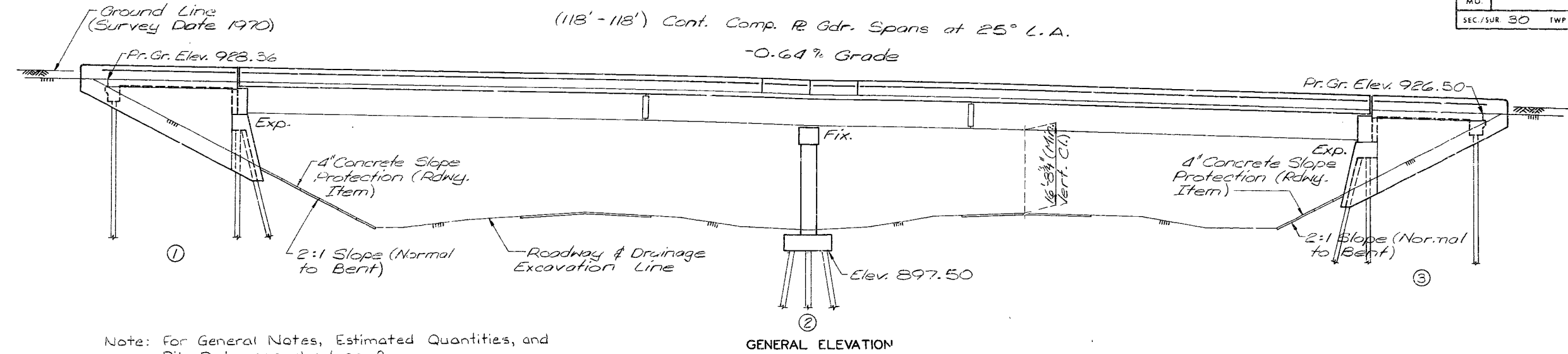
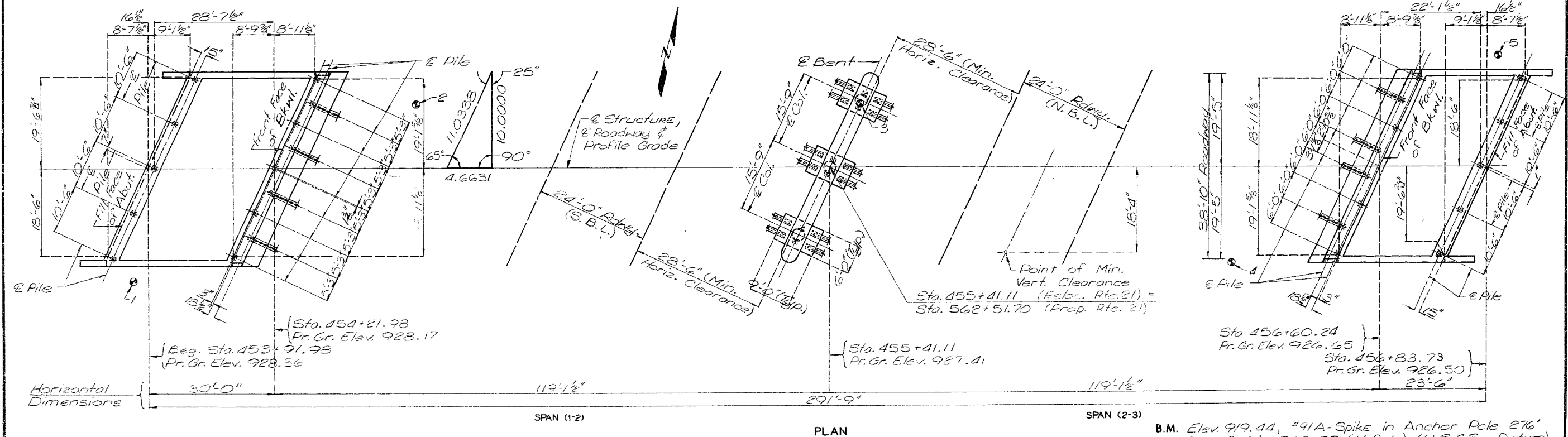


MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

STATE	PROJ NO	SHEET NO.
MO.		
SEC./SUR. 30	TWP 42N	RGE. 5E



Note: For General Notes, Estimated Quantities, and Pile Data, see sheet no. 2.



Note: "B" Indicates location of borings.

Notice and Disclaimer Regarding Boring Log Data

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

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

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

B.M. Elev. 919.44, #91A-Spike in Anchor Pole 276' Rt. of Sta. 562+97 (N.B.L.) (U.S.G.S. Datum)

BRIDGE OVER PROPOSED RTE. 21
STATE ROAD FROM RTE. MM TO RTE. A
ABOUT 2.2 MILES SOUTH OF RTE. MM
PROJECT NO. STA. 562 + 31.20
JOB NO. J6P0017H RTE. 21
JEFFERSON COUNTY

STD. 706.35
STD. 611.60
A-2977

DESIGNED MAY 1985
 DETAILED APRIL 1986
 CHECKED JULY 1987

Sheet No. 1 of 27

DATE 6/10/96

28-257

STATE	PROJ. NO.	SHEET NO.
MO.		21

Estimated Quantities				
Item		Substr.	Superstr.	Total
Class 1 Excavation	Cu. Yd.	190		190
Bridge Approach Slab (Bridge)	Sq. Yd.		228	228
Structural Steel Pile (10 in.)	Lin. Ft.	1059		1059
Structural Steel Pile (12 in.)	Lin. Ft.	414		414
Pile Point Reinforcement	Each	45		45
Class B Concrete (Substr.)	Cu. Yd.	237.3		237.3
Slab on Steel	Sq. Yd.		1096	1096
Safety Barrier Curb	Lin. Ft.		606	606
Slab on Semi-Deep Abutment	Sq. Yd.		247	247
Laminated Neoprene Bearing Pad (Steel Structures)	Each		15	15
Preformed Comp. Expansion Jt. Seal (4.0 in.)	Lin. Ft.		88	88
Reinforcing Steel (Bridges)	Lb.	22,010		22,010
Reinforcing Steel (Epoxy coated)	Lb.	9290		9290
Fabricated Structural Carbon Steel (Plate Girder)	Lb.		237,200	237,200
Fab. Struct. Low Alloy Steel (Pl. Gdr.) A-572	Lb.		55,510	55,510
Slab Drain	Each		28	28
Field Coat (System G) Green	Sq. Ft.		4800	4800

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

Note: All concrete and reinforcing steel below top of slab and above construction joint in Semi-Deep Abutments is included in superstructure quantities for Slab on Semi-Deep Abutments.

Cost of channel shear connectors C4 x 5.4 (A-36) in place to be included in contract unit price for Structural Steel Piles (10 in.) or Structural Steel Piles (12 in.).

Pile Data					
Bent No.	1 (app.)	1 (brg.)	2	3 (brg.)	3 (app.)
Pile Type and Size	HP10x42	HP10x42	HP12x53	HP10x42	HP10x42
Number	5	9	18	8	5
Approximate Length	Ft. 44	39	23	36	40
Design Bearing	Tons 41	55	58	56	38
Hammer Energy Req'd	Ft.-Lbs. 9,200	13,600	13,700	13,800	7,400

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

All piles shall be driven to practical refusal.

Manufactured pile point reinforcement shall be used on all piles in this structure at bents 1, 2 and 3. See special provisions.

Estimated Quantities for Slab on Steel		
Item		Total
Reinforcing Steel (Epoxy coated)	lb.	43,660
Concrete (Class B2)	cu. yd.	258.9

Estimated Quantities for Slab on Semi-Deep Abutment		
Item		Total
Reinforcing Steel (Epoxy coated)	lb.	20,640
Concrete (Class B2)	cu. yd.	108.4

Note: The Table of Estimated Quantities for Slab on Steel and Slab on Semi-Deep Abutment 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 Slab on Steel.

The prestressed panel quantities are not included in the Table of Estimated Quantities for Slab on Steel.

The Estimated Quantities for Slab on Steel are based on skewed prestressed end panels.

GENERAL NOTES:

Design Specifications: A.A.S.H.T.O. - 1992 & interims thru 1995
Load Factor Design
Seismic Performance Category A

Design Loading: HS20-44, 35#/Sq. Ft. Future Wearing Surface
Earth 120#/Cu. Ft., Equivalent Fluid Pressure 30#/Cu. Ft.
Fatigue stress - Case II

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 Safety Barrier Curb & Prestressed Girders) $f'_c=4,000$ psi
Reinforcing Steel (Grade 60) $f_y=60,000$ psi
Structural Carbon Steel $f_y=36,000$ psi
Structural Steel (ASTM A572) Grade 50 $f_y=50,000$ psi
Steel Pile $f_b=9,000$ psi
For Precast Prestressed Panel Stresses, see sheet no. 19.

Fabricated Steel Connections: Field connections, high strength bolts $3/4"$ \varnothing , holes $13/16"$ \varnothing , except as noted.

Joint Filler: All joint filler shall meet the requirements of Std. Spec. 1057.2.4, except as noted.

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

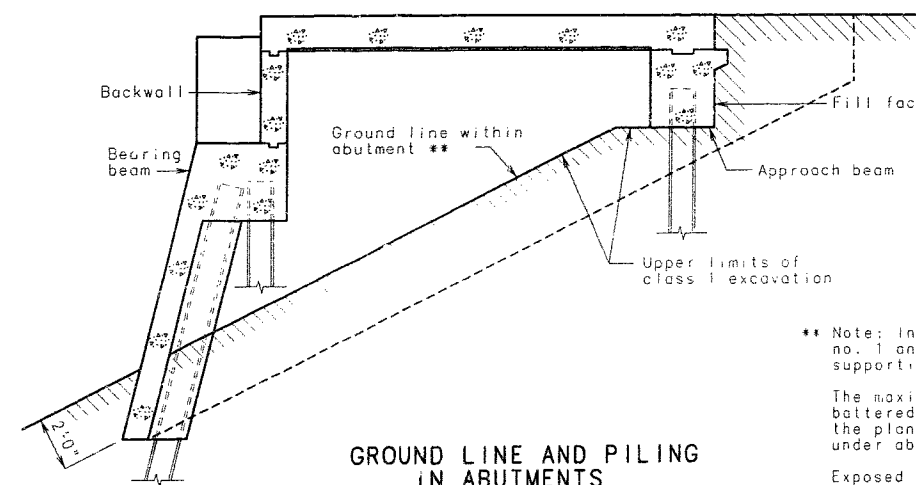
All reinforcing bars in the tops of substructure beams or caps shall be spaced to clear anchor bolt wells for bearings by at least $1/2"$.

Painting: Protective Coating: System G by the contractor in accordance with Special Provisions.

Prime Coat: The cost of the prime coat shall be included in the contract unit price of the Fabricated Structural Steel. Tint of the prime coat for System G shall be similar to the color of the field coat to be used.

Field Coat: The cost of the intermediate and finish coats shall be included in the contract unit price per sq. ft. of Field Coat (System G) Green. See Special Provisions.

Miscellaneous: High strength bolts, nuts, and washers will be sampled for quality assurance as specified in Standard Specification 106 and Field Section (FS-712) from Materials Manual.

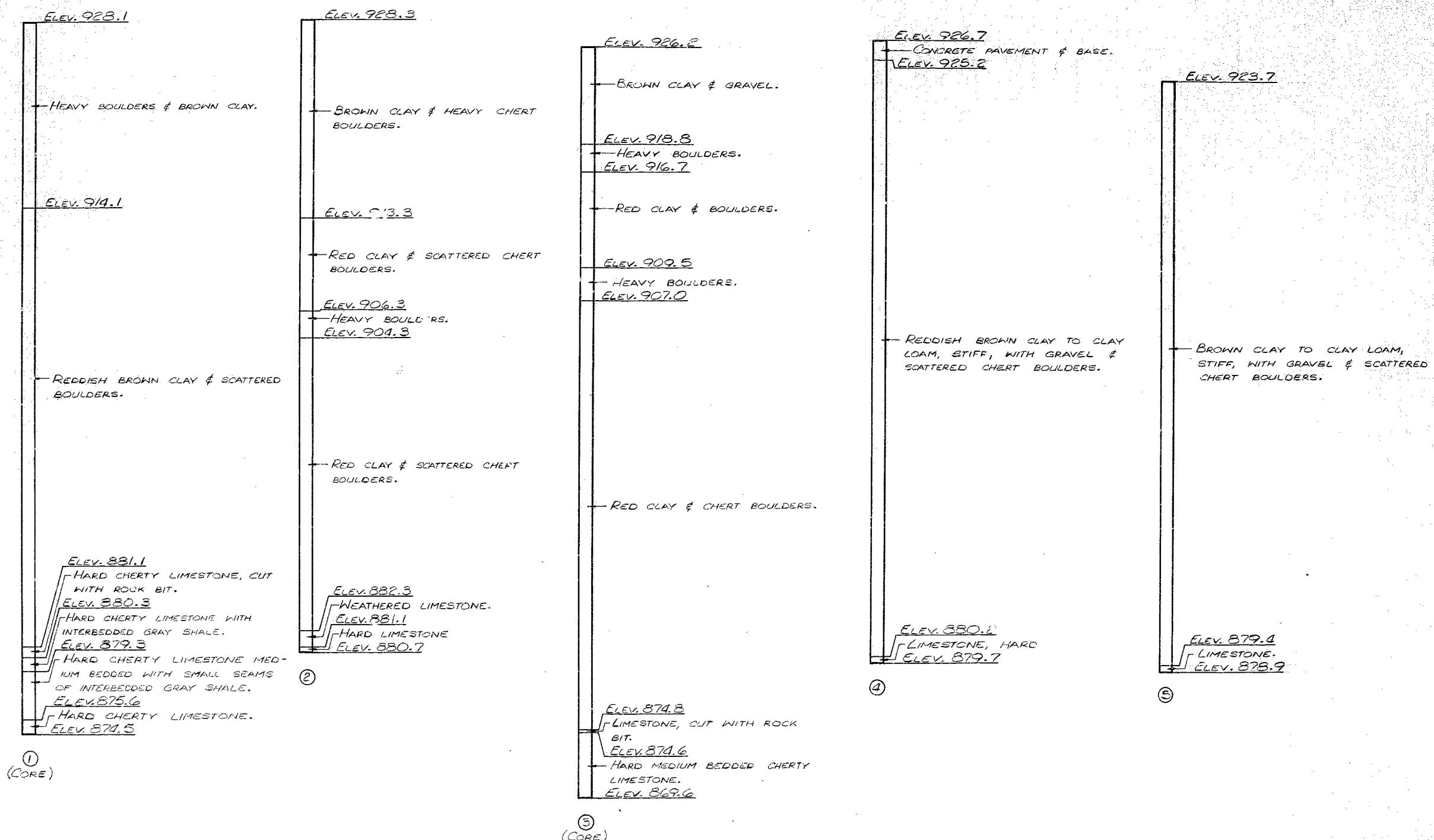


GROUND LINE AND PILING IN ABUTMENTS

** Note: In no case shall the earth within abutments no. 1 and 3 be above the ground line below. Forms supporting the abutment slab may be left in place.

The maximum variation of the head of the pile and battered face of the pile from the position shown on the plans shall be not more than 2 inches for pile under abutments no. 1 and 3.

Exposed steel piles within the abutment shall be coated with a heavy coating of an approved bituminous paint.



BORING DATA

NOTE: FOR LOCATION OF BORING, SEE SHEET NO. 1.

DETAILED OCT 1955
CHECKED MAY 1986

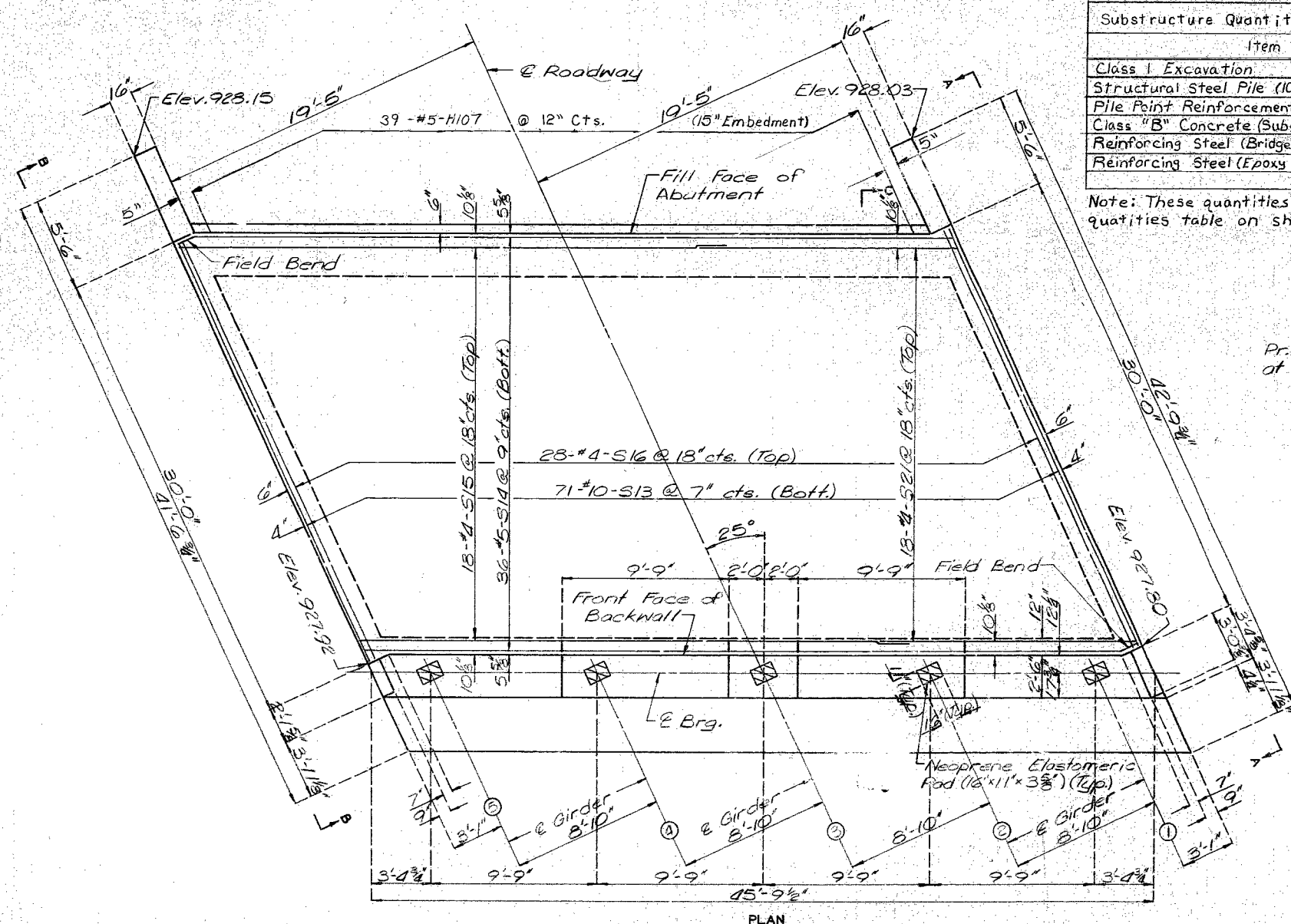
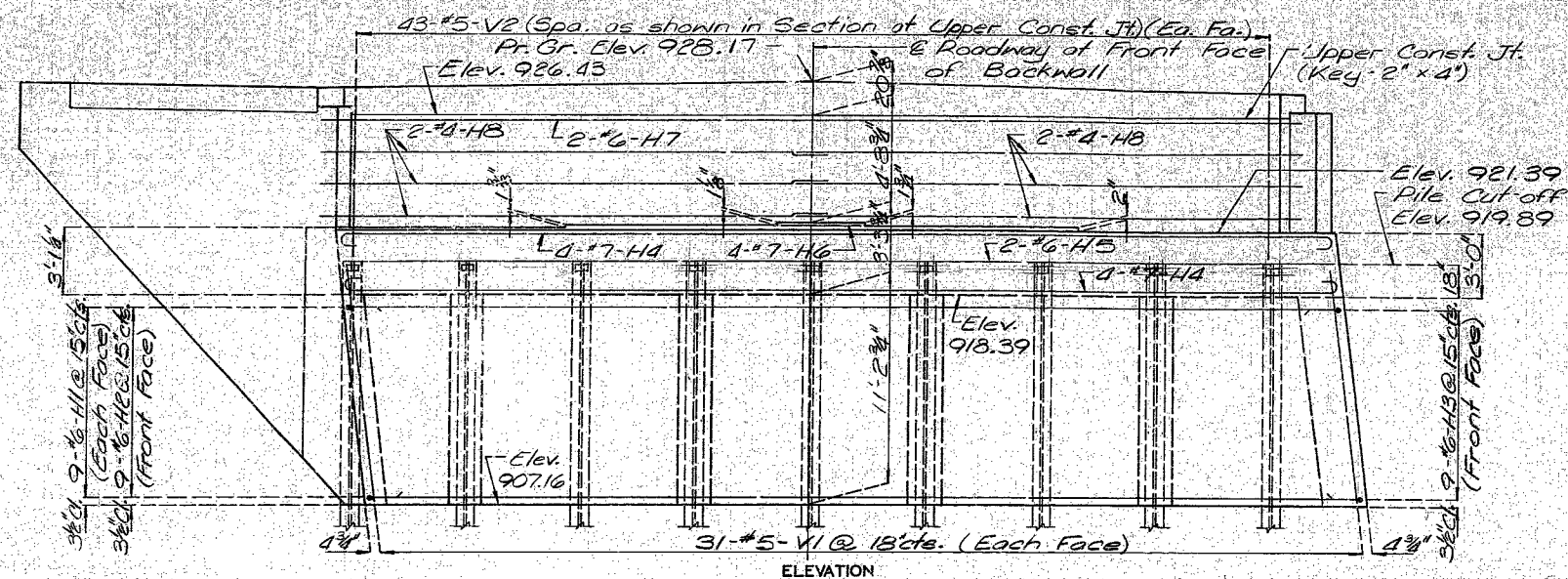
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 3 of 27

