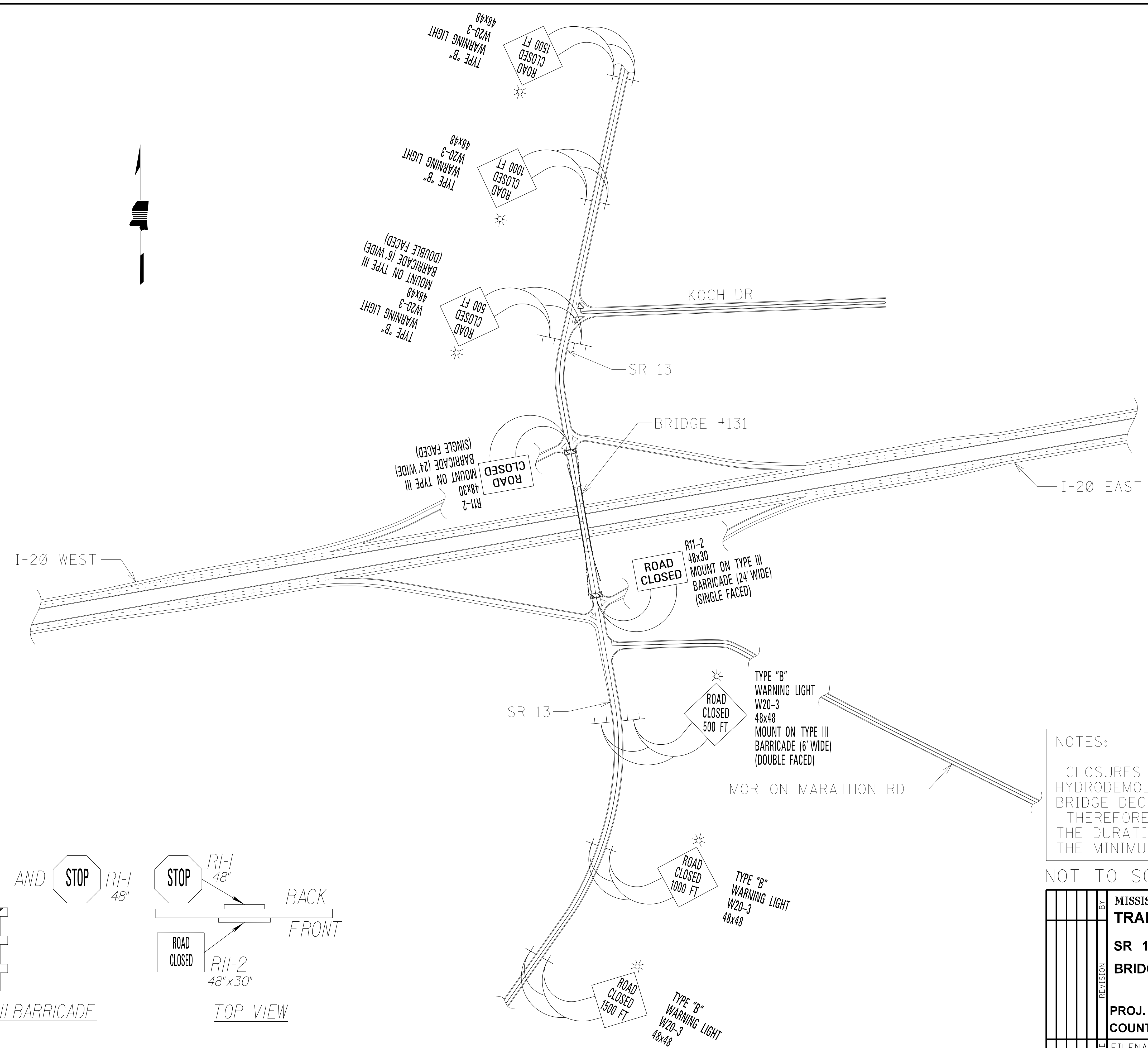


NOT TO SCALE

MISSISSIPPI DEPARTMENT OF TRANSPORTATION DETAILED CONSTRUCTION SIGNING		
SR 13 OVER I-20 BRIDGE REPAIR		
PROJ. NO.: BR-0037-04(064) COUNTY: SCOTT		WORKING NUMBER DCS-2
FILENAME: DCS-2.dgn DESIGN TEAM: E. GREEN CHECKED: DATE: 5/14/19		SHEET NUMBER 7

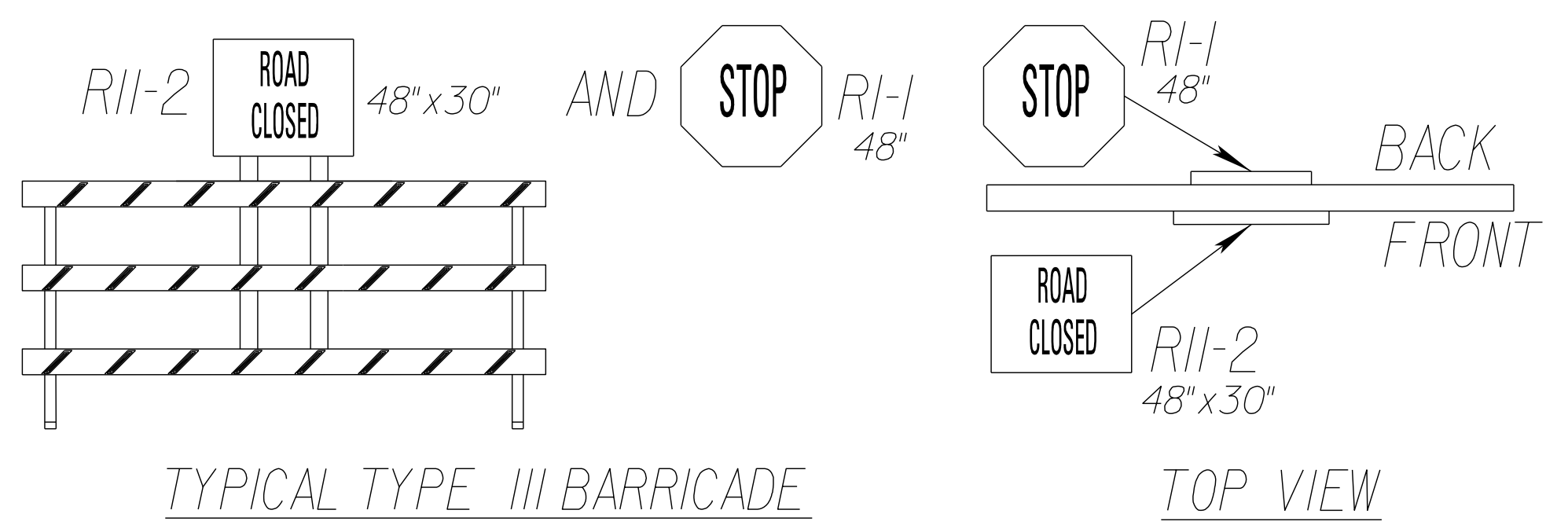
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STATE	PROJECT NO.
MISS.	BR-0037-04(064)



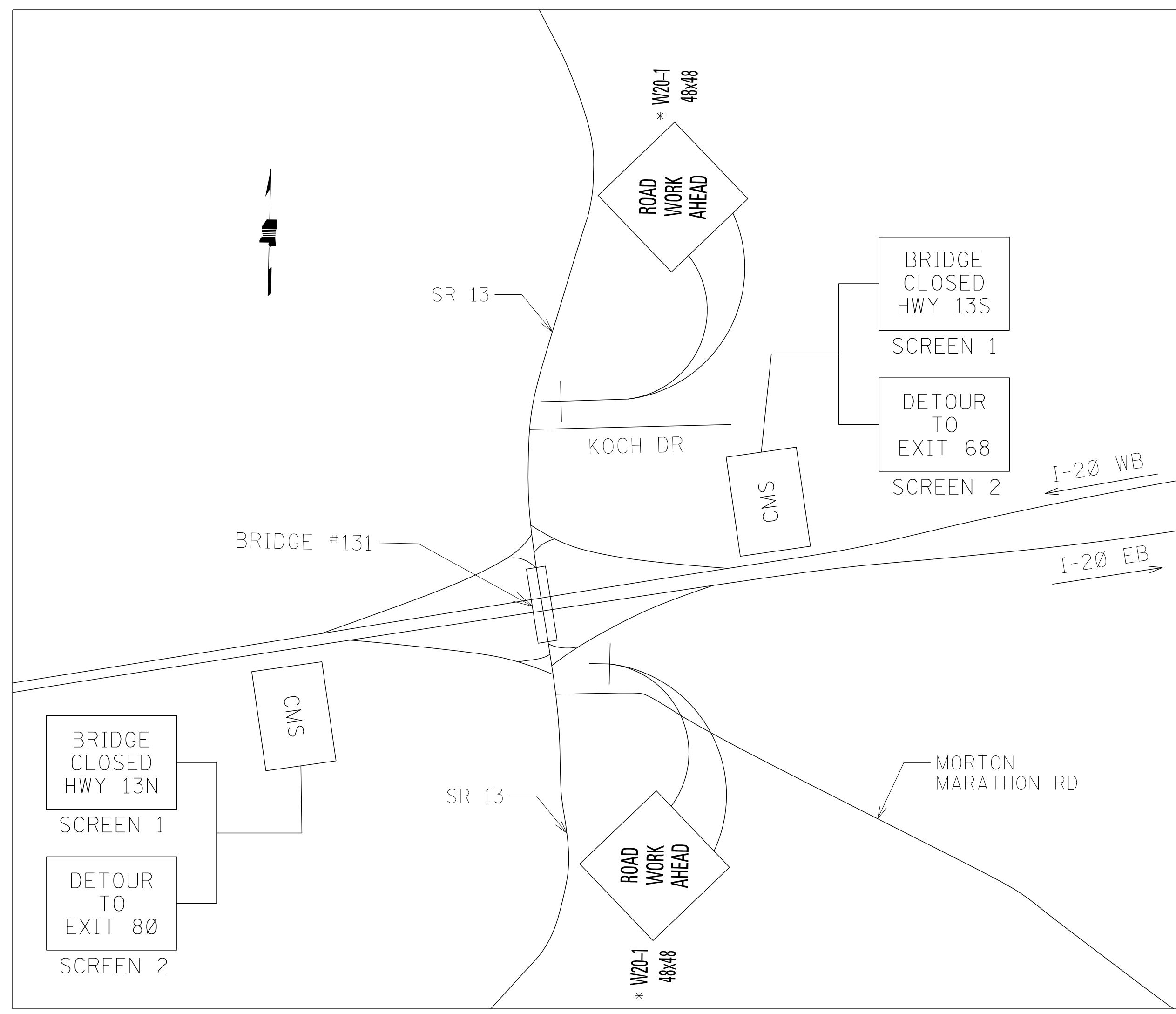
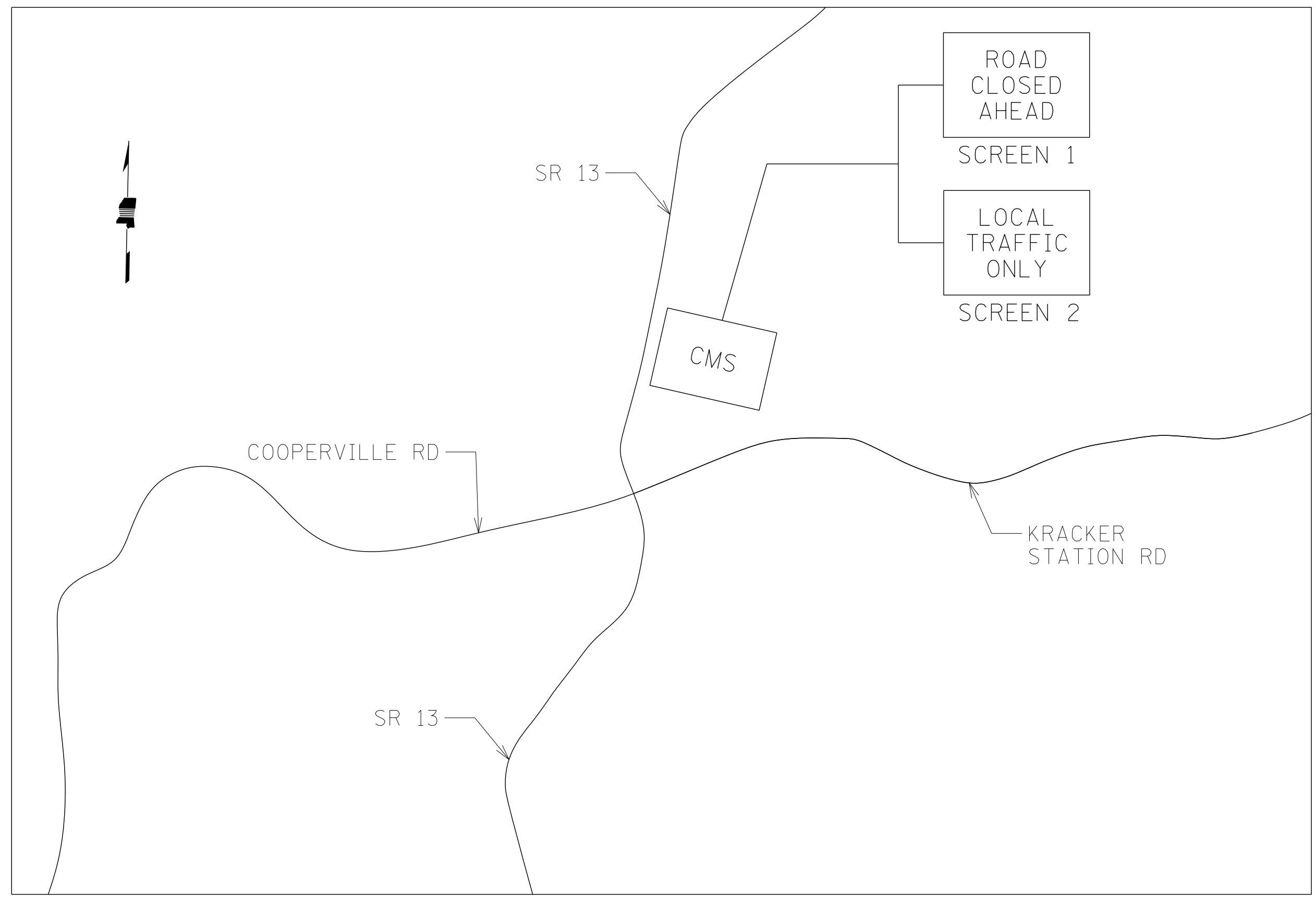
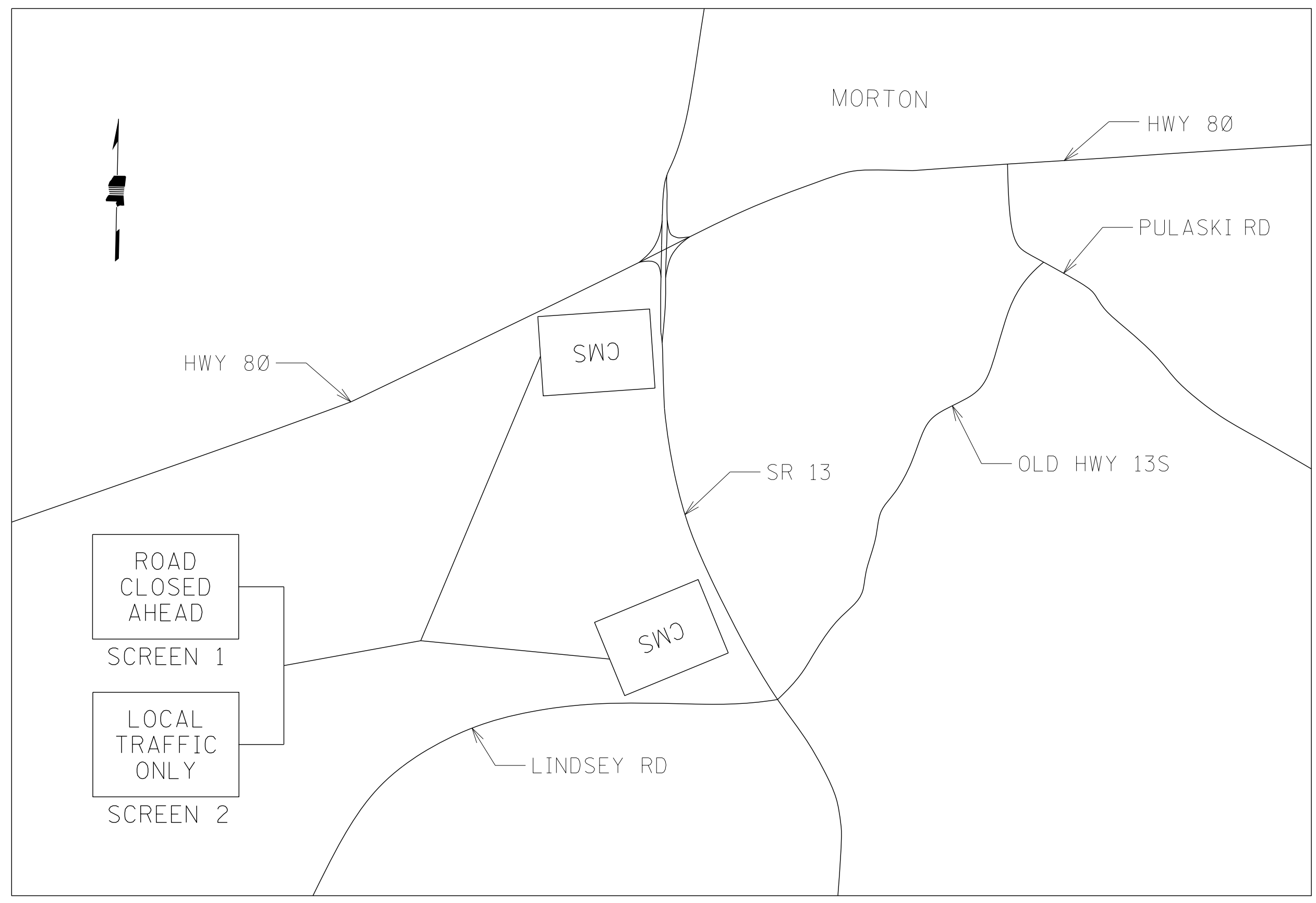
NOTES:
 CLOSURES WILL ONLY BE ALLOWED FOR HYDRODEMOLITION, BRIDGE DECK REPAIR, AND BRIDGE DECK OVERLAY PLACEMENT.
 THEREFORE, THE CONTRACTOR SHALL LIMIT THE DURATION OF THE ROAD CLOSURE TO THE MINIMUM REQUIRED FOR THIS WORK.

NOT TO SCALE



MISSISSIPPI DEPARTMENT OF TRANSPORTATION		
TRAFFIC CONTROL PLAN		
SR 13 OVER I-20		WORKING NUMBER
BRIDGE CLOSURE		TC-1
PROJ. NO.: BR-0037-04(064)		SHEET NUMBER
COUNTY: SCOTT		8
DATE	FILENAME: TC-1.dgn	
DESIGN TEAM	E. GREEN	CHECKED
		DATE 5/14/19

STATE	PROJECT NO.
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* IN PLACE, SHOWN ON WK. NO. DCS-2

NOTES:

CLOSURES WILL ONLY BE ALLOWED FOR HYDRODEMOLITION, BRIDGE DECK REPAIR, AND BRIDGE DECK OVERLAY PLACEMENT. THEREFORE, THE CONTRACTOR SHALL LIMIT THE DURATION OF THE ROAD CLOSURE TO THE MINIMUM REQUIRED FOR THIS WORK.

NOT TO SCALE

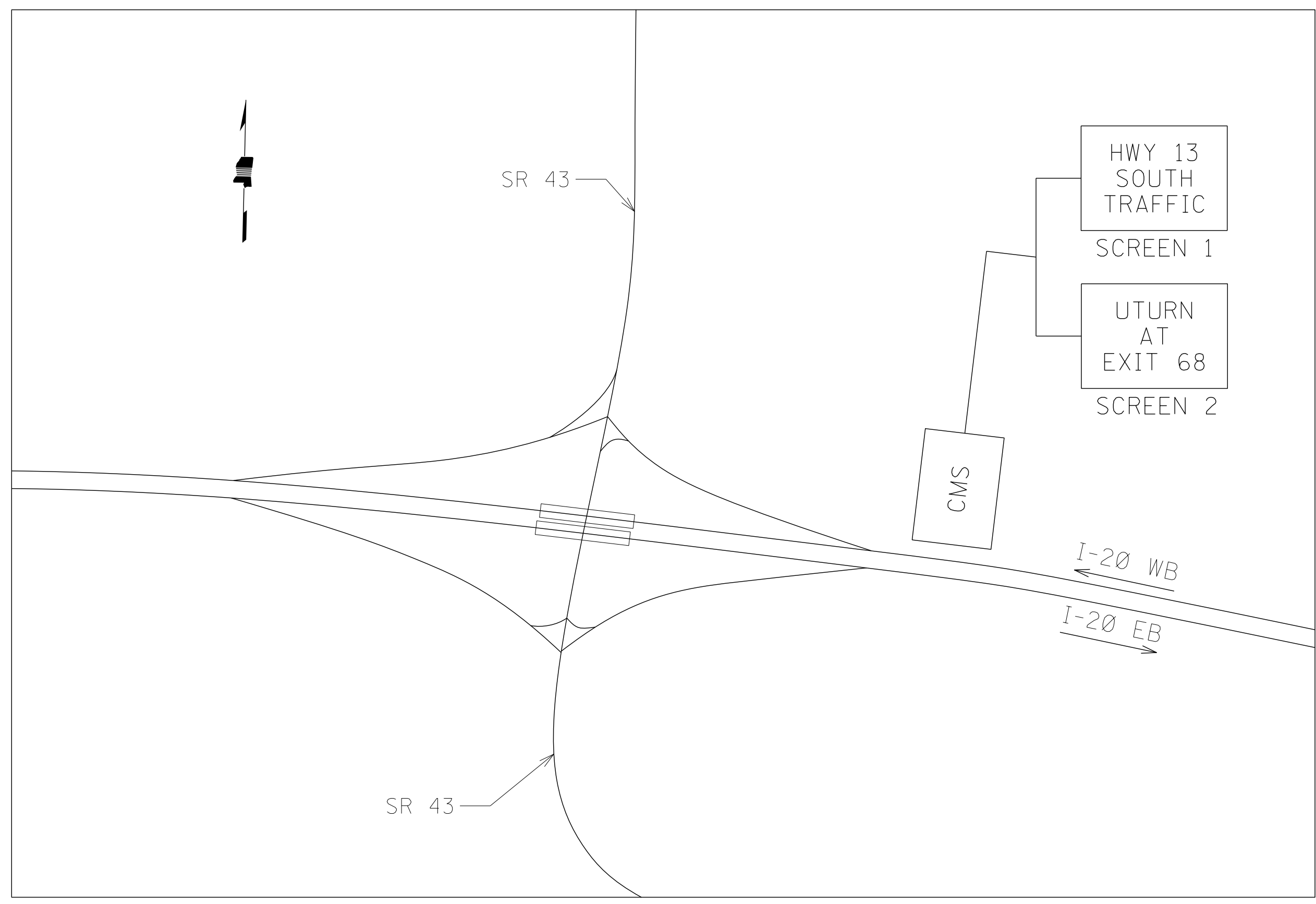
MISSISSIPPI DEPARTMENT OF TRANSPORTATION	
TRAFFIC CONTROL PLANS	
BRIDGE REPAIR	
PROJ. NO.: BR-0037-04(064)	
COUNTY: SCOTT	
FILE NAME: IC-2.dgn	WORKING NUMBER: TC-2
DESIGN TEAM: E. GREEN	CHECKED: DATE: 5/14/19
DATE:	SHEET NUMBER: 9



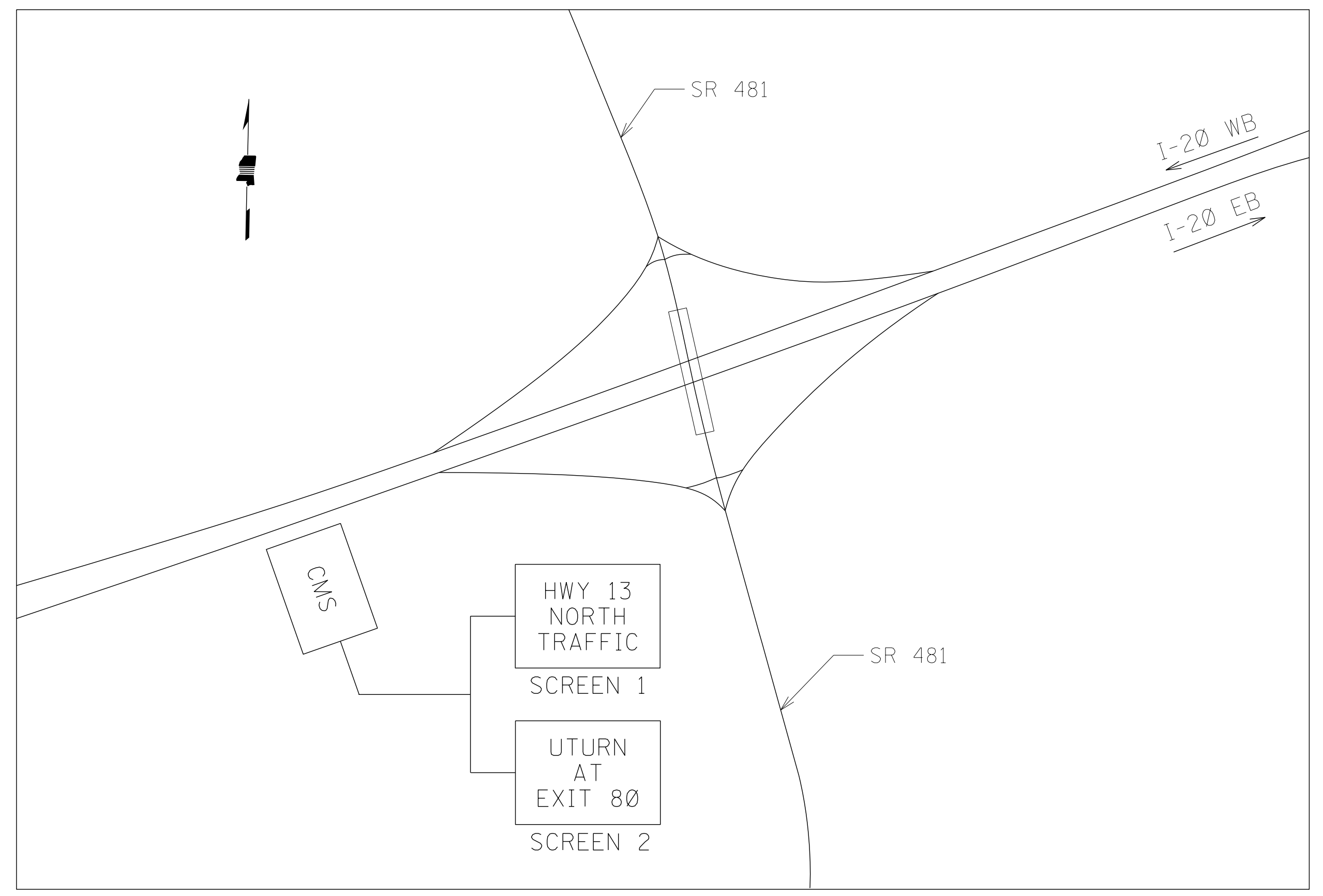
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STATE	PROJECT NO.
MISS.	BR-0037-04(064)

9/20/2019 3:16 PM TC-3.DGN



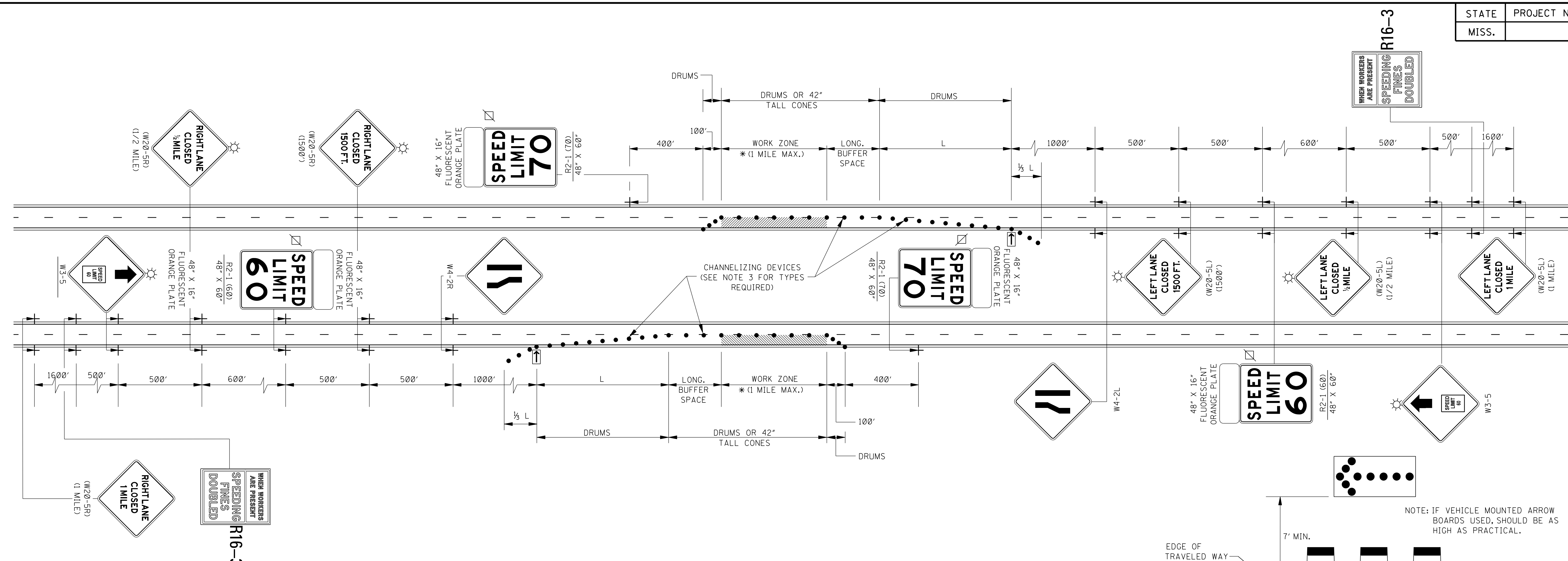
EXIT 68



EXIT 80

NOT TO SCALE

MISSISSIPPI DEPARTMENT OF TRANSPORTATION TRAFFIC CONTROL PLAN		
SR 13 OVER I-20 DETOUR ROUTE		
PROJ. NO.: BR-0037-04(064) COUNTY: SCOTT		WORKING NUMBER TC-3
FILE NAME: TC-3.dgn DESIGN TEAM: E. GREEN CHECKED: _____ DATE: 5/14/19	SHEET NUMBER 10	



GENERAL NOTES:

1. THE LOCATION OF CHANNELIZING DEVICES AND THE WORK AREA LAYOUT SHALL BE BASED ON THE CRITERIA IN THE FOLLOWING TABLE:

POSTED SPEED AND/OR DESIGN SPEED	MAXIMUM CHANNELIZING DEVICE SPACING (ft)		LONGITUDINAL BUFFER SPACE (ft)	TAPER RATES
	TAPER	ALONG BUFFER SPACE & WORK ZONE		
≤40	40	80	305	27:1
45	45	90	360	45:1
50	50	100	425	50:1
55	55	110	495	55:1
60	60	120	570	60:1
65	65	130	645	65:1
70	70	140	730	70:1

+ NOTE: TAPER RATES ARE DETERMINED USING THE FOLLOWING EQUATIONS:
 $L = WS$ FOR SPEEDS OF 45 mph OR GREATER
 $L = WS^2/60$ FOR SPEEDS OF 40 mph OR LESS
 WHERE: L = MINIMUM LENGTH OF TAPER IN FEET
 W = WIDTH OF OFFSET (USUALLY LANE WIDTH) IN FEET
 S = DESIGN SPEED OR 85TH PERCENTILE SPEED IN MILES PER HOUR

++ NOTE: BUFFER SPACE MAY BE ADJUSTED AS NEEDED ACCORDING TO ROADWAY GEOMETRY TO MEET SIGHT DISTANCE REQUIREMENTS, AS DIRECTED BY THE ENGINEER.

2. FLASHING ARROW PANEL SHOULD BE AS LEVEL AS POSSIBLE AS APPROVED BY THE ENGINEER. FLASHING ARROW PANEL SHOULD BE LOCATED AT THE BEGINNING OF THE TAPER OR, IF THE SHOULDER IS TOO NARROW, BEHIND THE CHANNELIZING DEVICES IN THE CLOSED LANE.

3. CHANNELIZING DEVICES:

- A. ALL CHANNELIZING DEVICES IN TAPERS SHALL BE RETROREFLECTIVE FREE STANDING PLASTIC DRUMS.
- B. CHANNELIZING DEVICES IN TANGENTS MAY BE EITHER RETROREFLECTIVE FREE STANDING PLASTIC DRUMS OR 42" TALL CONES.
- C. ALL CHANNELIZING DEVICES SHALL BE RETROREFLECTIVE.
- D. RETROREFLECTORIZATION SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE M.U.T.C.D.

4. DIAMOND SHAPED TRAFFIC CONTROL SIGNS SHOULD BE A MINIMUM OF 48" X 48", AND SHALL BE BLACK COPY ON FLUORESCENT ORANGE SHEETING.

5. ALL EXISTING SPEED LIMIT SIGNS WHICH ARE INFLUENCED BY OR CONFLICT WITH THE SPEED ZONE REDUCTION SHALL BE COVERED AS DIRECTED BY THE ENGINEER WHILE THE REDUCED SPEED LIMIT IS IN EFFECT. TAPE SHALL NOT BE USED ON FACE OF SIGN.

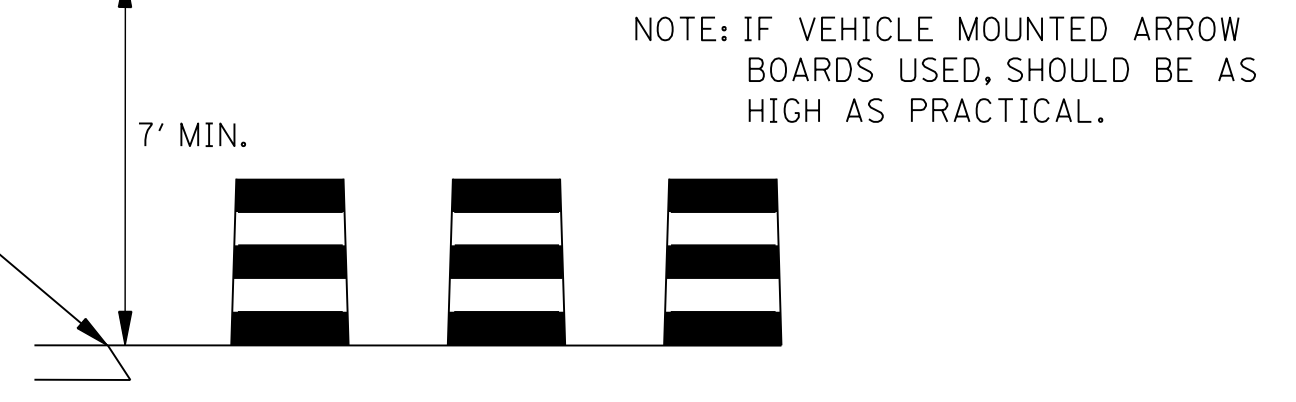
6. ADDITIONAL REDUCED REGULATORY SPEED LIMIT SIGNS ARE REQUIRED AT EACH ENTRANCE RAMP WITHIN THE SPEED ZONE. TWO (2) WILL BE REQUIRED FOR EACH RAMP AND LOCATION WILL BE DETERMINED BY THE ENGINEER.

7. THIS TRAFFIC CONTROL PLAN, WITH SPEED ZONE, MAY NOT BE USED ON ANY FACILITY WHERE THE POSTED SPEED LIMIT IS BELOW 65 MPH WITHOUT A COMMISSION ORDER REQUESTING A SPEED LIMIT REDUCTION.

8. LAYOUT SHOWN ABOVE IS FOR AN INTERSTATE WITH A POSTED SPEED LIMIT OF 70 MPH. FOR POSTED SPEED LIMIT OF 65 MPH, THE REDUCED SPEED LIMIT WILL BE 55 MPH.

9. A FLUORESCENT ORANGE PLATE IS REQUIRED WITH ALL REGULATORY SPEED LIMIT SIGNS REQUIRED FOR LANE CLOSURE.


10. ALL TRAFFIC CONTROL ITEMS SHOWN ON THIS SHEET WILL NOT BE MEASURED FOR SEPARATE PAYMENT. THIS WORK SHALL BE INCLUDED IN THE PRICE BID FOR MAINTENANCE OF TRAFFIC.

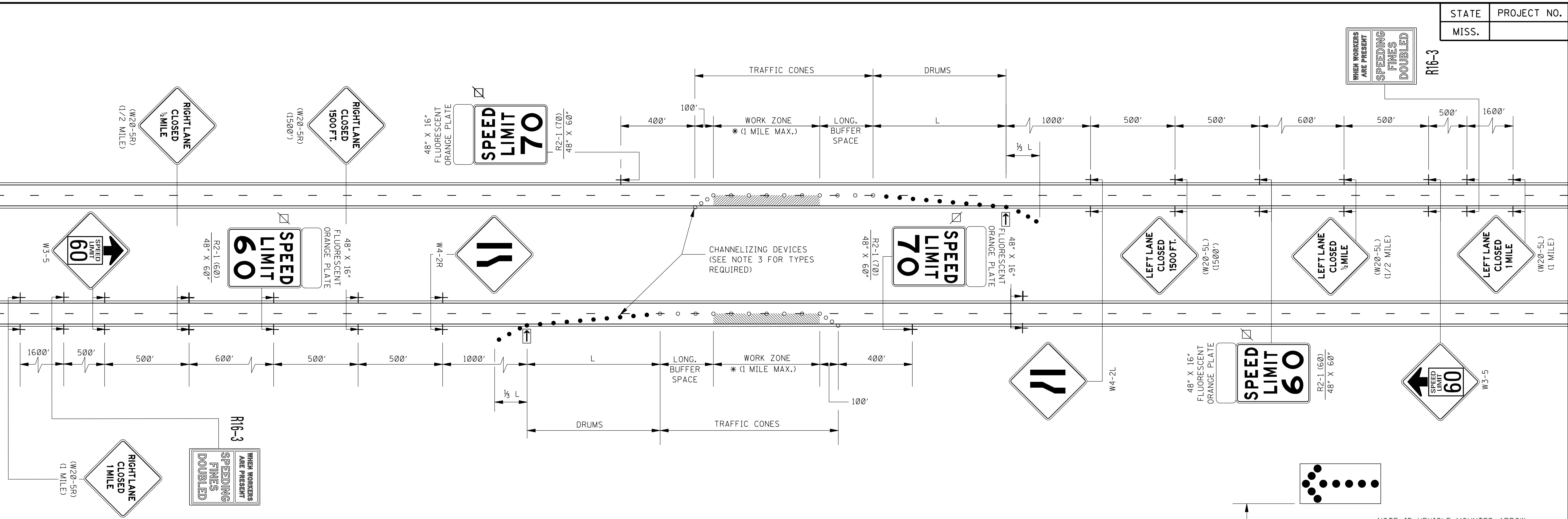


LEGEND

- * OR AS SHOWN ELSEWHERE ON THE PLANS.
- FLASHING ARROW PANEL (TYPE "C")
- BLACK LEGEND AND BORDER ON WHITE BACKGROUND
- ☀ TYPE "B" WARNING LIGHTS
- RETROREFLECTIVE FREE-STANDING PLASTIC DRUMS

BY	MISSISSIPPI DEPARTMENT OF TRANSPORTATION ROADWAY DESIGN DIVISION
REVISION	STANDARD PLAN TRAFFIC CONTROL PLAN FOR POSTED SPEED LIMIT OF 65 OR 70 MPH (INTERSTATES AND OTHER 4-LANE DIVIDED HIGHWAYS) (MEDIAN LANE OR OUTSIDE LANE CLOSURE) (EXTENDED PERIOD)
DATE	ISSUE DATE: AUGUST 01, 2017


 WORKING NUMBER TCP-4
 SHEET NUMBER 6354



GENERAL NOTES:

1. THE LOCATION OF CHANNELIZING DEVICES AND THE WORK AREA LAYOUT SHALL BE BASED ON THE CRITERIA IN THE FOLLOWING TABLE:

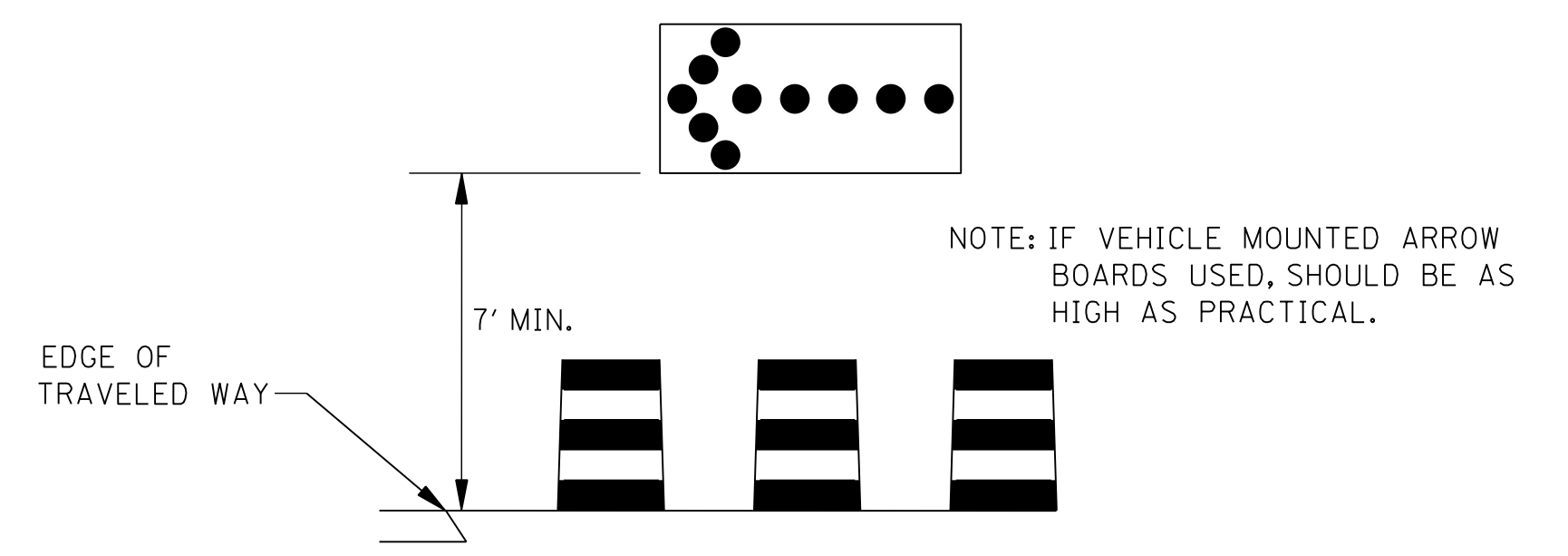
POSTED SPEED AND/OR DESIGN SPEED	MAXIMUM CHANNELIZING DEVICE SPACING (ft)		LONGITUDINAL BUFFER SPACE (ft)	TAPER RATES
	TAPER	ALONG LANE LINE & WORK ZONE		
40	40	80	305	27:1
45	45	90	360	45:1
50	50	100	425	50:1
55	55	110	495	55:1
60	60	120	570	60:1
65	65	130	645	65:1
70	70	140	730	70:1

+ NOTE: TAPER RATES ARE DETERMINED USING THE FOLLOWING EQUATIONS:
 L = WS FOR SPEEDS OF 45 mph OR GREATER
 L = WS²/60 FOR SPEEDS OF 40 mph OR LESS
 WHERE: L = MINIMUM LENGTH OF TAPER IN FEET
 W = WIDTH OF OFFSET (USUALLY LANE WIDTH) IN FEET
 S = DESIGN SPEED OR 85TH PERCENTILE SPEED IN MILES PER HOUR

++ NOTE: BUFFER SPACE MAY BE ADJUSTED AS NEEDED ACCORDING TO ROADWAY GEOMETRY TO MEET SIGHT DISTANCE REQUIREMENTS, AS DIRECTED BY THE ENGINEER.

