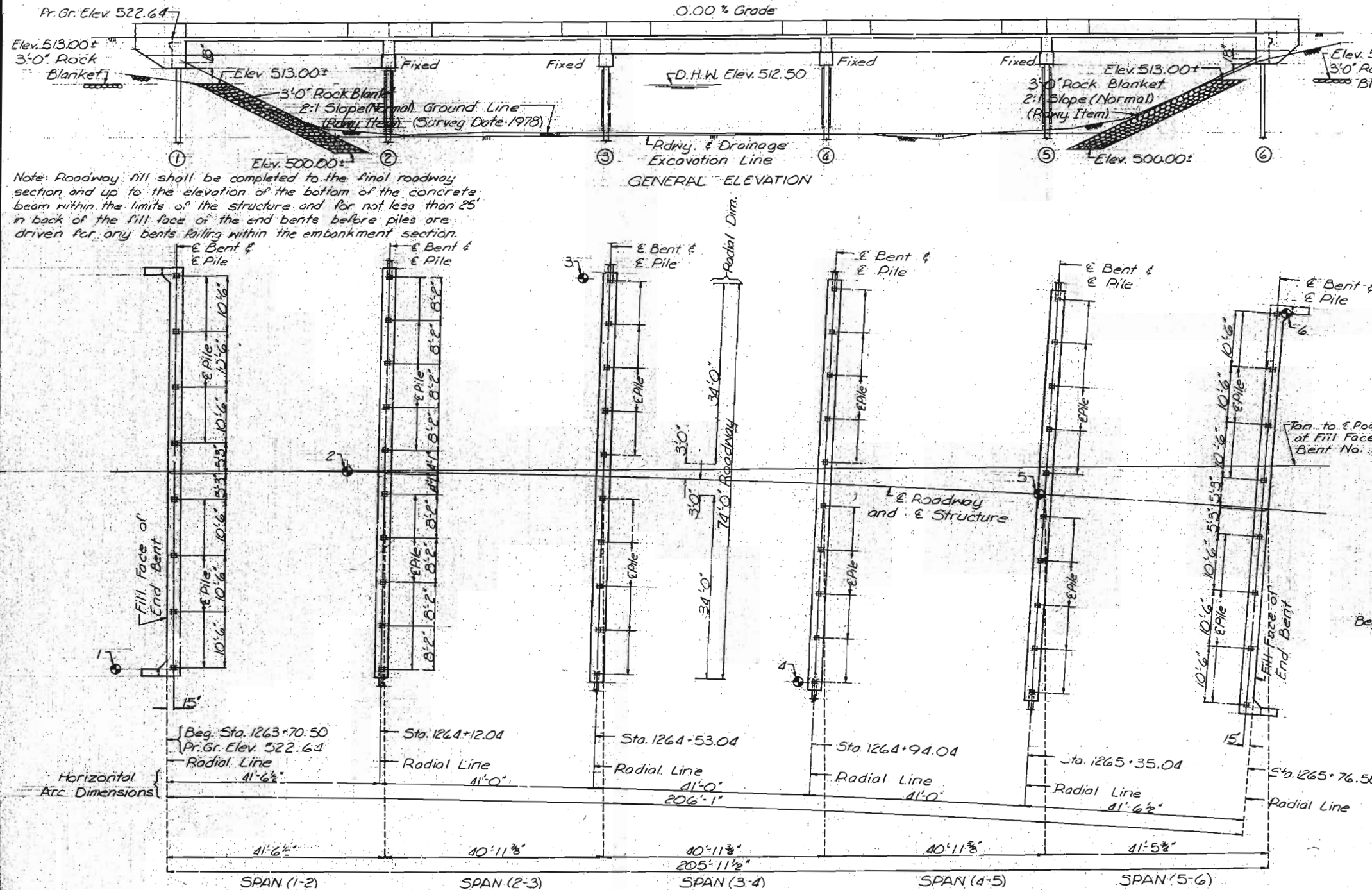


MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		78	58	

SEC./SUR. 26 TWP. 43N. RGE. 14W

(41'-41" - 41'-41") Prestressed Concrete Double Tee Spans



Note: Roadway fill shall be completed to the final roadway section and up to the elevation of the bottom of the concrete beam within the limits of the structure and 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.

Note: Boreings cannot be accurately located from the reference point on the tangent by conventional survey methods based on 100' chords.

Note: For Boring Data, Estimated Quantities and Pile Data see sheet No. 2.

DESIGNED Oct. 1980
 DETAILED May 1981
 CHECKED May 1981

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

HYDROLOGIC DATA	
Drainage Area	= 808 Sq. Mi. (Hilly)
Des. Discharge	= 34,400 cfs. *
Des. H.W. Elev.	= 512.5
Frequency	= 50 yrs.
BASIC FLOOD DATA	
Discharge Q100	= 38,400 cfs.
H.W. Elev.	= 513.5

* Log Pearson III

SEE FINAL PLANS

Sheet No. 1 of 16

GENERAL NOTES:
 Design Specification: AASHTO 1977 Load Factor Design
 Design Loading: HS20-44
 15' sq. ft. Future Wearing Surface
 Modified 24,000# Tandem Axle
 Earth 126# Equivalent Fluid Pressure 30#/sq. ft.
 Superstructure: Simply supported non-composite for Dead Load.
 Continuous composite for Live Load.
Design Unit Stresses:
 Class B Concrete (Substructure) $f_c = 3,000$ psi
 Class B1 Concrete (Safety Barrier Curb) $f_c = 4,000$ psi
 Class B2 Concrete (Superstructure except Prestressed Girders and Safety Barrier Curb) $f_c = 4,000$ psi
 Reinforcing Steel (Grade 60) $f_y = 60,000$ psi
 Steel Pile $f_b = 9,000$ psi
 For Prestressed Girder Stresses, see sheets No. 10 & 11.

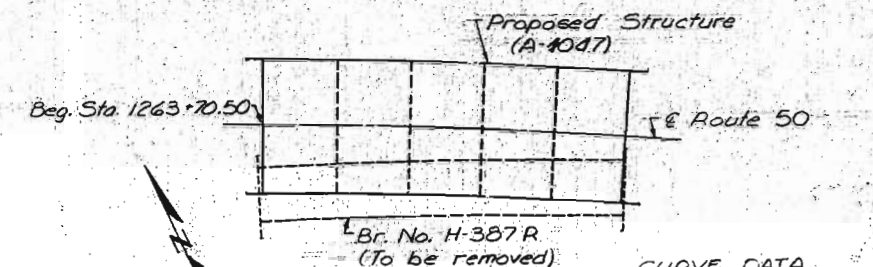
Plain Neoprene Bearing Pads:
 Bearings shall be 60 durometer Neoprene Pads.

Joint Filler:
 All joint filler shall meet the requirement of Std. Spec. 1057.2.4.

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

Paint:
 Shop - None, Field - All exposed surfaces of steel piles and bracing shall be painted in accordance with Std. Spec. 702.4.7 using System A or B. Color of the final coat shall be aluminum.

Traffic Handling:
 Traffic to use existing Br. No. H-387R during 1st Stage Construction of Br. No. A-4047.
 Traffic to use 1st Stage portion of Br. No. A-4047 during removal of existing Br. No. H-387R and 2nd Stage Construction of Br. No. A-4047.
 See Special Provisions.



LOCATION SKETCH

CURVE DATA
 P.I. = 1265+86.11
 $\Delta = 23^\circ 30' 25.7''$ Rt.
 D = 1'55"
 T = 621.98'
 L = 1226.46'
 R = 2989.34'
 S.E. = .02%

B.M. #71 - "0" on S.E. corner bridge abutment bridge over Bourbeuse River Elev. 521.26

BRIDGE OVER BOURBEUSE RIVER OVERFLOW

STATE ROAD FROM UNION TO ROUTE 47

ABOUT 0.1 MILE EAST OF UNION

PROJECT NO. BR-50-4(18) STA. 1263+70.50

JOB NO. 6 U050 166A

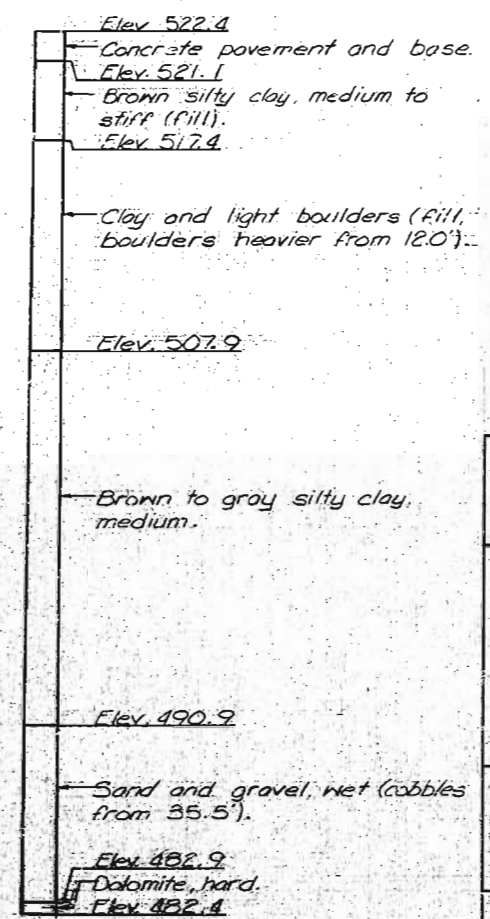
RYE 50

FRANKLIN

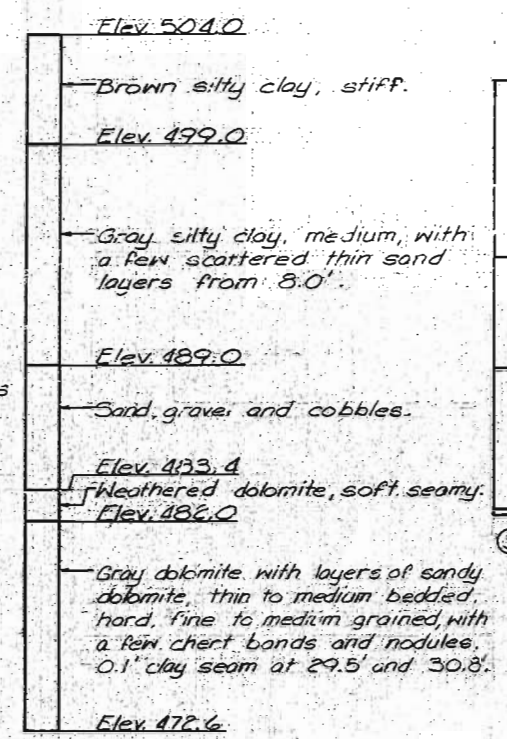
COUNTY

DATE 11/23/83

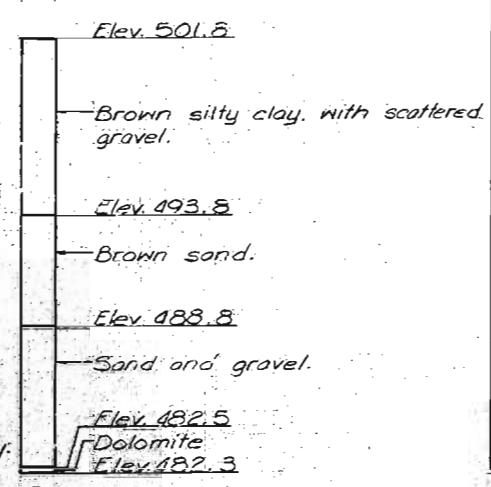
STD.
STD. 706.35
A-4047



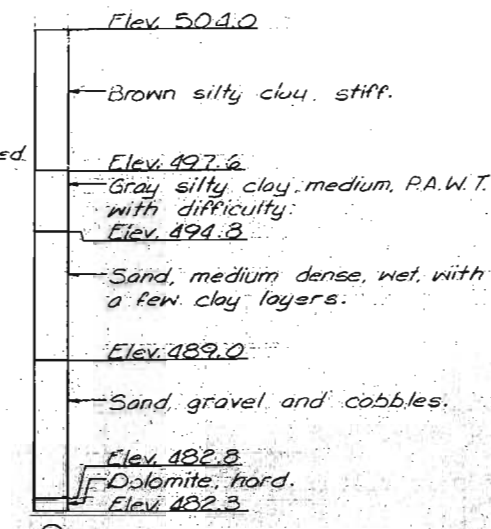
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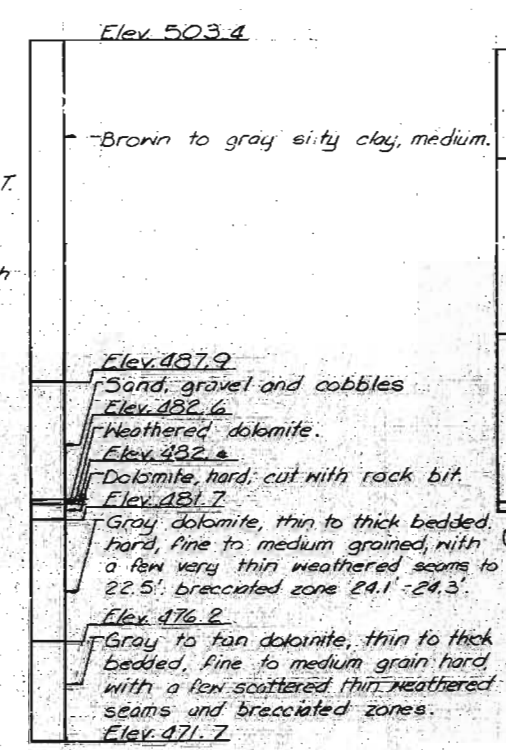
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(Core)



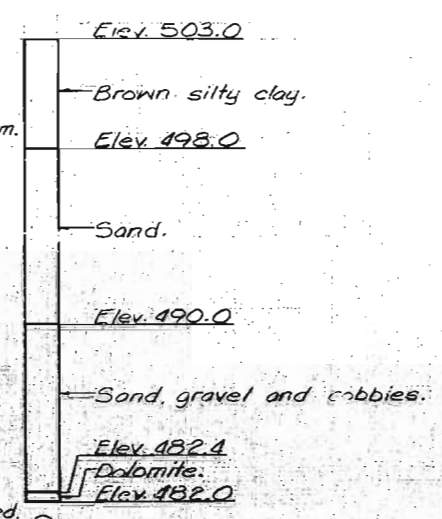
③



④



⑤
(Core)



⑥

Note: For location of borings see sheet No. 1.

BORING DATA

Note: Cost of furnishing, fabricating and installing Neoprene Bearing Pads complete in place, shall be paid for at the contract unit price for Plain Neoprene Bearing Pads per each.
No direct payment will be made for furnishing, installing, cleaning and painting of bracing at intermediate bents.

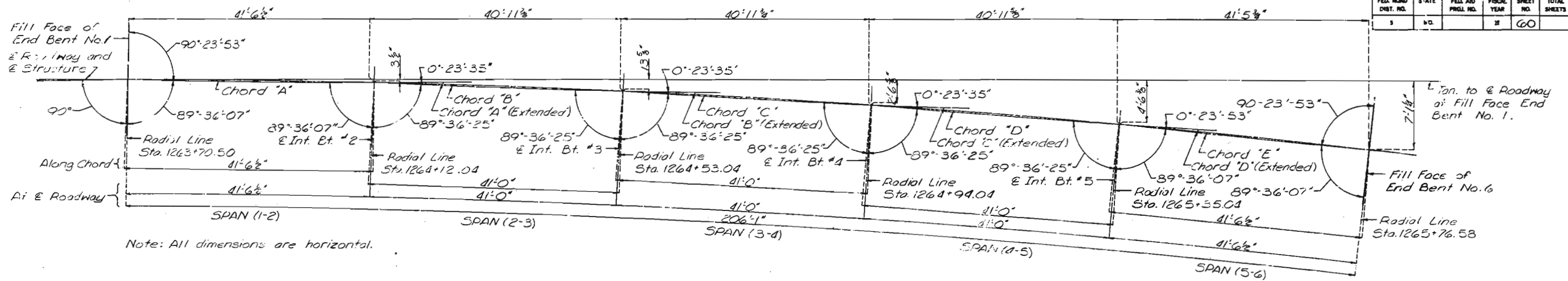
ESTIMATED QUANTITIES				
ITEM		SUBSTR	SUPERSTR	TOTAL
Removal of Bridges (Br. No. H-387R)	Each			1
Class I Excavation	Cu. Yd.	10		10
Structural Steel Pile (10in.)	Lin. Ft.	1976		1976
Class B Concrete	Cu. Yd.	108.4		108.4
Class B2 Concrete	Cu. Yd.		407.8	407.8
Plain Neoprene Bearing Pad (1/4" Thick)	Each		220	220
Prestressed Conc. Members Tee Section (41")	Each		55	55
Reinforcing Steel (Grade 60)	Lb.	8600	11460	20060
Reinforcing Steel (Epoxy Coated)	Lb.		50830	50830
Slab Drains	Each		8	8
Safety Barrier Curb	Lin. Ft.		440	440
Pile Point Reinforcement	Each	16		16

All concrete above Lower Const. Joint in End Bts. is included with superstructure quantities.
All reinforcement in End Bts. is included with superstructure quantities.

