

CURVE DATA ALONG & INNER BELT EXPRESSWAY
P.I. Sta. 392+46.71
Δ = 48° 07' 22" L
Dc = 3° 22' 00"
Lc = 1289.39'
E = 163.04'
Rc = 1702.10'
S.E. = 0.051/R

SPECIFICATIONS: St. Louis County Standard Construction Specifications with Special Provisions.

DESIGN LOADING: In accordance with Division I of the A.A.S.H.O. Standard Specifications for Highway Bridges, 1957 Edition.
Live Load: H20-S16-44 or an alternate load of 2-24,000 lb. axles spaced at 4 foot centers.
Dead Load: Provision is made for a future wearing surface of 15 pounds per square foot of roadway surface.

DESIGN UNIT STRESSES: Concrete $f_c = 1,200$ p.s.i.
Reinforcing Steel $f_s = 20,000$ p.s.i.
Structural Steel $f_s = 18,000$ p.s.i.
(Based on A7 Steel)

ROADWAY WEARING SURFACE: The roadway slab as detailed includes a 1/2" wearing surface poured monolithically with the slab.

CONCRETE: All concrete shall be Class A. See Specifications.

BEVELED EDGES: All exposed edges of concrete shall be beveled 3/4" unless otherwise shown or noted.

CONSTRUCTION JOINTS: Construction joints shall be made only where shown on the plans, or as otherwise directed by the Engineer. Provide keys at all construction joints.

REINFORCEMENT: All dimensions to reinforcing steel on the detail drawings are to center line of bar except where the clear distance is noted from the face of concrete. All reinforcing steel shall be topped a minimum of 32 diameters unless otherwise shown or noted.

GENERAL NOTES

CONCRETE FINISH: All exposed surfaces of concrete except the roadway floor shall be given a Class 1, ordinary surface finish. See Specifications.

FILLED JOINTS: Where filled joints are specified on the plans, the joint filler shall conform to the requirements for "Gray Rubber Compound Joints"; see Special Provisions.
Payment for furnishing and placing this item shall be included in the unit contract price bid for concrete.

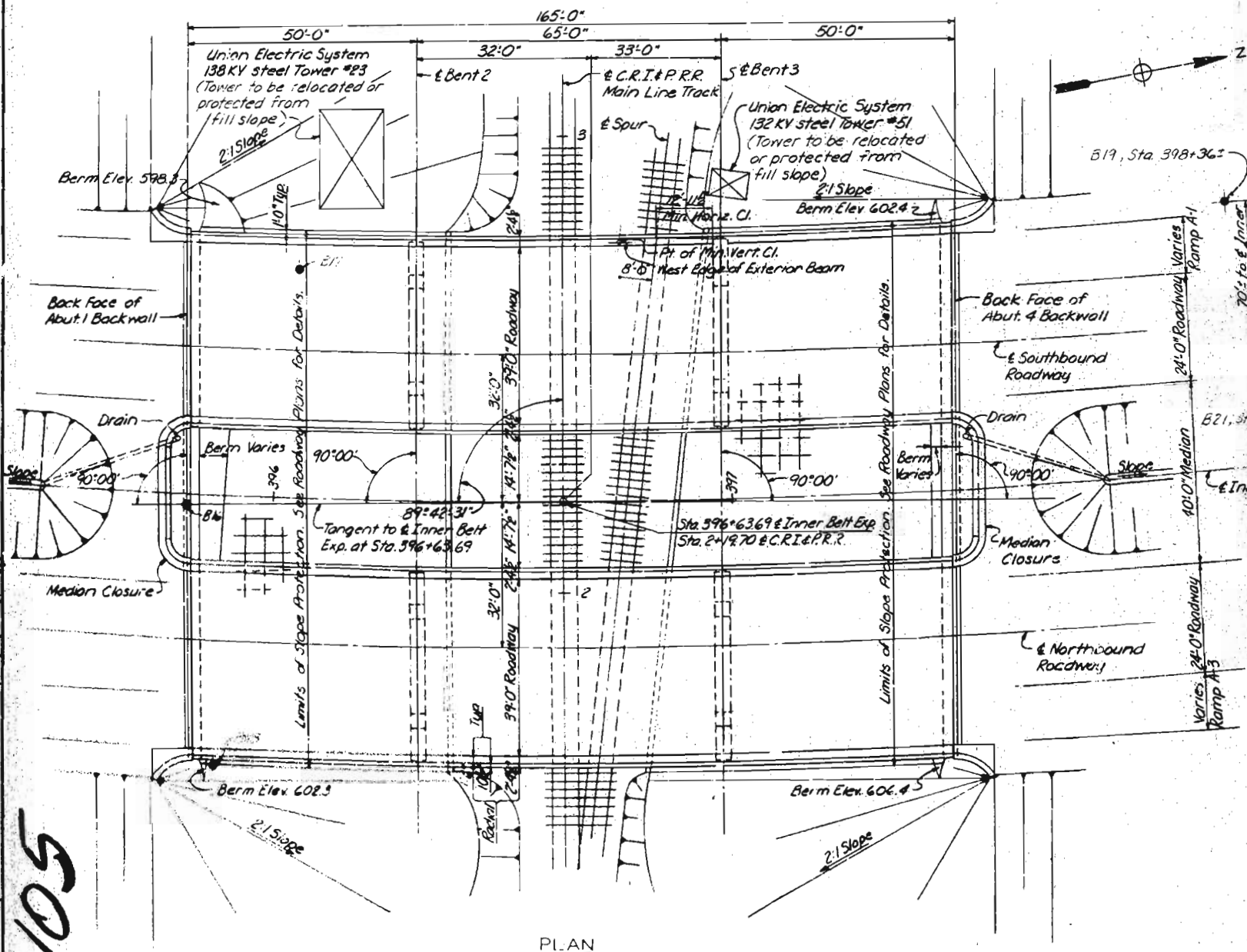
FABRIC PADS: See Special Provisions.

SURFACE SEALING: Superstructure deck shall be surface sealed. See Special Provisions.

PAINTING: Shop Coat: One coat of red lead.
First Field Coat: One coat of tinted shop paint.
Second Field Coat: One coat of aluminum.
No paint shall be applied to any surface of steel which will be in contact with or cast in concrete. See Specifications.

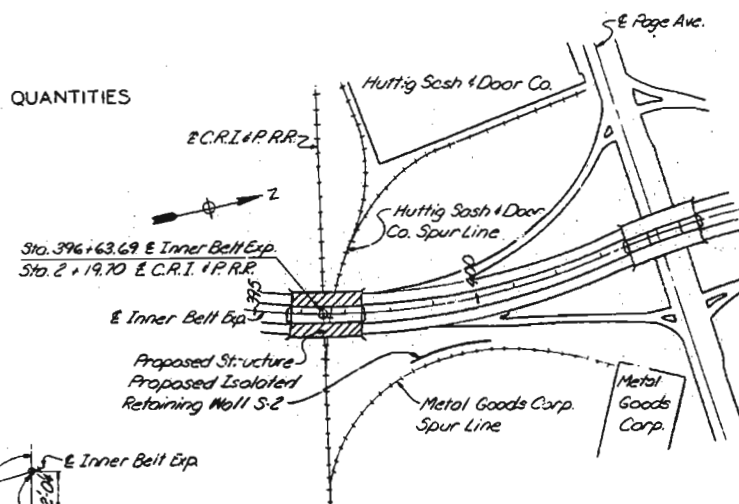
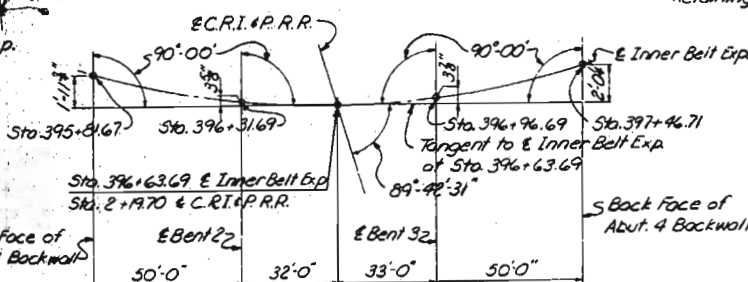
PILING: All piling shall be driven to refusal into solid rock, shale, or other hard material and shall be capable of sustaining a minimum load of 37 tons per each 10 BP42 pile and 47 tons per each 12 BP53 pile.

UTILITIES: See Special Provisions.



INDEX OF DRAWINGS

- 1 GENERAL PLAN AND ELEVATION
- 2 LOG OF BORINGS AND TABLE OF ESTIMATED QUANTITIES
- 3 ABUTMENT 1
- 4 ABUTMENT 4 AND END POSTS
- 5 MEDIAN CLOSURES
- 6 BENTS 2 AND 3
- 7 STEEL FRAMING PLAN AND DETAILS
- 8 SHOES AND ANCHOR BOLTS
- 9 SLAB AND SAFETY CURBS
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- 11 TYPICAL BAR TYPES AND HOOK DIMENSIONS
- 12 BAR LIST AND SPECIAL BENDING DETAILS



LOCATION SKETCH

ST. LOUIS COUNTY
BOARD OF PUBLIC WORKS
DIVISION OF HIGHWAYS
INNER BELT EXPRESSWAY
C.R.I. & P.R.R. OVERPASS
GENERAL PLAN AND ELEVATION

DATE: May 23, 1962
SVERDRUP & PARCEL ENGINEERING CO.
ST. LOUIS, MO.

RTE. 725

SHEET 1 OF 12 A-2809

BENCH MARK (U.S.G.S. DATUM)
B.M. 36A - a 2' North of S.W. corner of concrete base of Tower #50-300 = Right Sta. 396+95.1

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Division of Bridges

Note: Do not scale this drawing. Follow dimensions.

105

[illegible]

Boring data are furnished for information only and do not guarantee the actual conditions which may be found when the work is executed.

Refer to the General Plan and Elevation sheet for location of boring holes.

Copies of the drillers log for each hole, soil samples and rock cores are available for inspection at the St. Louis County Bond Issue Office.

Date of Borings : September, 1961

Boring Hole No. B20 eliminated.

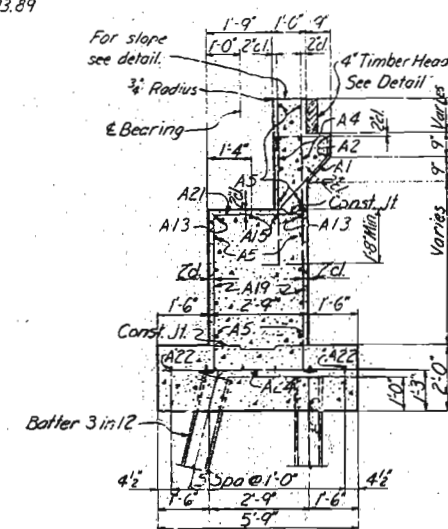
■ indicates elevation at which standard penetration test was made.

[illegible]

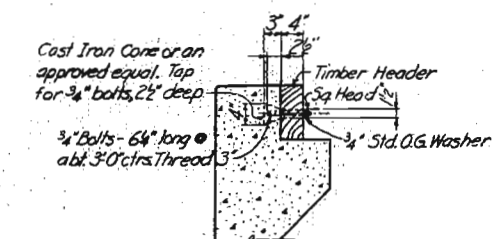
Estimated quantity of Foundation Excavation and Fill includes only that amount below existing ground line.

SHEET 2 OF 12 *A-2809*
A-2809

ST. LOUIS COUNTY	SEC.	SHEET NO.	TOTAL SHEETS
BOND ISSUE PROPOSITION NO. 6	6A	61	10
INNER BELT EXPRESSWAY			

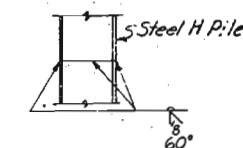


SECTION A-A



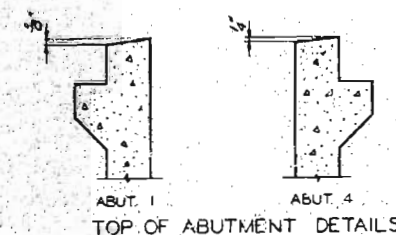
TIMBER HEADER

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



PILE SPLICE
Top of lower section to be cut square.

Note: For Sections B-B, D-D and View C-C see Sheet 4.



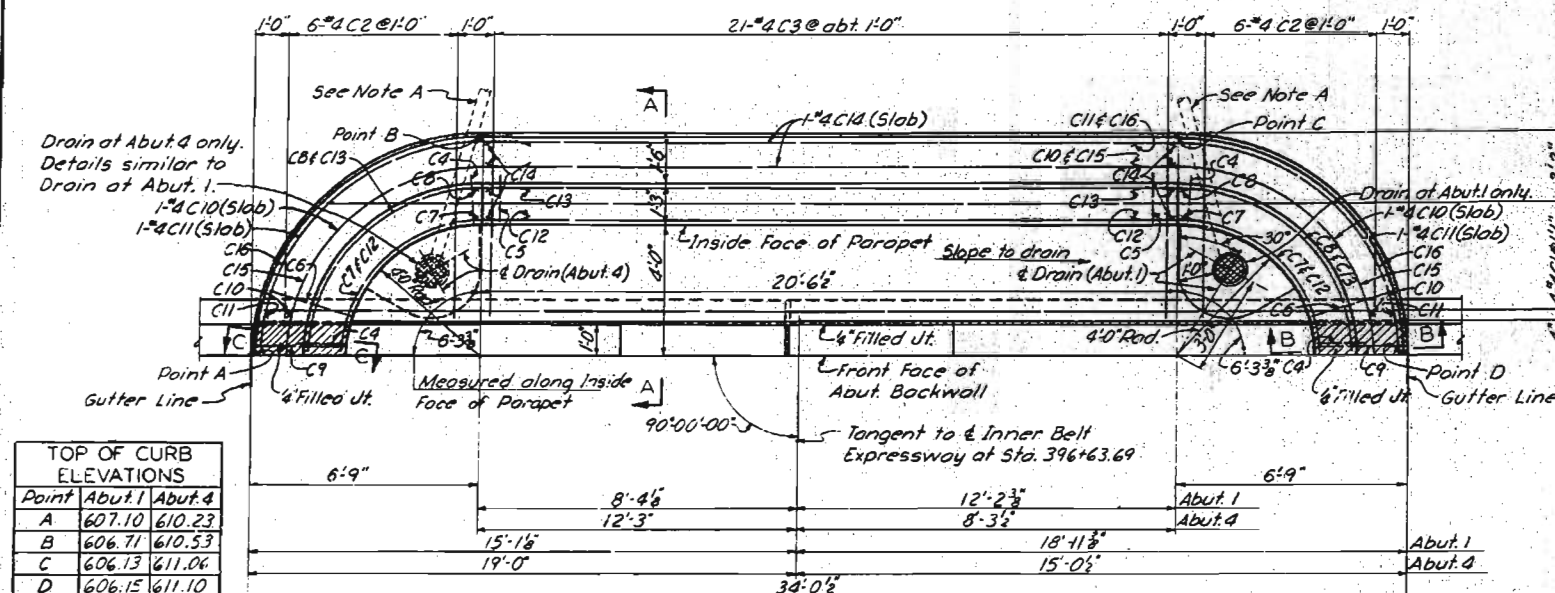
Note: Do not scale this drawing. Follow dimensions.

ST. LOUIS COUNTY
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INNER BELT EXPRESSWAY
C.R.I. & P. R.R. OVERPASS
ABUTMENT 1

DATE: May 23, 1962
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ST. LOUIS, MO.

SHEET 3 OF 12 *A-2819*
A-2819

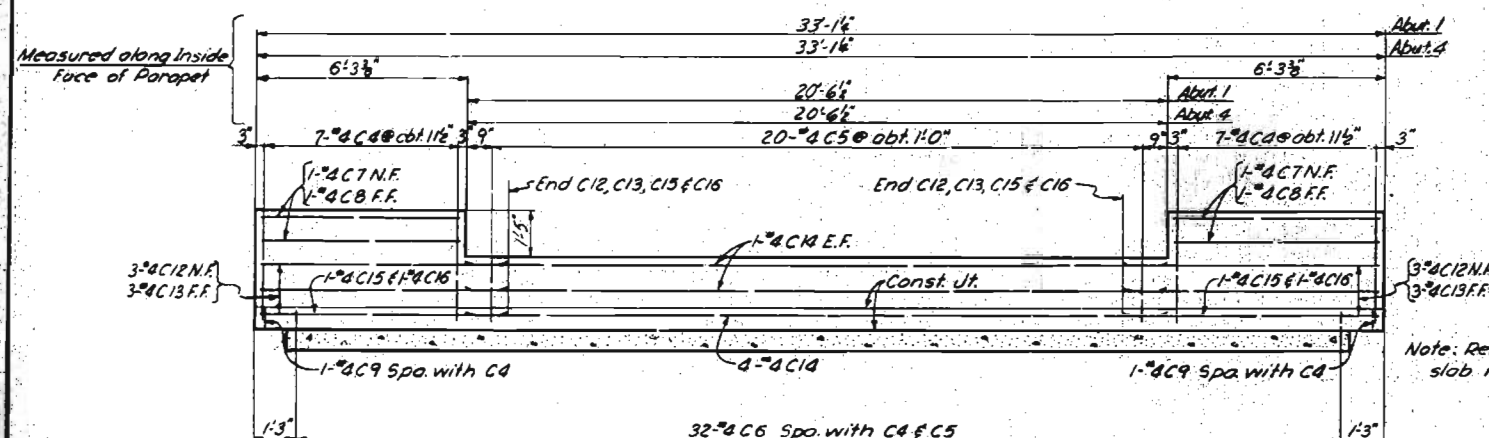
Note A:
Extend drain pipe to end of ditch
at Inner Belt Expressway. See
General Plan, Sheet 1.



TOP OF CURB ELEVATIONS		
Point	Abut. 1	Abut. 4
A	607.10	610.23
B	606.71	610.53
C	606.13	611.04
D	606.15	611.10

PLAN
Note: Shift reinforcing where
necessary to clear drains.

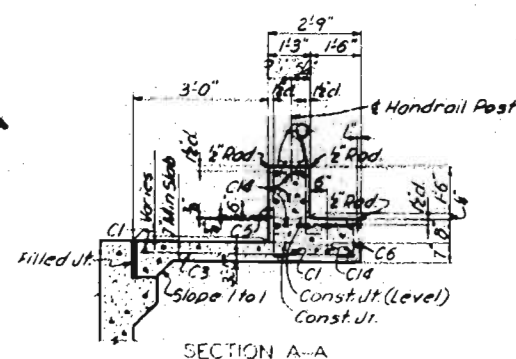
Note: E.F. indicates Each Face.
N.F. indicates Near Face.
F.F. indicates Far Face.



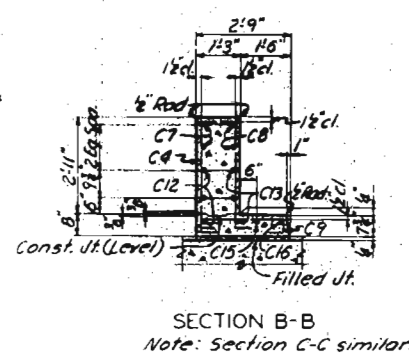
DEVELOPED ELEVATION ALONG INSIDE FACE OF PARAPET

Note: Reinforcing in
slab not shown.

NOTES
For handrail post spacing and
details, see Sheet 10.

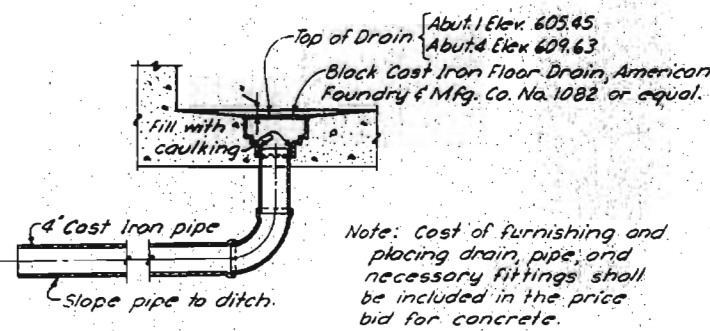


SECTION A-A



SECTION B-B
Note: Section C-C similar.

MEDIAN CLOSURE



SECTION THRU DRAIN

Note: Cost of furnishing and
placing drain pipe and
necessary fittings shall
be included in the price
bid for concrete.

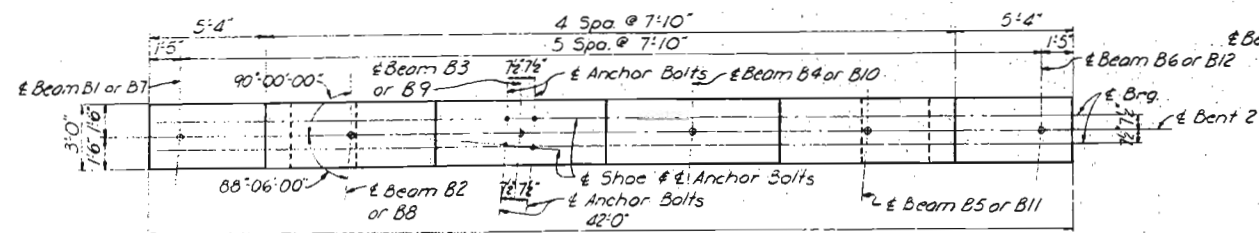
Note: Do not scale this drawing. Follow dimensions.

ST. LOUIS COUNTY
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INNER BELT EXPRESSWAY
C.R.I. & P.R.R. OVERPASS

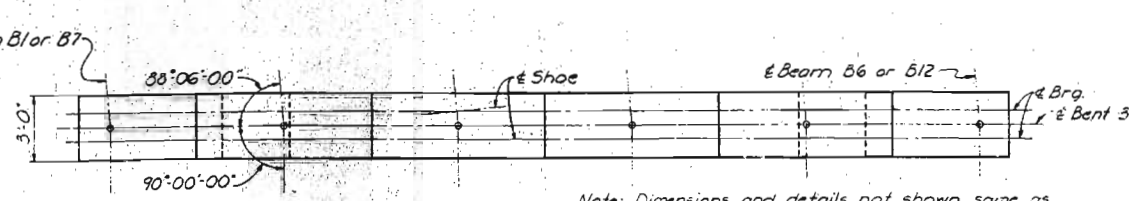
MEDIAN CLOSURES

DATE: May 23, 1962
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ST. LOUIS, MO.

SHEET 5 OF 12
A-2808
A-2809

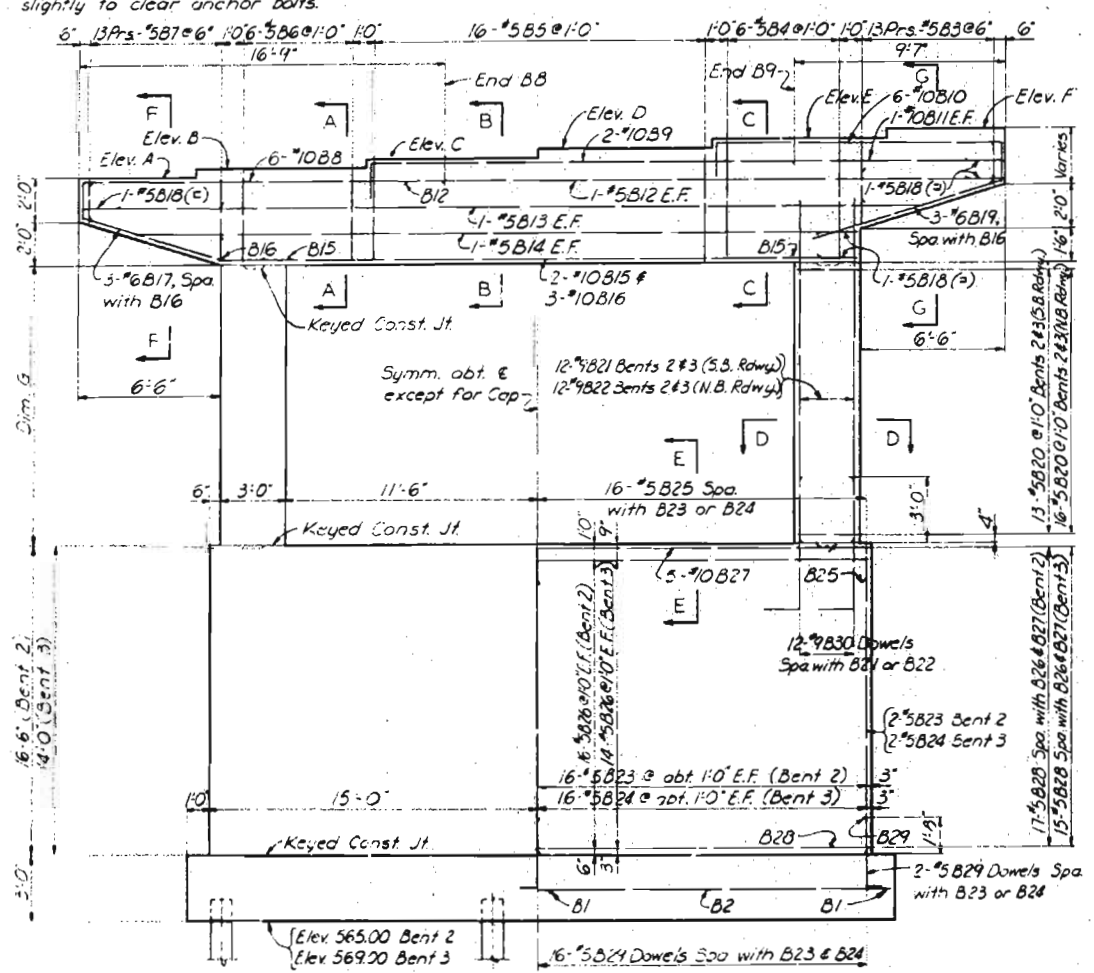


TOP PLAN BENT 2



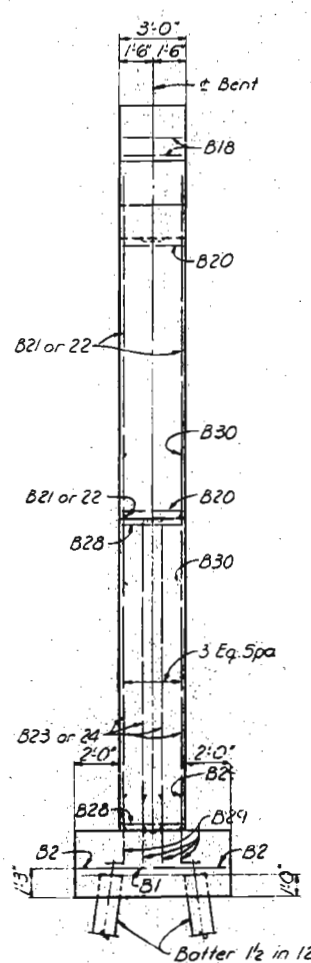
TOP PLAN BENT 3

Note: Stirrups may be shifted slightly to clear anchor bolts.

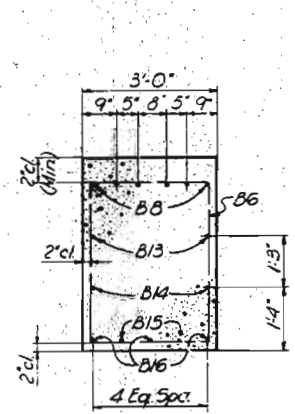


ELEVATION

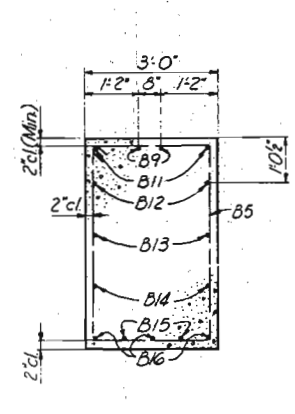
Note: E.F. indicates Each Face.



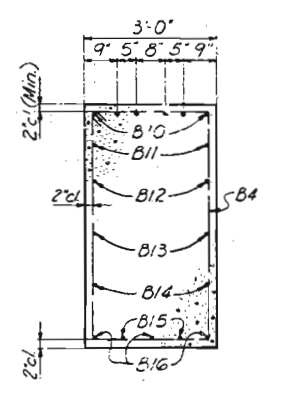
END ELEVATION



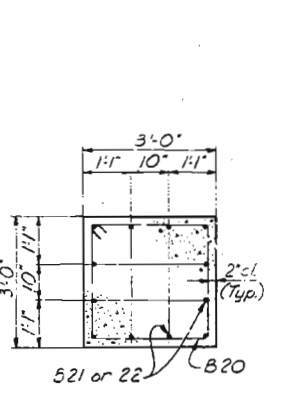
SECTION A-A



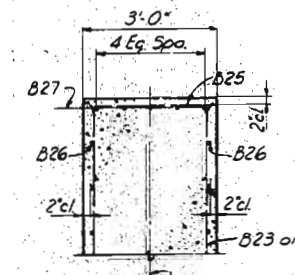
SECTION B-B



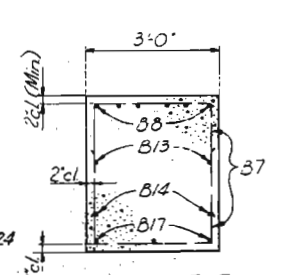
SECTION C-C



SECTION D-D

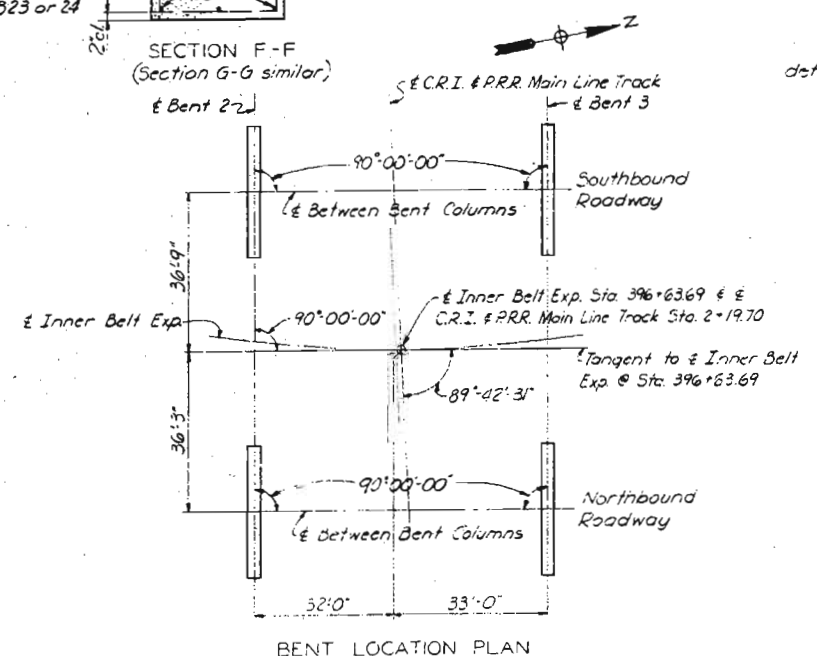


SECTION E-E



SECTION F-F
(Section G-G similar)
Bent 22

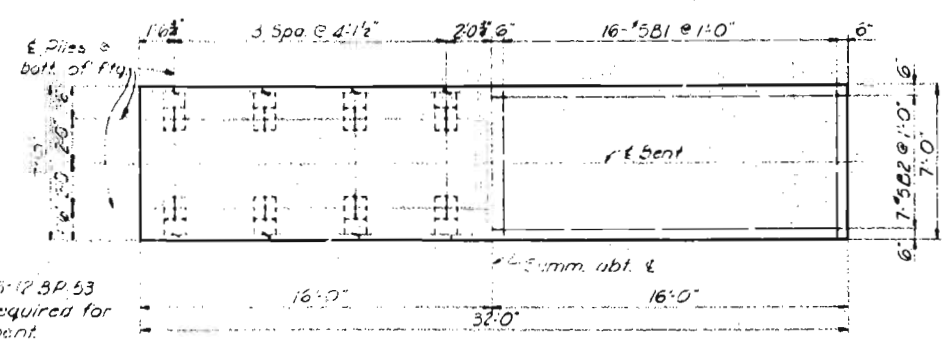
NOTES
For pile splice, see Sheet 3.
Anchor bolts are cast in place.
For Shoe and Anchor Bolt details, see Sheet 6.



BENT LOCATION PLAN

Bents	Elev. A	Elev. B	Elev. C	Elev. D	Elev. E	Elev. F	Dim. G
2 S.B.	601.21	601.60	602.00	602.39	602.79	603.18	12'-8 1/2"
2 N.B.	604.09	604.49	604.88	605.28	605.67	606.07	15'-7 1/2"
3 S.B.	602.79	603.18	603.57	603.96	604.35	604.73	12'-9 1/2"
3 N.B.	605.61	606.00	606.39	606.78	607.16	607.55	15'-7 1/2"

Note: S.B. indicates Southbound Roadway.
N.B. indicates Northbound Roadway.



FOOTING PLAN

Note: 16" 12 SP. 53 piles required for each bent.

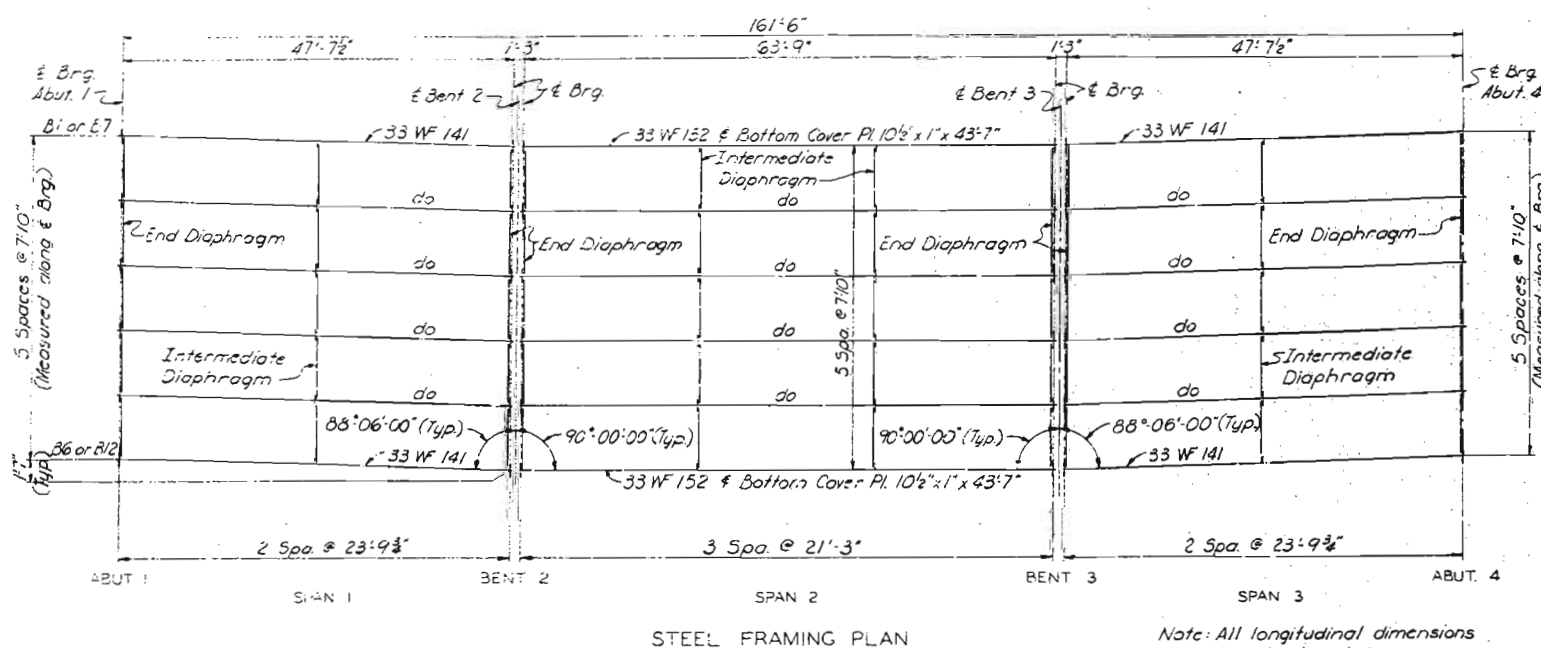
Note: Do not scale this drawing. Follow dimensions.

