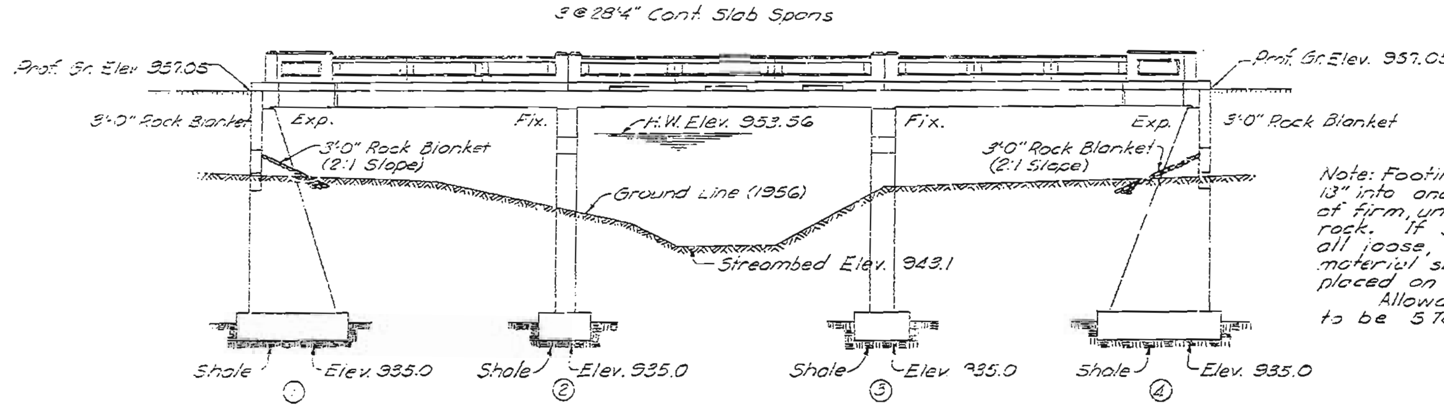
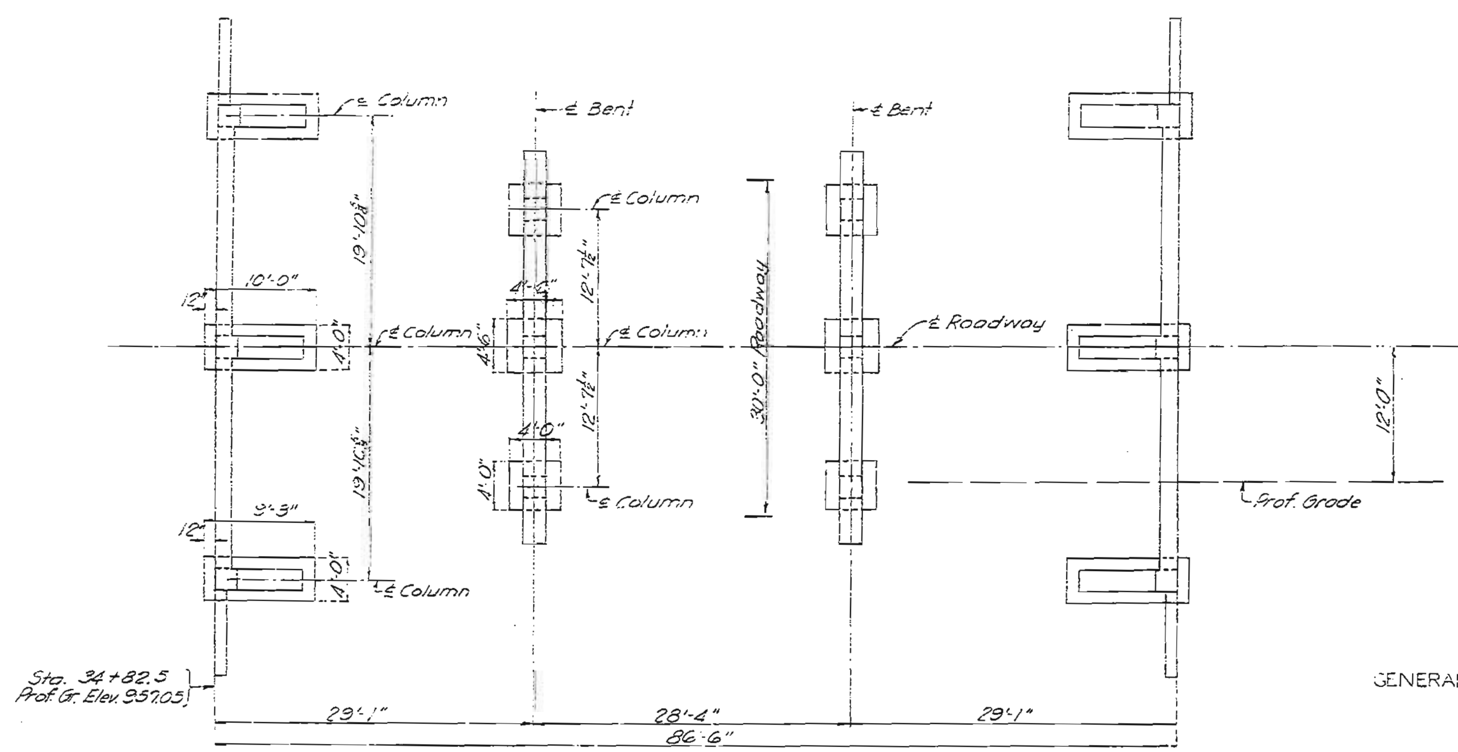
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		59	76	



GENERAL ELEVATION

Note: Footings shall be carried at least 13" into and cast against vertical faces of firm, undisturbed shale or other soft rock. If solid, hard rock is encountered, all loose, shelly, or disintegrated material shall be removed and the footings placed on hard, solid, undisturbed rock.
Allowable footing bearing on shale to be 5 Ton per sq. ft. (Design).

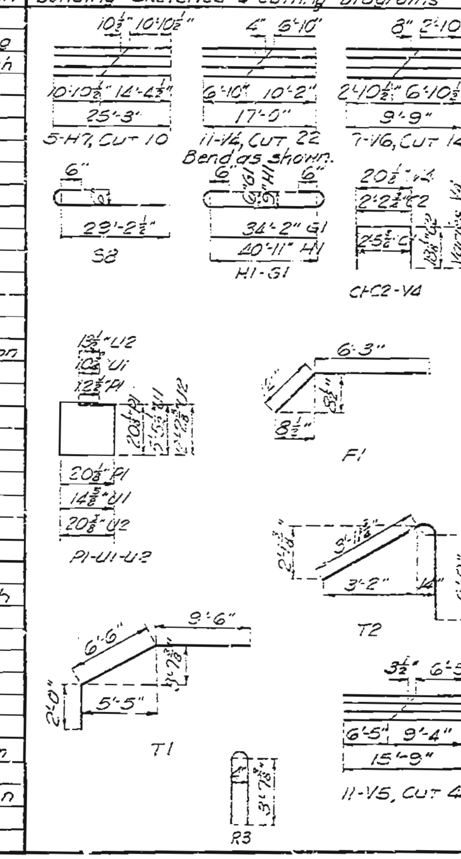


PLAN

No.	Size	Length	Mark	Location
		End Bents No. 1 & 4		
60	#6	4'-0"	D1	Footing
24	#6	7'-3"	F1	Haunch
6	#6	43'-6"	H1	Beam
6	#8	41'-6"	H2	"
4	#8	11'-0"	H3	"
8	#6	21'-9"	H4	"
24	#5	21'-6"	H5	"
16	#6	14'-9"	H6	Wing
10	#6	25'-3"	H7	"
12	#6	26'-3"	H8	Beam
84	#4	14'-3"	U1	Beam
36	#6	18'-0"	V1	Column
24	#6	13'-0"	V2	"
36	#4	12'-3"	V3	"
22	#3	17'-0"	V4	"
14	#4	9'-9"	V6	"
44	#3	15'-9"	V5	"
12	#6	18'-0"	T1	Wing
8	#6	11'-9"	T2	"
		Int. Bents No. 2 & 3		
48	#6	4'-0"	D1	Footing
48	#6	7'-3"	F1	Haunch
6	#9	37'-6"	G1	Beam
4	#6	35'-0"	G2	"
4	#10	8'-9"	G3	"
6	#10	35'-0"	G4	"
84	#3	7'-9"	P1	Column
84	#5	9'-0"	U2	Beam
48	#6	18'-0"	Y7	Column

COMPLETE BILL OF REINFORCING STEEL

Bending Sketches & Cutting Diagrams

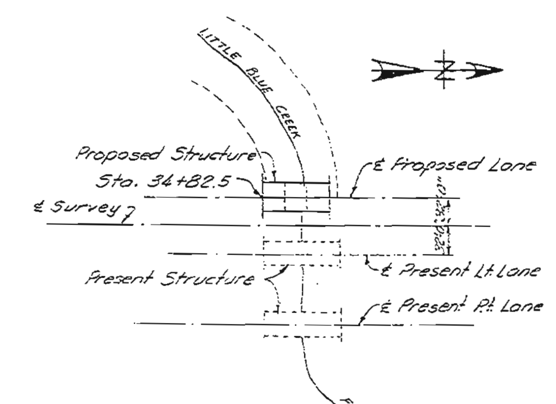


No.	Size	Length	Mark	Location
		Superstructure		
23	#5	5'-6"	C1	Curb
120	#5	5'-3"	C2	"
4	#5	6'-0"	C3	"
4	#5	7'-3"	C4	"
4	#5	8'-6"	C5	"
12	#5	22'-3"	C6	"
6	#6	28'-0"	C7	"
12	#4	6'-0"	R1	End Post
78	#4	9"	R2	Rail
60	#4	7'-9"	R3	Subpost
88	#6	4'-3"	R4	Post
408	#6 Ga.	2'-4"	R5	Baluster
12	#4	6'-9"	R6	End Post
16	#4	8'-0"	R7	Rail
16	#4	6'-6"	R8	"
16	#4	7'-9"	R9	"
167	#5	35'-0"	S1	Slab
38	#5	22'-6"	S2	"
19	#8	14'-0"	S3	"
36	#8	15'-3"	S4	"
36	#8	8'-6"	S5	"
16	#9	44'-6"	S6	"
40	#5	7'-6"	S7	Flared Slab
50	#8	30'-6"	S8	Slab
48	#9	24'-0"	S9	"
44	#6	16'-6"	S10	"
24	#7	20'-6"	S11	"
22	#7	15'-0"	S12	"
25	#6	30'-3"	S13	"
8	#5	5'-6"	S14	"
16	#9	16'-3"	S15	"
16	#4	9'-6"	R10	Rail
8	#4	8'-3"	R11	"

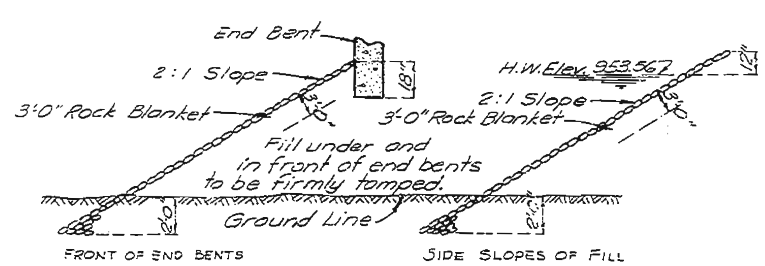
ESTIMATED QUANTITIES

Item		Substr.	Superstr.	Total
Class 1 Excavation for Structures	Cu. Yds.	110		110
Class 2 Excavation for Structures	Cu. Yds.	292		292
Class "B-1" Concrete (Handrail)	Cu. Yds.		11.3	11.3
Class "B-1" Concrete (Except Handrail)	Cu. Yds.		141.6	141.6
[illegible] "B" [illegible]	[illegible]	[illegible]		[illegible]
Reinforcing Steel	Lbs.	[illegible]	[illegible]	43,560

Note: Excavation for bridge made above Elev. 944.5 will be paid for as Class 1 Excavation for Structures.
Excavation for bridge made below Elev. 944.5 will be paid for as Class 2 Excavation for Structures.



LOCATION SKETCH



Note: 3'-0" Rock Blanket shall be placed on fills at ends of bridge as shown in sketches. See Road Plans for Quantities.

ROCK BLANKET SKETCHES

GENERAL NOTE:
Design Specifications: A.A.S.H.O. 1953
Loading: H20-44
Reinforcing Steel Stress: 20,000 #/□"
Concrete Class "B" Stress: 1200 #/□"
Concrete, Class "B-1" Stress: 1400 #/□"
Concrete for superstructure shall be Class "B-1" air-entrained.
Concrete for substructure shall be Class "B" air-entrained. If the Contractor desires he may use Class "B-1" in lieu of Class "B" for concrete in substructure with payment on the basis of Class "B" concrete.
Where joint filler is specified on the plans it shall conform with the requirements for Gray Rubber Compound Joints as given in Section 59-22E of the Standard Specifications.
Superstructure deck to be waterproofed. See Special provisions.

T.B.M.-C Elev. 957.10 Chiseled □ on N.W. Cor. S.E. N.W. Br. Abutment 50' Rt. Sta. 35+75.

BRIDGE OVER LITTLE BLUE CREEK
STATE ROAD FROM CASS CO. LINE NORTH
ABOUT 2.7 MILES S. OF GRANDVIEW
PROJECT NO. F-353(20) (RTE. 71) **STA.** 34+82.5
JACKSON COUNTY

SUBMITTED BY J. A. Williams BRIDGE ENGINEER DATE 10-8-1958
APPROVED BY Rex M. Whitton CHIEF ENGINEER DATE 10-8-1958

STD. C-110F7
A-478

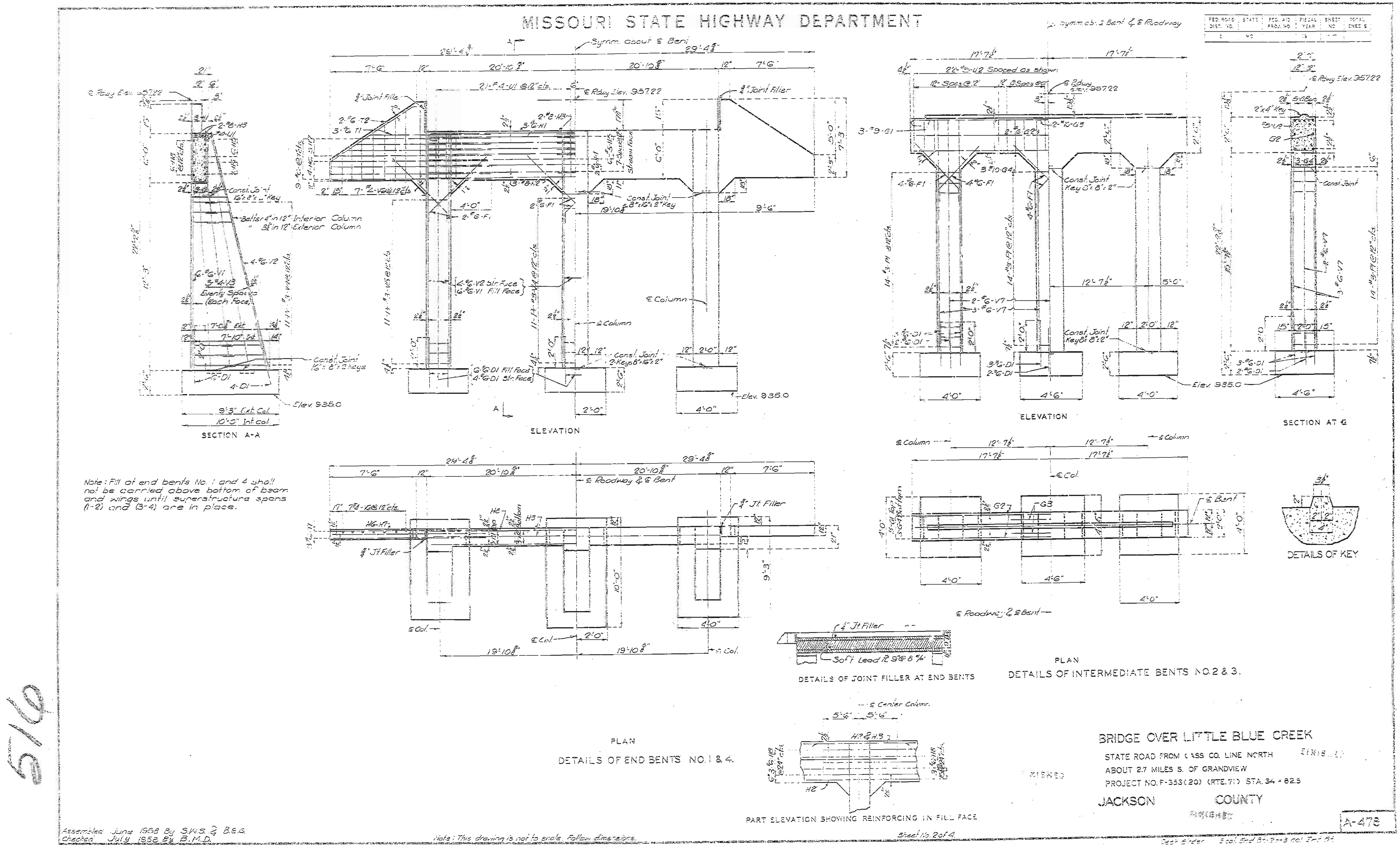
Drawn June 1958 by M.H.P.
Checked July 1958 by B.M.D.

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

Sheet No. 1 of 4.

515

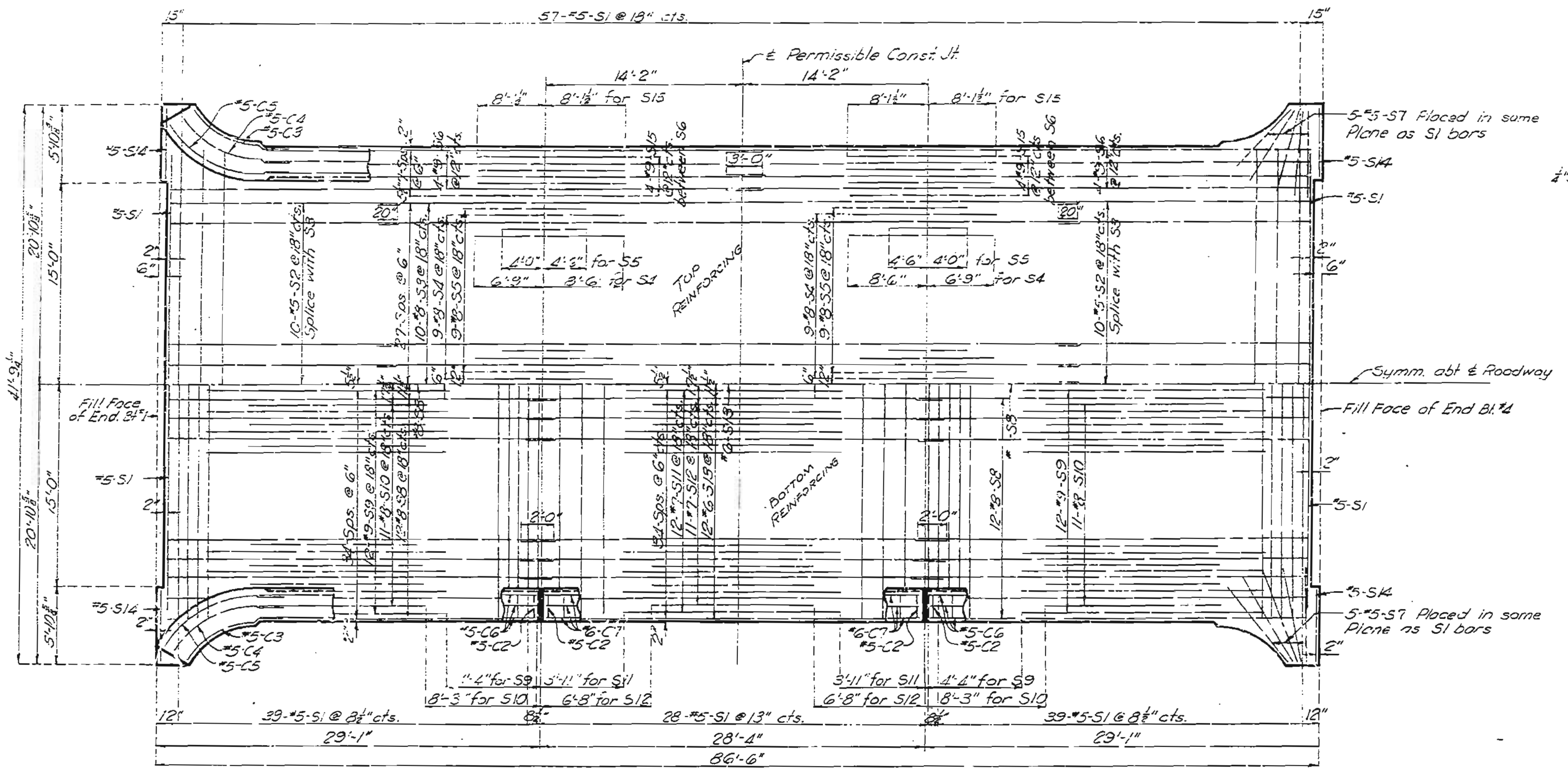
SEE FINAL PLANS



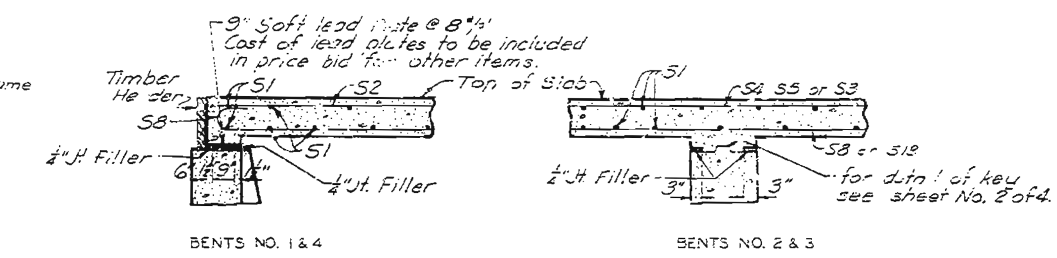
MISSOURI STATE HIGHWAY DEPARTMENT
SECTION A-A
ELEVATION
PLAN
DETAILS OF END BENTS NO. 1 & 4.
SECTION AT ℄
DETAILS OF KEY
DETAILS OF JOINT FILLER AT END BENTS
DETAILS OF INTERMEDIATE BENTS NO. 2 & 3.
PART ELEVATION SHOWING REINFORCING IN FILL FACE
Note: Fill at end bents No. 1 and 4 shall not be carried above bottom of beam and wings until superstructure spans (1-2) and (3-4) are in place.
BRIDGE OVER LITTLE BLUE CREEK
STATE ROAD FROM CASS CO. LINE NORTH
ABOUT 2.7 MILES S. OF GRANDVIEW
PROJECT NO. F-353(20) (RTE. 71) STA. 34+82.5
JACKSON COUNTY
A-478
Assembled June 1958 By S.W.S. & B.E.G.
Checked July 1958 By B.M.D.
Note: This drawing is not to scale. Follow dimensions.
Sheet No. 2 of 4
516

MISSOURI STATE HIGHWAY DEPARTMENT

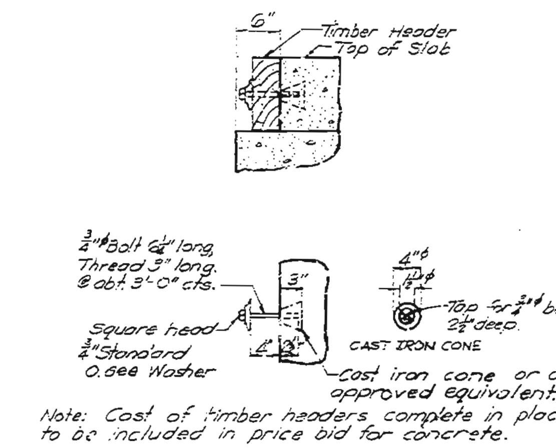
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		[illegible]	78	



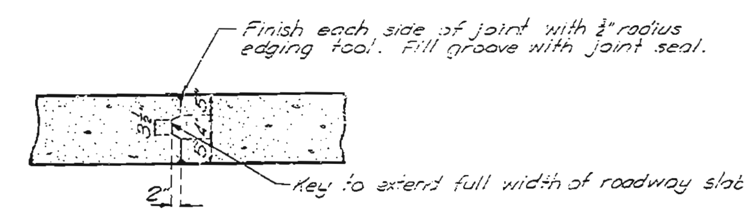
PLAN OF SLAB SHOWING REINFORCING STEEL



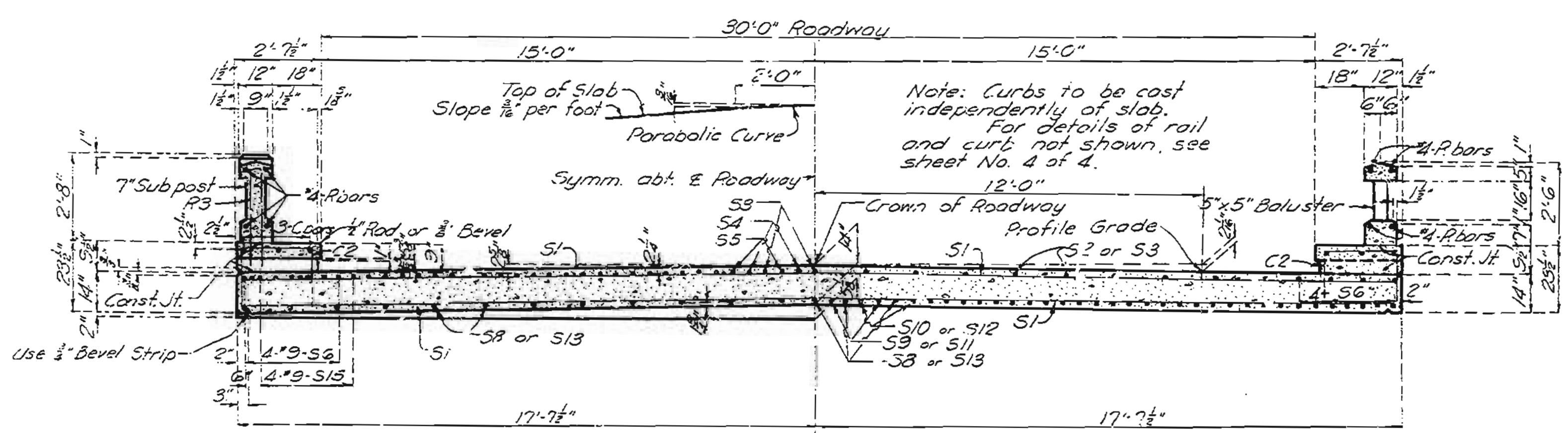
PART LONGITUDINAL SECTION ALONG ℄ ROADWAY



DETAILS OF TIMBER HEADER



DETAILS OF TRANSVERSE CONSTRUCTION JOINT



HALF SECTION NEAR INTERMEDIATE BENTS HALF SECTION NEAR CENTER OF SPANS

517

BRIDGE OVER LITTLE BLUE CREEK

STATE ROAD FROM CASS CO. LINE NORTH

ABOUT 2.7 MILES S. OF GRANDVIEW

PROJECT NO. F-353(20) (RTE. 71) **STA.** 34 + 82.5

JACKSON **COUNTY**

Drawn June 1958 by M.H.P.
Checked July 1958 by B.M.D.

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

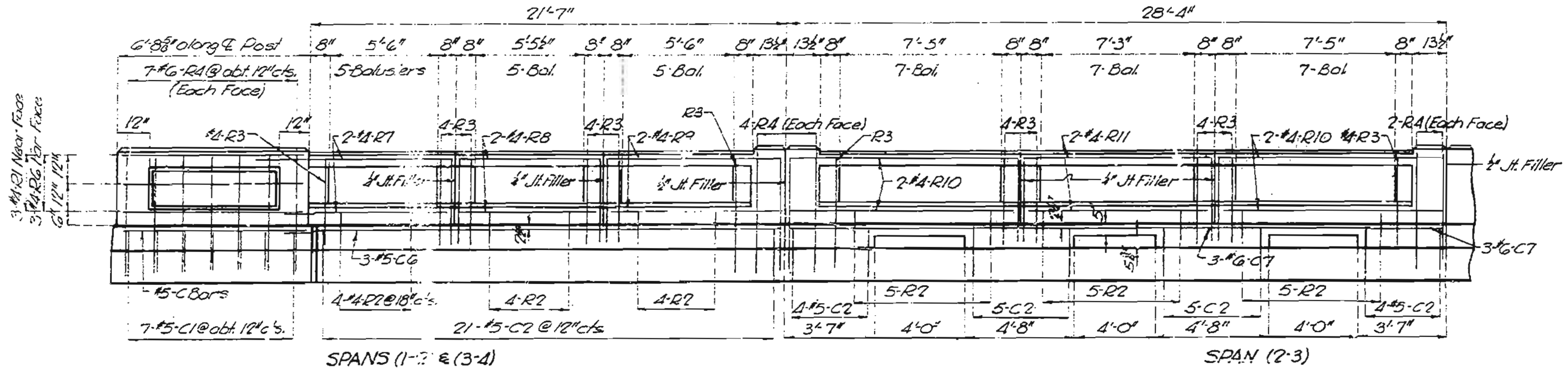
Sheet No. 3 of 4

A-478

NO CONSTRUCTION CHANGES

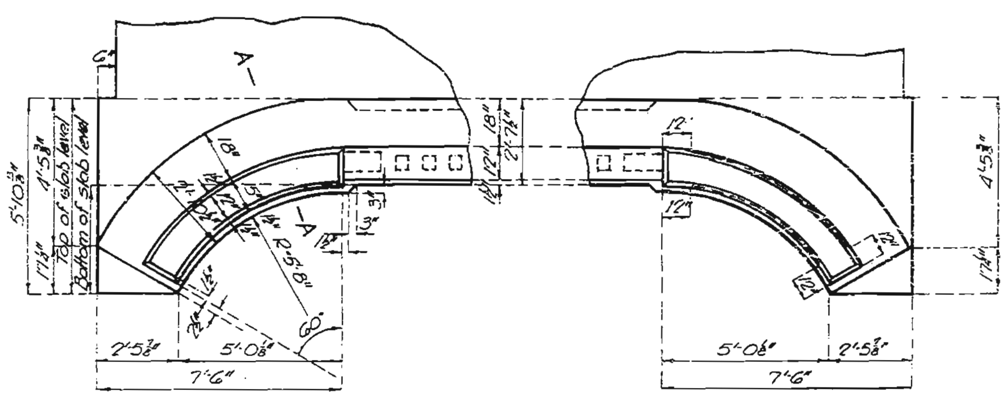
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	79	

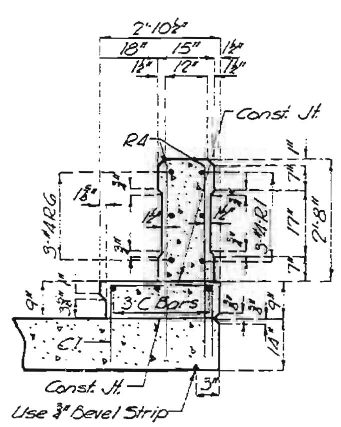


PART ELEVATION OF RAIL & CURB

Note: Omit Outlets in spans (1-2) & (3-4)



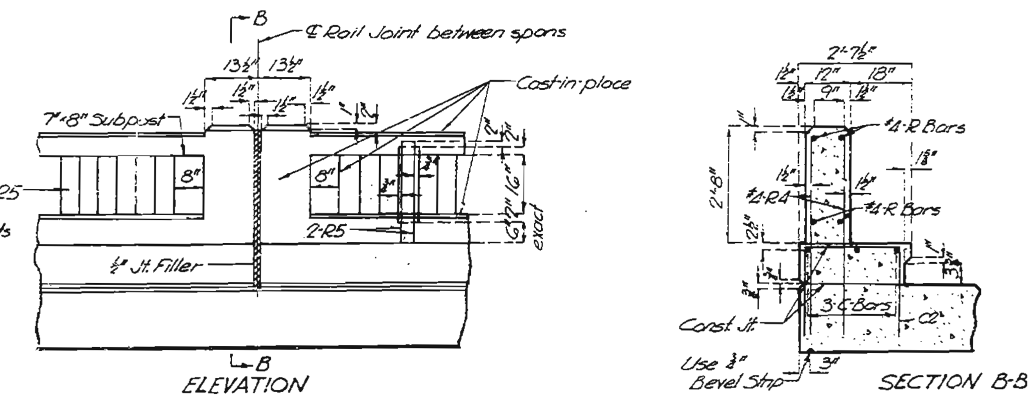
PLAN OF END POSTS



SECTION A-A

5"x5" Balusters at abt 10" c/s. Evenly spaced, 20" long. Precast. Each reinforced with 4-#6 ga. wires 2'-4" long. R5

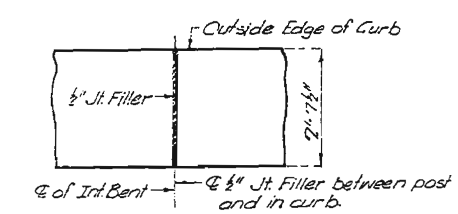
Note: Vertical edges of posts and subposts and bottom of top rail to be beveled ½". Balusters to be beveled ¼".



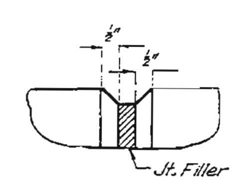
ELEVATION

SECTION B-B

DETAILS OF INTERMEDIATE POSTS



TOP OF CURB



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

DETAIL OF BEVEL FOR FILLED JOINTS

BRIDGE OVER LITTLE BLUE CREEK
STATE ROAD FROM CASS CO. LINE NORTH
ABOUT 2.7 MILES S. OF GRANDVIEW
PROJECT NO. F-353(20)(RTE.71) STA. 34+82.5
JACKSON COUNTY

A-478

Drawn June 1958 by S.W.S.
Checked July 1958 by B.M.D.

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

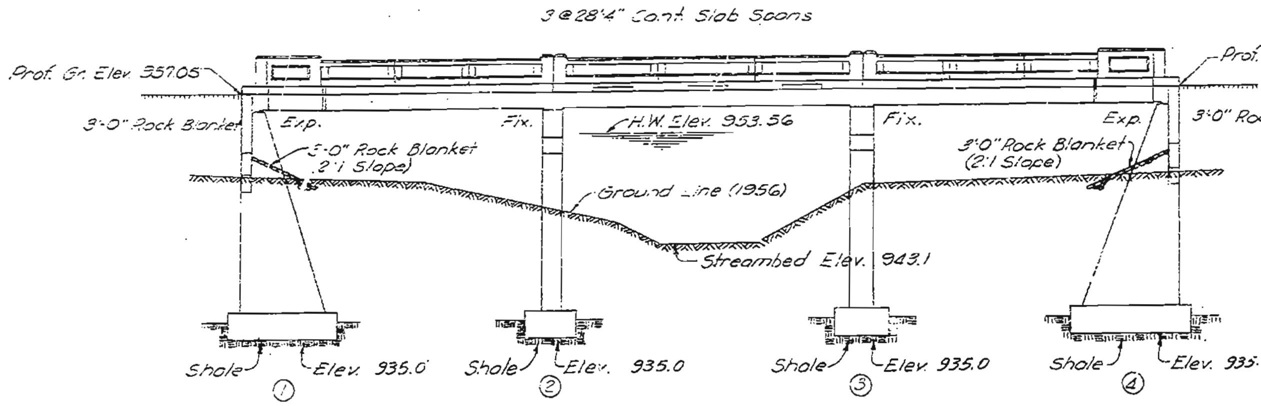
NO CONSTRUCTION CHANGES

518

MISSOURI STATE HIGHWAY DEPARTMENT

FINAL PLANS

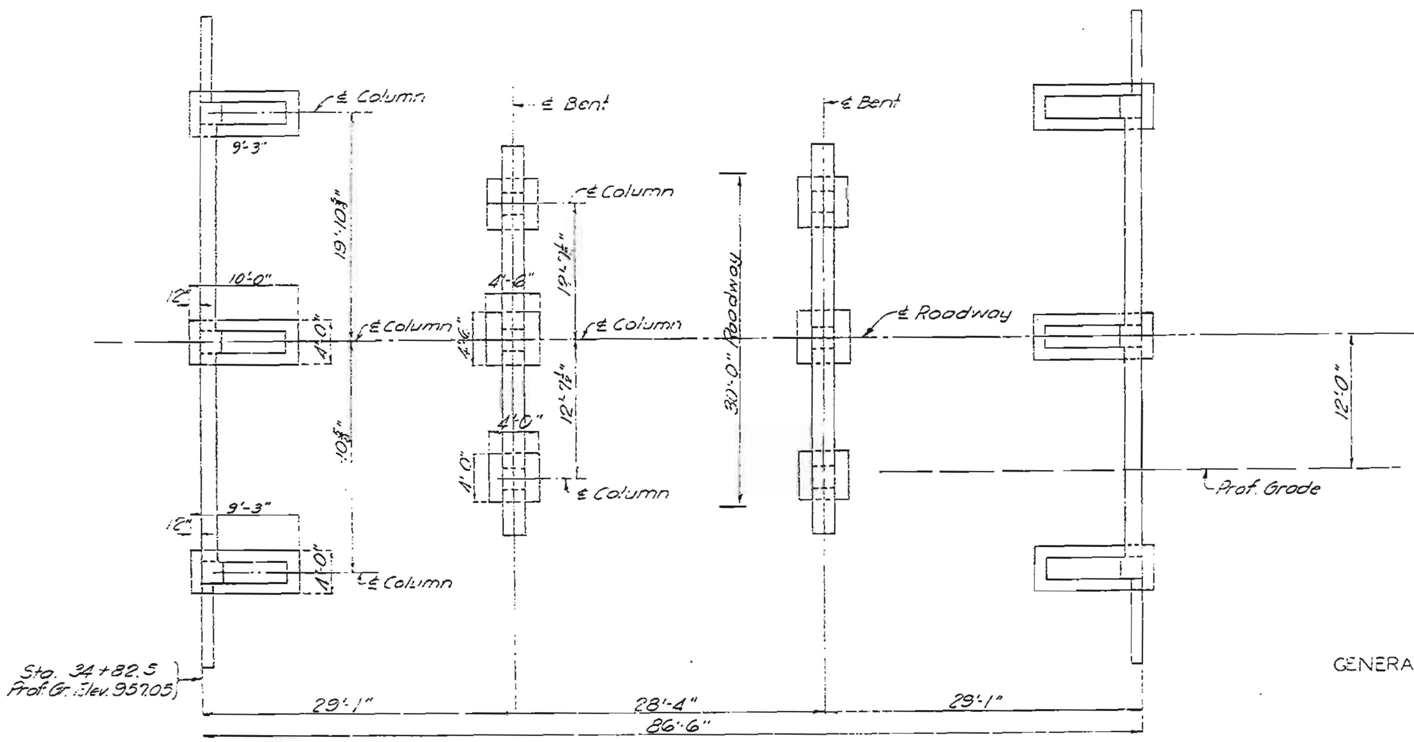
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	F-353(20)	19	76	



GENERAL ELEVATION

Note: Footings were carried at least 18" into and cast against vertical faces of firm undisturbed shale.

Allowable footing bearing on shale to be 5 Ton per sq. ft. (Design).

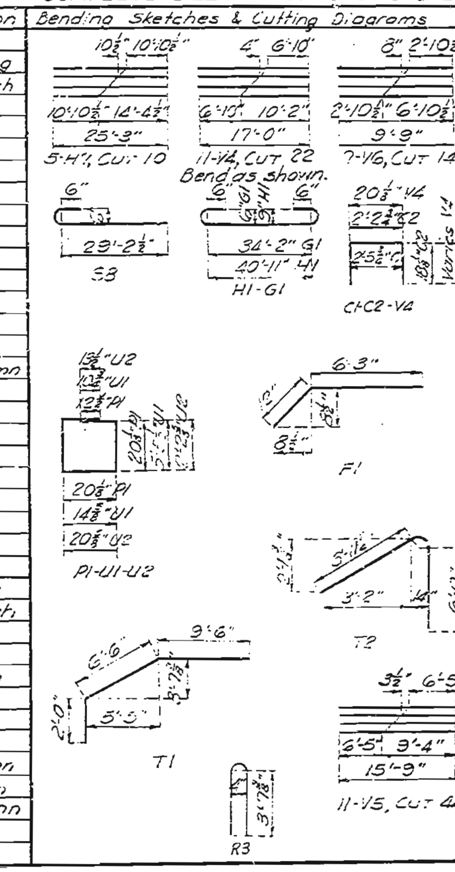


PLAN

No.	Size	Length	Mark	Location
End Bents No. 1 & 4				
60	#6	4'-0"	D1	Footing
24	#6	7'-3"	F1	Haunch
6	#6	43'-6"	H1	Beam
6	#5	41'-6"	H2	"
4	#8	11'-0"	H3	"
8	#6	21'-9"	H4	"
24	#5	21'-6"	H5	"
16	#6	14'-9"	H6	Wing
10	#6	25'-3"	H7	"
12	#6	26'-3"	H8	Beam
84	#4	14'-3"	U1	Beam
36	#6	18'-0"	V1	Column
24	#6	19'-0"	V2	"
36	#4	12'-3"	V3	"
22	#3	17'-0"	V4	"
14	#4	9'-9"	V6	"
44	#3	15'-9"	V5	"
12	#6	18'-0"	T1	Wing
8	#6	11'-9"	T2	"
Int. Bents No. 2 & 3				
48	#6	4'-0"	D1	Footing
48	#6	7'-3"	F1	Haunch
6	#9	37'-6"	G1	Beam
4	#6	35'-0"	G2	"
4	#10	8'-9"	G3	"
6	#10	35'-0"	G4	"
84	#3	7'-9"	P1	Column
84	#5	9'-0"	U2	Beam
48	#6	18'-0"	V7	Column

COMPLETE BILL OF REINFORCING STEEL

Bending Sketches & Cutting Diagrams



No.	Size	Length	Mark	Location
Superstructure				
28	#5	5'-6"	C1	Curb
120	#5	5'-3"	C2	"
4	#5	6'-0"	C3	"
4	#5	7'-3"	C4	"
4	#5	8'-6"	C5	"
12	#5	22'-3"	C6	"
6	#6	28'-0"	C7	"
12	#4	6'-0"	R1	End Post
78	#4	9"	R2	Rail
60	#4	7'-9"	R3	Subpost
83	#6	4'-5"	R4	Post
403	#6Ga.	2'-4"	R5	Baluster
12	#4	6'-9"	R6	End Post
16	#4	8'-0"	R7	Rail
16	#4	6'-6"	R8	"
16	#4	7'-9"	R9	"
167	#5	35'-0"	S1	Slab
38	#5	22'-6"	S2	"
19	#8	44'-0"	S3	"
36	#8	13'-3"	S4	"
36	#8	8'-6"	S5	"
16	#9	14'-6"	S6	"
40	#5	7'-6"	S7	Flared Slab
50	#8	30'-2"	S8	Slab
48	#9	24'-0"	S9	"
44	#8	13'-6"	S10	"
24	#7	20'-6"	S11	"
[illegible]	#7	15'-0"	S12	"
25	#6	30'-3"	S13	"
8	#5	5'-6"	S14	"
16	#9	16'-3"	S15	"
16	#4	9'-6"	R10	Rail
8	#4	6'-3"	R11	"

QUANTITIES

Item		Substr.	Superstr.	Total
Class 1 Excavation for Structures	Cu. Yds.	147.0		147.0
Class 2 Excavation for Structures	Cu. Yds.	250.5		250.5
Class "B-1" Concrete (Handrail)	Cu. Yds.		11.3	11.3
Class "B-1" Concrete (Except Handrail)	Cu. Yds.		141.6	141.6
Class "B" Concrete	Cu. Yds.	126.6		126.6
Reinforcing Steel	Lbs.	12680	30880	43560
Foundation Test Holes Drilled	L.F.	39		39

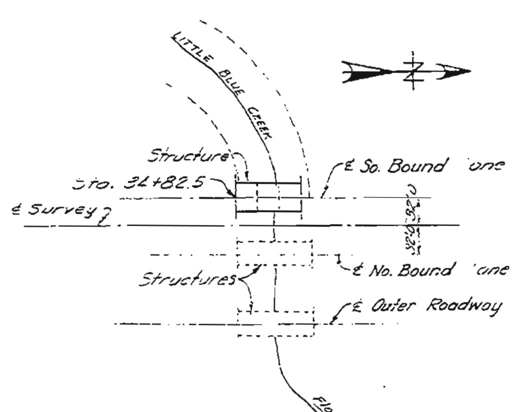
Note: Excavation for bridge made above Elev. 944.5 is paid for as Class 1 Excavation for Structures.
Excavation for bridge made below Elev. 944.5 is paid for as Class 2 Excavation for Structures.

GENERAL NOTE:
Design Specifications: A.A.S.H.O. - 1953
Loading: H20-44
Reinforcing Steel Stress: 20,000 #/□"
Concrete, Class "B" Stress: 1200 #/□"
Concrete, Class "B-1" Stress: 1400 #/□"
Concrete for superstructure is Class "B-1" air-entrained.
Concrete for substructure is Class "B" air-entrained.

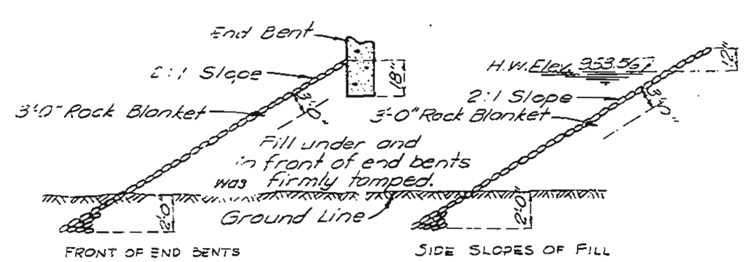
Where joint filler is specified on the plans it did conform with the requirements for Gray Rubber Compound Joints as given in Section 59-228 of the Standard Specifications.
Superstructure deck is waterproofed. See Special provisions.

FINISHED

B.M. Bolt set in West ear of North abutment. Elev. = 957.0



LOCATION SKETCH



Note: 3'-0" Rock Blanket was placed on fills at ends of bridge as shown in sketches. See Road Plans for Quantities.

ROCK BLANKET SKETCHES

BRIDGE OVER LITTLE BLUE CREEK

STATE ROAD FROM CASS CO. LINE NORTH
ABOUT 2.7 MILES S. OF GRANDVIEW
PROJECT NO. F-353(20) (PT.1) STA. 34+82.5

JACKSON **COUNTY**

FINISHED

SUBMITTED BY J. A. Williams BRIDGE ENGINEER DATE 10-8-1958
APPROVED BY Rex M. Whitton CHIEF ENGINEER DATE 10-8-1958

FINISHED

STD. C-10P7

A-478

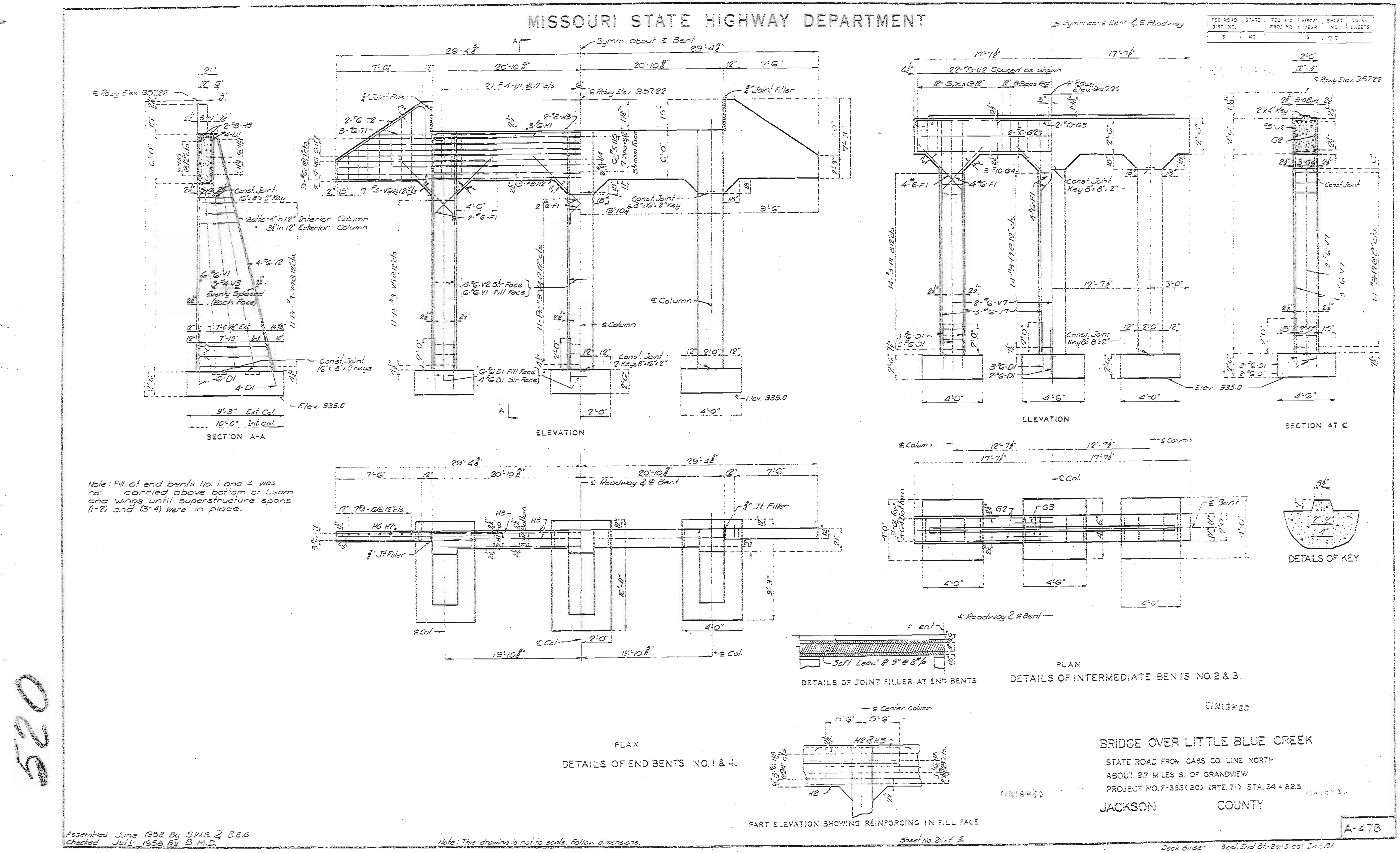
519

Drawn June 1958 by M.H.P.
Checked July 1958 by B.M.D.

