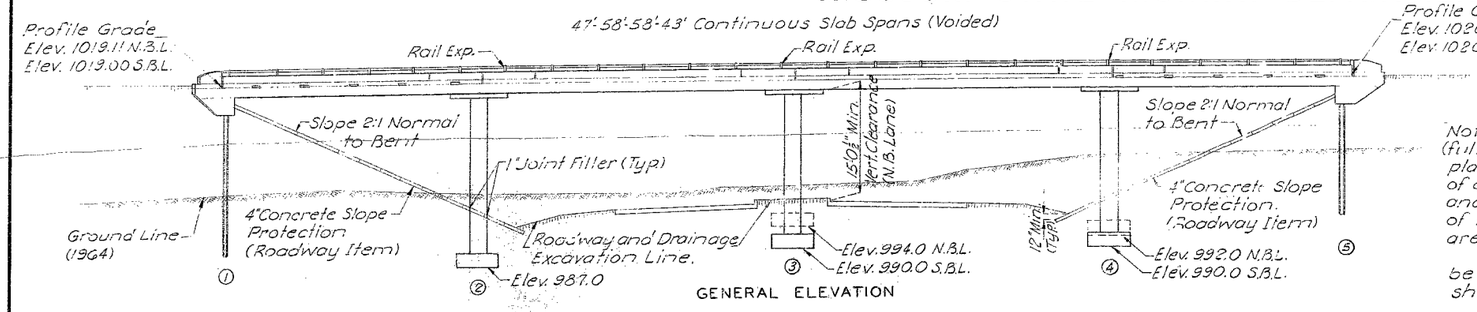
FOR INFORMATION ONLY

A15955, Sht. 3

MISSOURI STATE HIGHWAY DEPARTMENT

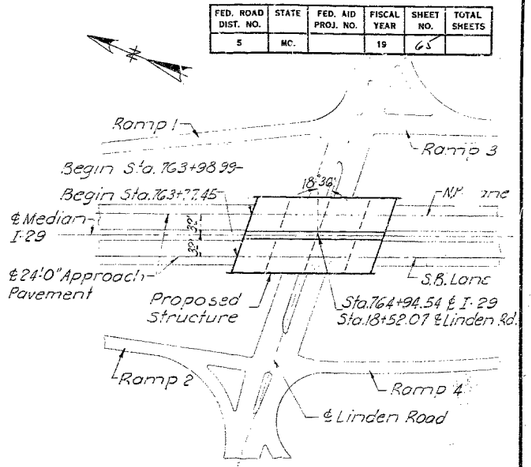
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	65	



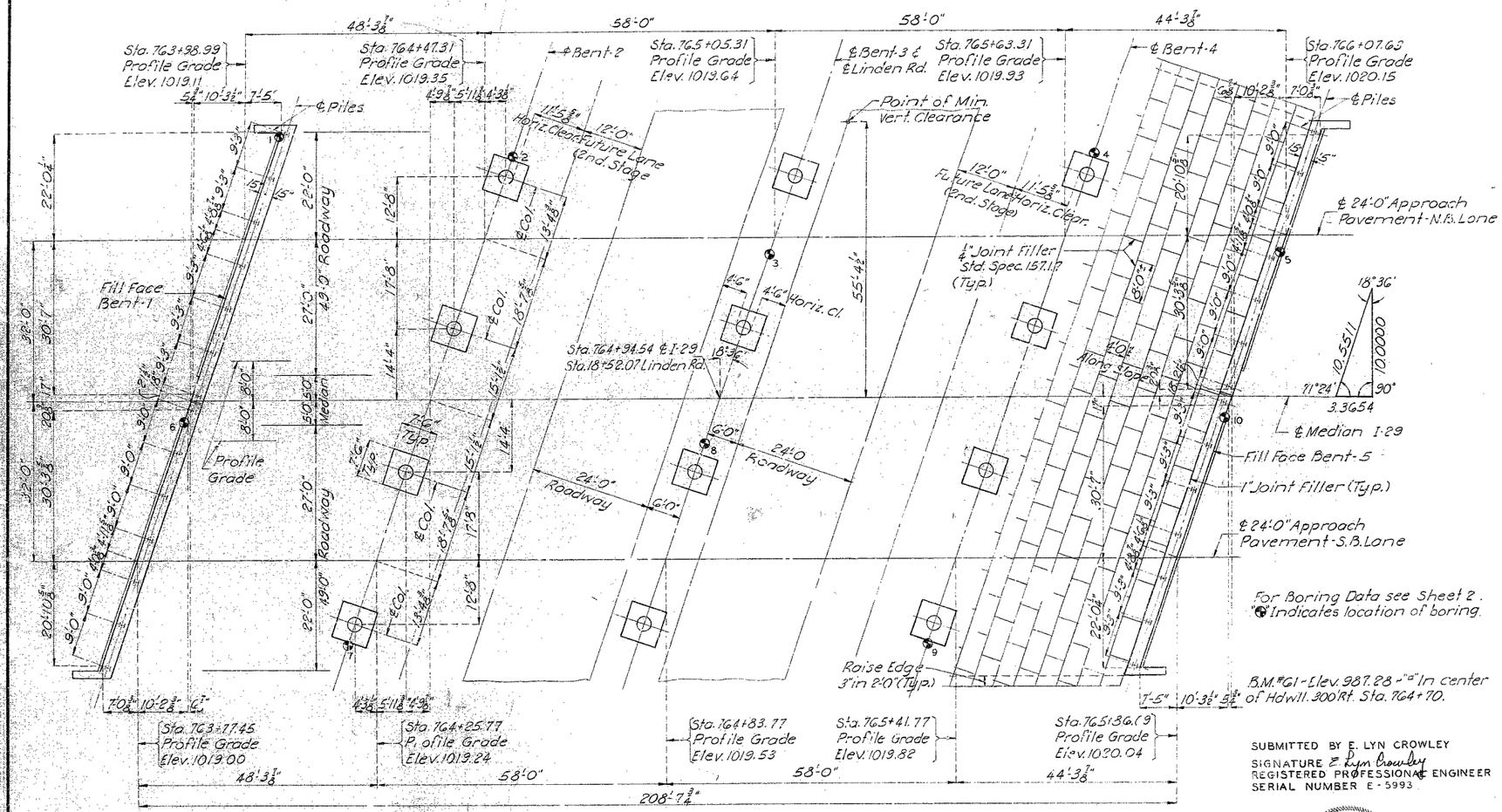
GENERAL ELEVATION

Note: Compacted roadway fill (full roadway width) shall be placed up to elevation of bottom of concrete beam in front of and not less than 2.5'0" in back of End Bents before steel piles are driven.

In no case shall footings be placed above elevations shown.



LOCATION SKETCH



PLAN

For Boring Data see Sheet 2.
"B" Indicates location of boring.

B.M. "G1" - Elev. 987.28 - "a" In center of Hdwll. 300' Rt. Sta. 764+70.

GENERAL NOTES:

Design Specifications:
A.A.S.H.O. - 1961
Design Loading:
H S 20-44
15#/sq. ft. Future Wearing Surface
Modified 24,000# Tandem Axle
Earth 120# Equivalent Fluid Pressure 30#
Design Unit Stresses:
Class B Concrete (Substructure) f_c = 1,200 psi
Class B1 Concrete (Superstructure) f_c = 1,600 psi
Reinforcing Steel f_s = 20,000 psi
Steel Pile (A.S.T.M. A36-62T) f_b = 3,900 psi
Superstructure deck to be surface sealed.
Falsework over existing lanes shall be constructed with a minimum vertical clearance of 12'0" from high side of existing lanes and a minimum lateral clearance of 12'0" centered on existing lanes.

ESTIMATED QUANTITIES

ITEM		SUBSTR.	SUPERSTR.	TOTAL
Class I Excavation for Structures	Cu.Yd.	430	—	430
Steel Piles in Place (10')	Lin.Ft.	686	—	686
Class B Concrete	Cu.Yd.	62.4	—	62.4
Class B1 Concrete	Cu.Yd.	—	1561.8	1561.8
Reinforcing Steel	Lb.	5960	408,050	414,010
Bridge Rail (Single Tube Type)	Lin.Ft.	—	416	416
Guard Rail Type B (Steel) (Bolt down)	Lin.Ft.	—	209	209

Note: All concrete and reinforcement above footings in intermediate bents is included in superstructure quantities. No payment for excavation will be allowed at Bents 1 & 5.

BRIDGE OVER LINDEN ROAD

STATE ROAD - INTERSTATE ROUTE 29

IN KANSAS CITY

PROJECT NO. I-29-1(36) SEC. A (RTE. I-29) **STA.** 763+88.22 ℄ MEDIAN

PLATTE **COUNTY**

SUBMITTED BY E. LYN CROWLEY
SIGNATURE E. Lyn Crowley
REGISTERED PROFESSIONAL ENGINEER
SERIAL NUMBER E-5993

STATE OF MISSOURI — EARL LYN CROWLEY — NUMBER E-5993 — REGISTERED PROFESSIONAL ENGINEER

SUBMITTED BY D.B. Gardiner BRIDGE ENGINEER DATE 3-29-66

APPROVED BY M.D. Snider CHIEF ENGINEER DATE 3-29-66

STD 86.00
STD. 54.00
A-1595

309

RICHARD COMPANY, INC.
CONSULTING ENGINEERS
INDEPENDENCE, MISSOURI

DESIGNED DEC. 1965 BY R.H.K.
DETAILED JAN. 1966 BY H.H.B.
CHECKED FEB. 1966 BY S.E.P.

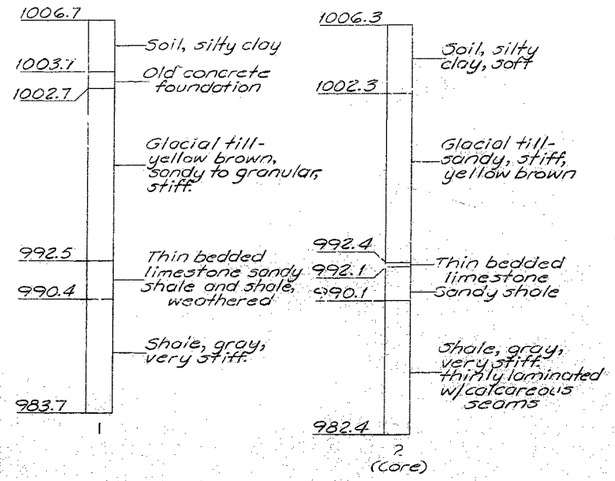
Note: This drawing is not to scale. Follow dimensions.

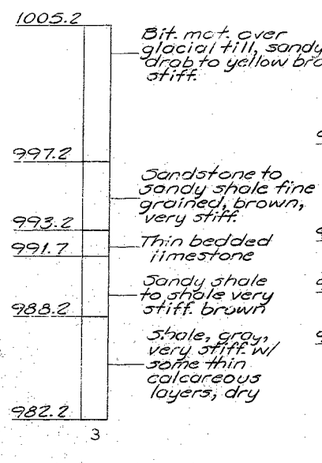
Sheet No. 1 of 10.

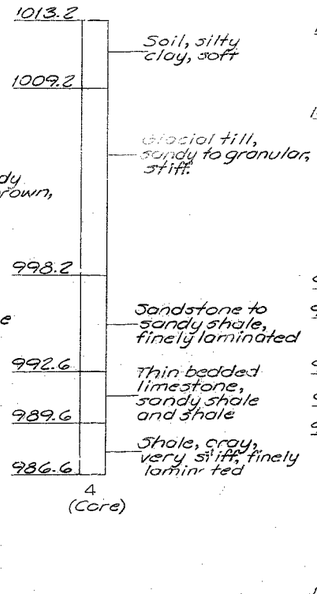
SEE FINAL PLANS BROWN-LINES

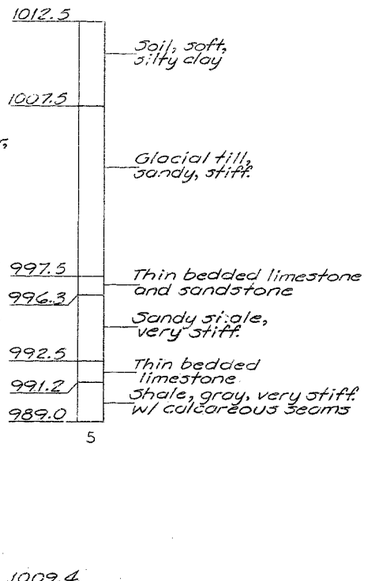
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	66	





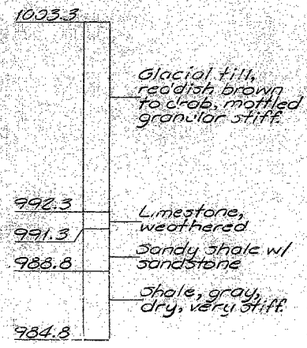


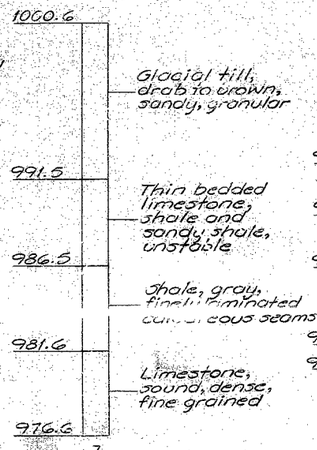


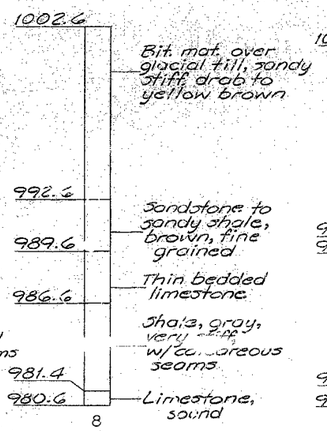
FOOTING AND PILE DATA						
	BENT NO	1	2	3	4	5
SPREAD FOOTINGS	Foundation Material		→ Rock or Shale →			
	Design Bearing Tons/Sq.ft.		6	6	6	
BEARING PILE	Pile Type & Size	10BP42	—	—	—	10BP42
	Number	14	—	—	—	14
	Approximate Length Ft.	21	—	—	—	22
	Design Bearing Value Tons	46				44
	Hammer Energy Reqd.* ℓ#	10350				9900

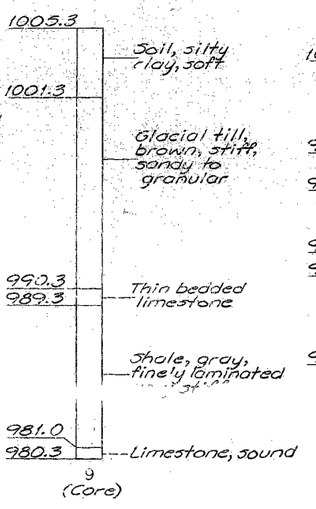
Note:*Minimum Energy Requirement of Hammer based on plan length and design bearing value of piles. Increase by the factor (W+w)/2W when the weigh of the ram(W) is less than the weight of the pile (w).
All pile shall be driven to practical refusal.

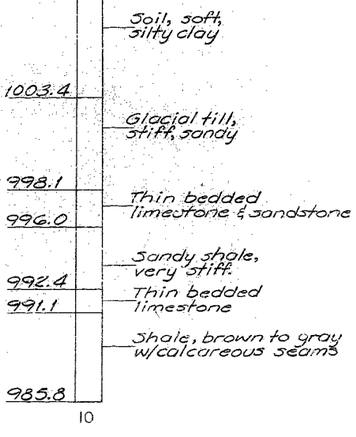
Note: Footings shall be carried 6" into hard, solid, undisturbed rock or 18" into soft rock or shale and cast against vertical faces of same.











Note: For location of borings see sheet number 1.

BORING DATA

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BRIDGE -OVER LINDEN ROAD
STATE ROAD INTERSTATE ROUTE 29
IN KANSAS CITY
PROJECT NO. I-29-136(SEC.A (RTE.I-29)) **STA.** 763+88.22 ℄ MEDIAN
PLATTE **COUNTY**

DETAILED Jan. 1966 BY B.F.P.
CHECKED Feb. 1966 BY G.F.P.

Note: This drawing is not to scale. Follow dimensions.

Sheet No. 2 of 10.

A-1595

NO CONSTRUCTION CHANGES

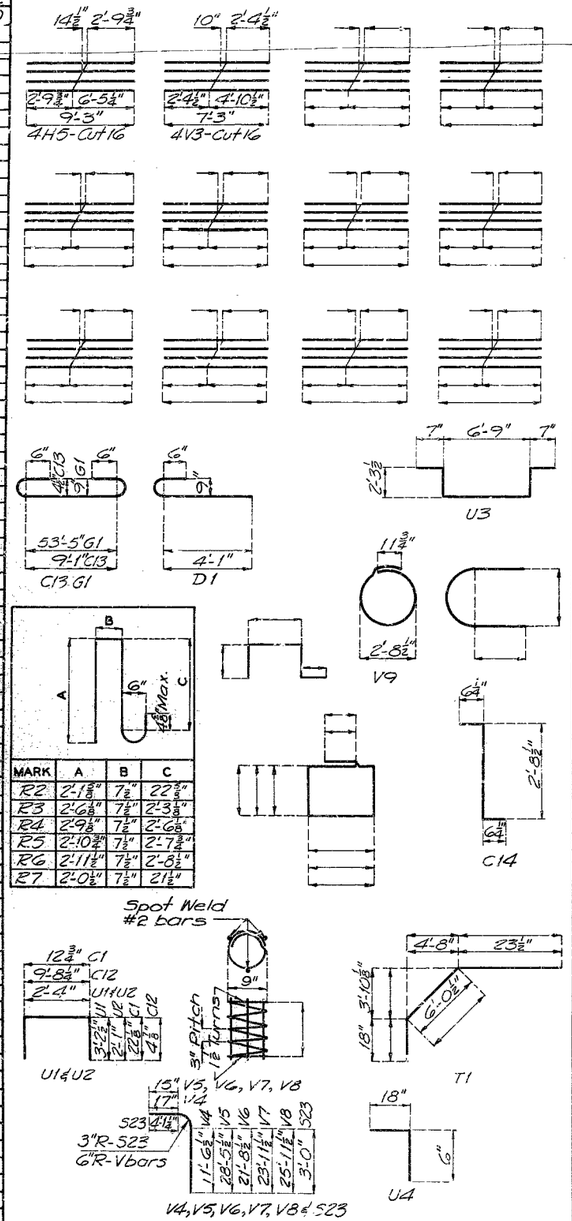
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	67	

COMPLETE BILL OF REINFORCING STEEL

NO.	SIZE	LENGTH	MARK	LOCATION NBL	LOCATION SBL
SUPERSTRUCTURE				NBL	SBL
460	#5	4'-9"	C1	230	230
8	#5	5'-3"	C2	4	4
8	#6	24'-9"	C3	4	4
16	#5	29'-6"	C4	8	8
8	#6	22'-9"	C5	4	4
14	#4	25'-3"	C6	14	
28	#4	29'-3"	C7	28	
14	#4	23'-3"	C8	14	
30	#5	25'-6"	C9	30	
60	#5	29'-6"	C10	60	
30	#5	23'-6"	C11	30	
212	#4	10'-6"	C12	212	
454	#5	11'-3"	C13	454	
416	#4	3'-9"	C14	416	
24	#5	4'-9"	R1	12	12
4	#5	5'-9"	R2	2	2
4	#5	6'-3"	R3	2	2
4	#5	7'-0"	R4	2	2
4	#5	7'-3"	R5	2	2
8	#5	7'-3"	R6	4	4
426	#5	5'-6"	R7	213	213
16	#5	24'-9"	R8	8	8
48	#5	19'-6"	R9	24	24
16	#5	22'-9"	R10	8	8
48	#5	9'-6"	R11	24	24
1824	#5	27'-9"	S1	912	912
138	#5	29'-0"	S2	69	69
70	#10	35'-0"	S3	35	35
68	#11	27'-6"	S4	34	34
136	#11	19'-0"	S5	68	68
138	#5	25'-0"	S6	69	69
140	#10	36'-0"	S7	70	70
68	#11	30'-0"	S8	34	34
68	#11	20'-0"	S9	34	34
138	#5	22'-2"	S10	69	69
70	#10	33'-6"	S11	35	35
68	#10	28'-0"	S12	34	34
70	#10	49'-6"	S13	35	35
68	#10	36'-0"	S14	34	34
68	#10	25'-0"	S15	34	34
140	#9	60'-0"	S16	70	70
68	#10	26'-0"	S17	34	34
68	#10	36'-6"	S18	34	34
68	#10	26'-6"	S19	34	34
68	#9	33'-0"	S20	34	34
68	#9	23'-0"	S21	34	34
70	#9	45'-6"	S22	35	35
SUPERSTRUCTURE END BT. 1				NBL	SBL
16	#6	28'-0"	H1	8	8
32	#6	30'-3"	H2	16	16
12	#4	5'-0"	H3	6	6
4	#6	7'-0"	H4	2	2
8	#6	9'-3"	H5	4	4
4	#4	26'-6"	H6	2	2
138	#6	7'-6"	S23	69	69
4	#6	9'-6"	T1	2	2
214	#5	8'-9"	U1	106	108
14	#5	6'-6"	U2	8	6
142	#4	2'-0"	U4	71	71
16	#4	3'-0"	V1	8	8
4	#4	5'-6"	V2	2	2
8	#4	7'-3"	V3	4	4

BENDING SKETCHES & CUTTING DIAGRAMS



NO.	SIZE	LENGTH	MARK	LOCATION NBL	LOCATION SBL
SUPERSTRUCTURE INT. BT. 2				NBL	SBL
48	#11	56'-9"	G1	24	24
44	#11	53'-9"	G2	22	22
144	#5	12'-6"	U3	72	72
32	#11	13'-9"	V4	16	16
32	#10	30'-6"	V5	16	16
112	#3	9'-6"	V9	56	56
SUPERSTRUCTURE INT. BT. 3				NBL	SBL
48	#11	56'-9"	G1	24	24
44	#11	53'-9"	G2	22	22
144	#5	12'-6"	U3	72	72
32	#11	13'-9"	V4	16	16
16	#10	23'-9"	V6	16	—
16	#10	28'-0"	V8	—	16
92	#3	9'-6"	V9	42	50
SUPERSTRUCTURE INT. BT. 4				NBL	SBL
48	#11	56'-9"	G1	24	24
44	#11	53'-9"	G2	22	22
144	#5	12'-6"	U3	72	72
32	#11	13'-9"	V4	16	16
16	#10	26'-0"	V7	16	—
16	#10	28'-0"	V8	—	16
98	#3	9'-6"	V9	48	50
SUPERSTRUCTURE END BT. 5				NBL	SBL
16	#6	28'-0"	H1	8	8
32	#6	30'-3"	H2	16	16
12	#4	5'-0"	H3	6	6
4	#6	7'-0"	H4	2	2
8	#6	9'-3"	H5	4	4
4	#4	26'-6"	H6	2	2
138	#6	7'-6"	S23	69	69
4	#6	9'-6"	T1	2	2
214	#5	8'-9"	U1	108	106
14	#5	6'-6"	U2	6	8
142	#4	2'-0"	U4	71	71
16	#4	3'-0"	V1	8	8
4	#4	5'-6"	V2	2	2
8	#4	7'-3"	V3	4	4
SUBSTRUCTURE INT. BT. 2				NBL	SBL
32	#10	5'-9"	D1	16	16
64	#8	7'-0"	D2	32	32
SUBSTRUCTURE INT. BT. 3				NBL	SBL
32	#10	5'-9"	D1	16	16
64	#8	7'-0"	D2	32	32
SUBSTRUCTURE INT. BT. 4				NBL	SBL
32	#10	5'-9"	D1	16	16
64	#8	7'-0"	D2	32	32

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No. 30.3	Revised
June 1961	Dec. 1964

DETAILED FEB. 1966 BY BFF

CHECKED FEB. 1966 BY GFP

Note: This drawing is not to scale. Follow dimensions.

Sheet No. 3 of 10.

