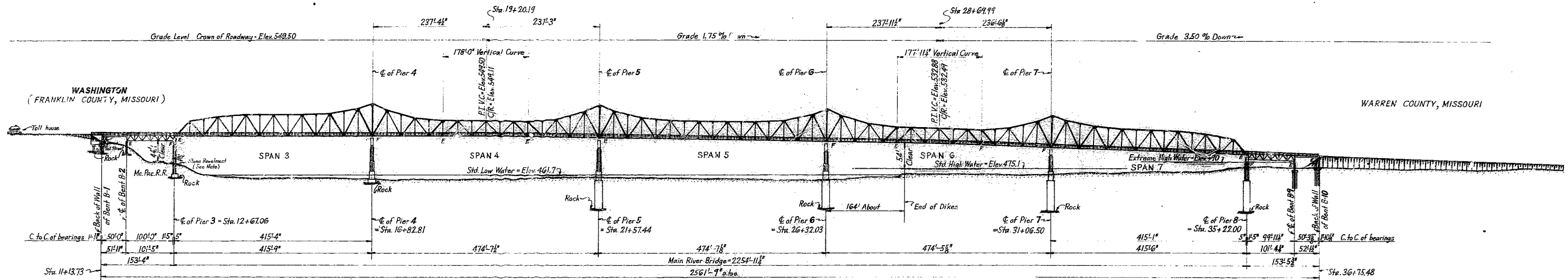
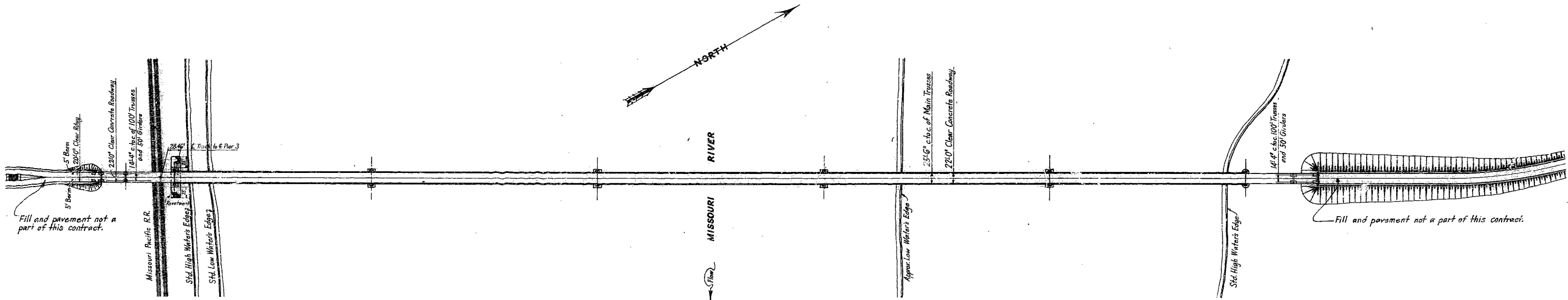


MISSOURI STATE HIGHWAY DEPARTMENT



ELEVATION



PLAN

352

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

PAINTING BRIDGE OVER MISSOURI RIVER
 AT WASHINGTON MISSOURI
 PROJECT NO. RTE. 47 C036-47 (1M)
 FRANKLIN COUNTY

HIGHWAY BRIDGE OVER MISSOURI RIVER
 AT
 WASHINGTON, MISSOURI.
 FOR
 CITY OF WASHINGTON, MISSOURI.
 AND
 MISSOURI STATE HIGHWAY DEPARTMENT.

LIST OF DRAWINGS

1. LOCATION PLAN AND SOUNDINGS
2. GENERAL PLAN AND ELEVATION
3. DETAIL OF ABUTMENT B I
4. DETAILS OF BENTS
5. DETAILS OF PIERS
6. DETAILS OF PIERS
7. STRESS SHEET L0 TO L22 -MAIN SPAN
8. STRESS SHEET L22 TO L38 -MAIN SPAN
9. MAIN SPAN STRUCT. DETAILS L0-L4
10. MAIN SPAN STRUCT. DETAILS L5-L10
11. MAIN SPAN STRUCT. DETAILS L11-L16
12. MAIN SPAN STRUCT. DETAILS L17 - L22
13. MAIN SPAN STRUCT. DETAILS L30 - L35
14. MAIN SPAN STRUCT. DETAILS L36 - L38
15. MAIN SPAN STRUCT. DETAILS -CROSS SECTIONS
16. EXPANSION AND HANDRAIL DETAILS
17. STRUCT. DETAILS OF APPROACH SPANS
18. SHOE DETAILS
19. NAVIGATION LIGHTS AND TOLL HOUSE

PREPARED BY
 SVERDRUP & PARCEL
 CONSULTING ENGINEERS
 ST. LOUIS, MO.

P.W.A. DOCKET NO. 3393.
 P.W.A. PROJECT NO. 52.

FINISHED

APPROVED

CITY OF WASHINGTON, MISSOURI.

Fred A. Ruethe
 MAYOR

MISSOURI STATE HIGHWAY DEPT.

W. R. ...
 BRIDGE ENGINEER

T. H. ...
 CHIEF ENGINEER

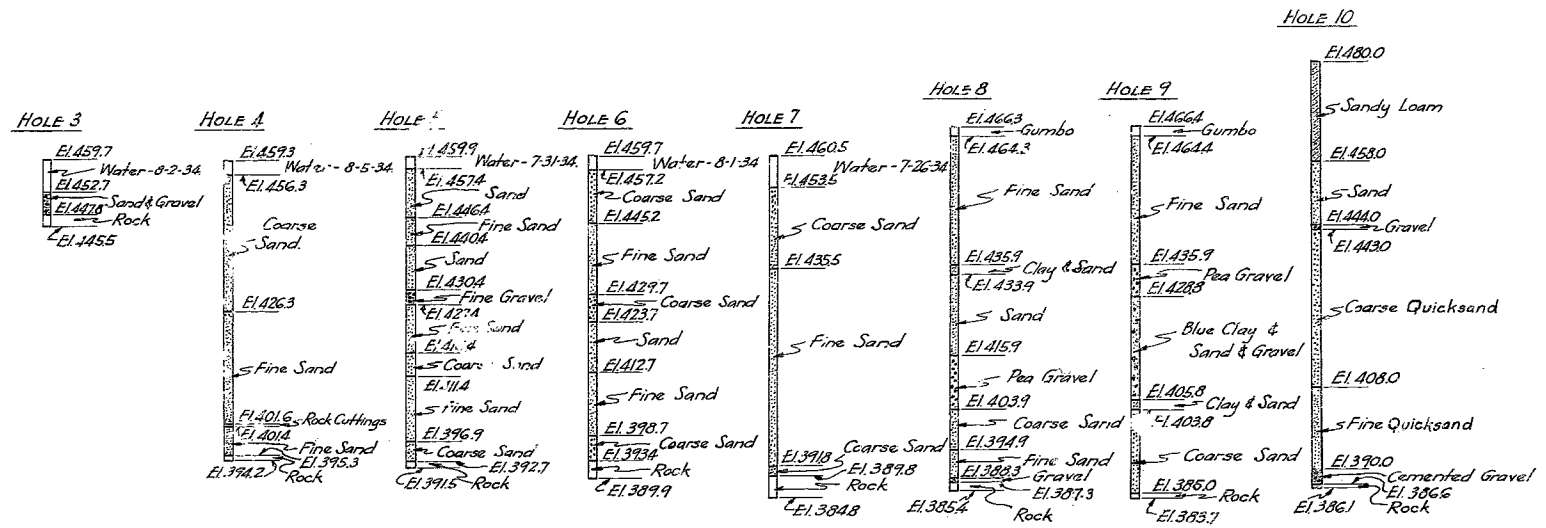
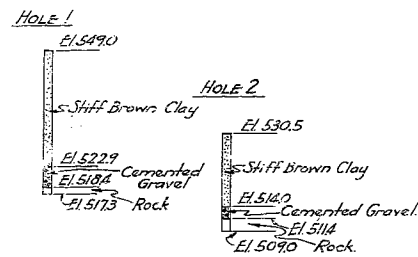
FEDERAL EMERGENCY ADMINISTRATION
 OF PUBLIC WORKS

Hugh Miller
 STATE ENGINEER FOR MISSOURI

Rt. 47
 Franklin-Warren Cos
 K-967

FINISHED

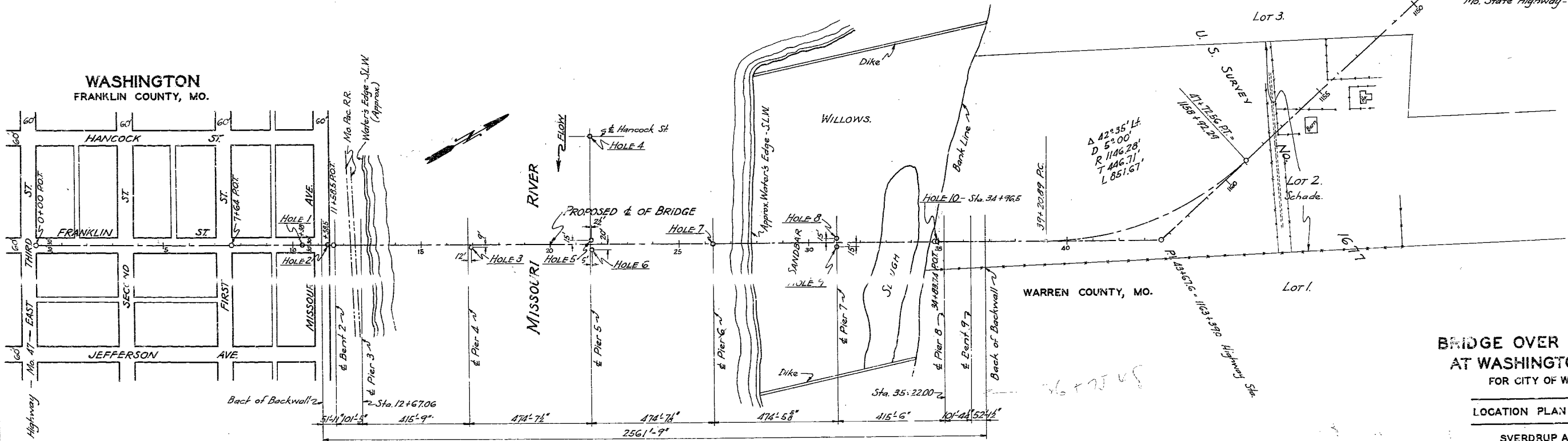
324



Note -
The log of borings shown shows material found in making soundings, and only indicates the material which might be encountered. No additional compaction will be allowed for variations in the material from that shown.

LOG OF BORINGS

375



LOCATION OF SOUNDINGS

**BRIDGE OVER MISSOURI RIVER
AT WASHINGTON, MISSOURI
FOR CITY OF WASHINGTON, MO.**

LOCATION PLAN AND SOUNDINGS

SVERDRUP AND PARCEL
CONSULTING ENGINEERS
ST. LOUIS, MO.

FINISHED

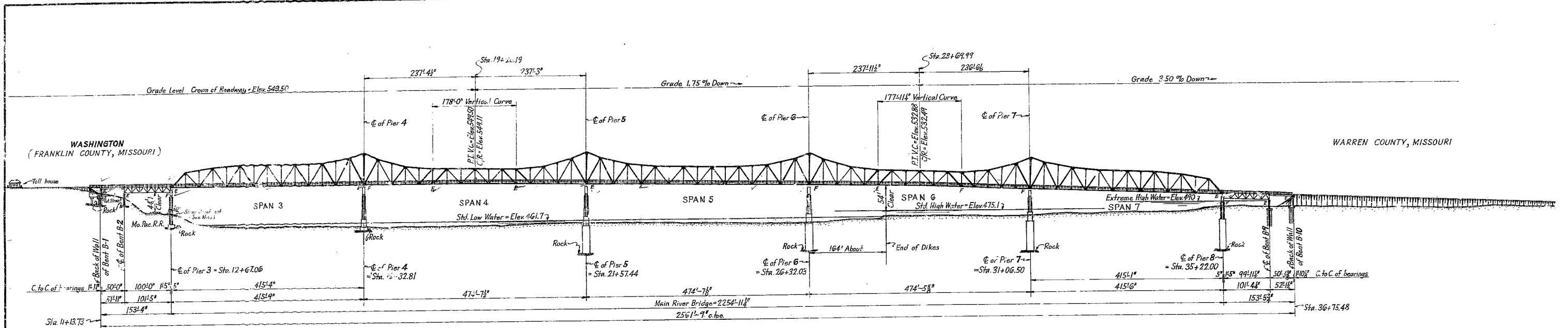
FINISHED

Made by - EBM - Aug. 1934.
Traced by - EBM -
Checked by - LF

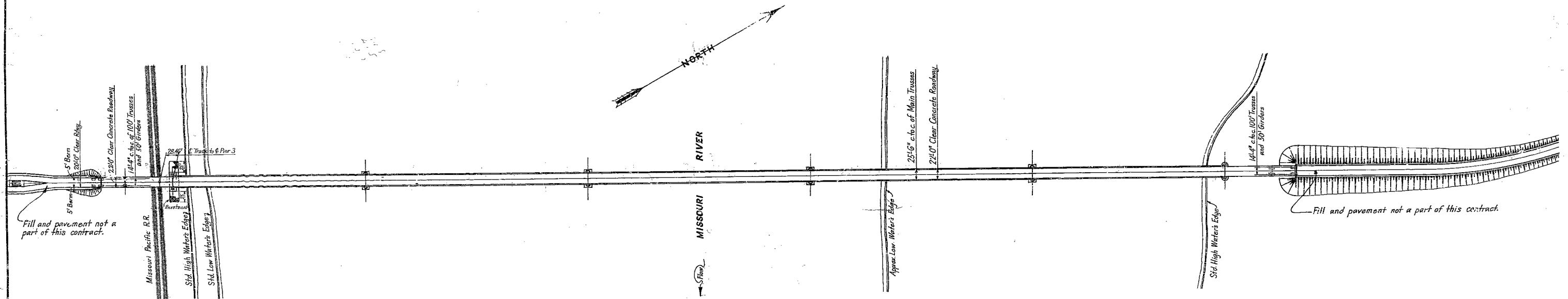
SHEET NO. 1

11-91-9
From - Notes 505
R-1

Rev. C. C. Piers, 9-24-34



ELEVATION



PLAN

GENERAL NOTES

Concrete in Roadway Slab to be Class B with a minimum strength of 4000 lbs. per sq. inch in accordance with Paragraph 102-4 of the Specifications. Concrete in Approach Bents, in Pier shafts and in working chambers of Caissons, to be Class B. Concrete in Pier Bases, except in working chambers, to be Class C.

