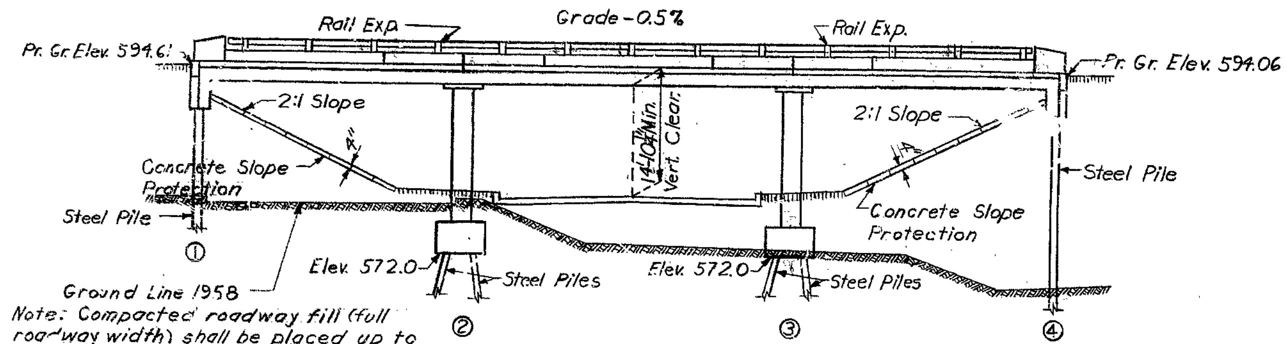
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	46	

MISSOURI STATE HIGHWAY DEPARTMENT

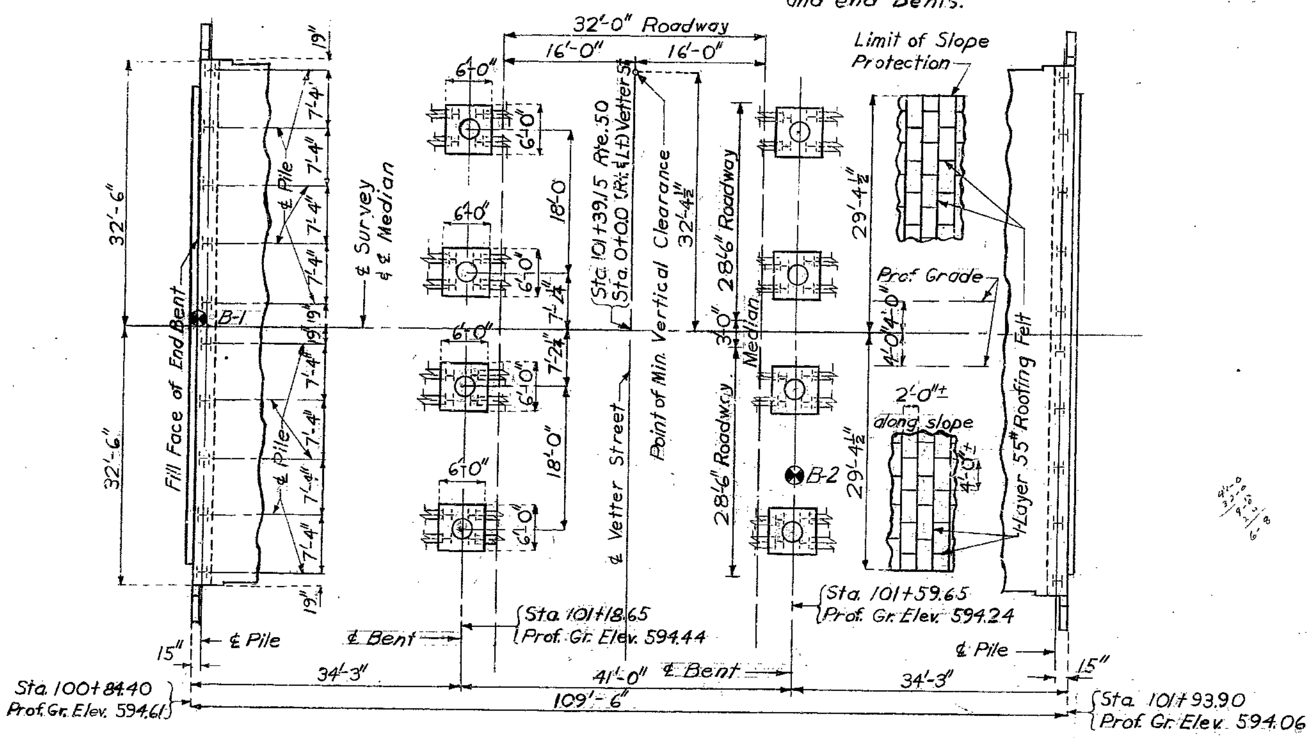
(33'-41'-33') Continuous Slab Spans (Voided)



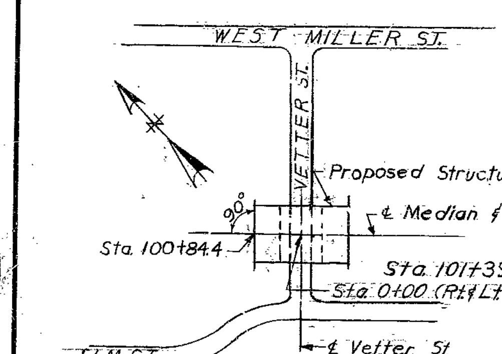
Note: Compacted roadway fill (full roadway width) shall be placed up to elevation of bottom of concrete beam in front of and not less than 25' back of End Bents No. 1 & 4 before steel piles are driven.

GENERAL ELEVATION

Note: Concrete protection on front slope at end bents to be included under road contract. Provide 1" premoulded bituminous filler between slope protection pavement and end bents.



PLAN



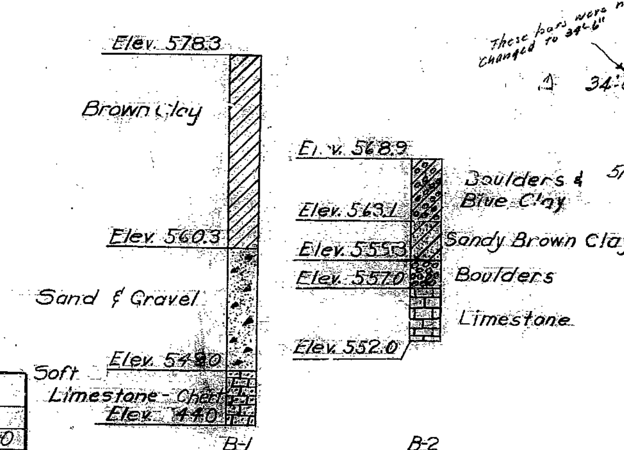
LOCATION SKETCH

Note: All piling shall be "?" bearing piles @ 42# and shall conform with details and notes on sheet No. 3 of design plans.
All steel piles required for this structure will be furnished by the State (See Special Provisions)

All piles shall be driven with a steam hammer.
All piles shall be driven to or into solid rock, boulders, shale or cemented gravel or to not less than full length authorized and to sustain a load of at least 30 Ton per pile.

GENERAL NOTES:
Design Specifications A.A.S.H.O. 1957
Loading H20-44 (Future Wearing Surface 15#/□')
Reinforcing Steel Stress 20,000#/□"
Concrete Class "B" Stress 1200#/□"
Concrete Class "B-1" Stress 1600#/□"
Where joint filler is specified on plans it shall conform with the requirements for Gray Rubber Compound Joints as given in Section 59-22B of the Standard Specifications.
See Section 22-9C of Standard Specifications for required painting of steel piles.
Qualification of welding operators will be required.

Concrete for superstructure shall be Class "B-1" air-entrained.
Concrete for substructure shall be Class "B" air-entrained.
Superstructure deck to be waterproofed (See Special Provisions).



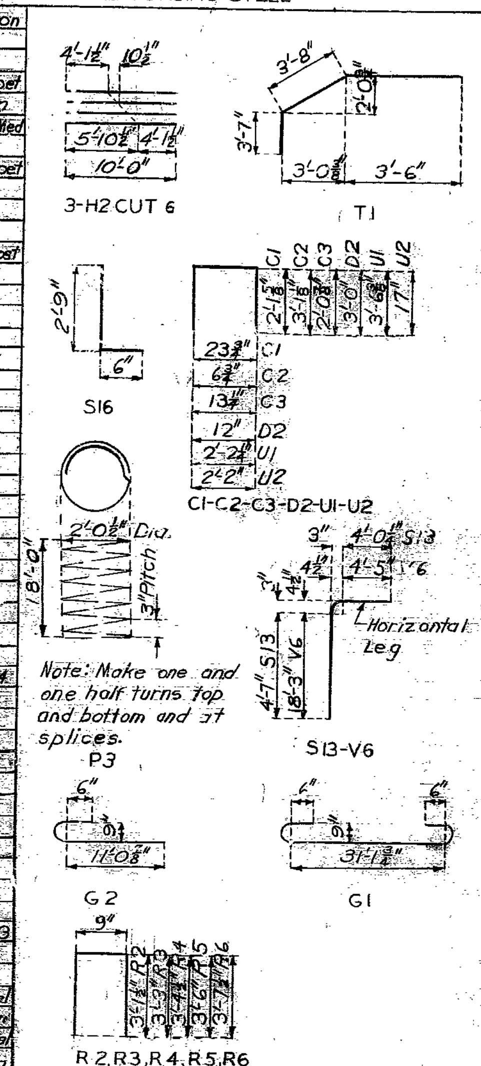
Note: Soundings taken with core drill.

LOG OF SOUNDINGS

COMPLETE BILL OF REINFORCING STEEL

No.	Size	Length	Mk.	Location
Superstructure				
224	#5	6'-3"	C1	Curb
216	#5	6'-9"	C2	Parapet
224	#5	5'-3"	C3	Median
20	#5	34'-0"	C4	Curb & Med
20	#5	21'-3"	C5	"
76	#5	7'-9"	C6	Parapet
8	#5	23'-9"	C7	"
4	#5	22'-9"	C8	"
32	#4	3'-9"	R1	End Post
4	#4	7'-0"	R2	"
4	#4	7'-3"	R3	"
4	#4	7'-6"	R4	"
4	#4	7'-9"	R5	"
4	#4	8'-0"	R6	"
508	#5	31'-9"	S1	Slab
138	#8	35'-3"	S2	"
84	#8	23'-9"	S3	"
84	#8	14'-6"	S4	"
42	#7	27'-0"	S5	"
42	#7	19'-1"	S6	"
44	#7	43'-6"	S7	"
88	#6	26'-0"	S8	"
88	#8	21'-0"	S9	"
84	#8	17'-0"	S10	"
92	#8	11'-9"	S11	"
44	#6	23'-6"	S12	"
Superstr. End Bents No. 1 & 4				
48	#6	32'-0"	H1	Beam
6	#6	10'-0"	H2	Wing
28	#6	6'-6"	H3	"
172	#6	9'-0"	S13	Beam
116	#5	3'-3"	S16	"
8	#6	10'-9"	T1	Wing
256	#5	9'-3"	U1	Beam
4	#4	4'-6"	V1	Wing
4	#4	5'-0"	V2	"
8	#4	5'-9"	V3	"
Superstr. Int. Bent No. 2 & 3				
20	#11	33'-6"	G1	Slab
32	#11	12'-9"	G2	"
28	#11	31'-9"	G3	Drop Panel
8	#4	490'-0"	P3	Column
256	#5	5'-0"	U2	Drop Panel
64	#8	23'-3"	V6	Column
Substr. Int. Bents No. 2 & 3				
64	#8	5'-6"	D1	Footing
64	#6	7'-0"	D2	"

These four were not changed to 34'-6"
△ 34'-6"
512



FINISHED

B.M. Elev. 578.13 "x" on E. side of Drive to House #1602 East Elm Street.

ESTIMATED QUANTITIES

Item		Substr.	Superstr.	Total
Class 1 Excavation for Structures	Cu. Yds.	70		70
Class "B" Concrete	Cu. Yds.	34.6		34.6
Class "B-1" Concrete	Cu. Yds.		457.5	457.5
Reinforcing Steel	Lbs.	1620	90600	92220
Aluminum Alloy Handrail	Lin. Ft.		202	202
Steel piles in place (State Furnished)	Lin. Ft.	1464		1464

Note: All excavation for bridge shall be paid for as Class 1 Excavation for Structures.
All Concrete and Reinforcing Steel above footings is included in superstructure quantities.

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

FINISHED

BRIDGE OVER VETTER STREET

STATE ROAD FROM CLARK AVE. IN JEFFERSON CITY EAST IN JEFFERSON CITY

PROJECT NO. U-1(10) (RTE. 50) **STA.** 100+84.40

COLE **COUNTY**

FINISHED

SUBMITTED BY J.A. Williams BRIDGE ENGINEER DATE 4-6-1960

APPROVED BY Rex M. Whitton CHIEF ENGINEER DATE 4-6-1960

Drawn Sept. 1959 **by** R.C.L.
Checked Jan. 1960 **by** W.F.D.

52

Sheet No. 1 of 5

△ 8-2-60

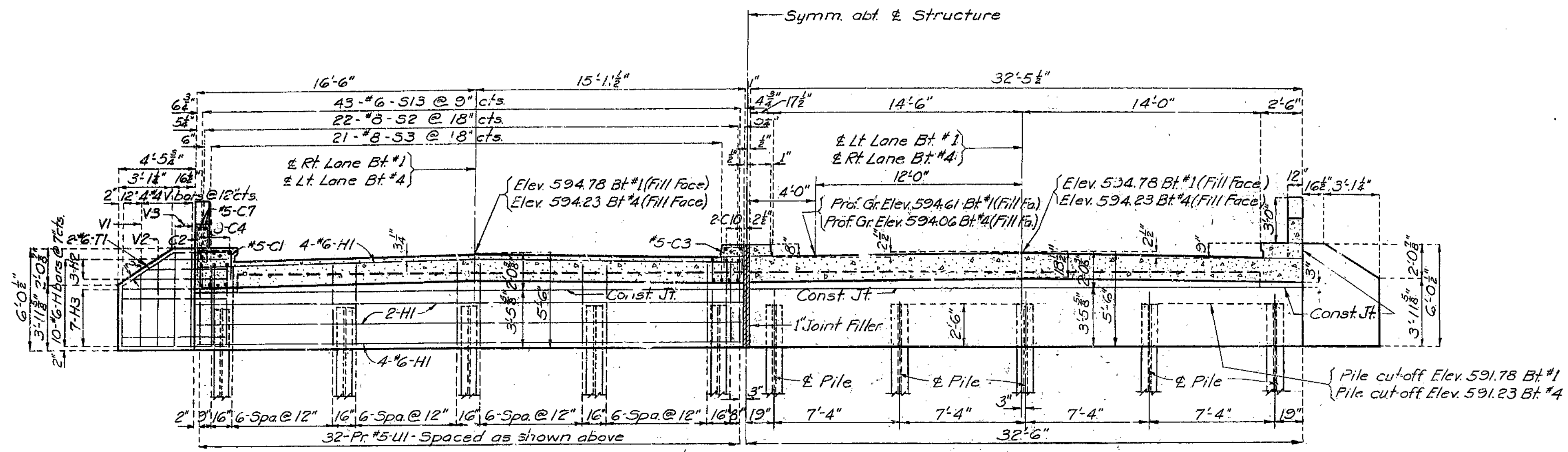
STD-C-110R7

A-722

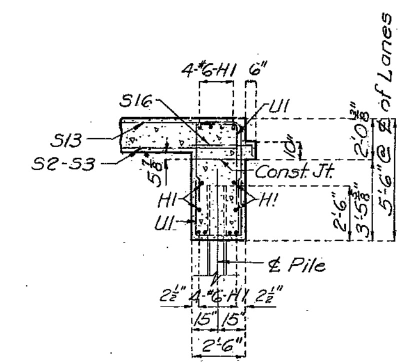
SEE FINAL PLANS BROWN-LINES

MISSOURI STATE HIGHWAY DEPARTMENT

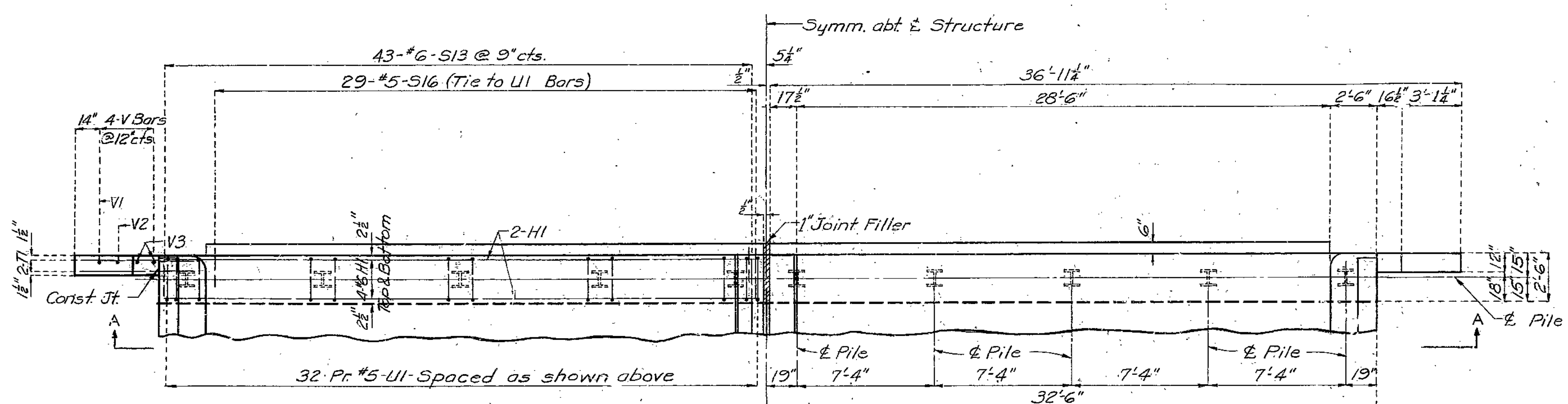
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	47	



SECTION A-A



SECTION AT ℄ OF LANE



PLAN

DETAILS OF END BENTS NO. 1 & 4

53

FINISHED

BRIDGE OVER VETTER STREET

STATE ROAD FROM CLARK AVE. IN JEFFERSON CITY EAST IN JEFFERSON CITY

PROJECT NO. U-1(10) (RTE.50) **STA.** 100+84.40

COLE **COUNTY**

FINISHED

FINISHED

Drawn Aug. 1959 by W.J.K.
Checked Jan. 1960 by W.F.D.

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

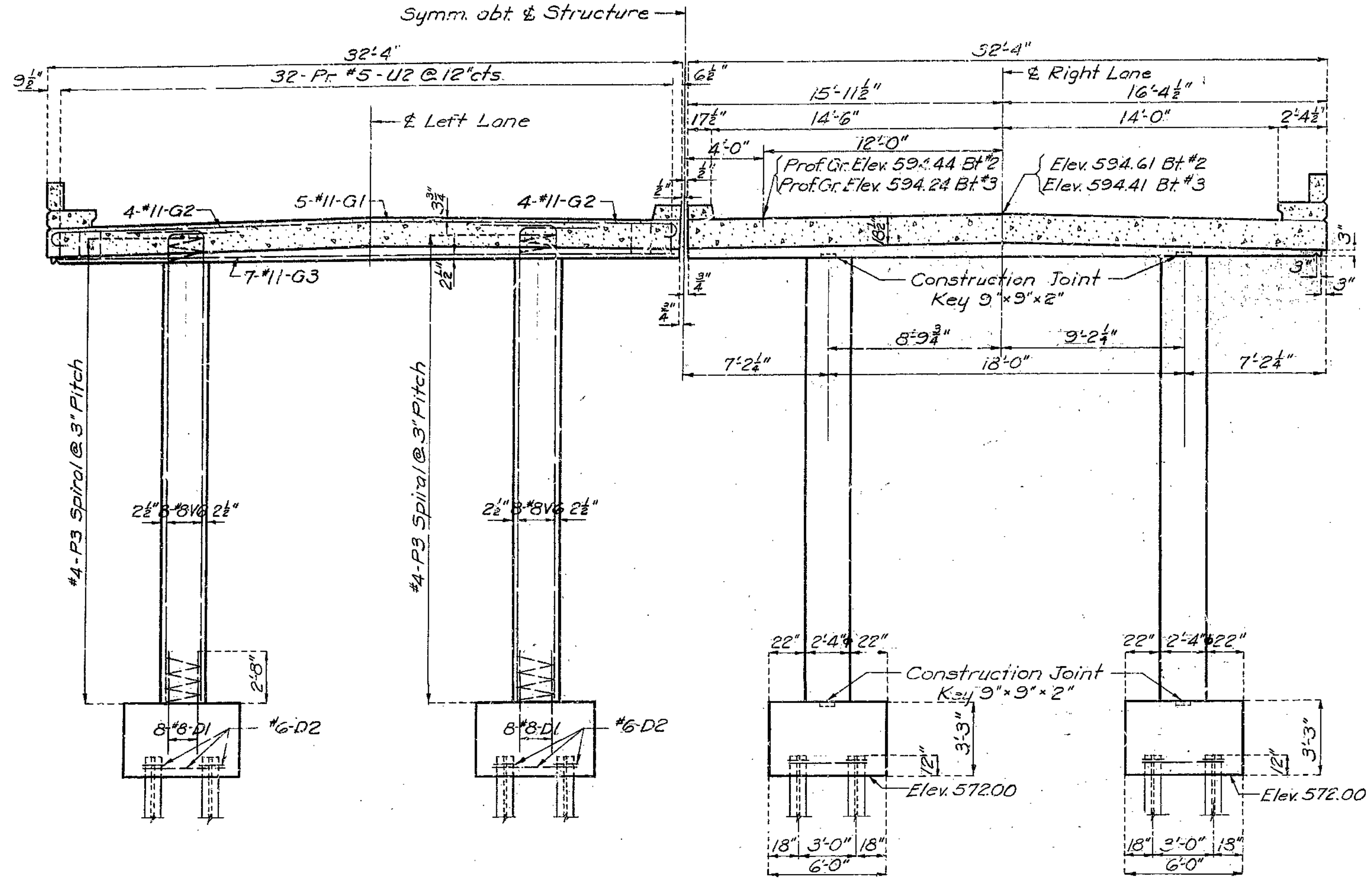
Sheet No. 2 of 5

A-722

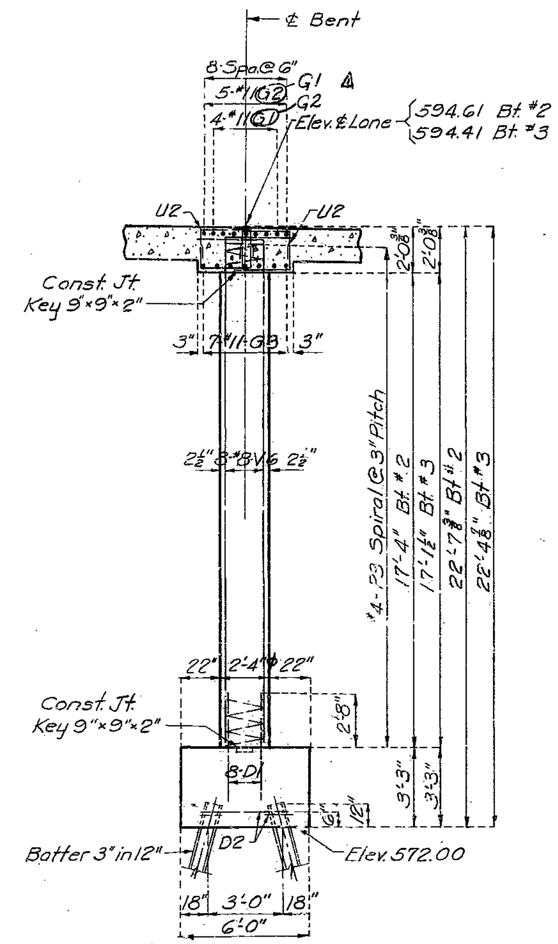
NO CONSTRUCTION CHANGES

MISSOURI STATE HIGHWAY DEPARTMENT

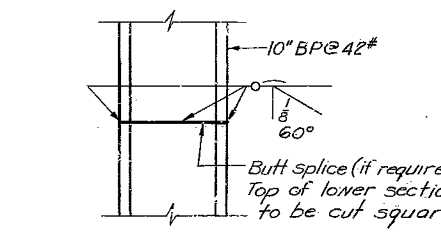
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	48	



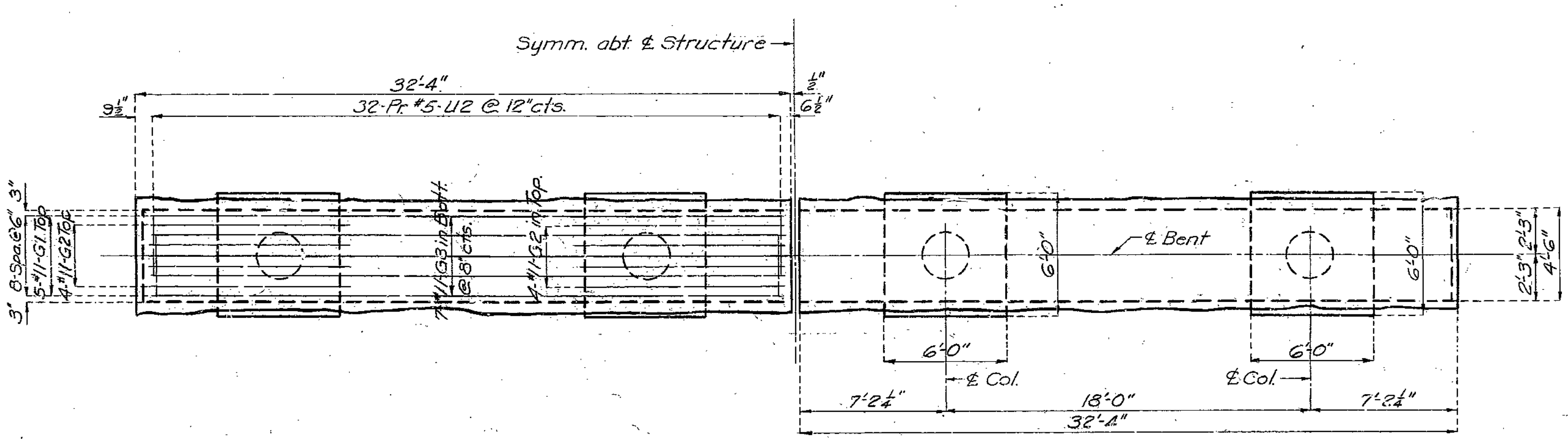
ELEVATION



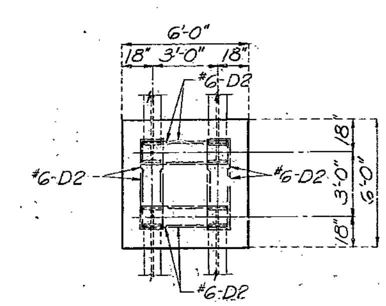
SECTION AT ℄ OF LANE



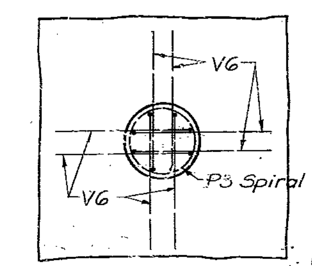
DETAILS OF STEEL PILE SPLICE



PLAN



PLAN OF FOOTING



PART PLAN SHOWING COLUMN REINFORCING

BRIDGE OVER VETTER STREET

STATE ROAD FROM CLARK AVE. IN JEFFERSON CITY EAST IN JEFFERSON CITY

PROJECT NO. U-1 (10) (RTE. 50) STA. 100+84.40

COLE **COUNTY**

DETAILS OF INTERMEDIATE BENTS NO. 2 & 3

FINISHED

Drawn Aug. 1959 by W.J.K.
Checked Jan. 1960 by W.E.D.

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

Sheet No. 3 of 5 △ 8-2-60

A-722

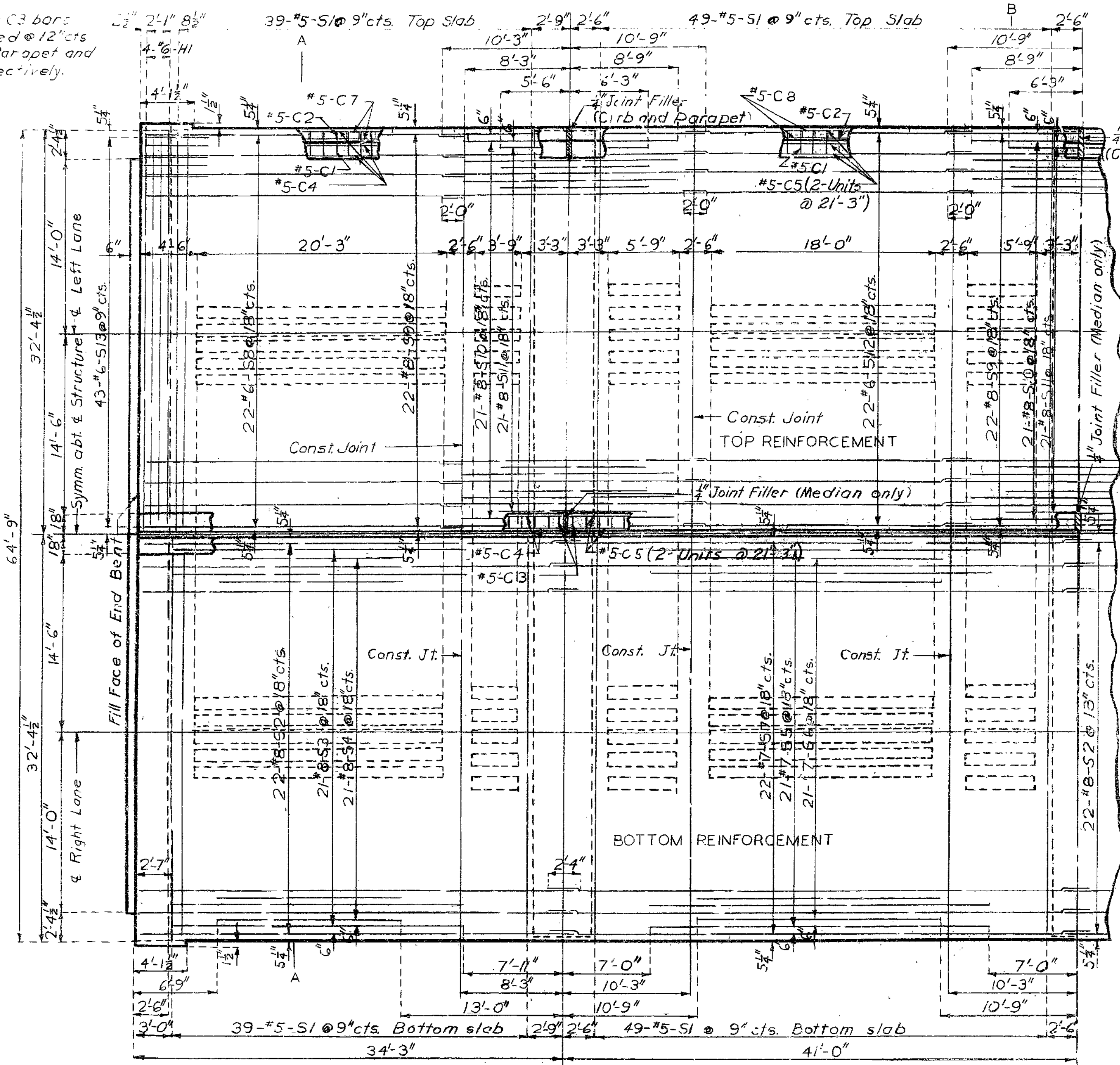
NO CONSTRUCTION CHANGES

54-

MISSOURI STATE HIGHWAY DEPARTMENT

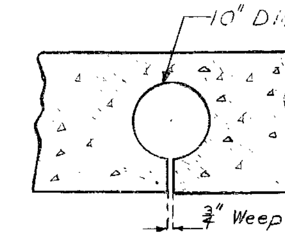
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	49	

Note: C1, C2 & C3 bars to be spaced @ 12" cts along Curb, Parapet and Median respectively.



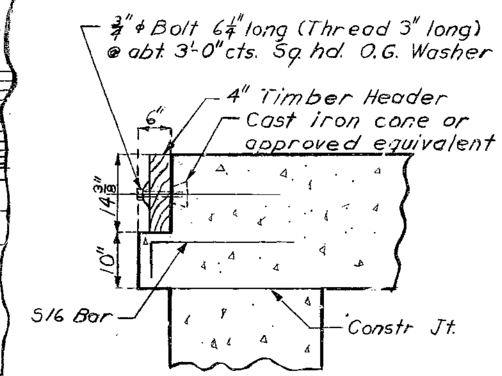
PLAN OF SLAB

Note: For Sections A-A and B-B see Sheet 5 of 5.



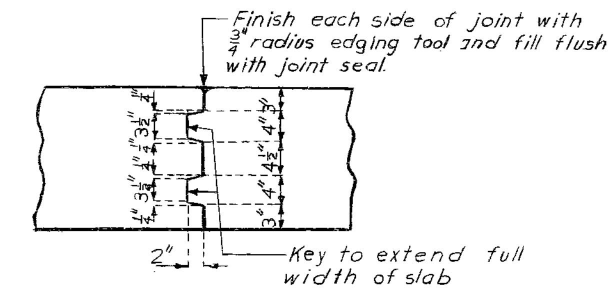
Note: One 3/4" ϕ weephole shall be provided near each end of each void. Weephole shall be placed in straight lines parallel to bents and shall be kept positively open down to and through the bottom forms for breather holes during the casting and through the period of curing of the concrete slab.

DETAILS OF WEEPHOLES IN VOIDS

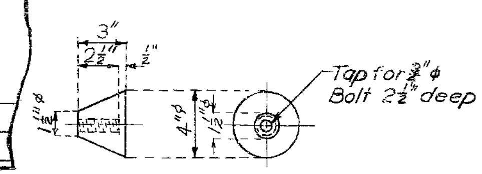


DETAIL OF TIMBER HEADER

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

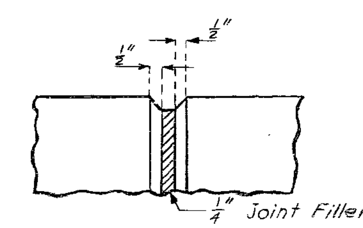


DETAIL OF SLAB CONSTRUCTION JOINT KEY



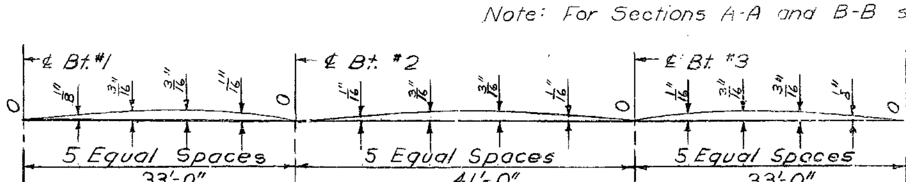
Note: An approved equivalent may be substituted for Cast Iron Cone shown above.

DETAIL OF CAST IRON CONE (For Timber Header)



Note: Use bevel as shown for exposed faces of all filled joints. Joint seal is not to be used at top surface of curb and parapet.

DETAILS OF BEVEL FOR FILLED JOINTS



CAMBER DIAGRAM

FINISHED

BRIDGE OVER VETTER STREET

STATE ROAD FROM CLARK AVE. IN JEFFERSON CITY EAST IN JEFFERSON CITY

PROJECT NO. U-1 (10) (RTE 50) STA. 100+84.40

COLE **COUNTY**

Drawn Aug. 1959 by RCL
Checked Jan. 1960 by W.F.D.

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

Sheet No. 4 of 5

A-722

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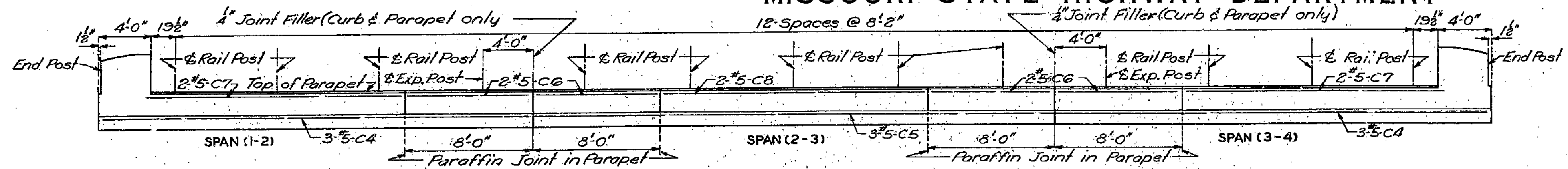
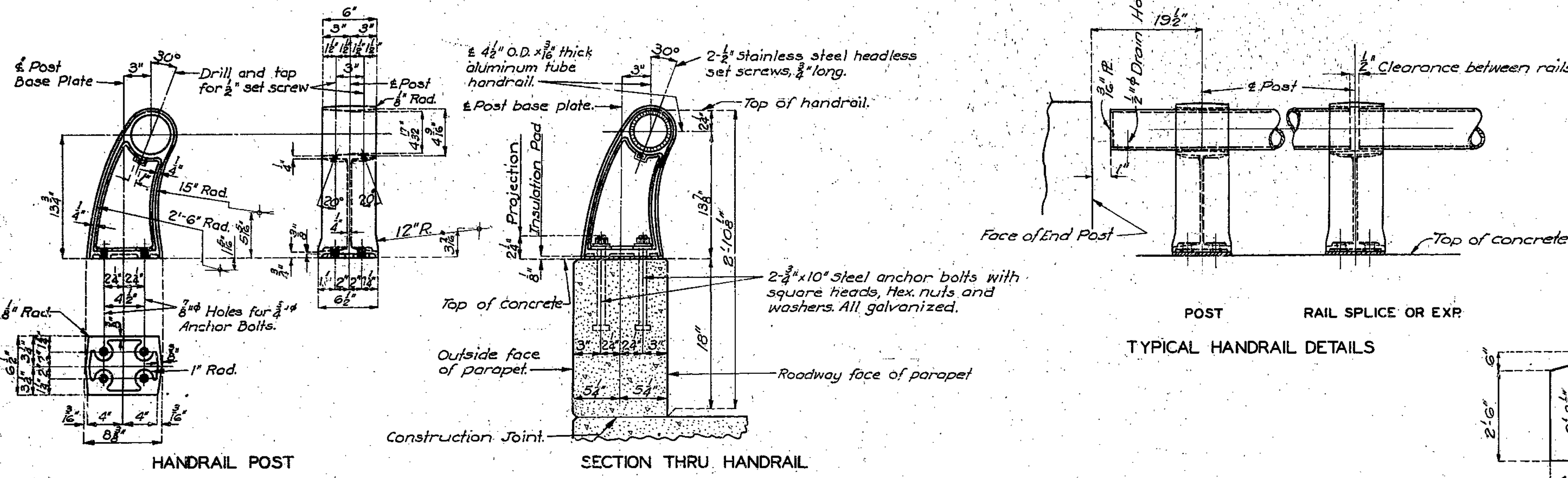
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	50	

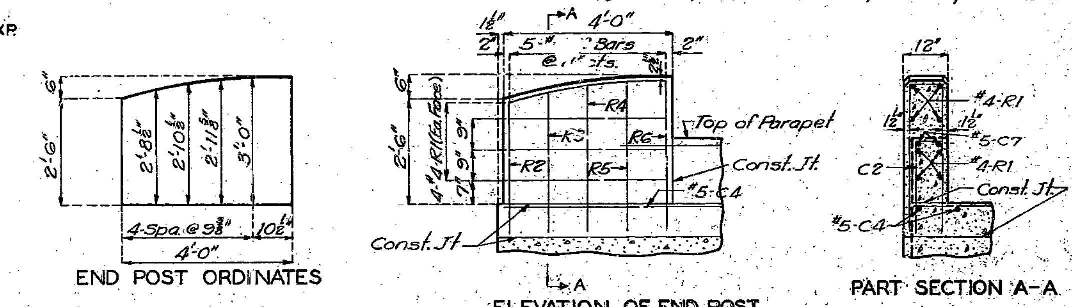


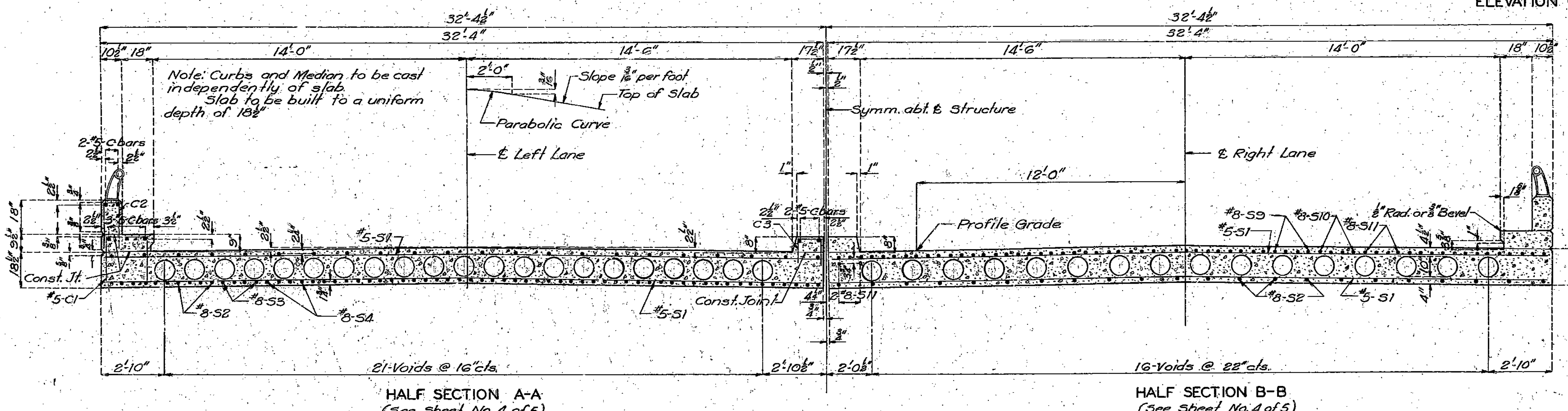
ELEVATION OF RAIL AND PARAPET

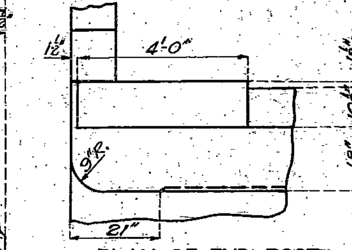


SINGLE TUBE ALUMINUM RAILING

Note: Top of curbs and parapets to be built parallel to grade. Vertical faces of end posts to be vertical.
All exposed edges of end posts and parapets to be beveled ¾".
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 Insulation Pad 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 "Aluminum Alloy Handrail" shall include furnishing and erecting the handrail complete with anchor bolts, shims and Insulation Pads.
All fillets ¼" except as noted.
All draft 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.







PLAN OF END POST

Note: Omit curve on curb at end of bridge where drain basin is provided on approach slab.

FINISHED

Note: See Special provisions for Fiber Tubes for producing Voids.

BRIDGE OVER VETTER STREET

STATE ROAD FROM CLARK AVE. IN JEFFERSON CITY EAST IN JEFFERSON CITY

PROJECT NO. U-1 (10) (RTE. 50) STA. 100+84.40

FINISHED

COLE COUNTY

FINISHED

Assembled Aug. 1959 by W.J.K. & J.H.K.
Checked Jan. 1960 by W.F.D.

Sheet No. 5 of 5.

Revised 7/21/59

A-722

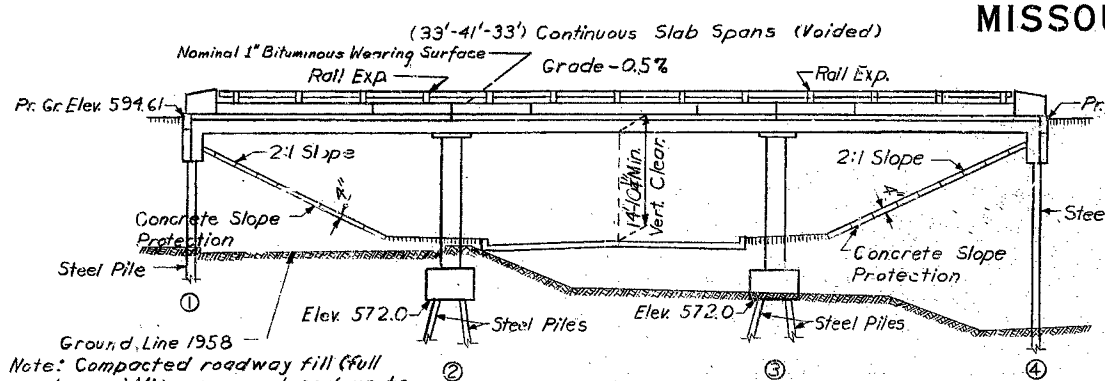
NO CONSTRUCTION CHANGES

56

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	46	

FINAL PLANS



GENERAL ELEVATION

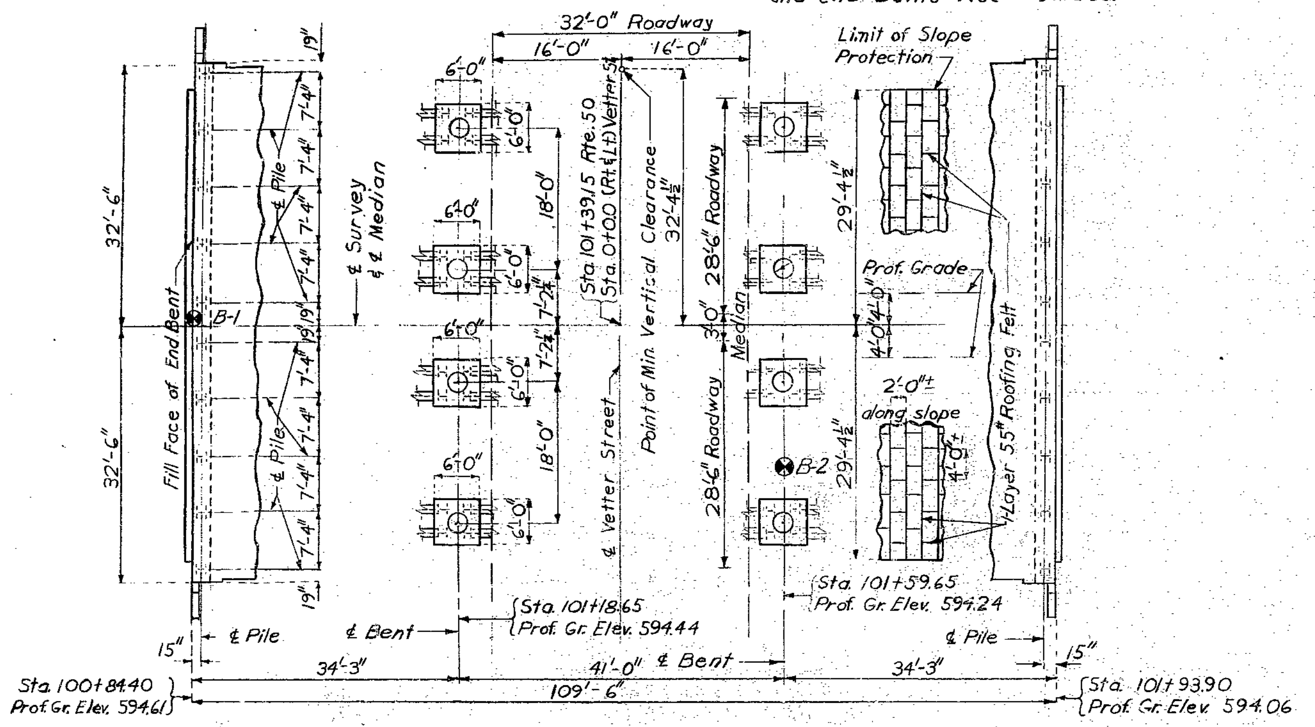
Note: Compacted roadway fill (full roadway width) was placed up to elevation of bottom of concrete beam in front of and not less than 25' back of End Bents No. 1 & 4 before steel piles were driven.

Note: Concrete protection on front slope at end bents was included under road contract. 1" premoulded bituminous filler between slope protection pavement and end bents was provided.

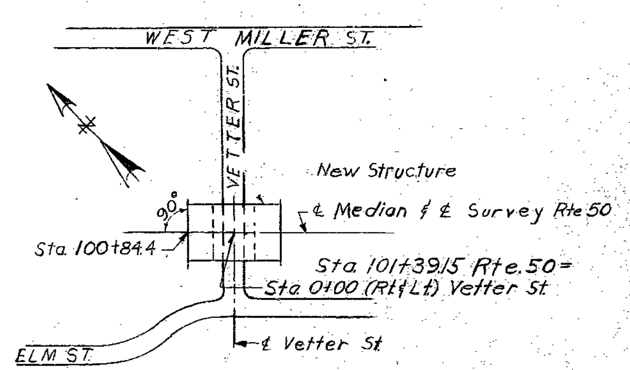
Note: All piling was 10" bearing piles @ 42# and conforms with details and notes on sheet No. 3 of design plans

All steel piles required for this structure were furnished by the State (See Special Provisions)

All piles were driven with a steam hammer.
All piles were driven to refusal.



PLAN

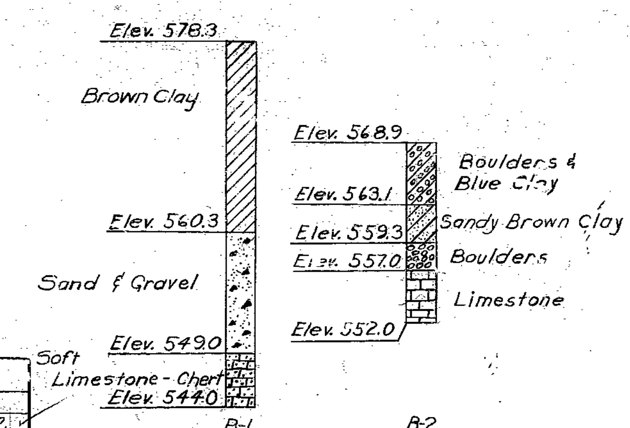


LOCATION SKETCH

GENERAL NOTES:

Design Specifications A.A.S.H.O. 1957
Loading H20-44 (Future Wearing Surface 15#/□')
Reinforcing Steel Stress 20,000#/□"
Concrete Class "B" Stress 1200#/□"
Concrete Class "B-1" Stress 1600#/□"
Where joint filler is specified on plans it will conform with the requirements for Gray Rubber Compound Joints as given in Section 59-22B of the Standard Specifications.
See Section 22-9C of Standard Specifications for required painting of steel piles.
Qualification of welding operators was required.

Concrete for superstructure was Class "B-1" air-entrained.
Concrete for substructure was Class "B" air-entrained.
Superstructure deck was waterproofed (See Special Provisions).



Note: Soundings taken with core drill.

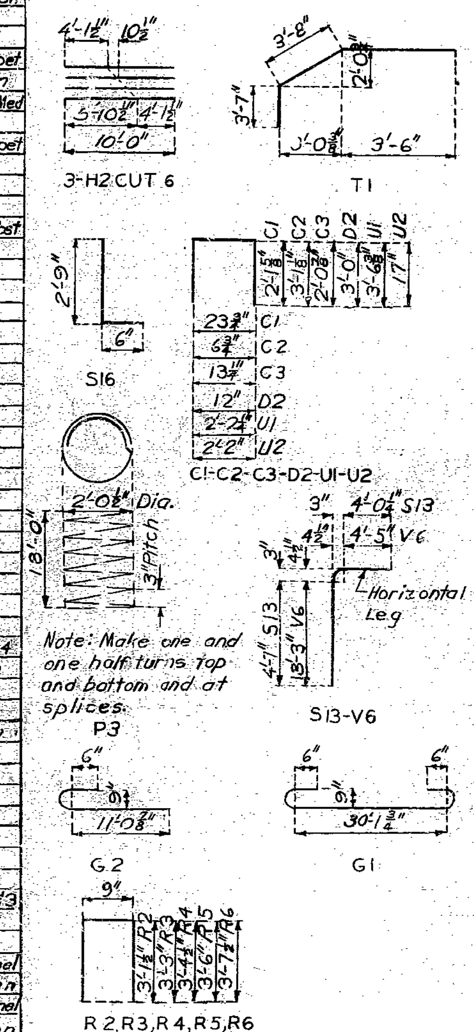
LOG OF SOUNDINGS

FINAL QUANTITIES					
Item		Substr.	Superstr.	Total
Class I Excavation for Structures	Cu. Yds.	72		72
Class "B" Concrete	Cu. Yds.	34.6		34.6
Class "B-1" Concrete	Cu. Yds.		457.5	457.5
Reinforcing Steel	Lbs.	1610	91930	93540
Aluminum Alloy Handrail	Lin. Ft.		202	202
Steel piles in place (State Furnished)	Lin. Ft.	1380		1380

Note: All excavation for bridge was paid for as Class I Excavation for Structures.
All Concrete and Reinforcing Steel above footings was included in superstructure quantities.

COMPLETE BILL OF REINFORCING STEEL

No.	Size	Length	Mk.	Location
Superstructure				
224	#5	6'-3"	C1	Curb
216	#5	6'-9"	C2	Parapet
224	#5	5'-3"	C3	Median
20	#5	34'-0"	C4	Curb & Med
20	#5	21'-3"	C5	"
16	#5	7'-9"	C6	Parapet
8	#5	23'-9"	C7	"
4	#5	22'-9"	C8	"
32	#4	3'-9"	R1	End Post
4	#4	7'-0"	R2	"
4	#4	7'-3"	R3	"
4	#4	7'-6"	R4	"
4	#4	7'-9"	R5	"
4	#4	8'-0"	R6	"
508	#5	31'-9"	S1	Slab
88	#8	35'-3"	S2	"
84	#8	23'-9"	S3	"
84	#8	14'-6"	S4	"
42	#7	27'-0"	S5	"
42	#7	19'-6"	S6	"
44	#7	43'-6"	S7	"
88	#6	26'-0"	S8	"
88	#8	21'-0"	S9	"
84	#8	17'-0"	S10	"
92	#8	11'-9"	S11	"
44	#6	23'-6"	S12	"
Superstr. End Bents No. 1 & 4				
48	#6	32'-0"	H1	Beam
6	#6	10'-0"	H2	Wing
28	#6	6'-6"	H3	"
172	#6	9'-0"	S13	Beam
116	#5	3'-3"	S16	"
8	#6	10'-9"	T1	Wing
256	#5	9'-3"	U1	Beam
4	#4	4'-6"	V1	Wing
4	#4	5'-0"	V2	"
8	#4	5'-9"	V3	"
Superstr. Int. Bent No. 2 & 3				
20	#11	33'-6"	G1	Slab
32	#11	12'-9"	G2	"
28	#11	31'-9"	G3	Drop Panel
8	#4	490'-0"	P3	Column
512	#5	5'-0"	U2	Drop Panel
64	#8	23'-3"	V6	Column
Substr. Int. Bents No. 2 & 3				
64	#8	5'-5"	D1	Footing
64	#6	7'-0"	P2	"



B.M. Elev. 594.80 '□' on S. Ear of E. Abut.

FINISHED

BRIDGE OVER VETTER STREET

STATE ROAD FROM CLARK AVE. IN JEFFERSON CITY EAST IN JEFFERSON CITY

PROJECT NO. U-1(10) (RTE. 50) **STA.** 100+84.40

COLE **COUNTY**

FINISHED

SUBMITTED BY J.A. Williams DATE 4-6-1960
BRIDGE ENGINEER

APPROVED BY Rex M. Whitton DATE 4-6-1960
CHIEF ENGINEER

FINISHED

STD-C-110R7

A-722

Drawn Sept 1959 by R.C.L.
Checked Jan. 1960 by W.F.D.

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

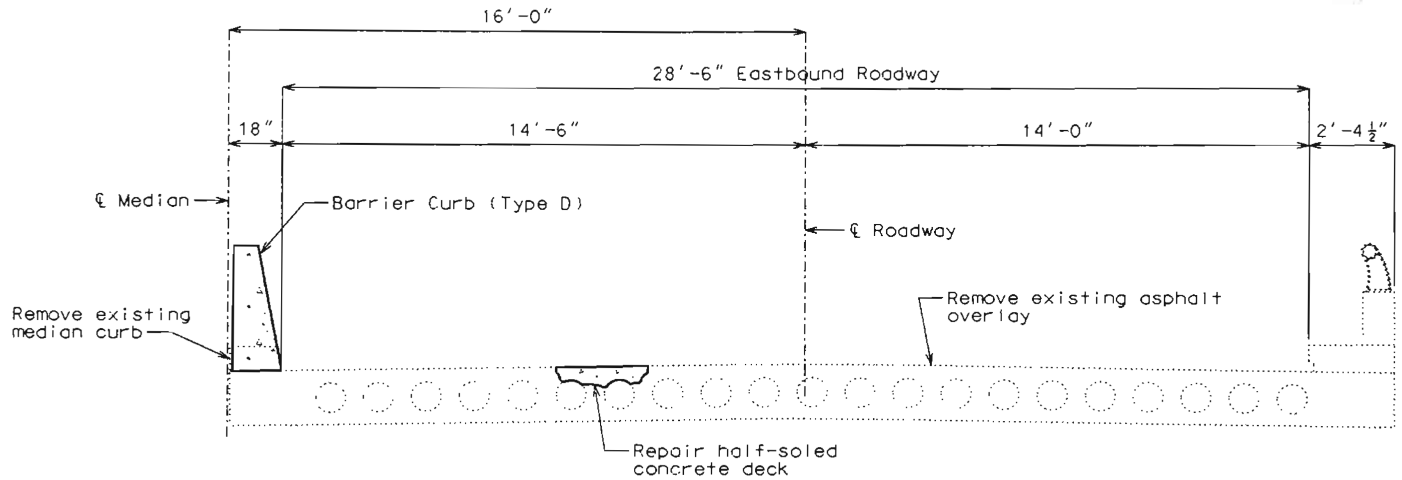
Sheet No. 1A of 1

FINAL PLANS

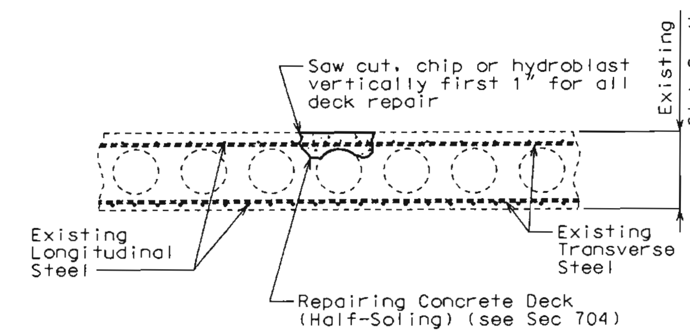
57

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

U.I.P. EXISTING (33′-41′-33′) CONTINUOUS VOIDED SLAB SPANS



SECTION THRU EXISTING SLAB



HALF-SOLED AREA

GENERAL NOTES:

Design Specifications:
2002 - AASHTO 17th Edition
Bridge Deck Rating = 7

Design Unit Stresses:
Class B-1 Concrete f′c = 4,000 psi
Reinforcing Steel (Grade 60) fy = 60,000 psi

Joint Filler:
All joint filler shall be in accordance with Sec 1057 for preformed sponge rubber expansion and partition joint filler, except as noted.

Reinforcing Steel:
Minimum clearance to reinforcing steel shall be 1-1/2″, unless otherwise shown.

Resin Anchors:
The contractor shall use one of the qualified resin anchor systems in accordance with Sec 1039.

Miscellaneous:
Traffic over structure to be maintained during construction. See Job No. J5P0872 roadway plans for traffic control.

"Sec" refers to the sections in the standard and supplemental specifications unless specified otherwise.

Outline of old work is indicated by dashed lines. Heavy lines indicate new work.

Contractor shall verify all dimensions in field before ordering new material.

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 area exposed by the removal of concrete and not covered with new concrete shall be coated with an approved bituminous paint.

Estimated Quantities

Item		Total
Removal of Asphalt Wearing Surface	sq. foot	3,121
Curb Removal	linear foot	110
* Barrier Curb (Type D)	linear foot	110
Repairing Concrete Deck (Half-Soling)	sq. foot	50

* Barrier curb shall be cast-in-place option or slip-form option.

STATE OF MISSOURI
DEAN DAVID FRANKE
NUMBER E-29132
REGISTERED PROFESSIONAL ENGINEER
DATE 1-11-05

REPAIRS TO BRIDGE OVER VETTER STREET

STATE ROAD FROM RTE. 54 TO RTE. J
ABOUT 2.1 MILES EAST OF RTE. 54
PROJECT NO. STA. 100+84.40 (Match Exist.)
JOB NO. J5P0873 RTE. 50

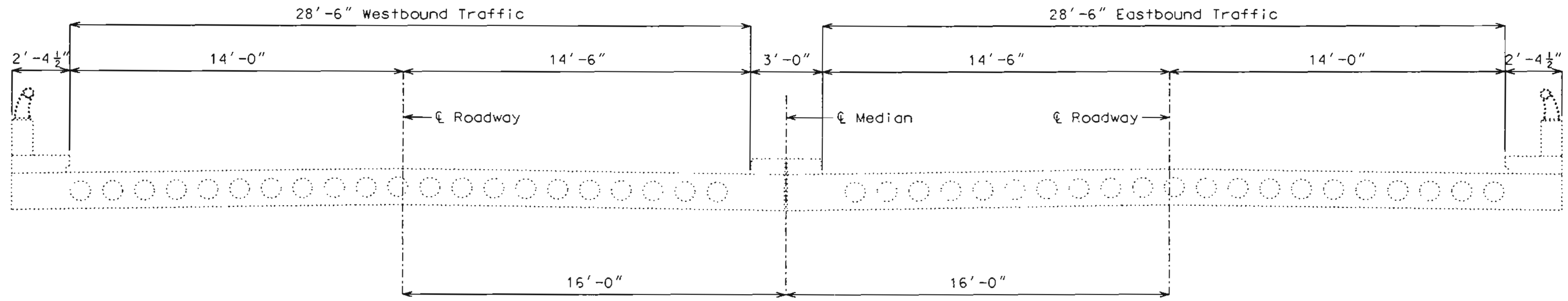
COLE COUNTY
Date: 1/12/05

STD. 706.3
A07221
REV.

Detailed Sep. 2004
Checked Sep. 2004

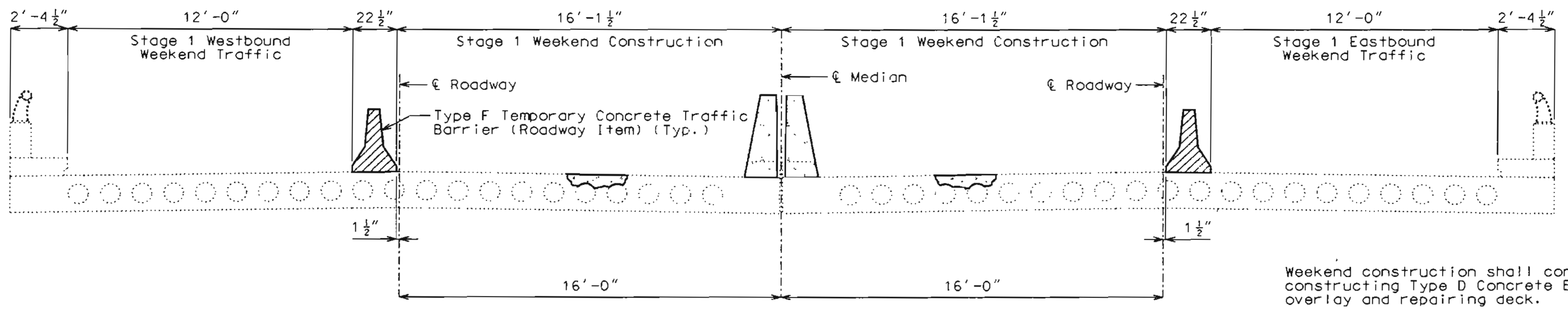
Note: This drawing is not to scale. Follow dimensions.

State	Proj. No.	Sheet No.
MO		B19



Exist. Bridge No. A-722 (WB) Exist. Bridge No. A-722 (EB)

SECTION THRU EXISTING SLAB

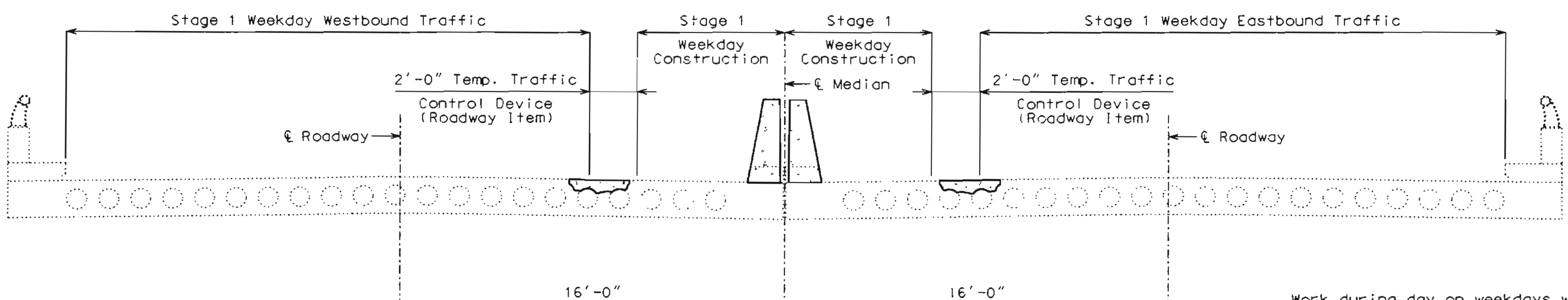


Bridge No. A07222 Bridge No. A07221

STAGE 1 WEEKEND CONSTRUCTION

Weekend construction shall consist of removing existing median curbs, constructing Type D Concrete Barrier Curbs, removing existing asphalt overlay and repairing deck.

Openings in deck shall be plated during weekday traffic.



Bridge No. A07222 Bridge No. A07221

STAGE 1 WEEKDAY CONSTRUCTION

Work during day on weekdays will be limited due to the required two lanes of traffic in both directions. Work will be performed at the discretion of the contractor.

The contractor will have the option of performing the same work allowed on weekends provided two lanes of traffic in both directions are provided in accordance with the traffic control plans. J5P0872.

DATE 1-11-05

DETAILS SHOWING STAGED CONSTRUCTION

Detailed Sep. 2004
Checked Sep. 2004

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

Sheet No. 2 of 7

COLE COUNTY A07221

REV.

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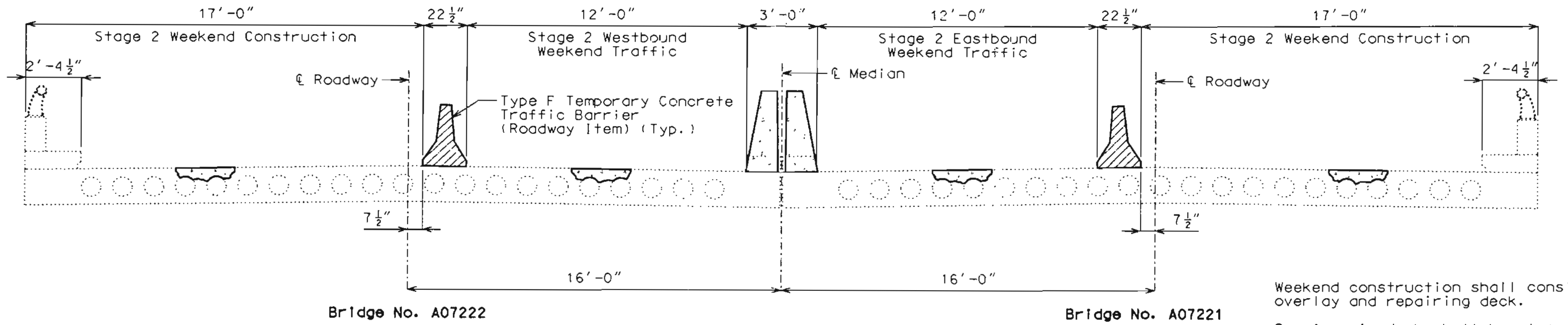
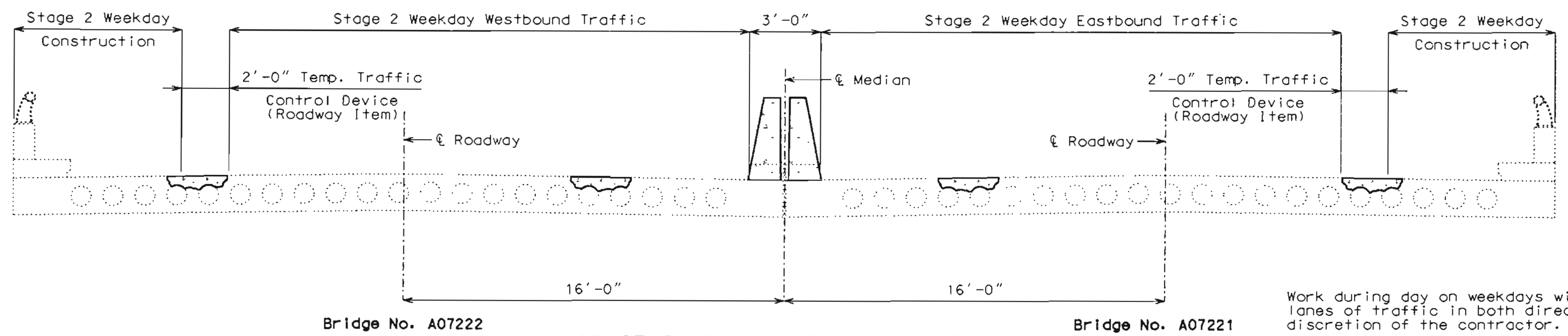
State	Proj. No.	Sheet No.
MO		B20



STAGE 2 WEEKEND CONSTRUCTION

Weekend construction shall consist of removing existing asphalt overlay and repairing deck.

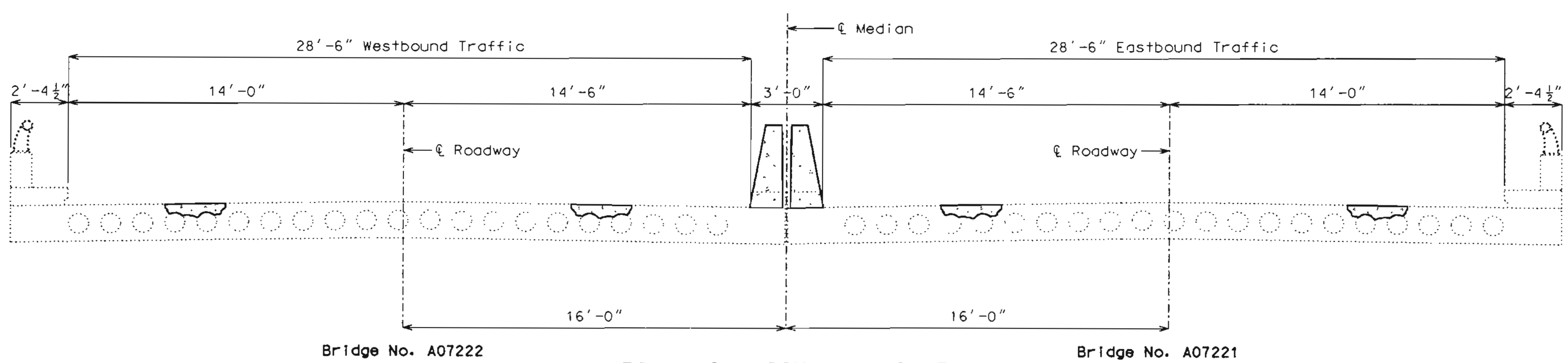
Openings in deck shall be plated during weekday traffic.



STAGE 2 WEEKDAY CONSTRUCTION

Work during day on weekdays will be limited due to the required two lanes of traffic in both directions. Work will be performed at the discretion of the contractor.

The contractor will have the option of performing the same work allowed on weekends provided two lanes of traffic in both directions are provided in accordance with traffic control plans. J5P0872.



FINAL SECTION THRU SLAB

STATE OF MISSOURI
DEAN DAVID FRANKE
NUMBER E-28132
REGISTERED PROFESSIONAL ENGINEER

DATE 1-11-05

DETAILS SHOWING STAGED CONSTRUCTION

Detailed Sep. 2004
Checked Sep. 2004

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

Sheet No. 3 of 7

COLE COUNTY A07221

REV.

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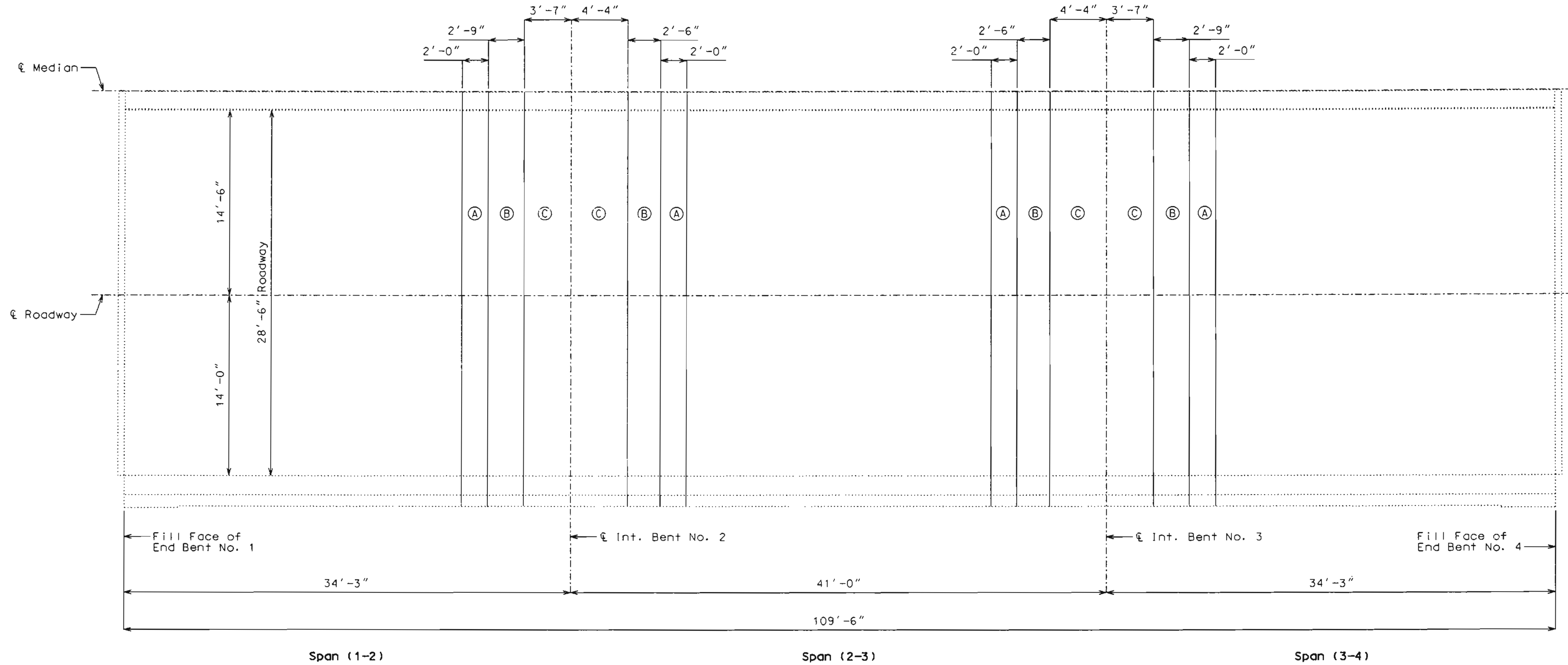
State	Proj. No.	Sheet No.
MO		B21



PLAN OF SLAB SHOWING REPAIR ZONES

Notes:

Any half-soling required in the areas designated as special repair zones shall be completed in alphabetical sequence. Any repair in the remainder of the bridge that is adjacent to Zone A and not designated as a special repair zone shall be completed prior to work in Zone A.

Removal and repair shall be completed in one special repair zone and concrete shall have attained a compressive strength of 3200 psi before work can be started in the next special repair zone. Before placing concrete in areas adjacent to areas of subsequent repair, the concrete shall be separated with a material such as polyethylene sheets to aid in removal of old concrete.

Zones with the same letter designation may be repaired at the same time.

If any single repair area does not exceed 4 square feet in size and the total repair within a special repair zone does not exceed 12 square feet, the special repair zone requirement does not apply for that zone. Any damage sustained to the void tube as a result of the contractor's operations shall be patched or replaced as required by the engineer at the contractor's expense.

An exposed void in the deck shall be patched as approved by the engineer in a manner that shall maintain the void area completely free of concrete. Cost of patching an exposed void will be considered completely covered by the contract unit price for Repairing Concrete Deck (Half-Soling).

STATE OF MISSOURI
DEAN
DAVID FRANKE
NUMBER
E-28132
REGISTERED PROFESSIONAL ENGINEER

DATE 1-11-05

Detailed Sep. 2004
Checked Sep. 2004

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

COLE COUNTY A07221 REV.

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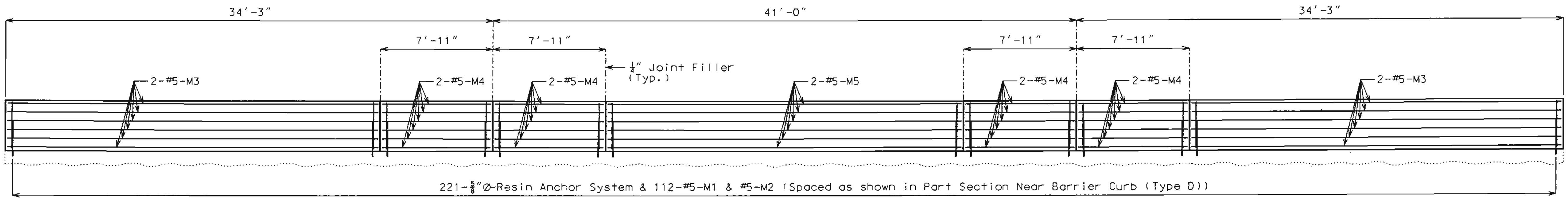
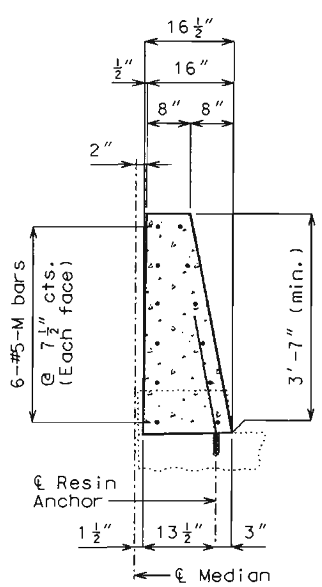
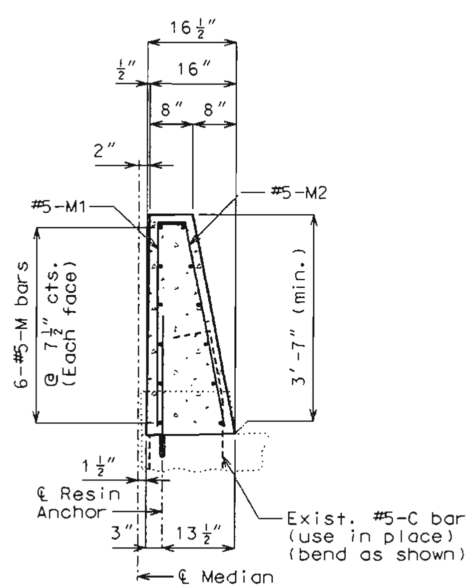
State	Proj. No.	Sheet No.
MO		B22



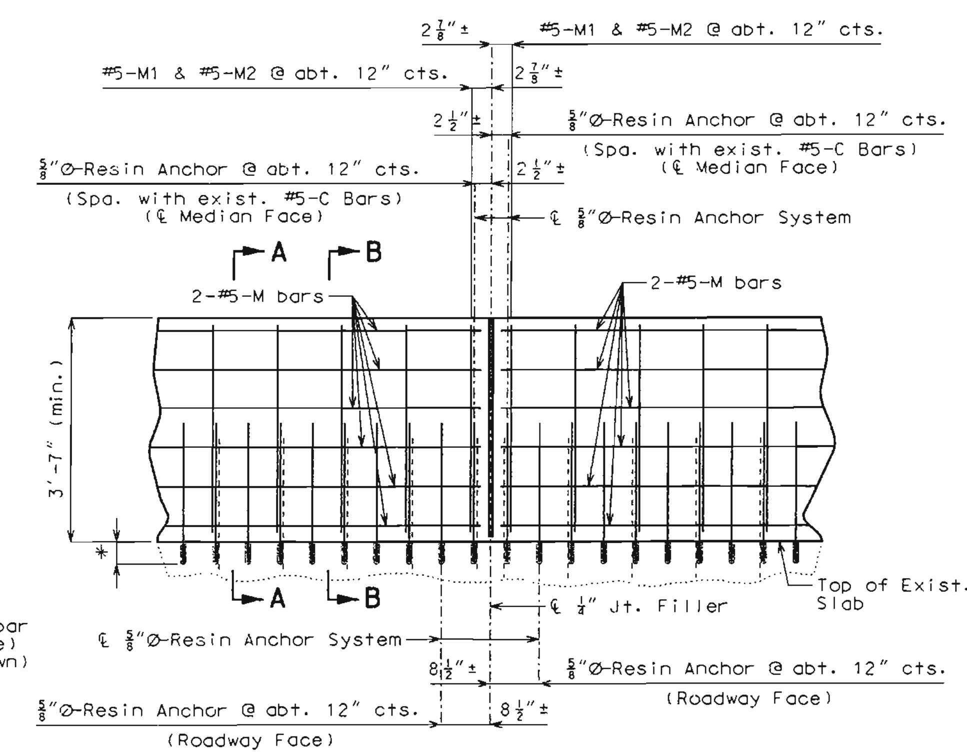
SECTION NEAR BARRIER CURB (TYPE D)



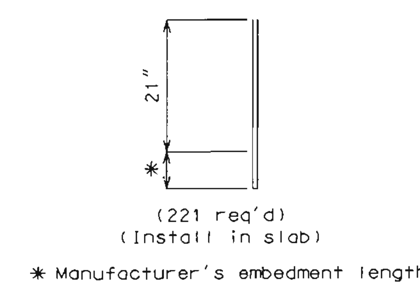
SECTION A-A



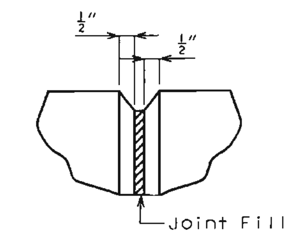
SECTION B-B



PART SECTION NEAR BARRIER CURB (TYPE D)



DETAIL OF RESIN ANCHORS



FILLED JOINT DETAIL

Notes:

All longitudinal dimensions shown are parallel to grade.

Concrete in barrier curb shall be Class B-1 with f'c = 4000 psi.

Measurement of barrier curb is to the nearest linear foot, measured at the gutter line from fill face to fill face.

All exposed edges of barrier curb shall have 1/2" radius or 3/8" bevel unless otherwise shown.

Payment for concrete, reinforcing steel, resin anchors, and any other work incidental to the barrier curb, complete in place, will be considered completely covered by the contract unit price for Barrier Curb (Type D).

All reinforcement shall be epoxy coated.

Cost of furnishing and installing the resin anchor system complete-in-place will be considered completely covered by the contract unit price for Barrier Curb (Type D).

The 5/8" diameter resin anchor systems shall have a minimum ultimate pullout strength of 15,500 lbs. in concrete with f'c = 4,000 psi.

An epoxy coated #5 Grade 60 reinforcing bar shall be substituted for the 5/8" Ø threaded rod.

STATE OF MISSOURI
DEAN DAVID FRANKE
NUMBER E-28132
REGISTERED PROFESSIONAL ENGINEER

DATE 1-11-05

DETAILS OF BARRIER CURB (TYPE D)

Detailed Sep. 2004
Checked Sep. 2004

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

COLE COUNTY | A07221 | REV.

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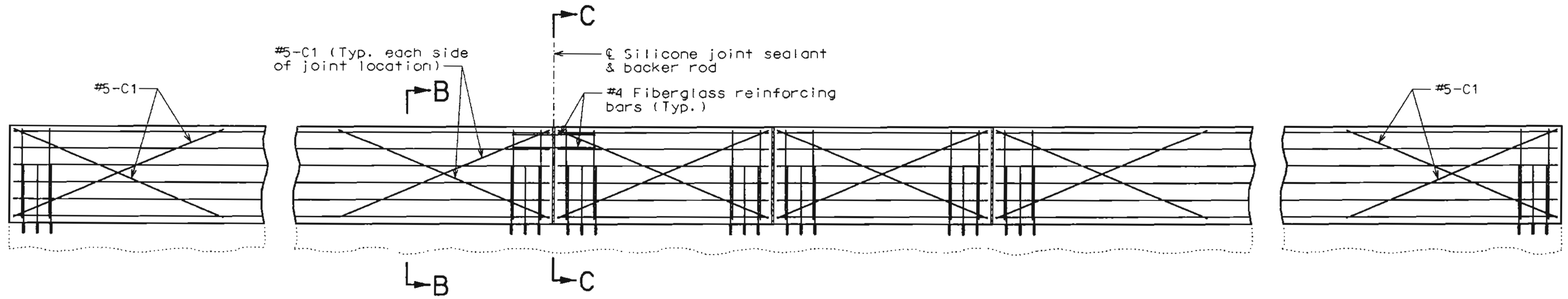
State	Proj. No.	Sheet No.
MO		B23



TYPICAL SECTION NEAR BARRIER CURB (TYPE D) AT SUPPORT LOCATIONS

Notes:

Joint sealant and backer rods shall be used on all slip-form barrier curbs instead of joint filler and shall be in accordance with Sec 717 for silicone joint sealant for saw cut and formed joints.

Plastic waterstop shall not be used with slip-form option.

C Bars (Slip-form option only) shall be used in addition to cast-in-place conventional forming reinforcement for bridge barrier curb (Type D).

For Slip-Form option, all sides of the barrier curb (Type D) shall have a vertically broomed finish and the curb top shall have a tranversely broomed finish.

Notes:

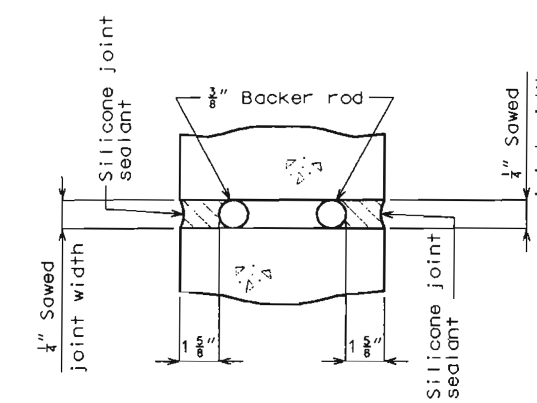
Top of barrier curb shall be built parallel to grade with barrier curb joints (except at end bents) normal to grade.

Payment for all concrete and reinforcement, complete-in-place, will be considered completely covered by the contract unit price for Barrier Curb (Type D) per linear foot.

Concrete in the barrier curb shall be Class B-1.

Measurement of barrier curb (Type D) is to the nearest linear foot for each structure, measured at gutterline from fill face to fill face.

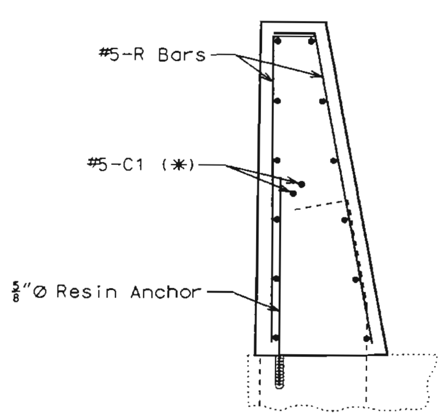
The curb shall be cured by application of Type 1-D or Type 2 Liquid Membrane-Forming Compound in accordance with Sec 1055. Scale prevention treatment will not be permitted.



SECTION A-A

Note:

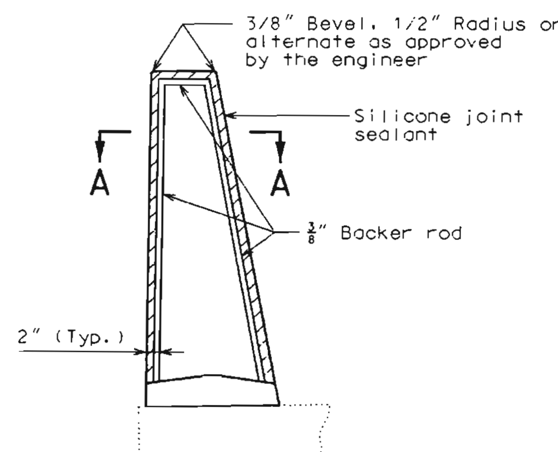
Cost of silicone joint sealant and backer rod complete-in-place will be considered completely covered by the contract unit price for Barrier Curb (Type D).



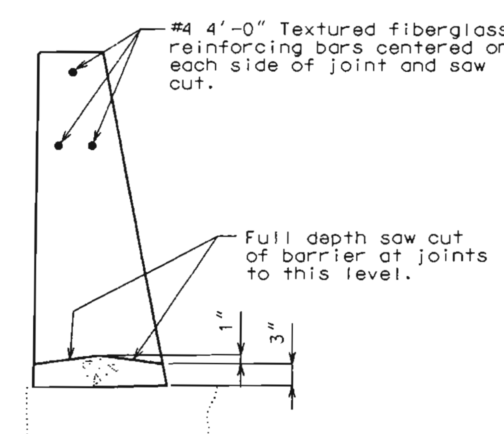
PART SECTION B-B

Note:

(✱) Each side of joint location.



SECTION THRU JOINT



PART SECTION C-C

STATE OF MISSOURI DEAN DAVID FRANKE NUMBER E-28132 REGISTERED PROFESSIONAL ENGINEER

DATE 1-11-05

OPTIONAL SLIP-FORM BRIDGE BARRIER CURB (TYPE D)

Detailed Sep. 2004
Checked Sep. 2004

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

COLE COUNTY | A07221

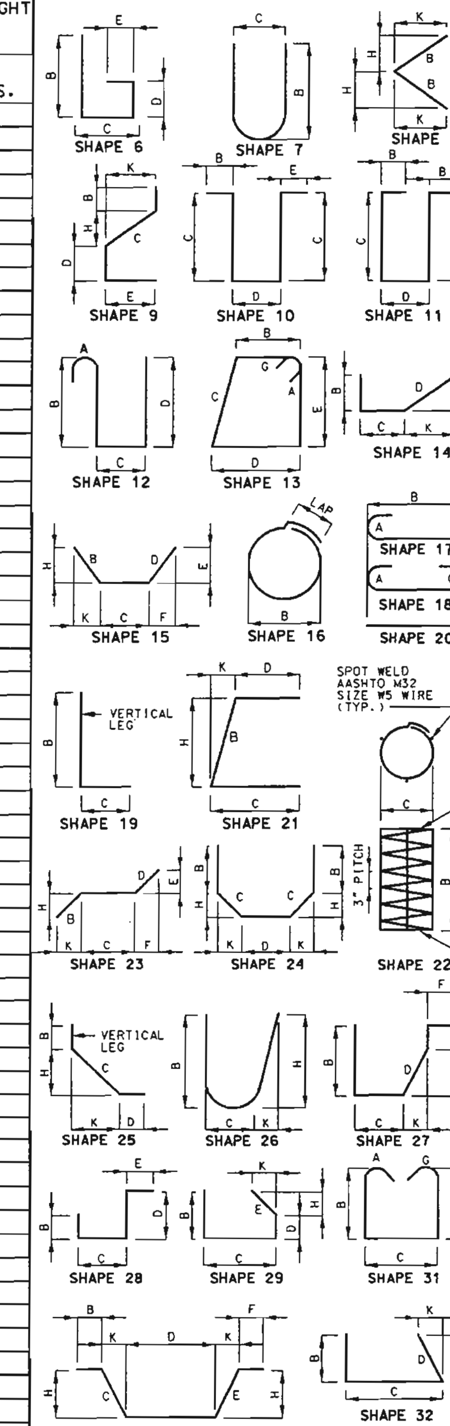
BILL OF REINFORCING STEEL

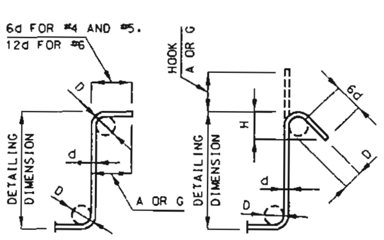
NO. REQ'D.	MARK NO. SIZE	MARK NO. MARK	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	B FT. IN.	C FT. IN.	D FT. IN.	E FT. IN.	F FT. IN.	H FT. IN.	K FT. IN.	NOMINAL LENGTH FT. IN.	ACTUAL LENGTH FT. IN.	WEIGHT LBS.
			MEDIAN CURB																
112	5	M1	MED. CURB	E	19	S				3 4.000	5.000						3 9	3 8	428
112	5	M2	MED. CURB	E	23	S				3 4.625	5.000				3 4.000	7.375	3 10	3 9	438
24	5	M3	MED. CURB	E	20					26 1.000							26 1	26 1	653
48	5	M4	MED. CURB	E	20					7 8.000							7 8	7 8	384
14	5	M5	MED. CURB	E	20					24 11.000							24 11	24 11	364
			SLIP FORM																
20	5	C1	SLIP FORM	E	20					8 4.000							8 4	8 4	174
			TOTALS																
	5			E															2441
			TOTAL																0
			TOTAL	E															2441

BILL OF REINFORCING STEEL

NO. REQ'D.	MARK NO. SIZE	MARK NO. MARK	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	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	Proj. No.	Sheet No.
MO		BZ4

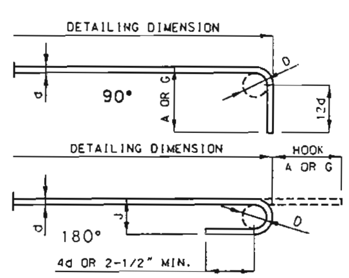




Detailed Sep. 2004
Checked Sep. 2004

STIRRUP HOOK DIMENSIONS				
GRADES 40 - 50 - 60 KSI				
BAR SIZE	D (IN.)	90° HOOK	135° HOOK	
		HOOK A OR G	HOOK A OR G	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.

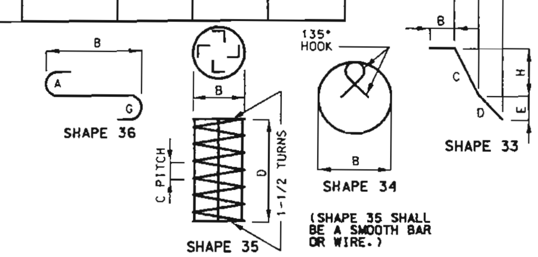


Note: This drawing is not to scale. Follow dimensions.

END HOOK DIMENSIONS				
BAR SIZE	D (IN.)	ALL GRADES		
		180° HOOKS		90° HOOKS
		A OR G	J	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"

TWO ADDITIONAL #5-M5 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 FABRICATOR'S 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

DATE 1-11-05

COLE COUNTY

A07221

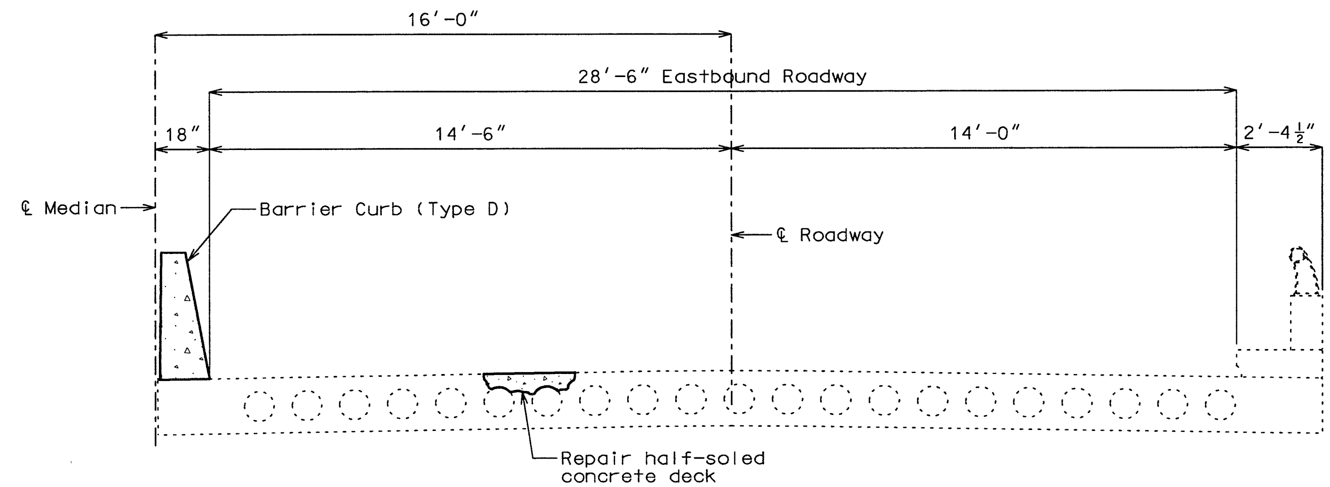
REV.

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

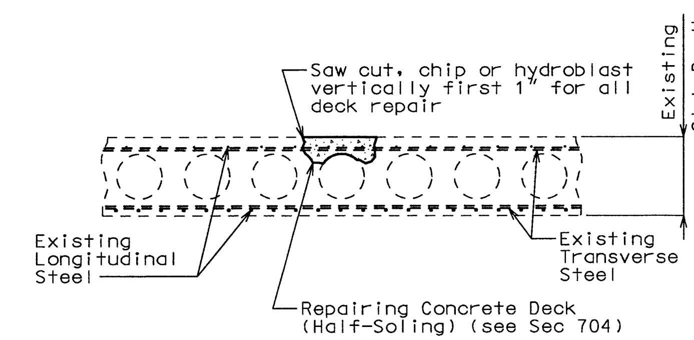
U.I.P. EXISTING (33'-41'-33') CONTINUOUS VOIDED SLAB SPANS

State	Proj. No.	Sheet No.
MO	J5P0873	B18
SEC/SUR 17	TWP 44N	RGE 11W

CONTRACT I.D. 050218-504



SECTION THRU EXISTING SLAB



HALF-SOLED AREA

GENERAL NOTES:

Design Specifications:
2002 - AASHTO 17th Edition
Bridge Deck Rating = 7

Design Unit Stresses:
Class B-1 Concrete f'c = 4,000 psi
Reinforcing Steel (Grade 60) fy = 60,000 psi

Joint Filler:
All joint filler shall be in accordance with Sec 1057 for preformed sponge rubber expansion and partition joint filler, except as noted.

Reinforcing Steel:
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Resin Anchors:
The contractor shall use one of the qualified resin anchor systems in accordance with Sec 1039.

Miscellaneous:
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"Sec" refers to the sections in the standard and supplemental specifications unless specified otherwise.

Outline of old work is indicated by dashed lines. Heavy lines indicate new work.

Contractor shall verify all dimensions in field before ordering new material.

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The area exposed by the removal of concrete and not covered with new concrete shall be coated with an approved bituminous paint.

Final Quantities

Item		Total
Removal of Asphalt Wearing Surface	sq. foot	3,121
Curb Removal	linear foot	110
* Barrier Curb (Type D)	linear foot	110
Repairing Concrete Deck (Half-Soling)	sq. foot	376

* Slip-form Barrier Curb

REPAIRS TO BRIDGE OVER VETTER STREET

STATE ROAD FROM RTE. 54 TO RTE. J
ABOUT 2.1 MILES EAST OF RTE. 54
PROJECT NO. STA. 100+84.40 (Match Exist.)
JOB NO. J5P0873 RTE. 50

COLE COUNTY

Date: / /

STD. 706.35

A07221

REV.

Detailed Sep. 2004
Checked Sep. 2004

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

Sheet No. 1 of 7

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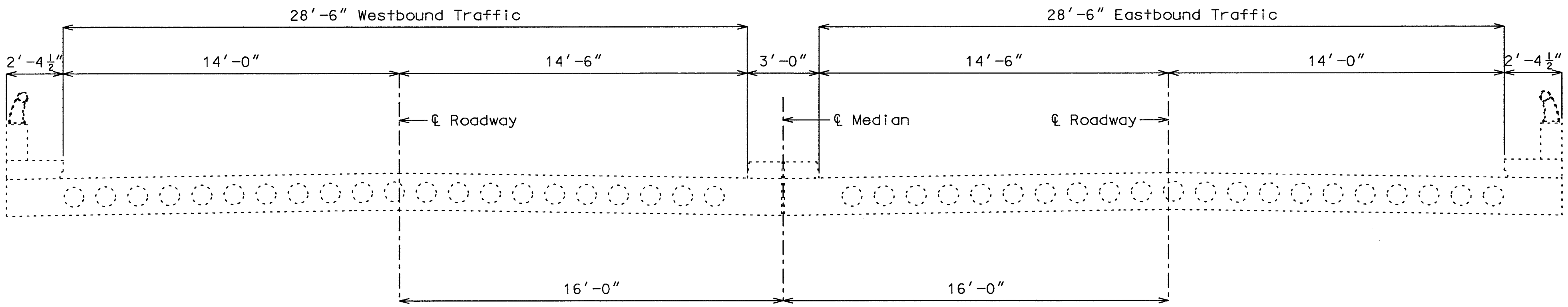
State	Proj. No.	Sheet No.
MO	J5P0873	B19

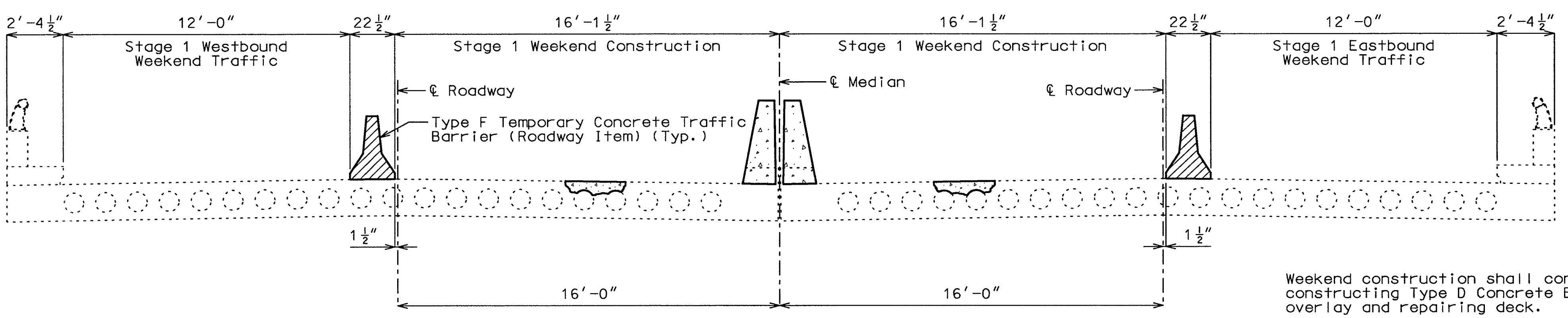
CONTRACT I.D. 050218-504



Exist. Bridge No. A-722 (WB)

Exist. Bridge No. A-722 (EB)

SECTION THRU EXISTING SLAB



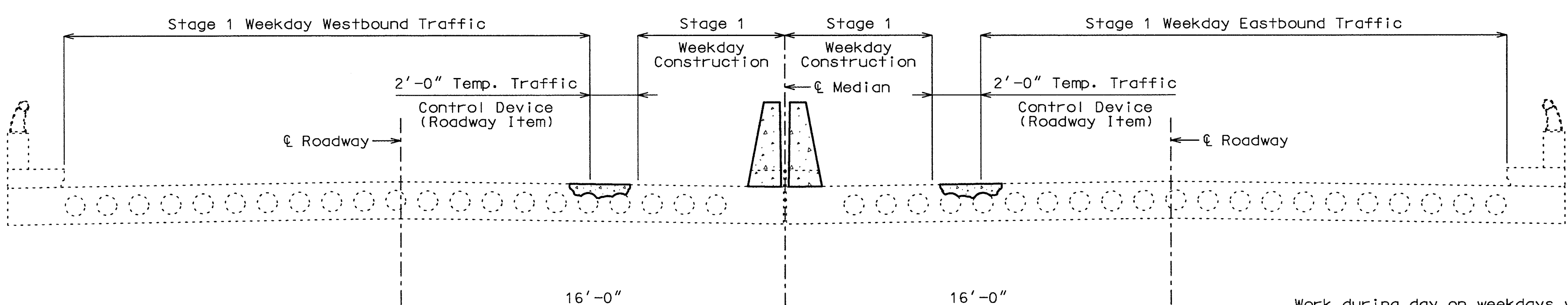
Bridge No. A07222

Bridge No. A07221

STAGE 1 WEEKEND CONSTRUCTION

Weekend construction shall consist of removing existing median curbs, constructing Type D Concrete Barrier Curbs, removing existing asphalt overlay and repairing deck.

Openings in deck shall be plated during weekday traffic.



Bridge No. A07222

Bridge No. A07221

STAGE 1 WEEKDAY CONSTRUCTION

Work during day on weekdays will be limited due to the required two lanes of traffic in both directions. Work will be performed at the discretion of the contractor.

The contractor will have the option of performing the same work allowed on weekends provided two lanes of traffic in both directions are provided in accordance with the traffic control plans, J5P0872.

DETAILS SHOWING STAGED CONSTRUCTION

Detailed Sep. 2004
Checked Sep. 2004

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

Sheet No. 2 of 7

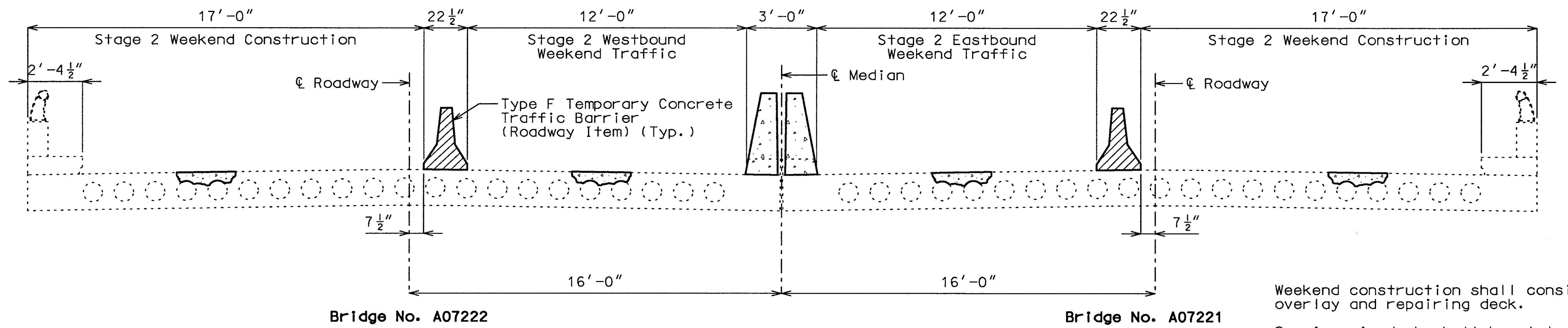
COLE COUNTY A07221

REV.

J:\2005\J5P0872 & J5P0873\Final Plans\873\a07221FinalPlans\a07221_002.dgn 09:45:54 AM 10/17/2005

State	Proj. No.	Sheet No.
MO	J5P0873	B20

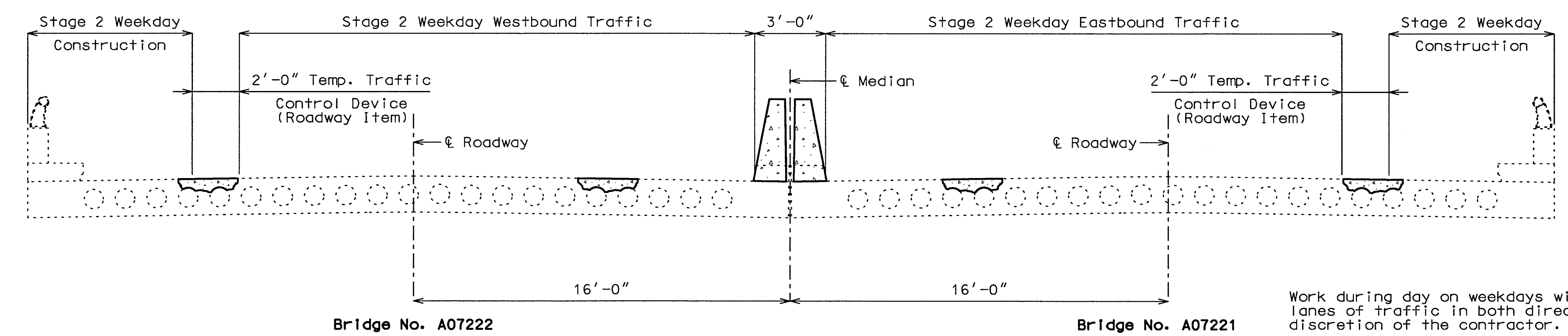
CONTRACT I.D. 050218-504



STAGE 2 WEEKEND CONSTRUCTION

Weekend construction shall consist of removing existing asphalt overlay and repairing deck.

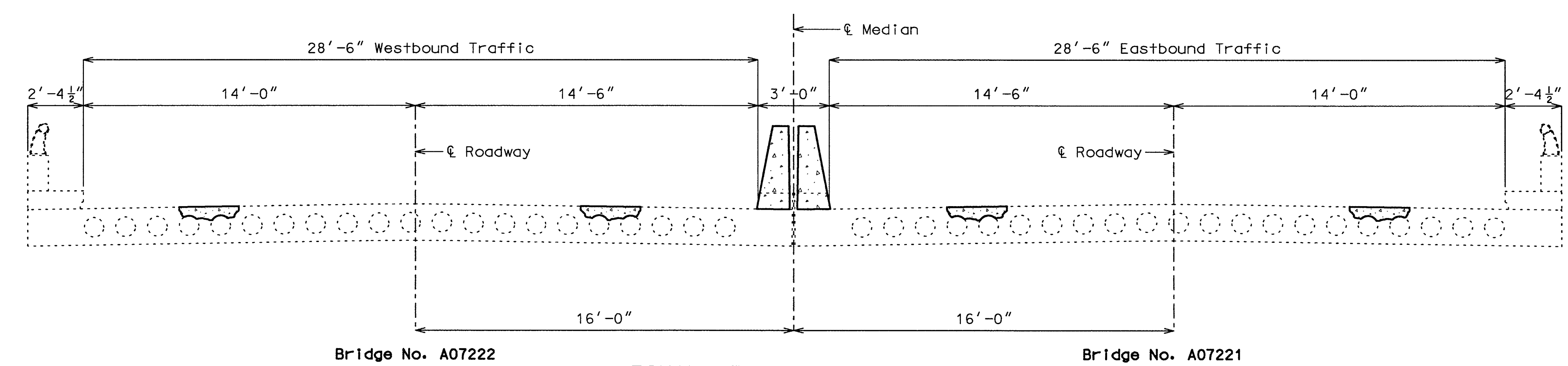
Openings in deck shall be plated during weekday traffic.



STAGE 2 WEEKDAY CONSTRUCTION

Work during day on weekdays will be limited due to the required two lanes of traffic in both directions. Work will be performed at the discretion of the contractor.

The contractor will have the option of performing the same work allowed on weekends provided two lanes of traffic in both directions are provided in accordance with traffic control plans, J5P0872.



FINAL SECTION THRU SLAB

DETAILS SHOWING STAGED CONSTRUCTION

Detailed Sep. 2004
Checked Sep. 2004

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

Sheet No. 3 of 7

COLE COUNTY | A07221 | REV.

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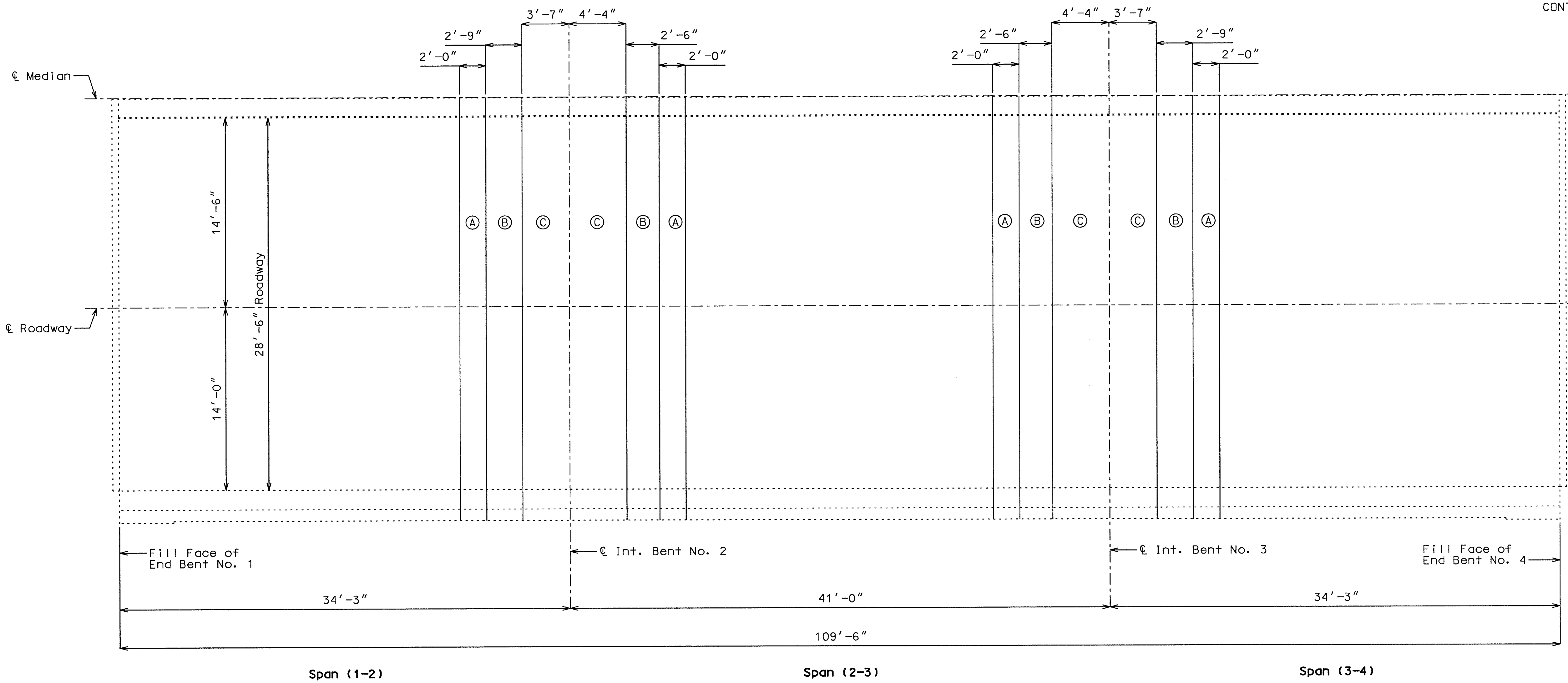
State	Proj. No.	Sheet No.
MO	J5P0873	B21

CONTRACT I.D. 050218-504



PLAN OF SLAB SHOWING REPAIR ZONES

Notes:

Any half-soling required in the areas designated as special repair zones shall be completed in alphabetical sequence. Any repair in the remainder of the bridge that is adjacent to Zone A and not designated as a special repair zone shall be completed prior to work in Zone A.

Removal and repair shall be completed in one special repair zone and concrete shall have attained a compressive strength of 3200 psi before work can be started in the next special repair zone. Before placing concrete in areas adjacent to areas of subsequent repair, the concrete shall be separated with a material such as polyethylene sheets to aid in removal of old concrete.

Zones with the same letter designation may be repaired at the same time.

If any single repair area does not exceed 4 square feet in size and the total repair within a special repair zone does not exceed 12 square feet, the special repair zone requirement does not apply for that zone. Any damage sustained to the void tube as a result of the contractor's operations shall be patched or replaced as required by the engineer at the contractor's expense.

An exposed void in the deck shall be patched as approved by the engineer in a manner that shall maintain the void area completely free of concrete. Cost of patching an exposed void will be considered completely covered by the contract unit price for Repairing Concrete Deck (Half-Soling).

Detailed Sep. 2004
Checked Sep. 2004

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

COLE COUNTY | A07221 | REV.

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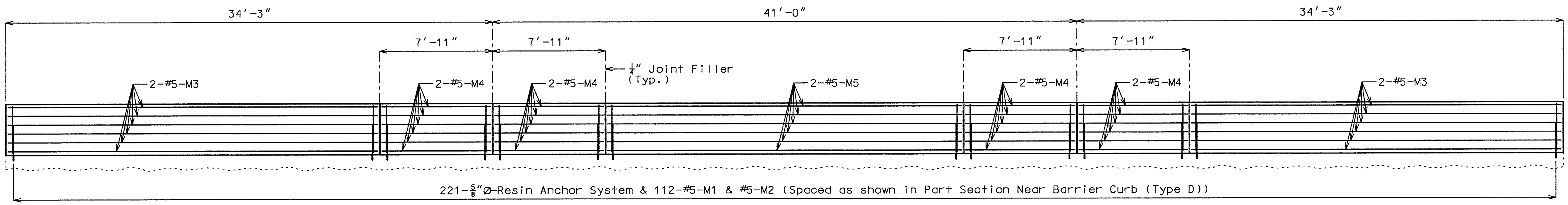
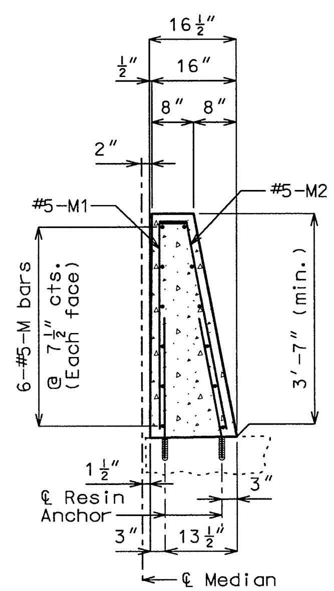
State	Proj. No.	Sheet No.
MO	J5P0873	B22

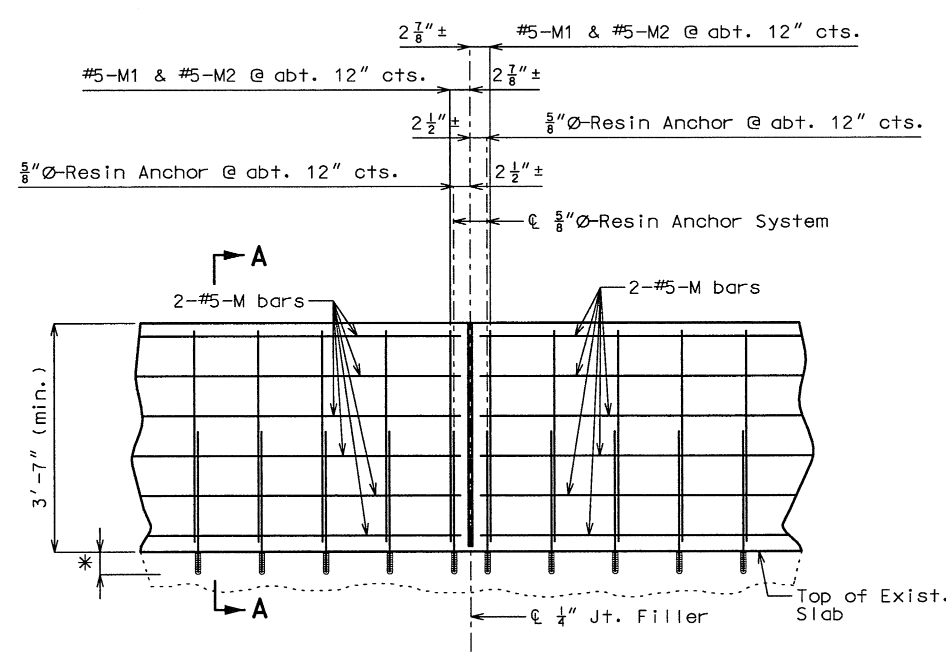
CONTRACT I.D. 050218-504



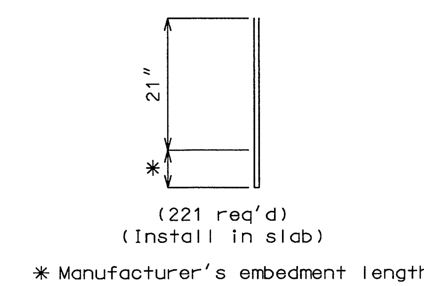
SECTION NEAR BARRIER CURB (TYPE D)



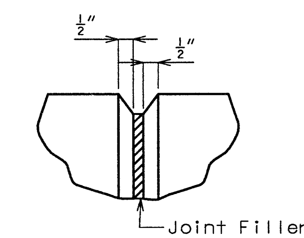
SECTION A-A



PART SECTION NEAR BARRIER CURB (TYPE D)



DETAIL OF RESIN ANCHORS



FILLED JOINT DETAIL

Notes:

All longitudinal dimensions shown are parallel to grade.

Concrete in barrier curb shall be Class B-1 with f'c = 4000 psi.

Measurement of barrier curb is to the nearest linear foot, measured at the gutter line from fill face to fill face.

All exposed edges of barrier curb shall have 1/2" radius or 3/8" bevel unless otherwise shown.

Payment for concrete, reinforcing steel, resin anchors, and any other work incidental to the barrier curb, complete in place, will be considered completely covered by the contract unit price for Barrier Curb (Type D).

All reinforcement shall be epoxy coated.

Cost of furnishing and installing the resin anchor system complete-in-place will be considered completely covered by the contract unit price for Barrier Curb (Type D).

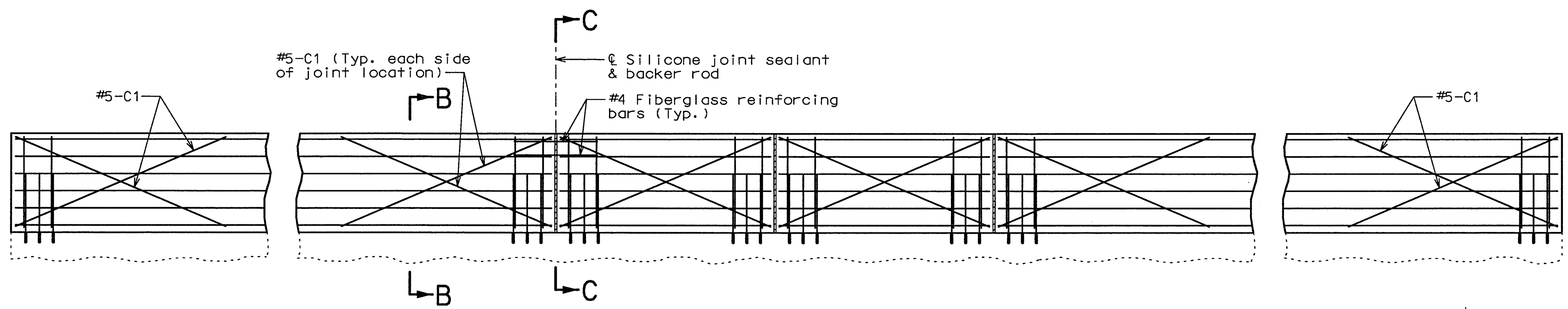
The 5/8" diameter resin anchor systems shall have a minimum ultimate pullout strength of 15,500 lbs. in concrete with f'c = 4,000 psi.

An epoxy coated #5 Grade 60 reinforcing bar shall be substituted for the 5/8" Ø threaded rod.

DETAILS OF BARRIER CURB (TYPE D)

State	Proj. No.	Sheet No.
MO	J5P0873	B23

CONTRACT I.D. 050218-504



TYPICAL SECTION NEAR BARRIER CURB (TYPE D) AT SUPPORT LOCATIONS

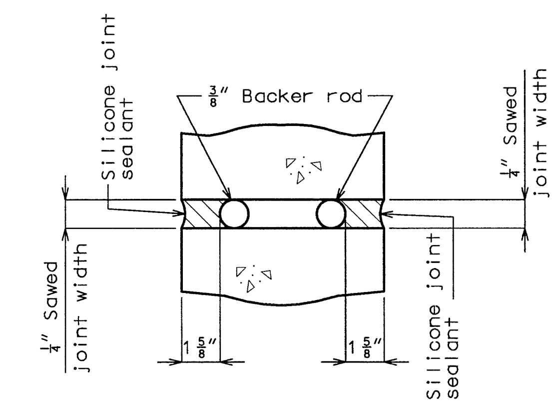
Notes:

Joint sealant and backer rods shall be used on all slip-form barrier curbs instead of joint filler and shall be in accordance with Sec 717 for silicone joint sealant for saw cut and formed joints.

Plastic waterstop shall not be used with slip-form option.

C Bars (Slip-form option only) shall be used in addition to cast-in-place conventional forming reinforcement for bridge barrier curb (Type D).

For Slip-Form option, all sides of the barrier curb (Type D) shall have a vertically broomed finish and the curb top shall have a tranversely broomed finish.



SECTION A-A

Note:

Cost of silicone joint sealant and backer rod complete-in-place will be considered completely covered by the contract unit price for Barrier Curb (Type D).

Notes:

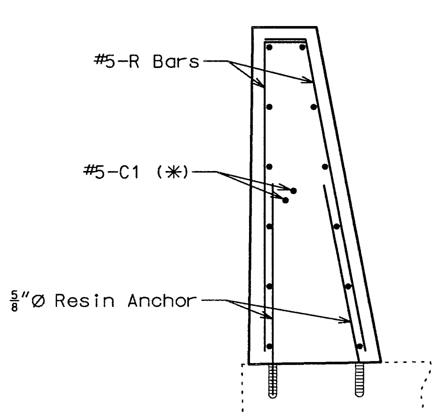
Top of barrier curb shall be built parallel to grade with barrier curb joints (except at end bents) normal to grade.

Payment for all concrete and reinforcement, complete-in-place, will be considered completely covered by the contract unit price for Barrier Curb (Type D) per linear foot.

Concrete in the barrier curb shall be Class B-1.

Measurement of barrier curb (Type D) is to the nearest linear foot for each structure, measured at gutterline from fill face to fill face.

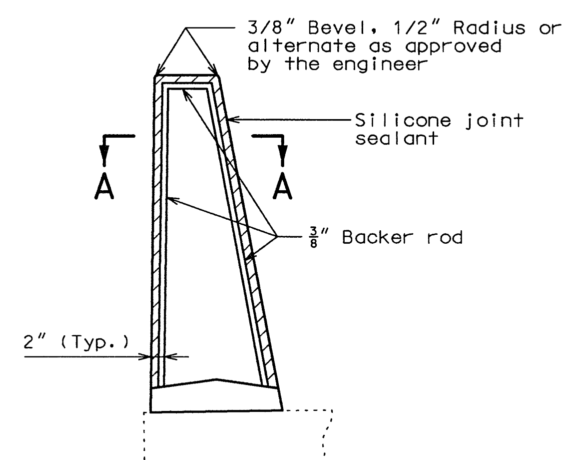
The curb shall be cured by application of Type 1-D or Type 2 Liquid Membrane-Forming Compound in accordance with Sec 1055. Scale prevention treatment will not be permitted.



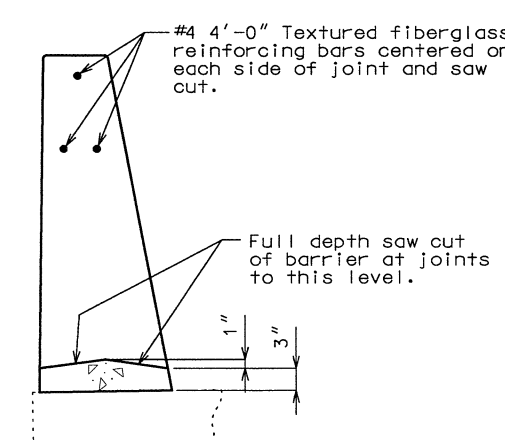
PART SECTION B-B

Note:

(✱) Each side of joint location.



SECTION THRU JOINT



PART SECTION C-C

OPTIONAL SLIP-FORM BRIDGE BARRIER CURB (TYPE D)

barbill_i Feb. 2002

State	Proj. No.	Sheet No.
MO	J5P0873	B24

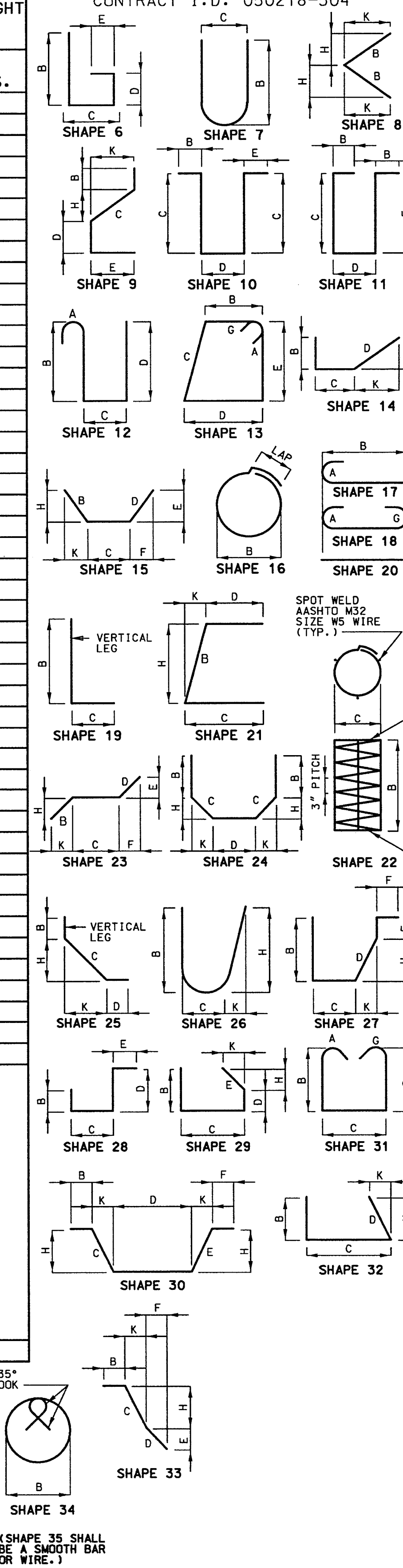
CONTRACT I.D. 050218-504

BILL OF REINFORCING STEEL

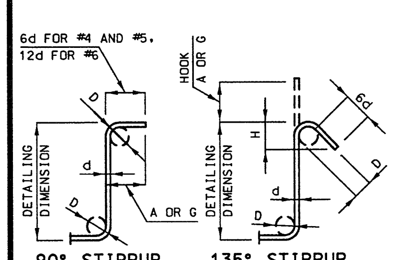
NO. REQ'D.	MARK NO. SIZE	MARK NO. MARK	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	B FT.	B IN.	C FT.	C IN.	D FT.	D IN.	E FT.	E IN.	F FT.	F IN.	H FT.	H IN.	K FT.	K IN.	NOMINAL LENGTH FT.	NOMINAL LENGTH IN.	ACTUAL LENGTH FT.	ACTUAL LENGTH IN.	WEIGHT LBS.
			MEDIAN CURB																									
112	5	M1	MED. CURB	E	19	S				3	4.000		5.000											3	9	3	8	428
112	5	M2	MED. CURB	E	23	S				3	4.625		5.000							3	4.000		7.375	3	10	3	9	438
24	5	M3	MED. CURB	E	20					26	1.000													26	1	26	1	653
48	5	M4	MED. CURB	E	20					7	8.000													7	8	7	8	384
14	5	M5	MED. CURB	E	20					24	11.000													24	11	24	11	364
			SLIP FORM																									
20	5	C1	SLIP FORM	E	20					8	4.000													8	4	8	4	174
			TOTALS																									
	5			E																								2441
			TOTAL																									0
			TOTAL	E																								2441

BILL OF REINFORCING STEEL

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

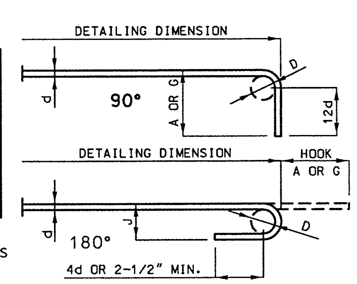


BENDING DIAGRAMS



STIRRUP HOOK DIMENSIONS				
GRADES 40 - 50 - 60 KSI				
BAR SIZE	D (IN.)	90° HOOK	135° HOOK	
		HOOK A OR G	HOOK A OR G	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		90° HOOKS
		A OR G	J	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"

TWO ADDITIONAL #5-M5 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 FABRICATOR'S 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.

Detailed Sep. 2004
Checked Sep. 2004

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

COLE COUNTY

A07221

REV.

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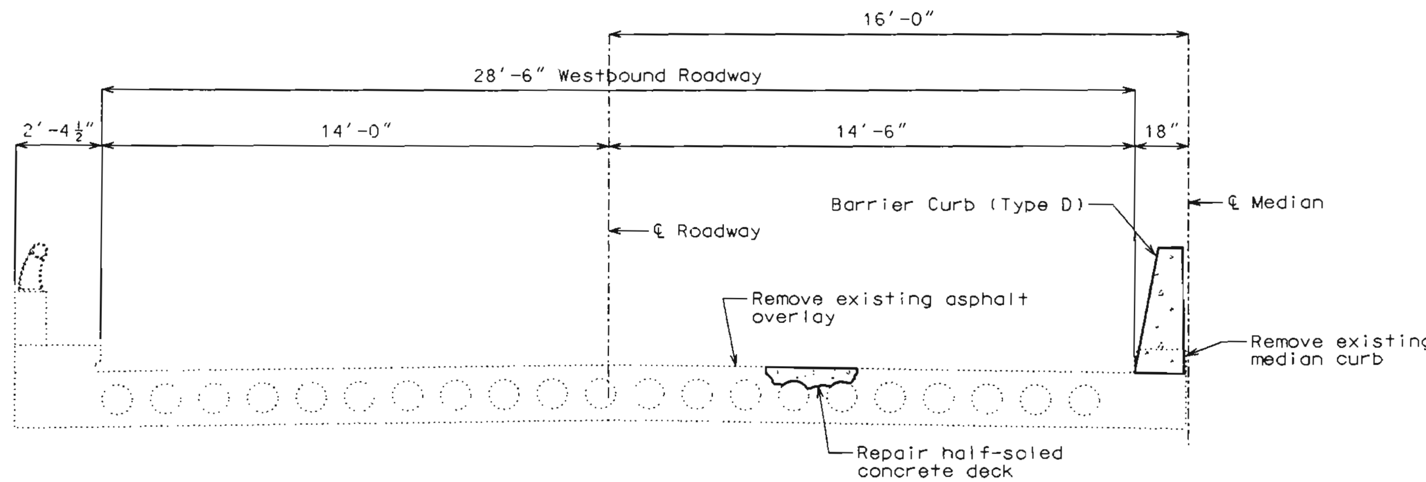
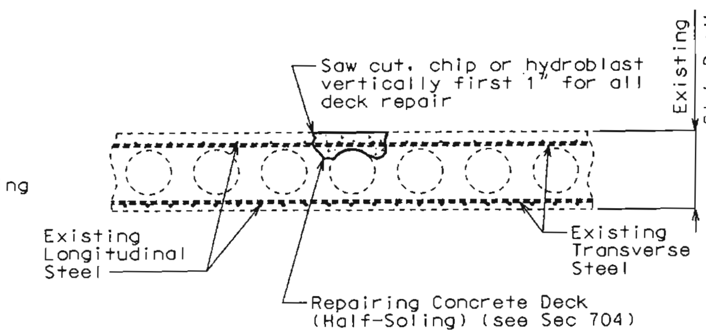
MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

U.I.P. EXISTING (33'-41'-33') CONTINUOUS VOIDED SLAB SPANS



SECTION THRU EXISTING SLAB



HALF-SOLED AREA

GENERAL NOTES:

Design Specifications:
2002 - AASHTO 17th Edition
Bridge Deck Rating = 7

Design Unit Stresses:
Class B-1 Concrete f'c = 4,000 psi
Reinforcing Steel (Grade 60) fy = 60,000 psi

Joint Filler:
All joint filler shall be in accordance with Sec 1057 for preformed sponge rubber expansion and partition joint filler, except as noted.

Reinforcing Steel:
Minimum clearance to reinforcing steel shall be 1-1/2", unless otherwise shown.

Resin Anchors:
The contractor shall use one of the qualified resin anchor systems in accordance with Sec 1039.

Miscellaneous:
Traffic over structure to be maintained during construction. See Job No. J5P0872 roadway plans for traffic control.

"Sec" refers to the sections in the standard and supplemental specifications unless specified otherwise.

Outline of old work is indicated by dashed lines. Heavy lines indicate new work.

Contractor shall verify all dimensions in field before ordering new material.

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 area exposed by the removal of concrete and not covered with new concrete shall be coated with an approved bituminous paint.

Estimated Quantities

Item		Total
Removal of Asphalt Wearing Surface	sq. foot	3,121
Curb Removal	linear foot	110
* Barrier Curb (Type D)	linear foot	110
Repairing Concrete Deck (Half-Soling)	sq. foot	50

* Barrier curb shall be cast-in-place option or slip-form option.

STATE OF MISSOURI
DEAN DAVID FRANKE
NUMBER E-28132
REGISTERED PROFESSIONAL ENGINEER
DATE 1-11-05

REPAIRS TO BRIDGE OVER VETTER STREET

STATE ROAD FROM RTE. 54 TO RTE. J
ABOUT 2.1 MILES EAST OF RTE. 54
PROJECT NO. STA. 100+84.40 (Match Exist.)
JOB NO. J5P0873 RTE. 50

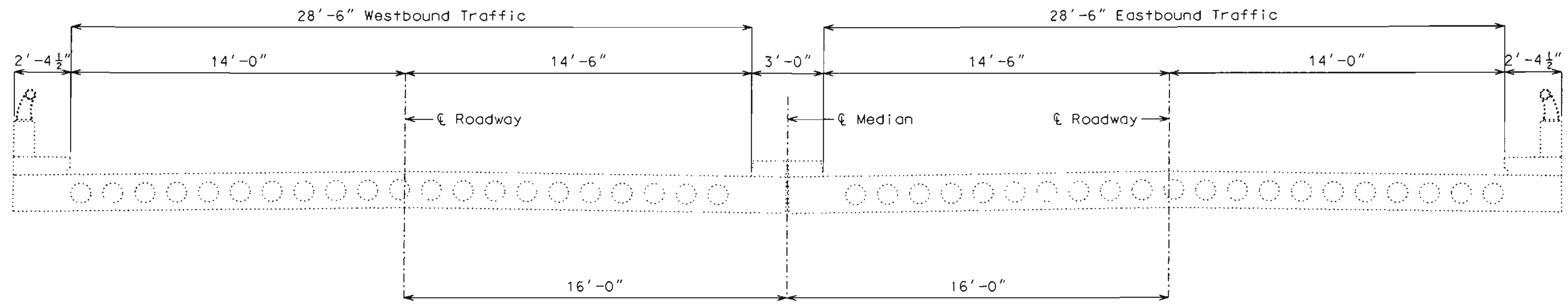
COLE COUNTY
Date: 1/12/05

STD. 706.35
A07222
REV.

Detailed Sep. 2004
Checked Sep. 2004

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

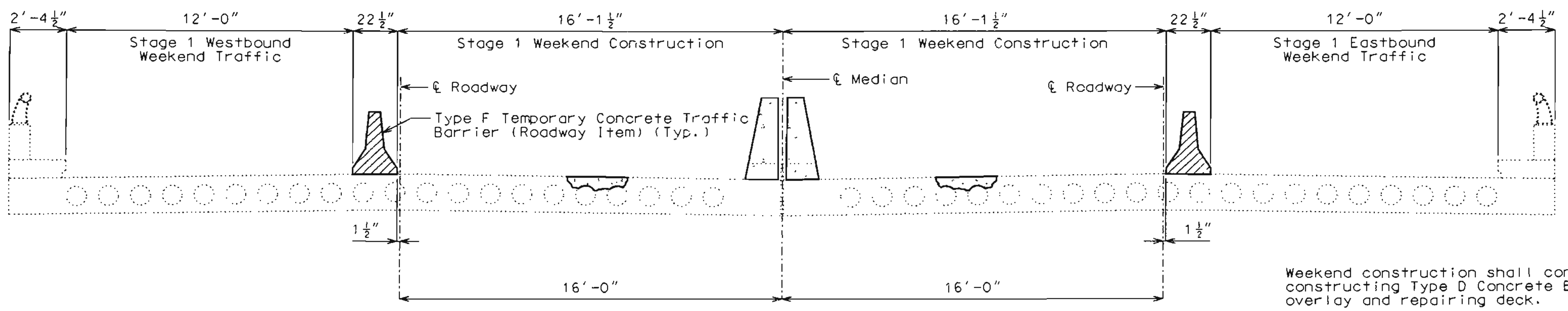
State	Proj. No.	Sheet No.
MO		B26



Exist. Bridge No. A-722 (WB)

Exist. Bridge No. A-722 (EB)

SECTION THRU EXISTING SLAB



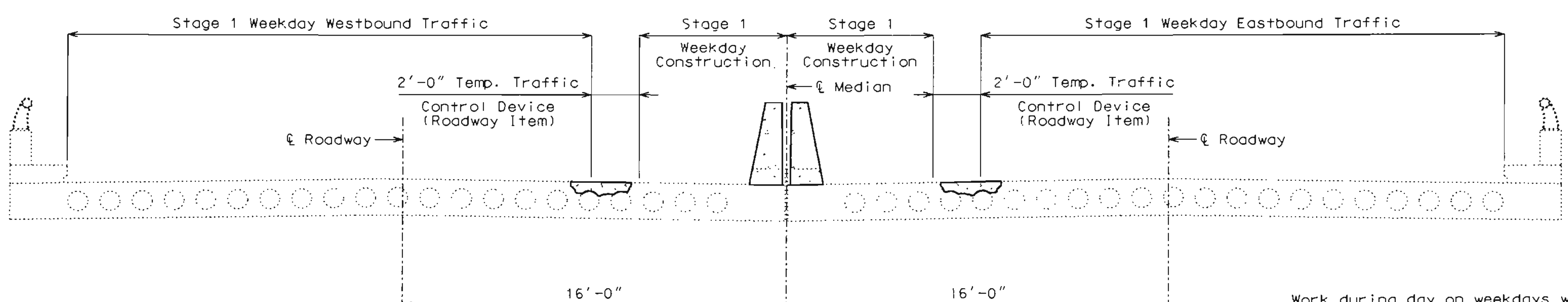
Bridge No. A07222

Bridge No. A07221

STAGE 1 WEEKEND CONSTRUCTION

Weekend construction shall consist of removing existing median curbs, constructing Type D Concrete Barrier Curbs, removing existing asphalt overlay and repairing deck.

Openings in deck shall be plated during weekday traffic.



Bridge No. A07222

Bridge No. A07221

STAGE 1 WEEKDAY CONSTRUCTION

Work during day on weekdays will be limited due to the required two lanes of traffic in both directions. Work will be performed at the discretion of the contractor.

The contractor will have the option of performing the same work allowed on weekends provided two lanes of traffic in both directions are provided in accordance with the traffic control plans. J5P0872.

STATE OF MISSOURI
DEAN DAVID FRANKE
NUMBER E-28132
REGISTERED PROFESSIONAL ENGINEER

DATE 1-11-05

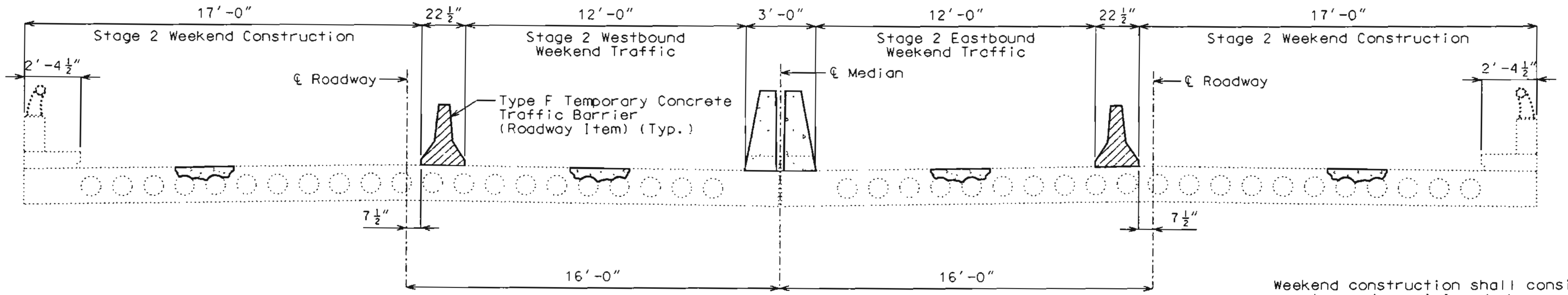
DETAILS SHOWING STAGED CONSTRUCTION

Detailed Sep. 2004
Checked Sep. 2004

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

COLE COUNTY A07222 REV.

State	Proj. No.	Sheet No.
MO		B27

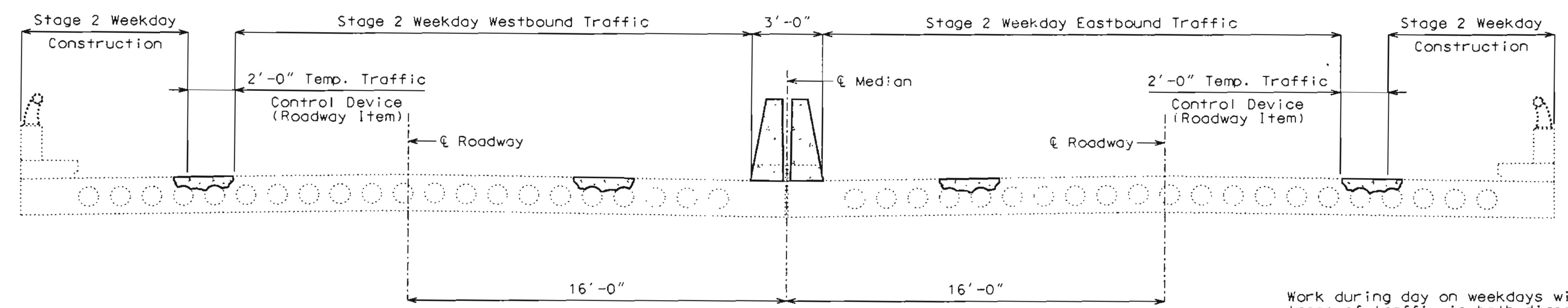


Bridge No. A07222 **Bridge No. A07221**

STAGE 2 WEEKEND CONSTRUCTION

Weekend construction shall consist of removing existing asphalt overlay and repairing deck.

Openings in deck shall be plated during weekday traffic.

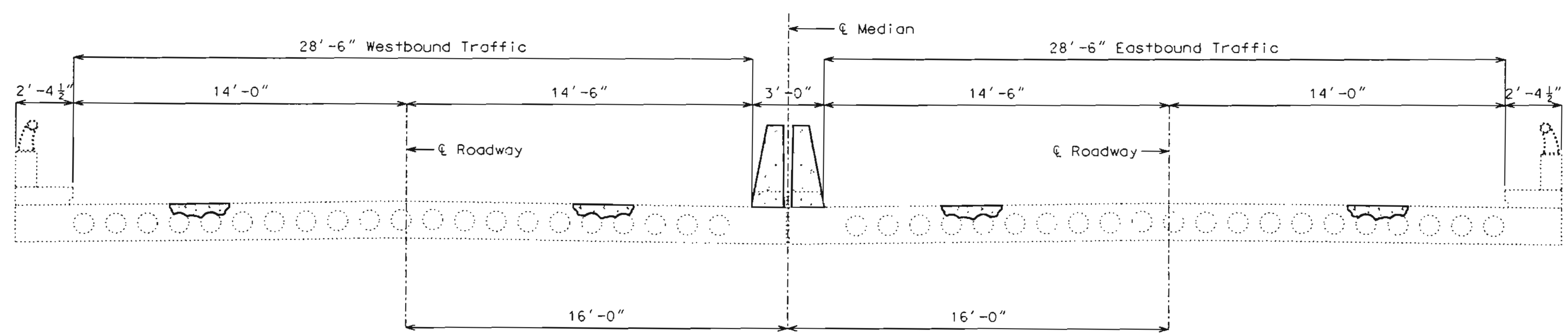


Bridge No. A07222 **Bridge No. A07221**

STAGE 2 WEEKDAY CONSTRUCTION

Work during day on weekdays will be limited due to the required two lanes of traffic in both directions. Work will be performed at the discretion of the contractor.

The contractor will have the option of performing the same work allowed on weekends provided two lanes of traffic in both directions are provided in accordance with traffic control plans. J5P0872.



Bridge No. A07222 **Bridge No. A07221**

FINAL SECTION THRU SLAB

DATE 1-11-05

DETAILS SHOWING STAGED CONSTRUCTION

Detailed Sep. 2004
Checked Sep. 2004

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

Sheet No. 3 of 7

COLE COUNTY A07222 REV.

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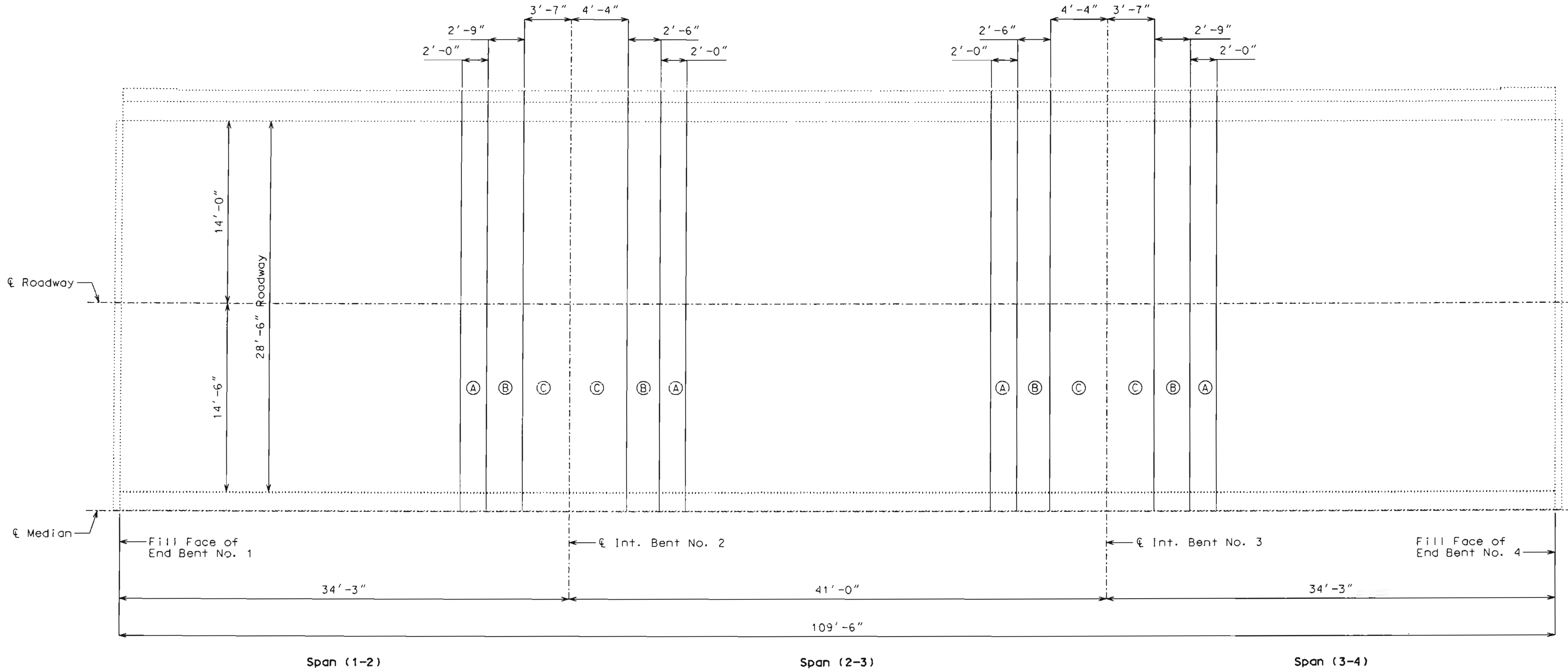
State	Proj. No.	Sheet No.
MO		B 28



PLAN OF SLAB SHOWING REPAIR ZONES

Notes:

Any half-soling required in the areas designated as special repair zones shall be completed in alphabetical sequence. Any repair in the remainder of the bridge that is adjacent to Zone A and not designated as a special repair zone shall be completed prior to work in Zone A.

Removal and repair shall be completed in one special repair zone and concrete shall have attained a compressive strength of 3200 psi before work can be started in the next special repair zone. Before placing concrete in areas adjacent to areas of subsequent repair, the concrete shall be separated with a material such as polyethylene sheets to aid in removal of old concrete.

Zones with the same letter designation may be repaired at the same time.

If any single repair area does not exceed 4 square feet in size and the total repair within a special repair zone does not exceed 12 square feet, the special repair zone requirement does not apply for that zone. Any damage sustained to the void tube as a result of the contractor's operations shall be patched or replaced as required by the engineer at the contractor's expense.

An exposed void in the deck shall be patched as approved by the engineer in a manner that shall maintain the void area completely free of concrete. Cost of patching an exposed void will be considered completely covered by the contract unit price for Repairing Concrete Deck (Half-Soling).

STATE OF MISSOURI
DEAN
DAVID FRANKE
NUMBER
E-28132
REGISTERED PROFESSIONAL ENGINEER

DATE 1-11-05

Detailed Sep. 2004
Checked Sep. 2004

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

Sheet No. 4 of 7

COLE COUNTY | A07222 | REV.

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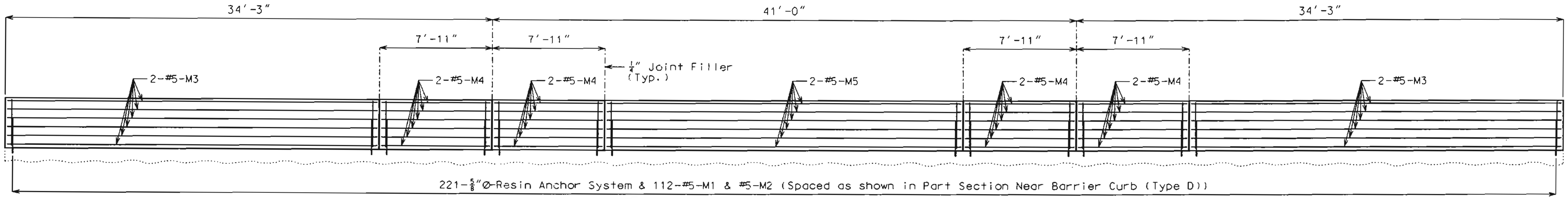
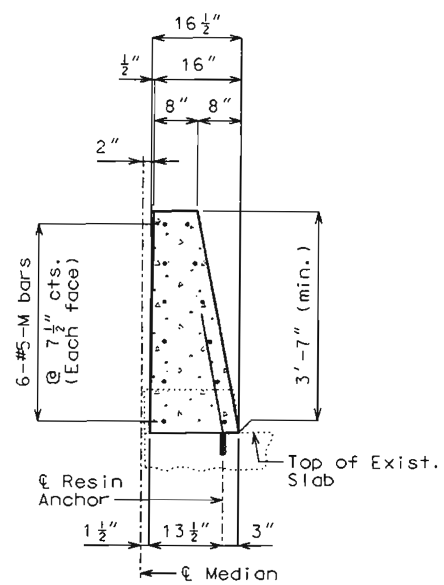
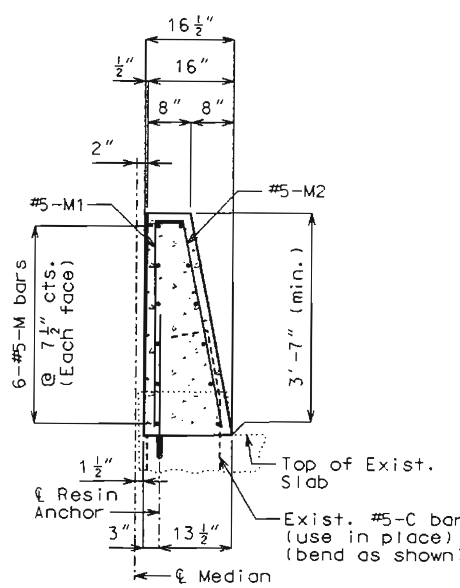
State	Proj. No.	Sheet No.
MO		B 29



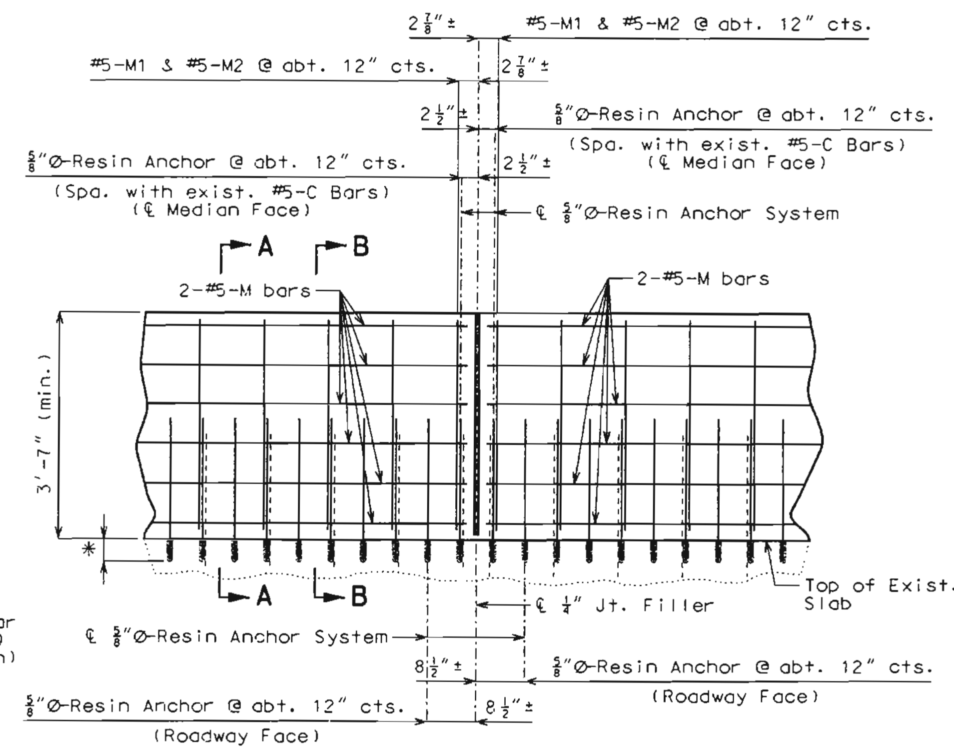
SECTION NEAR BARRIER CURB (TYPE D)



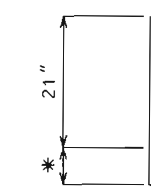
SECTION A-A



SECTION B-B



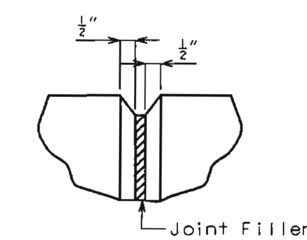
PART SECTION NEAR BARRIER CURB (TYPE D)



(221 req'd)
(Install in slab)

* Manufacturer's embedment length

DETAIL OF RESIN ANCHORS



FILLED JOINT DETAIL

Notes:

All longitudinal dimensions shown are parallel to grade.

Concrete in barrier curb shall be Class B-1 with f'c = 4000 psi.

Measurement of barrier curb is to the nearest linear foot, measured at the gutter line from fill face to fill face.

All exposed edges of barrier curb shall have 1/2" radius or 3/8" bevel unless otherwise shown.

Payment for concrete, reinforcing steel, resin anchors, and any other work incidental to the barrier curb, complete in place, will be considered completely covered by the contract unit price for Barrier Curb (Type D).

All reinforcement shall be epoxy coated.

Cost of furnishing and installing the resin anchor system complete-in-place will be considered completely covered by the contract unit price for Barrier Curb (Type D).

The 5/8" diameter resin anchor systems shall have a minimum ultimate pullout strength of 15,500 lbs. in concrete with f'c = 4,000 psi.

An epoxy coated #5 Grade 60 reinforcing bar shall be substituted for the 5/8" Ø threaded rod.

DATE 1-11-05

DETAILS OF BARRIER CURB (TYPE D)

Detailed Sep. 2004
Checked Sep. 2004

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

COLE COUNTY | A07222 | REV.

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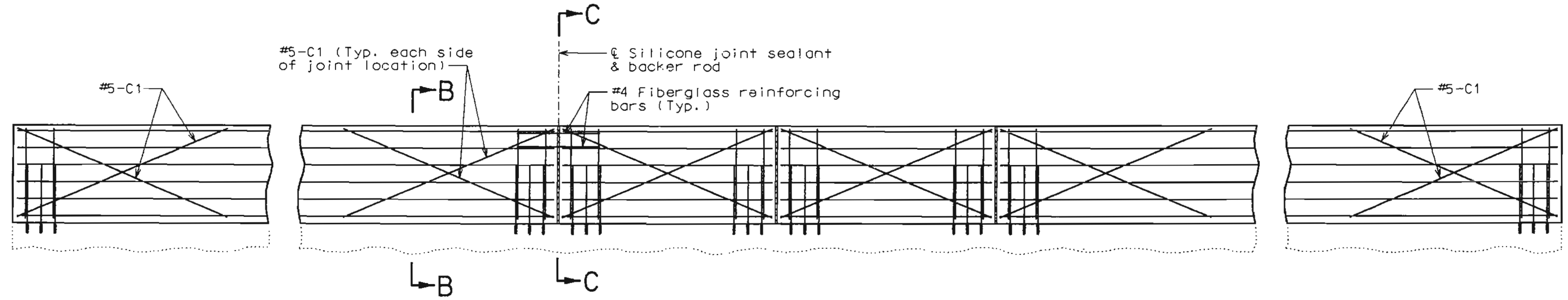
State	Proj. No.	Sheet No.
MO		830



TYPICAL SECTION NEAR BARRIER CURB (TYPE D) AT SUPPORT LOCATIONS

Notes:

Joint sealant and backer rods shall be used on all slip-form barrier curbs instead of joint filler and shall be in accordance with Sec 717 for silicone joint sealant for saw cut and formed joints.

Plastic waterstop shall not be used with slip-form option.

C Bars (Slip-form option only) shall be used in addition to cast-in-place conventional forming reinforcement for bridge barrier curb (Type D).

For Slip-Form option, all sides of the barrier curb (Type D) shall have a vertically broomed finish and the curb top shall have a tranversely broomed finish.

Notes:

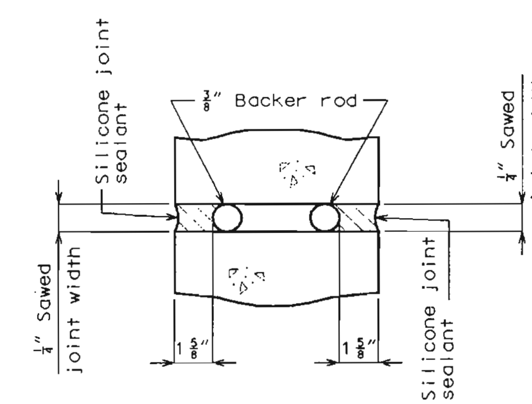
Top of barrier curb shall be built parallel to grade with barrier curb joints (except at end bents) normal to grade.

Payment for all concrete and reinforcement, complete-in-place, will be considered completely covered by the contract unit price for Barrier Curb (Type D) per linear foot.

Concrete in the barrier curb shall be Class B-1.

Measurement of barrier curb (Type D) is to the nearest linear foot for each structure, measured at gutterline from fill face to fill face.

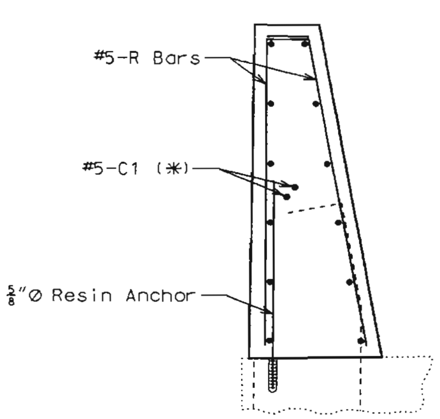
The curb shall be cured by application of Type 1-D or Type 2 Liquid Membrane-Forming Compound in accordance with Sec 1055. Scale prevention treatment will not be permitted.



SECTION A-A

Note:

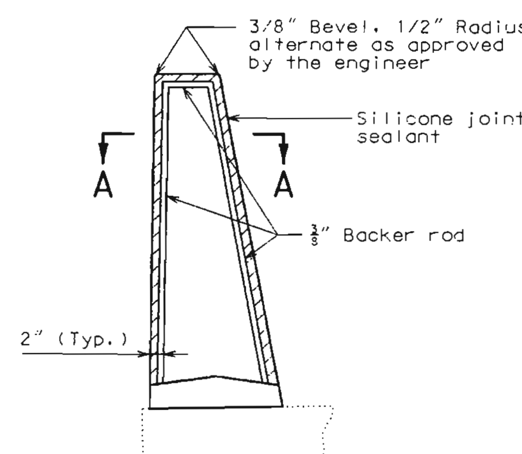
Cost of silicone joint sealant and backer rod complete-in-place will be considered completely covered by the contract unit price for Barrier Curb (Type D).



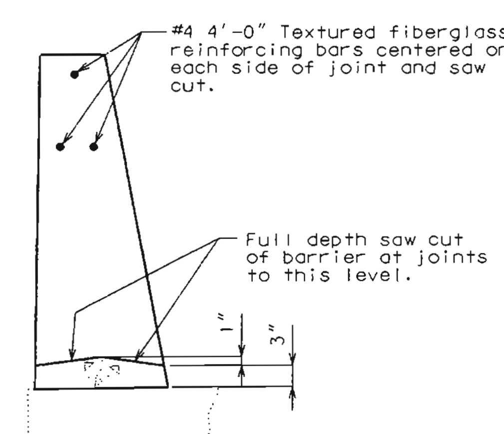
PART SECTION B-B

Note:

(✱) Each side of joint location.



SECTION THRU JOINT



PART SECTION C-C

DEAN DAVID FRANKE NUMBER E-28132 STATE OF MISSOURI REGISTERED PROFESSIONAL ENGINEER

DATE 1-11-05

OPTIONAL SLIP-FORM BRIDGE BARRIER CURB (TYPE D)

Detailed Sep. 2004
Checked Sep. 2004

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

COLE COUNTY A07222

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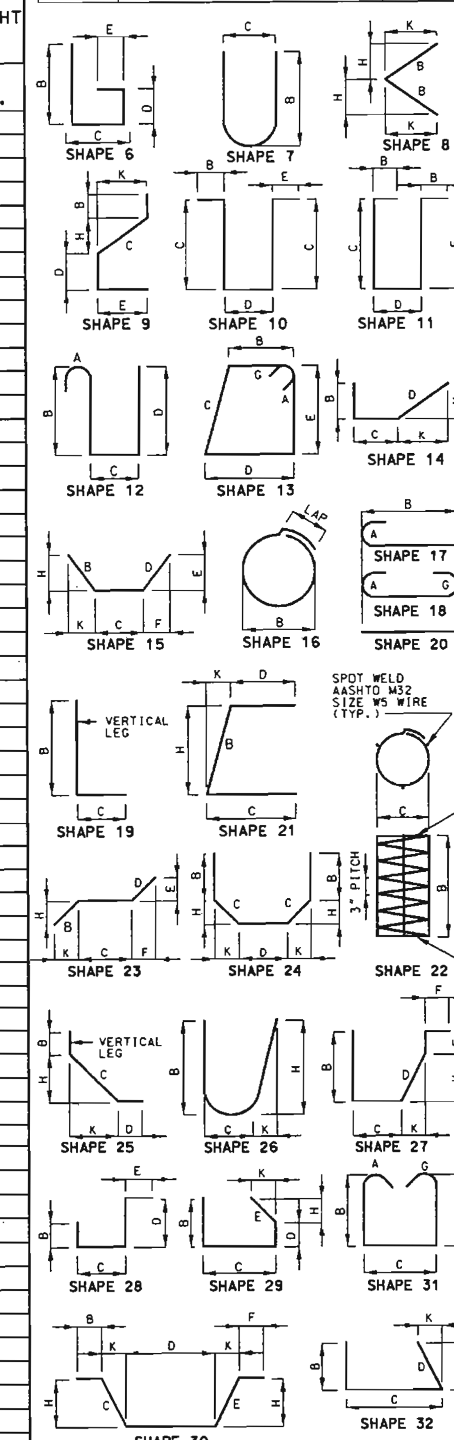
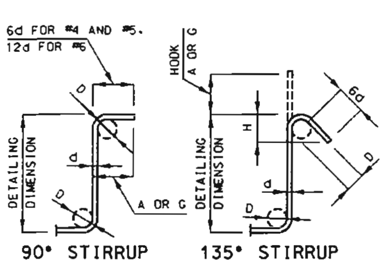
BILL OF REINFORCING STEEL

NO. REQ'D.	MARK NO. SIZE	MARK NO. MARK	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	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.
			MEDIAN CURB																
112	5	M1	MED. CURB	E	19	S				3 4.000	5.000						3 9	3 8	428
112	5	M2	MED. CURB	E	23	S				3 4.625	5.000				3 4.000	7.375	3 10	3 9	438
24	5	M3	MED. CURB	E	20					26 1.000							26 1	26 1	653
48	5	M4	MED. CURB	E	20					7 8.000							7 8	7 8	384
14	5	M5	MED. CURB	E	20					24 11.000							24 11	24 11	364
			SLIP FORM																
20	5	C1	SLIP FORM	E	20					8 4.000							8 4	8 4	174
			TOTALS																
	5			E															2441
			TOTAL																0
			TOTAL	E															2441

BILL OF REINFORCING STEEL

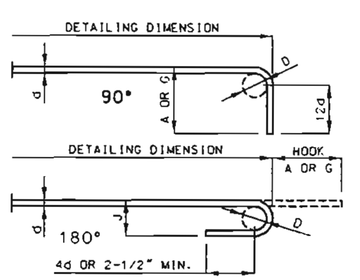
NO. REQ'D.	MARK NO. SIZE	MARK NO. MARK	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	B FT. IN.	C FT. IN.	D FT. IN.	E FT. IN.	F FT. IN.	H FT. IN.	K FT. IN.	NOMINAL LENGTH FT. IN.	ACTUAL LENGTH FT. IN.	WEIGHT LBS.





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"

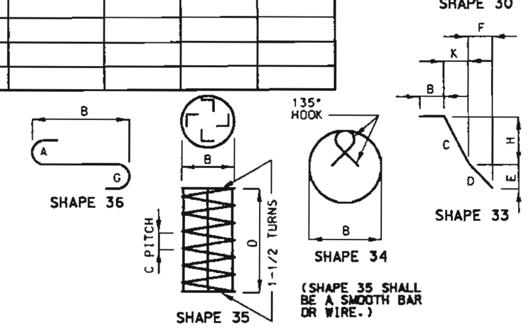
NOTE: UNLESS OTHERWISE NOTED DIAMETER "D" IS THE SAME FOR ALL BENDS AND HOOKS ON A BAR.



END HOOK DIMENSIONS				
BAR SIZE	D (IN.)	ALL GRADES 180° HOOKS A OR G	ALL GRADES 180° HOOKS J	ALL GRADES 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"

TWO ADDITIONAL #5-M5 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 FABRICATOR'S 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
DEAN DAVID FRANKE
NUMBER E-28132
REGISTERED PROFESSIONAL ENGINEER

DATE 1-11-05

Detailed Sep. 2004
Checked Sep. 2004

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

Sheet No. 7 of 7

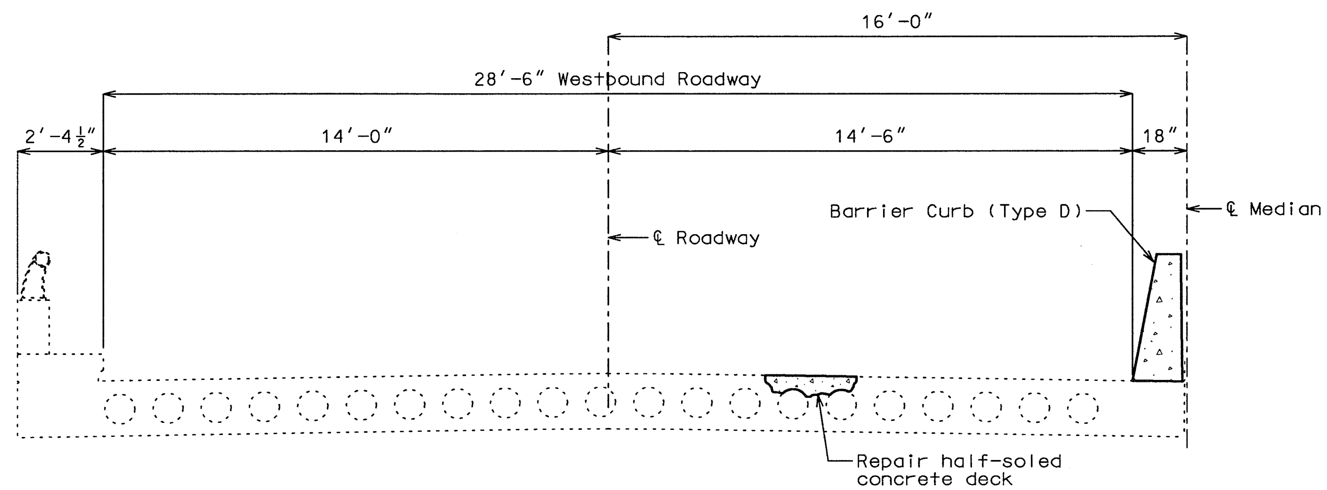
COLE COUNTY

A07222

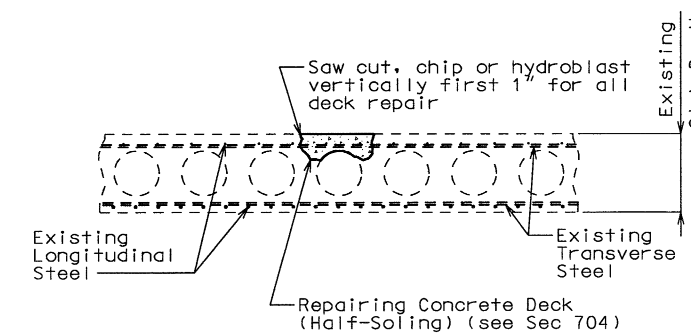
REV.

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

U.I.P. EXISTING (33'-41'-33') CONTINUOUS VOIDED SLAB SPANS



SECTION THRU EXISTING SLAB



HALF-SOLED AREA

GENERAL NOTES:

Design Specifications:
2002 - AASHTO 17th Edition
Bridge Deck Rating = 7

Design Unit Stresses:
Class B-1 Concrete f'c = 4,000 psi
Reinforcing Steel (Grade 60) fy = 60,000 psi

Joint Filler:
All joint filler shall be in accordance with Sec 1057 for preformed sponge rubber expansion and partition joint filler, except as noted.

Reinforcing Steel:
Minimum clearance to reinforcing steel shall be 1-1/2", unless otherwise shown.

Resin Anchors:
The contractor shall use one of the qualified resin anchor systems in accordance with Sec 1039.

Miscellaneous:
Traffic over structure to be maintained during construction. See Job No. J5P0872 roadway plans for traffic control.

"Sec" refers to the sections in the standard and supplemental specifications unless specified otherwise.

Outline of old work is indicated by dashed lines. Heavy lines indicate new work.

Contractor shall verify all dimensions in field before ordering new material.

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 area exposed by the removal of concrete and not covered with new concrete shall be coated with an approved bituminous paint.

Final Quantities

	Item		Total
	Removal of Asphalt Wearing Surface	sq. foot	3,121
	Curb Removal	linear foot	110
*	Barrier Curb (Type D)	linear foot	110
	Repairing Concrete Deck (Half-Soling)	sq. foot	444

* Slip-form Barrier Curb

REPAIRS TO BRIDGE OVER VETTER STREET

STATE ROAD FROM RTE. 54 TO RTE. J
ABOUT 2.1 MILES EAST OF RTE. 54
PROJECT NO. **STA. 100+84.40 (Match Exist.)**
JOB NO. J5P0873 **RTE. 50**

COLE COUNTY
Date: / /

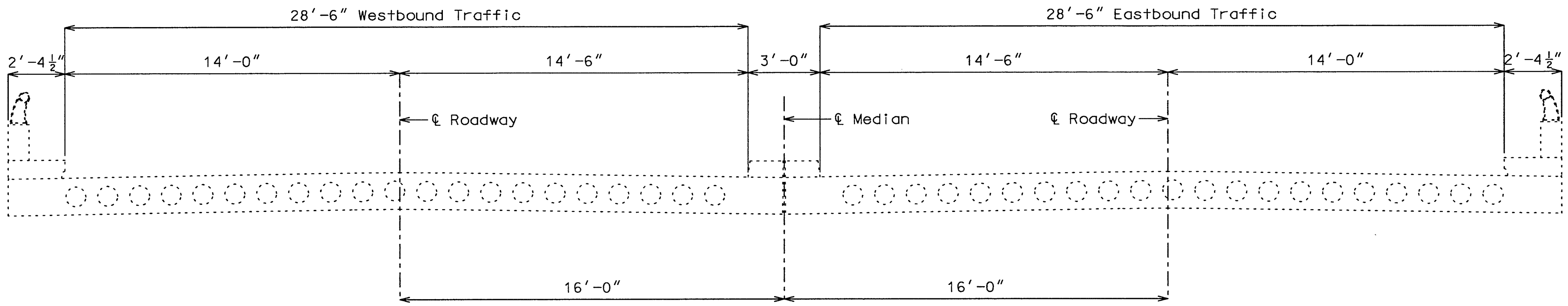
STD. 706.35
A07222
REV.

Detailed Sep. 2004
Checked Sep. 2004

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

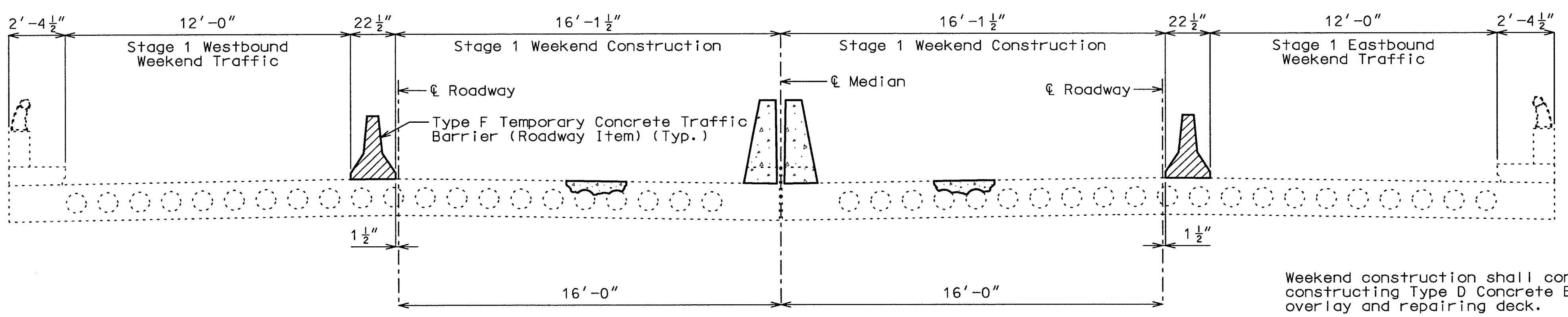
State	Proj. No.	Sheet No.
MO	J5P0873	B26

CONTRACT I.D. 050218-504



Exist. Bridge No. A-722 (WB) **Exist. Bridge No. A-722 (EB)**

SECTION THRU EXISTING SLAB

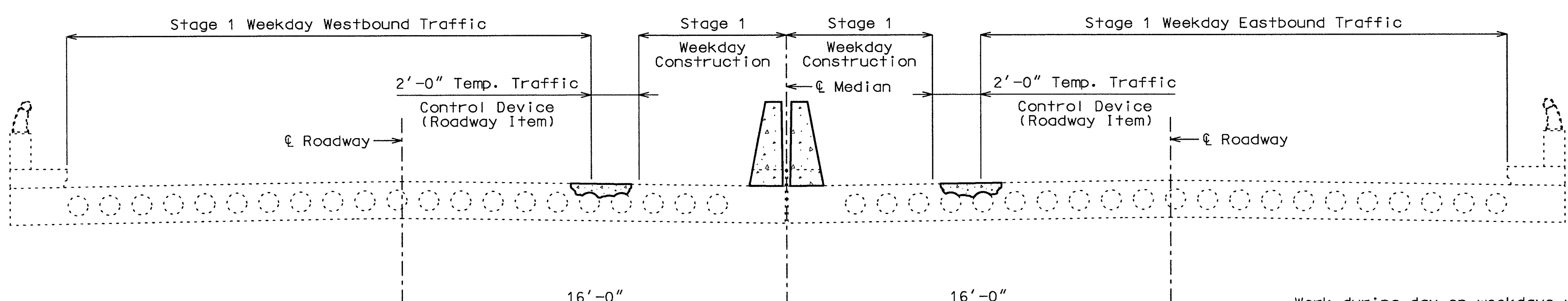


Bridge No. A07222 **Bridge No. A07221**

STAGE 1 WEEKEND CONSTRUCTION

Weekend construction shall consist of removing existing median curbs, constructing Type D Concrete Barrier Curbs, removing existing asphalt overlay and repairing deck.

Openings in deck shall be plated during weekday traffic.



Bridge No. A07222 **Bridge No. A07221**

STAGE 1 WEEKDAY CONSTRUCTION

Work during day on weekdays will be limited due to the required two lanes of traffic in both directions. Work will be performed at the discretion of the contractor.

The contractor will have the option of performing the same work allowed on weekends provided two lanes of traffic in both directions are provided in accordance with the traffic control plans, J5P0872.

DETAILS SHOWING STAGED CONSTRUCTION

Detailed Sep. 2004
Checked Sep. 2004

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

Sheet No. 2 of 7

COLE COUNTY | A07222 | REV.

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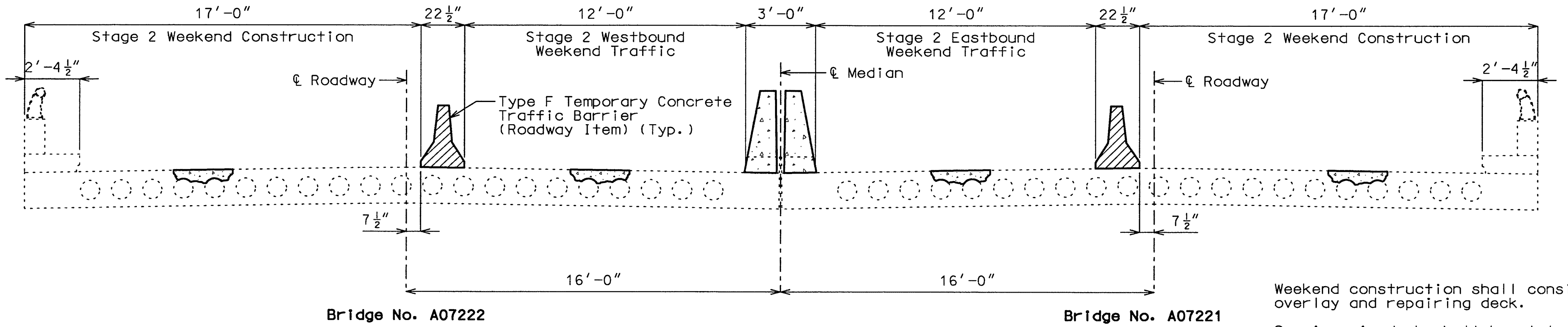
State	Proj. No.	Sheet No.
MO	J5P0873	B27

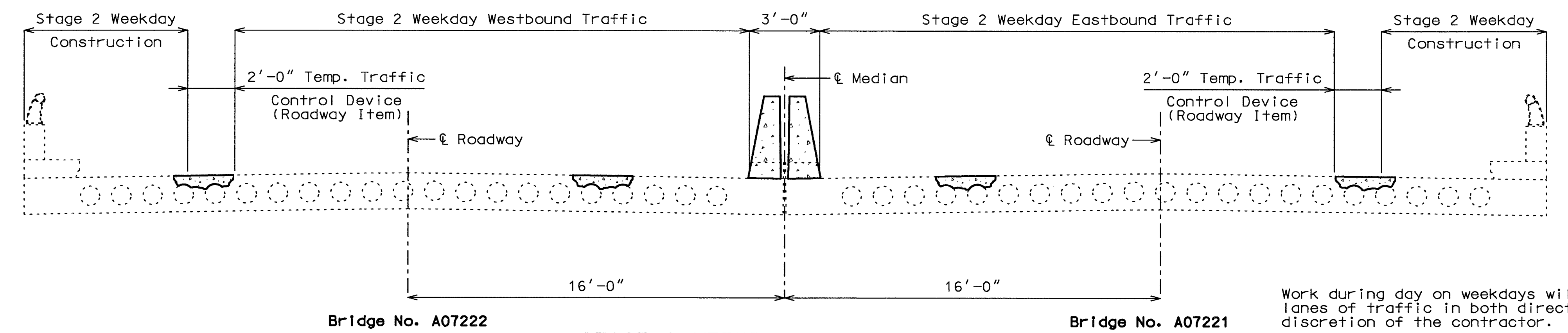
CONTRACT I.D. 050218-504



STAGE 2 WEEKEND CONSTRUCTION

Weekend construction shall consist of removing existing asphalt overlay and repairing deck.

