

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

STATE	PROJ NO	SHEET NO
MO		22
SEC / SUR	1974 IWP 43N	RGE 5E

GENERAL NOTES:

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

Design Loading:

H520-44 35#/sq.ft. Future Wearing Surface.
Earth 120#/cu.ft. Equivalent Fluid Pressure 30#/cu.ft.
Superstructure: Simply supported non-composite for Dead Loads.
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 Girder Sheets.

Reinforcing Steel:

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

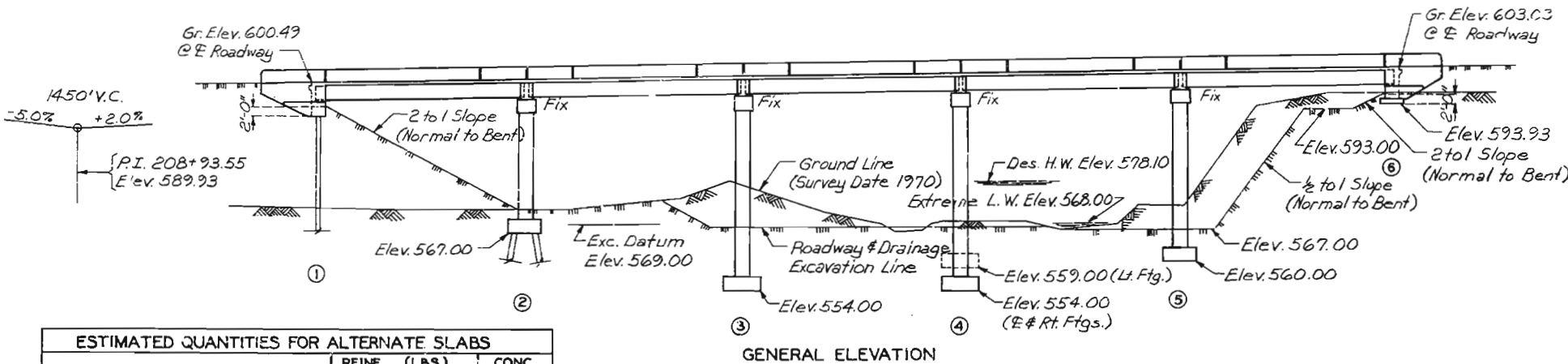
Joint Filler:

All Joint Filler shall meet requirement of Std. Spec. 1057.2.4, except as noted.

Bearings:

Bearings shall be 50 durometer Neoprene Pads.

(58'-58'-58'-58'-58') PRESTRESSED CONCRETE I-GIRDER SPANS



ESTIMATED QUANTITIES FOR ALTERNATE SLABS		
TYPE OF SLAB	REINF. (LBS.)	CONC. (CU. YD.)
Cast-In-Place Conventional Forms	87,270	8770
Precast Panel Forms	58,870	8770

Note: The table of Estimated Quantities for Alternate Slabs represents the quantities used by the state in preparing the cost estimate for concrete slabs. Variations may be encountered in these estimated quantities but these variations cannot be used for an adjustment in the Contract Unit Price per square yard of Alternate Slab used.

See Special Provisions for alternate method of forming slabs.

* Based on minimum top flange thickness and minimum joint filler thickness.

Precast Panel Quantities based on skewed end bents.

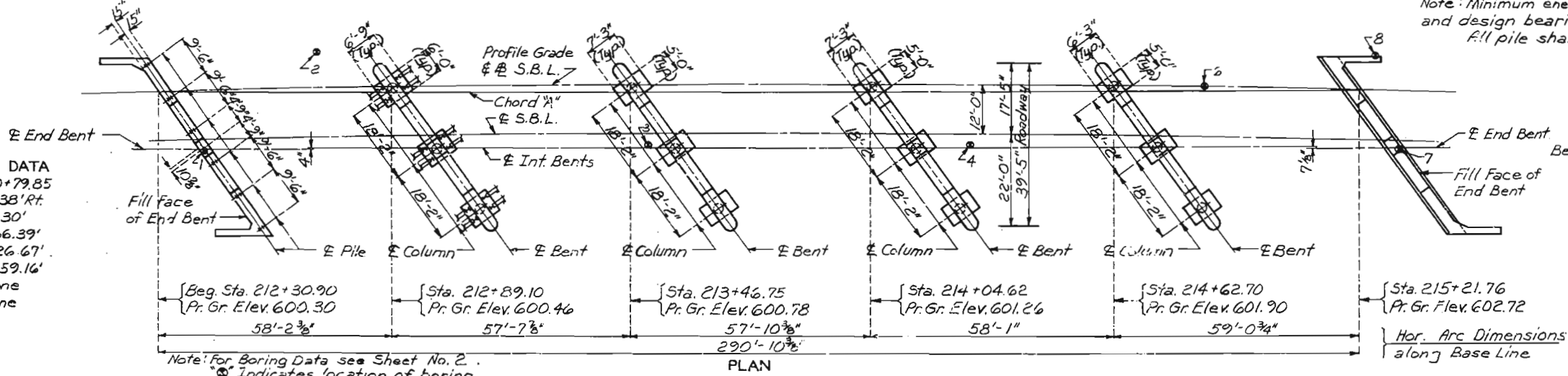
Note: Roadway fill shall be completed to the final roadway section and up to the elevation of the bottom of the concrete beam within the limits of the structure and for not less than 25' in back of the fill face of the end bents before piles are driven for any bents falling within the embankment section.

HYDROLOGIC DATA	
Drainage Area	= 6.7 sq. Miles (Hilly)
Des. Discharge	= 7330 C.F.S.
Des. H.W. Elev.	= 578.1
Frequency	= (Flood of Record)
BASIC FLOOD DATA	
Basic Flood Exceeded by Flood of Record	

PILE & FOOTING DATA						
BENT NO		1	2	3	4	5
BEARING PILE	Pile Type and Size	HP10x42				
	Number	6	12			
	Approximate Length	Ft. 46	13			
	Design Bearing	Tons 49	54			
SPREAD FOOTING	Foundation Material			Rock	Rock	Rock
	Design Bearing	Ton/Sq.Ft. 8.7	8.2	9.7	2.1	

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

CURVE DATA
P.I. = 210+79.85
 $\Delta = 10^\circ 38' \text{ Rt.}$
 $D = 0^\circ 30'$
 $T = 1,066.39'$
 $L = 2,126.67'$
 $R = 11,459.16'$
S.E. = None
W. = None



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

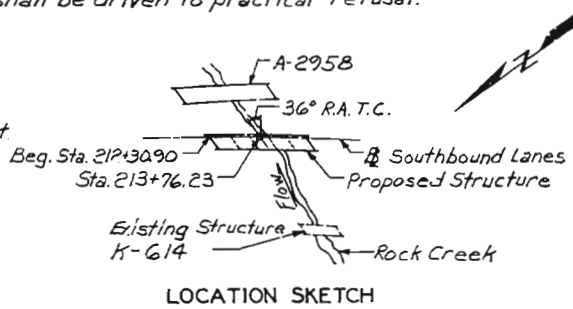
ESTIMATED QUANTITIES			
ITEM	SUBSTR.	SUPERSTR.	TOTAL
Class I Excavation	Cu. Yd. 60		60
Class II Excavation	Cu. Yd. 318		318
Structural Steel Pile (10")	Lin. Ft. 432		432
Class B Concrete	Cu. Yd. 260.2		260.2
() Slab on Conc. I-Gdr. see Spec. Prov.	Sq. Yd. 1360		1360
Safety Barrier Curb	Lin. Ft. 622		622
Plain Neoprene Bearing Pads	Each 50		50
Prestressed Concrete I-Girder (58' Span)	Each 25		25
Reinforcing Steel	Lbs. 33,990		33,990
Slab Drains	Each 32		32
Vertical Drain at End Bents	Each 1		1

Note: All reinforcement in the end bents is included with superstructure quantities.

All concrete between the upper and lower construction joints in end bents is included in the estimated superstructure quantities for Slab on Concrete I-Girder, see Special Provisions.

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

Vertical Drain shall be required at End Bent No. 1 only.



B.M. #139 Elev. 586.30 - 80d Spike in Power Pole @ Swaller Rd. & Exist. Rte. 21 1/2 Rt of Sta. 205+48 @ N.B. Lanes.

BRIDGE OVER ROCK CREEK

STATE ROAD FROM ROUTE 141 TO OTTO

ABOUT 4.2 MILES NORTH OF OTTO

PROJECT NO. F-11-1(15)

JOB NO. 6-U-21-17

JEFFERSON

STA. 212+30.90 @ S.B.L.

RTE. 21 S.B.L.

COUNTY

STD.

STD. 706.35

A-2959

DESIGNED SEPT. 1980
DETAILED JUNE 1986
CHECKED JAN. 1987

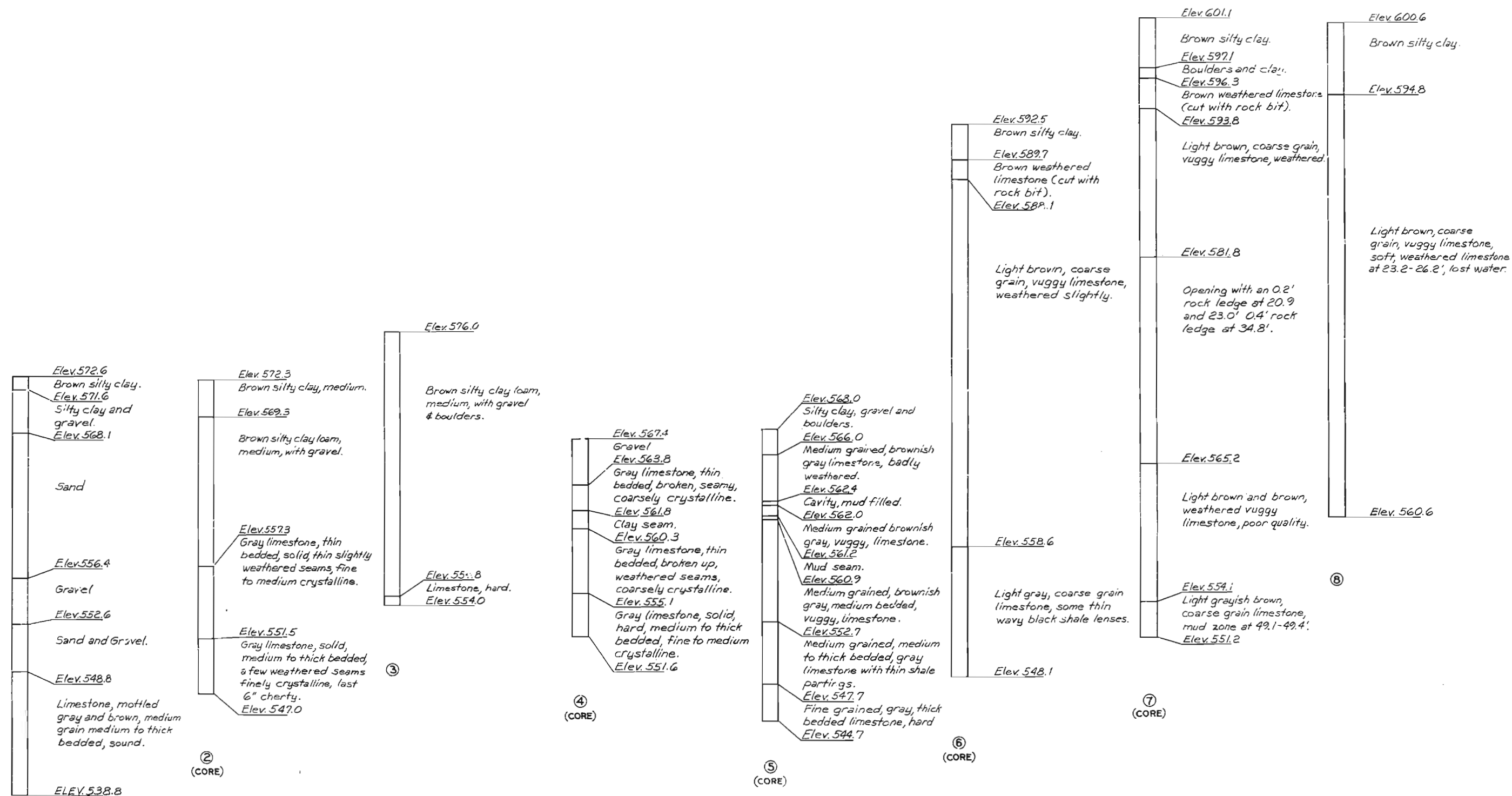
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 1 of 20.

DATE 1/15/87

431 200

STATE	PROJ. NO.	SHEET NO.
MO.		60



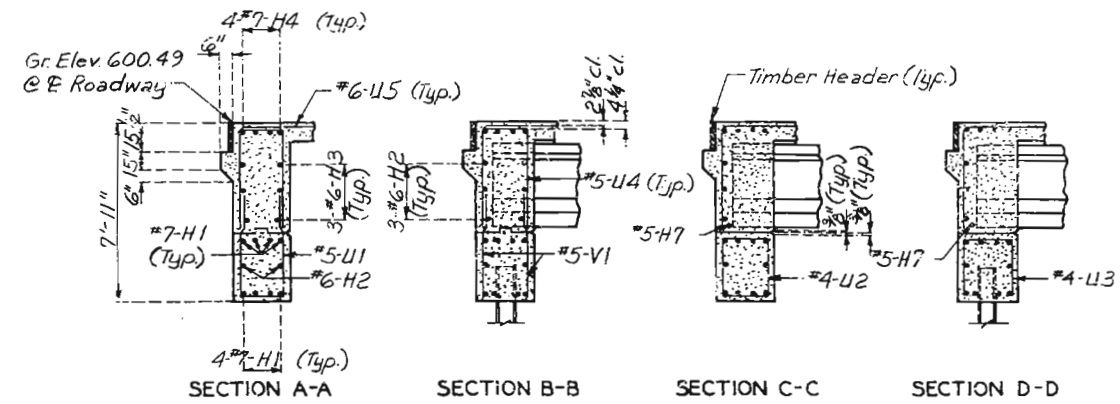
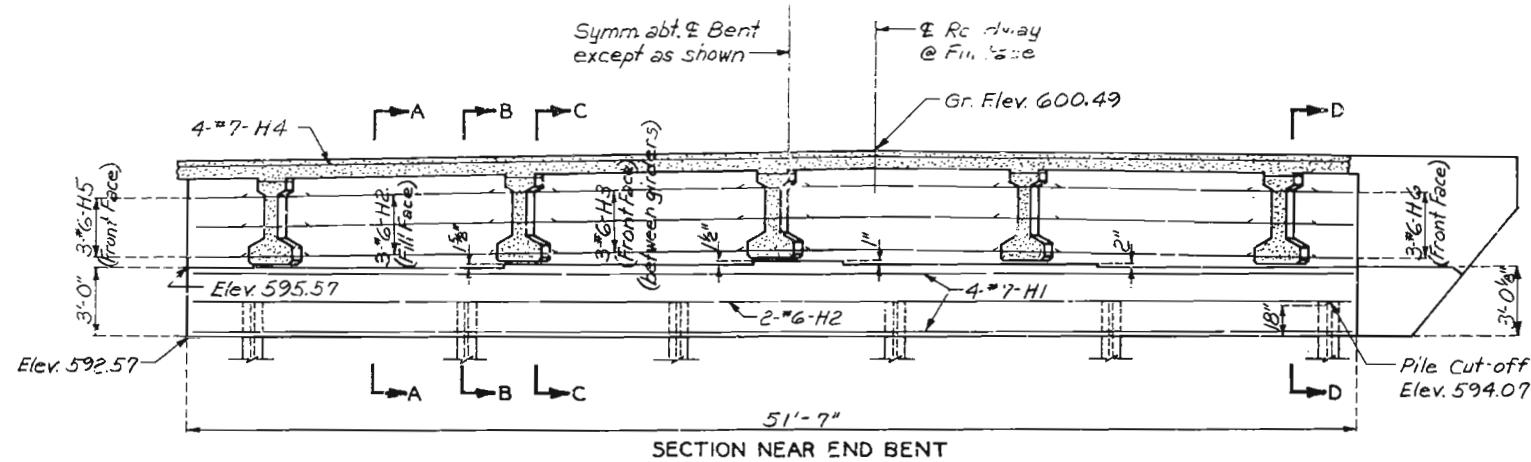
DETAILED DEC. 1985
CHECKED JAN. 1987