ST. LOUIS COUNTY
BOARD OF PUBLIC WORKS
DIVISION OF HIGHWAYS
INNER BELT EXPRESSWAY
C.R.I. & P.R.R. OVERPASS
BENTS 2 AND 3

DATE: May 23, 1962
SVERDRUP & PARCEL ENGINEERING CO.
ST. LOUIS, MO.

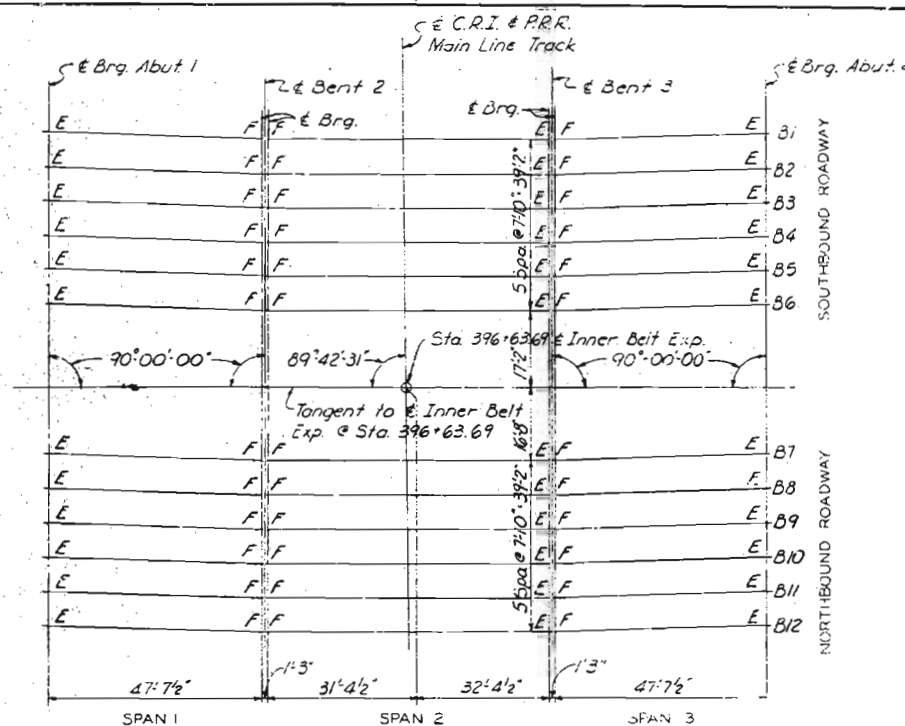
SHEET 1 OF 12
A-2809
A-2807

TOP OF BEAM ELEVATIONS AT E. BRG.							
Rdwy	Beam	Span 1		Span 2		Span 3	
		Abut. 1	Bent 2	Bent 2	Bent 3	Bent 3	Abut. 4
Southbound	B1	602.87	604.30	604.30	605.93	605.93	607.01
	B2	603.28	604.67	604.67	606.32	606.32	607.40
	B3	603.63	605.07	605.07	606.71	606.71	607.78
	B4	604.04	605.48	605.48	607.10	607.10	608.17
	B5	604.48	605.88	605.88	607.49	607.49	608.55
Northbound	B6	604.87	606.25	606.25	607.87	607.87	608.93
	B7	605.82	607.16	607.16	608.75	608.75	609.79
	B8	606.23	607.56	607.56	609.14	609.14	610.17
	B9	606.63	607.95	607.95	609.53	609.53	610.56
	B10	607.03	608.36	608.36	609.92	609.92	610.94
	B11	607.43	608.74	608.74	610.30	610.30	611.33
	B12	607.83	609.14	609.14	610.69	610.69	611.71



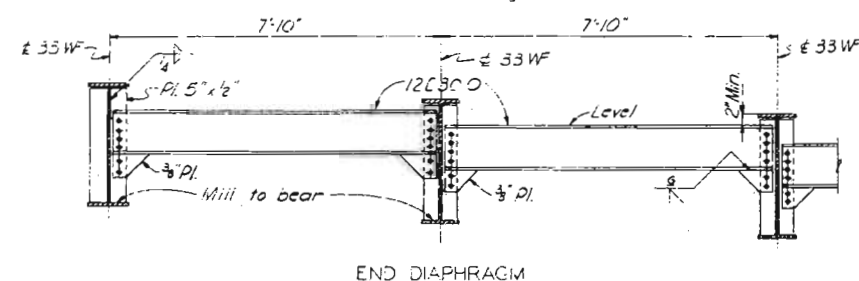
STEEL FRAMING PLAN

Note: All longitudinal dimensions are horizontal.

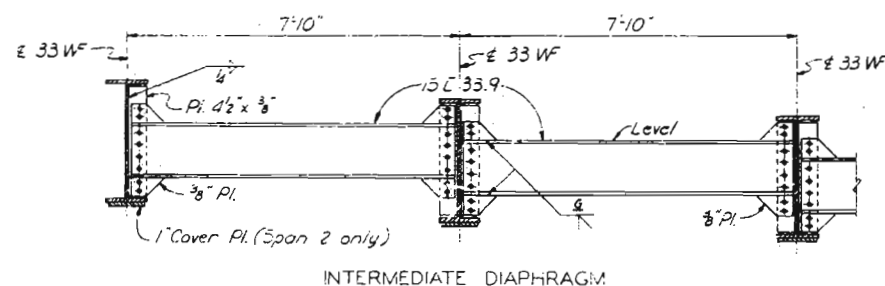


SCHEMATIC LAYOUT

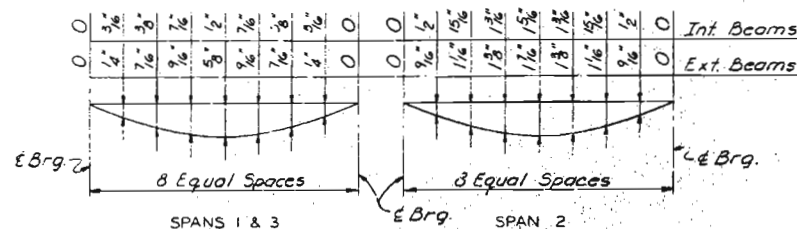
Note: "E" indicates Expansion Shoe.
"F" indicates Fixed Shoe.



END DIAPHRAGM

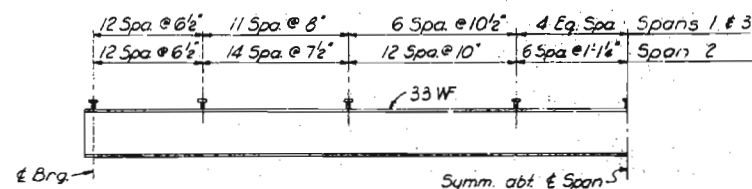


INTERMEDIATE DIAPHRAGM

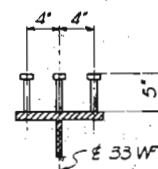


DEAD LOAD DEFLECTION ORDINATES

Note: Dead load deflection due to weight of steel only is approximately 20% of above ordinates for Interior Beams and 15% for Exterior Beams. Beams are not to be cambered for dead load deflection.

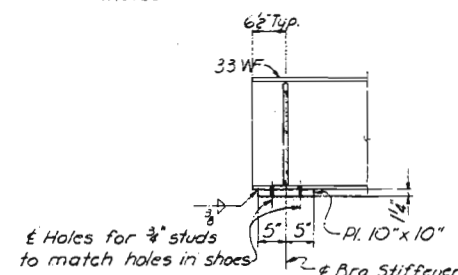


SHEAR CONNECTOR SPACING



SHEAR CONNECTOR DETAIL

Note: Use Type S3F, 3" x 5" long Nelson flux-filled welded studs or equal.



FILL PLATE DETAIL
Note: Fill plates for Span 3, Bent 3 only. Shoes at other bearings bolt directly to bottom flanges.

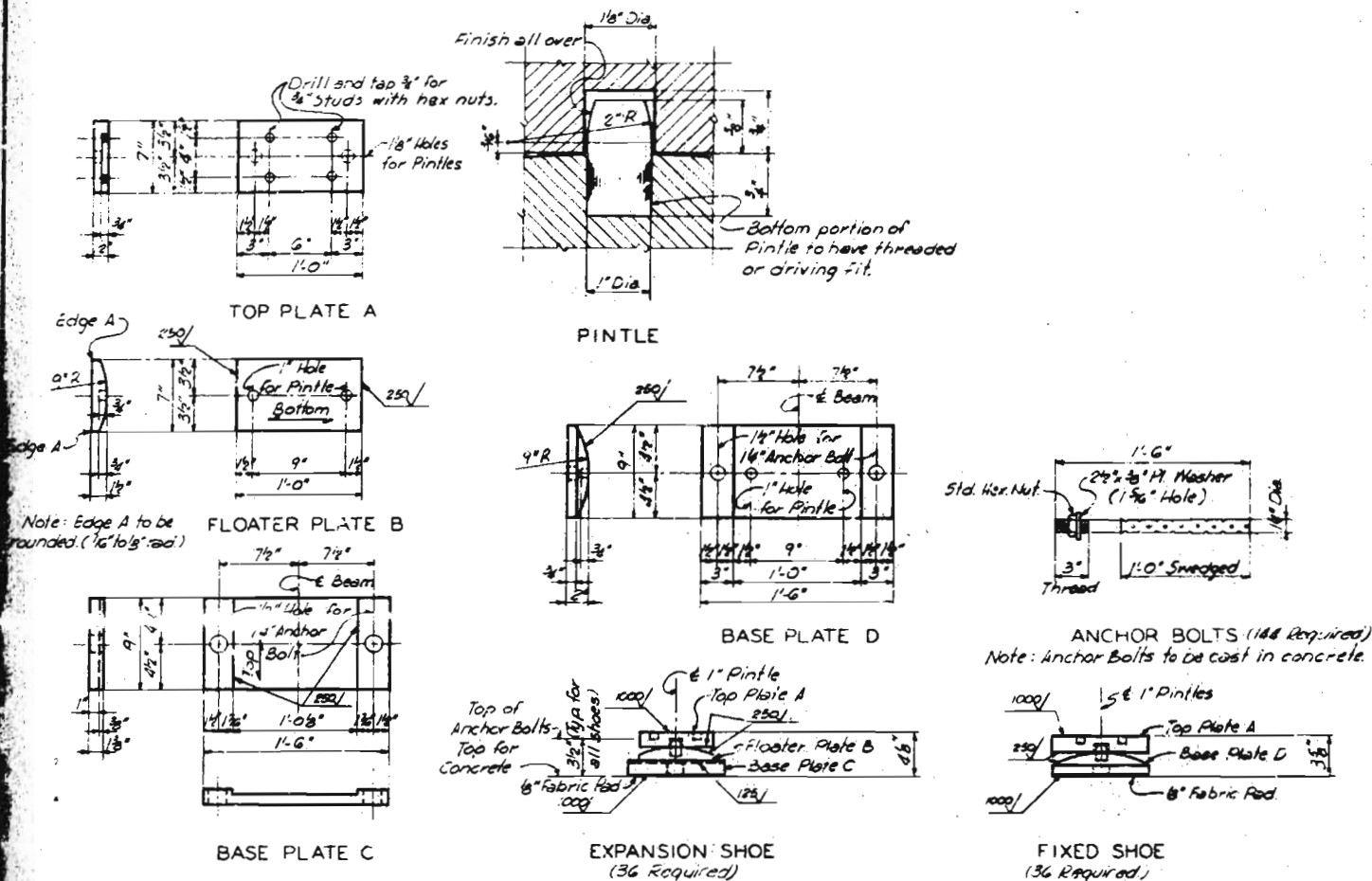
NOTES

Structural steel plates and shapes shall conform to A.S.T.M. Specifications Designation A36 for structural carbon steel.
All rivets shall be 3/4" High Tensile Bolts may be substituted for rivets.

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INNER BELT EXPRESSWAY
C.R.I. & P.R.R. OVERPASS
STEEL FRAMING PLAN
AND DETAILS

DATE: May 23, 1962
SVERDRUP & PARCEL ENGINEERING CO.
ST. LOUIS, MO.

Note: Do not scale this drawing. Follow dimensions.



SHOES
 Note: For location of shoes, see Schematic Layout, Sheet 7.

NOTES

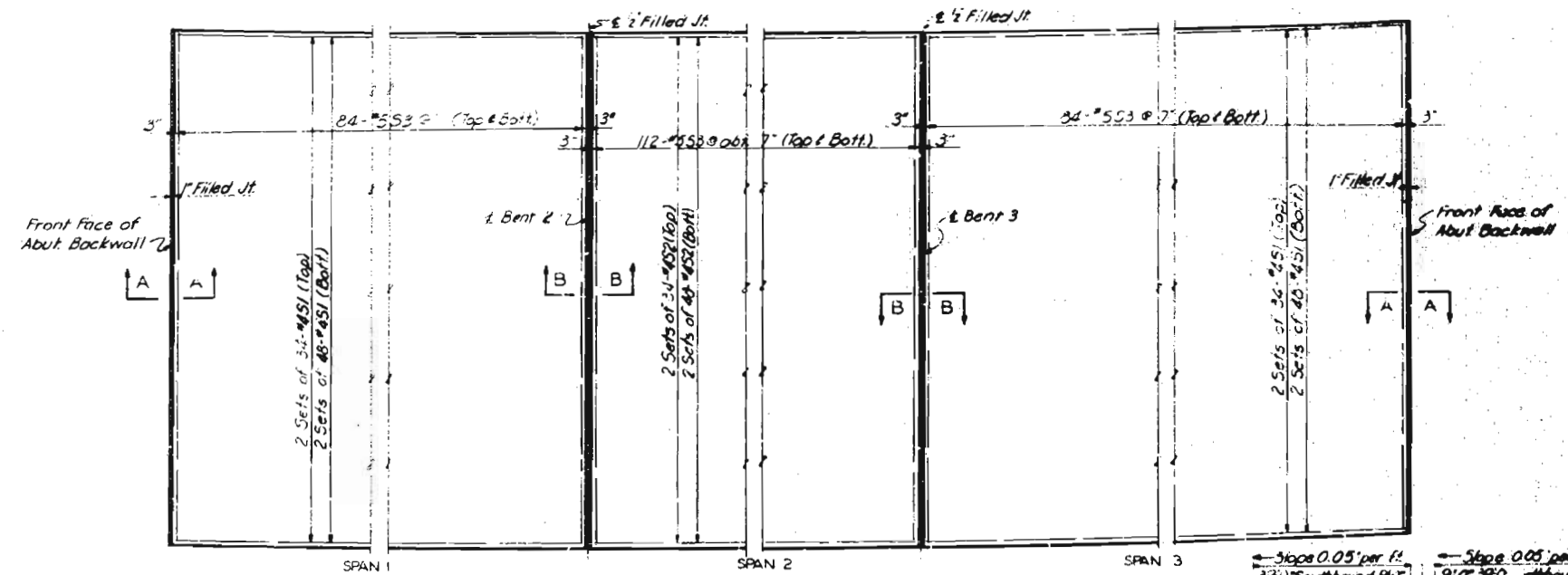
Finish all surfaces as shown.
 All bolts and nuts shall be paid for as Structural Steel (Rolled Beam Spans).
 Material for shoe castings shall be either gray iron alloy or cast steel. Material for pintles shall be cold finished carbon steel A.I.S.I. C-1042 or C-1045. Shoe castings and pintles shall be paid for as "Cast Shoes for Highway Bridges".
 No separate payment will be made for fabric pads and their cost shall be included in the price bid for other items.

ST. LOUIS COUNTY
 BOARD OF PUBLIC WORKS
 DIVISION OF HIGHWAYS
INNER BELT EXPRESSWAY
 CRI. & PRR. OVERPASS
 SHOES AND ANCHOR BOLTS

DATE: May 13, 1962
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 ST. LOUIS, MO.

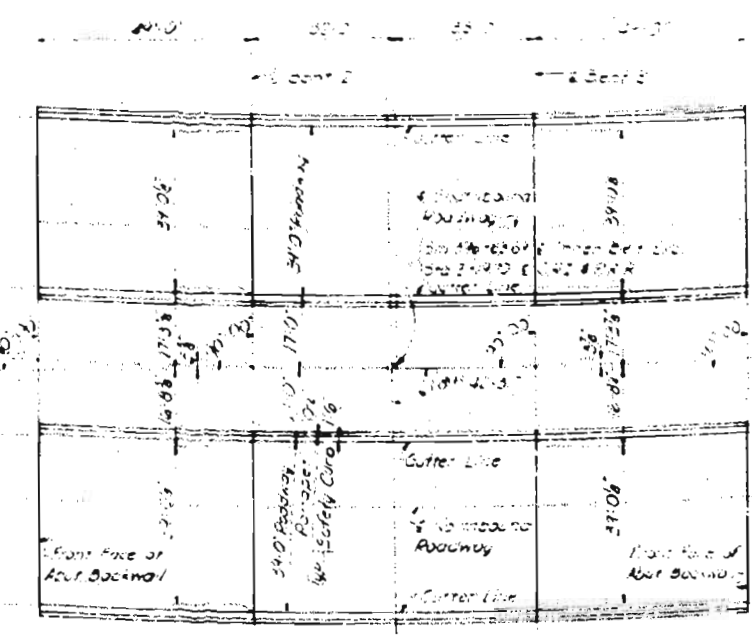
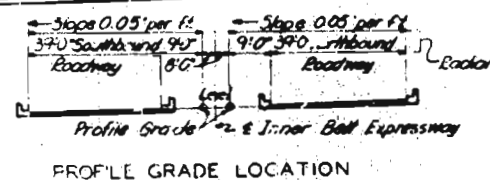
Note: Do not scale this drawing. Follow dimensions.

SHEET 8 OF 12
 A-2809
 A-2809



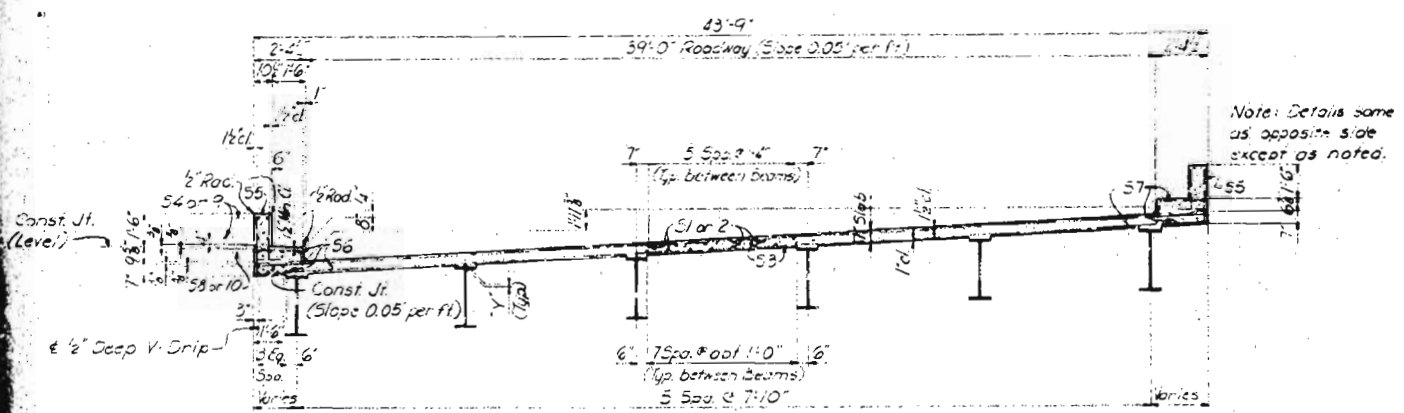
Note: Safety Curb and Parapet not shown. Transverse reinforcing may be shifted in field where necessary to clear shear connectors.

REINFORCING PLAN-SOUTHBOUND ROADWAY
(Northbound Roadway same)

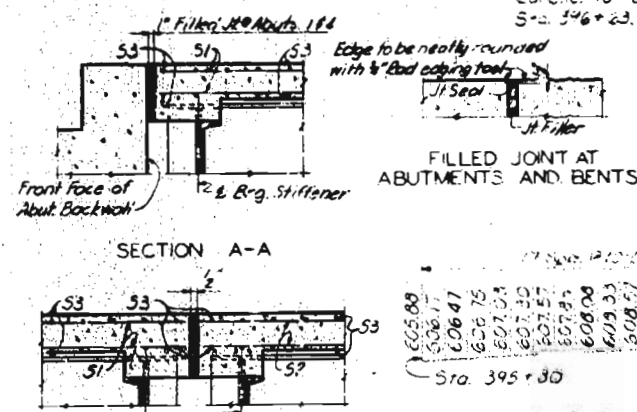


Note: All dimensions shown are measured normal to centerline to E Inner Belt Expressway at Sta. 396+23.69, except as otherwise shown.

PLAN

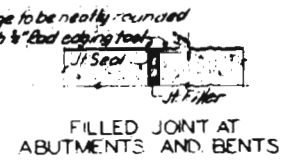


RADIAL CROSS SECTION

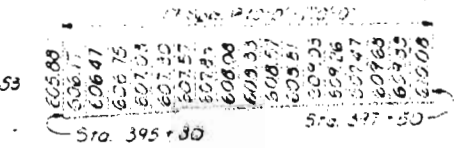


SECTION A-A

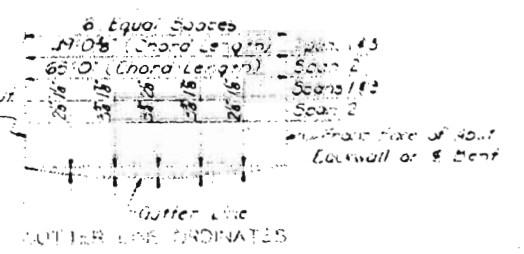
SECTION B-B



FILLED JOINT AT ABUTMENTS AND BENTS



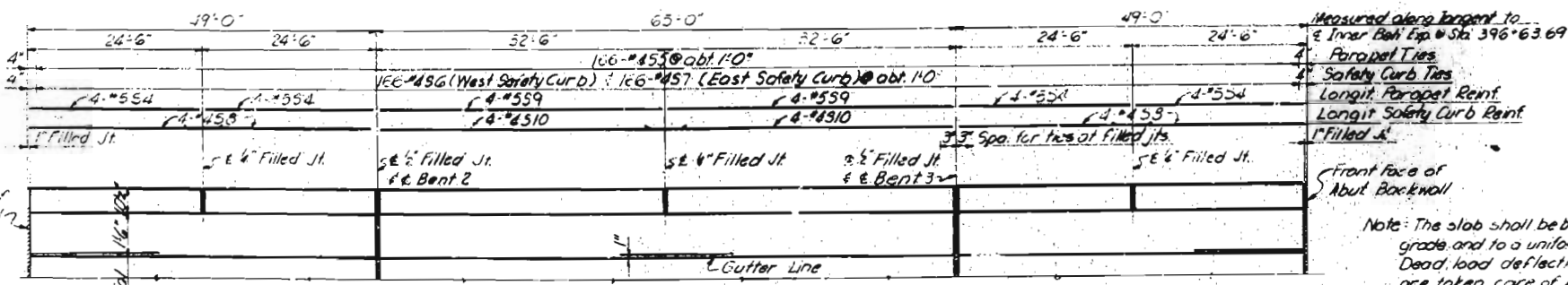
PROFILE GRADE ELEVATIONS



NOTES

All longitudinal and transverse dimensions shown are horizontal. For location of conduits, See Sheet 10.

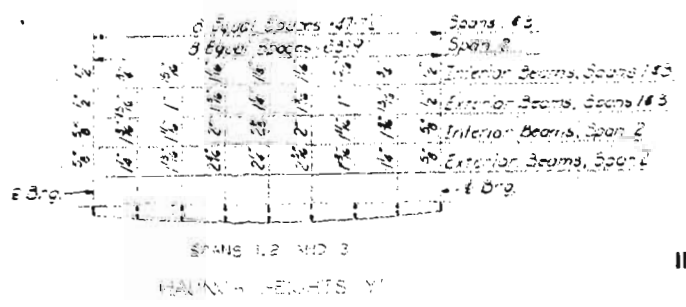
113



PLAN OF SAFETY CURB AND PARAPET
West Safety Curb and Parapet shown for Northbound and Southbound Roadways.
East Safety Curb and Parapet for Northbound and Southbound Roadway opposite hand.

Note: The slab shall be built to proper finished grade and to a uniform thickness of 7". Dead load deflection and vertical curve are taken care of by haunching to top of beams the amount shown in "Haunch Heights Y". This additional concrete is included in "Estimated Quantities."

Note: Do not scale this drawing. Follow dimensions.

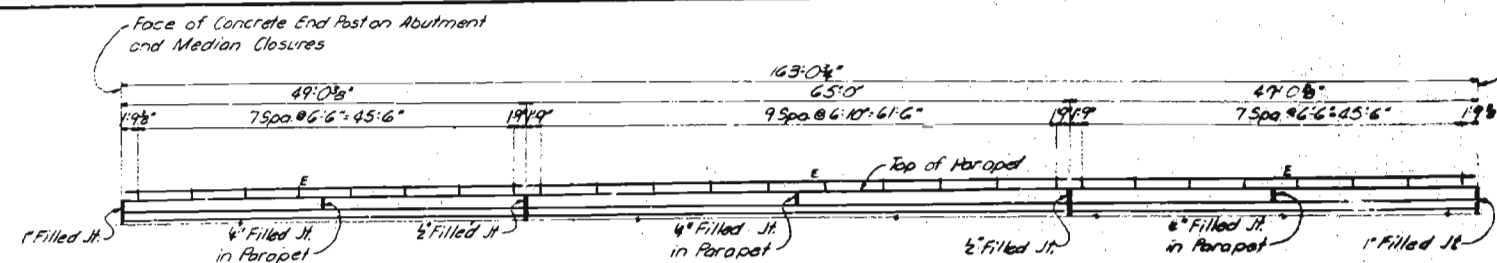


HAUNCH HEIGHTS Y

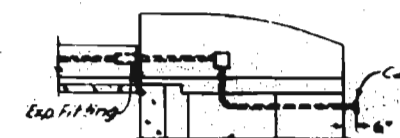
ST. LOUIS COUNTY
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INNER BELT EXPRESSWAY

C.R.I. & P.R.R. OVERPASS
SLAB AND SAFETY CURB

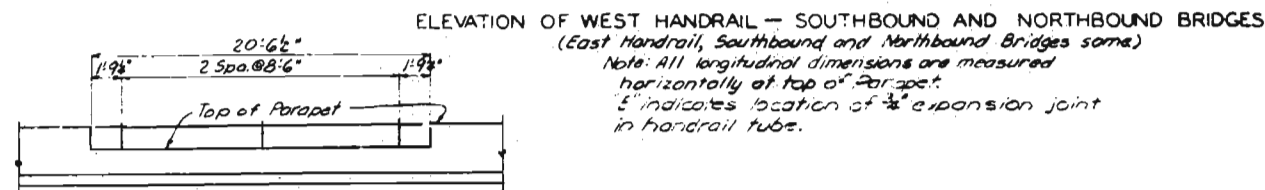
DATE: May 23, 1962
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ST. LOUIS, MO.



Face of Concrete End Post on Abutment and Median Closures.



CONDUIT IN END POST



ELEVATION OF HANDRAIL AT MEDIAN CLOSURES
Note: For Section thru handrail on median closure, see Sheet 5.

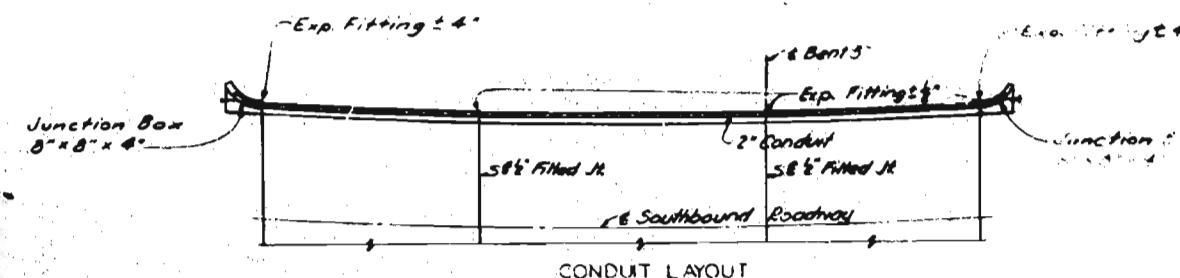
BRIDGE RAIL NOTES (One Tube Type)

Material for all parts of Bridge Rail, except as noted, shall be aluminum.
All rail posts shall be set normal to top of Parapet.
Rail shall be bent to conform to vertical and horizontal alignment of parapet.
Rail to be fabricated in two or three panel lengths unless otherwise approved.
All rail splices shall be located near the 1/2 point between rail posts.
All outside corners of posts to have 6" radius except as noted. All fillets 1/4" and drafts 1/8" except as noted.

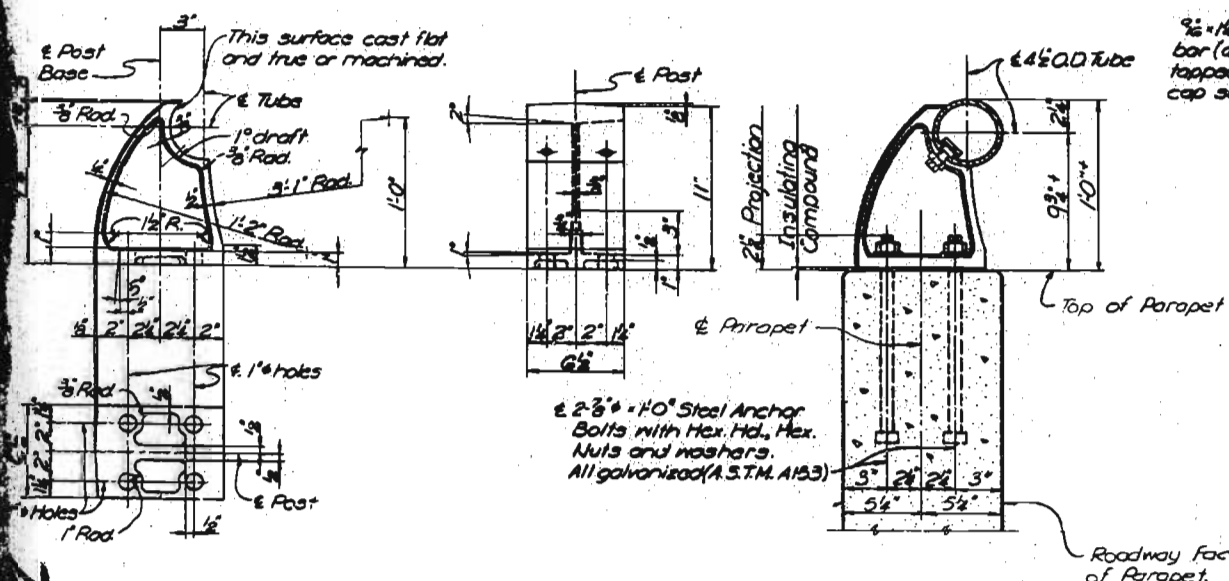
Aluminum weather shims between top of parapet and rail post base may be used for adjusting rail alignment. Maximum thickness of shims to be 1/2". Where more tilting of rail post is required for proper alignment, concrete bearing area shall be ground down.
The contract unit price per linear foot of "H.S. Bridge Rail (One Tube Type)", shall include furnishing and erecting the bridge rail complete with anchor bolts, shims, and insulating compound.
See Special Provisions.

NOTES

- For conduit, junction boxes and expansion fittings, see Special Provisions.
- Shift or cut reinforcement in field where necessary to clear conduit.



CONDUIT LAYOUT



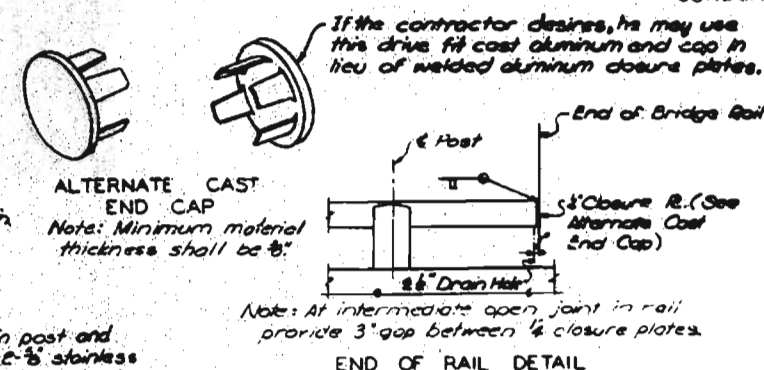
RAIL POST

SECTION THRU BRIDGE RAIL

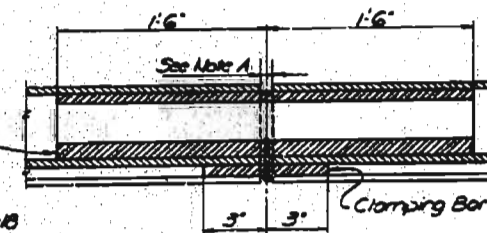
RAIL ATTACHMENT TO POST

RAIL SPLICE

BRIDGE RAIL



END OF RAIL DETAIL



SECTION A-A

Note A: 1/2" at Point marked 'E' in elevation view on this Sheet, 1/2" at other rail splices.