Before commencing construction, the contractor constructing the foundations for the main Piers shall submit to the Engineer for approval, complete working details of the method he proposes to use. The method and details proposed shall be approved before construction of such foundations begins.

Bevel exposed edges of all concrete work $\frac{3}{4}$ " where no other bevel is noted. Provide substantial keys at all concrete construction joints.

No Piling shall be ordered until authorized by the Engineer in writing. Timber piling to be driven to support a load of 25 Tons.

Complete bar lists and bending sketches will be furnished the Contractor by the Engineer.

Lap splices in reinforcing bars 48 diameters unless otherwise noted. Hooks on bars shall be bent to a diameter of not less than 6 times the diameter of the bar. Bars bent up shall, unless otherwise noted, be bent to an angle of 45° with the bottom reinforcing, using a radius of bend of not less than 4 diameters.

Provide Revetment at Pier 3, consisting of one-man stumps, averaging 12" thickness; extending from top of bank down slope a distance of 20'; also upstream and downstream from ends of excavation a distance of 25'.

B.M. - Top of U.S. Engrs. Triangulation Post No. 220 which is a 2 1/2" Pipe, 530 ft. Rt. of Sta. 12+48. Elev. 491.55 feet above M.S.L.

**BRIDGE OVER MISSOURI RIVER
AT WASHINGTON MISSOURI
FOR CITY OF WASHINGTON, MO.**

GENERAL PLAN AND ELEVATION

**SVERDRUP AND PARCEL
CONSULTING ENGINEERS
ST. LOUIS, MO.**

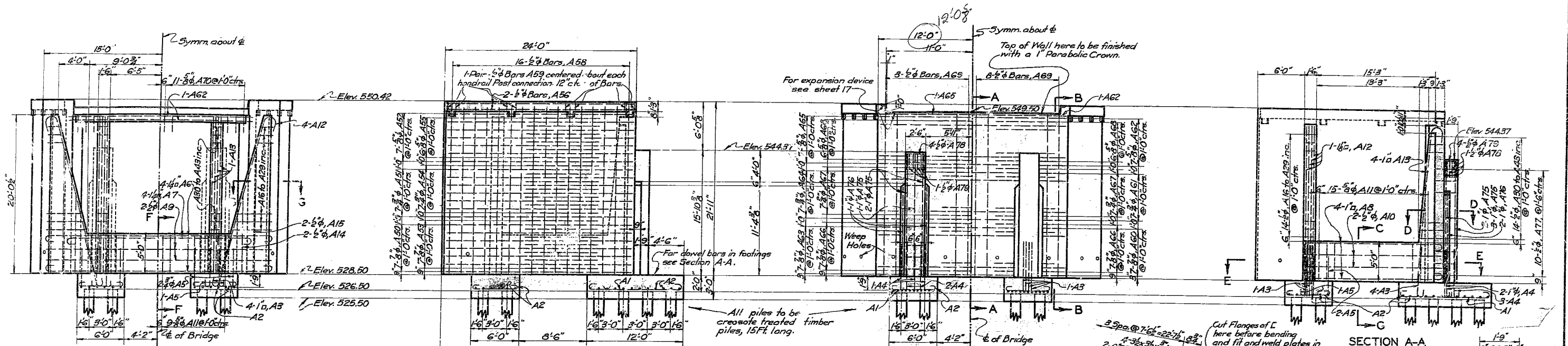
Made by C.E.S. Jr. July 1923
Traced by C.E.S. Jr. Sept. 1933
Checked by J.A.J. Sept. 1934

FINISHED

SHEET NO. 2.

326

327



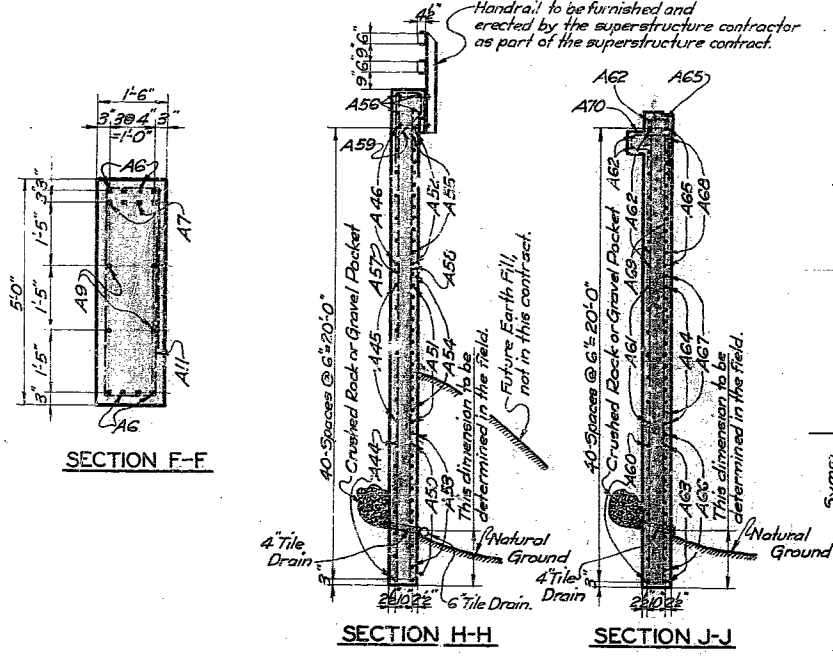
REAR ELEVATION

SIDE ELEVATION

FRONT ELEVATION

SECTION A-A

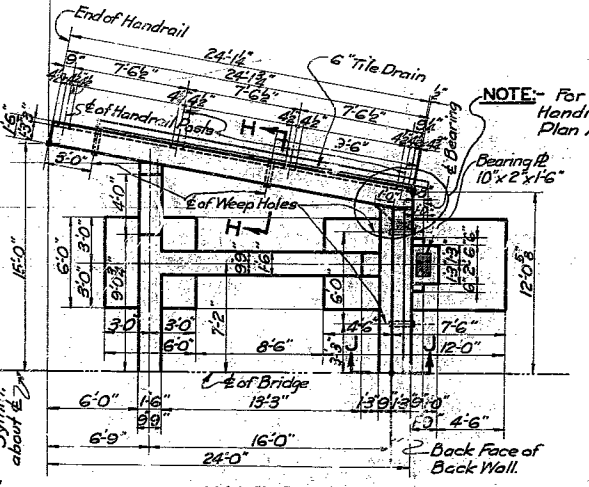
PART PLAN SHOWING BRIDGE SEAT



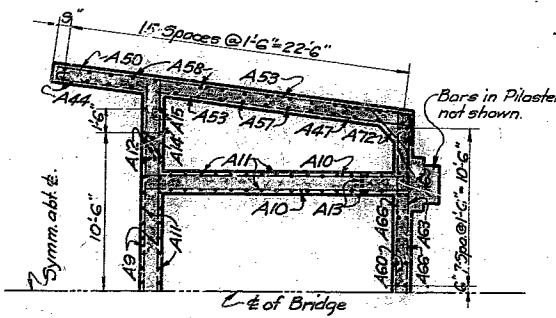
SECTION F-F

SECTION H-H

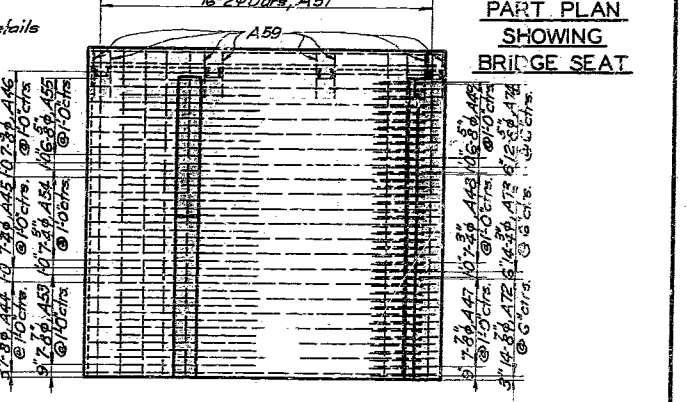
SECTION J-J



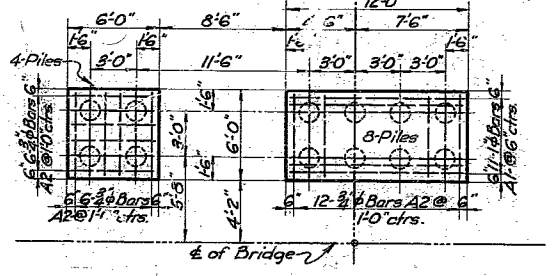
HALF PLAN



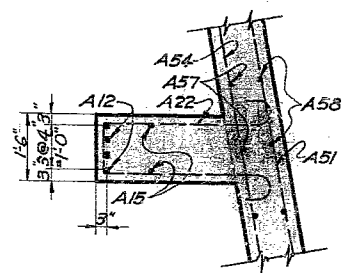
SECTION E-E



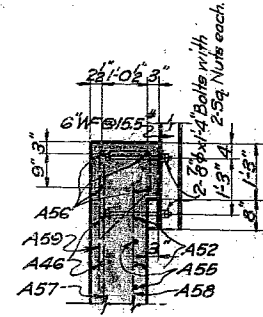
SECTION B-B



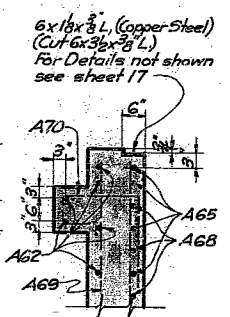
HALF FOOTING PLAN



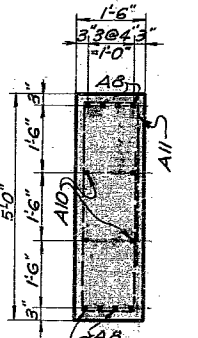
SECTION G-G



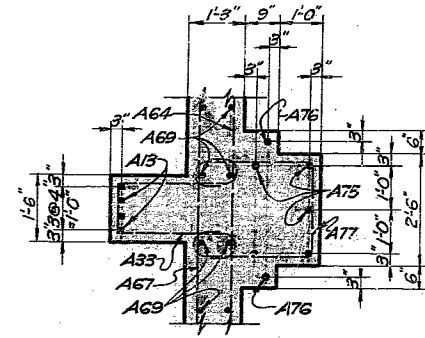
SECTION H-H AT TOP



SECTION J-J AT TOP



SECTION C-C



SECTION D-D

NOTES:- All concrete to be Class B.
 Anchor bolts for handrail shall be furnished by the Superstructure Contractor at the contract price for "Fabricated Structural Steel". Bolts to be set by the Substructure Contractor to templates furnished by the Superstructure Contractor.
 No special payment will be made for tile drains. Cost shall be included in the contract unit price of "Concrete in Bents and Abutments".
 Roadway and curb expansion plates to be furnished at the site by the contractor for the superstructure and set by the contractor for the substructure. Cost of setting expansion devices to be included in the price paid for concrete in Bents and Abutments.

**BRIDGE OVER MISSOURI RIVER
 AT WASHINGTON, MISSOURI.**

FOR CITY OF WASHINGTON, MO.

DETAIL OF ABUTMENT B1.

SVERDRUP AND PARCEL.
 CONSULTING ENGINEERS
 ST. LOUIS, MO.