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

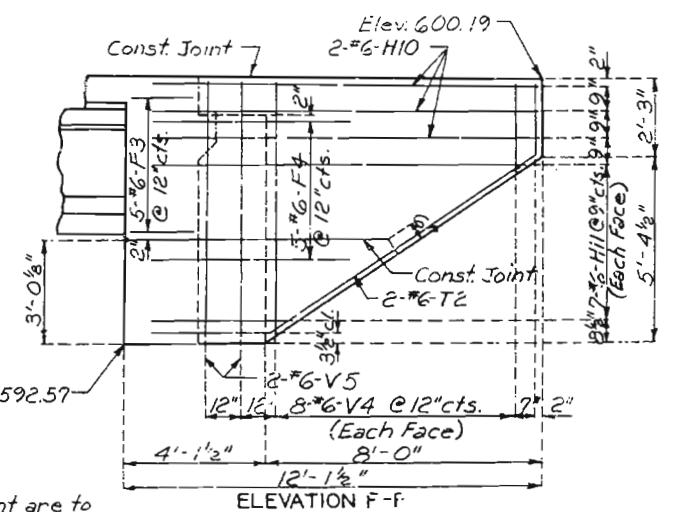
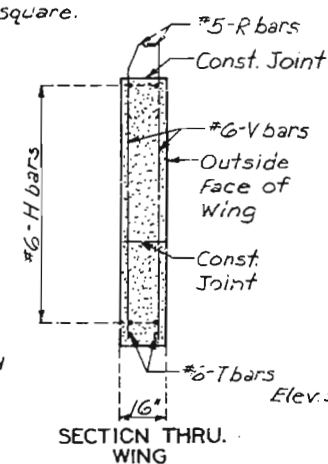
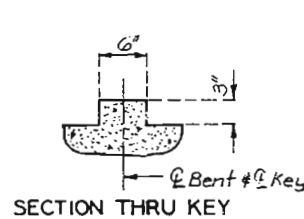
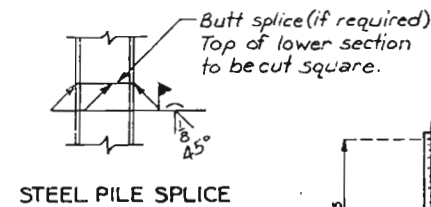
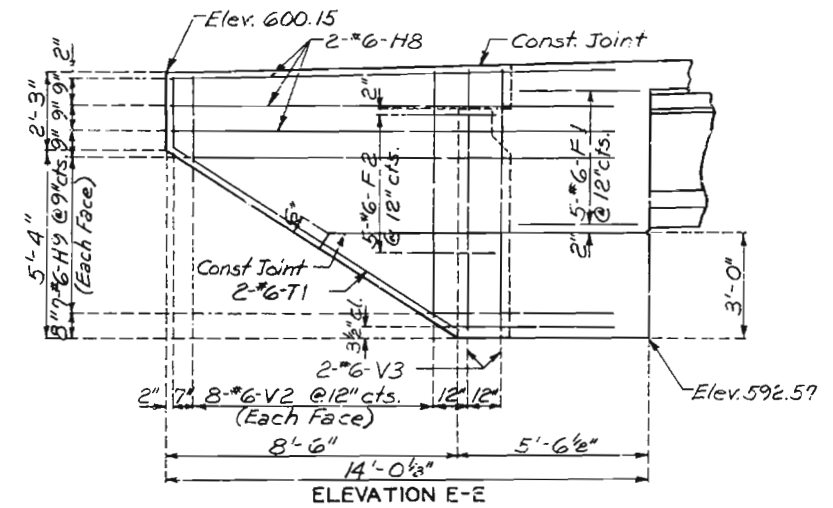
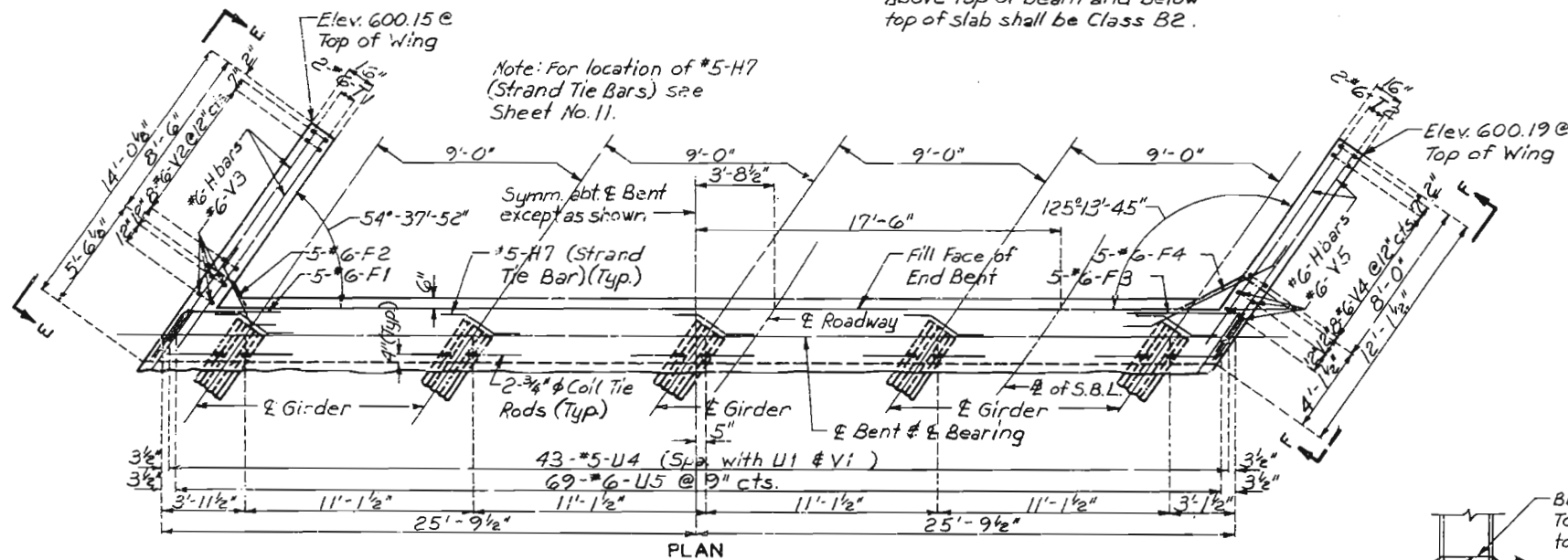
Sheet No. 2 of 20.

JEFFERSON COUNTY

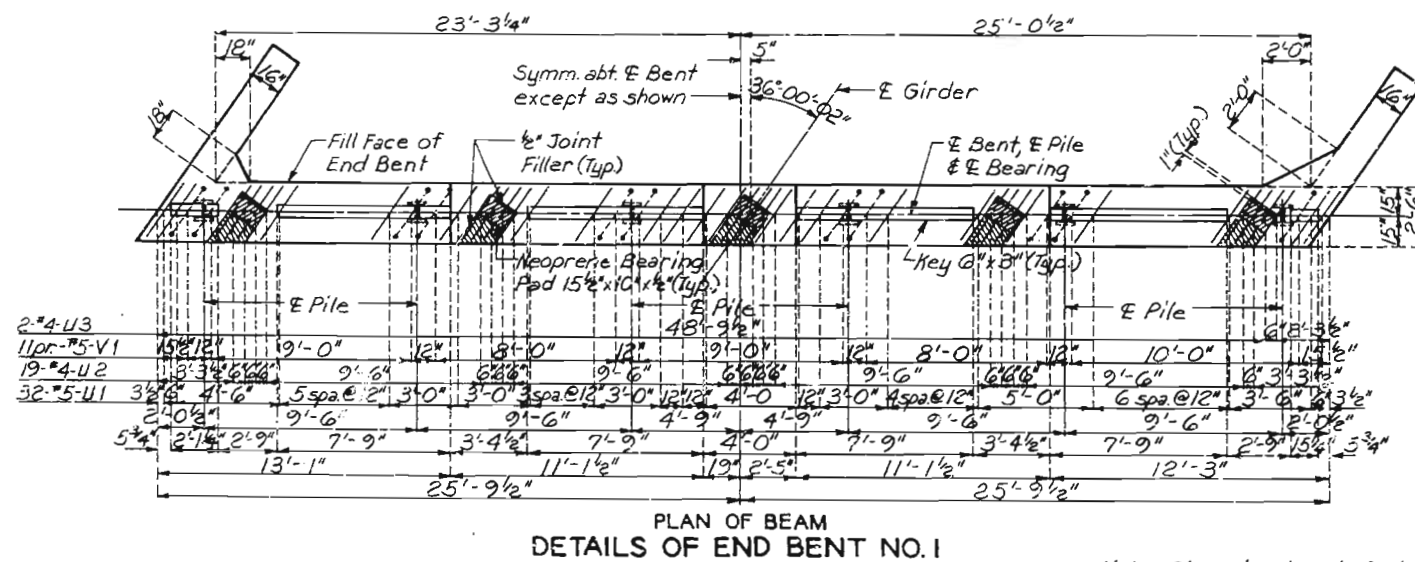
A-2959



Note: All concrete in the end bent above top of beam and below top of slab shall be Class B2.



Note: All U bars in end bent are to be placed parallel to E Girder. For details of barrier curb see Sheet No. 17.



Note: Strands at end of girder shall be field bent or, if necessary, cut in field to maintain 1 1/2" minimum clearance to fill face of end bent. Bend #6-F2 & #6-F4 bars in field to clear prestressed girder lane.

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

Sheet No. 4 of 20.

JEFFERSON COUNTY

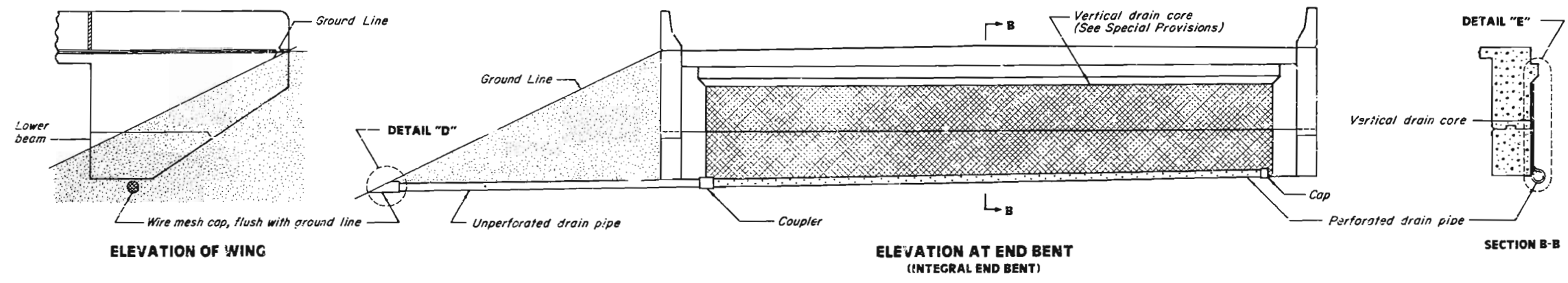
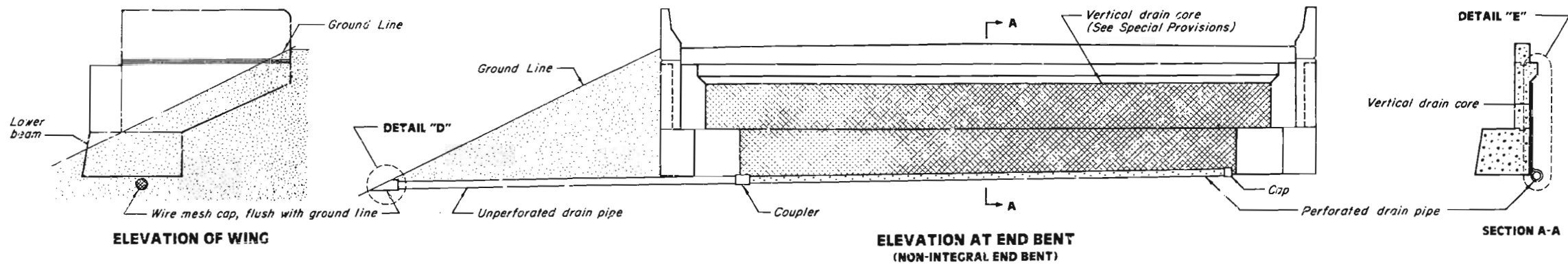
A-2959

GENERAL NOTES:

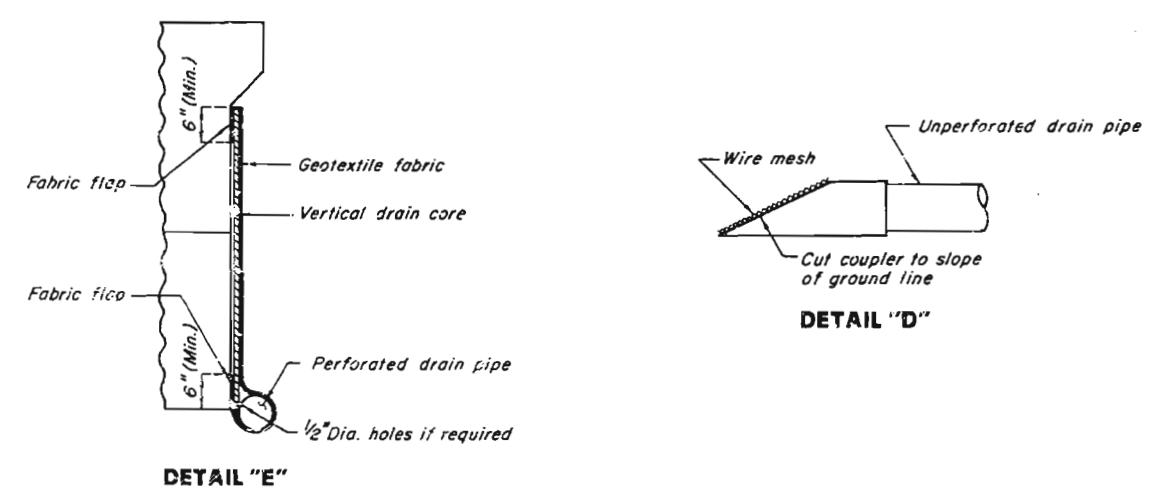
DRAIN PIPE MAY BE EITHER 6" DIAMETER CORRUGATED METALLIC-COATED STEEL PIPE UNDERDRAIN, 4" DIAMETER CORRUGATED POLY VINYL CHLORIDE (PVC) DRAIN PIPE, OR 4" DIAMETER CORRUGATED POLYETHYLENE (PE) DRAIN PIPE.

PLACE DRAIN PIPE AT FILL FACE OF END BENT AND SLOPE TO LOWEST GRADE OF GROUND LINE, ALSO MISSING THE LOWER BEAM OF END BENT BY 1 1/2". (SEE ELEVATION AT END BENT)

PERFORATED PIPE SHALL BE PLACED AT FILL FACE SIDE AT THE BOTTOM OF END BENT AND PLAIN PIPE SHALL BE USED WHERE THE VERTICAL DRAIN ENDS TO THE EXIT AT GROUND LINE.



Note: Vertical Drain at End Bent #1 only.



VERTICAL DRAIN AT END BENTS

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

Sheet No. 5 of 20

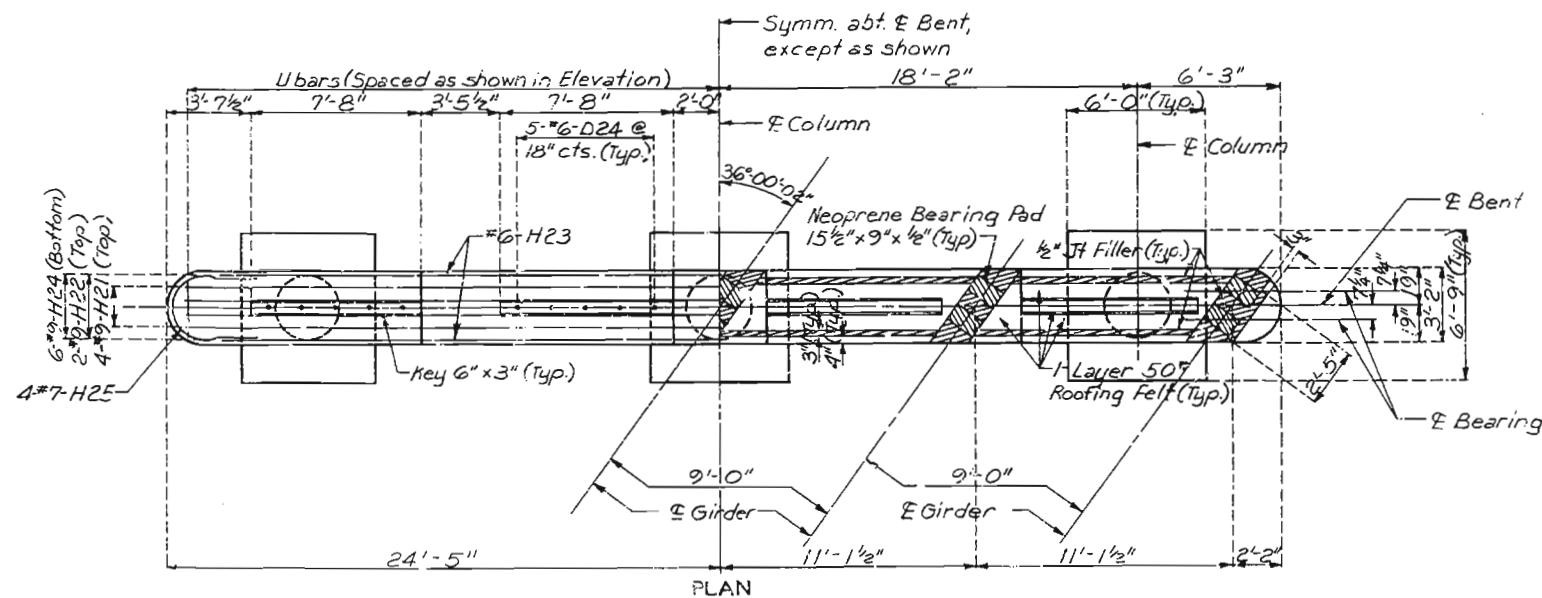
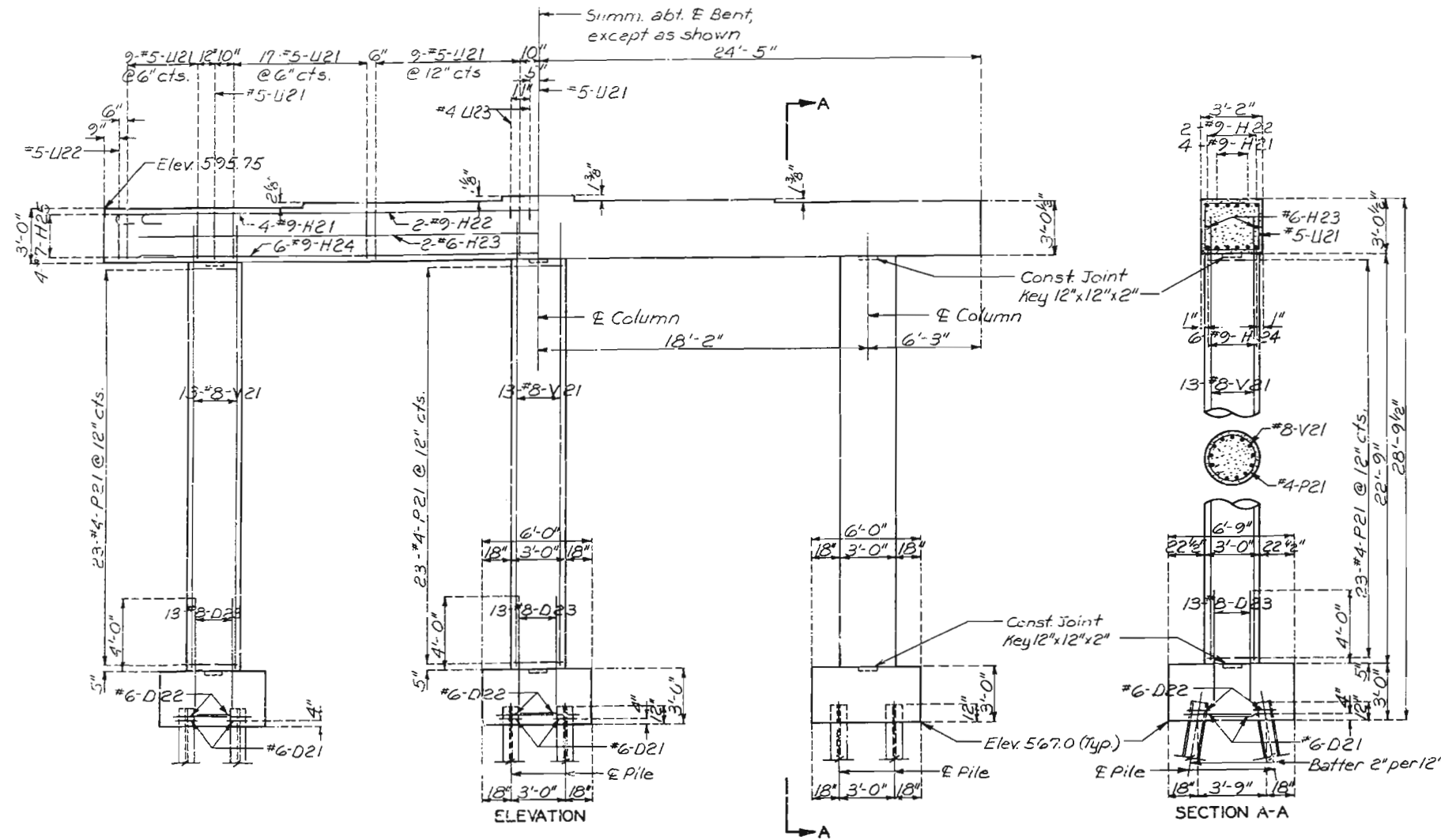
JEFFERSON COUNTY