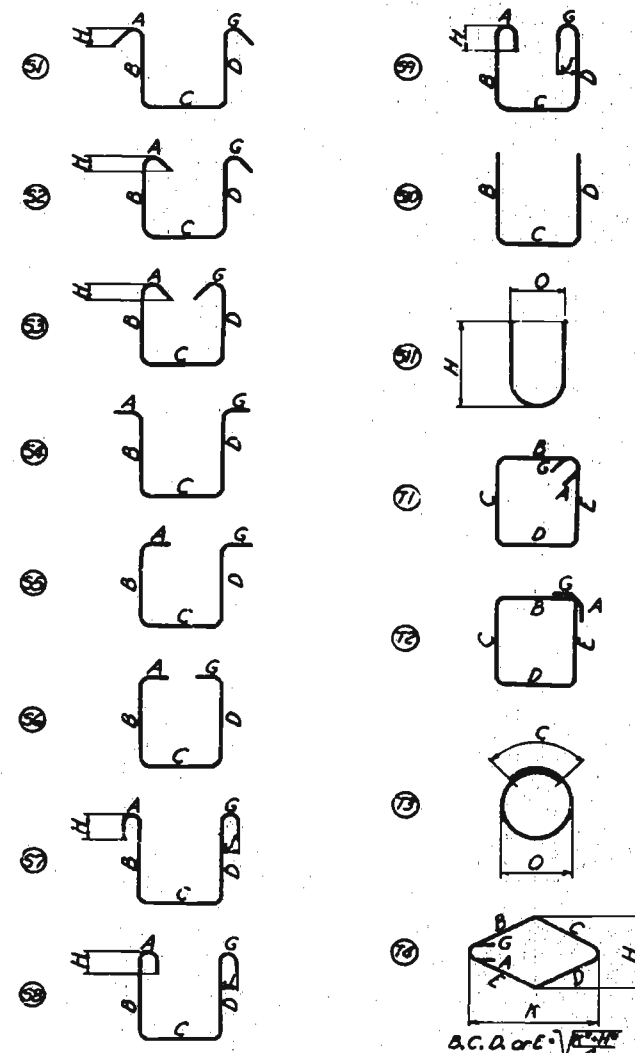
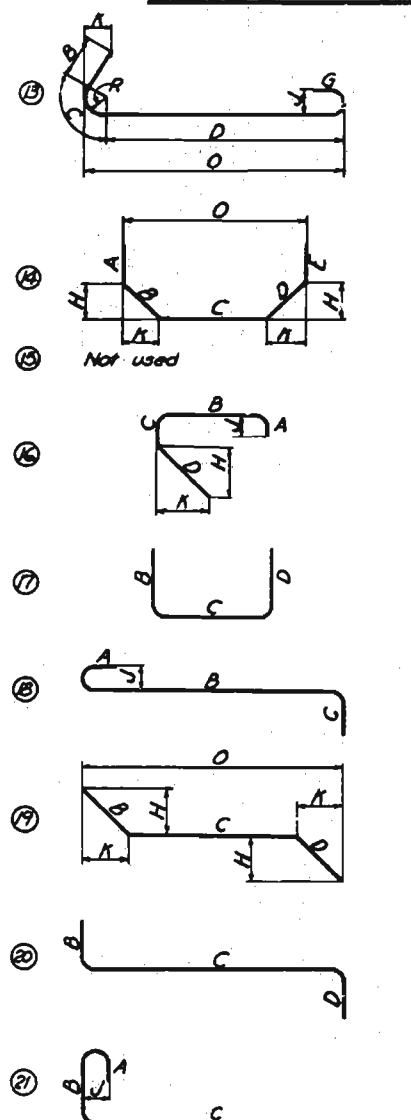
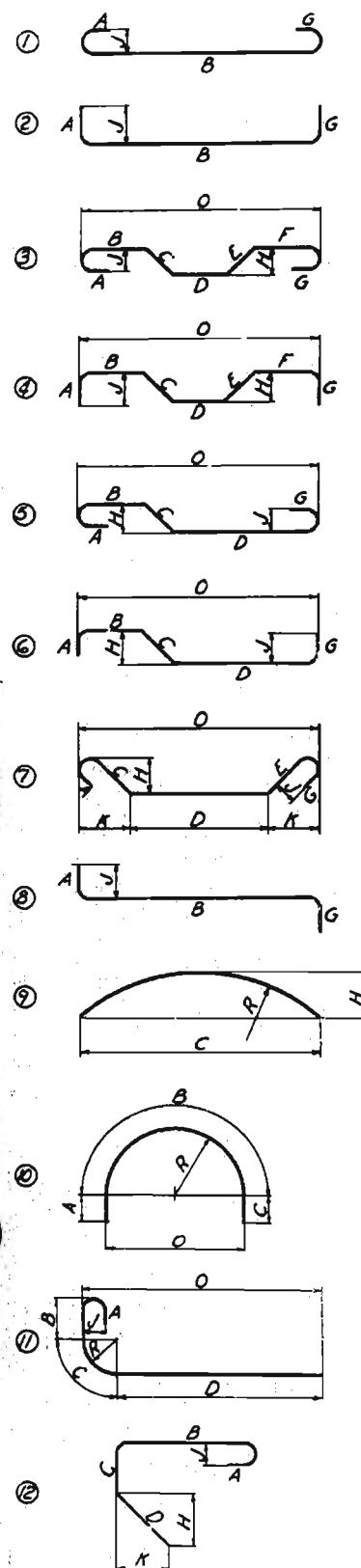
Note: Do not scale this drawing. Follow dimensions.

ST. LOUIS COUNTY
BOARD OF PUBLIC WORKS
DIVISION OF HIGHWAYS
INNER BELT EXPRESSWAY
C.R.I. & P. R.R. OVERPASS
HANDRAIL AND LIGHTING CONDUIT

DATE: May 23, 1962
BY: EVERDRUP & PARCEL ENGINEERING CO., ST. LOUIS, MO.

SHEET 10 OF 12
A-2809
A-2807

TYPICAL BAR TYPES

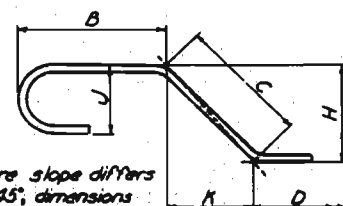


NOTES

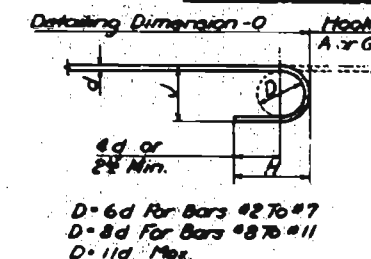
- All dimensions are out to out, except "R" which is to inside of bend.
- "U" Dimension on 180° hooks to be shown in Bar List only where necessary to restrict hook size, otherwise standard hooks are to be used.
- Where "U" is not shown, "U" will be kept equal to or less than "H". Where "U" can exceed "H", it should be shown in Bar List.
- "H" Dimension on stirrups to be shown on Bar List where necessary to restrict hooks.
- Corrections in length, due to bending around a mandrel, will be made only when the radius "R" (as in types 11 and 13) exceeds the standard radii indicated in standard hook dimensions. However, the dimensions "A" or "G" shown for standard hooks have been corrected for curvature.
- All bends shown are bent around a standard mandrel, except where radius "R" is indicated.
- Figures in circles show bar types.
- Where "R" is shown on bar types 9, 10, 11 and 13, the length of bend shall be measured along outside of bend. The length of bar type T3 shall also be measured along outside of bar.

Where slope differs from 45°, dimensions "H" and "K" must be shown.

ENLARGED VIEW SHOWING BAR BENDING DETAILS

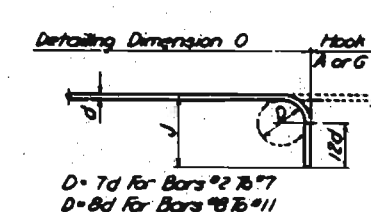


STANDARD HOOK DIMENSIONS



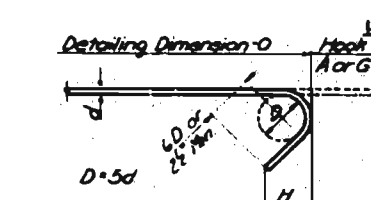
D = 6d For Bars #2 To #7
D = 8d For Bars #8 To #11
D = 11d Max.

Bar Size	Hook A or G	U	Approx. H
#2	4"	2"	3 1/2"
#3	5"	3"	4"
#4	6"	4"	4 1/2"
#5	7"	5"	5"
#6	8"	6"	6"
#7	10"	7"	7"
#8	11"	10"	9"
#9	13"	11"	10 1/2"
#10	15"	13"	11 1/2"
#11	17"	15"	13 1/2"



D = 7d For Bars #2 To #7
D = 8d For Bars #8 To #11

Bar Size	Hook A or G	U	Approx. H
#2	3 1/2"	1"	4"
#3	4 1/2"	1 1/2"	4 1/2"
#4	5 1/2"	2"	5"
#5	6 1/2"	2 1/2"	5 1/2"
#6	7 1/2"	3"	6"
#7	9 1/2"	3 1/2"	7"
#8	11 1/2"	4 1/2"	8"
#9	13 1/2"	5 1/2"	9 1/2"
#10	15 1/2"	6 1/2"	11"
#11	17 1/2"	7 1/2"	12 1/2"



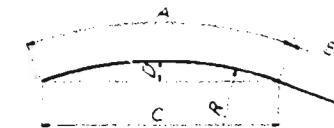
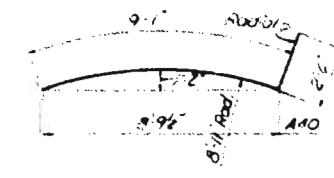
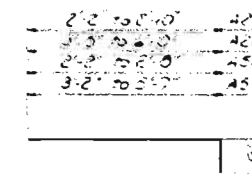
D = 5d

Bar Size	Hook A or G	U	Approx. H
#2	3"	1"	3 1/2"
#3	4"	1 1/2"	4"
#4	5"	2"	4 1/2"
#5	6"	2 1/2"	5"
#6	7"	3"	5 1/2"

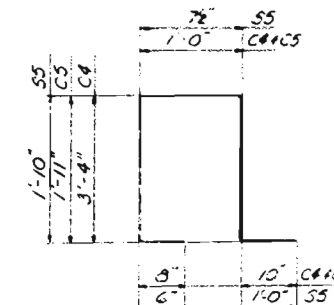
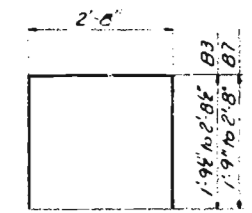
BAR SIZE EQUIVALENTS

#2	6"	#7	8"
#3	8"	#8	10"
#4	10"	#9	12"
#5	12"	#10	14"
#6	14"	#11	16"

DIMENSIONS FOR BENDING										DIMENSIONS FOR BENDING																										
NO.	SIZE	LENGTH	MARR	TYPE	LOCATION	A	B	C	D	E	F	G	H	J	K	R	O	NO.	SIZE	LENGTH	MARR	TYPE	LOCATION	A	B	C	D	E	F	G	H	J	K	R	O	
ABUTMENTS 1 & 4 & END POSTS																		BENTS 2 & 3																		
221	4	4'-7"	A1	16	Lug	7'-1.5"	6'-2.0"							1'-5"	1'-5"			128	6	6'-6"	A1	Str	Footling													
24	2	13'-8"	A2	Str	do													28	3	31'-6"	A2	Str	do													
8	4	14'-5"	A3	Str	do													108	3	10'-0"	A3	Spcl	Cap	8 Series of 13 Bars (6'-3" to 8'-1")												
236	3	6'-7"	A4	2	Backwall	9'-5'-10"												24	3	16'-10"	A4	Str	do	6'-2'-8"	6'-2'-8"	6'-2'-8"	6'-2'-8"	6'-2'-8"	6'-2'-8"	6'-2'-8"	6'-2'-8"	6'-2'-8"	6'-2'-8"	6'-2'-8"	6'-2'-8"	
180	4	20'-11"	A5	Str	Backwall (Br. Slab)													24	3	15'-3"	A5	Str	do	6'-2'-8"	6'-2'-8"	6'-2'-8"	6'-2'-8"	6'-2'-8"	6'-2'-8"	6'-2'-8"	6'-2'-8"	6'-2'-8"	6'-2'-8"	6'-2'-8"	6'-2'-8"	
38	3	5'-11"	A6	2	Footling	9'-5'-2"												24	3	15'-3"	A6	Str	do	6'-2'-8"	6'-2'-8"	6'-2'-8"	6'-2'-8"	6'-2'-8"	6'-2'-8"	6'-2'-8"	6'-2'-8"	6'-2'-8"	6'-2'-8"	6'-2'-8"	6'-2'-8"	6'-2'-8"
64	3	5'-2"	A7	2	do	9'-4'-3"												108	3	15'-3"	A7	Spcl	do	8 Series of 13 Bars (6'-2" to 8'-2")												
60	3	4'-8"	A8	2	do	9'-3'-7"												24	10	18'-2"	A8	Spcl	do	1'-5"	1'-5"	1'-5"	1'-5"	1'-5"	1'-5"	1'-5"	1'-5"	1'-5"	1'-5"	1'-5"	1'-5"	
4	4	3'-1"	A9	Str	Backwall (Br. Slab)													8	10	20'-0"	A9	2	do	1'-6"	1'-6"	1'-6"	1'-6"	1'-6"	1'-6"	1'-6"	1'-6"	1'-6"	1'-6"	1'-6"	1'-6"	
8	4	8'-1"	A10	Str	do													24	10	16'-0"	A10	2	do	1'-5"	1'-5"	1'-5"	1'-5"	1'-5"	1'-5"	1'-5"	1'-5"	1'-5"	1'-5"	1'-5"	1'-5"	
8	4	24'-7"	A11	Str	do													8	10	20'-1"	A11	2	do	1'-6"	1'-6"	1'-6"	1'-6"	1'-6"	1'-6"	1'-6"	1'-6"	1'-6"	1'-6"	1'-6"	1'-6"	1'-6"
8	4	20'-5"	A12	Str	do													8	3	24'-7"	A12	Str	do													
8	4	37'-7"	A13	Str	do													8	3	38'-7"	A13	Str	do													
8	4	6'-9"	A14	Str	do													8	3	38'-7"	A14	Str	do													
36	4	7'-8"	A15	Str	do													8	10	23'-0"	A15															



Work	A	B	C	D	E
A1	9-1	1-7	8-9	1-2	8-9
C10	7-12	1-4	7-4	1-5	6-3
C11	9-12	1-4	8-12	1-6	5-3
C12	6-5	1-4	5-10	1-2	4-8
C13	7-10	1-4	7-10	1-3	5-8
C15	8-16	1-4	8-1	1-2	5-8
C16	10-16	1-4	9-12	1-10	6-3



NOTES

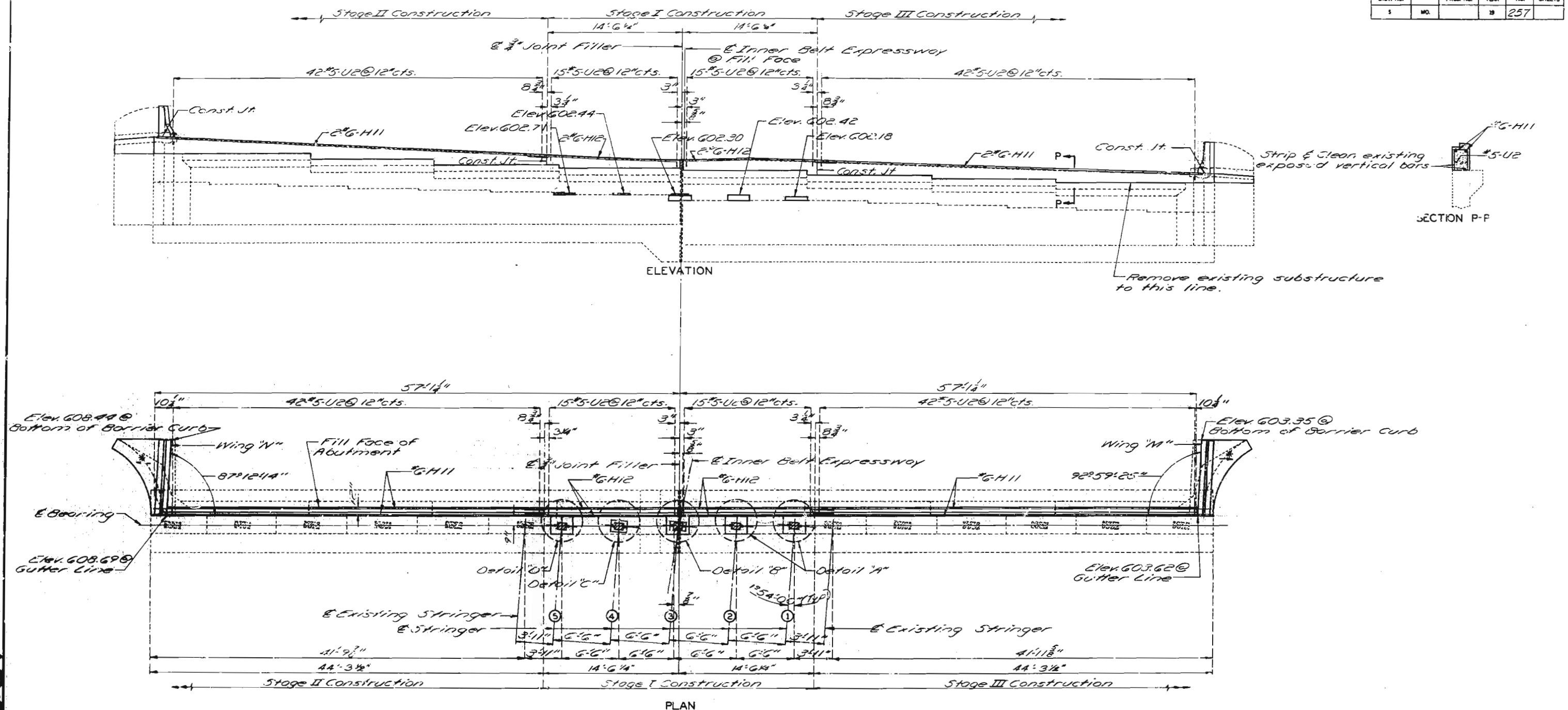
A dash is used in the appropriate dimension column to indicate that a hook, bend or portion of the standard bar type is to be omitted.
See Sheet II for Typical Bar Types and Hook Dimensions.
Dimensioning, bending and hooks for Special Bending Details shall conform to the standards indicated or shown on Sheet II.
Bars listed as Spl. in type column require special bending, see details.

ST. LOUIS COUNTY
BOARD OF PUBLIC WORKS
DIVISION OF HIGHWAYS
INNER BELT EXPRESSWAY
C.R.I. & P.R.R. OVERPASS
BAR LIST AND
SPECIAL BENDING DETAILS

DATE *May 23, 1946*
SVERDRUP & PARCEL ENGINEERING CO.
ST. LOUIS, MO.

SHEET 12 OF 12 *A-2809*

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	257	



Note:
 Remove the existing curb, parapet, & backwall above approach notch.
 See sheet No. 18 for reinforcement of Barrier Curbs.
 * Slope to drain.
 Work this sheet with sheet No. 4.
 Elevations shown in Elevation View are at bottom of Neoprene Elastomeric Pads.
 Strip & Clean all existing exposed vertical bars in backwall.
 Top of the backwall and expansion device for Abutment No. 1 to conform to crown of roadway slab. Backwall above upper construction joint shall not be poured until the superstructure slab has been poured in the adjacent span.

DETAILS OF ABUTMENT NO. 1

331
 DETAILED FEB. 1900
 CHECKED April 1980

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

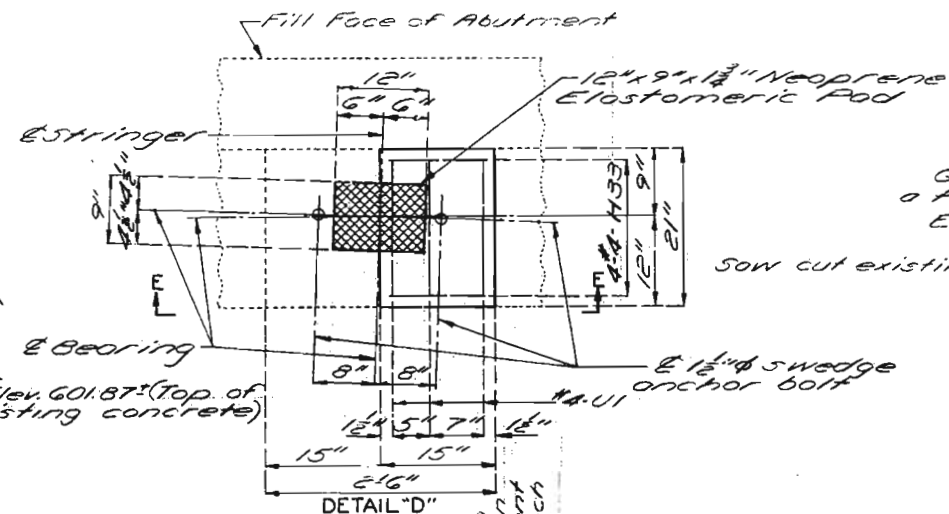
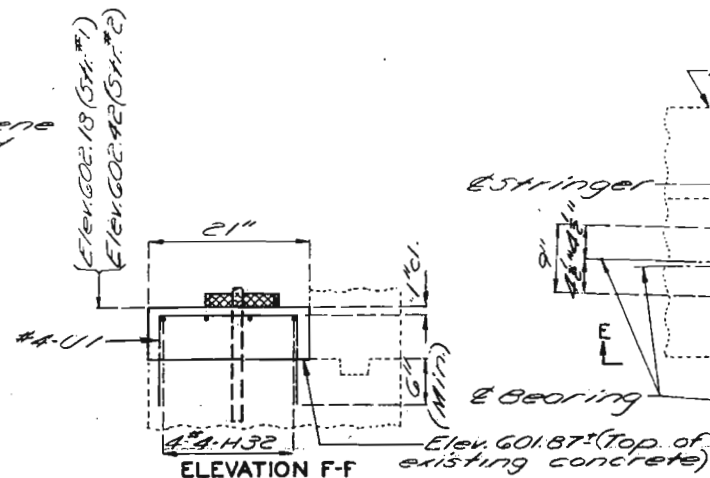
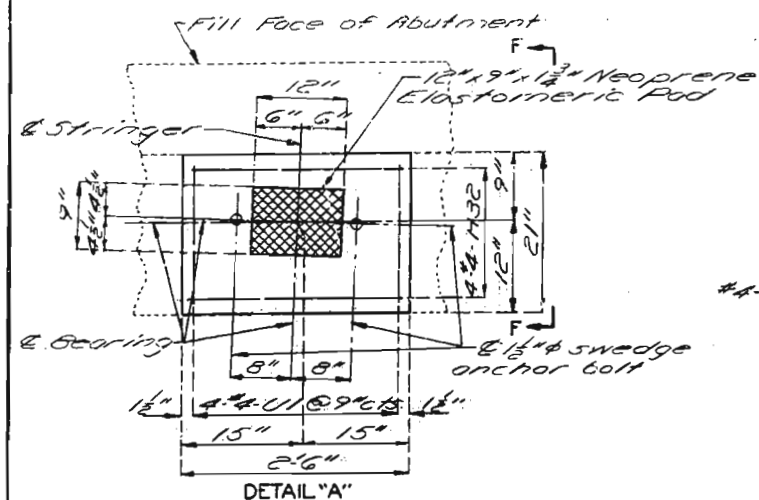
Sheet No. 3 of 20.

ST. LOUIS

COUNTY

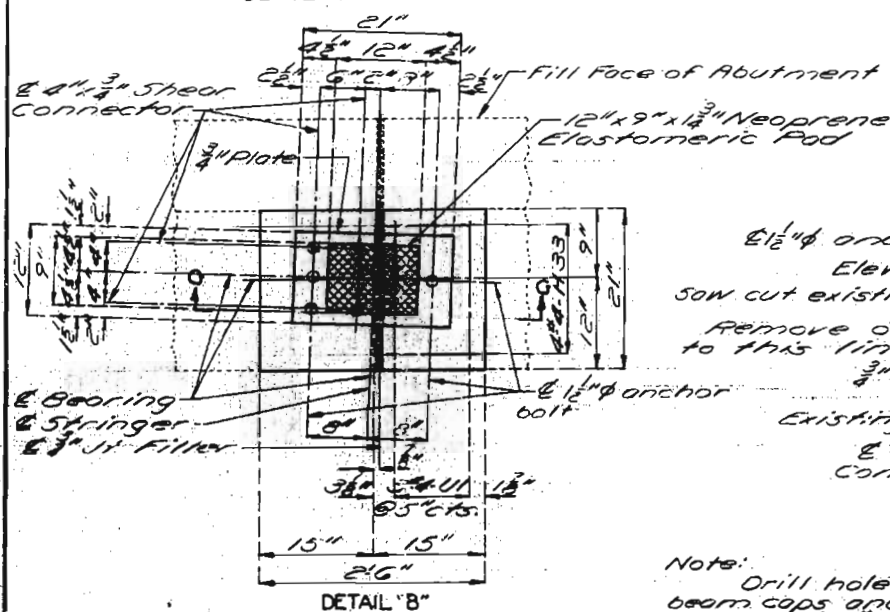
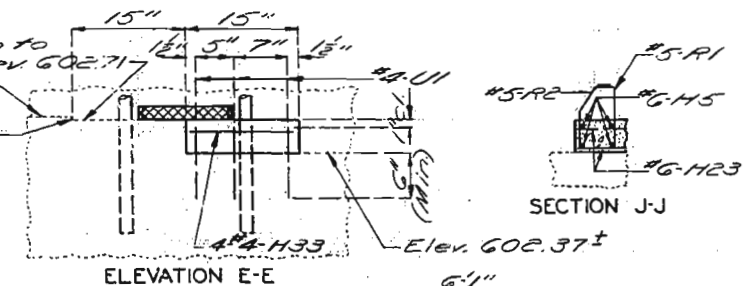
A-2809R

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	258	

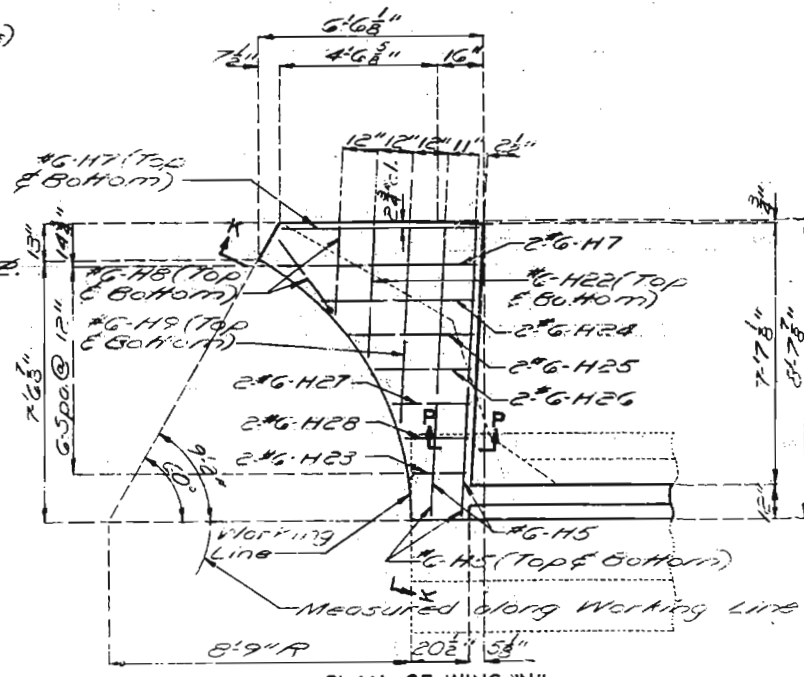
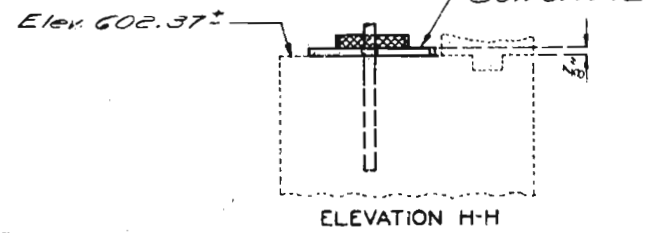
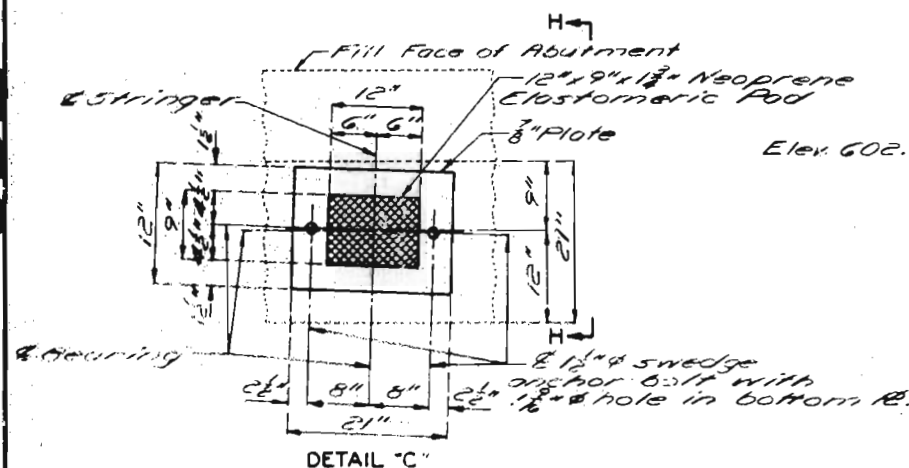
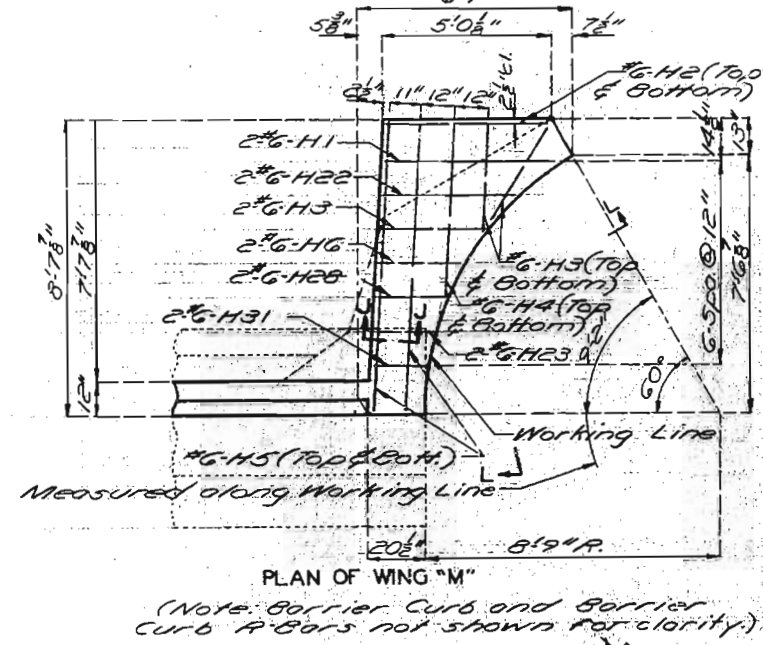
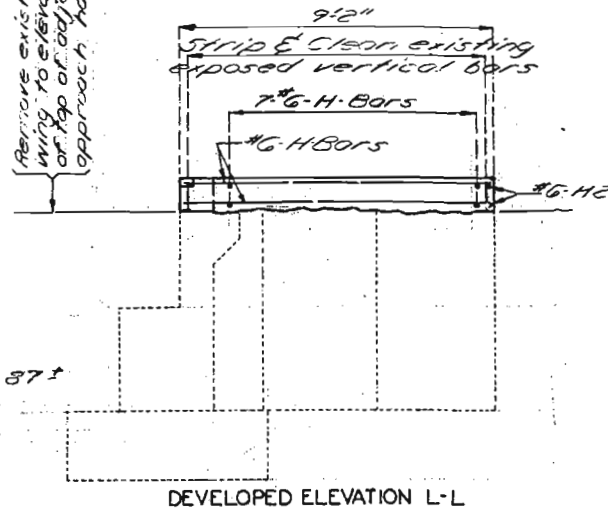
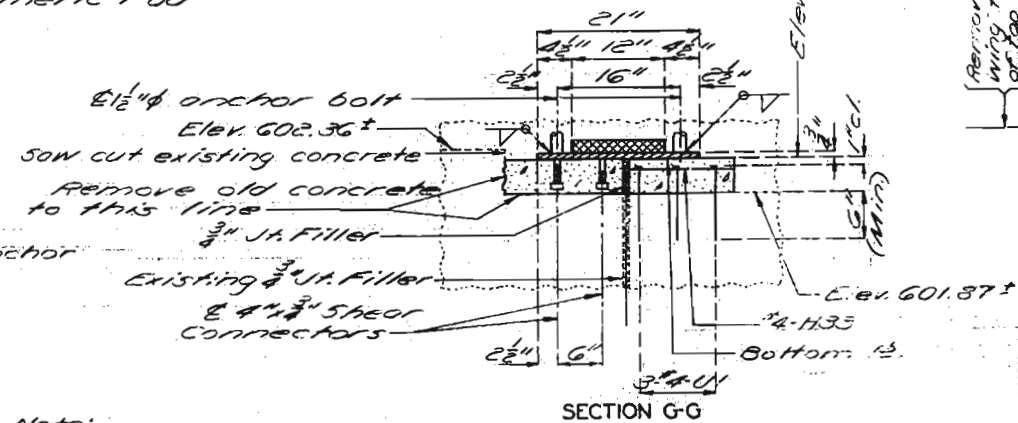


Grind down to a finished Elev 602.71 Elev 602.75

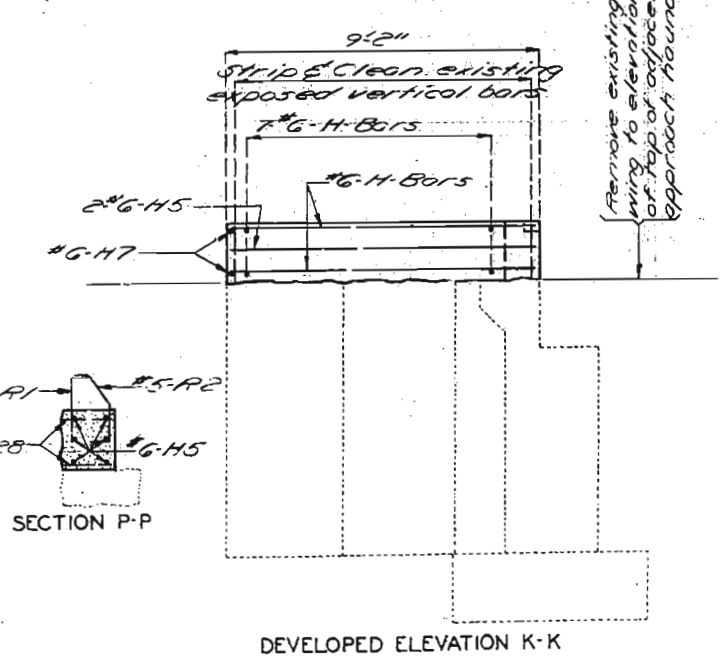
Saw cut existing concrete



Note: Drill holes in top of existing concrete beam caps and use an expansive mortar to grout in #4-U-bars. (See Special Provisions)