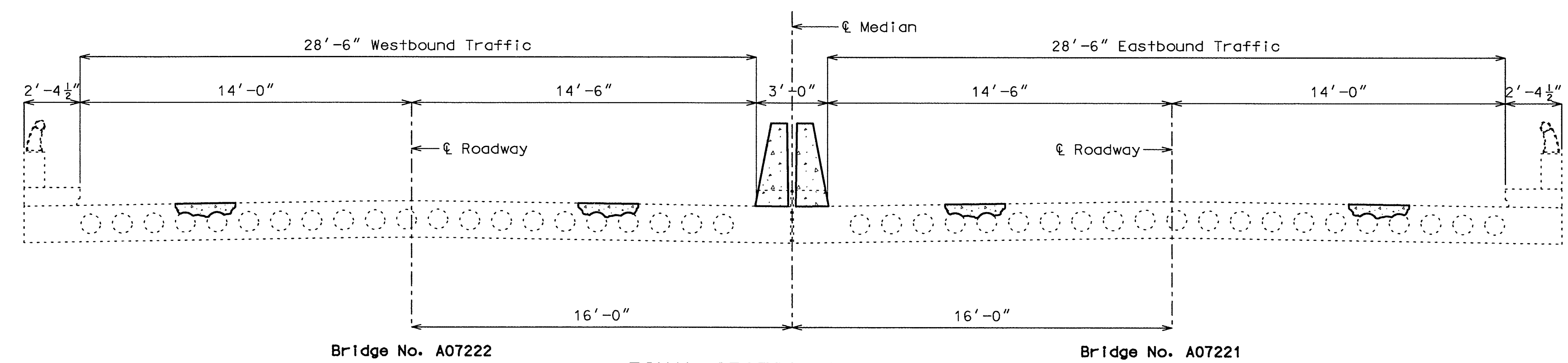
Openings in deck shall be plated during weekday traffic.



STAGE 2 WEEKDAY CONSTRUCTION

Work during day on weekdays will be limited due to the required two lanes of traffic in both directions. Work will be performed at the discretion of the contractor.

The contractor will have the option of performing the same work allowed on weekends provided two lanes of traffic in both directions are provided in accordance with traffic control plans. J5P0872.



FINAL SECTION THRU SLAB

DETAILS SHOWING STAGED CONSTRUCTION

Detailed Sep. 2004
Checked Sep. 2004

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

Sheet No. 3 of 7

COLE COUNTY | A07222 | REV.

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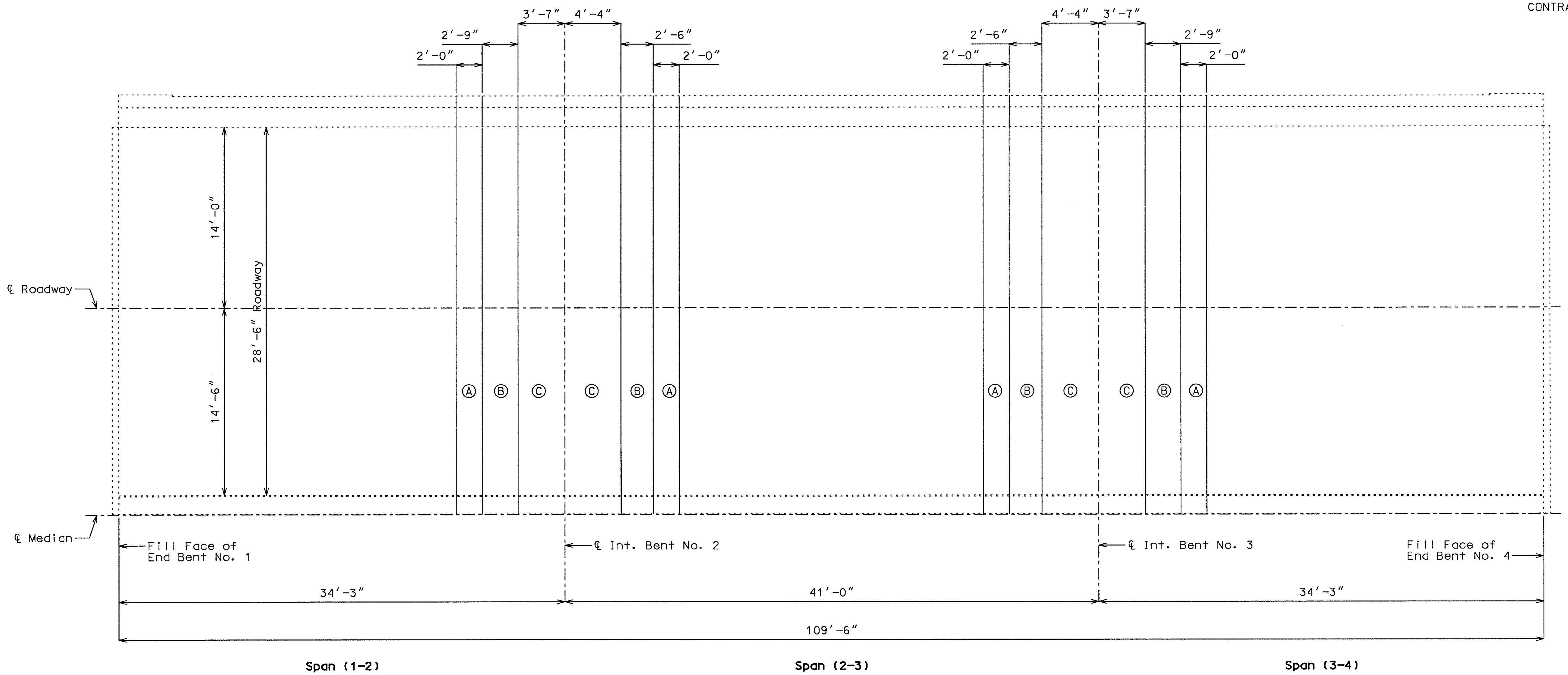
State	Proj. No.	Sheet No.
MO	J5P0873	B28

CONTRACT I.D. 050218-504



PLAN OF SLAB SHOWING REPAIR ZONES

Notes:

Any half-soling required in the areas designated as special repair zones shall be completed in alphabetical sequence. Any repair in the remainder of the bridge that is adjacent to Zone A and not designated as a special repair zone shall be completed prior to work in Zone A.

Removal and repair shall be completed in one special repair zone and concrete shall have attained a compressive strength of 3200 psi before work can be started in the next special repair zone. Before placing concrete in areas adjacent to areas of subsequent repair, the concrete shall be separated with a material such as polyethylene sheets to aid in removal of old concrete.

Zones with the same letter designation may be repaired at the same time.

If any single repair area does not exceed 4 square feet in size and the total repair within a special repair zone does not exceed 12 square feet, the special repair zone requirement does not apply for that zone. Any damage sustained to the void tube as a result of the contractor's operations shall be patched or replaced as required by the engineer at the contractor's expense.

An exposed void in the deck shall be patched as approved by the engineer in a manner that shall maintain the void area completely free of concrete. Cost of patching an exposed void will be considered completely covered by the contract unit price for Repairing Concrete Deck (Half-Soling).

Detailed Sep. 2004
Checked Sep. 2004

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

Sheet No. 4 of 7

COLE COUNTY | A07222 | REV.

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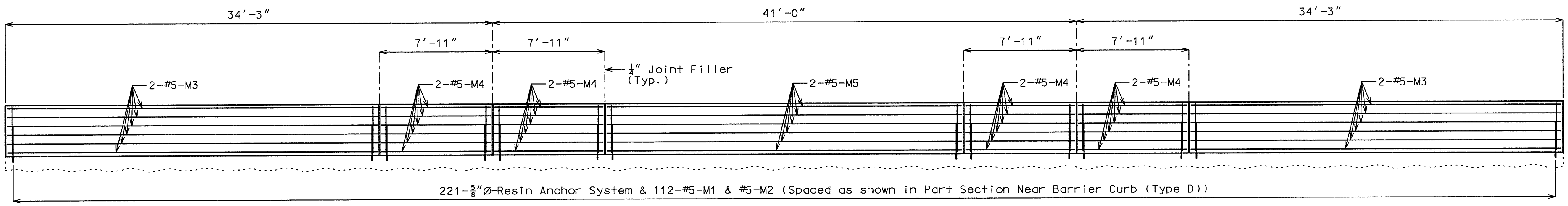
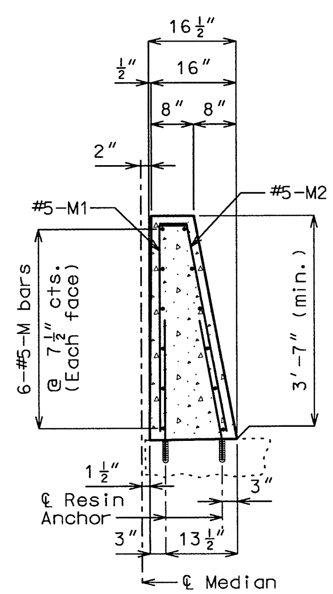
State	Proj. No.	Sheet No.
MO	J5P0873	B29

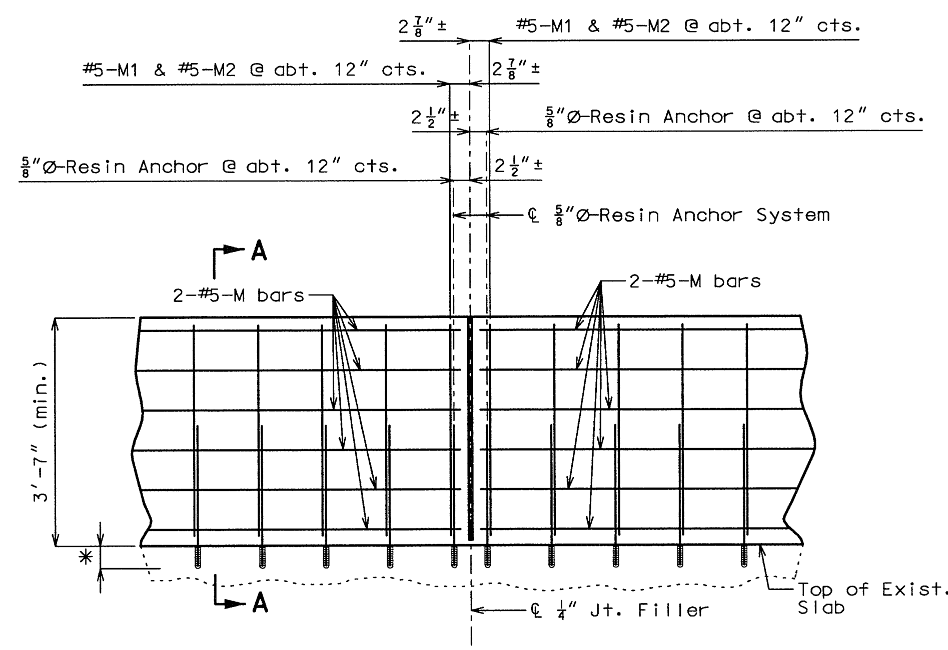
CONTRACT I.D. 050218-504



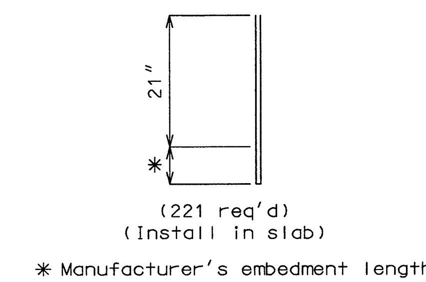
SECTION NEAR BARRIER CURB (TYPE D)



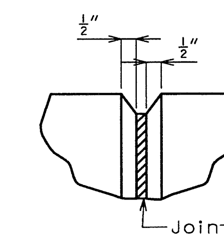
SECTION A-A



PART SECTION NEAR BARRIER CURB (TYPE D)



DETAIL OF RESIN ANCHORS



FILLED JOINT DETAIL

Notes:

All longitudinal dimensions shown are parallel to grade.

Concrete in barrier curb shall be Class B-1 with f'c = 4000 psi.

Measurement of barrier curb is to the nearest linear foot, measured at the gutter line from fill face to fill face.

All exposed edges of barrier curb shall have 1/2" radius or 3/8" bevel unless otherwise shown.

Payment for concrete, reinforcing steel, resin anchors, and any other work incidental to the barrier curb, complete in place, will be considered completely covered by the contract unit price for Barrier Curb (Type D).

All reinforcement shall be epoxy coated.

Cost of furnishing and installing the resin anchor system complete-in-place will be considered completely covered by the contract unit price for Barrier Curb (Type D).

The 5/8" diameter resin anchor systems shall have a minimum ultimate pullout strength of 15,500 lbs. in concrete with f'c = 4,000 psi.

An epoxy coated #5 Grade 60 reinforcing bar shall be substituted for the 5/8" Ø threaded rod.

DETAILS OF BARRIER CURB (TYPE D)

Detailed Sep. 2004
Checked Sep. 2004

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

Sheet No. 5 of 7

COLE COUNTY | A07222 | REV.

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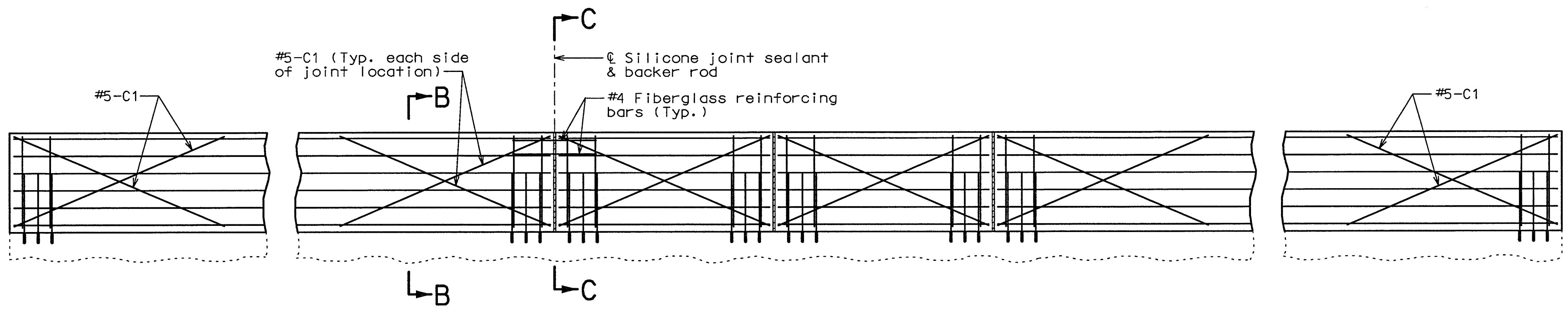
State	Proj. No.	Sheet No.
MO	J5P0873	B30

CONTRACT I.D. 050218-504



TYPICAL SECTION NEAR BARRIER CURB (TYPE D) AT SUPPORT LOCATIONS

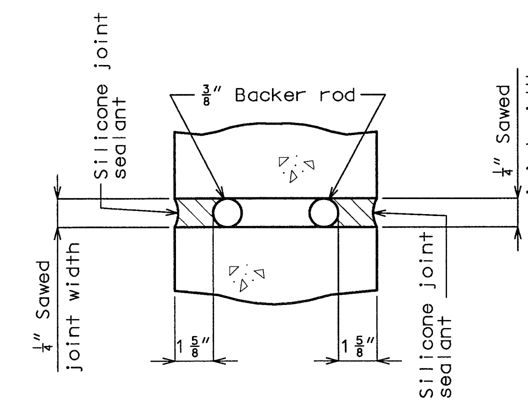
Notes:

Joint sealant and backer rods shall be used on all slip-form barrier curbs instead of joint filler and shall be in accordance with Sec 717 for silicone joint sealant for saw cut and formed joints.

Plastic waterstop shall not be used with slip-form option.

C Bars (Slip-form option only) shall be used in addition to cast-in-place conventional forming reinforcement for bridge barrier curb (Type D).

For Slip-Form option, all sides of the barrier curb (Type D) shall have a vertically broomed finish and the curb top shall have a tranversely broomed finish.



SECTION A-A

Note:

Cost of silicone joint sealant and backer rod complete-in-place will be considered completely covered by the contract unit price for Barrier Curb (Type D).

Notes:

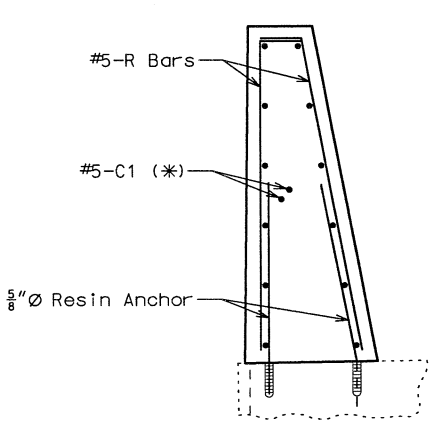
Top of barrier curb shall be built parallel to grade with barrier curb joints (except at end bents) normal to grade.

Payment for all concrete and reinforcement, complete-in-place, will be considered completely covered by the contract unit price for Barrier Curb (Type D) per linear foot.

Concrete in the barrier curb shall be Class B-1.

Measurement of barrier curb (Type D) is to the nearest linear foot for each structure, measured at gutterline from fill face to fill face.

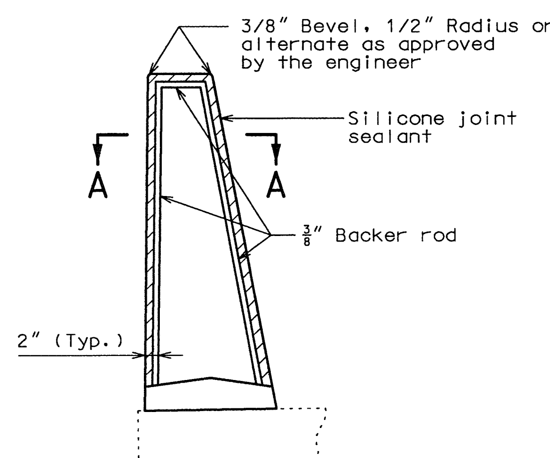
The curb shall be cured by application of Type 1-D or Type 2 Liquid Membrane-Forming Compound in accordance with Sec 1055. Scale prevention treatment will not be permitted.



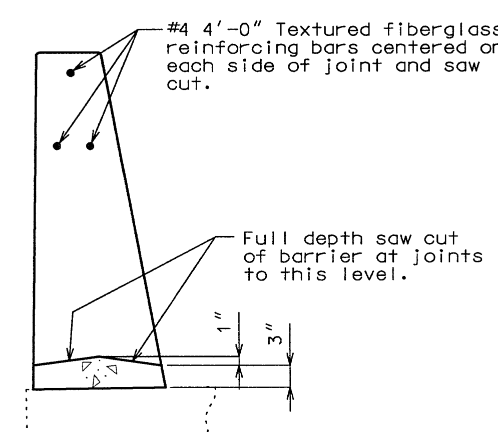
PART SECTION B-B

Note:

(✻) Each side of joint location.



SECTION THRU JOINT



PART SECTION C-C

OPTIONAL SLIP-FORM BRIDGE BARRIER CURB (TYPE D) barbill_i Feb. 2002

State	Proj. No.	Sheet No.
MO	J5P0873	B31

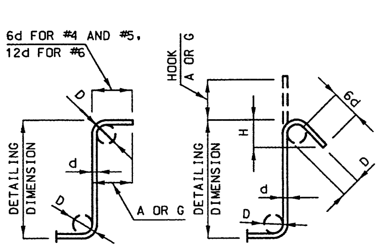
CONTRACT I.D. 050218-504

BILL OF REINFORCING STEEL

NO. REQ'D.	MARK NO. SIZE	MARK NO. MARK	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	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.
			MEDIAN CURB																
112	5	M1	MED. CURB	E	19	S				3 4.000	5.000						3 9	3 8	428
112	5	M2	MED. CURB	E	23	S				3 4.625	5.000				3 4.000	7.375	3 10	3 9	438
24	5	M3	MED. CURB	E	20					26 1.000							26 1	26 1	653
48	5	M4	MED. CURB	E	20					7 8.000							7 8	7 8	384
14	5	M5	MED. CURB	E	20					24 11.000							24 11	24 11	364
			SLIP FORM																
20	5	C1	SLIP FORM	E	20					8 4.000							8 4	8 4	174
			TOTALS																
	5			E															2441
			TOTAL																0
			TOTAL	E															2441

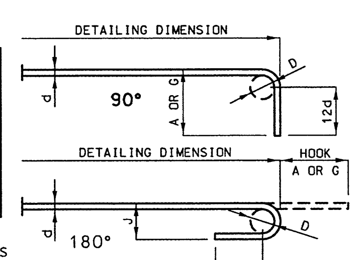
BILL OF REINFORCING STEEL

NO. REQ'D.	MARK NO. SIZE	MARK NO. MARK	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	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.



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"

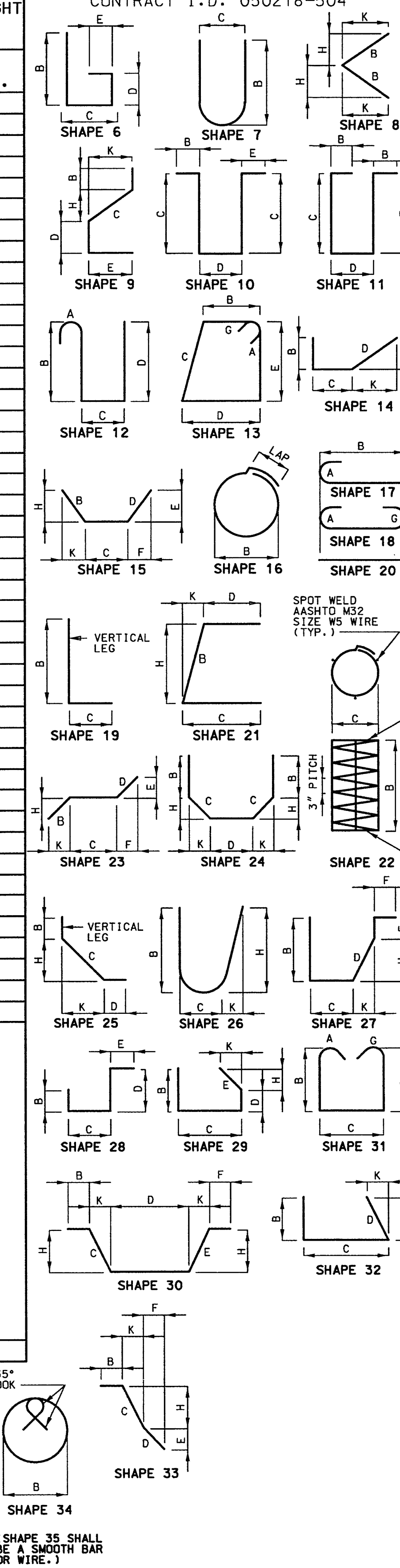
NOTE: UNLESS OTHERWISE NOTED DIAMETER "D" IS THE SAME FOR ALL BENDS AND HOOKS ON A BAR.

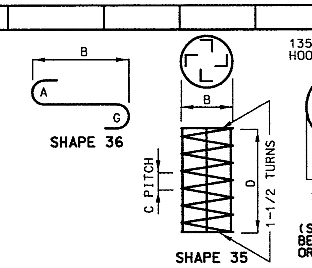


END HOOK DIMENSIONS				
		ALL GRADES		
BAR SIZE	D (IN.)	180° HOOKS A OR G	180° HOOKS J	90° HOOKS A OR G
#3	2-1/4"	5"	3"	6"
#4	3"	6"	4"	8"
#5	3-3/4"	7"	5"	10"
#6	4-1/2"	8"	6"	12"
#7	5-1/4"	10"	7"	14"
#8	6"	11"	8"	16"
#9	9-1/2"	15"	11-3/4"	19"
#10	10-3/4"	17"	13-1/4"	22"
#11	12"	19"	14-3/4"	2'-0"
#14	18-1/4"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

TWO ADDITIONAL #5-M5 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 FABRICATOR'S 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

Detailed Sep. 2004
Checked Sep. 2004

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

Sheet No. 7 of 7

COLE COUNTY

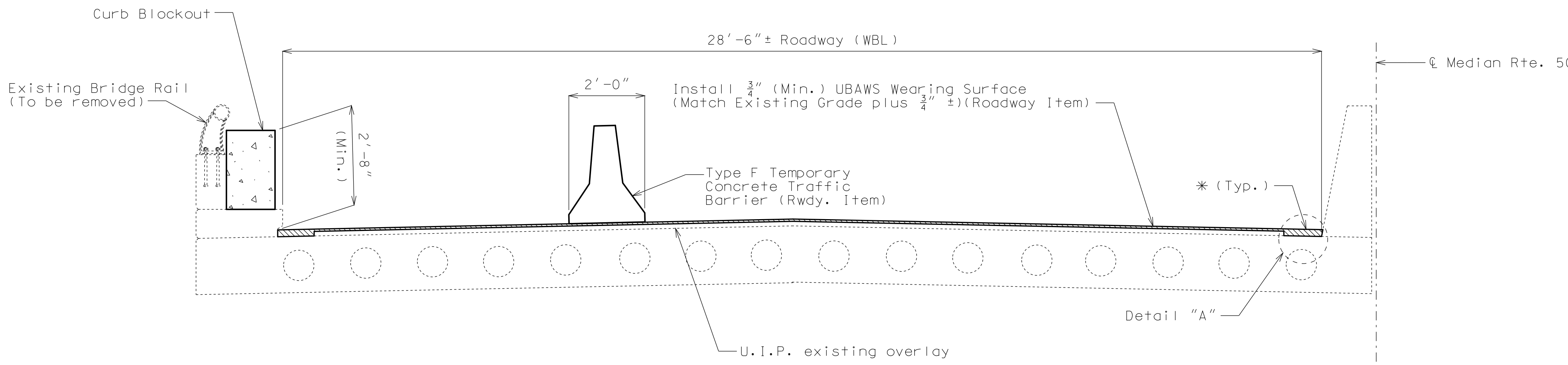
A07222

REV.

J:\2005\J5P0872 & J5P0873\Final Plans\873\a07222FinalPlans\a07222_007.dgn 09:50:58 AM 10/17/2005

U.I.P. AND REHABILITATE EXISTING (33'-41'-33') CONTINUOUS VOIDED SLAB SPANS

SEC/SUR 17	TWP 44N	RGE 11W



TYPICAL SECTION THRU EXISTING DECK

GENERAL NOTES:

Design Specifications:

2002 AASHTO LFD (17th Ed.) Standard Specifications
Bridge Deck Rating = 7

Miscellaneous:

Outline of old work is indicated by light dashed lines. Heavy lines indicate new work.

Contractor shall verify all dimensions in field before ordering new material.

Roadway surfacing adjacent to bridge ends shall match new bridge wearing surface (Roadway Item).

In order to maintain grade and a minimum thickness of overlay as shown on plans it may be necessary to use additional quantities of overlay at various locations throughout the structure. The cost of furnishing and installing the overlay will be considered completely covered in the contract unit price, including all additional labor, materials or equipment for variations in thickness of overlay.

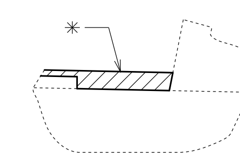
The area exposed by the removal of concrete and not covered with new concrete shall be coated with an approved qualified special mortar in accordance with Sec 704.

Traffic Handling:

Traffic to be maintained on structure during construction. See roadway plans for traffic controls.

Estimated Quantities

Item		Total
Curb Blockout	lin. foot	109



DETAIL "A"

∗ ¾" UBAWS shall be filled in next to existing curbs to maintain 2'-8" (Min.).

STATE OF MISSOURI
ANOUSONE AROUNPRADITH
NUMBER PE-29317
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

DATE PREPARED	9/11/2015
ROUTE 50	STATE MO
DISTRICT BR	SHEET NO. 1
COUNTY	COLE
JOB NO.	J5P3014
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	A07223

DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

REPAIRS TO BRIDGE: RTE. 50 (WBL) OVER VETTERS STREET

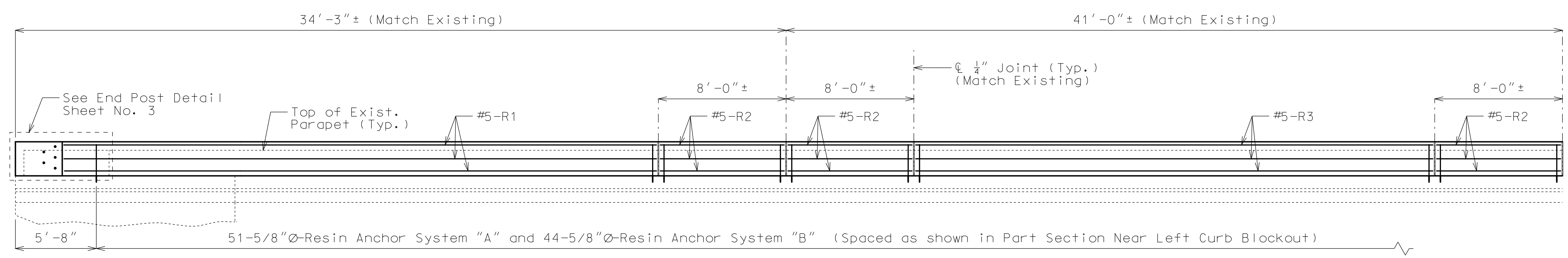
ROUTE 50 FROM ROUTE M TO ROUTE 54
ABOUT 6.7 MILES WEST OF ROUTE M

BEGINNING STATION 100+84.40± (MATCH EXISTING)

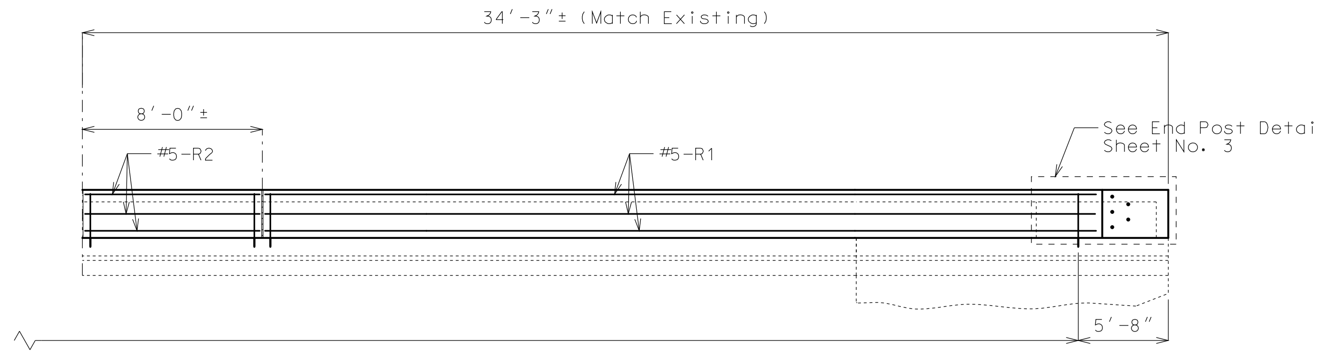
Detailed Aug. 2015
Checked Aug. 2015

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

STD. 617.20



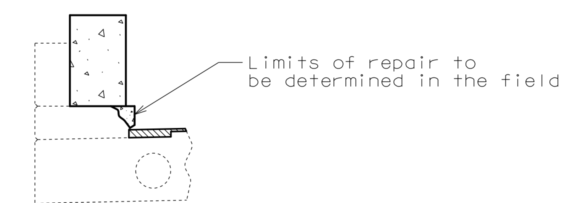
Span (1-2) **Span (2-3)**



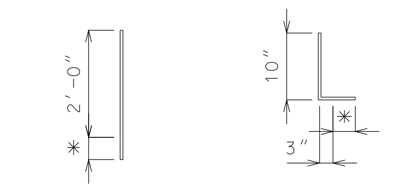
Span (3-4)

SECTION NEAR LEFT CURB BLOCKOUT

Note: Longitudinal dimensions shown are along grade and are taken at top and ℄ of Parapet.



PART SECTION SHOWING CURB REPAIR

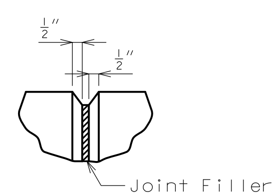


RESIN ANCHOR SYSTEM "A" (67 req'd) (Install in curb)

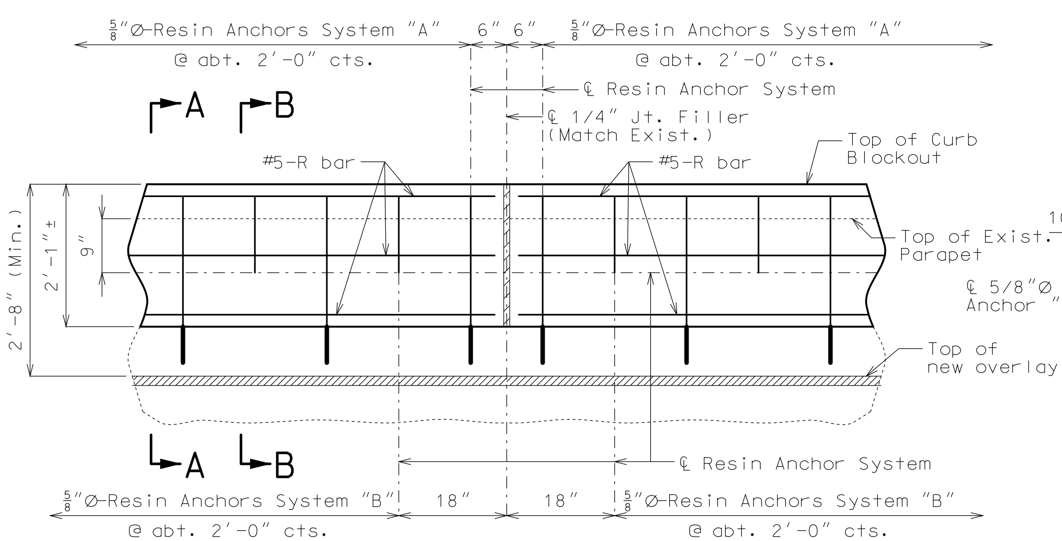
RESIN ANCHOR SYSTEM "B" (44 req'd) (Install in parapet)

* Use manufacturer's embedment length. (5" minimum embedment)

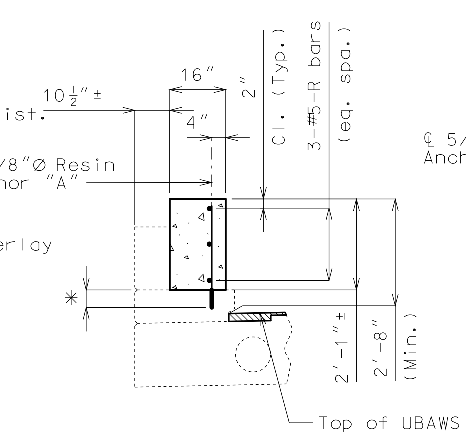
DETAILS OF RESIN ANCHORS



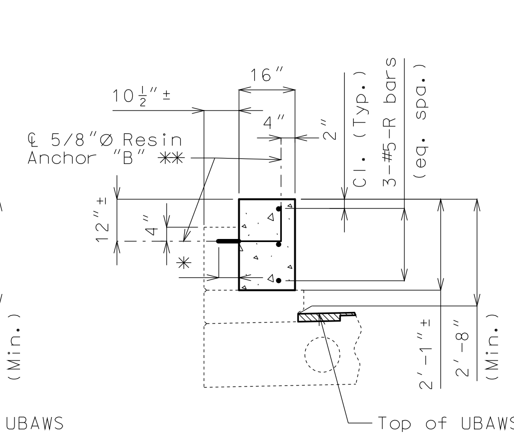
FILLED JOINT DETAIL



PART SECTION NEAR LEFT CURB BLOCKOUT



SECTION A-A



SECTION B-B

Notes:

Curb repair shall be in accordance with Sec 704 and will be considered completely covered by the contract unit price for Curb Blockout. Curb repair can be poured monolithically with the curb blockout.

Concrete in curb blockout shall be Class B-1 with f'c = 4000 psi.

Measurement of curb blockout is to the nearest linear foot, measured at the top outside edge of parapet from end of slab to end of slab.

All exposed edges of curb blockout shall have 1/2" radius or 3/8" bevel unless otherwise shown.

Payment for concrete, reinforcing steel, resin anchors, and any other work incidental to the curb blockout, complete in place, will be included in the contract unit price for Curb Blockout per linear foot.

Cost of any concrete curb or parapet repair will be included in the contract unit price for Curb Blockout.

All reinforcement shall be epoxy coated.

Shift resin anchors where necessary to clear existing anchor bolts for bridge rail, miss curb outlets (if present) and clear existing reinforcement.

Use a minimum lap of 2'-11" for #5 horizontal curb blockout bars.

Concrete traffic barrier delineators shall be placed on top of the curb blockout similarly as shown on Missouri Standard Plans 617.10 and in accordance with Sec 617. Delineators shall have retroreflective sheeting on side facing oncoming traffic only. Concrete traffic barrier delineators will be considered completely covered by the contract unit price for "Curb Blockout".

The contractor shall use one of the qualified resin anchor systems in accordance with Sec 1039.

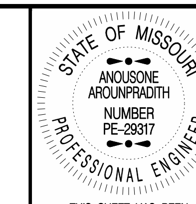
The minimum embedment depth in concrete with f'c = 4,000 psi for the resin anchor system shall be that required to meet the minimum ultimate pullout strength in accordance with Sec 1039 but shall not be less than 5".

An epoxy coated #5 Grade 60 reinforcing bar shall be substituted for the 5/8"Ø threaded rod.

DETAILS OF LEFT CURB BLOCKOUT

Detailed Aug. 2015
Checked Aug. 2015

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



THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED	9/15/2015
ROUTE 50	STATE MO
DISTRICT BR	SHEET NO. 2
COUNTY	COLE
JOB NO.	J5P3014
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	A07223

DESCRIPTION | DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

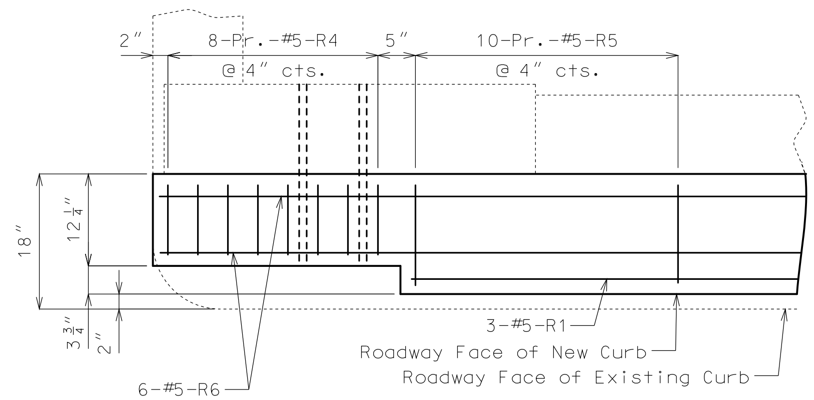
Notes:

For Details of Resin Anchors, see Sheet No. 2.

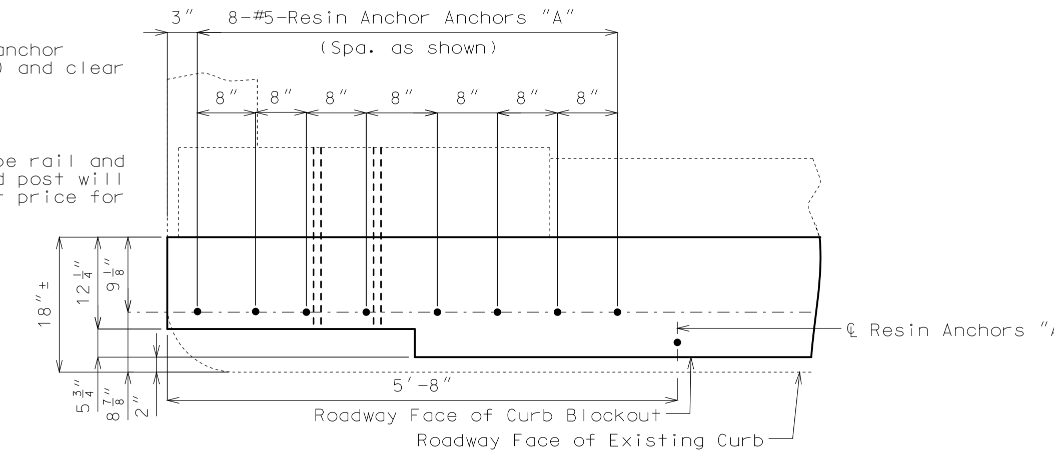
Shift resin anchors where necessary to clear exist. anchor bolts for bridge rail, miss curb outlets (if present) and clear existing reinforcement.

Bridge rail not shown, for clarity.

Payment for partial removal of end post concrete, tube rail and drilling guard rail attachment hole thru existing end post will be considered completely covered by the contract unit price for Curb Blockout.

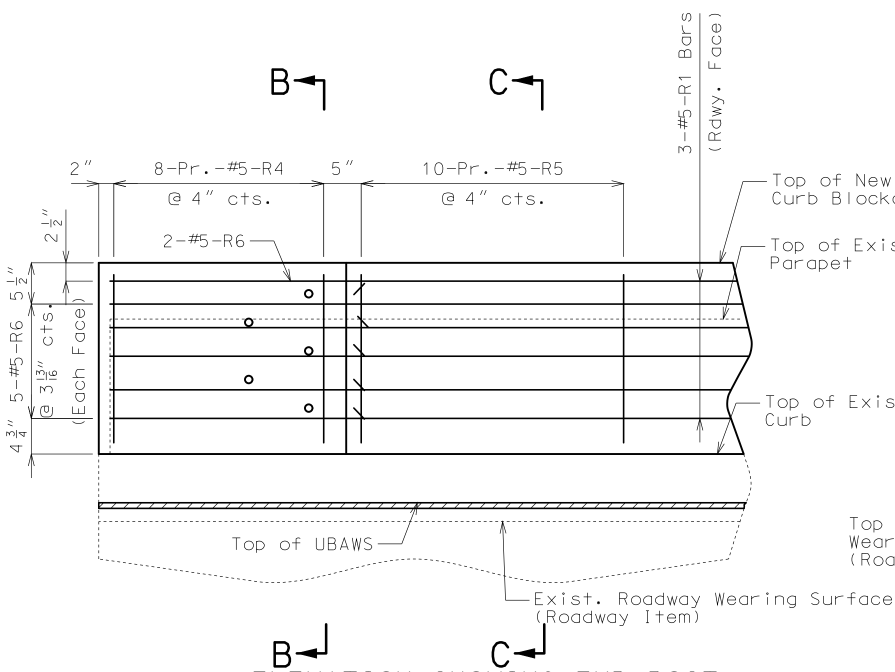


PLAN SHOWING END POST REINFORCEMENT

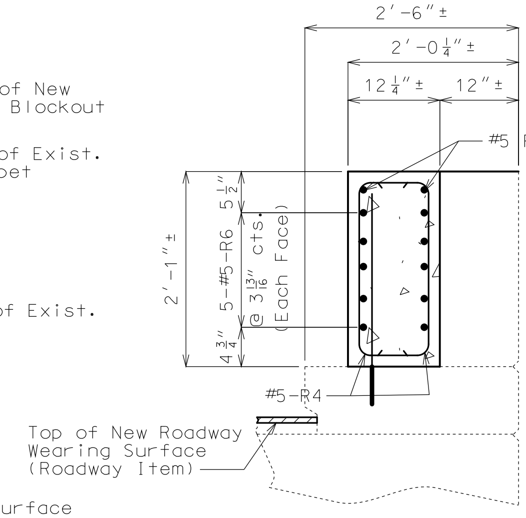


PLAN SHOWING END POST RESIN ANCHOR SYSTEMS AND DIMENSIONS

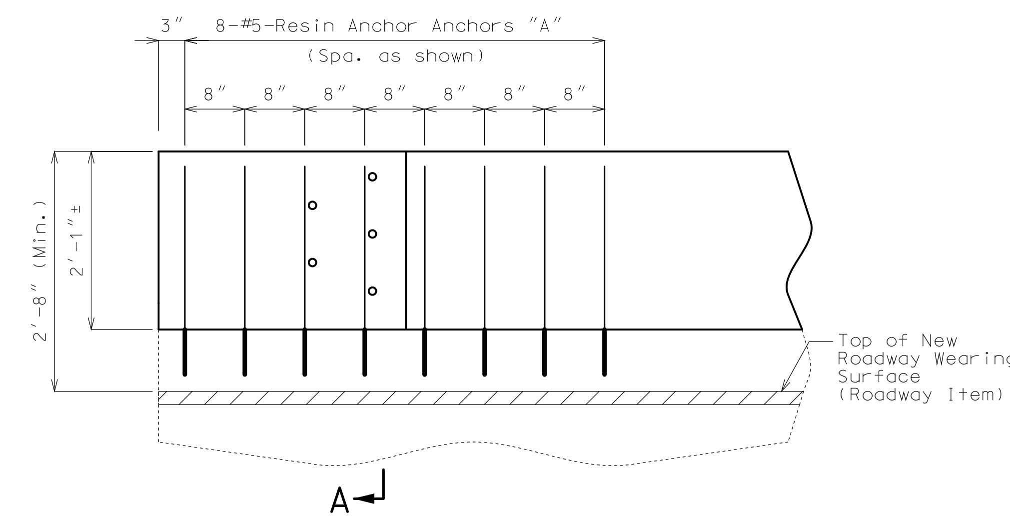
A



ELEVATION SHOWING END POST REINFORCEMENT

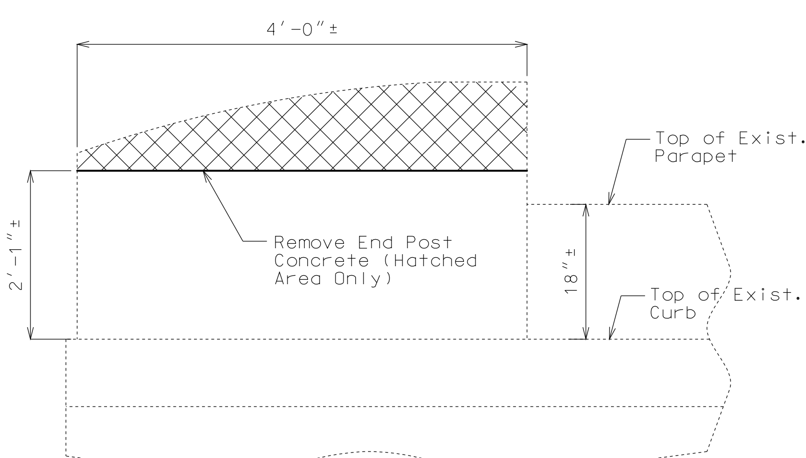


SECTION B-B



A

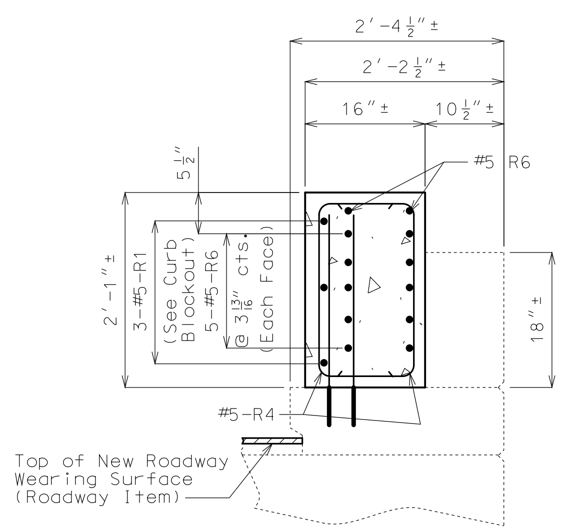
ELEVATION SHOWING END POST RESIN ANCHOR SYSTEMS AND DIMENSIONS



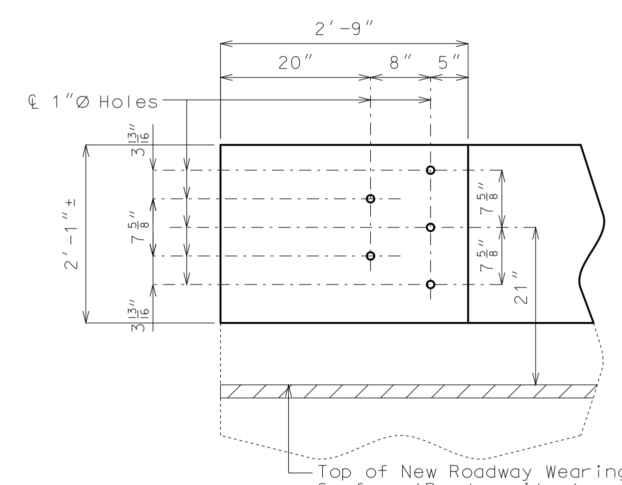
ELEVATION OF EXISTING END POST SHOWING PARTIAL CONCRETE REMOVAL

Note:

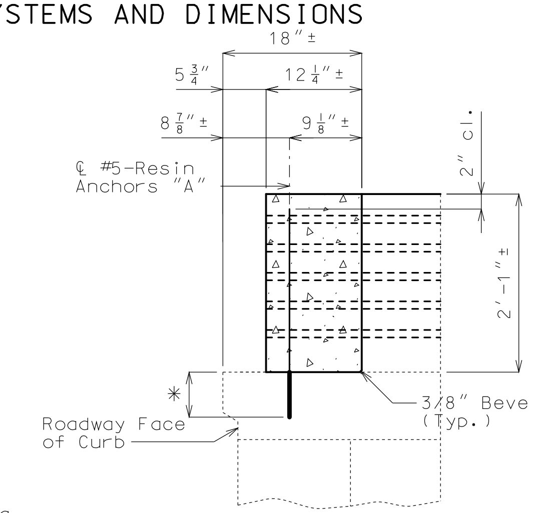
Cost of partially removing existing end posts will be considered completely covered by the contract unit price for Curb Blockout (linear foot).



SECTION C-C



DETAILS OF GUARD RAIL ATTACHMENT



SECTION A-A

* Manufacturer's recommended embedment length. (5" minimum embedment)

DETAILS OF LEFT END POST AT END BENTS NO. 1 & 4

Detailed Aug. 2015
Checked Aug. 2015

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

STATE OF MISSOURI
ANOUSONE AROUNPRADITH
NUMBER PE-29317
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED	9/11/2015
ROUTE	50
STATE	MO
DISTRICT	BR
SHEET NO.	3
COUNTY	COLE
JOB NO.	J5P3014
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	A07223

DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

MoDOT

105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

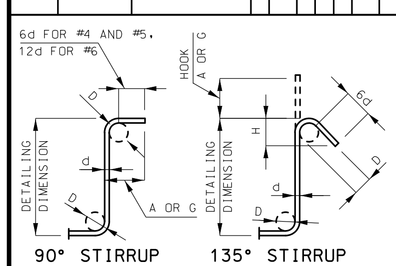
IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

BILL OF REINFORCING STEEL

NO. REQ'D.	SIZE	MARK	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	B FT. IN.	C FT. IN.	D FT. IN.	E FT. IN.	F FT. IN.	H FT. IN.	K FT. IN.	NOMINAL LENGTH FT.	NOMINAL LENGTH IN.	ACTUAL LENGTH FT.	ACTUAL LENGTH IN.	WEIGHT LBS.
			CURB																		
			BLOCKOUT																		
6	5	R1	BLOCKOUT	E	20					23 3.000							23	3	23	3	145
12	5	R2	BLOCKOUT	E	20					7 9.000							7	9	7	9	97
3	5	R3	BLOCKOUT	E	20					24 9.000							24	9	24	9	77
32	5	R4	END POST	E	10	S					9.250	23.000					3	6	3	3	108
40	5	R5	END POST	E	10	S					13.000	23.000					4	1	3	11	163
24	5	R6	END POST	E	20					6 0.000							6	0	6	0	150
			TOTALS																		
	5			E																	740
			TOTAL																		0
			TOTAL	E																	740
			Slab on Girder																		
	5			E																	740
			TOTAL																		740

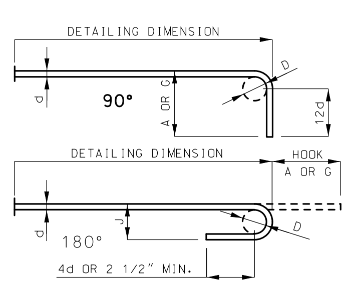
BILL OF REINFORCING STEEL

NO. REQ'D.	SIZE	MARK	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	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.



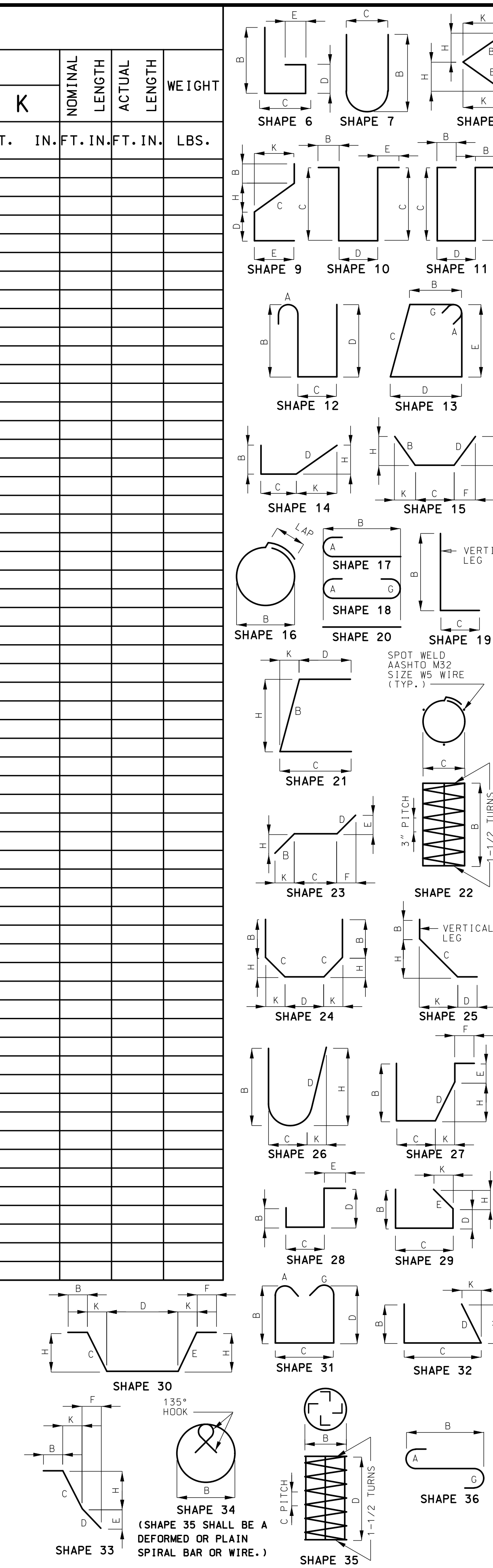
STIRRUP HOOK DIMENSIONS				
GRADES 40 - 50 - 60 KSI				
BAR SIZE	D (IN.)	90° HOOK	135° HOOK	
		HOOK A OR G	HOOK A OR G	APPROX. H
#4	2″	4 1/2″	4 1/2″	3″
#5	2 1/2″	6″	5 1/2″	3 3/4″
#6	4 1/2″	12″	8″	4 1/2″

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		90° HOOKS
		A OR G	J	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:
ALL STANDARD HOOKS AND BENDS OTHER THAN 180 DEGREE ARE TO BE BENT WITH SAME PROCEDURE AS FOR 90 DEGREE STANDARD 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.



BENDING DIAGRAMS

STATE OF MISSOURI
ANOUSONE AROUNPRADITH
NUMBER PE-29317
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 9/11/2015	
ROUTE 50	STATE MO
DISTRICT BR	SHEET NO. 4
COUNTY COLE	
JOB NO. J5P3014	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO. A07223	

DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

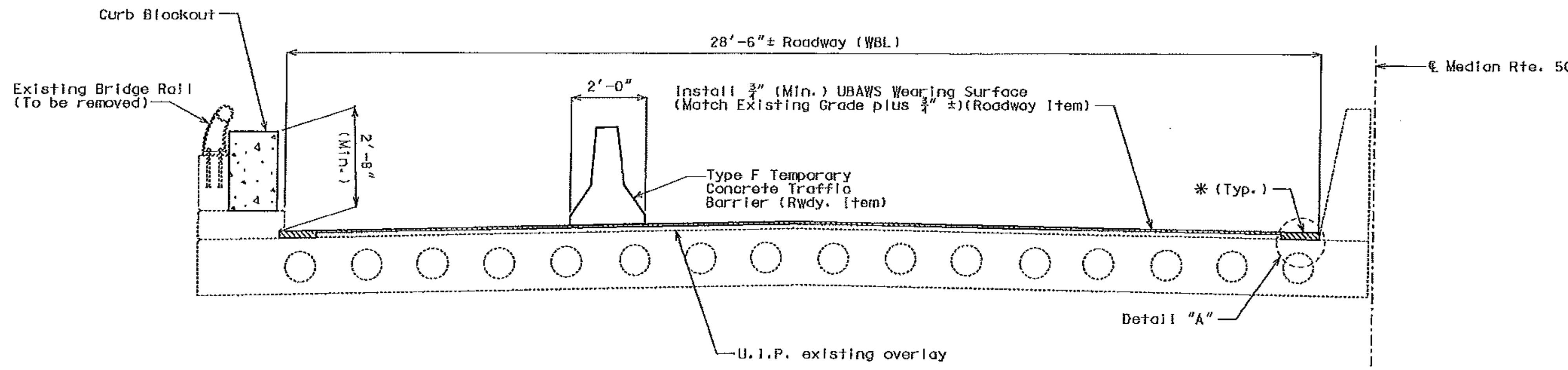
Detailed Aug. 2015
Checked Aug. 2015

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

U.I.P. AND REHABILITATE EXISTING (33'-41'-33') CONTINUOUS VOIDED SLAB SPANS

SEC/SUR 17	TWP 44N	RGE 11W

FINAL PLANS



TYPICAL SECTION THRU EXISTING DECK

GENERAL NOTES:

Design Specifications:

2002 AASHTO LFD (17th Ed.) Standard Specifications
Bridge Deck Rating = 7

Miscellaneous:

Outline of old work is indicated by light dashed lines. Heavy lines indicate new work.

Contractor shall verify all dimensions in field before ordering new material.

Roadway surfacing adjacent to bridge ends shall match new bridge wearing surface (Roadway Item).

In order to maintain grade and a minimum thickness of overlay as shown on plans it may be necessary to use additional quantities of overlay at various locations throughout the structure. The cost of furnishing and installing the overlay will be considered completely covered in the contract unit price, including all additional labor, materials or equipment for variations in thickness of overlay.

The area exposed by the removal of concrete and not covered with new concrete shall be coated with an approved qualified special mortar in accordance with Sec 704.

Traffic Handling:

Traffic to be maintained on structure during construction. See roadway plans for traffic controls.

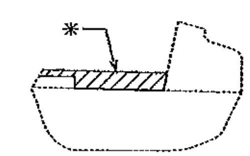
THESE PLANS ACCURATELY DEPICT THE CONFIGURATION AND LOCATION

OF THE ROADWAY AND ALL APPURTENANCE FEATURES, INCLUDING MODIFICATION

DESIGNATED OR AUTHORIZED BY THE ENGINEER OF REORD.

SIGNATURE ______________________ DATE________________

Estimated Quantities		
Item		Total
Curb Blockout	lin. foot	109



DETAIL "A"

✻ 3/4" UBAWS shall be filled in next to existing curbs to maintain 2'-8" (Min.).

STATE OF MISSOURI
AKOUSONE AKOUNPRAXITH
NUMBER PE-29317
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED	
9/11/2015	
ROUTE 50	STATE MO
DISTRICT BR	SHEET NO. 1
COUNTY	COLE
JOB NO.	J5P3014
CONTRACT ID.	151120-D04
PROJECT NO.	FAF 50-2(92)
BRIDGE NO.	A07223

DESCRIPTION

DATE

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)
MoDOT

REPAIRS TO BRIDGE: RTE. 50 (WBL) OVER VETTERS STREET

ROUTE 50 FROM ROUTE M TO ROUTE 54
ABOUT 6.7 MILES WEST OF ROUTE M

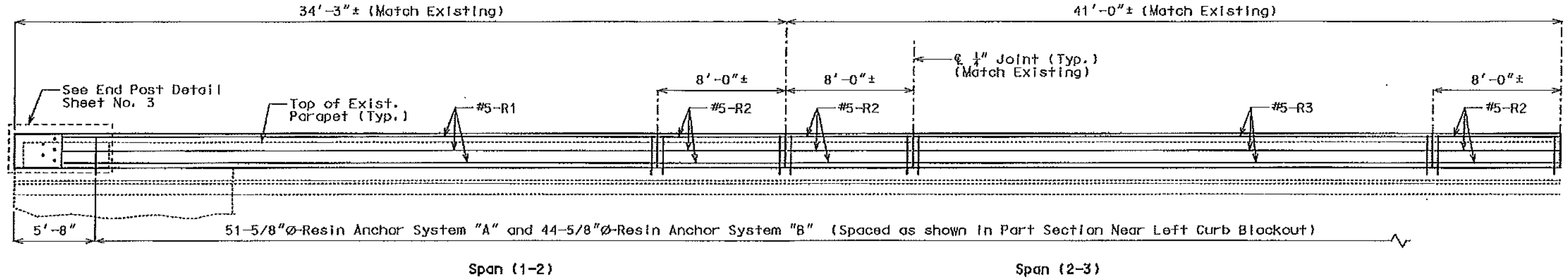
BEGINNING STATION 100+84.40± (MATCH EXISTING)

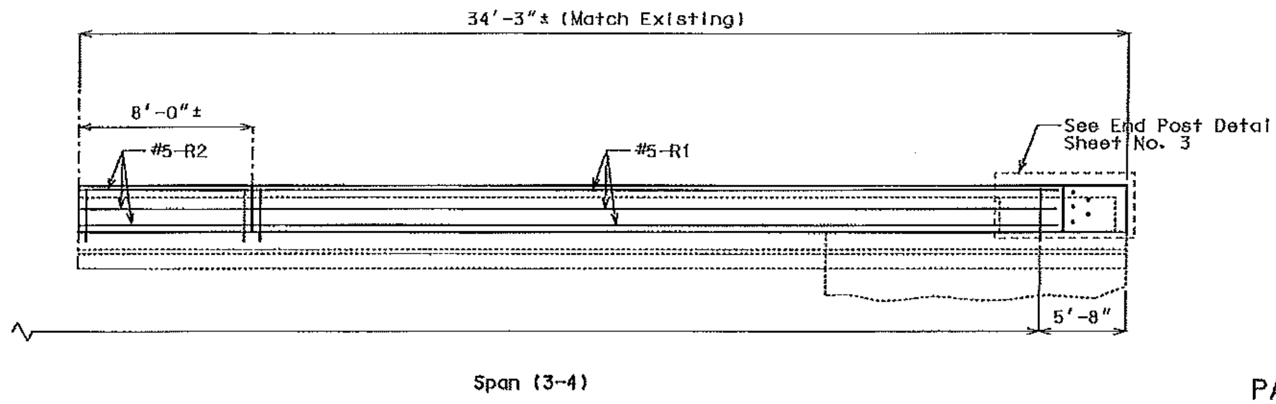
Detailed Aug. 2015
Checked Aug. 2015

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

STD. 617.20

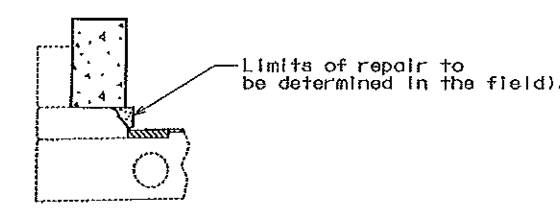
FINAL PLANS



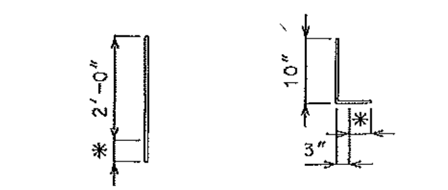


SECTION NEAR LEFT CURB BLOCKOUT

Note: Longitudinal dimensions shown are along grade and are taken at top and ℄ of Parapet.



PART SECTION SHOWING CURB REPAIR

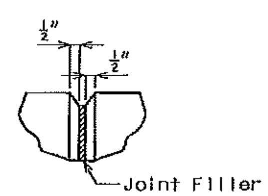


RESIN ANCHOR SYSTEM "A" (67 req'd) (Install in curb)

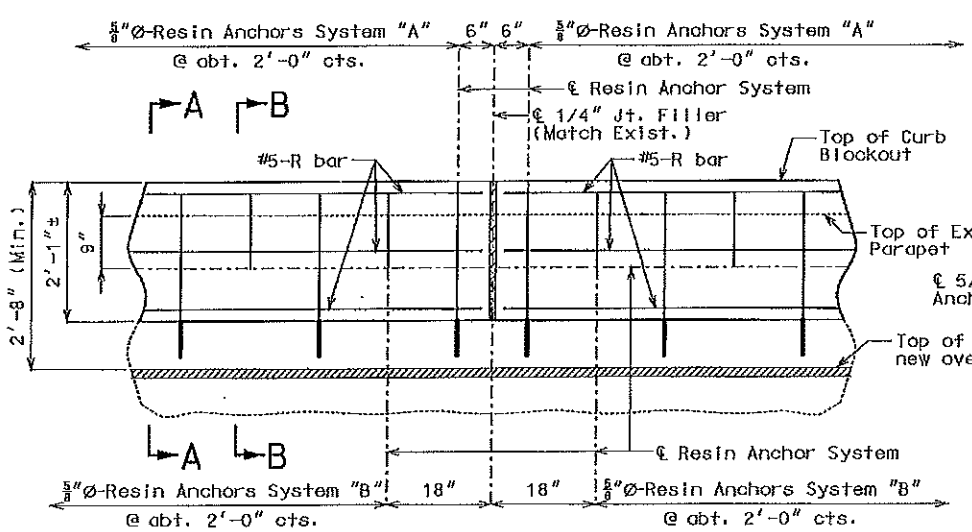
RESIN ANCHOR SYSTEM "B" (44 req'd) (Install in parapet)

* Use manufacturer's embedment length. (5" minimum embedment)

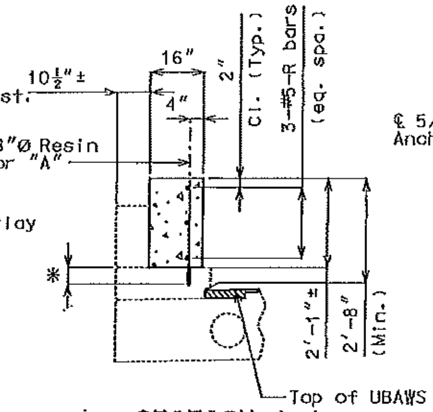
DETAILS OF RESIN ANCHORS



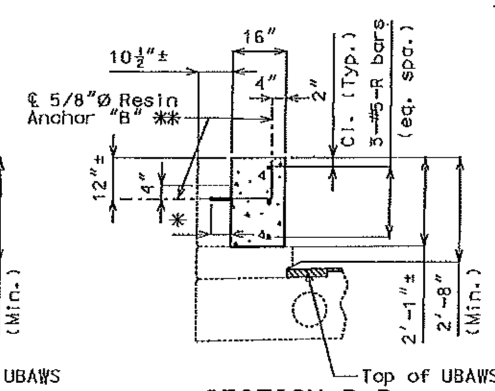
FILLED JOINT DETAIL



PART SECTION NEAR LEFT CURB BLOCKOUT



SECTION A-A



SECTION B-B

Notes:

Curb repair shall be in accordance with Sec 704 and will be considered completely covered by the contract unit price for Curb Blockout. Curb repair can be poured monolithically with the curb blockout.

Concrete in curb blockout shall be Class B-1 with f'c = 4000 psi.

Measurement of curb blockout is to the nearest linear foot, measured at the top outside edge of parapet from end of slab to end of slab.

All exposed edges of curb blockout shall have 1/2" radius or 3/8" bevel unless otherwise shown.

Payment for concrete, reinforcing steel, resin anchors, and any other work incidental to the curb blockout, complete in place, will be included in the contract unit price for Curb Blockout per linear foot.

Cost of any concrete curb or parapet repair will be included in the contract unit price for Curb Blockout.

All reinforcement shall be epoxy coated.

Shift resin anchors where necessary to clear existing anchor bolts for bridge rail, miss curb outlets (if present) and clear existing reinforcement.

Use a minimum lap of 2'-11" for #5 horizontal curb blockout bars.

Concrete traffic barrier delineators shall be placed on top of the curb blockout similarly as shown on Missouri Standard Plans 617.10 and in accordance with Sec 617. Delineators shall have retroreflective sheeting on side facing oncoming traffic only. Concrete traffic barrier delineators will be considered completely covered by the contract unit price for "Curb Blockout".

The contractor shall use one of the qualified resin anchor systems in accordance with Sec 1039.

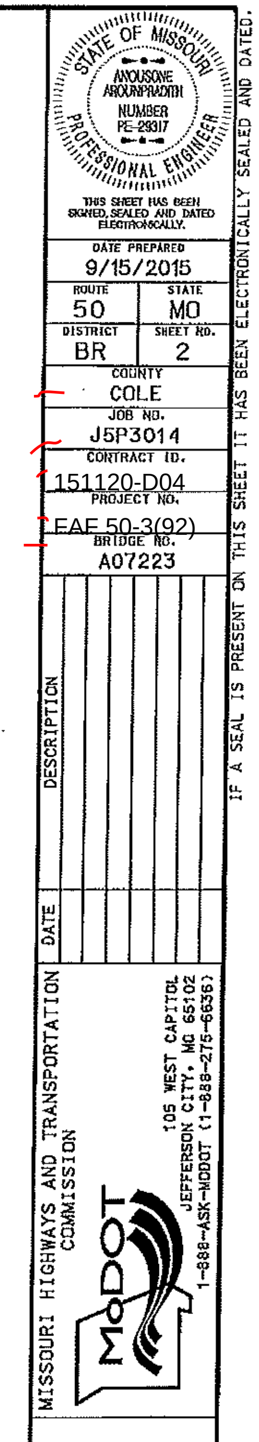
The minimum embedment depth in concrete with f'c = 4,000 psi for the resin anchor system shall be that required to meet the minimum ultimate pullout strength in accordance with Sec 1039 but shall not be less than 5".

An epoxy coated #5 Grade 60 reinforcing bar shall be substituted for the 5/8"Ø threaded rod.

DETAILS OF LEFT CURB BLOCKOUT

Detailed Aug. 2015
Checked Aug. 2015

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



FINAL PLANS

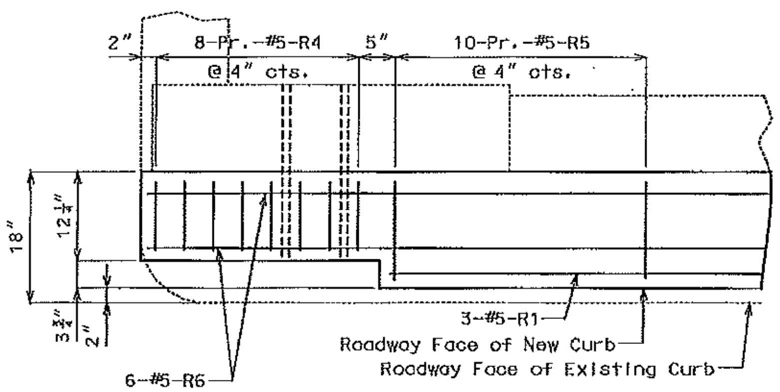
Notes:

For Details of Resin Anchors, see Sheet No. 2.

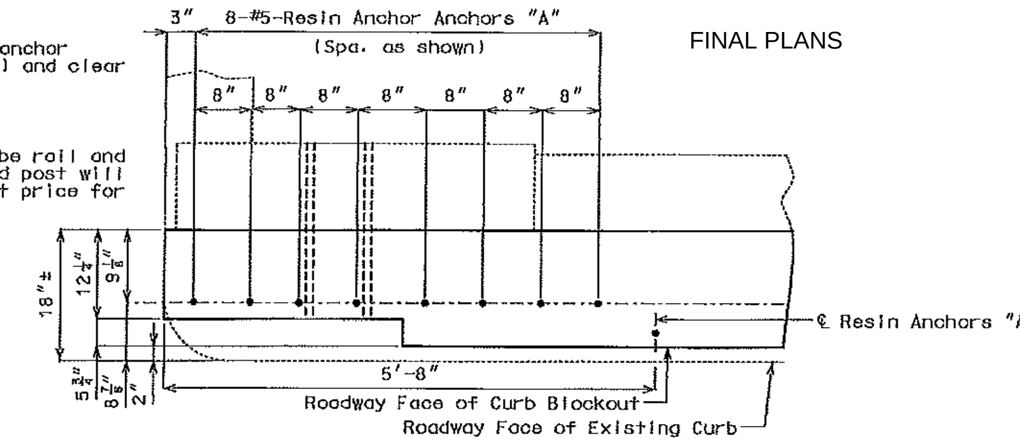
Shift resin anchors where necessary to clear exist. anchor bolts for bridge rail, miss curb outlets (if present) and clear existing reinforcement.

Bridge rail not shown, for clarity.

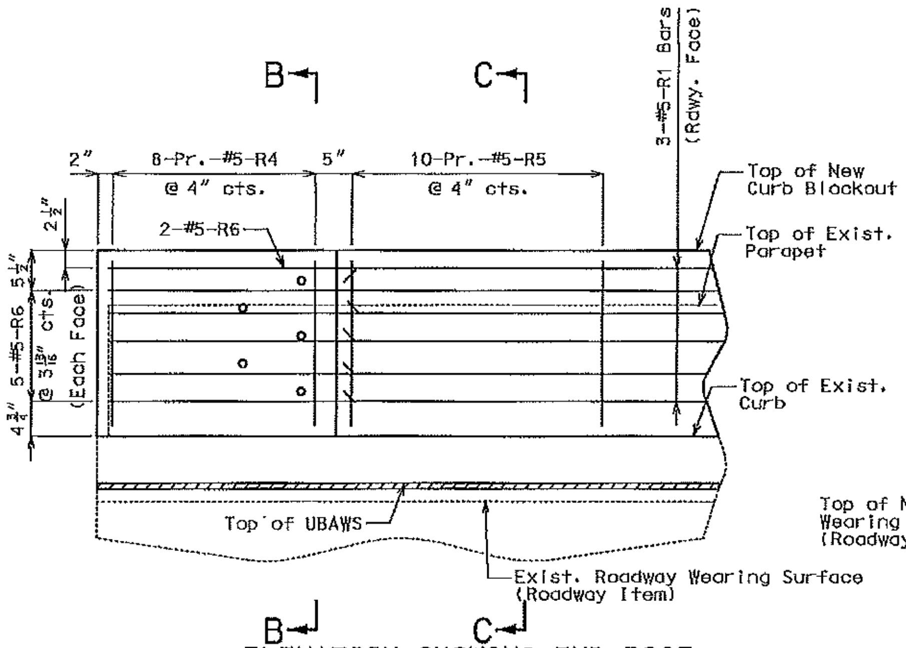
Payment for partial removal of end post concrete, tube rail and drilling guard rail attachment hole thru existing end post will be considered completely covered by the contract unit price for Curb Blockout.



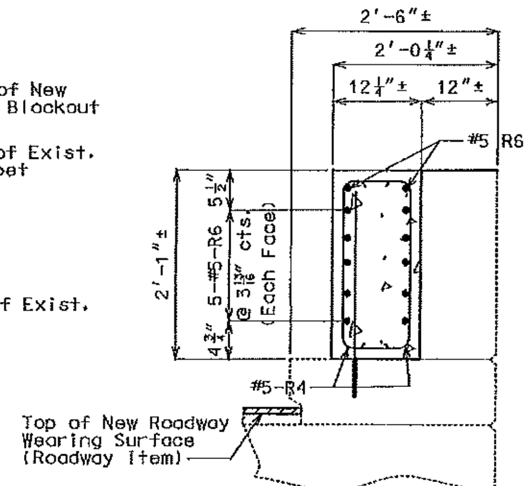
PLAN SHOWING END POST REINFORCEMENT



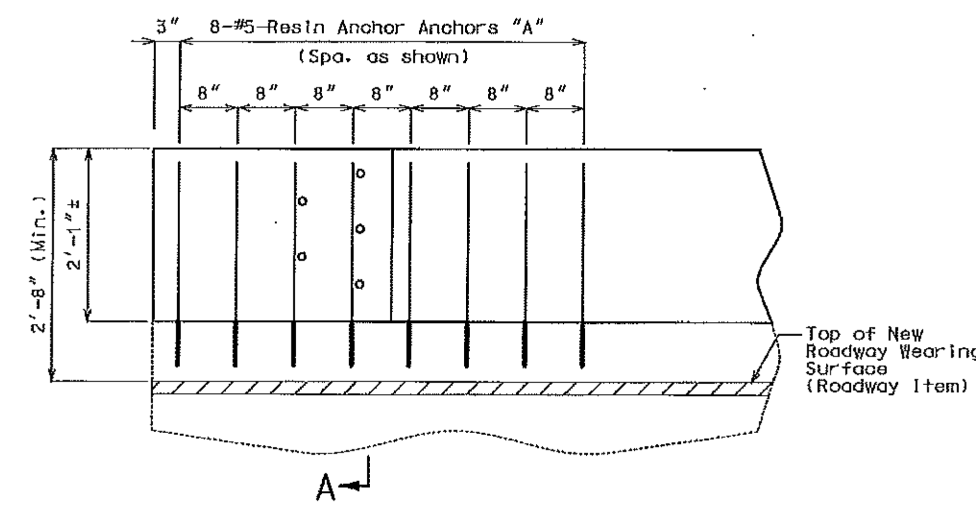
PLAN SHOWING END POST RESIN ANCHOR SYSTEMS AND DIMENSIONS



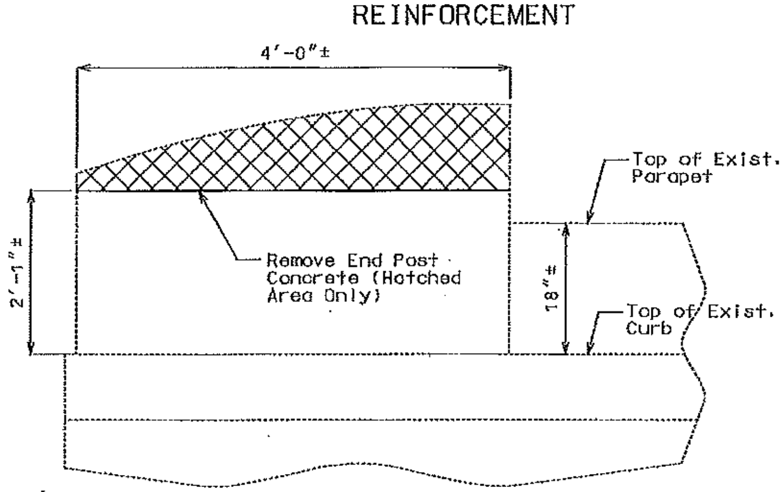
ELEVATION SHOWING END POST REINFORCEMENT



SECTION B-B



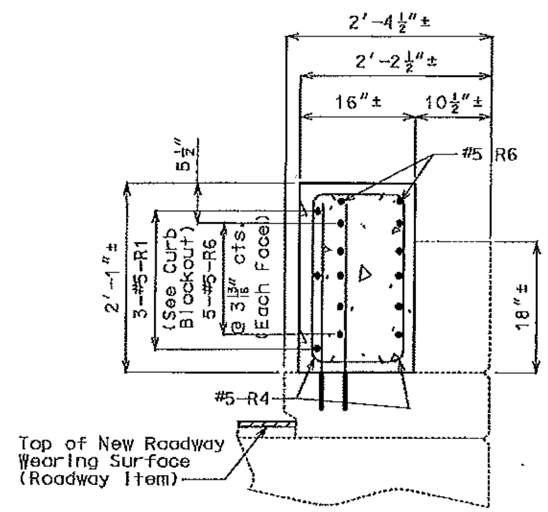
ELEVATION SHOWING END POST RESIN ANCHOR SYSTEMS AND DIMENSIONS



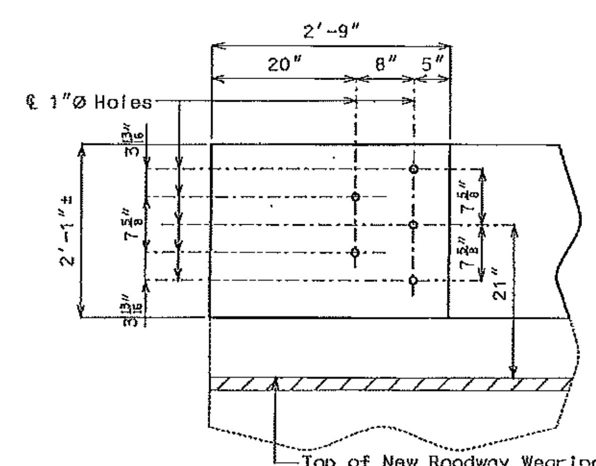
ELEVATION OF EXISTING END POST SHOWING PARTIAL CONCRETE REMOVAL

Note:

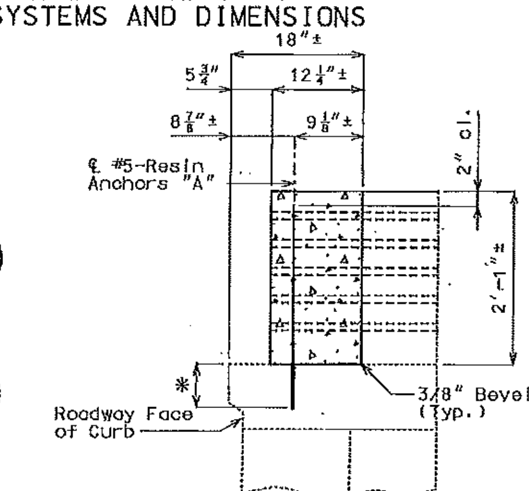
Cost of partially removing existing end posts will be considered completely covered by the contract unit price for Curb Blockout (linear foot).



SECTION C-C



DETAILS OF GUARD RAIL ATTACHMENT



SECTION A-A

* Manufacturer's recommended embedment length. (5" minimum embedment)

DETAILS OF LEFT END POST AT END BENTS NO. 1 & 4

Detailed Aug. 2015
Checked Aug. 2015

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

STATE OF MISSOURI
AKOUSONE AROUNRADITH
NUMBER PE-29317
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED	9/11/2015
ROUTE 50	STATE MO
DISTRICT BR	SHEET NO. 3
COUNTY	COLE
JOB NO.	J5P3014
CONTRACT ID.	151120-D04
PROJECT NO.	FAE 50-3 (92)
BRIDGE NO.	A07223

DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

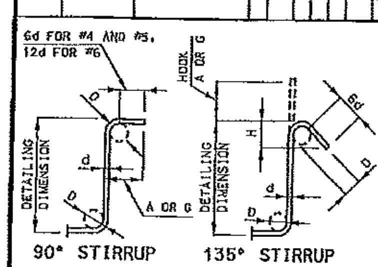
IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

BILL OF REINFORCING STEEL

NO. REQ'D.	SIZE	MARK	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	B FT.	B IN.	C FT.	C IN.	D FT.	D IN.	E FT.	E IN.	F FT.	F IN.	H FT.	H IN.	K FT.	K IN.	NOMINAL LENGTH FT.	NOMINAL LENGTH IN.	ACTUAL LENGTH FT.	ACTUAL LENGTH IN.	WEIGHT LBS.
			CURB																									
			BLOCKOUT																									
6	5	R1	BLOCKOUT	E	20					23	3.000													23	3	23	3	145
12	5	R2	BLOCKOUT	E	20					7	9.000													7	9	7	9	97
3	5	R3	BLOCKOUT	E	20					24	9.000													24	9	24	9	77
32	5	R4	END POST	E	10	S							9.250		23.000									3	6	3	3	108
40	5	R5	END POST	E	10	S							13.000		23.000									4	1	3	11	163
24	5	R6	END POST	E	20					6	0.000													6	0	6	0	150
			TOTALS																									
	5			E																								
			TOTAL																									740
			TOTAL	E																								0
																												740
			Slab on Girder																									
	5			E																								
			TOTAL																									740
																												740

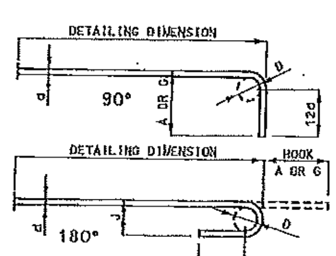
BILL OF REINFORCING STEEL

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



STIRRUP HOOK DIMENSIONS				
GRADES 40 - 50 - 60 KSI				
BAR SIZE	D (IN.)	90° HOOK	135° HOOK	
		HOOK A OR G	HOOK A OR G	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				
		ALL GRADES		
BAR SIZE	D (IN.)	180° HOOKS		90° HOOKS
		A OR G	J	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:
ALL STANDARD HOOKS AND BENDS OTHER THAN 180 DEGREE ARE TO BE BENT WITH SAME PROCEDURE AS FOR 90 DEGREE STANDARD 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.
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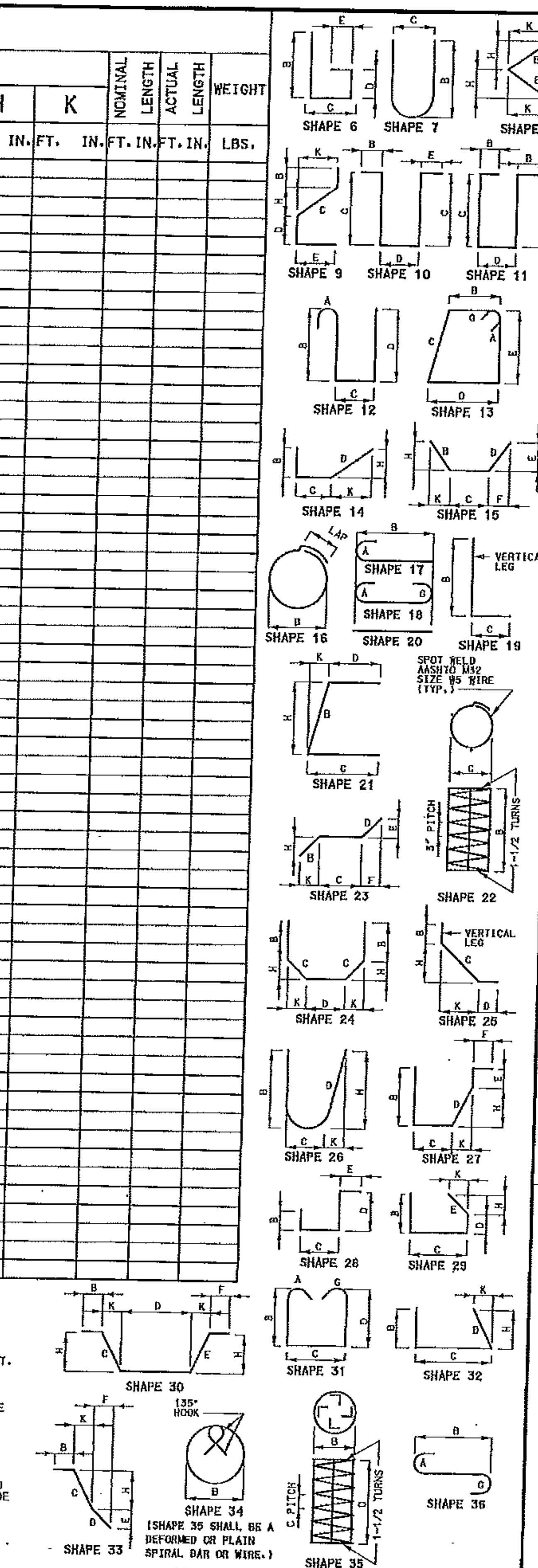


BENDING DIAGRAMS

STATE OF MISSOURI
ANOUSONE AROUNPRADITH
NUMBER PE-29317
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

DATE PREPARED	
9/11/2015	
ROUTE	STATE
50	MO
DISTRICT	SHEET NO.
BR	4
COUNTY	
COLE	
JOB NO.	
J5P3014	
CONTRACT ID.	
151120-D04	
PROJECT NO.	
FAF 50-3(92)	
BRIDGE NO.	
A07223	

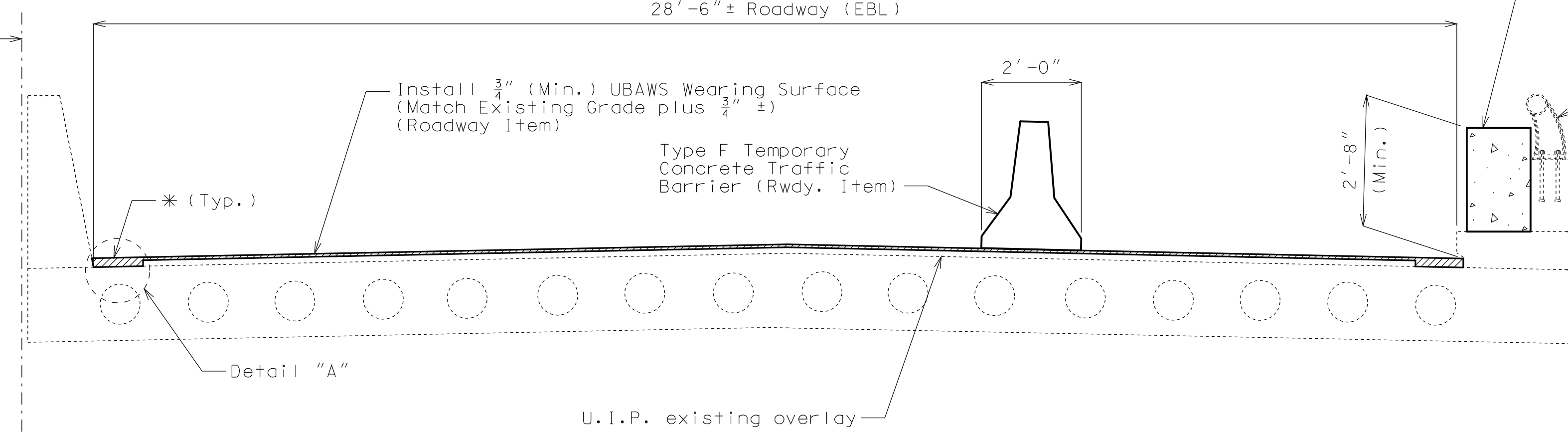
DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

Detailed Aug. 2015
Checked Aug. 2015

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

U.I.P. AND REHABILITATE EXISTING (33'-41'-33') CONTINUOUS VOIDED SLAB SPANS



TYPICAL SECTION THRU EXISTING DECK

GENERAL NOTES:

Design Specifications:

2002 AASHTO LFD (17th Ed.) Standard Specifications
Bridge Deck Rating = 7

Miscellaneous:

Outline of old work is indicated by light dashed lines. Heavy lines indicate new work.

Contractor shall verify all dimensions in field before ordering new material.

Roadway surfacing adjacent to bridge ends shall match new bridge wearing surface (Roadway Item).

In order to maintain grade and a minimum thickness of overlay as shown on plans it may be necessary to use additional quantities of overlay at various locations throughout the structure. The cost of furnishing and installing the overlay will be considered completely covered in the contract unit price, including all additional labor, materials or equipment for variations in thickness of overlay.

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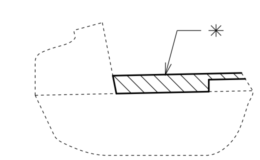
Traffic Handling:

Traffic to be maintained on structure during construction. See roadway plans for traffic controls.



DETAIL "A"

* ¾" UBAWS shall be filled in next to existing curbs to maintain 2'-8" (Min.).

Estimated Quantities

Item		Total
Curb Blockout	lin. foot	109

REPAIRS TO BRIDGE: RTE. 50 (EBL) OVER VETTERS STREET

ROUTE 50 FROM ROUTE 54 TO ROUTE M
ABOUT 2.1 MILES EAST OF ROUTE 54

BEGINNING STATION 100+84.40± (MATCH EXISTING)

Detailed Aug. 2015
Checked Aug. 2015

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

STD. 617.20

STATE OF MISSOURI
ANOUSONE AROUNPRADITH
NUMBER PE-29317
PROFESSIONAL ENGINEER
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DATE PREPARED	9/11/2015
ROUTE	50
STATE	MO
DISTRICT	BR
SHEET NO.	1
COUNTY	COLE
JOB NO.	J5P3014
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	A07224

DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

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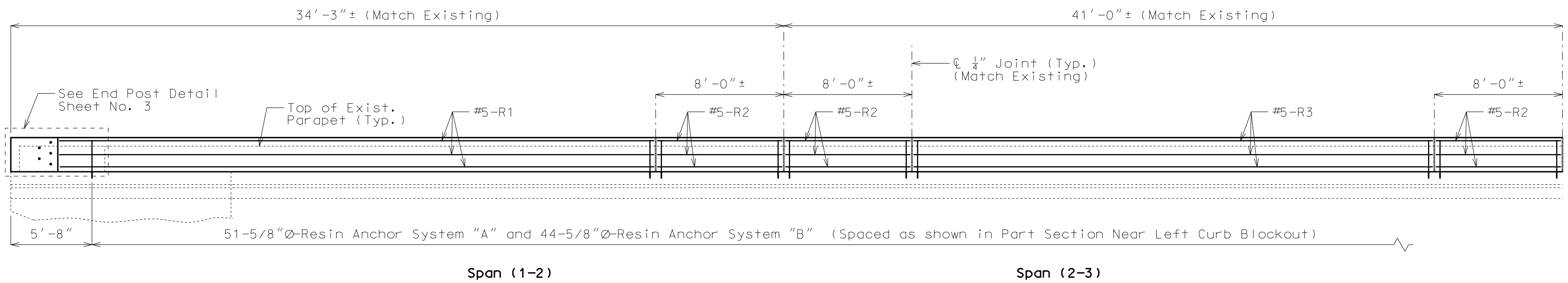
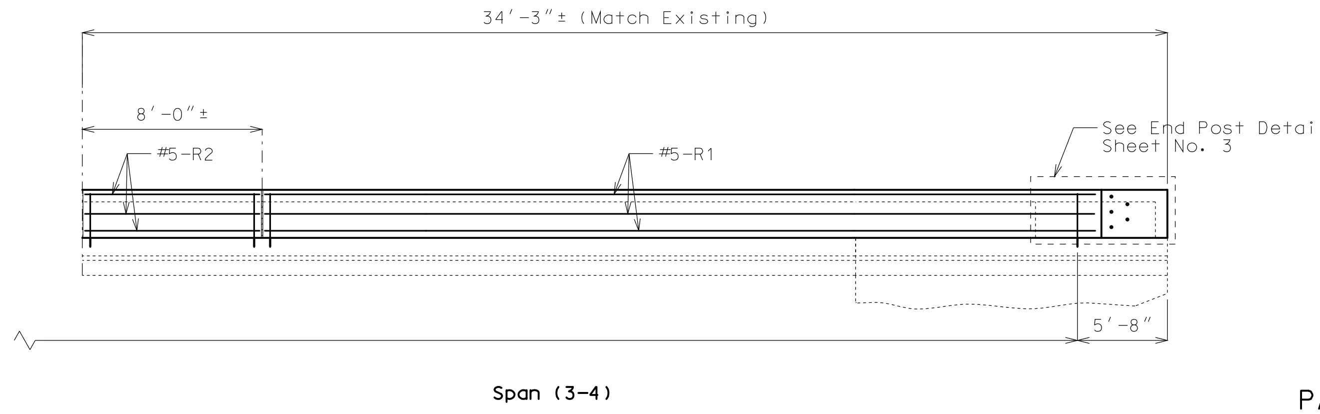
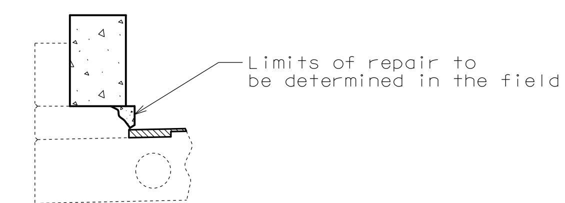


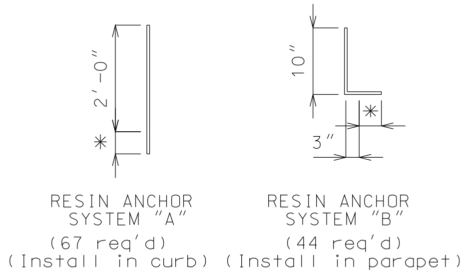


SECTION NEAR RIGHT CURB BLOCKOUT

Note: Longitudinal dimensions shown are along grade and are taken at top and ℄ of Parapet.

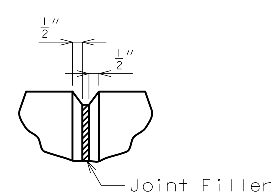


PART SECTION SHOWING CURB REPAIR

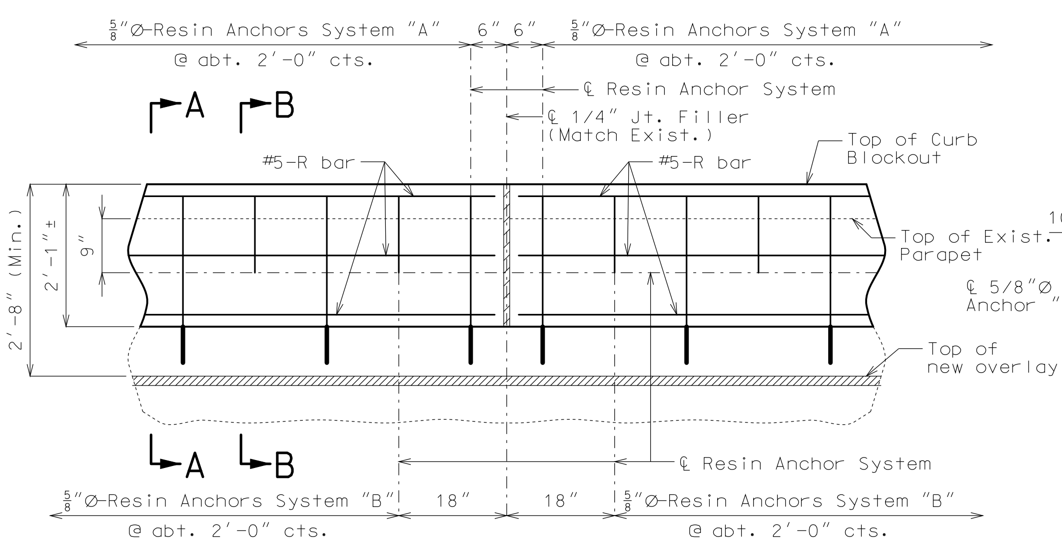


* Use manufacturer's embedment length. (5" minimum embedment)

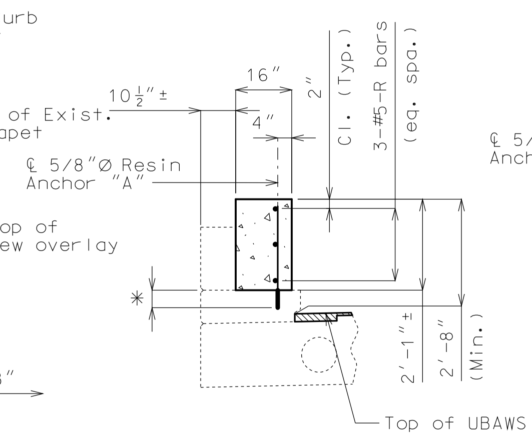
DETAILS OF RESIN ANCHORS



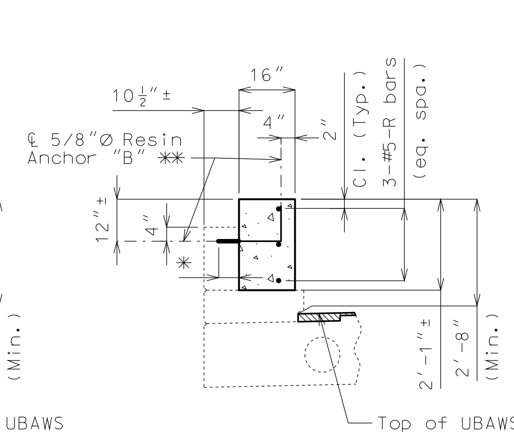
FILLED JOINT DETAIL



PART SECTION NEAR LEFT CURB BLOCKOUT



SECTION A-A



SECTION B-B

Notes:

Curb repair shall be in accordance with Sec 704 and will be considered completely covered by the contract unit price for Curb Blockout. Curb repair can be poured monolithically with the curb blockout.

Concrete in curb blockout shall be Class B-1 with f'c = 4000 psi.

Measurement of curb blockout is to the nearest linear foot, measured at the top outside edge of parapet from end of slab to end of slab.

All exposed edges of curb blockout shall have 1/2" radius or 3/8" bevel unless otherwise shown.

Payment for concrete, reinforcing steel, resin anchors, and any other work incidental to the curb blockout, complete in place, will be included in the contract unit price for Curb Blockout per linear foot.

Cost of any concrete curb or parapet repair will be included in the contract unit price for Curb Blockout.

All reinforcement shall be epoxy coated.

Shift resin anchors where necessary to clear existing anchor bolts for bridge rail, miss curb outlets (if present) and clear existing reinforcement.

Use a minimum lap of 2'-11" for #5 horizontal curb blockout bars.

Concrete traffic barrier delineators shall be placed on top of the curb blockout similarly as shown on Missouri Standard Plans 617.10 and in accordance with Sec 617. Delineators shall have retroreflective sheeting on side facing oncoming traffic only. Concrete traffic barrier delineators will be considered completely covered by the contract unit price for "Curb Blockout".

The contractor shall use one of the qualified resin anchor systems in accordance with Sec 1039.

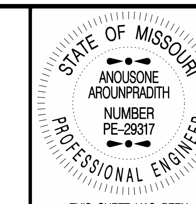
The minimum embedment depth in concrete with f'c = 4,000 psi for the resin anchor system shall be that required to meet the minimum ultimate pullout strength in accordance with Sec 1039 but shall not be less than 5".

An epoxy coated #5 Grade 60 reinforcing bar shall be substituted for the 5/8"Ø threaded rod.

DETAILS OF RIGHT CURB BLOCKOUT

Detailed Aug. 2015
Checked Aug. 2015

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



THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED	9/15/2015
ROUTE	50
STATE	MO
DISTRICT	BR
SHEET NO.	2
COUNTY	COLE
JOB NO.	J5P3014
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	A07224

DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

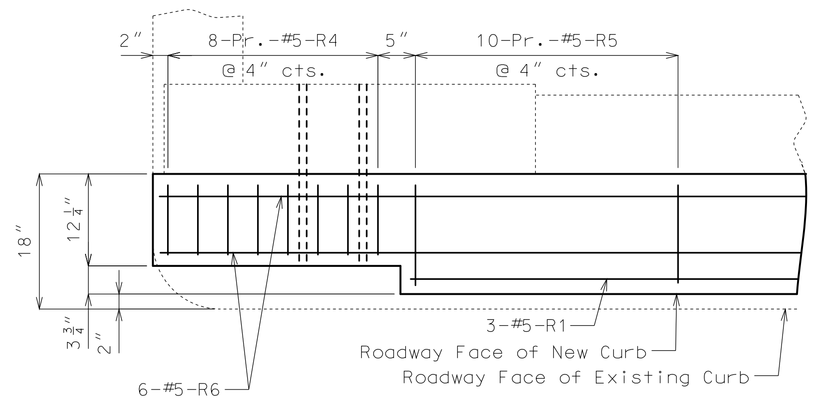
Notes:

For Details of Resin Anchors, see Sheet No. 2.

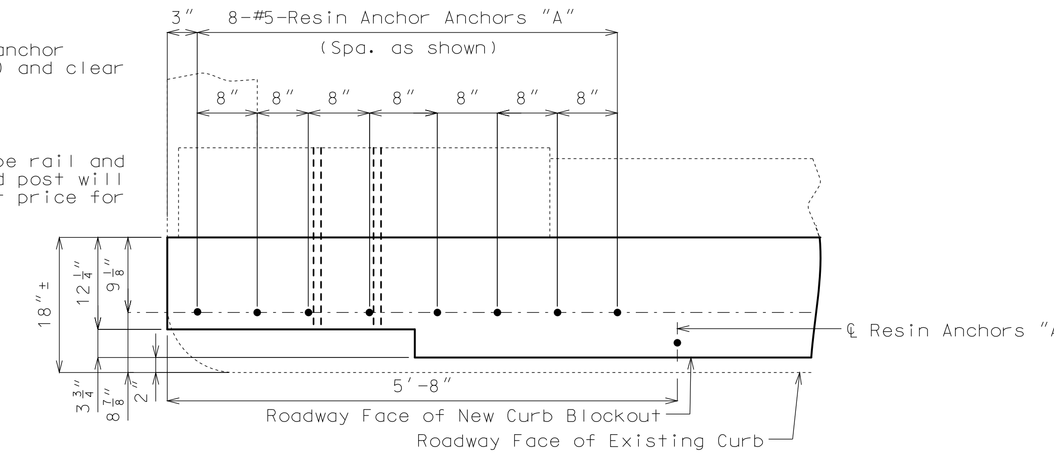
Shift resin anchors where necessary to clear exist. anchor bolts for bridge rail, miss curb outlets (if present) and clear existing reinforcement.

Bridge rail not shown, for clarity.

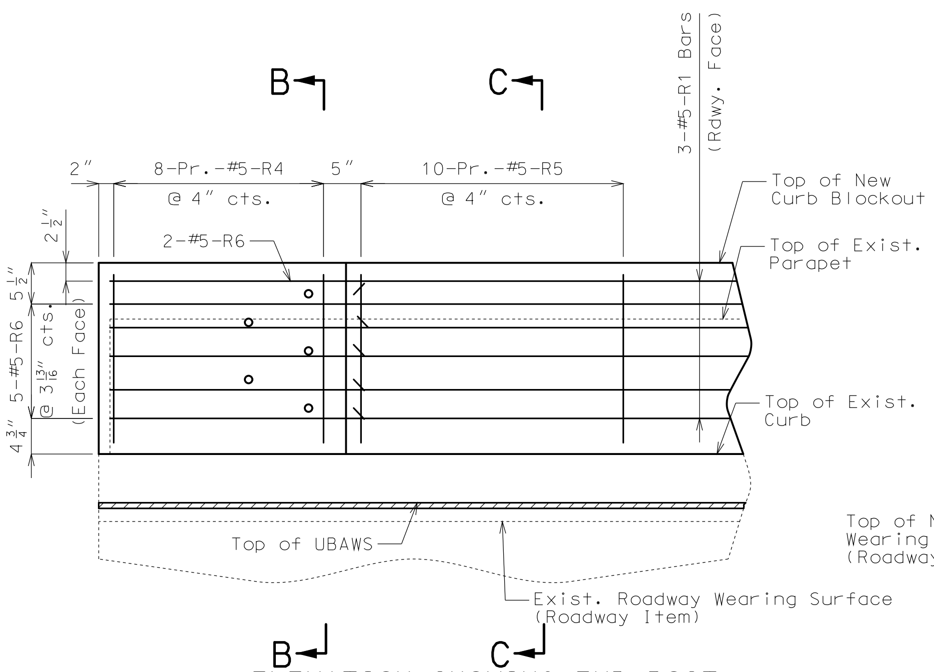
Payment for partial removal of end post concrete, tube rail and drilling guard rail attachment hole thru existing end post will be considered completely covered by the contract unit price for Curb Blockout.



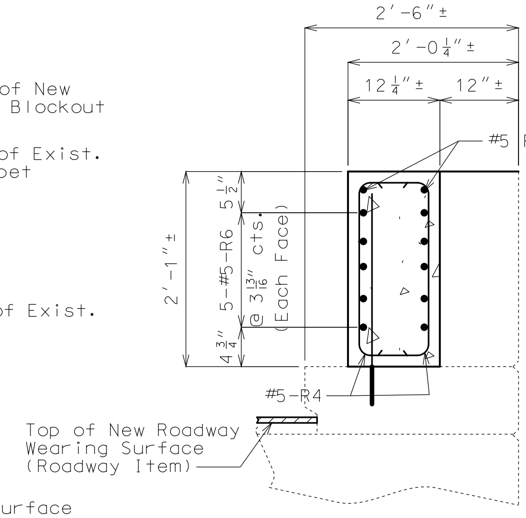
PLAN SHOWING END POST REINFORCEMENT



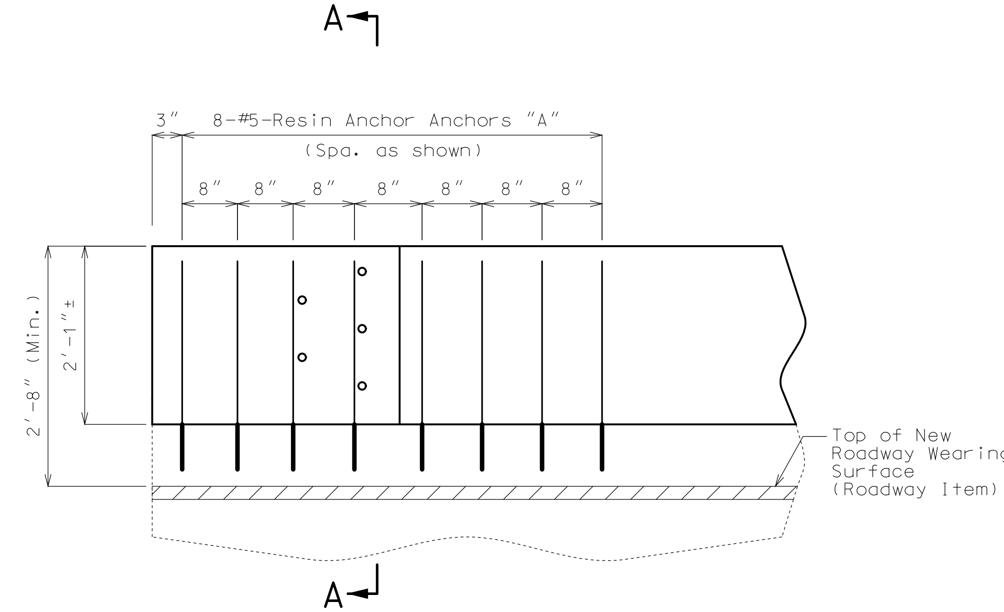
PLAN SHOWING END POST RESIN ANCHOR SYSTEMS AND DIMENSIONS



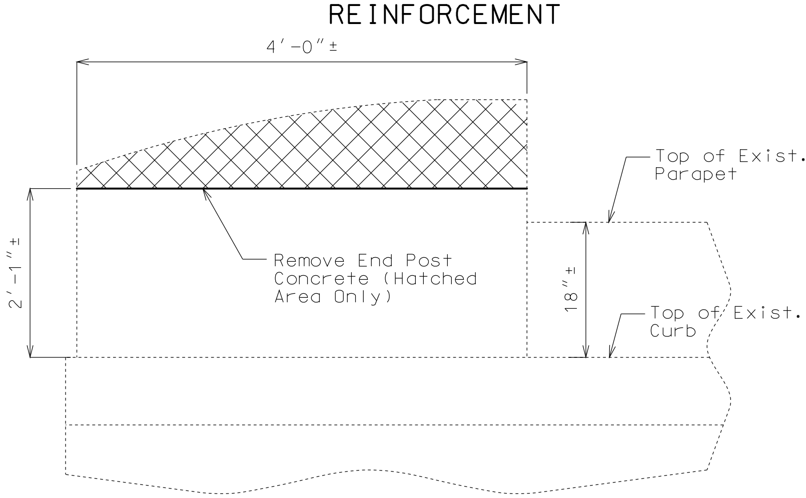
ELEVATION SHOWING END POST REINFORCEMENT



SECTION B-B



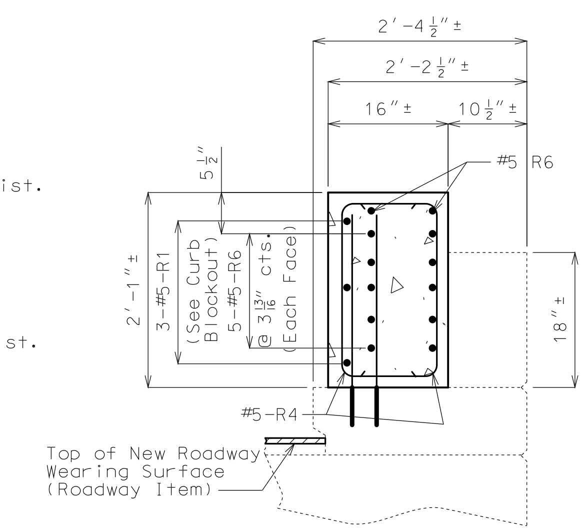
ELEVATION SHOWING END POST RESIN ANCHOR SYSTEMS AND DIMENSIONS



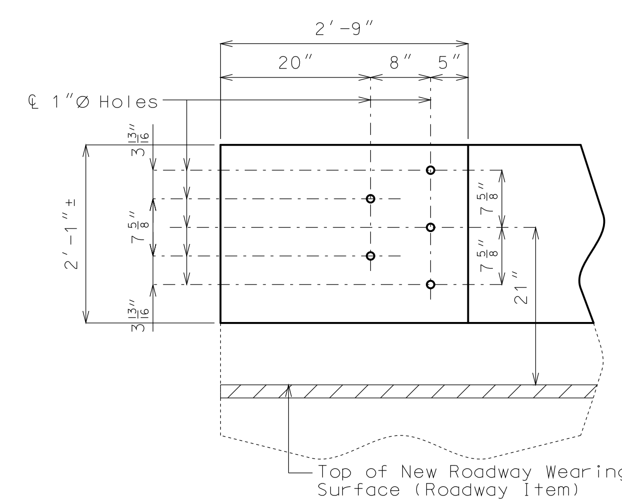
ELEVATION OF EXISTING END POST SHOWING PARTIAL CONCRETE REMOVAL

Note:

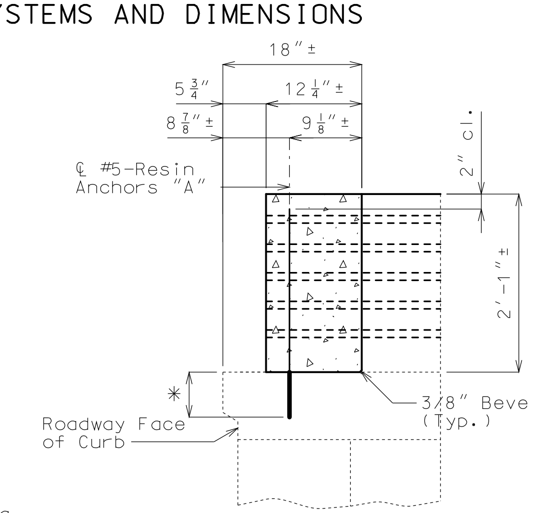
Cost of partially removing existing end posts will be considered completely covered by the contract unit price for Curb Blockout (linear foot).



SECTION C-C



DETAILS OF GUARD RAIL ATTACHMENT



SECTION A-A

* Manufacturer's recommended embedment length. (5" minimum embedment)

DETAILS OF RIGHT END POST AT END BENTS NO. 1 & 4

Detailed Aug. 2015
Checked Aug. 2015

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

STATE OF MISSOURI
ANOUSONE AROUNPRADITH
NUMBER PE-29317
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 9/11/2015	
ROUTE 50	STATE MO
DISTRICT BR	SHEET NO. 3
COUNTY COLE	
JOB NO. J5P3014	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO. A07224	

DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

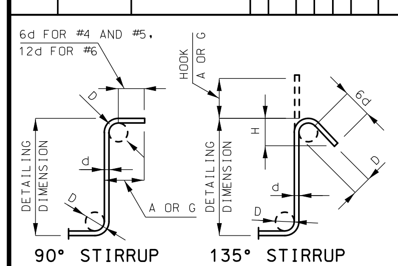
IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

BILL OF REINFORCING STEEL

NO. REQ'D.	SIZE	MARK	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	B FT.	B IN.	C FT.	C IN.	D FT.	D IN.	E FT.	E IN.	F FT.	F IN.	H FT.	H IN.	K FT.	K IN.	NOMINAL LENGTH FT.	NOMINAL LENGTH IN.	ACTUAL LENGTH FT.	ACTUAL LENGTH IN.	WEIGHT LBS.
			CURB																									
			BLOCKOUT																									
6	5	R1	BLOCKOUT	E	20					23	3.000													23	3	23	3	145
12	5	R2	BLOCKOUT	E	20					7	9.000													7	9	7	9	97
3	5	R3	BLOCKOUT	E	20					24	9.000													24	9	24	9	77
32	5	R4	END POST	E	10	S							9.250		23.000									3	6	3	3	108
40	5	R5	END POST	E	10	S							13.000		23.000									4	1	3	11	163
24	5	R6	END POST	E	20					6	0.000													6	0	6	0	150
			TOTALS																									
	5			E																								740
			TOTAL																									0
			TOTAL	E																								740
			Slab on Girder																									
	5			E																								740
			TOTAL																									740

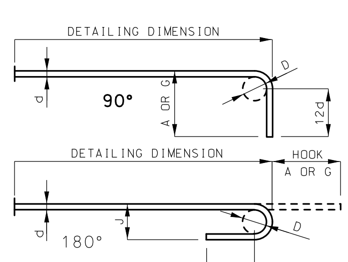
BILL OF REINFORCING STEEL

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



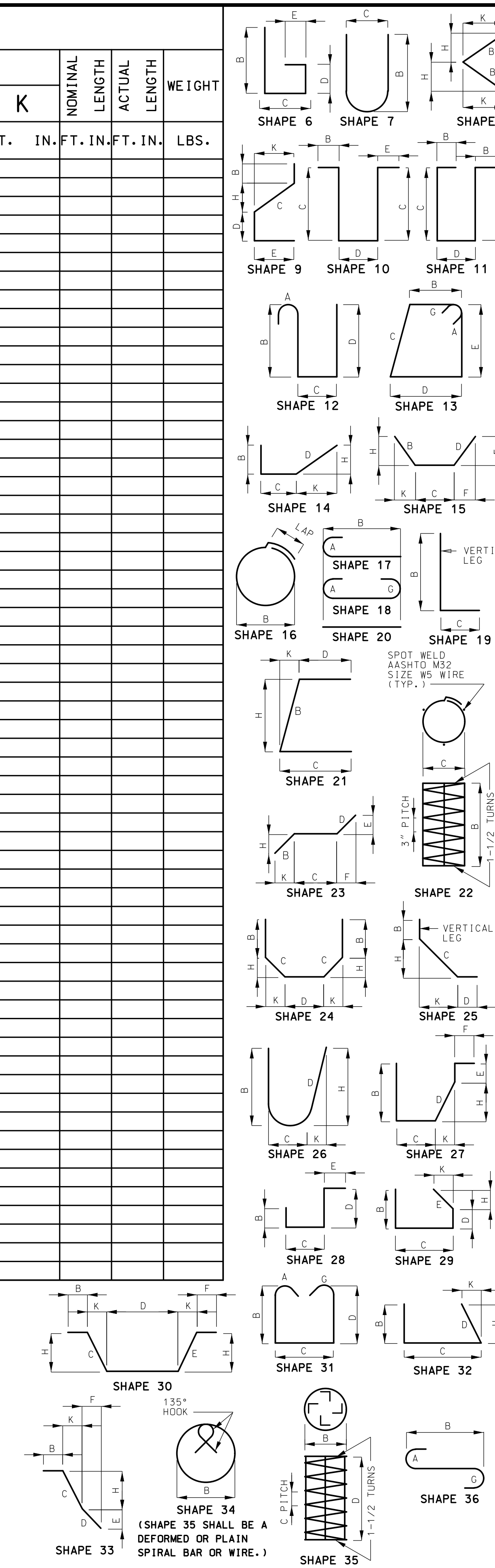
STIRRUP HOOK DIMENSIONS				
GRADES 40 - 50 - 60 KSI				
BAR SIZE	D (IN.)	90° HOOK	135° HOOK	
		HOOK A OR G	HOOK A OR G	APPROX. H
#4	2″	4 1/2″	4 1/2″	3″
#5	2 1/2″	6″	5 1/2″	3 3/4″
#6	4 1/2″	12″	8″	4 1/2″

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		90° HOOKS
		A OR G	J	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:
ALL STANDARD HOOKS AND BENDS OTHER THAN 180 DEGREE ARE TO BE BENT WITH SAME PROCEDURE AS FOR 90 DEGREE STANDARD 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.



BENDING DIAGRAMS

STATE OF MISSOURI
ANOUSONE AROUNPRADITH
NUMBER PE-29317
PROFESSIONAL ENGINEER

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DATE PREPARED	9/11/2015
ROUTE	50
STATE	MO
DISTRICT	BR
SHEET NO.	4
COUNTY	COLE
JOB NO.	J5P3014
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	A07224

DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

MoDOT

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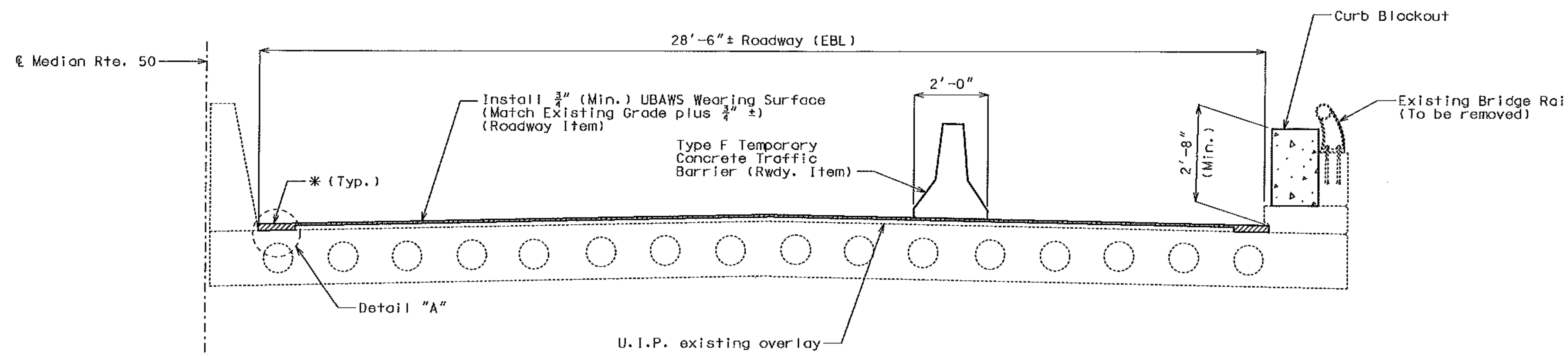
Detailed Aug. 2015
Checked Aug. 2015

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

U.I.P. AND REHABILITATE EXISTING (33'-41'-33') CONTINUOUS VOIDED SLAB SPANS

SEC/SUR 17	TWP 44N	RGE 11W

FINAL PLANS



TYPICAL SECTION THRU EXISTING DECK

GENERAL NOTES:

Design Specifications:

2002 AASHTO LFD (17th Ed.) Standard Specifications
Bridge Deck Rating = 7

Miscellaneous:

Outline of old work is indicated by light dashed lines. Heavy lines indicate new work.

Contractor shall verify all dimensions in field before ordering new material.

Roadway surfacing adjacent to bridge ends shall match new bridge wearing surface (Roadway Item).

In order to maintain grade and a minimum thickness of overlay as shown on plans it may be necessary to use additional quantities of overlay at various locations throughout the structure. The cost of furnishing and installing the overlay will be considered completely covered in the contract unit price, including all additional labor, materials or equipment for variations in thickness of overlay.

The area exposed by the removal of concrete and not covered with new concrete shall be coated with an approved qualified special mortar in accordance with Sec 704.

Traffic Handling:

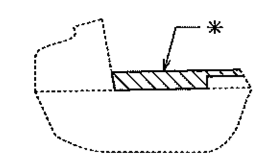
Traffic to be maintained on structure during construction. See roadway plans for traffic controls.

THESE PLANS ACCURATELY DEPICT THE CONFIGURATION AND LOCATION

OF THE ROADWAY AND ALL APPURTENANCE FEATURES, INCLUDING MODIFICATION

DESIGNATED OR AUTHORIZED BY THE ENGINEER OF REORD.

SIGNATURE ______________________ DATE ________________



DETAIL "A"

✱ ¾" UBAWS shall be filled in next to existing curbs to maintain 2'-8" (Min.).

Estimated Quantities

Item		Total
Curb Blockout	lin. foot	109

STATE OF MISSOURI
ANOUSONE AROUNPRADITH
NUMBER PE-29317
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED	
9/11/2015	
ROUTE	STATE
50	MO
DISTRICT	SHEET NO.
BR	1
COUNTY	
COLE	
JOB NO.	
J5P3014	
CONTRACT ID.	
151120-D04	
PROJECT NO.	
FAF 50-3(92)	
BRIDGE NO.	
A07224	

DESCRIPTION
DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
MoDOT
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

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REPAIRS TO BRIDGE: RTE. 50 (EBL) OVER VETTERS STREET

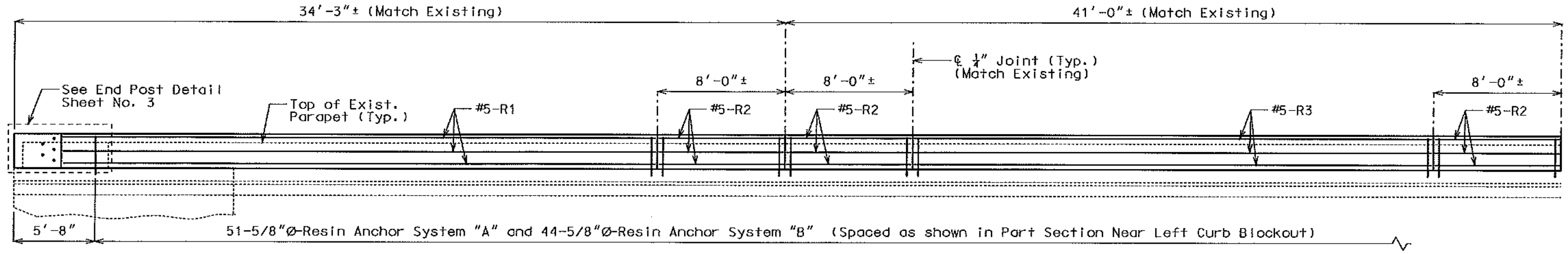
ROUTE 50 FROM ROUTE 54 TO ROUTE M
ABOUT 2.1 MILES EAST OF ROUTE 54

BEGINNING STATION 100+84.40± (MATCH EXISTING)

STD. 617.20

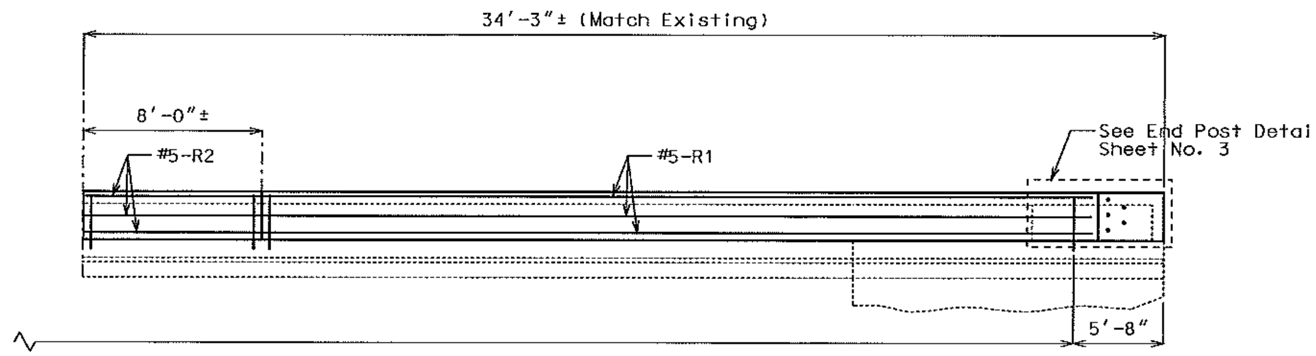
Detailed Aug. 2015
Checked Aug. 2015

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

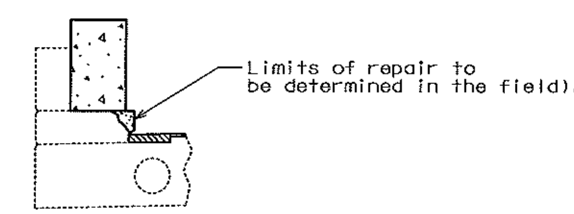


Span (1-2)

Span (2-3)



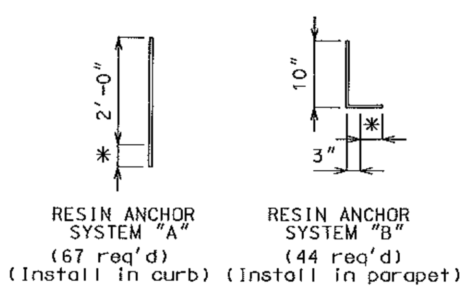
Span (3-4)



PART SECTION SHOWING CURB REPAIR

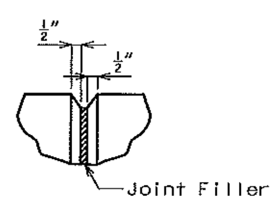
SECTION NEAR RIGHT CURB BLOCKOUT

Note: Longitudinal dimensions shown are along grade and are taken at top and ℄ of Parapet.

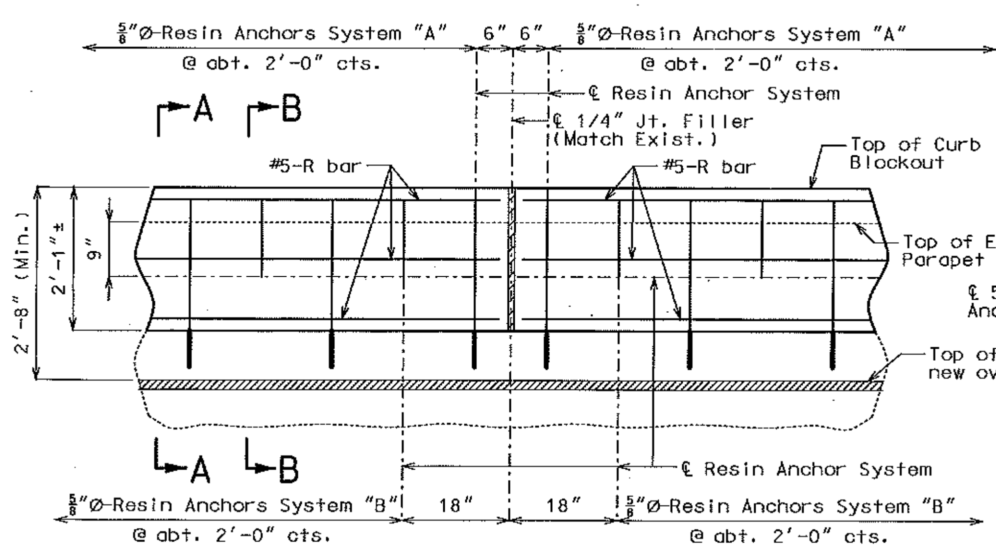


* Use manufacturer's embedment length. (5" minimum embedment)

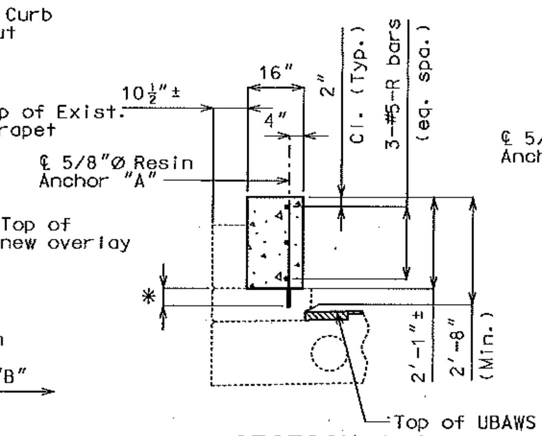
DETAILS OF RESIN ANCHORS



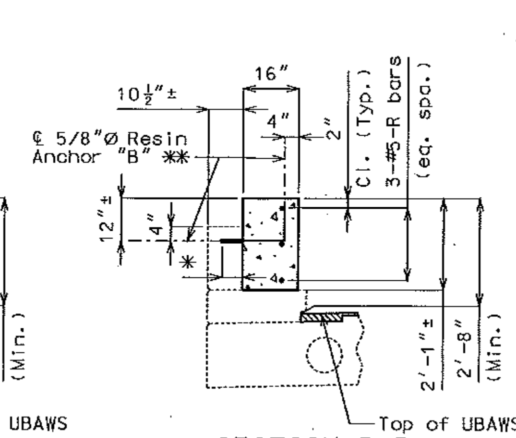
FILLED JOINT DETAIL



PART SECTION NEAR LEFT CURB BLOCKOUT



SECTION A-A



SECTION B-B

DETAILS OF RIGHT CURB BLOCKOUT

Notes:

Curb repair shall be in accordance with Sec 704 and will be considered completely covered by the contract unit price for Curb Blockout. Curb repair can be poured monolithically with the curb blockout.

Concrete in curb blockout shall be Class B-1 with f'c = 4000 psi.

Measurement of curb blockout is to the nearest linear foot, measured at the top outside edge of parapet from end of slab to end of slab.

All exposed edges of curb blockout shall have 1/2" radius or 3/8" bevel unless otherwise shown.

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All reinforcement shall be epoxy coated.

Shift resin anchors where necessary to clear existing anchor bolts for bridge rail, miss curb outlets (if present) and clear existing reinforcement.

Use a minimum lap of 2'-11" for #5 horizontal curb blockout bars.

Concrete traffic barrier delineators shall be placed on top of the curb blockout similarly as shown on Missouri Standard Plans 617.10 and in accordance with Sec 617. Delineators shall have retroreflective sheeting on side facing oncoming traffic only. Concrete traffic barrier delineators will be considered completely covered by the contract unit price for "Curb Blockout".

The contractor shall use one of the qualified resin anchor systems in accordance with Sec 1039.

The minimum embedment depth in concrete with f'c = 4,000 psi for the resin anchor system shall be that required to meet the minimum ultimate pullout strength in accordance with Sec 1039 but shall not be less than 5".

An epoxy coated #5 Grade 60 reinforcing bar shall be substituted for the 5/8"Ø threaded rod.

Detailed Aug. 2015
Checked Aug. 2015

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

STATE OF MISSOURI
ANOUSONE AROUNPRADITH
NUMBER PE-29317
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED	9/15/2015
ROUTE 50	STATE MO
DISTRICT BR	SHEET NO. 2
COUNTY	COLE
JOB NO.	J5P3014
CONTRACT ID.	151120-D04
PROJECT NO.	FAF 50-3(92)
BRIDGE NO.	A07224

DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

FINAL PLANS

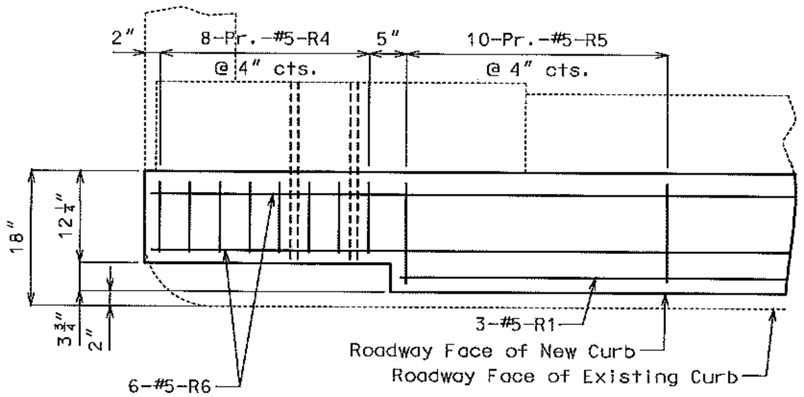
Notes:

For Details of Resin Anchors, see Sheet No. 2.

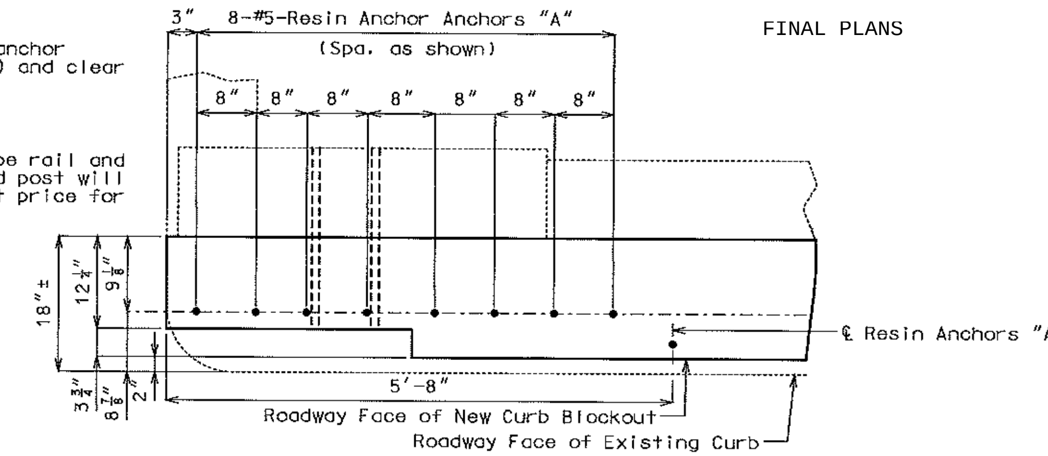
Shift resin anchors where necessary to clear exist. anchor bolts for bridge rail, miss curb outlets (if present) and clear existing reinforcement.

Bridge rail not shown, for clarity.

Payment for partial removal of end post concrete, tube rail and drilling guard rail attachment hole thru existing end post will be considered completely covered by the contract unit price for Curb Blockout.

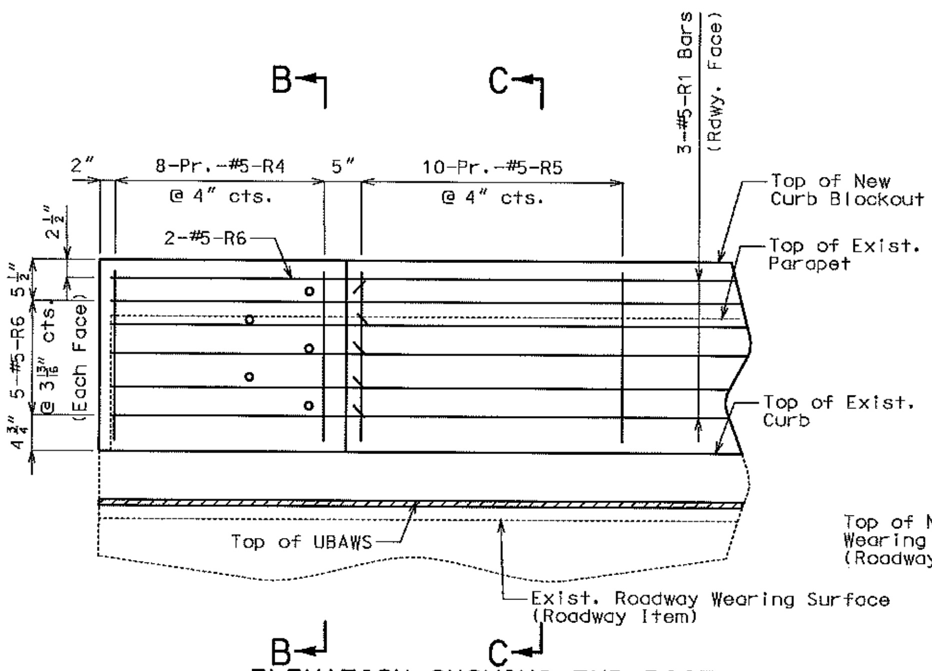


PLAN SHOWING END POST REINFORCEMENT

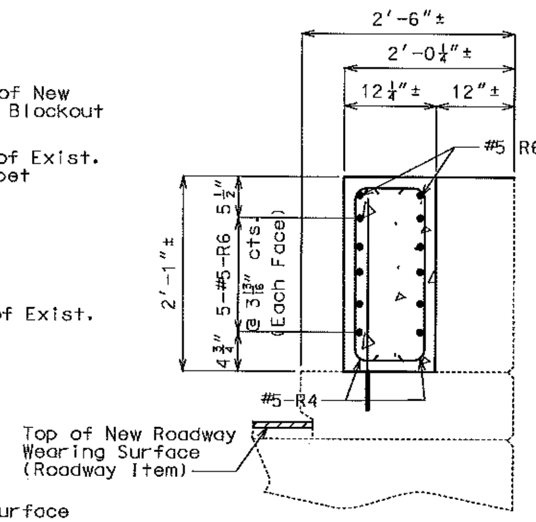


PLAN SHOWING END POST RESIN ANCHOR SYSTEMS AND DIMENSIONS

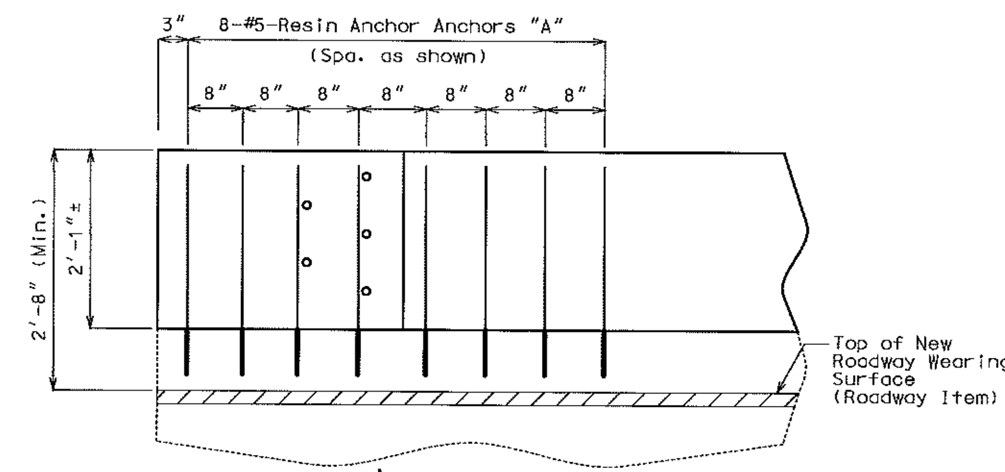
A



ELEVATION SHOWING END POST REINFORCEMENT

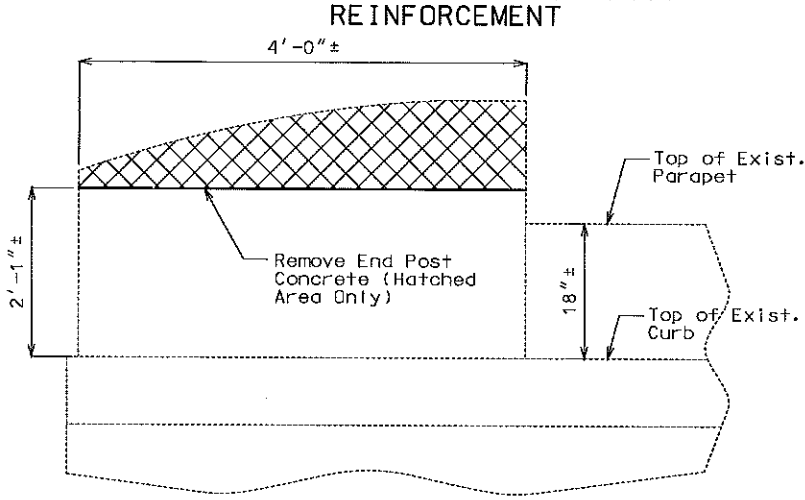


SECTION B-B



A

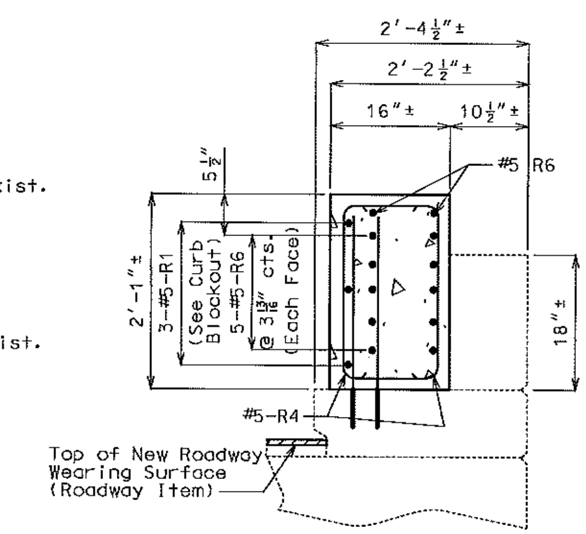
ELEVATION SHOWING END POST RESIN ANCHOR SYSTEMS AND DIMENSIONS



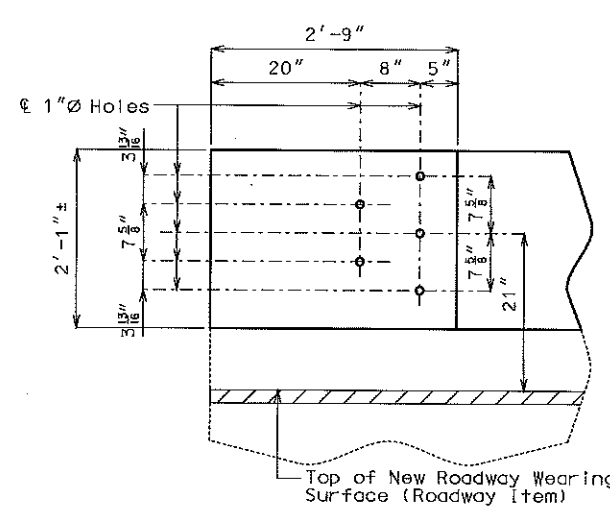
ELEVATION OF EXISTING END POST SHOWING PARTIAL CONCRETE REMOVAL

Note:

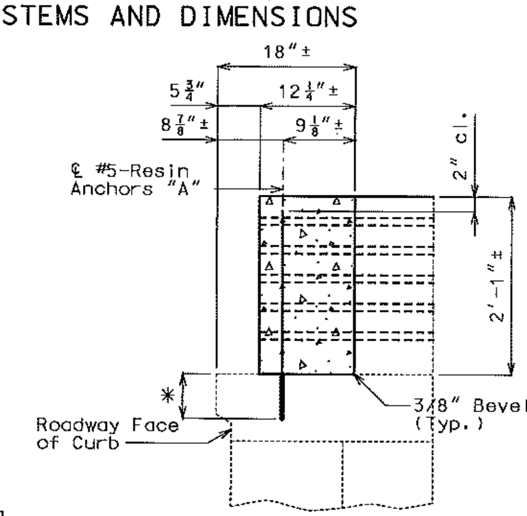
Cost of partially removing existing end posts will be considered completely covered by the contract unit price for Curb Blockout (linear foot).



SECTION C-C



DETAILS OF GUARD RAIL ATTACHMENT



SECTION A-A

* Manufacturer's recommended embedment length. (5" minimum embedment)

Detailed Aug. 2015
Checked Aug. 2015

DETAILS OF RIGHT END POST AT END BENTS NO. 1 & 4

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

STATE OF MISSOURI
ANOUSONE AROUNPRADITH
NUMBER PE-29317
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED	9/11/2015
ROUTE 50	STATE MO
DISTRICT BR	SHEET NO. 3
COUNTY	COLE
JOB NO.	J5P3014
CONTRACT ID.	151120-D04
PROJECT NO.	FAF 50-3(92)
BRIDGE NO.	A07224

DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

MoDOT

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

barbill_i Effective: Aug. 2008 Supercedes: Feb. 2006

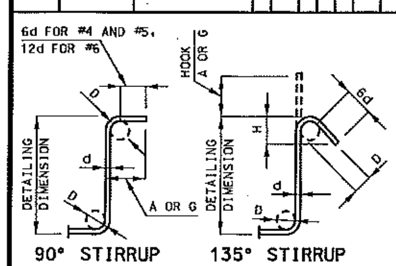
FINAL PLANS

BILL OF REINFORCING STEEL

NO. REQ'D.	MARK NO. SIZE	MARK NO. MARK	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	B FT.	B IN.	C FT.	C IN.	D FT.	D IN.	E FT.	E IN.	F FT.	F IN.	H FT.	H IN.	K FT.	K IN.	NOMINAL LENGTH FT.	NOMINAL LENGTH IN.	ACTUAL LENGTH FT.	ACTUAL LENGTH IN.	WEIGHT LBS.
			CURB																									
			BLOCKOUT																									
6	5	R1	BLOCKOUT	E	20					23	3.000													23	3	23	3	145
12	5	R2	BLOCKOUT	E	20					7	9.000													7	9	7	9	97
3	5	R3	BLOCKOUT	E	20					24	9.000													24	9	24	9	77
32	5	R4	END POST	E	10	S							9.250		23.000									3	6	3	3	108
40	5	R5	END POST	E	10	S							13.000		23.000									4	1	3	11	163
24	5	R6	END POST	E	20					6	0.000													6	0	6	0	150
			TOTALS																									
	5			E																								740
			TOTAL																									0
			TOTAL	E																								740
			Slab on																									
			Girder																									
	5			E																								740
			TOTAL																									740

BILL OF REINFORCING STEEL

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

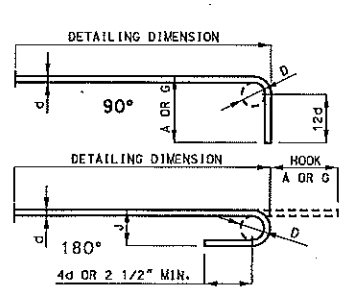


STIRRUP HOOK DIMENSIONS

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"

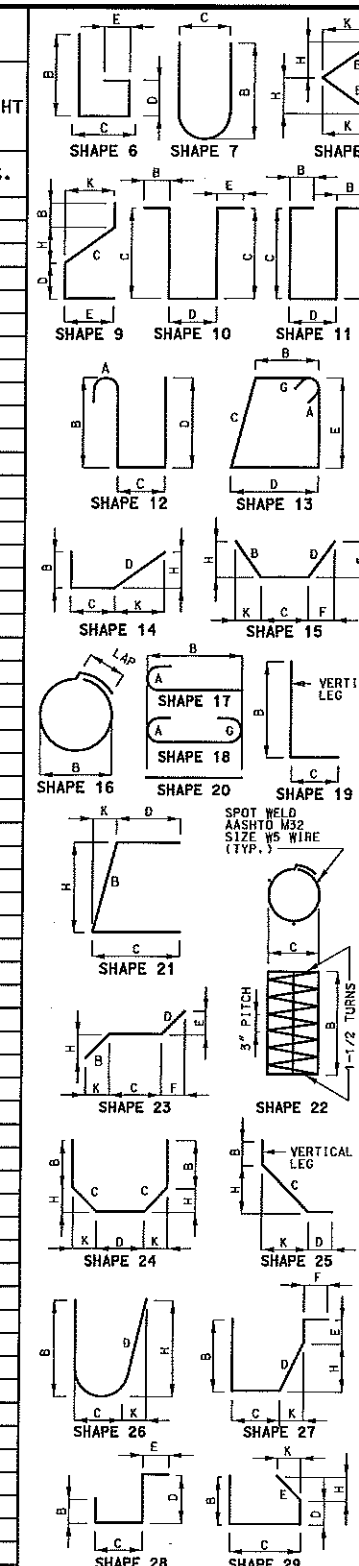
NOTE: UNLESS OTHERWISE NOTED, DIAMETER "D" IS THE SAME FOR ALL BENDS AND HOOKS ON A BAR.

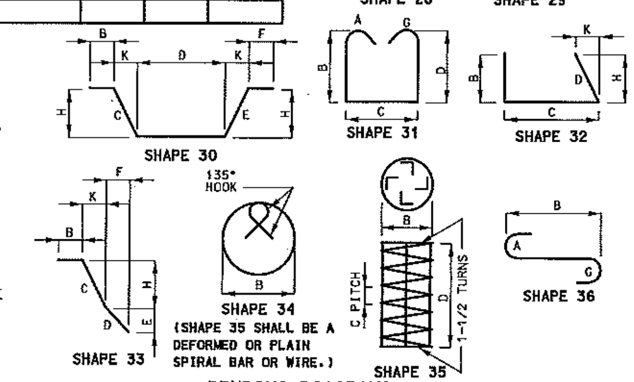


END HOOK DIMENSIONS

BAR SIZE	D (IN.)	ALL GRADES 180° HOOKS A OR G	ALL GRADES 180° HOOKS J	ALL GRADES 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:
ALL STANDARD HOOKS AND BENDS OTHER THAN 180 DEGREE ARE TO BE BENT WITH SAME PROCEDURE AS FOR 90 DEGREE STANDARD 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.





BENDING DIAGRAMS

STATE OF MISSOURI
ANOUSONE AROUNPRADITH
NUMBER PE-29317
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED	
9/11/2015	
ROUTE	STATE
50	MO
DISTRICT	SHEET NO.
BR	4
COUNTY	
COLE	
JOB NO.	
J5P3014	
CONTRACT ID.	
151120-D04	
PROJECT NO.	
FAF 50-3(92)	
BRIDGE NO.	
A07224	

DESCRIPTION

DATE

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

MoDOT

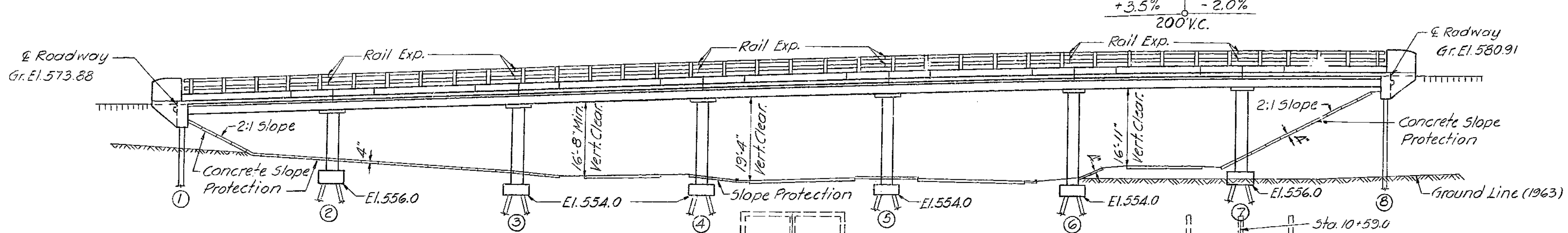
Detailed Aug. 2015
Checked Aug. 2015

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

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	154	

(36'-44'-44'-44'-44'-40'-34') Cont. Slab Spans (Voided)



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 25'-0" in back of End Bent No. 1 before steel piles are driven for bent No. 1

Compacted roadway fill including surcharge at End Bent No. 8 shall be in place to full height shown on Road Plans, for at least 6 months or until settlement has been attained, before work is started on End Bent No. 8. See Special Provisions.

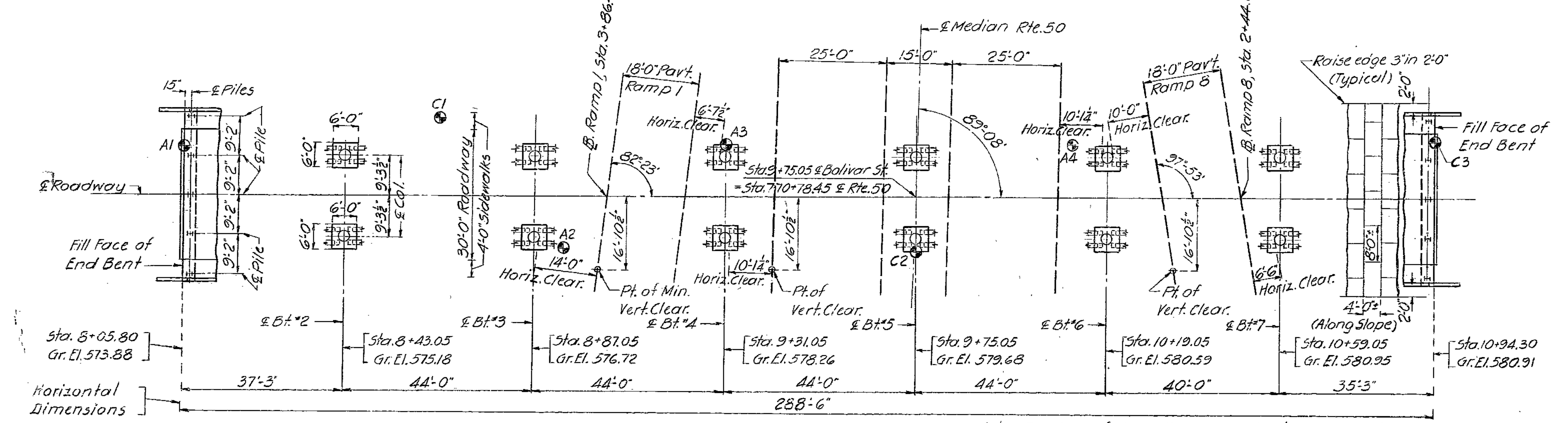
Note: Break in top slab. Remove part of bottom slab to permit driving piles. See Special Provisions.

PILE DATA								
Bent No.	1	2	3	4	5	6	7	8
Pile Type and Size	10 BP42							
Number	5	8	8	8	4-Lt. 4-Rt.	8	8	5
Approximate Length Ft.	90	75	65	65	70 Lt. 60 Rt.	55	55	65
Plan Bearing Tons	55	55	55	55	55	55	55	55
Minimum Required Bearing Tons	25	40	40	40	40	38	38	25
Hammer	Heavy Power							
See Standard Specification 52.2.6								

Note: All pile shall be driven to practical refusal on or into solid rock or other point bearing material at not less than the Plan Bearing shown, unless excessive splicing is required to obtain Plan Bearing, in which case the engineer will authorize a lesser bearing, but in no case less than the Minimum Required Bearing.

Steel pile authorized in lengths greater than 65' may be furnished in two pieces for field splicing and these splices, if made, will be paid in accordance with Standard Specification 52.6.5.

All piling shall be driven with an approved power hammer developing an energy of not less than 19,000 ft.lbs. and having a ram weighing not less than 4500 lbs.

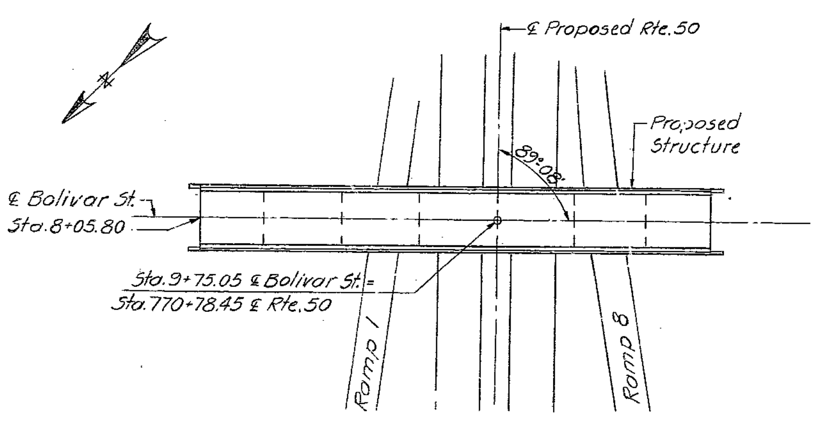


PLAN

Note: For Log of Soundings see sheet No. 2 of 7.
"⊕" Indicates location of sounding.

GENERAL NOTES:

Design Specifications A.A.S.H.O. -1961
Loading H20-44 (15#/sq.ft. Future Wearing Surface)
Steel Pile shall be A.S.T.M. A36-62T.
Reinforcing Steel Stress 20,000 psi.
Concrete, Class B Stress 1,200 psi.
Concrete, Class B1 Stress 1,600 psi.
Superstructure concrete shall be Class B1.
Substructure concrete shall be Class B or Class B1 except payment will be on the basis of Class B.
Superstructure deck to be surface sealed. See special provisions.
See Standard Specification 55.3.13 for qualification of welding operators.
Where joint filler is specified on the plans it shall conform to Standard Specification 157.2.4.



LOCATION SKETCH

ESTIMATED QUANTITIES				
Item		Substr.	Superstr.	Total
Class 1 Excavation for Structures	Cu.Yd.	170		170
Steel Piles in Place (10")	Lin.Ft.	3777		3777
Steel Pile Cut-offs (10")	Lin.Ft.	174		174
Class B Concrete	Cu.Yd.	48.0		48.0
Class B1 Concrete	Cu.Yd.		678.0	678.0
Reinforcing Steel	Lb.	2240	154,730	156,970
H.S. Bridge Rail (Two tube type)	Lin.Ft.		572	572

Note: Class 1 Excavation for Structures will be computed from the original ground line (1963) or from the lower limits of roadway excavation, whichever is lower regardless of the sequence of operations and the method of removal.

No payment for excavation will allowed at End Bents No. 1 & 8.

All concrete and reinforcement above footings is included in superstructure quantities.

The estimated quantity of 10" Steel Piles in place includes 17 estimated splices at 8' per splice.

Note: Concrete slope protection on front slopes of end bents and slopes to the Ramp Shoulders to be included under roadway items. Provide 1" filler (Standard Specifications 157.1.7) between Slope Protection pavement and end bents and 1" filler around intermediate bents.

B.M. Elev. 551.37, □ on S. End of West H'dwall Culv. under Bolivar St. (U.S.G.S. Datum)

BRIDGE: BOLIVAR STREET UNDERPASS

STATE ROAD ROUTE 50 RELOCATION

~~ABOUT~~ IN JEFFERSON CITY

PROJECT NO. RTE. 50-SEC. 26(2)U **STA.** 770 + 78.45

COLE **COUNTY**

SUBMITTED BY D. B. Jenkins BRIDGE ENGINEER DATE 9/25/64

APPROVED BY M. J. Mick CHIEF ENGINEER DATE 9/25/64

DESIGNED May 1964 BY Livingston
DETAILED July 1964 BY Riks
CHECKED Sept. 1964 BY Sommerer

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

Sheet No. 1 of 7.

STD. 54.00

A-1420

286

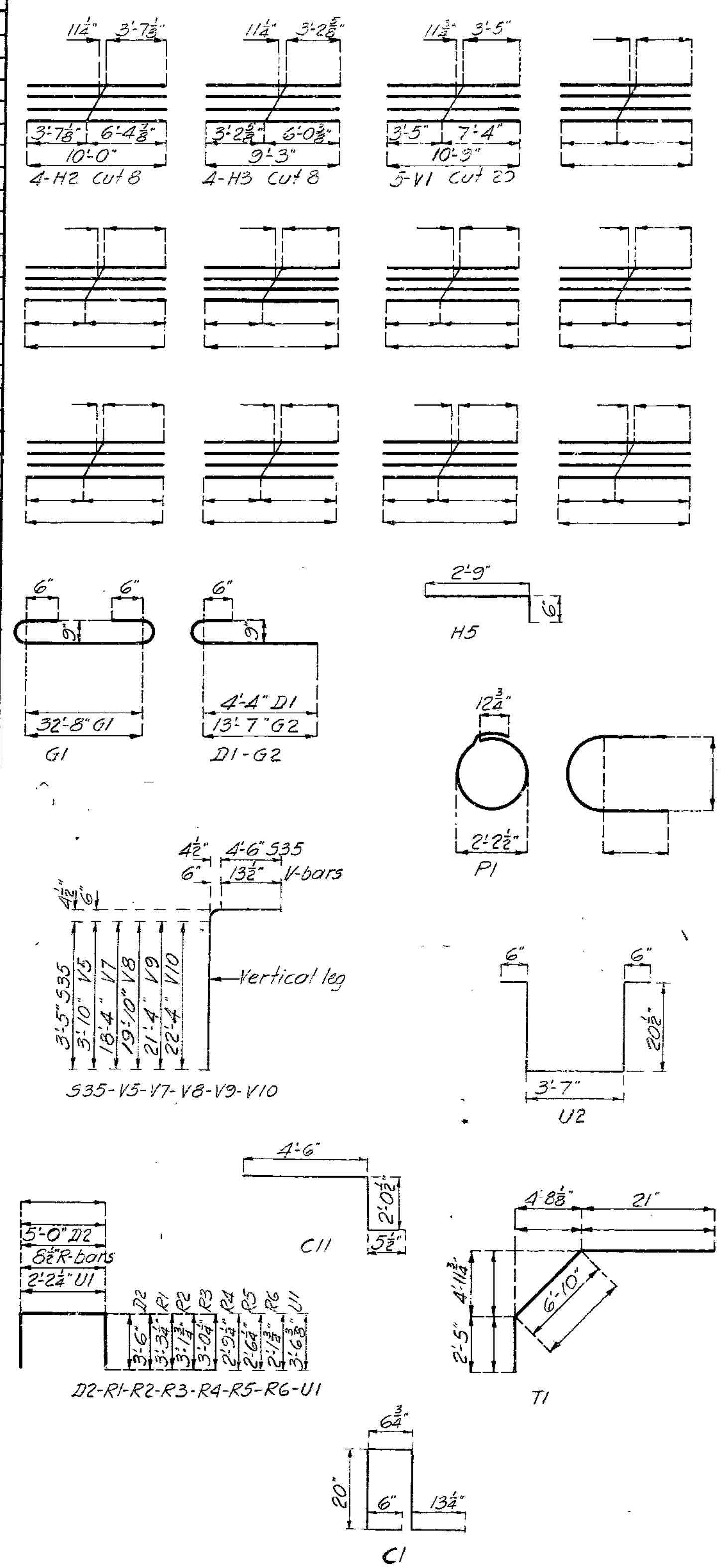
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO	TOTAL SHEETS
5	MO.		19	155	

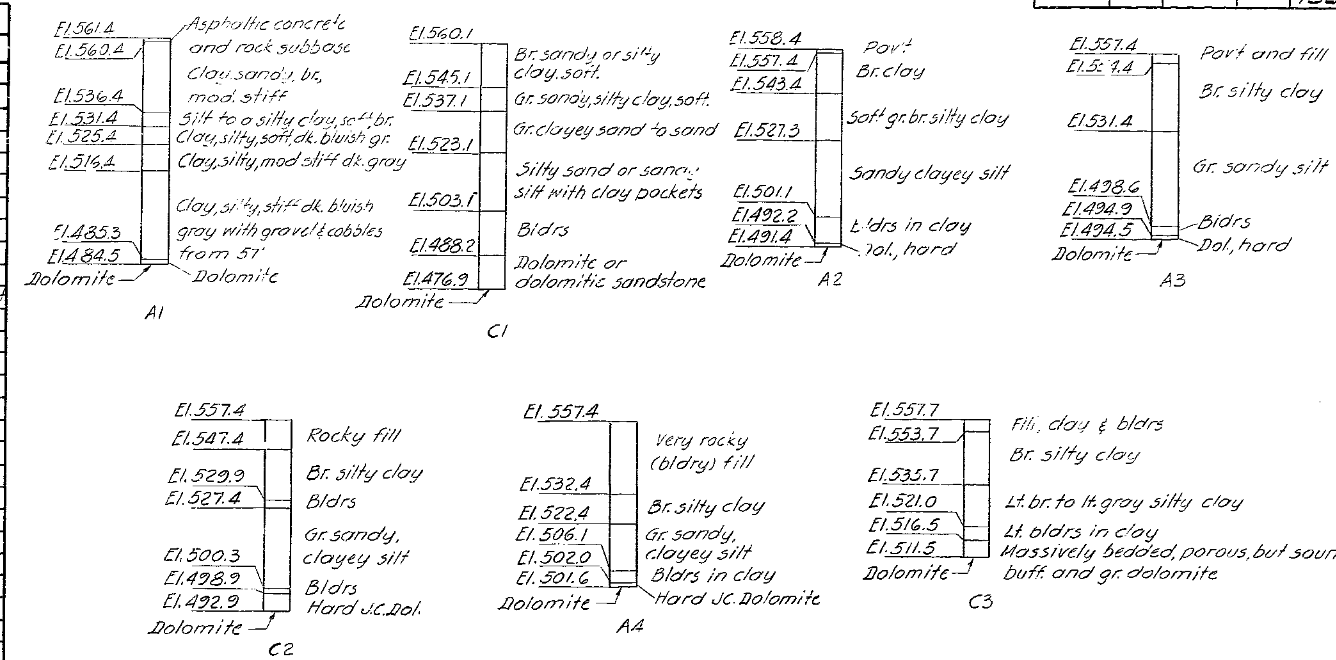
COMPLETE BILL OF REINFORCING STEEL

NO.	SIZE	LENGTH	MARK	LOCATION
Superstructure				
690	#5	5'-6"	C1	Parapet
8	#5	26'-0"	C2	"
36	#5	9'-9"	C3	"
32	#5	23'-9"	C4	"
8	#5	19'-9"	C5	"
8	#5	24'-0"	C6	"
24	#4	19'-3"	C7	Sidewalk
96	#4	22'-9"	C8	"
24	#4	20'-6"	C9	"
12	#4	35'-0"	C10	"
580	#5	7'-0"	C11	" & Curb
580	#5	2'-0"	C12	Curb
8	#5	7'-3"	R1	End Post
4	#5	7'-0"	R2	" "
4	#5	6'-9"	R3	" "
4	#5	6'-3"	R4	" "
4	#5	5'-9"	R5	" "
4	#5	5'-0"	R6	" "
24	#5	5'-9"	R7	" "
8	#5	5'-3"	R8	" "
662	#5	33'-6"	S1	Slab
45	#5	24'-3"	S2	"
23	#9	24'-9"	S3	"
22	#9	20'-9"	S4	"
22	#10	13'-6"	S5	"
180	#5	21'-9"	S6	"
69	#9	25'-6"	S7	"
66	#10	21'-0"	S8	"
66	#10	14'-0"	S9	"
23	#9	24'-6"	S13	"
22	#9	19'-9"	S14	"
22	#9	12'-0"	S15	"
45	#5	19'-9"	S16	"
23	#9	22'-6"	S17	"
22	#9	19'-0"	S18	"
22	#9	11'-6"	S19	"
45	#5	23'-6"	S20	"
23	#9	38'-6"	S21	Slab
22	#9	30'-0"	S22	"
22	#9	19'-3"	S23	"
92	#8	46'-9"	S24	"
22	#8	28'-6"	S25	"
88	#9	21'-6"	S26	"
66	#8	29'-3"	S27	"
				"
23	#7	42'-6"	S29	"
22	#8	26'-6"	S30	"
22	#8	19'-6"	S31	"
23	#8	36'-6"	S32	"
22	#9	28'-3"	S33	"
22	#9	19'-0"	S34	"
Int. Bent No. 2 (Superstr.)				
6	#11	36'-0"	G1	Beam
8	#11	15'-3"	G2	"
10	#11	33'-0"	G3	Drop Panel
28	#3	8'-0"	P1	Col
74	#5	8'-0"	U2	Beam
12	#9	5'-9"	V5	" & Col
16	#9	13'-9"	V6	Col.

BENDING SKETCHES & CUTTING DIAGRAMS

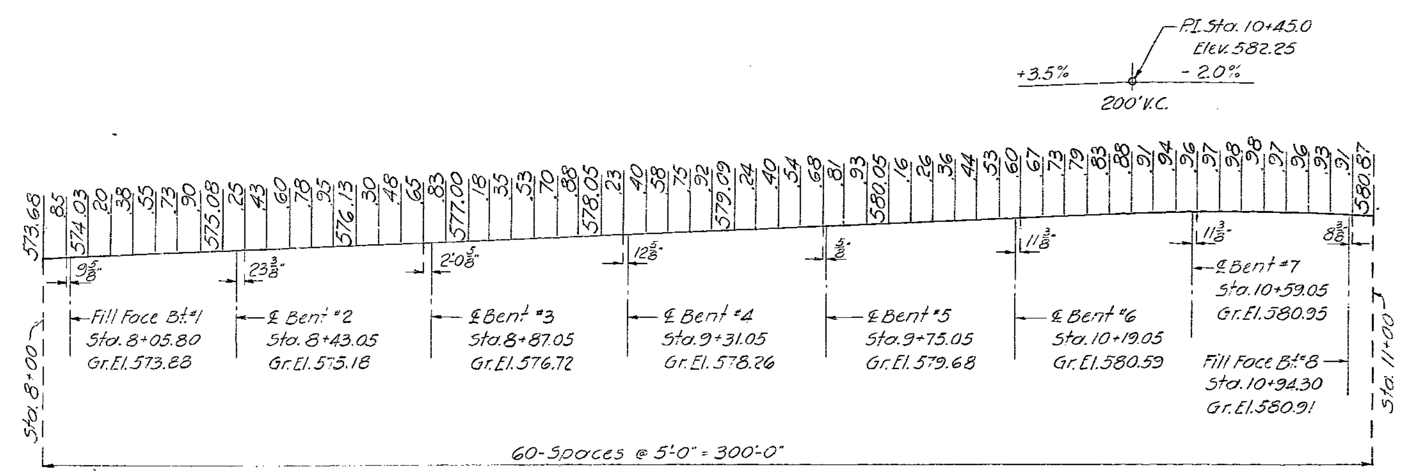


NO.	SIZE	LENGTH	MARK	LOCATION
End Bents No. 1 & 8 (Superstr.)				
24	#6	39'-6"	H1	Beam
8	#6	10'-0"	H2	End Post
8	#5	9'-3"	H3	" "
8	#6	7'-0"	H4	" "
8	#5	11'-0"	T1	" "
152	#5	9'-3"	U1	Beam
20	#5	10'-9"	V1	End Post
3	#5	3'-6"	V2	" "
90	#6	8'-6"	S35	Beam
20	#6	3'-3"	H5	" & End Post
Int. Bent No. 3 (Superstr.)				
6	#11	36'-0"	G1	Beam
10	#11	15'-3"	G2	"
9	#11	33'-0"	G3	Drop Panel
36	#3	8'-0"	P1	Col.
78	#5	8'-0"	U2	Beam
24	#9	20'-3"	V7	Col.
Int. Bents No. 4 & 5 (Superstr.)				
12	#11	36'-0"	G1	Beam
20	#11	15'-3"	G2	"
18	#11	33'-0"	G3	Drop Panel
80	#3	8'-0"	P1	Col. 38-Bt.4 42-Bt.5
156	#5	8'-0"	U2	Beam
16	#9	21'-9"	V8	Col. Bt.#4
16	#9	23'-3"	V9	" Bt.#5
Int. Bent No. 6 (Superstr.)				
6	#11	36'-0"	G1	Beam
10	#11	15'-3"	G2	"
9	#11	33'-0"	G3	Drop Panel
44	#3	8'-0"	P1	Col.
94	#5	8'-0"	U2	Beam
24	#9	24'-3"	V10	Col.
Int. Bent No. 7 (Superstr.)				
5	#11	36'-0"	G1	Beam
8	#11	15'-3"	G2	"
10	#11	33'-0"	G3	Drop Panel
40	#3	8'-0"	P1	Col.
84	#5	8'-0"	U2	Beam
12	#9	5'-9"	V5	" & Col.
16	#9	19'-6"	V11	Col.
Int. Bents No. 2 & 7 (Substr.)				
24	#9	6'-0"	D1	Ftg.
8	#6	12'-0"	D2	"
40	#6	5'-9"	D4	"
Int. Bents No. 3, 4, 5 & 6 (Substr.)				
16	#6	12'-0"	D2	Ftg.
80	#5	3'-6"	D3	" 32-Bts 4 & 5 48-Bts 3 & 6
80	#6	5'-9"	D4	"



Note: "A" Indicates soundings taken with an Auger
"C" Indicates soundings taken with a Core Drill

LOG OF SOUNDINGS



PROFILE GRADE ELEVATION AT ℄ ROADWAY

BRIDGE: BOLIVAR STREET UNDERPASS

STATE ROAD ROUTE 50 RELOCATION

~~ABOUT~~ IN JEFFERSON CITY

PROJECT NO. RTE. 50-SEC. 26(2)U **STA.** 770+78.45

COLE **COUNTY**

DETAILED July 1964 BY Riks

CHECKED Sept. 1964 BY Sommerer

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

Sheet No. 2 of 7.

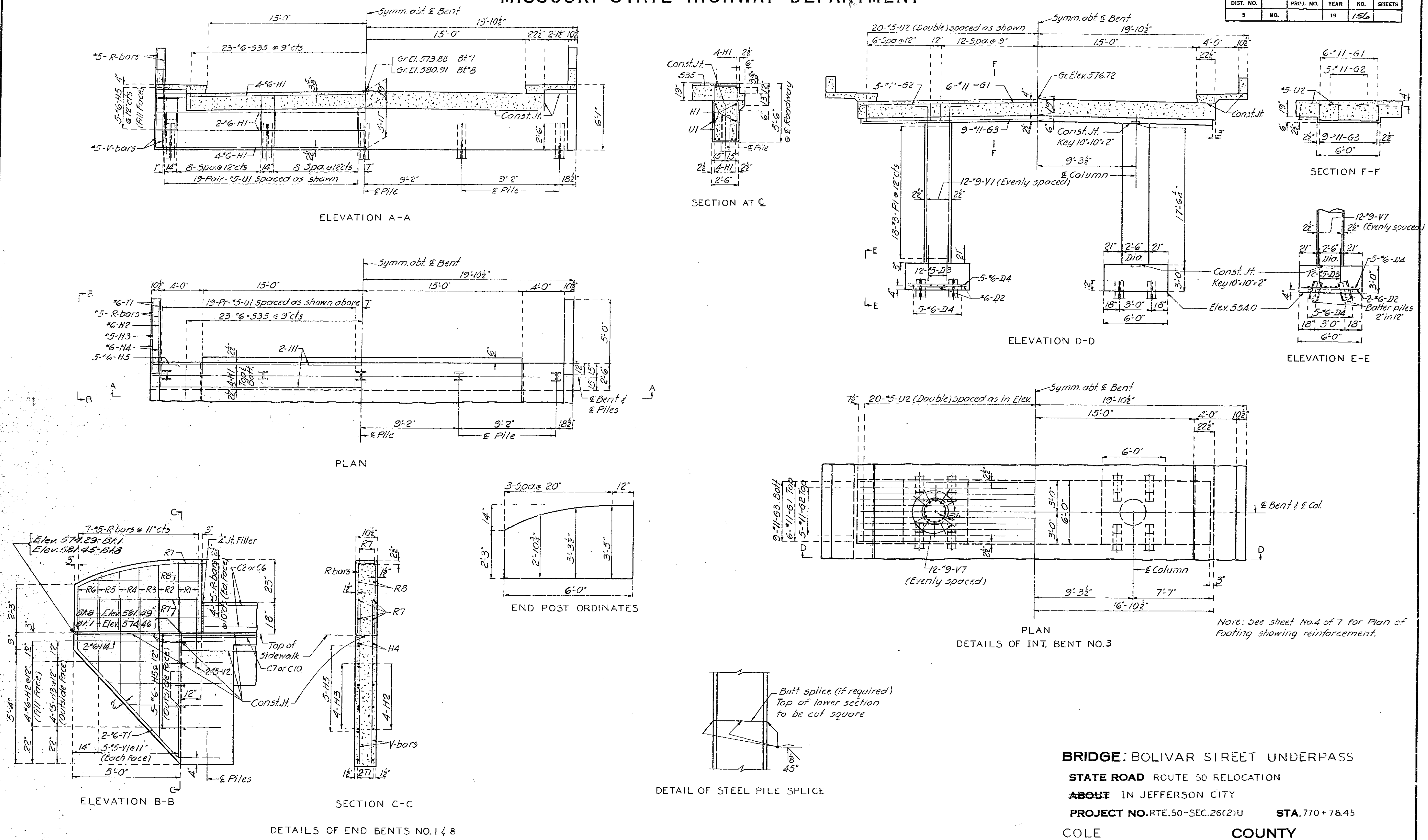
A-1420

No. 90.3 | Revised June 1961

287

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	156	



288

BRIDGE: BOLIVAR STREET UNDERPASS

STATE ROAD ROUTE 50 RELOCATION

~~ABOUT~~ IN JEFFERSON CITY

PROJECT NO. RTE.50-SEC.26(2)U **STA.** 770+78.45

COLE **COUNTY**

DETAILED Aug. 1964 BY Riks
CHECKED Sept. 1964 BY Sommerer

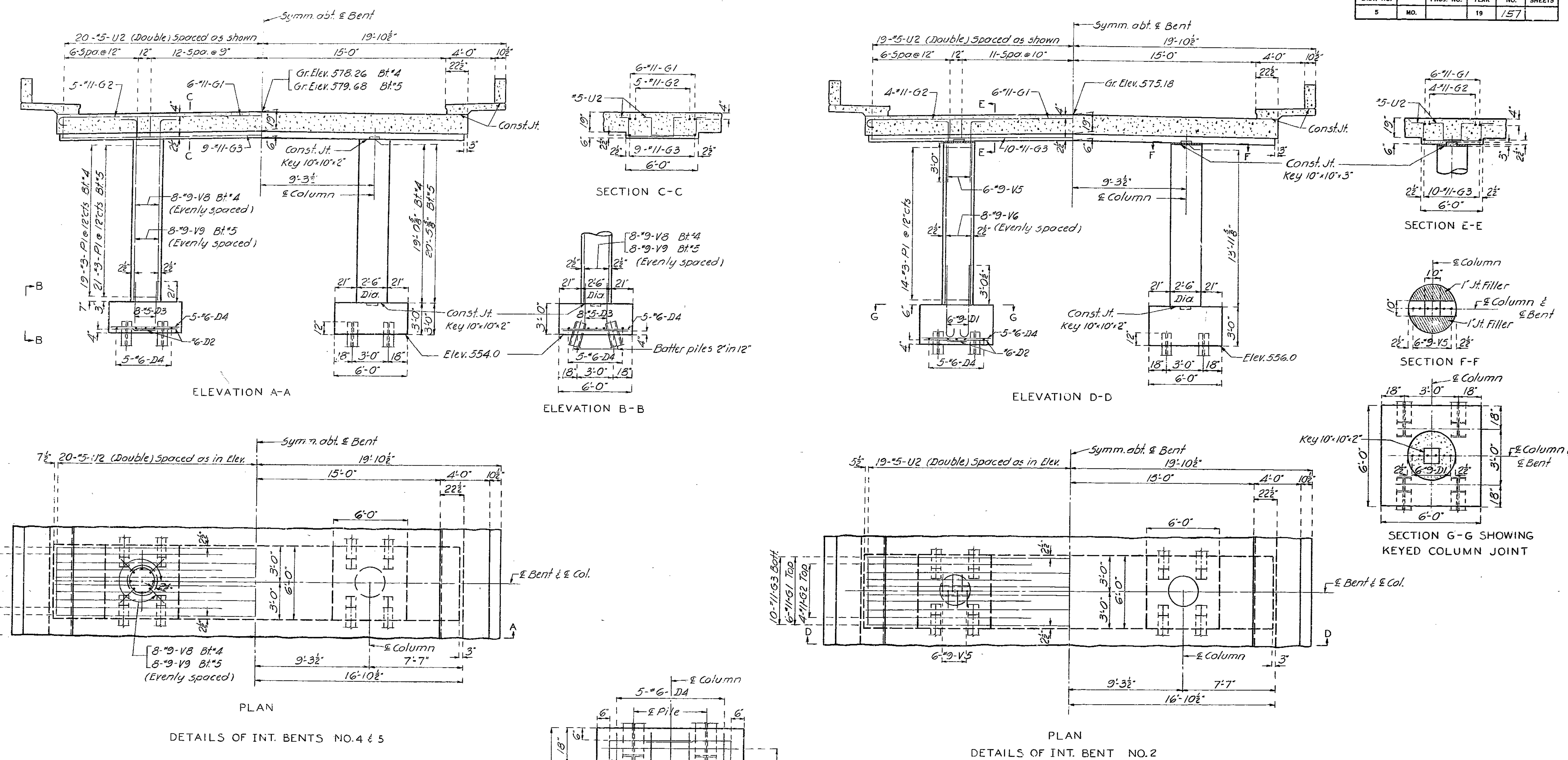
Note: This drawing is not to scale. Follow dimensions.

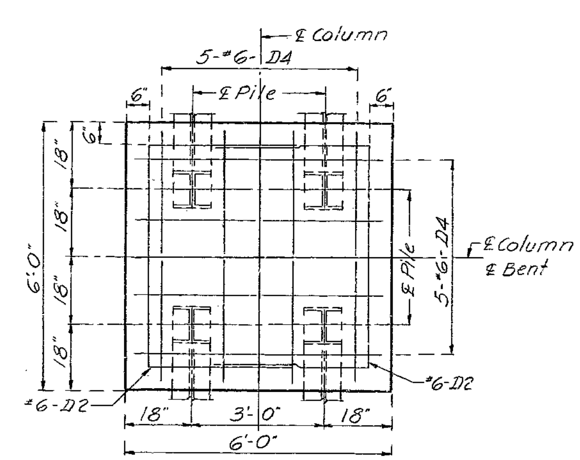
Sheet No. 3 of 7.