A-2959

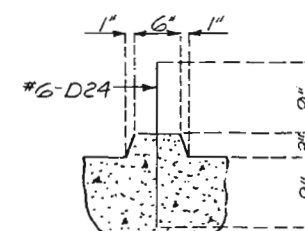
434 791

Revised
MARCH 1987
Abul Vert Drain
MARCH 1987

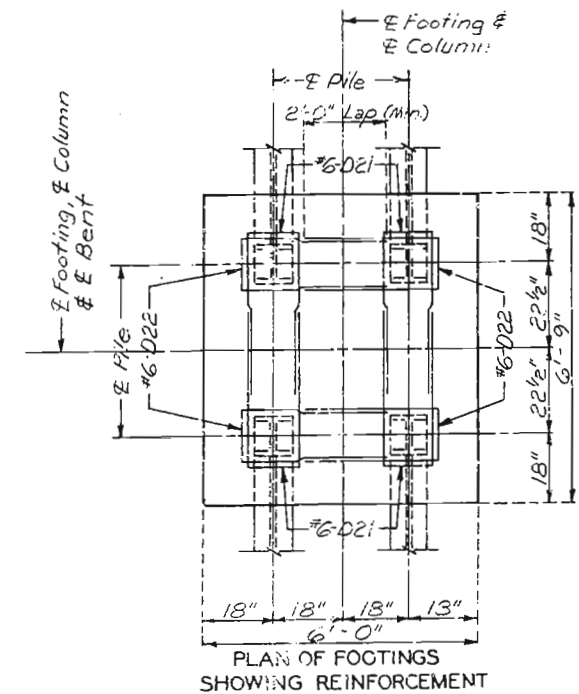
DETAILED MAR. 1987
CHECKED MAR. 1987



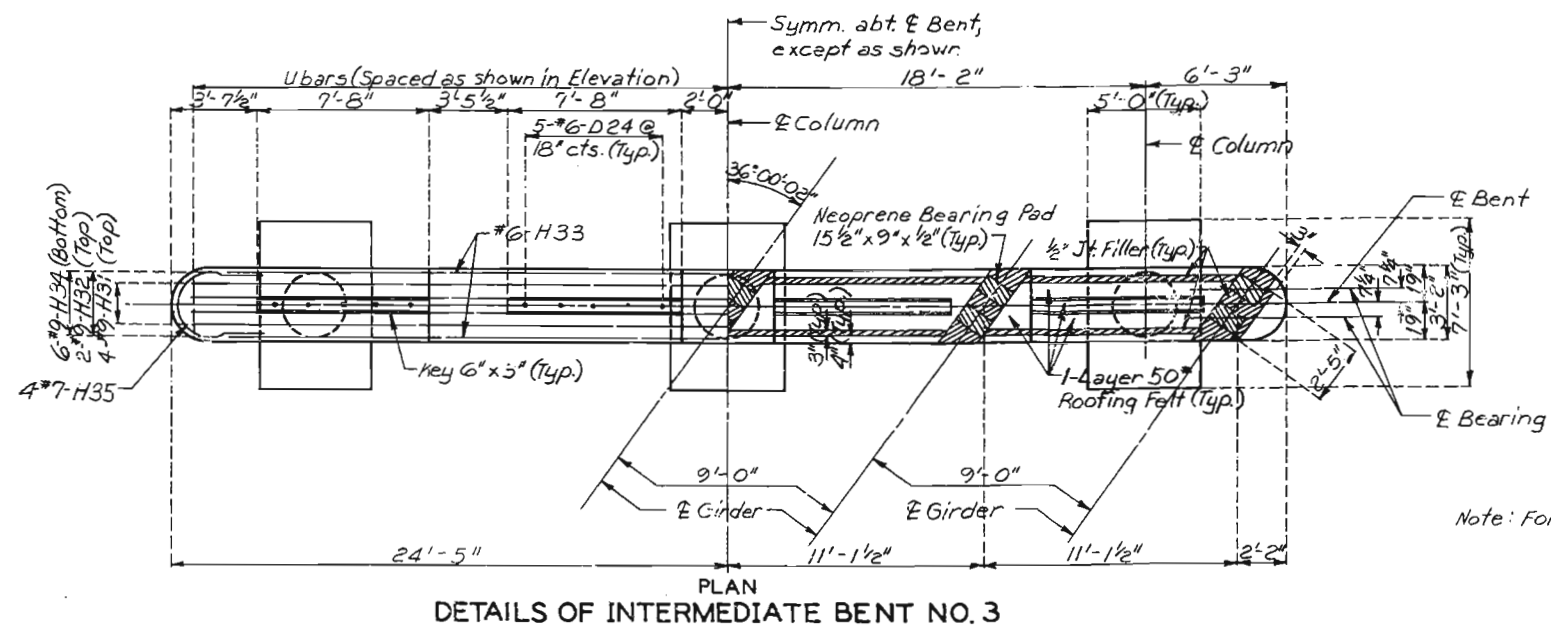
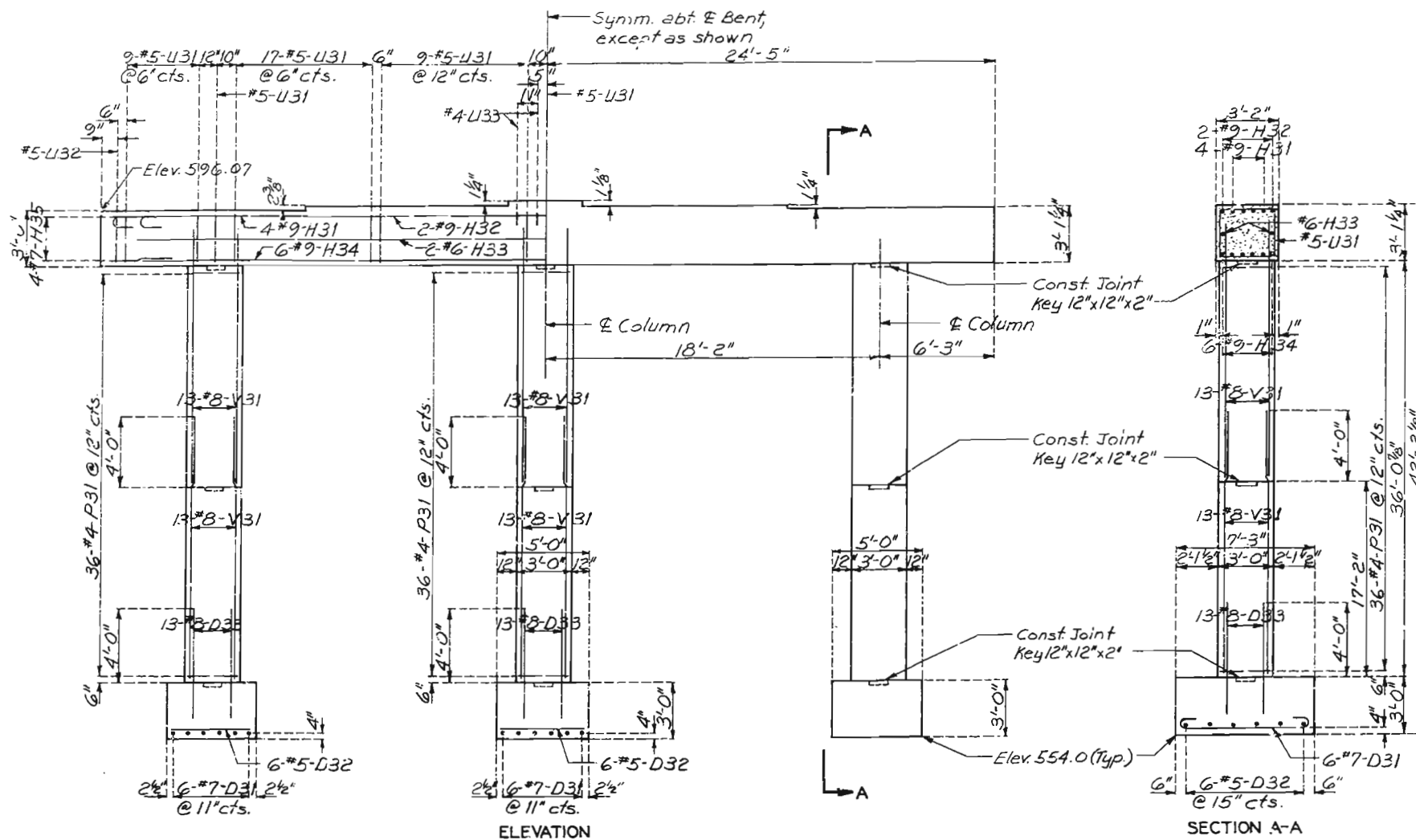
DETAILS OF INTERMEDIATE BENT NO. 2



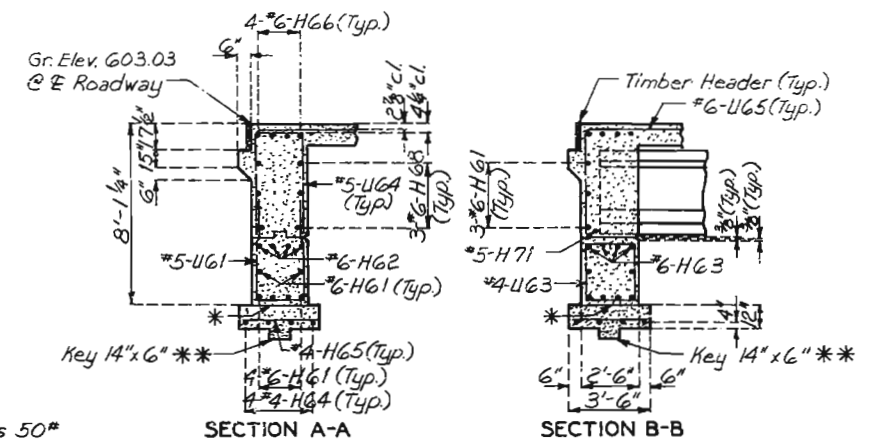
Note: For details of Steel Pile Splice, see Sheet No. 4.



435 292

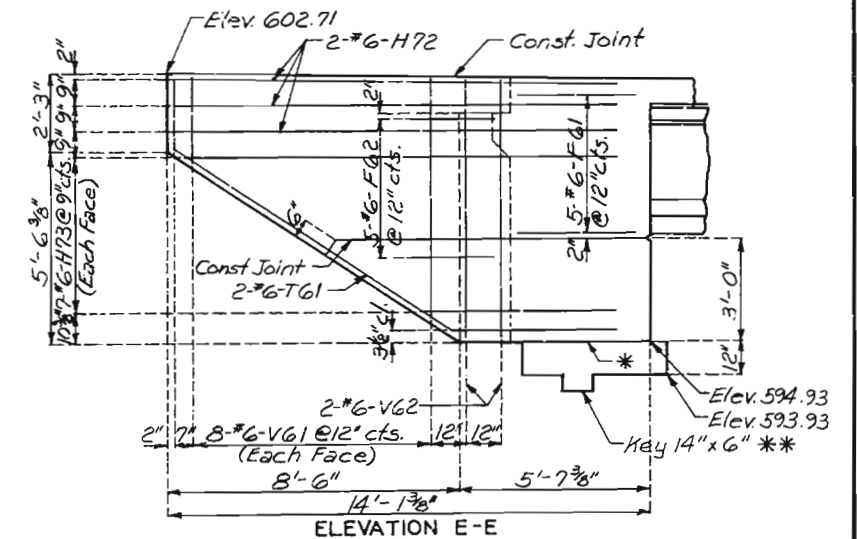


Note: For details of Keys, see Sheet No. 6.

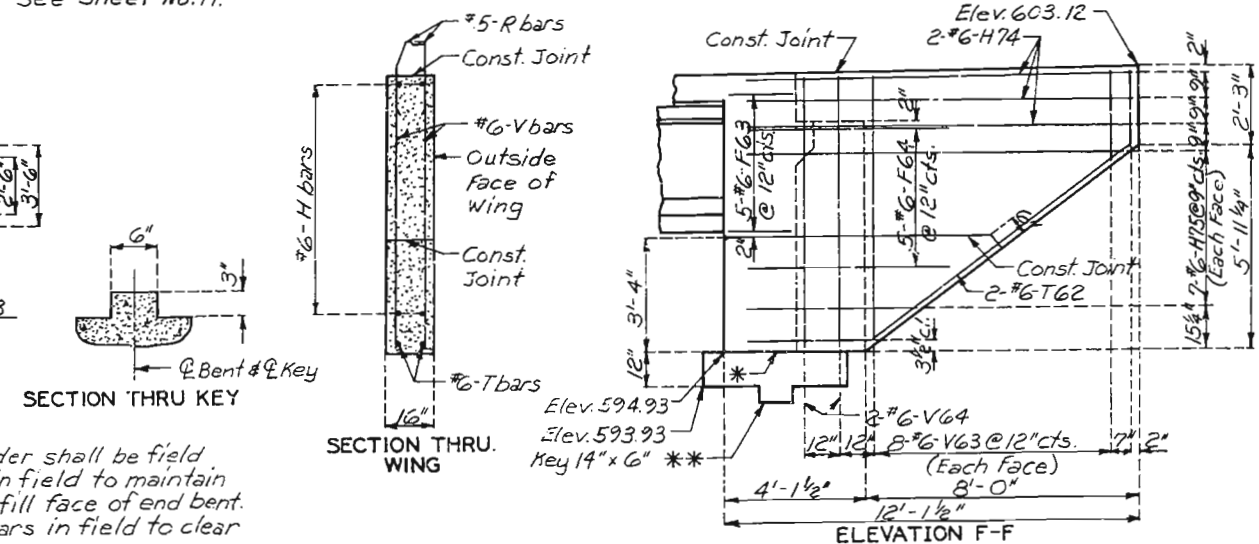


* 2-layers 50# roofing felt

** Bottom of concrete pad to be keyed 6" (min.) depth into rock.



Note: All Ubars in end bent are to be placed parallel to E Girder.
For details of barrier curb see Sheet No.17.



Note: Strands at end of girder shall be field bent or, if necessary, cut in field to maintain 1/2" minimum clearance to fill face of end bent.
Bend #6-F62 & #6-F64 bars in field to clear prestressed girder flange.



NOTE:
CONCRETE FOR PRESTRESSED GIRDERS SHALL BE CLASS A1 WITH $f_c = 5,000$ PSI. (+) INDICATES PRESTRESSED STRAND.
USE 18 STRANDS WITH AN INITIAL PRESTRESS FORCE OF 522 KIPS.

NOTE:

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 STIRRUP AND TIE DIMENSIONS.

ACTUAL LENGTHS ARE MEASURED ALONG CENTERLINE BAR TO THE NEAREST INCH.

MINIMUM CLEARANCE TO REINFORCING SHALL BE 1".

ALL REINFORCEMENT SHALL BE GRADE 60.