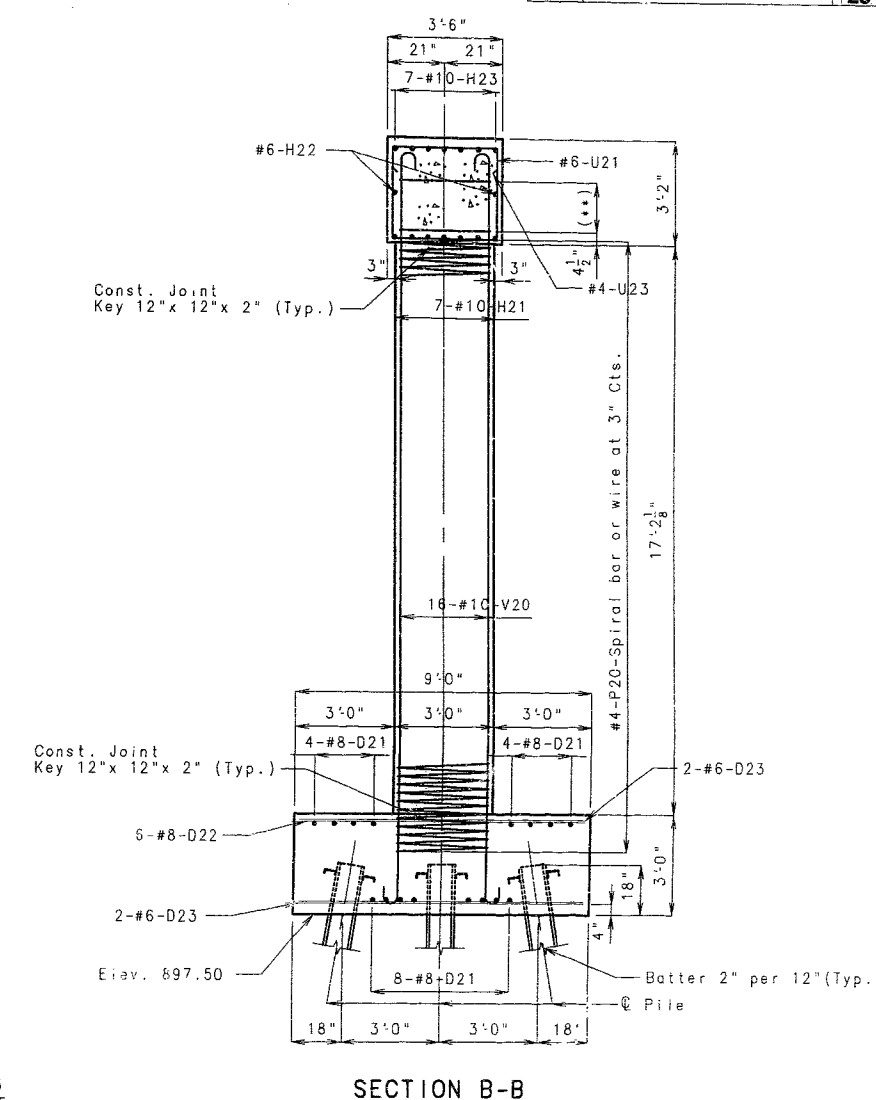
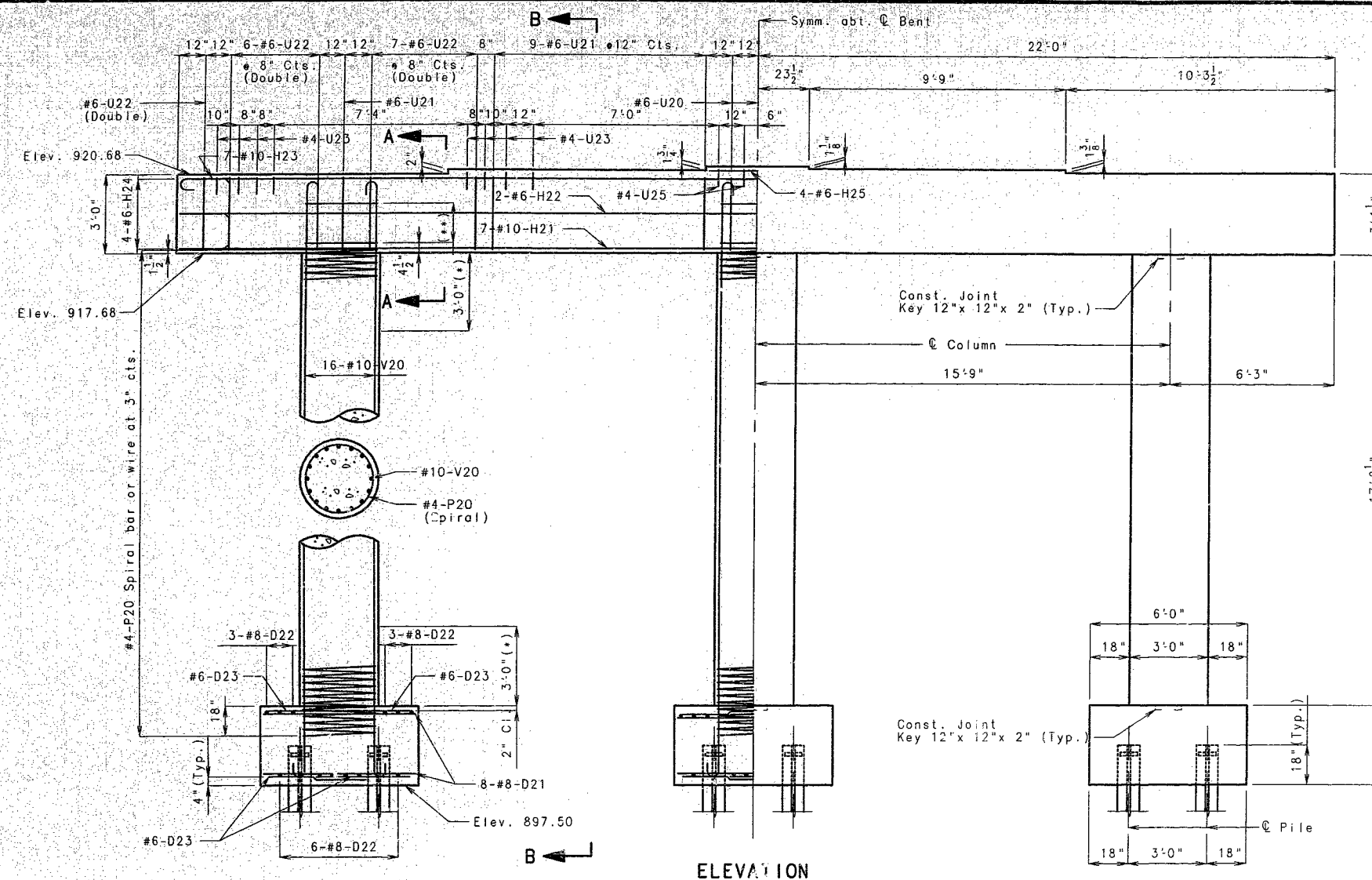
JEFFERSON COUNTY

A-2977

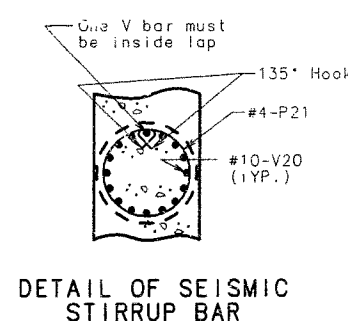
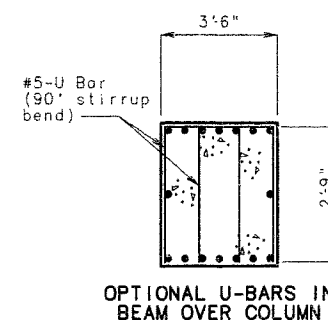
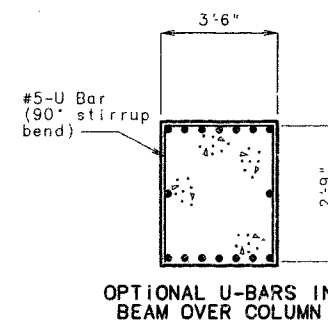
30-259



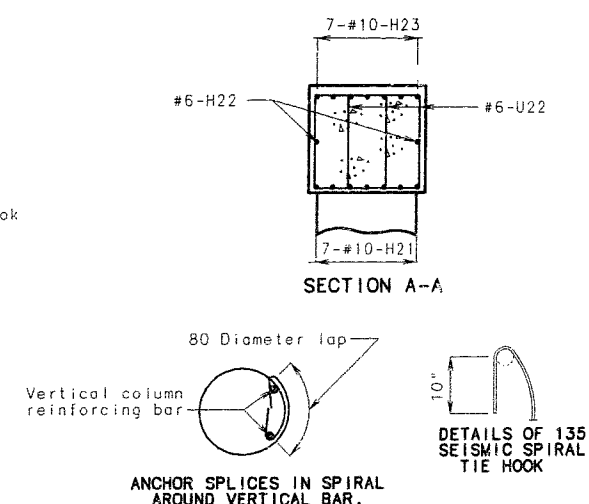
DETAILED Nov. 1985
CHECKED MAY 1986



NOTE:
 Work this sheet with sheet no. 7.
 *Lapping of spiral reinf. in this region is not permitted (typ.)
 ** 7-#4-P: 3 cts. (typ.)
 For details of pile splice see sheet no. 4.

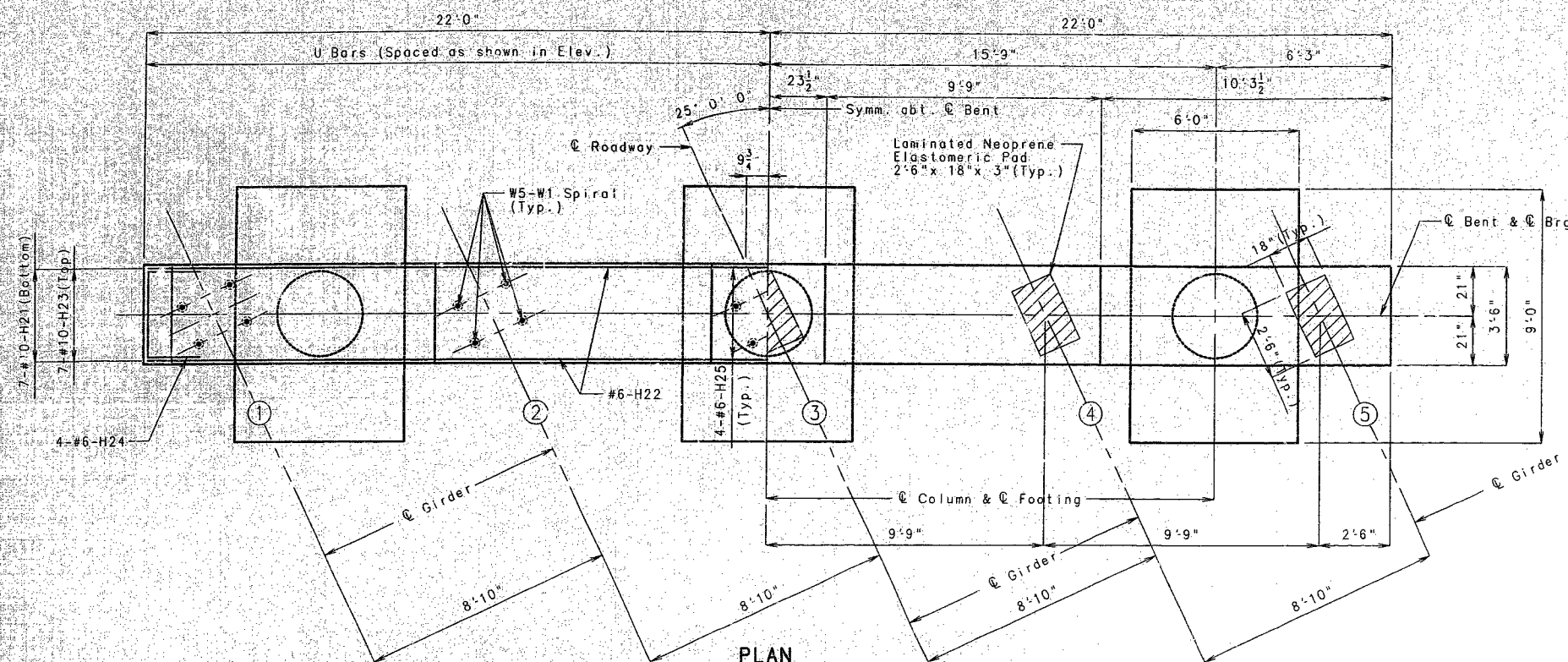


DETAILS OF INTERMEDIATE BENT NO. 2

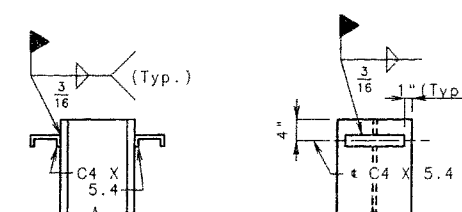


Substructure Quantity Table for Bent No. 2		
Item		Quantity
Class 1 Excavation	Cu. Yds.	40.0
Structural Steel Pile (12")	Lin. Ft.	414
Pile Point Reinforcement	Each	18
Class B Concrete (Substructure)	Cu. Yds.	49.4
Reinforcing Steel (Bridges)	Lbs.	12,980

Note: These quantities are included in the estimated quantities table on sheet no. 2.

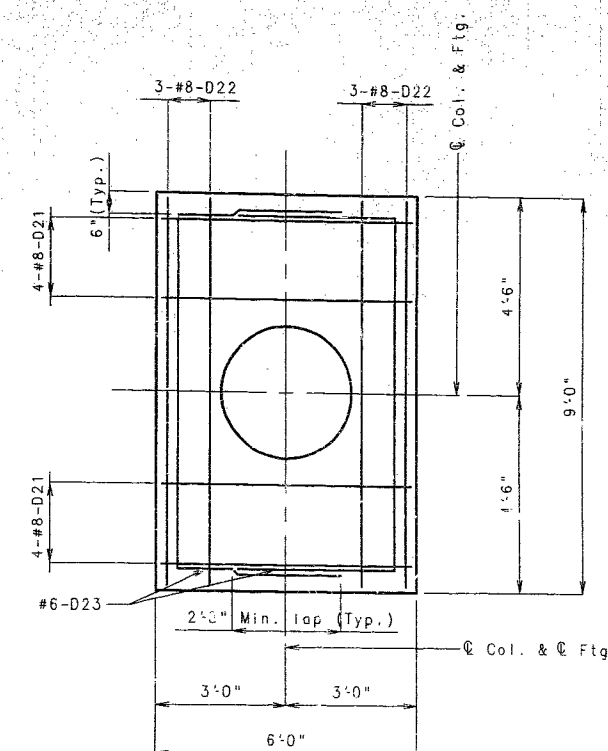


Note: For Details of Laminated Neoprene Bearing Pad See Sheet No. 10.
 For Details of Anchor Bolt Wells see Sheet No. 12.
 For Part Anchor Plan, see Sheet No. 11.
 Work This Sheet With Sheet No. 6.