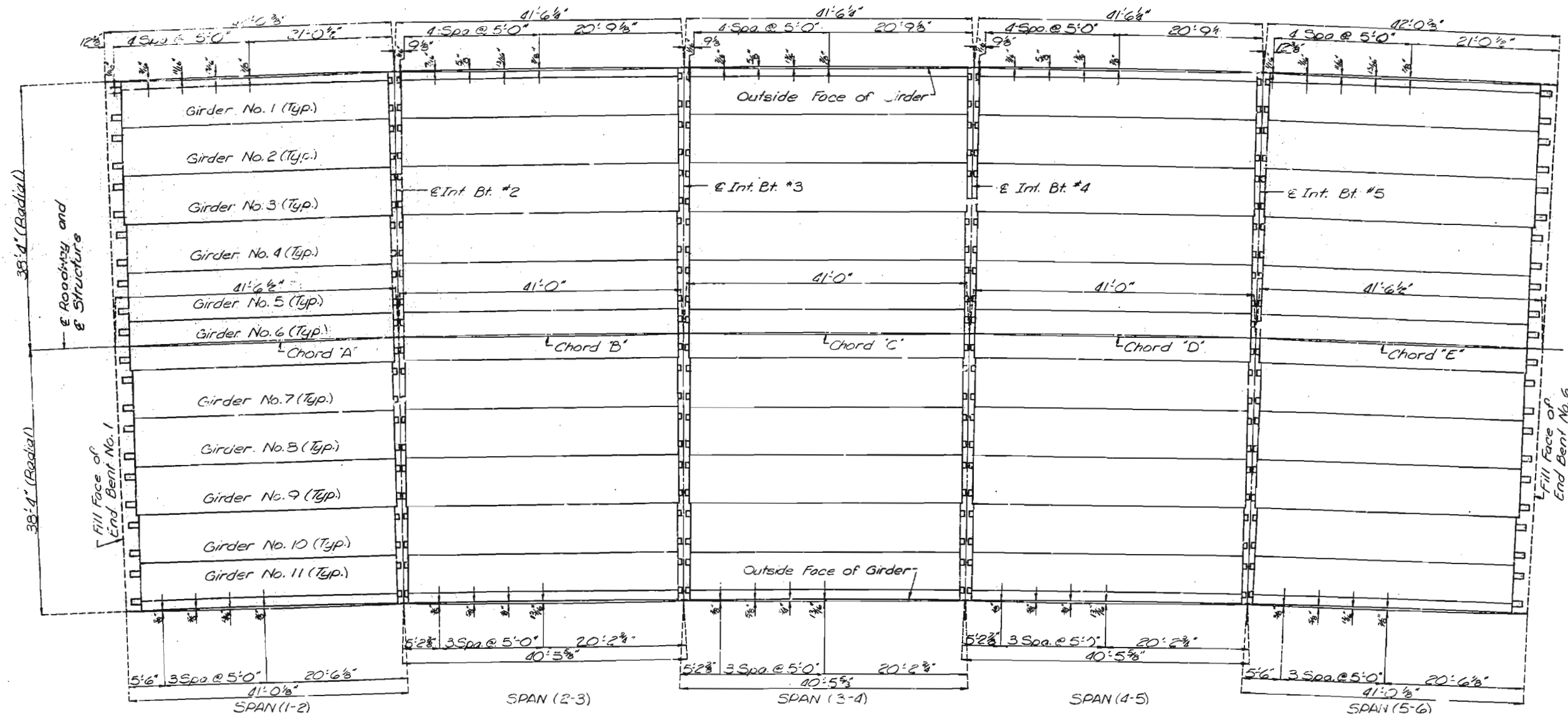
PILE DATA						
BENT NO.	1	2	3	4	5	6
Pile Type and Size	HP 10x42	HP 10x42	HP 10x42	HP 10x42	HP 10x42	HP 10x42
Number	10	10	10	10	10	8
Approximate Length	36	35	35	35	35	36
Design Bearing	47	54	54	54	54	41
Hammer Energy req'd.	10,500	12,600	12,600	12,600	12,600	10,500

Minimum energy requirement of hammer based on plan length and design bearing value of piles.
All pile shall be driven to practical refusal.
Manufactured pile point reinforcement shall be used on piles at bents 1 and 6. (See Special Provisions.)

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MO.		88	60	



LAYOUT DATA FOR SUBSTRUCTURE



PLAN OF GIRDERS SHOWING CURVE ORDINATES

DETAILED: May 1981
CHECKED: May 1981

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

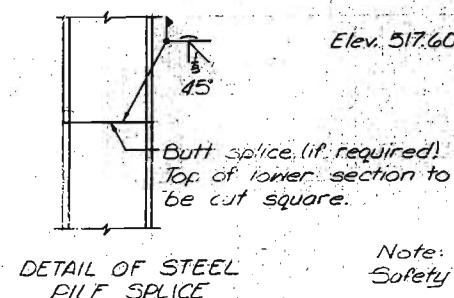
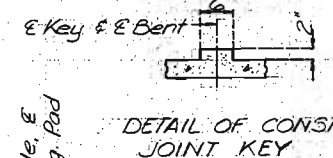
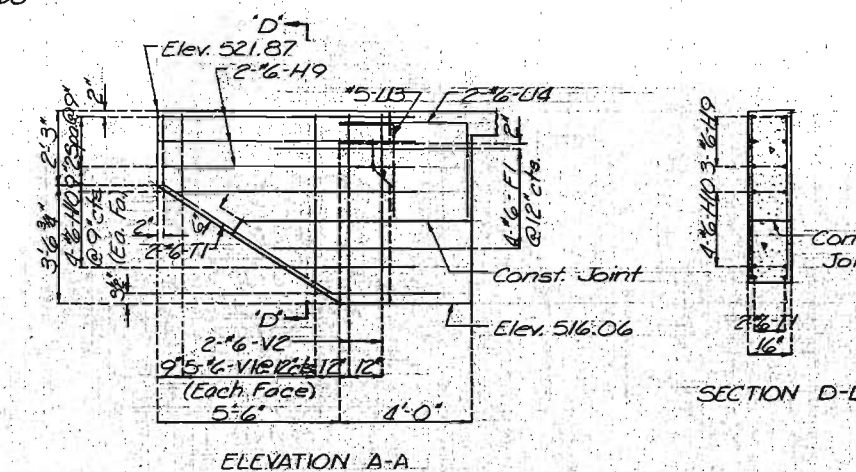
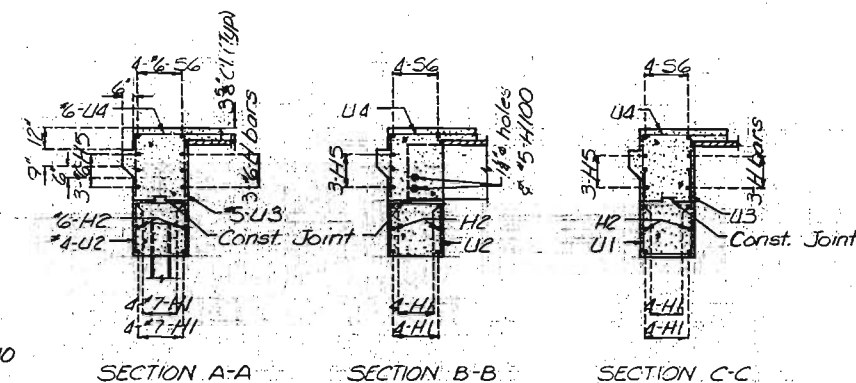
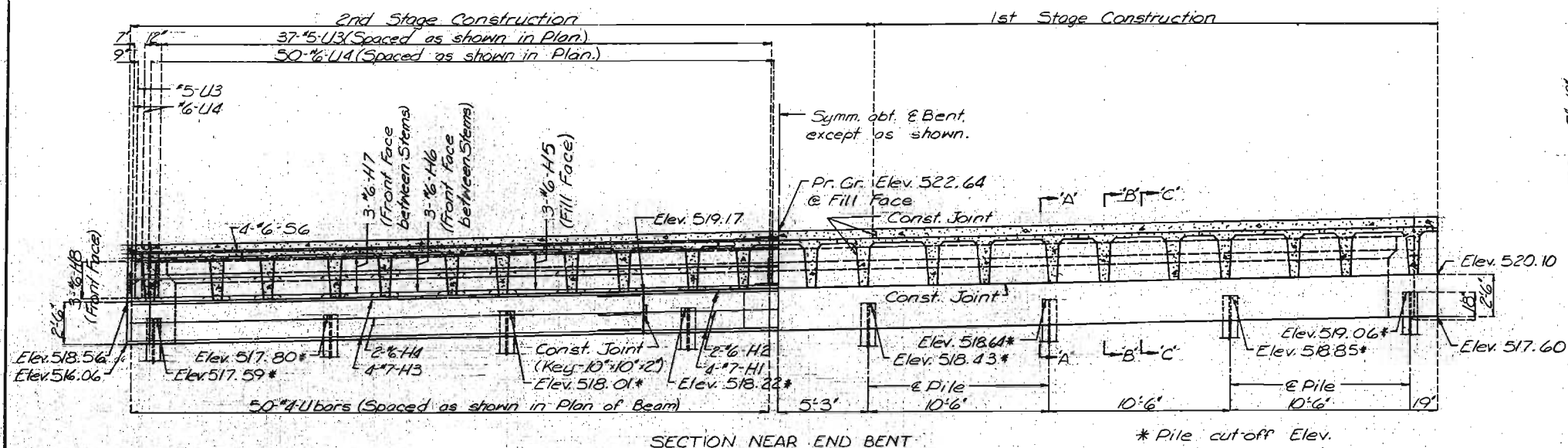
Sheet No. 3 of 16.

FRANKLIN COUNTY

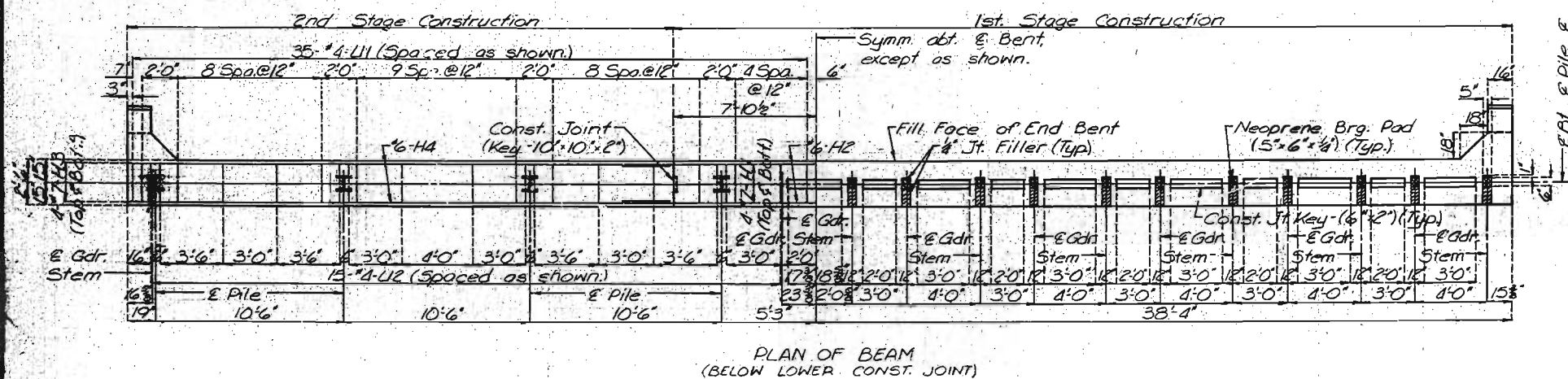
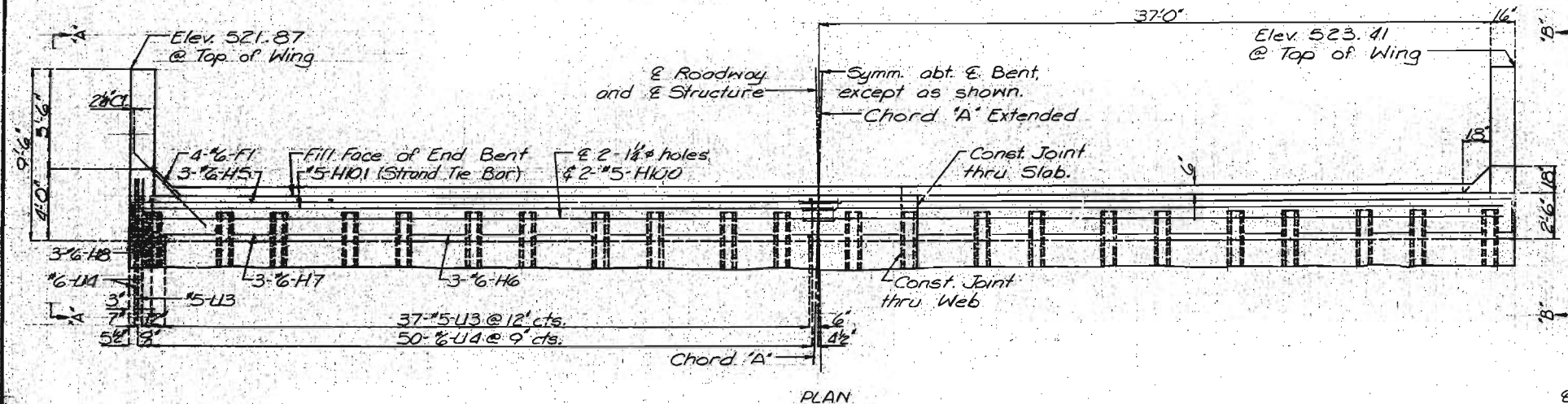
A-4047

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



Note: For location of Coil Tie in Wings for Safety Barrier Curb see sheet No. 14.
For Details of Timber Header see sheet No. 14.



DETAILS OF END BENT NO. 1

DATE: March 1981
CHECKED: May 1981

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

Sheet No. 4 of 16

FRANKLIN COUNTY

A-4047

Cut and shop
bend with 2'-C
projection.

Lifting Loop
(see note)

— E Sirder

72-43-41

 $\omega_{\text{Typ.}}$

1 1/4" hole
(Hole to clear strands
by a minimum of 2")

Concrete for Prestressed Girders shall be Class A1 with $f'_c = 5,000$ psi.

(+) Indicates prestressed strands.

Use 12 strands with an initial prestress force of 347 kips.

Girders shall be handled and erected into position in a manner that will not impair the strength of the girder.

The vertical face of the exterior girder that will be in contact with slab shall be roughened by sandblasting or other approved methods to provide suitable bond between girder and slab.

All exposed edges of concrete shall have $\frac{1}{2}$ " radius or $\frac{3}{8}$ " bevel unless otherwise noted.

LIFTING LOOPS :

Provide lifting loops in each end of double-tee girder.
Located near center of stem. 2 feet from each end.

WELDED WIRE FABRIC:

Adequate reinforcing other than the specified welded wire fabric may be used with the approval of the engineer.

SLAB DRAINS:

See sheet No. 13 for details.

Fabricator shall remove welded wire fabric to clear slab drain blockouts.

Note: For Curve Ordinates see sheet No. 3.

Note: For Girder Camber Diagram see sheet No. 11.