2. FLASHING ARROW PANEL SHOULD BE AS LEVEL AS POSSIBLE AS APPROVED BY THE ENGINEER. FLASHING ARROW PANEL SHOULD BE LOCATED AT THE BEGINNING OF THE TAPER OR, IF THE SHOULDER IS TOO NARROW, BEHIND THE CHANNELIZING DEVICES IN THE CLOSED LANE.

- CHANNELIZING DEVICE TYPES FOR:
 - APPROACH TAPER- RETROREFLECTIVE PLASTIC DRUMS
 - ALONG LANE LINE AND WORK ZONE- TRAFFIC CONES (28" HEIGHT MINIMUM)
 - EXIT TAPER- TRAFFIC CONES (28" HEIGHT MINIMUM)
- WHEN WORK ZONE IS NO LONGER NEEDED, ALL SIGNS SHALL BE COVERED OR REMOVED AND THE DRUMS SHALL BE MOVED TO THE SHOULDER EDGE AT THE END OF THE WORK DAY.
- FOR MOVING OPERATIONS (PAVING) THE CONTRACTOR SHALL HAVE TWO (2) SETS OF ADVANCE WARNING AND REGULATORY SIGNS, PLASTIC DRUMS, AND ARROW BOARD. WHEN THE CONSTRUCTION ZONE IS MOVED AHEAD, ALL SIGNS, PLASTIC DRUMS AND ARROW BOARD SHALL BE IN PLACE ON THE SECOND ZONE BEFORE REMOVING ANY SIGNS, PLASTIC DRUMS OR ARROW BOARD ON THE FIRST ZONE.
- DIAMOND SHAPED TRAFFIC CONTROL SIGNS SHOULD BE A MINIMUM OF 48" X 48". AND SHALL BE BLACK COPY ON FLUORESCENT ORANGE SHEETING.
- ALL EXISTING SPEED LIMIT SIGNS WHICH ARE INFLUENCED BY OR CONFLICT WITH THE SPEED ZONE REDUCTION SHALL BE COVERED AS DIRECTED BY THE ENGINEER WHILE THE REDUCED SPEED LIMIT IS IN EFFECT. TAPE SHALL NOT BE USED ON THE FACE OF SIGN.
- ADDITIONAL REDUCED REGULATORY SPEED LIMIT SIGNS ARE REQUIRED AT EACH ENTRANCE RAMP WITHIN THE SPEED ZONE. TWO (2) WILL BE REQUIRED FOR EACH RAMP AND LOCATION WILL BE DETERMINED BY THE ENGINEER.
- THIS TRAFFIC CONTROL PLAN, WITH SPEED ZONE, MAY NOT BE USED ON ANY FACILITY WHERE THE POSTED SPEED LIMIT IS BELOW 65 MPH WITHOUT A COMMISSION ORDER REQUESTING A SPEED LIMIT REDUCTION.
- LAYOUT SHOWN ABOVE IS FOR AN INTERSTATE WITH A POSTED SPEED LIMIT OF 70 MPH. FOR POSTED SPEED LIMIT OF 65 MPH, THE REDUCED SPEED LIMIT WILL BE 55 MPH.
- A FLUORESCENT ORANGE PLATE IS REQUIRED WITH ALL REGULATORY SPEED LIMIT SIGNS AND "REDUCED SPEED AHEAD" SIGNS REQUIRED FOR LANE CLOSURE.
- ALL TRAFFIC CONTROL ITEMS SHOWN ON THIS SHEET WILL NOT BE MEASURED FOR SEPARATE PAYMENT. THIS WORK SHALL BE INCLUDED IN THE PRICE BID FOR MAINTENANCE OF TRAFFIC.



LEGEND

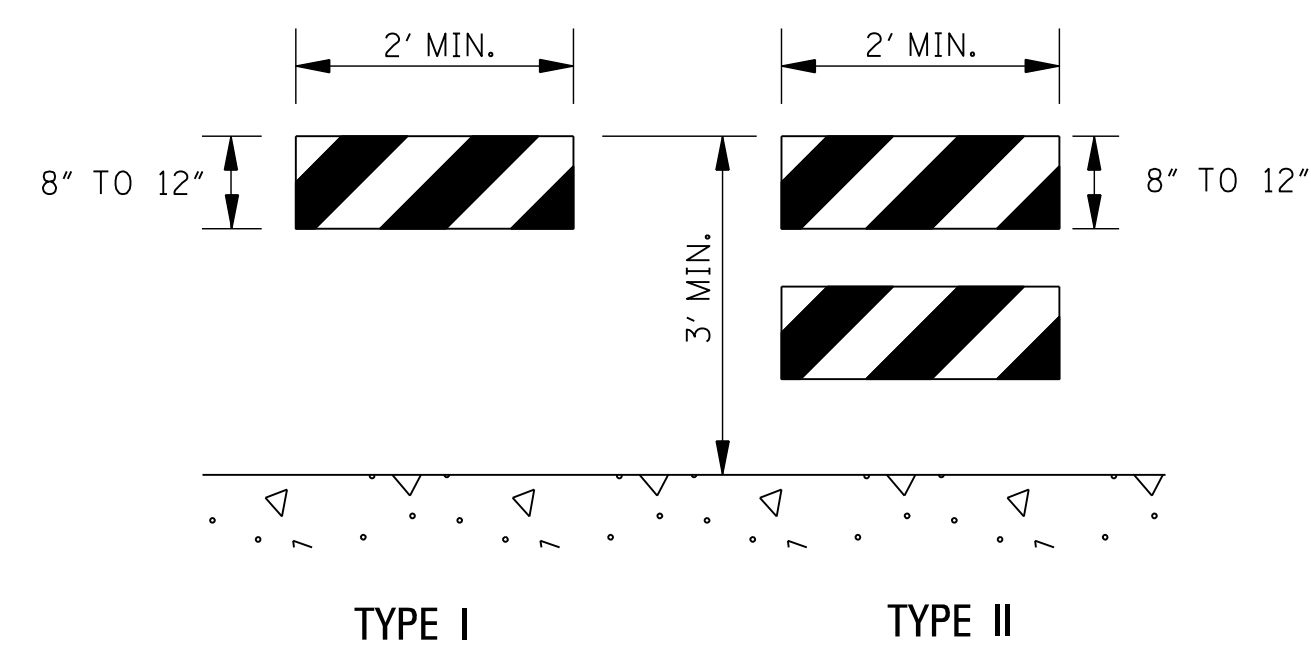
- * OR AS SHOWN ELSEWHERE ON THE PLANS.
- FLASHING ARROW PANEL (TYPE "C")
- BLACK LEGEND AND BORDER ON WHITE BACKGROUND
- RETROREFLECTIVE FREE-STANDING PLASTIC DRUMS
- TRAFFIC CONES (28" HEIGHT)

BY	MISSISSIPPI DEPARTMENT OF TRANSPORTATION ROADWAY DESIGN DIVISION
REVISION	STANDARD PLAN TRAFFIC CONTROL PLAN FOR POSTED SPEED LIMIT OF 65 OR 70 MPH (INTERSTATES AND OTHER 4-LANE DIVIDED HIGHWAYS) (MEDIAN LANE OR OUTSIDE LANE CLOSURE) (WORK DAY ONLY)
DATE	ISSUE DATE: AUGUST 01, 2017

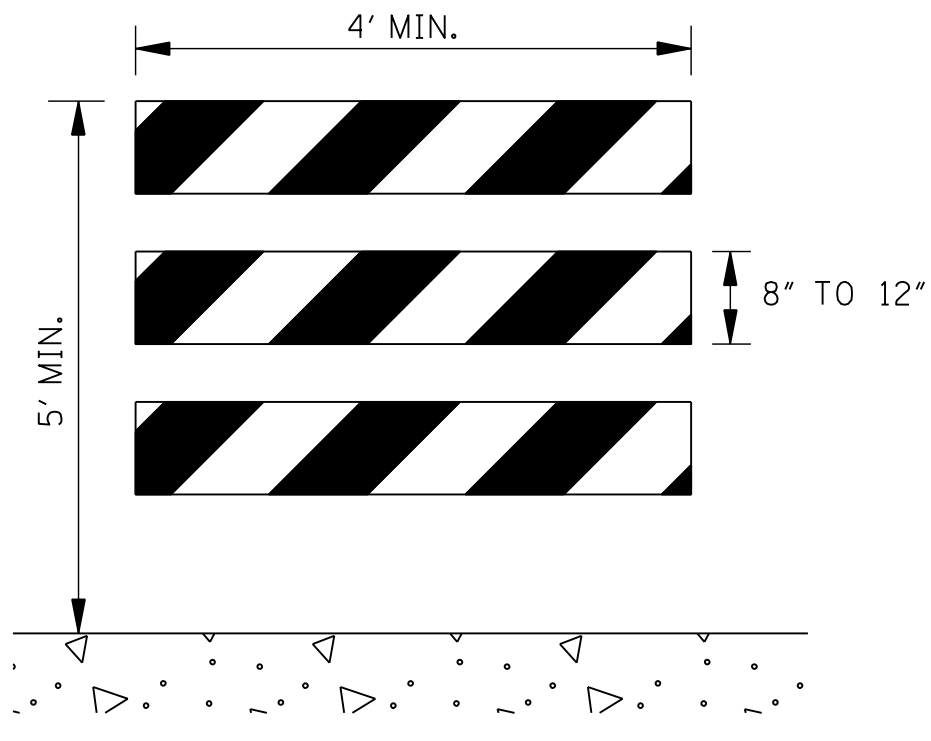
MDOT
MISSISSIPPI DEPARTMENT OF TRANSPORTATION

WORKING NUMBER
TCP-5

SHEET NUMBER
6355



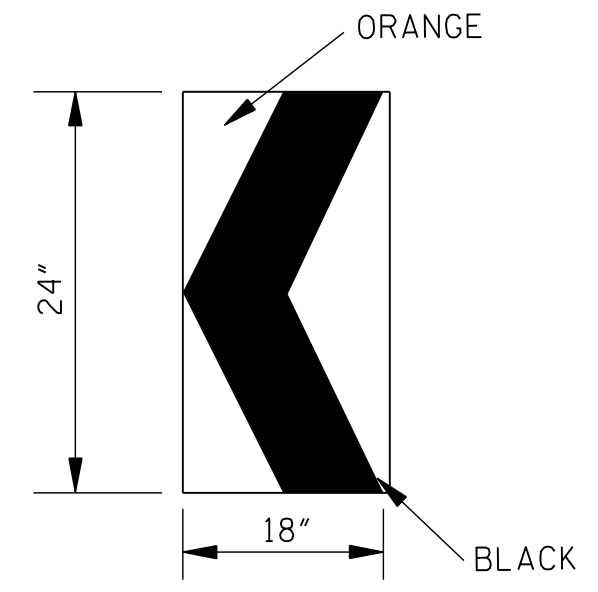
TYPE I TYPE II



TYPE III

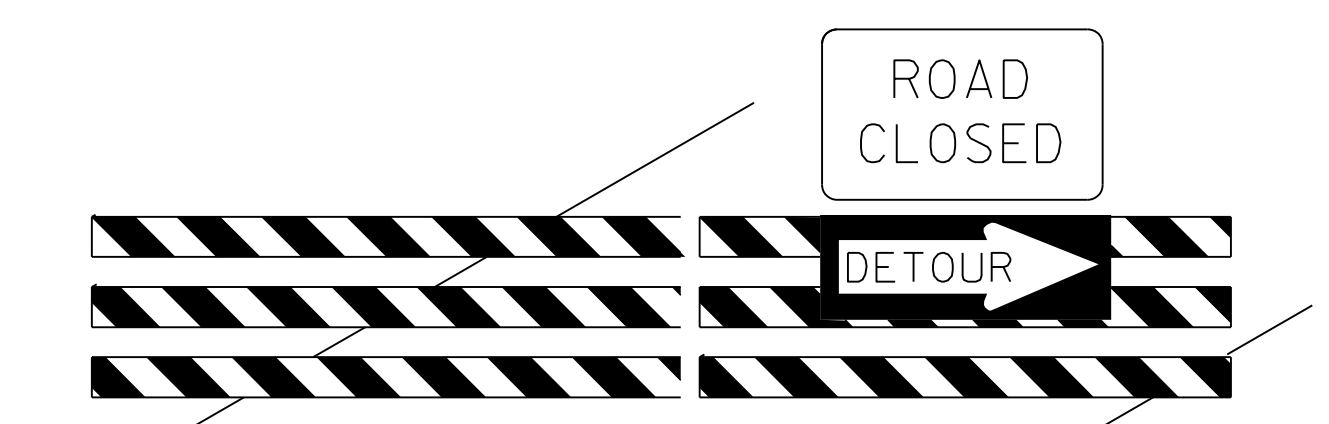
STANDARD BARRICADES

1. THE MARKING FOR BARRICADE RAILS SHALL BE ORANGE AND WHITE (SLOPING DOWNWARD AT AN ANGLE OF 45° IN THE DIRECTION TRAFFIC IS TO PASS).
2. RAIL STRIPE SHOULD BE 6 INCHES, EXCEPT THAT 4-INCH WIDE STRIPES MAY BE USED IF RAIL LENGTHS ARE LESS THAN 36 INCHES.
3. DO NOT PLACE SANDBAGS OR OTHER DEVICES TO PROVIDE MASS ON THE BOTTOM RAIL THAT WILL BLOCK VIEW OR RAIL FACE.
4. FOR ADDITIONAL INFORMATION OR DETAILS, SEE MUTCD, LATEST EDITION.
5. BARRICADES ARE CLASSIFIED BY FHWA AS CATEGORY II WORK ZONE DEVICES WHICH REQUIRE CRASHWORTHINESS ACCEPTANCE LETTERS. TO DATE, 2-IN. THICK TIMBER RAILS HAVE NOT BEEN SUCCESSFULLY CRASH TESTED. A LIST OF CRASHWORTHY BARRICADES AND OTHER CATEGORY II DEVICES CAN BE FOUND ON FHWA'S WEBSITE:
http://safety.fhwa.dot.gov/roadway_dept/policy_guide/road_hardware/cat2.cfm



**CHEVRON SIGN
DETAIL**

1. A CHEVRON SIGN CONSISTS OF A BLACK CHEVRON TYPE MARKING ON AN ORANGE BACKGROUND AND SHALL POINT IN THE DIRECTION OF TRAFFIC FLOW.
2. THE CHEVRON SIGN SHALL BE MOUNTED ON CRASHWORTHY SUPPORT.
3. CHEVRON SIGNS MAY BE USED TO SUPPLEMENT OTHER STANDARD DEVICES WHERE ONE OR MORE LANES ARE CLOSED FOR CONSTRUCTION OR MAINTENANCE. THEY SHOULD BE PLACED APPROXIMATELY 2'-0" BEHIND THE LANE TRANSITION STRIPE.

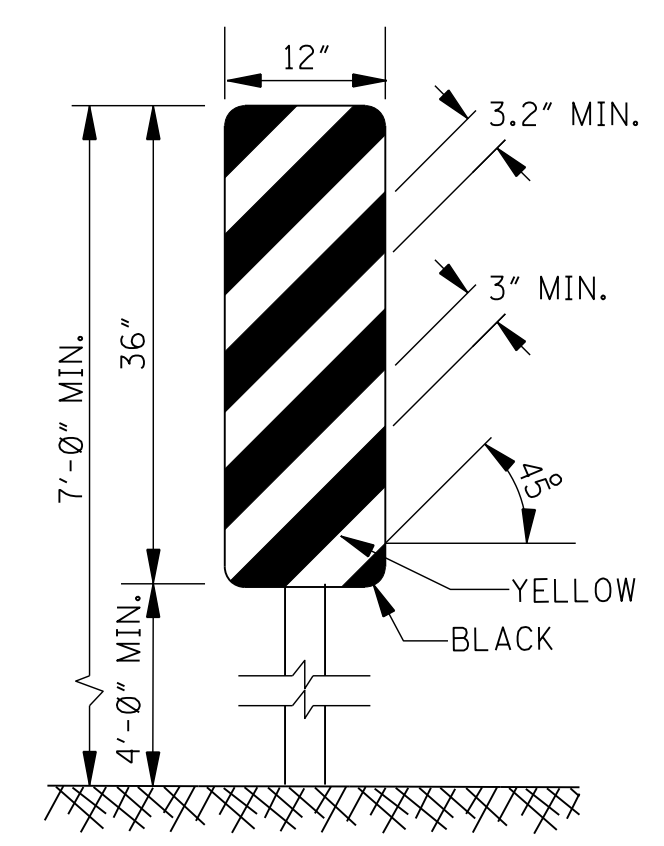


BARRICADE CLOSING A ROAD

BARRICADE CHARACTERISTICS

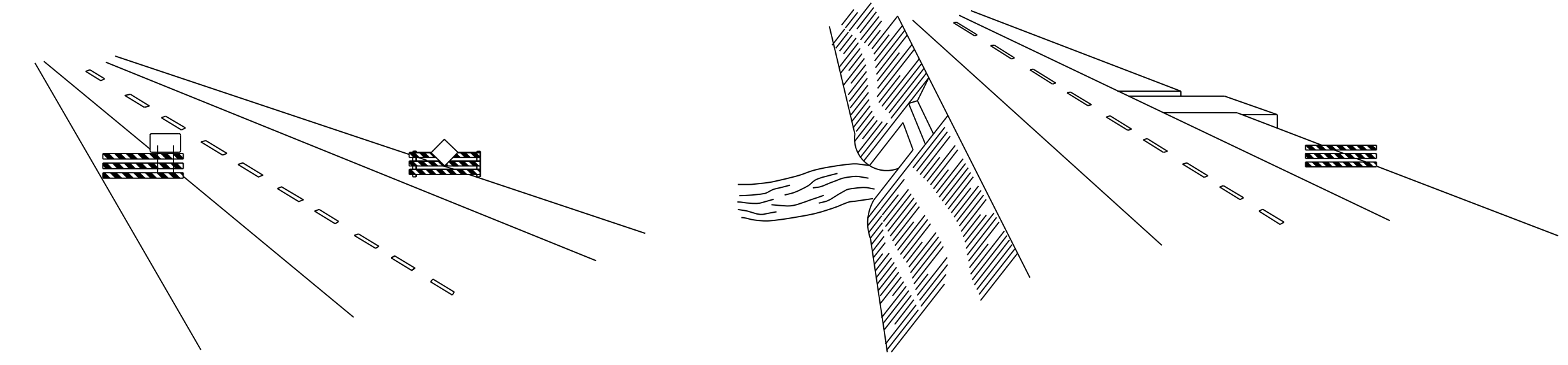
	I	II	III
WIDTH OF RAIL **	8" MIN. - 12" MAX.	8" MIN. - 12" MAX.	8" MIN. - 12" MAX.
LENGTH OF RAIL **	24" MIN.	24" MIN.	48" MIN.
WIDTH OF STRIPE *	6"	6"	6"
HEIGHT	36" MIN.	36" MIN.	60" MIN.
NUMBER OF RETROREFLECTORIZED RAIL FACES	2 (ONE EACH DIRECTION)	4 (TWO EACH DIRECTION)	3 IF FACING TRAFFIC IN ONE DIRECTION 6 IF FACING TRAFFIC IN TWO DIRECTIONS

- * 1. FOR RAILS LESS THAN 36" LONG, 4" WIDE STRIPES MAY BE USED.
- ** 2. BARRICADES INTENDED FOR USE ON EXPRESSWAYS, FREEWAYS AND OTHER HIGH SPEED ROADWAYS, SHALL HAVE A MINIMUM OF 270 in² OF REFLECTIVE AREA FACING TRAFFIC.



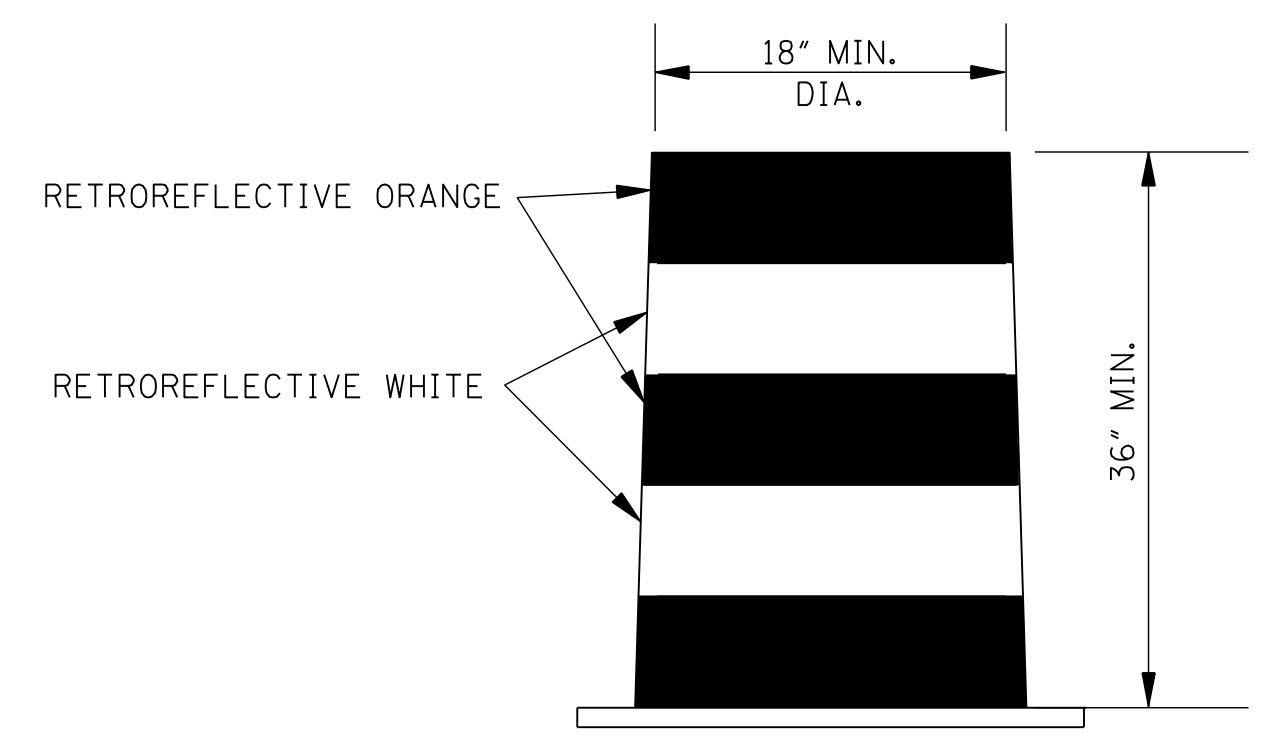
**TYPE 3 OBJECT MARKER
(OM-3R)**

1. TYPE 3 OBJECT MARKERS SHALL BE USED AT ALL EXPOSED BRIDGE ABUTMENTS AND AT OTHER LOCATIONS AS DEEMED NECESSARY BY THE ENGINEER.
2. THE OM-3R IS SHOWN. THE OM-3L IS SIMILAR EXCEPT THE STRIPES SLOPE DOWNWARD FROM THE UPPER LEFT SIDE TO THE LOWER RIGHT SIDE AND SHALL BE PLACED ON THE LEFT SIDE OF THE OBJECT.
3. THE INSIDE EDGE OF THE MARKER SHALL BE IN LINE WITH THE INNER EDGE OF THE OBSTRUCTION.



WING BARRICADES

1. WING BARRICADES ARE TYPE III BARRICADES ERECTED ON THE SHOULDER ON ONE OR BOTH SIDES OF THE PAVEMENT TO GIVE THE SENSATION OF A NARROWING OR RESTRICTED ROADWAY. WING BARRICADES MAY BE USED AS A MOUNTING FOR THE ADVANCE WARNING SIGNS OR FLASHERS.
2. WING BARRICADES SHOULD BE USED:
 - A. IN ADVANCE OF A CONSTRUCTION PROJECT EVEN WHEN NO PART OF THE ROADWAY IS ACTUALLY CLOSED.
 - B. IN ADVANCE OF ALL BRIDGE OR CULVERT WIDENING OPERATIONS.

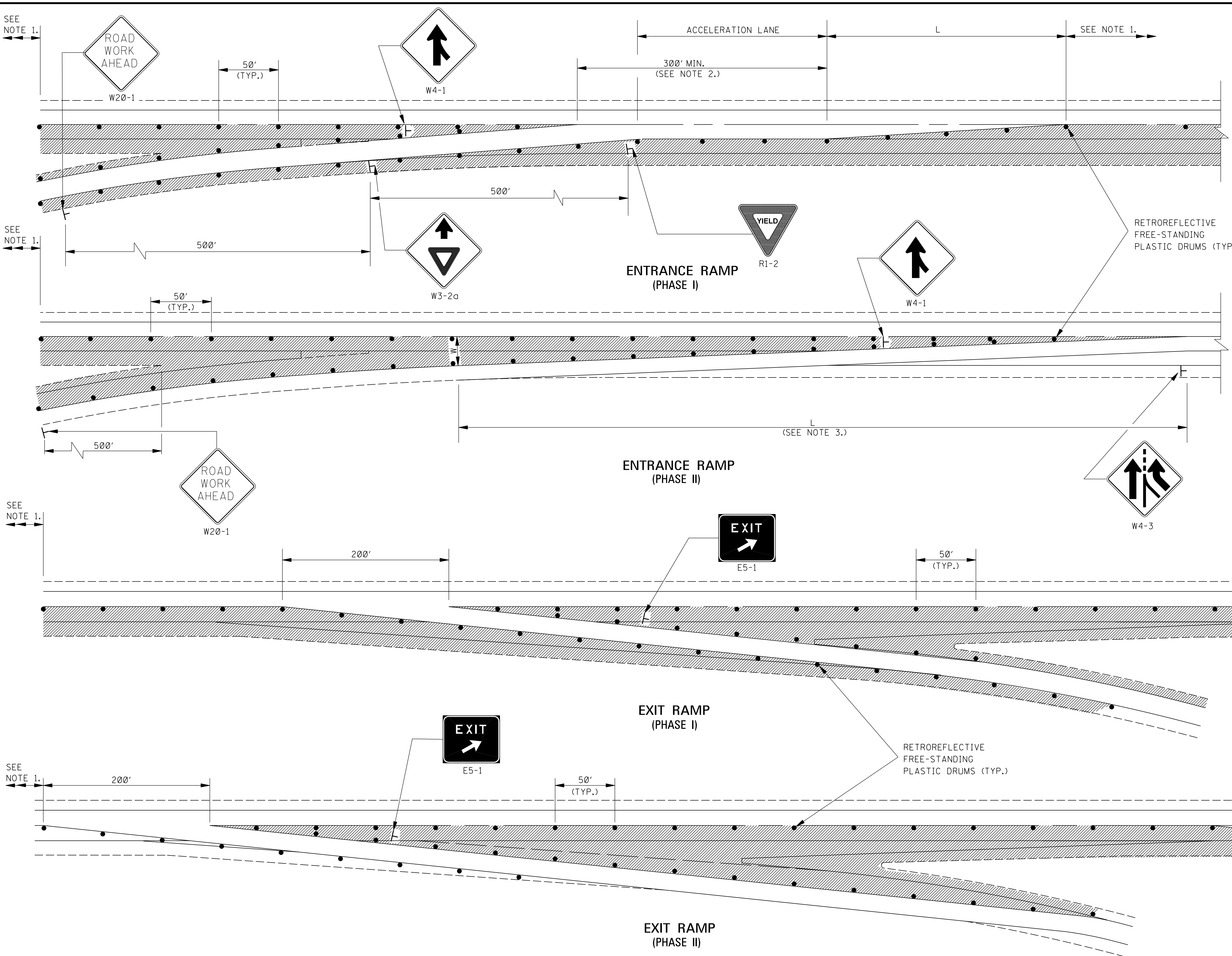


PLASTIC DRUM STRIPING DETAIL

1. PLASTIC DRUMS SHALL BE ON END AND USED AS AN EXPEDIENT METHOD FOR TRAFFIC CHANNELIZATION. THE COLOR AND MARKING OF DRUMS SHALL BE CONSISTENT WITH MARKING STANDARDS FOR BARRICADE. THE PREDOMINANT COLOR ON DRUMS SHALL BE ORANGE WITH FOUR (4) RETROREFLECTIVE, HORIZONTAL, CIRCUMFERENTIAL STRIPES (2 ORANGE & 2 WHITE) 6" WIDE.
2. DRUMS SHOULD NEVER BE PLACED IN THE ROADWAY WITHOUT WARNING SIGNS.
3. WHERE PRACTICAL PLASTIC DRUMS SHOULD BE PLACED NO CLOSER THAN 3'-0" FROM THE EDGE OF TRAVELED LANE.

BY		MISSISSIPPI DEPARTMENT OF TRANSPORTATION ROADWAY DESIGN DIVISION STANDARD PLAN	
REVISION		<p>HIGHWAY SIGN AND BARRICADE DETAILS FOR CONSTRUCTION PROJECTS</p>	
DATE			
ISSUE DATE:		AUGUST 01, 2017	

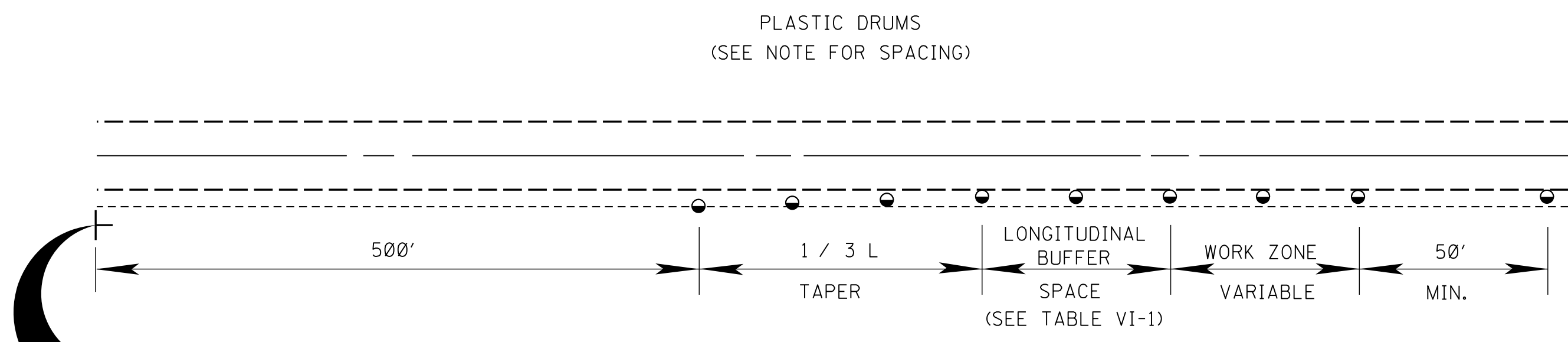
WORKING NUMBER
TCP-8
SHEET NUMBER
6358



IN PHASE I:
 FOR STOP CONDITION: PLACE CHANGABLE MESSAGE SIGN (CMS) NEAR MIDDLE OF RAMP SHOWING PHASE I "STOP AHEAD" AND PHASE II "NO MERGE AREA".
 FOR YIELD CONDITION: PLACE CHANGABLE MESSAGE SIGN (CMS) NEAR MIDDLE OF RAMP SHOWING MESSAGE "YIELD AHEAD".

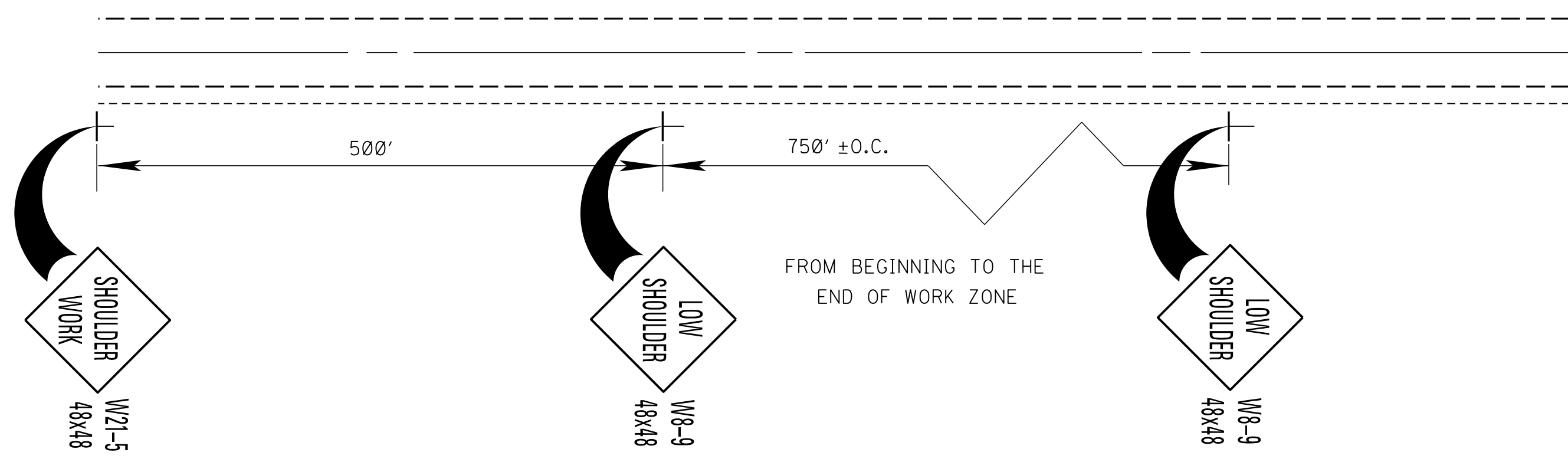
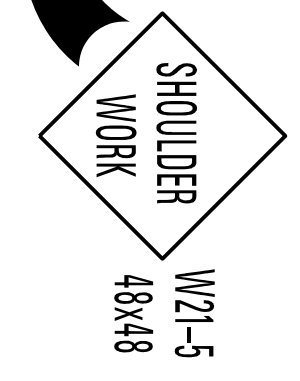
- GENERAL NOTES:
1. FOR SIGNING, FLASHING ARROW PANEL, AND DRUM SPACING CRITERIA, SEE TYPICAL TRAFFIC CONTROL PLANS FOR LANE CLOSURES ON SHEETS TCP-2, TCP-3, TCP-4, AND TCP-5, AS APPROPRIATE
 2. IF NO ACCELERATION LANE EXISTS FOR THE TEMPORARY ENTRANCE, THE YIELD SIGN (R1-2) AND THE YIELD AHEAD SIGN (W3-2A) SHALL BE REPLACED WITH A STOP SIGN (R1-1) AND A STOP AHEAD SIGN (W3-1a), ONE ON EACH SIDE OF APPROACH. WHERE STOP SIGNS ARE USED, A TEMPORARY STOP LINE SHOULD BE PLACED ACROSS THE RAMP AT THE DESIRED STOP LOCATION. IF INSUFFICIENT GAPS ARE AVAILABLE IN THE TRAFFIC STREAM, CONSIDERATION SHOULD BE GIVEN TO CLOSING THE RAMP.
 3. DETERMINE TAPER LAYOUTS USING THE FOLLOWING EQUATIONS:
 $L = WS$ FOR SPEED OF 45 mph OR GREATER
 $L = WS^2/60$ FOR SPEEDS OF 40 mph OR LESS
 WHERE:
 L = MINIMUM LENGTH OF TAPER IN FEET
 W = WIDTH OF OFFSET IN FEET
 S = DESIGN SPEED OR 85TH PERCENTILE SPEED IN MILES PER HOUR
 4. ALL TRAFFIC CONTROL ITEMS SHOWN ON THIS SHEET WILL NOT BE MEASURED FOR SEPARATE PAYMENT. THIS WORK SHALL BE INCLUDED IN THE PRICE BID FOR MAINTENANCE OF TRAFFIC.

BY		MISSISSIPPI DEPARTMENT OF TRANSPORTATION ROADWAY DESIGN DIVISION STANDARD PLAN	
REVISION		DETAILS OF OUTSIDE LANE CLOSURE AT EXIT AND ENTRANCE RAMP	
DATE		ISSUE DATE: AUGUST 01, 2017	
		 WORKING NUMBER TCP-10 SHEET NUMBER 6360	

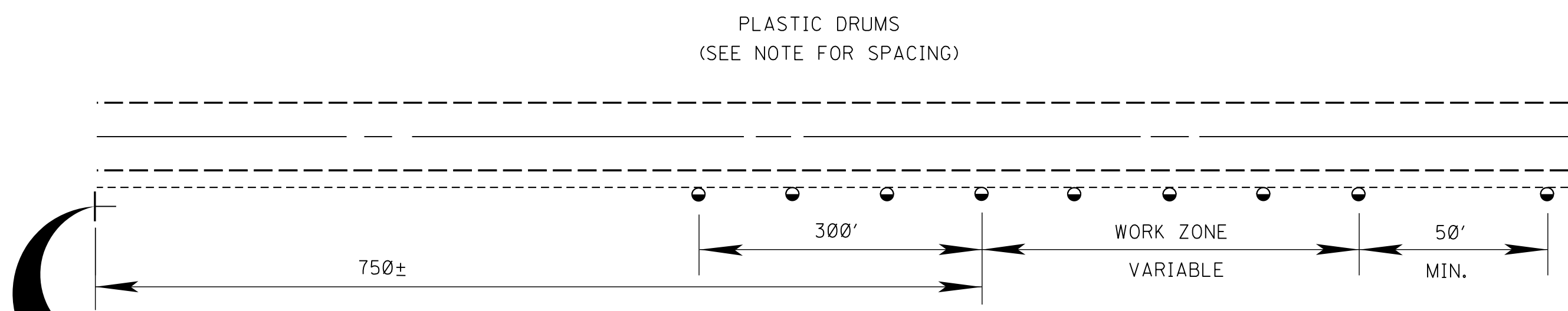
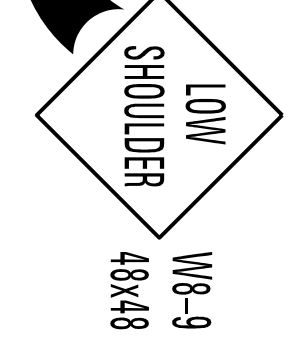
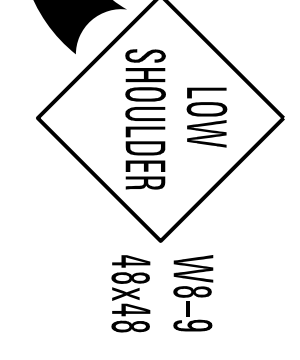


TYPICAL SHOULDER CLOSURE

- (1) TO BE USED WITH EIGHT (8) FOOT OR GREATER WIDTH IMPROVED SHOULDER.
- (2) TO BE USED WHEN CONSTRUCTION VEHICLES (EQUIPMENT) ENCROACHES ON OR WITHIN TWO (2) FEET OF THE SHOULDER BREAK.