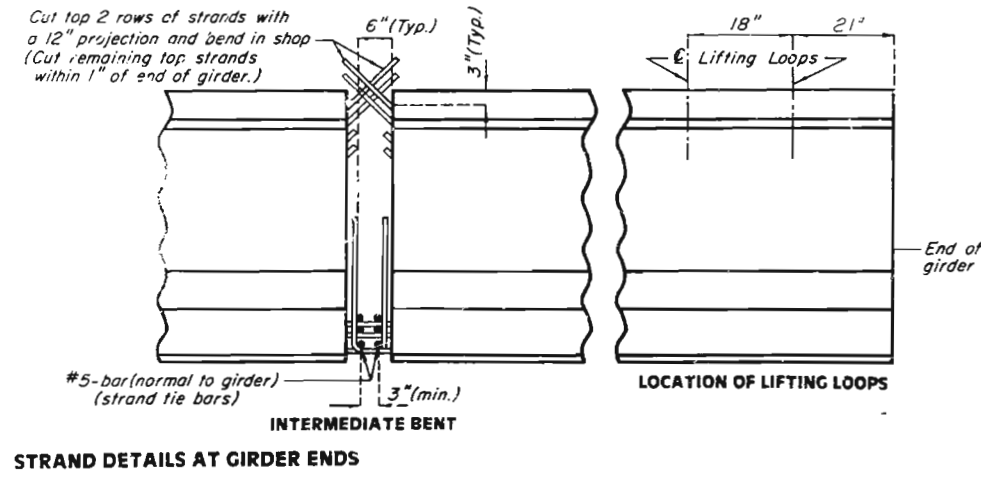
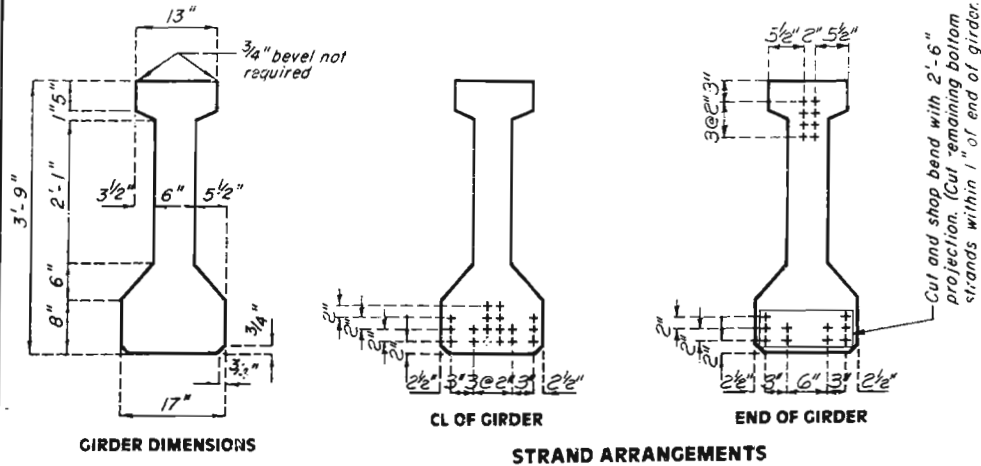


Place vert. holes at or near upgrade $\frac{1}{3}$ point of girder and clear reinforcing steel or strands by $1\frac{1}{2}$ " minimum and steel intermediate diaphragm bolt connection by 6" minimum.

For details and location of Slab Drains see Sheet No. 16.

For location of coil ties, see Sheets No. 4, 10 & 13.





BILL OF REINFORCING STEEL - EACH GIRDER				BENDING DIAGRAMS	
NO.	SIZE & MARK	ACTUAL LENGTH	SHAPE		
2	5A1	57'-0"	20		
98	5B1	5'-2"	11		
8	5B2	4'-7"	11		
49	4C1	13"	10		
98	4D1	3'-0"	9		

SHAPE 9

SHAPE 20

SHAPE 10

SHAPE 11

NOTE:

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 STIRRUP AND TIE DIMENSIONS.

ACTUAL LENGTHS ARE MEASURED ALONG CENTERLINE BAR TO THE NEAREST INCH.

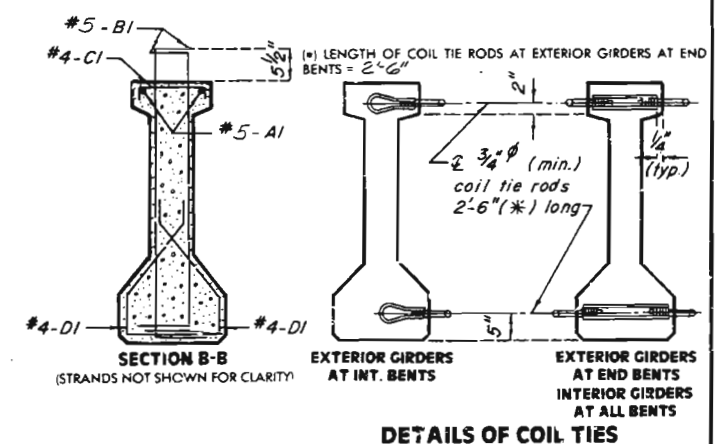
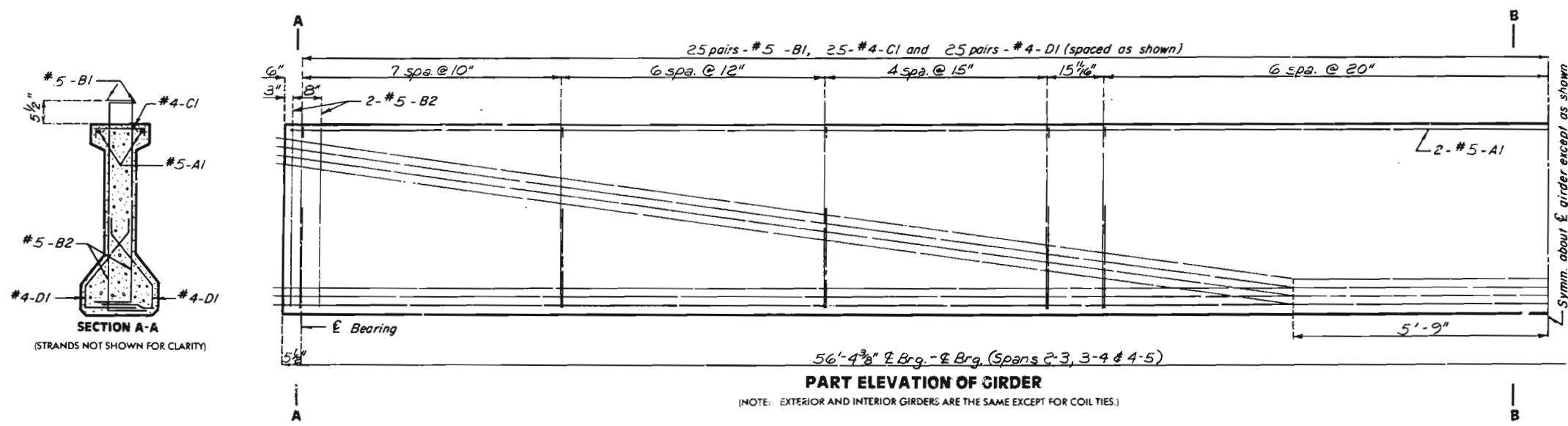
MINIMUM CLEARANCE TO REINFORCING SHALL BE 1".

ALL REINFORCEMENT SHALL BE GRADE 60.

NOTE:

CONCRETE FOR PRESTRESSED GIRDERS SHALL BE CLASS A1 WITH $f_c = 5,000$ PSI (-) INDICATES PRESTRESSED STRAND.

USE 18 STRANDS WITH AN INITIAL PRESTRESS FORCE OF 522 KIPS



NOTE:

COST OF 3/4" COIL TIE RODS PLACED IN DIAPHRAGMS IS INCLUDED IN CONTRACT UNIT PRICE FOR PRESTRESSED CONCRETE MEMBERS.

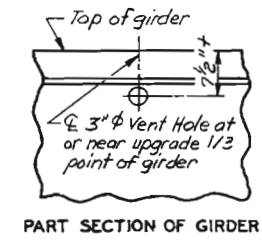
COIL TIES SHALL BE HELD IN PLACE IN THE FORMS BY SLOTTED WIRE-SETTING STUDS PROJECTING THRU FORMS. STUDS ARE TO BE LEFT IN PLACE OR REPLACED WITH TEMPORARY PLUGS UNTIL GIRDERS ARE ERECTED AND THEN REPLACED BY COIL TIE RODS.

For details of intermediate diaphragm and the 1/2" holes in web, see Sheet No. 13.

For location of coil ties, see Sheet No. 13.

Place vent holes at or near upgrade 1/3 point of girder and clear reinforcing steel or strands by 1/2" minimum and steel intermediate diaphragm bolt connection by 6" minimum.

For details and location of Slab Drains see Sheet No. 16.



444 290

SPS 55.4.6
APR 1973
REVISED
NOT FOR

DETAILED DEC. 1985
CHECKED JAN. 1987

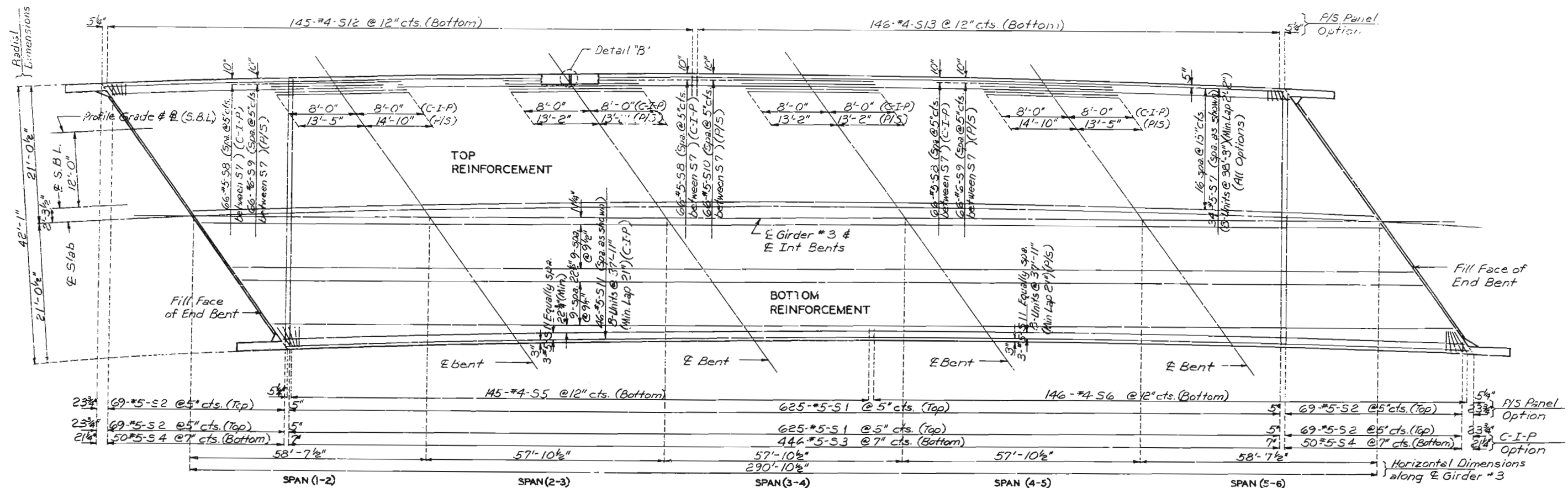
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 12 of 20

JEFFERSON COUNTY

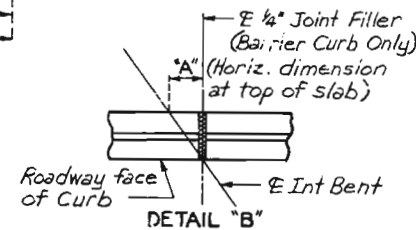
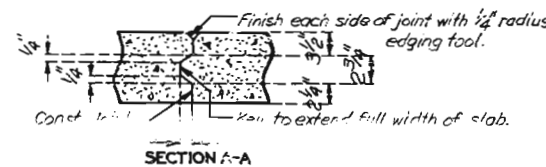
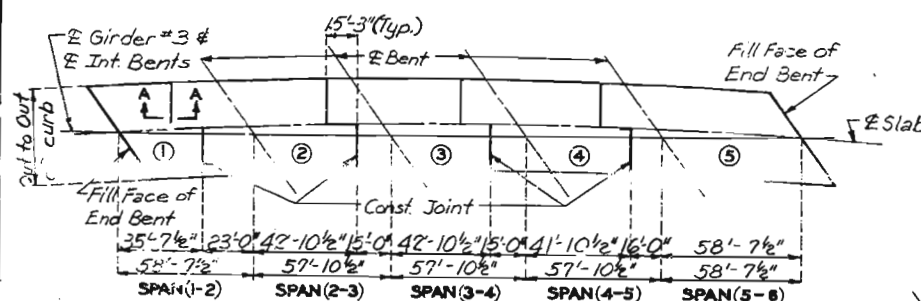
1-2009





PLAN OF SLAB SHOWING REINFORCEMENT
Note: Longitudinal dimensions are horizontal.

Note: For Theoretical Slab Haunching Diagram and Girder Camber Diagram, see Sheet No. 13.
For details of Prestressed Panel Option, see Sheet No. 15.
For details of Slab Drains, see Sheet No. 16.
Transverse Slab Bars S1, S2, S3 and S4 shall be placed perpendicular to E Girder #3.

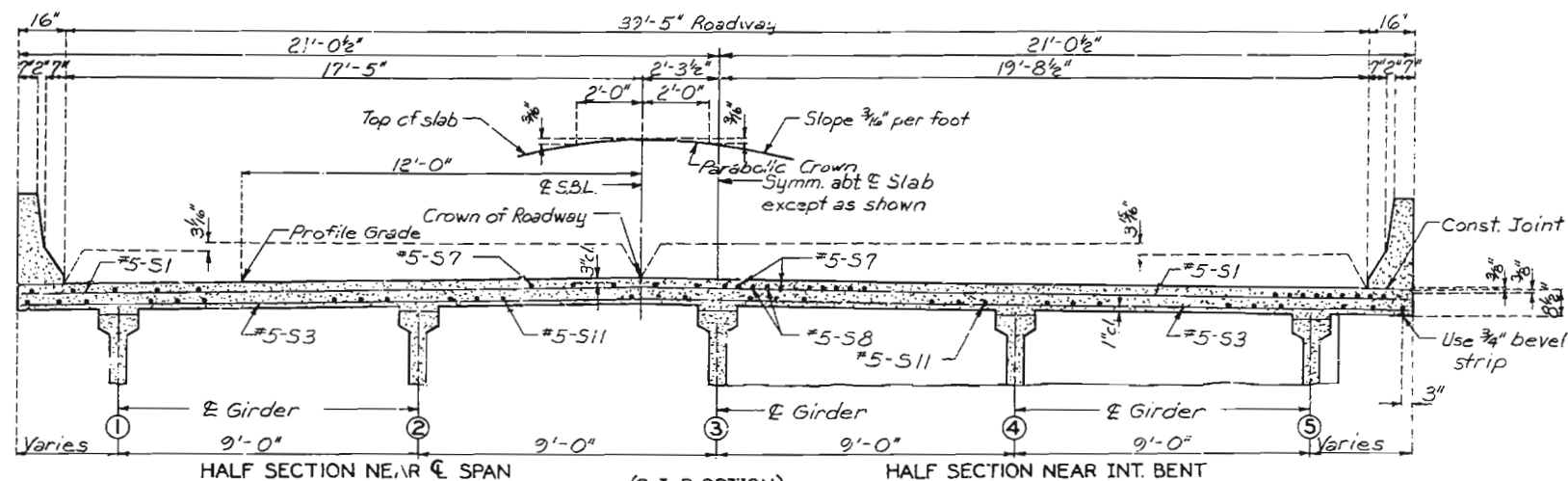


DIMENSION 'A'	RT.	LT.
Bent #2	11 1/2'	11 1/2'
Bent #3	11 1/2'	11 1/2'
Bent #4	11 1/2'	11 1/2'
Bent #5	11 1/2'	11 1/2'

Sequence of Pours	Direction					Minimum Rate of Pour (cubic yards per hour)
	1	2	3	4	5	
Basic Sequence	1 to 3	2 to 4	3 to 5	4 to End	5 to End	25
Alternate pours to the basic sequence are subject to the approval of the engineer in accordance with section 703.3.12.4 of Missouri Standard Specifications.						
Alternate 'A' Pours	1 + 2	3	4 + 5			25
Alternate 'B' Pours	1 + 2 + 3		4 + 5			25
Alternate 'C' Pours	1 + 2 + 3 + 4 + 5					25

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 the rate given above.
The concrete diaphragm at the intermediate bents and integral end bents shall be poured a minimum of 30 minutes and a maximum of 2 hours before the slab is poured.

SLAB POURING SEQUENCE



Note: For details and reinforcement of safety barrier curb not shown, see Sheet No. 17.

DETAILED DEC. 1985
CHECKED JAN. 1987

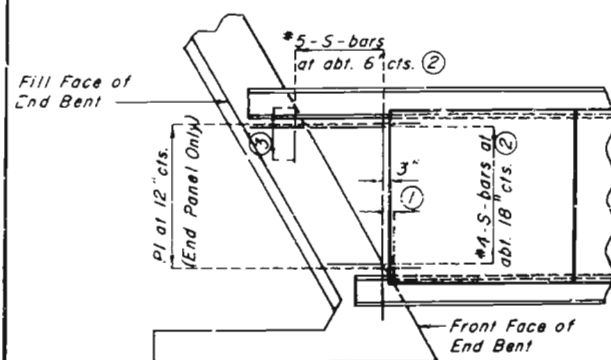
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 14 of 20.

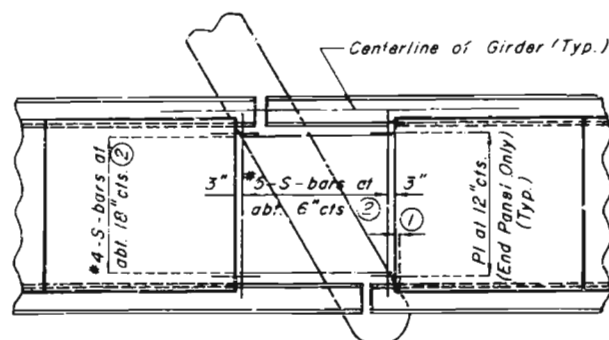
JEFFERSON COUNTY

A-2959

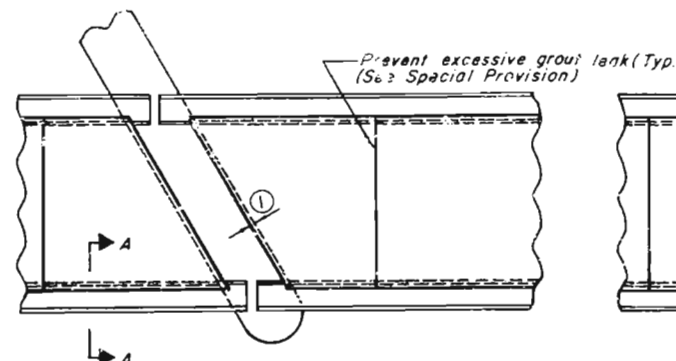
STATE	PROJ. NO.	SHEET NO.
MO.		73



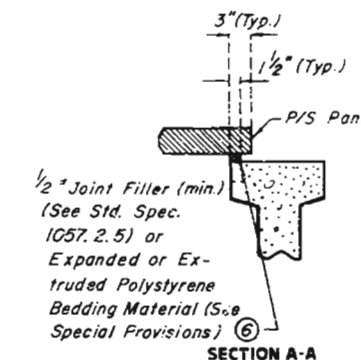
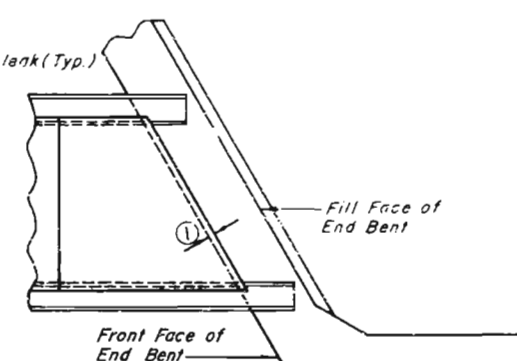
PANELS - SQUARED ENDS



PLAN OF PRECAST PRESTRESSED PANELS PLACEMENT



PANELS - SKEWED ENDS



NOTE:
USE SLAB HAUNCHING DIAGRAM ON SHEET NO. 13 FOR DETERMINING THICKNESS OF JOINT FILLER OR POLYSTYRENE BEDDING MATERIAL WITHIN THE LIMITS NOTED BELOW.