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

Sheet No. 14 of 2

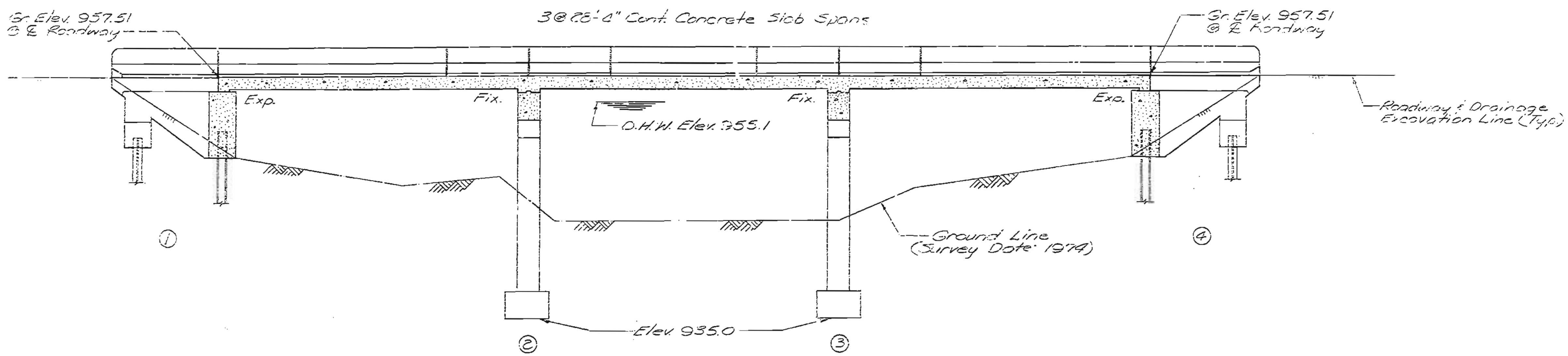
FINAL PLANS



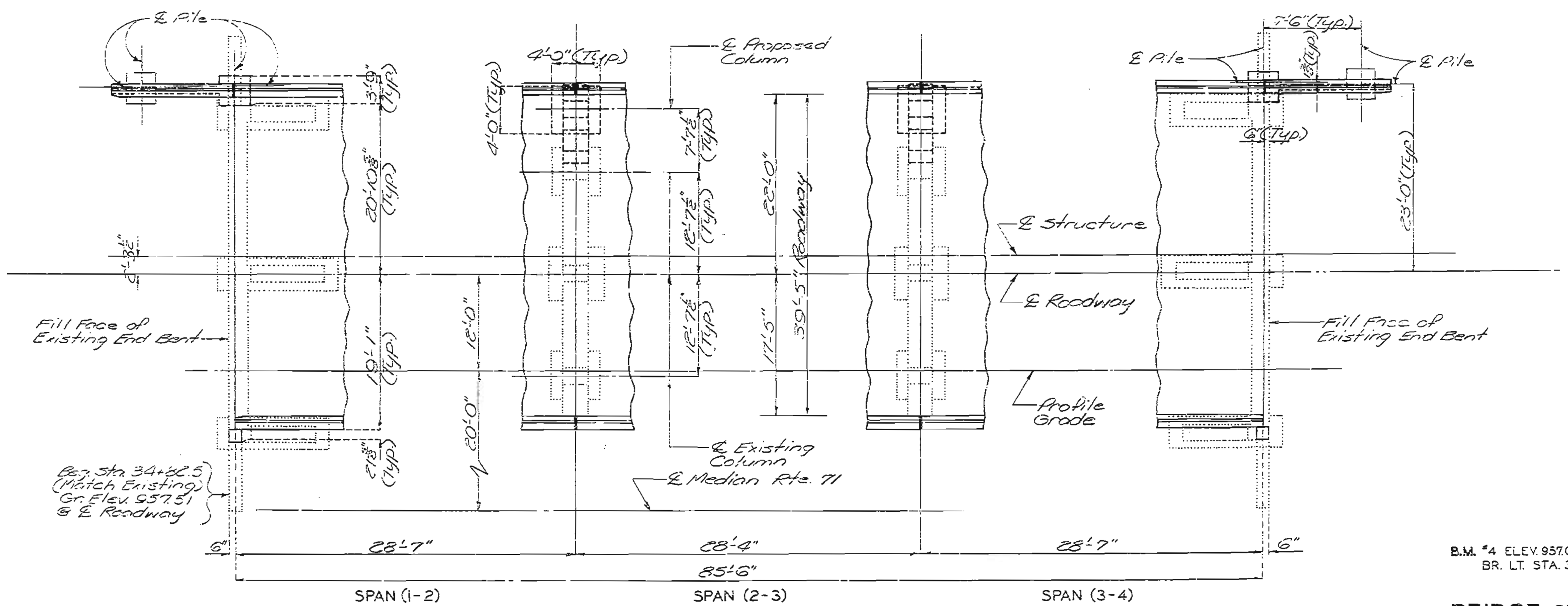
MISSOURI STATE HIGHWAY DEPARTMENT
SECTION A-A
ELEVATION
ELEVATION
SECTION AT ℄
Note: Fill at end bents No. 1 and 4 was not carried above bottom of beam and wings until superstructure spans (1-2) and (3-4) were in place.
DETAILS OF KEY
DETAILS OF JOINT FILLER AT END BENTS
PLAN
DETAILS OF INTERMEDIATE BENTS NO. 2 & 3.
PLAN
DETAILS OF END BENTS NO. 1 & 4.
PART ELEVATION SHOWING REINFORCING IN FILL FACE
BRIDGE OVER LITTLE BLUE CREEK
STATE ROAD FROM CASS CO. LINE NORTH
ABOUT 2.7 MILES S. OF GRANDVIEW
PROJECT NO. F-353(20) (RTE. 71) STA. 34+82.5
JACKSON COUNTY
A-478
Assembled June 1958 By S.W.S. & B.E.G.
Checked July 1958 By B.M.D.
Note: This drawing is not to scale. Follow dimensions.
Sheet No. 2 of 2
Deck Girder 3 col. End Bt. 2 or 3 col. Int. Bt.
520

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO		19	135	



GENERAL ELEVATION



PLAN

Note: For Hydraulic Data, Pile Data, General Notes, Estimated Quantities and Location Sketch see Sheet No. 2

B.M. #4 ELEV. 957.04 TOP BOLT IN N.W. WING WALL OF S.B.L. BR. LT. STA. 35+70.0

BRIDGE OVER LITTLE BLUE RIVER

STATE ROAD FROM BLUE RIDGE BLVD TO CASS COUNTY LINE IN GRANDVIEW

PROJECT NO. U-F-71-4 (30) **STA.** 34+82.5±

JOB NO. 4-U-71-71 **RTE.** 71

JACKSON COUNTY

DATE 1-11-79

STD.

STD. 106.30

A-478 R

DESIGNED Sept. 1978
DETAILED Nov. 1978
CHECKED Nov. 1978

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

Sheet No. 1 of 10

MISSOURI STATE HIGHWAY DEPARTMENT

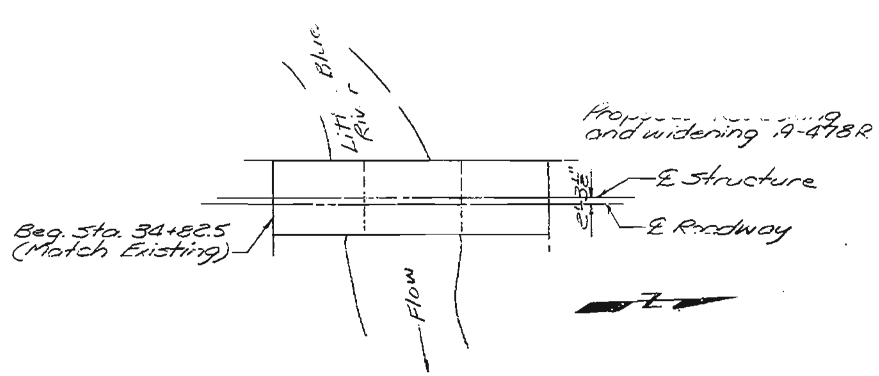
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	136	

162

PILE DATA							
BENT NO.		(Wing) 1	(Beam)	2	3	(Wing) 4	(Beam)
BEARING PILES	Pile Type and Size	HP10x42	HP10x42			HP10x42	HP10x42
	Number	1	1			1	1
	Approximate Length Ft.	17	17			17	17
	Design Bearing Tons	5	20			5	20
	Hammer Energy Required Ft. Lbs.	7000	7000			7000	7000
SPREAD FOOTINGS	Foundation Material			Shale	Shale		
	Design Bearing Tons/Sq.ft.			5	5		

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

ESTIMATED QUANTITIES				
ITEM		SUBSTR.	SUPERSTR.	TOTAL
Removal of Existing Bridge Deck	Sq.ft.		3079	3079
Class B-1 Concrete	Cu.yd.		196.0	196.0
Class B Concrete	Cu.yd.	20.0		20.0
Class I Excavation	Cu.yd.	35		35
Laminated Neoprene Brg. Pads (12"x5"x1⅛")	Ea.	18		18
Reinforcing Steel (Epoxy)	Lbs.		15000	15000
Reinforcing Steel	Lbs.	2890	26840	29730
Slab drains	Ea.		6	6
Special Work (See Special Provisions)	Lump Sum	1		1
Structural Steel Pile (HP10x42)	Lin.ft.	68		68



GENERAL NOTES:

Design Specifications: A.A.S.H.T.O.-1973 Load Factor Design

Design Loading:
HS 20-44 15#/sq.ft Future Wearing Surface
Modified 24,000# Tandem Axle
Earth 120# Equivalent Fluid Pressure 30#

Design Unit Stresses:
Class B Concrete (Substructure) f'c=3,000 psi
Class B1 Concrete (Superstructure) f'c=4,000 psi
Reinforcing Steel 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.

Reinforcing Steel:
Minimum clearance to reinforcing Steel shall be 1½" unless otherwise shown.
Bars bonded in old concrete not removed shall be cleanly stripped and embedded into new concrete as detailed on sheets No. 3 & 5.

Note:
All concrete and reinforcement in Safety Barrier Curbs is included in Superstructure Quantities.
All concrete and reinforcement in End Bents above lower construction joint is included in Superstructure Quantities.

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

Compressive strain of any layer of an elastromeric bearing shall not exceed 7% at 515 psi average unit pressure.

HYDRAULIC DATA	
Drainage Area:	5 sq.mi. (Rolling)
Design Discharge:	3640 cfs (50% Urban)
Frequency:	25 yrs.
Design H.W. Elev. @ ℄ Median:	955.1

BASIC FLOOD DATA	
Discharge:	5020 cfs
Design H.W. Elev.	955.9

DETAILED Sept. 1978
CHECKED Nov. 1978

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

Sheet No. 2 of 10.

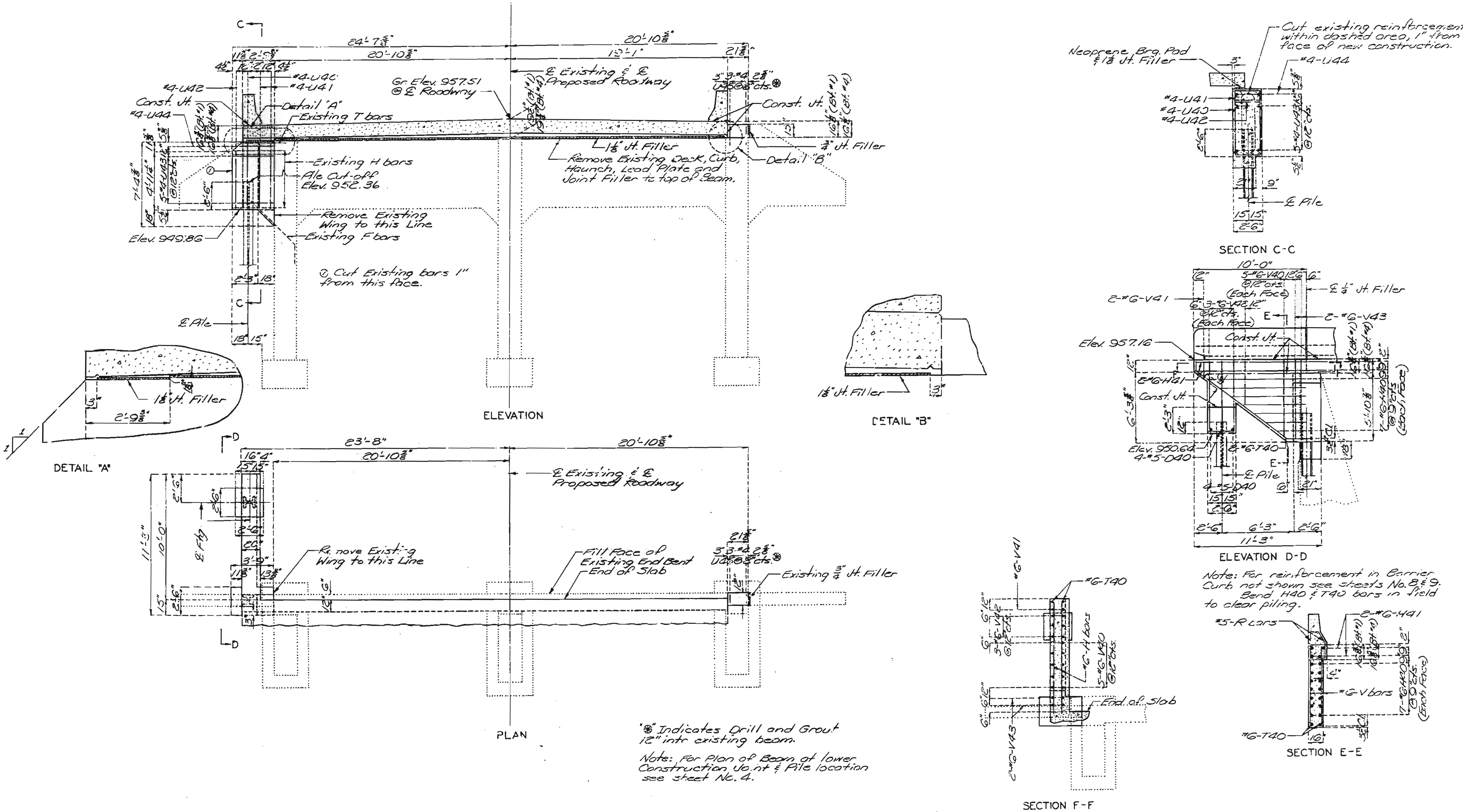
SEE FINAL PLANS

JACKSON COUNTY

A-478R

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	137	



DETAILS OF END BENT NO. 4

END BENT NO. 1 SIMILAR BY 180° ROTATION

DETAILED Sept 1978

CHECKED Nov. 1978

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

Sheet No. 3 of 10

JACKSON COUNTY

A-478R

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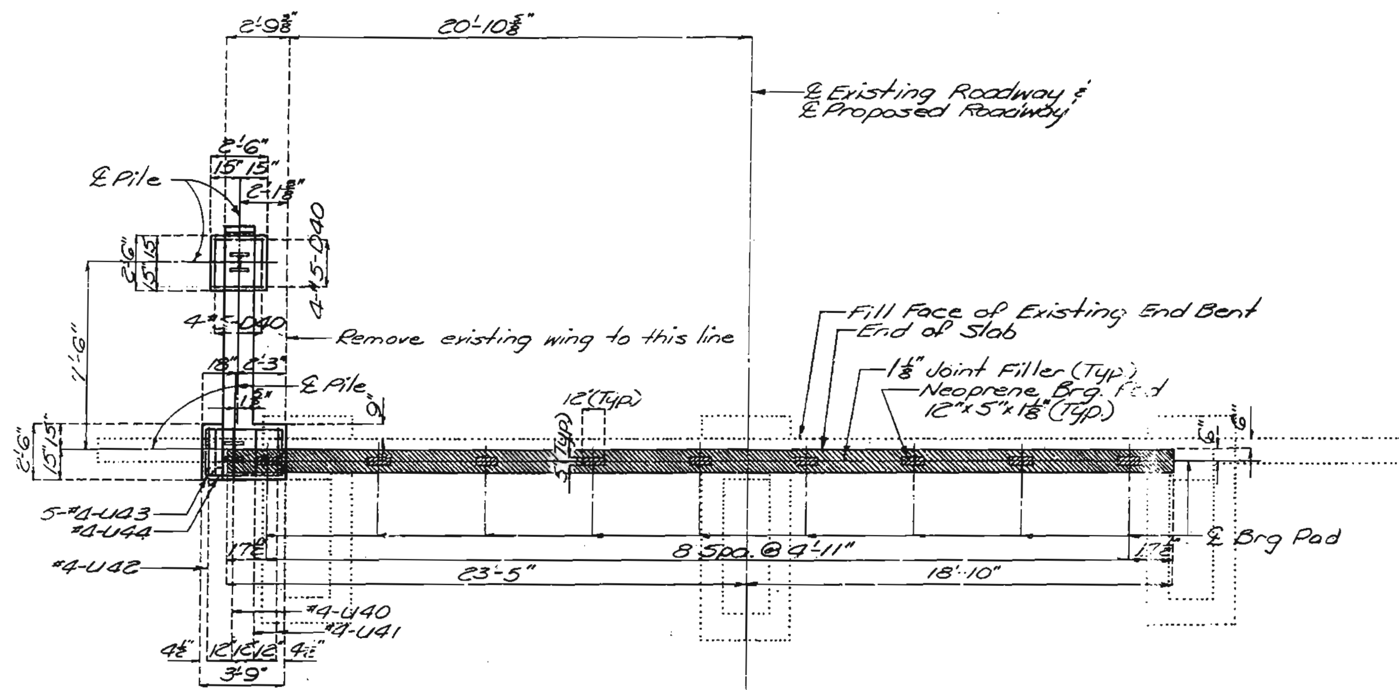
MISSOURI STATE HIGHWAY DEPARTMENT

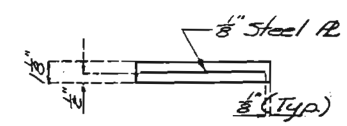
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		[illegible]	138	

164



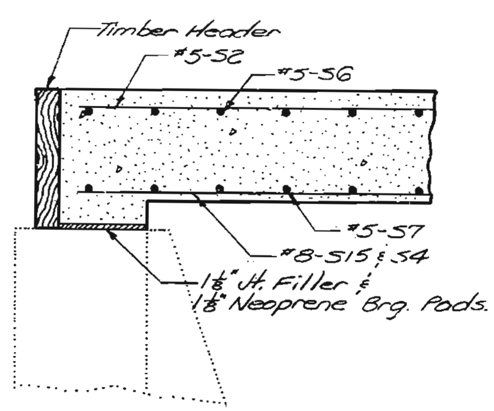
PLAN OF BEAM
(AT LOWER CONST. JOINT)

DETAILS OF END BENT NO. 4
(BENT NO. 1 SIMILAR BY 180° ROTATION)

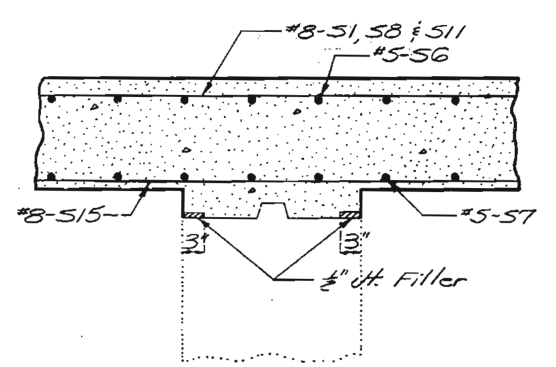


TYPICAL SECTION THRU
NEOPRENE BEARING PAD

Note: Neoprene Bearing Pads shall be 60 durometer.



BENTS NO. 1 & 4

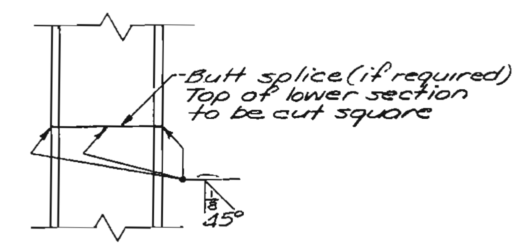


Note: For Key Detail see sheet No. 5.

BENTS NO. 2 & 3

PART LONGITUDINAL SECTION ALONG ℄ ROADWAY

Note: For Timber Header Details see sheet No. 9.



DETAIL OF STEEL PILE SPLICE

DETAILED Sept. 1978
CHECKED Nov 1978

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

Sheet No. 4 of 10.

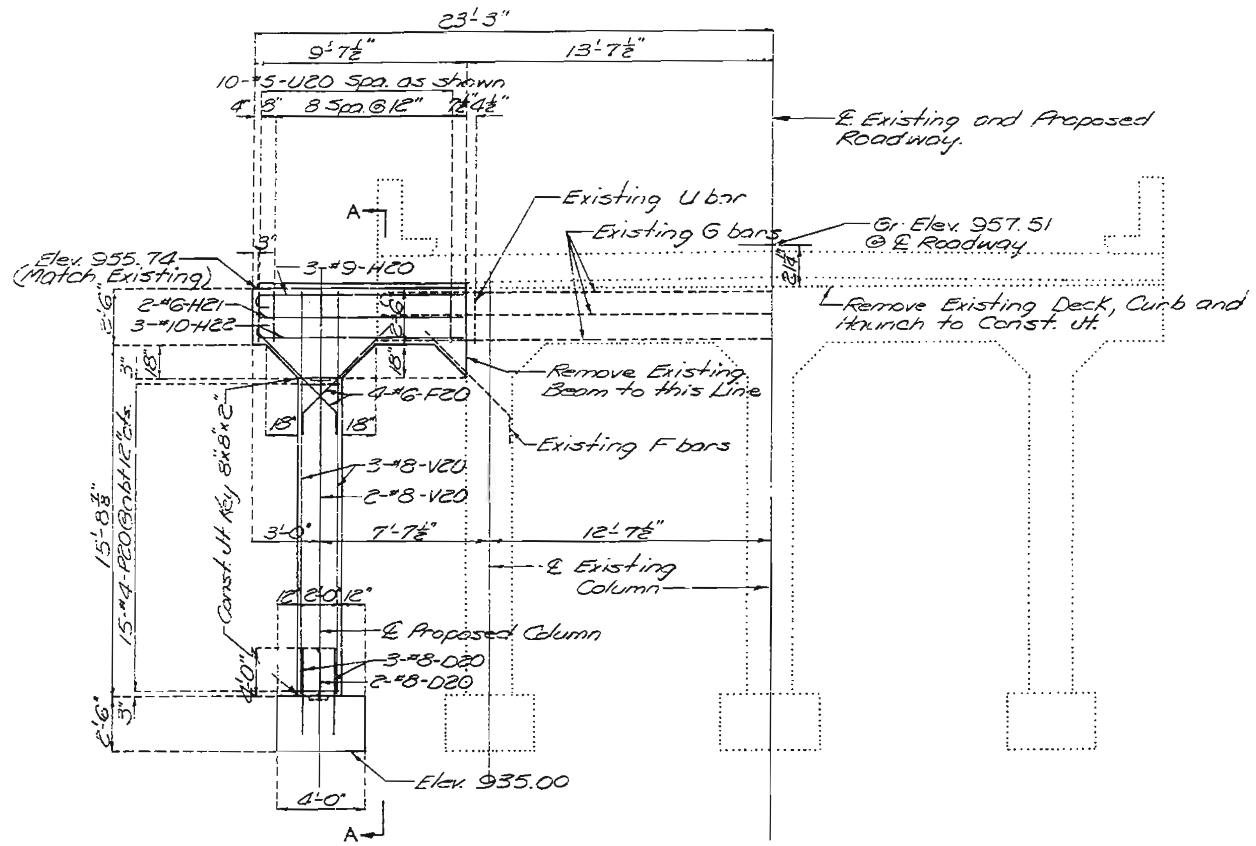
JACKSON COUNTY

A-478 R

MISSOURI STATE HIGHWAY DEPARTMENT

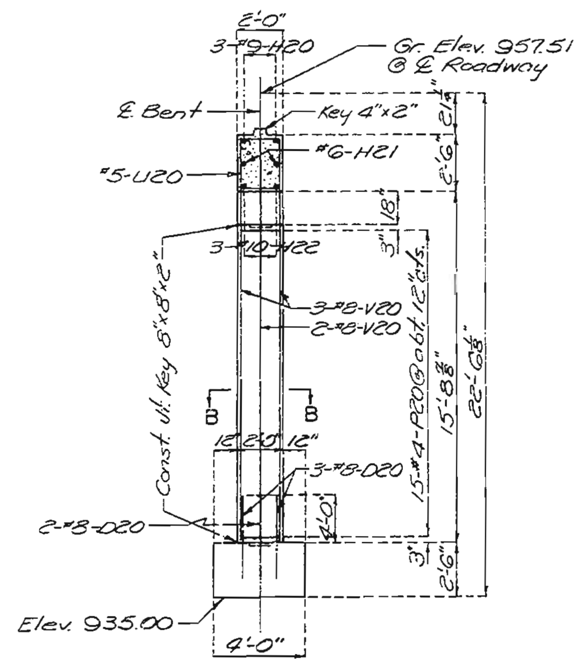
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	139	

165

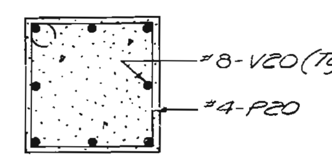


ELEVATION

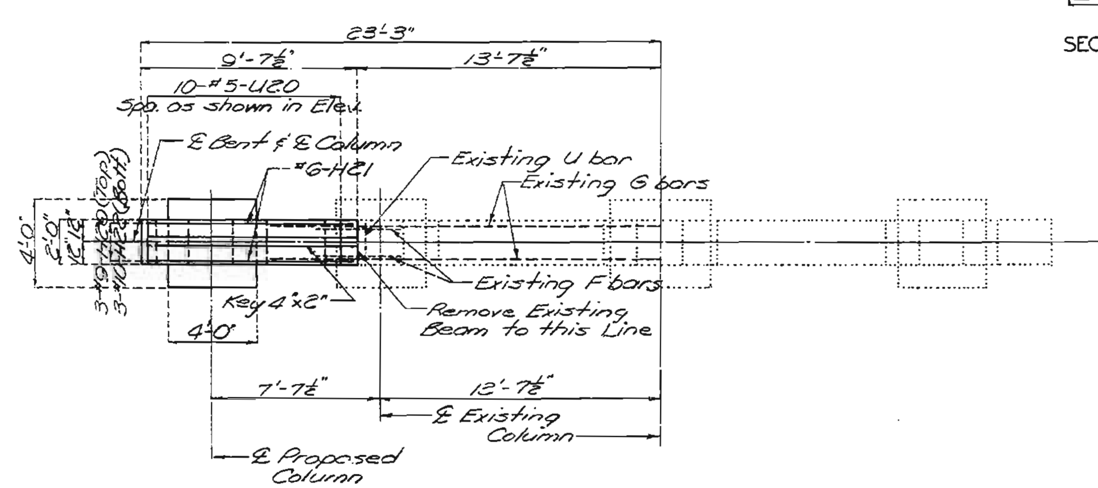
Note: Existing reinforcement to be left uncut.



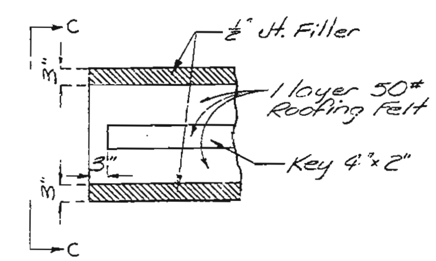
SECTION A-A



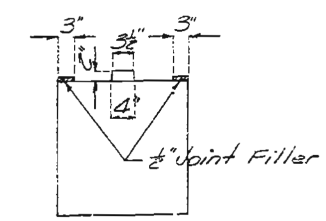
SECTION B-B



PLAN



DETAIL SHOWING KEY AND JOINT FILLER AT INT. BENTS



ELEVATION C-C

DETAILS OF INT. BTS. NO. 2 & 3

DETAILED Aug 1973
CHECKED Nov. 1973

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

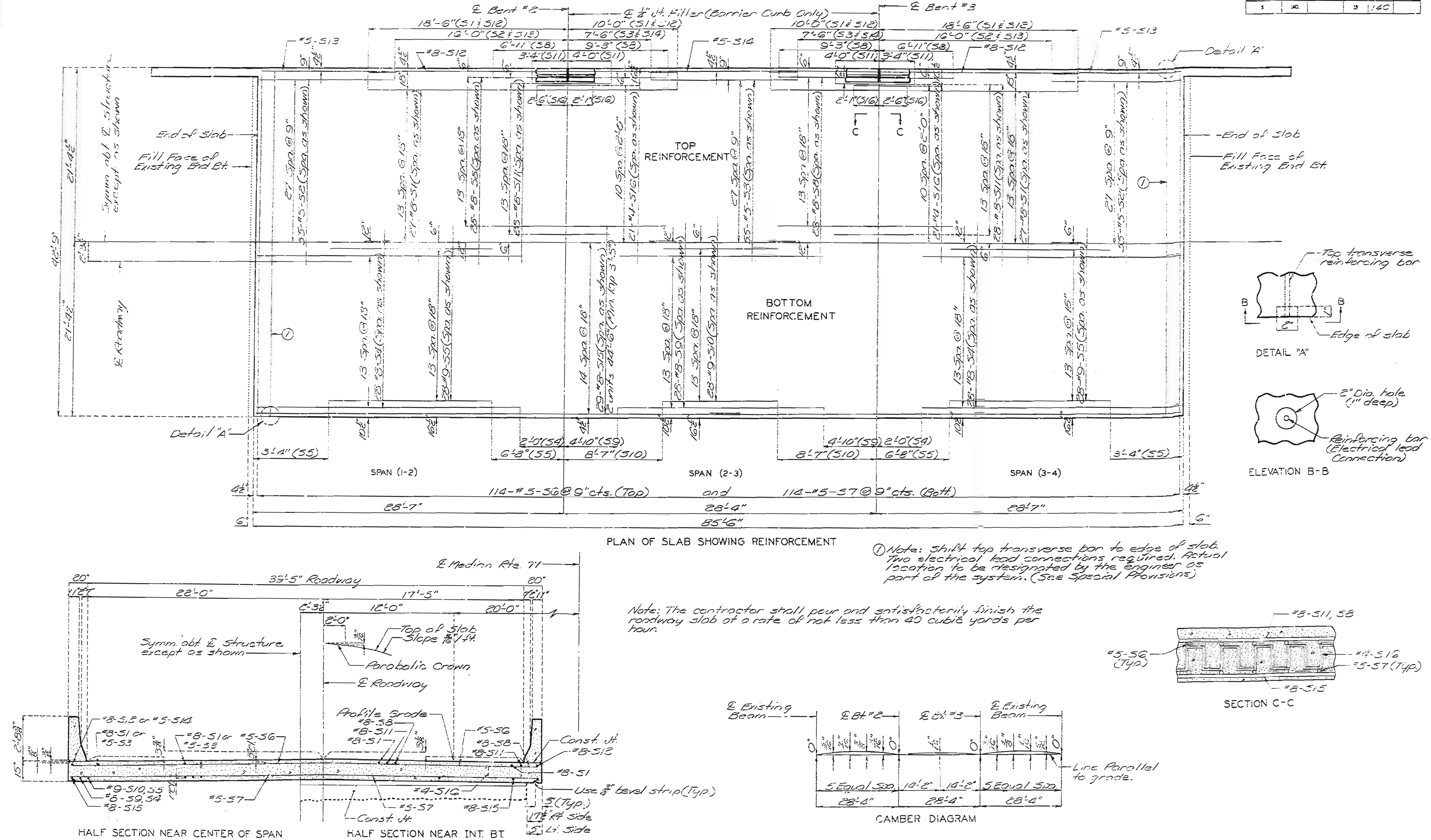
Sheet No. 5 of 10.

JACKSON COUNTY

A-478R

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		13	140	



① Note: Shift top transverse bar to edge of slab. Two electrical lead connections required. Actual location to be designated by the engineer as part of the system. (See Special Provisions)

Note: The contractor shall pour and satisfactorily finish the roadway slab at a rate of not less than 40 cubic yards per hour.

DETAILED Sept. 1978
CHECKED Nov. 1978

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

Sheet No. 6 of 10.

JACKSON COUNTY

A-478 R

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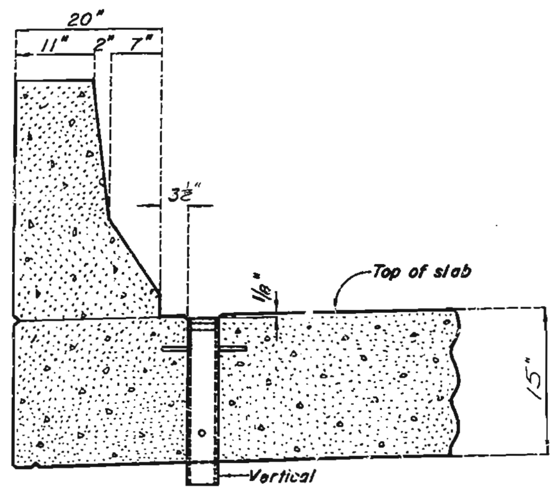
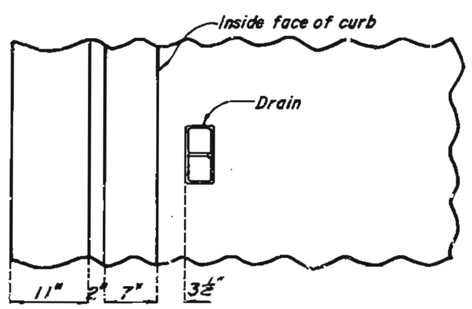
MISSOURI STATE HIGHWAY DEPARTMENT

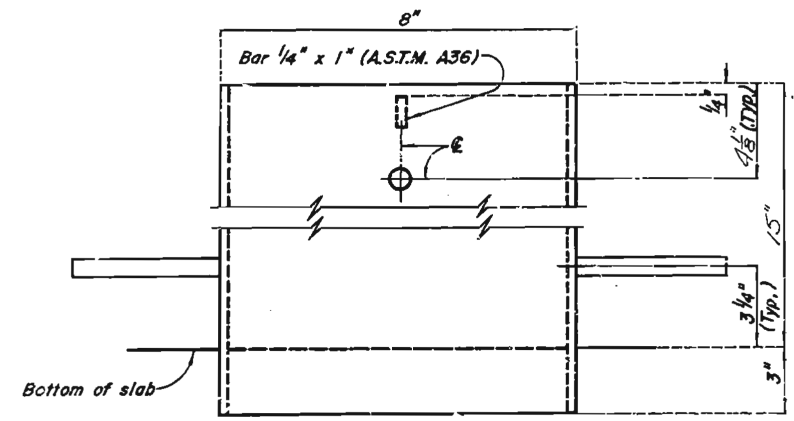
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	141	



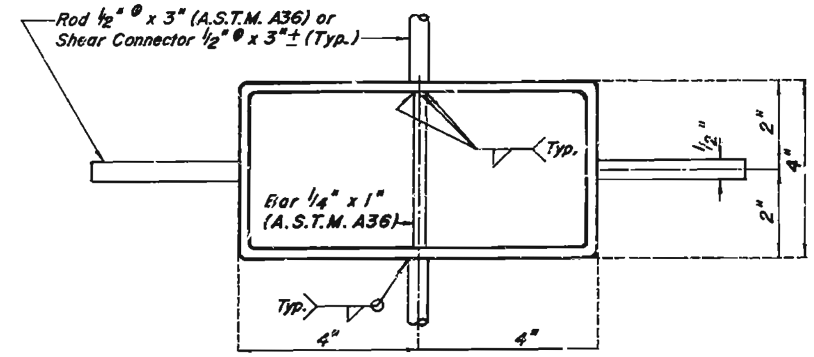
PART ELEVATION OF SLAB



PART PLAN OF SLAB



ELEVATION



PLAN

SLAB DRAIN DETAILS

GENERAL NOTES: SLAB DRAINS

SLAB DRAINS MAY BE FABRICATED OF EITHER 1/4" WELDED SHEETS OF A.S.T.M. A36 STEEL OR FROM 1/4" STRUCTURAL STEEL TUBING A.S.T.M. A500 OR A501.

OUTSIDE DIMENSIONS OF DRAINS ARE 8"x4".

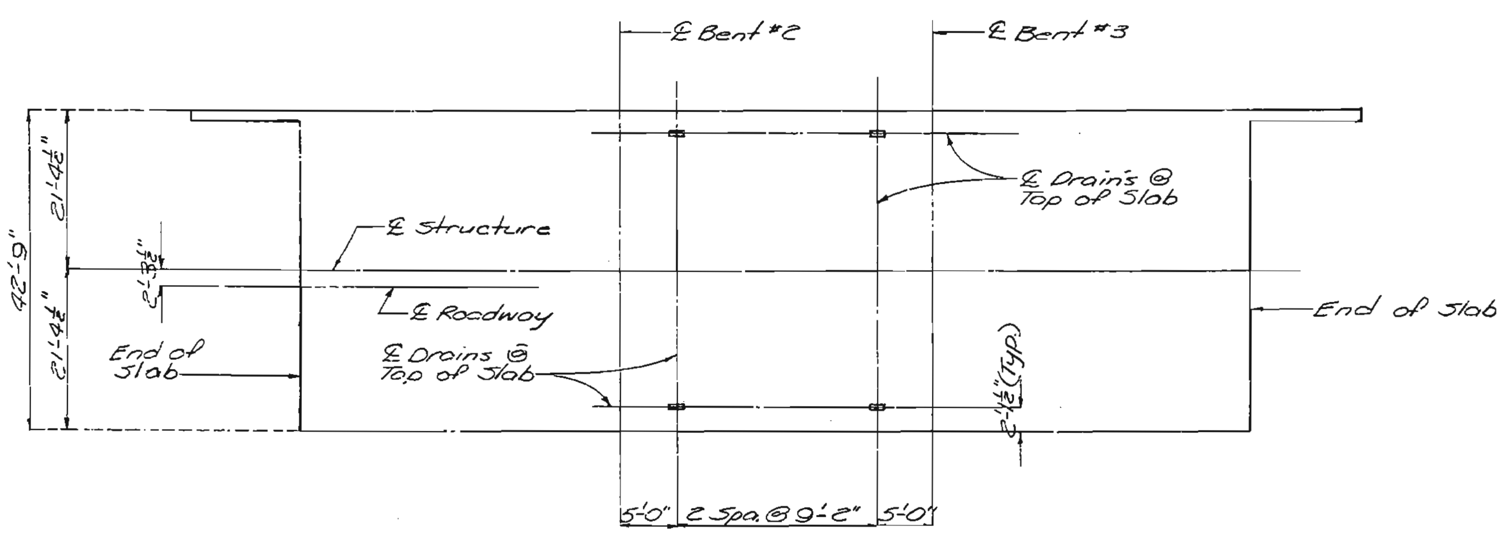
THE DRAINS SHALL BE CAST IN THE CONCRETE WITH THE TOP OF THE DRAINS BEING 1/8" BELOW THE FINISHED CONCRETE LINE.

LOCATE DRAINS IN THE SLAB BY DIMENSIONS SHOWN IN THE PART ELEVATION.

SHIFT REINFORCING STEEL IN FIELD WHERE NECESSARY TO CLEAR DRAINS.

THE DRAINS SHALL BE GALVANIZED IN ACCORDANCE WITH A.S.T.M. [illegible]23.

SHOP DRAWINGS WILL NOT BE REQUIRED FOR THE SLAB DRAINS.



LOCATION OF SLAB DRAINS

167

S.P.S.	S.D.N.W.S.	REVISED
FEB. 1975		MARCH 1978

DETAILED Nov. 1978
CHECKED Nov 1978

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

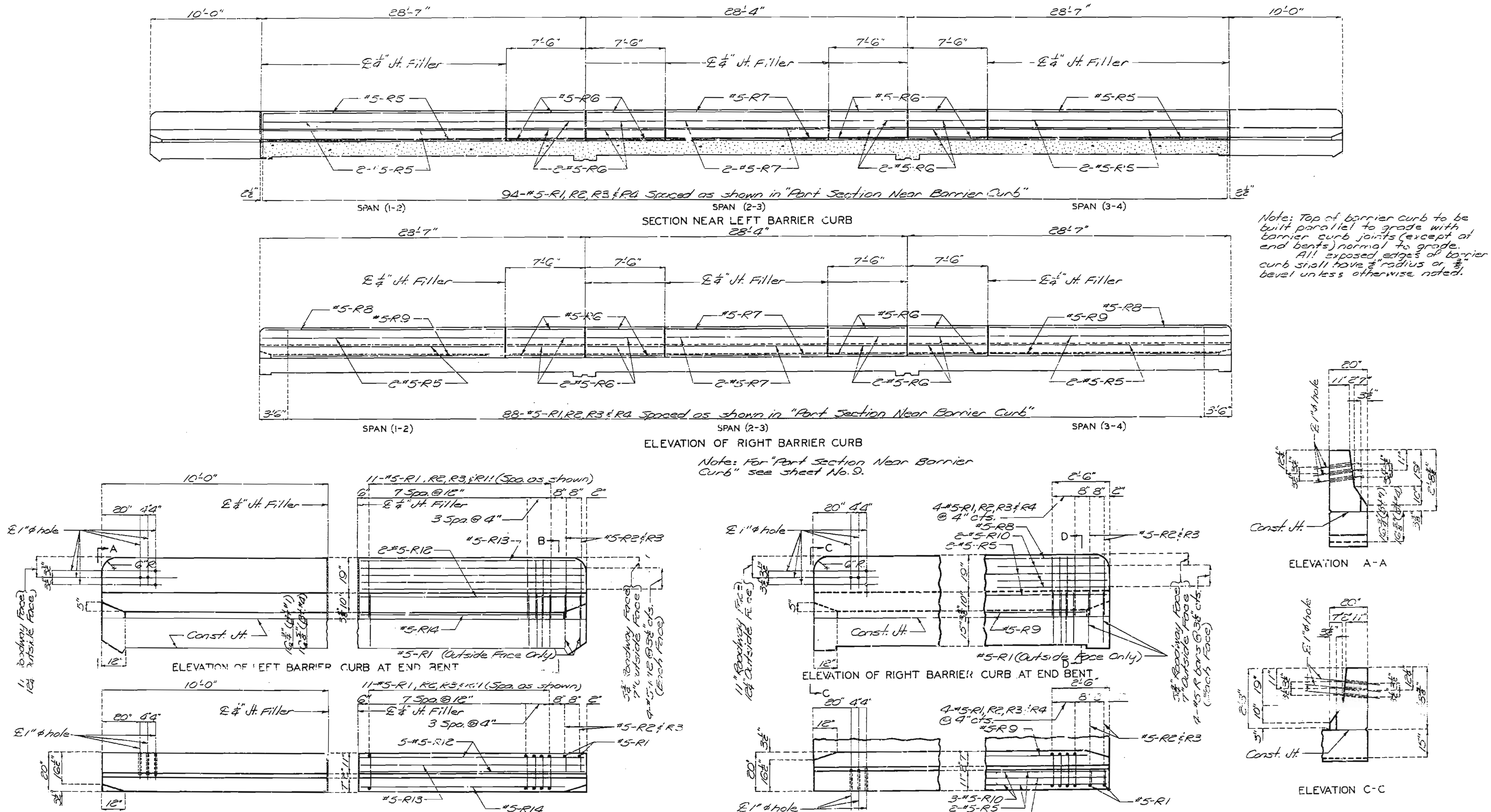
Sheet No. 7 of 10.

JACKSON COUNTY

A-478R

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	142	



SECTION NEAR LEFT BARRIER CURB

ELEVATION OF RIGHT BARRIER CURB

ELEVATION OF LEFT BARRIER CURB AT END BENT

PLAN OF LEFT BARRIER CURB AT END BENT

ELEVATION OF RIGHT BARRIER CURB AT END BENT

PLAN OF RIGHT BARRIER CURB AT END BENT

ELEVATION A-A

ELEVATION C-C

Note: Top of barrier curb to be built parallel to grade with barrier curb joints (except at end bents) normal to grade. All exposed edges of barrier curb shall have ¾" radius or ¾" bevel unless otherwise noted.

Note: For "Part Section Near Barrier Curb" see sheet No. 9.

Note: For Section B-B & Section D-D see sheet No. 9. For Filled Joint Detail see sheet No. 9.

DETAILED Sept 1978
CHECKED Nov. 1978

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

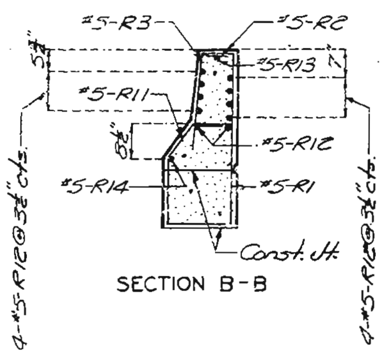
Sheet No. 8 **of** 10.

JACKSON COUNTY

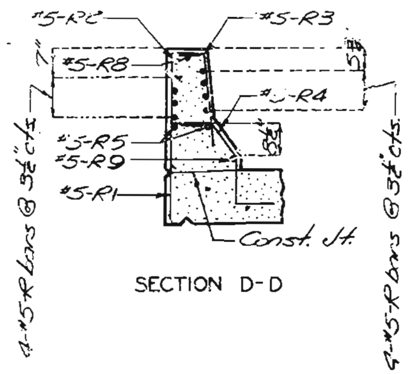
A-478 R

MISSOURI STATE HIGHWAY DEPARTMENT

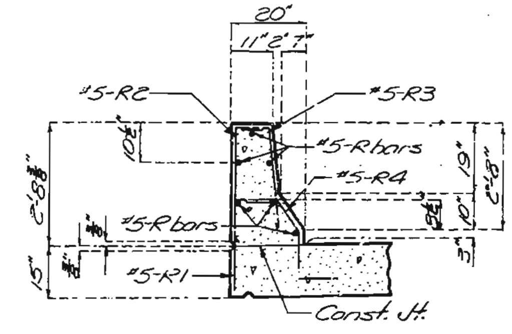
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	143	



SECTION B-B

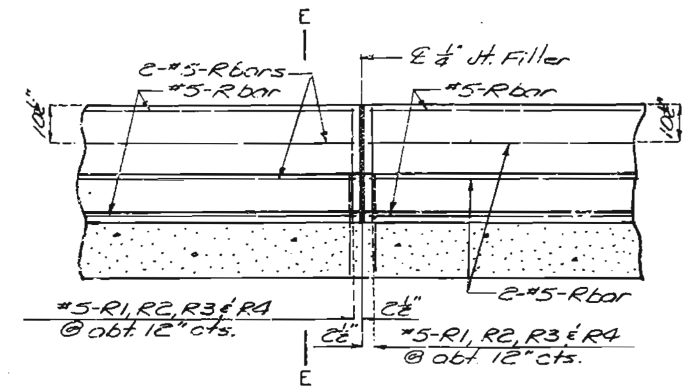


SECTION D-D

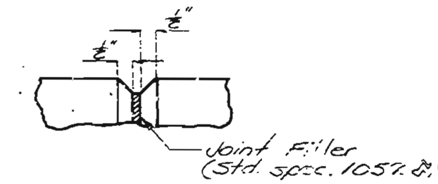


SECTION E-E

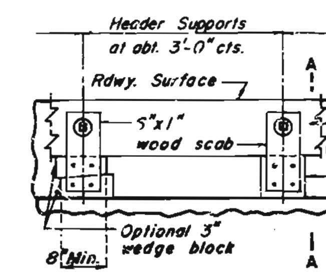
Note: Use Minimum lap of 17" for #5 horizontal barrier curb bars.



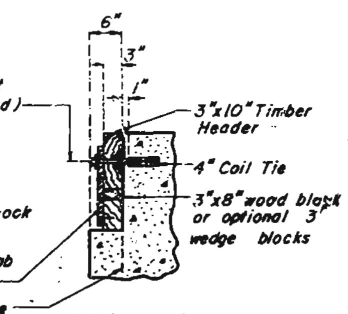
PART SECTION NEAR BARRIER CURB



FILLED JOINT DETAIL



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 AT END BENTS

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DETAILED Nov. 1978
CHECKED Nov. 1978

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

Sheet No. 9 of 10.