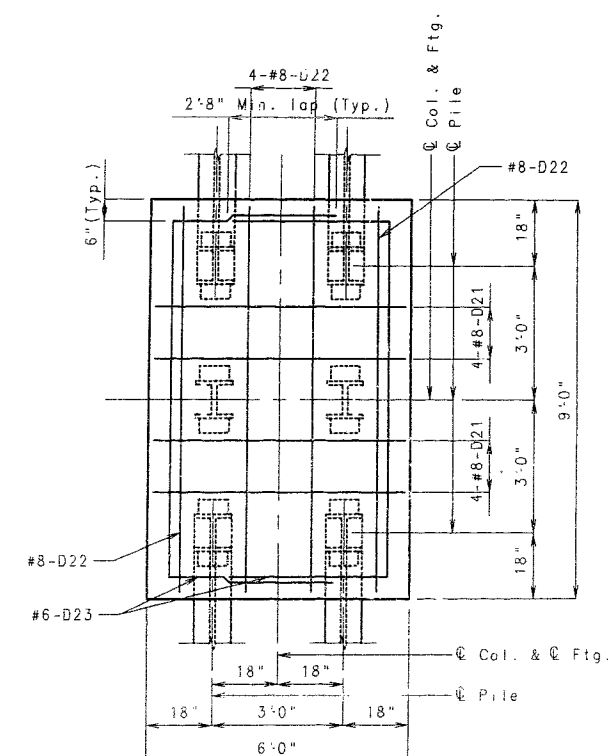


TYPICAL DETAIL PILE
CHANNEL SHEAR CONNECTOR

DETAILS OF INTERMEDIATE BENT NO. 2



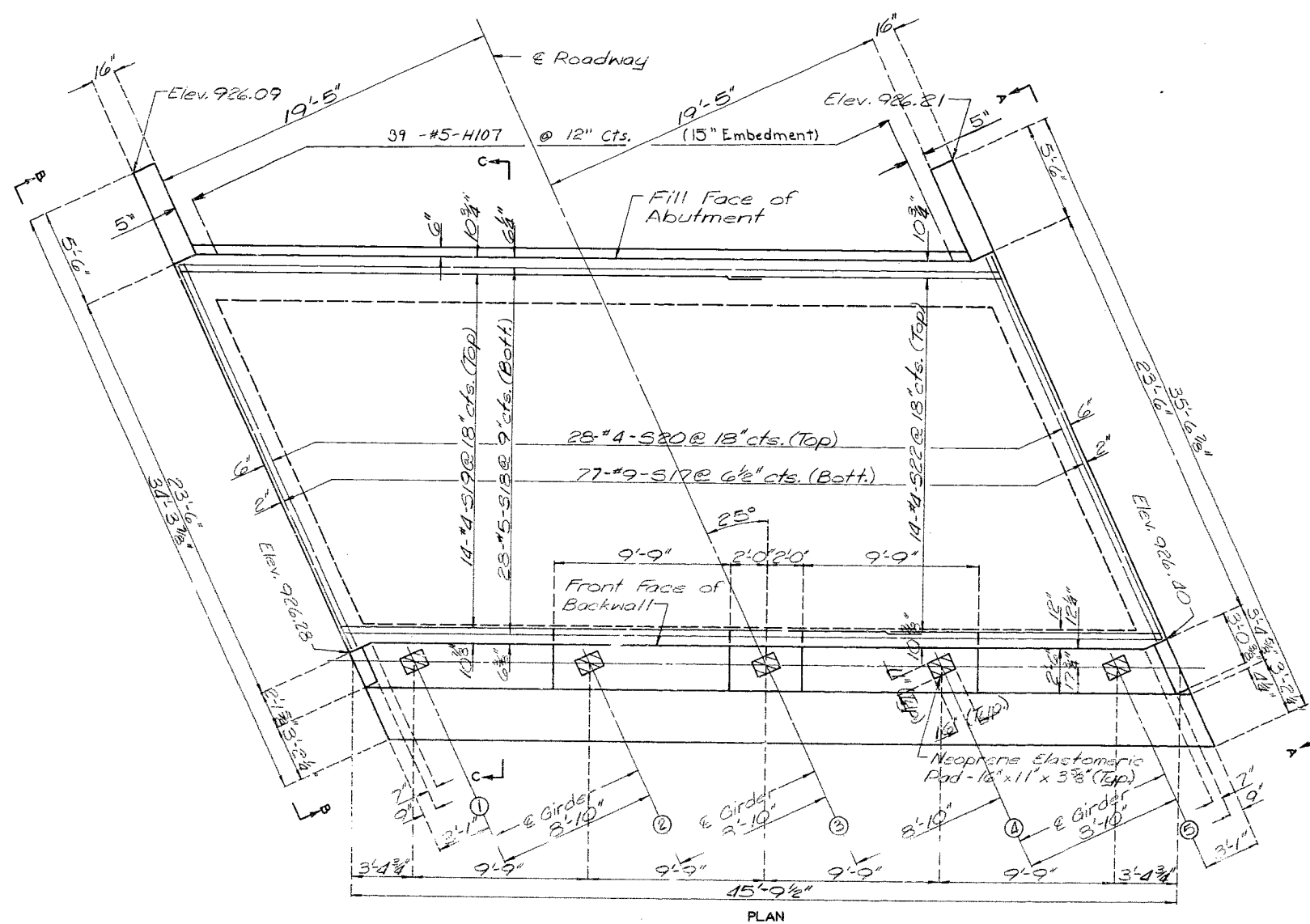
PLAN OF FOOTING SHOWING
TOP REINFORCING



PLAN OF FOOTING SHOWING
BOTTOM REINFORCING

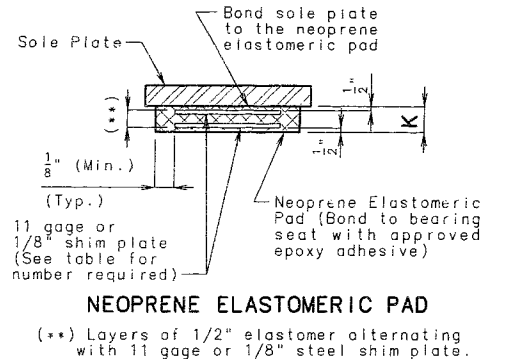
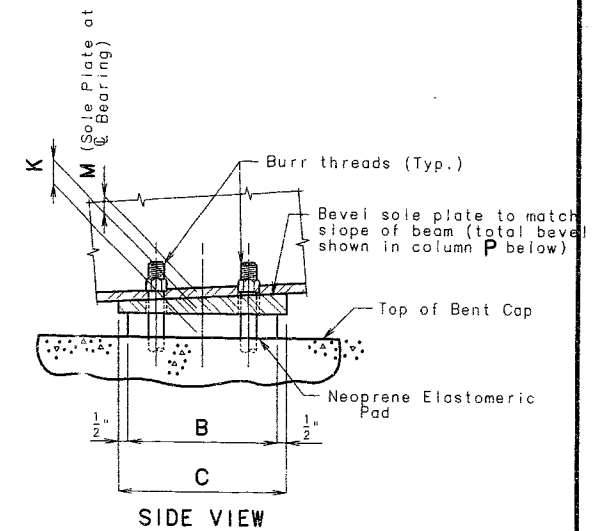
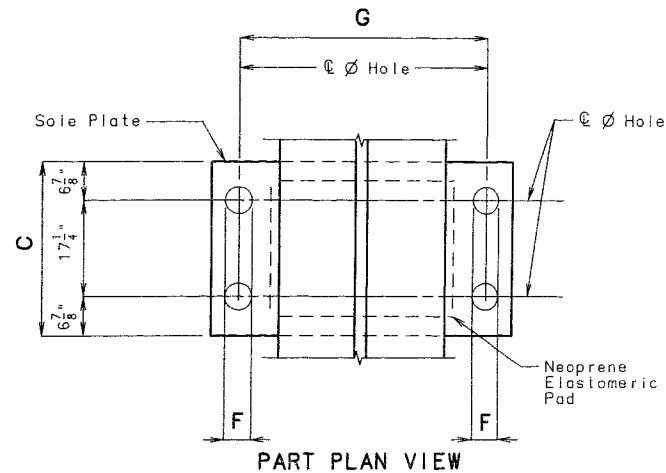
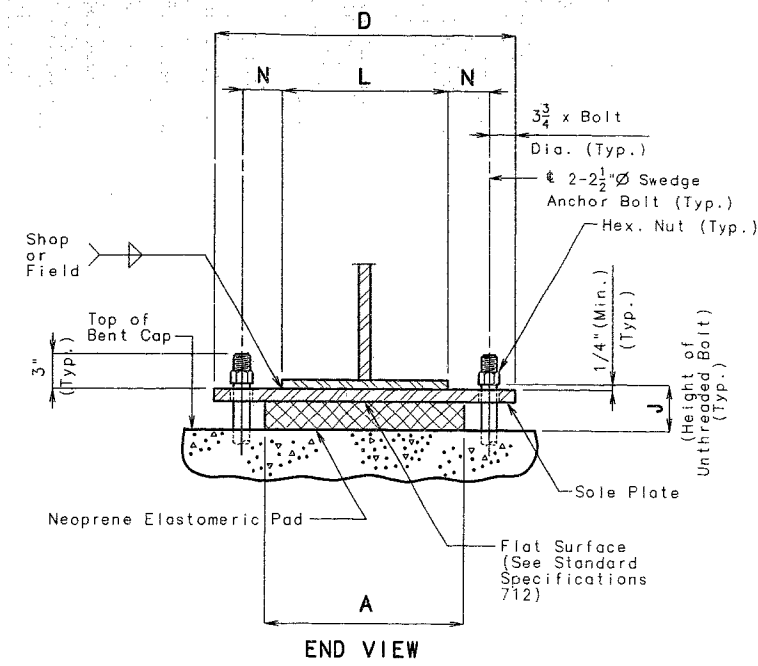
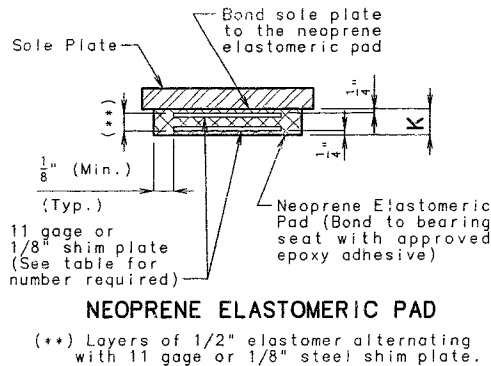
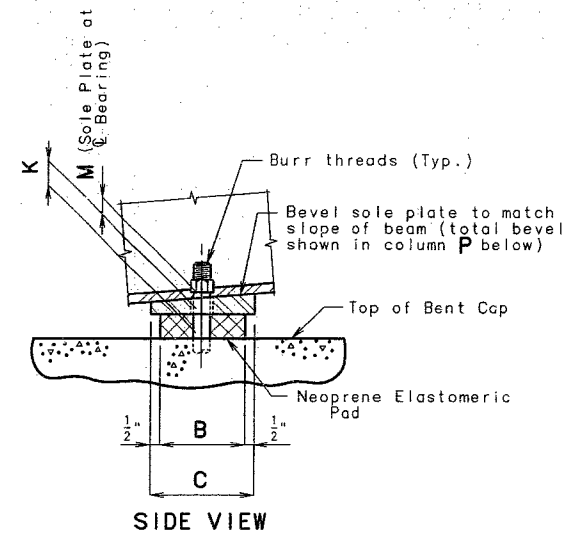
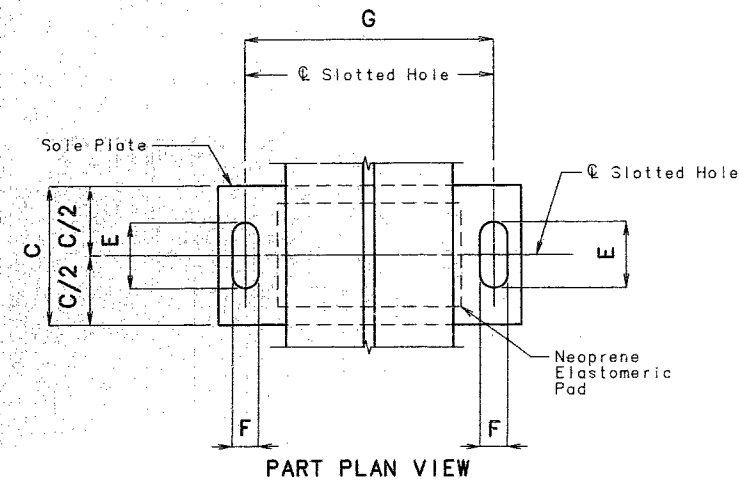
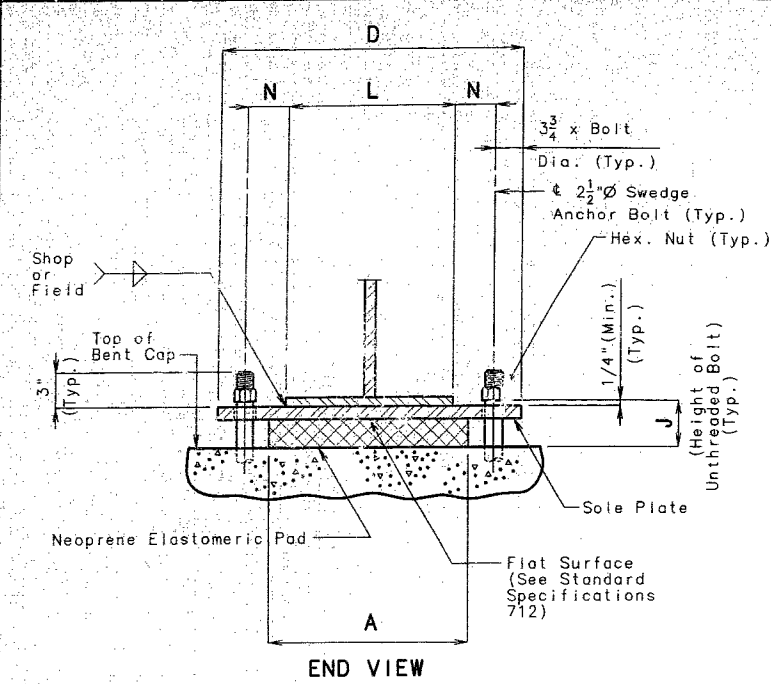
For Details of Anchor Bolt Wells see sheet No. 12.
For Elevations A-A & B-B see sheet No. 9.
For Detail of Steel Pile Splice see sheet No. 4.
For Details of Part Anchor Bolt Plan see sheet No. 11.
For Details of Pile Channel Shear Connector See Sheet No. 7.

Note: These quantities are included in the estimated quantities table on sheet no. 2.

[illegible]

SECTION C-C

BRG LAM BRG3.31, STL., A
 LAMINATED BRG. REVISED
 JAN. 1980 JUNE 1993



Note: The location of the anchor bolts in relation to the slotted holes in the sole plate shall correspond with the temperature at the time of erection. At 60° F. the slotted holes should center on the anchor bolts.

EXPANSION BEARINGS														NUMBER OF SHIM PLATES(*)	NUMBER REQUIRED
BENT NO.	A	B	C	D	E	F	G	J	K	L	M	N	P		
1	16"	11"	12"	29"	7"	2 5/8"	21 1/2"	5 7/16"	3 1/8"	16"	2 1/16"	2 3/4"	1 1/8"	5	5
3	16"	11"	12"	29"	7"	2 5/8"	21 1/2"	5 7/16"	3 1/8"	16"	2 1/16"	2 3/4"	1 1/8"	5	5
														TOTAL BEARINGS	10

(*) The required shim plate shall be placed between layers of elastomer and molded together to form an integral unit.

GENERAL NOTES:

Anchor bolts shall be 2-1/2" A588 steel swaged bolts and shall extend 25" into the concrete with A194-2, 2H or A563-C, C3, B, DH, DH3 heavy hexagon nuts. Actual manufacturer's certified mill test reports (chemical and mechanical) shall be provided. (swedging shall be 1" less than the extension into the concrete.)

All structural steel for the sole plate, anchor bolts and the heavy hexagon nuts shall be painted with 2 coats (5 mils min.) of inorganic zinc. Weld areas to be touched up after assembly.

The neoprene elastomeric pads shall be 60 durometer.

The sole plate shall be furnished with the bearing and field or shop welded to the girders.

Structural steel for the sole plate shall be A-36.

Payment for the sole plate, anchor bolts and heavy hexagon nuts shall be included in the cost of the bearing assembly. See Special Provisions.

The accepted quantity of the elastomeric bearing assemblies, complete-in-place, will be paid for at the contract unit price for Laminated Neoprene Bearing Pads (Steel Structures), each.

FIXED BEARINGS														NUMBER OF SHIM PLATES(*)	NUMBER REQUIRED
BENT NO.	A	B	C	D	F	G	J	K	L	M	N	P			
2	18"	30"	31"	29"	2 5/8"	21 1/2"	5"	3"	16"	1 5/8"	2 1/4"	1 1/4"		4	5
														TOTAL BEARINGS	5

(*) The required shim plate shall be placed between layers of elastomer and molded together to form an integral unit.

DETAILS OF LAMINATED NEOPRENE BEARINGS (STEEL STRUCTURES)

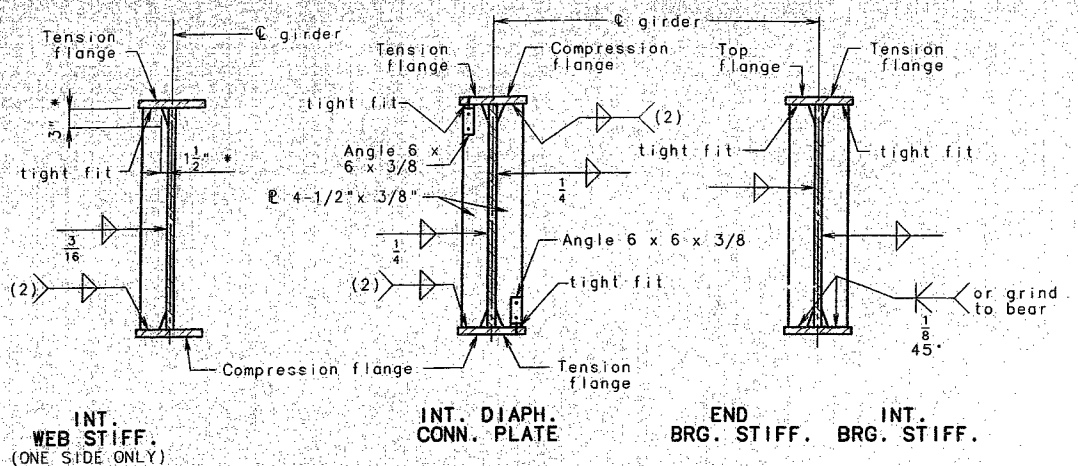
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SHEET NO. 10 OF 27

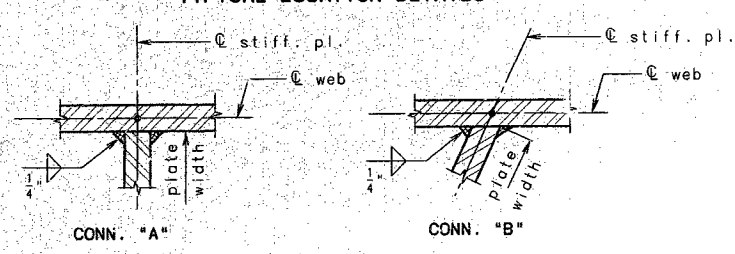
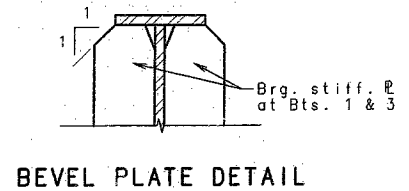
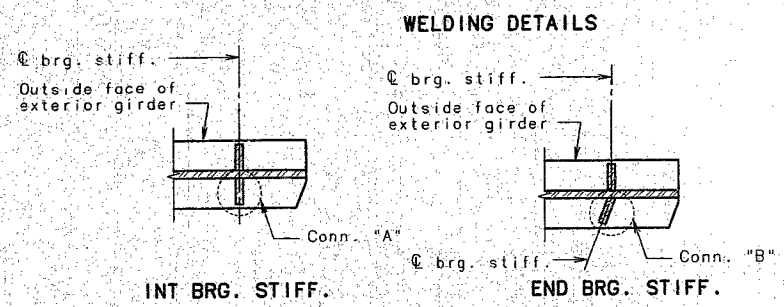
JEFFERSON COUNTY

A-2977

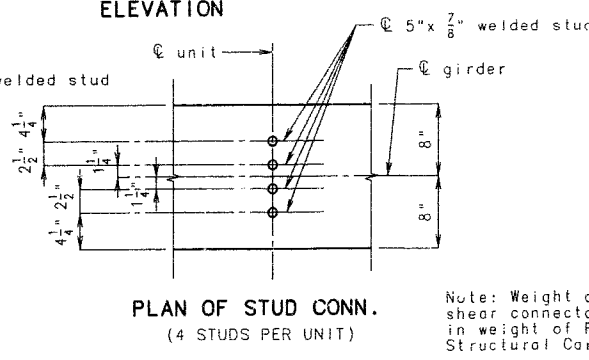
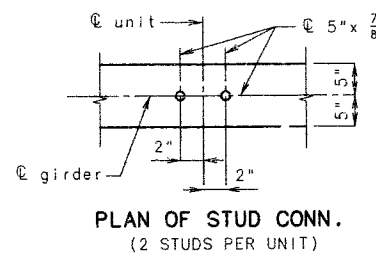
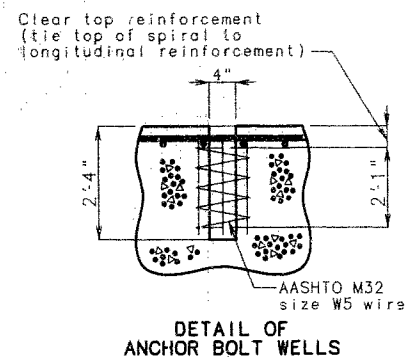
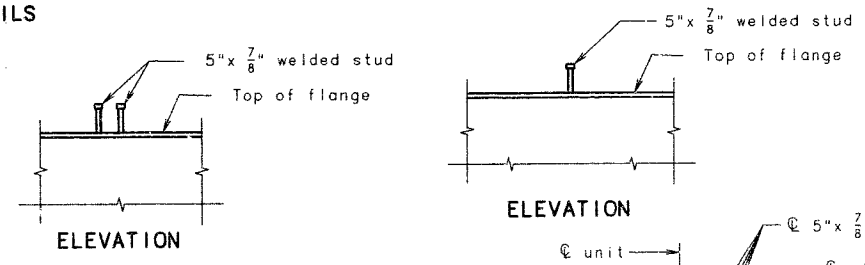
DETAILED Apr. 1996
 CHECKED Apr. 1996



(2) Weld to compression flange as located on elevation of girder.
 * Typical for all int. web stiff., int. diaph. conn. pl. and brg. stiffener.

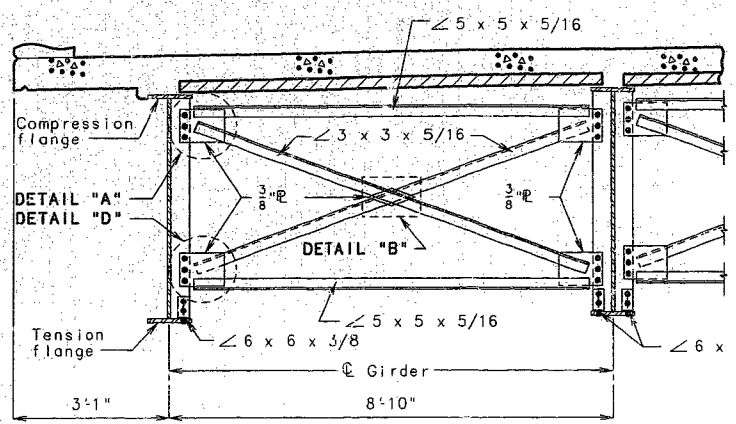


WELDING DETAILS

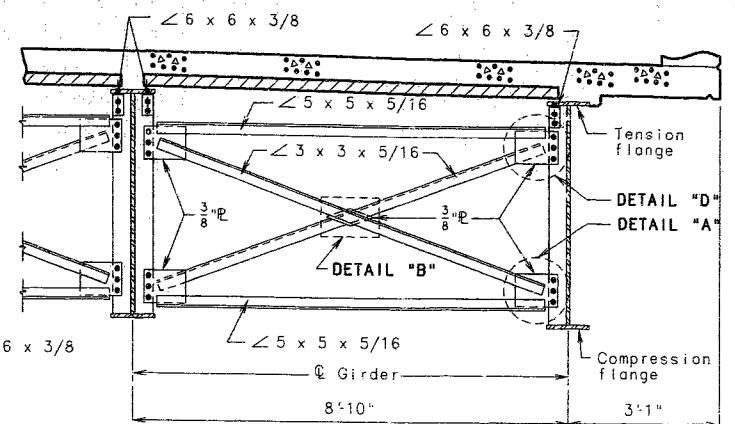


DETAILS OF SHEAR CONNECTORS

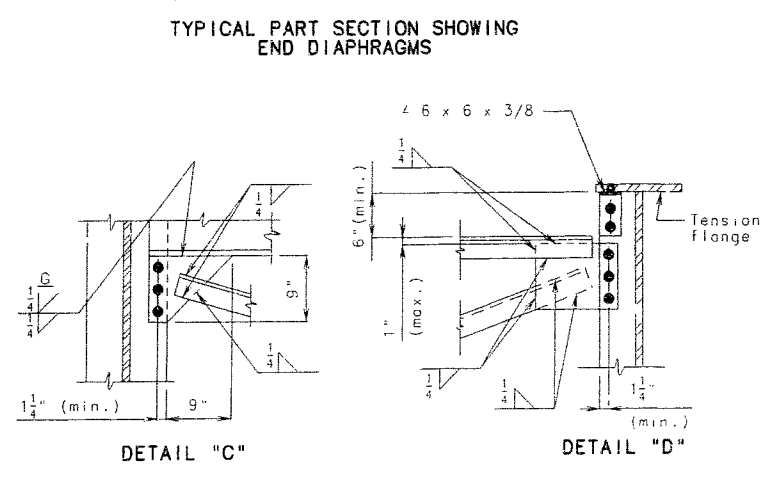
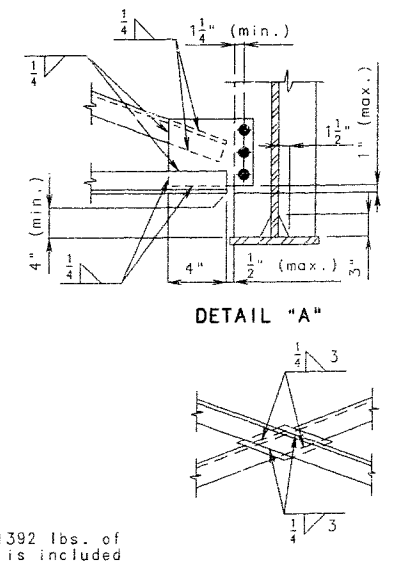
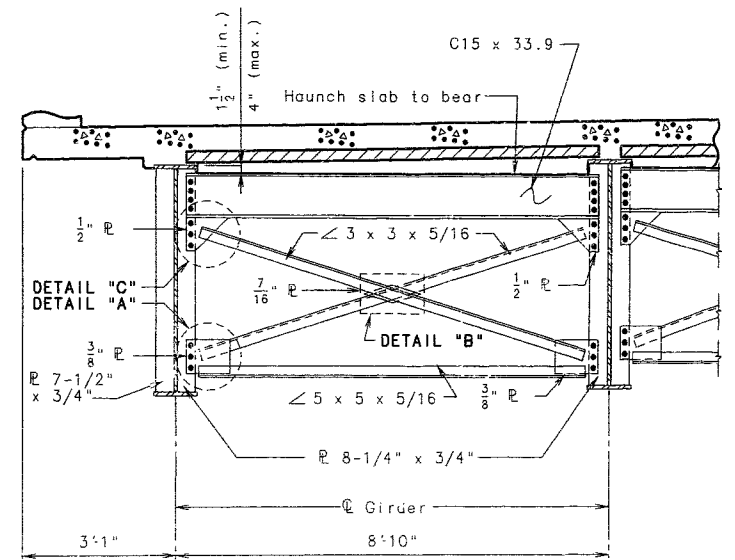
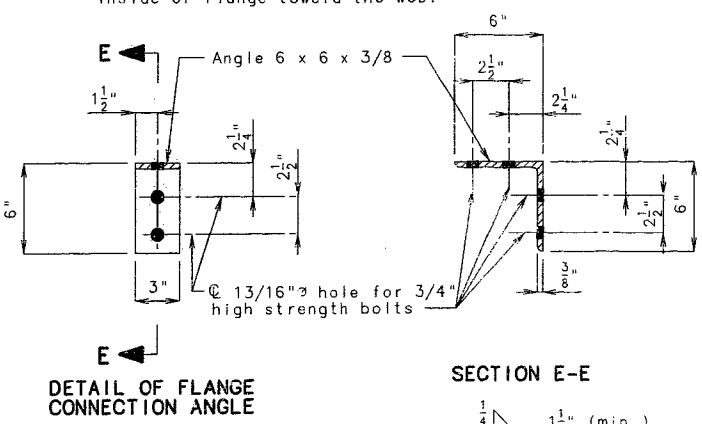
NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.