GENERAL NOTES:

PRESTRESSED PANELS:

CONCRETE FOR PRESTRESSED PANELS SHALL BE CLASS A1 WITH $F_c = 5,000$ PSI, $F_t = 3,500$ PSI.

THE TOP SURFACE OF ALL PANELS SHALL RECEIVE A SCORED FINISH WITH A DEPTH OF SCORING OF 1/4 INCH PERPENDICULAR TO THE PRESTRESSING STRANDS IN THE PANEL (SEE SPECIAL PROVISIONS).

PRESTRESSING TENDON SHALL BE HIGH-TENSILE STRENGTH UNCOATED SEVEN-WIRE (7) LOW RELAXATION STRANDS FOR PRESTRESSED CONCRETE CONFORMING TO AASHTO M203 EXCEPT THAT NOMINAL DIAMETER OF STRAND = 3/8 INCH AND NOMINAL AREA = 0.085 SQ. IN. AND MINIMUM ULTIMATE STRENGTH = 23,000 LBS. (270 KSI). LARGER STRANDS MAY BE USED WITH THE SAME SPACING AND INITIAL TENSION.

INITIAL PRESTRESSING FORCE = 17.2 KIPS/STRAND.

THE METHOD AND SEQUENCE OF RELEASING THE STRANDS SHALL BE SHOWN ON THE SHOP DRAWING.

SUITABLE ANCHORAGE DEVICES FOR LIFTING PANELS MAY BE CAST IN PANELS PROVIDED THEY ARE SHOWN ON THE SHOP DRAWINGS AND APPROVED BY THE ENGINEER. PANEL LENGTHS SHALL BE DETERMINED BY THE CONTRACTOR AND SHOWN ON THE SHOP DRAWINGS.

WHEN SQUARE END PANELS ARE USED AT SKEWED BENTS IT IS REQUIRED THAT THE SKEWED PORTION BE CAST FULL DEPTH. NO SEPARATE PAYMENT WILL BE MADE FOR THE ADDITIONAL CONCRETE AND REINFORCING REQUIRED.

MINIMUM JOINT FILLER OR POLYSTYRENE BEDDING MATERIAL THICKNESS SHALL BE 1/2 INCH. THICKER JOINT FILLER OR POLYSTYRENE BEDDING MATERIAL MAY BE USED ON ONE OR BOTH SIDES OF THE GIRDER TO REDUCE CAST-IN-PLACE CONCRETE THICKNESS, WITHIN TOLERANCES, NO MORE THAN 2 INCHES TOTAL THICKNESS OF JOINT FILLER OR POLYSTYRENE BEDDING MATERIAL SHALL BE USED.

THE SAME THICKNESS OF JOINT FILLER MATERIAL SHALL BE USED UNDER ANY ONE EDGE OF ANY PANEL AND THE MAXIMUM CHANGE IN THICKNESS BETWEEN ADJACENT PANELS SHALL BE 1/4 INCH. THE POLYSTYRENE BEDDING MATERIAL MAY BE CUT TO MATCH HAUNCH HEIGHT ABOVE TOP OF FLANGE.

AT THE CONTRACTOR'S OPTION THE VARIATION IN SLAB THICKNESS OVER PRESTRESSED PANELS MAY BE ELIMINATED OR REDUCED BY INCREASING AND VARYING THE GIRDER TOP FLANGE THICKNESS. DIMENSIONS SHALL BE SHOWN ON THE SHOP DRAWINGS.

REINFORCING STEEL:

ALL DIMENSIONS ARE OUT TO OUT.

MINIMUM CLEARANCE TO REINFORCING STEEL SHALL BE 1 1/2 INCH UNLESS OTHERWISE SHOWN.

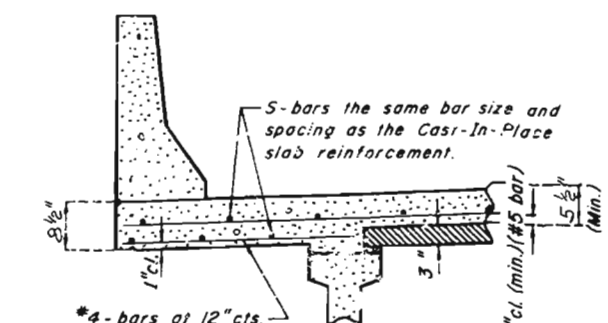
HOOKS AND BENDS SHALL BE IN ACCORDANCE WITH THE C.R.S.I. MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES, STIRRUP AND TIE DIMENSIONS.

ACTUAL LENGTHS ARE MEASURED ALONG CENTERLINE BAR TO THE NEAREST INCH.

THE PRESTRESSED PANEL QUANTITIES ARE NOT INCLUDED IN THE TABLE OF ESTIMATED QUANTITIES FOR ALTERNATE SLABS.

IF U1 BARS INTERFERE WITH PLACEMENT OF SLAB STEEL, U1 LOOPS MAY BE BENT OVER AS NECESSARY TO CLEAR SLAB STEEL.

WELDED WIRE FABRIC OR WELDED DEFORMED BAR MATS PROVIDING A MINIMUM AREA OF REINFORCING PERPENDICULAR TO STRANDS OF 0.22 SQ. IN./FT. WITH SPACING PARALLEL TO STRANDS SUFFICIENT TO INSURE PROPER HANDLING MAY BE USED IN LIEU OF THE #3-P2 BARS SHOWN. WIRE OR BAR DIAMETER SHALL NOT BE LARGER THAN 0.375 INCHES.



SECTION THRU CANTILEVER

NOTE:

① END PANEL TO BE DIMENSIONED 1 1/2 INCHES INSIDE FACE OF DIAPHRAGM.

② S-BARS SHOWN ARE BOTTOM STEEL IN SLAB BETWEEN PANELS AND USED WITH SQUARED END PANELS ONLY.

COST OF S-BARS SHALL BE INCLUDED IN PRICE BID FOR SLAB PER SQ. YD.

S-BARS ARE NOT LISTED IN BILL OF REINFORCING.

SUPPORT FROM DIAPHRAGM FORMS REQUIRED UNDER OPTIONAL SKEWED END UNTIL CAST-IN-PLACE CONCRETE HAS REACHED 3,000 PSI COMPRESSIVE STRENGTH.

③ EXTEND S-BARS 18 INCHES BEYOND FRONT FACE OF END BENT ONLY.

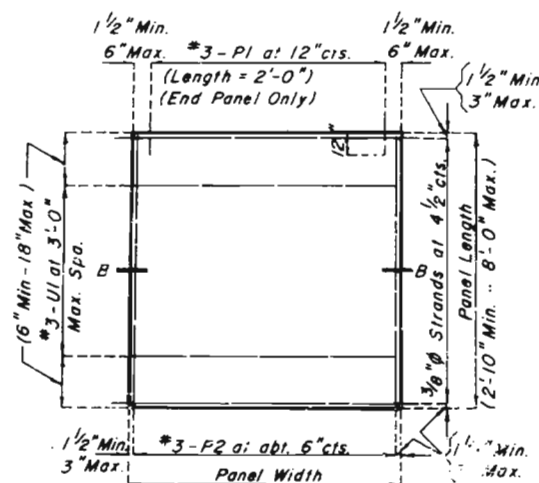
SLAB EXTERIOR GIRDER HAUNCH TO BE THE SAME AS CAST-IN-PLACE.

SLAB THICKNESS OVER PRESTRESSED PANELS VARIES DUE TO GIRDER CAMBER.

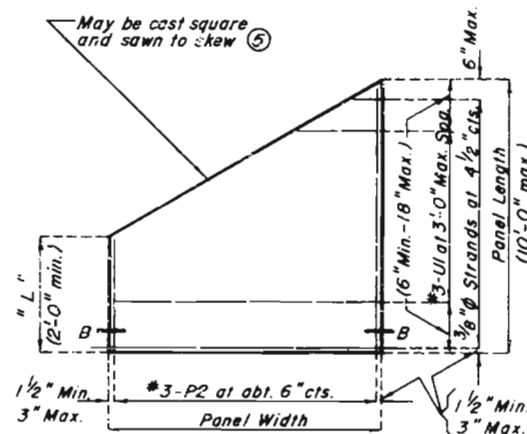
④ IN ORDER TO MAINTAIN MINIMUM SLAB THICKNESS IT MAY BE NECESSARY TO RAISE THE GRADE UNIFORMLY THROUGHOUT THE STRUCTURE. NO PAYMENT WILL BE MADE FOR ADDITIONAL LABOR OR MATERIALS REQUIRED FOR NECESSARY GRADE ADJUSTMENT.

⑤ ANY STRAND 2'-0" OR SHORTER SHALL HAVE A #4 REINFORCING BAR ON EACH SIDE OF IT CENTERED BETWEEN STRANDS. STRANDS 2'-0" OR SHORTER MAY THEN BE DEBONDED AT FABRICATOR'S OPTION.

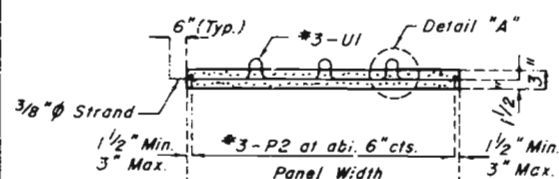
⑥ ALL PANEL SUPPORT PADS SHALL BE GLUED TO THE GIRDER. WHEN SUPPORT THICKNESS EXCEEDS 1 1/2 INCH THE PADS SHALL BE GLUED TOP AND BOTTOM. THE GLUE USED SHALL BE THE TYPE RECOMMENDED BY THE PANEL SUPPORT PADS MANUFACTURER.



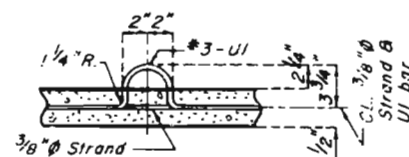
PLAN OF PRECAST PRESTRESSED PANEL



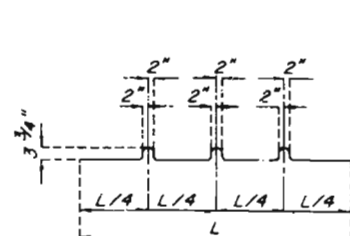
PLAN OF PRECAST PRESTRESSED PANEL (SKEWED END-OPTIONAL)



SECTION B-B

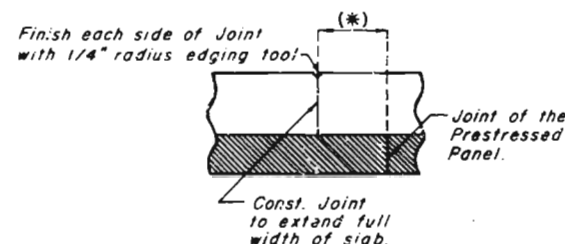


DETAIL "A"



BENDING DIAGRAM FOR U1 BAR

#3-U1 BARS MAY BE ORIENTED AT RIGHT ANGLES TO LOCATION AND SPACING SHOWN. U1 BARS SHALL BE PLACED BETWEEN P1 BARS.



PERMISSIBLE CONST. JOINT

⑦ ADJUST THE PERMISSIBLE CONST. JOINT TO A CLEARANCE OF 6 INCHES MIN. FROM THE JOINTS OF THE PRESTRESSED PANELS.

DETAILS OF PRECAST PRESTRESSED PANELS

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

Sheet No. 15 of 20

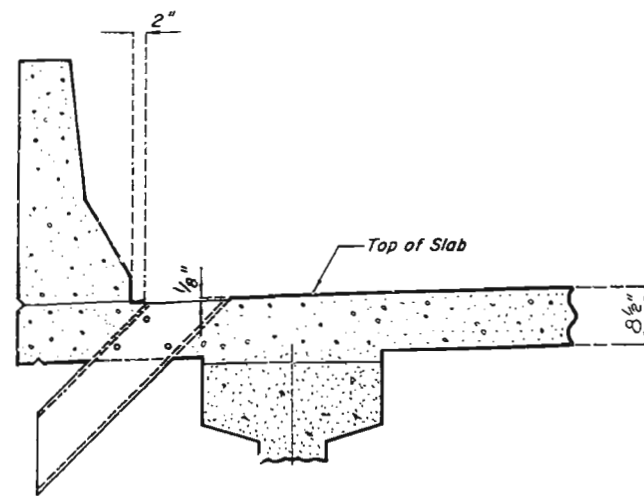
JEFFERSON COUNTY

A-2959

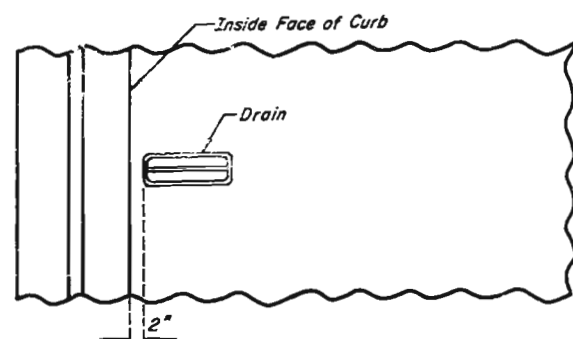
DETAILED JAN. 1987
CHECKED JAN. 1987

PRESTRESS
P/C-P/S PANEL (3")
REVISED
JULY 1983
AUG. 1984

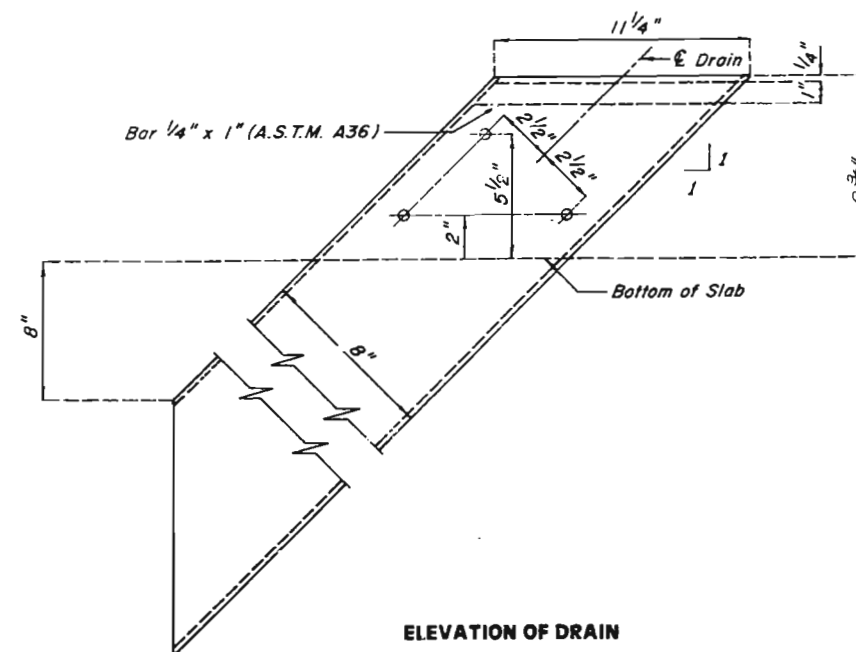
STATE	PROJ NO	SHEET NO
MO		74



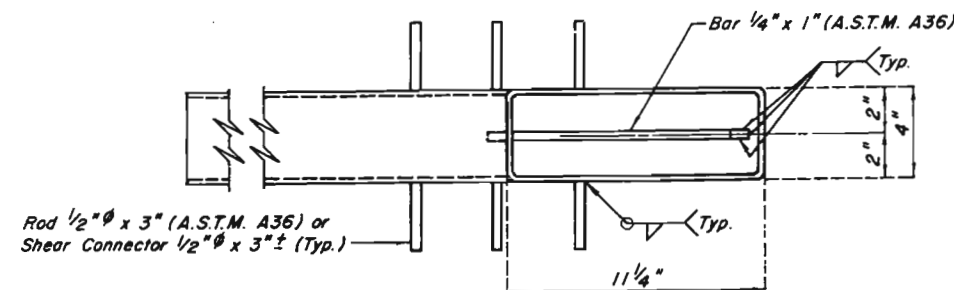
PART ELEVATION OF SLAB AT DRAIN



PART PLAN OF SLAB AT DRAIN

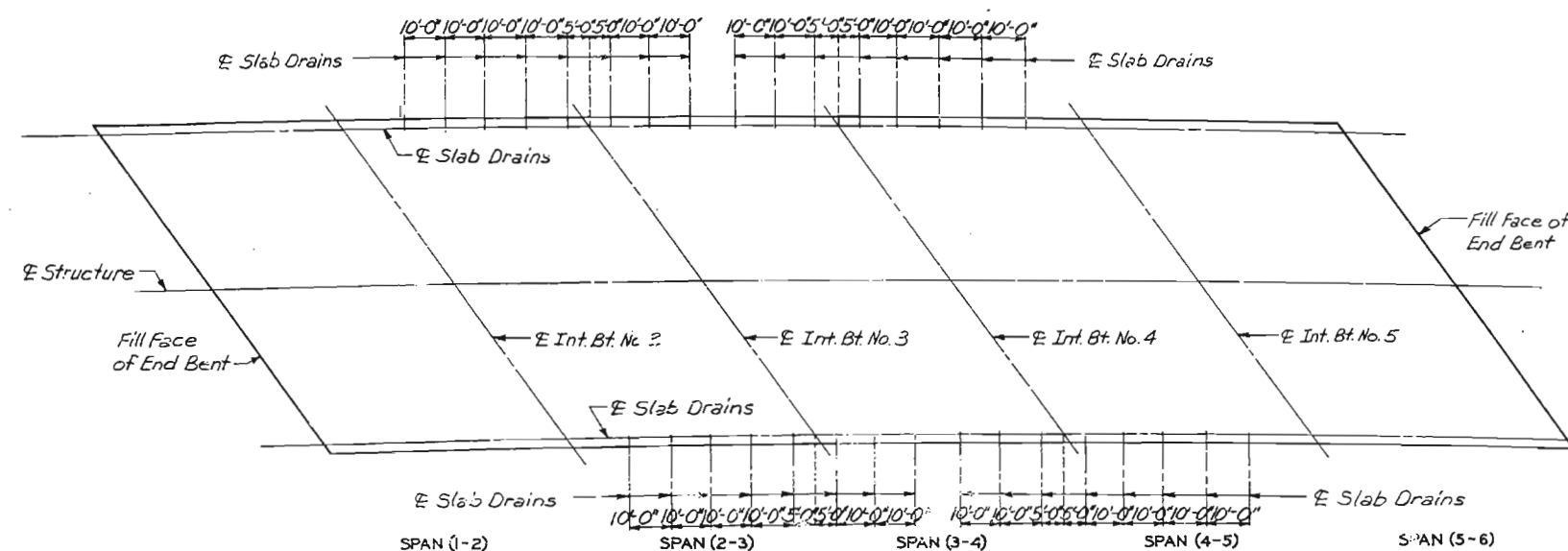


ELEVATION OF DRAIN



PLAN OF DRAIN

SLAB DRAIN DETAILS



PLAN OF SLAB SHOWING SLAB DRAIN LOCATION

Note: Longitudinal dimensions are horizontal arc dimensions.