JACKSON COUNTY

A-478R

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	144	

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																
		END BTS NO 1&4																
16	5D40	WING FOOTING		20		X			2 3.000							2 3	2 3	38
28	6H40	WING		20		X	V	4	3 4.000							3 4	3 4	
		INCR = 11.500 IN							9 1.000							9 1	9 1	261
4	6T40	WING		25	S	X			3.000	9 11.250	2 2.500			6 0.000	7 11.000	12 11	12 10	77
2	4U40	BEAM		10	S	X				5 9.000	2 3.000					13 9	13 7	18
4	4U41	BEAM		13	S	X			2 3.000	5 7.000	2 3.000	5 7.000				16 5	16 2	43
2	4U42	BEAM		13	S	X			2 3.000	4 10.000	2 3.000	4 10.000				14 11	14 8	20
10	4U43	BEAM		13	S	X			2 3.000	3 6.000	2 3.000	3 6.000				12 3	12 0	80
2	4U44	BEAM		13	S	X			2 3.000	2 11.000	2 3.000	2 11.000				11 1	10 10	14
20	6V40	WING		20		X	V	4	3 9.000							3 9	3 9	
		INCR = 9.250 IN							6 10.000							6 10	6 10	159
12	6V42	WING		20		X			6 3.000							6 3	6 3	113
8	6V43	WING		20		X			7 1.000							7 1	7 1	85
		INT.BTS NO 2&3																
16	8D20	FOOTING		20		X			6 4.000							6 4	6 4	271
16	4F20	COLUMN		15	S	X			12.000	5 3.000				8.500	8.500	6 3	6 3	67
6	9H20	BEAM		17		X			9 4.000							10 7	10 7	216
4	6H21	BEAM		20		X			9 4.000							9 4	9 4	56
6	10H22	BEAM		17		X			9 4.000							10 9	10 9	278
30	4P20	COLUMN		13	S	X			21.000	21.000	21.000	21.000				7 8	7 6	150
20	5U20	BEAM		13	S	X			21.000	2 3.000	21.000	2 3.000				8 11	8 7	179
16	8V20	COLUMN		20		X			18 0.000							18 0	18 0	769
		SUPERSTRUCTURE																
8	6H41	END POST		20					11 3.000							11 3	11 3	135
220	5R1	BARRIER CURB		19	S				2 1.000	9.000						2 10	2 9	631
220	5R2	BARRIER CURB		19	S				2 6.000	6.000						3 0	2 11	669
220	5R3	BARRIER CURB		15	S				2 6.125	6.000				2 6.000	3.000	3 0	2 11	669
190	5R4	BARRIER CURB		27	S					9.000	11.125	10.000	12.000	9.125	6.375	3 6	3 4	661
20	5R5	BARRIER CURB		20					20 10.000							20 10	20 10	435
48	5R6	BARRIER CURB		20					7 3.000							7 3	7 3	363
12	5R7	BARRIER CURB		20					13 1.000							13 1	13 1	164
2	5R8	BARRIER CURB		20					20 8.000							20 8	20 8	43
2	5R9	BARRIER CURB		20					19 10.000							19 10	19 10	41
12	5R10	BARRIER CURB		20					5 6.000							5 6	5 6	69
22	5R11	BARRIER CURB		27	S				12.000	16.500	11.125	9.000		[illegible].375	9.125	4 1	3 11	90
20	5R12	BARRIER CURB		20					9 9.000							9 9	9 9	203
2	5R13	BARRIER CURB		20					9 7.000							9 7	9 7	20
2	5R14	BARRIER CURB		20					8 9.000							8 9	8 9	18

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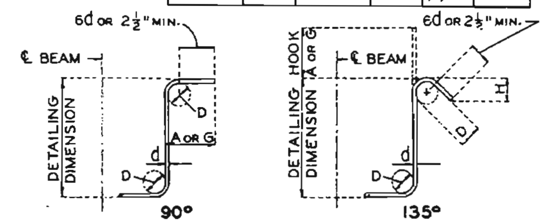
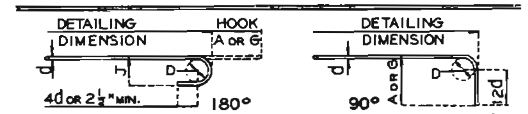
COMPLETE BILL OF REINFORCING STEEL

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.
54	8S1	SLAB	E	20					28 6.000							28 6	28 6	4109
112	5S2	SLAB ①	E	20					12 7.000							12 7	12 7	1470
55	5S3	SLAB	E	20					13 4.000							13 4	13 4	765
56	8S4	SLAB		20					26 6.000							26 6	26 6	3962
56	9S5	SLAB		20					18 7.000							18 7	18 7	3538
114	5S6	SLAB	E	20					42 6.000							42 6	42 6	5053
114	5S7	SLAB		20					42 6.000							42 6	42 6	5053
58	8S8	SLAB ①	E	20					16 2.000							16 2	16 2	2504
28	8S9	SLAB		20					18 8.000							18 8	18 8	1396
28	9S10	SLAB		20					11 2.000							11 2	11 2	1063
56	8S11	SLAB	E	20					7 4.000							7 4	7 4	1096
6	8S12	SLAB		20					28 6.000							28 6	28 6	304
4	5S13	SLAB		20					12 7.000							12 7	12 7	52
2	5S14	SLAB		20					13 4.000							13 4	13 4	28
58	8S15	SLAB		20					44 6.000							44 6	44 6	6891
42	4S16	SLAB		50					7.750	5.500						12 9	10 11	306
6	4U45	SLAB FILL IN		10	S					2 1.500	9.000					5 0	4 10	20
4	6V41	END POST		20					16.000							16	16	8



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	1-1/2"	4"	4"	2-1/2"
#4	2"	4-1/2"	4-1/2"	3"
#5	2-1/2"	6"	5-1/2"	3-3/4"
#6	4-1/2"	8"	7"	4-1/2"

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



SIZE OF 180° HOOKS (GRADE 40 KSI)

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

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

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

END HOOK DIMENSIONS					
BAR SIZE	180° HOOKS GRADE 40 A OR G	180° HOOKS GRADE 40 J	180° HOOKS GRADE 60 A OR G	180° HOOKS GRADE 60 J	90° HOOKS ALL GRADES A OR G
#3	5"	2-3/4"	5"	3"	6"
#4	6"	3-1/2"	6"	4"	8"
#5	7"	4-1/2"	7"	5"	10"
#6	8"	5-1/4"	8"	6"	12"
#7	9"	6-1/4"	10"	7"	14"
#8	10"	7"	11"	8"	16"
#9	12"	8"	15"	11-1/4"	19"
#10	13"	9"	17"	12-3/4"	22"
#11	14"	10"	19"	14-1/4"	2'-0"
#14	2'-2"	20-1/2"	2'-2"	20-1/2"	2'-7"
#18	2'-11"	2'-3"	2'-11"	2'-3"	3'-5"

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.

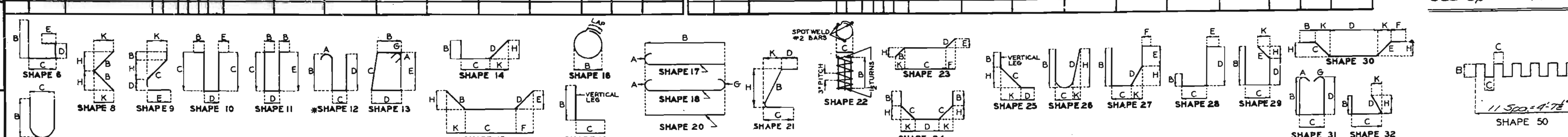
NO. EA. - NUMBER OF BARS OF EACH LENGTH.

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.

* ALL HOOKS AND BENDS FOR SHAPE NO. 12 - GRADE 40 (ONLY) ARE BASED ON D = 5d.

① *Two additional S2 and S8 bars are included in bar bill for testing. See Special Provisions.*



BENDING DIAGRAMS

STD. 90.8 MAY 1974 | REVISED OCT. 1978

DETAILED Nov 1978
CHECKED Nov 1978

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

Sheet No. 10 of 10.

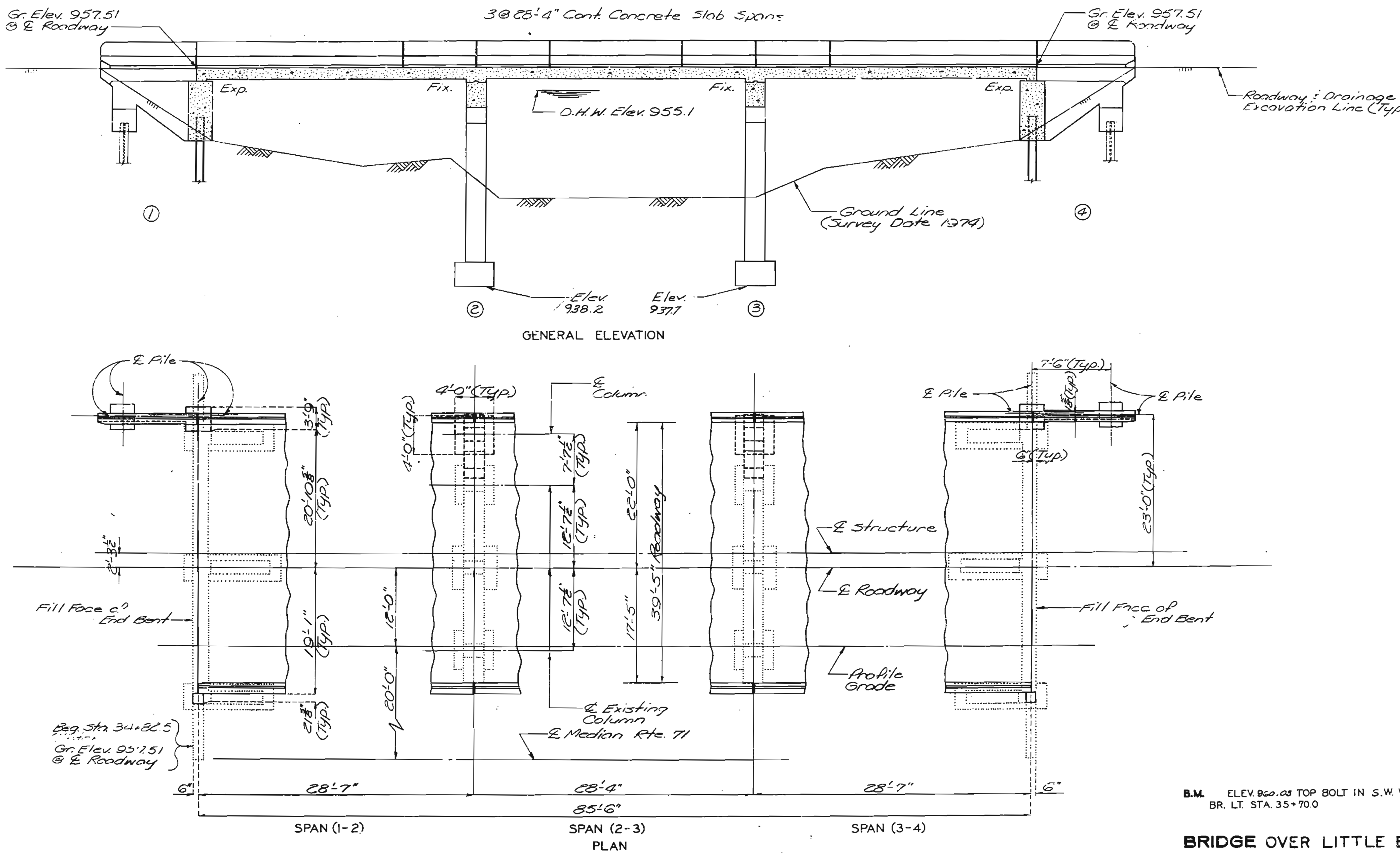
JACKSON COUNTY

A-478R

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	135	

FINAL PLANS



Note: For Hydraulic Data, Pile Data, General Notes, Quantities and Location Sketch see sheet No. 2

B.M. ELEV. 960.03 TOP BOLT IN S.W. WING WALL OF S.B.L. BR. LT. STA. 35+70.0

BRIDGE OVER LITTLE BLUE RIVER

STATE ROAD FROM BLUE RIDGE BLVD TO CASS COUNTY LINE IN GRANDVIEW

PROJECT NO. U-F-71-4(30) **STA.** 34+82.5±

JOB NO. 4-U-71-71 **RTE.** 71

JACKSON COUNTY

DATE 1-11-79

STD.
STD. 706.30
A-478 R

DESIGNED Sept. 1978
DETAILED Nov. 1978
CHECKED Nov. 1978

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

Sheet No. 1A of 10.

171

172

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	136	

FINAL PLANS

PILE DATA							
BENT NO.		(Wing) 1	(Beam)	2	3	(Wing) 4	(Beam)
BEARING PILES	Pile Type and Size	HP10x42	HP10x42			HP10x42	HP10x42
	Number	1	1			1	1
	Approximate Length Ft.	17	17			17	17
	Design Bearing Tons	5	20			5	20
	Hammer Energy Required Ft. Lbs	7000	7000			7000	7000
SPREAD FOOTINGS	Foundation Material			Shale	Shale		
	Design Bearing Tons/Sq.ft.			5	5		

Minimum energy requirement of hammer based on plan length and design bearing value of piles.
All pile were driven to practical refusal.

GENERAL NOTES:

Design Specifications: A.A.S.H.T.O.-1973 Load Factor Design

Design Loading:
HS 20-44 15#/sq.ft Future Wearing Surface
Modified 24,000# Tandem Axle
Earth 120# Equivalent Fluid Pressure 30#

Design Unit Stresses:
Class B Concrete (Substructure) f'c=3,000 psi
Class B1 Concrete (Superstructure) f'c=4,000 psi
Reinforcing Steel fy=60,000 psi

Steel Pile fb=9,000 psi.

Joint Filler:
All Joint Filler did meet the requirements of Std. Spec. 1057.2.4.

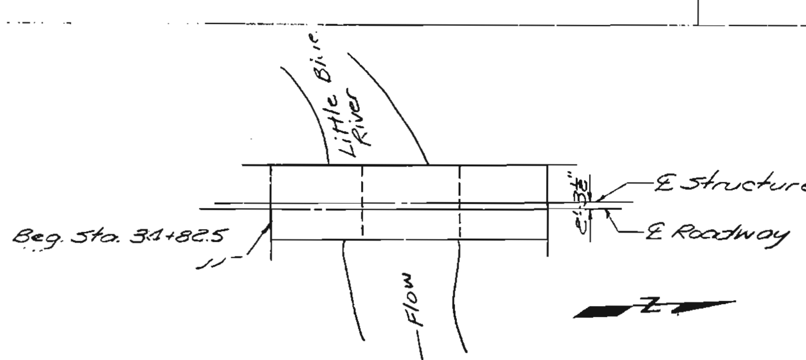
Reinforcing Steel:
Minimum clearance to reinforcing steel was 1½" unless otherwise shown.
Bars bonded in old concrete not removed was cleanly stripped and embedded into new concrete as detailed on sheets No. 3 & 5.

Note:
All concrete and reinforcement in Safety Barrier Curbs is included in Superstructure Quantities.
All concrete and reinforcement in End Bents above lower construction joint is included in Superstructure Quantities.

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

Compressive strain of any layer of an elastromeric bearing did not exceed 7% at 515 psi average unit pressure.

QUANTITIES				
ITEM		SUBSTR.	SUPERSTR.	TOTAL
Removal of Existing Bridge Deck	Sq. ft.		3079	3079
Class B-1 Concrete	Cu. yd.		196.0	196.0
Class B Concrete	Cu. yd.	19.1		19.1
Class I Excavation	Cu. yd.	24.5		24.5
Laminated Neoprene Brg. Pads (12"x5"x1⅛")	Ea.	18		18
Reinforcing Steel (Epoxy)	Lbs.		15000	15000
Reinforcing Steel	Lbs.	2890	26840	29730
Slab drains	Ea.		6	6
Special Work (See Special Provisions)	Lump Sum	1		1
Structural Steel Pile (HP10x42)	Lin. ft.	168		168
Test Holes	Lin. ft.	8		8



HYDRAULIC DATA	
Drainage Area:	5 sq. mi. (Rolling)
Design Discharge:	3640 cfs (50% Urban)
Frequency:	25 yrs.
Design H.W. Elev. @ ℄ Median:	955.1

BASIC FLOOD DATA	
Discharge:	5020 cfs
Design H.W. Elev.	955.9

DETAILED Sept. 1978
CHECKED Nov. 1978

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

Sheet No. 2 of 10.

JACKSON COUNTY

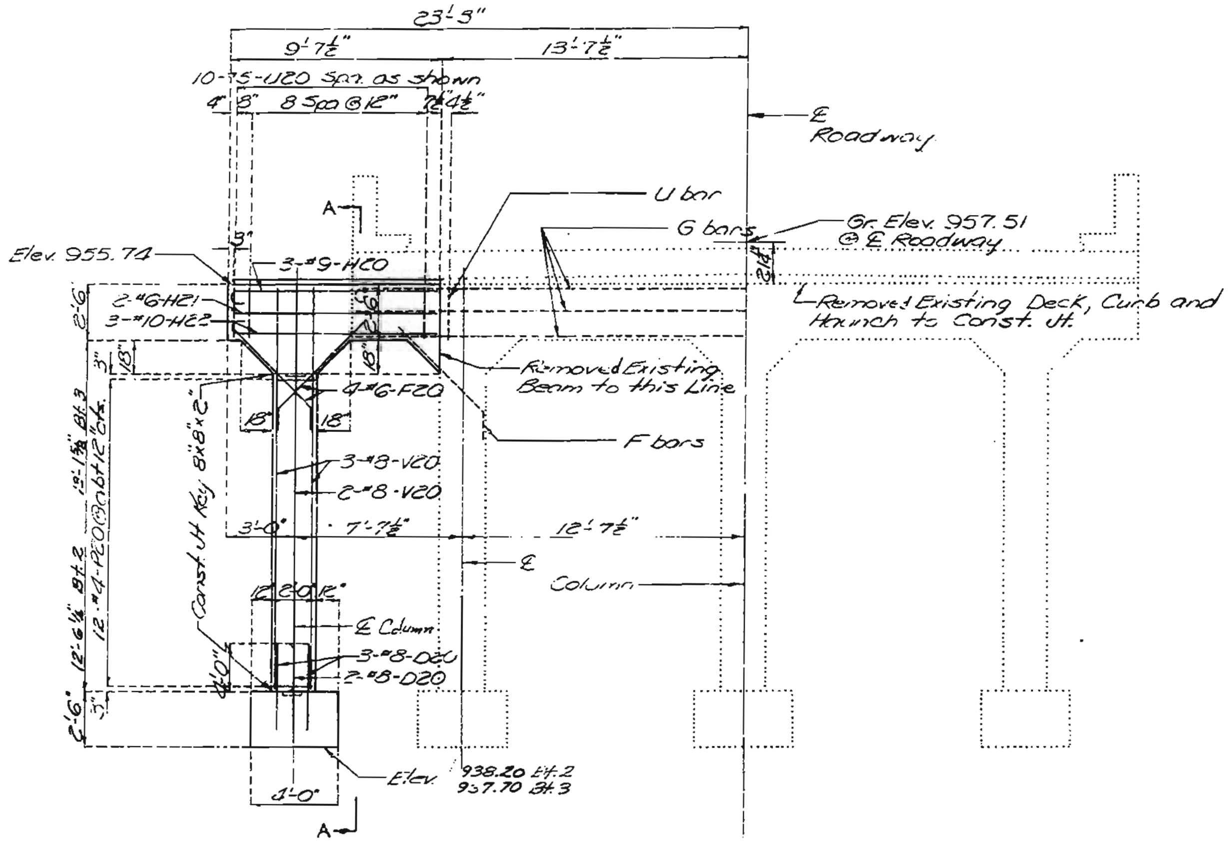
A-478 R

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		79	139	

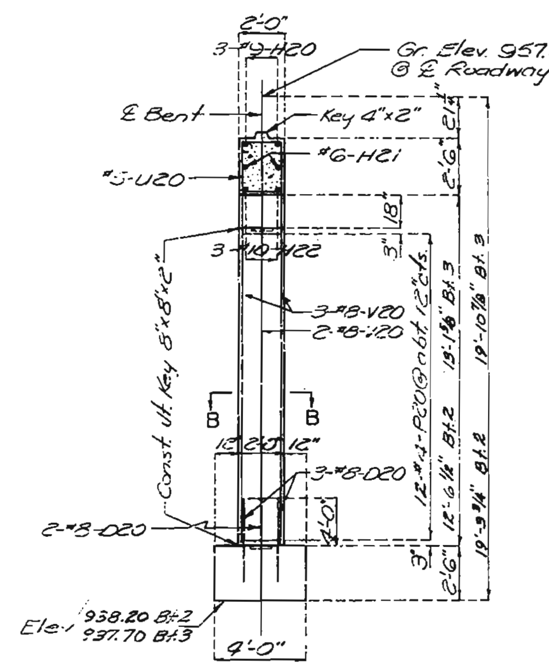
FINAL PLANS

173

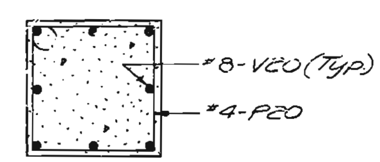


ELEVATION

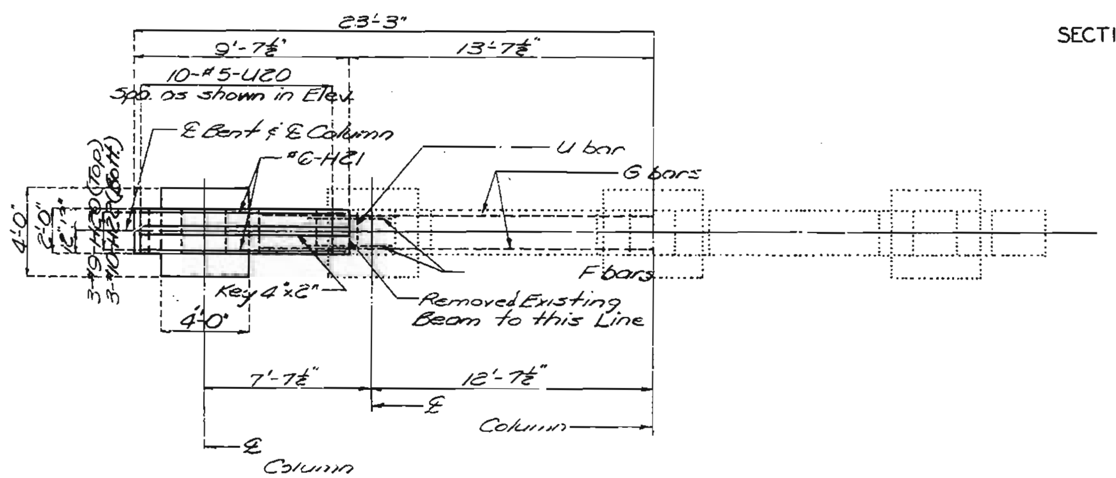
Note: Existing reinforcement was left uncut.



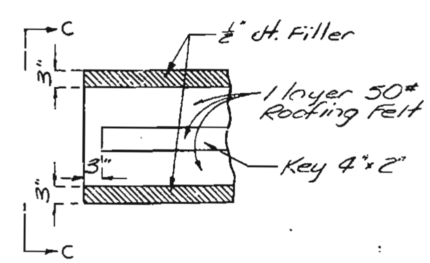
SECTION A-A



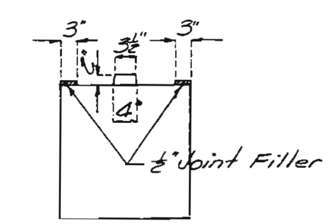
SECTION B-B



PLAN



DETAIL SHOWING KEY AND JOINT FILLER AT INT. BENTS



ELEVATION C-C

DETAILS OF INT. BTS. NO. 2 & 3

DETAILED Aug 1978
CHECKED Nov. 1978

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

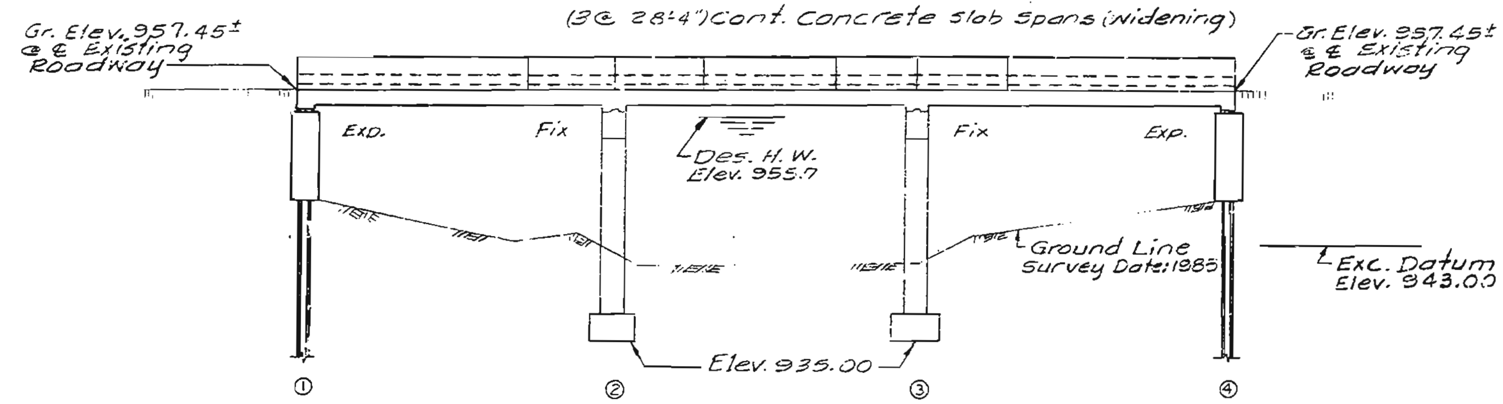
Sheet No. 5A of 10.

JACKSON COUNTY

A-478R

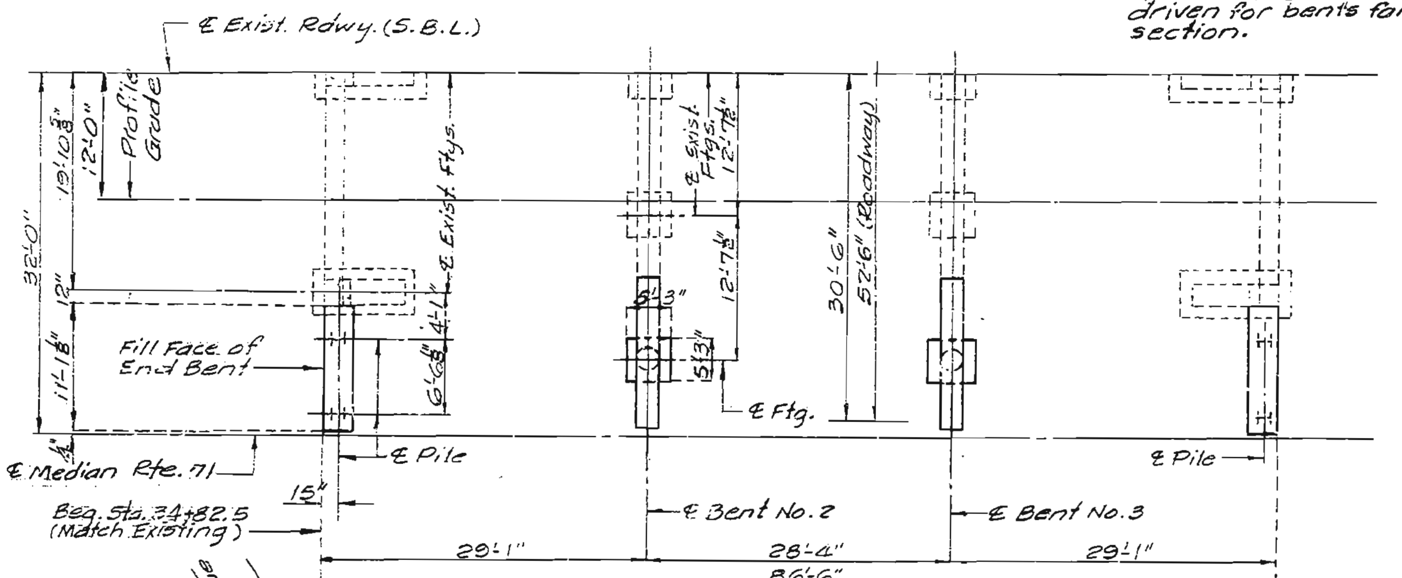
MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

STATE	PROJ NO	SHEET NO
MO		18
SEC/SUR 36	TWP 47 N	RGE 33 W

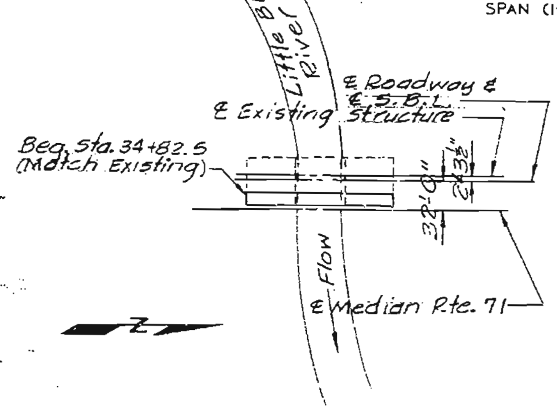


GENERAL ELEVATION

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



PLAN



LOCATION SKETCH

HYDROLOGIC DATA	
Drainage Area: 5.0 Sq. Mi. (Rolling)	
Design Discharge: 4220 cfs. (25 Years)	
Design H.W. Elev. 955.7 (25 Years)	
BASIC FLOOD DATA	
Q_{100} =	5935 cfs.
High water Elev. =	956.7

PILE & FOOTING DATA					
	BENT NO.	1	2	3	4
BEARING PILE	Pile Type and Size	HP10x42	—	—	HP10x42
	Number	2	—	—	2
	Approximate Length Ft.	17	—	—	17
	Design Bearing Tons	21	—	—	21
	Hammer Energy Req'd. Ft. Lbs.	7,000	—	—	7,000
SPREAD FOOTING	Foundation Material	—	Shale	Shale	—
	Design Bearing Tons/Sq. Ft.	—	5.0	5.0	—

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

GENERAL NOTES:

Design Specifications: A.A.S.H.T.O. - 1983 and Interims thru 1985 Load Factor Design

Design Loading:
HS20-44 35#/sq. ft. future wearing surface
Modified 24,000# Tandem Axle
Earth 120#/cu. ft. Equivalent Fluid pressure 30#/cu. ft.

Design Unit Stresses:
Class B Concrete (Substructure) f'c = 3,000 psi.
Class B2 Concrete (Superstructure) f'c = 4,000 psi.
Class B1 Concrete (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 requirement of std. Spec. 1057.2.4, except as noted.

Reinforcing Steel:
Minimum clearance to reinforcing steel 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.

Traffic Maintained: Traffic to be maintained during construction. (See Spec. Prov.)

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

Cost of furnishing and installing Resin Anchor Assemblies shall be included in Contract unit price for Concrete.

Neoprene Pads:
Cost of furnishing, fabricating and installing Neoprene Bearing Pads complete in place, will be paid for at the contract unit price for Laminated Neoprene Bearing Pads per each.

ESTIMATED QUANTITIES				
ITEM		SUBSTR.	SUPERSTR.	TOTAL
Curb Removal	Lin. Ft.		86	86
Partial Removal of Substructure Conc.	Lump Sum	1		1
Class 1 Excavation	Cu. Yd.	30		30
Class 2 Excavation	Cu. Yd.	40		40
Structural Steel Piles (10 in.)	Lin. Ft.	68		68
Class B Concrete	Cu. Yd.	25.8		25.8
Class B2 Concrete (Supstr. Solid Slab)	Cu. Yd.		57.8	57.8
Laminated Neoprene Bearing Pads	Each		6	6
Safety Barrier Curb	Lin. Ft.	—	86	86
Slab D[illegible]	Each		3	3
Reinforcing Steel (Plain)	Lb.	3,340	7,910	11,250
Reinforcing Steel (Epoxy)	Lb.		5,450	5,450

B.M. #4 Elev. 957.04 Top Bolt in N.W. Wing wall of S.B.L. Bridge

BRIDGE OVER LITTLE BLUE RIVER

STATE ROAD FROM BLUE RIDGE BLVD. TO CASS COUNTY LINE IN GRANDVIEW

PROJECT NO. 4-U-71-732C **STA.** 34+82.5

JOB NO. 4-U-71-732C **RTE.** 71 S.B.L.

Cass-JACKSON **COUNTY**

DATE 12/23/87

STD.
STD. 706.35
A-478 R1

DESIGNED Apr. 1986
DETAILED JUNE 1986
CHECKED Aug. 1986

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

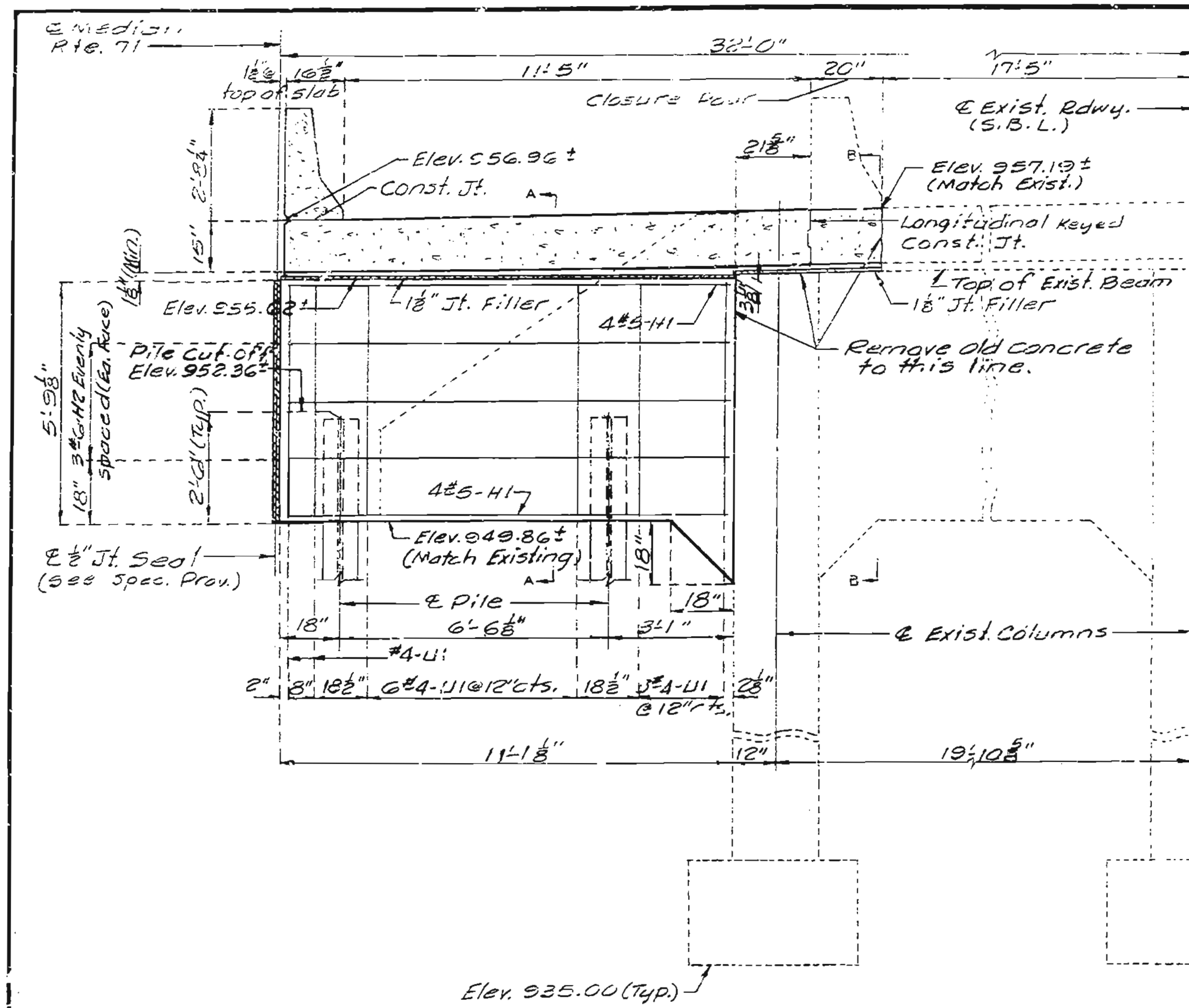
SEE FINAL [illegible]

Sheet No. 1 of 8

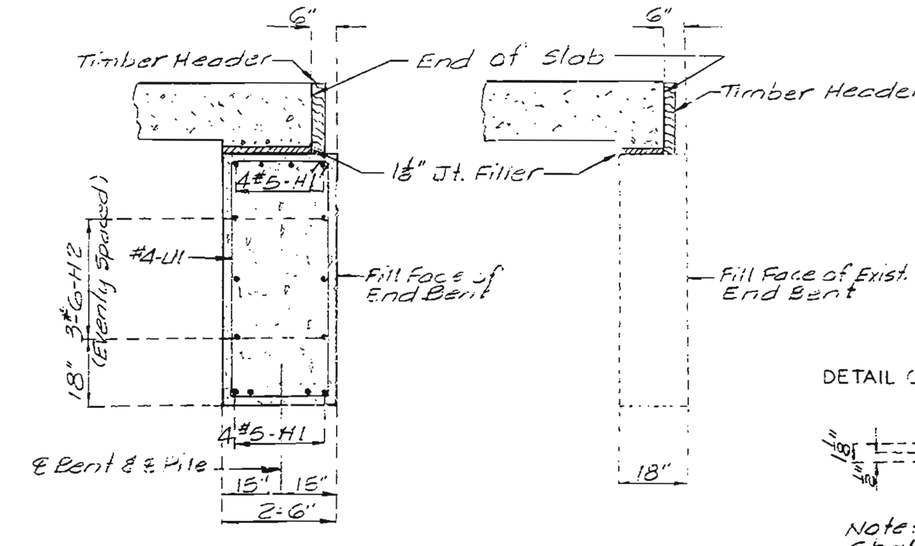
78 317

STATE	PROJ. NO	SHEET NO
MO.		13

Note: For reinforcement of barrier curb, see Sheet No. 7. For details of timber header, see Sheet No. 7.

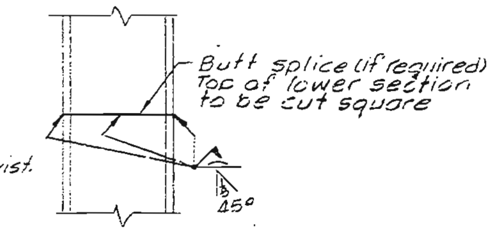


PART ELEVATION

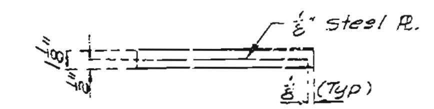


SECTION A-A

SECTION B-B



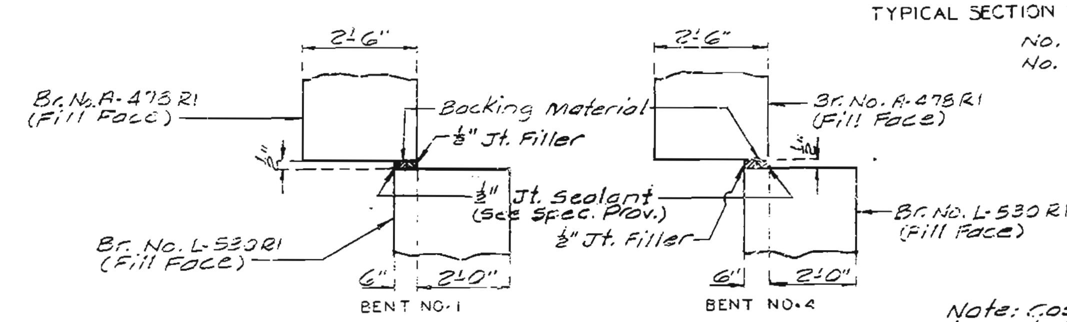
DETAIL OF STEEL PILE SPLICE



Note: Neoprene Bearing Pads shall be 60 durometer.

TYPICAL SECTION THRU NEOPRENE BEARING PAD

No. Required 3 Bt. No. 1
No. Required 3 Bt. No. 4

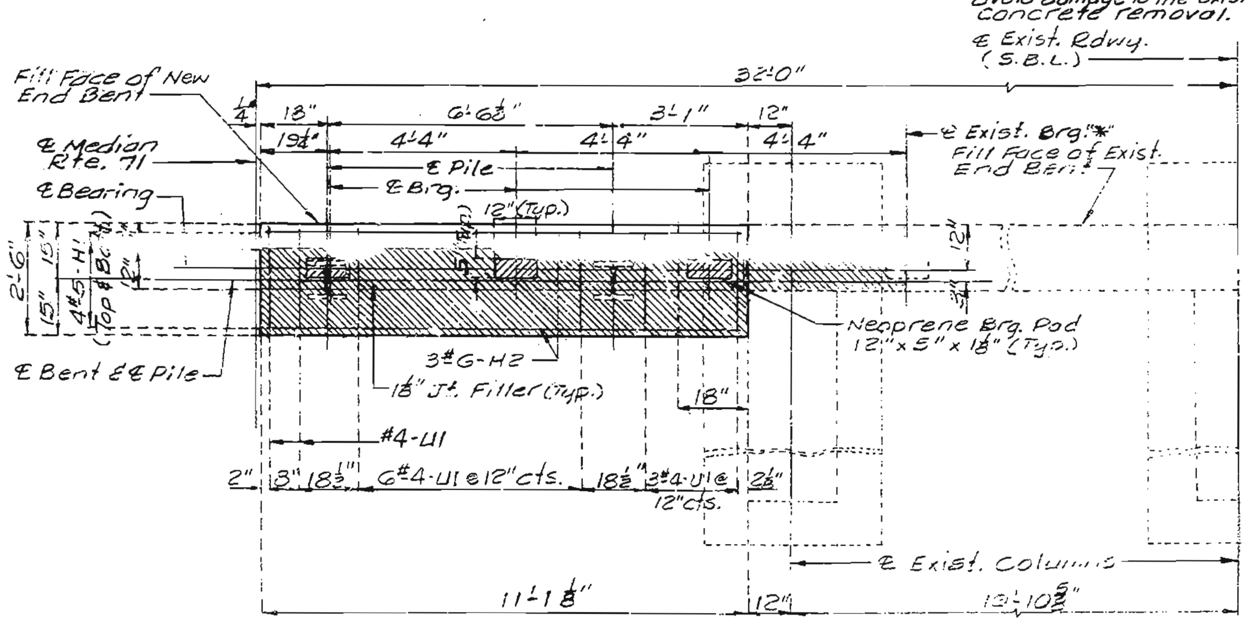


DETAILS OF END BENTS NO. 1 & 4

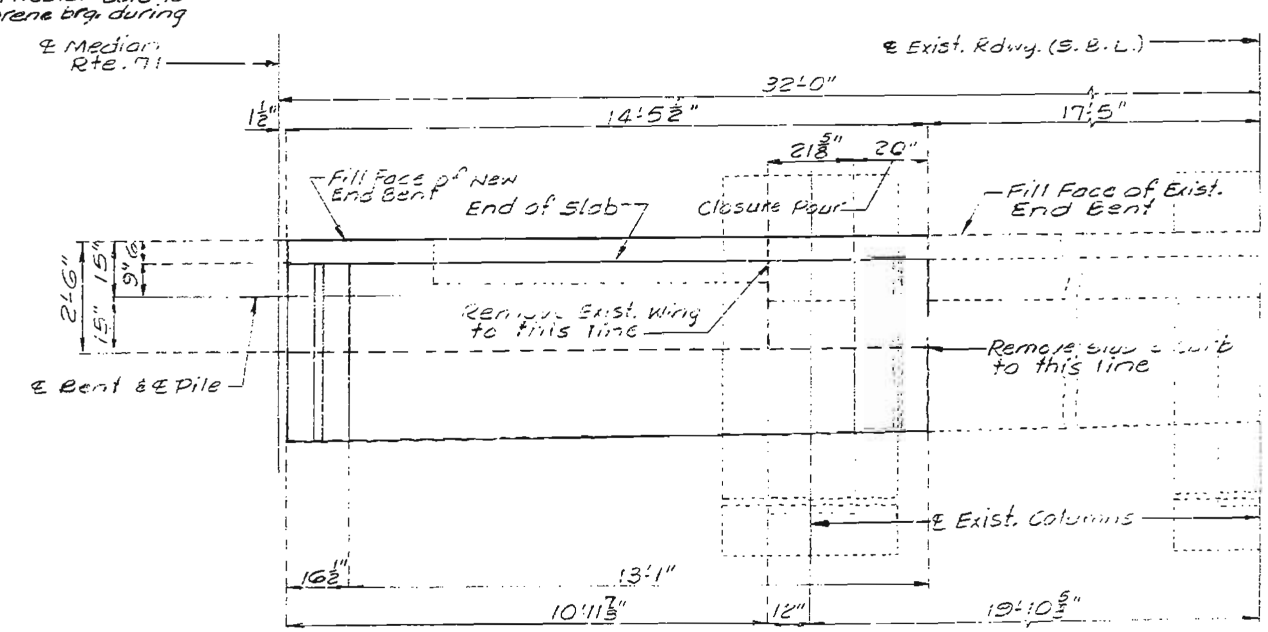
(SHOWING JT. SEAL)

Note: Cost of joint seal to be included in price bid for other items.

Note: * Contractor shall use particular care to avoid damage to the existing neoprene brg. during concrete removal.



PART PLAN OF BEAM (BELOW HAUNCH)



PART PLAN

DETAILS OF END BENT NO. 1

(BENT NO. 4 OPPOSITE HAND)

DETAILED MAY 1986
CHECKED Aug. 1986

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

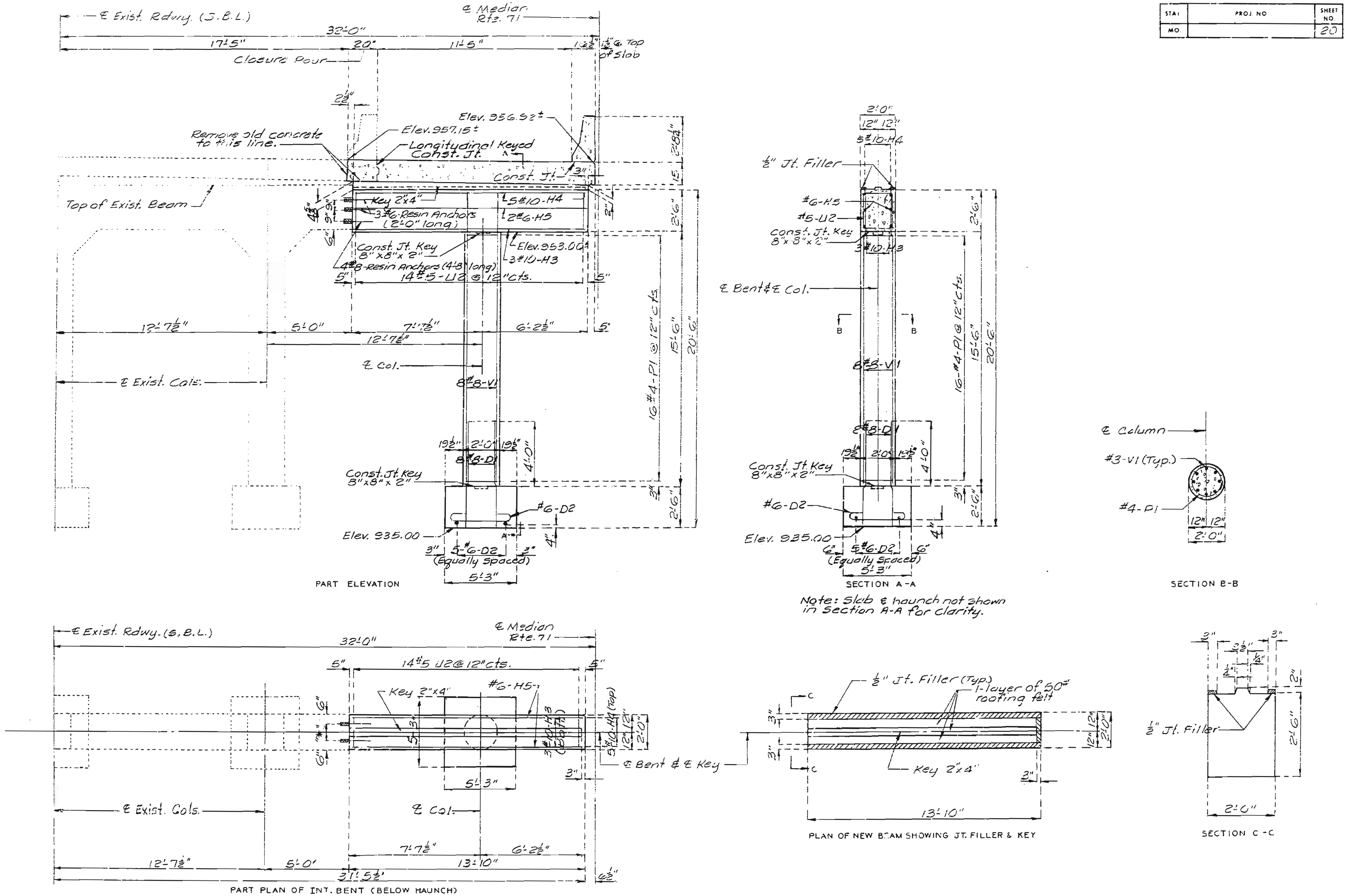
Sheet No. 3 of 8

Cass-JACKSON COUNTY

A478R1

97 318

STA.	PROJ. NO.	SHEET NO.
MO.		20



Note: "*" 3#6-Resin Anchors Equally Spaced (2'-0" long) Top & Middle.
4#8-Resin Anchors Equally Spaced (4'-8" long) Bottom.

DETAILS OF INT. BENTS NO. 2 & 3

DETAILED MAY 1986
CHECKED Aug. 1986

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

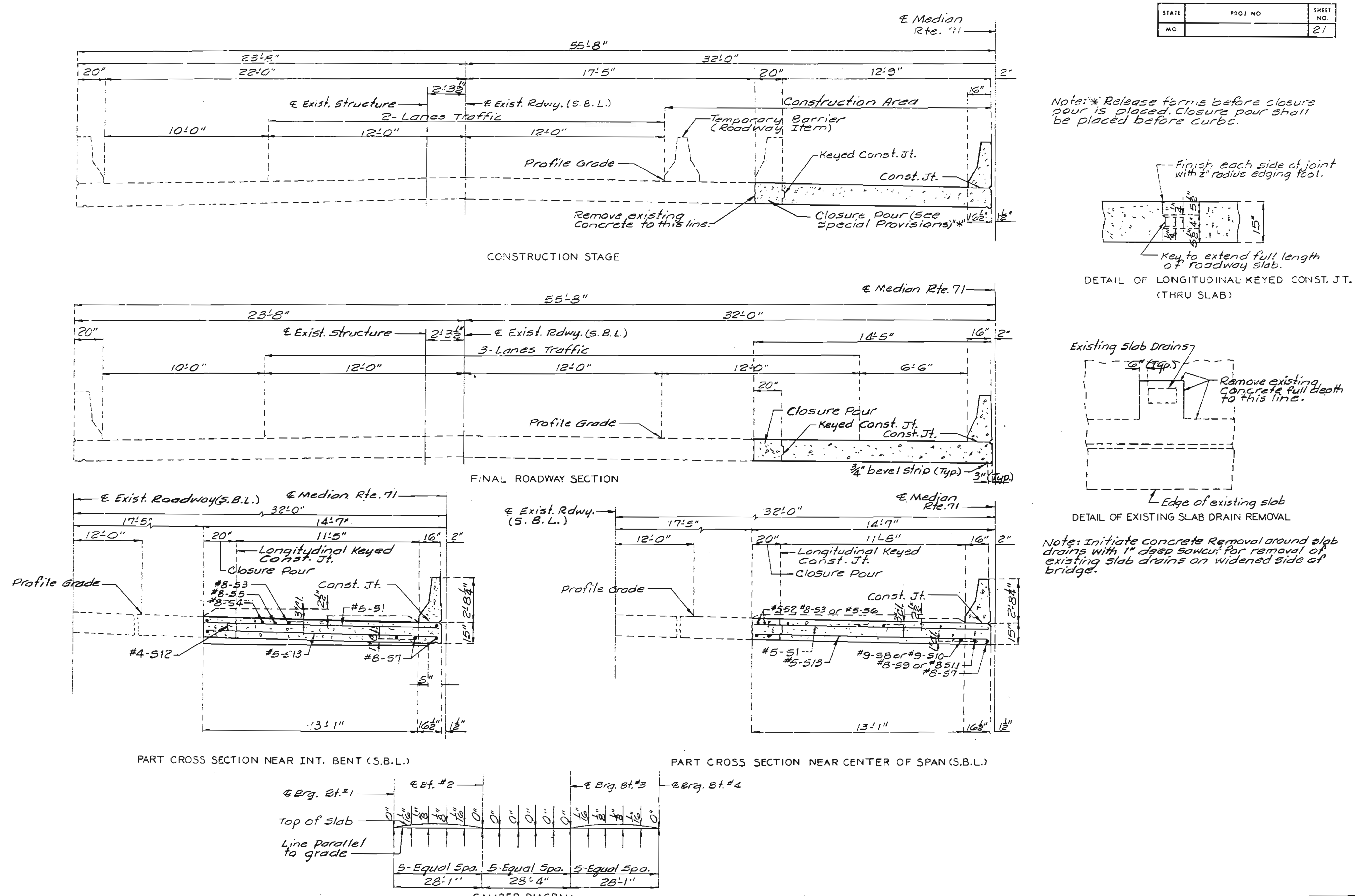
Sheet No. 3 of 8

Cass-JACKSON COUNTY

A-478 R.I

100 3?