BILL OF REINFORCING STEEL-EACH GIRDER					
GIRDER	SPAN	NO.	SIZE & MARK	LENGTH	BENDING DIAGRAMS
*I	(1-2)(5-6)	4	3 AI	38'-5"	
*I	(2-3)(3-A)(4-5)	4	3 AI	39'-5"	
*II	(1-2)(5-6)	4	3 AI	37'-7"	
*II	(2-3)(3-A)(4-5)	4	3 AI	38'-6"	
*I	(1-2)(5-6)	85	6 SI	2'-6"	
*I	(2-3)(3-A)(4-5)	87	6 SI	2'-6"	
*II	(1-2)(5-6)	83	6 SI	2'-6"	
*II	(2-3)(3-A)(4-5)	85	6 SI	2'-6"	
*I	ALL	2	5 S2	42'-3"	
*II	ALL	2	5 S2	41'-5"	
*I	ALL	88	3 UI	7'-10"	
*II	ALL	86	3 UI	7'-10"	
ALL	ALL	4	4 U2	7'-10"	

All dimensions are out to out.
Where deflecting strands interfere with placement, some in-place bending may be necessary.
Hooks and bends shall be in accordance with the CRSI Manual of Standard Practice for Detailing Reinforced Concrete Structures.
All bars are to be bent according to CRSI Stirrup and Tie Dimensions.
Length = Total lengths are measured along centerline bar to the nearest inch.
Minimum clearance to reinforcing shall be 1 inch except for 4" x 4" x 4".
All reinforcement shall be Grade 60.
All S and U reinforcing bars shall be epoxy coated.

FRANKLIN

COUNTY

A-4047

DETAILED March 1981
CHECKED May 1981

CHECKED May 1981

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

Sheet No. 10 of 16

PRESTRESSED CONCRETE DOUBLE-TEE GIRDERS



(*) Indicates prestressed strands.

Use 12 strands with an initial prestress force of 347 kips.

Girders shall be handled and erected into position in a manner that will not impair the strength of the girder.

— All exposed edges of concrete shall have $\frac{1}{2}$ " radius or $\frac{3}{8}$ " bevel unless otherwise noted.

LIFTING LOOPS:

Provide lifting loops in each end of double-tee girder.
Locate near center of stem, 2 feet from each end.

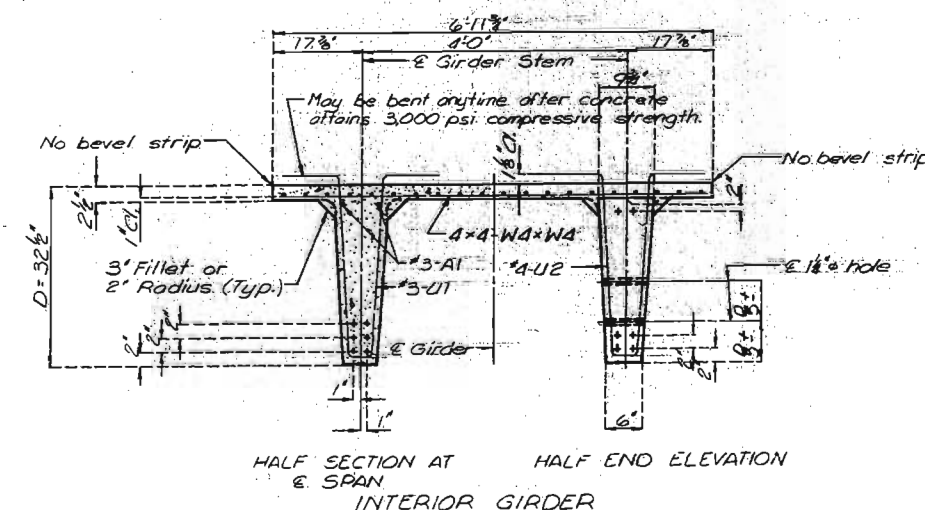
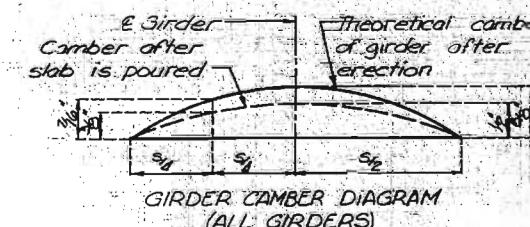
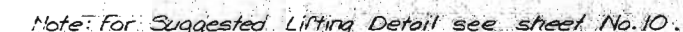
WELDED WIRE FABRIC:

Adequate reinforcing other than the specified welded wire fabric may be used with the approval of the engineer.

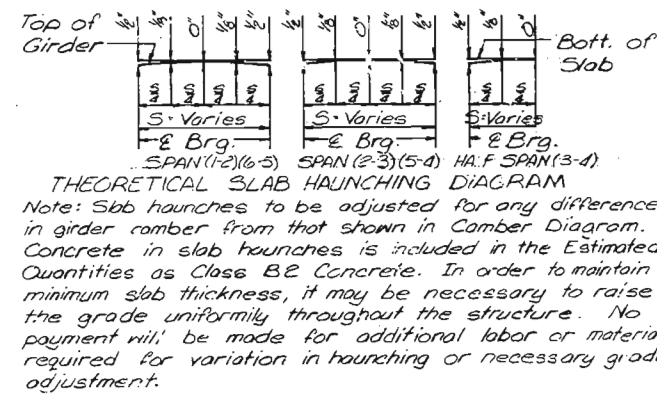
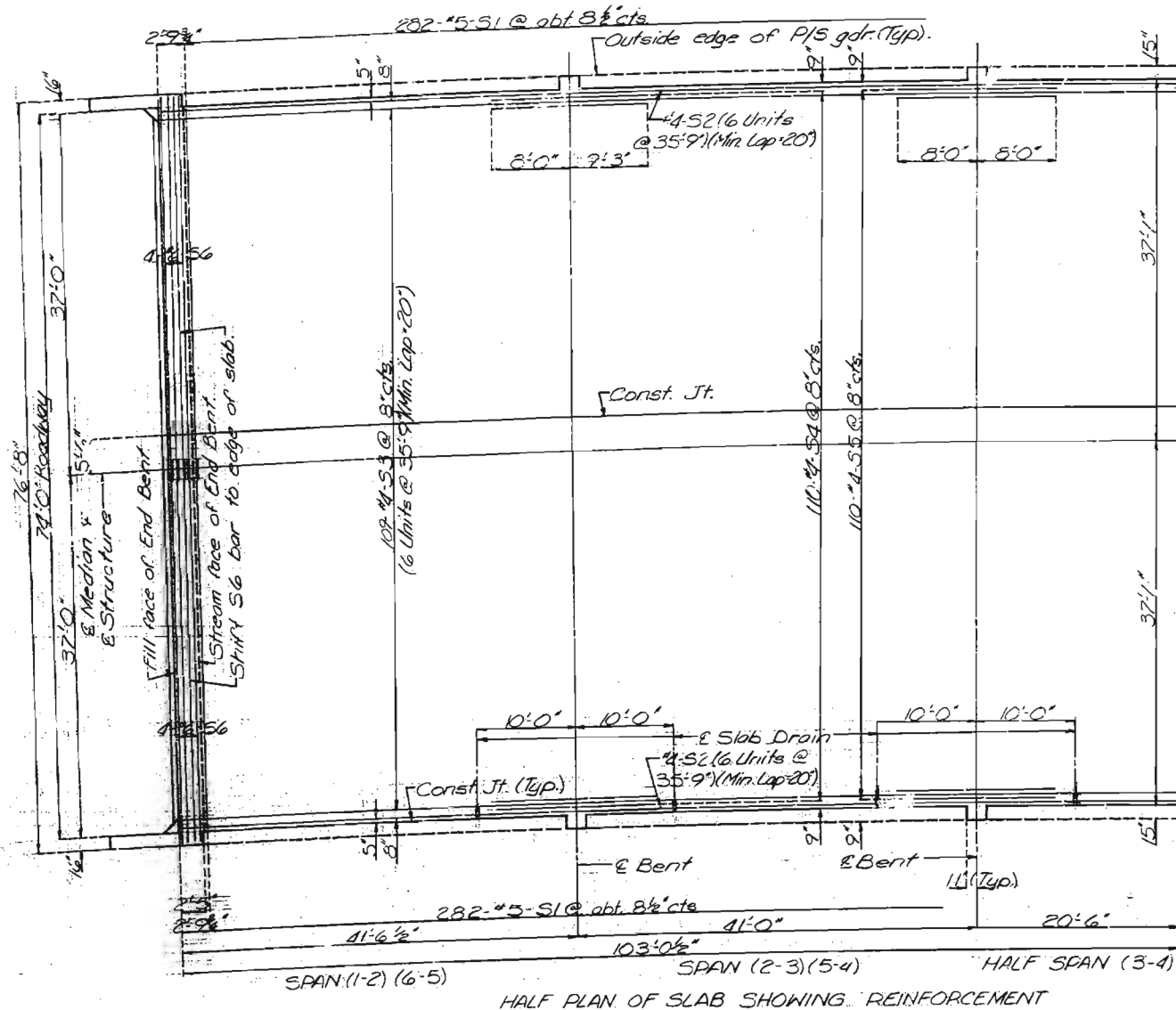


BILL OF REINFORCING STEEL - EACH GIRDER					
GIRDER	SPAN	NO.	SIZE & MARK	LENGTH	BENDING DIAGRAMS
*2#3	(1-2)(5-6)	4	3A1	38'-5"	
*2#3	(2-3)(3-4)(4-5)	4	3A1	39'-5"	
*4#5#6	(1-2)(5-6)	4	3A1	38'-2"	
*4#5#6	(2-3)(3-4)(4-5)	4	3A1	39'-1"	
*7#8#9	(1-2)(5-6)	4	3A1	37'-10"	
*7#8#9	(2-3)(3-4)(4-5)	4	3A1	38'-10"	
*10	(1-2)(5-6)	4	3A1	37'-7"	
*10	(2-3)(3-4)(4-5)	4	3A1	38'-6"	
*2#3	All	88	3U1	7'-10"	
*4 thru #10	All	86	3U1	7'-10"	
All	All	4	4U2	7'-10"	

All dimensions are out to out.
Where deflecting strands interfere with placement, some in-place bending may be necessary.
Hooks and bends shall be in accordance with the CRSI Manual of Standard Practice for Detailing Reinforced Concrete Structure.
All bars are to be bent according to CRSI Stirrup and Tie Dimensions.
Length - total lengths are measured along centerline bar to the nearest inch.
Minimum clearance to reinforcing shall be 1 inch except for $4 \times 4 - W4 - W4$.
All reinforcement shall be Grade 60.
All S and U reinforcing bars shall be epoxy coated.



FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		15	29	

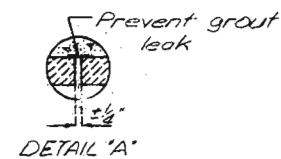
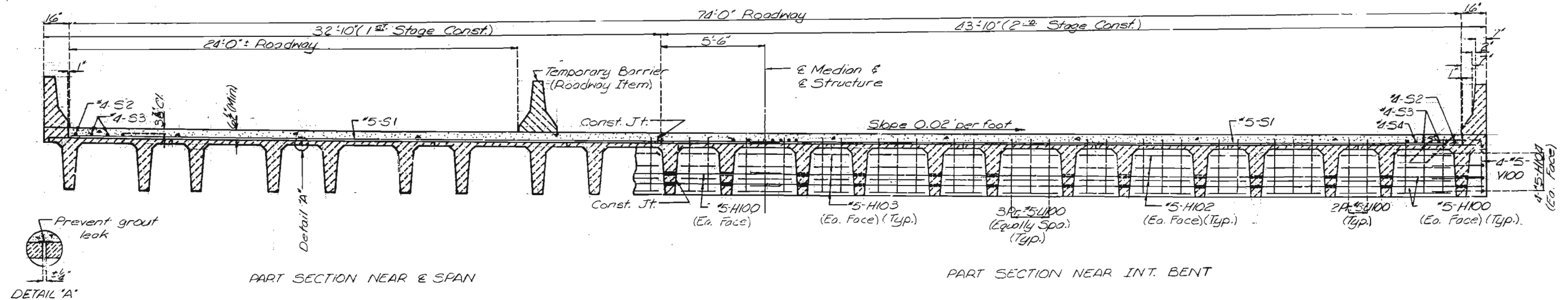
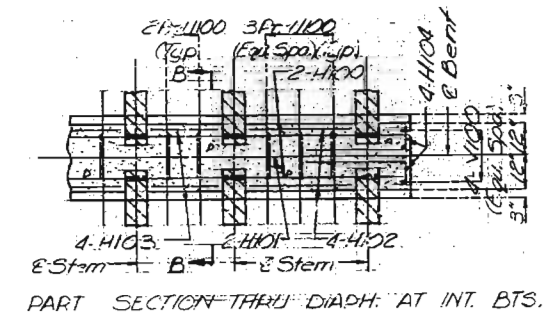
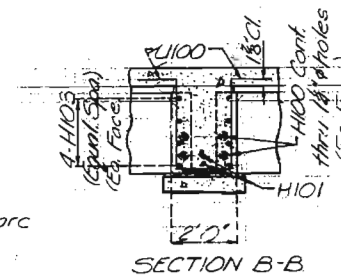


Note: The diaphragm of the intermediate and end bents shall be poured a minimum of 30 minutes and a maximum of 2 hours before the slab is poured across the diaphragm at bents.
The slab is to be built parallel to grade and to a minimum thickness of 6 1/2".
The contractor shall furnish an approved retarder to retard the set of the concrete to 2.5 hours and shall pour and satisfactorily finish the slab pours at not less than 25 cubic yards per hour.

For details and reinforcement of safety barrier curb not shown, see sheet No. 14.

For details of slab drains see sheet No. 13.

The test system for epoxy coated reinforcing as specified in S 2.710.3.4 of the Standard Specification will not be required on this bridge.

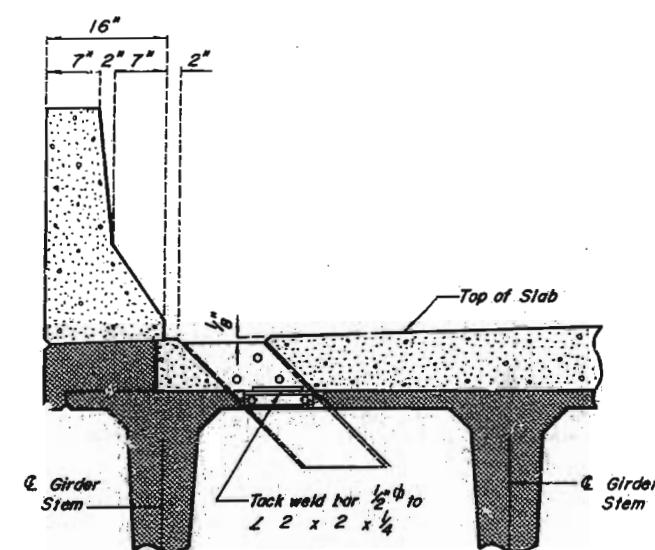


DETAILED Dec. 1980
CHECKED May 1981

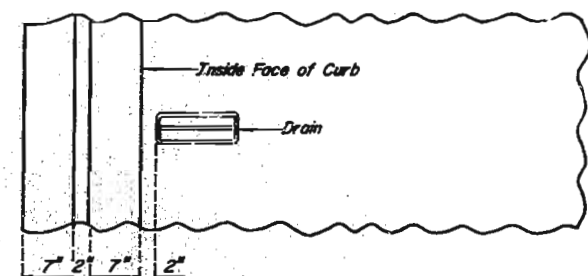
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Sheet No. 12 of 16.