BRIDGE - OVER LINDEN ROAD

STATE ROAD INTERSTATE ROUTE 29

IN KANSAS CITY

PROJECT NO. I-29-1(66) (SEC. A (RTE. I-29)) **STA.** 763+88.22 ℄ MEDIAN

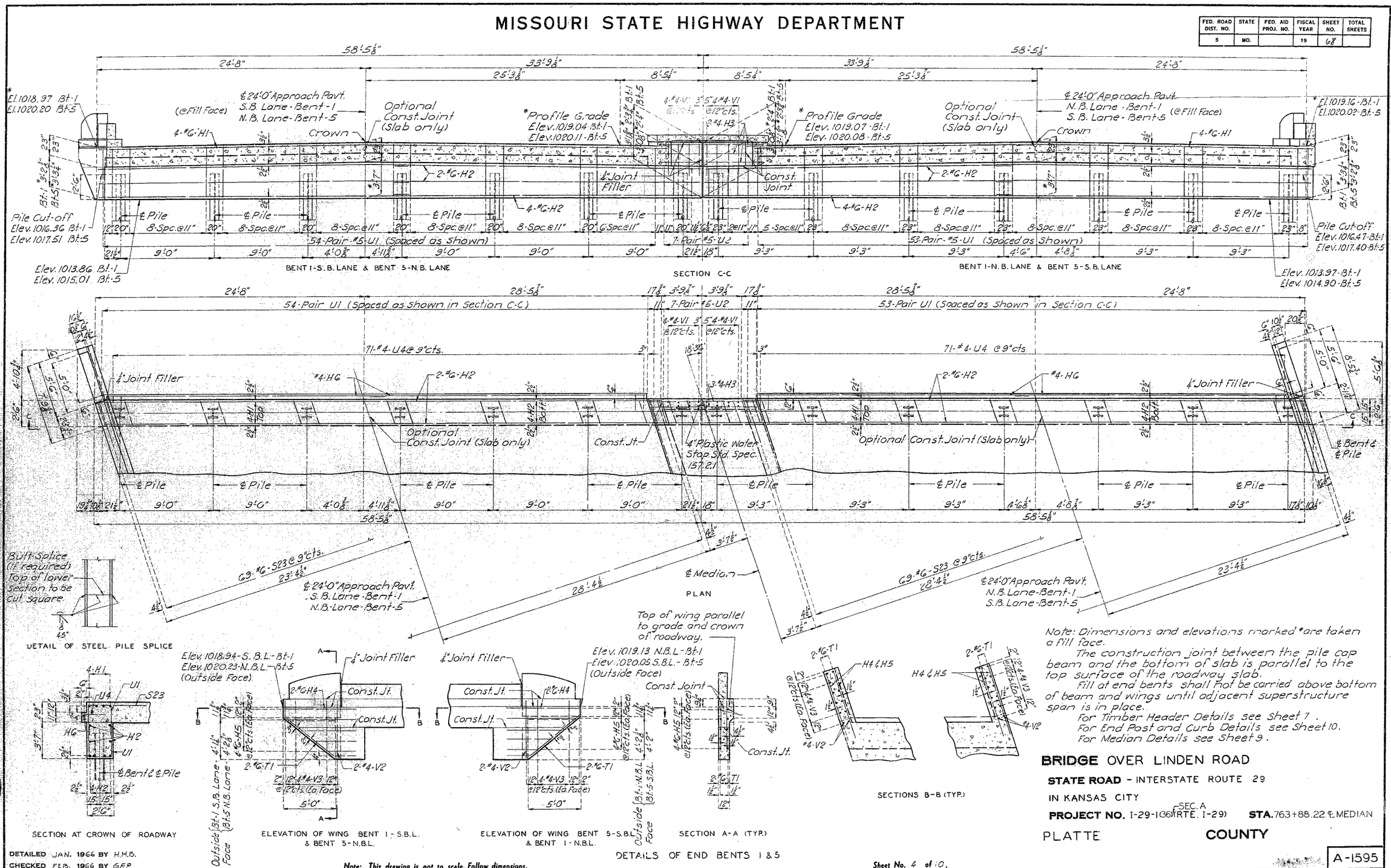
PLATTE **COUNTY**

A-1595

SEE FINAL PLANS BROWN LINES

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	68	



Note: Dimensions and elevations marked * are taken a fill face.

The construction joint between the pile cap beam and the bottom of slab is parallel to the top surface of the roadway slab.

Fill at end bents shall not be carried above bottom of beam and wings until adjacent superstructure span is in place.

For Timber Header Details see Sheet 7.
For End Post and Curb Details see Sheet 10.
For Median Details see Sheet 9.

BRIDGE OVER LINDEN ROAD

STATE ROAD - INTERSTATE ROUTE 29

IN KANSAS CITY

PROJECT NO. I-29-1(36) (SEC. A (RTE. I-29)) **STA.** 763+88.22 ℄ MEDIAN

PLATTE **COUNTY**

DETAILED JAN. 1966 BY H.H.B.

CHECKED FEB. 1966 BY G.F.P.

Note: This drawing is not to scale. Follow dimensions.

Sheet No. 4 of 10.

A-1595

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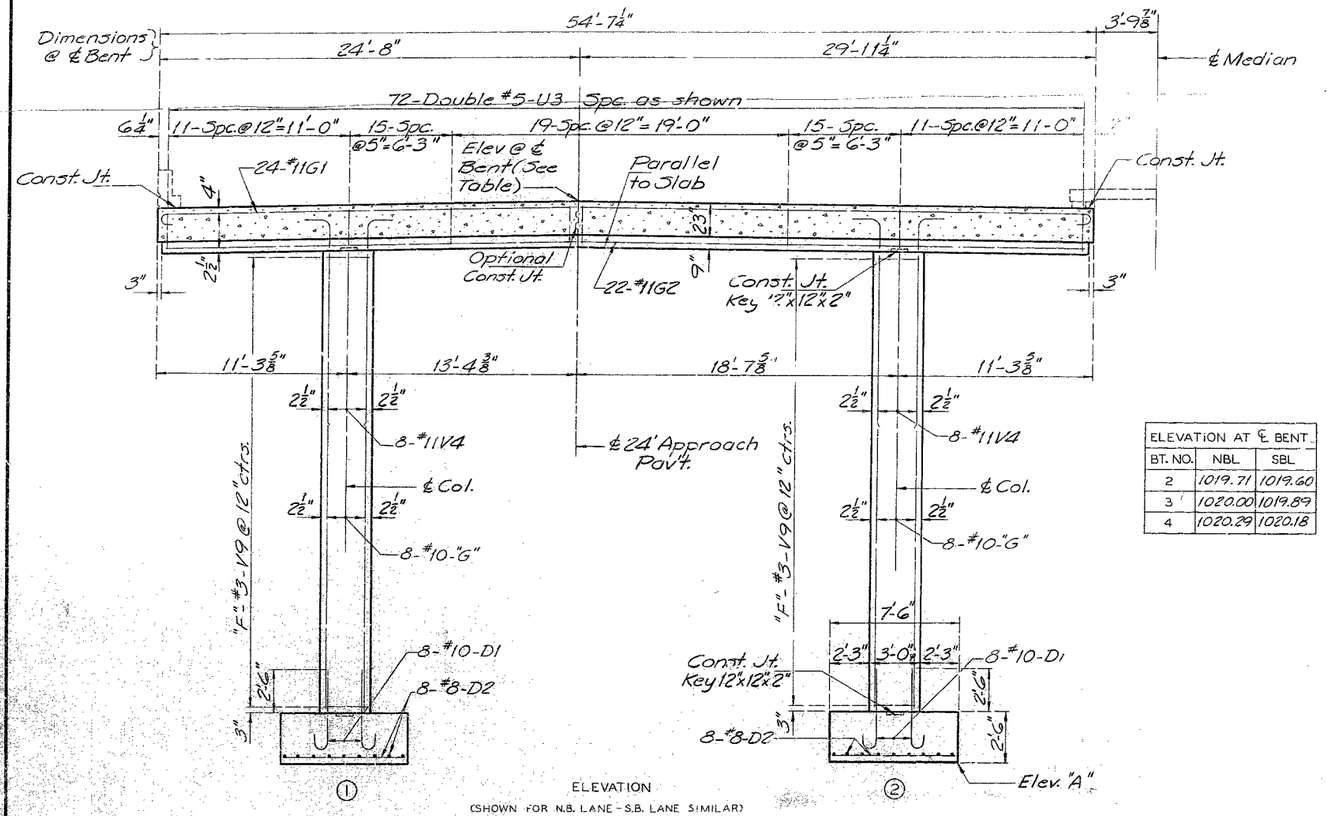
MISSOURI STATE HIGHWAY DEPARTMENT

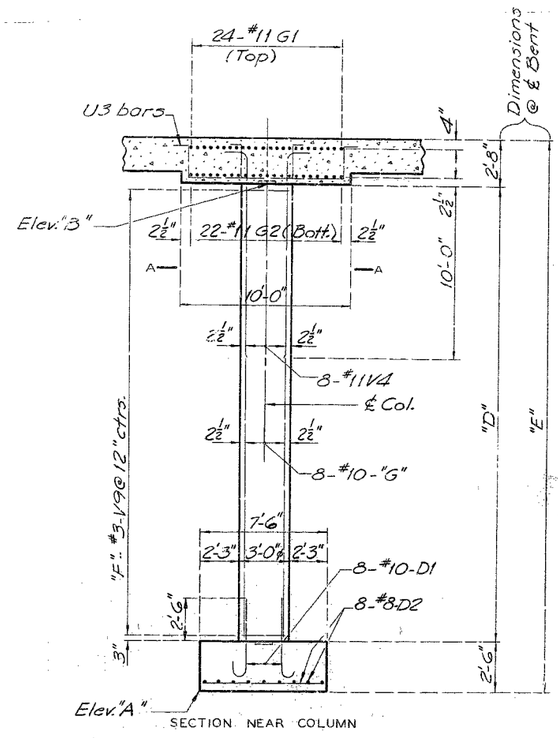
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	69	



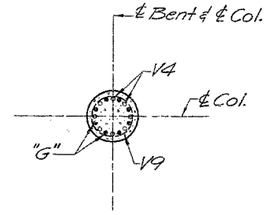
ELEVATION

(SHOWN FOR N.B. LANE - S.B. LANE SIMILAR)

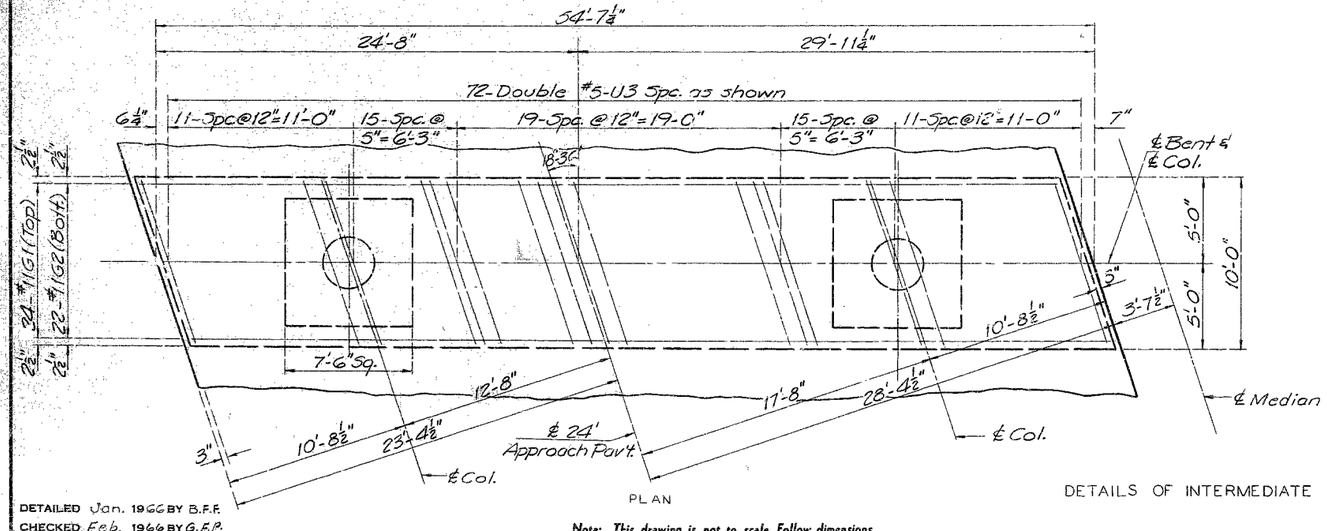
ELEVATION AT ℄ BENT		
BT. NO.	NBL	SBL
2	1019.71	1019.60
3	1020.00	1019.89
4	1020.29	1020.18



SECTION NEAR COLUMN



SECTION A-A



PLAN

DETAILS OF INTERMEDIATE BENTS 2,3 & 4

TABLE OF VARIABLES						
N.B. LANE						
BENT	2		3		4	
COLUMN	①	②	①	②	①	②
ELEV "A"	987.0	987.0	994.0	994.0	992.0	992.0
ELEV "B"	1016.88	1016.75	1017.17	1017.04	1017.46	1017.33
"D"	27'-4½"	27'-3"	20'-8"	20'-6½"	22'-11½"	22'-10"
"E"	32'-6½"	32'-5"	25'-10"	25'-8½"	28'-1½"	28'-0"
"F"	28	28	21	21	24	24
"G"	V5	V5	V6	V6	V7	V7
S.B. LANE						
BENT	2		3		4	
COLUMN	①	②	①	②	①	②
ELEV "A"	987.0	987.0	990.0	990.0	990.0	990.0
ELEV "B"	1016.73	1016.70	1017.02	1016.99	1017.31	1017.28
"D"	27'-2¾"	27'-2⅝"	24'-6¼"	24'-5⅞"	24'-9¼"	24'-9⅛"
"E"	32'-4⅝"	32'-4⅜"	29'-8¼"	29'-7⅞"	29'-11⅛"	29'-11⅛"
"F"	28	28	25	25	25	25
"G"	V5	V5	V8	V8	V8	V8

BRIDGE OVER LINDEN ROAD

STATE ROAD INTERSTATE ROUTE 29

IN KANSAS CITY

PROJECT NO. I-29-1(36) (SEC. A RTE. I-29) **STA.** 763+88.22 ℄ MEDIAN

PLATTE **COUNTY**

A-1595

DETAILED Jan. 1966 BY B.F.F.

CHECKED Feb. 1966 BY G.F.P.

Note: This drawing is not to scale. Follow dimensions.

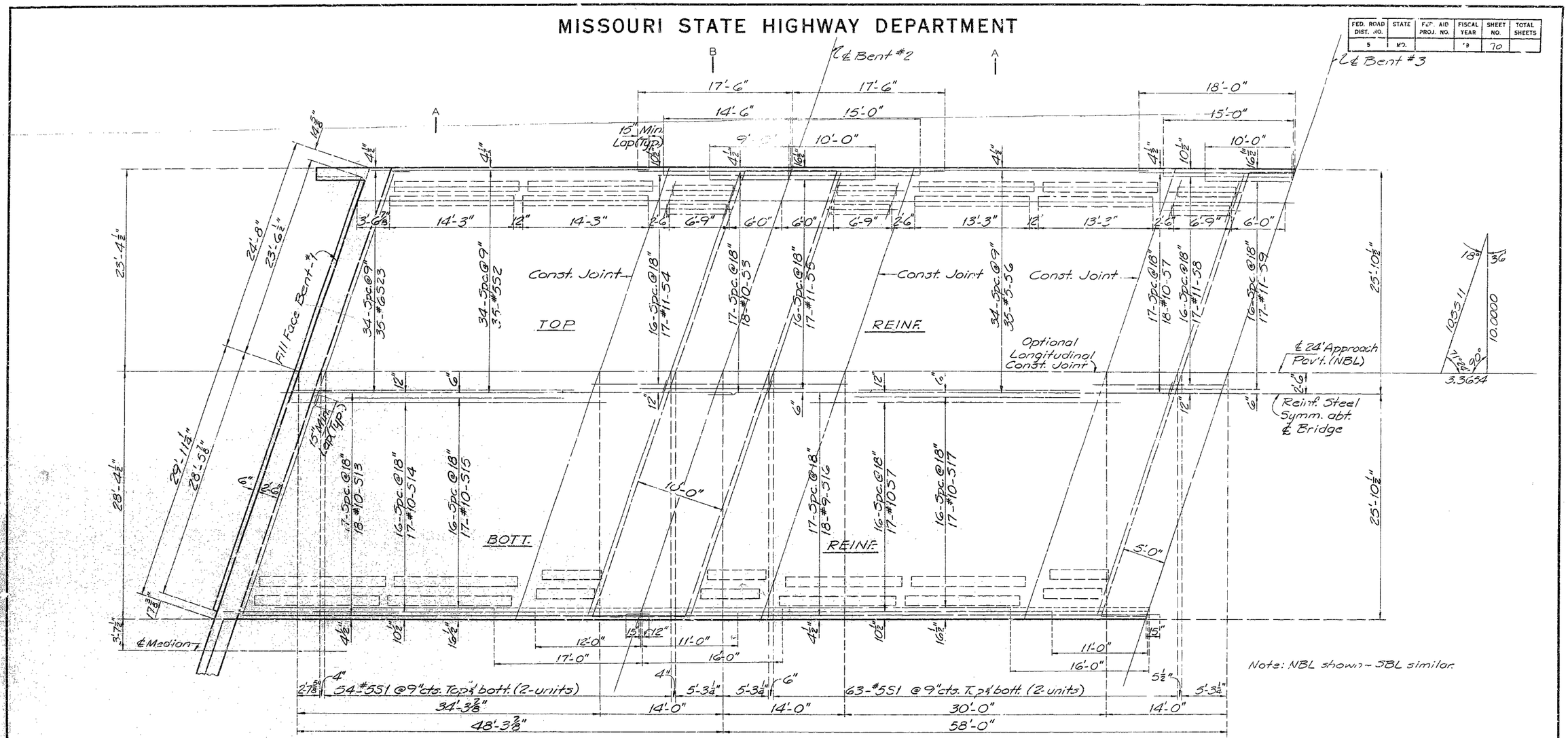
Sheet No. 5 of 10.

3/3

SEE FINAL PLANS BROWN-LINES

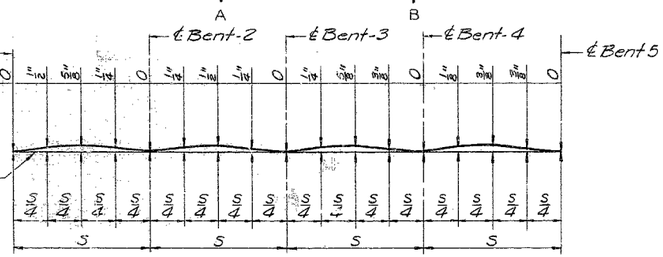
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		'19	70	



Note: NBL shown - SBL similar.

PART PLAN OF SLAB



Note: The contractor shall camber forms to allow for ultimate dead load deflection.

Line parallel to grade

THEORETICAL CAMBER DIAGRAM

Note: The contractor shall use an approved oscillating screed type, self propelled, mechanical finishing machine and shall pour and satisfactorily finish the roadway slab at a rate of not less than 35 cubic yards per hour. He shall observe the transverse construction joints shown on plans unless he can demonstrate to the satisfaction of the engineer that he is equipped to pour and satisfactorily finish the roadway slab at a rate which will permit a continuous pouring through some or all of these joints. Finishing machine load will not be permitted on concrete less than 48 hours old. This rate of pour is based on using the longitudinal construction joint and the wider pour.

Note: All dimensions are horizontal.
See sheet 7 for approach notch and Timber Header details.
See sheet 8 for Sections A-A and B-B.

BRIDGE - OVER LINDEN ROAD

STATE ROAD INTERSTATE ROUTE 29

IN KANSAS CITY

PROJECT NO. I-29-1(36) (SEC. A RTE I-29) **STA.** 763+88.22 ℄ MEDIAN

PLATTE **COUNTY**

A-1595

DETAILED Dec. 1965 BY B.F.F.

CHECKED Feb. 1966 BY G.F.P.

Note: This drawing is not to scale. Follow dimensions.

Sheet No. 6 of 10.

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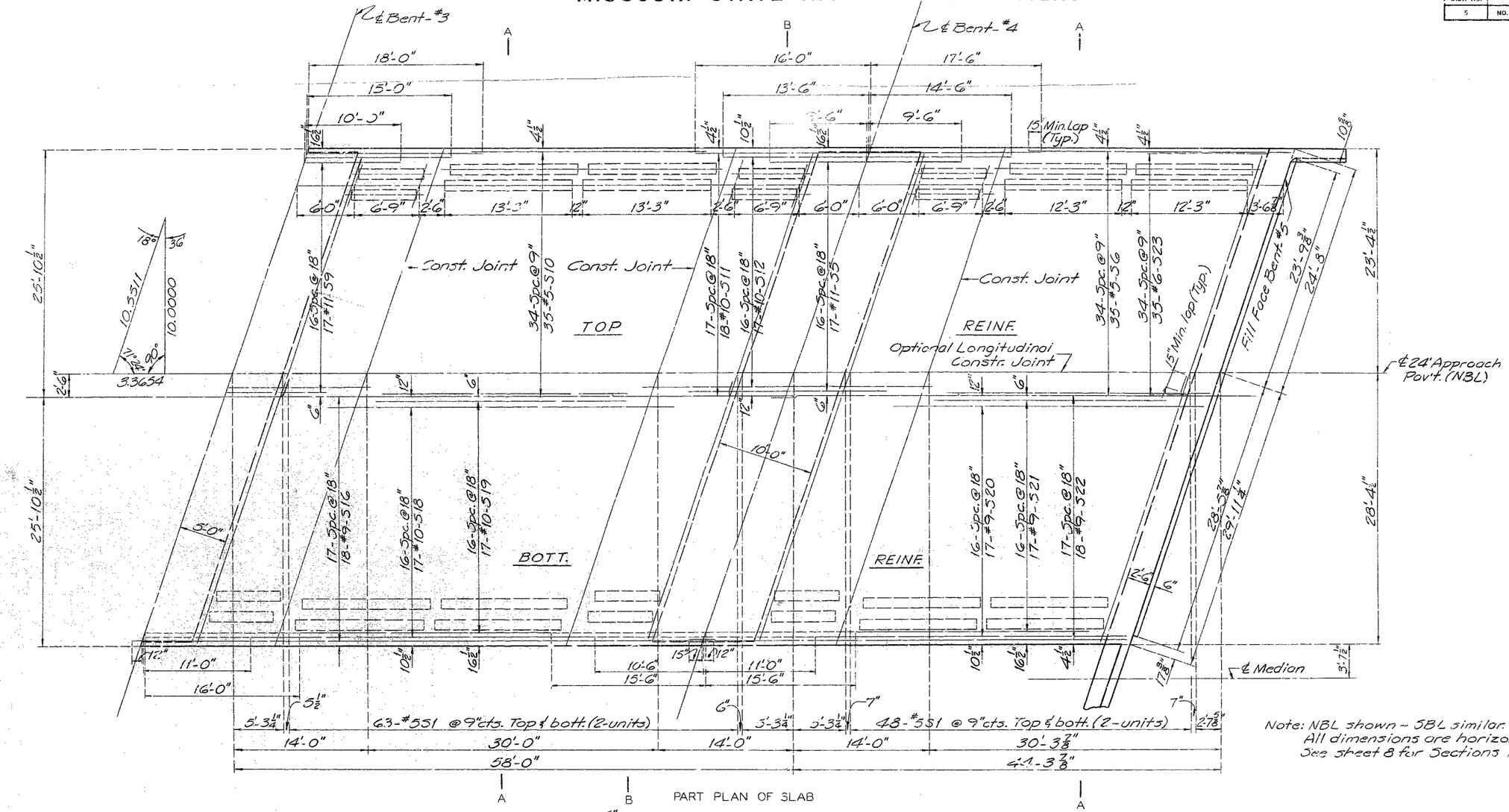
0 CONSTRUCTION CHANGES

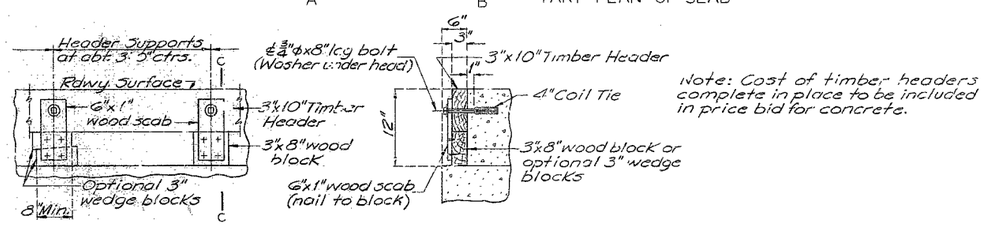
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	71	



PART PLAN OF SLAB

Note: NBL shown – SBL similar.
All dimensions are horizontal.
See sheet 8 for Sections A-A & BB.



PART ELEVATION SECTION C-C

DETAILS OF TIMBER HEADER

Note: Cost of timber headers complete in place to be included in price bid for concrete.

3/5

BRIDGE - OVER LINDEN ROAD

STATE ROAD INTERSTATE ROUTE 29

IN KANSAS CITY

PROJECT NO. I-29-1(36) (SEC. A (RTE. I-29)) **STA.** 763 + 88.22 ℄ MEDIAN

PLATTE **COUNTY**

A-1595

DETAILED Dec. 1965 BY B.F.F.
CHECKED Feb. 1966 BY G.F.R.

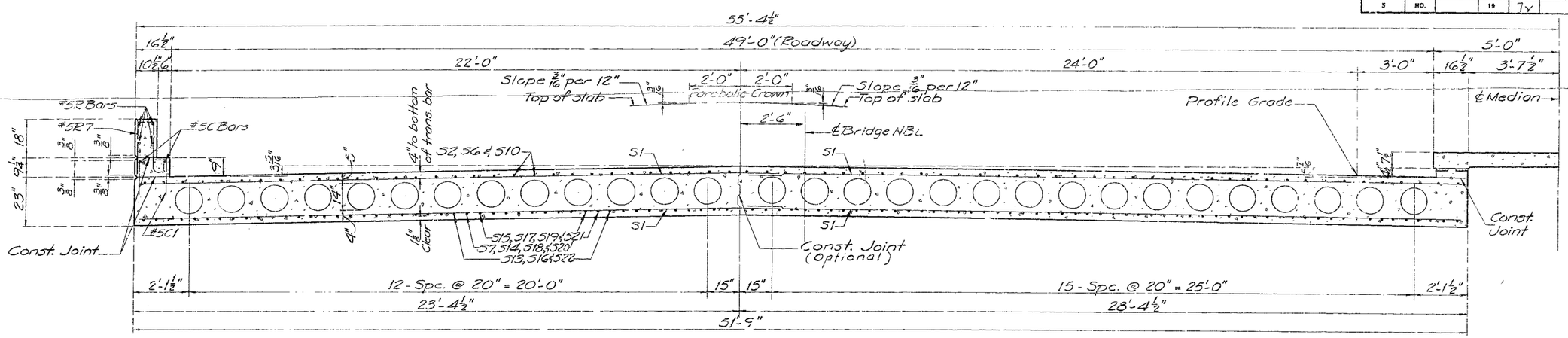
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 7 of 10.