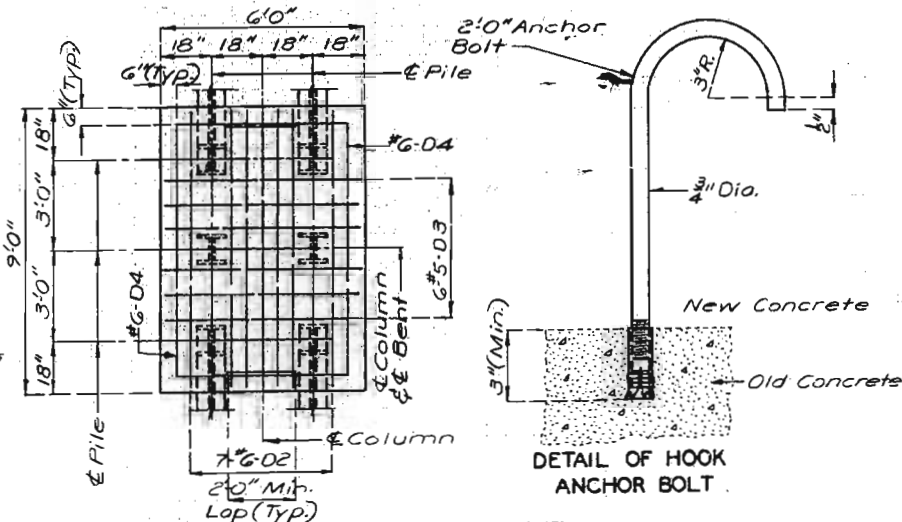
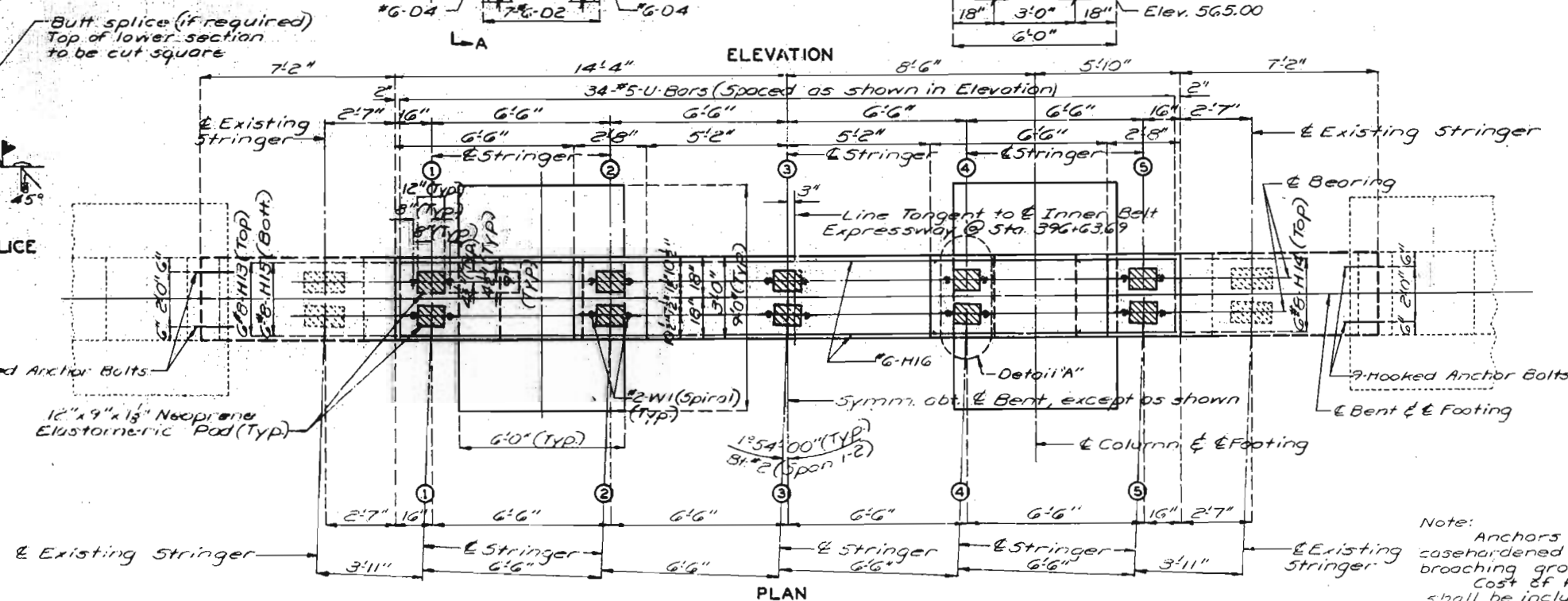
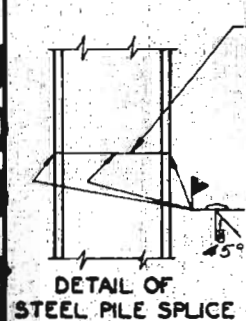
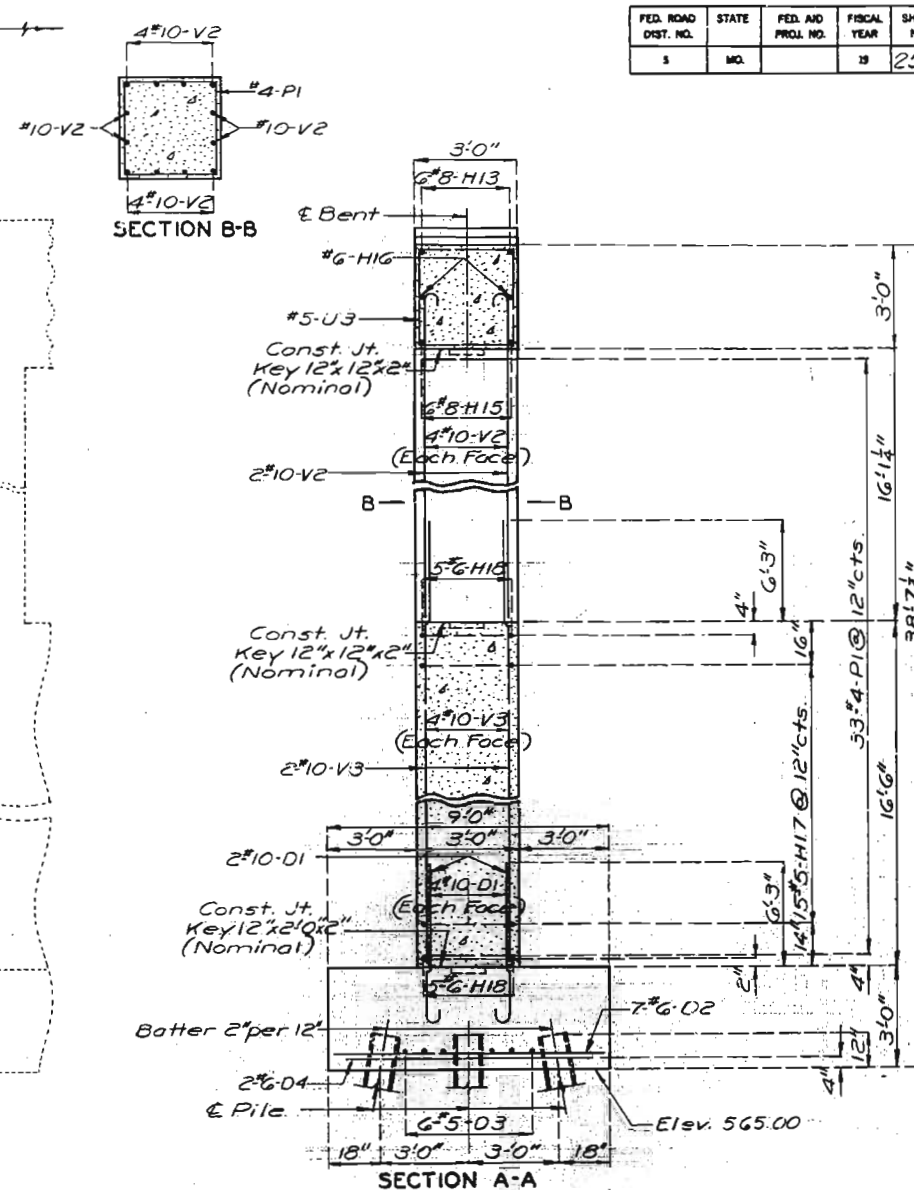
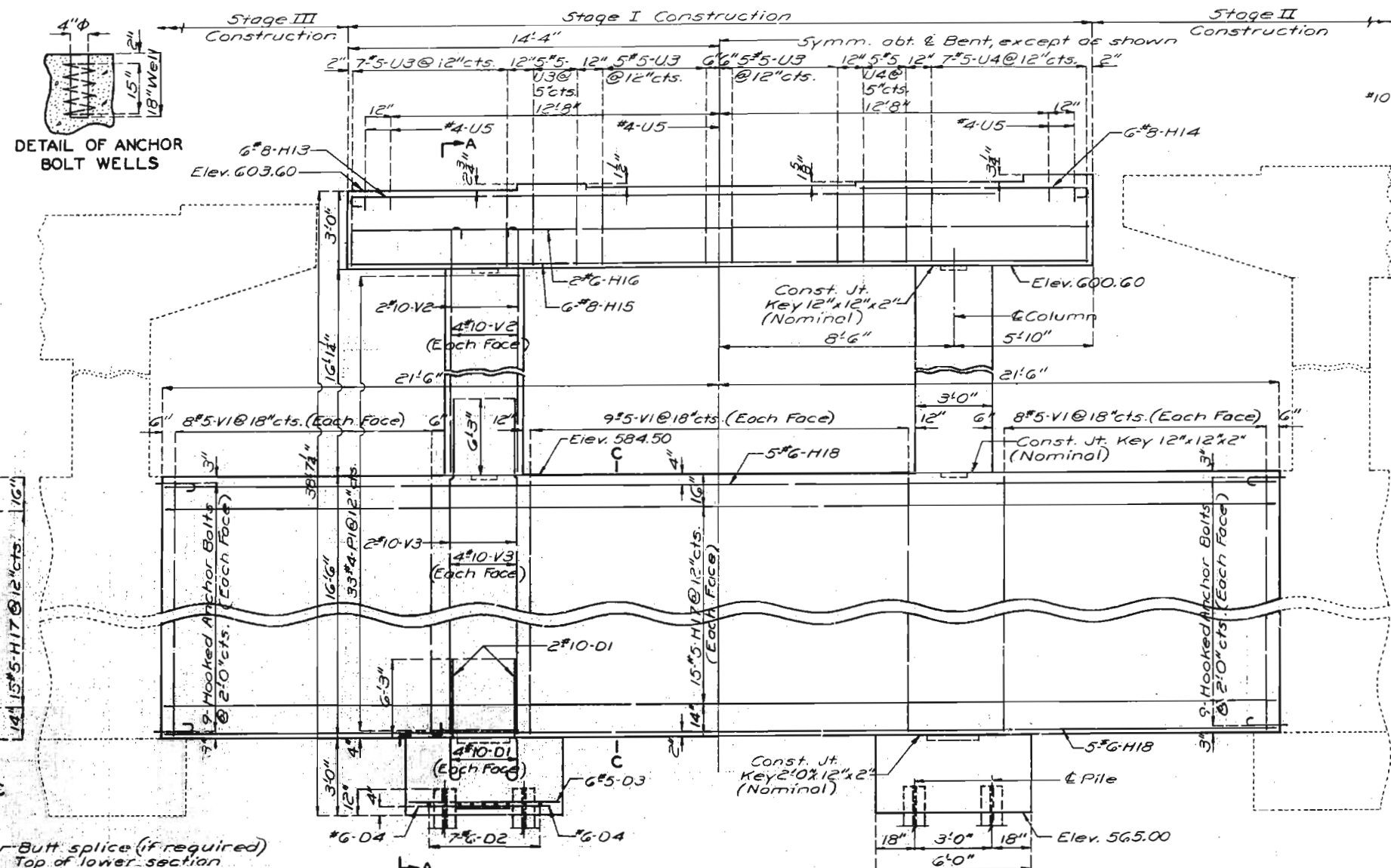


Note: Barrier Curb and Barrier Curb R Bars not shown for clarity.



Note: Work this sheet with sheet No. 3.

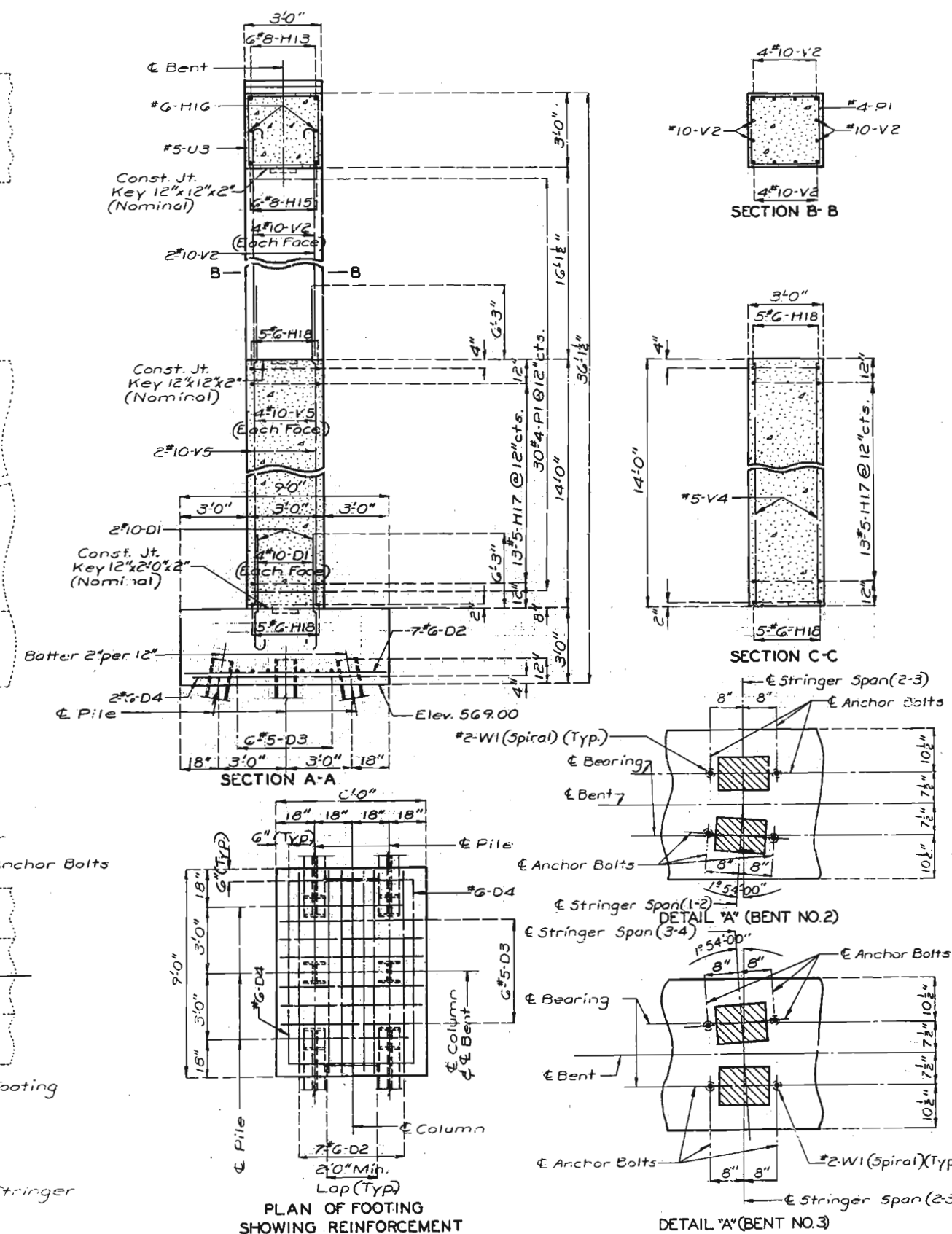
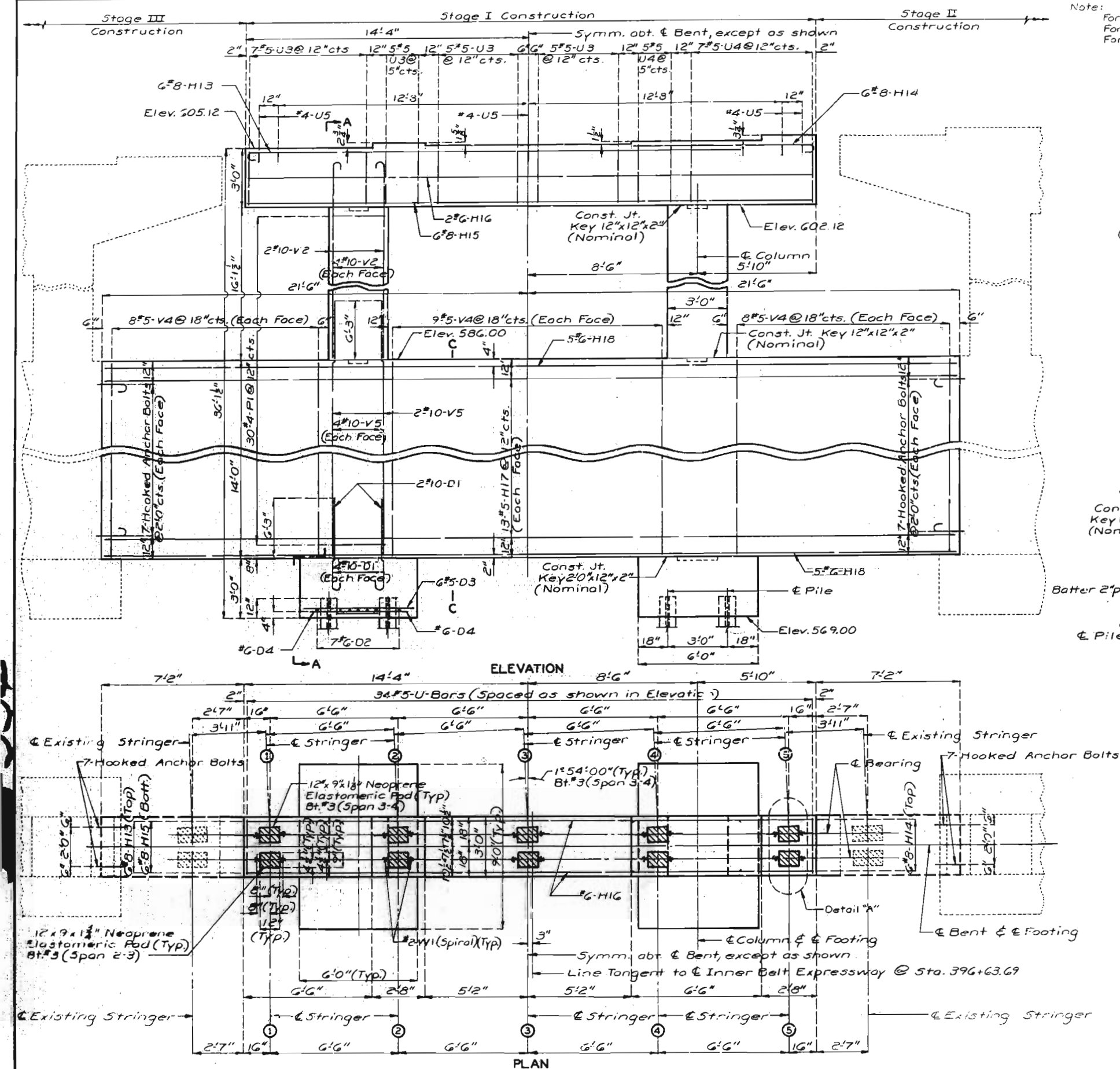
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	259	



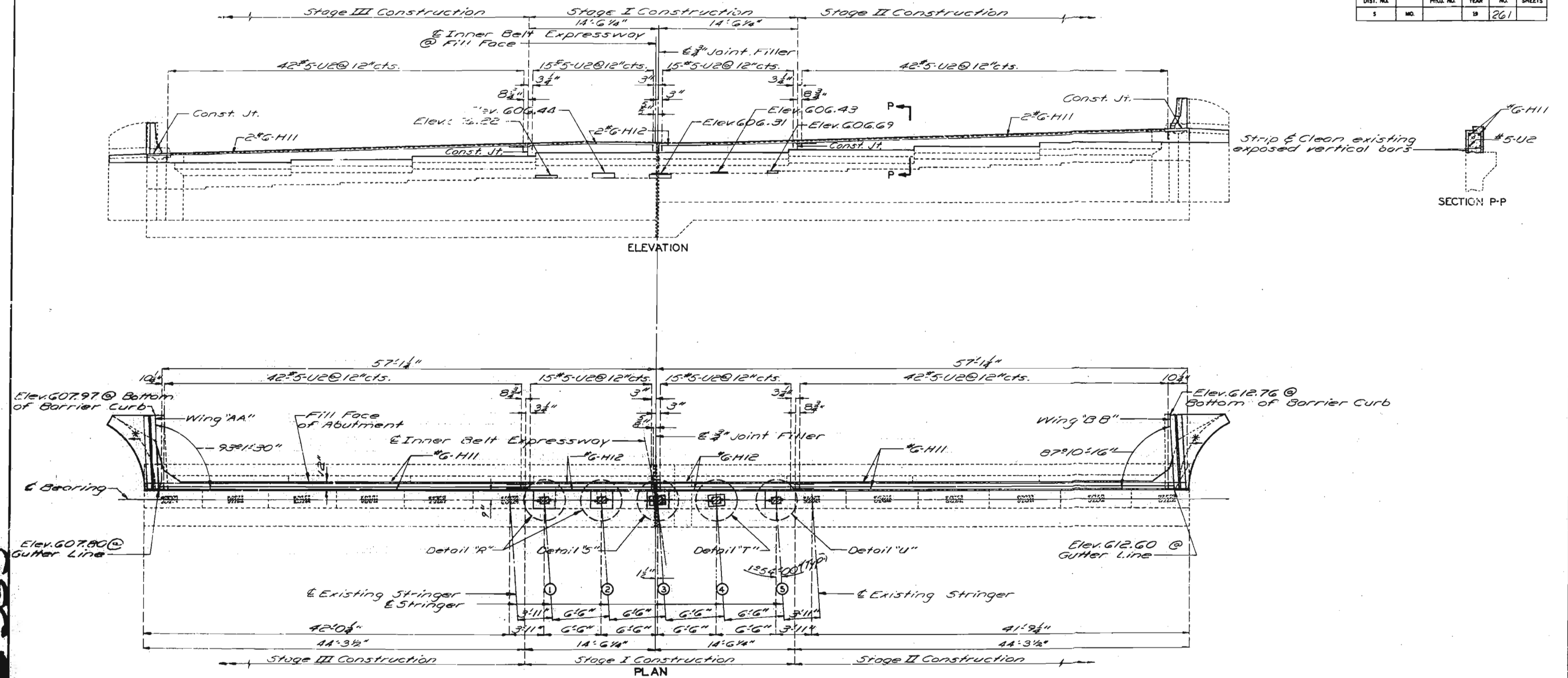
Note: Anchors shall be of the self drilling expansion type, made of casehardened and drawn carburized steel, with self-cutting annular broaching grooves. Cost of furnishing and installing hook anchor bolt assemblies shall be included in price bid for concrete. For Detail 'A' see sheet No. 6.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		28	260	

Note:
For Detail of Hook Anchor Bolt see sheet No.5.
For Detail of Anchor Bolt Wells see sheet No.5.
For Detail of Steel Pile Splice see sheet No.5.

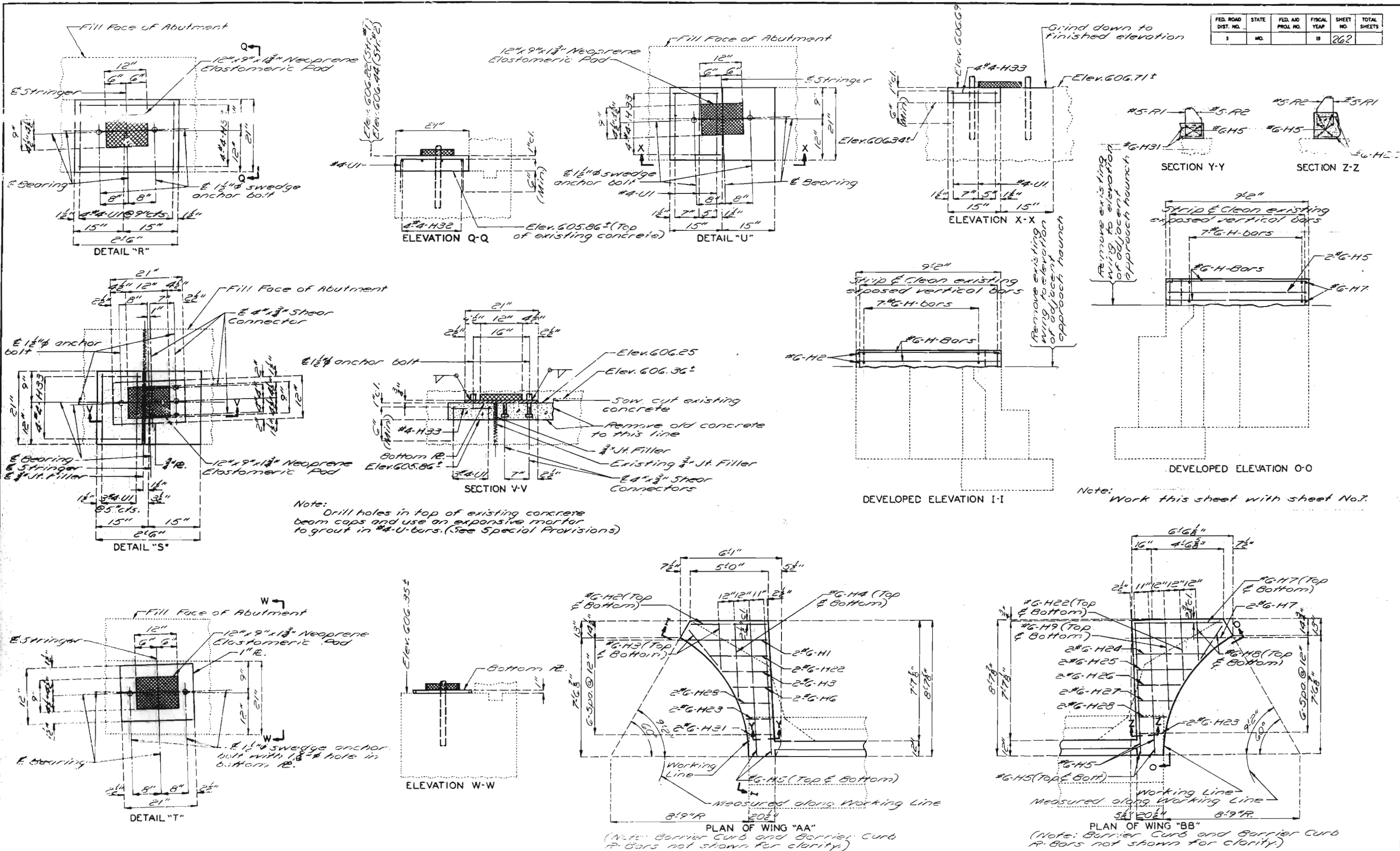


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	261	



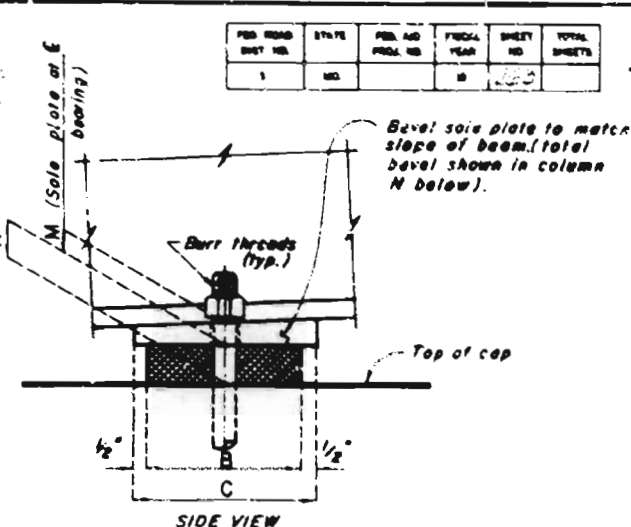
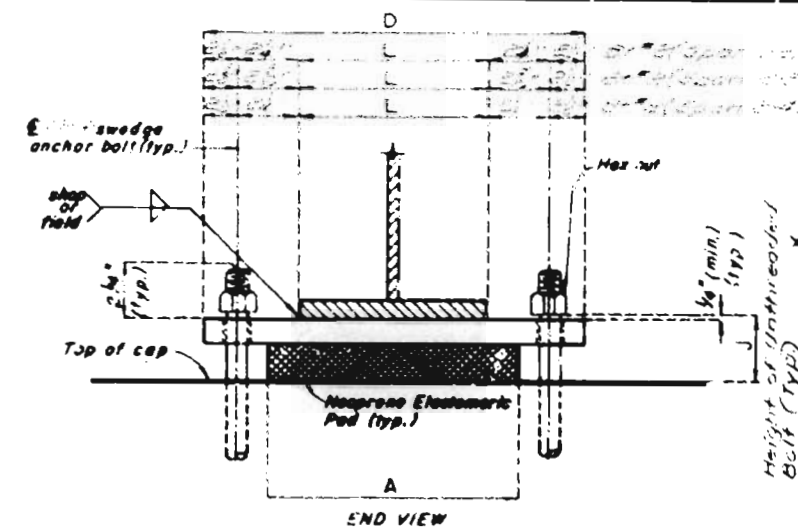
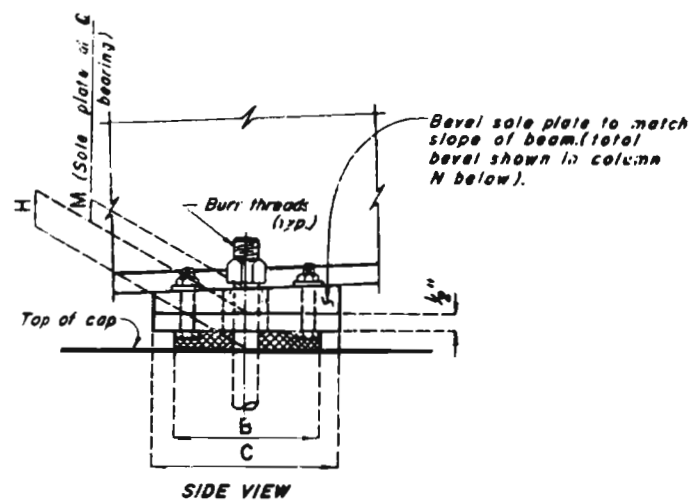
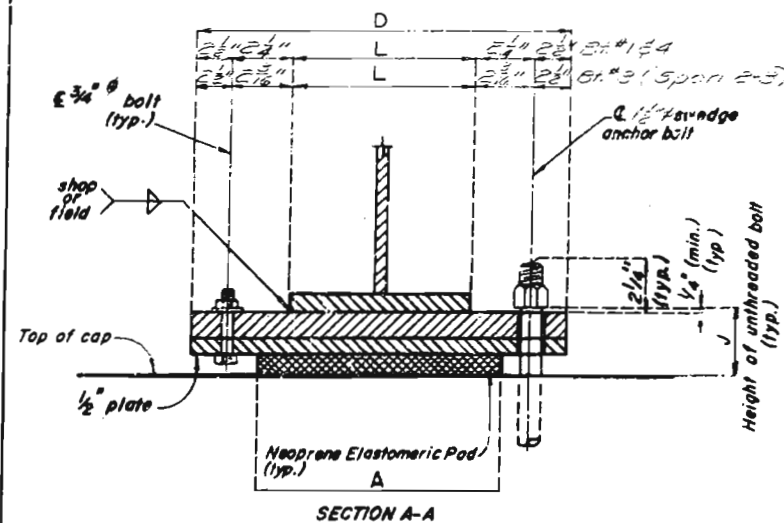
Note: Remove the existing curb, parapet, & backwall above approach notch. See sheet No. 18 for reinforcement of barrier curbs.
 * Slope to drain.
 Work this sheet with sheet No. 8.
 Elevations shown in Elevation View are at bottom of Neoprene Elastomeric Pads.
 Strip & Clean all existing exposed vertical bars in backwall.
 Top of backwall and expansion device for Abutment No. 4 to conform to crown of roadway slab. Backwall above upper construction joint shall not be poured until the superstructure slab has been poured in the adjacent span.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	262	



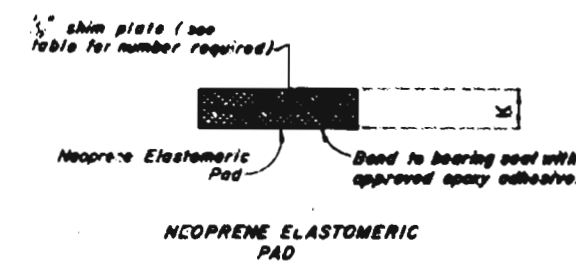
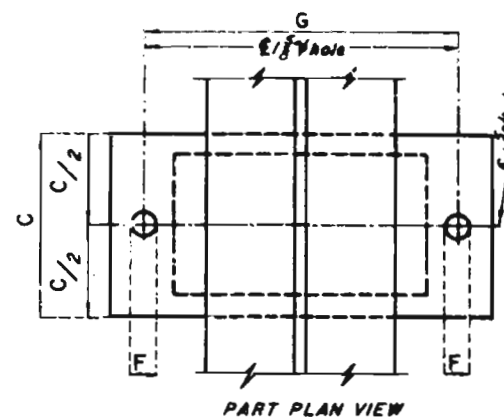
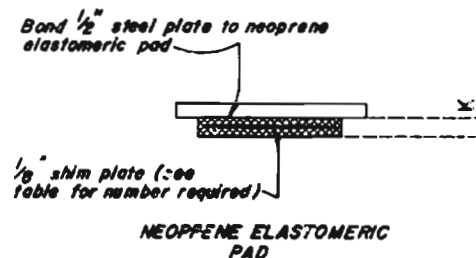
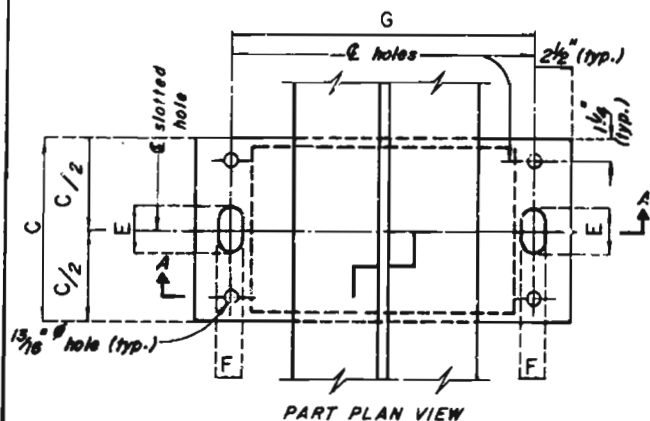
Note: Drill holes in top of existing concrete beam caps and use an expansive mortar to grout in #4-U-bars. (See Special Provisions)

Note: Work this sheet with sheet No. 7.



REV. NO.	DATE	REV. NO.	DATE	SHEET NO.	TOTAL SHEETS
1	NOV 1979	1	NOV 1979	1	1

Note: The location of 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

Note: *15, except Stringer #3 Abuts. #1 & #4 for additional bottom RS, Stringer #3 & #4, Abuts. #1 & #4 see sheets No. 4 & 5.

BENT NO.	A	B	C	D	E	F	G	H	J	K	L	M	N	NUMBER OF SHIM PLATES (1/8")
1 & 4	12"	9"	10"	21"	4 1/4"	1 1/8"	16"	2 1/4"	3 3/8"	1 3/8"	11 1/8"	7"	1"	2
3 (Span 23)	12"	9"	10"	21"	4 1/4"	1 1/8"	16"	2 1/4"	3 3/8"	1 3/8"	11 1/8"	7"	1"	2

NUMBER REQUIRED: 15

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

GENERAL NOTES:

Anchor bolts shall be 1/2 inch swaged bolts and shall extend *into concrete with hexagon nuts.

Weight of anchor bolts for bearings shall be included in weight of fabricated structural steel.

Neoprene elastomeric pads shall be GGDurometers.

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

Structural steel for sole plate & 1/2 inch Bearing R shall be A36. Payment for the sole plate, 1/2 inch Bearing R will be included in the cost of the bearing assembly. See special provisions.

All anchor bolts shall be A-588 Steel.