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" x 4".

THE DRAINS SHALL BE CAST IN THE CONCRETE WITH THE TOP OF THE DRAINS BEING 1/4" 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.

Gdr. Depth Less Than 48"
SPS-SQ(MWS.)
FEB. 1975
MAR. 1978

DETAILED DEC. 1985
CHECKED JAN. 1987

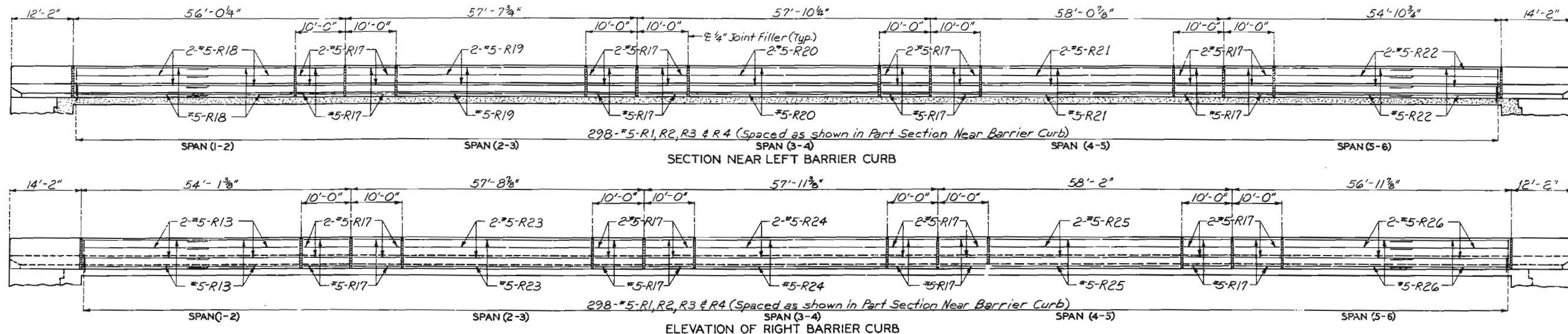
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 16 of 20

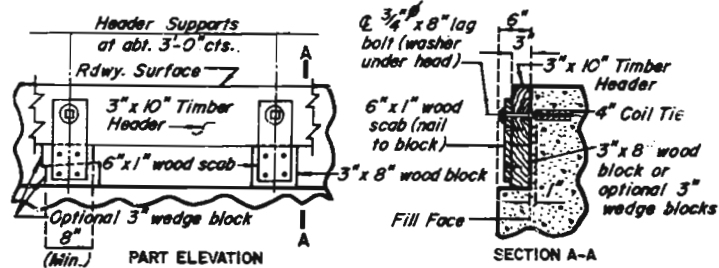
JEFFERSON COUNTY

A-2959

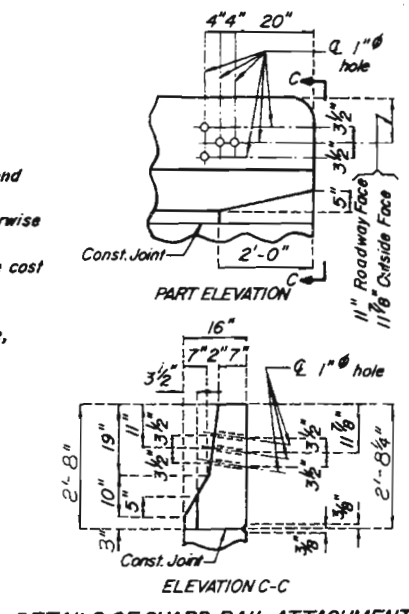
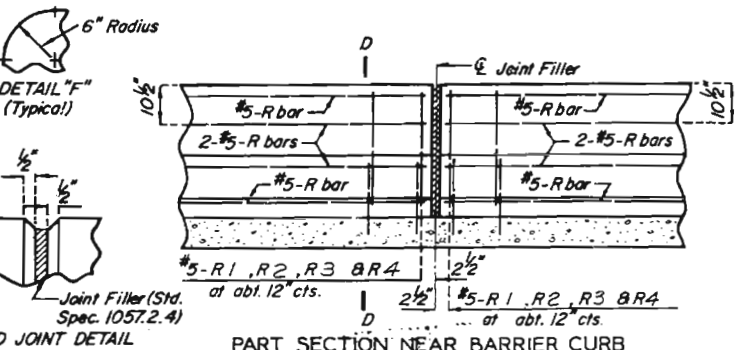
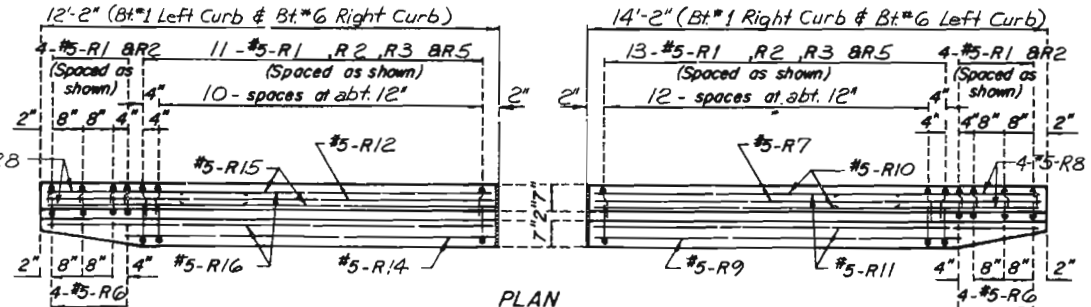
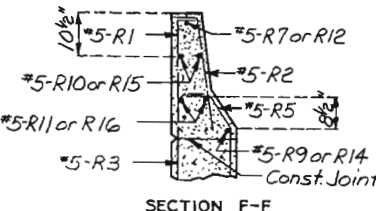
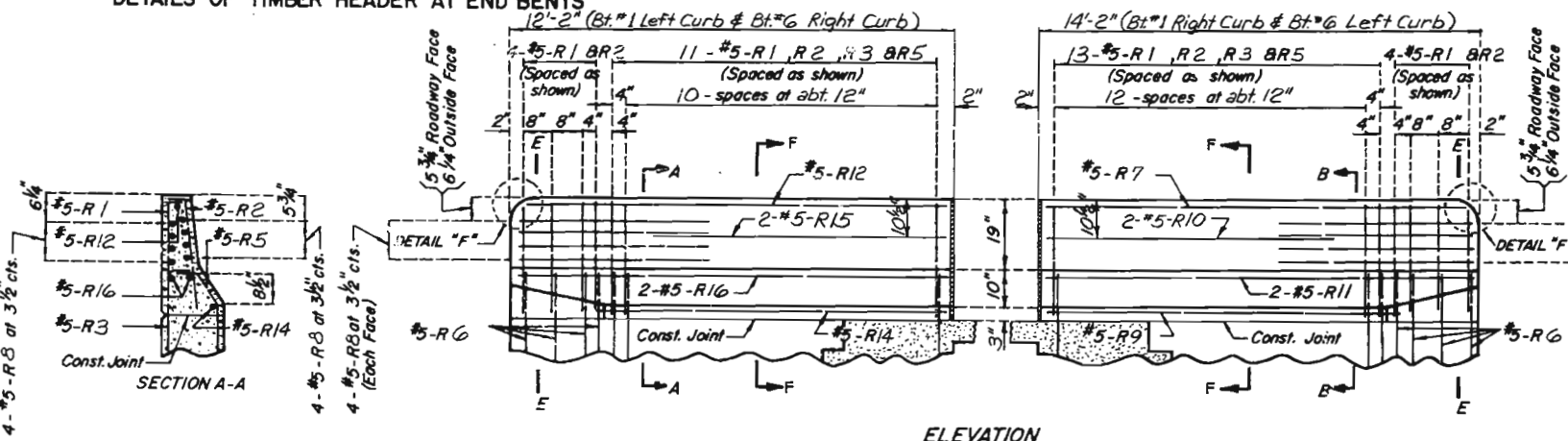
445 302



Note: Longitudinal dimensions are horizontal arc dimensions along outside face of barrier curb.



DETAILS OF TIMBER HEADER AT END BENTS



NOTES:

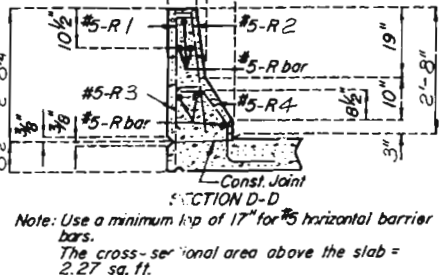
Top of barrier curb to be built parallel to grade with barrier curb joints (except at end bents) normal to grade.

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

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

Concrete in the safety barrier curb shall be Class B1.

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



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. 17 of 20.

JEFFERSON COUNTY

A-2959

DETAILED DEC. 1985
CHECKED JAN. 1987

303

SPS 170(1) REVISED
AUG. 1978
JUNE 1984

447 304

COMPLETE BILL OF REINFORCING STEEL

NO. REQD.	MARK NO.	LOCATION	EPOXY	SHAPE NO	STIRRUP	SUBSTR.	VARIES	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.	FT.	IN.	FT.	IN.	LBS.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
		SUBSTRUCTURE																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										

COMPLETE BILL OF REINFORCING STEEL

NO. REQD.	MARK NO.	LOCATION	EPOXY	SHAPE NO.	STIRRUP	VARIES	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.	FT.	IN.			
2	6H43	BEAM		20	X			45	8.000											45	8	45	8	137		
6	9H44	BEAM		20	X			45	8.000											45	8	45	8	932		
8	7H45	BEAM		7	X			4	0.000	2	9.750									9	6	9	6	155		
106	4P41	COL		16	X			2	9.000											9	6	9	6	673		
73	5U41	BEAM		13	S	X		2	11.000	2	9.000	2	11.000	2	9.000					12	3	11	11	907		
2	5U42	BEAM		13	S	X		2	4.500	2	9.000	2	4.500	2	9.000					11	2	10	10	23		
4	4U43	BEAM		10	S	X				6.000	2	11.000								3	11	3	9	10		
13	8V41	COL		20	X			33	10.000											33	10	33	10	1174		
52	8V42	COL		20	X			21	5.000											21	5	21	5	2974		
		INT BT NO 5																								
20	6D24	BEAM		20	X			21.000												21	21			53		
18	6D51	FOOTING		18	X			6	0.000											7	4	7	4	198		
15	5D52	FOOTING		20	X			4	9.000											4	9	4	9	74		
39	8D53	COL & FOOTING		20	X			6	4.000											6	4	6	4	659		
4	9H51	BEAM		18	X			48	0.000											50	6	50	6	687		
2	9H52	BEAM		18	X			45	8.000											48	2	48	2	328		
2	6H53	BEAM		20	X			45	8.000											45	8	45	8	137		
6	9H54	BEAM		20	X			45	8.000											45	8	45	8	932		
8	7H55	BEAM		7	X			4	0.000	2	9.750									9	6	9	6	155		
93	4P51	COL		16	X			2	9.000											9	6	9	6	590		
73	5U51	BEAM		13	S	X		2	11.000	2	9.000	2	11.000	2	9.000					12	3	11	11	907		
2	5U52	BEAM		13	S	X		2	4.500	2	9.000	2	4.500	2	9.000					11	2	10	10	23		
4	4U53	BEAM		10	S	X				6.000	2	11.000								3	11	3	9	10		
39	8V51	COL		20	X			33	6.000											33	6	33	6	3488		
		SUPERSTRUCTURE																								
		END BENT NO 1																								
5	6F1	DIAPH		15				2	8.375	5	0.000					2	2.250	14.000	7	8	7	8	58			
5	6F2	WING BRACE		15				14.000	3	2.500	14.000	12.500	6.250	12.500	6.250	5	7	5	5	41						
5	6F3	DIAPH		21				2	8.375	5	2.500					2	2.250	19.000	7	11	7	5	56			
5	6F4	WING BRACE		15				14.125	6	9.000	14.125	6.500	12.500	6.500	12.500	9	1	9	1	68						
8	7H1	BEAM		20				51	4.000											51	4	51	4	839		
5	6H2	BEAM & DIAPH		20				51	4.000											51	4	51	4	386		
12	6H3	DIAPH		20				9	0.000											9	0	9	0	162		
6	7H4	DIAPH	E	20				51	4.000											51	4	51	4	630		
3	6H5	DIAPH		20				2	10.000											2	10	2	10	13		
3	6H6	DIAPH		20				2	0.000											2	0	2	0	9		
5	5H7	DIAPH		23				15.000		17.000	15.000	8.875	12.125	8.875	12.125	3	11	3	10	20						
6	6H8	WING		20				11	9.000											11	9	11	9	106		
14	6H9	WING		20				11	5.000											11	5	11	5	165		
		INCR = 14.375 IN						4	3.000											4	3	4	3	165		
6	6H10	WING		20				11	7.000											11	7	11	7	104		

NOTE: Two (2) additional #7-H4 are included in bar bill for testing.

END HOOK DIMENSIONS				
BAR SIZE	D (IN.)	180° HOOKS		90° HOOKS
		ALL GRADES		ALL GRADES
		A OR G	J	A OR G
#3	2½"	5"	3"	6"
#4	3"	6"	4"	8"
#5	3¾"	7"	5"	10"
#6	4½"	8"	6"	12"
#7	5½"	10"	7"	14"
#8	6"	11"	8"	16"
#9	9½"	15"	11¾"	19"
#10	10¾"	17"	13¾"	22"
#11	12"	19"	14¾"	2-0"
#14	18¾"	2-3"	21¾"	2-7"

COMPLETE BILL OF REINFORCING STEEL																																		
NO. REC'D	MARK NO.	LOCATION	EPOXY	EL	SHAPE NO	STIRRED	IS	SUBSTR	IN	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.	FT.	IN.			
14	6M11	WING		20									1	2.000											11	2	11	2		165				
		INCR = 15.375 IN											4	6.000											4	6	4	6						
2	6T1	WING		25									2	1.000	9	6.625	3	8.000							5	1.000	8	1.000	15	4	15	3	46	
2	6T2	WING		25									2	1.000	9	2.250	3	11.000							5	1.400	7	7.500	15	2	15	1	65	
32	5U1	BEAM		10	S												4	11.000	2	9.375											414			
19	4U2	BEAM		13	S								2	9.375	2	9.000	2	9.375	2	9.000												147		
2	4U3	BEAM		10	S												2	9.000	2	9.375											11			
43	5U4	DIAPH	E	10	S												4	3.500	2	9.375											501			
71	6U5	DIAPH	E	19	S								4	4.875	4	2.000															898			
22	5V1	BEAM		20													4	11.000													113			
14	6V2	WING		20									2	7	0.000																			
		INCR = 7.750 IN															2	6.000													114			
4	5V3	WING		20													7	5.000													45			
14	6V4	WING		20									2	7	3.000																			
		INCR = 8.125 IN															2	6.000													117			
4	6V5	WING		20													7	7.000													46			
		END BENT NO 6																																
5	6F61	DIAPH		15									2	9.125	4	3.000										2	2.250	20	2.50	7	0	7	0	53
5																																		