A-1420

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	157	





PLAN OF FOOTING
SHOWING REINFORCEMENT
(TYPICAL)

289

BRIDGE: BOLIVAR STREET UNDERPASS

STATE ROAD ROUTE 50 RELOCATION

~~ABOUT~~ IN JEFFERSON CITY

PROJECT NO. RTE. 50-SEC. 26(2) U **STA.** 770 + 78.45

COLE **COUNTY**

DETAILED July 1964 BY Riks

CHECKED Sept 1964 BY Sommerer

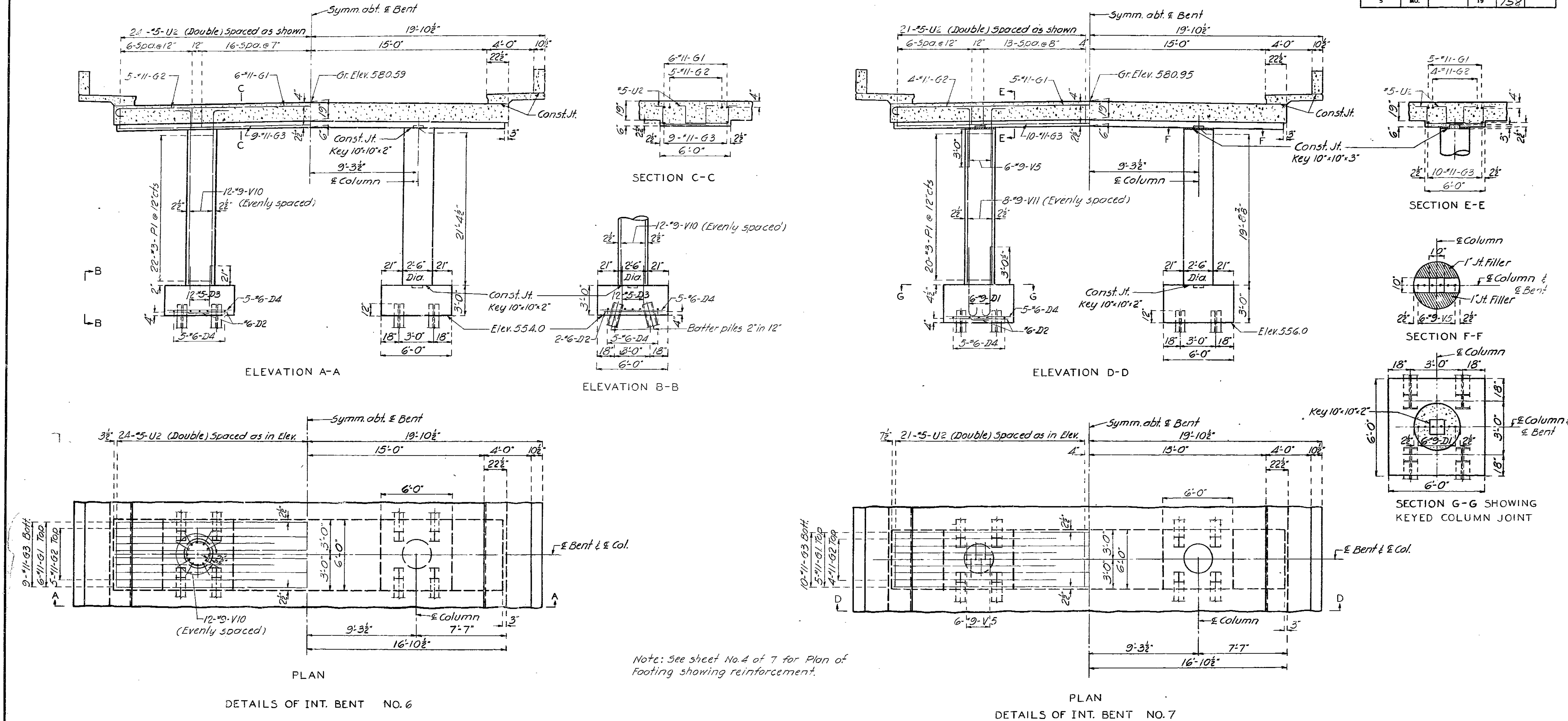
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 4 of 7.

A-1420

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	158	



Note: See sheet No. 4 of 7 for Plan of Footing showing reinforcement.

290

BRIDGE: BOLIVAR STREET UNDERPASS

STATE ROAD ROUTE 50 RELOCATION

~~**ABOUT**~~ IN JEFFERSON CITY

PROJECT NO. RTE.50-SEC.26(2)U **STA.** 770 + 78.45

COLE **COUNTY**

DETAILED July 1964 BY Riks
CHECKED Sept. 1964 BY Sommerer

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

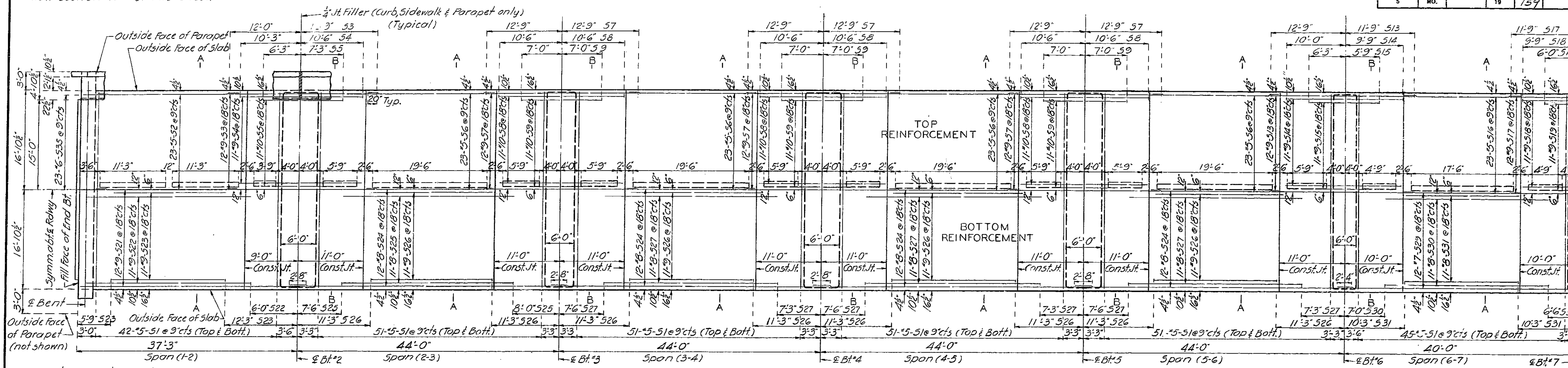
Sheet No. 5 of 7.

A-1420

Note: For location of reinforcing steel in parapet, sidewalk and curb see Elevation of Curb and Parapet, sheet No. 7 of 7, and Half section A-A of this sheet.

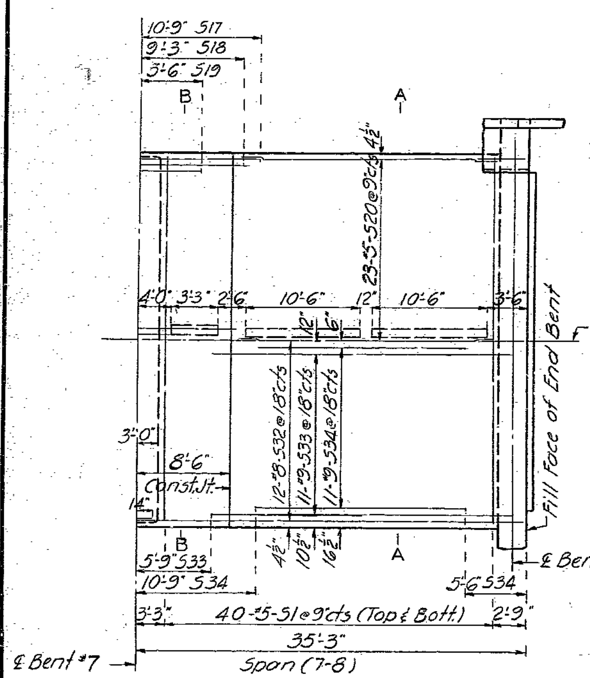
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	159	

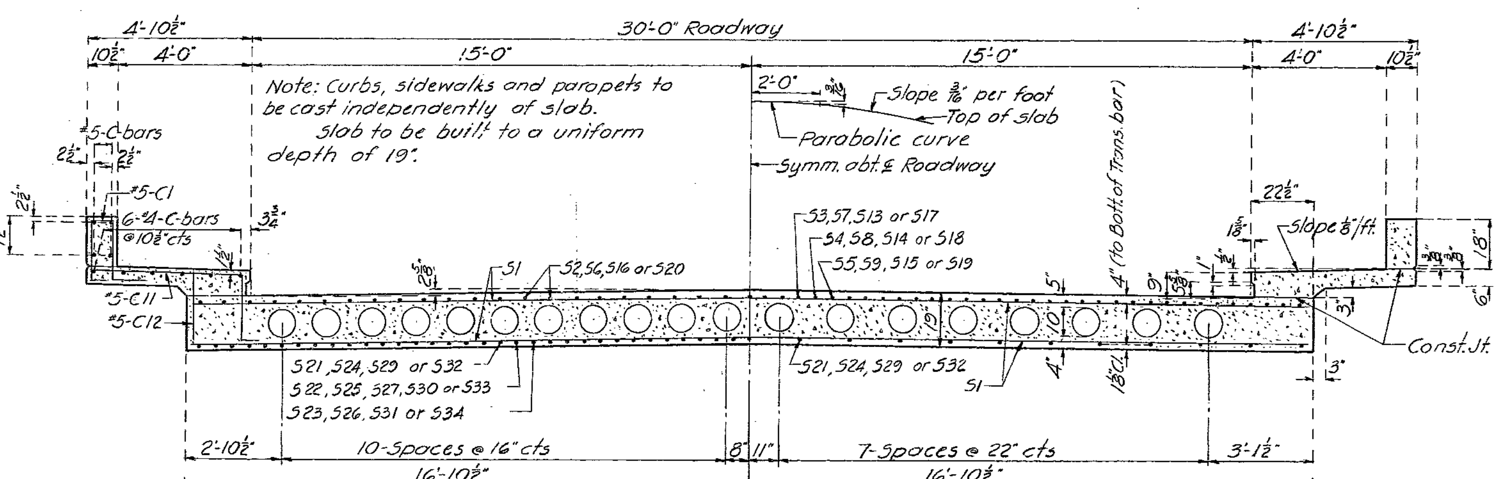


Note: Longitudinal dimensions shown are horizontal.

PLAN OF SLAB

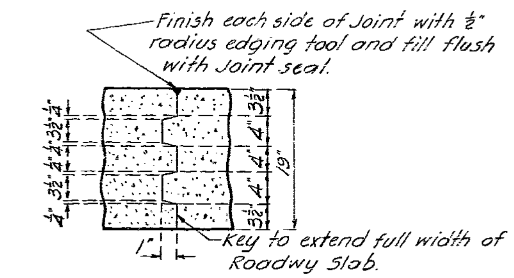


PART PLAN OF SLAB

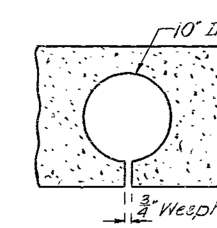


HALF SECTION A-A HALF SECTION B-B

Note: Fiber tubes for producing voids shall have an outside diameter of 10.0" and wall thickness of .225" 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.



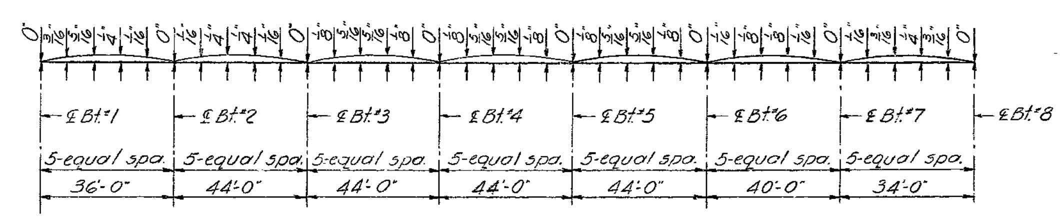
DETAILS OF SLAB CONSTRUCTION JOINT KEY



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

DETAIL OF WEEPHOLE IN VOIDS

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 25 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.



CAMBER DIAGRAM

BRIDGE: BOLIVAR STREET UNDERPASS

STATE ROAD ROUTE 50 RELOCATION

~~ABOUT~~ IN JEFFERSON CITY

PROJECT NO. RTE. 50-SEC. 26(2)U **STA.** 770+78.45

COLE **COUNTY**

DETAILED May 1964 BY Riks

CHECKED Sept 1964 BY Sommerer

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

Sheet No. 6 of 7.

A-1420

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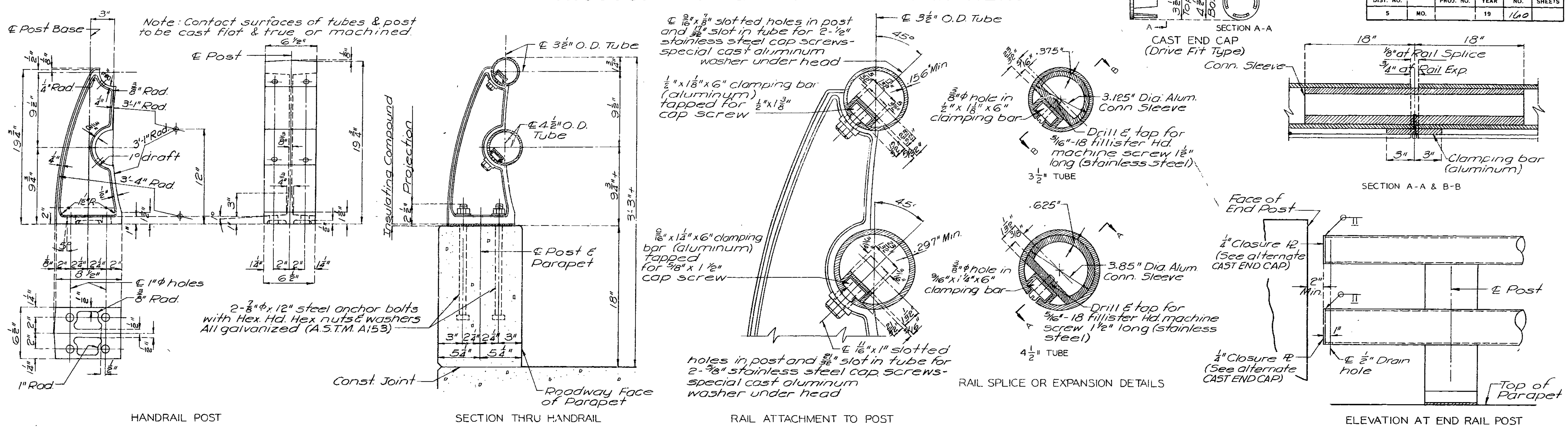
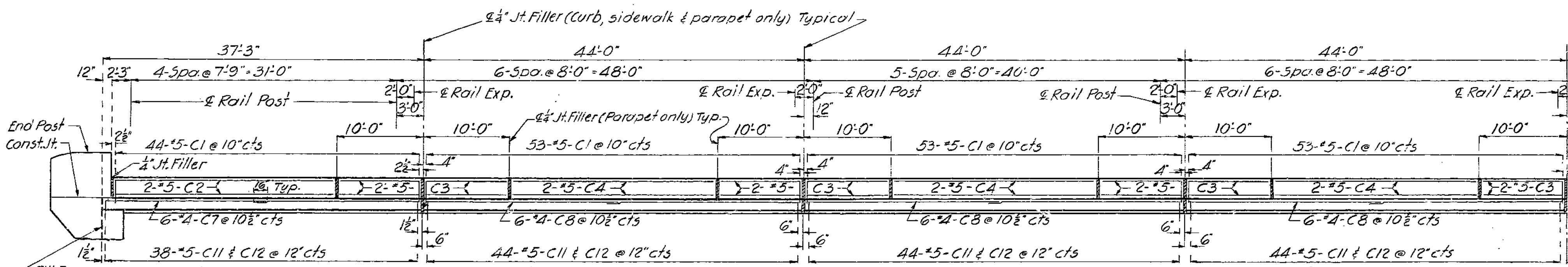
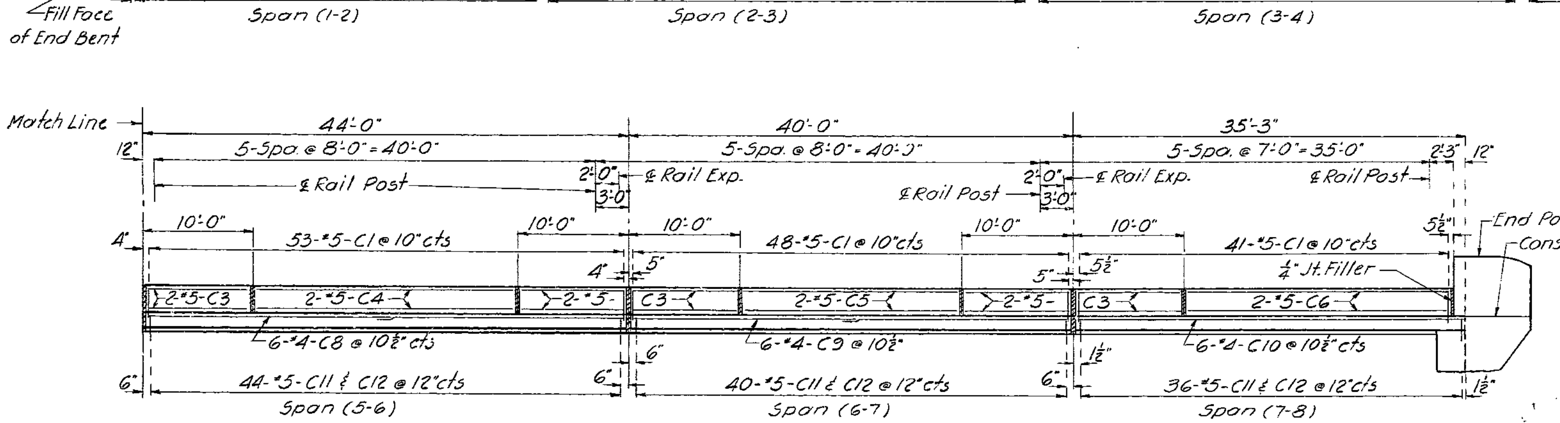
MISSOURI STATE HIGHWAY DEPARTMENT

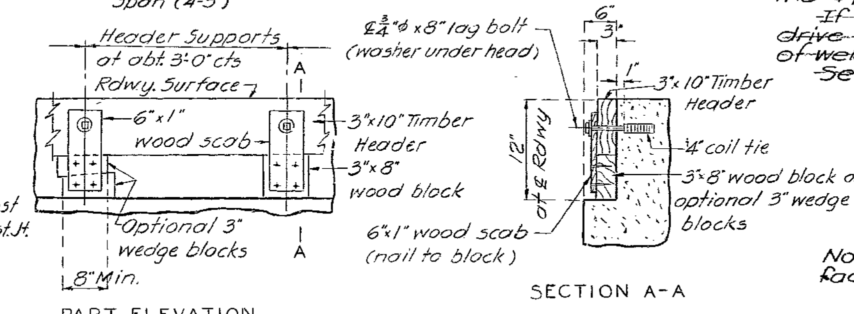
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	160	



TWO TUBE ALUMINUM RAIL







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

DETAIL OF TIMBER HEADER

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.

Top of curbs and parapets to be built parallel to grade. Concrete end post to be vertical.

All exposed edges of end posts and parapet to have ½" radius.

All outside corners of aluminum post to have ⅛" radius except as noted.

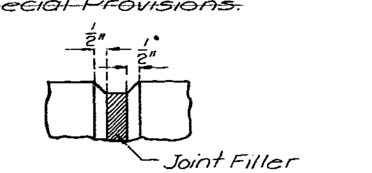
All fillets ¼" except as noted.

All drafts 2° except as noted.

Rail to be fabricated in two or three panel lengths ~~unless otherwise approved.~~

All rail splices shall be located near the ¼ point between rail posts.

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



Note: Use bevel as shown for exposed faces of all filled Joints.

DETAIL OF BEVEL FOR FILLED JOINTS

BRIDGE: BOLIVAR STREET UNDERPASS

STATE ROAD ROUTE 50 RELOCATION

~~**ABOUT**~~ IN JEFFERSON CITY

PROJECT NO. RTE. 50-SEC. 26(2)U **STA.** 770+78.45

COLE COUNTY

No. 1.5.6 July 1964 Revised Sept. 1964

DETAILED Sept. 1964 BY Riks

CHECKED Sept. 1964 BY Sommerer

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

Sheet No. 7 of 7.

A-1420

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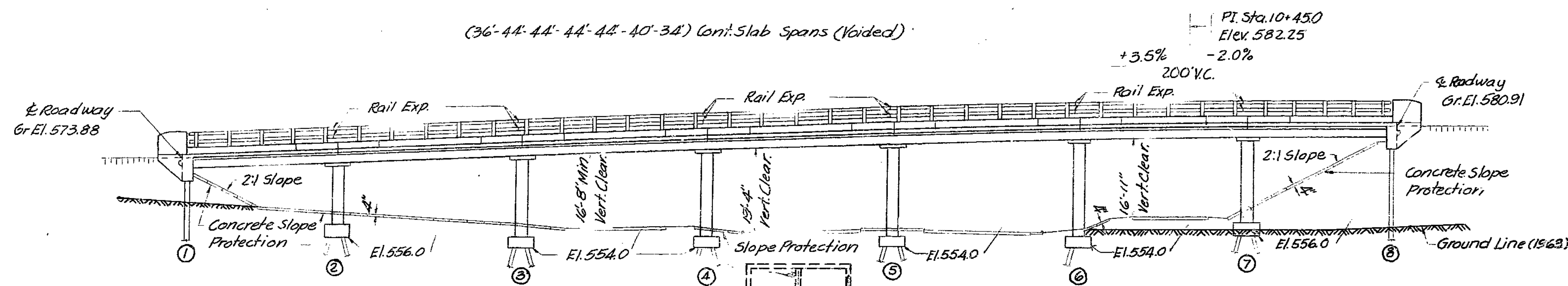
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	154	

(36'-44'-44'-44'-44'-40'-34') Cont. Slab Spans (Voided)



GENERAL ELEVATION

PILE DATA									
Bent No.		1	2	3	4	5	6	7	8
Pile Type and Size		10 BP42							
Number		5	8	8	8	8	8	8	5
Plan Bearing	Tons	55	55	55	55	55	55	55	55
Hammer		Heavy Power							

Note: All pile were driven to practical refusal into solid rock at not less than the Plan Bearing shown.

Steel pile authorized in lengths greater than 65 feet were furnished in two pieces for field splicing and these splices were paid in accordance with Standard Specification 52.6.5.

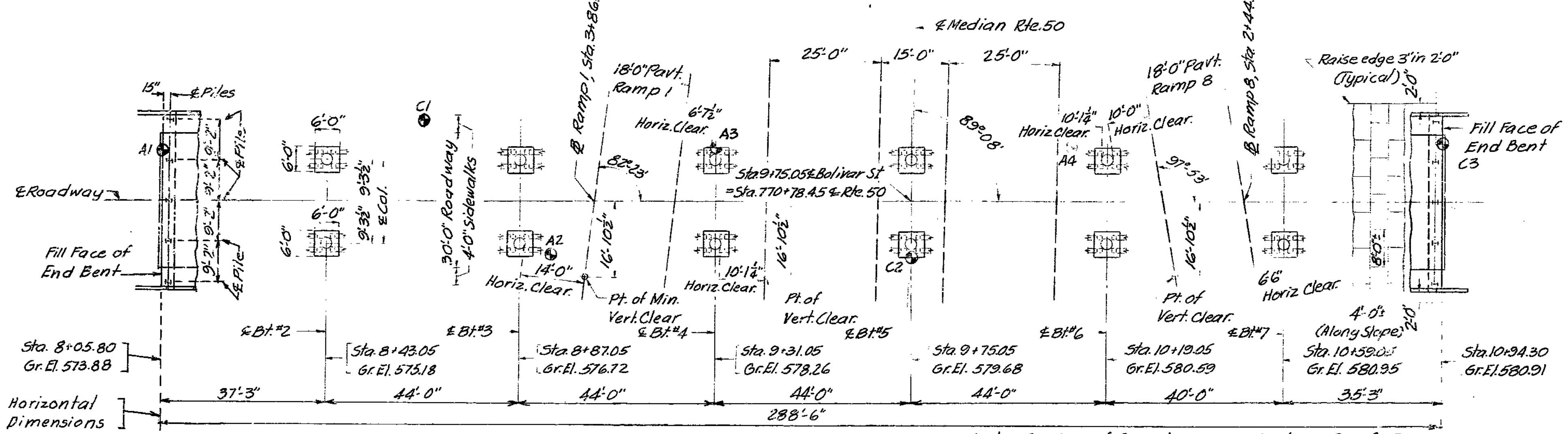
All piling were driven with an approved power hammer developing an energy of 19,500 ft. lbs and having a ram weighing 6500 lbs.

Note: Compacted roadway fill (full roadway width) was placed up to elevation of bottom of concrete beam in front of and not less than 25'-0" in back of End Bent No. 1 before steel piles were driven for bent No. 1.

Compacted roadway fill including surcharge at End Bent No. 8 was in place to full height shown on Road Plans, for at least 6 months or until settlement had been attained, before work was started on End Bent No. 8.

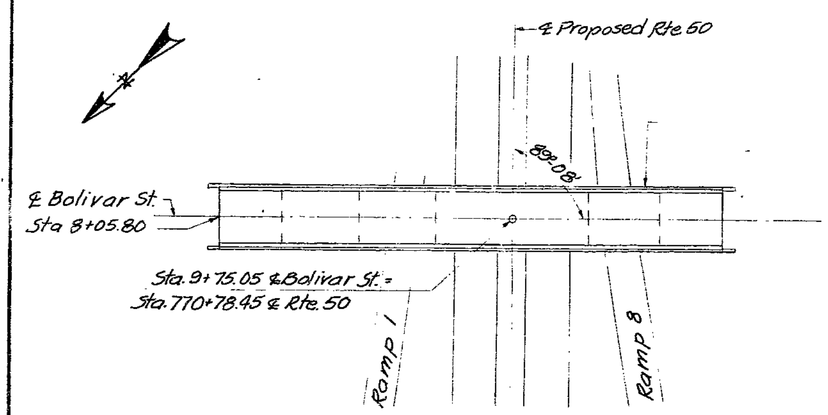
GENERAL NOTES:

Design Specifications A.A.S.H.O. - 1961
Loading H20-44 (15# sq. ft. Future Wearing Surface)
Steel Pile was A.S.T.M. A36-62T
Reinforcing Steel Stress 20,000 psi.
Concrete, Class B Stress 1,200 psi
Concrete, Class B1 Stress 1,600 psi.
Superstructure concrete ~ Class B1
Substructure concrete ~ Class B
Superstructure deck was surface sealed.
Where joint filler is specified on the plans it conformed to Standard Specification 157.2.4



PLAN

Note: For Log of Soundings see sheet No. 2 of 7.
⊕ Indicates location of sounding.



LOCATION SKETCH

FINAL QUANTITIES				
Item		Substr.	Superstr.	Total
Class 1 Excavation for Structures	Cu. Yd.	131.0		131.0
Steel Piles in Place (10")	Lin. Ft.	3683		3683
Steel Pile Cut-offs (10")	Lin. Ft.	268		268
Class B Concrete	Cu. Yd.	48.0		48.0
Class B1 Concrete	Cu. Yd.		678.0	678.0
Reinforcing Steel	Lb.	2240	154730	156970
H.S. Bridge Rail (Two tube type)	Lin. Ft.		572	572

Note: Class 1 Excavation for Structures was computed from the original ground line (1963) or from the lower limits of roadway excavation, whichever was lower regardless of the sequence of operations and the method of removal.

No payment for excavation was allowed at End Bents No. 1 & 8.

All concrete and reinforcement above footings is included in superstructure quantities.

The final quantity of 10" Steel Piles in place includes splices at 8' per splice.

Note: Concrete slope protection on front slopes of end bents and slopes to the Ramp Shoulders is included under roadway items. Provided 1" filler (Standard Specification 157.1.7) between Slope Protection pavement and end bents and 1" filler around intermediate bents.

B.M. Elev.

FINISHED

BRIDGE: BOLIVAR STREET UNDERPASS
STATE ROAD ROUTE 50 RELOCATION
~~ABOUT~~ IN JEFFERSON CITY
PROJECT NO. RTE. 50-SEC. 26(2)0 STA. 770+78.45
COLE COUNTY

FINISHED

SUBMITTED BY [illegible] BRIDGE ENGINEER DATE [illegible]
APPROVED BY [illegible] CHIEF ENGINEER DATE [illegible]

STD.
A-1420

DESIGNED May 1964 BY Livingston
DETAILED July 1964 BY Riks
CHECKED Sept. 1964 BY Sommerer

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

Sheet No. 1A of 1

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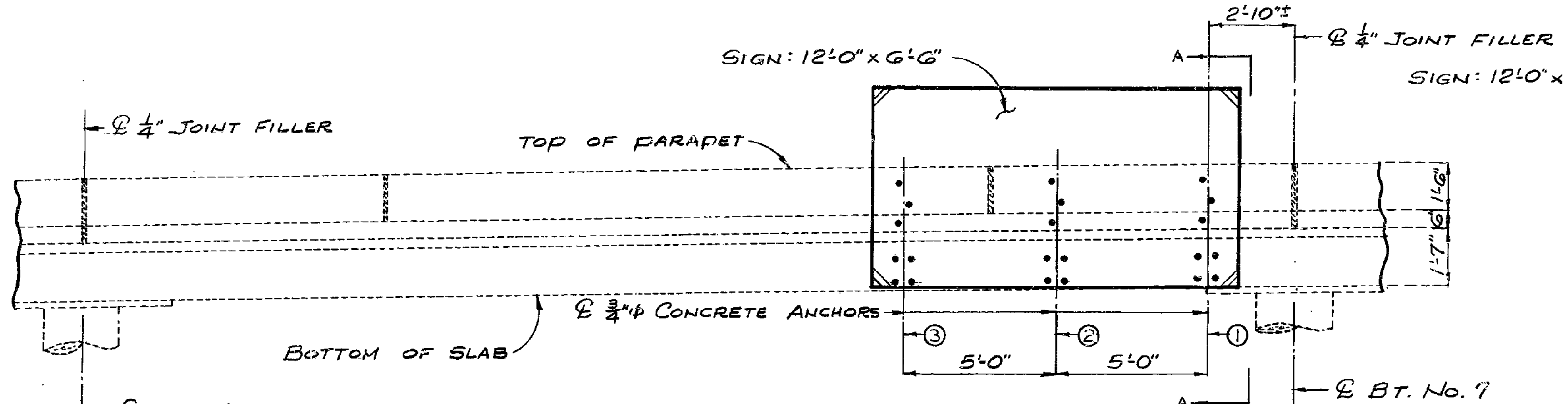
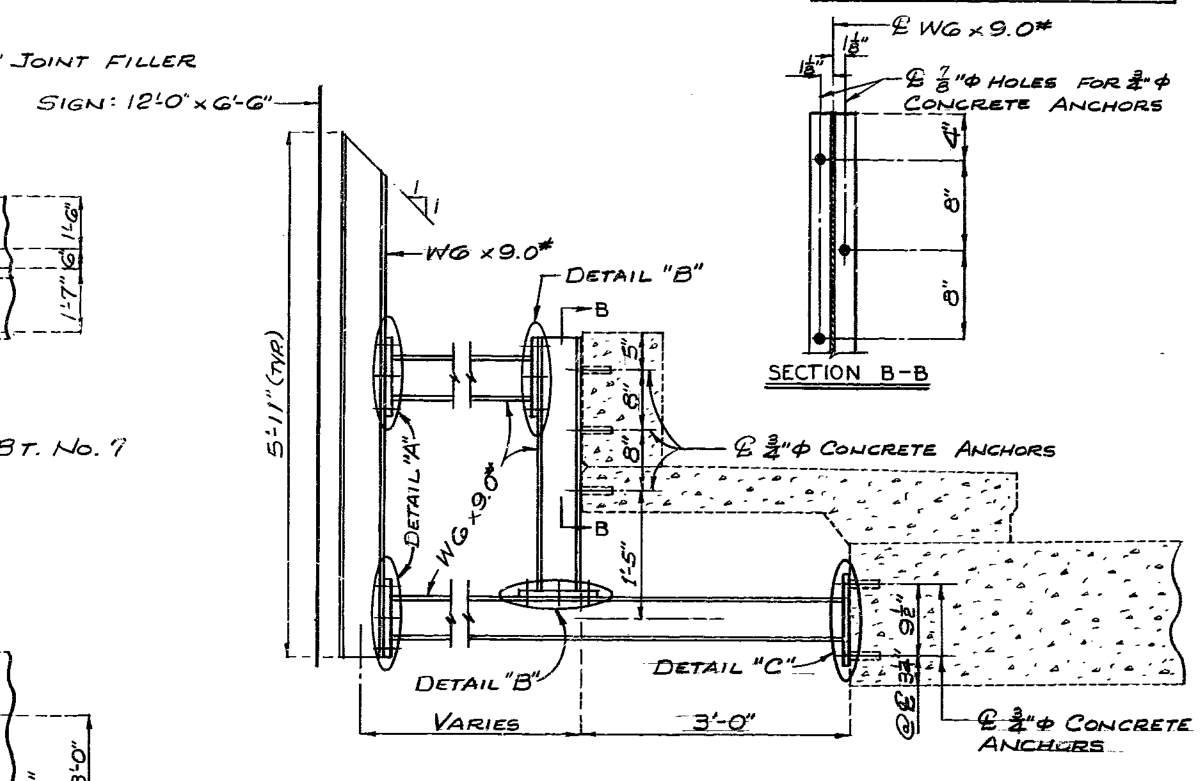
STATE	PROJ. NO.	SHEET NO.
MO.		



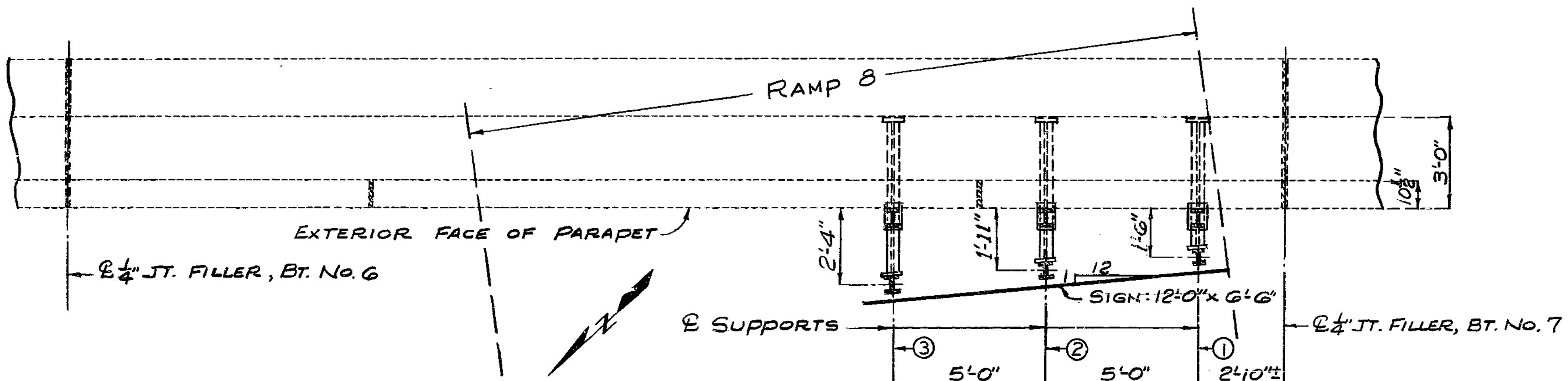
PARTIAL ELEVATION

WEST SIDE OF BRIDGE OVER RAMP 8



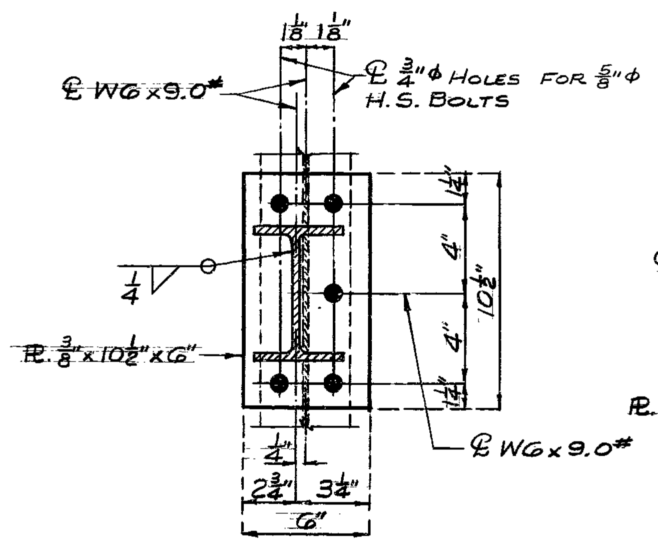
SECTION B-B

SECTION A-A

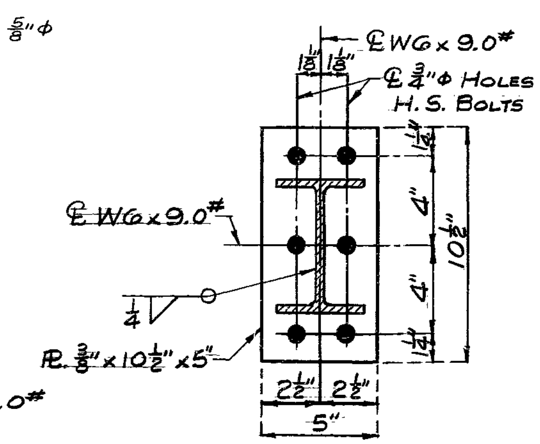


PARTIAL PLAN

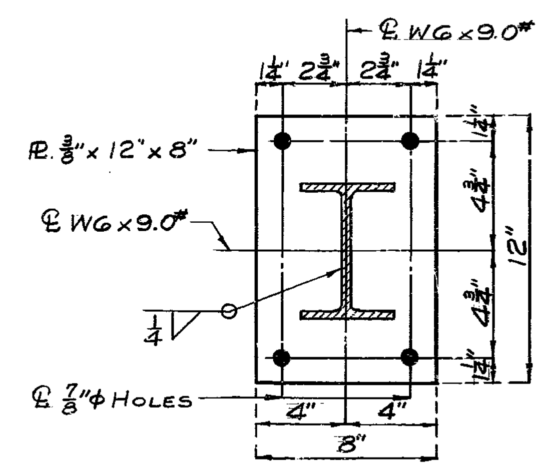
WEST SIDE OF BRIDGE OVER RAMP A



DETAIL A



DETAIL B



DETAIL C

GENERAL NOTES:

ALL STRUCTURAL STEEL SHALL BE ASTM A36, GALVANIZED.

ALL BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED.

FIELD CONNECTIONS: HIGH-STRENGTH BOLTS 5/8"φ, HOLES 3/4"φ EXCEPT AS NOTED. THE TURN-OF-NUT METHOD OF OBTAINING BOLT TENSION FOR HIGH-STRENGTH BOLTS MAY BE USED (SEE STD SPEC. 712.10.2).

CONCRETE ANCHORS SHALL BE THE NON-DRILLING EXPANSION TYPE. THEY SHALL HAVE A CERTIFIED CONCRETE PULL-OUT STRENGTH (ULTIMATE LOAD) OF AT LEAST 15,500 POUNDS IN 3500 psi CONCRETE. THE HOLE SHALL BE PRE-DRILLED WITH A CONVENTIONAL CARBIDE MASONRY BIT.

THE COST OF FURNISHING AND ERECTING THE SIGN SUPPORTS, INCLUDING THE CONCRETE ANCHORS COMPLETE-IN-PLACE, SHALL BE PAID FOR AS FABRICATED SIGN SUPPORT BRACKETS, LUMP SUM.

CENTER AND LEVEL SIGN ON BRACKETS.

SIGN TO BE FURNISHED BY OTHERS.

JOB NO. 5-U-50-258E
RES. 50-63

SIGN SUPPORTS

376

DETAILED JUNE 1988
CHECKED JUNE 1988

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

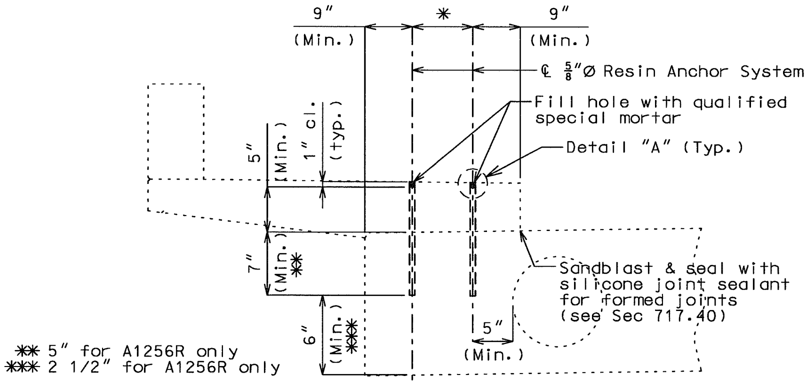
Sheet No. 1 of 1

COLE COUNTY

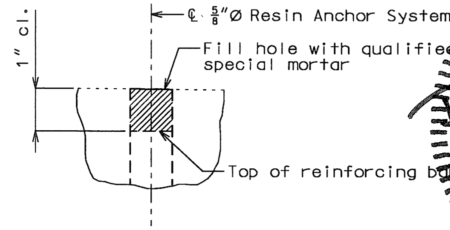
A-1420A

ROUTE	STATE	DISTRICT	SHEET NO.
	MO	BR	
JOB NO. J5S0978			
CONTRACT ID			
PROJECT NO.			
COUNTY VARIES			

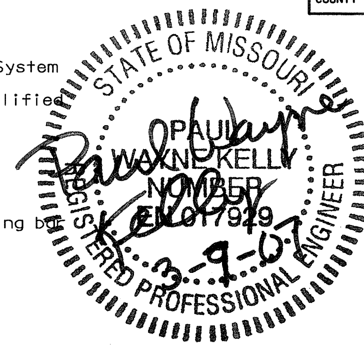
MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION



PART SECTION SHOWING RESIN ANCHORS

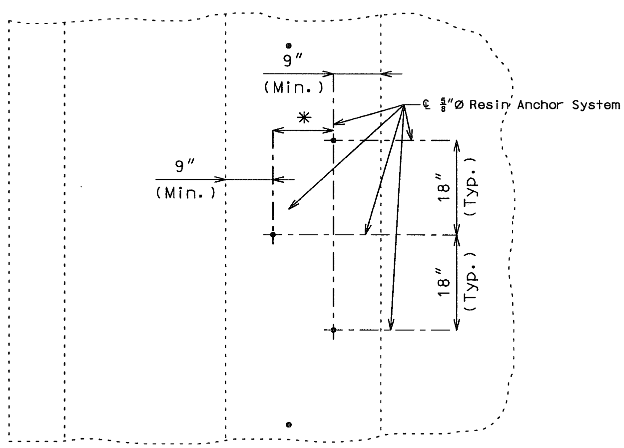


DETAIL "A"



Estimated Quantities				
Item		Estimated Quantities	Final Quantities
Resin Anchor System (Slab Bridges)	each	1,045	
Silicone Joint Sealant	linear foot	1,564	

8



PART PLAN SHOWING RESIN ANCHORS

✱ This dimension may be reduced to 0″ to avoid rebar and voids in the slab.

GENERAL NOTES:

See Roadway Plans for traffic control.

Temporary weight shall be placed on the sidewalk in line with the resin anchors. This temporary weight shall be sufficient to balance the cantilevered sidewalk. It shall remain in place until the epoxy bonding agent is cured.

Resin Anchors:

The contractor shall use one of the qualified resin anchor systems in accordance with Sec 1039.

Cost of furnishing and installing the anchor system complete in place shall be included in the price bid for Resin Anchor System (Slab Bridges) including the qualified special mortar to cap the resin anchor.

The minimum ultimate pullout strength shall be in accordance with Sec 1039 with f′c = 4,000 psi.

An epoxy coated #5 Grade 60 reinforcing bar shall be substituted for the ⅝″Ø threaded rod stud.

The epoxy bonding agent shall extend the full length of reinforcing bar.

The Silicone Joint Sealant will be measured to the nearest linear foot. Silicone Joint Sealant, including all materials, equipment, labor and any other incidental work necessary to complete this work, will be paid for at the contract unit price for Silicone Joint Sealant.

CANTILEVER SIDEWALK RETROFIT FOR SLAB BRIDGES

Detailed Mar. 2007
Checked Mar. 2007

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

Sheet No. 1 of 1

VARIES

REV.

T:\br-proj\gabelr1\J5S0978_sidewalk_retrofit.dgn 02:49:20 PM 03/08/2007

DIST 5 SLAB BRIDGES WITH SIDEWALKS
FOR CONTRACT
(Total 6)

Bridge No	County	Feature Intersected	Facility Carried	Bridge Length Ft.	Comment	Resin Anchor System (Slab Bridges)	Silicone Joint Sealant Lin. Ft.
A0566	Cole	US 50	Jackson	89		119	178
A0568	Cole	US 50	Chestnut	89		119	178
A0569	Cole	US 50	Clark Ave.	90	Conduit	120	180
A1187	Cole	US 50	Dix RD	92	Sidewalk on one side only	62	92
A1256R	Boone	Hinkson	Rte. 740	245	Sidewalk on one side only	164	245
A1308	Cole	US 54	Jefferson ST	184	Sidewalk on one side only	123	184
A1420	Cole	US 50	Bolivar ST	253		338	506.5
					SubTotal	**1,045**	**1,564**

6

STATE OF MISSOURI
PAUL
WAYNE KELLY
NUMBER
PE-017929
REGISTERED PROFESSIONAL ENGINEER
3-9-07

FED. ROAD DIV. No.	STATE	FEDERAL PROJECT No. & SEC.		SHEET No.
5	MO.	U-54-3(8)		
DIST. No.	COUNTY		ROUTE	SEC.
5	COLE		54	

TITLE SHEET

SEE

COLE CO. RTE. 54

CO26-54(6)

A-1305

FINAL SURVEY	BY	DATE
SURVEYED		
PLOTTED		
NOTE BOOK TEMPLATE		
AREAS		
P.D. AREAS CHECKED		

ORIGINAL SURVEY	BY	DATE
SURVEYED		
PLOTTED		
NOTE BOOK TEMPLATE		
AREAS		
NO. AREAS CHECKED		

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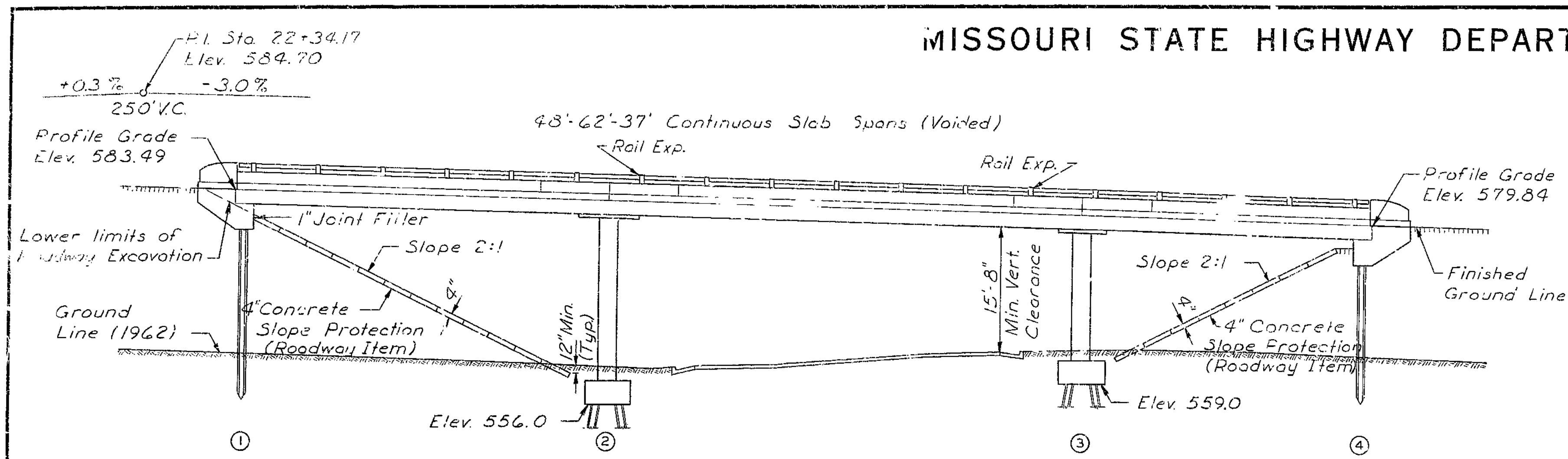
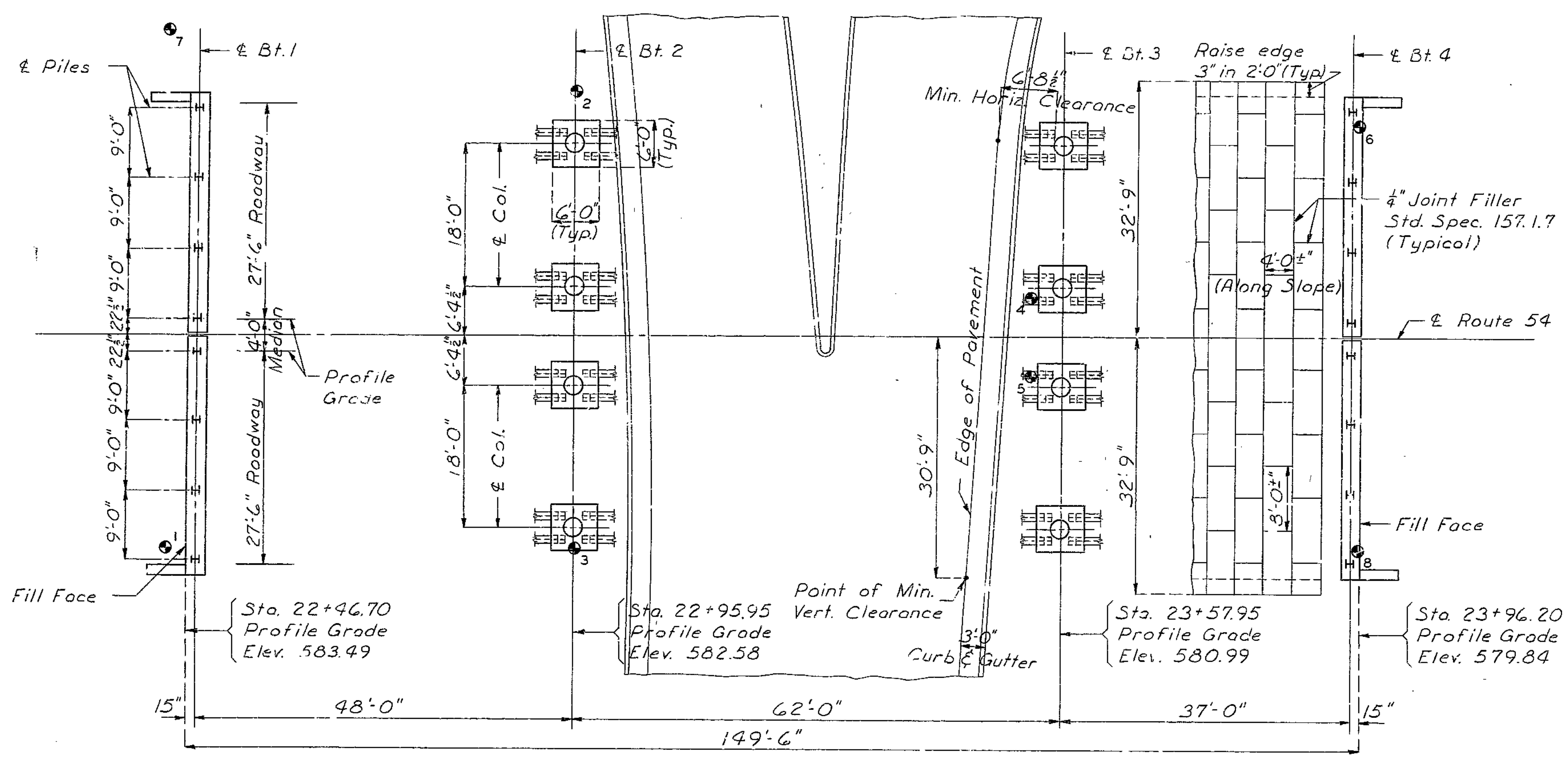
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	61	



GENERAL ELEVATION



PLAN

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 25'-0" in back of End Bent 4 before steel piles are driven.
See road plans for surcharged fill at End Bent 1.

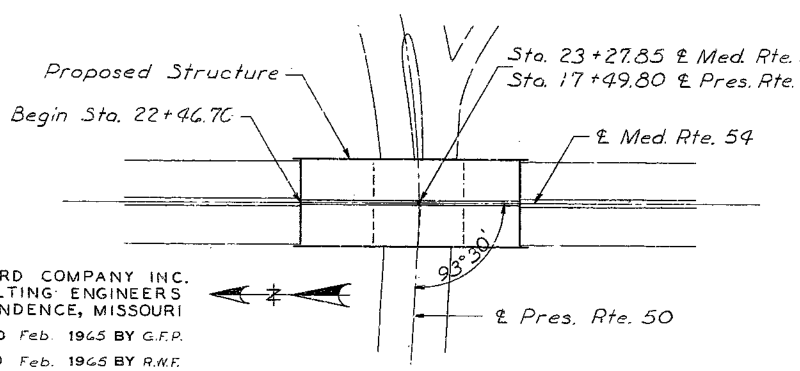
PILE DATA				
BENT NO.	1	2	3	4
Pile Type and Size	10BP42	10BP42	10BP42	10BP42
Number	8	16	16	8
Approximate Length Ft.	70	65	80	95
Plan Bearing Tons	56	56	56	56
Minimum Required Bearing Tons	38	49	45	32
Hammer	Heavy Power	Heavy Power	Heavy Power	Heavy Power

Note: All pile shall be driven to practical refusal or into solid rock or other point bearing material at not less than the Plan Bearing shown, unless excessive splicing is required to obtain Plan Bearing, in which case the engineer will authorize a lesser bearing, but in no case less than the Minimum Required Bearing.
All piling shall be driven with an approved power hammer developing an energy of not less than 19,000 ft. lbs. and having a ram weighing not less than 4,500 lbs.
Steel pile authorized in lengths greater than 65' may be furnished in two pieces for field splicing.

GENERAL NOTES:
Design Specifications:
A.A.S.H.O. - 1961
Design Loading:
H20-44
15#/sq. ft. Future Wearing Surface
Earth 120#. Equivalent Fluid Pressure 30#.
Design Unit Stresses:
Class B Concrete (substructure) fc = 1,200 p.s.i.
Class B1 Concrete (superstructure) fc = 1,600 p.s.i.
Reinforcing Steel fs = 20,000 p.s.i.
Steel Pile (A.S.T.M. A36-62T) fb. = 9,000 p.s.i.

Superstructure deck to be surface sealed.
Falsework over existing lanes shall be constructed with a minimum vertical clearance of 13'-6" from the high side of the existing roadway and a minimum horizontal clearance of 16'-0" for each direction of traffic.

Note: For Boring Data see Sheet No. 2.
"●" Indicates location of boring.



LOCATION SKETCH

ESTIMATED QUANTITIES				
ITEM		SUBSTR.	SUPERSTR.	TOTAL
Class I Excavation for Structures	Cu.Yds.	160	—	160
Steel Piles in Place (10")	Lin.Ft.	3496	—	3496
Steel Pile Cut-offs (10")	Lin.Ft.	144	—	144
Class B Concrete	Cu.Yds.	32.0	—	32.0
Class B1 Concrete	Cu.Yds.	—	648.1	648.1
Reinforcing Steel	Lbs.	1650	156,960	158,610
Bridge Rail (Single Tube Type)	Lin.Ft.		298	298

Note: All concrete and reinforcement above footings in Intermediate bents is included in superstructure quantities.
No payment for excavation will be allowed at End Bent 4.
Concrete in end posts, parapets and curbs is included with superstructure concrete.

PRICHARD COMPANY INC.
CONSULTING ENGINEERS
INDEPENDENCE, MISSOURI
DESIGNED Feb. 1965 BY G.F.P.
DETAILED Feb. 1965 BY R.N.F.
CHECKED MARCH 1965 BY R.H.K.

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

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

Sheet No. 1 of 7.

B.M. #5 - Elev. 560.34 - □ on W. Side of Conc. Base of Signal Light 136' Lt. Sta. 22+82. (U.S.G.S. Datum)

BRIDGE OVER EXISTING ROUTE 50

STATE ROAD - ROUTE 54 RELOCATION
IN JEFFERSON CITY
PROJECT NO. U-54-3(8) (RTE. 54) C026-54(6) STA. 22+46.7
COLE COUNTY

SUBMITTED BY D.B. Jenkins BRIDGE ENGINEER DATE 3/27/65
APPROVED BY W.A. Snider CHIEF ENGINEER DATE 3/27/65

STD. 54.00
A-1305

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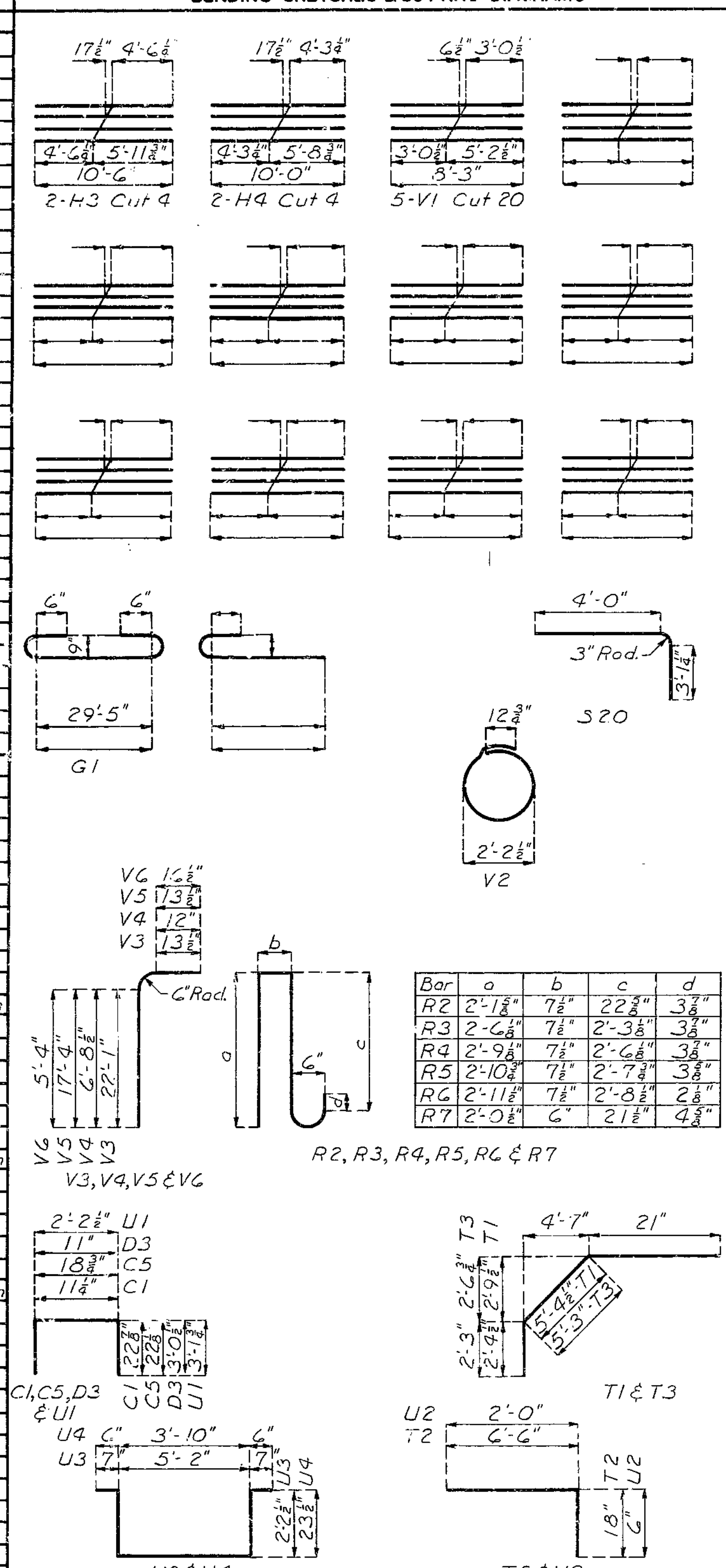
MISSOURI STATE HIGHWAY DEPARTMENT

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

COMPLETE BILL OF REINFORCING STEEL

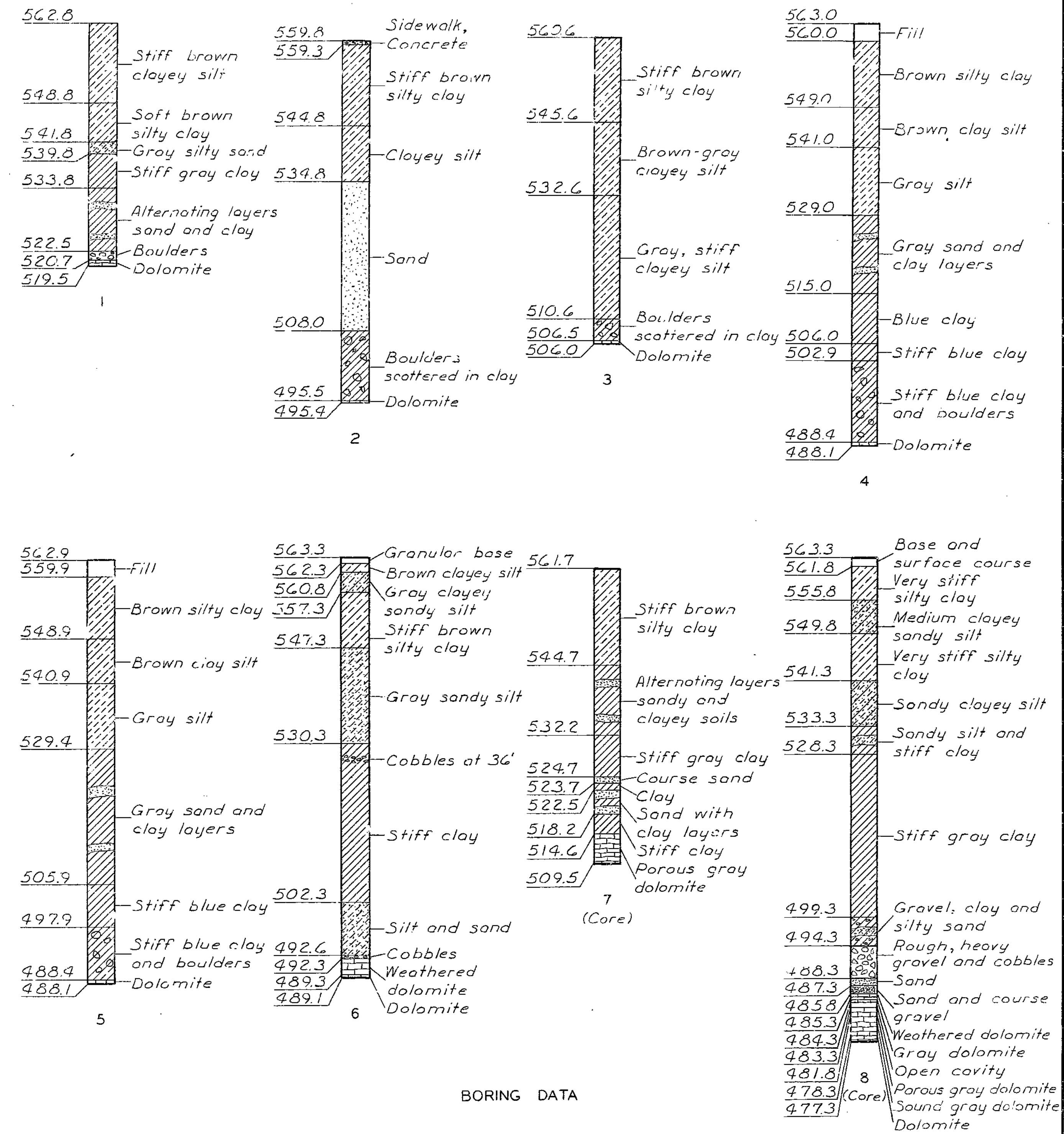
NO.	SIZE	LENGTH	MARK	LOCATION
SUPERSTRUCTURE				
320	#5	4'-9"	C1	Curb
8	#5	27'-9"	C2	"
8	#5	31'-6"	C3	"
8	#5	22'-3"	C4	"
300	#5	5'-3"	C5	Median
12	#5	25'-3"	C6	"
12	#5	31'-6"	C7	"
12	#5	19'-9"	C8	"
24	#5	4'-9"	R1	End Post
4	#5	5'-9"	R2	"
4	#5	6'-6"	R3	"
4	#5	7'-0"	R4	"
4	#5	7'-3"	R5	"
8	#5	7'-3"	R6	"
358	#5	5'-6"	R7	Parapet
16	#5	20'-9"	R8	"
16	#5	22'-6"	R9	"
8	#5	29'-0"	R10	"
32	#5	8'-9"	R11	"
656	#5	30'-3"	S1	Slab
82	#5	29'-6"	S2	"
42	#11	36'-0"	S3	"
40	#11	26'-0"	S4	"
40	#11	19'-0"	S5	"
82	#5	31'-9"	S6	"
42	#11	32'-3"	S7	"
40	#11	23'-3"	S8	"
40	#11	15'-6"	S9	"
82	#5	19'-0"	S10	"
42	#10	55'-0"	S11	"
40	#10	38'-0"	S12	"
40	#11	29'-0"	S13	"
42	#10	49'-6"	S14	"
40	#11	41'-0"	S15	"
40	#11	30'-9"	S16	"
42	#8	49'-0"	S17	"
40	#8	29'-0"	S18	"
40	#9	21'-6"	S19	"
SUPERSTRUCTURE END BENT 1				
24	#6	30'-3"	H1	Beam
2	#4	27'-3"	H2	Slab Notch
2	#6	10'-6"	H3	Beam
2	#5	10'-0"	H4	"
2	#6	6'-6"	H5	"
2	#5	6'-3"	H6	"
8	#6	4'-0"	H7	"
82	#6	7'-6"	S20	Slab & Beam
4	#6	9'-6"	T1	Beam
4	#6	8'-0"	T2	"
124	#5	8'-6"	U1	"
74	#4	2'-6"	U2	Slab & Beam
10	#5	8'-3"	V1	Beam
SUPERSTRUCTURE INT. BENT 2				
26	#9	32'-9"	G1	Beam
28	#9	30'-0"	G2	"
124	#5	10'-9"	U3	"
84	#3	8'-0"	V2	Col. Ties
32	#9	24'-0"	V3	Column
16	#8	8'-6"	V4	"

BENDING SKETCHES & CUTTING DIAGRAMS



Bar	a	b	c	d
R2	2'-1 5/8"	7 1/2"	22 5/8"	3 7/8"
R3	2'-6 1/8"	7 1/2"	2'-3 1/8"	3 7/8"
R4	2'-9 1/8"	7 1/2"	2'-6 1/8"	3 7/8"
R5	2'-10 3/4"	7 1/2"	2'-7 3/4"	3 5/8"
R6	2'-11 1/2"	7 1/2"	2'-8 1/2"	2 1/8"
R7	2'-0 1/2"	6"	21 1/2"	4 5/8"

NO.	SIZE	LENGTH	MARK	LOCATION
SUPERSTRUCTURE INT. BENT 3				
28	#9	32'-9"	G1	Beam
26	#9	30'-0"	G2	"
152	#5	8'-9"	U4	"
68	#3	3'-0"	V2	Col. Ties
32	#9	19'-3"	V5	Column
32	#11	7'-6"	V6	"
SUPERSTRUCTURE END BENT 4				
24	#6	30'-3"	H1	Beam
2	#4	27'-3"	H2	Slab Notch
2	#6	10'-6"	H3	Beam
2	#5	10'-0"	H4	"
2	#6	6'-6"	H5	"
2	#5	6'-3"	H6	"
8	#6	4'-0"	H7	"
82	#6	7'-6"	S20	Slab & Beam
4	#6	9'-3"	T3	Beam
4	#6	8'-0"	T2	"
124	#5	8'-6"	U1	"
74	#4	2'-6"	U2	Slab Notch
10	#5	8'-3"	V1	Beam
SUBSTRUCTURE INT. BENT 2				
32	#9	4'-6"	D1	Footings
32	#6	7'-0"	D3	"
SUBSTRUCTURE INT. BENT 3				
32	#9	4'-6"	D1	Footings
32	#6	7'-0"	D3	"



BORING DATA

Note: For location of soundings see Sheet 1.

BRIDGE OVER EXISTING ROUTE 50

STATE ROAD - ROUTE 54 RELOCATED

IN JEFFERSON CITY

PROJECT NO. U-54-3(8) (RTE. 54) **STA.** 22+46.7

C02-54(2)

COLE **COUNTY**

DETAILED Feb. 1965 BY R.W.F.

CHECKED MARCH 1965 BY R.H.K.

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

Sheet No. 2 of 7.

A-1305

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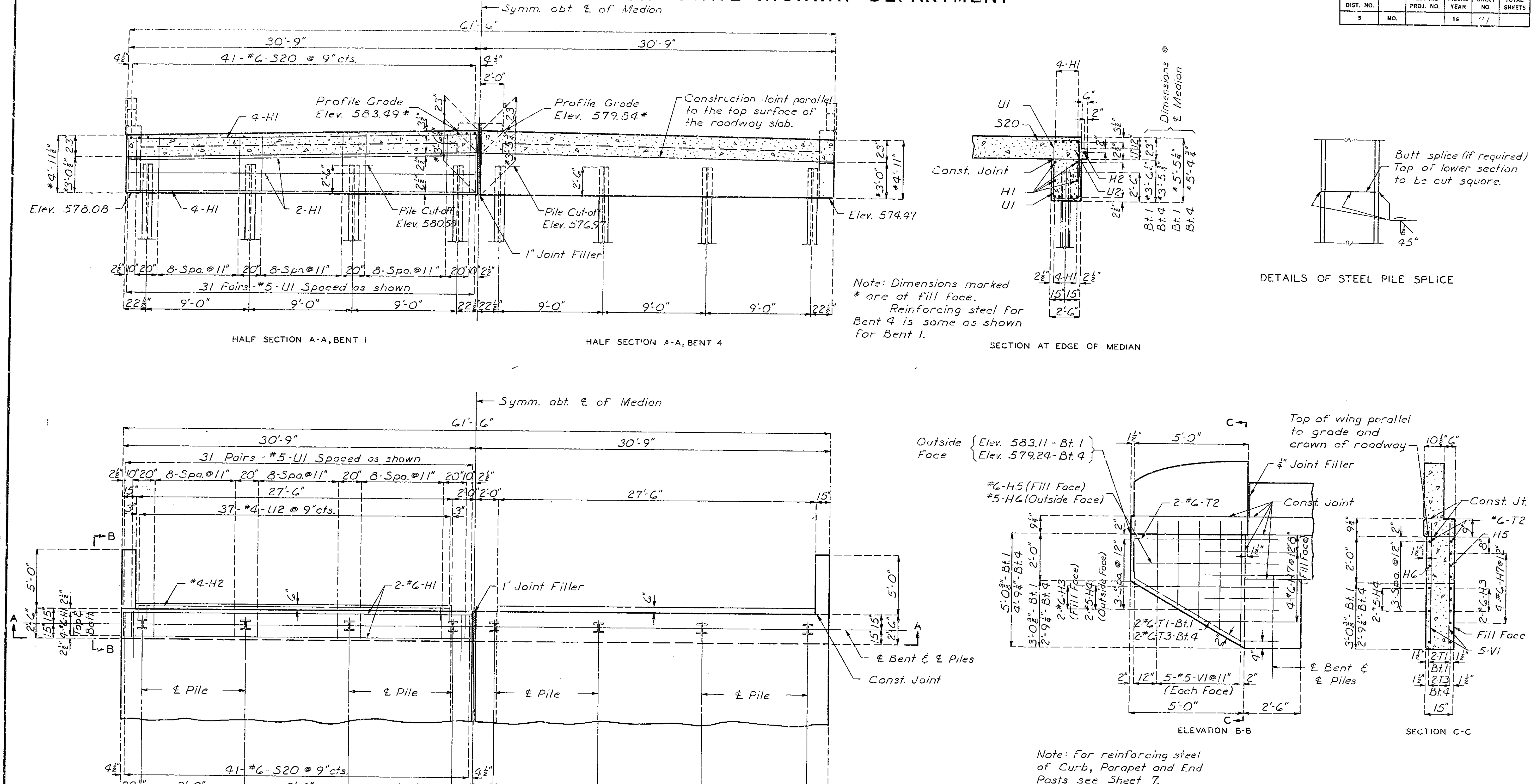
No. 90.3 Revised June 1961

MISSOURI STATE HIGHWAY DEPARTMENT

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



DETAILS OF END BENTS 1&4

(End Post, Curb & Parapet are not shown on Plan)

BRIDGE OVER EXISTING ROUTE 50

STATE ROAD-ROUTE 54 RELOCATED

IN JEFFERSON CITY

PROJECT NO. U-54-3(8) (RTE. 54) C026-54(6) **STA.** 22+46.7

COLE COUNTY

DETAILED Feb. 1965 BY R.W.F.

CHECKED MARCH 1965 BY R.H.K.

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

Sheet No. 3 of 7.

A-1305

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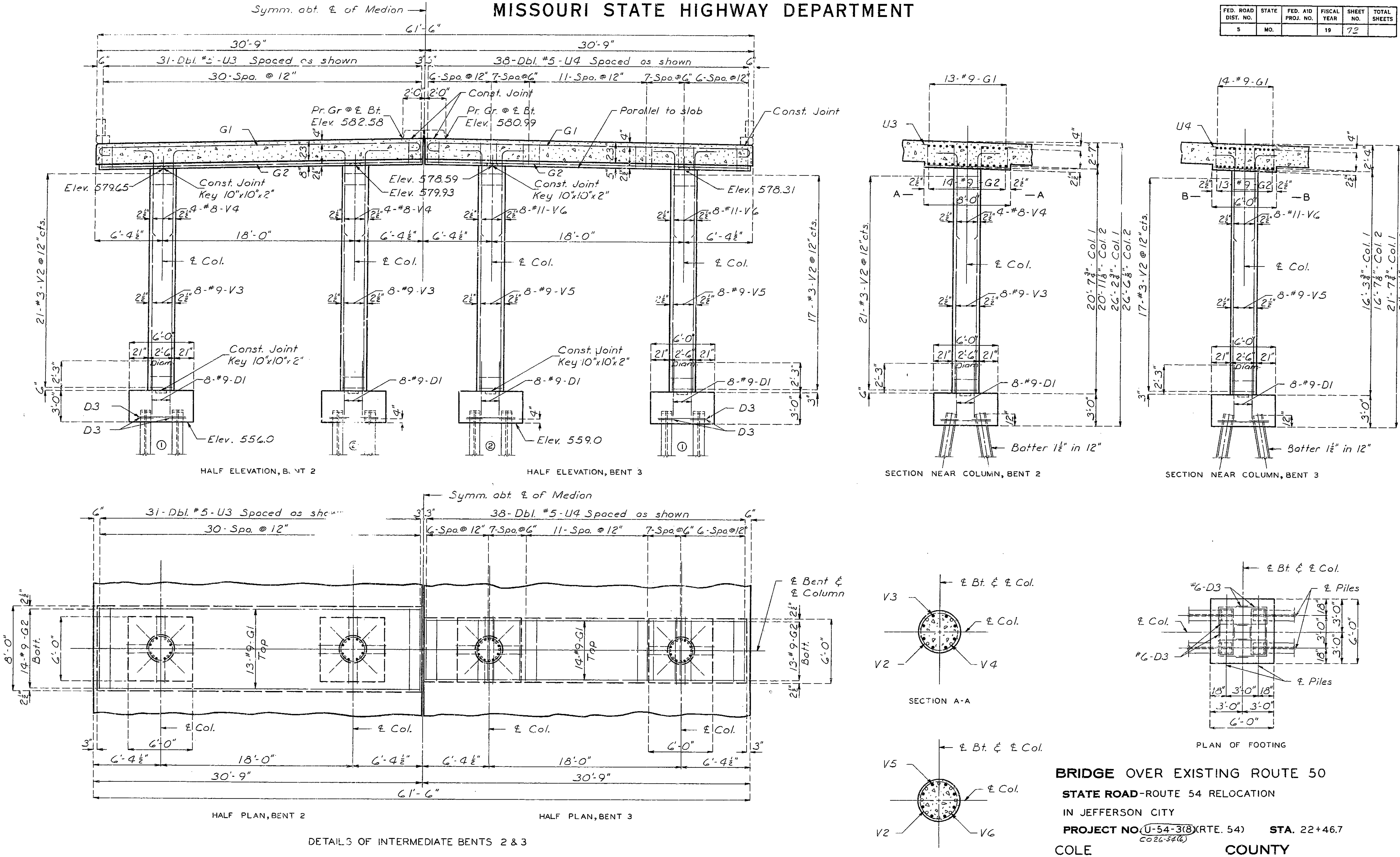
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	72	



BRIDGE OVER EXISTING ROUTE 50

STATE ROAD-ROUTE 54 RELOCATION

IN JEFFERSON CITY

PROJECT NO. (U-54-3(8)) (RTE. 54) Co26-54(6) **STA.** 22+46.7

COLE COUNTY

DETAILED Feb. 1965 BY R.W.F.

CHECKED MARCH 1965 BY R.H.K.

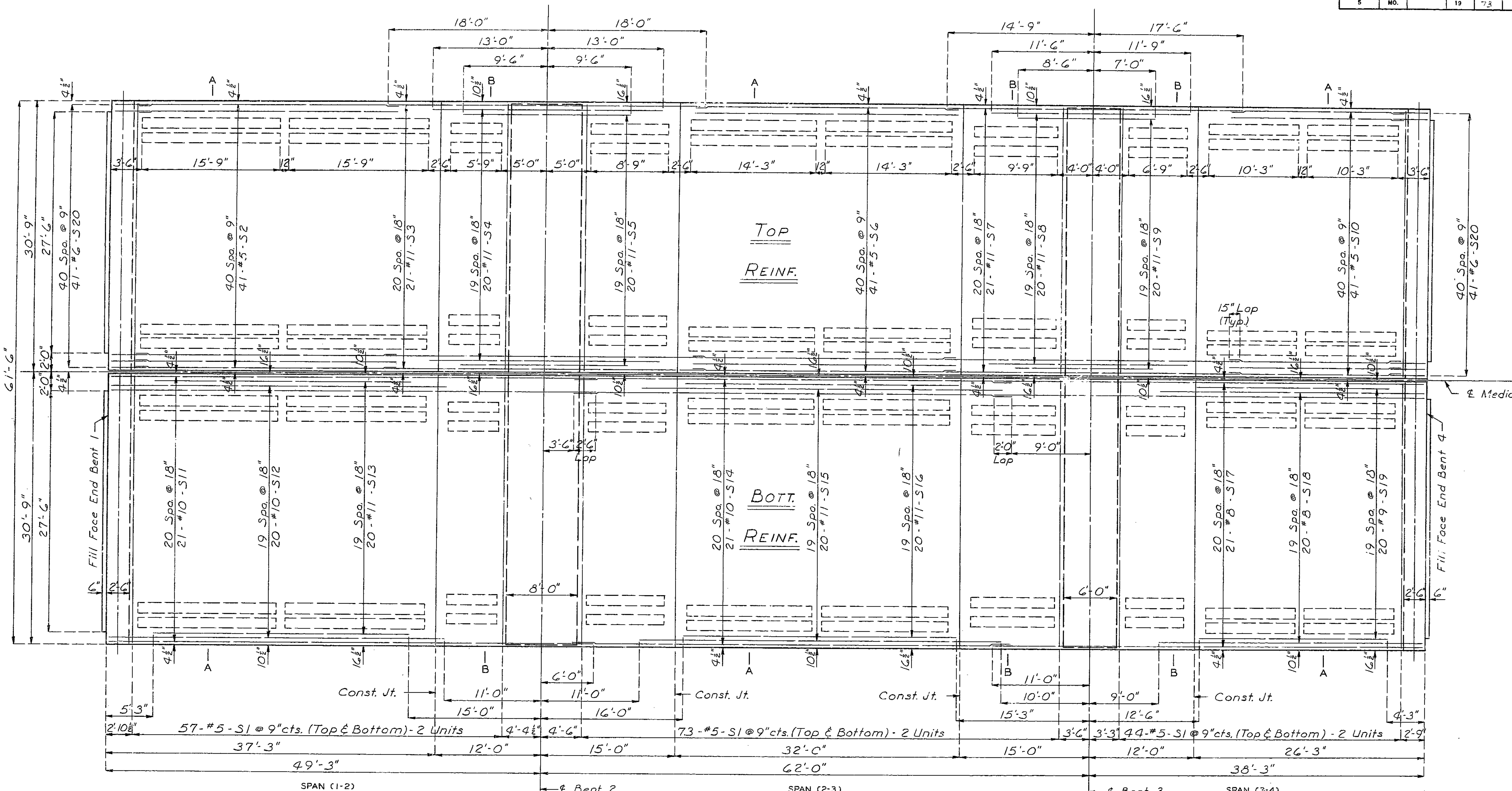
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 4 of 7.

A-1305

MISSOURI STATE HIGHWAY DEPARTMENT

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



PLAN OF SLAB

Note: All dimensions are horizontal.
For Sections A-A & B-B see Sheet 6.
For Curb reinforcing see Sheet 7.

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 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.

BRIDGE OVER EXISTING ROUTE 50

STATE ROAD - ROUTE 54 RELOCATION

IN JEFFERSON CITY

PROJECT NO. U-54-3(8) (RTE. 54) **STA.** 22+46.7

CO26-54(6)

COLE **COUNTY**

DETAILED Feb. 1965 BY R.W.F.
CHECKED MARCH 1965 BY R.H.K.

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

Sheet No. 5 of 7.

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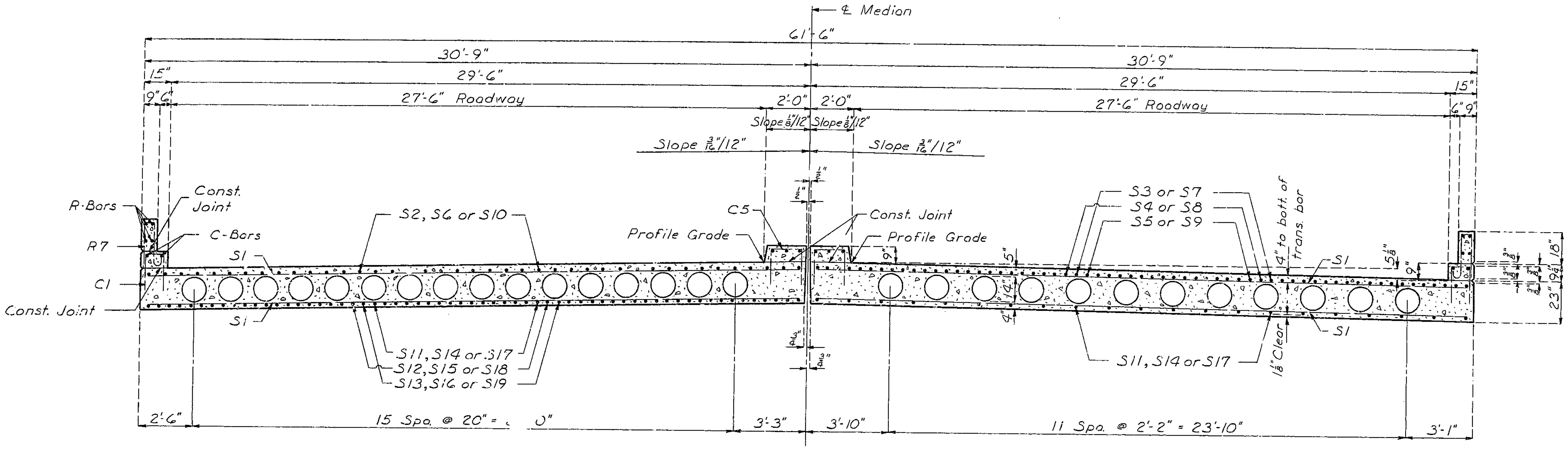
(41)

MISSOURI STATE HIGHWAY DEPARTMENT

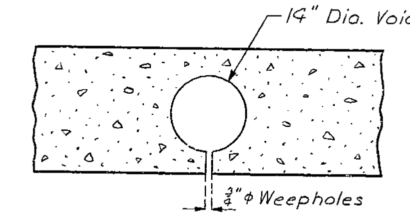
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	74	



HALF SECTION A-A

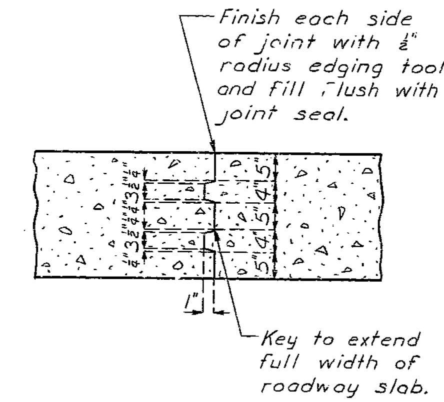
HALF SECTION B-B

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 Section A-A and B-B see Sheet 5.

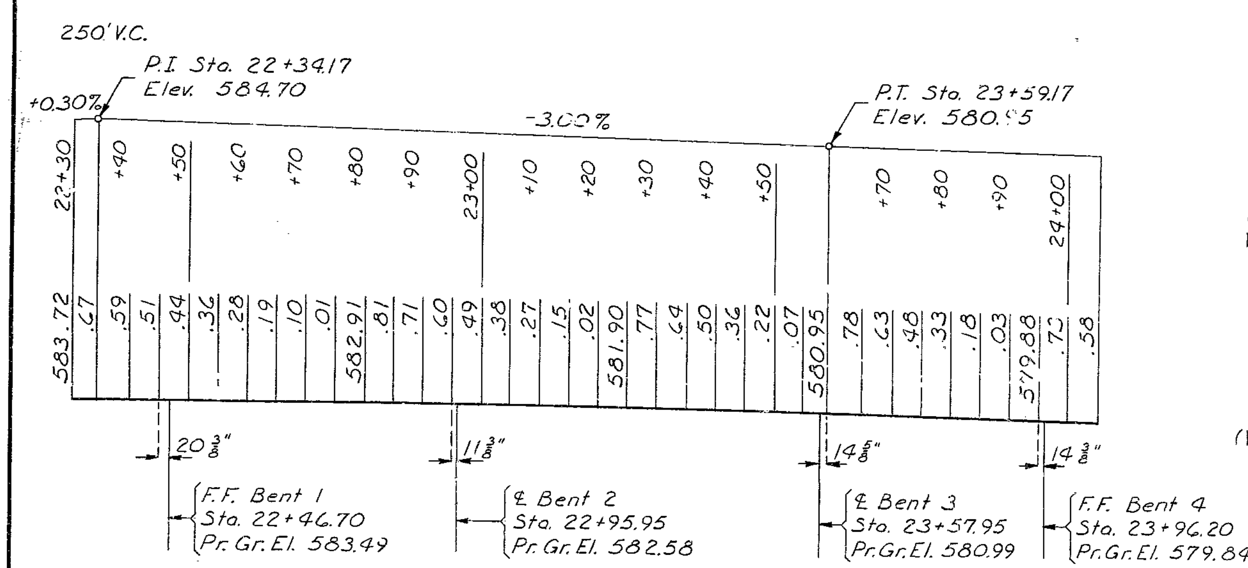


Note: One 3/4"⌀ Weephole shall be provided near each end of each void. Weepholes shall be placed in straight lines parallel to bents.

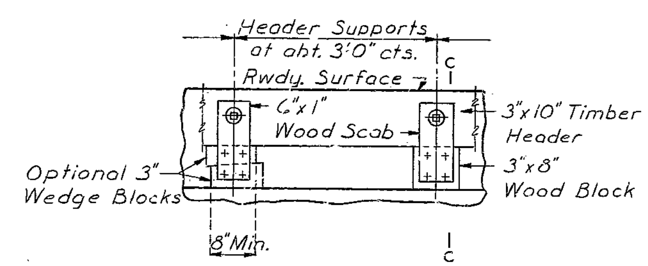
DETAIL OF WEEPHOLES IN VOIDS



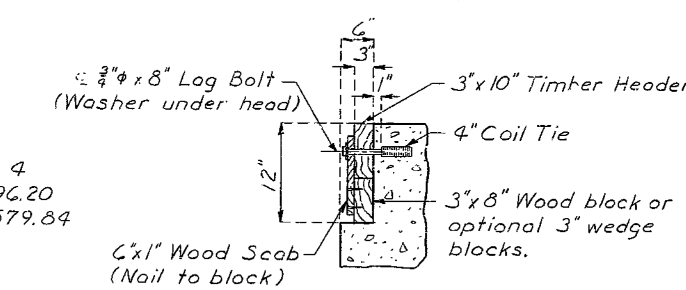
DETAIL OF SLAB CONSTRUCTION JOINT KEY



PROFILE GRADE ELEVATIONS



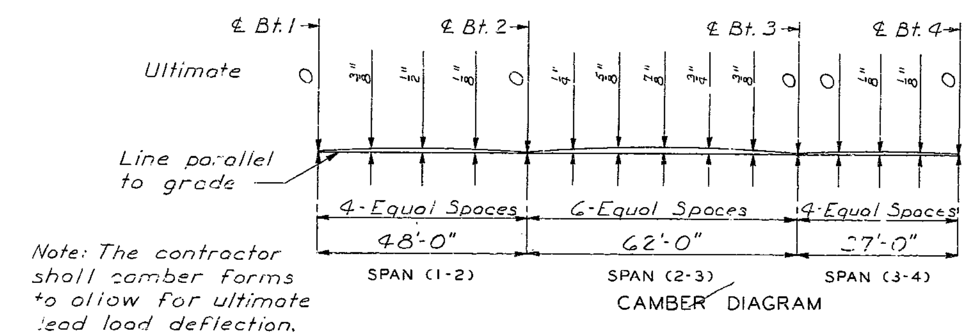
PART ELEVATION



SECTION C-C

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

DETAILS OF TIMBER HEADER



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

CAMBER DIAGRAM

BRIDGE OVER EXISTING ROUTE 50

STATE ROAD-ROUTE 54 RELOCATED

IN JEFFERSON CITY

PROJECT NO. U-54-3(8) (RTE. 54) **STA.** 22+46.7

C026-54(6)

COLE **COUNTY**

DETAILED Feb. 1965 BY R.W.F.

CHECKED MARCH 1965 BY R.H.K.

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

A-1305

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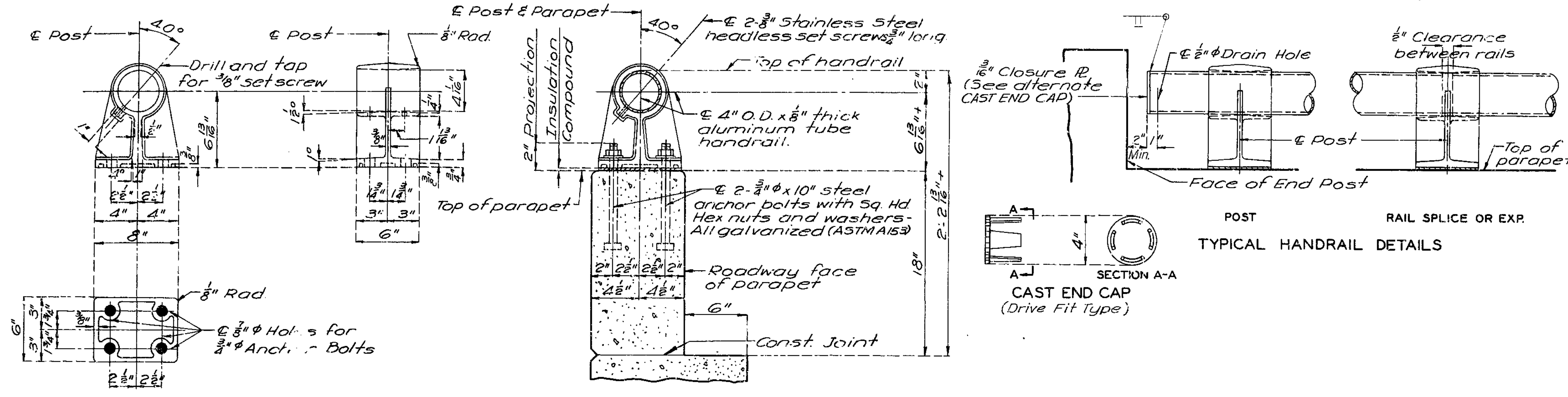
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
5	MO		19	15	



POST DETAILS

SECTION THRU HANDRAIL

CAST END CAP
(Drive Fit Type)

SECTION A-A

POST

RAIL SPLICE OR EXP.

TYPICAL HANDRAIL DETAILS

SINGLE TUBE ALUMINUM RAILING

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 1/8". 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 1/4" except as noted.

All drafts 3° except as noted.

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

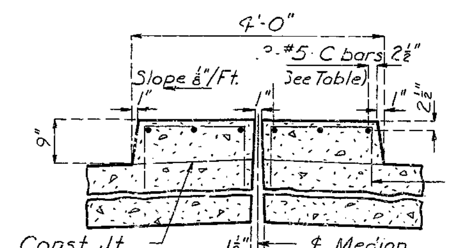
Omit set screw on side near filled Joint in parapet at all expansion posts.

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 1/2" radius.

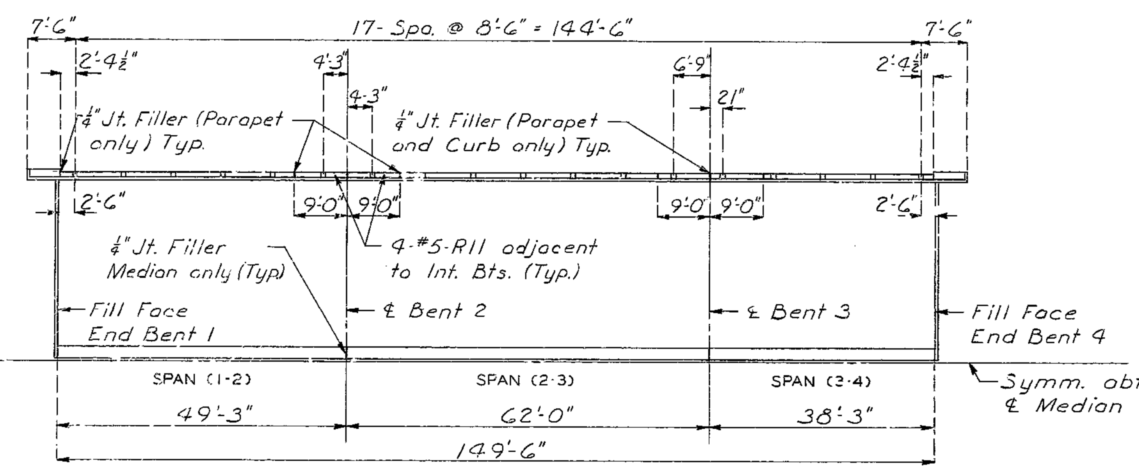
If the contractor desires, he may use drive fit cast aluminum end caps in lieu of welded aluminum closure plates.

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

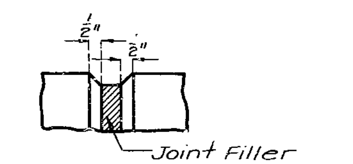


SECTION THRU MEDIAN

REINFORCING	
SPAN	MEDIAN
(1-2)	#5-C6-2 Units
(2-3)	#5-C7-2 Units
(3-4)	#5-C8-2 Units

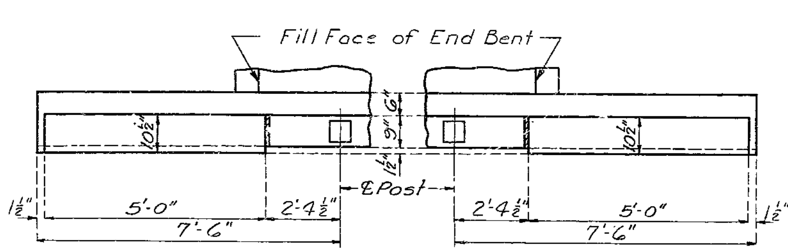


PART PLAN OF SLAB SHOWING POST SPACING

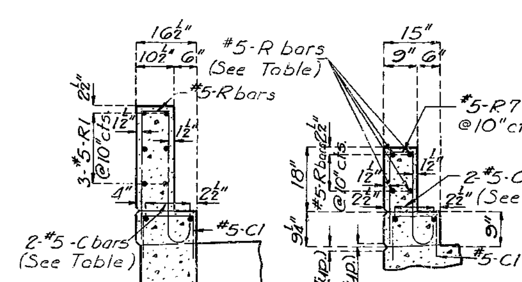


Note: Use bevel as shown for exposed faces of all filled Joints. Std. Spec. 157.24

DETAILS OF BEVEL FOR FILLED JOINTS

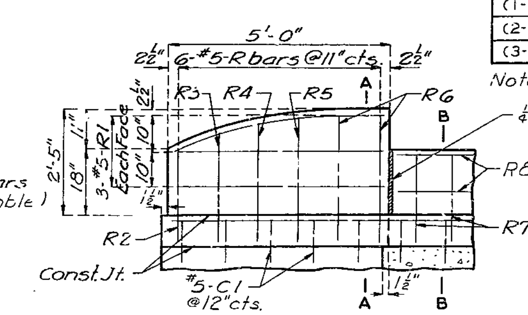


PLAN OF END POSTS



SECTION A-A

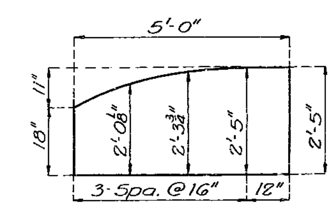
SECTION B-B



ELEVATION OF END POST

REINFORCING		
SPAN	CURB	PARAPET
(1-2)	#5-C2-2 Units	#5-R8-2 Units
(2-3)	#5-C3-2 Units	#5-R9-2 Units
(3-4)	#5-C4-2 Units	#5-R10-1 Unit

Note: Min lap of #5 bars is 15"



END POST ORDINATES

BRIDGE OVER EXISTING ROUTE 50

STATE ROAD - ROUTE 54 RELOCATION

IN JEFFERSON CITY

PROJECT NO. U-54-3(8) (RTE. 54) STA. 22+46.7
C026-54(6)

COLE COUNTY

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No.	Revised
1.5.2	
Nov 1965	Sept 1964

DETAILED Feb. 1965 BY R.W.K.

CHECKED MARCH 1965 BY R.H.K.

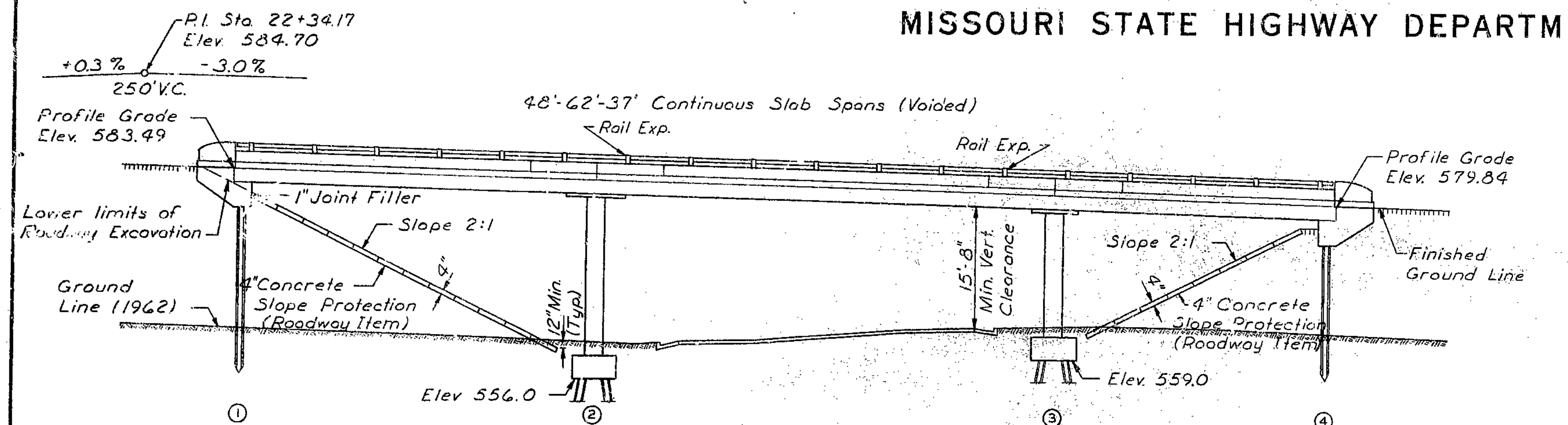
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 7 of 7.

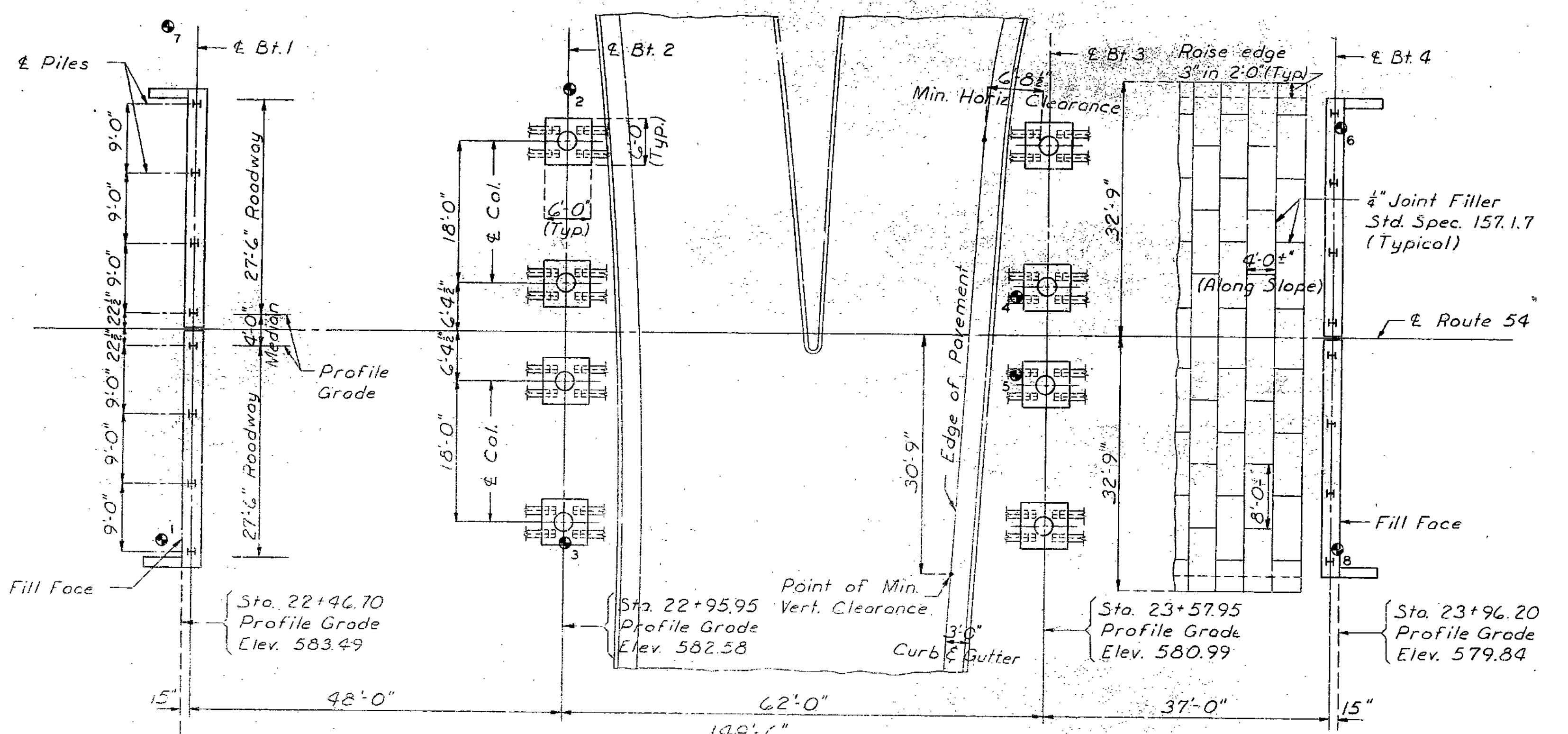
A-1305

MISSOURI STATE HIGHWAY DEPARTMENT

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



GENERAL ELEVATION



PLAN

Note: Compacted roadway fill (full roadway width) was placed up to elevation of bottom of concrete beam in front of and not less than 25'-0" in back of End Bent 4 before steel piles driven.

See road plans for surcharged fill at End Bent 1.

PILE DATA					
BENT NO.		1	2	3	4
Pile Type and Size		10BP42	10BP42	10BP42	10BP42
Number		8	16	16	8
Plan Bearing	Tons	56	56	56	56
Minimum Required Bearing	Tons	38	49	45	32
Hammer		Heavy Power	Heavy Power	Heavy Power	Heavy Power

Note: All pile were driven to practical refusal on or into solid rock or other point bearing material at not less than the Plan Bearing shown.

All piling were driven with an approved power hammer developing an energy of 19,500 ft. lbs. and having a ram weighing 6500 lbs.

Steel pile authorized in lengths greater than 65' were furnished in two pieces for field splicing and these splices were paid for in accordance with Standard Specification 52.6.5.

GENERAL NOTES:

Design Specifications:
A.A.S.H.O. - 1961

Design Loading:
HS20-44
15#/sq. ft. Future Wearing Surface
Earth 120#. Equivalent Fluid Pressure 30#.

Design Unit Stresses:
Class B Concrete (substructure) fc = 1,200 p.s.i.
Class B1 Concrete (superstructure) fc = 1,600 p.s.i.
Reinforcing Steel fs = 20,000 p.s.i.
Steel Pile (A.S.T.M. A36-62T) fb = 9,000 p.s.i.

Superstructure deck was surface sealed.

Falsework over existing lanes was constructed with a minimum vertical clearance of 13'-6" from the high side of the existing roadway and a minimum horizontal clearance of 16'-0" for each direction of traffic.

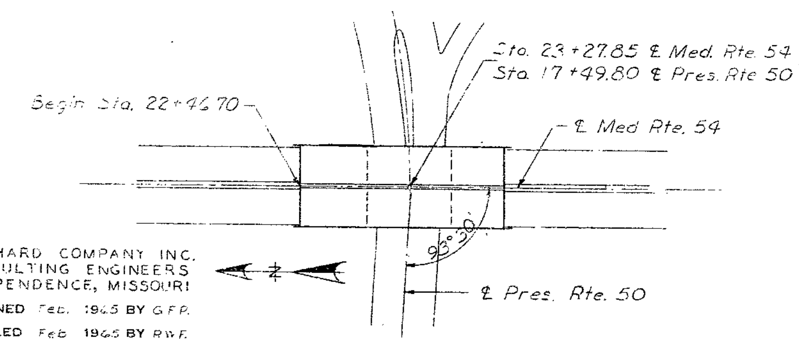
Note: For Boring Data see Sheet No. 2.
"●" Indicates location of boring.

QUANTITIES				
ITEM		SUBSTR.	SUPERSTR.	TOTAL
Class 1 Excavation for Structures	Cu.Yds	136.0	—	136.0
Steel Piles in Place (10")	Lin.Ft	3644	—	3644
Steel Pile Cut-offs (10")	Lin.Ft.	252	—	252
Class B Concrete	Cu.Yds	32.0	—	32.0
Class B1 Concrete	Cu.Yds	—	648.1	648.1
Reinforcing Steel	Lbs.	1650	156,960	158,610
Bridge Rail (Single Tube Type)	Lin.Ft.		298	298

Note: All concrete and reinforcement above footings in Intermediate bents is included in superstructure quantities.

No payment for excavation was allowed at End Bent 4.

Concrete in end posts, parapets and curbs is included with superstructure concrete.



LOCATION SKETCH

144

PRICHARD COMPANY INC.
CONSULTING ENGINEERS
INDEPENDENCE, MISSOURI

DESIGNED Feb. 1965 BY G.F.P.
DETAILED Feb. 1965 BY R.W.F.
CHECKED MARCH 1965 BY R.H.K.

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

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

B.M. □ on N.E. corner of East curb on Bridge A-1305 Elev. 583.92

FINISHED

BRIDGE OVER EXISTING ROUTE 50

STATE ROAD - ROUTE 54 RELOCATION
IN JEFFERSON CITY
PROJECT NO. C026-54(6) U.R. STA. 22+46.7

COLE COUNTY

FINISHED

SUBMITTED BY D.B. Jenkins BRIDGE ENGINEER DATE 9/27/65

APPROVED BY [signature] CHIEF ENGINEER DATE 9/27/65

FINISHED

STD. 54.00

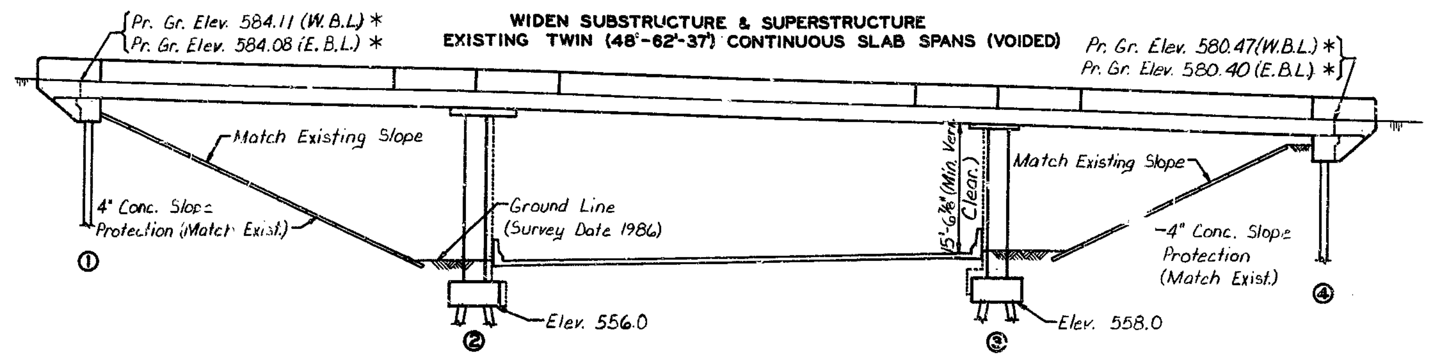
A-1305

Sheet No. 1A of 1

FINAL PLANS

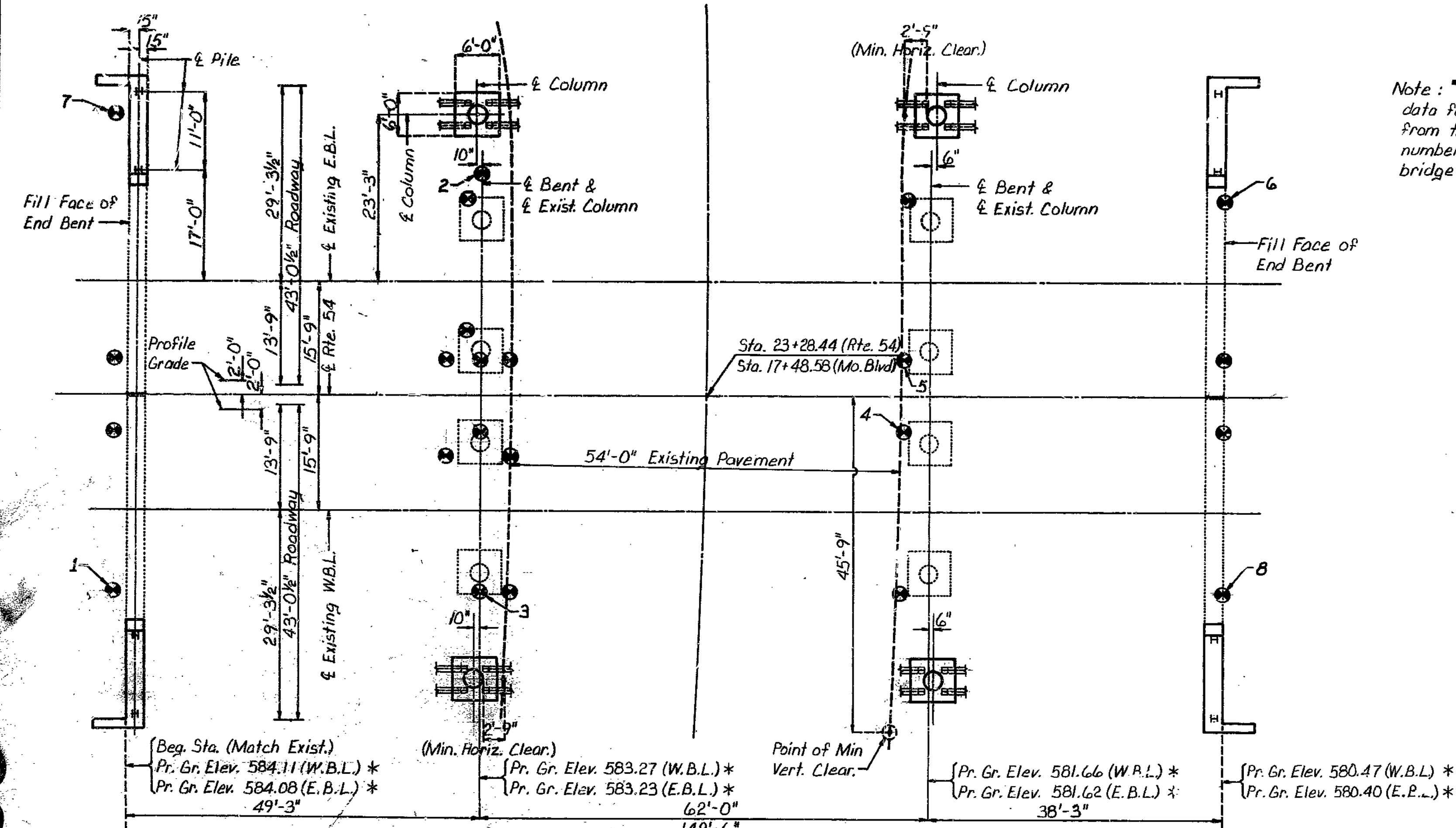
MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

STATE	PROJ. NO.	SHEET NO.
MO.		80
SEC./SUR. 12	TWP. 44N	RGE. 12W



GENERAL ELEVATION

Note: Roadway fill shall be completed to the final roadway section and up to the elevation of the bottom of the concrete beam within the limits of the structure and not less than 25' in back of the fill face of the End Bents before piles are driven for any bents falling within the embankment section.



PLAN

* Match Existing + Low Slump Concrete Wearing Surface.

Note: "⊗" Indicates location of borings. Boring data for all locations available upon request from the District Office. Boring data for numbered locations is in plans of existing bridge.

GENERAL NOTES:

Design Specifications: A.A.S.H.T.O. - 1983 and Interims 1984 thru 1988 Load Factor Design

Design Loading:
HS20-44 Modified 24,000# Tandem Axle
No Future Wearing Surface
Earth 120#/cu. ft., Equivalent Fluid Pressure 45#/cu. ft.

Design Unit Stresses:
Class B Concrete (Footings) f'c = 3,000 psi
Class B1 Concrete (Safety Barrier Curb, Int. Bent columns and End Bent beams) f'c = 4,000 psi
Class B2 Concrete (Superstructure except Safety Barrier Curb) f'c = 4,000 psi
Reinforcing Steel (Grade 60) fy = 60,000 psi
Steel Pile fb = 9,000 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 shall be 1½" unless otherwise shown.
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.

Construction Clearance:
Falsework over existing lanes shall be constructed with a minimum vertical clearance of 14'-0" from the high side of the existing roadway and a minimum lateral clearance of 52'-0"

Outline of old work is indicated by light dashed lines. Heavy lines indicate new work.
Traffic over structure to be maintained during construction. For details of stage construction, see Sheet No. 2.

ESTIMATED QUANTITIES				
ITEM		SUBSTR.	SUPERSTR.	TOTAL
Curb Removal	Lin. Ft.		618	618
Partial Removal of Substructure Concrete	Lump Sum			1
Class I Excavation	Cu. Yd.	75		75
Structural Steel Piles (10")	Lin. Ft.	1720		1720
Pre-bore for Piling	Lin. Ft.	114		114
Class B Concrete	Cu. Yd.	16.0		16.0
Substructure Repair (Unformed) (See Spec. Prov.)	Sq. Ft.	20		20
Class B1 Concrete	Cu. Yd.		32.0	32.0
Class B2 Concrete	Cu. Yd.		305.2	305.2
Safety Barrier Curb	Lin. Ft.		319	319
Precast Safety Barrier Curb	Lin. Ft.		299	299
Repairing Concrete Deck (Half-Soling)	Sq. Ft.		164	164
Low Slump Concrete Wearing Surface	Sq. Yd.		1042	1042
Reinforcing Steel	Lb.	1860	43,950	45,810
Conduit System on Structure	Lump Sum			1
Reinforcing Steel (Epoxy Coated)	Lb.		33,490	33,490
Removal and Storage of Existing Bridge Rail	Lin. Ft.		298	298

B.M. #12 Elev. 584.37 □ on N.E. cor. of Bridge over MO Blvd. 30' E. ℄ Med. Rte. 54

PILE DATA				
BENT NO	1	2	3	4
Pile Type and Size	HP10x42			
Number	4	8	8	4
Approximate Length Ft.	65	60	75	95
Design Bearing Tons	37	51	45	31
Hammer Energy req'd Ft.-Lbs.	8200	12,000	10,600	11,905

Note: Minimum energy requirement of hammer based on plan length and design bearing value of piles.
All piles shall be driven to practical refusal.

Note: Prebore for piles at Bents No. 1 and 4 to Elevation 562.0.

Note: Stationing based on 1986 Survey.
Relocate utilities and drop inlets that interfere with substructure construction (Rdwy. Item).
Extend safety barrier curb along Missouri Blvd. as required for protection of bridge substructure (Rdwy. Item).

N

DESIGNED FEB. 1989
DETAILED MARCH 1989
CHECKED APRIL 1989

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

SEE FINAL PLANS

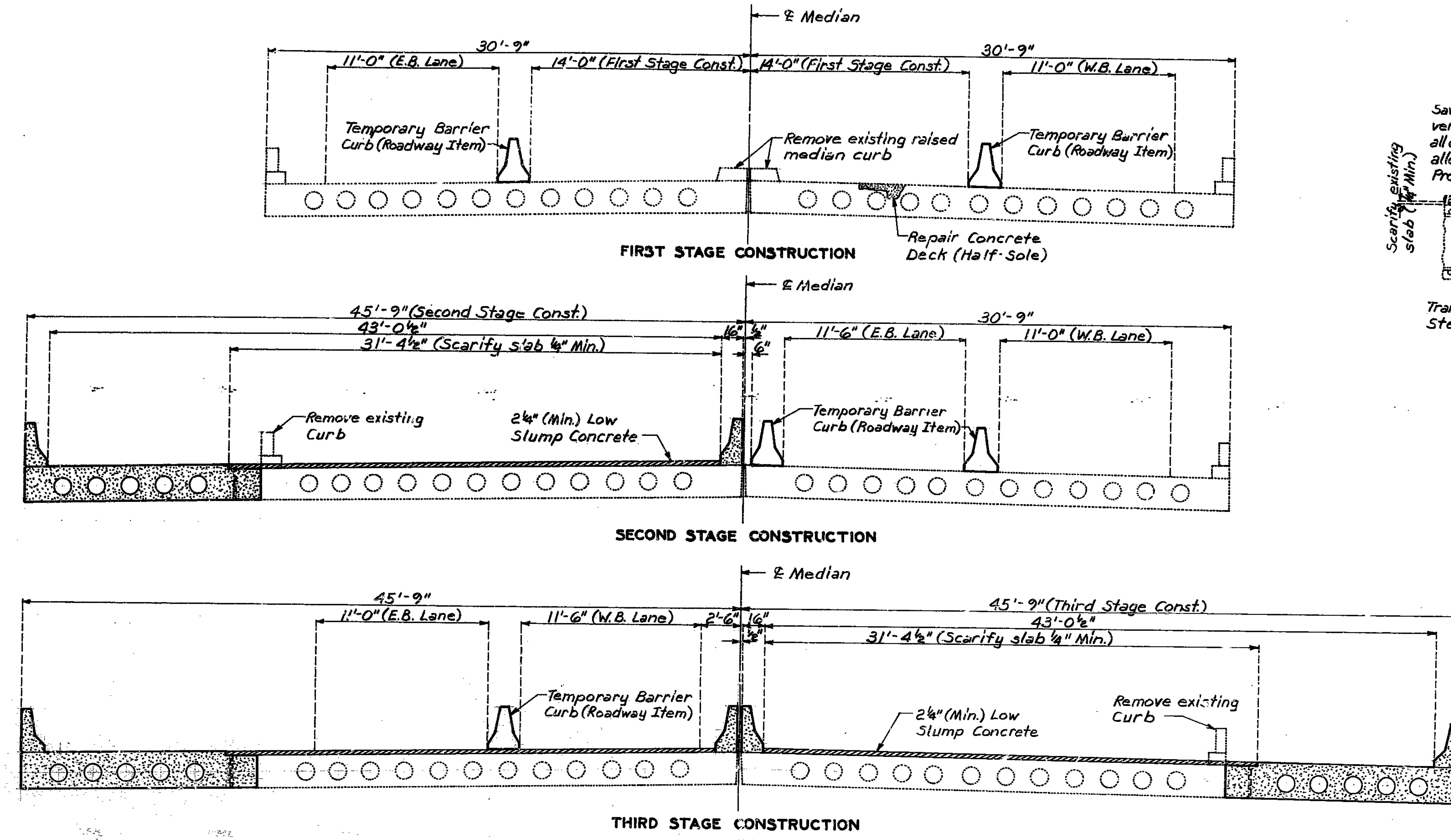
Sheet No. 1 of 10.

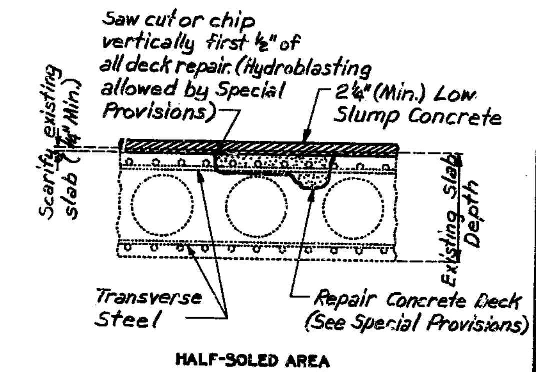
BRIDGE ROUTE 54 OVER MISSOURI BLVD.

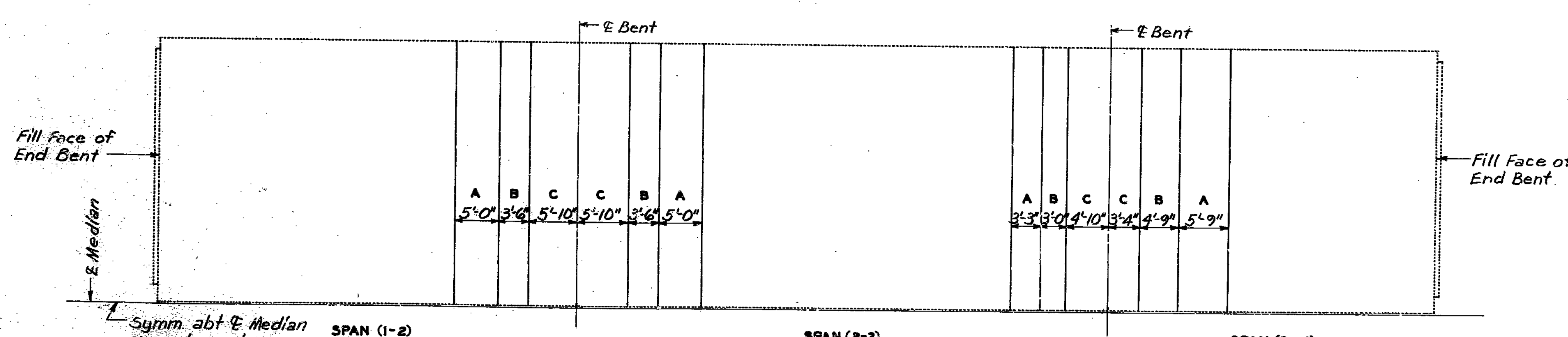
STATE ROAD
IN JEFFERSON CITY
PROJECT NO.
JOB NO. 5-U-54-258B
COLE COUNTY
STA. 23+28.44
RTE. 54
DATE 4/21/89

STD.
STD. 706.35
A-1305R

STATE	PROJ. NO.	SHEET NO.
MO.		81







PLAN OF EXISTING SLAB SHOWING SPECIAL REPAIR ZONES

Note: Sequence of repair; Zone A, then Zone B, then Zone C.
Any repair in the remainder of the bridge that is within 4'-0" of Zone A shall be completed before removing old concrete in Zone A.
Zones with the same letter designation may be repaired at the same time.

175 266 779

DETAILED FEB. 1989
CHECKED MARCH 1989

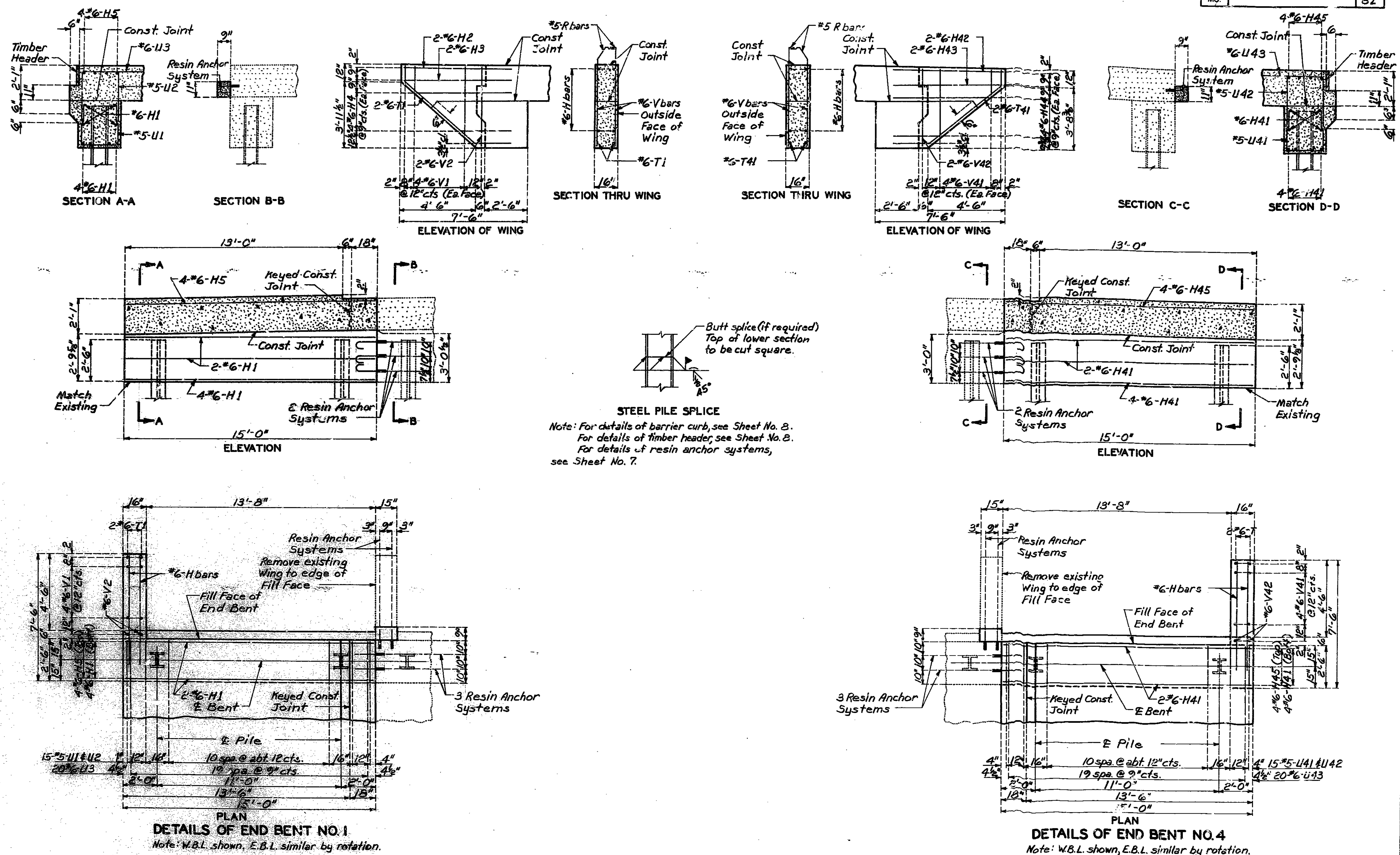
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 2 of 10.

COLE COUNTY

A-1305R

STATE	PROJ. NO.	SHEET NO.
MO.		82



176 ~~767~~ 880

DETAILED MARCH 1989
CHECKED MARCH 1989

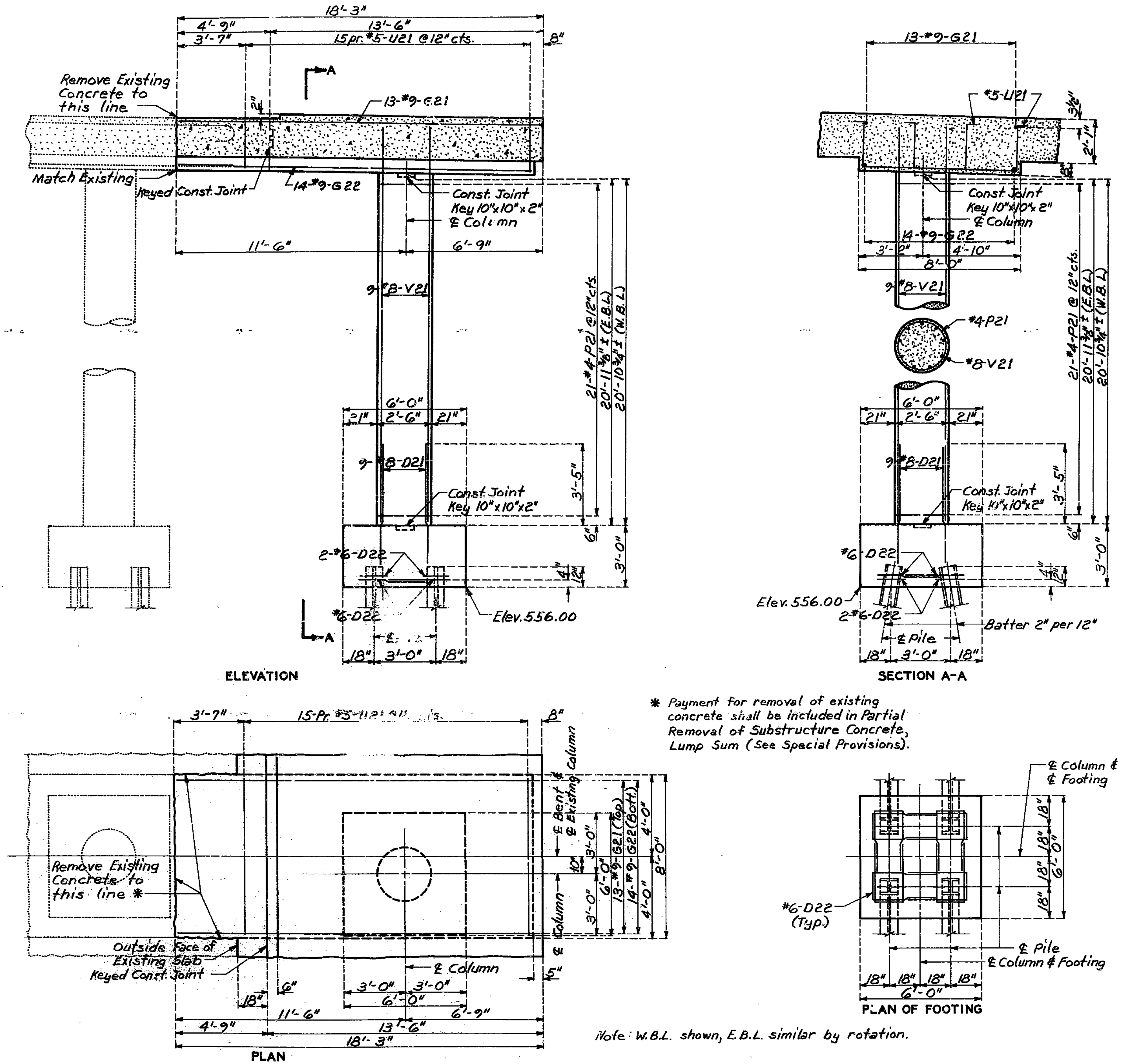
Note: This drawing is not to scale. Follow dimensions

Sheet No. 3 of 10.

COLE COUNTY

A-1305R

STATE	PROJ. NO.	SHEET NO.
MO.		83



* Payment for removal of existing concrete shall be included in Partial Removal of Substructure Concrete, Lump Sum (See Special Provisions).

Note: W.B.L. shown, E.B.L. similar by rotation.

177 268 281

DETAILED MARCH 1989
CHECKED MARCH 1989

DETAILS OF INTERMEDIATE BENT NO. 2

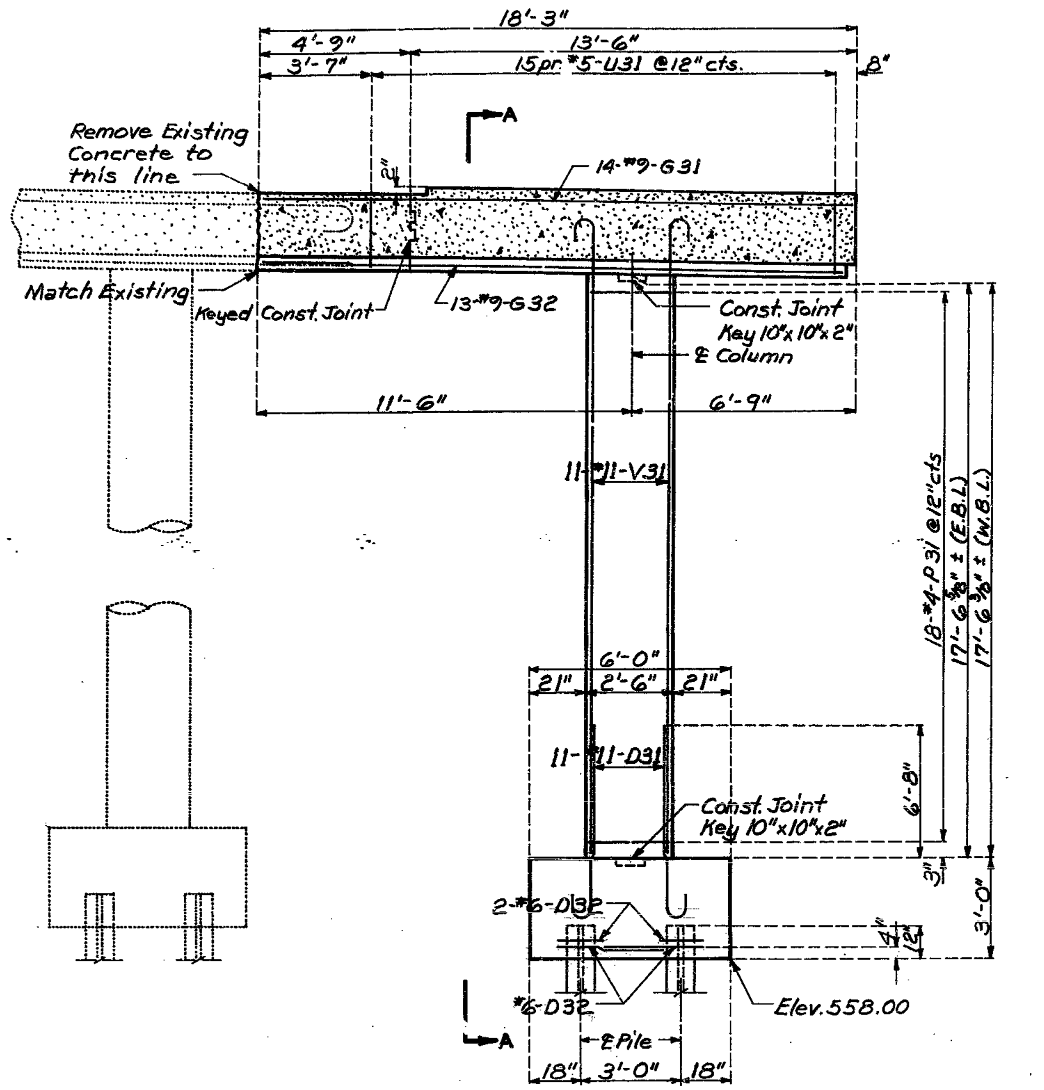
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 4 of 10.

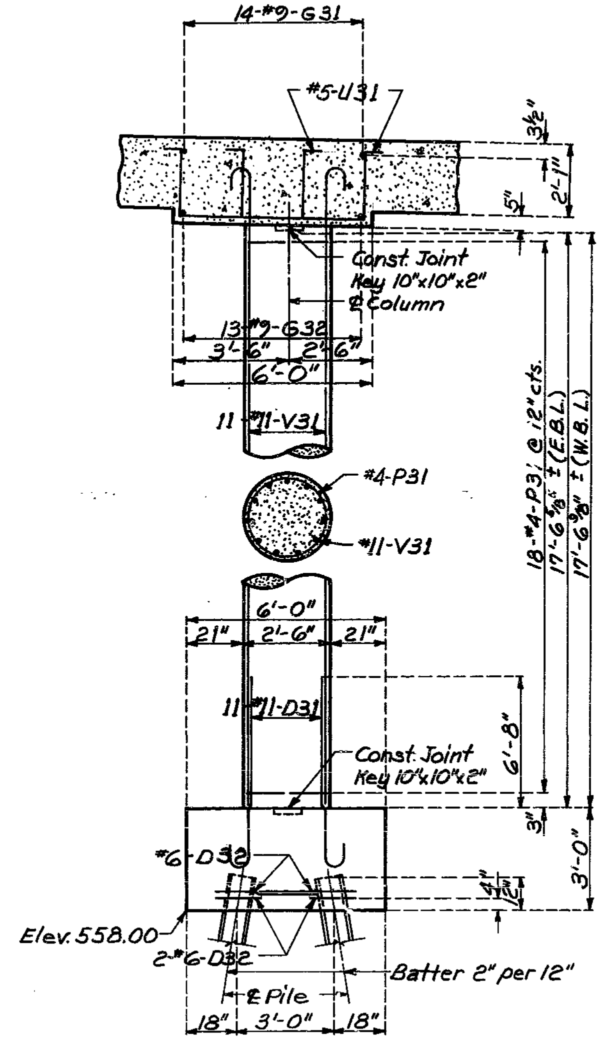
COLE COUNTY

A-1305R

STATE	PROJ. NO.	SHEET NO.
MO.		84

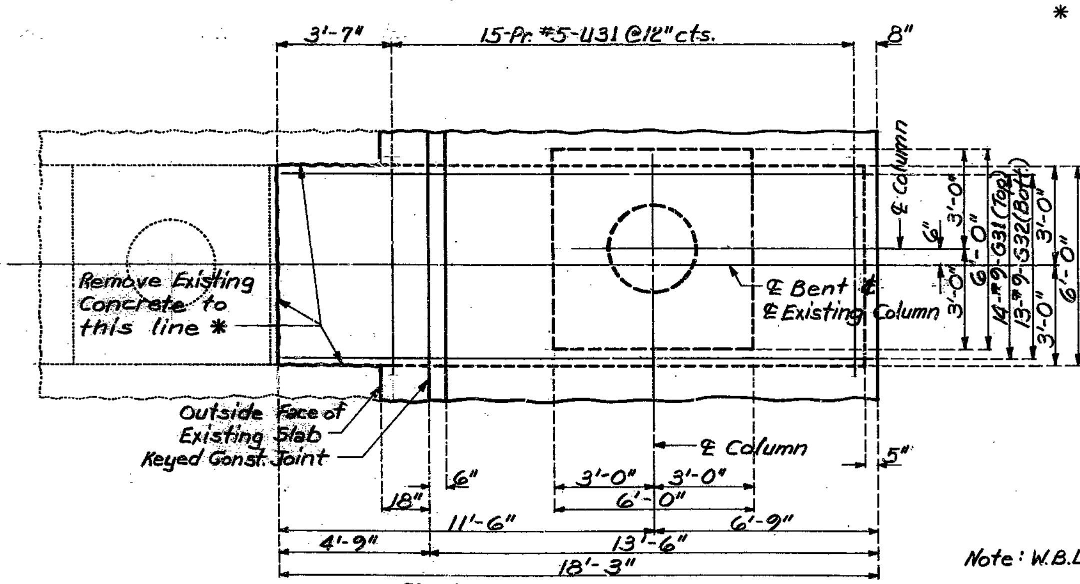


ELEVATION

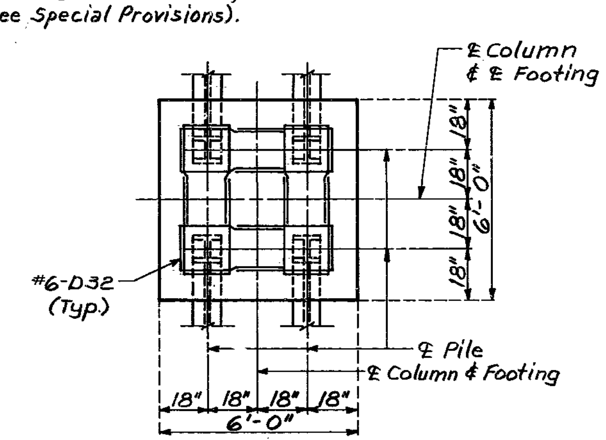


SECTION A-A

* Payment for removal of existing concrete shall be included in Partial Removal of Substructure Concrete, Lump Sum (See Special Provisions).



PLAN



PLAN OF FOOTING

Note: W.B.L. shown, E.B.L. similar by rotation.

DETAILED MARCH 1989
CHECKED MARCH 1989

DETAILS OF INTERMEDIATE BENT NO.3

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

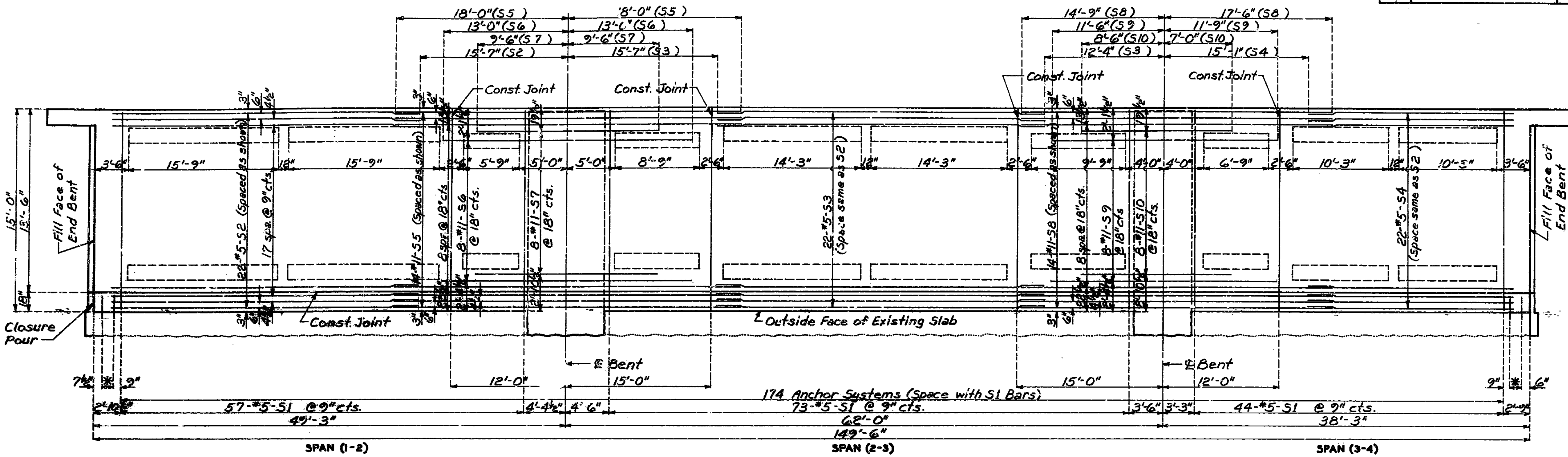
Sheet No. 5 of 10.

COLE COUNTY

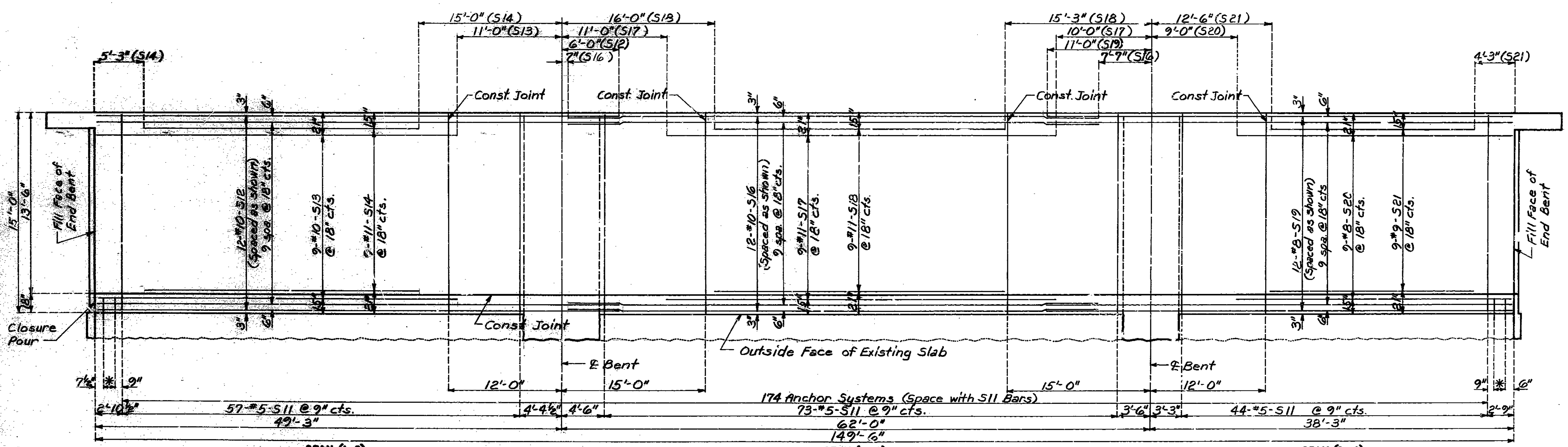
A-1305R

87762 178

STATE	PROJ. NO.	SHEET NO.
MO.		85



PLAN OF SLAB SHOWING TOP REINFORCEMENT



PLAN OF SLAB SHOWING BOTTOM REINFORCEMENT

179

* 3 Anchor Systems @ 9" cts.

DETAILED FEB. 1989
CHECKED MARCH 1989

Note: Longitudinal dimensions are horizontal. E.B.L. shown, W.B.L. similar by rotation.

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

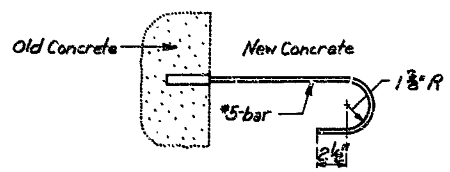
Note: For details of Anchor Systems, see Sheet No. 7.

Sheet No. 6 of 10.

COLE COUNTY

A-1305R

STATE	PROJ. NO.	SHEET NO.
MO.		B6

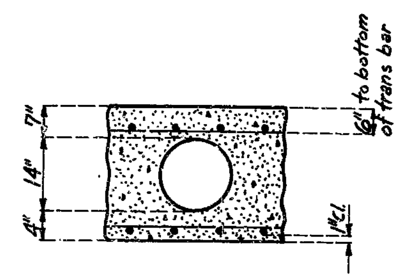


DETAIL OF RESIN ANCHOR SYSTEM

Note: Cost of furnishing and installing resin anchor systems shall be included in contract unit price bid for concrete.

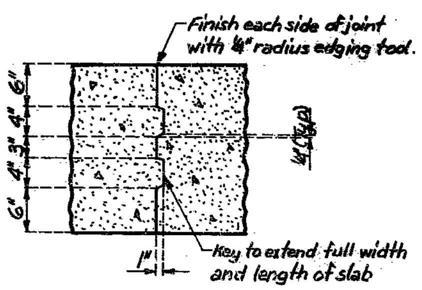
At the option of the contractor, he may use one of the resin anchor systems listed in the job special provisions.

These resin 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, projecting 15" into new concrete in slab and end bent beam and 7½" into new concrete of approach haunch at end bent, shall be used.



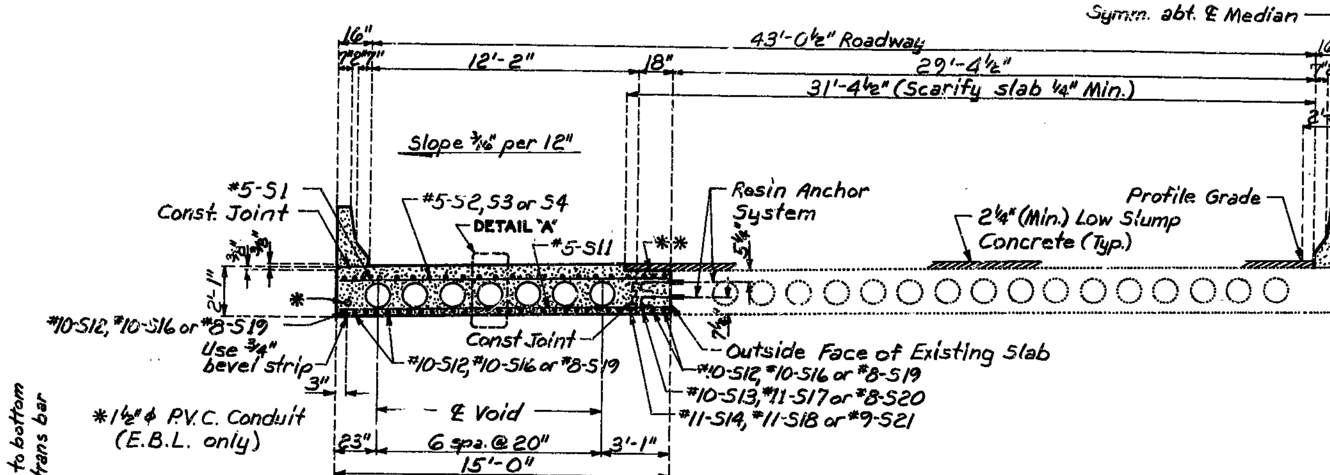
DETAIL "A"

Note: Tubes for producing voids shall have an outside diameter of 14" and shall be anchored at not more than 4'-0" centers. Fiber tubes shall have a wall thickness of not less than .250".



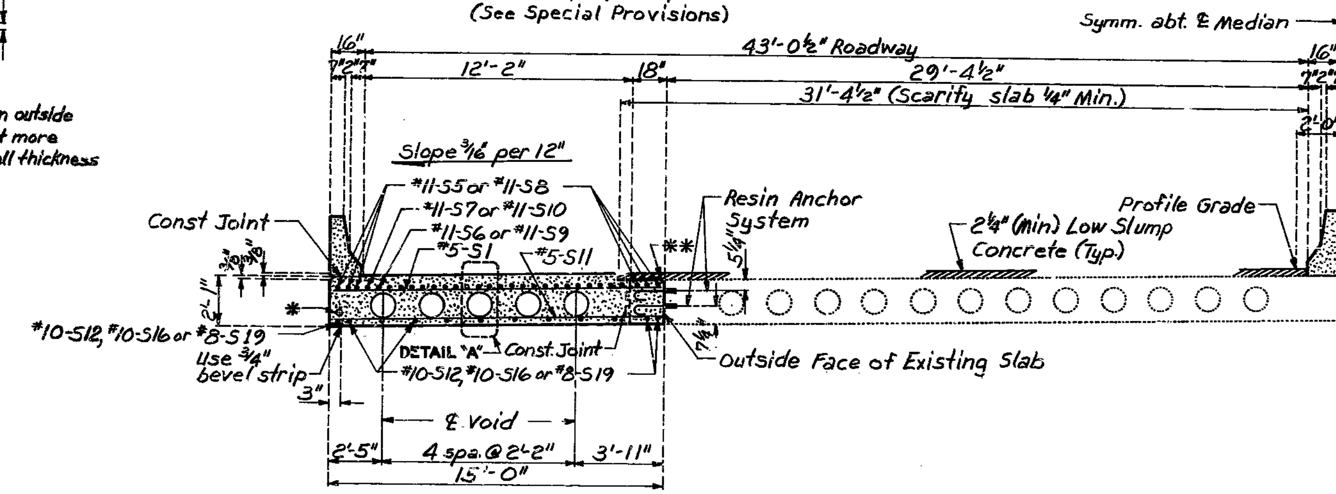
DETAIL OF SLAB CONSTRUCTION JOINT KEY

Note: The contractor shall furnish an approved retarder to retard the set of the concrete to 2.5 hours and shall pour and satisfactorily finish the roadway slab at a rate of not less than 25 cubic yards per hour. (The contractor shall observe the transverse construction joints shown on the plans unless he can demonstrate to the Engineer that he is equipped to pour and satisfactorily finish the roadway slab at a rate which permits a continuous pouring through some or all of these joints).



SECTION NEAR CENTER OF SPANS

** Closure pour (See Special Provisions). Release forms before closure pour is placed.
For closure pour, use expansive concrete.
(See Special Provisions)



SECTION NEAR INT. BENT

Note: E.B.L. shown, W.B.L. similar by rotation.
For details and reinforcement of barrier curbs not shown, see Sheets No. 8 & 9.

Note: All conduit shall be 1½" ɸ schedule 40 heavy wall (PVC) Polyvinyl Chloride Plastic, complete with all couplings, elbows and caps.

Each section of conduit shall bear the Underwriters Laboratories, Inc. (U.L.) label.

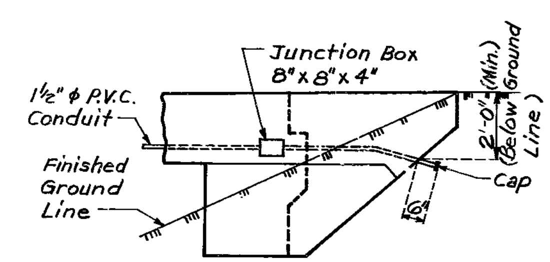
Shift reinforcing steel where necessary to clear conduit and junction boxes.

The junction boxes shall be PVC molded flush mounted, size 8"x8"x4". They shall be equal to Carlon Electrical Construction Products or Triangle Conduit & Cable Co. Inc.. The conduit terminations and covers for the boxes in the wings of both End Bents shall be of water tight construction.

All wiring shall be furnished and installed by others.

The conduit system complete in place, shall be paid for as conduit system on structure, Lump Sum.

The conduit shall have 3" minimum cover in concrete.



DETAIL OF CONDUIT AT END BENTS

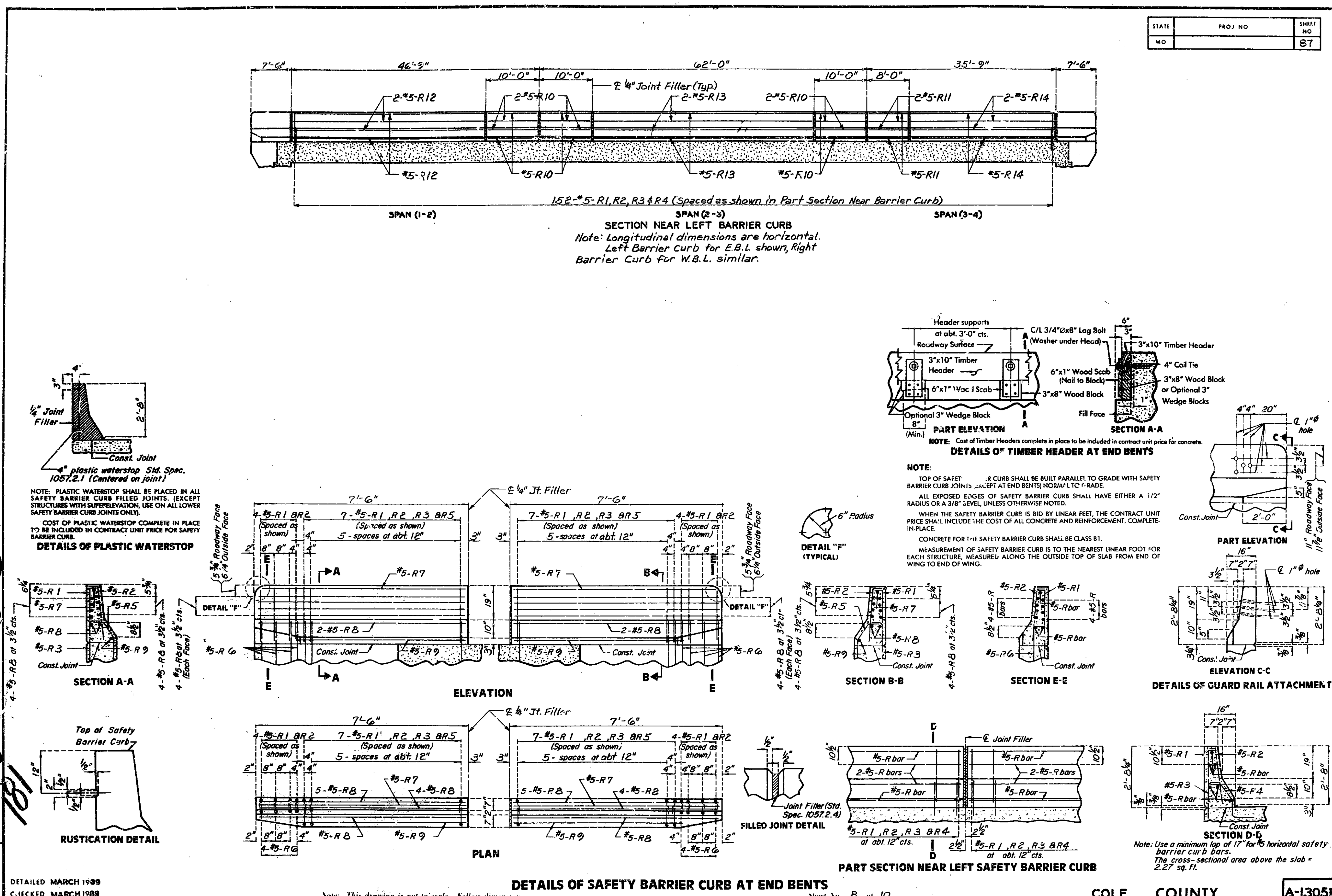
28427 180

DETAILED MARCH 1989
CHECKED MARCH 1989

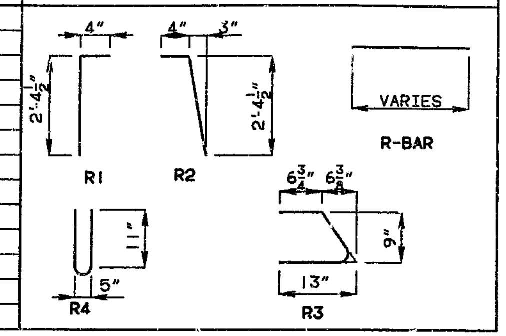
Note: This drawing is not to scale. Follow dimensions.

COLE COUNTY

A-1305R


STATE | PROJ NO | SHEET NO
MO | | 87
SECTION NEAR LEFT BARRIER CURB
Note: Longitudinal dimensions are horizontal.
Left Barrier Curb for E.B.L. shown, Right Barrier Curb for W.B.L. similar.
152-#5-R1, R2, R3 & R4 (Spaced as shown in Part Section Near Barrier Curb)
SPAN (1-2)
SPAN (2-3)
SPAN (3-4)
℄ 1/4" Joint Filler (Typ.)
NOTE: PLASTIC WATERSTOP SHALL BE PLACED IN ALL SAFETY BARRIER CURB FILLED JOINTS. (EXCEPT STRUCTURES WITH SUPERELEVATION, USE ON ALL LOWER SAFETY BARRIER CURB JOINTS ONLY).
COST OF PLASTIC WATERSTOP COMPLETE IN PLACE TO BE INCLUDED IN CONTRACT UNIT PRICE FOR SAFETY BARRIER CURB.
4" plastic waterstop Std. Spec. 1057.2.1 (Centered on joint)
DETAILS OF PLASTIC WATERSTOP
SECTION A-A
ELEVATION
PLAN
RUSTICATION DETAIL
FILLED JOINT DETAIL
Joint Filler (Std. Spec. 1057.2.4)
DETAIL "F" (TYPICAL)
SECTION B-B
SECTION E-E
PART SECTION NEAR LEFT SAFETY BARRIER CURB
SECTION D-D
Note: Use a minimum lap of 17" for #5 horizontal safety barrier curb bars.
The cross-sectional area above the slab = 2.27 sq. ft.
PART ELEVATION
SECTION A-A
NOTE: Cost of Timber Headers complete in place to be included in contract unit price for concrete.
DETAILS OF TIMBER HEADER AT END BENTS
NOTE:
TOP OF SAFETY BARRIER CURB SHALL BE BUILT PARALLEL TO GRADE WITH SAFETY BARRIER CURB JOINTS (EXCEPT AT END BENTS) NORMAL TO GRADE.
ALL EXPOSED EDGES OF SAFETY BARRIER CURB SHALL HAVE EITHER A 1/2" RADIUS OR A 3/8" BEVEL, UNLESS OTHERWISE NOTED.
WHEN THE SAFETY BARRIER CURB IS BID BY LINEAR FEET, THE CONTRACT UNIT PRICE SHALL INCLUDE THE COST OF ALL CONCRETE AND REINFORCEMENT, COMPLETE-IN-PLACE.
CONCRETE FOR THE SAFETY BARRIER CURB SHALL BE CLASS B1.
MEASUREMENT OF SAFETY BARRIER CURB IS TO THE NEAREST LINEAR FOOT FOR EACH STRUCTURE, MEASURED ALONG THE OUTSIDE TOP OF SLAB FROM END OF WING TO END OF WING.
PART ELEVATION
ELEVATION C-C
DETAILS OF GUARD RAIL ATTACHMENT
SPS 1.7.8(I) AUG. 1978
REVISED MAY 1987
DETAILED MARCH 1989
CHECKED MARCH 1989
DETAILS OF SAFETY BARRIER CURB AT END BENTS
Note: This drawing is not to scale. Follow dimensions.
Sheet No. 8 of 10
COLE COUNTY
A-1305R

STATE	PROJ. NO.	SHEET NO.
MO.		88

BILL OF REINFORCING STEEL		
SIZE & MARK	ACTUAL LENGTH	BENDING DIAGRAM
#5-R1	2'-7"	
#5-R2	2'-8"	
#5-R3	2'-2"	
#5-R4	2'-0"	
#5-R-BAR	VARIES	

ALL DIMENSIONS FOR R-BARS ARE OUT TO OUT.

HOOKS AND BENDS SHALL BE IN ACCORDANCE WITH THE C.R.S.I. MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES, STIRRUPS AND TIE DIMENSIONS.

ACTUAL LENGTHS OF REINFORCING BARS ARE MEASURED ALONG CENTER LINE OF BAR TO THE NEAREST INCH.

ALL REINFORCEMENT SHALL BE GRADE 60 AND EPOXY COATED.

GENERAL NOTES:

CONCRETE FOR PRECAST BARRIER CURBS SHALL BE CLASS B1 WITH F'C=4,000 PSI.

TOP OF BARRIER CURB SHALL BE PARALLEL TO GRADE WITH BARRIER CURB JOINTS NORMAL TO GRADE.

ALL EXPOSED EDGES OF BARRIER CURB SHALL HAVE ½" RADIUS OR ⅜" BEVEL UNLESS OTHERWISE NOTED.

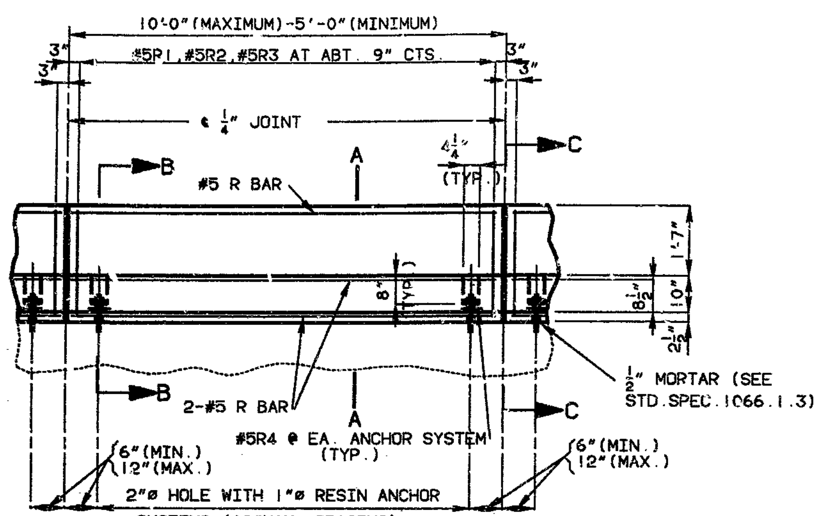
THE CONTRACTOR SHALL USE ONE OF THE RESIN ANCHOR SYSTEMS LISTED IN THE JOB SPECIAL PROVISIONS. THE ANCHOR SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS EXCEPT AS MODIFIED BY THE JOB SPECIAL PROVISIONS AND SHALL BE GALAVANIZED.

THREADED RODS SHALL HAVE AN ULTIMATE CAPACITY OF 36,000 POUNDS.

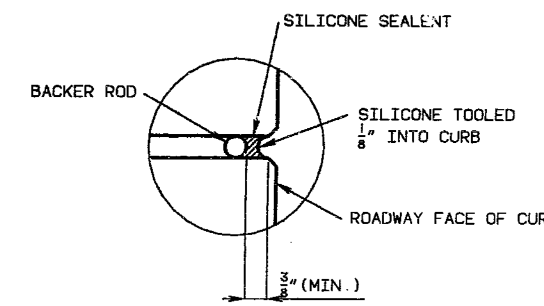
PAYMENT FOR FURNISHING AND INSTALLING RESIN ANCHOR SYSTEMS SHALL BE FULLY COVERED BY THE CONTRACT UNIT PRICE FOR SAFETY BARRIER CURB.

WHEN THE BARRIER CURB IS BID BY LINEAR FEET, THE CONTRACT UNIT PRICE SHALL INCLUDE THE COST OF ALL CONCRETE, REINFORCEMENT AND RESIN ANCHOR SYSTEMS COMPLETE IN PLACE.

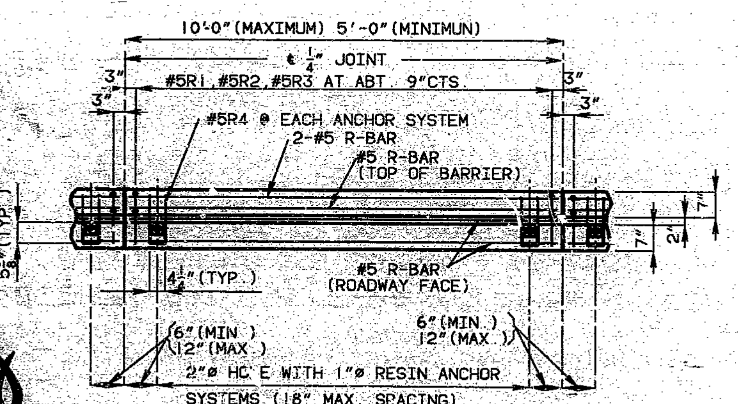
MEASUREMENT OF PRECAST SAFETY BARRIER CURB IS TO THE NEAREST LINEAR FOOT FOR EACH STRUCTURE, MEASURED ALONG THE TOP OF SLAB FROM END OF CURB TO END OF CURB.



PART ELEVATION



DETAIL "A"



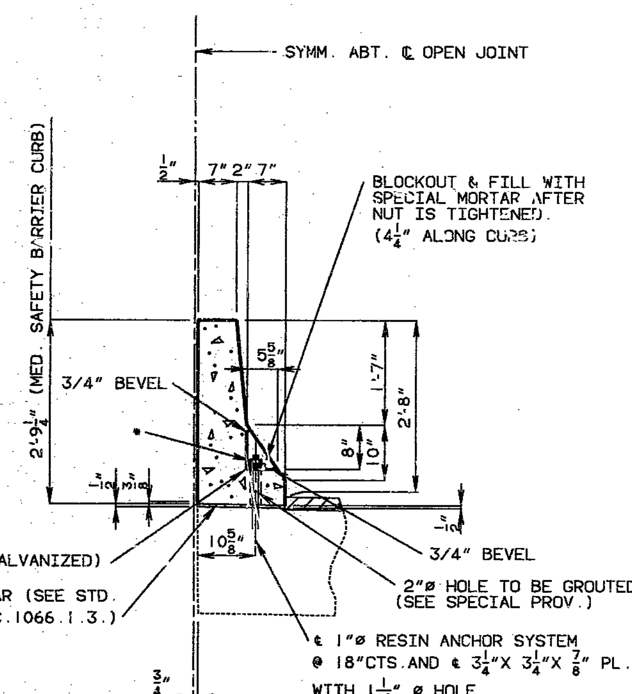
PART PLAN

NOTE:

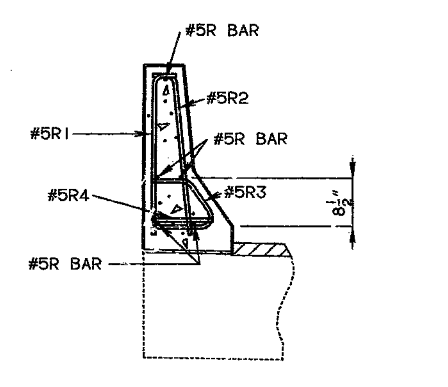
$2\frac{1}{4}$" LOW SLUMP CONCRETE WEARING SURFACE NOT SHOWN IN PART ELEVATOIN & ELEVATION OF PRECAST MEDIAN SAFETY BARRIER CURB FOR CLARITY.

THE PRECAST MEDIAN SAFETY BARRIER CURB UNITS SHALL BE SPACED TO ALLOW FOR THE CENTERING OF A ¼" JOINT OVER EACH INT. BENT.

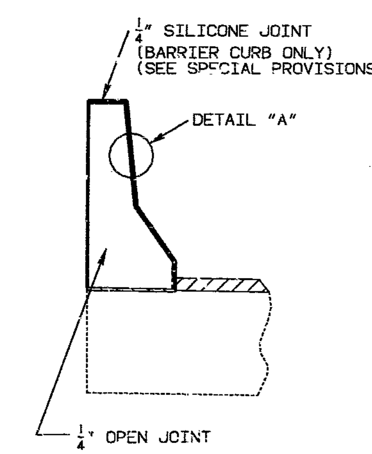
WORK THIS SHEET WITH SHEET NO 8.



TYPICAL PRECAST PART SECTION B-B



TYPICAL SECTION THRU RIGHT MEDIAN PRECAST SAFETY BARRIER CURB



PART SECTION C-C

* TIGHTEN NUT SNUG TIGHT AND BURR THREADS.

DETAILED MAR. 1989
CHECKED APRIL 1989

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

SHEET NO. 9 OF 10.

COLE COUNTY

A-1305R

STATE	PROJ NO	SHEET NO
MO		89

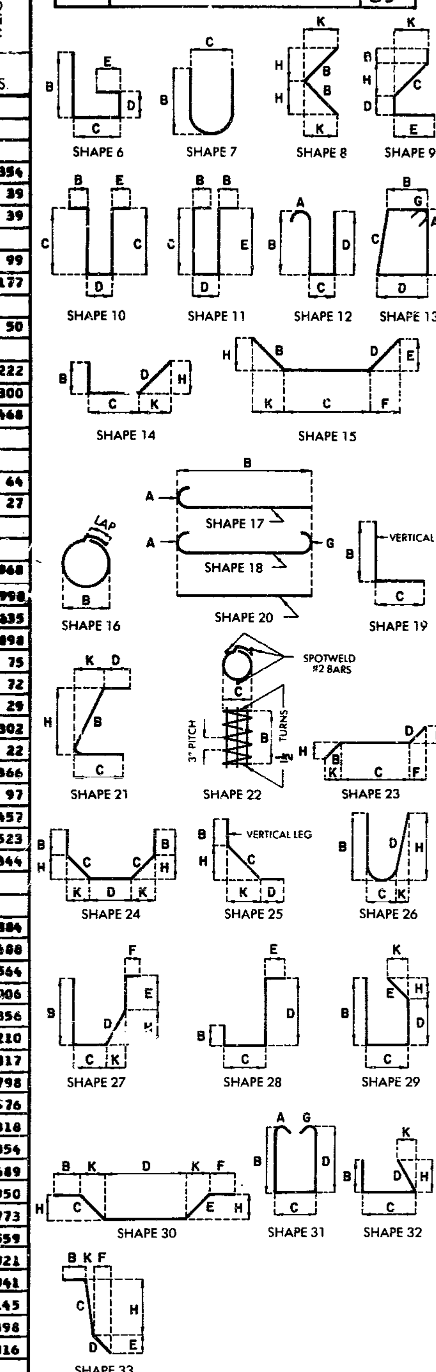
COMPLETE BILL OF REINFORCING STEEL

NO. REQD.	SIZE MARK	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	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.
		SUBSTRUCTURE																
		INT BT NO 2																
18	8D21	FOOTING		20		X			5 9.000							5 9	5 9	276
16	6D22	FOOTING		10	S	X				3 2.000	16.000					7 8	7 4	176
		INT BT NO 3																
22	11D31	FOOTING		17		X			9 0.000							10 7	10 7	1237
16	6D32	FOOTING		10	S	X				3 2.000	16.000					7 8	7 4	176
		SUPERSTRUCTURE																
		END BT NO 1																
16	6H1	BEAM		20					14 9.000							14 9	14 9	354
4	6H2	WING	E	20					6 5.000							6 5	6 5	39
4	6H3	WING		20					6 5.000							6 5	6 5	39
16	6H4	WING		20			V	4	3 0.000							3 0	3 0	
		INCR = 10.375 IN							5 7.000							5 7	5 7	103
8	6H5	SLAB	E	20					14 9.000							14 9	14 9	177
4	6T1	WING		25					10.000	5 7.250	2 1.500			3 8.500	4 2.500	8 7	8 6	51
30	5U1	BEAM		10	S					2 6.000	2 3.000					7 3	7 1	222
30	5U2	BEAM & SLAB	E	10	S					3 9.250	2 3.600					9 10	9 7	300
40	6U3	BEAM & SLAB	E	19	S				3 6.000	4 1.000						7 7	7 5	446
16	6V1	WING		20			V	4	17.000							17	17	
		INCR = 10.625 IN							4 1.000							4 1	4 1	66
4	6V2	WING		20					4 8.000							4 8	4 8	28
		INT BT NO 2																
28	9G21	SLAB	E	20					18 0.000							18 0	18 0	1714
28	9G22	DROP PANEL		20					17 7.000							17 7	17 7	1674
42	4P21	COLUMN		16					2 3.000							7 11	7 11	222
60	5U21	DROP PANEL	E	10	S				6.000	2 4.625	5 2.000	6.000				10 11	10 6	657
18	8V21	COLUMN		20					23 0.000							23 0	23 0	1105
		INT BT NO 3																
28	9G31	SLAB	E	20					18 0.000							18 0	18 0	1714
26	9G32	DROP PANEL		20					17 7.000							17 7	17 7	1554
36	4P31	COLUMN		16					2 3.000							7 11	7 11	190
60	5U31	DROP PANEL	E	10	S				6.000	2 1.625	3 10.000	6.000				9 1	8 8	542
22	11V31	COLUMN		17					19 3.000							20 10	20 10	2435

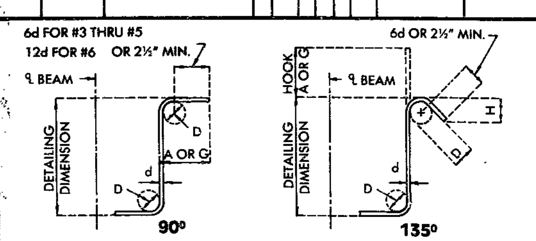
COMPLETE BILL OF REINFORCING STEEL

NO. REQD.	SIZE MARK	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	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.
		END BT NO 4																
16	6H41	BEAM		20					14 9.000							14 9	14 9	354
4	6H42	WING	E	20					6 5.000							6 5	6 5	39
4	6H43	WING		20					6 5.000							6 5	6 5	39
16	6H44	WING		20			V	4	2 9.000							2 9	2 9	
		INCR = 11.000 IN							5 6.000							5 6	5 6	99
8	6H45	SLAB	E	20					14 9.000							14 9	14 9	177
4	6T41	WING		25					10.000	5 5.000	2 2.000			3 5.000	4 2.500	8 5	8 4	50
30	5U41	BEAM		10	S					2 6.000	2 3.000					7 3	7 1	222
30	5U42	BEAM & SLAB	E	10	S					3 9.250	2 3.000					9 10	9 7	300
42	6U43	BEAM & SLAB	E	19	S				3 6.000	4 1.000						7 7	7 5	468
16	6V41	WING		20			V	4	17.000							17	17	
		INCR = 10.000 IN							3 11.000							3 11	3 11	64
4	6V42	WING		20					4 6.000							4 6	4 6	27
348	5R1	BARRIER CURB	E	19	S				2 6.000	3.500						2 10	2 8	968
368	5R2	BARRIER CURB	E	15	S				2 4.125	3.500				2 6.000	3.000	2 10	2 9	998
332	5R3	BARRIER CURB	E	19	S				17.000	6.000						23	22	435
304	5R4	BARRIER CURB	E	27	S					6.000	11.125	7.000	12.000	9.125	6.375	3 0	2 10	898
28	5R5	BARRIER CURB	E	27	S					6.000	11.125	15.000		9.125	6.375	2 8	2 7	75
16	5R6	BARRIER CURB	E	10	S					2 0.000	6.000					4 6	4 4	72
4	5R7	BARRIER CURB	E	20					7 0.000							7 0	7 0	29
40	5R8	BARRIER CURB	E	20					7 3.000							7 3	7 3	302
4	5R9	BARRIER CURB	E	20					5 3.000							5 3	5 3	22
36	5R10	BARRIER CURB	E	20					9 9.000							9 9	9 9	366
12	5R11	BARRIER CURB	E	20					7 9.000							7 9	7 9	97
12	5R12	BARRIER CURB	E	20					36 6.000							36 6	36 6	457
12	5R13	BARRIER CURB	E	20					41 9.000							41 9	41 9	523
12	5R14	BARRIER CURB	E	20					27 6.000							27 6	27 6	344
350	5S1	SLAB	E	20					14 9.000							14 9	14 9	5384
44	5S2	SLAB	E	20					32 5.000							32 5	32 5	1488
44	5S3	SLAB	E	20					34 1.000							34 1	34 1	1564
44	5S4	SLAB	E	20					21 11.000							21 11	21 11	1006
28	11S5	SLAB	E	20					36 0.000							36 0	36 0	5356
16	11S6	SLAB	E	20					26 0.000							26 0	26 0	2210
18	11S7	SLAB	E	20					19 0.000							19 0	19 0	1817
28	11S8	SLAB	E	20					32 3.000							32 3	32 3	4798
16	11S9	SLAB	E	20					23 3.000							23 3	23 3	1976
16	11S10	SLAB	E	20					15 6.000							15 6	15 6	1318
348	5S11	SLAB		20					14 9.000							14 9	14 9	5354
24	10S12	SLAB		20					55 1.000							55 1	55 1	5689
18	10S13	SLAB		20					38 1.000							38 1	38 1	2950
18	11S14	SLAB		20					29 0.000							29 0	29 0	2773
24	10S16	SLAB		20					53 10.000							53 10	53 10	5559
18	11S17	SLAB		20					41 0.000							41 0	41 0	3921
18	11S18	SLAB		20					30 9.000							30 9	30 9	2941
24	8S19	SLAB		20					49 1.000							49 1	49 1	3145
18	8S20	SLAB		20					29 1.000							29 1	29 1	1398
18	9S21	SLAB		20					21 6.000							21 6	21 6	1316
		END OF BAR LIST																

Two (2) additional #9-G21, #6-U43, #5-S1 & #11-S7 are included in bar bill for testing.



BENDING DIAGRAMS



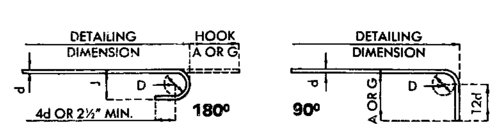
DETAILED APRIL 1989
CHECKED APRIL 1989

STD. 90.8 MAY 1974
REVISED JUNE 1986

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
#3	1½"	4"	4"	2½"
#4	2"	4½"	4½"	3"
#5	2½"	6"	5½"	3¾"
#6	4½"	12"	7¾"	4½"

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

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



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	D (IN.)	180° HOOKS ALL GRADES: A OR G	180° HOOKS ALL GRADES: J	90° HOOKS ALL GRADES: A OR G
#3	2¼"	5"	3"	6"
#4	3"	6"	4"	8"
#5	3¾"	7"	5"	10"
#6	4½"	8"	6"	12"
#7	5¼"	10"	7"	14"
#8	6"	11"	8"	16"
#9	9½"	15"	11¾"	19"
#10	10¾"	17"	13¼"	22"
#11	12"	19"	14¾"	2'-0"
#14	18¼"	2'-3"	21¾"	2'-7"

Sheet No. 10 of 10

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 PROCEDURE 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.

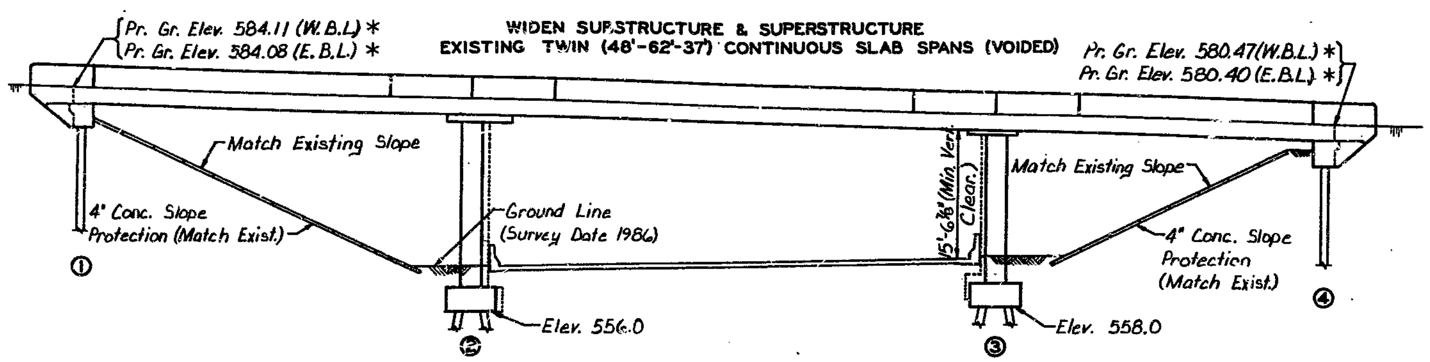
COLE COUNTY

A-1305R

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

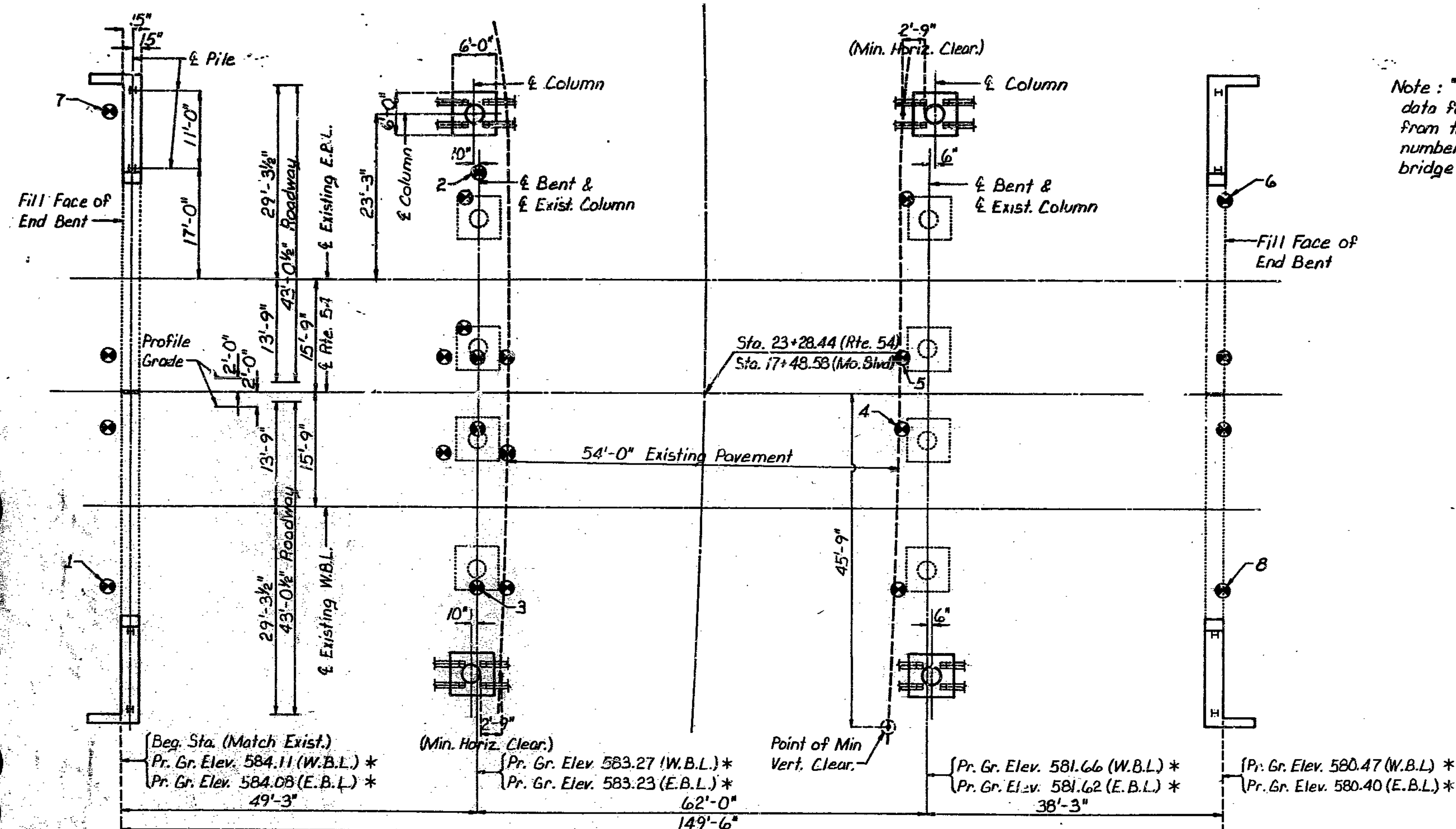
STATE	PROJ. NO.	SHEET NO.
MO.		80

SEC./SUR. 12 TWP. 44N RGE. 12W



GENERAL ELEVATION

Note: Roadway fill shall be completed to the final roadway section and up to the elevation of the bottom of the concrete beam within the limits of the structure and not less than 25' in back of the fill face of the End Bents before piles are driven for any bents falling within the embankment section.