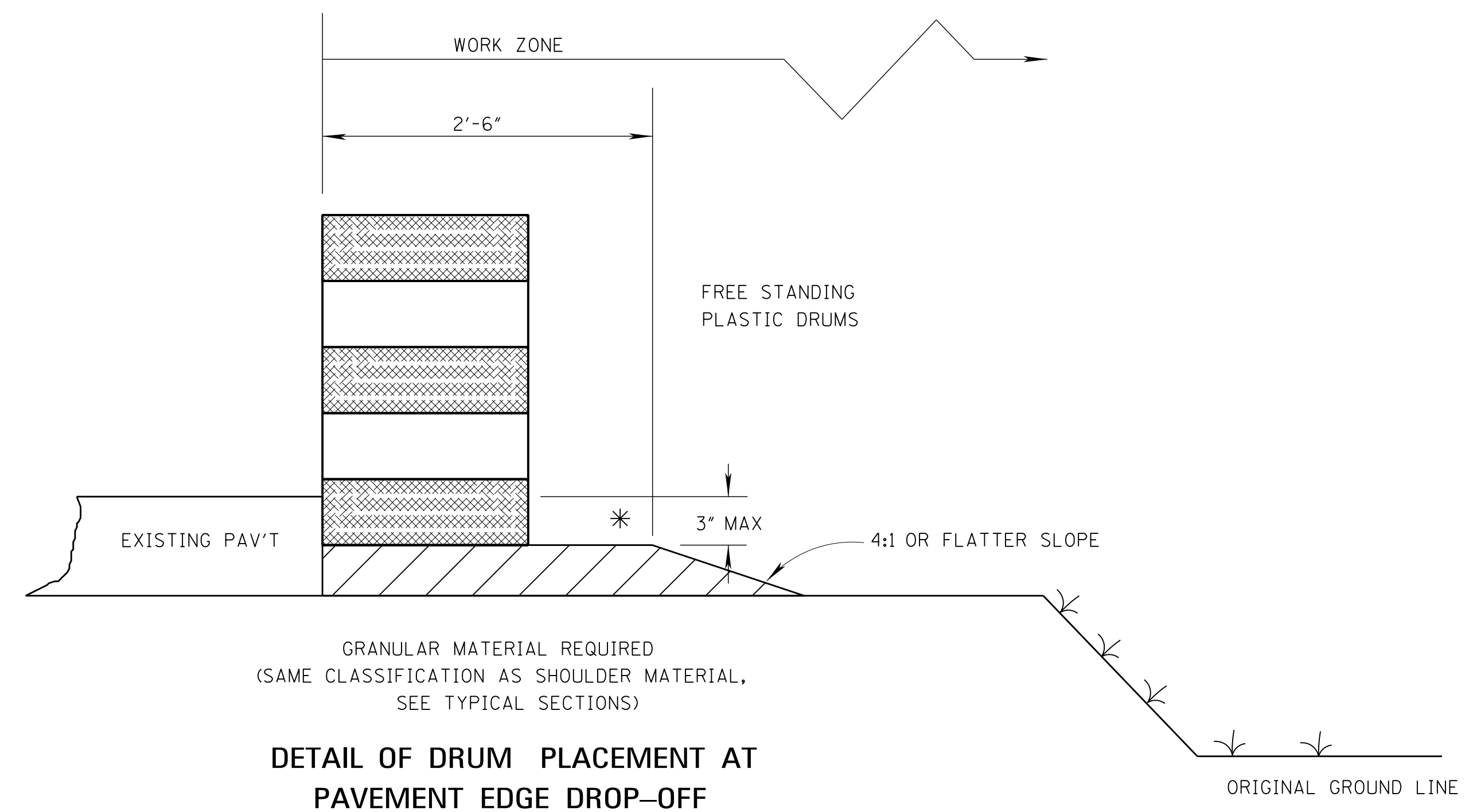
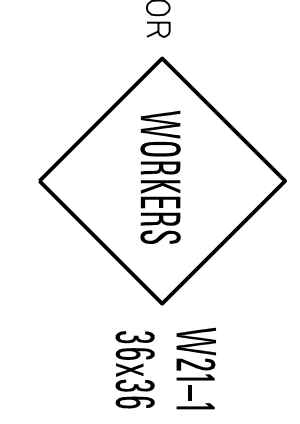
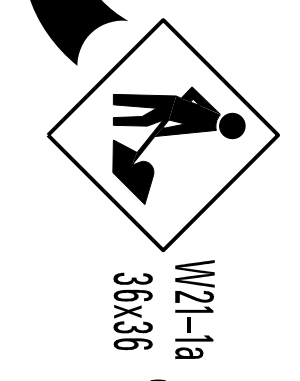


**TYPICAL SHOULDER WORK #1
(SEE NOTE A-1 THIS SHEET)**



TYPICAL SHOULDER WORK #2

NOTE:
WORK OUTSIDE TWO (2) FOOT AND WITHIN TEN (10) FEET OF THE SHOULDER BREAK MAY BE PROTECTED BY PLACING DRUMS ALONG THE SHOULDER EDGE, 300 FEET PRIOR TO AND 50 FEET BEYOND THE WORK AREA, OR SEE NOTE A-3 THIS SHEET.



DETAIL OF DRUM PLACEMENT AT PAVEMENT EDGE DROP-OFF

NOTES:

- * A. PAVEMENT EDGE DROP-OFF
 1. IF LESS THAN TWO AND ONE QUARTER (2.25) INCHES-NO PROTECTION REQUIRED. PLACE A SHOULDER WORK SIGN (W21-5) 500 FEET IN ADVANCE OF WORK ZONE SHOULDER AND A LOW SHOULDER SIGN (W8-9) AT THE BEGINNING AND THROUGHOUT THE WORK ZONE @ (750'±0.C.).
 2. TWO AND ONE QUARTER TO THREE INCHES-PLACE DRUMS, VERTICAL PANELS OR BARRICADES EVERY 100 FEET ON TANGENT SECTIONS FOR SPEEDS OF 50 MILES PER HOUR OR GREATER. CONES MAY BE USED IN PLACE OF DRUMS, PANELS, AND BARRICADES DURING DAYLIGHT HOURS. FOR TANGENT SECTIONS WITH SPEEDS LESS THAN 50 MILES PER HOUR AND FOR CURVES, DEVICES SHOULD BE PLACED EVERY 50 FEET. SPACING FOR TAPERS SHOULD BE IN ACCORDANCE WITH THE M.U.T.C.D. (1 / 3 L, WHERE L IS THE TAPER LENGTH IN FEET.)
 3. GREATER THAN THREE (3) INCHES-POSITIVE SEPARATION OR WEDGE WITH 4:1 OR FLATTER SLOPE NEEDED. IF THERE IS EIGHT (8) FEET OR MORE DISTANCE BETWEEN THE EDGE OF TRAVEL LANE AND DROP-OFF, THEN DRUMS, PANELS OR BARRICADES MAY BE USED.
 4. FOR TEMPORARY CONDITIONS, DROP-OFFS GREATER THAN THREE (3) INCHES MAY BE PROTECTED WITH DRUMS, VERTICAL PANELS OR BARRICADES FOR SHORT DISTANCES DURING DAYLIGHT HOURS WHILE WORK IS BEING DONE IN THE DROP-OFF AREA.
 5. LESSER TREATMENTS THAN THOSE DESCRIBED ABOVE MAY BE CONSIDERED FOR LOW-VOLUME LOCAL STREETS.
- B. DRUM SPACING
 1. TANGENTS = 2 X S
 2. TAPERS = L / 3

WHERE L = S X W
L = TAPER LENGTH IN FEET
S = SPEED IN MPH (POSTED OR 85 PERCENTILE)
W = WIDTH OF OFFSET IN FEET
- C. ALL TRAFFIC CONTROL ITEMS SHOWN ON THIS SHEET SHALL BE PAID FOR UNDER MAINTENANCE OF TRAFFIC.

TABLE VI-1. GUIDELINES FOR LENGTH OF LONGITUDINAL BUFFER SPACE

** SPEED (MPH)	LENGTH (FEET)
20	35
25	55
30	85
35	120
40	170
45	220
50	280
55	335
60	415
65	485

** POSTED SPEED, OFF-PEAK 85 PERCENTILE SPEED PRIOR TO WORK STARTING, OR THE ANTICIPATED OPERATING SPEED IN MPH.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION ROADWAY DESIGN DIVISION STANDARD PLAN	
TRAFFIC CONTROL DETAILS DRUM PLACEMENT AND SHOULDER CLOSURE	
BY	
REVISION	
DATE	ISSUE DATE: AUGUST 01, 2017
WORKING NUMBER TCP-16 SHEET NUMBER 6366	

STATE	PROJECT NO.
MISS.	BR-0037-04(064)

DESCRIPTION OF SHEETS	WORKING NUMBER	SHEET NUMBER
DETAILED INDEX (BRIDGE)	DI-BR-1	8001
BRIDGE AT STATION 175+68.67, SR 13 OVER I-20, BRIDGE REPAIR		
QUANTITIES & GENERAL NOTES	1 OF 4	8002
HYDRODEMOLITION & BEARING REPLACEMENT DETAILS	2 OF 4	8003
JOINT REPAIR DETAILS	3 OF 4	8004
EPOXY REPAIR LOCATIONS	4 OF 4	8005

SPECIAL DESIGN SHEETS INFORMATION PLANS	WORKING NUMBER	SHEET NUMBER
INFORMATION ONLY PLAN		8006
INFORMATION ONLY PLAN		8007
INFORMATION ONLY PLAN		8008
INFORMATION ONLY PLAN		8009
INFORMATION ONLY PLAN		8010
INFORMATION ONLY PLAN		8011
INFORMATION ONLY PLAN		8012
INFORMATION ONLY PLAN		8013
INFORMATION ONLY PLAN		8014
INFORMATION ONLY PLAN		8015
INFORMATION ONLY PLAN		8016
INFORMATION ONLY PLAN		8017
INFORMATION ONLY PLAN		8018

BRIDGE DIVISION		
REVISIONS		
DATE	SHEET NO.	BY

001: 00 ANPM.DGNFILENAME MISSISSIPPI DEPARTMENT OF TRANSPORTATION



REVISION	BY	MISSISSIPPI DEPARTMENT OF TRANSPORTATION
	DATE	BRIDGE AT STA 175+68.67
FMS: 107868 / 301000		WORKING NUMBER
COUNTY: Scott		DI-BR-1
PROJECT NUMBER: BR-0037-04(064)		SHEET NUMBER
DESIGNER Aaron Cagle	CHECKER Alex Hawkins	8001
DATE	ISSUE DATE 2019-08-07	
DIRECTOR OF STRUCTURES, STATE BRIDGE ENGINEER - JUSTIN WALKER, P.E.		
DEP. DIR. OF STRUCTURES, ASST. STATE BRIDGE ENGINEER - SCOTT WESTERFIELD, P.E.		

STATE	PROJECT NO.
MISS.	BR-0037-04(064)

ESTIMATED BRIDGE QUANTITIES

PAY ITEM CODE	DESCRIPTION	UNIT	QUANTITY
907-202-B001	Removal of Bridge Deck, Hydrodemolition	SY	742
907-420-A001	Undersealing	LB5	10800
907-804-0001	Bridge Deck Overlay	CY	45
907-808-A003	Joint Repair Without Epoxy	LF	59
907-823-A001	Preformed Joint Seal, Type I	LF	146
907-823-B001	Saw Cut, Type I	LF	234
907-824-PP003	Bridge Repair, Removal of Bridge Deck, Per Plans	SF	338
907-824-PP005	Bridge Repair, Epoxy Repair, Per Plans	CF	43
907-824-PP006	Bridge Repair, Bearing Replacement, Per Plans	EACH	46
907-824-PP006	Bridge Repair, Cap Cleaning, Per Plans	EACH	5

UNDERSEALING NOTES:

1. Voids under end bent caps and slope paving are to be filled with injectable urethane compound material meeting the required properties below.
2. Prior to injection, the site shall be prepared according to Manufacturer's recommendations. Urethane compound shall be installed in strict accordance with Manufacturer's instructions.
3. All costs associated with filling voids under end bent caps and slope paving with urethane compound shall be included in the price for Undersealing.
4. The accepted quantities will be paid for per pound of urethane compound material as reported on packaging.

REQUIRED URETHANE COMPOUND PROPERTIES

PROPERTY	MINIMUM REQUIREMENT	ASTM TEST METHOD
Density	4.0 pcf	D 1622
Tensile Strength	100 psi	D 1622
Compressive Strength	90 psi	D 1621

1" SAWCUT & REINFORCEMENT NOTES:

1. All 1" sawcuts shall be considered an absorbed item of work. The Contractor shall verify depth of reinforcing steel before making any sawcuts. The depth of the sawcut shall be no more than the depth of the reinforcing steel.
2. All existing reinforcement shall remain in place. Any damage to reinforcing steel shall be repaired to the satisfaction of the Engineer at no cost to the State.

SPECIAL PROVISIONS REQUIRED:

- 907-202: Removal of Bridge Deck, Hydrodemolition
- 907-420: Undersealing
- 907-804: Bridge Deck Overlay
- 907-808: Joint Repair
- 907-823: Preformed Joint Seal

WATERPROOFING ADMIXTURE:

The bridge deck concrete will require a waterproofing admixture in accordance with Section 713 of the Mississippi Standard Specifications.

INFORMATION PLANS:

Original proj. no. 1-20-2(18)71. See sheet nos. 8006-8018 of these plans.

MAINTENANCE OF TRAFFIC NOTE:

Maintain traffic in accordance with section 618 of the Standard Specifications of Road and Bridge Construction, 2017 Edition, the latest edition of the Manual on Uniform Traffic Control Devices, and the traffic control sheets included in these plans.

VERTICAL JACKING NOTES:

1. The Contractor shall provide adequate bracing and jacking arrangements as required to remove and replace bearing assemblies at all locations.
2. Traffic shall be maintained on the bridge for the duration of the repair.
3. The Contractor shall employ the service of a Mississippi registered professional engineer who is knowledgeable in the field of bridge design. A complete set of bracing and jacking arrangement plans along with design calculations shall be submitted to the Bridge Engineer through the Project Engineer for review prior to construction and shall bear the Design Engineer's seal.
4. The beam ends shall only be raised 1/4" from their original positions.
5. Jacks at each bent shall be coupled to a common manifold and the bridge span raised uniformly.
6. Jacking points shall be under the bottom flange of the beam at each bent and no jacking points will be allowed under any diaphragms or bays.
7. After the beam ends are raised into position, temporary blocking shall be provided to secure the span in this position while work is being performed.
8. Temporary blocking points shall be under the bottom flange of the beam at each bent and no temporary blocking will be allowed under any diaphragms or the bays.
9. Any damage to the bridge resulting from uneven or improper jacking shall be repaired by the Contractor at no additional cost to the State.

BEARING REPLACEMENT NOTES:

1. Existing anchor bolts shall be ground to 1/4" below the concrete surface and finished smoothed and true to grade with epoxy mortar. This shall be considered an absorbed item of work.
2. The bottom of the existing anchor plates shall be finished smooth to accommodate the new plate and painted with approved encapsulating paint. All pack rust and scale within the designated areas shall be removed by using small hand tools, mechanical process, or needle gun. All areas required to be painted containing grease films after the initial cleaning shall be cleaned with a biodegradable solvent. The Contractor shall provide technical data for the proposed encapsulating paint to be used on this project to the Director of Structures, State Bridge Engineer for approval. New paint shall be applied by hand, with either a brush or roller.
3. In no case shall neoprene pads be field cut.
4. Extreme care shall be taken to ensure that existing prestressed beams are not damaged during removal of existing bearing plates. Cutting torches shall not be used in any case to remove existing bearing plates from prestressed beams. Any damage that occurs to the structure as a result of improper bearing plate removal or replacement shall be repaired by the Contractor to the satisfaction of the Engineer at no additional cost to the State.
5. Neoprene pads shall be vulcanized to the bottom of new steel plates. All work and materials associated with vulcanizing the neoprene pads to the new steel plates shall be considered absorbed items of work.
6. After pads are vulcanized to the new steel plates, the new steel plate shall be cleaned and painted with one shop coat of inorganic zinc, one intermediate field coat of acrylic latex, and one field top coat of acrylic latex per Section 814 of the Specifications.
7. Prior to fabrication and construction, the Contractor shall submit verification of the existing cap and bearing dimensions to the Director of Structures, State Bridge Engineer for approval.

GENERAL NOTES:

1. Specifications: Mississippi Standard Specifications For Road and Bridge Construction, 2017.
2. No change of plans will be permitted except by written approval of the Director of Structures, State Bridge Engineer.
3. Minor changes in detail of design or construction procedure may be authorized by the Director of Structures, State Bridge Engineer provided such changes will not be cause for contract price adjustment.
4. Work for which no pay item is provided will not be paid for directly and shall therefore be considered an absorbed item of work.
5. All details are based on the dimensions shown on the original plans for the existing structure. The Contractor shall be responsible for adjusting the elements of the new construction to ensure a proper fit with the existing structure.
6. Any damage that occurs to the existing structure during the duration of the project shall be repaired to the satisfaction of the Engineer by the Contractor at no additional cost to the State.

HYDRODEMOLITION GENERAL NOTES:

1. Bridge concrete for hydrodemolition repair and bridge deck repair shall be bridge deck overlay meeting the requirements of Special Provision 907-804. The mix design shall be furnished by the Contractor for approval by the Materials Division.
2. All existing concrete surfaces that will be in contact with new concrete shall be painted with a cement slurry designed to bond new concrete to old.
3. The new concrete overlay shall be fine finished.

CONTRACTOR SUBMITTALS:

Prior to fabrication and construction, the following shall be submitted to the Director of Structures, State Bridge Engineer through the Project Engineer for approval. No work shall begin until all submittals have been authorized by the Director of Structures, State Bridge Engineer.

FIELD VERIFICATION SUBMITTAL:

All dimensions of the existing structure and clearances shall be field verified by the Contractor. The Contractor shall be responsible for adjusting the elements of the new construction to ensure proper fit with existing structure. The Contractor shall submit verification of the existing bridge elements associated with the work items described on sheets 8003-8004. This shall include, but is not limited to:

- a. Finish grades of existing bridge.
- b. Existing open joint widths.
- c. Existing bearing dimensions.
- d. Existing cap dimensions.
- e. Any other element that will affect the work items described on sheets 8003-8004.

WELDING CERTIFICATION SUBMITTAL:

The Contractor shall submit:

- a. Certification for all welders
- b. Welding procedures
- c. A procedure for storage and handling of welding electrodes, wires, and flux
- d. A flux recovery procedure (if applicable)

JACKING PLANS SUBMITTAL:

The Contractor shall submit a complete set of bracing and jacking arrangement plans along with design calculations associated with the work items described on sheet 8003.

DEMOLITION PLAN SUBMITTAL:

The Contractor shall submit a proposed demolition plan associated with work items described on sheets 8003.

SEQUENCE OF CONSTRUCTION AND SCOPE OF WORK:

1. Jack the bridge and replace all bearings in accordance with the details on sheet no. 8003. Bearing replacements shall be paid for per each bearing replaced under pay item no. 907-824-PP006, Bearing Replacement.
2. Perform hydrodemolition in accordance with the details on sheets 8003. Work shall be paid for under pay item nos. 907-202-B001, 907-804-0001, and 907-824-PP003.
3. Perform undersealing to fill voids under the end bent caps and slope paving in accordance with the Manufacturer's recommendations and the notes on this sheet. Work shall be paid for in pounds under pay item 907-420-A001, Undersealing.
4. Remove all damaged or unsound concrete and repair concrete spalled areas using epoxy mortar at the locations indicated by the Project Engineer. Work for epoxy repair shall be performed as per the notes and details on sheet 8005 and shall be paid for in cubic feet under pay item 907-824-PP005.
5. Reseal existing joints in accordance with the details shown on sheet no. 8004. Work shall be paid for in linear feet under pay item nos. 907-808-A003, 907-823-A001, and 907-823-B001.
6. Clean all bent caps in accordance with the notes on this sheet. Work shall be paid for per each cap cleaned under pay item 907-824-PP006, Bridge Repair, Cap Cleaning, Per Plans.

CAP CLEANING NOTE:

Cap cleaning should be performed by removing all large debris by hand. All other debris (dirt and rust) shall be removed by pressure washing the bent caps to the satisfaction of the Project Engineer. The pressure washer shall be able to maintain 3,500 Psi of pressure.

STRUCTURAL STEEL & WELDING NOTES:

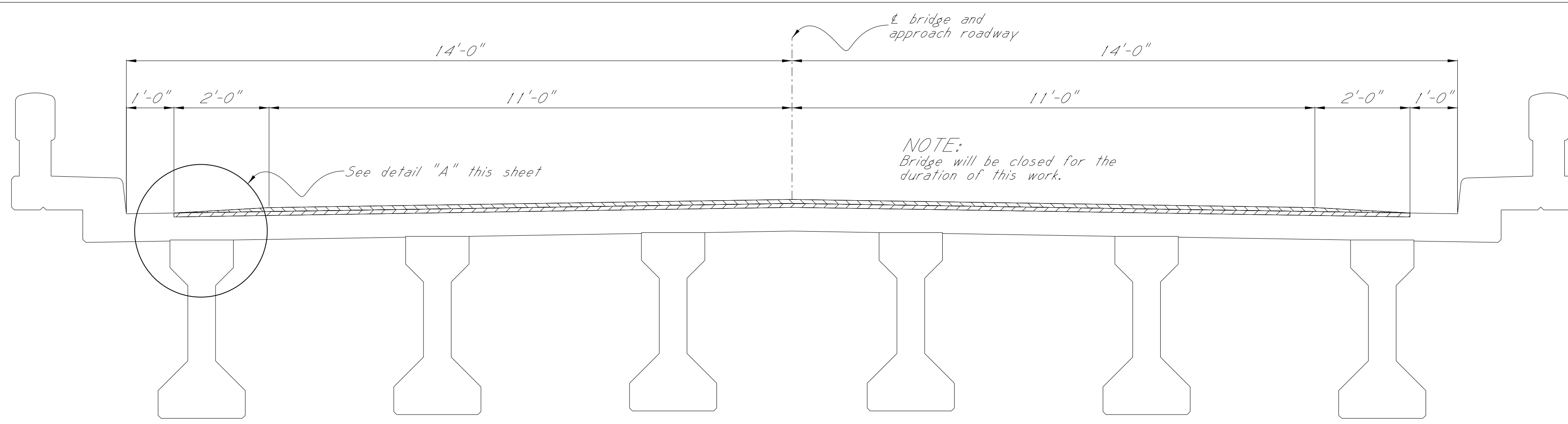
1. All welding shall be done by the electric arc process and shall conform to the ANSI/AASHTO/AWS D1.5 bridge welding code, the latest edition of the AASHTO Guide Specification for Highway Bridge Fabrication with high performance steel, when applicable, and as directed herein.
2. All steel plates shall conform to A.S.T.M. designation A709, Grade 50.
3. All steel plates shall be new.
4. The fabricator shall have a certified welding inspector (CWI) on each work shift where welding or other significant work is performed.

DEBRIS NOTE:

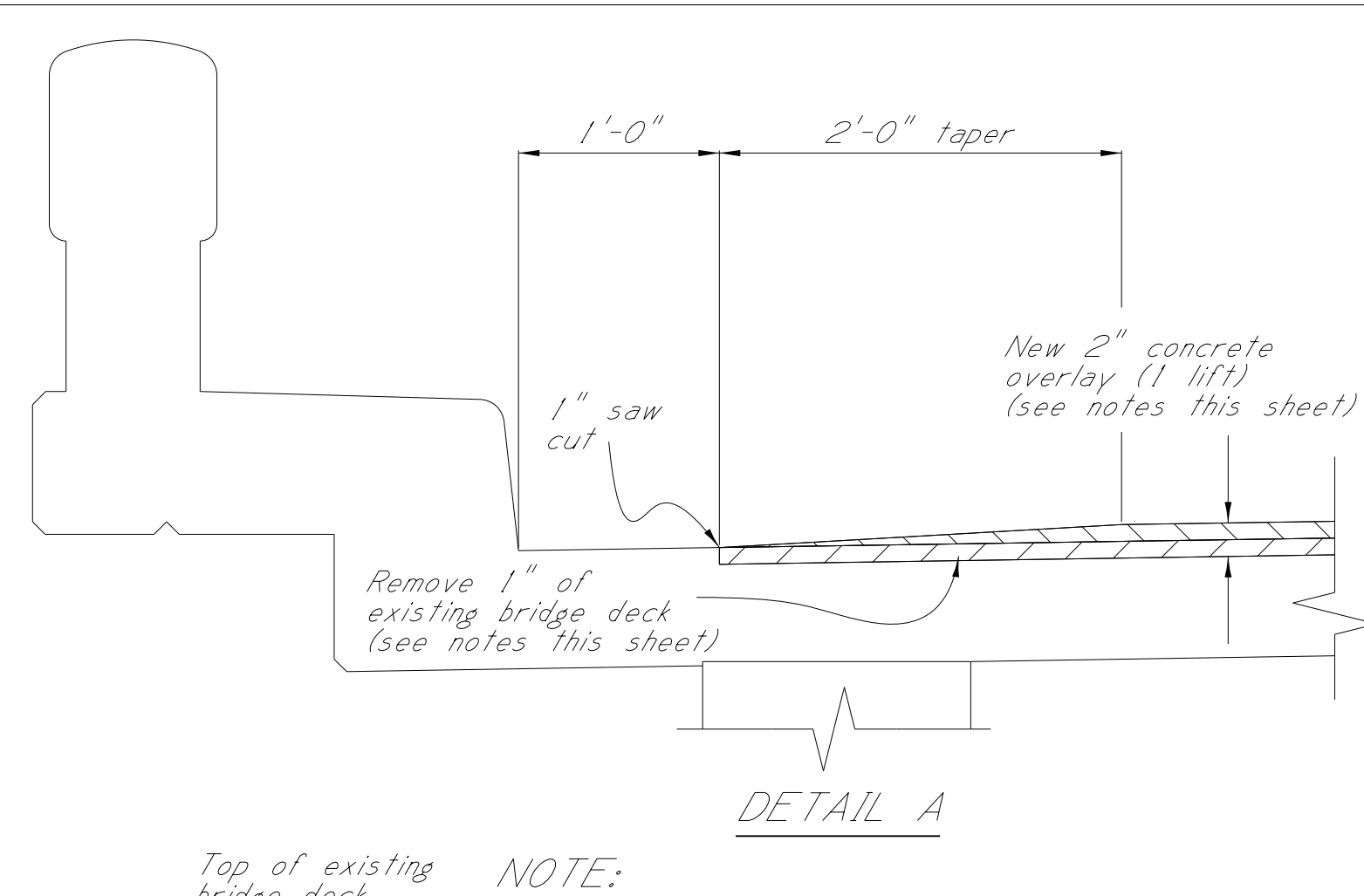
During construction care shall be exercised to ensure that no debris fall into the roadway below the structure. The debris that is removed from the bridge shall become the property of the Contractor and shall be removed from the construction site.



DATE	DESIGNER Aaron Cagle	CHECKER Alex Hawkins	ISSUE DATE 2019-08-07	WORKING NUMBER
				1 OF 4
REVISION	BY	MISSISSIPPI DEPARTMENT OF TRANSPORTATION		SHEET NUMBER
		BRIDGE AT STA 175+68.67		
QUANTITIES & GENERAL NOTES				
FMS: 107868 / 301000				
COUNTY: Scott				
PROJECT NUMBER: BR-0037-04(064)				

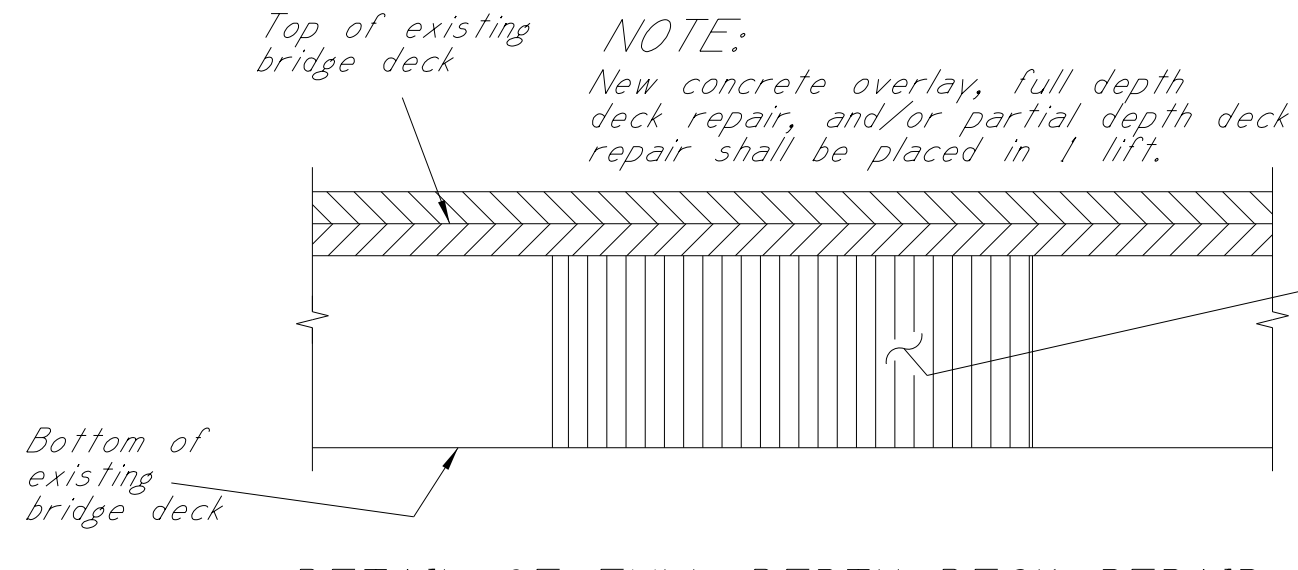


ELEVATION OF TYPICAL SECTION
Showing transverse limits of hydrodemolition



DETAIL A

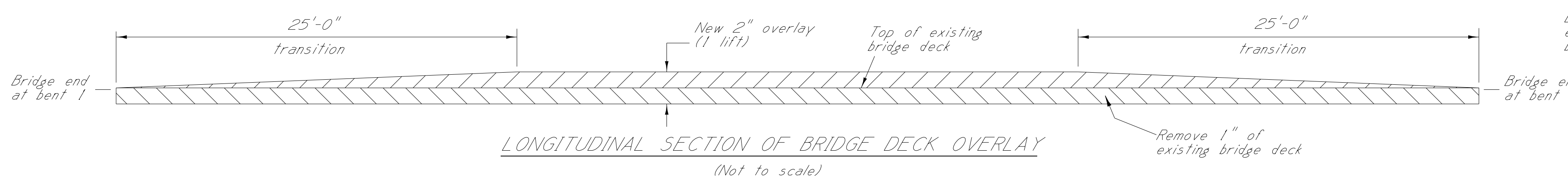
- NEW CONCRETE OVERLAY NOTES:**
1. Remove a minimum 1" of existing bridge deck or to sound concrete.
 2. If sound concrete is reached at a depth less than 1", additional removal to achieve a 1" depth is not required.
 3. The new concrete overlay shall be placed in 1 lift. The existing grade of the bridge deck shall be raised so that the finished overlay includes 1" of additional cover. The new concrete overlay shall have a minimum thickness of 2".



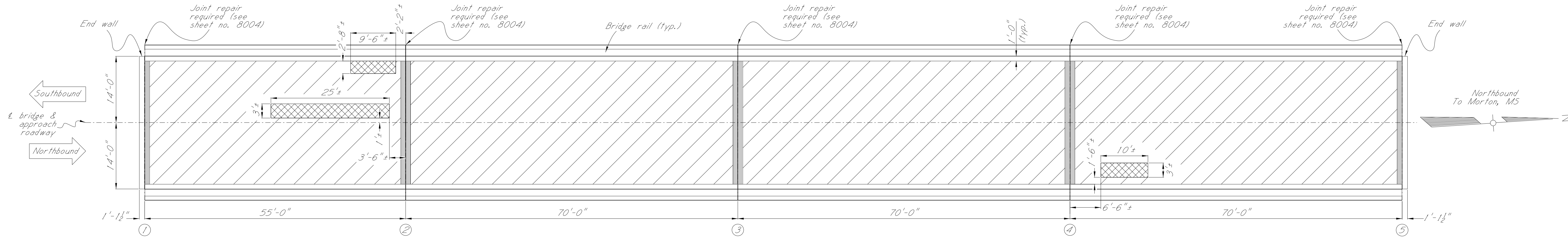
DETAIL OF FULL DEPTH DECK REPAIR
Deck reinforcement not shown for clarity

NOTE:
After hydrodemolition, the deck surface shall be sounded and any additional areas of unsound, delaminated, or otherwise deteriorated concrete shall be removed at the direction of the Engineer by hydrodemolition under pay item 907-202-B001 or with 30 lb hammers under pay item 907-824-PP003: Bridge Repair, Removal of Bridge Deck. All concrete placed shall be paid for under pay item 907-804-0001.

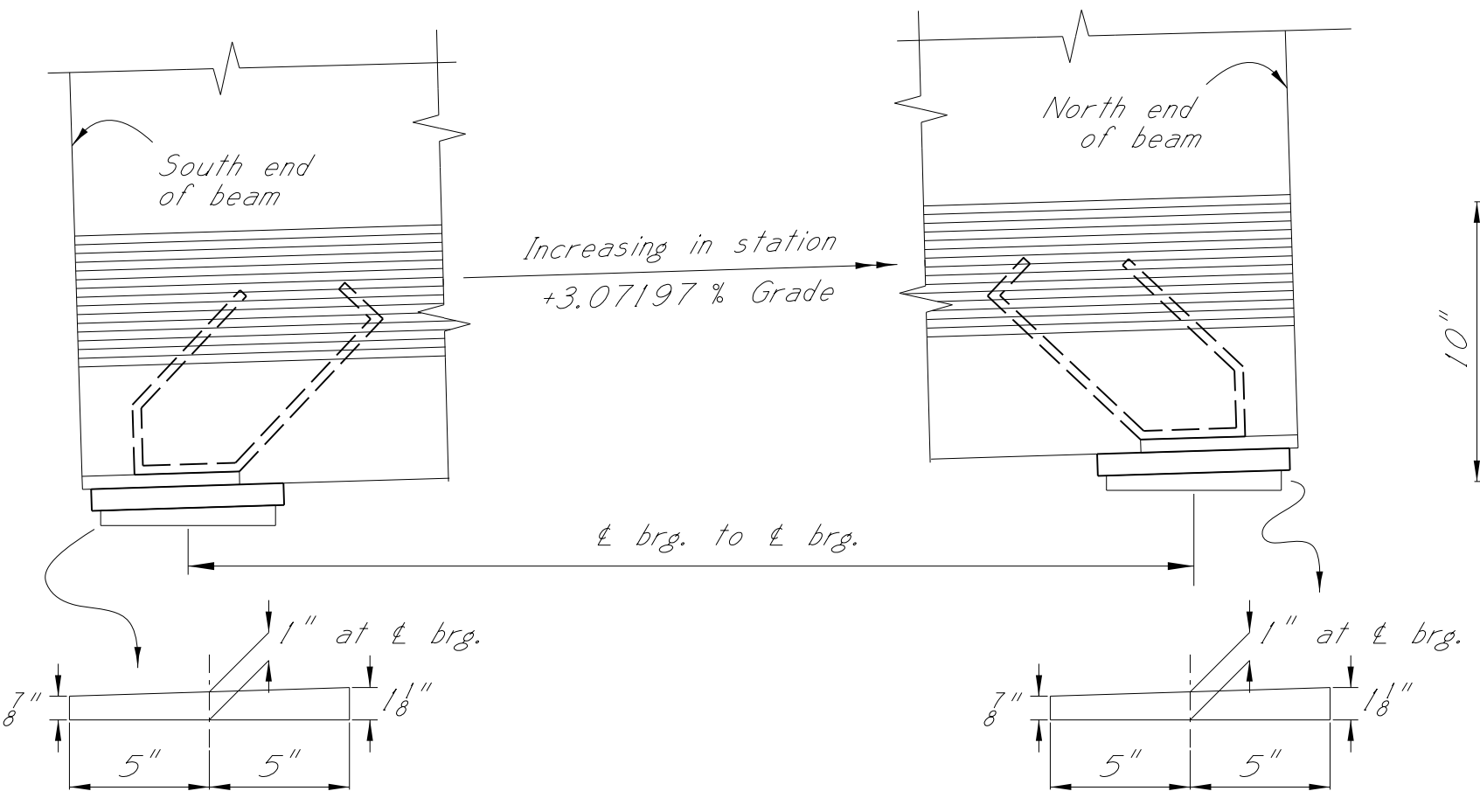
****During full or partial depth removal, the Contractor shall ensure that only bridge deck concrete is removed. No damage shall be sustained by the existing beams, diaphragms, or any other part of the structure beyond the depth of the bridge deck. Any damage that occurs to the existing structure or reinforcement as a result of full or partial depth removal of the bridge deck shall be repaired by the Contractor to the satisfaction of the Engineer at no additional cost to the State.**



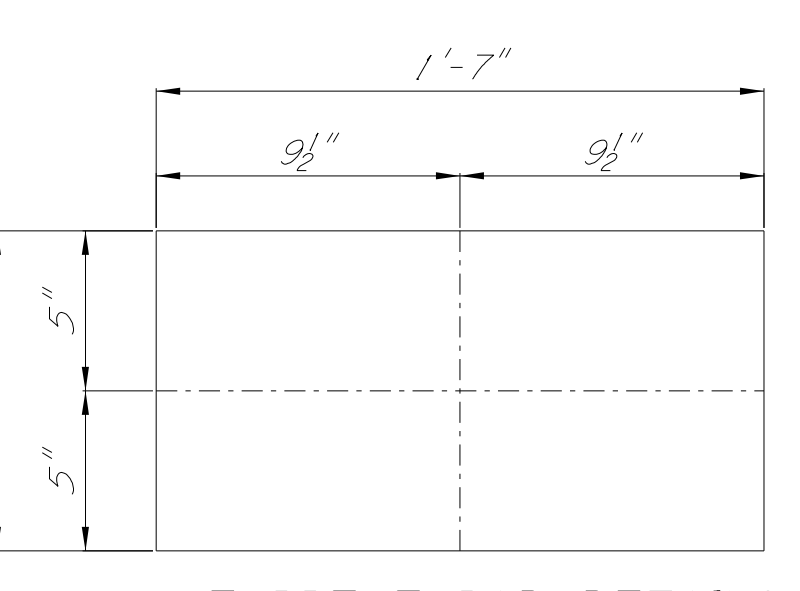
LONGITUDINAL SECTION OF BRIDGE DECK OVERLAY
(Not to scale)



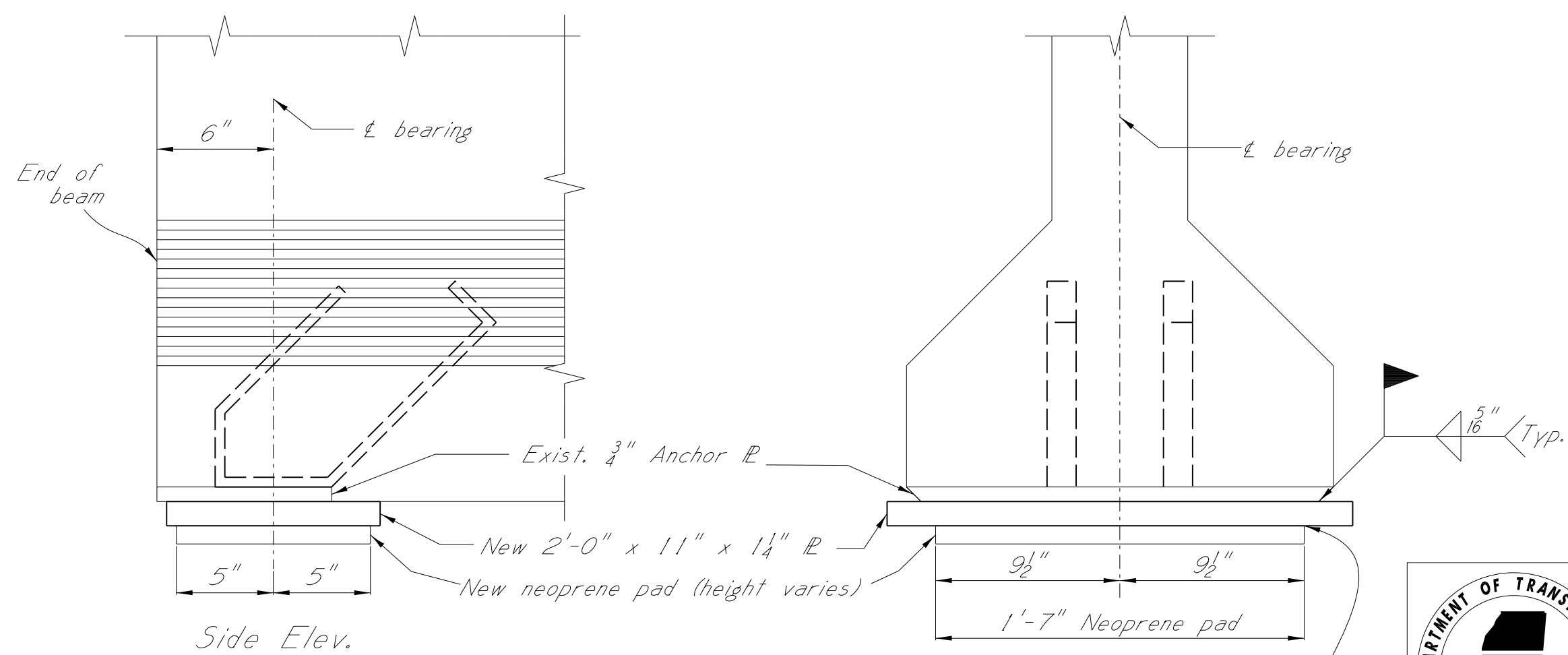
PLAN OF SPAN



TYPICAL BEARING PLACEMENT
Showing orientation of new bearings at North and South beam ends. Placement is typical for all beams.