TYPICAL PART SECTION SHOWING INTERMEDIATE DIAPHRAGMS TOP FLANGE IN TENSION



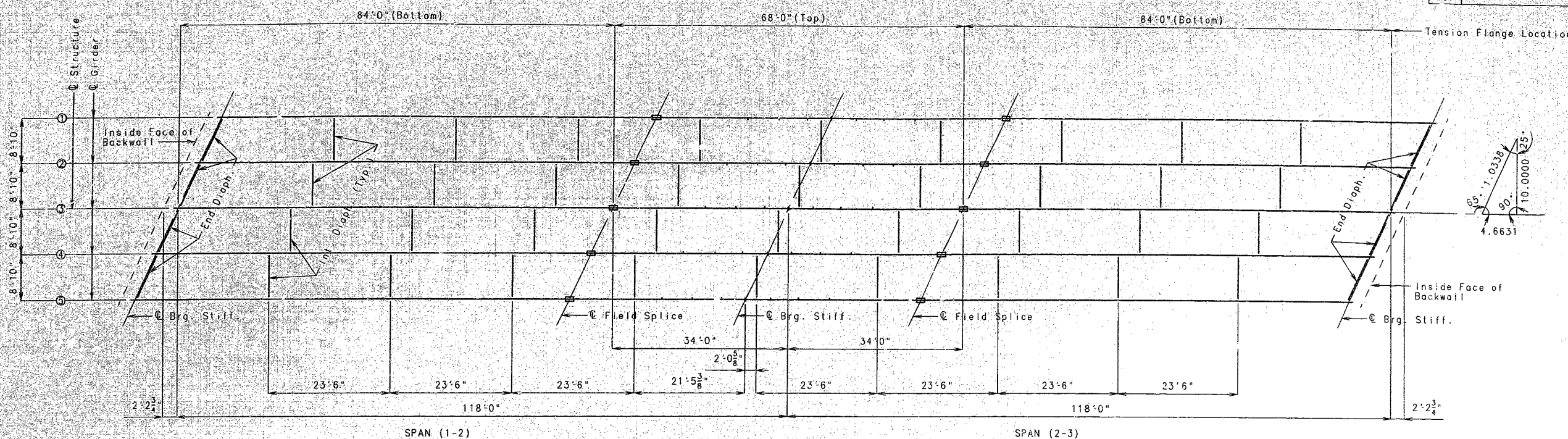
NOTE: The two 3/4" H.S. Bolts that connect the 6 x 6 x 3/8 angle to the top flange shall be placed so the nut is on the inside of flange toward the web.



Note: Weight of 1392 lbs. of shear connectors is included in weight of Fabricated Structural Carbon Steel.

39 268

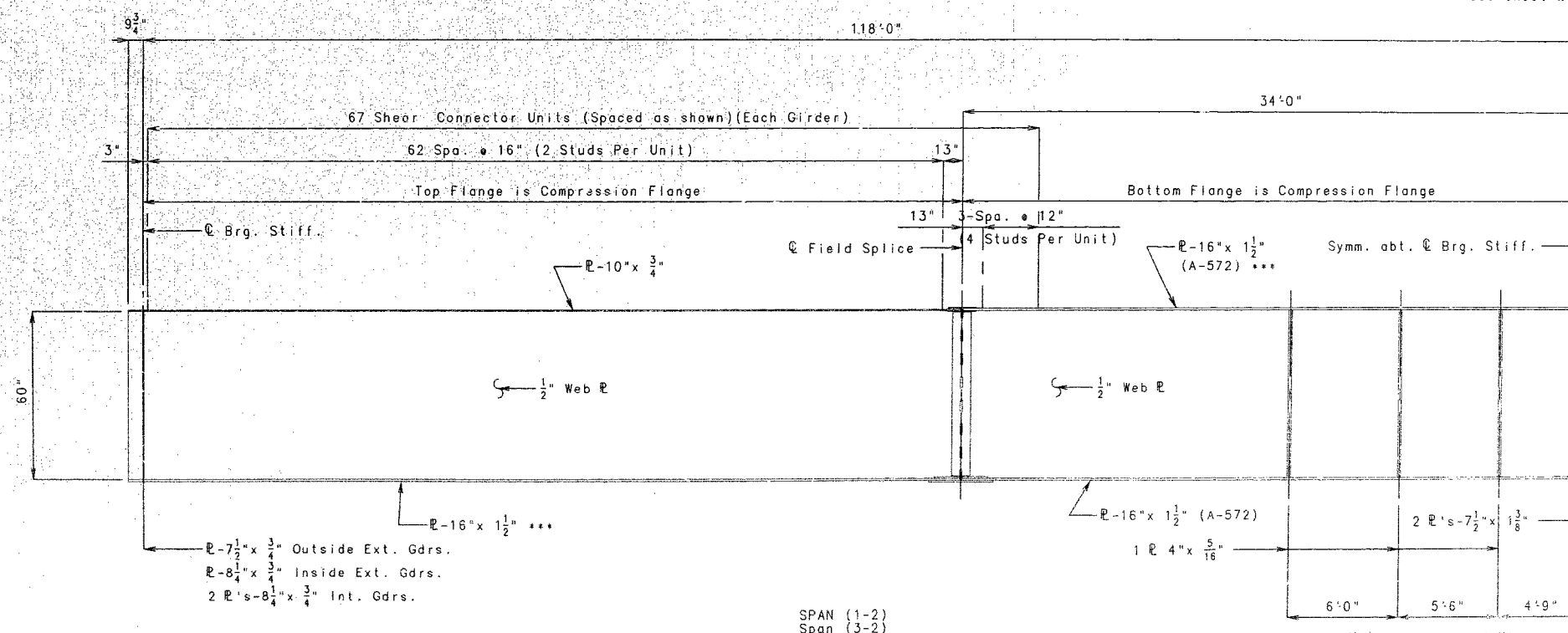
DETAILED: Mar. 1996
 CHECKED: Apr. 1996



PLAN OF STRUCTURAL STEEL

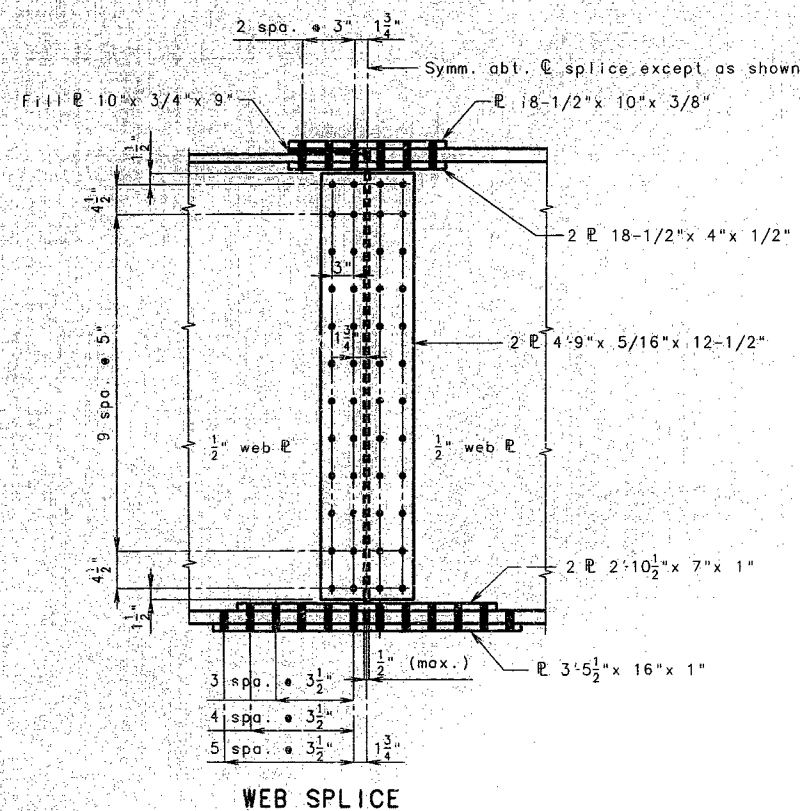
Note: Longitudinal dimensions are horizontal.

Note: Transverse web stiffeners shall be oriented as shown in plan of structural steel. Intermediate web stiffener plate and diaphragm spacings may vary from plan dimensions by a maximum of 3" for diaphragm to connect to intermediate web stiffener plate. See sheet no.18 for location of slab drain assembly.

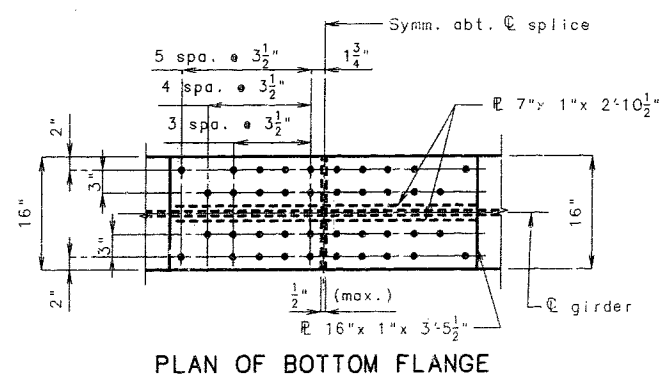
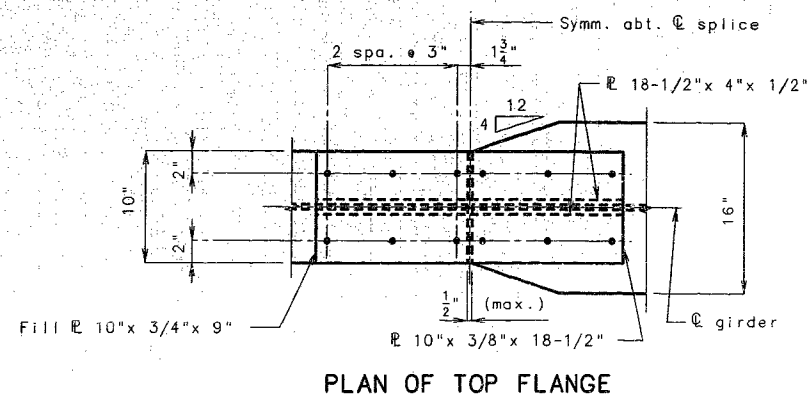


GIRDER ELEVATION

Note: Fabricated Structural Steel shall be A36 except as noted. Plate Girders shall be fabricated to conform with camber diagram, see sheet No.17. All Web plates shall be subject to notch toughness requirements. *** Indicates Flange E subject to notch toughness requirements. For detail of slab drains see sheet No.14.



Note: Use $\frac{7}{8}$ " \odot high strength bolts with $\frac{15}{16}$ " reamed holes.



DETAIL OF BOLTED FIELD SPLICE

SPL. PL. PG. 3-42, A36, 2, A
FIELD SPLICE, REVISED
MAR. 1992

DETAILED Mar. 1996
CHECKED Apr. 1996

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

SHEET NO. 14 OF 27

JEFFERSON COUNTY A-2977

STATE	PROJ. NO.	SHEET NO.
MO.		35

GENERAL NOTES:

Structural steel for expansion device shall be fabricated in one section, except for stage construction and when the length is over 50', a complete joint penetration groove welded splice is permissible.

The expansion device shall be bent to conform to crown and grade of roadway.

Structural steel for the armored joint shall be grade A36.

Plan dimensions are based on installation at 60°F.

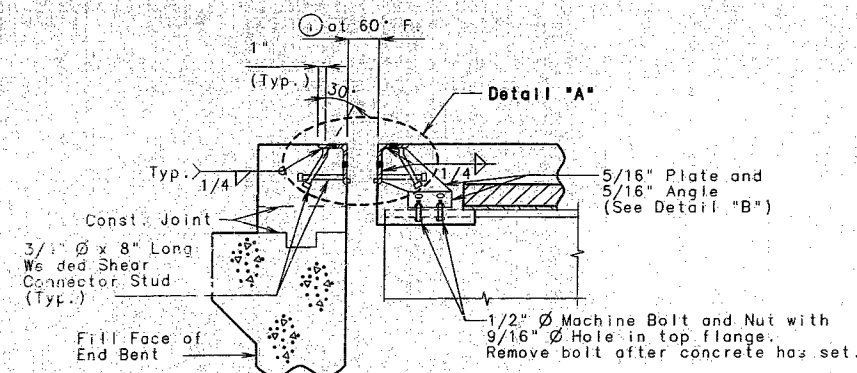
Dimension ① shall be increased 1/16" for each 10° fall in temperature and decreased 1/16" for each 10° rise in temperature at installation.

See Special Provisions for the requirements of compression joint seal.

Structural steel for the expansion device and curb plate shall be painted with a minimum of two coats of inorganic zinc primer (5 mils minimum) in accordance with the special provisions. Anchors need not be protected from overspray.

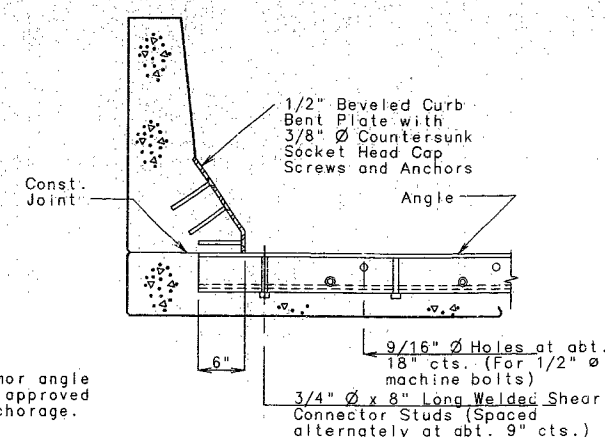
Furnishing, painting and installing the structural steel armored joint shall be included in contract unit price for preformed compression expansion joint seal.

Neoprene extrusions shall meet A.S.T.M. D3542.

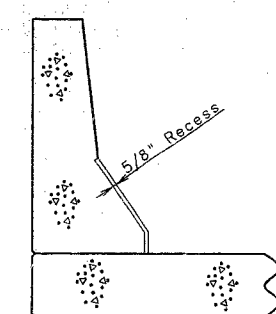


PART SECTION D-D

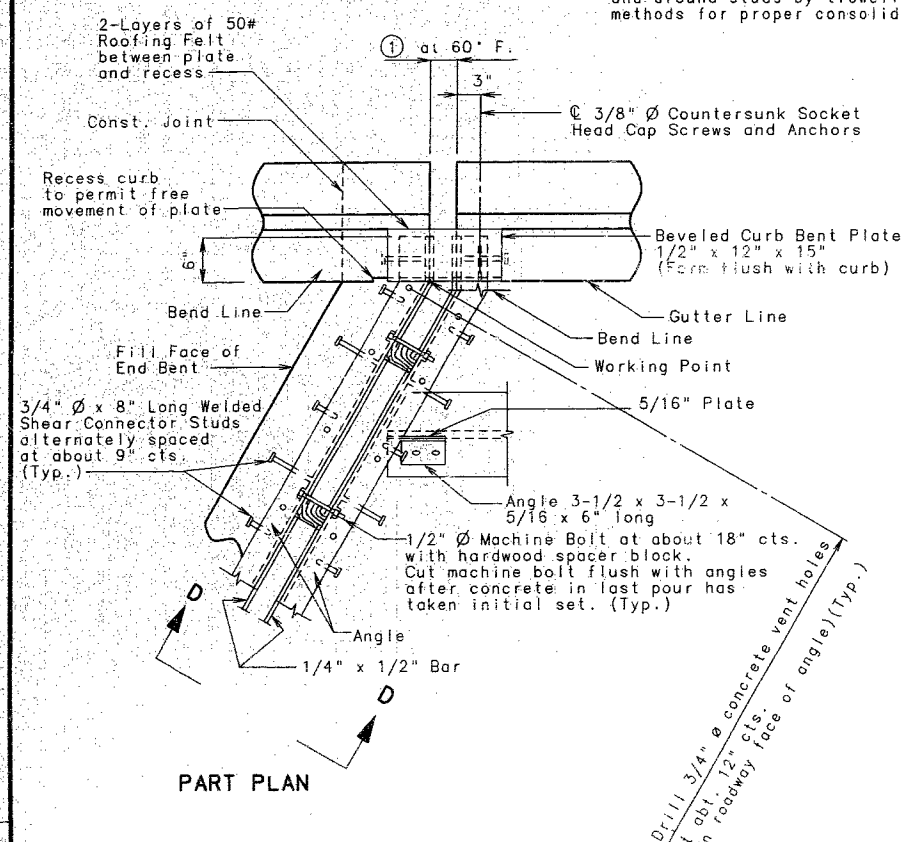
Note: Concrete shall be forced under armor angle and around studs by trowelling or other approved methods for proper consolidation and anchorage.



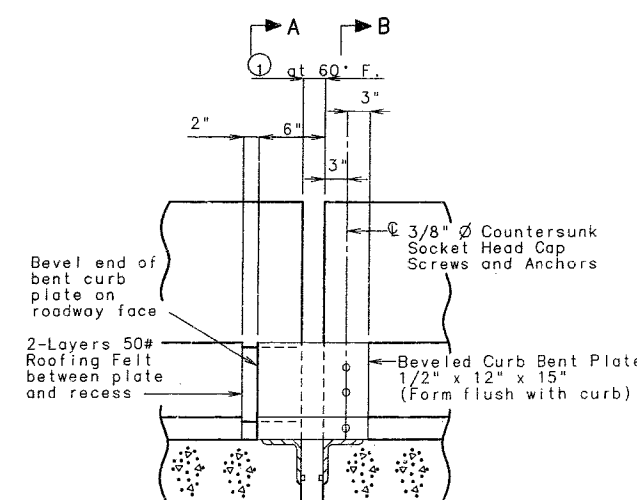
PART SECTION B-B



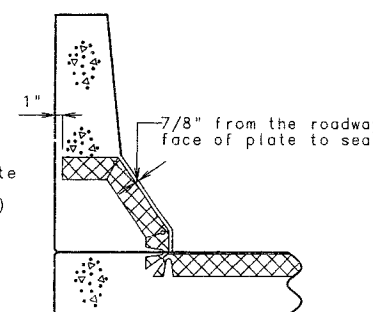
PART SECTION A-A



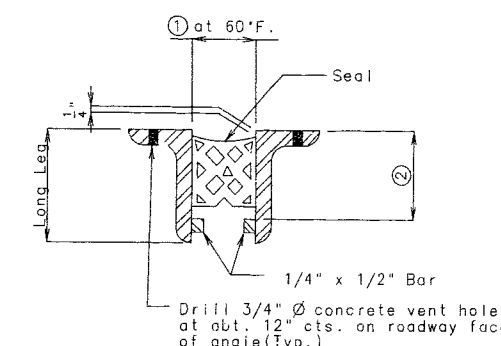
PART PLAN



PART ELEVATION OF BARRIER CURB



PART SECTION THRU JOINT SEAL



PART CROSS SECTION THRU EXPANSION JOINT

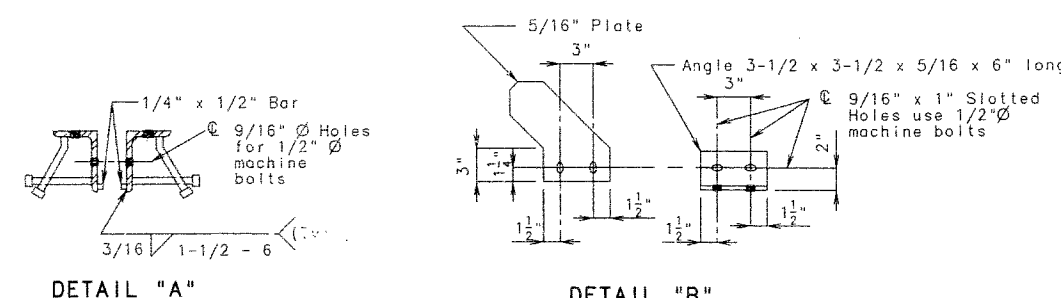
TABLE OF TRANSVERSE BRIDGE SEAL DIMENSIONS				
Seal (Width)	①	②	Required Movement Range	
2.5"	1-5/8"	Manufacturer's Recommended Height	0.9"	
3.0"	1-7/8"	Manufacturer's Recommended Height	1.0"	
3.5"	2-1/4"	Manufacturer's Recommended Height	1.3"	
4.0"	2-5/8"	Manufacturer's Recommended Height	1.6"	
4.5"	2-3/4"	Manufacturer's Recommended Height	1.9"	
5.0"	2-7/8"	Manufacturer's Recommended Height	2.0"	

Note: Depth of seal shall not be less than width of seal.

SIZE OF ARMOR JOINT

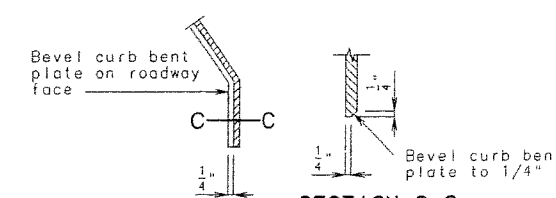
Vertical leg of angle shall be a minimum of ② + 3/4". Horizontal leg of angle shall be a minimum of 3". Minimum thickness of angle shall be 1/2".

If a seal size larger than that indicated on the plans is used, the movement range, the opening at 60° and all dimensions for the armor angles shall be shown on the shop drawings.



DETAIL "A"

DETAIL "B"



PART ELEVATION AT END OF BEVELED CURB BENT PLATE

DETAILS OF PREFORMED COMPRESSION JOINT SEAL AT BENT NO.1 & 3.