PLAN

* Match Existing + Low Slump Concrete Wearing Surface.

Note: "⊖" Indicates location of borings. Boring data for all locations available upon request from the District Office. Boring data for numbered locations is in plans of existing bridge.

GENERAL NOTES:

Design Specifications: A.A.S.H.T.O. - 1983 and Interims 1984 thru 1988 Load Factor Design

Design Loading:
HS20-44 Modified 24,000# Tandem Axle
No Future Wearing Surface
Earth 120#/cu. ft., Equivalent Fluid Pressure 45#/cu. ft.

Design Unit Stresses:
Class B Concrete (Footings) f'c = 3,000 psi
Class B1 Concrete (Safety Barrier Curb, Int. Bent columns and End Bent beams) f'c = 4,000 psi
Class B2 Concrete (Superstructure except Safety Barrier Curb) f'c = 4,000 psi
Reinforcing Steel (Grade 60) fy = 60,000 psi
Steel Pile fb = 9,000 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 shall be 1½" unless otherwise shown. 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.

Construction Clearance:
Falsework over existing lanes shall be constructed with a minimum vertical clearance of 14'-0" from the high side of the existing roadway and a minimum lateral clearance of 52'-0"

Outline of old work is indicated by light dashed lines. Heavy lines indicate new work.

Traffic over structure to be maintained during construction. For details of stage construction, see Sheet No. 2.

FINAL QUANTITIES

ITEM		SUBSTR.	SUPERSTR.	TOTAL
Curb Removal	Lin. Ft.		618	618
Partial Removal of Substructure Concrete	Lump Sum			1
Class I Excavation	Cu. Yd.	69.5		69.5
Structural Steel Piles (10")	Lin. Ft.	1684		1684
Pre-bore for Piling	Lin. Ft.	124		124
Class B Concrete	Cu. Yd.	16.0		16.0
Substructure Repair (Unformed)(See Spec. Prov.)	Sq. Ft.	0		0
Class B1 Concrete	Cu. Yd.		32.0	32.0
Class B2 Concrete	Cu. Yd.		305.2	305.2
Safety Barrier Curb	Lin. Ft.		0	0
Precast Safety Barrier Curb	Lin. Ft.		299	299
Repairing Concrete Deck (Half-Soling)	Sq. Ft.		172	172
Low Slump Concrete Wearing Surface	Sq. Yd.		743	743
Reinforcing Steel	Lb.	1860	43,950	45,810
Conduit System on Structure	Lump Sum			1
Reinforcing Steel (Epoxy Coated)	Lb.		33,490	33,490
Removal and Storage of Existing Bridge Rail	Lin. Ft.		298	298
CONT. ITEMS				
Safety Barrier Curb (S.F.)			319	319
Low Slump Deduct			299	299

B.M. - Elev. 586.38 □ on N.E. cor. of Bridge over MO Blvd. 36' E. ℄ Med. Rte. 54

PILE DATA

BENT NO		1	2	3	4
Pile Type and Size		HP10x42			
Number		4	8	8	4
Final Length Range	Ft.	62-67	58-64	69-75	92-93
Design Bearing	Tons	37	51	45	31
Hammer Energy req'd	Ft.-Lbs.	8200	12,000	10,600	11,900

Note: Minimum energy requirement of hammer based on plan length and design bearing value of piles. All piles shall be driven to practical refusal.

Note: Prebore for piles at Bents No. 1 and 4 to Elevation 562.0.

Note: Stationing based on 1986 Survey.
Relocate utilities and drop inlets that interfere with substructure construction (Rdwy. Item).
Extend safety barrier curb along Missouri Blvd. as required for protection of bridge substructure (Rdwy. Item).

BRIDGE ROUTE 54 OVER MISSOURI BLVD.

STATE ROAD
IN JEFFERSON CITY
PROJECT NO. STA. 23+28.44
JOB NO. 5-U-54-2583 RTE. 54
COLE COUNTY
DATE 4/21/89

DESIGNED FEB. 1989
DETAILED MARCH 1989
CHECKED APRIL 1989

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

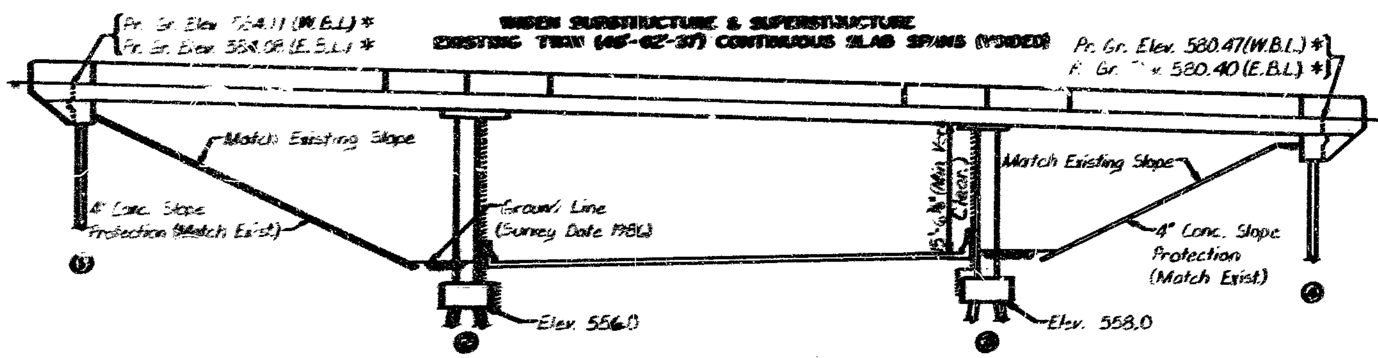
Sheet No. 1A of 10.

STD.
STD. 706.35
A-1305R

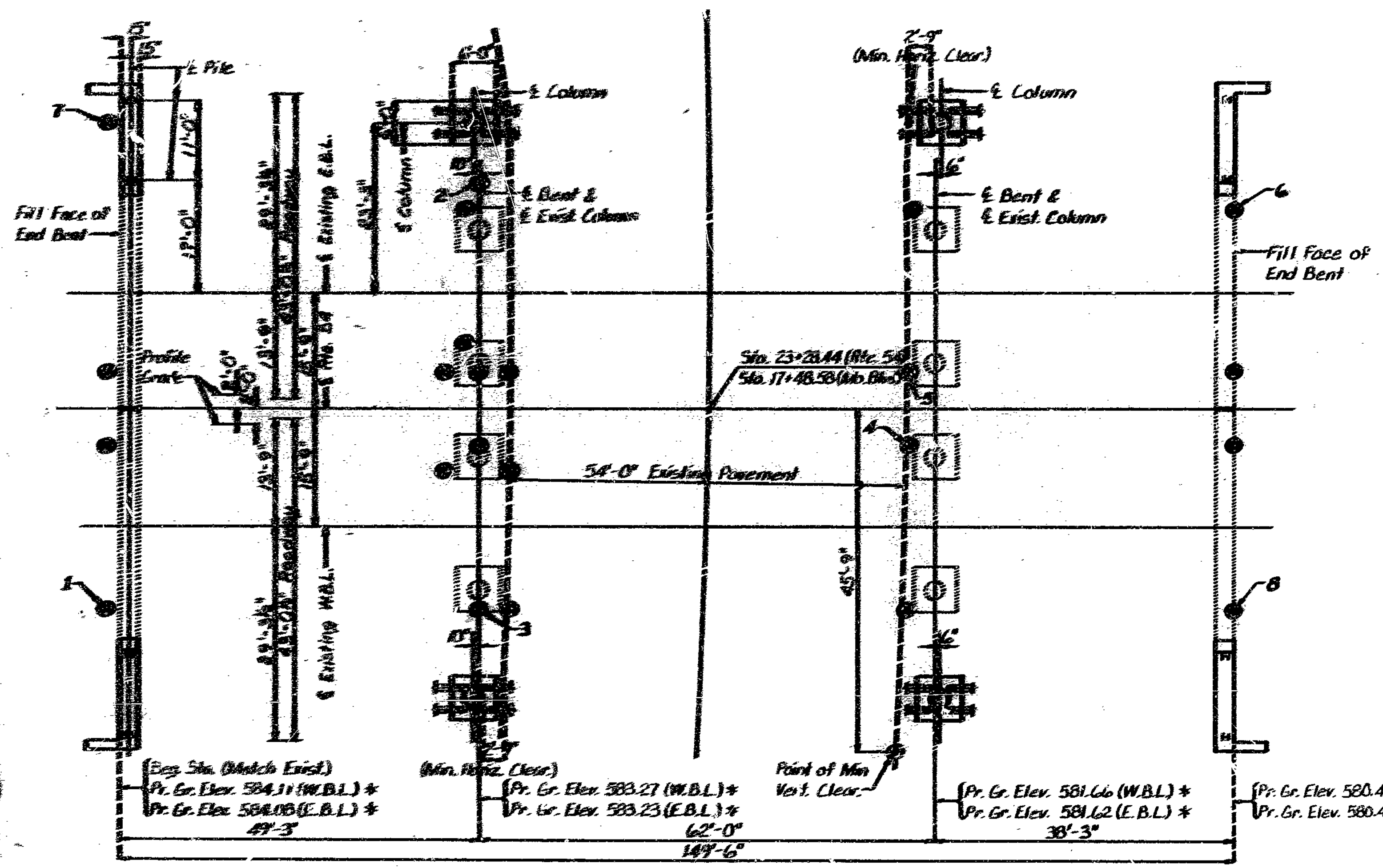
84 265 280

STATE	PROJ. NO.	SHEET NO.
MO.		80
SEC/SUR. 12	TWP. 44N	RGE. 12W

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION



GENERAL ELEVATION



PLAN

* Match Existing + Low Slump Concrete Wearing Surface.

Note: Roadway fill shall be completed to the final roadway section and up to the elevation of the bottom of the concrete beam within the limits of the structure and not less than 25' in back of the fill face of the End Bents before piles are driven for any bents falling within the embankment section.

Note: "⊕" Indicates location of borings. Boring data for all locations available upon request from the District Office. Boring data for numbered locations is in plans of existing bridge.

GENERAL NOTES:

Design Specifications: A.A.S.H.T.O. - 1983 and Interims 1984 thru 1988
Load Factor Design

Design Loading:
HS20-44 Modified 24,000# Tandem Axle
No Future Wearing Surface
Earth 120#/cu. ft., Equivalent Fluid Pressure 45#/cu. ft.

Design Unit Stresses:
Class B Concrete (Footings) f'c = 3,000 psi
Class B1 Concrete (Safety Barrier Curb, Int. Bent columns and End Bent beams) f'c = 4,000 psi
Class B2 Concrete (Superstructure except Safety Barrier Curb) f'c = 4,000 psi
Reinforcing Steel (Grade 60) fy = 60,000 psi
Steel Pile fb = 9,000 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 shall be 1½" unless otherwise shown.
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.

Construction Clearance:
Falsework over existing lanes shall be constructed with a minimum vertical clearance of 14'-0" from the high side of the existing roadway and a minimum lateral clearance of 52'-0"

Outline of old work is indicated by light dashed lines. Heavy lines indicate new work.
Traffic over structure to be maintained during construction. For details of stage construction, see Sheet No. 2.

ESTIMATED QUANTITIES				
ITEM		SUBSTR.	SUPERSTR.	TOTAL
Curb Removal	Lin. Ft.		618	618
Partial Removal of Substructure Concrete	Lump Sum			1
Class 1 Excavation	Cu. Yd.	75		75
Structural Steel Piles (10")	Lin. Ft.	1720		1720
Pre-bore for Piling	Lin. Ft.	114		114
Class B Concrete	Cu. Yd.	16.0		16.0
Substructure Repair (Unformed) (See Spec. Prov.)	Sq. Ft.	20		20
Class B1 Concrete	Cu. Yd.		32.0	32.0
Class B2 Concrete	Cu. Yd.		305.2	305.2
Safety Barrier Curb	Lin. Ft.		319	319
~~Precast Safety Barrier Curb~~	Lin. Ft.		~~299~~	~~299~~
Repairing Concrete Deck (Half-Soling)	Sq. Ft.		164	164
Low Slump Concrete Wearing Surface	Sq. Yd.		1042	1042
Reinforcing Steel	Lb.	1860	43,950	45,810
Conduit System on Structure	Lump Sum			1
Reinforcing Steel (Epoxy Coated)	Lb.		33,490	33,490
Removal and Storage of Existing Bridge Rail	Lin. Ft.		298	298

B.M. #12 Elev. 584.37 □ on N.E. cor. of Bridge over MO Blvd. 30' E. ℄ Med. Rte. 54

PILE DATA					
BENT NO.		1	2	3	4
Pile Type and Size		HP10x42			
Number		4	8	8	4
Approximate Length	Ft.	65	60	75	95
Design Bearing	Tons	37	51	45	31
Hammer Energy req'd	Ft.-Lbs.	8200	12,000	10,600	11,900

Note: Minimum energy requirement of hammer based on plan length and design bearing value of piles.
All piles shall be driven to practical refusal.

Note: Prebore for piles at Bents No. 1 and 4 to Elevation 562.0.

Note: Stationing based on 1986 Survey.
Relocate utilities and drop inlets that interfere with substructure construction (Rdwy. Item).
Extend safety barrier curb along Missouri Blvd. as required for protection of bridge substructure (Rdwy. Item).

BRIDGE ROUTE 54 OVER MISSOURI BLVD.

STATE ROAD
IN JEFFERSON CITY
PROJECT NO.
STA. 23+28.44
JOB NO. 5-U-54-258B
RTE. 54
COLE COUNTY
DATE 4/21/89

STD.
STD. 706.35
A-1305R

DESIGNED FEB. 1989
DETAILED MARCH 1989
CHECKED APRIL 1989

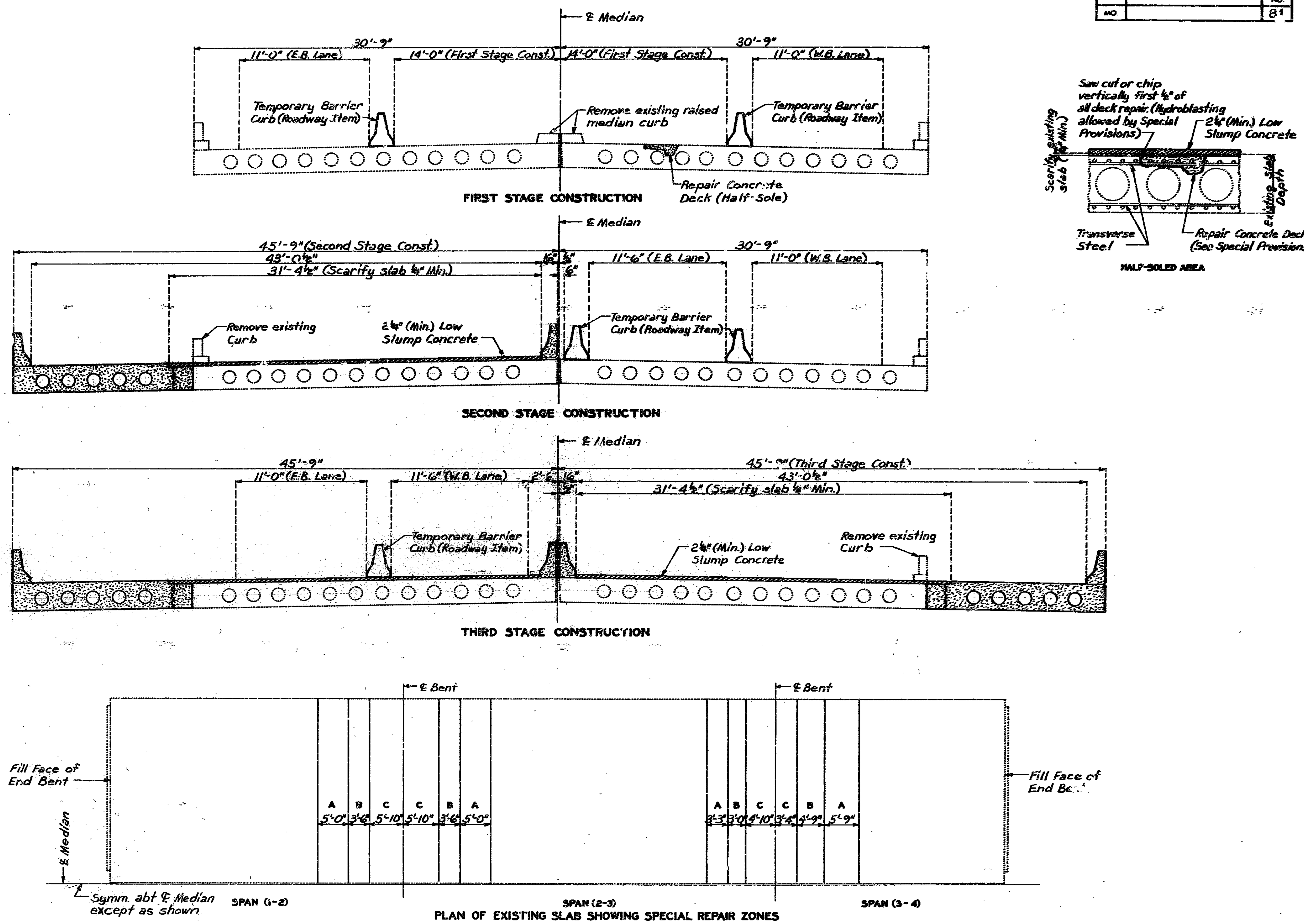
Note: This drawing is not to scale. Follow dimensions.

SEE FINAL PLANS

Sheet No. 1 of 10.

365278

STATE	PROJ NO.	SHEET NO.
MO.		81



PLAN OF EXISTING SLAB SHOWING SPECIAL REPAIR ZONES

Note: Sequence of repair; Zone A, then Zone B, then Zone C.
Any repair in the remainder of the bridge that is within 4'-0" of Zone A shall be completed before removing old concrete in Zone A.
Zones with the same letter designation may be repaired at the same time.

DETAILED FEB. 1989
CHECKED MARCH 1989

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

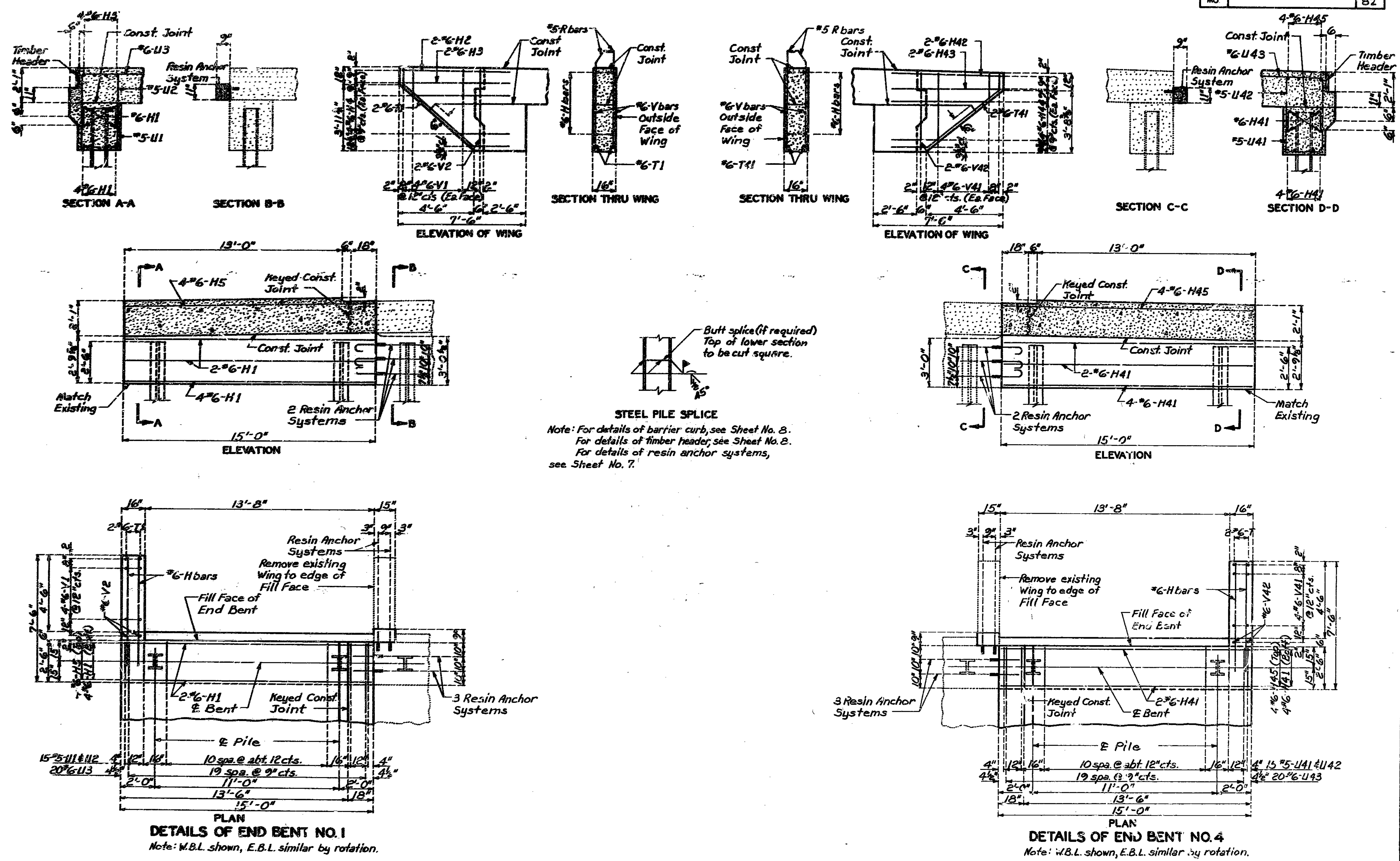
Sheet No. 2 of 10.

COLE COUNTY

A-1305R

366 279

STATE	PROJ. NO.	SHEET NO.
MO.		82



Note: For details of barrier curb, see Sheet No. 8.
For details of timber header, see Sheet No. 8.
For details of resin anchor systems, see Sheet No. 7.

767 280

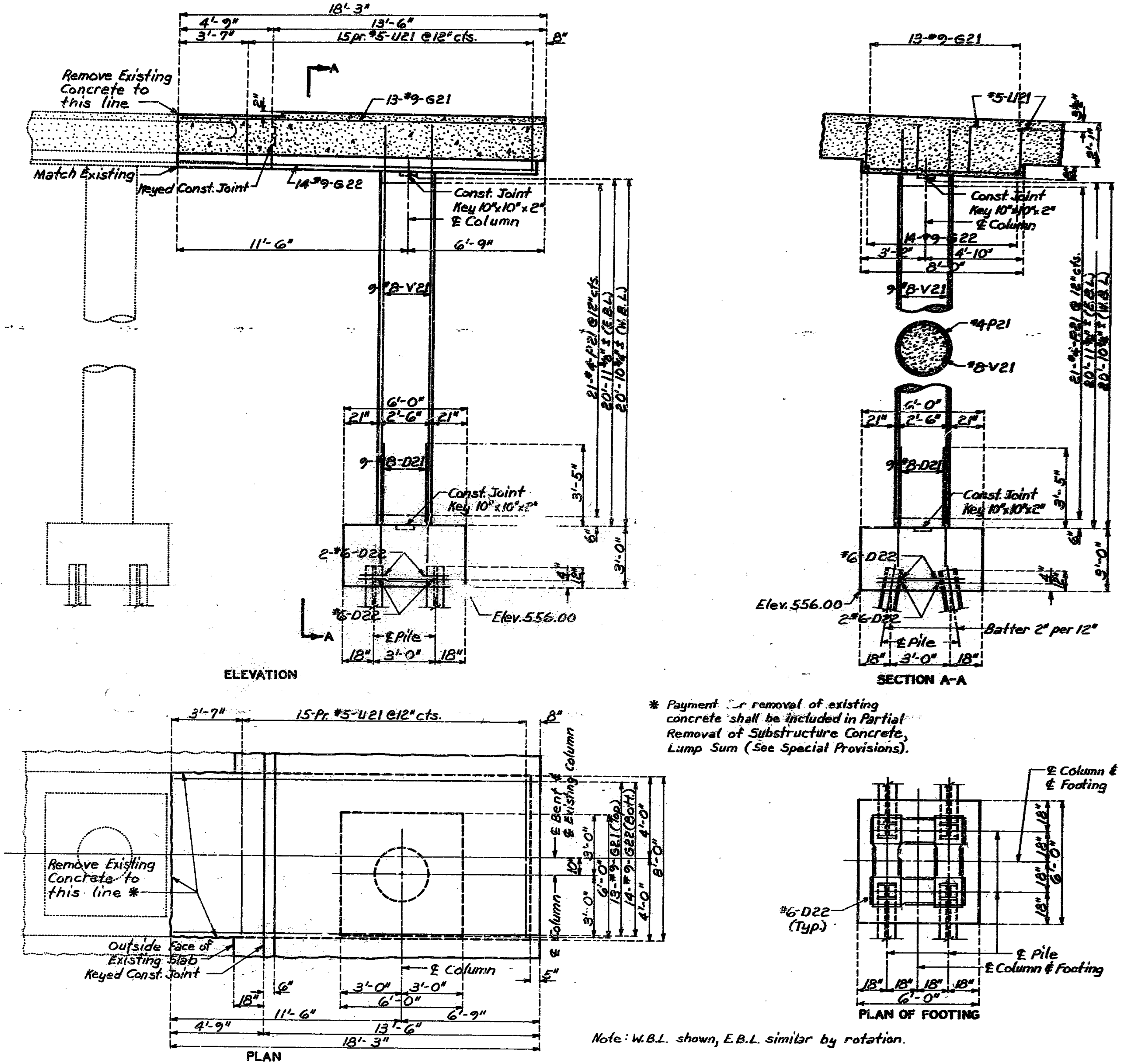
DETAILED MARCH 1989
CHECKED MARCH 1989

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

Sheet No. 3 of 10.

COLE COUNTY A-1305R

STATE	PROJ. NO.	SHEET NO.
MO		83



* Payment for removal of existing concrete shall be included in Partial Removal of Substructure Concrete, Lump Sum (See Special Provisions).

Note: W.B.L. shown, E.B.L. similar by rotation.

DETAILED MARCH 1989
CHECKED MARCH 1989

DETAILS OF INTERMEDIATE BENT NO. 2

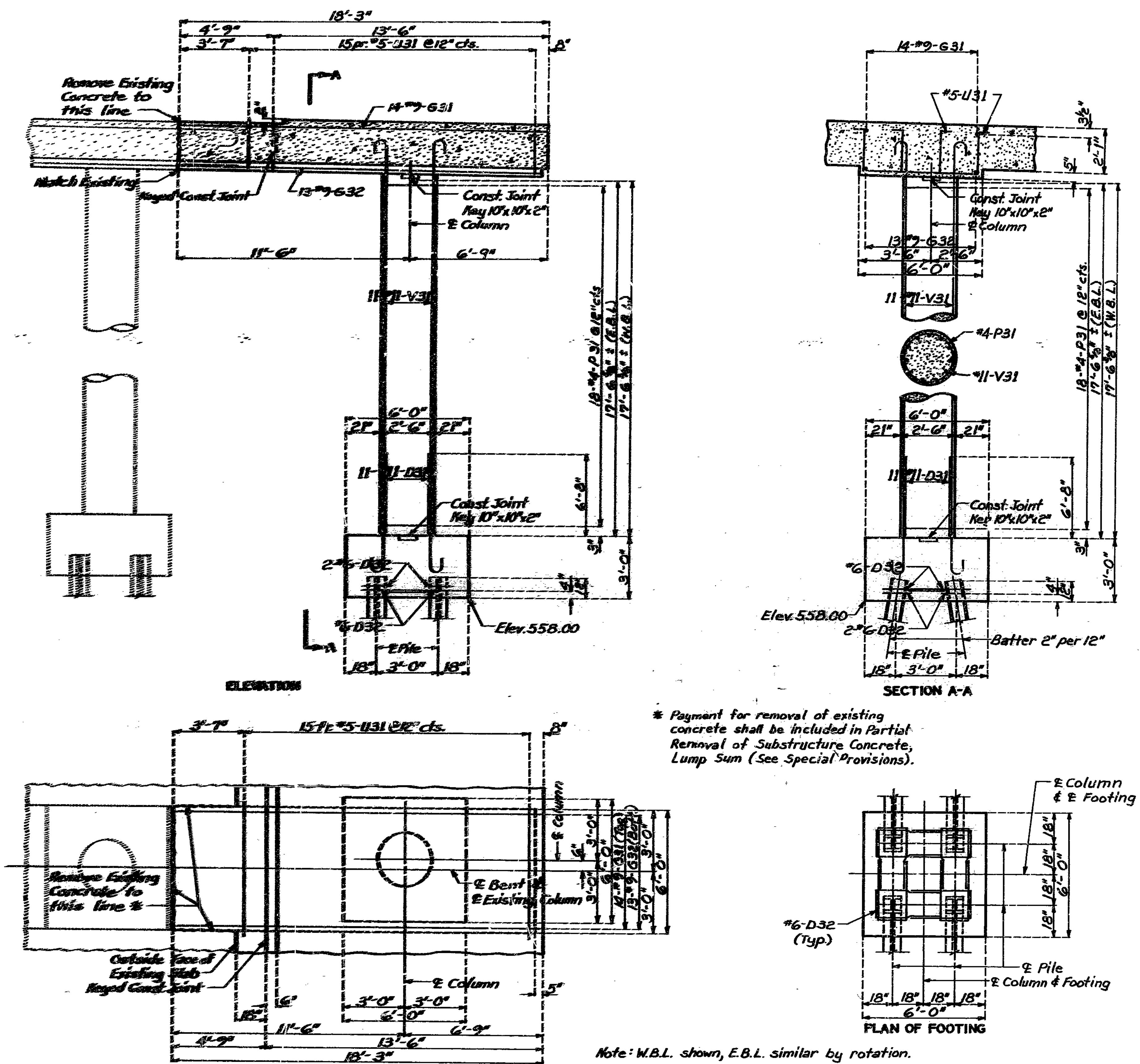
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 4 of 10.

COLE COUNTY **A-1305R**

268 281

STATE	PROJ. NO.	SHEET NO.
MO.		84



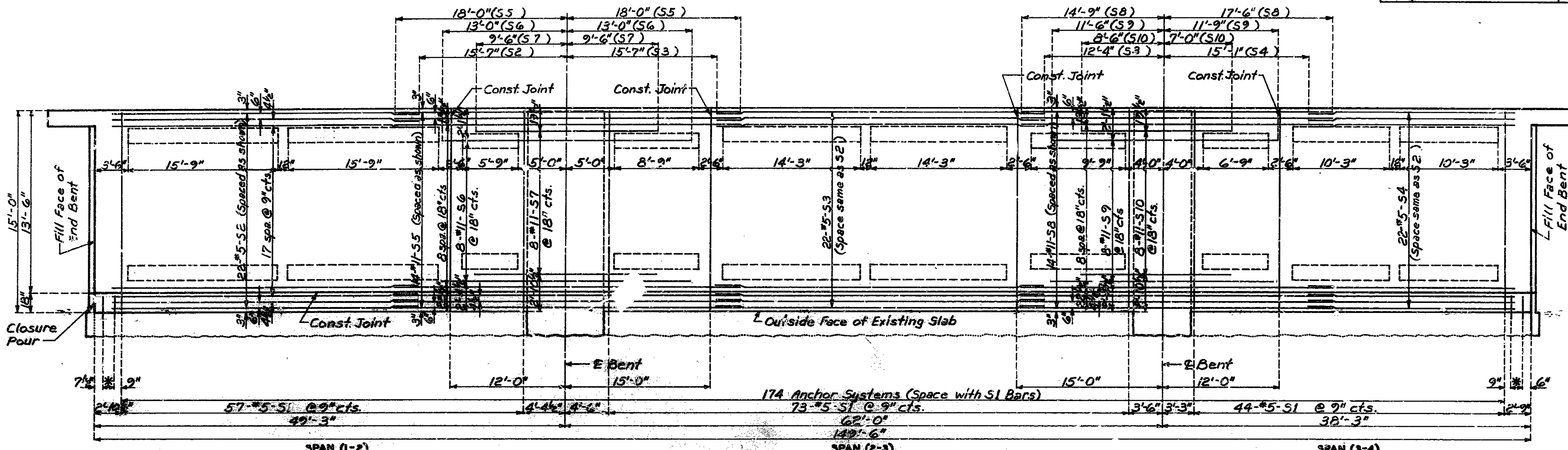
DETAILS OF INTERMEDIATE BENT NO.3

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

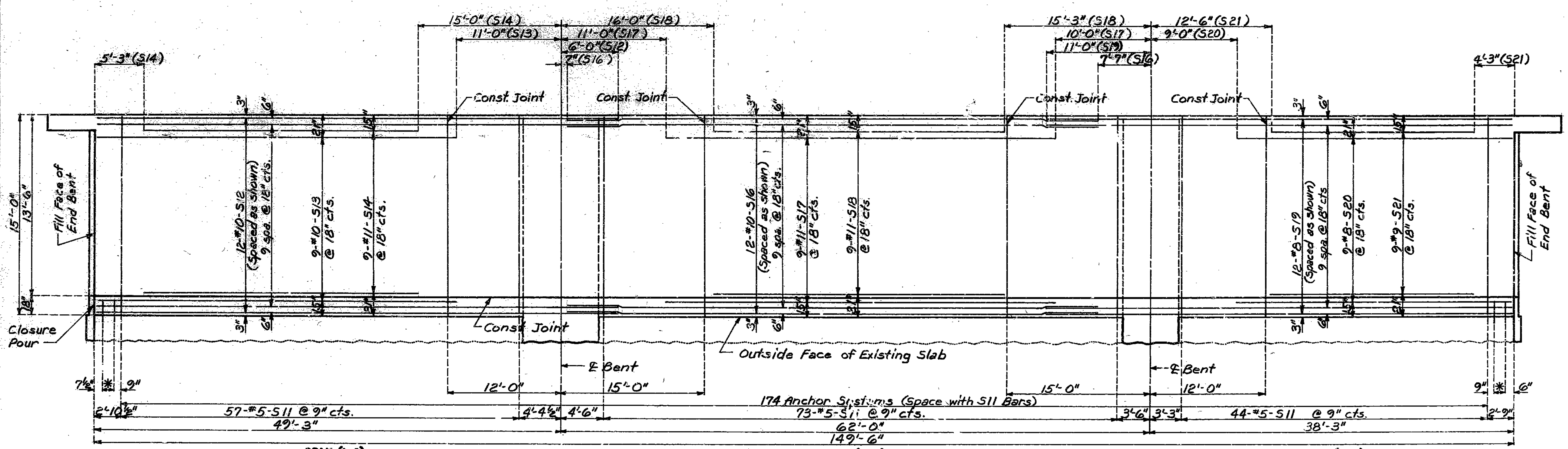
COLE COUNTY

A-1305R

STATE	PROJ. NO.	SHEET NO.
MO.		85



PLAN OF SLAB SHOWING TOP REINFORCEMENT



PLAN OF SLAB SHOWING BOTTOM REINFORCEMENT

✳ 3 Anchor Systems @ 9" cts.

Note: Longitudinal dimensions are horizontal. E.B.L. shown, W.B.L. similar by rotation.

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

Note: For details of Anchor Systems, see Sheet No. 7.

DETAILED FEB. 1989

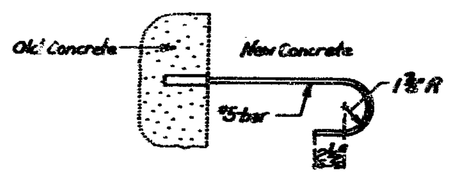
CHECKED MARCH 1989

Sheet No. 6 of 10.

COLE COUNTY

A-1305R

STATE	PROJ. NO.	SHEET NO.
MO		86

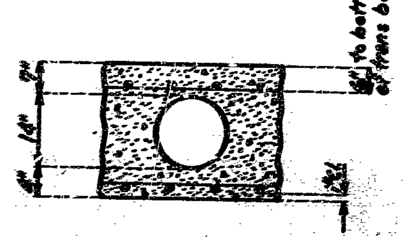


DETAIL OF RESIN ANCHOR SYSTEM

Note: Cost of furnishing and installing resin anchor systems shall be included in contract unit price bid for concrete.

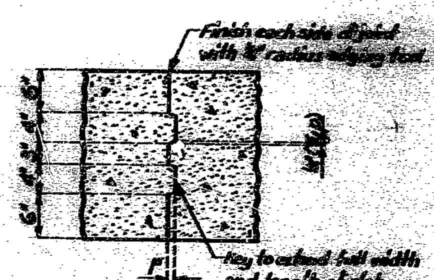
At the option of the contractor, he may use one of the resin anchor systems listed in the job special provisions.

These resin 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, projecting 15" into new concrete in slab and end bent beam and 7½" into new concrete of approach haunch at end bent, shall be used.



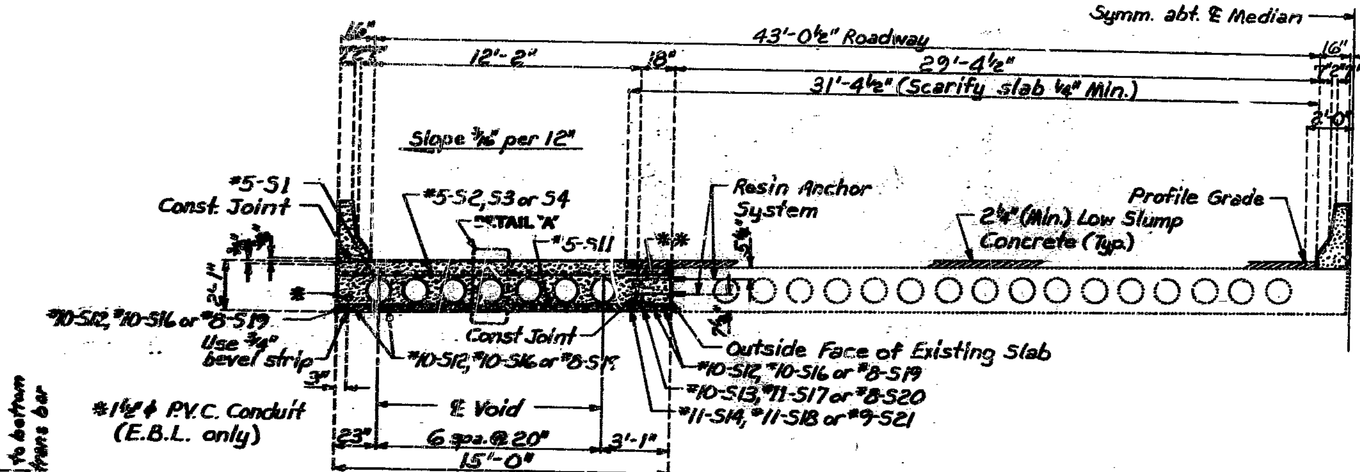
DETAIL "A"

Note: Tubes for producing voids shall have an outside diameter of 14" and shall be anchored at not more than 4'-0" centers. Fiber tubes shall have a wall thickness of not less than .250".



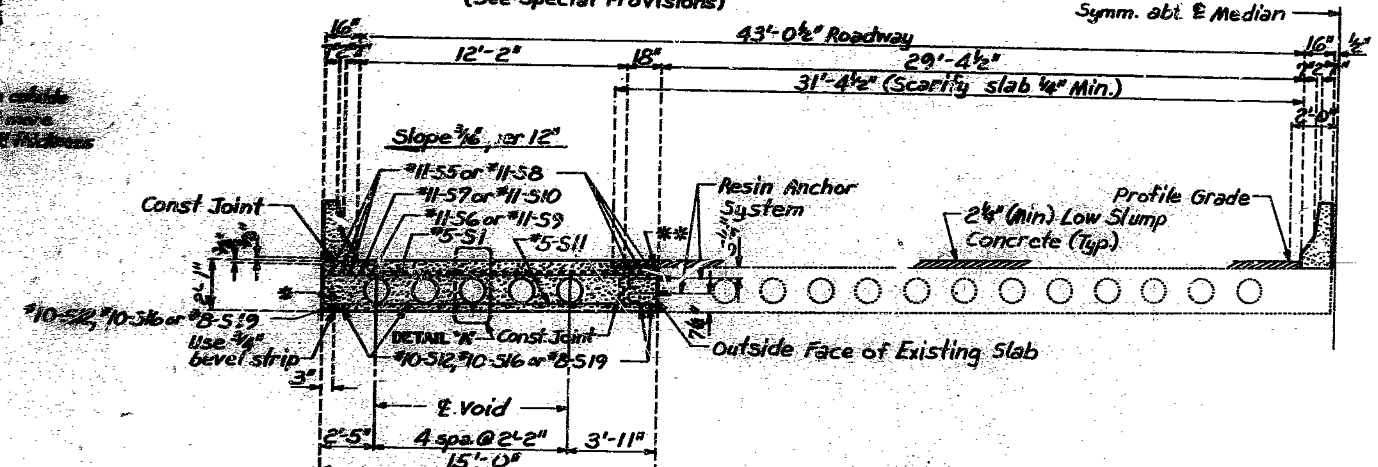
DETAIL OF SLAB CONSTRUCTION JOINT KEY

Note: The contractor shall furnish an approved retarder to retard the set of the concrete to 2.5 hours and shall pour and satisfactorily finish the roadway slab at a rate of not less than 25 cubic yards per hour. (The contractor shall observe the transverse construction joints shown on the plans unless he can demonstrate to the Engineer that he is equipped to pour and satisfactorily finish the roadway slab at a rate which permits a continuous pouring through some or all of these joints).



SECTION NEAR CENTER OF SPANS

** Closure pour (See Special Provisions). Release forms before closure pour is placed.
For closure pour, use expansive concrete.
(See Special Provisions)



SECTION NEAR INT. BENT

Note: E.B.L. shown, W.B.L. similar by rotation.
For details and reinforcement of barrier curbs not shown, see Sheets No. 8 & 9.

Note: All conduit shall be 1½" ϕ schedule 40 heavy wall (PVC) Polyvinyl Chloride Plastic, complete with all couplings, elbows and caps.

Each section of conduit shall bear the Underwriters Laboratories, Inc. (U.L) label.

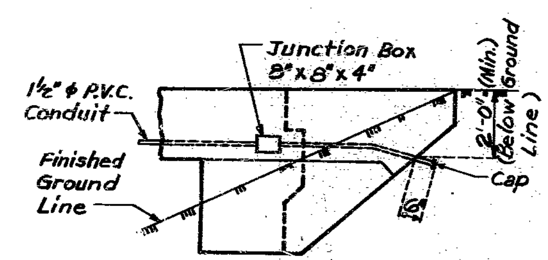
Shift reinforcing steel where necessary to clear conduit and junction boxes.

The junction boxes shall be PVC molded, flush mounted, size 8"x8"x4". They shall be equal to Carlon Electrical Construction Products or Triangle Conduit & Cable Co. Inc.. The conduit terminations and covers for the boxes in the wings of both End Bents shall be of water tight construction.

All wiring shall be furnished and installed by others.

The conduit system complete in place, shall be paid for as conduit system on structure, Lump Sum.

The conduit shall have 3" minimum cover in concrete.



DETAIL OF CONDUIT AT END BENTS

DETAILED MARCH 1989
CHECKED MARCH 1989

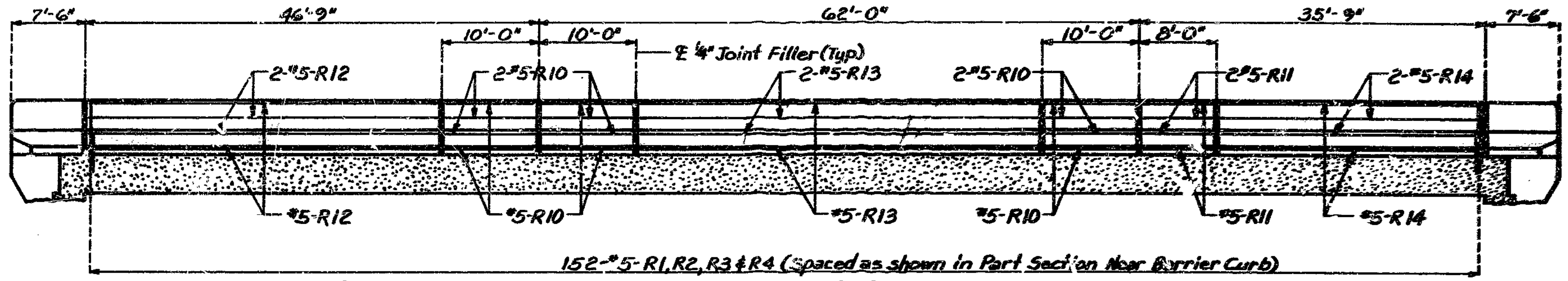
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 7 of 10.

COLE COUNTY

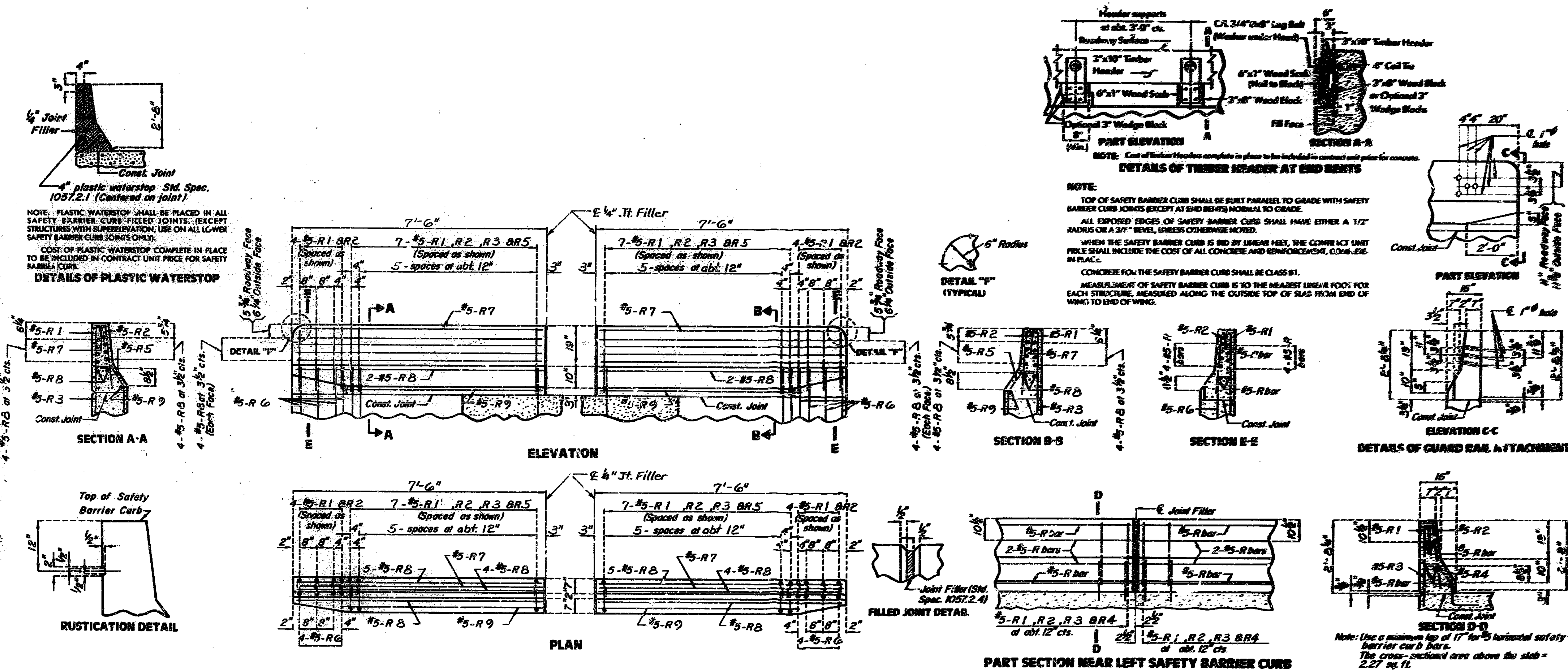
A-1305R

88127



SECTION NEAR LEFT BARRIER CURB

Note: Longitudinal dimensions are horizontal. Left Barrier Curb for E.B.L shown, Right Barrier Curb for W.B.L. similar.



NOTE: Cost of Timber Headers complete in place to be included in contract unit price for concrete.

DETAILS OF TIMBER HEADER AT END BENTS

NOTE: PLASTIC WATERSTOP SHALL BE PLACED IN ALL SAFETY BARRIER CURB FILLED JOINTS. (EXCEPT STRUCTURES WITH SUPERELEVATION, USE ON ALL LOWER SAFETY BARRIER CURB JOINTS ONLY).

COST OF PLASTIC WATERSTOP COMPLETE IN PLACE TO BE INCLUDED IN CONTRACT UNIT PRICE FOR SAFETY BARRIER CURB.

DETAILS OF PLASTIC WATERSTOP

NOTE:

TOP OF SAFETY BARRIER CURB SHALL BE BUILT PARALLEL TO GRADE WITH SAFETY BARRIER CURB JOINTS (EXCEPT AT END BENTS) NORMAL TO GRADE.

ALL EXPOSED EDGES OF SAFETY BARRIER CURB SHALL HAVE EITHER A 1/2" RADIUS OR A 3/4" BEVEL, UNLESS OTHERWISE NOTED.

WHEN THE SAFETY BARRIER CURB IS BID BY LINEAR FEET, THE CONTRACT UNIT PRICE SHALL INCLUDE THE COST OF ALL CONCRETE AND REINFORCEMENT, COMPLETE-IN-PLACE.

CONCRETE FOR THE SAFETY BARRIER CURB SHALL BE CLASS B1.

MEASUREMENT OF SAFETY BARRIER CURB IS TO THE NEAREST LINEAR FOOT FOR EACH STRUCTURE, MEASURED ALONG THE OUTSIDE TOP OF SLAB FROM END OF WING TO END OF WING.

DETAILS OF GUARD RAIL ATTACHMENT

Note: Use a minimum lap of 17" for #5 horizontal safety barrier curb bars. The cross-sectional area above the slab = 2.27 sq. ft.

STATE	PROJ. NO.	SHEET NO.
MO		B7

377-385

SPS 1.7.8(I) AUG. 1978 REVISED MAY 1987

DETAILED MARCH 1989
CHECKED MARCH 1989

DETAILS OF SAFETY BARRIER CURB AT END BENTS

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

Sheet No. 8 of 10

COLE COUNTY

A-1305R

STATE	PROJ NO	SHEET NO.
MO		88

GENERAL NOTES

CONCRETE FOR PRECAST BARRIER CURBS SHALL BE CLASS B1 WITH F'C=4,000 PSI

TOP OF BARRIER CURB SHALL BE PARALLEL TO GRADE WITH BARRIER CURB JOINTS NORMAL TO GRADE

ALL EXPOSED EDGES OF BARRIER CURB SHALL HAVE $\frac{1}{2}$" RADIUS OR $\frac{3}{8}$" BEVEL UNLESS OTHERWISE NOTED

THE CONTRACTOR SHALL USE ONE OF THE RESIN ANCHOR SYSTEMS LISTED IN THE JOB SPECIAL PROVISIONS. THE ANCHOR SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS EXCEPT AS MODIFIED BY THE JOB SPECIAL PROVISIONS AND SHALL BE GALAVANIZED

THREADED RODS SHALL HAVE AN ULTIMATE CAPACITY OF 36,000 POUNDS

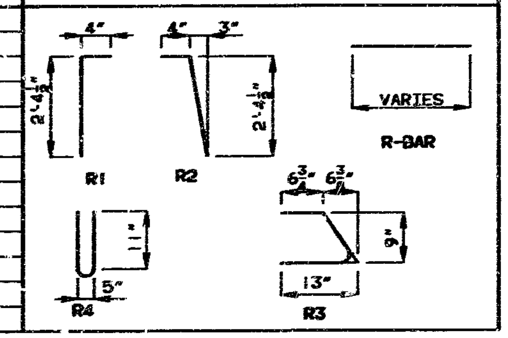
PAYMENT FOR FURNISHING AND INSTALLING RESIN ANCHOR SYSTEMS SHALL BE FULLY COVERED BY THE CONTRACT UNIT PRICE FOR SAFETY BARRIER CURB

WHEN THE BARRIER CURB IS BID BY LINEAR FEET, THE CONTRACT UNIT PRICE SHALL INCLUDE THE COST OF ALL CONCRETE, REINFORCEMENT AND RESIN ANCHOR SYSTEMS COMPLETE IN PLACE

MEASUREMENT OF PRECAST SAFETY BARRIER CURB IS TO THE NEAREST LINEAR FOOT FOR EACH STRUCTURE, MEASURED ALONG THE TOP OF SLAB FROM END OF CURB TO END OF CURB

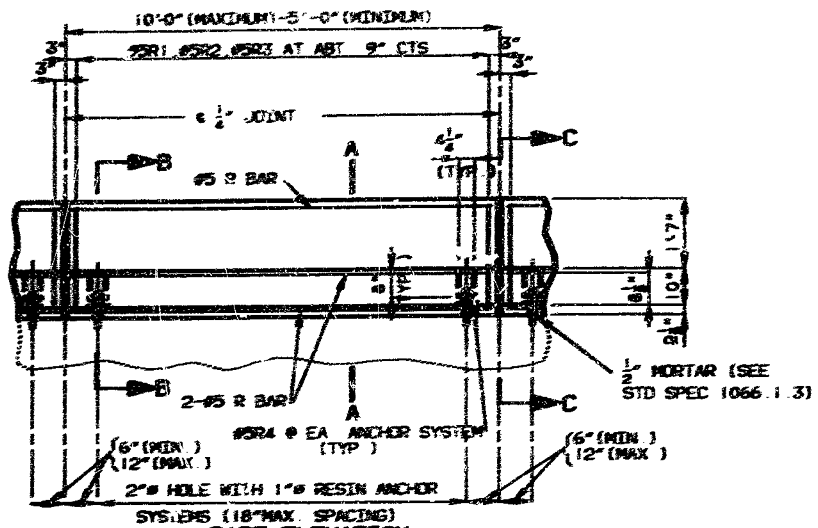
BILL OF REINFORCING STEEL

SIZE & MARK	ACTUAL LENGTH	BENDING DIAGRAM
#5-R1	2'-7"	
#5-R2	2'-8"	
#5-R3	2'-2"	
#5-R4	2'-0"	
#5-R-BAR	VARIES	

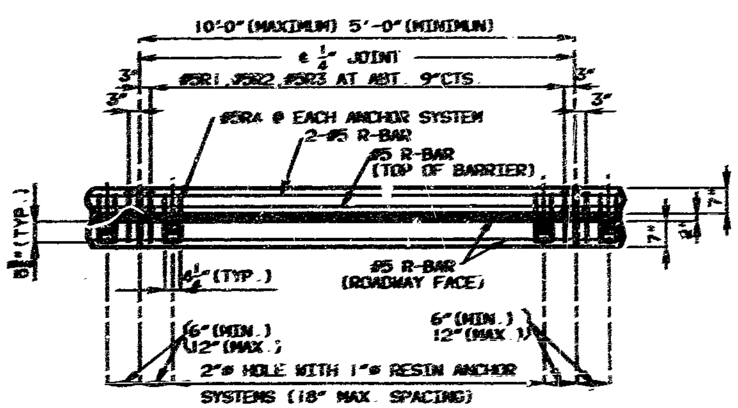


ALL DIMENSIONS FOR R-BARS ARE OUT TO OUT

HOOKS AND BENDS SHALL BE IN ACCORDANCE WITH THE C R S I MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES, STIRRUPS AND TIE DIMENSIONS.
ACTUAL LENGTHS OF REINFORCING BARS ARE MEASURED ALONG CENTER LINE OF BAR TO THE NEAREST INCH.
ALL REINFORCEMENT SHALL BE GRADE 60 AND EPOXY COATED



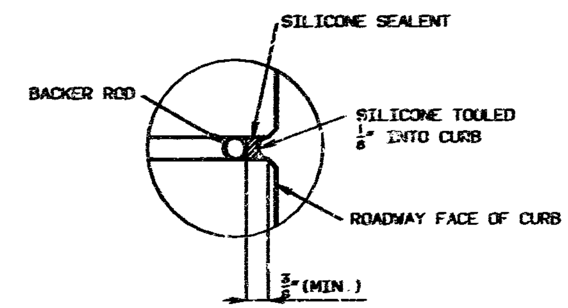
PART ELEVATION



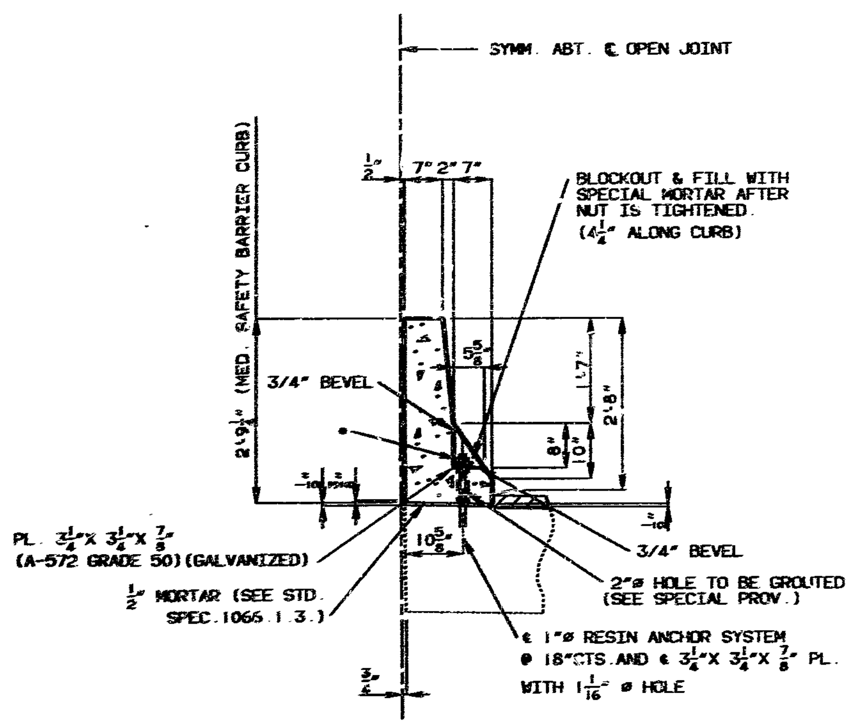
PART PLAN

NOTE:
2¼" LOW SLUMP CONCRETE WEARING SURFACE NOT SHOWN IN PART ELEVATOIN & ELEVATION OF PRECAST MEDIAN SAFETY BARRIER CURB FOR CLARITY.
THE PRECAST MEDIAN SAFETY BARRIER CURB UNITS SHALL BE SPACED TO ALLOW FOR THE CENTERING OF ℄ ¼" JOINT OVER EACH INT. BENT.
WORK THIS SHEET WITH SHEET NO.8.

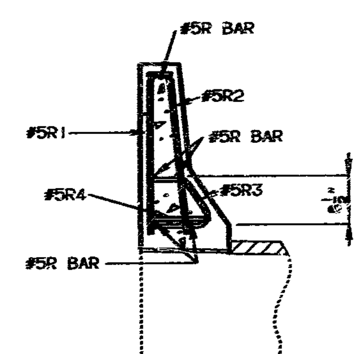
273-286



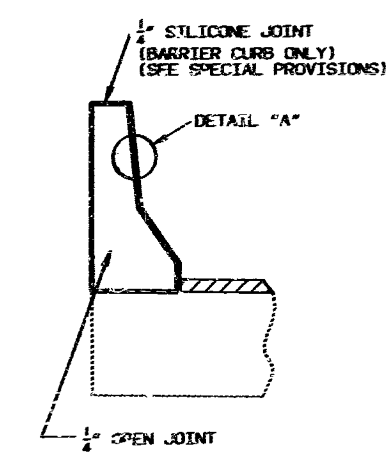
DETAIL "A"



TYPICAL PRECAST PART SECTION B-B



TYPICAL SECTION THRU RIGHT MEDIAN PRECAST SAFETY BARRIER CURB



PART SECTION C-C

* TIGHTEN NUT SNUG TIGHT AND BURR THREADS.

DETAILED MAR. 1989
CHECKED APRIL 1989

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

COLE COUNTY

A-1305R

STATE	PROJ NO	SHEET NO
MO		89

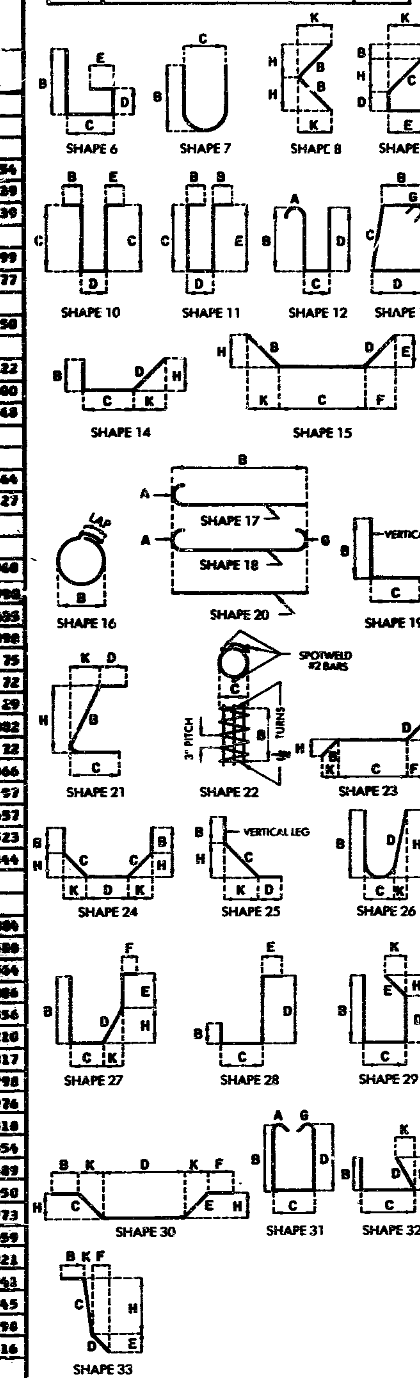
COMPLETE BILL OF REINFORCING STEEL

NO. REQD.	MARK NO. (SIZE MARK)	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	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.
		SUBSTRUCTURE																
		INT BT NO 2																
18	6D21	FOOTING		20		X			5 9.000							5 9	5 9	276
16	6D22	FOOTING		10	S	X				3 2.000	16.000					7 8	7 4	176
		INT BT NO 3																
22	11D31	FOOTING		17		X			9 0.000							10 7	10 7	1237
16	6D32	FOOTING		10	S	X				3 2.000	16.000					7 8	7 4	176
		SUPERSTRUCTURE																
		END BT NO 1																
16	6H1	BEAM		20					14 9.000							14 9	14 9	354
4	6H2	WING	E	20					6 5.000							6 5	6 5	39
4	6H3	WING		20					6 5.000							6 5	6 5	39
16	6H4	WING		20			V	4	3 0.000							3 0	3 0	
		INCR = 10.375 IN							5 7.000							5 7	5 7	103
8	6H5	SLAB	E	20					14 9.000							14 9	14 9	177
4	6T1	WING		25					10.000	5 7.250	2 1.500			3 8.500	4 2.500	8 7	8 4	51
30	5U1	BEAM		10	S					2 6.000	2 3.000					7 3	7 1	222
30	5U2	BEAM & SLAB	E	10	S					3 9.250	2 3.000					9 10	9 7	300
40	6U3	BEAM & SLAB	E	19	S				3 6.000	4 1.000						7 7	7 5	446
16	6V1	WING		20			V	4	17.000							17	17	
		INCR = 10.625 IN							4 1.000							4 1	4 1	66
4	6V2	WING		20					4 8.000							4 8	4 8	28
		INT BT NO 2																
28	9G21	SLAB	E	20					18 0.000							18 0	18 0	1714
28	9G22	DROP PANEL		20					17 7.000							17 7	17 7	1674
42	4P21	COLUMN		16					2 3.000							7 11	7 11	222
60	5U21	DROP PANEL	E	10	S				6.000	2 4.625	5 2.000	6.000				10 11	10 6	657
18	8V21	COLUMN		20					23 0.000							23 0	23 0	1105
		INT BT NO 3																
28	9G31	SLAB	E	20					18 0.000							18 0	18 0	1714
28	9G32	DROP PANEL		20					17 7.000							17 7	17 7	1554
36	4P31	COLUMN		16					2 3.000							7 11	7 11	190
60	5U31	DROP PANEL	E	10	S				6.000	2 1.625	3 10.000	6.000				9 1	8 8	542
22	11V31	COLUMN		17					19 3.000							20 10	20 10	2435

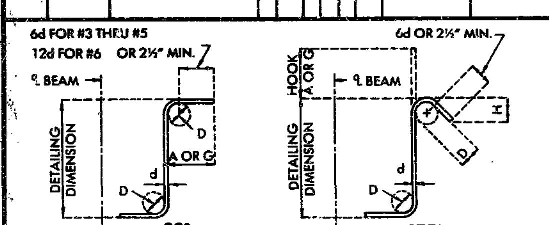
COMPLETE BILL OF REINFORCING STEEL

NO. REQD.	MARK NO. (SIZE MARK)	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	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.
		END BT NO 4																
16	6H41	BEAM		20					14 9.000							14 9	14 9	354
4	6H42	WING	E	20					6 5.000							6 5	6 5	39
4	6H43	WING		20					6 5.000							6 5	6 5	39
16	6H44	WING		20			V	4	2 9.000							2 9	2 9	
		INCR = 11.000 IN							5 6.000							5 6	5 6	99
8	6H45	SLAB	E	20					14 9.000							14 9	14 9	177
4	6T41	WING		25					10.000	5 5.000	2 2.000			3 5.000	4 2.500	8 5	8 4	50
30	5U41	BEAM		10	S					2 6.000	2 3.000					7 3	7 1	222
30	5U42	BEAM & SLAB	E	10	S					3 9.250	2 3.000					9 10	9 7	300
42	6U43	BEAM & SLAB	E	19	S				3 6.000	4 1.000						7 7	7 5	468
16	6V41	WING		20			V	4	17.000							17	17	
		INCR = 10.000 IN							3 11.000							3 11	3 11	64
4	6V42	WING		20					4 6.000							4 6	4 6	27
360	5R1	BARRIER CURB	E	19	S				2 6.500	3.500						2 10	2 8	960
360	5R2	BARRIER CURB	E	15	S				2 4.125	3.500				2 6.000	3.000	2 10	2 9	990
332	5R3	BARRIER CURB	E	19	S				17.000	6.000						23	22	685
304	5R4	BARRIER CURB	E	27	S					6.000	11.125	7.000	12.000	9.125	6.375	3 0	2 10	898
28	5R5	BARRIER CURB	E	27	S					6.000	11.125	15.000		9.125	6.375	2 8	2 7	75
16	5R6	BARRIER CURB	E	10	S					2 0.000	6.000					4 6	4 4	72
4	5R7	BARRIER CURB	E	20					7 0.000							7 0	7 0	29
40	5R8	BARRIER CURB	E	20					7 3.000							7 3	7 3	302
4	5R9	BARRIER CURB	E	20					5 3.000							5 3	5 3	22
36	5R10	BARRIER CURB	E	20					9 9.000							9 9	9 9	366
12	5R11	BARRIER CURB	E	20					7 9.000							7 9	7 9	97
12	5R12	BARRIER CURB	E	20					36 6.000							36 6	36 6	457
12	5R13	BARRIER CURB	E	20					41 9.000							41 9	41 9	523
12	5R14	BARRIER CURB	E	20					27 6.000							27 6	27 6	344
350	5S1	SLAB	E	20					14 9.000							14 9	14 9	5380
44	5S2	SLAB	E	20					32 5.000							32 5	32 5	1480
44	5S3	SLAB	E	20					34 1.000							34 1	34 1	1564
44	5S4	SLAB	E	20					21 11.000							21 11	21 11	1006
28	11S5	SLAB	E	20					36 0.000							36 0	36 0	5356
16	11S6	SLAB	E	20					26 0.000							26 0	26 0	2210
18	11S7	SLAB	E	20					19 0.000							19 0	19 0	1817
28	11S8	SLAB	E	20					32 3.000							32 3	32 3	4798
16	11S9	SLAB	E	20					23 3.000							23 3	23 3	1976
16	11S10	SLAB	E	20					15 6.000							15 6	15 6	1318
348	5S11	SLAB		20					14 9.000							14 9	14 9	5354
24	10S12	SLAB		20					55 1.000							55 1	55 1	5689
18	10S13	SLAB		20					38 1.000							38 1	38 1	2950
18	11S14	SLAB		20					29 0.000							29 0	29 0	2773
24	10S15	SLAB		20					53 10.000							53 10	53 10	5559
18	11S17	SLAB		20					41 0.000							41 0	41 0	3921
18	11S18	SLAB		20					30 9.000							30 9	30 9	2941
24	8S19	SLAB		20					49 1.000							49 1	49 1	3145
18	8S20	SLAB		20					29 1.000							29 1	29 1	1398
18	9S21	SLAB		20					21 6.000							21 6	21 6	1316
		END OF BAR LIST																

Two (2) additional #9-G21, #6-U43, #5-S1 & #11-S7 are included in bar bill for testing.

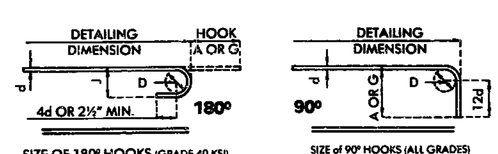


BENDING DIAGRAMS



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
#3	1½"	4"	4"	2½"
#4	2"	4½"	4½"	3"
#5	2½"	6"	5½"	3¾"
#6	4½"	12"	7¾"	4½"

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

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

END HOOK DIMENSIONS				
BAR SIZE	D (IN.)	180° HOOKS ALL GRADES: A OR G	180° HOOKS ALL GRADES: J	90° HOOKS ALL GRADES: A OR G
#3	2¼"	5"	3"	6"
#4	3"	6"	4"	8"
#5	3¾"	7"	5"	10"
#6	4½"	8"	6"	12"
#7	5¼"	10"	7"	14"
#8	6"	11"	8"	16"
#9	9½"	15"	11¾"	19"
#10	10¾"	17"	13¼"	22"
#11	12"	19"	14¾"	2'-0"
#14	18¼"	2'-3"	21¾"	2'-7"

Sheet No. 10 of 10

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.
PAYWEIGHTS ARE BASED ON ACTUAL LENGTHS.

STD. 90.8 | MAY 1974 | REVISED JUNE 1986

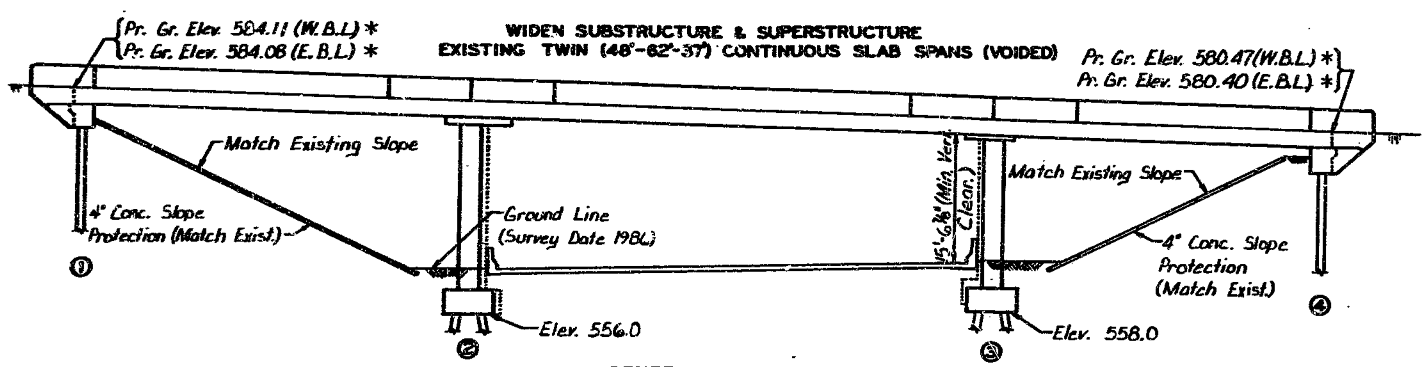
DETAILED APRIL 1989
CHECKED APRIL 1989

COLE COUNTY

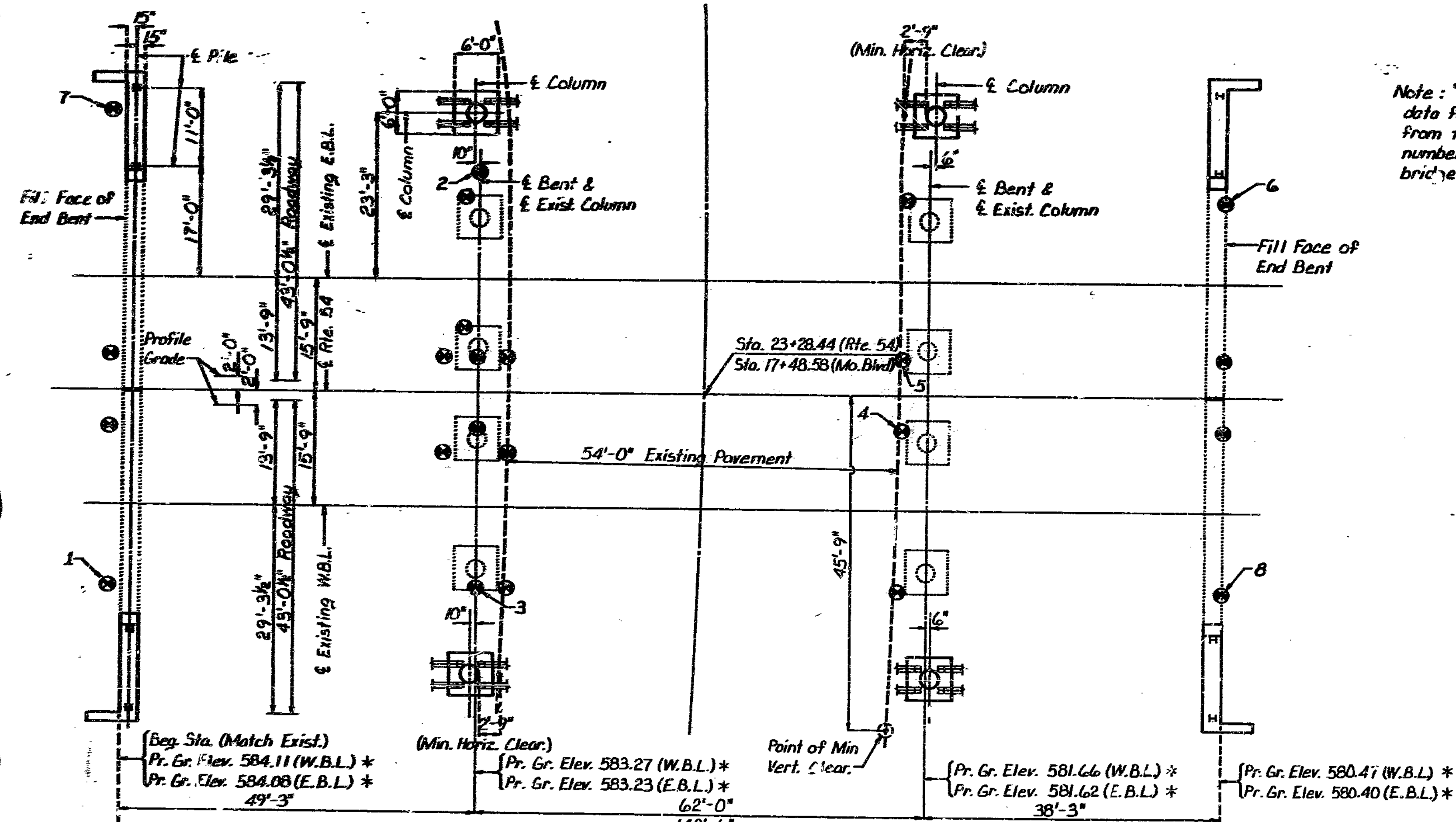
A-1305R

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

STATE	PROJ. NO.	SHEET NO.
MO.		80
SEC/SUR. 12	TWP. 44N	RGE. 12W



GENERAL ELEVATION



PLAN

* Match Existing + Low Slump Concrete Wearing Surface.

365 288

Note: Roadway fill shall be completed to the final roadway section and up to the elevation of the bottom of the concrete beam within the limits of the structure and not less than 25' in back of the fill face of the End Bents before piles are driven for any bents falling within the embankment section.

Note: "⊖" Indicates location of borings. Boring data for all locations available upon request from the District Office. Boring data for numbered locations is in plans of existing bridge.

GENERAL NOTES:

Design Specifications: A.A.S.H.T.O. - 1983 and Interims 1984 thru 1988 Load Factor Design

Design Loading:
HS20-44 Modified 24,000# Tandem Axle
No Future Wearing Surface
Earth 120#/cu. ft, Equivalent Fluid Pressure 45#/cu. ft.

Design Unit Stresses:
Class B Concrete (Footings) f'c = 3000 psi
Class B1 Concrete (Safety Barrier Curb, Int. Bent columns and End Bent beams) f'c = 4,000 psi
Class B2 Concrete (Superstructure except Safety Barrier Curb) f'c = 4,000 psi
Reinforcing Steel (Grade 60) fy = 60,000 psi
Steel Pile fb = 9,000 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 shall be 1½" unless otherwise shown. 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.

Construction Clearance:
Falsework over existing lanes shall be constructed with a minimum vertical clearance of 14'-0" from the high side of the existing roadway and a minimum lateral clearance of 52'-0"

Outline of old work is indicated by light dashed lines. Heavy lines indicate new work.
Traffic over structure to be maintained during construction. For details of stage construction, see Sheet No. 2.

FINAL QUANTITIES

ITEM		SUBSTR.	SUPERSTR.	TOTAL
Curb Removal	Lin. Ft.		618	618
Partial Removal of Substructure Concrete	Lump Sum			1
Class 1 Excavation	Cu. Yd.	69.5		69.5
Structural Steel Piles (10")	Lin. Ft.	1684		1684
Pre-bore for Piling	Lin. Ft.	124		124
Class B Concrete	Cu. Yd.	16.0		16.0
Substructure Repair (Unformed)(See Spec. Prov.)	Sq. F.	0		0
Class B1 Concrete	Cu. Yd.		32.0	32.0
Class B2 Concrete	Cu. Yd.		305.2	305.2
Safety Barrier Curb	Lin. Ft.		0	0
Precast Safety Barrier Curb	Lin. Ft.		299	299
Repairing Concrete Deck (Half-Soling)	Sq. Ft.		172	172
Low Slump Concrete Wearing Surface	Sq. Yd.		743	743
Reinforcing Steel	Lb.	1860	43,950	45,810
Conduit System on Structure	Lump Sum			1
Reinforcing Steel (Epoxy Coated)	Lb.		33,490	33,490
Removal and Storage of Existing Bridge Rail	Lin. Ft.		298	298
CONT. ITEMS				
Safety Barrier Curb (S.F.)			319	319
Low Slump Deduct			299	299

B.M. Elev. 586.38 □ on N.E. cor. of Bridge over MO Blvd. 36' E. ℄ Med. Rte. 54

PILE DATA

BENT NO	1	2	3	4
Pile Type and Size	HP10x42			
Number	4	8	8	4
Final Length Range Ft.	62-67	55-64	69-75	92-93
Design Bearing Tons	37	51	45	31
Hammer Energy req'd Ft.-Lbs.	8200	12,000	10,600	11,900

Note: Minimum energy requirement of hammer based on plan length and design bearing value of piles.
All piles shall be driven to practical refusal.

Note: Prebore for piles at Bents No. 1 and 4 to Elevation 562.0.

Note: Stationing based on 1986 Survey.
Relocate utilities and drop inlets that interfere with substructure construction (Rdwy. Item).
Extend safety barrier curb along Missouri Blvd. as required for protection of bridge substructure (Rdwy. Item).

BRIDGE ROUTE 54 OVER MISSOURI BLVD.

STATE ROAD
IN JEFFERSON CITY
PROJECT NO. STA. 23+28.44
JOB NO. 5-U-54-258B RTE. 54
COLE COUNTY
DATE 4/21/89

STD.
STD. 706.35
A-1305R

DESIGNED FEB. 1989
DETAILED MARCH 1989
CHECKED APRIL 1989

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

Sheet No. 1A of 10.

U-54-3(8)
5 COLE 54

TITLE SHEET

SEE

COLE CO. RTE. 54

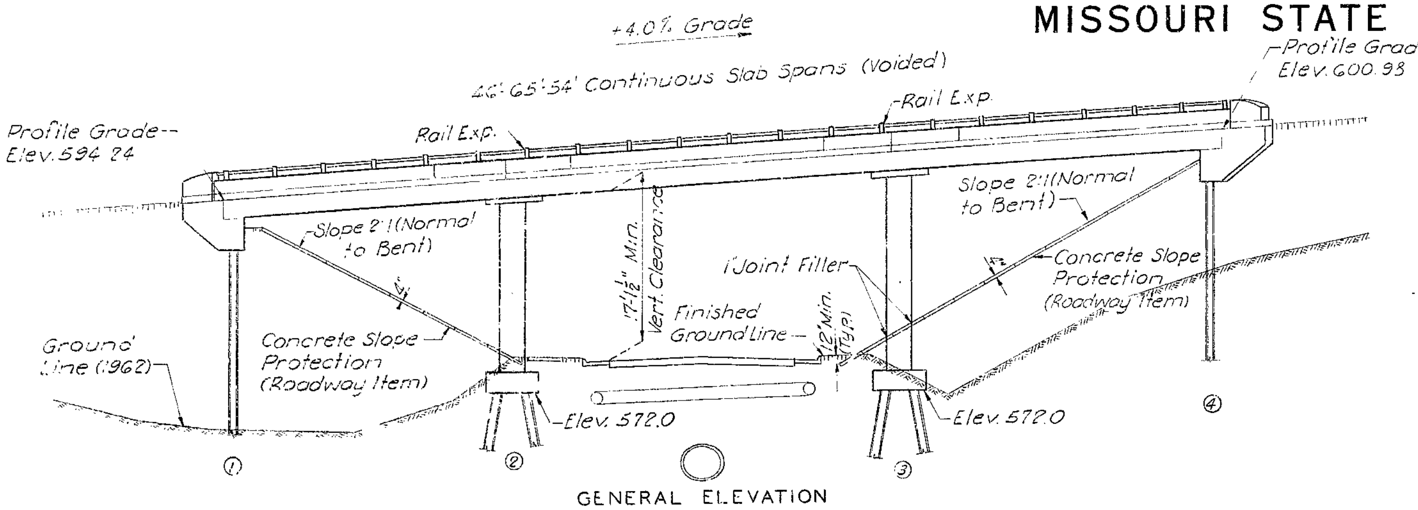
CO26-54(6)

A-1307

159

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

MISSOURI STATE HIGHWAY DEPARTMENT



GENERAL ELEVATION

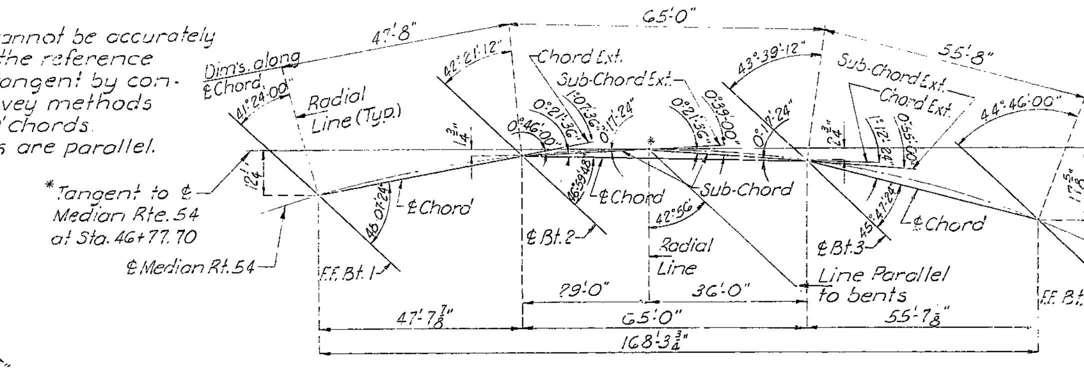
Note: All pile shall be driven to practical refusal on or into solid rock or other point bearing material at not less than the Plan Bearing shown, unless excessive splicing is required to obtain Plan Bearing, in which case the engineer will authorize a lesser bearing, but in no case less than the Minimum Required Bearing.

All piling shall be driven with an approved power hammer developing an energy of not less than 19,000 ft. lbs and having a ram weighing not less than 4500 lbs.

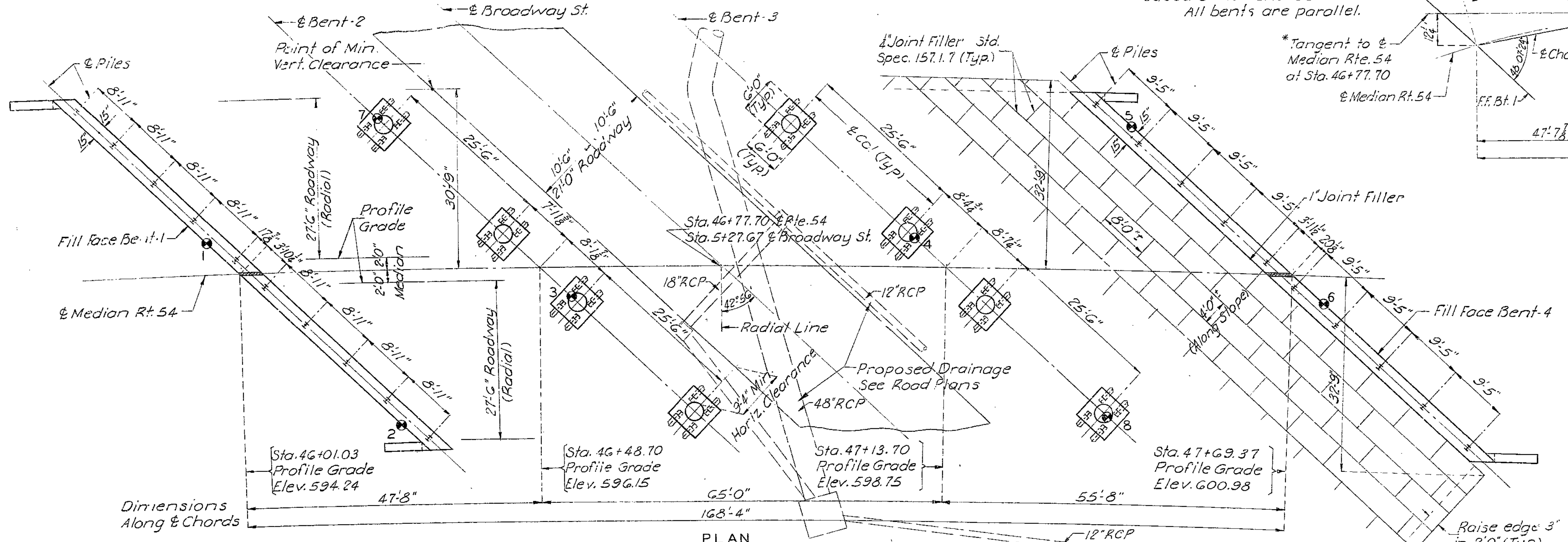
Compacted roadway fill (full roadway width) shall be placed up to elevation of bottom of concrete beam in front of and not less than 25'-0" in back of End Bents before steel piles are driven.

PILE DATA				
BENT NO.	1	2	3	4
Pile Type and Size	10BP42	12BP53	12BP53	10BP42
Number	10	16	16	10
Approximate Length Ft.	45	30	25' Lt. 30' Rt.	45' Lt. 40' Rt.
Plan Bearing Tons	56	70	70	56
Minimum Required Bearing Tons	44	57	60	47
Hammer	Heavy Power	Heavy Power	Heavy Power	Heavy Power

Note: Bents cannot be accurately located from the reference point on the tangent by conventional survey methods based on 100' chords.
All bents are parallel.



SUBSTRUCTURE LAYOUT

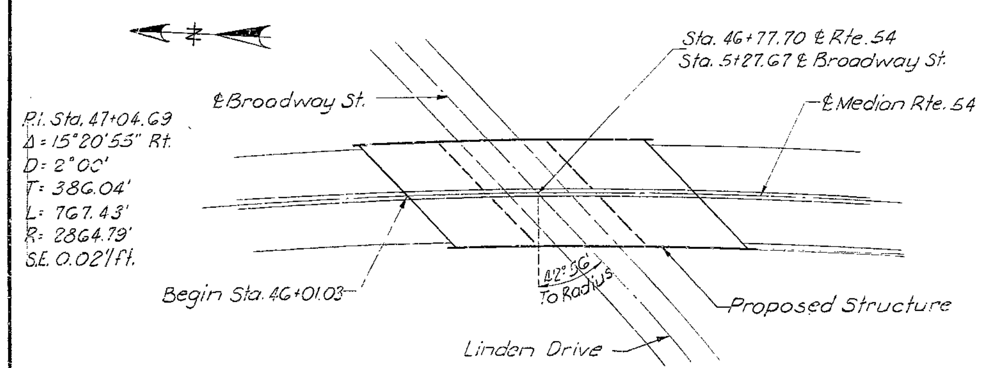


PLAN

GENERAL NOTES:

Design Specifications: A.A.S.H.O. - 1961
Design Loading: HS 20-44 15#/sq.ft. Future Wearing Surface
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 fs = 20,000 psi
Steel Pile (A.S.T.M. A36-62T) fb = 9000 p.s.i.
Superstructure deck to be surface sealed.
Falsework over existing lanes shall be constructed with a minimum vertical clearance of 13'-0" from crown of existing lanes and a minimum lateral clearance of 28'-0" centered on existing lanes.

P.I. Sta. 47+04.69
Δ = 15°20'53" Rt.
D = 2°00'
T = 386.04'
L = 767.43'
R = 2864.79'
S.E. 0.021/ft.



LOCATION SKETCH

ESTIMATED QUANTITIES				
ITEM		SUBSTR.	SUPERSTR.	TOTAL
Class 1 Excavation for Structures	Cu.Yd.	65	—	65
Steel Piles in Place (10")	Lin.Ft.	815	—	815
Steel Pile Cut-offs (10")	Lin.Ft.	60	—	60
Steel Piles in Place (12")	Lin.Ft.	744	—	744
Steel Pile Cut-offs (12")	Lin.Ft.	96	—	96
Class B Concrete	Cu.Yd.	32.0	—	32.0
Class B1 Concrete	Cu.Yd.	—	790.3	790.3
Reinforcing Steel	Lb.	2070	208,690	210,760
Bridge Rail (Single Tube Type)	Lin.Ft.	—	344	344

Note: All concrete and reinforcement above footings in intermediate bents is included in superstructure quantities.
No payment for excavation will be allowed at End Bts. 1 & 4.
Concrete in end posts, parapets and curbs is included with superstructure concrete.

Note: For boring data see Sheet 2
⊕ Indicates location of boring.

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

STATE OF MISSOURI — E. LYN CROWLEY — REGISTERED PROFESSIONAL ENGINEER

B.M. #9-U.S.G.S. Datum-Elev. 587.01 - S.E. Cor. of Conc. Porch of Hse. #300 Linden Drive 135' Rt. Sta. 47+50 Rte. 54.

BRIDGE OVER BROADWAY STREET

STATE ROAD - ROUTE 54 RELOCATION
IN JEFFERSON CITY
PROJECT NO. U-54-3(8) (RTE. 54) C026-54(6) STA. 46+01.03
COLE COUNTY

SUBMITTED BY D. B. Jenkins BRIDGE ENGINEER DATE 9/27/65
APPROVED BY [signature] CHIEF ENGINEER DATE 9/27/65

STD. 54.00
A-1307

PRICHARD COMPANY INC.
CONSULTING ENGINEERS
INDEPENDENCE, MISSOURI

DESIGNED JAN 1965 BY J.E.R.
DETAILED FEB. 1965 BY H.H.B.
CHECKED MARCH 1965 BY G.F.P.

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

Sheet No. 1 of 9.

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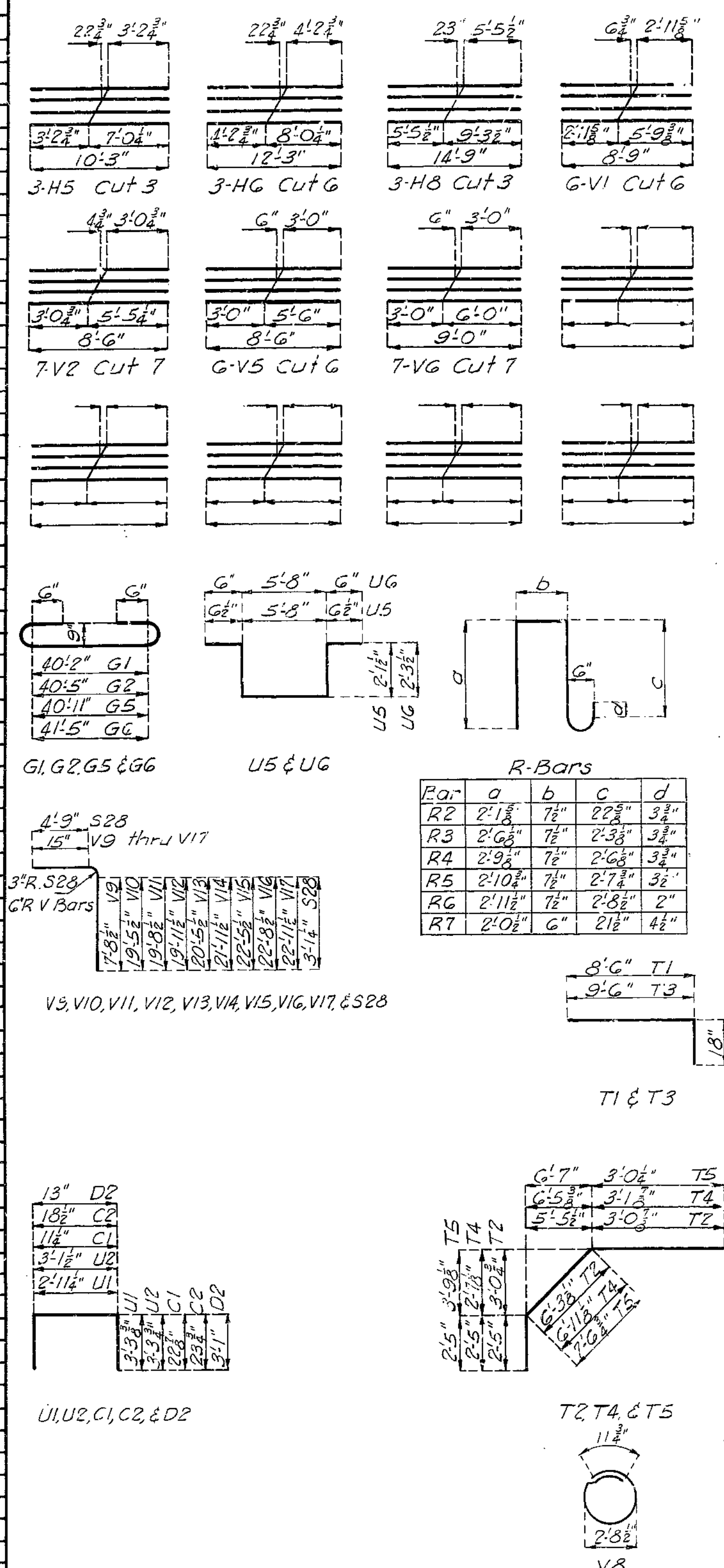
MISSOURI STATE HIGHWAY DEPARTMENT

F. D. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	91	

COMPLETE BILL OF REINFORCING STEEL

NO.	SIZE	LENGTH	MARK	LOCATION
SUPERSTRUCTURE				
367	#5	4'-9"	C1	Curb
336	#5	5'-6"	C2	Median
4	#5	28'-3"	C3	Curb
4	#5	32'-6"	C4	"
4	#5	31'-0"	C5	"
4	#5	27'-6"	C6	"
4	#5	33'-3"	C7	"
4	#5	32'-9"	C8	"
* 24	#5	4'-9"	R1	Parapet
4	#5	5'-9"	R2	"
4	#5	6'-6"	R3	"
4	#5	7'-0"	R4	"
4	#5	7'-3"	R5	"
8	#5	7'-3"	R6	"
416	#5	5'-6"	R7	"
32	#5	10'-6"	R8	"
8	#5	20'-3"	R9	"
8	#5	21'-9"	R10	"
8	#5	23'-0"	R11	"
8	#5	19'-6"	R12	"
3	#5	22'-6"	R13	"
8	#5	24'-9"	R14	"
212	#5	21'-0"	S1	Slab
212	#5	21'-3"	S2	"
296	#5	21'-6"	S3	"
296	#5	21'-9"	S4	"
504	#5	22'-0"	S5	"
41	#5	28'-6"	S6	"
41	#5	29'-0"	S7	"
50	#10	34'-0"	S8	"
48	#11	26'-6"	S9	"
48	#11	15'-6"	S10	"
41	#5	32'-0"	S11	"
41	#5	32'-6"	S12	"
50	#11	38'-0"	S13	"
48	#11	28'-6"	S14	"
48	#11	18'-6"	S15	"
41	#5	34'-6"	S16	"
41	#5	35'-0"	S17	"
42	#9	60'-0"	S18	"
40	#10	36'-0"	S19	"
40	#10	26'-0"	S20	"
42	#10	60'-0"	S21	"
40	#11	40'-0"	S22	"
40	#11	29'-6"	S23	"
21	#11	51'-9"	S24	"
21	#11	53'-3"	S25	"
40	#11	41'-9"	S26	"
40	#11	30'-6"	S27	"
SUPERSTRUCTURE END BENT 1				
12	#6	40'-9"	H1	Beam
12	#6	40'-3"	H2	"
1	#6	7'-3"	H3	Wing
1	#5	8'-3"	H4	"
1½	#6	10'-3"	H5	"
3	#5	12'-3"	H6	"
1	#6	9'-6"	H7	"
1½	#6	14'-9"	H8	"
10	#6	4'-0"	H9	"
				"
136	#5	9'-6"	U1	Beam
6	#5	8'-9"	V1	Wing
7	#5	8'-6"	V2	"
1	#5	6'-0"	V3	"
1	#5	5'-6"	V4	"
2	#6	10'-0"	T1	"
2	#6	11'-9"	T2	"
2	#6	11'-0"	T3	"
2	#6	12'-6"	T4	"
82	#6	8'-3"	S28	Bm. & Slab

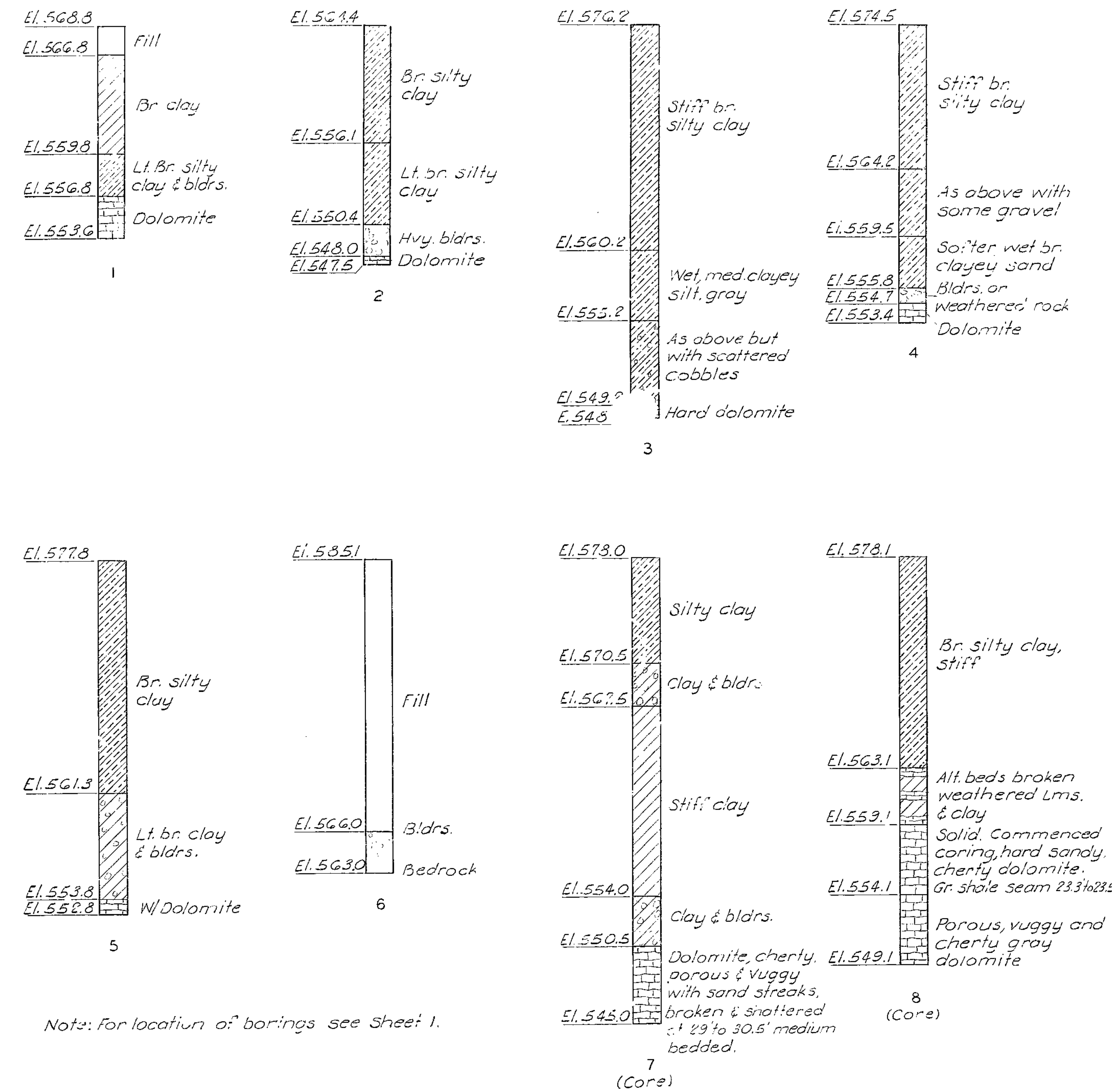
BENDING SKETCHES & CUTTING DIAGRAMS



R-Bars

Bar	a	b	c	d
R2	2'-1⅝"	7½"	22⅝"	3¾"
R3	2'-6⅛"	7½"	2'-3⅛"	3¾"
R4	2'-9⅛"	7½"	2'-6⅛"	3¾"
R5	2'-10¾"	7½"	2'-7¾"	3½"
R6	2'-11½"	7½"	2'-8½"	2"
R7	2'-0½"	6"	21½"	4½"

NO	SIZE	LENGTH	MARK	LOCATION
SUPERSTRUCTURE INT. BENT 2				
14	#11	43'-6"	G1	Beam
14	#11	43'-9"	G2	"
12	#11	40'-6"	G3	"
12	#11	40'-9"	G4	"
166	#5	11'-0"	U5	"
76	#3	9'-6"	V8	Col. Ties
32	#10	9'-9"	V9	Column
8	#10	21'-6"	V10	"
8	#10	21'-9"	V11	"
8	#10	22'-0"	V12	"
8	#10	22'-6"	V13	"
SUPERSTRUCTURE INT. BENT 3				
14	#11	44'-3"	G5	Beam
14	#11	44'-9"	G6	"
12	#11	41'-3"	G7	"
12	#11	41'-9"	G8	"
170	#5	11'-3"	U6	"
86	#3	9'-6"	V8	Col. Ties
8	#10	24'-0"	V14	Column
8	#10	24'-6"	V15	"
8	#10	24'-9"	V16	"
8	#10	25'-0"	V17	"
SUPERSTRUCTURE END BENT 4				
1	#6	7'-3"	H3	Wing
1	#5	8'-3"	H4	"
1½	#6	10'-3"	H5	"
3	#5	12'-3"	H6	"
1	#6	9'-6"	H7	"
1½	#6	14'-9"	H8	"
10	#6	4'-0"	H9	"
12	#6	42'-6"	H11	Beam
12	#6	43'-0"	H12	"
136	#5	9'-9"	U2	"
1	#5	5'-6"	V4	Wing
6	#5	8'-6"	V5	"
7	#5	9'-0"	V6	"
1	#5	6'-0"	V7	"
2	#6	10'-0"	T1	"
2	#6	11'-9"	T2	"
2	#6	11'-0"	T3	"
2	#6	13'-0"	T5	"
82	#6	8'-3"	S28	Bm. & Slab
SUBSTRUCTURE INT. BENTS 2 & 3				
64	#10	5'-0"	D1	Footing
64	#6	7'-3"	D2	"
* SUPERSTRUCTURE				
6	#5	25'-3"	C9	Median
12	#5	33'-0"	C10	"
6	#5	28'-3"	C11	"
6	#5	24'-3"	C12	"
6	#5	29'-3"	C13	"



Note: For location of borings see Sheet 1.

BORING DATA

BRIDGE OVER BROADWAY STREET

STATE ROAD - ROUTE 54 RELOCATION

IN JEFFERSON CITY

PROJECT NO. U-54-3(8) (RTE. 54) **STA.** 46+01.03

C026-54(6)

COLE **COUNTY**

A-1307

No. 90.3 | Revised June 1961

DETAILED FEB. 1965 BY H.H.B.

CHECKED MARCH 1965 BY G.F.P.

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

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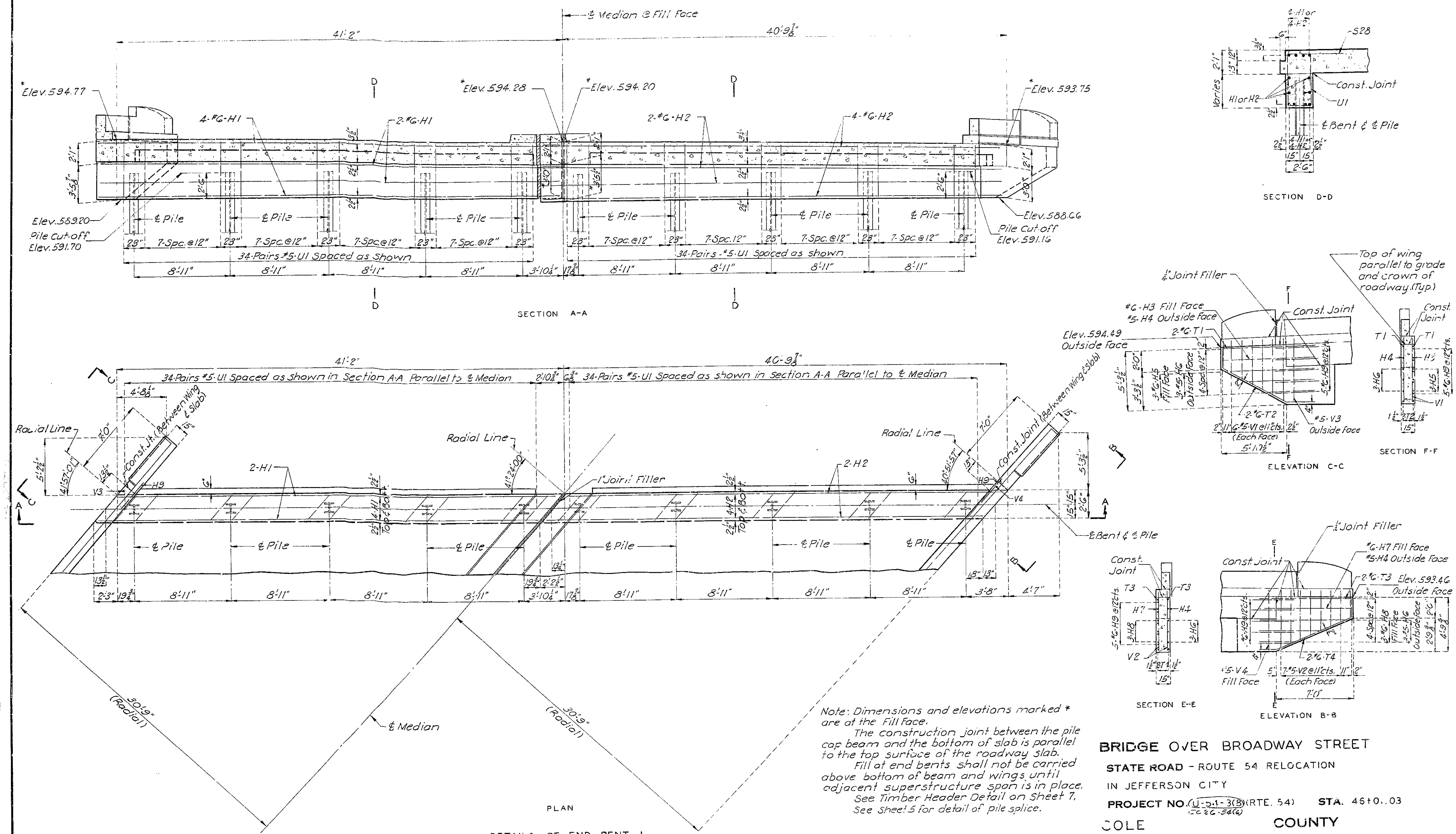
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	90	



Note: Dimensions and elevations marked * are at the 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.

See Timber Header Detail on Sheet 7.

See Sheet 5 for detail of pile splice.

BRIDGE OVER BROADWAY STREET

STATE ROAD - ROUTE 54 RELOCATION

IN JEFFERSON CITY

PROJECT NO. (U-5-1-3(8)) (RTE. 54) STA. 46+0..03

F-026-54(6)

COLE COUNTY

A-1307

DETAILED FEB. 1965 BY H.H.B.

CHECKED MARCH 1965 BY G.F.P.

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

Sheet No. 3 of 9.

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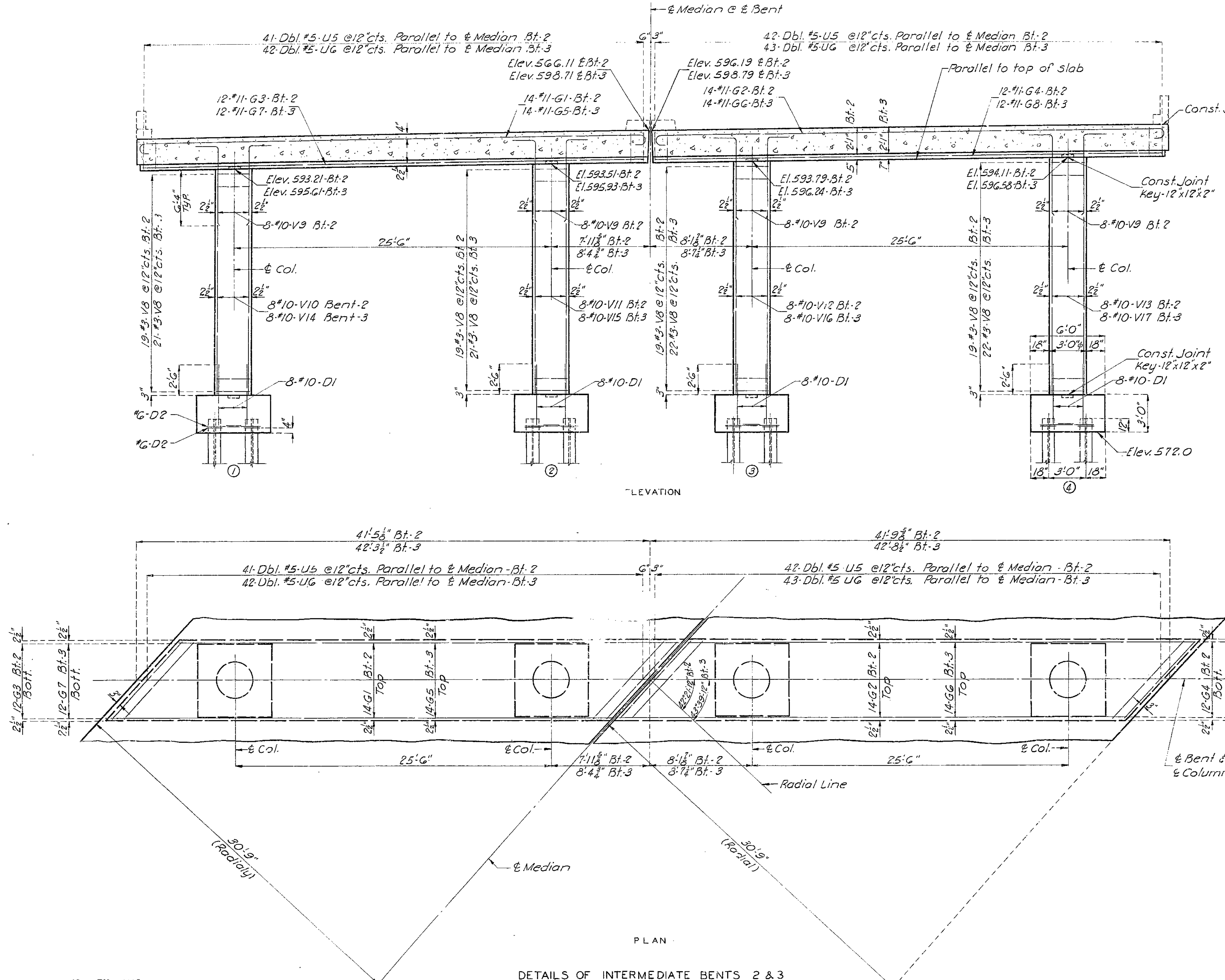
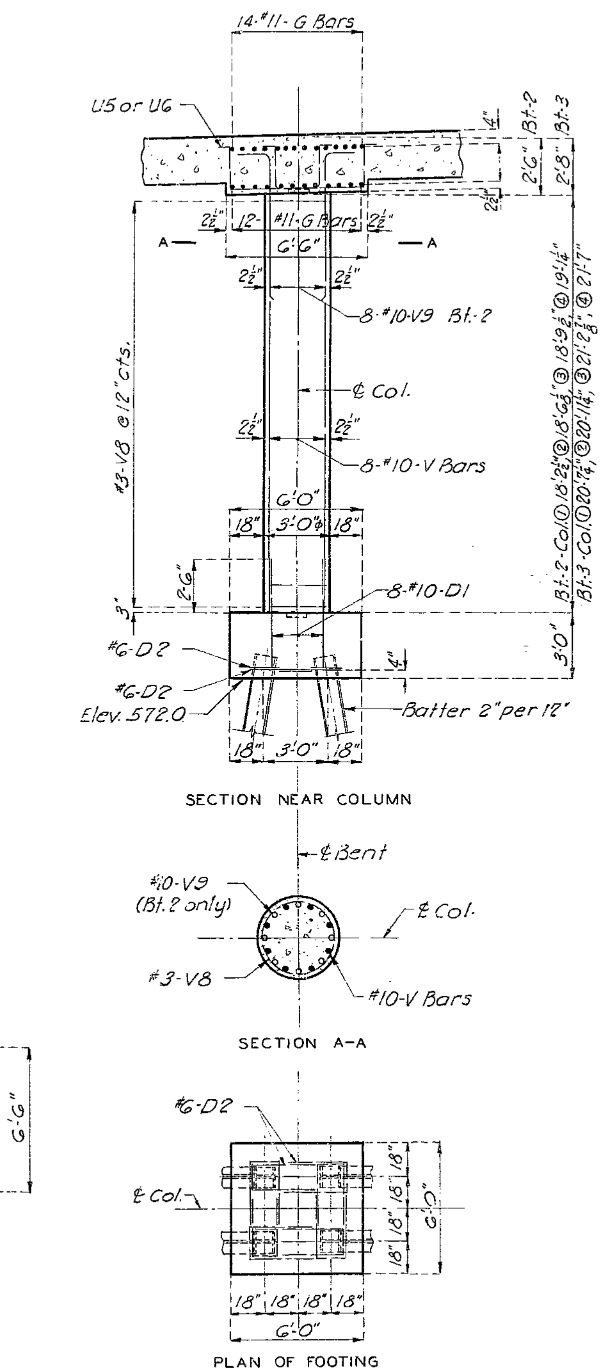
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	91	





BRIDGE OVER BROADWAY STREET

STATE ROAD – ROUTE 54 RELOCATION

IN JEFFERSON CITY

PROJECT NO. U-54-3(8) (RTE. 54) **STA.** 46+01.03

C026-54(6)

COLE **COUNTY**

DETAILS OF INTERMEDIATE BENTS 2 & 3

DETAILED FEB. 1965 BY H.H.B.

CHECKED MARCH 1965 BY G.F.P.

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

Sheet No. 4 of 9.

A-1307

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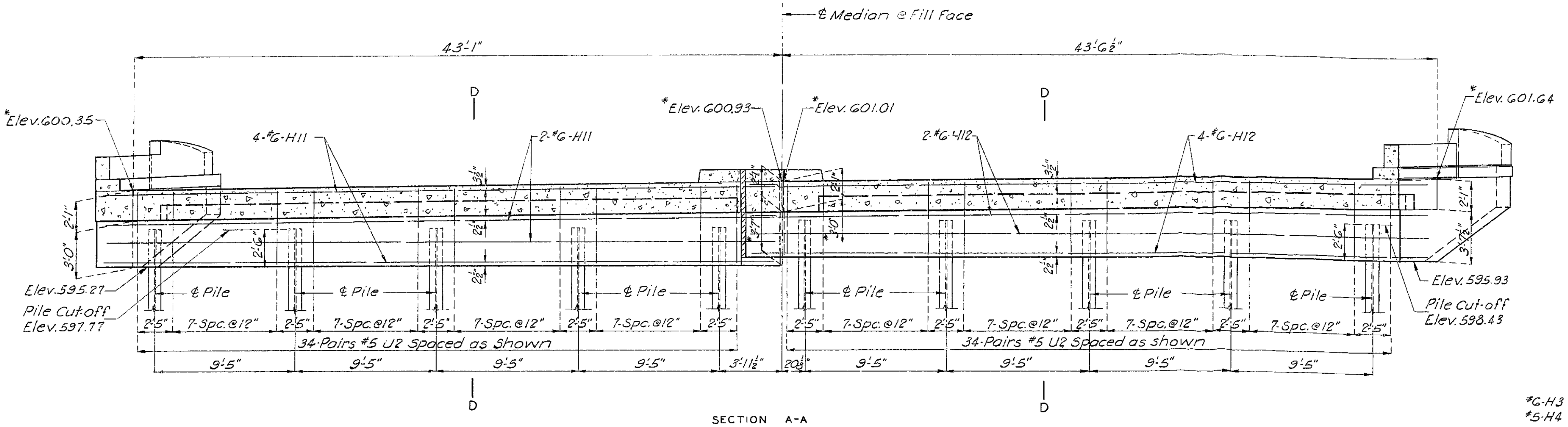
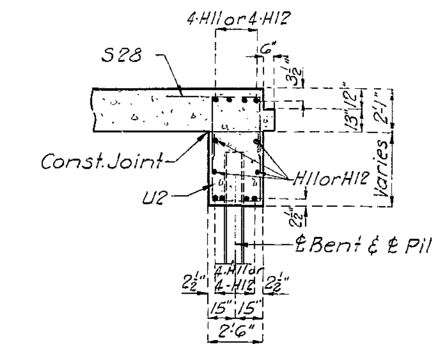
MISSOURI STATE HIGHWAY DEPARTMENT

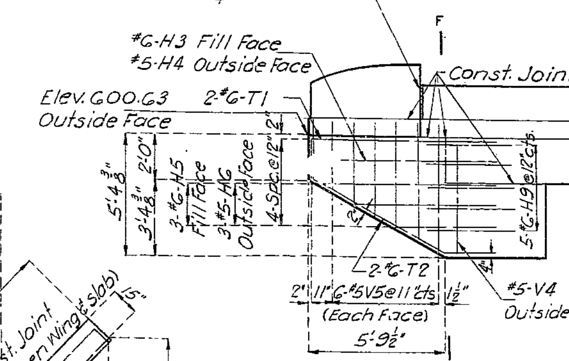
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	92	



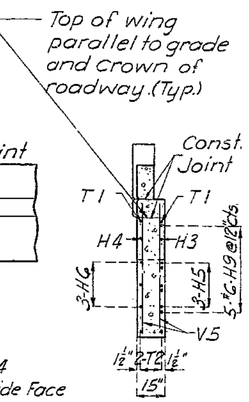
SECTION A-A



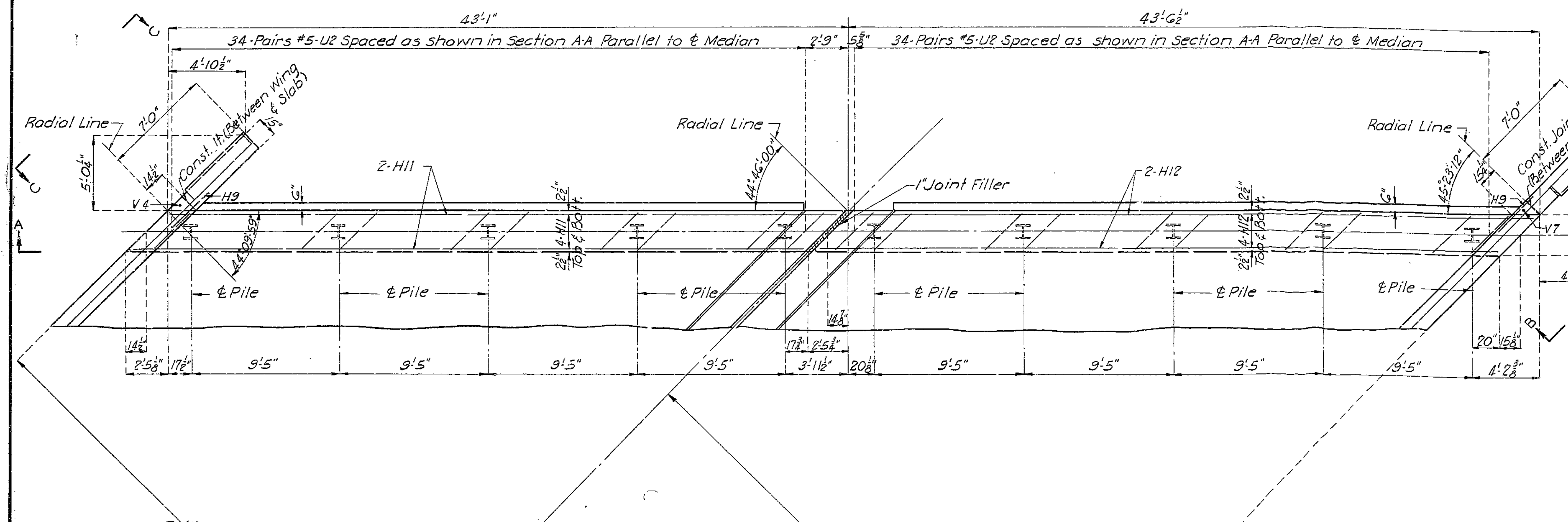
SECTION D-D



ELEVATION C-C



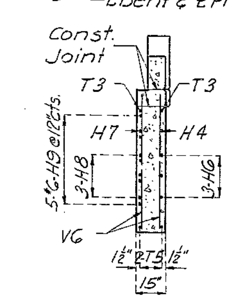
SECTION F-F



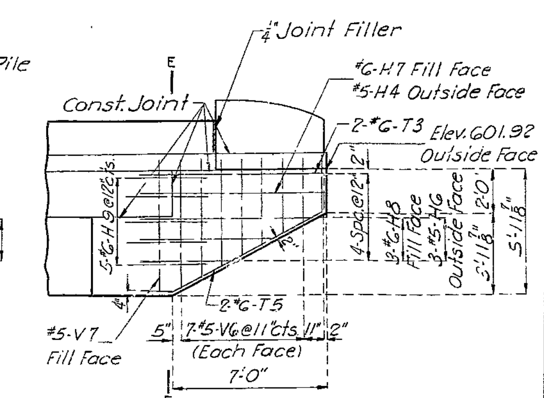
Note: See End Bent notes on Sheet 7.

PLAN

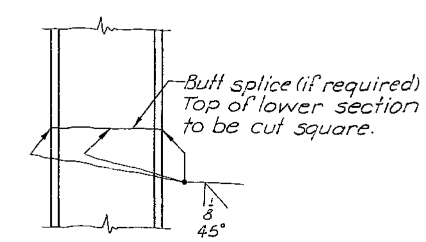
DETAILS OF END BENT 4



SECTION E-E



ELEVATION B-B



DETAIL OF STEEL PILE SPLICE

BRIDGE OVER BROADWAY STREET

STATE ROAD - ROUTE 54 RELOCATION

IN JEFFERSON CITY

PROJECT NO. (U-54-3(8)) (RTE. 54) C026-54(6) **STA.** 46+01.03

COLE **COUNTY**

DETAILED FEB. 1965 BY H.H.B.
CHECKED MARCH 1965 BY G.F.P.

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

Sheet No. 5 of 9.

A-1307

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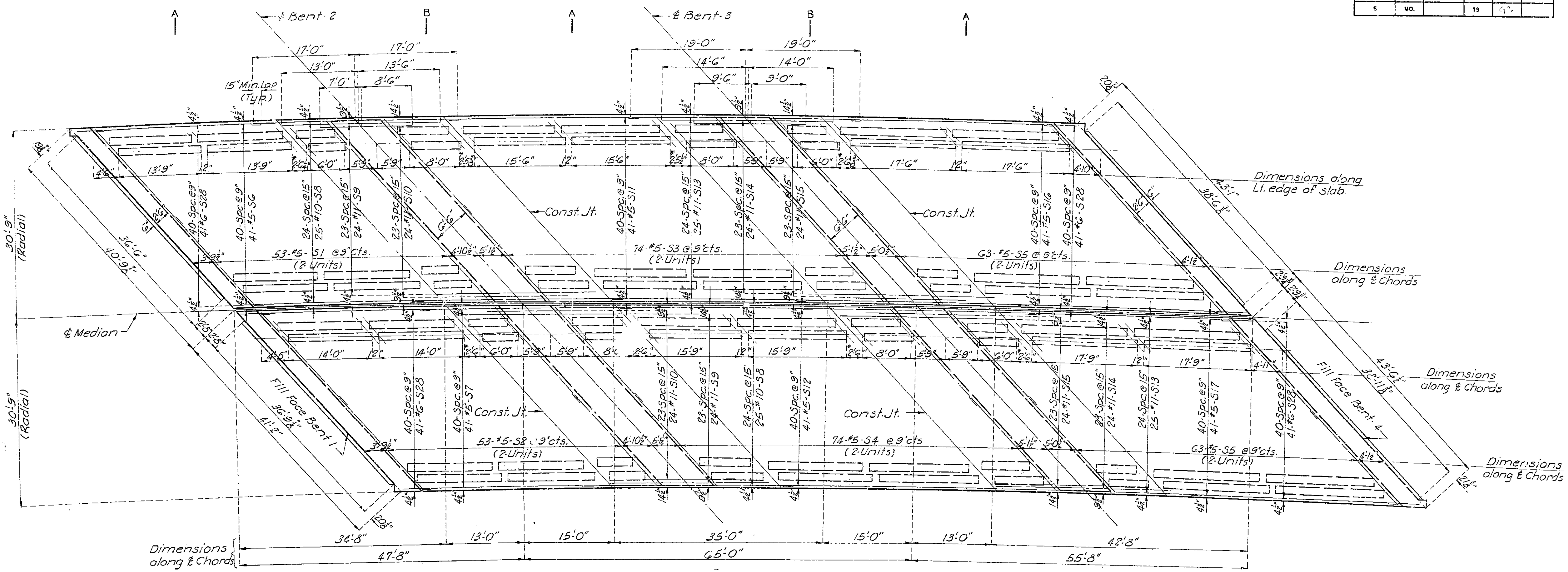


PLAN OF SLAB SHOWING TOP REINFORCING

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 37 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 thru some or all of these joints. Finishing machine load will not be permitted on concrete less than 48 hours old.

Place longitudinal reinforcing and voids on concentric arcs.

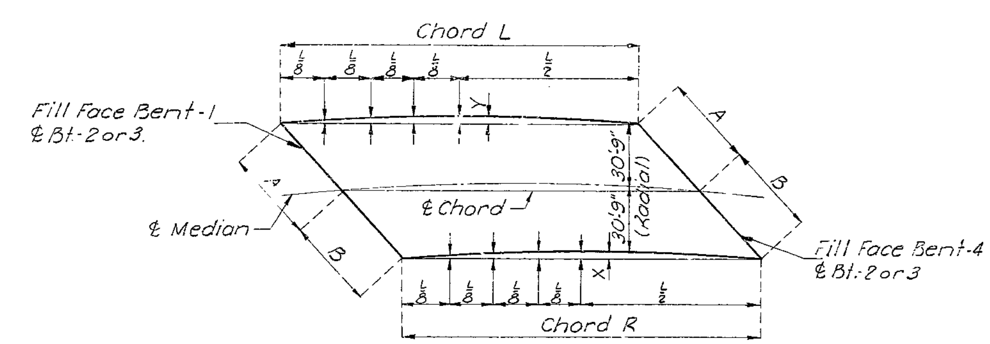
Place transverse reinforcing parallel to bents.

All dimensions are horizontal.

For curb and median reinforcing see Sheet 9.

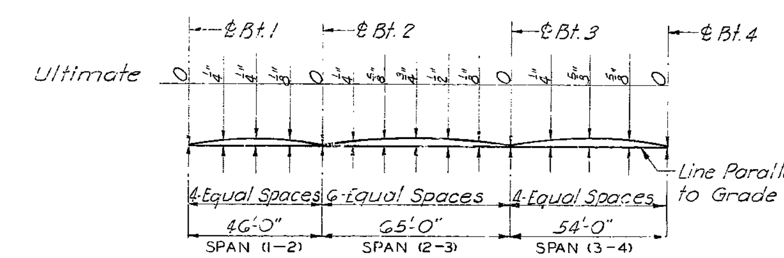
For Sections A-A and B-B see Sheet 8.

Dimensions for spacing voids longitudinally marked * are minimum dimensions.



SPAN	Chords L	Chords R	Offset Y Mid. Pt.	Offset Y 3/8 Pt.	Offset Y 1/4 Pt.	Offset Y 1/8 Pt.	Offset X Mid. Pt.	Offset X 3/8 Pt.	Offset X 1/4 Pt.	Offset X 1/8 Pt.	Bent	A	B
											1	40'-9 7/8"	41'-2"
(1-2)	47'-3 1/4"	48'-1 1/8"	1 1/8"	1 1/8"	7/8"	1/2"	1 1/4"	1 1/8"	7/8"	1/2"	2	41'-5 1/8"	41'-9 5/8"
(2-3)	64'-4 7/8"	65'-7 1/2"	2 1/8"	2"	1 5/8"	1"	2 1/4"	2 1/8"	1 3/4"	1"	3	42'-3 1/2"	42'-8 1/2"
(3-4)	55'-1 3/8"	56'-3"	1 5/8"	1 1/2"	1 1/8"	3/4"	1 5/8"	1 5/8"	1 1/4"	3/4"	4	43'-1"	43'-6 1/2"

TABLE OF SLAB DIMENSIONS



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

CAMBER DIAGRAM

BRIDGE OVER BROADWAY STREET

STATE ROAD - ROUTE 54 RELOCATION

IN JEFFERSON CITY

PROJECT NO. U-54-3(8) (RTE. 54) C026-54(6) **STA.** 46+01.03

COLE **COUNTY**

DETAILED FEB. 1965 BY H.H.B.

CHECKED MARCH 1965 BY G.F.P.

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

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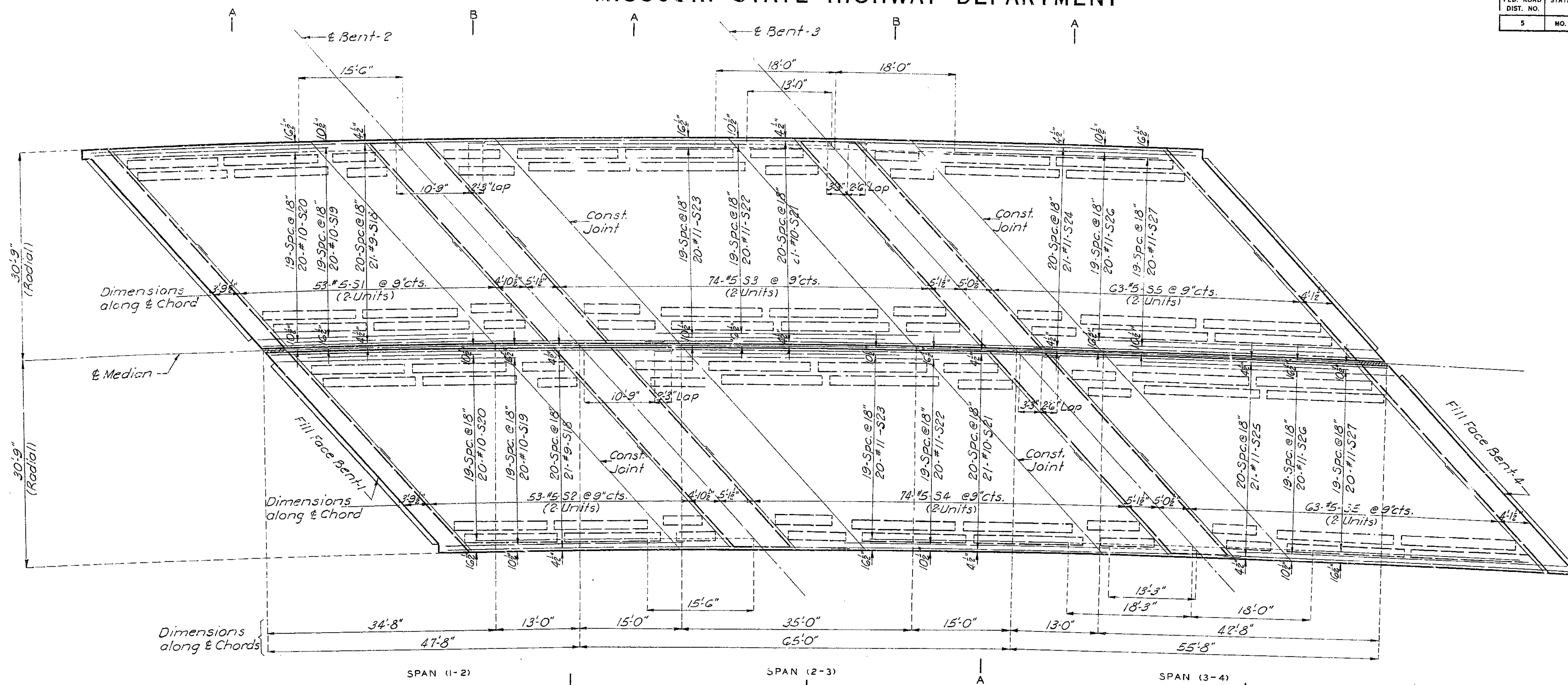
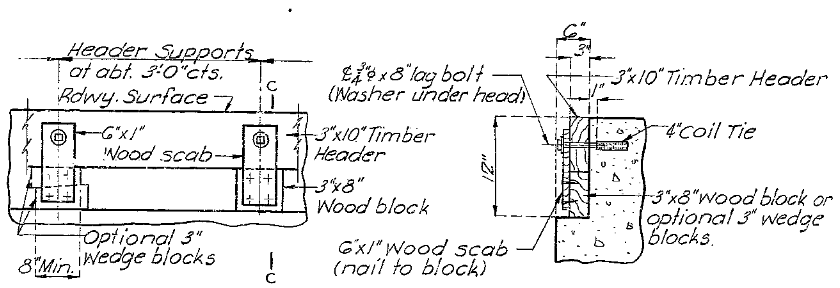
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	94	



PLAN OF SLAB SHOWING BOTTOM REINFORCING

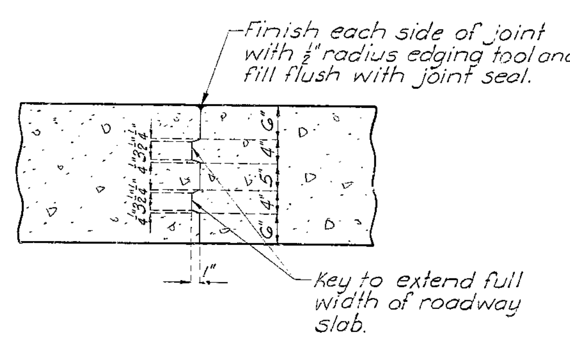


PART ELEVATION

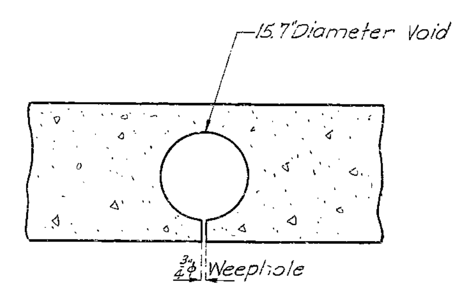
SECTION C-C

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

DETAILS OF TIMBER HEADER



DETAIL OF SLAB CONSTRUCTION JOINT KEY



Note: One $\frac{3}{4}$"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: For sections A-A and B-B see Sheet 8.
Curb, median, and end posts not shown.
For additional notes see Sheet 6.
Dimensions not shown same as shown on Sheet 6.

BRIDGE OVER BROADWAY STREET

STATE ROAD - ROUTE 54 RELOCATION

IN JEFFERSON CITY

PROJECT NO. U-54-3(8) (RTE. 54) CO26 34(4) **STA.** 46+01.03

COLE **COUNTY**

DETAILED FEB. 1965 BY H.H.B.
CHECKED MARCH 1965 BY G.F.P.

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

Sheet No. 7 of 9.

A-1307

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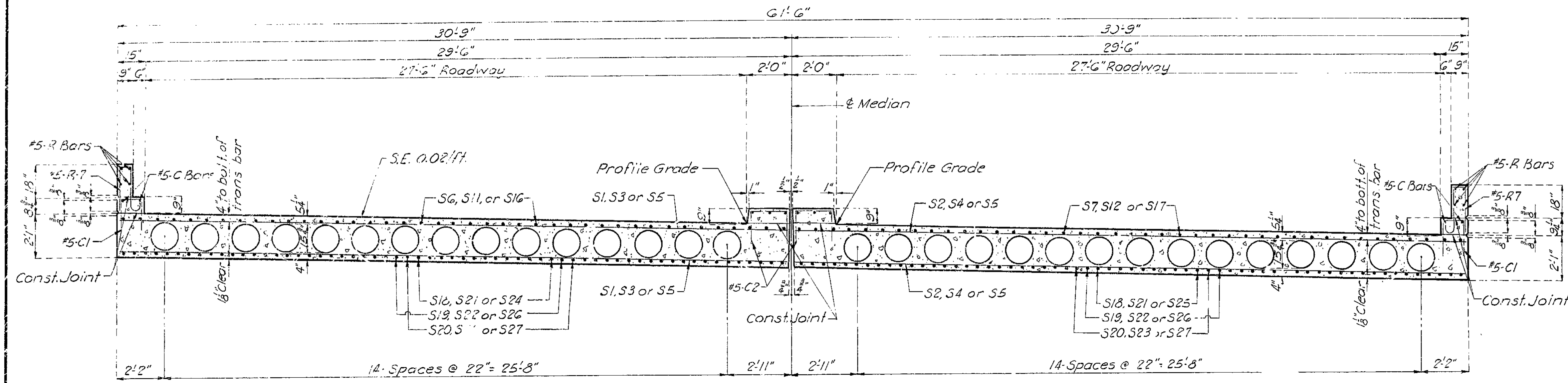
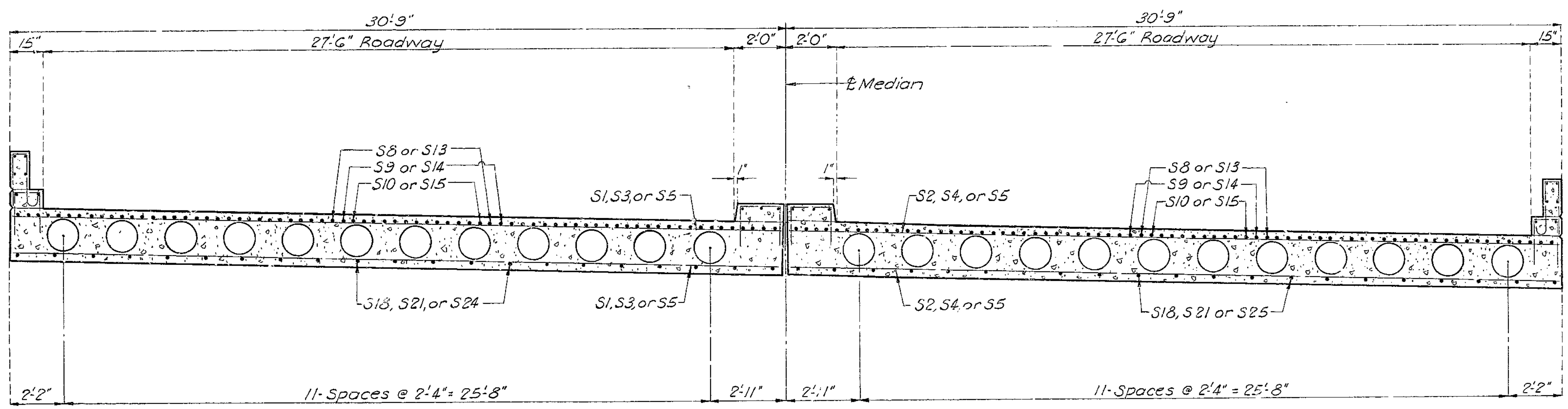
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	95	



SECTION A-A



SECTION B-B

Dimensions not shown same as shown for Section A-A

Note: Fiber tubes for producing voids shall have an outside diameter of 15.7" and a wall thickness of .300" and shall be anchored to joists carrying the floor form at not more than 3'-0" centers. See Special Provisions for metal tube alternate for voids.
For location of Sections A-A and B-B see Sheets 6 & 7.

BRIDGE OVER BROADWAY STREET

STATE ROAD - ROUTE 54 RELOCATION

IN JEFFERSON CITY

PROJECT NO. U-54-3(8) (RTE. 54) **STA.** 46+01.03
C026-54(6)

COLE **COUNTY**

167

DETAILED FEB. 1965 BY H.H.B.
CHECKED MARCH 1965 BY G.F.P.

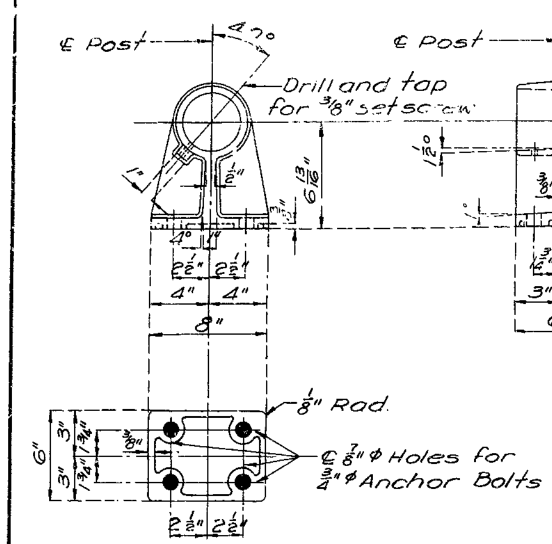
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 8 of 9.

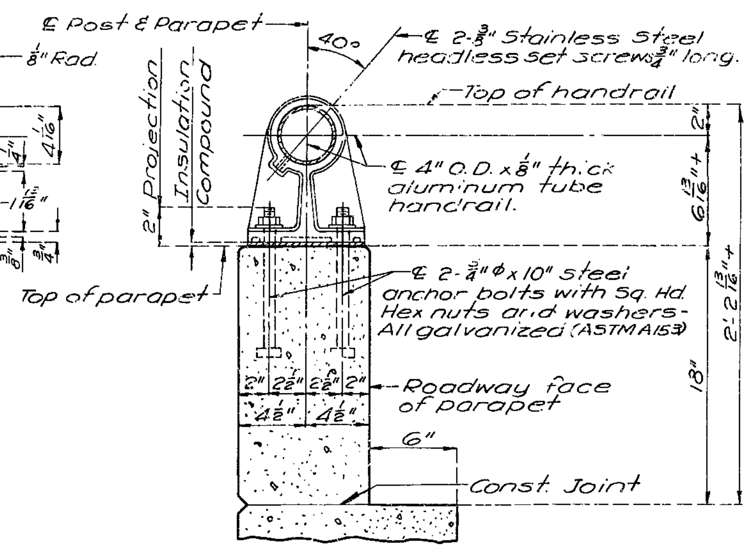
A-1307

MISSOURI STATE HIGHWAY DEPARTMENT

FED ROAD DIST NO	STATE	FED AID PROJ NO	FISCAL YEAR	SHEET NO	TOTAL SHEETS
5	MO		19	90	

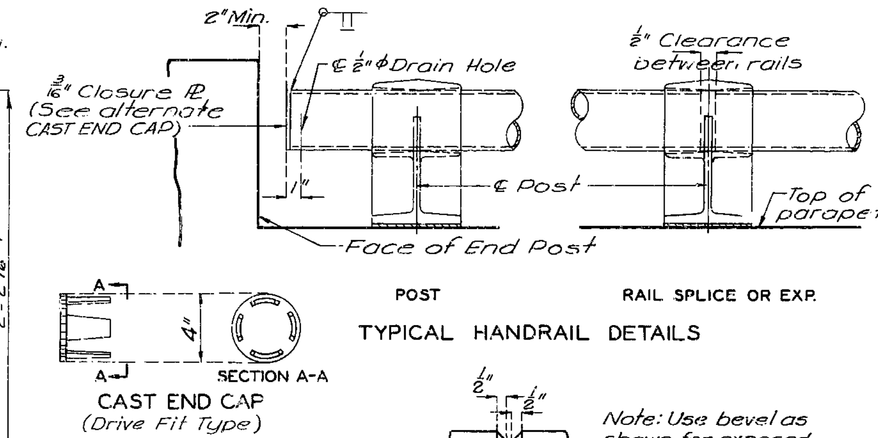


POST DETAILS

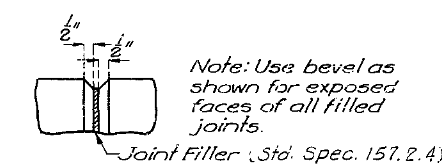


SECTION THRU HANDRAIL

SINGLE TUBE ALUMINUM RAILING



TYPICAL HANDRAIL DETAILS



DETAILS OF BEVEL FOR FILLED JOINTS

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 1/8". 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 1/4" except as noted.

All drafts 3° except as noted.

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

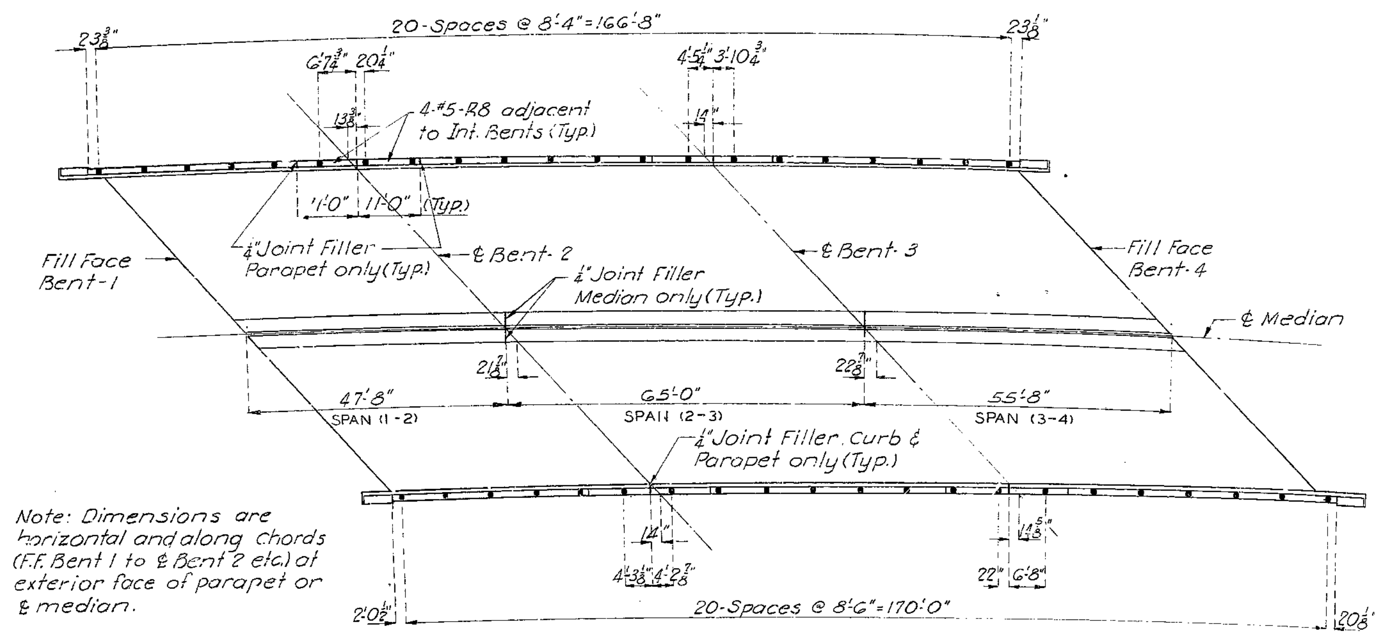
Omit set screw on side near filled Joint in parapet at all expansion posts.

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.

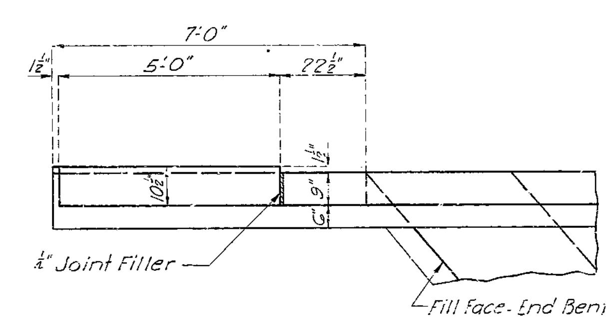
All exposed edges of end posts, parapets and curbs shall have 1/2" radius.

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 Standard Specification 56.2.4 and 56.3.5 respectively will not be required for these rail posts.



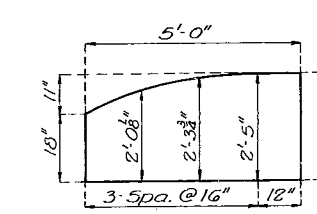
PLAN OF SLAB SHOWING POST SPACING



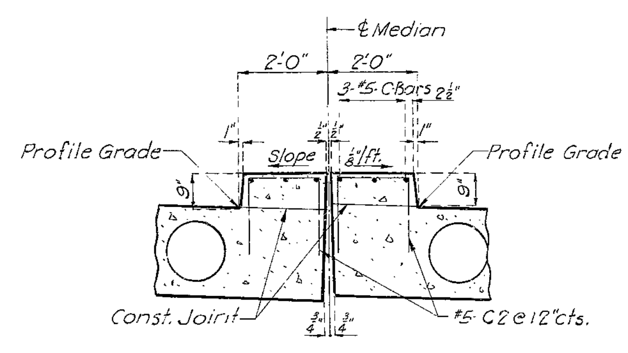
PLAN OF END POST

REINFORCING						
SPAN	CURB		PARAPET		MEDIAN	
	LT.	RT.	LT.	RT.	LT.	RT.
(1-2)	#5-C3 2-Units	#5-C6 2-Units	#5-R9 2-Units	#5-R12 2-Units	#5-C9 2-Units	#5-C12 2-Units
(2-3)	#5-C4 2-Units	#5-C7 2-Units	#5-R10 2-Units	#5-R13 2-Units	#5-C10 2-Units	#5-C10 2-Units
(3-4)	#5-C5 2-Units	#5-C8 2-Units	#5-R11 2-Units	#5-R14 2-Units	#5-C11 2-Units	#5-C13 2-Units

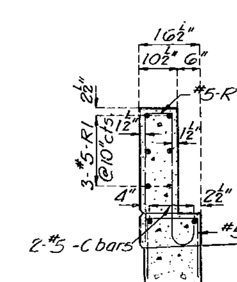
Note: Minimum Lap of #5 bars is 15"



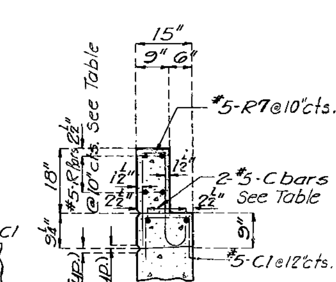
END POST ORDINATES



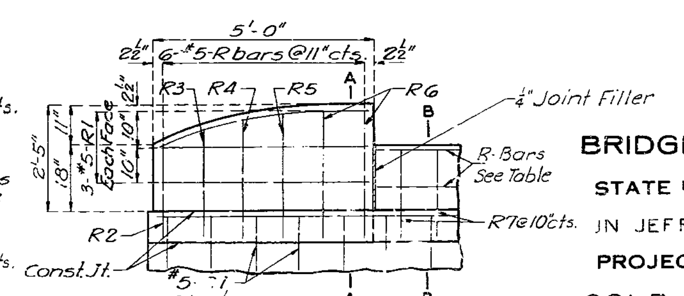
SECTION THRU MEDIAN



SECTION A-A



SECTION B-B



ELEVATION OF END POST

BRIDGE OVER BROADWAY STREET

STATE ROAD - ROUTE 54 RELOCATION

IN JEFFERSON CITY

PROJECT NO. U-54-3(8) (RTE. 54) CO 26-54(6) STA. 46+01.03

COLE COUNTY

DETAILED FEB. 1965 BY H.H.B.
CHECKED MARCH 1965 BY G.F.P.

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

Sheet No. 9 of 9

A-1307

No. 1.5.2A | Revised Nov. 1964 | Nov. 1963

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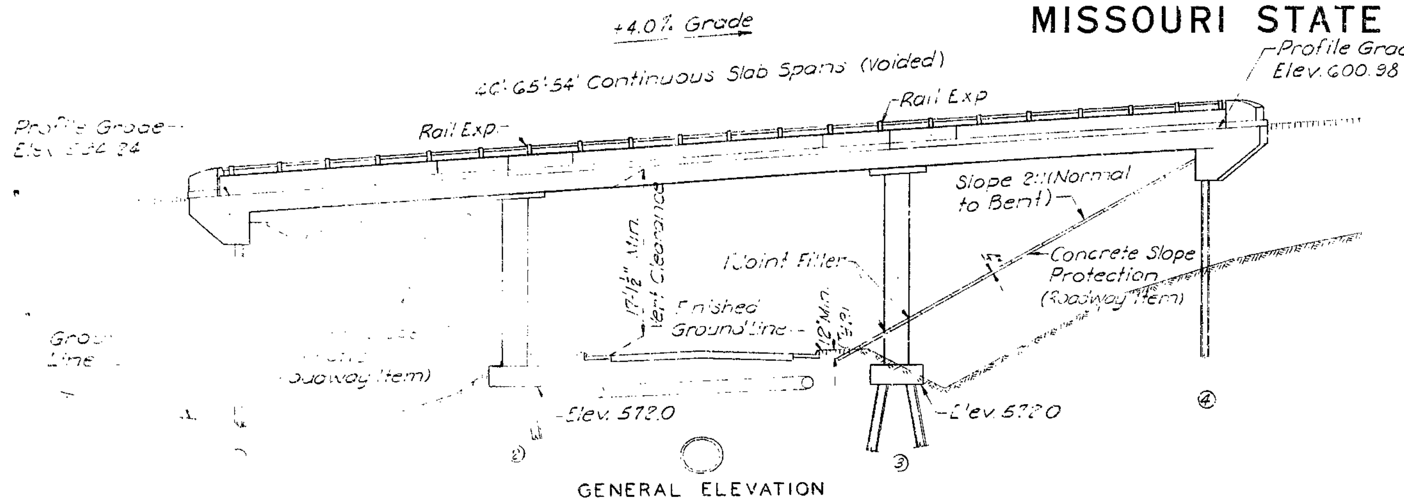
MISSOURI STATE HIGHWAY DEPARTMENT

FED ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	92	



GENERAL ELEVATION

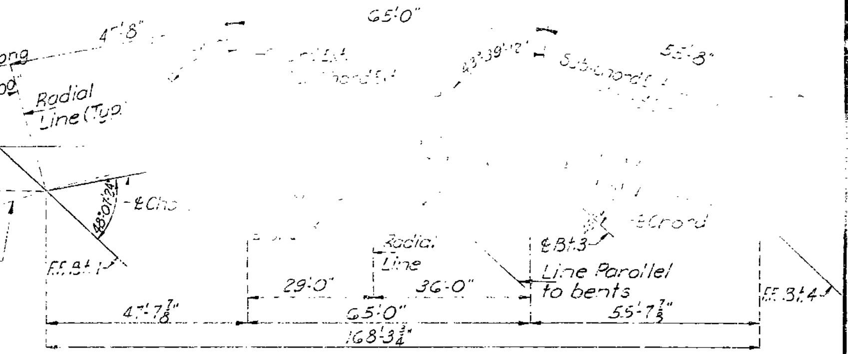
Note: All pile were driven to practical refusal on or into solid rock or other point bearing material at not less than the Plan Bearing shown.

All piling were driven with an approved power hammer developing an energy of 19,500 ft. lbs. and having a ram weighing 6500 lbs.

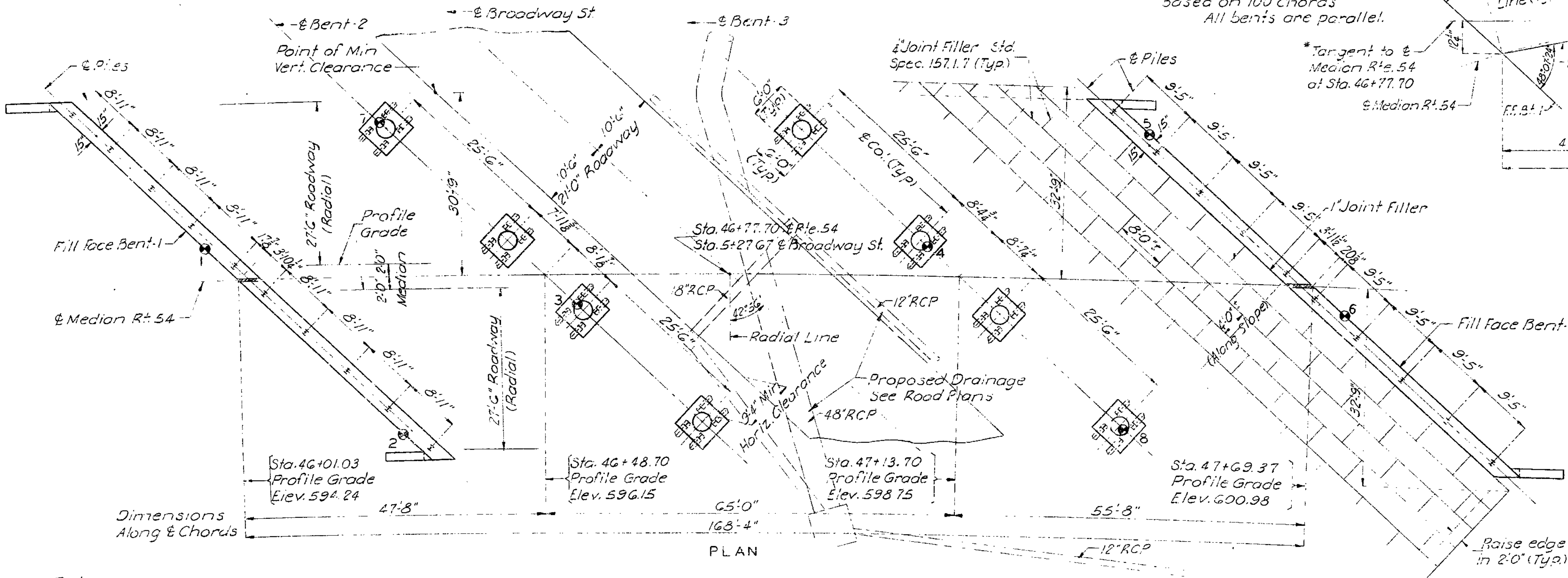
Compacted roadway fill (full roadway width) was placed up to elevation of bottom of concrete beam in front of end not less than 25'-0" in back of End Bents before steel piles were driven.

PILE DATA				
BENT NO	1	2	3	4
Pile Type and Size	10 3P42 10	12 3P53 16	12 3P53 16	10 BP42 10
Plan Bearing Tons	56	70	70	56
Minimum Required Bearing Tons	44	57	60	47
Hammer	Heavy Power	Heavy Power	Heavy Power	Heavy Power

Note: Bents cannot be accurately located from the reference point on the tangent by conventional survey methods based on 100' chords. All bents are parallel.



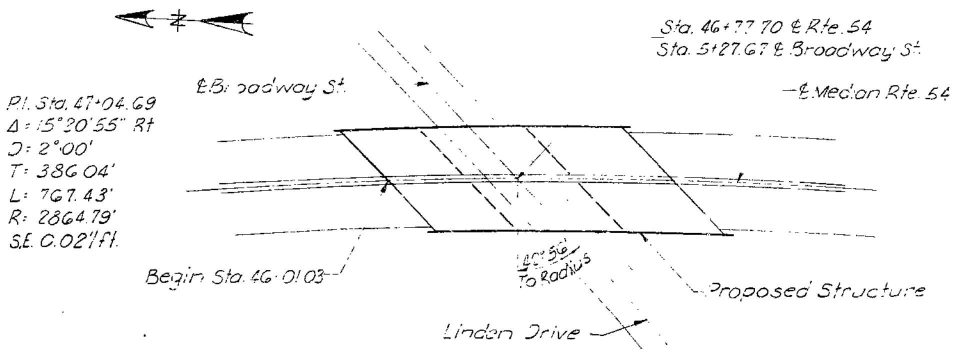
SUBSTRUCTURE LAYOUT



PLAN

GENERAL NOTES:

Design Specifications A.A.S.H.O. - 1961
Design Loading: HS 20-44 15#/sq.ft. Future Wearing Surface
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 fs = 20,000 psi
Steel Pile (A.S.T.M. A36-62T) fb = 9000 p.s.i.
Superstructure deck was surface sealed.
Falsework over existing lanes was constructed with a minimum vertical clearance of 13'-0" from crown of existing lanes and a minimum lateral clearance of 23'-0" centered on existing lanes.



LOCATION SKETCH

QUANTITIES				
ITEM		SUBSTR.	SUPERSTR.	TOTAL
Class I Excavation for Structures	Cu.Yd.	63.5	—	63.5
Steel Piles in Place (10")	Lin.Ft.	771	—	771
Steel Pile Cut-offs (10")	Lin.Ft.	112	—	112
Steel Piles in Place (12")	Lin.Ft.	70.0	—	700
Steel Pile Cut-offs (12")	Lin.Ft.	141	—	141
Class B Concrete	Cu.Yd.	32.0	—	32.0
Class B1 Concrete	Cu.Yd.	—	790.3	790.3
Reinforcing Steel	Lbs.	2,070	208,690	210 760
Bridge Rail (Single Tube Type)	Lin.Ft.	—	344	344

Note: For boring data see Sheet 2
⌶ indicates location of boring

...crete and reinforcement ... bents is included in ... was ... in end costs, ... structures ...

SUBMITTED BY E. LYN CROWLEY
SIGNATURE
REGISTERED PROFESSIONAL ENGINEER
SERIAL NUMBER E-5393

B.M. □ on N.E. corner of East curb Bridge A-1307 Elev. 594.23

BRIDGE OVER BROADWAY STREET

STATE ROAD ROUTE 54 RELOCATION
IN JEFFERSON CITY
PROJECT NO. C026-54(6) UA STA. 46+01.03

COLE COUNTY

SUBMITTED BY ... BRIDGE ENGINEER DATE 9/27/65
APPROVED BY ... CHIEF ENGINEER DATE 9/27/65

STD. 54.00
A-1307

PRICHARD COMPANY INC.
CONSULTING ENGINEERS
INDEPENDENCE, MISSOURI

DESIGNED JAN. 1965 BY J.E.R.
DETAILED FEB. 1965 BY R.H.B.
CHECKED MARCH 1965 BY G.F.P.

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

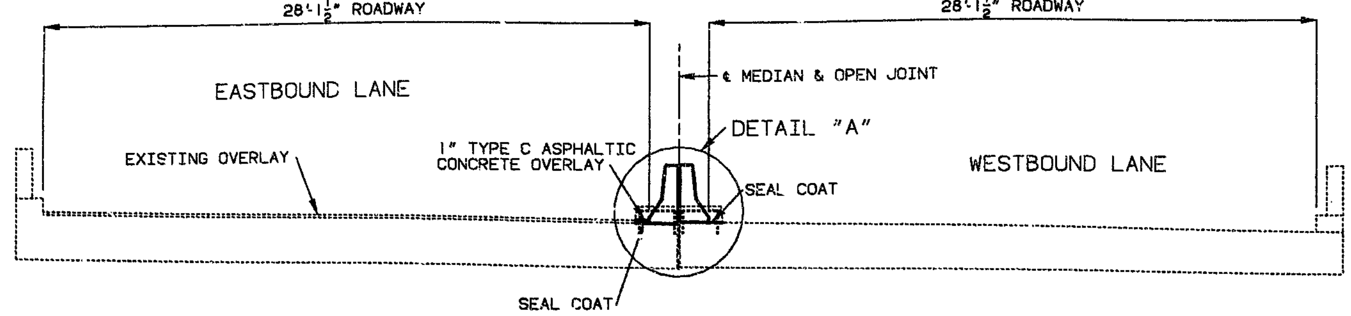
Sheet No. A of 1

169

FINAL PLANS

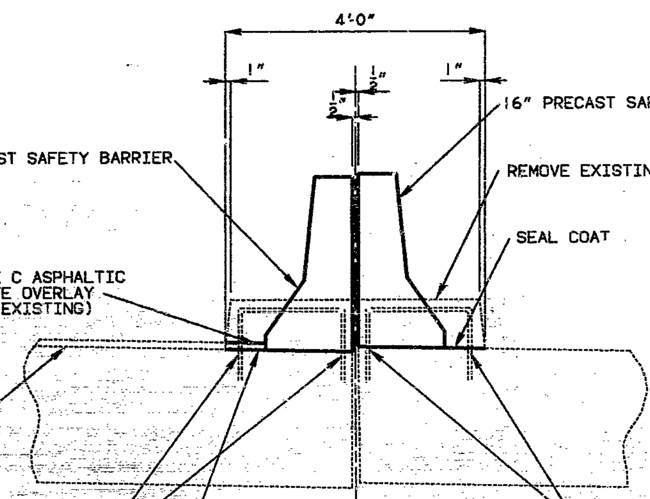
MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

STATE	PROJ. NO.	SHEET NO.
MO.		138
SEC./SUR. 12	TWP. 44N	RGE. 12W



NOTE: APPLY A PENETRATION SEAL (SEAL COAT) OF POLYMER MODIFIED ASPHALT AND COVER AGGREGATE IN THE AREAS EXPOSED BY THE REMOVAL OF THE EXISTING MEDIAN.

TYPICAL SECTION THRU SLAB



DETAIL "A"

GENERAL NOTES:

DESIGN SPECIFICATIONS:
A.A.S.H.T.O.-1983 AND INTERMS 1984 THRU 1988

DESIGN UNIT STRESSES:
CLASS B1 CONCRETE (PRECAST SAFETY BARRIER CURB) F'C=4,000 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 1½" UNLESS OTHERWISE NOTED.

TRAFFIC MAINTAINED:
MAINTAIN ONE LANE OF TRAFFIC IN EACH DIRECTION ON STRUCTURE DURING CONSTRUCTION. (SEE ROADWAY PLANS).

OUTLINE OF OLD WORK IS INDICATED BY LIGHT DASHED LINES. HEAVY LINES INDICATE NEW WORK.

ESTIMATED QUANTITIES

ITEM		TOTAL
CURB REMOVAL (BRIDGES)	LIN. FT.	337
ASPHALT CEMENT (ASPHALTIC CONCRETE) 60-70 OR AC-20	TON	0.1
MINERAL AGGREGATE (ASPHALTIC CONCRETE) (TYPE C MIX)	TON	1
POLYMER MODIFIED ASPHALT (SEAL COAT)	GAL.	10
COVER AGGREGATE (SEE SPECIAL PROVISIONS)	TON	1
PRECAST SAFETY BARRIER CURB	LIN. FT.	334

NOTE: POLYMER MODIFIED ASPHALT EMULSION, GRADE CRS-2P (POLYMER MODIFIED) SHALL BE APPLIED AT A RATE OF .35 GAL. PER SQ. YD.
COVER AGGREGATE (SEE SPECIAL PROVISIONS) SHALL BE APPLIED AT A RATE OF .015 TONS PER SQ. YD.

REPAIRS TO BRIDGE OVER BROADWAY STREET

STATE ROAD - ROUTE 54
IN JEFFERSON CITY
PROJECT NO. **STA. 46+01.03**
JOB NO. 5-U-54-2588 **RTE. 54**
COLE COUNTY

DATE 4/21/89

STD.
STD.
A-1307R

DESIGNED JAN. 1989
DETAILED JAN. 1989
CHECKED JAN. 1989

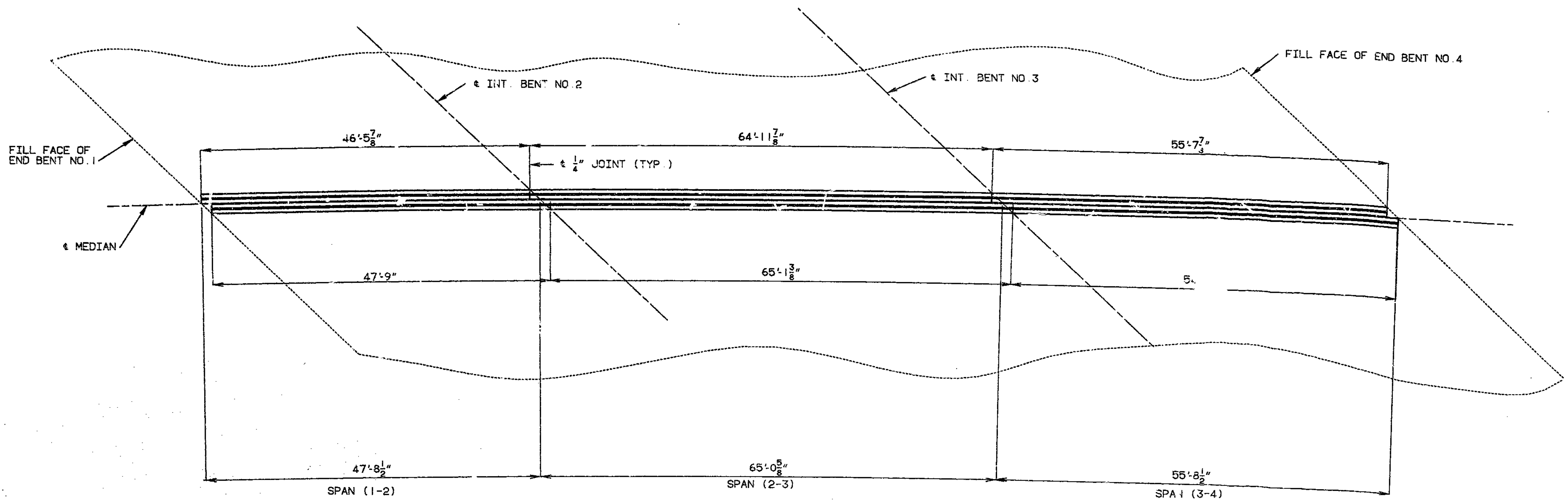
NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

SEE FINAL PLANS

SHEET NO. 1 OF 3.

2/6 3R3 320

STATE	PROJ NO.	SHEET NO.
MO.		139



PART PLAN OF SLAB SHOWING
PRECAST SAFETY BARRIER CURB

NOTE: LONGITUDINAL DIMENSIONS ARE PARALLEL TO GRADE AT TOP OF SLAB.

217 386 387

DETAILED JAN. 1989
CHECKED JAN. 1989

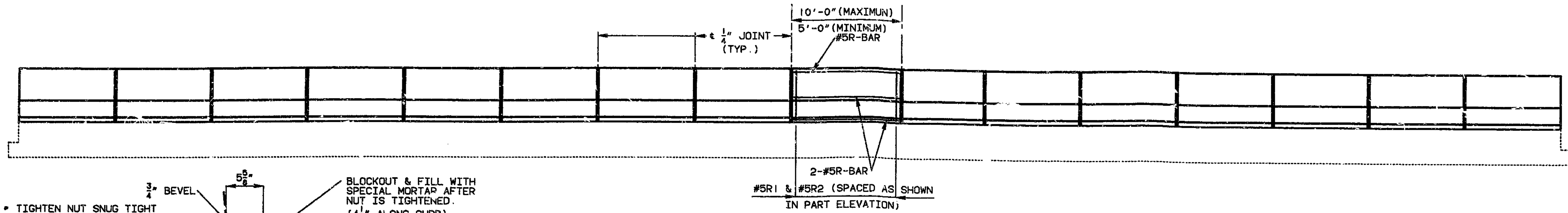
NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

SHEET NO. 2 OF 3.

COLE COUNTY

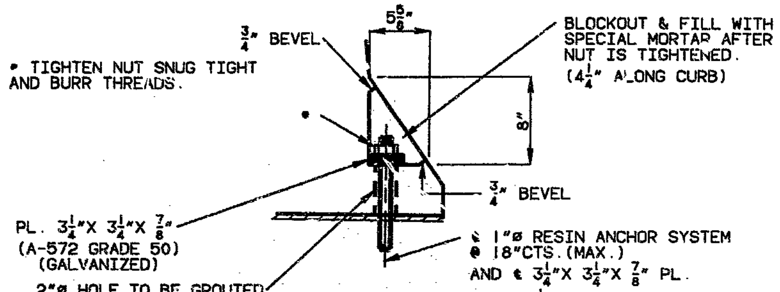
A-1307R

STATE	PROJ. NO.	SHEET NO.
MO.		140

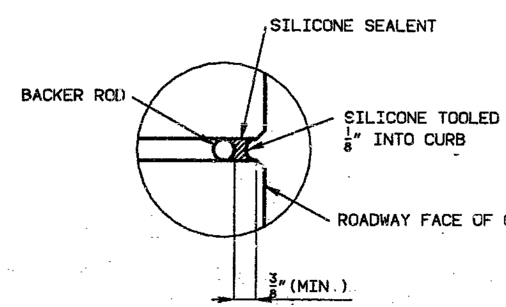


ELEVATION OF PRECAST SAFETY BARRIER CURB

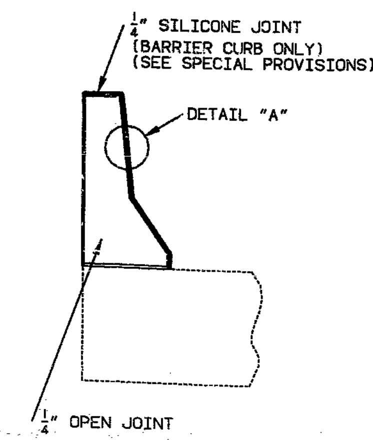
NOTE: LONGITUDINAL DIMENSIONS ARE PARALLEL TO GRADE AT TOP OF SLAB.



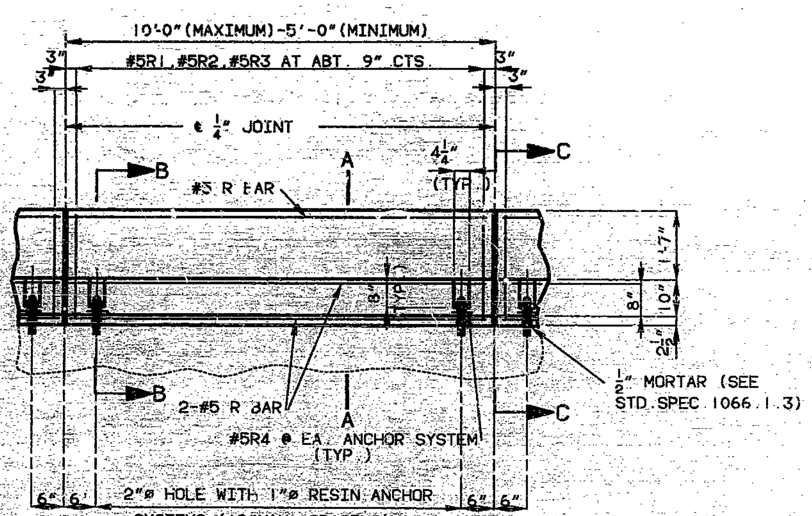
DETAIL B



DETAIL "A"

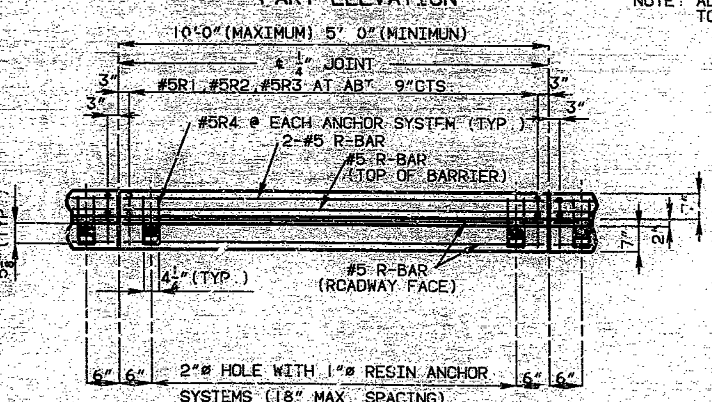


PART SECTION C-C

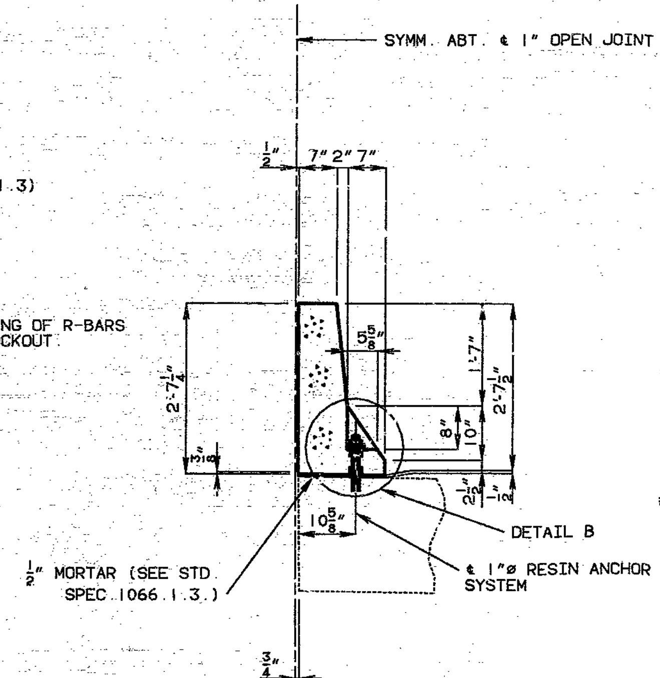


PART ELEVATION

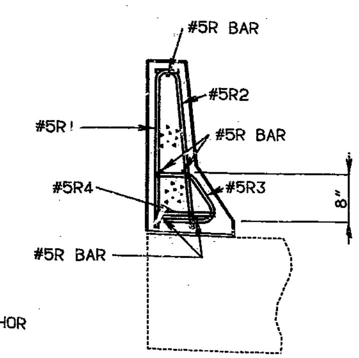
NOTE: ADJUST SPACING OF R-BARS TO CLEAR BLOCKOUT.



PART PLAN



TYPICAL PRECAST PART SECTION B-B



TYPICAL SECTION THRU RIGHT PRECAST SAFETY BARRIER CURB

GENERAL NOTES:

CONCRETE FOR PRECAST BARRIER CURBS SHALL BE CLASS B1 WITH F'C=4,000 PSI.

TOP OF BARRIER CURB SHALL BE PARALLEL TO GRADE WITH BARRIER CURB JOINTS NORMAL TO GRADE.

ALL EXPOSED EDGES OF BARRIER CURB SHALL HAVE 1/2" RADIUS OR 3/8" BEVEL UNLESS OTHERWISE NOTED.

THE CONTRACTOR SHALL USE ONE OF THE RESIN ANCHOR SYSTEMS LISTED IN THE JOB SPECIAL PROVISIONS. THE ANCHOR SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS EXCEPT AS MODIFIED BY THE JOB SPECIAL PROVISIONS AND SHALL BE GALVANIZED.

THREADED RODS SHALL HAVE AN ULTIMATE CAPACITY OF 36,000 POUNDS.

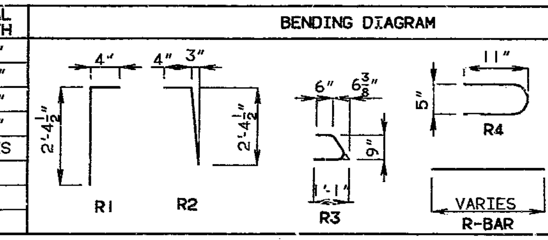
PAYMENT FOR FURNISHING AND INSTALLING RESIN ANCHOR SYSTEMS SHALL BE FULLY COVERED BY THE CONTRACT UNIT PRICE FOR PRECAST SAFETY BARRIER CURB.

WHEN THE PRECAST BARRIER CURB IS BID BY LINEAR FEET, THE CONTRACT UNIT PRICE SHALL INCLUDE THE COST OF ALL CONCRETE, REINFORCEMENT, AND RESIN ANCHOR SYSTEMS COMPLETE IN PLACE.

MEASUREMENT OF PRECAST SAFETY BARRIER CURB IS TO THE NEAREST LINEAR FOOT FOR EACH STRUCTURE, MEASURED ALONG THE TOP OF SLAB FROM END OF CURB TO END OF CURB.

THE PRECAST CURB UNITS SHALL BE SPACED TO ALLOW FOR THE CENTERING OF A 1/4" JOINT OVER EACH INT. BENT AS SHOWN ON SHEET NO. 2.

BILL OF REINFORCING STEEL

SIZE & MARK	ACTUAL LENGTH	BENDING DIAGRAM
#5-R1	2'-7"	
#5-R2	2'-8"	
#5-R3	2'-2"	
#5-R4	2'-0"	
#5-R-BAR	VARIES	

ALL DIMENSIONS FOR R-BARS ARE OUT TO OUT.

HOOKS AND BENDS SHALL BE IN ACCORDANCE WITH THE C.R.S.I. MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES. STIRRUP AND TIE DIMENSIONS.

ACTUAL LENGTHS OF REINFORCING BARS ARE MEASURED ALONG CENTERLINE OF BAR TO THE NEAREST INCH.