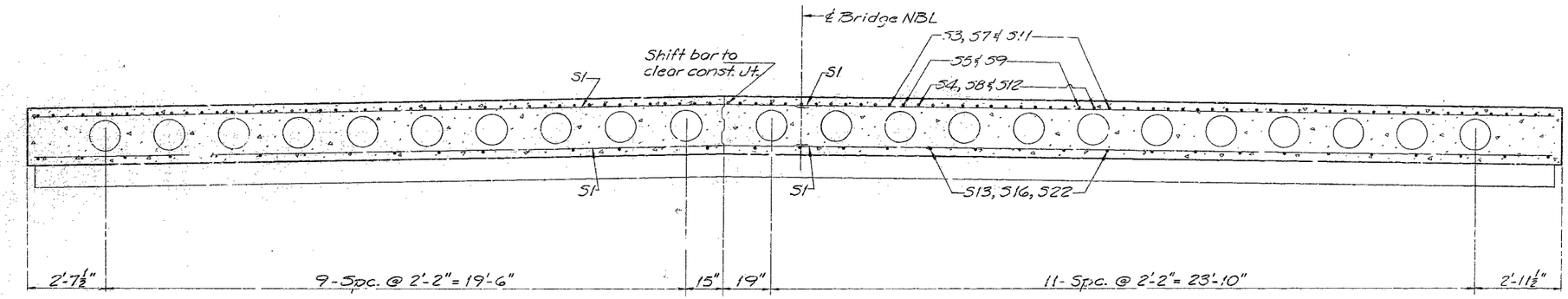
NO CONSTRUCTION CHANGES

MISSOURI STATE HIGHWAY DEPARTMENT

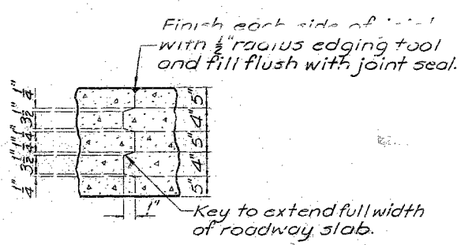
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	7Y	



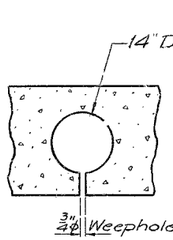
SECTION A-A



SECTION B-B



DETAIL OF SLAB
CONSTRUCTION JOINT KEY



Note: One ¾" ϕ weephole shall be provided near each end of each void. Weepholes shall be placed in straight lines parallel to bents.

DETAIL OF WEEPHOLES IN VOIDS

Note: Fiber tubes for producing voids shall have an outside diameter of 14.0 and a wall thickness of .250" and shall be anchored to joists carrying the floor form at not more than 4'-0" centers. See Special Provisions for metal tube alternate for voids.

For location of Sections A-A and B-B see Sheet 6 and 7.

Details not shown in Section BB are same as for Section A-A.

BRIDGE - OVER LINDEN ROAD

STATE ROAD INTERSTATE ROUTE 29

IN KANSAS CITY

PROJECT NO. I-29-1(36) (SEC. A RTE. I-29) **STA.** 763+88.22 ℄ MEDIAN

PLATTE **COUNTY**

A-1595

DETAILED DEC. 1965 BY BFF
CHECKED FEB 1966 BY GFP

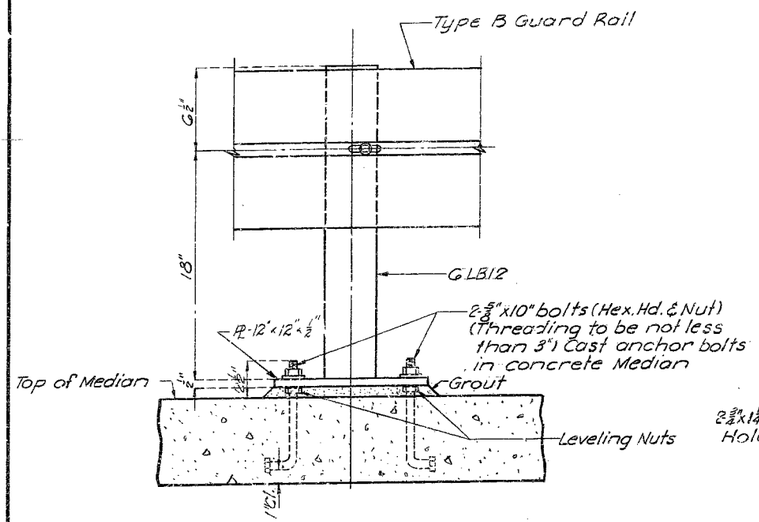
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 8 of 10.

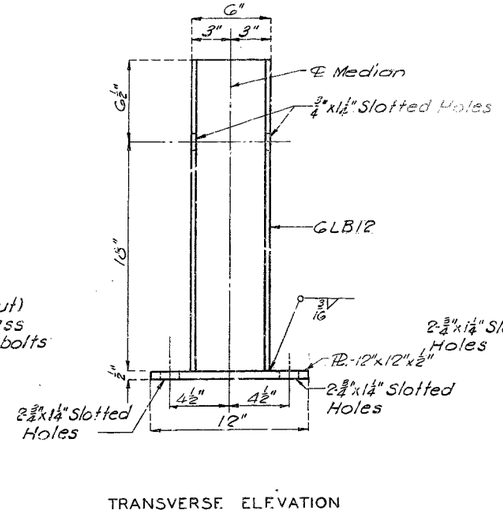
NO CONSTRUCTION DRAWING

MISSOURI STATE HIGHWAY DEPARTMENT

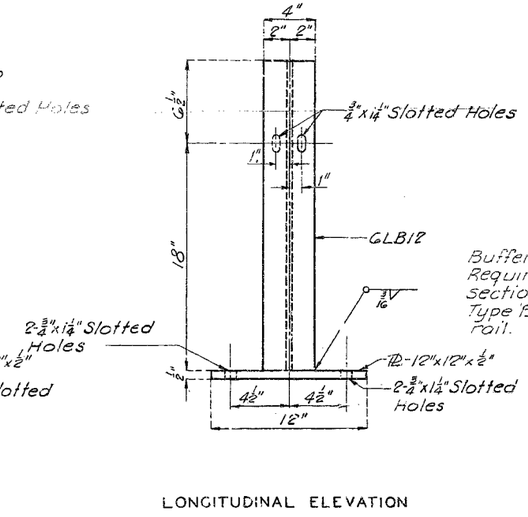
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	73	



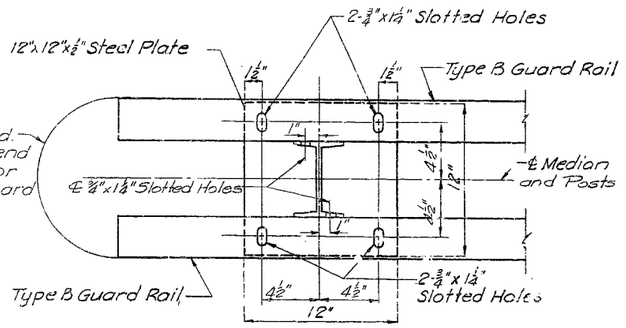
LONGITUDINAL ELEVATION



TRANSVERSE ELEVATION

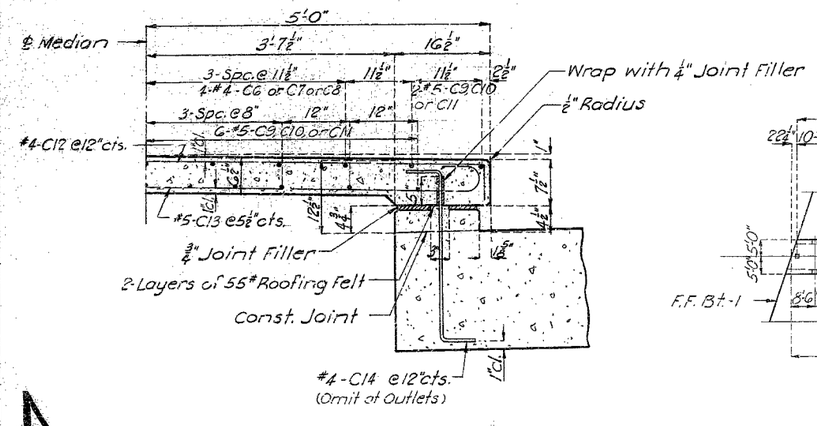


LONGITUDINAL ELEVATION

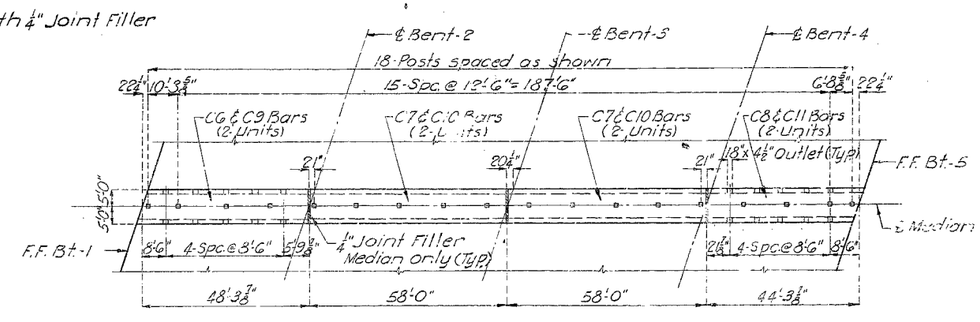


PLAN

DETAILS OF TYPE B GUARD RAIL (BOLT DOWN)



HALF SECTION THRU MEDIAN



PLAN OF MEDIAN SHOWING GUARD RAIL POST AND OUTLET SPACING

GENERAL NOTES:

All other details not shown shall comply with Std. 8G.00

Grout shall comply with Std. Specs. Sec. 1G6.1.5.

Tightening of nuts on bolts connecting rail members and post shall be to the extent that longitudinal movement of the bolt in slotted holes is possible. After tightening in this manner the top of the bolt shall be deformed in such a way as to prevent loss of nut.

Guard rail posts shall be set normal to Grade.

Buffer End for Type B Guard Rail will be required at each of bridge.

All bridge guardrail shall be cleaned and painted in the field or may be cleaned and painted one coat of red lead in the shop with the two remaining coats applied in the field. In lieu of painting, the contractor may, if he prefers, galvanize this material. All galvanizing shall be done after fabrication. Cost of painting or galvanizing to be included in price bid for other items

BRIDGE OVER LINDEN ROAD

STATE ROAD - INTERSTATE ROUTE 29

IN KANSAS CITY

PROJECT NO. I-29-1-(38) SEC. A (RTE. I-29) **STA.** 763+88.22 ℄ MEDIAN

PLATTE **COUNTY**

A-1595

DETAILED JAN. 1966 BY H.H.B.

CHECKED FEB. 1966 BY G.F.P.

Note: This drawing is not to scale. Follow dimensions.

Sheet No. 9 of 10

SEE FINAL PLANS BROWN-LINES

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	74	

GENERAL NOTES:

All handrail posts shall be set normal to grade.

Aluminum tube handrail shall be bent to conform to vertical and horizontal alignment of parapet.

Aluminum washer shims between top of parapet and post base may be used for adjusting handrail alignment. Maximum thickness of shims to be ⅛". Where more tilting of post is required for proper alignment, concrete bearing areas shall be ground down.

All parts of handrail, except anchor bolts, nuts, washers, and set screws are to be of aluminum material.

The contract unit price per linear foot of "Bridge Rail" shall include furnishing and erecting the handrail complete with anchor bolts, shims and Insulating compound.

All fillets ¼" except as noted.

All drafts 3° except as noted.

Pipe rail to be fabricated in two or three panel lengths unless otherwise approved.

Omit set screw on side near filled joint in parapet at all expansion posts.

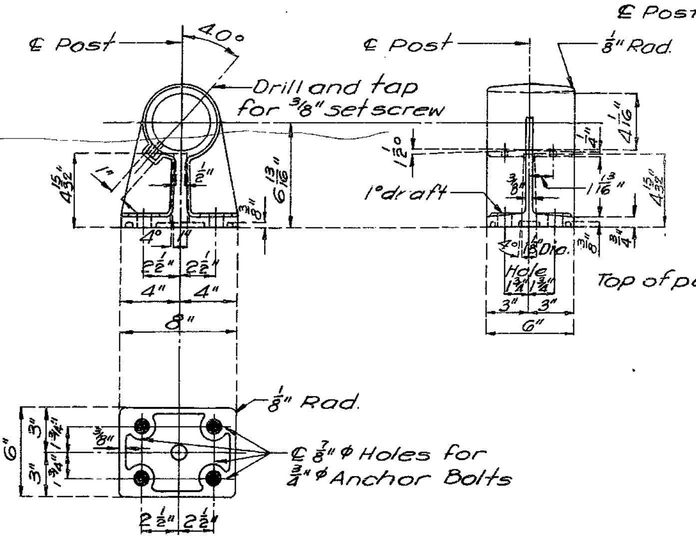
Top of curbs and parapets to be built parallel to grade with curb and parapet joints (except at end posts), normal to grade.

Concrete end posts to be vertical.

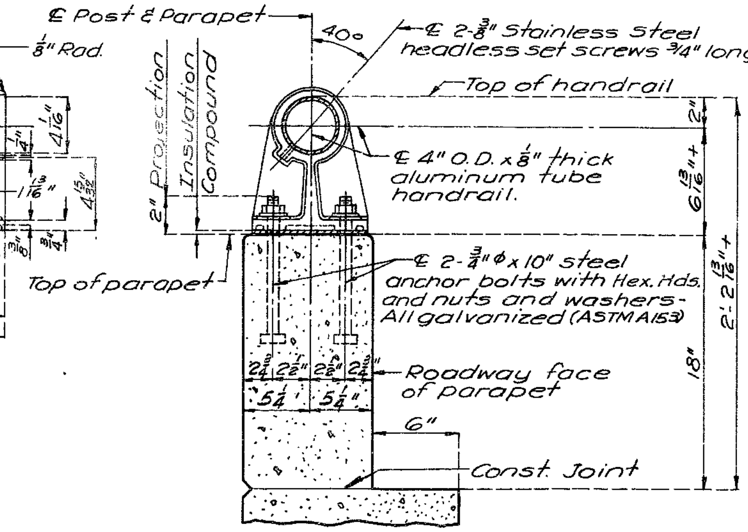
All exposed edges of end posts, parapets and curbs shall have ½" radius.

If the contractor desires, he may use drive fit cast aluminum end caps in lieu of welded aluminum closure plates.

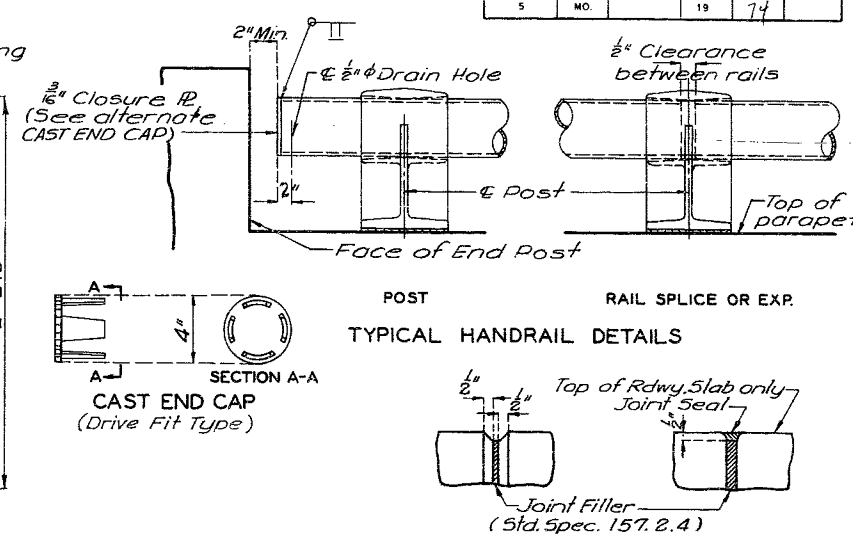
Integrally cast test coupons and a coat of clear lacquer specified in Std. Spec. 56.2.4 and 56.3.5 respectively will not be required for these rail posts.



POST DETAILS



SECTION THRU HANDRAIL



SINGLE TUBE ALUMINUM RAILING

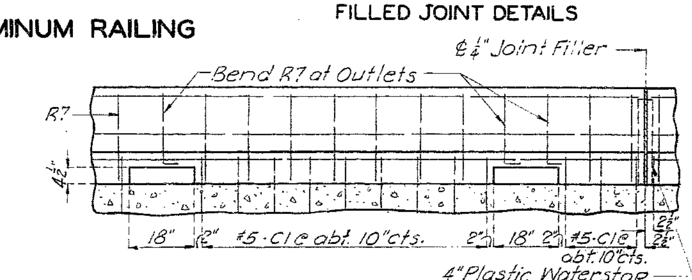
SPAN	(1 - 2)	(2 - 3)	(3 - 4)	(4 - 5)
CURB	#6-C3 2-Units	#5-C4 2-Units	#5-C4 2-Units	#6-C5 2-Units
PARAPET	#5-R9 2-Units	#5-R9 2-Units	#5-R9 2-Units	#5-R10 2-Units

REINFORCING

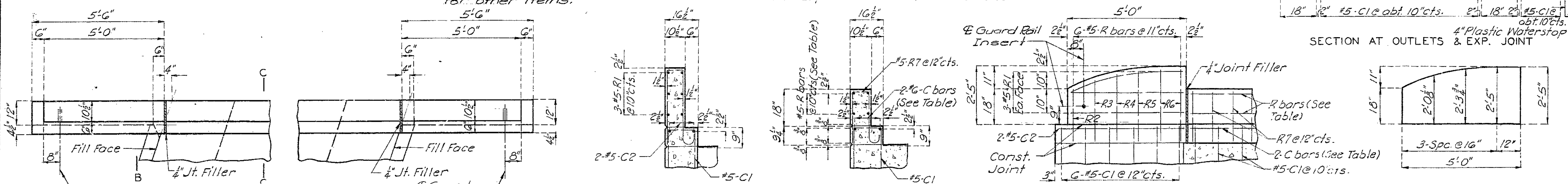
Min. Lap for #5 bars - 15", for #6 bars - 18"

Note: Anchors for attaching guard rail shall be ⅝" threaded (Galv.) inserts having a minimum depth of 4" and filled with a plastic closing plug. Cost for furnishing and installing the insert and plug will be included in price bid for other items.

Note: Where there are no outlets use #5-C1 @ 12" cts.



SECTION AT OUTLETS & EXP. JOINT



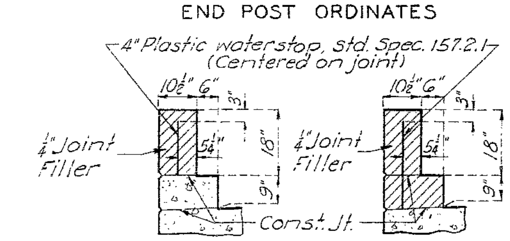
PLAN OF END POSTS

SECTION B-B

SECTION C-C

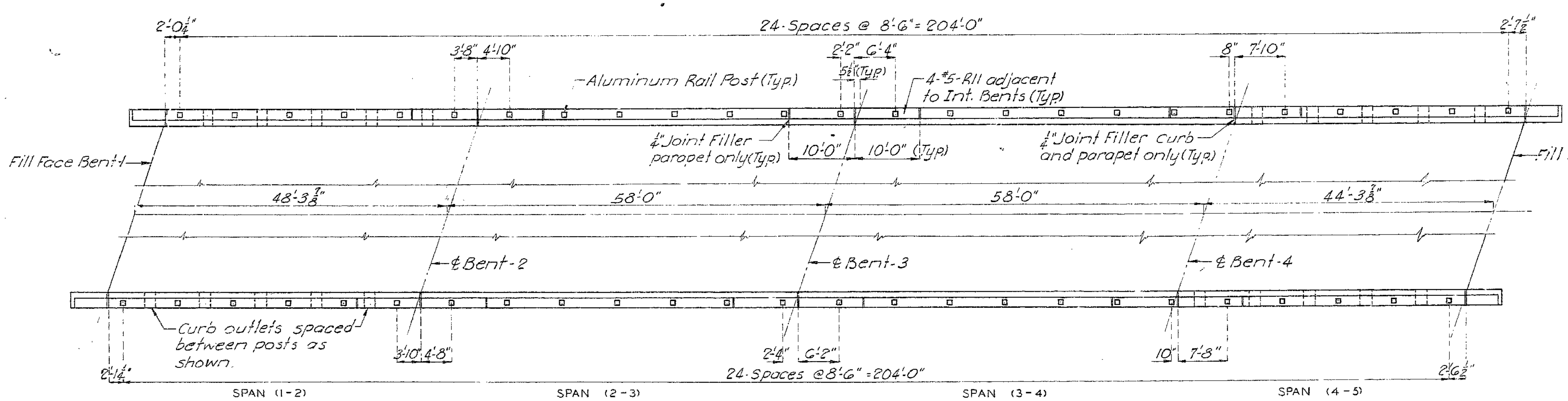
ELEVATION OF END POST

END POST ORDINATES



Note: Plastic waterstop shall be placed in all parapet and curb filled joints. (Except at End Bts.) Cost of plastic waterstop complete in place to be included in unit price bid for concrete.

DETAILS OF PLASTIC WATER STOP



PLAN OF CURBS SHOWING RAIL POST SPACING

Note: This drawing is not to scale. Follow dimensions.

BRIDGE OVER LINDEN ROAD

STATE ROAD - INTERSTATE ROUTE 29

IN KANSAS CITY

PROJECT NO. I-29-1(36) SEC. A (RTE. I-29) **STA.** 763+88.22 ℄ MEDIAN

PLATTE **COUNTY**

DETAILED JAN. 1966 BY H.H.B.

CHECKED FEB. 1966 BY G.F.P.

No. 15.2 A	Revised
Nov. 1965	Oct. 1965

Sheet No. 10 of 10

A-1595

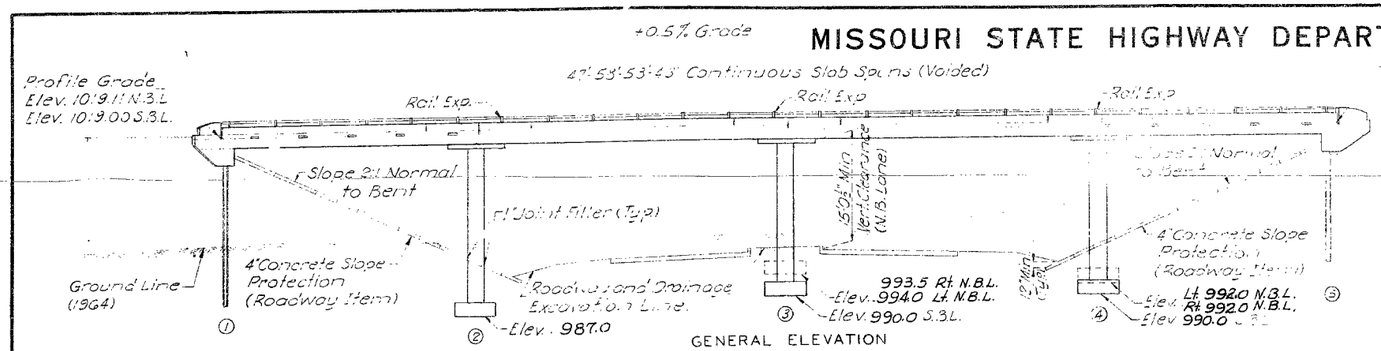
3/8

FOR INFORMATION ONLY **A15955, Sht. 13**

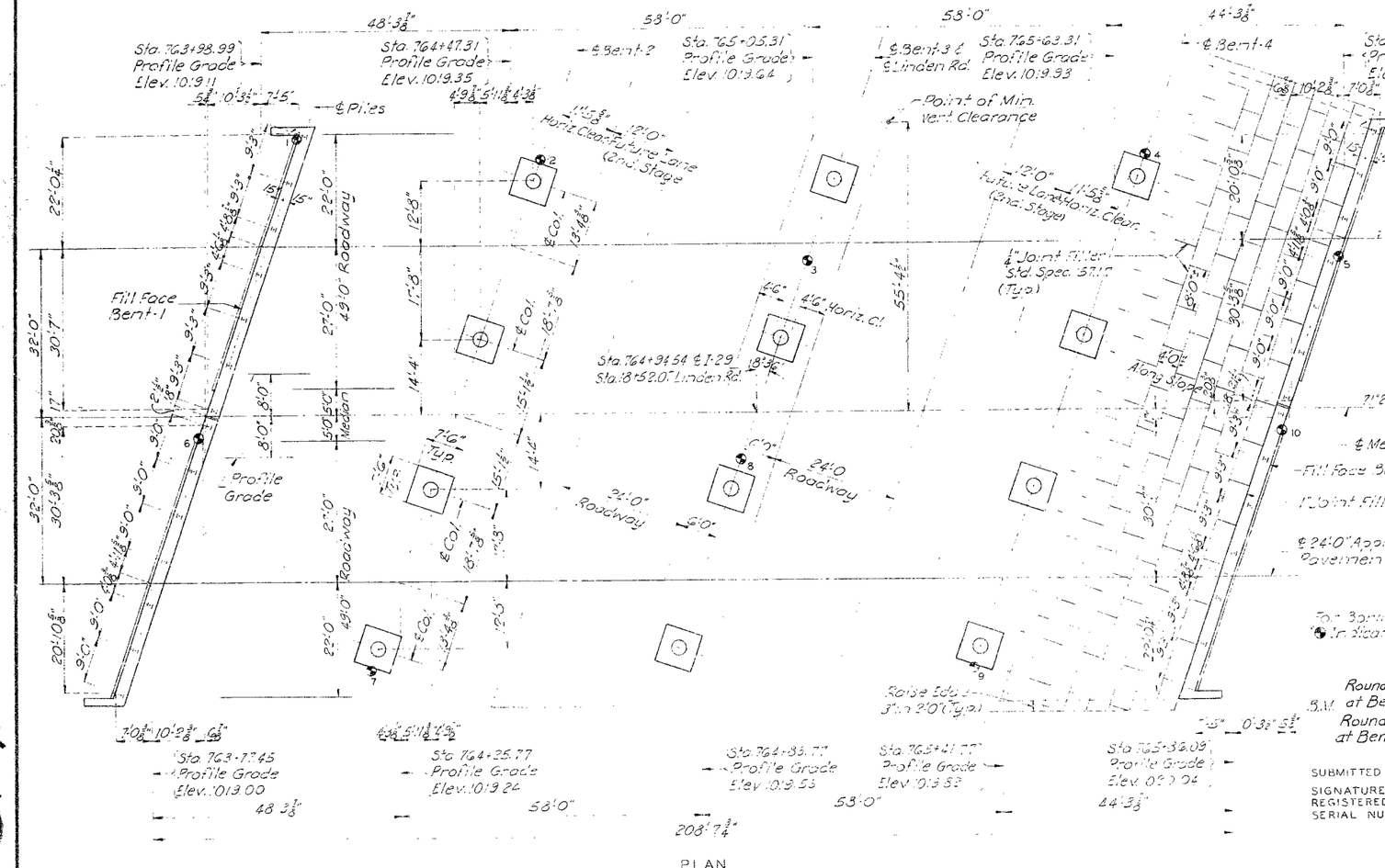
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	65	

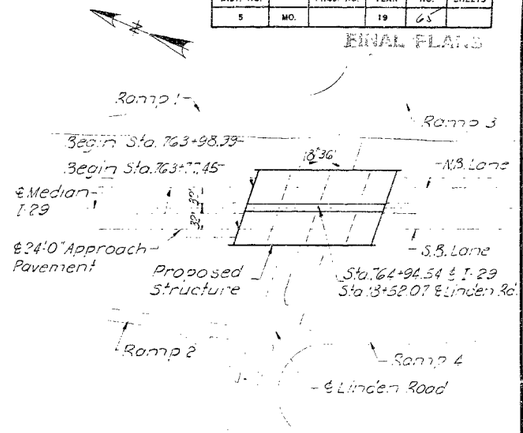
FINAL PLANS



GENERAL ELEVATION



PLAN



LOCATION SKETCH

GENERAL NOTES.