LAMINATED NEOPRENE BEARINGS

FIXED BEARINGS

BENT NO.	A	B	C	D	F	G	J	K	L	M	N	NUMBER OF SHIM PLATES (1/8")
2 (Span 12)	12"	9"	10"	21"	1 1/8"	16"	2 1/4"	1 3/8"	11 1/8"	7"	1"	1
3 (Span 23)	12"	9"	10"	21"	1 1/8"	16"	2 1/4"	1 3/8"	11 1/8"	7"	1"	1

NUMBER REQUIRED: 15

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

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

Sheet No. 9 of 20.

ST. LOUIS

COUNTY

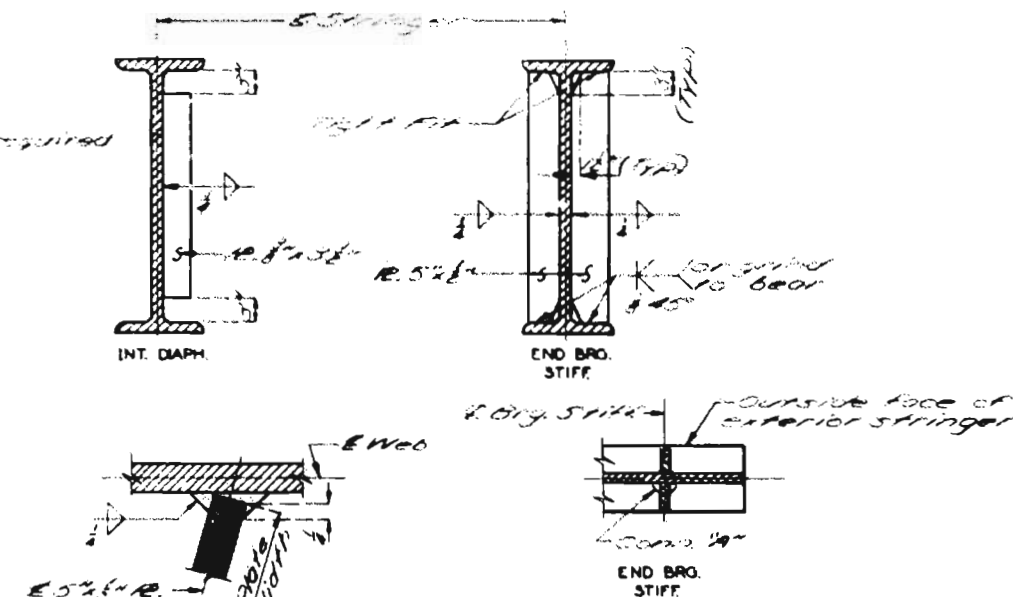
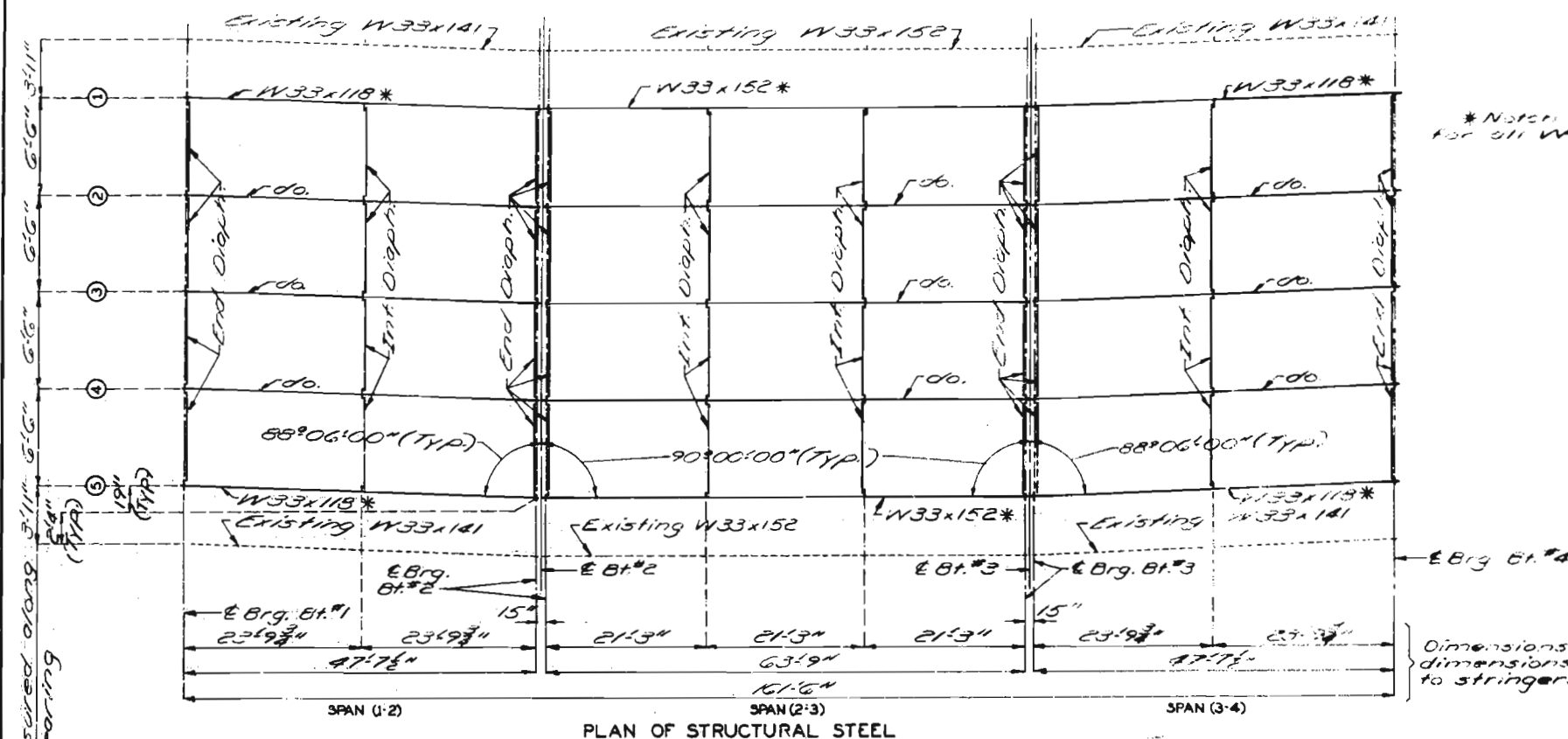
A-2809R

DETAILED JAN. 1980
CHECKED April 1980

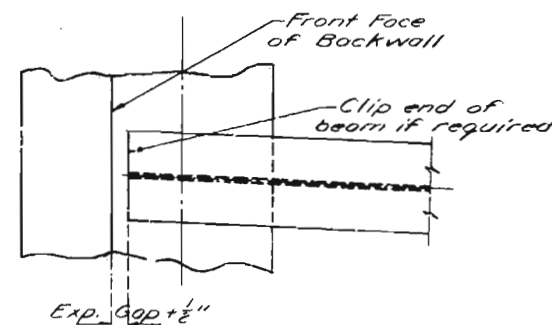
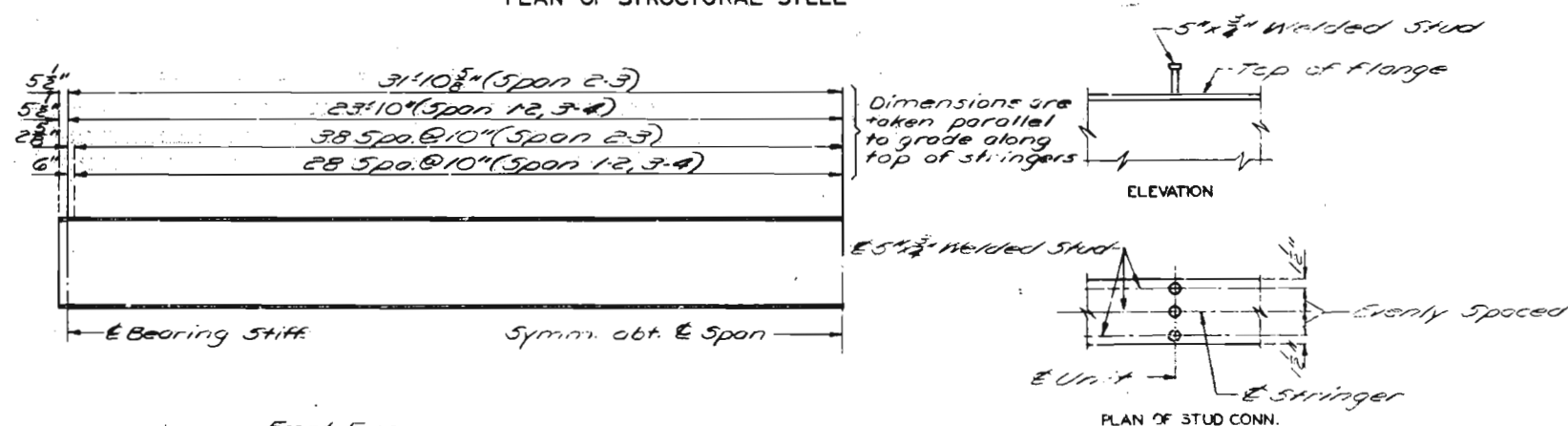
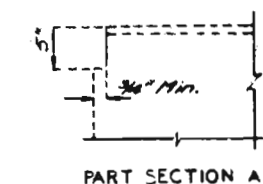
SPS-LNB
MARCH 1979
REVISED
NOV 1979

337

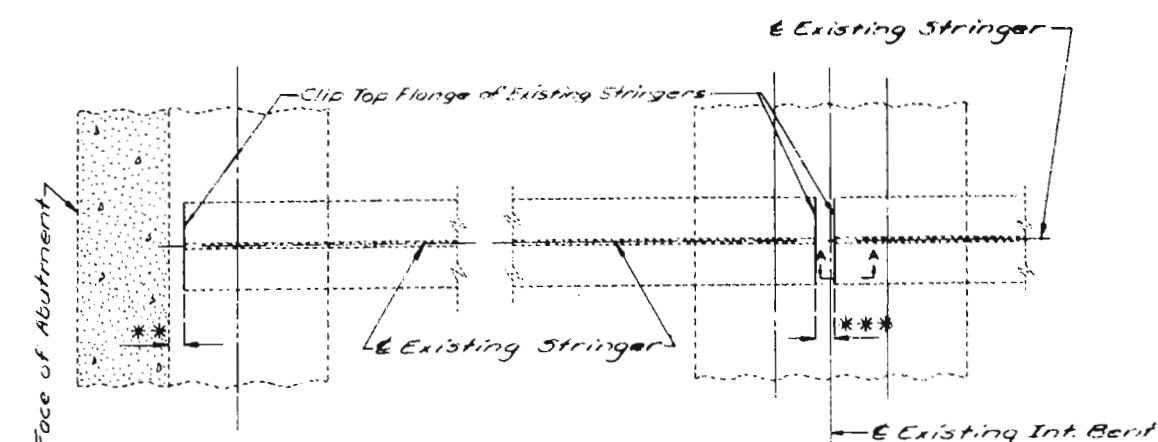
338



WELDING DETAILS



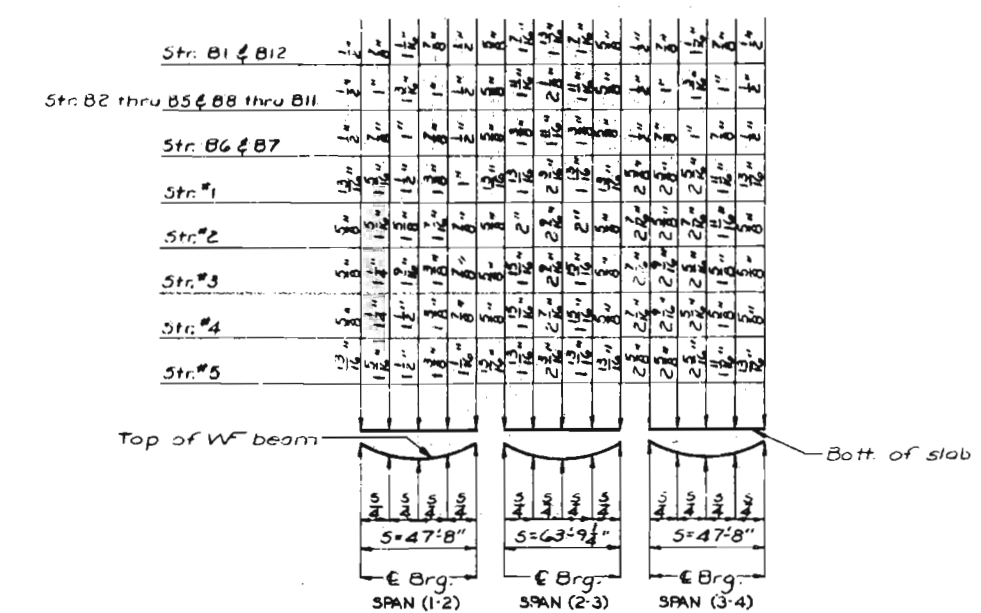
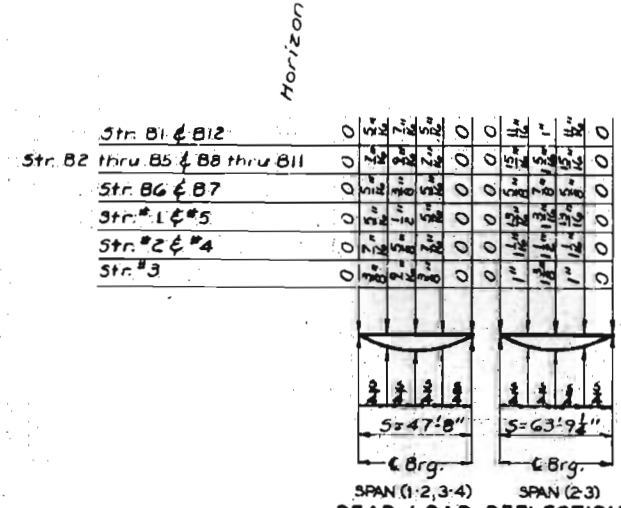
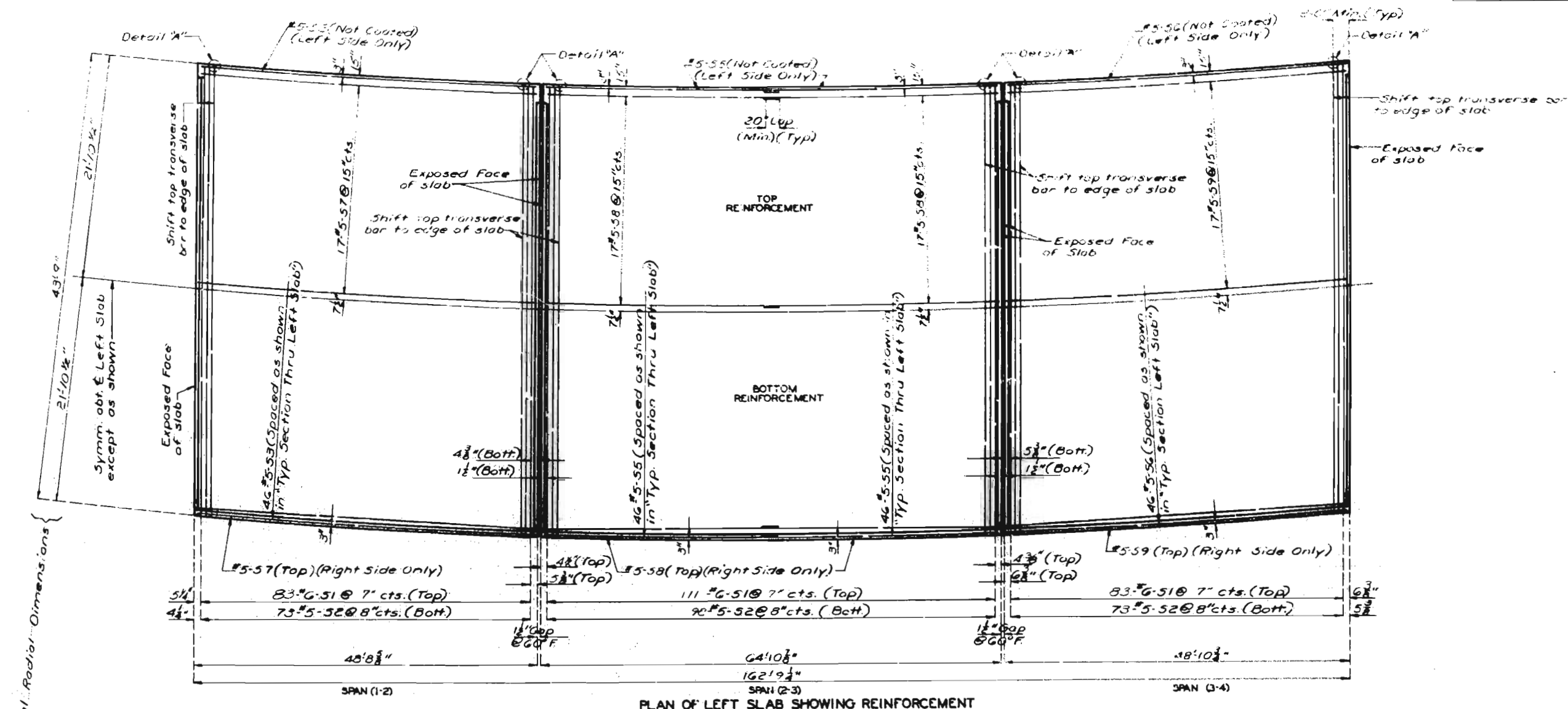
DETAIL OF CLIP AT END BENT NO. 1



- ** Min. dimension = Exp. Gap + $\frac{1}{2}$ "
- *** Min. dimension = Exp. Gap + 1"

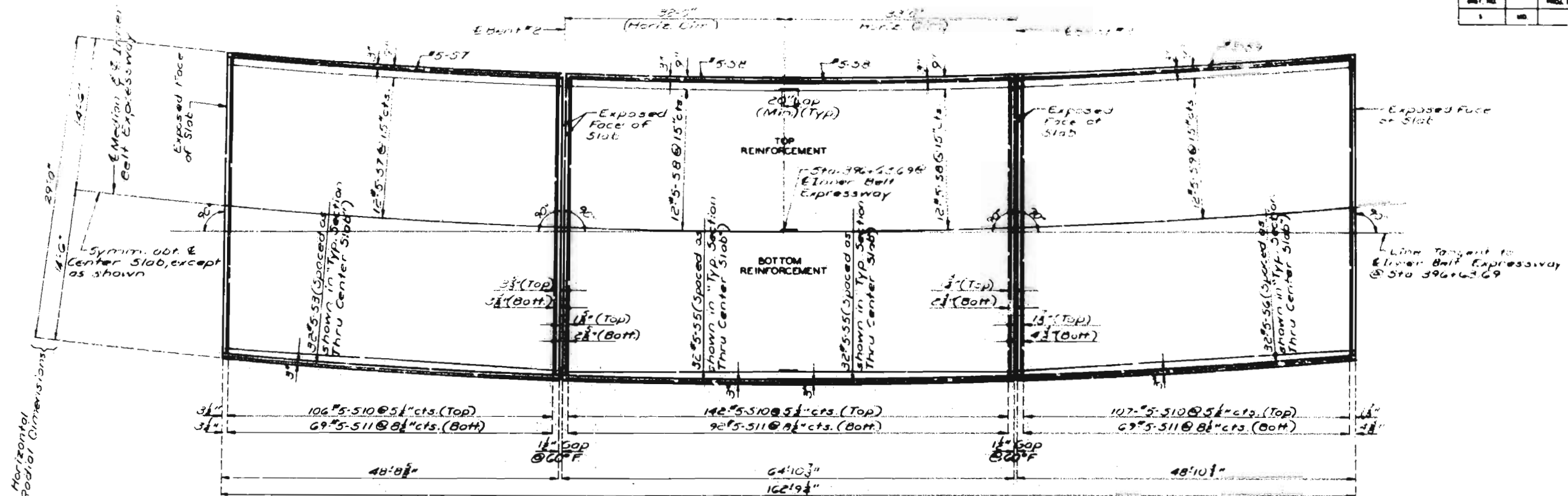
Note: Top flanges of existing stringers shall be clipped to allow for placement of new transverse expansion devices. Clips at Int. Bent's shall be made in a manner to allow for a straight line alignment of expansion devices between the different stage constructions.

DETAILS FOR CLIPPING TOP FLANGE OF EXISTING STRINGERS
STAGE II & III CONSTRUCTION

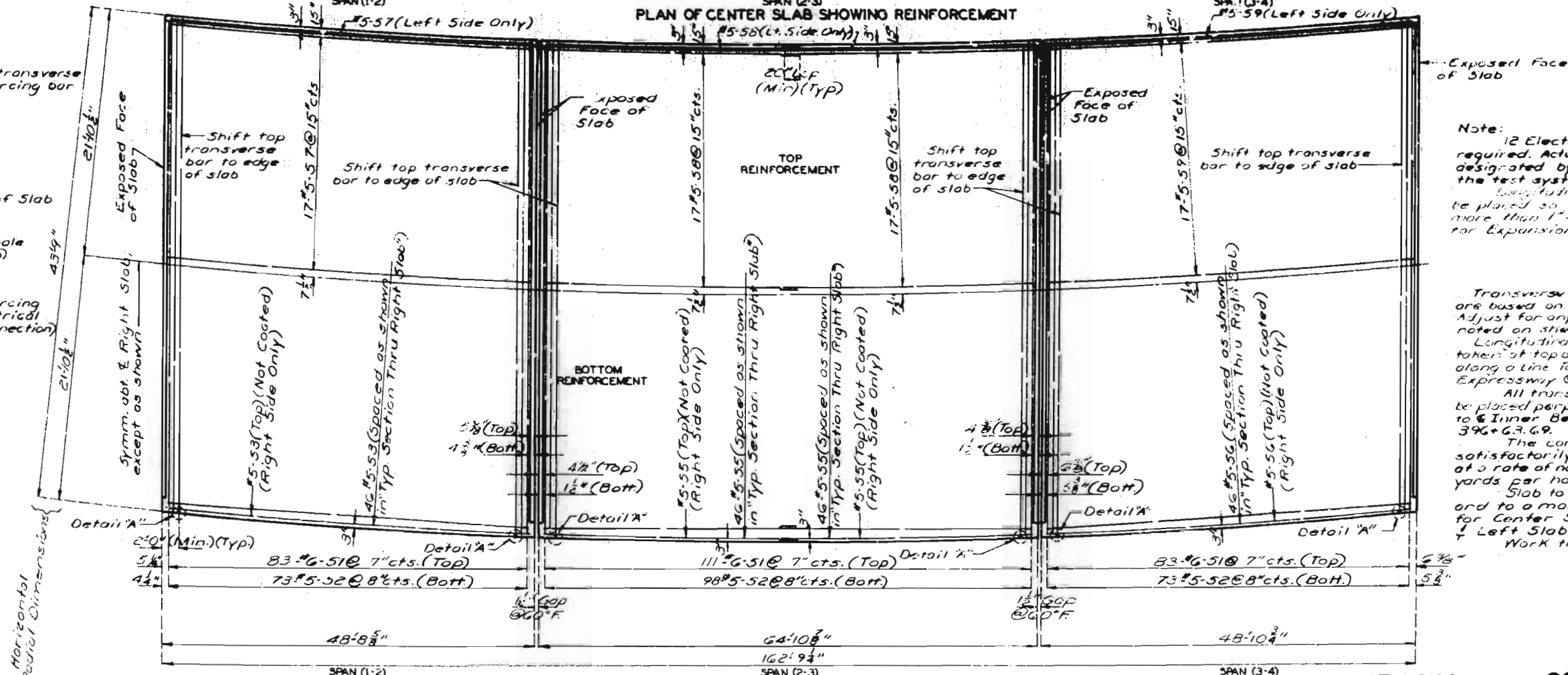
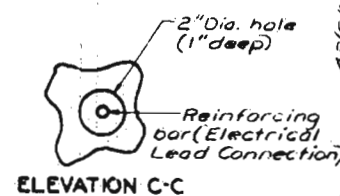
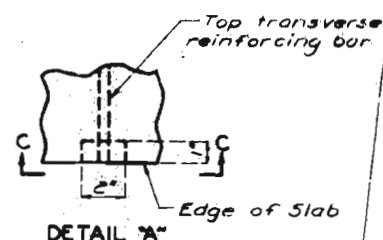


Note: Work this sheet with sheet No. 12.

PUB. ROAD DIST. NO.	STATE	PUB. AD. ROAD NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MO.		8	200	



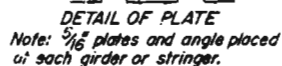
PLAN OF CENTER SLAB SHOWING REINFORCEMENT



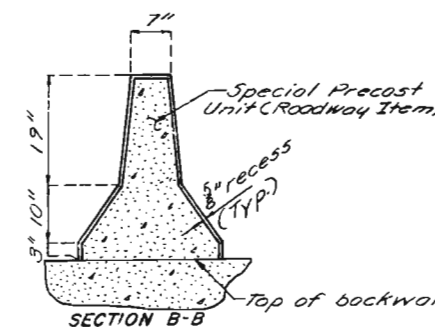
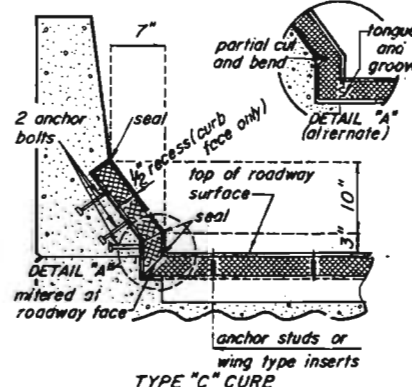
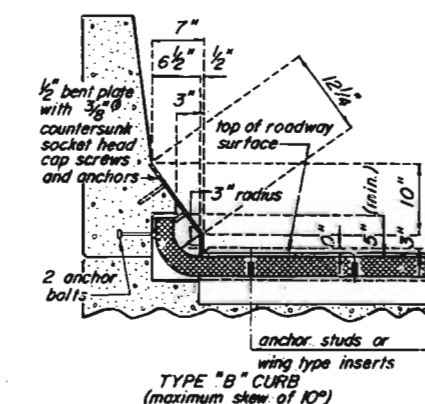
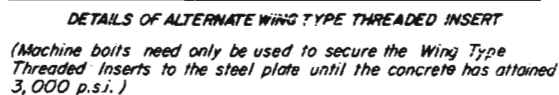
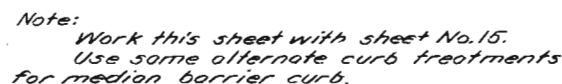
PLAN OF RIGHT SLAB SHOWING REINFORCEMENT

Note:
12 Electrical Lead Connections required. Actual location to be designated by the Engineer as part of the test system.
Longitudinal reinforcing steel shall be placed so that the ends shall not be more than 1" from vertical leg of angle for Expansion Device.

Transverse and longitudinal dimensions are based on 12" Expansion Gap at 60°F. Adjust for any change in Expansion Gaps noted on sheet No. 11 of 15.
Longitudinal dimensions shown are taken at top of slab, parallel to grade and along a line tangent to Inner Belt Expressway @ Sta. 396+63.69, except as shown.
All transverse reinforcement shall be placed perpendicular to Line Tangent to Inner Belt Expressway at Station 396+63.69.
The contractor shall pour and satisfactorily finish the roadway slab at a rate of not less than 25 cubic yards per hour.
Slab to be built parallel to grade and to a maximum thickness of 8" for Center Slab and 8 1/2" for Right & Left Slab.
Work this sheet with sheet No. 11.

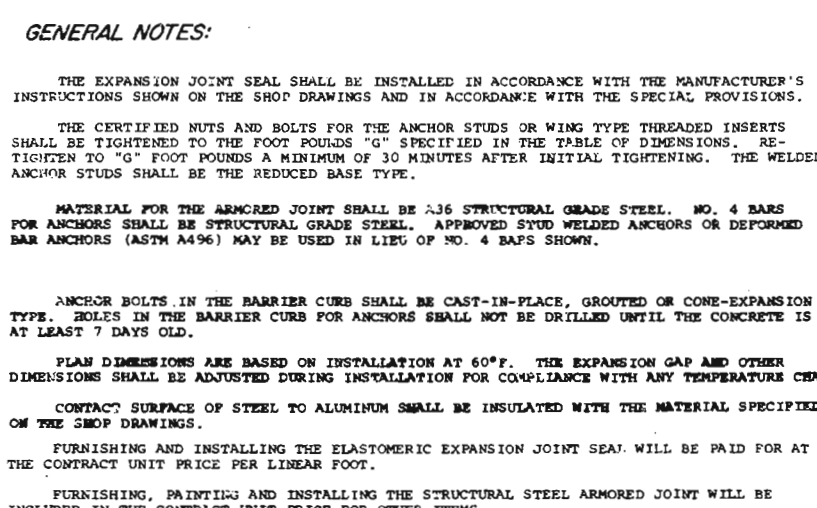


NOTE: All dimensions are at right angles.
Expansion gap and dimension "A" shall be increased $\frac{1}{8}$ " for each 10° fall in temperature and decreased $\frac{1}{8}$ " for each 10° rise in temperature.



FURNISHING, PAINTING AND INSTALLING THE STRUCTURAL STEEL ARMORED JOINT WILL BE INCLUDED IN THE CONTRACT UNIT PRICE FOR OTHER ITEMS.

A-2809 R



This technical drawing illustrates the cross-sectional reinforcement of a bridge deck. The main components and dimensions are as follows:

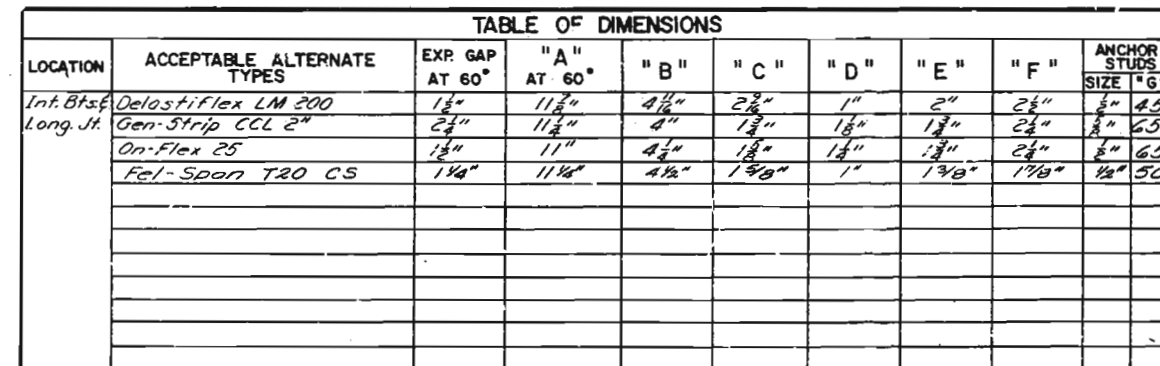
- Top Deck Section:** Shows two layers of reinforcement plates (PL) separated by a gap. The top layer has a thickness of $\frac{1}{2}$ " PL. The bottom layer also has a thickness of $\frac{1}{2}$ " PL. The gap between them is labeled "Gap at 60°".
- Reinforcement Plates (PL):** These plates are placed full roadway width. They may be one piece or made of multiple pieces using legs of equal or unequal angles.
- Field Welded Anchor Studs:** These studs are used to connect the reinforcement plates. They are spaced alternately at approximately 9 inches center-to-center.
- Sealing:** The joint between the plates is sealed with an approved sealant.
- Holes:** There are $\frac{3}{4}$ " holes in the plates, located at approximately 12 inches center-to-center.
- Dimensions:** Various dimensions are specified throughout the drawing, including plate thicknesses ($\frac{1}{2}$ ", $\frac{1}{4}$ "), hole sizes ($\frac{3}{4}$ "), and spacings (e.g., 12" cts.).
- Labels:** Key labels include "maximum height above plate", "field welded anchor stud or alternate wing type threaded insert", "seal with an approved sealant (typ.)", "top of roadway surface (typ.)", and "#4 x 6" long welded anchor (spaced alternately at abt. 9' cts.) (typ.)".

INCLUDED IN THE CONTRACT UNIT PRICE FOR OTHER ITEMS.

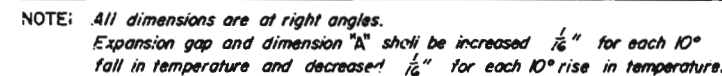
SECTION A-A

SECTION B-B

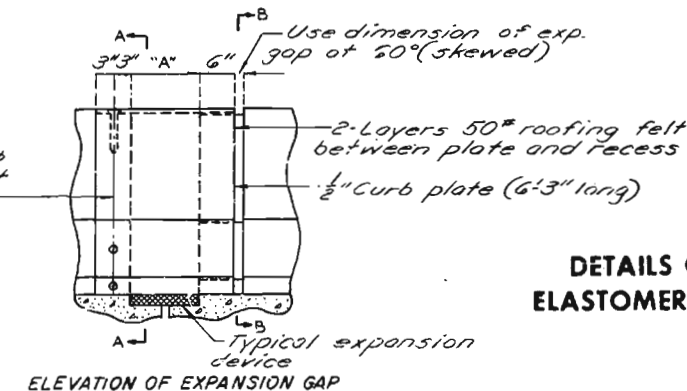
SECTION B-B



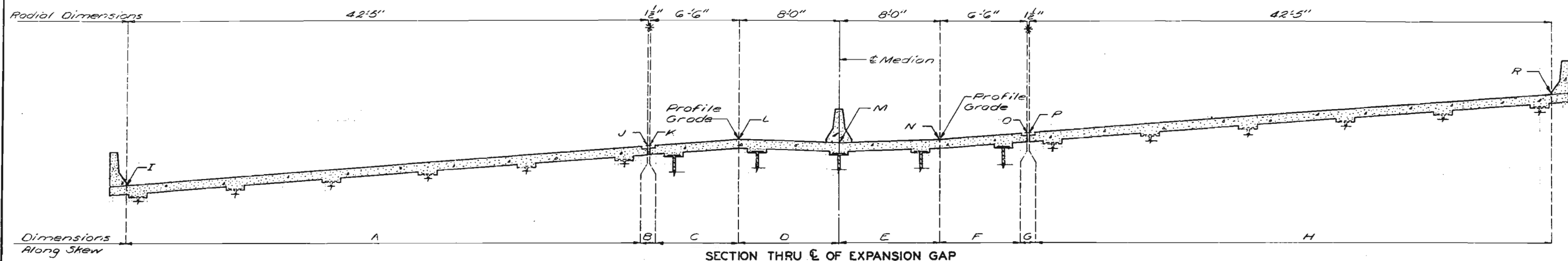
PART PLAN



4 Anchors for $\frac{3}{8}" \phi$
countersunk socket
head cap screws—

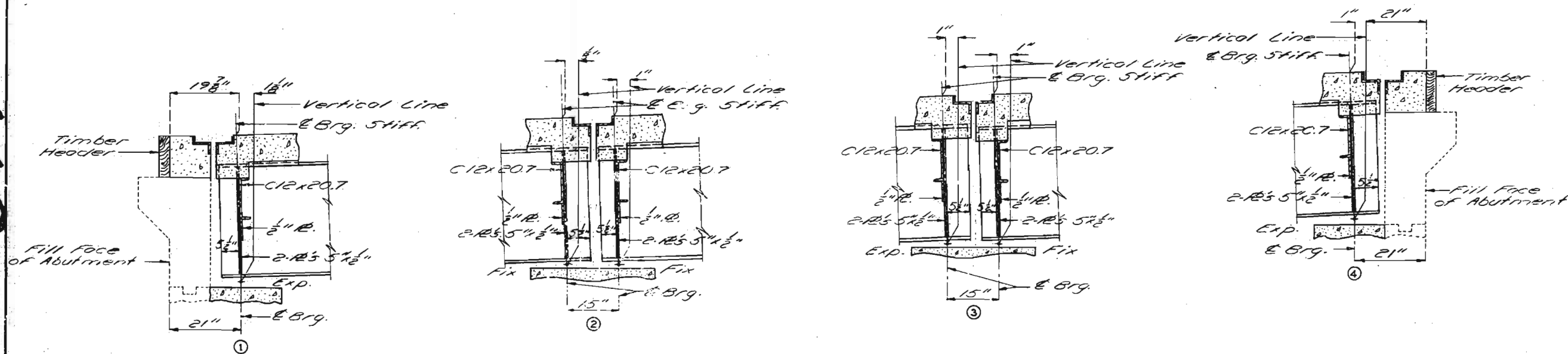


DETAILS OF ELASTOMERIC EXPANSION JOINT SEAL AT BENTS NO.2&3

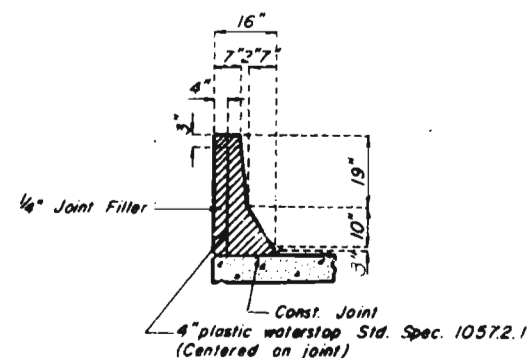


Note: *Dimensions are based on 1 1/2" Expansion Gap @ 60°F. Adjust for any change in Expansion Gap as noted on sheet No.11 & No.15.