DETAILED JAN. 1989
CHECKED JAN. 1989

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

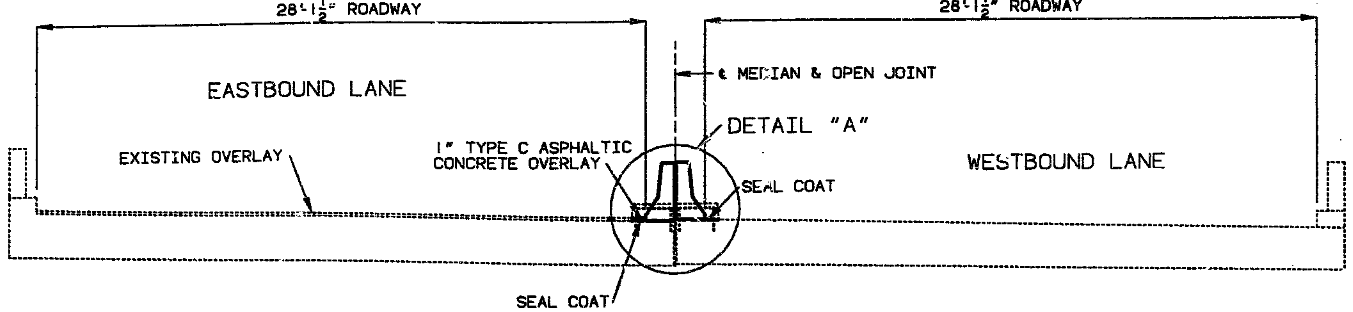
SHEET NO. 3 OF 3.

COLE COUNTY

A-1307R

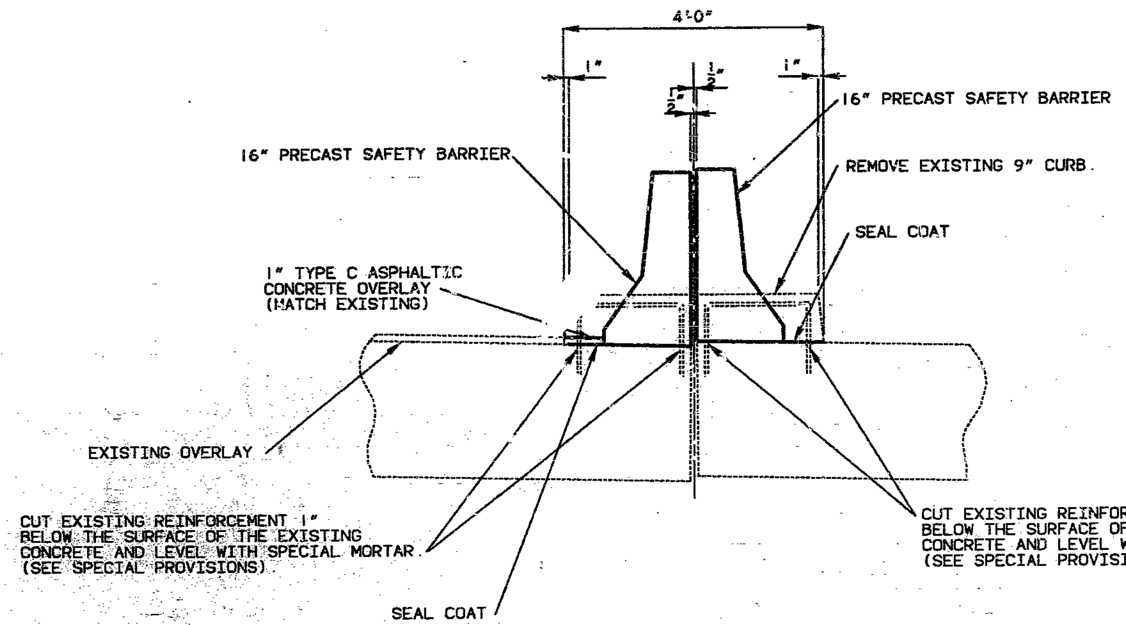
MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

STATE	PROJ. NO.	SHEET NO.
MO.		138
SEC./SUR. 12	TWP. 44N	RGE. 12W



NOTE: APPLY A PENETRATION SEAL (SEAL COAT) OF POLYMER MODIFIED ASPHALT AND COVER AGGREGATE IN THE AREAS EXPOSED BY THE REMOVAL OF THE EXISTING MEDIAN.

TYPICAL SECTION THRU SLAB



DETAIL "A"

GENERAL NOTES:

DESIGN SPECIFICATIONS:
A.A.S.H.T.O.-1983 AND INTERMS 1984 THRU 1988

DESIGN UNIT STRESSES:
CLASS B1 CONCRETE (PRECAST SAFETY BARRIER CURB) F'C=4,000 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 1½" UNLESS OTHERWISE NOTED.

TRAFFIC MAINTAINED:
MAINTAIN ONE LANE OF TRAFFIC IN EACH DIRECTION ON STRUCTURE DURING CONSTRUCTION. (SEE ROADWAY PLANS).

OUTLINE OF OLD WORK IS INDICATED BY LIGHT DASHED LINES. HEAVY LINES INDICATE NEW WORK.

ESTIMATED QUANTITIES

ITEM		TOTAL
CURB REMOVAL (BRIDGES)	LIN. FT.	337
ASPHALT CEMENT (ASPHALTIC CONCRETE) 60-70 OR AC-20	TON	0.1
MINERAL AGGREGATE (ASPHALTIC CONCRETE) (TYPE C MIX)	TON	2
POLYMER MODIFIED ASPHALT (SEAL COAT)	GAL.	30
COVER AGGREGATE (SEE SPECIAL PROVISIONS)	TON	1
PRECAST SAFETY BARRIER CURB	LIN. FT.	334
CONT. ITEMS		
ROTO MILL	L.S.	1

NOTE: POLYMER MODIFIED ASPHALT EMULSION, GRADE CRS-2P (POLYMER MODIFIED) SHALL BE APPLIED AT A RATE OF .35 GAL. PER SQ. YD.
COVER AGGREGATE (SEE SPECIAL PROVISIONS) SHALL BE APPLIED AT A RATE OF .015 TONS PER SQ. YD.

REPAIRS TO BRIDGE OVER BROADWAY STREET

STATE ROAD - ROUTE 54
IN JEFFERSON CITY
PROJECT NO.
JOB NO. 5-U-54-2588

STA. 46+01.03
RTE. 54

COLE COUNTY

DATE 4/21/89

STD.
STD.
A-1307R

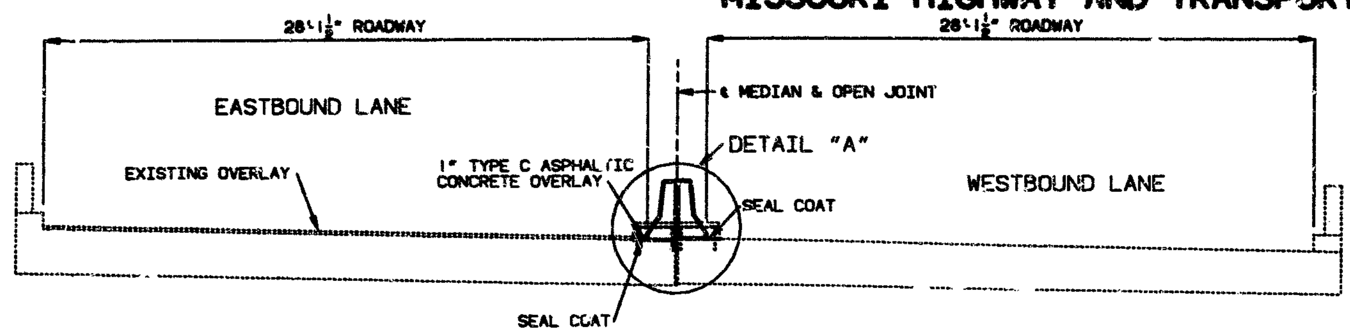
DESIGNED JAN. 1989
DETAILED JAN. 1989
CHECKED JAN. 1989

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

SHEET NO. 1A OF 3.

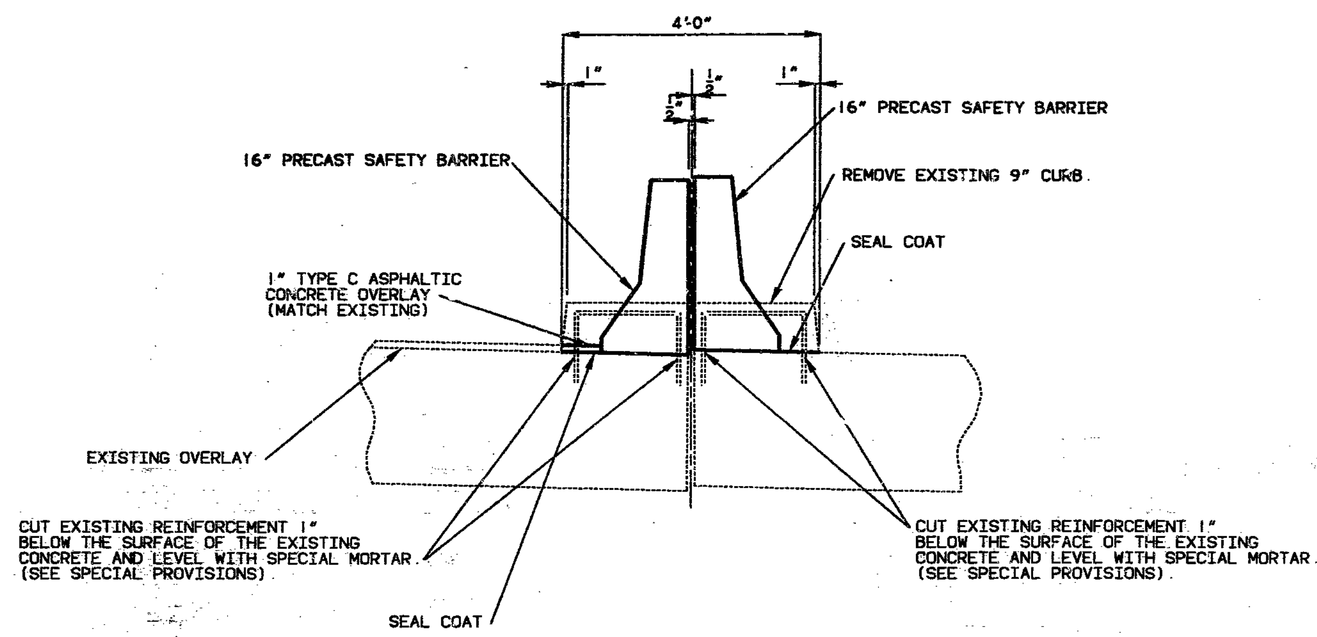
MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

STATE	PROJ NO	SHEET NO.
NO.		138
SEC/SUR. 12	TWP. 44N RGE. 12W	



NOTE: APPLY A PENETRATION SEAL (SEAL COAT) OF POLYMER MODIFIED ASPHALT AND COVER AGGREGATE IN THE AREAS EXPOSED BY THE REMOVAL OF THE EXISTING MEDIAN.

TYPICAL SECTION THRU SLAB



DETAIL "A"

GENERAL NOTES:

DESIGN SPECIFICATIONS:
A.A.S.H.T.O.-1983 AND INTERIMS 1984 THRU 1988

DESIGN UNIT STRESSES:
CLASS B1 CONCRETE (PRECAST SAFETY BARRIER CURB) F'C=4,000 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 1½" UNLESS OTHERWISE NOTED.

TRAFFIC MAINTAINED:
MAINTAIN ONE LANE OF TRAFFIC IN EACH DIRECTION ON STRUCTURE DURING CONSTRUCTION. (SEE ROADWAY PLANS).

OUTLINE OF OLD WORK IS INDICATED BY LIGHT DASHED LINES. HEAVY LINES INDICATE NEW WORK.

ESTIMATED QUANTITIES		
ITEM		TOTAL
CURB REMOVAL (BRIDGES)	LIN. FT.	337
ASPHALT CEMENT (ASPHALTIC CONCRETE) 60-70 OR AC-20	TON	0.1
MINERAL AGGREGATE (ASPHALTIC CONCRETE) (TYPE C MIX)	TON	1
POLYMER MODIFIED ASPHALT (SEAL COAT)	GAL.	10
COVER AGGREGATE (SEE SPECIAL PROVISIONS)	TON	1
PRECAST SAFETY BARRIER CURB	LIN. FT.	334

NOTE: POLYMER MODIFIED ASPHALT EMULSION, GRADE CRS-2P (POLYMER MODIFIED) SHALL BE APPLIED AT A RATE OF .35 GAL. PER SQ. YD.
COVER AGGREGATE (SEE SPECIAL PROVISIONS) SHALL BE APPLIED AT A RATE OF .015 TONS PER SQ. YD.

REPAIRS TO BRIDGE OVER BROADWAY STREET

STATE ROAD - ROUTE 54
IN JEFFERSON CITY
PROJECT NO. STA. 46+01.03
JOB NO. 5-U-54-258B RTE. 54
COLE COUNTY
DATE 4/21/89

STD.
STD.
A-1307R

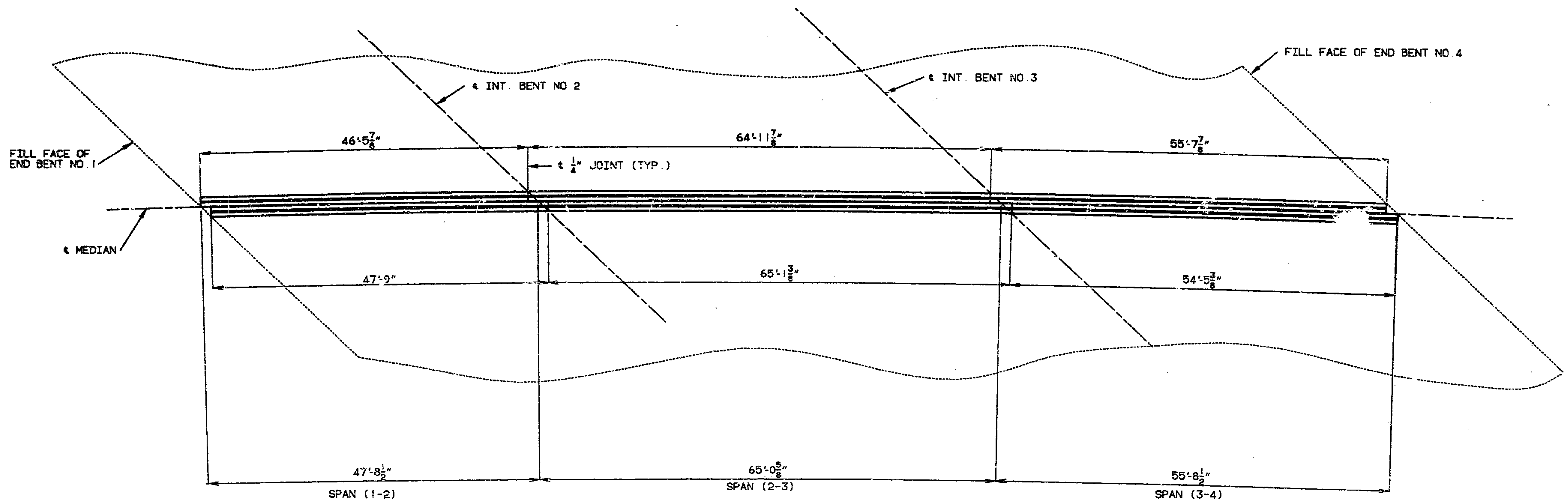
323 320

DESIGNED JAN. 1989
DETAILED JAN. 1989
CHECKED JAN. 1989

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

SEE FINAL PLANS

STATE	PROJ. NO.	SHEET NO.
MO.		139



PART PLAN OF SLAB SHOWING
PRECAST SAFETY BARRIER CURB

NOTE: LONGITUDINAL DIMENSIONS ARE PARALLEL TO GRADE AT TOP OF SLAB.

DETAILED JAN. 1989
CHECKED JAN. 1989

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

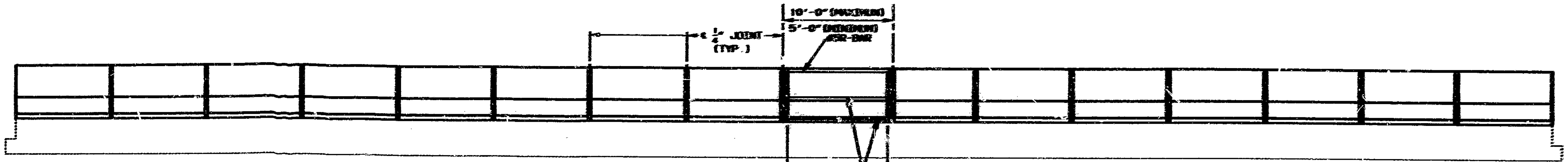
SHEET NO. 2 OF 3.

COLE COUNTY

A-1307R

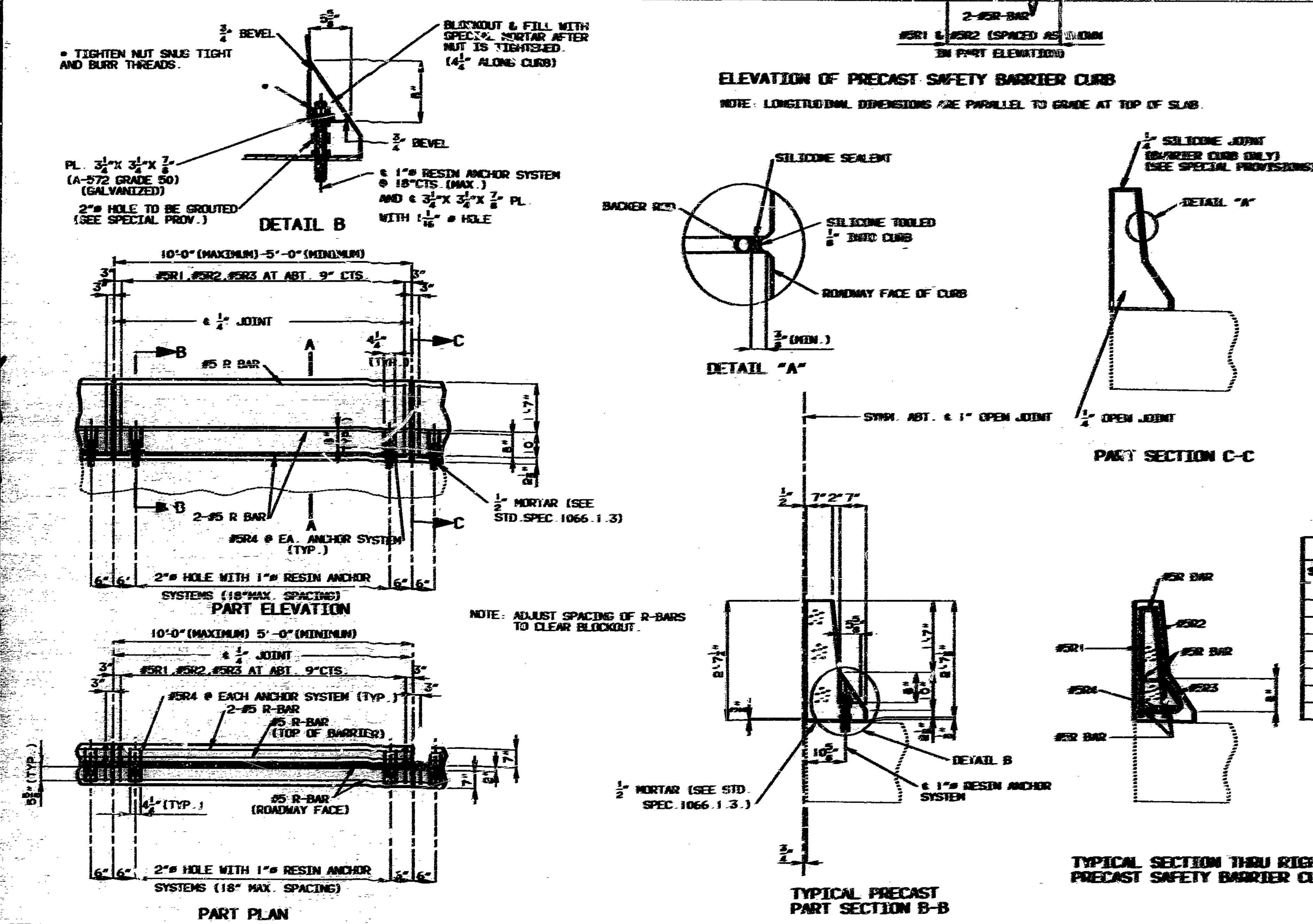
382.381

STATE	PROJ. NO	SHEET NO
ND		110



ELEVATION OF PRECAST SAFETY BARRIER CURB

NOTE: LONGITUDINAL DIMENSIONS ARE PARALLEL TO GRADE AT TOP OF SLAB.



GENERAL NOTES.

CONCRETE FOR PRECAST BARRIER CURBS SHALL BE CLASS 31 WITH F'C=4,000 PSI.

TOP OF BARRIER CURB SHALL BE PARALLEL TO GRADE WITH BARRIER CURB JOINTS NORMAL TO GRADE.

ALL EXPOSED EDGES OF BARRIER CURB SHALL HAVE 1/2" RADIUS OR 3/8" BEVEL UNLESS OTHERWISE NOTED.

THE CONTRACTOR SHALL USE ONE OF THE RESIN ANCHOR SYSTEMS LISTED IN THE JOB SPECIAL PROVISIONS. THE ANCHOR SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS EXCEPT AS MODIFIED BY THE JOB SPECIAL PROVISIONS AND SHALL BE GALVANIZED.

THREADED RODS SHALL HAVE AN ULTIMATE CAPACITY OF 36,000 POUNDS.

PAYMENT FOR FURNISHING AND INSTALLING RESIN ANCHOR SYSTEMS SHALL BE FULLY COVERED BY THE CONTRACT UNIT PRICE FOR PRECAST SAFETY BARRIER CURB.

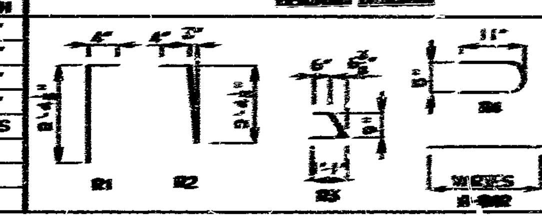
WHEN THE PRECAST BARRIER CURB IS BID BY LINEAR FEET, THE CONTRACT UNIT PRICE SHALL INCLUDE THE COST OF ALL CONCRETE, REINFORCEMENT, AND RESIN ANCHOR SYSTEMS COMPLETE IN PLACE.

MEASUREMENT OF PRECAST SAFETY BARRIER CURB IS TO THE NEAREST LINEAR FOOT FOR EACH STRUCTURE, MEASURED ALONG THE TOP OF SLAB FROM END OF CURB TO END OF CURB.

THE PRECAST CURB UNITS SHALL BE SPACED TO ALLOW FOR THE CENTERING OF A 1/4" JOINT OVER EACH INT. BENT AS SHOWN ON SHEET NO. 2.

BILL OF REINFORCING STEEL

SIZE & MARK	ACTUAL LENGTH	BENDING DIAGRAM
#5-R1	2'-7"	
#5-R2	2'-8"	
#5-R3	2'-2"	
#5-R4	2'-8"	
#5-R-BAR	VARIES	



ALL DIMENSIONS FOR R-BARS ARE OUT TO OUT.

HOOKS AND BENDS SHALL BE IN ACCORDANCE WITH THE C.R.S.I. MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES, STIRRUP AND TIE DIMENSIONS.

ACTUAL LENGTHS OF REINFORCING BARS ARE MEASURED ALONG CENTERLINE OF BAR TO THE NEAREST INCH.

DETAILED JAN. 1989
CHECKED JAN. 1989

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

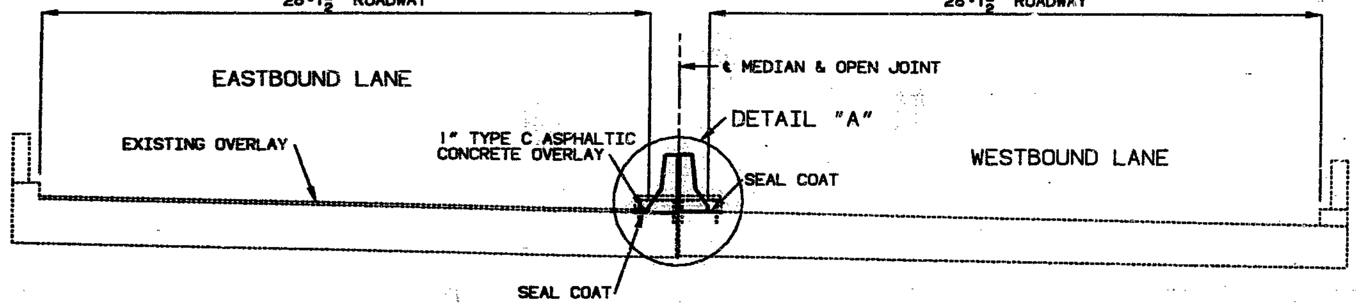
SHEET NO. 3 OF 3.

COLE COUNTY

A-1307R

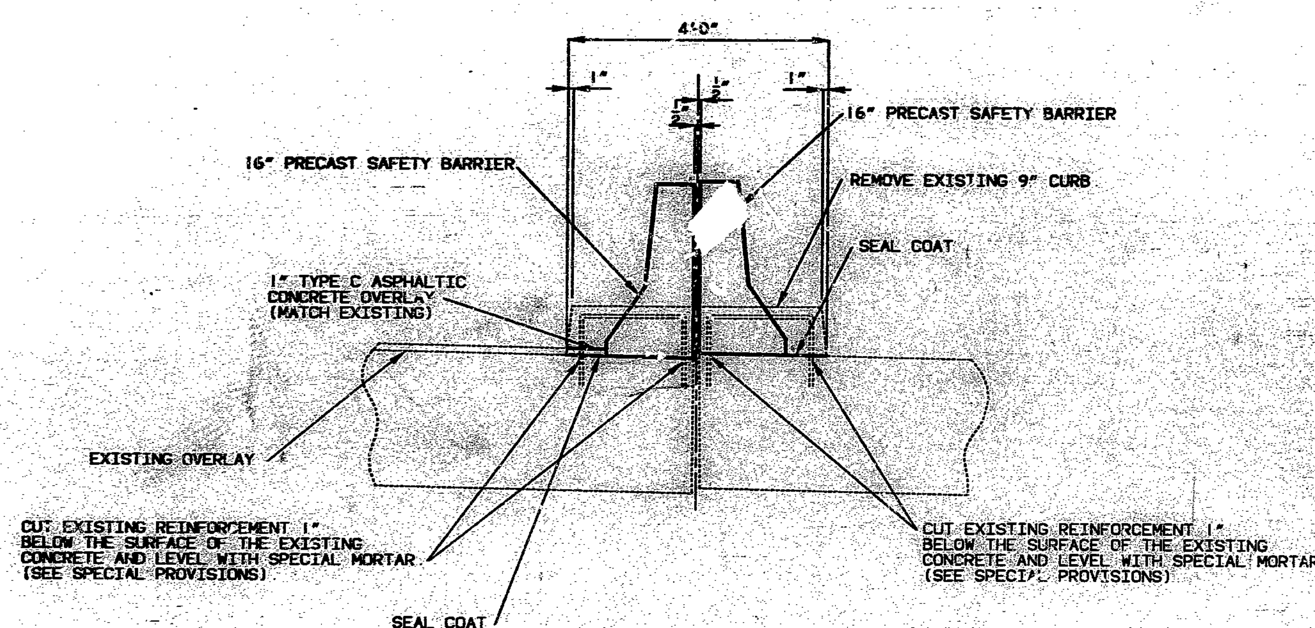
MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

STATE	PROJ. NO.	SHEET NO.
MO.		138
SEC./SUR. 12	TWP. 44N RGE. 12W	



TYPICAL SECTION THRU SLAB

NOTE: APPLY A PENETRATION SEAL (SEAL COAT) OF POLYMER MODIFIED ASPHALT AND COVER AGGREGATE IN THE AREAS EXPOSED BY THE REMOVAL OF THE EXISTING MEDIAN.



DETAIL "A"

323 323

GENERAL NOTES:

DESIGN SPECIFICATIONS:
A.A.S.H.T.O.-1983 AND INTERMS 1984 THRU 1988

DESIGN UNIT STRESSES:
CLASS B1 CONCRETE (PRECAST SAFETY BARRIER CURB) F'C=4,000 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 1½" UNLESS OTHERWISE NOTED.

TRAFFIC MAINTAINED:
MAINTAIN ONE LANE OF TRAFFIC IN EACH DIRECTION ON STRUCTURE DURING CONSTRUCTION. (SEE ROADWAY PLANS)

OUTLINE OF OLD WORK IS INDICATED BY LIGHT DASHED LINES. HEAVY LINES INDICATE NEW WORK.

ESTIMATED QUANTITIES

ITEM		TOTAL
CURB REMOVAL (BRIDGES)	LIN. FT.	337
ASPHALT CEMENT (ASPHALTIC CONCRETE) 60-70 OR AC-20	TON	0.1
MINERAL AGGREGATE (ASPHALTIC CONCRETE) (TYPE C MIX)	TON	2
POLYMER MODIFIED ASPHALT (SEAL COAT)	GAL.	30
COVER AGGREGATE (SEE SPECIAL PROVISIONS)	TON	1
PRECAST SAFETY BARRIER CURB	LIN. FT.	334
CONT. ITEMS		
ROTO MILL	L.S.	1

NOTE: POLYMER MODIFIED ASPHALT EMULSION, GRADE CRS-2P (POLYMER MODIFIED) SHALL BE APPLIED AT A RATE OF .35 GAL. PER SQ. YD.
COVER AGGREGATE (SEE SPECIAL PROVISIONS) SHALL BE APPLIED AT A RATE OF .015 TONS PER SQ. YD.

REPAIRS TO BRIDGE OVER BROADWAY STREET

STATE ROAD - ROUTE 54
IN JEFFERSON CITY
PROJECT NO. STA. 46+01.03
JOB NO. 5-U-54-258B RTE. 54
COLE COUNTY
DATE 4/21/89

STD.
STD.
A-1307R

DESIGNED JAN. 1989
DETAILED JAN. 1989
CHECKED JAN. 1989

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

SHEET NO. 1A OF 3.

SEC/SUR 12 TWP 44N RGE 12W

U.I.P. AND REHAB. EXISTING (46'-65'-54') CONTINUOUS VOIDED SLAB SPANS

GENERAL NOTES:

Design Specifications:
2002 - AASHTO LFD (17th Edition) Standard Specifications
Bridge Deck Rating = 6

Design Unit Stresses:
Class B-1 Concrete f'c = 4,000 psi
Reinforcing Steel (Grade 60) fy = 60,000 psi

Reinforcing Steel:
Minimum clearance to reinforcing steel shall be 1-1/2", unless otherwise shown.

All curb blockout steel shall be epoxy coated.

Joint Filler:
All joint filler shall be in accordance with Sec 1057 for preformed sponge rubber expansion and partition joint filler, except as noted.

Resin Anchors:
The contractor shall use one of the qualified resin anchor systems in accordance with Sec 1039.

The minimum embedment depth in concrete with f'c = 4,000 psi for the resin anchor system shall be that required to meet the minimum ultimate pullout strength in accordance with Sec 1039 but shall not be less than 5".

An epoxy coated #5 Grade 60 reinforcing bar shall be substituted for the 5/8" Ø threaded rod.

Cost of furnishing and installing the resin anchor system A and B complete-in-place will be considered completely covered by the contract unit price for Curb Blockout.

Cost of furnishing and installing the resin anchor system C and D complete-in-place will be considered completely covered by the contract unit price for Safety Barrier Curb.

Concrete Protective Coatings:
Protective coating for concrete bents and piers (Epoxy) shall be applied as shown on the bridge plans and in accordance with Sec 711.

Miscellaneous:
Traffic to be maintained on structure during construction. See roadway plans for traffic control.

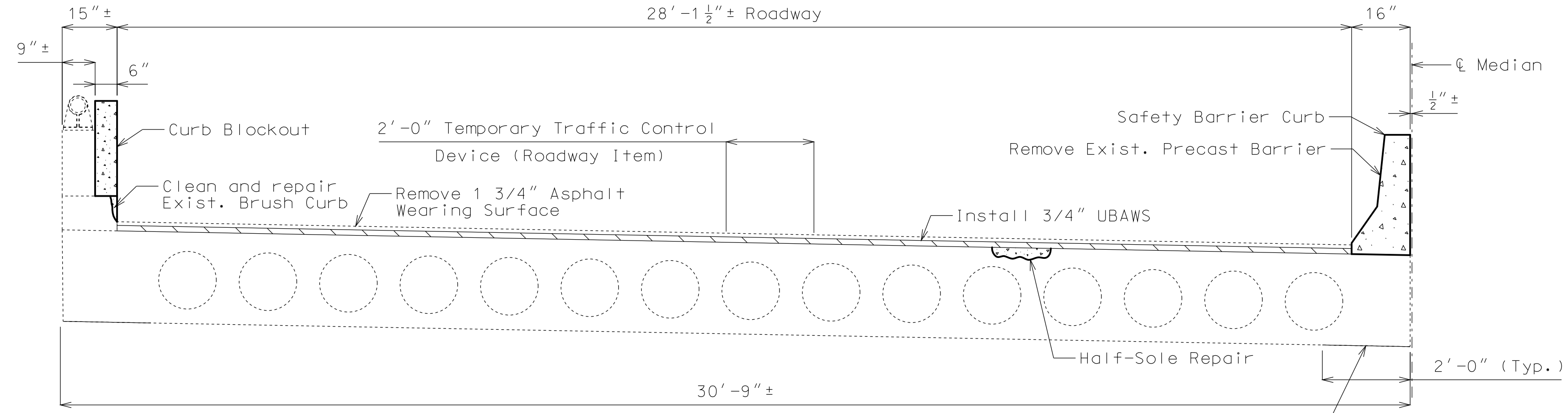
All exposed edges of curb blockout shall have either a 1/2" radius or a 3/8" bevel unless otherwise shown.

Outline of old work is indicated by light dashed lines. Heavy line indicate new work.

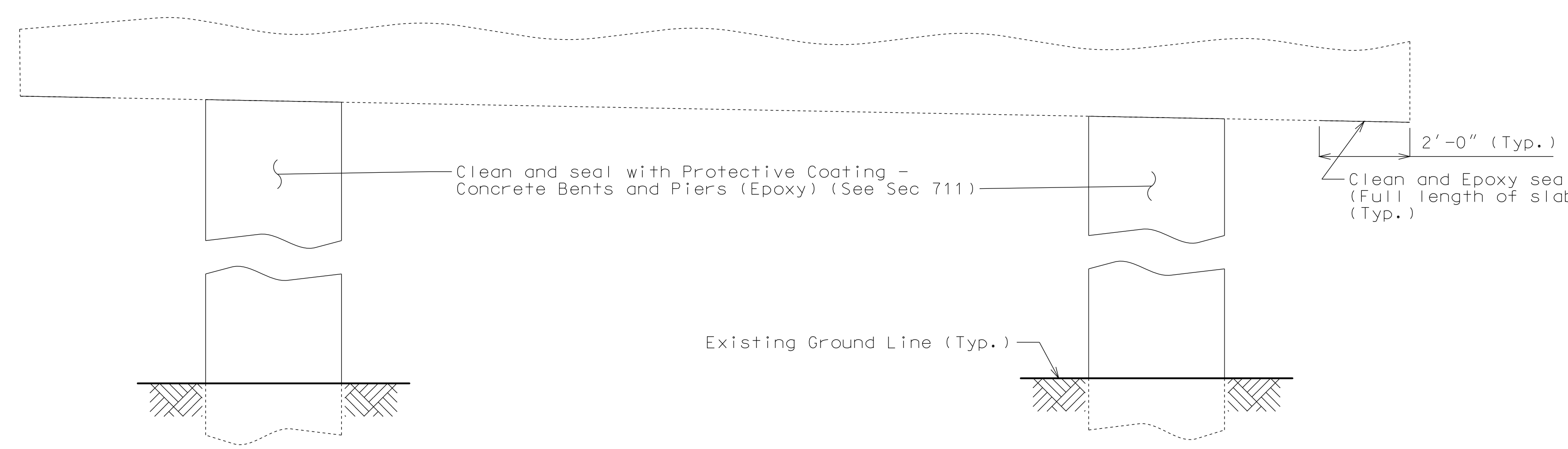
Contractor shall verify all dimensions in field before ordering new material.

Roadway Surfacing adjacent to bridge ends shall match new bridge deck surface (Roadway Item).

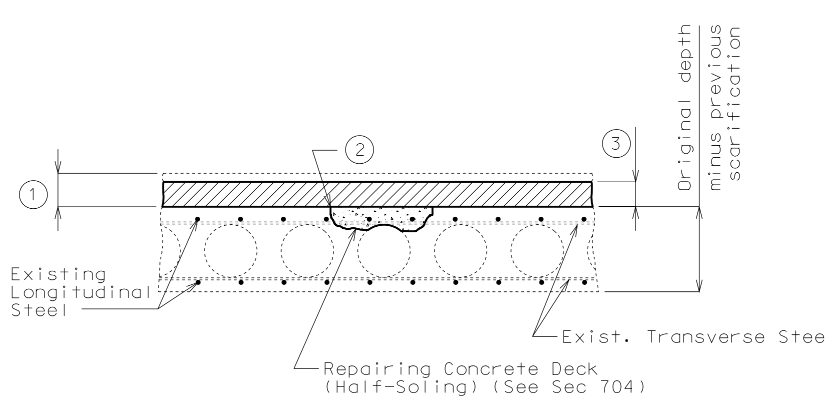
Existing bridge rail may be removed and disposed of at the contractor's option. Removal and disposal cost will be considered completely covered by the contract unit price for Curb Blockout.



SECTION THRU SLAB

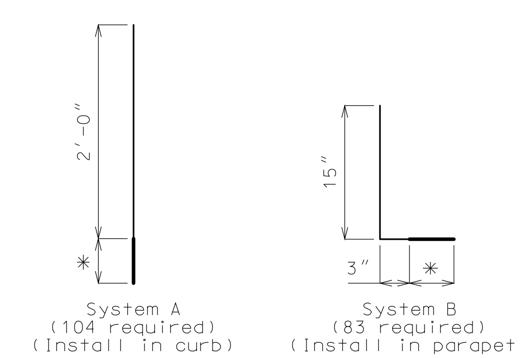


PART ELEVATION OF BENTS NO. 2 AND 3 SHOWING PROTECTIVE COATING



HALF-SOLED REPAIR

1. Remove existing wearing surface.
2. One inch vertical side shall be established outside the deteriorated area. See Sec 704.
3. 3/4" (min.) for Ultra-thin Bond Asphalt Wearing Surface (UBAWS)



Note:

For location of Resin Anchors see Sheets No. 3 and 4.

DETAILS OF RESIN ANCHOR SYSTEM

* Manufacturer's recommended embedment length (5" min.)

Estimated Quantities

	Item		Total
	Removal of Asphalt Wearing Surface	square foot	4713
	Curb Removal	linear foot	167
	Ultrathin Bonded Wearing Surface (UBAWS), Grade C, 3/4" thick	square yard	525
	Safety Barrier Curb	linear foot	167
**	Curb Blockout	linear foot	181
	Repairing Concrete Deck (Half-Soling)	square foot	200
	Clean and Epoxy Seal	square foot	670
	Protective Coating - Concrete Bents and Piers (Epoxy)	lump sum	1

** Cost of cleaning and repairing existing brush curb shall be included with the contract unit price for Curb Blockout.

BRIDGE: ROUTE 54 E.B. OVER BROADWAY ST.

HWY 54 FROM ROUTE 50 MO TO ROUTE 179
ABOUT 0.7 MILES WEST OF HWY 50
STA. 46+01.03± (MATCH EXISTING)

STD. 617.20
STD. 606.60
STD. 617.10

Detailed Oct. 2017
Checked Oct. 2017

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

STATE OF MISSOURI
ANOUSONE AROUNPRADITH
NUMBER PE-29317
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED	11/16/2017
ROUTE	54
STATE	MO
DISTRICT	BR
SHEET NO.	1
COUNTY	COLE
JOB NO.	J5P3118
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	A13072

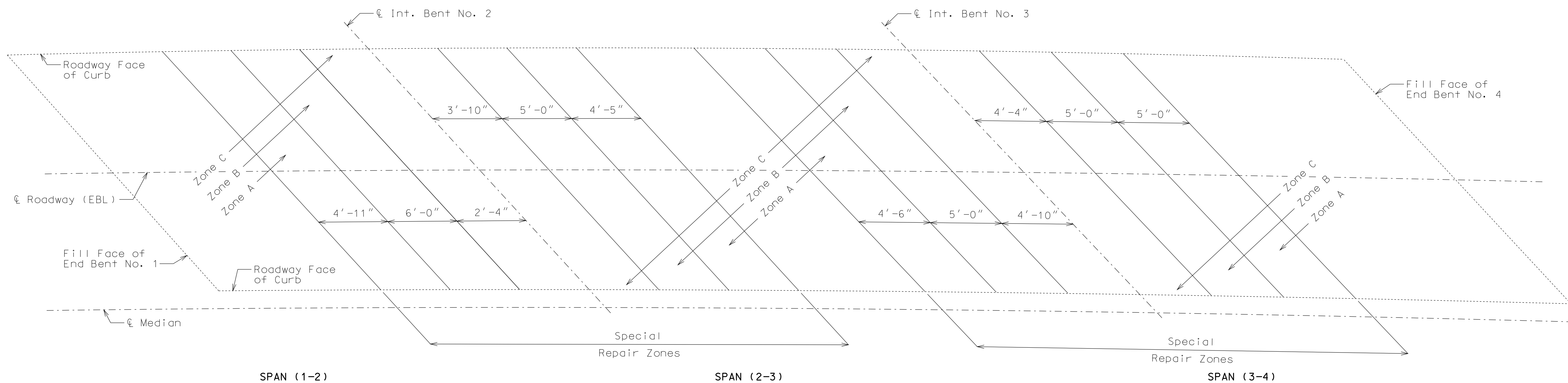
DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.



PLAN OF EXISTING SLAB SHOWING SPECIAL REPAIR ZONES

Notes:
Any half-soling required in the areas designated as special repair zones shall be completed in alphabetical sequence. Any repair in the remainder of the bridge that is adjacent to Zone A and not designated as a special repair zone shall be completed after work in special repair zones.

Removal and repair shall be completed in one special repair zone and concrete shall have attained a compressive strength of 3200 psi before work can be started in the next special repair zone. Before placing concrete in areas adjacent to areas of subsequent repair, the concrete shall be separated with a material such as polyethylene sheets to aid in removal of old concrete.

Zones with the same letter designation may be repaired at the same time.

If any single repair area does not exceed 4 square feet in size and the total repair within a special repair zone does not exceed 12 square feet, the special repair zone requirement does not apply for that zone. Any damage sustained to the void tube as a result of the contractor's operations shall be patched or replaced as required by the engineer at the contractor's expense.

An exposed void in the deck shall be patched as approved by the engineer in a manner that shall maintain the void area completely free of concrete. Cost of patching an exposed void will be considered completely covered by the contract unit price for Repairing Concrete Deck (Half-Soling).

Detailed Oct. 2017
Checked Oct. 2017

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

STATE OF MISSOURI
ANOUSONE AROUNPRADITH
NUMBER PE-29317
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

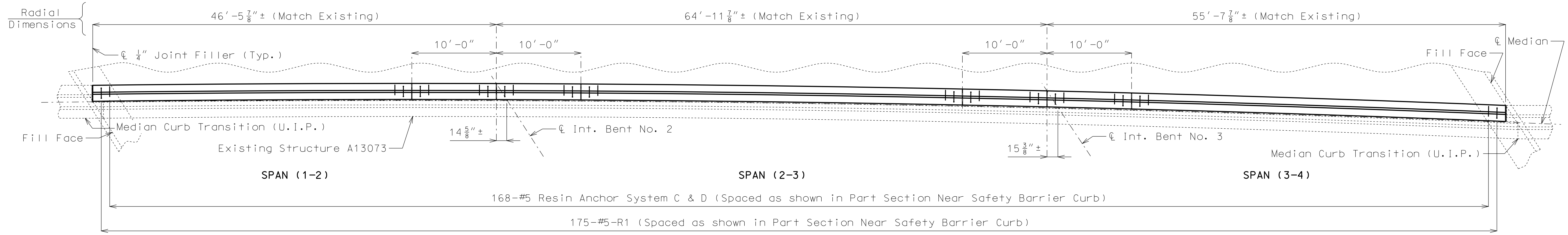
DATE PREPARED	
11/20/2017	
ROUTE 54	STATE MO
DISTRICT BR	SHEET NO. 2
COUNTY COLE	
JOB NO. J5P3118	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO. A13072	

DESCRIPTION

DATE

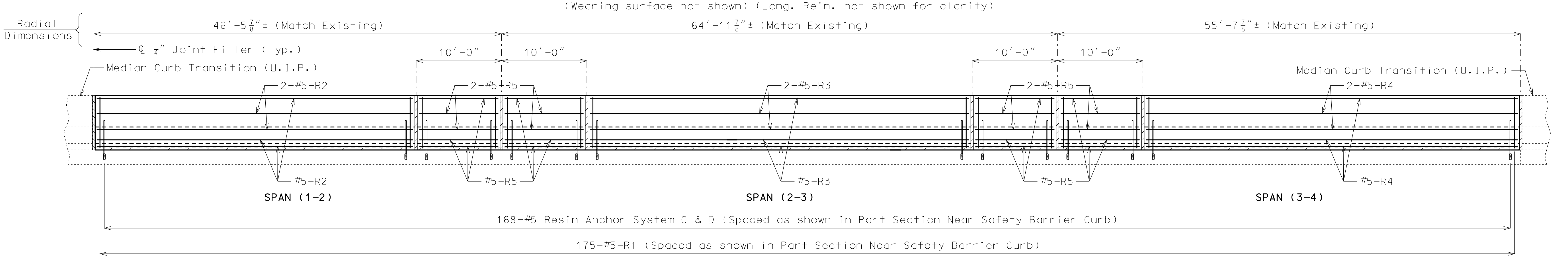
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.



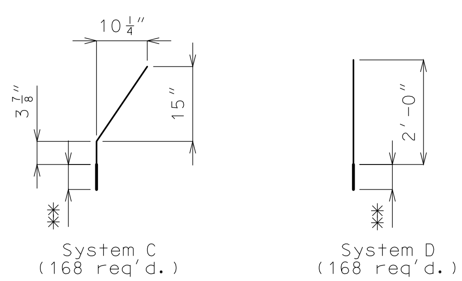
PART PLAN OF STRUCTURE SHOWING RIGHT BARRIER CURB

(Wearing surface not shown) (Long. Rein. not shown for clarity)



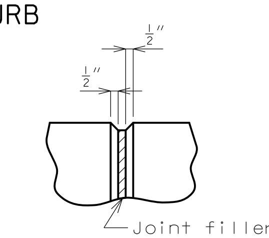
DEVELOPED ELEVATION NEAR RIGHT SAFETY BARRIER CURB

Notes: Longitudinal dimensions shown are along grade and are taken at top outside edge of Safety Barrier Curb.

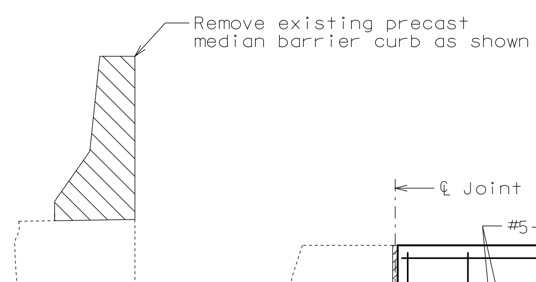


DETAILS OF RESIN ANCHOR SYSTEMS

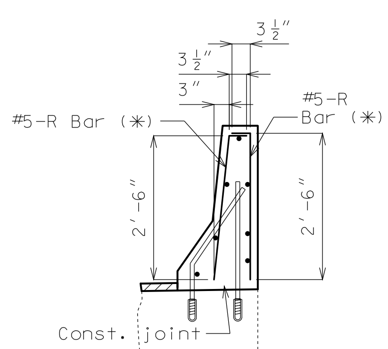
✻✻ Manufacturer's recommended embedment length (5" min.)



FILLED JOINT DETAIL

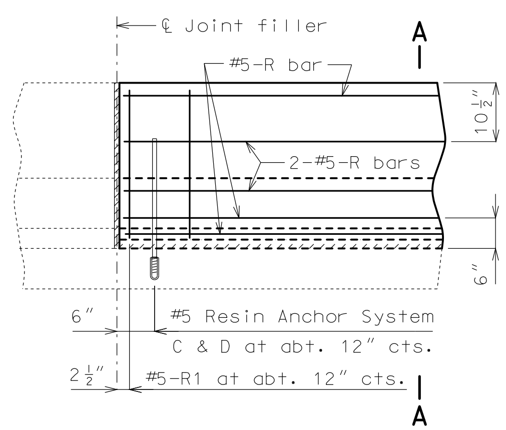


SECTION THRU EXISTING PRECAST MEDIAN CURB SHOWING CONCRETE REMOVAL

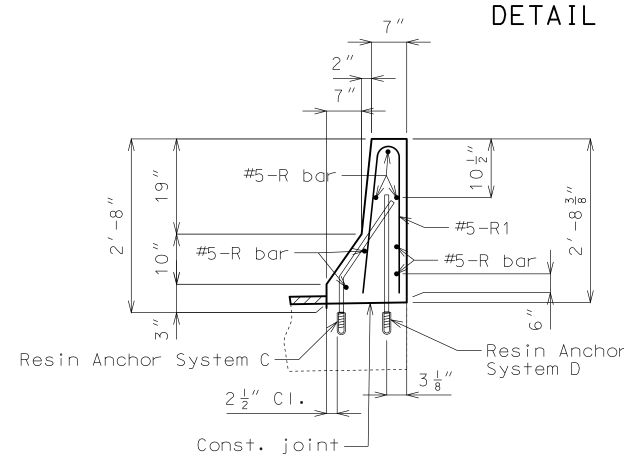


R-BAR PERMISSIBLE ALTERNATE SHAPE

(✻) The R1 bar may be separated into two bars as shown, at the contractor's option, only when slip forming is not used. (All dimensions are out to out.)



PART SECTION NEAR SAFETY BARRIER CURB (CAST-IN-PLACE CONVENTIONAL FORMING OPTION)



PART SECTION A-A

The cross-sectional area above the slab = 2.27 sq. ft.

Notes:

Removal of existing precast median barrier will be considered completely covered by the contract unit price for Curb Removal.

Top of safety barrier curb shall be built parallel to grade with barrier curb joints (except at end bents) normal to grade.

All exposed edges of safety barrier curb shall have either a 1/2-inch radius or a 3/8-inch bevel, unless otherwise noted.

Front Face of Safety Barrier Curb shall match slopes of existing median curb transition.

Payment for all concrete and reinforcement, complete in place, will be considered completely covered by the contract unit price for Safety Barrier Curb per linear foot.

Concrete in the safety barrier curb shall be Class B-1.

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

Concrete traffic barrier delineators shall be placed on top of the safety barrier curb as shown on Missouri Standard Plans 617.10 and in accordance with Sec 617. Concrete traffic barrier delineators will be considered completely covered by the contract unit price for Safety Barrier Curb.

For Resin Anchor notes, see Sheet No. 1.

CONVENTIONAL-FORMED SAFETY BARRIER CURB

Detailed Oct. 2017
Checked Oct. 2017

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

Sheet No. 3 of 6

STATE OF MISSOURI
ANOUSONE AROUNPRADITH
NUMBER PE-29317
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 11/14/2017	
ROUTE 54	STATE MO
DISTRICT BR	SHEET NO. 3
COUNTY COLE	
JOB NO. J5P3118	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO. A13072	

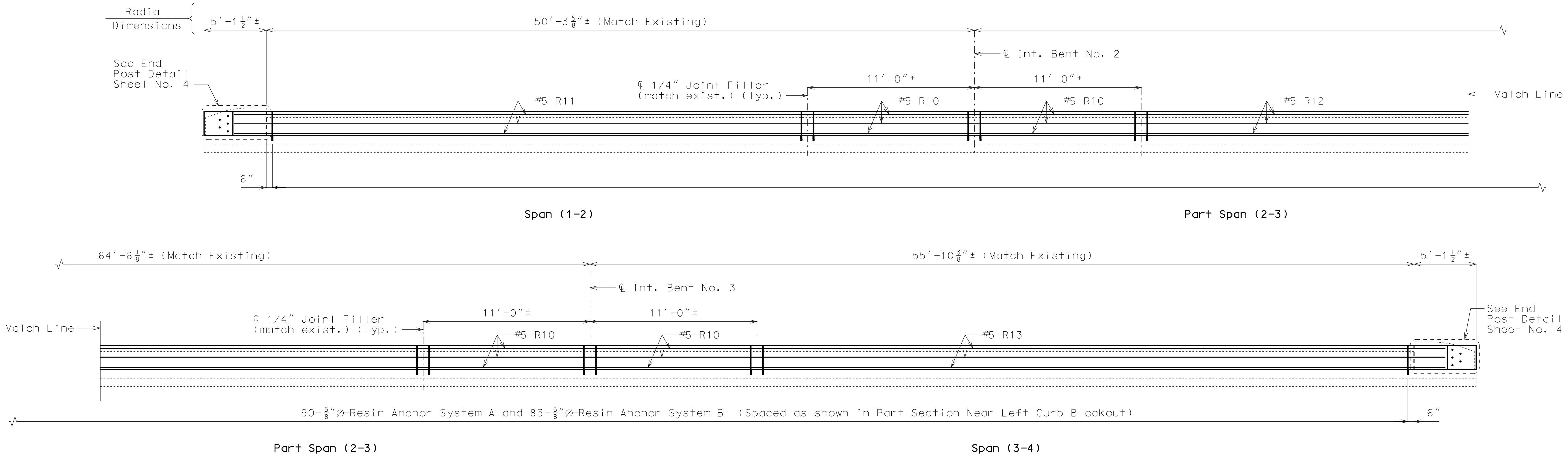
DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.



DEVELOPED SECTION NEAR LEFT CURB BLOCKOUT

Notes: Longitudinal dimensions shown are along grade and are taken at top outside edge of parapet.

Bridge rail not shown for clarity.

Notes:

Concrete in curb blockout shall be Class B-1 with f′c = 4000 psi.

Measurement of curb blockout is to the nearest linear foot, measured at the top outside edge of parapet from end of wing to end of wing. (Match existing curb and parapet)

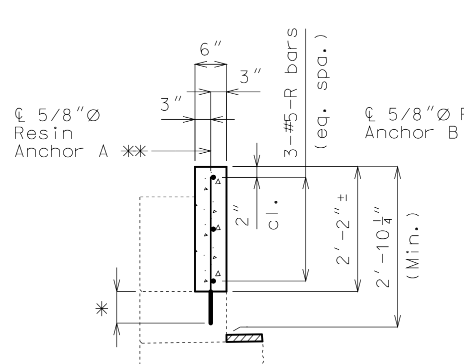
Payment for concrete, reinforcing steel, resin anchors, and any other work incidental to the curb blockout, complete in place, will be included in the contract unit price for Curb Blockout per linear foot.

All exposed edges of curb blockout shall have 1/2″ radius or 3/8″ bevel unless otherwise shown.

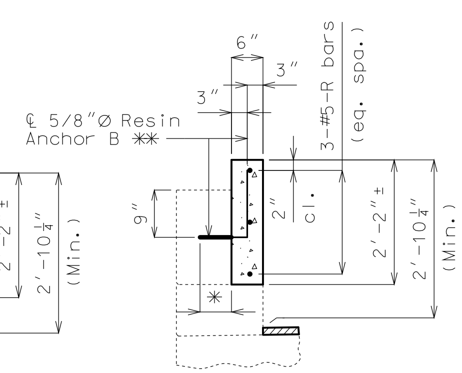
Cost of any concrete curb or parapet repair will be included in the contract unit price for Curb Blockout.

For Resin Anchor details and additional notes, see Sheet No. 1.

Work this sheet with Sheet No. 4.

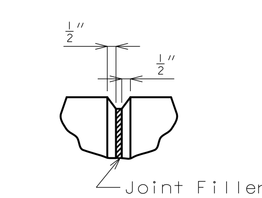


SECTION A-A

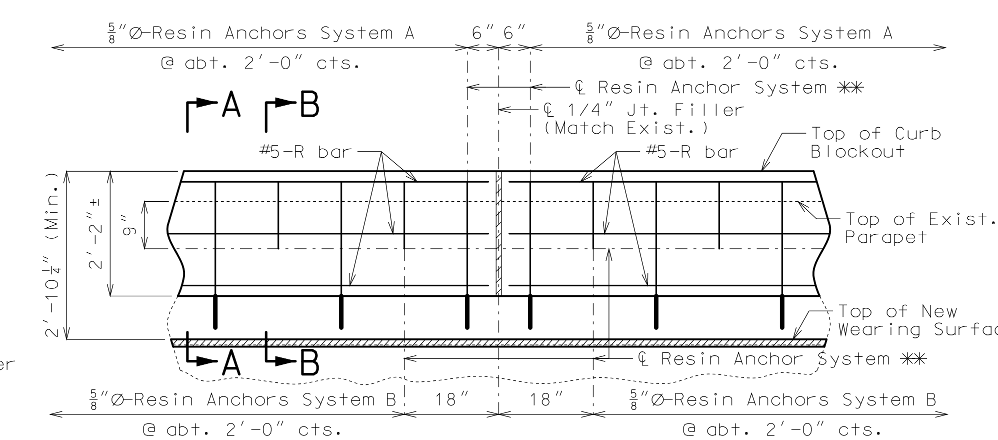


SECTION B-B

✱ Manufacturer's recommended embedment length (5″ min.)



FILLED JOINT DETAIL



✱✱ Shift resin anchors where necessary to clear existing anchor bolts for bridge rail, miss curb outlets (if present) and clear existing reinforcement.

PART SECTION NEAR LEFT CURB BLOCKOUT

Detailed Oct. 2017
Checked Oct. 2017

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

STATE OF MISSOURI
ANOUSONE AROUNPRADITH
NUMBER PE-29317
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

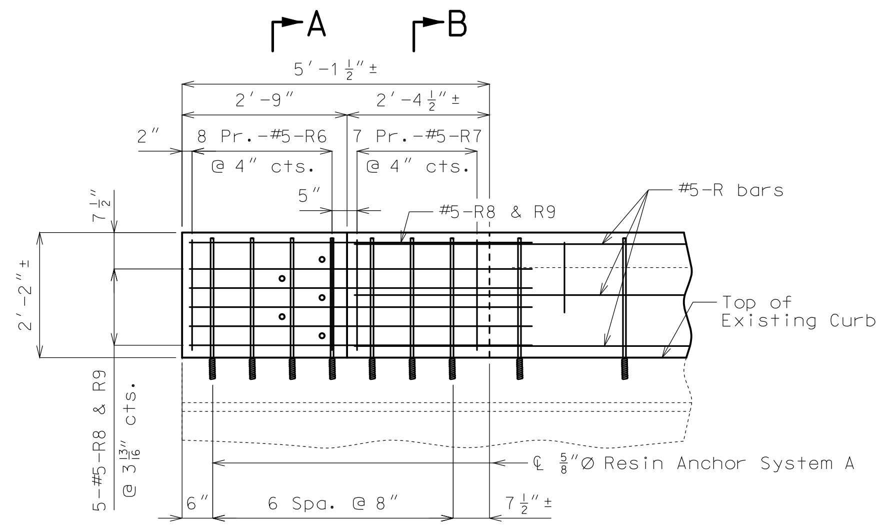
DATE PREPARED	11/14/2017
ROUTE	54
STATE	MO
DISTRICT	BR
SHEET NO.	4
COUNTY	COLE
JOB NO.	J5P3118
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	A13072

DESCRIPTION

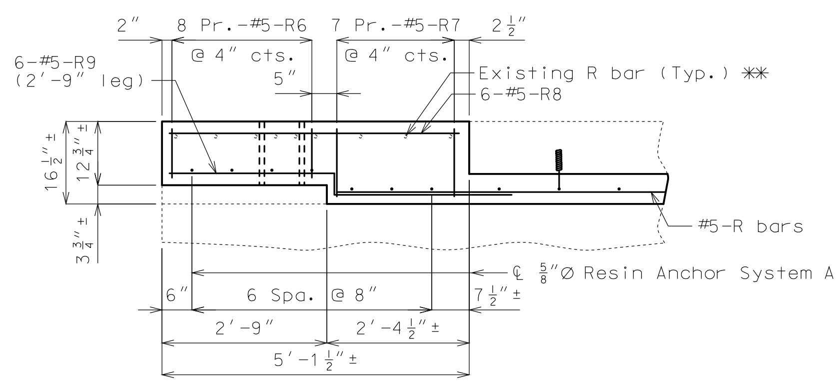
DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

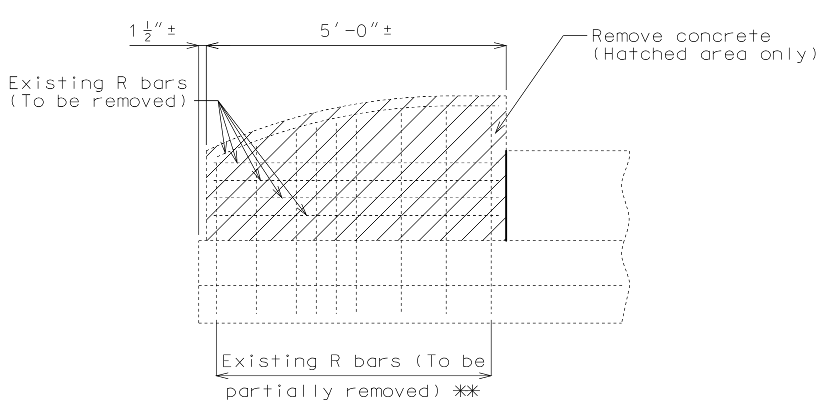
IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.



ELEVATION SHOWING END POST REINFORCEMENT



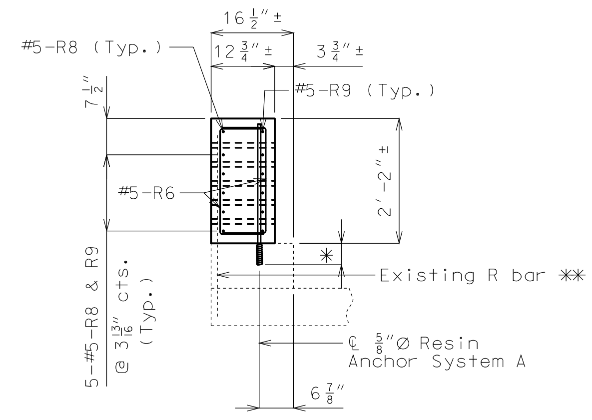
PLAN SHOWING END POST REINFORCEMENT



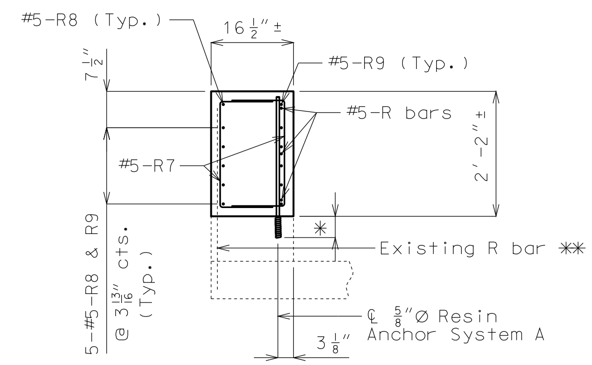
PART ELEVATION SHOWING END POST CONCRETE REMOVAL

Note:

Cost of removing existing end posts will be considered completely covered by the contract unit price for Curb Blockout.

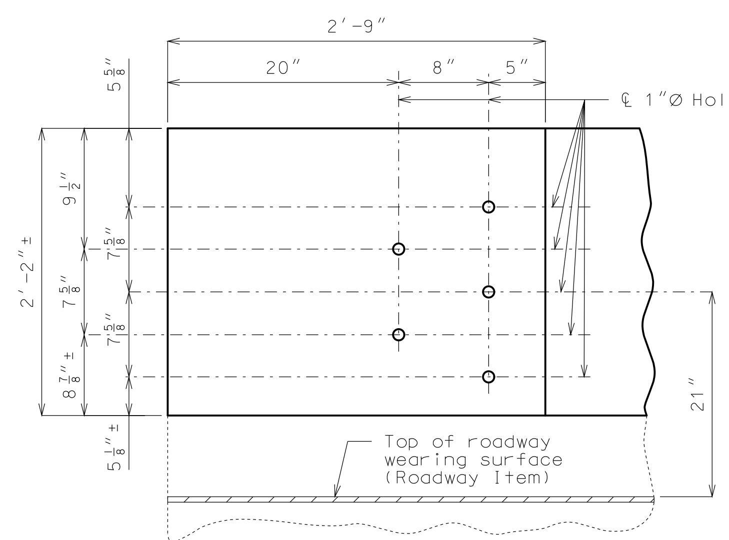


SECTION A-A



SECTION B-B

✻ Manufacturer's recommended embedment length (5″ min.)



DETAILS OF GUARD RAIL ATTACHMENT

Notes:

All exposed edges of curb blockout shall have 1/2″ radius or 3/8″ bevel unless otherwise shown.

Use a minimum lap of 3′-1″ for #5 horizontal curb blockout bars.

Payment for concrete, reinforcing steel, resin anchor systems, and any other work incidental to the curb blockout, complete in place, will be included in the contract unit price for Curb Blockout per linear foot.

Cost of any concrete curb or parapet repair will be included in the contract unit price for Curb Blockout.

Aluminum railing is not shown for clarity.

All reinforcement shall be epoxy coated.

Bars bonded in old concrete not removed shall be cleanly stripped and embedded into new concrete.

For Details and additional notes of Resin Anchors, see Sheet No. 1.

✻✻ Vertical leg of existing R bar at the outside face shall be cleaned and reused. Horizontal leg and vertical leg at the roadway face shall be removed to one inch below concrete removal surface and the resulting holes shall be filled with a qualified special mortar.

DETAILS OF END POST AT END BENTS

Detailed Oct. 2017
Checked Oct. 2017

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

STATE OF MISSOURI
ANOUSONE AROUNPRADITH
NUMBER PE-29317
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED	11/14/2017
ROUTE	54
STATE	MO
DISTRICT	BR
SHEET NO.	5
COUNTY	COLE
JOB NO.	J5P3118
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	A13072

DESCRIPTION | DATE

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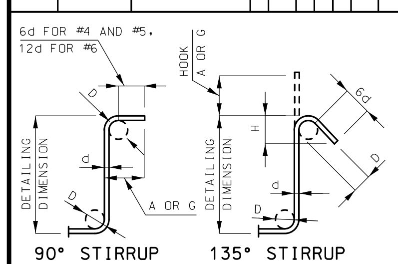
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
MoDOT
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

BILL OF REINFORCING STEEL

NO. REQ'D.	MARK NO. SIZE	MARK NO. MARK	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	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.
			SAFETY																
			BARRIER CURB																
175	5	R1	BARRIER CURB	E	26					2 6.000	4.250	2 6.125			2 6.000	3.000	5 2	5 2	943
7	5	R2	BARRIER CURB	E	20					36 2.000							36 2	36 2	264
7	5	R3	BARRIER CURB	E	20					44 8.000							44 8	44 8	326
7	5	R4	BARRIER CURB	E	20					44 4.000							44 4	44 4	324
28	5	R5	BARRIER CURB	E	20					9 9.000							9 9	9 9	285
			CURB																
			BLOCKOUT																
32	5	R6	BLOCKOUT	E	10	S					9.750	23.000					3 7	3 4	111
28	5	R7	BLOCKOUT	E	10	S					13.500	23.000					4 2	4 0	117
12	5	R8	BLOCKOUT	E	20					4 10.000							4 10	4 10	60
12	5	R9	BLOCKOUT	E	28	S					2 9.000	3.750	3 3.000				6 4	6 1	76
12	5	R10	BLOCKOUT	E	20					10 9.000							10 9	10 9	135
3	5	R11	BLOCKOUT	E	20					41 5.000							41 5	41 5	130
3	5	R12	BLOCKOUT	E	20					42 3.000							42 3	42 3	132
3	5	R13	BLOCKOUT	E	20					46 11.000							46 11	46 11	147
			TOTALS																
	5			E															3050
			TOTAL																0
			TOTAL	E															3050
			Slab on																
			Girder																
	5			E															908
			TOTAL																908
			Safety																
			Barrier																
			Curb																
	5			E															2142
			TOTAL																2142

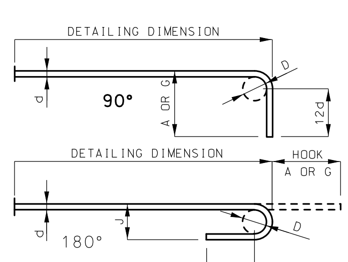
BILL OF REINFORCING STEEL

NO. REQ'D.	MARK NO. SIZE	MARK NO. MARK	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	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.



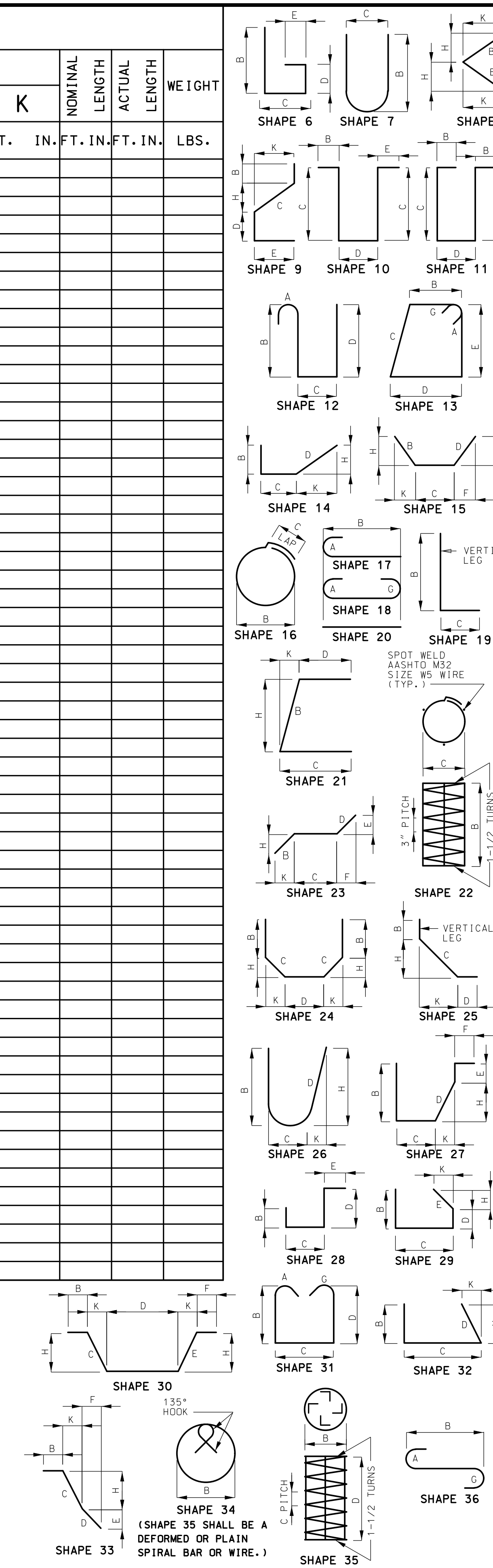
STIRRUP HOOK DIMENSIONS				
GRADES 40 - 50 - 60 KSI				
BAR SIZE	D (IN.)	90° HOOK	135° HOOK	
		HOOK A OR G	HOOK A OR G	APPROX. H
#4	2″	4 1/2″	4 1/2″	3″
#5	2 1/2″	6″	5 1/2″	3 3/4″
#6	4 1/2″	12″	8″	4 1/2″

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		90° HOOKS
		A OR G	J	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″

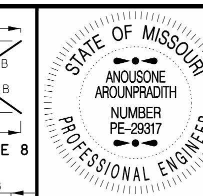
NOTE:
ALL STANDARD HOOKS AND BENDS OTHER THAN 180 DEGREE ARE TO BE BENT WITH SAME PROCEDURE AS FOR 90 DEGREE STANDARD HOOKS.
HOOKS AND BENDS SHALL BE IN ACCORDANCE WITH THE PROCEDURES AS SHOWN ON THIS SHEET.
E = EPOXY COATED REINFORCEMENT.
S = STIRRUP.
X = BAR IS INCLUDED IN SUBSTRUCTURE QUANTITIES.
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.



BENDING DIAGRAMS

Detailed Oct. 2017
Checked Oct. 2017

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



THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED	11/14/2017
ROUTE	54
STATE	MO
DISTRICT	BR
SHEET NO.	6
COUNTY	COLE
JOB NO.	J5P3118
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	A13072

DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

U.I.P. AND REHAB. EXISTING (46′-65′-54′) CONTINUOUS VOIDED SLAB SPANS

SEC/SUR 12	TWP 44N	RGE 12W

GENERAL NOTES:

Design Specifications:
2002 - AASHTO LFD (17th Edition) Standard Specifications
Bridge Deck Rating = 6

Design Unit Stresses:

Class B-1 Concrete	f′c = 4,000 psi
Reinforcing Steel (Grade 60)	fy = 60,000 psi

Reinforcing Steel:
Minimum clearance to reinforcing steel shall be 1-1/2″, unless otherwise shown.

All curb blockout steel shall be epoxy coated.

Joint Filler:
All joint filler shall be in accordance with Sec 1057 for preformed sponge rubber expansion and partition joint filler, except as noted.

Resin Anchors:
The contractor shall use one of the qualified resin anchor systems in accordance with Sec 1039.

The minimum embedment depth in concrete with f′c = 4,000 psi for the resin anchor system shall be that required to meet the minimum ultimate pullout strength in accordance with Sec 1039 but shall not be less than 5″.

An epoxy coated #5 Grade 60 reinforcing bar shall be substituted for the 5/8″ Ø threaded rod.

Cost of furnishing and installing the resin anchor system A and B complete-in-place will be considered completely covered by the contract unit price for Curb Blockout.

Cost of furnishing and installing the resin anchor system C and D complete-in-place will be considered completely covered by the contract unit price for Safety Barrier Curb.

Concrete Protective Coatings:
Protective coating for concrete bents and piers (Epoxy) shall be applied as shown on the bridge plans and in accordance with Sec 711.

Miscellaneous:
Traffic to be maintained on structure during construction. See roadway plans for traffic control.

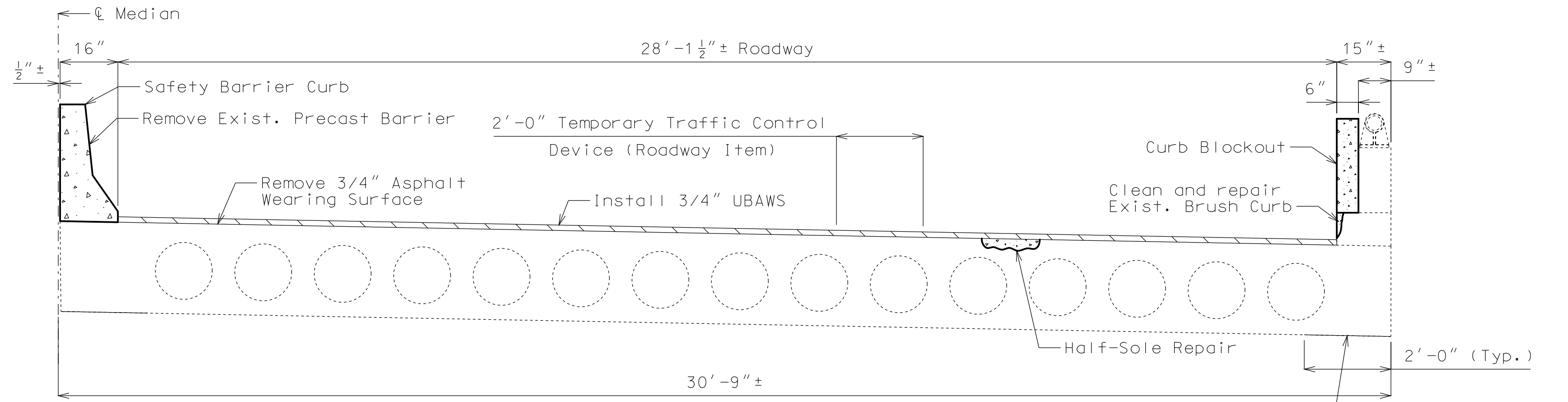
All exposed edges of curb blockout shall have either a 1/2″ radius or a 3/8″ bevel unless otherwise shown.

Outline of old work is indicated by light dashed lines. Heavy line indicate new work.

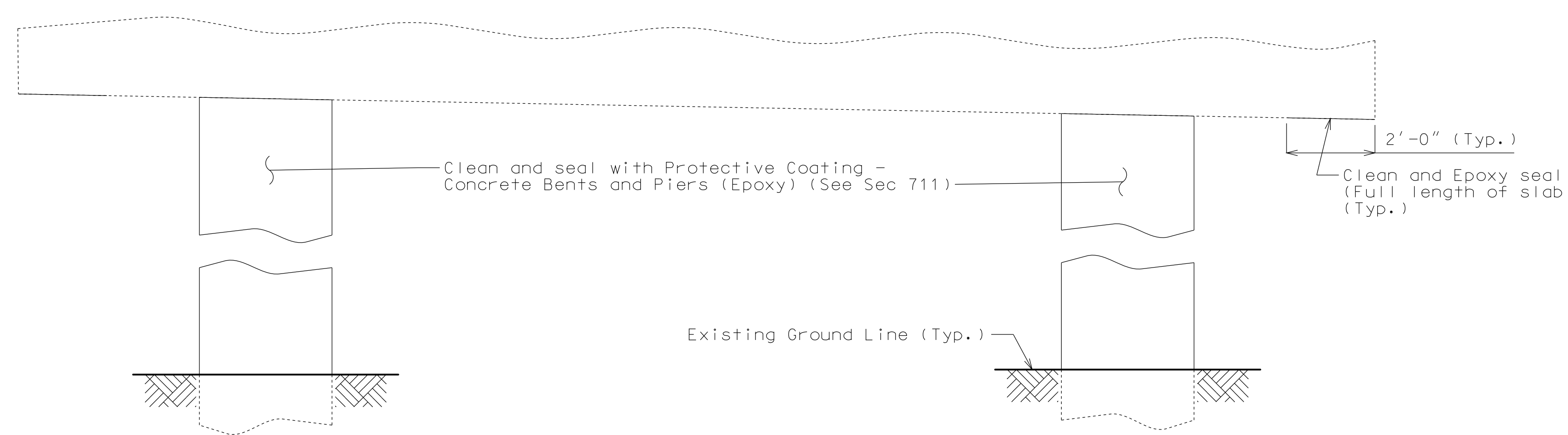
Contractor shall verify all dimensions in field before ordering new material.

Roadway Surfacing adjacent to bridge ends shall match new bridge deck surface (Roadway Item).

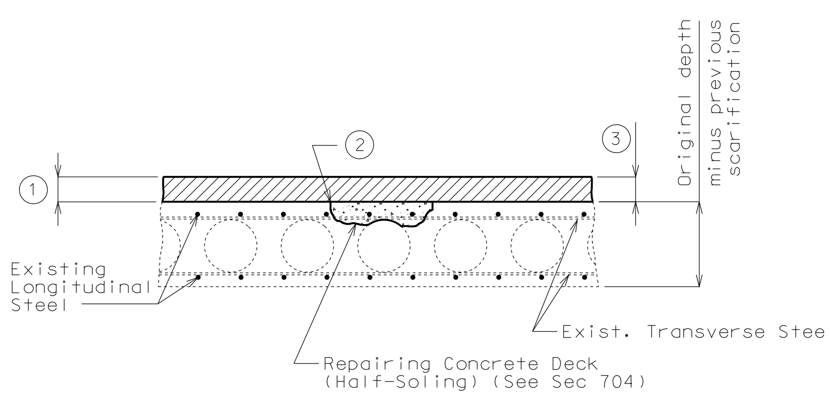
Existing bridge rail may be removed and disposed of at the contractor′s option. Removal and disposal cost will be considered completely covered by the contract unit price for Curb Blockout.



SECTION THRU SLAB

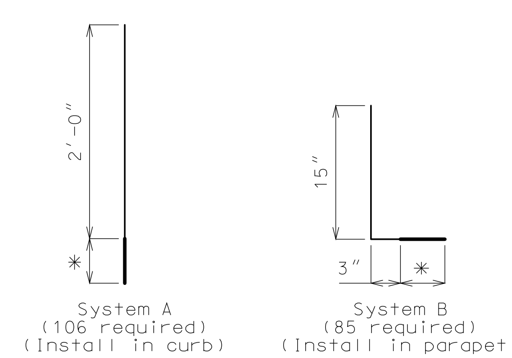


PART ELEVATION OF BENTS NO. 2 AND 3 SHOWING PROTECTIVE COATING



HALF-SOLED REPAIR

1. Remove existing wearing surface.
2. One inch vertical side shall be established outside the deteriorated area. See Sec 704.
3. 3/4″ (min.) for Ultra-thin Bond Asphalt Wearing Surface (UBAWS)



DETAILS OF RESIN ANCHOR SYSTEM

* Manufacturer′s recommended embedment length (5″ min.)

Estimated Quantities

Item		Total
Removal of Asphalt Wearing Surface	square foot	4758
Curb Removal	linear foot	167
Ultrathin Bonded Wearing Surface (UBAWS), Grade C, 3/4″ thick	square yard	529
Safety Barrier Curb	linear foot	167
** Curb Blockout	linear foot	185
Repairing Concrete Deck (Half-Soling)	square foot	200
Clean and Epoxy Seal	square foot	677
Protective Coating - Concrete Bents and Piers (Epoxy)	lump sum	1

** Cost of cleaning and repairing existing brush curb shall be included with the contract unit price for Curb Blockout.

BRIDGE: ROUTE 54 W.B. OVER BROADWAY ST.

HWY 54 FROM ROUTE 50 MO TO ROUTE 179
ABOUT 0.7 MILES WEST OF HWY 50
STA. 46+01.03± (MATCH EXISTING)

STD. 617.20
STD. 606.60
STD. 617.10

Detailed Oct. 2017
Checked Oct. 2017

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

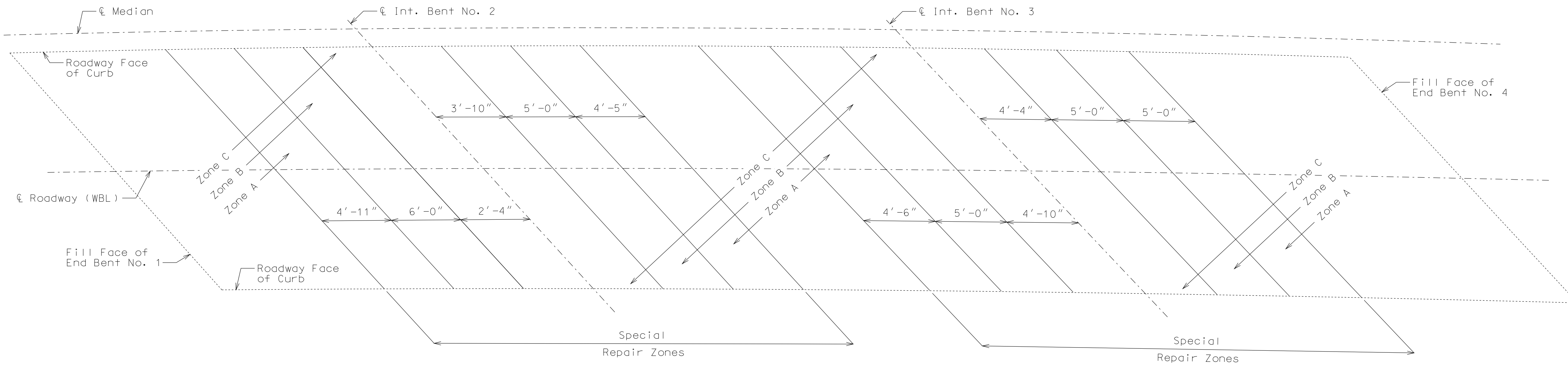
STATE OF MISSOURI
ANOUSONE AROUNPRADITH
NUMBER PE-29317
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED	11/16/2017
ROUTE	54
STATE	MO
DISTRICT	BR
SHEET NO.	1
COUNTY	COLE
JOB NO.	J5P3118
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	A13073

DESCRIPTION
DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.



PLAN OF EXISTING SLAB SHOWING SPECIAL REPAIR ZONES

Notes:
Any half-soling required in the areas designated as special repair zones shall be completed in alphabetical sequence. Any repair in the remainder of the bridge that is adjacent to Zone A and not designated as a special repair zone shall be completed after work in special repair zones.

Removal and repair shall be completed in one special repair zone and concrete shall have attained a compressive strength of 3200 psi before work can be started in the next special repair zone. Before placing concrete in areas adjacent to areas of subsequent repair, the concrete shall be separated with a material such as polyethylene sheets to aid in removal of old concrete.

Zones with the same letter designation may be repaired at the same time.

If any single repair area does not exceed 4 square feet in size and the total repair within a special repair zone does not exceed 12 square feet, the special repair zone requirement does not apply for that zone. Any damage sustained to the void tube as a result of the contractor's operations shall be patched or replaced as required by the engineer at the contractor's expense.

An exposed void in the deck shall be patched as approved by the engineer in a manner that shall maintain the void area completely free of concrete. Cost of patching an exposed void will be considered completely covered by the contract unit price for Repairing Concrete Deck (Half-Soling).

Detailed Oct. 2017
Checked Oct. 2017

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

STATE OF MISSOURI
ANOUSONE AROUNPRADITH
NUMBER PE-29317
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED	11/20/2017
ROUTE	54
STATE	MO
DISTRICT	BR
SHEET NO.	2
COUNTY	COLE
JOB NO.	J5P3118
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	A13073

DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

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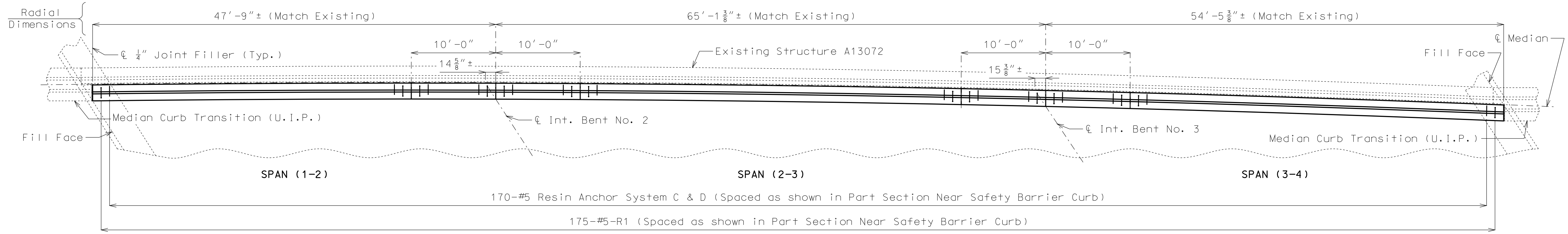
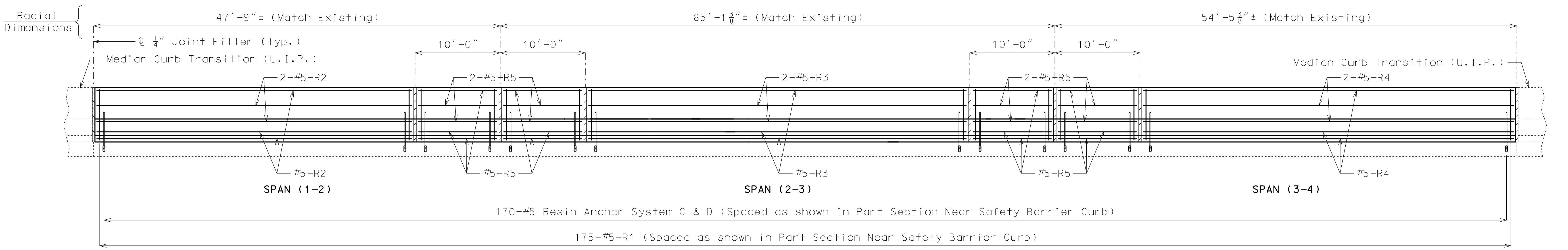


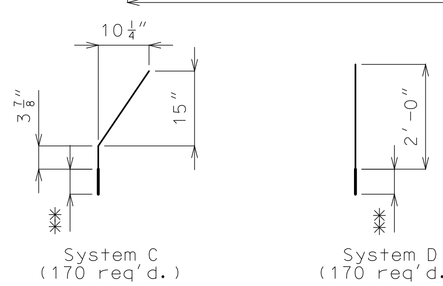
PART PLAN OF STRUCTURE SHOWING LEFT BARRIER CURB

(Wearing surface not shown) (Long. Rein. not shown for clarity)



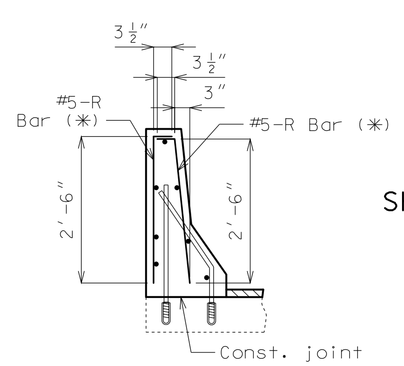
DEVELOPED SECTION NEAR LEFT SAFETY BARRIER CURB

Notes: Longitudinal dimensions shown are along grade and are taken at top outside edge of Safety Barrier Curb.



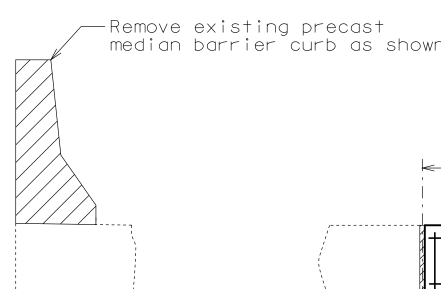
DETAILS OF RESIN ANCHOR SYSTEMS

✻✻ Manufacturer's recommended embedment length (5" min.)

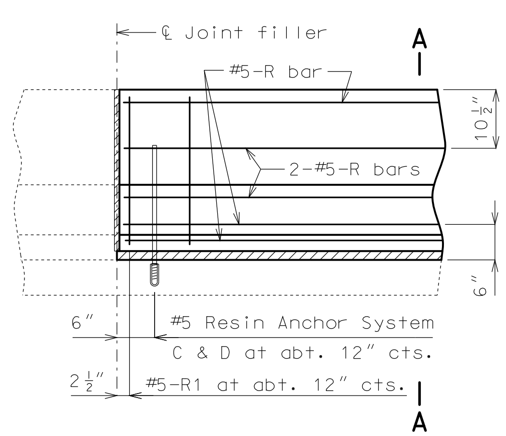


R-BAR PERMISSIBLE ALTERNATE SHAPE

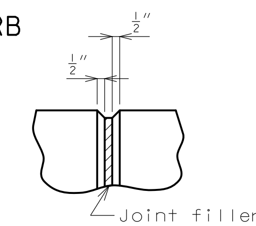
(✻) The R1 bar may be separated into two bars as shown, at the contractor's option, only when slip forming is not used. (All dimensions are out to out.)



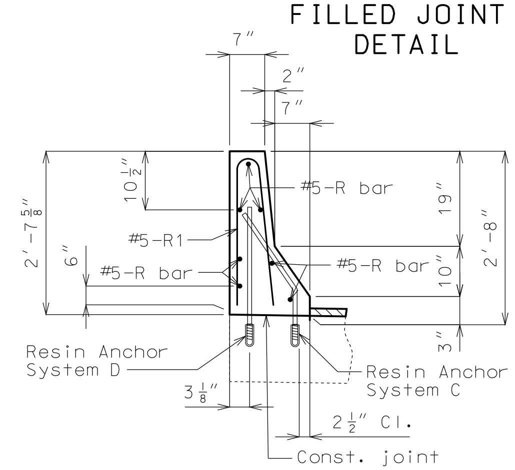
SECTION THRU EXISTING PRECAST MEDIAN CURB SHOWING CONCRETE REMOVAL



PART SECTION NEAR SAFETY BARRIER CURB (CAST-IN-PLACE CONVENTIONAL FORMING OPTION)



FILLED JOINT DETAIL



PART SECTION A-A

The cross-sectional area above the slab = 2.24 sq. ft.

Notes:

Removal of existing precast median barrier will be considered completely covered by the contract unit price for Curb Removal.

Top of safety barrier curb shall be built parallel to grade with barrier curb joints (except at end bents) normal to grade.

All exposed edges of safety barrier curb shall have either a 1/2-inch radius or a 3/8-inch bevel, unless otherwise noted.

Front Face of Safety Barrier Curb shall match slopes of existing median curb transition.

Payment for all concrete and reinforcement, complete in place, will be considered completely covered by the contract unit price for Safety Barrier Curb per linear foot.

Concrete in the safety barrier curb shall be Class B-1.

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

Concrete traffic barrier delineators shall be placed on top of the safety barrier curb as shown on Missouri Standard Plans 617.10 and in accordance with Sec 617. Concrete traffic barrier delineators will be considered completely covered by the contract unit price for Safety Barrier Curb.

For Resin Anchor notes, see Sheet No. 1.

CONVENTIONAL-FORMED SAFETY BARRIER CURB

Detailed Oct. 2017
Checked Oct. 2017

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

STATE OF MISSOURI
ANOUSONE AROUNPRADITH
NUMBER PE-29317
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED	11/14/2017
ROUTE 54	STATE MO
DISTRICT BR	SHEET NO. 3
COUNTY	COLE
JOB NO.	J5P3118
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	A13073

DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

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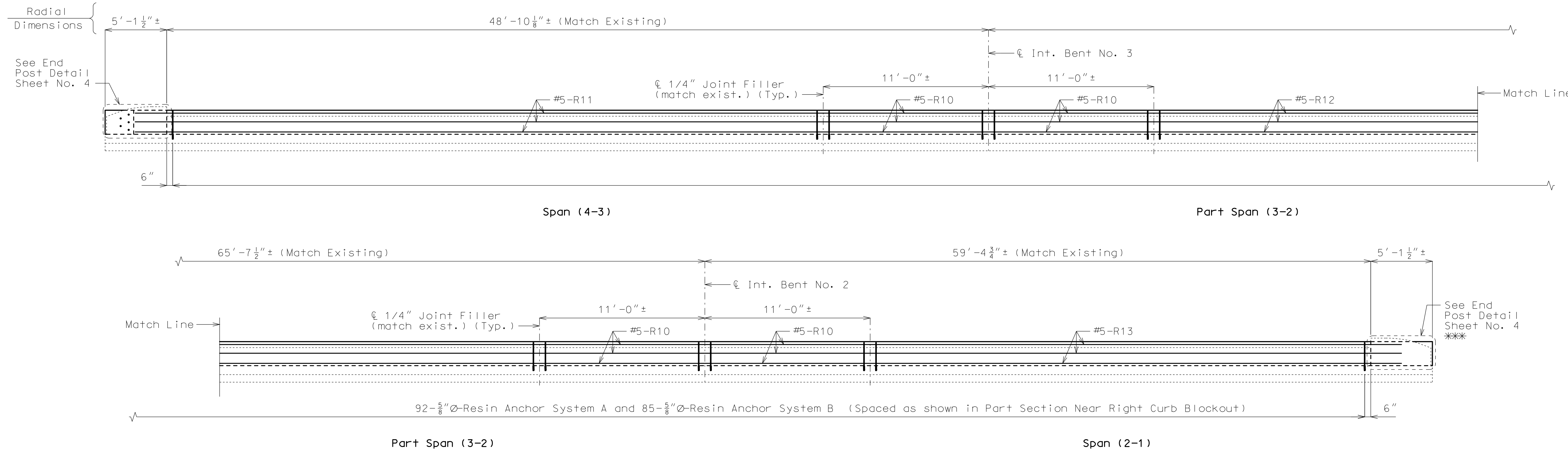


DEVELOPED SECTION NEAR RIGHT CURB BLOCKOUT

Notes: Longitudinal dimensions shown are along grade and are taken at top outside edge of parapet.

Bridge rail not shown for clarity.

*** Concrete recess and guardrail attachment holes not required for Westbound Approach at End Bent No. 1.

Notes:

Concrete in curb blockout shall be Class B-1 with f'c = 4000 psi.

Measurement of curb blockout is to the nearest linear foot, measured at the top outside edge of parapet from end of wing to end of wing. (Match existing curb and parapet)

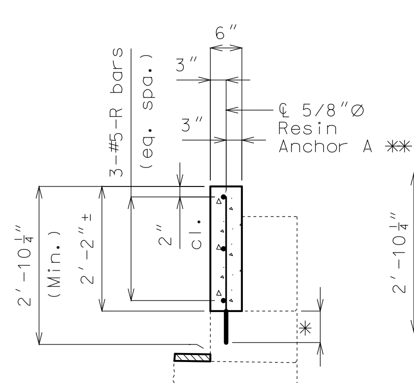
Payment for concrete, reinforcing steel, resin anchors, and any other work incidental to the curb blockout, complete in place, will be included in the contract unit price for Curb Blockout per linear foot.

All exposed edges of curb blockout shall have 1/2" radius or 3/8" bevel unless otherwise shown.

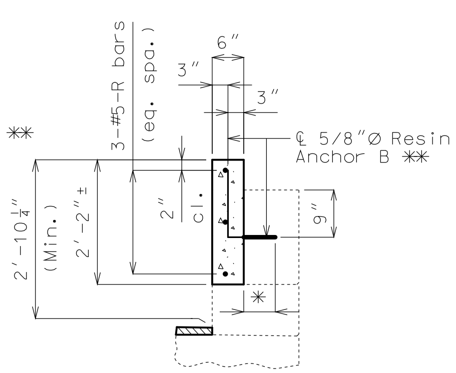
Cost of any concrete curb or parapet repair will be included in the contract unit price for Curb Blockout.

For Resin Anchor details, and additional notes, see Sheet No. 1.

Work this sheet with Sheet No. 4.

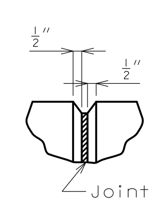


SECTION A-A

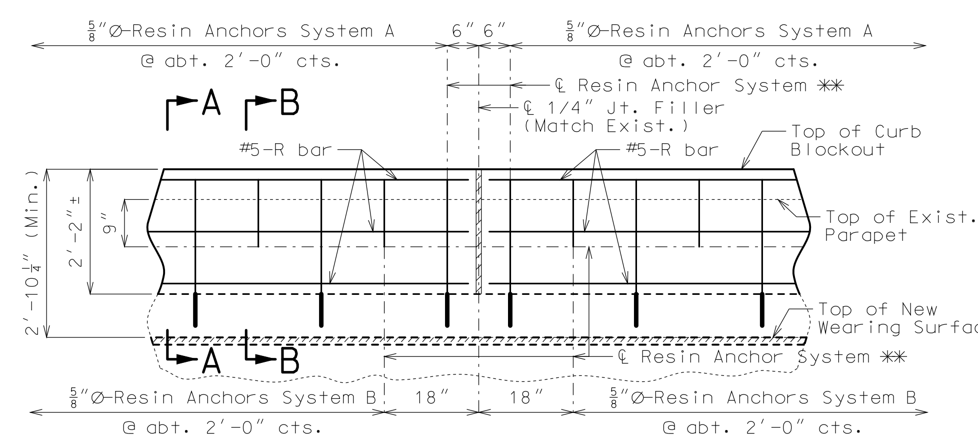


SECTION B-B

* Manufacturer's recommended embedment length (5" min.)



FILLED JOINT DETAIL



** Shift resin anchors where necessary to clear existing anchor bolts for bridge rail, miss curb outlets (if present) and clear existing reinforcement.

PART SECTION NEAR RIGHT CURB BLOCKOUT

Detailed Oct. 2017
Checked Oct. 2017

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

Sheet No. 4 of 6

STATE OF MISSOURI
ANOUSONE AROUNPRADITH
NUMBER PE-29317
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED	11/14/2017
ROUTE 54	STATE MO
DISTRICT BR	SHEET NO. 4
COUNTY	COLE
JOB NO.	J5P3118
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	A13073

DESCRIPTION

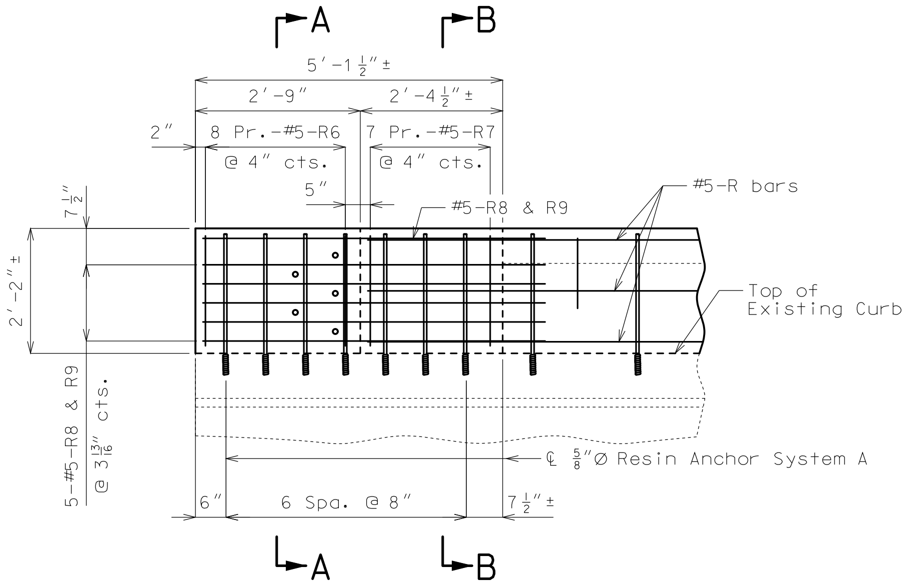
DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

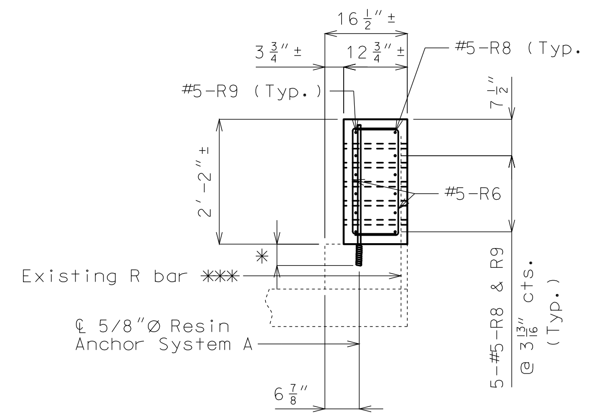
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

MoDOT

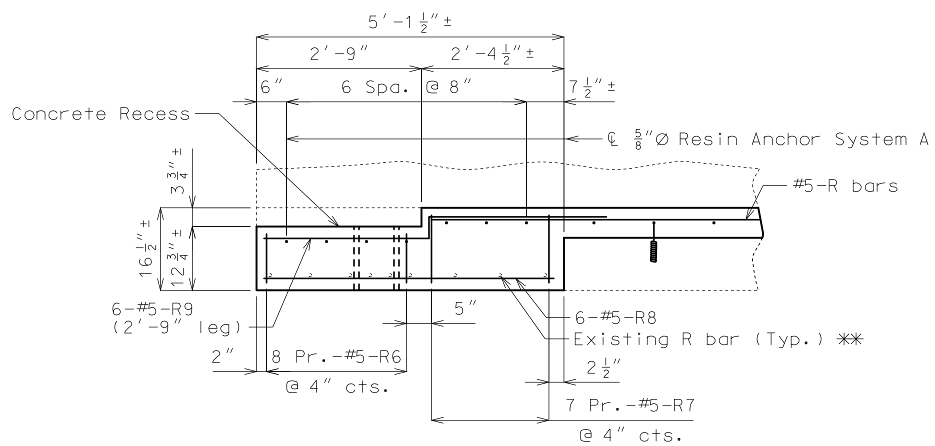
IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.



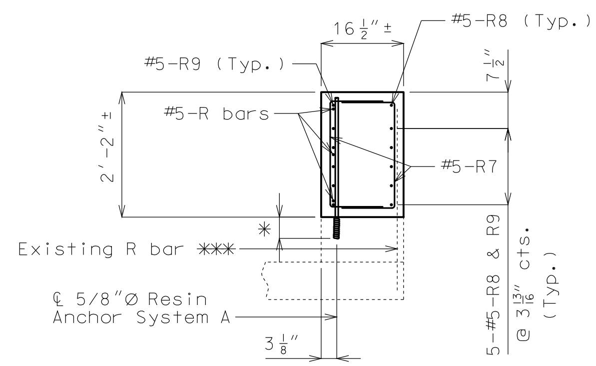
ELEVATION SHOWING END POST REINFORCEMENT **



SECTION A-A **

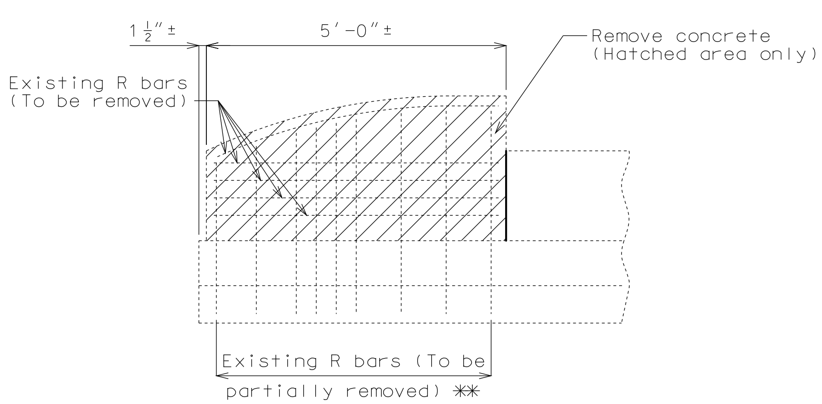


PLAN SHOWING END POST REINFORCEMENT **



SECTION B-B

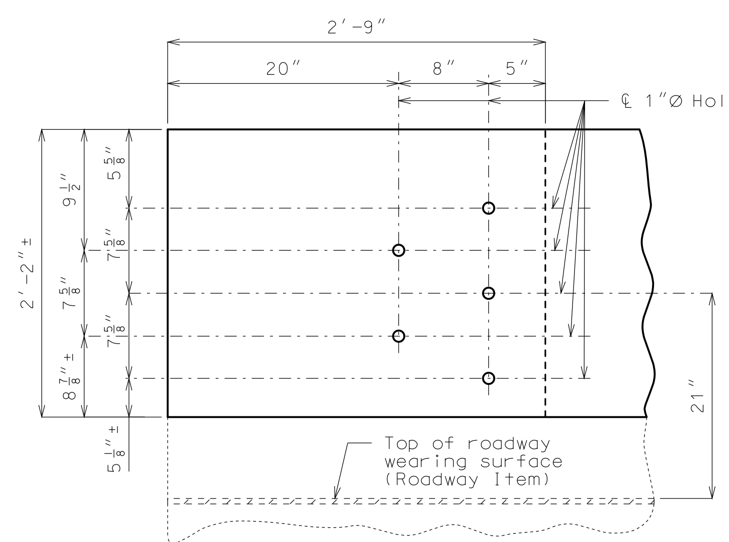
* Manufacturer's recommended embedment length (5" min.)



PART ELEVATION SHOWING END POST CONCRETE REMOVAL

Note:

Cost of removing existing end posts will be considered completely covered by the contract unit price for Curb Blockout.



DETAILS OF GUARD RAIL ATTACHMENT **

Notes:

All exposed edges of curb blockout shall have 1/2" radius or 3/8" bevel unless otherwise shown.

Use a minimum lap of 3'-1" for #5 horizontal curb blockout bars.

Payment for concrete, reinforcing steel, resin anchor systems, and any other work incidental to the curb blockout, complete in place, will be included in the contract unit price for Curb Blockout per linear foot.

Cost of any concrete curb or parapet repair will be included in the contract unit price for Curb Blockout.

Aluminum railing is not shown for clarity.

All reinforcement shall be epoxy coated.

Bars bonded in old concrete not removed shall be cleanly stripped and embedded into new concrete.

For Details and additional notes of Resin Anchors, see Sheet No. 1.

** Concrete recess and guardrail attachment holes not required for Westbound Approach at End Bent No. 1.

*** Vertical leg of existing R bar at the outside face shall be cleaned and reused. Horizontal leg and vertical leg at the roadway face shall be removed to one inch below concrete removal surface and the resulting holes shall be filled with a qualified special mortar.

DETAILS OF END POST AT END BENTS

Detailed Oct. 2017
Checked Oct. 2017

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

STATE OF MISSOURI
ANOUSONE AROUNPRADITH
NUMBER PE-29317
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED	11/14/2017
ROUTE 54	STATE MO
DISTRICT BR	SHEET NO. 5
COUNTY	COLE
JOB NO.	J5P3118
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	A13073

DESCRIPTION | DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

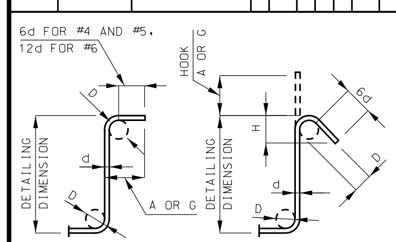
IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

BILL OF REINFORCING STEEL

NO. REQ'D.	SIZE	MARK	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	B FT. IN.	C FT. IN.	D FT. IN.	E FT. IN.	F FT. IN.	H FT. IN.	K FT. IN.	NOMINAL LENGTH FT.	NOMINAL LENGTH IN.	ACTUAL LENGTH FT.	ACTUAL LENGTH IN.	WEIGHT LBS.
			SAFETY																		
			BARRIER CURB																		
175	5	R1	BARRIER CURB	E	26					2 6.000	4.250	2 6.125			2 6.000	3.000	5	2	5	2	943
7	5	R2	BARRIER CURB	E	20					37 6.000							37	6	37	6	274
7	5	R3	BARRIER CURB	E	20					44 10.000							44	10	44	10	327
7	5	R4	BARRIER CURB	E	20					44 2.000							44	2	44	2	322
28	5	R5	BARRIER CURB	E	20					9 9.000							9	9	9	9	285
			CURB																		
			BLOCKOUT																		
32	5	R6	BLOCKOUT	E	10	S					9.750	23.000					3	7	3	4	111
28	5	R7	BLOCKOUT	E	10	S					13.500	23.000					4	2	4	0	117
12	5	R8	BLOCKOUT	E	20					4 10.000							4	10	4	10	60
12	5	R9	BLOCKOUT	E	28	S					2 9.000	3.750	3 3.000				6	4	6	1	76
12	5	R10	BLOCKOUT	E	20					10 9.000							10	9	10	9	135
3	5	R11	BLOCKOUT	E	20					50 6.000							50	6	50	6	158
3	5	R12	BLOCKOUT	E	20					43 4.000							43	4	43	4	136
3	5	R13	BLOCKOUT	E	20					39 11.000							39	11	39	11	125
			TOTALS																		
	5			E																	3069
			TOTAL																		0
			TOTAL	E																	3069
			Slab on																		
			Girder																		
	5			E																	918
			TOTAL																		918
			Safety																		
			Barrier																		
			Curb																		
	5			E																	2151
			TOTAL																		2151

BILL OF REINFORCING STEEL

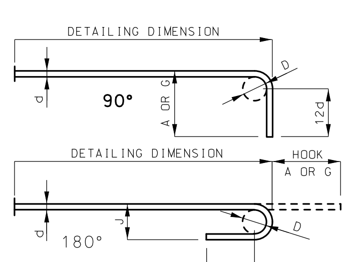
NO. REQ'D.	SIZE	MARK	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	B FT. IN.	C FT. IN.	D FT. IN.	E FT. IN.	F FT. IN.	H FT. IN.	K FT. IN.	NOMINAL LENGTH FT.	NOMINAL LENGTH IN.	ACTUAL LENGTH FT.	ACTUAL LENGTH IN.	WEIGHT LBS.



90° STIRRUP 135° STIRRUP

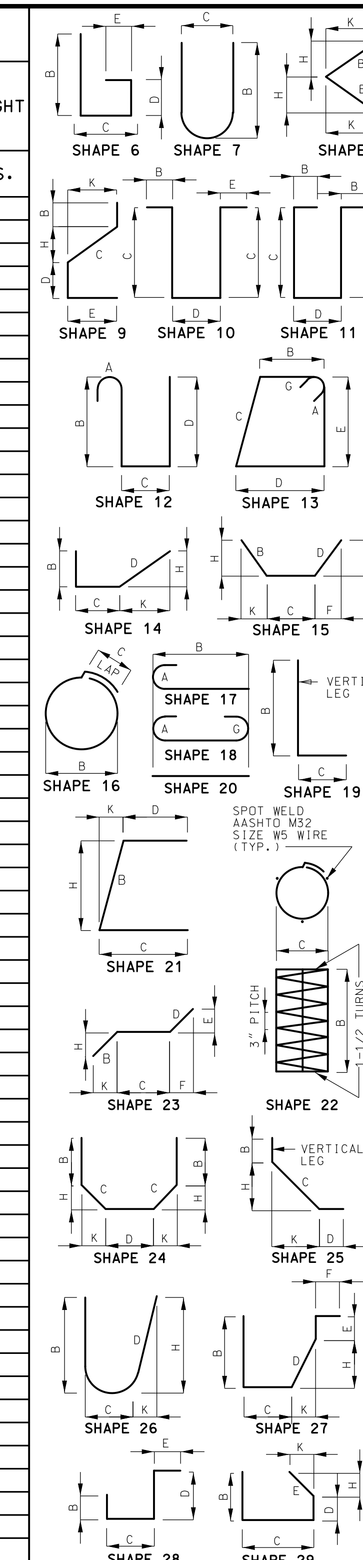
STIRRUP HOOK DIMENSIONS				
GRADES 40 - 50 - 60 KSI				
BAR SIZE	D (IN.)	90° HOOK	135° HOOK	
		HOOK A OR G	HOOK A OR G	APPROX. H
#4	2″	4 1/2″	4 1/2″	3″
#5	2 1/2″	6″	5 1/2″	3 3/4″
#6	4 1/2″	12″	8″	4 1/2″

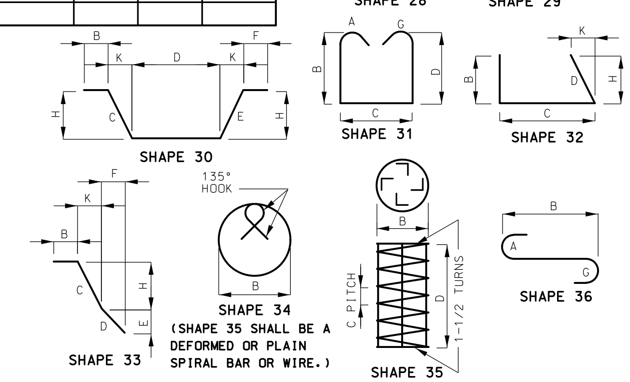
NOTE: UNLESS OTHERWISE NOTED, DIAMETER "D" IS THE SAME FOR ALL BENDS AND HOOKS ON A BAR.



END HOOK DIMENSIONS				
		ALL GRADES		
BAR SIZE	D (IN.)	180° HOOKS		90° HOOKS
		A OR G	J	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:
ALL STANDARD HOOKS AND BENDS OTHER THAN 180 DEGREE ARE TO BE BENT WITH SAME PROCEDURE AS FOR 90 DEGREE STANDARD 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.





BENDING DIAGRAMS

STATE OF MISSOURI
ANOUSONE AROUNPRADITH
NUMBER PE-29317
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED	
11/14/2017	
ROUTE	STATE
54	MO
DISTRICT	SHEET NO.
BR	6
COUNTY	
COLE	
JOB NO.	
J5P3118	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	
A13073	

DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

Detailed Oct. 2017
Checked Oct. 2017

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

FED. ROAD DIV. No.	STATE	FEDERAL PROJECT No. & SEC.	SHEET No.
5	MO.	U-54-3(8)	
5		COLE	54

TITLE SHEET

SEE

COLE CO. RTE. 54

C026-54(6)

A-1309

FINAL SURVEY

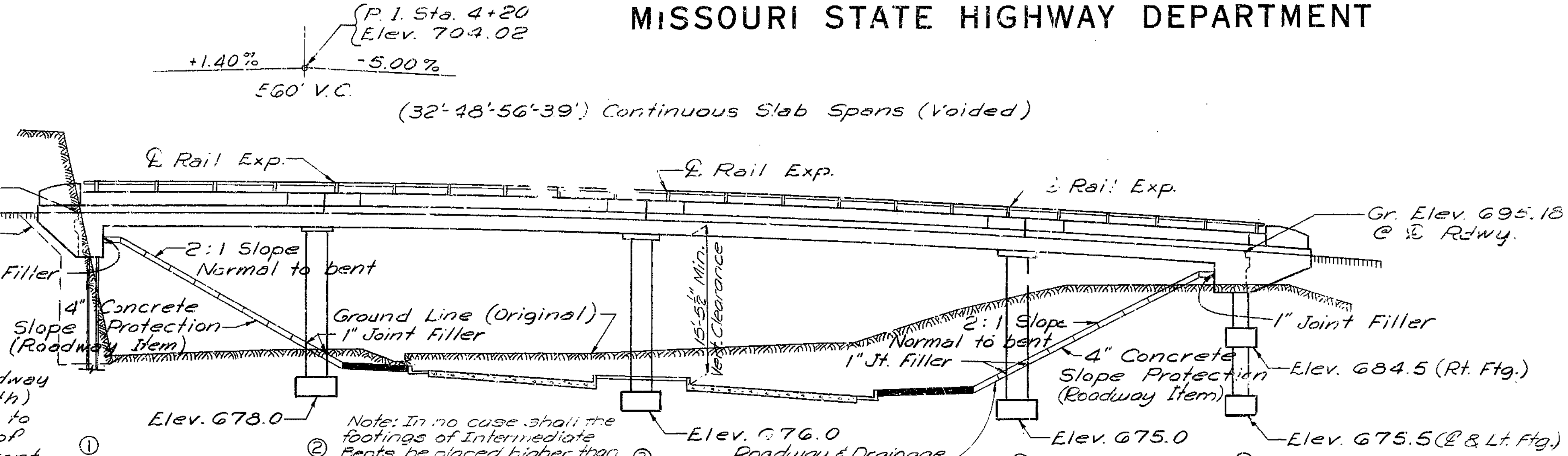
ORIGINAL SURVEY
SURVEYED
PLOTTED
TEMPLATE
AREAS
AREAS CHECKED

182

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	107	

(32'-48'-56'-39') Continuous Slab Spans (Voided)



GENERAL ELEVATION

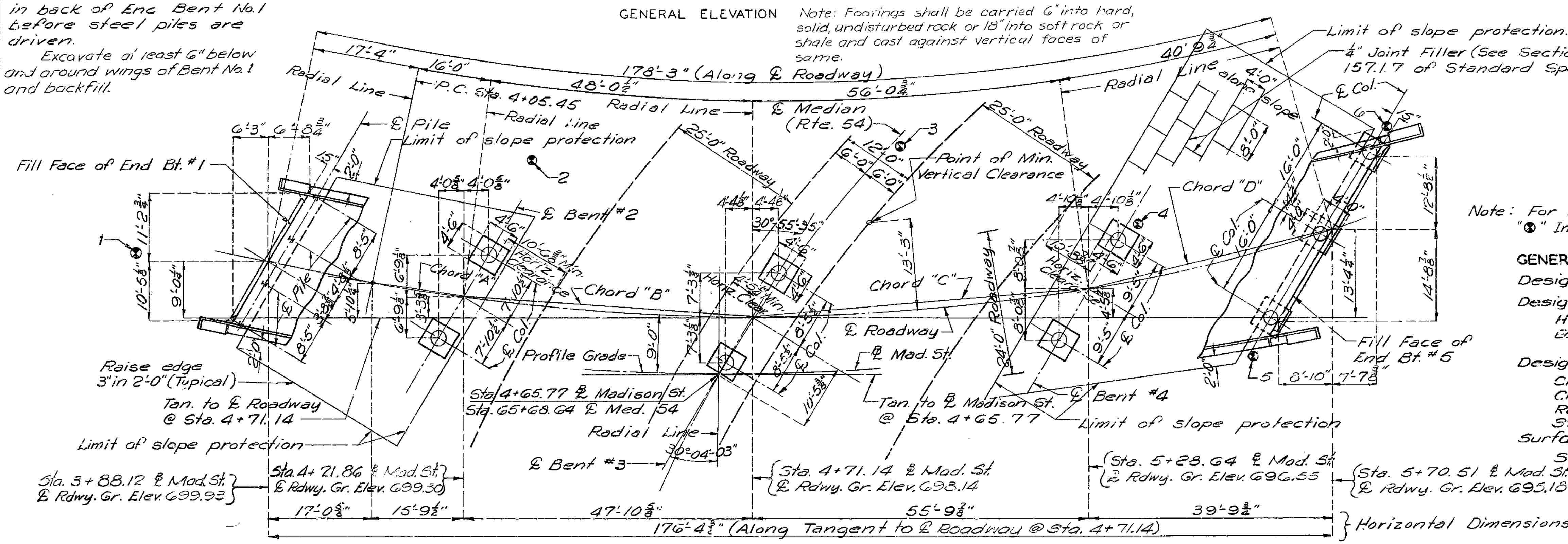
Note: Compacted roadway fill (full roadway width) shall be placed up to elevation of bottom of concrete beam in front of and not less than 25'-0" in back of End Bent No. 1 before steel piles are driven.

Excavate at least 6" below and around wings of Bent No. 1 and backfill.

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.

FOOTING AND PILE DATA						
BENT NO.		1	2	3	4	5
SPREAD FOOTING	Foundation Material		Rock	Rock	Rock	Rock
	Design Brg. Tons/Sq. Ft.		5.3	6.4	6.3	5.4
BEARING PILE	Pile Type & Size	10"BP42				
	Number	4				
	Approximate Length Ft.	20				
	Plan Bearing Tons	37				
	Min. Required Brg. Tons	24				
	Hammer	Power				

All pile shall be driven to practical refusal on or into solid rock or other point bearing material at not less than the Plan Bearing shown, unless excessive splicing is required to obtain Plan Bearing, in which case the engineer will authorize a lesser bearing, but in no case less than the Minimum Required Bearing.



PLAN

Note: For Boring Data see sheet No. 2 of 10.
"①" Indicates location of boring.

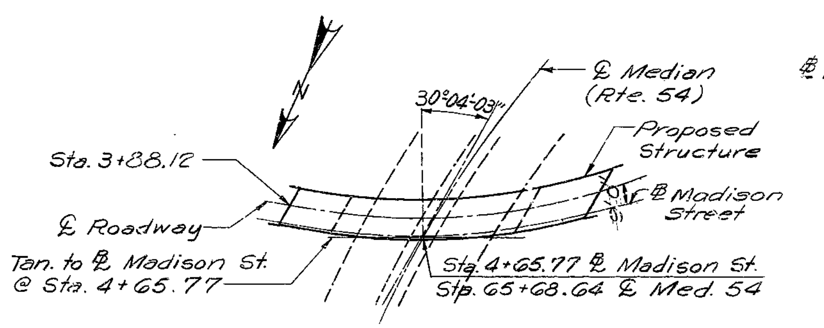
GENERAL NOTES:

Design Specifications: A.A.S.H.O. - 1961

Design Loading:
H 20-44 15#/sq. ft. Future Wearing Surface
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 fs = 20,000 psi
Steel Pile: (A.S.T.M. A36-62T) fb = 9,000 psi.

Surface Seal:
Superstructure deck to be surface sealed.



LOCATION SKETCH

℄ Madison St. S. B. Lane
Curve Data:
P.I. 6+01.91
Δ = 57°-30' Lt.
D = 16°
T = 196.46' (Arc.)
L = 359.38' (Arc.)
S.E. 0.04'/ft.
R = 358.10'

ESTIMATED QUANTITIES			
ITEM	SUBSTR.	SUPERSTR.	TOTAL
Class 1 Excavation for Structures Cu. Yd.	125		125
Steel Piles in Place (10") Lin. Ft.	68		68
Steel Pile Cut-offs (10") Lin. Ft.	12		12
Class B Concrete Cu. Yd.	15.8		15.8
Class B1 Concrete Cu. Yd.		321.1	321.1
Reinforcing Steel Lb.	280	86,370	86,650
Bridge Rail (Single tube type) Lin. Ft.		360	360

Note: No payment for excavation will be allowed at End Bent No 1.
Class C roadway excavation within 100' of bridge site shall be completed before work on structure is started. See Road Plans for Roadway excavation at End Bent No. 1
All concrete and reinforcing above footings is included with superstructure concrete.

B.M. Elevation 698.44, B.S. in P.P. Sta. 67+00
℄ Med. Rte. 54 100' Lt. (U.S.G.S. Datum)

BRIDGE: S.B. LANE MADISON ST. UNDERPASS

STATE ROAD ROUTE 54 RELOCATION

IN JEFFERSON CITY

PROJECT NO. U-54-3 (8) (RTE. 54) **STA.** 65+68.64 (℄ MED)
CO 26-54(6)

COLE COUNTY

SUBMITTED BY D. B. Jenkins BRIDGE ENGINEER DATE 9/27/65

APPROVED BY W. J. Snider CHIEF ENGINEER DATE 9/27/65

DESIGNED MARCH 1965 BY DEIFALLAH & ASATOORIAN
DETAILED JUNE 1965 BY BRANDEL
CHECKED SEPT. 1965 BY MOFFETT

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

Sheet No. 1 of 10.

STD. 54.00

A-1309

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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	10	

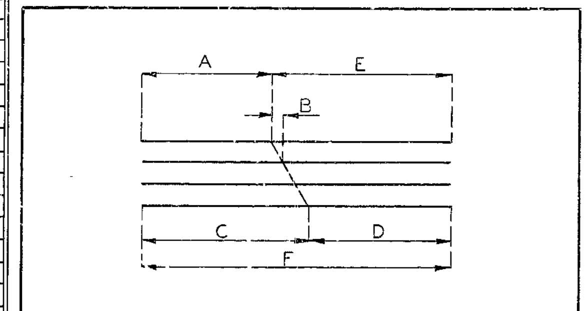
COMPLETE BILL OF REINFORCING STEEL

NO.	SIZE	LENGTH	MARK	LOCATION
SUPERSTRUCTURE				
383	#5	5'-0"	C1	Curb
4	#5	38'-0"	C2	"
4	#5	24'-9"	C4	Curb
4	#5	29'-3"	C5	"
4	#5	25'-3"	C6	"
4	#5	24'-6"	C8	Curb
4	#5	28'-3"	C9	"
1	#5	23'-9"	C10	"
16	#5	4'-9"	R1	End Post
4	#5	5'-9"	R2	" "
4	#5	6'-6"	R3	" "
4	#5	7'-0"	R4	" "
4	#5	7'-3"	R5	" "
8	#5	7'-3"	R6	" "
434	#5	5'-6"	R7	Parapet
8	#5	24'-9"	R8	"
4	#5	32'-0"	R9	"
8	#5	21'-0"	R10	"
4	#5	34'-3"	R11	"
4	#5	5'-6"	R12	"
4	#5	8'-9"	R13	"
4	#5	31'-3"	R14	"
8	#5	20'-3"	R15	"
4	#5	30'-3"	R16	"
4	#5	7'-6"	R17	"
44	#5	7'-9"	R18	"
36	#5	21'-0"	S2	Slab
22	#10	22'-3"	S3	"
22	#10	18'-6"	S4	"
20	#10	9'-6"	S5	"
18	#5	48'-9"	S6	"
22	#9	29'-0"	S7	"
22	#11	25'-6"	S8	"
20	#11	17'-0"	S9	"
18	#5	58'-9"	S10	"
22	#9	28'-3"	S11	"
22	#11	24'-0"	S12	"
20	#11	15'-3"	S13	"
18	#5	50'-9"	S14	"
18	#8	34'-0"	S16	"
18	#8	24'-9"	S17	"
17	#8	18'-3"	S18	"
9	#9	100'-6"	S19	"
18	#9	30'-3"	S20	"
17	#9	22'-9"	S21	"
9	#10	117'-3"	S22	"
18	#10	37'-9"	S23	"
17	#10	28'-9"	S24	"
9	#10	84'-3"	S25	"
9	#9	60'-6"	S26	"
17	#9	24'-0"	S27	"
38	#5	56'-3"	S28	"
57	#5	58'-9"	S29	"
66	#5	64'-6"	S30	"
45	#5	72'-9"	S31	"

NO.	SIZE	LENGTH	MARK	LOCATION
SUPERSTRUCTURE END BT. NO. 1				
12	#6	28'-0"	H1	Beam
3	#6	6'-0"	H2	Wing
4	#6	7'-6"	H3	"
3	#6	8'-3"	H4	"
3	#6	6'-0"	H5	"
4	#6	6'-3"	H6	"
3	#6	8'-9"	H7	"
36	#6	8'-6"	S1	Beam
2	#6	9'-3"	T1	Wing
2	#6	9'-3"	T2	"
56	#5	9'-0"	U1	Beam
4	#5	7'-0"	V1	Wing
4	#5	6'-0"	V2	"
SUPERSTRUCTURE INT. BT. NO. 2				
8	#11	31'-0"	G1	Slab
7	#10	28'-0"	G2	Drop Panel
33	#3	8'-0"	P1	Col.
66	#5	6'-9"	U2	Drop Panel
9	#8	19'-0"	V3	Col.
9	#8	19'-6"	V4	"
SUPERSTRUCTURE INT. BT. NO. 3				
9	#11	33'-0"	G3	Slab
8	#10	30'-0"	G4	Drop Panel
35	#3	8'-0"	P1	Col.
70	#5	7'-9"	U3	Drop Panel
9	#8	20'-6"	V5	Col.
9	#8	19'-9"	V6	"
SUPERSTRUCTURE INT. BT. NO. 4				
10	#11	36'-9"	G5	Slab
7	#11	33'-9"	G6	Drop Panel
35	#3	8'-0"	P1	Col.
76	#5	7'-9"	U3	Drop Panel
9	#8	19'-0"	V3	Col.
9	#8	20'-0"	V15	"

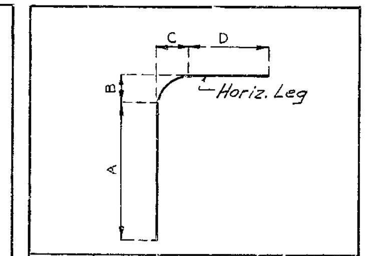
NO.	SIZE	LENGTH	MARK	LOCATION
SUPERSTRUCTURE END BT. NO. 5				
4	#6	38'-6"	H8	Beam
3	#6	4'-0"	H9	"
4	#6	9'-6"	H10	Wing
3	#6	11'-9"	H11	"
4	#6	8'-6"	H12	"
3	#6	10'-6"	H13	"
3	#6	7'-6"	H14	"
8	#7	38'-6"	H15	Beam
36	#6	9'-3"	S32	Beam
2	#6	10'-3"	T3	Wing
2	#6	10'-6"	T4	"
78	#5	9'-9"	U4	Beam
27	#3	6'-6"	V7	Col.
6	#8	10'-6"	V8	"
6	#8	11'-6"	V9	"
6	#8	7'-6"	V10	"
6	#5	6'-0"	V12	Wing
5	#5	6'-0"	V13	"
4	#8	3'-3"	V14	Col.
12	#8	4'-0"	D2	"
SUBSTRUCTURE INT. BT. NO. 2				
18	#5	2'-6"	D1	Footing
SUBSTRUCTURE INT. BT. NO. 3				
18	#5	2'-6"	D1	Footing
SUBSTRUCTURE INT. BT. NO. 4				
18	#5	2'-6"	D1	Footing
SUBSTRUCTURE END BT. NO. 5				
12	#8	4'-0"	D2	Footing

BENDING SKETCHES & CUTTING DIAGRAMS

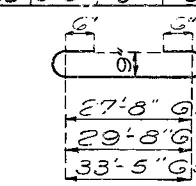


CUTTING SCHEDULE

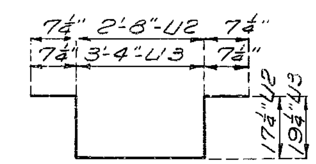
REMARKS	A	B	C	D	E	F
3-H4-Cut 3	3'-3¾"	12¾"	5'-5¼"	3'-3¾"		8'-9"
3-H7-Cut 3	3'-1⅞"	14⅝"	5'-7⅛"	3'-1⅞"		8'-9"
3-H11-Cut 3	4'-2"	20½"	7'-7"	4'-2"		11'-9"
3-H13-Cut 3	3'-9"	18"	6'-9"	3'-9"		10'-6"
18-S6-Cut 18	23'-10"	⅜"	24'-4⅜"	24'-4⅝"	24'-11"	48'-9"
18-S10-Cut 18	28'-3⅜"	¾"	29'-4⅛"	29'-4⅞"	30'-5⅝"	58'-9"
18-S14-Cut 18	23'-11"	1"	25'-4"	25'-5"	26'-10"	50'-9"
9-S19-Cut 9	49'-9⅝"	⅝"	50'-2⅝"	50'-3⅜"	50'-8⅜"	100'-6"
9-S22-Cut 9	57'-5¾"	1⅝"	58'-6¾"	58'-8¼"	59'-9¼"	117'-3"
9-S25-Cut 9	40'-6⅜"	2¼"	42'-0⅜"	42'-2⅝"	43'-8⅝"	84'-3"
38-S28-Cut 38	27'-11⅛"	⅛"	28'-3¾"	27'-11⅛"	28'-3¾"	56'-3"
57-S29-Cut 57	28'-2½"	½"	30'-6½"	28'-2½"	30'-6½"	58'-9"
66-S30-Cut 66	30'-2⅝"	¾"	34'-3⅜"	30'-2⅝"	34'-3⅜"	64'-6"
45-S31-Cut 45	34'-3¾"	1⅛"	38'-5¼"	34'-3¾"	38'-5¼"	72'-9"
4-V1-Cut 4	2'-0½"	11⅝"	4'-[illegible]⅜"	2'-0⅝"	4'-11½"	7'-0"
4-V2-Cut 4	21¾"	9½"	4'-[illegible]"	21¾"		6'-0"
6-V12-Cut 6	18½"	7"	4'-5½"	18½"		6'-0"
5-V13-Cut 5	20"	8"	4'-4"	20"		6'-0"
9-S26-Cut 9	28'-10"	2"	30'-2"	30'-4"	31'-8"	60'-6"



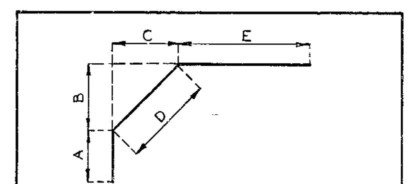
MARK	A	B	C	D
V3	17'-2⅝"	6"	6"	12"
V4	17'-8⅝"	6"	6"	12"
V5	18'-8⅝"	6"	6"	12"
V6	17'-11⅝"	6"	6"	12"
V15	18'-2[illegible]	[illegible]	6"	12"
S1	3'-[illegible]	3"	3"	4'-7¼"
S32	3'-6[illegible]	3"	3"	5'-4¼"



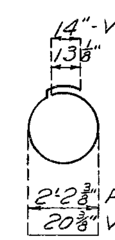
G1-G3-G5



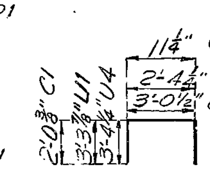
U2-U3



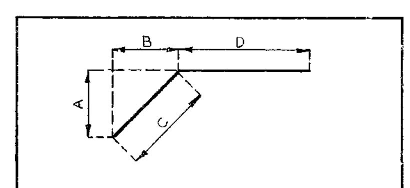
MARK	A	B	C	D	E
T1	12½"	4'-1½"	4'-4"	5'-11⅞"	2'-2⅝"
T2	12½"	3'-10⅛"	4'-8¼"	0'-0¾"	2'-1¾"
T3	12"	3'-8½"	6'-8"	7'-7½"	19½"
T4	12"	3'-8¾"	5'-8"	6'-8½"	2'-9½"



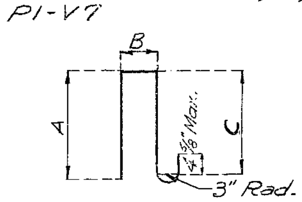
P1-V7



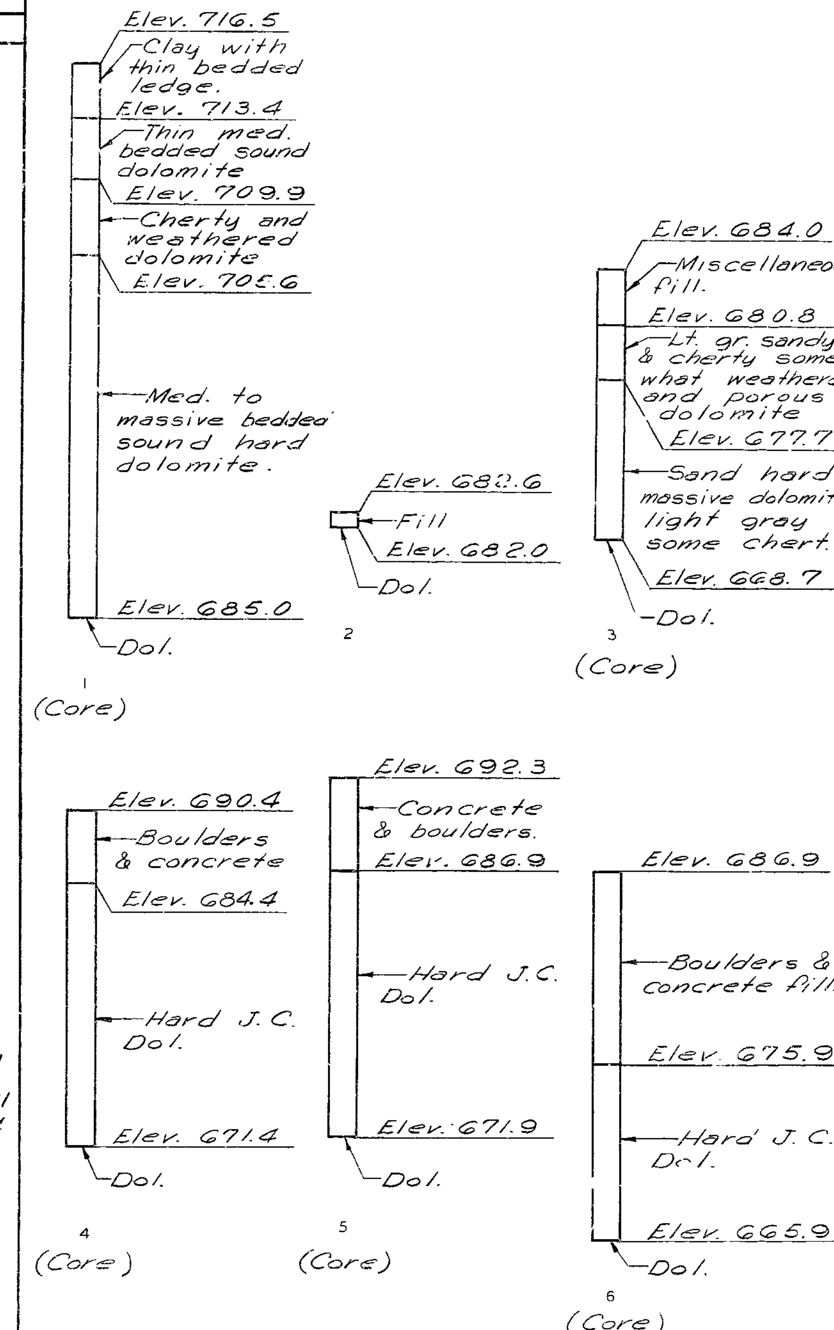
C1, U1, U4



MARK	A	B	C	D
H2	2'-10"	4'-1½"	5'-0"	12"
H5	4'-3"	2'-7½"	5'-0"	12"
H9	2'-5½"	12"	3'-0"	12"
H14	2'-6"	6'-0"	6'-6"	12"



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"	6"	21½"



BORING DATA

Note: See Sheet No. 1 of 10 for location of Borings.

BRIDGE: S. B. LANE MADISON ST. UNDERPASS

STATE ROAD ROUTE 54 RELOCATION

IN JEFFERSON CITY

PROJECT NO. U-54-3(8) (RTE. 54) **STA.** 65+68.64 (℄ MED)

C026-5(6)

COLE COUNTY

No. 90.5 Revised Aug. 1963

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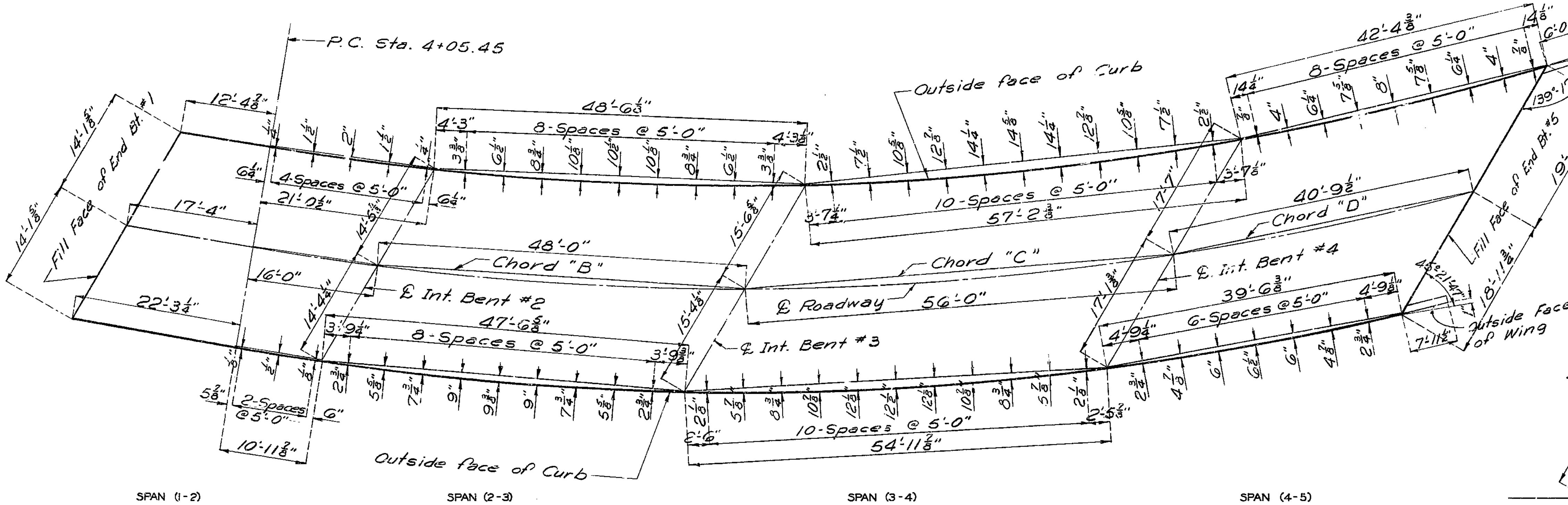
DETAILED JULY 1965 BY BRANDEL
CHECKED SEPT. 1965 BY MOFFETT

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

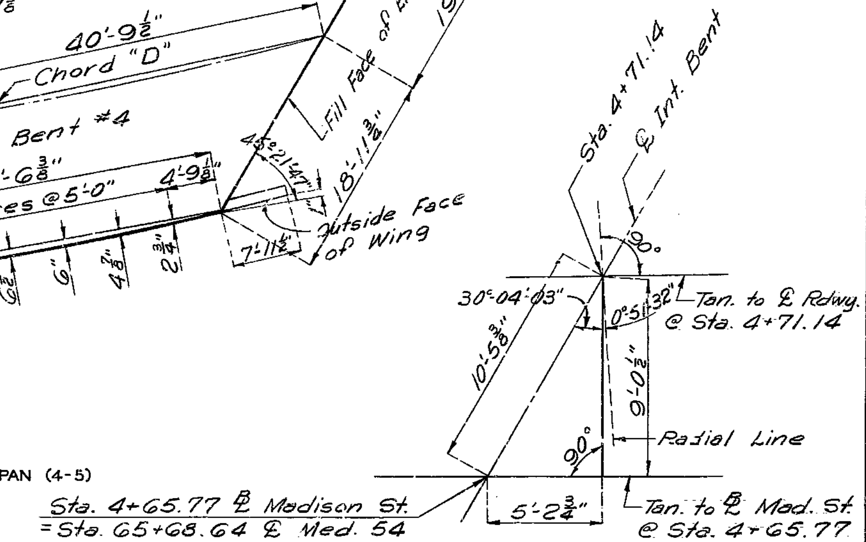
A-1302

MISSOURI STATE HIGHWAY DEPARTMENT

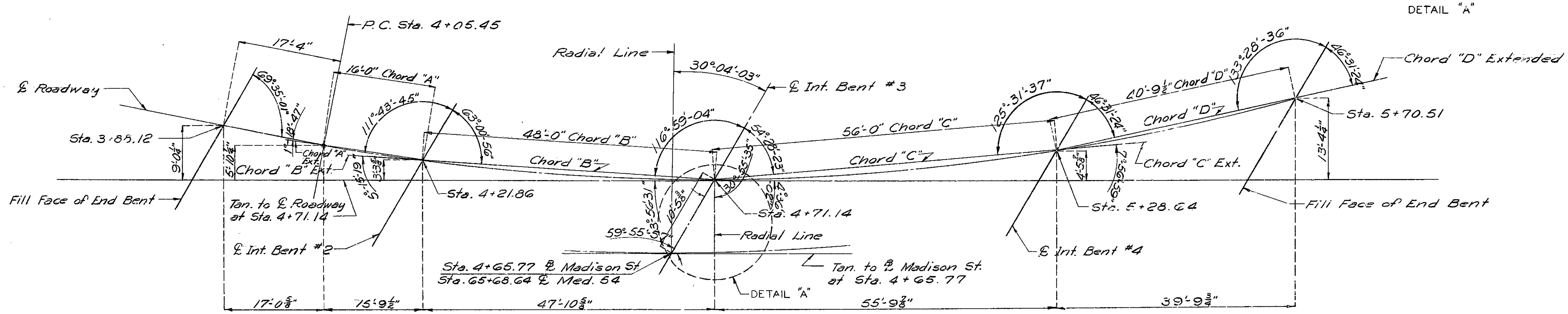
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	109	



PLAN OF SLAB SHOWING CURB ORDINATES



DETAIL "A"



LAYOUT DATA FOR SUBSTRUCTURE

Note: Bents cannot be accurately located from the reference point on the tangent by convential survey methods based on 100' chords.
All bents are parallel.
All longitudinal dimensions shown are horizontal.
All Stationing is along ℄ Madison St.

BRIDGE: S.B. LANE MADISON ST. UNDERPASS

STATE ROAD ROUTE 54 RELOCATION

IN JEFFERSON CITY

PROJECT NO. U-54-3 (8) (RTE. 54) **STA.** 65+68.64 (℄ MED)
C026-54 (6)

COLE **COUNTY**

DETAILED JUNE 1965 BY BRANDEL
CHECKED SEPT. 1965 BY MOFFETT

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

Sheet No. 3 of 10.

A-1309

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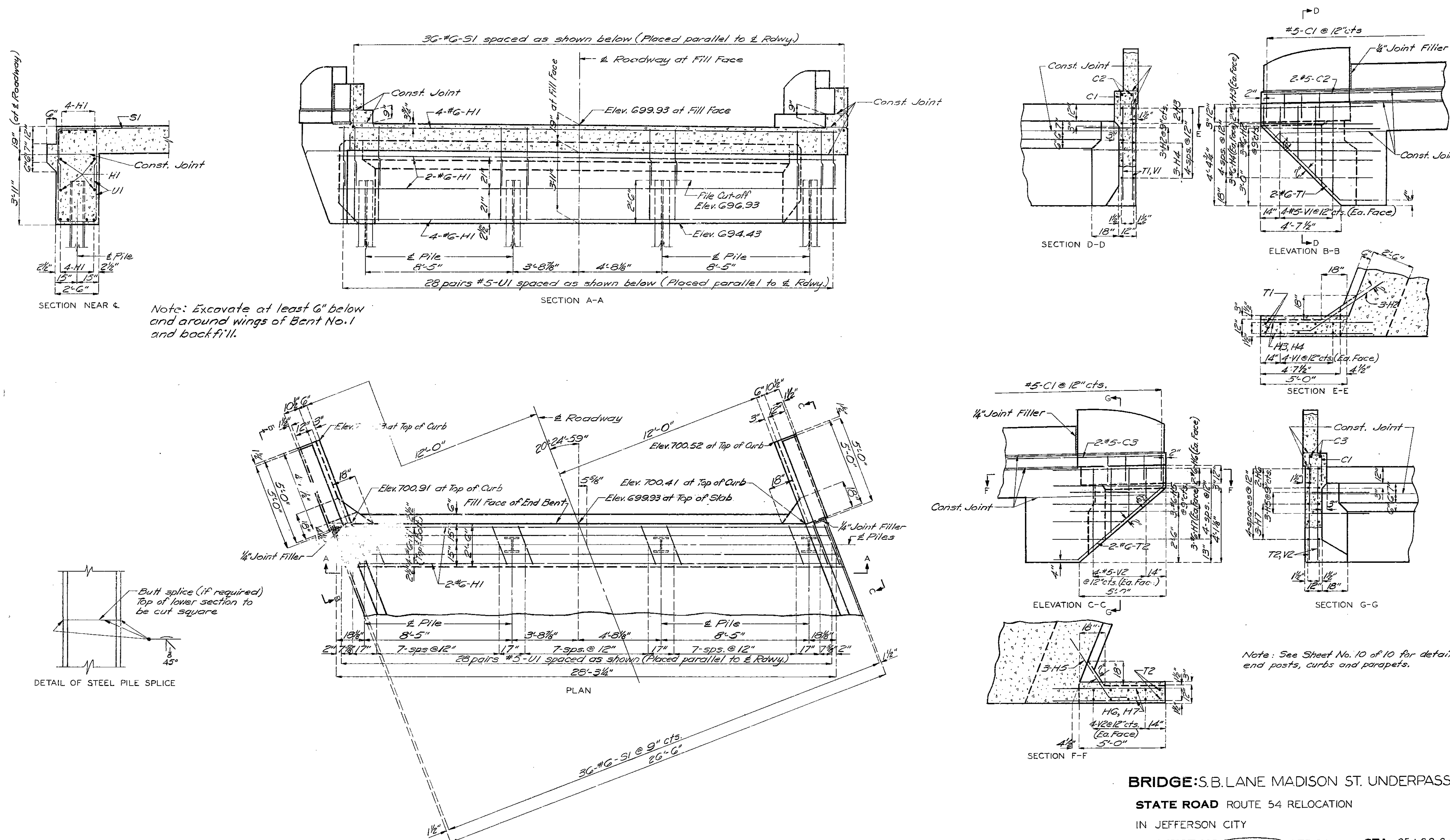
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	110	



Note: See Sheet No. 10 of 10 for details of end posts, curbs and parapets.

DETAILS OF END BENT NO. I

BRIDGE: S.B. LANE MADISON ST. UNDERPASS

STATE ROAD ROUTE 54 RELOCATION

IN JEFFERSON CITY

PROJECT NO. U-54-3(8) (RTE. 54) Ca26-54(6) **STA.** 65+68.64 (℄ MED)

COLE **COUNTY**

DETAILED MAY 1965 BY MAGER
CHECKED SEPT 1965 BY MOFFETT

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

Sheet No. 4 of 10.

A-1309

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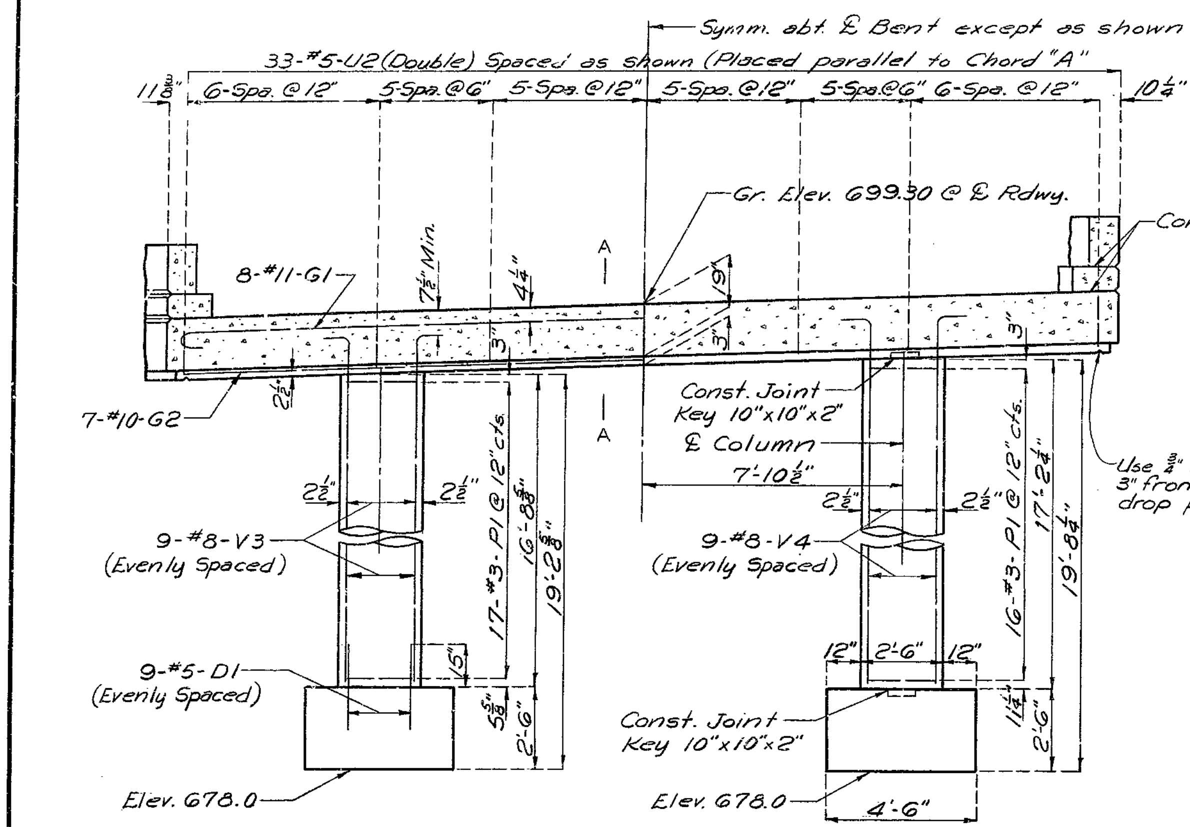
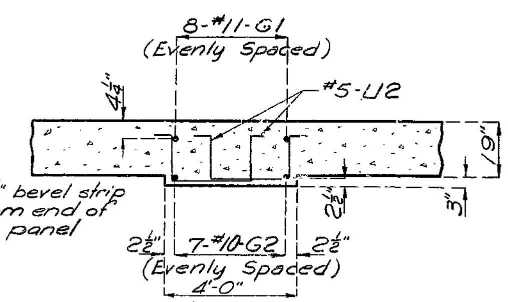
MISSOURI STATE HIGHWAY DEPARTMENT

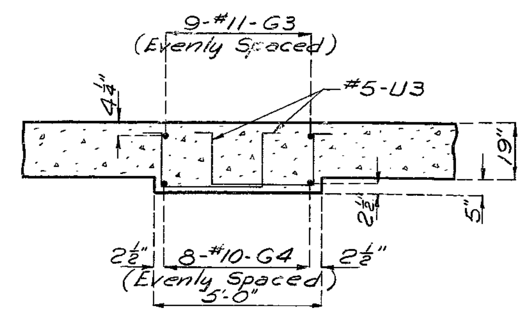
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	111	



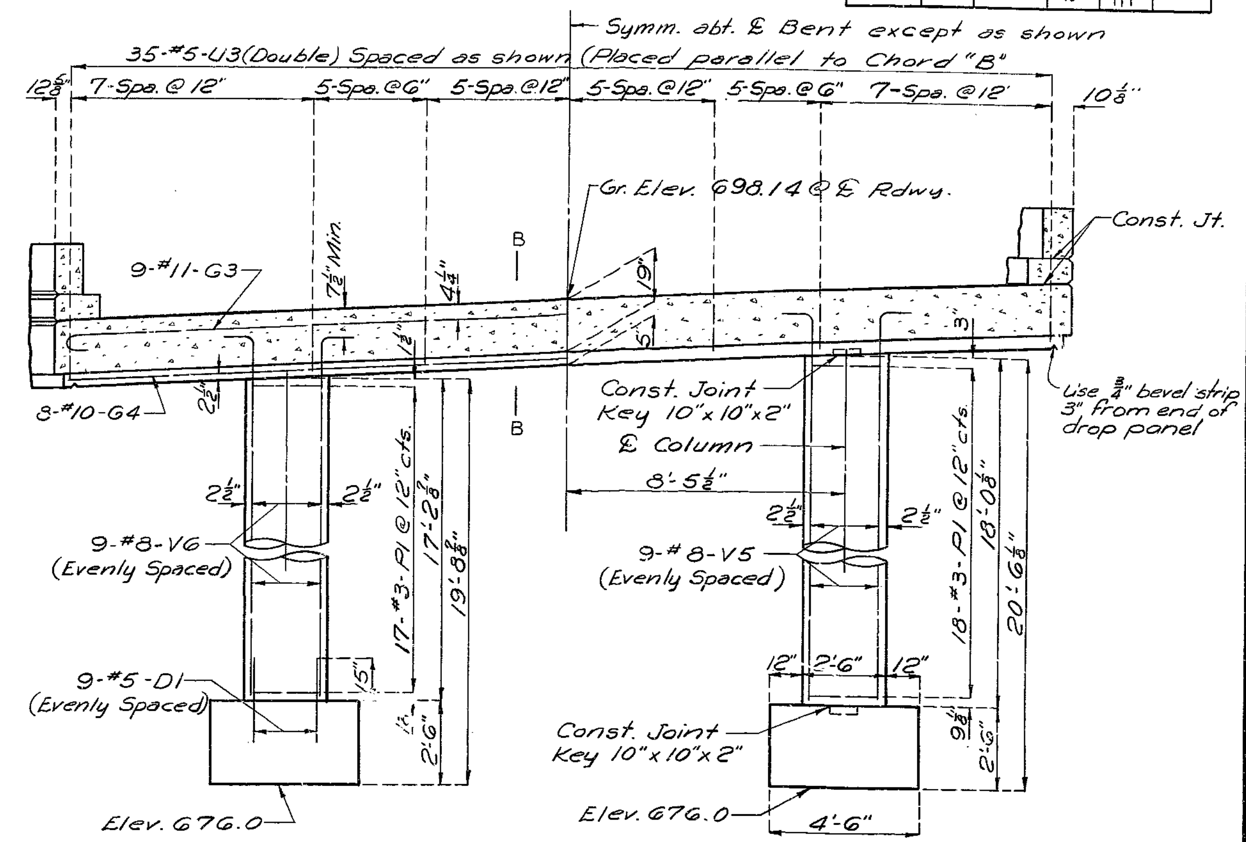
SECTION C-C



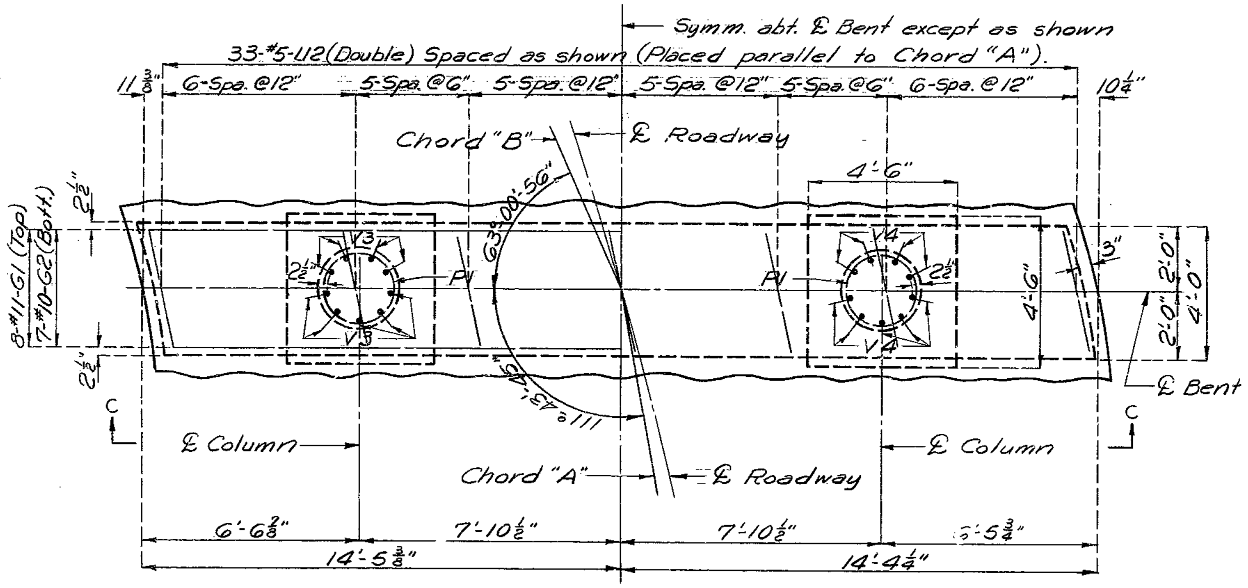
SECTION A-A
BENT NO. 2



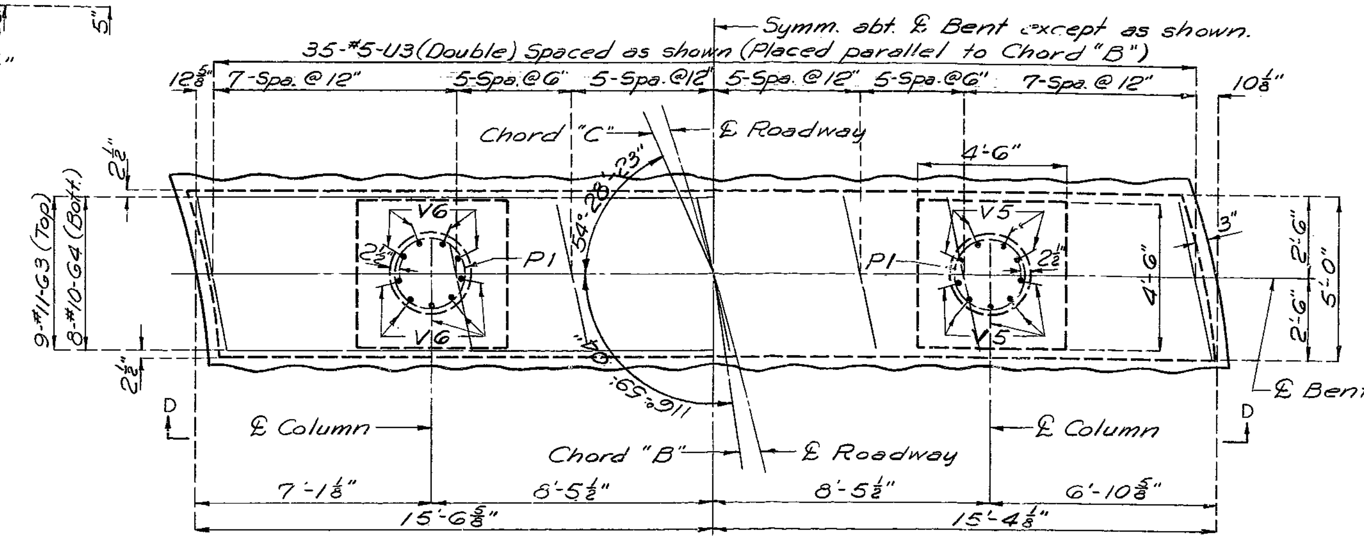
SECTION B-B
BENT NO. 3



SECTION D-D



PLAN
DETAILS OF INT. BENT NO. 2



PLAN
DETAILS OF INT. BENT NO. 3

BRIDGE: S.B. LANE MADISON ST. UNDERPASS

STATE ROAD ROUTE 54 RELOCATION

IN JEFFERSON CITY

PROJECT NO. U-54-3(8) (RTE. 54) C026-54(6) **STA.** 65 + 68.64 (℄ MED)

COLE **COUNTY**

DETAILED JUNE 1965 BY BRANDEL
CHECKED SEPT. 1965 BY MOFFETT

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

Sheet No. 5 of 10.

A-1309

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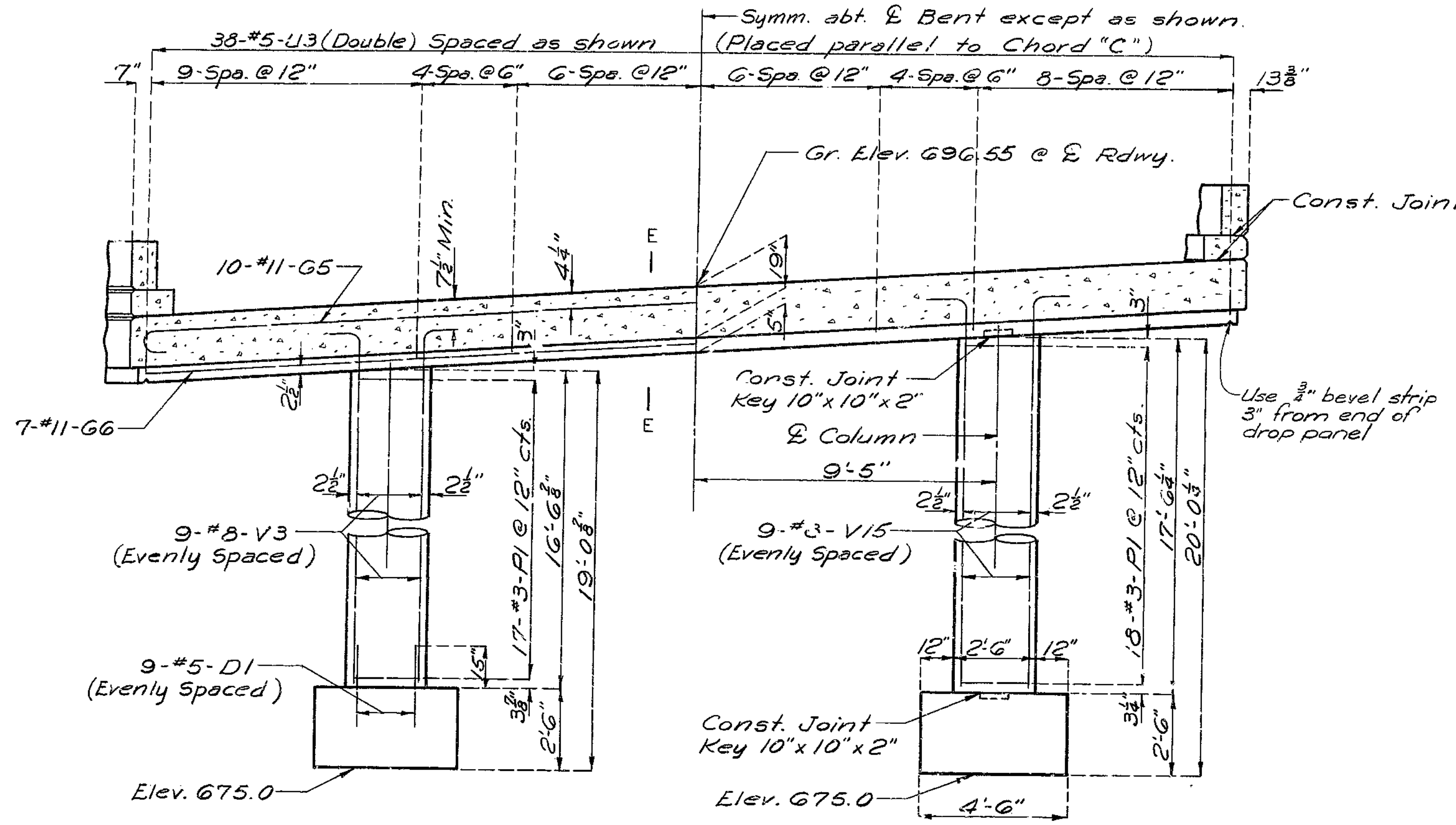
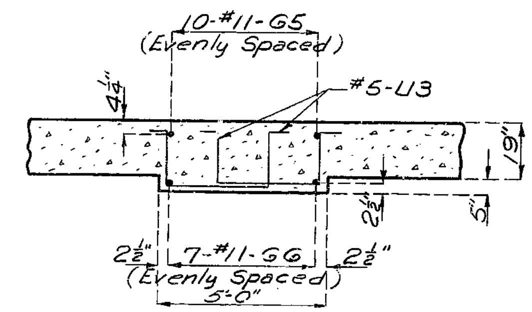
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	112	

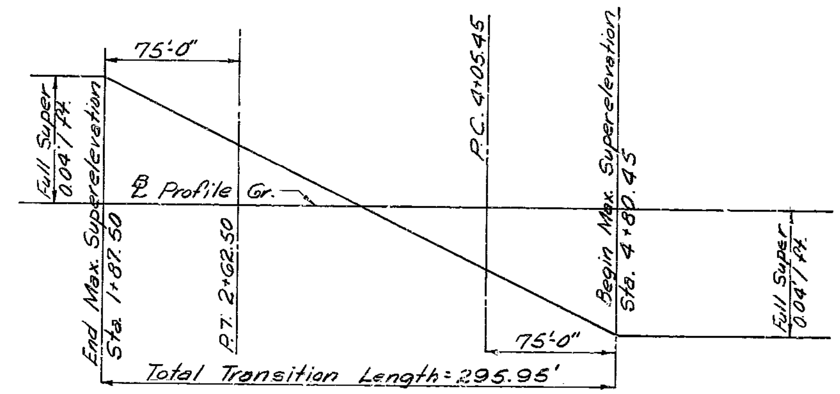
MISSOURI STATE HIGHWAY DEPARTMENT



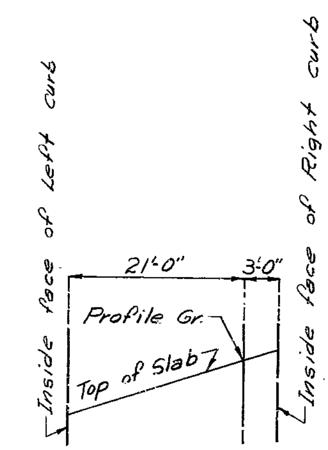
SECTION F-F



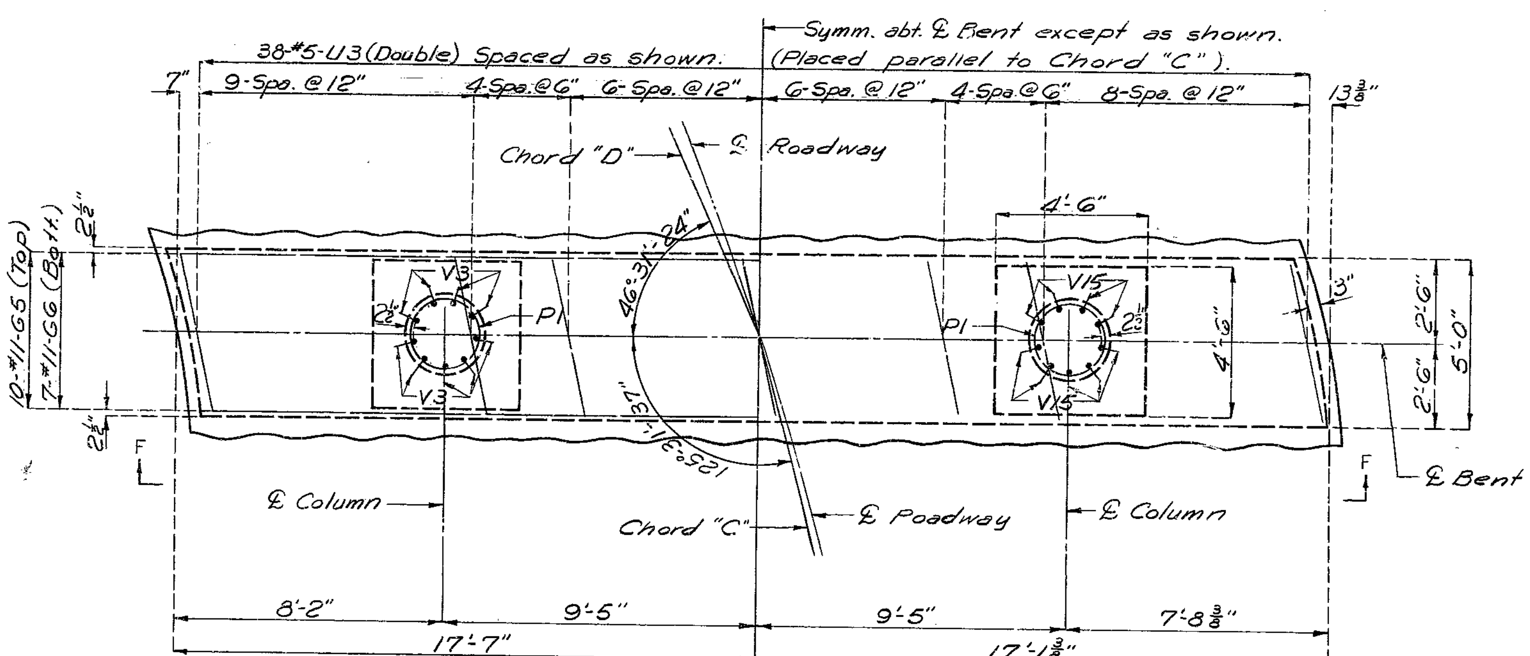
SECTION E-E



SUPERELEVATION TRANSITION SKETCH



SUPERELEVATION TRANSITION DATA AT TOP OF SLAB							
STATION	LEFT GUTTER LINE	℄ ROADWAY	RIGHT GUTTER LINE	STATION	LEFT GUTTER LINE	℄ ROADWAY	RIGHT GUTTER LINE
3+75	Elev. 700.00	Elev. 700.13	Elev. 700.27	4+35	Elev. 698.68	Elev. 699.01	Elev. 699.34
+80	" 699.91	" .06	" .21	+40	" .55	" 698.90	" .24
+85	" .81	" 699.97	" .14	+45	" .42	" .78	" .14
+90	" .71	" .89	" .07	+50	" .28	" .66	" 699.04
+95	" .61	" .80	" 700.00	+55	" .15	" .54	" 698.94
4+00	" .50	" .72	" 699.93	+60	" 698.01	" .42	" .83
+05	" .39	" .62	" .86	+65	" 697.86	" .29	" .72
+10	" .28	" .53	" .78	+70	" .72	" .16	" .61
+15	" .16	" .43	" .69	+75	" .57	" 698.03	" .49
+20	" 699.05	" .33	" .61	+80	" .41	" 697.89	" .37
+25	" 698.93	" .23	" .52	4+85	" 697.29	" 697.77	" 698.25
4+30	" 698.80	" 699.12	" 699.43				



PLAN

DETAILS OF INT. BENT NO. 4

BRIDGE: S.B. LANE MADISON ST. UNDERPASS

STATE ROAD ROUTE 54 RELOCATION

IN JEFFERSON CITY

PROJECT NO. U-54-3(8) (RTE. 54) STA. 65+68.64 (℄ MED)

C026-54(6)

COLE COUNTY

DETAILED JUNE 1965 BY BRANDEL

CHECKED SEPT. 1965 BY MOFFETT

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

Sheet No. 6 of 10.

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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		

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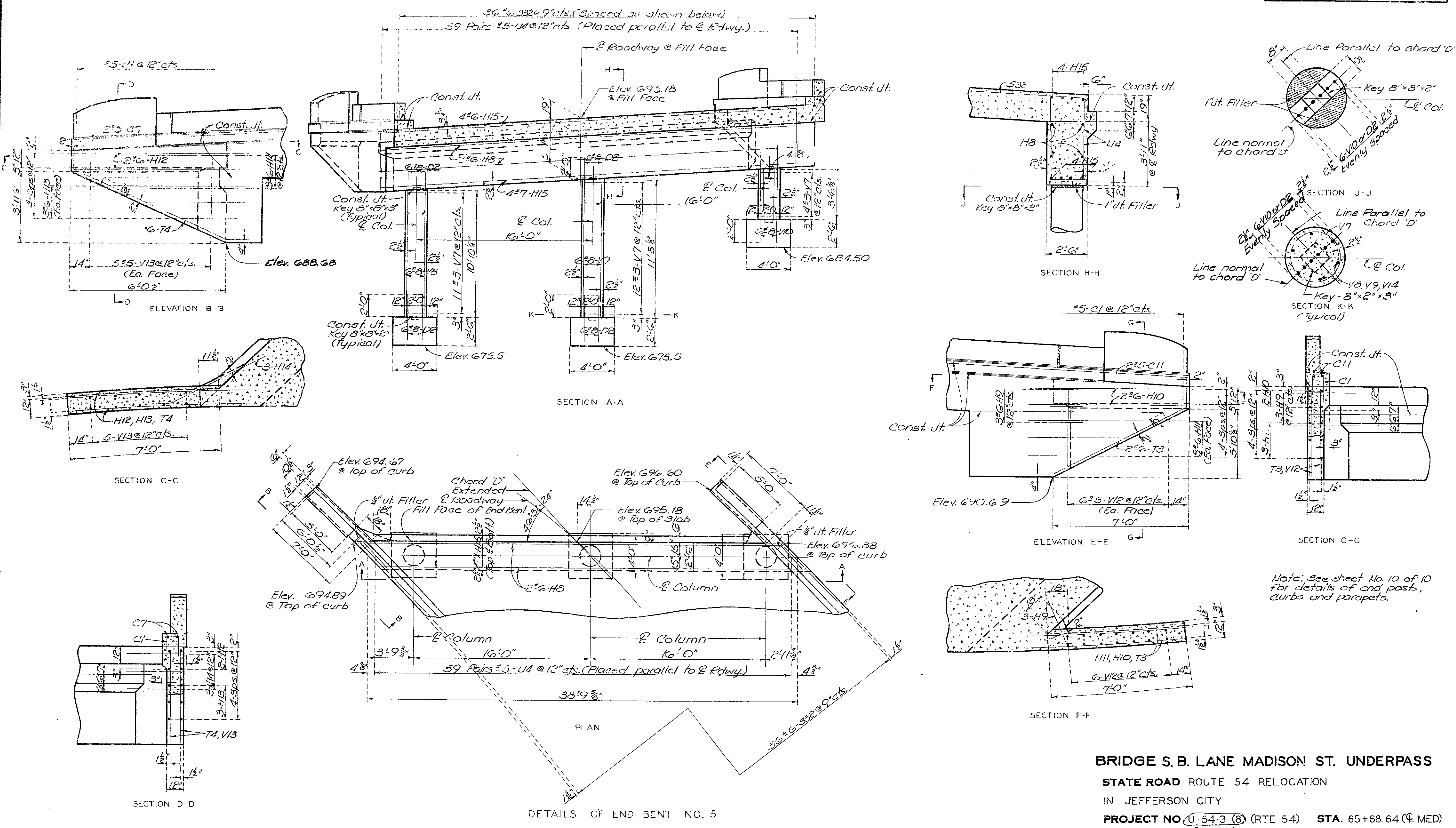


BRIDGE S. B. LANE MADISON ST. UNDERPASS

STATE ROAD ROUTE 54 RELOCATION

IN JEFFERSON CITY

PROJECT NO. U-54-3 (8) (RTE 54) **STA.** 65+68.64 (℄ MED)

C026-54(6)

COLE COUNTY

DETAILED JUNE 1965 BY ROBERDS

CHECKED SEPT. 1965 BY MOFFETT

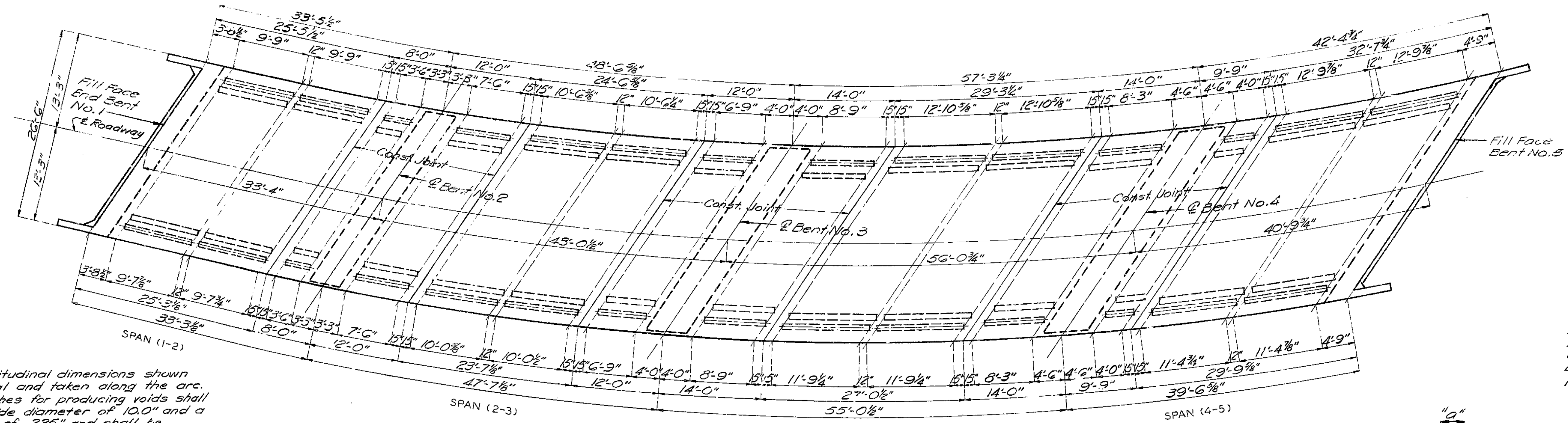
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 7 of 10.

A-1309

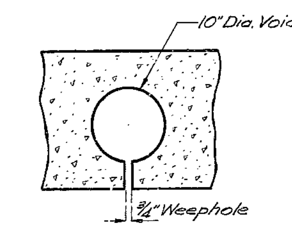
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	114	



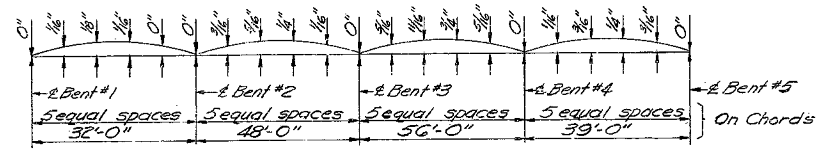
PLAN OF SLAB SHOWING PLACEMENT OF VOIDS

Note: All longitudinal dimensions shown are horizontal and taken along the arc. Fiber tubes for producing voids shall have an outside diameter of 10.0" and a wall thickness of .225" 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.



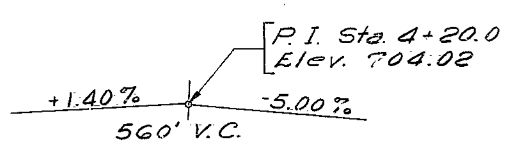
Note: One 3/4" weephole shall be provided near each end of each void. Weepholes shall be placed in straight lines parallel to bents.

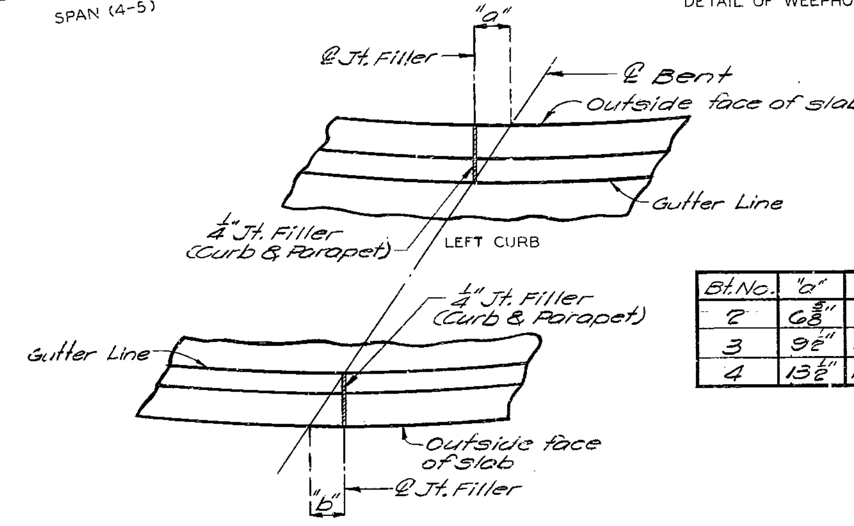
DETAIL OF WEEPHOLE IN VOIDS



CAMBER DIAGRAM

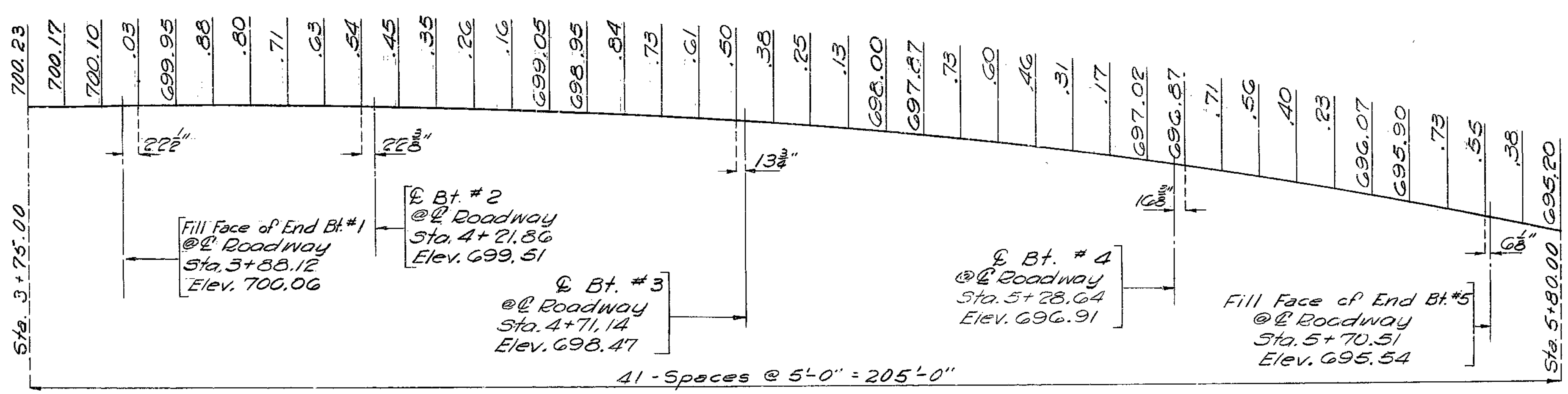
Note: The contractor shall use an approved oscillating screed type, self-propelled mechanical finishing machine and shall pour and satisfactorily finish the roadway slab at a rate of not less than 27 cubic yards per hour. He shall observe the transverse construction joints shown on plans unless he can 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.