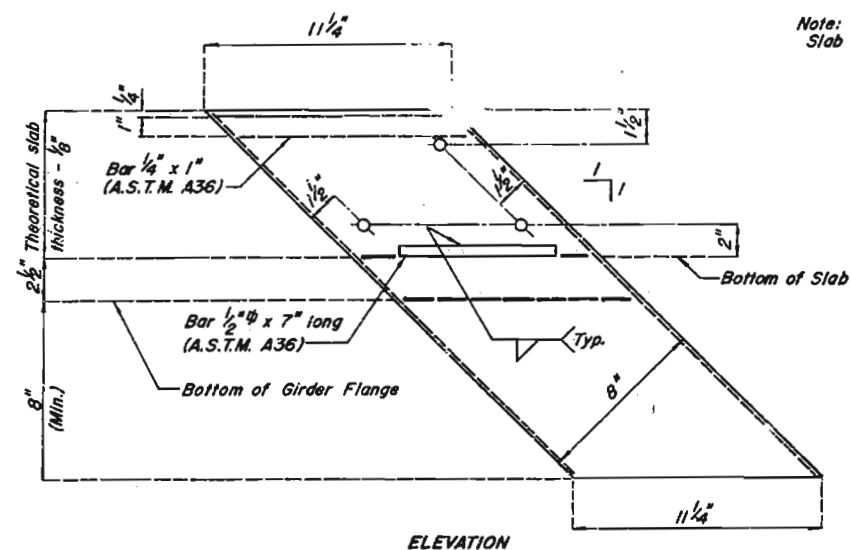
FRANKLIN COUNTY A-4047



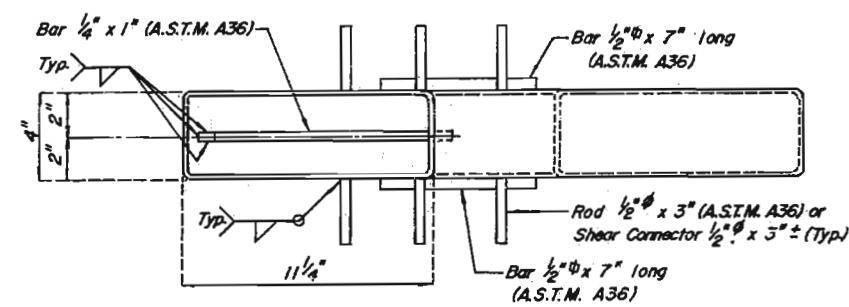
PART ELEVATION OF SLAB



PART PLAN OF SLAB



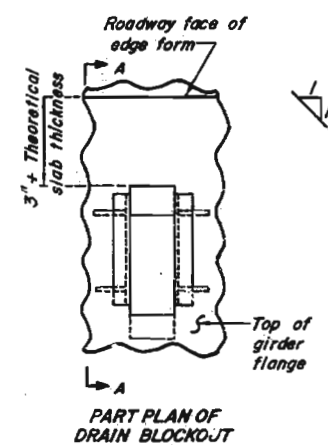
ELEVATION



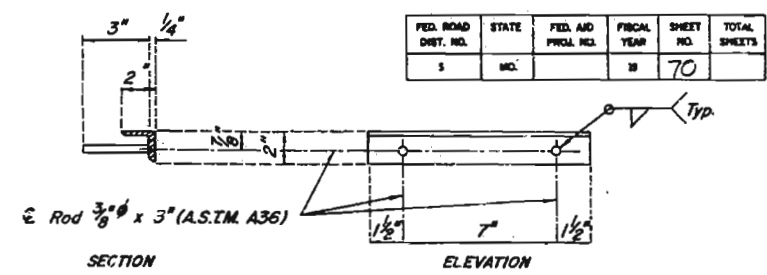
PLAN

SLAB DRAIN DETAILS

Note: See sheet no. for Theoretical Slab Thickness Diagram.

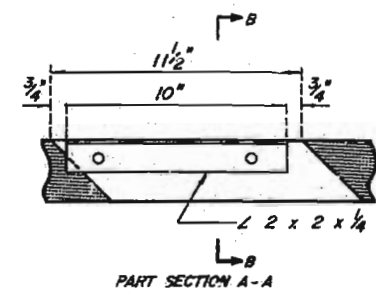


PART PLAN OF DRAIN BLOCKOUT

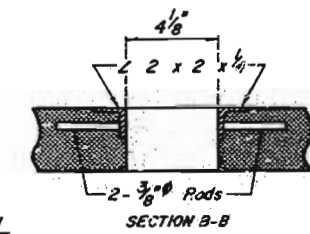


SECTION

DETAIL OF ANGLE



PART SECTION A-A



SECTION B-B

GENERAL NOTES:

- Slab drains may be fabricated of either 1/4 inch welded sheets of A.S.T.M. A36 steel or from 1/4 inch structural steel tubing A.S.T.M. A501 or A501.
- Outside dimensions of drains are 8 inch x 4 inch.
- The drains shall be cast in the concrete with the top of the drains being 1/8 inch 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.

502 534

SPS S.D. - DELTEE
FEB. 1981

DETAILED July 1983
CHECKED July 1983

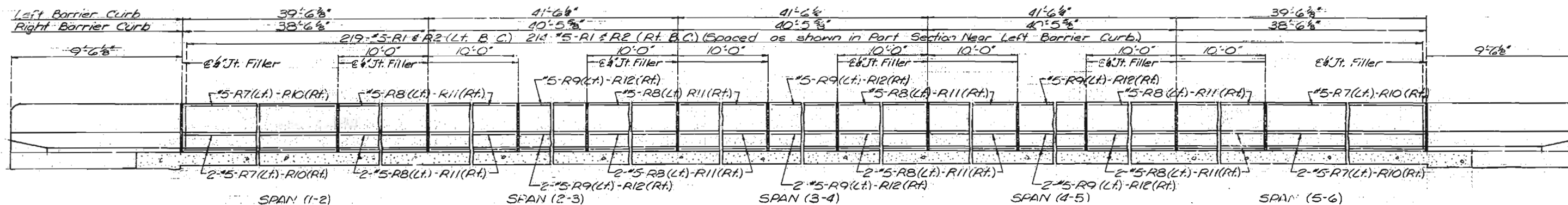
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Sheet No. 13 of 16.

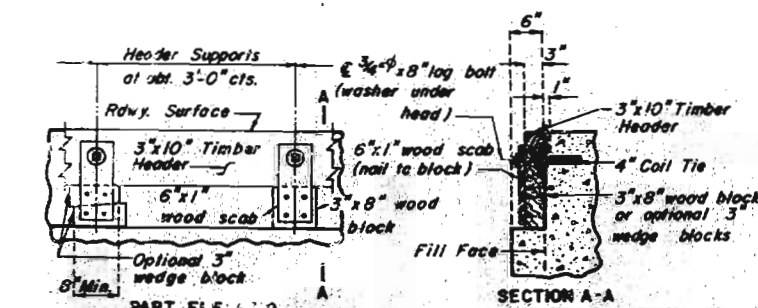
FRANKLIN COUNTY

A-4047

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		88	71	



SECTION NEAR LEFT BARRIER CURB (SHOWN)
ELEVATION OF RIGHT BARRIER CURB (SIMILAR)



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

DETAILS OF TIMBER HEADER AT END BENTS

GENERAL NOTES:

Coil inserts shall have a concrete ultimate pull-out strength of not less than 40,000 pounds in 5,000 psi concrete and an ultimate tensile strength of not less than 40,000 pounds.

Coil rods shall have an ultimate capacity of 36,000 pounds.

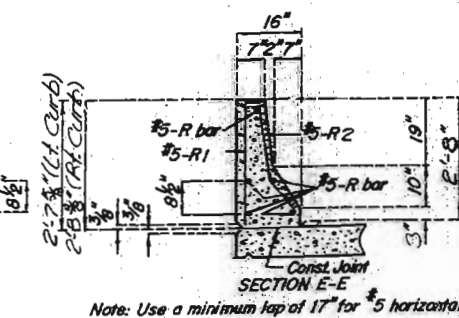
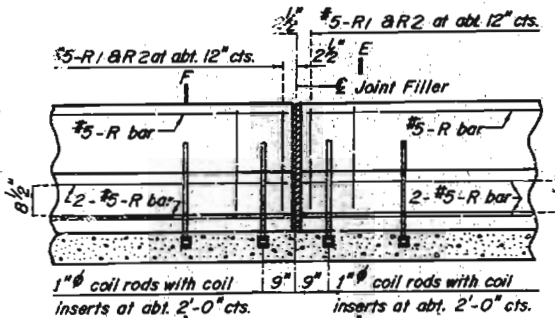
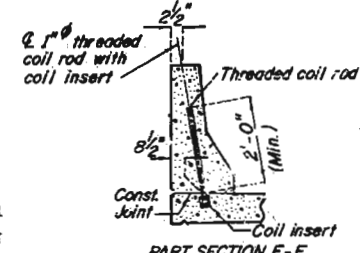
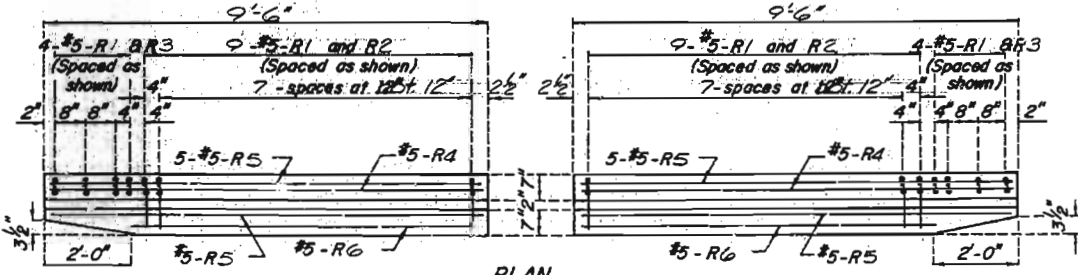
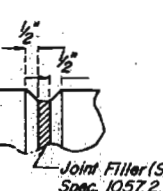
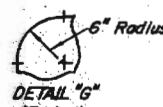
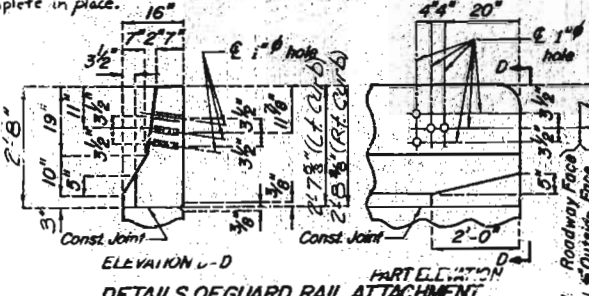
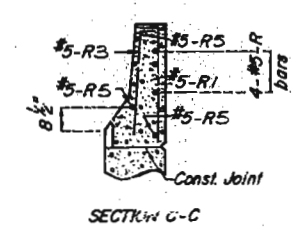
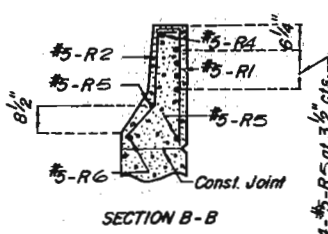
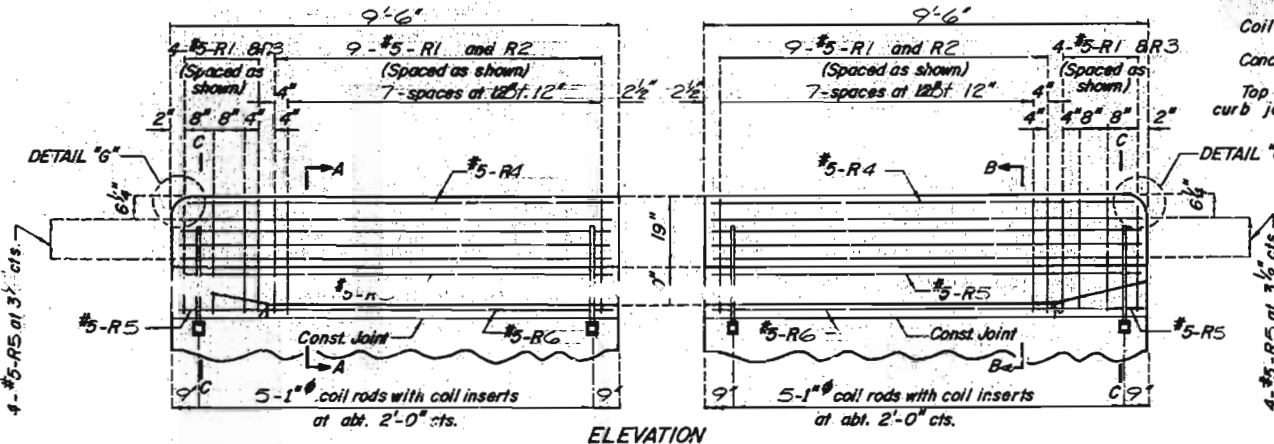
Concrete for barrier curbs shall be B1 with $f'_c = 4,000$ psi.

Top of barrier curb shall be parallel to grade with barrier curb joints normal to grade.

All exposed edges of barrier curb shall have $\frac{1}{2}$ " radius or $\frac{3}{8}$ " bevel unless otherwise noted.

Payment for furnishing and installing coil inserts and threaded coil rods shall be fully covered by the contract unit price for safety barrier curb.

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



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

DETAILS OF BARRIER CURB AT END BENTS

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

Sheet No. 14 of 16

FRANKLIN

COUNTY

A-4047

TT-SSC (ON) June 1982

DETAILED Oct. 1983
CHECKED Oct. 1983

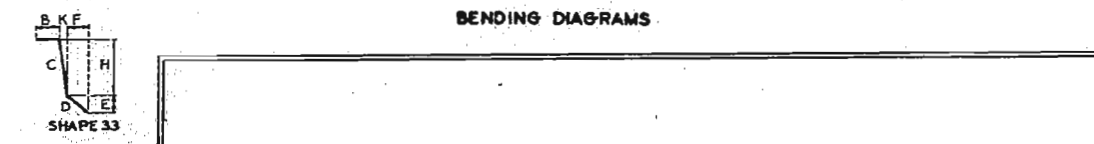
535

COMPLETE BILL OF REINFORCING STEEL

NO. REQD.	MARK NO.	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS												NOMINAL LENGTH	ACTUAL LENGTH	WEIGHT																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
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COMPLETE BILL OF REINFORCING STEEL

NO. REQD.	MARK NO.	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS												NOMINAL LENGTH	ACTUAL LENGTH	WEIGHT		
									B		C		D		E		F		H					K	
									FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.				FT.	IN.
12	6H9	WING		20					8	6.000									8	6	8	6	153		
16	6H10	WING		20			V	4	8	0.000									8	0	8	0	151		
		INCR = 13.625 IN							4	6.500									4	7	4	7	151		
8	6S6	SLAB	E	20					39	9.000									39	9	39	9	478		
4	6T1	WING		25					2	1.000	6	1.125	3	2.625			3	3.750	5	1.375	11	5	11	4	68
70	4U1	BEAM		10	S					3	9.000	2	3.000						9	9	9	7	448		
30	4U2	BEAM		10	S					2	3.000	2	3.000						6	9	6	7	132		
76	5U3	WEB	E	10	S					2	10.000	2	3.000						7	11	7	9	614		
104	6U4	WEB	E	19	S				2	10.000	4	1.000							6	11	6	9	1054		
20	6V1	WING		20			V	4	3	0.625									5	1	5	1			
		INCR = 7.750 IN							2	5.500									2	6	2	6	114		
8	6V2	WING		20					5	7.000									5	7	5	7	67		
		END BT NO 6																							
8	6F60	WING		23					14.000	5	8.000						9.875	9.875	6	10	6	10	826		
8	7H60	BEAM		20					50	6.000									50	6	50	6	826		
2	6H61	BEAM		20					49	4.000									49	4	49	4	148		
8	7H62	BEAM		20					30	2.000									30	2	30	2	473		
2	6H63	BEAM		20					30	2.000									30	2	30	2	91		
6	6H64	WEB		20					39	8.000									39	8	39	8	357		
32	6H65	WEB		20					2	11.000									2	11	2	11	145		
30	6H66	WEB		20					23	0.000									23		23		86		
6	6H67	WEB		19					8.000	2	3.000								2	11	2	9	25		
12	6H68	WING		20					8	6.000									8	6	8	6	153		
16	6H69	WING		20			V	4	8	0.000									8	0	8	0	151		
		INCR = 13.625 IN							4	6.500									4	7	4	7	151		
10	6S6	SLAB	E	20					39	9.000									39	9	39	9	597		
4	6T60	WING		25					2	1.000	6	1.125	3	2.625			3	3.750	5	1.375	11	5	11	4	68
70	4U60	BEAM		10	S					3	9.000	2	3.000						9	9	9	7	448		
30	4U61	BEAM		10	S					2	3.000	2	3.000						6	9	6	7	132		
76	5U62	WEB	E	10	S					2	10.000	2	3.000						7	11	7	9	614		
104	6U63	WEB	E	19	S				2	10.000	4	1.000							6	11	6	9	1054		
20	6V60	WING		20			V	4	3	0.625									5	1	5	1			
		INCR = 7.750 IN							2	5.500									2	6	2	6	114		
8	6V61	WING		20					5	7.000									5	7	5	7	67		
40	5H100	DIAPH		20					39	1.000									39	1	39	1	1631		
20	5H101	DIAPH		20					39	4.000									39	4	39	4	820		
352	5H102	INT BT DIAPH		20					2	11.000									2	11	2	11	1071		
320	5H103	INT BT DIAPH		20					23	0.000									23		23		640		
64	5H104	INT BT DIAPH		19					9.000	2	11.000								3	8	3	7	239		
566	5S1	SLAB	E	20					3	1.000									39	1	39	1	23072		
12	4S2	SLAB	E	20					35	9.000									35	9	35	9	287		
654	4S3	SLAB	E	20					35	9.000									35	9	35	9	15618		
222	4S4	SLAB	E	20					17	3.000									17	3	17	3	2558		
220	4S5	SLAB	E	20					16	0.000									16	0	16	0	236		
424	5U100	INT BT DIAPH	E	28	S					21.000	2	9.000	12.000						5	6	5	4	235		
32	5V100	INT BT DIAPH	E	19	S				2	11.000	2	4.000							5	3	5	2	17		



MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

(41'-41'-41'-41'-41') Prestressed Concrete
Double Tee Spans

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		89	58	

SEC./SUR. 26 TWP. 43N. RGE. 1W

GENERAL NOTES:
Design Specification: AASHTO, 1977 Load Factor Design
Design Loading: HS20-44
15" sq. ft. Future Wearing Surface
Modified 24,000# Tandem Axle
Earth 120# Equivalent Fluid Pressure 30#/sq. ft.
Superstructure: Simply supported non-composite for Dead Load.
Continuous composite for Live Load.
Design Unit Stresses:
Class B Concrete (Substructure) $f_c = 3,000$ psi
Class B1 Concrete (Safety Barrier Curb) $f_c = 4,000$ psi
Class B2 Concrete (Superstructure) except: Prestressed
Girders and Safety Barrier Curb $f_c = 4,000$ psi
Reinforcing Steel (Grade 60) $f_y = 60,000$ psi
Steel Pile $f_b = 9,000$ psi
For Prestressed Girder Stresses, see sheets No. 10 & 11.