Made by: S.L.V. Aug. 1924
 Traced by: S.L.V. Aug. 1934
 Checked by: J.A.J. Sept. 1934

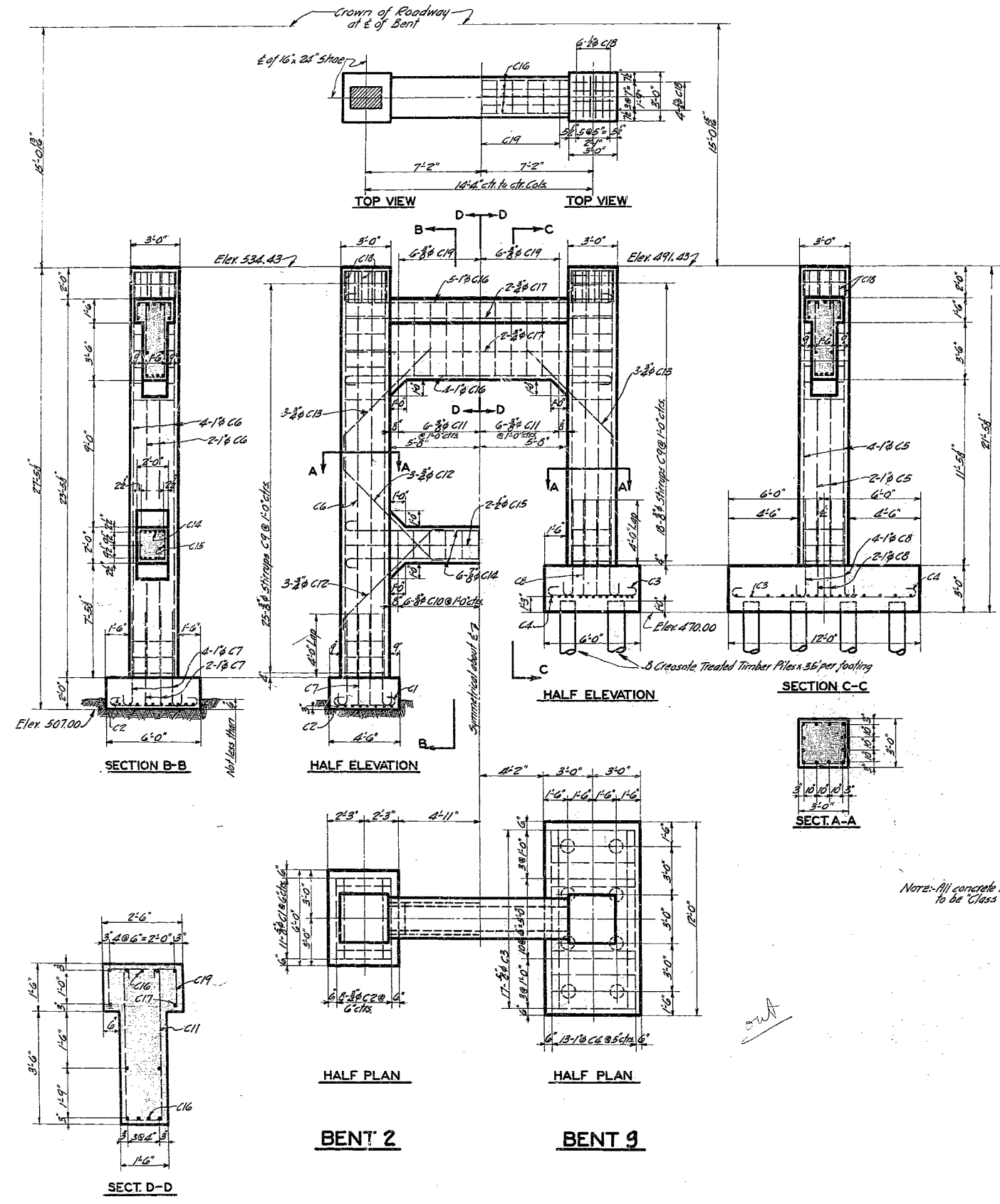
FINISHED

FINISHED

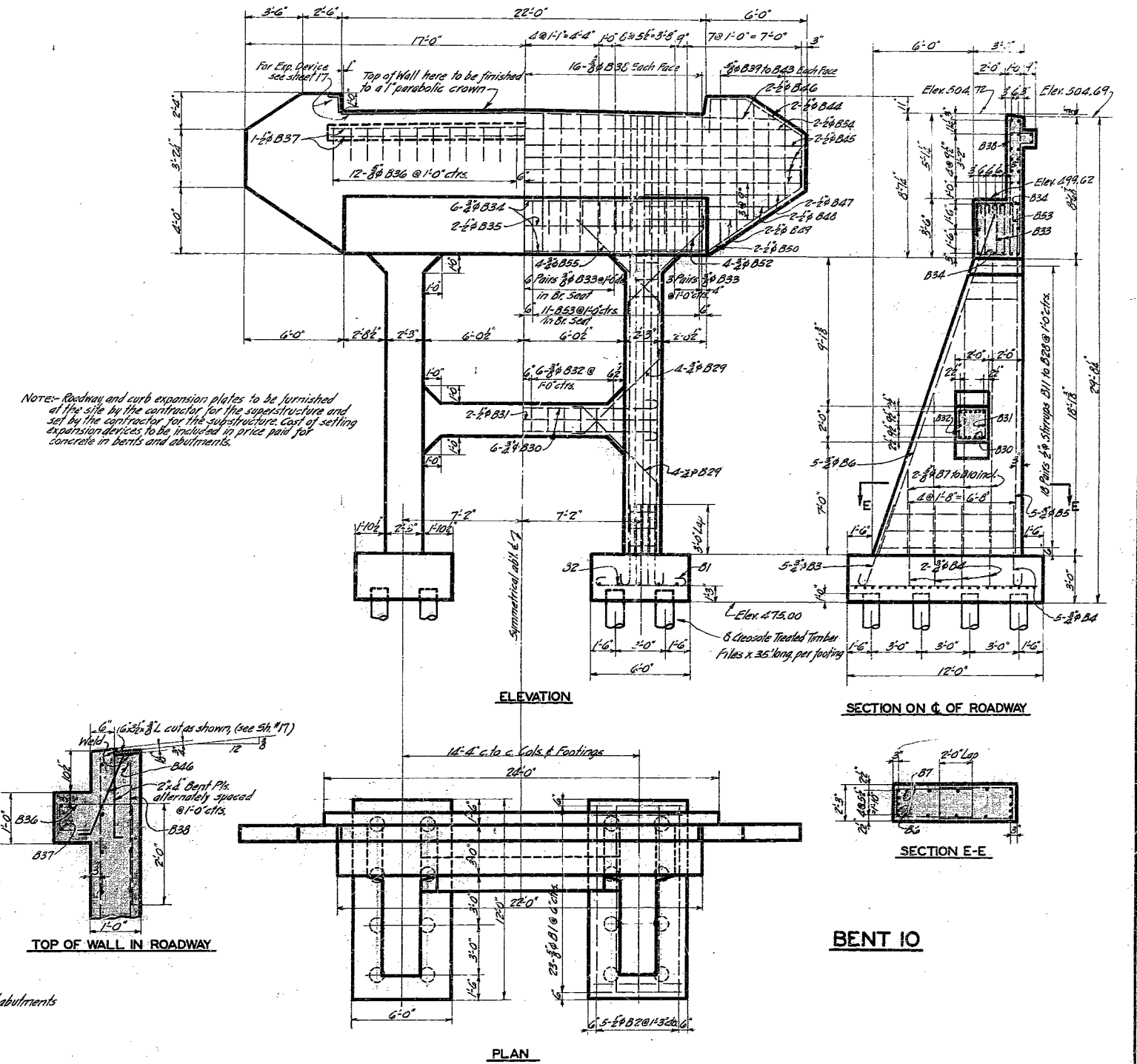
SHEET NO. 3.

