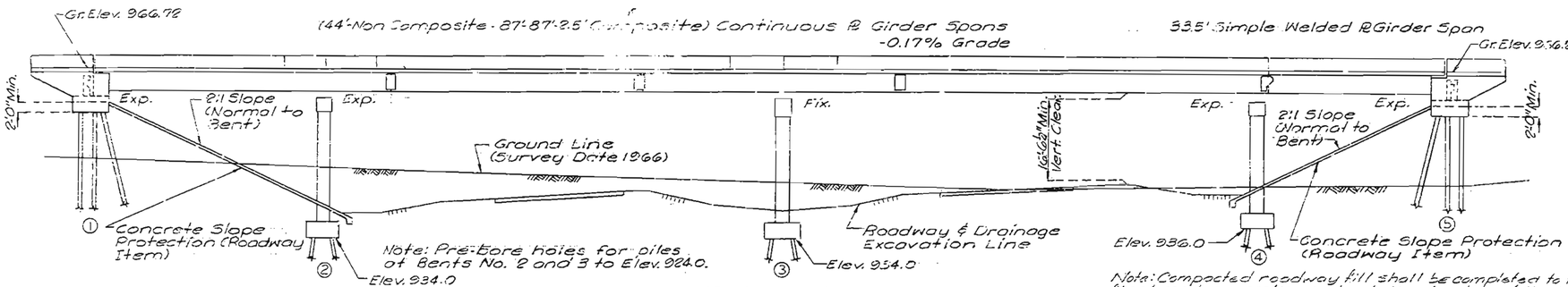
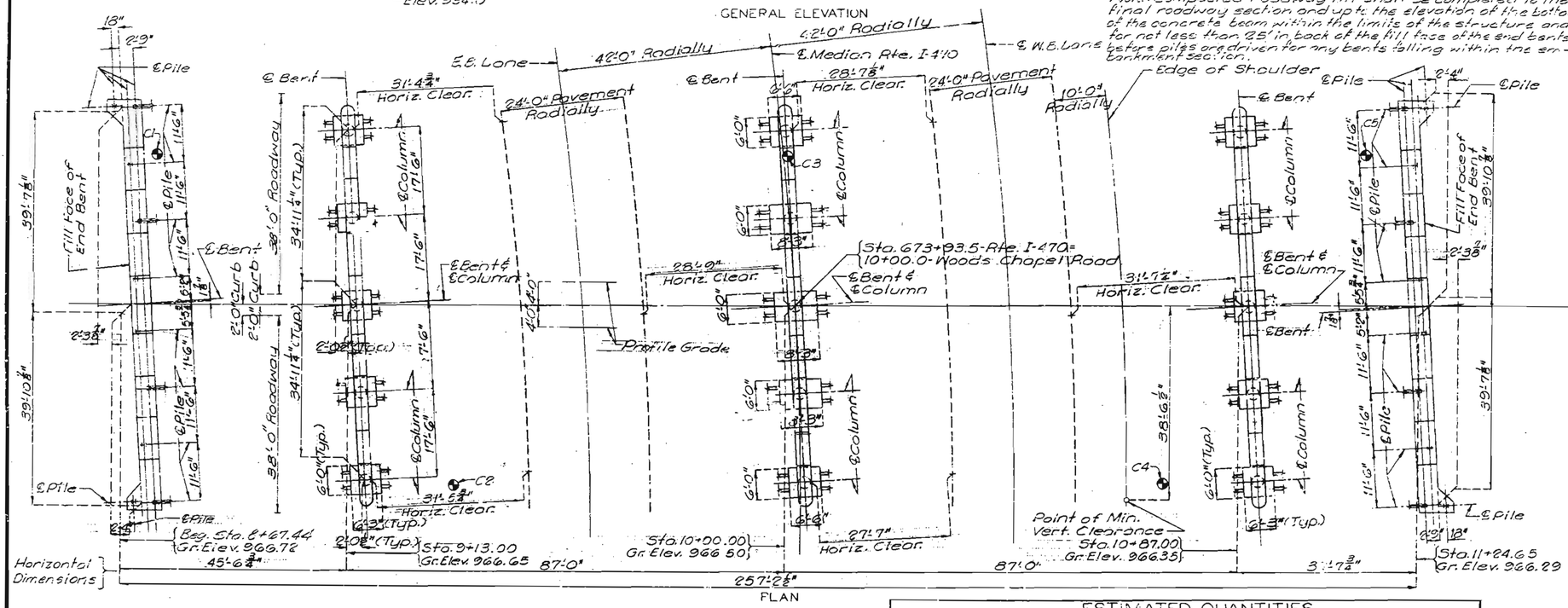
MISSOURI STATE HIGHWAY DEPARTMENT

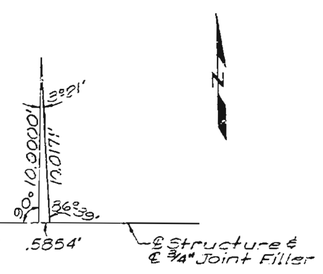
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	48	



GENERAL ELEVATION

Note: Compacted roadway fill 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: Gr. Elevations shown are at ℄ Structure & ℄ ¾" Joint Filler at top of slab extended.

Note: For boring Data see sheet No. 6. "⑤" indicates location of borings.

PILE DATA						
BENT NO.	1	2	3	4	5
Pile Type and Size	HP10x42	HP10x42	HP10x42	HP10x42	HP10x42
Number	10	20	23	20	10
approx. Length Ft.	15	11	11	17	31
Design Bearing Tons	51	48	52	37	52
Hammer Energy Reqd. Ft Lbs	12,500	11,200	10,200	8,800	12,800

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
Class 1 Excavation	Cu. Yd.	295		295
Conduit System on Structure	Lump Sum			1
Prebore for Pile	Lin. Ft.	430		430
Structural Steel Pile (HP10x42)	Lin. Ft.	1273		1273
Class B Concrete	Cu. Yd.	387.9		387.9
Class B2 Concrete	Cu. Yd.		647.1	647.1
Preformed Compression Exp. Jt. Seal (3 5/8")	Lin. Ft.		160	160
Reinforcing Steel (Grade 60)	Lb.	54200	74000	128200
Reinforcing Steel (Epoxy Coated)	Lb.		728260	728260
Fabricated Structural Carbon Steel	Lb.		363,460	363,460
Fabricated Structural Low Alloy Steel	Lb.		59,580	59,580
Painting (System B) Green	Ton		210.6	210.6
Slab Drain 3	Ea.		14	14

GENERAL NOTES:

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

Design Loading:
M S 20-44 16# Future Wearing Surface
Earth 120# Equivalent Fluid Pressure 30°
Fatigue Stress: Case I

Design Unit Stresses:
Class B Concrete (substructure) f_c=1,800 psi
Class B² Concrete (superstructure) f_c=4000 psi
Reinforcing Steel (substr.) Grade 60 f_s=24,000 psi
Reinforcing Steel (superstr.) Grade 60 f_y=60,000 psi
Structural Carbon Steel f_s=20,000 psi
Structural Steel (A.S.T.M. A-572) Grade 50 f_s=27,000 psi
Steel Pile f_b=9,000 psi
Fabricated Steel:
Field connections, High Strength Bolts ⅞" ϕ holes 15/16" ϕ except as noted.

Paint:
System 5 by contractor in accordance with Std. Spec. 712.12. Color of the final field coat shall be green.

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

NOTES FOR ESTIMATED QUANTITIES:
All concrete and reinforcement in safety barrier curbs is included in superstructure quantities.
Payweight for fabricated steel will be based on welded field splices regardless of type used.

B.M. #127 Elev. 944.68 100d Spike in T.P. 130' Rt. Sta. 673+50

BRIDGE: WOODS CHAPEL ROAD UNDERPASS

STATE ROAD I-470

IN LEE'S SUMMIT

PROJECT NO. ID-IDG-470-1(17) **STA.** 8+67.44

JOB NO. 4-I470-45D **RTE.** I470

JACKSON **COUNTY**

DATE 3-6-73

STD. 611.60	
STD. 706.33	
A-2121	

DESIGNED Nov. 1973
DETAILED JUNE 1975
CHECKED Oct. 1975

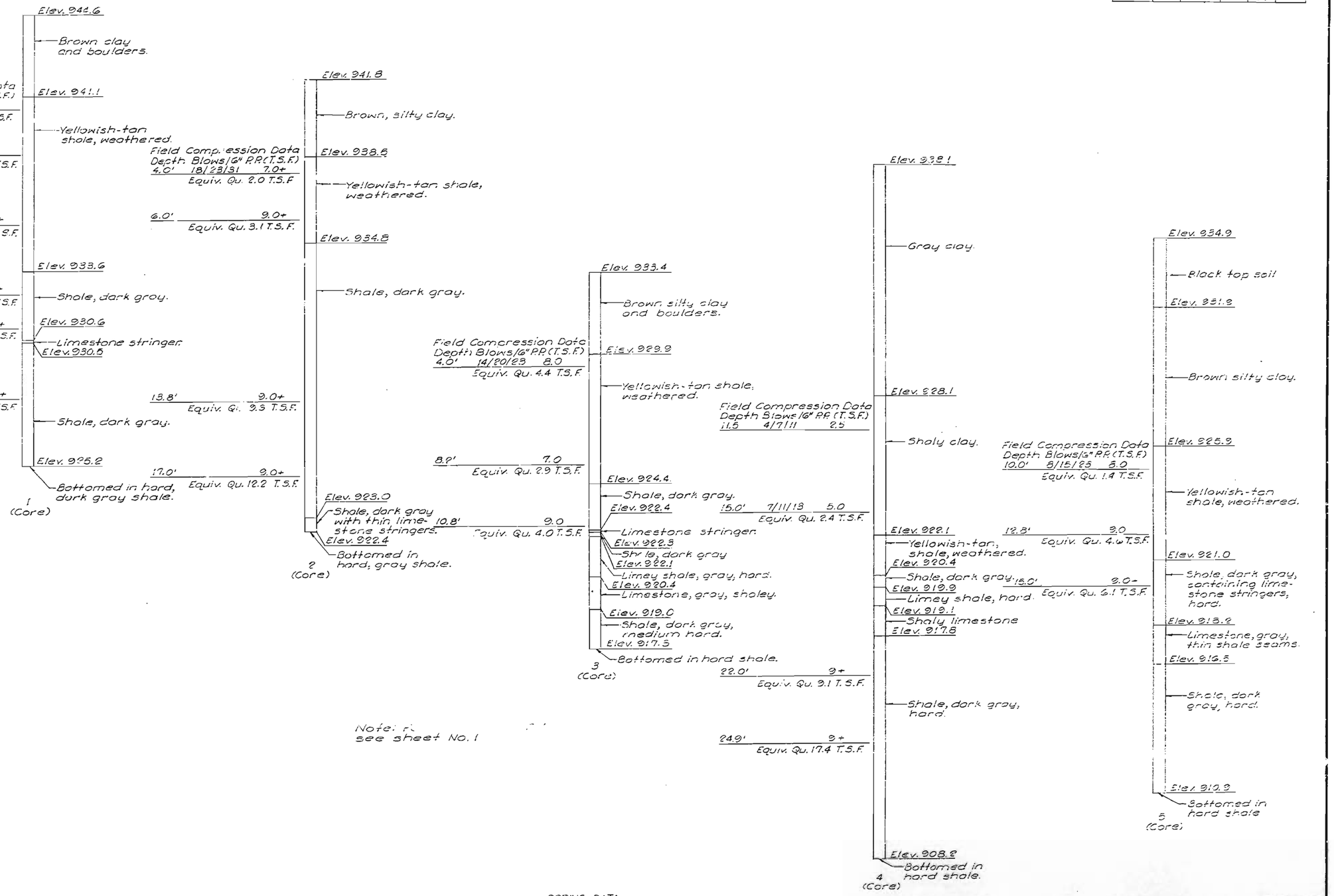
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 1 of 17. SEE FINAL P...

Roll 1 918

MISSOURI STATE HIGHWAY DEPARTMENT

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



BORING DATA

DETAILED APR. 1975
CHECKED Aug. 1975

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

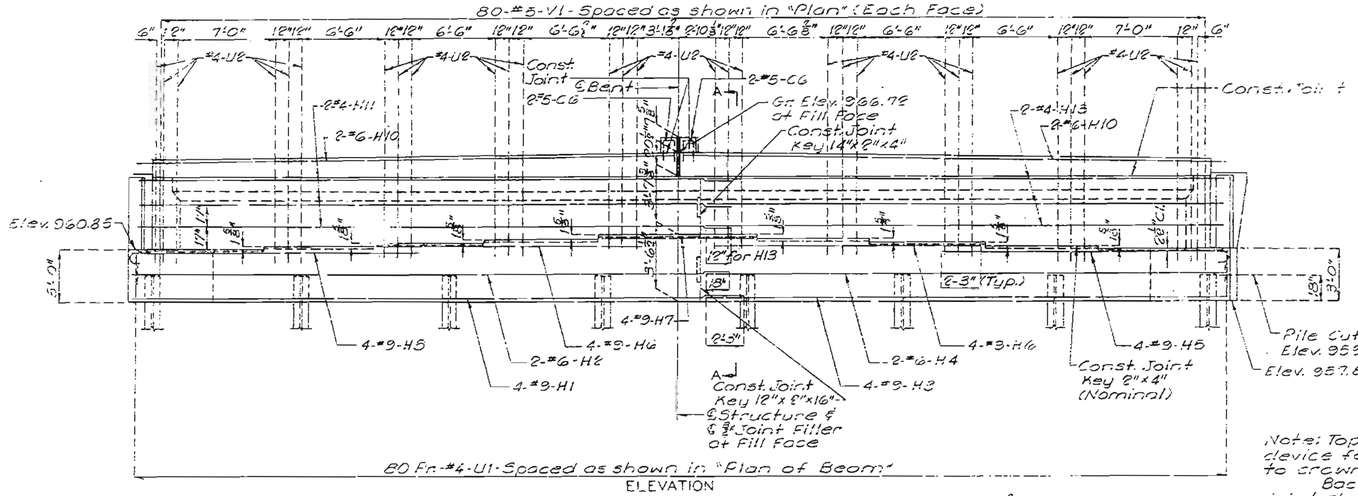
Sheet No. 2 of 17

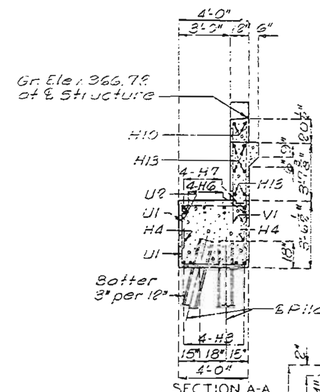
JACKSON COUNTY

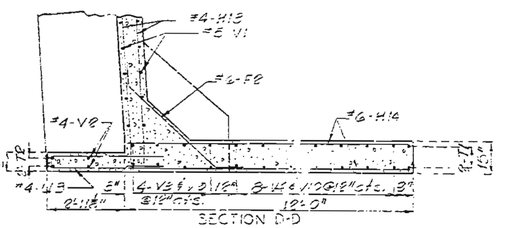
A-2121

MISSOURI STATE HIGHWAY DEPARTMENT

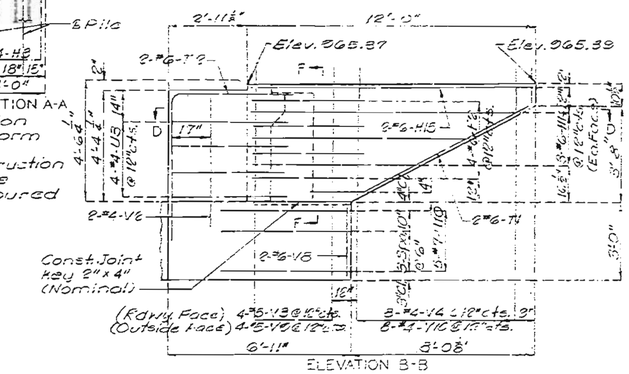
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	50	

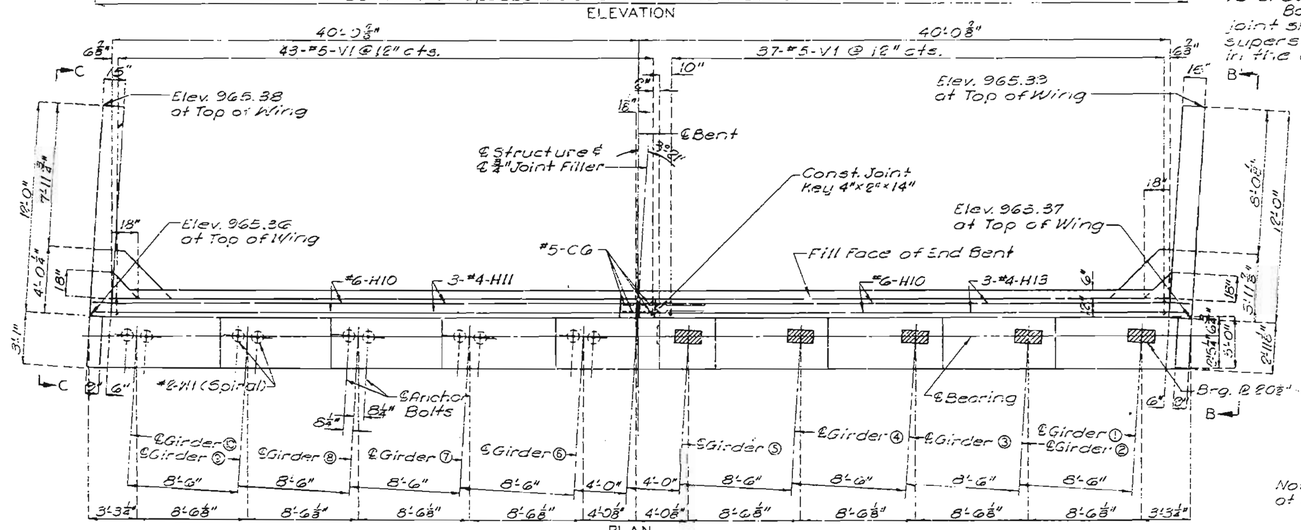




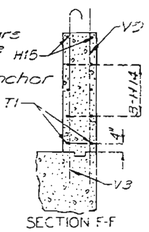


Note: Top of backwall and expansion device for end bent No. 1 to conform to crown of roadway slab.
Backwall above upper construction joint shall not be poured until the superstructure slab has been poured in the adjacent span.