Design Specifications:
AASHO - 1961
Design Loading:
HS 20-44
15# / Sq. Ft. Future Wearing Surface
Modified 24,000# Tandem Axle
Earth 120# Equivalent Fluid Pressure 30#
Design Unit Stresses:
Class B Concrete (Substructure) f_c = 1200 psi
Class B1 Concrete (Superstructure) f_c = 1600 psi
Reinforcing Steel f_s = 20,000 psi
Steel Pile (A.S.T.M. A-36-62T) f_b = 9000 psi
Superstructure deck surface sealed
Falsework over existing lanes constructed with a minimum vertical clearance of 12'-0" to high side of existing lanes and a minimum lateral clearance of 12'-0" centered on existing lanes.

QUANTITIES				
ITEM		SUBSTR.	SUPERSTR.	TOTAL
Class 1 Excavation for Structures	Cu Yd.	370.5	—	370.5
Steel Piles in Place (10")	Lin. Ft.	661	—	661
Class B Concrete	Cu Yd.	62.4	—	62.4
Class B1 Concrete	Cu Yd.	—	1,561.9	1561.9
Reinforcing Steel	Lb.	5960	413,680	419,640
Bridge Rail (Single Tube Type)	Lin. Ft.	—	416	416
Guard Rail Type B (Steel) Bolt Down 6-3.9P	Lin. Ft.	—	209	209
Class 1 Exc. +25%	Cu Yd.	10	—	10
Drilled Test Holes	Lin. Ft.	48	—	48

For Boring Data see Sheet 2
Indicates location of boring

Round Headed Bolt at end Lt. Curb B.M. at Bent No. 1 Elev. 1019.93
Round Headed Bolt at end Rt. Curb at Bent No. 5 Elev. 1020.90

Note: All concrete and reinforcement above footings in intermediate bents is included in superstructure quantities. No payment for excavation allowed at Bents 1 & 5

SUBMITTED BY E LYN CROWLEY
SIGNATURE E Lyn Crowley
REGISTERED PROFESSIONAL ENGINEER
SERIAL NUMBER E-5993

BRIDGE OVER LINDEN ROAD

STATE ROAD - INTERSTATE ROUTE 29

IN KANSAS CITY

PROJECT NO. I-29-1(65) FEDERAL AID ROUTE I-29 **STA.** 763+88.22 ℄ MEDIAN

PLATTE **COUNTY**

SUBMITTED BY _____ BRIDGE ENGINEER DATE 3-24-66

APPROVED BY _____ CHIEF ENGINEER DATE 3-24-66

STD 56.00
STD. 54.00
A-1595

PRICHARD COMPANY, INC.
CONSULTING ENGINEERS
INDEPENDENCE, MISSOURI

DESIGNED DEC. 1965 BY R.H.R.
DETAILED JAN. 1966 BY H.H.B.
CHECKED FEB. 1966 BY G.F.P.

Note: This drawing is not to scale. Follow dimensions.

Sheet No. 1A of 5

FINAL PLANS

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MISSOURI STATE HIGHWAY DEPARTMENT

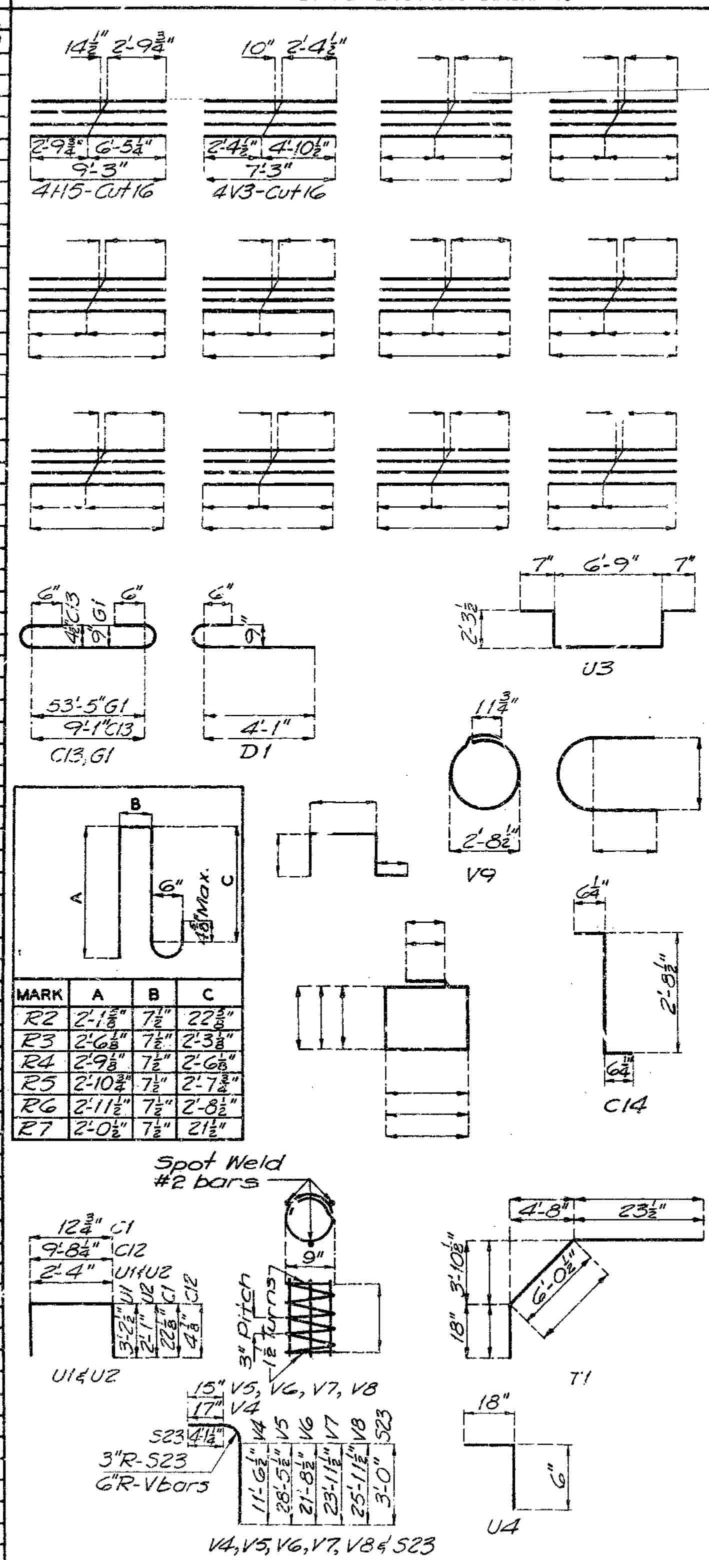
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	67	

FINAL PLANS

COMPLETE BILL OF REINFORCING STEEL

NO.	SIZE	LENGTH	MARK	LOCATION NBL	LOCATION SBL
SUPERSTRUCTURE				NBL	SBL
460	#5	4'-9"	C1	230	230
8	#5	5'-3"	C2	4	4
8	#6	24'-9"	C3	4	4
16	#5	29'-6"	C4	8	8
8	#6	22'-9"	C5	4	4
14	#4	25'-3"	C6	14	
28	#4	29'-3"	C7	28	
14	#4	23'-3"	C8	14	
30	#5	25'-6"	C9	30	
60	#5	29'-6"	C10	60	
30	#5	23'-6"	C11	30	
212	#4	10'-6"	C12	212	
454	#5	11'-3"	C13	454	
416	#4	3'-9"	C14	416	
24	#5	4'-9"	R1	12	12
4	#5	5'-9"	R2	2	2
4	#5	6'-6"	R3	2	2
4	#5	7'-0"	R4	2	2
4	#5	7'-3"	R5	2	2
8	#5	7'-3"	R6	4	4
426	#5	5'-6"	R7	213	213
16	#5	24'-9"	R8	8	8
48	#5	19'-6"	R9	24	24
16	#5	22'-9"	R10	8	8
48	#5	9'-6"	R11	24	24
1824	#5	27'-9"	S1	912	912
138	#5	29'-0"	S2	69	69
70	#10	35'-0"	S3	35	35
68	#11	29'-6"	S4	34	34
136	#11	19'-0"	S5	68	68
138	#5	25'-0"	S6	69	69
140	#10	36'-0"	S7	70	70
68	#11	30'-0"	S8	34	34
68	#11	20'-0"	S9	34	34
138	#5	26'-6"	S10	69	69
70	#10	33'-6"	S11	35	35
68	#10	28'-0"	S12	34	34
70	#10	49'-6"	S13	35	35
68	#10	36'-0"	S14	34	34
68	#10	25'-0"	S15	34	34
140	#9	60'-0"	S16	70	70
68	#10	26'-0"	S17	34	34
68	#10	36'-6"	S18	34	34
68	#10	26'-6"	S19	34	34
68	#9	33'-0"	S20	34	34
68	#9	23'-0"	S21	34	34
70	#9	45'-6"	S22	35	35
SUPERSTRUCTURE END BT. 1				N.B.L.	S.B.L.
16	#6	28'-0"	H1	8	8
32	#6	30'-3"	H2	16	16
12	#4	5'-0"	H3	6	6
4	#6	7'-0"	H4	2	2
8	#6	9'-3"	H5	4	4
4	#4	26'-6"	H6	2	2
138	#6	7'-6"	S23	69	69
4	#6	9'-6"	T1	2	2
214	#5	8'-9"	U1	106	108
14	#5	6'-6"	U2	8	6
142	#4	2'-0"	U4	71	71
16	#4	3'-0"	V1	8	8
4	#4	5'-6"	V2	2	2
8	#4	7'-3"	V3	4	4

BENDING SKETCHES & CUTTING DIAGRAMS



MARK	A	B	C
R2	2'-1⅝"	7½"	22⅝"
R3	2'-6⅛"	7½"	2'-3⅛"
R4	2'-9⅛"	7½"	2'-6⅛"
R5	2'-10¾"	7½"	2'-7¾"
R6	2'-11½"	7½"	2'-8½"
R7	2'-0½"	7½"	21½"

NO.	SIZE	LENGTH	MARK	LOCATION NBL	LOCATION SBL
SUPERSTRUCTURE INT. BT. 2				NBL	SBL
48	#11	56'-9"	G1	24	24
44	#11	53'-9"	G2	22	22
				144	144
288	#5	12'-6"	U3	72	72
32	#11	13'-9"	V4	16	16
32	#10	30'-6"	V5	16	16
112	#3	9'-6"	V9	56	56
SUPERSTRUCTURE INT. BT. 3				NBL	SBL
48	#11	56'-9"	G1	24	24
44	#11	53'-9"	G2	22	22
				144	144
288	#5	12'-6"	U3	72	72
32	#11	13'-9"	V4	16	16
16	#10	23'-9"	V6	16	—
16	#10	28'-0"	V8	—	16
92	#3	9'-6"	V9	42	50
SUPERSTRUCTURE INT. BT. 4				NBL	SBL
48	#11	56'-9"	G1	24	24
44	#11	53'-9"	G2	22	22
				144	144
288	#5	12'-6"	U3	72	72
32	#11	13'-9"	V4	16	16
16	#10	26'-0"	V7	16	—
16	#10	28'-0"	V8	—	16
98	#3	9'-6"	V9	48	50
SUPERSTRUCTURE END BT. 5				NBL	SBL
16	#6	28'-0"	H1	8	8
32	#6	30'-3"	H2	16	16
12	#4	5'-0"	H3	6	6
4	#6	7'-0"	H4	2	2
8	#6	9'-3"	H5	4	4
4	#4	26'-6"	H6	2	2
138	#6	7'-6"	S23	69	69
4	#6	9'-6"	T1	2	2
214	#5	8'-9"	U1	108	106
14	#5	6'-6"	U2	6	8
142	#4	2'-0"	U4	71	71
16	#4	3'-0"	V1	8	8
4	#4	5'-6"	V2	2	2
8	#4	7'-3"	V3	4	4
SUBSTRUCTURE INT. BT. 2				NBL	SBL
32	#10	5'-9"	D1	16	16
64	#8	7'-0"	D2	32	32
SUBSTRUCTURE INT. BT. 3				NBL	SBL
32	#10	5'-9"	D1	16	16
64	#8	7'-0"	D2	32	32
SUBSTRUCTURE INT. BT. 4				NBL	SBL
32	#10	5'-9"	D1	16	16
64	#8	7'-0"	D2	32	32

320

No. 30.3	Revised
June 1961	Dec 1964

DETAILED FEB. 1966 BY BFF
CHECKED 1966 BY GFP

Note: This drawing is not to scale. Follow dimensions.

Sheet No. 3A of

FINAL PLANS

FINISHED

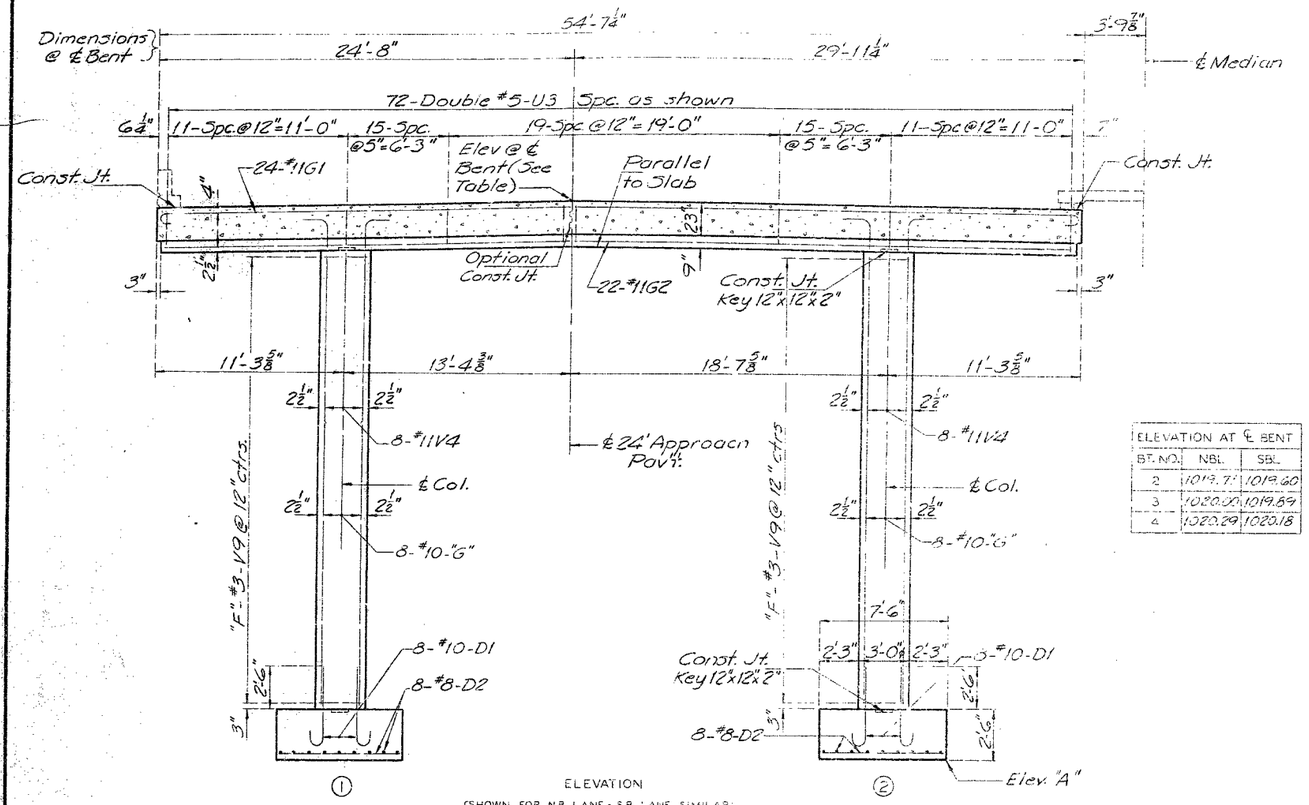
BRIDGE OVER LINDEN ROAD
STATE ROAD INTERSTATE ROUTE 29
IN KANSAS CITY
PROJECT NO. I-29-1( ) (RTE. I-29) **STA.**
PLATTE **COUNTY**

A-595

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	69	

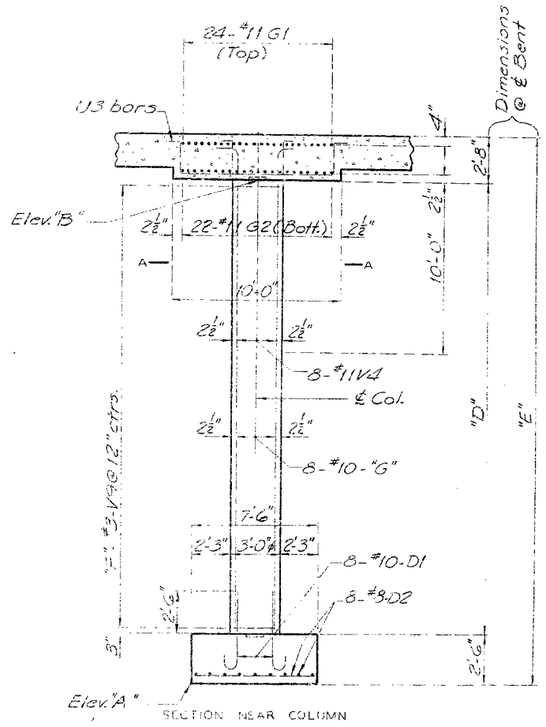
FINAL PLANS



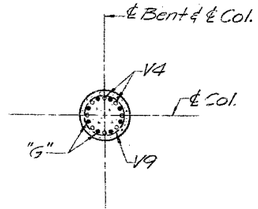
ELEVATION

(SHOWN FOR N.B. LANE - S.B. LANE SIMILAR)

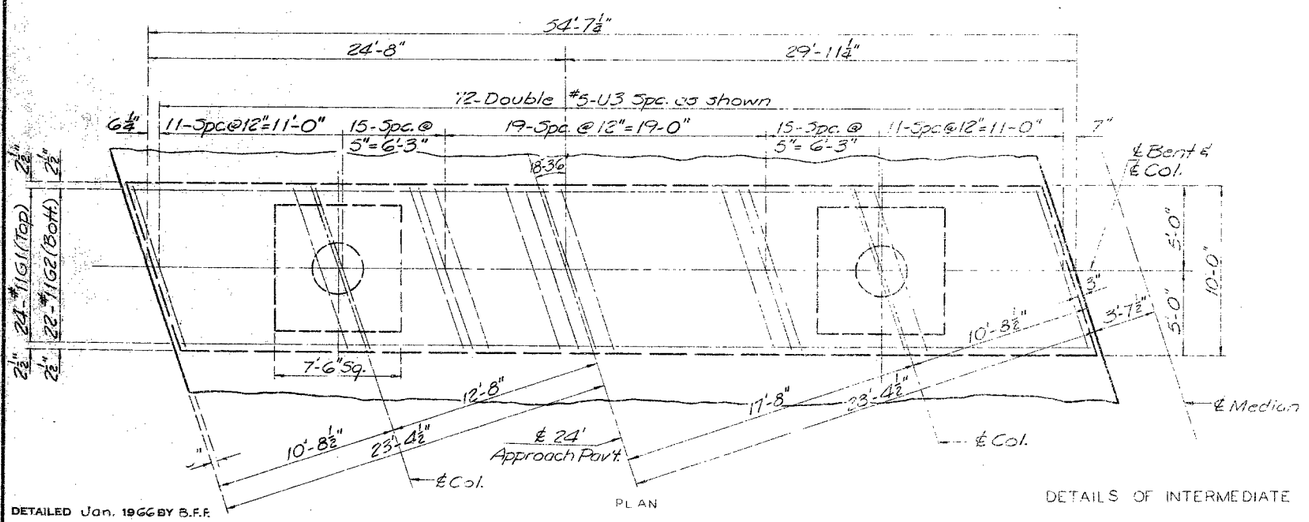
ELEVATION AT ℄ BENT		
BT. NO.	NBL.	SBL.
2	1013.71	1019.60
3	1020.30	1019.89
4	1020.29	1020.18



SECTION NEAR COLUMN



SECTION A-A



PLAN

TABLE OF VARIABLES						
N.B. LANE						
BENT	2		3		4	
COLUMN	①	②	①	②	①	②
ELEV "A"	987.00	987.00	994.00	993.50	992.00	992.00
ELEV "B"	1016.88	1016.75	1017.17	1017.04	1017.46	1017.33
"D"	27'-4½"	27'-3"	20'-8"	20'-6⅛"	22'-11½"	22'-10"
"E"	32'-6⅛"	32'-5"	25'-10"	26'-2⅛"	28'-1½"	28'-0"
"F"	28	28	21	21	24	24
"G"	V3	V3	V6	V6	V7	V7
S.B. LANE						
BENT	2		3		4	
COLUMN	①	②	①	②	①	②
ELEV "A"	987.00	987.00	990.00	990.00	990.00	990.00
ELEV "B"	1016.73	1016.70	1017.02	1016.99	1017.31	1017.28
"D"	27'-2¾"	27'-2⅜"	24'-6¼"	24'-5⅞"	24'-9¾"	24'-9⅜"
"E"	32'-4¾"	32'-4⅜"	29'-8¼"	29'-7⅞"	29'-11¾"	29'-11⅜"
"F"	23	23	25	25	25	25
"G"	V5	V5	V8	V8	V8	V5

DETAILS OF INTERMEDIATE BENTS 2,3 & 4

BRIDGE OVER LINDEN ROAD

STATE ROAD INTERSTATE ROUTE 29

IN KANSAS CITY

PROJECT NO. I 29-1(66) (SEC. A RTE. I-29) **STA.** 763+88.22 ℄ MEDIAN

PLATTE **COUNTY**

FINISHED

A-1595

321

DETAILED Jan. 1966 BY B.F.F.

CHECKED Feb. 1966 BY G.F.P.

Note: This drawing is not to scale. Follow dimensions.