From P.O. Warren Co. R.F. 47

328

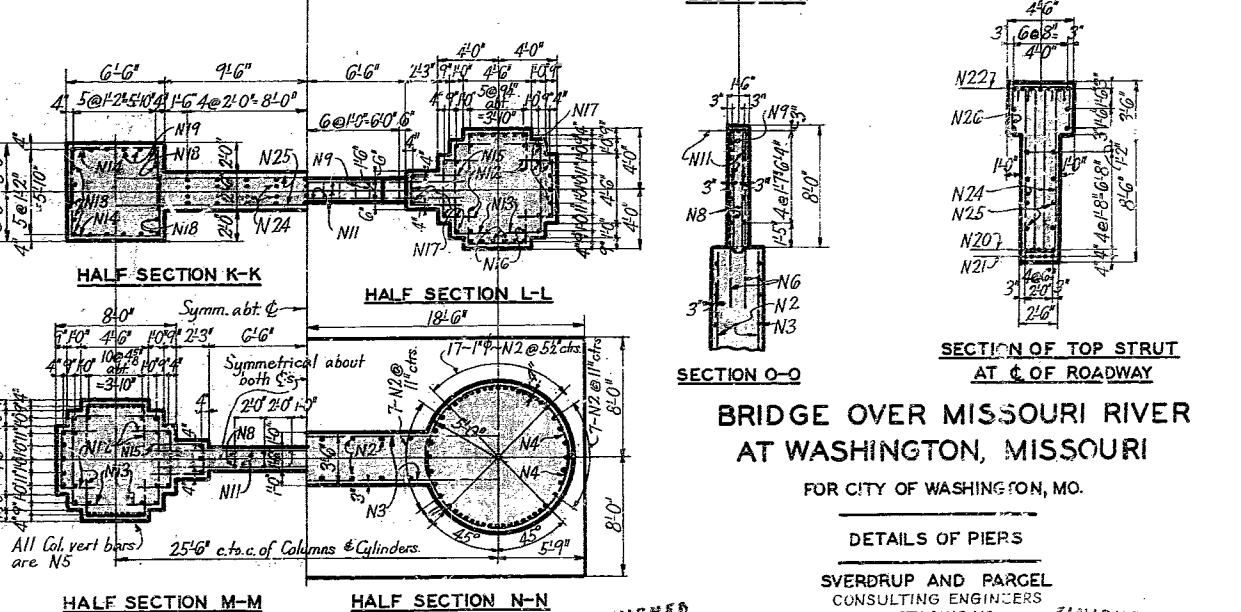
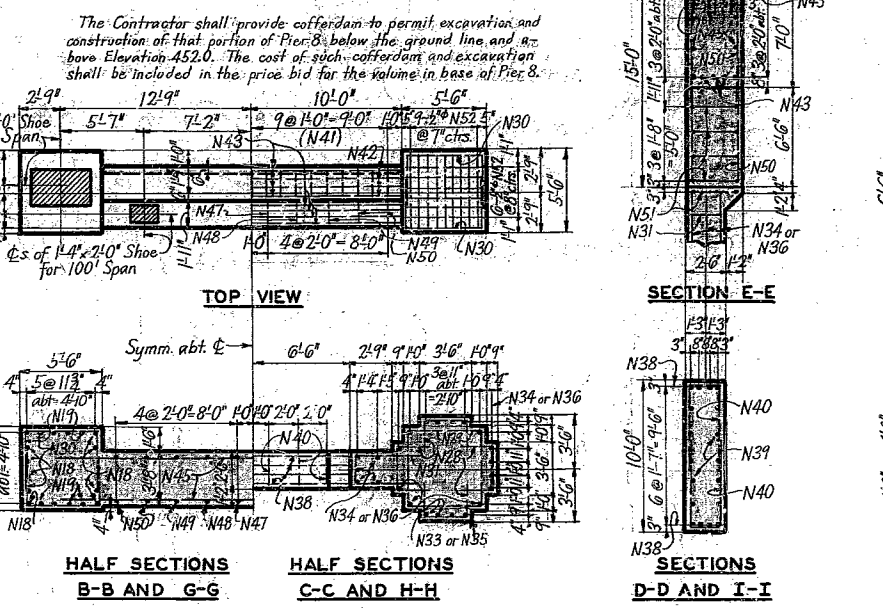
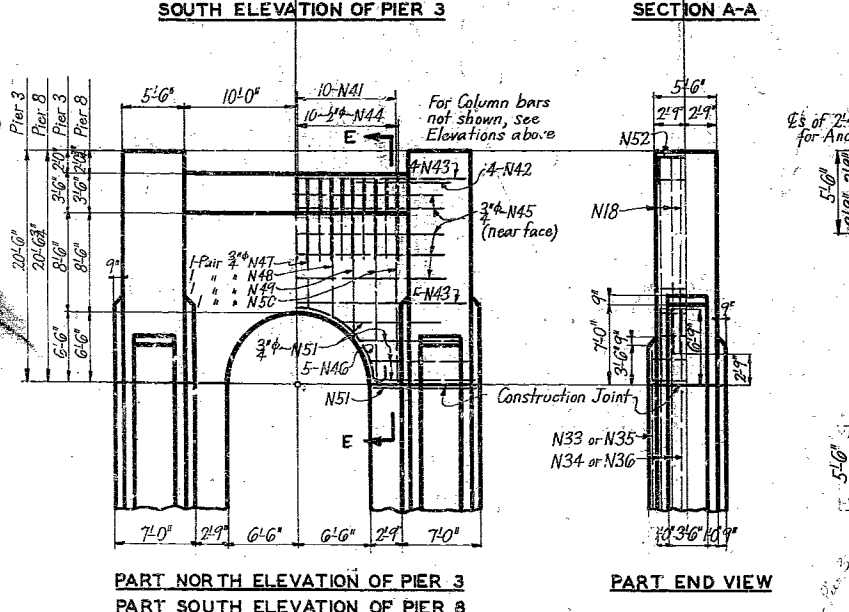
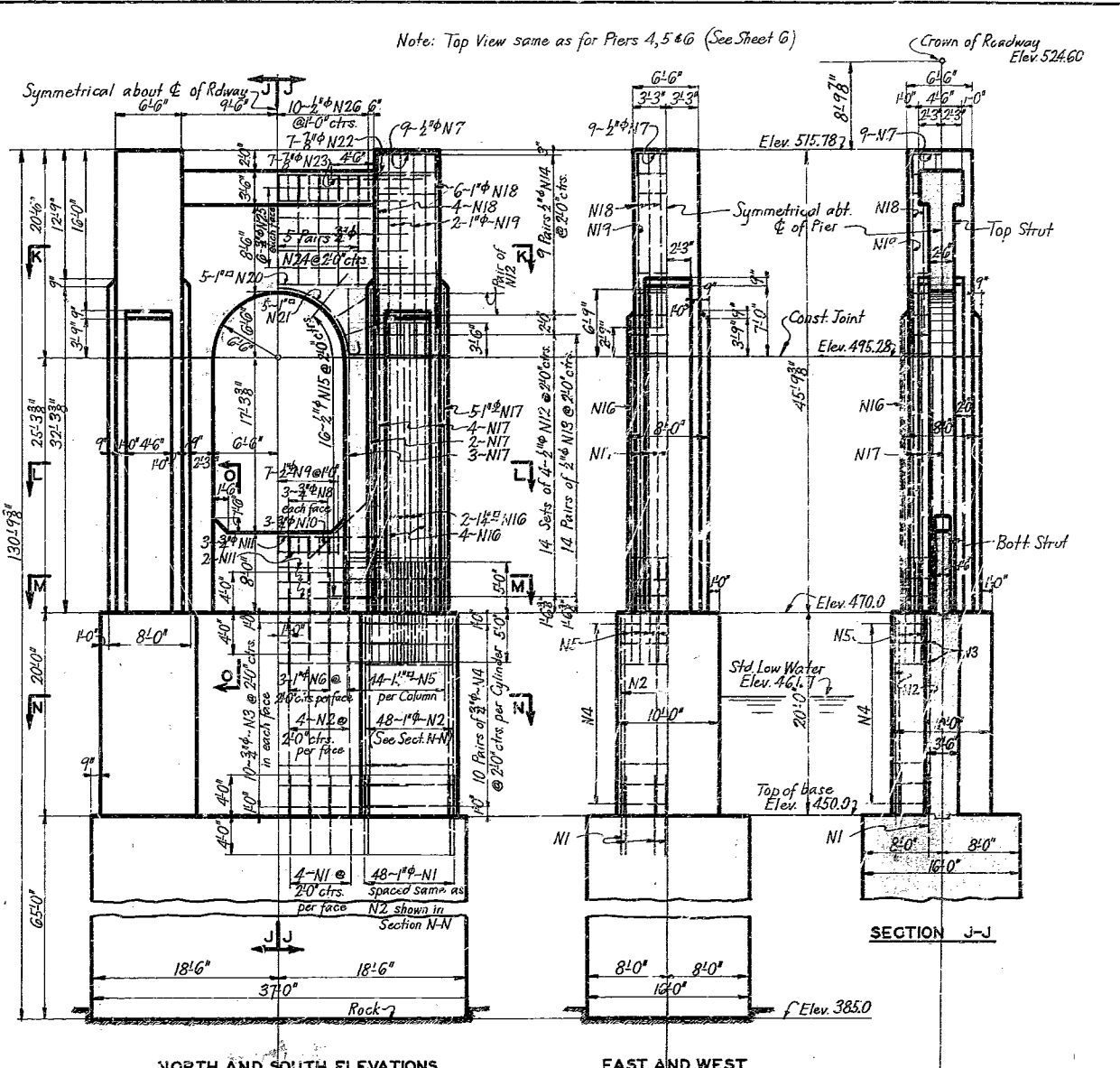
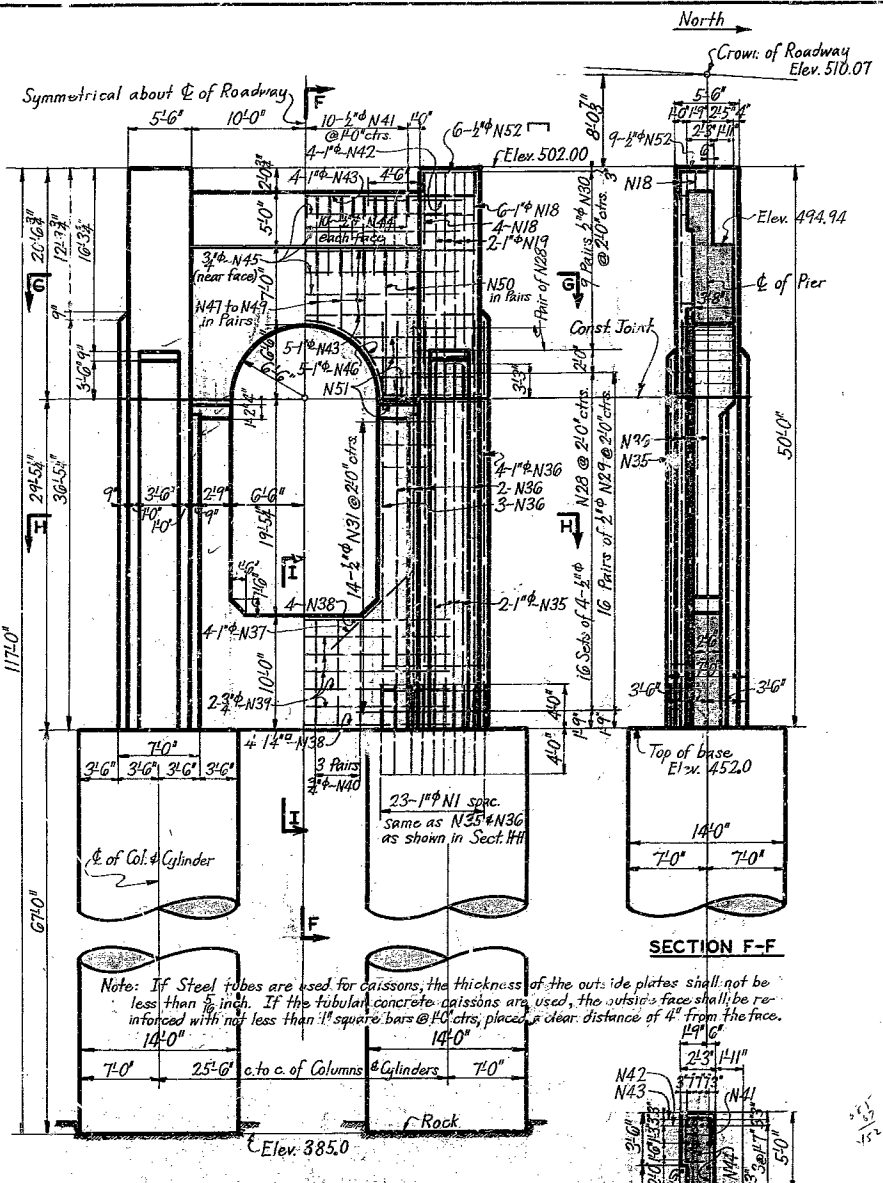
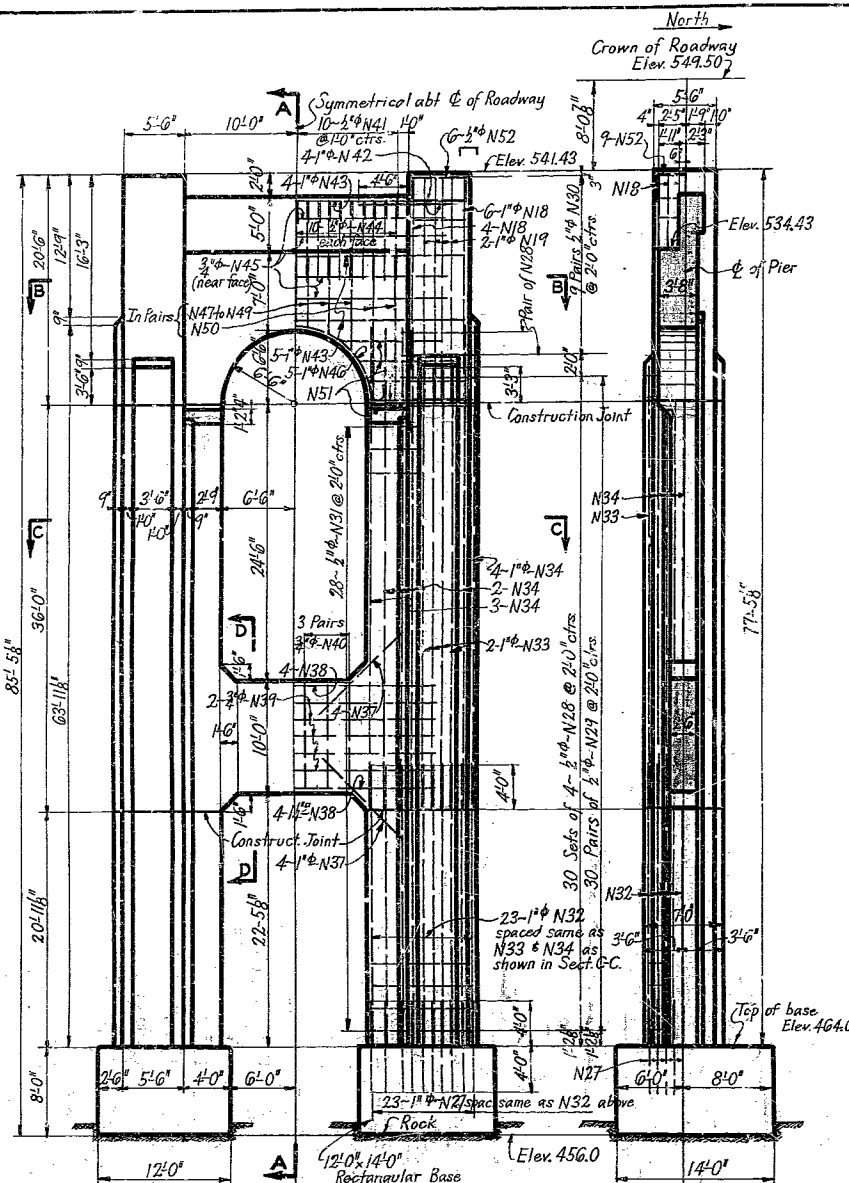


Note: All concrete in bents and abutments to be Class B.



**BRIDGE OVER MISSOURI RIVER
AT WASHINGTON MISSOURI**
FOR CITY OF WASHINGTON MO.

DETAILS OF BENTS
SVDRUP AND PARCEL
CONSULTING ENGINEERS
ST. LOUIS, MO.



PIERS 3 AND 8

PIER 7

BRIDGE OVER MISSOURI RIVER AT WASHINGTON, MISSOURI

FOR CITY OF WASHINGTON, MO.

DETAILS OF PIERS

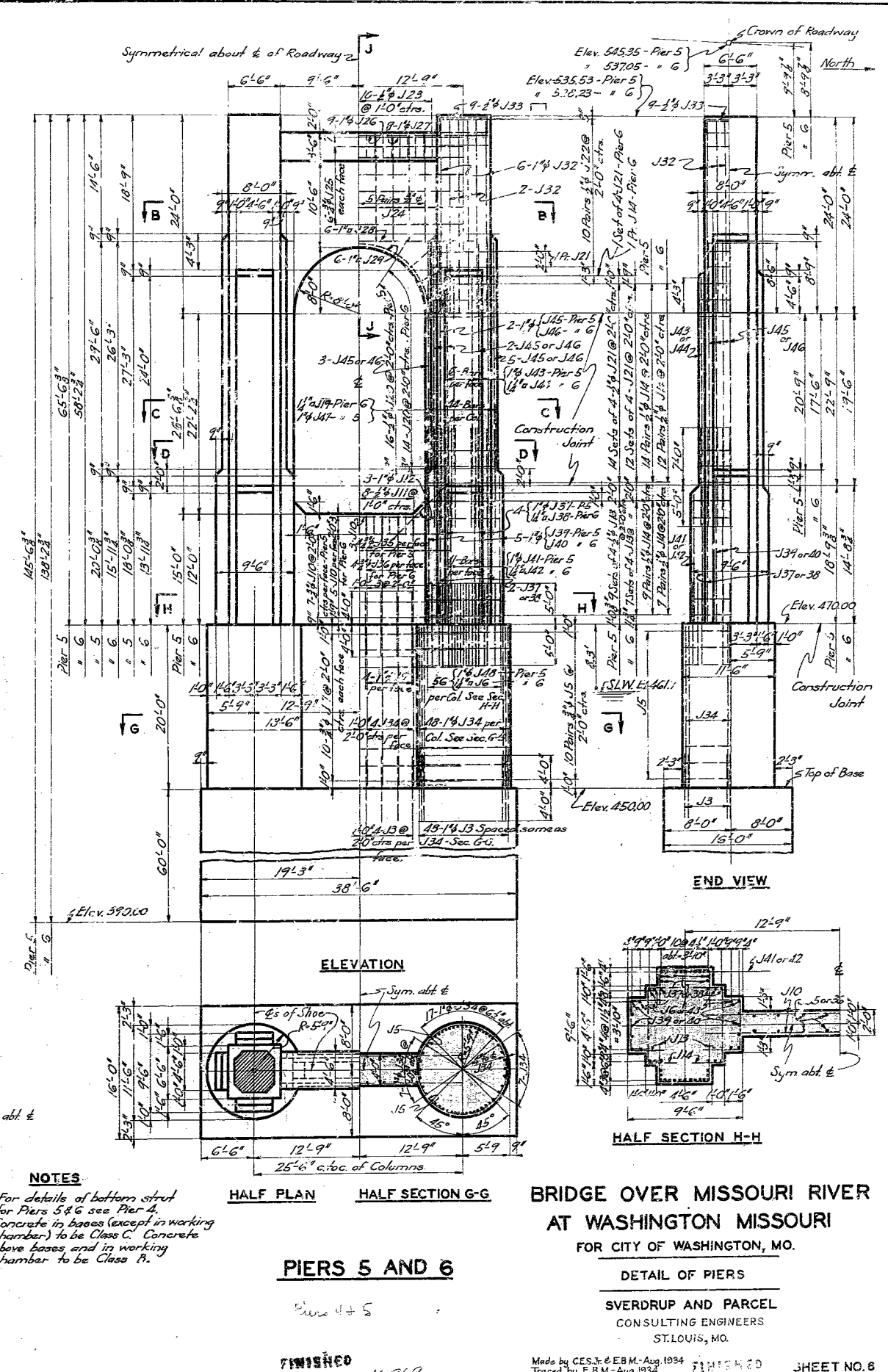
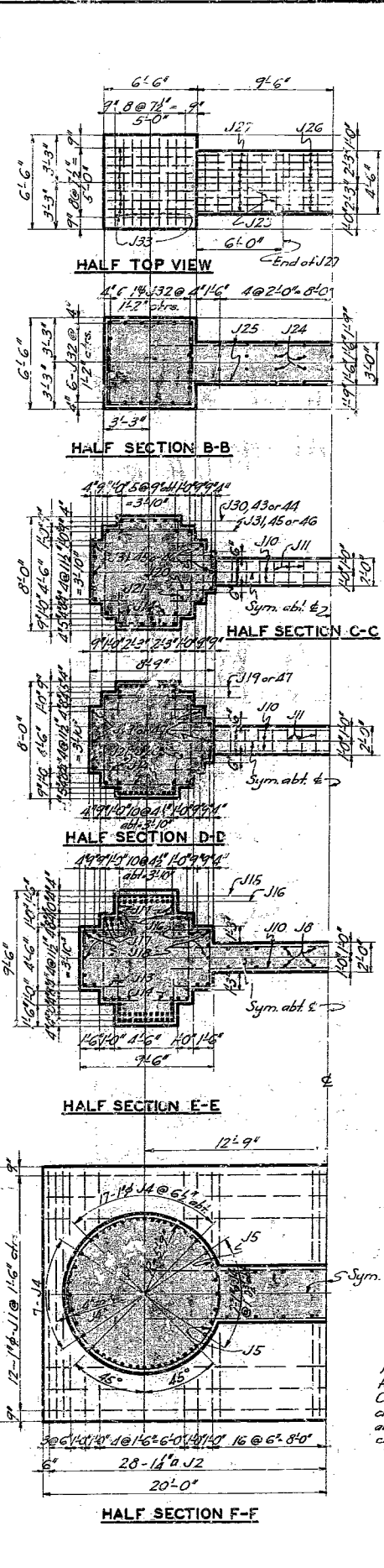
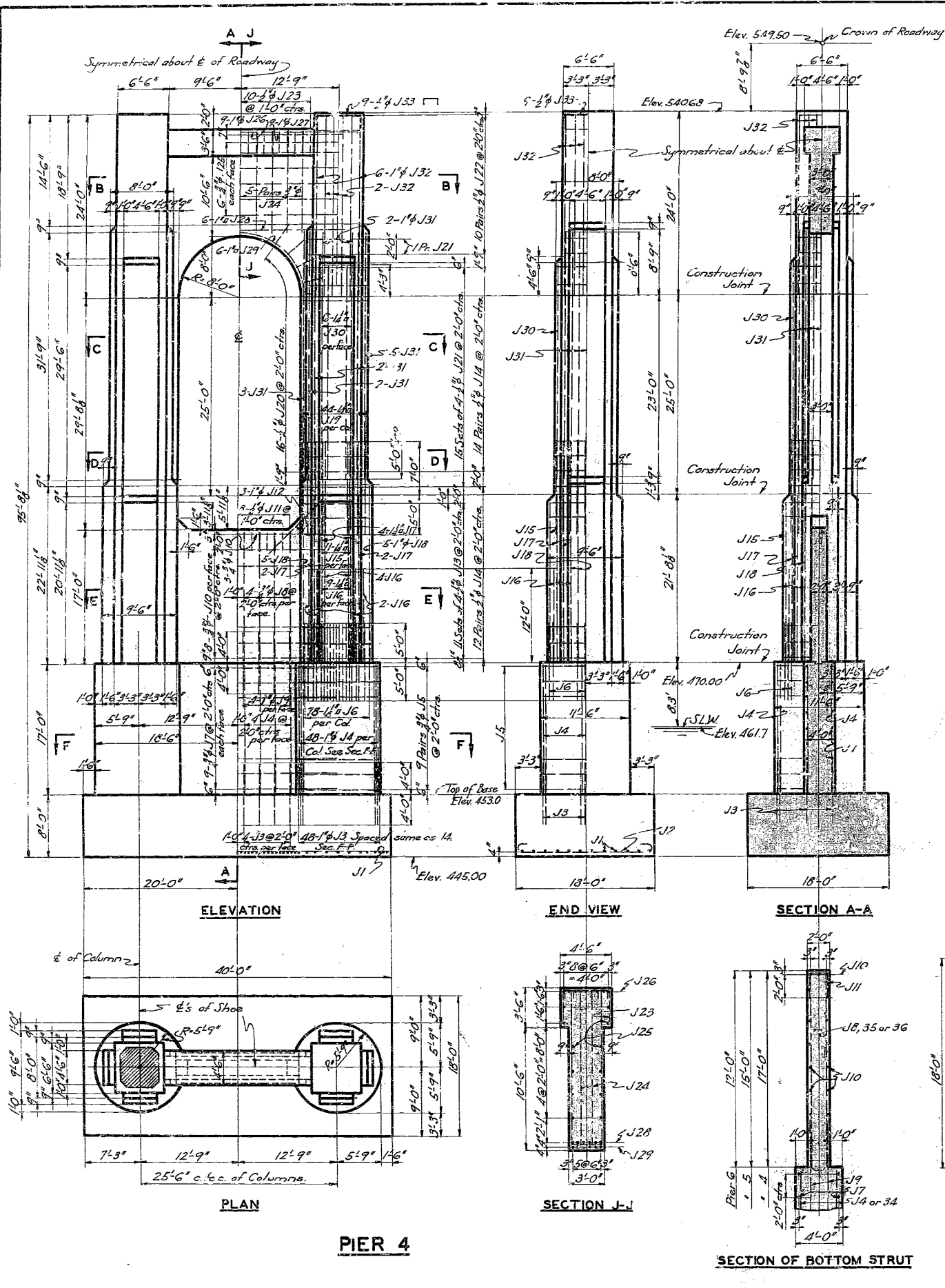
SVERDRUP AND PARGEL CONSULTING ENGINEERS ST. LOUIS, MO.