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

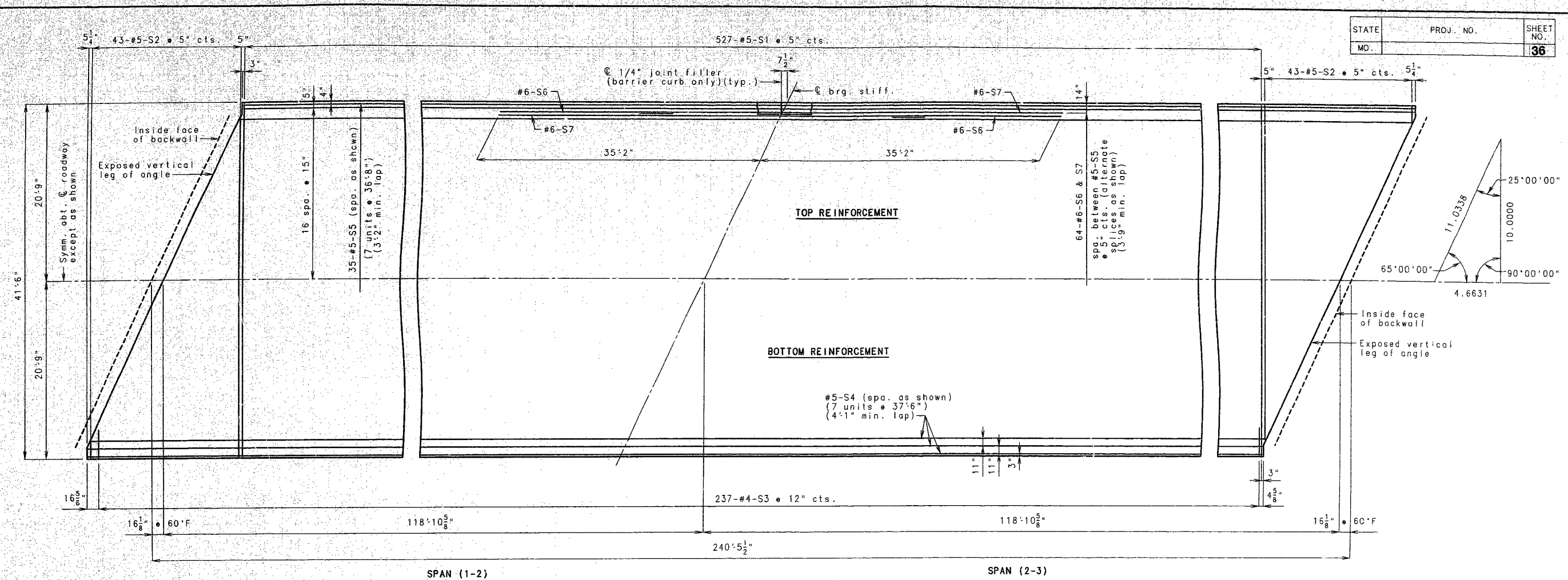
SHEET NO. 16 OF 27

JEFFERSON COUNTY

A-2977

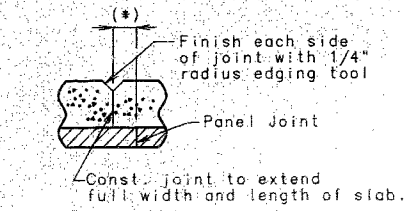
PCJS L.A.E.D 3.35, STL.E.B.
272-43
PCJS-STL EB-LA REVISED
AUG. 1992 JUNE 1995
AUG. 1992

DETAILED Apr. 1996
CHECKED Apr. 1996

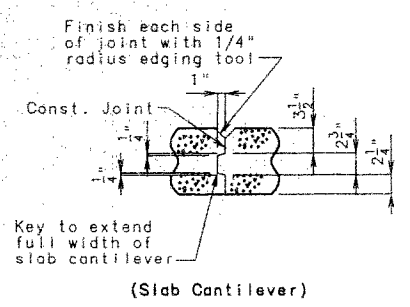


PLAN OF SLAB SHOWING REINFORCEMENT

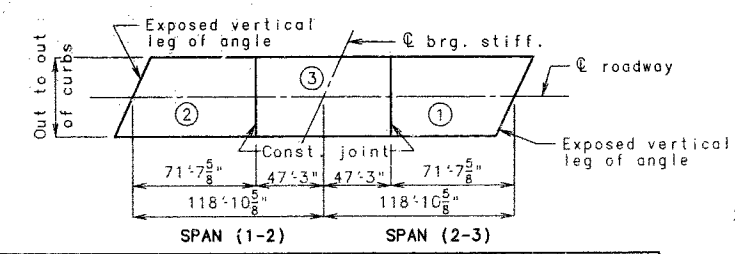
(*) Adjust the construction joint to a clearance of 6 inches minimum from the panel joint.



(Slab On Precast Panels)



SLAB CONSTRUCTION JOINT DETAILS



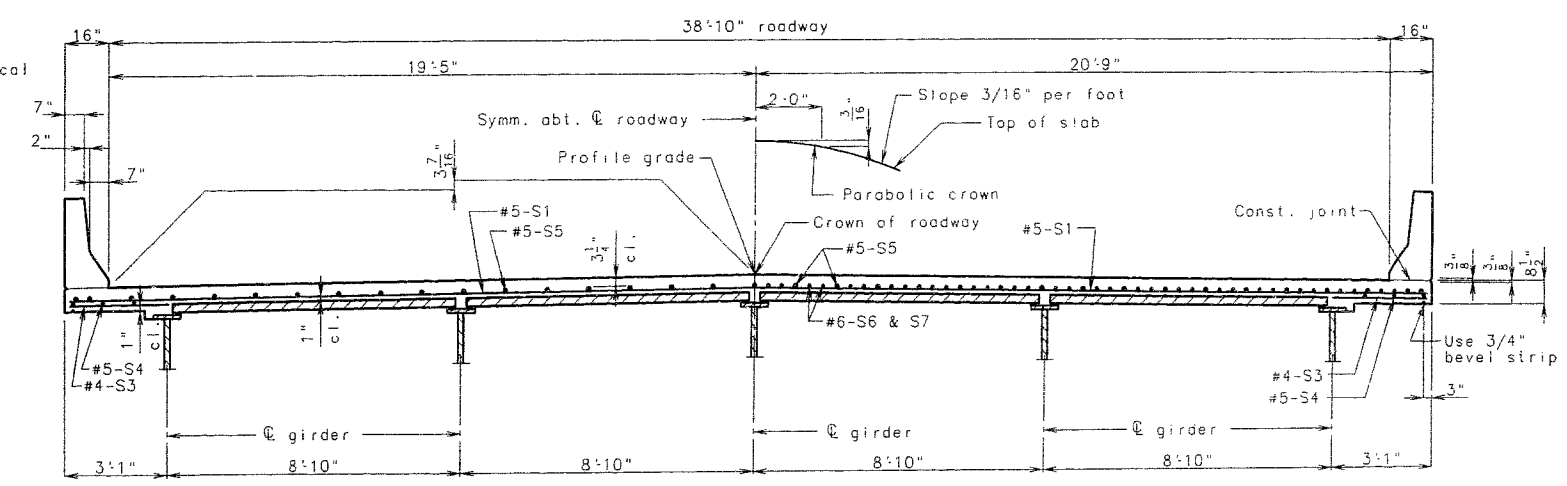
	SEQUENCE OF POURS			MIN. RATE OF POUR CU. YDS./HR.	
	Direction			With Retarder	No Retarder
Basic Sequence	1	2	3	25	25
	End to 3	3 to end	1 to 2		
Alternate pours to the basic skip sequence are subject to the approval of the engineer in accordance with Section 703.3.12.4 of Missouri Standard Specifications.					
Alternate "A" pours	1	3 + 2		41	
	End to 3	1 to end			
Alternate "B" pours	1 + 3 + 2			41	
	End to end				

Note: The contractor shall pour and satisfactorily finish the slab pours at the rate given. Retarder, if used, shall be an approved type and retard the set of concrete to 2.5 hours.

SLAB POURING SEQUENCE

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

Note: Longitudinal dimensions are horizontal.
For girder camber and slab haunching details, see sheet no. 15.
For details of expansion device, see sheet no. 16.

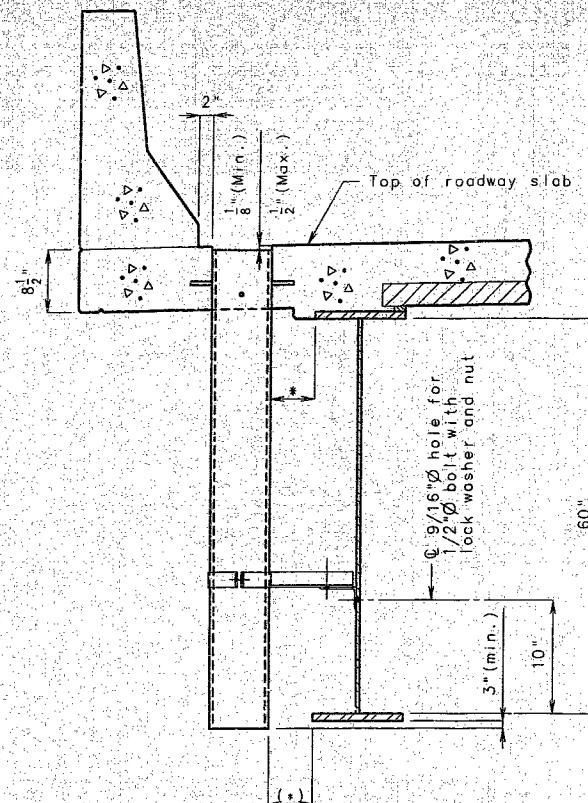


HALF SECTION NEAR Q SPAN

HALF SECTION NEAR INT. BENT

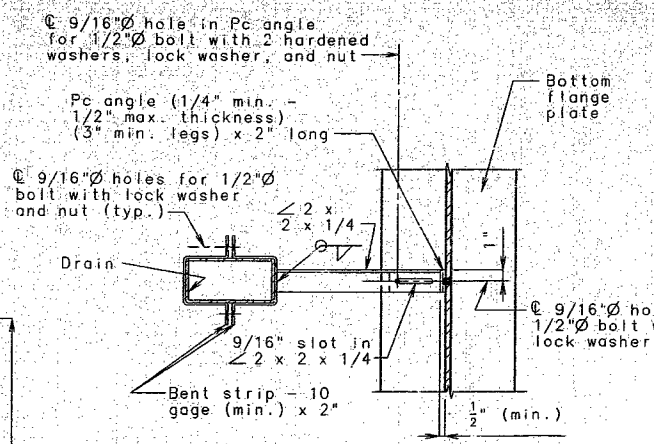
Note: For details and reinforcement of safety barrier curb not shown see sheet no. 21.

DETAILED: Mar. 1996
CHECKED: Apr. 1996

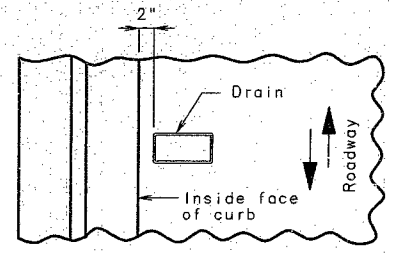


PART SECTION NEAR DRAIN

* If dimension is less than 1", drains shall be placed parallel to roadway, otherwise place drains transverse to roadway.

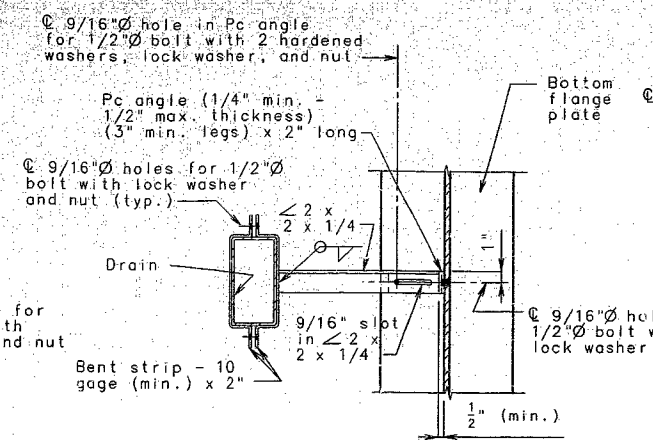


PART SECTION SHOWING BRACKET ASSEMBLY

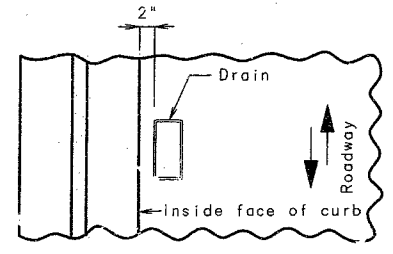


PART PLAN OF SLAB AT DRAIN

DETAILS OF DRAINS TRANSVERSE TO ROADWAY

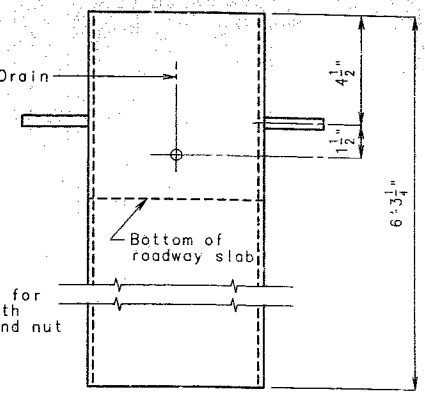


PART SECTION SHOWING BRACKET ASSEMBLY

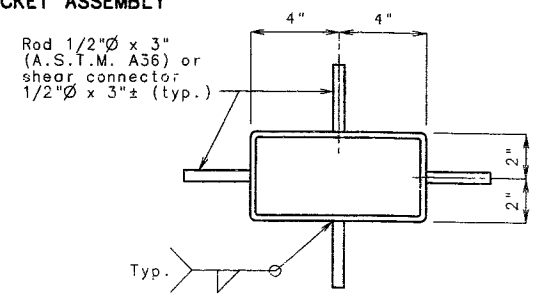


PART PLAN OF SLAB AT DRAIN

DETAILS OF DRAINS PARALLEL TO ROADWAY

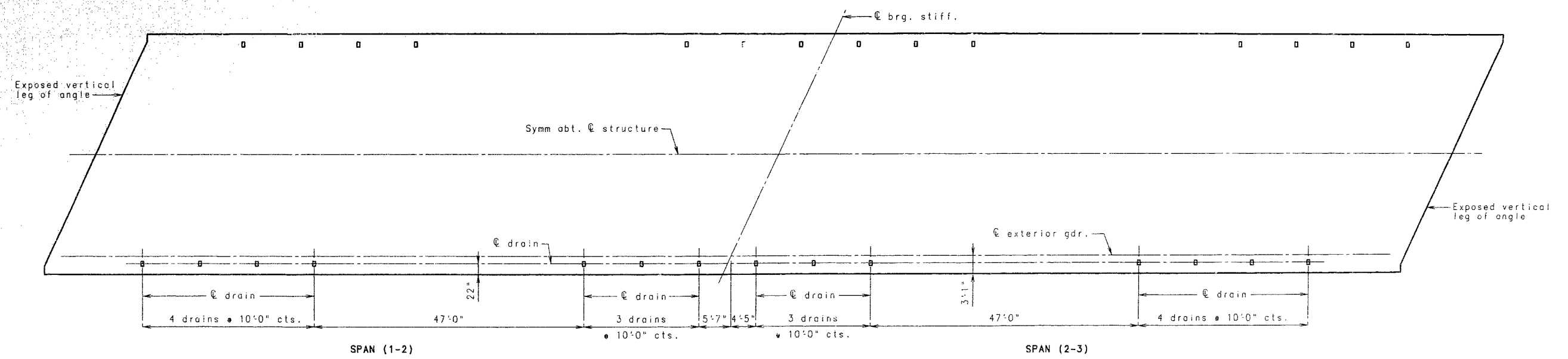


ELEVATION OF DRAIN



PLAN OF DRAIN

SLAB DRAIN DETAILS



PLAN OF SLAB SHOWING SLAB DRAIN SPACING

STATE	PROJ. NO.	SHEET NO.
MO.		37

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".

Locate drains in the slab by dimensions shown in the Part Elevation. Shift reinforcing in field where necessary to clear drains.

The drains and bracket assembly shall be galvanized in accordance with A.S.T.M. A123.

All bolts, hardened washers, lock washers and nuts shall be galvanized in accordance with A.S.T.M. A153.

The bolt hole for the bracket assembly attachment shall be located on the plate girder shop drawings.

Shop drawings will not be required for slab drains and the bracket assembly.

DRA 6 GS 3.30.STL. A
 Steel Girder Drain
 September 1992
 279
 45

DETAILED Apr. 1996
 CHECKED Apr. 1996

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

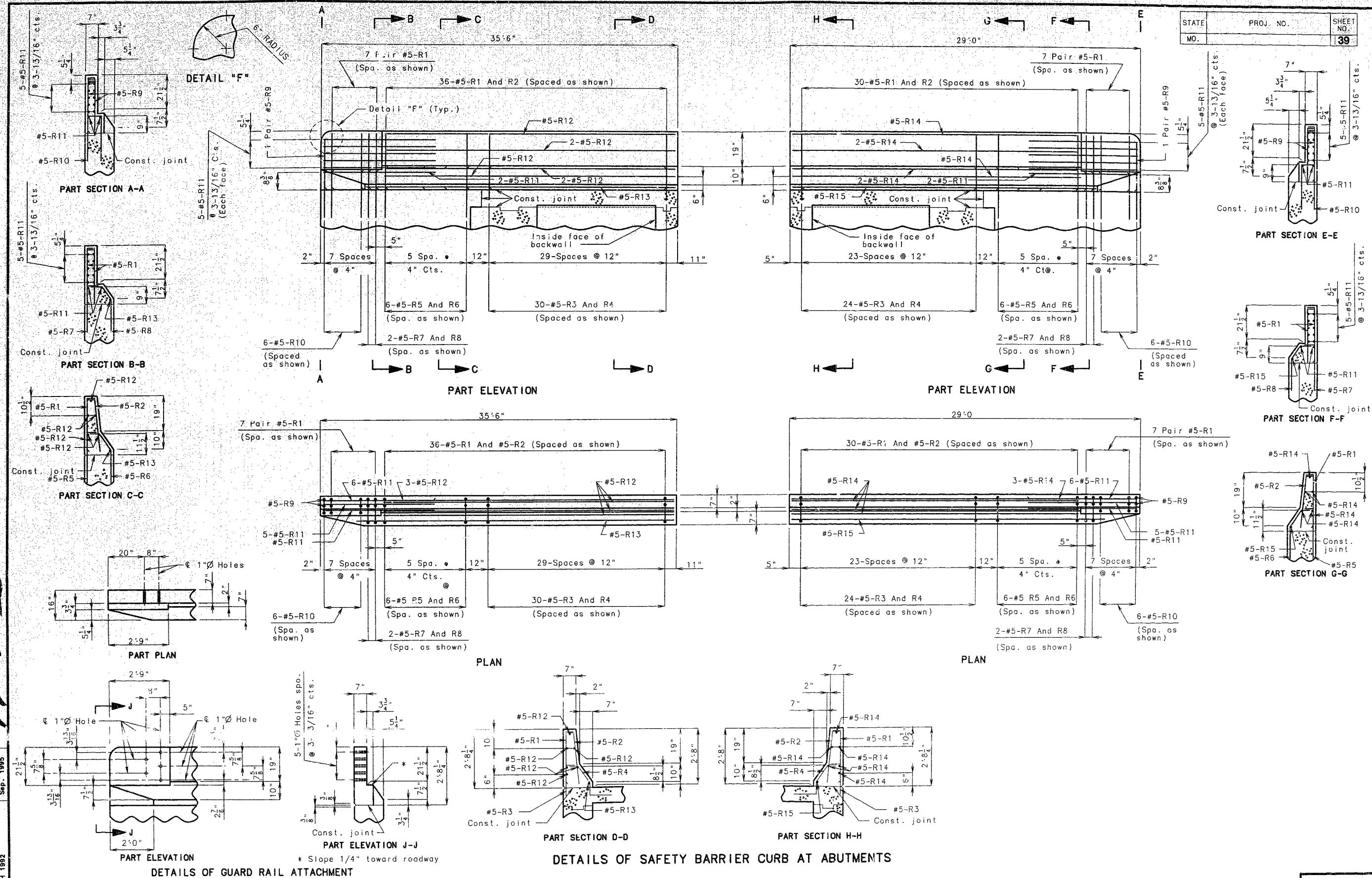
SHEET NO. 18 OF 27

JEFFERSON

COUNTY

A-2977

STATE	PROJ. NO.	SHEET NO.
MO.		39

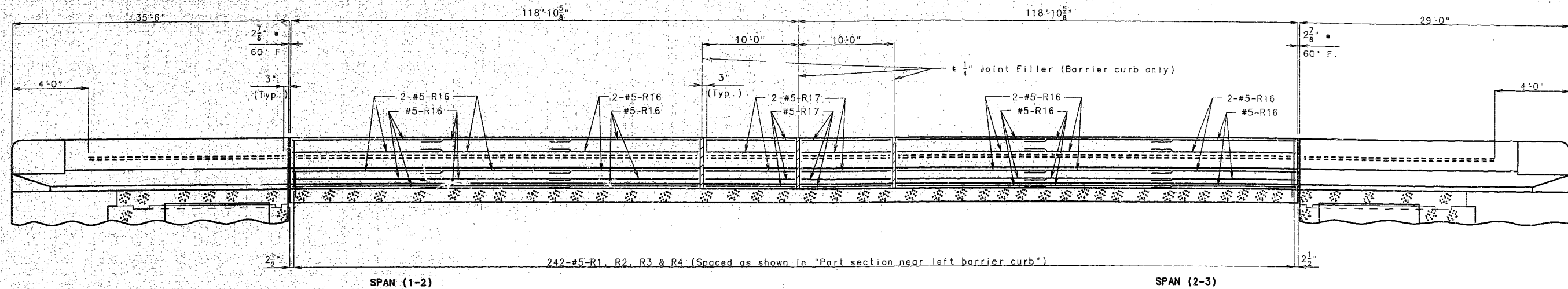


BAC6ep16.g 3.30.sem.i.d
 SEMI-DEEP END POST (16") REVISED:
 MARCH 1992

DETAILED Apr. 1996
 CHECKED Apr. 1996

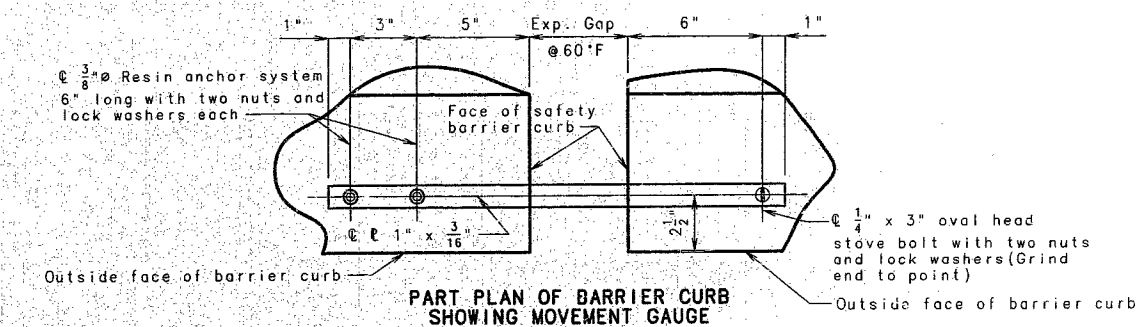
SHEET NO. 20 OF 27

JEFFERSON COUNTY A-2977

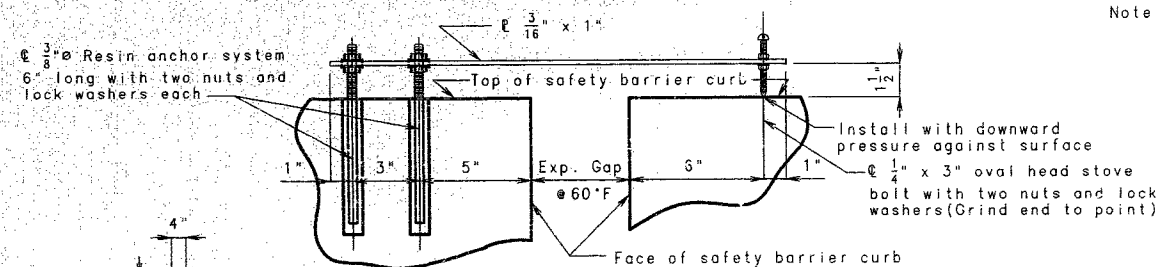


SECTION NEAR LEFT BARRIER CURB
(Right Barrier Curb Similar)

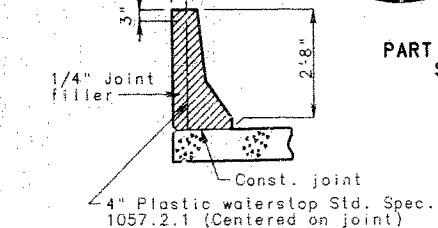
Note: Longitudinal dimensions are horizontal.
For details of Safety Barrier Curb at Abutments, see sheet no. 20.