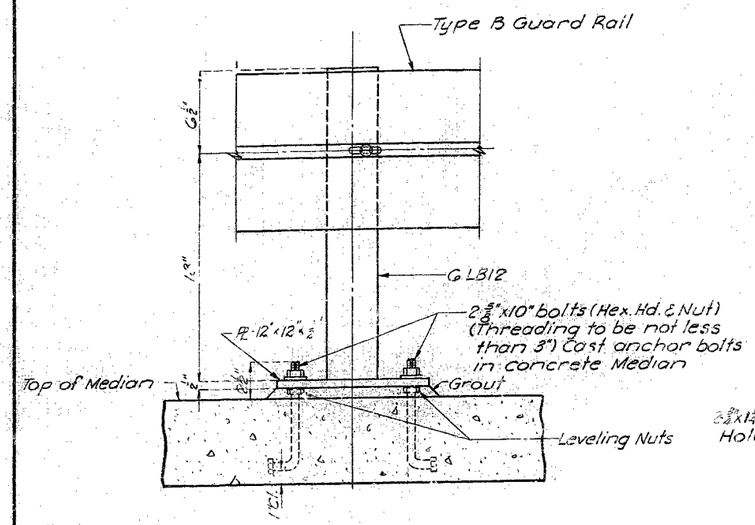
Sheet No. EA-1 5

FINAL PLANS

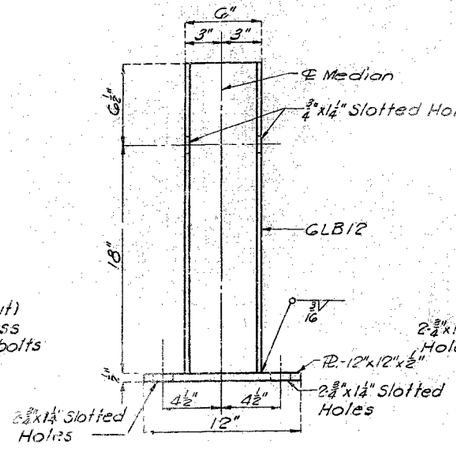
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	73	

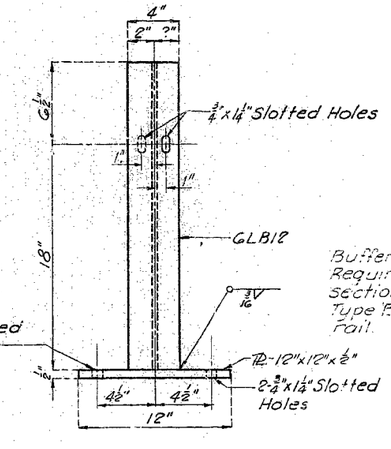
FINAL PLANS



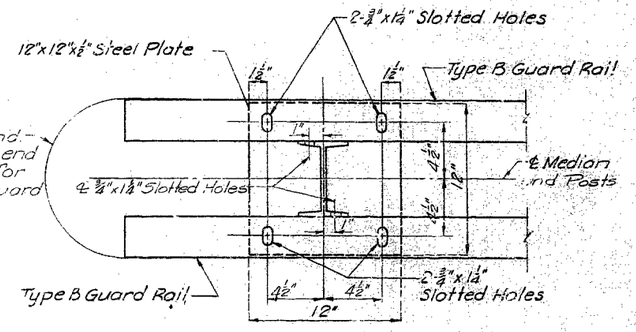
LONGITUDINAL ELEVATION



TRANSVERSE ELEVATION

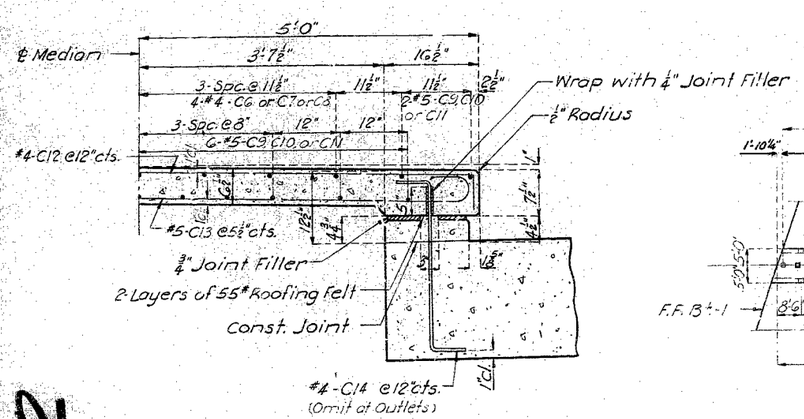


LONGITUDINAL ELEVATION

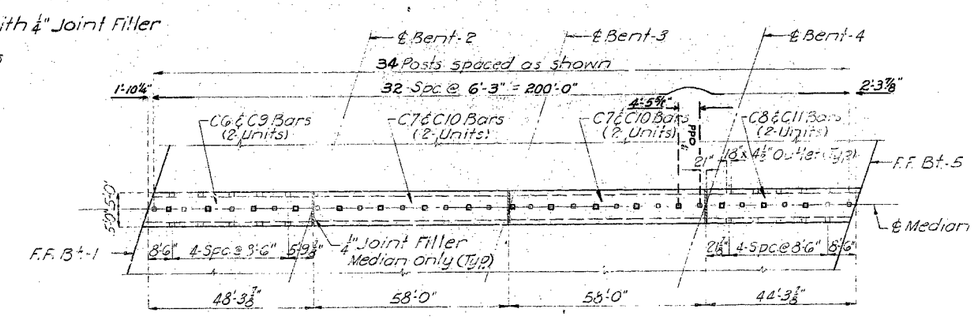


PLAN

DETAILS OF TYPE B GUARD RAIL (BOLT DOWN)



HALF SECTION THRU MEDIAN



PLAN OF MEDIAN SHOWING GUARD RAIL POST AND OUTLET SPACING

GENERAL NOTES:

All other details not shown shall comply with Std. 86.00

Grout complies with Std. Specs. Sec. 1066.1.5.

Tightening of nuts on bolts connecting rail members and post shall be to the extent that longitudinal movement of the bolt in slotted holes is possible. After tightening in this manner the top of the bolt deformed in such a way as to prevent loss of nut.

Guard rail posts set normal to Grade.

Buffer End for Type B Guard Rail required at each end of bridge.

All bridge guardrail was galvanized

3'2

BRIDGE OVER LINDEN ROAD

STATE ROAD - INTERSTATE ROUTE 29

IN KANSAS CITY

PROJECT NO. I-29-1-(53)(SEC.A RTE. 1-29) **STA.** 103+88.22 ℄ MEDIAN

PLATTE **COUNTY**

A-1595

DETAILED JAN. 1963 BY H.H.S.

CHECKED FEB. 1963 BY G.F.P.

Note: This drawing is not to scale. Follow dimensions.

Sheet No. 9A of 5

FINAL PLANS

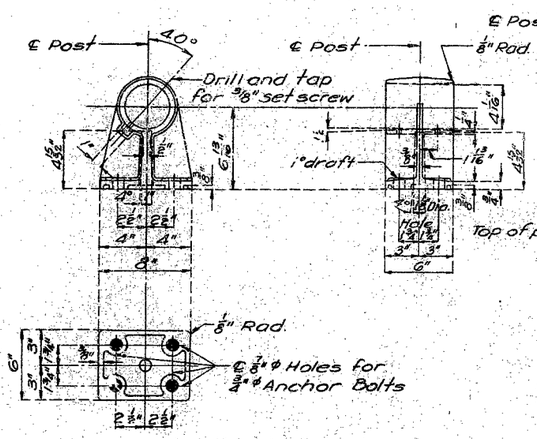
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO	STATE	FED. AID PROJ. NO	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19 74		

FINAL PLANS

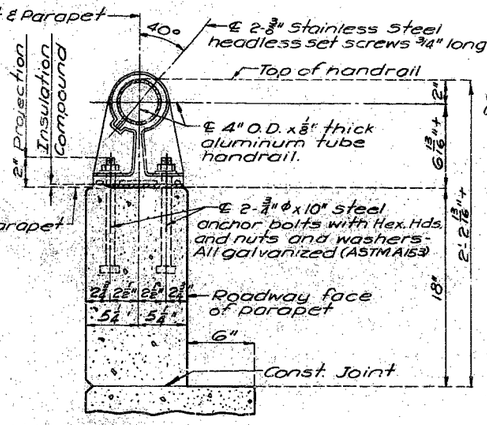
GENERAL NOTES:

All handrail posts set normal to grade.
Aluminum tube handrail bent to conform to vertical and horizontal alignment of parapet.
Aluminum washer shims between top of parapet and post base may be used for adjusting handrail alignment. Maximum thickness of shims to be ⅛". Where more tilting of post is required for proper alignment, concrete bearing areas shall be ground down.
All parts of handrail, except anchor bolts, nuts, washers, and set screws are of aluminum material.
The contract unit price per linear foot of "Bridge Rail" shall include furnishing and erecting the handrail complete with anchor bolts, shims and Insulating compound.
All fillets ¼" except as noted.
All drafts 3° except as noted.
Pipe rail to be fabricated in two or three panel lengths unless otherwise approved.
Omit set screw on side near filled joint in parapet at all expansion posts.
Top of curbs and parapets to be built parallel to grade with curb and parapet joints (except at end posts), normal to grade.
Concrete end posts to be vertical.
All exposed edges of end posts, parapets and curbs have ¾" radius.
If the contractor desires, he may use drive fit cast aluminum end caps in lieu of welded aluminum closure plates.
Integrally cast test coupons and a coat of clear lacquer specified in Std. Spec. 56.2.4 and 56.3.5 respectively will not be required for these rail posts.

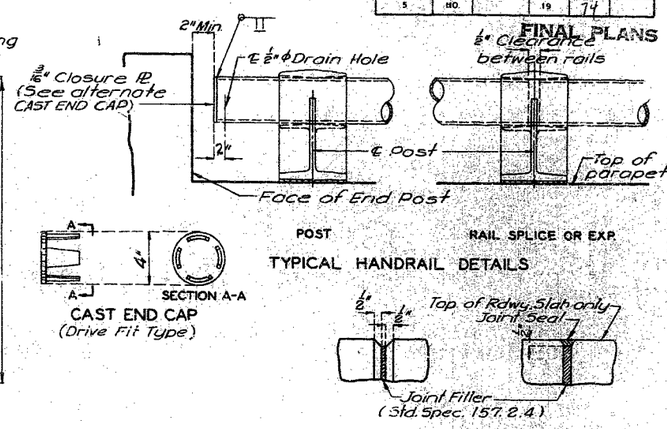


POST DETAILS

Note: Anchors for attaching guard rail ⅛" threaded (Galv.) inserts having a minimum depth of 4" and Filled with a plastic closing plug. Cost for furnishing and installing the insert and plug will be included in price bid for other items.



SECTION THRU HANDRAIL



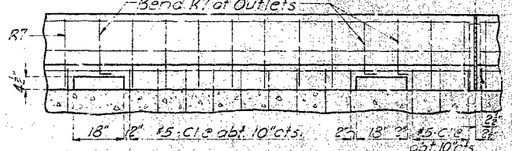
SINGLE TUBE ALUMINUM RAILING

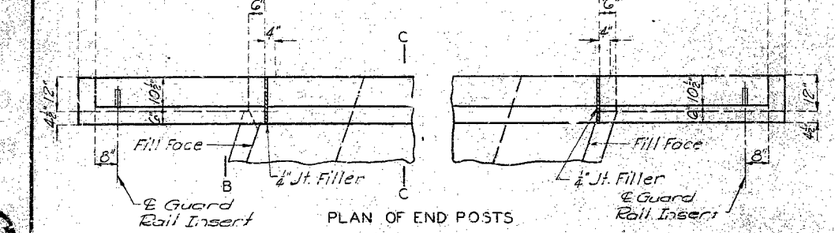
FILLED JOINT DETAILS

REINFORCING				
SPAN	(1-2)	(2-3)	(3-4)	(4-5)
CURB	#6-C3 2-Units	#5-C4 2-Units	#5-C4 2-Units	#6-C5 2-Units
PARAPET	#5-R9 2-Units	#5-R9 2-Units	#5-R9 2-Units	#5-R10 2-Units

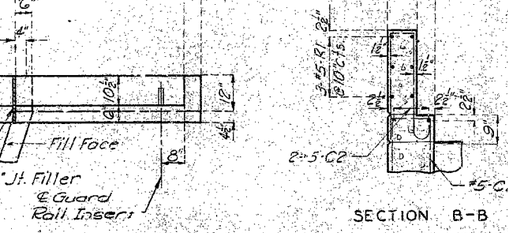
Min. Lap for #5 bars - 15" for #6 bars - 18"

Note: Where there are no outlets use #5-C1 @ 12" cts.

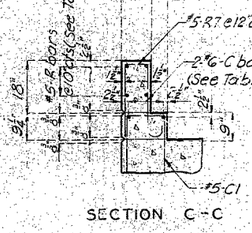




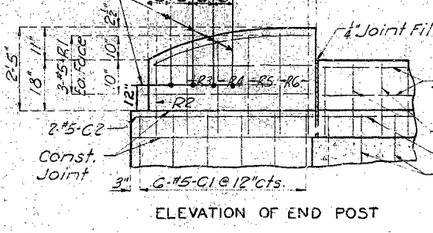
PLAN OF END POSTS



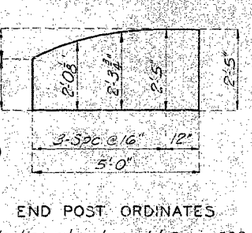
SECTION B-B



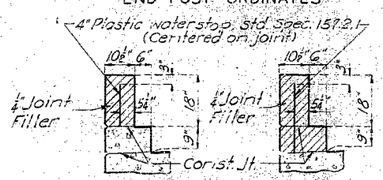
SECTION C-C



ELEVATION OF END POST

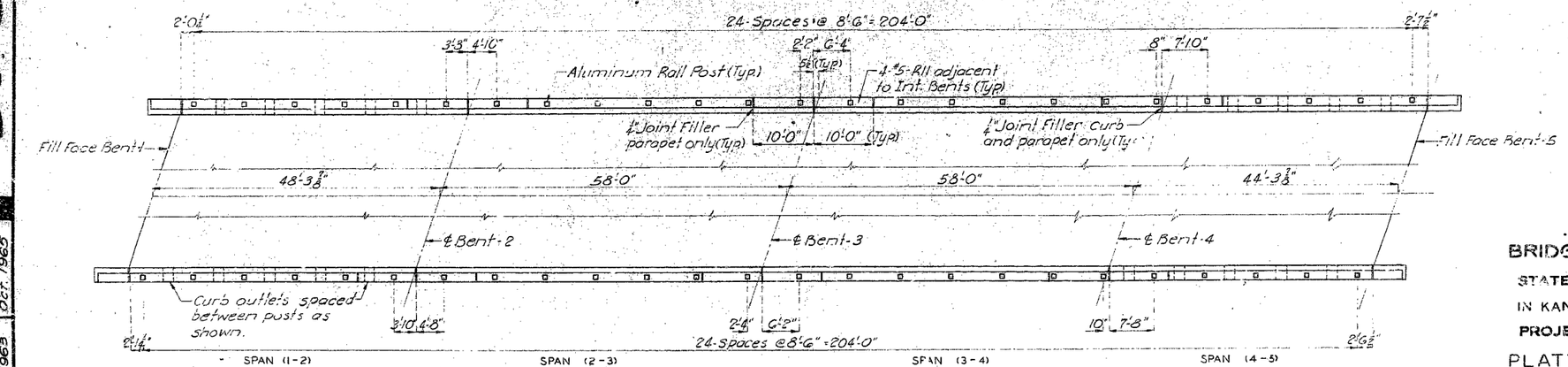


END POST ORDINATES



Note: Plastic waterstop placed in all parapet and curb filled joints (Except at End Bts.) Cost of plastic waterstop complete in place to be included in unit price bid for concrete.

DETAILS OF PLASTIC WATER STOP



PLAN OF CURBS SHOWING RAIL POST SPACING

Note: This drawing is not to scale. Follow dimensions.

BRIDGE OVER LINDEN ROAD

STATE ROAD - INTERSTATE ROUTE 29

IN KANSAS CITY SEC. A

PROJECT NO. I-29-1(66) (RTE. I-29) STA. 763+88.22 ℄ MEDIAN

PLATTE COUNTY

FINISHED

A-1595

No.	Revised	Date
1,2,3,4	Revised	Oct. 1965
		Nov. 1963

DETAILED JAN. 1966 BY H.H.B.

CHECKED FEB. 1966 BY G.F.P.

Sheet No. 10A of 5

FINAL PLANS

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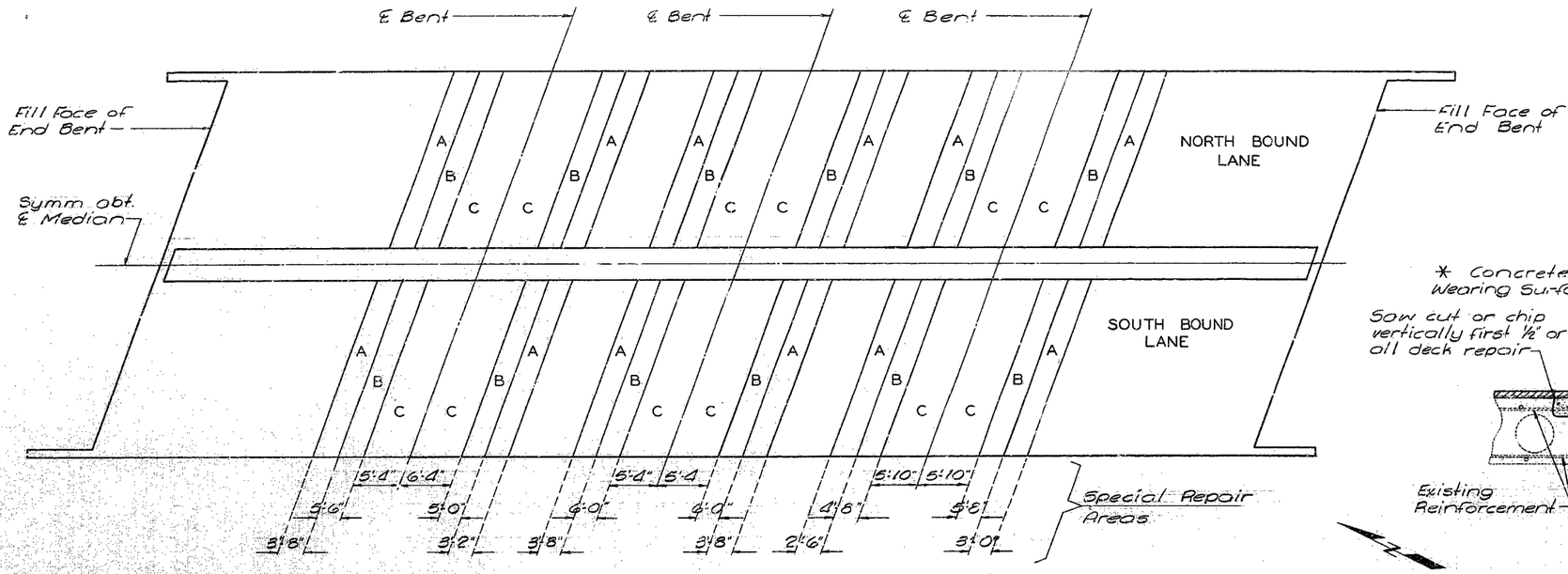
MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

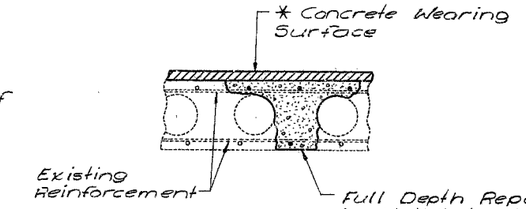
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		15	39	

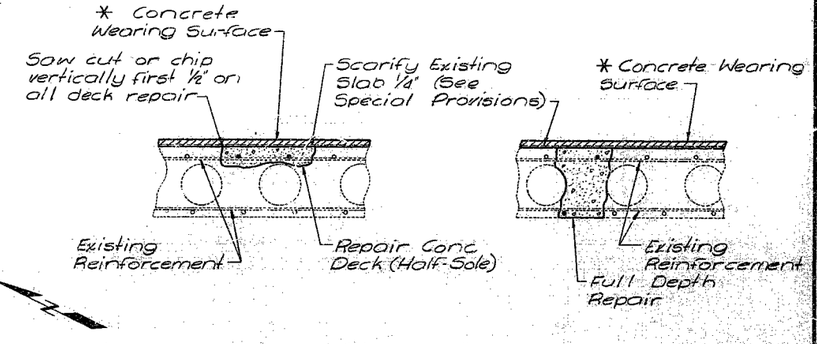
SEC./SUR. 19 TWP. 51N RGE. 33W



PLAN OF SLABS

Note: Any repair in the remainder of the bridge that is within 3'-6" of Zone A shall be completed before removing old concrete in Zones A. Zones at one bent with the same letter designation may be repaired at the same time. Sequence for repair: Zone A, Zone B then Zone C.



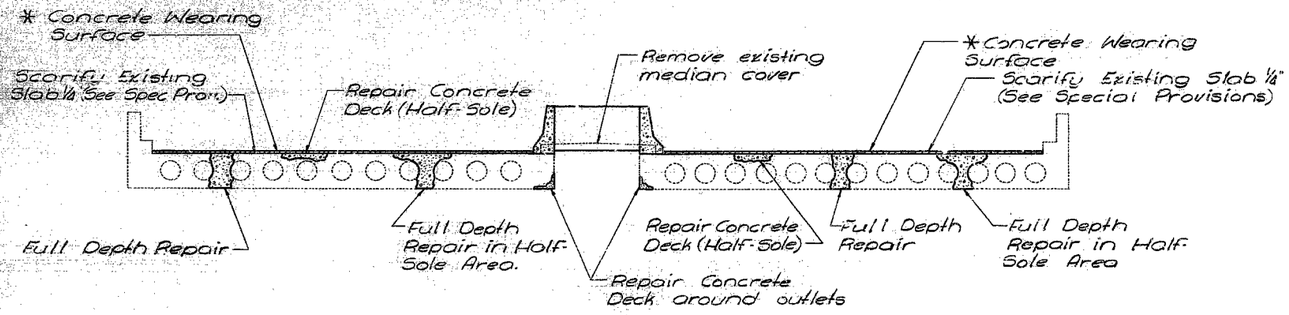


REPAIR AREAS

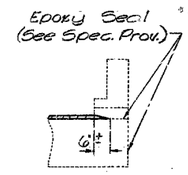
* Alternate A: 1¾" (Min.) Latex Modified Concrete
Alternate B: 2¼" (Min.) Low Slump Concrete

ESTIMATED QUANTITIES				
ITEM		S B L	N B L	TOTAL
Special Work	Lump Sum			1
* Concrete Wearing Surface( )	Sq. Yd.	1137	1137	2274
Repair Conc. Deck (Half-Soling)	Sq. Ft.	205	205	410
Full Depth Repair	Sq. Ft.	102	102	204
Safety Barrier Curb	Lin. Ft.	209	209	418
Slab Edge Repair	Lin. Ft.	20	20	40

Note: See Special Provisions for alternate use of concrete wearing surface.



SECTION THRU SLABS



TYPICAL SECTION AT EXISTING OUTLETS

Design Unit Stresses:
Class B1 Concrete (Safety Barrier Curb & Median Enclosure Wall) f'_c=4,000 psi.
Reinforcing Steel (Grade 60) f_y=60,000 psi.

Note: Outline of old work is indicated by light dotted lines. Heavy lines indicate new work.
Maintain traffic on one-half of each bridge at a time during construction. (See Road Plans)
Falsework over existing lanes shall be constructed with a minimum vertical clearance of 13'-6" from crown of existing lanes and a min. lateral clearance of 28'-0" centered on existing lanes. Sheet No. 1 of 3.

B.M.

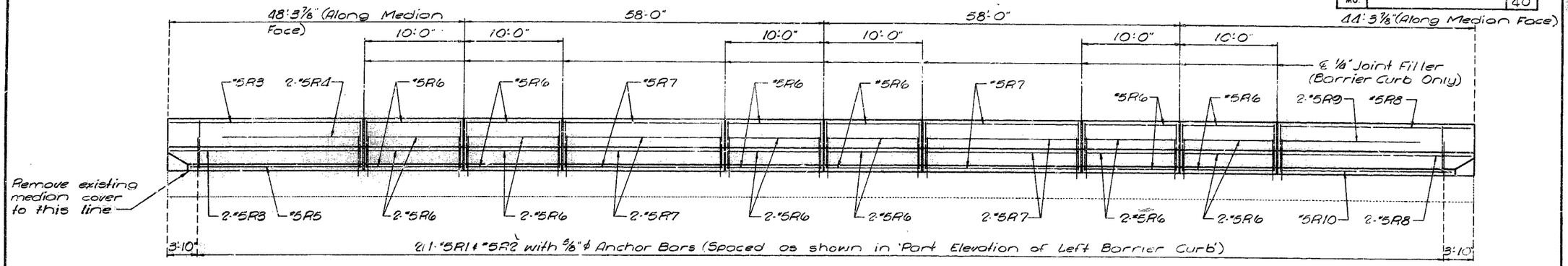
REPAIRS TO
BRIDGE OVER LINDEN ROAD
STATE ROAD INTERSTATE 29
IN KANSAS CITY
PROJECT NO. IR-29-1(80)
JOB NO. 4-I029-137C
PLATTE **COUNTY**
STA 763+77.45± (S.B.)
STA. 763+98.99± (N.B.)
RTE. I-29
DATE December 17, 1984

STD.
STD. 706.35
A-1595R

DESIGNED Aug 1984
DETAILED Aug 1984
CHECKED Sept 1984

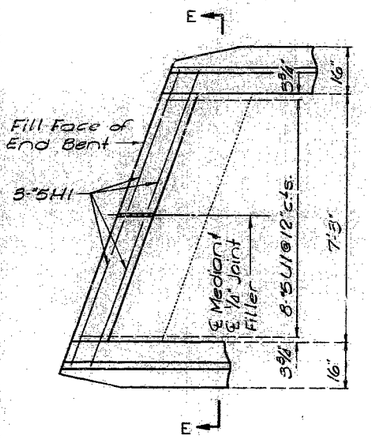
Note: This drawing is not to scale. Follow dimensions.