Concrete in bases (except in working chamber) to be Class C. Concrete above bases and in working chamber to be Class B.

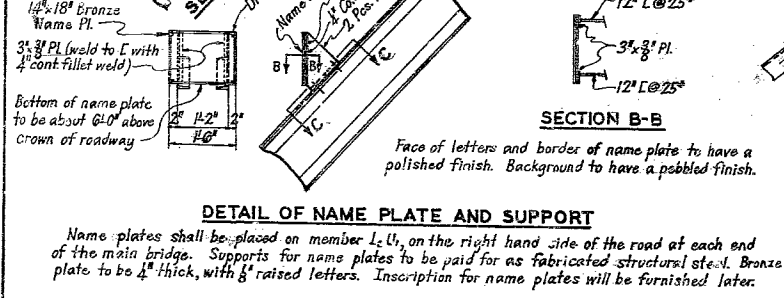
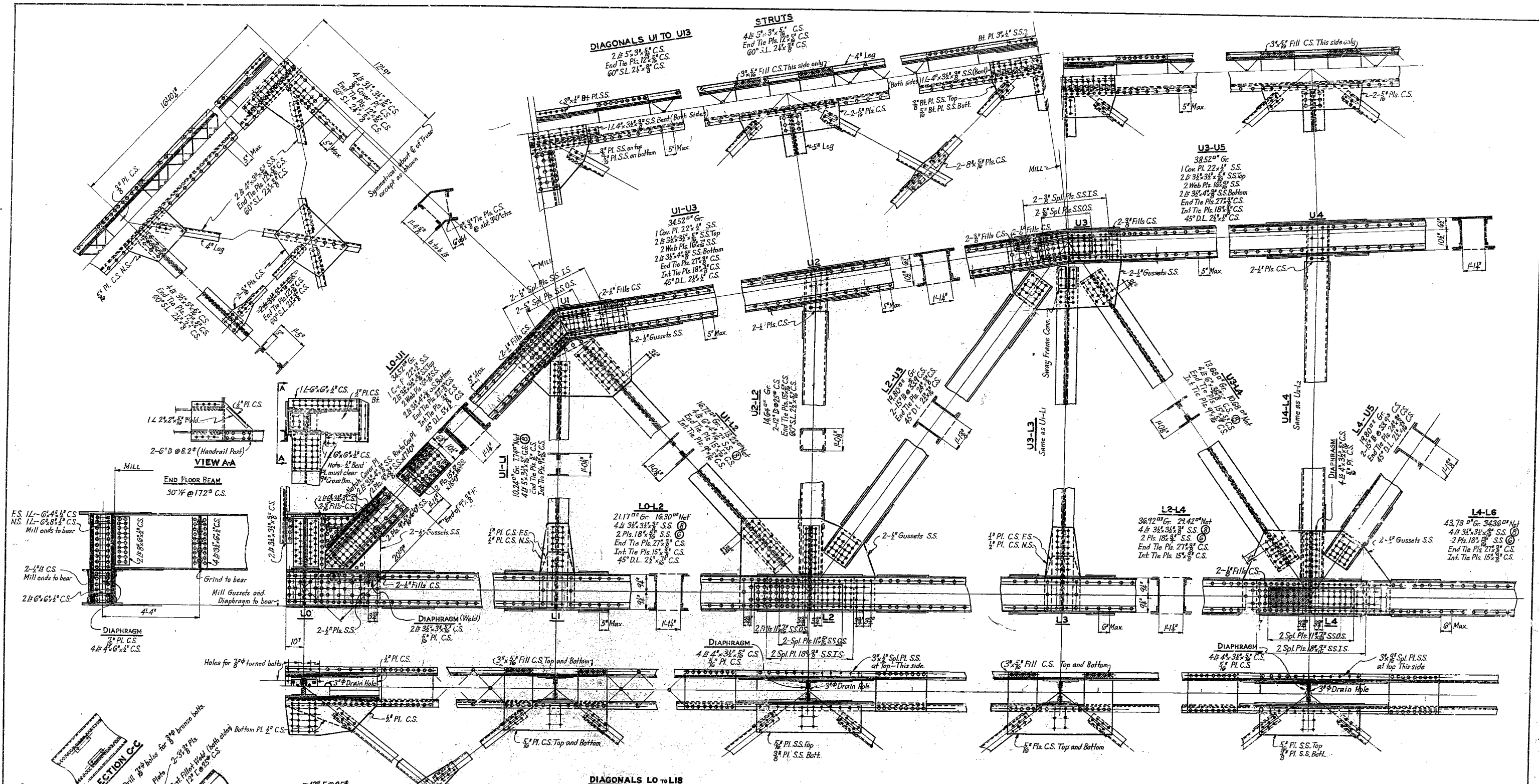
Made by C.E.S.F. Aug. 1934
Traced by C.E.S.F. Aug. 1934
Checked by J.A.J. Sept. 1934

SHEET NO. 5

329



333



DIAGONALS LO TO LIB
 2 1/2 5 3/4 x 5/8 CS
 End Tie Pls. 12 1/2 x 5/8 CS
 60° S.L. 2 1/2 x 5/8 CS

NOTES
 All material marked "SS" to be Silicon Steel.
 All material marked "CS" to be Carbon Steel.
 (H) indicates maximum number of holes out to maintain required net section.
 All rivets 3/4" except in battens and lacing of bracing, which are to be 3/8".
 Clear distance between batten plates on tension members shall not exceed 3'-0".
 See Sheet #15 for Typical Cross-Section.
 Diaphragms at ends of web members to be welded in place for shipment.

**BRIDGE OVER MISSOURI RIVER.
 AT WASHINGTON, MISSOURI
 FOR CITY OF WASHINGTON, MO.**

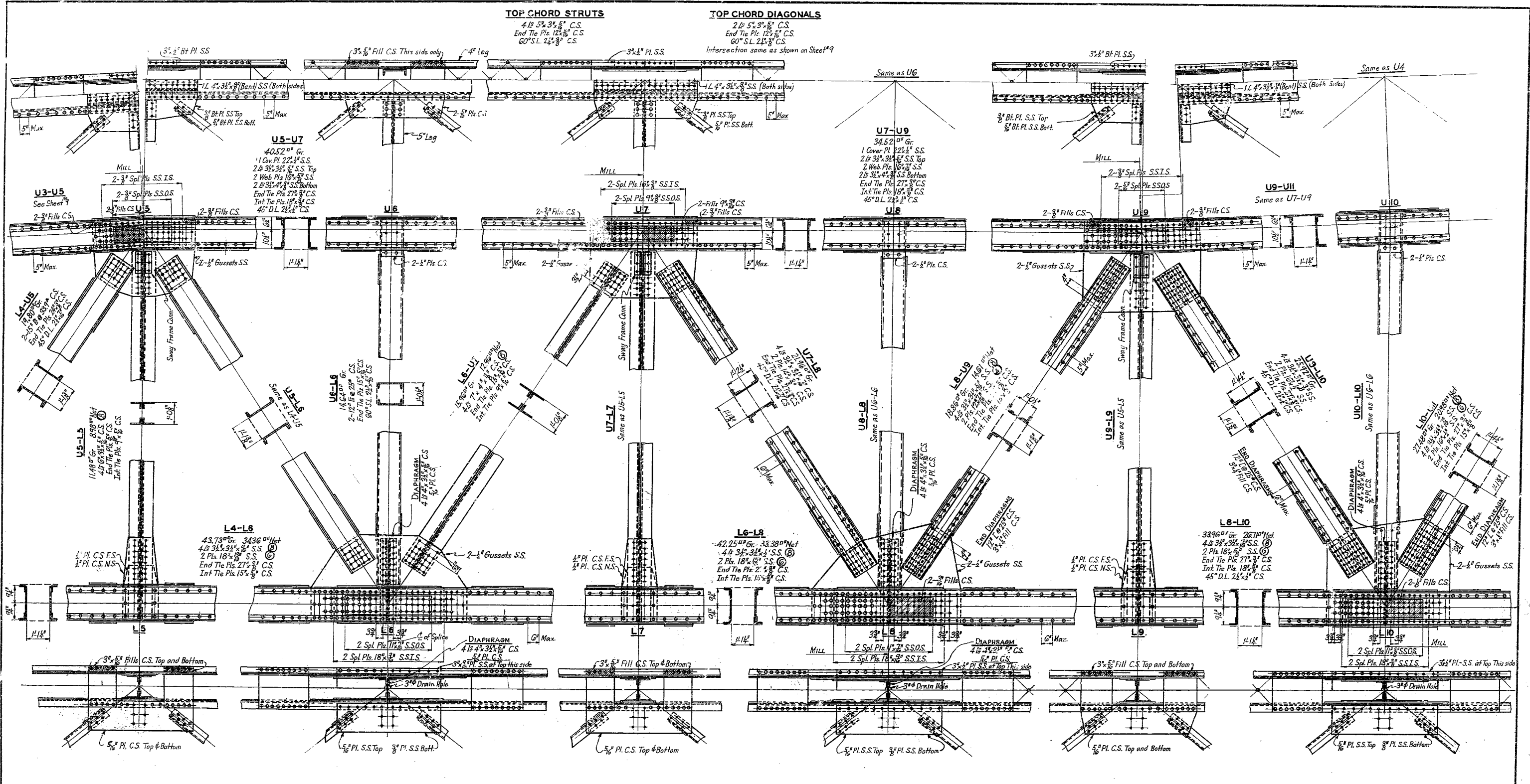
MAIN SPAN STRUCTURAL DETAILS LO-L4

S.V.L. RDRUP AND PARCEL
 CIVIL ENGINEERS
 ST. LOUIS, MO.