#320



DETAILED MAY 1986
CHECKED Aug. 1986

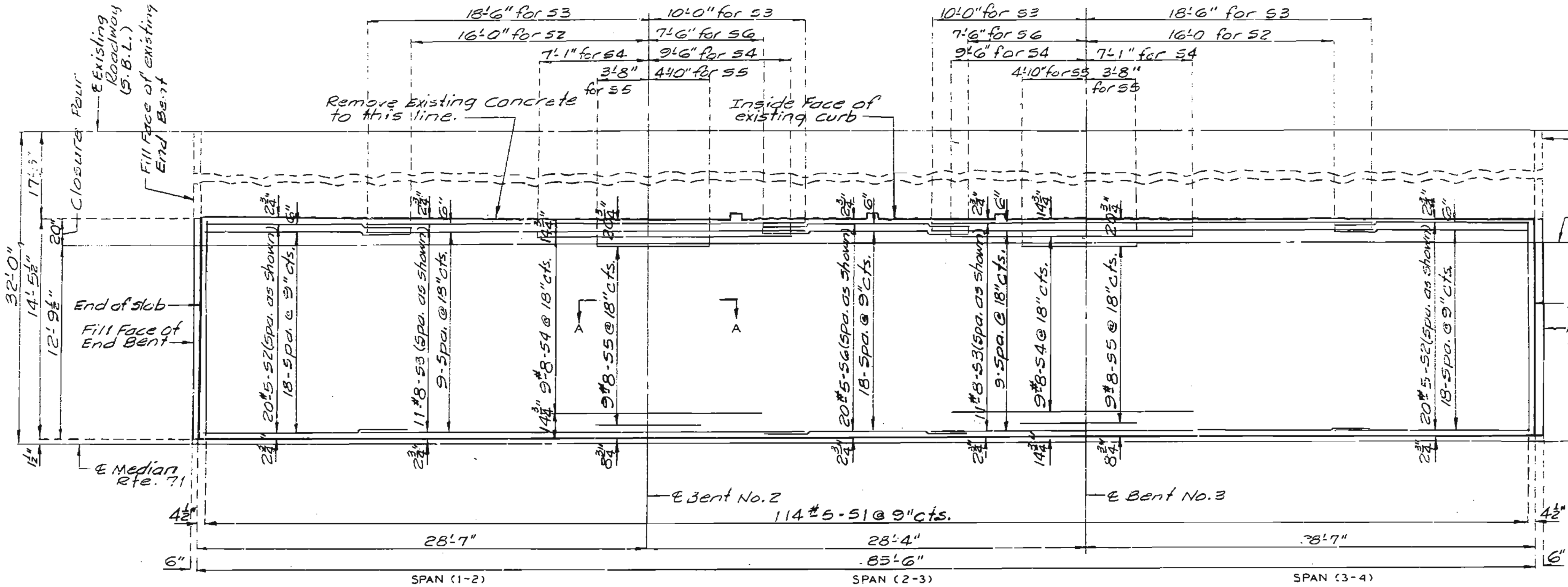
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 4 of 8

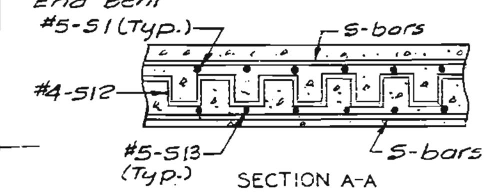
Cass - JACKSON COUNTY

A-478 R1

STATE	PROJ NO	SHEET NO.
MO.		22



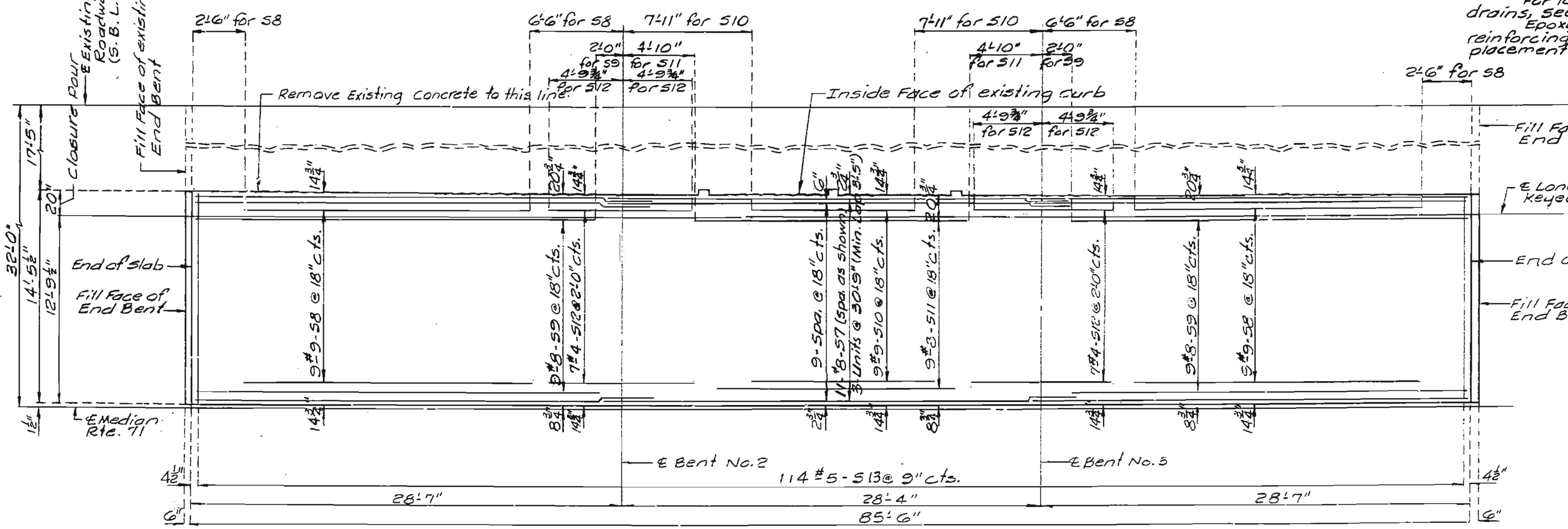
PART PLAN OF TOP SLAB REINFORCEMENT



SECTION A-A

Note: For cross section of slab showing reinforcement, see Sheet No. 4.
For Camber Diagram, see Sheet No. 4.
For Detail of Existing slab drains removal, see Sheet No. 4.
For location and details of slab drains, see Sheet No. 6.
Epoxy Coating on Existing slab reinforcing to be repaired before placement of new slab concrete.

Note: The contractor shall pour and satisfactorily finish the roadway slab at a rate of not less than 25 cubic yards per hour.



PART PLAN OF BOTTOM SLAB REINFORCEMENT

321

DETAILED MAY 1986
CHECKED Aug. 1986

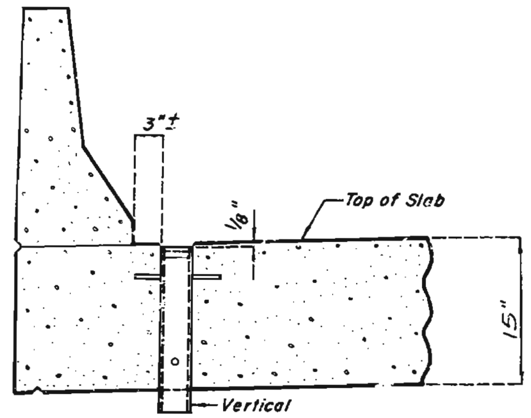
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 5 of 8

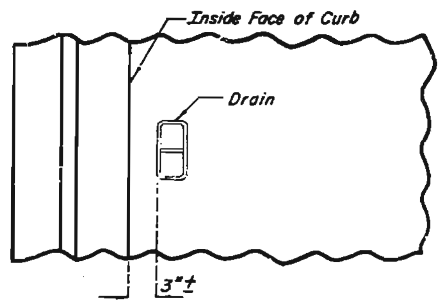
Cass-JACKSON COUNTY

A-478 R1

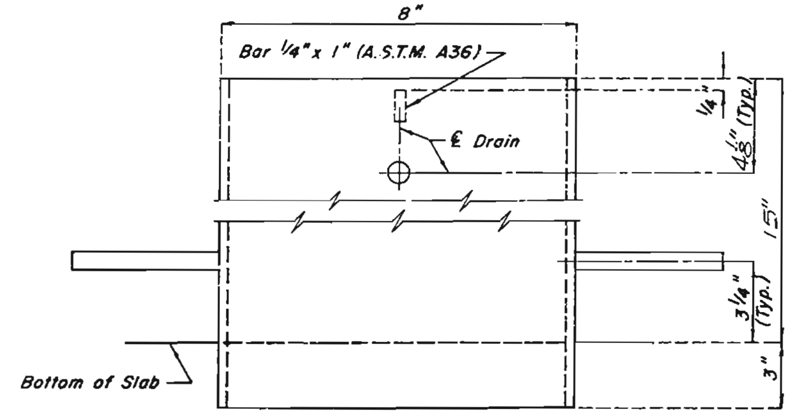
STATE	PROJ NO	SHEET NO
MO		23



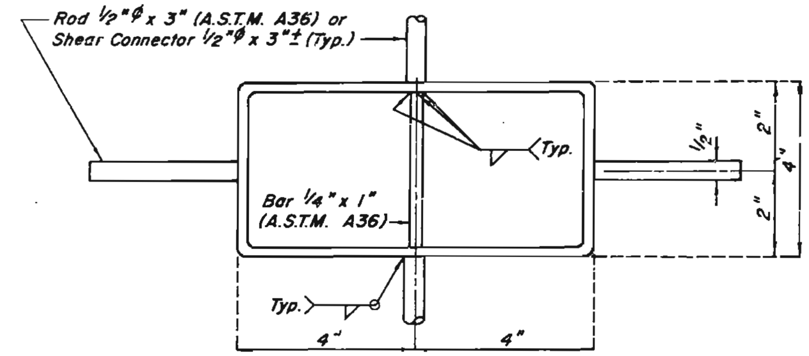
PART ELEVATION OF SLAB AT DRAIN



PART PLAN OF SLAB AT DRAIN



ELEVATION OF DRAIN



PLAN OF DRAIN

SLAB DRAIN DETAILS

GENERAL NOTES:

SLAB DRAINS MAY BE FABRICATED OF EITHER 1/4" WELDED SHEETS OF A.S.T.M. A36 STEEL OR FROM 1/4" STRUCTURAL STEL TUBING A.S.T.M. A500 OR A501.

OUTSIDE DIMENSIONS OF DRAINS ARE 8" x 4".

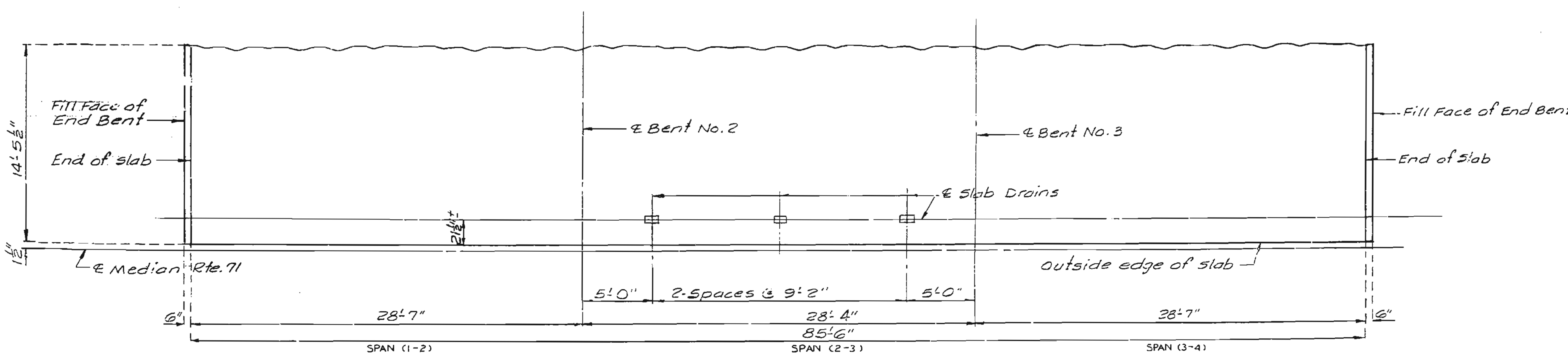
THE DRAINS SHALL BE CAST IN THE CONCRETE WITH THE TOP OF THE DRAINS BEING 1/8" BELOW THE FINISHED CONCRETE LINE.

LOCATE DRAINS IN THE SLAB BY DIMENSIONS SHOWN IN THE PART ELEVATION.

SHIFT REINFORCING STEEL IN FIELD WHERE NECESSARY TO CLEAR DRAINS.

THE DRAINS SHALL BE GALVANIZED IN ACCORDANCE WITH A.S.T.M. A123.

SHOP DRAWINGS WILL NOT BE REQUIRED FOR THE SLAB DRAINS.



PART PLAN SHOWING SLAB DRAINS

7683 322

Solid Slab Structures	REVISED
SPS-SD(N.W.S.)	
FEB. 1975	MARCH 1978

DETAILED MAY 1986
CHECKED Aug. 1986

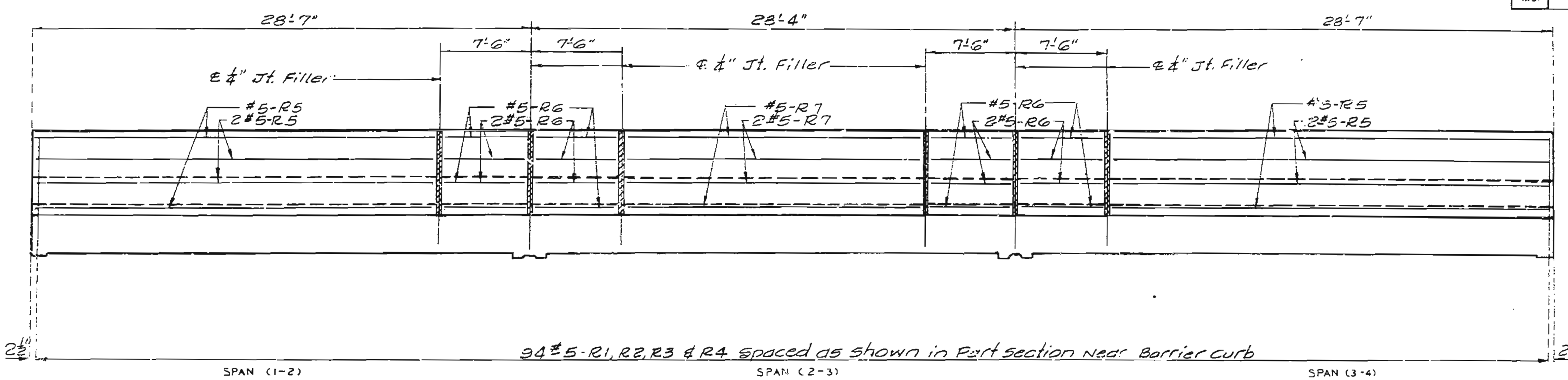
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 6 of 8

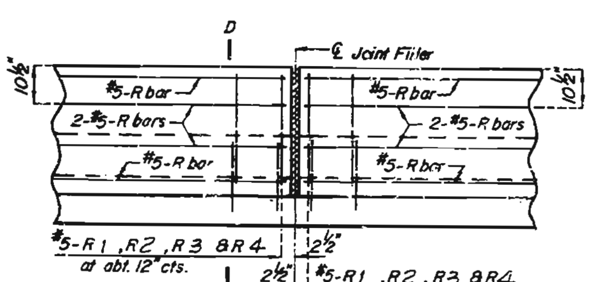
Cass-JACKSON COUNTY

A-478R1

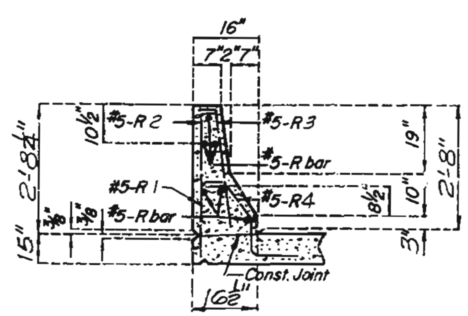
STATE	PROJ NO	SHEET NO.
MO.		24



ELEVATION OF RIGHT BARRIER CURB



PART ELEVATION NEAR RIGHT BARRIER CURB



SECTION D-D

The cross-sectional area above the slab = 2.33 sq. ft.

Note: Use a minimum lap of 17" for #5 horizontal barrier bars.

NOTES:

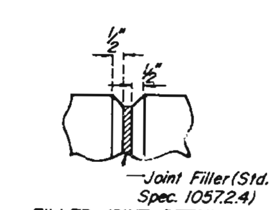
Top of barrier curb to be built parallel to grade with barrier curb joints (except at end bents) normal to grade.

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

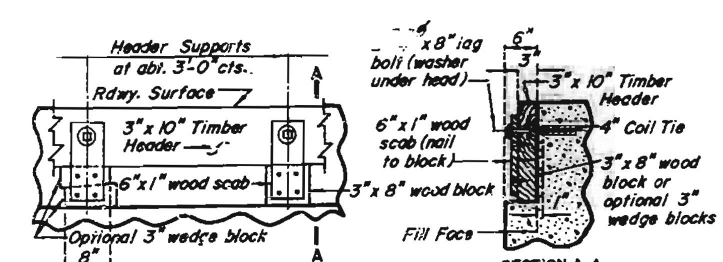
When the barrier curb is bid by linear feet, the contract unit price shall include the cost of all concrete and reinforcement, complete in place.

Concrete in the safety barrier curb 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 curb to end of curb.



FILLED JOINT DETAIL



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

DETAILS OF TIMBER HEADER AT END BENTS

104323

DETAILS OF BARRIER CURB

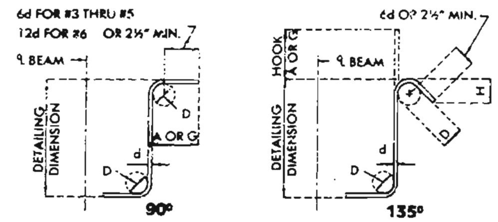
DETAILED MAY 1986
CHECKED Aug. 1986

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

Sheet No. 7 of 8

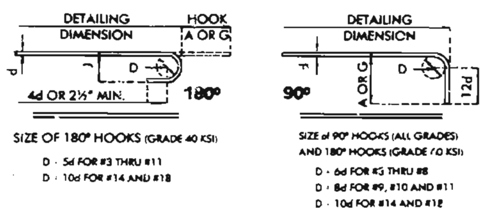
Cass-JACKSON COUNTY

A-478 R1



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
#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.



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

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.

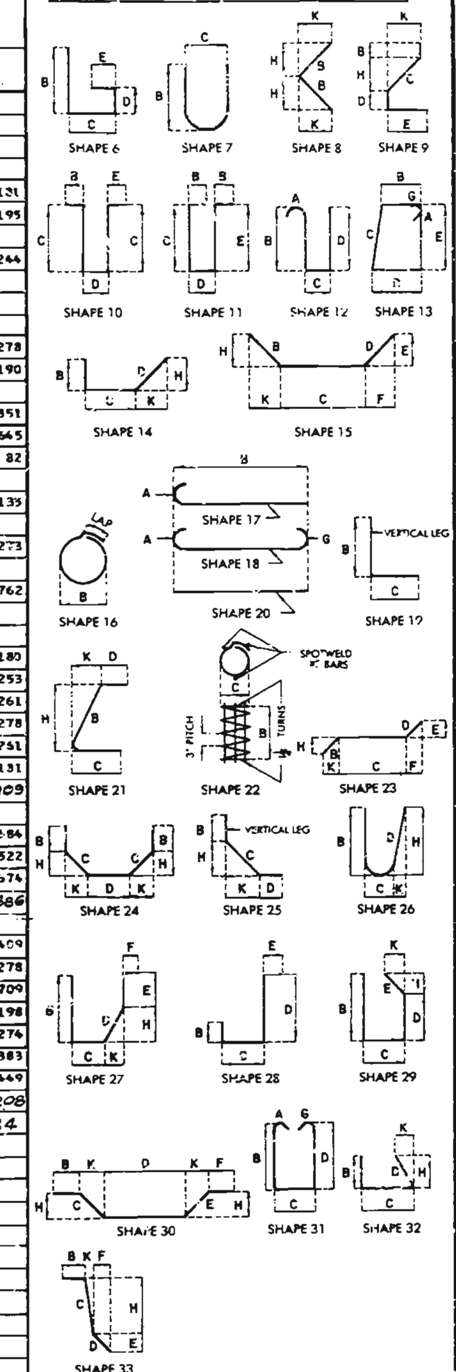
E - EPOXY COATED REINFORCEMENT.
S - STIRRUP
X - BAR IS INCLUDED IN SUBSTRUCTURE QUANTITIES.
V - BAR DIMENSIONS VARY IN EQUAL INCREMENTS BETWEEN DIMENSIONS SHOWN ON THIS LINE AND THE FOLLOWING LINE
NO. EA. - NUMBER OF BARS OF EACH LENGTH.
NOMINAL LENGTHS - ARE BASED ON OUT TO OUT DIMENSIONS SHOWN IN BENDING 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.

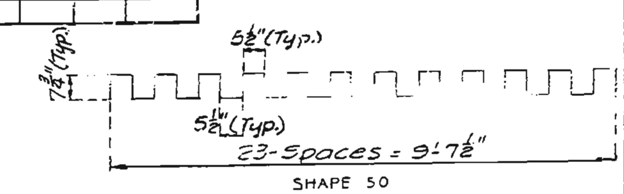
COMPLETE BILL OF REINFORCING STEEL

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																
		END BTS.NO.1&4																
16	5H1	BEAM		20		X			10 10.000							10 10	10 10	131
12	6H2	BEAM		20		X			10 10.000							10 10	10 10	195
22	4U1	BEAM		13		X			2 3.000	5 6.125	2 3.000	5 6.125				16 10	16 7	244
		INT.BTS.NO.2&3																
16	8D1	FOOTING & COL.		20		X			6 6.000							6 6	6 6	278
20	6D2	FOOTING		15		X			5 0.000							6 4	6 4	190
6	10H3	BEAM		20		X			13 7.000							13 7	13 7	351
10	10H4	BEAM		17		X			13 7.000							15 0	15 0	645
4	6H5	BEAM		20		X			13 7.000							13 7	13 7	82
32	4P1	COLUMN		16		X			21.000							6 4	6 4	135
28	5U2	BEAM		13		X			21.000	2 3.000	21.000	2 3.000				9 8	9 4	273
16	8V1	COLUMN		20		X			17 10.000							17 10	17 10	762
		SUPERSTRUCTURE																
94	5R1	BARRIER CURB	E	19	S				17.000	6.000						23	22	180
94	5R2	BARRIER CURB	E	19	S				2 5.000	3.500						2 9	2 7	253
94	5R3	BARRIER CURB	E	15	S				2 5.125	3.500				2 5.000	3.000	2 9	2 8	261
94	5R4	BARRIER CURB	E	27	S					6.000	11.125	7.000	12.000	9.125	6.375	3 0	2 10	278
12	5R5	BARRIER CURB	E	20					20 10.000							20 10	20 10	251
24	5R6	BARRIER CURB	E	20					7 3.000							7 3	7 3	131
8	5R7	BARRIER CURB	E	20					13 1.000							13 1	13 1	109
114	5S1	SLAB	E	20					14 2.000							14 2	14 2	1684
40	5S2	SLAB	E	20					12 6.000							12 6	12 6	522
22	9S3	SLAB	E	20					28 6.000							29 6	28 6	1674
20	8S4	SLAB	E	20					16 7.000							16 7	16 7	886
18	8S5	SLAB	E	20					8 6.000							8 6	8 6	409
20	5S6	SLAB	E	20					13 4.000							13 4	13 4	278
33	8S7	SLAB		20					30 9.000							30 9	30 9	2709
18	9S8	SLAB		20					19 7.000							19 7	19 7	1198
18	8S9	SLAB		20					26 6.000							26 6	26 6	1274
9	9S10	SLAB		20					12 6.000							12 6	12 6	383
9	8S11	SLAB		20					18 8.000							18 8	18 8	449
14	4S12	SLAB		30	S											26 1	22 3	208
114	5S13	SLAB		20					14 2.000							14 2	14 2	1684
		End of Bar List																

Note: Two additional #5-R7 & #8-S4 included in bar bill for testing.

STATE	PROJ NO	SHEET NO
MO		25





BENDING DIAGRAMS

STD. 90.8.5	REVISED
MAY 1974	JUNE 1986

DETAILED Sept. 1986
CHECKED Oct. 1986

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

Sheet No. 8 of 8

Cass-JACKSON COUNTY

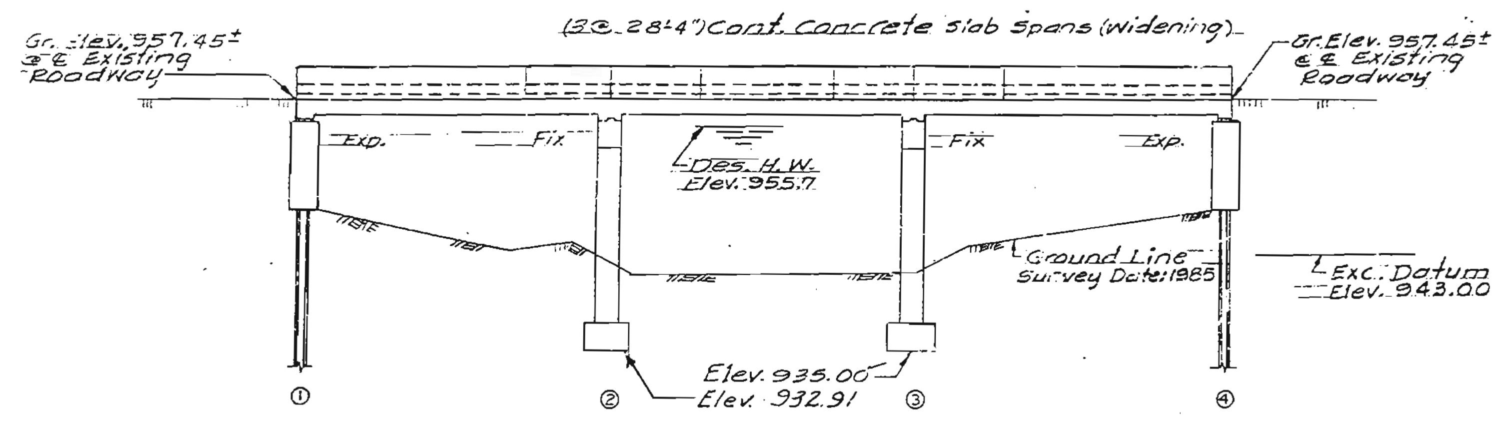
A-478 R1

65-324

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

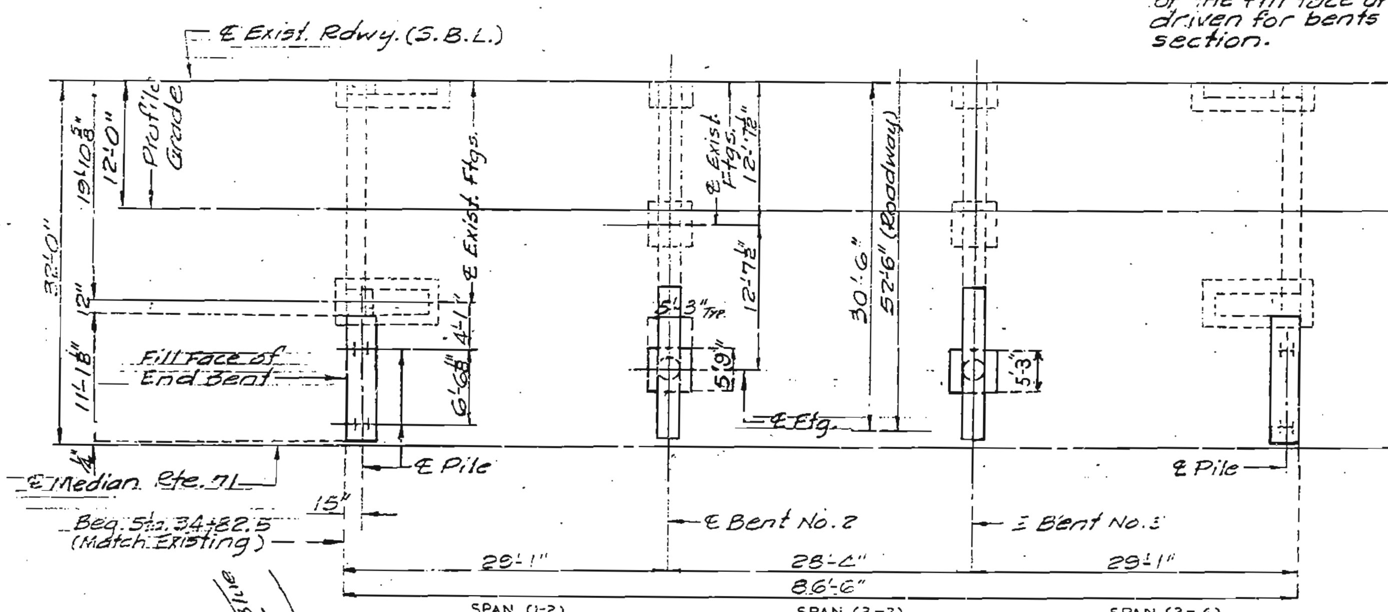
STATE	PROJ NO	SHEET NO
MO	4-U-71-732C	18
SEC/SUR 35	TWP 47 N	RGE 33 W

FINAL PLANS

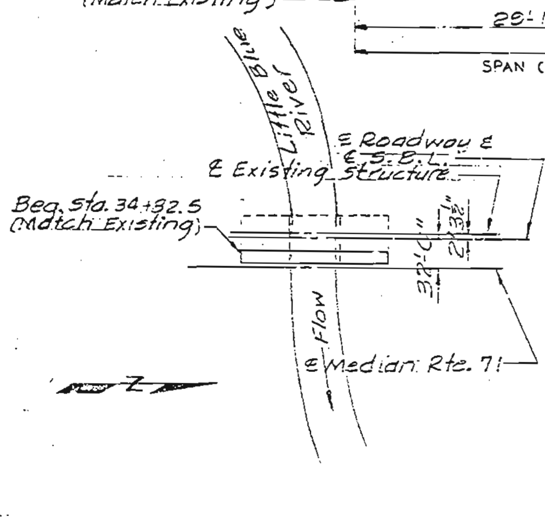


GENERAL ELEVATION

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



PLAN



LOCATION SKETCH

HYDROLOGIC DATA
Drainage Area: 5.0 Sq. Mi. (Rolling)
Design Discharge: 4220 cfs. (25 Years)
Design H.W. Elev. 955.7 (25 Years)

BASIC FLOOD DATA	
Q_{100} =	5935 cfs.
High water Elev. =	956.7

PILE & FOOTING DATA					
BENT NO.		1	2	3	4
BEARING PILE	Pile Type and Size	HP10x42	—	—	HP10x42
	Number	2	—	—	2
	Approximate Length Ft.	18	—	—	17
	Design Bearing Tons	21	—	—	21
	Hammer Energy Req'd. Ft. Lbs.	7,000	—	—	7,000
SPREAD FOOTING	Foundation Material	—	Shale	Shale	—
	Design Bearing Tons/Sq. Ft.	—	5.0	5.0	—

Minimum energy requirement of hammer based on plan length and design bearing value of piles.

All piles shall be driven to practical refusal.

GENERAL NOTES:

Design Specifications: A.A.S.H.T.O. - 1983 and Interims thru 1985 Load Factor Design

Design Loading:
HS20-44 35#/sq. ft. Future wearing surface
Modified 24,000# Tandem Axle
Earth 120#/cu. ft. Equivalent Fluid pressure 30#/cu. ft.

Design Unit Stresses:
Class B Concrete (Substructure) f'c = 3,000 p.s.i.
Class B2 Concrete (Superstructure) f'c = 4,000 p.s.i.
Class B1 Concrete (Safety Barrier Curb) f'c = 4,000 p.s.i.
Reinforcing Steel (Grade 60) fy = 60,000 p.s.i.
Steel Pile fb: 9,000 p.s.i.

Joint Filler:
All joint filler shall meet the requirement of std. spec. 1057.2.4, except as noted.

Reinforcing Steel:
Minimum clearance to reinforcing steel 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.

Traffic Maintained: Traffic to be maintained during construction. (See Spec. Prov.)

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

Cost of furnishing and installing Resin Anchor Assemblies shall be included in contract unit price for concrete.

Neoprene Pads:
Cost of furnishing, fabricating and installing Neoprene Bearing Pads complete in place, will be paid for at the contract unit price for Laminated Neoprene Bearing Pads per each.

ESTIMATED QUANTITIES				
ITEM		SUBSTR.	SUPERSTR.	TOTAL
Curb Removal	Lin. Ft.		86	86
Partial Removal of Substructure Conc.	Lump Sum	1		1
Class 1 Excavation	Cu. Yd.	29.5		29.5
Class 2 Excavation	Cu. Yd.	39.5		39.5
Structural Steel Piles (10 in.)	Lin. Ft.	70		70
Class B Concrete	Cu. Yd.	26.8		26.8
Class B2 Concrete (Supst. Solid Slab)	Cu. Yd.		57.8	57.8
Laminated Neoprene Bearing Pads	Each		6	6
Safety Barrier Curb	Lin. Ft.		86	86
Slab Drains	Each		3	3
Reinforcing Steel (Plain)	Lb.	3480	7,910	11,390
Reinforcing Steel (Epoxy)	Lb.		5,450	5,450
Class 2 Excavation + 50%	Cu. Yd.	3.5		3.5
Test Holes	Lin. Ft.	12		12

/B.M. #4 Elev. 957.04 Top Bolt in N.W. Wing wall of S.B.L. Bridge

BRIDGE OVER LITTLE BLUE RIVER

STATE ROAD FROM BLUE RIDGE BLVD. TO CASS COUNTY LINE IN GRANDVIEW

PROJECT NO. 4-U-71-732C STA. 34+82.5

JOB NO. 4-U-71-732C RTE. 71 S.B.L.

Cass-JACKSON COUNTY

DATE 12/23/87

STD.

STD. 706.35

A-478 R1

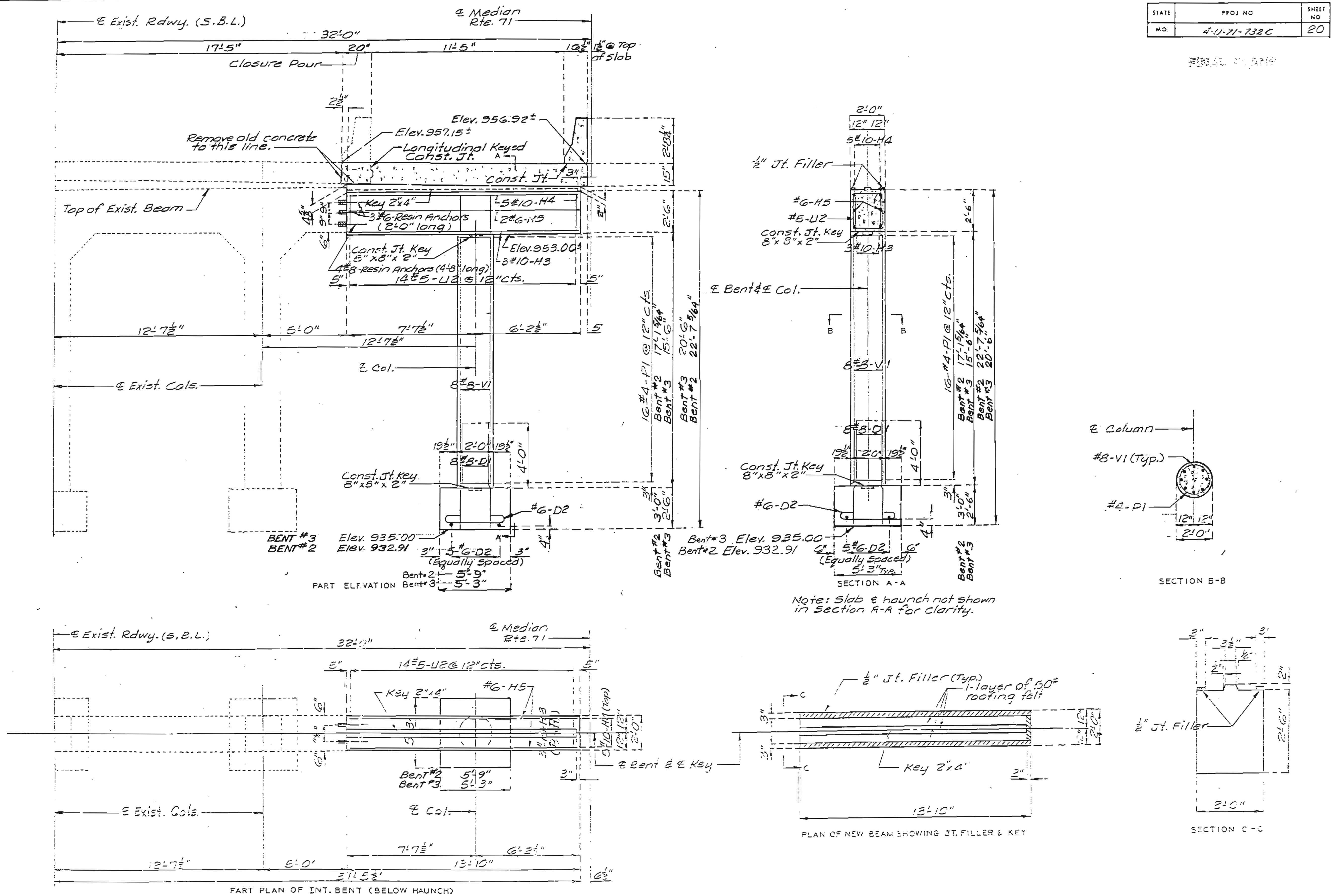
DESIGNED Apr. 1986
DETAILED JUNE 1986
CHECKED Aug. 1986

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

Sheet No. 1A of 8

98 325

STATE	PROJ NO	SHEET NO
MO.	4-U-71-732C	20



Note: "*" 3#6-Resin Anchors Equally Spaced (2'-0" long) Top & Middle. 4#8-Resin Anchors Equally Spaced (4'-8" long) Bottom.

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

DETAILS OF INT. BENTS NO. 2 & 3

DETAILED MAY 1986
CHECKED Aug. 1986

Sheet No. 3A of 3

Cass-JACKSON COUNTY

A-478 R

77 326

ROUTE	STATE	DISTRICT	SHEET NO.
71	MO	BR	1

JOB NO. J4P1429

CONTRACT ID

PROJECT NO.

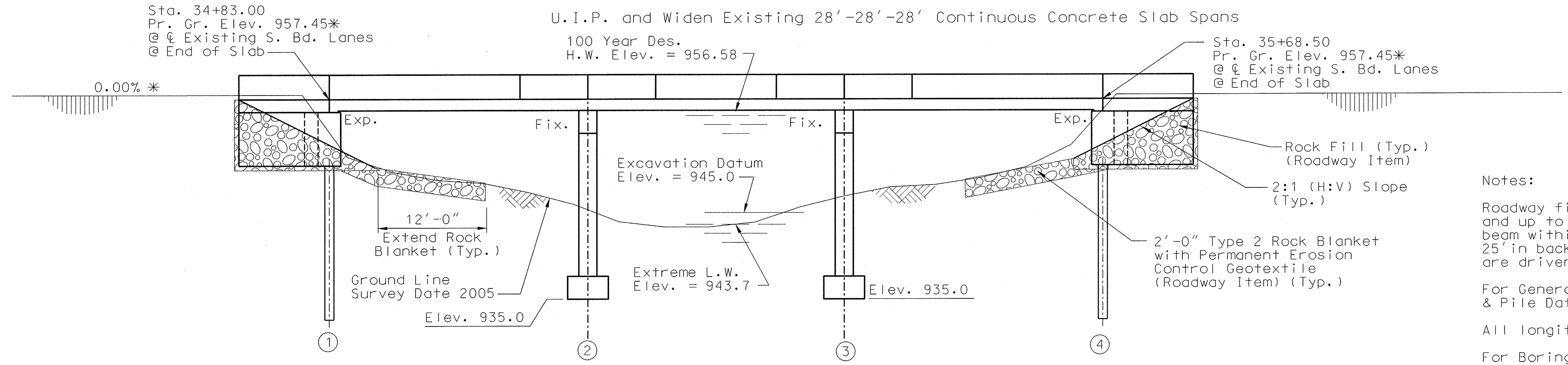
COUNTY JACKSON

DATE 2/27/07

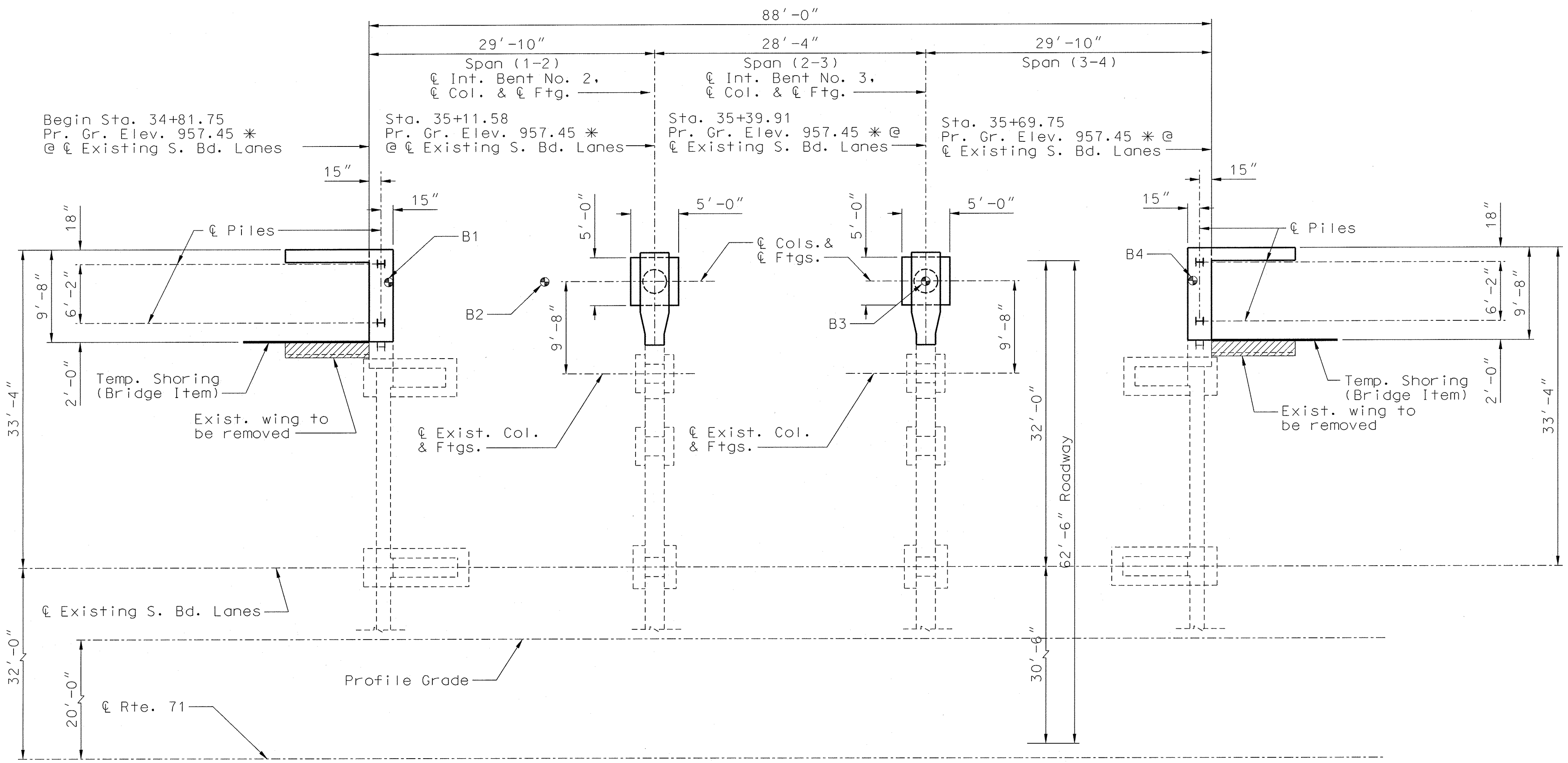
SEC/SUR 35 TWP 47N RGE 33W

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

U.I.P. and Widen Existing 28'-28'-28' Continuous Concrete Slab Spans



GENERAL ELEVATION



✳ Match Existing

PLAN

"⊗" indicates location of boring.

Notes:

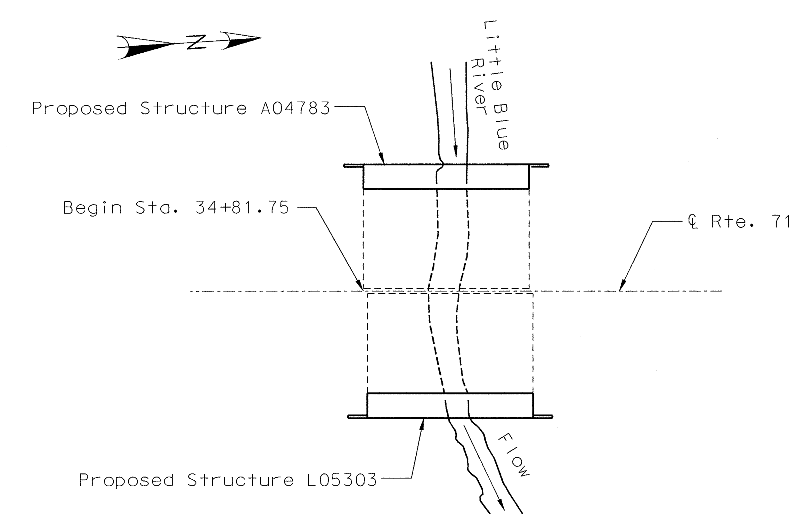
Roadway fill shall be completed to the final roadway section and up to the elevation of the bottom of the concrete beam within the limits of the structure and for not less than 25' in back of the fill face of the end bents before piles are driven for any bents falling within the embankment section.

For General Notes, Estimated Quantities, Location Sketch & Pile Data, see Sheet No. 2.

All longitudinal dimensions are horizontal.

For Boring Data, see Sheet No. 3.

Hydrologic Data
Drainage Area = 4.1 (sq. mi.) (Hilly)
Backwater/Base Flood Data (100 year)
Design High Water Elev. = 956.58 Design Discharge = 4600 (cfs) No Rise Certificate Accepted 2/21/06 Average Velocity thru Opening = 6.75 (ft/s)
Freeboard
Design Frequency = 50 (year) Design Discharge = 3800 (cfs) Freeboard = 0 (ft.)
Roadway Overtopping
Design Elev. (1' below shoulder) = 956.31 Design Discharge = 3800 (cfs) Overtopping Frequency = 50 year



B.M. BENCHMARK #5: ELEV. 978.08, 60 d STEPPED IN NORTH SIDE OF POWER POLE, 1ST POWER POLE EAST OF RR TRACKS & JUST SOUTH OF 150 HIGHWAY, WEST OF 71 HIGHWAY

NOTICE AND DISCLAIMER REGARDING BORING LOG DATA
The locations of all subsurface borings for this structure are shown on the bridge plan sheet for this structure. Boring data for the numbered locations is shown on sheet no. 3. The boring data for all locations indicated, as well as any other boring logs or other factual records of subsurface data and investigations performed by the department for the design of the project, is available from the Project Contact upon written request as outlined in the Project Special Provisions. No greater significance or weight should be given to the boring data depicted on the plan sheets than is subsurface data available from the district or elsewhere.

The Commission does not represent or warrant that any such boring data accurately depicts the conditions to be encountered in constructing this project. A contractor assumes all risks it may encounter in basing its bid prices, time or schedule of performance on the boring data depicted here or those available from the district, or on any other documentation not expressly warranted, which the contractor may obtain from the Commission.

REPAIRS TO BRIDGE: SOUTH BOUND ROUTE 71 OVER LITTLE BLUE RIVER

STATE ROAD FROM RTE. 50 TO CASS COUNTY LINE

ABOUT 0.7 MILES NORTH OF CASS COUNTY LINE

PROJECT NO. STA. 34+81.75± (Match Existing)

JOB NO. J4P1429 RTE. 71

STD. 617.10

STD. 706.35

A04783

Designed	April	2006
Detailed	May	2006
Checked	December	2006

GEORGE BUTLER ASSOCIATES, INC.
Engineers • Architects

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

Date: / /

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\\nwfs2\vol1\Projects\9809\Civil\MICRO\Bridge\A04783\Final\Electronic Submittal 3 XX 07\J4P1429 A04783 G E & P.dgn 10:19:25 AM 2/27/2007

ROUTE	STATE	DISTRICT	SHEET NO.
71	MO	BR	2

JOB NO. J4P1429

CONTRACT ID

PROJECT NO.

COUNTY JACKSON

DATE 9/20/07

STATE OF MISSOURI
DEREK W. HARTH
PROFESSIONAL ENGINEER

General Notes:

Design Specifications:
2002 - AASHTO 17th Edition
Load Factor Design
Seismic Performance Category A

Design Loading:
HS20-44
35#/Sq. Ft. Future Wearing Surface
Earth- 120#/Cu. Ft.
Equivalent Fluid Pressure = 45#/Cu. Ft.

Design Unit Stresses:
Class B Concrete (Substructure) f'c = 3,000 psi.
Class B-1 Concrete (Safety Barrier Curb) f'c = 4,000 psi.
Class B-2 Concrete (Superstructure except Safety Barrier Curb) f'c = 4,000 psi.
Reinforcing Steel (Grade 60) fy = 60,000 psi.
Steel Pile (ASTM A709 Grade 36) fb = 9,000 psi. fy = 36,000 psi

Neoprene Pads:
Bearings shall be 60 durometer neoprene pads.

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

Reinforcing Steel:
Minimum clearance to reinforcing steel shall be 1½" unless otherwise shown.

Traffic:
Structure to be closed during construction. See roadway plans for traffic control.

Dimensions:
Longitudinal dimensions are based on the original design plans.

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.

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.

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

Pile & Footing Data

	Bent No.	1	2	3	4
Bearing Pile	Pile Type and Size	HP10x42			HP10x42
	Number	2			2
	Approximate Length ft.	17			17
	Design Bearing tons	32			32
	Hammer Energy Required ft.-lbs.	7200			7200
Spread Footings	Foundation Material		Shale	Shale	
	Design Bearing tons/sq. ft.		5	5	

Minimum energy requirement of hammer is based on plan length and design bearing value of piles.