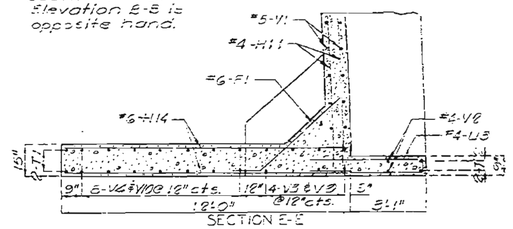




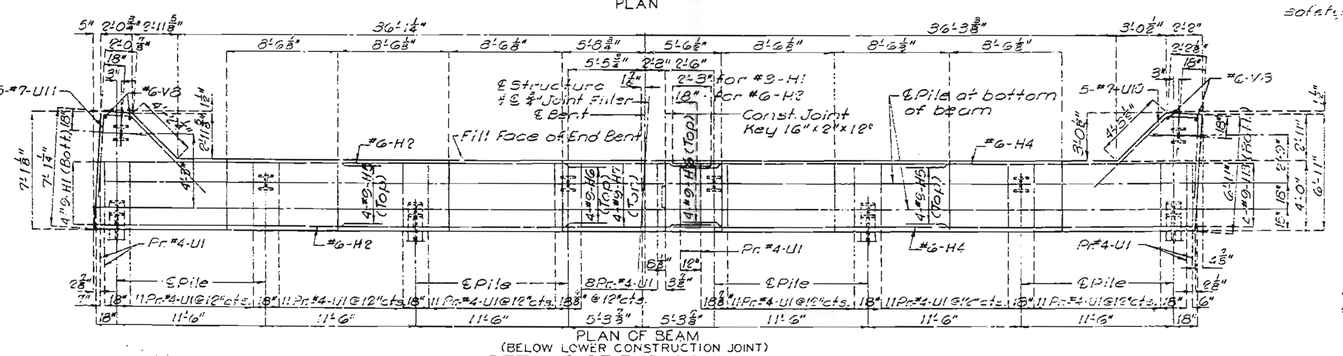
Note: All reinforcing bars in tops of substructure beams or caps shall be placed to clear anchor bolts for bearings by at least 6".

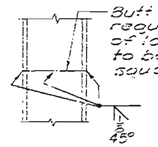


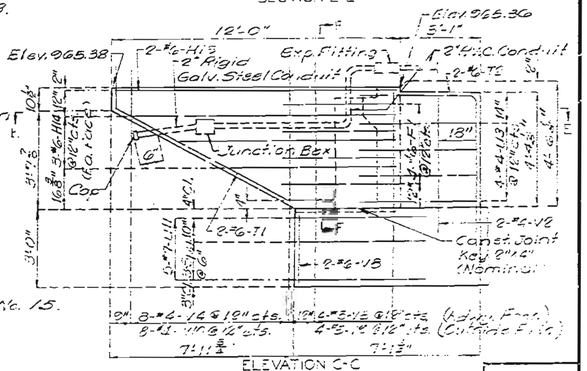
Note: Section E-F for Elevation C-C shown. Section A-A for Elevation B-B is opposite hand.



Note: Field bending shall be required of wings for #6-H10 bars in backwall.
For details and reinforcement of safety barrier curb see Sheet No. 13.







Note: For additional details of conduit and notes see Sheet No. 15.

DETAILED MAY 1975
CHECKED Aug. 1975

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

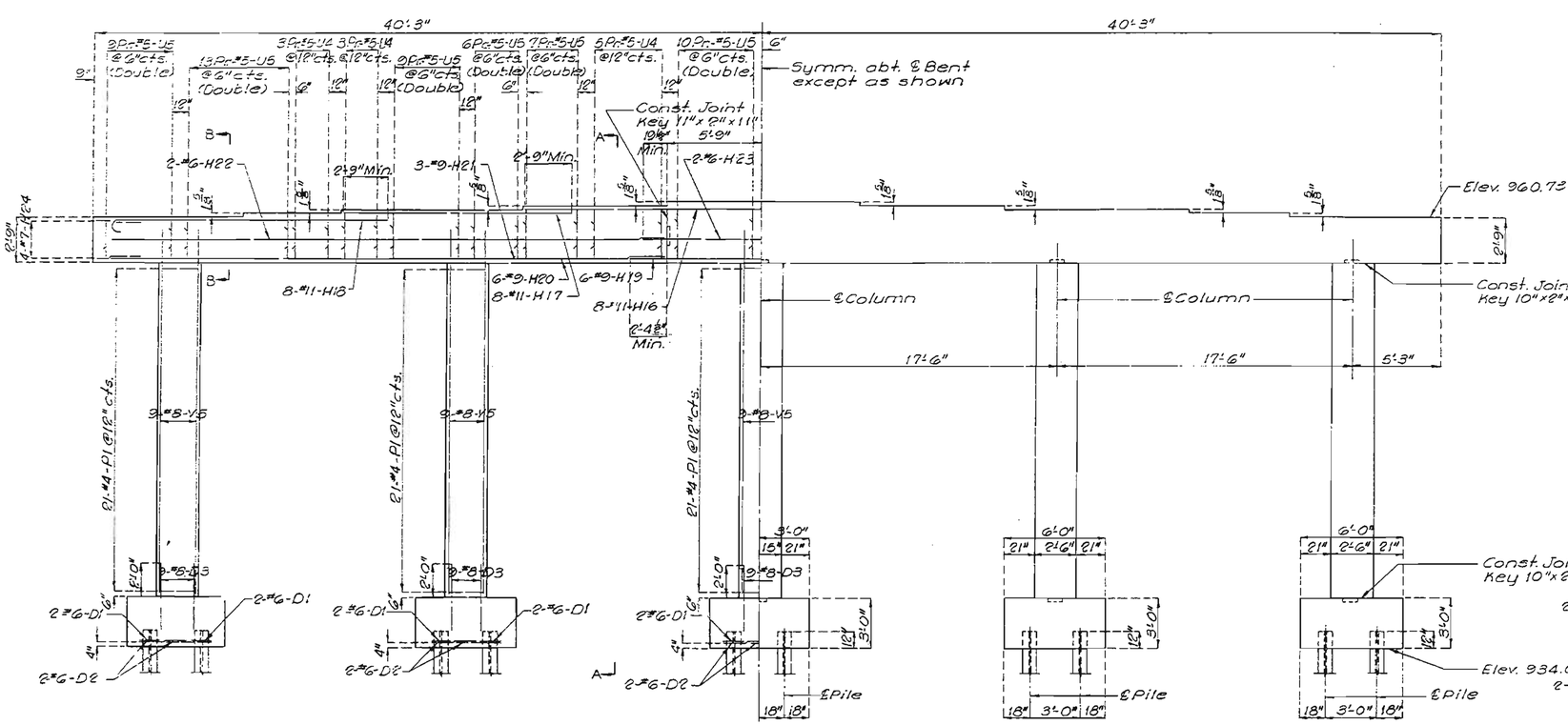
Sheet No. 3 of 17

JACKSON **COUNTY**

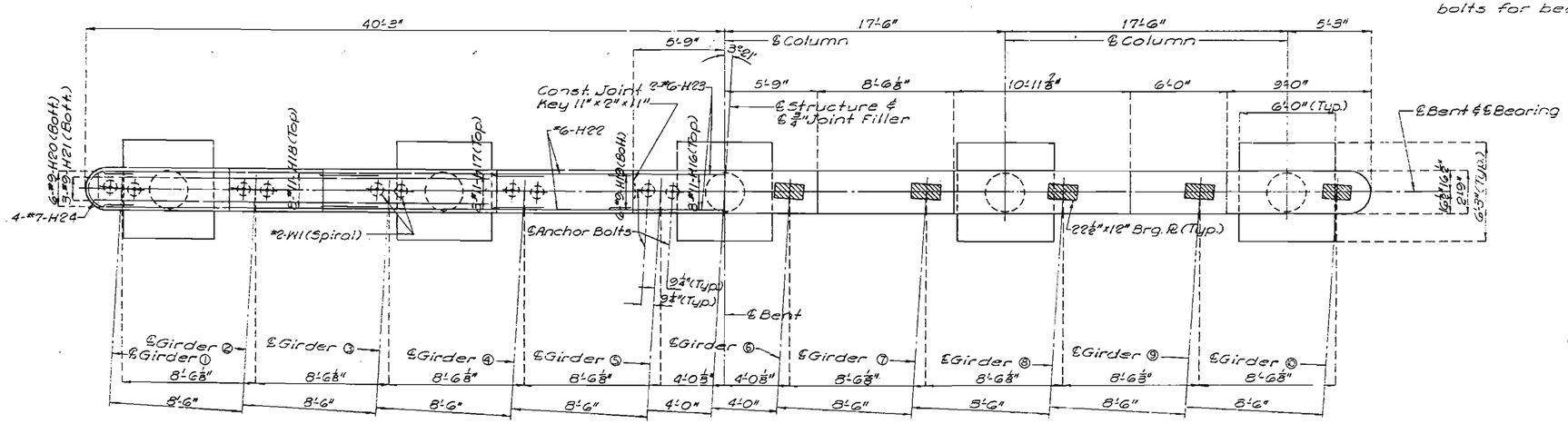
A-2121

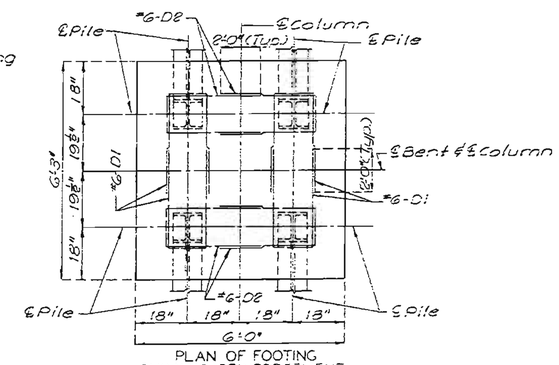
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	51	



Note: All reinforcing bars in tops of substructure beams or caps shall be spaced to clear anchor bolts for bearings by at least ¾".





DETAILED MAY 1975
CHECKED Aug. 1975

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

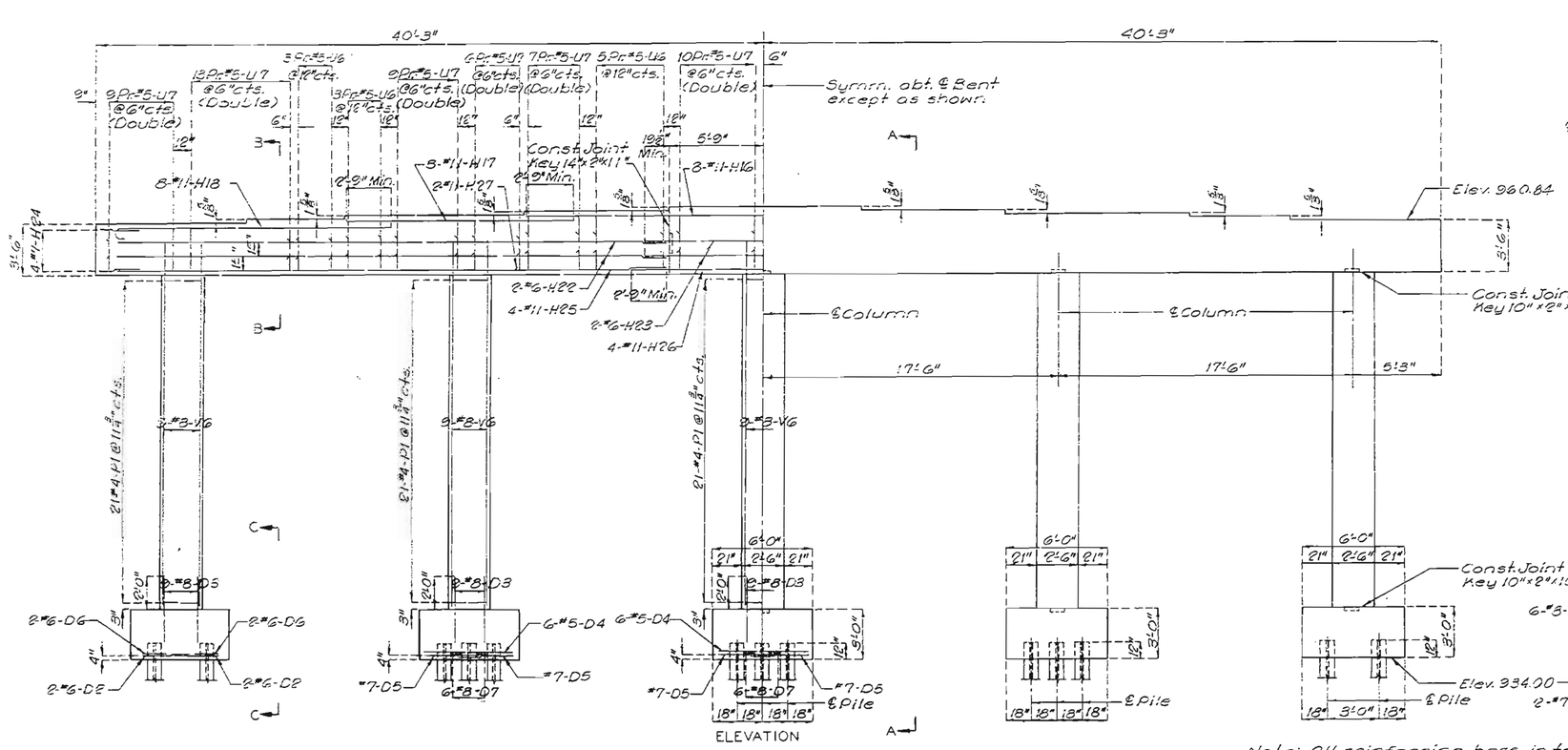
Sheet No. 4 of 17

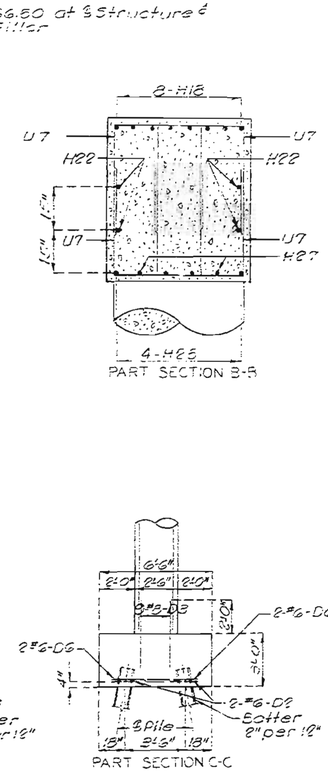
JACKSON COUNTY

A-2121

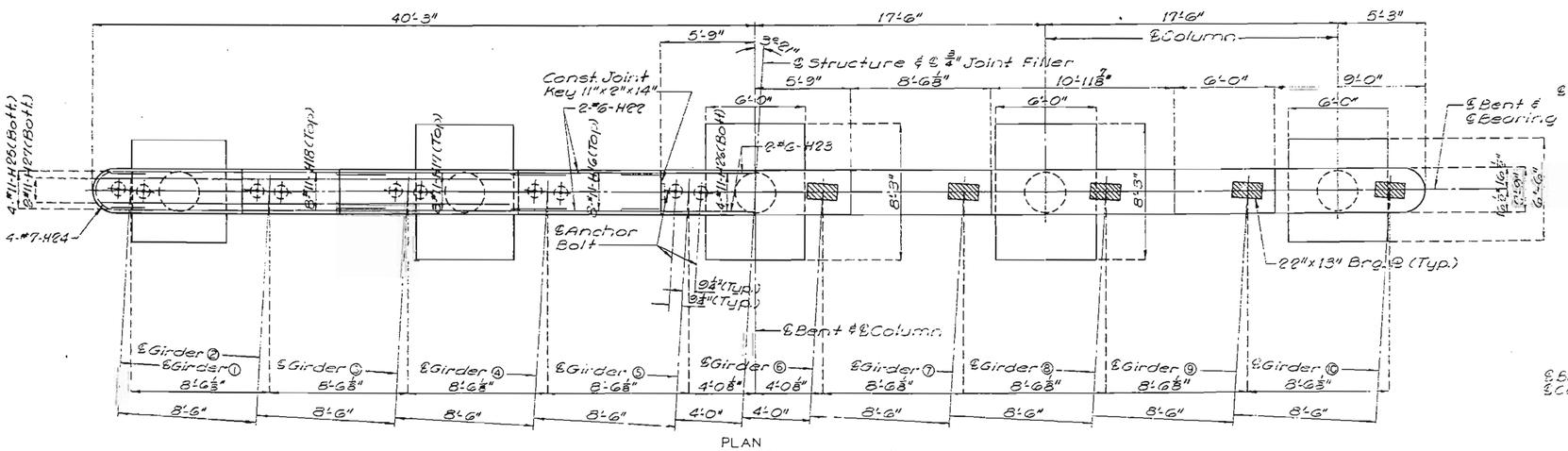
MISSOURI STATE HIGHWAY DEPARTMENT

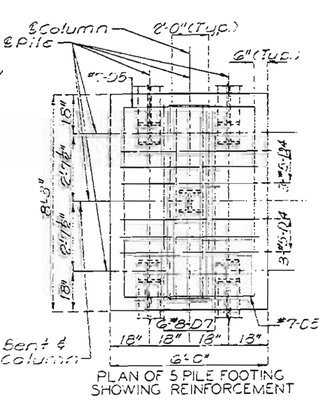
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		73	52	