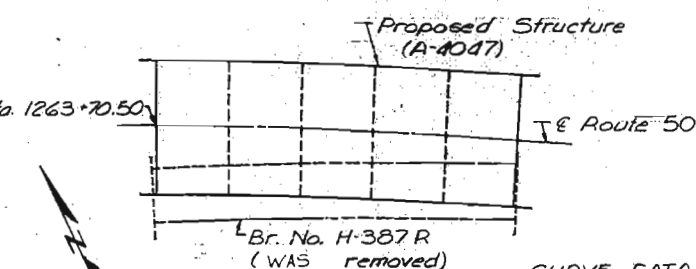
Plain Neoprene Bearing Pads:
Bearings shall be 60 durometer Neoprene Pads.

Joint Filler:
All joint filler shall meet the requirement of Std. Spec. 1057.2.4.

Reinforcing Steel:
Minimum clearance to reinforcing steel shall be $\frac{1}{2}$ " unless otherwise shown.

Paint:
Shop - None. Field - All exposed surfaces of steel piles and bracing WHERE painted in accordance with Std. Spec. 702.4.7 using System A or B. Color of the final coat shall be aluminum.

Traffic Handline:
Traffic used existing Br. No. H-387R during 1st Stage Construction of Br. No. A-4047.
Traffic used 1st Stage portion of Br. No. A-4047 during removal of existing Br. No. H-387R and 2nd Stage Construction of Br. No. A-4047.
See Special Provisions.



CURVE DATA
@ RTE. 50
P.I. = 1265+86.11
 $\Delta = 23^\circ 30' 25.7''$ Rt.
D = 155'
T = 621.98'
L = 1226.46'
R = 2989.34'
S.E. = .02%

B.M. #4 - "P" on NE corner WALL OVERFLOW BRIDGE OVER Bourbeuse River. Elev. 526.13

BRIDGE OVER BOURBEUSE RIVER OVERFLOW

STATE ROAD FROM UNION TO ROUTE 47

ABOUT 0.1 MILE EAST OF UNION

PROJECT NO. BR-50-4(18) STA. 1263+70.50

JOB NO. 6 U050 166A

RTE. 50

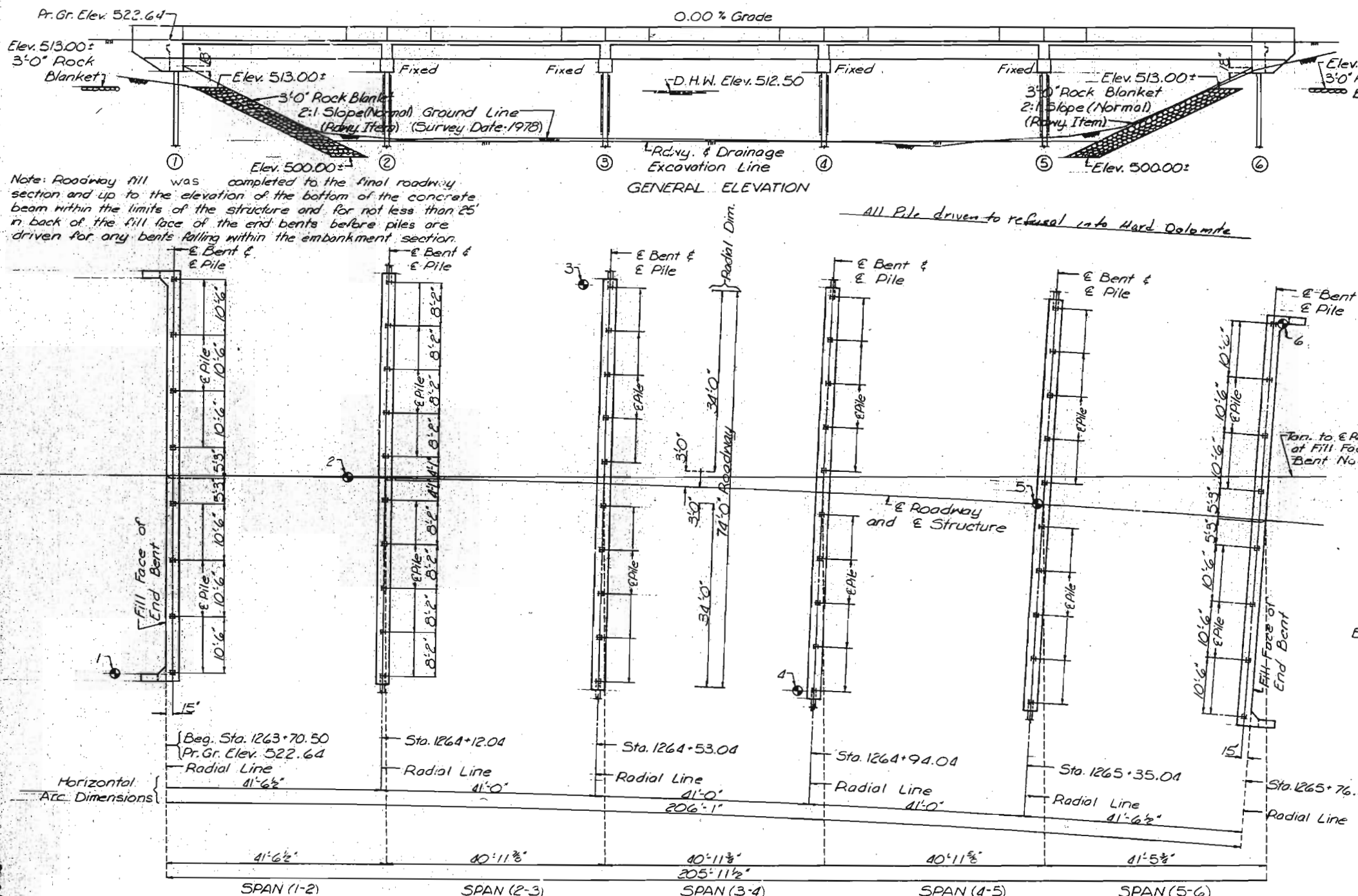
FRANKLIN

COUNTY

STD.
STD. 706.35
A-4047

DATE 11/23/83

Sheet No. 1A of 16.



Note: Bents cannot be accurately located from the reference point on the tangent by conventional survey methods based on 100' chords.
Note: For Boring Data, Estimated Quantities and Pile Data see sheet No. 2.

PLAN
Note: Bents cannot be accurately located from the reference point on the tangent by conventional survey methods based on 100' chords.

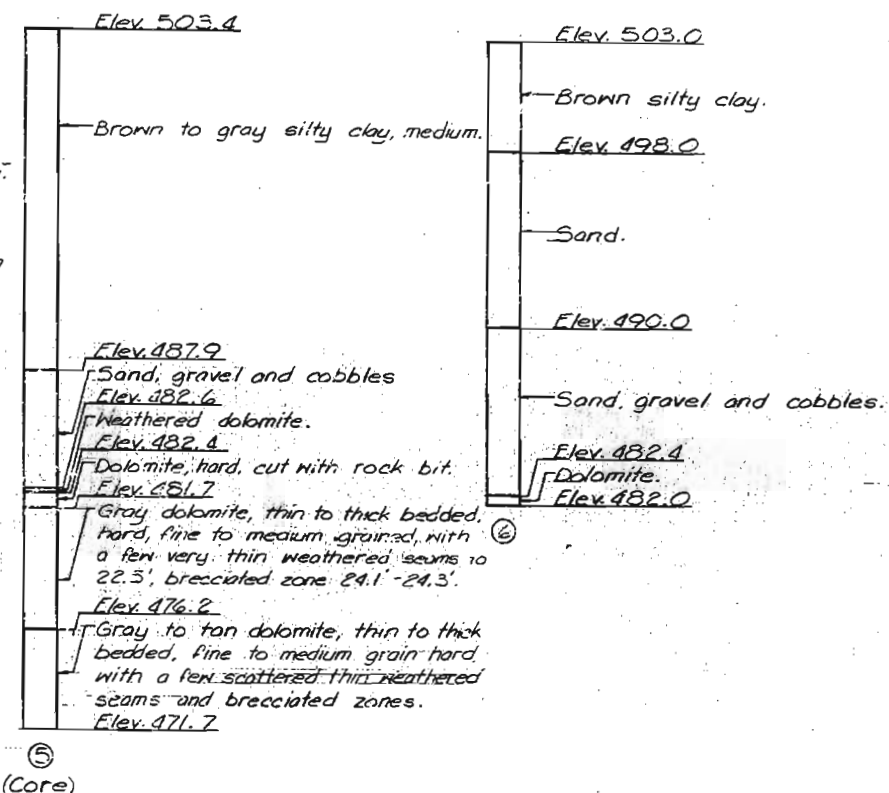
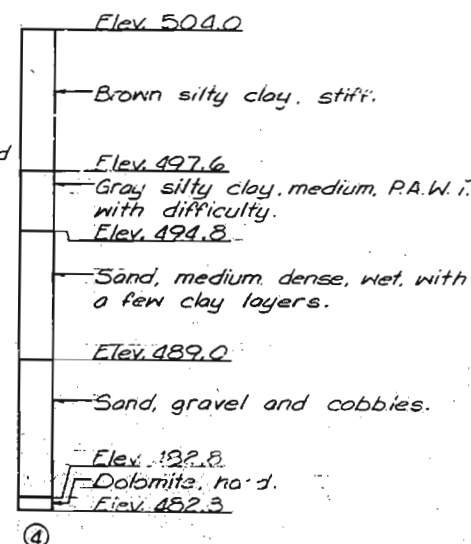
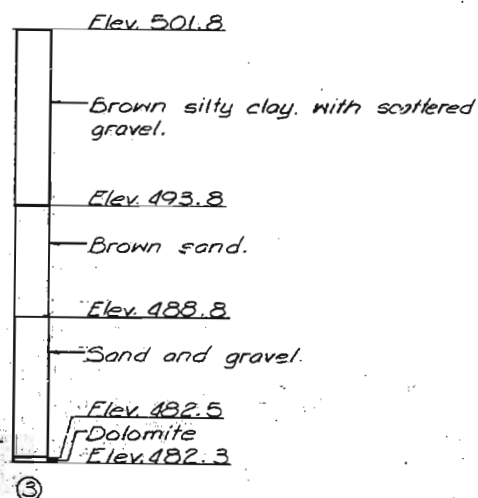
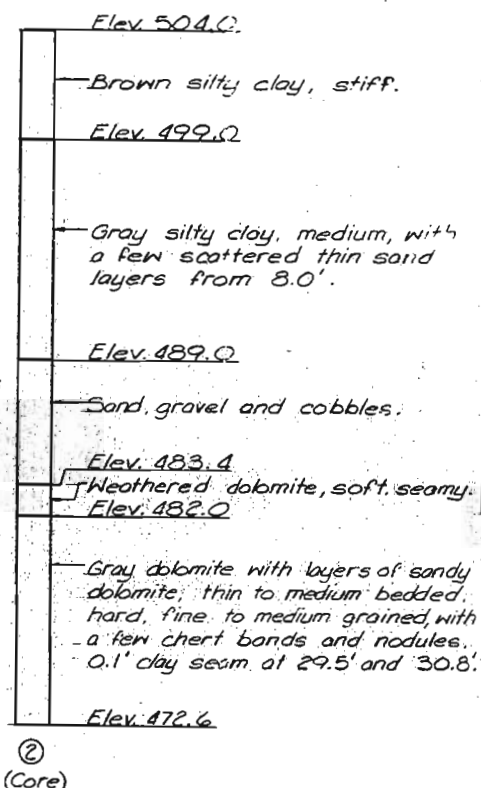
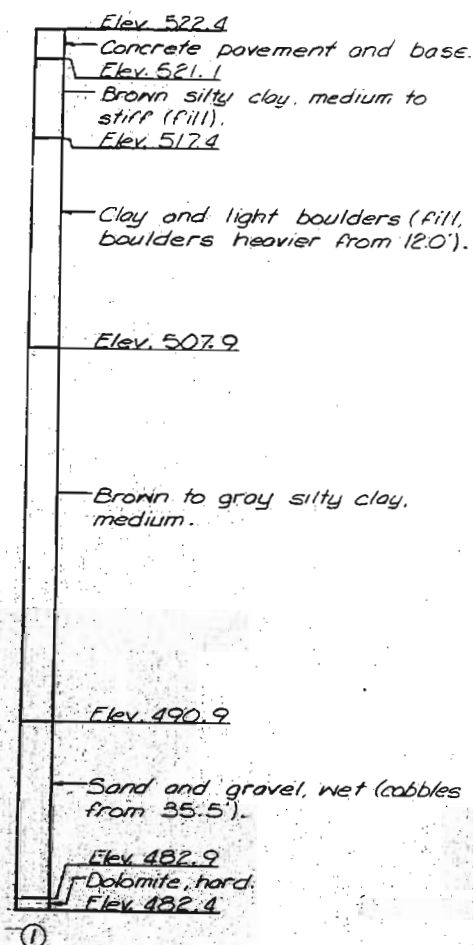
HYDROLOGIC DATA	
Drainage Area	= 808 Sq. Mi. (Hilly)
Des. Discharge	= 34,400 cfs. *
Des. H.W. Elev.	= 512.5
Frequency	= 50 yrs.
BASIC FLOOD DATA	
Discharge Q ₁₀₀	= 38,400 cfs.
H.W. Elev.	= 513.5

* Log Pearson III

DESIGNED Oct. 1980
DETAILED May 1981
CHECKED May 1981

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

FINAL PLANS



Note: For location of borings see sheet No. 1.