DETAIL OF CURB OFFSETS

Bt. No.	"a"	"b"
2	6 5/8"	6 1/8"
3	9 1/2"	8 1/2"
4	13 1/2"	11 7/8"



PROFILE GRADE ELEVATIONS

Note: Profile Grade is 9'-0" Rt. of ℄ Roadway

BRIDGE: S.B. LANE MADISON ST. UNDERPASS

STATE ROAD ROUTE 54 RELOCATION

IN JEFFERSON CITY

PROJECT NO. U-54-3 (8) (RTE 54) **STA.** 65+68.64 (℄ MED)

C026-54(6)

COLE **COUNTY**

A-1309

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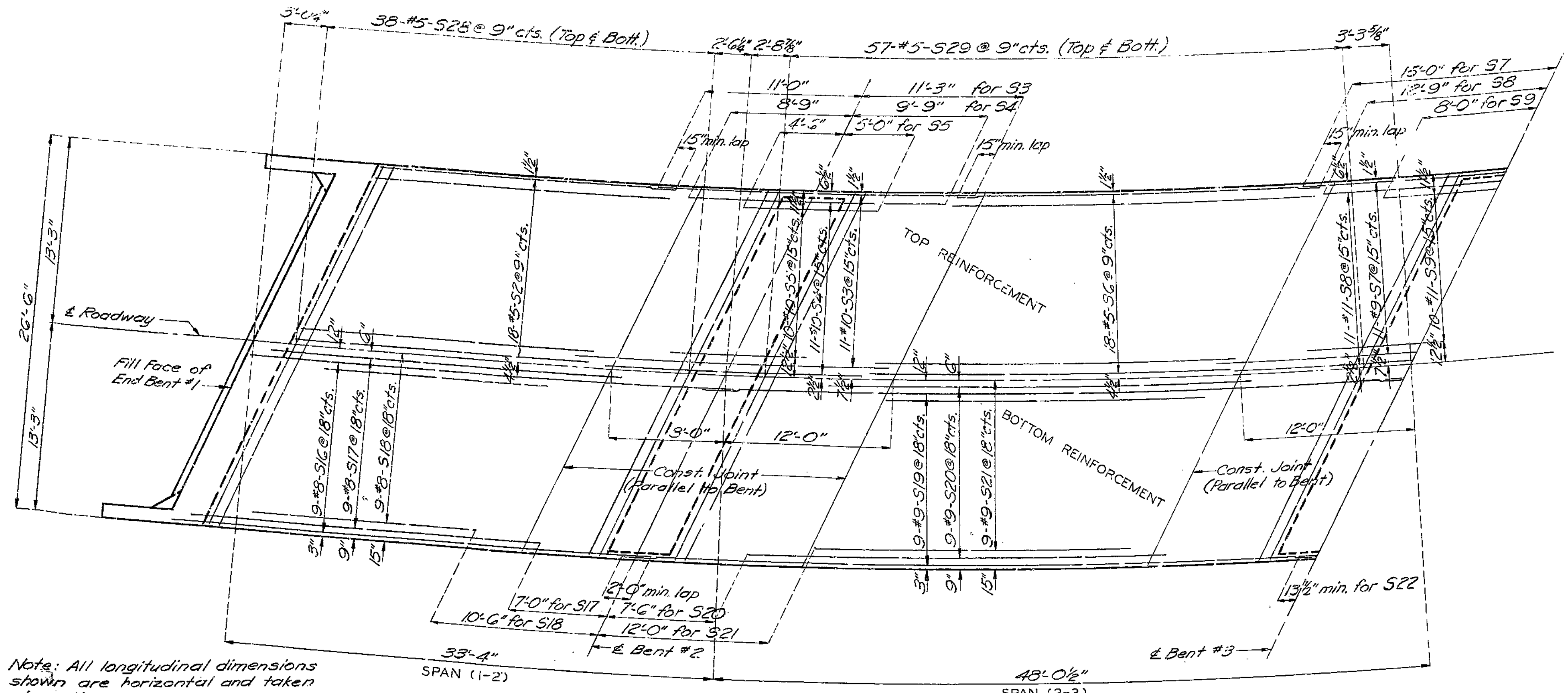
DETAILED APRIL 1965 BY MAGER, BRANDEL & H.MILLER

CHECKED SEPT. 1965 BY MOFFETT

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

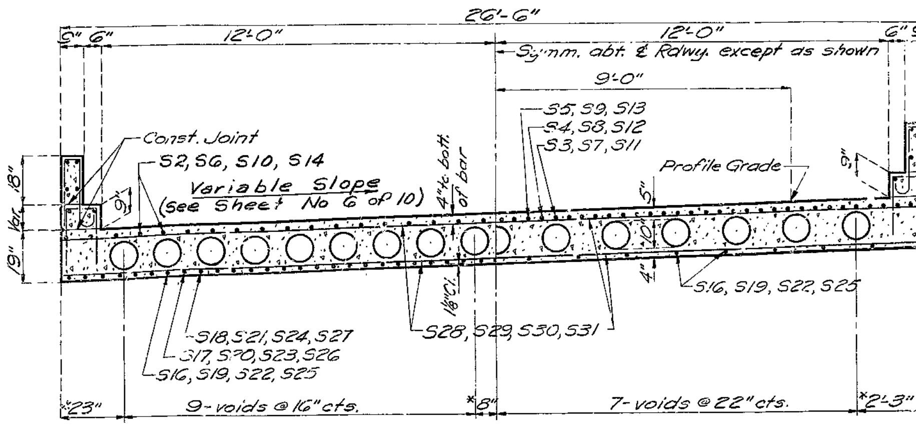
MISSOURI STATE HIGHWAY DEPARTMENT

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



Note: All longitudinal dimensions shown are horizontal and taken along the arc.
Curbs and parapets not shown in plan of slab for clarity.

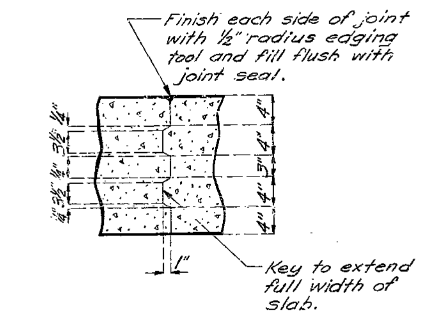
PART PLAN OF SLAB



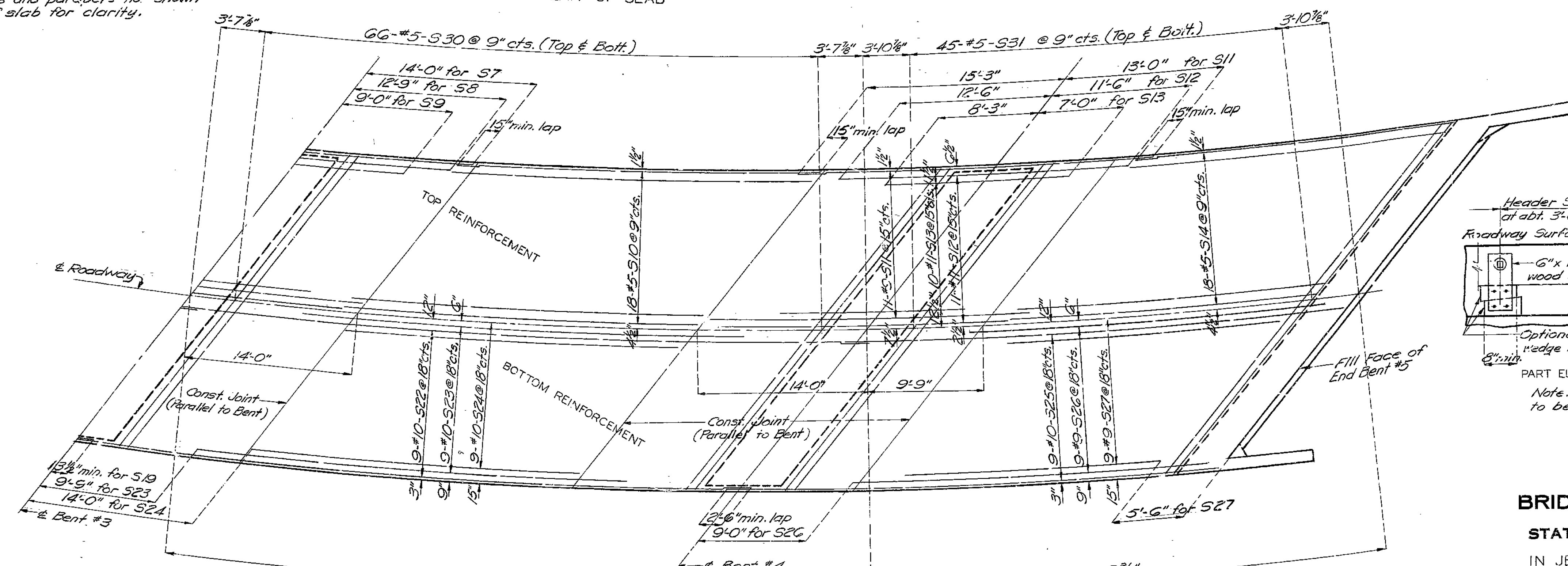
HALF SECTION NEAR CENTER OF SPAN

HALF SECTION NEAR INT. BENT

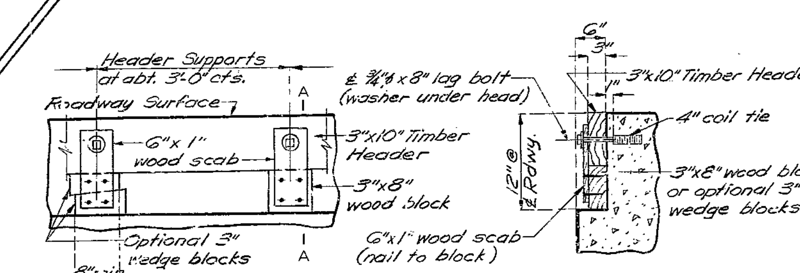
Note: * dimensions are taken at ends of voids. See Sheet No. 8 of 10 for placement of voids.
See Sheet No. 10 of 10 for curb and parapet details.
Curbs and parapets to be cast independently of slab.



CONST. JOINT KEY



PART PLAN OF SLAB



PART ELEVATION

SECTION A-A

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

DETAILS OF TIMBER HEADER

BRIDGE: S.B. LANE MADISON ST. UNDERPASS

STATE ROAD ROUTE 54 RELOCATION

IN JEFFERSON CITY

PROJECT NO U-54-3(8) (RTE. 54) **STA.** 65+68.64 (℄ MED)

C026-54(6)

COLE **COUNTY**

A-1309

DETAILED APRIL 1965 BY MAGER
CHECKED SEPT. 1965 BY MOFFETT

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

Sheet No. 9 of 10

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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	116	

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 1/8". 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 1/4" except as noted.

All drafts 3° except as noted.

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

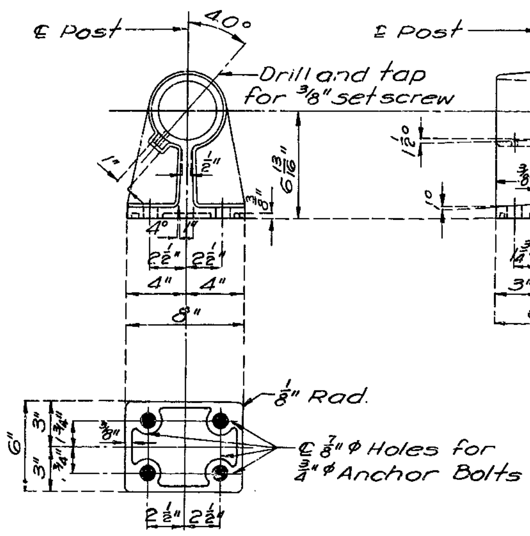
Omit set screw on side near filled Joint in parapet at all expansion posts.

Top of curbs and parapets to be built parallel to grade. Vertical faces of end post to be vertical.

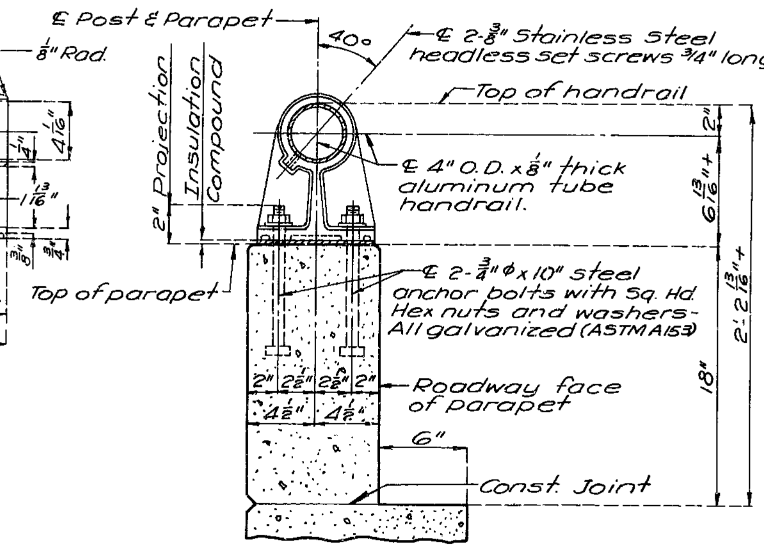
All exposed edges of end posts, parapets and curbs shall have 1/2" radius.

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.

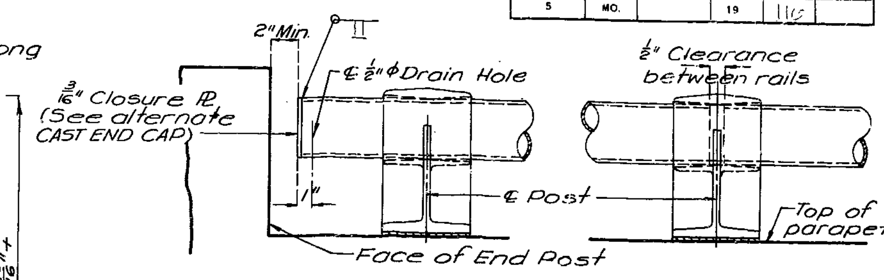


POST DETAILS

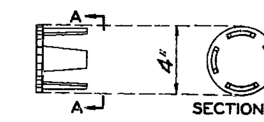


SECTION THRU HANDRAIL

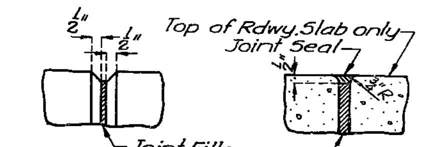
SINGLE TUBE ALUMINUM RAILING



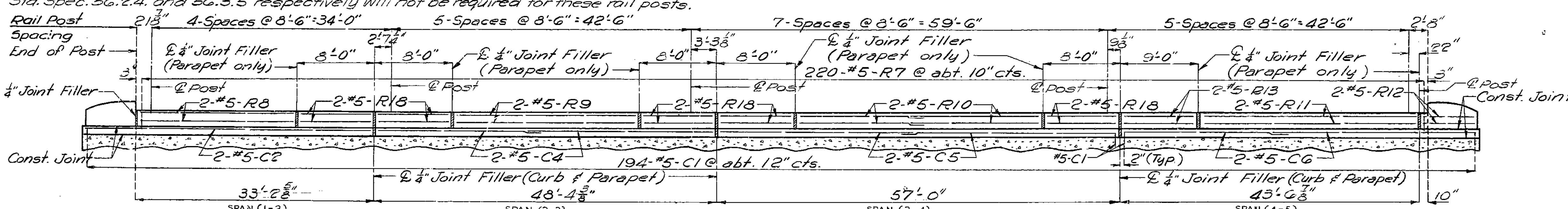
TYPICAL HANDRAIL DETAILS



CAST END CAP
(Drive Fit Type)

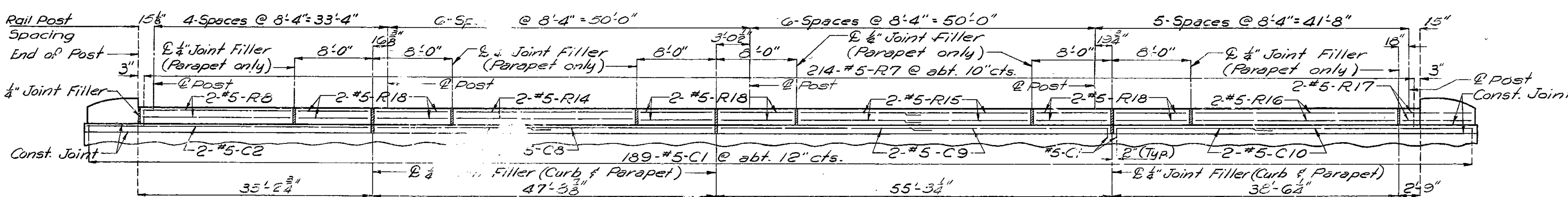


FILLED JOINT DETAILS

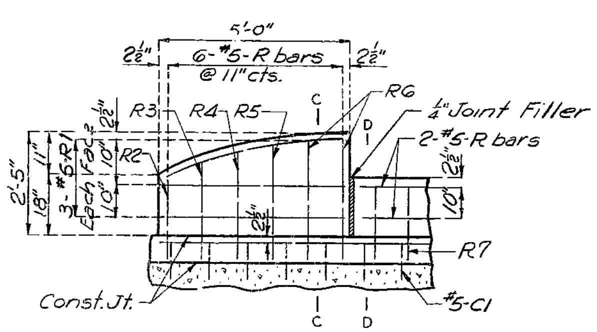


SECTION NEAR LEFT CURB AND PARAPET

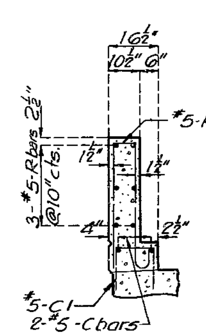
Note: Longitudinal dimensions shown are taken parallel to grade at ℄ and top of parapet. Joints in curbs and parapets to be normal to grade except for joints in parapets at End Bent No. 1.



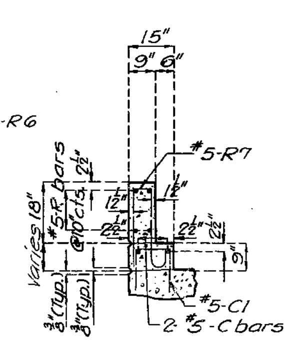
ELEVATION OF RIGHT CURB AND PARAPET



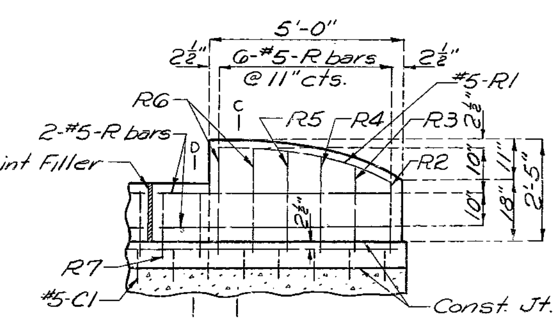
SECTION AT END POST
END BENT NO. 1



SECTION C-C

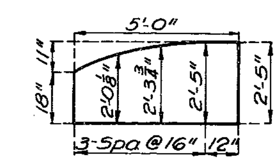


SECTION D-D



SECTION AT END POST
END BENT NO. 5

Note: For horizontal curb and parapet bars use minimum lap of 15" for #5 and 18" for #6.



END POST ORDINATES

BRIDGE: S.B. LANE MADISON ST. UNDERPASS

STATE ROAD ROUTE 54 RELOCATION

IN JEFFERSON CITY

PROJECT NO U-54-3(8) (RTE. 54) **STA.** 65+68.64 (℄ MED)

CO26-54(6)

COLE **COUNTY**

192

No. 15.2 L.A. Revised Mar. 1965 Nov. 1963

DETAILED MAY 1965 BY BRANDEL & H. MILLER

CHECKED SEPT. 1965 BY MOFFETT

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

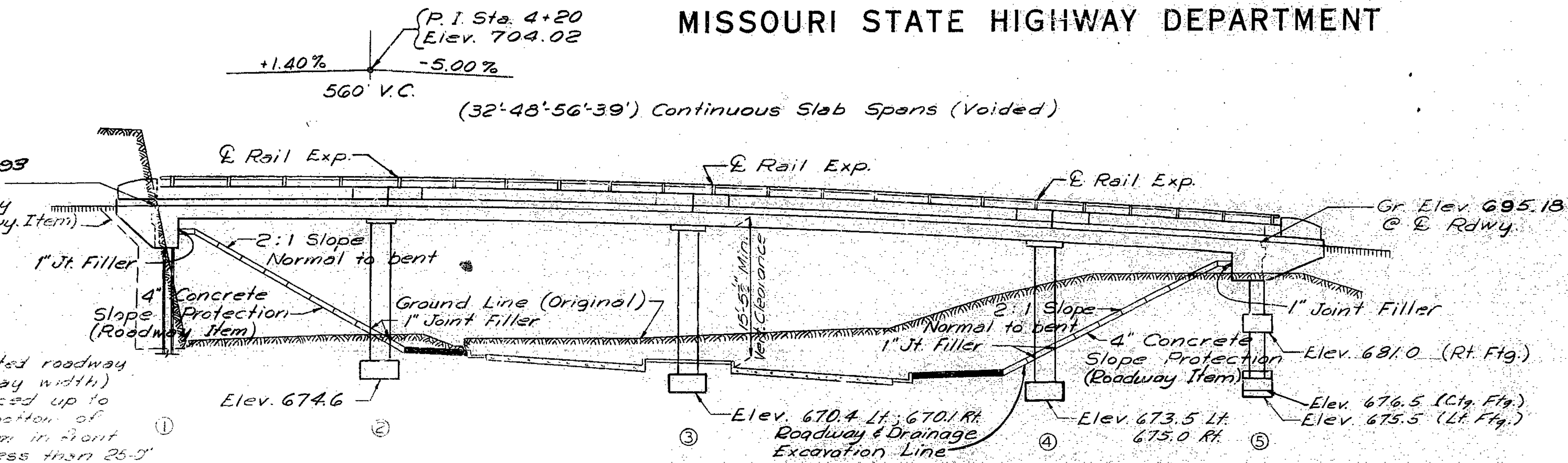
Sheet No. 10 of 10.

A-1309

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	107	

(32'-48'-56'-39') Continuous Slab Spans (Voided)



GENERAL ELEVATION

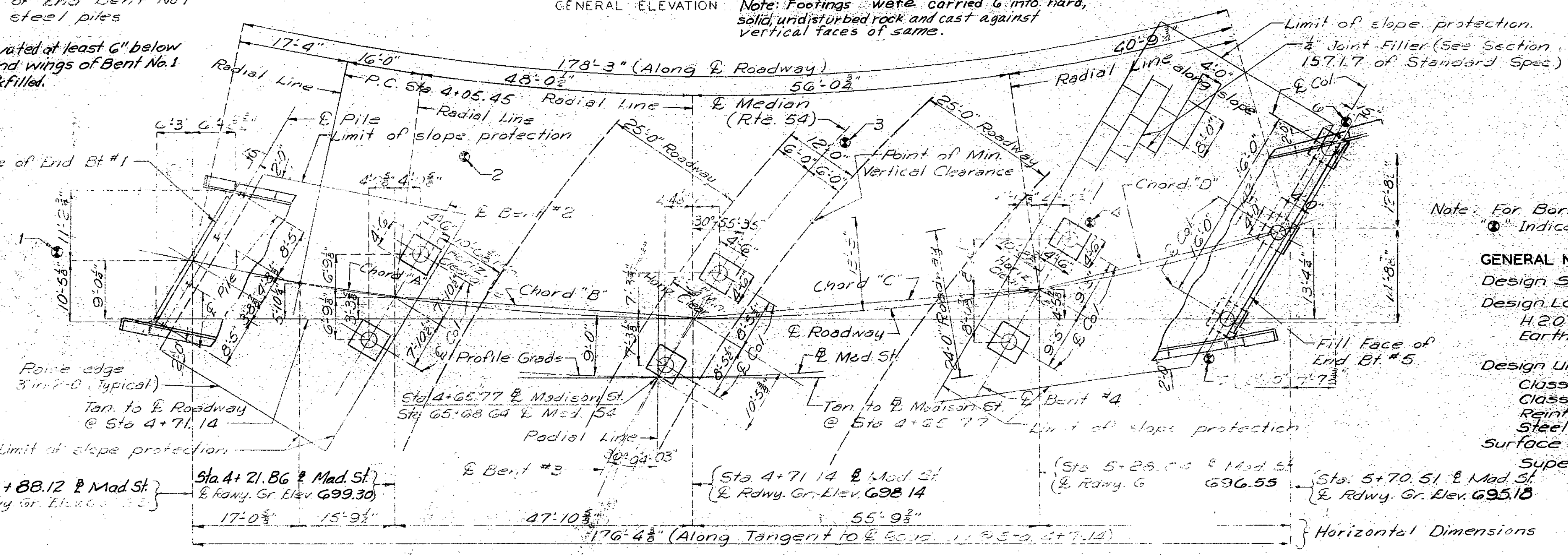
Note: Footings were carried 6" into hard, solid, undisturbed rock and cast against vertical faces of same.

Note: Compacted roadway fill (full roadway width) was placed up to elevation of bottom of concrete beam in front of and not less than 25-0" in back of End Bent No. 1 before steel piles driven.

Excavated at least 6" below and around wings of Bent No. 1 and backfilled.

FOOTING AND PILE DATA						
BENT NO.		1	2	3	4	5
SPREAD FOOTING	Foundation Material		Rock	Rock	Rock	Rock
	Design Brg. Tons/Sq. Ft.		5.3	6.4	6.3	5.4
BEARING PILE	Pile Type & Size	10"BP42				
	Number	4				
	Plan Bearing Tons	37				
	Min. Required Brg. Tons	24				
	Hammer	Power				

All pile were driven to practical refusal on or into solid rock or other point bearing material at not less than the Plan Bearing shown.



PLAN

Note: For Boring Data see sheet No. 2 of 10.
"⊗" Indicates location of boring.

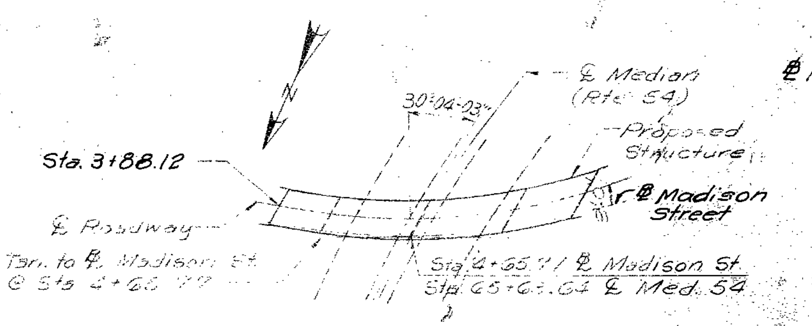
GENERAL NOTES:

Design Specifications: A.A.S.H.O. - 1961

Design Loading:
H 20-44 15#/sq. ft. Future Wearing Surface
Earth 120# Equivalent Fluid Pressure 30#

Design Unit Stresses:
Class B Concrete (substructure) fc = 1,200 psi
Class B1 Concrete (superstructure) fc = 1,600 psi
Reinforcing Steel fs = 20,000 psi
Steel Pile: (A.S.T.M. A36-62T) fb = 6,000 psi

Surface Seal:
Superstructure deck was surface sealed.



LOCATION SKETCH

℄ Madison St. S.B. Lane Curve Data:
P.I. 6+01.91
Δ = 57°-30' Lt
D = 16°
T = 196.46' (Arc.)
L = 359.38' (Arc.)
S.E. 0.04'/ft.
R = 358.10'

QUANTITIES				
ITEM		SUBSTR.	SUPERSTR.	TOTAL
Class 1 Excavation for Structures	Cu. Yd.	135.5		135.5
Steel Piles in Place (10")	Lin. Ft.	74		74
Steel Pile Cut-offs (10")	Lin. Ft.	6		6
Class B Concrete	Cu. Yd.	15.8		15.8
Class B1 Concrete	Cu. Yd.		321.4	321.4
Reinforcing Steel	Lb.	280	86,510	86,790
Bridge Rail (Single tube type)	Lin. Ft.		360	360
CONTINGENT ITEMS				
Test Holes	Lin. Ft.	36		36
Class 1 + 25%	C. Yd.	3.5		3.5

Note: [illegible] was [illegible] Class C [illegible] excavation [illegible] site was [illegible] started. See Road Plans for Roadway excavation at End Bent No. 1

All concrete and reinforcing above footings is included with superstructure concrete.

B. M. □ on N.W. corner of North curb of bridge No. A-1309 S.B. Lane. Elev. 696.60

BRIDGE: S. B. LANE MADISON ST. UNDERPASS

STATE ROAD ROUTE 54 RELOCATION FINISHED

IN JEFFERSON CITY

PROJECT NO. C026-54(6)UA **STA.** 65+68.64 (℄ MED)

COLE FINISHED COUNTY

FINISHED

SUBMITTED BY D. B. [signature] BRIDGE ENGINEER DATE 9/27/65

APPROVED BY M. J. [signature] CHIEF ENGINEER DATE 9/27/65

STD. 54.00

A-1309

DESIGNED MAR. 19 BY [illegible]
DETAILED JUNE 19 BY [illegible]
CHECKED 19 BY

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

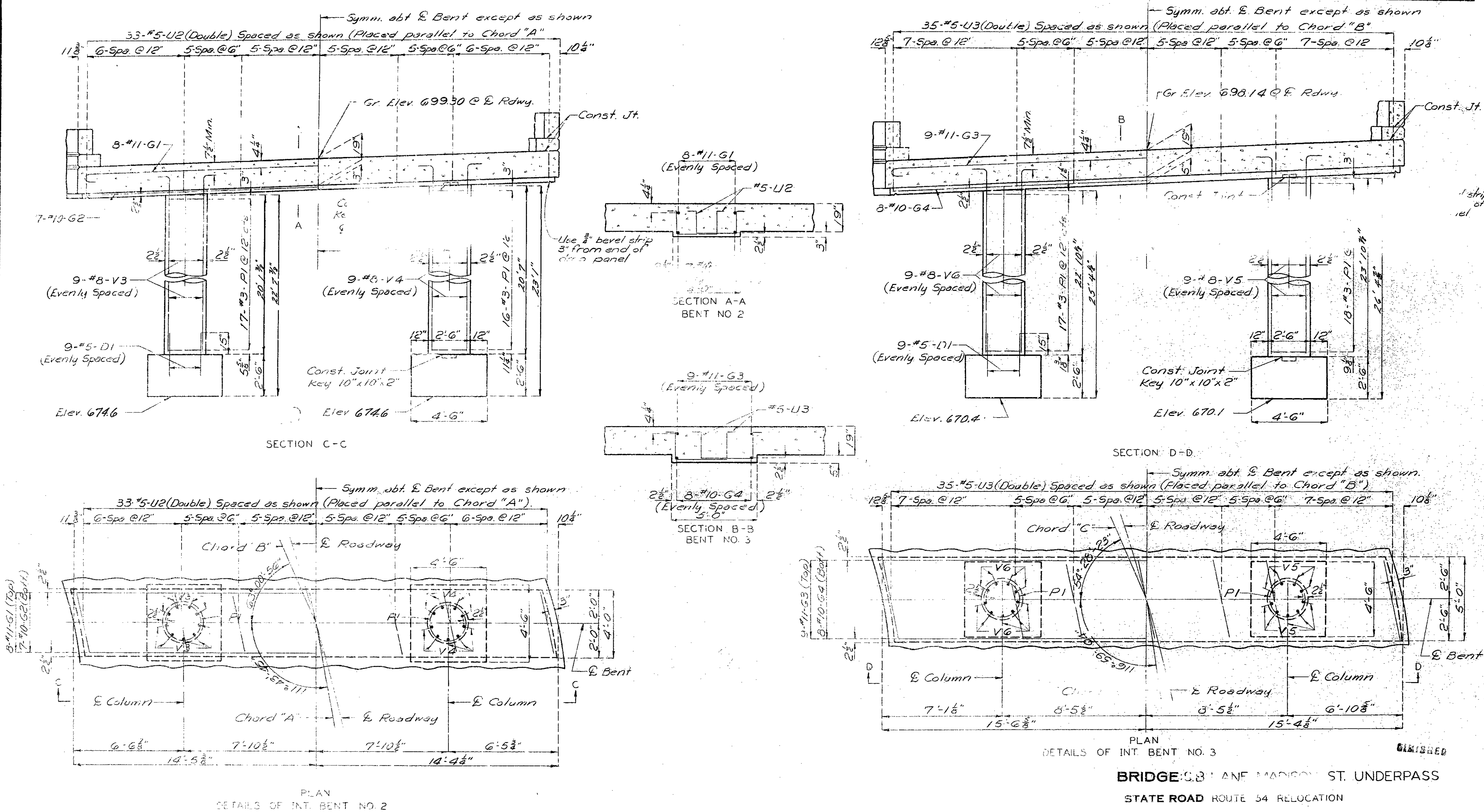
Sheet No. 1A of 4.

FINAL PLANS

193

MISSOURI STATE HIGHWAY DEPARTMENT

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



BRIDGE: LANE MADISON ST. UNDERPASS

STATE ROAD ROUTE 54 RELOCATION

IN JEFFERSON CITY

PROJECT NO. C026-54(6) UA STA. 65+68.64 (℄ MED)

COLE COUNTY

FINISHED

DETAILED JUNE 1965 BY BRANDEL

CHECKED SEPT 1965 BY MOFFETT

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

Sheet No. 3 of 4

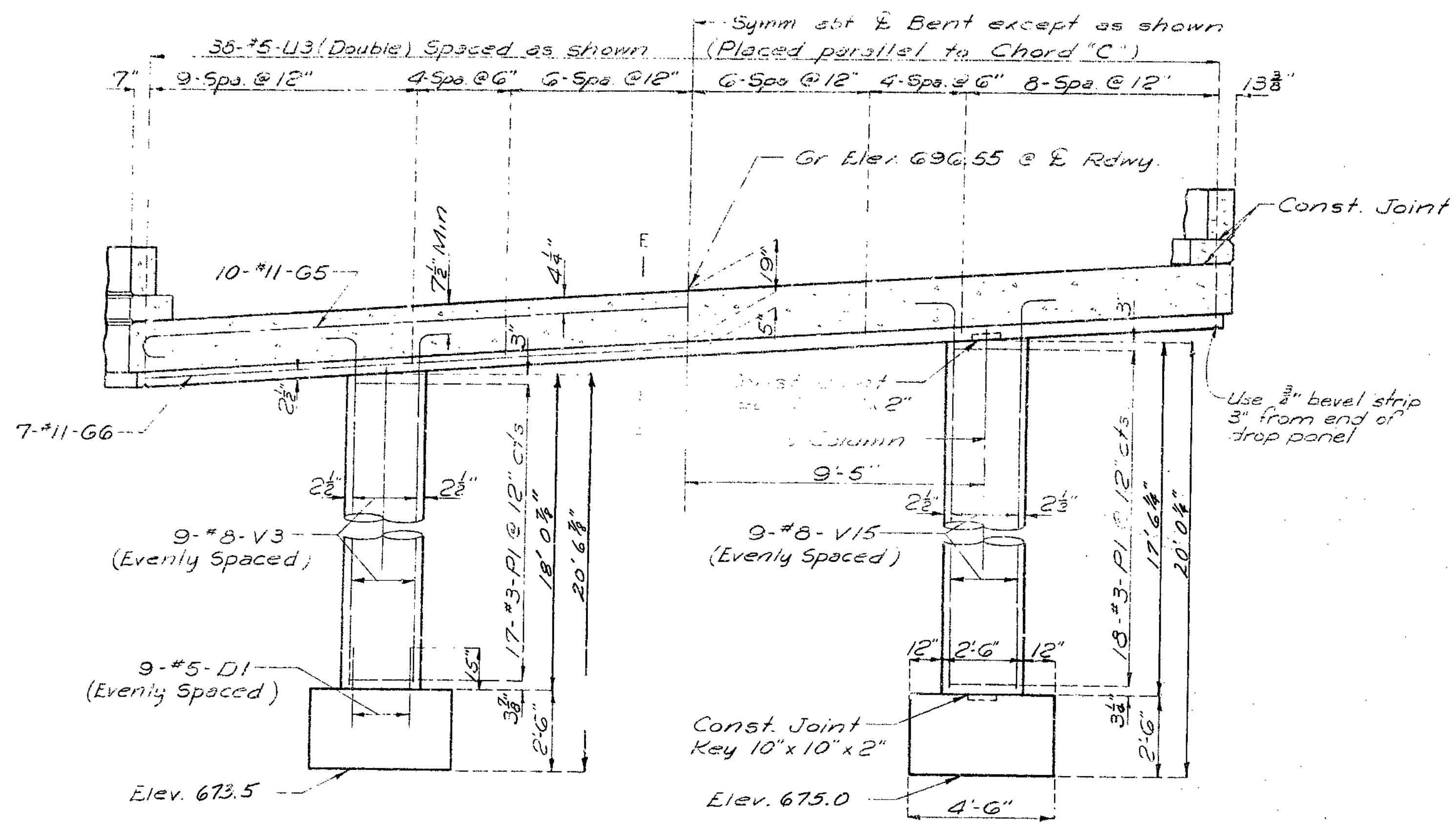
A-1309

FINAL PLANS

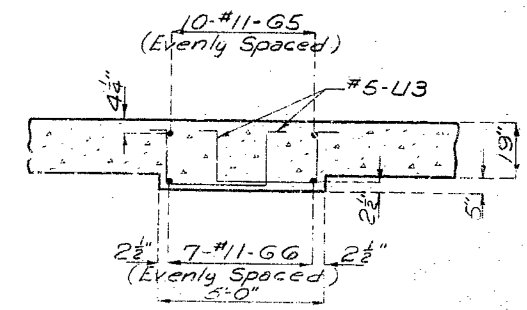
194

MISSOURI STATE HIGHWAY DEPARTMENT

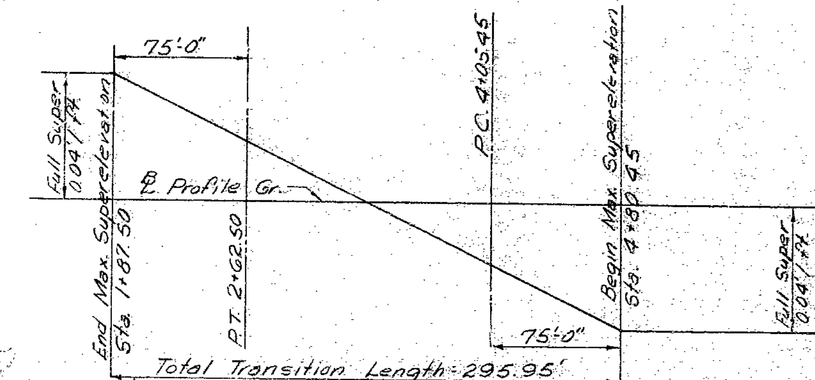
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO		19		



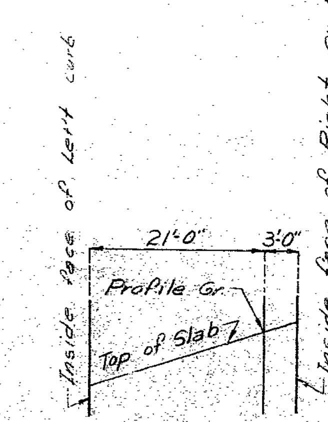
SECTION F-F



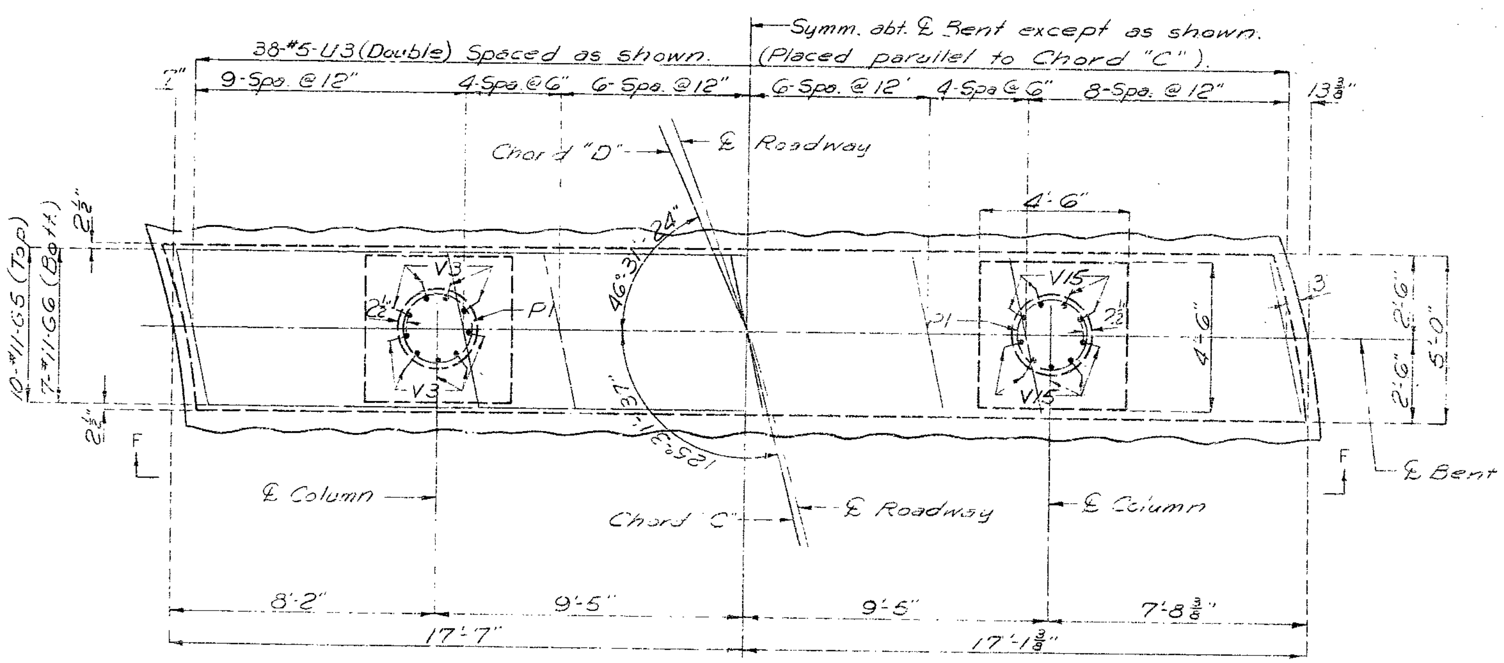
SECTION E-E



SUPERELEVATION TRANSITION SKETCH



SUPERELEVATION TRANSITION DATA AT TOP OF SLAB							
STATION	LEFT GUTTER LINE	℄ ROADWAY	RIGHT GUTTER LINE	STATION	LEFT GUTTER LINE	℄ ROADWAY	RIGHT GUTTER LINE
3+75	Elev. 700.00	Elev. 700.13	Elev. 700.27	4+35	Elev. 698.68	Elev. 699.[illegible]	Elev. 699.34
+80	" 699.91	" .06	" .21	+40	" .55	" 698.[illegible]	" .24
+85	" .81	" 699.97	" .14	+45	" .42	" .78	" .14
+90	" .71	" .89	" .07	+50	" .28	" .66	" 699.04
+95	" .61	" .80	" 700.00	+55	" .15	" .54	" 698.94
4+00	" .50	" .72	" 699.93	+60	" 698.01	" .42	" .83
+05	" .39	" .62	" .86	+65	" 697.86	" .29	" .72
+10	" .28	" .53	" .78	+70	" .72	" .16	" .61
+15	" .16	" .43	" .69	+75	" .57	" 698.03	" .49
+20	" 699.05	" .33	" .61	+80	" .41	" 697.89	" .37
+25	" 698.93	" .23	" .52	4+85	" 697.29	" 697.77	" 698.25
4+30	" 698.80	" 699.12	" 699.43				



PLAN

DETAILS OF INT. BENT NO. 4

DETAILED JUNE 1965 BY BRANDEL
CHECKED SEPT. 1965 BY MOFFETT

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

Sheet No. 6A of 4

FINISHED

BRIDGE S.B. LANE MADISON ST. UNDERPASS

STATE ROAD ROUTE 54 RELOCATION

IN JEFFERSON CITY

PROJECT N . C026-54(6)JA **STA.** 65+68.64 (℄ MED)

COLE COUNTY

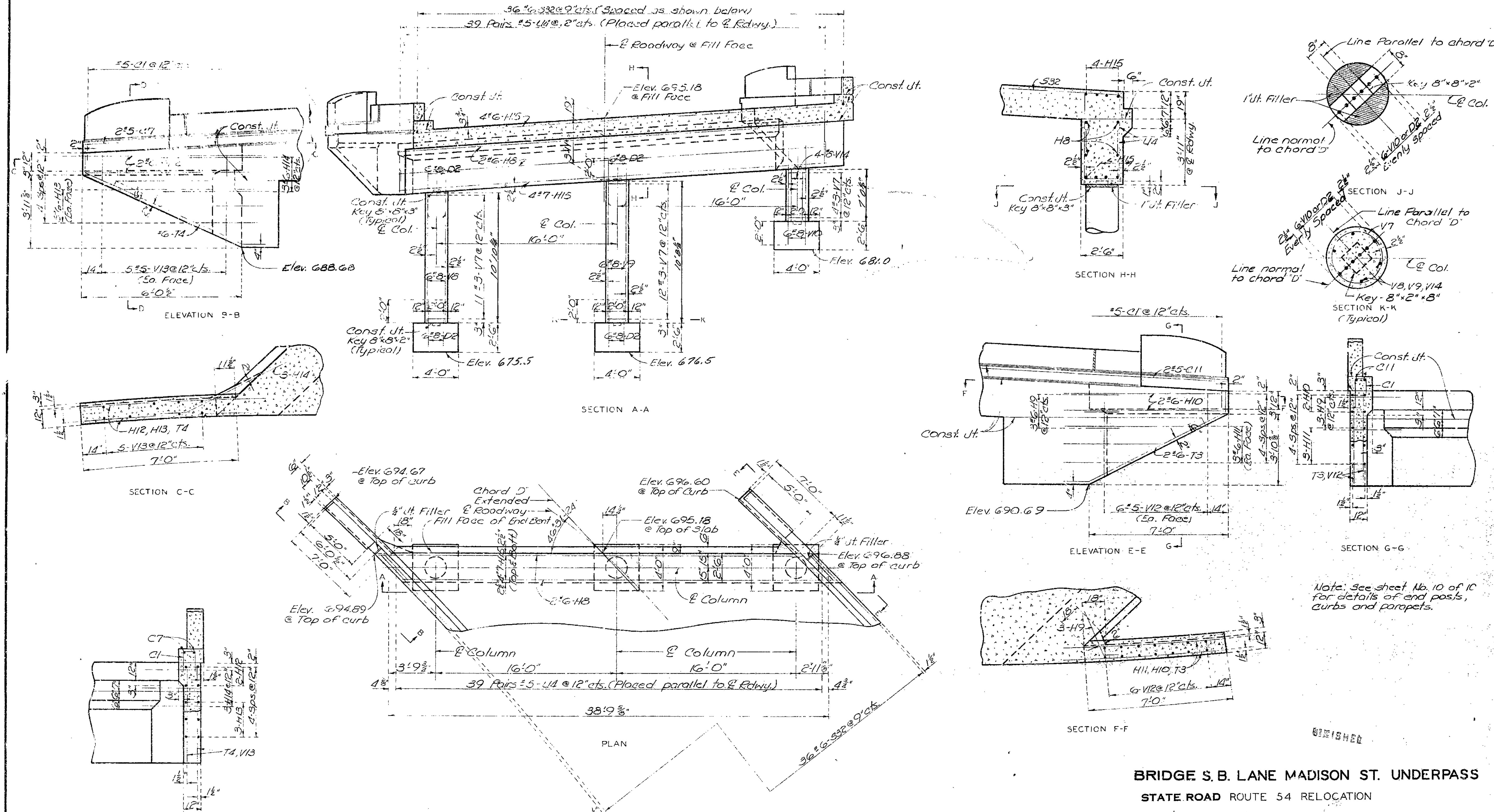
FINISHED

A-1309

FINAL PLANS

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	117	



DETAILS OF END BENT NO. 5

FINISHED

BRIDGE S. B. LANE MADISON ST. UNDERPASS

STATE ROAD ROUTE 54 RELOCATION

IN JEFFERSON CITY

PROJECT NO. C026-54(6)UA **STA.** 65+68.64 (℄ MED)

COLE COUNTY

FINISHED

A-1309

DETAILED JUNE 1965 BY ROBERDS
CHECKED SEPT. 1965 BY MOFFETT

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

Sheet No. 7A of 4

FINAL PLANS

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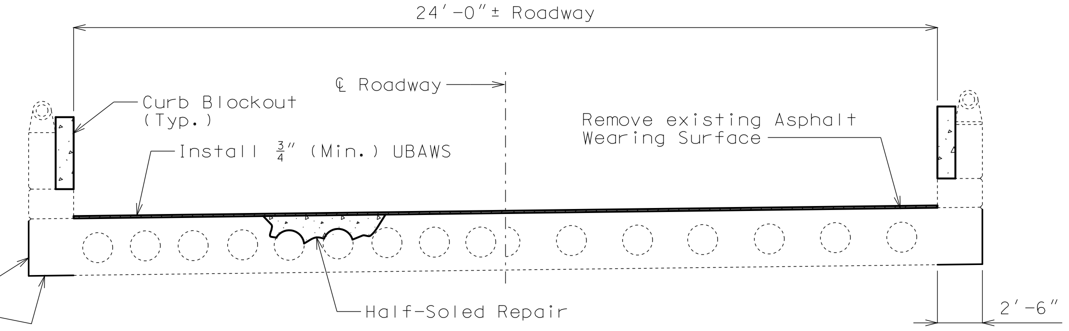
U.I.P. AND REHABILITATE EXISTING (32'-48'-56'-39') CONTINUOUS CONCRETE VOIDED SLAB

SEC/SUR 12 TWP 44N RGE 12W



HALF SECTION NEAR MIDSPAN

HALF SECTION NEAR INT. BENT

TYPICAL SECTION THRU EXISTING SLAB

GENERAL NOTES:

Design Specifications:

2002 AASHTO LFD (17th Ed.) Standard Specifications
Bridge Deck Rating = 6

Design Specifications:

Class B-1 Concrete (Curb Blockout) f'c = 4,000 psi

Reinforcing Steel (Grade 60) fy = 60,000 psi

All curb blockout steel shall be epoxy coated.

Reinforcing Steel:

Minimum clearance to reinforcing steel shall be 1½" unless otherwise noted.

Joint Filler:

All joint filler shall be in accordance with Sec 1057 for preformed sponge rubber expansion and partition joint filler, except as noted.

Miscellaneous:

Outline of old work is indicated by light dashed lines. Heavy lines indicate new work.

Contractor shll verify all dimensions in field before ordering new material.

Roadway surfacing adjacent to bridge ends shall match new bridge wearing surface (Roadway Item).

Existing bridge rail may be removed and disposed of at the contractor's option. Removal and disposal cost will be considered completely covered by the contract unit price for Curb Blockout.

Concrete Protective Coating:

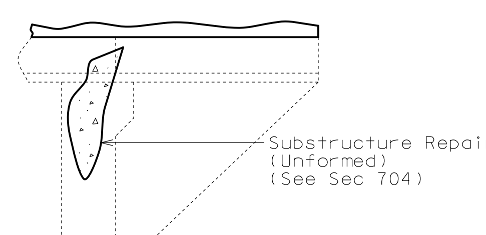
Protective coating for concrete bents and piers (Epoxy) shall be applied as shown on the bridge plans and in accordance with Sec 711.

Traffic Handling:

Structure to be closed during construction. Traffic to be maintained on other routes during construction. See roadway plans for traffic control.

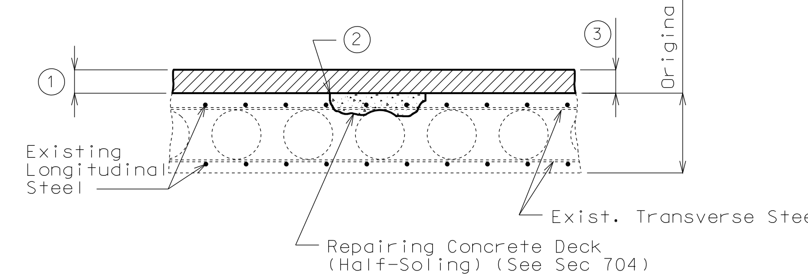
Estimated Quantities		
Item		Total
Removal of Asphalt Wearing Surface	sq. foot	4278
Ultra-thin Bonded Wearing Surface (UBAWS), Grade C, ¾" Thick	sq. yard	475
* Curb Blockout	linear foot	383
Substructure Repair (Unformed)	sq. foot	12
Repairing Concrete Deck (Half-Soling)	sq. foot	100
Clean and Epoxy Seal	sq. foot	1458
Protective Coating - Concrete Bents And Piers (Epoxy)	lump sum	1

* Cost of cleaning and repairing existing brush curb shall be included with the contract unit price for Curb Blockout.



PART ELEVATION SHOWING SUBSTRUCTURE REPAIR (UNFORMED) AT END BENT NO. 5 WING (NW)

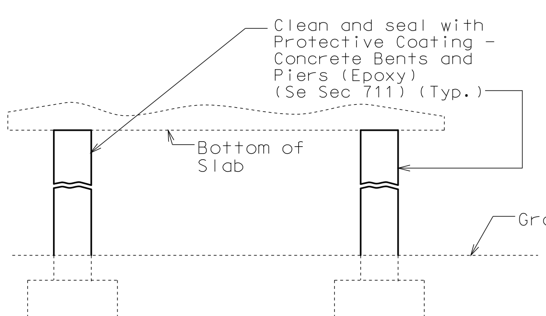
(Repair is located on the right wing)



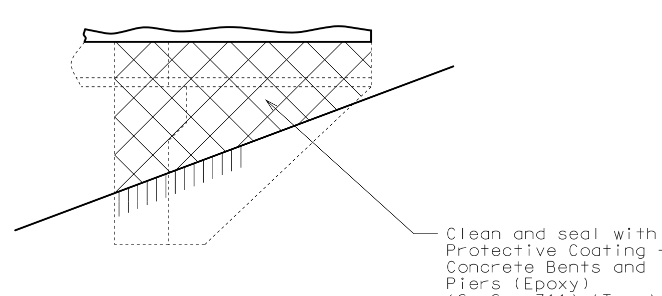
HALF-SOLED REPAIR

1. Remove existing wearing surface.
2. One inch vertical side shall be established outside the deteriorated area. See Sec 704.
3. 3/4" (min.) for Ultra-thin Bonded Asphalt Wearing Surface (UBAWS).

DECK REPAIR DETAIL



PART ELEVATION SHOWING LIMITS OF PROTECTIVE COATING AT INTERMEDIATE BENTS NO. 2, 3 & 4 (ALL COLUMNS)



PART ELEVATION SHOWING LIMITS OF PROTECTIVE COATING AT END BENT NO. 5 WINGS

REPAIRS TO BRIDGE: MADISON STREET OVER ROUTE 54

ROUTE 54 FROM RTE. 179 TO RTE. 50
ABOUT 1.4 MILES WEST OF RTE. 50
STA. 3+88.12± (MATCH EXIST.)

STD. 617.10
STD. 706.35

Detailed Oct. 2017
Checked Oct. 2017

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

Sheet No. 1 of 8

STATE OF MISSOURI
ANOUSONE AROUNPRADITH
NUMBER PE-29317
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED	11/20/2017
ROUTE	54
STATE	MO
DISTRICT	BR
SHEET NO.	1
COUNTY	COLE
JOB NO.	J5P3118
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	A13091

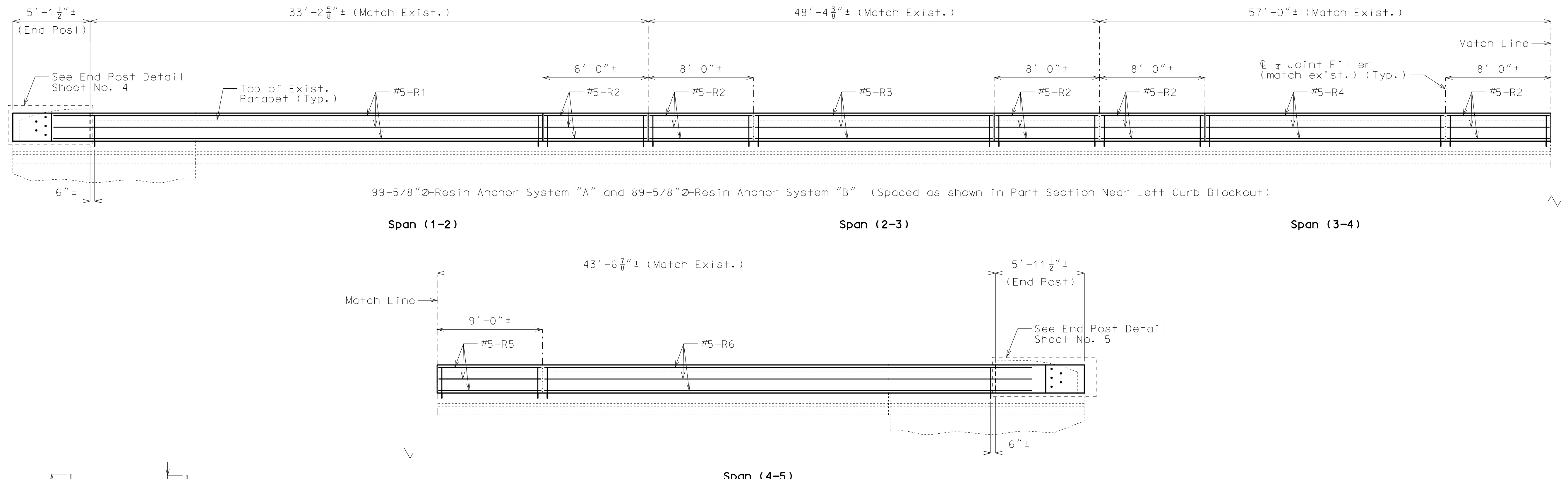
DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

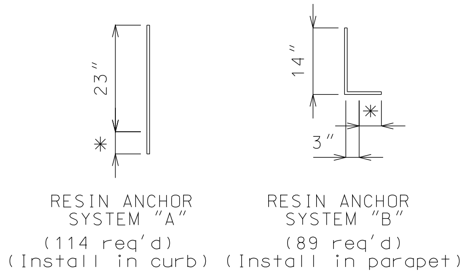
IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.



DEVELOPED SECTION NEAR LEFT CURB BLOCKOUT

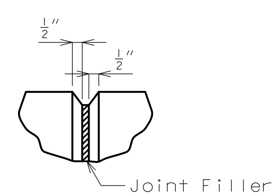
Note: Longitudinal dimensions shown are along grade and are taken at top and ℄ of Parapet.

Bridge rail not shown, for clarity.

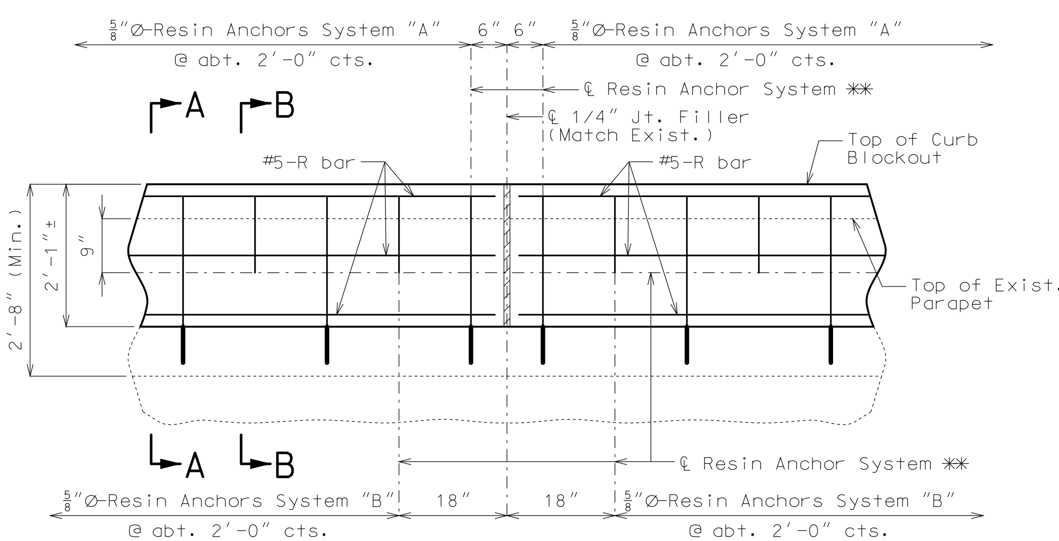


* Use manufacturer's embedment length. (5" minimum embedment)

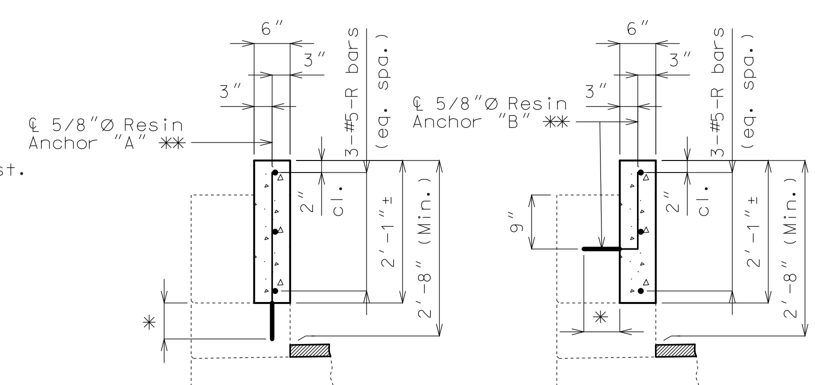
DETAILS OF RESIN ANCHORS



FILLED JOINT DETAIL



PART SECTION NEAR LEFT CURB BLOCKOUT



SECTION A-A

SECTION B-B

Notes:

Concrete in curb blockout shall be Class B-1 with f'c = 4000 psi.

Measurement of curb blockout is to the nearest linear foot, measured at the top outside edge of parapet from end of wing to end of wing. (Match existing curb and parapet)

All exposed edges of curb blockout shall have 1/2" radius or 3/8" bevel unless otherwise shown.

Payment for concrete, reinforcing steel, resin anchors, and any other work incidental to the curb blockout, complete in place, will be included in the contract unit price for Curb Blockout per linear foot.

Cost of any concrete curb or parapet repair will be included in the contract unit price for Curb Blockout.

All reinforcement shall be epoxy coated.

** Shift resin anchors where necessary to clear existing anchor bolts for bridge rail, miss curb outlets (if present) and clear existing reinforcement.

Use a minimum lap of 2'-11" for #5 horizontal curb blockout bars.

Concrete traffic barrier delineators shall be placed on top of the curb blockout similarly as shown on Missouri Standard Plans 617.10 and in accordance with Sec 617. Delineators shall have retroreflective sheeting on side facing oncoming traffic only. Concrete traffic barrier delineators will be considered completely covered by the contract unit price for "Curb Blockout".

The contractor shall use one of the qualified resin anchor systems in accordance with Sec 1039.

The minimum embedment depth in concrete with f'c = 4,000 psi for the resin anchor system shall be that required to meet the minimum ultimate pullout strength in accordance with Sec 1039 but shall not be less than 5".

An epoxy coated #5 Grade 60 reinforcing bar shall be substituted for the 5/8"Ø threaded rod.

DETAILS OF LEFT CURB BLOCKOUT

Detailed Oct. 2017
Checked Oct. 2017

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

STATE OF MISSOURI
ANOUSONE AROUNPRADITH
NUMBER PE-29317
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED	
11/20/2017	
ROUTE 54	STATE MO
DISTRICT BR	SHEET NO. 2
COUNTY COLE	
JOB NO. J5P3118	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO. A13091	

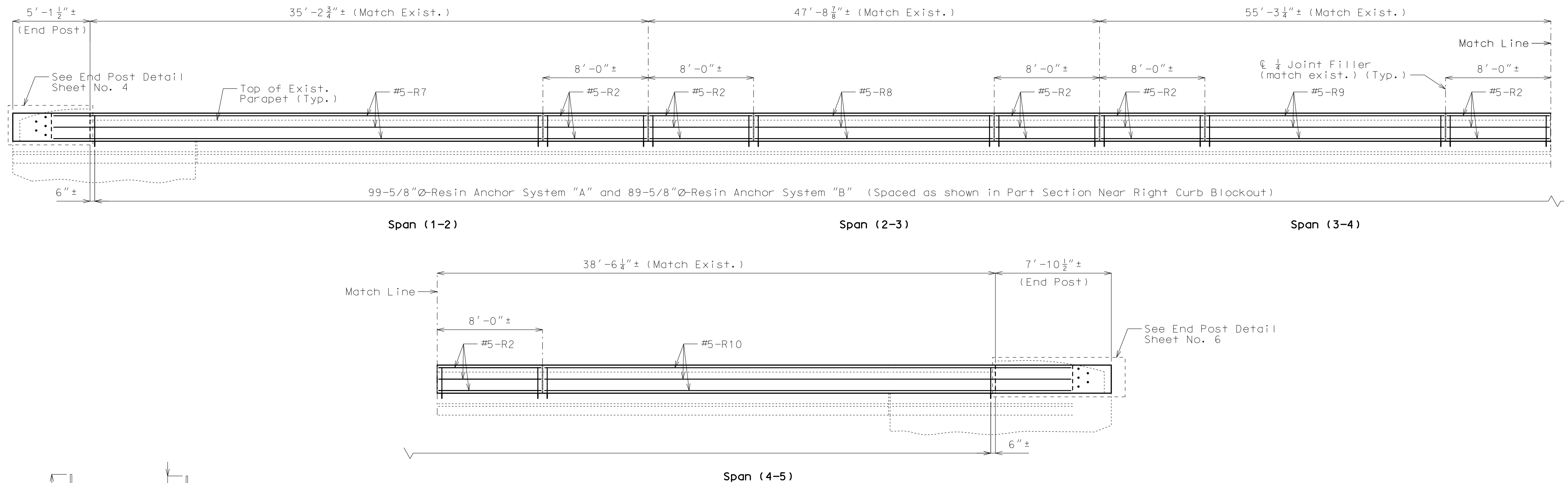
DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

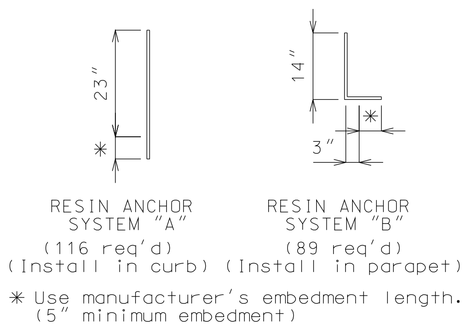
IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.



DEVELOPED ELEVATION NEAR RIGHT CURB BLOCKOUT

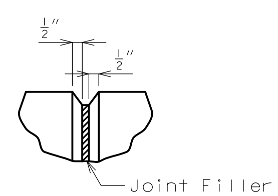
Note: Longitudinal dimensions shown are along grade and are taken at top and ℄ of Parapet.

Bridge rail not shown for clarity.

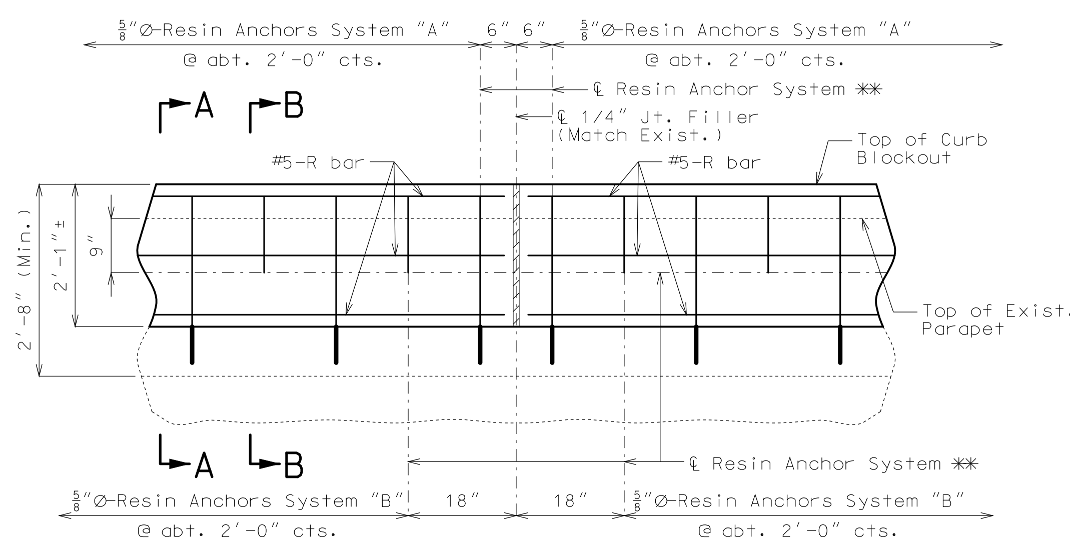


✳ Use manufacturer's embedment length. (5" minimum embedment)

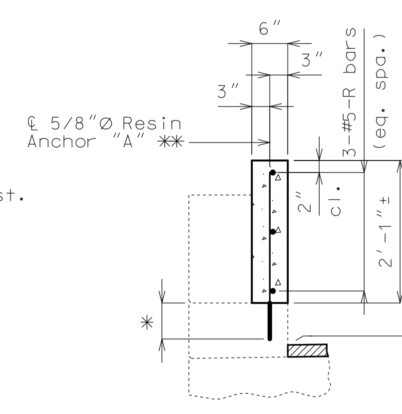
DETAILS OF RESIN ANCHORS



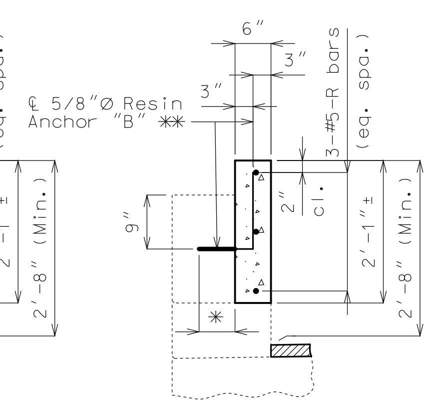
FILLED JOINT DETAIL



PART SECTION NEAR RIGHT CURB BLOCKOUT



SECTION A-A



SECTION B-B

Notes:

Concrete in curb blockout shall be Class B-1 with f'c = 4000 psi.

Measurement of curb blockout is to the nearest linear foot, measured at the top outside edge of parapet from end of wing to end of wing. (Match existing curb and parapet)

All exposed edges of curb blockout shall have 1/2" radius or 3/8" bevel unless otherwise shown.

Payment for concrete, reinforcing steel, resin anchors, and any other work incidental to the curb blockout, complete in place, will be included in the contract unit price for Curb Blockout per linear foot.

Cost of any concrete curb or parapet repair will be included in the contract unit price for Curb Blockout.

All reinforcement shall be epoxy coated.

✳✳ Shift resin anchors where necessary to clear existing anchor bolts for bridge rail, miss curb outlets (if present) and clear existing reinforcement.

Use a minimum lap of 2'-11" for #5 horizontal curb blockout bars.

Concrete traffic barrier delineators shall be placed on top of the curb blockout similarly as shown on Missouri Standard Plans 617.10 and in accordance with Sec 617. Delineators shall have retroreflective sheeting on side facing oncoming traffic only. Concrete traffic barrier delineators will be considered completely covered by the contract unit price for "Curb Blockout".

The contractor shall use one of the qualified resin anchor systems in accordance with Sec 1039.

The minimum embedment depth in concrete with f'c = 4,000 psi for the resin anchor system shall be that required to meet the minimum ultimate pullout strength in accordance with Sec 1039 but shall not be less than 5".

An epoxy coated #5 Grade 60 reinforcing bar shall be substituted for the 5/8"Ø threaded rod.

DETAILS OF RIGHT CURB BLOCKOUT

Detailed Oct. 2017
Checked Oct. 2017

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

STATE OF MISSOURI
ANOUSONE AROUNPRADITH
NUMBER PE-29317
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED	11/20/2017
ROUTE	54
STATE	MO
DISTRICT	BR
SHEET NO.	3
COUNTY	COLE
JOB NO.	J5P3118
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	A13091

DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

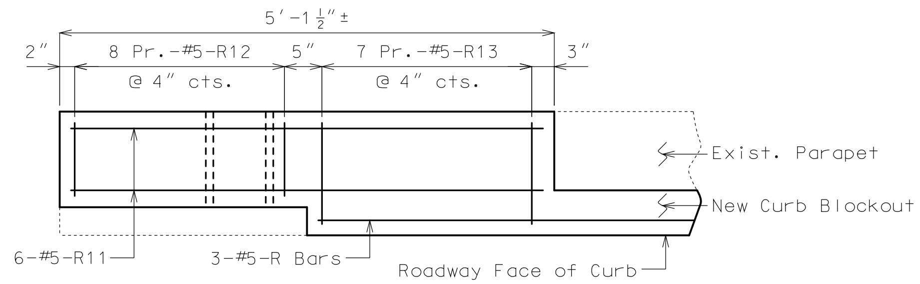
IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

Notes:

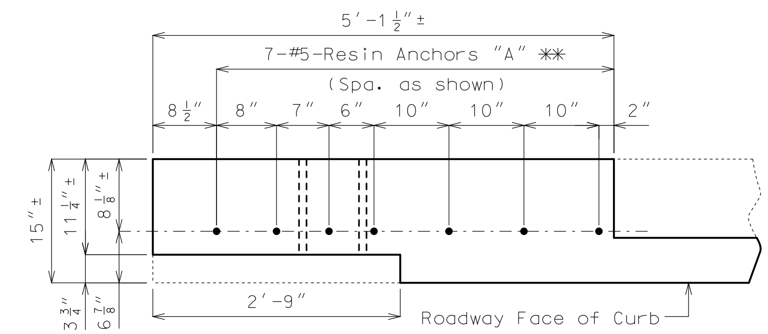
For Details of Resin Anchors, see Sheets No. 2 & 3.

** Shift resin anchors where necessary to clear exist. reinforcement.

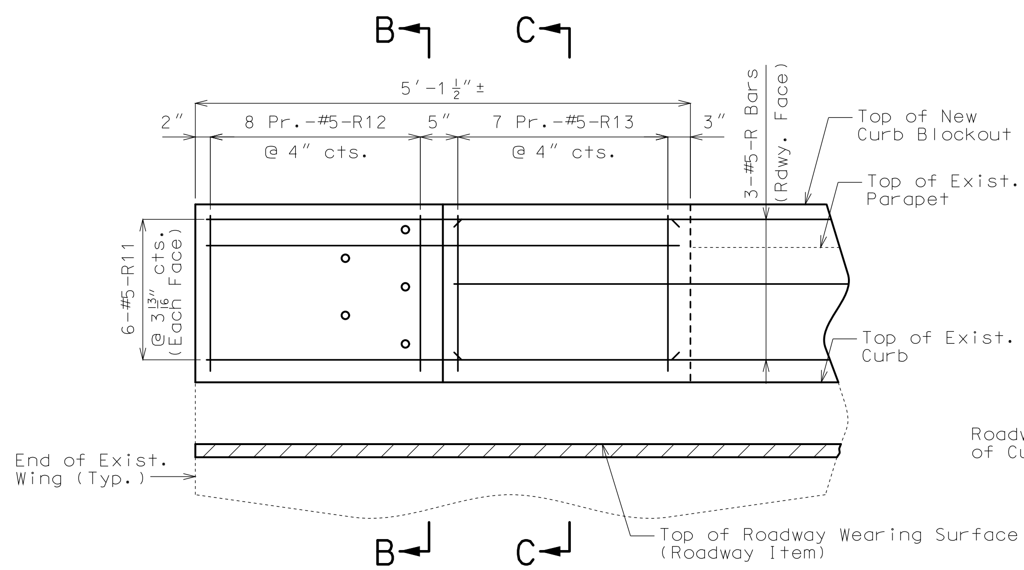
Bridge rail not shown, for clarity.



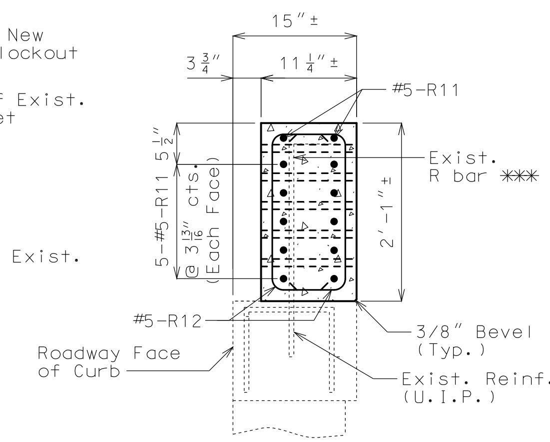
PART PLAN SHOWING END POST REINFORCEMENT



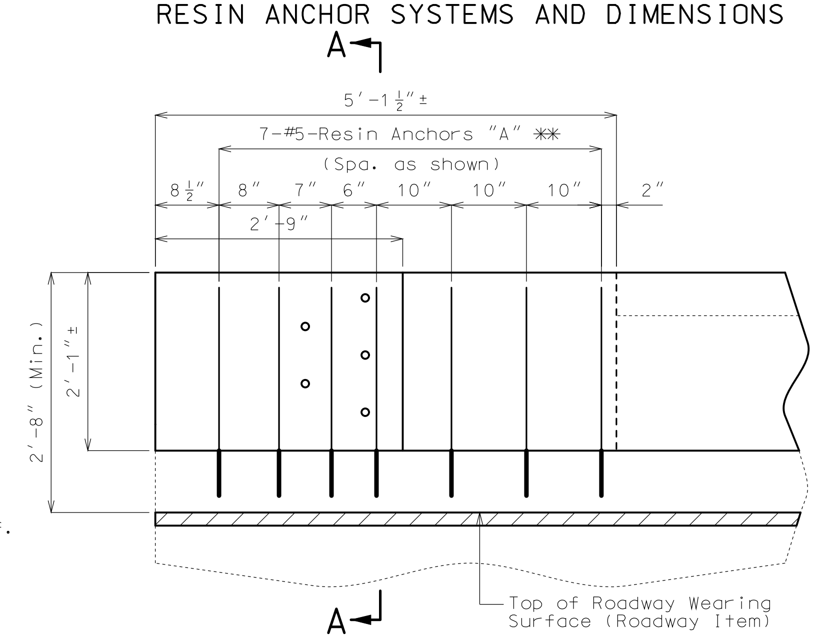
PLAN SHOWING END POST RESIN ANCHOR SYSTEMS AND DIMENSIONS



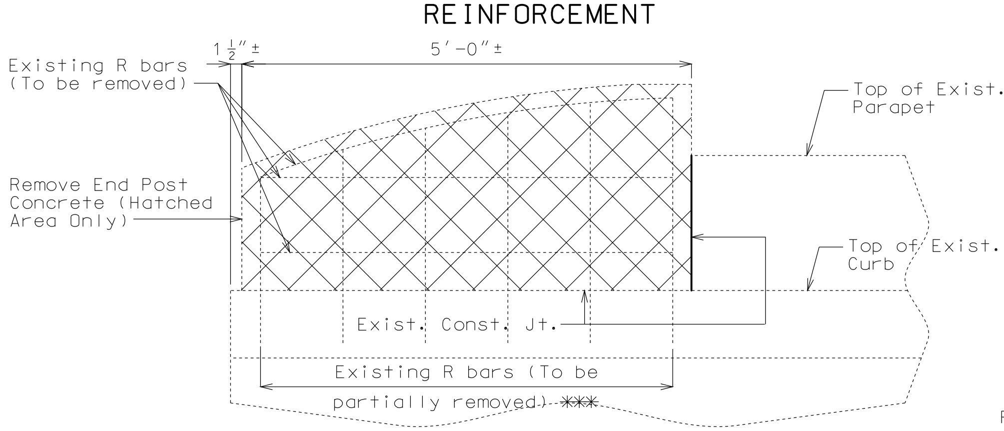
PART ELEVATION SHOWING END POST REINFORCEMENT



SECTION B-B



ELEVATION SHOWING END POST RESIN ANCHOR SYSTEMS AND DIMENSIONS

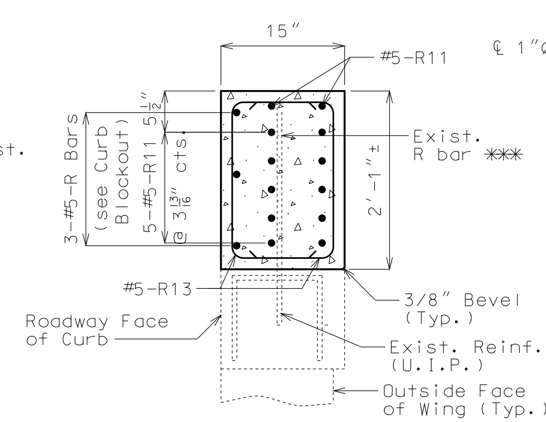


PART ELEVATION OF EXISTING END POST SHOWING CONCRETE REMOVAL

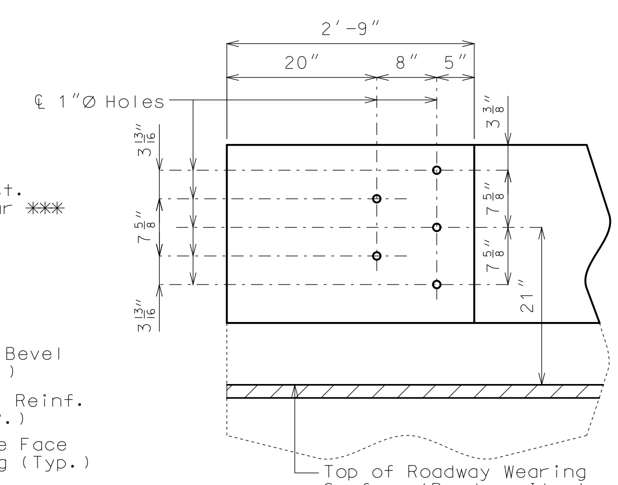
Note:

Cost of removing existing end posts will be considered completely covered by the contract unit price for Curb Blockout (linear foot).

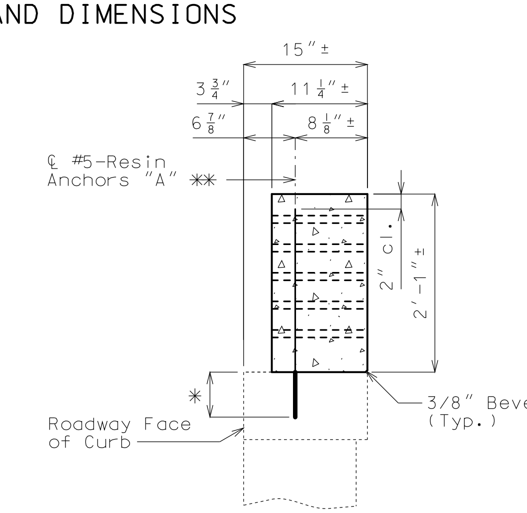
*** Vertical leg of existing R bar at the outside face shall be cleaned and reused. Horizontal leg and vertical leg at the roadway face shall be removed to one inch below concrete removal surface and the resulting holes shall be filled with a qualified special mortar.



SECTION C-C



DETAILS OF GUARD RAIL ATTACHMENT



SECTION A-A

* Manufacturer's recommended embedment length. (5" minimum embedment)

DETAILS OF END POST AT END BENT NO. 1

(Left side shown. Right side similar.)

Detailed Oct. 2017
Checked Oct. 2017

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

STATE OF MISSOURI
ANOUSONE ARUNPRADITH
NUMBER PE-29317
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED	11/20/2017
ROUTE 54	STATE MO
DISTRICT BR	SHEET NO. 4
COUNTY	COLE
JOB NO.	J5P3118
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	A13091

DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

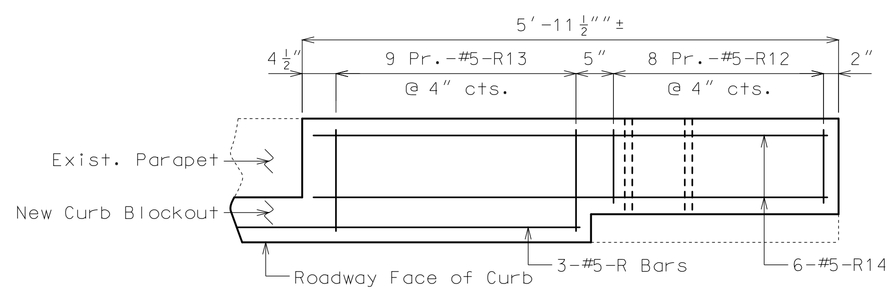
IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

Notes:

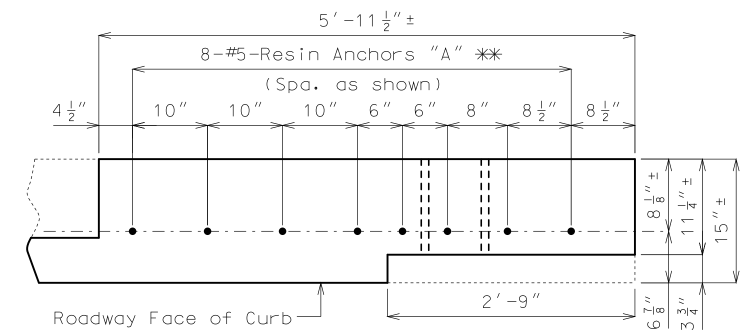
For Details of Resin Anchors, see Sheet No. 2.

** Shift resin anchors where necessary to clear exist. reinforcement.

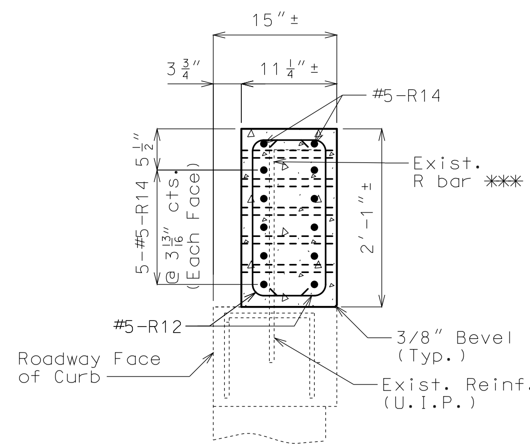
Bridge rail not shown, for clarity.



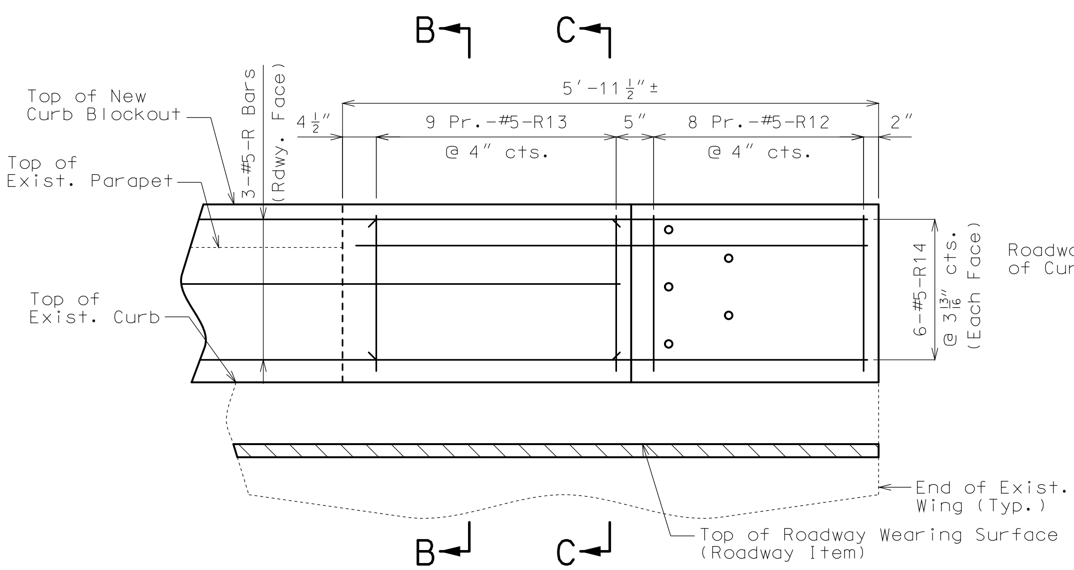
PART PLAN SHOWING END POST REINFORCEMENT



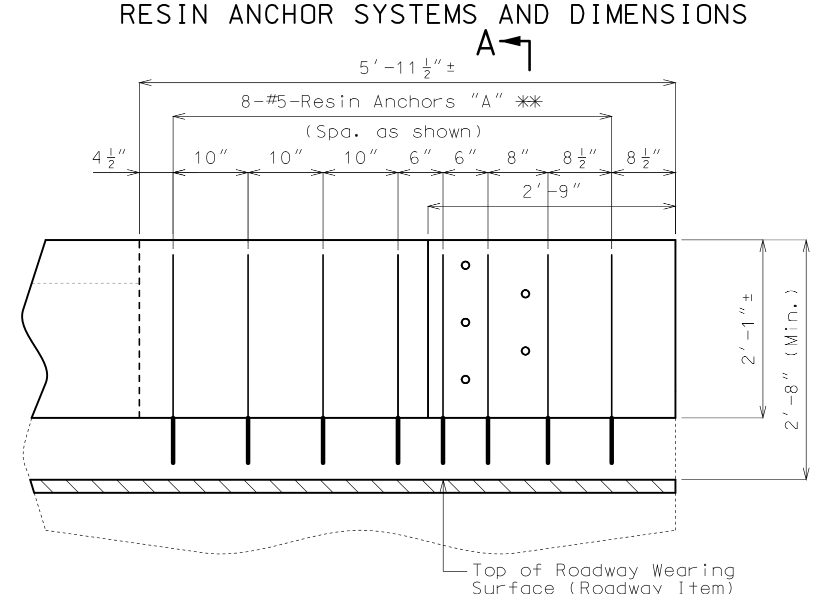
PLAN SHOWING END POST RESIN ANCHOR SYSTEMS AND DIMENSIONS



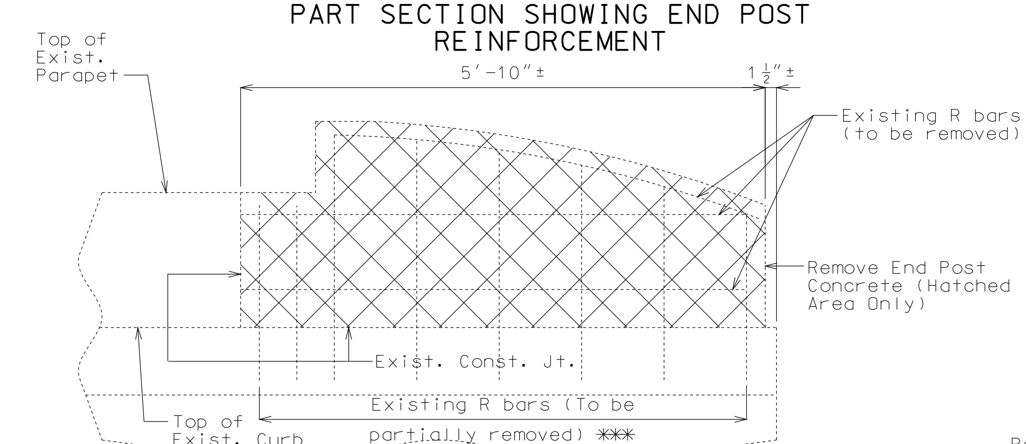
SECTION B-B



PART SECTION SHOWING END POST REINFORCEMENT



ELEVATION SHOWING END POST RESIN ANCHOR SYSTEMS AND DIMENSIONS

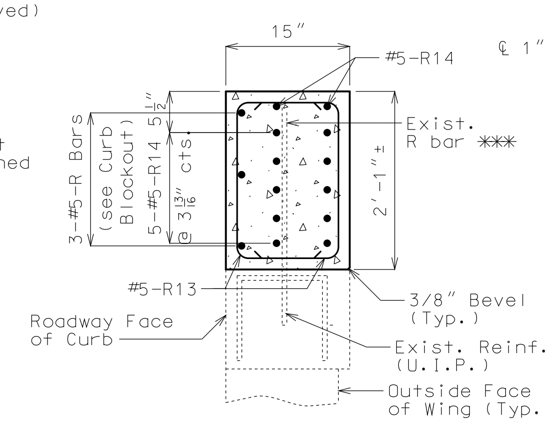


PART ELEVATION OF EXISTING END POST SHOWING CONCRETE REMOVAL

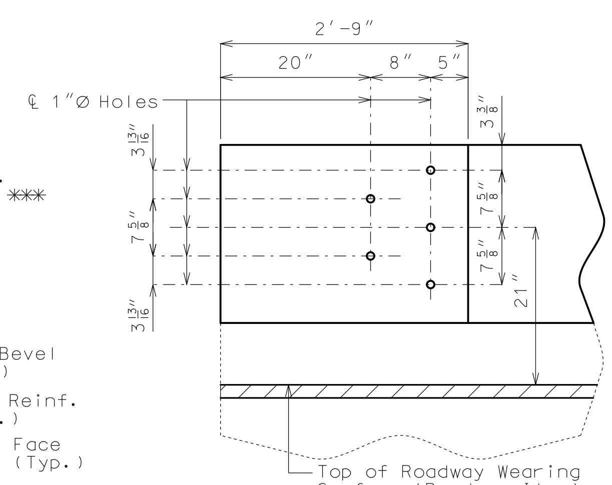
Note:

Cost of removing existing end posts will be considered completely covered by the contract unit price for Curb Blockout (linear foot).

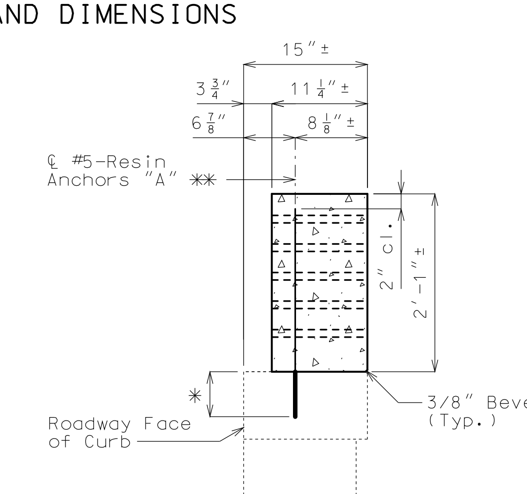
*** Vertical leg of existing R bar at the outside face shall be cleaned and reused. Horizontal leg and vertical leg at the roadway face shall be removed to one inch below concrete removal surface and the resulting holes shall be filled with a qualified special mortar.



SECTION C-C



DETAILS OF GUARD RAIL ATTACHMENT



SECTION A-A

* Manufacturer's recommended embedment length. (5" minimum embedment)

DETAILS OF END POST AT END BENT NO. 5

(Left side shown)

Detailed Oct. 2017
Checked Oct. 2017

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

STATE OF MISSOURI
ANOUSONE AROUNPRADITH
NUMBER PE-29317
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED	11/20/2017
ROUTE	54
STATE	MO
DISTRICT	BR
SHEET NO.	5
COUNTY	COLE
JOB NO.	J5P3118
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	A13091

DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

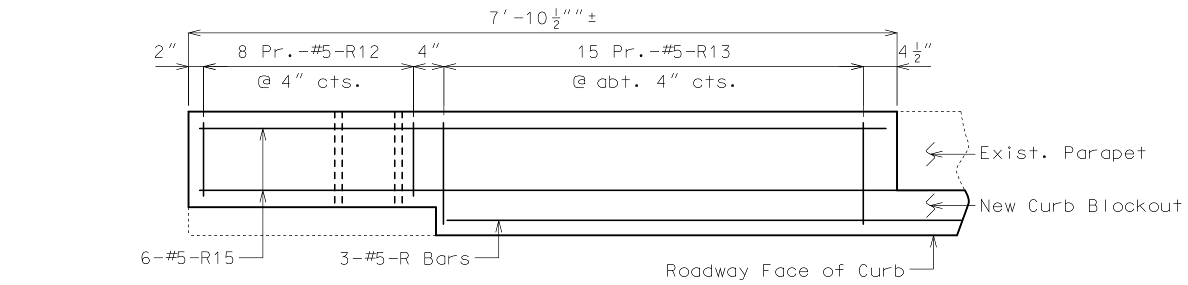
IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

Notes:

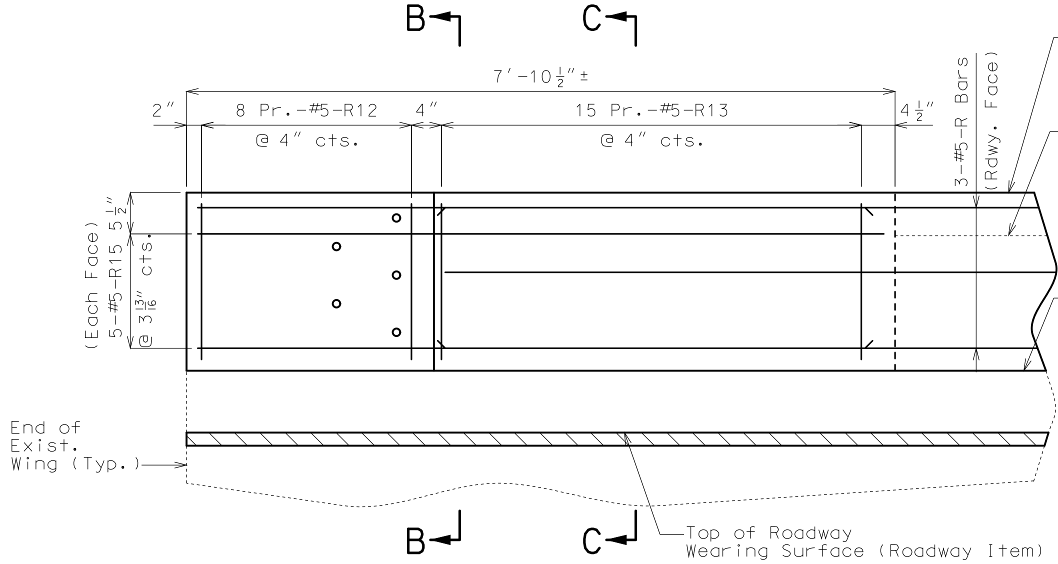
For Details of Resin Anchors, see Sheet No. 3.

*** Shift resin anchors where necessary to clear exist. reinforcement.

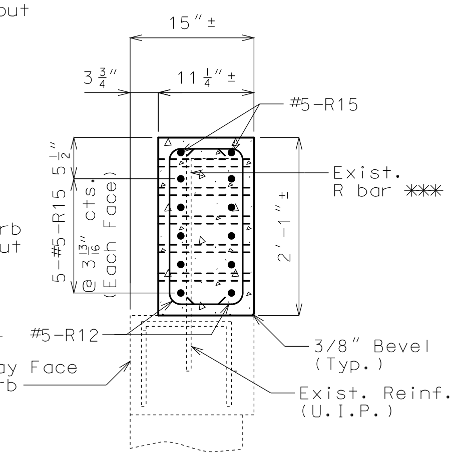
Bridge rail not shown, for clarity.



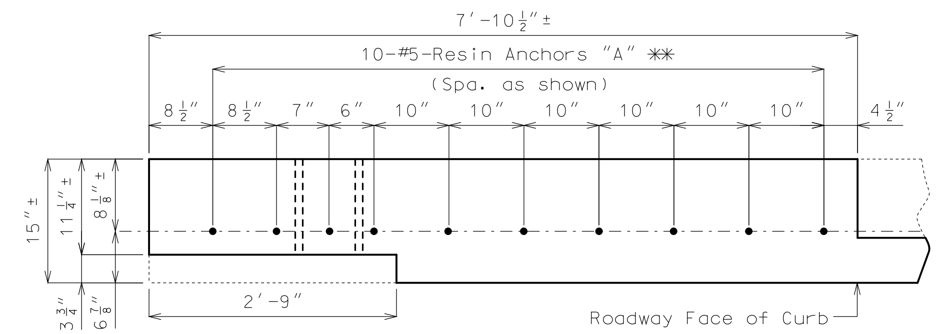
PART PLAN SHOWING END POST REINFORCEMENT



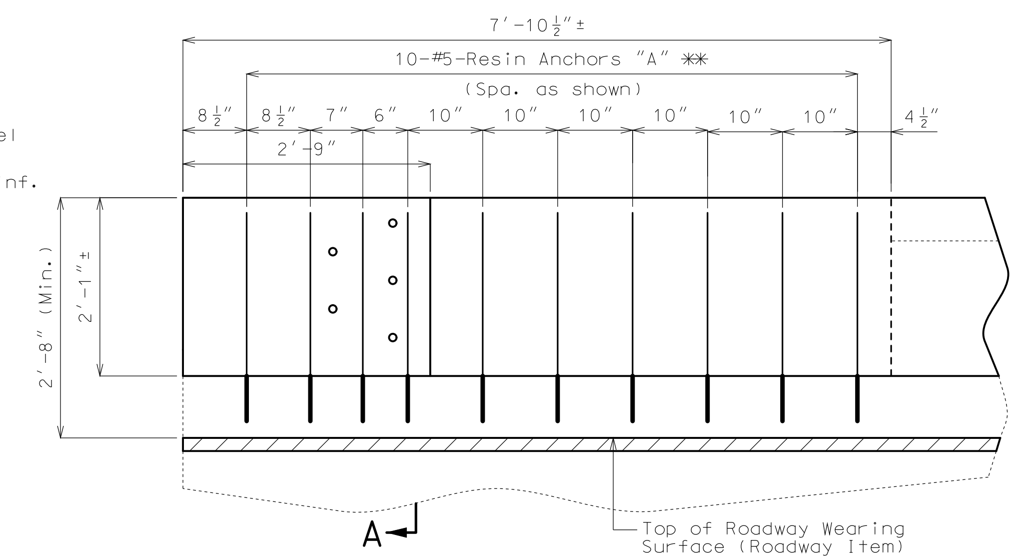
PART SECTION SHOWING END POST REINFORCEMENT



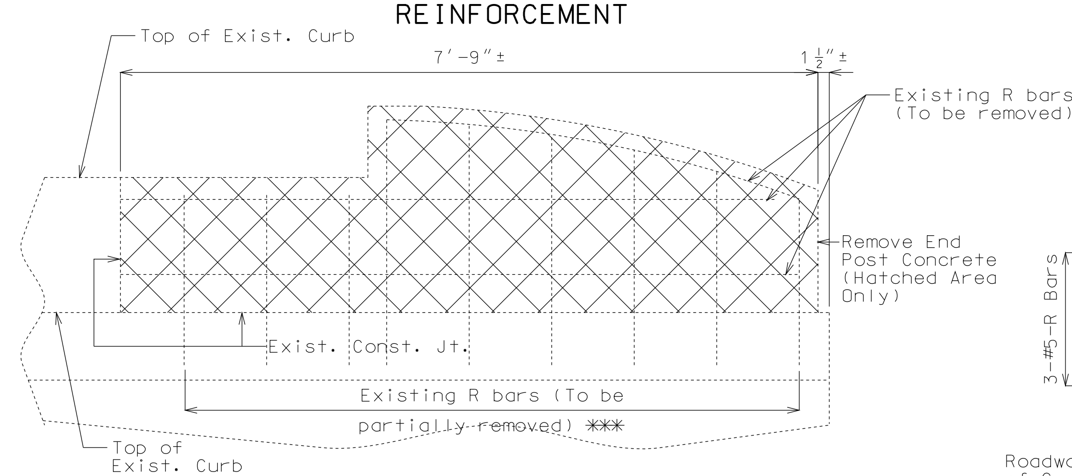
SECTION B-B



PLAN SHOWING END POST RESIN ANCHOR SYSTEMS AND DIMENSIONS



PART SECTION SHOWING END POST RESIN ANCHOR SYSTEMS AND DIMENSIONS

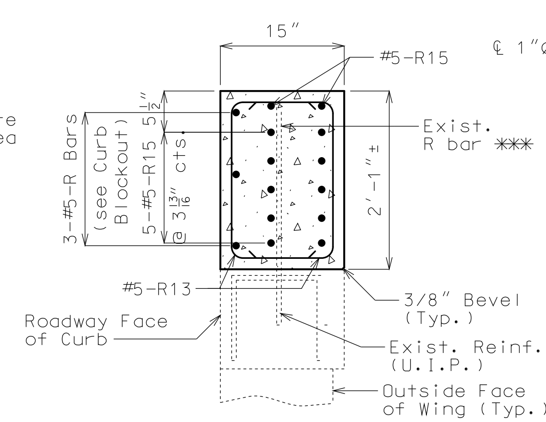


PART ELEVATION OF EXISTING END POST SHOWING CONCRETE REMOVAL

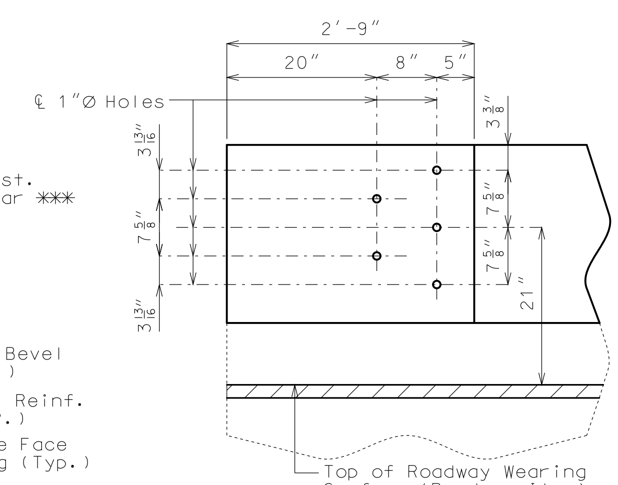
Note:

Cost of removing existing end posts will be considered completely covered by the contract unit price for Curb Blockout (linear foot).

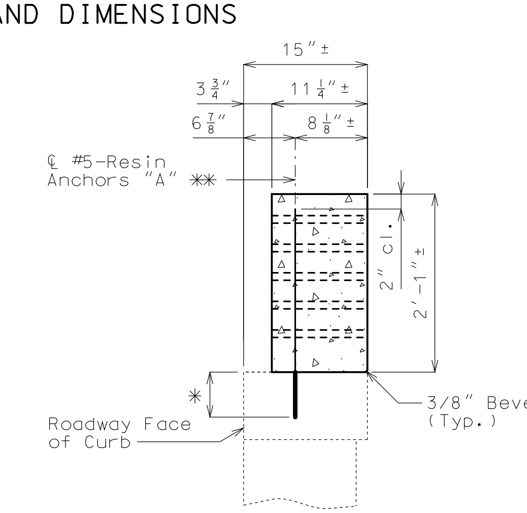
*** Vertical leg of existing R bar at the outside face shall be cleaned and reused. Horizontal leg and vertical leg at the roadway face shall be removed to one inch below concrete removal surface and the resulting holes shall be filled with a qualified special mortar.



SECTION C-C



DETAILS OF GUARD RAIL ATTACHMENT



SECTION A-A

* Manufacturer's recommended embedment length. (5" minimum embedment)

DETAILS OF END POST AT END BENT NO. 5

(Right side shown)

Detailed Oct. 2017
Checked Oct. 2017

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

STATE OF MISSOURI
ANOUSONE AROUNPRADITH
NUMBER PE-29317
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

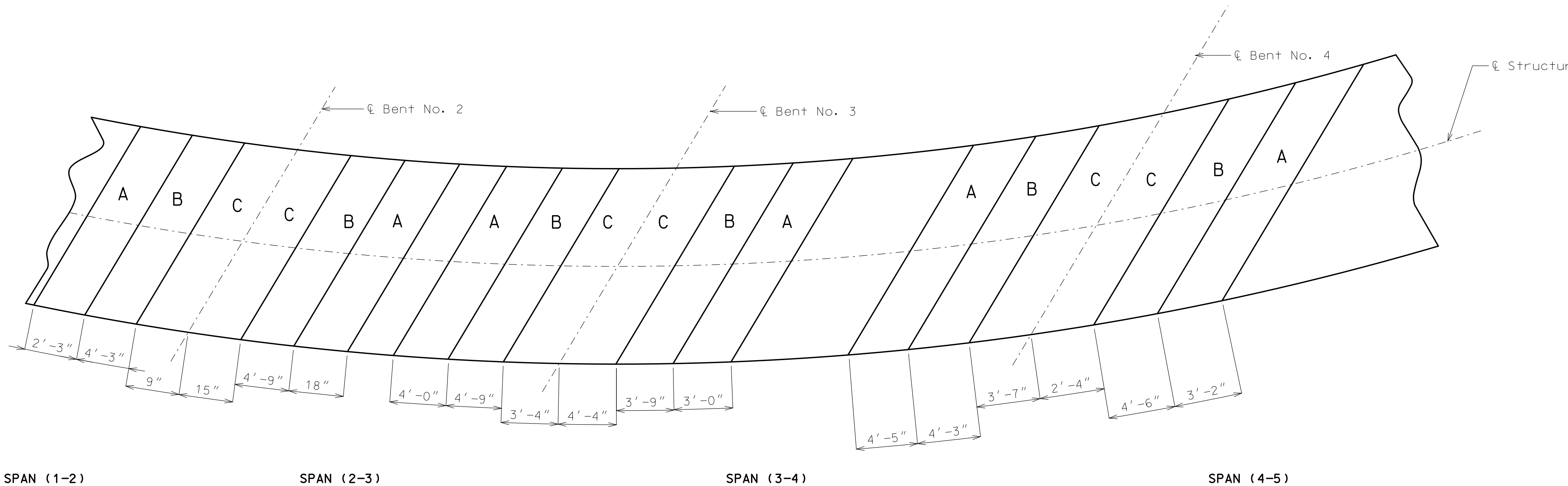
DATE PREPARED	11/20/2017
ROUTE 54	STATE MO
DISTRICT BR	SHEET NO. 6
COUNTY	COLE
JOB NO.	J5P3118
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	A13091

DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)



PART PLAN OF EXISTING SLAB SHOWING SPECIAL REPAIR ZONES

Notes:

Any half-soling required in the areas designated as special repair zones shall be completed in alphabetical sequence. Any repair in the remainder of the bridge that is adjacent to Zone A and not designated as a special repair zone shall be completed prior to work in Zone A

Removal and repair shall be completed in one special repair zone and concrete shall have attained a compressive strength of 3200 psi before work can be started in the next special repair zone. Before placing concrete in areas adjacent to areas of subsequent repair, the concrete shall be separated with a material such as polyethylene sheets to aid in removal of old concrete.

Zones with the same letter designation may be repaired at the same time.

Zones with the same letter designation may be repaired at the same time except for the zones directly adjacent to the centerline of bent. If either of the zones adjacent to centerline of bent has a single repair area of over 10 square feet or a total repair area of over 20 square feet, that zone shall be repaired before removing concrete in the other zone of the same designation at that bent.

If any single repair area does not exceed 4 square feet in size and the total repair within a special repair zone does not exceed 12 square feet, the special repair zone requirement does not apply for that zone. Any damage sustained to the void tube as a result of the contractor's operations shall be patched or replaced as required by the engineer at the contractor's expense.

An exposed void in the deck shall be patched as approved by the engineer in a manner that shall maintain the void area completely free of concrete. Cost of patching an exposed void will be considered completely covered by the contract unit price for Repairing Concrete Deck (Half-Soling).

Detailed Oct. 2017
Checked Oct. 2017

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

STATE OF MISSOURI
ANOUSONE AROUNPRADITH
NUMBER PE-29317
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED	
11/20/2017	
ROUTE 54	STATE MO
DISTRICT BR	SHEET NO. 7
COUNTY COLE	
JOB NO. J5P3118	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO. A13091	

DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

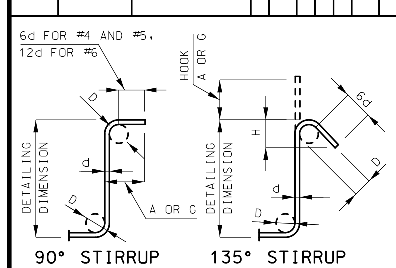
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

BILL OF REINFORCING STEEL

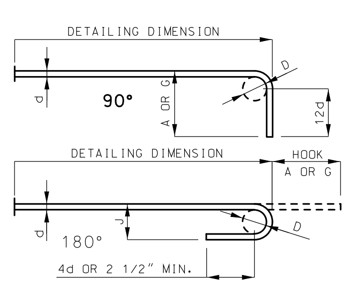
NO. REQ'D.	SIZE	MARK	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	B FT. IN.	C FT. IN.	D FT. IN.	E FT. IN.	F FT. IN.	H FT. IN.	K FT. IN.	NOMINAL LENGTH FT. IN.	ACTUAL LENGTH FT. IN.	WEIGHT LBS.
			CURB																
			BLOCKOUT																
3	5	R1	BLOCKOUT	E	20					27 4.000							27 4	27 4	86
33	5	R2	BLOCKOUT	E	20					7 9.000							7 9	7 9	267
3	5	R3	BLOCKOUT	E	20					32 1.000							32 1	32 1	100
3	5	R4	BLOCKOUT	E	20					40 9.000							40 9	40 9	128
3	5	R5	BLOCKOUT	E	20					8 9.000							8 9	8 9	27
3	5	R6	BLOCKOUT	E	20					37 6.000							37 6	37 6	117
3	5	R7	BLOCKOUT	E	20					29 3.000							29 3	29 3	92
3	5	R8	BLOCKOUT	E	20					31 5.000							31 5	31 5	98
3	5	R9	BLOCKOUT	E	20					39 0.000							39 0	39 0	122
3	5	R10	BLOCKOUT	E	20					35 4.000							35 4	35 4	111
24	5	R11	END POST	E	20					4 9.000							4 9	4 9	119
64	5	R12	END POST	E	10	S					8.000	22.000					3 2	3 0	200
76	5	R13	END POST	E	10	S					10.000	22.000					3 6	3 4	264
12	5	R14	END POST	E	20					5 8.000							5 8	5 8	71
12	5	R15	END POST	E	20					7 7.000							7 7	7 7	95
			TOTALS																
	5			E															1897
			TOTAL																0
			TOTAL	E															1897
			Slab on Girder																
	5			E															1897
			TOTAL																1897

BILL OF REINFORCING STEEL



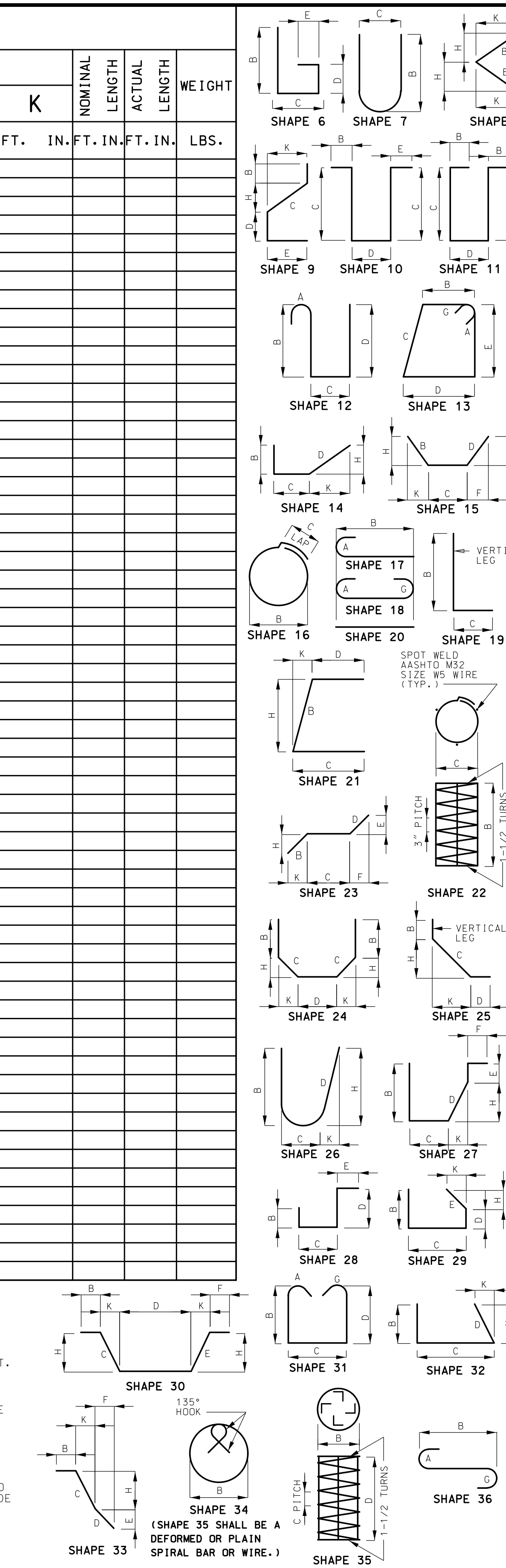
STIRRUP HOOK DIMENSIONS				
GRADES 40 - 50 - 60 KSI				
BAR SIZE	D (IN.)	90° HOOK	135° HOOK	
		HOOK A OR G	HOOK A OR G	APPROX. H
#4	2"	4 1/2"	4 1/2"	3"
#5	2 1/2"	6"	5 1/2"	3 3/4"
#6	4 1/2"	12"	8"	4 1/2"

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		90° HOOKS
		A OR G	J	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:
ALL STANDARD HOOKS AND BENDS OTHER THAN 180 DEGREE ARE TO BE BENT WITH SAME PROCEDURE AS FOR 90 DEGREE STANDARD 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.



BENDING DIAGRAMS

STATE OF MISSOURI
ANOUSONE AROUNPRADITH
NUMBER PE-29317
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED	
11/20/2017	
ROUTE 54	STATE MO
DISTRICT BR	SHEET NO. 8
COUNTY COLE	
JOB NO. J5P3118	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO. A13091	

DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

MoDOT

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

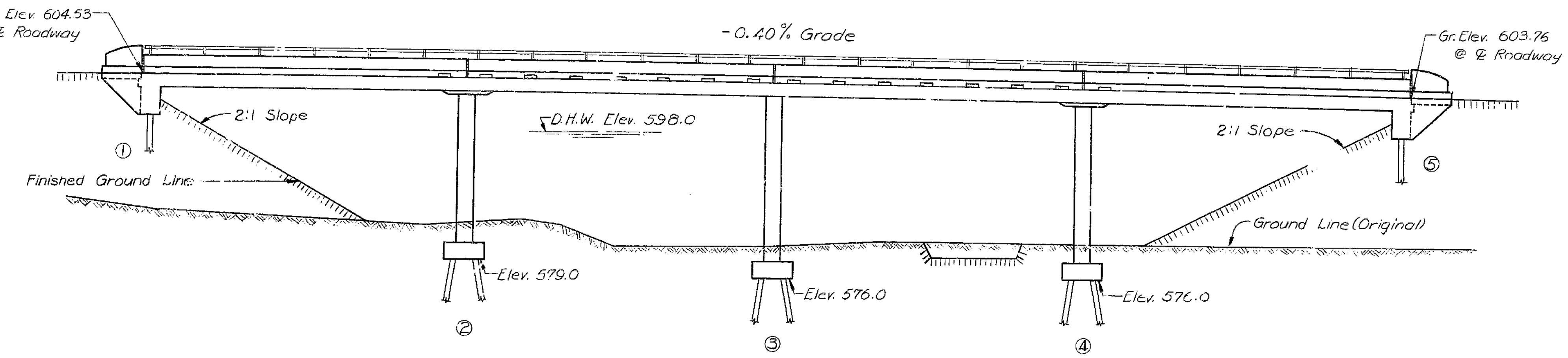
Detailed Oct. 2017
Checked Oct. 2017

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

MISSOURI STATE HIGHWAY DEPARTMENT

(4 @ 47'-6") Cont. Voided Slab Spans

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	48	



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 25'-0" in back of End Bents before steel piles are driven for End Bents No. 1 & 4.

GENERAL NOTES:

Design Specifications: A.A.S.H.O. - 1965

Design Loading:
HS20-44 15#/sq. ft. Future Wearing Surface
Earth 120#. Equivalent Fluid Pressure 30#

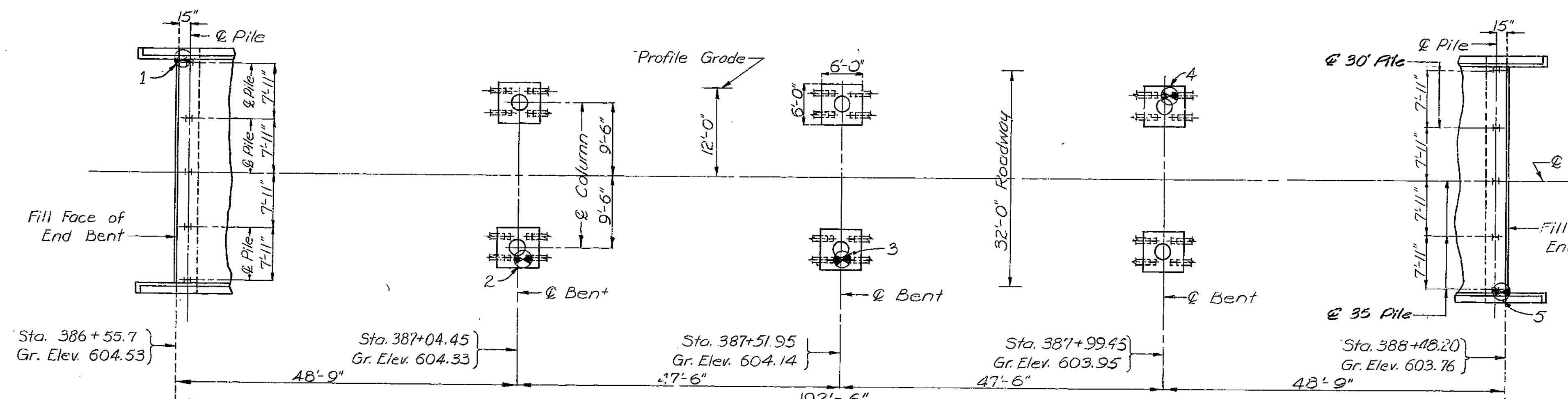
Design Unit Stresses:
Class B Concrete (substructure) f'c = 1,200 psi
Class B1 Concrete (superstructure) f'c = 1,600 psi
Reinforcing Steel fs = 20,000 psi
Steel Pile: (ASTM A-36-66) fb = 9,000 psi

Surface Seal:
Superstructure deck to be surface sealed.

PILE DATA

BENT NO.		1	2	3	4	5
Pile Type and Size		10BP42	10BP42	10BP42	10BP42	10BP42
Number		5	8	8	8	5
Approximate Length	Ft.	52	31	28	Lt.-[illegible] Rt.-30'	Lt.-30' Rt.-35'
Design Bearing	Tons	34	48	42	48	34
Hammer Energy required	Ft. Lbs.	7,700	11,300	9,900	11,300	7,700

Minimum energy requirement of hammer based on plan length and design bearing value of piles. Increase by the factor (W+w)/2W when the weight of the ram (W) is less than the weight of the pile (w).
All pile shall be driven to practical refusal.



PLAN

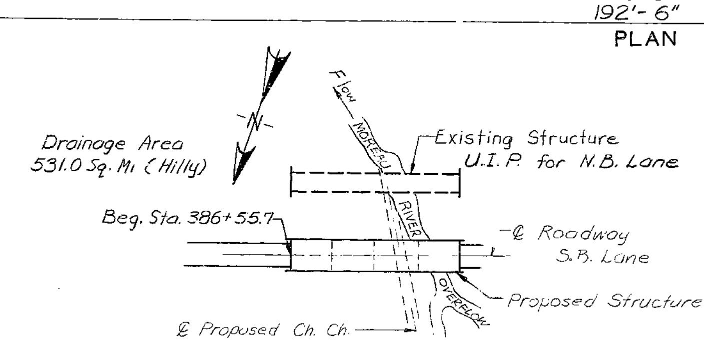
Note: For Boring Data see Sheet No. 2 of 7
"⊗" Indicates location of Borings.

ESTIMATED QUANTITIES

ITEM		SUBSTR.	SUPERSTR.	TOTAL
Class 1 Excavation for Structures	Cu. Yd.	95		95
Steel Piles in Place (10")	Lin. Ft.	1117		1117
Class B Concrete	Cu. Yd.	24.0		24.0
Class B1 Concrete	Cu. Yd.		470.6	470.6
Reinforcing Steel	Lb.	660	110,070	110,730
Bridge Rail (Single Tube Type)	Lin. Ft.		385	385

All concrete and reinforcement above footings in Intermediate bents is included in superstructure quantities.
No payment for excavation will be allowed at End Bents No. 1 & 4.

B.M. Elev. 604.40 "□" on S.E. Wingwall of overflow bridge. 56' Lt. Sta. 388+45 (U.S.G.S. Datum)



LOCATION SKETCH

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

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DESIGNED NOV. 1966 BY CHERN
DETAILED JAN. 1967 BY UNDERWOOD
CHECKED June 1967 BY Sommerer

Sheet No. 1 of 6.

BRIDGE OVER MOREAU RIVER OVERFLOW

STATE ROAD FROM ROUTE CC SOUTHWEST TO ROUTE D
ABOUT 5.8 MILES SW OF JEFFERSON CITY
PROJECT NO. F-54-3(14) (RTE. 54) STA. 386+55.7

COLE COUNTY

SUBMITTED BY D. B. Jenkins BRIDGE ENGINEER DATE 7/20/67

APPROVED BY M. J. Miles CHIEF ENGINEER DATE 7/20/67

STD. 54.00

A-1415

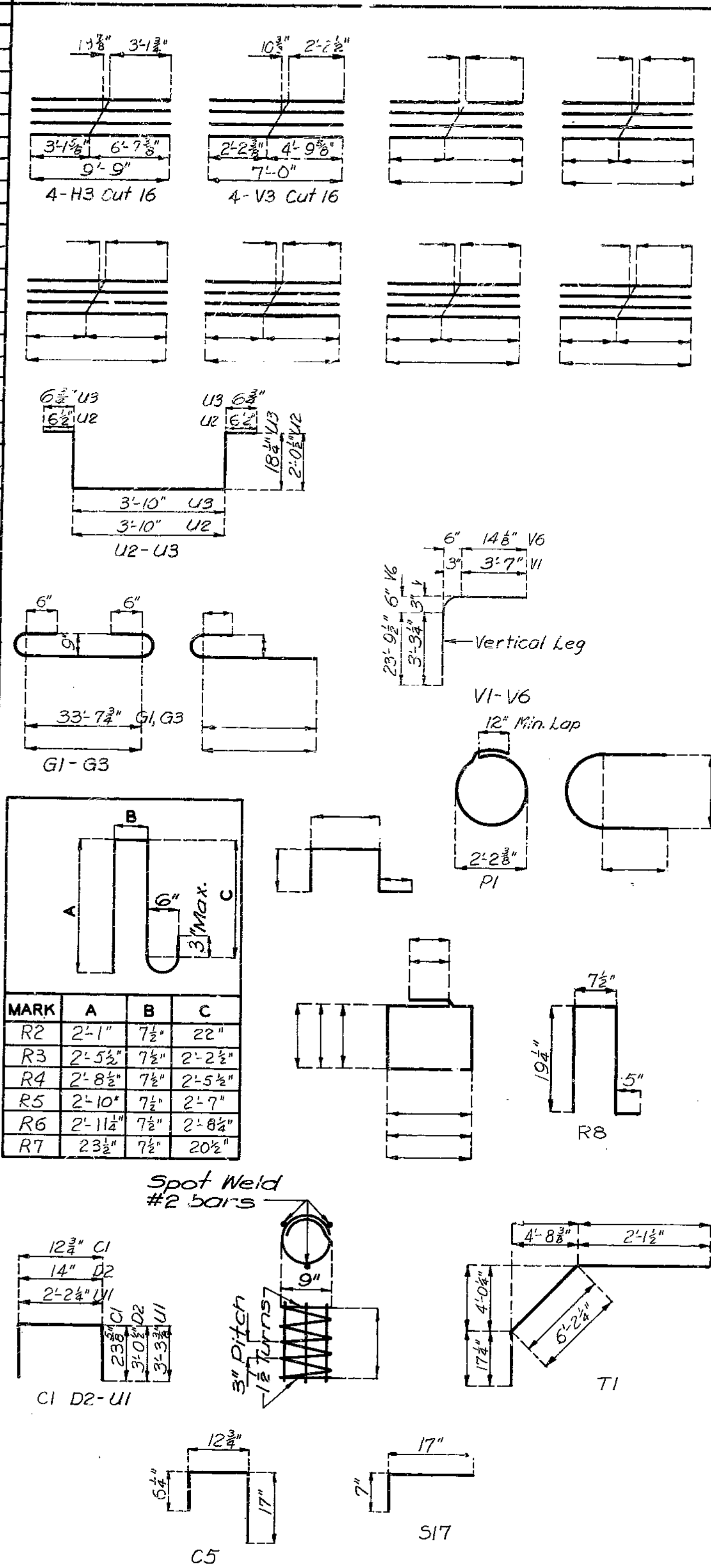
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	49	

COMPLETE BILL OF REINFORCING STEEL

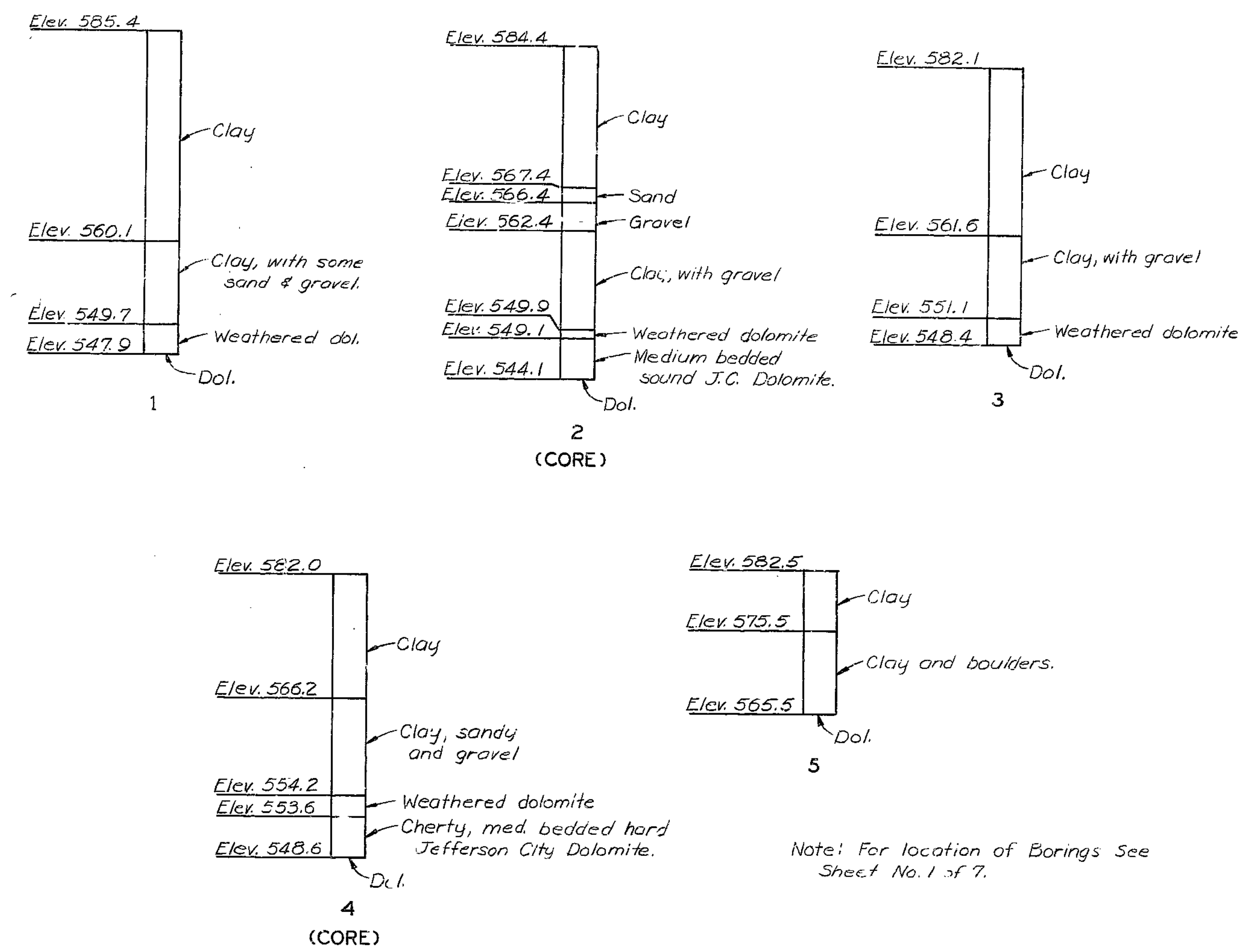
NO.	SIZE	LENGTH	MARK	LOCATION
SUPERSTRUCTURE				
396	#5	5'-0"	C1	Curb
8	#6	5'-3"	C2	"
16	#6	25'-0"	C3	"
16	#6	24'-6"	C4	"
24	#5	3'-0"	C5	"
24	#5	4'-9"	R1	End Post
	#5	5'-6"	R2	" "
4	#5	6'-3"	R3	" "
4	#5	6'-9"	R4	" "
4	#5	7'-0"	R5	" "
8	#5	7'-3"	R6	" "
396	#5	5'-3"	R7	Parapet
32	#5	4'-3"	R8	"
16	#5	21'-0"	R9	"
16	#5	35'-3"	R10	"
48	#5	12'-9"	R11	"
452	#5	34'-6"	S1	Slab
92	#5	35'-6"	S2	"
48	#10	31'-9"	S3	"
46	#10	25'-6"	S4	"
44	#11	14'-6"	S5	"
92	#5	19'-6"	S6	"
24	#9	26'-6"	S7	"
23	#10	20'-6"	S8	"
22	#10	10'-6"	S9	"
56	#10	39'-0"	S10	"
54	#10	27'-6"	S11	"
56	#9	49'-9"	S12	"
56	#7	49'-3"	S13	"
56	#8	31'-3"	S14	"
54	#8	23'-6"	S15	"
2	#4	31'-9"	S16	App. Haunch
86	#4	2'-0"	S17	"

BENDING SKETCHES & CUTTING DIAGRAMS



MARK	A	B	C
R2	2'-1"	7½"	22"
R3	2'-5½"	7½"	2'-2½"
R4	2'-8½"	7½"	2'-5½"
R5	2'-10"	7½"	2'-7"
R6	2'-11½"	7½"	2'-8½"
R7	23½"	7½"	20½"

NO.	SIZE	LENGTH	MARK	LOCATION
END BENTS NO. 1 & 5 (SUPER)				
24	#6	34'-6"	H1	Beam & Slab
8	#6	7'-0"	H2	Wing
16	#6	9'-9"	H3	"
8	#6	9'-9"	T1	Wing
144	#5	8'-9"	U1	Beam
90	#6	7'-3"	V1	Beam & Slab
8	#4	5'-6"	V2	Wing
16	#4	7'-0"	V3	"
INT. BENTS NO. 2 & 4 (SUPER)				
32	#9	37'-0"	G1	Beam
22	#10	34'-0"	G2	Drop Panel
40	#3	8'-0"	P1	Col. Bt. #2
46	#3	8'-0"	P1	Col. Bt. #4
18	#8	21'-9"	V4	Col. Bt. #2
18	#8	24'-6"	V5	Col. Bt. #4
164	#5	9'-0"	U2	Beam
INT. BENT NO. 3 (SUPER)				
15	#10	37'-0"	G3	Beam
16	#9	34'-6"	G4	"
46	#3	8'-0"	P1	Column
82	#5	8'-0"	U3	Beam
18	#8	25'-9"	V6	Column
BENTS NO. 2, 3 & 4 (SUBSTRUCTURE)				
54	#5	2'-6"	D1	Footing
48	#6	7'-3"	D2	"



Note: For location of Borings See Sheet No. 1 of 7.

BORING DATA

BRIDGE OVER MOREAU RIVER OVERFLOW

STATE ROAD FROM ROUTE CC SOUTHWEST TO ROUTE D

ABOUT 5.8 MILES SW OF JEFFERSON CITY

PROJECT NO. F-54-3(14) (RTE. 54) **STA.** 386 + 55.

COLE COUNTY

A-1415

DETAILED JAN. 1967 BY UNDERWOOD

CHECKED June 1967 BY Sommerer

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

Sheet No. 2 of 6.

No. 90.3 June 1961

Revised Dec. 1964

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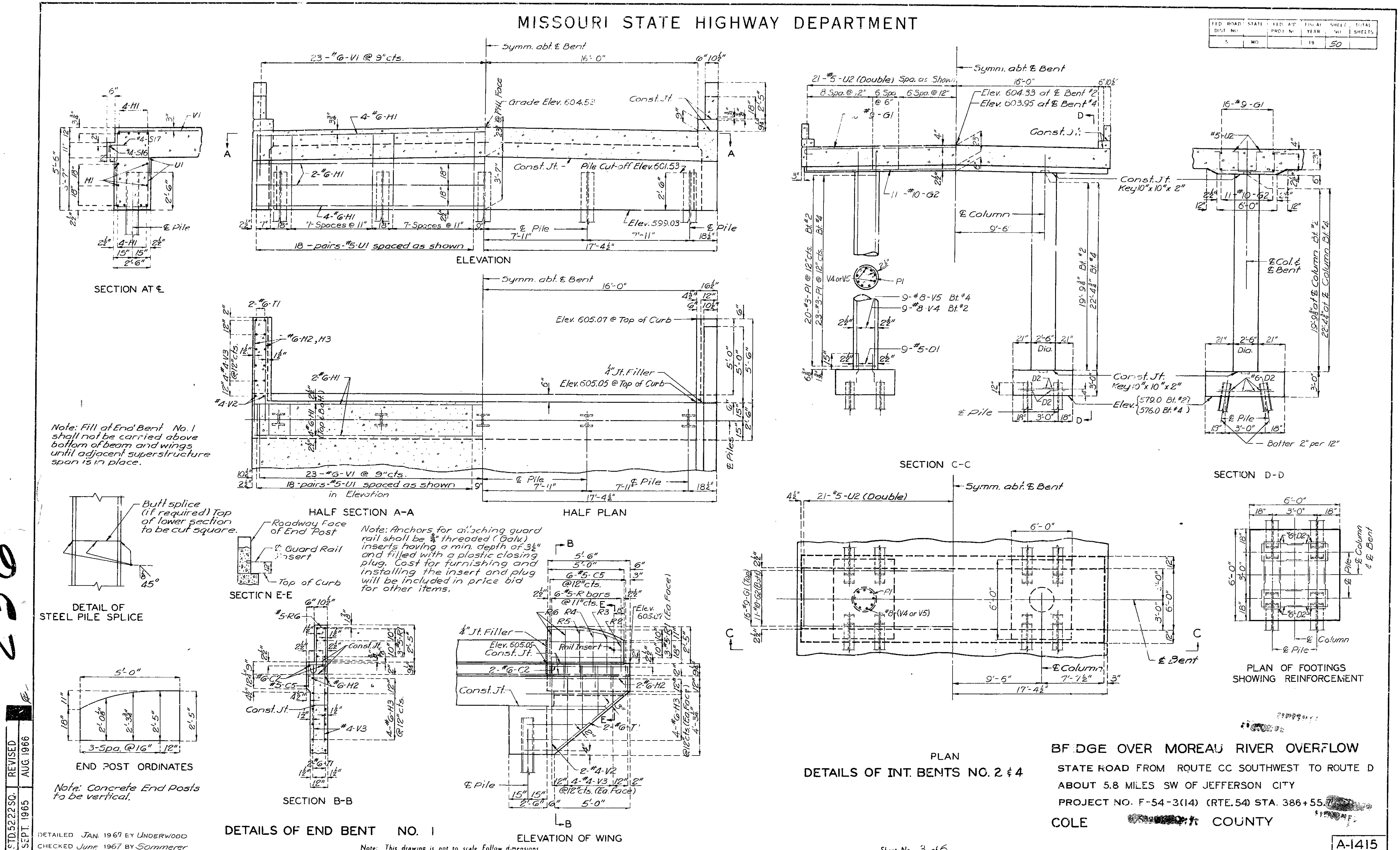
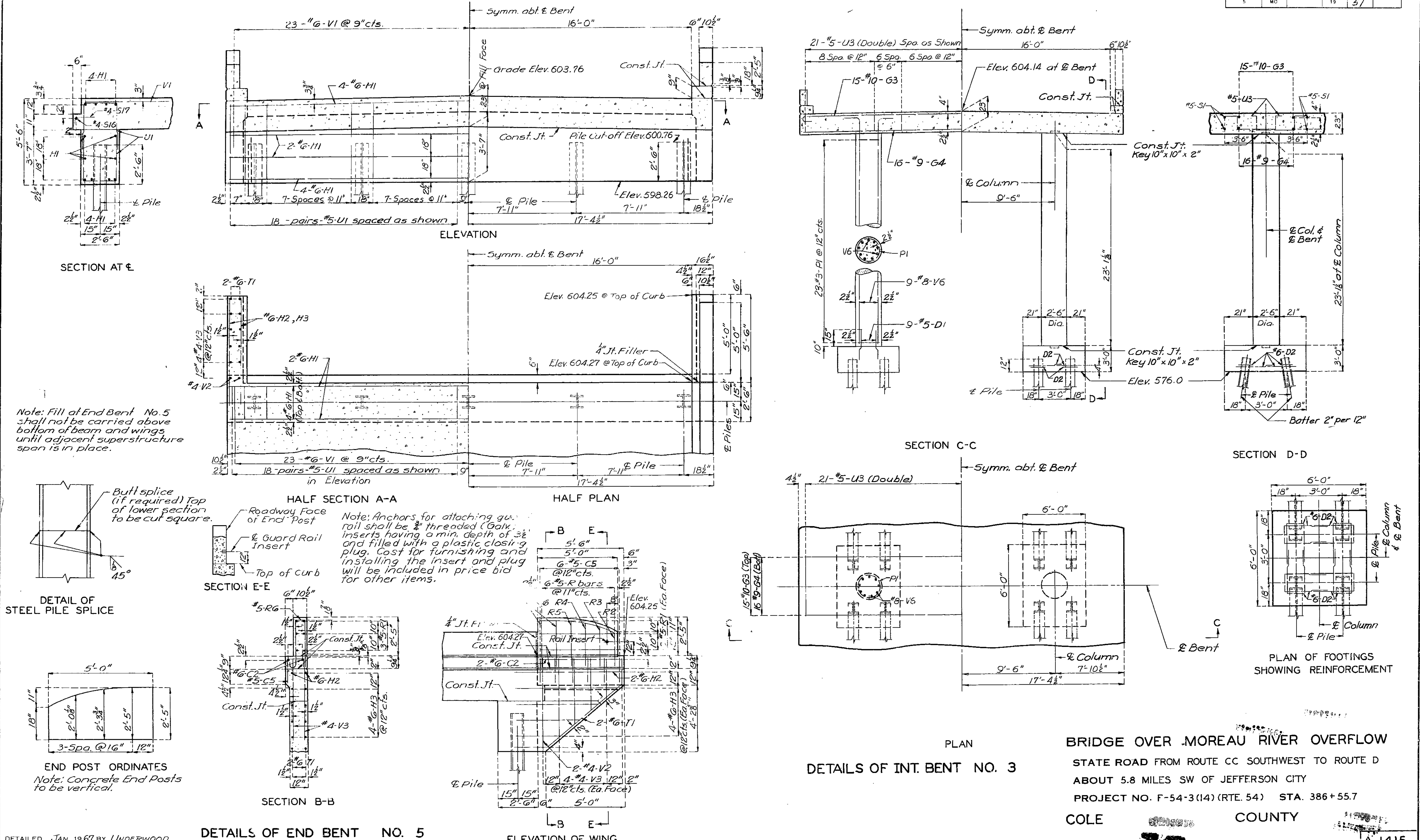

MISSOURI STATE HIGHWAY DEPARTMENT
FED. ROAD DIST. NO. 5 | STATE MO | FISCAL YEAR 19 | SHEET NO. 50
SECTION AT ℄
ELEVATION
HALF SECTION A-A
HALF PLAN
Note: Fill at End Bent No. 1 shall not be carried above bottom of beam and wings until adjacent superstructure span is in place.
DETAIL OF STEEL PILE SPLICE
Butt splice (if required) Top of lower section to be cut square.
SECTION E-E
Note: Anchors for attaching guard rail shall be ¾" threaded (Galv.) inserts having a min. depth of 3½" 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.
END POST ORDINATES
Note: Concrete End Posts to be vertical.
SECTION B-B
ELEVATION OF WING
DETAILS OF END BENT NO. 1
SECTION C-C
SECTION D-D
PLAN
DETAILS OF INT. BENTS NO. 2 & 4
PLAN OF FOOTINGS SHOWING REINFORCEMENT
BRIDGE OVER MOREAU RIVER OVERFLOW
STATE ROAD FROM ROUTE CC SOUTHWEST TO ROUTE D
ABOUT 5.8 MILES SW OF JEFFERSON CITY
PROJECT NO. F-54-3(14) (RTE. 54) STA. 386+55.
COLE COUNTY
A-1415
Sheet No. 3 of 6
Note: This drawing is not to scale. Follow dimensions
DETAILED JAN. 1967 BY UNDERWOOD
CHECKED June 1967 BY Sommerer
STD. 5.22 SQ. SEPT. 1965 REVISED AUG. 1966

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO		19	51	



BRIDGE OVER MOREAU RIVER OVERFLOW

STATE ROAD FROM ROUTE CC SOUTHWEST TO ROUTE D

ABOUT 5.8 MILES SW OF JEFFERSON CITY

PROJECT NO. F-54-3(14) (RTE. 54) STA. 386 + 55.7

COLE COUNTY

A-1415

DETAILED JAN. 1967 BY Underwood

CHECKED June 1967 BY Sommerer

Note: This drawing is not to scale. Follow dimensions

Sheet No. 4 of 6

No. 52-21 Sept. 1965 Revised Nov. 1965

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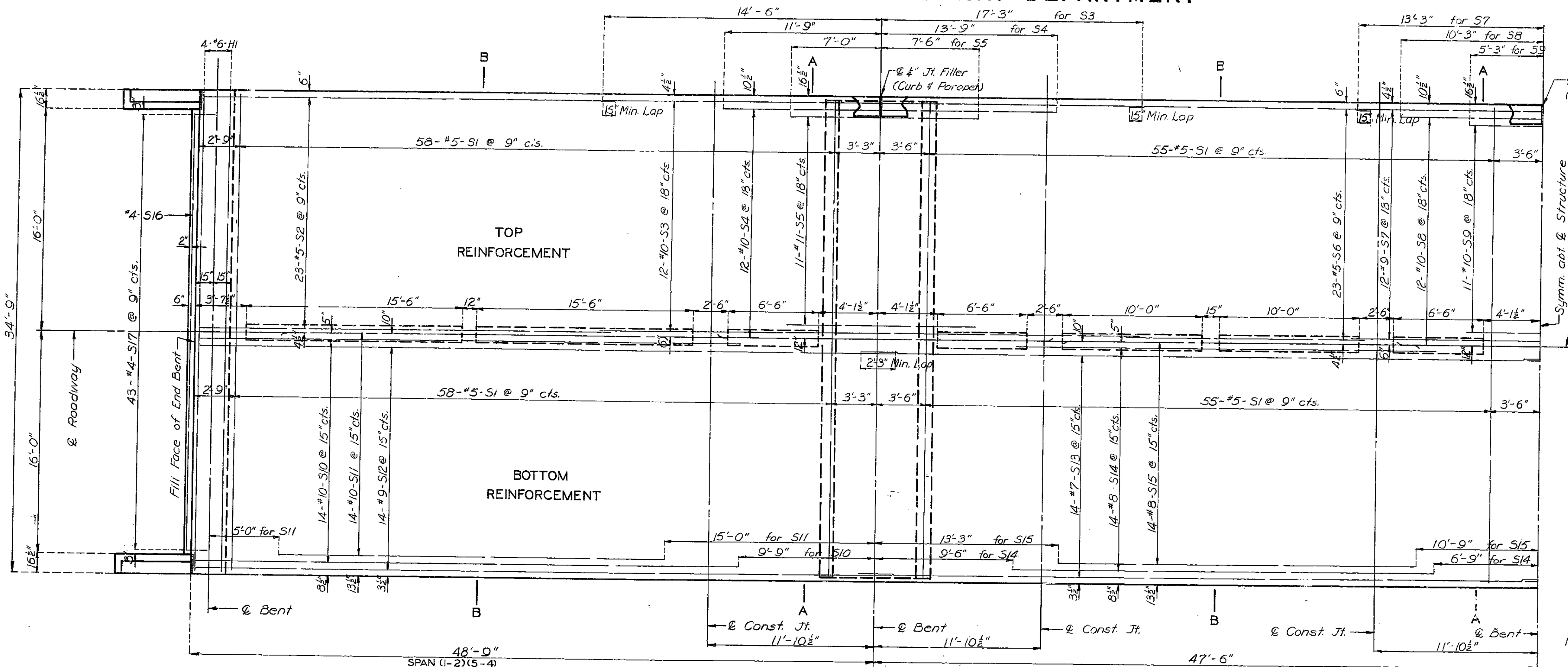
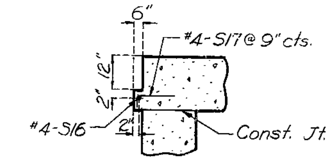
MISSOURI STATE HIGHWAY DEPARTMENT

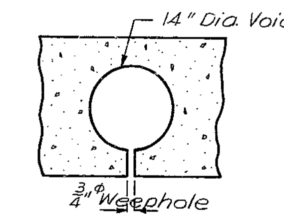
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	52	



HALF PLAN OF SLAB



APPROACH HAUNCH DETAIL

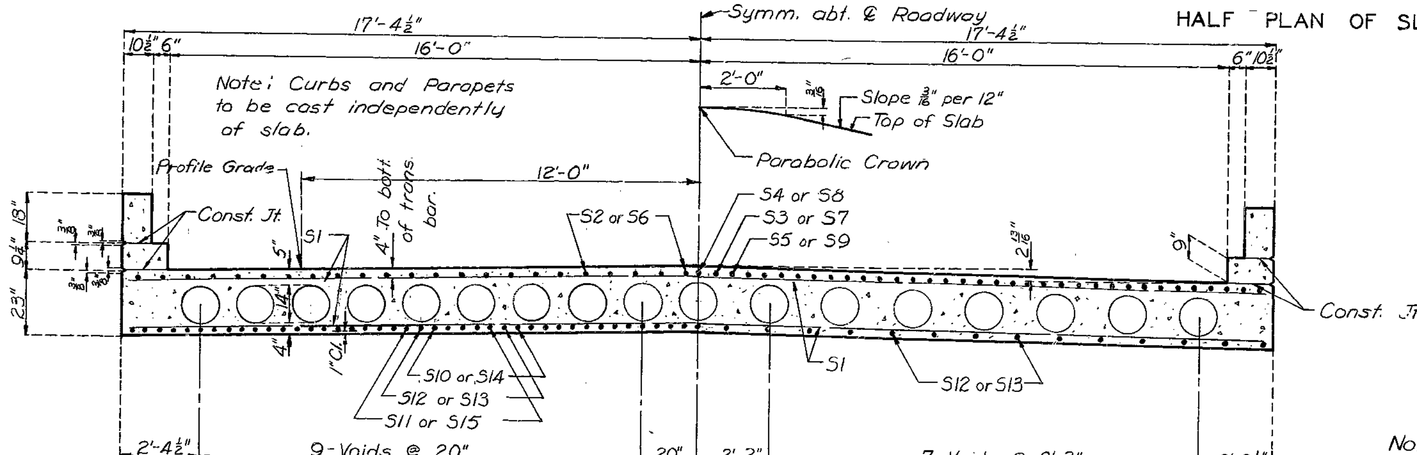


DETAIL OF WEEPHOLE IN VOIDS

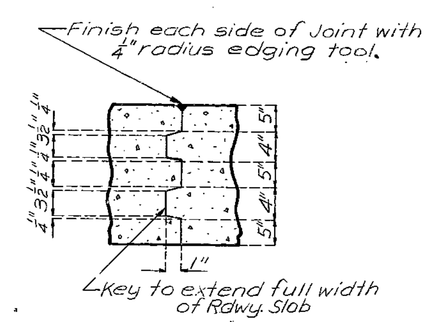
Note: One ¾" weephole shall be provided near each end of each void. Weepholes shall be placed in straight lines parallel to bents.

Note: All longitudinal dimensions shown are horizontal.

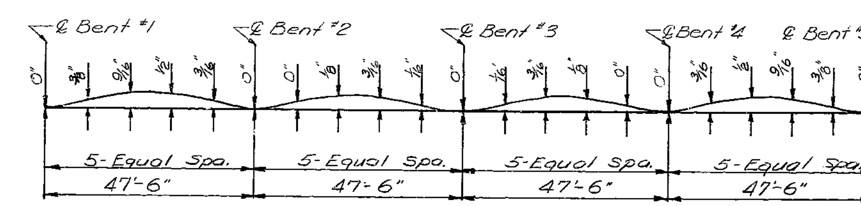
Note: For details and reinforcement of curbs and parapet see sheet No. 6 of 6.



HALF SECTION B-B HALF SECTION A-A



DETAILS OF SLAB CONSTRUCTION JOINT KEY



CAMBER DIAGRAM

Note: Fiber tubes for producing voids shall have an outside diameter of 14" 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.

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 39 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.

BRIDGE OVER MOREAU RIVER OVERFLOW

STATE ROAD FROM ROUTE CC SOUTHWEST TO ROUTE D

ABOUT 5.8 MILES SW OF JEFFERSON CITY

PROJECT NO. F-54-3(14)(RTE. 54) **STA.** 386 + 55.7

COLE COUNTY

DETAILED JAN 1967 BY UNDERWOOD
CHECKED June 1967 BY Sommerer

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

Sheet No. 5 of 6.

A-1415

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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	53	

GENERAL HANDRAIL 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 a minimum of 2 panel lengths.

Omit set screw on side adjacent to filled joint in parapet and curb 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.

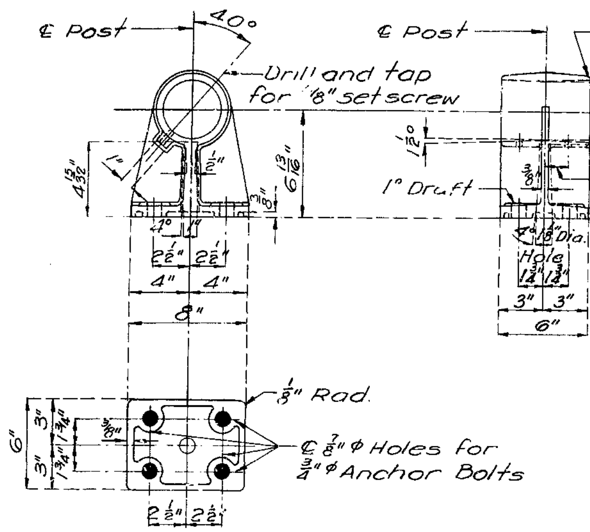
Concrete end posts to be vertical

All exposed edges of end posts shall have ½" bevel

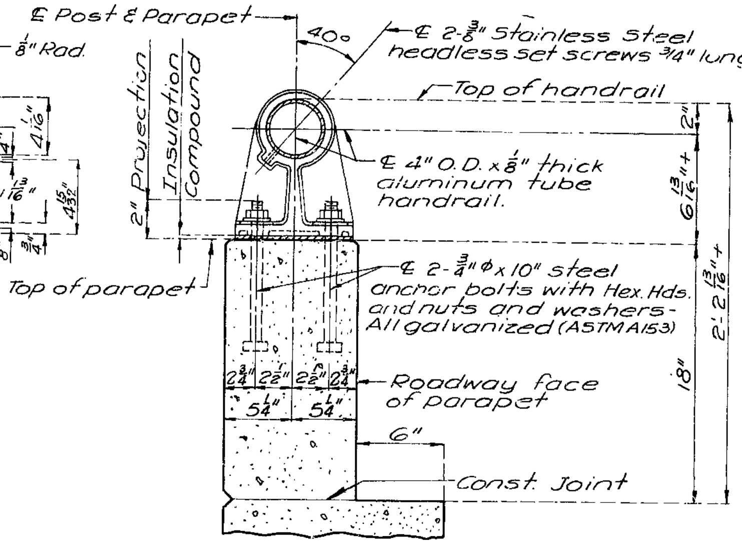
All exposed edges of curbs and parapets shall have ½" radius or ⅜" bevel unless otherwise noted.

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

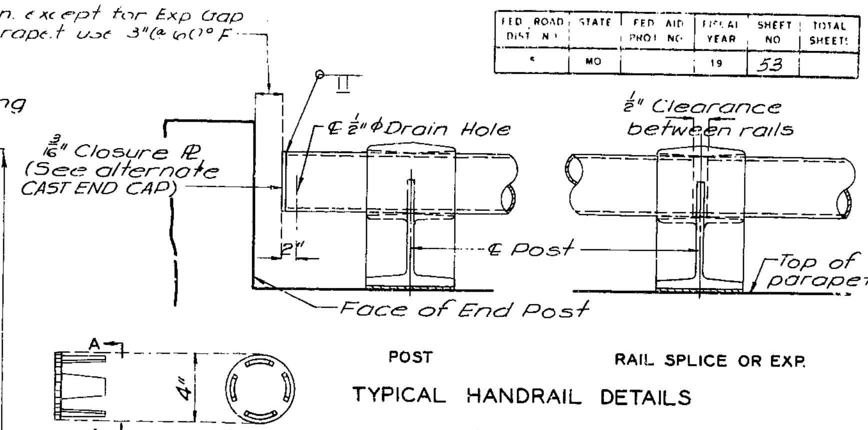


POST DETAILS



SECTION THRU HANDRAIL

SINGLE TUBE ALUMINUM RAILING

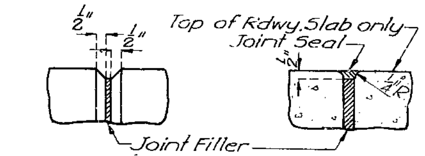


CAST END CAP
(Drive Fit Type)

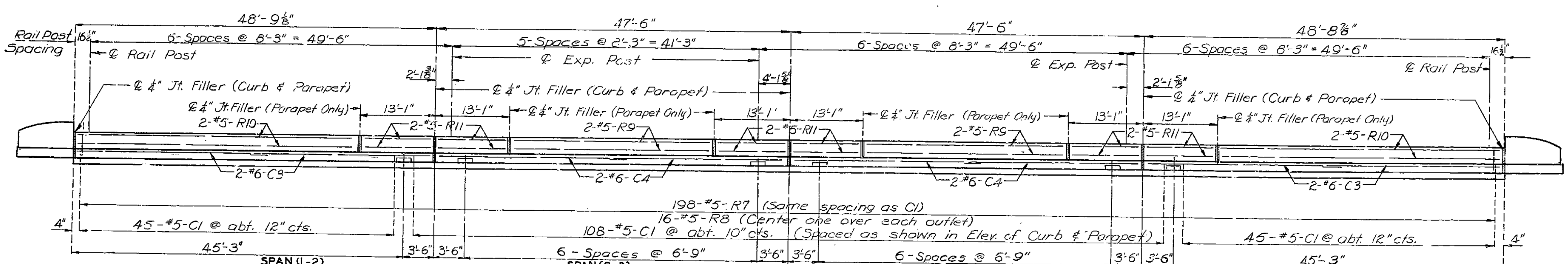
POST

RAIL SPLICE OR EXP.

TYPICAL HANDRAIL DETAILS

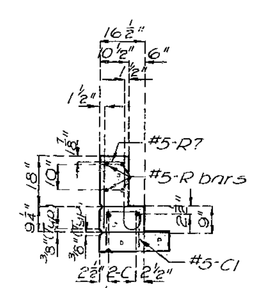


FILLED JOINT DETAILS



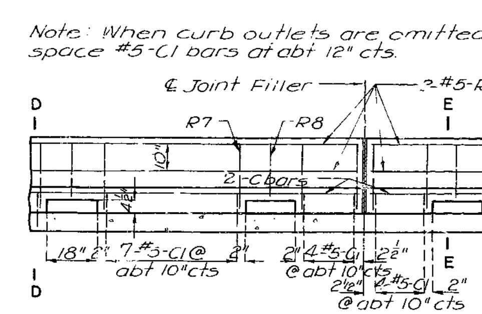
ELEVATION OF RIGHT CURB AND PARAPET

Note: All dimensions shown are horizontal except for parapet dimensions and rail post spacings which are taken parallel to grade at top of parapet.

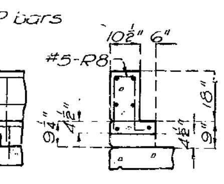


SECTION D-D

Note: When curb outlets are omitted space #5-C1 bars at abt. 12" cts.



ELEVATION OF CURB & PARAPET



SECTION E-E

Note: For horizontal curb and parapet bars use a minimum lap of 15" for #5 and 18" for #6

BRIDGE OVER MOREAU RIVER OVERFLOW

STATE ROAD FROM ROUTE CC SOUTHWEST TO ROUTE D

ABOUT 5.8 MILES SW OF JEFFERSON CITY

PROJECT NO. F-54-3(14) (RTE. 54) STA. 386 + 55.7

COLE COUNTY

A-1415

STD. 1.5.2	REVISED
MAR. 1964	DEC. 1966

DETAILED JAN. 1967 BY UNDERWOOD

CHECKED June 1967 BY Sommerer

Note: This drawing is not to scale. Follow dimensions

Sheet No. 6 of 6

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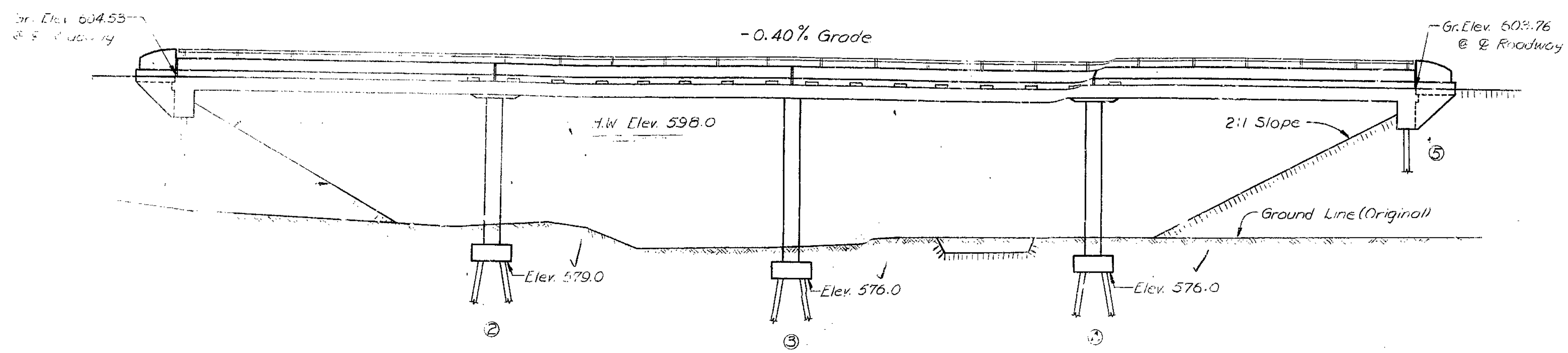
MISSOURI STATE HIGHWAY DEPARTMENT

(4 @ 47'-6") Cont. Voided Slab Spans

FED ROAD DIST NO	STATE	FED AID PROJ NO	FISCAL YEAR	SHEET NO	TOTAL SHEETS
5	MO		19	43	



GENERAL ELEVATION

Note: Compacted roadway fill (full roadway width) was placed up to elevation of bottom of concrete beam in front of and not less than 25'-0" in back of End Bents before steel piles are driven for End Bents No. 1 & 4.

GENERAL NOTES:

Design Specifications: A.A.S.H.O. - 1965

Design Loading:

HS20-44 15#/sq ft Future Wearing Surface
Earth 120#. Equivalent Fluid Pressure 30#

Design Unit Stresses:

Class B Concrete (substructure) fc = 1,200 psi
Class B1 Concrete (superstructure) fc = 1,600 psi
Reinforcing Steel fs = 20,000 psi
Steel Pile: (ASTM A-36-66) fb = 9,000 psi

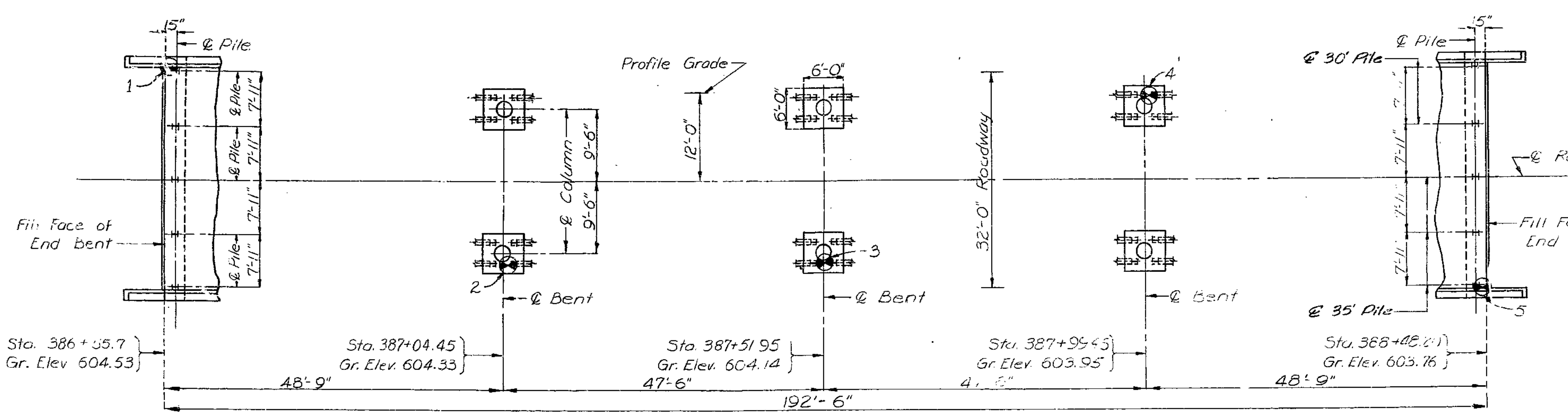
Surface Seal:

Superstructure deck was surface sealed.

PILE DATA						
BENT NO.		1	2	3	4	5
Pile Type and Size		10BP42	10BP42	10BP42	10BP42	10BP42
Number		5	8	8	8	5
Length	Ft.	52	31		Lt.-25' Rt.-30'	Lt.-30' Rt.-35'
Design Bearing	Tons	34	48		48	34
Hammer Energy required	Ft. Lbs.	7,700	11,300	[illegible]	11,300	7,700

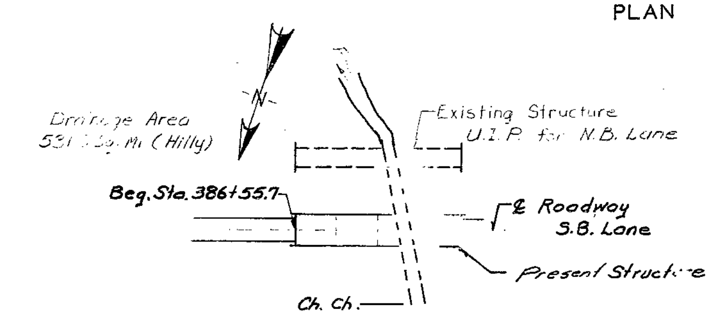
Minimum energy requirement of hammer based on plan length and design bearing value of piles. Increase by the factor (W+w)/2W when the weight of the ram (W) is less than the weight of the pile (w)

All pile were driven to practical refusal.



PLAN

Note: For Boring Data see Sheet No. 1 of 7
"⊖" Indicates Location of Borings.



LOCATION SKETCH

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

ESTIMATED QUANTITIES				
ITEM		SUBSTR.	SUPERSTR.	TOTAL
Class 1 Excavation for Structures	Cu. Yd.	102.5		102.5
Steel Piles in Place (10")	Lin. Ft.	1083		1083
Class B Concrete	Cu. Yd.	24.0		24.0
Class B1 Concrete	Cu. Yd.		470.6	470.6
Reinforcing Steel	Lb.	660	110,070	110,730
Bridge Rail (Single Tube Type)	Lin. Ft.		385	385

All concrete and reinforcement above footings in Intermediate bents was included in superstructure quantities.
No payment for excavation was allowed at End Bents No. 1 & 4.
B.M.

FINISHED

BRIDGE OVER MOREAU RIVER OVERFLOW

STATE ROAD FROM ROUTE CC SOUTHWEST TO ROUTE D
ABOUT 5.8 MILES SW OF JEFFERSON CITY
PROJECT NO. F-54-3(14) (RTE. 54) STA. 386+55.7

COLE COUNTY

FINISHED

SUBMITTED BY [signature] BRIDGE ENGINEER DATE [illegible]

APPROVED BY [signature] CHIEF ENGINEER DATE [illegible]

FINISHED

STD. 54.39

A-1415

DESIGNED NOV. 1966 BY CHERN
DETAILED JAN. 1967 BY UNDERWOOD
CHECKED June 1967 BY [signature]

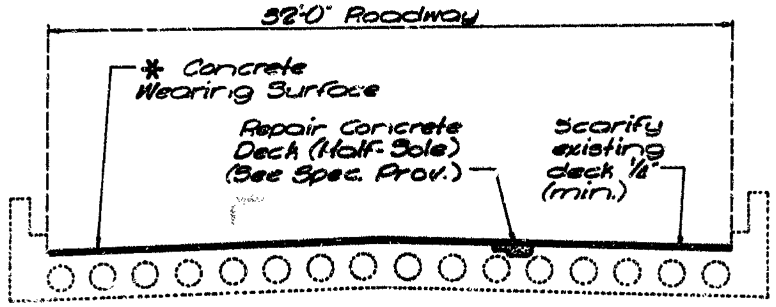
Sheet No. 1A of 1

240

FINAL PLANS

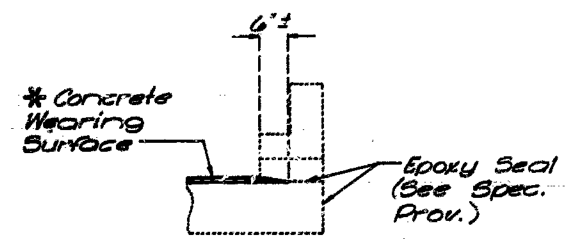
MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

STATE	PROJ NO	SHEET NO
MO.		25
SEC/SUR 4	TWP 43N	RGE 12W



SECTION THRU SLAB

ESTIMATED QUANTITIES		
ITEM		TOTAL
* Concrete Wearing Surface (—)	Sq. Yd.	680
Repair Concrete Deck (Half-Sole)	Sq. Ft.	846
Slab Edge Repair (Bridges)	Lin. Ft.	60
Superstructure Repair (Unformed)	Sq. Ft.	120



SECTION THRU CURB NEAR OUTLET

Note: Outline of old work is indicated by light dashed lines. Heavy lines indicate new work.

Sequence for repair; Zone A, Zone B then Zone C. Any repair in the remainder of the bridge that is within 5'-6" of Zone A shall be completed before removing old concrete in Zones A.

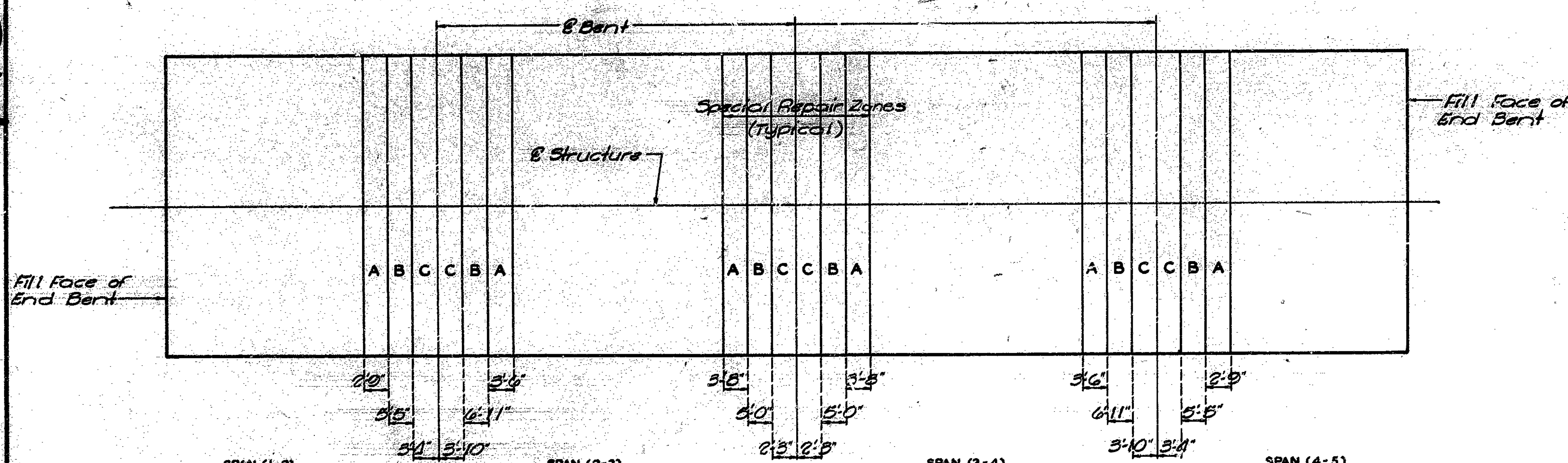
Zones with the same letter designation may be repaired at the same time.

One lane of traffic to be maintained during construction (See Road Plans)

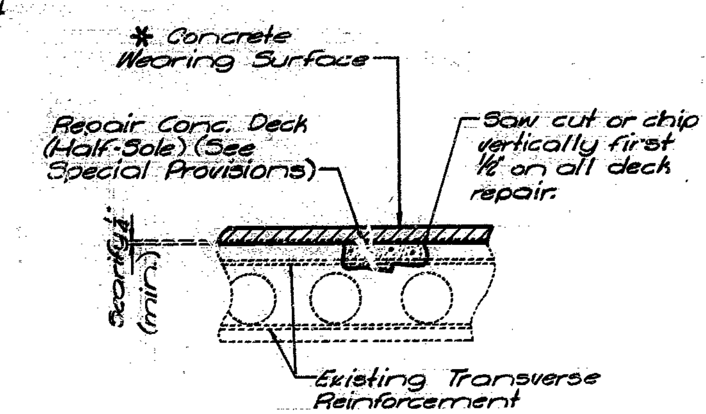
See Special Provisions for alternate use of concrete wearing surface.

Roadway surfacing adjacent to bridge ends to match concrete deck plus 1½"± or 2"±.

* { 1¾" (min.) Latex Modified Concrete or 2¼" (min.) Low Slump Concrete }



PLAN OF SLAB



HALF-SOLED AREA

443

REPAIRS TO
BRIDGE OVER MOREAU RIVER OVERFLOW
STATE ROAD FROM JEFFERSON CITY TO BRAZITO
ABOUT 5.8 MILES S.W. OF JEFFERSON CITY
PROJECT NO. F-54-3(59) STA. 386+55.7±
JOB NO. 5-P-54-341 RTE. 54 S.B.L.
COLE COUNTY

DATE 12/5/85

STD.
STD.
A-1415R

DESIGNED Sept. 1985
DETAILED Sept. 1985
CHECKED Oct. 1985

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

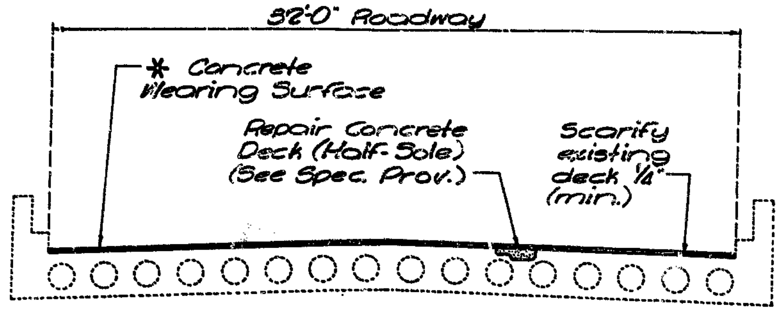
SEE FINAL PLANS

Sheet No. 1 of 1

FINAL PLANS

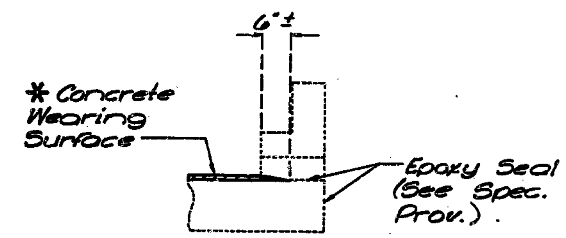
STATE	PROJ. NO.	SHEET NO.
MO.	F-54-3 (59) COLE COUNTY	25
SEC./SUR 4	TWP 43N	RGE 12W

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION



SECTION THRU SLAB

*{2¼" (min.) Low Slump Concrete



SECTION THRU CURB NEAR OUTLET

ESTIMATED QUANTITIES		
ITEM		TOTAL
* Concrete Wearing Surface (2¼") Low SL	Sq. Yd.	680
Repair Concrete Deck (Half-Sole)	Sq. Ft.	4
Slab Edge Repair (Bridges)	Lin. Ft.	155
Superstructure Repair (Unformed)	Sq. Ft.	127

Note: Outline of old work is indicated by light dashed lines. Heavy lines indicate new work.

Sequence for repair; Zone A, Zone B then Zone C.

Any repair in the remainder of the bridge that is within 5'-6" of Zone A shall be completed before removing old concrete in Zones A.

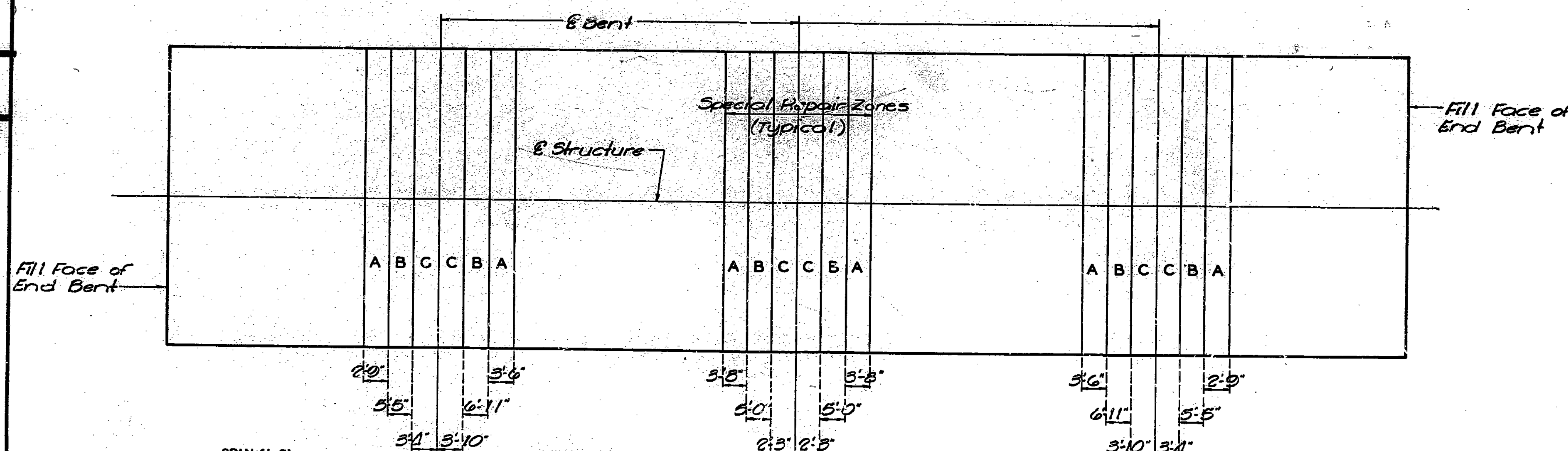
Zones with the same letter designation may be repaired at the same time.

One lane of traffic to be maintained during construction (See Road Plans)

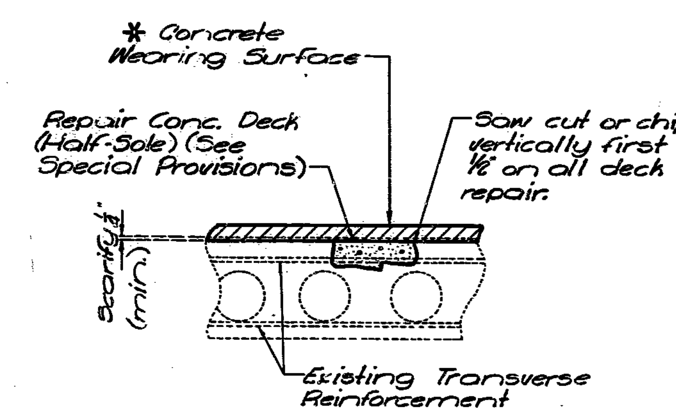
See Special Provisions for alternate use of concrete wearing surface.

Roadway surfacing adjacent to bridge ends to match concrete deck plus 1½"± or 2"±.

444



PLAN OF SLAB



HALF-SOLED AREA

REPAIRS TO
BRIDGE OVER MOREAU RIVER OVERFLOW
STATE ROAD FROM JEFFERSON CITY TO BRAZITO
ABOUT 5.8 MILES S.W. OF JEFFERSON CITY
PROJECT NO. F-54-3 (59) STA. 386+55.7 ±
JOB NO. 5-P-54-341 RTE. 54 S.B.L.
COLE COUNTY
DATE 12/5/85

STD.
STD.
A-1415R

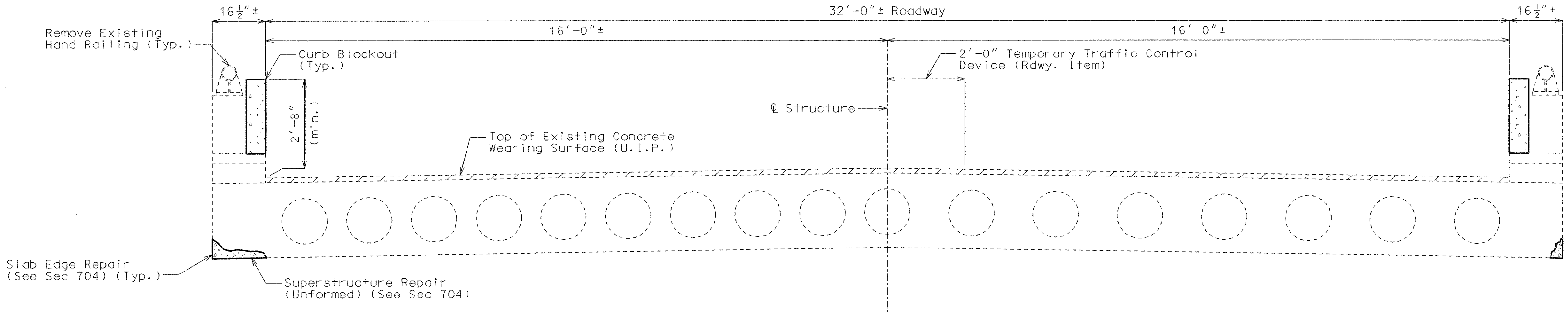
DESIGNED Sept. 1985
DETAILED Sept. 1985
CHECKED Oct. 1985

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

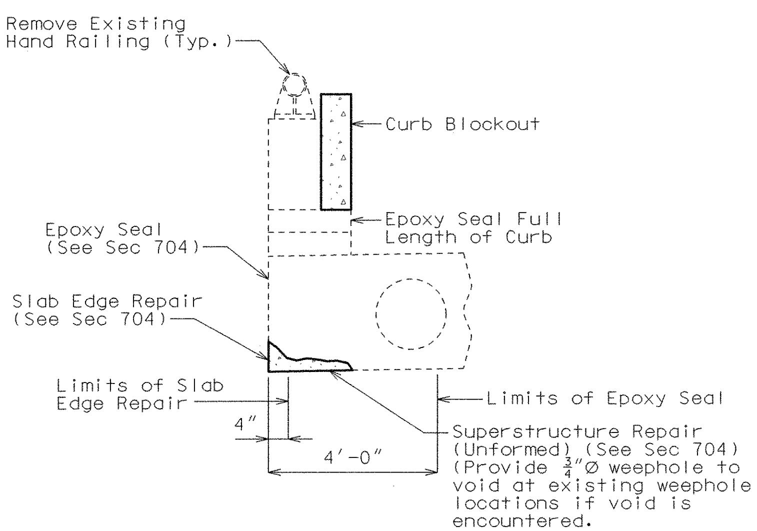
Sheet No. 1A of 1

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

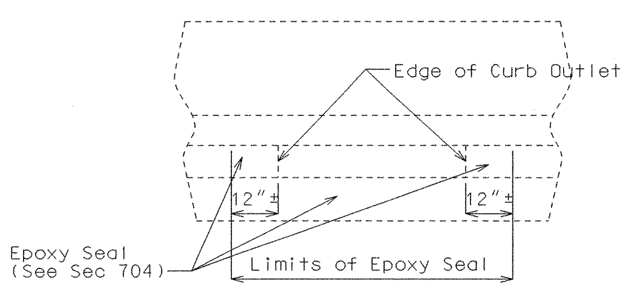
U.I.P. EXISTING (4 @ 47.5′) CONT. VOIDED SLAB SPANS



HALF SECTION THRU EXISTING VOIDED SLAB



SLAB EDGE REPAIR



TYPICAL ELEVATION OF EXISTING CURB SHOWING OUTLET

GENERAL NOTES:

Design Specifications:

2002 - AASHTO 17th Edition
Bridge Deck Rating = 6

Design Unit Stresses:

Class B-1 Concrete (Curb Blockout) f′c = 4,000 psi
Reinforcing Steel (Grade 60) fy = 60,000 psi

Reinforcing Steel:

Minimum clearance to reinforcing steel shall be 1-1/2″, unless otherwise shown.