NEOPRENE PAD DETAILS
In no case shall neoprene pads be field cut



ELEVATION OF BEARING ASSEMBLIES

- 30 lb hammer removal area at joints. See sheet no. 8004
- Indicates approximate areas of potential full depth bridge deck repairs. The actual areas of bridge deck repairs shall be determined at the time of construction.
- Hydrodemolition removal area

MISSISSIPPI DEPARTMENT OF TRANSPORTATION	
BRIDGE AT STA 175+68.67	
HYDRODEMOLITION & BEARING REPLACEMENT DETAILS	
DATE	REVISION
DESIGNER Aaron Cagle	CHECKER Alex Hawkins
DETAILER Aaron Cagle	ISSUE DATE 2019-08-07
DIRECTOR OF STRUCTURES, STATE BRIDGE ENGINEER - JUSTIN WALKER, P.E.	
DEP. DIR. OF STRUCTURES, ASST. STATE BRIDGE ENGINEER - SCOTT WESTERFIELD, P.E.	
FMS: 107868 / 301000	WORKING NUMBER
COUNTY: Scott	2 OF 4
PROJECT NUMBER: BR-0037-04(064)	SHEET NUMBER
	8003



001: 00 ANPM DGN FILE NAME

NOTES ON ASSOCIATED ITEMS OF WORK:

907-808-A003 JOINT REPAIR WITHOUT EPOXY

Description: Shall include the work necessary to repair joints in preparation for the placement of new expansion material, as designated in the detail drawings provided. Removal of existing silicone sealed, compression, and AC sealed joint materials is included under this item of work. All other requirements shall be in accordance with the applicable provisions of Section 808 of the specifications and any other sections specified therein.

Basis of Payment: The accepted quantities will be paid for in linear feet at the contract unit price along the length of the bridge deck on each side of the centerline joint.

907-823-B001 SAW CUT, TYPE 1

Description: The saw cut depth shall be equivalent to the installation depth required by the manufacturer's specifications. The saw cut type shall be the same as the preformed joint seal selected.

Basis of Payment: The accepted quantities will be paid for in linear feet at the contract unit price along the length of the bridge deck on each side of the centerline joint. It is the contractor's responsibility to ensure that the proper depth is selected based on the manufacturer's recommendations.

907-823-A001 PREFORMED JOINT SEAL, TYPE 1

Description: Shall include the manufacturer's required joint preparation including sandblasting both sides of the joint and blowing the joint free of debris with compressed air and placement of the new preformed joint seal.

Basis of Payment: The accepted quantities will be paid for in linear feet at the contract unit price along the length of the centerline joint.

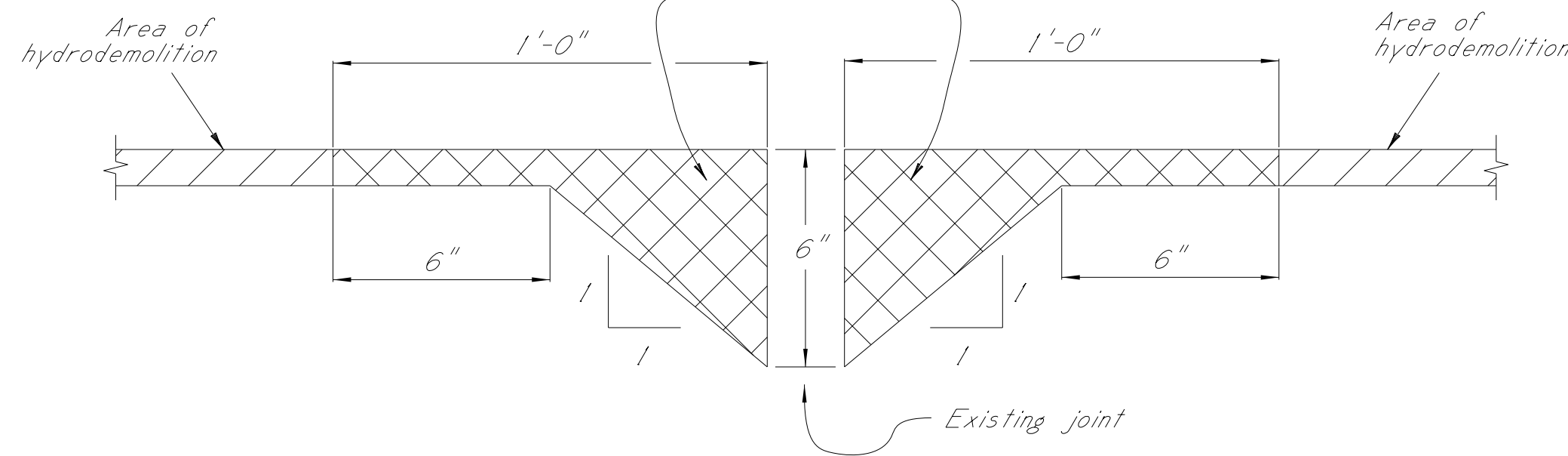
EPOXY MORTAR AND POLYMER CONCRETE NOTES:

Either epoxy mortar or polymer concrete may be used. Guidelines for selection of materials can be found in Section 808 of the specifications.

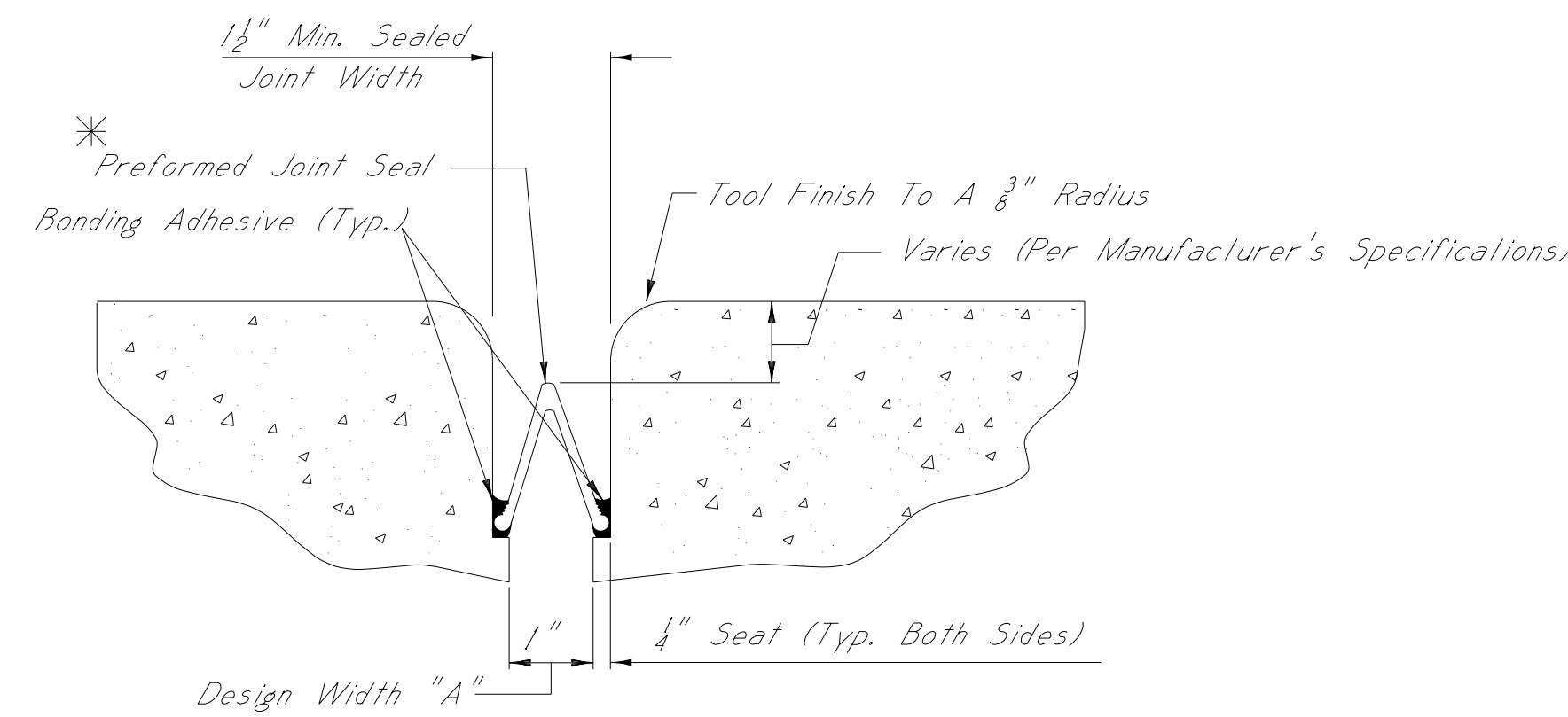
GENERAL NOTES:

- Specifications: Mississippi Standard Specifications For Road And Bridge Construction, 2017.
- No change of plans will be permitted except by written approval of the Director of Structures, State Bridge Engineer. Minor changes to detail of design or construction procedure may be authorized by the Bridge Engineer provided such changes will not be cause for contract price adjustment.
- Work for which no pay item is provided in the proposal will not be paid for directly and shall therefore be considered an absorbed item of work.

Removal of concrete shall be performed with 30 lb hammers under Pay Item 907-824-PP003: Bridge Repair, Removal of Bridge Deck. Removal of existing joint armor shall also be included under this item of work.



TYPICAL SECTION AT EXISTING INTERMEDIATE JOINT
Showing Areas To Be Removed



TYPICAL SECTION AT SAWCUT & SEALED JOINT
Showing Sealed Joint After Sawcut

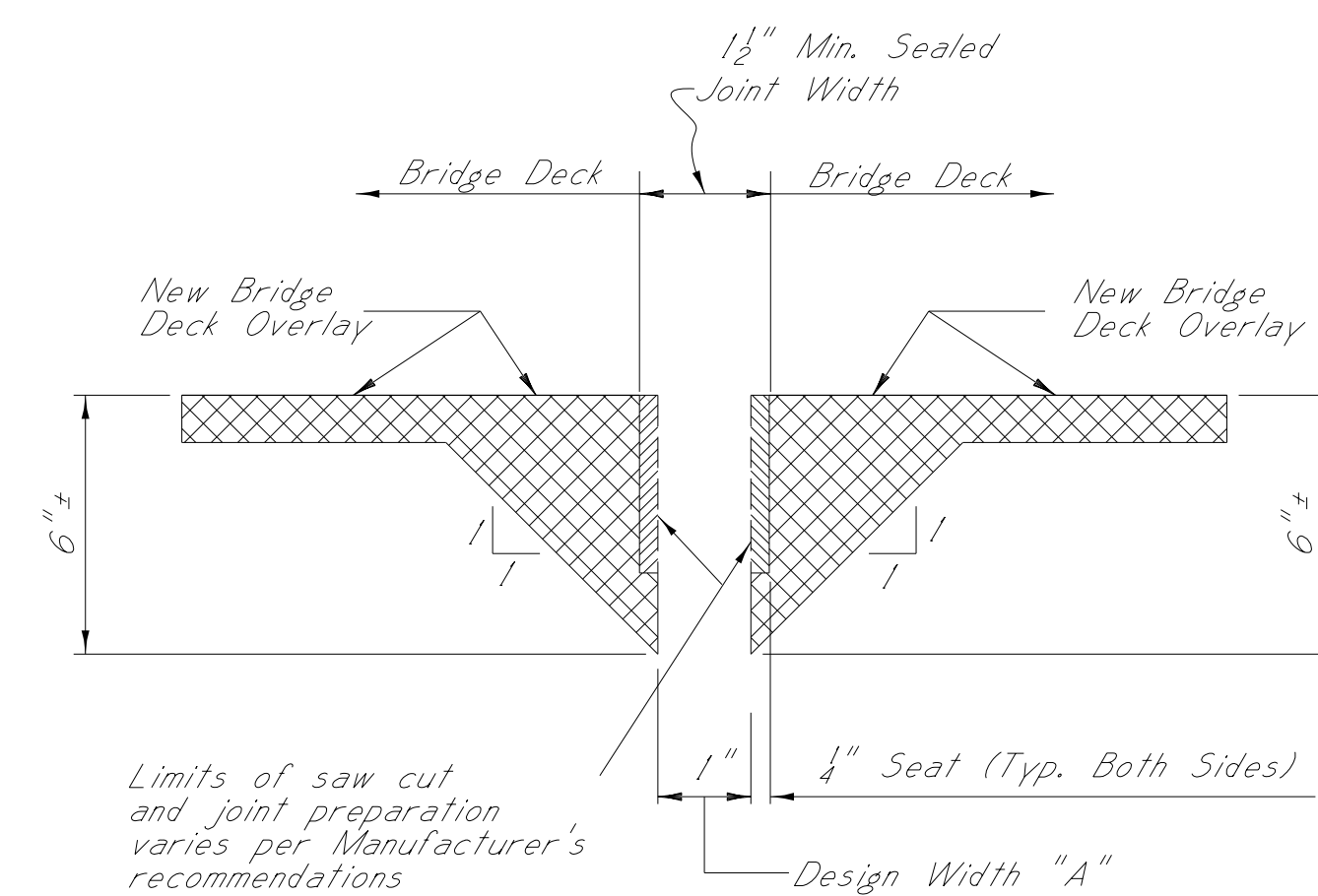
***NOTES:**

1. The preformed joint seal shall be one of the following, installed according to the manufacturer's specifications:

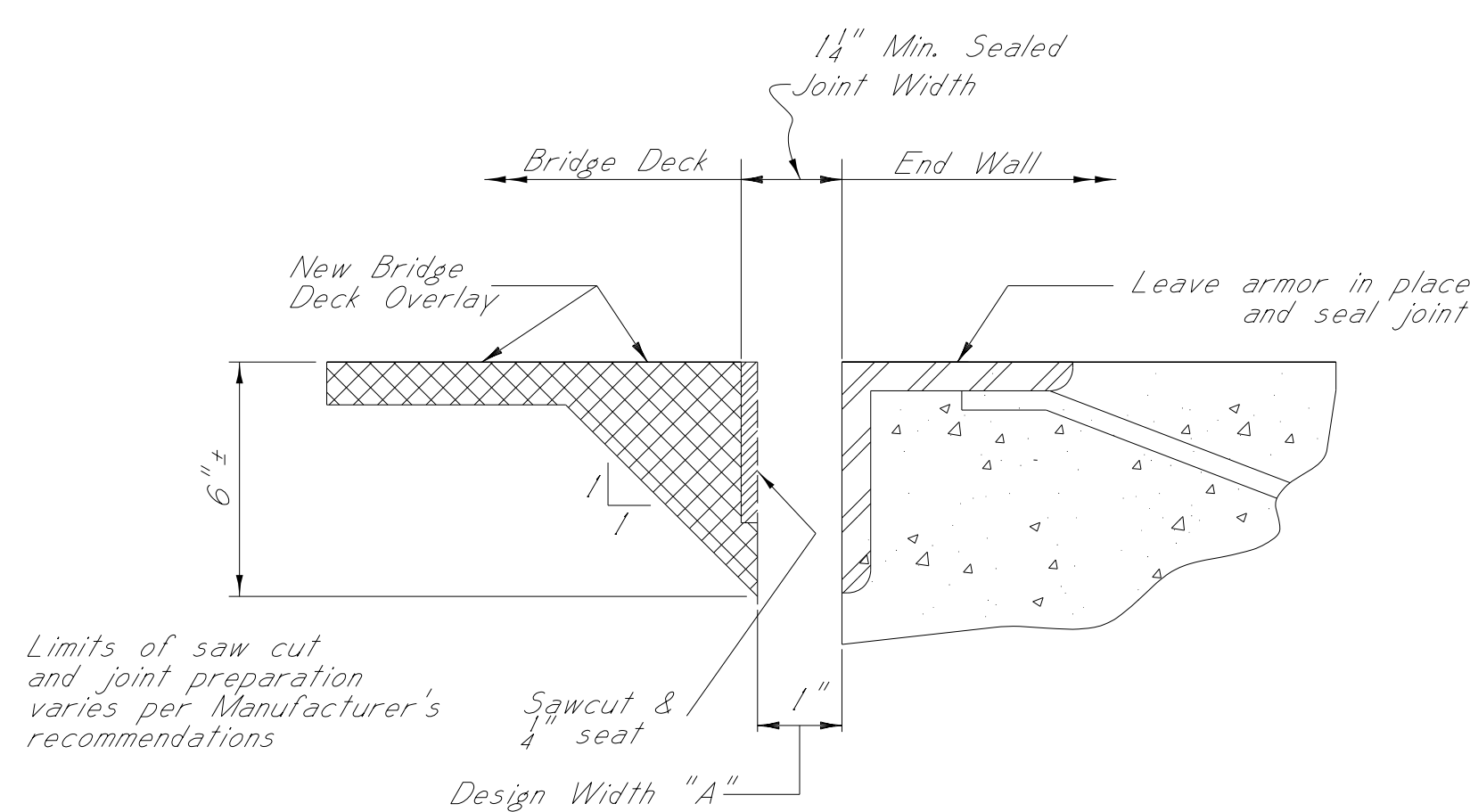
- A. Silicoflex Joint Sealing System
Manufactured By R.J. Watson, Inc. In Alden, NY
www.rjwatson.com
- B. Wabo SPS Joint System
Manufactured By Watson Bowman Acme Corporation In Amherst, NY
www.wbacorp.com
- C. Silspec SSS Silicone Strip Seal
Manufactured By SSI Commercial & Highway Construction Materials
www.ssicm.com

2. For estimating purposes, the RJ Watson Silicoflex Joint Sealing System was selected. However, should another supplier be chosen, it is the contractor's responsibility to ensure that the manufacturer's recommendations are followed for joint preparation, installation depths and widths, adhesive setting times, and any other variances between the specifications provided by the manufacturers. A manufacturer representative shall be present at the time joint sealing begins to ensure that the contractor is properly schooled in installation of the joint material.

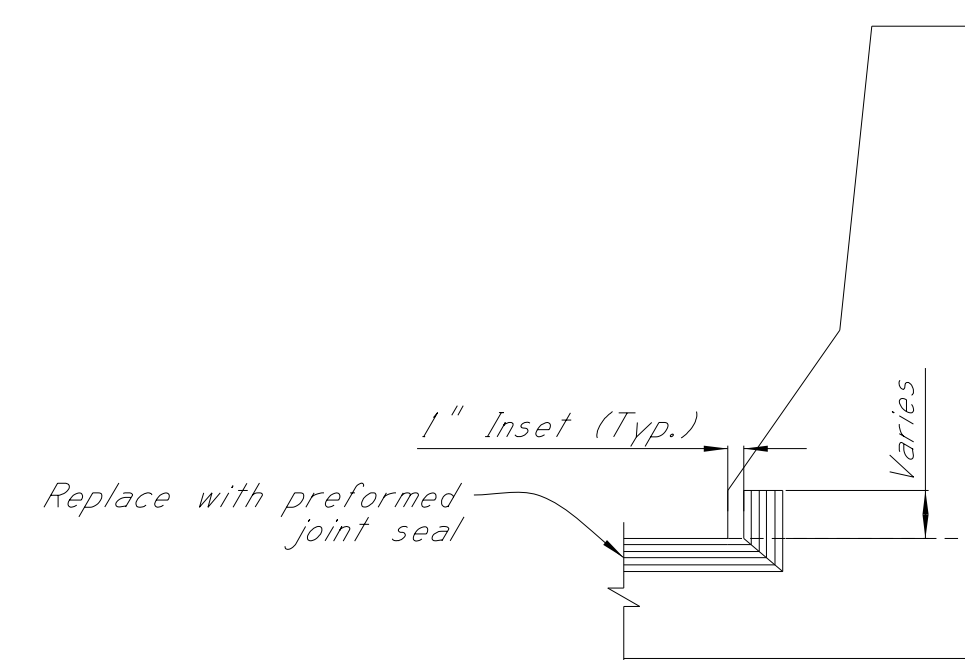
3. Joints shall be sealed at their design widths, dimension "A", which is defined as the actual width of the joint opening. This width does not account for the 1/4" seat required on both sides of the joint. Preformed joint seal, Type I, shall be used for design widths less than 2'. Preformed joint seal, Type II, shall be used for design widths greater than or equal to 2'. With the maximum design width being 2'. In cases where design widths are greater than 2', another type of expansion material shall be required as directed by the Director of Structures, State Bridge Engineer. It is the contractor's responsibility to ensure that the size selected is appropriate for the width of the joint.



TYPICAL SECTION AT SAWCUT & JOINT REPAIR
BENTS 2, 3, & 4



TYPICAL SECTION AT SAWCUT & JOINT REPAIR
BENTS 1 & 5



ELEVATION AT END OF SPAN

***NOTES:**

For Jersey Shape Barriers, The Minimum Required Vertical Joint Seal Dimension Within The Barrier Is 3'.
For Post And Beam Barriers, The Minimum Required Vertical Joint Seal Dimension Within The Barrier Is 6'.

APPROACH ROADWAY JOINT NOTES:

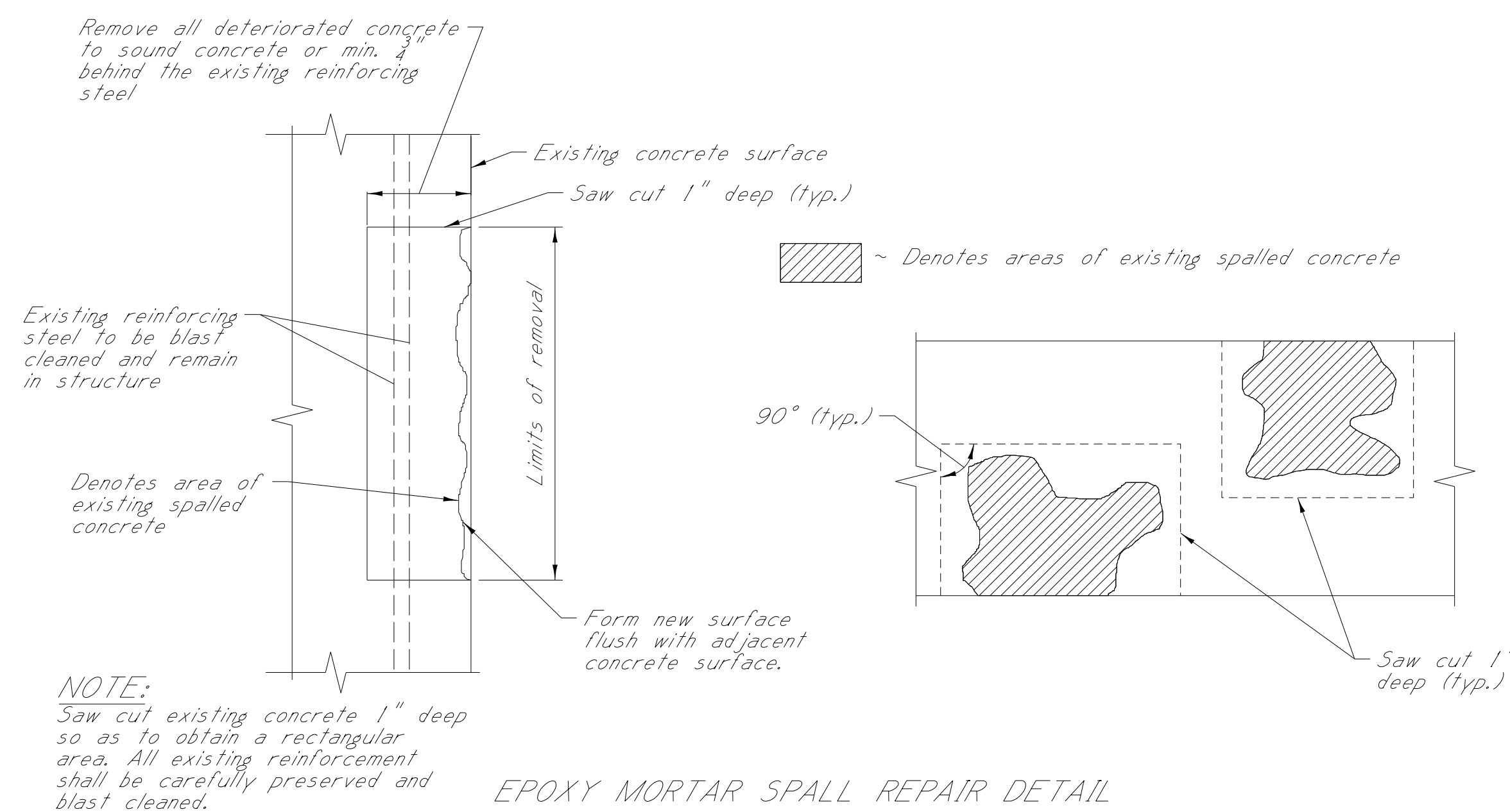
- It should be noted that the joint between the existing end wall and the approach roadway shall be left as is.
- Existing approach roadway to remain in place. Any damage that occurs to the existing approach roadway shall be repaired by the contractor to the satisfaction of the Engineer at no additional cost to the state.



MISSISSIPPI DEPARTMENT OF TRANSPORTATION	
BRIDGE AT STA 175+68.67	
JOINT REPAIR DETAILS	
REVISION	BY
FMS: 107868 / 301000	
COUNTY: Scott	
PROJECT NUMBER: BR-0037-04(064)	
DESIGNER Aaron Cagle	CHECKER Alex Hawkins
DETAILER Aaron Cagle	ISSUE DATE 2019-08-07
DIRECTOR OF STRUCTURES, STATE BRIDGE ENGINEER - JUSTIN WALKER, P.E.	
DIR. OF STRUCTURES, ASST. STATE BRIDGE ENGINEER - SCOTT WESTERFIELD, P.E.	
WORKING NUMBER	3 OF 4
SHEET NUMBER	8004

Bent	Span	Length (in)	Width (in)	Remarks
1	1	6"	6"	BY DRAIN HOLE #3 AT WEST EDGE OF BRIDGE, DELAM
1	1	6"	2"	BY DRAIN HOLE #2 AT EAST EDGE OF BRIDGE, SPALL
2	2	12"	12"	AT BOTTOM OF CAP IN THE MIDDLE, SPALL
2	2	14"	12"	AT WEST EDGE OF BRIDGE ABOVE INSIDE LANE, SPALL
2	2	60"	60"	AT WEST EDGE OF BRIDGE ABOVE INSIDE LANE, DELAMS, 5 LOCATIONS
2	2	2"	6"	AT EAST EDGE OF BRIDGE, NEAR BENT 3, EXP. REBAR
2	2	48"	48"	SPALL AT SOFFIT AT BAY 2, 2 LOCATIONS
2	2	18"	18"	SPALL AT SOFFIT AT BAY 1
3	3	12"	12"	AT BOTTOM OF CAP IN THE MIDDLE, SPALL
3	3	24"	24"	AT BOTTOM OF CAT AT WEST END BY COL 1, DELAM
3	3	12"	12"	AT WEST EDGE OF BRIDGE BY BEAM 1, NEAR BENT 3, SPALL
3	3	4"	12"	AT EAST EDGE OF BRIDGE BY BEAM 6, NEAR BENT 3, SPALL
3	3	36"	24"	SPALL AT BOTTOM OF BRIDGE RAIL AT EAST EDGE OF BRIDGE
4	4	204"	36"	AT BOTTOM OF ENTIRE CAP AT VARIOUS LOCATIONS, SPALLS, DELAMS, HONEYCOMBING
4	4	9"	9"	BY DRAIN HOLE #5 AT WEST EDGE OF BRIDGE, SPALL
4	4	24"	24"	BY DRAIN HOLE #2 AT EAST EDGE OF BRIDGE, SPALL
4	4	1"	5"	BY DRAIN HOLE #5 AT EAST EDGE OF BRIDGE, SPALL
4	4	60"	36"	HONEYCOMBING AT SOFFIT AT BAY 1, MIDSPAN
4	4	6"	6"	AT BEAM 5, NEAR BENT 5, WEST SIDE OF BEAM, SPALL

APPROXIMATE EPOXY REPAIR LOCATIONS



EPOXY MORTAR REPAIR NOTES:

Repair concrete spalled areas using epoxy mortar on the bridge as directed by the Project Engineer and the epoxy mortar spall repair detail on this sheet. Repair areas shall include, but are not limited to, the locations listed in the table on this sheet. Spalled areas where pack rust has developed around or on reinforcement shall be removed by small hand tools or pressure washing (using 3500 psi pressure). Hammers used for removal shall be limited to 30 pounds. All areas of the bridge repaired with epoxy mortar shall be restored to the original dimensions and details on the information plans, unless otherwise noted. All items of work related to epoxy repair shall be paid for under pay item 907-B24-PP005: Bridge Repair, Epoxy Repair.

Materials

1. Epoxy Resin: Resin shall be selected from the MDOT Approved Products List.
2. Silica Sand: The materials shall be bagged general purpose cleaning sand.
3. Epoxy Mortar Mix: The epoxy mortar mix shall consist of part liquid epoxy and part clean dry sand mixed in the ratio recommended by the Manufacturer.

Application

- A. A Representative of the Epoxy Manufacturer must be present for sufficient time to ensure that the Contractor is properly schooled in the use of the epoxy material.
- B. Prior to placement of the mortar mix, the prepared surface shall be lightly primed with neat epoxy.
- C. Acetone alcohol may be used to clean and lubricate trowels.
- D. Curing time shall be in accordance with the Manufacturer's recommendations.

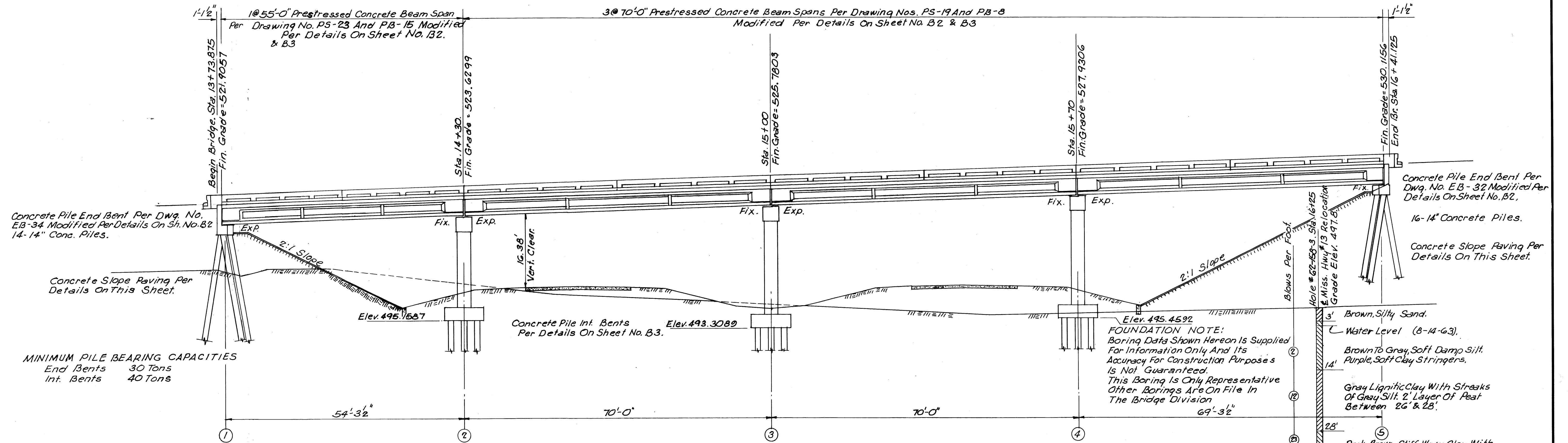
EPOXY BINDER:

Contact areas where new epoxy mortar is placed against old concrete shall be cleaned then coated with an approved epoxy binder designed to bond new concrete to old. The binder shall be applied in accordance with the Manufacturer's recommendations.

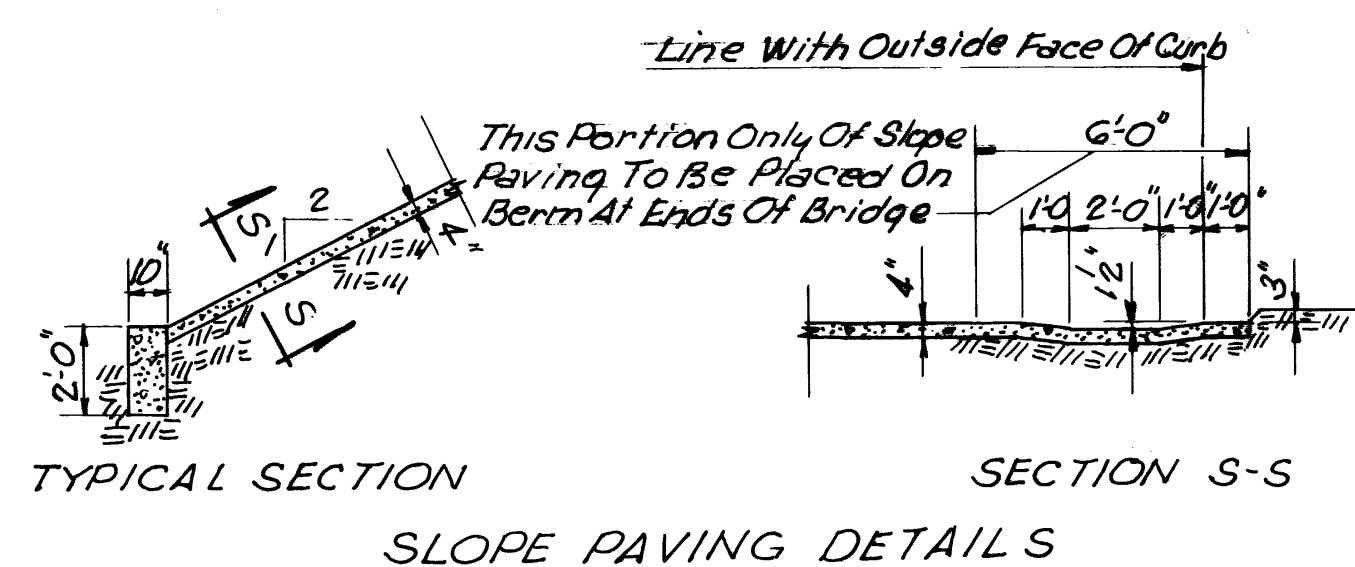


MISSISSIPPI DEPARTMENT OF TRANSPORTATION	
BRIDGE AT STA 175+68.67	
EPOXY REPAIR LOCATIONS	
DATE	REVISION
DESIGNER Aaron Cagle	CHECKER Alex Hawkins
DETAILER Aaron Cagle	ISSUE DATE 2019-08-07
DIRECTOR OF STRUCTURES, STATE BRIDGE ENGINEER - JUSTIN WALKER, P.E.	
DEP. DIR. OF STRUCTURES, ASST. STATE BRIDGE ENGINEER - SCOTT WESTERFIELD, P.E.	
FMS: 107868 / 301000	WORKING NUMBER
COUNTY: Scott	4 OF 4
PROJECT NUMBER: BR-0037-04(064)	SHEET NUMBER
	8005

Total Length Of Bridge 267'-3"
+ 3.07197% Grade



ELEVATION - WITH PROFILE ON E ROADWAY
Scale 3/2" = 1'-0"



GENERAL NOTES:
Specifications: Mississippi State Highway Department.
No Unauthorized Change Of Plans Will Be Permitted.
Expansion Joint Material Shall Be Bituminous Fiber Type.
Finish Concrete Surfaces Per Article 200.19 Of The Specifications And Drawing No. RF-1.
Manufacture All Prestressed Members According To Special Provision No. 112-Rev. Test Piles Shall Be Driven As Permanent Piles In Bents No. 2 & 4, To A Minimum Bearing Capacity Of 40 Tons And To A Minimum Penetration Of 40 Ft. And Will Be Paid For As Test Piles Only.
Test Pile Data And Recommended Pile Lengths Shall Be Submitted To The Bridge Engineer For Approval.
Concrete Piles May Be Either Precast (Conventional Type, Per Dwg. No. CP-10, Or Prestressed Type Per Dwg. No. CP-20 And Special Provision No. 204) Or Cast-In-Place Per Special Provision No. 167-Rev.

DESIGN DATA:
Specifications: A.A.S.H.O., 1961 & T2 (61).
Loading: H20-S16-44.
Roadway Width: 28'-0"
Curb Width: 1'-6"

SPECIAL PROVISION NUMBERS REQ'D.
Neoprene Pads: No. 216-Rev. (7-27-60).
Prestressed Members: No. 112-Rev. (8-15-60).
Precast Conc. Piling: No. 204.
Cast-In-Place Piling: No. 167-Rev. (9-4-57).

Drawings Required: PS-19 (3-15-62); PB-8 (3-15-62); PS-23 (3-15-62); PB-15 (3-15-62); RF-1 (4-13-59); EB-32 (6-18-63); EB-34 (10-1-62); CP-10 (4-24-58); CP-20 (11-11-63).

Item	ESTIMATED QUANTITIES									
	Class B Bridge Conc. Cu. Yds.	Reinf. Steel Lbs.	Conc. Railing Lin. Ft.	55' Prestressed Conc. Beams Lin. Ft.	70' Prestressed Conc. Beams Lin. Ft.	14" Conc. Piling Lin. Ft.	14" Conc. Test Piles Units	Loading Tests Units	Bridge Excavation Cu. Yds.	Conc. Slope Paving Cu. Yds.
Spans	232.79	45,402	530	271.25	1,246.50					
End Bents	52.34	8,049				1,950				48
Int. Bents	122.02	24,286				1,600	2	131		
Totals	407.15	77,737	530	271.25	1,246.50	3,550	2	131		48

Bridge Excavation Quantity Is Measured Below Graded Section, Subgrade Or Natural Ground, Whichever Is Lower. No Payment Will Be Made For Excavation For End Bent Caps.
All Work For Which No Pay Items Are Provided In The Proposal Will Not Be Paid For Directly And Compensation Therefor Will Be Considered Included In The Prices And Payments For Bid Items.

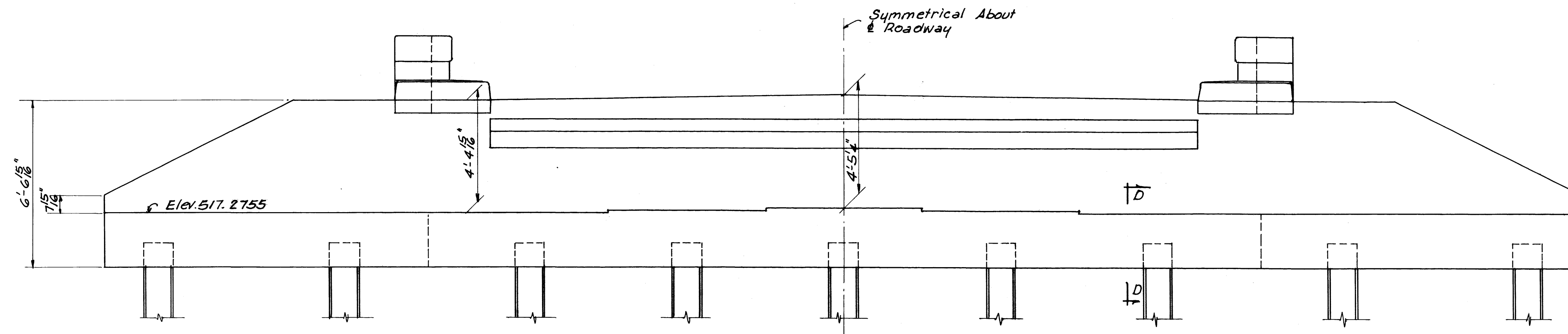
SPECIAL PAINT NOTES:
Disregard The Paint Notes Shown On Drawing No. PB-8 & PB-15 & Paint As Follows:
All Surfaces To Be Painted Shall Be Cleaned Per Article 214.05 Of The Specifications.
Tendon Bars Encased In Diaphragms Shall Not Be Painted.
All Steel Surfaces Of The Bearing Assembly Except Anchor Bars & Anchor Bolts Shall Be Given One Shop Coat Of Red Lead Paint Per Code RL.
After Erection Of Spans, All Steel Surfaces Shall Be Given Three Field Coats Of Paint As Follows: First Coat - Red Lead Per Code RL; Second & Third Coats - Black Graphite Per Code M-B.
Steel Surfaces To Be Field Painted Which Will Become Inaccessible After Erection Shall Be Field Painted Prior To Placing In Position.