Made by L.F. Aug. 17
 Traced by L.F. & C.S. Aug. 1933
 Checked by B.R.S. Oct. 1934

K-967 SHEET NO. 9
 Francis - Merton Co.
 R1 47

334



NOTES

All material marked "S.S." to be Silicon Steel.
 All material marked "C.S." to be Carbon Steel.
 (C) indicates maximum number of holes out to maintain required net section.
 All rivets 3/8" except in battens and lacing of bracing, which are to be 3/4".
 Clear distance between batten plates on tension members shall not exceed 3'-0".
 See Sheet #15 for Typical Cross-Section.
 Diaphragms at ends of web members to be welded in place for shipment.

BRIDGE OVER MISSOURI RIVER AT WASHINGTON, MISSOURI

FOR CITY OF WASHINGTON, MO.

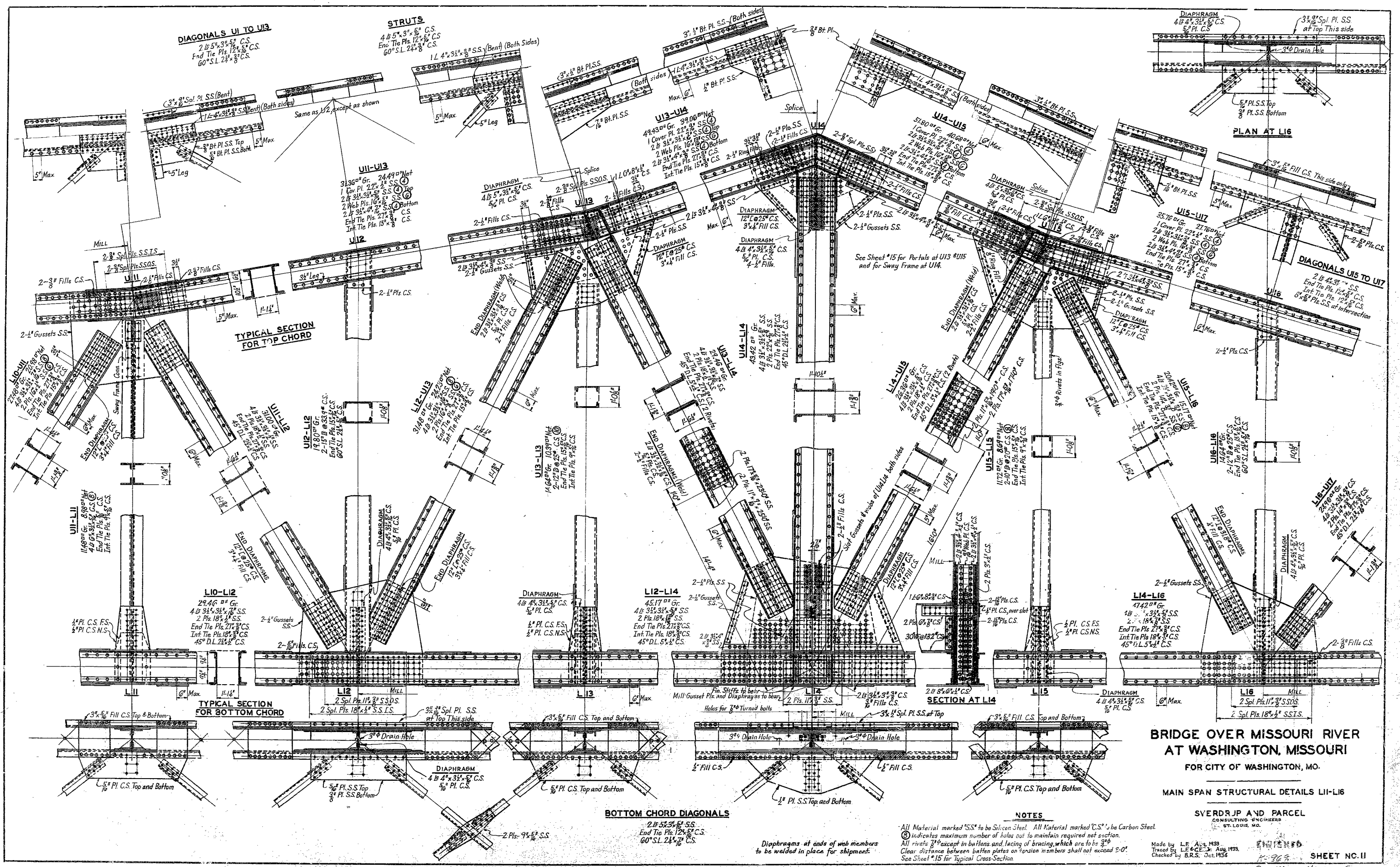
MAIN SPAN STRUCTURAL DETAILS L5-L10

SVERDRUP AND PARCEL
 CONSULTING ENGINEERS
 ST. LOUIS, MO.

Made by L.F. Aug 1933
 Traced by L.F. & C.E.S. Jr. Aug 1933
 Checked by B.R.S. Oct 1934

K-967 SHEET NO. 10
 Franklin - Warren Cos
 R-47

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DIAGONALS U1 TO U3
 2 1/2" x 3/4" x 5/8" C.S.
 End Tie Pls. 12" x 5/8" C.S.
 60° S.L. 2 1/2" x 3/8" C.S.

STRUTS
 4 1/2" x 3/4" x 5/8" C.S.
 End Tie Pls. 12" x 5/8" C.S.
 60° S.L. 2 1/2" x 3/8" C.S.

TYPICAL SECTION FOR TOP CHORD

TYPICAL SECTION FOR BOTTOM CHORD

BOTTOM CHORD DIAGONALS

**BRIDGE OVER MISSOURI RIVER
 AT WASHINGTON, MISSOURI
 FOR CITY OF WASHINGTON, MO.**

MAIN SPAN STRUCTURAL DETAILS LII-LI6

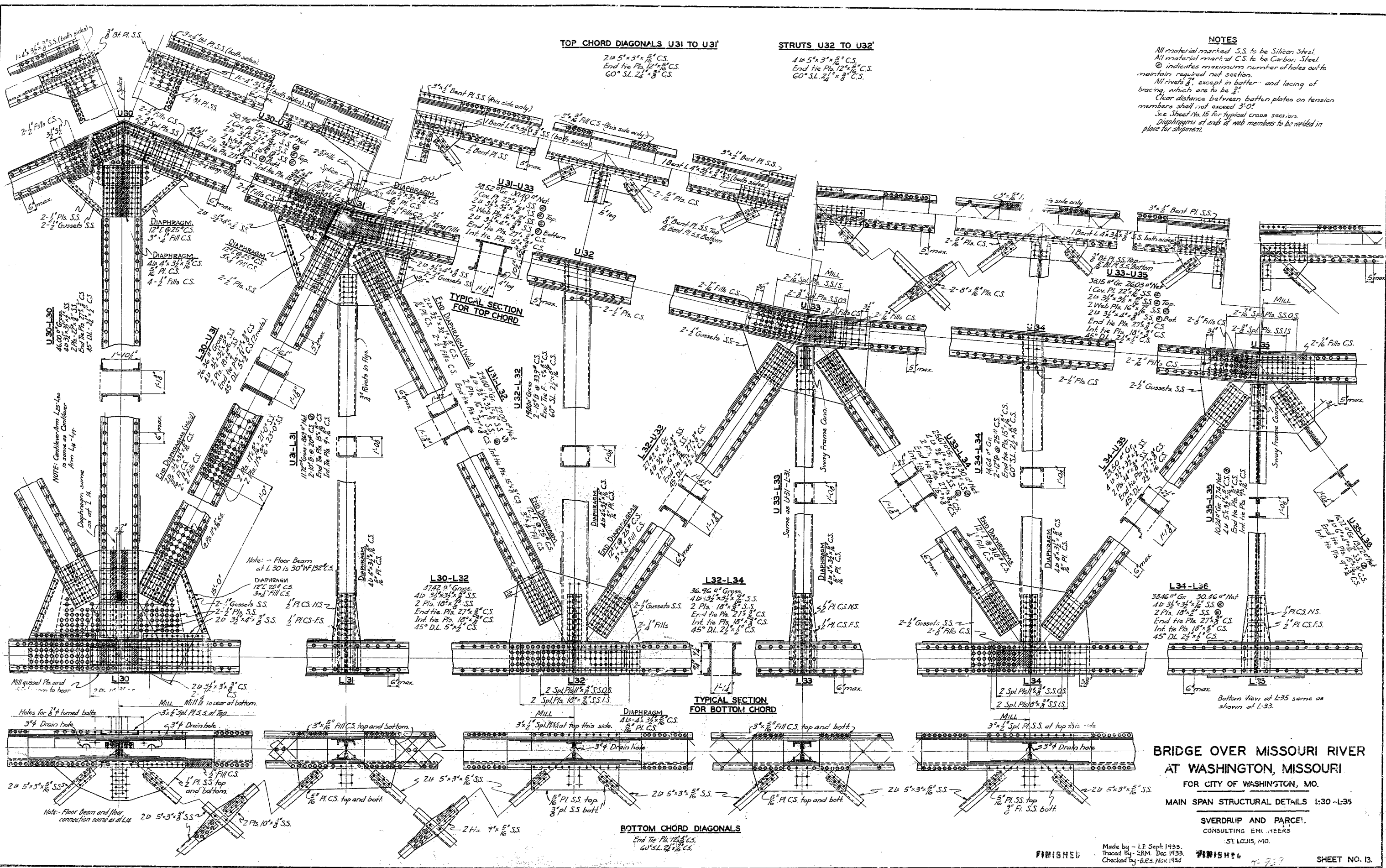
**SVERDRUP AND PARCEL
 CONSULTING ENGINEERS
 ST. LOUIS, MO.**

NOTES

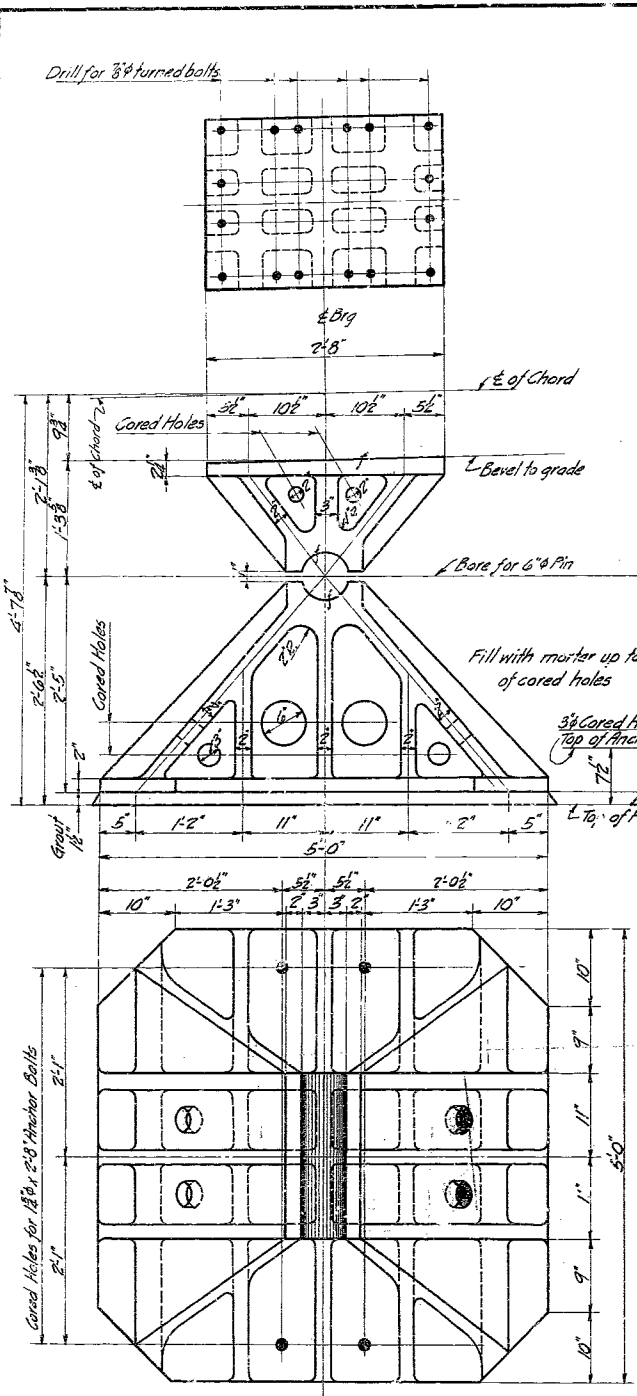
All Material marked "SS" to be Silicon Steel. All Material marked "CS" to be Carbon Steel.
 (C) indicates maximum number of holes cut to maintain required net section.
 All rivets 3/4" except in battens and facing of bracing, which are to be 3/8".
 Clear distance between batten plates on tension members shall not exceed 3'-0".
 See Sheet #15 for Typical Cross-Section.