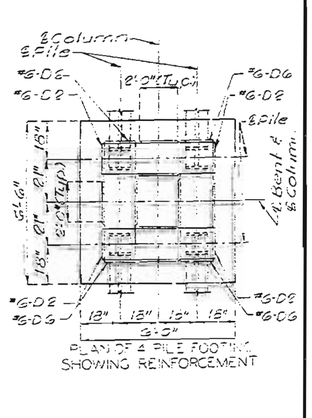




Note: All reinforcing bars in tops of substructure beams or caps shall be spaced to clear anchor bolts for bearings by at least ¾".







DETAILED MAY 1975
CHECKED Aug. 1975

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

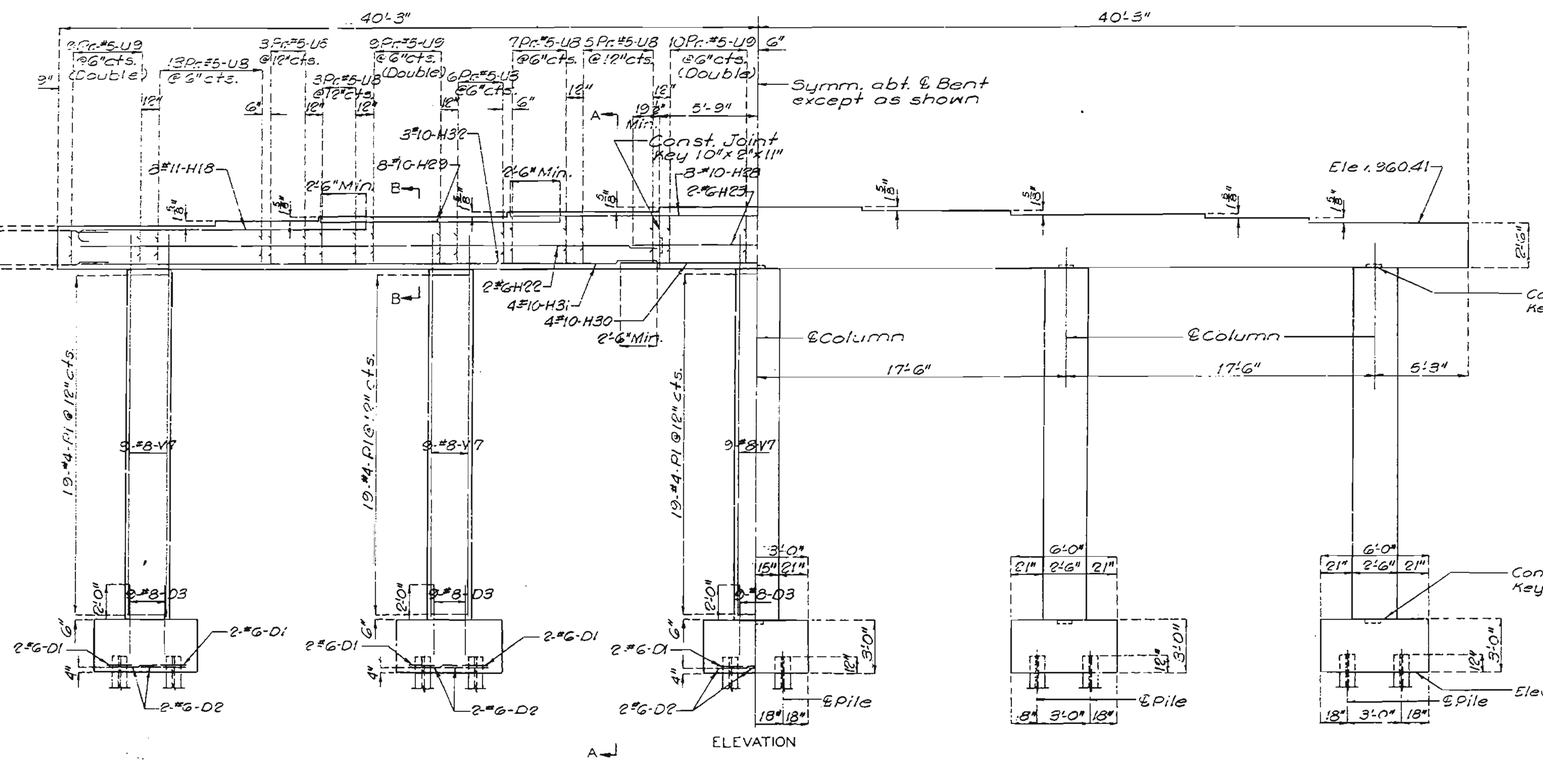
Sheet No. 5 of 17

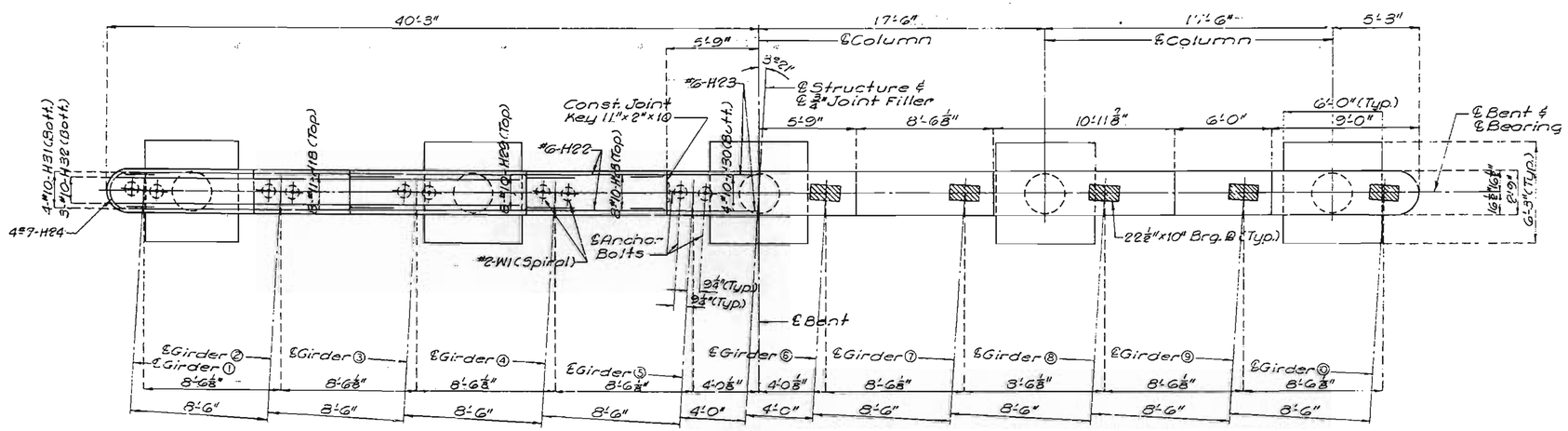
JACKSON COUNTY

A-2:21

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	53	





DETAILS OF INTERMEDIATE BENT NO. 4

Note: for details and reinforcement of footings not shown see sheet No. 4
All reinforcing bars in tops of substructure beams or caps shall be spaced to clear anchor bolts for bearings by at least ½".

DETAILED MAY 1975
CHECKED Aug. 1975

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

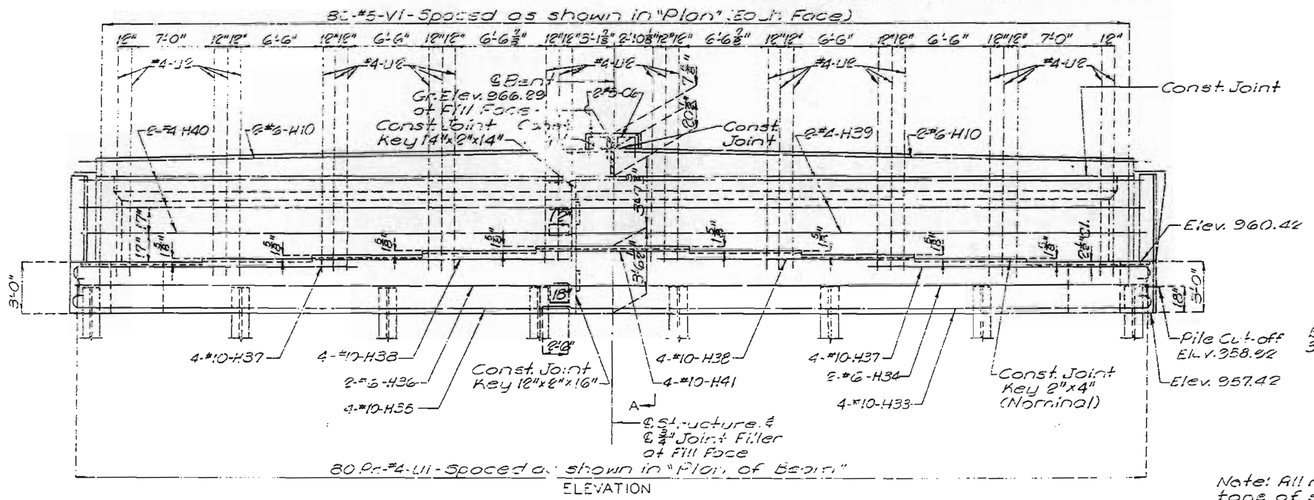
Sheet No. 6 of 17

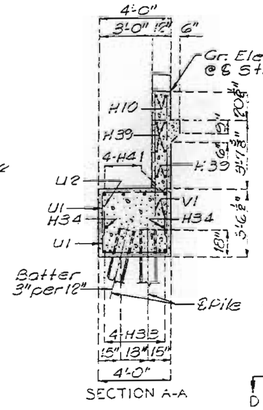
JACKSON COUNTY

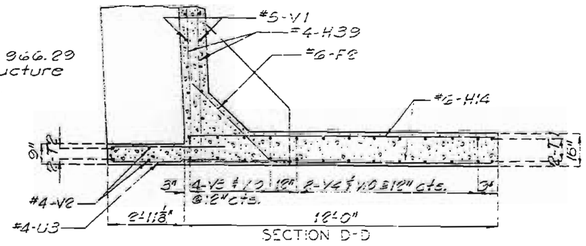
A-2121

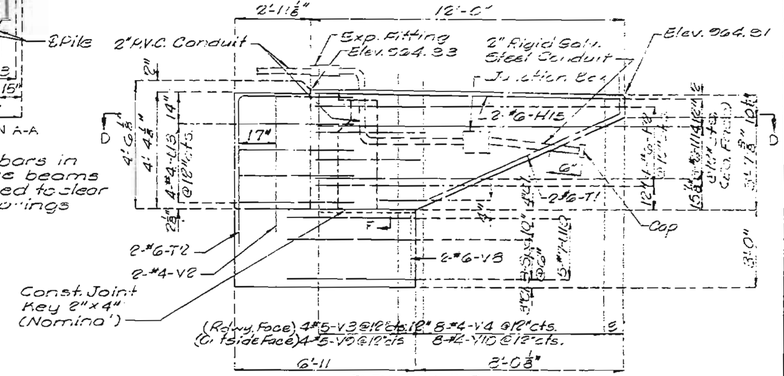
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	54	



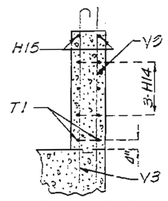




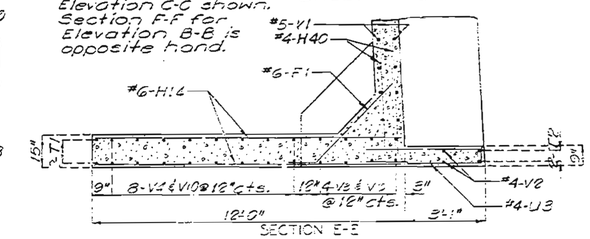


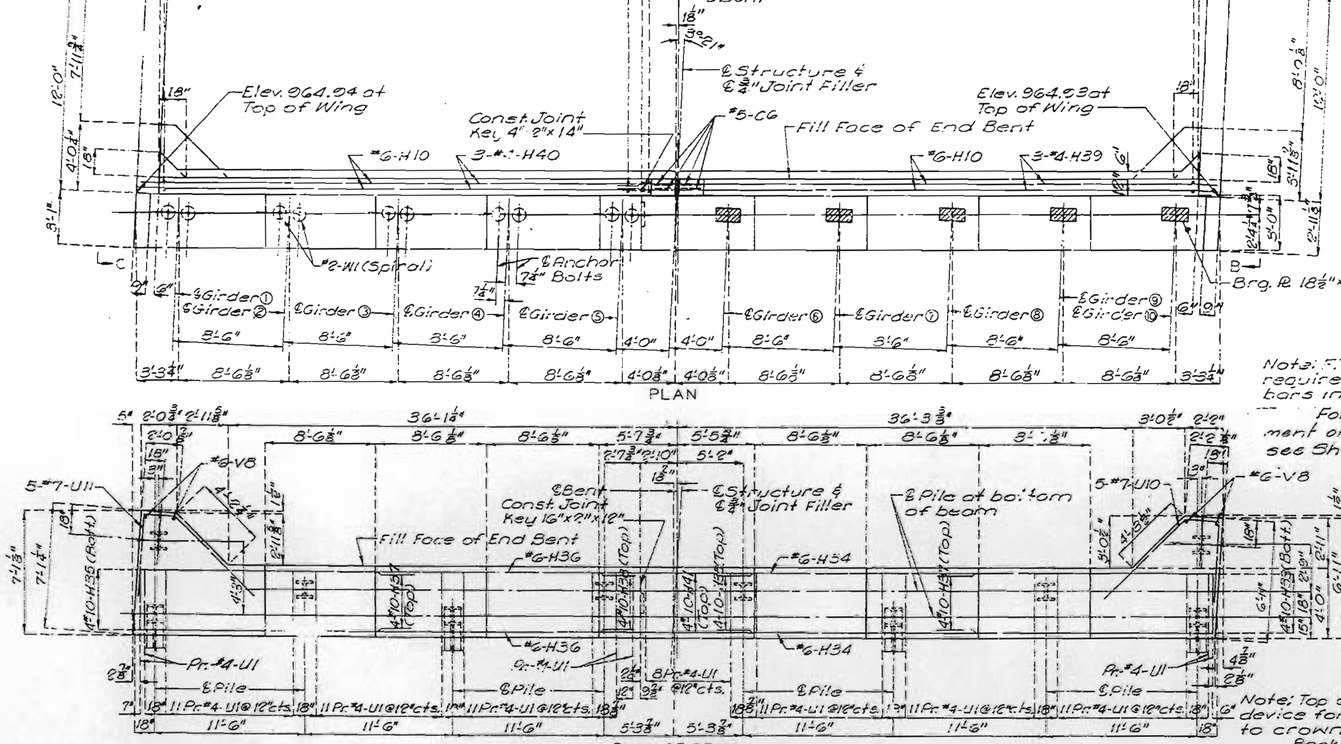
Note: All reinforcing bars in tops of substructure beams or caps shall be placed to clear anchor bolts for bearings by at least 6".