All piles shall be driven to practical refusal.

ESTIMATED QUANTITIES

Item		Substr.	Superstr.	Total
Class 1 Excavation	Cubic Yard	30		30
Class 2 Excavation	Cubic Yard	40		40
Temporary Shoring	Lump Sum	1		1
Cofferdams Bent 2	Lump Sum	1		1
Cofferdams Bent 3	Lump Sum	1		1
Partial Removal of Existing Bridge Decks	Square Foot		257	257
Partial Removal of Substructure Concrete	Lump Sum	1		1
Structural Steel Piles (10 in.)	Linear Foot	68		68
Class B Concrete (Substructure)	Cubic Yard	32.0		32.0
Class B-2 Concrete (Superstructure Solid Slab)	Cubic Yard		51.8	51.8
* Safety Barrier Curb	Linear Foot		106	106
Repairing Concrete Deck (Half-Soling)	Square Foot		250	250
Reinforcing Steel (Bridges)	Pound	2360	2620	4980
Conduit System on Structure	Lump Sum		1	1
Reinforcing Steel (Epoxy Coated)	Pound		11760	11760
Slab Drain	Each		3	3
Laminated Neoprene Bearing Pad	Each		6	6

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

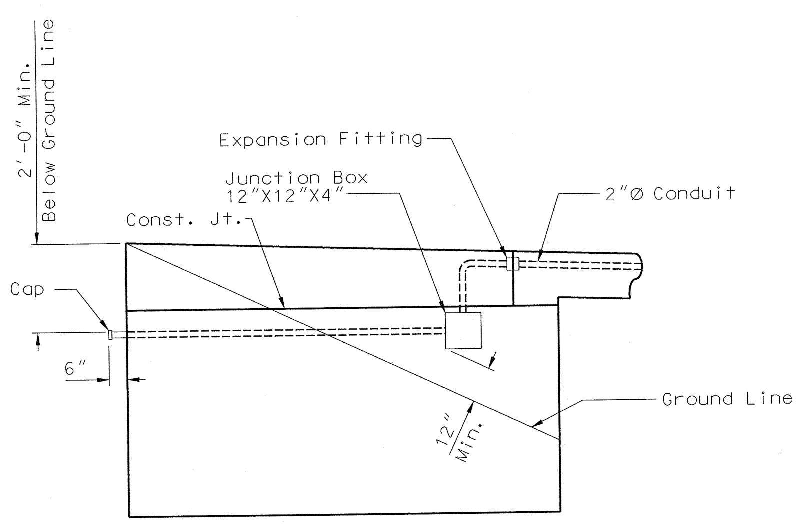
All concrete above the construction joint in the end bents is included with the Superstructure Quantities.

All reinforcement in the End Bents is included with the Superstructure Quantities.

All concrete above the intermediate beam caps is included with the Superstructure Quantities.

Laminated Neoprene Bearing Pads shall be in accordance with Sec 716.

LIST OF DRAWINGS



PART ELEVATION OF JUNCTION BOX IN WING

Notes For Conduit System On Structure:

All conduit shall be rigid non-metallic schedule 40 heavy wall PVC (polyvinyl chloride plastic). Each section of conduit shall bear the Underwriters' Laboratories, Inc., (UL) label.

All conduit clamps shall be commercially available conduit clamp approved by the engineer.

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

Expansion fittings shall provide a minimum movement in either direction of ½" at filled joints. Expansion fittings shall be equal to Carlon Electrical Construction Products or Cantex, Inc.

All end bent junction boxes shall be PVC molded flush mounted and equal to Carlon Electrical Construction Products or Cantex, Inc. The conduit terminations shall be permanent or separable. The terminations and covers shall be of watertight construction and shall meet requirements for NEMA 4 enclosure.

Weepholes shall be provided at appropriate locations to drain any moisture in the conduit system.

Payment for furnishing and installing Conduit System, complete-in-place, will be considered completely covered by the contract lump sum price for Conduit System on Structure.

Detailed May 2006
Checked December 2006

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

A04783

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ROUTE	STATE	DISTRICT	SHEET NO.
71	MO	BR	3

JOB NO. J4P1429

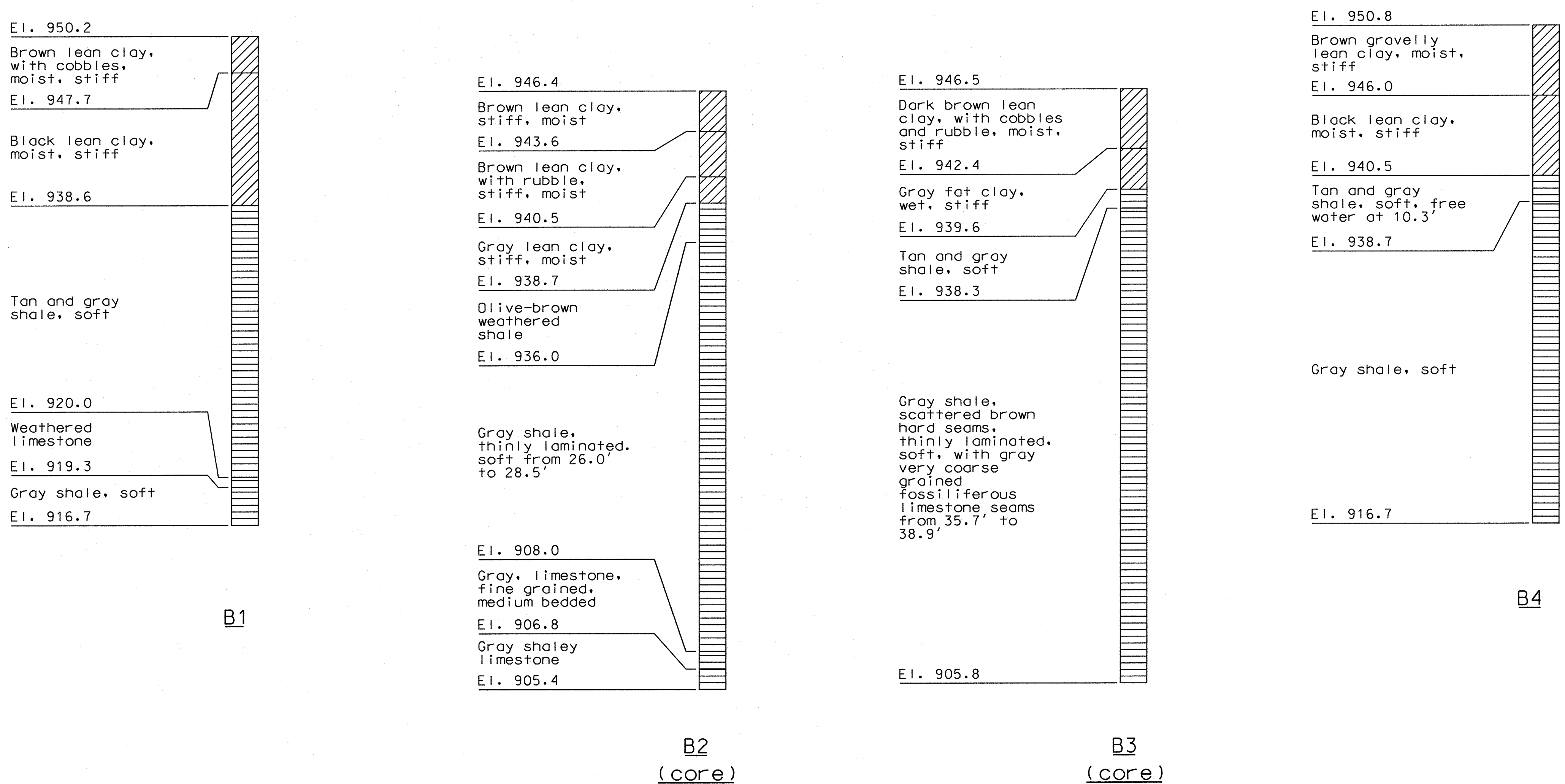
CONTRACT ID

PROJECT NO.

COUNTY JACKSON

STATE OF MISSOURI
DEREK W. HART
PROFESSIONAL ENGINEER

DATE 2/27/07



BORING DATA

For boring locations, see Sheet No. 1.

For Notice and Disclaimer regarding boring log data, see Sheet No. 1.

ROUTE	STATE	DISTRICT	SHEET NO.
71	MO	BR	4

JOB NO. J4P1429

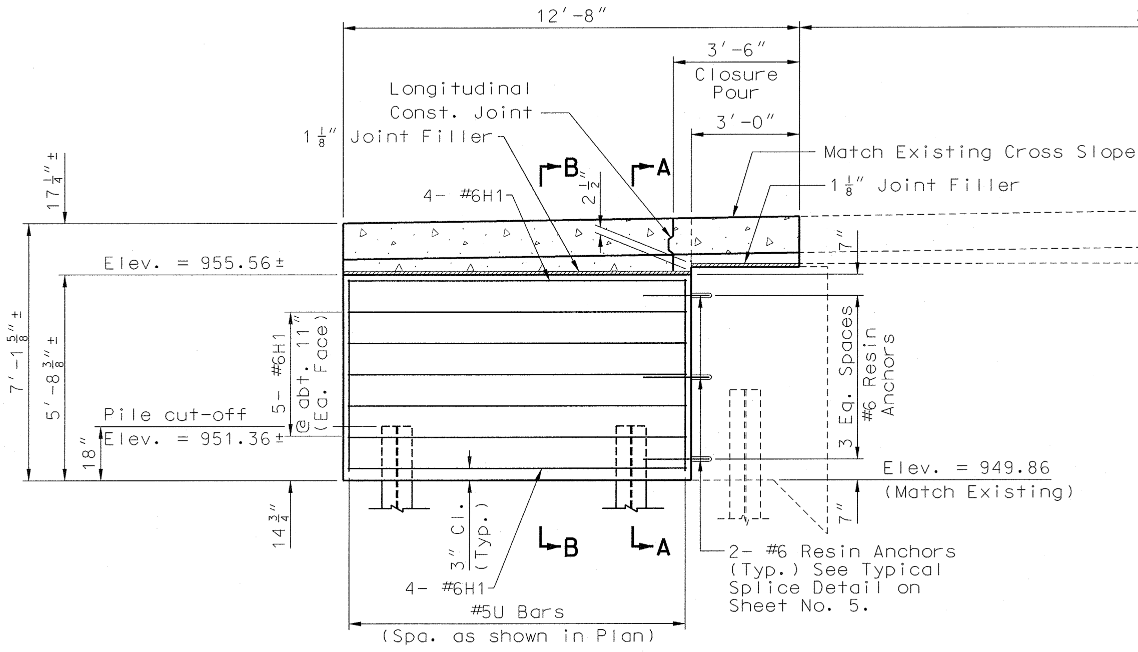
CONTRACT ID

PROJECT NO.

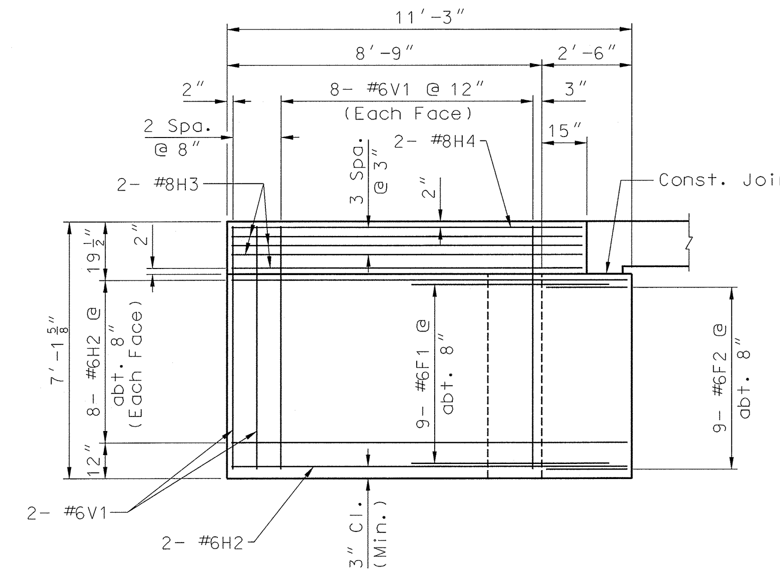
COUNTY JACKSON

DATE 8/8/07

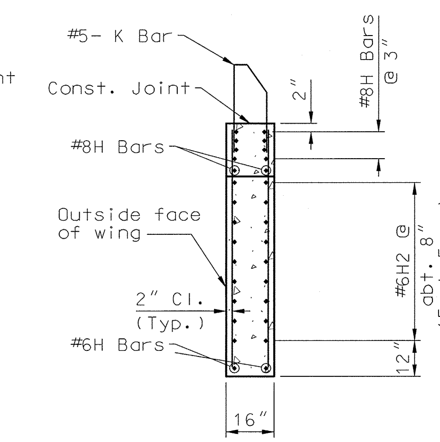
STATE OF MISSOURI
DEREK W. HARTH
NUMBER PE-2003018502
PROFESSIONAL ENGINEER



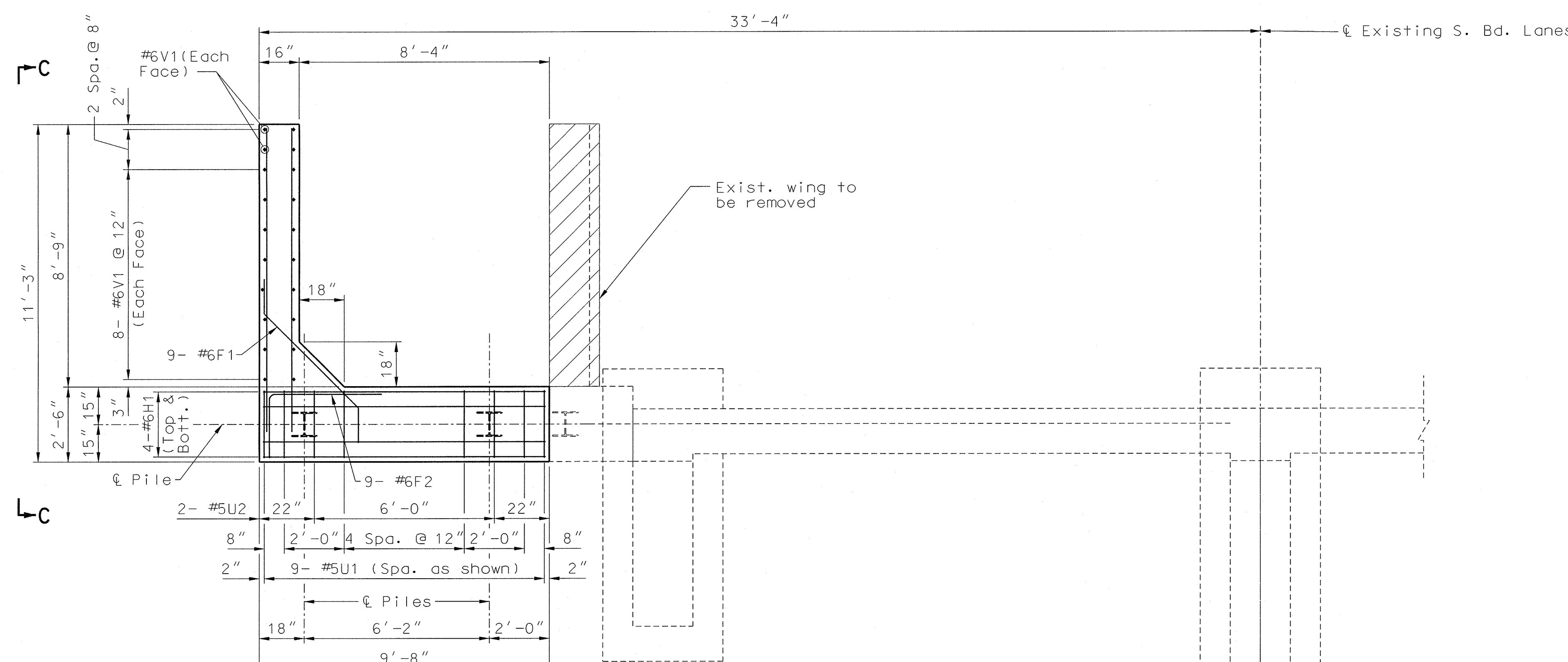
SECTION NEAR END BENT



ELEVATION C-C



SECTION THRU WING



PLAN OF BEAM SHOWING REINFORCEMENT

Note:

All vertical reinforcing bars in substructure beams or caps shall be field adjusted to clear piles by at least 1-1/2″.

For Section A-A, Section B-B, Existing Wing Removal Elevation & Steel Pile Splice Detail, see Sheet No. 5.

For reinforcement of Safety Barrier Curb, see Sheet Nos. 11 & 12.

For details of Conduit System On Structure, see Sheet No. 2.

SUBSTRUCTURE QUANTITY TABLE FOR BENT NO. 1 & NO. 4

ITEM		BENT NO. 1 QUANTITY	BENT NO. 4 QUANTITY
Class 1 Excavation	Cubic Yard	5	5
Structural Steel Piles (10 in.)	Linear Foot	34	34
Class B Concrete (Substructure)	Cubic Yard	7.8	7.8

Note:
These quantities are included in the Estimated Quantities shown on Sheet No. 2.

DETAILS OF END BENT NO. 1 & 4

Detailed May 2006
Checked December 2006

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

A04783

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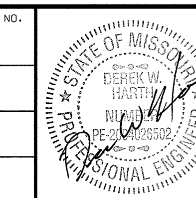
ROUTE	STATE	DISTRICT	SHEET NO.
71	MO	BR	5

JOB NO. J4P1429

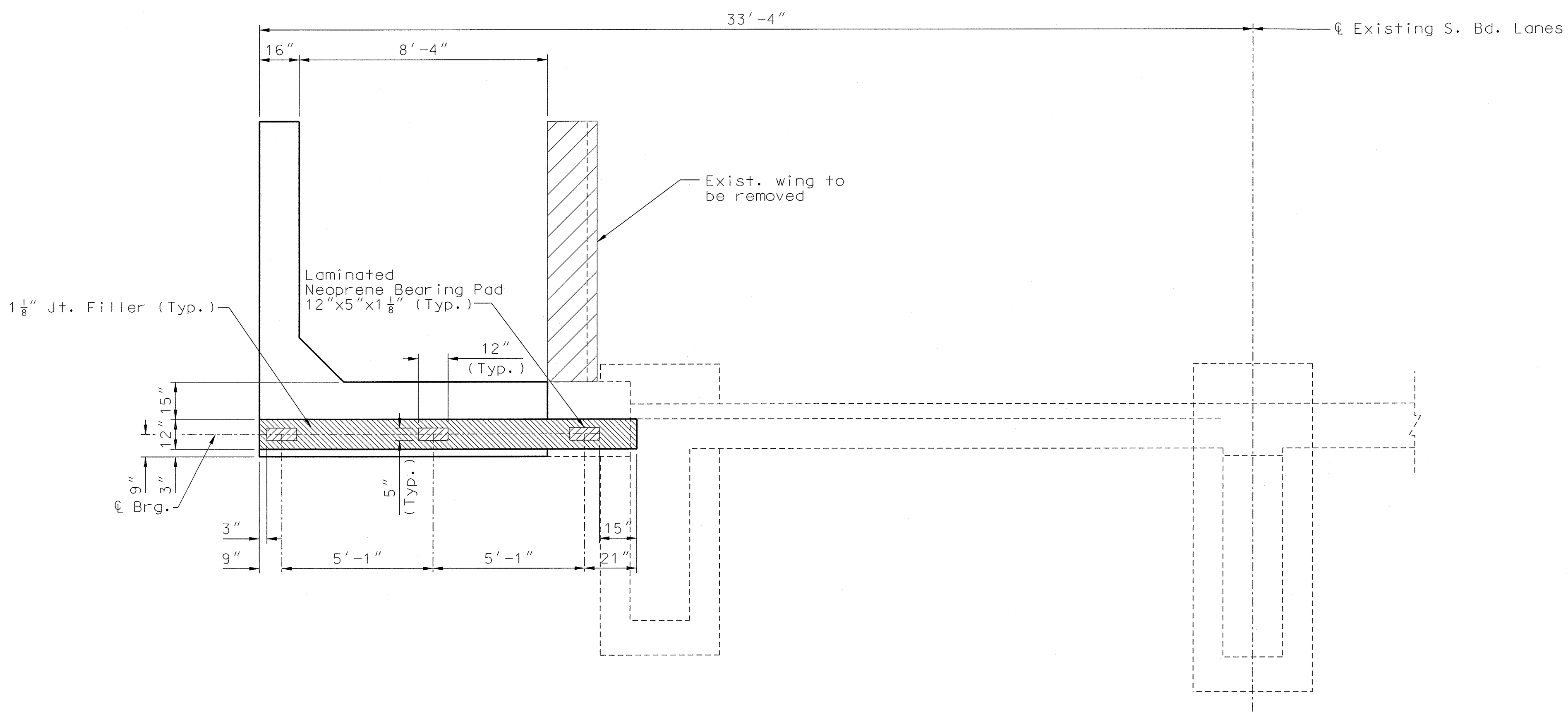
CONTRACT ID

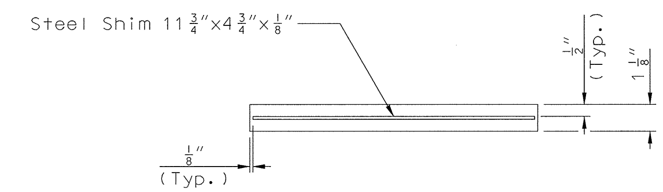
PROJECT NO.

COUNTY JACKSON

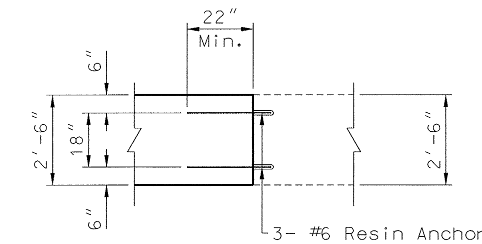


DATE 8/8/07





SECTION THRU LAMINATED NEOPRENE BEARING PAD



TYPICAL SPLICE DETAIL

Note:

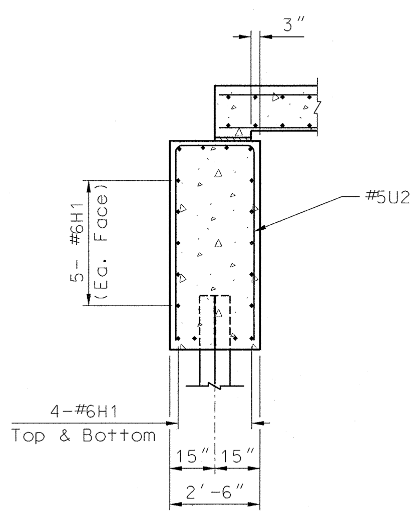
The contractor shall use one of the qualified resin anchor systems in accordance with Sec 1039.

The cost of furnishing and installing the resin anchor system complete in place will be considered completely covered in the contract unit price for Class B Concrete (Substructure).

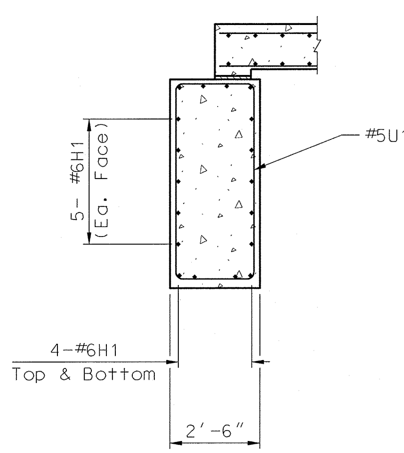
The minimum embeddment depth in concrete with f′c = 4,000 psi for the resin anchor system shall be that required to meet the minimum ultimate pullout strength in accordance with Sec 1039 but not less than 5″.

For location of Section A-A & Section B-B, see Sheet No. 4.

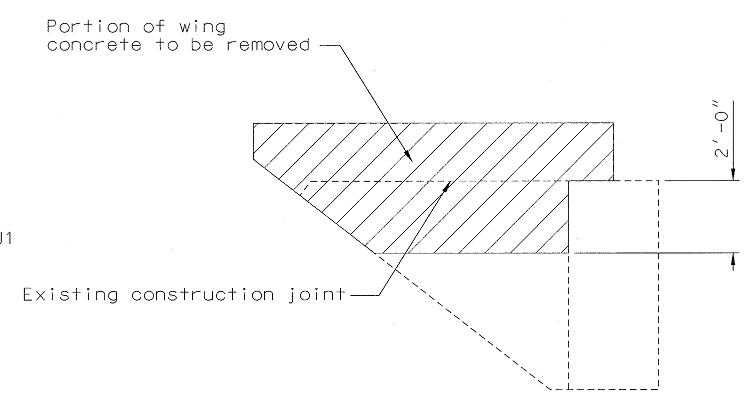
For details of Conduit System On Structure, see Sheet No. 2.



SECTION A-A

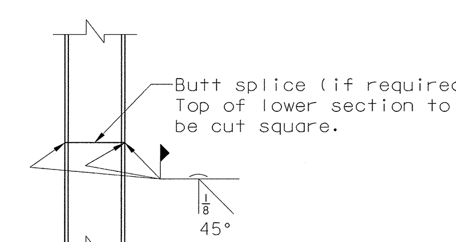


SECTION B-B



The area exposed by the removal of concrete and not covered with new concrete shall be covered with an approved bituminous paint in accordance with Sec 704.

EXISTING WING REMOVAL ELEVATION



DETAIL OF STEEL PILE SPLICE

DETAILS OF END BENT NO. 1 & 4

Detailed May 2006
Checked December 2006

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

A04783

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ROUTE	STATE	DISTRICT	SHEET NO.
71	MO	BR	6

JOB NO. J4P1429

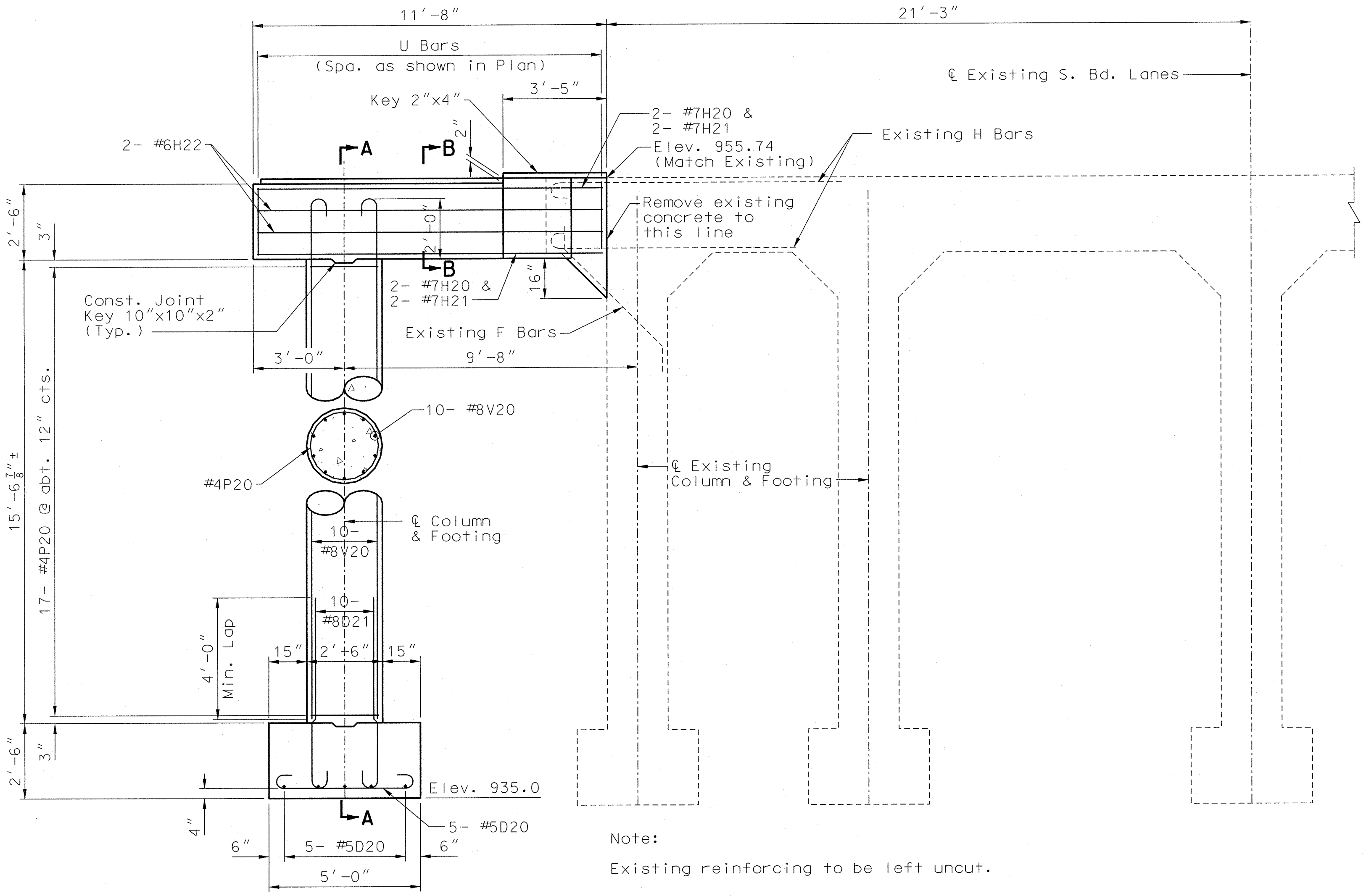
CONTRACT ID

PROJECT NO.

COUNTY JACKSON

DATE 3/8/07

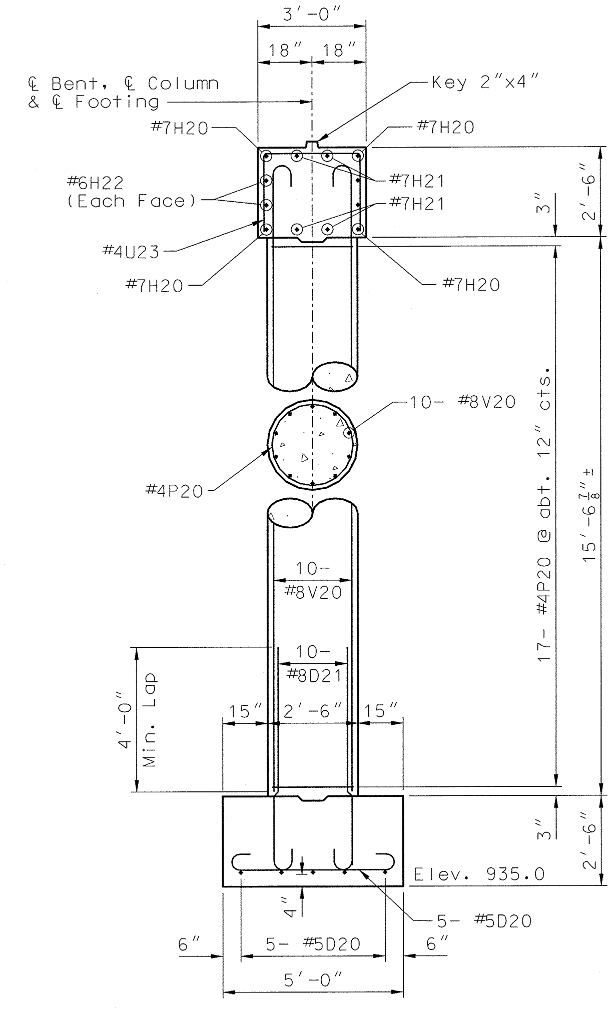
STATE OF MISSOURI DEREK W. HARTH NUMBER PE-2004026502 PROFESSIONAL ENGINEER



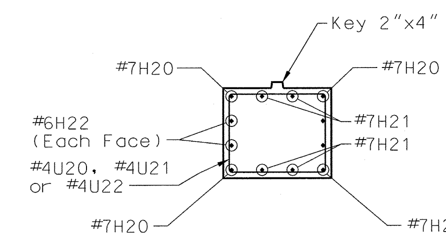
Note:

Existing reinforcing to be left uncut.

ELEVATION



SECTION A-A



SECTION B-B

Note:

For Plan see Sheet No. 7.

SUBSTRUCTURE QUANTITY TABLE FOR BENT NO. 2 & NO. 3			
ITEM		BENT NO. 2 QUANTITY	BENT NO. 3 QUANTITY
Class 1 Excavation	Cubic Yard	10	10
Class 2 Excavation	Cubic Yard	20	20
Cofferdams	Lump Sum	1	1
Class B Concrete (Substructure)	Cubic Yard	8.2	8.2
Reinforcing Steel (Bridges)	Pounds	1180	1180

Note:
These quantities are included in the Estimated Quantities shown on Sheet No. 2.

DETAILS OF INTERMEDIATE BENTS NO. 2 & 3

Detailed May 2006
Checked December 2006

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

A04783

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ROUTE	STATE	DISTRICT	SHEET NO.
71	MO	BR	7

JOB NO. J4P1429

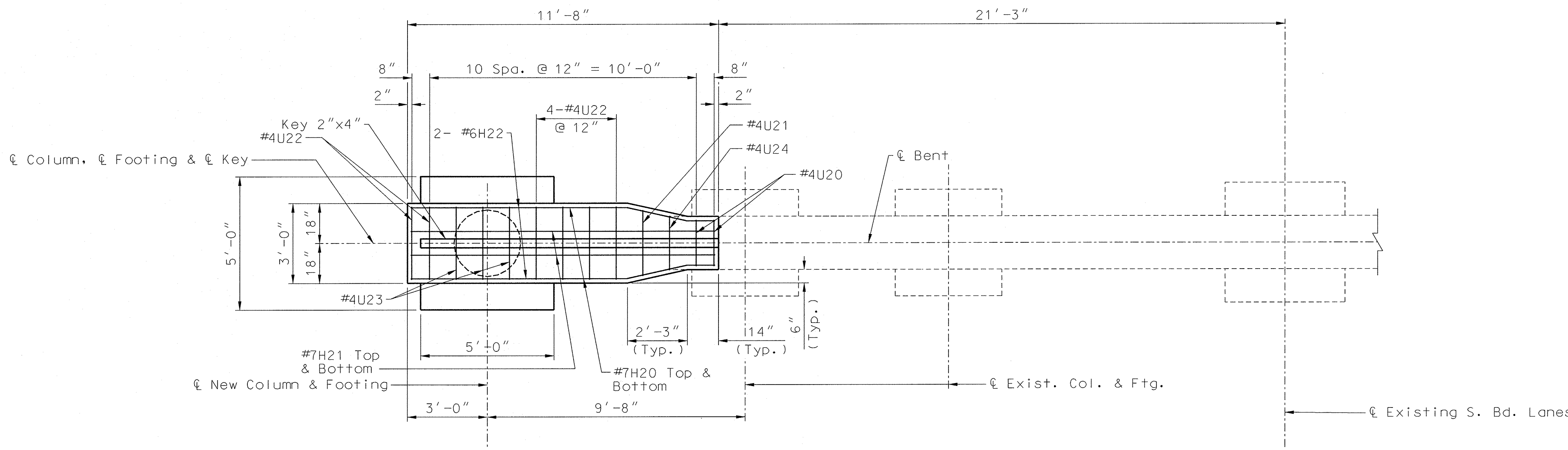
CONTRACT ID

PROJECT NO.

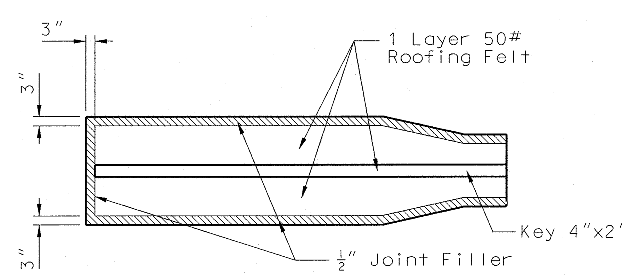
COUNTY JACKSON

STATE OF MISSOURI DEREK W. HARTH NUMBER PE-2004026502 PROFESSIONAL ENGINEER

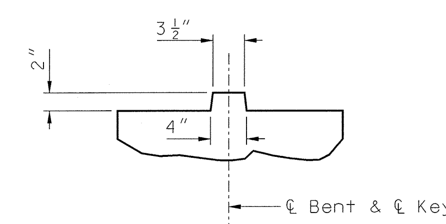
DATE 2/27/07



PLAN



DETAIL SHOWING KEY & JOINT FILLER



DETAIL SHOWING KEY

DETAILS OF INTERMEDIATE BENTS NO. 2 & 3

Detailed May 2006
Checked December 2006

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

Sheet No. 7 of 15

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ROUTE	STATE	DISTRICT	SHEET NO.
71	MO	BR	8

JOB NO. J4P1429

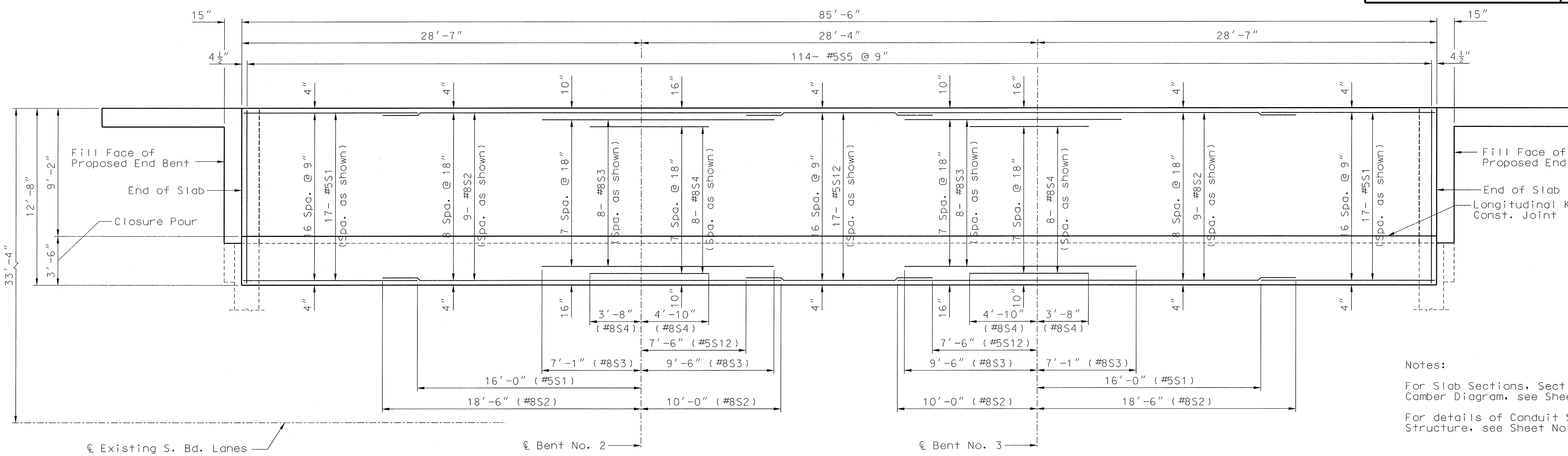
CONTRACT ID

PROJECT NO.

COUNTY JACKSON

STATE OF MISSOURI DEREK W. HARTH NUMBER PE-2000152502 PROFESSIONAL ENGINEER

DATE 8/8/07

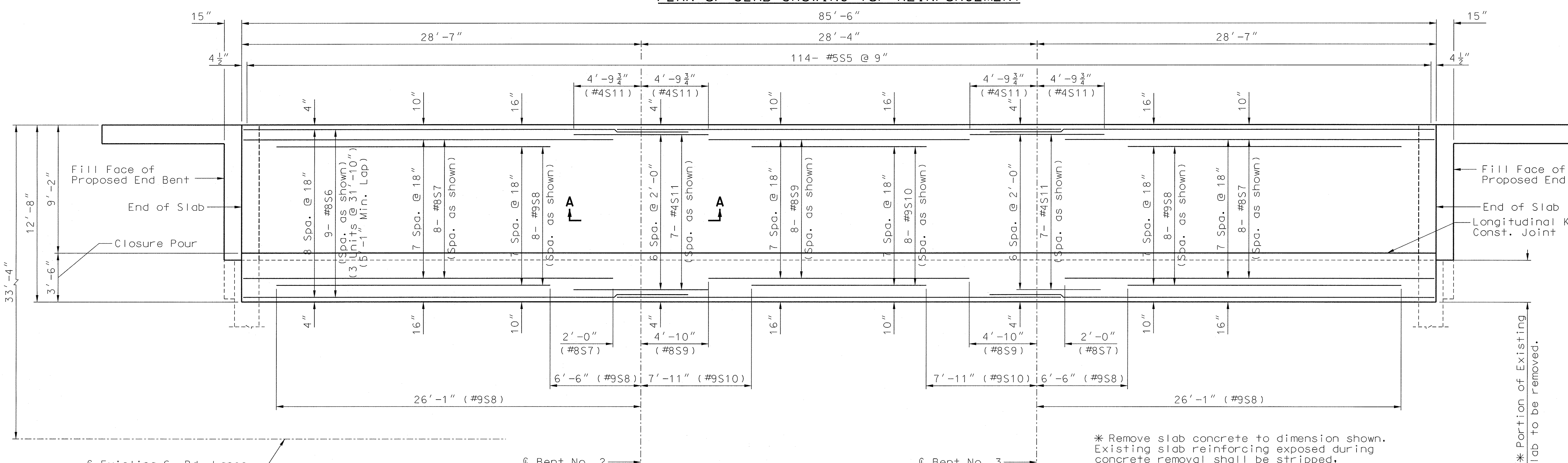


PLAN OF SLAB SHOWING TOP REINFORCEMENT

Notes:

For Slab Sections, Section A-A & Camber Diagram, see Sheet No. 9.

For details of Conduit System On Structure, see Sheet No. 2.



* Remove slab concrete to dimension shown. Existing slab reinforcing exposed during concrete removal shall be stripped, cleaned, straightened and extended into or utilized in the new concrete.

PLAN OF SLAB SHOWING BOTTOM REINFORCEMENT

SLAB PLAN

Detailed May 2006
Checked December 2006

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

A04783

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ROUTE	STATE	DISTRICT	SHEET NO.
71	MO	BR	9

JOB NO. J4P1429

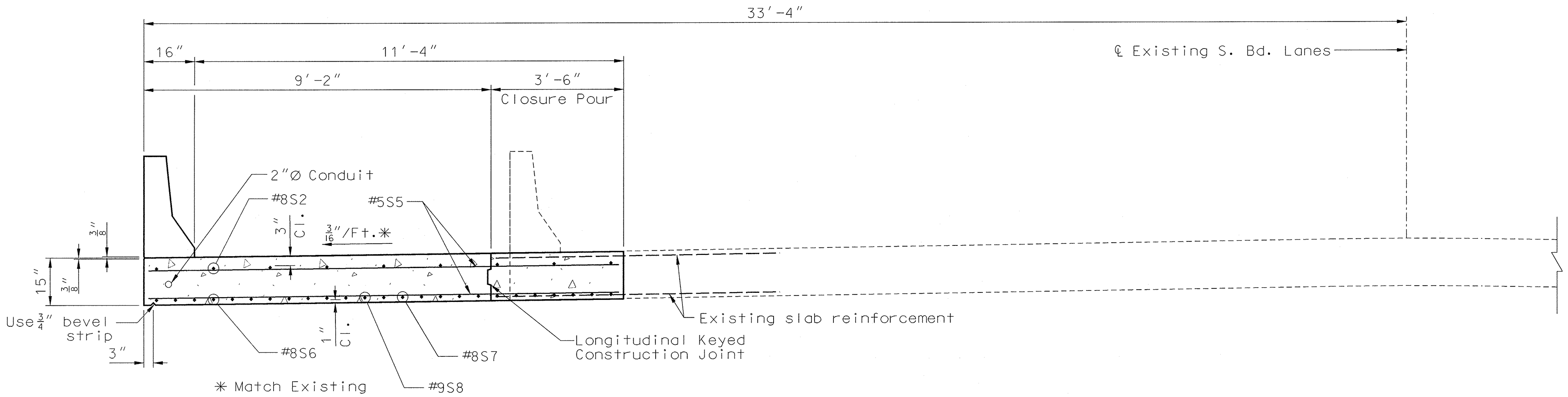
CONTRACT ID

PROJECT NO.

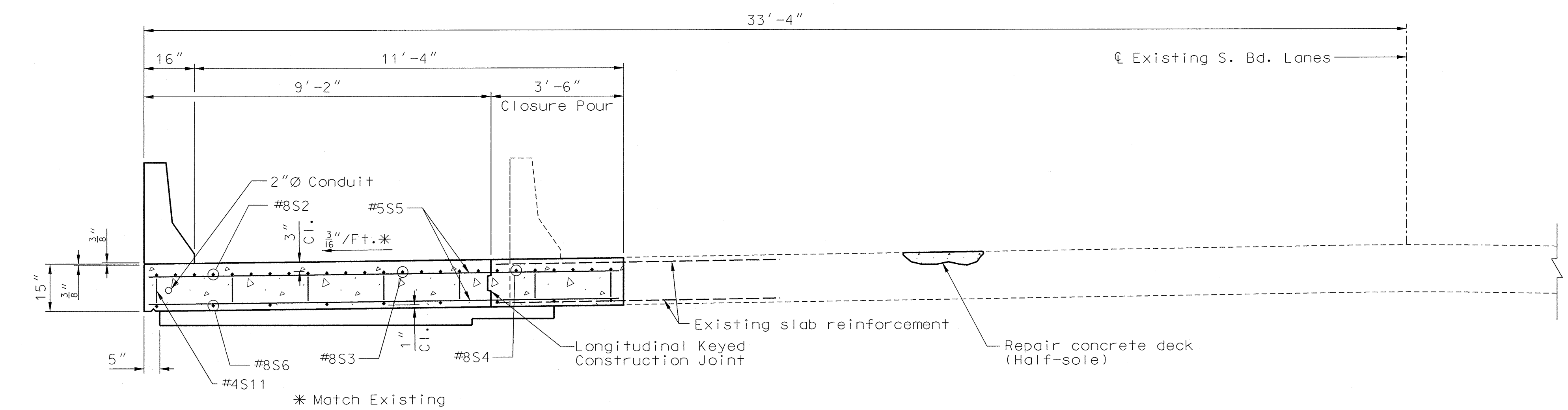
COUNTY JACKSON

STATE OF MISSOURI DEREK W. HARTY NUMBER PE-2004026502 PROFESSIONAL ENGINEER

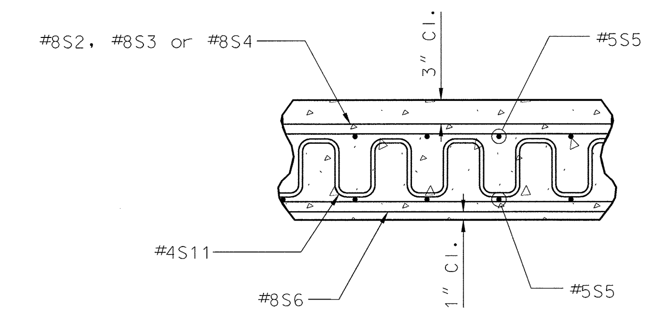
DATE 8/8/07



SECTION NEAR CENTER OF END SPANS

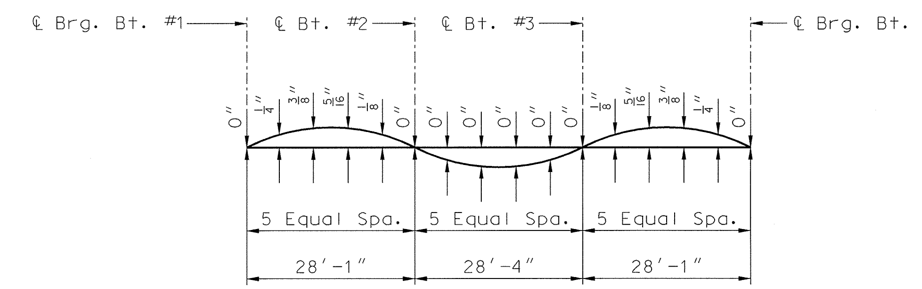


SECTION NEAR INT. BT.

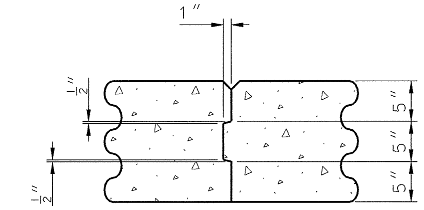


Note:
For location of Section A-A, see Sheet No. 8.

SECTION A-A



CAMBER DIAGRAM



LONGITUDINAL KEYED CONSTRUCTION JOINT

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 slab pours at a rate of 25 cubic yards per hour. The contractor shall observe the transverse construction joints as shown on the plans, unless the contractor is equipped to pour and satisfactorily finish the roadway slab at a rate which permits a continuous pouring through some or all joints as approved by the engineer.

Expansive Class B-2 concrete shall be used in the closure pour. Forms shall be released before the closure pour.

Any damage to existing epoxy coated reinforcement shall be repaired in accordance with Sec 710.

For details of Conduit System On Structure, see Sheet No. 2.

SLAB SECTIONS

Detailed May 2006
Checked December 2006

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

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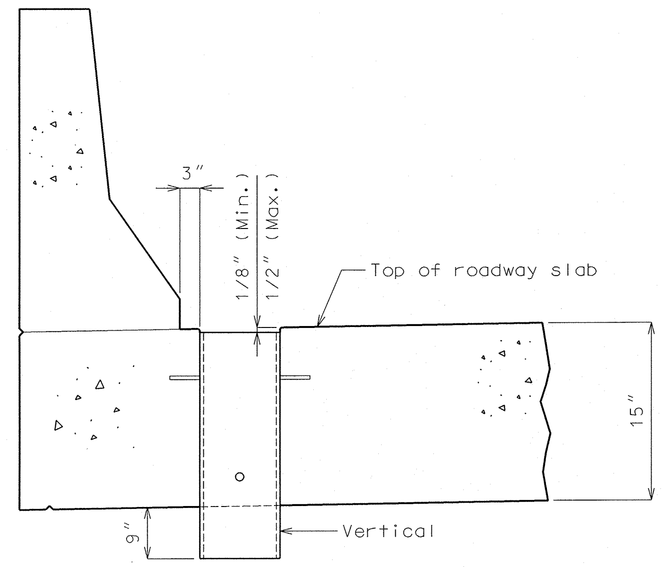
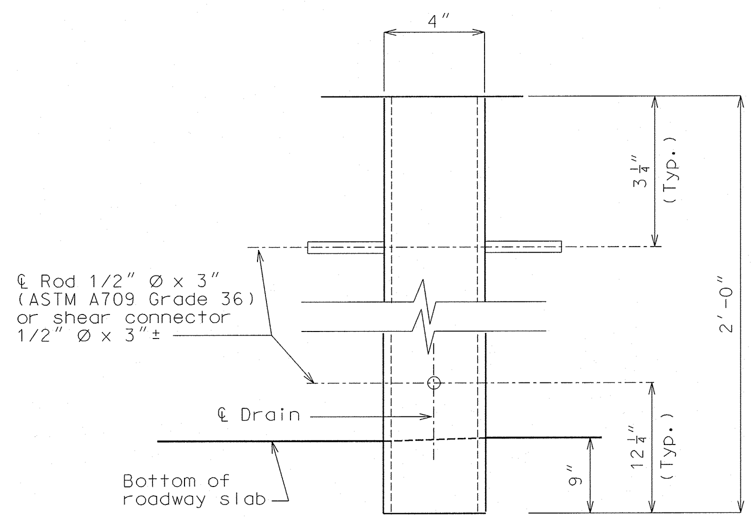
ROUTE	STATE	DISTRICT	SHEET NO.
71	MO	BR	10
JOB NO. J4P1429			
CONTRACT ID			
PROJECT NO.			
COUNTY JACKSON			

STATE OF MISSOURI DEREK W. HARTMAN NUMBER PE-2004026502 PROFESSIONAL ENGINEER

DATE 2/27/07



PART SECTION NEAR DRAIN



ELEVATION OF DRAIN

NOTE:

Slab drains may be fabricated of either 1/4" welded sheets of ASTM A709 Grade 36 steel or from 1/4" structural steel tubing ASTM A500 or A501.