Made by L.E. A. 1433
 Traced by L.E. C. 1433
 Checked by B.R.S. Oct. 1934

SHEET NO. II

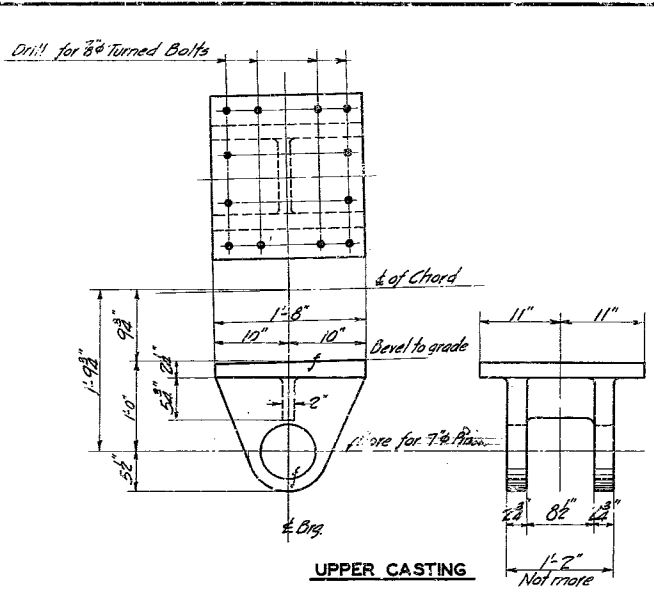


33

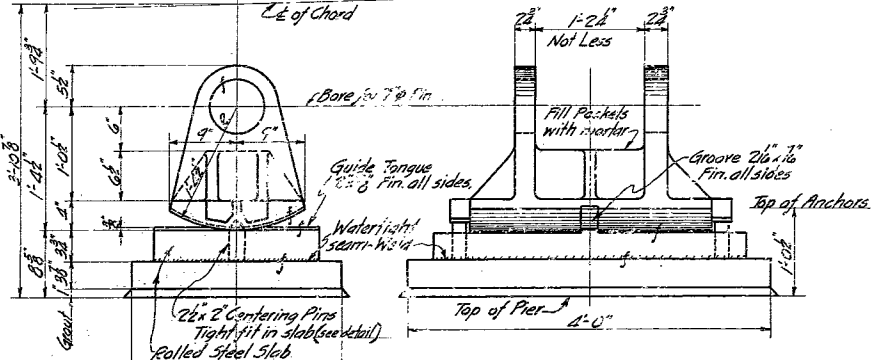


FIXED SHOE AT L 14, L 30, L 14'
6 Req'd.

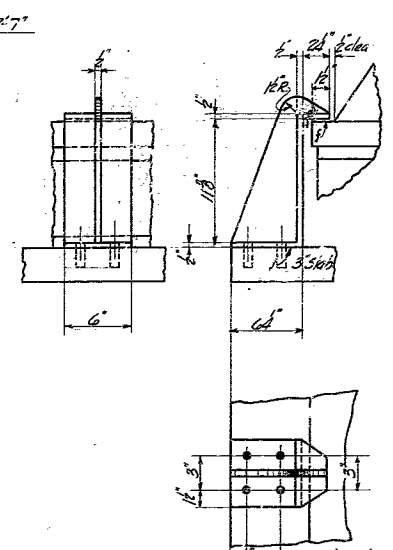
NOTES
 All material to be cast steel annealed unless noted.
 All fillets to be radius unless noted.
 All pins, pin nuts, rollers, anchor bolts and rolled steel to be paid for at this unit contract price for fabricated structural steel.
 All finished surfaces to be coated with white lead and tallow before leaving the shop.
 All anchor bolts to be furnished with square heads, 2 square nuts and 4 plate washers.
 Fabricator is to furnish without extra compensation any pilot and driving nuts required.



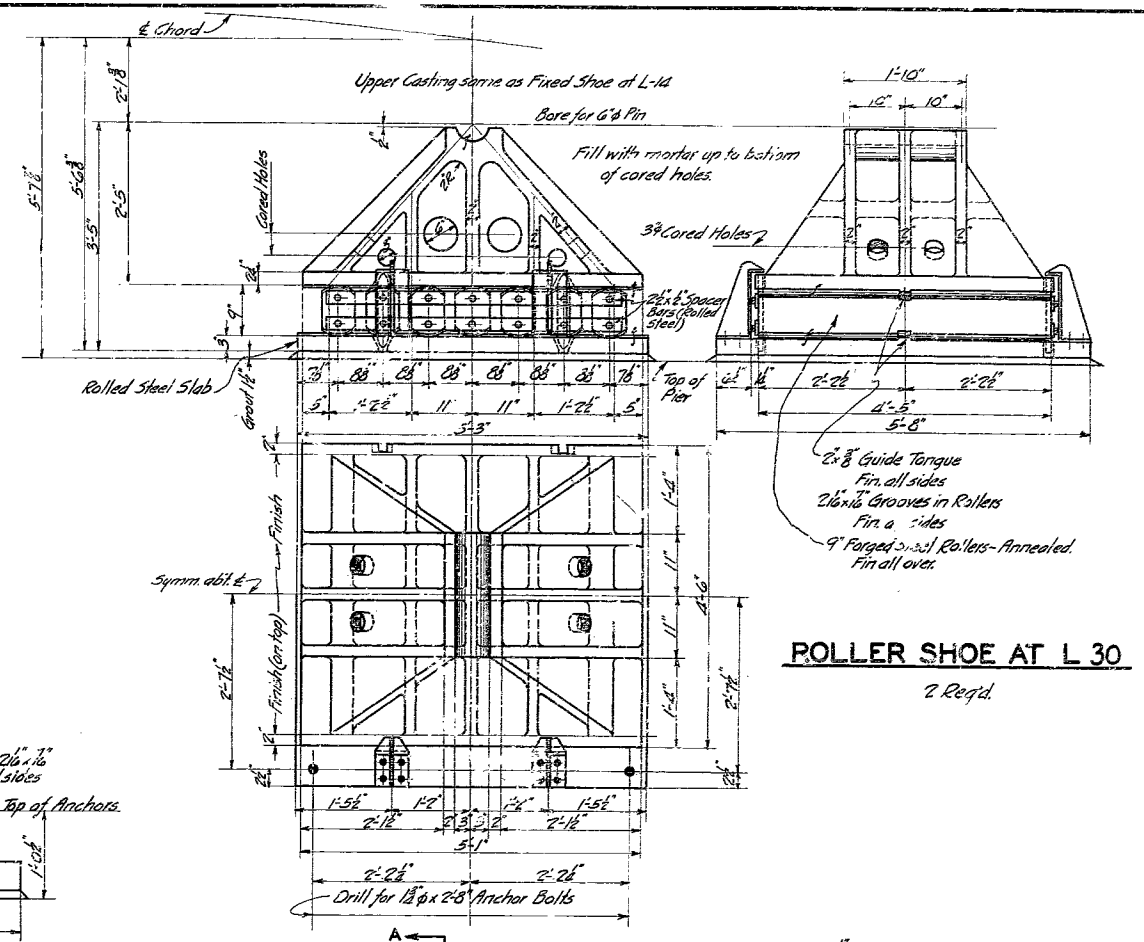
UPPER CASTING



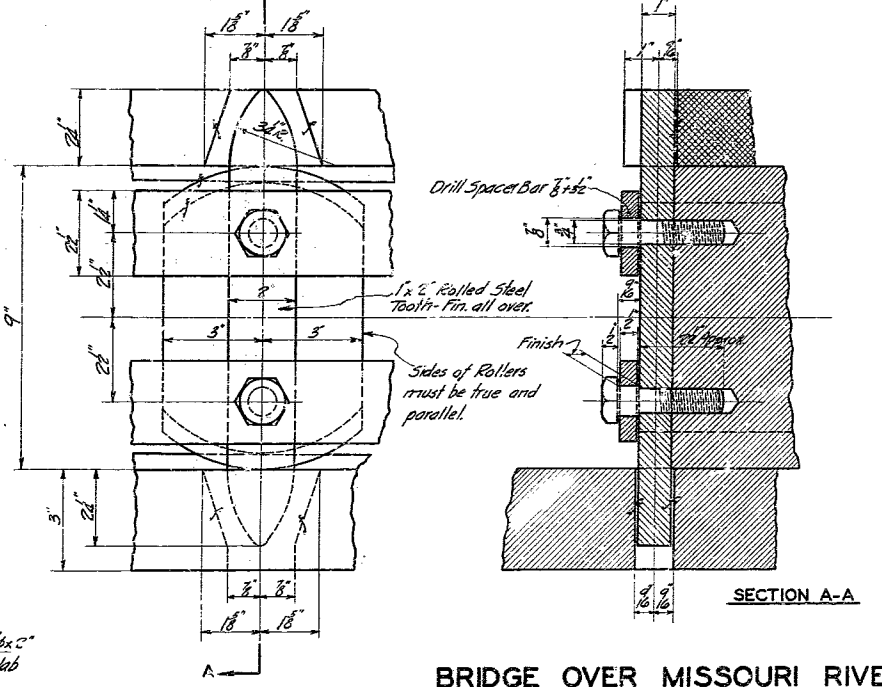
ROCKER SHOE AT L 0
4 Req'd.



DETAIL OF GUIDE CASTING



ROLLER SHOE AT L 30
2 Req'd.



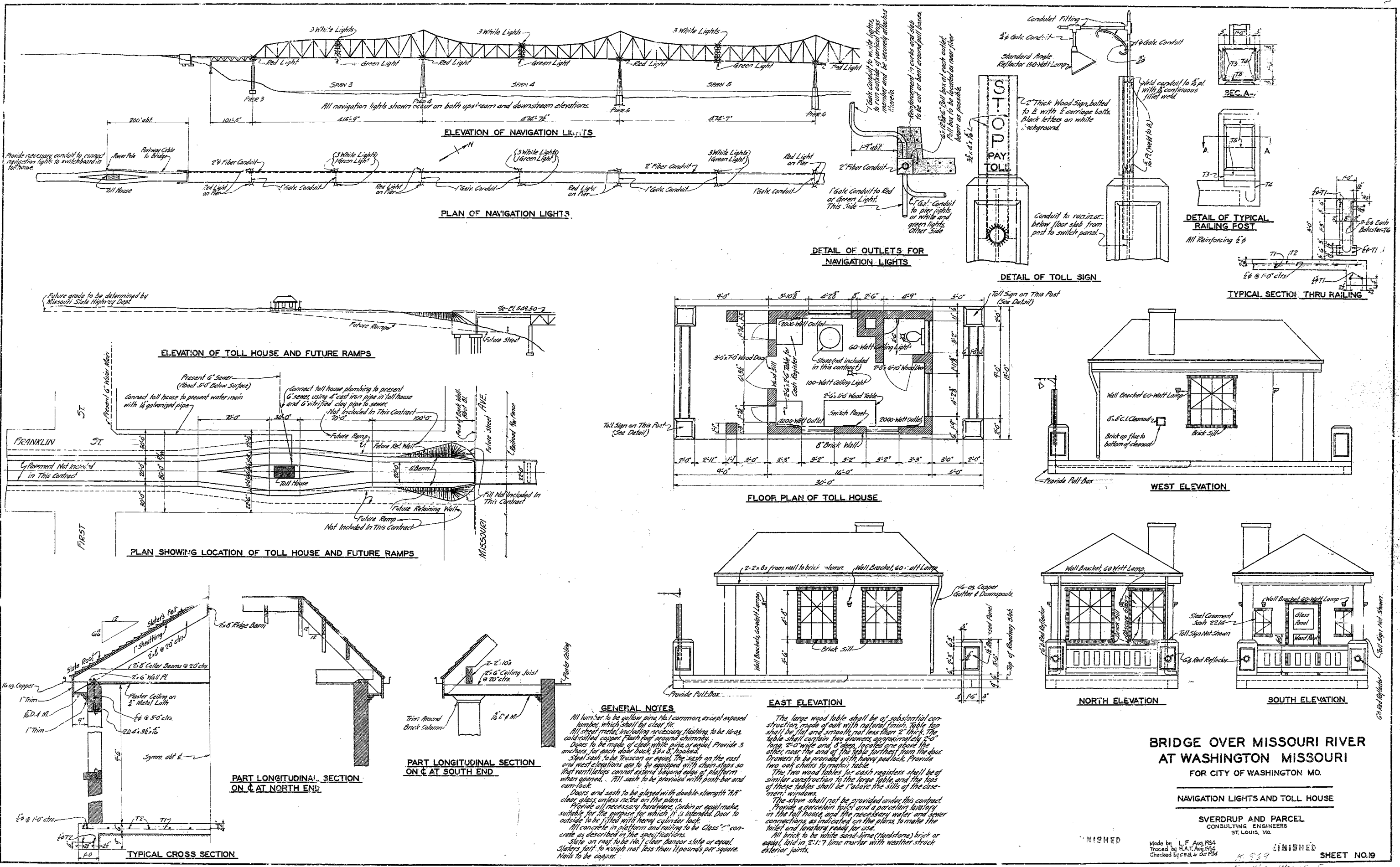
DETAILS OF TOOTH AND SPACER BAR

BRIDGE OVER MISSOURI RIVER AT WASHINGTON, MO.
FOR CITY OF WASHINGTON, MO.

SHOE DETAILS

SVERDRUP AND PARCEL
CONSULTING ENGINEERS
ST. LOUIS, MO.

Revision: E-10-36 Change in casting and pin. Increase roller and roller pin hole in fixed shoe.



GENERAL NOTES

All lumber to be yellow pine No. 1 common, except exposed lumber, which shall be clear fir.

All sheet metal, including necessary flashing to be 16-oz. cold-rolled copper. Flash roof around chimneys.

Doors to be made of clear white pine of equal. Provide 3 anchors for each door back, 2" x 5", hooked.

Steel sash to be Truscon or equal. The sash on the east and west elevations are to be equipped with chain stops so that ventilators cannot extend beyond edge of platform when opened. All sash to be provided with push-bar and cam-lock.

Doors and sash to be glazed with double strength 7/8" clear glass, unless noted on the plans.

Provide all necessary hardware, cabin or equal, make suitable for the purpose for which it is intended. Door to outside to be fitted with heavy cylinder lock.

All concrete in platform and railing to be Glass 2" concrete as described in the specifications.

Slate on roof to be No. 1 clear Bangor slate or equal. Slate's fall to be not less than 1/4" per square. Nails to be copper.

EAST ELEVATION

The large wood table shall be of substantial construction made of oak with natural finish. Table top shall be flat and smooth, not less than 2" thick. The table shall contain two drawers approximately 2'-0" long, 2'-0" wide and 8" deep, located one above the other, near the end of the table farthest from the door. Drawers to be provided with heavy pad lock. Provide two oak chairs to match table.

The two wood tables for each register shall be of similar construction to the large table and the tops of these tables shall be 1" above the sills of the casement windows.