STATE	PROJ NO.	SHEET NO.
MO.		40

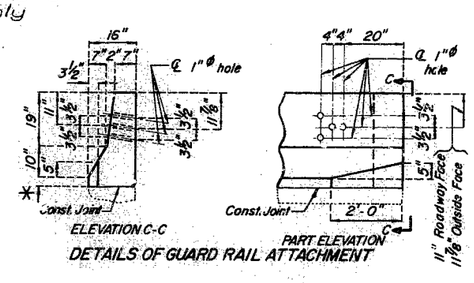


Note: Existing median cover to be removed to top of slab. #4-C1d bar shall be cleanly stripped and left in place.

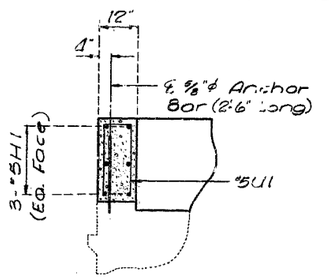
*5⅛" for Low Slump option
4⅝" for Latex Modified option



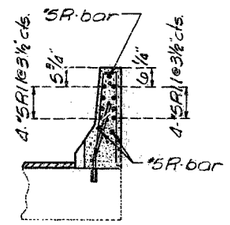
PLAN OF ENCLOSURE WALL
(Bent 1 shown Bent 5 similar)



DETAILS OF GUARD RAIL ATTACHMENT



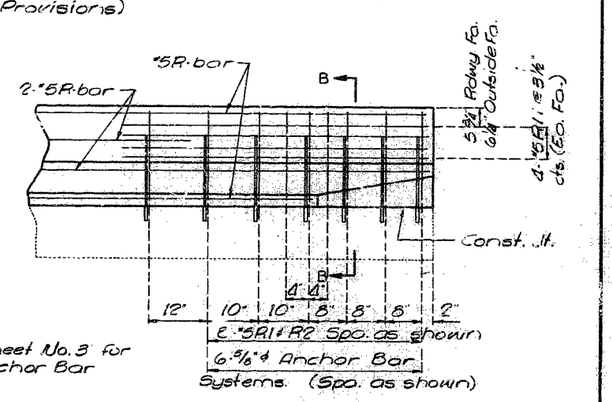
SECTION C-C



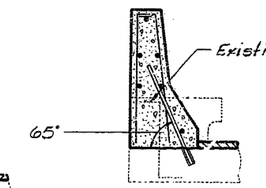
SECTION B-B

Note: See sheet No. 3 for notes for Anchor Bar Systems.

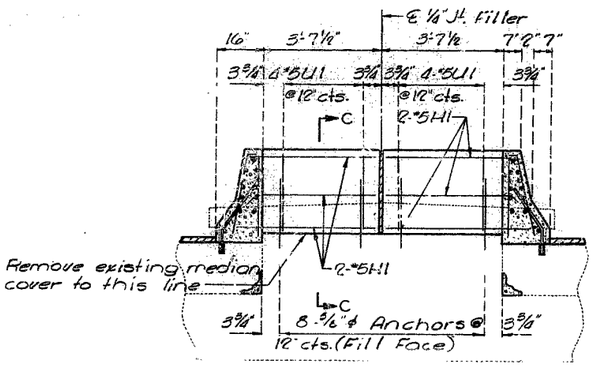
Note: Remove and salvage median handrail and post. (See Special Provisions)



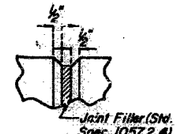
PART END ELEVATION



SECTION A-A
(Optional Anchoring System)



SECTION E-E



FILLED JOINT DETAIL

NOTES:

Top of barrier curb to be built parallel to grade with barrier curb joints (except at end bent's) normal to grade.

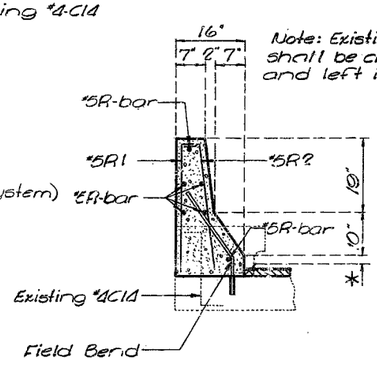
All exposed edges of barrier curb shall have ½" radius or ⅜" bevel unless otherwise noted.

When the barrier curb is bid by linear feet, the contract unit price shall include the cost of all concrete and reinforcement, complete in place.

Concrete in the safety barrier curb and enclosure wall shall be Class B.

Measurement of safety barrier curb is to the nearest linear foot for each structure, measured along the outside top of slab from fill face to fill face.

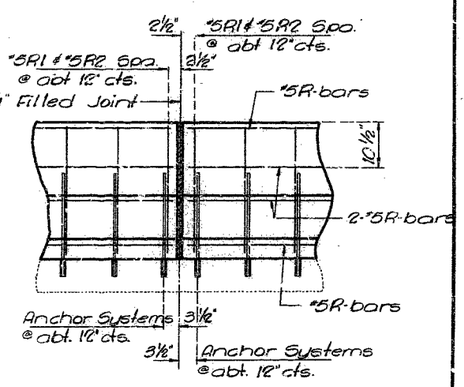
All joint filler shall meet the requirement of Std. Spec. 1057.2.4 except as noted.



SECTION A-A

Note: Cost of Enclosure Wall shall be included in price bid for safety barrier curb.

Min. clearance to reinforcing steel and anchor bars shall be 1½" unless otherwise shown



PART ELEVATION OF LEFT BARRIER CURB

Note: Cost of furnishing and installing anchor bar assemblies shall be included in the price bid per lin. ft. of barrier curb.

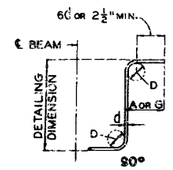
DETAILED Nov. 1984
CHECKED Nov. 1984

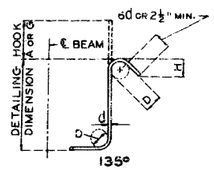
Note: This drawing is not to scale. Follow dimensions.

PLATTE COUNTY

A-1595R

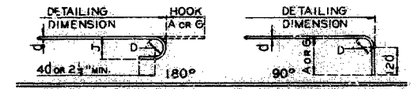
AF 329-02





STIRRUP HOOK DIMENSIONS				
		GRADES 40-50-60 "SI		
BAR SIZE	D (IN.)	90° HOOK	135° HOOK	
		HOOK A OR G	HOOK A OR G	APPROX H
#3	1-1/2"	4"	4"	2-1/2"
#4	2"	4-1/2"	4-1/2"	3"
#5	2-1/2"	6"	5-1/2"	3-3/4"
#6	4-1/2"	8"	7"	4-1/2"

NOTE: UNLESS OTHERWISE NOTED DIAMETER"D" IS THE SAME FOR ALL BENDS AND HOOKS ON A BAR.



SIZE OF 180° HOOKS (GRADE 40 KSI)

D = 5d FOR #3 THRU # 11
D = 10d FOR #14 AND # 18

SIZE OF 90° HOOKS (ALL GRADES) AND 180° HOOKS (GRADE 60 KSI)

D = 6d FOR #3 THRU #8
D = 8d FOR #9, #10 AND #11
D = 10d FOR #14 AND #18

END HOOK DIMENSIONS					
BAR SIZE	180° HOOKS				90° HOOKS
	GRADE 40		GRADE 60		ALL GRADES
	A OR G	J	A OR G	J	A OR G
#3	5"	2-3/4"	5"	3"	6"
#4	6"	3-1/2"	6"	4"	8"
#5	7"	4-1/2"	7"	5"	10"
#6	8"	5-1/4"	8"	6"	12"
#7	9"	6-1/4"	10"	7"	14"
#8	10"	7"	11"	8"	16"
#9	12"	8"	15"	11-1/4"	19"
#10	13"	9"	17"	12-3/4"	22"
#11	14"	10"	19"	14-1/4"	21'-0"
#14	21'-2"	20-1/2"	21'-2"	20-1/2"	21'-7"

NOTES:

ALL STANDARD HOOKS AND BENDS OTHER THAN 180 DEG. TO BE BENT WITH SAME PROCEDURE AS FOR 90 DEG. STD. HOOKS.
HOOKS AND BENDS SHALL BE IN ACCORDANCE WITH THE PROCEDURES AS SHOWN ON THIS SHEET.
E - EPOXY COATED REINFORCEMENT.
S - STIRRUP.
X - BAR IS INCLUDED IN SUBSTRUCTURE QUANTITIES.
V - BAR DIMENSIONS VARY IN EQUAL INCREMENTS BETWEEN DIMENSIONS SHOWN ON THIS LINE AND THE FOLLOWING LINE.
NO. EA. - NUMBER OF BARS OF EACH LENGTH.
NOMINAL LENGTHS - ARE BASED ON OUT TO OUT DIMENSIONS SHOWN IN BENDING DIAGRAMS AND ARE LISTED FOR FABRICATORS USE. (NEAREST INCH)
ACTUAL LENGTHS - ARE MEASURED ALONG CENTERLINE BAR TO THE NEAREST INCH.
PA WEIGHTS ARE BASED ON ACTUAL LENGTHS.

Note: The contractor shall use one of the following anchor bar systems for the barrier curb and median enclosure wall at end bents:

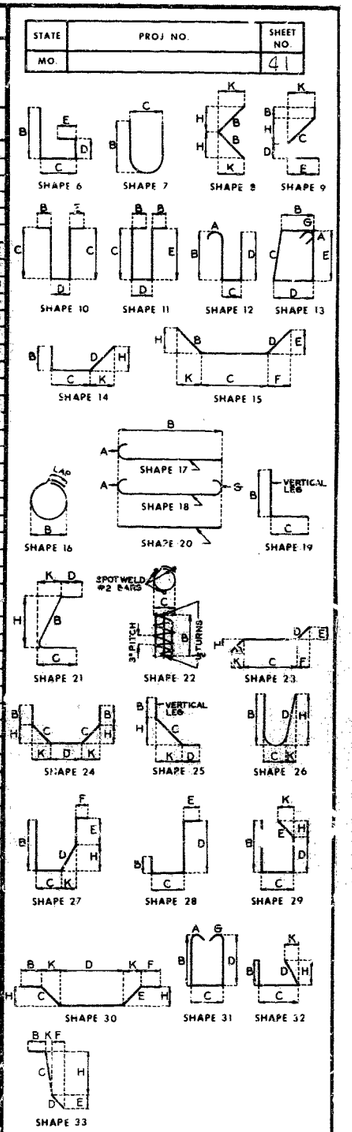
1. Molly Percabond Capsule Anchors
2. Hilti HVA Adhesive Anchors
3. Sup-R-Set Synthetic Resin Capsule Anchors
4. Keligroutin Resin Bonding Anchor

These anchor bar systems shall be installed according to the manufacturer's specifications except that epoxy coated, #6 #, Grade 60 reinforcing bars 2'-6" long shall be substituted for the epoxy coated or galvanized threaded rod stud and if the Keligroutin Resin Bonding System is used the minimum embedment in old concrete shall be 6½".

86

COMPLETE BILL OF REINFORCING STEEL

NO. REQD.	MARK NO. SIZE MARK	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS B FT. IN.	C FT. IN.	D FT. IN.	E FT. IN.	F FT. IN.	H FT. IN.	K FT. IN.	NOMINAL LENGTH FT.IN.	ACTUAL LENGTH FT.IN.	WEIGHT LBS.
24	5H1	ENCLOSURE WALL	E	20				4	9.000							4 0	4 0	100
454	5R1	BARRIER CURB	E	15				2	7.625	3.500				2 7.500	3.000	2 11	2 10	1342
454	5R2	BARRIER CURB	E	19				2	7.500	3.500						2 11	2 10	1342
6	5R3	BARRIER CURB	E	20				38	1.000							38 1	38 1	238
4	5R4	BARRIER CURB	E	20				32	1.000							32 1	32 1	134
2	5R5	BARRIER CURB	E	20				36	2.000							36 2	36 2	75
14	5R6	BARRIER CURB	E	20				9	9.000							9 9	9 9	762
24	5R7	BARRIER CURB	E	20				37	9.000							37 9	37 9	945
6	5R8	BARRIER CURB	E	20				34	1.000							34 1	34 1	213
4	5R9	BARRIER CURB	E	20				28	1.000							28 1	28 1	117
2	5R10	BARRIER CURB	E	20				32	2.000							32 2	32 2	67
32	5R11	BARRIER CURB	E	20				7	5.000							7 5	7 5	248
16	5U1	ENCLOSURE WALL	E	10						2 2.000	9.000					5 1	4 10	81
		END OF BAR LIST																



BENDING DIAGRAMS

Note: Two additional "5R6 are included in bar bill for testing.

STATE	PROJ NO.	SHEET NO.
MO.		41

DETAILED Nov. 1984
CHECKED Nov. 1984

Note: This drawing is not to scale. Follow dimensions.

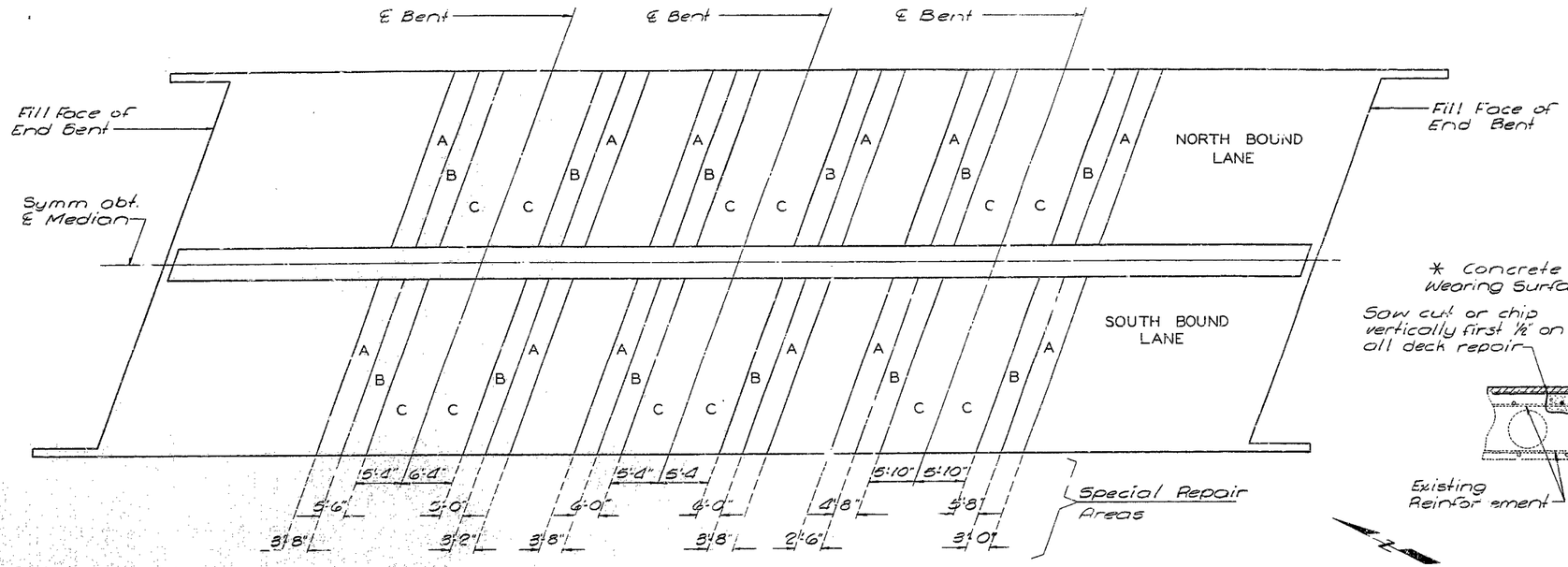
Sheet No. 3 of 3 .

PLATTE COUNTY

A-1595R

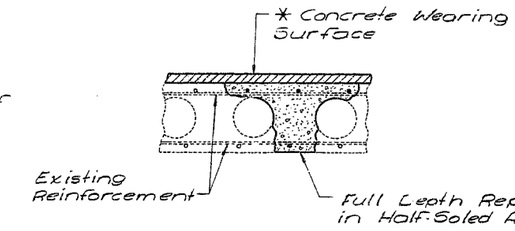
MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

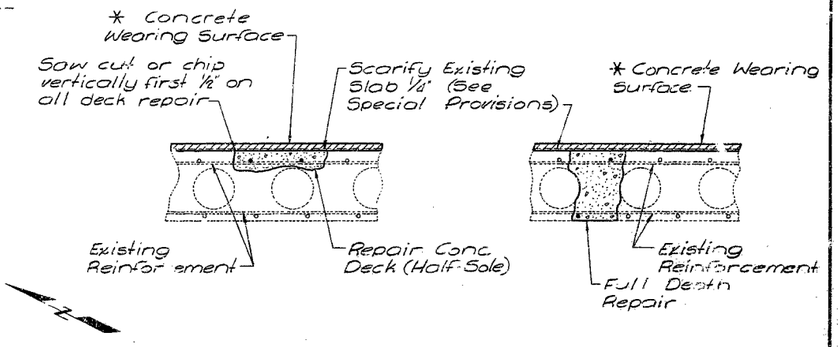
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISC'L YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	39	
SEC./SUR. 19		TWP. 51N		RGE. 33W	



PLAN OF SLABS

Note: Any repair in the remainder of the bridge that is within 3'-6" of Zone A shall be completed before removing old concrete in Zones A.
Zones of one bent with the same letter designation may be repaired of the same time.
Sequence for repair; Zone A, Zone B then Zone C.



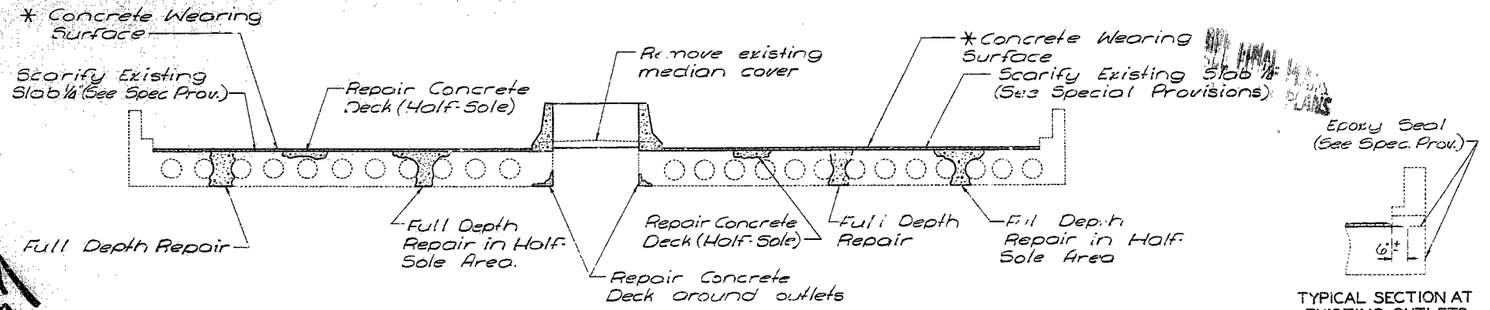


* ~~Alternate A: 1¼" (Min.) Latex Modified Concrete~~
Alternate B: 2½" (Min.) Low Slump Concrete

REPAIR AREAS

FINAL QUANTITIES				
ITEM		S.B.L.	N.B.L.	TOTAL
Special Work	Lump Sum			1
* Concrete Wearing Surface (Alt. B)	Sq. Yd.	1137	1137	2274
Repair Conc. Deck (Half-Soling)	Sq. Ft.			1586
Full Depth Repair	Sq. Ft.	0	0	0
Safety Barrier Curb	Lin. Ft.	209	209	418
Slab Edge Repair	Lin. Ft.	142	138	280

Note: See Special Provisions for alternate use of concrete wearing surface.



SECTION THRU SLABS

TYPICAL SECTION AT EXISTING OUTLETS

Design Unit Stresses:
Class B1 Concrete (Safety Barrier Curb & Median Enclosure Wall) fc=4,000 psi.
Reinforcing Steel (Grade 60) fy=60,000 psi.

Note: Outline of old work is indicated by light dotted lines. Heavy lines indicate new work.
Maintain traffic on one half of each bridge at a time during construction. (See Road Plans)
Falsework over existing lanes shall be constructed with a minimum vertical clearance of 13'-6" from crown of existing lanes and a min. lateral clearance of 28'-0" centered on existing lanes.

Sheet No. 19a of 39

B.M.

REPAIRS TO
BRIDGE OVER LINDEN ROAD
STATE ROAD INTERSTATE 29
IN KANSAS CITY
PROJECT NO. IR-29-1(88)
JOB NO. 4-I029-137C
PLATTE COUNTY
STA 763+77.45± (S.B.)
STA. 763+98.99± (N.B.)
RTE. I-29
DATE December 17, 1984

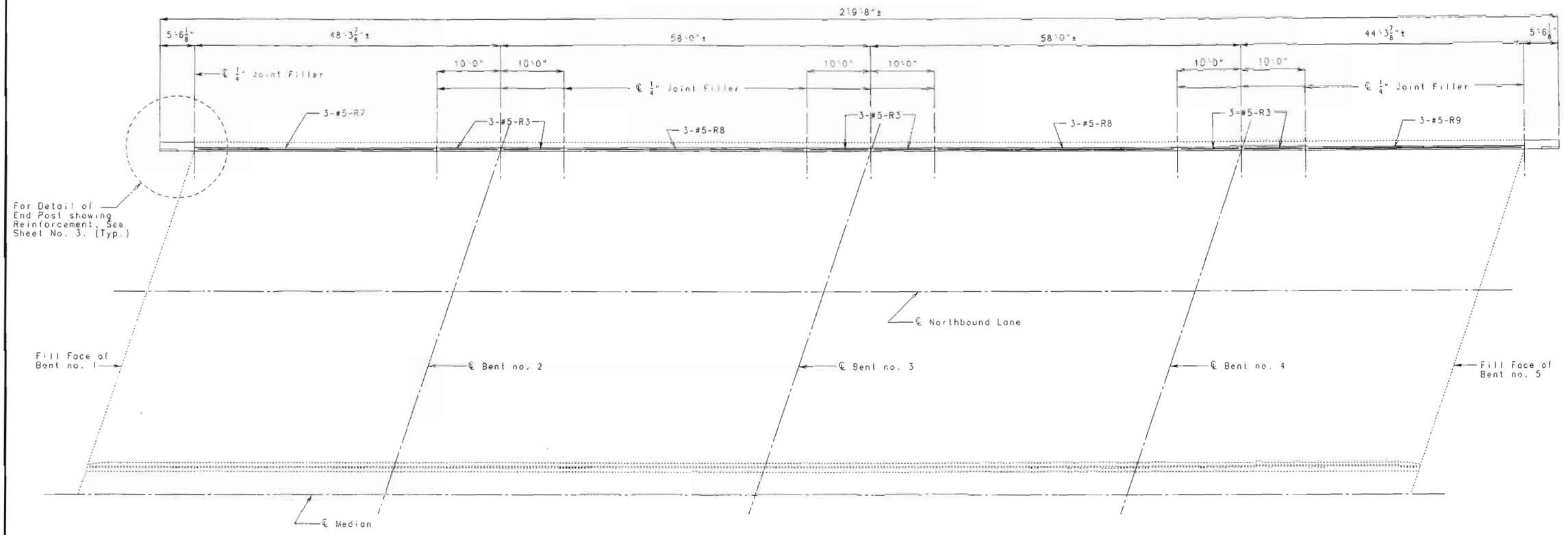
STD.
STD. 706.35
A-1595R

DESIGNED Aug. 1984
DETAILED Aug. 1984
CHECKED Sept 1984

Note: This drawing is not to scale. Follow dimensions.

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

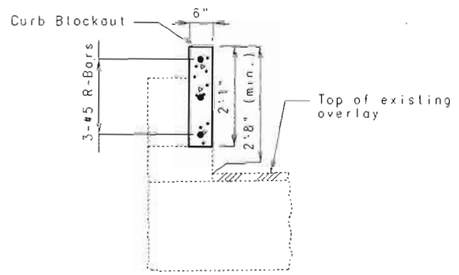
STATE	PROJ. NO.	SHEET NO.
MO.		165
SEC./SUR. 18&19 TWP. 51N RGE. 33W		



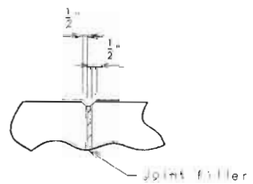
PLAN OF CURB BLOCKOUT SHOWING REINFORCEMENT (NORTHBOUND ROADWAY)

NOTES FOR CURB BLOCKOUT

Concrete in curb blockout shall be B1.
Measurement of curb blockout is to the nearest linear foot measured at the gutter line from end of wing to end of wing.
All exposed edges of curb blockout shall have 1/2" radius or 3/8" bevel unless otherwise shown.
Payment for concrete and reinforcing steel in curb blockout complete in place shall be included in the contract unit price for the curb blockout per linear foot.
Cost of any concrete end post removal shall be considered completely covered in unit prices bid for curb blockout.
Embedment depth of resin anchor systems (vertical and horizontal) shall be a maximum of 6" into existing curb & parapet.
Adjust resin anchors in field, if necessary, to miss curb outlets.