BORING DATA

ESTIMATED QUANTITIES			
ITEM	SUBSTR	SUPERSTR	TOTAL
Removal of Bridges (Br. No. H-387R) Each			177
Class I Excavation Cu.Yd.	33.0		33.0
Structural Steel Pile (10in.) Lin. Ft.	2037		2037
Class B Concrete Cu.Yd.	108.4		108.4
Class B2 Concrete Cu.Yd.		407.8	407.8
Plain Neoprene Bearing Pad (4" Thick) Each		220	220
Prestressed Conc. Members, Tee Section (41) Each		55	55
Reinforcing Steel (Grade 60) Lb.	930	11460	20590
Reinforcing Steel (Epoxy Coated) Lb.		50830	50830
Slab Drains Each		8	8
Safety Barrier Curb Lin. Ft.		440	440
Pile Point Reinforcement Each	16		16

All concrete above Lower Const. Joint in End Bts. is included with superstructure quantities.
All reinforcement in End Bts. is included with superstructure quantities.

Note: Cost of furnishing, fabricating and installing Neoprene Bearing Pads complete in place, shall be paid for at the contract unit price for Plain Neoprene Bearing Pads per each.
No direct payment will be made for furnishing, installing, cleaning and painting of bracing at intermediate bents.

PILE DATA						
BENT NO.	1	2	3	4	5	6
Pile Type and Size	HP 10x42	HP 10x42	HP 10x42	HP 10x42	HP 10x42	HP 10x42
Number	8	10	10	10	10	8
Approximate Length Ft.	36	35	35	35	35	36
Design Bearing Tons.	47	54	54	54	54	47
Hammer Energy req'd. Ft. Lbs.	10,500	12,600	12,600	12,600	12,600	10,500

Minimum energy requirement of hammer based on plan length and design bearing value of piles.
All pile were driven to refusal.
Manufactured pile point reinforcement was used on piles at bents 1 and 6. (See Special Provisions.)

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

U.I.P. EXISTING (41'-41'-41'-41'-41') PRESTRESSED CONCRETE DOUBLE TEE SPANS

ROUTE	STATE	DISTRICT	SHEET NO.
50	MO	BR	1
JOB NO. J6P1948B			
CONTRACT ID.			
PROJECT NO.			
COUNTY FRANKLIN			
SEC/SUR 26		TWP 43N	RGE 1W

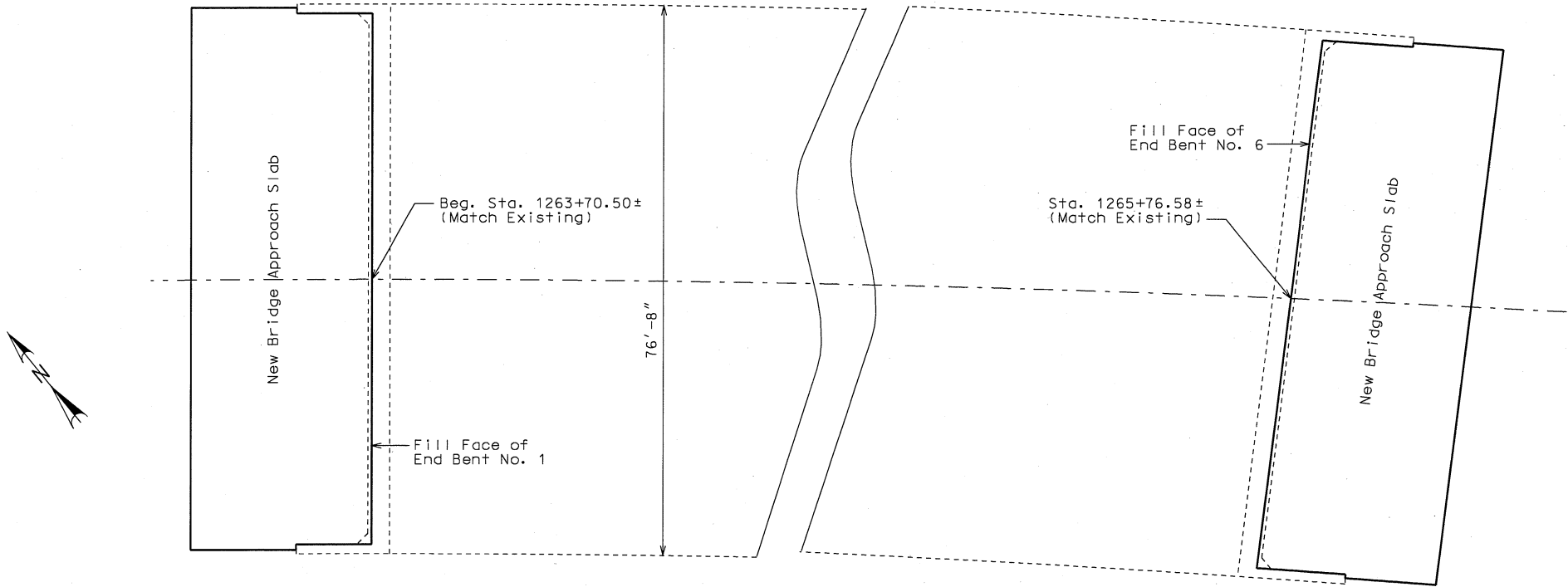
STATE OF MISSOURI

DEAN DAVID FRANK

NUMBER PE-28132

PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.



General Notes:

- Design Specifications:
2002 - AASHTO 17th Edition
Load Factor Design
- Design Loading:
HS20-44 Military 24,000# Tandem Axle
Earth - 120 #/Cu. Ft., Equivalent Fluid Pressure 45#/Cu. Ft.
- Design Unit Stresses:
See Sheet No. 2
- Joint Filler
All joint filler shall be in accordance with Sec 1057 for preformed sponge rubber expansion and partition joint filler, except as noted.
- Reinforcing Steel
Minimum clearance to reinforcing steel shall be 1-1/2", unless otherwise shown.
- Miscellaneous
Outline of old work is indicated by dashed light lines.
Heavy lines indicate new work.
Contractor shall verify all dimensions in field before ordering new material.
- Traffic
See roadway plans for traffic control.

Curve Data
@ Rte. 50

P.I. 1265+86.11
Δ 23°30'25.7" RT.
D = 1° 55"
T = 621.98'
L = 1226.46'
R = 2989.34'
S.E. = .02%

Estimated Quantities		
Item		Total
Bridge Approach Slab (Bridge)	Sq. Yd.	420

REPAIRS TO BRIDGE OVER BOURBEUSE RIVER OVERFLOW

STATE ROAD FROM RTE. UU TO RTE. I-44
IN UNION
PROJECT NO. STA. 1263+70.50± (Match Exist.)
JOB NO. J6P1948B RTE. 50

STD. 502.05
STD. 706.35
STD. 609.00
A40471

Detailed Oct. 2007
Checked Oct. 2007

Note: This drawing is not to scale. Follow dimensions. Sheet No. 1 of 2

Contract I.D. 080125-604

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

ROUTE	STATE	DISTRICT	SHEET NO.
50	MO	BR	2
JOB NO. J6P1948B			
CONTRACT ID.			
PROJECT NO.			
COUNTY FRANKLIN			

STATE OF MISSOURI
DEAN DAVID FRANK
NUMBER PE-28132
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN
SIGNED, SEALED AND DATED
ELECTRONICALLY.

GENERAL NOTES:

All concrete for the bridge approach slab and sleeper slab shall be in accordance with Sec 503 (f'c = 4,000 psi).

All joint filler shall be in accordance with Sec 1057 for preformed fiber expansion joint filler, except as noted.

The reinforcing steel in the bridge approach slab and the sleeper slab shall be epoxy coated Grade 60 with Fy = 60,000 psi.

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

The reinforcing steel in the bridge approach slab and the sleeper slab shall be continuous. The transverse reinforcing steel may be made continuous by lap splicing the #4 & #6 bars 18" and 2'-2", respectively.

Mechanical bar splices shall be in accordance with Sec 706.

(*) Seal joint between vertical face of approach slab and wing with "Silicone Joint Sealant for Saw Cut and Formed Joints" in accordance with Sec 717.

Hooks and bends shall be in accordance with the CRSI Manual of Standard Practice for Detailing Reinforced Concrete Structures. Stirrup and Tie Dimensions.

The contractor shall pour and satisfactorily finish the bridge or semi-deep slab before pouring the bridge approach slabs.

Longitudinal construction joints in approach slab and sleeper slab shall be aligned with longitudinal construction joints in bridge or semi-deep slab.

Payment for furnishing all materials, labor and excavation necessary to construct the approach slab, including the timber header, sleeper slab, underdrain, Type 5 aggregate base, joint filler and all other appurtenances and incidental work as shown on this sheet, complete in place, will be considered completely covered by the contract unit price for Bridge Approach Slab (Bridge) per square yard.

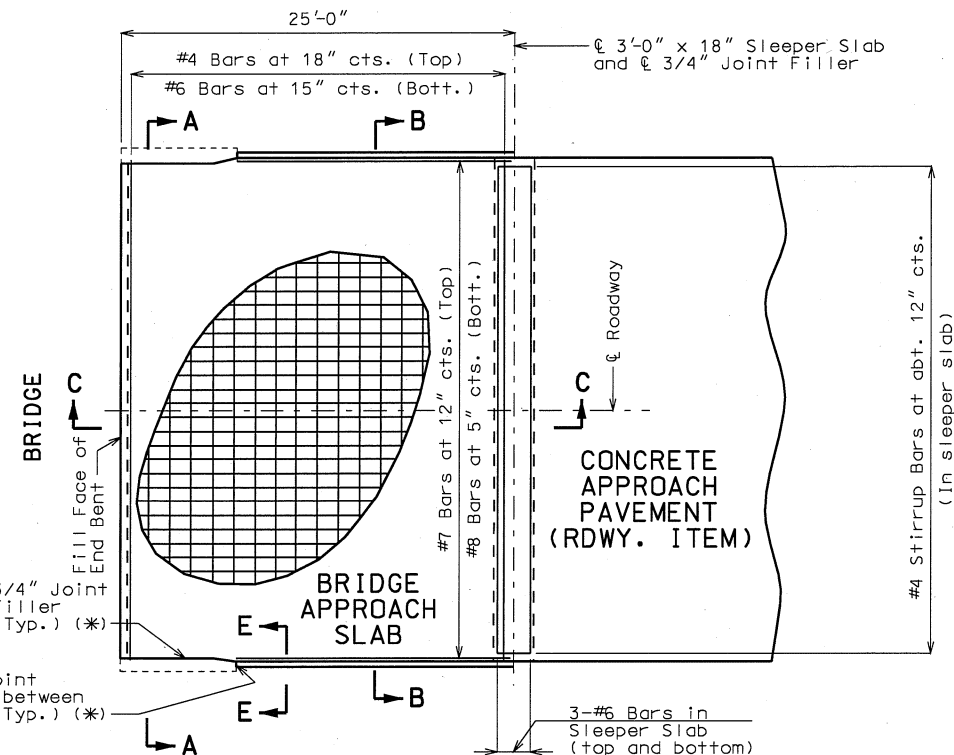
For Concrete Approach Pavement details, see roadway plans.

See Missouri Standard Plans Drawing 609.00 for details of Type A Curb.

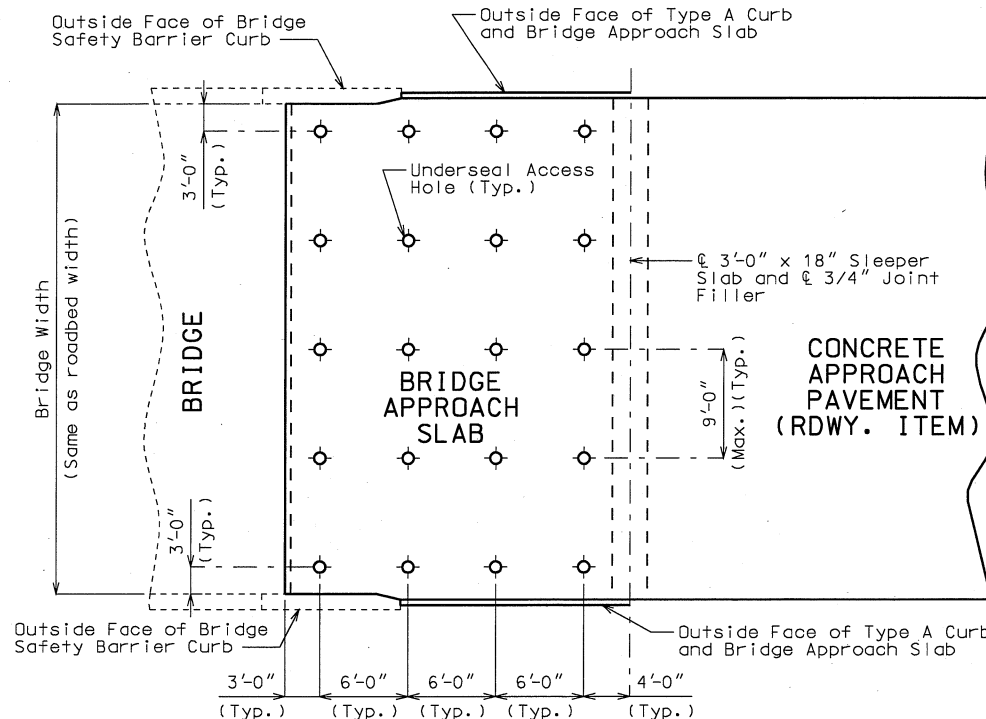
At the contractor's option, Grade 40 reinforcement may be substituted for the Grade 60 #5 dowel bars connecting the bridge approach slab to the bridge abutment. No additional payment will be made for this substitution.

When Grade 40 reinforcement is substituted for the Grade 60 #5 dowel bars connecting the bridge approach slab to the bridge abutment, the reinforcement may be bent up to 90 degrees with a 2" minimum radius near the abutment to allow compaction of the backfill material near the abutment. Damage to epoxy coating shall be repaired in accordance with Sec 710.

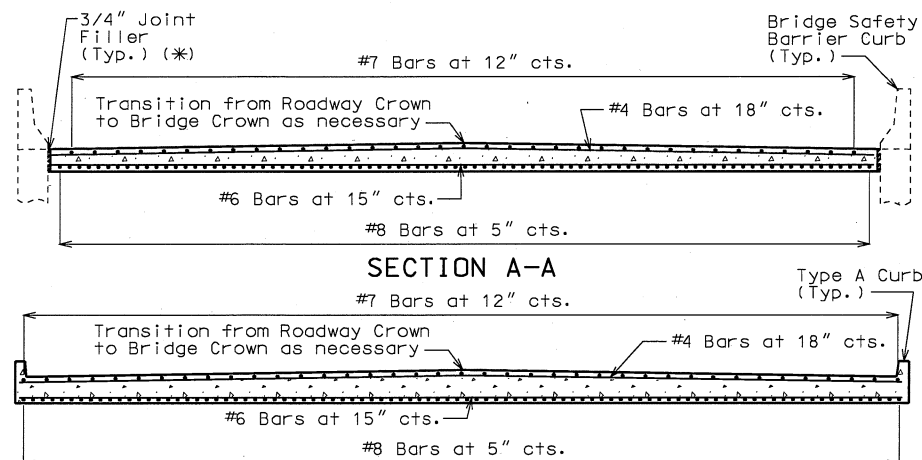
Drain pipe may be either 6" diameter corrugated metallic-coated pipe underdrain, 4" diameter corrugated polyvinyl chloride (PVC) drain pipe, or 4" diameter corrugated polyethylene (PE) drain pipe.



PART PLAN SHOWING REINFORCEMENT



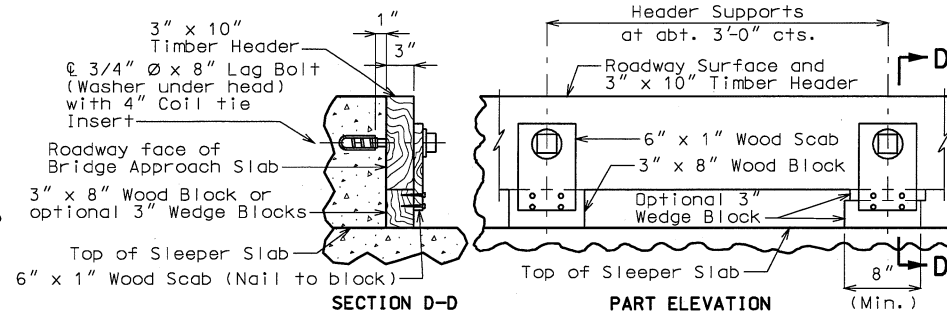
PART PLAN (SHOWING TYPICAL UNDERSEAL ACCESS HOLE LOCATIONS)



SECTION A-A

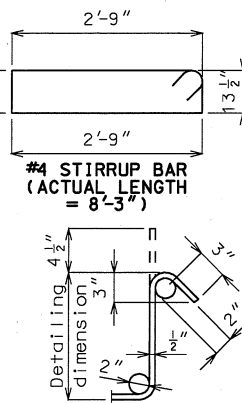
SECTION B-B

Note: With the approval of the engineer, the contractor may crown the bottom of the approach slab to match the crown of the roadway surface.