COMPLETE BILL OF REINFORCING STEEL																							
NO. REQD.	MARK NO.	LOCATION	EPOXY	SHAPE NO.	S	SUBSTR.	VARIES	NO. EACH	DIMENSIONS												NOMINAL LENGTH	ACTUAL LENGTH	WEIGHT
									B	C	D	E	F	H	K								
																FT.	IN.	FT.	IN.	FT.			
64	4H101	DIAPH AT INT BTS		20					9	1.000								9	1	873			
54	4H102	DIAPH AT INT BTS		20					10	2.000								10	2	435			
48	5H103	DIAPH AT INT BTS		23					15.000	17.000					8.875	12.125	2	8	134				
72	5H104	DIAPH AT INT BTS		23					15.000	17.000	15.000	8.875	12.125	8.875	12.125	3	11	3	10	288			
194	4H101	DIAPH AT INT BTS	E	28	S				2	3.000	4	0.000	12.000				7	3	7	1	918		
64	6U102	DIAPH AT INT BTS	E	28	S				2	5.000	4	0.000	14.000				7	7	7	3	697		
64	5U103	DIAPH AT INT BTS		19	S				9.500	19.000							2	5	2	3	150		
32	5V101	DIAPH AT INT BTS		20					4	4.000							4	4	4	145			
660	5R1	BARRIER CURB	E	19	S				2	6.000	3.500						2	10	2	8	1836		
660	5R2	BARRIER CURB	E	15	S				2	6.125	3.500			2	6.000	3.000	2	10	2	9	1893		
644	5R3	BARRIER CURB	E	19	S					17.000	6.000						23	22		1231			
596	5R4	BARRIER CURB	E	27	S					6.000	11.125	7.000	12.000	9.125	6.375	3	0	2	10	1761			
48	5R5	BARRIER CURB	E	27	S					6.000	11.125	15.000		9.125	6.375	2	8	2	7	124			
16	5R6	BARRIER CURB	E	10	S				2	0.000	6.000						4	6	4	72			
2	5R7	BARRIER CURB	E	20					13	8.000							13	8	13	8	25		
32	5R8	BARRIER CURB	E	20					5	0.000							5	0	5	0	167		
2	5R9	BARRIER CURB	E	20					11	11.000							11	11	11	11	25		
4	5R10	BARRIER CURB	E	20					10	4.000							10	4	10	4	43		
4	5R11	BARRIER CURB	E	20					13	11.000							13	11	13	11	58		
2	5R12	BARRIER CURB	E	20					11	8.000							11	8	11	8	24		
12	5R13	BARRIER CURB	E	20					22	8.000							22	8	22	8	284		
2	5R14	BARRIER CURB	E	20					9	11.000							9	11	9	11	21		
4	5R15	BARRIER CURB	E	20					8	4.000							8	4	8	4	35		
4	5R16	BARRIER CURB	E	20					11	11.000							11	11	11	11	50		
98	5R17	BARRIER CURB	E	20					9	9.000							9	9	9	9	997		
12	5R18	BARRIER CURB	E	20					23	7.000							23	7	23	7	295		
6	5R19	BARRIER CURB	E	20					37	5.000							37	5	37	5	234		
6	5R20	BARRIER CURB	E	20					37	7.000							37	7			222		
6	5R21	BARRIER CURB	E	20					37	10.000							37	10	37	10	237		
12	5R22	BARRIER CURB	E	20					23	1.000							23	1	23	1	285		
6	5R23	BARRIER CURB	E	20					37	5.000							37	5	37	5	234		
6	5R24	BARRIER CURB	E	20					37	9.000							37	9	37	9	236		
6	5R25	BARRIER CURB	E	20					37	11.000							37	11	37	11	237		
12	5R26	BARRIER CURB	E	20					24	1.000							24	1	24	1	301		
		CAST-IN-PLACE																					
		CONVENTIONAL																					
		FORMS																					
625	5S1	SLAB	E	20					41	10.000							41	10	41	10	27270		
138	5S2	SLAB	E	20			V	2	41	3.000							41	3	41	3	3137		
		INCR = 6.875 IN																					
446	5S3	SLAB	E	20					41	10.000							41	10	41	10	19460		
100	5S4	SLAB	E	20			V	2	41	1.000							41	1	41	1	2265		
		INCR = 9.625 IN																					
272	5S7	SLAB	E	20					38	3.000							38	3	38	3	30851		
264	5S8	SLAB	E	20					16	0.000							16	0	16	0	4406		
368	5S11	SLAB	E	20					37	11.000							37	11	37	11	14553		
		PRECAST PANEL																					
		FORMS																					
625	5S1	SLAB	E	20					41	10.000							41	10	41	10	27270		

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

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

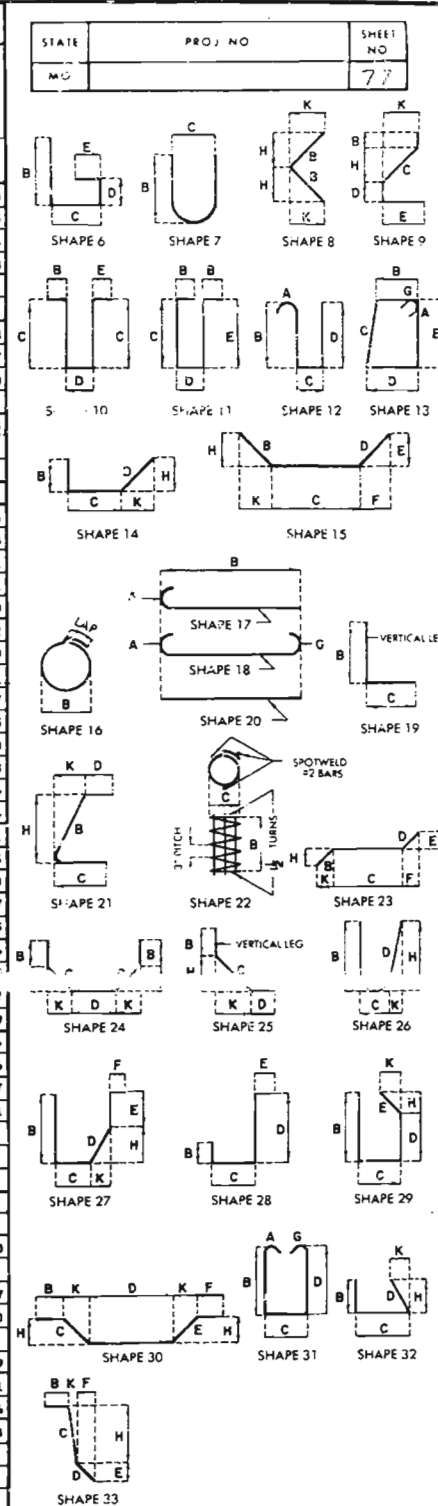
Y . BAR DIMENSIONS VARY IN EQUAL INCREMENTS BETWEEN DIMENSIONS SHOWN ON THIS LINE AND THE FOLLOWING LINE

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.

PAY WEIGHTS ARE BASED ON ACTUAL LENGTHS.

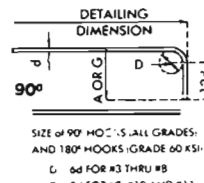
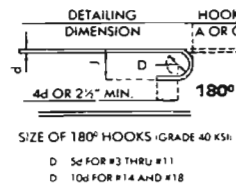


BENDING DIAGRAMS

STIRRUP HOOK DIMENSIONS					
GRADES 40-50-60 KSI					
BAR SIZE	D (IN.)	90° HOOK		135° HOOK	
		HOOK A OR G	HOOK A OR G	HOOK A OR G	APPROX H
#3	1 1/8"	4"	4"	4"	2 1/2"
#4	2"	4 1/2"	4 1/2"	4 1/2"	3"
#5	2 1/2"	6"	5 1/2"	5 1/2"	3 1/2"
#6	4 1/2"	12"	7 1/2"	7 1/2"	4 1/2"

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

Note: This drawing is not to scale. Follow dimensions



DETAILED JAN. 1987
CHECKED JAN. 1987

Sheet No. 19 of 20

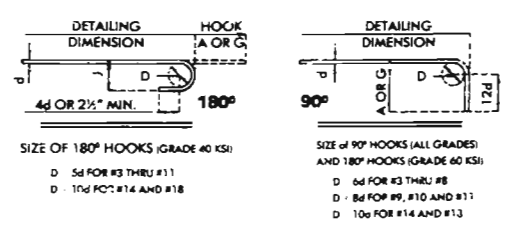
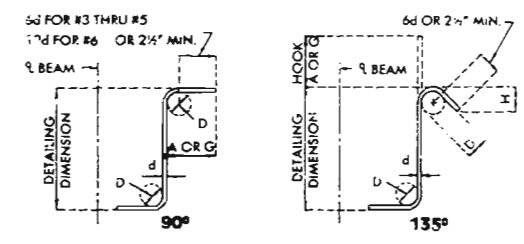
JEFFERSON COUNTY

A-2959

449 306

STD. 90.8.5
MAY 1974
REVISED
JUNE 1986

DETAILED JAN. 1987
CHECKED JAN. 1987



STIRRUP HOOK DIMENSIONS				
GRADES 40-50-60 KSI				
BAR SIZE	D (IN.)	90° HOOK		135° HOOK
		HOOK A OR G	HOOK A OR G	APPROX. H
#3	1 1/8"	4"	4"	2 1/2"
#4	2"	4 1/2"	4 1/2"	3"
#5	2 1/2"	6"	5 1/2"	3 1/2"
#6	4 1/8"	12"	7 3/4"	4 1/2"

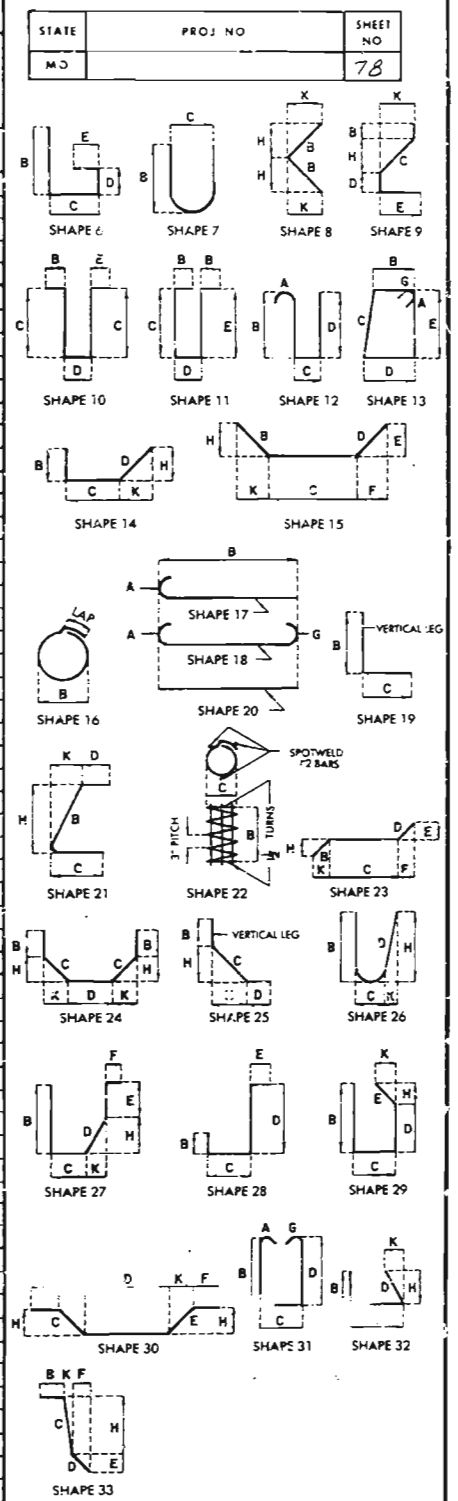
NOTE: UNLESS OTHERWISE NOTED, DIAMETER "D" IS THE SAME FOR ALL BENDS AND HOOKS ON A BAR.

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

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

COMPLETE BILL OF REINFORCING STEEL

NO. REQD.	MARK NO.	LOCATION	EPOXY	SHAPE NO	STIRRUP	SUBSTR.	VARIES	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.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
136	552	SLAB	E 20				V	2	2	4.000																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					



BENDING DIAGRAMS

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

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

STATE	PROJ NO	SHEET NO
MO	MAF-21-2(25)	59
SEC / SUR	1974 IMP 43N	PGE 5E

GENERAL NOTES:

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

Design Loading:

H520-44 35/sq. ft. Future Wearing Surface.
Earth 120#/cu. ft. Equivalent Fluid Pressure 30#/cu. ft.
Superstructure: Simply supported non-composite for Dead Loads.
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 Girder Sheets.

Reinforcing Steel:

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

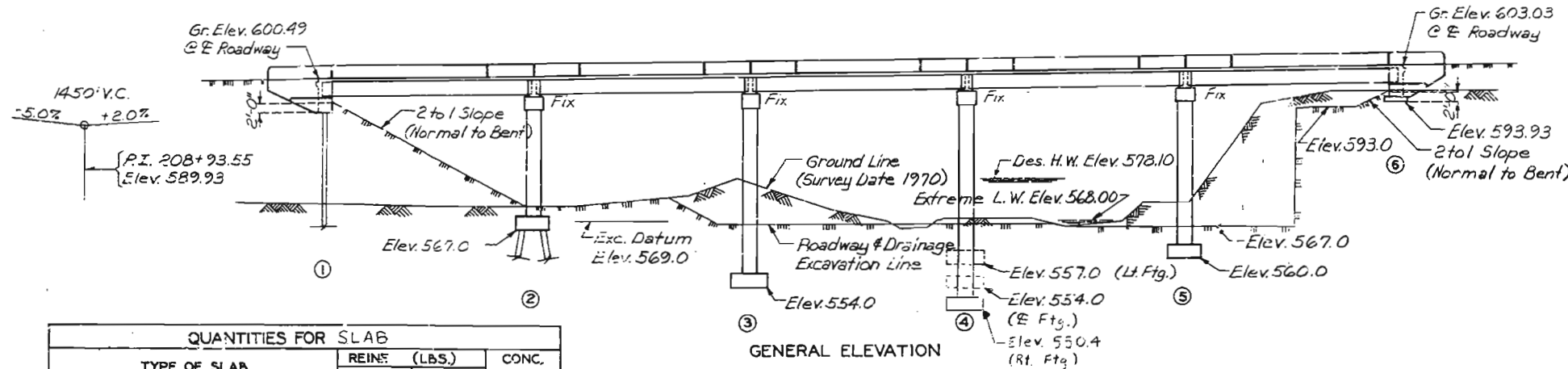
Joint Filler:

All Joint Filler shall meet requirement of Std. Spec. 1057.2.4, except as noted.

Bearings:

Bearings shall be 50 durometer Neoprene Pads.

(58'-58'-58'-58'-58') PRESTRESSED CONCRETE I-GIRDER SPANS



QUANTITIES FOR SLAB			
TYPE OF SLAB	REIN. (LBS.)		CONC. (CU. YD.)
	EPOXY	PLAIN	
Precast Panel Forms	58,270	8770	371.1 *

Note: The table of Estimated Quantities for Alternate Slabs represents the quantities used by the state in preparing the cost estimate for concrete slabs. Variations may be encountered in these estimated quantities but these variations cannot be used for an adjustment in the Contract Unit Price per square yard of Alternate Slab used.

See Special Provisions for alternate method of forming slabs.

* Based on minimum top flange thickness and minimum joint filler thickness.

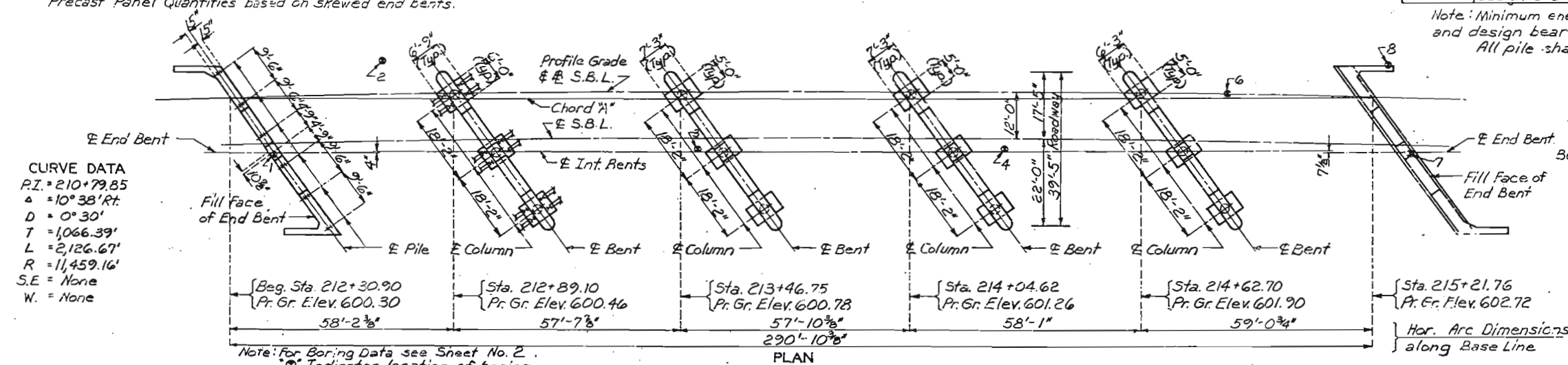
Precast Panel Quantities based on skewed end bents.

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.

HYDROLOGIC DATA	
Drainage Area	= 6.7 Miles ² (Hills)
Des. Discharge	= 7330 C.F.S.
Des. H.W. Elev.	= 578.1
Frequency	= (Flood of Record)
BASIC FLOOD DATA	
Basic Flood Exceeded by Flood of Record	

PILE & FOOTING DATA						
BEARING PILE	BENT NO		1	2	3	4
	Pile Type and Size		HP10x42			
	Number		6	12		
	Average Length		47	11		
	Design Bearing		Tons 49	54		
SPREAD FOOTING	Foundation Material				Rock	Rock
	Design Bearing		Ton/Sq.Ft.		8.7	8.2

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



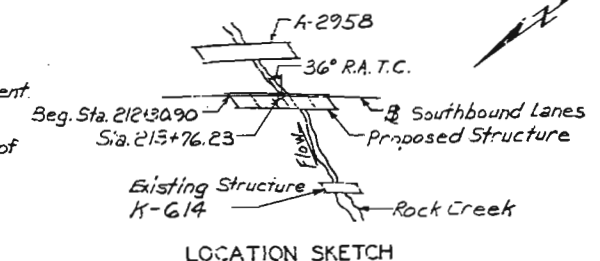
QUANTITIES			
ITEM	SUBSTR.	SUPERSTR.	TOTAL
Class I Excavation	Cu. Yd. 60		60
Class II Excavation	Cu. Yd. 299.5		299.5
Structural Steel Pile (10")	Lin. Ft. 454		454
Class B Concrete	Cu. Yd. 263.0		263.0
() Slab on Conc. I-Gdr. see Spec. Prov.	Sq. Yd. 1360		1360
Safety Barrier Curb	Lin. Ft. 0		0
Plain Neoprene Bearing Pads	Each 50		50
Prestressed Concrete I-Girder (58' Span)	Each 25		25
Reinforcing Steel	Lbs. 34530		34530
Slab Drains	Each 32		32
Vertical Drain at End Bents	Each 1		1
Slip form Safety Barrier Curb	Lin. Ft. 622		622
Pre-Bore Socket	Lump Sum 1		1
Test Holes	ft. 32		32
Class II Excavation + 50%	Cu. Yd. 10		10

Note: All reinforcement in the end bents is included with superstructure quantities.