Note: For additional details of conduit and conduit notes see Sheet No. 15.



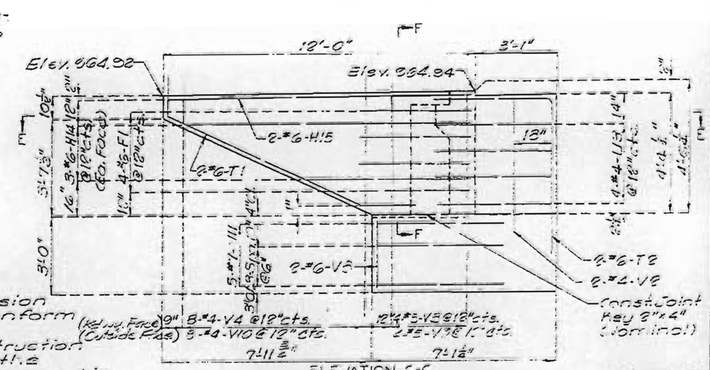
Note: Section F-F for Elevation C-C shown. Section F-F for Elevation B-B is opposite hand.





Note: Field bending shall be required of wings for #6-H bars in backwall.

For details and reinforcement of safety barrier curb see Sheet No. 13.



Note: Top of backwall and expansion device for end bent No. 6 to conform to crown of roadway slab.

Backwall above upper construction joint shall not be poured until the superstructure slab has been poured in the adjacent span.

DETAILED JUNE 1975

CHECKED Aug. 1975

DETAILS OF END BENT NO. 5

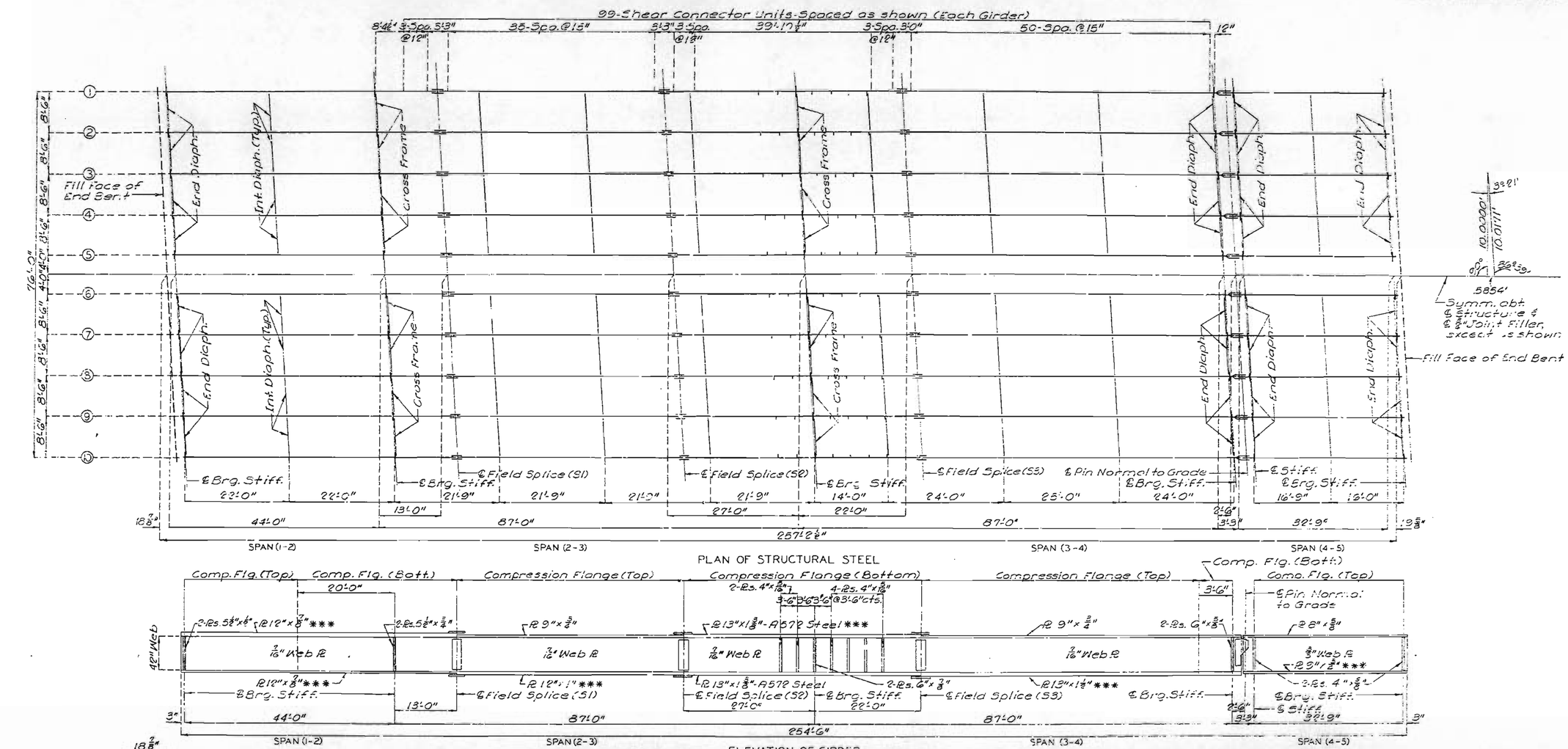
Note: This drawing is not to scale. Follow dimensions.

JACKSON COUNTY

A 212

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	58	



PART LONGITUDINAL SECTION

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

Note: Longitudinal dimensions shown are taken parallel to grade at Profile Grade at top of Slab.
Transverse web stiffeners shall be placed as detailed.
*** Indicates Flange Plates subject to notch toughness requirements.
All structural steel shall be A-36, except as noted.
Additional Transverse Stiffener Plates (4"x⅜") shall be added as required for Intermediate Diaphragms.
All web plates shall be subject to notch toughness requirements.

DETAILED APR. 1975
CHECKED Aug. 1975

Sheet No. 8 of 17

JACKSON COUNTY

A-2121

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	56	

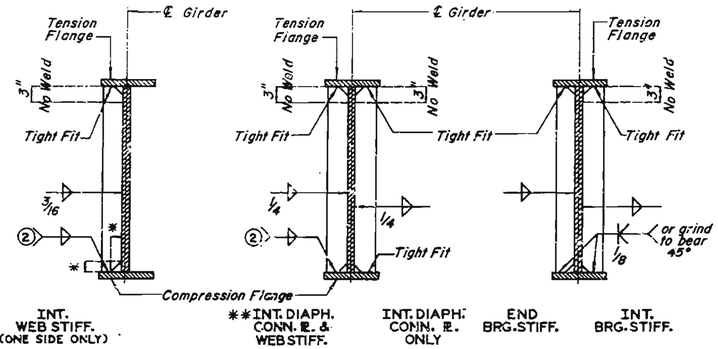
NOTES: TYPE "D" BEARINGS

ANCHOR BOLTS FOR TYPE "D" BEARINGS SHALL BE 1-1/4"Ø SWEDGED BOLTS AND SHALL EXTEND 12" INTO CONCRETE, WITH HEXAGON NUTS AND PLAIN WASHERS FOR FIXED BEARINGS, NO NUTS FOR EXPANSION BEARINGS.

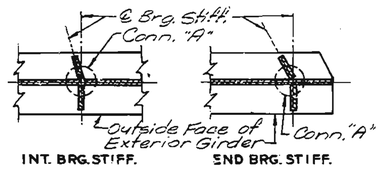
"ESTIMATED WEIGHT" DOES NOT INCLUDE WEIGHT OF ANCHOR BOLTS.

" X " INDICATES MACHINE FINISH SURFACE.

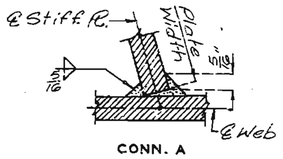
SHOP DRAWINGS ARE NOT REQUIRED FOR LEAD PLATES AND/OR PREFORMED FABRIC PADS.



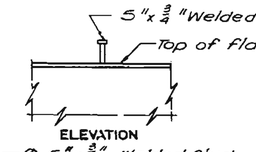
② Weld to compression flange as located on ELEVATION OF GIRDER.
* 1/2" typical for all Int. Web Stiff., Int. Diaph. Conn. R. and Brg. Stiff..
** Weld may be omitted on interior girders, and Tight Fit used when Int. Diaph. Conn. R. is required on both sides.



TYPICAL LOCATION DETAILS

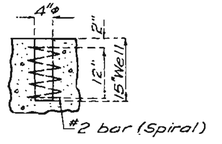


WELDING DETAILS

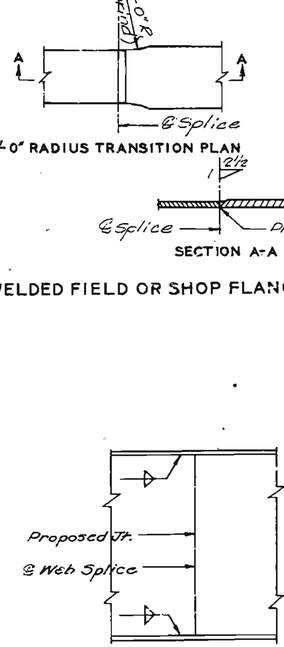


DETAILS OF SHEAR CONNECTORS

Note: Weight of 2242 lbs. of shear connectors is included in weight of fabricated Structural Carbon Steel.

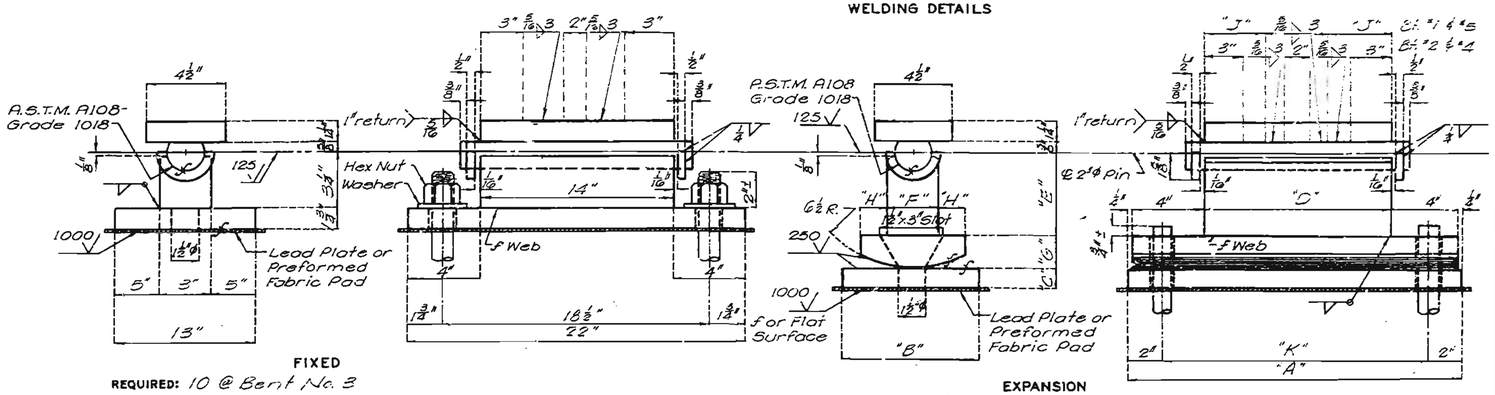


DETAIL OF ANCHOR BOLT WELLS

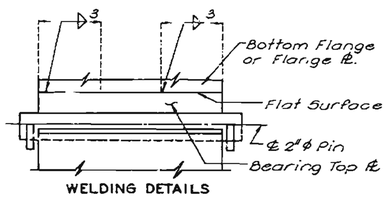


WELDED FIELD OR SHOP FLANGE SPLICE.

SHOP WEB SPLICE



TYPE "D" BEARINGS
(ESTIMATED WEIGHT 11,460#)



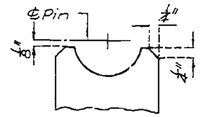
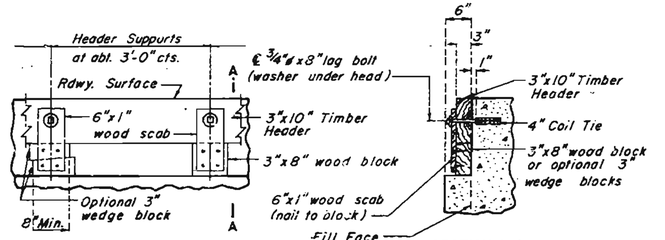


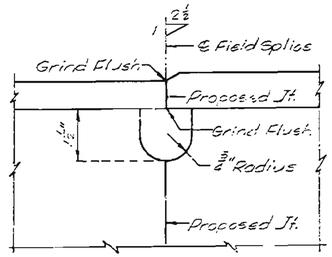
TABLE OF DIMENSIONS-EXPANSION BEARINGS

BENT NO.	"A"	"B"	"C"	"D"	"E"	"F"	"G"	"H"	"J"	"K"
Bt. No. 1	20 1/2"	8"	1 1/2"	12"	4 3/4"	3"	1 3/16"	1 1/2"	4 1/2"	16 1/2"
Bt. No. 2	20 1/2"	12"	2"	14"	5 1/2"	3"	2"	1 1/2"	—	18 1/2"
Bt. No. 4	22 1/2"	10"	1 3/4"	14"	4 1/2"	3"	2"	1 1/2"	—	18 1/2"
Bt. No. 5	18 1/2"	10"	1 3/4"	10"	4 1/2"	3"	2"	1 1/2"	3 1/2"	14 1/2"



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

DETAILS OF TIMBER HEADER AT END BENTS



WELDED FIELD SPLICE

Note: Field splices may be field welded or field bolted.

STD. D. B.	REVISED
FEB. 1965	OCT. 1977

DETAILED Feb. 1979
CHECKED Feb 1979

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

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	57	

Note: All splices are Symm. abt. ℄ Splice except as shown.

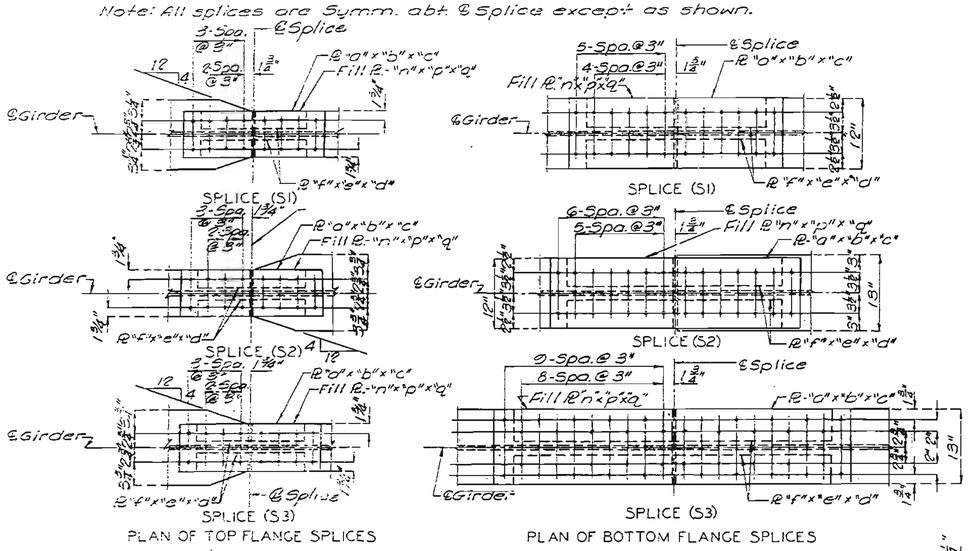
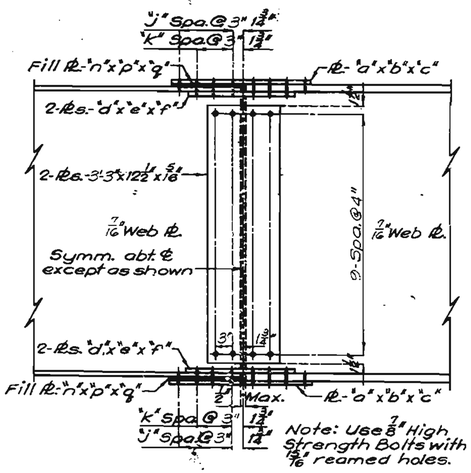
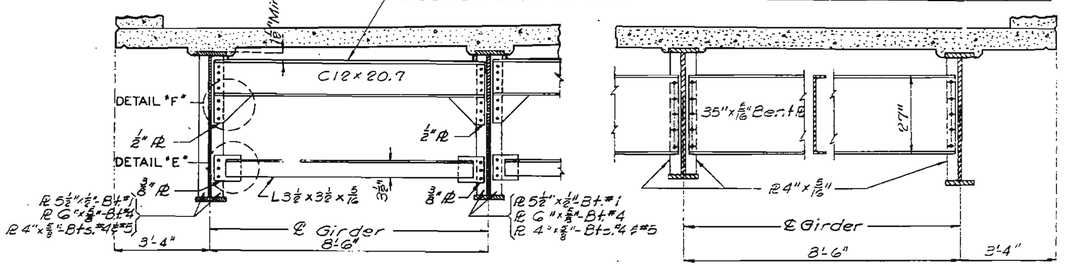