TYPICAL SECTION
THRU CURB BLOCKOUT



FILLED JOINT DETAIL

ESTIMATED QUANTITIES		
ITEM		TOTAL
CURB BLOCKOUT	LIN.FT.	220

NOTES:
Any damage to the existing low slump concrete overlay shall be repaired or replaced as directed by the engineer. No direct payment will be made for any replacement or repairs to the low slump concrete overlay.

Bars bonded in old concrete not removed shall be cleanly stripped and embedded into new concrete where possible. If length is available, old bars shall extend into new concrete at least 40 diameters for smooth bars and 30 diameters for deformed bars, unless otherwise noted.

The contractor shall use one of the resin anchor systems listed in the job special provisions for the curb blockout. These anchor systems shall be installed according to the manufacturer's specifications, except as modified by the job special provisions and that an epoxy coated #5 grade 60 reinforcing bar as shown shall be substituted for the 5/8"ø threaded rod stud.

Cost of furnishing and installing the anchor systems complete in place shall be included in the price bid per linear foot of curb blockout.

The 5/8" diameter resin anchor systems shall have a minimum ultimate pullout strength of 18,800 lbs. in concrete with f'c = 4000 psi. See special provisions.

GENERAL NOTES:

DESIGN SPECIFICATIONS:
A.A.S.H.T.O.-1996
DESIGN UNIT STRESSES:
Class B1 Concrete (Curb Blockout) f'c=4000 psi
Reinforcing Steel (Grade 60) fy=60,000 psi
JOINT FILLER:
All joint filler shall meet the requirements of Std. Spec. 1057.2.4, except as noted.
REINFORCING STEEL:
Minimum clearance to reinforcing steel shall be 1-1/2" unless otherwise shown.
OLD WORK:
Outline of old work is indicated by light dashed lines. Heavy lines indicate new work.
VERIFY DIMENSIONS:
Contractor shall verify dimensions in field before ordering new materials.
TRAFFIC HANDLING:
See roadway plans for traffic control during construction.

STATE OF MISSOURI
MICHAEL D. HARMS
NUMBER E-26651
REGISTERED PROFESSIONAL ENGINEER

DATE 1/9/98

REPAIR TO:
BRIDGE OVER LINDEN RD.

STATE ROAD FROM RTE. 45 TO RTE. 152
ABOUT 1.25 MILES NW OF RTE. 45
PROJECT NO. **STA.** 763+98.99 (MATCH EXIST.)
JOB NO. J411246 **RTE.** I-29 (NBL)

PLATTE COUNTY

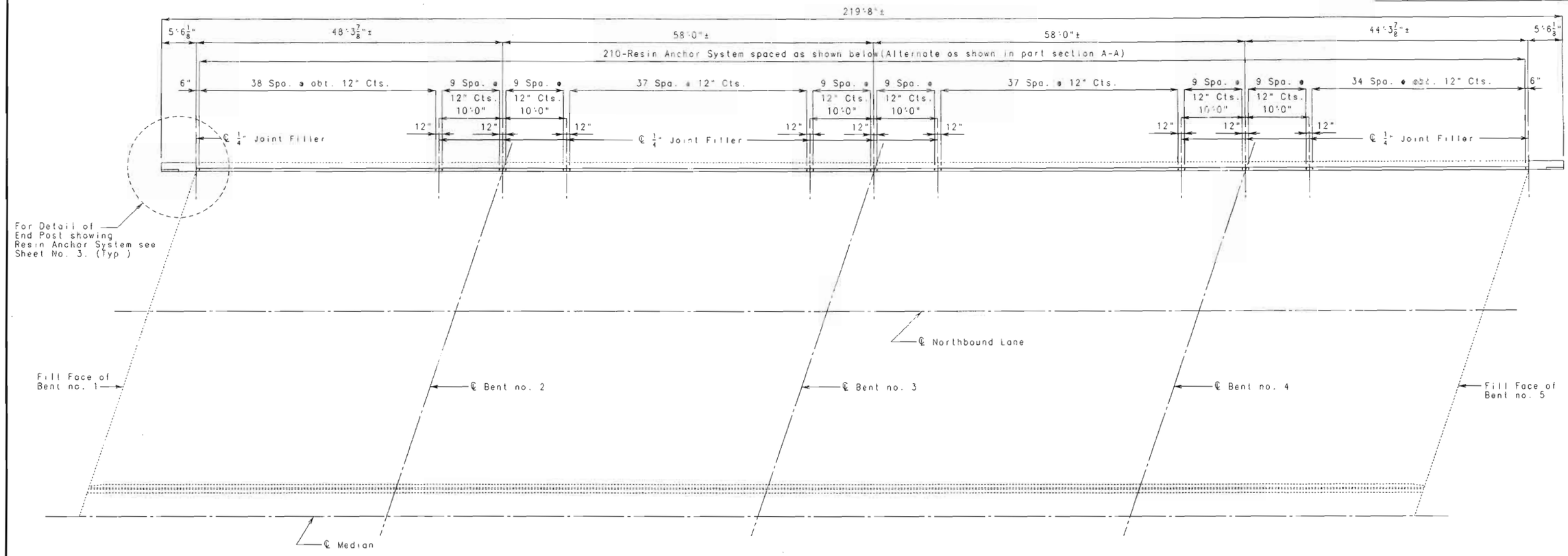
DESIGNED May 1997
DETAILED May 1997
CHECKED Oct. 1997

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

DATE 1/27/98

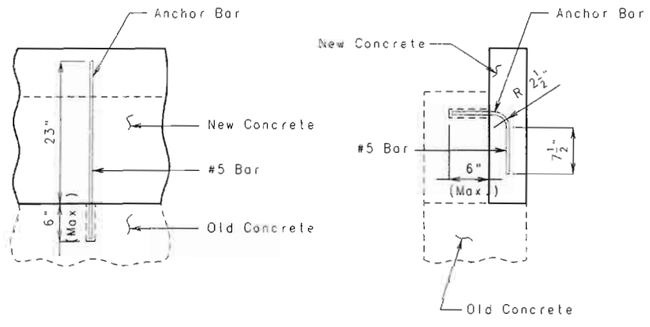
STD.
STD.
A15952

STATE	PROJ. NO.	SHEET NO.
MO.		166

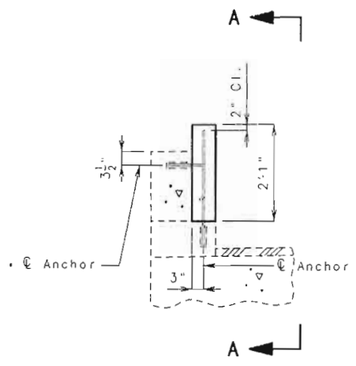


PLAN OF CURB BLOCKOUT SHOWING RESIN ANCHOR SPACING (NORTHBOUND ROADWAY)

Note: Curb Blockout Joint Filler shall match those of Existing Structure.

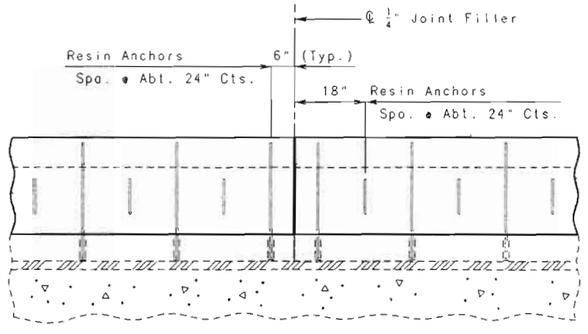


RESIN ANCHOR SYSTEMS DETAILS

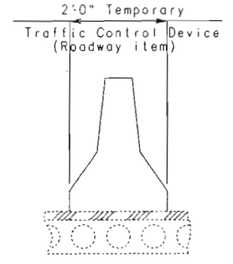


TYPICAL SECTION THRU CURB

Shift Resin Anchor to clear existing steel anchor bolts for tube roll.



PART SECTION A-A



DETAIL OF TEMPORARY TRAFFIC BARRIER

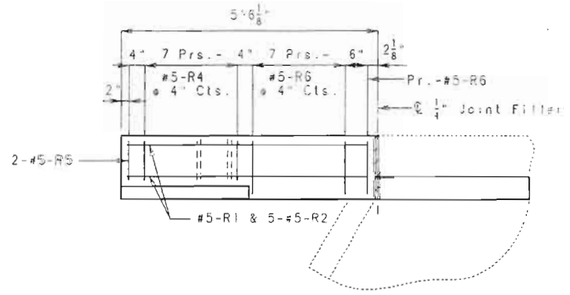
STATE OF MISSOURI
MICHAEL D. HARMS
NUMBER E-26651
REGISTERED PROFESSIONAL ENGINEER

DATE 1/3/03

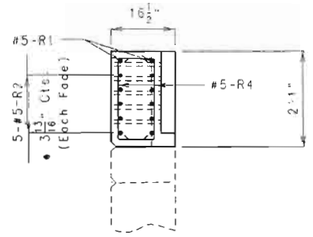
DETAILED May 1997
CHECKED Oct. 1997

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

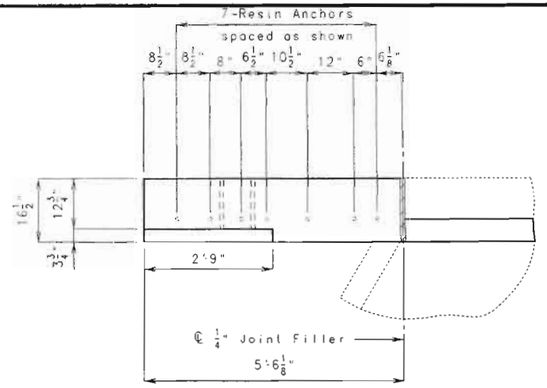
STATE	PROJ. NO.	SHEET NO.
MO.		167



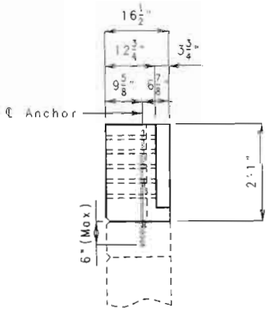
PLAN SHOWING END POST
REINFORCEMENT



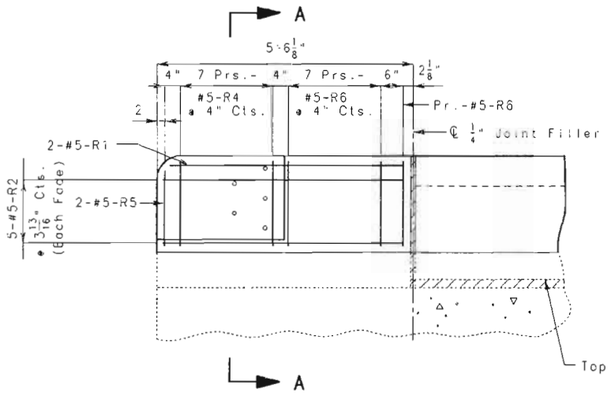
SECTION A-A



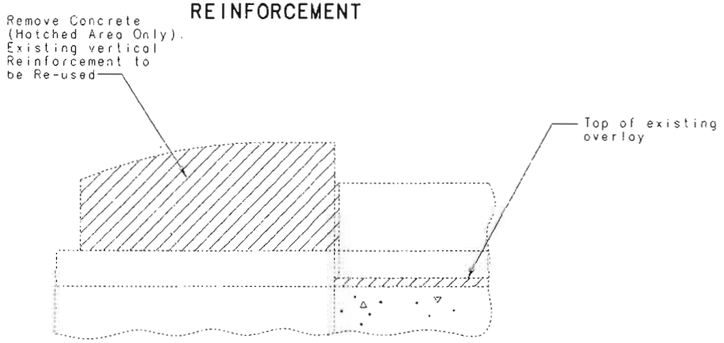
PLAN SHOWING END POST
RESIN ANCHOR SYSTEMS & DIMENSIONS



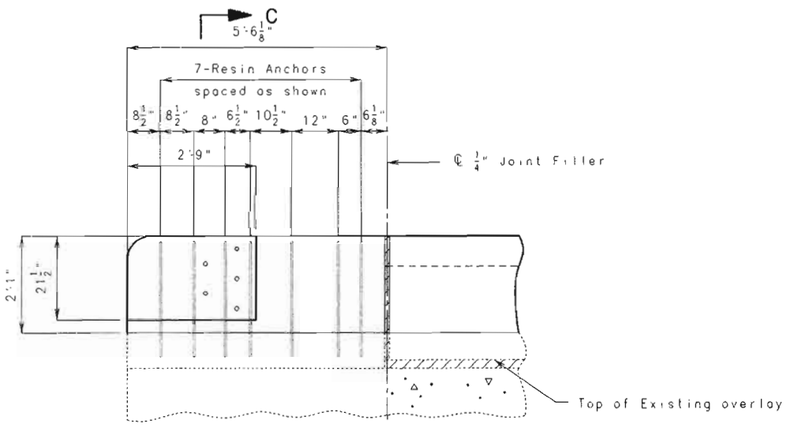
SECTION C-C



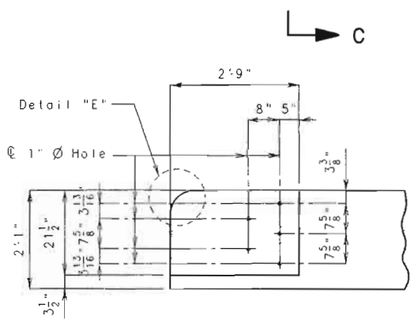
ELEVATION SHOWING END POST
REINFORCEMENT



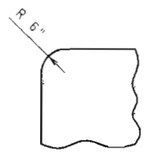
ELEVATION OF EXISTING END POST
SHOWING CONCRETE REMOVAL



ELEVATION SHOWING END POST
RESIN ANCHOR SYSTEMS & DIMENSIONS



DETAILS OF GUARD RAIL
ATTACHMENT



DETAIL "E"

STATE OF MISSOURI
MICHAEL D. HARMON
NUMBER E-26651
REGISTERED PROFESSIONAL ENGINEER

DATE 1/3/98

DETAILS OF END POST (NORTHBOUND ROADWAY)

DETAILED May 1997
CHECKED Oct. 1997

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

PLATTE COUNTY

A15952

BILL OF REINFORCING STEEL

NO. REQ'D.	MARK NO. SIZE MARK	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS B FT. IN.	C FT. IN.	D FT. IN.	E FT. IN.	F FT. IN.	H FT. IN.	K FT. IN.	NOMINAL LENGTH FT. IN.	ACTUAL LENGTH FT. IN.	WEIGHT LBS.
		BLOCKOUT																
4	5 R1	BLOCKOUT	E	20					5 0.000							5 0	5 0	21
20	5 R2	BLOCKOUT	E	20					5 2.000							5 2	5 2	109
20	5 R3	BLOCKOUT	E	20					9 8.000							9 8	9 8	202
28	5 R4	BLOCKOUT	E	10	S					9.750	22.000					3 6	3 3	85
4	5 R5	BLOCKOUT	E	10	S					9.750	20.000					3 4	3 1	13
32	5 R6	BLOCKOUT	E	10	S					13.500	22.000					4 1	3 11	131
3	5 R7	BLOCKOUT	E	20					38 0.000							38 0	38 0	119
6	5 R8	BLOCKOUT	E	20					37 8.000							37 8	37 8	236
3	5 R9	BLOCKOUT	E	20					34 0.000							34 0	34 0	106

BILL OF REINFORCING STEEL

NO. REQ'D.	MARK NO. SIZE MARK	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS B FT. IN.	C FT. IN.	D FT. IN.	E FT. IN.	F FT. IN.	H FT. IN.	K FT. IN.	NOMINAL LENGTH FT. IN.	ACTUAL LENGTH FT. IN.	WEIGHT LBS.

STATE MO. | PROJ. NO. | SHEET NO. 168

SHAPE 6 · SHAPE 7 · SHAPE 8 · SHAPE 9 · SHAPE 10 · SHAPE 11 · SHAPE 12 · SHAPE 13 · SHAPE 14 · SHAPE 15 · SHAPE 16 · SHAPE 17 · SHAPE 18 · SHAPE 20 · SHAPE 19 · SHAPE 21 · SHAPE 23 · SHAPE 24 · SHAPE 22 · SHAPE 25 · SHAPE 26 · SHAPE 27 · SHAPE 28 · SHAPE 29 · SHAPE 31 · SHAPE 30 · SHAPE 32 · SHAPE 36 · SHAPE 35 · SHAPE 34 · SHAPE 33

SPOT WELD AASHTO M32 SIZE W5 WIRE (TYP.)

6d FOR #4 AND #5; 12d FOR #6

90° STIRRUP 135° STIRRUP

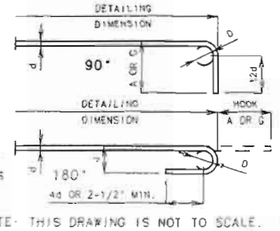
DETAILED Dec. 1997
CHECKED Dec. 1997

STD 90.8 REVISED MAY 1974 OCT. 1991

STIRRUP HOOK DIMENSIONS

GRADES 40 - 50 - 60 KSI				
BAR SIZE	D (IN.)	90° HOOK A OR G	135° HOOK A OR G	135° HOOK APPROX. H
#4	2"	4-1/2"	4-1/2"	3"
#5	2-1/2"	6"	5-1/2"	3-3/4"
#6	4-1/2"	12"	8"	4-1/2"

NOTE: UNLESS OTHERWISE NOTED DIAMETER "D" IS THE SAME FOR ALL BENDS AND HOOKS ON A BAR.



END HOOK DIMENSIONS

BAR SIZE	D (IN.)	ALL GRADES 180° HOOKS A OR G	180° HOOKS J	90° HOOKS A OR G
#3	2-1/4"	5"	3"	6"
#4	3"	6"	4"	8"
#5	3-3/4"	7"	5"	10"
#6	4-1/2"	8"	6"	12"
#7	5-1/4"	10"	7"	14"
#8	6"	11"	8"	16"
#9	9-1/2"	15"	11-3/4"	19"
#10	10-3/4"	17"	13-1/4"	22"
#11	12"	19"	14-3/4"	2'-0"
#14	18-1/4"	2'-3"	21-3/4"	2'-7"

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

TWO ADDITIONAL #5-R3 ARE INCLUDED IN THE BAR BILL FOR TESTING.

NOTE:
ALL STANDARD HOOKS AND BENDS OTHER THAN 180 DEG. TO BE BENT WITH THE SAME PROCEDURE AS FOR 90 DEG. STD. HOOKS.
HOOKS AND BENDS SHALL BE IN ACCORDANCE WITH THE PROCEDURES AS SHOWN ON THIS SHEET.
E = EPOXY COATED REINFORCEMENT.
S = STIRRUP.
X = BAR IS INCLUDED IN SUBSTRUCTURE QUANTITIES.
V = BAR DIMENSIONS VARY IN EQUAL INCREMENTS BETWEEN DIMENSIONS SHOWN ON THIS LINE AND THE FOLLOWING LINE.
NO. EA. = NUMBER OF BARS OF EACH LENGTH.
NOMINAL LENGTHS ARE BASED ON CUT TO CUT DIMENSIONS SHOWN IN BENDING DIAGRAMS AND ARE LISTED FOR FABRICATORS USE. (NEAREST INCH)
ACTUAL LENGTHS ARE MEASURED ALONG CENTERLINE BAR TO THE NEAREST INCH.
PAYWEIGHTS ARE BASED ON ACTUAL LENGTHS.
FOUR ANGLE OR CHANNEL SPACERS ARE REQUIRED FOR EACH COLUMN SPIRAL. SPACERS ARE TO BE PLACED ON INSIDE OF SPIRALS. LENGTH AND WEIGHT OF COLUMN SPIRALS DO NOT INCLUDE SPLICES OR SPACERS.
REINFORCING STEEL (GRADE 60) = FY 60,000 PSI.

BENDING DIAGRAMS

STATE OF MISSOURI · MICHAEL D. HARMS · NUMBER E-28651 · REGISTERED PROFESSIONAL ENGINEER

DATE 1/9/98

SHEET NO. 4 OF 4

PLATTE COUNTY

A15952

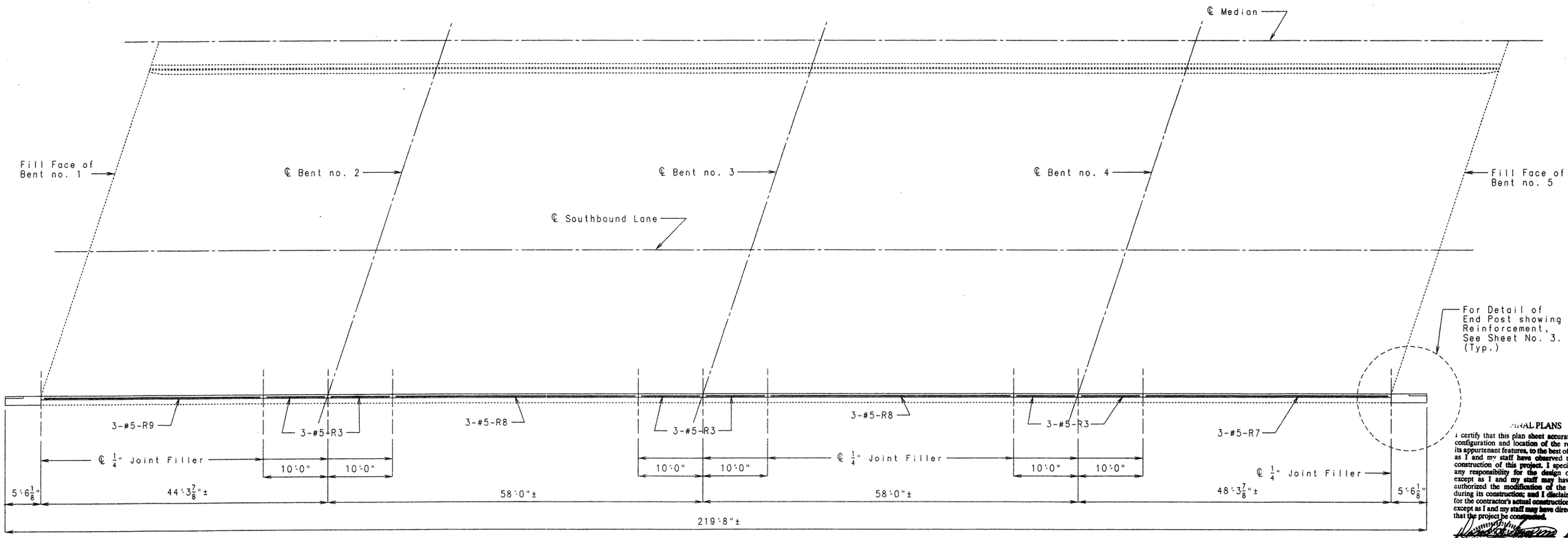
FOR INFORMATION ONLY

A15955, Sht. 26

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

STATE	PROJ. NO.	SHEET NO.
MO.	ACIM-ACIMG-29-1(99)	169
SEC./SUR.18&19TWP. 51N RGE. 33W		

Contract ID. 980424-09-OVK

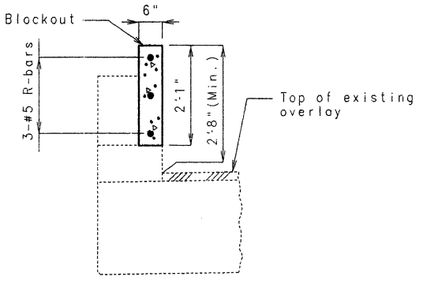


PLAN OF CURB BLOCKOUT SHOWING REINFORCEMENT (SOUTHBOUND ROADWAY)

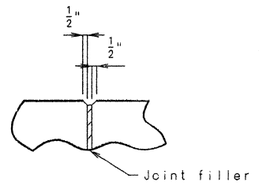
NOTES FOR CURB BLOCKOUT

Concrete in curb blockout shall be B1.
Measurement of curb blockout is to the nearest linear foot measured at the gutter line from end of wing to end of wing.
All exposed edges of curb blockout shall have 1/2" radius or 3/8" bevel unless otherwise shown.
Payment for concrete and reinforcing steel in curb blockout complete in place shall be included in the contract unit price for the curb blockout per linear foot.
Cost of any concrete end post removal shall be considered completely covered in unit prices bid for curb blockout.
Embedment depth of resin anchor systems (vertcal and horizontal) shall be a maximum of 6" into existing curb & parapet.
Adjust resin anchors in field, if necessary, to miss curb outlets.

FINAL QUANTITIES		
ITEM		TOTAL
CURB BLOCKOUT	LIN.FT.	220+/-
Rehabilitation of Existing Wing	Lump Sum	1+/-



TYPICAL SECTION THRU CURB BLOCKOUT



FILLED JOINT DETAIL

NOTES:
Any damage to the existing low slump concrete overlay shall be repaired or replaced as directed by the engineer. No direct payment will be made for any replacement or repairs to the low slump concrete overlay.

Bars bonded in old concrete not removed shall be cleanly stripped and embedded into new concrete where possible. If length is available, old bars shall extend into new concrete at least 40 diameters for smooth bars and 30 diameters for deformed bars, unless otherwise noted.