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.

Joint Filler:

All joint filler shall be in accordance with Sec 1057 for preformed sponge rubber expansion and partition joint filler, except as noted.

Resin Anchors:

The contractor shall use one of the qualified resin anchor systems in accordance with Sec 1039.

Cost of furnishing and installing the resin anchor system complete-in-place will be considered completely covered by the contract unit price for Curb Blockout.

The 5/8″ diameter resin anchor systems shall have a minimum ultimate pullout strength of 15,500 lbs. in concrete with f′c = 4,000 psi.

An epoxy coated #5 Grade 60 reinforcing bar shall be substituted for the 5/8″ Ø threaded rod.

Miscellaneous:

Outline of old work is indicated by dashed lines. Heavy lines indicate new work.

Contractor shall verify all dimensions in field before ordering new material.

The existing bridge rails shall be stored at a location as designated by the engineer at the MoDOT Maintenance Lot in Brazito, Missouri.

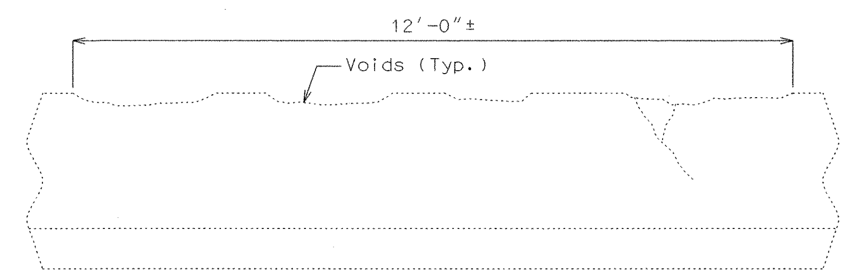
"Sec" refers to the sections in the Missouri standard and supplemental specifications unless specified otherwise.

Traffic:

Maintain one lane of traffic during construction.

ESTIMATED QUANTITIES

ITEM		TOTAL
Removal and Storage of Existing Bridge Rails	linear foot	385
Bridge Approach Slab (Bridge)	sq. yard	182
Curb Blockout	linear foot	407
Slab Edge Repair (Bridges)	linear foot	64
Superstructure Repair (Unformed)	sq. foot	64



EXISTING PARAPET RIGHT SIDE NEAR END BENT NO. 1

Note: Remove deteriorated concrete per Sec 206 and fill voids with Class-B1 Concrete during Curb Blockout pour. (All costs shall be included with Curb Blockout per linear foot)

REPAIRS TO BRIDGE OVER MOREAU RIVER OVERFLOW

STATE ROAD FROM RTE. CC SOUTHWEST TO RTE. D
ABOUT 1.8 MILES S.W. OF RTE. CC
PROJECT NO. STA. 386+55.70± (MATCH EXIST.)
JOB NO. J5P0821 RTE. 54 W.B.L.

STATE OF MISSOURI GREGORY E. SANDERS NUMBER E-2000162167 REGISTERED PROFESSIONAL ENGINEER
DATE 4/14/05

STD. 609.00
STD. 706.35

COLE COUNTY
Date: 4/15/05

A14152

REV.

Designed Dec. 2004
Detailed Dec. 2004
Checked Feb. 2005

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

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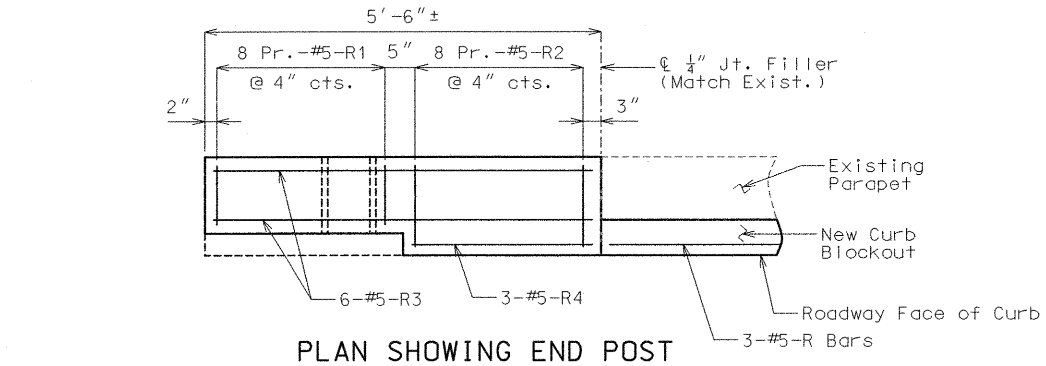
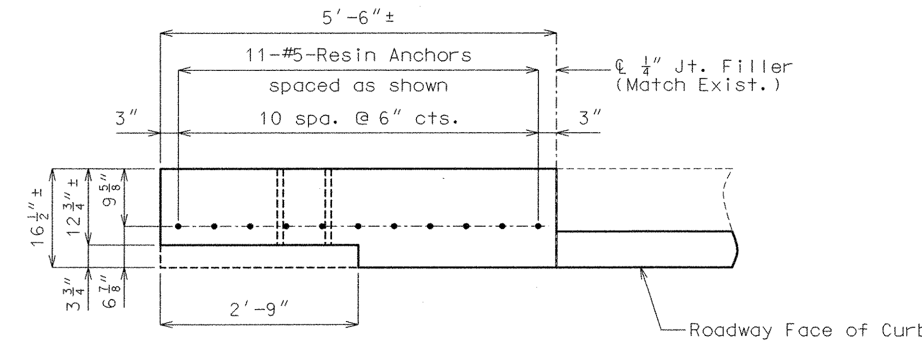
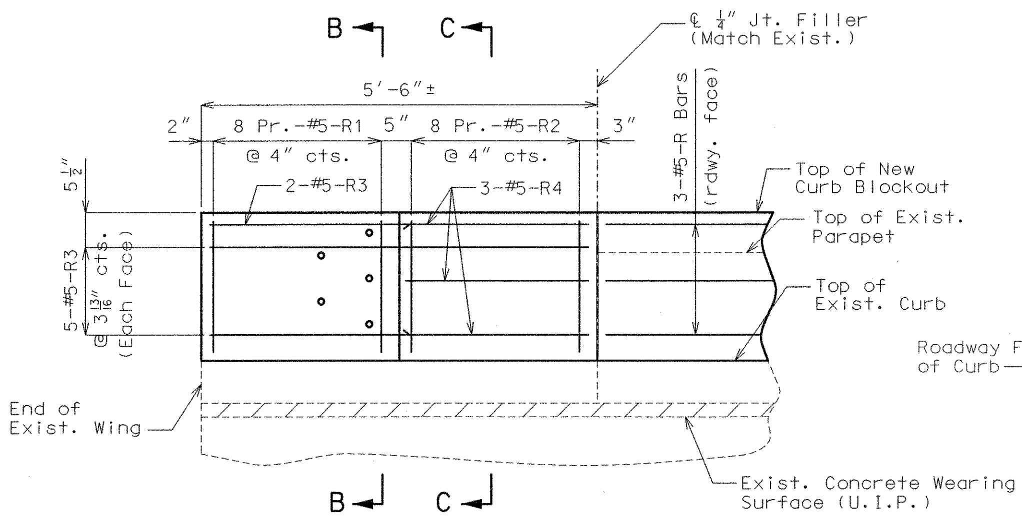
State	Proj. No.	Sheet No.
MO		B22



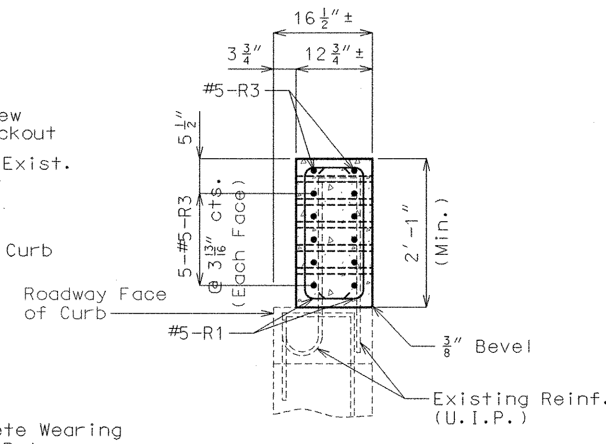
PLAN SHOWING END POST REINFORCEMENT



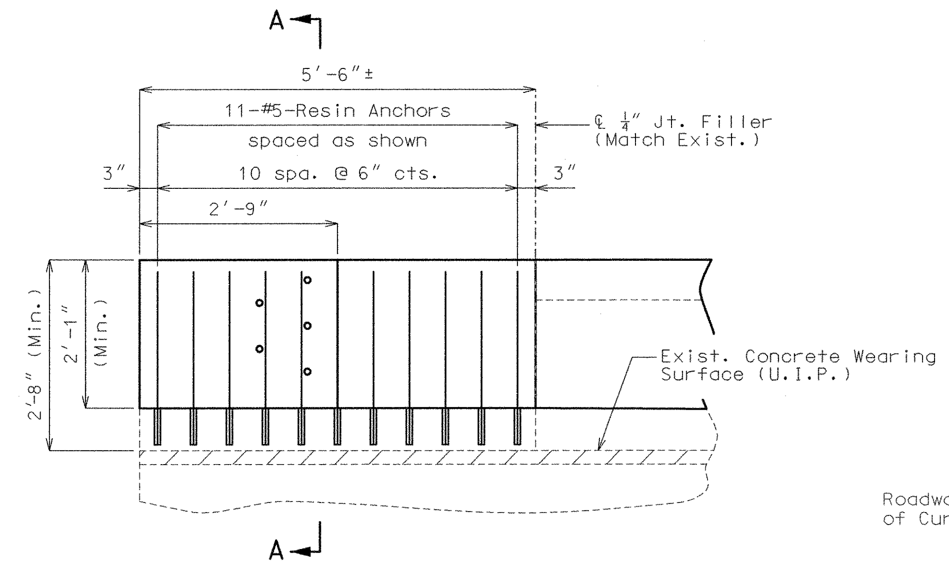
PLAN SHOWING END POST RESIN ANCHOR SYSTEMS AND DIMENSIONS



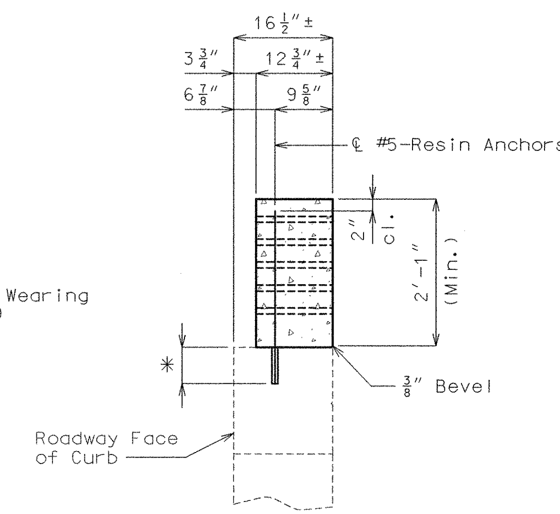
ELEVATION SHOWING END POST REINFORCEMENT



SECTION B-B

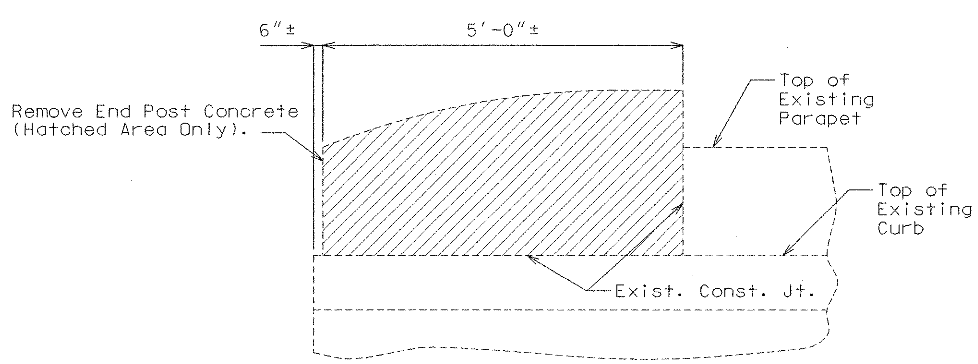


ELEVATION SHOWING END POST RESIN ANCHOR SYSTEMS AND DIMENSIONS

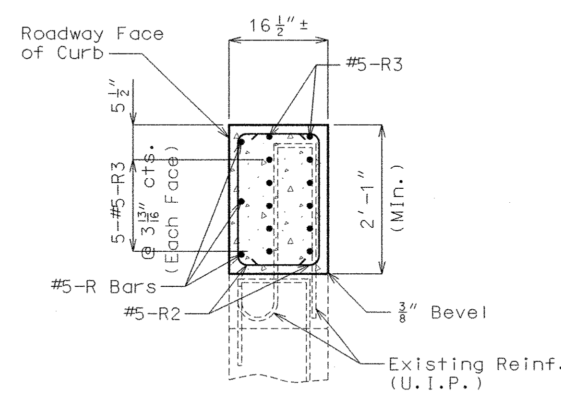


SECTION A-A

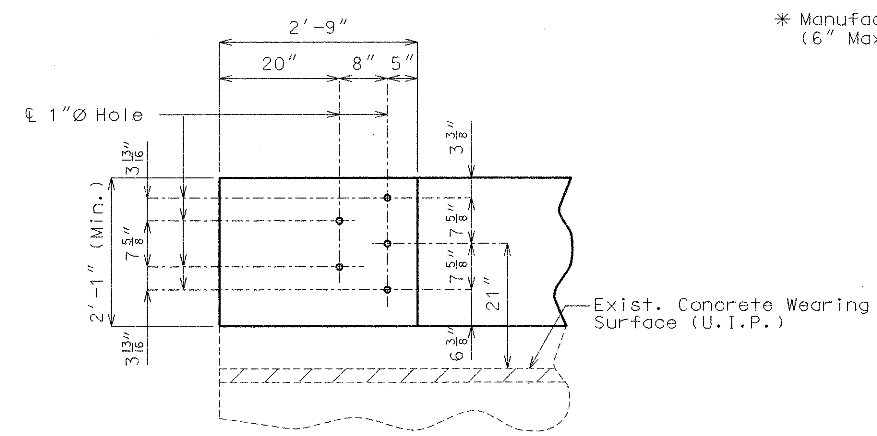
* Manufacturer's embedment length (6" Maximum embedment)



ELEVATION OF EXISTING END POST SHOWING CONCRETE REMOVAL



SECTION C-C



DETAILS OF GUARD RAIL ATTACHMENT

STATE OF MISSOURI
GREGORY E. SANDERS
NUMBER E-2000162767
REGISTERED PROFESSIONAL ENGINEER
DATE 4/14/05

DETAILS OF END POST AT END BENTS NO. 1 AND NO. 5

(Left side shown. Right side similar.)

Detailed Jan. 2005
Checked Feb. 2005

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

Sheet No. 2 of 5

COLE COUNTY | A14152 | REV.

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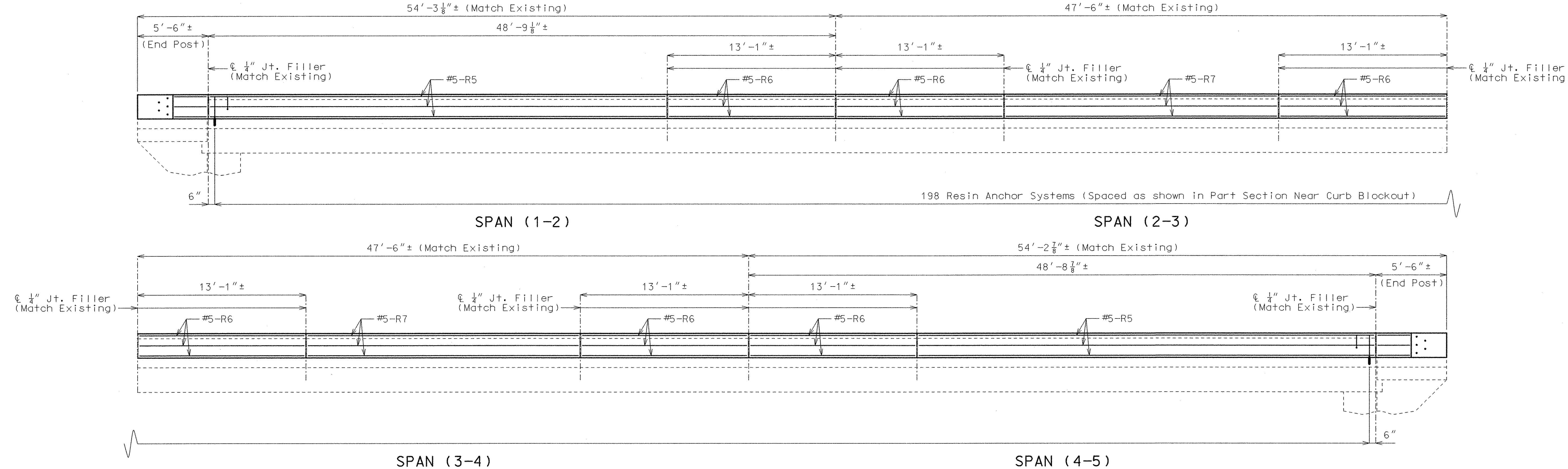
State	Proj. No.	Sheet No.
MO		B23



SECTION NEAR LEFT CURB BLOCKOUT

Note: Longitudinal dimensions shown are along grade.

Notes:

Concrete in curb blockout shall be Class B-1 with f'c = 4000 psi.

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.

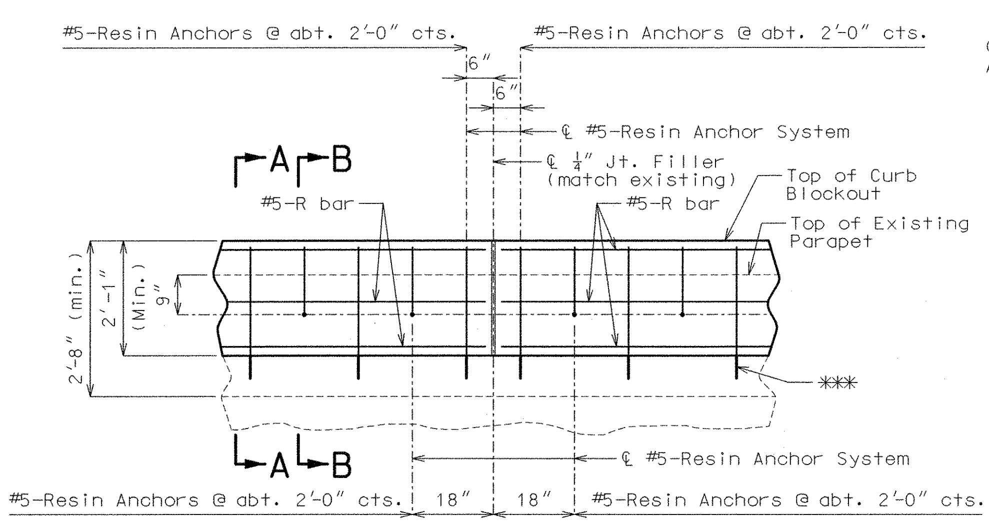
Payment for concrete, reinforcing steel, resin anchors, and any other work incidental to the curb blockout and end posts, complete in place, shall be included in the contract unit price for the Curb Blockout per linear foot.

Cost of removing existing end posts shall be included in the contract unit price for Curb Blockout.

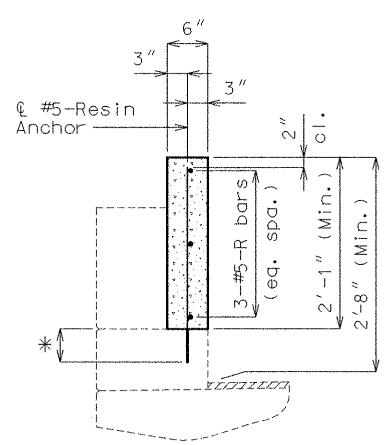
Cost of any concrete curb or parapet repair shall be included in the contract unit price for Curb Blockout.

All reinforcement shall be epoxy coated.

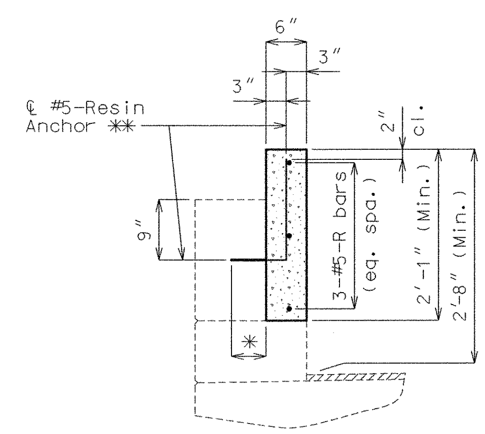
** Shift resin anchors where necessary to clear existing anchor bolts for tube rail and sign support brackets.



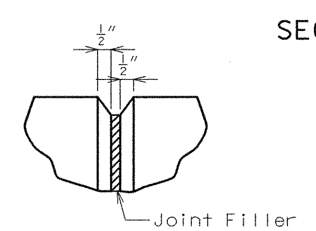
PART SECTION NEAR CURB BLOCKOUT



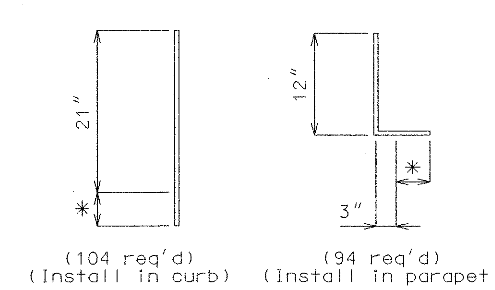
SECTION A-A



SECTION B-B



FILLED JOINT DETAIL



* Use manufacturer's embedment length. (6" Maximum embedment)

*** Use 3 1/2" embedment at curb outlets.

DETAILS OF RESIN ANCHORS

STATE OF MISSOURI GREGORY E. SANDERS NUMBER E-2000162167 REGISTERED PROFESSIONAL ENGINEER

DATE 4/14/05

DETAILS OF CURB BLOCKOUT

(Left side shown. Right side similar)

Detailed Dec. 2004
Checked Feb. 2005

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

Sheet No. 3 of 5

COLE COUNTY A14152 REV.

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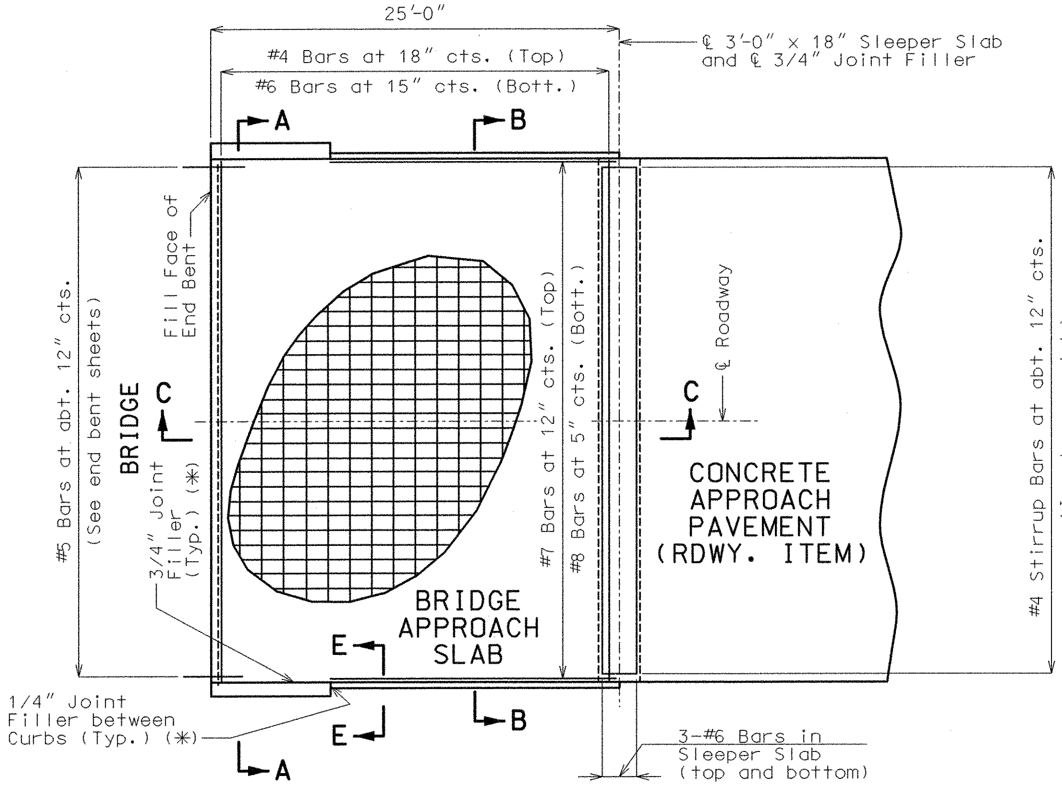
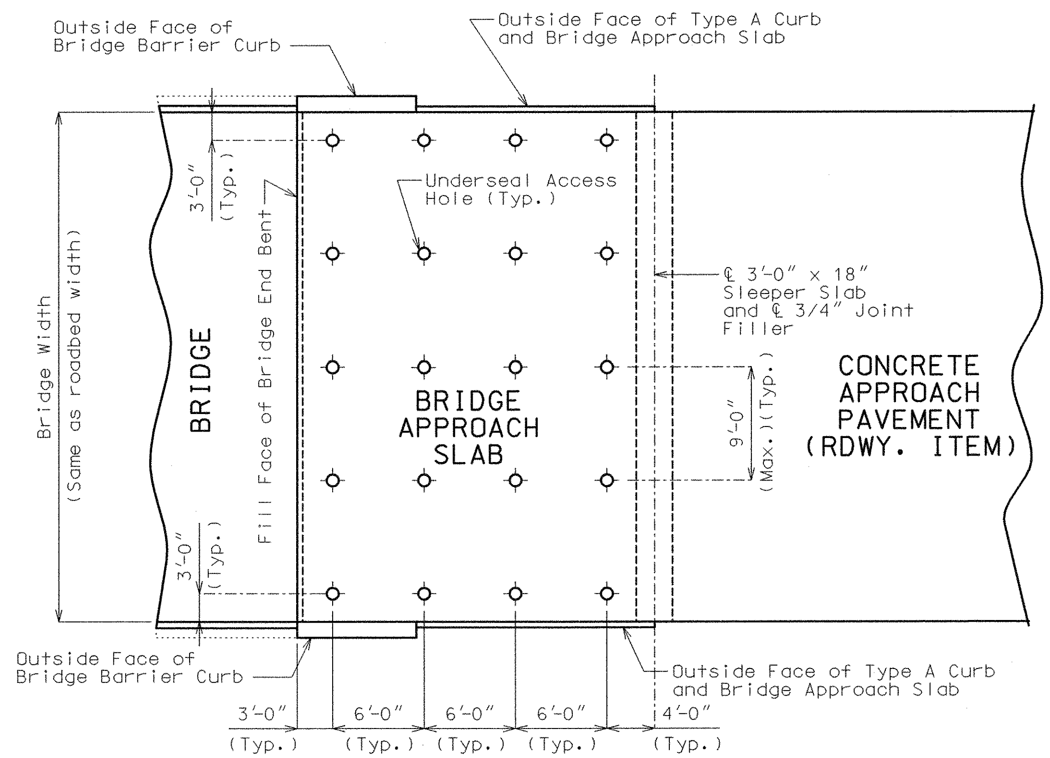
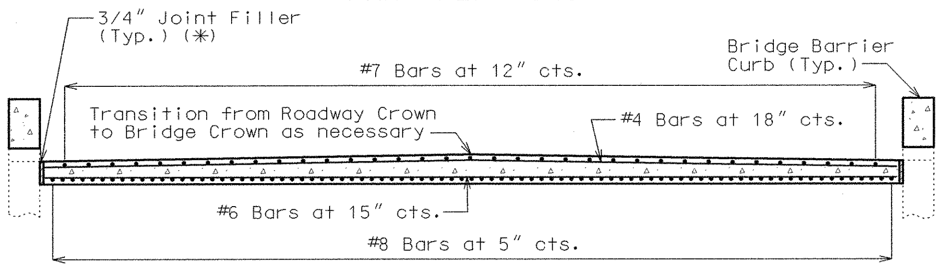
State	Proj. No.	Sheet No.
MO		B24



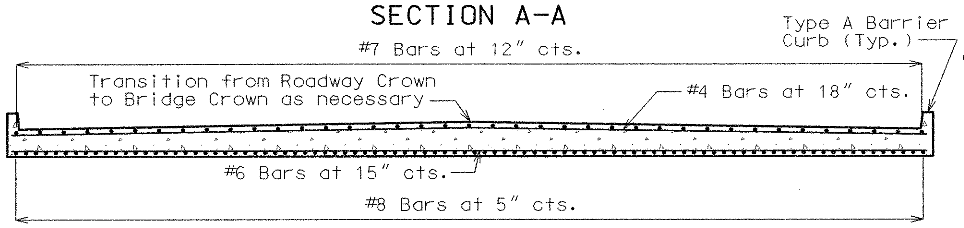
PART PLAN SHOWING REINFORCEMENT



PART PLAN
(SHOWING TYPICAL UNDERSEAL ACCESS HOLE LOCATIONS)

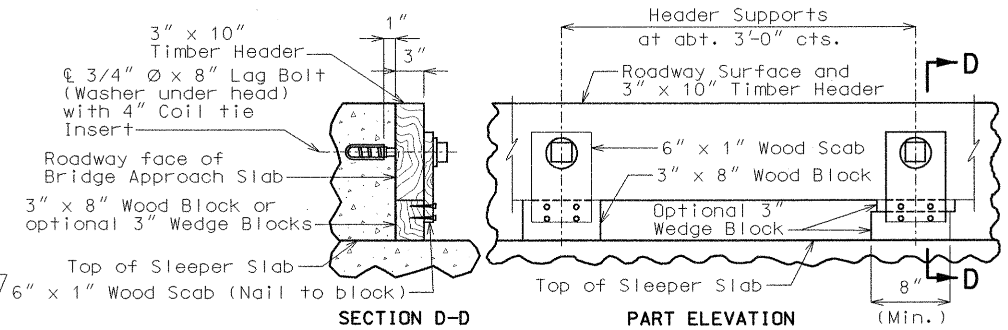


SECTION A-A



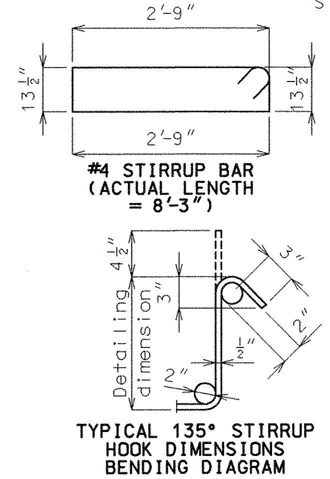
SECTION B-B

Note: With the approval of the engineer, the contractor may crown the bottom of the approach slab to match the crown of the roadway surface.



Note: Remove timber header when concrete pavement is placed.

DETAILS OF TIMBER HEADER



Note:
Nominal lengths are based on out to out dimensions shown in bending diagram and are listed for fabricators use (nearest inch).

GENERAL NOTES:

All concrete for the bridge approach slab and sleeper slab shall be in accordance with Sec 503 (f'c = 4,000 psi).

All joint filler shall be in accordance with Sec 1057 for preformed fiber expansion joint filler, except as noted.

The reinforcing steel in the bridge approach slab and the sleeper slab shall be epoxy coated Grade 60 with Fy = 60,000 psi.

Minimum clearance to reinforcing steel shall be 1-1/2", unless otherwise shown.

The reinforcing steel in the bridge approach slab and the sleeper slab shall be continuous. The transverse reinforcing steel may be made continuous by lap splicing the #4 & #6 bars 18" and 2'-2" respectively.

Mechanical bar splices will be in accordance with Sec 706.

(✱) Seal joint between vertical face of approach slab and wing with Silicone Joint Sealant for Saw Cut and Formed Joints in accordance with Sec 717.

Hooks and bends shall be in accordance with the CRSI Manual of Standard Practice for Detailing Reinforced Concrete Structures, Stirrup and Tie Dimensions.

The contractor shall pour and satisfactorily finish the bridge or semi-deep slab before pouring the bridge approach slabs.

Longitudinal construction joints in approach slab and sleeper slab shall be aligned with longitudinal construction joints in bridge or semi-deep slab.

Payment for furnishing all materials, labor and excavation necessary to construct the approach slab, including the timber header, sleeper slab, underdrain, Type 5 aggregate base, joint filler and all other appurtenances and incidental work as shown on this sheet, complete in place, will be considered completely covered by the contract unit price for Bridge Approach Slab (Bridge), per square yard.

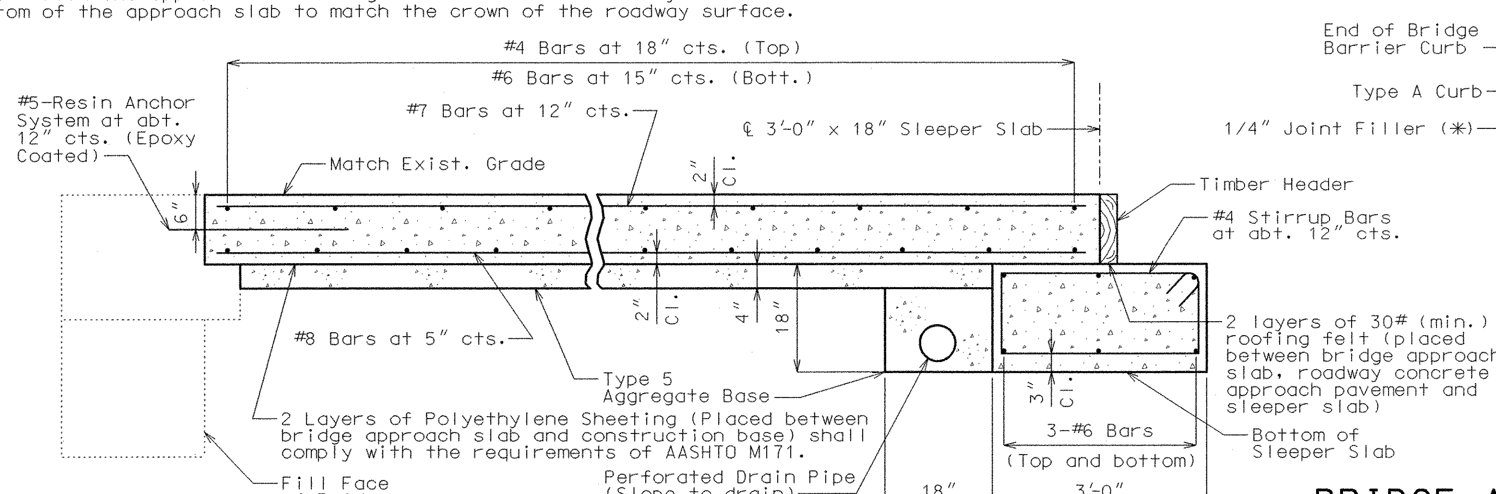
For Concrete Approach Pavement details, see roadway plans.

See Missouri Standard Plans Drawing 609.00 for details of Type A Curb.

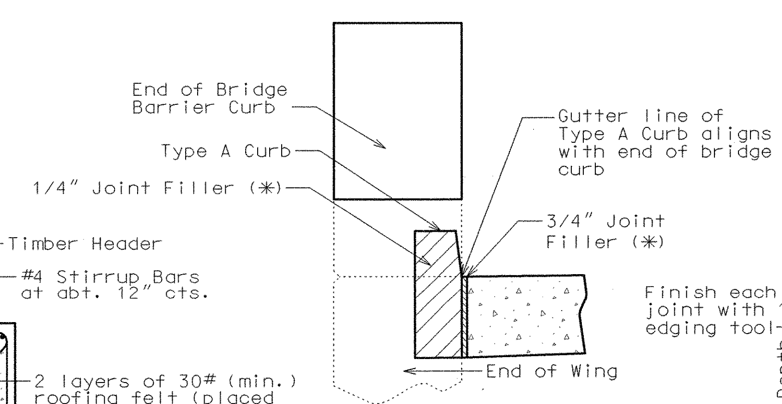
At the contractor's option, Grade 40 reinforcement may be substituted for the Grade 60 #5 dowel bars connecting the bridge approach slab to the bridge abutment. No additional payment will be made for this substitution.

When Grade 40 reinforcement is substituted for the Grade 60 #5 dowel bars connecting the bridge approach slab to the bridge abutment, the reinforcement may be bent up to 90 degrees with a 2" minimum radius near the abutment to allow compaction of the backfill material near the abutment. Damage to epoxy coating shall be repaired in accordance with Sec 710. (Resin anchor systems shall not be bent).

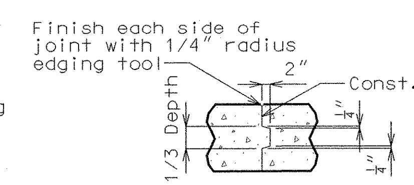
Drain pipe may be either 6" diameter corrugated metallic-coated pipe underdrain, 4" diameter corrugated polyvinyl chloride (PVC) drain pipe, or 4" diameter corrugated polyethylene (PE) drain pipe.



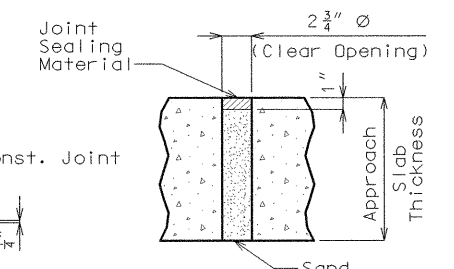
SECTION C-C



SECTION E-E
(BETWEEN CURBS)



CONST. JOINT DETAIL
(IF REQUIRED)



TYPICAL UNDERSEAL ACCESS HOLE DETAIL

STATE OF MISSOURI GREGORY E. SANDERS NUMBER E-20001 62167 REGISTERED PROFESSIONAL ENGINEER
DATE 4/14/05

BRIDGE APPROACH SLAB AT END BENTS NO. 1 AND NO. 5

COLE COUNTY | A14152

Detailed Dec. 2004
Checked Feb. 2005

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

Sheet No. 4 of 5

t:\br-proj\talkem1\J5P0821\A14152\A14152_004_approachslab.dgn 02:33:24 PM 04/06/2005

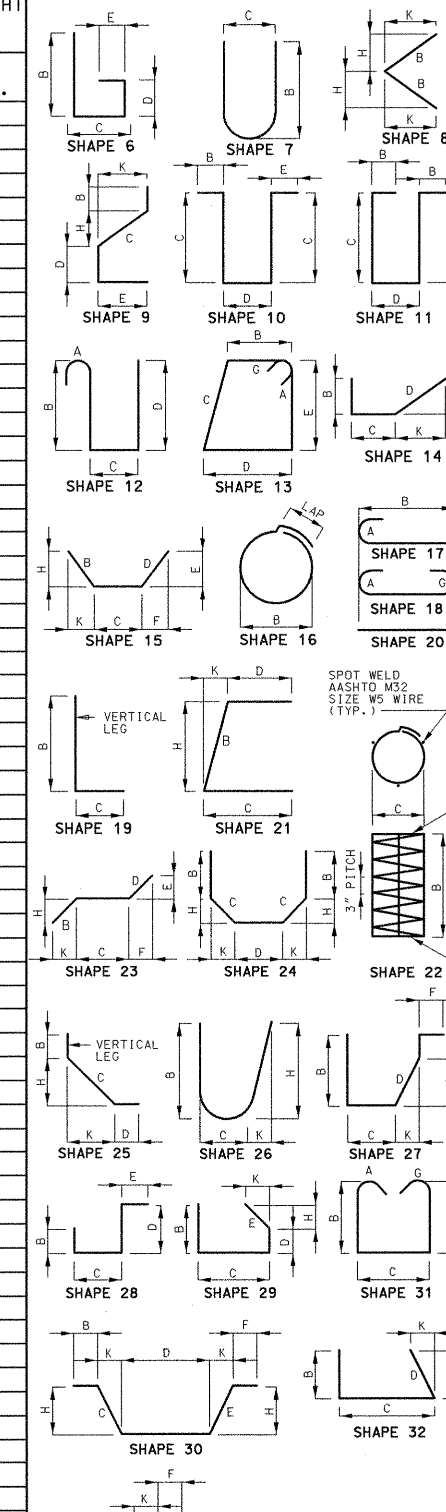
State	Proj. No.	Sheet No.
MO		B25

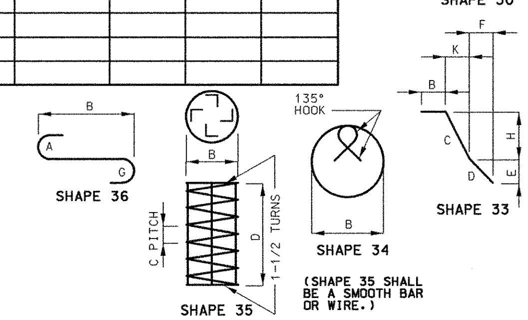
BILL OF REINFORCING STEEL

NO. REQ'D.	SIZE	MARK	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	B FT.	B IN.	C FT.	C IN.	D FT.	D IN.	E FT.	E IN.	F FT.	F IN.	H FT.	H IN.	K FT.	K IN.	NOMINAL LENGTH FT.	NOMINAL LENGTH IN.	ACTUAL LENGTH FT.	ACTUAL LENGTH IN.	WEIGHT LBS.
			END POST																									
64	5	R1	END POST	E	10	S							6.500		22.000									2	11	2	9	184
64	5	R2	END POST	E	10	S							9.000		22.000									3	4	3	2	211
48	5	R3	END POST	E	20					5	3.000													5	3	5	3	263
12	5	R4	END POST	E	20					2	6.000													2	6	2	6	31
			CURB																									
			BLOCKOUT																									
12	5	R5	BLOCKOUT	E	20					35	5.000													35	5	35	5	443
38	5	R6	BLOCKOUT	E	20					12	10.000													12	10	12	10	509
12	5	R7	BLOCKOUT	E	20					21	4.000													21	4	21	4	267
			TOTALS																									
	5			E																								1908
			TOTAL																									0
			TOTAL	E																								1908

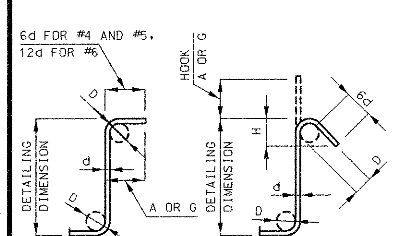
BILL OF REINFORCING STEEL

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





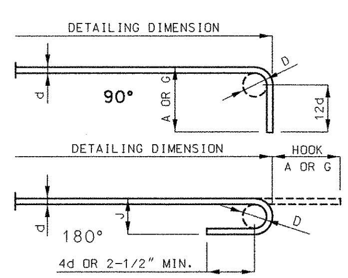
BENDING DIAGRAMS



90° STIRRUP 135° STIRRUP

STIRRUP HOOK DIMENSIONS				
GRADES 40 - 50 - 60 KSI				
BAR SIZE	D (IN.)	90° HOOK	135° HOOK	
		HOOK A OR G	HOOK A OR G	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"

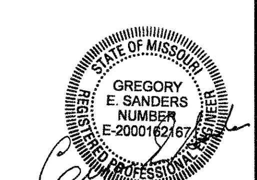
NOTE: UNLESS OTHERWISE NOTED DIAMETER "D" IS THE SAME FOR ALL BENDS AND HOOKS ON A BAR.



END HOOK DIMENSIONS				
BAR SIZE	D (IN.)	ALL GRADES		
		180° HOOKS		90° HOOKS
		A OR G	J	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"

TWO ADDITIONAL #5-R6 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 FABRICATOR'S 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.



DATE 4/14/05

Detailed Mar. 2005
Checked Mar. 2005

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

COLE COUNTY | A14152 | REV.

FED. ROAD DIV. No.	STATE	FEDERAL PROJECT No. & SEC.	SHEET No.
5	MO.	U-54-3(8)	

DIST. No.	COUNTY	ROUTE	SEC.
5	COLE	54	

TITLE SHEET

SEE

COLE CO. RTE. 54

C026-54(6)

A-1672

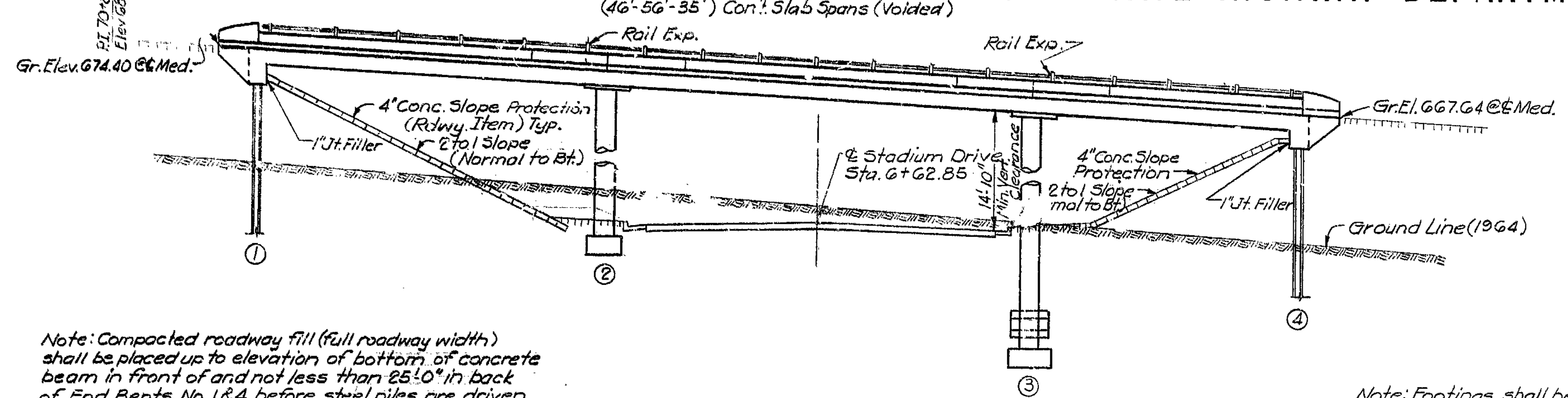
FINAL SURVEY	BY	DATE
SURVEYED		
PLOTTED		
TEMPLATE		
AREAS		
AREAS CHECKED		
FIELD BOOK NO.		

ORIGINAL SURVEY	BY	DATE
SURVEYED		
PLOTTED		
TEMPLATE		
AREAS		
AREAS CHECKED		
NOTE BOOK NO.		

326

MISSOURI STATE HIGHWAY DEPARTMENT

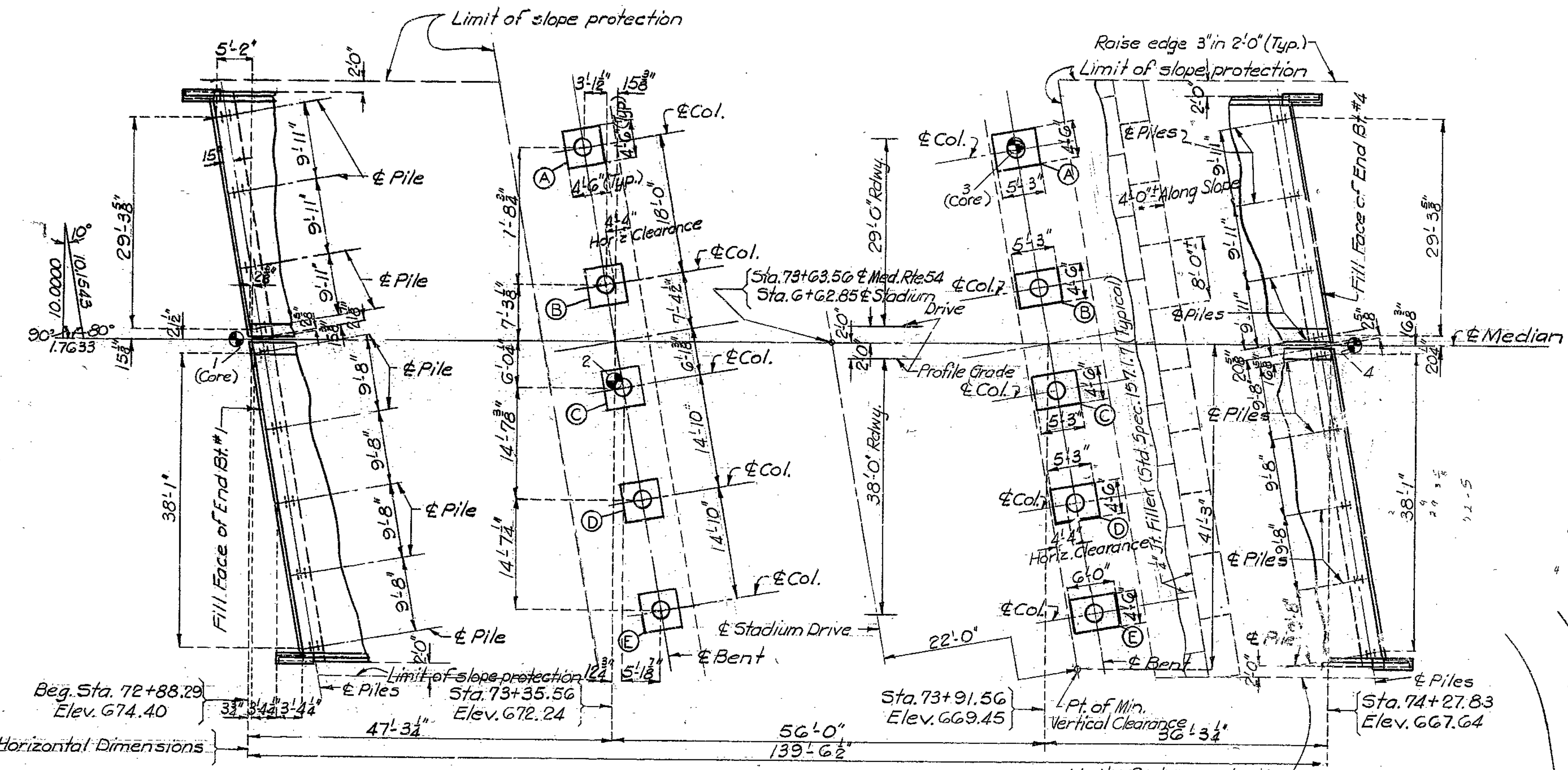
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	117	



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 25'-0" in back of End Bents No. 1 & 4 before steel piles are driven.

ELEVATION

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.



PLAN

Note: For boring data see Sheet No. 2 of 10. "⊕" Indicates location of boring.

FOOTING ELEVATIONS BENT NO. 2	
A	648.0 Not above
B	648.0 Not above
C	648.0 Not above
D	648.0 Not above
E	648.0 Not above

FOOTING ELEVATIONS BENT NO. 3	
A	638.0
B	639.0
C	639.0
D	639.0
E	634.0

GENERAL NOTES:

Design Specifications: A.A.S.H.O.-1961
Design Loading:
H5-20-44, 15#/Sq. Ft. Future Wearing Surface.
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 fs = 20,000 psi.
Steel Pile (A.S.T.M. A36-62T) fb = 9,000 psi.

Surface Seal:
Superstructure deck to be surface sealed.

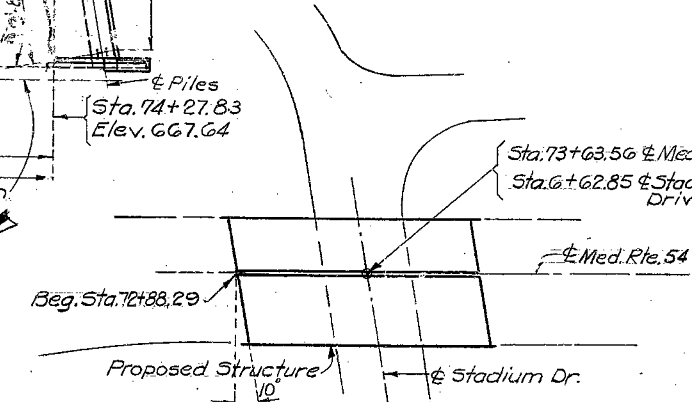
Falsework over existing street shall be constructed with a minimum vertical clearance of 13'-0" from crown of existing street and a minimum lateral clearance of 28'-0" centered on existing street.

FOOTING AND PILE DATA					
	Bent No.	1	2	3	4
SPREAD FOOTINGS	Foundation Material		Rock	Rock	
	Design Bearing Tons/Sq. Ft.		9.0	7.5	
BEARING PILE	Pile Type & Size	10BP42			10BP42
	Number	9			9
	Approximate Length Ft.	Lt. Str. 15' Rt. Str. 20'			30
	Plan Bearing Tons	55			55
	Min. Req'd. Bearing Tons	43			35
	Hammer	Heavy Power			Heavy Power

Note: All piles shall be driven to practical refusal on or into solid rock or other point bearing material at not less than the Plan Bearing shown, unless excessive splicing is required to obtain Plan Bearing, in which case the engineer will authorize a lesser bearing, but in no case less than the Minimum Required Bearing. Piling shall be driven with an approved power hammer developing an energy of not less than 19,000 ft. lbs. and having a ram weighing not less than 4,500 Lbs.

ESTIMATED QUANTITIES				
Item		Substr.	Superstr.	Total
Class I Excavation for Structures	Cu. Ft.	270		270
Steel Piles in-place (10")	Lin. Ft.	376		376
Steel Piles Cut-Offs (10")	Lin. Ft.	54		54
Class B Concrete	Cu. Yds.	20.6		20.6
Class B1 Concrete	Cu. Yds.		673.5	673.5
Reinforcing Steel	Lbs.	610	173,360	173,970
H.S. Bridge Rail (One Tube Type)	Lin. Ft.		274	274

Note: All concrete and reinforcement above footings in intermediate bents is included in superstructure quantities.
No payment for excavation will be allowed at End Bents No. 1 & 4.



LOCATION SKETCH

B.M. Elev. 653.49 - E. edge of N. pump island Standard Service Sta.

BRIDGE OVER STADIUM DRIVE

STATE ROAD - ROUTE 54 RELOCATION

IN JEFFERSON CITY

PROJECT NO. U-54-3(8) (RTE. 54) C026-54(6) **STA.** 72+88.29

COLE **COUNTY**

SUBMITTED BY D. B. Jenkins BRIDGE ENGINEER DATE 9/27/65

APPROVED BY M. J. Miller CHIEF ENGINEER DATE 9/27/65

STD. 54.00

A-1672

327

DESIGNED Feb 1965 BY Johnson
DETAILED May 1965 BY Griffith
CHECKED Sept. 1965 BY Sommerer

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

SEE FINAL PLANS BROWN-LINES

MISSOURI STATE HIGHWAY DEPARTMENT

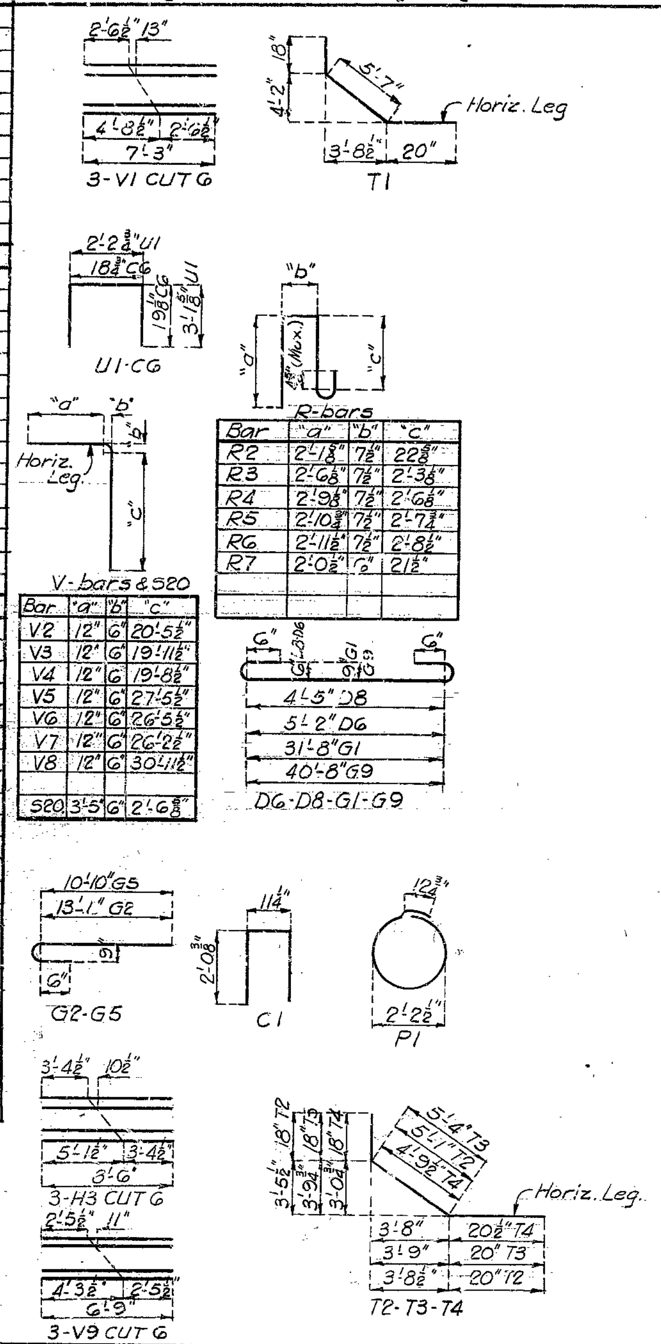
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	118	

COMPLETE BILL OF REINFORCING STEEL

No.	Size	Length	Mark	Location
Superstructure				
328	#5	32'-3"	S1	Slab
98	#5	32'-6"	S2	"
61	#10	32'-3"	S3	"
58	#11	25'-0"	S4	"
57	#11	14'-0"	S5	"
98	#5	29'-0"	S6	"
61	#10	30'-0"	S7	"
58	#10	22'-9"	S8	"
57	#11	12'-6"	S9	"
98	#5	20'-9"	S10	"
656	#5	21'-6"	S11	"
100	#10	48'-0"	S12	"
48	#10	36'-9"	S13	"
48	#11	26'-0"	S14	"
50	#8	48'-0"	S15	"
48	#10	36'-0"	S16	"
48	#11	26'-9"	S17	"
48	#8	27'-6"	S18	"
48	#8	19'-9"	S19	"
12	#5	18'-9"	C9	Median
296	#5	5'-0"	C1	Curb
8	#5	26'-3"	C2	"
8	#5	28'-9"	C3	"
4	#5	38'-6"	C4	"
280	#5	4'-9"	C6	Median
12	#5	24'-3"	C7	"
12	#5	28'-6"	C8	"
24	#5	4'-9"	R1	End Post
4	#5	5'-9"	R2	" "
4	#5	6'-6"	R3	" "
4	#5	7'-0"	R4	" "
4	#5	7'-3"	R5	" "
8	#5	7'-3"	R6	" "
330	#5	5'-6"	R7	Parapet
4	#5	36'-0"	R8	"
4	#5	24'-9"	R9	"
32	#5	9'-9"	R10	"
8	#5	35'-9"	R11	"
4	#5	24'-9"	R13	"
4	#5	36'-0"	R14	"
End Bent #1 (Superstructure)				
12	#6	41'-6"	H1	Beam
12	#6	32'-6"	H2	"
6	#6	8'-6"	H3	Wing
4	#6	5'-6"	H4	"
100	#6	6'-9"	S20	Beam
2	#6	8'-9"	T1	Wing
2	#6	8'-3"	T2	"
3	#4	7'-3"	V1	"
3	#4	6'-9"	V9	"
156	#5	8'-6"	U1	Beam
Int. Bent #2 (Superstructure)				
7	#11	35'-0"	G1	Beam
12	#11	14'-9"	G2	"
12	#10	12'-6"	G5	"

No.	Size	Length	Mark	Location
Int. Bt #2 (Superstr.) (Cont'd.)				
6	#11	11'-0"	G6	Beam
13	#10	32'-0"	G7	"
11	#8	41'-0"	G8	"
7	#9	44'-0"	G9	"
98	#3	8'-0"	P1	Column
160	#5	8'-6"	U2	Beam
27	#8	22'-3"	V2	Column
9	#8	21'-9"	V3	"
9	#8	21'-6"	V4	"
Int. Bent #3 (Superstructure)				
7	#11	35'-0"	G1	Beam
12	#11	14'-9"	G2	"
12	#10	12'-6"	G5	"
6	#11	11'-0"	G6	"
13	#10	32'-0"	G7	"
11	#8	41'-0"	G8	"
7	#9	44'-0"	G9	Beam
135	#3	8'-0"	P1	Column
160	#5	8'-6"	U2	Beam
9	#8	29'-3"	V5	Column
18	#8	28'-3"	V6	"
9	#8	28'-0"	V7	"
9	#8	32'-9"	V8	"
Int. Bent #2 (Substructure)				
45	#5	2'-6"	D1	Footing
Int. Bent #3 (Substructure)				
45	#5	2'-6"	D1	Footing
26	#5	4'-3"	D4	"
7	#5	7'-9"	D6	"
28	#5	7'-0"	D8	"
End Bent #4 (Superstructure)				
12	#6	41'-6"	H1	Beam
12	#6	32'-6"	H2	"
2	#6	8'-6"	T3	Wing
2	#6	8'-0"	T4	"
156	#5	8'-6"	U1	Beam
6	#6	8'-6"	H3	Wing
4	#6	5'-6"	H4	"
100	#6	6'-9"	S20	Beam
3	#4	7'-3"	V1	Wing
3	#4	6'-9"	V9	"

Bending Sketches & Cutting Diagrams

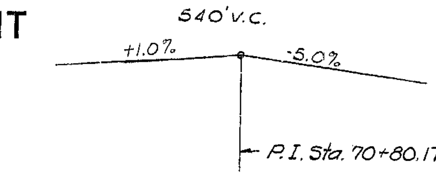


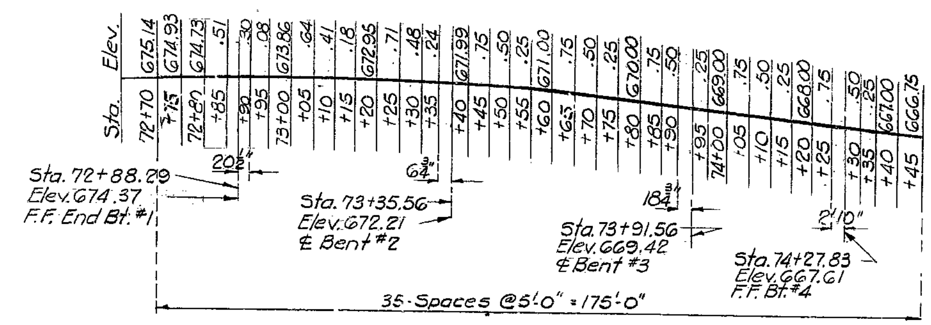
R-bars

Bar	"a"	"b"	"c"
R2	2'-1 5/8"	7 1/2"	22 5/8"
R3	2'-6 1/8"	7 1/2"	2'-3 1/8"
R4	2'-9 1/8"	7 1/2"	2'-6 1/8"
R5	2'-10 3/4"	7 1/2"	2'-7 3/4"
R6	2'-11 1/2"	7 1/2"	2'-8 1/2"
R7	2'-0 1/2"	6"	21 1/2"

V-bars & S20

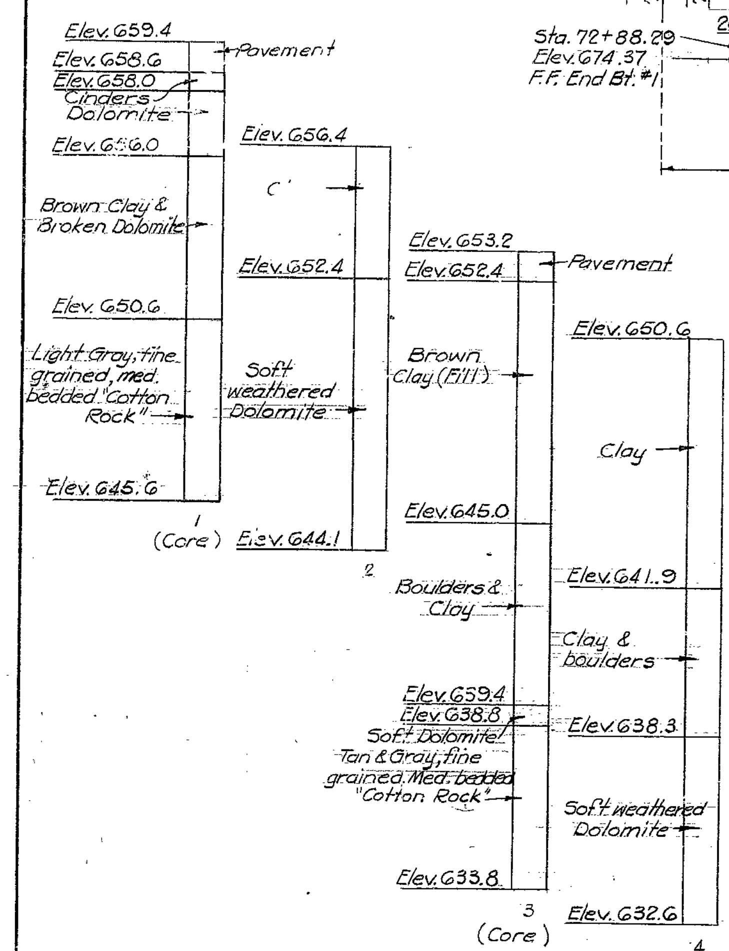
Bar	"a"	"b"	"c"
V2	12"	6"	20'-5 1/2"
V3	12"	6"	19'-11 1/2"
V4	12"	6"	19'-8 1/2"
V5	12"	6"	27'-5 1/2"
V6	12"	6"	26'-5 1/2"
V7	12"	6"	26'-2 1/2"
V8	12"	6"	30'-11 1/2"
S20	3'-5"	6"	2'-6 5/8"





Sta.	Elev.
72+70	675.14
+75	674.93
72+80	674.73
+85	.51
+90	.30
+95	.08
73+00	673.86
+05	.64
+10	.41
+15	.18
+20	672.95
+25	.71
+30	.48
+35	.24
+40	671.99
+45	.75
+50	.50
+55	.25
+60	671.00
+65	.75
+70	.50
+75	.25
+80	670.00
+85	.75
+90	.50
+95	.25
74+00	669.00
+05	.75
+10	.50
+15	.25
+20	668.00
+25	.75
+30	.50
+35	.25
+40	667.00
+45	666.75

PROFILE GRADE ELEVATIONS



BORING DATA

Note: For location borings see sheet No. 1 of 10.

BRIDGE OVER STADIUM DRIVE

STATE ROAD - ROUTE 54 RELOCATION

IN JEFFERSON CITY

PROJECT NO. U-54-3(8) (RTE. 54) Co26-54(6) **STA.** 72+88.29

COLE **COUNTY**

DESIGNED Feb 1965 BY Johnson
DETAILED June 1965 BY Griffith
CHECKED Sept 1965 BY Sommerer

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

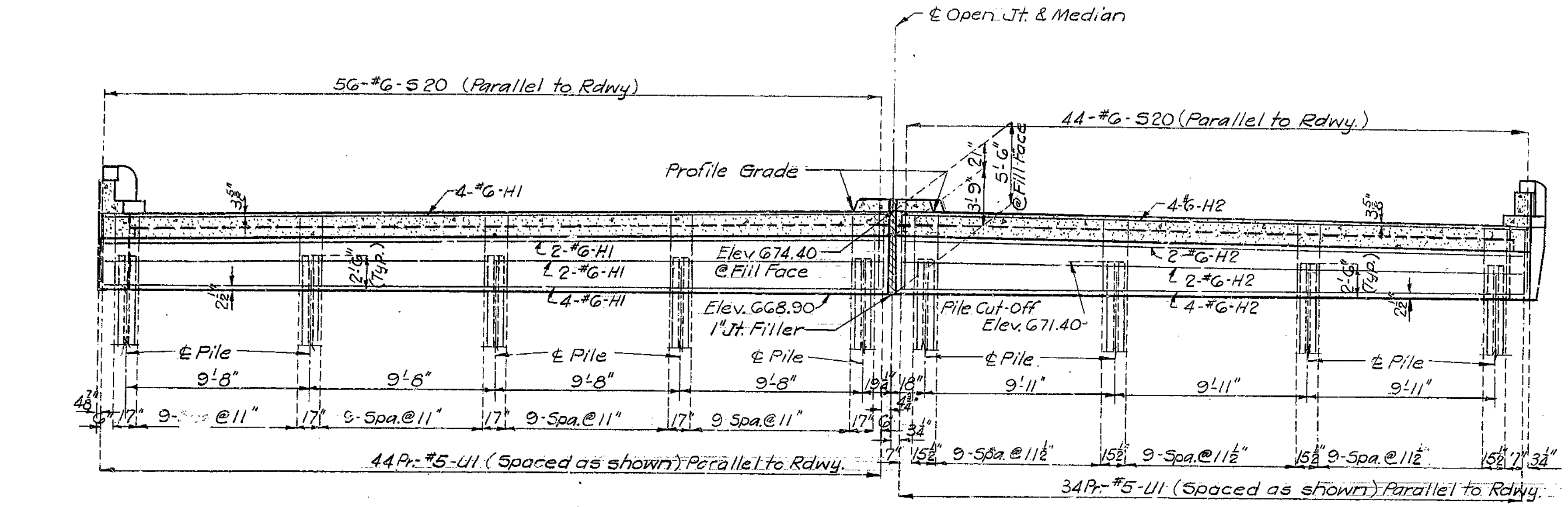
A-1672

328

NO CONSTRUCTION CHANGES

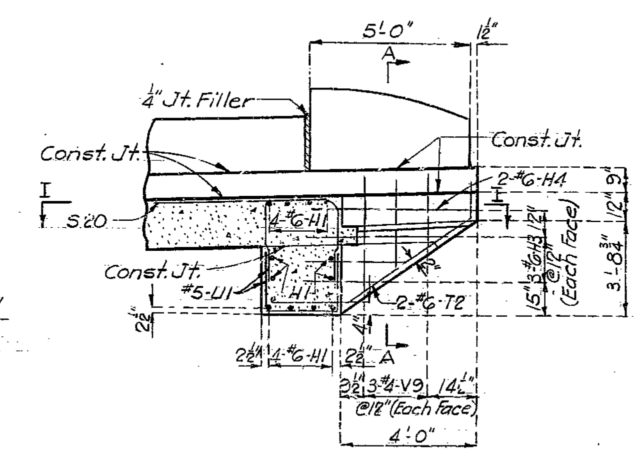
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	119	

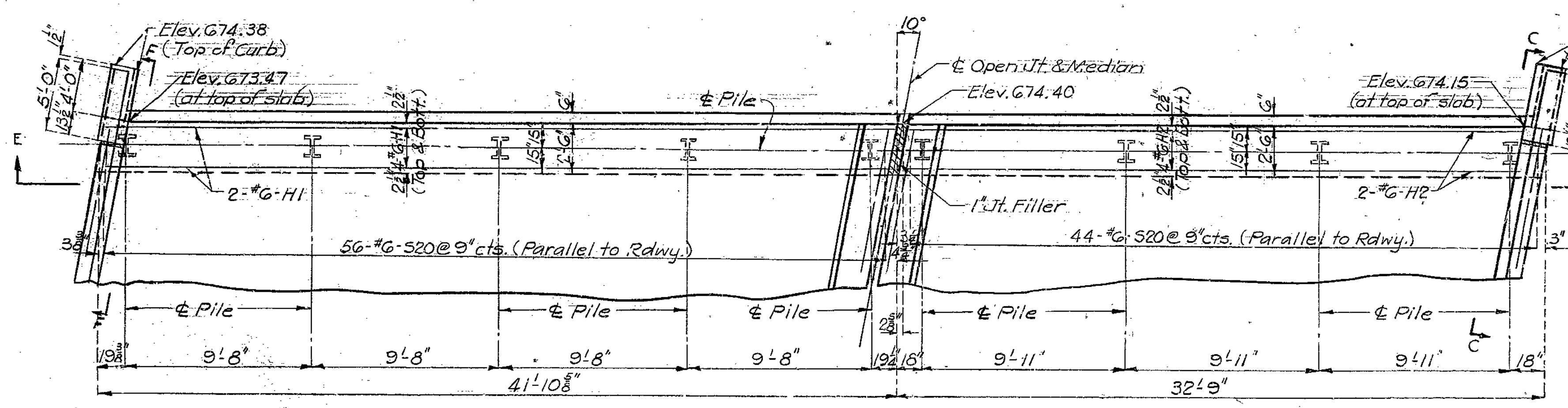


Note: For typical section thru beam see Sheet No. 6 of 10.

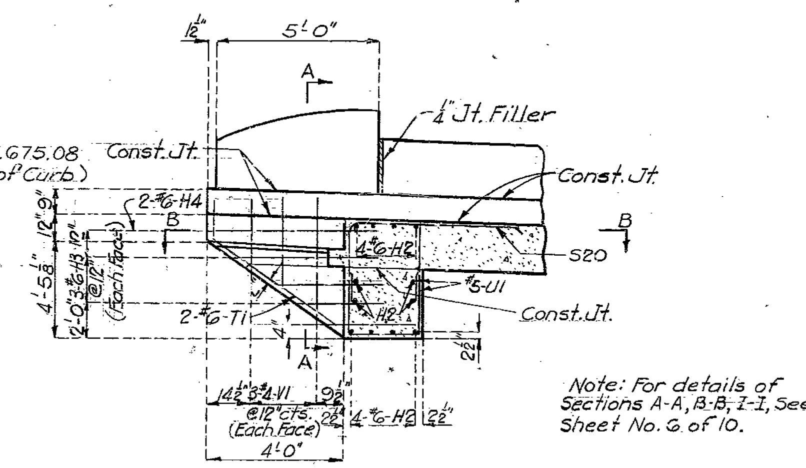
SECTION E-E



SECTION F-F

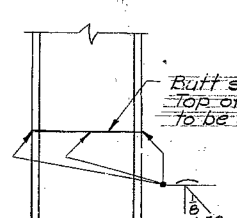


PLAN



SECTION C-C

Note: For details of Sections A-A, B-B, I-I, See Sheet No. 6 of 10.



DETAIL OF STEEL PILE SPLICE

DETAILS OF END BENT NO. 1

BRIDGE OVER STADIUM DRIVE

STATE ROAD - ROUTE 54 RELOCATION

IN JEFFERSON CITY

PROJECT NO. U-54-3(8) (RTE. 54) Co 26-54(6) **STA.** 72+88.29

COLE **COUNTY**

DETAILED May 1965 BY Griffith
CHECKED Sept. 1965 BY Sommerer

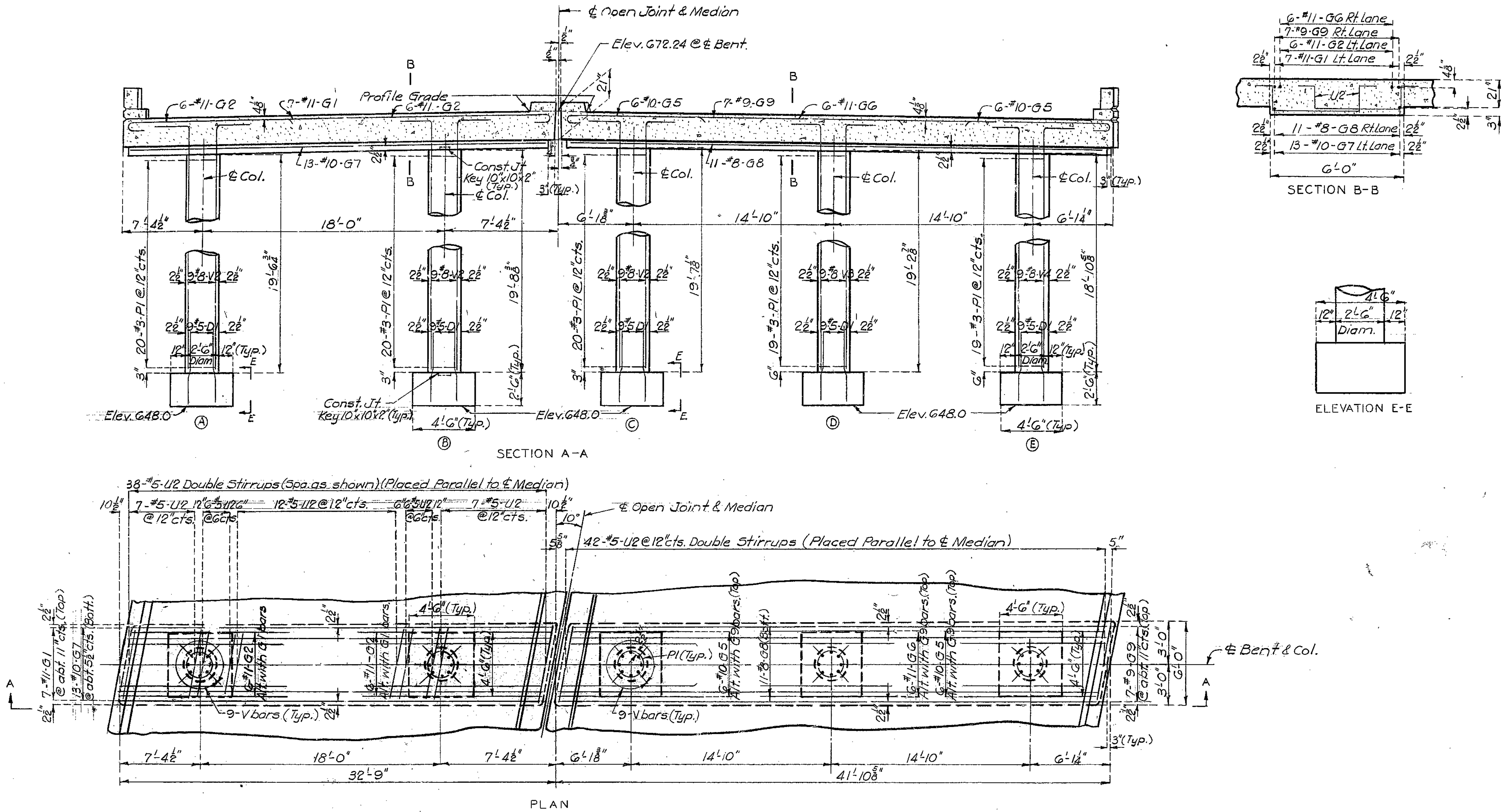
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 3 of 10.

A-1672

329

NO CONSTRUCTION CHANGES



DETAILS OF INT. BENT NO. 2

BRIDGE OVER STADIUM DRIVE

STATE ROAD - ROUTE 54 RELOCATION

IN JEFFERSON CITY

PROJECT NO. U-54-3(8) (RTE. 54) Co 26-34(4) **STA.** 72+88.29

COLE **COUNTY**

DETAILED May 1965 BY Griffith

CHECKED Sept. 1965 BY Sommers

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

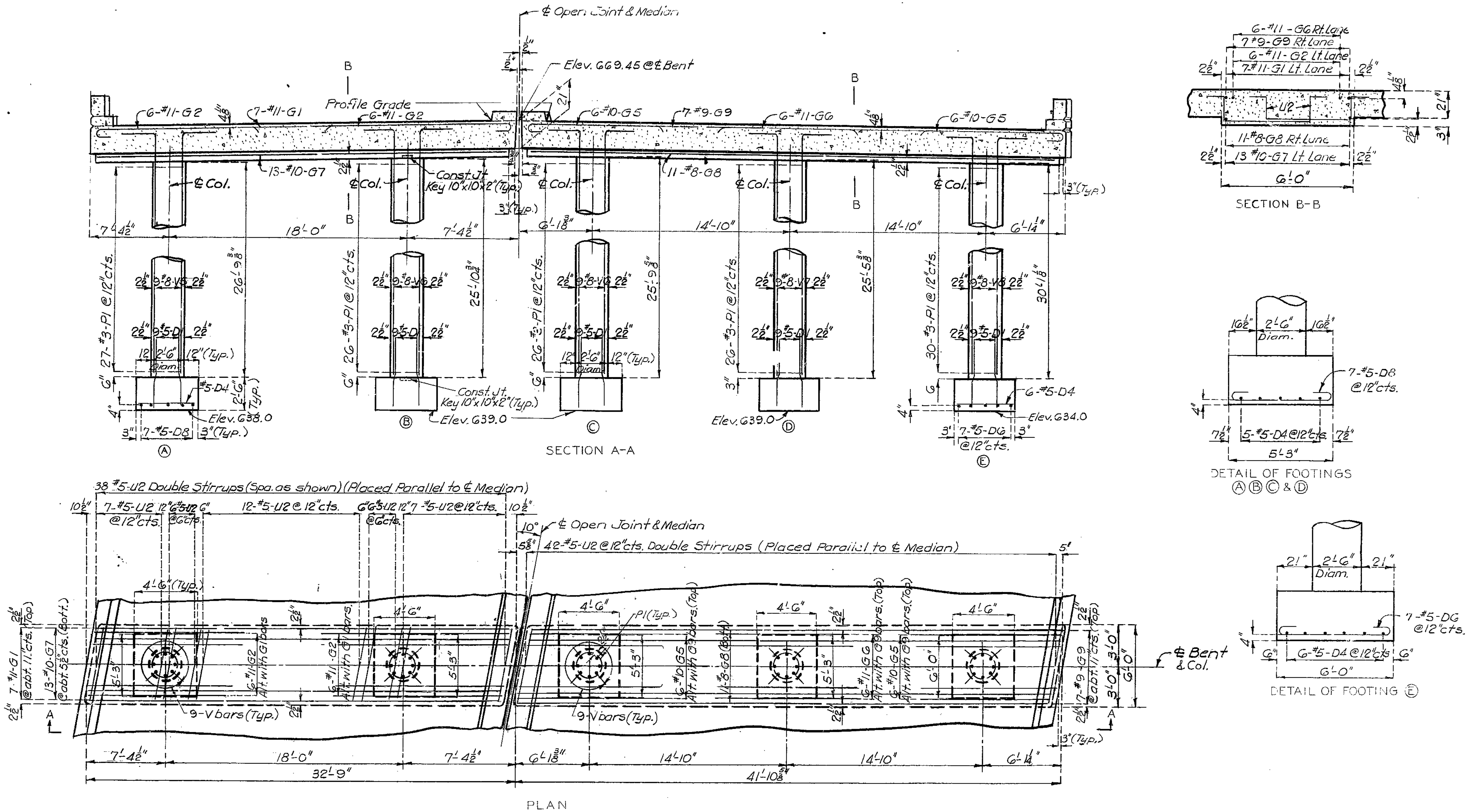
Sheet No. 4 of 10.

A-1672

330

MISSOURI STATE HIGHWAY DEPARTMENT

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



DETAILS OF INT BENT NO.3

BRIDGE OVER STADIUM DRIVE

STATE ROAD - ROUTE 54 RELOCATION
IN JEFFERSON CITY

PROJECT NO U-54-3(8) (RTE. 54) Co26-54(6) **STA.** 72+88.29

COLE **COUNTY**

A-1672

DETAILED May 1965 BY Griffith
CHECKED Sept. 1965 BY Sommerer

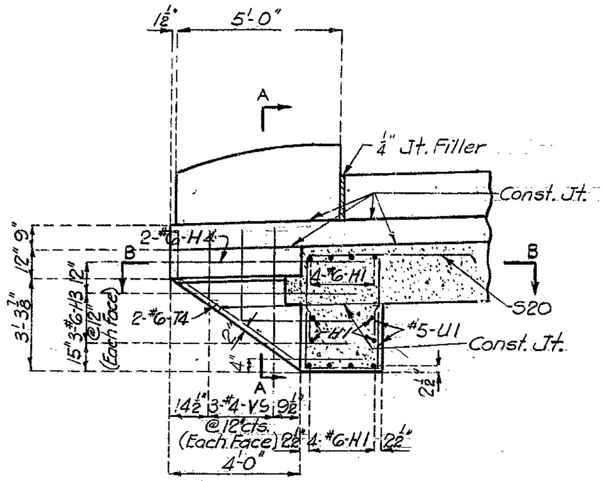
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 5 of 10.

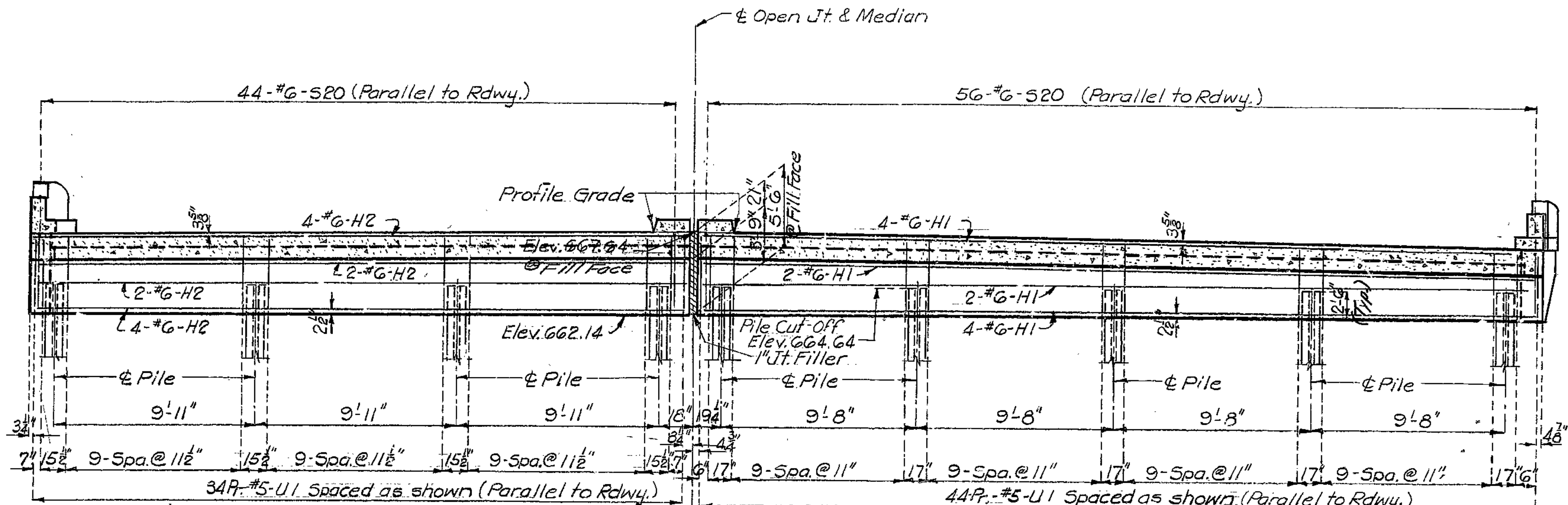
331

MISSOURI STATE HIGHWAY DEPARTMENT

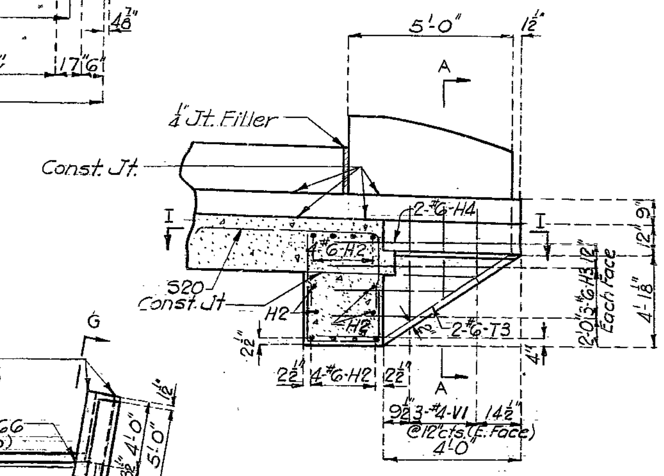
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19		



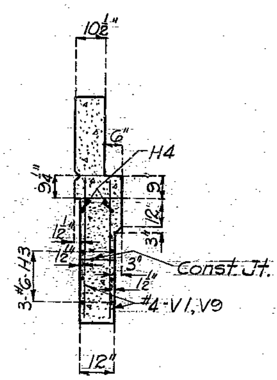
SECTION G-G



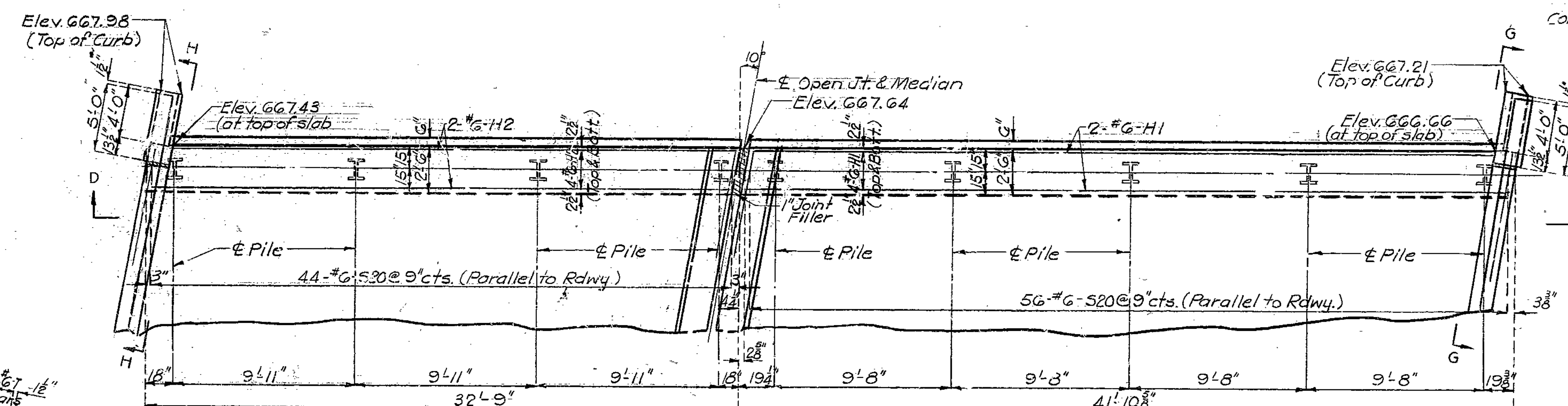
SECTION D-D



SECTION H-H

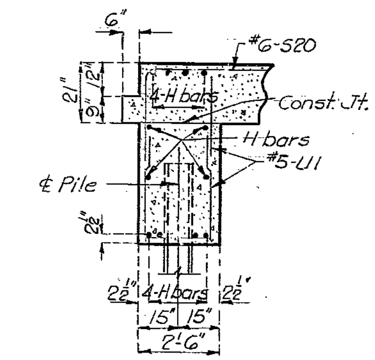


SECTION A-A

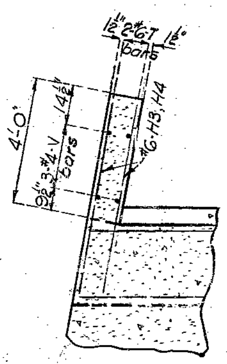


PLAN

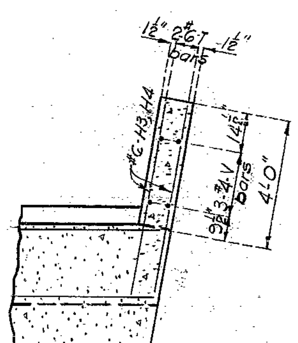
DETAILS OF END BENT NO. 4



SECTION THRU BEAM (TYP)



SECTION I-I



SECTION B-B

332

BRIDGE OVER STADIUM DRIVE

STATE ROAD - ROUTE 54 RELOCATION

IN JEFFERSON CITY

PROJECT NO U-54-3(8) (RTE. 54) Co26-54(6) **STA.** 72+88.29

COLE **COUNTY**

DETAILED May 1965 BY Griffith

CHECKED Sept 1965 BY Sommerer

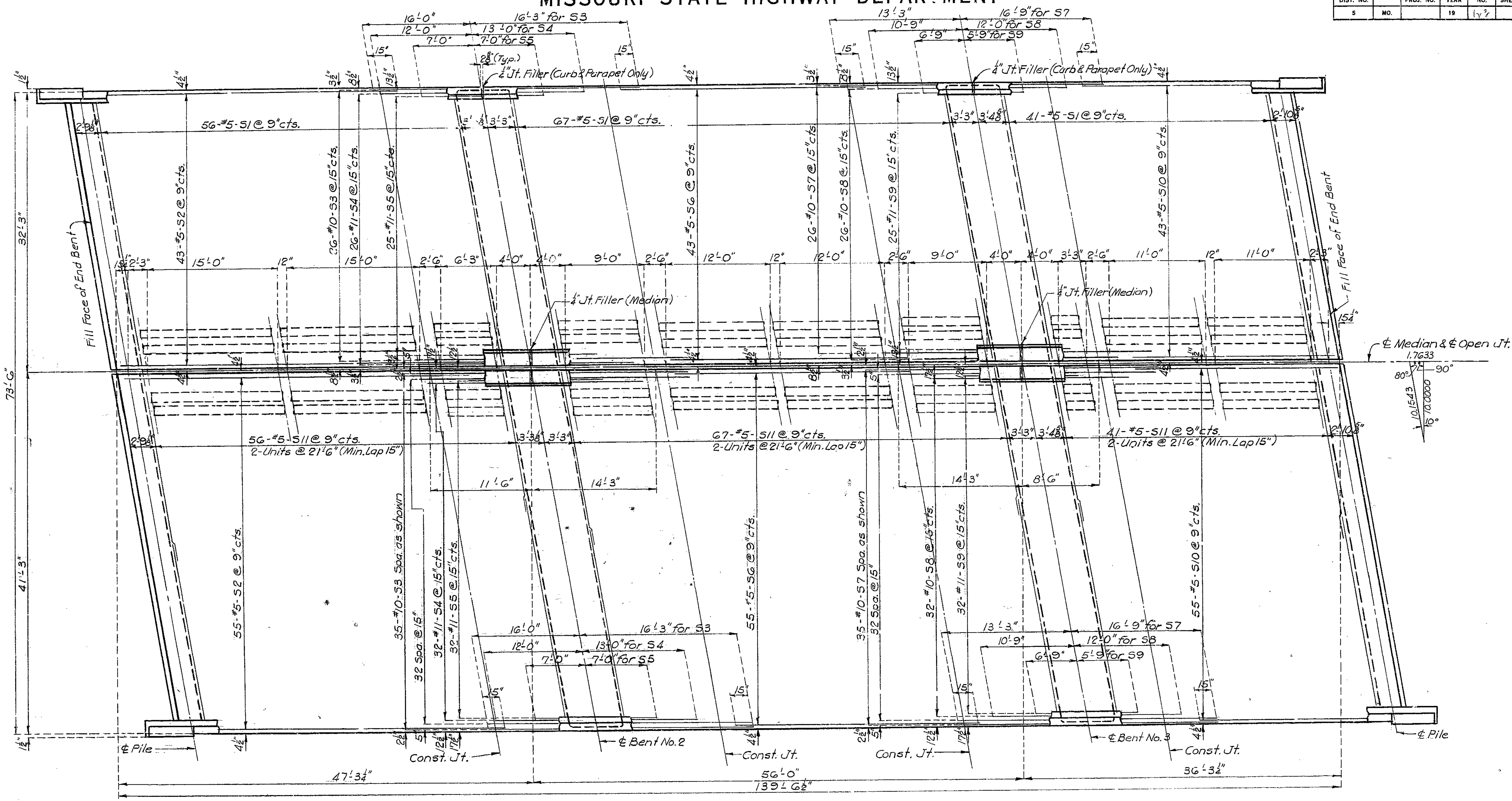
Note: This drawing is not to scale. Follow dimensions.

A-1672

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	[illegible]	



PLAN OF SLAB SHOWING TOP REINFORCING

BRIDGE OVER STADIUM DRIVE

STATE ROAD - ROUTE 54 RELOCATION

IN JEFFERSON CITY

PROJECT NO. U-54-3(8) (RTE. 54) C026-54(6) **STA.** 72+88.29

COLE **COUNTY**

A-1672

DETAILED April 1965 BY Griffith

CHECKED Sept. 1965 BY Sommerer

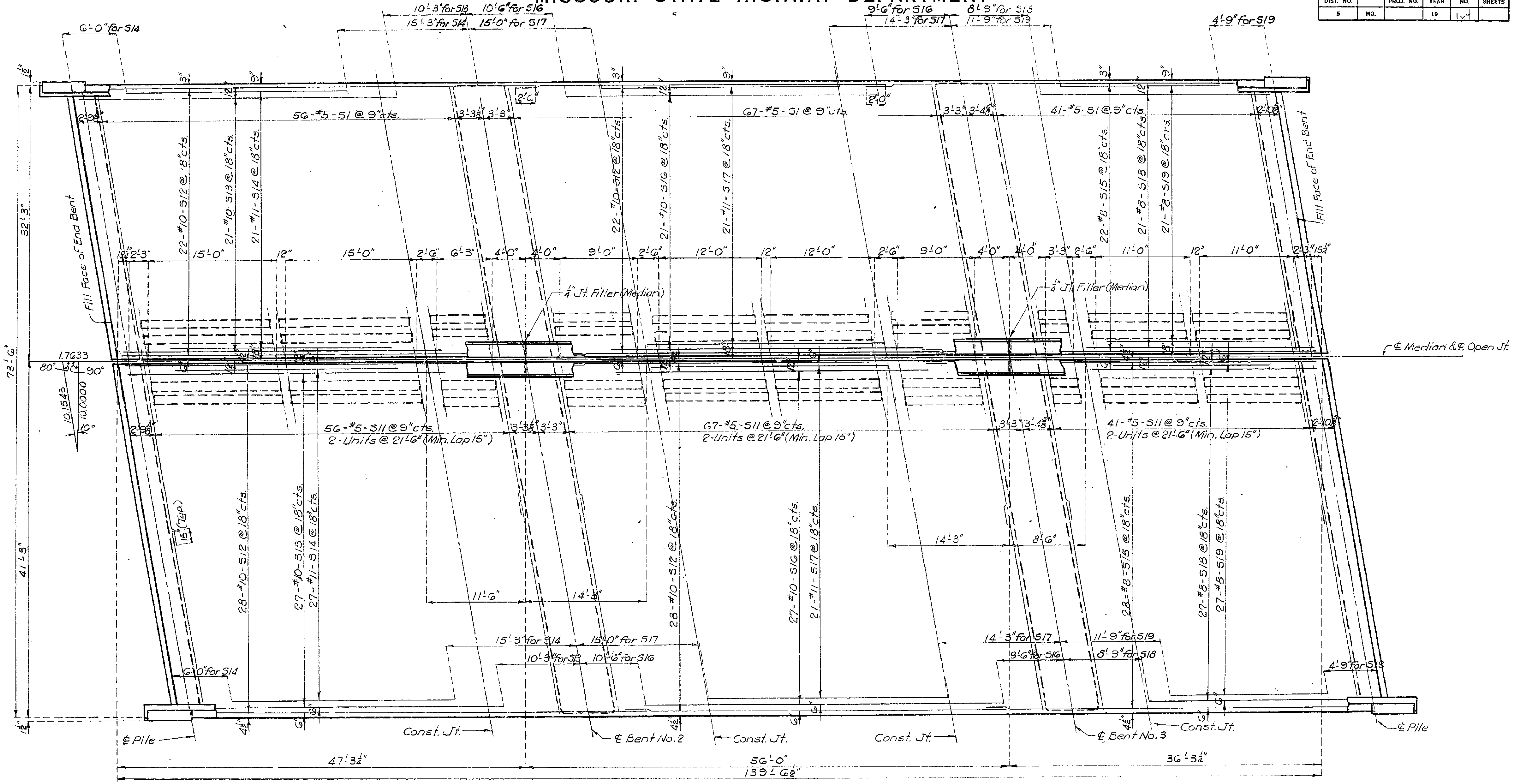
Note: *This drawing is not to scale. Follow dimensions.*

Sheet No. 7 of 10.

333

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	144	



PLAN OF SLAB SHOWING BOTTOM REINFORCING

BRIDGE OVER STADIUM DRIVE

STATE ROAD - ROUTE 54 RELOCATION

IN JEFFERSON CITY

PROJECT NO. U-54-3-(8) (RTE. 54) CO26-54(6) **STA.** 72+88.29

COLE **COUNTY**

A-1672

334

DETAILED April 1965 BY Griffith
CHECKED Sept. 1965 BY Sommerer

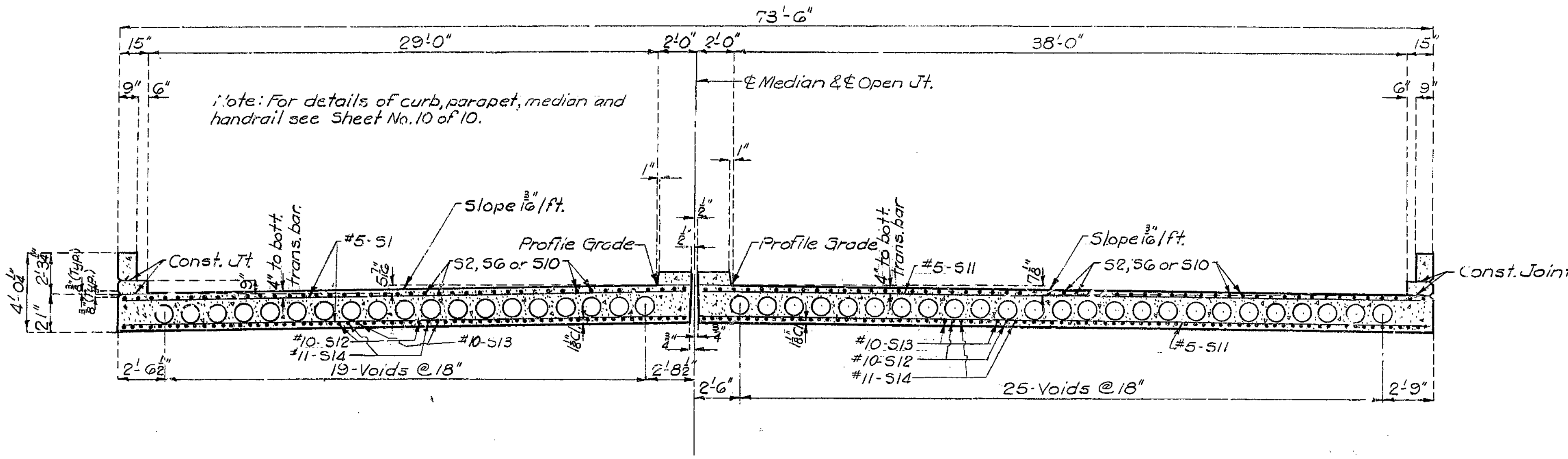
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 8 of 10.

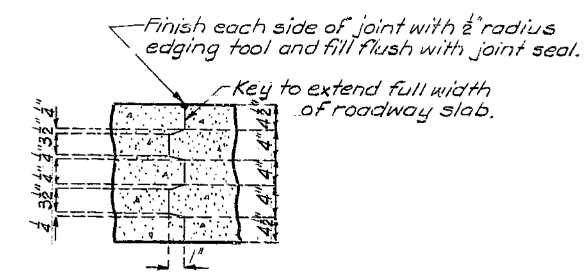
335

MISSOURI STATE HIGHWAY DEPARTMENT

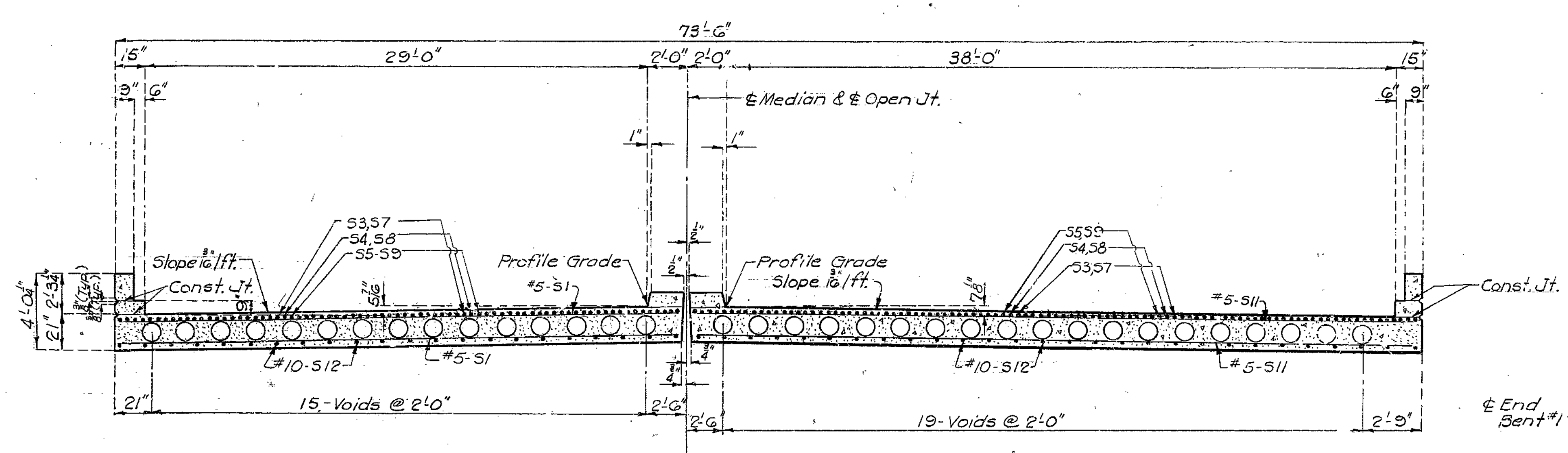
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	175	



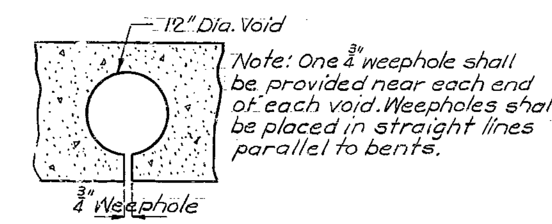
SECTION NEAR CENTER OF SPANS



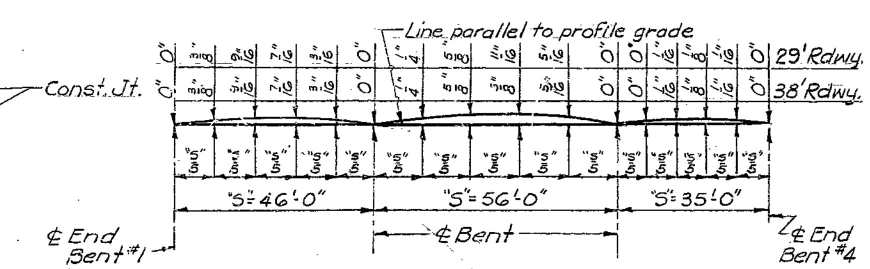
DETAIL OF SLAB CONSTRUCTION JOINT KEY



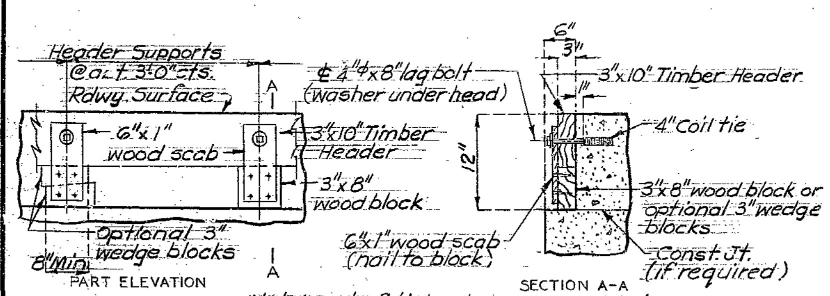
SECTION NEAR INT. BENTS



DETAIL OF WEEPHOLE IN VOIDS



CAMBER DIAGRAM



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

DETAILS OF TIMBER HEADER

Note: Fiber tubes for producing voids shall have an outside diameter of 12.0" and a wall thickness of .225" 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.

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 32 Cu.Yds. per hr. Lt. Lane and 41 Cu.Yds. per hr. Rt. Lane. 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.

BRIDGE OVER STADIUM DRIVE

STATE ROAD - ROUTE 54 RELOCATION

IN JEFFERSON CITY

PROJECT NO. U-54-3(8) (RTE. 54) C026-54(6) **STA.** 72+88.29

COLE **COUNTY**

DETAILED April 1965 BY Griffith

CHECKED Sept. 1965 BY Sommerer

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

A-1672

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	1,4	

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 1/8". 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 1/4" except as noted.

All drafts 3° except as noted.

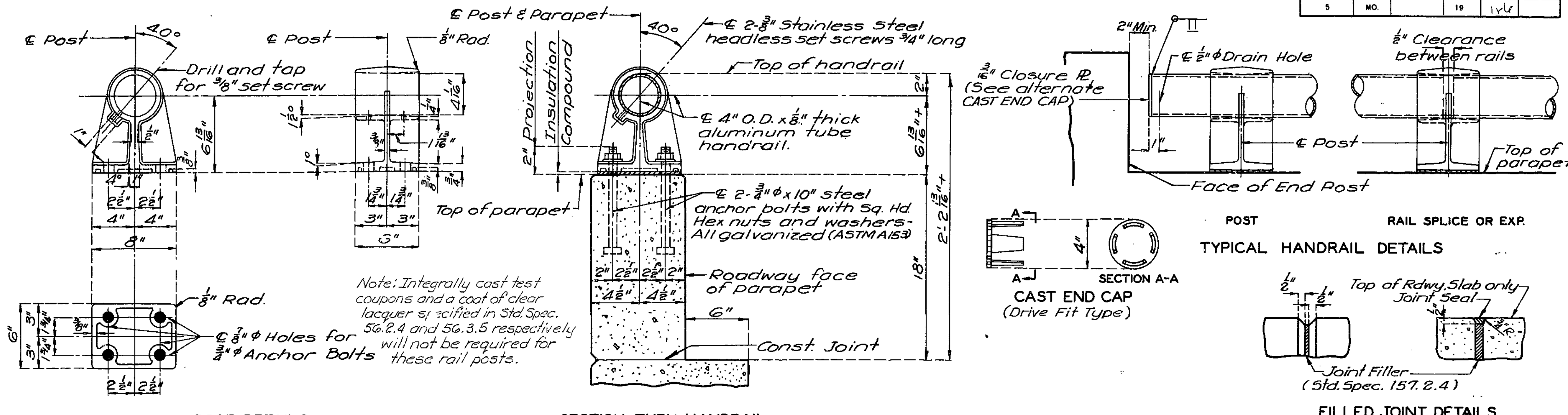
Pipe rail to be fabricated in two or three panel lengths unless otherwise approved.

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

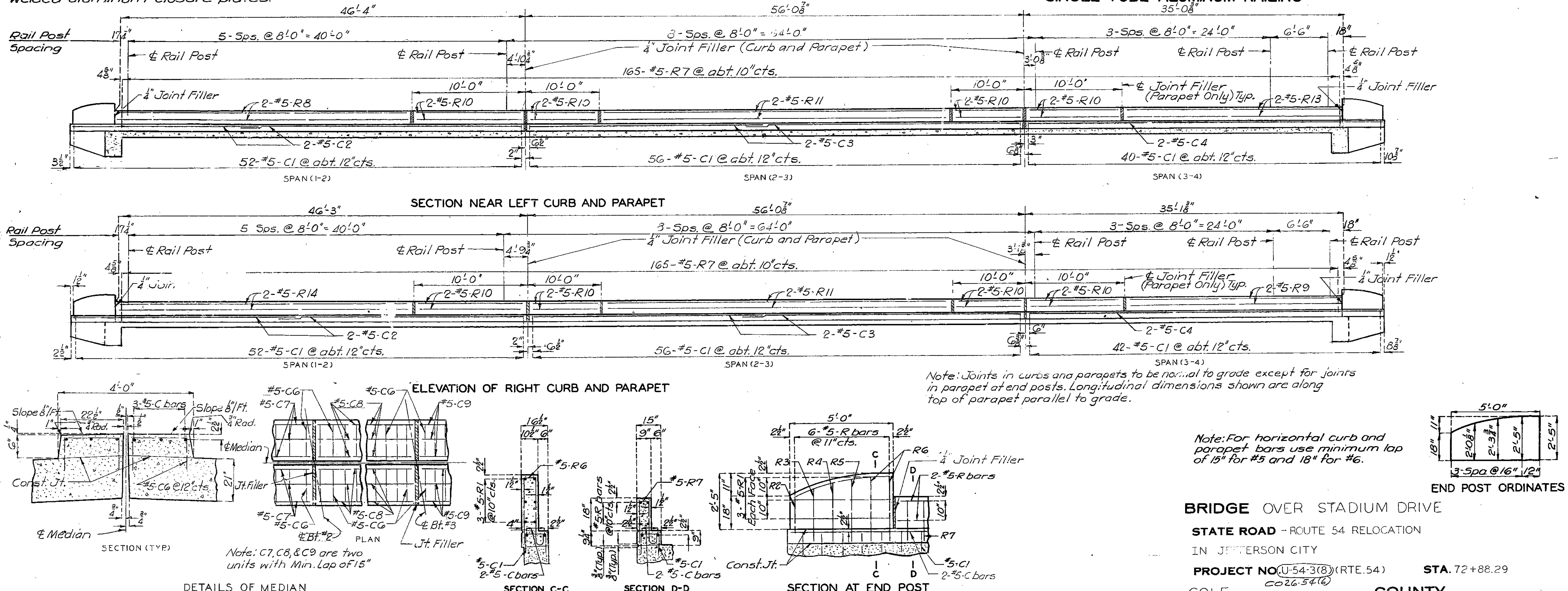
Top of curbs and parapets to be built parallel to grade. Vertical faces of end post to be vertical.

All exposed edges of end posts, parapets and curbs shall have 1/2" radius.

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



SINGLE TUBE ALUMINUM RAILING



BRIDGE OVER STADIUM DRIVE

STATE ROAD - ROUTE 54 RELOCATION

IN JEFFERSON CITY

PROJECT NO. U-54-3(8) (RTE. 54) CO26-54(6) **STA.** 72+88.29

COLE **COUNTY**

A-1672

336

No.	Revised
1.5.2. L.A.	Mar. 1965
	Nov. 1963

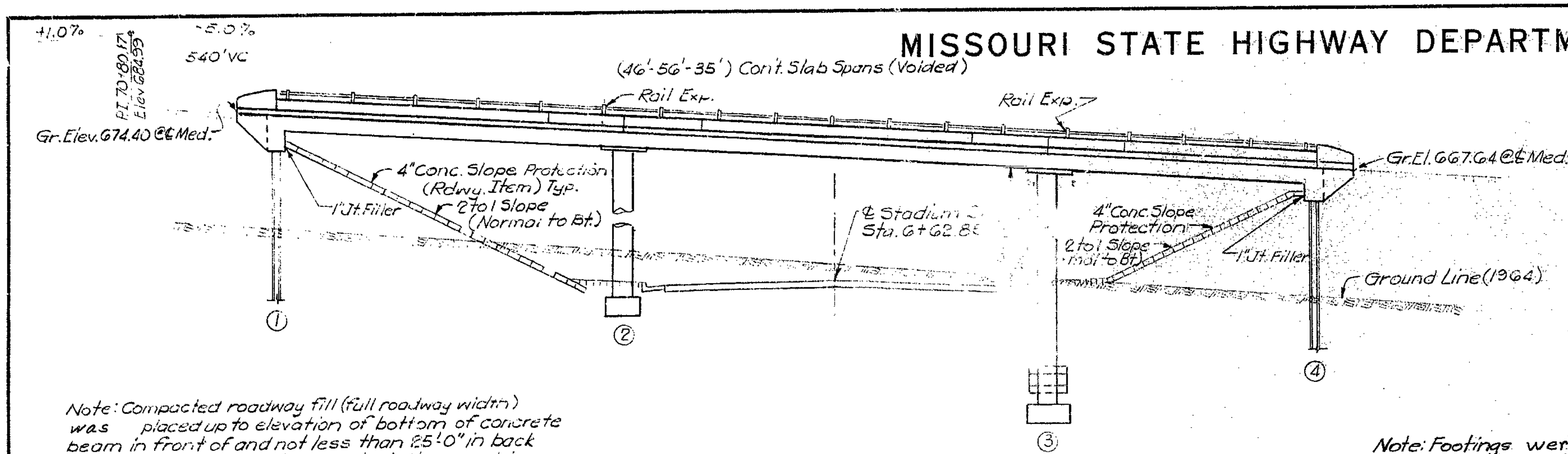
DETAILED May 1965 BY Griffith

CHECKED Sept. 1965 BY Sommerer

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

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
3	MO.		19	117	

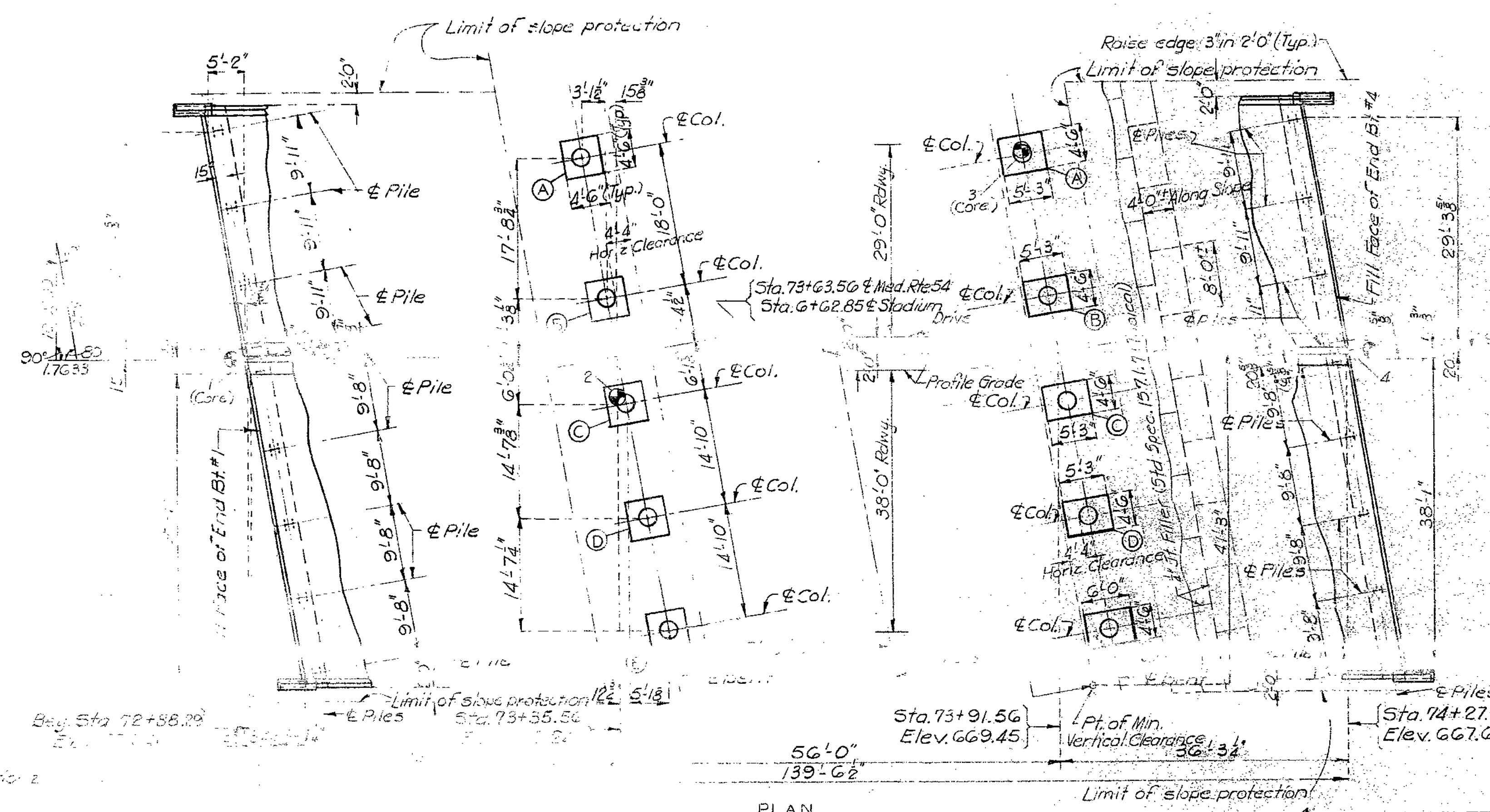
MISSOURI STATE HIGHWAY DEPARTMENT



Note: Compacted roadway fill (full roadway width) was placed up to elevation of bottom of concrete beam in front of and not less than 25'0" in back of End Bents No. 1 & 4 before steel piles were driven.

ELEVATION

Note: Footings were carried 6" into hard, solid, undisturbed rock and cast against vertical faces of same.



PLAN

Sta. 73+63.56 ℄ Med. Rte. 54
Sta. 6+62.85 ℄ Stadium Drive

FOOTING ELEVATIONS BENT NO. 2	
A	647.1
B	648.0
C	648.0
D	648.0
E	648.0

FOOTING ELEVATIONS BENT NO. 3	
A	639.3
B	639.0
C	639.0
D	637.9
E	631.9

GENERAL NOTES:

Design Specifications: A.A.S.H.O.-1961

Design Loading:
HS-20-44, 15# / Sq. Ft. Future Wearing Surface.
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 fs = 20,000 psi.
Steel Pile (A.S.T.M. A36-62T) fb = 9,000 psi.

Surface Seal:
Superstructure deck was surface sealed.
Falsework over existing street was constructed with a minimum vertical clearance of 13'-0" from crown of existing street and a minimum lateral clearance of 28'-0" centered on existing street.

FOOTING AND PILE DATA						
Bent No.			1	2	3	4
SPREAD FOOTINGS	Foundation Material			Rock	Rock	
	Design Bearing Tons/Sq. Ft.			9.0	7.5	
BEARING PILE	Pile Type & Size		10BP42			10BP42
	Number		9			9
	Plan Bearing	Tons	55			55
	Min. Req'd. Bearing	Tons	43			35
	Hammer		Heavy Power			Heavy Power

Note: All piles were driven to practical refusal on or into solid rock or other point bearing material at not less than the Plan Bearing shown.

Piling were driven with an approved power hammer developing an energy of 19,500 ft. lbs. and having a ram weighing 6500 lbs.

QUANTITIES				
Item		Substr.	Superstr.	Total
Class I Excavation for Structures	Cu. Ft.	215.5		215.5
Steel Piles in place (10")	Lin. Ft.	397		397
Steel Piles Cut-Offs (10")	Lin. Ft.	49		49
Class B Concrete	Cu. Yds.	20.6		20.6
Class B1 Concrete	Cu. Yds.		674.0	674.0
Reinforcing Steel	Lbs.	610	173,570	174,180
H.S. Bridge Rail (One Tube Type)	Lin. Ft.		274	274
CONTINGENT ITEMS				
Test Holes	Lin. Ft.	72		72
Cl. I +25%	Cu. Yds.	9.0		9.0
Cavity Concrete	Cu. Yds.	1.3		1.3

Note: All concrete and reinforcement above footings in intermediate bents is included in superstructure quantities.
No payment for excavation was allowed at End Bents No. 1 & 4.

B.M. □ on N.W. corner of West curb Bridge A-1672 Elev. 674.47

BRIDGE OVER STADIUM DRIVE

STATE ROAD - ROUTE 54 RELOCATION

IN JEFFERSON CITY

PROJECT NO C026-54(6)UA **STA.** 72+88.29

COUNTY

SUBMITTED BY: D. B. [illegible] BRIDGE ENGINEER DATE 9/21/65

APPROVED BY: M. [illegible] CHIEF ENGINEER DATE 9/21/65

STD. 54.00

A-1672

CHECKED

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

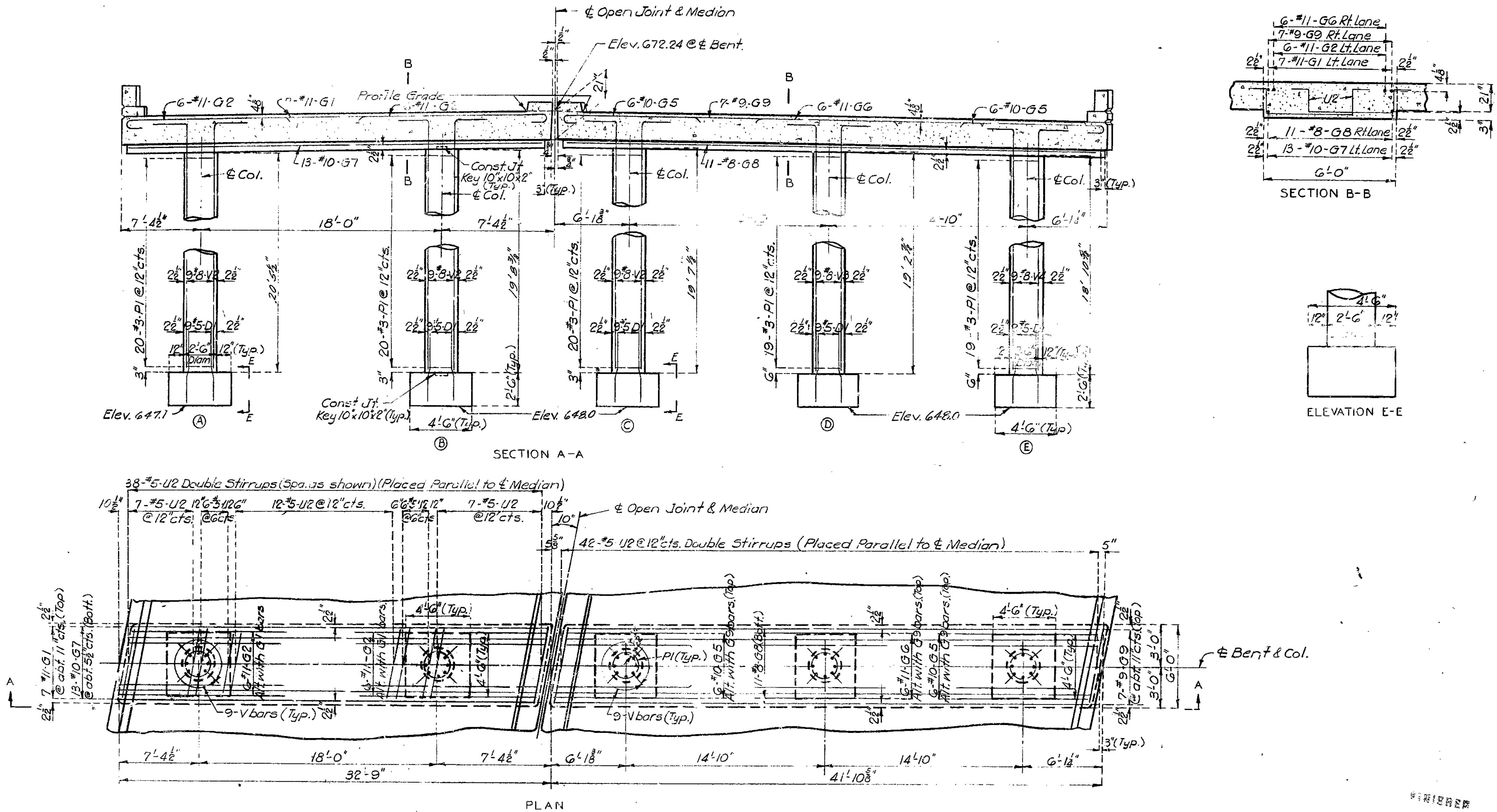
Sheet No. 1A of 3

FINAL PLANS

337

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	170	



DETAILS OF INT. BENT NO. 2

BRIDGE OVER STADIUM DRIVE

STATE ROAD [illegible] CATION

IN JEFFERSON CITY

PROJECT NO. C026-54(6)UA **STA.** 72+88.29

COLE **COUNTY**

FINISHED

DETAILED May 1965 BY Griffith

CHECKED Sept. 1965 BY Sommerer

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

Sheet No. 4A of 3.

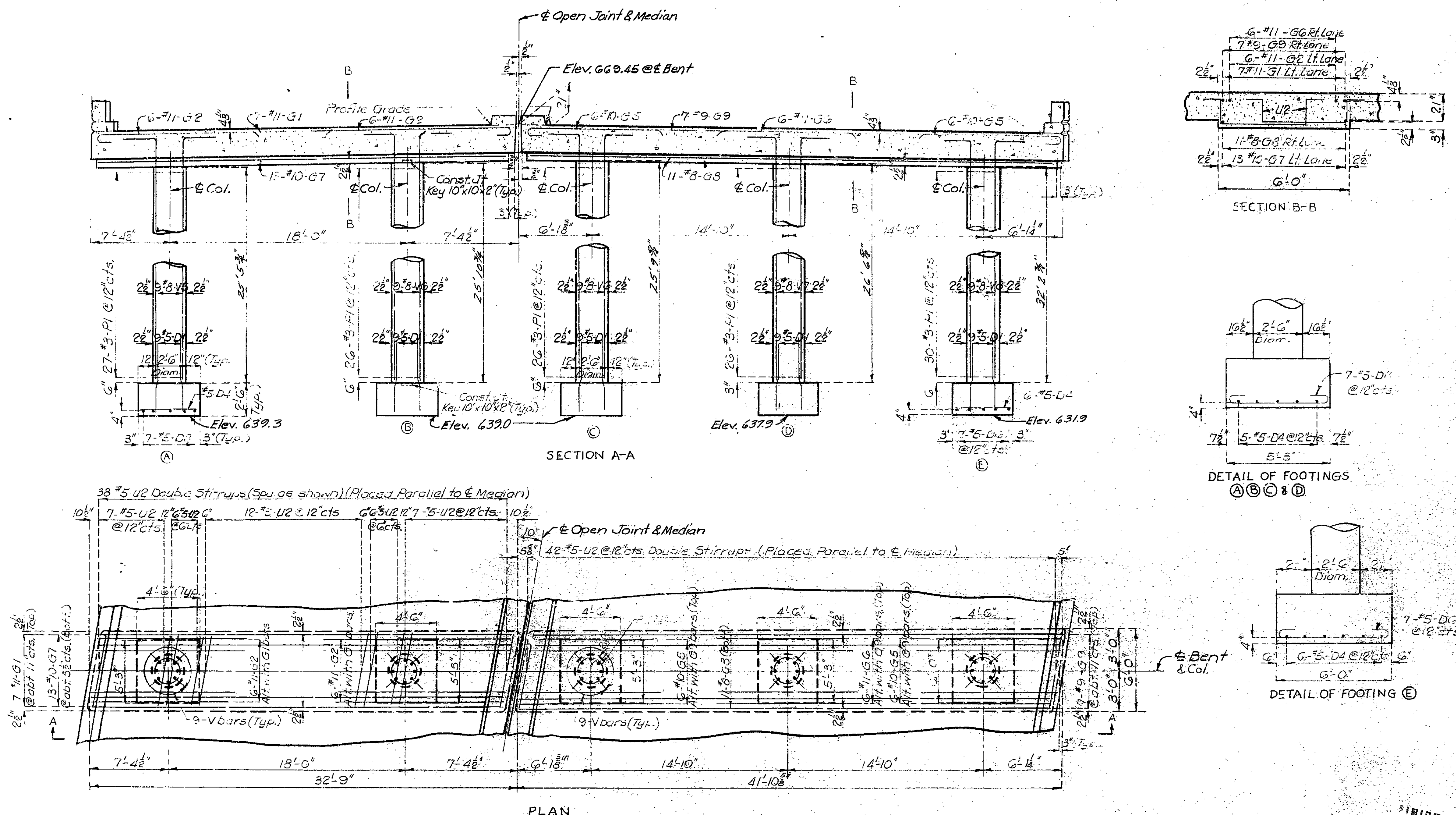
A-1672

FINAL PLANS

338

MISSOURI STATE HIGHWAY DEPARTMENT

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



DETAILS OF INT. BENT NO. 3

BRIDGE OVER STADIUM DRIVE

STATE ROAD - ROUTE 54 RELOCATION

IN JEFFERSON CITY

PROJECT NO. C026-54(6)UA **STA.** 72+88.29

COLE **COUNTY**

FINISHED

DETAILED May 1965 BY Griffith
CHECKED Sept 1965 BY Sommerer

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

Sheet No. 54 of 3

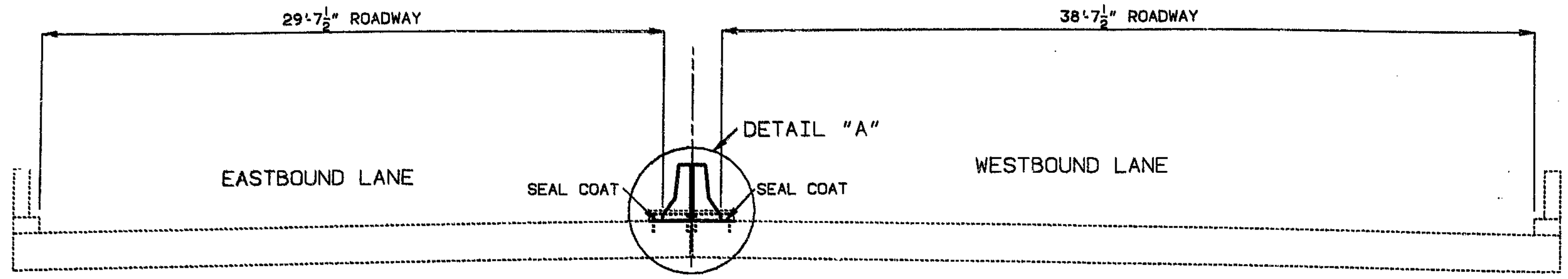
A-1672

FINAL PLANS

339

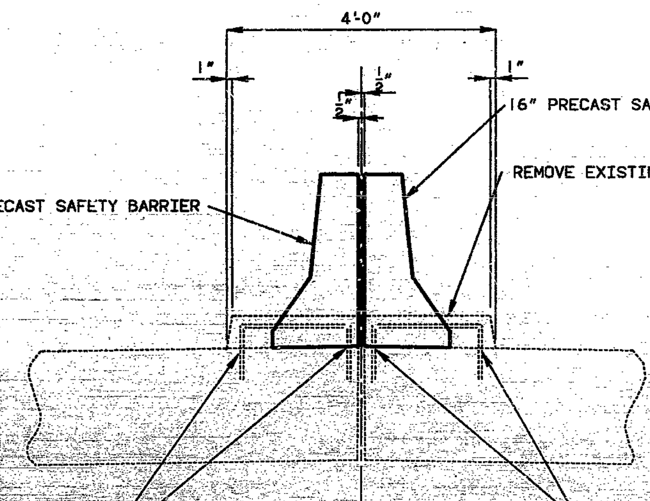
MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

STATE	PROJ. NO.	SHEET NO.
MO.		144
SEC./SUR. 12	TWP. 44N	RGE. 12W



NOTE: APPLY A PENETRATION SEAL (SEAL COAT) OF POLYMER MODIFIED ASPHALT AND COVER AGGREGATE IN THE AREAS EXPOSED BY THE REMOVAL OF THE EXISTING RAISED MEDIAN.

TYPICAL SECTION THRU SLAB



DETAIL "A"

GENERAL NOTES:

DESIGN SPECIFICATIONS:
A.A.S.H.T.O.-1983 AND INTERIMS 1984 THRU 1988

DESIGN UNIT STRESSES:
CLASS B1 CONCRETE (PRECAST SAFETY BARRIER CURB) F'C=4,000 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 1½" UNLESS OTHERWISE SHOWN.

TRAFFIC MAINTAINED:
MAINTAIN ONE LANE OF TRAFFIC IN EACH DIRECTION ON STRUCTURE DURING CONSTRUCTION. (SEE ROADWAY PLANS).

OUTLINE OF OLD WORK IS INDICATED BY LIGHT DASHED LINES. HEAVY LINES INDICATE NEW WORK.

ESTIMATED QUANTITIES

ITEM		TOTAL
CURB REMOVAL (BRIDGES)	LIN. FT.	279
POLYMER MODIFIED ASPHALT (SEAL COAT)	GAL.	10
COVER AGGREGATE (SEE SPECIAL PROVISIONS)	TON	1
PRECAST SAFETY BARRIER CURB	LIN. FT.	279

NOTE: POLYMER MODIFIED ASPHALT EMULSION, GRADE CRS-2P (POLYMER MODIFIED) SHALL BE APPLIED AT A RATE OF .35 GAL. PER SQ. YD.
COVER AGGREGATE (SEE SPECIAL PROVISIONS) SHALL BE APPLIED AT A RATE OF .015 TONS PER SQ. YD.

REPAIRS TO
BRIDGE OVER STADIUM DRIVE

STATE ROAD - ROUTE 54
IN JEFFERSON CITY
PROJECT NO. STA. 72+88.29
JOB NO. 5-U-54-2588 RTE. 54
COLE COUNTY
DATE 4/21/89

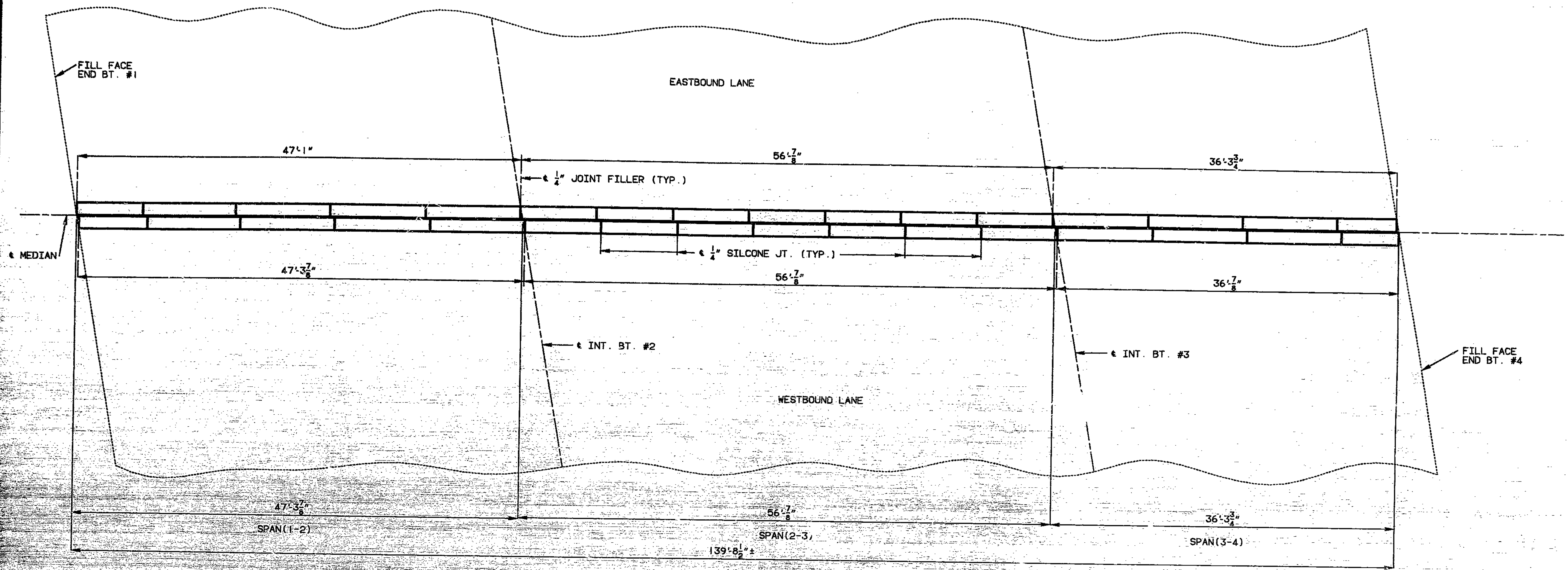
STD.
STD.
A-1672R

SEE FINAL PLANS

DESIGNED DEC. 1988
DETAILED DEC. 1988
CHECKED DEC. 1988

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

SHEET NO. 1 OF 3.



PART PLAN OF SLAB SHOWING
PRECAST SAFETY BARRIER CURB

NOTE: DIMENSIONS SHOWN ARE TAKEN AT TOP OF SLAB PARALLEL TO GRADE.

221 330 325

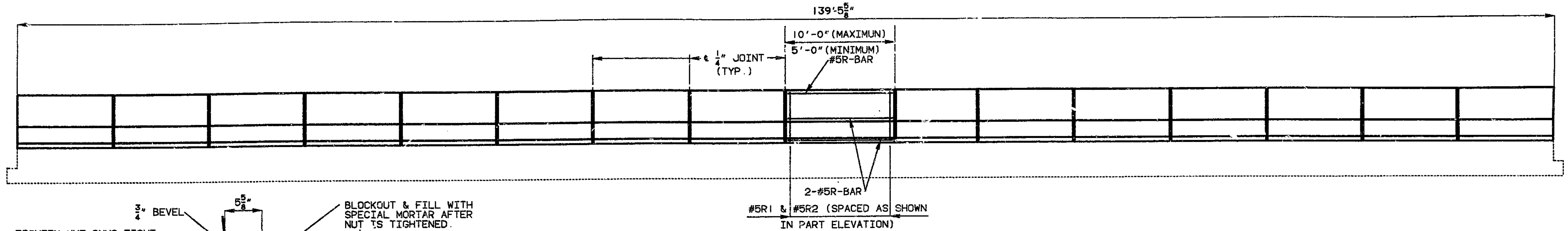
DETAILED DEC. 1988
CHECKED DEC. 1988

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS

COLE COUNTY

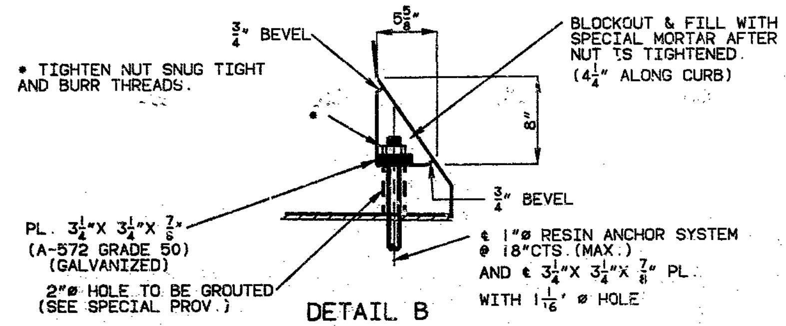
A-1672R

STATE	PROJ. NO.	SHEET NO.
MO.		146

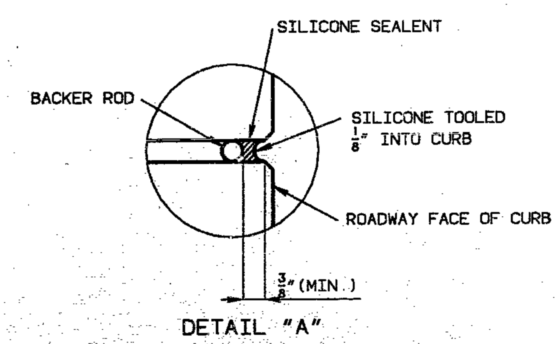


ELEVATION OF PRECAST SAFETY BARRIER CURB

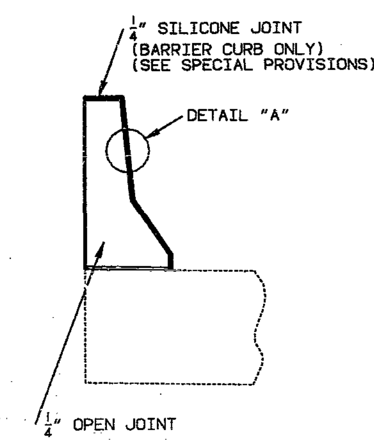
NOTE: LONGITUDINAL DIMENSIONS ARE PARALLEL TO GRADE AT TOP OF SLAB.



DETAIL B



DETAIL "A"



PART SECTION C-C

GENERAL NOTES:

CONCRETE FOR PRECAST BARRIER CURBS SHALL BE CLASS B1 WITH F'C=4,000 PSI.

TOP OF BARRIER CURB SHALL BE PARALLEL TO GRADE WITH BARRIER CURB JOINTS NORMAL TO GRADE.

ALL EXPOSED EDGES OF BARRIER CURB SHALL HAVE 1/2" RADIUS OR 3/8" BEVEL UNLESS OTHERWISE NOTED.

THE CONTRACTOR SHALL USE ONE OF THE RESIN ANCHOR SYSTEMS LISTED IN THE JOB SPECIAL PROVISIONS. THE ANCHOR SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS EXCEPT AS MODIFIED BY THE JOB SPECIAL PROVISIONS AND SHALL BE GALVANIZED.

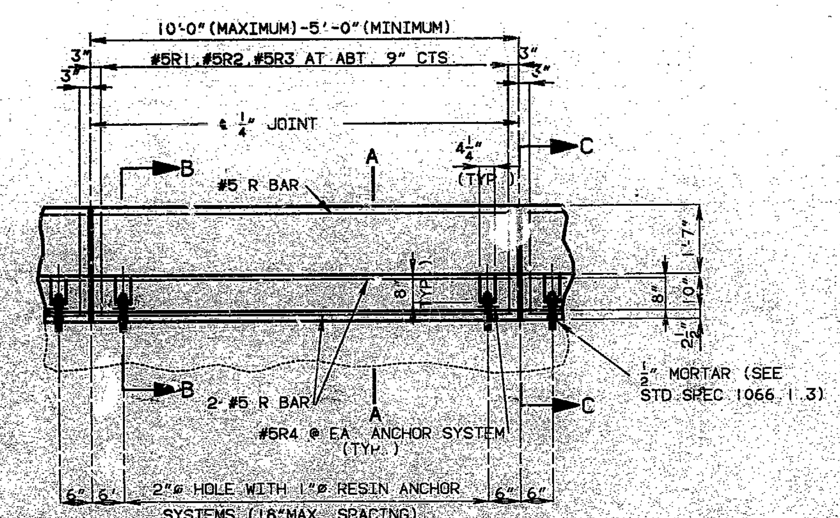
THREADED RODS SHALL HAVE AN ULTIMATE CAPACITY OF 36,000 POUNDS.

PAYMENT FOR FURNISHING AND INSTALLING RESIN ANCHOR SYSTEMS SHALL BE FULLY COVERED BY THE CONTRACT UNIT PRICE FOR PRECAST SAFETY BARRIER CURB.

WHEN THE PRECAST BARRIER CURB IS BID BY LINEAR FEET, THE CONTRACT UNIT PRICE SHALL INCLUDE THE COST OF ALL CONCRETE, REINFORCEMENT, AND RESIN ANCHOR SYSTEMS COMPLETE IN PLACE.

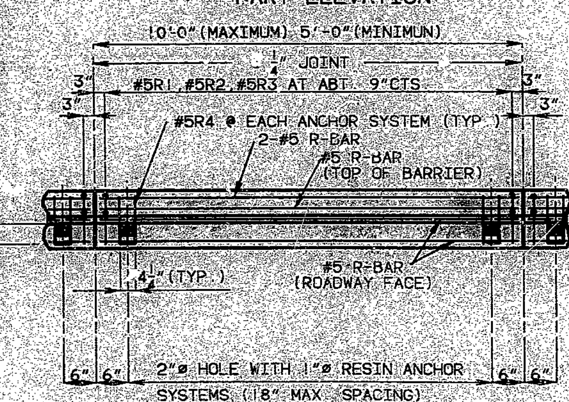
MEASUREMENT OF PRECAST SAFETY BARRIER CURB IS TO THE NEAREST LINEAR FOOT FOR EACH STRUCTURE, MEASURED ALONG THE TOP OF SLAB FROM END OF CURB TO END OF CURB.

THE PRECAST CURB UNITS SHALL BE SPACED TO ALLOW FOR THE CENTERING OF A 1/4" JOINT OVER EACH INT. BENT AS SHOWN ON SHEET NO. 2.

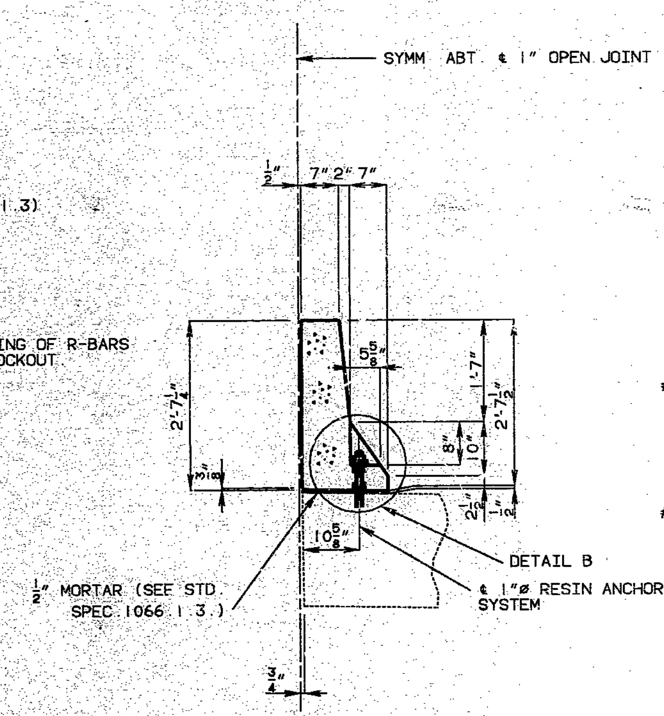


PART ELEVATION

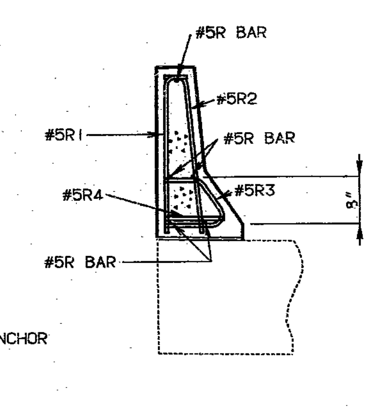
NOTE: ADJUST SPACING OF R-BARS TO CLEAR BLOCKOUT.



PART PLAN



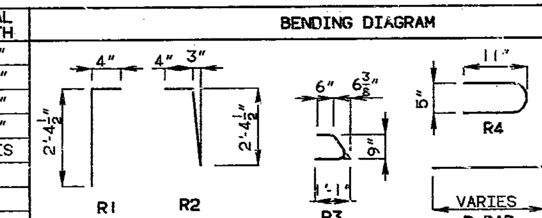
TYPICAL PRECAST PART SECTION B-B



TYPICAL SECTION THRU RIGHT PRECAST SAFETY BARRIER CURB

BILL OF REINFORCING STEEL

SIZE & MARK	ACTUAL LENGTH	BENDING DIAGRAM
#5-R1	2'-7"	
#5-R2	2'-8"	
#5-R3	2'-2"	
#5-R4	2'-0"	
#5-R-BAR	VARIES	



ALL DIMENSIONS FOR R-BARS ARE OUT TO OUT.

HOOKS AND BENDS SHALL BE IN ACCORDANCE WITH THE C.R.S.I. MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES, STIRRUP AND TIE DIMENSIONS.

ACTUAL LENGTHS OF REINFORCING BARS ARE MEASURED ALONG CENTERLINE OF BAR TO THE NEAREST INCH.

DETAILED JAN. 1989
CHECKED JAN. 1989

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

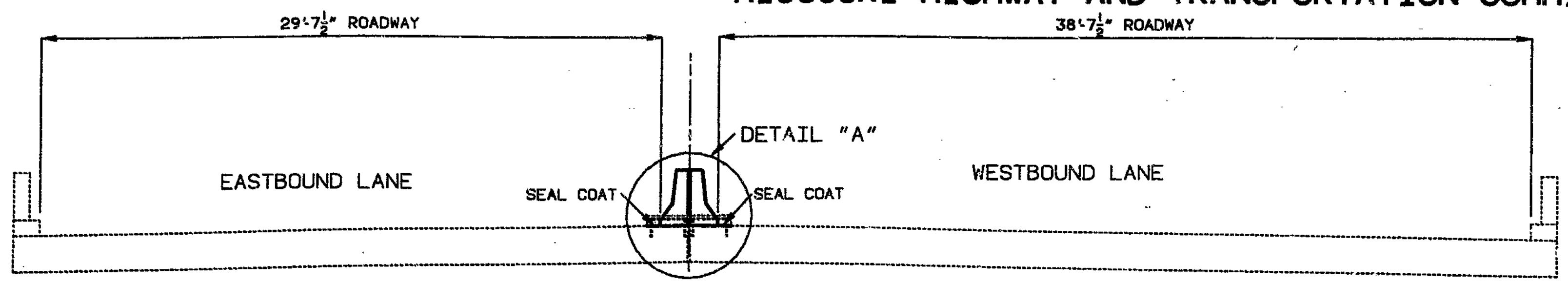
SHEET NO. 3 OF 3.

COLE COUNTY

A-1672R

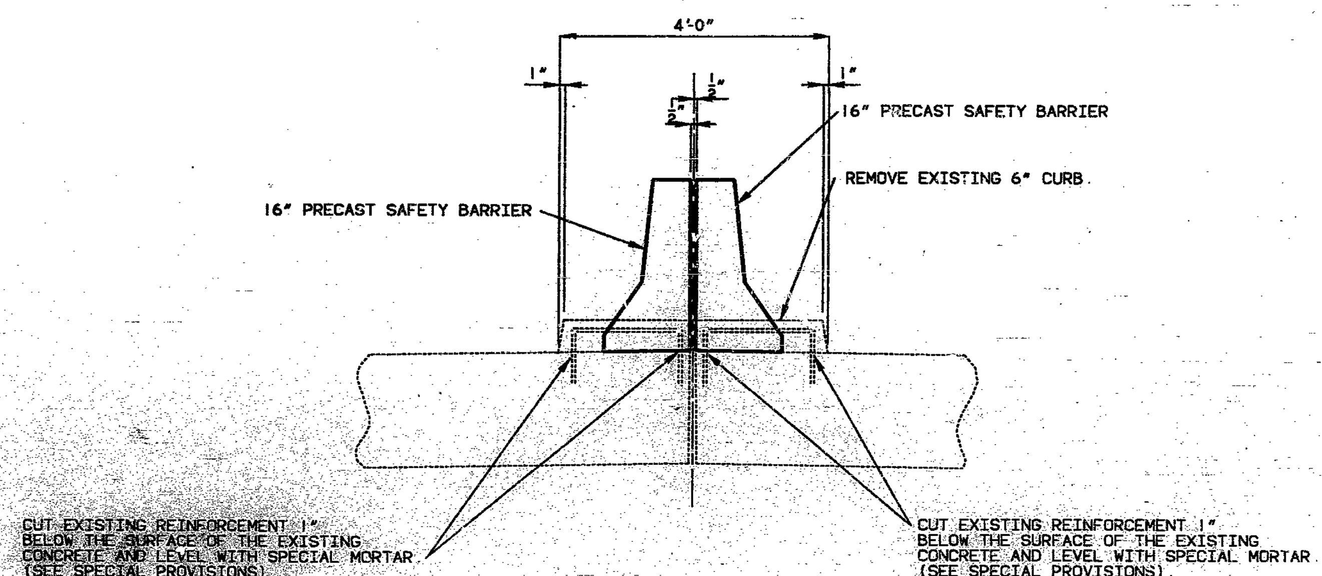
MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

STATE	PROJ. NO.	SHEET NO.
MO.		144
SEC./SUR. 12	TWP. 44N	RGE. 12W



NOTE: APPLY A PENETRATION SEAL (SEAL COAT) OF POLYMER MODIFIED ASPHALT AND COVER AGGREGATE IN THE AREAS EXPOSED BY THE REMOVAL OF THE EXISTING RAISED MEDIAN.

TYPICAL SECTION THRU SLAB



DETAIL "A"

GENERAL NOTES:

DESIGN SPECIFICATIONS:

A.A.S.H.T.O.-1983 AND INTERMS 1984 THRU 1988

DESIGN UNIT STRESSES:

CLASS B1 CONCRETE (PRECAST SAFETY BARRIER CURB) F'C=4,000 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 1½" UNLESS OTHERWISE SHOWN.

TRAFFIC MAINTAINED:

MAINTAIN ONE LANE OF TRAFFIC IN EACH DIRECTION ON STRUCTURE DURING CONSTRUCTION. (SEE ROADWAY PLANS).

OUTLINE OF OLD WORK IS INDICATED BY LIGHT DASHED LINES. HEAVY LINES INDICATE NEW WORK.

ESTIMATED QUANTITIES

ITEM		TOTAL
CURB REMOVAL (BRIDGES)	LIN. FT.	279
POLYMER MODIFIED ASPHALT (SEAL COAT)	GAL.	20
COVER AGGREGATE (SEE SPECIAL PROVISIONS)	TON	1
PRECAST SAFETY BARRIER CURB	LIN. FT.	279

NOTE: POLYMER MODIFIED ASPHALT EMULSION, GRADE CRS-2P (POLYMER MODIFIED) SHALL BE APPLIED AT A RATE OF .35 GAL. PER SQ. YD.
COVER AGGREGATE (SEE SPECIAL PROVISIONS) SHALL BE APPLIED AT A RATE OF .015 TONS PER SQ. YD.

REPAIRS TO BRIDGE OVER STADIUM DRIVE

STATE ROAD - ROUTE 54
IN JEFFERSON CITY
PROJECT NO. STA. 72+88.29
JOB NO. 5-U-54-2588 RTE. 54
COLE COUNTY
DATE 4/21/89

STD.
STD.
A-1672R

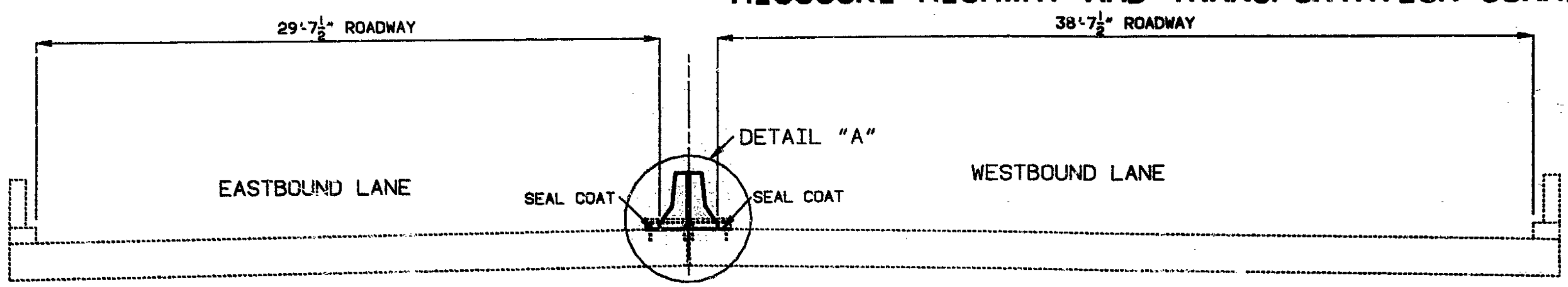
DESIGNED DEC. 1988
DETAILED DEC. 1988
CHECKED DEC. 1988

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

SHEET NO. 1A OF 3.

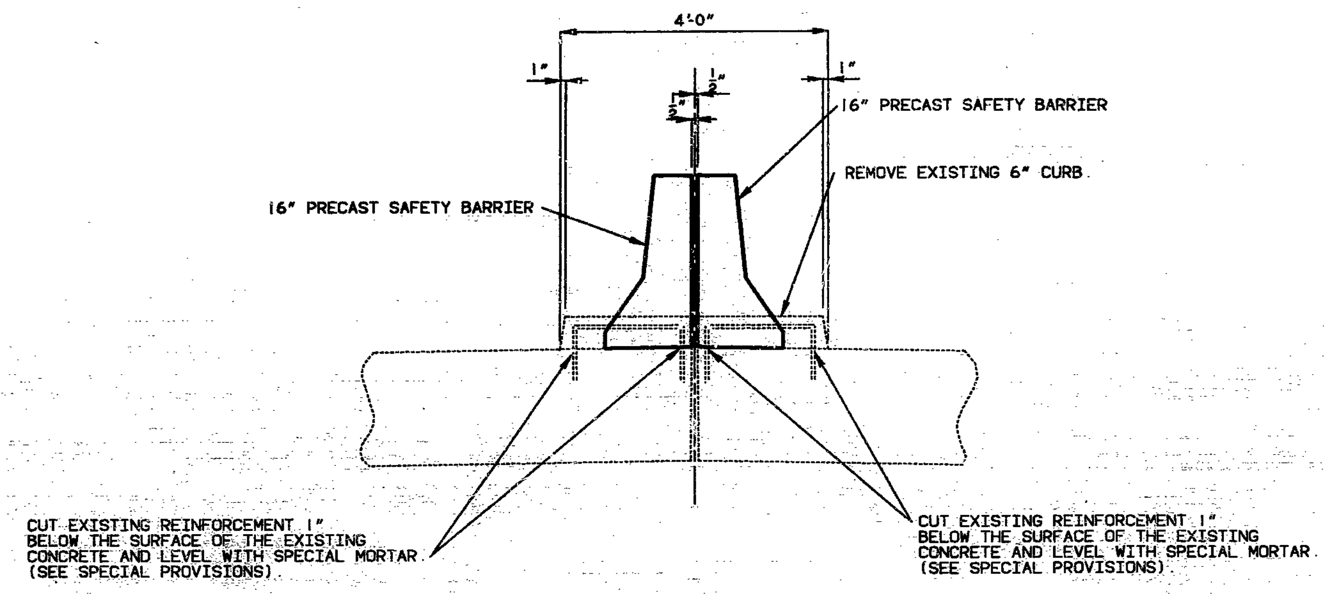
MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

STATE	PROJ. NO.	SHEET NO.
		144
SEC./SUR. 12	TWP. 44N	RGE. 12W



TYPICAL SECTION THRU SLAB

NOTE: APPLY A PENETRATION SEAL (SEAL COAT) OF POLYMER MODIFIED ASPHALT AND COVER AGGREGATE IN THE AREAS EXPOSED BY THE REMOVAL OF THE EXISTING RAISED MEDIAN.



DETAIL "A"

GENERAL NOTES:

DESIGN SPECIFICATIONS:
A.A.S.H.T.O.-1983 AND INTERMS 1984 THRU 1988

DESIGN UNIT STRESSES:
CLASS B1 CONCRETE (PRECAST SAFETY BARRIER CURB) F'C=4,000 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 1½" UNLESS OTHERWISE SHOWN.

TRAFFIC MAINTAINED:
MAINTAIN ONE LANE OF TRAFFIC IN EACH DIRECTION ON STRUCTURE DURING CONSTRUCTION. (SEE ROADWAY PLANS).

OUTLINE OF OLD WORK IS INDICATED BY LIGHT DASHED LINES. HEAVY LINES INDICATE NEW WORK.

ESTIMATED QUANTITIES

ITEM		TOTAL
CURB REMOVAL (BRIDGES)	LIN. FT.	279
POLYMER MODIFIED ASPHALT (SEAL COAT)	GAL.	10
COVER AGGREGATE (SEE SPECIAL PROVISIONS)	TON	1
PRECAST SAFETY BARRIER CURB	LIN. FT.	279

NOTE: POLYMER MODIFIED ASPHALT EMULSION, GRADE CRS-2P (POLYMER MODIFIED) SHALL BE APPLIED AT A RATE OF .35 GAL. PER SQ. YD.
COVER AGGREGATE (SEE SPECIAL PROVISIONS) SHALL BE APPLIED AT A RATE OF .015 TONS PER SQ. YD.

REPAIRS TO BRIDGE OVER STADIUM DRIVE

STATE ROAD - ROUTE 54
IN JEFFERSON CITY
PROJECT NO. STA. 72+88.29
JOB NO. 5-U-54-258B RTE. 54
COLE COUNTY
DATE 4/21/89

STD.
STD.
A-1672R

SEE FINAL PLANS

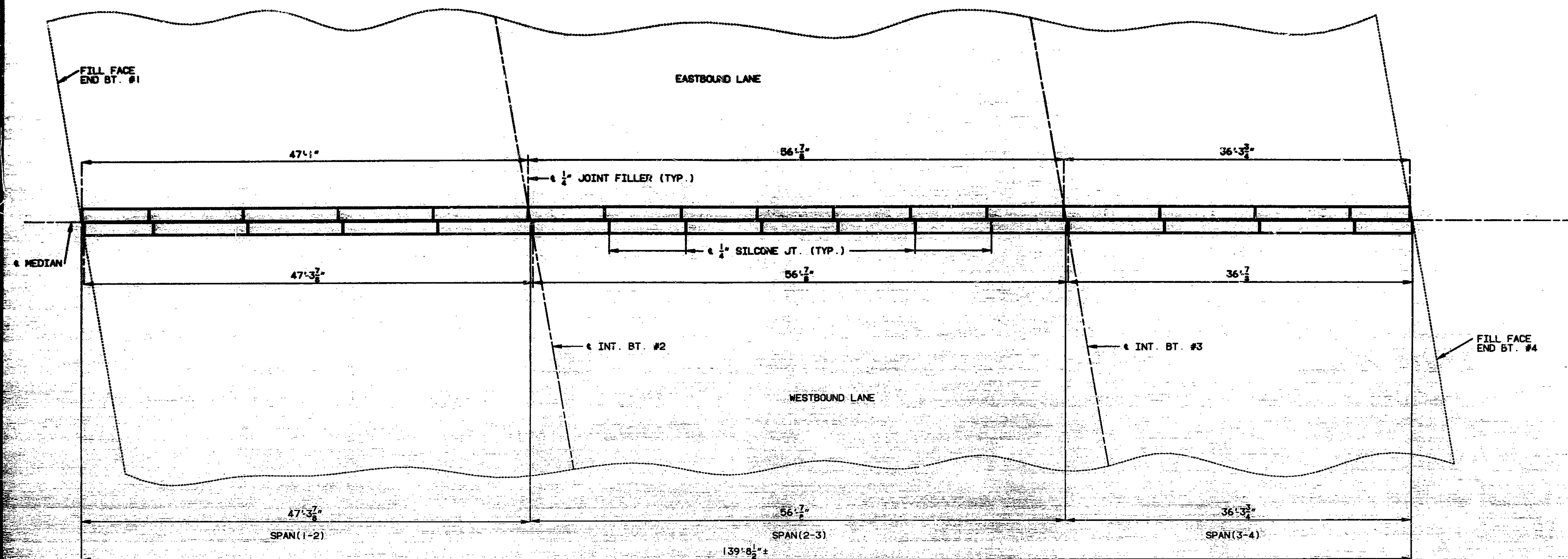
DESIGNED DEC. 1988
DETAILED DEC. 1988
CHECKED DEC. 1988

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

SHEET NO. 1 OF 3.

3329 3326

STATE	PROJ. NO.	SHEET NO.
MO.		145



PART PLAN OF SLAB SHOWING
PRECAST SAFETY BARRIER CURB

NOTE: DIMENSIONS SHOWN ARE TAKEN AT TOP OF SLAB PARALLEL TO GRADE.

330 325

DETAILED DEC. 1988
CHECKED DEC. 1988

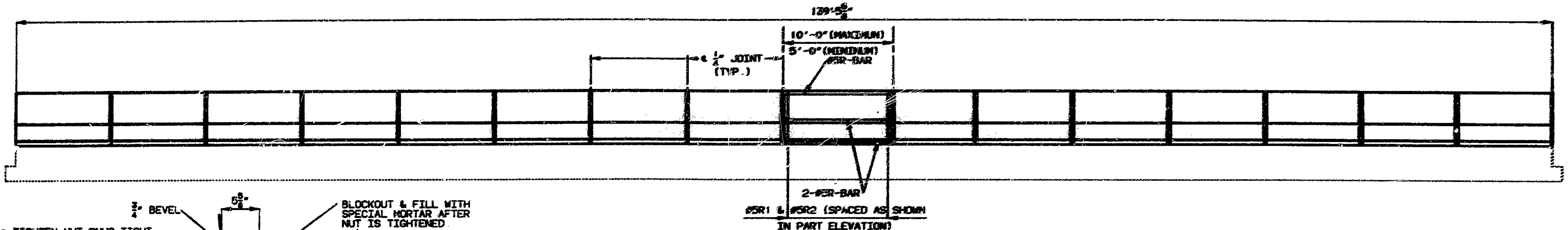
NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

SHEET NO. 2 OF 3

COLE COUNTY

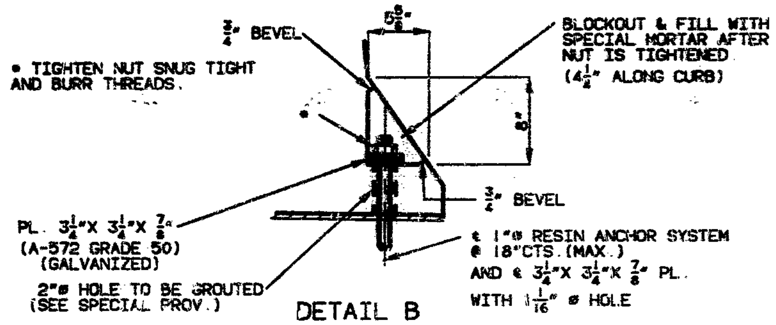
A-1672R

STATE	PROJ. NO.	SHEET NO.
MO.		146

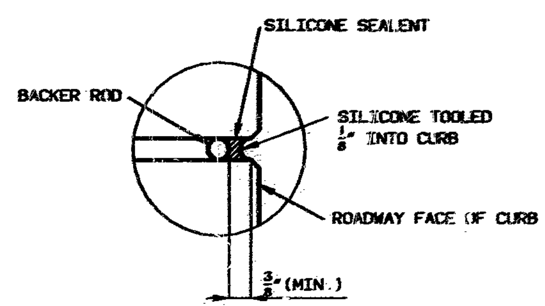


ELEVATION OF PRECAST SAFETY BARRIER CURB

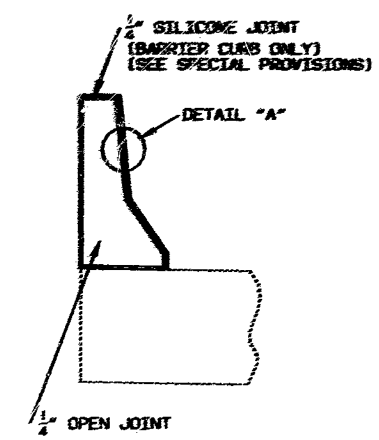
NOTE: LONGITUDINAL DIMENSIONS ARE PARALLEL TO GRADE AT TOP OF SLAB.



DETAIL B



DETAIL "A"



PART SECTION C-C

GENERAL NOTES:

CONCRETE FOR PRECAST BARRIER CURBS SHALL BE CLASS B1 WITH F'C=4,000 PSI.

TOP OF BARRIER CURB SHALL BE PARALLEL TO GRADE WITH BARRIER CURB JOINTS NORMAL TO GRADE.

ALL EXPOSED EDGES OF BARRIER CURB SHALL HAVE $\frac{1}{2}$" RADIUS OR $\frac{7}{8}$" BEVEL UNLESS OTHERWISE NOTED.

THE CONTRACTOR SHALL USE ONE OF THE RESIN ANCHOR SYSTEMS LISTED IN THE JOB SPECIAL PROVISIONS. THE ANCHOR SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS EXCEPT AS MODIFIED BY THE JOB SPECIAL PROVISIONS AND SHALL BE GALVANIZED.

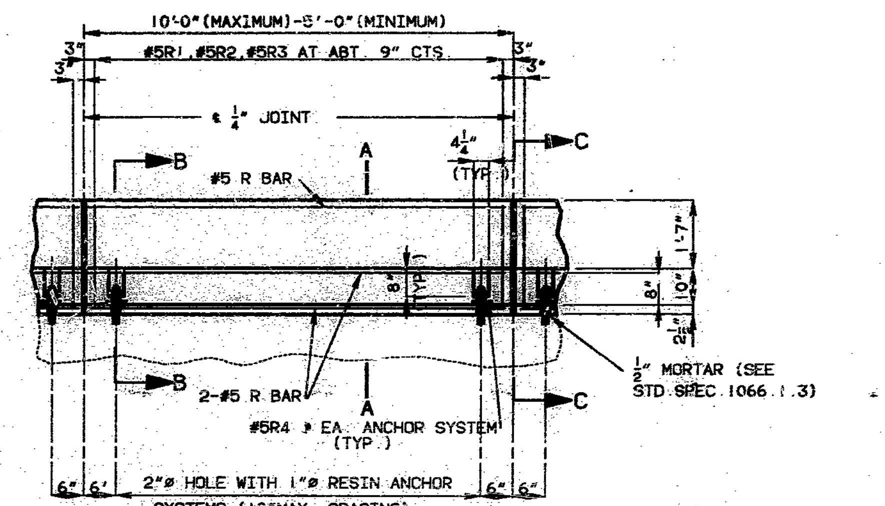
THREADED RODS SHALL HAVE AN ULTIMATE CAPACITY OF 36,000 POUNDS.

PAYMENT FOR FURNISHING AND INSTALLING RESIN ANCHOR SYSTEMS SHALL BE FULLY COVERED BY THE CONTRACT UNIT PRICE FOR PRECAST SAFETY BARRIER CURB.

WHEN THE PRECAST BARRIER CURB IS BID BY LINEAR FEET, THE CONTRACT UNIT PRICE SHALL INCLUDE THE COST OF ALL CONCRETE, REINFORCEMENT, AND RESIN ANCHOR SYSTEMS COMPLETE IN PLACE.

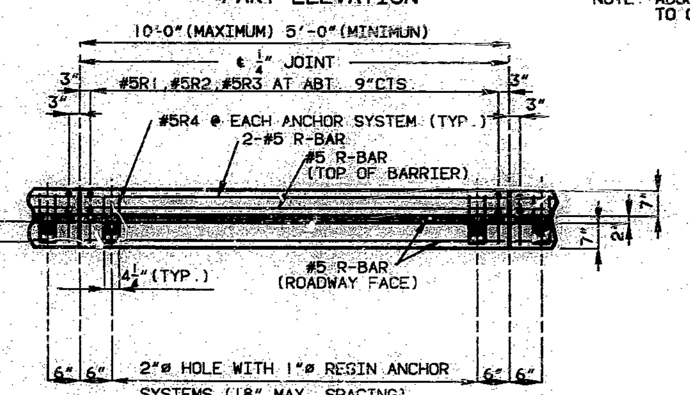
MEASUREMENT OF PRECAST SAFETY BARRIER CURB IS TO THE NEAREST LINEAR FOOT FOR EACH STRUCTURE, MEASURED ALONG THE TOP OF SLAB FROM END OF CURB TO END OF CURB.

THE PRECAST CURB UNITS SHALL BE SPACED TO ALLOW FOR THE CENTERING OF A $\frac{1}{4}$" JOINT OVER EACH INT. BENT AS SHOWN ON SHEET NO. 2.

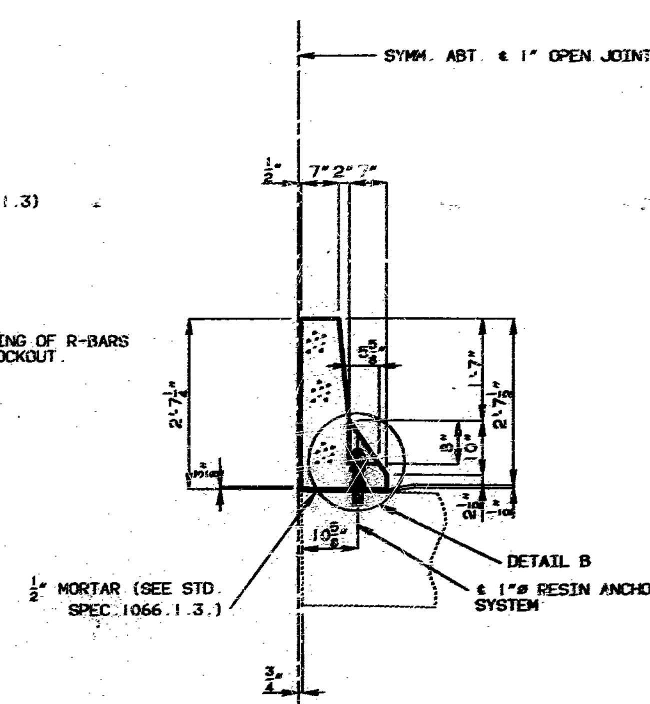


PART ELEVATION

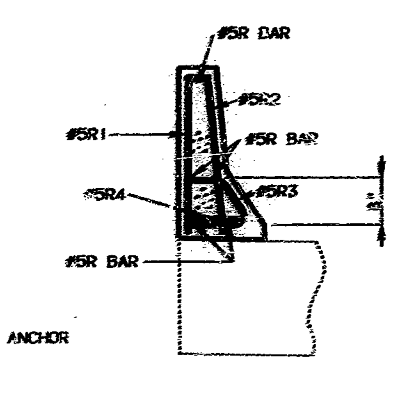
NOTE: ADJUST SPACING OF R-BARS TO CLEAR BLOCKOUT.



PART PLAN

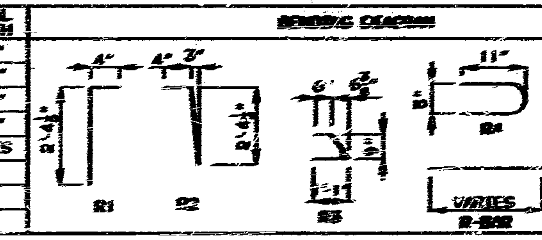


TYPICAL PRECAST PART SECTION B-B



TYPICAL SECTION THRU RIGHT PRECAST SAFETY BARRIER CURB

BILL OF REINFORCING STEEL

SIZE & MARK	ACTUAL LENGTH	BENDING DIAGRAM
#5-R1	2'-7"	
#5-R2	2'-8"	
#5-R3	2'-2"	
#5-R4	2'-0"	
#5-R-BAR	VARIES	

ALL DIMENSIONS FOR R-BARS ARE OUT TO OUT.

HOOKS AND BENDS SHALL BE IN ACCORDANCE WITH THE C.R.S.I. MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES, STIRRUP AND TIE DIMENSIONS.

ACTUAL LENGTHS OF REINFORCING BARS ARE MEASURED ALONG CENTERLINE OF BAR TO THE NEAREST INCH.

DETAILED JAN. 1989
CHECKED JAN. 1989

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

SHEET NO. 3 OF 3.

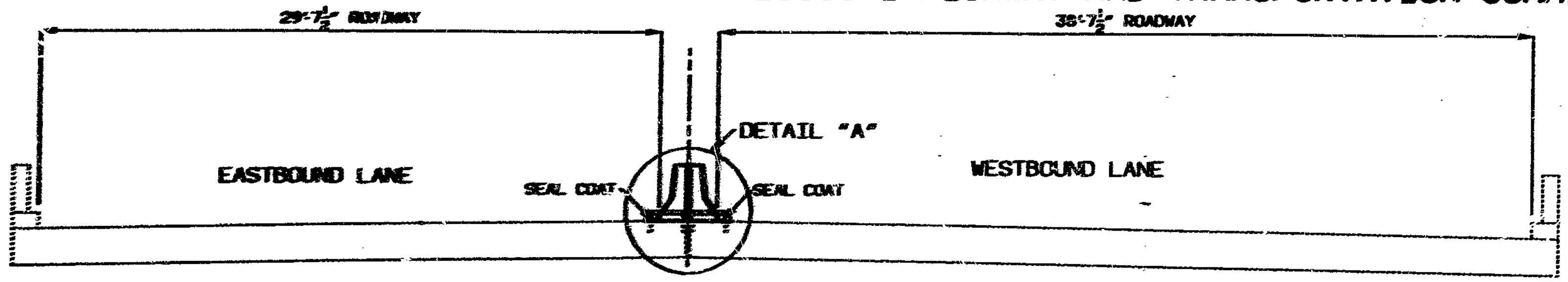
COLE COUNTY

A-1672R

326 324

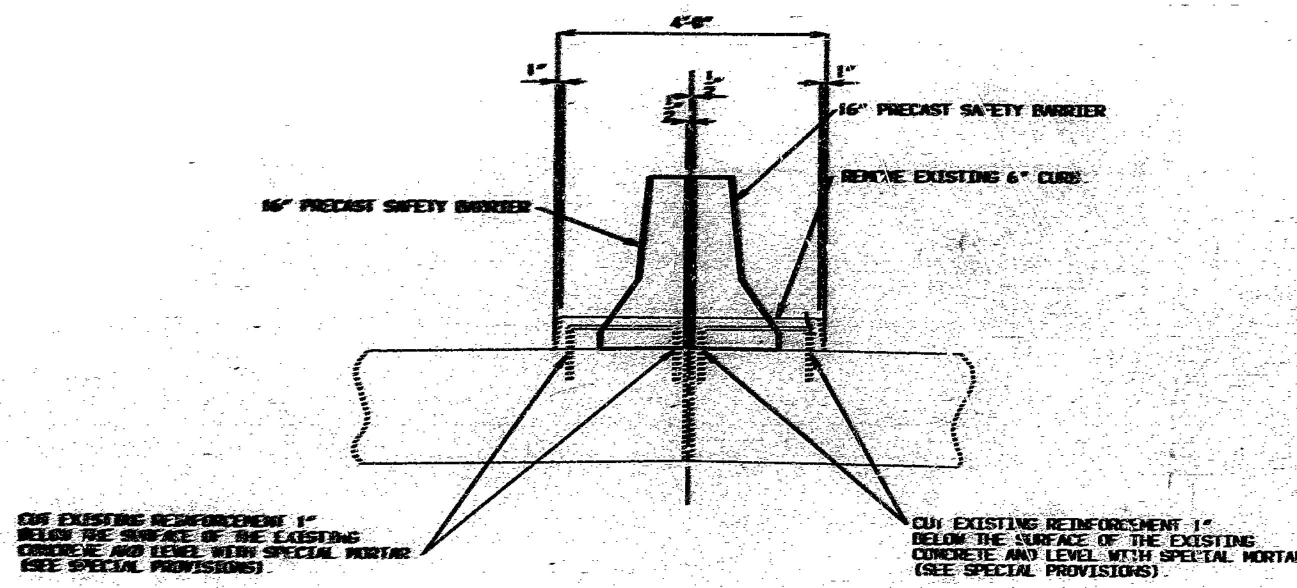
MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

STATE	PROJ. NO.	SHEET NO.
MO.		144
SEC./SUR. 12	TWP. 44N	RGE. 12W



TYPICAL SECTION THRU SLAB

NOTE: APPLY A PENETRATION SEAL (SEAL COAT) OF POLYMER MODIFIED ASPHALT AND COVER AGGREGATE IN THE AREAS EXPOSED BY THE REMOVAL OF THE EXISTING RAISED MEDIAN.



DETAIL "A"

GENERAL NOTES:

DESIGN SPECIFICATIONS:

A.A.S.H.T.O.-1983 AND INTERMS 1984 THRU 1988

DESIGN UNIT STRESSES:

CLASS B1 CONCRETE (PRECAST SAFETY BARRIER CURB) F'C=4,000 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 1½" UNLESS OTHERWISE SHOWN.

TRAFFIC MAINTAINED:

MAINTAIN ONE LANE OF TRAFFIC IN EACH DIRECTION ON STRUCTURE DURING CONSTRUCTION. (SEE ROADWAY PLANS).

OUTLINE OF OLD WORK IS INDICATED BY LIGHT DASHED LINES. HEAVY LINES INDICATE NEW WORK.

ESTIMATED QUANTITIES

ITEM		TOTAL
CURB REMOVAL (BRIDGES)	LIN. FT.	279
POLYMER MODIFIED ASPHALT (SEAL COAT)	GAL.	20
COVER AGGREGATE (SEE SPECIAL PROVISIONS)	TON	1
PRECAST SAFETY BARRIER CURB	LIN. FT.	279

NOTE: POLYMER MODIFIED ASPHALT EMULSION, GRADE CRS-2P (POLYMER MODIFIED) SHALL BE APPLIED AT A RATE OF .35 GAL. PER SQ. YD.
COVER AGGREGATE (SEE SPECIAL PROVISIONS) SHALL BE APPLIED AT A RATE OF .015 TONS PER SQ. YD.