BE. NT NO.	HORIZONTAL DIMENSION								GRADE ELEVATION								
	A	B*	C	D	E	F	G*	H	I	J	K	L	M	N	O	P	R
1	42'-5 ⁵ / ₈ "	1 ¹ / ₂ "	6'-6 ¹ / ₈ "	8'-0 ¹ / ₈ "	8'-0 ¹ / ₈ "	6'-6 ¹ / ₈ "	1 ¹ / ₂ "	42'-5 ¹ / ₂ "	Elev. 603.62	Elev. 605.80	Elev. 605.80	Elev. 606.14	Elev. 606.00	Elev. 606.17	Elev. 606.51	Elev. 606.51	Elev. 608.69
2	42'-5 ⁵ / ₈ "	1 ¹ / ₂ "	6'-6"	8'-0"	8'-0"	6'-6"	1 ¹ / ₂ "	42'-5 ⁵ / ₈ "	Elev. 605.07	Elev. 607.20	Elev. 607.21	Elev. 607.54	Elev. 607.39	Elev. 607.55	Elev. 607.89	Elev. 607.89	Elev. 610.03
3	42'-5 ¹ / ₈ "	1 ¹ / ₂ "	6'-6"	8'-0"	8'-0"	6'-6"	1 ¹ / ₂ "	42'-5 ⁵ / ₈ "	Elev. 606.73	Elev. 608.83	Elev. 608.84	Elev. 609.16	Elev. 609.00	Elev. 609.16	Elev. 609.48	Elev. 609.49	Elev. 611.59
4	42'-5 ⁵ / ₈ "	1 ¹ / ₂ "	6'-6 ¹ / ₈ "	8'-0 ¹ / ₈ "	8'-0 ¹ / ₈ "	6'-6 ¹ / ₈ "	1 ¹ / ₂ "	42'-5 ¹ / ₂ "	Elev. 607.80	Elev. 609.87	Elev. 609.88	Elev. 610.20	Elev. 610.04	Elev. 610.19	Elev. 610.51	Elev. 610.52	Elev. 612.60

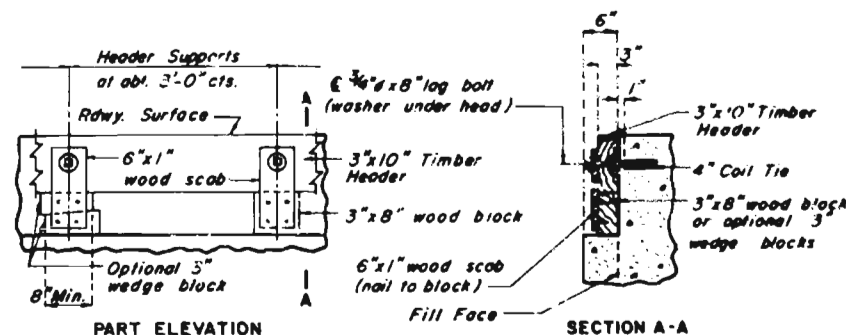


REV.	BY	DATE	REV.	BY	DATE
1			2		



Note: Plastic waterstop shall be placed in all safety barrier curb filled joints.
Cost of plastic waterstop complete in place to be included in unit price bid for concrete.

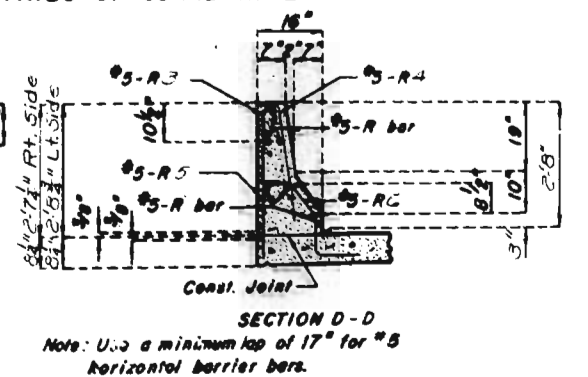
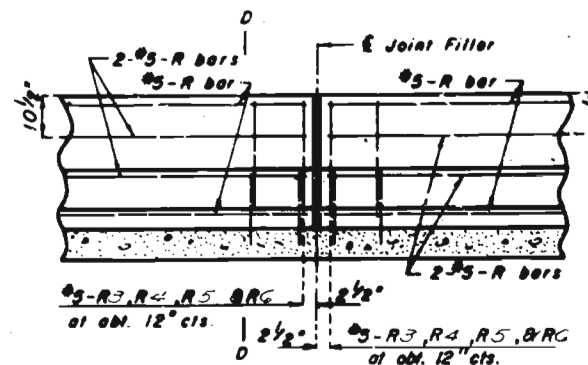
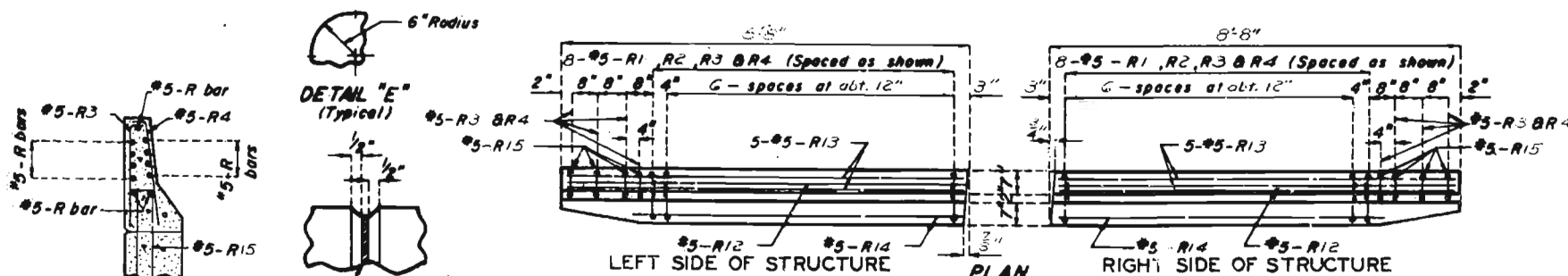
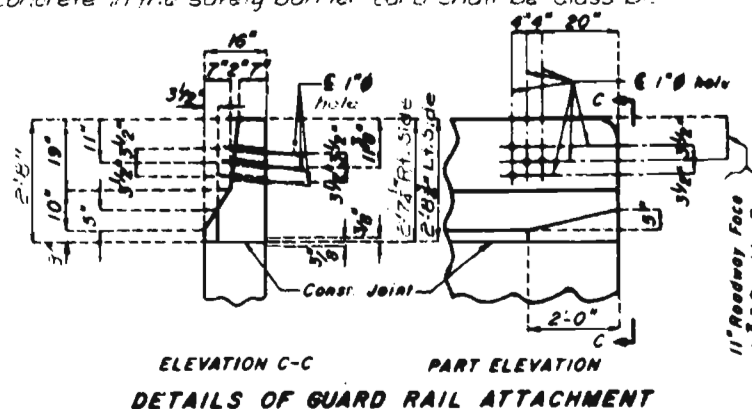
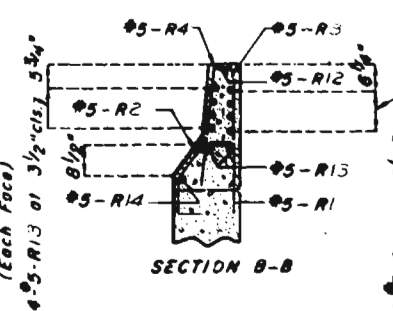
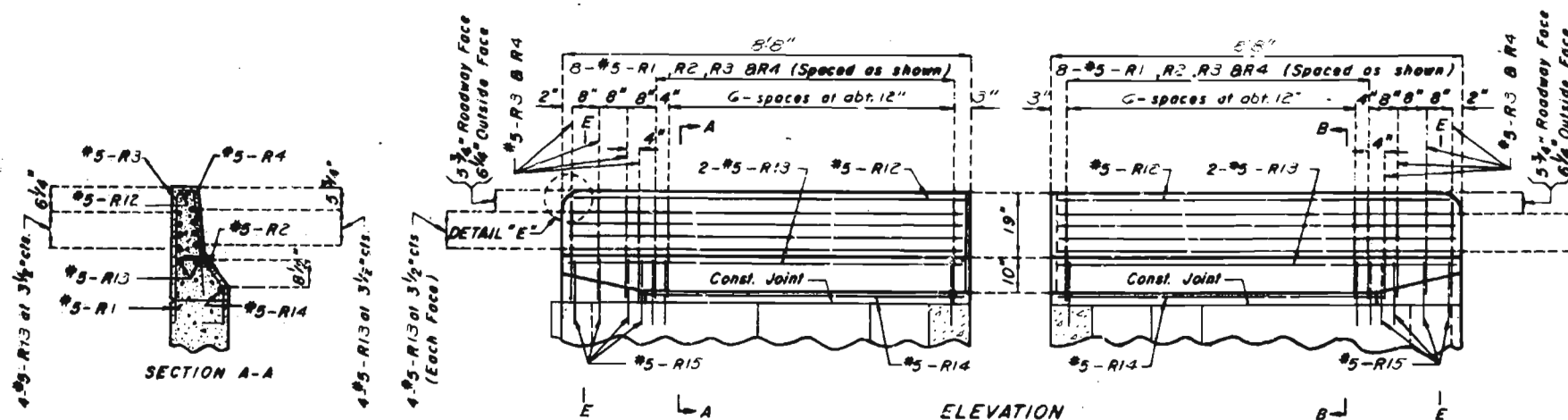
DETAILS OF PLASTIC WATERSTOP



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

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 1-2" RADIUS OR 3/8" BEVEL UNLESS OTHERWISE NOTED.
Concrete in the safety barrier curb shall be Class B1.



DETAILS OF BARRIER CURB AT END BENTS

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

FILLED JOINT DETAIL

DETAILS OF PLASTIC WATERSTOP

PART SECTION NEAR LEFT BARRIER CURB

ST. LOUIS

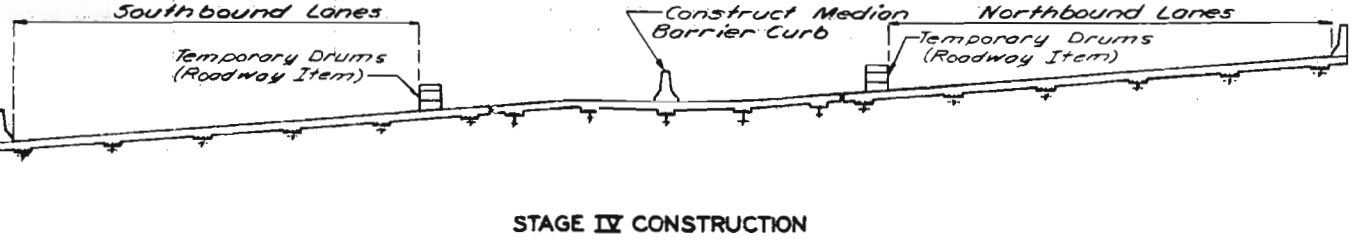
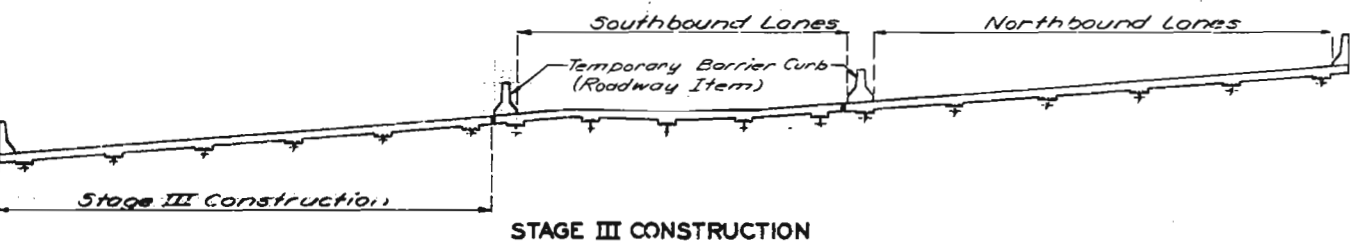
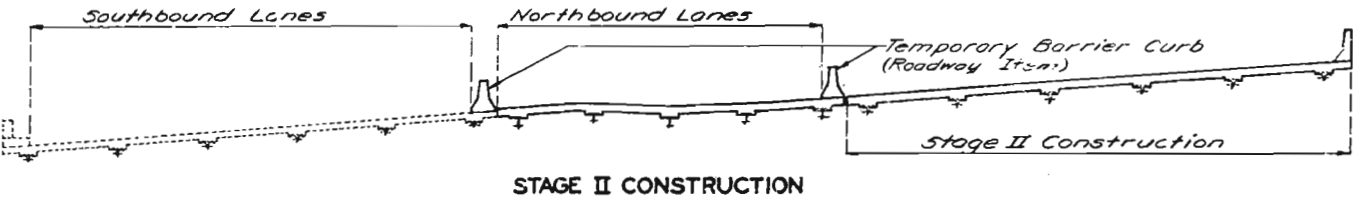
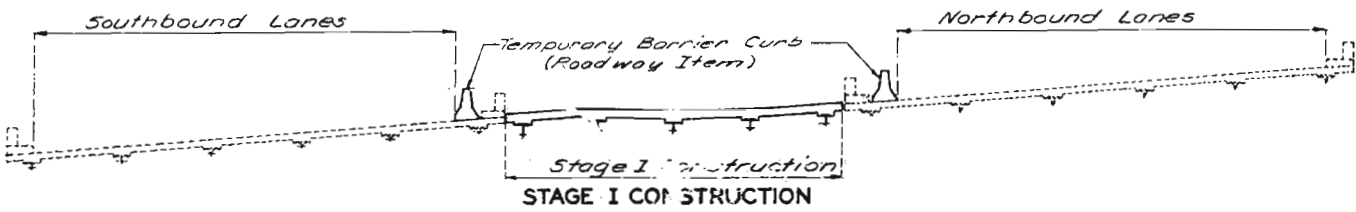
COUNTY

A-2809R

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REVISED NOV. 1979
AUG. 1978
CHECKED April 1980

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	273	



COMPLETE BILL OF REINFORCING STEEL

NO. REQD.	MARK NO.	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS										NOMINAL LENGTH FT.IN.	ACTUAL LENGTH FT.IN.	WEIGHT LBS.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
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TWO ADDITIONAL SI & SIO BARS ARE INCLUDED IN
BAR BILL FOR TESTING.



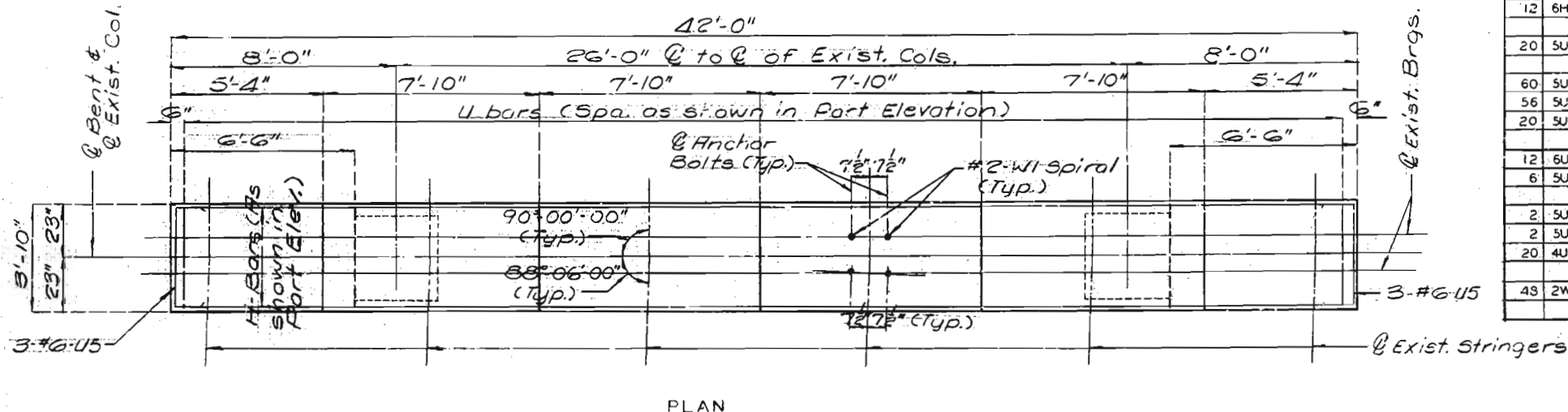
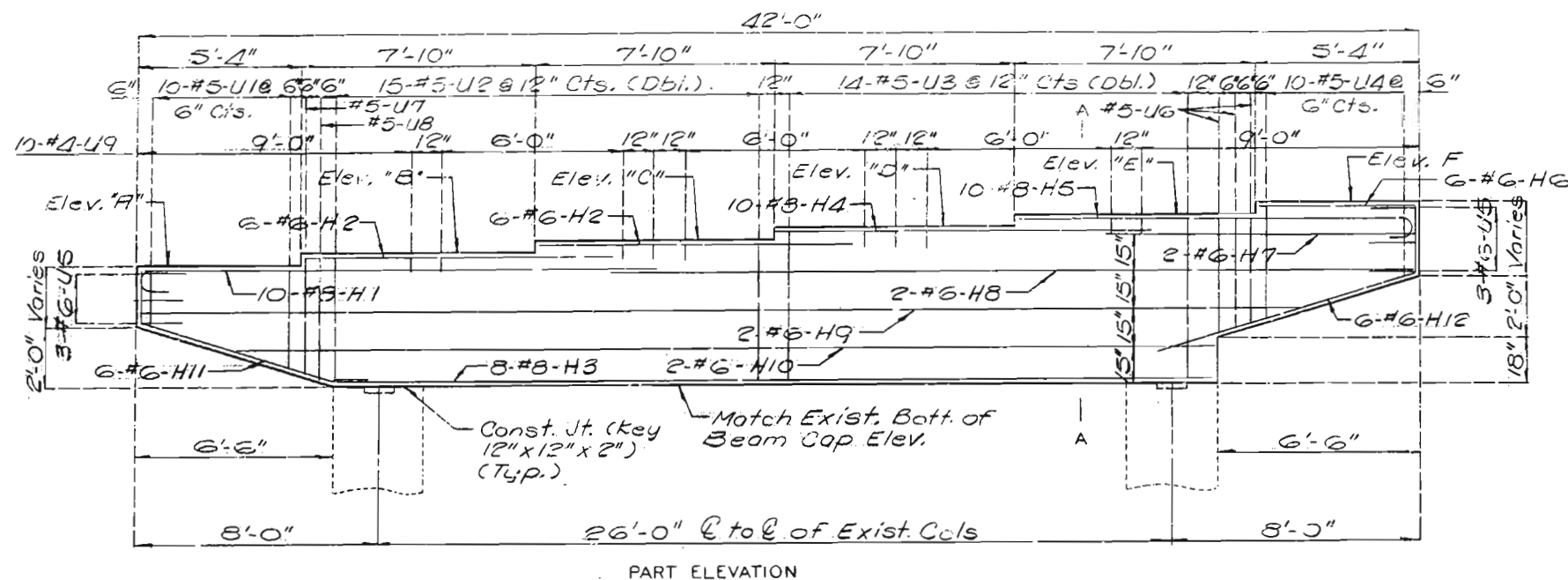
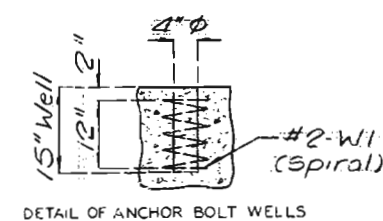
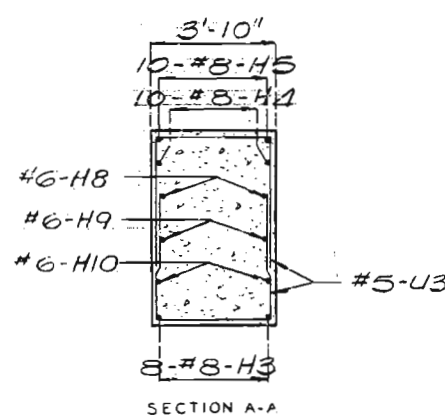


TABLE OF ELEVATIONS						
BENT	ELEV. A	ELEV. B	ELEV. C	ELEV. D	ELEV. E	ELEV. F
2 S.B.L.	601.21	601.60	602.00	602.39	602.79	603.18
2 N.B.L.	604.09	604.49	604.88	605.28	605.67	606.07

Note:
If necessary, the contractor shall adjust elevations shown to correspond to actual field elevations on beam cap.

ESTIMATED QUANTITIES		
Class B Concrete	Cu.Yd.	53.0
Reinforcing Steel (Grade 60)	Lbs.	7350

Note: 48 new 1/4" # swedged anchor bolts shall be furnished and shall extend 15" into concrete with hexagon nuts.
Cost of anchor bolts shall be included in Price Bid For Other Items.



Note:
Outline of old work is indicated by light dashed lines. Heavy lines indicate new work.
Bars bonded in old concrete not removed shall be cleanly stripped and embedded into new concrete where possible. If length is available, old bars shall extend into new concrete of least 40 diameters for smooth bars and 30 diameter for deformed bars.
All reinforcing bars in tops of substructure beams or caps shall be spaced to clear anchor bolts for bearings by at least 1/2".

COMPLETE BILL OF REINFORCING STEEL																									
NO. REQD.	MARK NO.	LOCATION	EPOXY	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.
		INT. BT. 2																							
		S.B.L. & N.B.L.																							
20	8H1	BEAM		17	X			18	2.000									19	1	1019					
24	6H2	BEAM		20	X			10	5.000									10	5	375					
16	8H3	BEAM		20	X			26	9.000									28	9	1228					
20	8H4	BEAM		20	X			12	4.000									12	4	659					
20	8H5	BEAM		17	X			12	11.000									13	10	739					
12	6H6	BEAM		20	X			5	1.000									5	1	92					
4	6H7	BEAM		20	X			10	2.000									10	2	61					
4	6H8	BEAM		20	X			26	2.000									26	2	157					
4	6H9	BEAM		20	X			38	2.000									38	2	229					
4	6H10	BEAM		20	X			32	6.000									32	6	195					
12	6H11	BEAM		25	S	X		21.000	6	8.000	12.000				23.500	6	4.500	9	5	9	4	168			
12	6H12	BEAM		23	S	X		2	2.750	8	8.000				2	1.500	7.875	10	11	10	10	195			
20	5U1	BEAM		13	S	X	V	2	3	7.000	22	750	3	7.000	22	750		11	11	7					
		INCR. = 3.500 IN.						3	7.000	3	3.000	3	7.000	3	3.000			14	7	14	3	269			
60	5U2	BEAM		10	S	X			2	11.000	3	7.000						9	5	9	3	579			
56	5U3	BEAM		10	S	X			3	6.000	3	7.000						10	7	10	5	608			
20	5U4	BEAM		13	S	X	V	2	3	7.000	2	4.500	3	7.000	2	4.500		12	10	12	6				
		INCR. = 3.625 IN.						3	7.000	3	9.000	3	7.000	3	9.000			15	7	15	3	239			
12	6U5	BEAM		10	S	X				18.000	3	5.750						6	6	6	2	111			
6	5U6	BEAM		13	S	X	V	2	3	7.000	3	6.250	3	7.000	3	6.250		15	2	14	10				
		INCR. = 3.500 IN.						3	7.000	3	10.000	3	7.000	3	10.000			15	9	15	5	95			
2	5U7	BEAM		13	S	X		3	7.000	3	10.000	3	7.000	3	10.000			15	9	15	5	32			
2	5U8	BEAM		13	S	X		3	7.000	4	0.000	3	7.000	4	0.000			16	1	15	9	33			
20	4U9	BEAM		10	S	X			6.000	3	7.000							4	7	4	5	59			
48	2W1	BEAM		22	X			12.000	9	125								19	9	19	9	158			

DETAILS OF REPLACEMENT BEAM (BT. NO. 2 - N.B.L. & S.B.L.)

BY Change Order
ST. LOUIS COUNTY

A-2809R

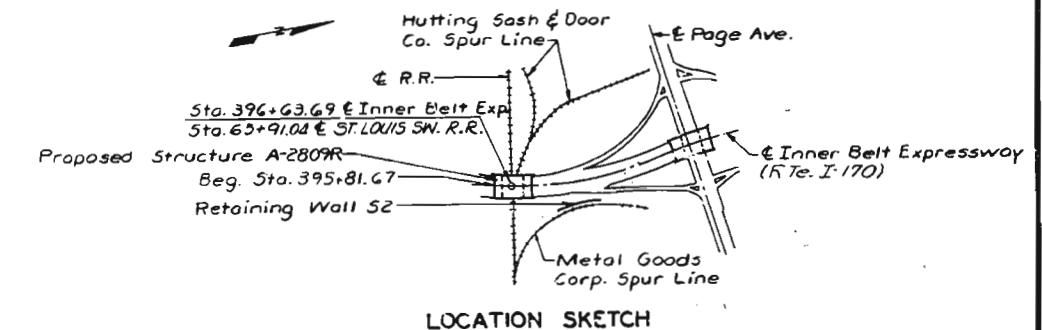
020

FINAL PLANS

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

Bars bonded in old concrete not removed were cleanly stripped and embedded into new concrete where possible. If length was available, old bars were extended into new concrete at least 40 diameters for smooth bars and 30 diameters for deformed bars.

Contractor verified all dimensions in field before ordering new steel.



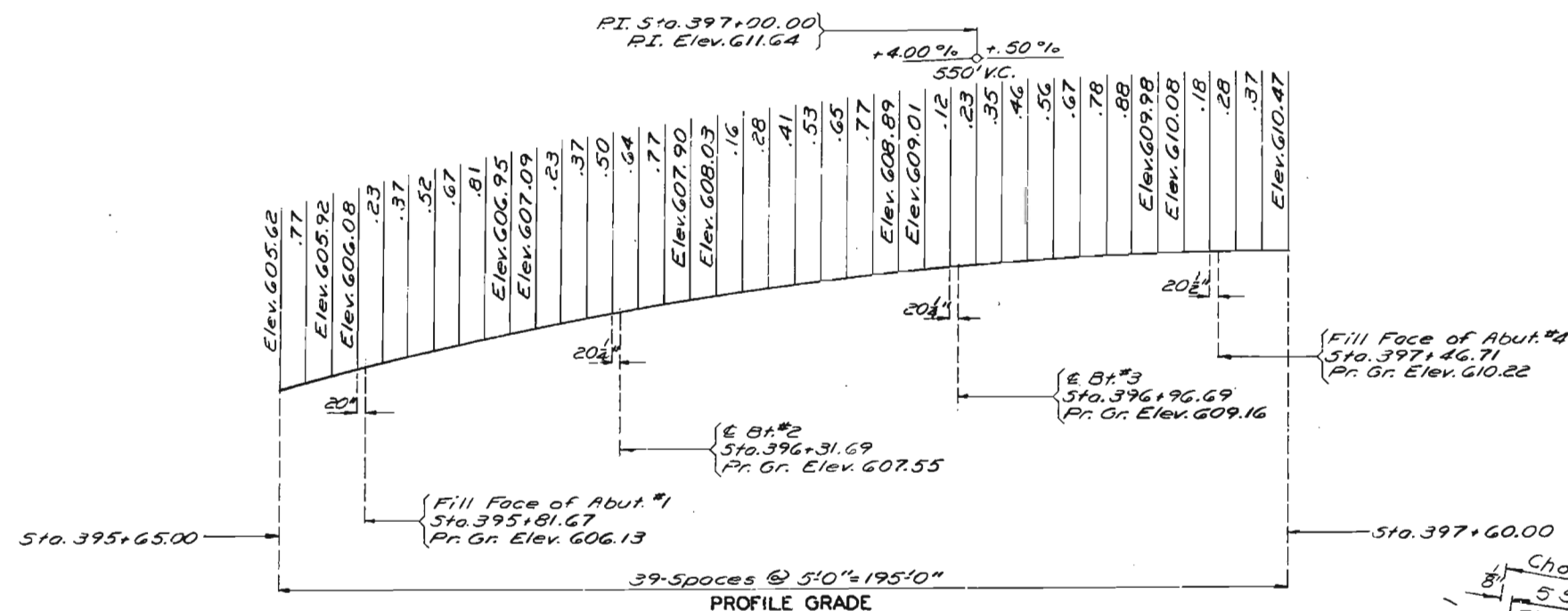
A-2809 R

Sheet No. 1A of 20.

DATE 3/24/83

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	256	

FINAL PLANS

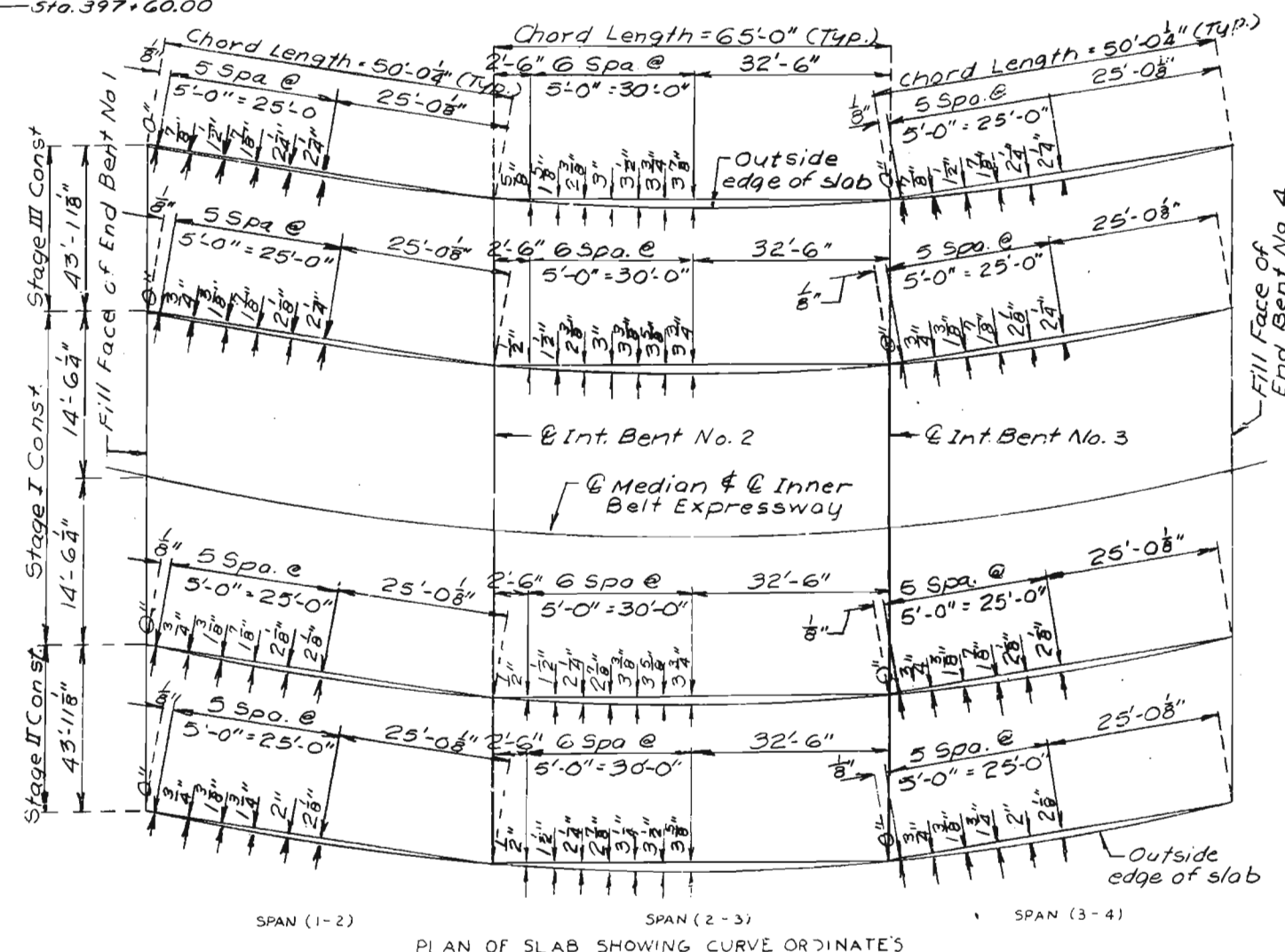


ESTIMATED QUANTITIES				
ITEM		SUBSTR.	SUPERSTR.	TOTAL
Removal of Existing Bridge Deck	Sq. Ft.		14,263	14,263
Class I Excavation	Cu. Yds.	339.5		339.5
Class B1 Concrete	Cu. Yds.		48.0	48.0
Structural Steel Pile (10")	Lin. Ft.	965		965
Class B Concrete	Cu. Yds.	283.4		283.4
Class B2 Concrete	Cu. Yds.		500.1	500.1
Laminated Neoprene Bearing Pads	Each		30	30
Elastomeric Expansion Joint Seal (2.0 inches)	Lin. Ft.		774	774
Reinforcing Steel (Grade 60)	Lbs.	28,620	50,500	79,120
Reinforcing Steel (Epoxy Coated)	Lbs.	1,220	72,500	73,720
Fabricated Structural Carbon Steel	Lbs.		117,820	117,820
Painting (System B) Aluminum *	Lump Sum		1	1
Special Work	Lump Sum			
Clearing Existing Bearings	Each		72	72
Replace Fiber Bearing Pads (Large)	Each		72	72
Substructure Repair (Unformed)	Sq. Ft.	28		28
Temporary Repairs	Lump Sum		932.91	932.91
Extra Special Work	Lump Sum		1	1
Substructure Repairs (Formed)	Sq. Ft.	0		0

NOTE: All concrete and reinforcement in safety barriers shall be included with Superstructure quantities.
* See Special provisions

PILE DATA		
BENT NO.	2	3
Pile Type & Size	HP10x42	HP10x42
Number	12	12
Approximate Length	40'	34'
Design Bearing	49	46
Hammer Energy Required Ft. Lbs.	11,500	10,800

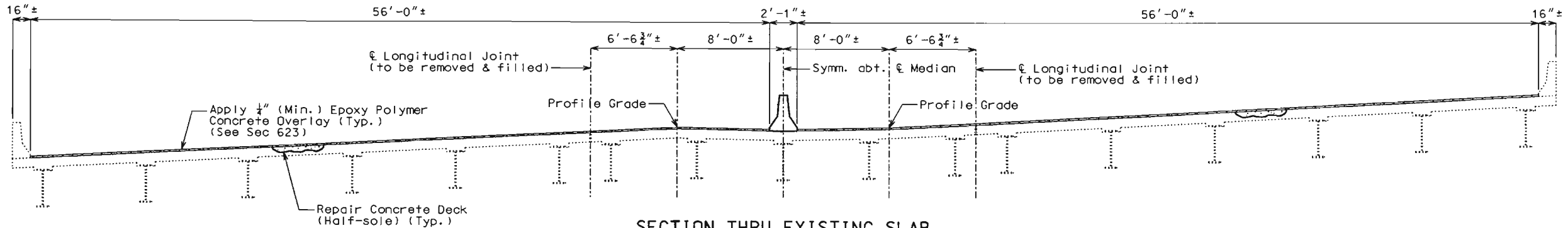
Minimum energy requirement of hammer based on pile length and design bearing value of piles.
All pile was driven to practical refusal.