All concrete between the upper and lower construction joints in end bents is included in the estimated superstructure quantities for Slab on Concrete I-Girder, see Special Provisions.

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

Vertical Drain shall be required at End Bent No. 1 only.



B.M. Northwest corner of bridge on top of barrier wall (3" chisel square) Elev. 603.03

BRIDGE OVER ROCK CREEK

STATE ROAD FROM ROUTE 141 TO OTTO

ABOUT 4.2 MILES NORTH OF OTTO

PROJECT NO. MAF-21-2(25)

STA. 212+30.90 @ S.B.L.

JOB NO. 6-U-21-17

RTE. 21 S.B.L.

JEFFERSON

COUNTY

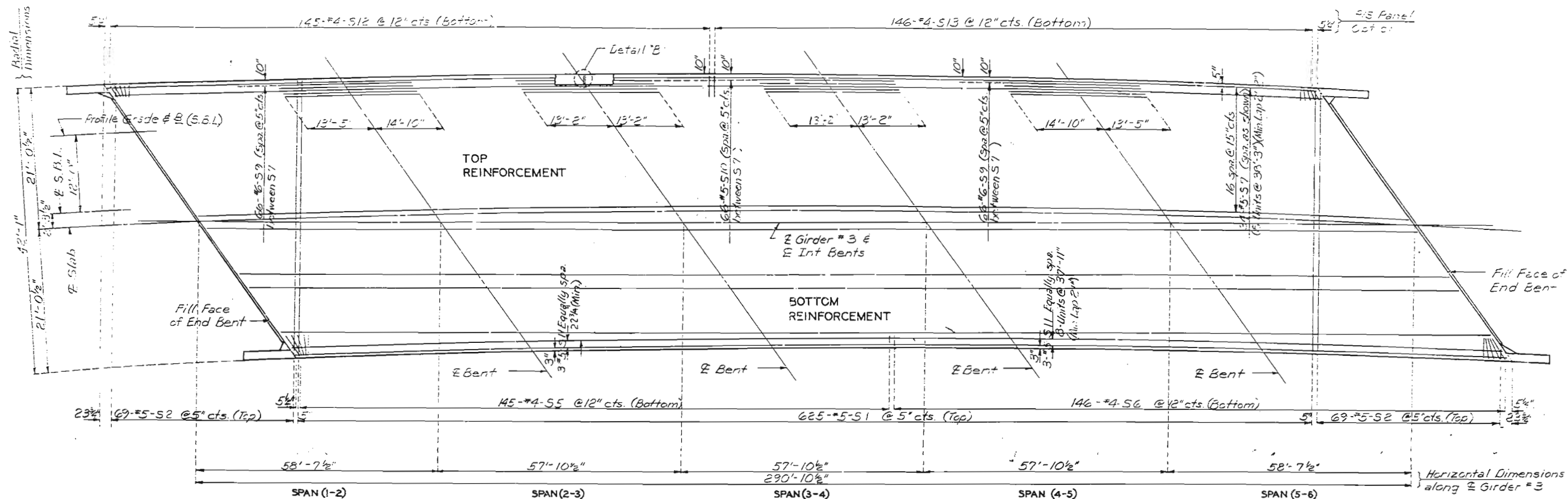
DATE 6/15/87

STD.
STD. 706.35
A-2959

DESIGNED SEPT. 1980
DETAILED JUNE 1986
CHECKED JAN. 1987

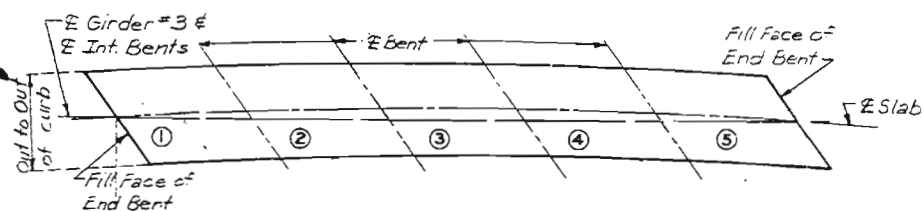
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 1A of 20.

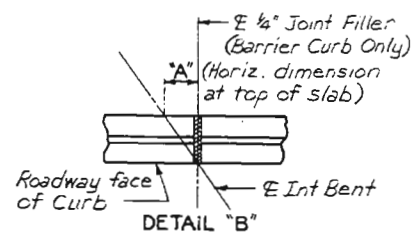


PLAN OF SLAB SHOWING REINFORCEMENT
Note: Longitudinal dimensions are horizontal.

Note: For Theoretical Slab Haunching Diagram and Girder Camber Diagram, see Sheet No. 13.
For details of Prestressed Panel Option, see Sheet No. 15.
For details of Slab Drains, see Sheet No. 16.
Transverse Slab Bars S1, S2, S3 and S4 shall be placed perpendicular to E Girder #3.



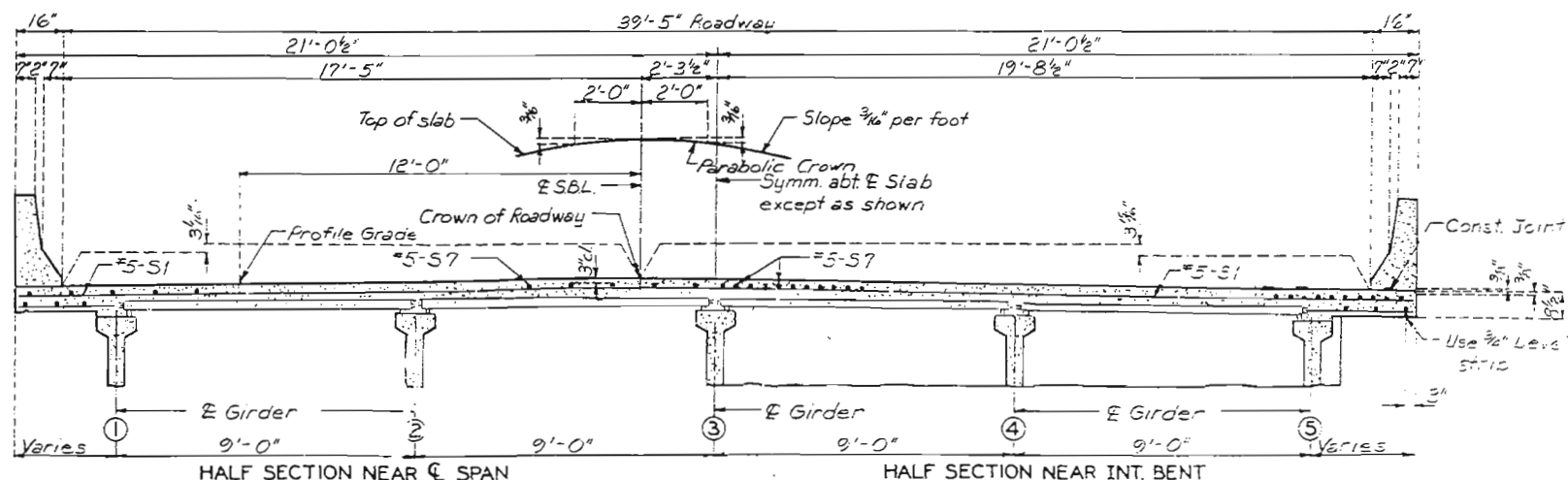
SPAN(1-2)	SPAN(2-3)	SPAN(3-4)	SPAN(4-5)	SPAN(5-6)
Sequence of Pours				
Direction				
1 + 2 + 3 + 4 + 5				
End to End				
With Retarder				
25				



DIMENSION 'A'	RT.	LT.
Bent #2	11 1/2"	11 1/2"
Bent #3	11 1/2"	11 1/2"
Bent #4	11 1/2"	11 1/2"
Bent #5	11 1/2"	11 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 the rate given above.
The concrete diaphragm at the intermediate bents and integral end bents shall be poured a minimum of 30 minutes and a maximum of 2 hours before the slab is poured.

SLAB POURING SEQUENCE



Note: For details and reinforcement of safety barrier curb not shown, see Sheet No. 17.

Sheet No. 14Aoj 20

JEFFERSON COUNTY

A-2959

COMPLETE BILL OF REINFORCING STEEL

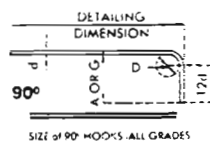
NO. REQU	MARY NO SIZE MARK	LOCATION	E	SHAFT NO	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
----------	----------------------	----------	---	----------	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

END HOOK DIMENSIONS

BAR SIZE	D (IN.)	180° HOOKS		90° HOOK
		ALL GRADES		ALL GRADE
		A OR G	J	A OR G
#3	2 1/4"	5"	3"	6"
#4	3"	6"	4"	8"
#5	3 1/4"	7"	5"	10"
#6	4 1/4"	8"	6"	12"
#7	5 1/4"	10"	7"	14"
#8	6"	11"	8"	16"
#9	9 1/2"	15"	11 1/2"	19"
#10	10 1/2"	17"	13 1/2"	22"
#11	12"	19"	14 1/2"	25-0"
#14	18 1/4"	27-3"	21 1/4"	27-7"



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



SIZE OF 180° HOOKS / GRADE 40 KSI

SIZE of 90° HOOKS: ALL GRADES

Sheet No. 18 Aug 20

A-2959

311
448

COMPLETE BILL OF REINFORCING STEEL

NO REQD.	MARK NO.	LOCATION	EPOXY	SHAPE NO	STIRRUP	SUBSTR	VARIES	NO EACH	DIMENSIONS							NOMINAL LENGTH	ACTUAL LENGTH	WEIGHT
									B	C	D	E	F	H	K			
14	6M11	WING		20					2 11	2 0.00						11 2 11 2		
		INCR = 13.375 IN							4 6.00							4 6 4 6	165	
2	6T1	WING		25					2 1.00	9 6.625	3 8.00			5 1.00	8 1.00	15 4 15 3	46	
2	6T2	WING		25					2 1.00	9 2.25	3 11.00			5 1.50	7 7.50	15 2 15 1	45	
32	5U1	BEAM		10	S				4 11.00	2 9.375						12 7 12 5	414	
19	4U2	BEAM		13	S				2 9.375	2 9.00	2 9.375	2 9.00				11 10 11 7	147	
2	4U3	BEAM		10	S				2 9.00	2 9.375						8 3 8 1	11	
43	5U4	DIAPH		10	S				4 3.50	2 9.375						11 4 11 2	501	
71	5U5	DIAPH		19	S				4 4.875	4 2.00						8 7 8 5	998	
22	5V1	BEAM		20					4 11.00							4 21 4 11	113	
16	6V2	WING		20					7 0.00							7 0 7 0		
		INCR = 7.750 IN							2 6.00							2 6 2 6	114	
4	6V3	WING		20					7 5.00							7 5 7 5	45	
16	6V4	WING		20					7 3.00							7 3 7 3		
		INCR = 8.125 IN							2 6.00							2 6 2 6	117	
4	6V5	WING		20					7 7.00							7 7 7 7	46	
		END BENT NO 6																
5	6F61	DIAPH		15					2 9.125	4 3.00			2 2.25	20.25	7 0 7 0	53		
5	6F62	WING BRACE		15					14.00	3 1.50	14.00	12.50	6.25	12.50	6.25	5 6 5 4	40	
5	6F63	DIAPH		21					2 9.125	6 11.00			2 2.25	20.25	9 8 9 2	69		
5	6F64	WING BRACE		15					14.00	6 11.00	14.00	6.25	12.50	6.25	12.50	9 3 9 3	69	
9	6M61	BEAM		20					52 3.00							52 3 52 3	765	
4	6M62	BEAM		20					16 0.00							16 0 16 0	96	
4	6M63	BEAM		20					39 3.00							39 3 39 3	236	
8	4M64	FOOTING		20					27 0.00							27 0 27 0	144	
42	4M65	FOOTING		20					4 0.00							4 0 4 0	112	
4	6M66	DIAPH		20					52 3.00							52 3 52 3	314	
12	6M68	DIAPH		20					9 0.00							9 0 9 0	162	
3	6M69	DIAPH		20					2 1.00							2 1 2 1	9	
3	6M70	DIAPH		20					3 7.00							3 7 3 7	16	
5	5M71	DIAPH		23					15.00	17.00	15.00	8.875	12.125	8.875	12.125	3 11 3 10	20	
6	6M72	WING		20					11 7.00							11 7 11 7	104	
14	6M73	WING		20					11 3.00							11 3 11 3		
		INCR = 13.375 IN							4 4.00							4 4 4 4	164	
6	6M74	WING		20					11 7.00							11 7 11 7	104	
6	6M75	WING		20					11 4.00							11 4 11 4		
		INCR = 12.125 IN							5 3.00							5 3 5 3	174	
2	6T61	WING		25					2 1.00	9 8.375	3 5.00		5 3.50	8 1.50	15 2 15 1	45		
2	6T62	WING		25					2 1.00	9 6.00	3 11.00		5 8.00	7 7.50	15 6 15 5	46		
42	5U51	BEAM		10	S				5 1.00	2 9.375						12 11 12 9	559	
5	4U62	BEAM		13	S				2 9.375	2 9.00	2 9.375	2 9.00				11 10 11 7	39	
20	4U63	BEAM		13	S				2 9.375	3 0.00	2 9.375	3 0.00				12 4 12 1	161	
42	5U64	DIAPH		10	S				4 3.00	2 9.375						11 3 11 1	486	
70	6U65	DIAPH		19	S				4 4.00	4 2.00						8 6 8 4	876	
16	6V61	WING		20					6 10.00							6 10 6 10		
		INCR = 7.375 IN							2 6.00							2 6 2 6	112	
4	6V62	WING		20					7 5.00							7 5 7 5	45	
16	6V63	WING		20					7 6.00							7 6 7 6		
		INCR = 9.625 IN							2 6.00							2 6 2 6	120	
4	6V64	WING		20					7 10.00							7 10 7 10	47	

COMPLETE BILL OF REINFORCING STEEL

NO REQD.	MARK NO.	LOCATION	EPOXY	SHAPE NO	STIRRUP	SUBSTR	VARIES	NO EACH	DIMENSIONS							NOMINAL LENGTH	ACTUAL LENGTH	WEIGHT
									B	C	D	E	F	H	K			
64	6M101	DIAPH AT INT RTS		20					9 1.00							9 1 9 1	873	
64	6M102	DIAPH AT INT RTS		20					10 2.00							10 2 10 2	435	
48	5M103	DIAPH AT INT RTS		23					15.00	17.00				8.875	12.125	2 8 2 8	134	
72	5M104	DIAPH AT INT RTS		23					15.00	17.00	15.00	8.875	12.125	8.875	12.125	3 11 3 10	288	
194	4U101	DIAPH AT INT RTS		28	S				2 3.00	4 0.00	12.00					7 3 7 1	918	
64	6U102	DIAPH AT INT RTS		28	S				2 4.00	4 0.00	14.00					7 7 7 3	697	
64	5U103	DIAPH AT INT RTS		19	S				9.50	19.00						2 5 2 3	150	
32	5V101	DIAPH AT INT RTS		20					4 4.00							4 4 4 4	145	
660	5K1	BARRIER CURB		10	S				2 6.00	3.50						2 10 2 8	183	
660	5R2	BARRIER CURB		15	S				2 6.125	3.50				2 6.00	3.00	2 10 2 9	1893	
644	5R3	BARRIER CURB		19	S				17.00	6.00						23 22	1231	
596	5R4	BARRIER CURB		27	S				6.00	11.125	7.00	12.00		9.125	6.375	3 0 2 10	1761	
48	5R5	BARRIER CURB		27	S				6.00	11.125	15.00			9.125	6.375	2 8 7 7	129	
16	5R6	BARRIER CURB		10	S				2 0.00	6.00						4 6 4 4	72	
2	5R7	BARRIER CURB		20					13 8.00							13 8 13 8	29	
32	5R8	BARRIER CURB		20					5 0.00							5 0 5 0	167	
2	5R9	BARRIER CURB		20					11 11.00							11 11 11 11	25	
4	5R10	BARRIER CURB		20					10 4.00							10 4 10 4	43	
4	5R11	BARRIER CURB		20					13 11.00							13 11 13 11	58	
2	5R12	BARRIER CURB		20					11 8.00							11 8 11 8	24	
12	5R13	BARRIER CURB		20					22 8.00							22 8 22 8	284	
2	5R14	BARRIER CURB		20					9 11.00							9 11 9 11	21	
4	5R15	BARRIER CURB		20					8 4.00							8 4 8 4	35	
4	5R16	BARRIER CURB		20					11 11.00							11 11 11 11	50	
98	5R17	BARRIER CURB		20					9 9.00							9 9 9 9	997	
12	5R18	BARRIER CURB		20					23 7.00							23 7 23 7	295	
6	5R19	BARRIER CURB		20					37 5.00							37 5 37 5	234	
6	5R20	BARRIER CURB		20					37 7.00							37 7 37 7	235	
6	5R21	BARRIER CURB		20					37 10.00							37 10 37 10	237	
12	5R22	BARRIER CURB		20					23 1.00							23 1 23 1	289	
6	5R23	BARRIER CURB		20					37 5.00							37 5 37 5	234	
6	5R24	BARRIER CURB		20					37 9.00							37 9 37 9	236	
6	5R25	BARRIER CURB		20					37 11.00							37 11 37 11	237	
12	5R26	BARRIER CURB		20					24 1.00							24 1 24 1	301	
PRECAST PANEL FORMS																		
625	5S1	SLAB		20					41 10.00							41 10 41 10	27270	

Note: Two (2) additional #4-U101, #5-R17 & #6-U5 are included in bar bill for testing.

END HOOK DIMENSIONS				
BAR SIZE	D (IN.)	180° HOOKS		90° HOOKS
		ALL GRADES		ALL GRADES
		A O R G	J	A O R G
#3	2 1/4"	5"	3"	6"
#4	3"	6"	4"	8"
#5	3 1/4"	7"	5"	10"
#6	4 1/4"	8"	6"	12"
#7	5 1/4"	10"	7"	14"
#8	6"	11"	8"	16"
#9	9 1/4"	15"	11 1/2"	19"
#10	10 1/4"	17"	13 1/2"	22"
#11	12"	19"	14 1/2"	20"
#14	18 1/4"	21 3/4"	21 1/2"	27"