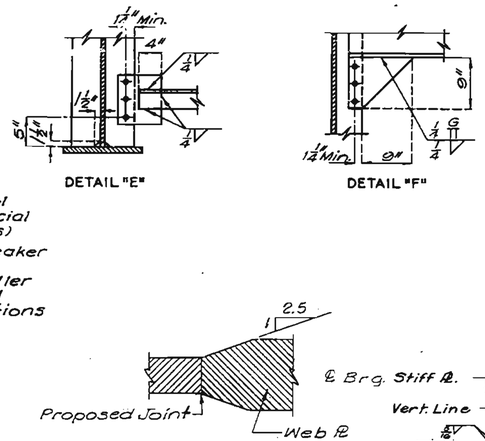
TABLE OF DIMENSIONS BOLTED FIELD SPLICES

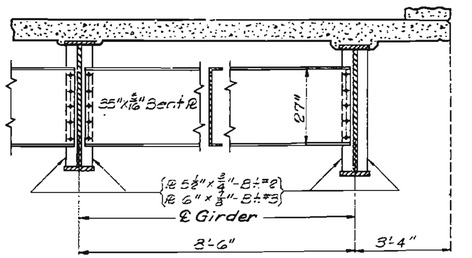
LOCATION	"a"	"b"	"c"	"d"	"e"	"f"	"j"	"k"	"n"	"p"	"q"
Top Flg. (Splice S1)	0"	1/2"	2'-0 1/2"	3 1/2"	3/8"	18 1/8"	3	2	12"	0"	1/8"
Bott. Flg. (Splice S1)	12"	1/2"	3'-0 1/2"	5"	1/2"	2'-6 1/2"	5	4	18"	12"	1/8"
Top Flg. (Splice S2)	0"	1/2"	2'-0 1/2"	3 1/2"	3/8"	18 1/8"	3	2	12"	0"	5/8"
Bott. Flg. (Splice S2)	12"	1/2"	3'-6 1/2"	5"	5/8"	3'-0 1/8"	6	5	21"	12"	5/8"
Top Flg. (Splice S3)	0"	1/2"	2'-0 1/2"	3 1/2"	3/8"	18 1/2"	3	2	12"	0"	5/8"
Bott. Flg. (Splice S3)	13"	3/4"	5'-0 1/2"	5 1/2"	7/8"	4'-6 1/2"	0"	8"	2'-6"	13"	1/8"

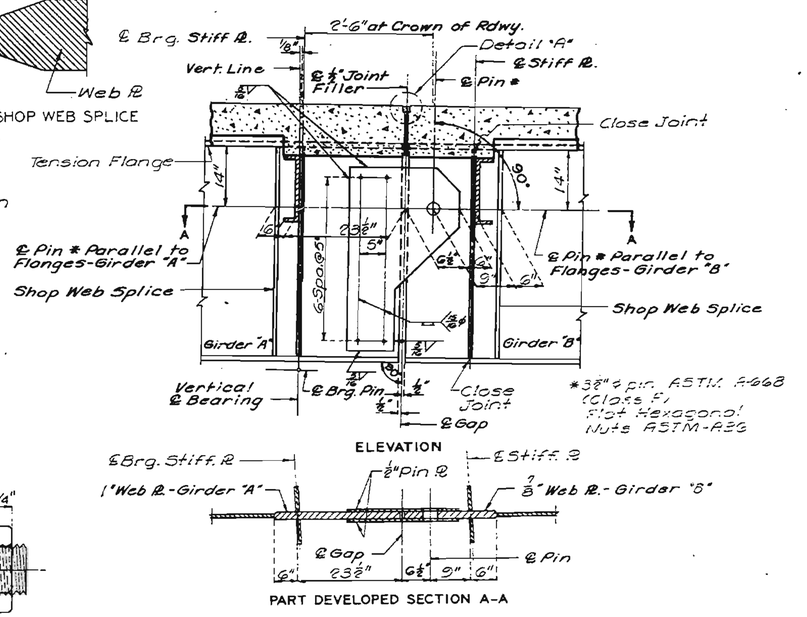


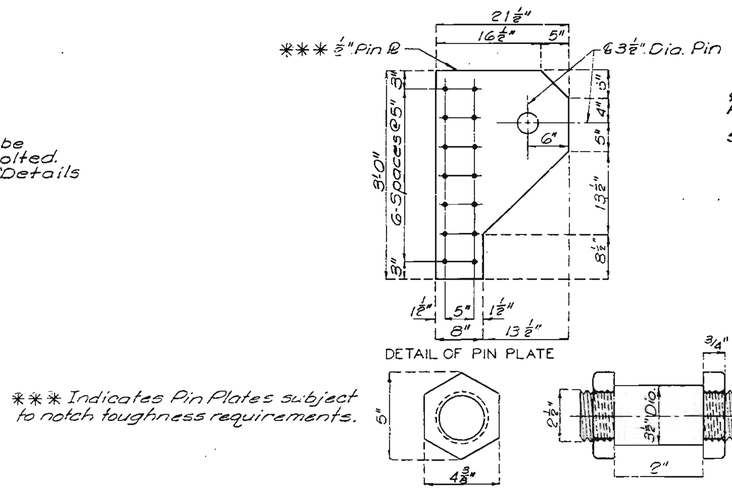
Note: Field splices may be field welded or field bolted. See sheet No. 9 for "Details of Welded Field Splices".











*** Indicates Pin Plates subject to notch toughness requirements.

DETAILED April 1975.
CHECKED Aug. 1975

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

Sheet No. 10 of 17.

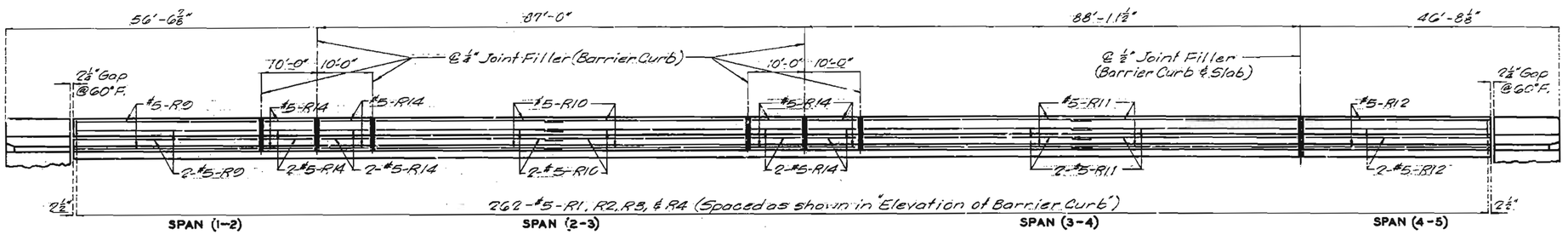
JACKSON COUNTY

A-2121

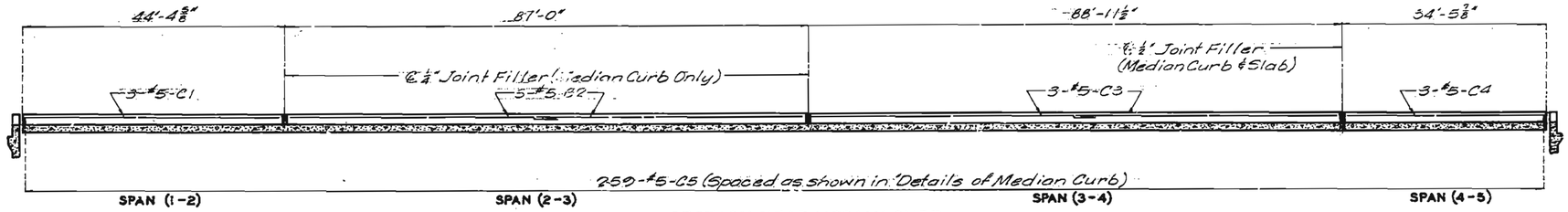

MISSOURI STATE HIGHWAY DEPARTMENT
FED. ROAD DIST. NO. 5 | STATE MO. | FED. AID PROJ. NO. | FISCAL YEAR 19 | SHEET NO. 58 | TOTAL SHEETS
TOP REINFORCEMENT
BOTTOM REINFORCEMENT
523-#5-S1 @ 5" cts. (Top)
349-#5-S4 @ 7½" cts. (Bott.)
5-#5-S2 @ 5" cts. (Top)
3-#5-S5 @ 7½" cts. (Bott.)
Detail "A"
Shift top transverse bar to edge of slab at Detail "A" (Typ.)
Fill Face of End Bent
Exposed Face of L 6 x 3½ x ⅜
8 Electrical Lead Connections required. Actual location to be designated by the Engineer as part of the test system. (See Special Provisions)
#5-S8 (Top) 4-Units @ 56'-6" (Min. Lap 22")
#4-S11 (Top)
℃ Brg. Stiff.
Note: Transverse steel in slab near expansion device shall be shifted in field to clear ⅜" plate.
Symm. abt. ℄ Structure & ℄ ¾" Joint Filler except as shown.
Reinforcing bar (Electrical lead connection) (Test Bar)
2" dia. hole (1" deep)
ELEVATION B-B
Top transverse reinforcing bar
Edge of Slab
DETAIL "A"
Note: Longitudinal dimensions shown are taken parallel to grade of profile grade at top of slab.
44'-4⅝"
87'-0"
88'-11½"
34'-5⅞"
257'-2½"
SPAN (1-2)
SPAN (2-3)
SPAN (3-4)
SPAN (4-5)
PLAN OF SLAB SHOWING REINFORCEMENT
THEORETICAL SLAB HAUNCHING DIAGRAM
DEAD LOAD DEFLECTION
12% of dead load deflection due to weight of structural steel.
SECTION NEAR INT. BENTS 2 & 3
SECTION NEAR ℄ SPAN
Profile Grade at top of Slab
Slope ⅛" per 12"
2" ⌀ P.V.C. Conduit
Const. Joint
Note: For location and Details of Slab Drains and Details of Conduit see Sheet No. 15.
For Slab Pouring Sequence see Sheet No. 12.
Note: For details of Barrier curbs and Median curbs see Sheet No. 12 & 13.
DETAILED Jan. 1979
CHECKED Feb. 1979
Note: This drawing is not to scale. Follow dimensions.
Sheet No. 11 of 17.
JACKSON COUNTY
A-2121

MISSOURI STATE HIGHWAY DEPARTMENT

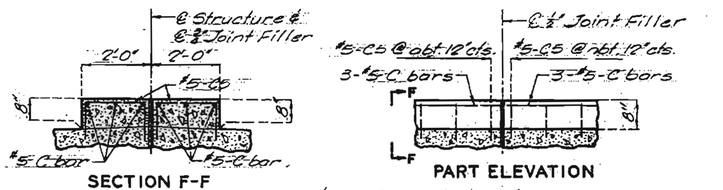
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	59	



SECTION NEAR LEFT BARRIER CURB

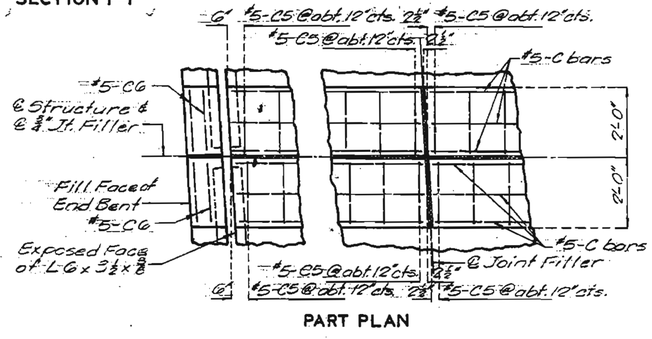


SECTION NEAR MEDIAN CURB



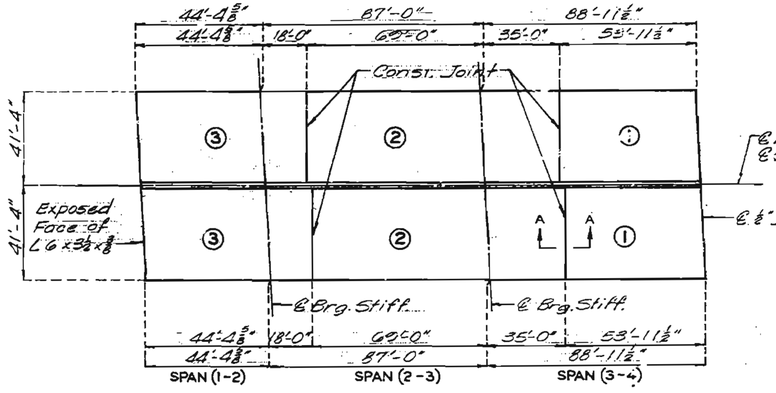
SECTION F-F

PART ELEVATION



PART PLAN

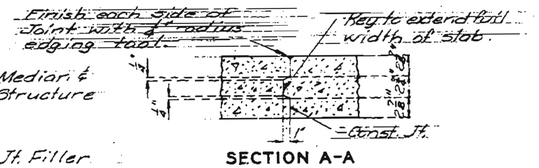
DETAILS OF MEDIAN CURB



	Sequence of Pours		
	Direction		
	1	2	3
Basic Sequence	End to 2	1 to 3	2 to End
Alternate "A" Pours	1 + 2		3
	End to 3		2 to End
Alternate "B" Pours	1+2+3		
	End to End		

SLAB POURING SEQUENCE

Note: Longitudinal dimensions shown are taken parallel to grade at top of barrier curb and parallel to grade at top of median curb.
For details of barrier curb not shown see Sheet No. 13



SECTION A-A

CONTINUOUS SPANS:
Note: The contractor shall pour and satisfactorily finish the slab pours at a rate of not less than 48 cubic yards per hour unless he elects to use an approved retarder to retard the set of the concrete to 2.5 hours in which case he may reduce his pouring and finishing rate to not less than 29 cubic yards per hour.

SIMPLE SPANS:
Note: The contractor shall pour and satisfactorily finish the concrete roadway slab at a rate of not less than 25 cubic yards per hour.
Span (1-5) to be poured first.

DETAILED Jan, 1979
CHECKED Feb 1979

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

Sheet No. 12 of 17.

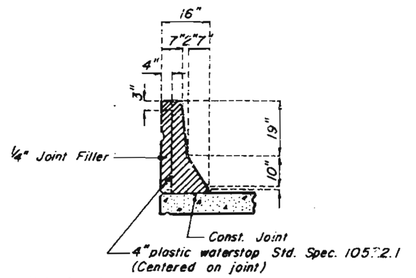
JACKSON COUNTY

A-2121

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
7	MO.		79	60	

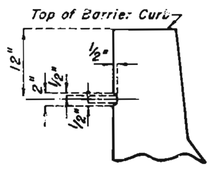
13



Note: Plastic waterstop shall be placed in all safety barrier curb filled joints.

Cost of plastic waterstop complete in place to be included in unit price bid for concrete.

DETAILS OF PLASTIC WATERSTOP

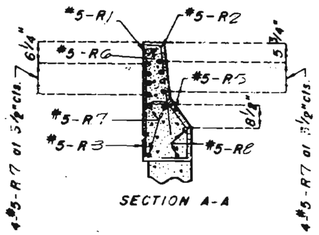


RUSTICATION DETAIL

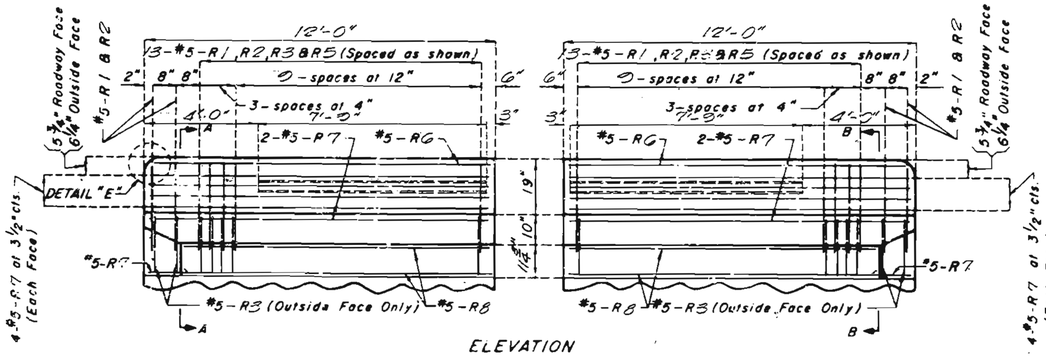
NOTES:

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

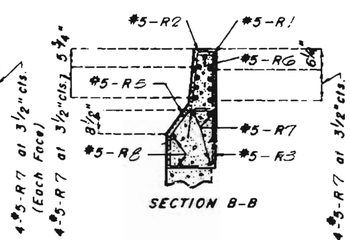
ALL EXPOSED EDGES OF BARRIER CURB SHALL HAVE 1/2" RADIUS OR 3/8" BEVEL UNLESS OTHERWISE NOTED.