MISSISSIPPI STATE HIGHWAY DEPARTMENT
UNDERPASS AT STA. 175+68.67
MISS. HWY. NO. 13 OVER INT. RTE. I-20
PROJECT I-20-2 (18) 71
SCOTT COUNTY

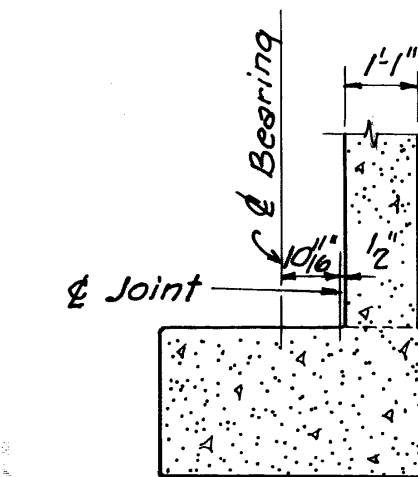
SUBMITTED BY: _____ BRIDGE ENGINEER

DESIGNED	DATE	TRACED	DATE	SHEET NUMBER
J.R.R.	1/15	J.W.A.	2-5-64	31 OF 3

FED. ROAD DIV. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
3	MISS	I-20-2(18)71	19	B.II	III

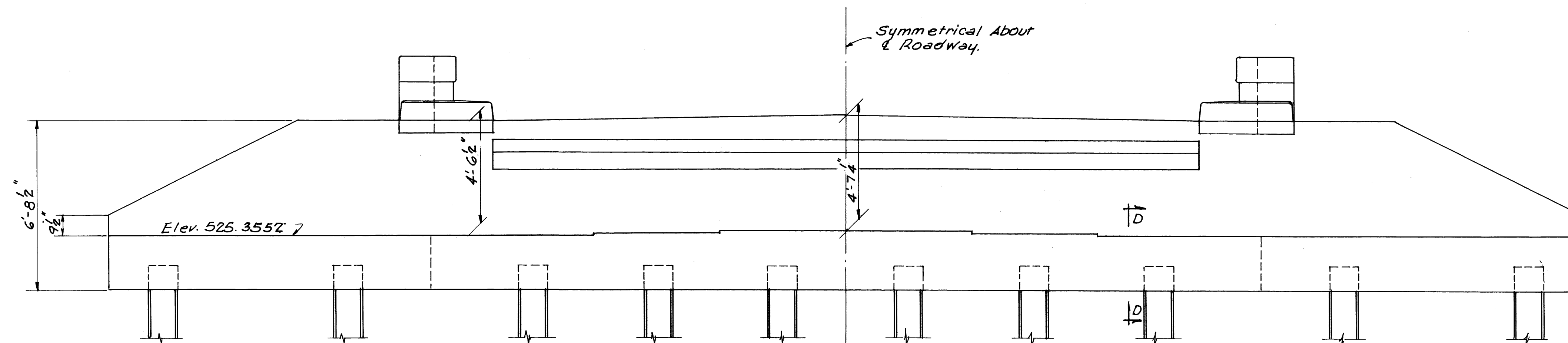


ELEVATION END BENT NO. 1
Showing Concrete Details.

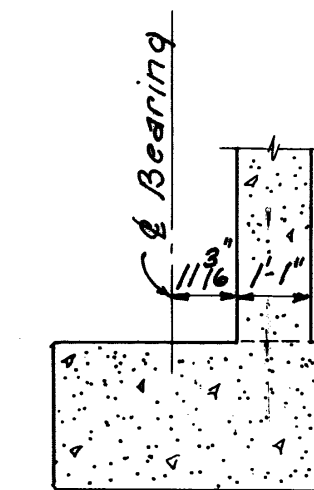


PART SECTION D-D
Showing Modifications To
Anchor Bolt Locations.

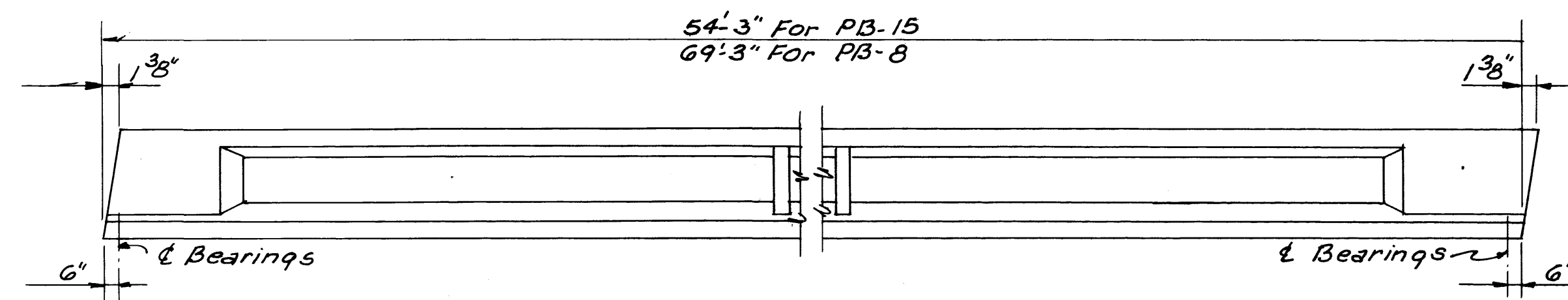
NOTE: All Typical Details, Notes And
General Requirements Of Dwg. No. EB-34
For Bent No. 1 And Dwg. No. EB-32
For Bent No. 5 Shall Apply Unless
Specifically Modified By The Details
On This Sheet.



ELEVATION END BENT NO. 5
Showing Concrete Details.



PART SECTION D-D
Showing Modifications To
Anchor Bolt Locations



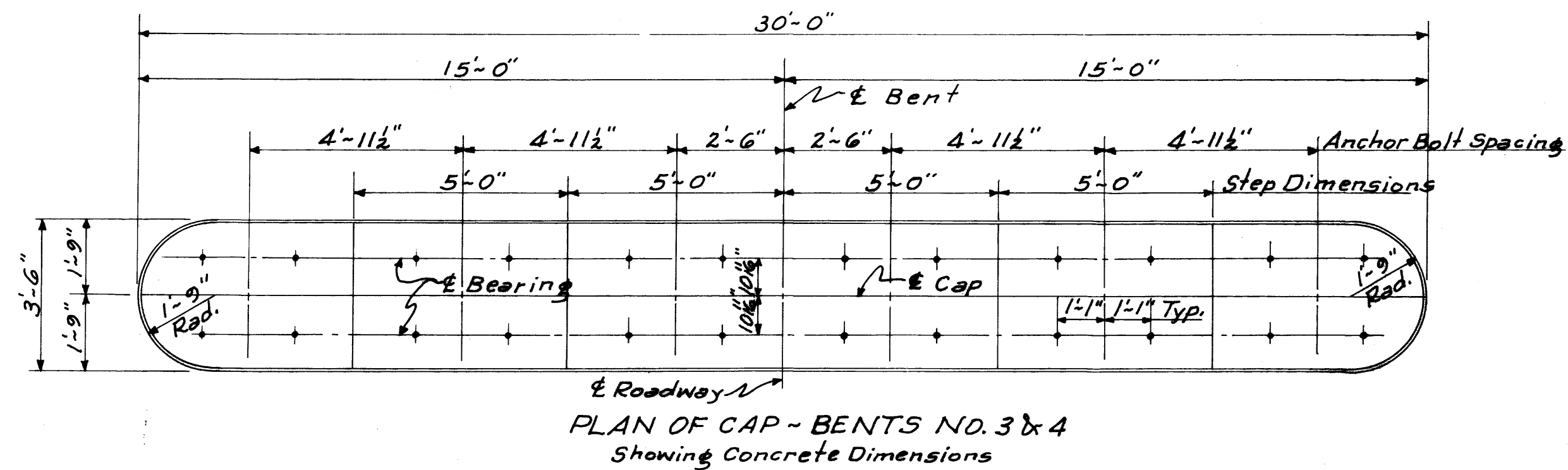
ELEVATION OF BEAMS
Showing Modifications To PB-8 & PB-15

14355

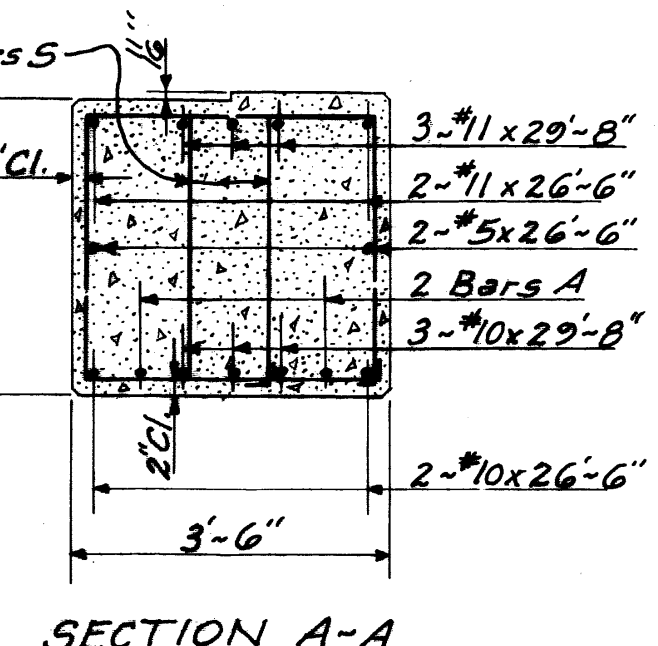
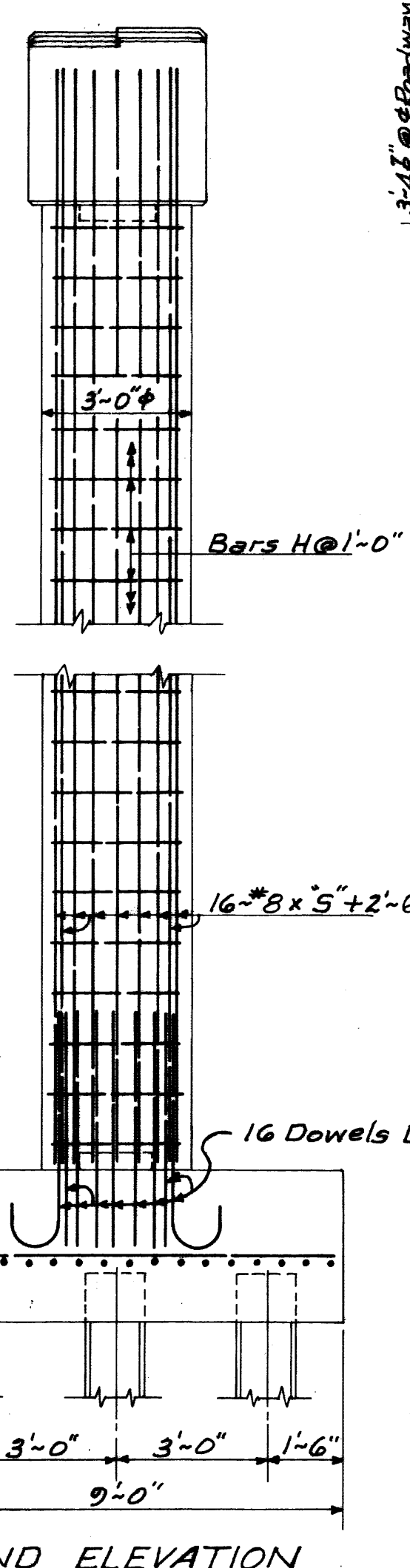
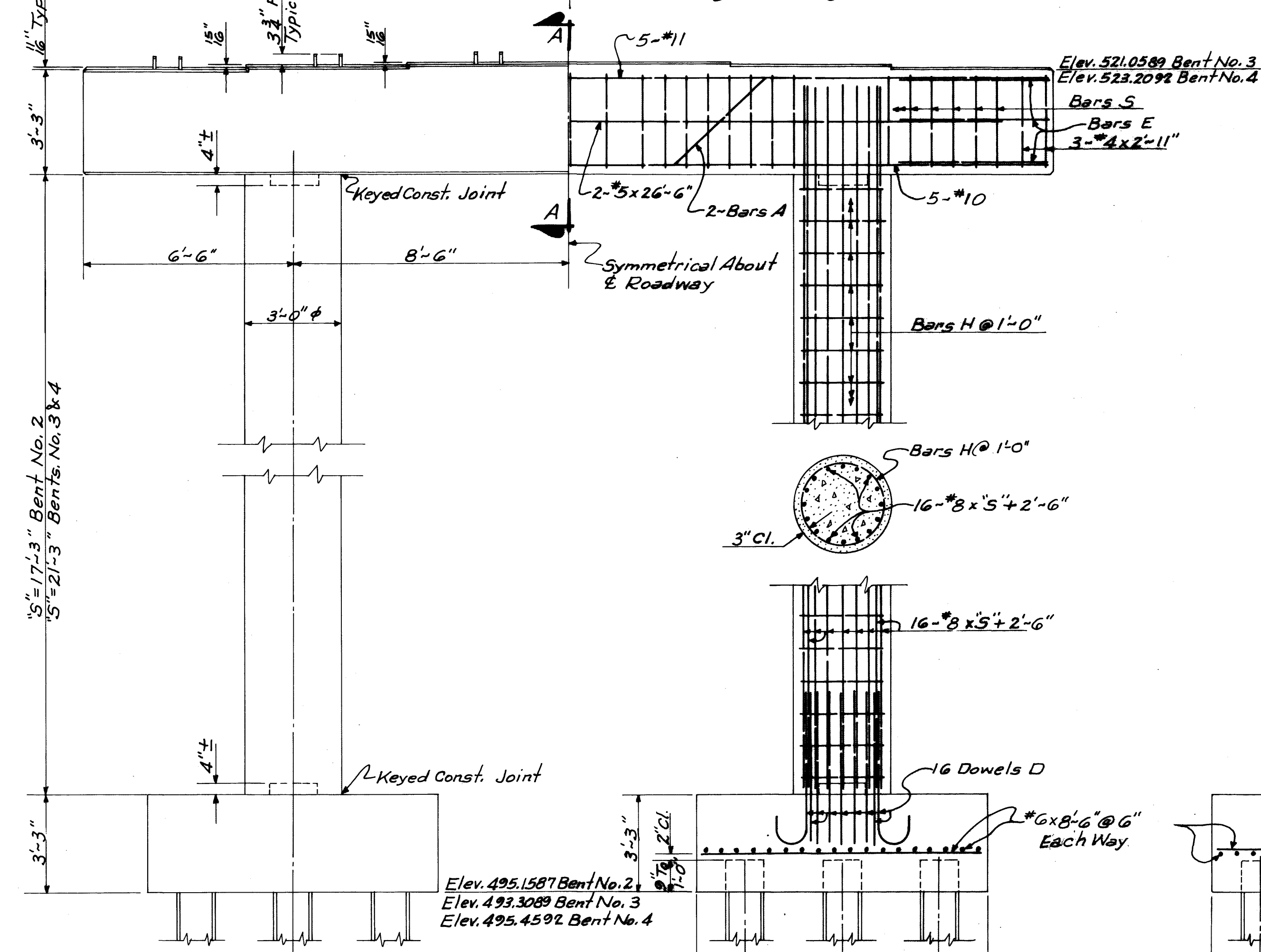
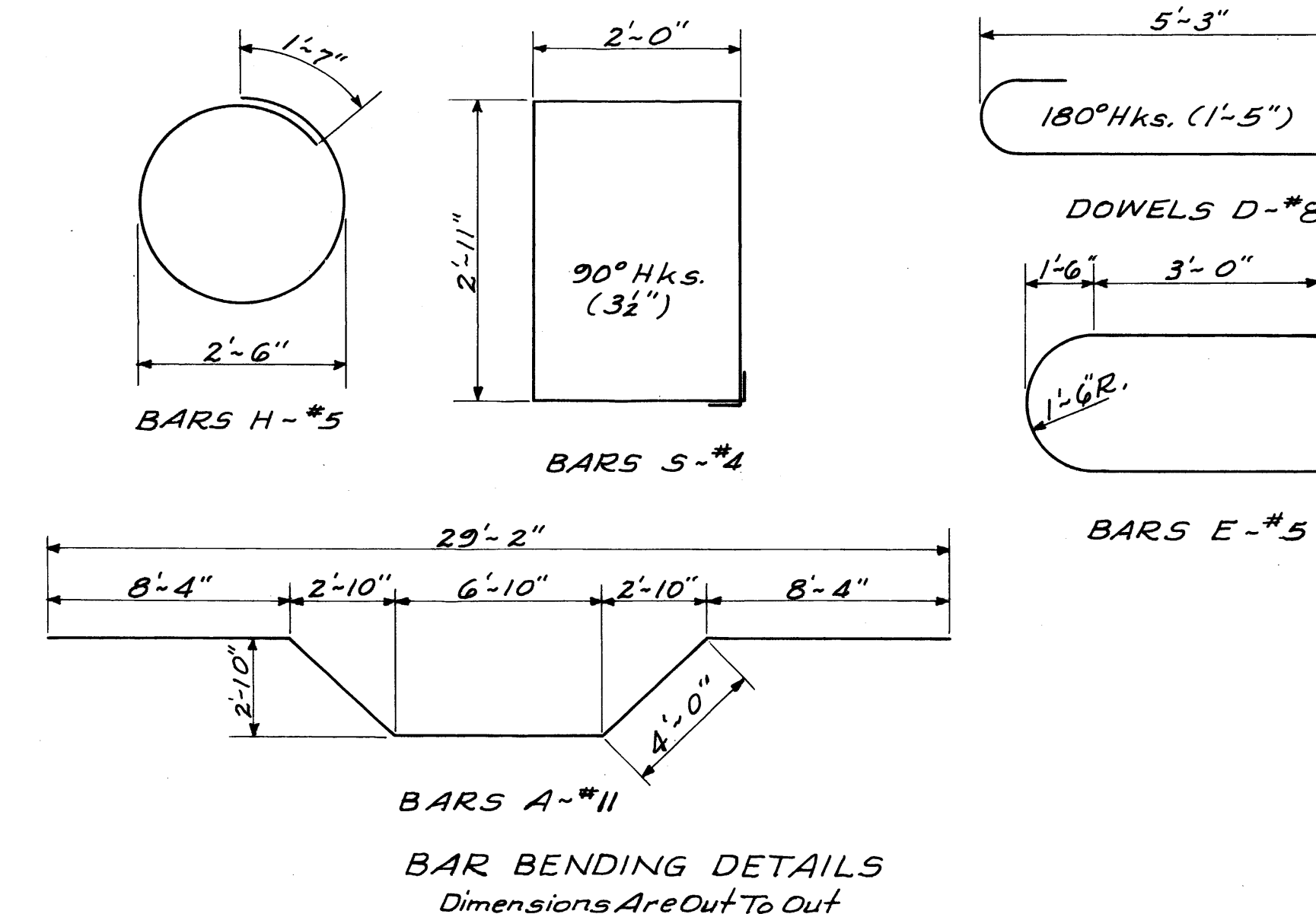
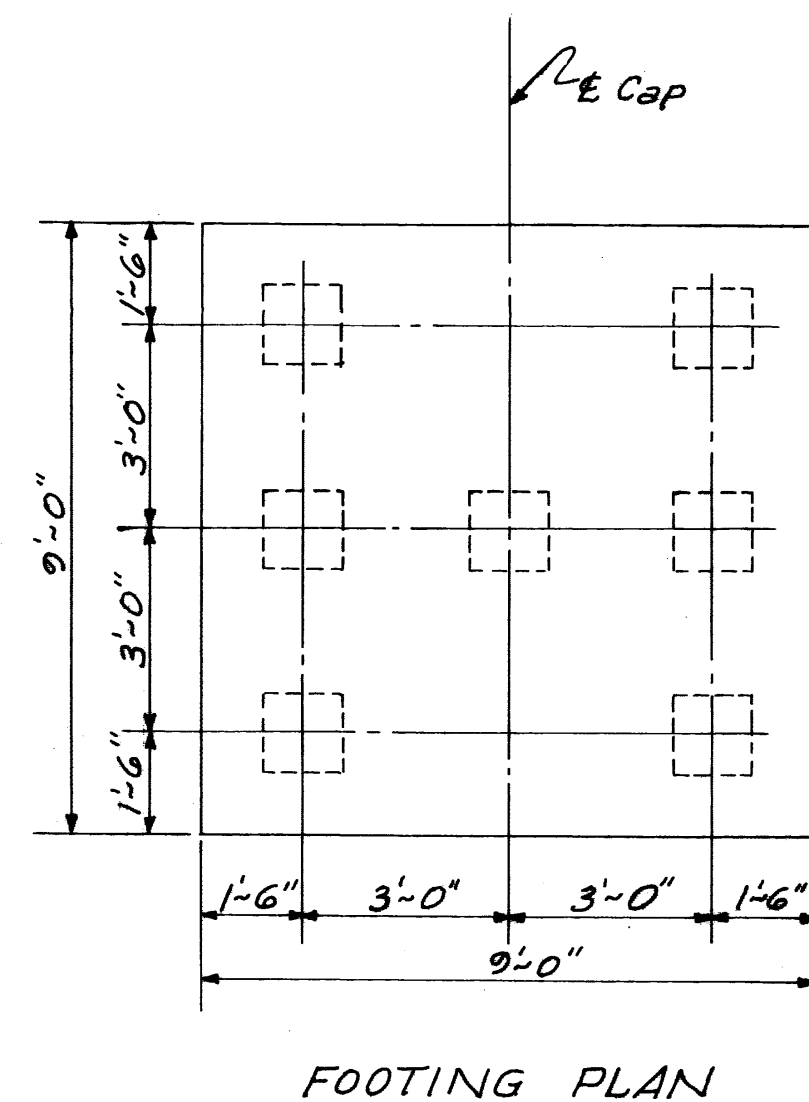
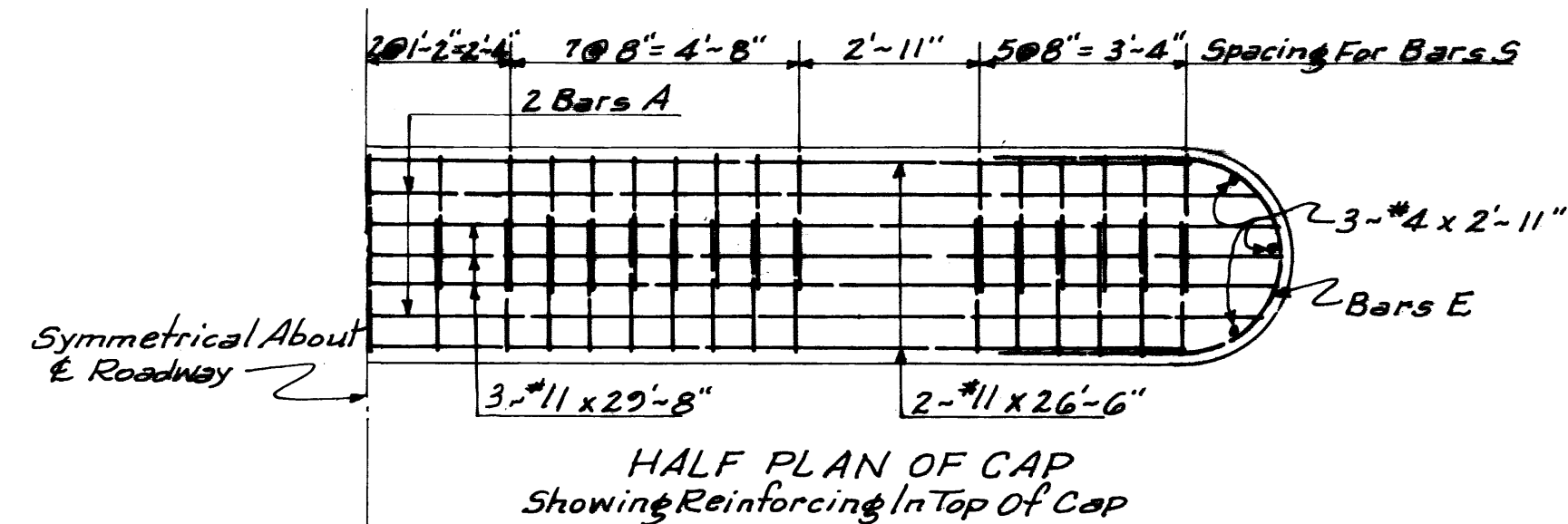
REVISIONS				
NO.	DATE	BY	REASON	APPROVED

MISSISSIPPI STATE HIGHWAY DEPARTMENT
UNDERPASS AT STA. 175+68.67
END BENT & BEAM MODIFICATIONS
PROJECT I-20-2 (18) 71
SCOTT COUNTY
SUBMITTED BY _____ BRIDGE ENGINEER

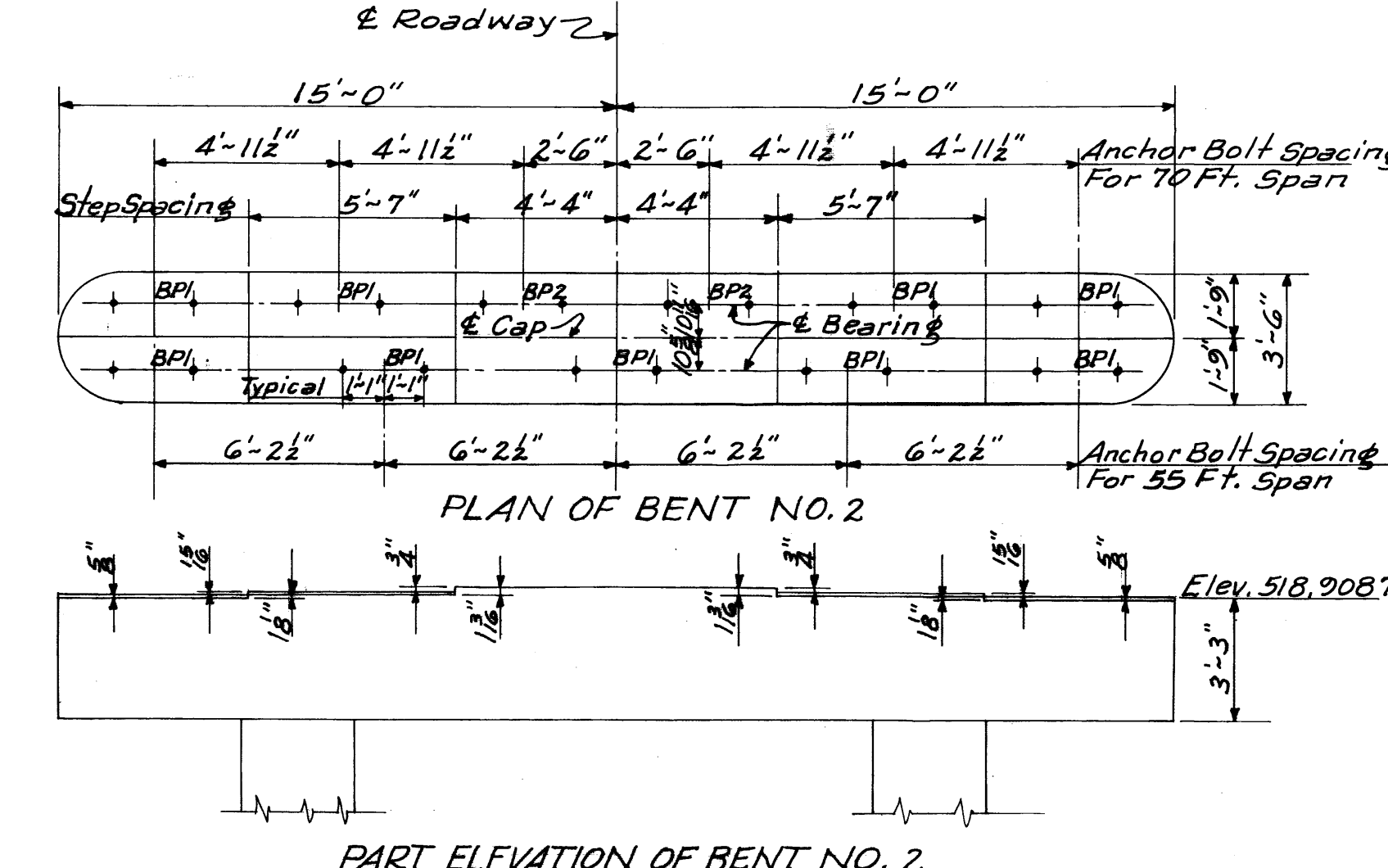
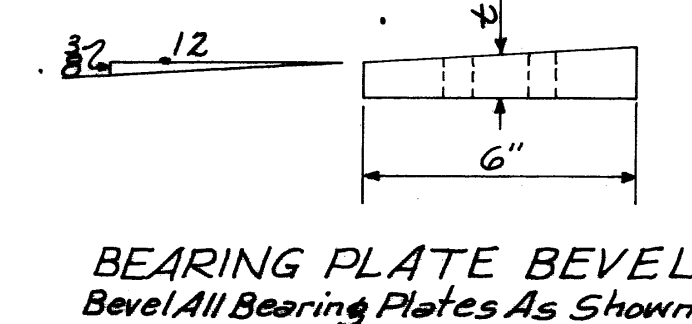
DESIGNED	DATE	DESIGNED	DATE	TRACED	DATE	SHEET NUMBER
J.R.R.		J.W.A.		J.W.A.		B2 OF 3
CHECKED		ISSUED		DATE		
				2-5-64		



NOTE: All Bearing Plates
BPI For Bents 3 & 4



GENERAL NOTES:-
All Concrete Shall Be Class "B".
All Exposed Edges Shall Be Chamfered 3/8".
Construction Joints Permitted Only Where Shown.



NOTE:-
Bearing Assemblies Per Drawing Nos. PB-8 And PB-15 Except As Modified In SCHEDULE, & By Level Detail Hereon Reinforce Bent No. 2 Same As Bents No. 3 & 4

Plate No.	Thickness (t)
BP1	1 1/2"
BP2	1 1/8"

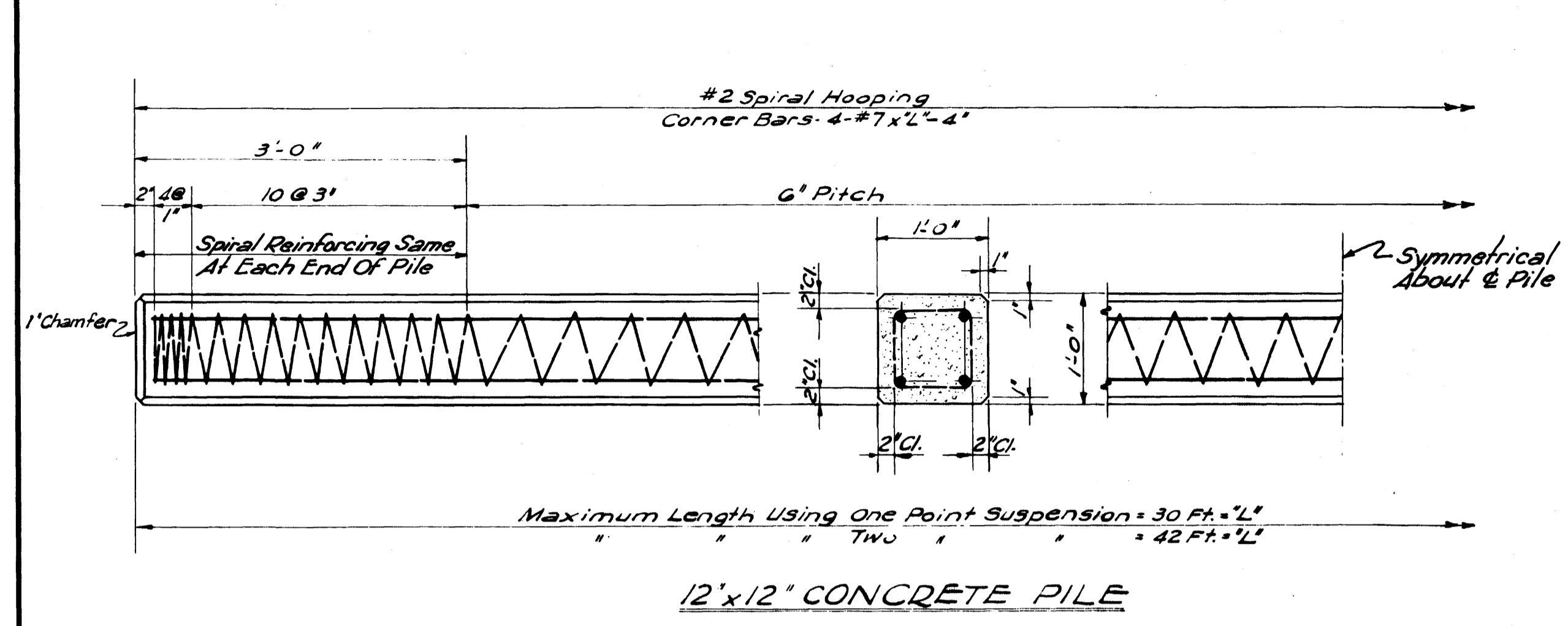
14355

MISSISSIPPI STATE HIGHWAY DEPARTMENT
UNDERPASS AT STA, 175+68.67
INTERMEDIATE BENTS NO. 2, 3 & 4
PROJECT I-20-2(18)71

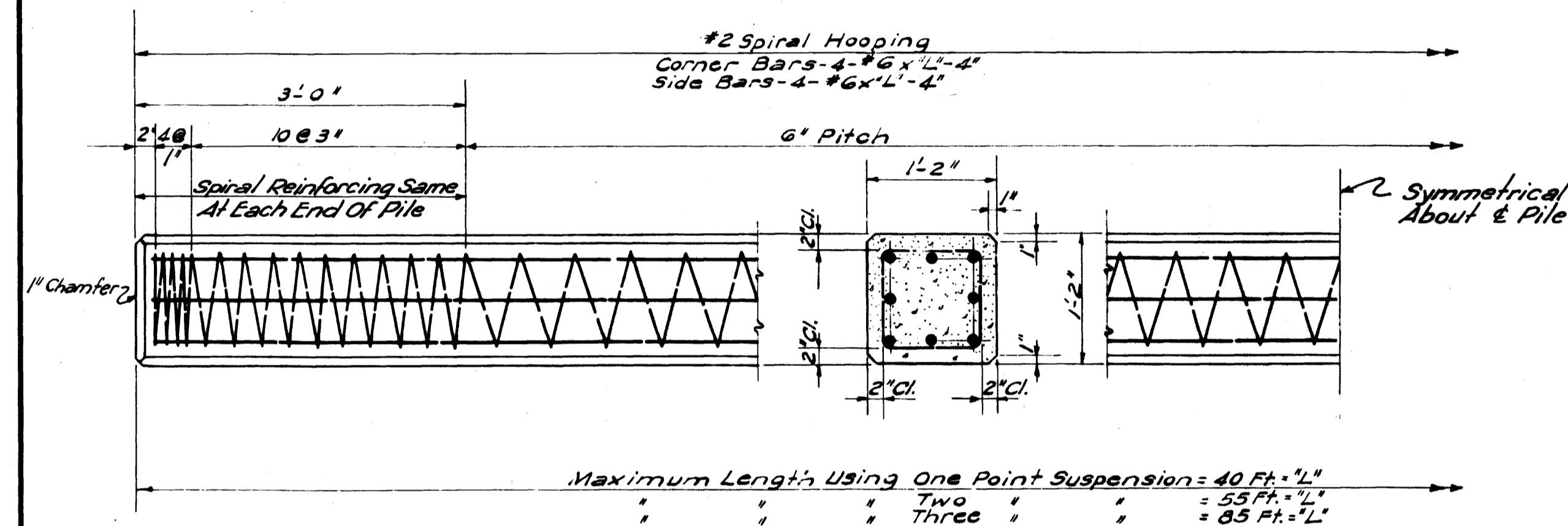
SCOTT COUNTY

SUBMITTED BY: _____ BRIDGE ENGINEER

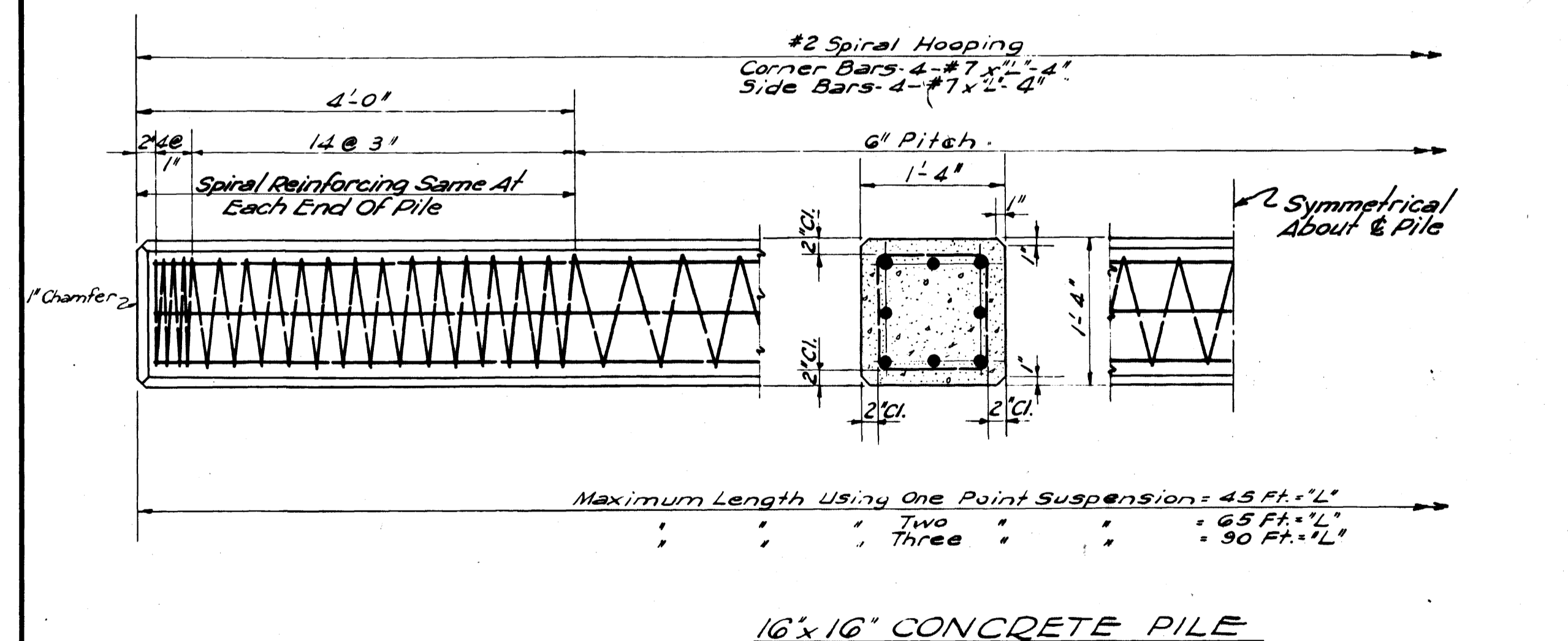
DESIGNED: J.A.S.	DETAILED: M.K.	TRACED: F.E.R.	SHEET NUMBER
CHECKED: J.R.R.	ISSUED: M.K.	DATE: 2-5-64	B3 OF 3