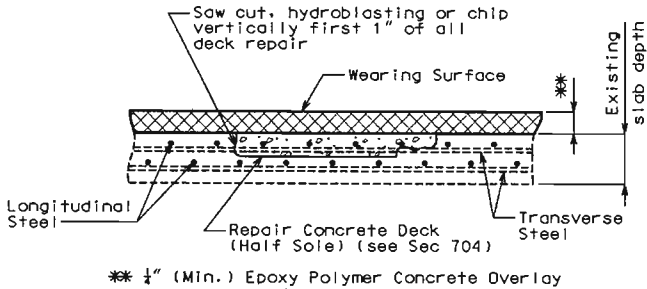
351

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION
U.I.P. EXISTING (50', 65', 50') SIMPLE COMP. WF BEAM SPANS

State	Proj. No.	Sheet No.
MO		8197
SUR 2914	TWP 46N	RGE 6E



SECTION THRU EXISTING SLAB
(Normal to Roadway)



HALF-SOLED AREA

GENERAL NOTES:

Design Specifications:

2002 - AASHTO 17th Edition
Bridge Deck Rating = 7

Design Unit Stresses:

Class B-1 Concrete (Safety Barrier Curb & Median Barrier Curb) $f'_c = 4,000$ psi
Class B-2 Concrete (Slab & Diaphragm) $f'_c = 4,000$ psi
Reinforcing Steel (Grade 60) $f_y = 60,000$ psi
Structural Carbon Steel (ASTM A709 Grade 36) $f_y = 36,000$ psi

Reinforcing Steel:

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

Joint Filler:

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

Resin Anchors:

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

Cost of furnishing and installing the resin anchor system complete-in-place will be considered completely covered by the contract unit price for Class B-1 Concrete.

The 3/4" diameter resin anchor systems shall have a minimum ultimate pullout strength of 20,400 lbs. in concrete with $f'_c = 4,000$ psi.

An epoxy coated #6 Grade 60 reinforcing bar 2'-6" long (not including manufacturer's embedment length) shall be substituted for the 3/4" ϕ threaded rod.

Concrete Protective Coating:

Protective coating for concrete bents and piers (Urethane) shall be applied as shown on the bridge plans and in accordance with Sec 711.

Traffic:

Traffic over structure to be maintained during construction in accordance with traffic control plans, see Sheet No. 2 for traffic staging on bridge.

Stringer Support:

Temporary stringer supports shall be provided for Int. Bent repairs (See Special Provisions) (See Sheet No. 6 for additional details).

Miscellaneous:

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

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

Bars bonded in old concrete not removed shall be cleanly stripped and embedded into new concrete where possible. If length is available, old bars shall extend into new concrete at least 40 diameters for smooth bars and 30 diameters for deformed bars, unless otherwise noted.

The contractor shall exercise care to ensure spillage over joint edges is prevented and that a neat line is obtained along any terminating edge of the epoxy polymer concrete.

Roadway surfacing adjacent to bridge ends to match top of new bridge surface (Roadway Item).

The area exposed by the removal of concrete and not covered with new concrete shall be coated with an approved qualified special mortar in accordance with Sec 704.

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

Existing Structural Steel Protective Coatings (Not Near Expansion Joints)

Protective Coating: Calcium Sulfonate System in accordance with Sec 1081.

Surface Preparation: Surface preparation of the existing steel shall be in accordance with Sec 1081 for "Overcoating of Structural Steel (Calcium Sulfonate System)". The cost of surface preparation will be considered completely covered by the contract unit price per sq. foot for "Surface Preparation for Overcoating Structural Steel".

Rust Penetrating Sealer: The rust penetrating sealer shall be applied to the surfaces of all bearings, overlapping steel plates and other locations where rust bleeding, pack rust and layered rust is occurring. The cost of the rust penetrating sealer will be considered completely covered by the contract lump sum price for "Calcium Sulfonate Rust Penetrating Sealer".

Prime Coat: The cost of the prime coat will be considered completely covered by the contract unit price per sq. foot for "Calcium Sulfonate Primer".

Topcoat: The color of the topcoat shall be Gray (Federal Standard #26373). The cost of the topcoat will be considered completely covered by the contract unit price per sq. foot for "Calcium Sulfonate Topcoat".

Existing Structural Steel Protective Coatings (Near Expansion Joints)

Protective Coating (System G in accordance with Sec 1081)
The surfaces of all structural steel located near expansion joints shall be coated with complete System G within a distance not less than 5 feet from the centerline of all deck joints. Within this limit, items to be coated shall include all surfaces of beam, girders, diaphragms, stiffeners, bearings and miscellaneous structural steel items.

Surface Preparation: Surface preparation of the existing steel shall be in accordance with Sec 1081 for "Recoating of Structural Steel (System G or H)". The cost of surface preparation will be considered completely covered by the contract unit price per sq. ft. for Surface Preparation for Recoating Structural Steel.

Prime Coat (Existing Steel): The cost of the prime coat will be considered completely covered by the contract unit price for the Field Application of Inorganic Zinc Primer. Tint of the prime coat for System G shall be similar to the color of the field coat to be used.

Field Coat: The color of the finish field coat shall be Gray (Federal Standard #26373). The cost of the intermediate field coat will be considered completely covered by the contract unit price per sq. foot for Intermediate Field Coat (System G). The cost of the finish field coat will be considered completely covered by the contract unit price per sq. foot for Finish Field Coat (System G).

Sec 1081.4.5 shall be modified such that the word "RECOATED" is replaced by the words "RECOATED - SYSTEM G - EXPANSION AREAS ONLY". Identification in accordance with Sec 1081.5.5 shall also be performed.

The Calcium Sulfonate System shall overlap the System G epoxy intermediate field coating between 6 inches and 12 inches in order to achieve maximum coverage at the paint limit of each complete system near the expansion areas. The final field coatings shall be masked to provide crisp, straight lines and to prevent overspray beyond the overlap required. (See detail on Sheet No. 8).

ESTIMATED QUANTITIES

Item	Substr.	Superstr.	Total
Partial Removal of Substructure Concrete			1
Removal of Existing Expansion Joints & Adjacent Concrete		224	224
Removal of Existing Expansion Joint Seal or Sealant		40	40
Removal of Longitudinal Modular Expansion Device		330	330
Epoxy Polymer Concrete Overlay		2,050	2,050
Polymer Concrete		48	48
Class B-2 Concrete		139.5	139.5
Safety Barrier Curb		34	34
Median Barrier Curb		17	17
Substructure Repair (Formed)	20		20
Substructure Repair (Unformed)	175		175
Repairing Concrete Deck (Half-Soling)		100	100
Temporary Support			1
Reinforcing Steel (Epoxy Coated)		8,210	8,210
Protective Coating-Concrete Bents and Piers (Urethane)			1
Surface Preparation for Recoating Structural Steel		4,300	4,300
Surface Preparation for Overcoating Structural Steel		18,300	18,300
Field Application of Inorganic Zinc Primer		4,300	4,300
Intermediate Field Coat (System G)		4,300	4,300
Finish Field Coat (System G)		4,300	4,300
Calcium Sulfonate Rust Penetrating Sealer			1
Calcium Sulfonate Primer		18,300	18,300
Calcium Sulfonate Topcoat		18,300	18,300
Steel Plate		330	330
Silicone Expansion Joint Sealant System		224	224
Silicone Expansion Joint Sealant		40	40

All concrete above top of the existing beam at end bents is included in the estimated quantities for Class B-2 Concrete. All reinforcement in the end bents is included in the estimated quantities for Reinforcing Steel (Epoxy Coated).

REPAIRS TO BRIDGE OVER
CENTRAL MIDLAND RAILWAY

STATE ROAD FROM ROUTE D TO ROUTE 40

ABOUT 0.2 MILES SOUTH OF ROUTE D

PROJECT NO.

STA. 395+81.67±

JOB NO. J611714

RTE. I-170



DATE 6-11-05

ST. LOUIS COUNTY

Date: 6/12/05

STD. 606.22

STD. 706.35

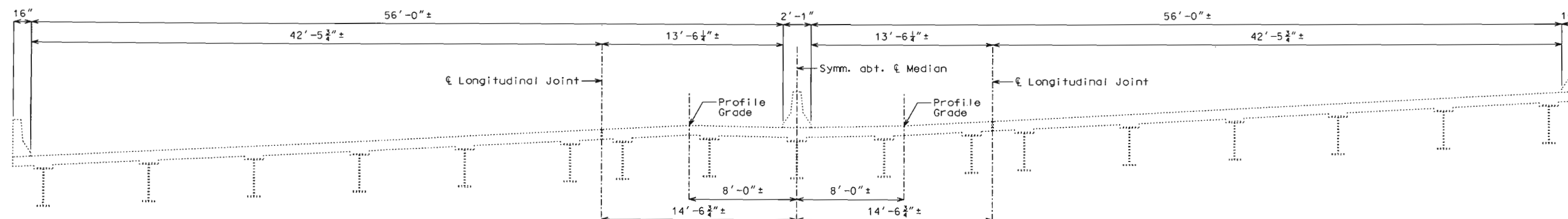
A28092

Designed Apr. 2005
Detailed Apr. 2005
Checked May 2005

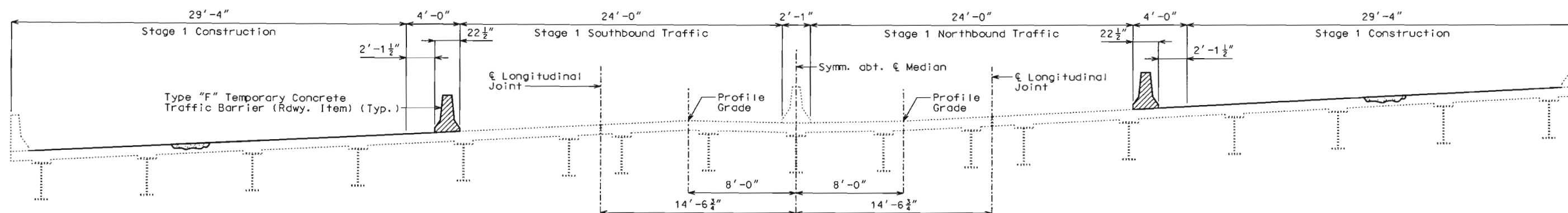
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 1 of 9

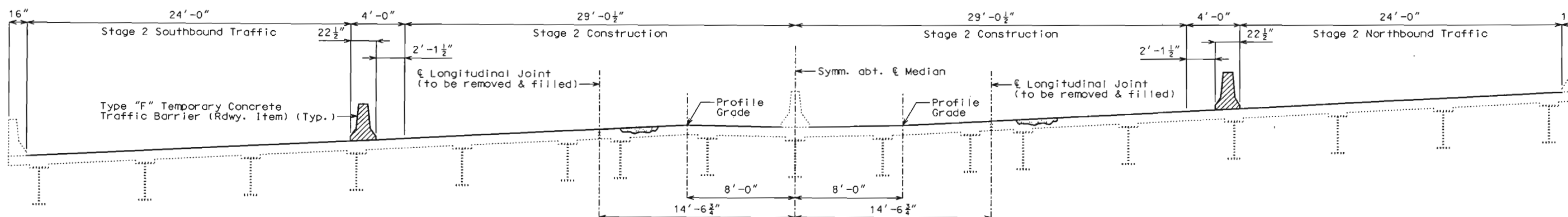
State	Proj. No.	Sheet No.
MO		B12P



SECTION THRU EXISTING SLAB
(Normal to Roadway)



STAGE 1 CONSTRUCTION



STAGE 2 CONSTRUCTION

DETAILS OF STAGED CONSTRUCTION

Detailed Feb. 2005
Checked May 2005

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

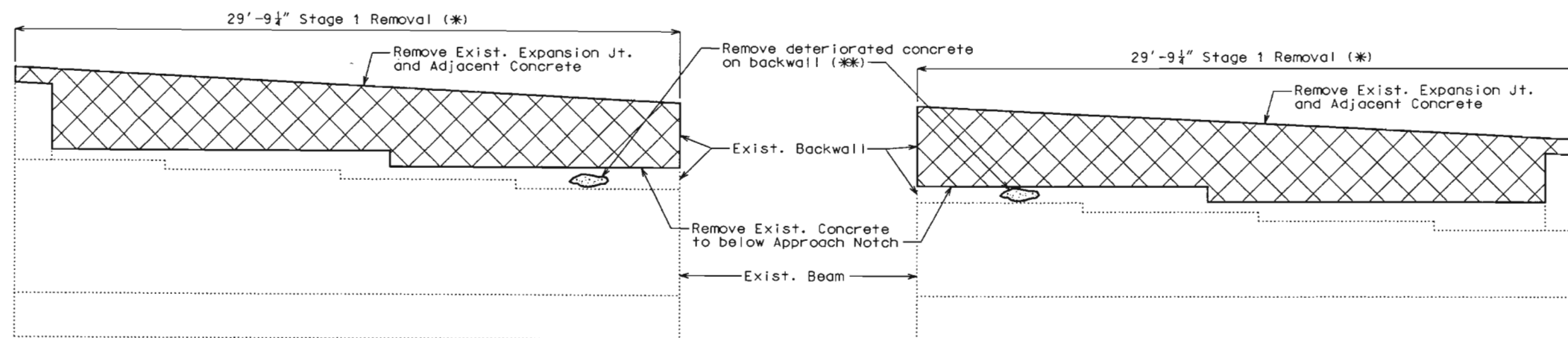
Sheet No. 2 of 9

ST. LOUIS COUNTY A28092



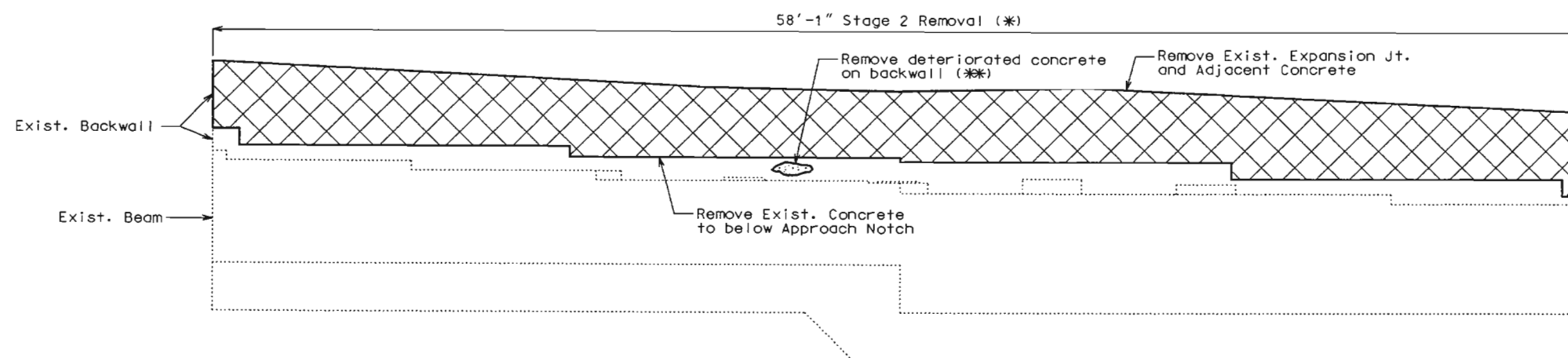
DATE 8-11-05

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DETAILS OF CONCRETE REMOVAL
AT END BENTS NO. 1 AND NO. 4
(STAGE 1 CONSTRUCTION)

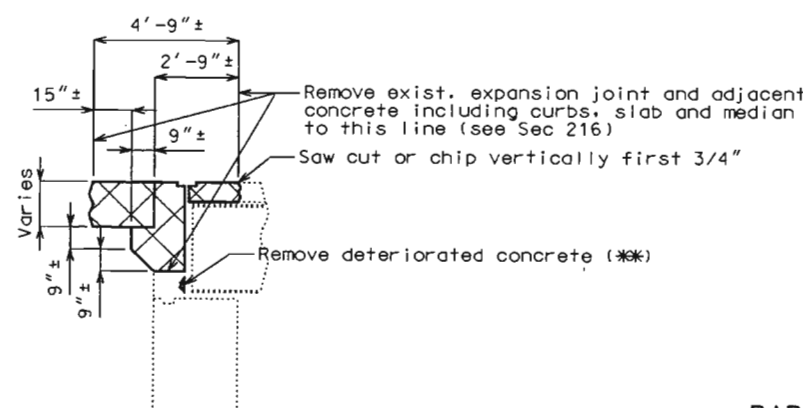
DETAILS OF CONCRETE REMOVAL
AT END BENTS NO. 1 AND NO. 4
(STAGE 1 CONSTRUCTION)



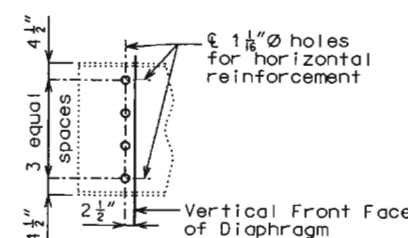
DETAILS OF CONCRETE REMOVAL
AT END BENTS NO. 1 AND NO. 4
(STAGE 2 CONSTRUCTION)

(*) Dimensions are along beam.

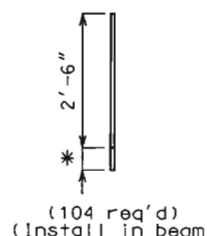
(**) The deteriorated concrete requirements shall be the same as for substructure repair in accordance with Sec 704 except the Class B-2 Concrete shall be placed monolithic with the proposed concrete diaphragm.



SECTION THRU END BENT
SHOWING CONCRETE REMOVAL
(Normal to Backwall)



PART ELEVATION OF STRINGER
SHOWING WEB HOLES



* Manufacturer's embedment length

DETAIL OF RESIN
ANCHOR SYSTEMS

Notes:

The cost of concrete removal for backwall as shown will be considered completely covered by the contract lump sum price for Partial Removal of Substructure Concrete.

The exposed and accessible surfaces of the existing structural steel and bearings that will be encased in concrete shall be cleaned with a minimum of SSPC-SP-2 surface preparation before concrete is poured. Payment for cleaning steel to be encased in concrete and drilling holes in the stringers will be considered completely covered by the contract unit price for Class B-2 Concrete.

Cost of furnishing and installing the resin anchor system complete-in-place will be considered completely covered by the contract unit price for Class B-2 Concrete.

For details of End Bents No. 1 and No. 4 not shown, see Sheets No. 4 & 5.

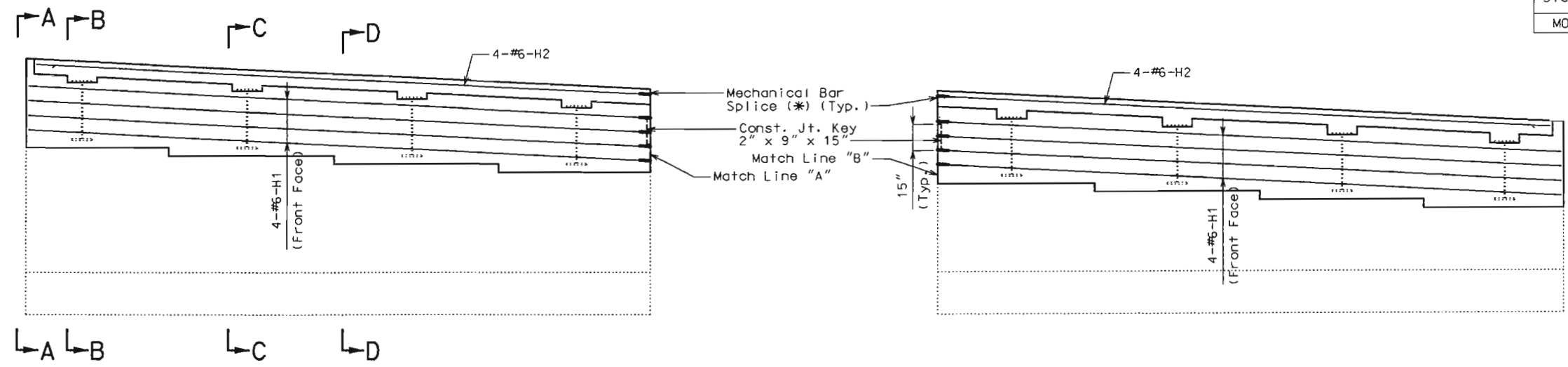


Note: This drawing is not to scale. Follow dimensions.

Sheet No. 3 of 9

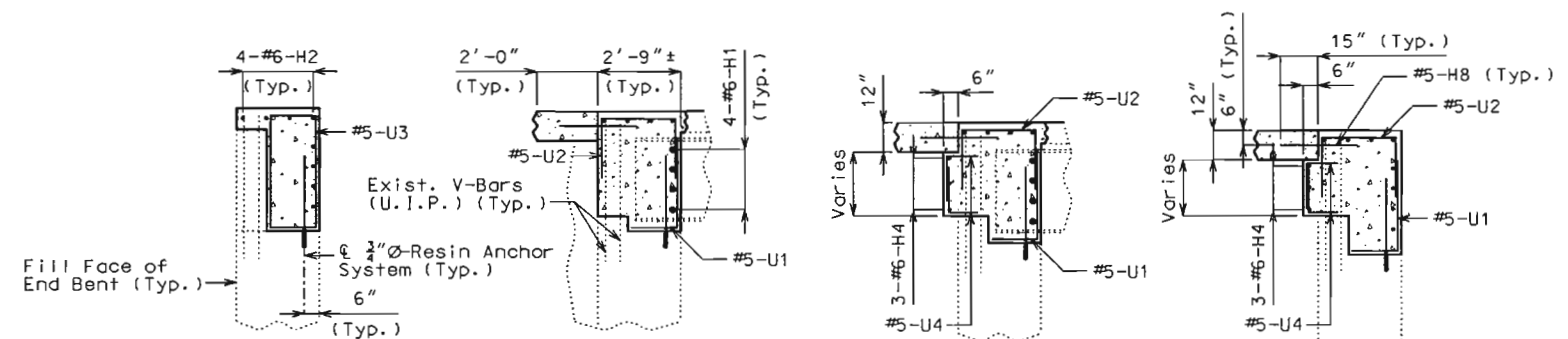
ST. LOUIS COUNTY A28092

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ELEVATION NEAR END BENT

ELEVATION NEAR END BENT



SECTION A-A

SECTION B-B

SECTION C-C

SECTION D-D

Notes:

Existing steel end diaphragms not shown for clarity (leave in place).

U-bars and resin anchor systems in diaphragm not shown for clarity.

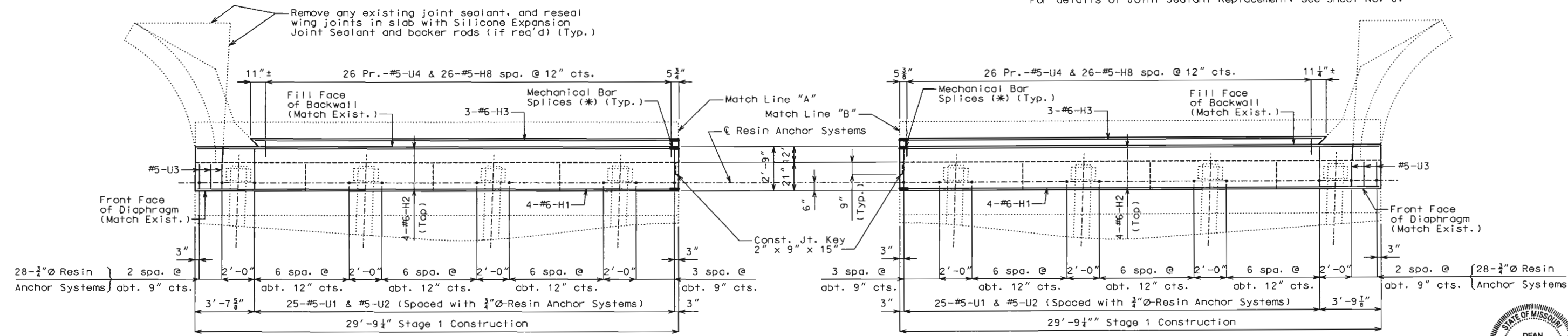
All U-bars in end bent shall be placed parallel to \perp Roadway.

For details of End Bents No. 1 & No. 4 not shown, see Sheets No. 3 & 5.

(*) The contractor shall use a mechanical bar splice for #5-H1, #6-H2, #6-H3 & #6-H4 bars at the specified location. The total bar lengths for bars indicated in the bill of reinforcing steel are determined based on the end of the bars being located flush to the face of the construction joint. No additional payment will be made for any additional bar lengths required for the mechanical bar splices. Mechanical bar splices shall be in accordance with Sec 706 except that no measurement will be made for mechanical bar splice and will be considered completely covered by the contract unit price for the reinforcing steel.

Spacing of Resin Anchor Systems and U-bars may be adjusted slightly to facilitate construction and to meet the manufacturer's spacing and edge distance requirements.

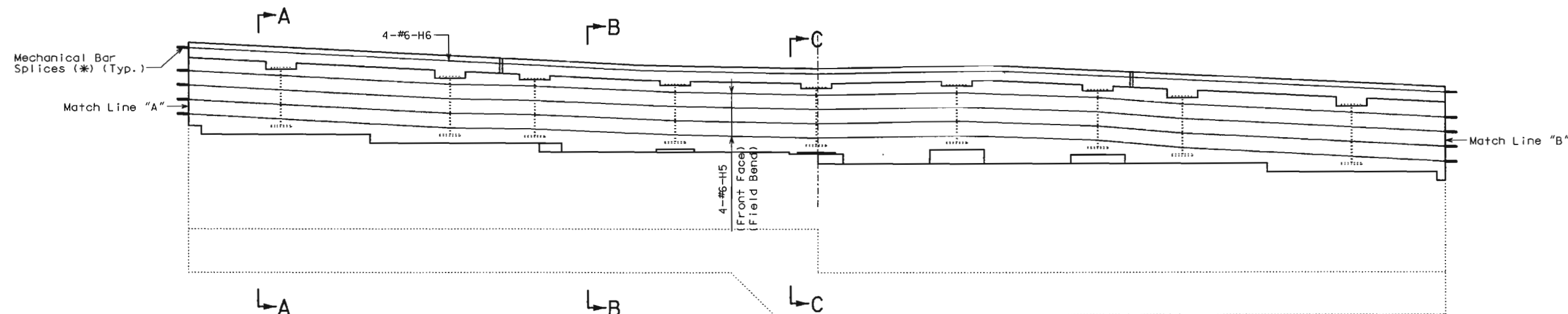
For details of Joint Sealant Replacement, see Sheet No. 8.



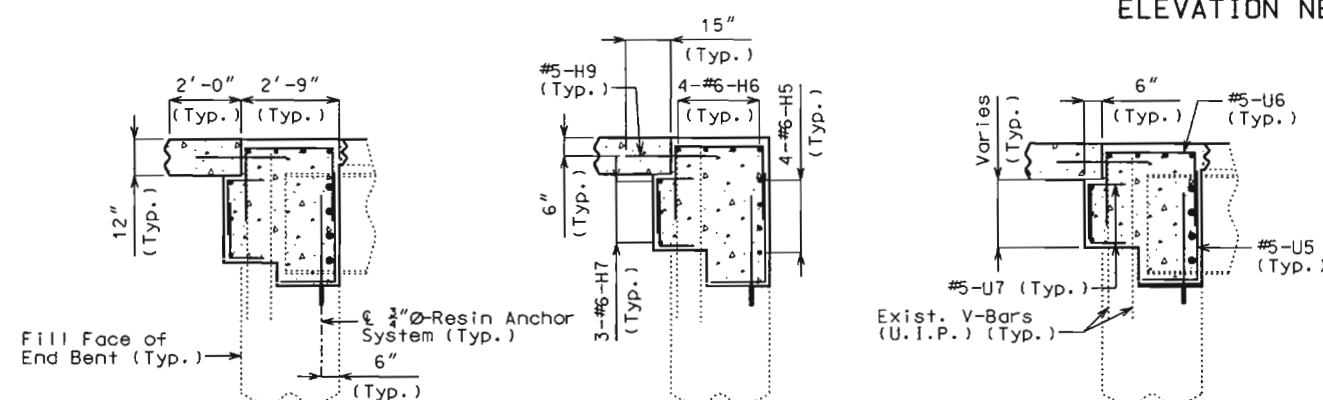
PART PLAN

PART PLAN

DETAILS OF END BENTS NO. 1 & NO. 4 (STAGE 1 CONSTRUCTION)



ELEVATION NEAR END BENT



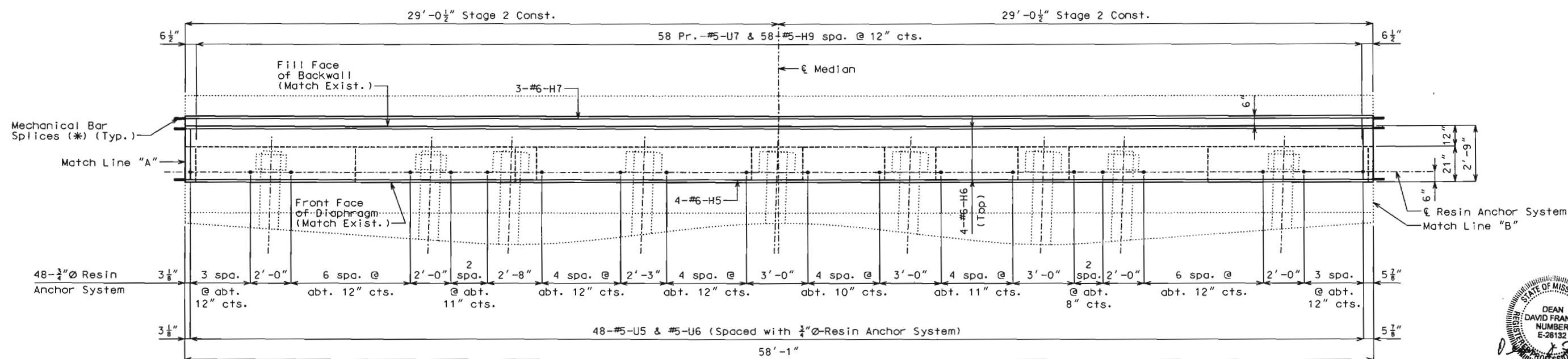
SECTION A-A

SECTION B-B

SECTION C-C

Notes:

- Existing steel end diaphragms not shown for clarity (leave in place).
- U-bars and resin anchor systems in diaphragm not shown for clarity.
- All U-bars in end bent shall be placed parallel to ℓ Roadway.
- For details of End Bents No. 1 & No. 4 not shown, see Sheets No. 3 & 4.
- (*) The contractor shall use a mechanical bar splice for #6-H5, #6-H6 & #6-H7 bars at the specified location. The total bar lengths for bars indicated in the bill of reinforcing steel are determined based on the end of the bars being located flush to the face of the construction joint. No additional payment will be made for any additional bar lengths required for the mechanical bar splices. Mechanical bar splices shall be in accordance with Sec 706 except that no measurement will be made for mechanical bar splice and will be considered completely covered by the contract unit price for the reinforcing steel.
- Spacing of Resin Anchor Systems and U-bars may be adjusted slightly to facilitate construction and to meet the manufacturer's spacing and edge distance requirements.