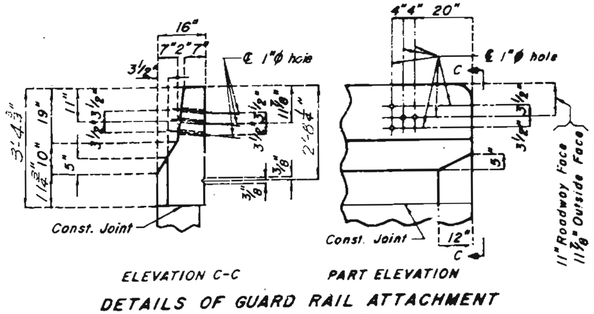
SECTION A-A



ELEVATION

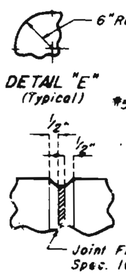


SECTION B-B

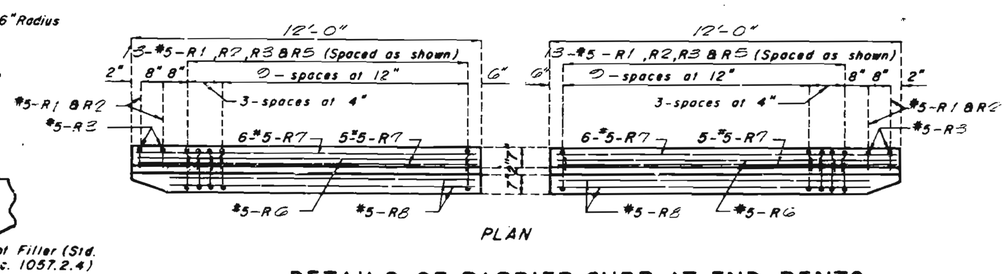


ELEVATION C-C PART ELEVATION

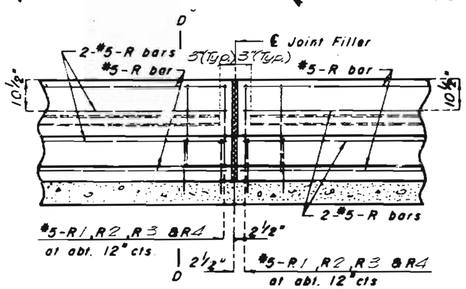
DETAILS OF GUARD RAIL ATTACHMENT



FILLED JOINT DETAIL

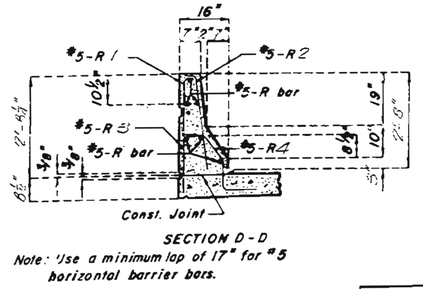


PLAN



PART SECTION NEAR LEFT BARRIER CURB

Sheet No. 13 of 17



SECTION D-D

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

DETAILS OF BARRIER CURB AT END BENTS

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

JACKSON COUNTY

A-2121

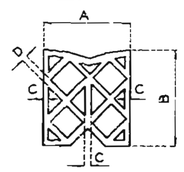
STD. 1.27(N)	REVISED	SEPT. 1978
AUG. 1978		

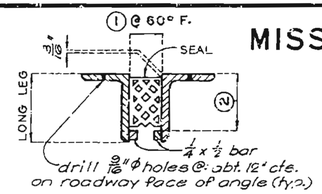
DETAILED Feb. 1979

CHECKED Feb 1979

MISSOURI STATE HIGHWAY DEPARTMENT

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





PART CROSS SECTION THRU EXPANSION JOINT

NOTES FOR PREFORMED COMPRESSION JOINT SEAL:

STRUCTURAL STEEL FOR EXPANSION DEVICE SHALL BE FABRICATED IN ONE SECTION EXCEPT THAT WHEN THE LENGTH IS OVER 50 FEET, SPLICING IS PERMISSIBLE.
EXPANSION DEVICE SHALL BE BENT TO CONFORM TO CROWN AND GRADE OF ROADWAY.
NO. 5 BARS FOR EXPANSION DEVICE SHALL BE STRUCTURAL GRADE.
APPROVED STUD WELDED ANCHORS OR DEFORMED BAR ANCHORS (ASTM A496) MAY BE USED IN LIEU OF #5 BARS SHOWN.
PREFORMED COMPRESSION JOINT SEAL SHALL BE INSTALLED BEFORE CURBS ARE POURED.
3-8" CURB PLATE SHALL BE INSTALLED WITH CURB.
PLAN DIMENSIONS ARE BASED ON INSTALLATION AT 60°F EXPANSION JOINT WIDTH SHALL BE ADJUSTED DURING INSTALLATION FOR COMPLIANCE WITH TABLES.
SEE SPECIAL PROVISIONS FOR THE REQUIREMENTS OF COMPRESSION JOINT SEAL.

TABLE OF TRANSVERSE SEAL TOLERANCES (INCHES)

TYPE	"A" (WIDTH)	"B" (HEIGHT)	"C" (SHELL)	"D" (WEBS)	"E" (B3 ONLY) (SMALL WEBS)
A1 OR B3	2.500 +.250 −.000	2.750 +.125 −.125	0.167 +.046 −.015	0.093 +.031 −.015	0.062 +.031 −.031
A1 OR B3	3.000 +.250 −.000	3.406 +.187 −.187	0.187 +.046 −.015	0.125 +.046 −.015	0.075 +.046 −.031
A1 OR B3	3.500 +.250 −.000	3.500 +.187 −.187	0.187 +.045 −.015	0.125 +.046 −.015	0.097 +.046 −.031
A1 OR B3	4.000 +.312 −.000	4.718 +.250 −.250	A1: 0.250 +.048 −.031 / B3: 0.235 +.046 −.031	0.187 +.046 −.015	0.111 +.046 −.031

TABLE OF TRANSVERSE SEALS & ARMOR ANGLES

TYPE	GROOVE SIZE AT 60° F. ①	GROOVE SIZE AT 60° F. ②	SEAL SIZE WIDTH	SEAL SIZE HEIGHT	ANGLE SIZE	
A1 OR B3	1-5/8"	4"	2-1/2"	2-3/4"	5 X 3 X 3/8	
A1 OR B3	1-7/8"	4-7/8"	3"	3-13/32"	6X3-1/2 X 3/8	
A1 OR B3	2-1/4"	5-1/8"	3-1/2"	3-1/2"	6 X 3-1/2 X 3/8	@ End Bents No. 1 & No. 5
A1 OR B3	2-5/8"	6-3/8"	4"	4-23/32"	8 X 4 X 7/16	

TABLE OF GROOVE SIZE "①" (INSTALLATION DIMENSIONS)

TEMP. (°F.)	SEAL WIDTHS — CONCRETE STRUCTURES 2½"	3"	3½"	4"	STEEL STRUCTURES 2½"	3"	3½"	4"
-10°	—	—	—	—	2-1/8"	2-5/8"	3"	3-3/8"
0°	2-1/8"	2-5/8"	3"	3-3/8"	2"	2-1/2"	2-7/8"	3-1/4"
+20°	1-7/8"	2-1/4"	2-3/4"	3-1/8"	1-7/8"	2-1/4"	2-5/8"	3"
+40°	1-3/4"	2-1/8"	2-1/2"	2-7/8"	1-3/4"	2-1/8"	2-1/2"	2-7/8"
+60°	1-5/8"	1-7/8"	2-1/4"	2-5/8"	1-5/8"	1-7/8"	2-1/4"	2-5/8"
+80°	1-3/8"	1-3/4"	2"	2-1/4"	1-3/8"	1-3/4"	2"	2-1/4"
+100°	1-1/4"	1-1/2"	1-3/4"	2"	1-1/4"	1-5/8"	1-7/8"	2-1/8"
+110°	1-1/8"	1-3/8"	1-5/8"	1-7/8"	1-1/4"	1-1/2"	1-3/4"	2"
+120°	—	—	—	—	1-1/8"	1-3/8"	1-5/8"	1-7/8"

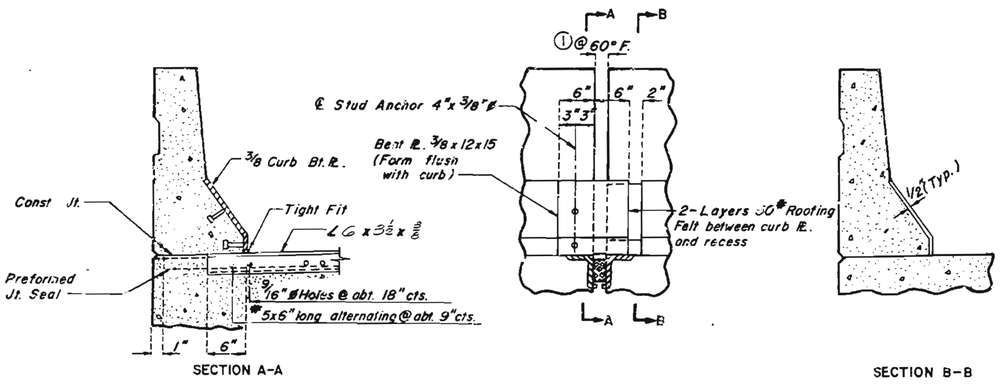
TABLE OF LONGITUDINAL SEALS

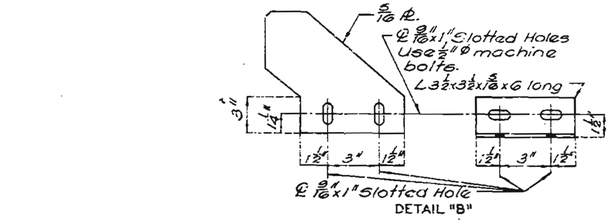
TYPE	GROOVE SIZE AT 60°F. WIDTH	GROOVE SIZE AT 60°F. HEIGHT	SEAL SIZE WIDTH	SEAL SIZE HEIGHT
A1 OR B3	1-5/16"	2-3/4"	2"	2-1/16"

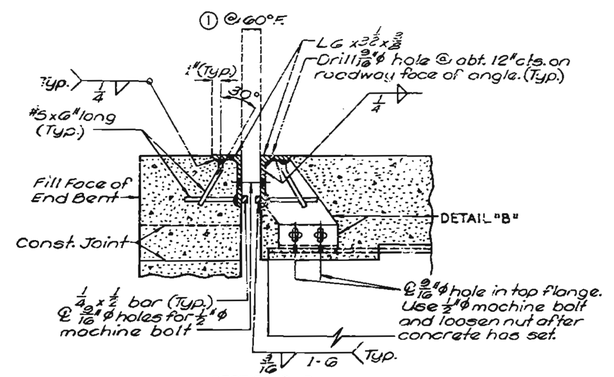
ARMOR ANGLES FOR LONGITUDINAL SEALS WILL NOT BE USED UNLESS SPECIFIED.

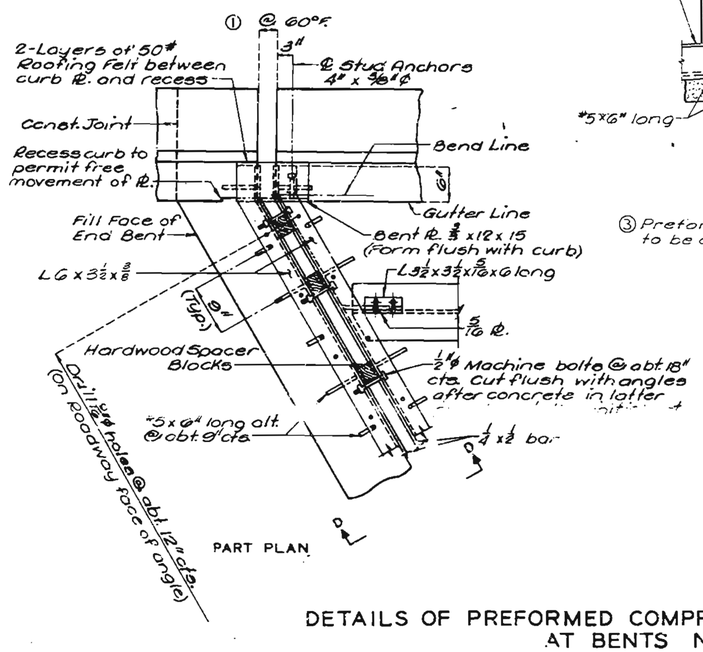
TABLE OF LONGITUDINAL SEAL TOLERANCES (INCHES)

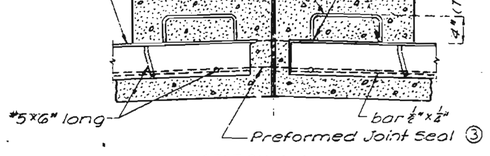
TYPE	"A" (WIDTH)	"B" (HEIGHT)	"C" (SHELL)	"D" (WEBS)
A1 OR B3	2.000 +.187 −.000	2.0625 +.125 −.125	0.125 +.030 −.015	0.094 +.030 −.015



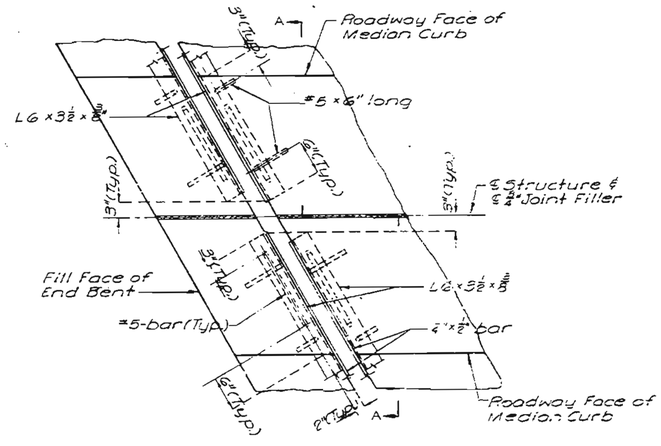








③ Preformed Compression Joint Seal to be continuous between slabs.



DETAILS OF PREFORMED COMPRESSION JOINT SEAL AT BENTS NO. 1 & 5

STD.	PCJS
REVISED	AUG. 1978
OCT. 1973	

DETAILED Feb 1979
CHECKED Feb 1979

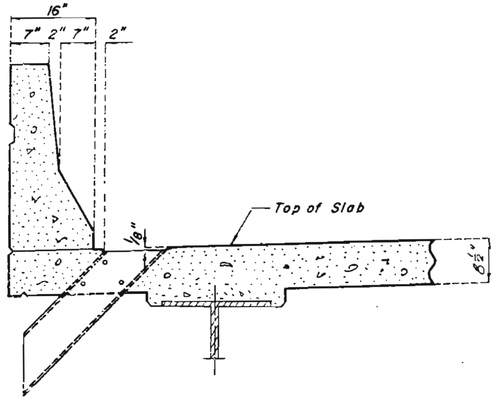
Note: This drawing is not to scale. Follow dimensions.