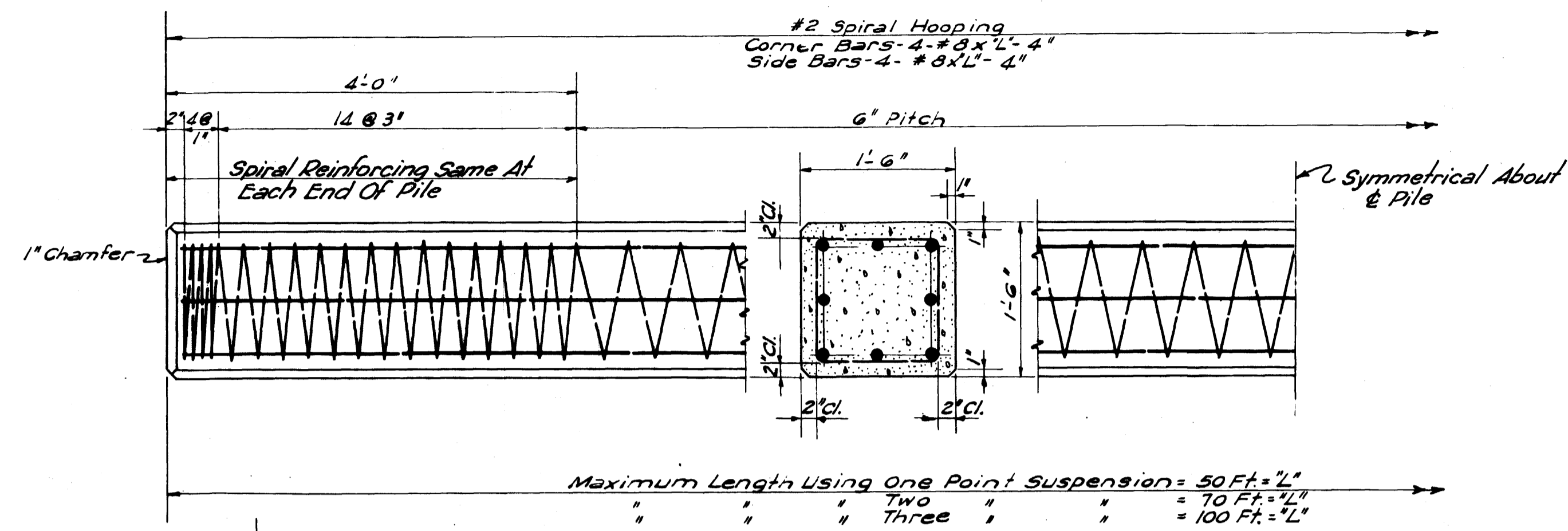
12'x12' CONCRETE PILE



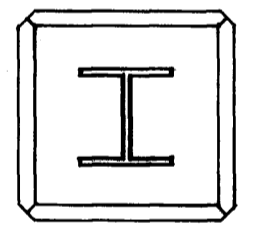
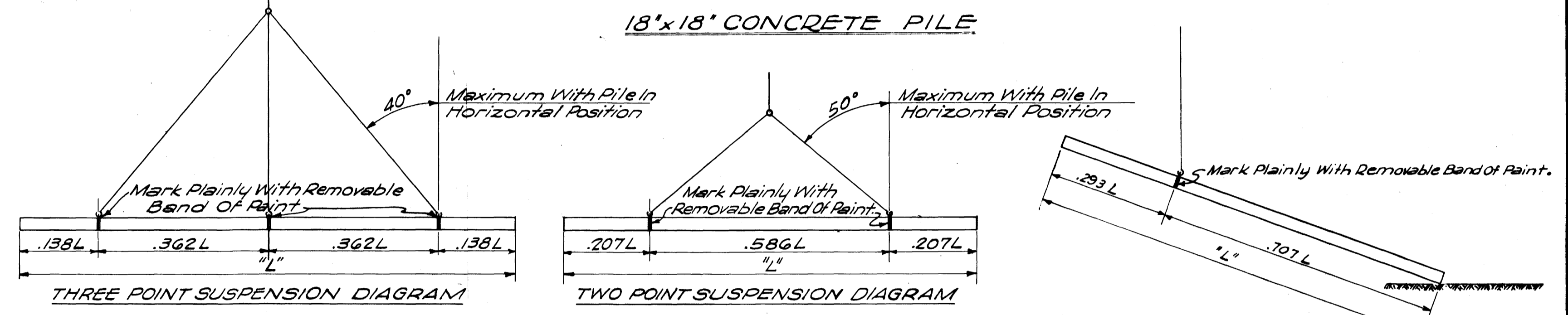
14'x14' CONCRETE PILE



16'x16' CONCRETE PILE



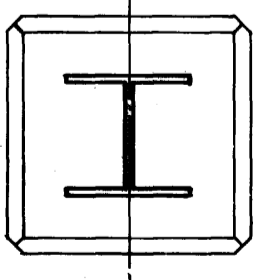
18'x18' CONCRETE PILE



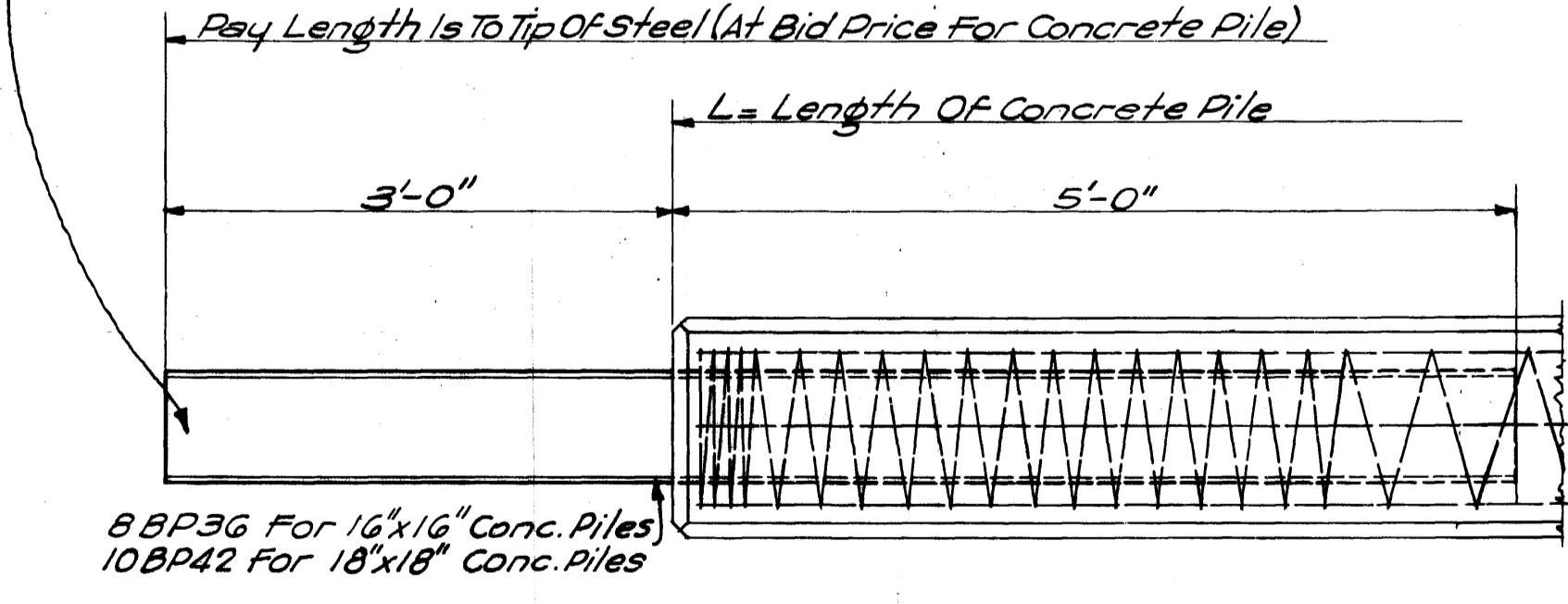
PERMISSIBLE STEEL DRIVING TIP FOR 14'x14' PILES

End Of Steel Driving Tip Shall Be Reinforced With Welded Plates If Required By Driving Conditions.

NOTE: Steel Driving Tips May Be Built-Up Sections Such As 4 Angles Back To Back, R.R. Rails etc, Equivalent To The Sections Shown, Subject To Approval Of The Bridge Engineer.



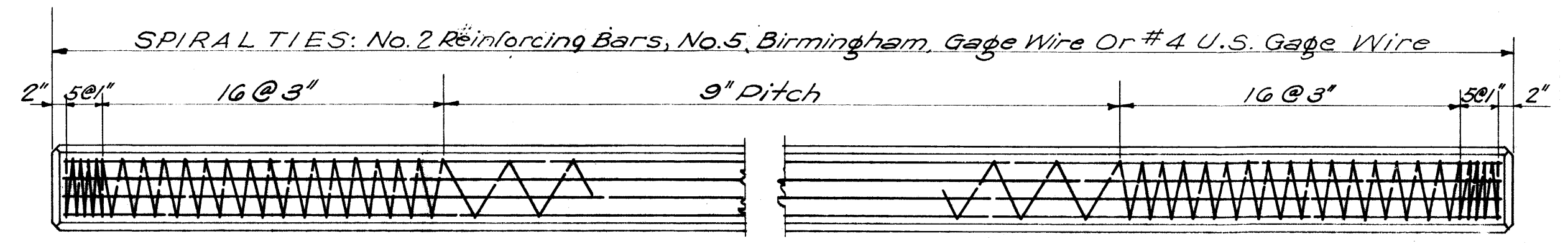
PERMISSIBLE STEEL DRIVING TIP FOR 16'x16' AND 18'x18' PILES



GENERAL NOTES:-
 Specifications: Mississippi State Highway Department.
 Concrete Shall Be Class A.
 Piles Shall Be Cast Under The Inspection Of The Engineer Or His Representative.
 Extreme Care Shall Be Taken To Adequately Support The Reinforcement And Secure It In Proper Position During The Placing Of Concrete.
 All Piles Shall Be Formed On Three Sides And Casting In Tiers Will Not Be Permitted.
 Ends Of Piles Shall Be Constructed To A True Plane At Right Angles To The Axis Of The Pile.
 Piles Shall Be Finished In Accordance With Article 240.06 A (6) Of The Specifications.
 Handling Lines Shall Be Attached At Points Shown By The Suspension Diagrams.
 Steel Driving Tip May Be Used When Required By Driving Conditions, To Obtain Penetration.

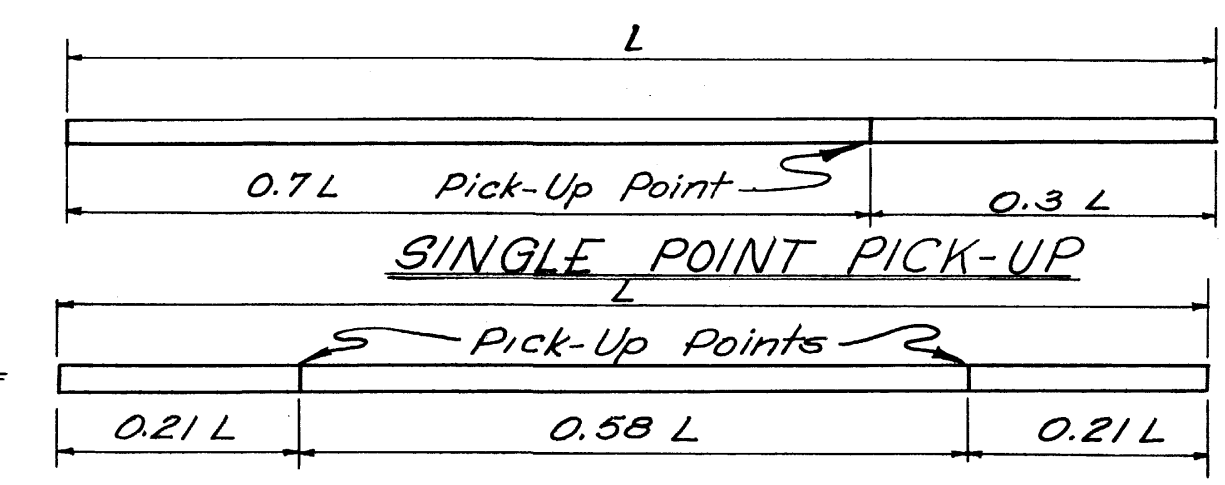
MISSISSIPPI STATE HIGHWAY DEPARTMENT			
CONVENTIONAL TYPE PRECAST CONCRETE PILES			
SUBMITTED BY _____		BRIDGE ENGINEER	
DATE 1/25/18	BY M.A.Z.	DATE 5-8-18	BY M.A.Z.
REVISIONS 1. Detailing 2. Steel Driving Tip Added 3. Steel Driving Tip Added	DATE 1-25-18	DATE 5-8-18	DATE 5-8-18
DRAWING NO. CP-10		DRAWING NO. CP-10	

If The Contractor So Desires, He May Use 10- $\frac{3}{8}$ " ϕ S.R. Strands @ 14,000 Lbs.
ALTERNATE SECTION



12" x 12" PRESTRESSED PILES
Single Point Pick-Up Maximum Length = 50 Ft.
Double Point Pick-Up Maximum Length = 75 Ft.

TYPICAL SECTION
See Alternate Section At Left

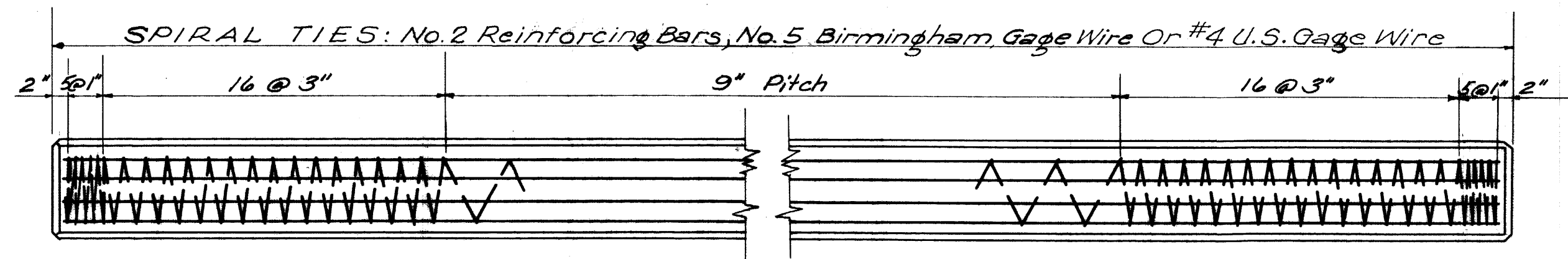


DOUBLE POINT PICK-UP
NOTE: Piles Shall Be Marked At Pick-Up Points To Indicate Proper Points For Attaching Handling Lines, & For Blocking. (Pick-Up Points Shall Be Painted With Removable Band Of Paint).

(A) **CONCRETE PILE SPLICE:**
A Precast Section May Be Spliced By Providing Cored Or Drilled Dowel Holes On Both Sides Of The Splice. The Dowels Shall Have An Area Equal To 1% Of The Gross Cross-Section Of The Pile And Shall Be Adequately Bonded Into Both Sections. The Dowel Holes And Space Between Splice Sections Shall Be Filled With A Material Having Properties Fully Equal To That Of The Concrete And Adhesive Strength Equal To The Shear And Tensile Strength Of The Concrete. Details To Be Approved By The Bridge Engineer.

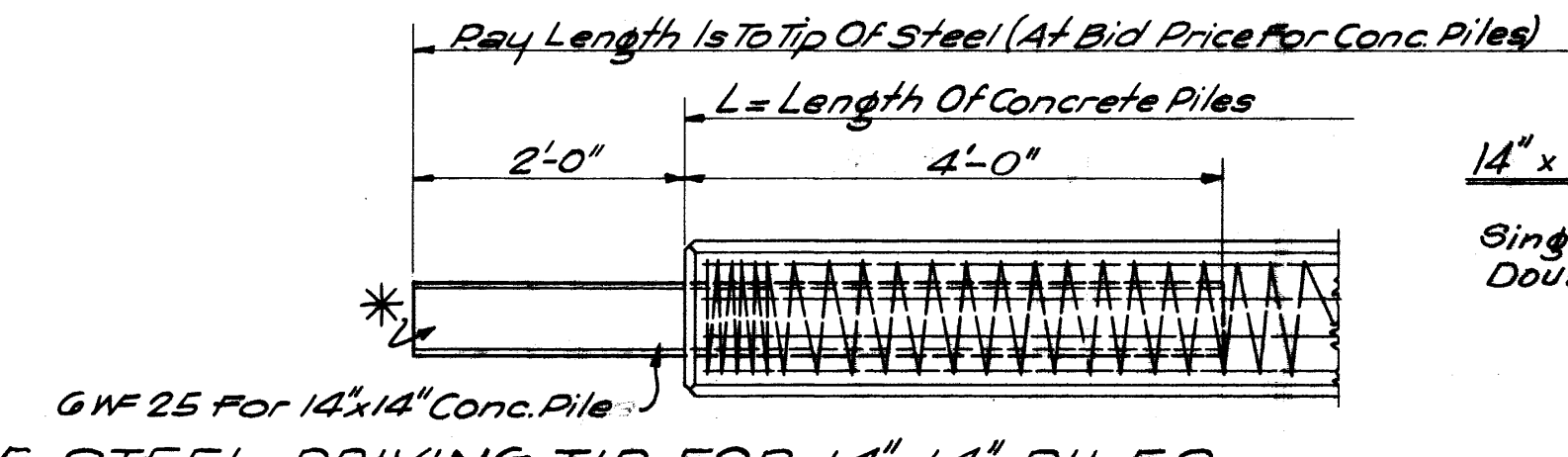
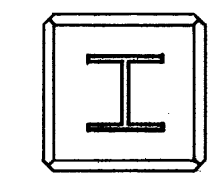
(B) **BUILD-UP (Without Driving):**
Concrete Around Top Edge Of Pile Shall Be Bushhammered To Prevent Feathered Edges.
The Minimum Area Of Reinforcing Steel Shall Be 1% Of The Gross Cross-Section Of Concrete. Placement Of Bars Shall Be In A Symmetrical Pattern Of Not Less Than Four Bars.

(C) **BUILD-UP (With Driving):**
TYPICAL SPLICE & BUILD-UP DETAILS
NOTE: This Is In Accordance With A.A.S.H.O.-PC-1 Tentative Specs. For Prestressed Piles (Dated June 8, 1961).

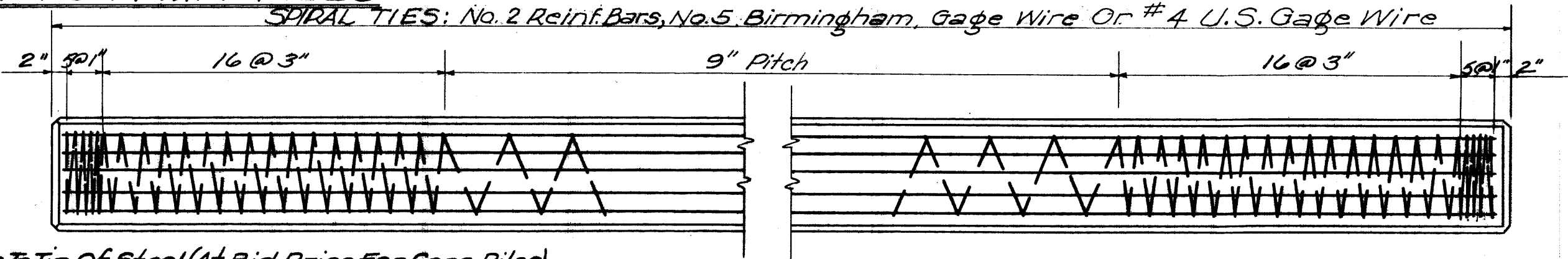


14" x 14" PRESTRESSED PILES
Single Point Pick-Up Maximum Length = 60 Ft.
Double Point Pick-Up Maximum Length = 85 Ft.

TYPICAL SECTION

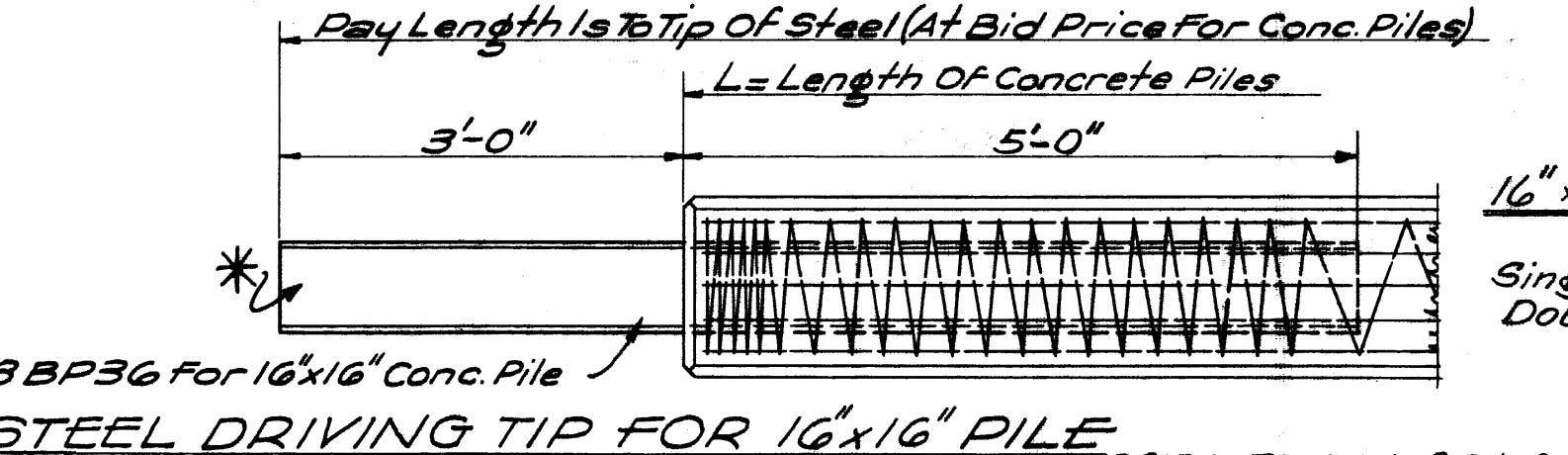
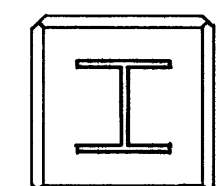


PERMISSIBLE STEEL DRIVING TIP FOR 14" x 14" PILES

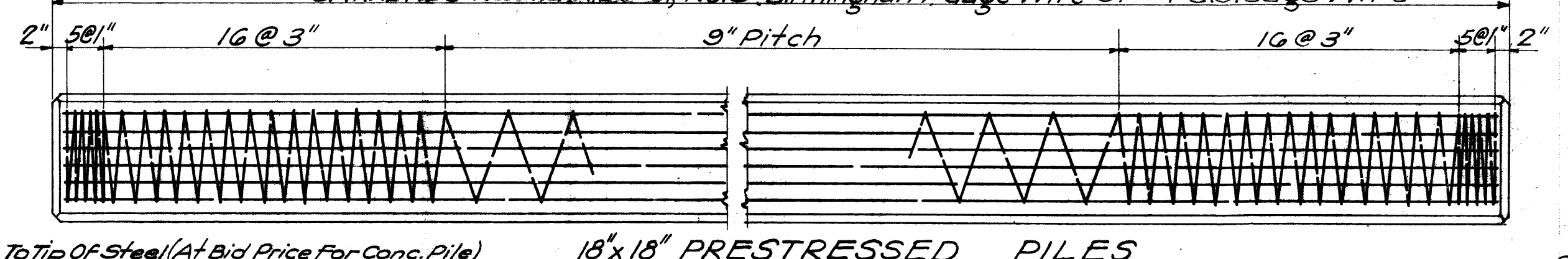


16" x 16" PRESTRESSED PILES
Single Point Pick-Up Maximum Length = 65 Ft.
Double Point Pick-Up Maximum Length = 90 Ft.

TYPICAL SECTION

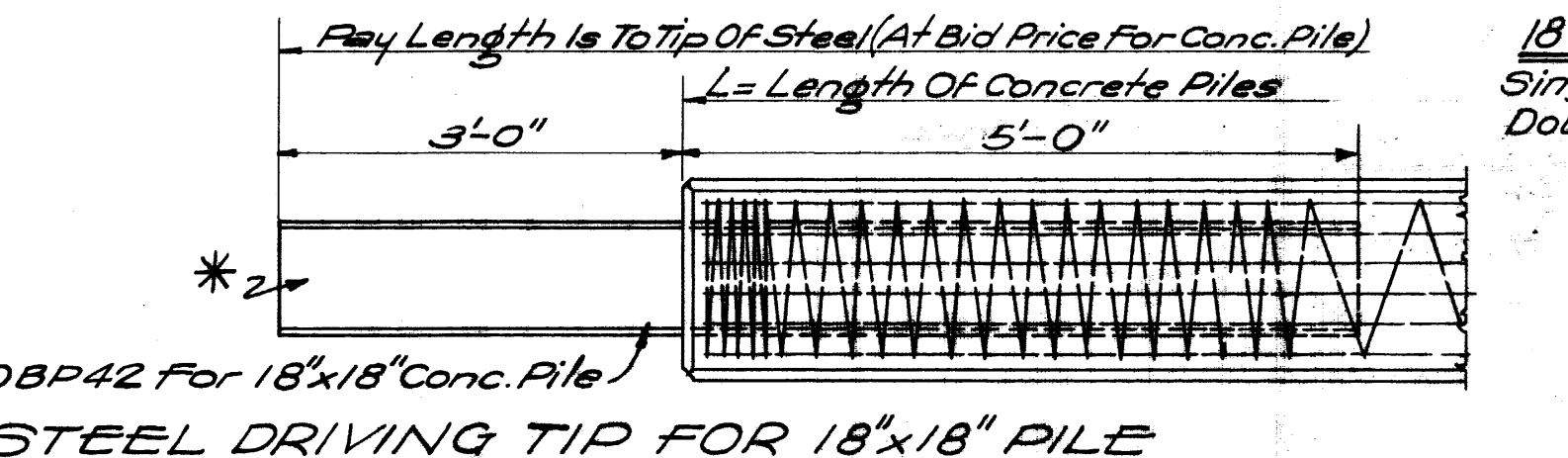
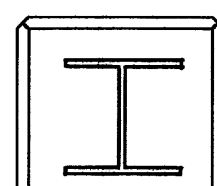


PERMISSIBLE STEEL DRIVING TIP FOR 16" x 16" PILE



18" x 18" PRESTRESSED PILES
Single Point Pick-Up Maximum Length = 70 Ft.
Double Point Pick-Up Maximum Length = 95 Ft.

TYPICAL SECTION



PERMISSIBLE STEEL DRIVING TIP FOR 18" x 18" PILE

GENERAL NOTES:
Specifications: Mississippi State Highway Department.
Piles Shall Be Manufactured In Accordance With Special Provision No. 112-Revised.
Spiral Ties Shall Be Tied To All Corner Strands.
All Corners Shall Be Chamfered 1".
Wire Ties - Cold-Drawn Steel Wire A.S.T.M., A82.
Piles Shall Be Finished In Accordance With Article 240.06 Of The Specifications.
Steel Driving Tip May Be Used When Required By Driving Conditions, To Obtain Penetration.
Concrete Shall Be Class A_x. (a) Shall Have A 28 Day Cylinder Strength Of 5,000 p.s.i. (b) At Transfer Of The Tensioning Load, The Cylinder Strength Shall Be 3,500 p.s.i.

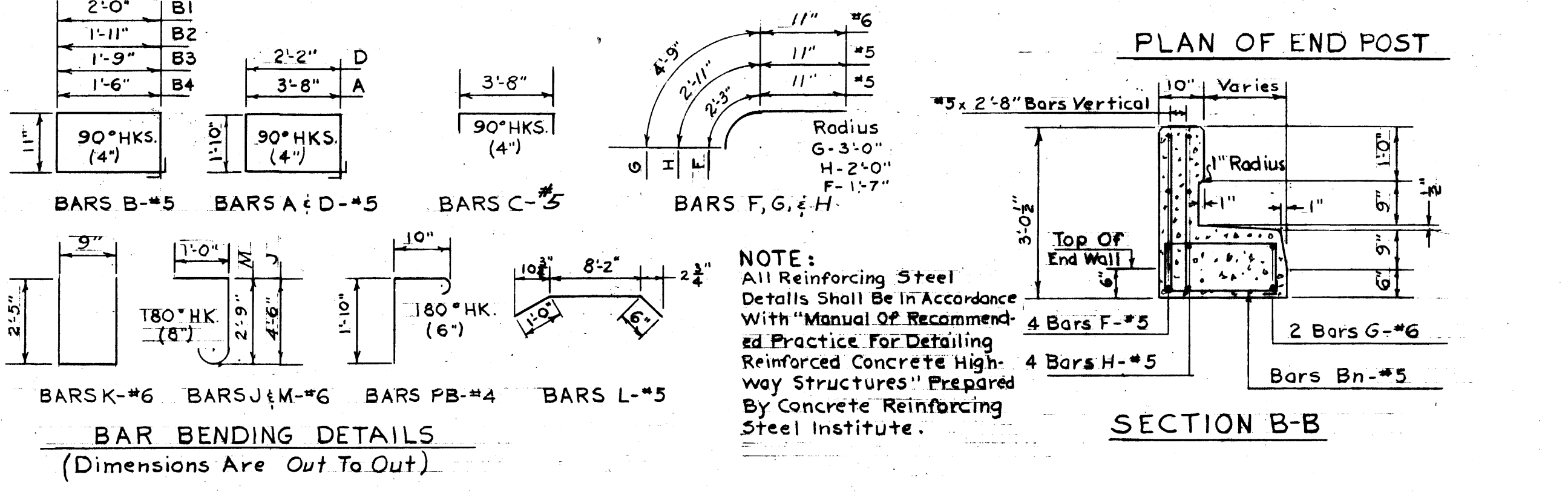
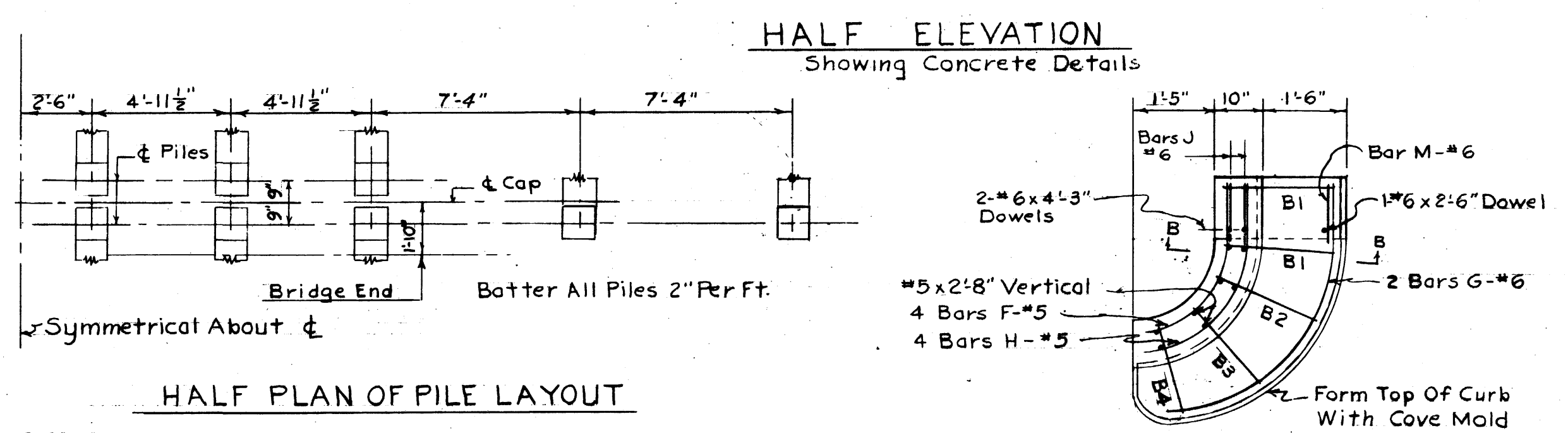
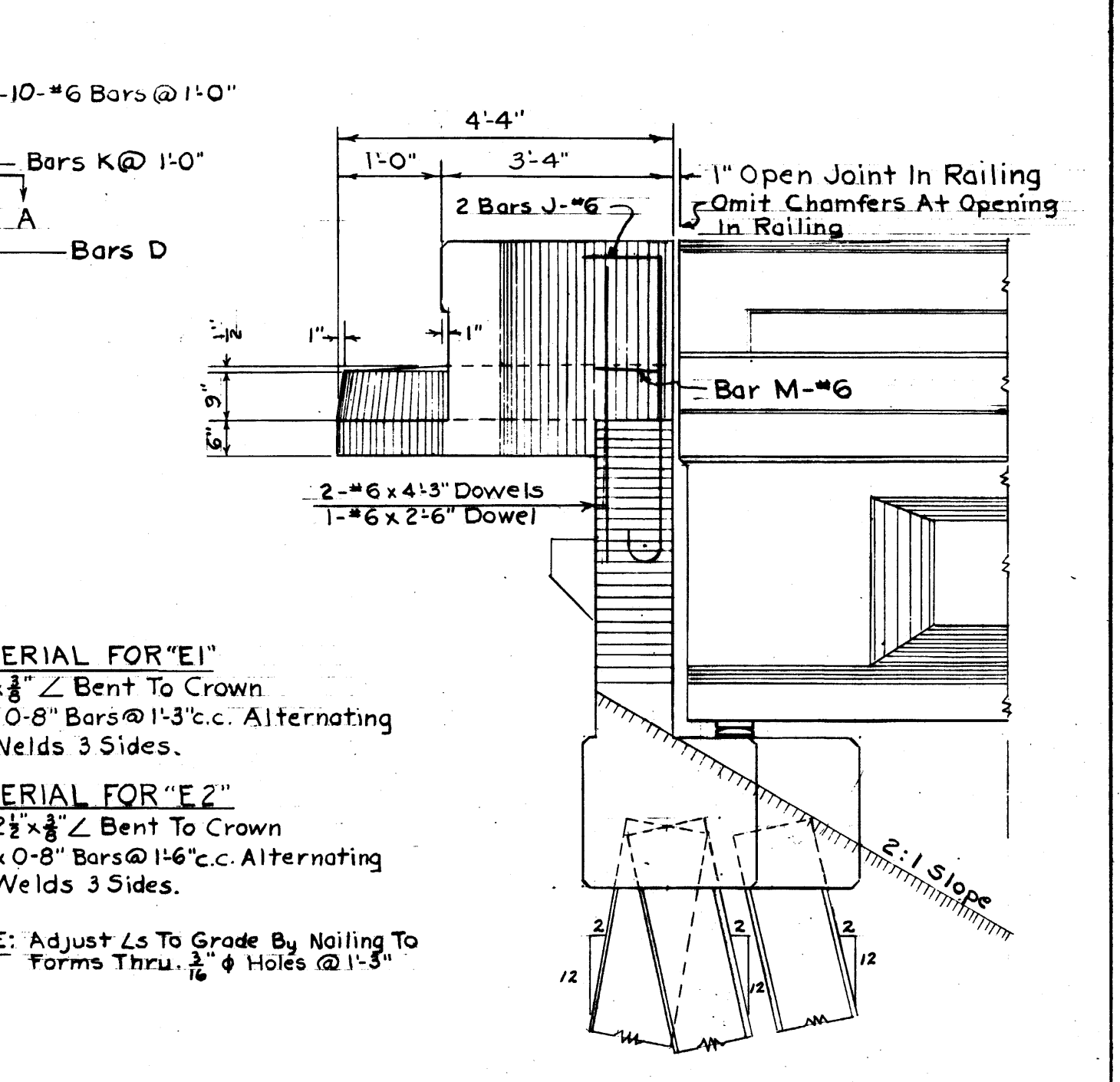
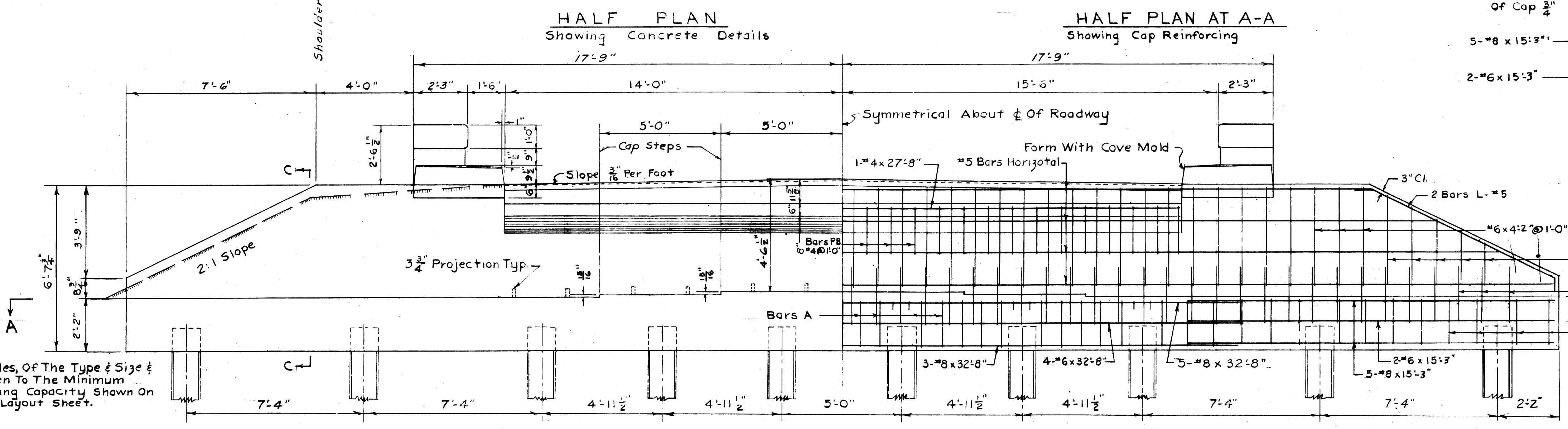
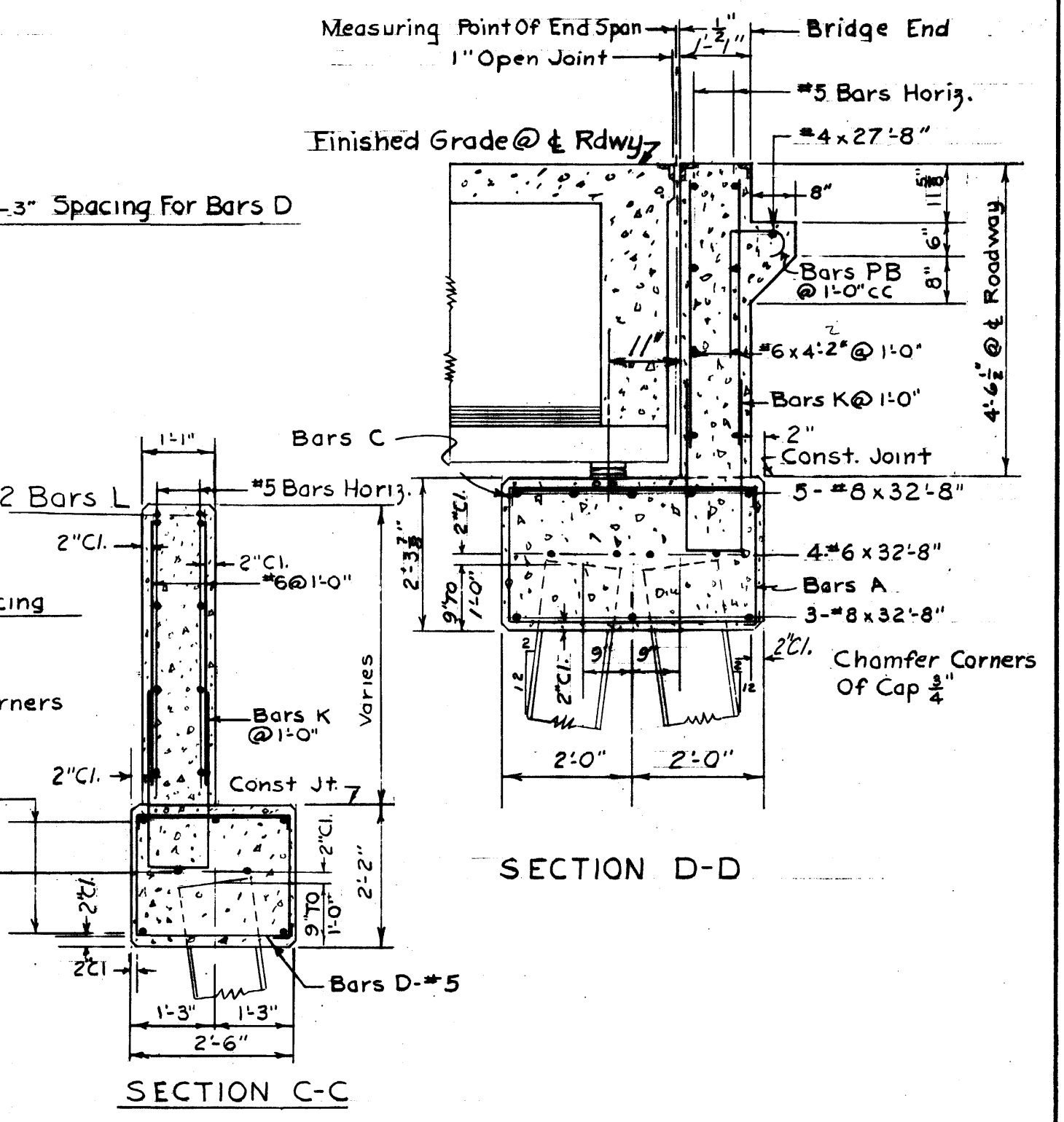
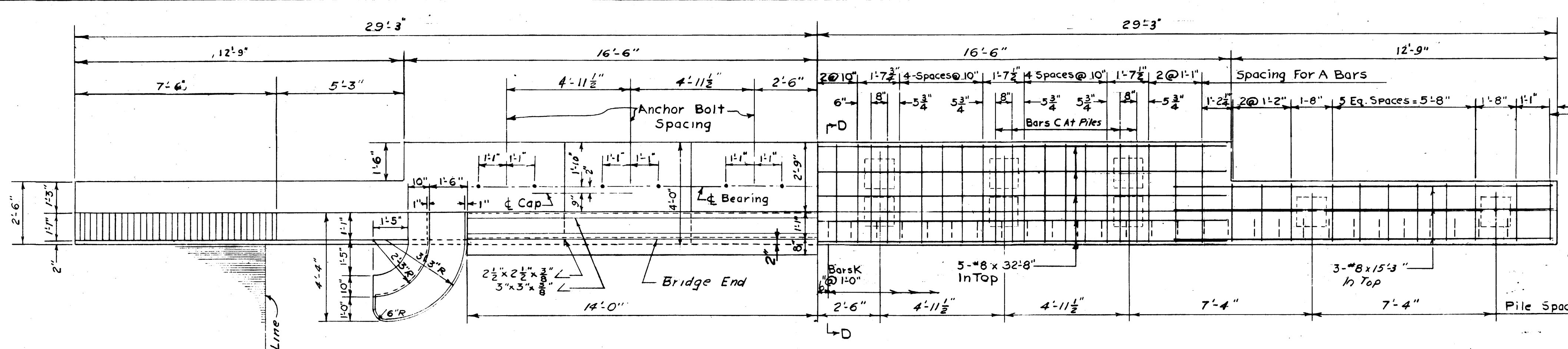
DATE		REVISION	BY
10/23/61	16 Strands 16 x 16" Pile	B18	JHB
11/15/61	18 x 18" Pile	M18	JHB
1/15/62	20 x 20" Pile	M18	JHB
4/24/62	Steel Driving Tip Added	M18	JHB
4/24/62	Steel Driving Tip Moved	M18	JHB
5/17/62	4" x 4" Strand All For 18" x 18"	JHB	JHB
5/17/62	General	JHB	JHB
5/17/62	Release Strength	JHB	JHB

MISSISSIPPI STATE HIGHWAY DEPARTMENT

**PRESTRESSED TYPE
PRECAST CONCRETE PILES**

SUBMITTED BY: _____ BRIDGE ENGINEER

DETAILED JHB CHECKED JHB ISSUED JHB DRAWING NO. CP-20
TRACED S.B.M. DATE 5-8-56 DATE 5-8-56



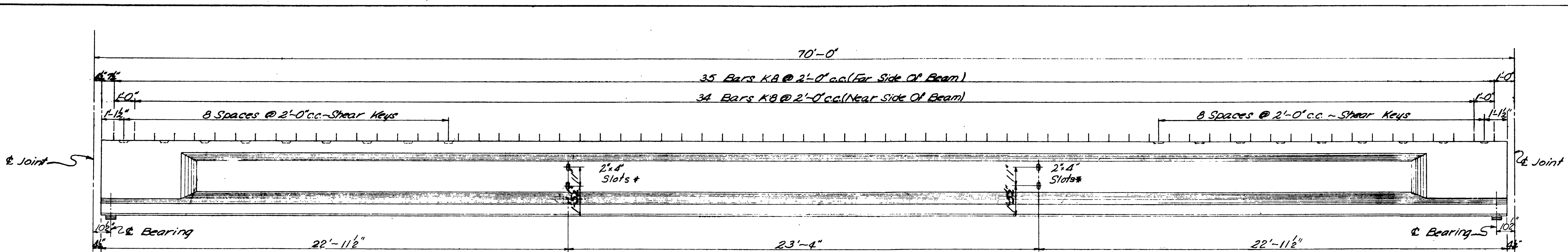
GENERAL NOTES:
 Specifications: Mississippi State Highway Department.
 All Concrete In End Bent Shall Be Class "B".
 All Edges Shall Be Chamfered 1/2" Except As Noted.
 End Post On End Bent Shall Not Be Constructed Until Bridge Railing On End Span Is In Place And Forms Removed.
 End Wall Above Construction Joint At Top Of Cap Shall Not Be Constructed Until Prestressed Concrete Beam Span Is In Place And Forms Removed.
 Piles For End Bent Shall Not Be Driven Until Fill At Bridge Ends Has Been Constructed To Grade. Material For "E1" & "E2" Shall Be Painted In Accordance With Paint Note On Span Detail. No Payment Will Be Allowed For Excavation Incidental To Construction Of The End Bent. All Work For Which No Pay Items Are Provided In The Proposal Will Not Be Paid For Directly And Compensation Therefor Will Be Considered Included In The Prices And Payments For Bid Items.