PART PLAN OF BARRIER CURB
SHOWING MOVEMENT GAUGE



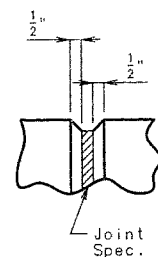
PART ELEVATION OF BARRIER CURB
SHOWING MOVEMENT GAUGE



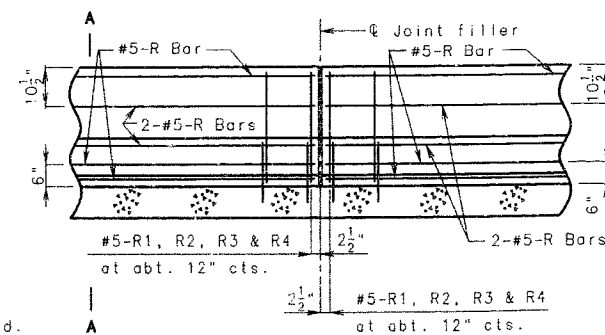
Note: Plastic waterstop shall be placed in all safety barrier curb filled joints. (Except structures with superelevation, use on all lower safety barrier curb joints only).

Cost of plastic waterstop complete in place to be included in contract unit price for safety barrier curb.

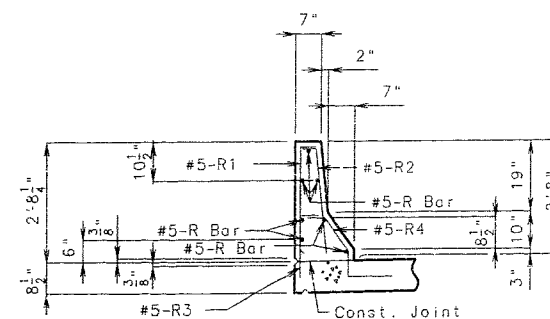
DETAILS OF PLASTIC WATERSTOP



FILLED JOINT DETAIL

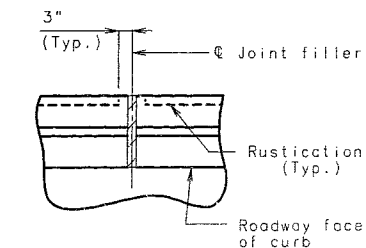


PART SECTION NEAR LEFT SAFETY BARRIER CURB
(CAST-IN-PLACE CONVENTIONAL FORMING OPTION)

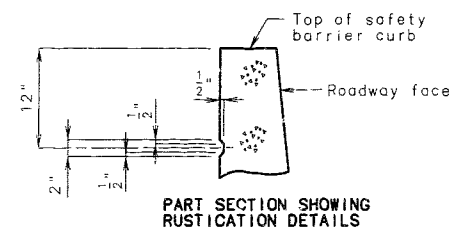


PART SECTION A-A

Note: Use a minimum lap of 2'-11" for #5 horizontal safety barrier curb bars.
The cross-sectional area above the slab = 2.27 sq. ft.



PART PLAN SHOWING
SAFETY BARRIER CURB JOINT



PART SECTION SHOWING
RUSTICATION DETAILS

Note:

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

All exposed edges of safety barrier curb shall have either a 1/2" radius or a 3/8" bevel, unless otherwise noted.

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

Concrete 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.

BAC116.95 3.30, .9
BARRIER CURB ELEVATION REVISED: SEPT. 1995
JAN. 1990

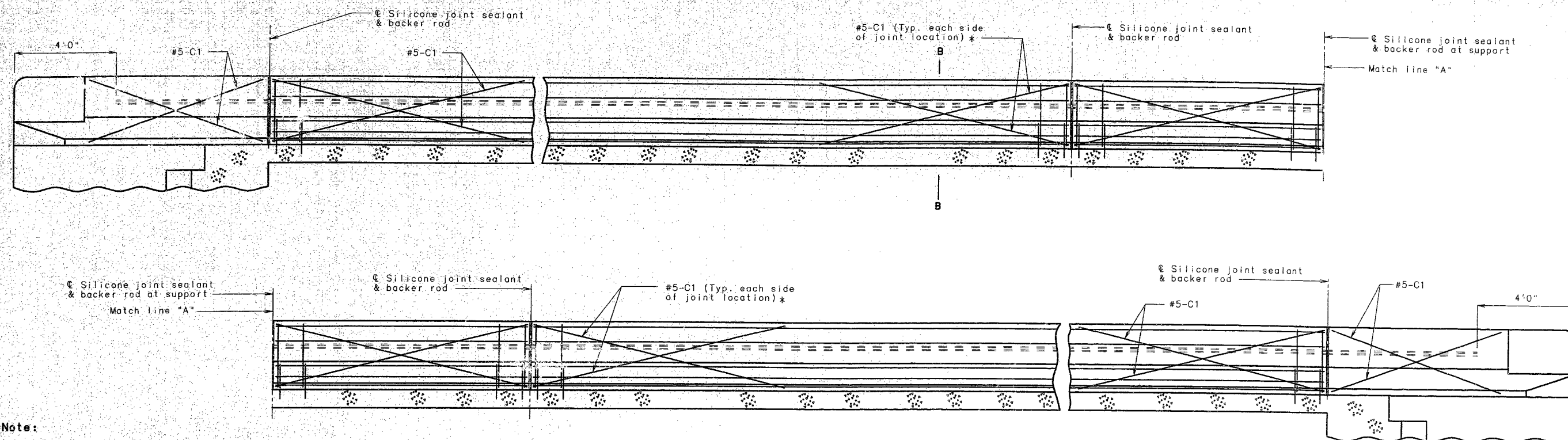
DETAILED Apr. 1996
CHECKED Apr. 1996

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

SHEET NO. 21 OF 27

JEFFERSON COUNTY

A-2977



Note:

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

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

Concrete 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.

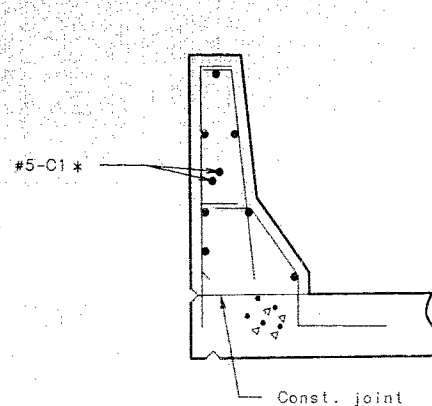
TYPICAL SECTION NEAR LEFT SAFETY BARRIER CURB AT SUPPORT LOCATIONS (OPTIONAL SLIP-FORM BRIDGE SAFETY BARRIER CURB)

Note:

Joint sealant and backer rods shall be used on all slip-form bridge safety barrier curbs instead of joint filler.

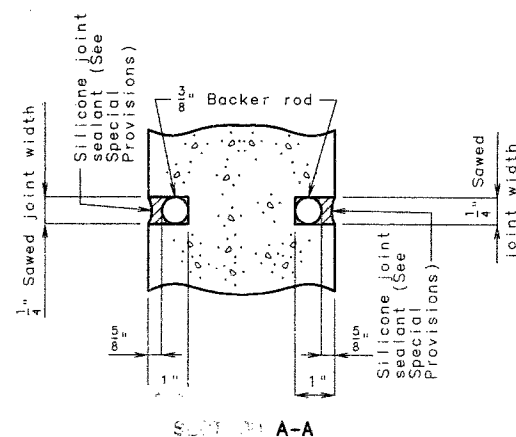
Plastic waterstop shall not be used with slip-form option.

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



PART SECTION B-B

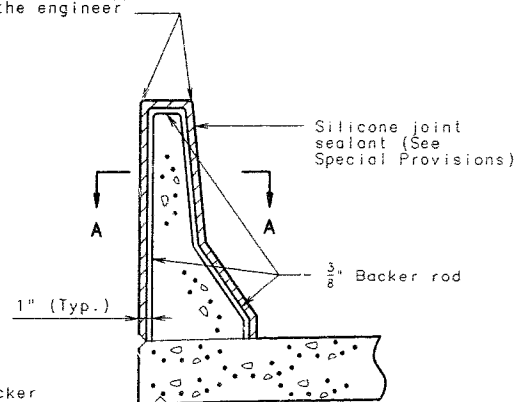
Note: * Each side of joint location.



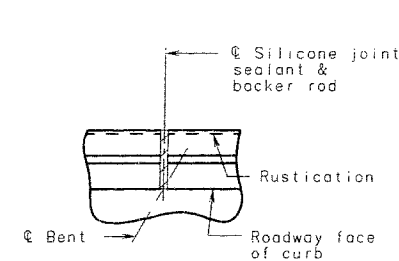
SECTION A-A

Note: Cost of silicone joint sealant and backer rod complete in place to be included on the contract unit price for safety barrier curb.

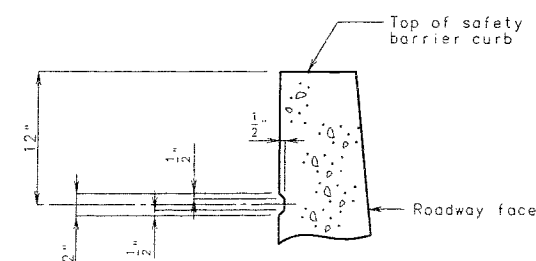
3/8" Bevel, 1/2" Radius or alternate as approved by the engineer



SECTION THRU JOINT



PART PLAN SHOWING SAFETY BARRIER CURB JOINT



PART SECTION SHOWING RUSTICATION DETAILS

RUSTICATION DETAIL

(Use on highway grade separation only)

OPTIONAL SLIP-FORM BRIDGE SAFETY BARRIER CURB

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

SHEET NO. 22 OF 27

JEFFERSON COUNTY

A-2977

DETAILED Apr. 1996
CHECKED Apr. 1996

BAC8sf16.gs 3.30.
BARRIER CURB ELEVAT
FEB. 1991
SEPT. 1995

STATE	PROJ. NO.	SHEET NO.
MO.		42

GENERAL NOTES:

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

All joint filler shall meet the requirements of Section 1057.2.5, except as noted.

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

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

The reinforcing steel in the bridge approach slab and the sleeper slab shall be continuous. The transverse reinforcing steel may be made continuous by lap splicing the #4 & #6 bars 27" and 40" respectively.

Mechanical bar splices will be permitted and shall develop at least 125 percent of the specified yield strength of the reinforcing bars being spliced. The contractor shall furnish the Engineer the manufacturer's certification that this requirement is met and is required to follow the manufacturer's recommendation for installation.

Mechanical bar splices shall be epoxy coated in accordance with Mo. Std. Spec. 710.

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.

Place Class A underdrain at face of sleeper slab under bridge approach slab and slope to lowest grade of ground line, also missing the bottom of the sleeper slab by $1\frac{1}{2}"$.

The contractor shall pour and satisfactorily finish the bridge slab before pouring the bridge approach slabs.

Longitudinal construction joints in approach slab and sleeper slab shall be aligned with longitudinal construction joints in bridge slab.

Payment for furnishing all material, labor and excavation necessary to construct the approach slab, including the timber header, sleeper slab, underdrain, and base and all other appurtenances and incidental work as shown on this sheet, complete in place, shall be considered as completely covered under the contract unit price for "Bridge Approach Slab (Bridge)", per sq. yd.

Type 5 aggregate base shall conform to MRSP-93-01C, Type 5 Aggregate For Base, excluding Section 4. See Special Provisions.

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

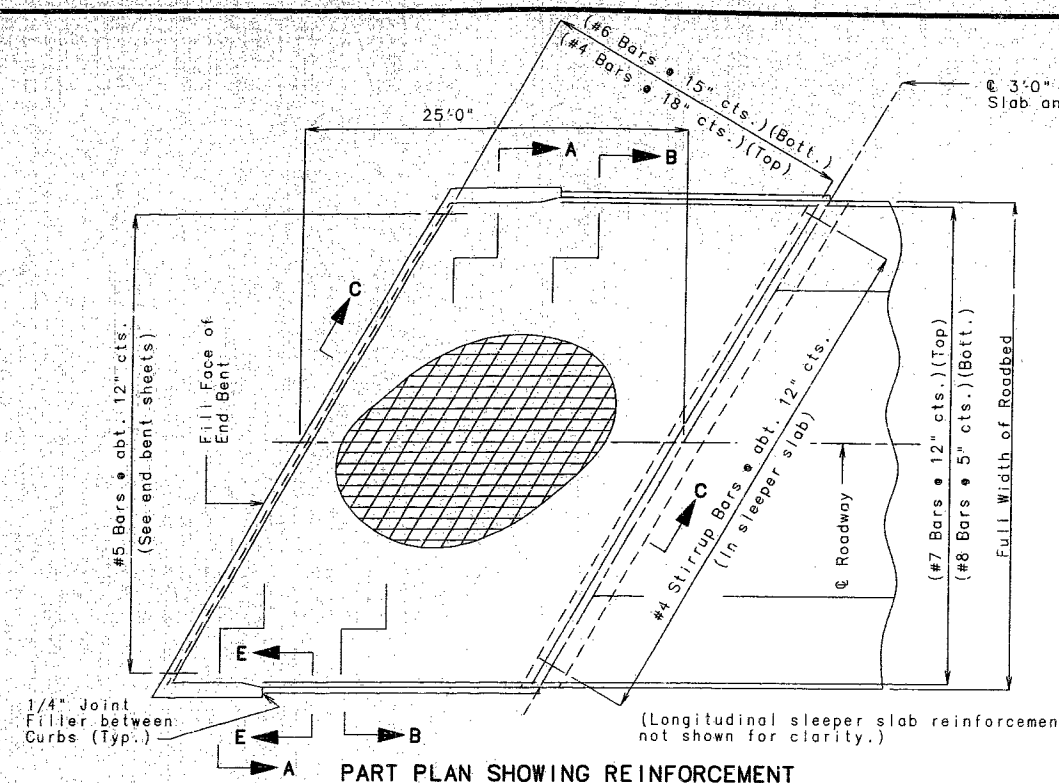
See Missouri Standard Plans Drawing 504.00 for details of Concrete Approach Pavement.

Underdrains shall be placed under bridge approach slab. See Missouri Standard Plans Drawing 605.10 for details of Class A Underdrain.

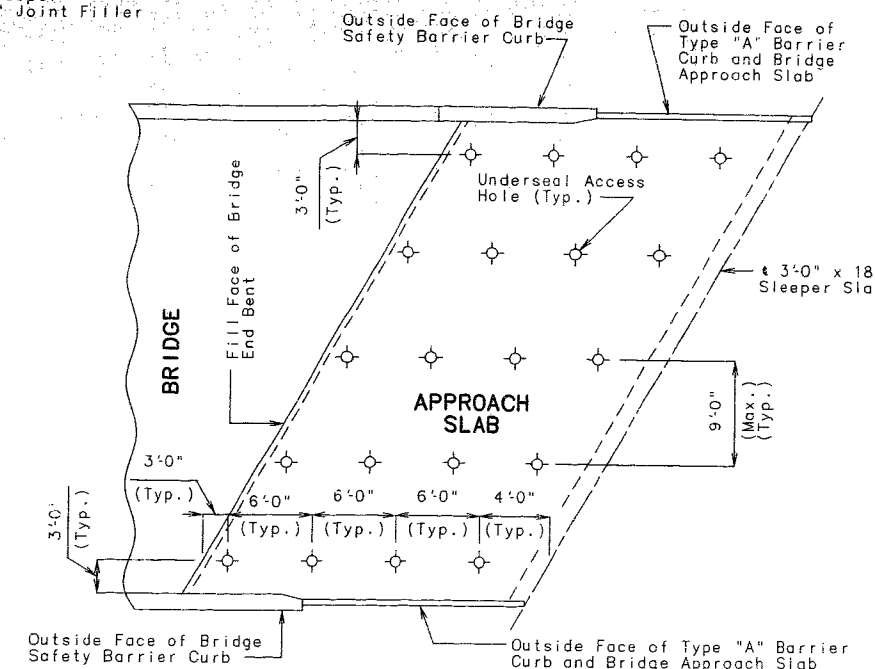
See Missouri Standard Plans Drawing 609.00 for details of Type A Barrier Curb.

When a lap splice is required for the use of a mechanical bar splice, the minimum lap length shall be 40" for transverse approach slab bar splices.

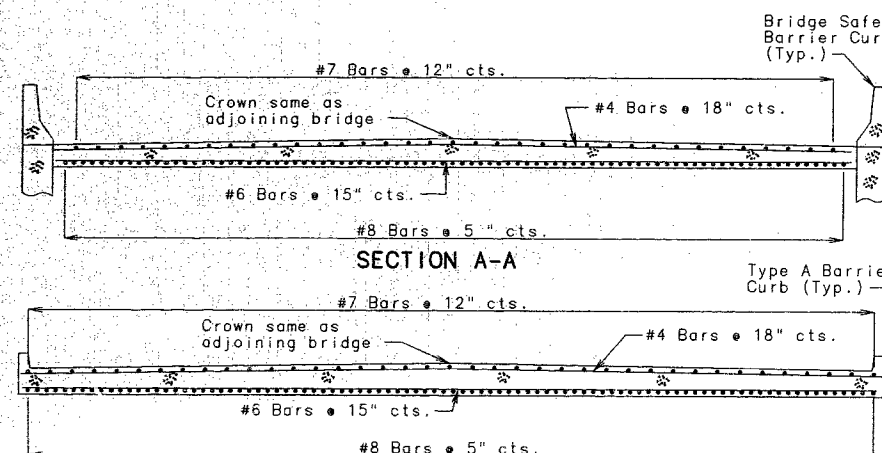
When Grade 40 reinforcement is substituted for the Grade 60 #5 dowel bars connecting the bridge approach slab to the bridge abutment, the reinforcement may be bent up to 90 degrees with a 2" minimum radius near the abutment to allow compaction of the backfill material near the abutment. Damage to epoxy coating shall be repaired according to Mo. Std. Spec. 710.3.3.



PART PLAN SHOWING REINFORCEMENT



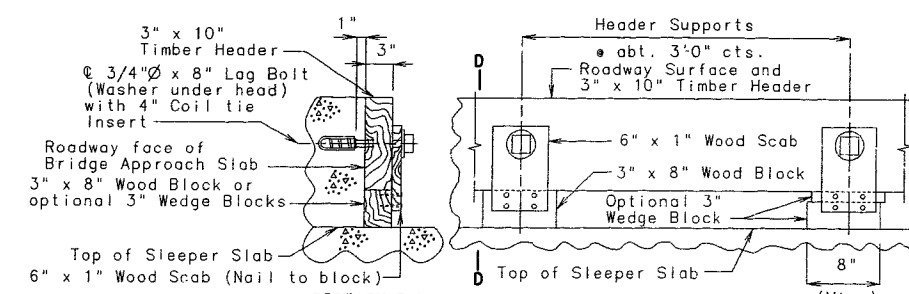
PART PLAN (SHOWING TYPICAL UNDERSEAL ACCESS HOLE LOCATIONS)



SECTION A-A

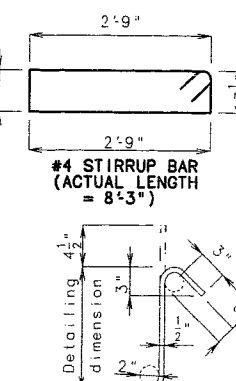
SECTION B-B

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



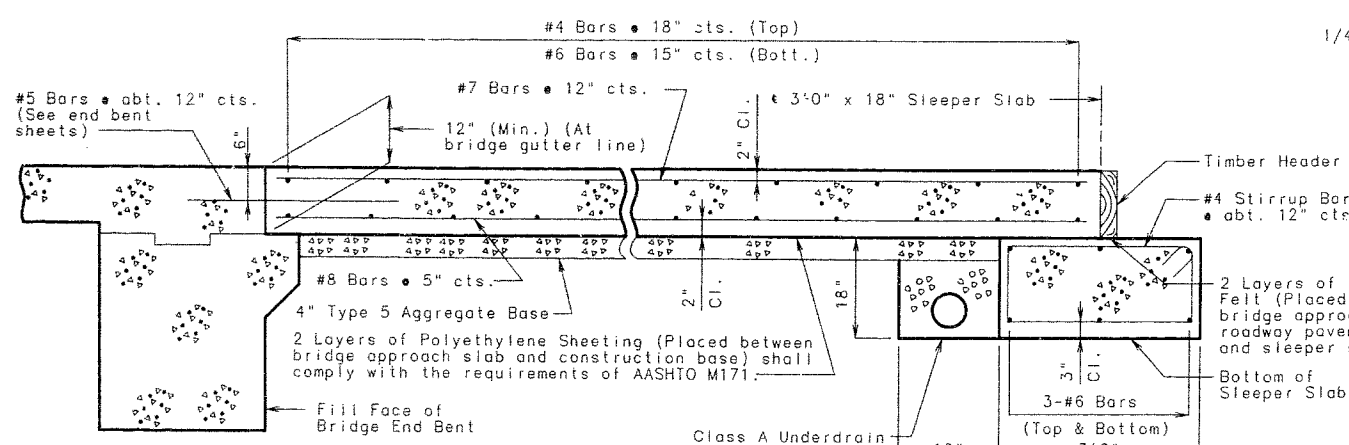
Note: Remove timber header when concrete pavement is placed.