JACKSON COUNTY

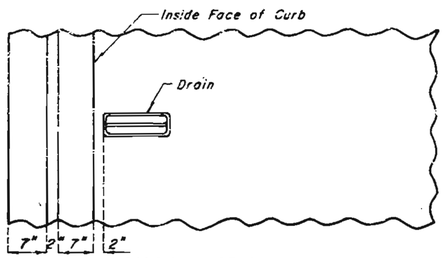
A-2121

MISSOURI STATE HIGHWAY DEPARTMENT

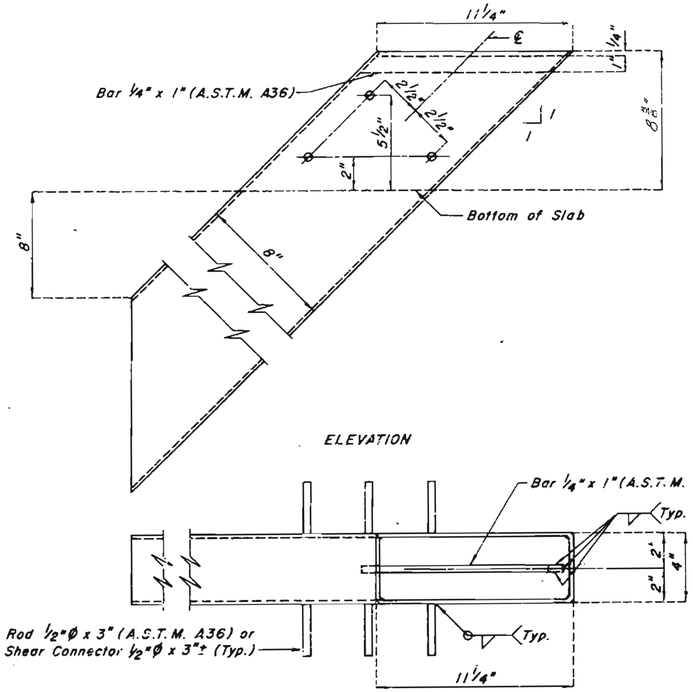
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		15	62	



PART ELEVATION OF SLAB



PART PLAN OF SLAB



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 STEEL TUBING A.S.T.M. A500 OR A501.

OUTSIDE DIMENSIONS OF DRAINS ARE 8"x4".

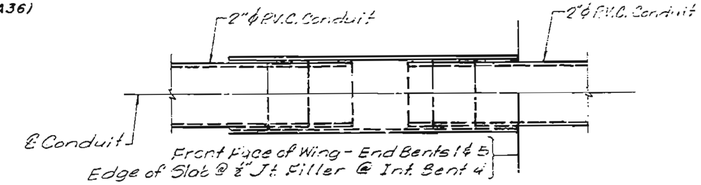
THE DRAINS SHALL BE CAST IN THE CONCRETE WITH THE TOP OF THE DRAINS BEING 1/8" BELOW THE FINISHED CONCRETE LINE.

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. A123.

SHOP DRAWINGS WILL NOT BE REQUIRED FOR THE SLAB DRAINS.



EXPANSION FITTING

Galvanized conduit to be rigid galvanized steel with 3" minimum cover in concrete.

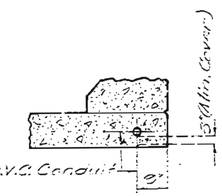
P.V.C. Conduit to be rigid non-metallic (P.V.C.) with 3" minimum cover in concrete.

Expansion fittings shall provide a minimum movement in either direction of 2" at open joints at End Bents No. 1 & 5 and at filled joint at Int. Bent No. 4.

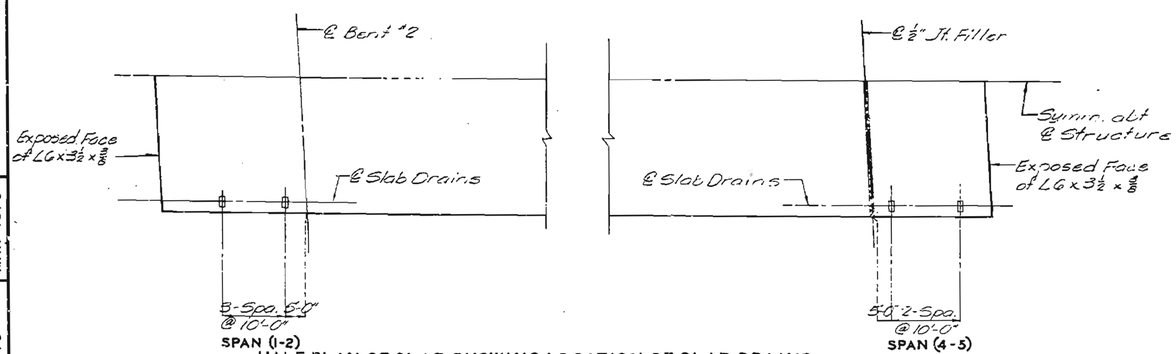
All end bent junction boxes shall be flush mounted and equal to O.Z. Gedney Co. type "YR" and/or Spring City Elec. Mfg. Co. type "ER". Wall thickness to be sufficient to provide 5 full threads for watertight conduit joints.

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

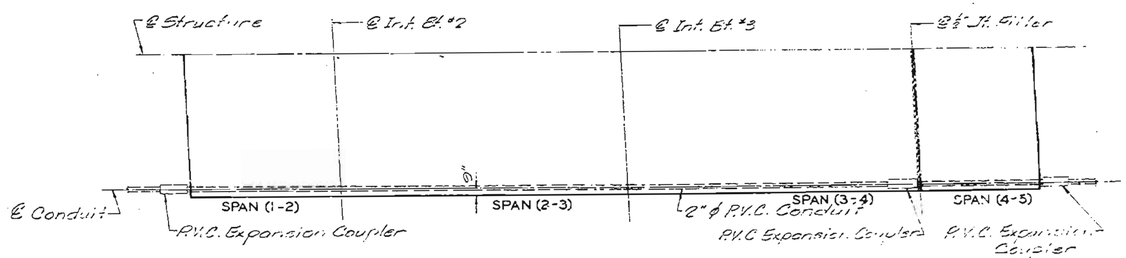
All wiring to be furnished and installed by others.



PART SECTION THRU SLAB



HALF PLAN OF SLAB SHOWING LOCATION OF SLAB DRAINS



Note: Place 2"ϕ Conduit on right side of bridge only.

HALF PLAN OF SLAB SHOWING LOCATION OF CONDUIT SYSTEM

STD. S. D.-N.W.S.	REVISED
FEB. 1975	MAR 1978

DETAILED Jan. 1979
CHECKED Feb 1979

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

Sheet No. 15 of 17.

JACKSON COUNTY

A-2121

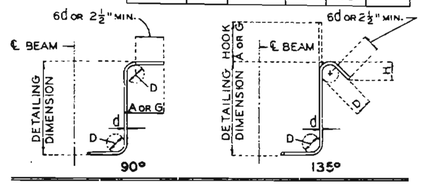
MISSOURI STATE HIGHWAY DEPARTMENT

COMPLETE BILL OF REINFORCING STEEL

NO. REQD.	MARK NO. SIZE MARK	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS B	C	D	E	F	H	K	NOMINAL LENGTH	ACTUAL LENGTH	WEIGHT
									FT. IN.	FT. IN.	FT. IN.	FT. IN.	FT. IN.	FT. IN.	FT. IN.	FT. IN.	FT. IN.	LBS.
		END BENT NO 1																
4	6F1	WING		15		X			12.000	4 7.000	12.000	8.750	8.250	8.750	8.250	6 7	6 6	39
4	6F2	WING		15		X			12.000	4 10.250	12.000	8.250	8.750	8.250	8.750	6 10	6 9	41
4	9H1	BEAM		20		X			46 5.000							46 5	46 5	631
2	6H2	BEAM		20		X			45 8.000							45 8	45 8	137
4	9H3	BEAM		20		X			38 4.000							38 4	38 4	521
2	6H4	BEAM		20		X			38 4.000							38 4	38 4	115
8	9H5	BEAM		17		X			21 0.000							22 3	22 3	605
8	9H6	BEAM		20		X			19 3.000							19 3	19 3	524
4	9H7	BEAM		20		X			11 0.000							11 0	11 0	150
4	6H10	BACKWALL		20		X			41 0.000							41 0	41 0	246
6	4H11	BACKWALL		20		X			44 10.000							44 10	44 10	180
6	4H13	BACKWALL		20		X			38 5.000							38 5	38 5	154
12	6H14	WING		20		X	V	4	6 6.000							6 6	6 6	
		INCR = 25.500 IN							10 9.000							10 9	10 9	155
4	6H15	WING		20		X			11 9.000							11 9	11 9	71
4	6T1	WING		25		X			22.000	8 1.625	2 0.000			3 5.250	7 4.500	12 0	11 11	72
4	6T2	APRON		19		X			5 9.000	4 6.000						10 3	10 1	61
160	4U1	BEAM		10	S	X				2 2.000	2 9.000					8 1	7 11	846
30	4U2	BEAM		10	S	X				6.000	3 9.000					4 9	4 7	92
8	4U3	APRON		10	S	X				4 0.000	6.000					8 6	8 4	45
5	7U10	BEAM		14		X			4 6.500	2 0.000	6 0.375			4 6.750	3 11.250	12 7	12 4	126
5	7U11	BEAM		14		X			4 8.500	23.000	5 11.000			3 10.750	4 5.500	12 7	12 4	126
160	5V1	BACKWALL		20		X			6 9.000							6 9	6 9	1126
4	4V2	APRON		20		X			5 4.000							5 4	5 4	14
8	5V3	WING		17		X			6 4.000							6 11	6 11	53
16	4V4	WING		17		X	V	2	23.000							2 5	2 5	
		INCR = 5.625 IN							5 2.000							5 8	5 8	43
4	6V8	BEAM		20		X			2 9.000							2 9	2 9	17
8	5V9	WING		20		X			6 6.000							6 6	6 6	54
16	4V10	WING		20		X	V	2	2 1.000							2 1	2 1	
		INCR = 5.625 IN							5 4.000							5 4	5 4	40
20	2W1	A B WELLS		22		X			12.000	9.125						19 9	19 9	66
		INT BENT NO 2																
20	6D1	FOOTING		10		X				3 7.000	16.000					8 6	8 2	245
20	5D2	FOOTING		10		X				3 6.000	16.000					8 4	8 0	240
45	8D3	FOOTING		20		X			4 0.000							4 0	4 0	481
8	11H16	BEAM		20		X			28 3.000							28 3	28 3	1201
16	11H17	BEAM		20		X			13 9.000							13 9	13 9	1169
16	11H18	BEAM		17		X			16 8.000							18 3	18 3	1551
6	9H19	BEAM		20		X			47 4.000							47 4	47 4	966
6	9H20	BEAM		20		X			33 3.000							33 3	33 3	678
6	9H21	BEAM		20		X			25 2.000							25 2	25 2	513
2	6H22	BEAM		20		X			33 3.000							33 3	33 3	100
2	6H23	BEAM		20		X			46 7.000							46 7	46 7	140
8	7H24	BEAM		7		X			3 10.000	2 6.000						9 0	9 0	147

NO. REQD.	MARK NO. SIZE MARK	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS B	C	D	E	F	H	K	NOMINAL LENGTH	ACTUAL LENGTH	WEIGHT
									FT. IN.	FT. IN.	FT. IN.	FT. IN.	FT. IN.	FT. IN.	FT. IN.	FT. IN.	FT. IN.	LBS.
105	4P1	COLUMN		16		X			2 3.000							7 11	7 11	555
44	5U4	BEAM		10	S	X				2 1.000	2 6.000					6 8	6 6	298
432	5U5	BEAM		10	S	X				2 1.000	20.000					5 10	5 8	2553
45	8V5	COLUMN		20		X			22 11.000							22 11	22 11	2753
20	2W1	A B WELLS		22		X			12.000	9.125						19 9	19 9	66
		INT BENT NO 3																
8	6D2	FOOTING		10		X				3 6.000	16.000					8 4	8 0	96
45	8D3	FOOTING		20		X			4 0.000							4 0	4 0	481
18	5D4	FOOTING		20		X			5 9.000							5 9	5 9	108
6	7D5	FOOTING		10		X				7 3.000	3 6.000					18 0	17 8	217
8	6D6	FOOTING		10		X				3 9.000	16.000					8 10	8 6	102
18	8D7	FOOTING		20		X			8 0.000							8 0	8 0	384
8	11H16	BEAM		20		X			28 3.000							28 3	28 3	1201
16	11H17	BEAM		20		X			13 9.000							13 9	13 9	1169
16	11H18	BEAM		17		X			16 8.000							18 3	18 3	1551
4	6H22	BEAM		20		X			33 3.000							33 3	33 3	200
4	6H23	BEAM		20		X			46 7.000							46 7	46 7	280
8	7H24	BEAM		7		X			3 10.000	2 6.000						9 0	9 0	147
4	11H25	BEAM		20		X			33 3.000							33 3	33 3	707
4	11H26	BEAM		20		X			48 0.000							48 0	48 0	1020
4	11H27	BEAM		20		X			25 8.000							25 8	25 8	545
105	4P1	COLUMN		16		X			2 3.000							7 11	7 11	555
44	5U6	BEAM		10	S	X				2 7.000	2 6.000					7 8	7 6	344
432	5U7	BEAM		10	S	X				2 7.000	20.000					6 10	6 8	3004
45	8V6	COLUMN		20		X			22 4.000							22 4	22 4	2683
20	2W1	A B WELLS		22		X				12.000	9.125					19 9	19 9	66
		INT BENT NO 4																
20	6D1	FOOTING		10		X				3 7.000	16.000					8 6	8 2	245
20	5D2	FOOTING		10		X				3 6.000	16.000					8 4	8 0	240
45	8D3	FOOTING		20		X			4 0.000							4 0	4 0	481
16	11H18	BEAM		17		X			16 8.000							18 3	18 3	1551
2	6H22	BEAM		20		X			33 3.000							33 3	33 3	100
2	6H23	BEAM		20		X			46 7.000							46 7	46 7	140
8	7H24	BEAM		7		X			3 10.000	2 6.000						9 0	9 0	147
8	10H28	BEAM		20		X			28 3.000							28 3	28 3	972
16	10H29	BEAM		20		X			13 6.000							13 6	13 6	929
4	10H30	BEAM		20		X			47 9.000							47 9	47 9	822
4	10H31	BEAM		20		X			33 3.000							33 3	33 3	572
6	10H32	BEAM		20		X			25 5.000							25 5	25 5	656

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	63	

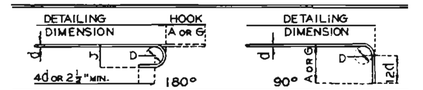


STIRRUP HOOK DIMENSIONS

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.

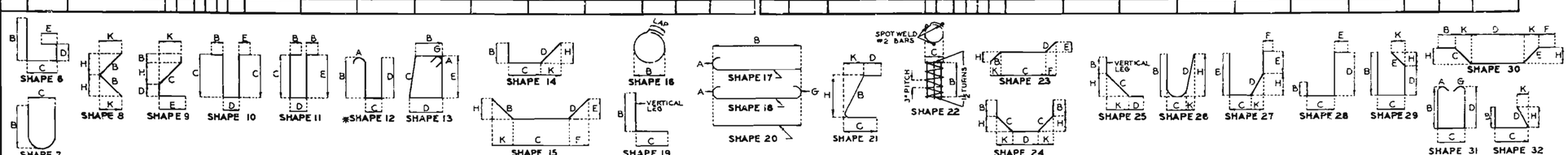
V - BAR DIMENSIONS VARY IN EQUAL INCREMENTS BETWEEN DIMENSIONS SHOWN ON THIS LINE AND THE FOLLOWING LINE.

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.