382 382

REPAIRS TO
BRIDGE OVER STADIUM DRIVE
STATE ROAD - ROUTE 54
IN JEFFERSON CITY
PROJECT NO. STA. 72+88.29
JOB NO. 5-U-54-2588 RTE. 54
COLE COUNTY
DATE 4/21/89

STD.
STD.
A-1672R

DESIGNED DEC. 1988
DETAILED DEC. 1988
CHECKED DEC. 1988

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

SHEET NO. 1A OF 3

U.I.P. AND REHAB. EXISTING (46'-56'-35') CONTINUOUS VOIDED SLAB SPANS

GENERAL NOTES:

Design Specifications:
2002 - AASHTO LFD (17th Edition) Standard Specifications
Bridge Deck Rating = 6

Design Unit Stresses:

Class B-1 Concrete	f'c = 4,000 psi
Reinforcing Steel (Grade 60)	fy = 60,000 psi

Reinforcing Steel:
Minimum clearance to reinforcing steel shall be 1-1/2", unless otherwise shown.

All curb blockout steel shall be epoxy coated.

Joint Filler:
All joint filler shall be in accordance with Sec 1057 for preformed sponge rubber expansion and partition joint filler, except as noted.

Resin Anchors:
The contractor shall use one of the qualified resin anchor systems in accordance with Sec 1039.

The minimum embedment depth in concrete with f'c = 4,000 psi for the resin anchor system shall be that required to meet the minimum ultimate pullout strength in accordance with Sec 1039 but shall not be less than 5".

An epoxy coated #5 Grade 60 reinforcing bar shall be substituted for the 5/8" Ø threaded rod.

Cost of furnishing and installing the resin anchor system A and B complete-in-place will be considered completely covered by the contract unit price for Curb Blockout.

Cost of furnishing and installing the resin anchor system C and D complete-in-place will be considered completely covered by the contract unit price for Safety Barrier Curb.

Concrete Protective Coatings:
Protective coating for concrete bents and piers (Epoxy) shall be applied as shown on the bridge plans and in accordance with Sec 711.

Miscellaneous:
Traffic to be maintained on structure during construction. See roadway plans for traffic control.

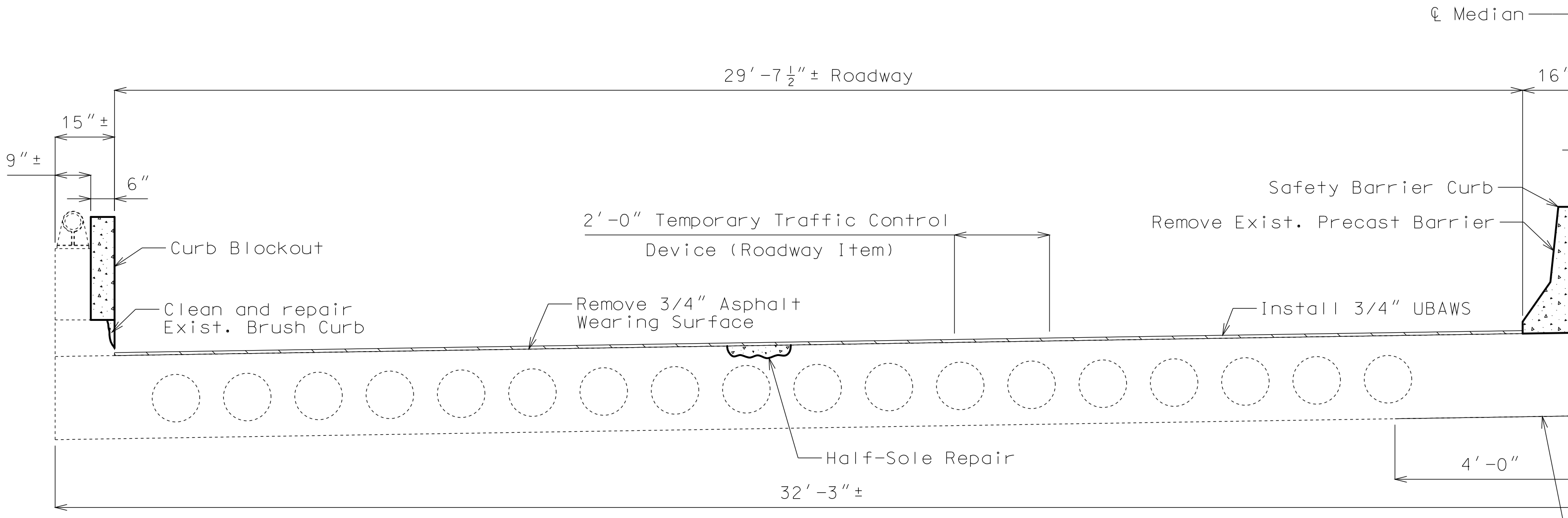
All exposed edges of curb blockout shall have either a 1/2" radius or a 3/8" bevel unless otherwise shown.

Outline of old work is indicated by light dashed lines. Heavy line indicate new work.

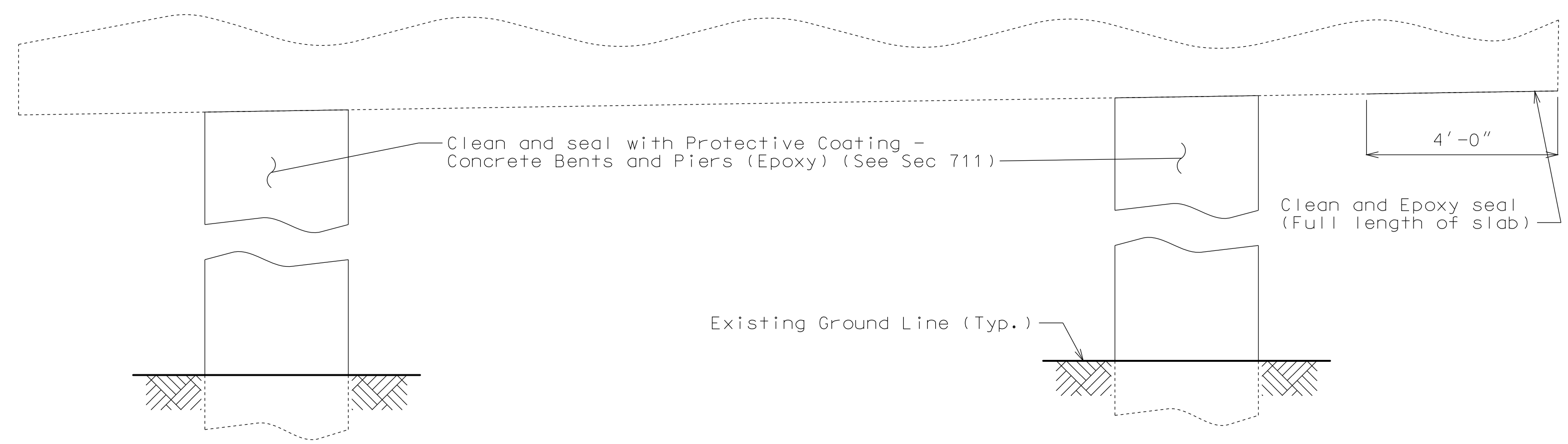
Contractor shall verify all dimensions in field before ordering new material.

Roadway Surfacing adjacent to bridge ends shall match new bridge deck surface (Roadway Item).

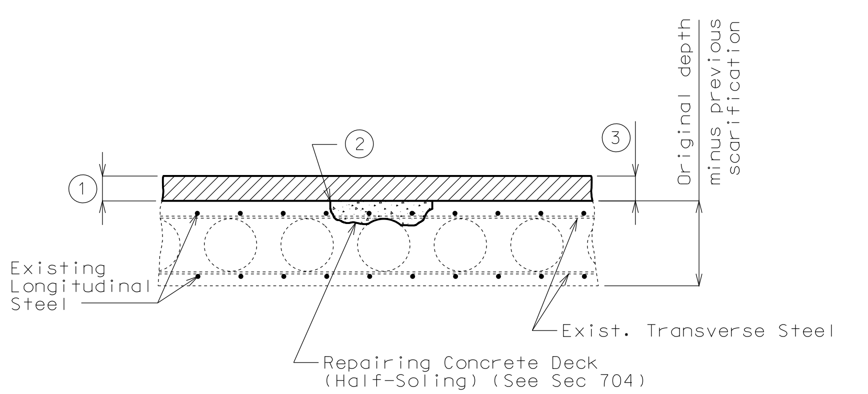
Existing bridge rail may be removed and disposed of at the contractor's option. Removal and disposal cost will be considered completely covered by the contract unit price for Curb Blockout.



SECTION THRU SLAB

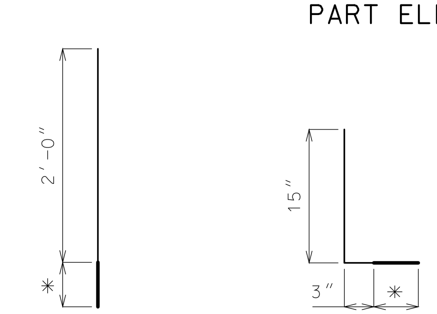


PART ELEVATION OF BENTS NO. 2 AND 3 SHOWING PROTECTIVE COATING



HALF-SOLED REPAIR

1. Remove existing wearing surface.
2. One inch vertical side shall be established outside the deteriorated area. See Sec 704.
3. 3/4" (min.) for Ultra-thin Bond Asphalt Wearing Surface (UBAWS)



System A (90 required) (Install in curb)

System B (69 required) (Install in parapet)

Note:

For location of Resin Anchors see Sheets No. 3 and 4.

DETAILS OF RESIN ANCHOR SYSTEM

* Manufacturer's recommended embedment length (5" min.)

Estimated Quantities

	Item		Total
	Removal of Asphalt Wearing Surface	square foot	4134
	Curb Removal	linear foot	140
	Ultrathin Bonded Wearing Surface (UBAWS), Grade C, 3/4" thick	square yard	459
	Safety Barrier Curb	linear foot	140
**	Curb Blockout	linear foot	148
	Repairing Concrete Deck (Half-Soling)	square foot	150
	Clean and Epoxy Seal	square foot	558
	Protective Coating - Concrete Bents and Piers (Epoxy)	lump sum	1

** Cost of cleaning and repairing existing brush curb shall be included with the contract unit price for Curb Blockout.

BRIDGE: ROUTE 54 E.B. OVER STADIUM BLVD.

HWY 54 FROM ROUTE 50 MO TO ROUTE 179
ABOUT 0.8 MILES WEST OF HWY 50
STA. 72+88.29± (MATCH EXISTING)

STD. 617.20
STD. 606.60
STD. 617.10

Detailed Oct. 2017
Checked Oct. 2017

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

STATE OF MISSOURI
ANOUSONE AROUNPRADITH
NUMBER PE-29317
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

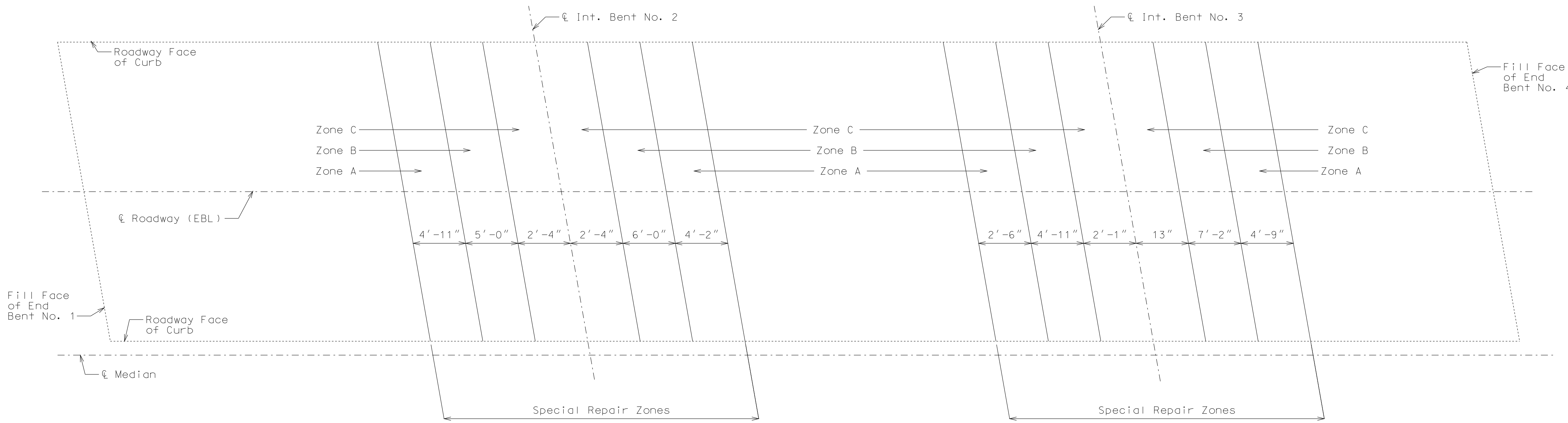
DATE PREPARED	11/27/2017
ROUTE	54
STATE	MO
DISTRICT	BR
SHEET NO.	1
COUNTY	COLE
JOB NO.	J5P3118
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	A16722

DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.



SPAN (1-2) SPAN (2-3) SPAN (3-4)

PLAN OF EXISTING SLAB SHOWING SPECIAL REPAIR ZONES

Notes:
Any half-soling required in the areas designated as special repair zones shall be completed in alphabetical sequence. Any repair in the remainder of the bridge that is adjacent to Zone A and not designated as a special repair zone shall be completed after work in special repair zones.

Removal and repair shall be completed in one special repair zone and concrete shall have attained a compressive strength of 3200 psi before work can be started in the next special repair zone. Before placing concrete in areas adjacent to areas of subsequent repair, the concrete shall be separated with a material such as polyethylene sheets to aid in removal of old concrete.

Zones with the same letter designation may be repaired at the same time.

If any single repair area does not exceed 4 square feet in size and the total repair within a special repair zone does not exceed 12 square feet, the special repair zone requirement does not apply for that zone. Any damage sustained to the void tube as a result of the contractor's operations shall be patched or replaced as required by the engineer at the contractor's expense.

An exposed void in the deck shall be patched as approved by the engineer in a manner that shall maintain the void area completely free of concrete. Cost of patching an exposed void will be considered completely covered by the contract unit price for Repairing Concrete Deck (Half-Soling).

Detailed Oct. 2017
Checked Oct. 2017

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

STATE OF MISSOURI
ANOUSONE AROUNPRADITH
NUMBER PE-29317
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

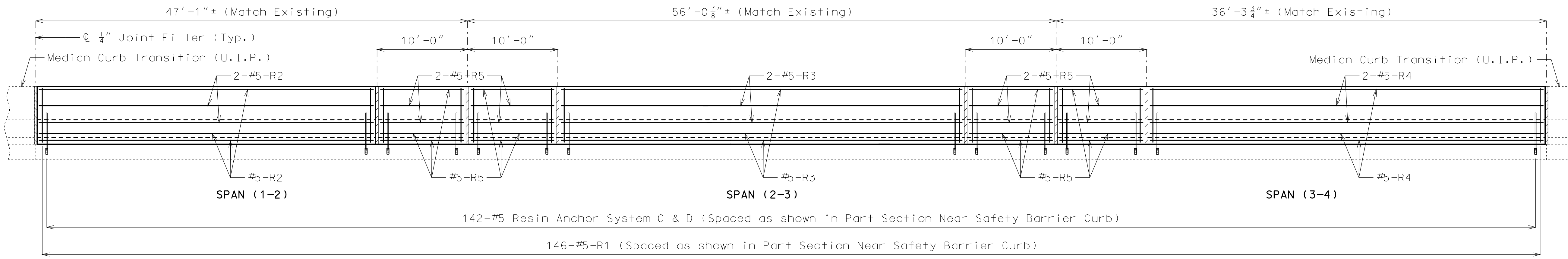
DATE PREPARED	11/20/2017
ROUTE	54
STATE	MO
DISTRICT	BR
SHEET NO.	2
COUNTY	COLE
JOB NO.	J5P3118
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	A16722

DESCRIPTION

DATE

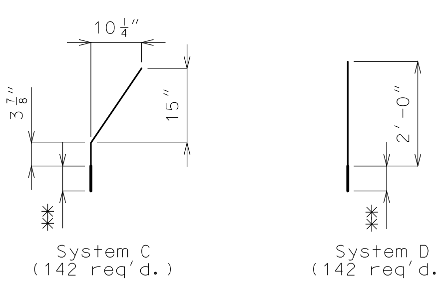
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.



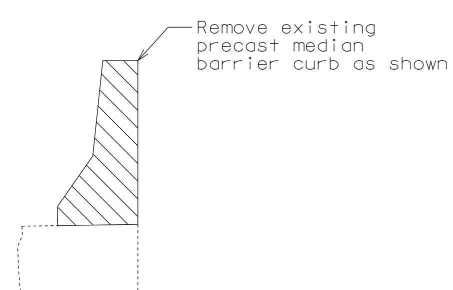
ELEVATION NEAR RIGHT SAFETY BARRIER CURB

Notes: Longitudinal dimensions shown are along grade and are taken at top outside edge of Safety Barrier Curb.

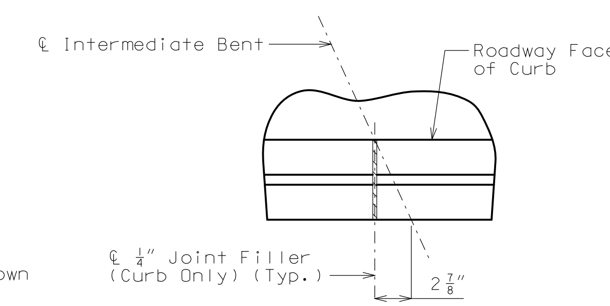


DETAILS OF RESIN ANCHOR SYSTEMS

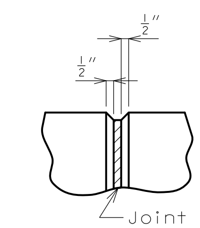
✱✱ Manufacturer's recommended embedment length (5" min.)



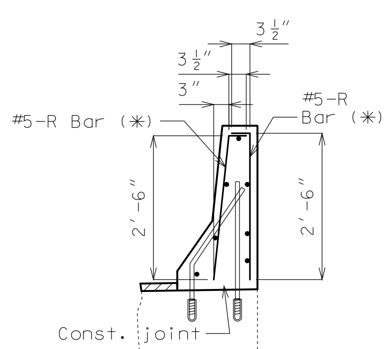
SECTION THRU EXISTING PRECAST MEDIAN CURB SHOWING CONCRETE REMOVAL



PART PLAN SHOWING SAFETY BARRIER CURB JOINT

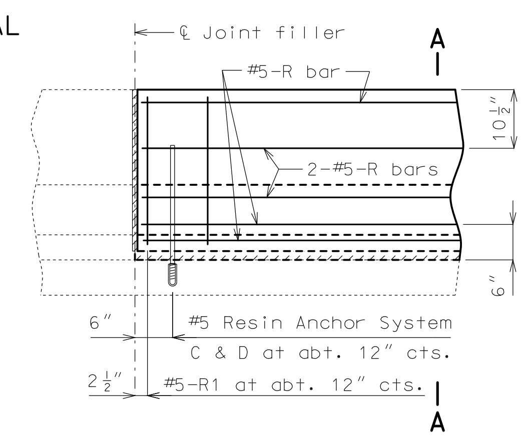


FILLED JOINT DETAIL

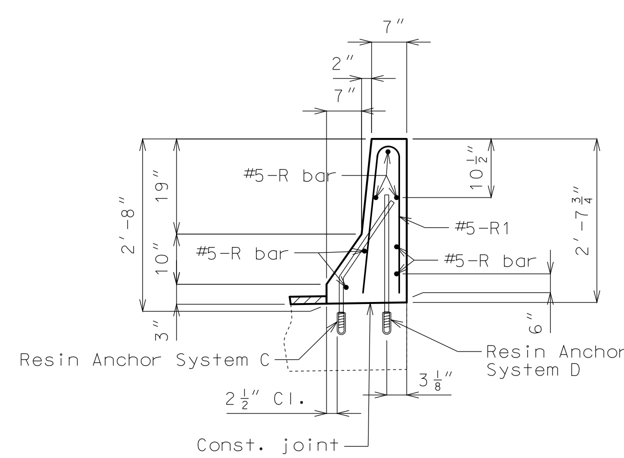


R-BAR PERMISSIBLE ALTERNATE SHAPE

(✱) The R1 bar may be separated into two bars as shown, at the contractor's option, only when slip forming is not used. (All dimensions are out to out.)



PART SECTION NEAR SAFETY BARRIER CURB (CAST-IN-PLACE CONVENTIONAL FORMING OPTION)



PART SECTION A-A

The cross-sectional area above the slab = 2.24 sq. ft.

Notes:

Removal of existing precast median barrier will be considered completely covered by the contract unit price for Curb Removal.

Top of safety barrier curb shall be built parallel to grade with barrier curb joints (except at end bents) normal to grade.

All exposed edges of safety barrier curb shall have either a 1/2-inch radius or a 3/8-inch bevel, unless otherwise noted.

Front Face of Safety Barrier Curb shall match slopes of existing median curb transition.

Payment for all concrete and reinforcement, complete in place, will be considered completely covered by the contract unit price for Safety Barrier Curb per linear foot.

Concrete in the safety barrier curb shall be Class B-1.

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

Concrete traffic barrier delineators shall be placed on top of the safety barrier curb as shown on Missouri Standard Plans 617.10 and in accordance with Sec 617. Concrete traffic barrier delineators will be considered completely covered by the contract unit price for Safety Barrier Curb.

For Resin Anchor notes, see Sheet No. 1.

CONVENTIONAL-FORMED SAFETY BARRIER CURB

Detailed Oct. 2017
Checked Oct. 2017

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

STATE OF MISSOURI
ANOUSONE AROUNPRADITH
NUMBER PE-29317
PROFESSIONAL ENGINEER

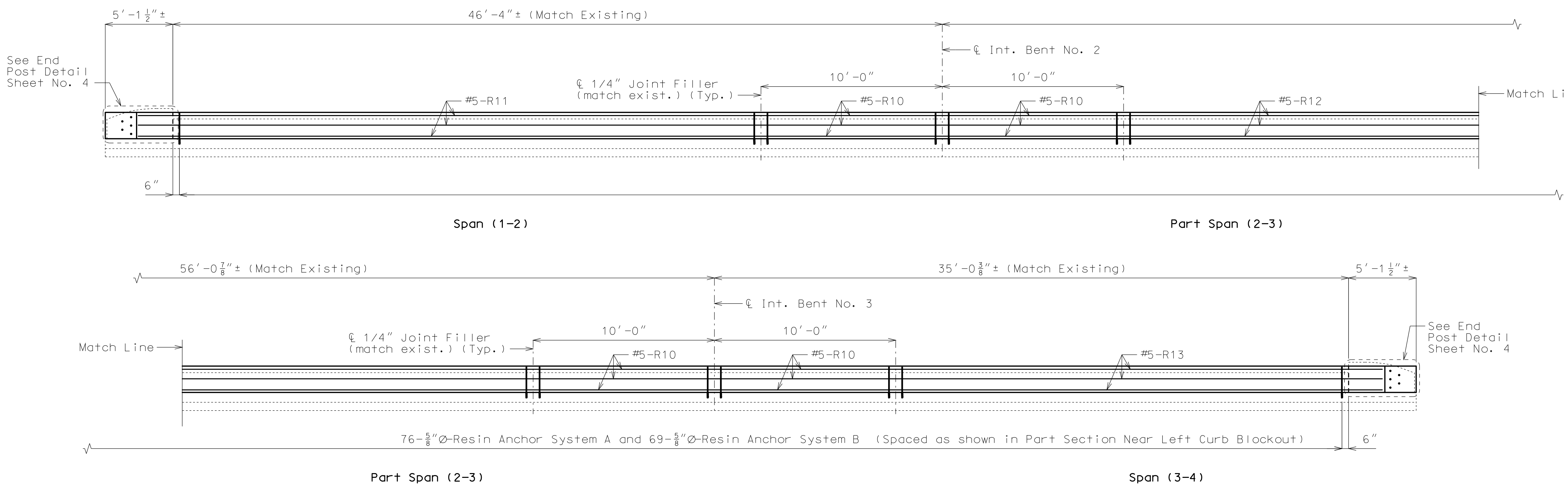
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED	11/14/2017
ROUTE	54
STATE	MO
DISTRICT	BR
SHEET NO.	3
COUNTY	COLE
JOB NO.	J5P3118
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	A16722

DESCRIPTION
DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.



SECTION NEAR LEFT CURB BLOCKOUT

Notes: Longitudinal dimensions shown are along grade and are taken at top outside edge of parapet.

Bridge rail not shown for clarity.

Notes:

Concrete in curb blockout shall be Class B-1 with f'c = 4000 psi.

Measurement of curb blockout is to the nearest linear foot, measured at the top outside edge of parapet from end of wing to end of wing. (Match existing curb and parapet)

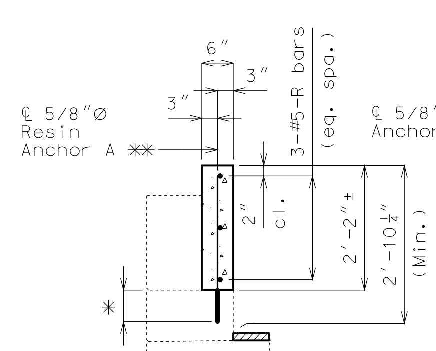
Payment for concrete, reinforcing steel, resin anchors, and any other work incidental to the curb blockout, complete in place, will be included in the contract unit price for Curb Blockout per linear foot.

All exposed edges of curb blockout shall have 1/2" radius or 3/8" bevel unless otherwise shown.

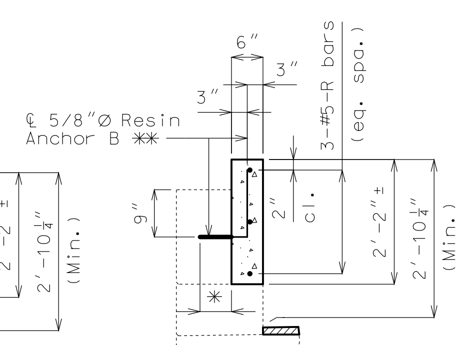
Cost of any concrete curb or parapet repair will be included in the contract unit price for Curb Blockout.

For Resin Anchor details, and additional notes, see Sheet No. 1.

Work this sheet with Sheet No. 4.

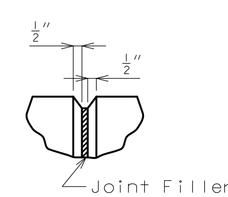


SECTION A-A

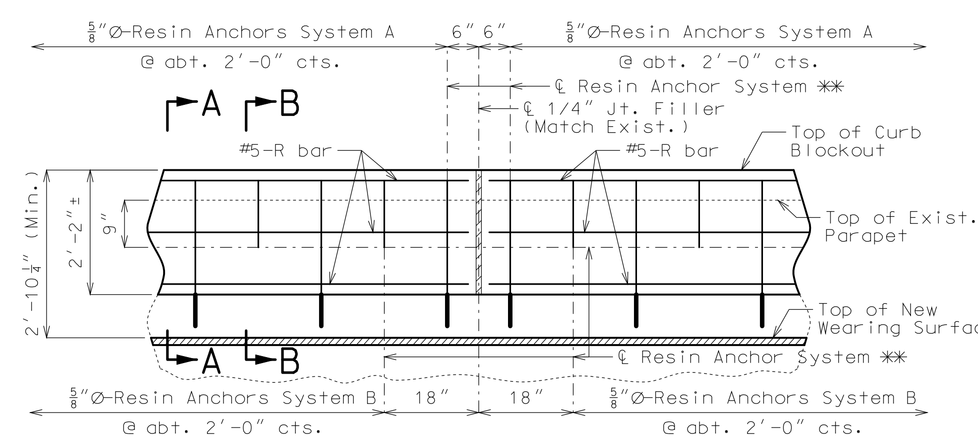


SECTION B-B

✱ Manufacturer's recommended embedment length (5" min.)



FILLED JOINT DETAIL



✱✱ Shift resin anchors where necessary to clear existing anchor bolts for bridge rail, miss curb outlets (if present) and clear existing reinforcement.

PART SECTION NEAR LEFT CURB BLOCKOUT

Detailed Oct. 2017
Checked Oct. 2017

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

STATE OF MISSOURI
ANOUSONE AROUNPRADITH
NUMBER PE-29317
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED	11/14/2017
ROUTE	54
STATE	MO
DISTRICT	BR
SHEET NO.	4
COUNTY	COLE
JOB NO.	J5P3118
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	A16722

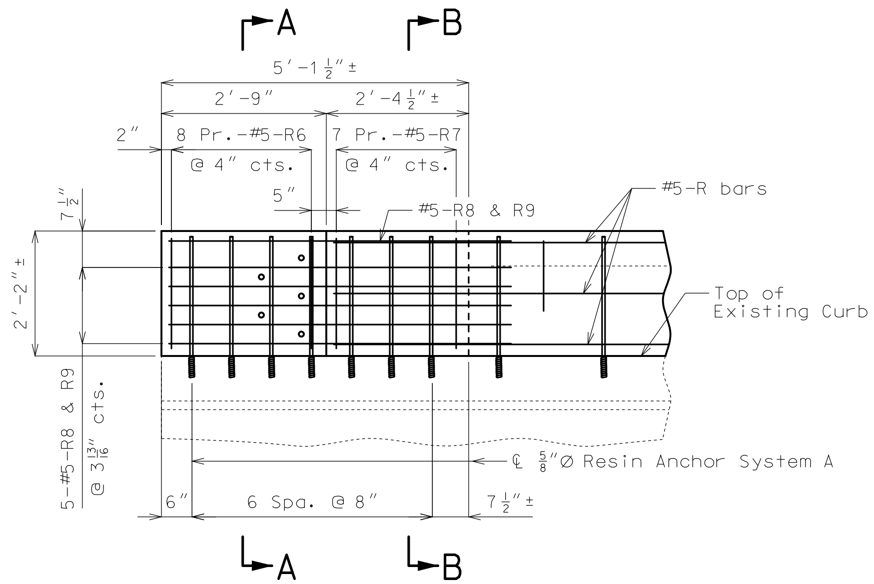
DESCRIPTION

DATE

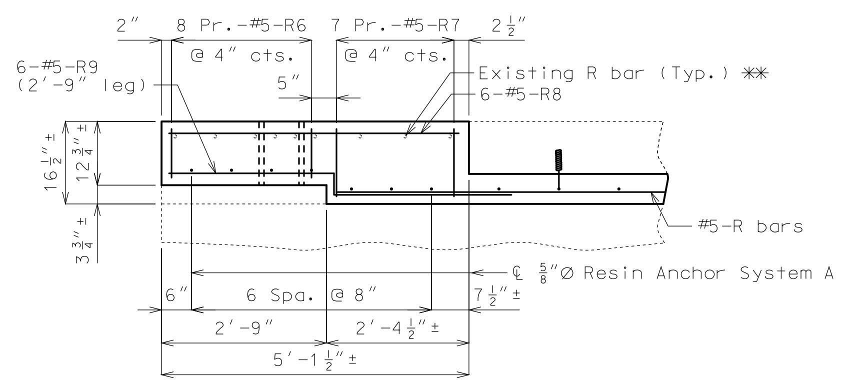
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

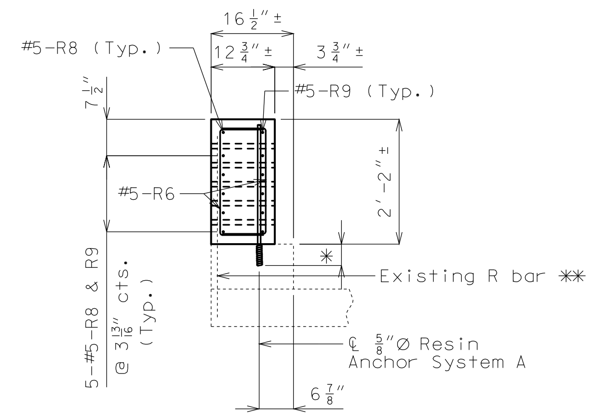
IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.



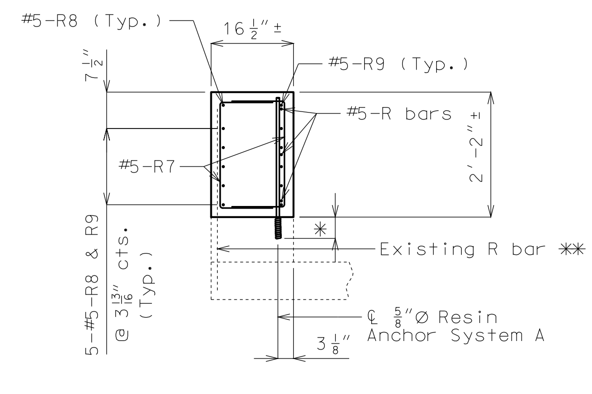
ELEVATION SHOWING END POST REINFORCEMENT



PLAN SHOWING END POST REINFORCEMENT

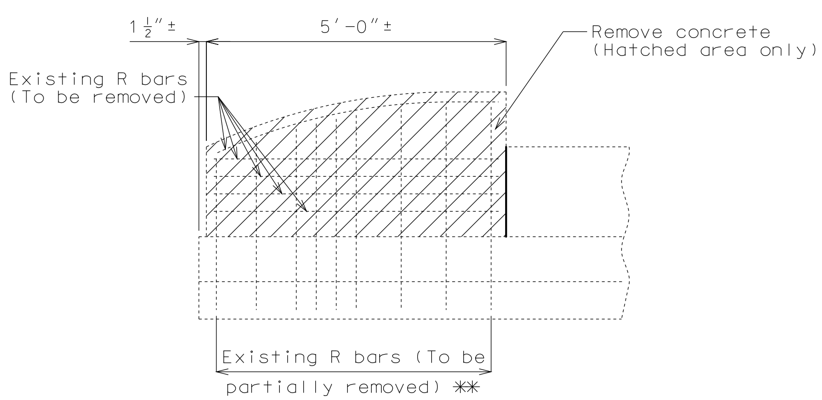


SECTION A-A



SECTION B-B

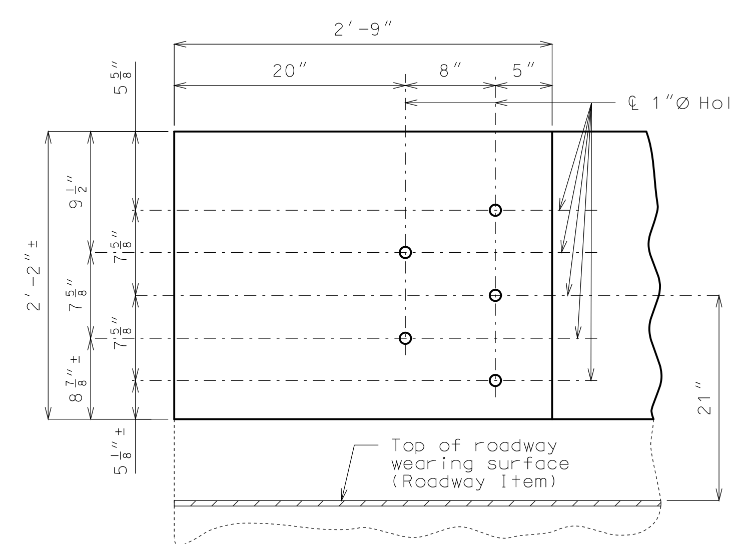
✱ Manufacturer's recommended embedment length (5″ min.)



PART ELEVATION SHOWING END POST CONCRETE REMOVAL

Note:

Cost of removing existing end posts will be considered completely covered by the contract unit price for Curb Blockout.



DETAILS OF GUARD RAIL ATTACHMENT

Notes:

All exposed edges of curb blockout shall have 1/2″ radius or 3/8″ bevel unless otherwise shown.

Use a minimum lap of 3′-1″ for #5 horizontal curb blockout bars.

Payment for concrete, reinforcing steel, resin anchor systems, and any other work incidental to the curb blockout, complete in place, will be included in the contract unit price for Curb Blockout per linear foot.

Cost of any concrete curb or parapet repair will be included in the contract unit price for Curb Blockout.

Aluminum railing is not shown for clarity.

All reinforcement shall be epoxy coated.
Bars bonded in old concrete not removed shall be cleanly stripped and embedded into new concrete.

For Details and additional notes of Resin Anchors, see Sheet No. 1.

✱✱ Vertical leg of existing R bar at the outside face shall be cleaned and reused. Horizontal leg and vertical leg at the roadway face shall be removed to one inch below concrete removal surface and the resulting holes shall be filled with a qualified special mortar.

DETAILS OF END POST AT END BENTS

Detailed Oct. 2017
Checked Oct. 2017

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

STATE OF MISSOURI
ANOUSONE AROUNPRADITH
NUMBER PE-29317
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED	11/14/2017
ROUTE	54
STATE	MO
DISTRICT	BR
SHEET NO.	5
COUNTY	COLE
JOB NO.	J5P3118
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	A16722

DESCRIPTION
DATE

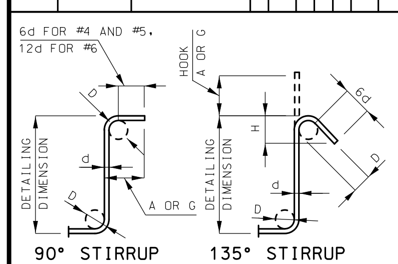
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

BILL OF REINFORCING STEEL

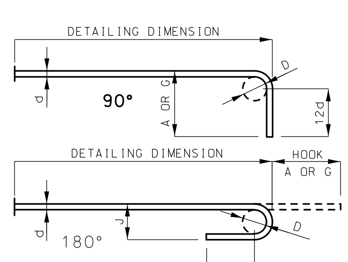
NO. REQ'D.	MARK NO. SIZE	MARK NO. MARK	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	B FT.	B IN.	C FT.	C IN.	D FT.	D IN.	E FT.	E IN.	F FT.	F IN.	H FT.	H IN.	K FT.	K IN.	NOMINAL LENGTH FT.	NOMINAL LENGTH IN.	ACTUAL LENGTH FT.	ACTUAL LENGTH IN.	WEIGHT LBS.
			SAFETY																									
			BARRIER CURB																									
146	5	R1	BARRIER CURB	E	26					2	6.000		4.250	2	6.125					2	6.000		3.000	5	2	5	2	787
7	5	R2	BARRIER CURB	E	20					36	10.000													36	10	36	10	269
7	5	R3	BARRIER CURB	E	20					35	9.000													35	9	35	9	261
7	5	R4	BARRIER CURB	E	20					26	0.000													26	0	26	0	190
28	5	R5	BARRIER CURB	E	20					9	9.000													9	9	9	9	285
			CURB																									
			BLOCKOUT																									
32	5	R6	BLOCKOUT	E	10	S							9.750		23.000									3	7	3	4	111
28	5	R7	BLOCKOUT	E	10	S							13.500		23.000									4	2	4	0	117
12	5	R8	BLOCKOUT	E	20					4	10.000													4	10	4	10	60
12	5	R9	BLOCKOUT	E	28	S						2	9.000		3.750	3	3.000							6	4	6	1	76
12	5	R10	BLOCKOUT	E	20					9	9.000													9	9	9	9	122
3	5	R11	BLOCKOUT	E	20					38	5.000													38	5	38	5	120
3	5	R12	BLOCKOUT	E	20					35	9.000													35	9	35	9	112
3	5	R13	BLOCKOUT	E	20					27	2.000													27	2	27	2	85
			TOTALS																									
	5			E																								2595
			TOTAL																									0
			TOTAL	E																								2595
			Slab on Girder																									
	5			E																								803
			TOTAL																									803
			Safety Barrier Curb																									
	5			E																								1792
			TOTAL																									1792

BILL OF REINFORCING STEEL



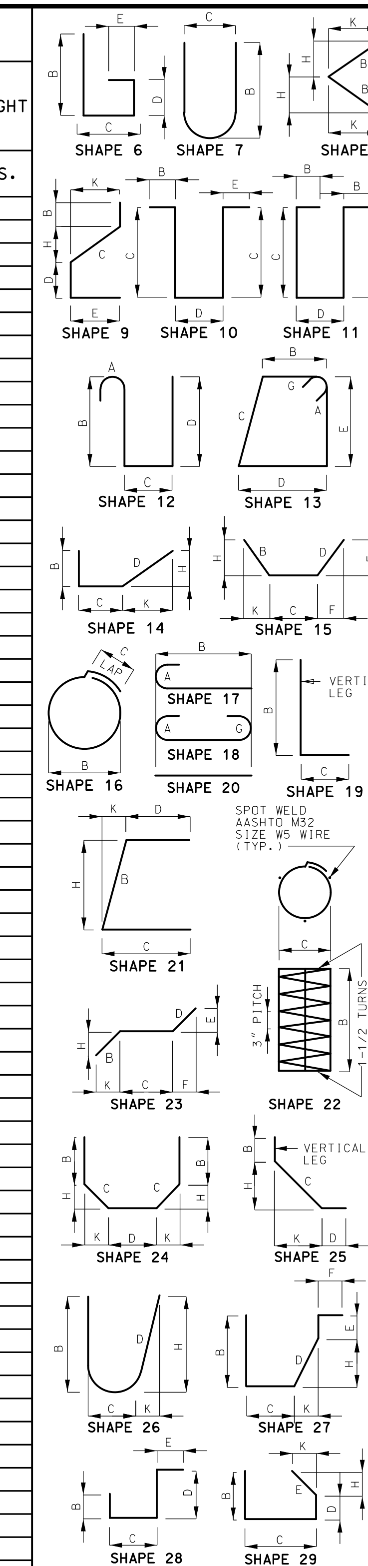
STIRRUP HOOK DIMENSIONS				
GRADES 40 - 50 - 60 KSI				
BAR SIZE	D (IN.)	90° HOOK	135° HOOK	
		HOOK A OR G	HOOK A OR G	APPROX. H
#4	2″	4 1/2″	4 1/2″	3″
#5	2 1/2″	6″	5 1/2″	3 3/4″
#6	4 1/2″	12″	8″	4 1/2″

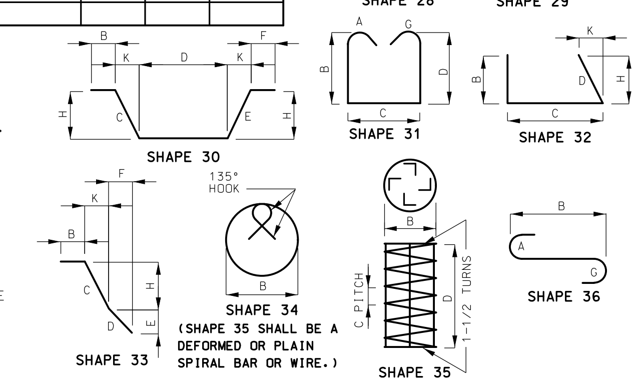
NOTE: UNLESS OTHERWISE NOTED, DIAMETER "D" IS THE SAME FOR ALL BENDS AND HOOKS ON A BAR.



END HOOK DIMENSIONS				
BAR SIZE	D (IN.)	ALL GRADES		
		180° HOOKS		90° HOOKS
		A OR G	J	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:
ALL STANDARD HOOKS AND BENDS OTHER THAN 180 DEGREE ARE TO BE BENT WITH SAME PROCEDURE AS FOR 90 DEGREE STANDARD 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.





BENDING DIAGRAMS

STATE OF MISSOURI
ANOUSONE AROUNPRADITH
NUMBER PE-29317
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 11/14/2017	
ROUTE 54	STATE MO
DISTRICT BR	SHEET NO. 6
COUNTY COLE	
JOB NO. J5P3118	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO. A16722	

DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
MoDOT
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

Detailed Oct. 2017
Checked Oct. 2017

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

U.I.P. AND REHAB. EXISTING (46′-56′-35′) CONTINUOUS VOIDED SLAB SPANS

SEC/SUR 12	TWP 44N	RGE 12W

GENERAL NOTES:

Design Specifications:
2002 - AASHTO LFD (17th Edition) Standard Specifications
Bridge Deck Rating = 6

Design Unit Stresses:
Class B-1 Concrete $f'c$ = 4,000 psi
Reinforcing Steel (Grade 60) fy = 60,000 psi

Reinforcing Steel:
Minimum clearance to reinforcing steel shall be 1-1/2″, unless otherwise shown.

All curb blockout steel shall be epoxy coated.

Joint Filler:
All joint filler shall be in accordance with Sec 1057 for preformed sponge rubber expansion and partition joint filler, except as noted.

Resin Anchors:
The contractor shall use one of the qualified resin anchor systems in accordance with Sec 1039.

The minimum embedment depth in concrete with $f'c$ = 4,000 psi for the resin anchor system shall be that required to meet the minimum ultimate pullout strength in accordance with Sec 1039 but shall not be less than 5″.

An epoxy coated #5 Grade 60 reinforcing bar shall be substituted for the 5/8″ Ø threaded rod.

Cost of furnishing and installing the resin anchor system A and B complete-in-place will be considered completely covered by the contract unit price for Curb Blockout.

Cost of furnishing and installing the resin anchor system C and D complete-in-place will be considered completely covered by the contract unit price for Safety Barrier Curb.

Concrete Protective Coatings:
Protective coating for concrete bents and piers (Epoxy) shall be applied as shown on the bridge plans and in accordance with Sec 711.

Miscellaneous:
Traffic to be maintained on structure during construction. See roadway plans for traffic control.

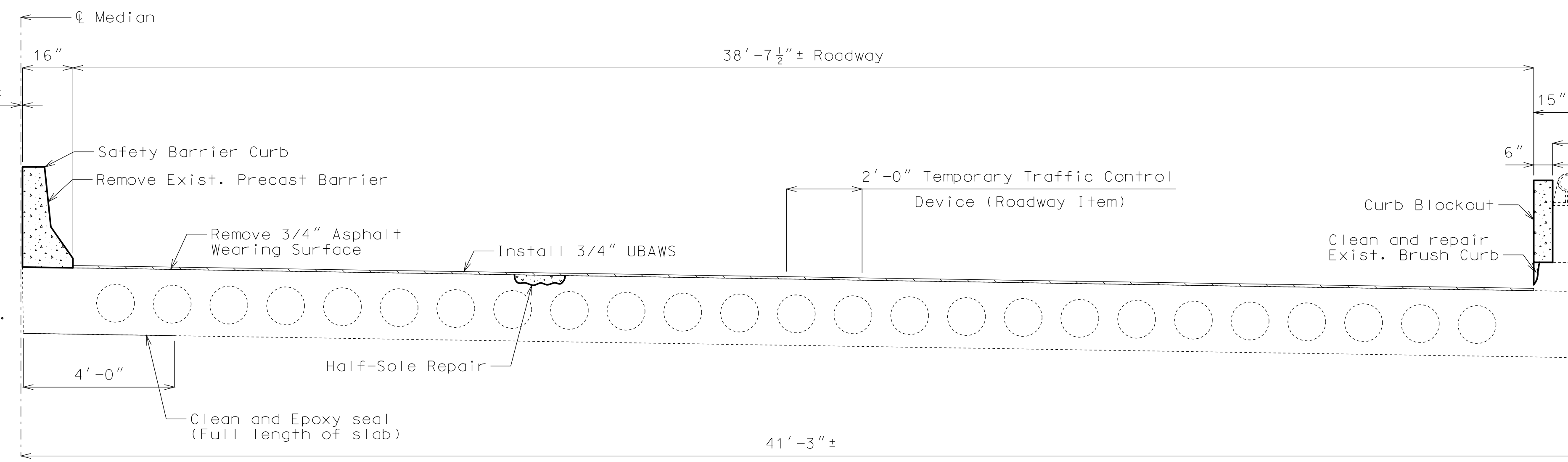
All exposed edges of curb blockout shall have either a 1/2″ radius or a 3/8″ bevel unless otherwise shown.

Outline of old work is indicated by light dashed lines. Heavy line indicate new work.

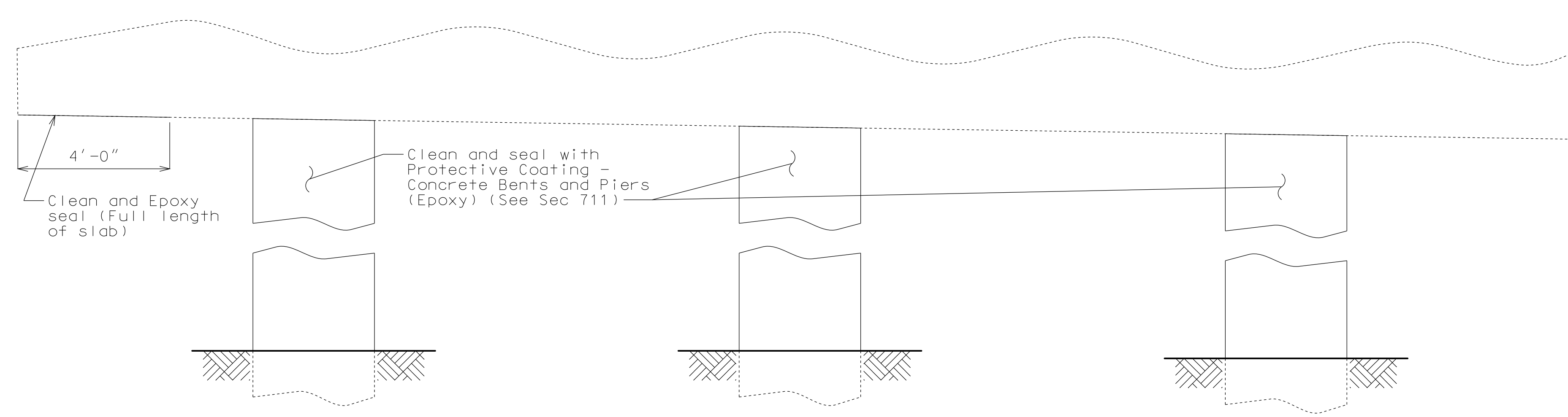
Contractor shall verify all dimensions in field before ordering new material.

Roadway Surfacing adjacent to bridge ends shall match new bridge deck surface (Roadway Item).

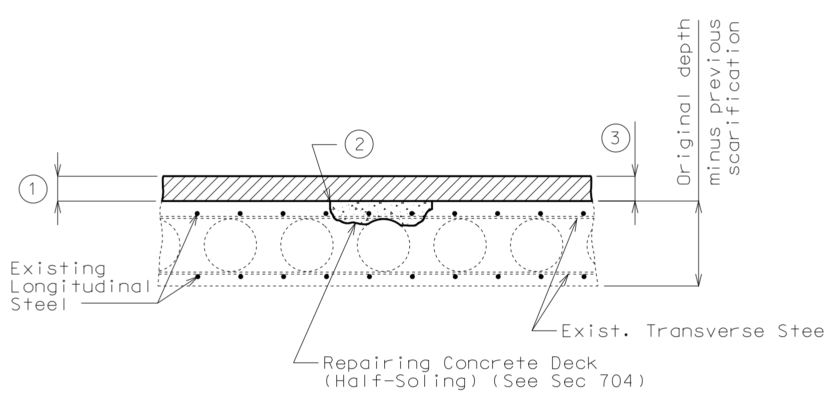
Existing bridge rail may be removed and disposed of at the contractor's option. Removal and disposal cost will be considered completely covered by the contract unit price for Curb Blockout.



SECTION THRU SLAB



PART ELEVATION OF BENTS NO. 2 AND 3 SHOWING PROTECTIVE COATING

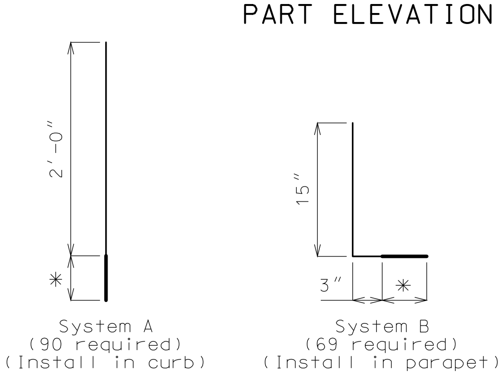


HALF-SOLED REPAIR

(1) Remove existing wearing surface.

(2) One inch vertical side shall be established outside the deteriorated area. See Sec 704.

(3) 3/4″ (min.) for Ultra-thin Bond Asphalt Wearing Surface (UBAWS)



Note:

For location of Resin Anchors see Sheets No. 3 and 4.

DETAILS OF RESIN ANCHOR SYSTEM

* Manufacturer's recommended embedment length (5″ min.)

Estimated Quantities

	Item		Total
	Removal of Asphalt Wearing Surface	square foot	5390
	Curb Removal	linear foot	140
	Ultrathin Bonded Wearing Surface (UBAWS), Grade C, 3/4″ thick	square yard	599
	Safety Barrier Curb	linear foot	140
**	Curb Blockout	linear foot	148
	Repairing Concrete Deck (Half-Soling)	square foot	200
	Clean and Epoxy Seal	square foot	558
	Protective Coating - Concrete Bents and Piers (Epoxy)	lump sum	1

** Cost of cleaning and repairing existing brush curb shall be included with the contract unit price for Curb Blockout.

BRIDGE: ROUTE 54 W.B. OVER STADIUM BLVD.

HWY 54 FROM ROUTE 50 MO TO ROUTE 179
ABOUT 0.8 MILES WEST OF HWY 50
STA. 72+88.29± (MATCH EXISTING)

STD. 617.20
STD. 606.60
STD. 617.10

STATE OF MISSOURI
ANOUSONE AROUNPRADITH
NUMBER PE-29317
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED	11/27/2017
ROUTE 54	STATE MO
DISTRICT BR	SHEET NO. 1
COUNTY	COLE
JOB NO.	J5P3118
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	A16723

DESCRIPTION

DATE

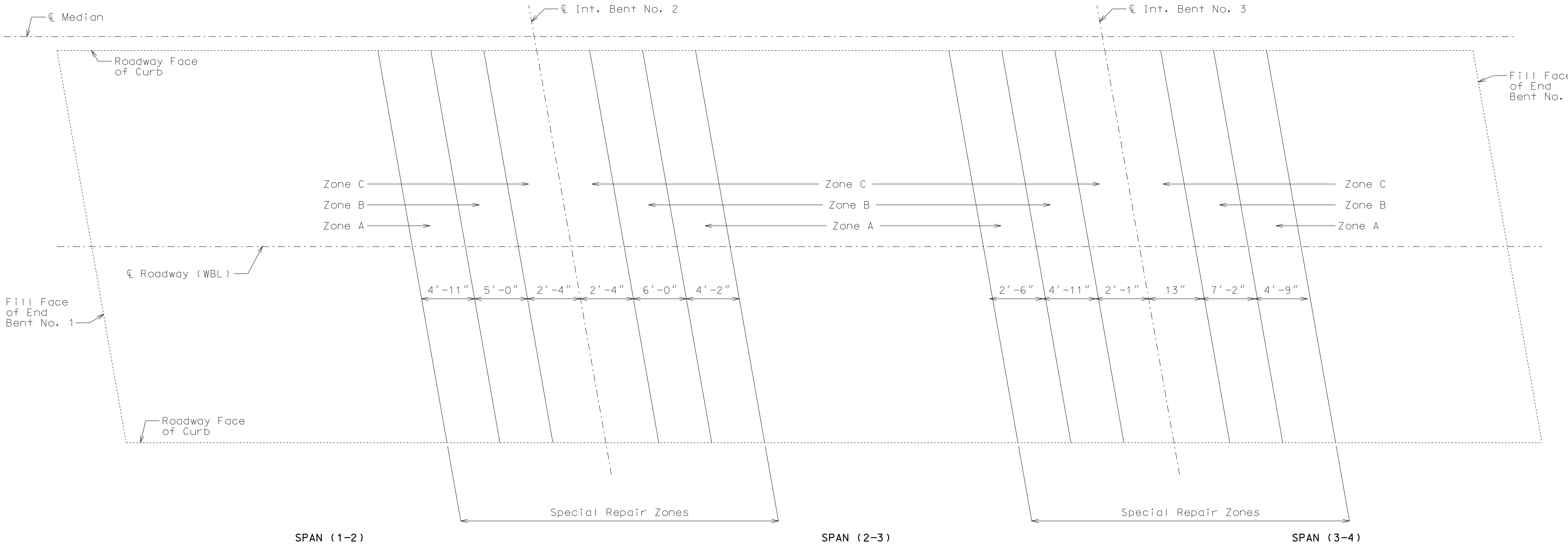
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

Detailed Oct. 2017
Checked Oct. 2017

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



PLAN OF EXISTING SLAB SHOWING SPECIAL REPAIR ZONES

Notes:
Any half-soling required in the areas designated as special repair zones shall be completed in alphabetical sequence. Any repair in the remainder of the bridge that is adjacent to Zone A and not designated as a special repair zone shall be completed after work in special repair zones.

Removal and repair shall be completed in one special repair zone and concrete shall have attained a compressive strength of 3200 psi before work can be started in the next special repair zone. Before placing concrete in areas adjacent to areas of subsequent repair, the concrete shall be separated with a material such as polyethylene sheets to aid in removal of old concrete.

Zones with the same letter designation may be repaired at the same time.

If any single repair area does not exceed 4 square feet in size and the total repair within a special repair zone does not exceed 12 square feet, the special repair zone requirement does not apply for that zone. Any damage sustained to the void tube as a result of the contractor's operations shall be patched or replaced as required by the engineer at the contractor's expense.

An exposed void in the deck shall be patched as approved by the engineer in a manner that shall maintain the void area completely free of concrete. Cost of patching an exposed void will be considered completely covered by the contract unit price for Repairing Concrete Deck (Half-Soling).

Detailed Oct. 2017
Checked Oct. 2017

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

STATE OF MISSOURI — ANOUSONE AROUNPRADITH — NUMBER PE-29317 — PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

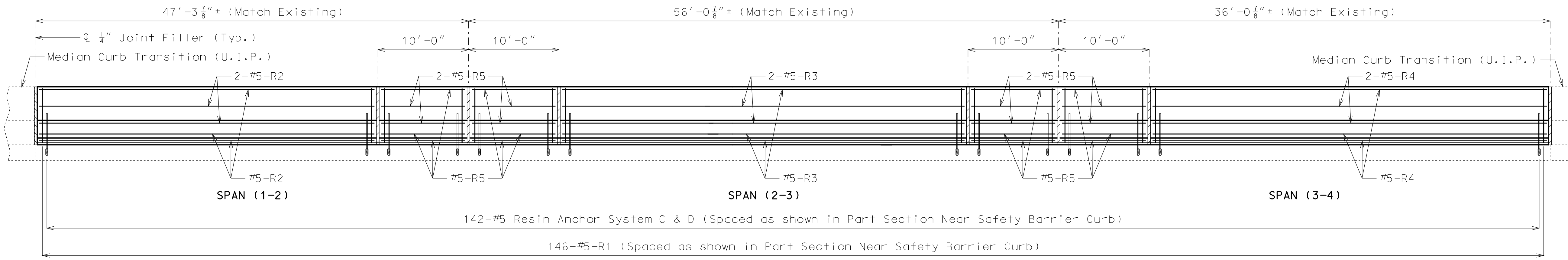
DATE PREPARED	11/20/2017
ROUTE	54
STATE	MO
DISTRICT	BR
SHEET NO.	2
COUNTY	COLE
JOB NO.	J5P3118
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	A16723

DESCRIPTION

DATE

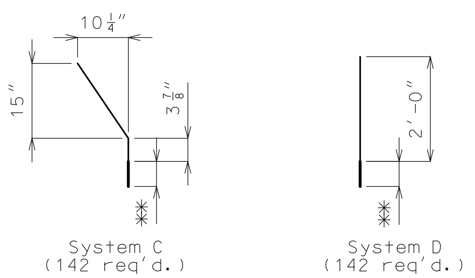
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.



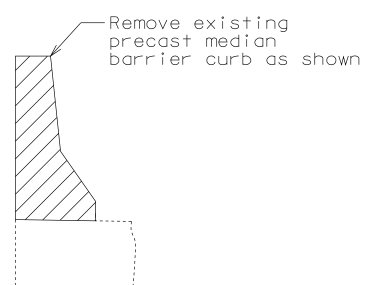
SECTION NEAR LEFT SAFETY BARRIER CURB

Notes: Longitudinal dimensions shown are along grade and are taken at top outside edge of Safety Barrier Curb.

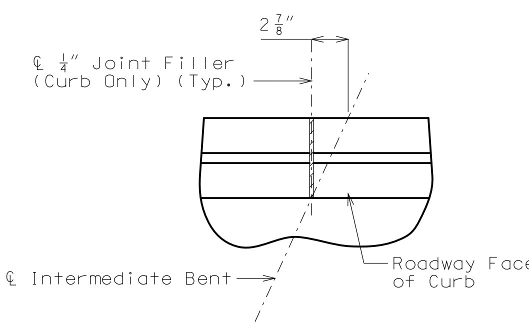


DETAILS OF RESIN ANCHOR SYSTEMS

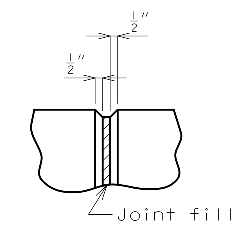
✱✱ Manufacturer's recommended embedment length (5" min.)



SECTION THRU EXISTING PRECAST MEDIAN CURB SHOWING CONCRETE REMOVAL



PART PLAN SHOWING SAFETY BARRIER CURB JOINT



FILLED JOINT DETAIL

Notes:

Removal of existing precast median barrier will be considered completely covered by the contract unit price for Curb Removal.

Top of safety barrier curb shall be built parallel to grade with barrier curb joints (except at end bents) normal to grade.

All exposed edges of safety barrier curb shall have either a 1/2-inch radius or a 3/8-inch bevel, unless otherwise noted.

Front Face of Safety Barrier Curb shall match slopes of existing median curb transition.

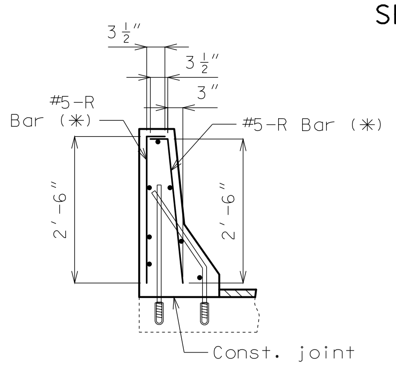
Payment for all concrete and reinforcement, complete in place, will be considered completely covered by the contract unit price for Safety Barrier Curb per linear foot.

Concrete in the safety barrier curb shall be Class B-1.

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

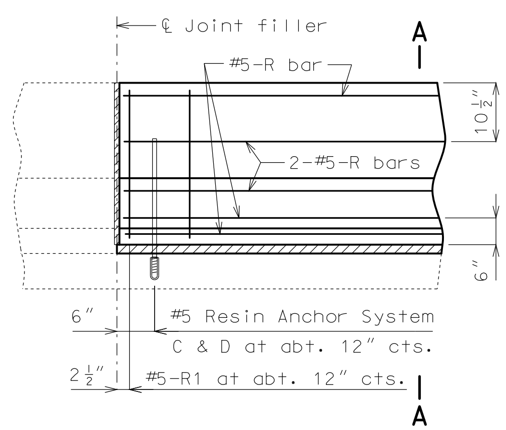
Concrete traffic barrier delineators shall be placed on top of the safety barrier curb as shown on Missouri Standard Plans 617.10 and in accordance with Sec 617. Concrete traffic barrier delineators will be considered completely covered by the contract unit price for Safety Barrier Curb.

For Resin Anchor notes, see Sheet No. 1.

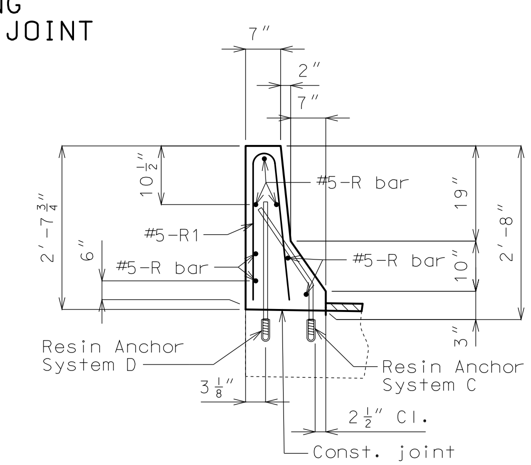


R-BAR PERMISSIBLE ALTERNATE SHAPE

(✱) The R1 bar may be separated into two bars as shown, at the contractor's option, only when slip forming is not used. (All dimensions are out to out.)



PART SECTION NEAR SAFETY BARRIER CURB (CAST-IN-PLACE CONVENTIONAL FORMING OPTION)



PART SECTION A-A

The cross-sectional area above the slab = 2.24 sq. ft.

CONVENTIONAL-FORMED SAFETY BARRIER CURB

Detailed Oct. 2017
Checked Oct. 2017

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

STATE OF MISSOURI
ANOUSONE AROUNPRADITH
NUMBER PE-29317
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

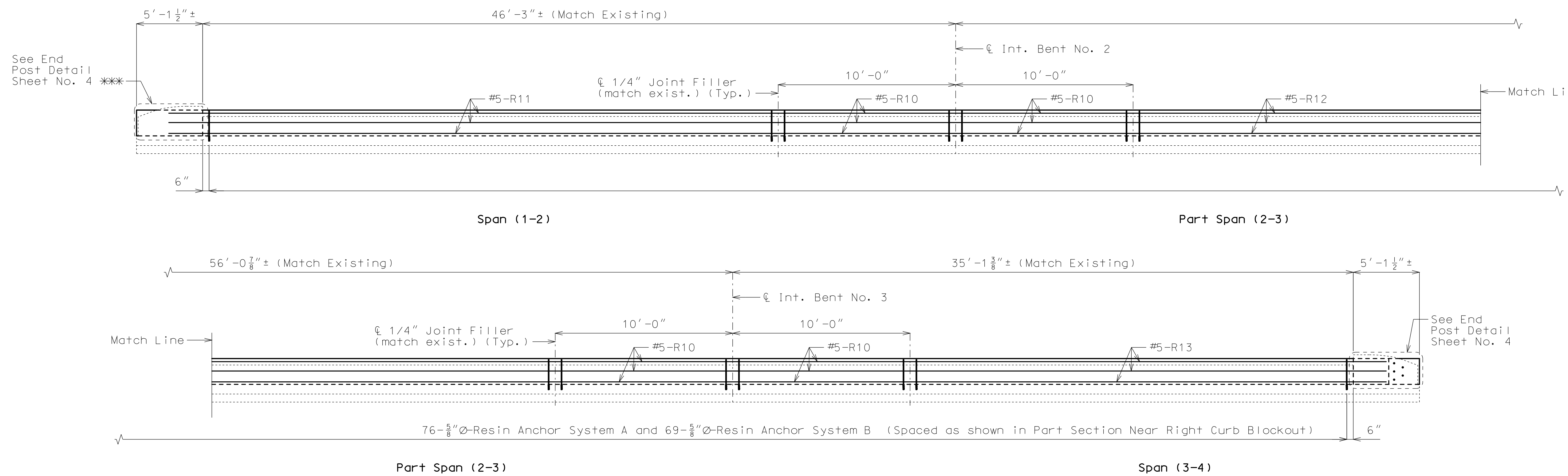
DATE PREPARED 11/14/2017	
ROUTE 54	STATE MO
DISTRICT BR	SHEET NO. 3
COUNTY COLE	
JOB NO. J5P3118	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO. A16723	

DESCRIPTION | DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

*** Concrete recess and guardrail attachment holes not required for Westbound Approach at End Bent No. 1.



ELEVATION NEAR RIGHT CURB BLOCKOUT

Notes: Longitudinal dimensions shown are along grade and are taken at top outside edge of parapet.

Bridge rail not shown for clarity.

Notes:

Concrete in curb blockout shall be Class B-1 with f'c = 4000 psi.

Measurement of curb blockout is to the nearest linear foot, measured at the top outside edge of parapet from end of wing to end of wing. (Match existing curb and parapet)

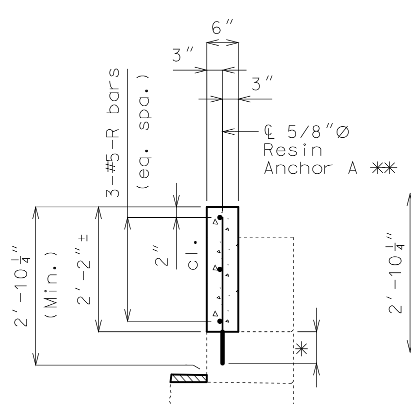
Payment for concrete, reinforcing steel, resin anchors, and any other work incidental to the curb blockout, complete in place, will be included in the contract unit price for Curb Blockout per linear foot.

All exposed edges of curb blockout shall have 1/2" radius or 3/8" bevel unless otherwise shown.

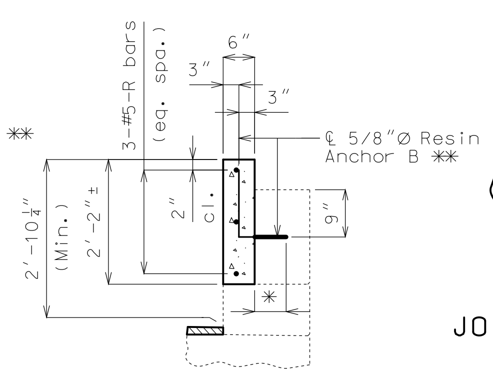
Cost of any concrete curb or parapet repair will be included in the contract unit price for Curb Blockout.

For Resin Anchor details, and additional notes, see Sheet No. 1.

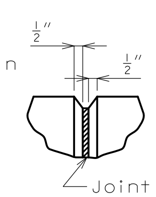
Work this sheet with Sheet No. 4.



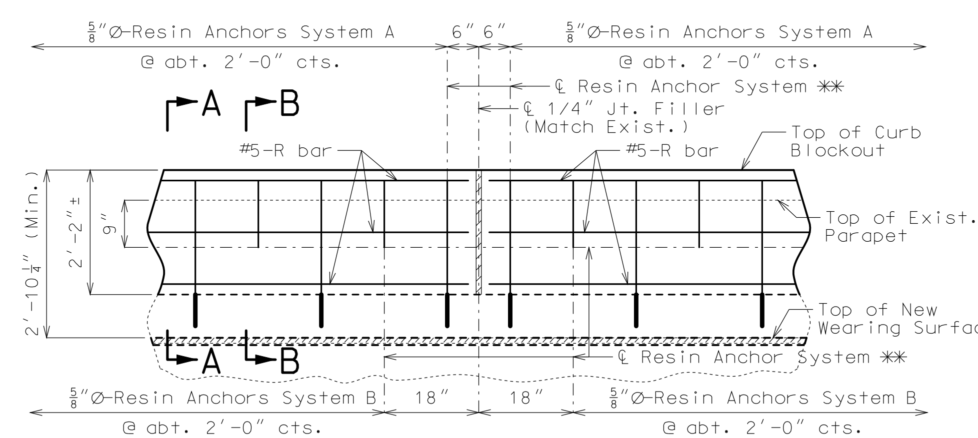
SECTION A-A



SECTION B-B



FILLED JOINT DETAIL



** Shift resin anchors where necessary to clear existing anchor bolts for bridge rail, miss curb outlets (if present) and clear existing reinforcement.

PART SECTION NEAR RIGHT CURB BLOCKOUT

* Manufacturer's recommended embedment length (5" min.)

Detailed Oct. 2017
Checked Oct. 2017

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

STATE OF MISSOURI
ANOUSONE AROUNPRADITH
NUMBER PE-29317
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED	
11/14/2017	
ROUTE 54	STATE MO
DISTRICT BR	SHEET NO. 4
COUNTY COLE	
JOB NO. J5P3118	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO. A16723	

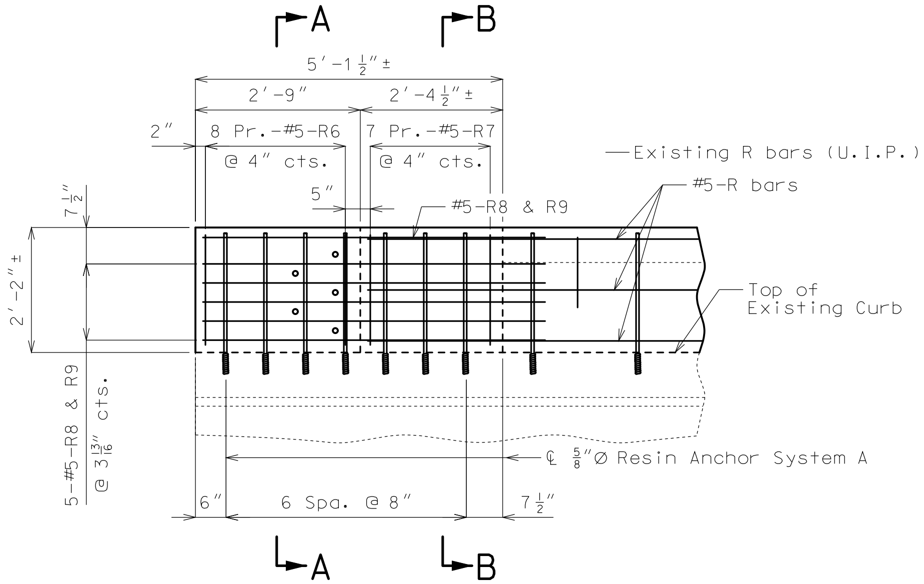
DESCRIPTION

DATE

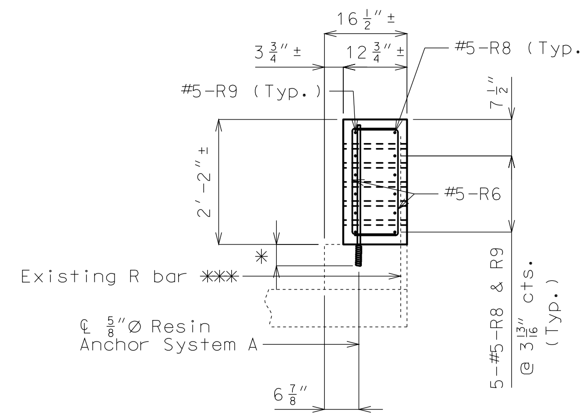
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

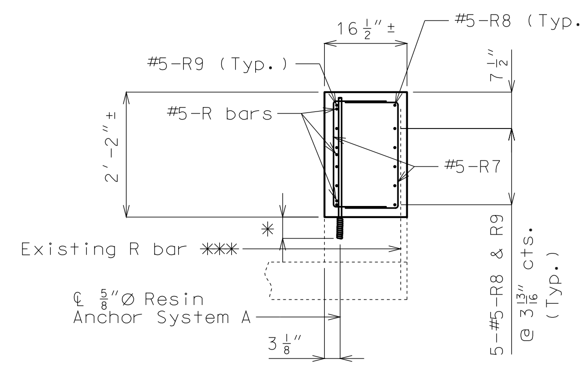
IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.



ELEVATION SHOWING END
POST REINFORCEMENT **

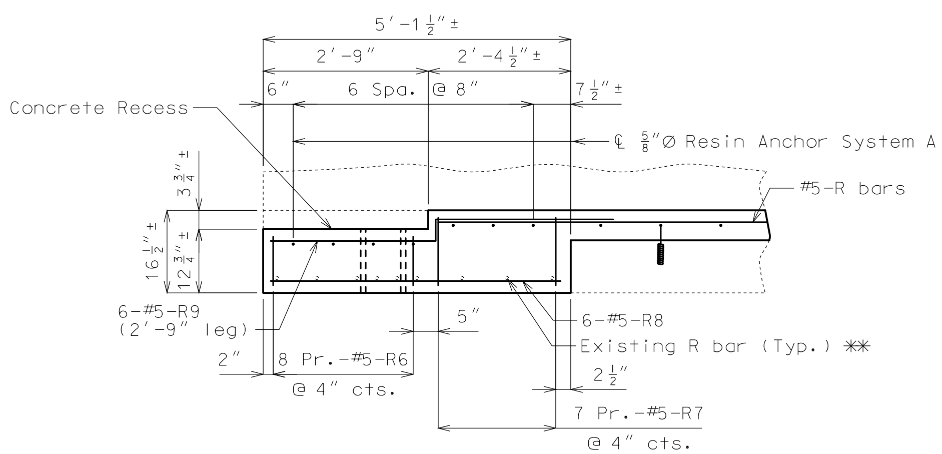


SECTION A-A **

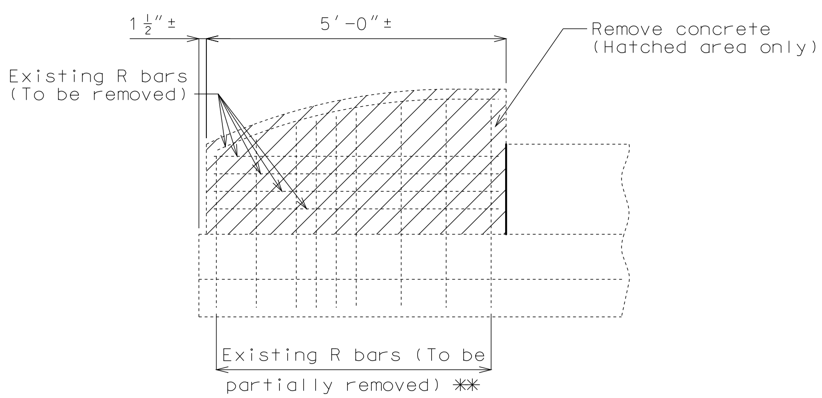


SECTION B-B

* Manufacturer's recommended
embedment length (5" min.)



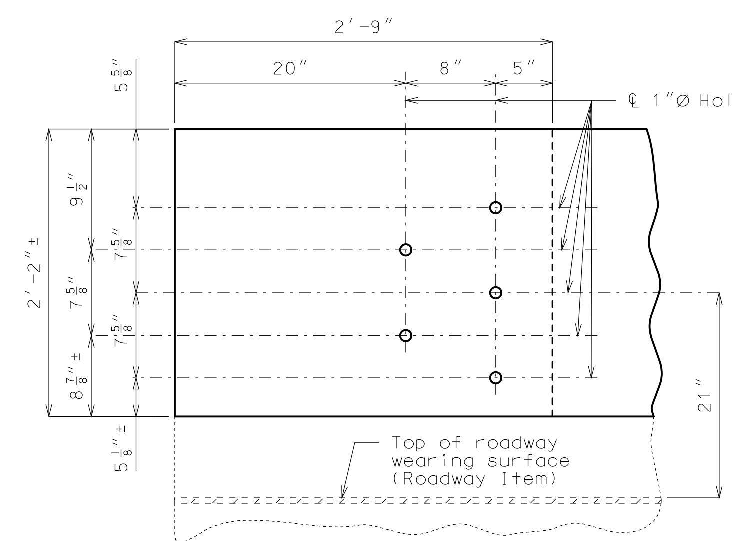
PLAN SHOWING END
POST REINFORCEMENT **



PART ELEVATION SHOWING END POST
CONCRETE REMOVAL

Note:

Cost of removing existing end posts will be considered completely covered by the contract unit price for Curb Blockout.



DETAILS OF GUARD RAIL
ATTACHMENT **

Notes:

All exposed edges of curb blockout shall have 1/2" radius or 3/8" bevel unless otherwise shown.

Use a minimum lap of 3'-1" for #5 horizontal curb blockout bars.

Payment for concrete, reinforcing steel, resin anchor systems, and any other work incidental to the curb blockout, complete in place, will be included in the contract unit price for Curb Blockout per linear foot.

Cost of any concrete curb or parapet repair will be included in the contract unit price for Curb Blockout.

Aluminum railing is not shown for clarity.

All reinforcement shall be epoxy coated.

Bars bonded in old concrete not removed shall be cleanly stripped and embedded into new concrete.

For Details and additional notes of Resin Anchors, see Sheet No. 1.

** Concrete recess and guardrail attachment holes not required for Westbound Approach at End Bent No. 1.

*** Vertical leg of existing R bar at the outside face shall be cleaned and reused. Horizontal leg and vertical leg at the roadway face shall be removed to one inch below concrete removal surface and the resulting holes shall be filled with a qualified special mortar.

DETAILS OF END POST AT END BENTS

Detailed Oct. 2017
Checked Oct. 2017

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

STATE OF MISSOURI
ANOUSONE AROUNPRADITH
NUMBER PE-29317
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED	11/14/2017
ROUTE	54
STATE	MO
DISTRICT	BR
SHEET NO.	5
COUNTY	COLE
JOB NO.	J5P3118
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	A16723

DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

MoDOT

105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

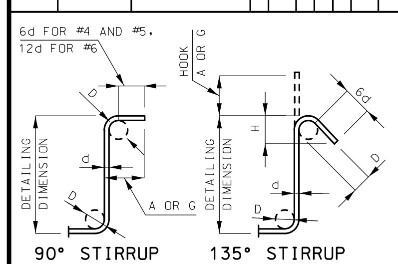
IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

BILL OF REINFORCING STEEL

NO. REQ'D.	MARK NO. SIZE	MARK NO. MARK	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	B FT. IN.	C FT. IN.	D FT. IN.	E FT. IN.	F FT. IN.	H FT. IN.	K FT. IN.	NOMINAL LENGTH FT.	NOMINAL LENGTH IN.	ACTUAL LENGTH FT.	ACTUAL LENGTH IN.	WEIGHT LBS.
			SAFETY																		
			BARRIER CURB																		
146	5	R1	BARRIER CURB	E	26					2 6.000	4.250	2 6.125			2 6.000	3.000	5	2	5	2	787
7	5	R2	BARRIER CURB	E	20					37 0.000							37	0	37	0	270
7	5	R3	BARRIER CURB	E	20					35 9.000							35	9	35	9	261
7	5	R4	BARRIER CURB	E	20					25 9.000							25	9	25	9	188
28	5	R5	BARRIER CURB	E	20					9 9.000							9	9	9	9	285
			CURB																		
			BLOCKOUT																		
32	5	R6	BLOCKOUT	E	10	S					9.750	23.000					3	7	3	4	111
28	5	R7	BLOCKOUT	E	10	S					13.500	23.000					4	2	4	0	117
12	5	R8	BLOCKOUT	E	20					4 10.000							4	10	4	10	60
12	5	R9	BLOCKOUT	E	28	S					2 9.000	3.750	3 3.000				6	4	6	1	76
12	5	R10	BLOCKOUT	E	20					9 9.000							9	9	9	9	122
3	5	R11	BLOCKOUT	E	20					38 4.000							38	4	38	4	120
3	5	R12	BLOCKOUT	E	20					35 9.000							35	9	35	9	112
3	5	R13	BLOCKOUT	E	20					27 3.000							27	3	27	3	85
			TOTALS																		
	5			E																	2594
			TOTAL																		0
			TOTAL	E																	2594
			Slab on																		
			Girder																		
	5			E																	803
			TOTAL																		803
			Safety																		
			Barrier																		
			Curb																		
	5			E																	1791
			TOTAL																		1791

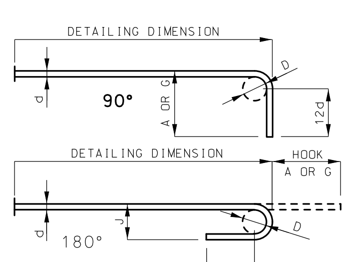
BILL OF REINFORCING STEEL

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



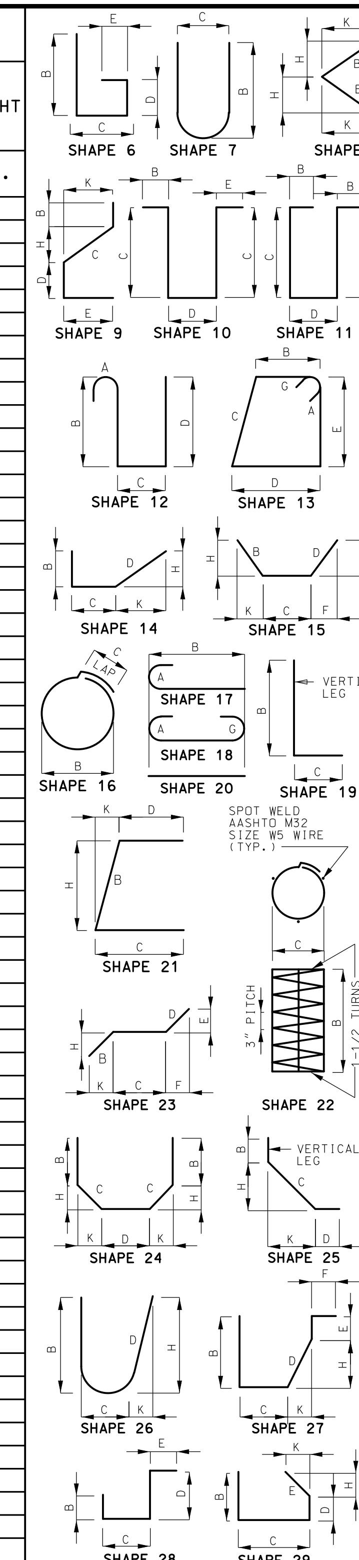
STIRRUP HOOK DIMENSIONS				
GRADES 40 - 50 - 60 KSI				
BAR SIZE	D (IN.)	90° HOOK	135° HOOK	
		HOOK A OR G	HOOK A OR G	APPROX. H
#4	2″	4 1/2″	4 1/2″	3″
#5	2 1/2″	6″	5 1/2″	3 3/4″
#6	4 1/2″	12″	8″	4 1/2″

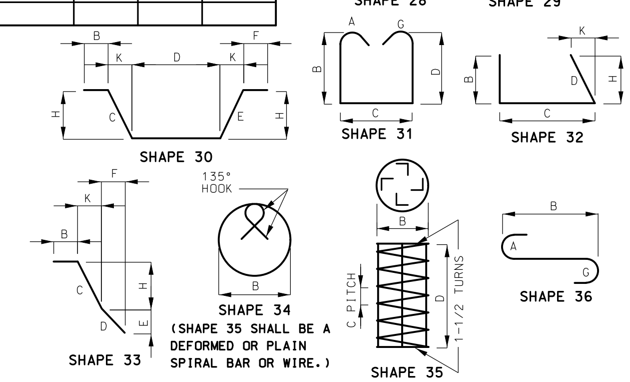
NOTE: UNLESS OTHERWISE NOTED, DIAMETER "D" IS THE SAME FOR ALL BENDS AND HOOKS ON A BAR.



END HOOK DIMENSIONS				
BAR SIZE	D (IN.)	ALL GRADES		
		180° HOOKS		90° HOOKS
		A OR G	J	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:
ALL STANDARD HOOKS AND BENDS OTHER THAN 180 DEGREE ARE TO BE BENT WITH SAME PROCEDURE AS FOR 90 DEGREE STANDARD 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.





BENDING DIAGRAMS

STATE OF MISSOURI
ANOUSONE AROUNPRADITH
NUMBER PE-29317
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED	11/14/2017
ROUTE	54
STATE	MO
DISTRICT	BR
SHEET NO.	6
COUNTY	COLE
JOB NO.	J5P3118
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	A16723

DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

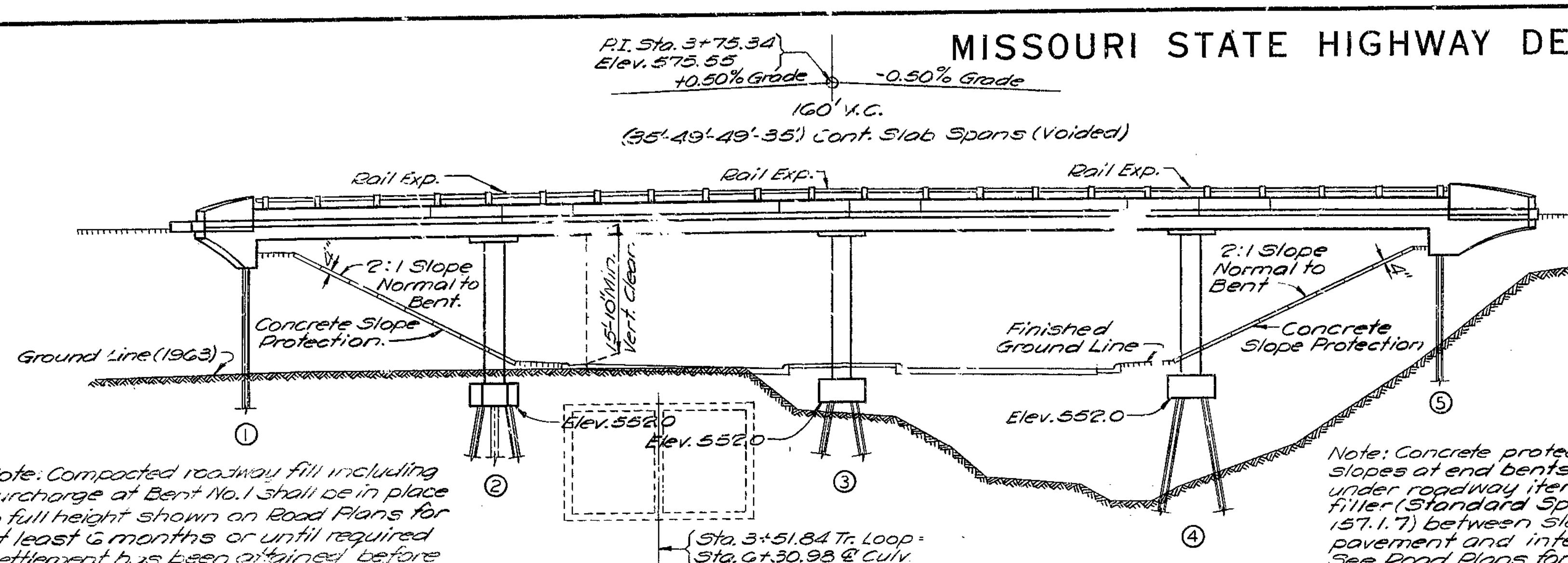
IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

Detailed Oct. 2017
Checked Oct. 2017

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

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	122	



GENERAL ELEVATION
(West Loop)

Note: Compacted roadway fill shall be placed up to finished roadway section before work is started on Bents No. 3 & 4, and up to elevation of bottom of beam at Bent No. 5 before steel piles are driven at bent No. 5.

Note: Compacted roadway fill including surcharge at Bent No. 1 shall be in place to full height shown on Road Plans for at least 6 months or until required settlement has been obtained before work is started on End Bent No. 1. See Special Provisions.

Note: Concrete protection on front slopes at end bents to be included under roadway items. Provide 1" filler (Standard Specification 157.1.7) between slope protection pavement and intermediate bents. See Road Plans for Limits.

GENERAL NOTES:

Design Specifications A.A.S.H.O.-1961
Loading H20-S16-44 (15#/sq. ft. Future Wearing Surface)
Steel Pile shall be A.S.T.M. A36-62T
Reinforcing Steel Stress 20,000 psi.
Concrete, Class B Stress 1,200 psi.
Concrete, Class B1 Stress 1,600 psi.
Superstructure concrete shall be Class B1.
Substructure concrete shall be Class B or Class B1 except payment will be on the basis of Class B.
Superstructure deck to be surface sealed. (See Special Provisions.)

Where joint filler is specified on the plans it shall conform to Standard Specification 157.2.4.
See Standard Specification 55.3.13 for qualification of welding operators.

Note: The estimated quantity of 10" steel piles in place includes 8 estimated splices at 8'-0" per splice.
Steel Pile authorized in lengths greater than 65' may be furnished in two pieces for field splicing and these splices, if made, will be paid for in accordance with Standard Specification 52.6.5.
All piling shall be driven with an approved power hammer developing an energy of not less than 19,000 ft. lbs. and having a ram weighing not less than 4800 lbs.

PILE DATA

BENT NO.	1	2	3	4	5
Pile Type and Size	10BP42	10BP42	10BP42	10BP42	10BP42
Number	8	10	8	8	5
Approximate Length Ft.	80	55	45	20	20
Plan Bearing Tons	30	48	45	43	33
Min. Required Brg. Tons	55	55	55	55	55
Hammer	Heavy Power	Heavy Power	Heavy Power	Heavy Power	Heavy Power

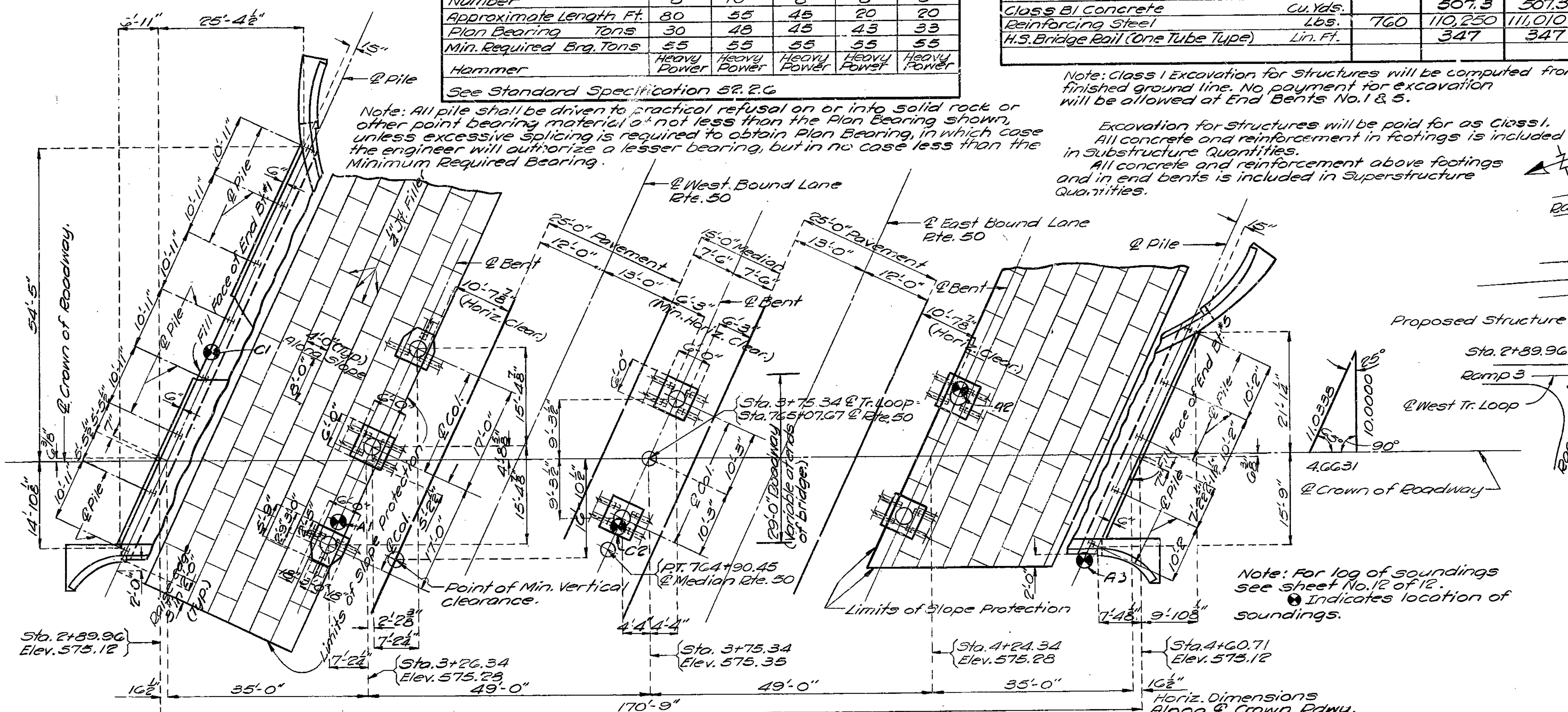
See Standard Specification 52.2.6

ESTIMATED QUANTITIES

Item		Substr.	Superstr.	Total
Class I Excavation for Structures	Cu. Yds.	125		125
Steel Piles in Place (10")	Lin. Ft.	1757		1757
Steel Pile Cut-offs (10")	Lin. Ft.	117		117
Class B Concrete	Cu. Yds.	26.8		26.8
Class B1 Concrete	Cu. Yds.		507.3	507.3
Reinforcing Steel	Lbs.	760	110,250	111,010
H.S. Bridge Rail (One Tube Type)	Lin. Ft.		347	347

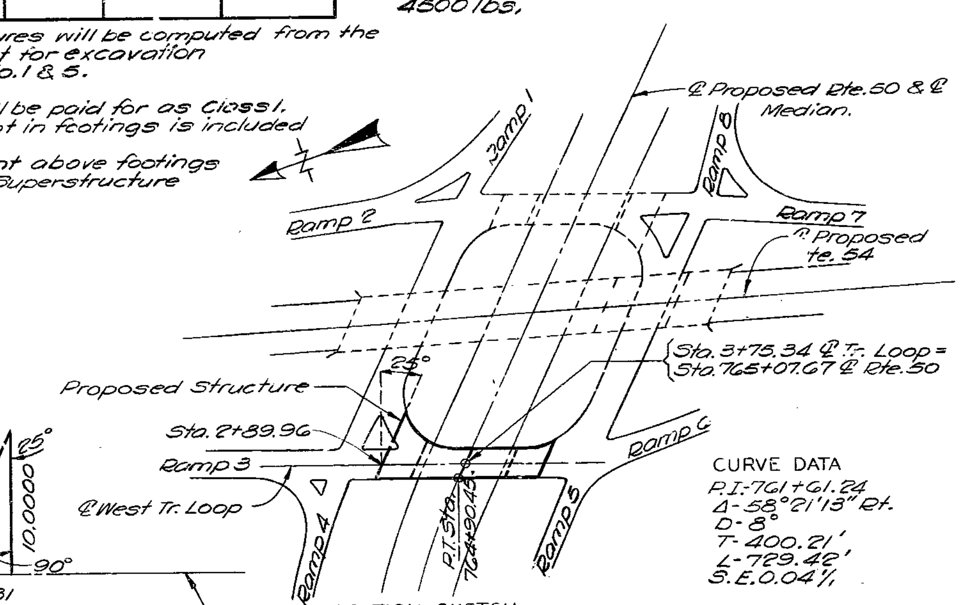
Note: Class I Excavation for Structures will be computed from the finished ground line. No payment for excavation will be allowed at End Bents No. 1 & 5.
Excavation for Structures will be paid for as Class I.
All concrete and reinforcement in footings is included in Substructure Quantities.
All concrete and reinforcement above footings and in end bents is included in Superstructure Quantities.

Note: All pile shall be driven to practical refusal on or into solid rock or other point bearing material at not less than the Plan Bearing shown, unless excessive splicing is required to obtain Plan Bearing, in which case the engineer will authorize a lesser bearing, but in no case less than the Minimum Required Bearing.



PLAN
(West Loop)

Note: For log of soundings see sheet No. 12 of 12.
● Indicates location of soundings.



LOCATION SKETCH

CURVE DATA
P.I. 761+61.24
Δ-58°21'13" Rt.
D-8°
T-400.21'
L-729.42'
S.E. 0.04'/'

B.M. Elev. 551.37 □ on S. End of W. Hdwall Culv. under Bolivar St. (U.S.G.S. Datum.)

BRIDGE: WEST TRAFFIC LOOP UNDERPASS

STATE ROAD ROUTE 50 RELOCATION IN JEFFERSON CITY

PROJECT NO. RTE. 50-SEC. 26(2) U STA. 765+07.67

COLE COUNTY

SUBMITTED BY D.B. Jenkins BRIDGE ENGINEER DATE 9/25/64

APPROVED BY M.J. Snider CHIEF ENGINEER DATE 9/25/64

STD. 54.00

A-1418

DESIGNED April 1964 BY Storslett
DETAILED JULY 1964 BY H. MILLER
CHECKED AUG. 1964 BY Nowicki

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

Sheet No. 1 of 12.

260

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	123	

MISSOURI STATE HIGHWAY DEPARTMENT

COMPLETE BILL OF REINFORCING STEEL

	No.	Size	Length	Mark	Location
	Superstructure End Bt. #1				
*	5	#8	15'-9"	C16	Wing Curb
*	2	#6	15'-9"	C17	" "
*	3	#6	13'-0"	C18	" "
*	4	#6	12'-3"	C19	" "
*	4	#6	5'-6"	C20	" "
	24	#6	40'-6"	H1	Beam
*	1	#6	15'-9	H2	Wing
*	1	#6	13'-0"	H3	"
*	1	#6	10'-0"	H4	"
*	1	#6	7'-0"	H5	"
*	2	#6	5'-3"	H6	"
*	1	#6	3'-9"	H7	"
*	3	#6	17'-9"	H8	"
*	1	#6	16'-3"	H9	"
*	1	#6	14'-0"	H10	"
*	1	[illegible]	11'-9"	H11	"
*	1	#6	10'-0"	H12	"
*	1	#6	11'-0"	H14	"
*	1	#6	8'-6"	H15	"
*	1	#6	6'-0"	H16	"
*	1	#6	3'-6"	H17	"
	4	#6	12'-3"	H22	"
	1	#6	11'-0"	H23	"
	1	#6	8'-6"	H24	"
	1	#6	6'-6"	H25	"
*	2	#6	6'-0"	H26	"
*	1	#6	4'-3"	H27	"
	4	#6	10'-0"	H28	Beam
	8	#5	8'-9"	R1	End Post
	3	#5	8'-3"	R2	" "
	2	#5	8'-0"	R3	" "
	6	#5	7'-9"	R4	" "
	2	#5	7'-3"	R6	" "
	2	#5	7'-0"	R7	" "
	2	#5	6'-6"	R8	" "
	1	#5	6'-3"	R9	" "
*	3	#5	12'-0"	R10	" "
*	3	#5	12'-6"	R11	" "
*	1	#5	10'-3"	R13	" "
*	1	#5	11'-3"	R14	" "
*	1	#5	5'-9"	R15	" "
*	1	#5	6'-9"	R16	" "
*	2	#5	10'-3"	R17	" "
*	2	#5	11'-3"	R18	" "
	2	#5	6'-9"	R19	Wing Curb
	1	#5	5'-3"	R20	" "
	1	#5	4'-3"	R21	" "
*	1	#5	7'-0"	R22	End Post
*	1	#5	7'-6"	R23	" "
	1	#5	3'-9"	R24	Wing Curb
	2	#5	3'-6"	R25	" "
	2	#5	3'-3"	R26	" "
	2	#5	3'-0"	R27	" "
	2	#5	2'-9"	R28	" "
	3	#5	2'-6"	R29	" "
	8	#5	2'-3"	R30	" "
	91	#6	8'-3"	S37	Beam
	81	#4	2'-0"	S47	App. Hch.
	1	#4	31'-3"	S48	" "

No.	Size	Length	Mark	Location
Superstructure End Bt. #1 Cont.				
1	#4	28'-9"	S49	App. Hch.
1	#6	18'-0"	T3	Wing *
1	#6	19'-6"	T4	" *
1	#6	13'-3"	T7	" *
1	#6	14'-3"	T8	" *
154	#5	9'-0"	U1	Beam
2	#5	8'-3"	U2	"
2	#5	8'-0"	U3	"
2	#5	7'-6"	U4	"
5	#5	8'-0"	V1	Wing
6	#5	5'-6"	V2	"
2	#5	2'-3"	V3	"
1	#5	2'-9"	V4	"
4	#5	8'-9"	V5	"
3	#5	3'-0"	V6	"
2	#5	5'-9"	V7	"
3	#5	9'-0"	V8	"
2	#5	3'-6"	V9	"
4	#5	7'-6"	V10	"
1	#5	5'-6"	V11	"
Superstructure Int. Bt. #2				
5	#6	10'-6"	G1	Beam
5	#11	12'-0"	G2	"
5	#7	11'-9"	G3	"
6	#10	47'-6"	G4	"
9	#9	44'-6"	G5	"
54	#3	8'-0"	P1	Column
96	#5	9'-6"	U5	Beam
24	#9	20'-9"	V13	Column
Substructure Int. Bt. #2				
24	#5	3'-6"	D1	Ftg.
8	#6	7'-9"	D2	"
12	#6	7'-0"	D3	"
Superstructure Int. Bts. #3 & #4				
12	#10	39'-6"	G6	Beam
20	#14S	15'-3"	G7	"
20	#11	36'-3"	G8	"
72	#3	8'-0"	P1	Column
176	#5	9'-6"	U5	Beam
32	#9	21'-0"	V14	Column
Substructure Int. Bts. #3 & #4				
32	#5	3'-6"	D1	Ftg.
32	#5	7'-0"	D3	"
Superstructure End Bt. #5				
5	#8	15'-9"	C16	Wing Curb *
2	#6	15'-9"	C17	" " *
3	#6	13'-0"	C18	" " *
4	#6	12'-3"	C19	" " *

No.	Size	Length	Mark	Location
Superstructure End Bt. #5 Cont.				
4	#6	5'-6"	C20	Wing Curb *
1	#6	15'-9"	H2	Wing *
1	#6	13'-0"	H3	" *
1	#6	10'-0"	H4	" *
1	#6	7'-0"	H5	" *
2	#6	5'-3"	H6	" *
1	#6	3'-9"	H7	" *
3	#6	17'-9"	H8	" *
1	#6	16'-3"	H9	" *
1	#6	14'-0"	H10	" *
1	#6	11'-9"	H11	" *
1	#6	10'-3"	H12	" *
24	#6	24'-0"	H13	Beam
1	#6	12'-6"	H18	Wing *
1	#6	10'-0"	H19	" *
1	#6	7'-6"	H20	" *
1	#6	5'-0"	H21	" *
4	#6	12'-3"	H22	"
1	#6	11'-0"	H23	"
1	#6	8'-6"	H24	"
1	#6	6'-6"	H25	"
2	#6	6'-0"	H26	" *
1	#6	4'-3"	H27	" *
4	#6	10'-0"	H28	Beam
8	#5	8'-9"	R1	End Post
3	#5	8'-3"	R2	" "
2	#5	8'-0"	R3	" "
6	#5	7'-9"	R4	" "
2	#5	7'-3"	R6	" "
2	#5	7'-0"	R7	" "
2	#5	6'-6"	R8	" "
1	#5	6'-3"	R9	" "
3	#5	12'-0"	R10	" " *
3	#5	12'-6"	R11	" " *
1	#5	10'-3"	R13	" " *
1	#5	11'-3"	R14	" " *
1	#5	5'-9"	R15	" " *
1	#5	6'-9"	R16	" " *
2	#5	10'-3"	R17	" " *
2	#5	11'-3"	R18	" " *
2	#5	6'-9"	R19	Wing Curb
1	#5	5'-3"	R20	" "
1	#5	4'-3"	R21	" "
1	#5	7'-0"	R22	End Post *
1	#5	7'-6"	R23	" " *
1	#5	3'-9"	R24	Wing Curb
2	#5	3'-6"	R25	" "
2	#5	3'-3"	R26	" "
2	#5	3'-0"	R27	" "
2	#5	2'-9"	R28	" "
3	#5	2'-6"	R29	" "
8	#5	2'-3"	R30	Beam
51	#6	8'-3"	S37	Beam
53	#4	2'-0"	S47	App. Hch.
2	#4	20'-6"	S50	" "
1	#6	18'-0"	T1	Wing *
1	#6	19'-6"	T2	" *
1	#6	15'-3"	T5	" *

No.	Size	Length	Mark	Location
Superstructure End Bt. #5 Cont.				
1	#6	15'-9"	T6	Wing *
88	#5	9'-0"	U1	Beam
5	#5	8'-0"	V1	Wing
6	#5	5'-6"	V2	"
2	#5	2'-3"	V3	"
1	#5	2'-9"	V4	"
4	#5	8'-9"	V5	"
3	#5	3'-0"	V6	"
2	#5	5'-9"	V7	"
3	#5	9'-0"	V8	"
2	#5	3'-6"	V9	"
4	#5	7'-6"	V10	"
1	#5	5'-6"	V11	"
1	#5	[illegible]	V12	"
Superstructure				
392	#5	36'-9"	S1	Slab
110	#5	20'-9"	S2	"
90	#5	26'-0"	S3	"
48	#11	16'-0"	S4	"
46	#9	23'-3"	S5	"
48	#9	26'-6"	S6	"
22	#10	15'-0"	S7	"
22	#10	23'-6"	S8	"
23	#10	29'-0"	S9	"
5	#5	31'-9"	S10	"
5	#5	16'-6"	S11	"
2	#5	7'-3"	S12	"
6	#5	25'-3"	S13	"
2	#5	43'-0"	S14	"
5	#5	29'-9"	S15	"
5	#5	13'-0"	S16	"
4	#5	35'-9"	S17	"
9	#5	11'-6"	S18	Slab
46	[illegible]	19'-3"	S19	Slab
9	#11	18'-0"	S20 ①	
1	#5	18'-3"	S21	Slab
9	#5	20'-0"	S22	"
10	#5	26'-3"	S23	"
49	#8	41'-3"	S24	"
48	#9	27'-0"	S25	"
48	#9	19'-6"	S26	"
10	#8	62'-6"	S27	"
10	#8	34'-3"	S28	"
12	#8	14'-0"	S29	"
5	#11	39'-0"	S30 ②	"
4	#11	19'-9"	S31 ②	
1	#5	24'-9"	S32	Slab
4	#5	17'-6"	S33	"
46	#9	47'-0"	S34	Slab
44	#9	31'-3"	S35	"
44	#9	22'-0"	S36	"
4	#5	22'-3"	S38	Slab
4	#8	22'-3"	S39	Slab
6	#4	19'-3"	S40	Tr. Island
2	#4	3'-3"	S41	"
2	#4	5'-9"	S42	"
2	#4	7'-6"	S43	"
2	#4	9'-6"	S44	"
2	#4	11'-9"	S45	"

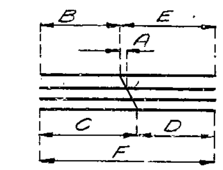
No.	Size	Length	Mark	Location
Superstructure Cont.				
3	#4	13'-0"	S46	Tr. Island
349	#5	5'-0"	C1	Curb
419	#5	5'-6"	C2	Parapet
6	#5	21'-3"	C3	Curb
6	#5	23'-6"	C4	"
18	#5	25'-3"	C5	"
6	#5	21'-9"	C6	"
4	#5	30'-9"	C7	Parapet
48	#5	9'-9"	C8	"
4	#5	25'-6"	C9	"
12	#5	28'-9"	C10	"
4	#5	32'-3"	C11	"
8	#5	25'-0"	C13	Curb
12	#5	18'-3"	C15	"

*= Bend in Field

① See sheet 10 of 12 for bending sketch.

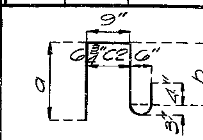
② See sheet 8 of 12 for bending sketches.

BENDING SKETCHES & CUTTING DIAGRAMS

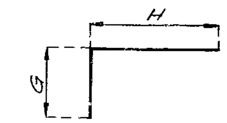


Ⓧ Bend as Shown.

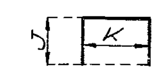
CUTTING SCHEDULE						
Remarks	A	B	C	D	E	F
5-S10-Cut-5	10½"	11'-11¼"	15'-5¼"	16'-3¾"	19'-9¾"	31'-9"
5-S11-Cut-5	8"	5'-3"	7'-11"	8'-7"	11'-3"	16'-6"
2-S12-Cut-2	7"	2'-9"	3'-4"	3'-11"	4'-6"	7'-3"
6-S13-Cut-6	16"	5'-3½"	11'-11½"	13'-3½"	19'-11½"	25'-3"
2-S14-Cut-2	12"	20'-0"	21'-0"	22'-0"	23'-0"	43'-0"
5-S15-Cut-5	11"	10'-9"	14'-5"	15'-4"	19'-0"	29'-9"
5-S16-Cut-5	8"	3'-6"	6'-2"	6'-10"	9'-6"	13'-0"
4-S17-Cut-4	6½"	15'-11¾"	17'-7¼"	18'-1¾"	19'-9¼"	35'-9"
9-S18-Cut-9	3½"	3'-3¼"	5'-7¼"	5'-10¾"	8'-2¾"	11'-6"
9-S22-Cut-9	10½"	2'-6¾"	9'-6¾"	10'-5¼"	17'-5¼"	20'-0"
10-S23-Cut-10	7"	7'-7"	12'-10"	13'-5"	18'-8"	26'-3"
10-S27-Cut-10	10½"	22'-11¼"	30'-9¾"	31'-8¼"	39'-6¾"	62'-6"
10-S28-Cut-10	6½"	11'-11¾"	16'-10¼"	17'-4¾"	22'-3¼"	34'-3"
12-S29-Cut-12	4¾"	2'-5⅜"	6'-9⅝"	7'-2⅜"	11'-6⅝"	14'-0"
4-S33-Cut-4	6"	7'-0"	8'-6"	9'-0"	10'-6"	17'-6"
Ⓧ 6-S40-Cut-6	13"	3'-8"	9'-1"	10'-2"	15'-7"	19'-3"
5-V1-Cut-10	3⅞"	2'-6½"	3'-10"	4'-2"	5'-5½"	8'-0"
4-V5-Cut-8	3¾"	3'-3⅜"	4'-2⅝"	4'-6⅜"	5'-5⅝"	8'-9"
2-V7-Cut-4	4⅜"	2'-4"	2'-8⅜"	3'-0⅝"	3'-5"	5'-9"
3-V8-Cut-6	4¾"	3'-7"	4'-3¾"	4'-8¼"	5'-5"	9'-0"
4-V10-Cut-8	4⅜"	2'-4⅜"	3'-6⅝"	3'-11⅜"	5'-1⅝"	7'-6



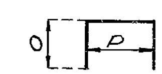
Mark	a	b
C2	2'-0⅜"	21½"
R1	3'-6⅜"	3'-4½"
R2	3'-3⅛"	3'-1½"
R3	3'-1⅝"	3'-0"
R4	3'-0⅜"	2'-10½"
R6	2'-9⅞"	2'-6¾"
R7	2'-8⅜"	2'-5½"
R8	2'-5⅜"	2'-2½"
R9	2'-4⅝"	2'-0"



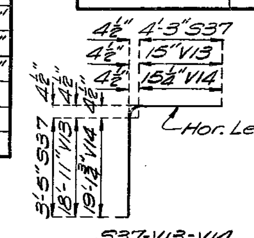
Mark	G	H
H8	2'-11"	14'-10"
H9	2'-8"	13'-7"
H10	2'-5"	11'-7"
H11	2'-3"	9'-6"
H12	2'-2"	7'-10"
H22	4'-3"	8'-0"
H23	3'-8"	7'-4"
H24	2'-10"	5'-8"
H25	2'-4"	4'-2"
S47	6"	18"



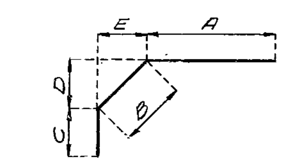
Mark	J	K
D2	3'-3"	15"
D3	3'-0"	12"
C1	18⅜"	23¼"
U1	3'-4¾"	2'-2½"
U2	3'-3¾"	19½"
U3	3'-3¾"	16½"
U4	3'-3"	2'-0"



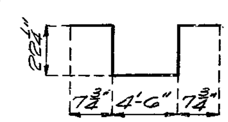
Mark	O	P
S40	6"	Varies
S41	5½"	2'-4"
S42	5½"	4'-10"
S43	5½"	6'-7"
S44	5½"	8'-7"
S45	5½"	10'-10"
S46	5½"	12'-1"



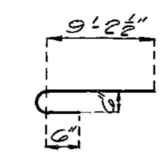
S37-V13-V14



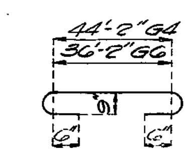
Mark	A	B	C	D	E
T1	4'-10¼"	11'-1¾"	2'-0"	3'-5⅛"	10'-7¼"
T2	5'-11¼"	11'-6¾"	2'-0"	3'-6⅝"	11'-0½"
T3	5'-0"	11'-0"	2'-0"	3'-3⅛"	10'-6⅛"
T4	6'-0"	11'-6"	2'-0"	3'-3¼"	11'-0¼"
T5	3'-5½"	9'-9½"	2'-0"	3'-4¼"	9'-2⅜"
T6	3'-3"	10'-6"	2'-0"	3'-7⅜"	9'-10⅜"
T7	17¼"	9'-9¼"	2'-0"	3'-4⅛"	9'-2⅛"
T8	19¾"	10'-7¼"	2'-0"	3'-7⅝"	9'-11½"



U5



G1



G4-G6

P1

BRIDGE: WEST TRAFFIC LOOP UNDERPASS

STATE ROAD ROUTE 50 RELOCATION
IN JEFFERSON CITY

PROJECT NO. RTE. 50-SEC. 26 (2) U **STA.** 765+07.67

COLE **COUNTY**

DETAILED JULY 1964 BY H. MILLER

CHECKED AUG. 1964 BY Nowicki & Little

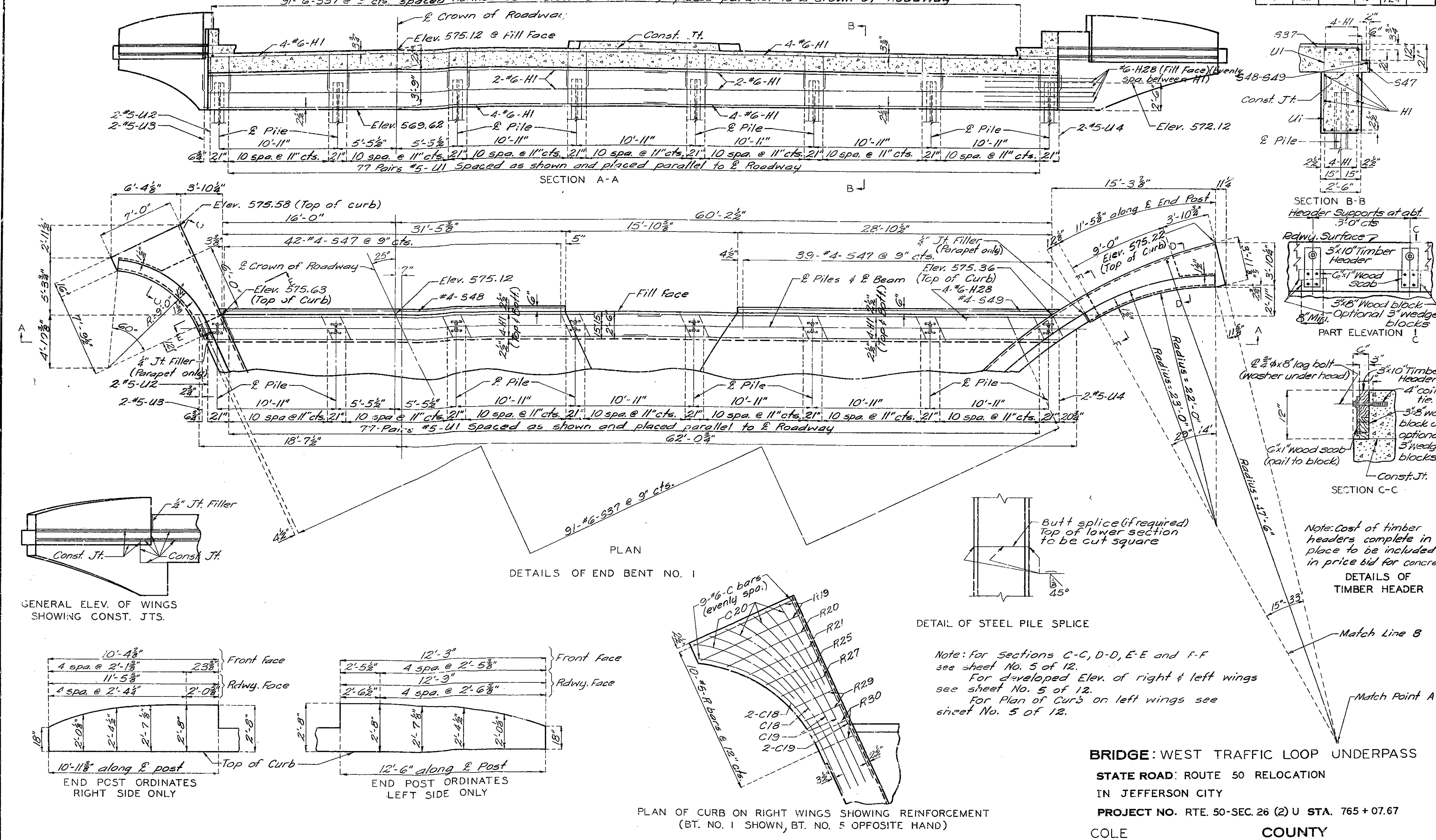
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 2 of 12.

A-1418

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	124	



BRIDGE: WEST TRAFFIC LOOP UNDERPASS

STATE ROAD: ROUTE 50 RELOCATION

IN JEFFERSON CITY

PROJECT NO. RTE. 50-SEC. 26 (2) U **STA.** 765 + 07.67

COLE **COUNTY**

A-1418

DETAILED JUL. 1964 BY BRADLEY
CHECKED AUG. 1964 BY Nowicki

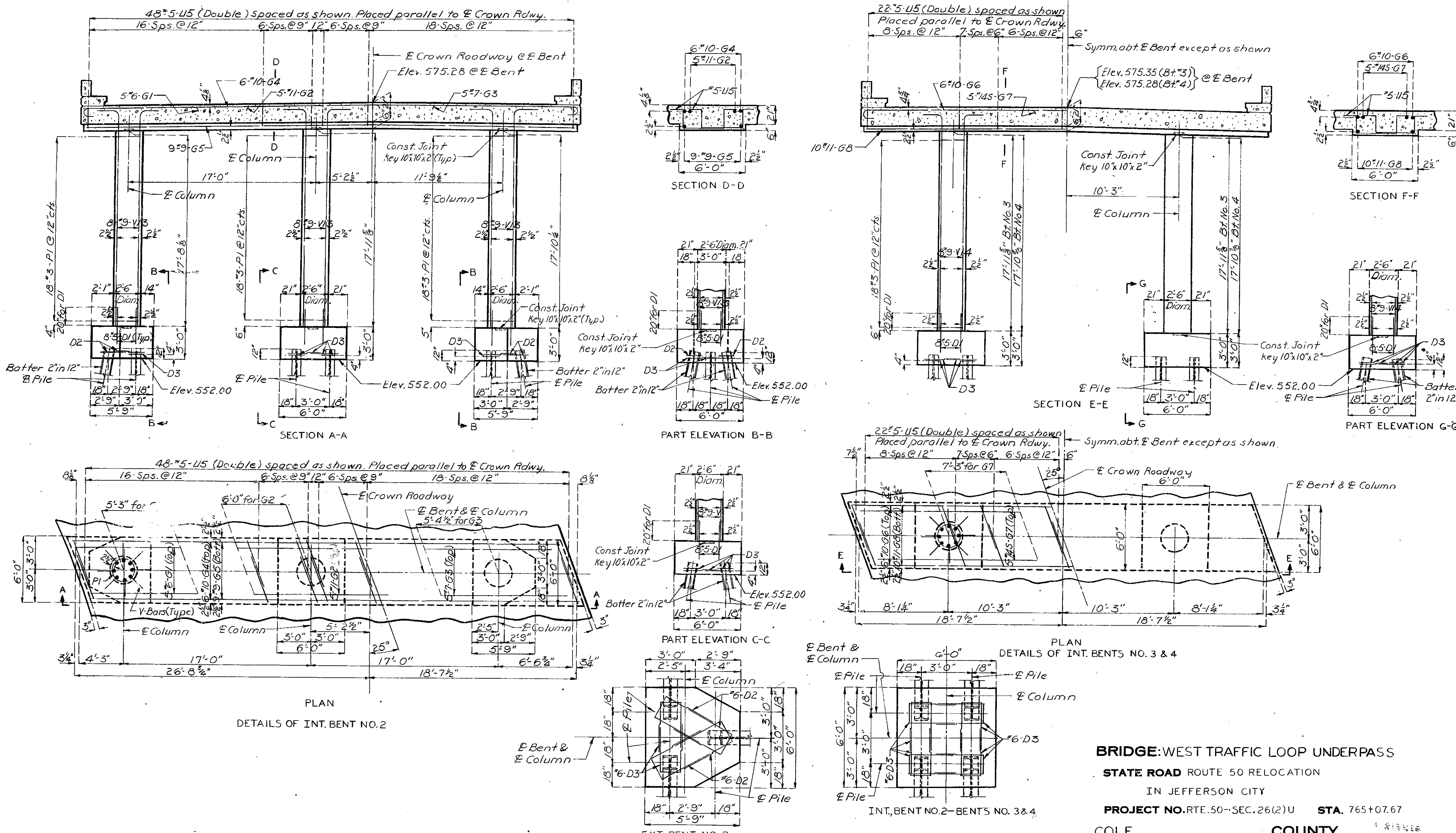
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 3 of 12.

262

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	125	



BRIDGE: WEST TRAFFIC LOOP UNDERPASS

STATE ROAD ROUTE 50 RELOCATION

IN JEFFERSON CITY

PROJECT NO. RTE. 50 – SEC. 26(2)U **STA.** 765+07.67

COLE **COUNTY**

DETAILED JUNE 1964 BY STUTTE
CHECKED Aug. 1964 BY LITTLE

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

Sheet No. 4 of 12.

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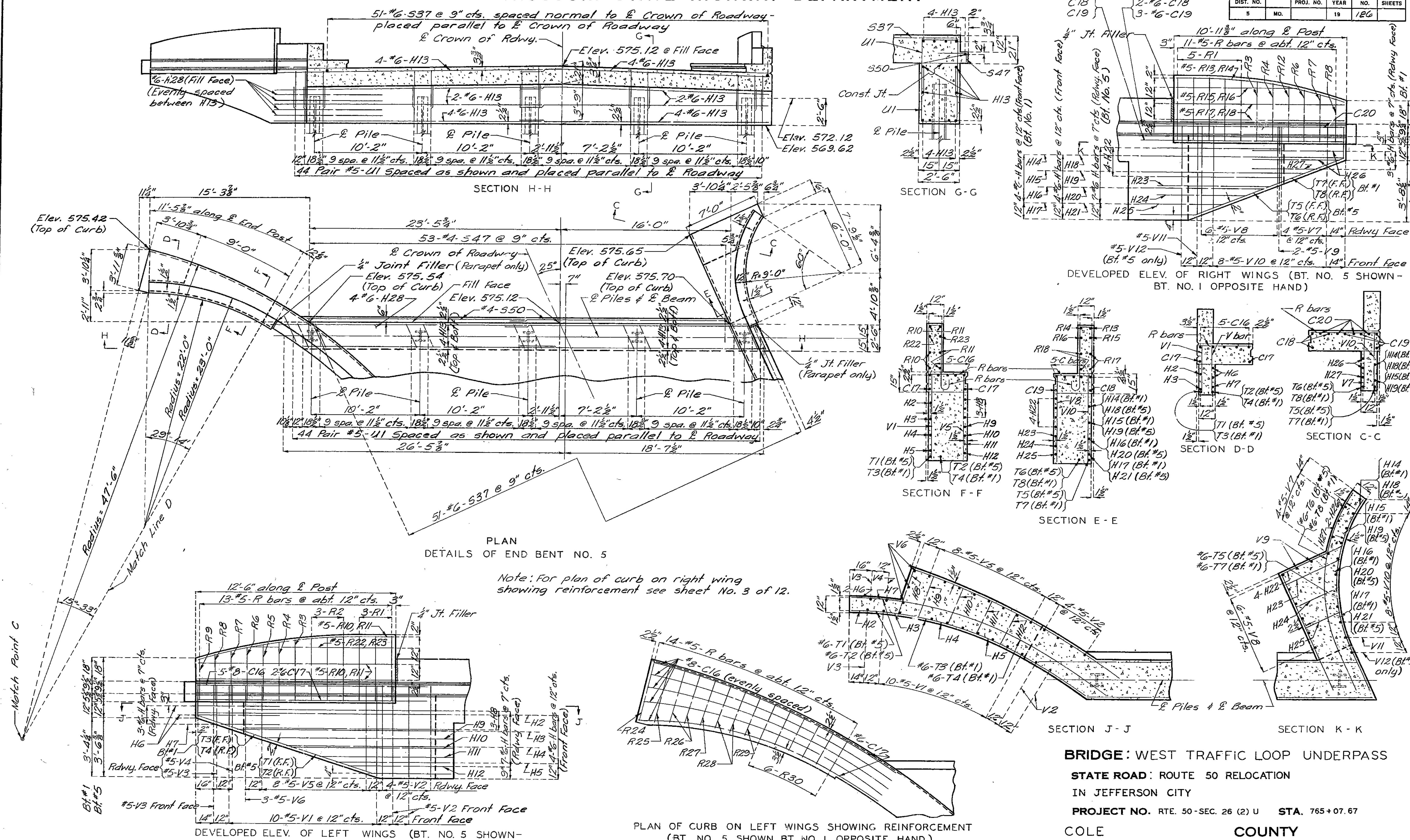
NO CONSTRUCTION CHANGES

264

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	186	



BRIDGE: WEST TRAFFIC LOOP UNDERPASS

STATE ROAD: ROUTE 50 RELOCATION

IN JEFFERSON CITY

PROJECT NO. RTE. 50-SEC. 26 (2) U **STA.** 765+07.67

COLE **COUNTY**

DETAILED JUL. 1964 BY BRADLEY

CHECKED AUG. 1964 BY Nowicki

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

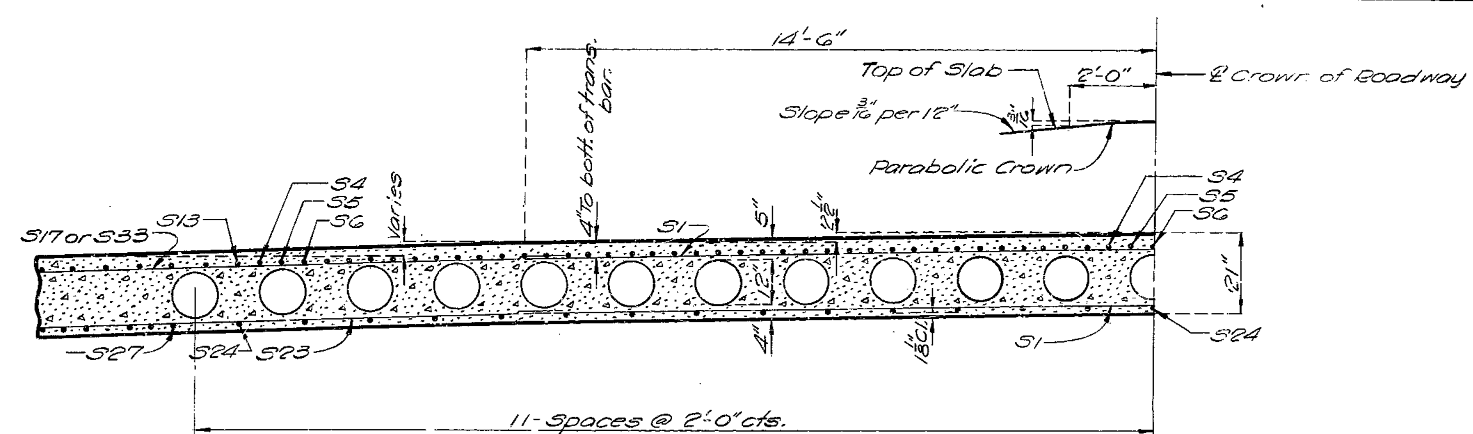
Sheet No. 5 of 12.

A-1418

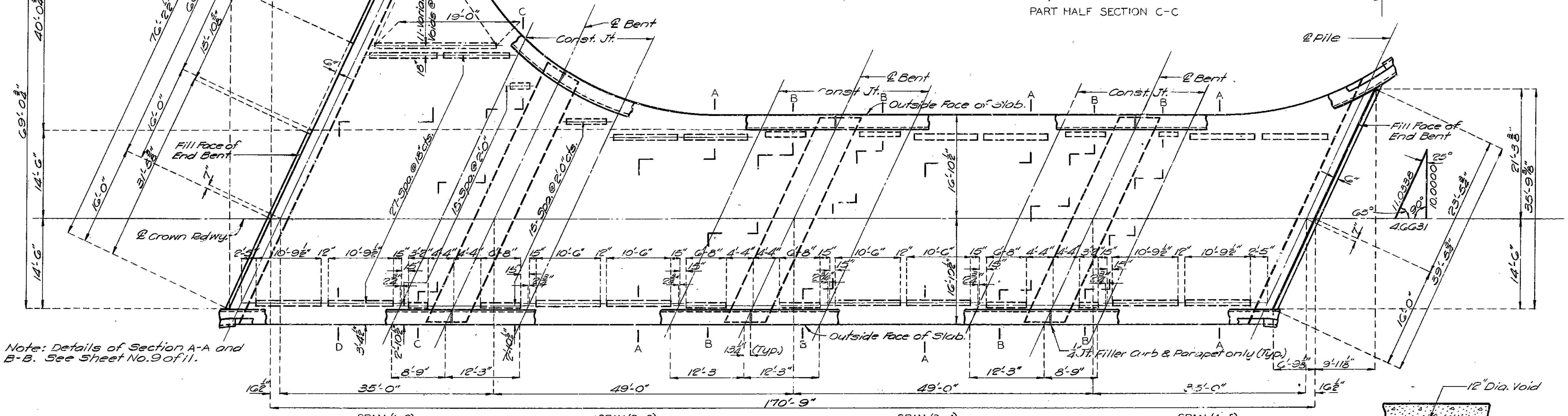
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	127	

Note: All longitudinal dimensions are horizontal.



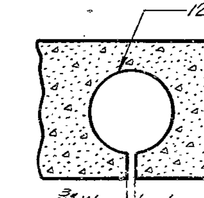
PART HALF SECTION C-C



Note: Details of Section A-A and B-B. See Sheet No. 9 of 11.

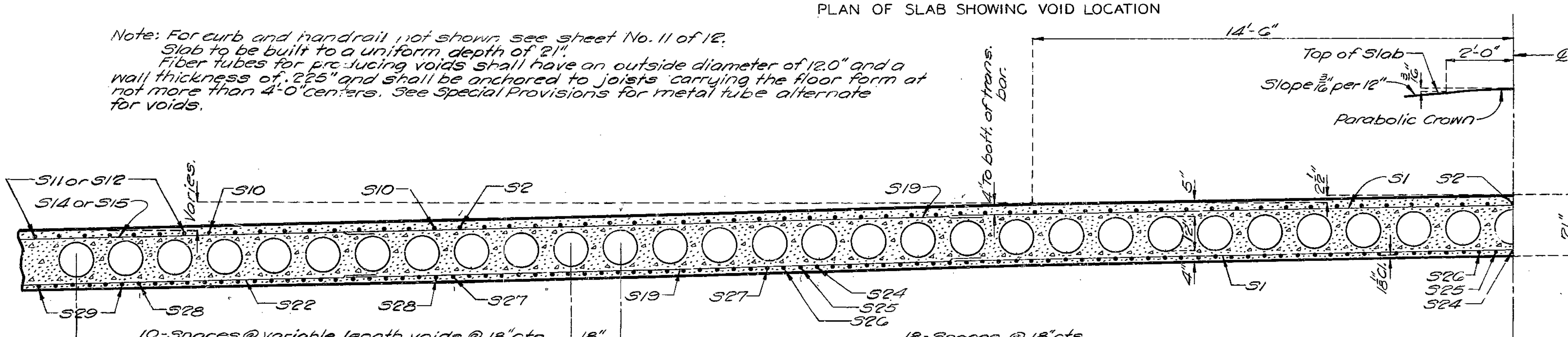
PLAN OF SLAB SHOWING VOID LOCATION

Note: For curb and handrail not shown, see sheet No. 11 of 12.
Slab to be built to a uniform depth of 21".
Fiber tubes for producing voids shall have an outside diameter of 12.0" and a wall thickness of .225" 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.



Note: One 3/4" weephole shall be provided near each end of each void. Weepholes shall be placed in straight lines parallel to bents.

DETAIL OF WEEPHOLE IN VOIDS



PART HALF SECTION D-D

BRIDGE: WEST TRAFFIC LOOP UNDERPASS

STATE ROAD ROUTE 50 RELOCATION IN JEFFERSON CITY

PROJECT NO. RTE. 50-SEC. 26 (2) U **STA.** 765+07.67

COLE **COUNTY**

DETAILED MAY 1964 BY H. MILLER
CHECKED AUG. 1964 BY NOWICKI

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

Sheet No. 6 of 12.

A-1418

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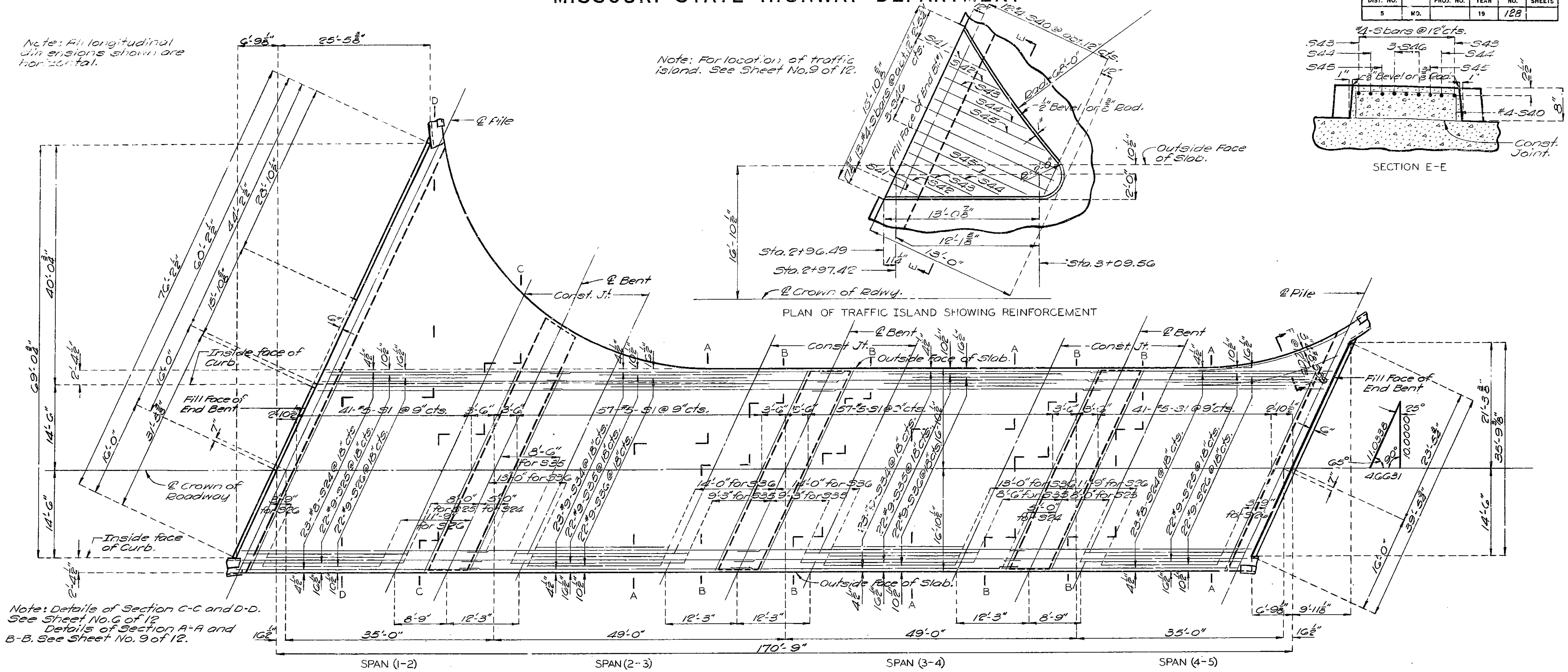
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	128	

Note: All longitudinal dimensions shown are horizontal.

Note: For location of traffic island. See Sheet No. 9 of 12.



SECTION E-E

PLAN OF TRAFFIC ISLAND SHOWING REINFORCEMENT

Note: Details of Section C-C and D-D. See Sheet No. 6 of 12. Details of Section A-A and B-B. See Sheet No. 9 of 12.

PLAN OF SLAB SHOWING BOTTOM REINFORCEMENT

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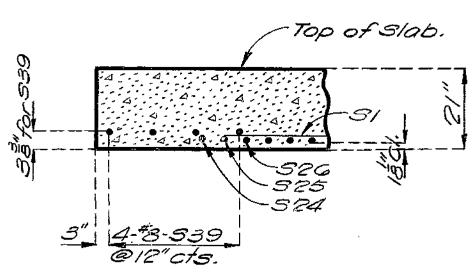
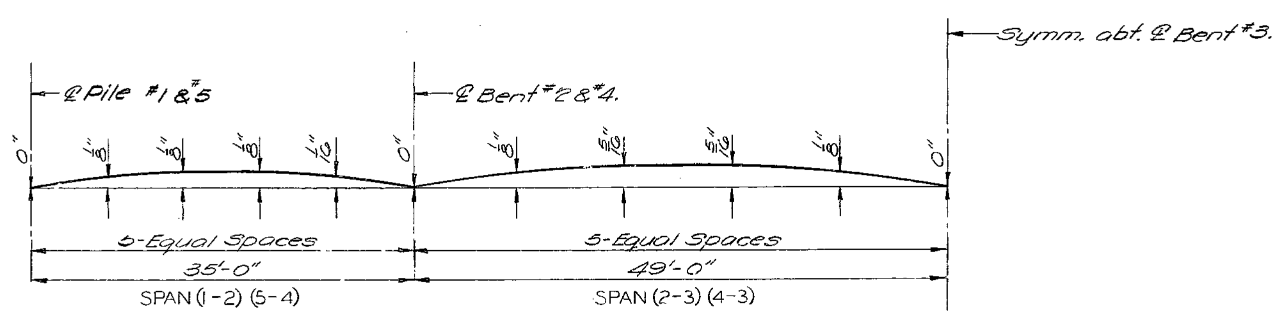


SECTION F-F

Note: Curb and Parapet not shown.



CAMBER DIAGRAM

BRIDGE: WEST TRAFFIC LOOP UNDERPASS

STATE ROAD ROUTE 50 RELOCATION IN JEFFERSON CITY

PROJECT NO. RTE. 50-SEC. 26 (2) U **STA.** 765+07.67

COLE **COUNTY**

A-1418

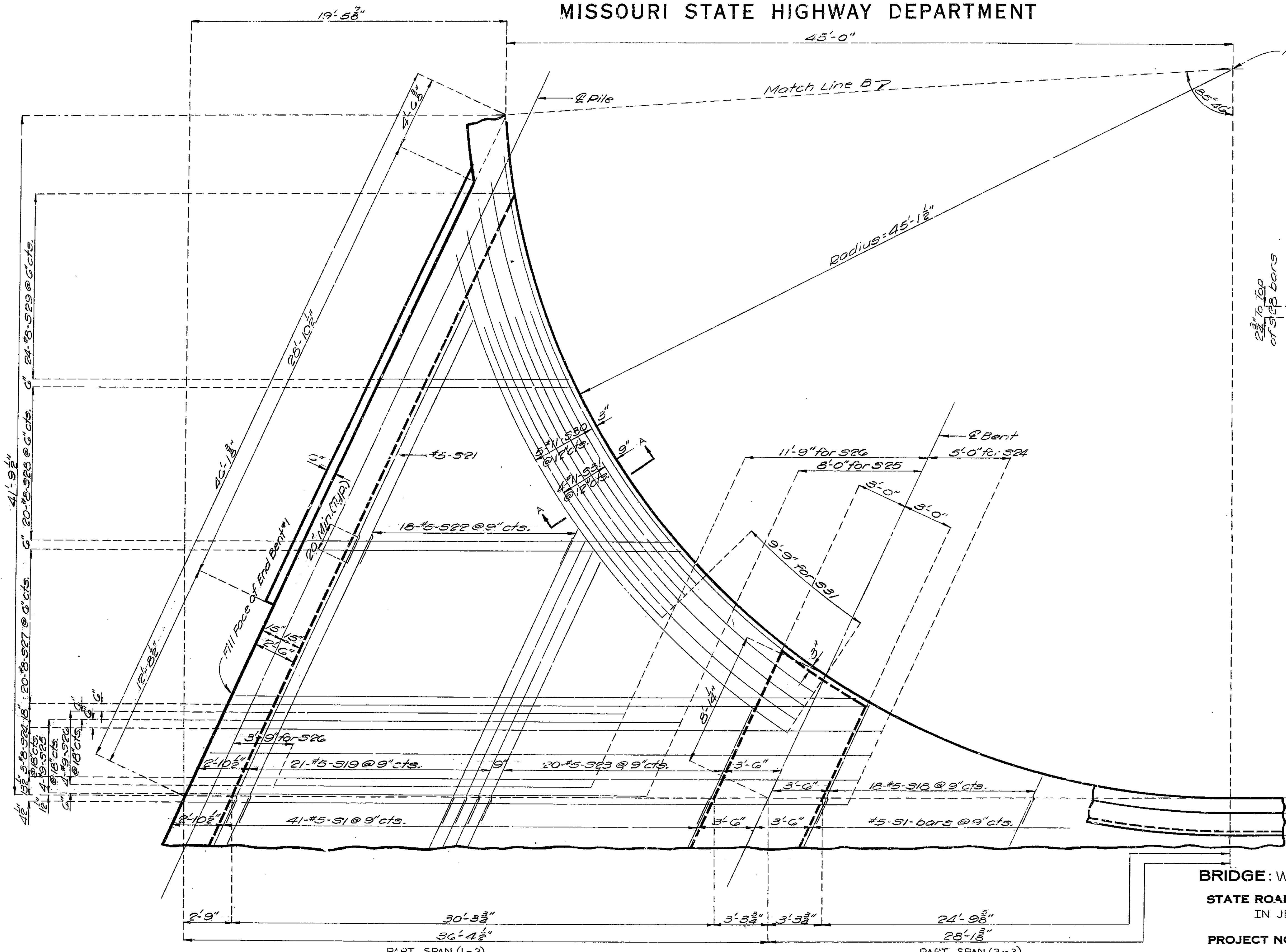
DETAILED JULY 1964 BY H. MILLER
CHECKED AUG. 1964 BY NOWICKI

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

Sheet No. 7 of 12.

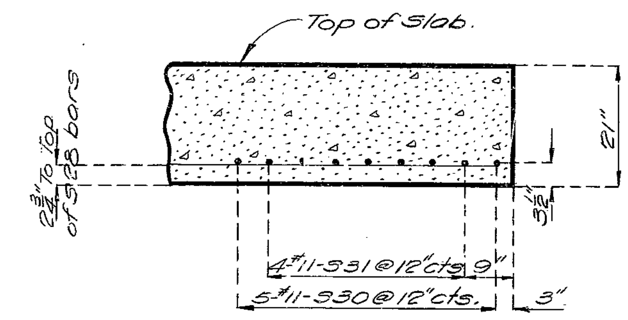
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	129	



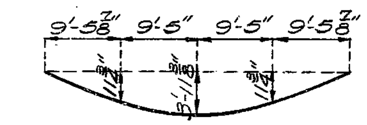
PART SPAN (1-2) PART SPAN (2-3)

PART PLAN OF SPANS (1-2) AND (2-3) SHOWING BOTTOM REINFORCEMENT

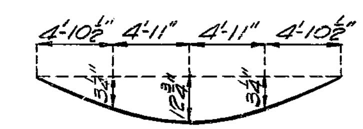


SECTION A-A

Note: Curb and Parapet not shown.



S30



S31

BENDING SKETCHES

BRIDGE: WEST TRAFFIC LOOP UNDERPASS

STATE ROAD ROUTE 50 RELOCATION IN JEFFERSON CITY

PROJECT NO. RTE. 50-SEC. 26(2)U **STA.** 765 + 07.67

COLE **COUNTY**

A-1418

DETAILED JUNE 1964 BY H. MILLER
CHECKED AUG. 1964 BY NOWICKI

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

Sheet No. 8 of 12.

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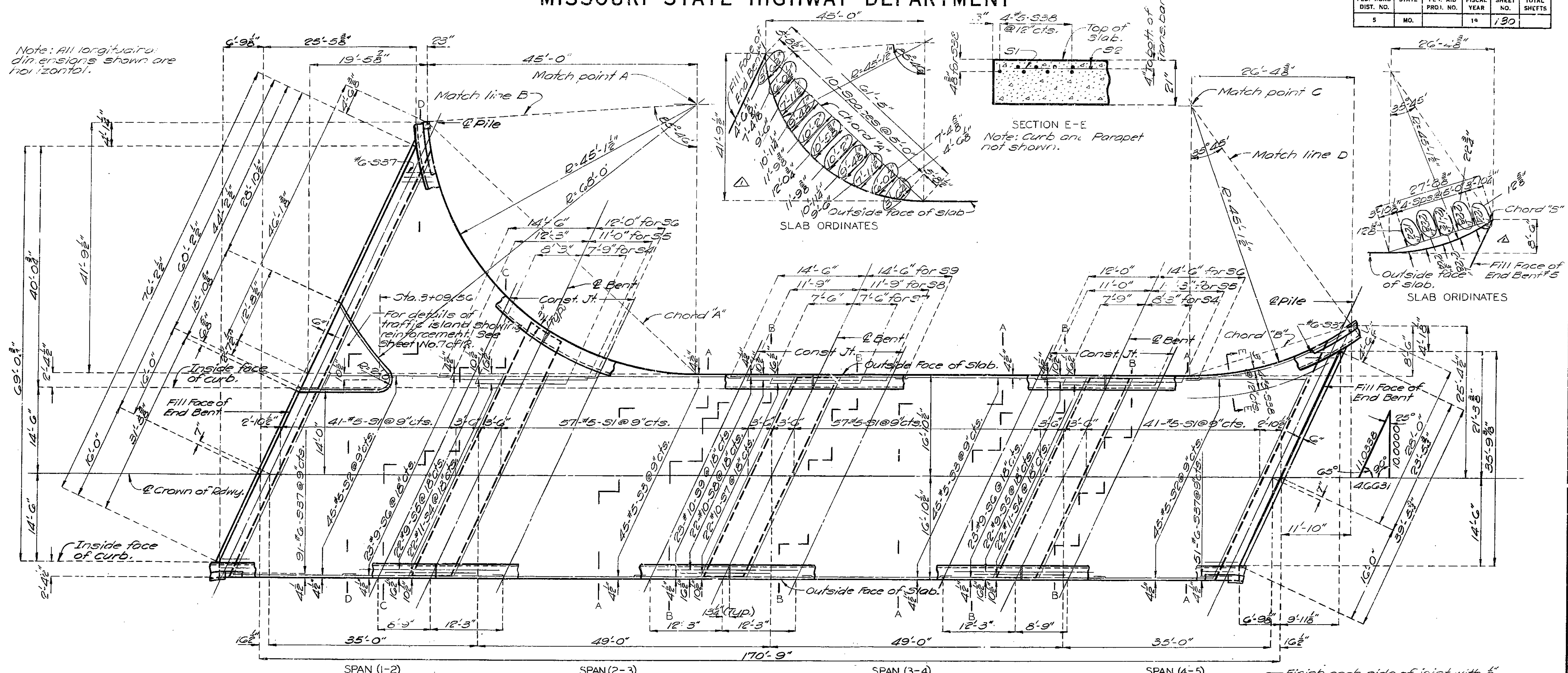
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	130	

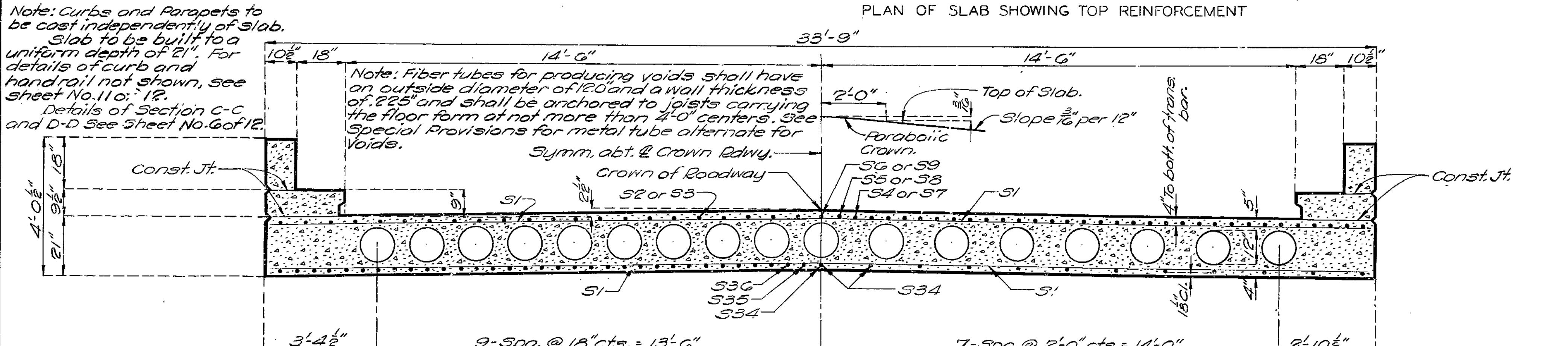
Note: All longitudinal dimensions shown are horizontal.



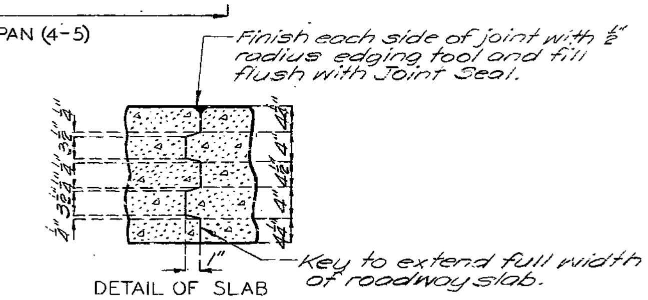
PLAN OF SLAB SHOWING TOP REINFORCEMENT

Note: Curbs and Parapets to be cast independently of slab. Slab to be built to a uniform depth of 21". For details of curb and handrail not shown, see sheet No. 11 or 12. Details of Section C-C and D-D See Sheet No. 6 of 12.

Note: Fiber tubes for producing voids shall have an outside diameter of 12.0 and a wall thickness of .225 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.



HALF SECTION A-A HALF SECTION B-B



DETAIL OF SLAB CONSTRUCTION JOINT KEY

BRIDGE: WEST TRAFFIC LOOP UNDERPASS

STATE ROAD ROUTE 50 RELOCATION IN JEFFERSON CITY

PROJECT NO. RTE. 50-SEC. 26 (2) U **STA.** 765+07.67

COLE **COUNTY**

DETAILED JULY 1964 BY H. MILLER

CHECKED AUG. 1964 BY NOWICKI

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

Sheet No. 9 of 12.

△ Rev. June 29, 1966

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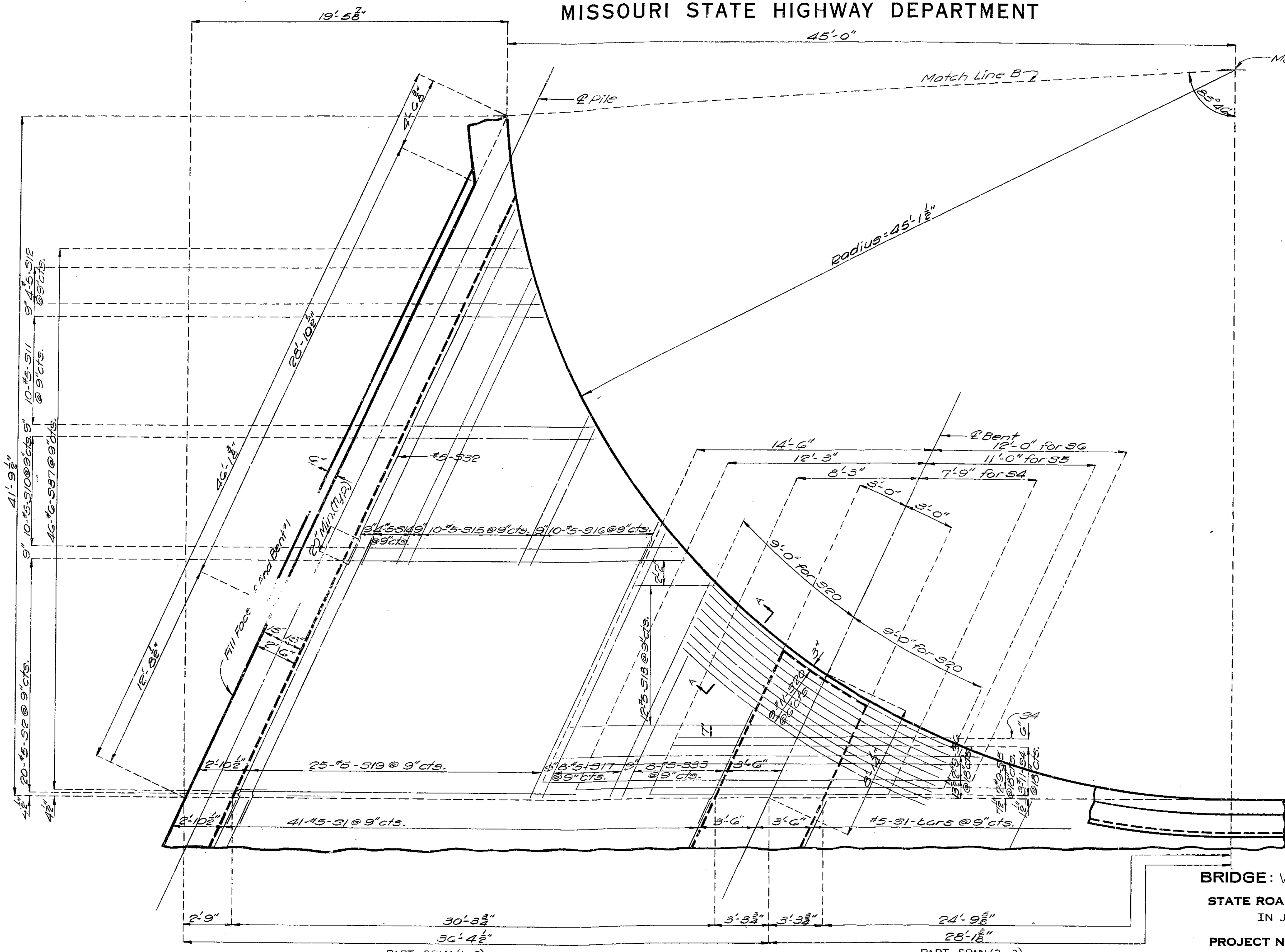
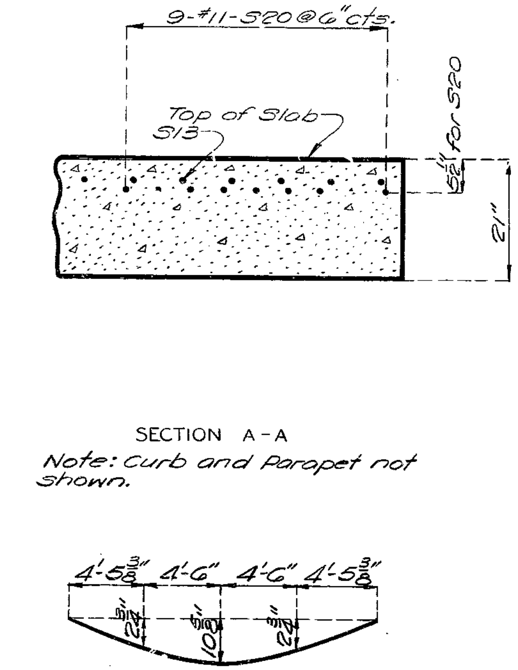
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	131	



PART PLAN OF SPANS (1-2) AND (2-3) SHOWING TOP REINFORCEMENT



SECTION A-A

Note: Curb and Parapet not shown.

S20
BENDING SKETCH

BRIDGE: WEST TRAFFIC LOOP UNDERPASS

STATE ROAD ROUTE 50 RELOCATION
IN JEFFERSON CITY

PROJECT NO. RTE. 50-SEC. 26(2)U **STA.** 765+07.67

COLE **COUNTY**

DETAILED JUNE 1964 BY H. MILLER
CHECKED AUG. 1964 BY NOWICKI

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

Sheet No. 10 of 12.

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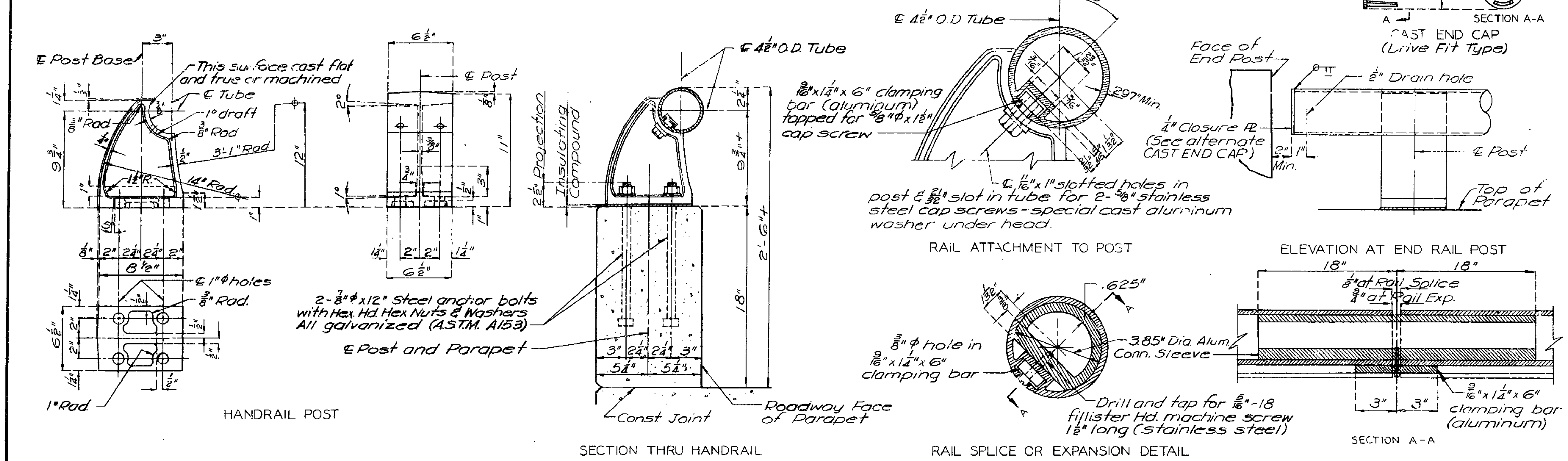
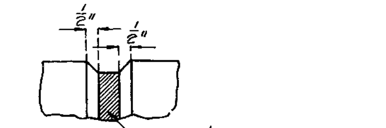
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	132	



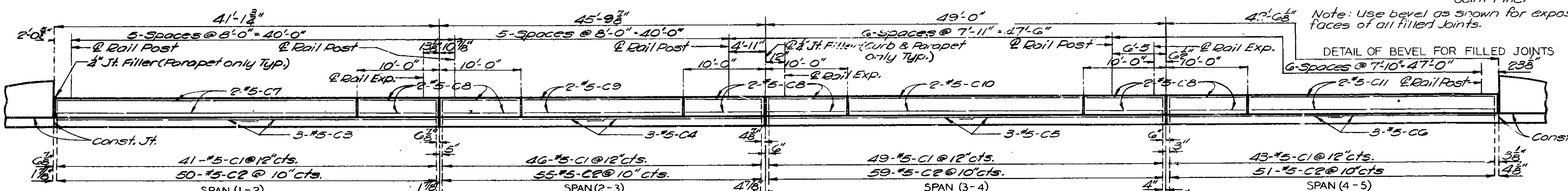
ONE TUBE ALUMINUM RAIL

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.
Top of curbs and parapets to be built parallel to grade. Concrete end post to be vertical.
All exposed edges of end posts and parapet to have ½" radius.
All outside corners of aluminum post to have ⅛" radius except as noted.
All fillets ¼" except as noted.
All drafts 2° except as noted.
Rail to be fabricated in two or three panel lengths unless otherwise approved.
A rail splices shall be located near the ¼ point between rail posts.
~~If the contractor desires, he may use drive fit cast aluminum end caps in lieu of welded aluminum closure plates. See Special Provisions.~~

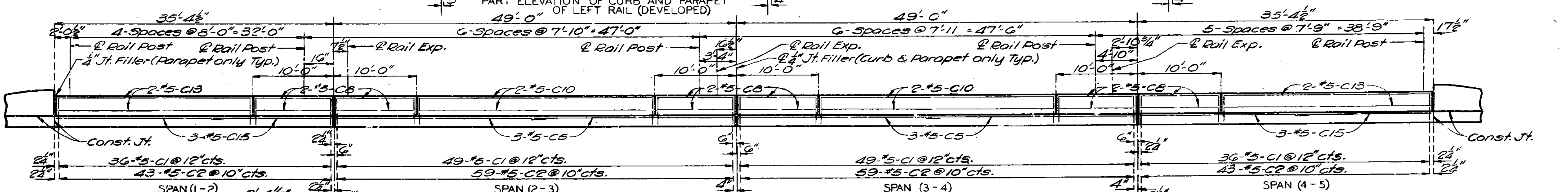


Note: Use bevel as shown for exposed faces of all filled Joints.

DETAIL OF BEVEL FOR FILLED JOINTS

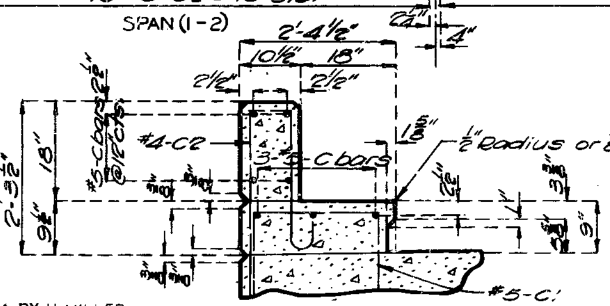


PART ELEVATION OF CURB AND PARAPET OF LEFT RAIL (DEVELOPED)



PART ELEVATION OF CURB AND PARAPET OF RIGHT RAIL

Note: Dimensions shown are along ℄ of Parapet.



SECTION THRU PARAPET & CURB

BRIDGE: WEST TRAFFIC LOOP UNDERPASS

STATE ROAD ROUTE 50 RELOCATION

IN JEFFERSON CITY

PROJECT NO. RTE. 50-SEC. 26 (2) U **STA.** 765+07.67

COUNTY

DETAILED SEPT. 1964 BY H. MILLER
CHECKED SEPT. 1964 BY NOWICKI

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

Sheet No. 11 of 12.

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No. 1.5.3 July 1964 Revised Sept. 1964

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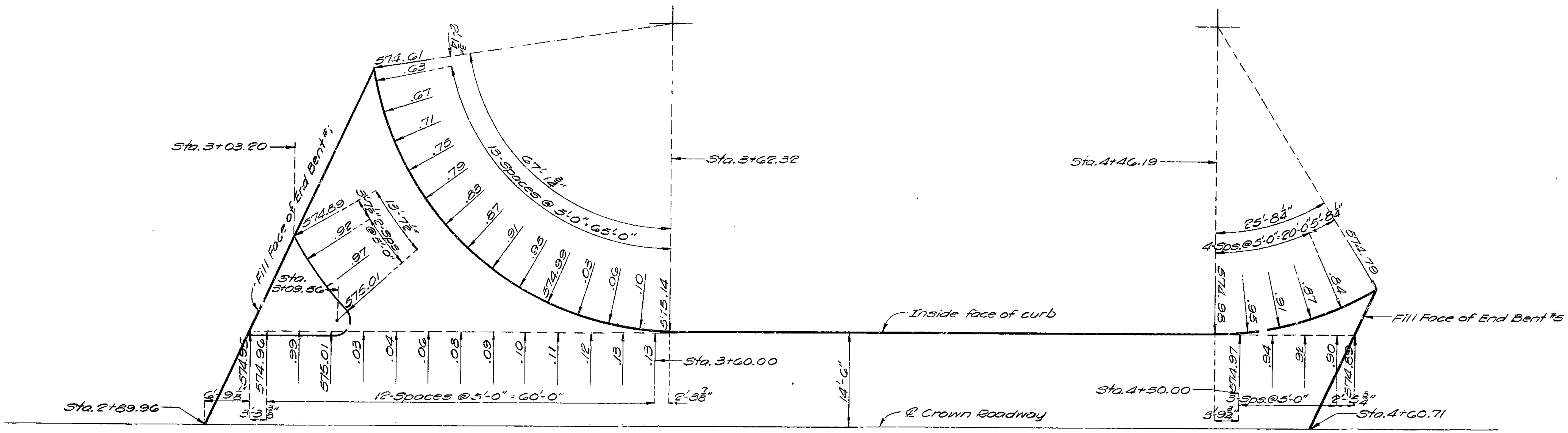
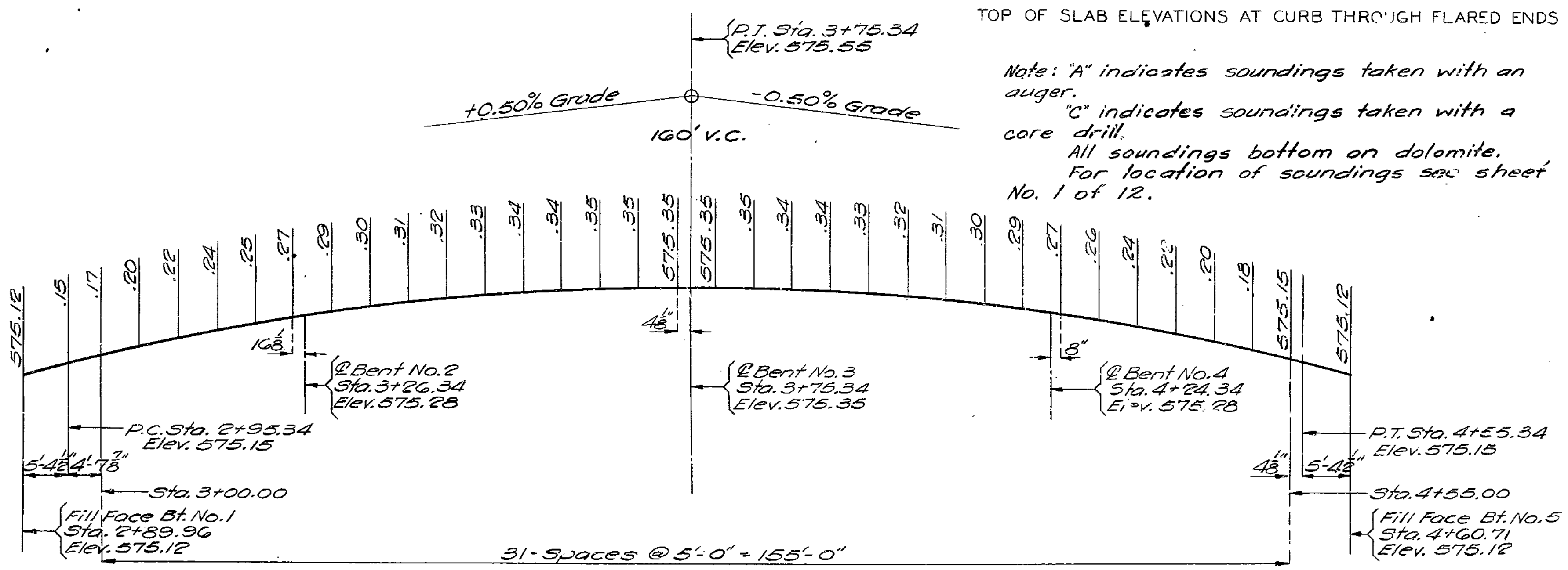
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		16	133	

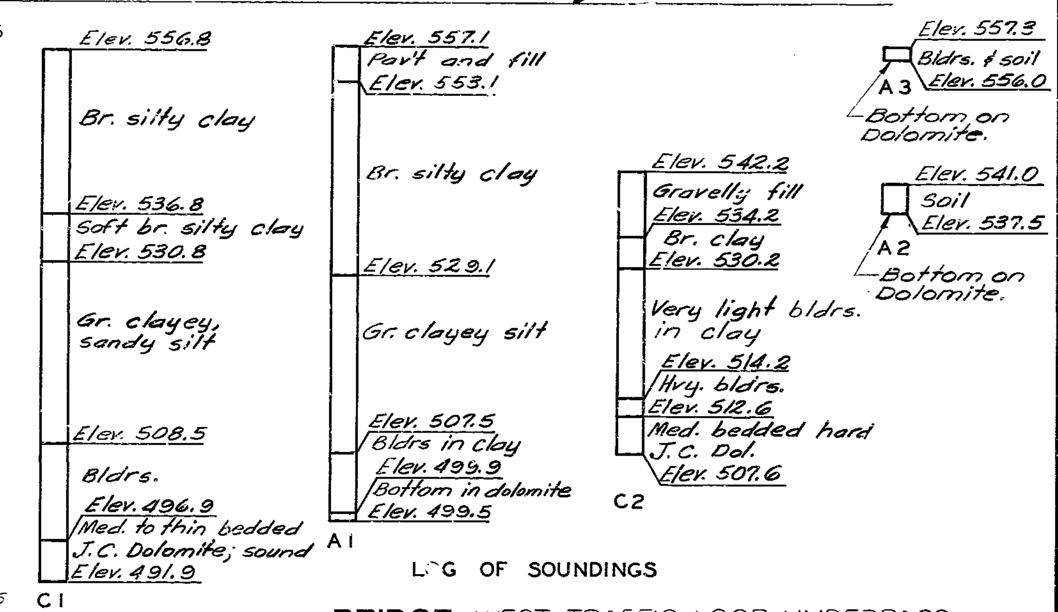


TOP OF SLAB ELEVATIONS AT CURB THROUGH FLARED ENDS



PROFILE GRADE ELEVATIONS
(Taken along crown of Rdwy.)

Note: "A" indicates soundings taken with an auger.
"C" indicates soundings taken with a core drill.
All soundings bottom on dolomite.
For location of soundings see sheet No. 1 of 12.



LOG OF SOUNDINGS

BRIDGE: WEST TRAFFIC LOOP UNDERPASS

STATE ROAD ROUTE 50 RELOCATION IN JEFFERSON CITY

PROJECT NO. RTE. 50-SEC. 26 2 U **STA.** 765+07.67

COLE COUNTY

DETAILED JULY 196 , BY H. MILLER
CHECKED Aug. 1964 BY Nowicki

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

Sheet No. 12 of 12.

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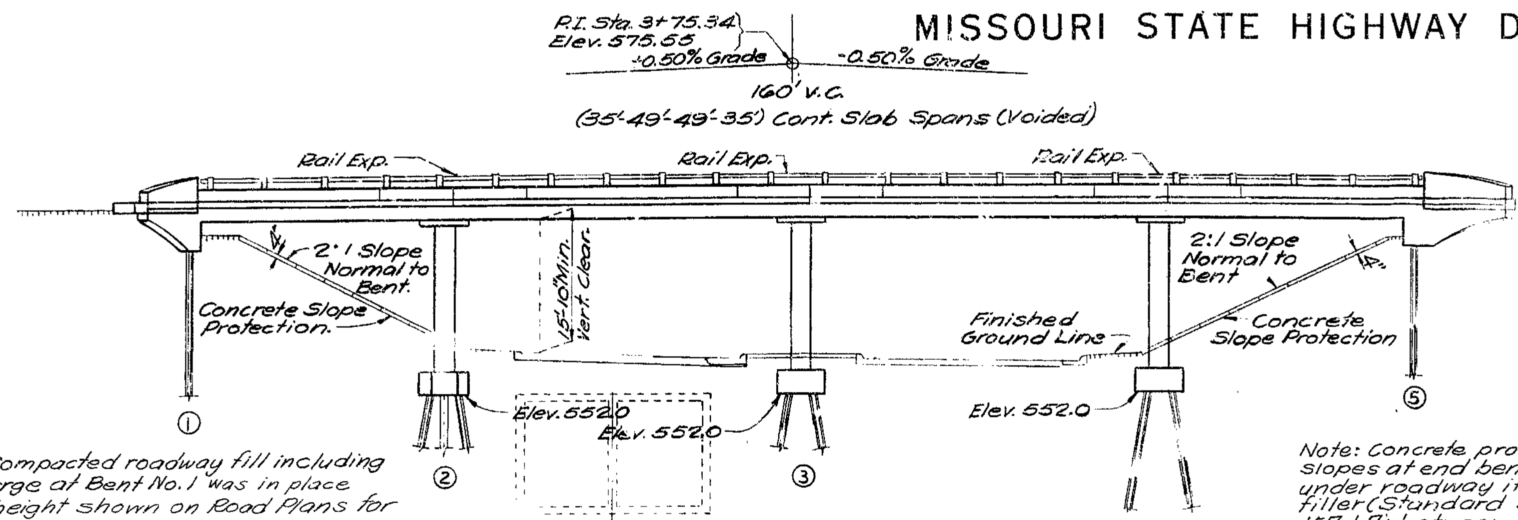
FINAL PLANS FINAL PLANS

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	122	



GENERAL ELEVATION
(West Loop)

Note: Compacted roadway fill was placed up to finished roadway section before work was started on Bents No. 3 & 4, and up to elevation of bottom of beam at Bent No. 5 before steel piles were driven at bent No. 5.

Note: Compacted roadway fill including surcharge at Bent No. 1 was in place to full height shown on Road Plans for 6 months before work was started on Bent No. 1.

Note: Concrete protection on front slopes at end bents was included under roadway items. Provided 1" filler (Standard Specification 157.1.7) between slope protection pavement and intermediate bents.

GENERAL NOTES:

Design Specifications A.A.S.H.O. - 1961
Loading H20-S16-44 (15#/Sq. ft. Future Wearing Surface)
Steel Pile was A.S.T.M. A36-62T
Reinforcing Steel Stress 20,000 psi.
Concrete, Class B Stress 1,200 psi.
Concrete, Class B1 Stress 1,600 psi.
Superstructure concrete was Class B1
Substructure concrete was Class B

Superstructure deck was surface sealed.

Where joint filler was specified on the plans it conformed to Standard Specification 157.2.4

PILE DATA					
BENT NO.	1	2	3	4	5
Pile Type and Size	10BP42	10BP42	10BP42	10BP42	10BP42
Number	8	10	8	8	5
Authorized Length Ft.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Bearing Tons	Practical Refusal				

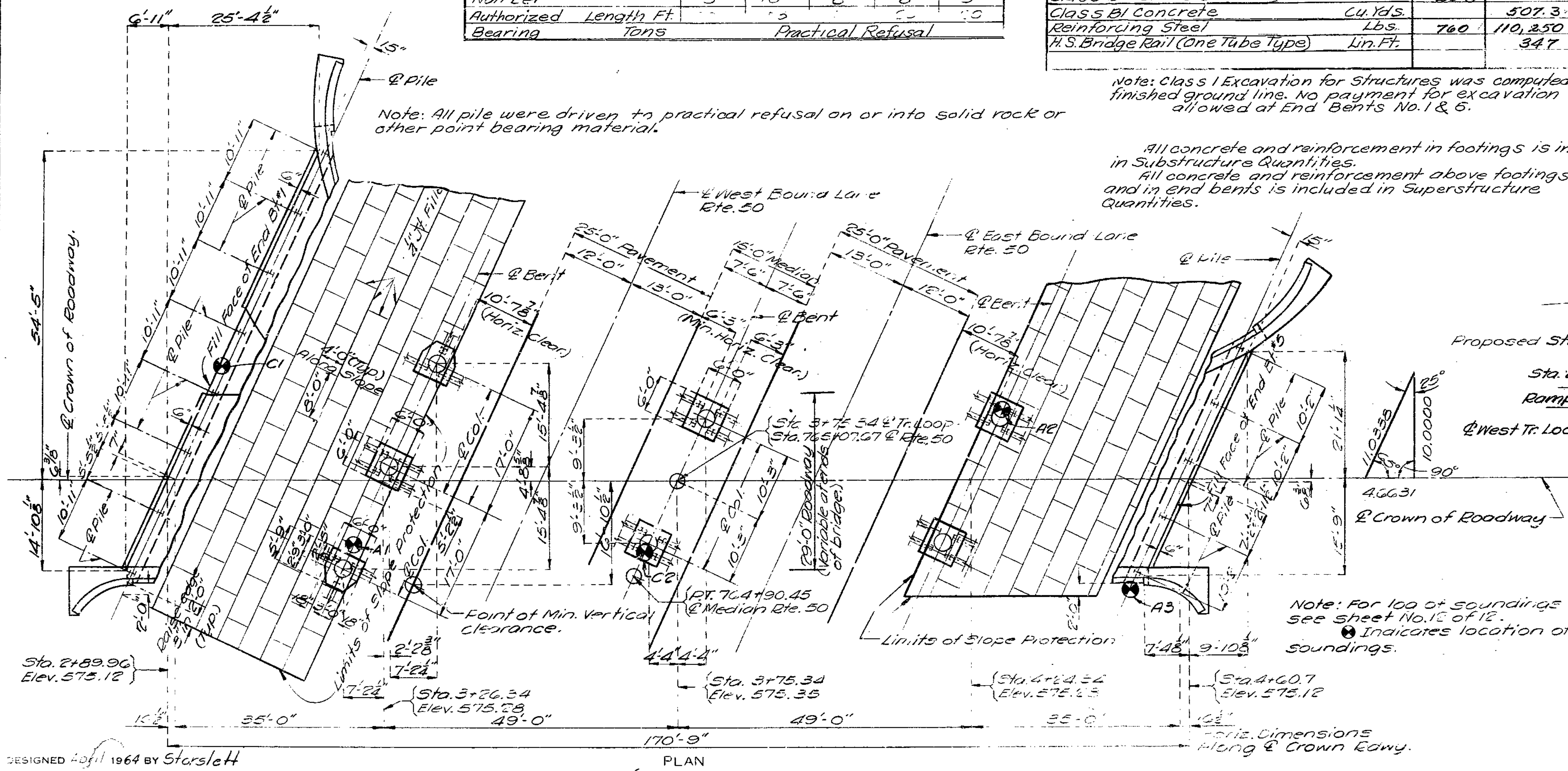
FINAL QUANTITIES				
Item		Substr.	Superstr.	Total
Class I Excavation for Structures	Cu. Yds.	124.5		124.5
Steel Piles in Place (10")	Lin. Ft.	1718		1718
Steel Pile Cut-offs (10")	Lin. Ft.	196		196
Class B Concrete	Cu. Yds.	26.8		26.8
Class B1 Concrete	Cu. Yds.		507.3	507.3
Reinforcing Steel	Lbs.	760	110,250	111010
H.S. Bridge Rail (One Tube Type)	Lin. Ft.		347	347

Note: Class I Excavation for Structures was computed from the finished ground line. No payment for excavation allowed at End Bents No. 1 & 5.

Note: The final quantity of 10" steel piles in place includes 13 splices at 8'-0" per splice.
Steel Pile authorized in lengths greater than 65' were furnished in two pieces for field splicing and these splices were paid for in accordance with Standard Specification 52.6.5.
All piling were driven with an approved power hammer developing an energy of not less than 19,500 ft. lbs. and having a ram weighing 6500 lbs.

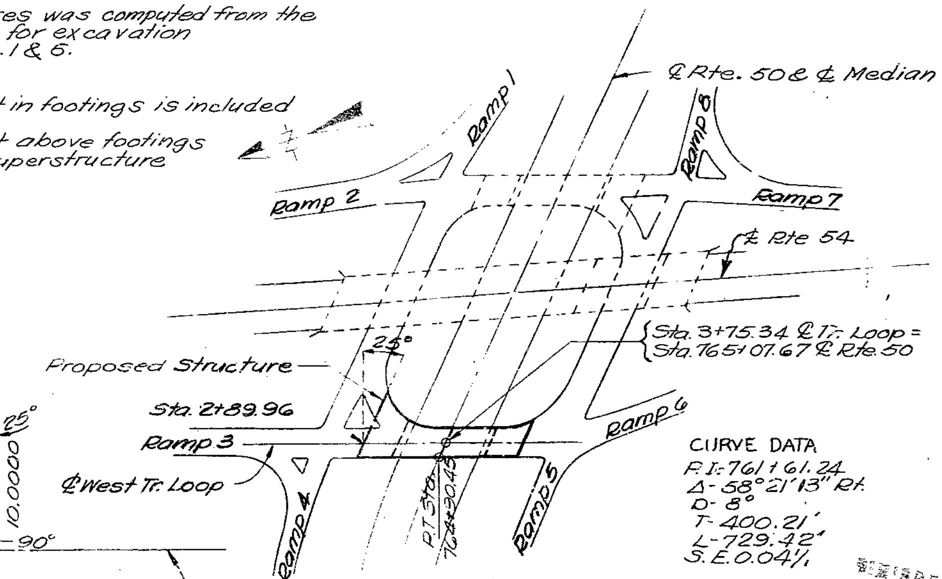
Note: All pile were driven to practical refusal on or into solid rock or other point bearing material.

All concrete and reinforcement in footings is included in Substructure Quantities.
All concrete and reinforcement above footings and in end bents is included in Superstructure Quantities.



PLAN
(West Loop)

Note: For log of soundings see Sheet No. 12 of 12.
Indicates location of soundings.



LOCATION SKETCH

CURVE DATA
P.I. 76+61.24
Δ-58°21'13" Rt.
D-8°
T-400.21'
L-729.42'
S.E. 0.041'

B.M. Elev. 575.22 ☐ on N.E. Cor. of East Curb of Bridge A-1418

BRIDGE: WEST TRAFFIC LOOP UNDERPASS

STATE ROAD ROUTE 50 RELOCATION IN JEFFERSON CITY

PROJECT NO. RTE. 50-SEC. 26-2-0 STA.

COLE COUNTY

SUBMITTED BY — BRIDGE ENGINEER DATE 9/25/64

APPROVED BY — CHIEF ENGINEER DATE 9/25/64

DESIGNED April 1964 BY Storsleth
DETAILED JULY 1964 BY H. MILLER
CHECKED Aug. 1964 BY Nowicki

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

Sheet No. 1A of 1

STD. 54.00

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FINAL PLANS

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