Slab drain bracket assembly shall be ASTM A709 Grade 36 steel.

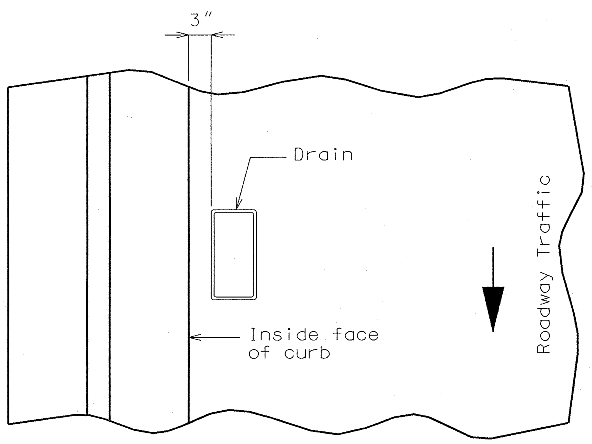
Outside dimensions of drains are 8" x 4".

Locate drains in slab by dimensions shown in Part Section Near Drain.

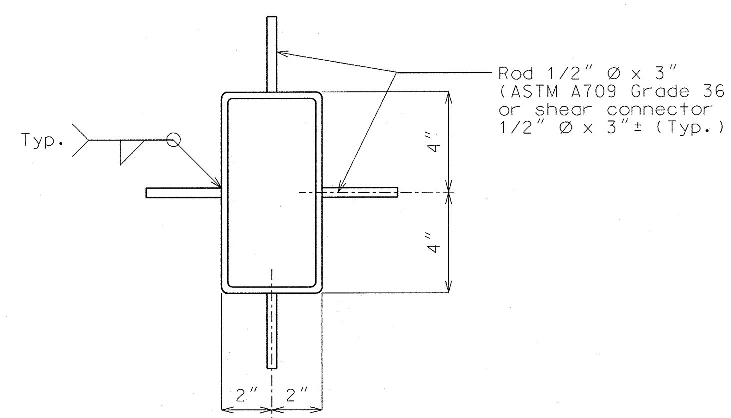
Shift reinforcing steel in field where necessary to clear drains.

The drains shall be galvanized in accordance with ASTM A123.

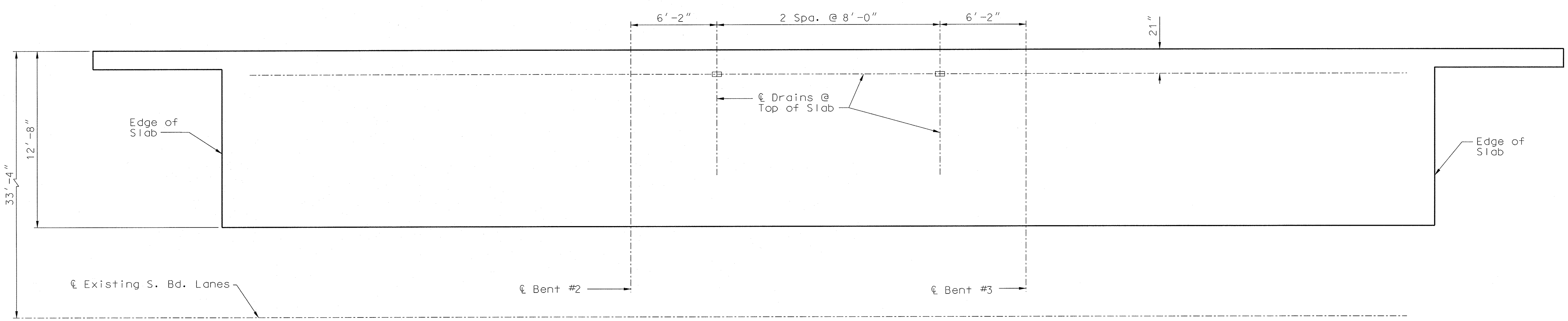
Shop drawings will not be required for the slab drains.



PART PLAN OF SLAB AT DRAIN



PLAN OF DRAIN



LOCATION OF SLAB DRAINS

SLAB DRAIN DETAILS

Detailed May 2006
Checked December 2006

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

A04783

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ROUTE	STATE	DISTRICT	SHEET NO.
71	MO	BR	11

JOB NO. J4P1429

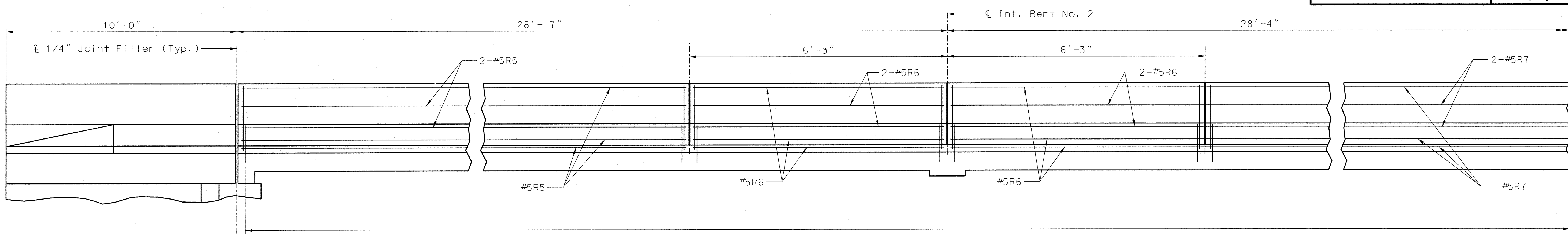
CONTRACT ID

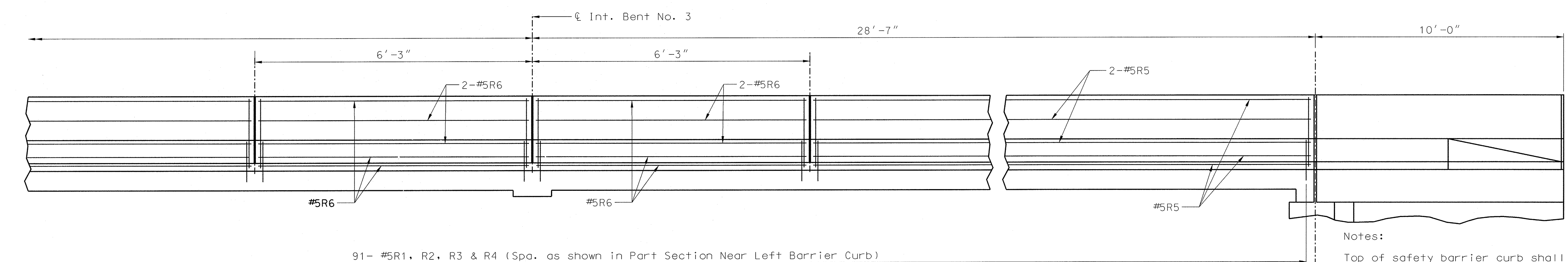
PROJECT NO.

COUNTY JACKSON

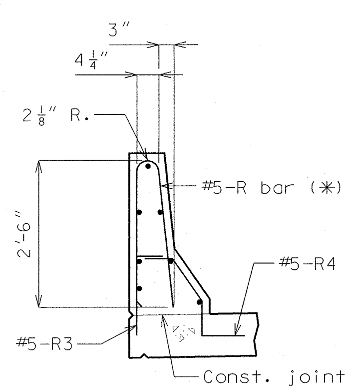
STATE OF MISSOURI DEREK W. HARTIN NUMBER PE-2004026502 PROFESSIONAL ENGINEER

DATE 2/21/07



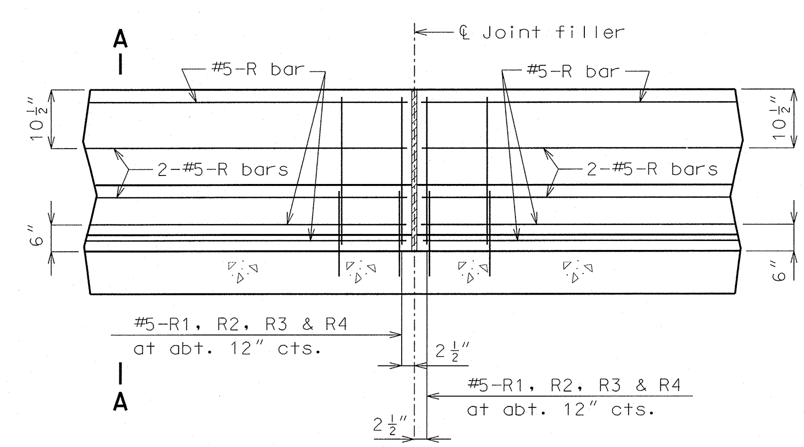


SECTION NEAR LEFT SAFETY BARRIER CURB

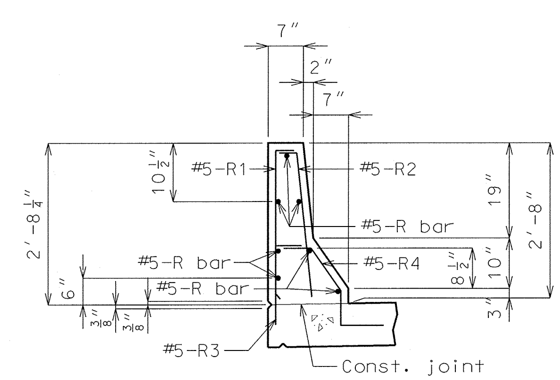


R-BAR PERMISSIBLE ALTERNATE SHAPE

(✱) The R1 and R2 bar combination may be furnished as one bar, as shown, at the contractor's option. (All dimensions are out to out.)



PART SECTION NEAR LEFT SAFETY BARRIER CURB
(CAST-IN-PLACE CONVENTIONAL FORMING OPTION)

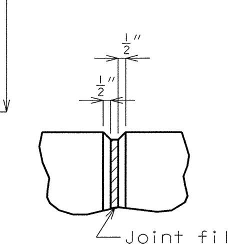


PART SECTION A-A

Notes:

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

The cross-sectional area above the slab = 2.28 sq. ft.



FILLED JOINT DETAIL

Notes:

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 ½" radius or a ⅜" bevel, unless otherwise noted.

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 end of wing to end of wing.

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".

The curb shall be cured by Type 1-D or Type 2 liquid membrane-forming compound in accordance with Sec. 1055. Surface sealing for concrete in accordance with Sec. 703 will not be permitted.

Detailed May 2006
Checked December 2006

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

A04783

REV. $USER$

ban11_end_ccslab.dgn Effective: July 2005 Supercedes: June 2005

ROUTE	STATE	DISTRICT	SHEET NO.
71	MO	BR	12

JOB NO. J4P1429

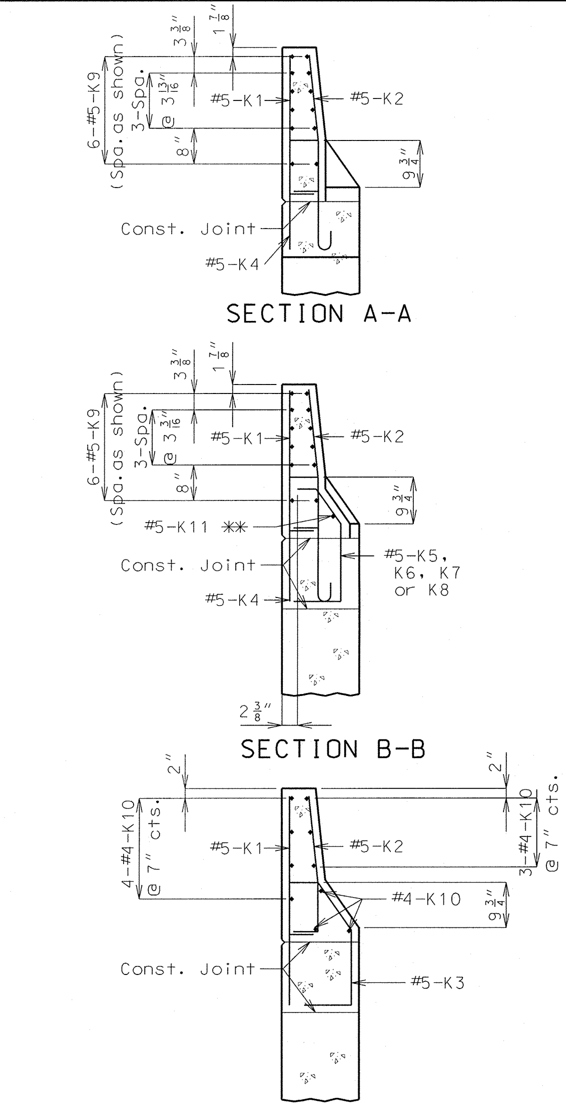
CONTRACT ID

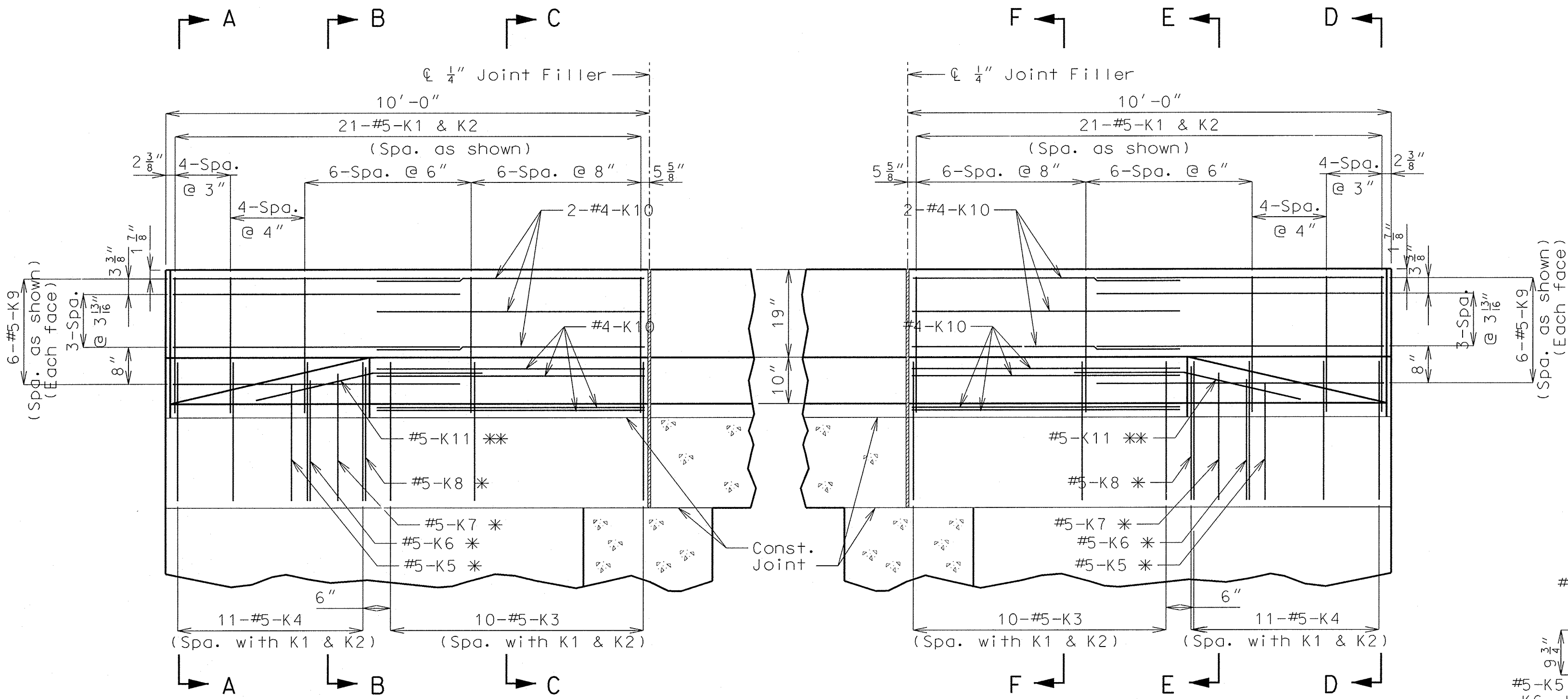
PROJECT NO.

COUNTY JACKSON

DATE 3/8/07

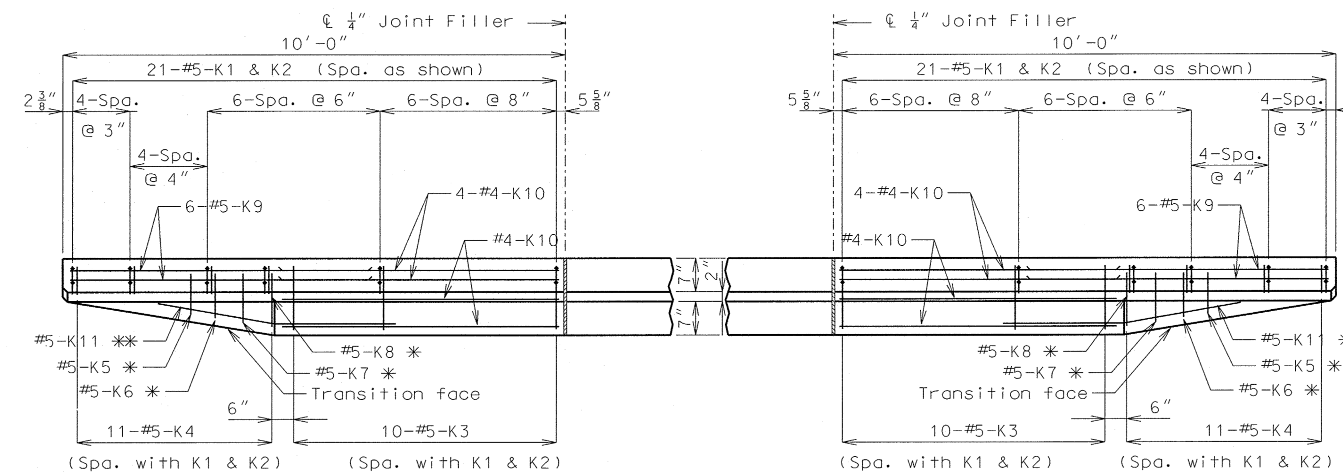
STATE OF MISSOURI DEREK W. HARTH NUMBER PE-2004026502 PROFESSIONAL ENGINEER

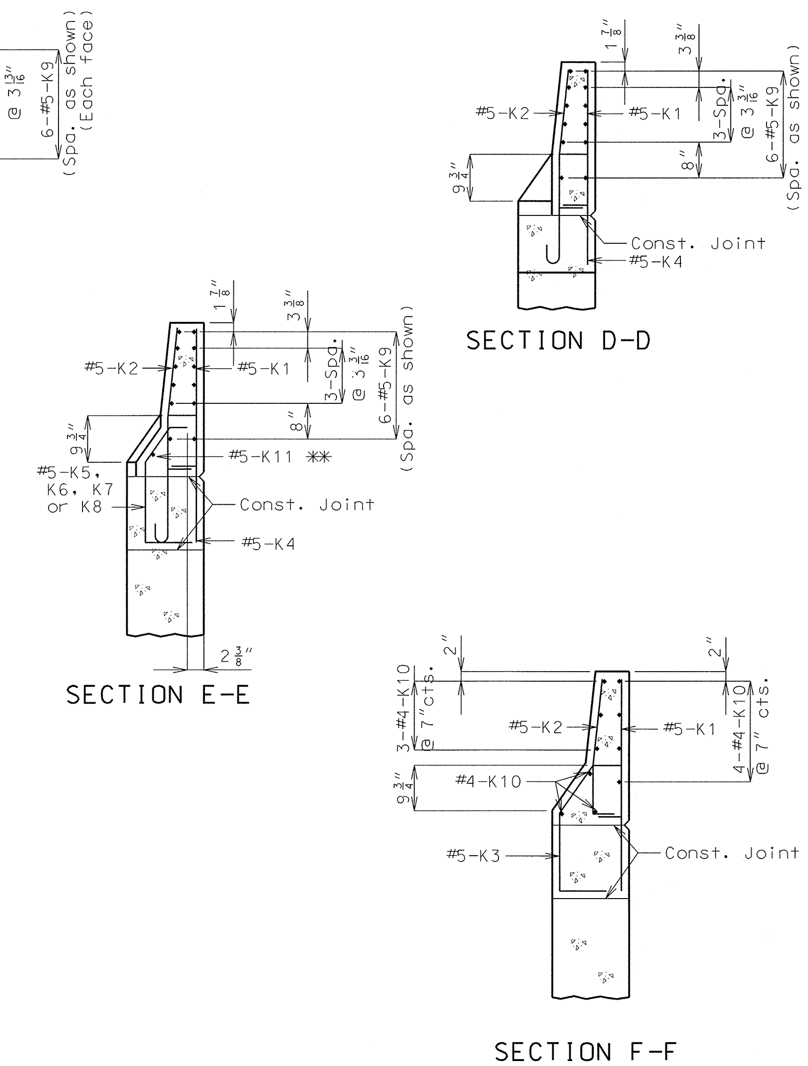


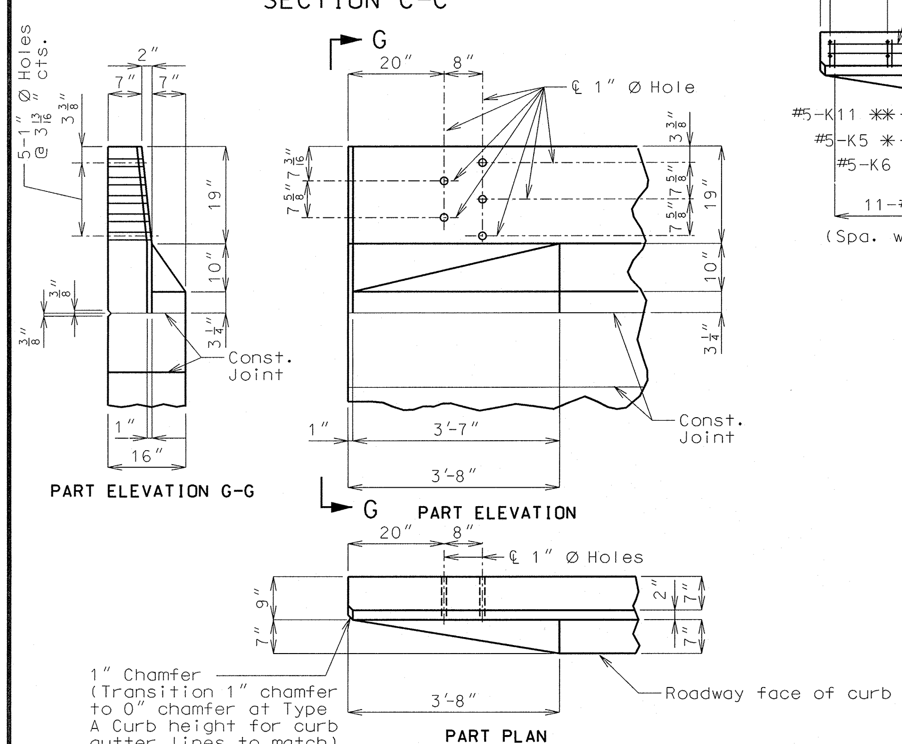


✱ Spaced with #5-K4 bars.

✱✱ Fit #5-K11 bar to follow transition face of curb.





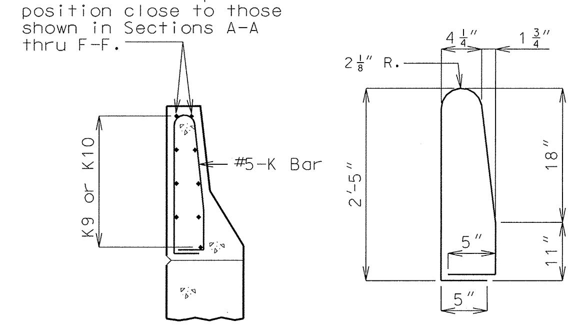


DETAILS OF GUARD RAIL ATTACHMENT

NOTES: Use a minimum lap of 2'-0" between K9 and K10 bars.

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".

The top two K9 and K10 bars shall be kept with position close to those shown in Sections A-A thru F-F.



(K3 or K4 thru K8 bars not shown for clarity)

K1-K2 BAR PERMISSIBLE ALTERNATE SHAPE (✱✱✱✱)

(✱✱✱✱) The K1 and K2 bar combination may be furnished as one bar as shown, at the contractor's option.

DETAILS OF LEFT SAFETY BARRIER CURB AT END BENTS

Detailed May 2006
Checked December 2006

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

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ROUTE	STATE	DISTRICT	SHEET NO.
71	MO	BR	13

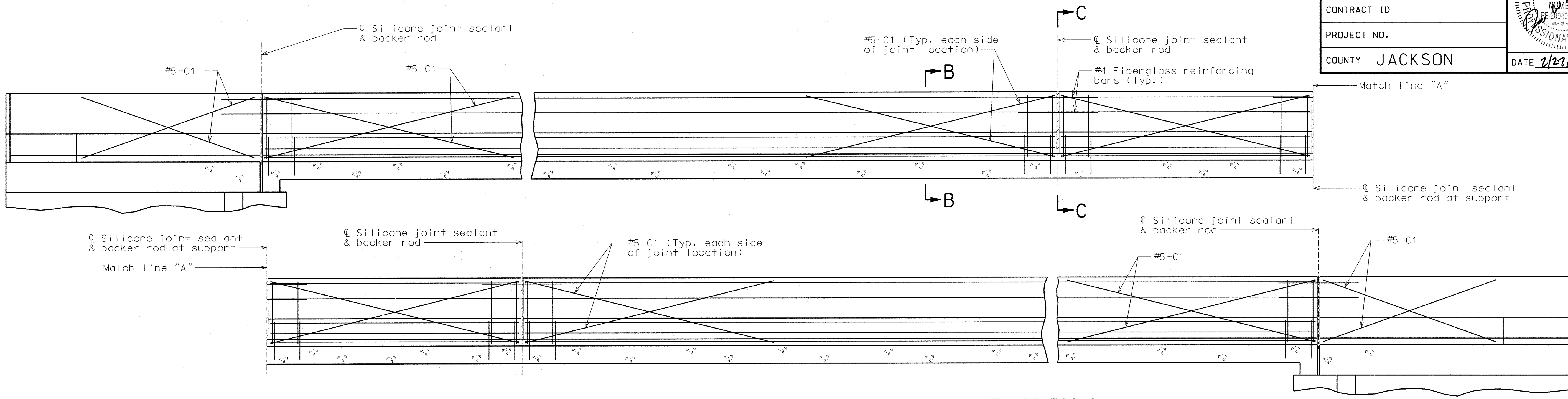
JOB NO. J4P1429

CONTRACT ID

PROJECT NO.

COUNTY JACKSON

DATE 2/27/07



TYPICAL SECTION NEAR LEFT SAFETY BARRIER CURB AT SUPPORT LOCATIONS
(OPTIONAL SLIP-FORM BRIDGE SAFETY BARRIER CURB)

Notes:

Top of safety 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 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 end of wing to end of wing.

The curb shall be cured by application of Type 1-D or Type 2 Liquid Membrane-Forming Compound in accordance with Sec 1055. Surface sealing for concrete in accordance with Sec 703 will not be permitted.

Notes:

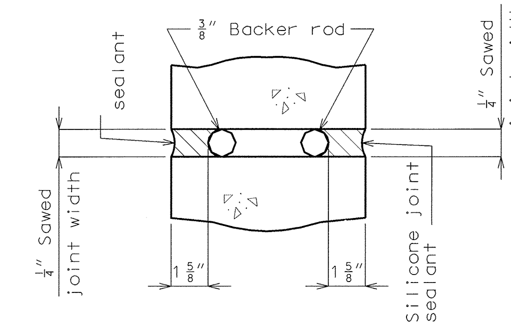
Joint sealant and backer rods shall be used on all slip-form barrier curbs instead of joint filler and shall be in accordance with Sec 717 for silicone joint sealant for saw cut and formed joints.

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 safety barrier curb.

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

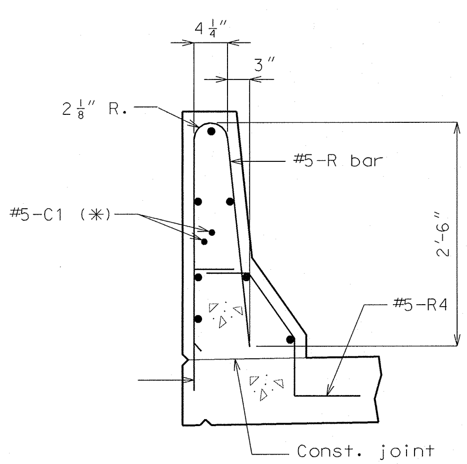
Concrete traffic barrier delineators shall be placed on top of the safety barrier curb as shown on Missouri Standard Plans 617.10 and in accordance with Sec 617. Concrete traffic barrier delineators will be considered completely covered by the contract unit price for "Safety Barrier Curb".



SECTION A-A

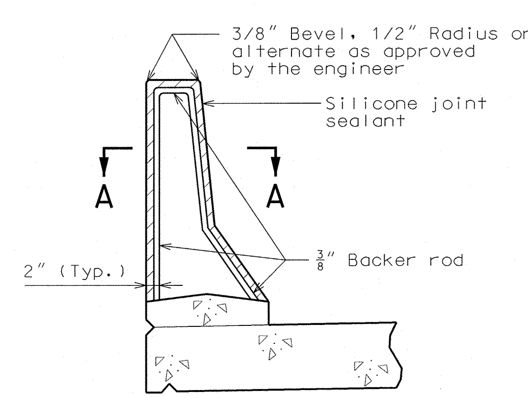
Note:

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

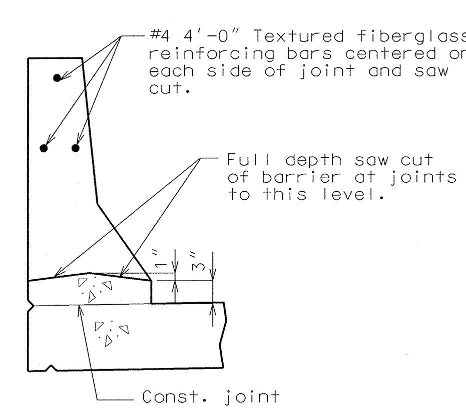


Notes: PART SECTION B-B

(✱) Each side of joint location.



SECTION THRU JOINT



PART SECTION C-C

OPTIONAL SLIP-FORM BRIDGE SAFETY BARRIER CURB

Detailed May 2006
Checked December 2006

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

A04783

REV. $USER$

STATE OF MISSOURI ★ DEREK W. HARTH NUMBER PE-2004026502 PROFESSIONAL ENGINEER ★

DATE 8/8/07

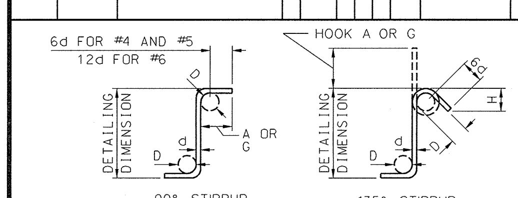
BILL OF REINFORCING

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. BENTS 2 & 3																
20	5D20	FOOTING		18		X			4 6.000							5 8	5 8	118
20	8D21	FOOTING		17		X			6 4.000							7 3	7 3	387
8	7H20	BEAM		30		X					8 1.375	2 3.625	1 0.625	0 6.000	2 3.000	11 6	11 5	187
8	7H21	BEAM		20		X			11 5.000							11 5	11 5	187
8	6H22	BEAM		30		X					8 1.375	2 3.625	1 0.625	0 6.000	2 3.000	11 6	11 5	137
34	4P20	COLUMN		16		X			2 3.000							9 0	9 0	204
4	4U20	BEAM		13	S	X			1 9.000	2 3.000	1 9.000	2 3.000				8 9	8 6	23
2	4U21	BEAM		13	S	X			2 5.750	2 3.000	2 5.750	2 3.000				10 3	9 11	13
12	4U22	BEAM		13	S	X			2 9.000	2 3.000	2 9.000	2 3.000				10 9	10 6	84
6	4U23	BEAM		10	S	X				2 3.000	2 9.000					7 3	7 1	28
2	4U24	BEAM		13	S	X			2 0.500	2 3.000	2 0.500	2 3.000				9 4	9 1	12
20	8V20	COLUMN		17		X			17 5.375							18 4	18 4	979
		SUPERSTR.																
		END BENTS 1 & 4																
18	6F1	FILLET		30					1 2.000	4 7.000	1 2.000			3 2.875	3 2.875	6 11	6 10	185
18	6F2	BEAM		6					4 0.000	2 2.375						6 2	6 1	164
36	6H1	BEAM		20					9 5.000							9 5	9 5	509
36	6H2	WING		20					11 0.000							11 0	11 0	595
16	8H3	WING		20					9 9.000							9 9	9 9	417
4	8H4	WING	E	20					9 9.000							9 9	9 9	104
18	5U1	BEAM		13					2 3.000	5 3.875	2 3.000	5 3.875				16 1	15 9	296
4	5U2	BEAM		10						5 3.875	2 3.000					12 11	12 8	53
40	6V1	WING		20					6 9.125							6 9	6 9	406
		SLAB																
34	5S1	SLAB	E	20					12 5.500							12 6	12 6	443
18	8S2	SLAB	E	20					28 6.000							28 6	28 6	1370
18	8S3	SLAB	E	20					16 7.000							16 7	16 7	797
16	8S4	SLAB	E	20					8 6.000							8 6	8 6	363
230	5S5	SLAB	E	20					12 5.000							12 5	12 5	2979
27	8S6	SLAB	E	20					31 10.000							31 10	31 10	2295
16	8S7	SLAB	E	20					26 5.500							26 6	25 6	1089
16	9S8	SLAB	E	20					19 7.000							19 7	19 7	1065
8	8S9	SLAB	E	20					18 8.000							18 8	18 8	399
10	9S10	SLAB	E	20					12 6.000							12 6	12 6	425
14	4S11	SLAB	E	50												25 1	21 3	199
17	5S12	SLAB	E	20					13 4.000							13 4	13 4	236
		BARRIER																
42	5K1	BARRIER	E	19	S				2 5.000	0 5.125						2 10	2 9	120
42	5K2	BARRIER	E	14	S				0 5.125	0 11.125	1 6.000			0 2.000	1 5.875	2 10	2 9	120
20	5K3	BARRIER	E	51	S				2 4.000	0 5.125	1 0.000	1 6.125	0 10.000	0 9.875	0 6.875	6 1	5 10	122
22	5K4	BARRIER	E	12					2 4.000	0 6.000	2 4.000					5 9	5 6	126
2	5K5	BARRIER	E	27	S				0 10.000	1 10.500	0 6.750	0 4.375		0 4.000	0 5.500	3 8	3 6	7
2	5K6	BARRIER	E	27	S				0 10.000	1 9.500	0 7.875	0 4.375		0 4.500	0 6.500	3 8	3 6	7
2	5K7	BARRIER	E	27	S				0 10.000	1 8.125	0 9.625	0 4.375		0 5.500	0 7.875	3 8	3 6	7
2	5K8	BARRIER	E	27	S				0 10.000	1 6.750	0 11.250	0 4.375		0 6.500	0 9.250	3 8	3 6	7
24	5K9	BARRIER	E	20					5 7.000							5 7	5 7	140
22	4K10	BARRIER	E	20					6 2.000							6 2	6 2	91
2	5K11	BARRIER	E	8					2 2.125					2 2.000	0 2.375	4 4	4 4	9

BILL OF REINFORCING

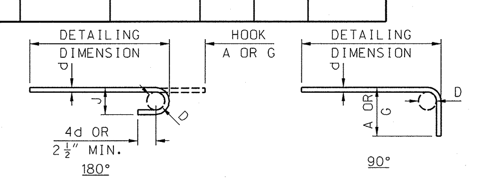
NO. REQD.	SIZE MARK	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	B FT. IN.	C FT. IN.	D FT. IN.	E FT. IN.	F FT. IN.	H FT. IN.	K FT. IN.	NOMINAL LENGTH FT. IN.	ACTUAL LENGTH FT. IN.	WEIGHT LBS.
91	5R1	BARRIER	E	19	S				2 6.000	0 3.500						2 10	2 8	253
91	5R2	BARRIER	E	15	S				2 6.125	0 3.500				2 6.000	0 3.000	2 10	2 9	261
91	5R3	BARRIER	E	19	S				1 5.000	0 6.000						1 11	1 10	174
91	5R4	BARRIER	E	27	S					0 6.000	0 11.250	0 7.000	1 0.000	0 9.250	0 6.375	3 0	2 10	269
14	5R5	BARRIER	E	20					22 1.000							22 1	22 1	322
28	5R6	BARRIER	E	20					6 0.000							6 0	6 0	175
7	5R7	BARRIER	E	20					15 7.000							15 7	15 7	114
24	5C1	BARRIER	E	20					6 3.000							6 3	6 3	156
		TOTAL																
	4																	365
	4		E															289
	5																	467
	5		E															6050
	6																	1996
	6		E															0
	7																	373
	7		E															0
	8																	1783
	8		E															6417
	9																	0
	9		E															1490
		TOTAL																4984
		TOTAL	E															14247
		REINF. STEEL																
		(BRIDGES)																
	4																	365
	5																	467
	6																	1996
	7																	373
	8																	1783
		TOTAL																4984
		REINF. STEEL																
		(EPOXY)																
	4		E															199
	5		E															3658
	8		E															6417
	9		E															1490
		TOTAL	E															11764
		BARRIER																
		CURB																
	4		E															91
	5		E															2235
		TOTAL	E															2326
		SLIP FORM																
		BARRIER																
	5		E															156
		TOTAL	E															156

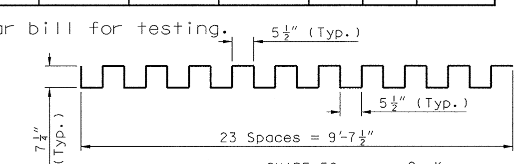
Two additional #4K10, #5S5, #8S3 and #9S10 are included in bar bill for testing.



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"

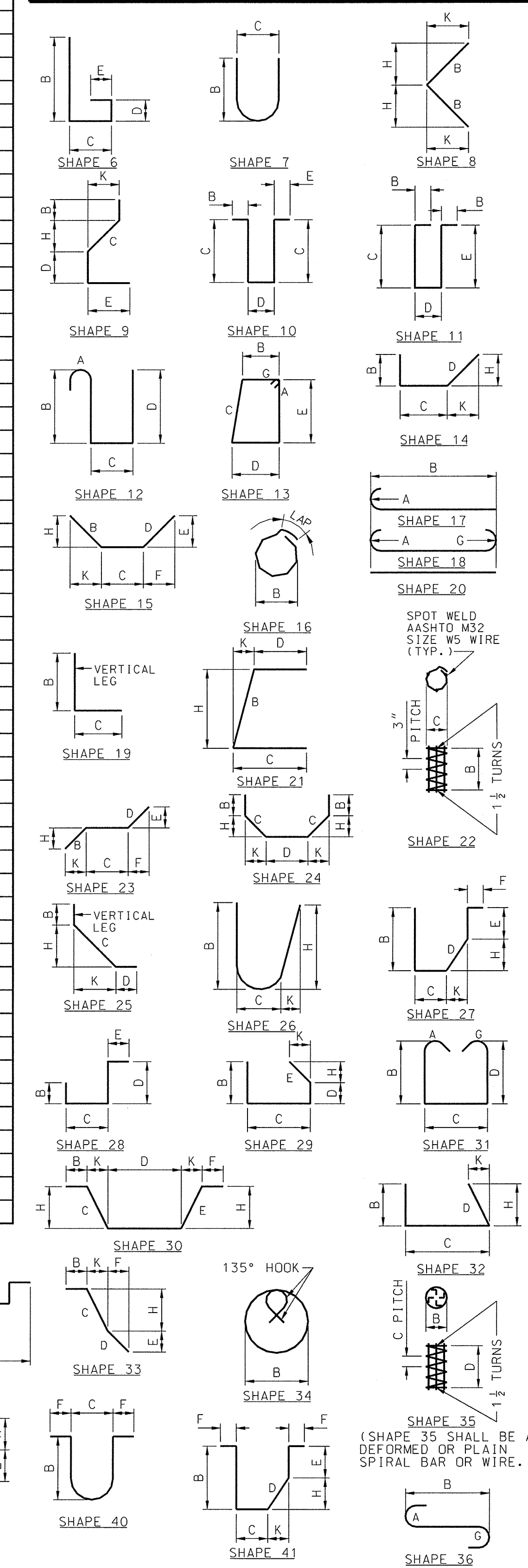
NOTE: UNLESS OTHERWISE NOTED DIAMETER "D" IS THE SAME FOR ALL BENDS & HOOKS ON A BAR.





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"

NOTES:
ALL STANDARD HOOKS AND BENDS OTHER THAN 180 DEGREE TO BE BENT WITH THE SAME PROCEDURE AS FOR 90 DEG. 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 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 May 2006
Checked December 2006

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

REVISED NOV. 2002 IN ACCORDANCE WITH MHTC STD.

REV. $USER$

ROUTE	STATE	DISTRICT	SHEET NO.
71	MO	BR	15

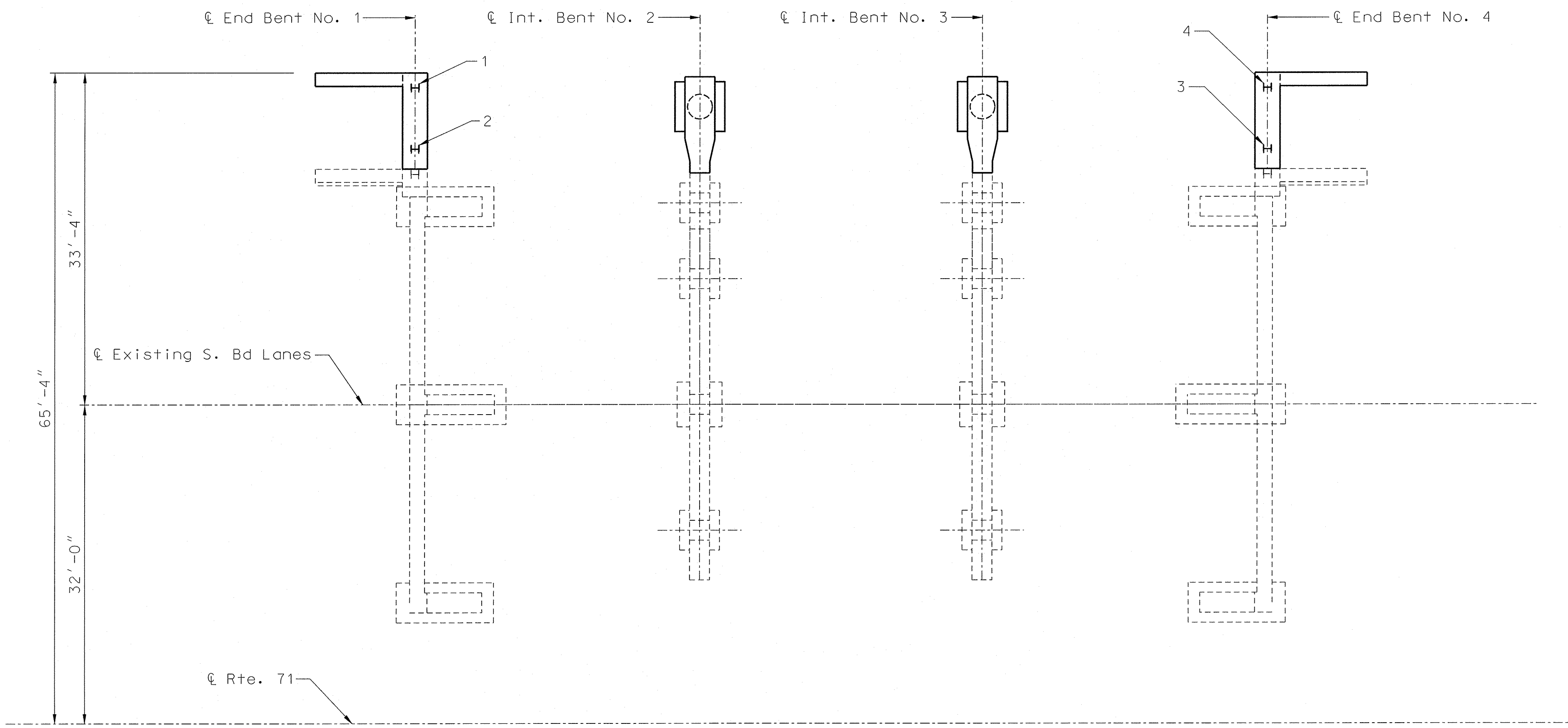
JOB NO. J4P1429

CONTRACT ID

PROJECT NO.

COUNTY JACKSON

DATE 2/27/07



PLAN SHOWING PILE NUMBERING FOR RECORDING "AS BUILT PILE" DATA

"AS BUILT PILE" DATA			
PILE NO.	LENGTH IN PLACE (FT.)	COMPUTED BEARING (TONS)	REMARKS
			End Bent No. 1
1			
2			
			End Bent No. 4
3			
4			

NOTE: INDICATE IN REMARKS COLUMN:
A.) IF PILING WERE DRIVEN TO PRACTICAL REFUSAL.
B.) PILE BATTER IF OTHER THAN SHOWN ON BENT DETAIL SHEET.
C.) TYPE OF PILING USED.

NOTE: THIS SHEET TO BE COMPLETED BY MoDOT CONSTRUCTION PERSONNEL.

Detailed May 2006
Checked December 2006

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

A04783

REV. $USER$

ROUTE	STATE	DISTRICT	SHEET NO.
71	MO	BR	1

JOB NO. J4P1429A

CONTRACT ID 080523-41A

PROJECT NO. FAF 150-1(6)

COUNTY JACKSON

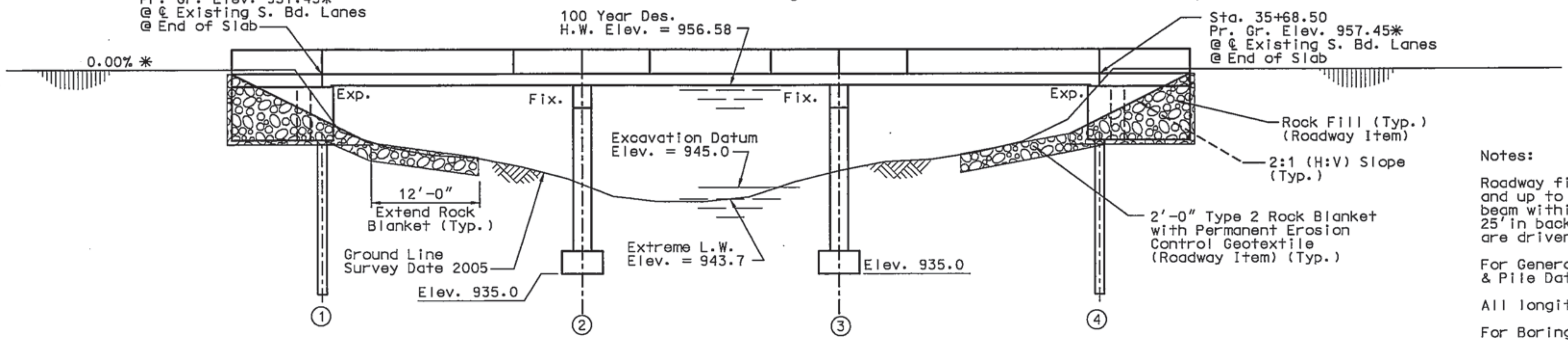
DATE

SEC/SUR 35 TWP 47N RGE 33W

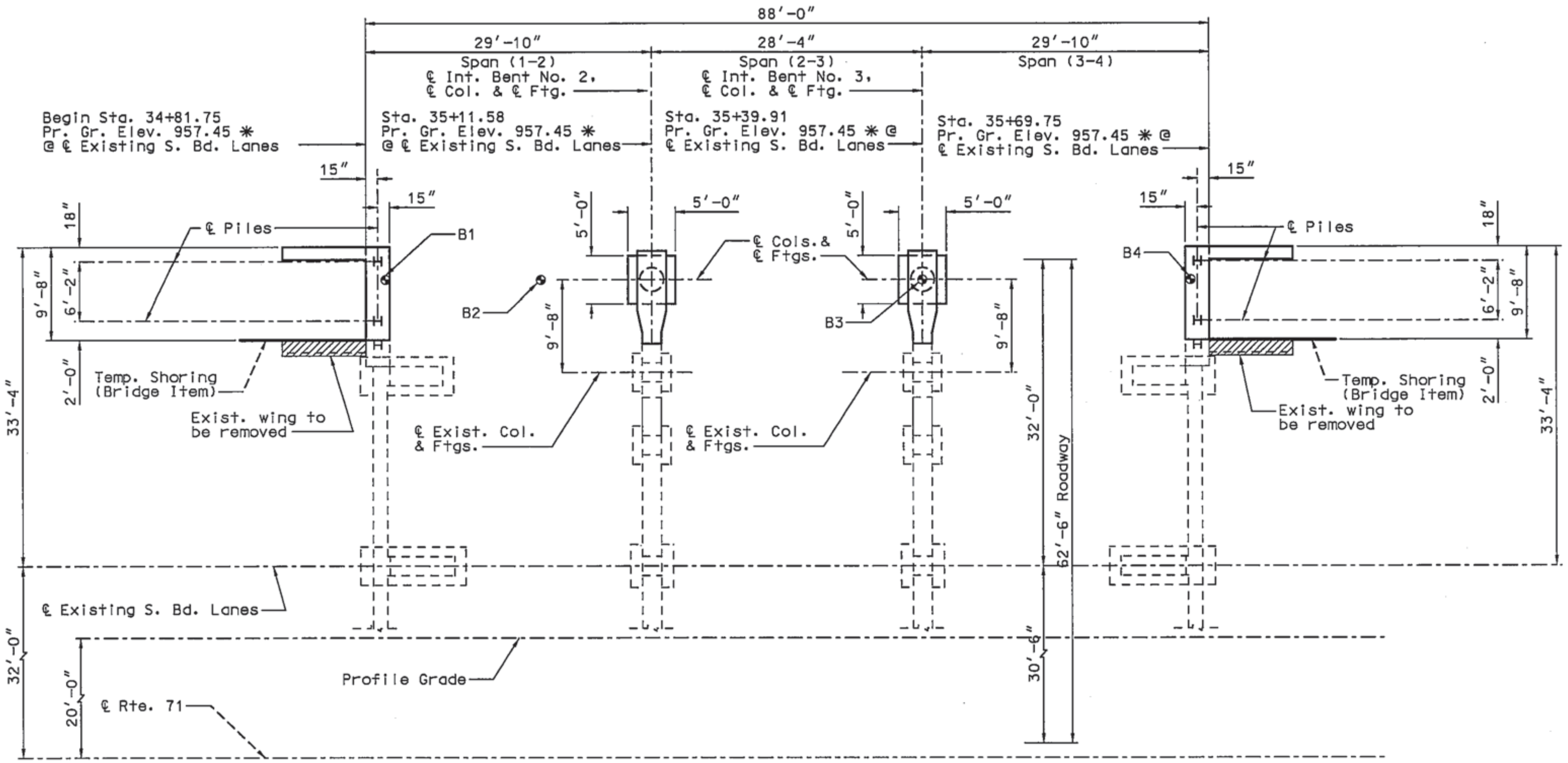
MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

U.I.P. and Widen Existing 28'-28'-28' Continuous Concrete Slab Spans

FINAL PLANS



GENERAL ELEVATION



* Match Existing

PLAN

"⊗" indicates location of boring.