PART PLAN

DETAILS OF END BENTS NO. 1 & NO. 4 (STAGE 2 CONSTRUCTION)

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

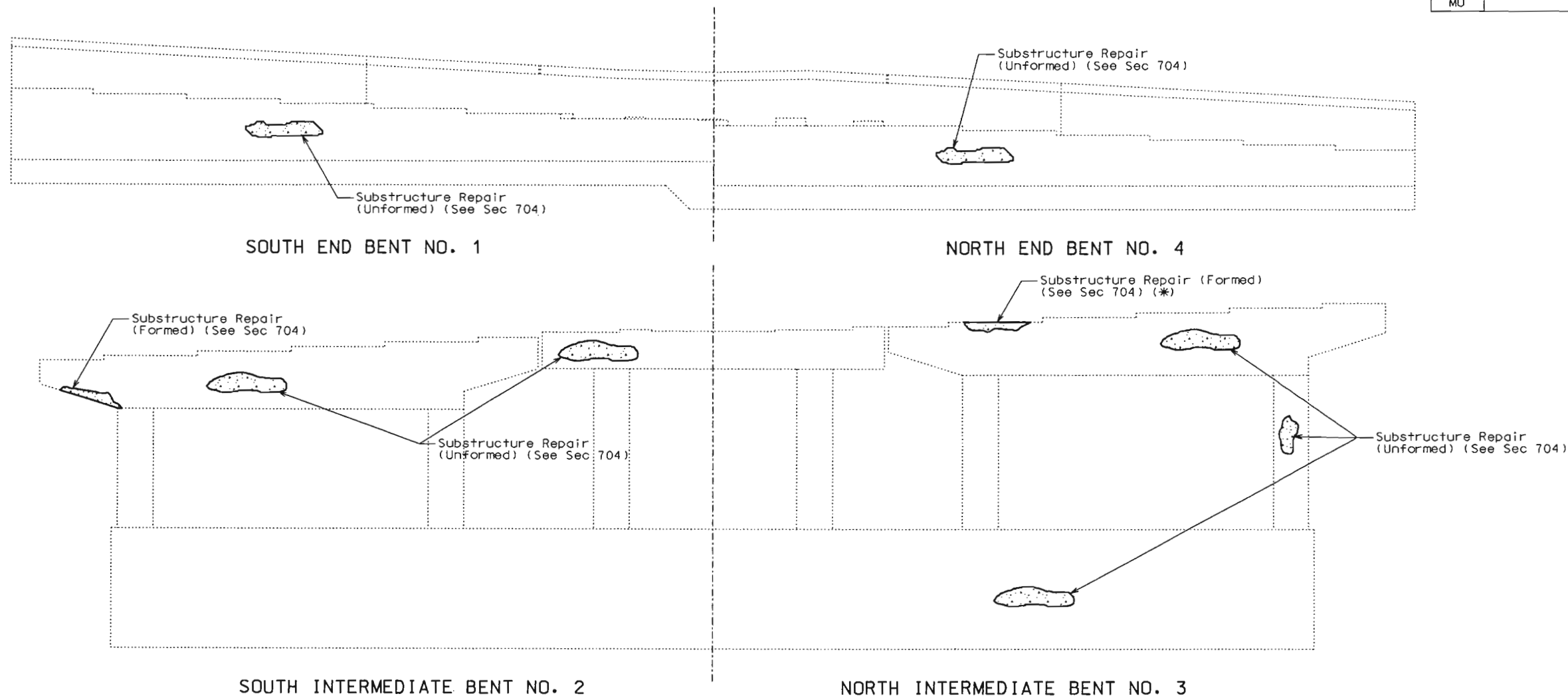
Sheet No. 5 of 9

ST. LOUIS COUNTY A28092

Detailed Apr. 2005
Checked May 2005

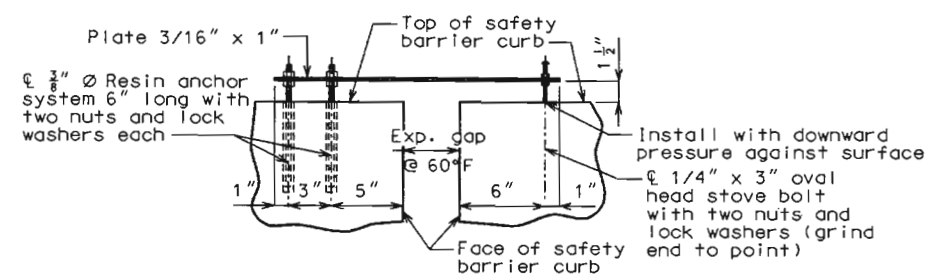
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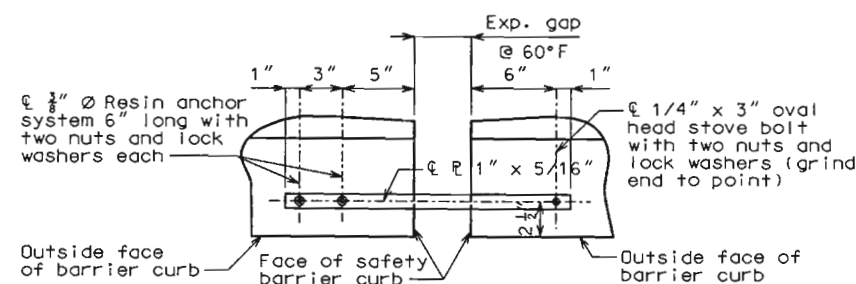


(*) Provide temporary supports for stringers during repair of top of cap. Cost of furnishing will be considered completely covered by the lump sum price for Temporary Support.

Clean and seal top of beam & both faces of beam with Protective Coating-Concrete Bents and Piers (Urethane) (see Sec 711)



PART ELEVATION OF BARRIER CURB
SHOWING MOVEMENT GAUGE



PART PLAN OF BARRIER CURB
SHOWING MOVEMENT GAUGE

SECTION THRU BENTS
NO. 2 AND 3 SHOWING
PROTECTIVE COATING LIMITS

Substructure Quantity Table for Bents No. 1, 2, 3 & 4					
Item		Bent 1	Bent 2	Bent 3	Bent 4
Substructure Repair (Formed)	sq. foot		10	10	
Substructure Repair (Unformed)	sq. foot	50	50	50	25

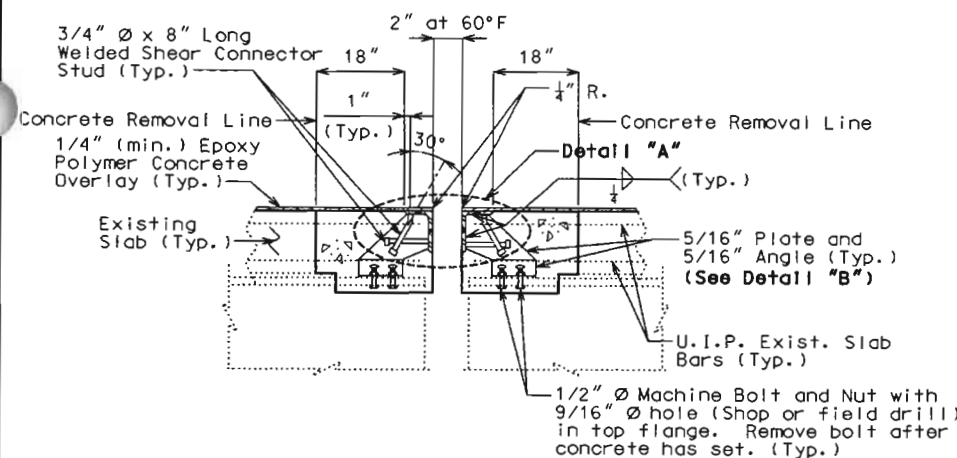
Note: These quantities are included in the Estimated Quantities Table on Sheet No. 1.

Notes:

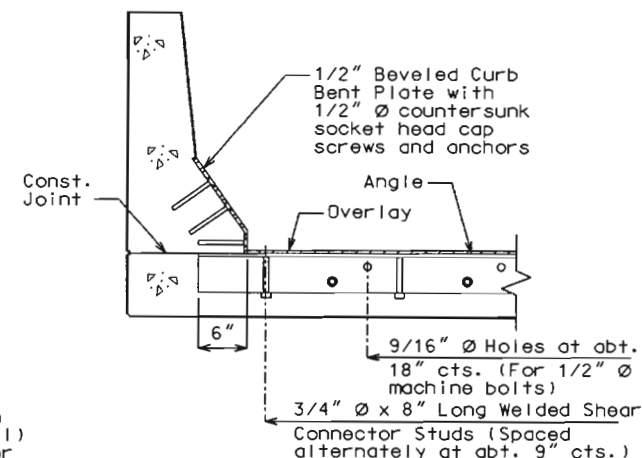
A movement gauge shall be provided on one side of bridge at all safety barrier curb expansion joints.
All steel shall be galvanized.
Cost of movement gauge complete-in-place will be considered completely covered by the contract unit price for Safety Barrier Curb.



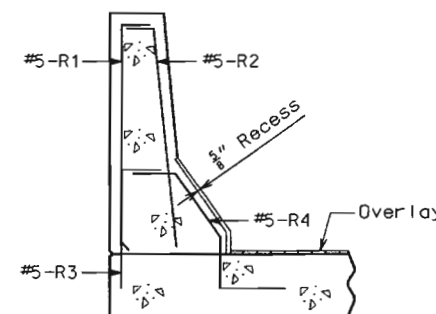
State	Proj. No.	Sheet No.
MO		B125



PART SECTION D-D



PART SECTION B-B



PART SECTION A-A

GENERAL NOTES:

Expansion joint system shall be fabricated in one section, except for stage construction and when the length is over 50 feet. A complete joint penetration groove welded splice shall be required. Welds shall be ground flush to provide a smooth surface. The expansion joint system shall be fabricated and installed to the crown and grade of the roadway.

Plan dimensions are based on installation at 60°F. The expansion gap and other dimensions shall be increased or decreased 1/16" for each 10° fall or rise in temperature at installation.

Structural steel for the expansion joint system shall be ASTM A709 Grade 36. Anchors for the expansion joint system shall be in accordance with Sec 1037. Silicone Expansion Joint Sealant Systems shall be in accordance with Sec 717.

Structural steel for the expansion joint system and curb plate shall be coated with a minimum of two coats of inorganic zinc primer (5 mils minimum) or galvanized in accordance with ASTM A123. Anchors need not be protected from overspray.

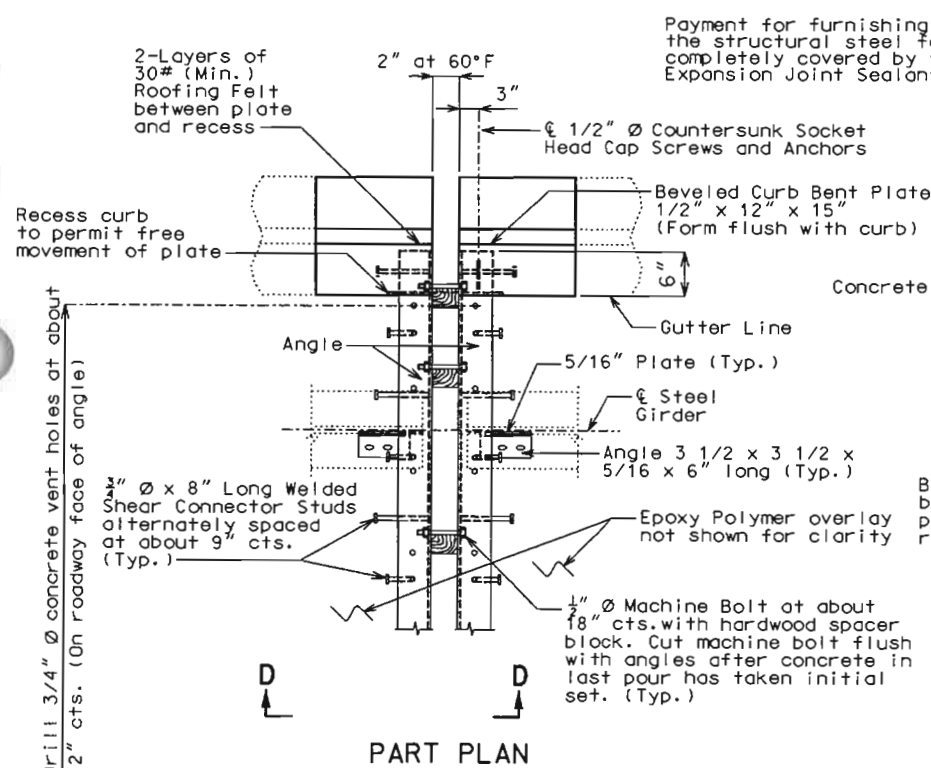
Concrete shall be forced under armor angle and around anchors. Proper consolidation of the concrete shall be achieved by localized internal vibration.

Curb plate anchors shall be a drilled cone expansion or a cast-in-place wing type threaded insert. The minimum ultimate pullout capacity for these anchors shall be 2700 lbs in f'c = 4000 psi concrete. Lead anchors will not be permitted. Holes in the barrier curb for anchors shall not be drilled until the concrete is at least 7 days old.

Payment for removal of concrete (including curbs & median) & removal of steel will be considered completely covered by the contract unit price for Removal of Existing Expansion Joints & Adjacent Concrete (see Sec 216).

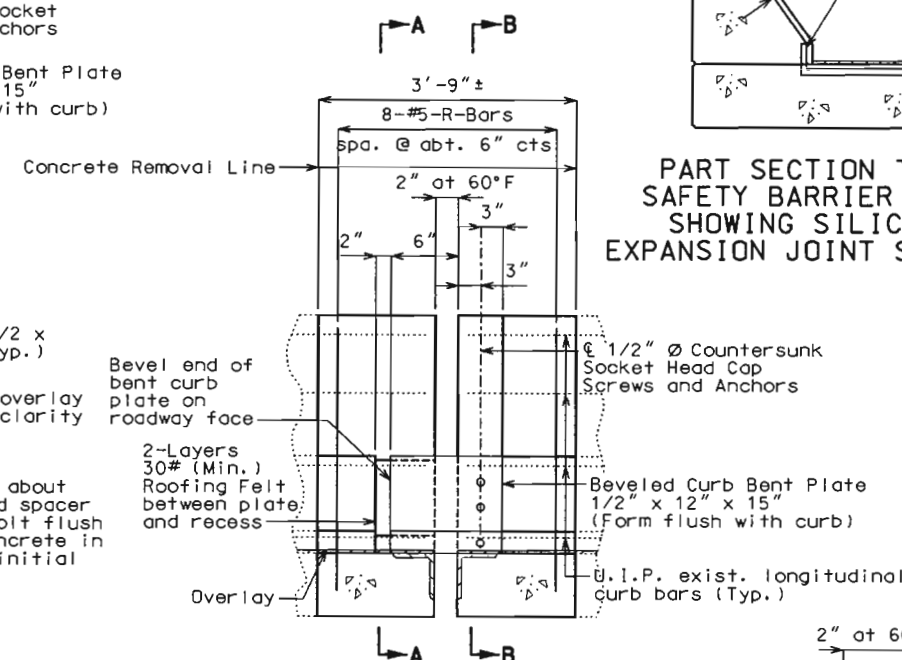
Payment for class B-2 concrete in slab will be considered completely covered by the contract unit price for Class B-2 Concrete.

For details of barrier curb showing movement gauge, see Sheet No. 6.



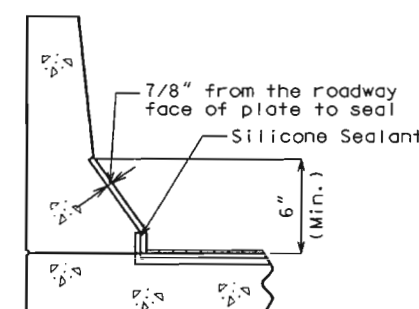
PART PLAN

Payment for furnishing, coating or galvanizing and installing the structural steel for the expansion joint will be considered completely covered by the contract unit price for Silicone Expansion Joint Sealant System.



PART ELEVATION OF BARRIER CURB

PART SECTION THRU SAFETY BARRIER CURB SHOWING SILICONE EXPANSION JOINT SEALANT

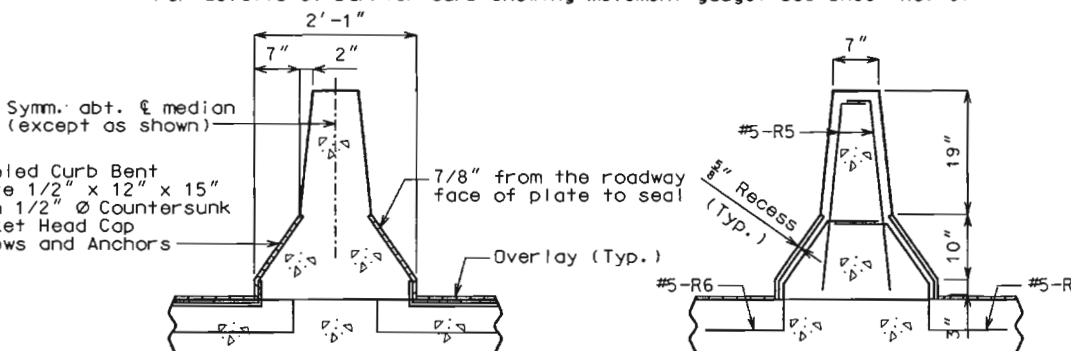


Symm. abt. E median (except as shown)

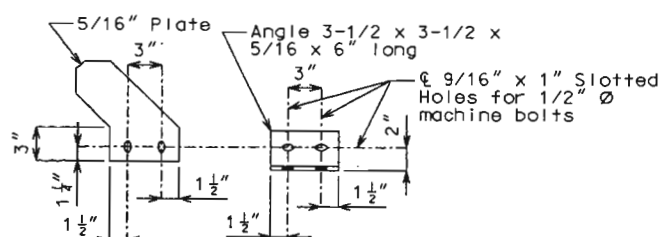
Beveled Curb Bent Plate 1/2" x 12" x 15" with 1/2" Ø Countersunk Socket Head Cap Screws and Anchors

TYPICAL PART SECTION E-E

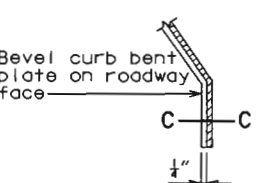
TYPICAL PART SECTION F-F



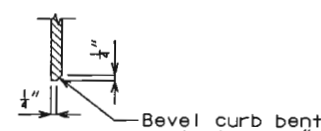
DETAIL "A"



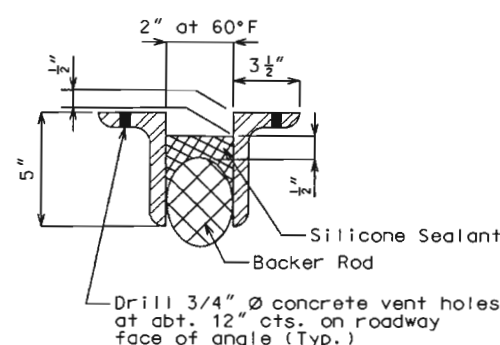
DETAIL "B"



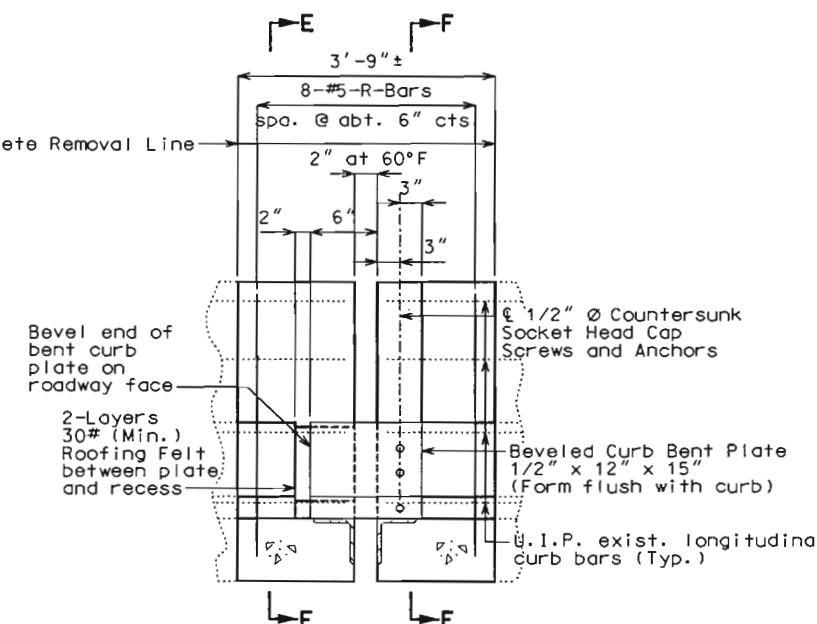
PART ELEVATION AT END OF BEVELED CURB BENT PLATE



SECTION C-C

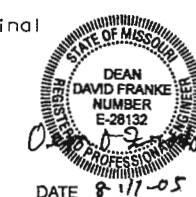


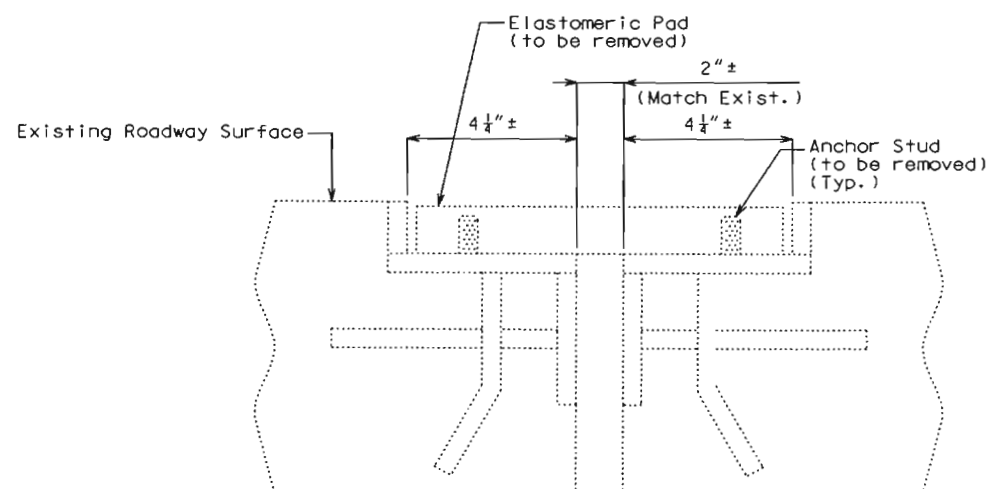
PART CROSS SECTION THRU EXPANSION JOINT



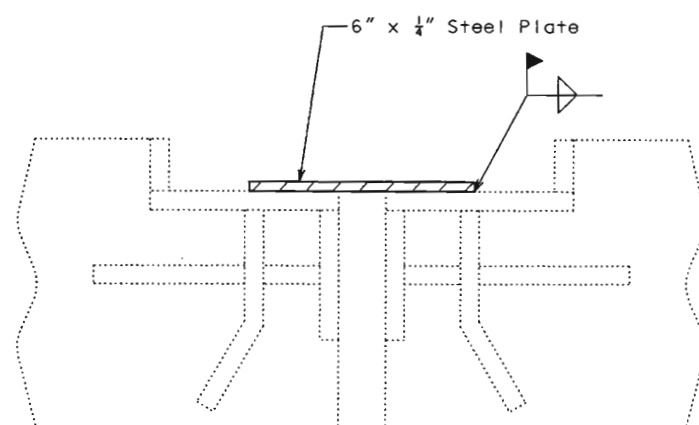
PART ELEVATION OF MEDIAN BARRIER CURB

DETAILS OF SILICONE EXPANSION JOINT SEALANT SYSTEM AT INT. BENTS NO. 2 AND NO. 3

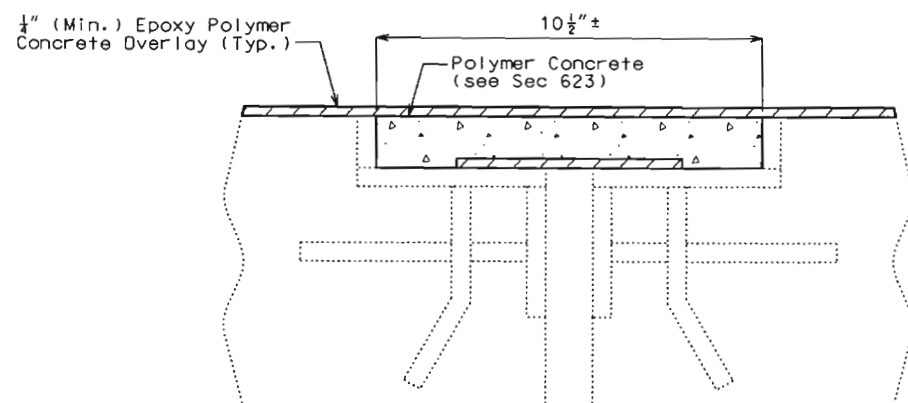




SECTION THRU EXISTING LONGITUDINAL JOINT



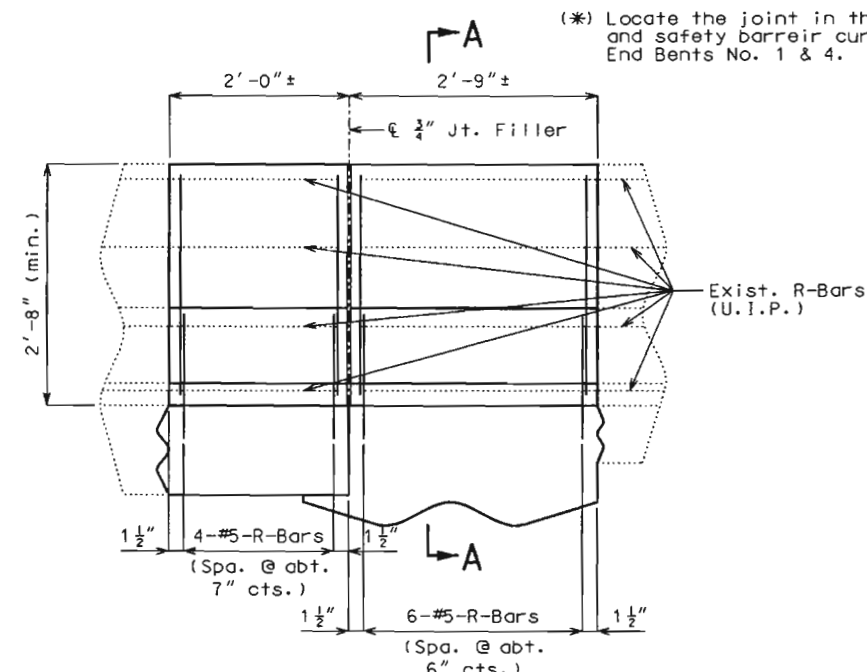
SECTION THRU LONGITUDINAL JOINT PRIOR TO PLACEMENT OF POLYMER CONCRETE



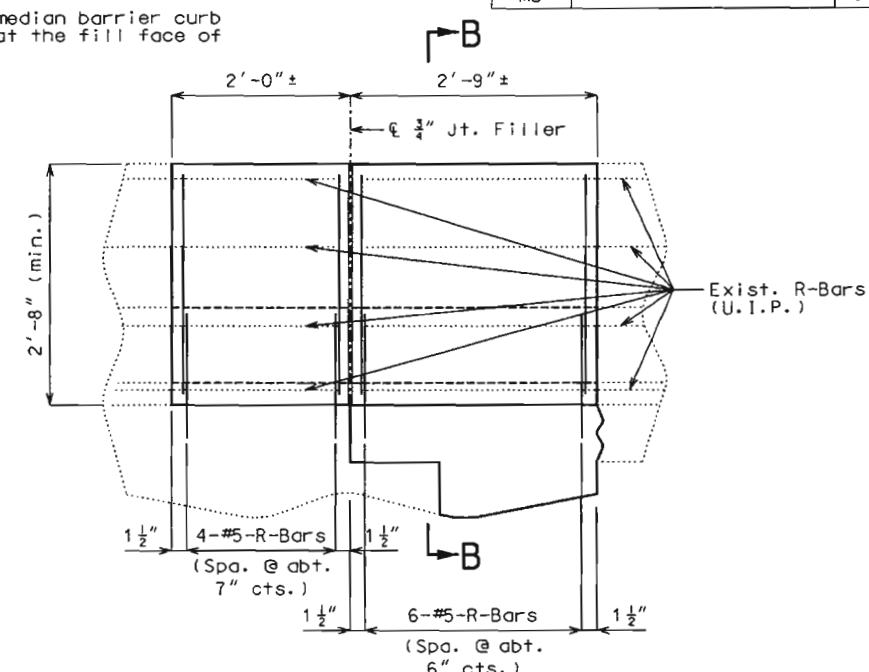
SECTION THRU LONGITUDINAL JOINT SHOWING FINISHED MODIFICATION

Notes:
 Polymer concrete shall be in accordance with Sec 623.
 The cost of the steel plate, complete in place, will be considered completely covered by the contract unit price for Steel Plate.
 The cost for removing the elastomeric pad and the anchor studs will be considered completely covered by the contract unit price for Removal of Longitudinal Modular Expansion Device.

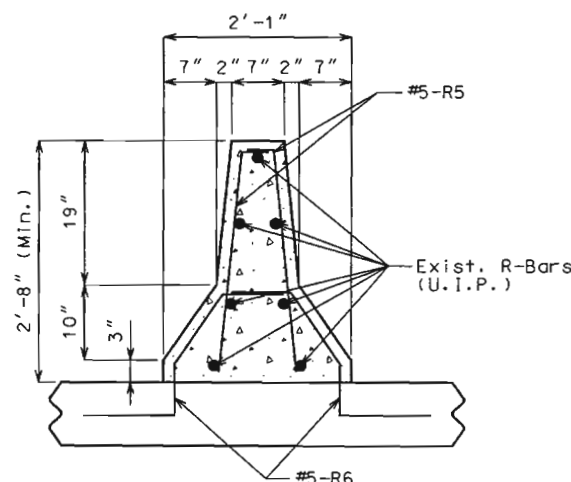
DETAILS OF LONGITUDINAL JOINT MODIFICATION



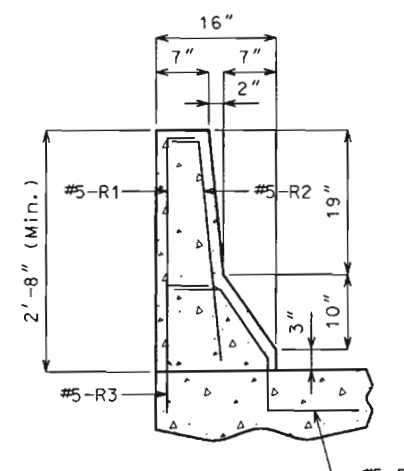
PART ELEVATION NEAR MEDIAN BARRIER CURB REPLACEMENT (AT END BENTS NO. 1 & 4)



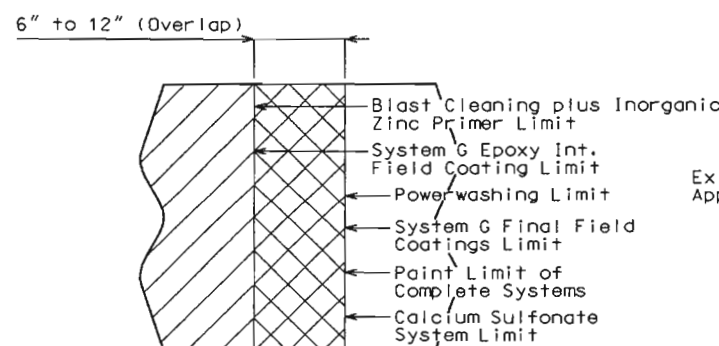
PART ELEVATION NEAR SAFETY BARRIER CURB REPLACEMENT (AT END BENTS NO. 1 & 4)



SECTION A-A



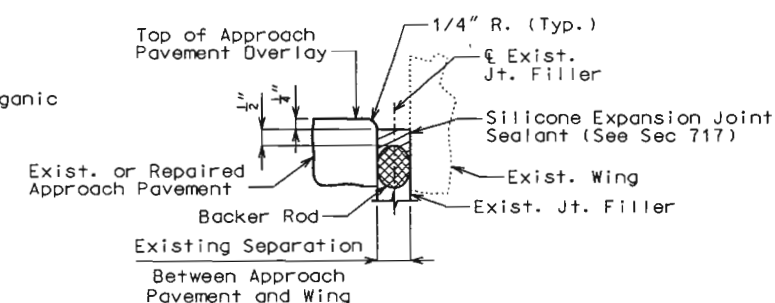
SECTION B-B



PART ELEVATION SHOWING LIMITS OF PAINT OVERLAP

(Vertical or horizontal paint limit. Horizontal limit shown)

Notes:
 All exposed edges of safety median barrier curb and median shall have either a 1/2" radius or a 3/8" bevel, unless otherwise noted.
 Payment for all concrete and reinforcement, complete-in-place will be considered completely covered by the contract unit price for Safety Barrier Curb or Median Barrier Curb per linear foot.
 Concrete in the safety barrier curb shall be Class B-1.
 The curb shall be cured by application of Type 1-D or Type 2 Liquid Membrane-Forming Compound in accordance with Sec 1055. Surface sealing for concrete will not be permitted.
 The cross-sectional area for safety barrier curb above the slab = 2.28 sq. ft.
 The cross-sectional area for median barrier curb above the slab = 2.96 sq. ft.

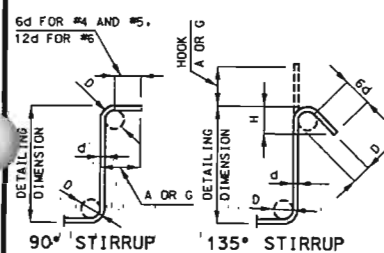
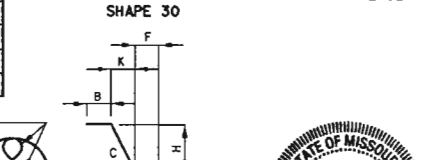
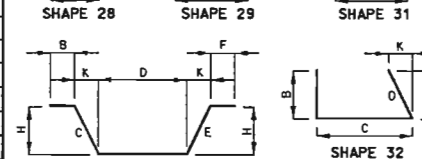
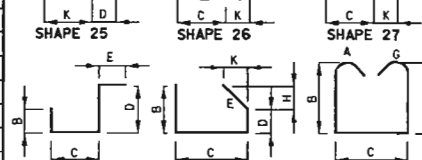
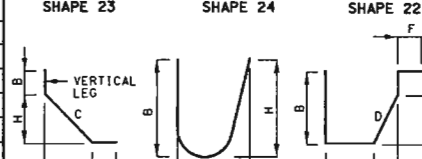
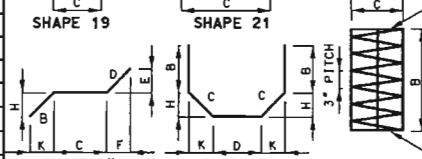
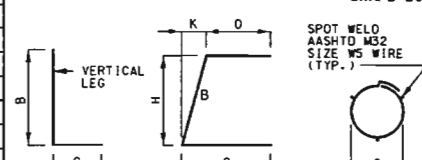
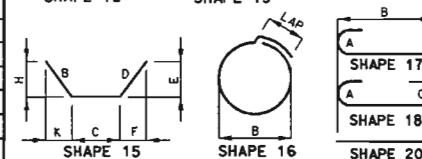
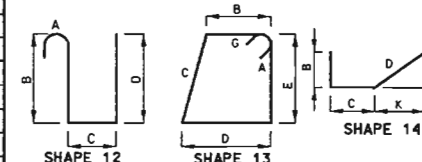
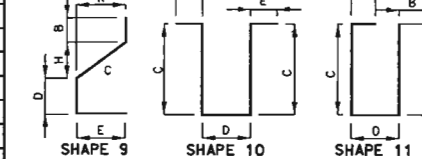


SECTION THRU JOINT SEALANT REPLACEMENT BETWEEN APPROACH PAVEMENT AND WINGS AT END BENTS NO. 1 & 4



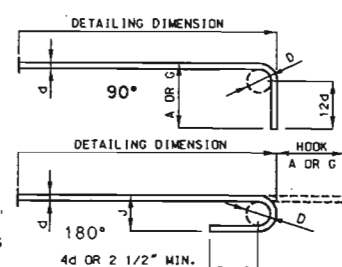
DATE: 6-11-05

BILL OF REINFORCING STEEL

[illegible]

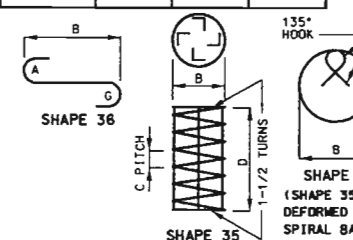
STIRRUP HOOK DIMENSIONS				
GRADES 40 - 50 - 60 KSI				
BAR SIZE	D (IN.)	90° HOOK		135° HOOK
		HOOK A OR B	HOOK A OR B	APPROX. H
#4	2"	4 1/2"	4 1/2"	3"
#5	2 1/2"	6"	5 1/2"	3 3/4"
#6	4 1/2"	12"	8"	4 1/2"

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



END HOOK DIMENSIONS					
BAR SIZE	D. (IN.)	ALL GRADES			
		180° HOOKS		90° HOOKS	
		A OR C	J	A OR C	J
#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"	21"-0"	
#14	18 1/4"	27"-3"	21 3/4"	27"-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 CRSI MANUAL OF STANDARD PRACTICE FOR
 DETAILING REINFORCED CONCRETE STRUCTURES, STIRRUP AND TIE DIMENSIONS.
 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.
 ALL DIMENSIONS ARE OUT TO OUT.
 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.



BENDING DIAGRAMS

STATE OF MISSOURI
DEAN
DAVID FRANK
NUMBER
E-28132
REGISTERED PROFESSIONAL ENGINEER
DATE 5-11-05

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

Sheet No. 9 of 9

ST. LOUIS COUNTY A28092