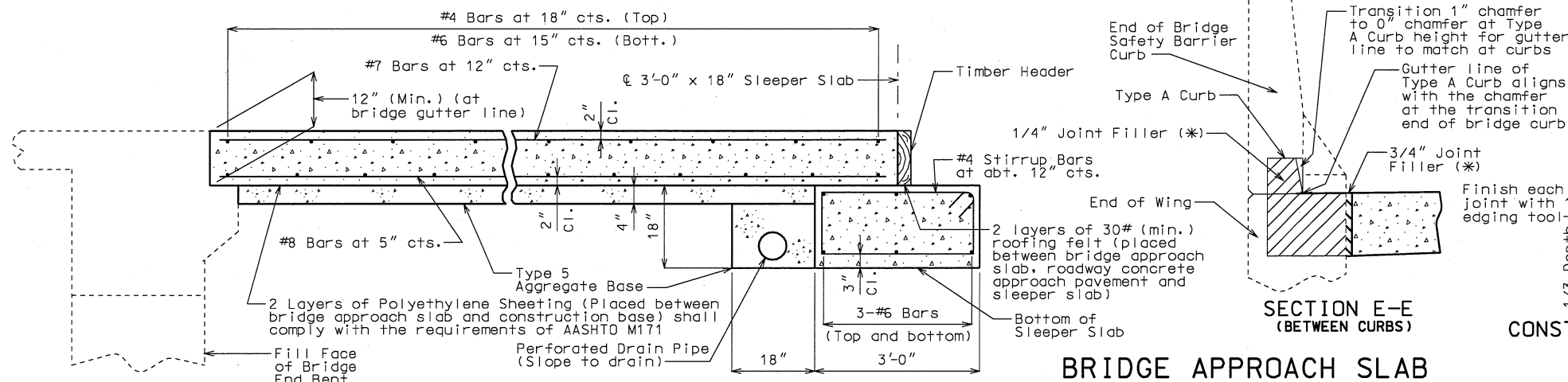
Note: Remove timber header when concrete pavement is placed.

DETAILS OF TIMBER HEADER



TYPICAL 135° STIRRUP BAR HOOK DIMENSIONS BENDING DIAGRAM

Note: Nominal lengths are based on out to out dimensions shown in bending diagram and are listed for fabricators use (nearest inch).



SECTION C-C

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

BRIDGE APPROACH SLAB

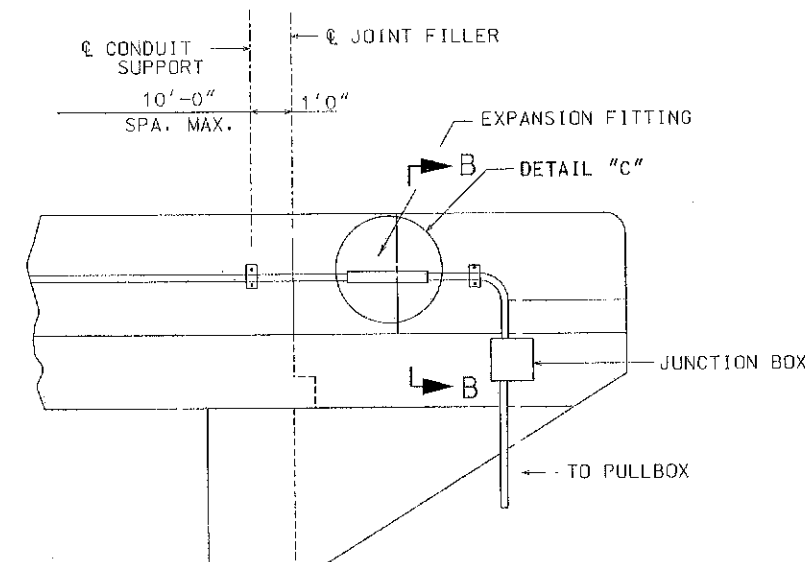
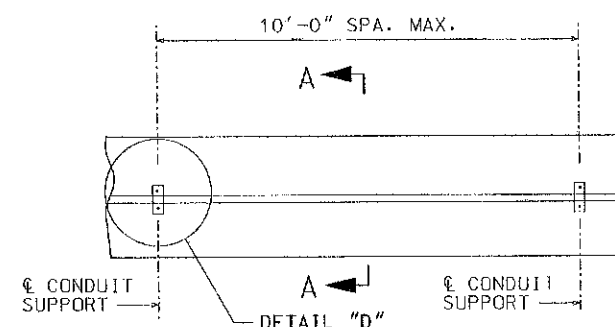
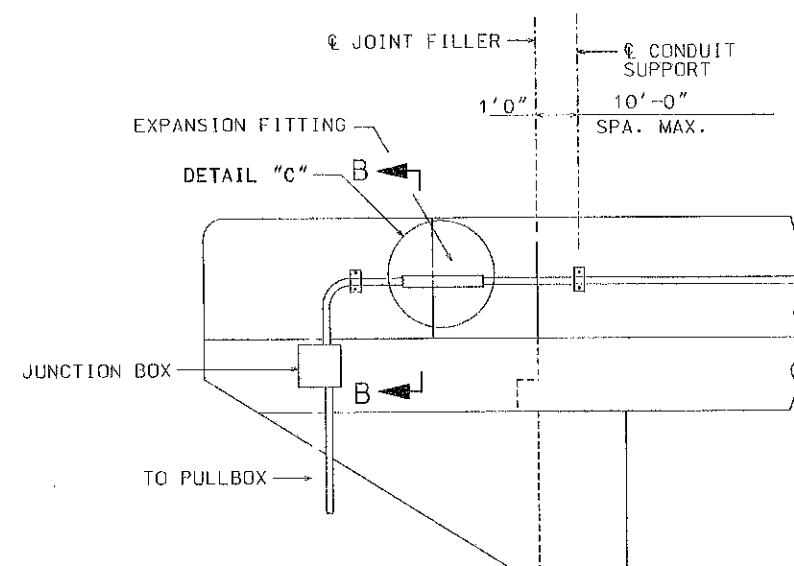
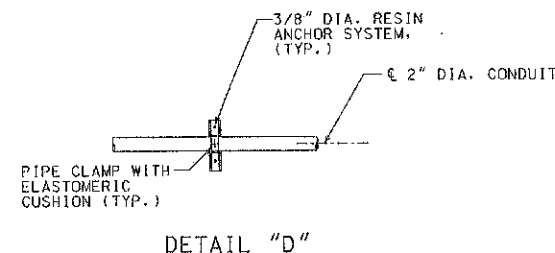
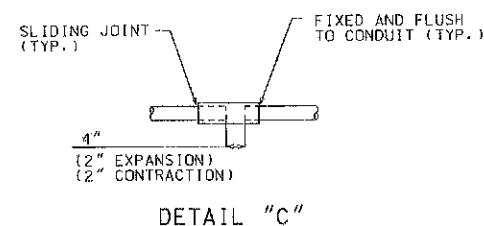
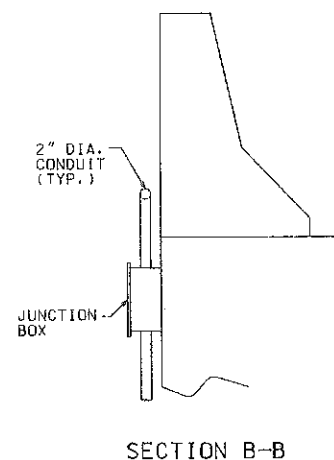
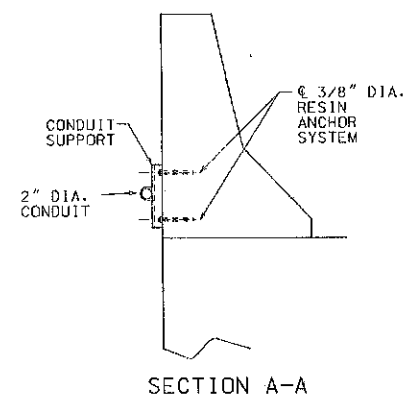
CONST. JOINT DETAIL (IF REQUIRED)

TYPICAL UNDERSEAL ACCESS HOLE DETAIL

Detailed Oct. 2007
Checked Oct. 2007

Sheet No. 2 of 2

ROUTE 50	STATE MO	DISTRICT 6	SHEET NO. 32
JOB NO. J6P2053C			
CONTRACT ID.			
PROJECT NO.			
COUNTY FRANKLIN			
DATE 3/13/08			
EFK Moen, LLC Civil Engineering Design			



ELEVATION OF CONDUIT SYSTEM ON BRIDGE
(SEE PLAN SHEETS 10 & 11 FOR LOCATION)

NOTES:

ALL MAIN CONDUIT SHALL BE 2" RIGID ALUMINUM

EACH SECTION OF CONDUIT SHALL BEAR THE UNDERWRITER'S LABORATORIES, INC. (UL) LABEL

CONCRETE ANCHORS FOR CONDUIT CLAMPS SHALL BE NON-DRILLING EXPANSION TYPE FOR 3/8" BOLTS. ANCHORS FOR BRACKETS SHALL BE IN ACCORDANCE WITH FEDERAL SPECIFICATION FF-S-325, GROUP II, TYPE 4, CLASS 1, AND SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM-A153, B695-91 CLASS 50 OR SHALL BE STAINLESS STEEL. ANCHORS SHALL HAVE A CERTIFIED CONCRETE PULLOUT STRENGTH (ULTIMATE LOAD) OF 10,200 LBS IN 3,000 PSI CONCRETE. THE SUPPLIER SHALL BE REQUIRED TO FURNISH A MANUFACTURER'S CERTIFICATION THAT THE CONCRETE ANCHORS MEET THE REQUIRED MATERIAL AND GALVANIZING SPECIFICATIONS.

ALL STEEL PLATES AND SHAPES SHALL CONFORM TO ASTM A570, GRADE 33, AND SHALL BE HOT-DIP GALVANIZED CONFORMING TO ASTM A123. ALL NUTS AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153.

ALL MOUNTING BOLTS SHALL BE STAINLESS STEEL.

HOLES FOR CONCRETE ANCHORS SHALL BE PRE-DRILLED WITH A CONVENTIONAL CARBIDE MASONRY BIT. MINIMUM EMBEDMENT IN CONCRETE SHALL BE 1-3/4".

EXPANSION COUPLINGS SHALL BE INSTALLED ALONG THE 2" CONDUIT AT ALL JOINTS IN THE CONCRETE, HALFWAY BETWEEN GIRDERS BUT NEVER AT GREATER THAN 300' INTERVALS. COUPLINGS SHALL PROVIDE A MINIMUM MOVEMENT OF 2" IN EITHER DIRECTION. EXPANSION COUPLINGS SHALL BE EQUAL TO CARLON ELECTRICAL CONSTRUCTION PRODUCTS OR TRIANGLE CONDUIT AND CABLE COMPANY, INC.

CONDUIT TERMINATORS SHALL BE SEPARABLE.

ALL TERMINATORS AND COVERS SHALL BE OF WATERTIGHT CONSTRUCTION AND SHALL MEET REQUIREMENTS FOR NEMA 4 ENCLOSURE.

ALL JUNCTION BOXES SHALL BE PVC MOLDED SURFACE MOUNTED AND EQUAL TO CARLON ELECTRICAL CONSTRUCTION PRODUCTS OR CANTEX, INC.

WEEPHOLES SHALL BE PROVIDED AT APPROPRIATE LOCATIONS TO DRAIN ANY MOISTURE IN THE CONDUIT LINE.

LOCATE REINFORCEMENT IN CONCRETE WITH A PACHOMETER AND EXERCISE EXTREME CAUTION DURING THE INSTALLATION OF THE RESIN ANCHOR SYSTEM.

PAYMENT FOR ALL JUNCTION BOXES, CONDUIT, COUPLINGS, ANCHORS, CLAMPS, AND CONNECTIONS SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE FOR CONDUIT SYSTEM ON STRUCTURE, PER LINEAR FOOT.

ROUTE 50
SIGNAL NETWORKING
CONDUIT SYSTEM ON
STRUCTURES
A-39612 & A40472

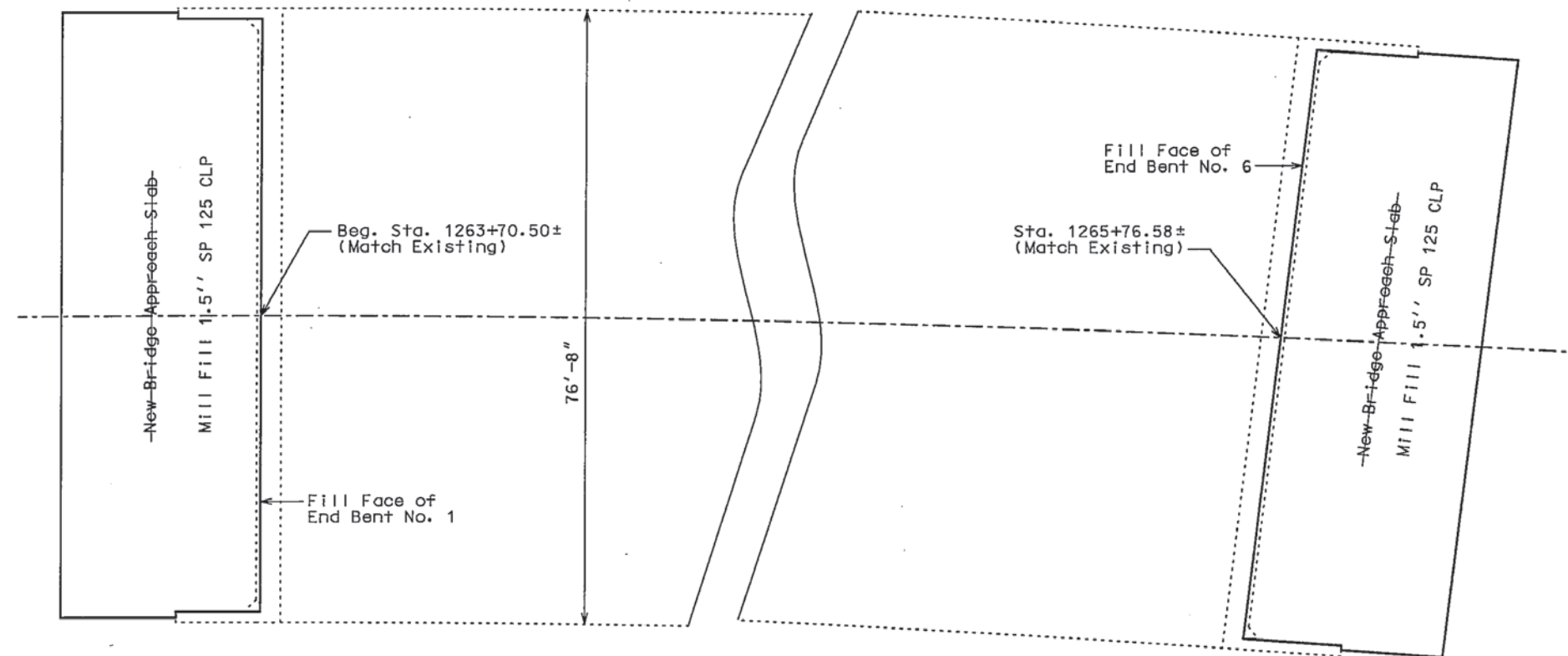
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

FINAL PLANS /

U.I.P. EXISTING (41'-41'-41'-41'-41') PRESTRESSED CONCRETE DOUBLE TEE SPANS

ROUTE 50	STATE MO	DISTRICT BR	SHEET NO. 1
JOB NO. J6P1948B			
CONTRACT ID. 080125-604			
PROJECT NO. FAF50-4(31)			
COUNTY FRANKLIN			
DATE			
SEC/SUR 26		TWP 43N	RGE 1W

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."