Notes:

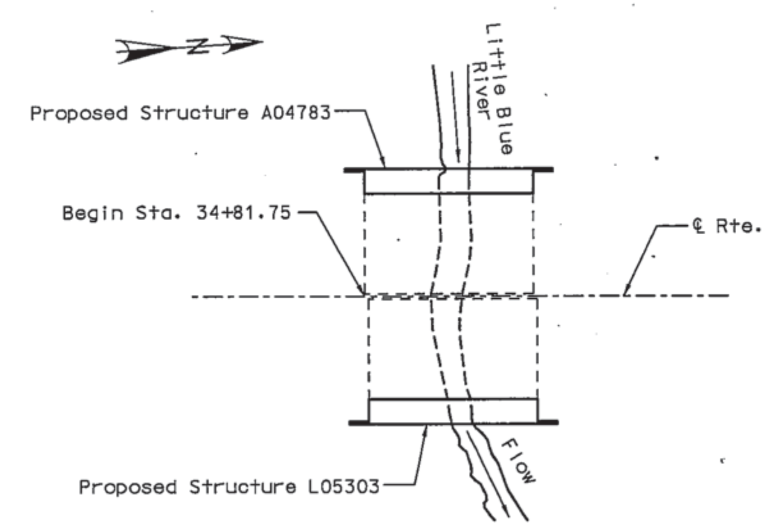
Roadway fill shall be completed to the final roadway section and up to the elevation of the bottom of the concrete beam within the limits of the structure and for not less than 25' in back of the fill face of the end bents before piles are driven for any bents falling within the embankment section.

For General Notes, Estimated Quantities, Location Sketch & Pile Data, see Sheet No. 2.

All longitudinal dimensions are horizontal.

For Boring Data, see Sheet No. 3.

Hydrologic Data
Drainage Area = 4.1 (sq. mi.) (Hilly)
Backwater/Base Flood Data (100 year)
Design High Water Elev. = 956.58 Design Discharge = 4600 (cfs) No Rise Certificate Accepted 2/21/06 Average Velocity thru Opening = 6.75 (ft/s)
Freeboard
Design Frequency = 50 (year) Design Discharge = 3800 (cfs) Freeboard = 0 (ft.)
Roadway Overtopping
Design Elev. (1' below shoulder) = 956.31 Design Discharge = 3800 (cfs) Overtopping Frequency = 50 year



B.M. BENCHMARK #5: ELEV. 978.08, 60 d STEPPED IN NORTH SIDE OF POWER POLE, 1ST POWER POLE EAST OF RR TRACKS & JUST SOUTH OF 150 HIGHWAY, WEST OF 71 HIGHWAY

NOTICE AND DISCLAIMER REGARDING BORING LOG DATA
The locations of all subsurface borings for this structure are shown on the bridge plan sheet for this structure. Boring data for the numbered locations is shown on sheet no. 3. The boring data for all locations indicated, as well as any other boring logs or other factual records of subsurface data and investigations performed by the department for the design of the project, is available from the Project Contact upon written request as outlined in the Project Special Provisions. No greater significance or weight should be given to the boring data depicted on the plan sheets than is subsurface data available from the district or elsewhere.

The Commission does not represent or warrant that any such boring data accurately depicts the conditions to be encountered in constructing this project. A contractor assumes all risks it may encounter in basing its bid prices, time or schedule of performance on the boring data depicted here or those available from the district, or on any other documentation not expressly warranted, which the contractor may obtain from the Commission.

REPAIRS TO BRIDGE: SOUTH BOUND ROUTE 71 OVER LITTLE BLUE RIVER

STATE ROAD FROM RTE. 50 TO CASS COUNTY LINE

ABOUT 0.7 MILES NORTH OF CASS COUNTY LINE

PROJECT NO. STA. 34+81.75± (Match Existing)

JOB NO. J4P1429A RTE. 71

STD. 617.10

STD. 706.35

A04783

Designed	April	2006
Detailed	May	2006
Checked	December	2006

GBA GEORGE BUTLER ASSOCIATES, INC. Engineers • Architects

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

Date: / /

REV. $USER$

T:\de-proj\JACKSON\J4P1429-1130B\GBA\9809 Route 71 Over Route 150\A04783\J4P1429_A04783_001_G_E_P.dgn 12:52:53 PM 7/12/2011

ROUTE	STATE	DISTRICT	SHEET NO.
71	MO	BR	2

JOB NO. J4P1429A
CONTRACT ID 080523-41A
PROJECT NO. FAF 150-1(6)
COUNTY JACKSON
DATE

FINAL PLANS

General Notes:

Design Specifications:
2002 - AASHTO 17th Edition
Load Factor Design
Seismic Performance Category A

Design Loading:
HS20-44
35#/Sq. Ft. Future Wearing Surface
Earth- 120#/Cu. Ft.
Equivalent Fluid Pressure = 45#/Cu. Ft.

Design Unit Stresses:

Class B Concrete (Substructure)	f'c = 3,000 psi.
Class B-1 Concrete (Safety Barrier Curb)	f'c = 4,000 psi.
Class B-2 Concrete (Superstructure except Safety Barrier Curb)	f'c = 4,000 psi.
Reinforcing Steel (Grade 60)	fy = 60,000 psi.
Steel Pile (ASTM A709 Grade 36) fb = 9,000 psi.	fy = 36,000 psi

Neoprene Pads:
Bearings shall be 60 durometer neoprene pads.

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

Reinforcing Steel:
Minimum clearance to reinforcing steel shall be 1½" unless otherwise shown.

Traffic:
Structure to be closed during construction. See roadway plans for traffic control.

Dimensions:
Longitudinal dimensions are based on the original design plans.

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.

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.

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

Pile & Footing Data

	Bent No.	1	2	3	4
Bearing Pile	Pile Type and Size	HP10x42			HP10x42
	Number	2			2
	Approximate Length ft.	17			17
	Design Bearing tons	32			32
	Hammer Energy Required ft.-lbs.	7200			7200
Spread Footings	Foundation Material		Shale	Shale	
	Design Bearing tons/sq. ft.		5	5	

Minimum energy requirement of hammer is based on plan length and design bearing value of piles.

All piles shall be driven to practical refusal.

FINAL QUANTITIES

	Item		Substr.	Superstr.	Total	LINE NO.
	Class 1 Excavation	Cubic Yard	30		30	2320
	Class 2 Excavation	Cubic Yard	40		40	2330
	Temporary Shoring	Lump Sum	1		1	2340
	Cofferdams Bent 2	Lump Sum	1		1	2350
	Cofferdams Bent 3	Lump Sum	1		1	2360
	Partial Removal of Existing Bridge Decks	Square Foot		257	257	2370
	Partial Removal of Substructure Concrete	Lump Sum	1		1	2380
	Structural Steel Piles (10 in.)	Linear Foot	65		65	2390
	Class B Concrete (Substructure)	Cubic Yard	32.0		32.0	2400
	Class B-2 Concrete (Superstructure Solid Slab)	Cubic Yard		51.8	51.8	2410
*	Safety Barrier Curb	Linear Foot		106	106	2420
	Repairing Concrete Deck (Half-Soling)	Square Foot		22	22	2430
	Reinforcing Steel (Bridges)	Pound	2360	2620	4980	2440
	Conduit System on Structure	Lump Sum		1	1	2450
	Reinforcing Steel (Epoxy Coated)	Pound		11760	11760	2460
	Slab Drain	Each		3	3	2470
	Laminated Neoprene Bearing Pad	Each		6	6	2480

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

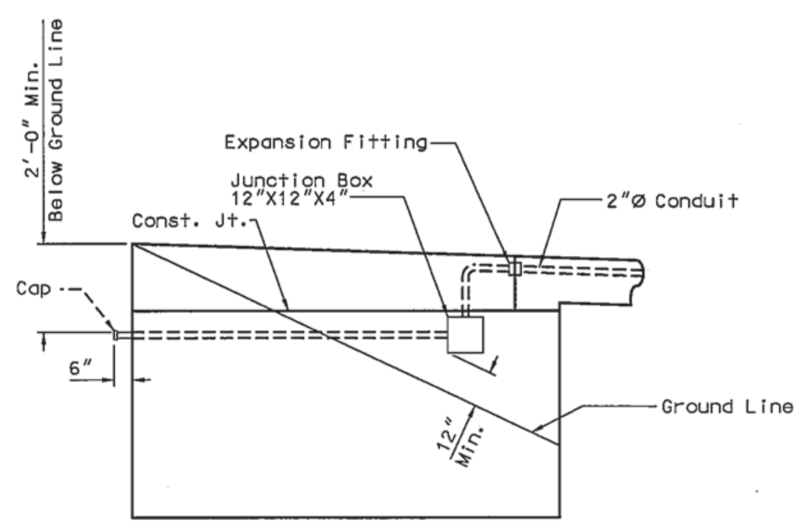
All concrete above the construction joint in the end bents is included with the Superstructure Quantities.

All reinforcement in the End Bents is included with the Superstructure Quantities.

All concrete above the intermediate beam caps is included with the Superstructure Quantities.

Laminated Neoprene Bearing Pads shall be in accordance with Sec 716.

LIST OF DRAWINGS



PART ELEVATION OF JUNCTION BOX IN WING

Notes For Conduit System On Structure:

All conduit shall be rigid non-metallic schedule 40 heavy wall PVC (polyvinyl chloride plastic). Each section of conduit shall bear the Underwriters' Laboratories, Inc., (UL) label.

All conduit clamps shall be commercially available conduit clamp approved by the engineer.

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

Expansion fittings shall provide a minimum movement in either direction of ½" at filled joints. Expansion fittings shall be equal to Carlon Electrical Construction Products or Cantex, Inc.

All end bent junction boxes shall be PVC molded flush mounted and equal to Carlon Electrical Construction Products or Cantex, Inc. The conduit terminations shall be permanent or separable. The terminations and covers shall be of watertight construction and shall meet requirements for NEMA 4 enclosure.

Weepholes shall be provided at appropriate locations to drain any moisture in the conduit system.

Payment for furnishing and installing Conduit System, complete-in-place, will be considered completely covered by the contract lump sum price for Conduit System on Structure.

Detailed May 2006
Checked December 2006

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

A04783

REV. $USER$

T:\de-proj\JACKSON\J4P1429-1130B\GBA\9809 Route 71 Over Route 150\A04783\J4P1429_A04783_002_GenNot.dgn 8:45:39 AM 7/15/2011

ROUTE	STATE	DISTRICT	SHEET NO.
71	MO	BR	3

JOB NO. J4P1429A

CONTRACT ID 080523-41A

PROJECT NO. FAF 150-1(6)

COUNTY JACKSON

DATE

FINAL PLANS

El. 950.2
Brown lean clay, with cobbles, moist, stiff
El. 947.7
Black lean clay, moist, stiff
El. 938.6
Tan and gray shale, soft
El. 920.0
Weathered limestone
El. 919.3
Gray shale, soft
El. 916.7

B1

El. 946.4
Brown lean clay, stiff, moist
El. 943.6
Brown lean clay, with rubble, stiff, moist
El. 940.5
Gray lean clay, stiff, moist
El. 938.7
Olive-brown weathered shale
El. 936.0
Gray shale, thinly laminated, soft from 26.0' to 28.5'
El. 908.0
Gray, limestone, fine grained, medium bedded
El. 906.8
Gray shaley limestone
El. 905.4

B2
(core)

El. 946.5
Dark brown lean clay, with cobbles and rubble, moist, stiff
El. 942.4
Gray fat clay, wet, stiff
El. 939.6
Tan and gray shale, soft
El. 938.3
Gray shale, scattered brown hard seams, thinly laminated, soft, with gray very coarse grained fossiliferous limestone seams from 35.7' to 38.9'
El. 905.8

B3
(core)

El. 950.8
Brown gravelly lean clay, moist, stiff
El. 946.0
Black lean clay, moist, stiff
El. 940.5
Tan and gray shale, soft, free water at 10.3'
El. 938.7
Gray shale, soft
El. 916.7

B4

BORING DATA

For boring locations, see Sheet No. 1.

For Notice and Disclaimer regarding boring log data, see Sheet No. 1.

Detailed May 2006
Checked December 2006

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

A04783

REV. $USER$

t:\de-proj\jackson\j4p1429-1130b\gba\9809 route 71 over route 150\a04783\J4P1429_A04783_003_borings.dgn 12:29:58 PM 7/12/2011

ROUTE	STATE	DISTRICT	SHEET NO.
71	MO	BR	4

JOB NO. J4P1429A

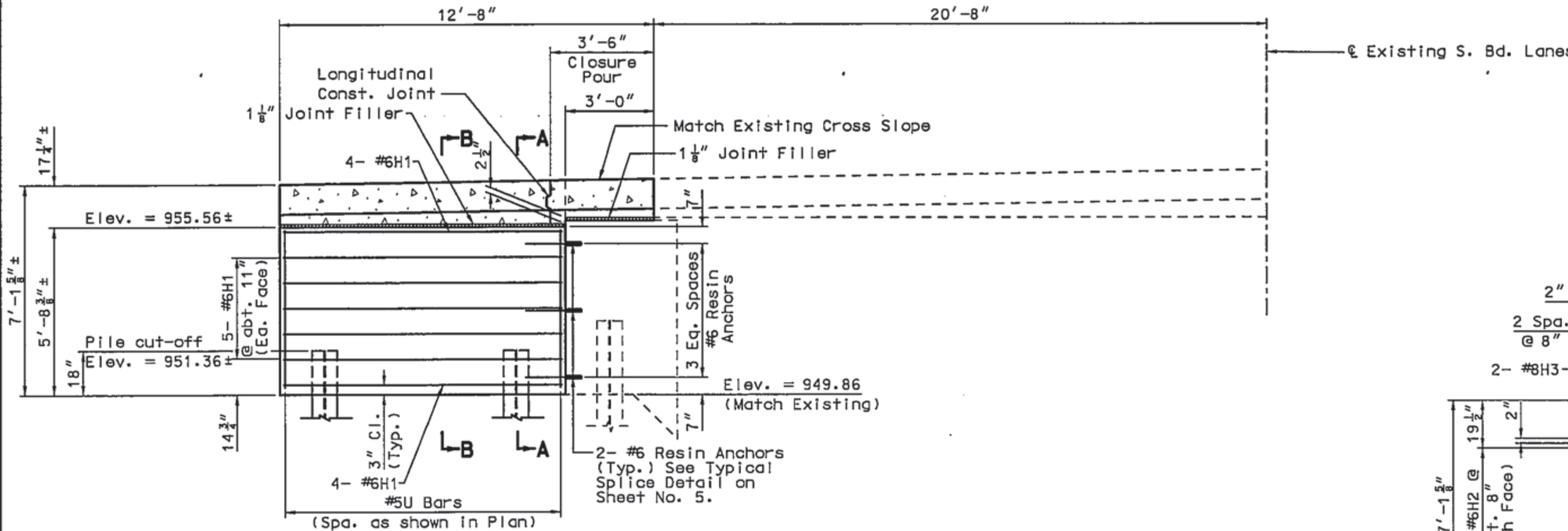
CONTRACT ID 080523-41A

PROJECT NO. FAF 150-1(6)

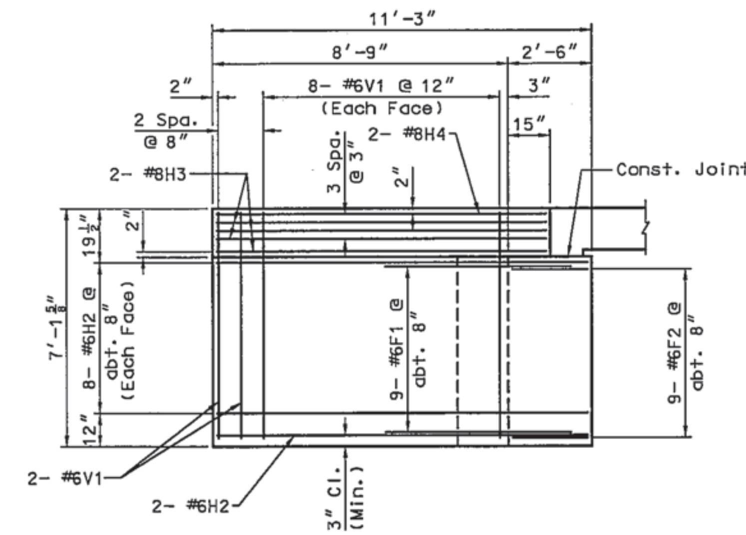
COUNTY JACKSON

DATE

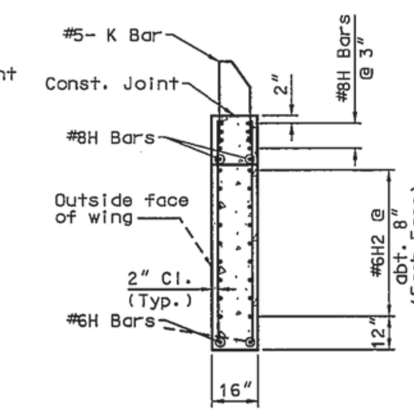
FINAL PLANS



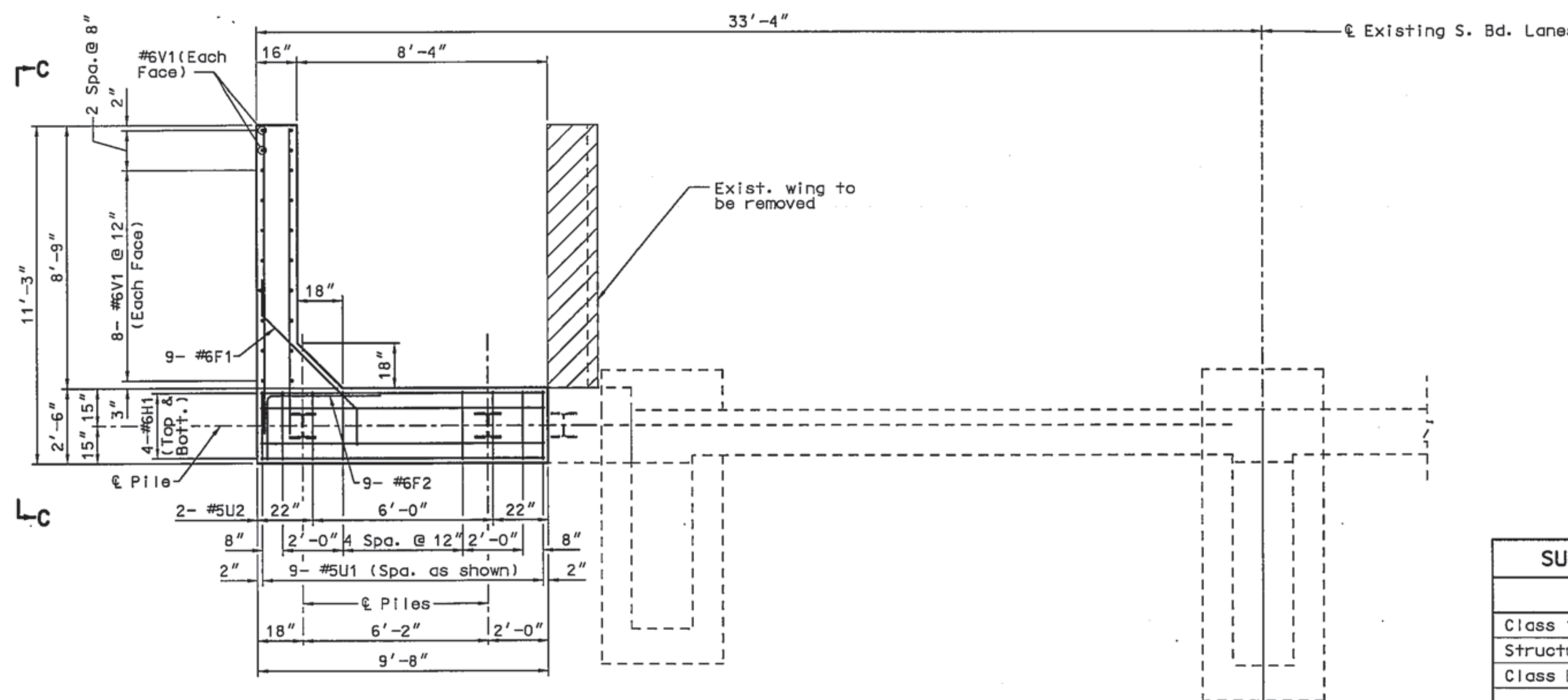
SECTION NEAR END BENT



ELEVATION C-C



SECTION THRU WING



PLAN OF BEAM SHOWING REINFORCEMENT

Note:

All vertical reinforcing bars in substructure beams or caps shall be field adjusted to clear piles by at least 1-1/2".

For Section A-A, Section B-B, Existing Wing Removal Elevation & Steel Pile Splice Detail, see Sheet No. 5.

For reinforcement of Safety Barrier Curb, see Sheet Nos. 11 & 12.

For details of Conduit System On Structure, see Sheet No. 2.

SUBSTRUCTURE QUANTITY TABLE FOR BENT NO. 1 & NO. 4				LINE NO.
ITEM		BENT NO. 1 QUANTITY	BENT NO. 4 QUANTITY	
Class 1 Excavation	Cubic Yard	5	5	2320
Structural Steel Piles (10 in.)	Linear Foot	33	32	2390
Class B Concrete (Substructure)	Cubic Yard	7.8	7.8	2400

Note:
These quantities are included in the Estimated Quantities shown on Sheet No. 2.

DETAILS OF END BENT NO. 1 & 4

Detailed May 2006
Checked December 2006

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

A04783

REV. $USER$

T:\de-proj?9-1130B Bridge Finals\J4P1429-1130B\GBA\9809 Route 71 Over Route 150\A04783\J4P1429_A04783_015_PIL02_as_built_pile_data.dgn 3:57:25 PM 7-18-2011

ROUTE	STATE	DISTRICT	SHEET NO.
71	MO	BR	5

JOB NO. J4P1429A

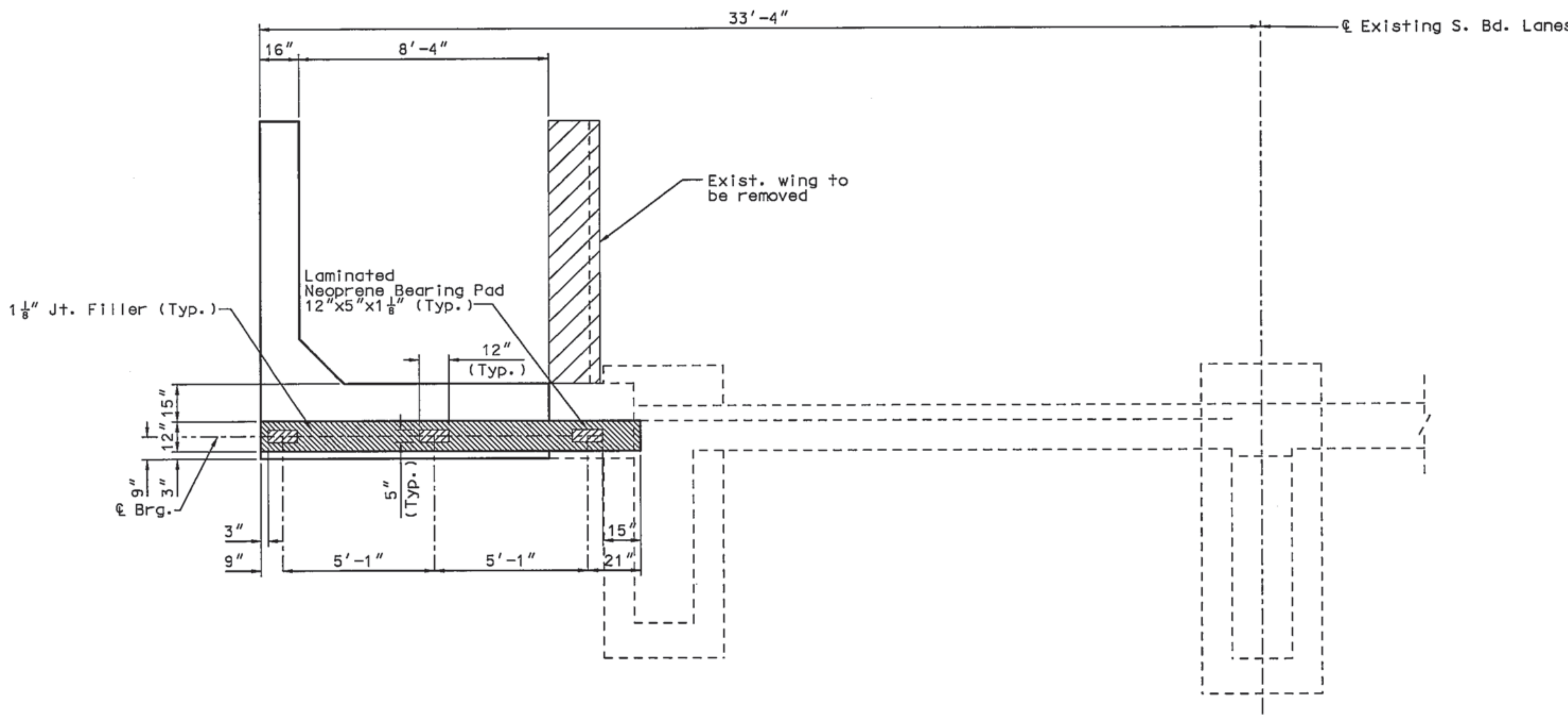
CONTRACT ID 080523-41A

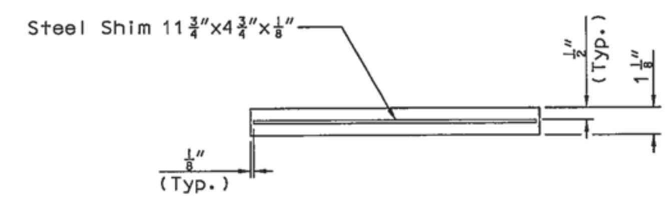
PROJECT NO. FAF 150-1(6)

COUNTY JACKSON

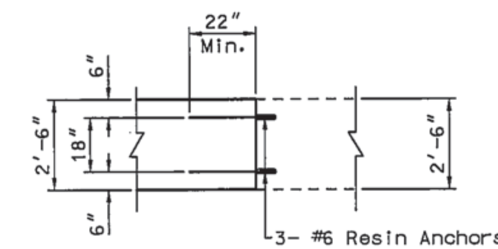
DATE

FINAL PLANS





SECTION THRU LAMINATED NEOPRENE BEARING PAD



TYPICAL SPLICE DETAIL

Note:

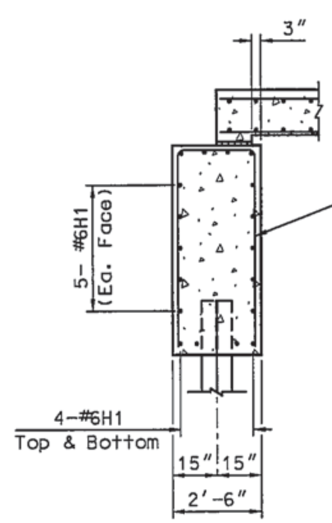
The contractor shall use one of the qualified resin anchor systems in accordance with Sec 1039.

The cost of furnishing and installing the resin anchor system complete in place will be considered completely covered in the contract unit price for Class B Concrete (Substructure).

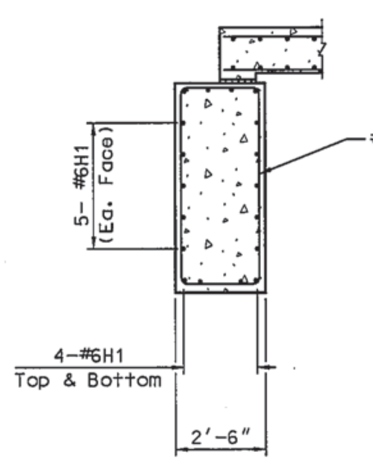
The minimum embeddment depth in concrete with f'c = 4,000 psi for the resin anchor system shall be that required to meet the minimum ultimate pullout strength in accordance with Sec 1039 but not less than 5".

For location of Section A-A & Section B-B, see Sheet No. 4.

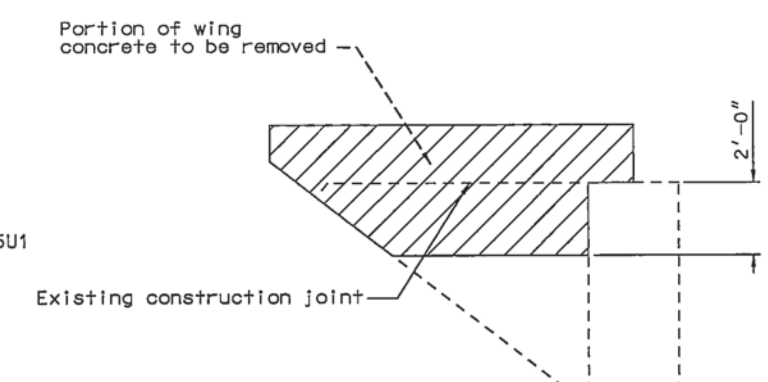
For details of Conduit System On Structure, see Sheet No. 2.



SECTION A-A

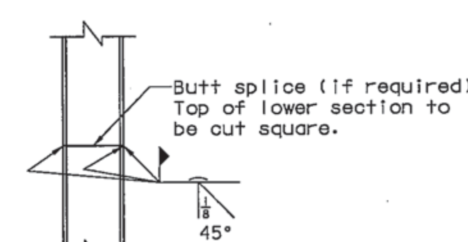


SECTION B-B



The area exposed by the removal of concrete and not covered with new concrete shall be covered with an approved bituminous paint in accordance with Sec 704.

EXISTING WING REMOVAL ELEVATION



DETAIL OF STEEL PILE SPLICE

DETAILS OF END BENT NO. 1 & 4

Detailed May 2006
Checked December 2006

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

Sheet No. 5 of 15

A04783

REV. $USER$

t:\de-proj\jackson\j4p1429-1130b\gba\9809 route 71 over route 150\a04783\J4P1429_A04783_005_End_Bent_1_2.dgn 12:30:02 PM 7/12/2011

ROUTE	STATE	DISTRICT	SHEET NO.
71	MO	BR	6

JOB NO. J4P1429A

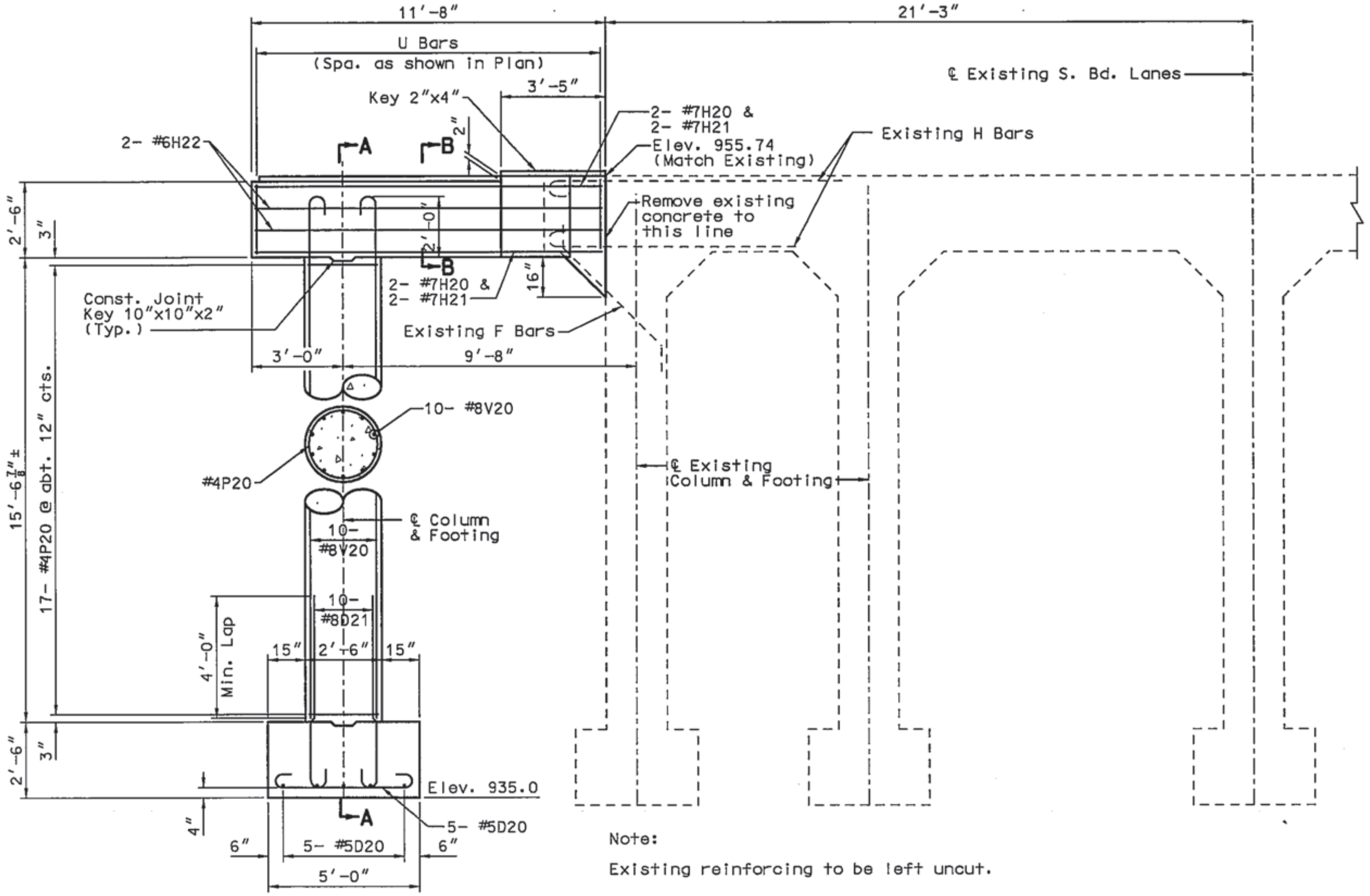
CONTRACT ID 080523-41A

PROJECT NO. FAF 150-1(6)

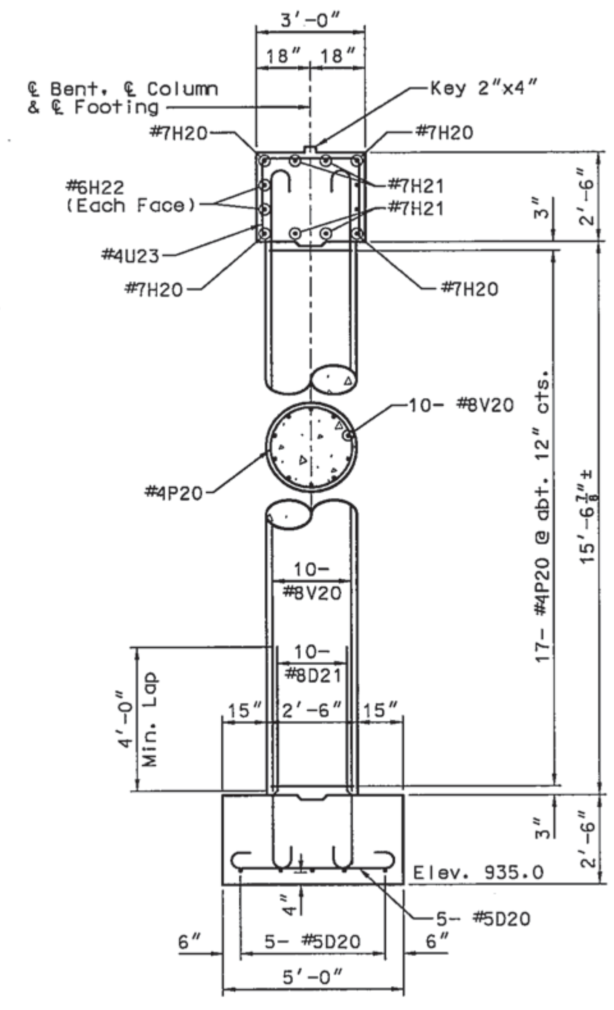
COUNTY JACKSON

DATE

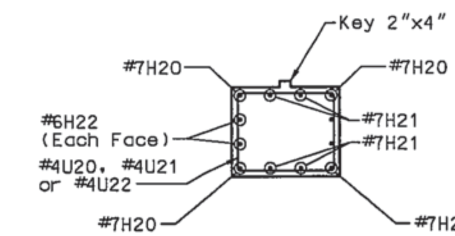
FINAL PLANS



ELEVATION



SECTION A-A



SECTION B-B

Note:
For Plan see Sheet No. 7.

SUBSTRUCTURE QUANTITY TABLE FOR BENT NO. 2 & NO. 3				
ITEM		BENT NO. 2 QUANTITY	BENT NO. 3 QUANTITY	LINE NO.
Class 1 Excavation	Cubic Yard	10	10	2320
Class 2 Excavation	Cubic Yard	20	20	2330
Cofferdams	Lump Sum	1	1	2350, 2360
Class B Concrete (Substructure)	Cubic Yard	8.2	8.2	2400
Reinforcing Steel (Bridges)	Pounds	1180	1180	2440

Note:
These quantities are included in the Estimated Quantities shown on Sheet No. 2.

DETAILS OF INTERMEDIATE BENTS NO. 2 & 3

Detailed May 2006
Checked December 2006

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

A04783

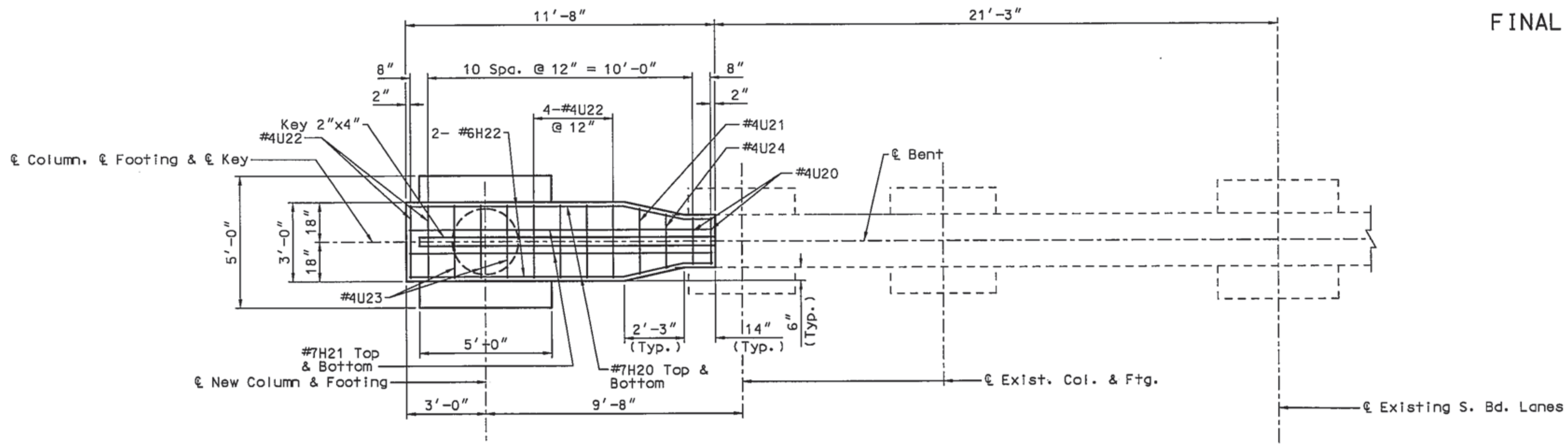
REV. $USER$

T:\de-proj\JACKSON\J4P1429-1130B\GBA\9809 Route 71 Over Route 150\A04783\J4P1429_A04783_006_Int_Bent_2.dgn 10:09:19 AM 7/14/2011

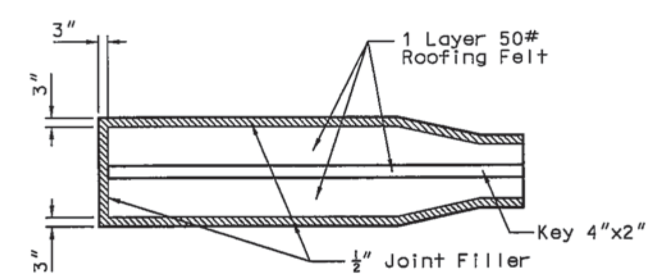
ROUTE	STATE	DISTRICT	SHEET NO.
71	MO	BR	7

JOB NO. J4P1429A
CONTRACT ID 080523-41A
PROJECT NO. FAF 150-1(6)
COUNTY JACKSON
DATE

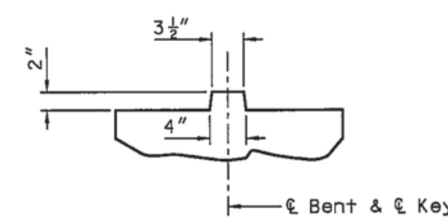
FINAL PLANS



PLAN



DETAIL SHOWING KEY & JOINT FILLER



DETAIL SHOWING KEY

DETAILS OF INTERMEDIATE BENTS NO. 2 & 3

Detailed May 2006
Checked December 2006

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

Sheet No. 7 of 15

A04783

REV. $USER$

t:\de-proj\jackson\j4p1429-1130b\gba\9809 route 71 over route 150\a04783\J4P1429_A04783_007_Int_Bent_2_2.dgn 12:30:06 PM 7/12/2011

ROUTE	STATE	DISTRICT	SHEET NO.
71	MO	BR	8

JOB NO. J4P1429A

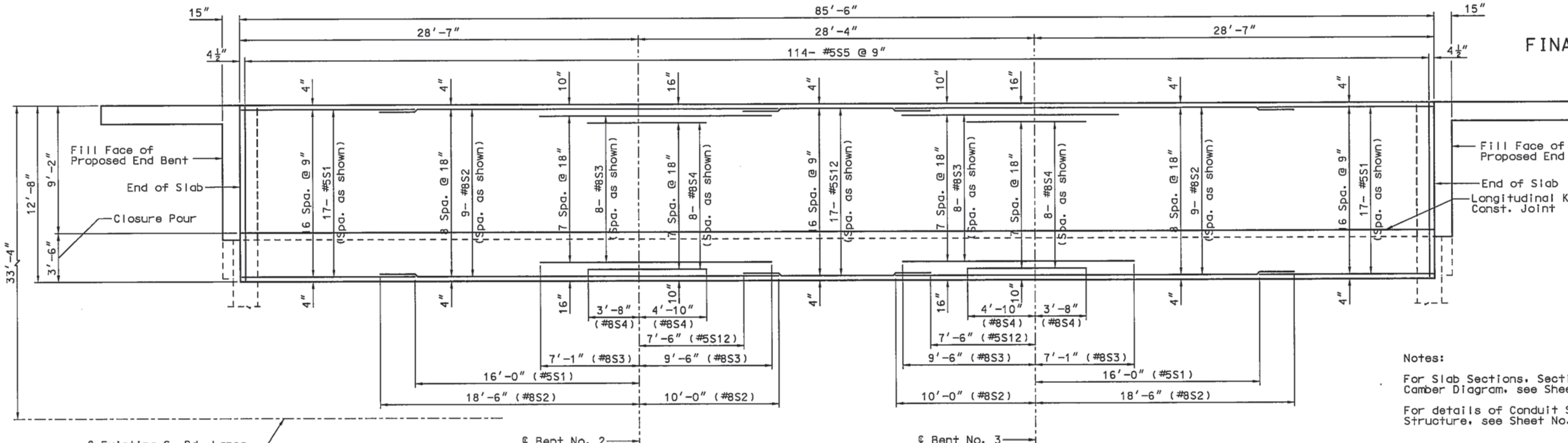
CONTRACT ID 080523-41A

PROJECT NO. FAF 150-1(6)

COUNTY JACKSON

DATE

FINAL PLANS

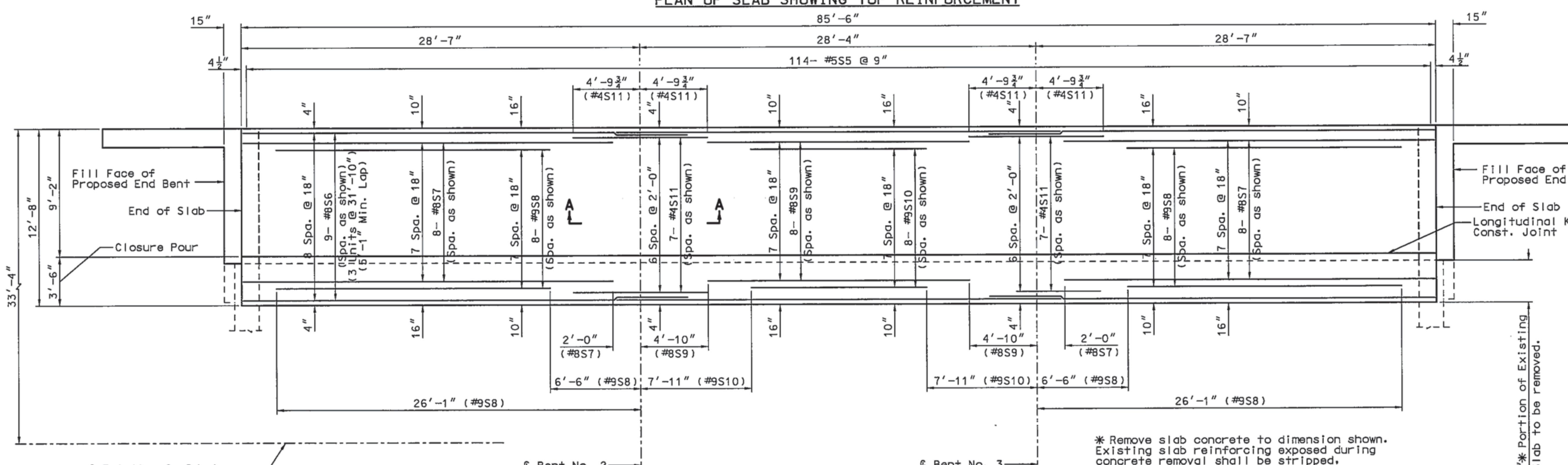


PLAN OF SLAB SHOWING TOP REINFORCEMENT

Notes:

For Slab Sections, Section A-A & Camber Diagram, see Sheet No. 9.

For details of Conduit System On Structure, see Sheet No. 2.



PLAN OF SLAB SHOWING BOTTOM REINFORCEMENT

✱ Remove slab concrete to dimension shown. Existing slab reinforcing exposed during concrete removal shall be stripped, cleaned, straightened and extended into or utilized in the new concrete.