MISSISSIPPI STATE HIGHWAY DEPARTMENT

**CONCRETE PILE END BENT
FOR USE WITH
70 FT. PRESTRESSED
CONCRETE BEAM SPAN
28 FT. ROADWAY**

SUBMITTED BY _____ BRIDGE ENGINEER

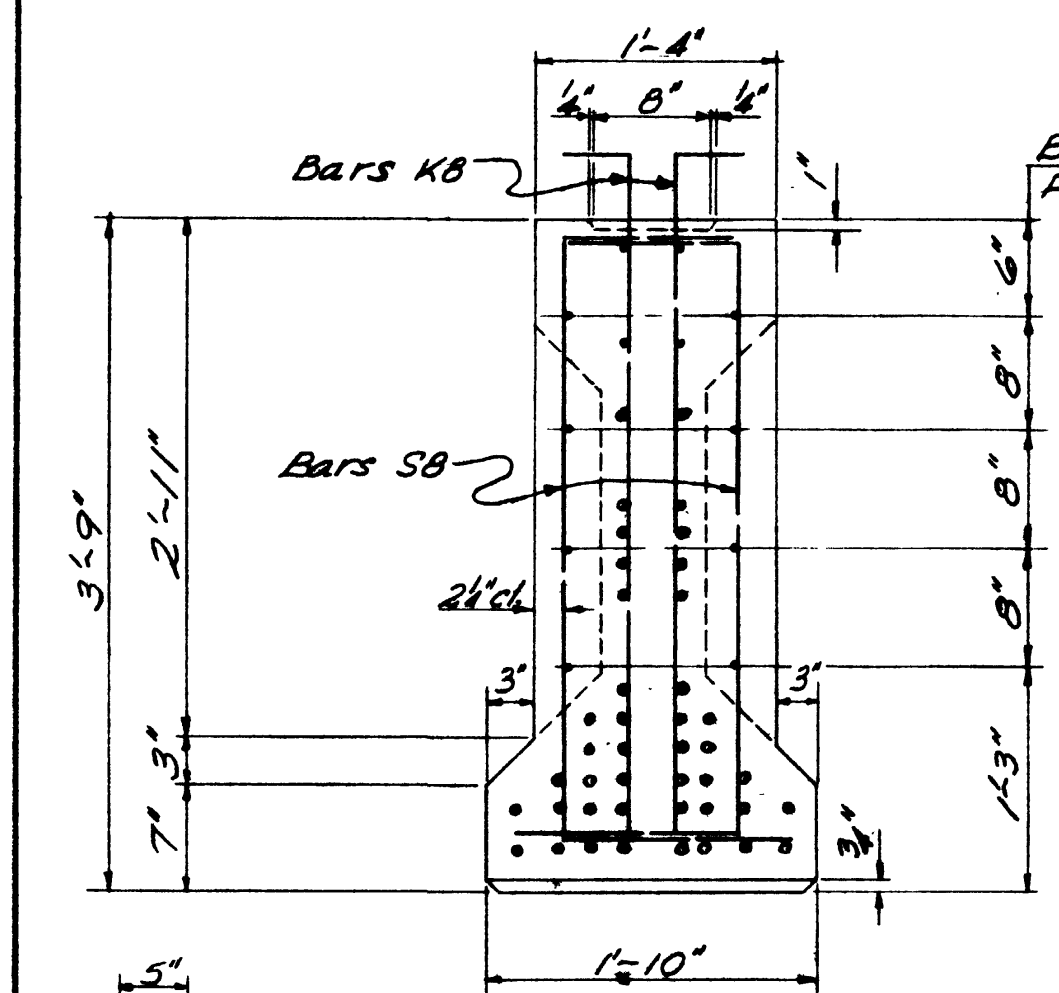
DATE	REVISIONS	CHECKED	ISSUED	DRAWING NO.
4/16/59	1. To Cap & Other Affected Details	R.T.	2-24-59	MB 32
			DATE 2-24-59	DATE 2-24-59



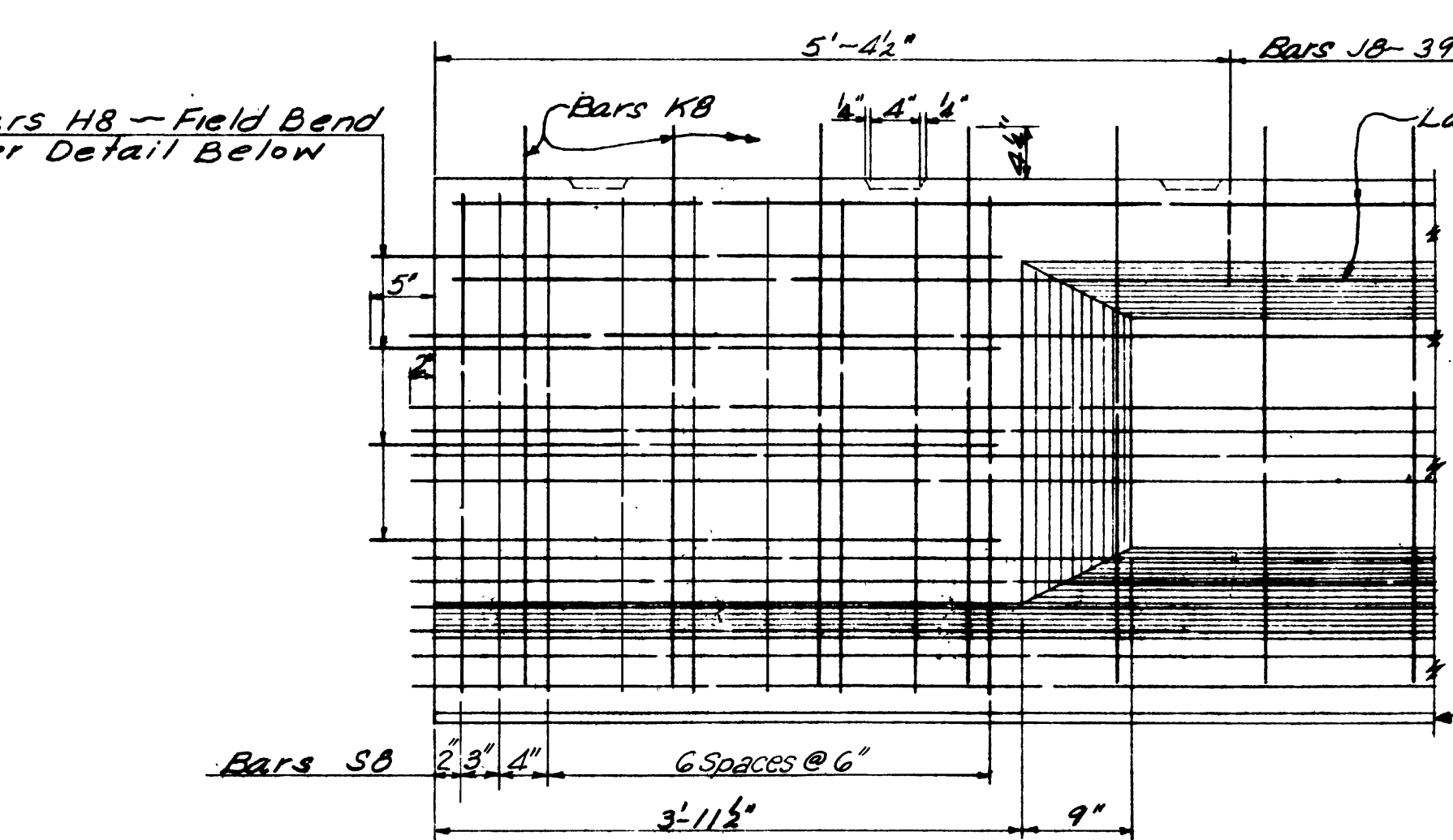
* Diaphragm Tendons Shall Be 1/2" High Tensile Strength Rods With A Minimum Ultimate Strength Of 110,000 psi. The Outside Diameter Of The Tubing Shall Not Exceed 1 1/2". Stress And Anchor Each Rod To 30,000 Lbs.

ELEVATION

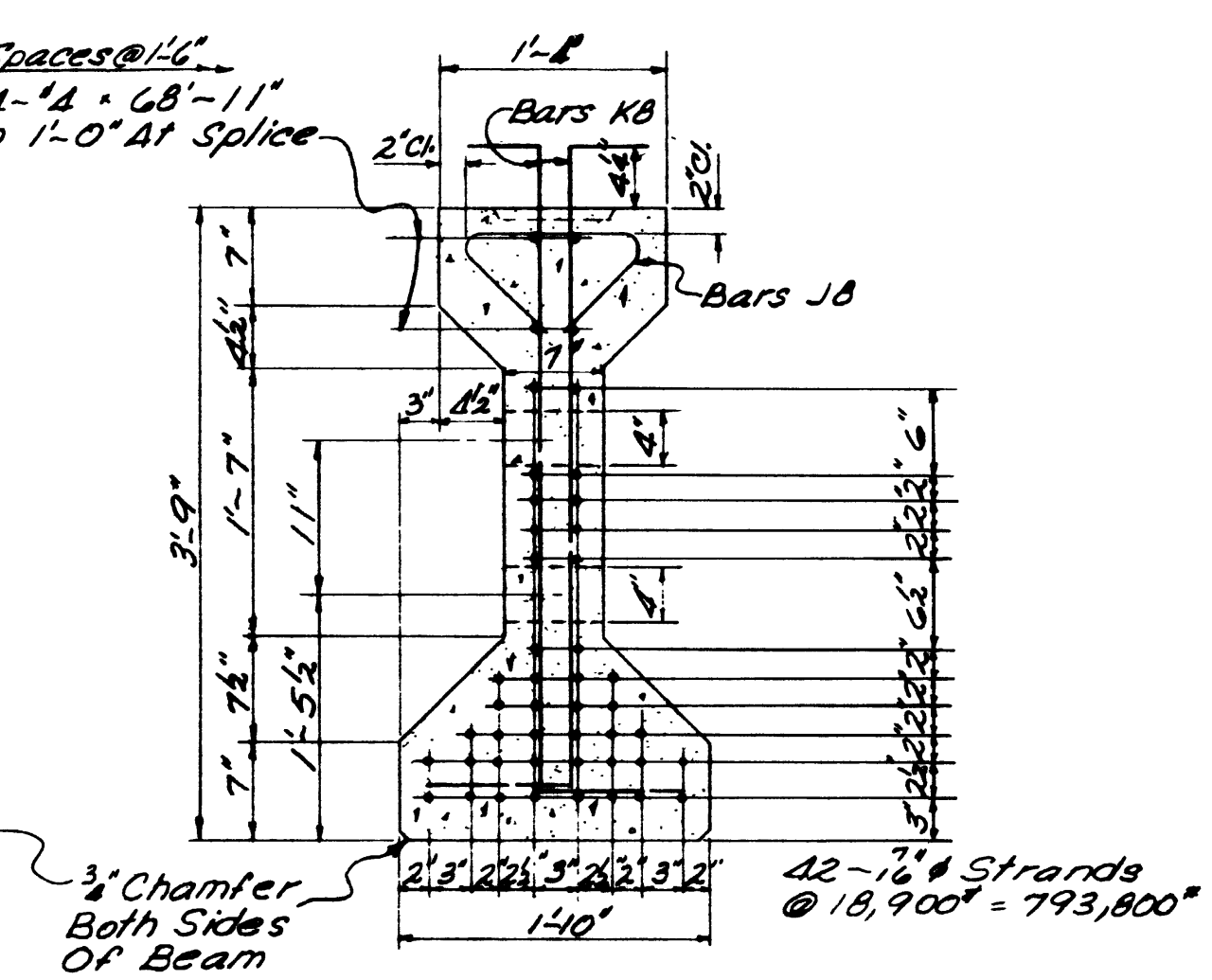
GENERAL NOTES:
 Beams Shall Be Manufactured In Accordance With Mississippi State Highway Department Specifications And Special Provision No. 112 Revised. Concrete Shall Be Class A.
 (a) Shall Have A 28 Day Cylinder Strength Of 5,000 psi.
 (b) At Transfer Of The Tensioning Load, The Cylinder Strength Shall Be 4,300 psi.
 Prestensioned S.R. Strands Shall Have A Minimum Ultimate Strength Of 27,000 Lbs.
 All Beams Shall Be Cast On Concrete Floored Balleys And In Metal Forms.
 Tops Of Beams Shall Be Rough Floated. At Approximately The Time Of Initial Set, Entire Top Of Beam Shall Be Scrubbed Transversely With A Coarse Wire Brush To Remove All Laitance And Produce A Roughened Surface For Bonding Slab. Other Surfaces Shall Be Finished Per Special Provision No. 112 Revised.
 In The Handling Of Beams, Beams Must Be Maintained In An Upright Position At All Times And Must Be Picked Up From Points Within The Solid Bearing Blocks At The Beam Ends. **DISREGARD OF THIS REQUIREMENT MAY LEAD TO COLLAPSE OF THE MEMBER.**
 Diaphragm Details Shall Be As Shown On The Span Sheet.
 Prior To Erection Or Embedment In Concrete, All Steel Surfaces Of The Bearing Assembly Except Bar (Or Stud) Anchors & Embedded Portions Of Anchor Bolts Shall Receive Two Coats Of Super-Service Black Bitumastic Coating (Koppers Co., Or Equal) Applied According To Manufacturer's Directions. Allow Ample Drying Time For Each Coat. Exercise Care To Cover Corners. Surfaces To Be Painted Shall Be Cleaned Per Article 214.05 Of The Specifications. Those Areas Where Paint Has Been Damaged During Construction Shall Be Touched Up.



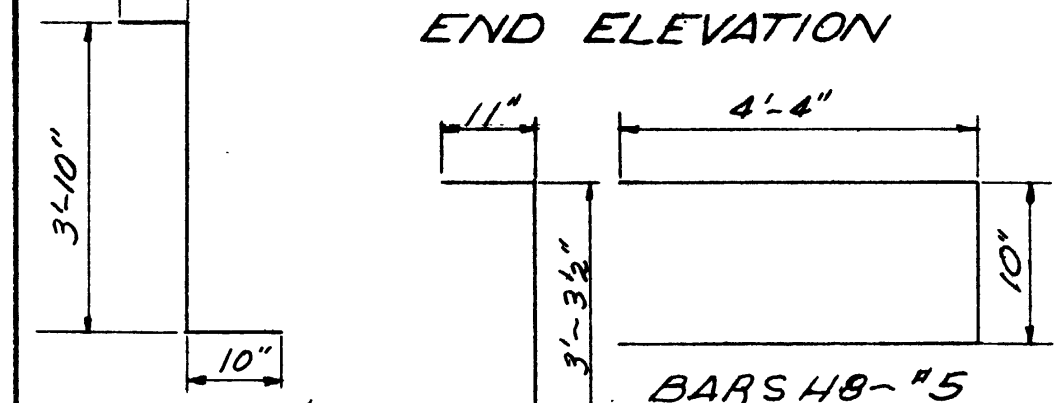
END ELEVATION



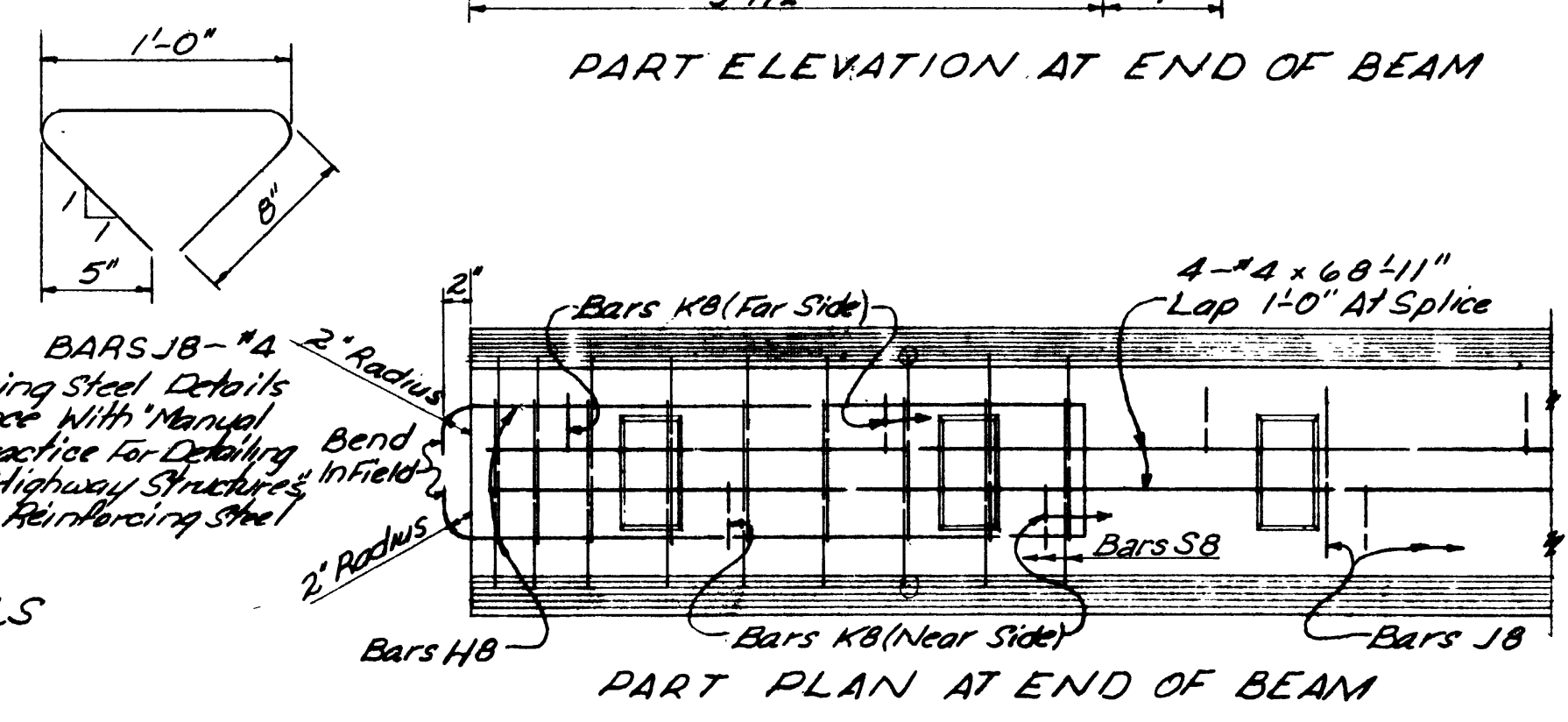
PART ELEVATION AT END OF BEAM



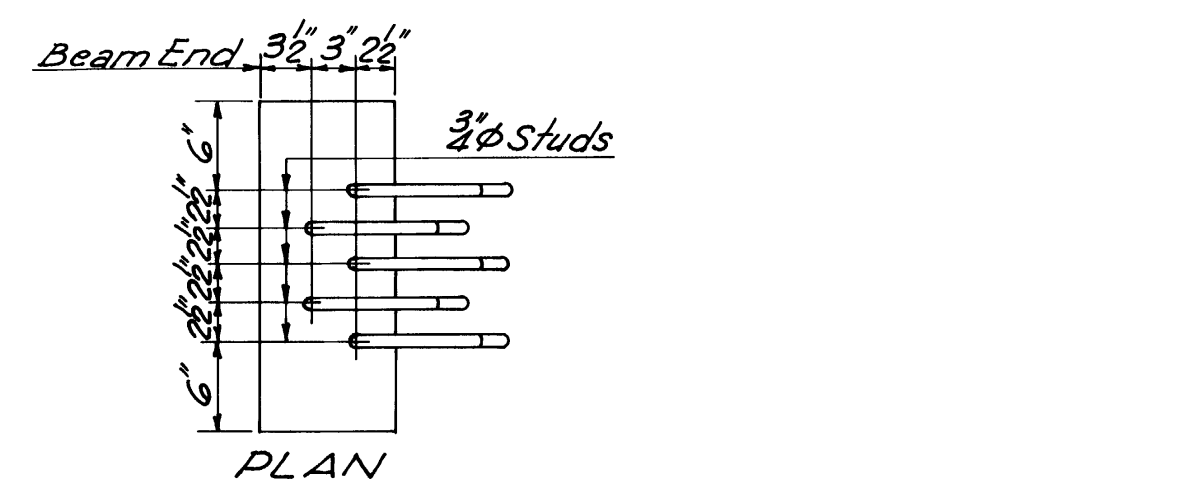
TYPICAL SECTION



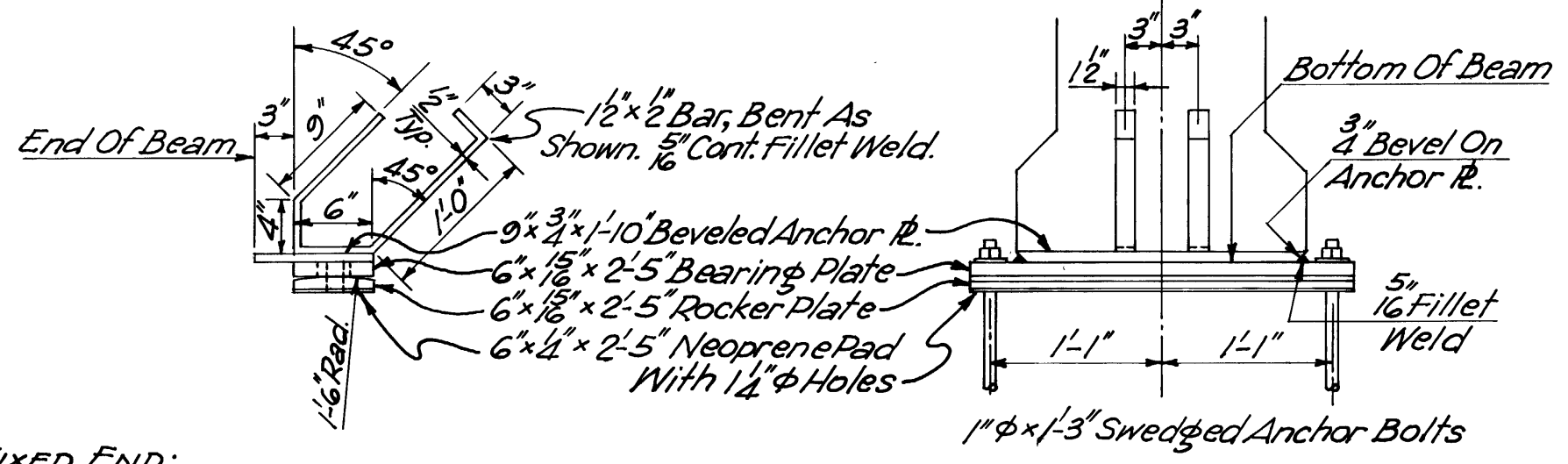
BAR BENDING DETAILS
 Dimensions Are Out To Out
 NOTE: All Reinforcing Steel Details Shall Be In Accordance With Manual Of Recommended Practice For Detailing Reinforced Concrete Highway Structures Prepared By Concrete Reinforcing Steel Institute.



PART PLAN AT END OF BEAM

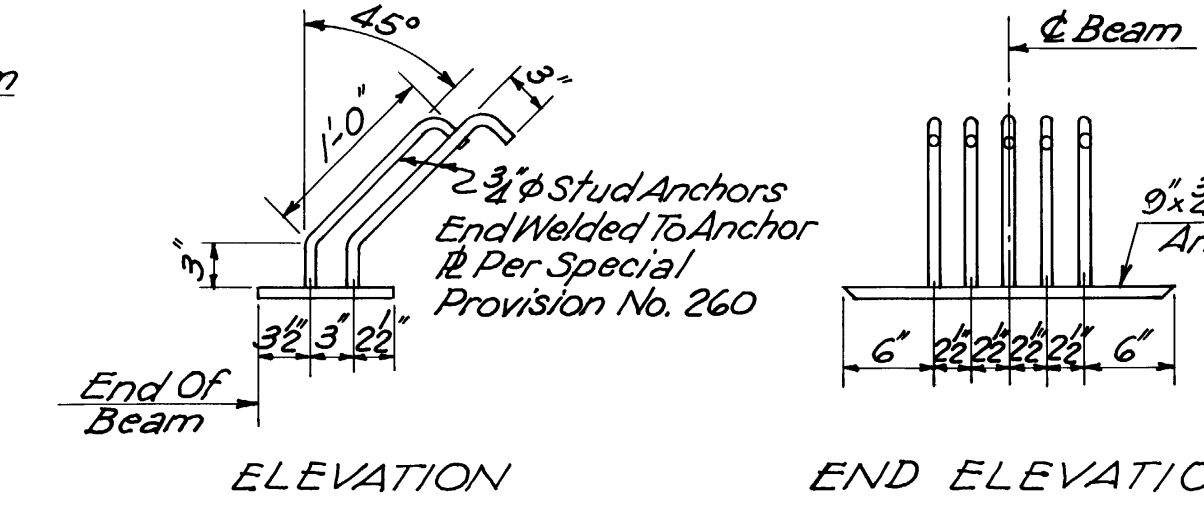


PLAN



FIXED END:
 1/4" Holes In Rocker & Bearing Pl. - Std. Wrought Washers
EXPANSION END:
 1/4" Holes In Rocker Pl.; 1/4" x 2 1/2" Slots In Bearing Pl. - 1/4" Plate Washers.

BEARING DETAILS
 Set All Bearing Plates On 1/4" Neoprene Pads Per Special Provision No. 216.



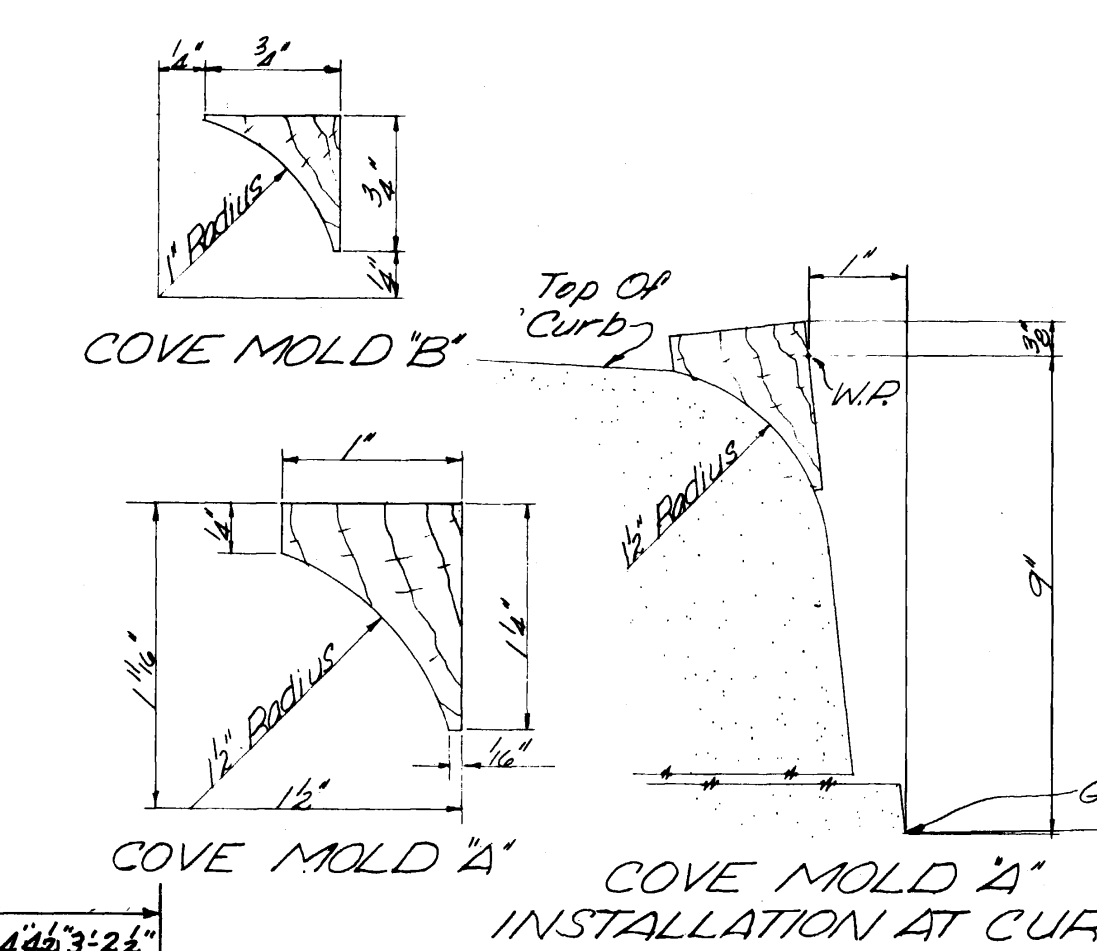
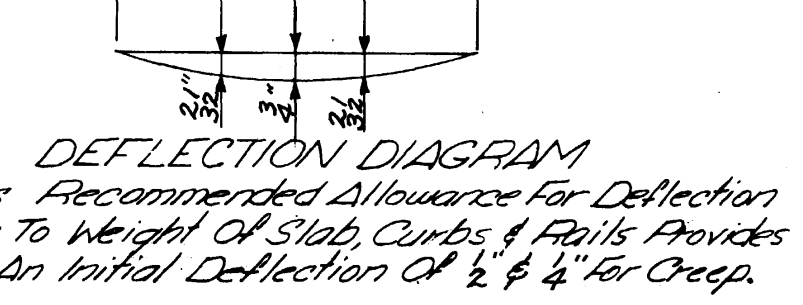
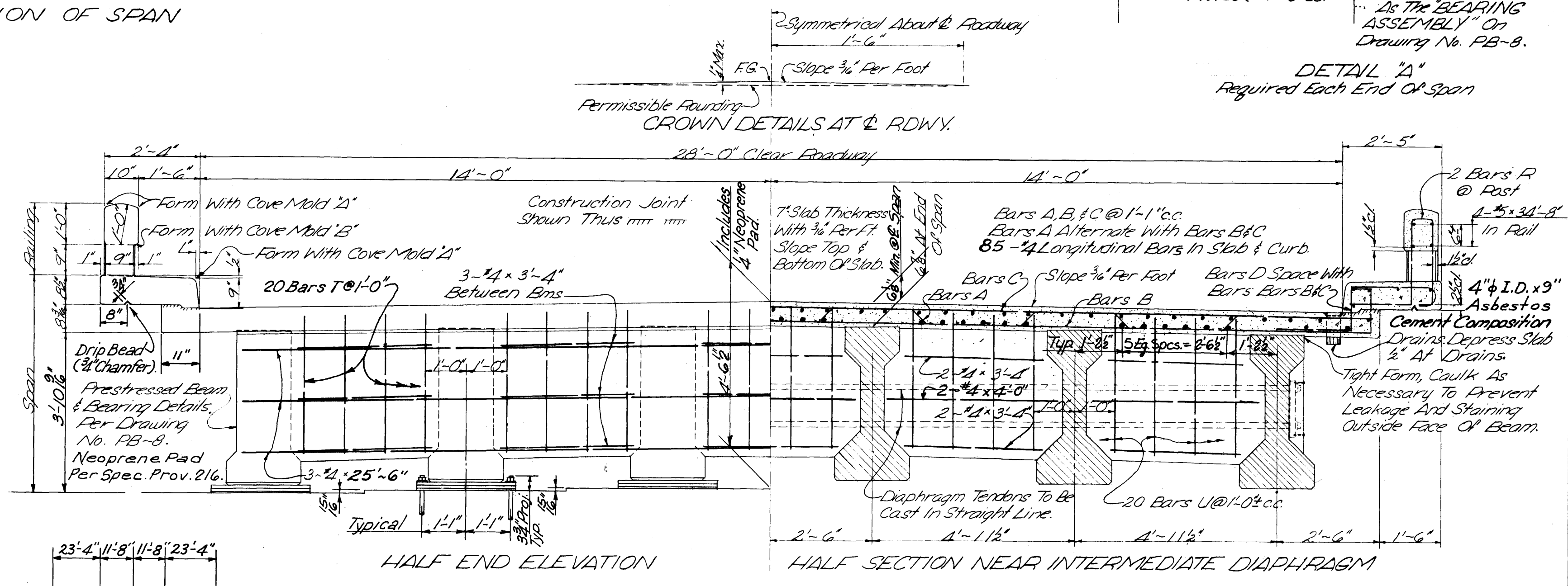
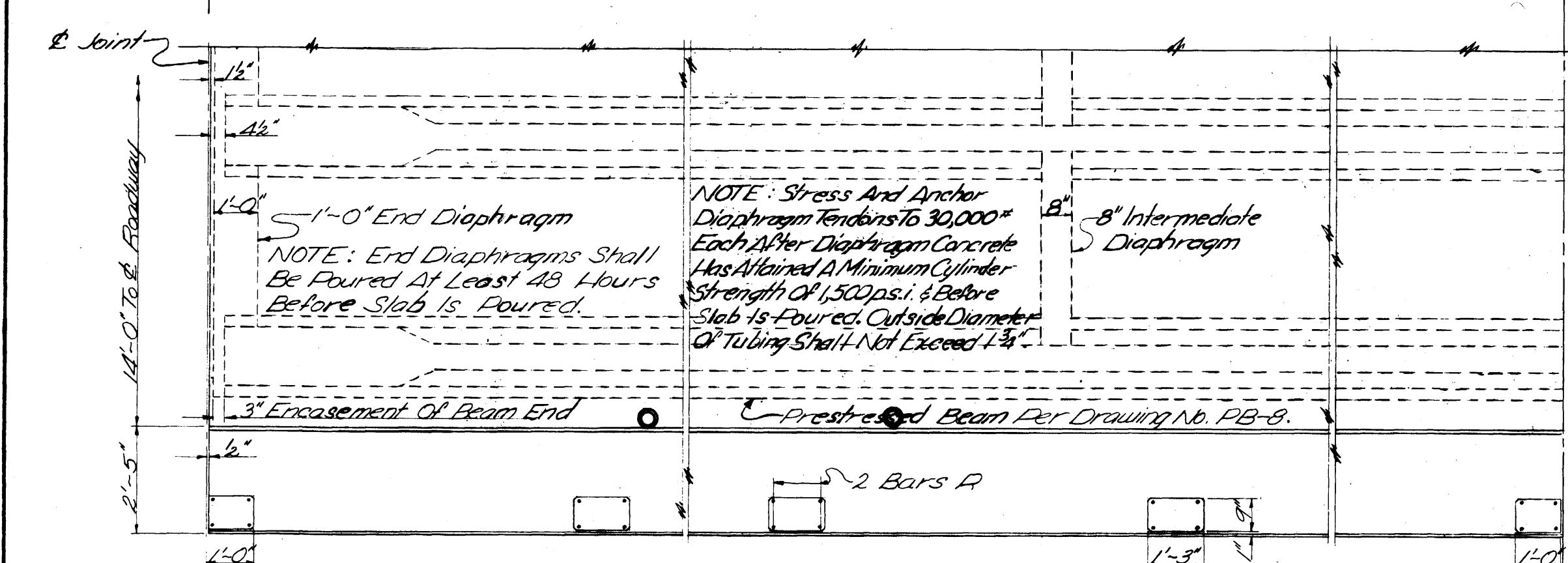
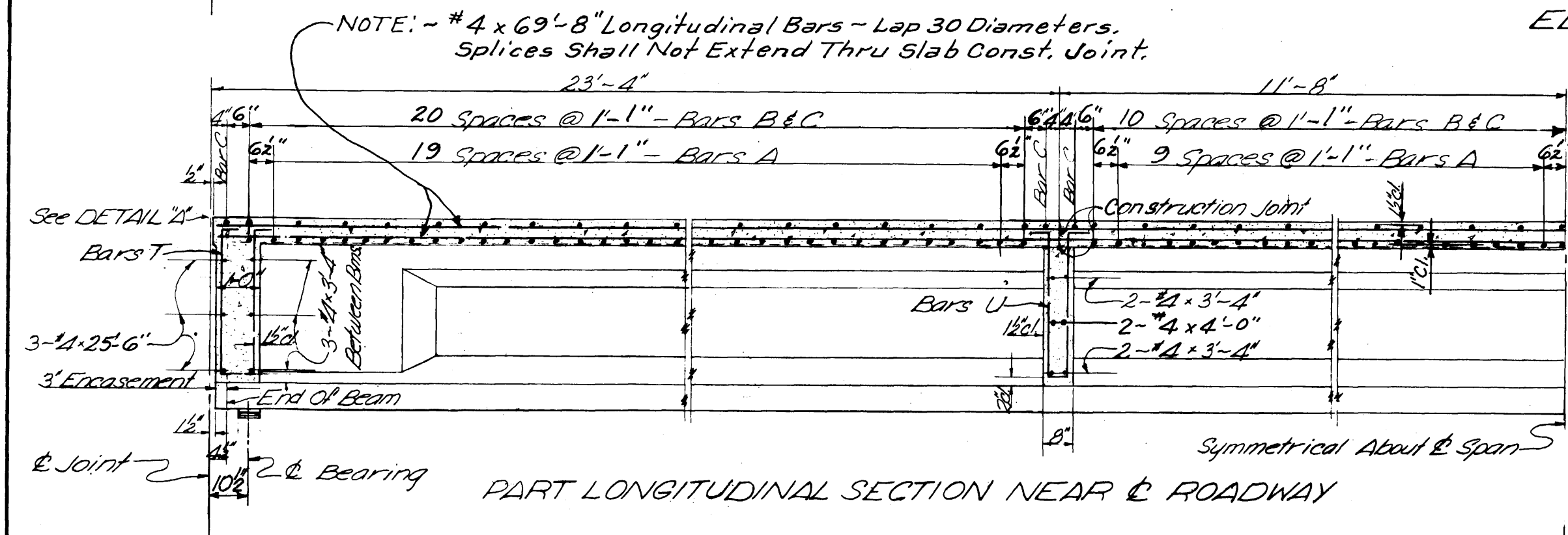
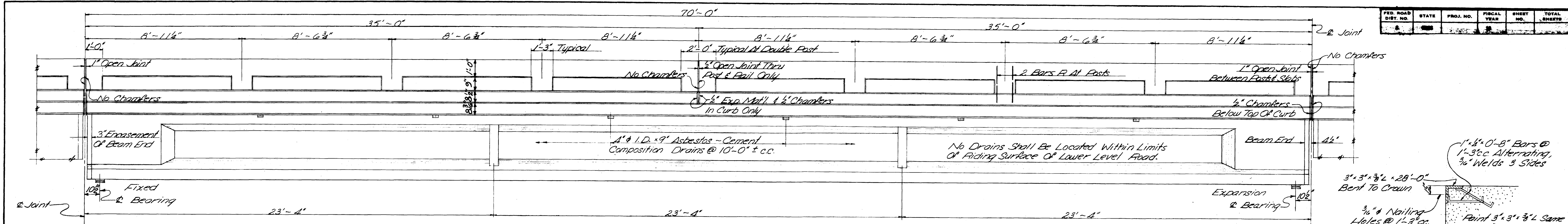
DETAIL OF ANCHOR PLATE SHOWING PERMISSIBLE USE OF STUD ANCHORS

SPECIAL NOTES:
 The Bridge Engineer Shall Be Notified If The Camber Of This Beam Is Not Within The Limits Of From 1/2" To 1 1/2".
 Procedures For Manufacture, Handling And Hauling Of Prestressed Beams And Construction Of Spans Should Be Approved By The Bridge Engineer. Manufacturers And Contractors Should Request A Copy OF INFORMATION AND SUGGESTIONS ON PRESTRESSED CONCRETE MANUFACTURE AND CONSTRUCTION From The Bridge Division.