DETAILS OF TIMBER HEADER

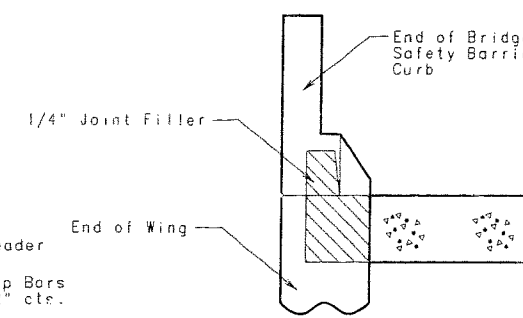


TYPICAL 135° STIRRUP BAR HOOK DIMENSIONS BENDING DIAGRAM

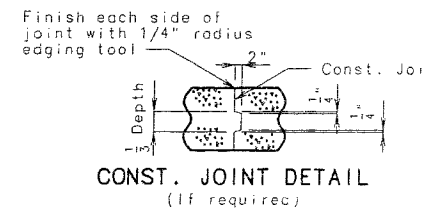
Note: Nominal lengths are based on out to out dimensions shown in bending diagram and are listed for fabricators use. (nearest inch)



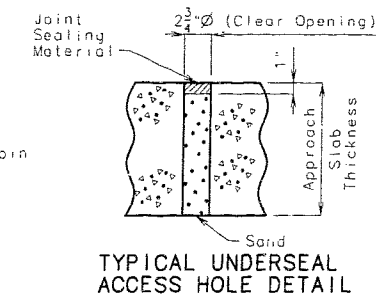
SECTION C-C



SECTION E-E (Between Curbs)



CONST. JOINT DETAIL (If required)



TYPICAL UNDERSEAL ACCESS HOLE DETAIL

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

BRIDGE APPROACH SLAB

SHEET NO. 23 OF 27.

JEFFERSON COUNTY

A-2977

APP SLAB, CS 3.30 L.A.N.A.
REVISION
DECEMBER 1992
CHECKED
APPROACH SLAB
DECEMBER 1992
DETAILED
Mar. 1996
Apr. 1996

BILL OF REINFORCING STEEL

NO. REQ'D	MARK NO.	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS								NOMINAL LENGTH	ACTUAL LENGTH	WEIGHT
									B	C	D	E	F	H	K				
									FT. IN.	FT. IN.	FT. IN.	FT. IN.	FT. IN.	FT. IN.	FT. IN.		FT. IN.	FT. IN.	LBS.
		SUBSTRUCTURE																	
		ABUT. NO. 1																	
18	6 H1	APRON		20	X				45	6.000							45	6	1230
9	6 H2	APRON		15	S	X			22	6.25	2	2.000			20	500	4	1	54
9	6 H3	APRON		21	S	X			22	6.25	2	2.000			20	500	4	1	50
10	7 H4	BRG. BEAM		18	X				45	6.000							47	2	964
2	6 H5	BEARING BEAM		20	X				45	6.000							45	6	137
4	7 H6	BEARING BEAM		20	X				3	9.000							3	9	31
2	6 H7	BACKWALL		20	X				45	6.000							45	6	137
12	4 H8	BACKWALL		20	X				23	8.000							23	8	190
16	4 H9	WING		20	X	V	2		22	2.000							22	2	147
		INCREMENT =							5	4.000							5	4	
		28.875 INCH																	
2	4 H10	WING		20	X				20	0.000							20	0	27
2	4 H11	WING		20	X				23	4.000							23	4	31
8	5 H12	WING		20	X	V	2		34	4.000							34	4	259
		INCREMENT =							27	9.000							27	9	
		26.375 INCH																	
2	5 H13	WING		20	X				35	3.000							35	3	74
10	4 H15	CURTAIN WALL		20	X				4	11.000							4	11	33
4	4 H16	WING		20	X				6	8.000							6	8	18
16	4 H17	WING		20	X	V	2		22	2.000							22	2	147
		INCREMENT =							5	4.000							5	4	
		26.875 INCH																	
2	4 H18	WING		20	X				21	3.000							21	3	28
2	4 H19	WING		20	X				24	6.000							24	6	33
6	5 H100	WING		20	X	V	2		33	5.000							33	5	195
		INCREMENT =							29	0.000							29	0	
		26.500 INCH																	
4	5 H101	WING		20	X				35	3.000							35	3	147
2	4 H102	APP. BEAM		20	X				23	8.000							23	8	32
10	4 H103	CURTAIN WALL		20	X				3	11.000							3	11	26
4	4 H104	WING		20	X				5	6.000							5	6	15
8	8 H105	APP. BEAM		20	X				45	6.000							45	6	972
2	6 H106	APP. BEAM		20	X				45	6.000							45	6	137
39	5 H107	APP. BEAM		20	X				2	6.000							2	6	102
2	7 T1	WING		15	X				2	1.250	7	5.000			10	500	9	6	39
2	7 T2	WING		14	X				5	3.000	2	9.000	37	4.000	34	0.000	15	5.000	184
2	4 T3	CURTAIN WALL		19	S	X			6	5.000	3	1.000			9	6	9	5	13
2	7 T4	WING		15	X				2	1.250	8	10.000			10	11	10	11	45
2	7 T5	WING		14	X				5	3.000	2	1.000	37	4.000	34	0.000	15	5.000	182
2	4 T6	CURTAIN WALL		19	S	X			6	5.000	4	0.000			10	5	10	4	14
40	6 U1	BEARING BEAM		13	S	X			3	3.000	2	10.000	3	11.250	2	9.000	14	1	816
13	4 U2	BEARING BEAM		10	S	X				6.000	3	3.000					4	3	35
7	4 U3	BEARING BEAM		10	S	X				9.000	3	3.000					4	9	21
43	5 U4	APP. BEAM		10	S	X				3	0.000	2	5.750				8	6	370
36	4 U5	APRON		10	S	X				22.000	14.000						4	10	112
36	4 U6	APP. BEAM		13	S	X			2	5.750	2	8.000	2	5.750	2	8.000	11	1	261
43	4 U7	APP. BEAM		10	S	X				17.500	6.000						3	5	93
62	5 V1	APRON		20	X				13	3.000							13	3	857
86	5 V2	BACKWALL		20	X				7	9.000							7	9	695
6	4 V3	WING		20	X	V	2		12	7.000							12	7	48
		INCREMENT =							11	2.000							11	2	
		8.500 INCH																	

BILL OF REINFORCING STEEL

NO. REQ'D.	MARK NO.	LOCATION	EPOXY (E)	SHAPE NO.	ST. RING (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS								NOMINAL LENGTH	ACTUAL LENGTH	WEIGHT				
									B	C	D	E	F	H	K								
									FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.
38	4 V4	WING	E	20		X	V	2	17	0.000								17	0	17	0		
		INCREMENT =							4	9.000								4	9	4	9	276	
		8.125 INCH																					
8	5 V5	WING	E	20		X	V	2	5	6.000								5	6	5	6		
		INCREMENT =							4	2.000								4	2	4	2	40	
		5.375 INCH																					
2	5 V6	WING		20		X			2	6.000								2	6	2	6	5	
2	4 V7	CURTAIN WALL	E	20		X			6	5.000								6	5	6	5	9	
2	4 V8	WING		20		X			12	0.000								12	0	12	0	16	
38	4 V9	WING	E	20		X	V	2	17	9.000								17	9	17	9		
		INCREMENT =							5	9.000								5	9	5	9	298	
		8.000 INCH																					
8	5 V10	WING	E	20		X	V	2	6	3.000								6	3	6	3		
		INCREMENT =							4	10.000								4	10	4	10	46	
		5.625 INCH																					
2	5 V11	WING		20		X			3	3.000								3	3	3	3	7	
2	4 V12	CURTAIN WALL	E	20		X			6	5.000								6	5	6	5	9	
2	4 V13	WING		20		X			11	0.000								11	0	11	0	15	
2	4 V14	WING		20		X			12	9.000								12	9	12	9	17	
2	4 V15	WING		20		X			11	2.000								11	2	11	2	15	
10	W5 W1	BEARING BEAM	E	22		X			2	1.000	9	125						33	2	33	2	55	
		INT BT NO 2																					
48	8 D21	FOOTING		20		X			5	9.000								5	9	5	9	737	
36	8 D22	FOOTING		20		X			8	9.000								8	9	8	9	841	
12	6 D23	FOOTING		10		X			3	10.000	8	0.000						15	8	15	4	276	
7	10 H21	BEAM		20		X			43	9.000								43	9	43	9	1318	
2	6 H22	BEAM		20		X			43	9.000								43	9	43	9	131	
7	10 H23	BEAM		18		X			43	9.000								46	7	46	7	1403	
8	6 H24	BEAM		10		X			22	0.00	3	0.750						6	9	6	5	77	
4	6 H25	BEAM		20		X			3	8.000								3	8	3	8	22	
3	4 P20	COLUMN		35		X			2	9.000	3	0.00	18	10.000				866	9	866	9	1336	
21	4 P21	COLUMN		34	S	X			2	9.000								9	6	9	6	133	
3	6 U20	BEAM		13	S	X			3	3.000	3	0.750	3	3.000	3	0.750		14	0	13	6	61	
20	6 U21	BEAM		13	S	X			3	3.000	2	9.000	3	3.000	2	9.000		13	4	12	10	386	
56	6 U22	BEAM		13	S	X			2	2.000	2	9.000	2	2.000	2	9.000		11	2	10	8	897	
16	4 U23	BEAM		10	S	X				6.000	3	3.000						4	3	4	1	44	
4	4 U25	BEAM		10	S	X				9.000	3	3.000						4	9	4	7	12	
48	10 V20	COLUMN		36		X			22	4.000								25	2	25	2	5198	
20	W5 W1	BEAM		22		X			2	1.000	9	125						33	2	33	2	111	
		ABUT NO 3																					
14	6 H31	APRON		20		X			45	6.000								45	6	45	6	957	
7	6 H32	APRON		15	S	X			22	625	2	2.000			20	500	9	500	4	1	4	0	42
7	6 H33	APRON		21	S	X			22	625	2	2.000			20	500	9	500	4	1	3	8	39
8	7 H34	BEARING BEAM	E	18		X			45	6.000								47	2	47	2	771	
2	6 H35	BEARING BEAM	E	20		X			45	6.000								45	6	45	6	137	
4	7 H36	BEARING BEAM	E	20		X			3	9.000								3	9	3	9	31	

BILL OF REINFORCING STEEL

NO.	REQ'D.	MARK NO.	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS								NOMINAL LENGTH	ACTUAL LENGTH	WEIGHT			
										B		C		D		E					F		H
										FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.
2	6	H37	BACKWALL	E 20		X				45	6.000								45	6	137		
12	4	H38	BACKWALL	E 20		X				23	8.000								23	8	190		
12	4	H39	WING	E 20		X	V		2	15	9.000								16	9			
			INCREMENT =							4	9.000								4	9	86		
			28.750 INCH																				
2	4	H40	WING	E 20		X				14	7.000								14	7	19		
2	4	H41	WING	E 20		X				17	11.000								17	11	24		
6	5	H42	WING	E 20		X	V		2	26	9.000								26	9			
			INCREMENT =							22	4.000								22	4	154		
			26.500 INCH																				
4	5	H43	WING	E 20		X				28	9.000								28	9	120		
4	4	H45	WING	E 20		X				7	1.000								7	1	19		
10	4	H46	CURTAIN WALL	E 20		X				5	5.000								5	5	36		
12	4	H47	WING	E 20		X	V		2	16	9.000								16	9			
			INCREMENT =							4	9.000								4	9	86		
			28.750 INCH																				
2	4	H48	WING	E 20		X				15	9.000								15	9	21		
2	4	H49	WING	E 20		X				19	1.000								19	1	25		
6	5	H50	WING	E 20		X	V		2	27	10.000								27	10			
			INCREMENT =							23	5.000								23	5	160		
			26.500 INCH																				
4	5	H51	WING	E 20		X				28	9.000								28	9	120		
10	4	H53	CURTAIN WALL	E 20		X				4	3.000								4	3	28		
4	4	H54	WING	E 20		X				5	8.000								5	8	15		
8	8	H55	APP BEAM	E 20		X				45	6.000								45	6	972		
2	6	H56	APP BEAM	E 20		X				45	6.000								45	6	137		
2	4	H57	APP BEAM	E 20		X				23	8.000								23	8	32		
39	5	H107	APP BEAM	E 20		X				2	6.000								2	6	102		
2	7	T31	WING	E 15		X				2	1.250	7	8.000			10.500	23.000	9	9	9	40		
2	7	T32	WING	E 14		X				5	3.000	2	10.000	30	2.125		27	6.000	12	5.000	38	0	155
2	4	T33	CURTAIN WALL	E 19	S	X				6	5.000	3	1.000					9	6	9	5	13	
2	7	T34	WING	E 15		X				2	1.250	9	0.000			10.500	23.000	11	1	11	1	45	
2	7	T35	WING	E 14		X				5	3.000	2	5.000	30	2.125		27	6.000	12	5.000	37	10	154
2	4	T36	CURTAIN WALL	E 19	S	X				6	5.000	4	4.000					10	9	10	8	14	
35	6	U31	BEARING BEAM	E 13	S	X				3	3.000	2	10.000	3	11.250	2	9.000		14	1	13	7	714
13	4	U32	BEARING BEAM	E 10	S	X					6.000	3	3.000					4	3	4	1	35	
7	4	U33	BEARING BEAM	E 10	S	X					9.000	3	3.000					4	9	4	7	21	
43	5	U34	APP BEAM	E 10	S	X					3	0.000	2	5.750				8	6	8	3	370	
36	4	U35	APP BEAM	E 13	S	X				2	5.750	2	8.000	2	5.750	2	8.000		11	1	10	10	261
28	4	U36	APRON	E 10	S	X					22.000		14.000					4	10	4	8	87	
43	4	U37	APP BEAM	E 10	S	X					17.500		6.000					3	5	3	3	93	
62	5	V31	APRON	E 20		X				10	6.000							10	6	10	6	679	
86	5	V32	BACKWALL	E 20		X				7	9.000							7	9	7	9	695	
6	4	V33	WING	E 20		X	V		2	10	8.000							10	8	10	8		
			INCREMENT =							9	4.000							9	4	9	4	40	
			8.000 INCH																				
30	4	V34	WING	E 20		X	V		2	15	1.000							15	1	15	1		
			INCREMENT =							5	5.000							5	5	5	5	205	
			8.250 INCH																				
8	5	V35	WING	E 20		X	V		2	5	10.000							5	10	5	10		
			INCREMENT =							4	5.000							4	5	4	5	43	
			5.625 INCH																				
2	5	V36	WING	E 20		X				2	11.000							2	11	2	11	6	
2	4	V37	CURTAIN WALL	E 20		X				6	5.000							6	5	6	5	9	

BILL OF REINFORCING STEEL

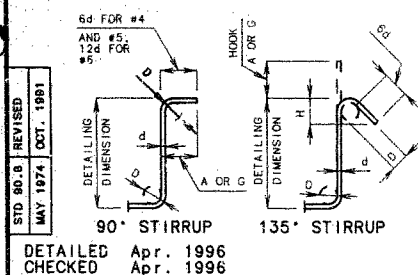
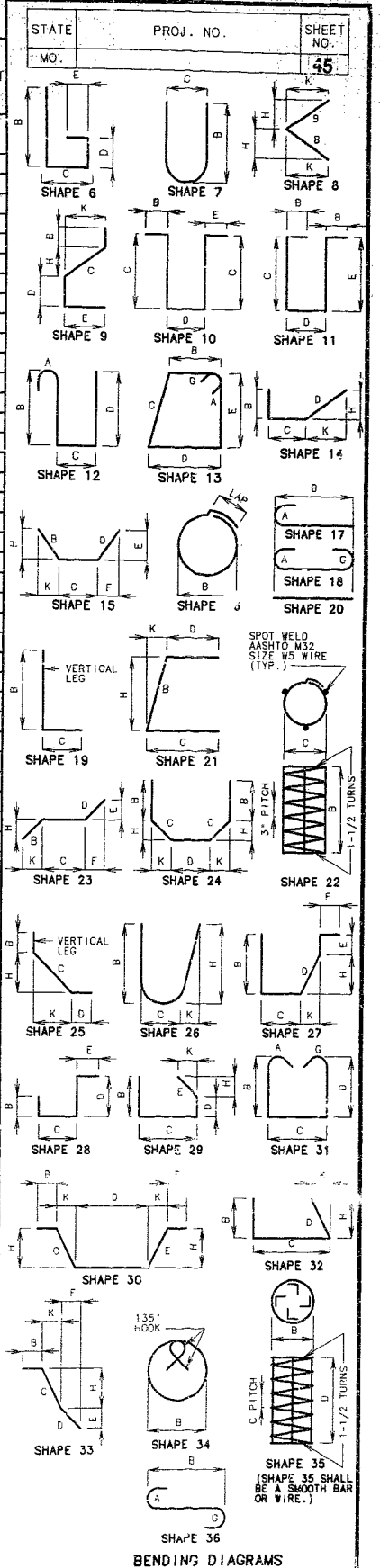
NO.	REQ'D.	MARK NO.	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS								NOMINAL LENGTH	ACTUAL LENGTH	WEIGHT																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
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6	4	V38	WING		20		X	V	2	10	7.000																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																

BILL OF REINFORCING STEEL

NO.	REQ'D.	MARK NO.	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS												NOMINAL LENGTH	ACTUAL LENGTH	WEIGHT
										B		C		D		E		F		H				
										FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.
592	5-R4	BARRIER CURB	E 27	S									6.000	11.125	7.000	12.000	9.125	6.375	3.0	2.10	1749			
24	5-R5	BARRIER CURB	E 19	S						2	11.000		6.000						3.5	3.4	83			
24	5-R6	BARRIER CURB	E 27	S							2	2.000		11.125	6.000			6.375	9.125	3.7	3.6	88		
8	5-R7	BARRIER CURB	E 19	S						2	8.000		7.500						3.4	3.2	26			
8	5-R8	BARRIER CURB	E 27	S							2	2.000		7.875	7.500			4.500	6.500	3.5	3.5	29		
8	5-R9	BARRIER CURB	E 19	S						2	2.000		3.500						2.6	2.4	19			
24	5-R10	BARRIER CURB	E 10								2	8.000		7.500					6.0	5.9	144			
48	5-R11	BARRIER CURB	E 20							5	0.000								5.0	5.0	250			
12	5-R12	BARRIER CURB	E 20							32	5.000								32.5	32.5	406			
2	5-R13	BARRIER CURB	E 20							33	2.000								33.2	33.2	69			
12	5-R14	BARRIER CURB	E 20							25	11.000								25.11	25.11	324			
2	5-R15	BARRIER CURB	E 20							26	8.000								26.8	26.8	56			
84	5-R16	BARRIER CURB	E 20							38	2.000								38.2	38.2	3344			
26	5-R17	BAR CURB	E 20							9	8.000								9.8	9.8	262			
32	5-CT	SLIP-FORM BC	E 20							10	0.000								10.0	10.0	334			

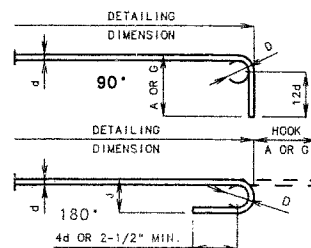
BILL OF REINFORCING STEEL

NO.	REQ'D	MARK NO.	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS												NOMINAL LENGTH	ACTUAL LENGTH	WEIGHT																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
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STIRRUP HOOK DIMENSIONS				
GRADES 40 - 50 - 60 KSI				
BAR SIZE	D (IN.)	90° HOOK A OR G	135° HOOK A OR G	APPROX. H
#4	2"	4-1/2"	4-1/2"	3"
#5	2-1/2"	6"	5-1/2"	3-3/4"
#6	4-1/2"	12"	8"	4-1/2"

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



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

TWO ADDITIONAL #5-R17 ARE INCLUDED IN THE BAR BILL FOR TESTING.

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

NOTE: ALL STANDARD HOOKS AND BENDS OTHER THAN 180 DEG. TO BE BENT WITH THE SAME PROCEDURE AS FOR 90 DEG. STD. HOOKS. HOOKS AND BENDS SHALL BE IN ACCORDANCE WITH THE PROCEDURES AS SHOWN ON THIS SHEET. E = EPOXY COATED REINFORCEMENT. S = STIRRUP. X = BAR IS INCLUDED IN SUBSTRUCTURE QUANTITIES. V = BAR DIMENSIONS VARY IN EQUAL INCREMENTS BETWEEN DIMENSIONS SHOWN ON THIS LINE AND THE FOLLOWING LINE. NO. EA. = NUMBER OF BARS OF EACH LENGTH. NOMINAL LENGTHS ARE BASED ON CUT TO CUT DIMENSIONS SHOWN IN BENDING DIAGRAMS AND ARE LISTED FOR FABRICATOR'S USE. (NEAREST INCH). ACTUAL LENGTHS ARE MEASURED ALONG CENTERLINE BAR TO THE NEAREST INCH. PAYWEIGHTS ARE BASED ON ACTUAL LENGTHS. FOUR ANGLE OR CHANNEL SPACERS ARE REQUIRED FOR EACH COLUMN SPIRAL. SPACERS ARE TO BE PLACED ON INSIDE OF SPIRALS. LENGTH AND WEIGHT OF COLUMN SPIRALS DO NOT INCLUDE SPLICES OR SPACERS. REINFORCING STEEL (GRADE 60) = FY 60,000 PSI.

SHEET NO. 26 OF 27

JEFFERSON

COUNTY

A-2977

STATE	PROJ. NO.	SHEET NO.
MO.	DPI-ACDPI-0641 (10)	21

Quantities				
Item		Substr.	Superstr.	Total
Class 1 Excavation	Cu. Yd.	190		190 ✓
Bridge Approach Slab (Bridge)	Sq. Yd.		228	228 ✓
Structural Steel Pile (10 in.)	Lin. Ft.	1059		1059 ✓
Structural Steel Pile (12 in.)	Lin. Ft.	412		412 ✓
Pile Point Reinforcement	Each	45		45 ✓
Class B Concrete (Substr.)	Cu. Yd.	237.3		237.3 ✓
Slab on Steel	Sq. Yd.		1096	1096 ✓
Safety Barrier Curb	Lin. Ft.		606	606 ✓
Slab on Semi-Deep Abutment	Sq. Yd.		247	247 ✓
Laminated Neoprene Bearing Pad (Steel Structures)	Each		15	15 ✓
Preformed Comp. Expansion Jt. Seal (4.0 in.)	Lin. Ft.		88	88 ✓
Reinforcing Steel (Bridges)	Lb.	22,010		22,010 ✓
Reinforcing Steel (Epoxy coated)	Lb.	9290		9290 ✓
Fabricated Structural Carbon Steel (Plate Girder)	Lb.		237,200	237,200 ✓
Fab. Struct. Low Alloy Steel (Pl. Gdr.) A-572	Lb.		55,510	55,510 ✓
Slab Drain	Each		28	28 ✓
Field Coat (System G) Green	Sq. Ft.		4800	4800 ✓
BEARING PAD MODIFICATION	LS.		1	1 (604.01)

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

Note: All concrete and reinforcing steel below top of slab and above construction joint in Semi-Deep Abutments is included in superstructure quantities for Slab on Semi-Deep Abutments.