SLAB PLAN

Detailed May 2006
Checked December 2006

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

Sheet No. 8 of 15

A04783

REV. $USER$

t:\de-proj\jackson\j4p1429-1130b\gba\9809 route 71 over route 150\a04783\J4P1429_A04783_008_Slab_Plan.dgn 12:30:08 PM 7/12/2011

ROUTE	STATE	DISTRICT	SHEET NO.
71	MO	BR	9

JOB NO. J4P1429A

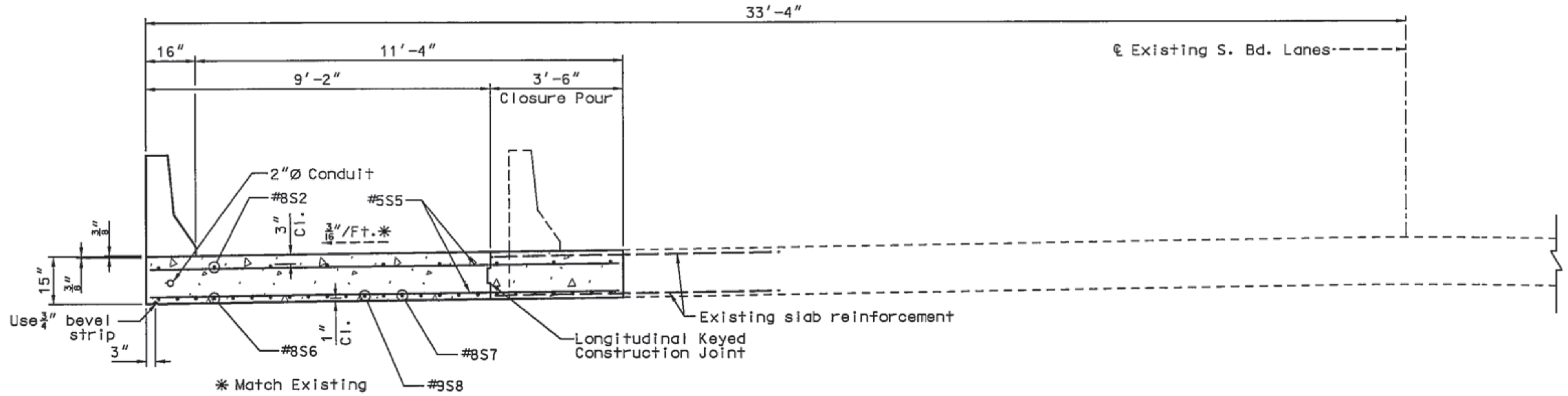
CONTRACT ID 080523-41A

PROJECT NO. FAF 150-1(6)

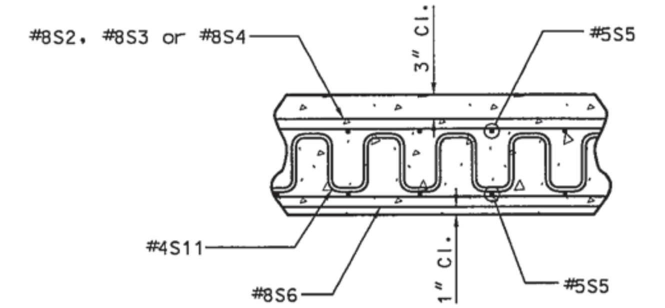
COUNTY JACKSON

DATE

FINAL PLANS

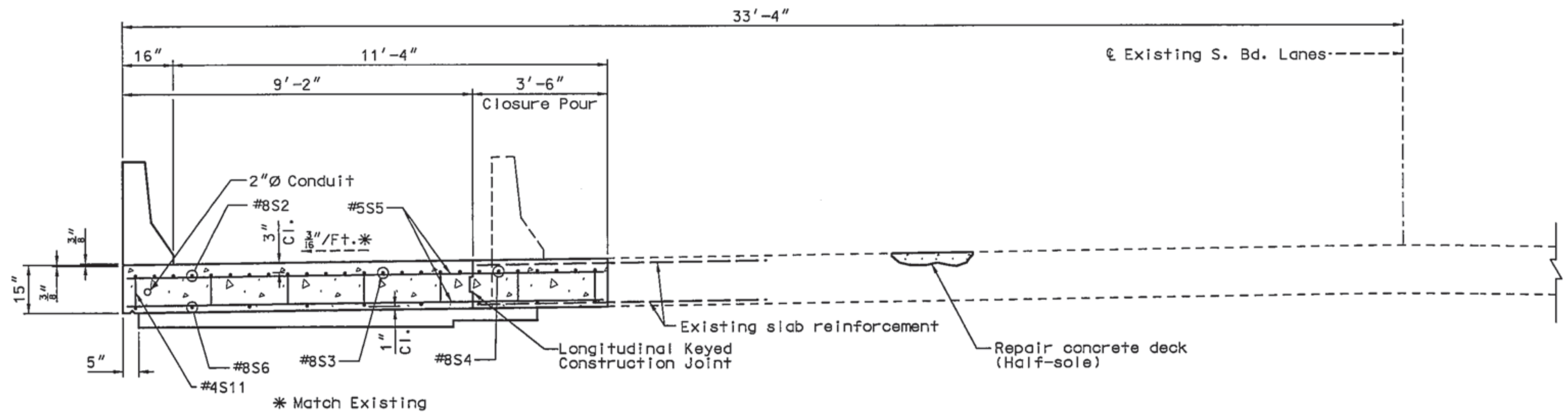


SECTION NEAR CENTER OF END SPANS

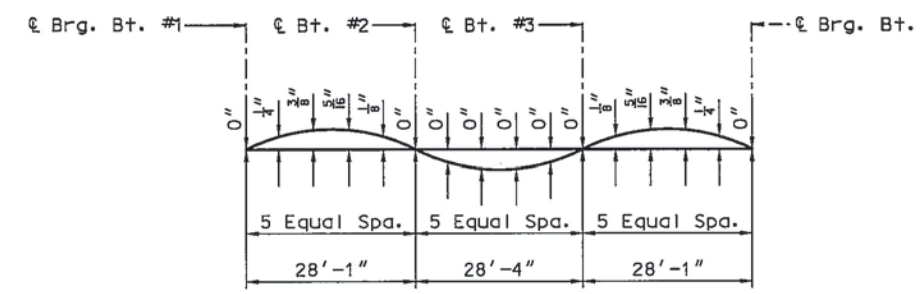


Note:
For location of Section A-A, see Sheet No. 8.

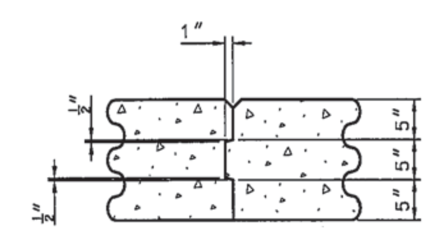
SECTION A-A



SECTION NEAR INT. BT.



CAMBER DIAGRAM



LONGITUDINAL KEYED CONSTRUCTION JOINT

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 slab pours at a rate of 25 cubic yards per hour. The contractor shall observe the transverse construction joints as shown on the plans, unless the contractor is equipped to pour and satisfactorily finish the roadway slab at a rate which permits a continuous pouring through some or all joints as approved by the engineer.

Expansive Class B-2 concrete shall be used in the closure pour. Forms shall be released before the closure pour.

Any damage to existing epoxy coated reinforcement shall be repaired in accordance with Sec 710.

For details of Conduit System On Structure, see Sheet No. 2.

SLAB SECTIONS

Detailed May 2006
Checked December 2006

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

A04783

REV. $USER$

t:\de-proj\jackson\j4p1429-1130b\gba\9809 route 71 over route 150\a04783\J4P1429_A04783_009_Slab_Section.dgn 12:30:10 PM 7/12/2011

ROUTE	STATE	DISTRICT	SHEET NO.
71	MO	BR	10

JOB NO. J4P1429A

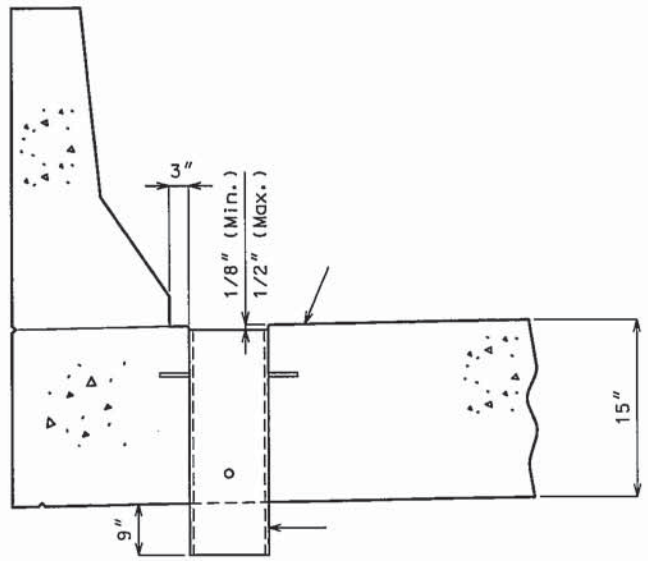
CONTRACT ID 080523-41A

PROJECT NO. FAF 150-1(6)

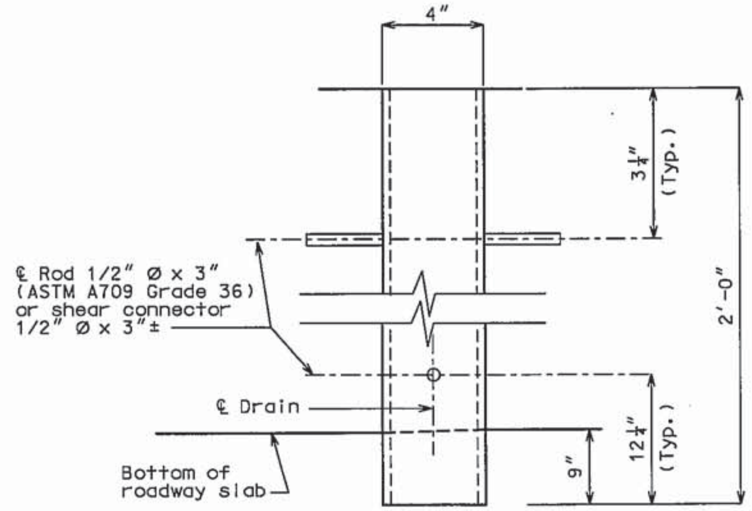
COUNTY JACKSON

DATE

FINAL PLANS



PART SECTION NEAR DRAIN



ELEVATION OF DRAIN

NOTE:

Slab drains may be fabricated of either 1/4" welded sheets of ASTM A709 Grade 36 steel or from 1/4" structural steel tubing ASTM A500 or A501.

Slab drain bracket assembly shall be ASTM A709 Grade 36 steel.

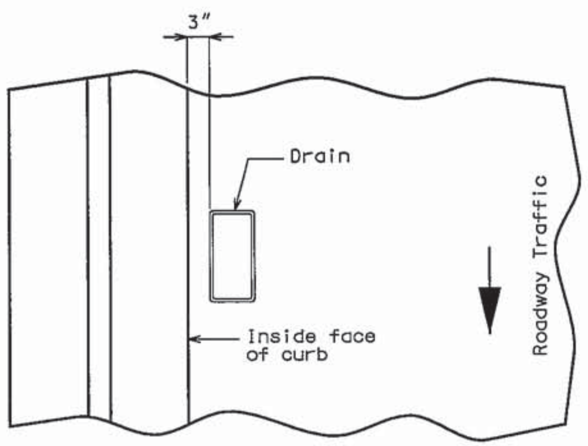
Outside dimensions of drains are 8" x 4".

Locate drains in slab by dimensions shown in Part Section Near Drain.

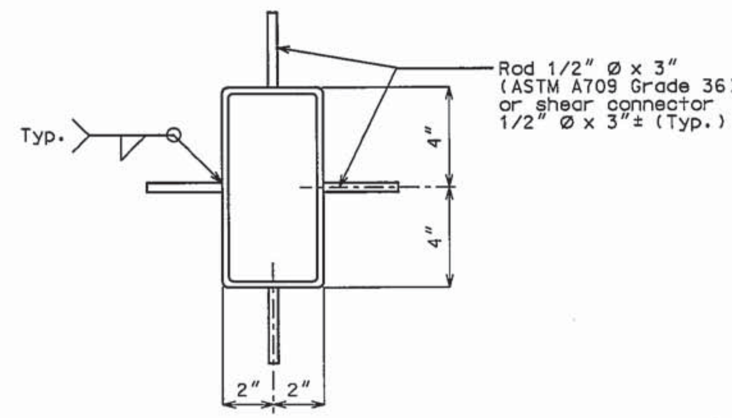
Shift reinforcing steel in field where necessary to clear drains.

The drains shall be galvanized in accordance with ASTM A123.

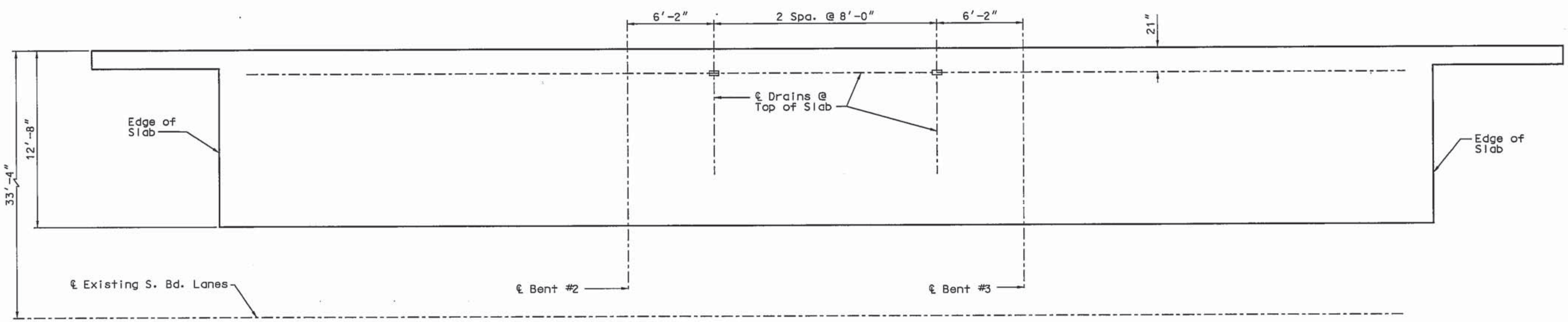
Shop drawings will not be required for the slab drains.



PART PLAN OF SLAB AT DRAIN



PLAN OF DRAIN



LOCATION OF SLAB DRAINS

SLAB DRAIN DETAILS

Detailed May 2006
Checked December 2006

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

A04783

REV. $USER$

ROUTE	STATE	DISTRICT	SHEET NO.
71	MO	BR	11

JOB NO. J4P1429A

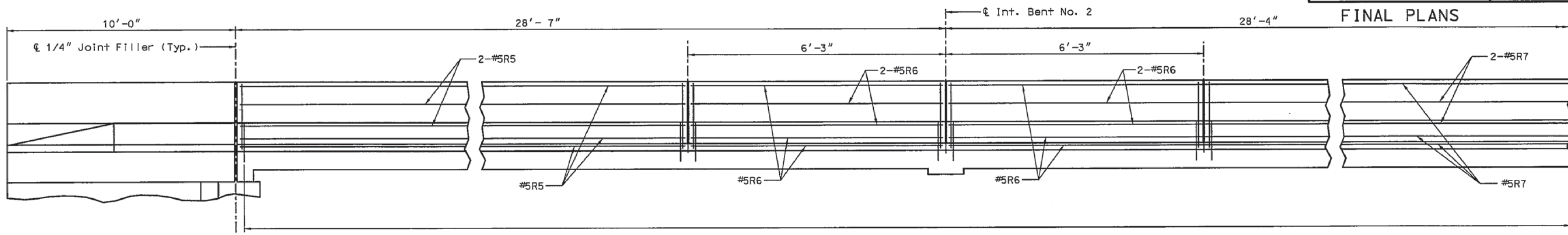
CONTRACT ID 080523-41A

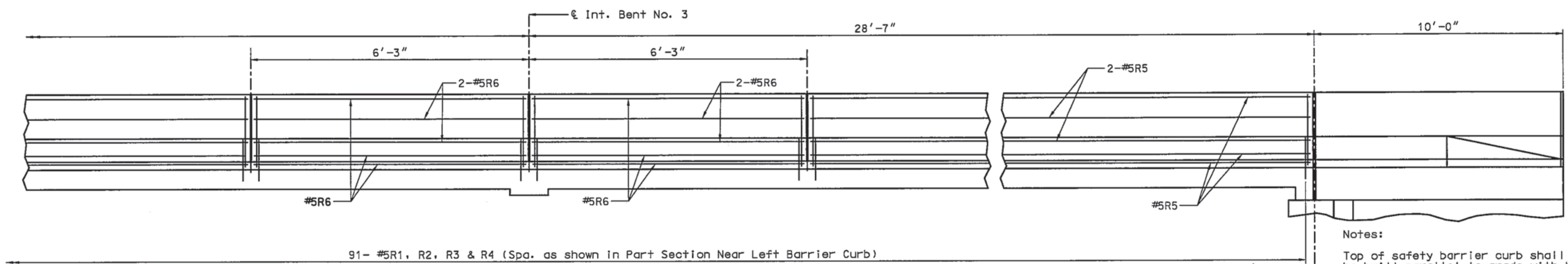
PROJECT NO. FAF 150-1(6)

COUNTY JACKSON

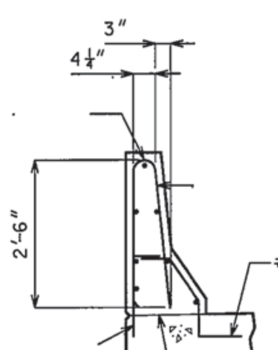
DATE

FINAL PLANS



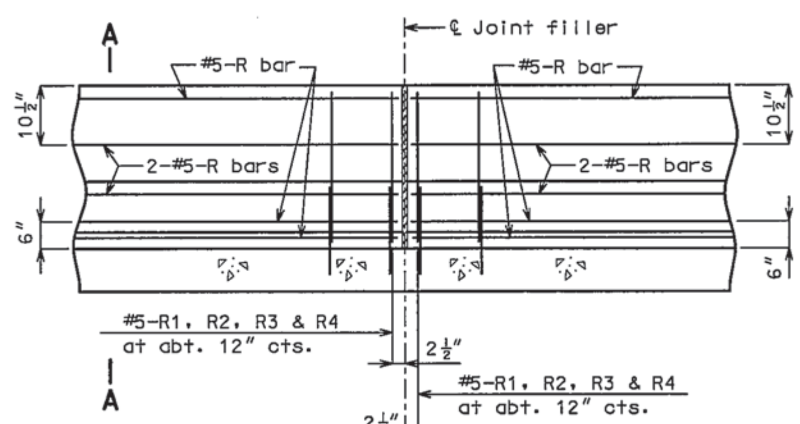


SECTION NEAR LEFT SAFETY BARRIER CURB

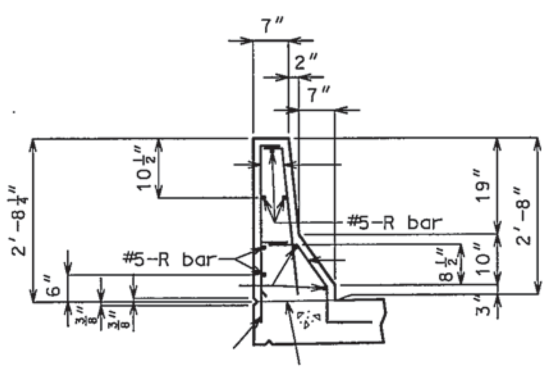


R-BAR PERMISSIBLE ALTERNATE SHAPE

(*) The R1 and R2 bar combination may be furnished as one bar, as shown, at the contractor's option. (All dimensions are out to out.)



PART SECTION NEAR LEFT SAFETY BARRIER CURB (CAST-IN-PLACE CONVENTIONAL FORMING OPTION)

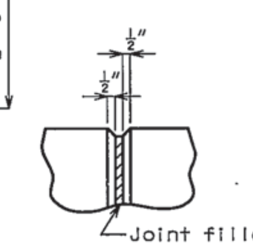


PART SECTION A-A

Notes:

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

The cross-sectional area above the slab = 2.28 sq. ft.



FILLED JOINT DETAIL

Notes:

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 ½" radius or a ½" bevel, unless otherwise noted.

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 end of wing to end of wing.

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".

The curb shall be cured by Type 1-D or Type 2 liquid membrane-forming compound in accordance with Sec. 1055. Surface sealing for concrete in accordance with Sec. 703 will not be permitted.

Detailed May 2006
Checked December 2006

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

A04783

REV. $USER$

ROUTE	STATE	DISTRICT	SHEET NO.
71	MO	BR	12

JOB NO. J4P1429A

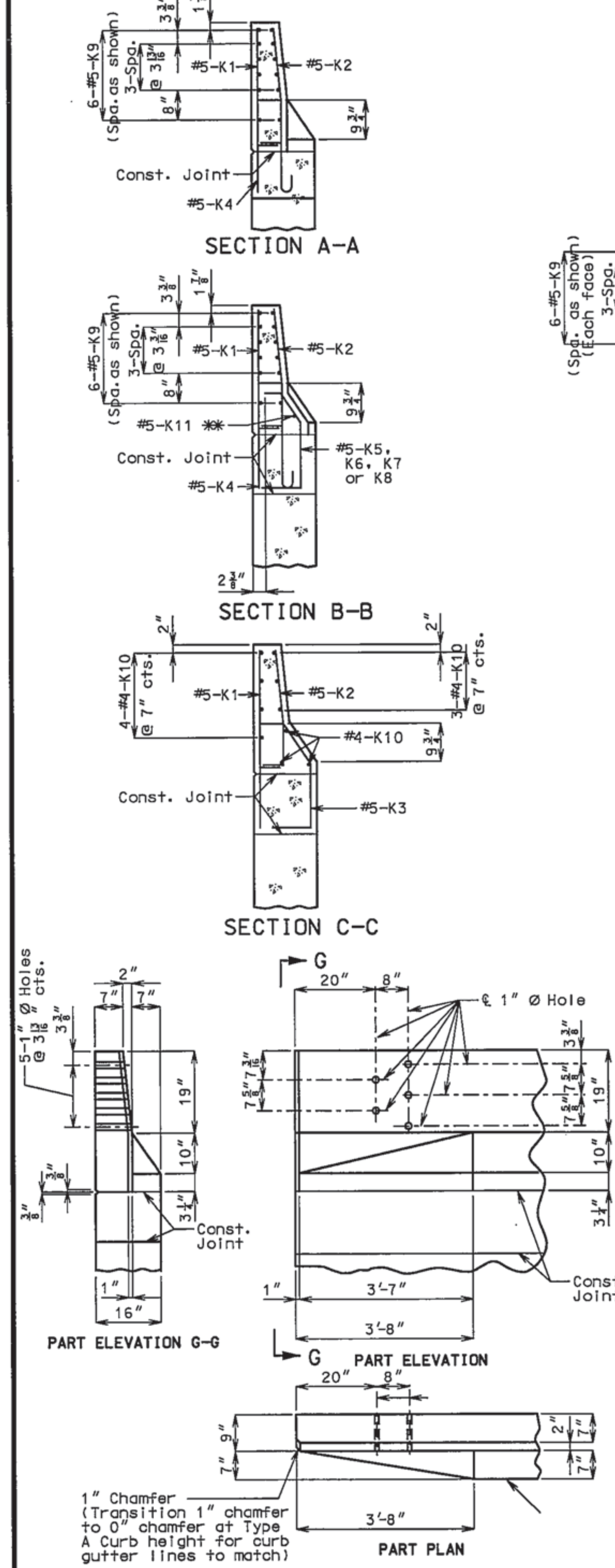
CONTRACT ID 080523-41A

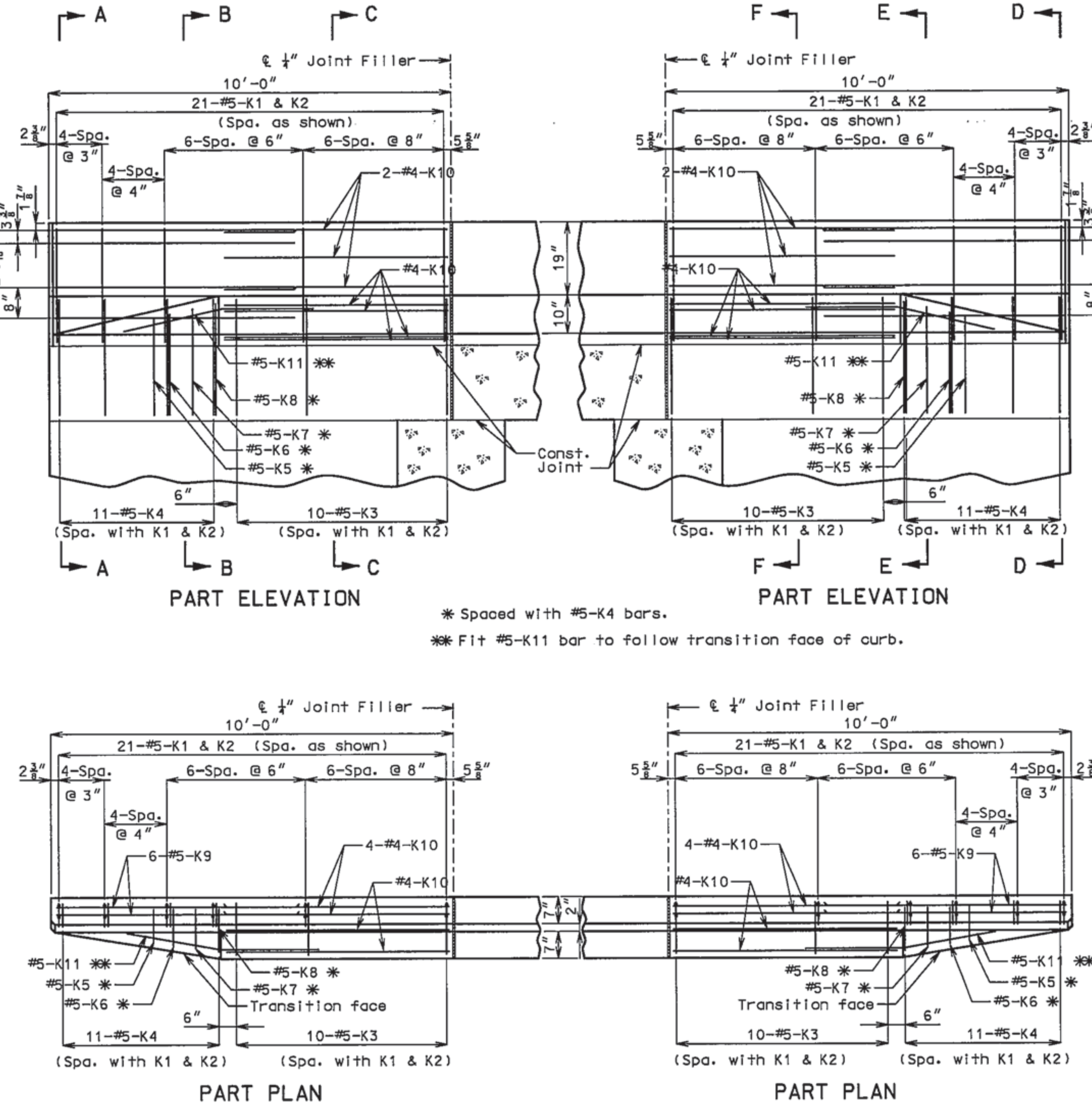
PROJECT NO. FAF 150-1(6)

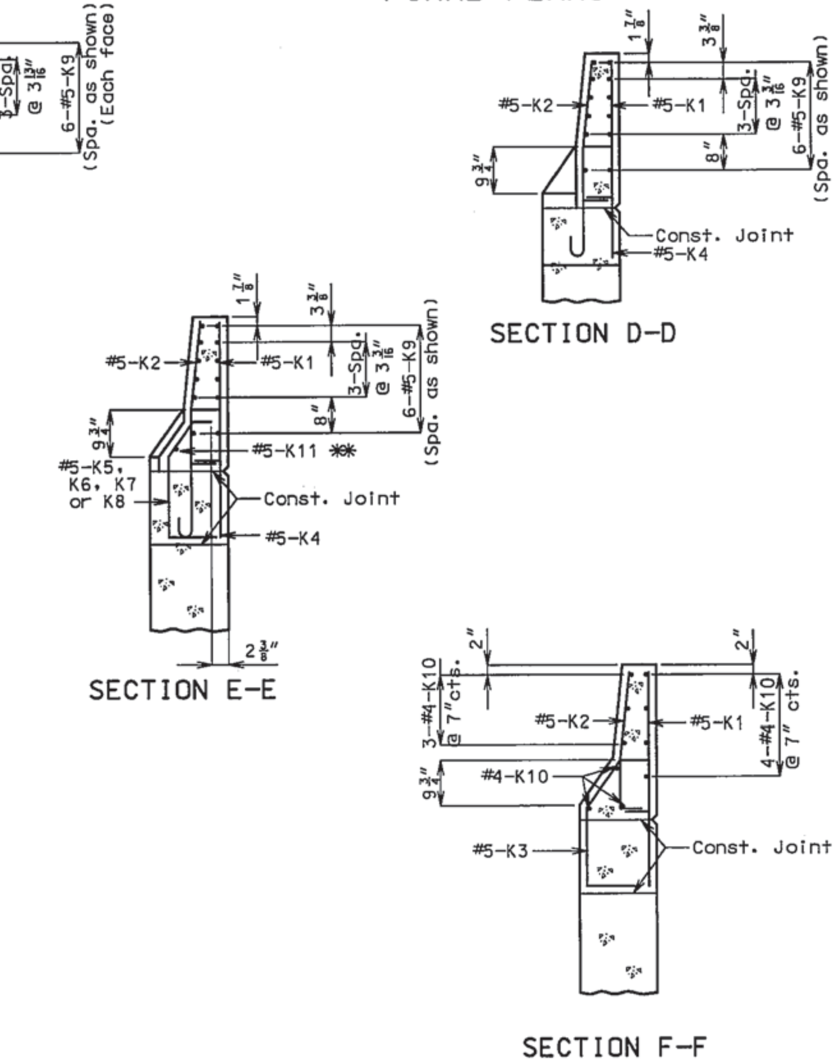
COUNTY JACKSON

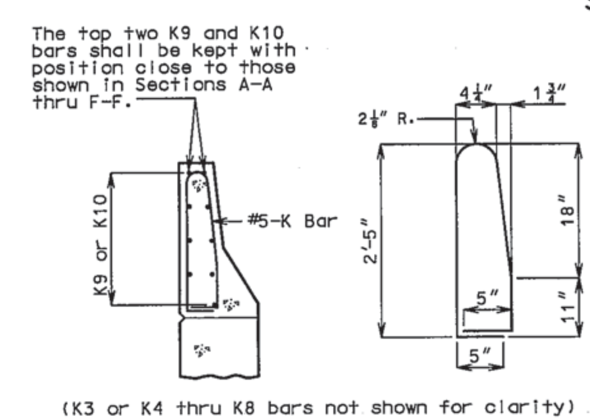
DATE

FINAL PLANS









K1-K2 BAR PERMISSIBLE ALTERNATE SHAPE (****)

(****) The K1 and K2 bar combination may be furnished as one bar as shown, at the contractor's option.

NOTES: Use a minimum lap of 2'-0" between K9 and K10 bars.

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".

DETAILS OF LEFT SAFETY BARRIER CURB AT END BENTS

Detailed May 2006
Checked December 2006

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

A04783

REV. $USER$

ROUTE	STATE	DISTRICT	SHEET NO.
71	MO	BR	13

JOB NO. J4P1429A

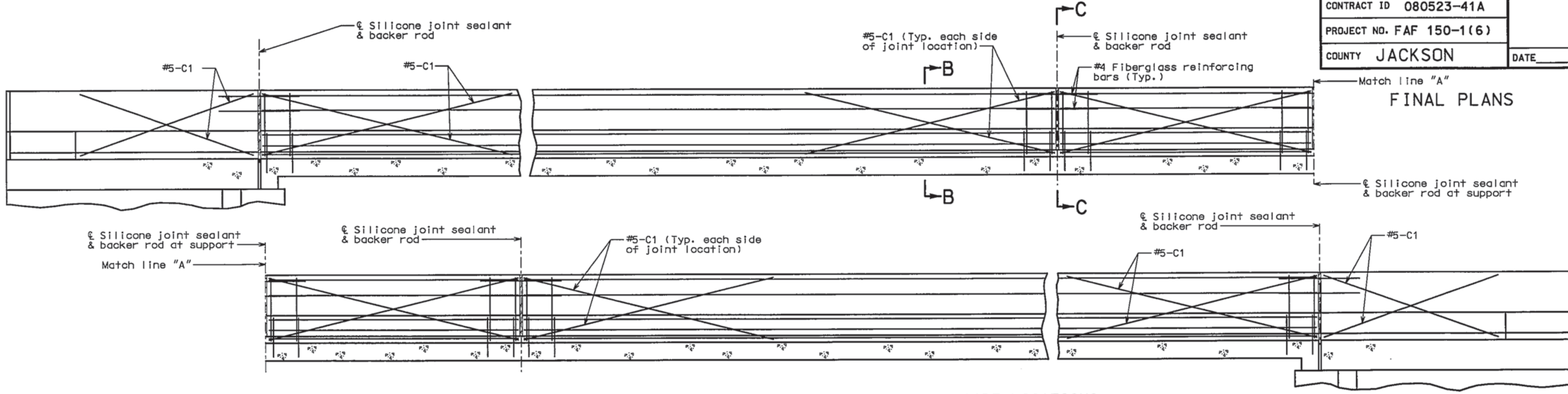
CONTRACT ID 080523-41A

PROJECT NO. FAF 150-1(6)

COUNTY JACKSON

DATE

FINAL PLANS



TYPICAL SECTION NEAR LEFT SAFETY BARRIER CURB AT SUPPORT LOCATIONS
(OPTIONAL SLIP-FORM BRIDGE SAFETY BARRIER CURB)

Notes:

Top of safety 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 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 end of wing to end of wing.

The curb shall be cured by application of Type 1-D or Type 2 Liquid Membrane-Forming Compound in accordance with Sec 1055. Surface sealing for concrete in accordance with Sec 703 will not be permitted.

Notes:

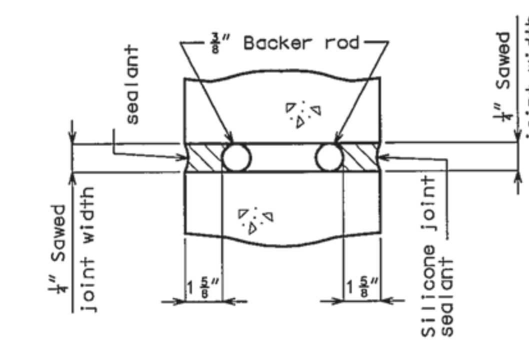
Joint sealant and backer rods shall be used on all slip-form barrier curbs instead of joint filler and shall be in accordance with Sec 717 for silicone joint sealant for saw cut and formed joints.

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 safety barrier curb.

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

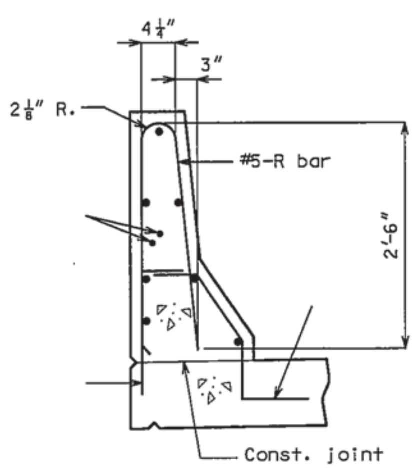
Concrete traffic barrier delineators shall be placed on top of the safety barrier curb as shown on Missouri Standard Plans 617.10 and in accordance with Sec 617. Concrete traffic barrier delineators will be considered completely covered by the contract unit price for "Safety Barrier Curb".



SECTION A-A

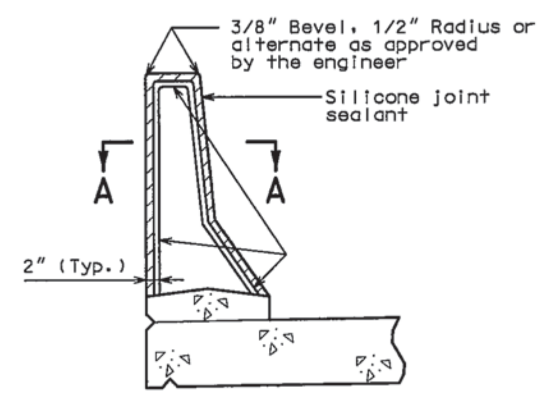
Note:

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

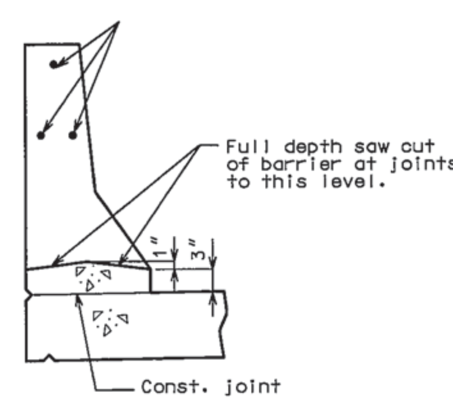


Notes: PART SECTION B-B

(✱) Each side of joint location.



SECTION THRU JOINT



PART SECTION C-C

OPTIONAL SLIP-FORM BRIDGE SAFETY BARRIER CURB

Detailed May 2006
Checked December 2006

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

A04783

REV. $USER$

ROUTE	STATE	DISTRICT	SHEET NO.
71	MO	BR	14

JOB NO. J4P1429A

CONTRACT ID 080523-41A

PROJECT NO. FAF 150-1(6)

COUNTY JACKSON

DATE____________

FINAL PLANS

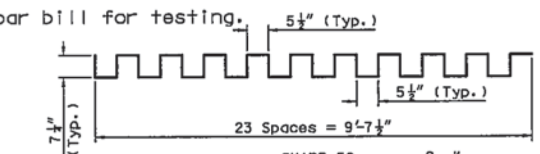
BILL OF REINFORCING

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. BENTS 2 & 3																
20	5D20	FOOTING		18		X			4 6.000							5 8	5 8	118
20	8D21	FOOTING		17		X			6 4.000							7 3	7 3	387
8	7H20	BEAM		30		X					8 1.375	2 3.625	1 0.625	0 6.000	2 3.000	11 6	11 5	187
8	7H21	BEAM		20		X			11 5.000							11 5	11 5	187
8	6H22	BEAM		30		X					8 1.375	2 3.625	1 0.625	0 6.000	2 3.000	11 6	11 5	137
34	4P20	COLUMN		16		X			2 3.000							9 0	9 0	204
4	4U20	BEAM		13	S	X			1 9.000	2 3.000	1 9.000	2 3.000				8 9	8 6	23
2	4U21	BEAM		13	S	X			2 5.750	2 3.000	2 5.750	2 3.000				10 3	9 11	13
12	4U22	BEAM		13	S	X			2 9.000	2 3.000	2 9.000	2 3.000				10 9	10 6	84
6	4U23	BEAM		10	S	X				2 3.000	2 9.000					7 3	7 1	28
2	4U24	BEAM		13	S	X			2 0.500	2 3.000	2 0.500	2 3.000				9 4	9 1	12
20	8V20	COLUMN		17		X			17 5.375							18 4	18 4	979
		SUPERSTR.																
		END BENTS 1 & 4																
18	6F1	FILLET		30					1 2.000	4 7.000	1 2.000			3 2.875	3 2.875	6 11	6 10	185
18	6F2	BEAM		6					4 0.000	2 2.375						6 2	6 1	164
36	6H1	BEAM		20					9 5.000							9 5	9 5	509
36	6H2	WING		20					11 0.000							11 0	11 0	595
16	8H3	WING		20					9 9.000							9 9	9 9	417
4	8H4	WING	E	20					9 9.000							9 9	9 9	104
18	5U1	BEAM		13					2 3.000	5 3.875	2 3.000	5 3.875				16 1	15 9	296
4	5U2	BEAM		10						5 3.875	2 3.000					12 11	12 8	53
40	6V1	WING		20					6 9.125							6 9	6 9	406
		SLAB																
34	5S1	SLAB	E	20					12 5.500							12 6	12 6	443
18	8S2	SLAB	E	20					28 6.000							28 6	28 6	1370
18	8S3	SLAB	E	20					16 7.000							16 7	16 7	797
16	8S4	SLAB	E	20					8 6.000							8 6	8 6	363
230	5S5	SLAB	E	20					12 5.000							12 5	12 5	2979
27	8S6	SLAB	E	20					31 10.000							31 10	31 10	2295
16	8S7	SLAB	E	20					26 5.500							26 6	25 6	1089
16	9S8	SLAB	E	20					19 7.000							19 7	19 7	1065
8	8S9	SLAB	E	20					18 8.000							18 8	18 8	399
10	9S10	SLAB	E	20					12 6.000							12 6	12 6	425
14	4S11	SLAB	E	50												25 1	21 3	199
17	5S12	SLAB	E	20					13 4.000							13 4	13 4	236
		BARRIER																
42	5K1	BARRIER	E	19	S				2 5.000	0 5.125						2 10	2 9	120
42	5K2	BARRIER	E	14	S				0 5.125	0 11.125	1 6.000			0 2.000	1 5.875	2 10	2 9	120
20	5K3	BARRIER	E	51	S				2 4.000	0 5.125	1 0.000	1 6.125	0 10.000	0 9.875	0 6.875	6 1	5 10	122
22	5K4	BARRIER	E	12					2 4.000	0 6.000	2 4.000					5 9	5 6	126
2	5K5	BARRIER	E	27	S				0 10.000	1 10.500	0 6.750	0 4.375		0 4.000	0 5.500	3 8	3 6	7
2	5K6	BARRIER	E	27	S				0 10.000	1 9.500	0 7.875	0 4.375		0 4.500	0 6.500	3 8	3 6	7
2	5K7	BARRIER	E	27	S				0 10.000	1 8.125	0 9.625	0 4.375		0 5.500	0 7.875	3 8	3 6	7
2	5K8	BARRIER	E	27	S				0 10.000	1 6.750	0 11.250	0 4.375		0 6.500	0 9.250	3 8	3 6	7
24	5K9	BARRIER	E	20					5 7.000							5 7	5 7	140
22	4K10	BARRIER	E	20					6 2.000							6 2	6 2	91
2	5K11	BARRIER	E	8					2 2.125					2 2.000	0 2.375	4 4	4 4	9

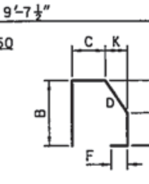
BILL OF REINFORCING

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.
91	5R1	BARRIER	E	19	S				2 6.000	0 3.500						2 10	2 8	253
91	5R2	BARRIER	E	15	S				2 6.125	0 3.500				2 6.000	0 3.000	2 10	2 9	261
91	5R3	BARRIER	E	19	S				1 5.000	0 6.000						1 11	1 10	174
91	5R4	BARRIER	E	27	S					0 6.000	0 11.250	0 7.000	1 0.000	0 9.250	0 6.375	3 0	2 10	269
14	5R5	BARRIER	E	20					22 1.000							22 1	22 1	322
28	5R6	BARRIER	E	20					6 0.000							6 0	6 0	175
7	5R7	BARRIER	E	20					15 7.000							15 7	15 7	114
24	5C1	BARRIER	E	20					6 3.000							6 3	6 3	156
		TOTAL																
	4																	365
	4		E															289
	5																	467
	5		E															6050
	6																	1996
	6		E															0
	7																	373
	7		E															0
	8																	1783
	8		E															6417
	9																	0
	9		E															1490
		TOTAL																4984
		TOTAL	E															14247
		REINF. STEEL																
		(BRIDGES)																
	4																	365
	5																	467
	6																	1996
	7																	373
	8																	1783
		TOTAL																4984
		REINF. STEEL																
		(EPOXY)																
	4		E															199
	5		E															3658
	8		E															6417
	9		E															1490
		TOTAL	E															11764
		BARRIER																
		CURB																
	4		E															91
	5		E															2235
		TOTAL	E															2326
		SLIP FORM																
		BARRIER																
	5		E															156
		TOTAL	E															156

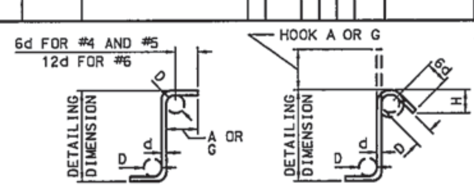
Two additional #4K10, #5S5, #8S3 and #9S10 are included in bar bill for testing.



SHAPE 50



SHAPE 51

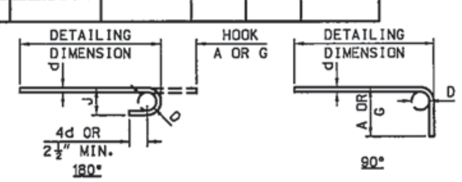


90° STIRRUP

135° STIRRUP

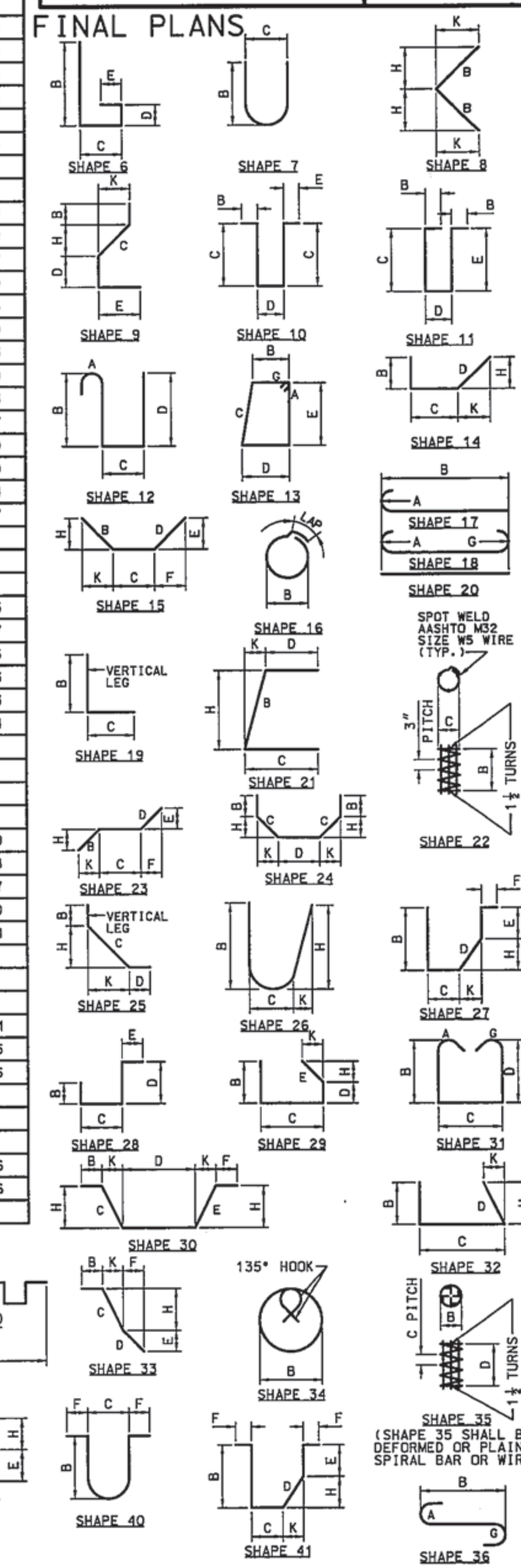
STIRRUP HOOK DIMENSIONS GRADES 40-50-60 KSI				
BAR SIZE	D (IN.)	90° HOOK: HOOK A OR G	135° HOOK: HOOK A OR G	135° HOOK: APPROX. H
•4	2"	4½"	4½"	3"
•5	2½"	6"	5½"	3¾"
•6	4½"	12"	8"	4½"

NOTE: UNLESS OTHERWISE NOTED DIAMETER "D" IS THE SAME FOR ALL BENDS & 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	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"

NOTES:
ALL STANDARD HOOKS AND BENDS OTHER THAN 180 DEGREE TO BE BENT WITH THE SAME PROCEDURE AS FOR 90 DEG. 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 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 May 2006
Checked December 2006

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

A04783

REV. $USER$

ROUTE	STATE	DISTRICT	SHEET NO.
71	MO	BR	15

JOB NO. J4P1429A

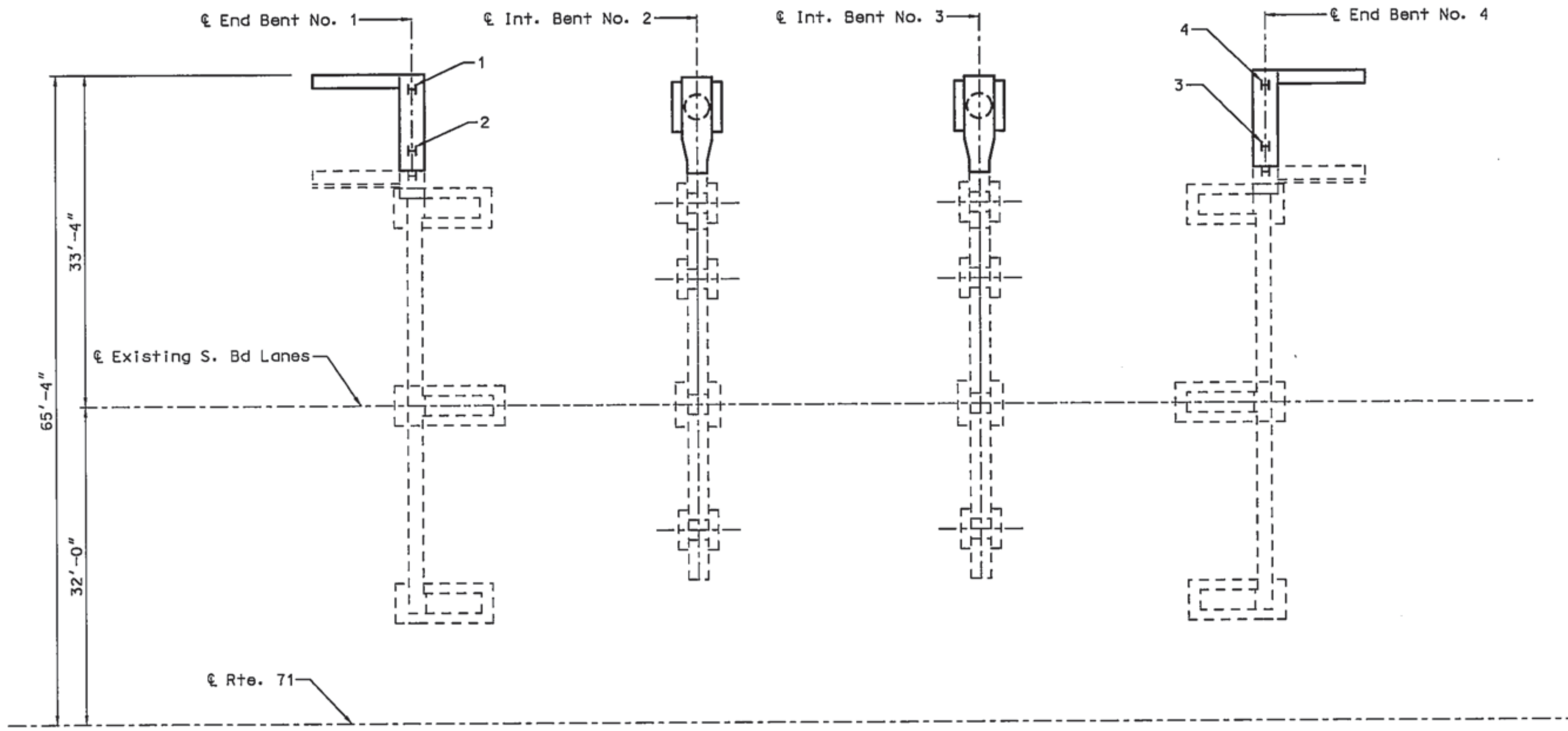
CONTRACT ID 080523-41A

PROJECT NO. FAF 150-1(6)

COUNTY JACKSON

DATE

FINAL PLANS



PLAN SHOWING
PILE NUMBERING FOR RECORDING
"AS BUILT PILE" DATA

"AS BUILT PILE" DATA

PILE NO.	LENGTH IN PLACE (FT.)	COMPUTED BEARING (TONS)	REMARKS
			End Bent No. 1
1	16	35	Pile driven to practical refusal
2	16	37	
			End Bent No. 4
3	17	35	Pile driven to practical refusal
4	16	35	
TOTAL	65		

NOTE: THIS SHEET TO BE COMPLETED BY MoDOT CONSTRUCTION PERSONNEL.

Detailed May 2006
Checked December 2006

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

A04783

REV. $USER$

T:\de-proj?9-1130B Bridge Finals\J4P1429-1130B\GBA\9809 Route 71 Over Route 150\A7327\J4P1429_A7327_016_End_Bent_4_3.dgn 9:50:37 AM 7-18-2011