DESIGN DATA
 Unit Stresses Are In Accordance With A A.S.H.O. 1961.

MISSISSIPPI STATE HIGHWAY DEPARTMENT	
PRESTRESSED CONCRETE BEAM	
LENGTH — 70 FT.	
SUBMITTED BY _____ BRIDGE ENGINEER	
DATE 2-20-59	DRAWING NO. PB-8
CHECKED B.D.V.	ISSUED 7/21/68
TRACED R.T.	DATE 2-20-59

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS



GENERAL NOTES:

Specifications: Mississippi State Highway Department, 1956, And Special Provisions No. 112 Revised And No. 216.

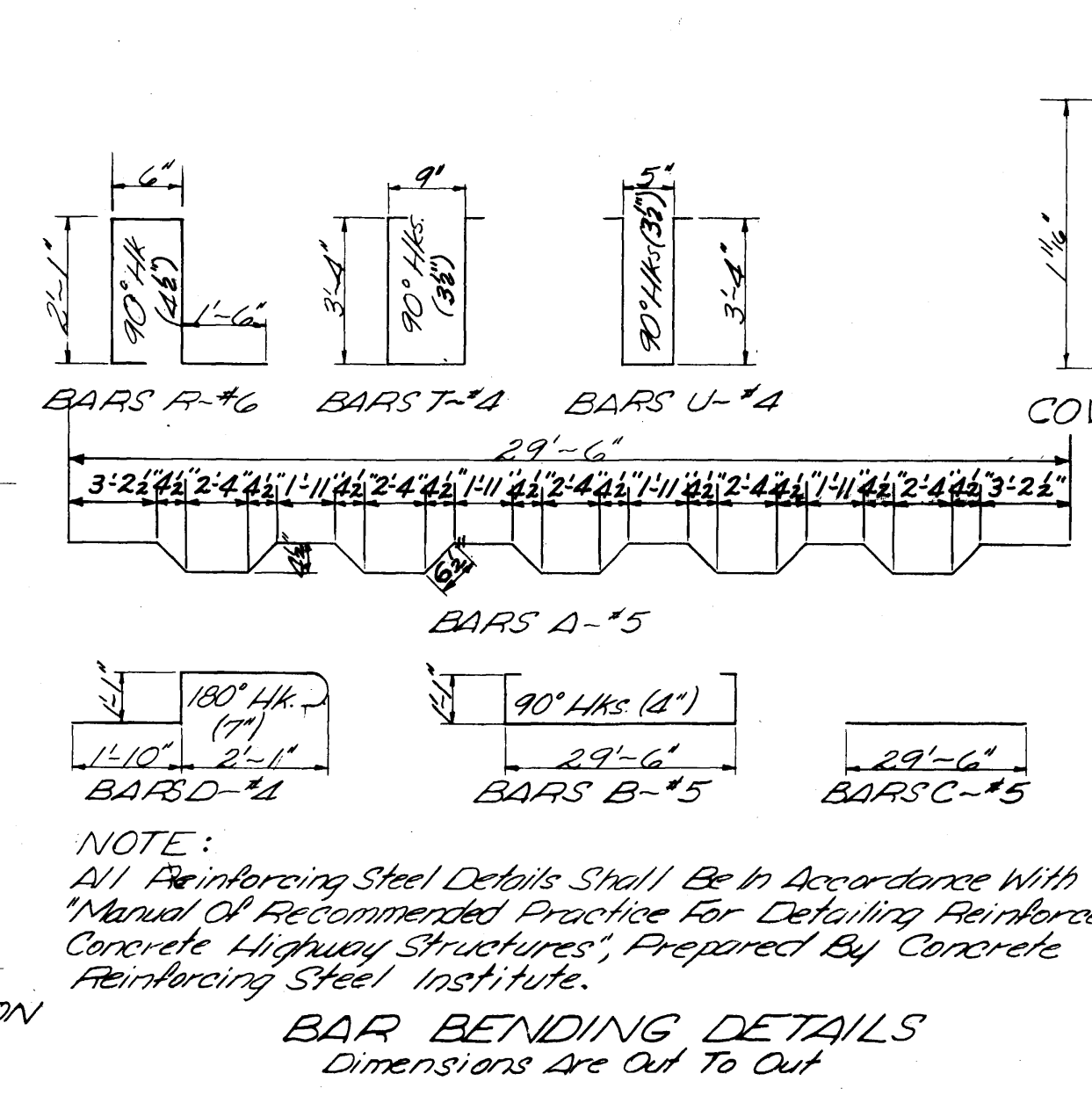
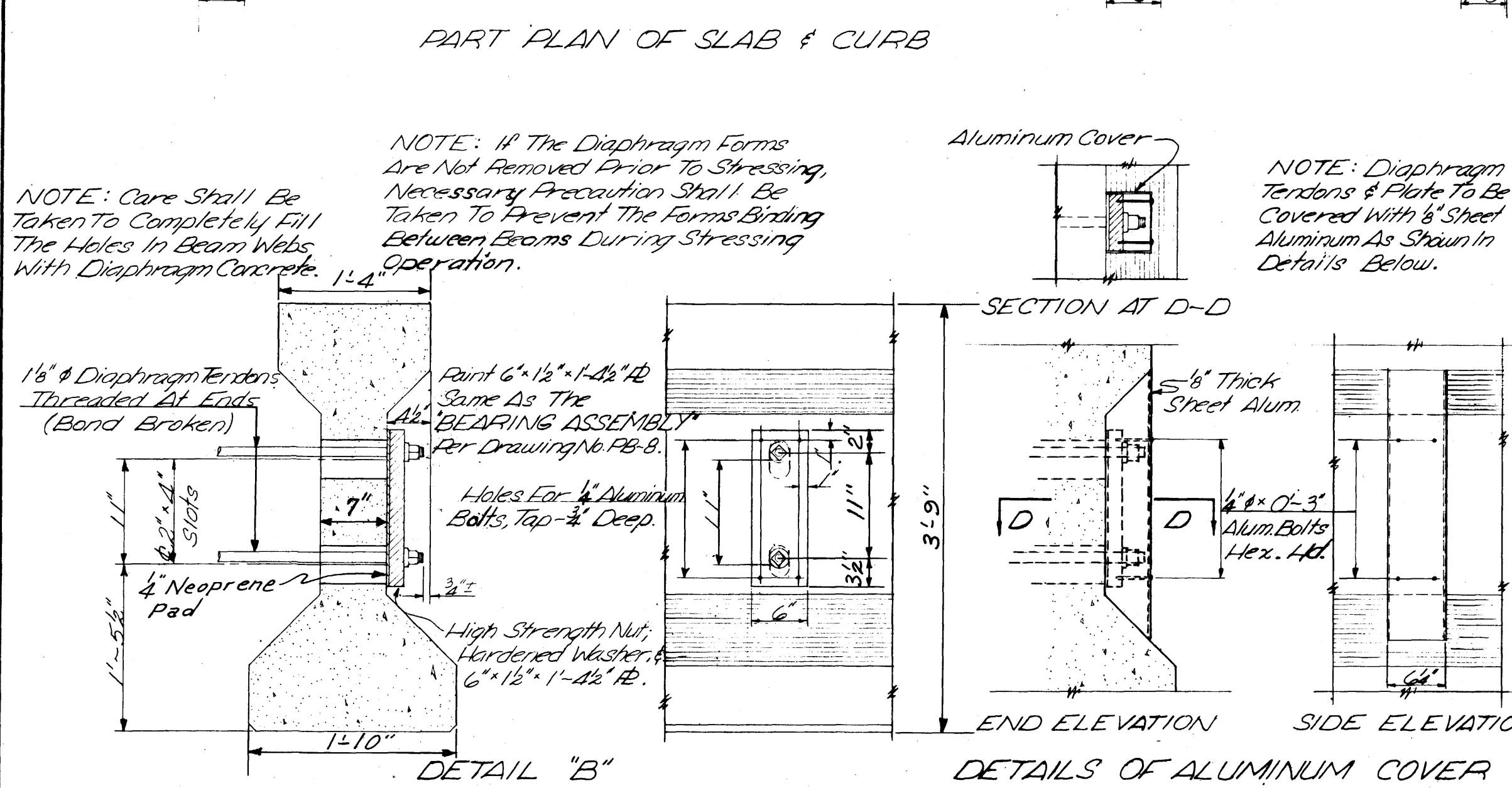
Concrete In Railing Shall Be Class 'A'. All Other Concrete Shall Be Class 'B'.

All Edges Shall Be Channeled 1/2" Except Where Otherwise Noted. Finish Concrete Surfaces Per Article 200.19 Of The Specifications, Dwg. RF-1, And Special Provision No. 112 Revised.

Placing Dimensions For Reinforcing Steel To Concrete Surfaces Are Clear Distances.

All Work For Which No Pay Items Are Provided In The Proposal Will Not Be Paid For Directly And Compensation Therefor Will Be Considered Included In The Prices And Payments For Bid Items.

Neoprene Pads Shall Be In Accordance With Special Provision No. 216.



SPECIAL NOTES

The Dimensions Shown From Finish Grade To Caps Are Based On The Assumption That The Original Camber Of The Beam Will Not Be Less Than 1/4" Nor More Than 1/4". The Bridge Engineer Shall Be Notified If The Camber Is Not Within These Limits.

Procedure For Manufacture, Handling & Hauling Of Prestressed Beams & Construction Of Spans Should Be Approved By The Bridge Engineer. Manufacturers & Contractors Should Request A Copy Of "INFORMATION AND SUGGESTIONS ON PRESTRESSED CONCRETE MANUFACTURE AND CONSTRUCTION" From The Bridge Division.

Specifications: A.A.S.H.O., 1961, & T. 2. (61)
 Loading: H20-516-44 Modified For 2-24,000# Axles.
 Slab Stresses: $f_c = 20,000 \text{ psi}$, $f_s = 1,200 \text{ psi}$, $n = 10$
 Prestressed Beam Stresses: See Drawing No. PB-9.

MISSISSIPPI STATE HIGHWAY DEPARTMENT

PRESTRESSED CONCRETE BEAM SPAN

LENGTH - 70 FT.

ROADWAY - 28 FT.

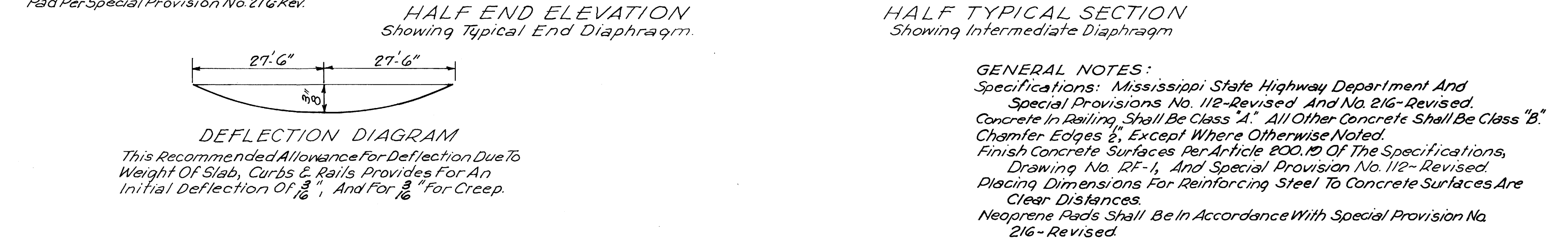
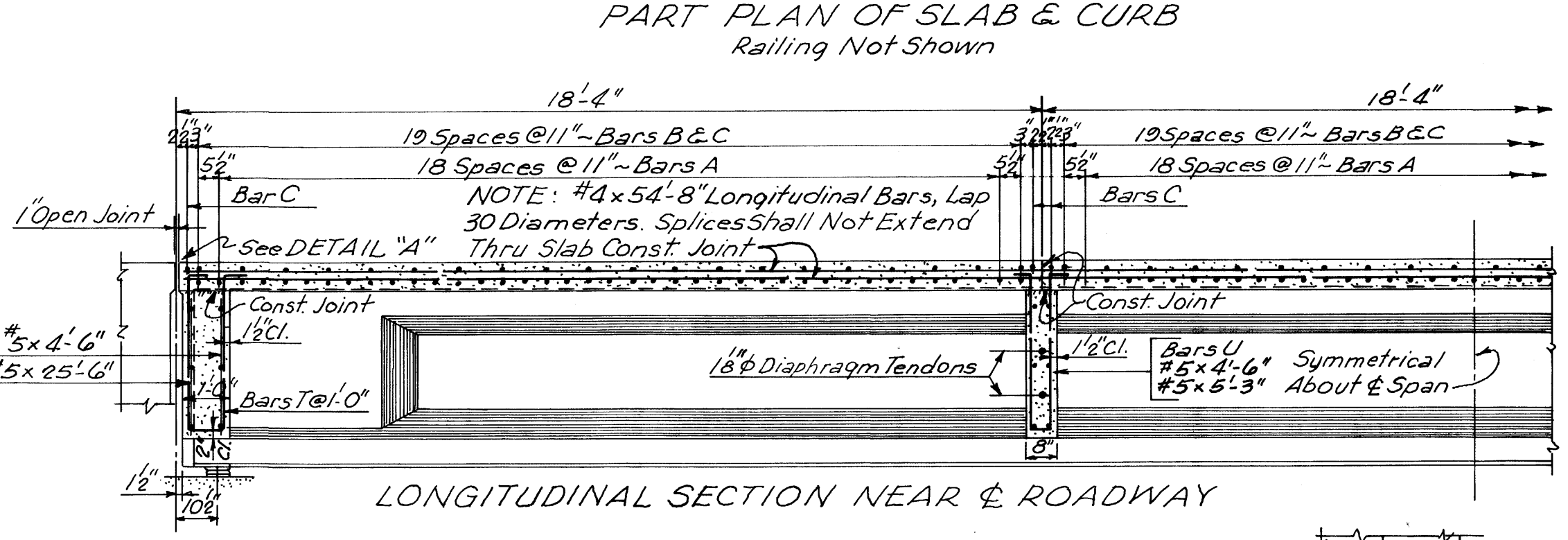
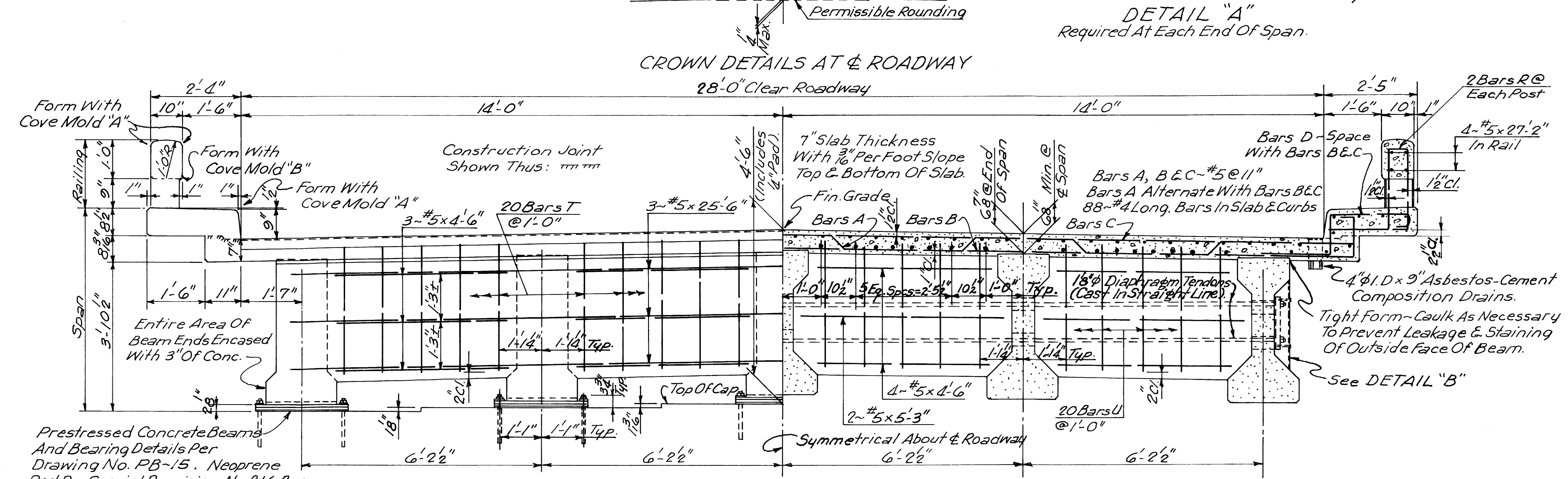
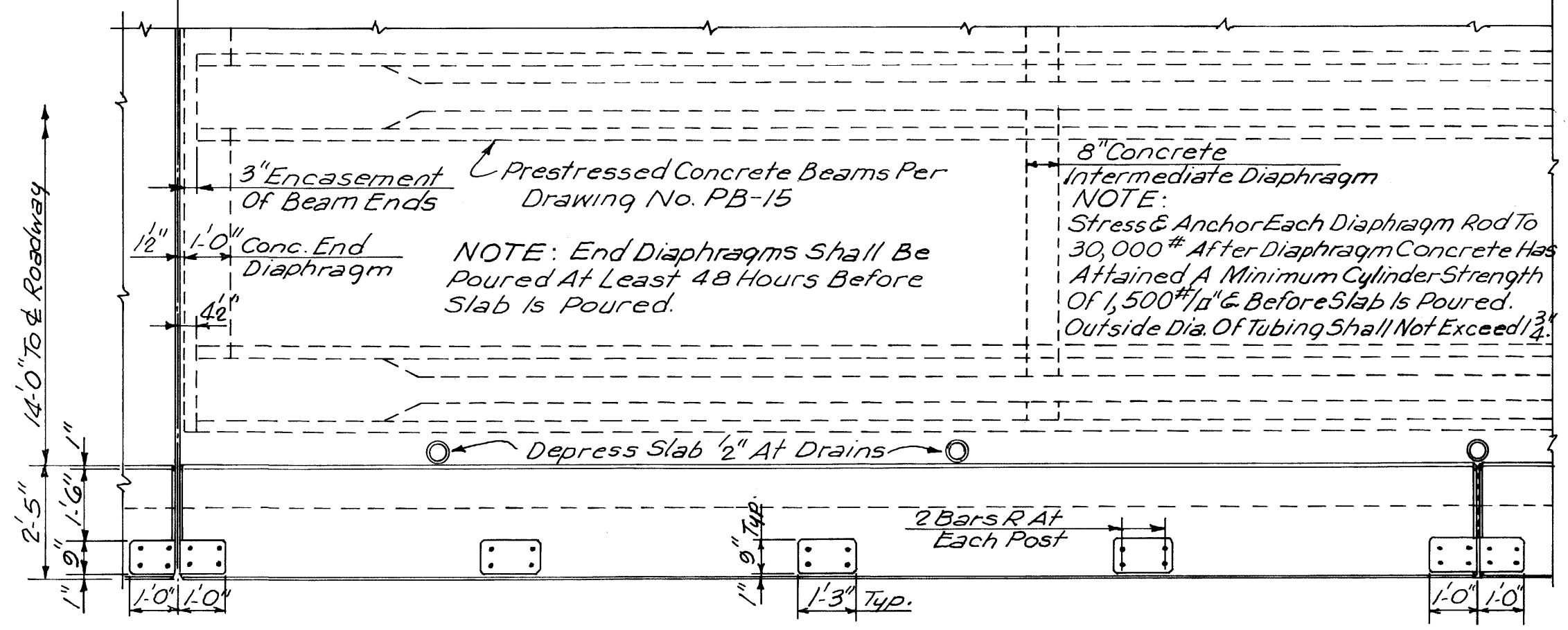
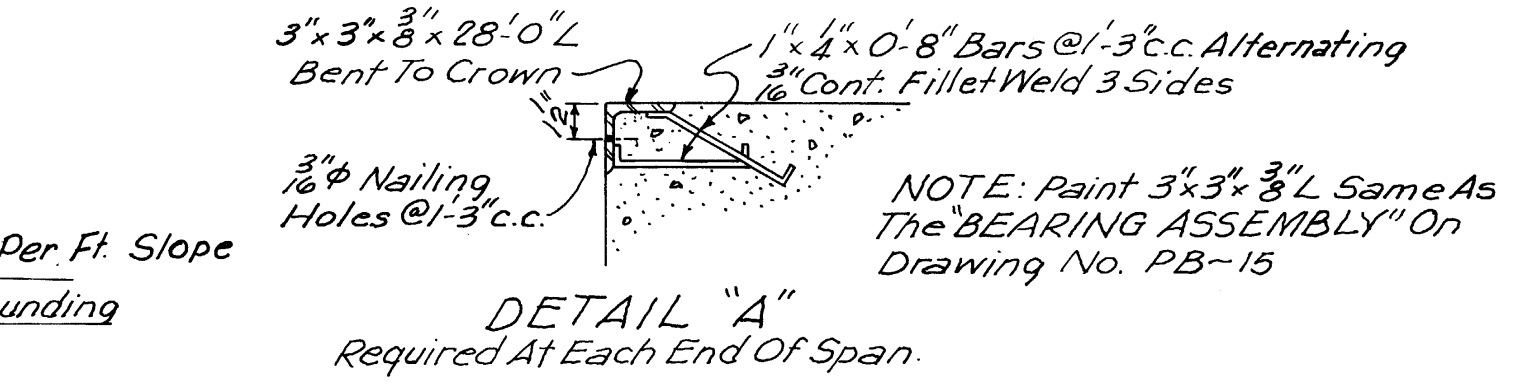
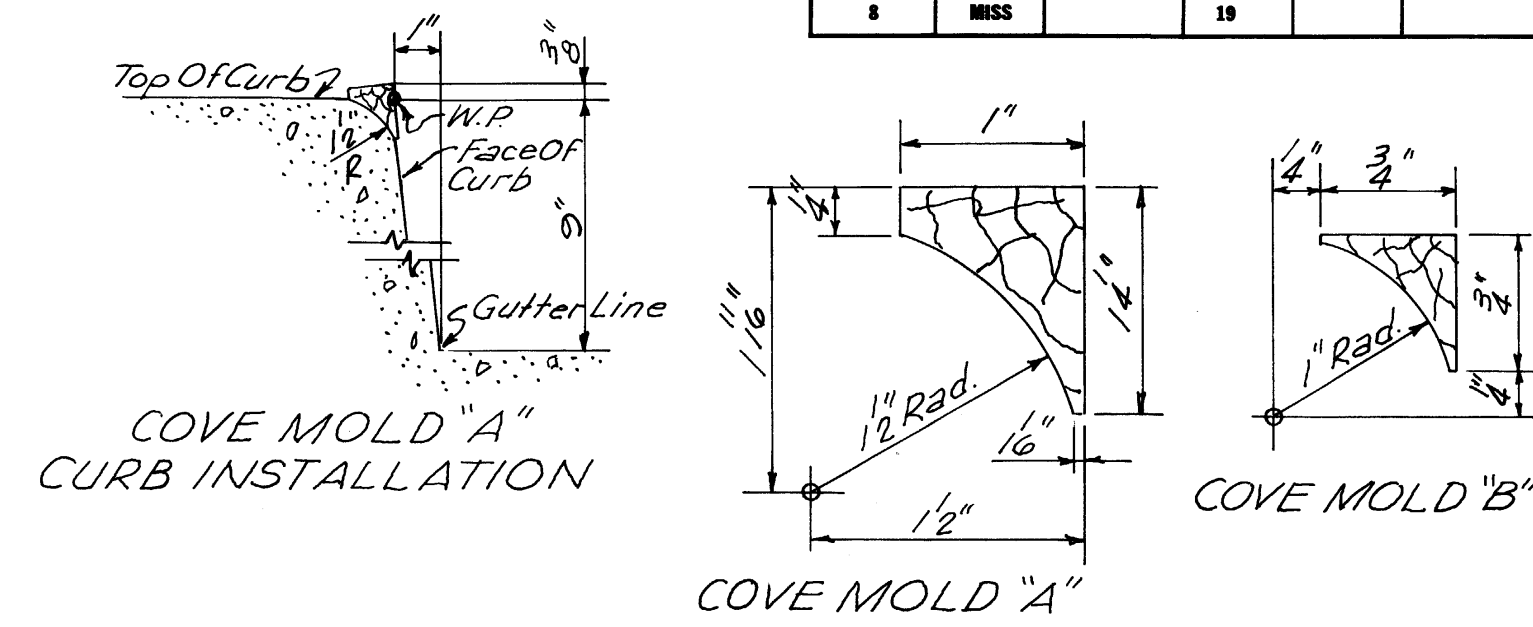
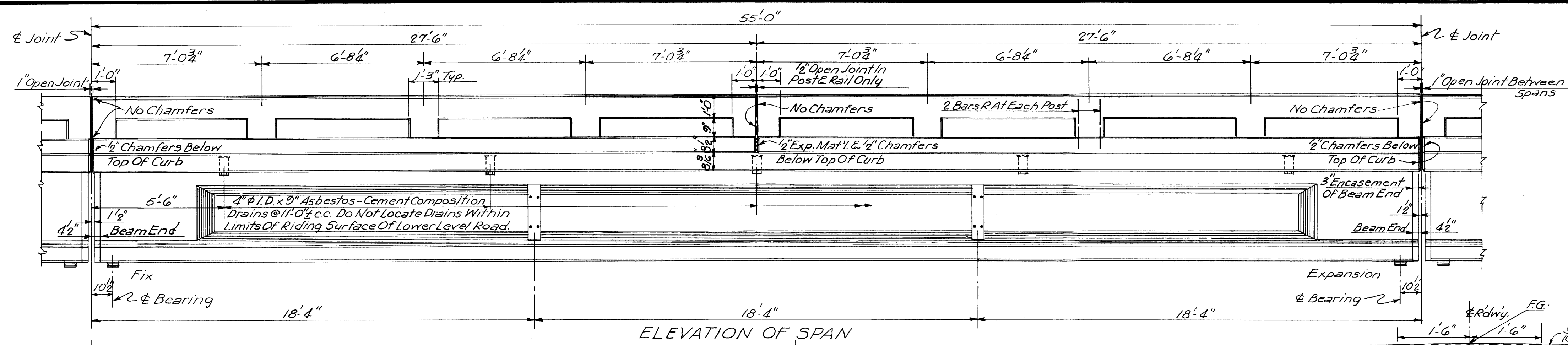
SUBMITTED BY _____ BRIDGE ENGINEER

DATE REVISIONS BY: 1/15/59, 2/15/59, 3/15/59, 4/15/59, 5/15/59, 6/15/59, 7/15/59, 8/15/59, 9/15/59, 10/15/59, 11/15/59, 12/15/59

DATE: 1/15/59, 2/15/59, 3/15/59, 4/15/59, 5/15/59, 6/15/59, 7/15/59, 8/15/59, 9/15/59, 10/15/59, 11/15/59, 12/15/59

TRACED: _____ CHECKED: _____ ISSUED: _____ DRAWING NO. PS-19

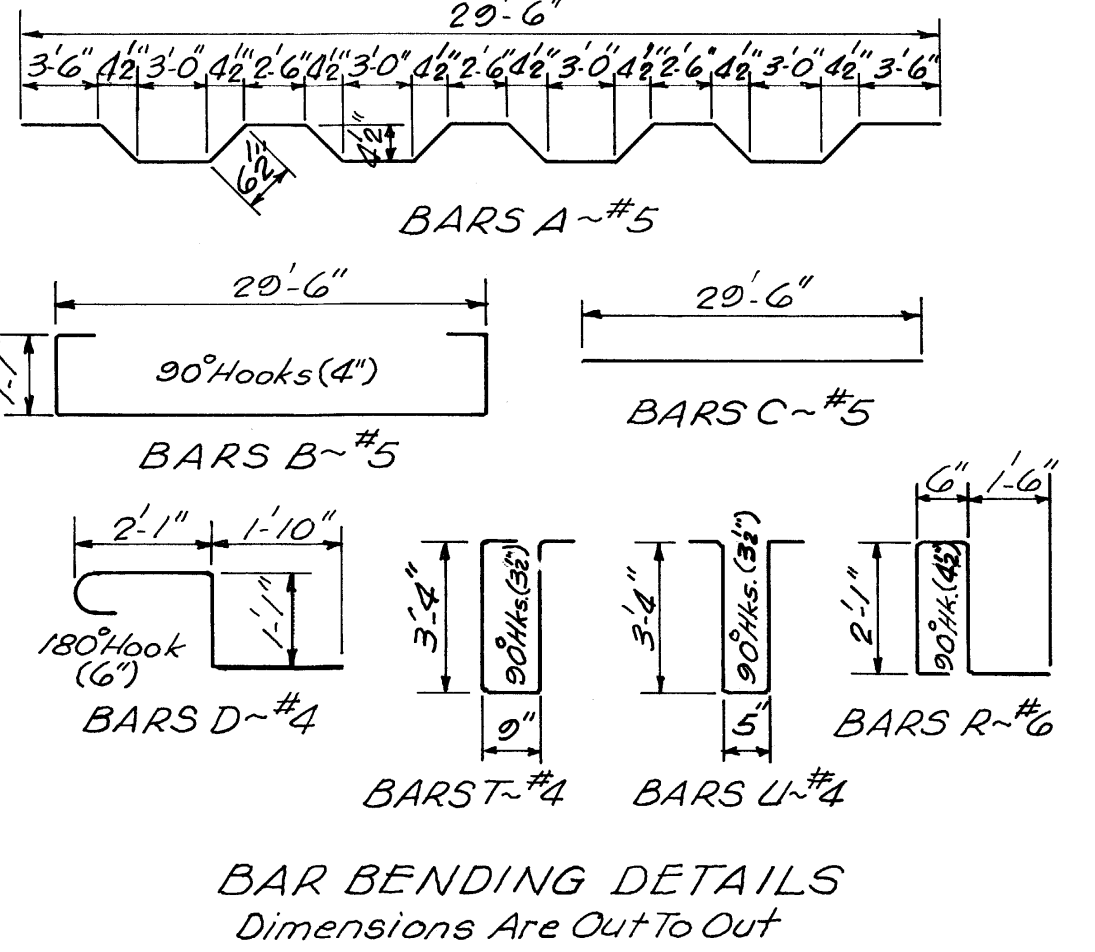
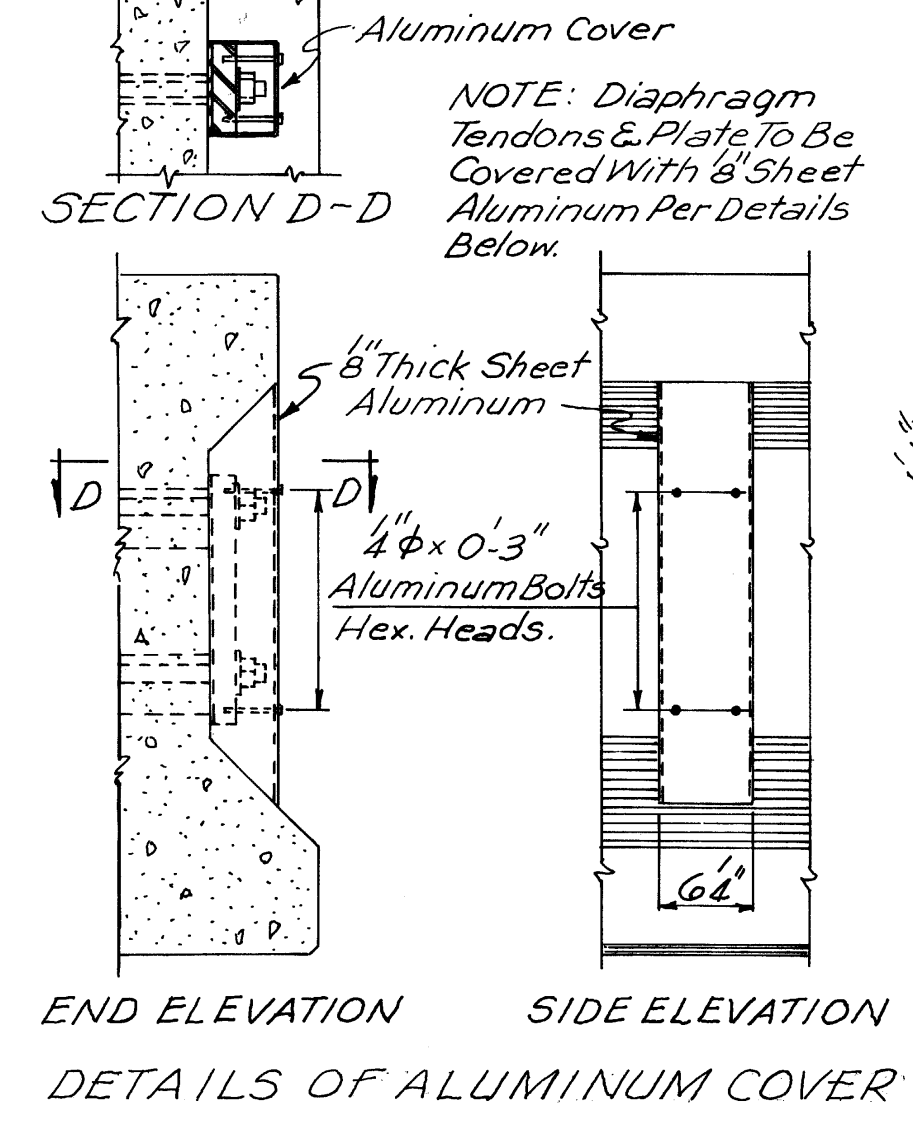
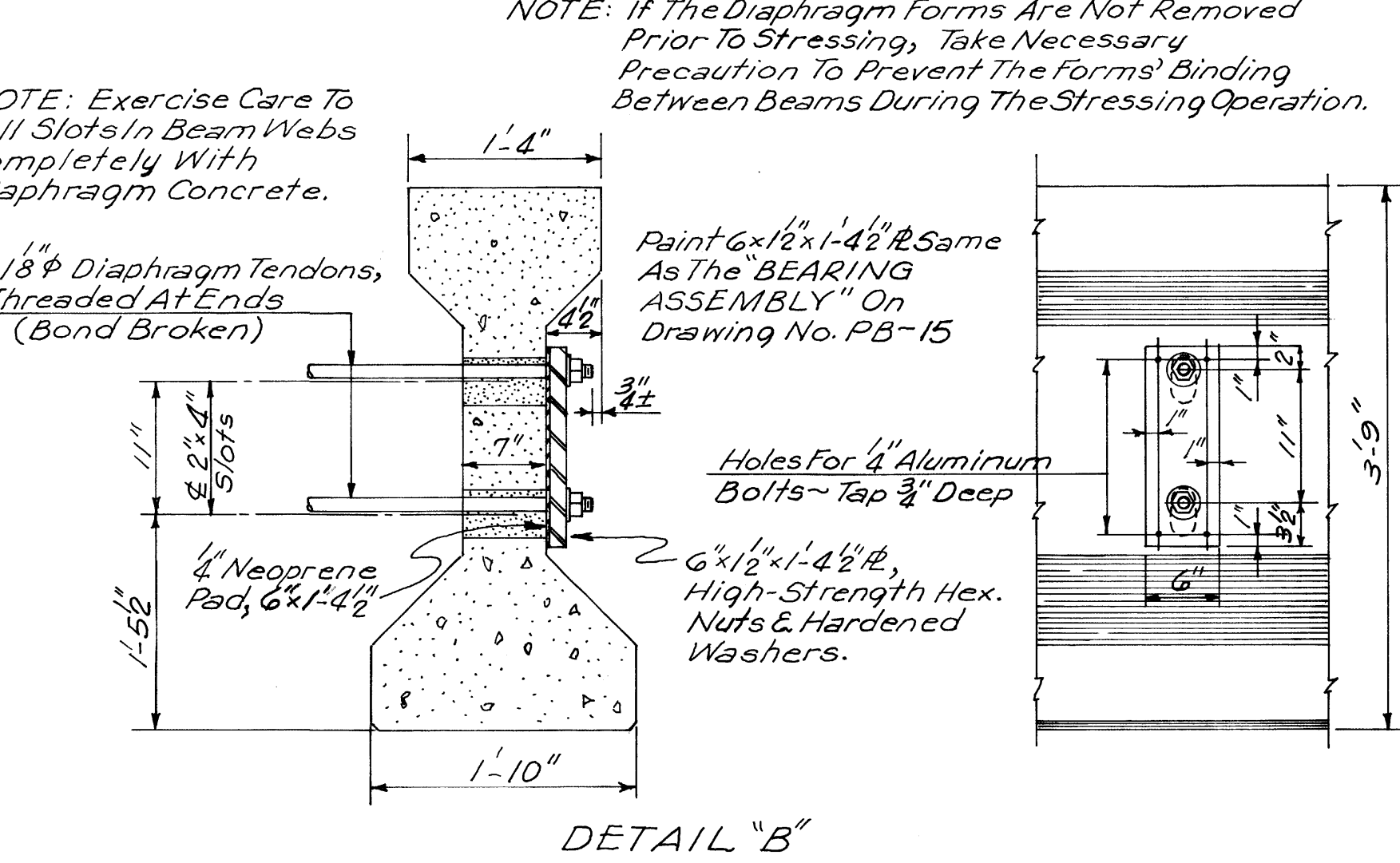
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
8	MISS		19		



GENERAL NOTES:
Specifications: Mississippi State Highway Department And Special Provisions No. 112-Revised And No. 216-Revised. Concrete In Railing Shall Be Class "A". All Other Concrete Shall Be Class "B". Chamfer Edges 1/2". Except Where Otherwise Noted. Finish Concrete Surfaces Per Article 200.10 Of The Specifications, Drawing No. RF-1, And Special Provision No. 112-Revised. Placing Dimensions For Reinforcing Steel To Concrete Surfaces Are Clear Distances. Neoprene Pads Shall Be In Accordance With Special Provision No. 216-Revised. All Work For Which No Pay Items Are Provided In The Proposal Will Not Be Paid For Directly And Compensation Therefor Will Be Considered Included In The Prices And Payments For Bid Items.

SPECIAL NOTES:
The Dimensions Shown From Finish Grade To Caps Are Based On The Assumption That The Original Camber Of The Beam Will Be Not Less Than 0" Nor More Than 3/8". The Bridge Engineer Shall Be Notified If The Camber Is Not Within These Limits. Procedure For Manufacture, Handling & Hauling Of Prestressed Beams And For Construction Of Spans Should Be Approved By The Bridge Engineer. Manufacturers & Contractors Should Request A Copy Of "INFORMATION & SUGGESTIONS ON PRESTRESSED CONCRETE MANUFACTURE & CONSTRUCTION" From The Bridge Division.

DESIGN DATA
Specifications: A. A. S. H. O. 1961 & T 2 (61). Loading: H-20-S16-44, Modified For 2-24,000# Axles. Slab Stresses: Is=20,000 p.s.i., It=1,200 p.s.i., r=10. Prestressed Beam Stresses: See Drawing No. PB-15.



MISSISSIPPI STATE HIGHWAY DEPARTMENT			
PRESTRESSED CONCRETE BEAM SPAN			
LENGTH - 55 FT.			
ROADWAY - 28 FT.			
SUBMITTED BY		BRIDGE ENGINEER	
DATE	REVISIONS	DATE	REVISIONS
5-12-61	J.R.R.	5-12-61	Z.T.
TRACED E.W.E.		ISSUED M.H.B.	
DATE 5-12-61		DRAWING NO. PS-23	