BENDING DIAGRAMS

STD. 90.8	REVISED OCT. 1978
MAY 1974	

DETAILED Feb. 1979
CHECKED Feb 1979

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

Sheet No. 16 of 17

JACKSON COUNTY

A-2121

FOR INFORMATION ONLY

A21211, Sht. 29

MISSOURI STATE HIGHWAY DEPARTMENT

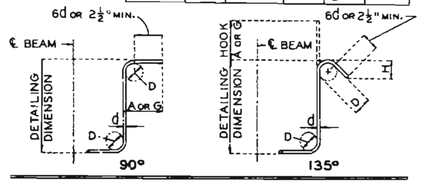
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
7	MO.		19	64	

COMPLETE BILL OF REINFORCING STEEL

NO. REQD.	MARK NO. SIZE	MARK NO. MARK	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS B FT.	B IN.	C FT.	C IN.	D FT.	D IN.	E FT.	E IN.	F FT.	F IN.	H FT.	H IN.	K FT.	K IN.	NOMINAL LENGTH FT.	NOMINAL LENGTH IN.	ACTUAL LENGTH FT.	ACTUAL LENGTH IN.	WEIGHT LBS.
95	4	P1	COLUMN		16		X			2	3.000													7	11	7	11	502
148	5	U8	BEAM		10	S	X					2	1.000	2	6.000									6	8	6	6	1003
224	5	U9	BEAM		10	S	X					2	1.000	20	.000									5	10	5	8	1324
45	1	V7	COLUMN		20		X			21	0.000													21	0	21	0	2523
20	2	W1	A B WELLS		22		X				12.000		9.125											19	9	19	9	66
			END BENT NO 5																									
4	6	F1	WING		15		X				12.000	4	7.000	12	.000	8	.750	8	.250	8	.750	8	.250	6	7	6	6	39
4	6	F2	WING		15		X				12.000	4	10.250	12	.000	8	.250	8	.750	8	.250	8	.750	6	10	6	9	41
4	6	H10	BACKWALL		20		X			41	0.000													41	0	41	0	246
12	6	H14	WING		20		X	V	4	6	6.000													6	6	6	6	
			INCR = 25.500 IN							10	9.000													10	9	10	9	155
4	6	H15	WING		20		X			11	9.000													11	9	11	9	71
4	10	H33	BEAM		17		X			46	5.000													47	10	47	10	823
2	6	H34	BEAM		20		X			45	8.000													45	8	45	8	137
4	10	H35	BEAM		17		X			38	3.000													39	8	39	8	683
2	6	H36	BEAM		20		X			38	3.000													38	3	38	3	115
8	10	H37	BEAM		17		X			21	2.000													22	7	22	7	777
8	10	H38	BEAM		20		X			19	6.000													19	6	19	6	671
6	4	H39	BACKWALL		20		X			45	3.000													45	3	45	3	181
6	4	H40	BACKWALL		20		X			38	2.000													38	2	38	2	153
4	10	H41	BEAM		20		X			10	10.000													10	10	10	10	186
4	6	T1	WING		25		X				22.000	8	1.625	2	0.000					3	5.250	7	4.500	12	0	11	11	72
4	6	T2	APRON		19		X			5	9.000	4	6.000											10	3	10	1	61
160	4	U1	BEAM		10	S	X					2	2.000	3	9.000									8	1	7	11	846
28	4	U2	BEAM		10	S	X						6.000	3	9.000									4	9	4	7	86
8	4	U3	BEAM		10	S	X					4	0.000		6.000									8	6	8	6	45
5	7	U10	BEAM		14		X			4	6.000	2	0.000	6	0.375					4	6.750	3	11.250	12	6	12	4	126
5	7	U11	BEAM		14		X			4	8.500		23.000	5	11.000					3	10.750	4	5.500	12	7	12	4	126
160	5	V1	BACKWALL		20		X			6	9.000													6	9	6	9	1126
4	4	V2	APRON		20		X			5	4.000													5	4	5	4	14
8	5	V3	WING		17		X			6	4.000													6	11	6	11	58
16	4	V4	WING		17		X	V	2		23.000													2	5	2	5	
			INCR = 5.625 IN							5	2.000													5	8	5	8	43
4	6	V8	BEAM		20		X			2	9.000													2	9	2	9	17
8	5	V9	WING		20		X			6	6.000													6	6	6	6	54
16	4	V10	WING		20		X	V	2	2	1.000													2	1	2	1	
			INCR = 5.625 IN							5	4.000													5	4	5	4	40
20	2	W1	A B WELLS		22		X				12.000		9.125											19	9	19	9	66
			SUPERSTRUCTURE																									
6	5	C1	MEDIAN CURB		20					44	2.000													44	2	44	2	276

COMPLETE BILL OF REINFORCING STEEL

NO. REQD.	MARK NO. SIZE	MARK NO. MARK	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS B FT.	B IN.	C FT.	C IN.	D FT.	D IN.	E FT.	E IN.	F FT.	F IN.	H FT.	H IN.	K FT.	K IN.	NOMINAL LENGTH FT.	NOMINAL LENGTH IN.	ACTUAL LENGTH FT.	ACTUAL LENGTH IN.	WEIGHT LBS.
12	5	C2	MEDIAN CURB		20					44	0.000													44	0	44	0	551
12	5	C3	MEDIAN CURB		20					45	0.000													45	0	45	0	563
6	5	C4	MEDIAN CURB		20					34	3.000													34	3	34	3	214
518	5	C5	MEDIAN CURB		10	S						12	.000	21	.000									3	9	3	7	1936
8	5	C6	MEDIAN CURB		10	S						18	.000	21	.000									4	9	4	7	38
584	5	R1	BARRIER CURB		19	S				2	6.000	3	.500											2	10	2	8	1624
584	5	R2	BARRIER CURB		15	S				2	6.125	3	.500							2	6.000	3	.000	2	10	2	9	1675
584	5	R3	BARRIER CURB		19	S					17.000	6	.000											23		22		1117
524	5	R4	BARRIER CURB		27	S						6	.000	11	.125	7	.000	12	.000	9	.125	6	.375	3	0	2	10	1548
52	5	R5	BARRIER CURB		27	S					12.000	9	.000	11	.125	6	.000			6	.325	9	.125	3	2	3	0	163
4	5	R6	BARRIER CURB		20					11	6.000													11	6	11	6	48
44	5	R7	BARRIER CURB		20					11	9.000													11	9	11	9	539
8	5	R8	BARRIER CURB		20					10	9.000													10	9	10	9	90
12	5	R9	BARRIER CURB		20					34	1.000													34	1	34	1	427
24	5	R10	BARRIER CURB		20					34	3.000													34	3	34	3	857
24	5	R11	BARRIER CURB		20					40	1.000													40	1	40	1	1003
12	5	R12	BARRIER CURB		20					34	2.000													34	2	34	2	428
49	5	R14	BARRIER CURB		20					9	9.000													9	9	9	9	488
1200	5	S1	SLAB	E	20					41	1.000													41	1	41	1	51420
20	5	S2	SLAB	E	20			V	4	8	5.000													8	5	8	5	
			INCR = 85.500 IN							36	11.000													36	11	36	11	473
20	5	S3	SLAB	E	20			V	4	8	4.000													8	4	8	4	
			INCR = 85.500 IN							36	10.000													36	10	36	10	471
802	5	S4	SLAB		20					41	1.000													41	1	41	1	34366
12	5	S5	SLAB		20			V	4	12	0.000													12	0	12	0	
			INCR =128.000 IN							33	4.000													33	4	33	4	284
12	5	S6	SLAB		20			V	4	10	0.000													10	0	10	0	
			INCR =128.500 IN							31	5.000													31	5	31	5	259
248	5	S7	SLAB	E	20					56	9.000													56	9	56	9	14679
376	5	S8	SLAB		20					56	6.000													56	6	56	6	22157
132	5	S9	SLAB	E	20					21	0.000													21	0	21	0	2891
130	5	S10	SLAB	E	20					44	1.000													44	1	44	1	3977
10	4	S11	SLAB	E	20					21	2.000													21	2	21	2	1441
62	5	S12	SLAB	E	20					34	2.000													34	2	34	2	2259
94	5	S13	SLAB		20					34	2.000													34	2	34	2	3350
			TWO ADDITIONAL																									
			=S-S9 & =4-S11																									
			ARE INCLUDED IN																									
			BAR LIST FOR																									
			TEST BENDING																									
			PURPOSES																									
			END OF BAR LIST																									

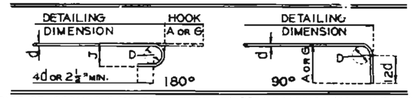


STIRRUP HOOK DIMENSIONS

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)

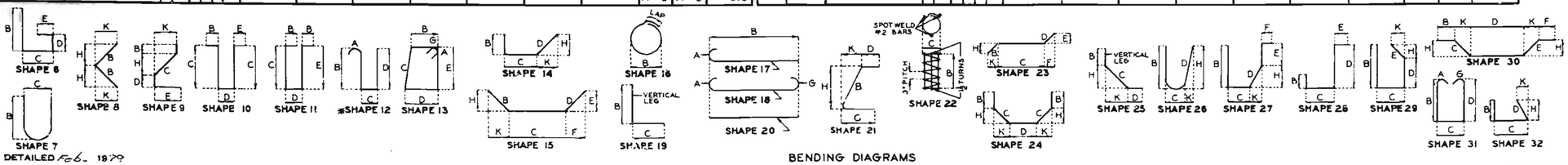
D = 6d FOR #3 THRU #8
D = 8d FOR #9, #10 AND #11
D = 10d FOR #14 AND #18

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"	5"	6"	12"
#7	9"	6-1/4"	10"	7"	14"
#8	10"	7"	11"	8"	16"
#9	12"	8"	15"	11-1/4"	19"
#10	13"	9"	17"	12-3/4"	22"
#11	14"	10"	19"	14-1/4"	21-0"
#14	21-2"	20-1/2"	21-2"	20-1/2"	21-7"
#18	21-11"	21-3"	21-11"	21-3"	31-5"

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.



BENDING DIAGRAMS

STD. 90.8 MAY 1974 REVISED OCT. 1978

DETAILED Feb. 1979

CHECKED Feb 1979

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

Sheet No. 17 of 17

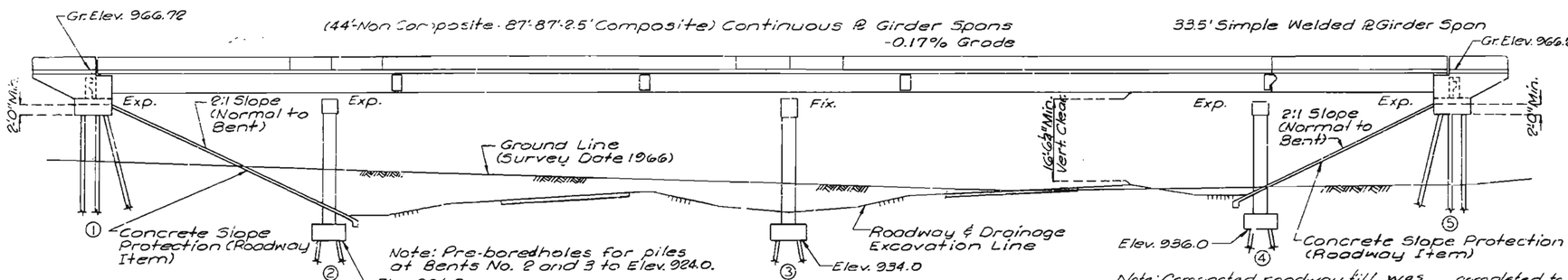
JACKSON **COUNTY**

A-2121

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
7	MO.		79	48	

FINAL PLANS



Note: Compacted roadway fill was 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 at the end bents before piles were driven for any bents falling within the embankment section.

GENERAL NOTES:

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

Design Loading:
H S 20-44 15# Future Wearing Surface
Earth 120# Equivalent Fluid Pressure 30°
Fatigue Stress: Case I

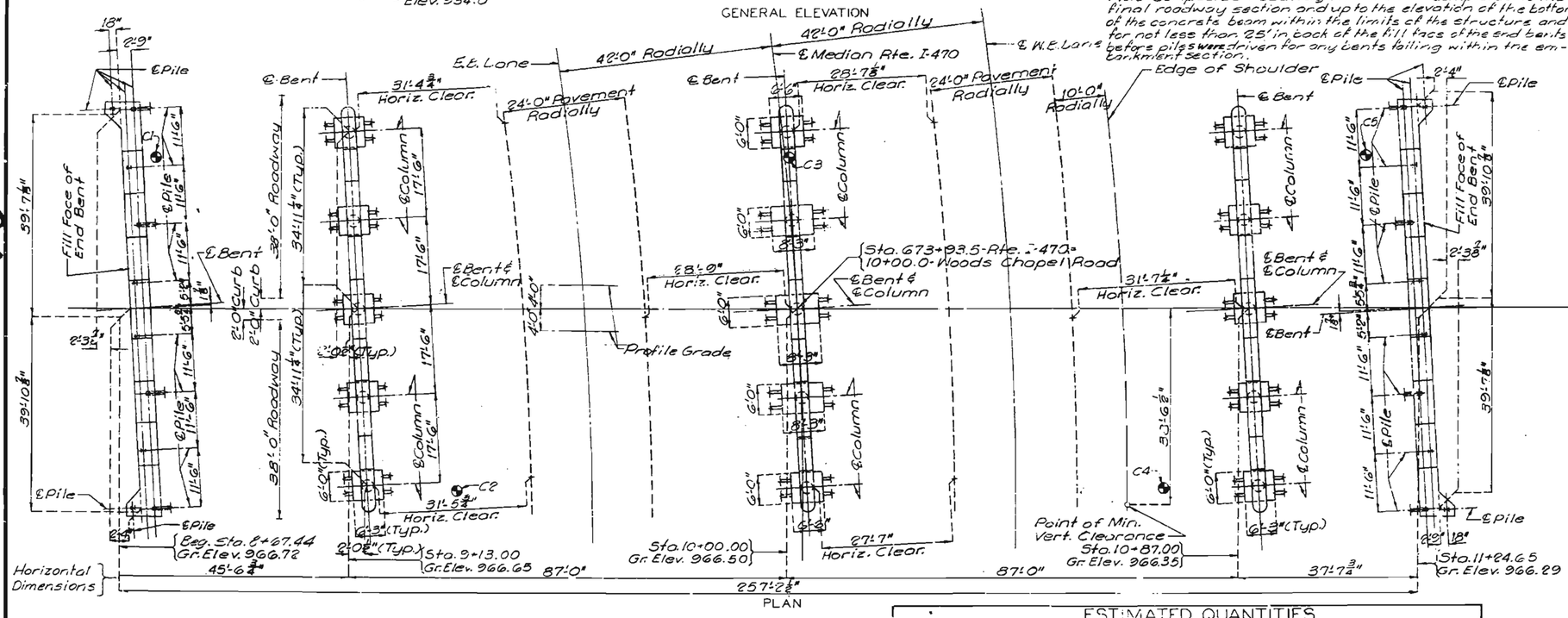
Design Unit Stresses:
Class B Concrete (substructure) f'_c = 1,200 psi
Class B2 Concrete (superstructre) f'_c = 4000 psi
Reinforcing Steel (substr.) Grade 60 f_s = 20,000 psi
Reinforcing Steel (superstr.) Grade 60 f_y = 60,000 psi
Structural Carbon Steel f_s = 20,000 psi
Structural Steel (A.S.T.M. A-572) Grade 50 f_s = 27,000 psi
Steel Pile f_b = 9,000 psi

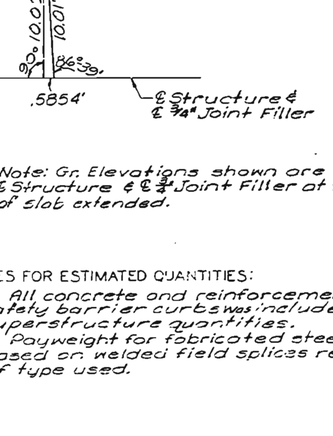
Fabricated Steel:
Field connections, High Strength Bolts 3/4"ϕ, holes 13/16"ϕ except as noted.

Paint:
System B by contractor in accordance with Std. Spec. 712.12. Color of the final field coat was green.

Reinforcing Steel:
Minimum clearance to reinforcing steel was 1½" unless otherwise noted.

GENERAL ELEVATION





Note: Gr. Elevations shown are at ℄ Structure & ℄ ¾" Joint Filler at top of slab extended.

NOTES FOR ESTIMATED QUANTITIES:

All concrete and reinforcement in safety barrier curbs was included in superstructure quantities.

Payweight for fabricated steel was based on welded field splices regardless of type used.

Note: For Boring Data see sheet No. 2.
"⊕" indicates location of borings.

PILE DATA						
BENT NO.		1	2	3	4	5
Pile Type and Size		HP10×42	HP10×42	HP10×42	HP10×42	HP10×42
Number		10	20	23	20	10
Approximate Length	Ft.	15	11	11	17	31
Design Bearing	Tons	51	48	52	37	52
Hammer Energy Reqd. Ft. Lbs.		12,500	11,200	12,200	8,800	12,800

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

ESTIMATED QUANTITIES				
ITEM		SUBSTR.	SUPERSTR.	TOTAL
Class 1 Excavation	Cu. Yd.	307.0		307.0
Conduit System on Structure	Lump Sum			1
Preboring for Piles	Lin. Ft.	430'		430
Structural Steel Pile (HP10×42)	Lin. Ft.	1400		1400
Class B Concrete	Cu. Yd.	327.9		327.9
Class B2 Concrete	Cu. Yd.		647.1	647.1
Preformed Compression Exp. Jt. Seal (1½" in)	Lin. Ft.		160	160
Reinforcing Steel (Grade 60)	Lb.	54200	74000	128200
Reinforcing Steel (Epoxy Coated)	"		78260	78260
Fabricated Structural Carbon Steel	Lb.		359,750	359,750
Fabricated Structural Low Alloy Steel	Lb.		59,360	59,360
Painting (System B) Green	Ton.		208.4	208.4
Slab Drains	Ea.		14	14
CONTINGENT ITEMS				
Structural Steel Pile (HP10×42) at 90%	Lin. Ft.	244		244
Conduit System on Structure (C.O. #3)	Lump Sum			1

B.M. Elev. 968.82 Bolt in Top of A¼ Wing Bl #1

BRIDGE: WOODS CHAPEL ROAD UNDERPASS

STATE ROAD I-470

IN LEE'S SUMMIT

PROJECT NO. ID-IDG-470-1(97) **STA.** 8 + 67.44

JOB NO. 4-I470-45D **RTE.** I470

JACKSON **COUNTY**

DATE 3-6-79

STD. 611.60
STD. 706.33
A-2121

DESIGNED /. . 1973
DETAILED JUNE 1975
CHECKED Oct. 1975

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

Sheet No. 18 of 17.