General Notes:

Design Specifications:

2002 - AASHTO 17th Edition
Load Factor Design

Design Loading:

HS20-44 Military 24,000# Tandem Axle
Earth - 120 #/Cu. Ft., Equivalent Fluid Pressure 45#/Cu. Ft.

Design Unit Stresses:

See Sheet No. 2

Joint Filler

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

Reinforcing Steel

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

Miscellaneous

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

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

Traffic

See roadway plans for traffic control.

Curve Data
@ Rte. 50P.I. 1265+86.11
 Δ 23°30'25.7" RT.
D = 1° 55"
T = 621.98'
L = 1226.46'
R = 2989.34'
S.E. = .02%

Final Quantities /

Item	Total
Bridge Approach Slab (Bridge)	Sq. Yd. 0.00

REPAIRS TO BRIDGE OVER BOURBEUSE RIVER OVERFLOW

STATE ROAD FROM RTE. UU TO RTE. I-44

IN UNION

PROJECT NO.

JOB NO. J6P1948B

STA. 1263+70.50± (Match Exist.)

RTE. 50

STD. 502.05

STD. 706.35

STD. 609.00

A40471

Detailed Oct. 2007
Checked Oct. 2007

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

Sheet No. 1 of 2

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

FINAL PLANS

ROUTE	STATE	DISTRICT	SHEET NO.
50	MO	BR	2
JOB NO. J6P1948B			
CONTRACT ID. 080125-604			
PROJECT NO. FAF50-4(31)			
COUNTY	FRANKLIN	DATE	

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

GENERAL NOTES:

All concrete for the bridge approach slab shall be in accordance with Sec 503 ($f'c = 4,000$ psi).

All joint filler shall be in accordance with Sec 1057 for preformed fiber expansion joint filler, except as noted.

The reinforcing steel in the bridge approach slab shall be epoxy coated Grade 60 with $F_y = 60,000$ psi.

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

The reinforcing steel in the bridge approach slab shall be continuous. The transverse reinforcing steel may be made continuous by lap splicing the #4 & #6 bars 18" and 2'-2", respectively.

Mechanical bar splices shall be in accordance with Sec 706.

(*) Seal joint between vertical face of approach slab and wing with "Silicone Joint Sealant for Saw Cut and Formed Joints" in accordance with Sec 7.17.

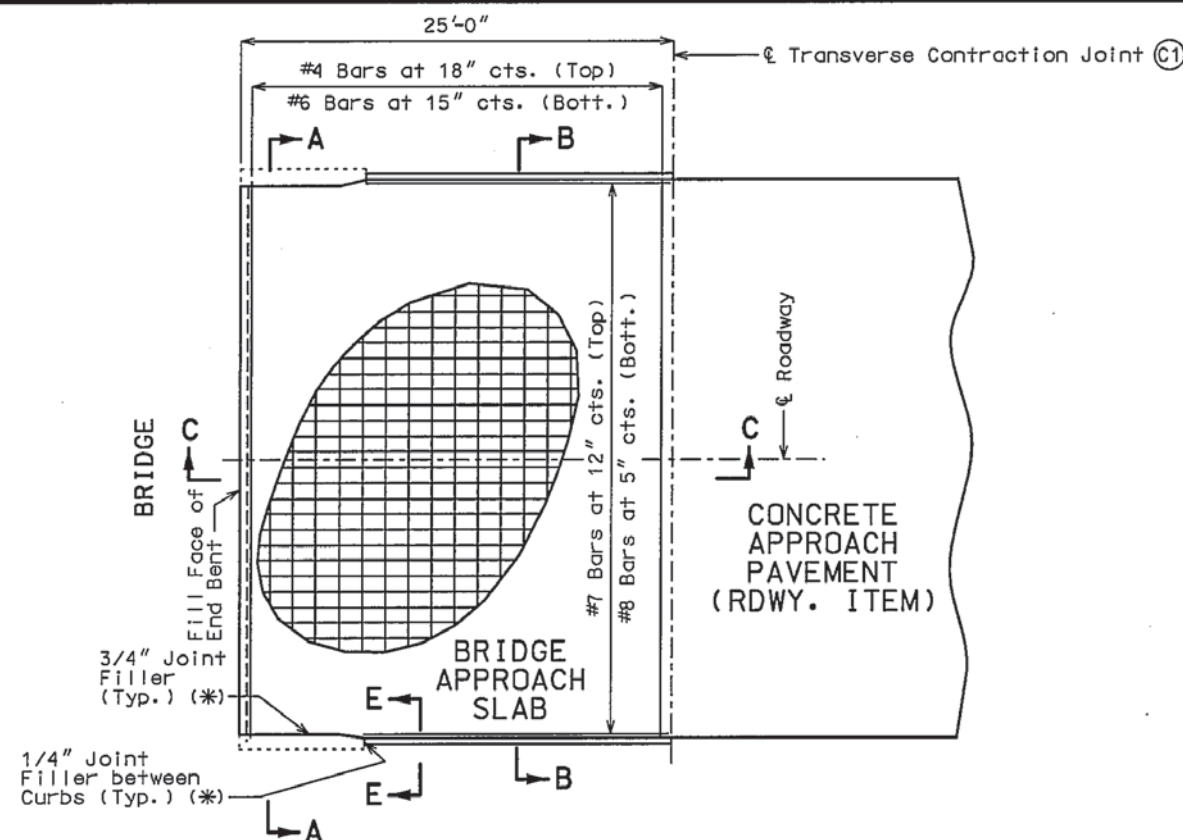
Hooks and bends shall be in accordance with the CRSI Manual of Standard Practice for Detailing Reinforced Concrete Structures, Stirrup and Tie Dimensions.

Payment for furnishing all materials, labor and excavation necessary to construct the approach slab, including the dowel bars, Type 5 aggregate base, joint filler and all other appurtenances and incidental work as shown on this sheet, complete in place, will be considered completely covered by the contract unit price for Bridge Approach Slab (Bridge) per square yard.

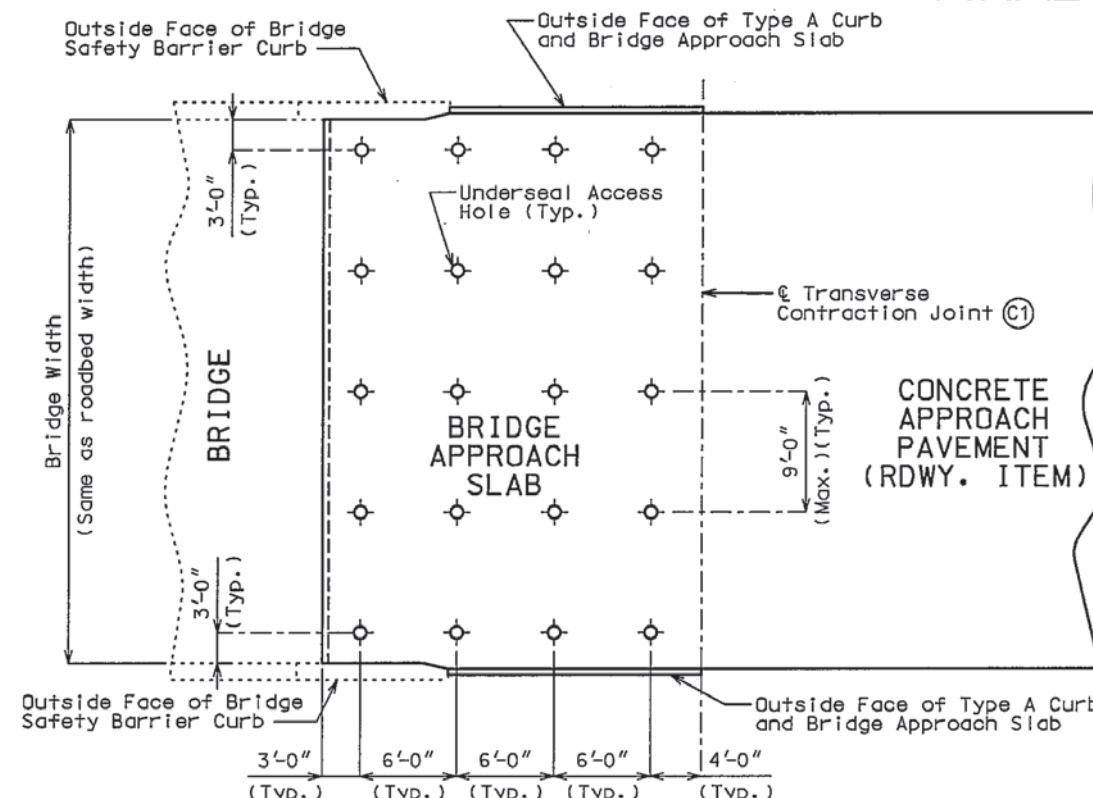
For Concrete Approach Pavement details, see roadway plans.

See Missouri Standard Plans Drawing 609.00 for details of Type A Curb.

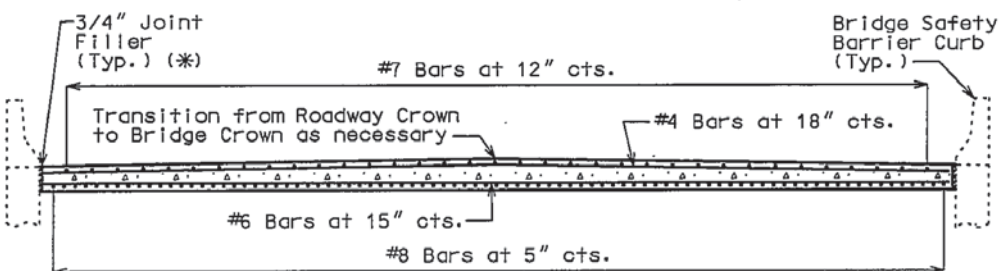
For Transverse Contraction Joint (C) details, see Missouri Standard Plans 502.05.



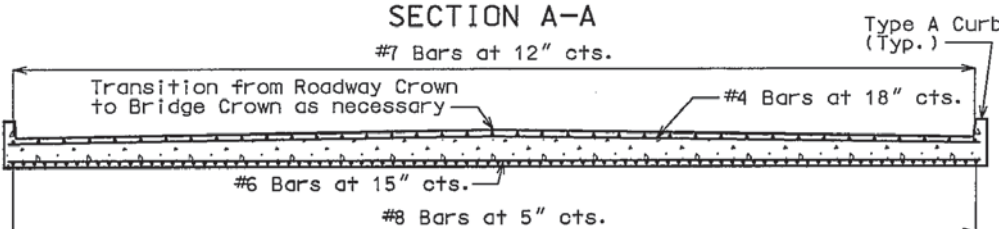
PART PLAN SHOWING REINFORCEMENT



PART PLAN (SHOWING TYPICAL UNDERSEAL ACCESS HOLE LOCATIONS)

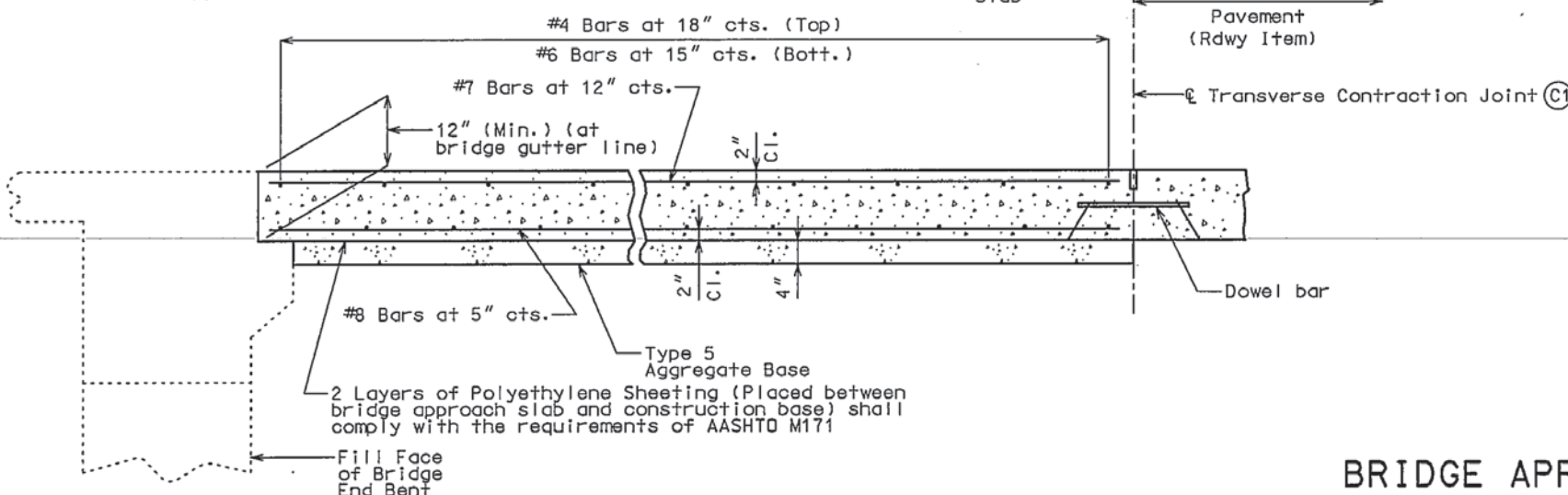
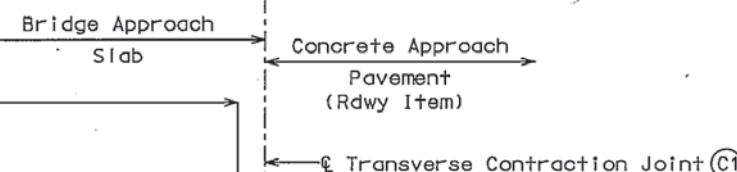


SECTION A-A



SECTION B-B

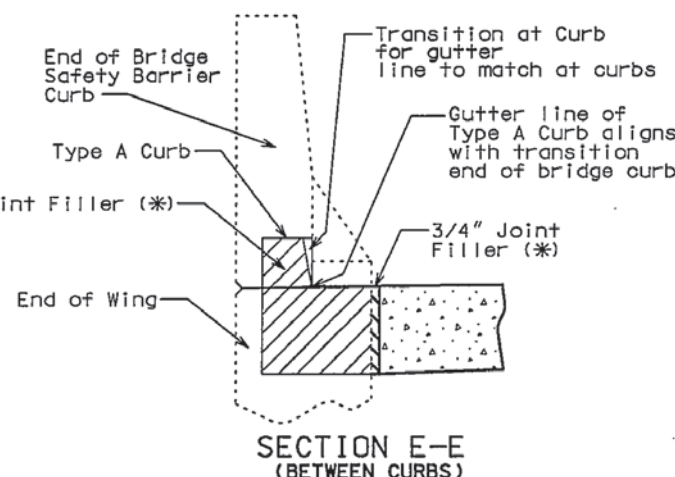
Note: With the approval of the engineer, the contractor may crown the bottom of the approach slab to match the crown of the roadway surface.



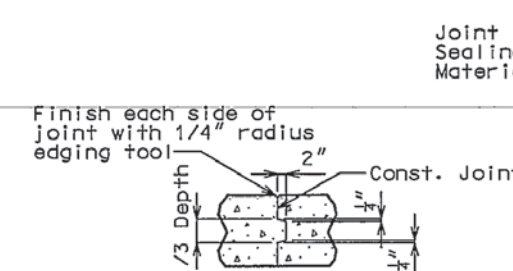
SECTION C-C

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

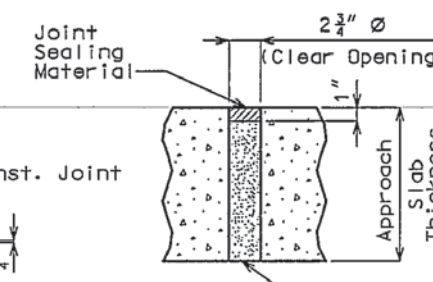
BRIDGE APPROACH SLAB



SECTION E-E (BETWEEN CURBS)



CONST. JOINT DETAIL (IF REQUIRED)



TYPICAL UNDERSEAL ACCESS HOLE DETAIL

Detailed Oct. 2007
Checked Oct. 2007

Sheet No. 2 of 2

A40471

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