The contractor shall use one of the resin anchor systems listed in the job special provisions for the curb blockout. These anchor systems shall be installed according to the manufacturer's specifications, except as modified by the job special provisions and that an epoxy coated #5 grade 60 reinforcing bar as shown shall be substituted for the 5/8"ø threaded rod stud.

Cost of furnishing and installing the anchor systems complete in place shall be included in the price bid per linear foot of curb blockout.

The 5/8" diameter resin anchor systems shall have a minimum ultimate pullout strength of 18,800 lbs. in concrete with f'c = 4000 psi. See special provisions.

GENERAL NOTES:

DESIGN SPECIFICATIONS:
A.A.S.H.T.O.-1996
DESIGN UNIT STRESSES:
Class B1 Concrete (Curb Blockout) f'c=4000 psi
Reinforcing Steel (Grade 60) fy=60,000 psi
JOINT FILLER:
All joint filler shall meet the requirements of Std. Spec. 1057.2.4, except as noted.
REINFORCING STEEL:
Minimum clearance to reinforcing steel shall be 1-1/2" unless otherwise shown.
OLD WORK:
Outline of old work is indicated by light dashed lines. Heavy lines indicate new work.
VERIFY DIMENSIONS:
Contractor shall verify dimensions in field before ordering new materials.
TRAFFIC HANDLING:
See roadway plans for traffic control during construction.

FINAL PLANS

I certify that this plan sheet accurately depicts the configuration and location of the roadway and all its appurtenant features, to the best of my knowledge. as I and my staff have observed the contractor's construction of this project. I specifically disclaim any responsibility for the design of this project, except as I and my staff may have modified or authorized the modification of the project design during its construction; and I disclaim responsibility for the contractor's actual construction of the project, except as I and my staff may have directed or ordered that the project be constructed.

Signature 4-30-01

DAVID A. SCRIVENS NUMBER E-24157 REGISTERED PROFESSIONAL ENGINEER

MICHAEL D. HAAS NUMBER E-25651 STATE OF MISSOURI REGISTERED PROFESSIONAL ENGINEER

DATE 1/9/99

REPAIR TO:
BRIDGE OVER LINDEN RD.

STATE ROAD FROM RTE. 45 TO RTE. 152
ABOUT 1.25 MILES NW OF RTE. 45
PROJECT NO. **STA.** 763+77.45(MATCH EXIST)
JOB NO. J411246 **RTE.** I-29 (SBL)

PLATTE COUNTY

DATE 1/27/98

STD.
STD.
A15953

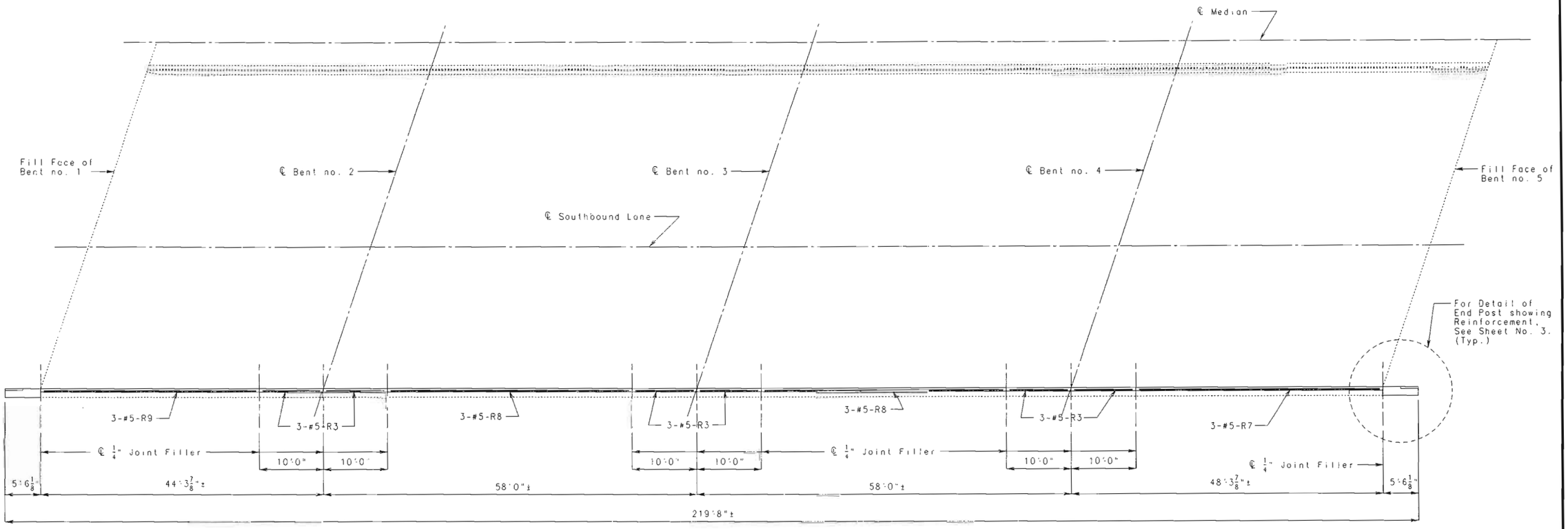
DESIGNED May 1997
DETAILED May 1997
CHECKED Oct. 1997

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

SHEET NO. 1 OF 4

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

STATE	ROUTE NO.	SHEET NO.
MO.		169
SEC./SUR. 18&19 TWP. 51N RGE. 33W		



PLAN OF CURB BLOCKOUT SHOWING REINFORCEMENT (SOUTHBOUND ROADWAY)

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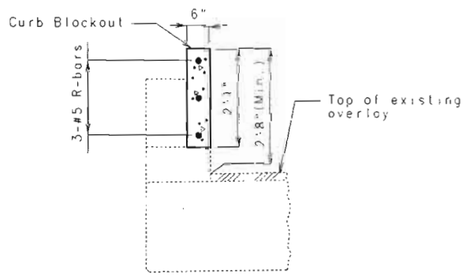
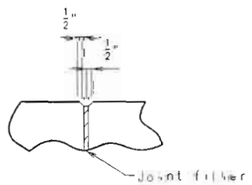
Cost of any concrete end post removal shall be considered completely covered in unit prices bid for curb blockout.
Embedment depth of resin anchor systems (vertical and horizontal) shall be a maximum of 6" into existing curb & parapet.
Adjust resin anchors in field, if necessary, to miss curb outlets.

ESTIMATED QUANTITIES		
ITEM		TOTAL
CURB BLOCKOUT	L.IN.FT.	220



TYPICAL SECTION
THRU CURB BLOCKOUT



FILLED JOINT DETAIL

NOTES:
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The contractor shall use one of the resin anchor systems listed in the job special provisions for the curb blockout. These anchor systems shall be installed according to the manufacturer's specifications, except as modified by the job special provisions and that an epoxy coated #5 grade 60 reinforcing bar as shown shall be substituted for the 5/8"ø threaded rod stud.

Cost of furnishing and installing the anchor systems complete in place shall be included in the price bid per linear foot of curb blockout.

The 5/8" diameter resin anchor systems shall have a minimum ultimate pullout strength of 18,800 lbs. in concrete with f'c ≥ 4000 psi. See special provisions.

GENERAL NOTES:

DESIGN SPECIFICATIONS:
A.A.S.H.T.O.-1996
DESIGN UNIT STRESSES:
Class B1 Concrete (Curb Blockout) f'c=4000 psi
Reinforcing Steel (Grade 60) fy=60,000 psi
JOINT FILLER:
All joint filler shall meet the requirements of Std. Spec. 1057.2.4, except as noted.
REINFORCING STEEL:
Minimum clearance to reinforcing steel shall be 1-1/2" unless otherwise shown.
OLD WORK:
Outline of old work is indicated by light dashed lines. Heavy lines indicate new work.
VERIFY DIMENSIONS:
Contractor shall verify dimensions in field before ordering new materials.
TRAFFIC HANDLING:
See roadway plans for traffic control during construction.

STATE OF MISSOURI
MICHAEL D. HARMS
NUMBER E-28651
REGISTERED PROFESSIONAL ENGINEER
DATE 1/31/99

REPAIR TO:
BRIDGE OVER LINDEN RD.

STATE ROAD FROM RTE. 45 TO RTE. 152
ABOUT 1.25 MILES NW OF RTE. 45
PROJECT NO. **STA.** 763+77.45 (MATCH EXIST)
JOB NO. J411246 **RTE.** I-29 (SBL)

PLATTE COUNTY

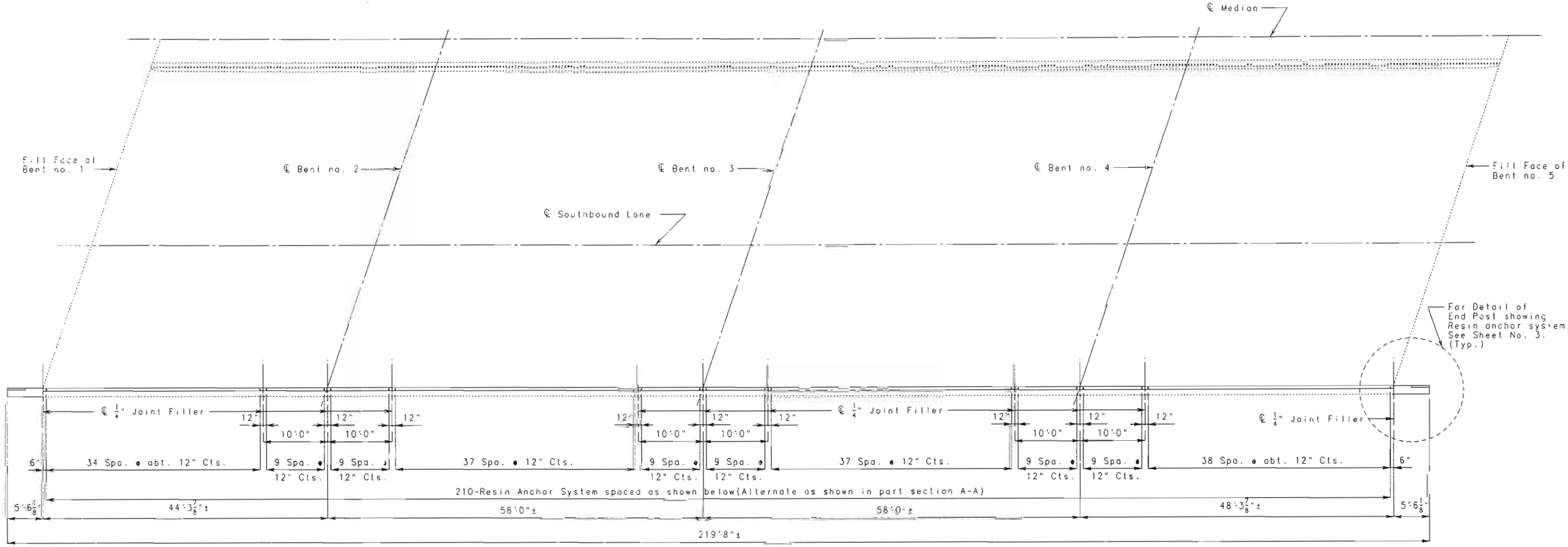
DATE 1/27/98

STD.
STD.
A15953

DESIGNED May 1997
DETAILED May 1997
CHECKED Oct. 1997

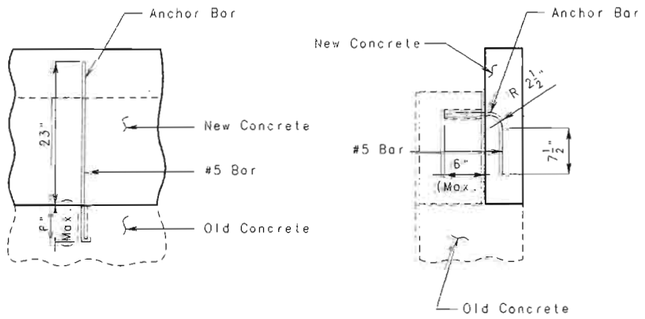
NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

STATE	PROJ. NO.	SHEET NO.
MO.		170

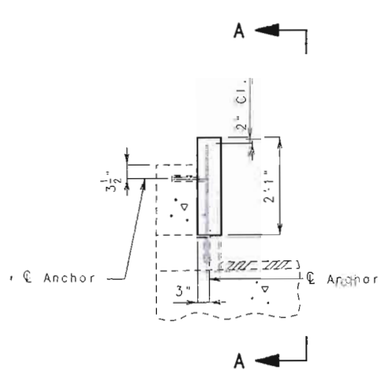


PLAN OF CURB BLOCKOUT SHOWING RESIN ANCHOR SPACING (SOUTHBOUND ROADWAY)

Note: Curb Blockout Joint Filler shall match those of Existing Structure.

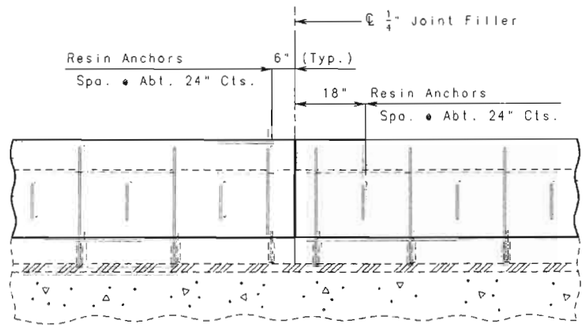


RESIN ANCHOR SYSTEMS DETAILS

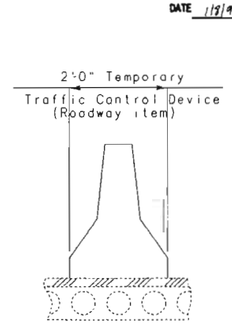


TYPICAL SECTION THRU CURB

• Shift Resin anchors to clear existing steel anchor bolts for tube rail.



PART SECTION A-A



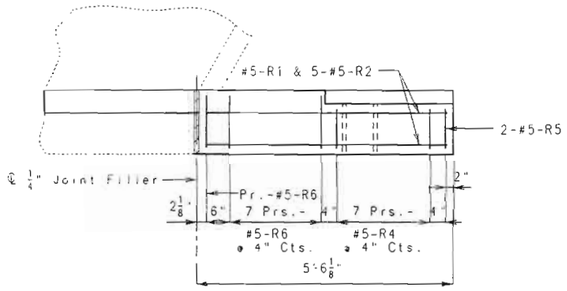
DETAIL OF TEMPORARY TRAFFIC BARRIER

STATE OF MISSOURI
MICHAEL D. HARRIS
NUMBER E-26651
REGISTERED PROFESSIONAL ENGINEER
DATE 1/9/98

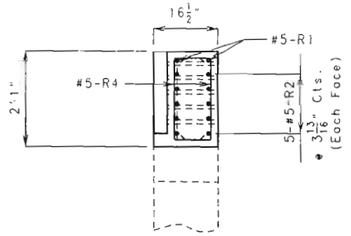
DETAILED May 1997
CHECKED Oct. 1997

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

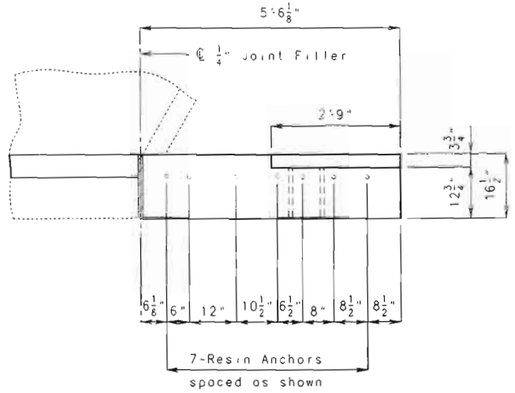
STATE	PROJ. NO.	SHEET NO.
MO.		171



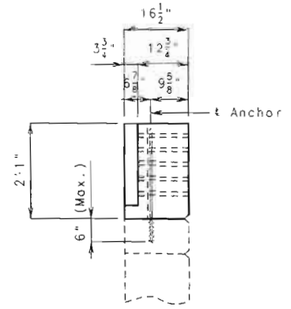
PLAN SHOWING END POST REINFORCEMENT



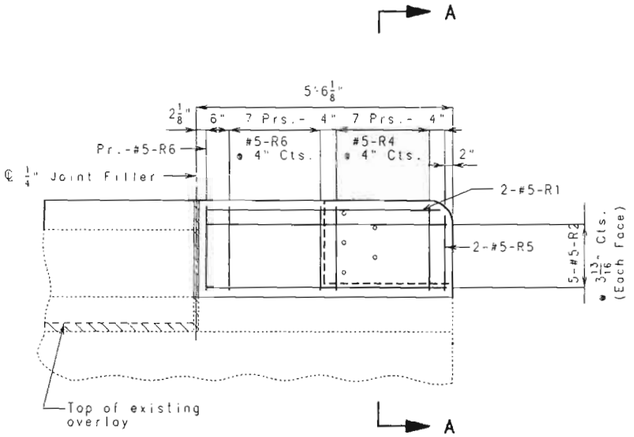
SECTION A-A



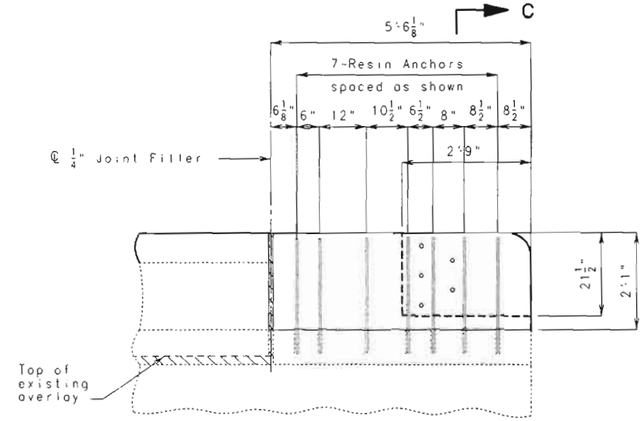
PLAN SHOWING END POST RESIN ANCHOR SYSTEMS & DIMENSIONS



SECTION C-C

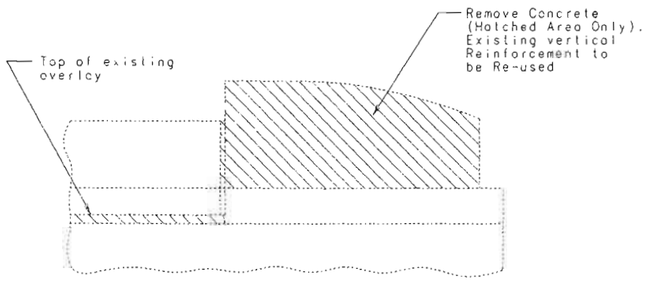


ELEVATION SHOWING END POST REINFORCEMENT

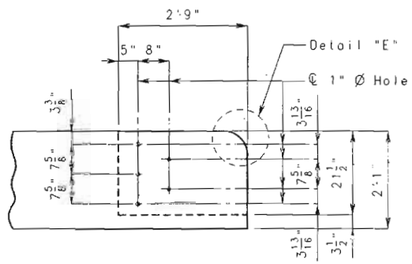


ELEVATION SHOWING END POST RESIN ANCHOR SYSTEMS & DIMENSIONS

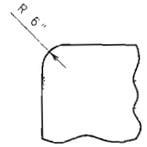
C



ELEVATION OF EXISTING END POST SHOWING CONCRETE REMOVAL



DETAILS OF GUARD RAIL ATTACHMENT



DETAIL "E"

STATE OF MISSOURI
MICHAEL D. HARRIS
NUMBER E-26851
REGISTERED PROFESSIONAL ENGINEER

DATE 1/9/98

DETAILS OF END POST (SOUTHBOUND ROADWAY)

DETAILED May 1997
CHECKED Oct. 1997

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

BILL OF REINFORCING STEEL

NO. REQ'D.	MARK NO. SIZE MARK	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS B FT. IN.	C FT. IN.	D FT. IN.	E FT. IN.	F FT. IN.	H FT. IN.	K FT. IN.	NOMINAL LENGTH FT. IN.	ACTUAL LENGTH FT. IN.	WEIGHT LBS.
		BLOCKOUT																
4	5 R1	BLOCKOUT	E	20					5 0.000							5 0	5 0	21
20	5 R2	BLOCKOUT	E	20					5 2.000							5 2	5 2	108
20	5 R3	BLOCKOUT	E	20					9 8.000							9 8	9 8	202
28	5 R4	BLOCKOUT	E	10	S					9.750	22.000					3 6	3 3	95
4	5 R5	BLOCKOUT	E	10	S					9.750	20.000					3 4	3 1	13
22	5 R6	BLOCKOUT	E	10	S					13.500	22.000					4 1	3 11	131
3	5 R7	BLOCKOUT	E	20					38 0.000							38 0	38 0	119
6	5 R8	BLOCKOUT	E	20					37 8.000							37 8	37 8	235
3	5 R9	BLOCKOUT	E	20					34 0.000							34 0	34 0	106

BILL OF REINFORCING STEEL

NO. REQ'D.	MARK NO. SIZE MARK	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS B FT. IN.	C FT. IN.	D FT. IN.	E FT. IN.	F FT. IN.	H FT. IN.	K FT. IN.	NOMINAL LENGTH FT. IN.	ACTUAL LENGTH FT. IN.	WEIGHT LBS.

STATE MO. | PROJ. NO. | SHEET NO. 172

SHAPE 6 · SHAPE 7 · SHAPE 8 · SHAPE 9 · SHAPE 10 · SHAPE 11 · SHAPE 12 · SHAPE 13 · SHAPE 14 · SHAPE 15 · SHAPE 16 · SHAPE 17 · SHAPE 18 · SHAPE 20 · SHAPE 19 · SHAPE 21 · SHAPE 23 · SHAPE 24 · SHAPE 22 · SHAPE 25 · SHAPE 26 · SHAPE 27 · SHAPE 28 · SHAPE 29 · SHAPE 31 · SHAPE 30 · SHAPE 32 · SHAPE 36 · SHAPE 35 · SHAPE 34 · SHAPE 33

SPOT WELD AASHTO M32 SIZE W5 WIRE (TYP.)

VERTICAL LEG

3" PITCH · 1-1/2 TURNS

135° HOOK

(SHAPE 35 SHALL BE A SMOOTH BAR OR WIRE.)

BENDING DIAGRAMS

6d FOR #4 AND #5, 12d FOR #6

90° STIRRUP · 135° STIRRUP

DETAILED Dec. 1997
CHECKED Dec. 1997

STD 90.8 REVISED MAY 1974 OCT. 1991

STIRRUP HOOK DIMENSIONS

GRADES 40 - 50 - 60 KSI

BAR SIZE	D (IN.)	90° HOOK HOOK A OR G	135° HOOK HOOK A OR G	135° HOOK APPROX. H
#4	2"	4-1/2"	4-1/2"	3"
#5	2-1/2"	6"	5-1/2"	3-3/4"
#6	4-1/2"	12"	8"	4-1/2"

NOTE: UNLESS OTHERWISE NOTED DIAMETER "D" IS THE SAME FOR ALL BENDS AND HOOKS ON A BAR.

DETAILING DIMENSION · 90° · HOOK A OR G · 12d · 180° · 4d OR 2-1/2" MIN.

END HOOK DIMENSIONS

BAR SIZE	D (IN.)	ALL GRADES 180° HOOKS A OR G	180° HOOKS J	90° HOOKS A OR G
#3	2-1/4"	5"	3"	6"
#4	3"	6"	4"	8"
#5	3-3/4"	7"	5"	10"
#6	4-1/2"	8"	6"	12"
#7	5-1/4"	10"	7"	14"
#8	6"	11"	8"	16"
#9	9-1/2"	15"	11-3/4"	19"
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#14	18-1/4"	2'-3"	21-3/4"	2'-7"

TWO ADDITIONAL #5-R3 ARE INCLUDED IN THE BAR BILL FOR TESTING.

NOTE:
ALL STANDARD HOOKS AND BENDS OTHER THAN 180 DEG. TO BE BENT WITH THE SAME PROCEDURE AS FOR 90 DEG. STD. HOOKS.
HOOKS AND BENDS SHALL BE IN ACCORDANCE WITH THE PROCEDURES AS SHOWN ON THIS SHEET.
E = EPOXY COATED REINFORCEMENT.
S = STIRRUP.
X = BAR IS INCLUDED IN SUBSTRUCTURE QUANTITIES.
V = BAR DIMENSIONS VARY IN EQUAL INCREMENTS BETWEEN DIMENSIONS SHOWN ON THIS LINE AND THE FOLLOWING LINE.
NO. EA. = NUMBER OF BARS OF EACH LENGTH.
NOMINAL LENGTHS ARE BASED ON OUT TO OUT DIMENSIONS SHOWN IN BENDING DIAGRAMS AND ARE LISTED FOR FABRICATORS USE. (NEAREST INCH)
ACTUAL LENGTHS ARE MEASURED ALONG CENTERLINE BAR TO THE NEAREST INCH.
PAYWEIGHTS ARE BASED ON ACTUAL LENGTHS.
FOUR ANGLE OR CHANNEL SPACERS ARE REQUIRED FOR EACH COLUMN SPIRAL. SPACERS ARE TO BE PLACED ON INSIDE OF SPIRALS. LENGTH AND WEIGHT OF COLUMN SPIRALS DO NOT INCLUDE SPLICES OR SPACERS.
REINFORCING STEEL (GRADE 60) = FY 60,000 PSI.

STATE OF MISSOURI MICHAEL D. HARMS NUMBER E-26851 REGISTERED PROFESSIONAL ENGINEER

DATE 1/5/98

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

SHEET NO. 4 OF 4

PLATTE COUNTY

A15953