Cost of channel shear connectors C4 x 5.4 (A-36) in place to be included in contract unit price for Structural Steel Piles (10 in.) or Structural Steel Piles (12 in.).

Pile Data					
Bent No.	1 (opp.)	1 (brg.)	2	3 (brg.)	3 (opp.)
Pile Type and Size	HP10x42	HP10x42	HP12x53	HP10x42	HP10x42
Number	5	9	18	8	5
Approximate Length	Ft. 42	39	23	36	42
Design Bearing	Tons 41	55	56	56	38
Hammer Energy Req'd	Ft.-Lbs. 9,200	13,600	13,700	13,800	7,400

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

All piles shall be driven to practical refusal.

Manufactured pile point reinforcement shall be used on all piles in this structure at bents 1, 2 and 3. See special provisions.

Estimated Quantities for Slab on Steel		
Item		Total
Reinforcing Steel (Epoxy coated)	lb.	43,660
Concrete (Class B2)	cu. yd.	258.9

Estimated Quantities for Slab on Semi-Deep Abutment		
Item		Total
Reinforcing Steel (Epoxy coated)	lb.	20,640
Concrete (Class B2)	cu. yd.	108.4

Note: The Table of Estimated Quantities for Slab on Steel and Slab on Semi-Deep Abutment 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 Slab on Steel.

The prestressed panel quantities are not included in the Table of Estimated Quantities for Slab on Steel.

The Estimated Quantities for Slab on Steel are based on skewed prestressed end panels.

GENERAL NOTES:

Design Specifications: A.A.S.H.T.O. - 1992 & interims thru 1995
Load Factor Design
Seismic Performance Category A

Design Loading: HS20-44, 35#/Sq. Ft. Future Wearing Surface
Earth 120#/Cu. Ft., Equivalent Fluid Pressure 30#/Cu. Ft.
Fatigue stress - Case II

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 Safety Barrier Curb & Prestressed Girders) $f'_c=4,000$ psi
Reinforcing Steel (Grade 60) $f_y=60,000$ psi
Structural Carbon Steel $f_y=36,000$ psi
Structural Steel (ASTM A572) Grade 50 $f_y=50,000$ psi
Steel Pile $f_b=9,000$ psi
For Precast Prestressed Panel Stresses, see sheet no. 19.

Fabricated Steel Connections: Field connections, high strength bolts $3/4"$ ϕ , holes $13/16"$ ϕ , except as noted.

Joint Filler: All joint filler shall meet the requirements of Std. Spec. 1057.2.4, except as noted.

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

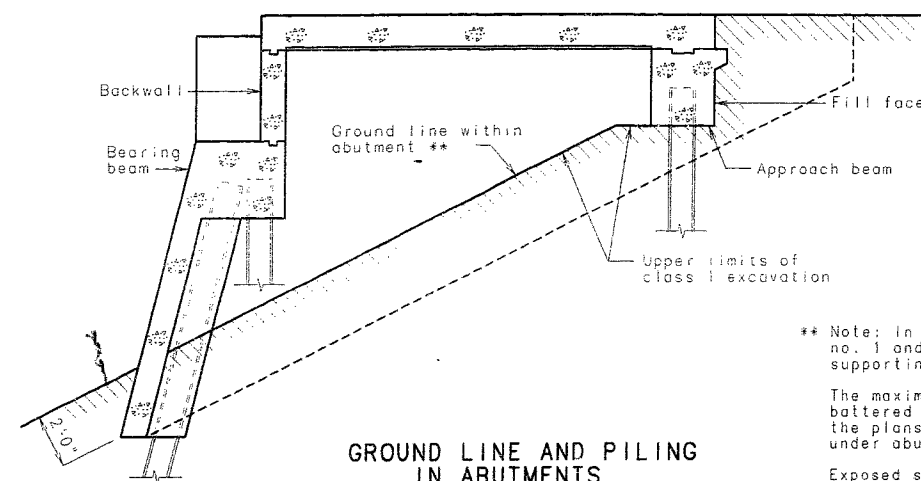
All reinforcing bars in the tops of substructure beams or caps shall be spaced to clear anchor bolt wells for bearings by at least $1/2"$.

Painting: Protective Coating: System G by the contractor in accordance with Special Provisions.

Prime Coat: The cost of the prime coat shall be included in the contract unit price of the Fabricated Structural Steel. Tint of the prime coat for System G shall be similar to the color of the field coat to be used.

Field Coat: The cost of the intermediate and finish coats shall be included in the contract unit price per sq. ft. of Field Coat (System G) Green. See Special Provisions.

Miscellaneous: High strength bolts, nuts, and washers will be sampled for quality assurance as specified in Standard Specification 106 and Field Section (FS-712) from Materials Manual.



GROUND LINE AND PILING IN ABUTMENTS

** Note: In no case shall the earth within abutments no. 1 and 3 be above the ground line below. Forms supporting the abutment slab may be left in place.

The maximum variation of the head of the pile and battered face of the pile from the position shown on the plans shall be not more than 2 inches for pile under abutments no. 1 and 3.

Exposed steel piles within the abutment shall be coated with a heavy coating of an approved bituminous paint.

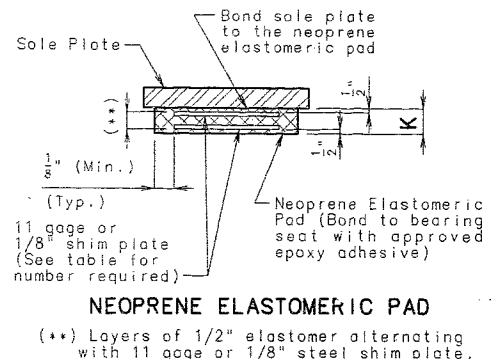
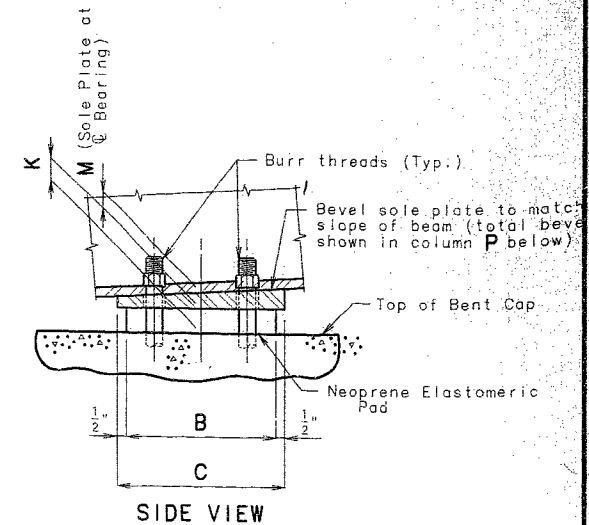
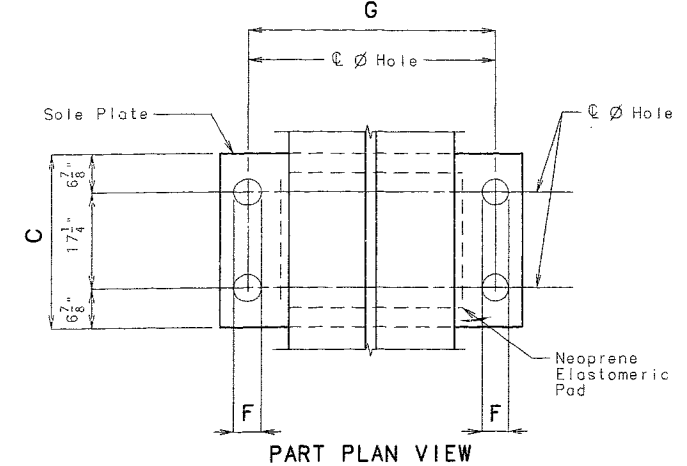
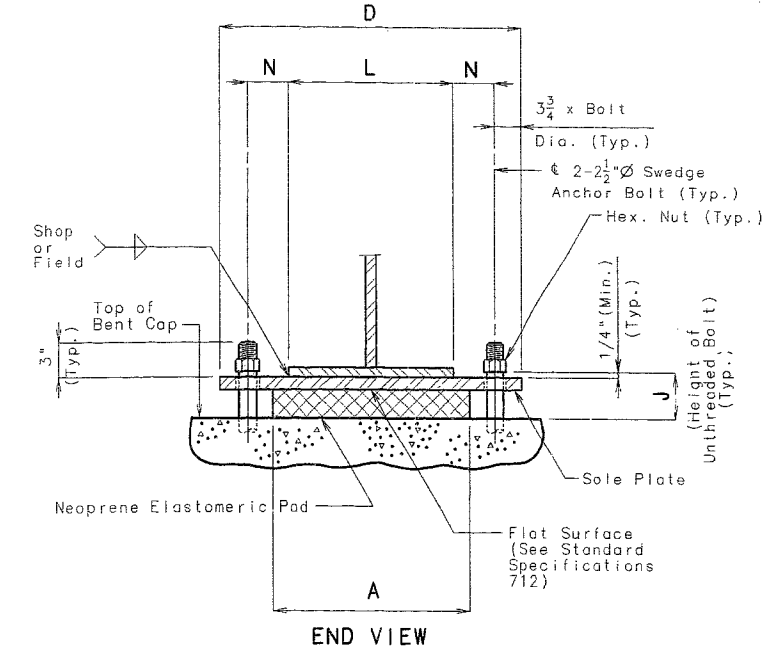
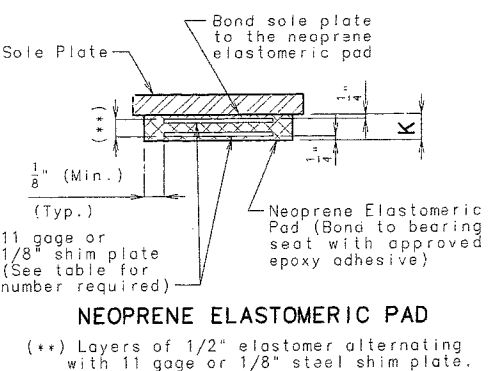
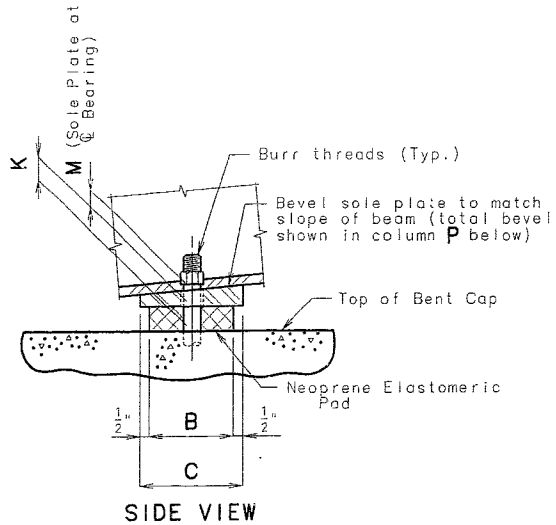
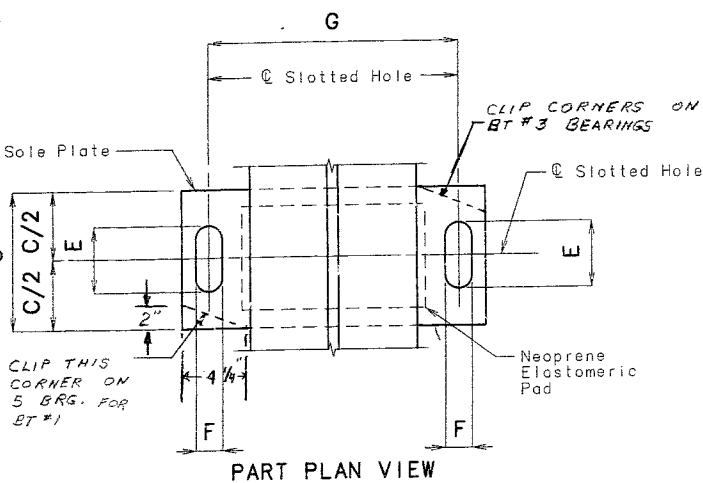
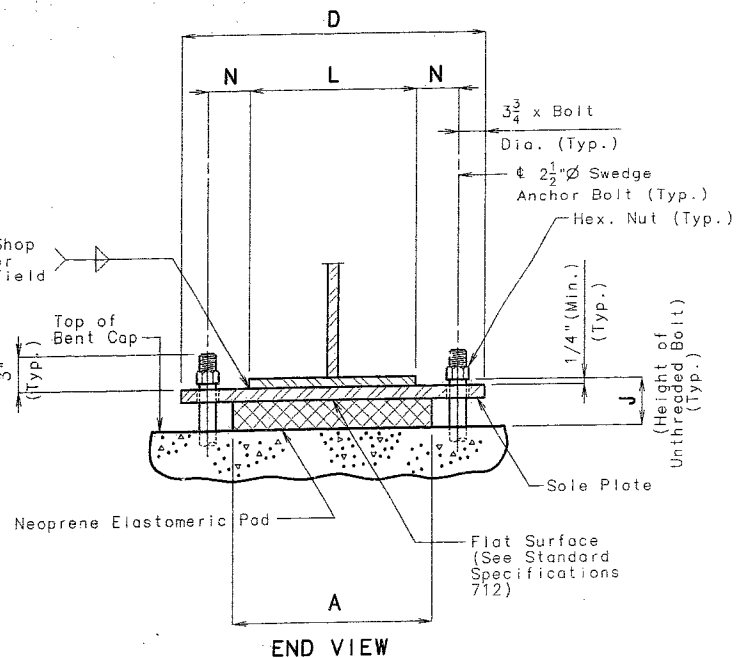


FINAL PLANS
I CERTIFY THAT THIS DRAWING ACCURATELY REFLECTS THE CONFIGURATION AND LOCATION OF THE ROADWAY AND APPURTENANCES AS CONSTRUCTED ON THIS PROJECT.
Signature: *Mark David Grossenbacher*
DATE: 4/6/99

BRG LAM , BRG3.31, STL. , A
 29

REVISED
 JUNE 1993
 LAMINATED BRG.
 JAN. 1980
 CHECKED

DETAILED Apr. 1996
 CHECKED Apr. 1996



Note: The location of the anchor bolts in relation to the slotted holes in the sole plate shall correspond with the temperature at the time of erection. At 60° F. the slotted holes should center on the anchor bolts.

EXPANSION BEARINGS													
BENT NO.	A	B	C	D	E	F	G	J	K	L	M	N	P
1	16"	11"	12"	29"	7"	2 3/8"	2 1/2"	5 7/16"	3 1/8"	16"	2 1/16"	2 3/4"	1 1/8"
3	16"	11"	12"	29"	7"	2 3/8"	2 1/2"	5 7/16"	3 1/8"	16"	2 1/16"	2 3/4"	1 1/8"
												TOTAL BEARINGS	10

(*) The required shim plate shall be placed between layers of elastomer and molded together to form an integral unit.

GENERAL NOTES:

Anchor bolts shall be 2-1/2" A588 steel swedged bolts and shall extend 25" into the concrete with A194-2, 2H or A563-C, C3, D, DH, DH3 heavy hexagon nuts. Actual manufacturer's certified mill test reports (chemical and mechanical) shall be provided. (swedging shall be 1" less than the extension into the concrete.)

All structural steel for the sole plate, anchor bolts and the heavy hexagon nuts shall be painted with 2 coats (5 mils min.) of inorganic zinc. Weld areas to be touched up after assembly.

The neoprene elastomeric pads shall be 60 durometer. The sole plate shall be furnished with the bearing and field or shop welded to the girders.

Structural steel for the sole plate shall be A-36.

Payment for the sole plate, anchor bolts and heavy hexagon nuts shall be included in the cost of the bearing assembly. See Special Provisions.

The accepted quantity of the elastomeric bearing assemblies, complete-in-place, will be paid for at the contract unit price for Laminated Neoprene Bearing Pads (Steel Structures), each.

DETAILS OF LAMINATED NEOPRENE BEARINGS (STEEL STRUCTURES)

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

FIXED BEARINGS													
BENT NO.	A	B	C	D	F	G	J	K	L	M	N	P	NUMBER OF SHIM PLATES(*)
2	18"	30"	31"	29"	2 3/8"	2 1/2"	5"	3"	16"	1 5/16"	2 3/4"	1 1/2"	4
												TOTAL BEARINGS	5

(*) The required shim plate shall be placed between layers of elastomer and molded together to form an integral unit.

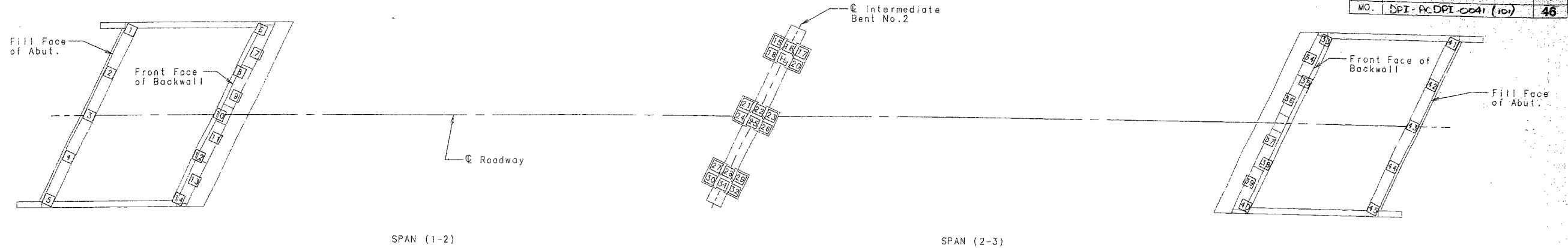


FINAL PLANS
 VERIFY THAT THIS DRAWING ACCURATELY REPRESENTS THE CONFIGURATION AND LOCATION OF THE ROADWAY AND APPURTENANCES.
 SIGNATURE: *Mark David Grossbacher*
 DATE: 4/6/99

SHEET NO. 10 OF 27

JEFFERSON COUNTY

A-2977



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

"AS BUILT PILE" DATA			
PILE NO.	LENGTH IN PLACE (FT.)	COMPUTED BEARING (TONS)	REMARKS
			Abutment No. 1
			PRACTICAL REFUSAL REFUSAL ON ROCK
1	40	111	HP10x42 X
2	41	111	X
3	42	111	X
4	43	111	X
5	43	122	X
6	35	114	X
7	36	98	X
8	38	128	X
9	39	98	X
10	37	128	X
11	40	107	X
12	39	142	X
13	42	98	X
14	39	116	X
	554		TOTAL BT#1
			Bent No.2
15	21	102	HP12x53 X
16	20	123	X
17	18	125	X
18	24	128	X
19	20	123	X
20	19	115	X
21	27*	128	X
22	22	-	X
23	20	136	X
24	27*	130	X
25	21	-	X
26	20	128	X
27	27	122	X
28	20	-	X
29	21	-	X
30	27	-	X
31	21	-	X

"AS BUILT PILE" DATA				
PILE NO.	LENGTH IN PLACE (FT.)	COMPUTED BEARING (TONS)	REMARKS	
			PRACTICAL REFUSAL	REFUSAL ON ROCK
32	21	107		
*	16		X	
	412			
		TOTAL HP12X53		Abutment No.3
33	37	144		
34	37	128	X	
35	38	-		X
36	40	123	X	
37	39	128	X	
38	36	-		X
39	38	118	X	
40	36	-		X
41	42	-		X
42	36	-		X
43	42	-		X
44	42	-		X
45	42	-		X
	505			
		TOTAL BT #3		
	554			
		TOTAL BT #1		
	1059			
		TOTAL HP10X42		

[illegible]

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

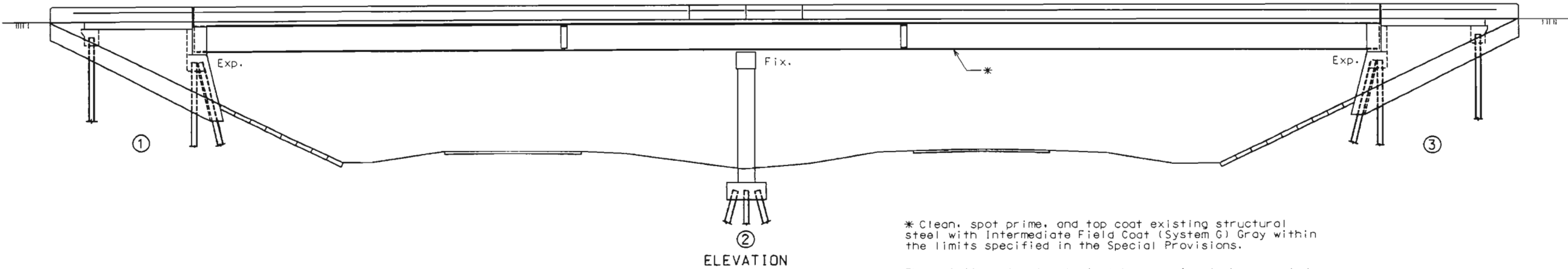
NOTE: THIS SHEET TO BE COMPLETED BY MHTD CONSTRUCTION PERSONNEL.



MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

U.I.P. (36 m - 36 m) Continuous Composite Plate Girder Spans

State	Proj. No.	Sheet No.
MO		8101
SEC/SUR 30	TWP 42N RGE 5E	



* Clean, spot prime, and top coat existing structural steel with Intermediate Field Coat (System G) Gray within the limits specified in the Special Provisions.

The existing structural steel has previously been coated with an intermediate and finish coat on the fascia areas of the exterior girders and on all structural steel surfaces within approximately 3 meters of the expansion devices. The remainder of the structural steel received only a prime coat and it is these surfaces that shall receive the intermediate field coat.

GENERAL NOTES:

Coating:

Protective Coating: System G by the contractor in accordance with Special Provisions.

Field Coat: The cost of the intermediate field coat shall be included in the contract unit price per sq. meter for Intermediate Field Coat (System G) Gray. See Special Provisions.

ESTIMATED QUANTITIES			
ITEM		SUBSTR.	TOTAL
Intermediate Field Coat (System G) Gray	sq. meter	1050	1050



BRIDGE OVER ROUTE 21

STATE ROAD FROM RTE. MM TO RTE. A

ABOUT 3.54 km SOUTH OF RTE. MM

PROJECT NO. STA. 171+45.37 (MATCH EXISTING)

JOB NO. J6P0876C RTE. 21

JEFFERSON

COUNTY

Date: 2/10/00

A29771

Designed Jan. 2000
Detailed Jan. 2000
Checked Jan. 2000

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

Sheet No. 1 of 1

\\brp\proj\aschwa\j6p0876c\A29771\A29771.dwg 14:18:19 04 FEB 2000