The stove shall not be provided under this contract. Provide a porcelain toilet and a porcelain lavatory in the toll house, and the necessary water and sewer connections as indicated on the plans to make the toilet and lavatory ready for use.

All brick to be white sand-lime (hardstone) brick or equal, laid in 3:1 lime mortar with weather struck exterior joints.

**BRIDGE OVER MISSOURI RIVER
AT WASHINGTON MISSOURI**
FOR CITY OF WASHINGTON MO.

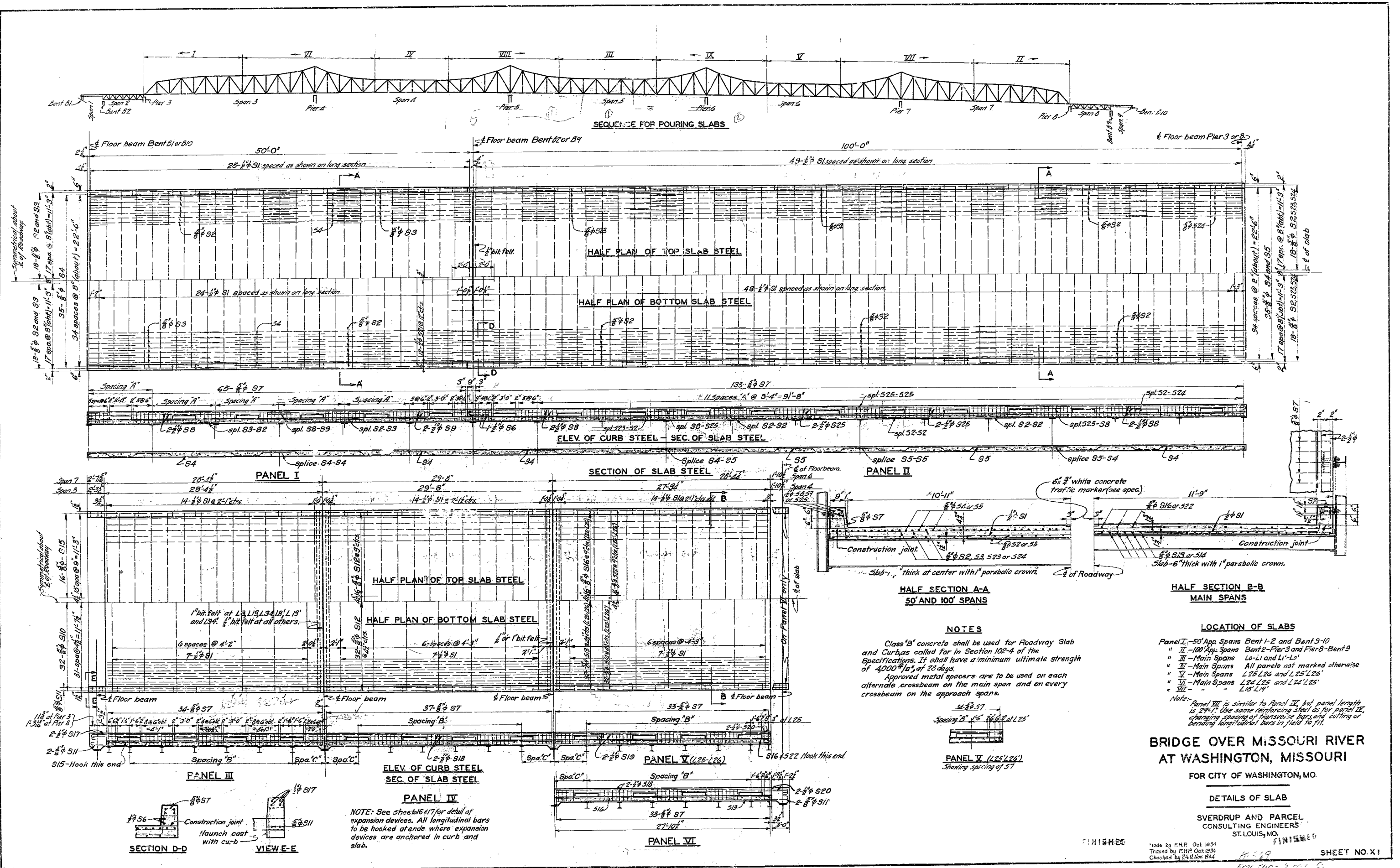
NAVIGATION LIGHTS AND TOLL HOUSE

SVERDRUP AND PARCEL
CONSULTING ENGINEERS
ST. LOUIS, MO.

Made by L.F. Aug. 1934
Traced by H.A.T. Aug. 1934
Checked by C.E.S. Oct. 1934

343

31 47



374

NOTE: See sheet 16417 for detail of expansion devices. All longitudinal bars to be hooked at ends where expansion devices are anchored in curb and slab.

NOTES

Class "B" concrete shall be used for Roadway Slab and Curbs called for in Section 102-4 of the Specifications. It shall have a minimum ultimate strength of 4000^{psi} at 28 days.

Approved metal spacers are to be used on each alternate crossbeam on the main span and on every crossbeam on the approach spans.

LOCATION OF SLABS

Panel I - 50' App. Spans Bent 1-2 and Bent 9-10
 " II - 100' App. Spans Bent 2-Pier 3 and Pier 8-Bent 9
 " III - Main Spans L₀₋₁ and L₁₋₀
 " IV - Main Spans All panels not marked otherwise
 " V - Main Spans L₂₅ L₂₆ and L₂₅ L₂₆
 " VI - Main Spans L₂₆ L₂₅ and L₂₅ L₂₆
 " VII - " L₁₈ L₁₉

Note: Panel VII is similar to Panel II, but panel length is 24'. Use same reinforcing steel as for panel II, changing spacing of transverse bars and cutting or bending longitudinal bars in field to fit.

BRIDGE OVER MISSOURI RIVER AT WASHINGTON, MISSOURI

FOR CITY OF WASHINGTON, MO.

DETAILS OF SLAB

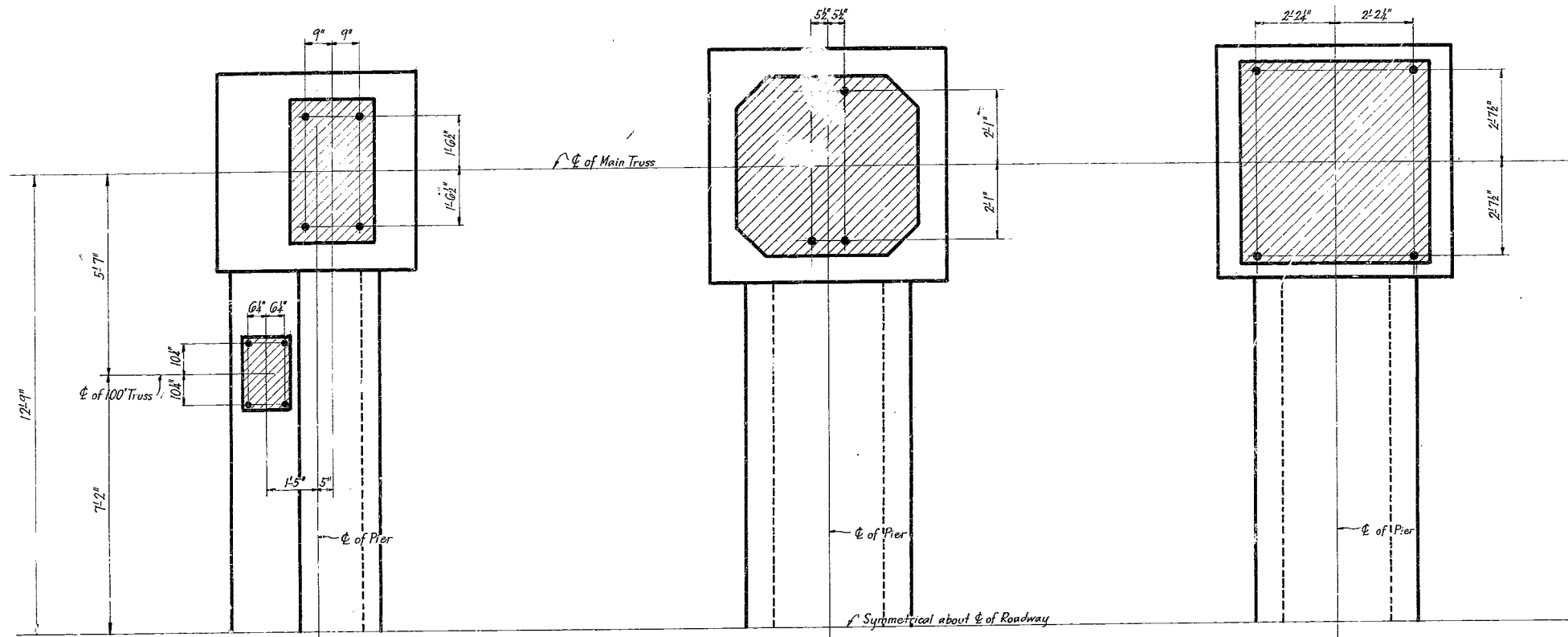
SVERDRUP AND PARCEL CONSULTING ENGINEERS ST. LOUIS, MO.

FINISHED

SHEET NO. XI

Made by F.H.P. Oct 1934
 Traced by F.H.P. Oct 1934
 Checked by R.A. Nov 1934

From No. 3, 1934
 Ed. 49

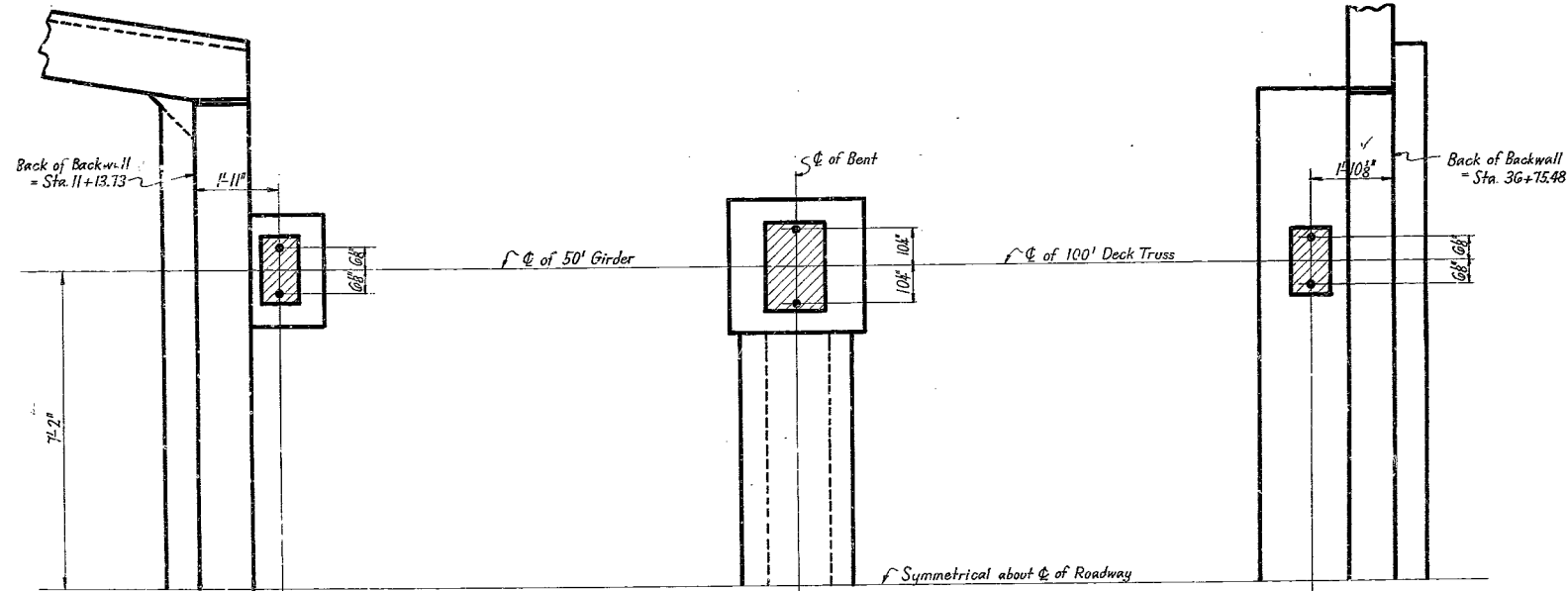


PIER 3
(Pier 8 same but oppos. hand)

PIERS 4, 6 & 7

PIER 5

PIERS

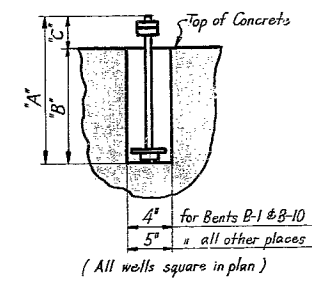


BENT B-1

BENTS B-2 & B-9

BENT B-10

BENTS



SCHEDULE OF VERTICAL DIMENSIONS

Location	"A"	"B"	"C"
Bents B-1 & B-10	4.5"	4.1"	4"
Bents B-2 & B-9	2.5"	14.63"	10"
Piers 3 & 8 (100' Truss)	2.14"	14.74"	6"
Piers 3 & 8 (Main Truss)	2.84"	14.73"	14.06"
Piers 4, 6 & 7	2.97"	2.2"	7 1/2"
Pier 5	2.97"	2.1"	8 1/2"

Note: Ice to be prevented from forming in wells before placement of anchor bolts.

(All wells square in plan)

DETAILS OF ANCHOR BOLT WELLS

**BRIDGE OVER MISSOURI RIVER
AT WASHINGTON, MISSOURI
FOR CITY OF WASHINGTON, MO.**

ANCHOR BOLT DIAGRAM

**SVERDRUP AND PARCEL
CONSULTING ENGINEERS
ST. LOUIS, MO.**

Made by C.E.S. Feb. 1935
Traced by C.E.S. Feb. 1935
Checked by B.R.S. Feb. 1935

ST. LOUIS, MO.

FINISHED

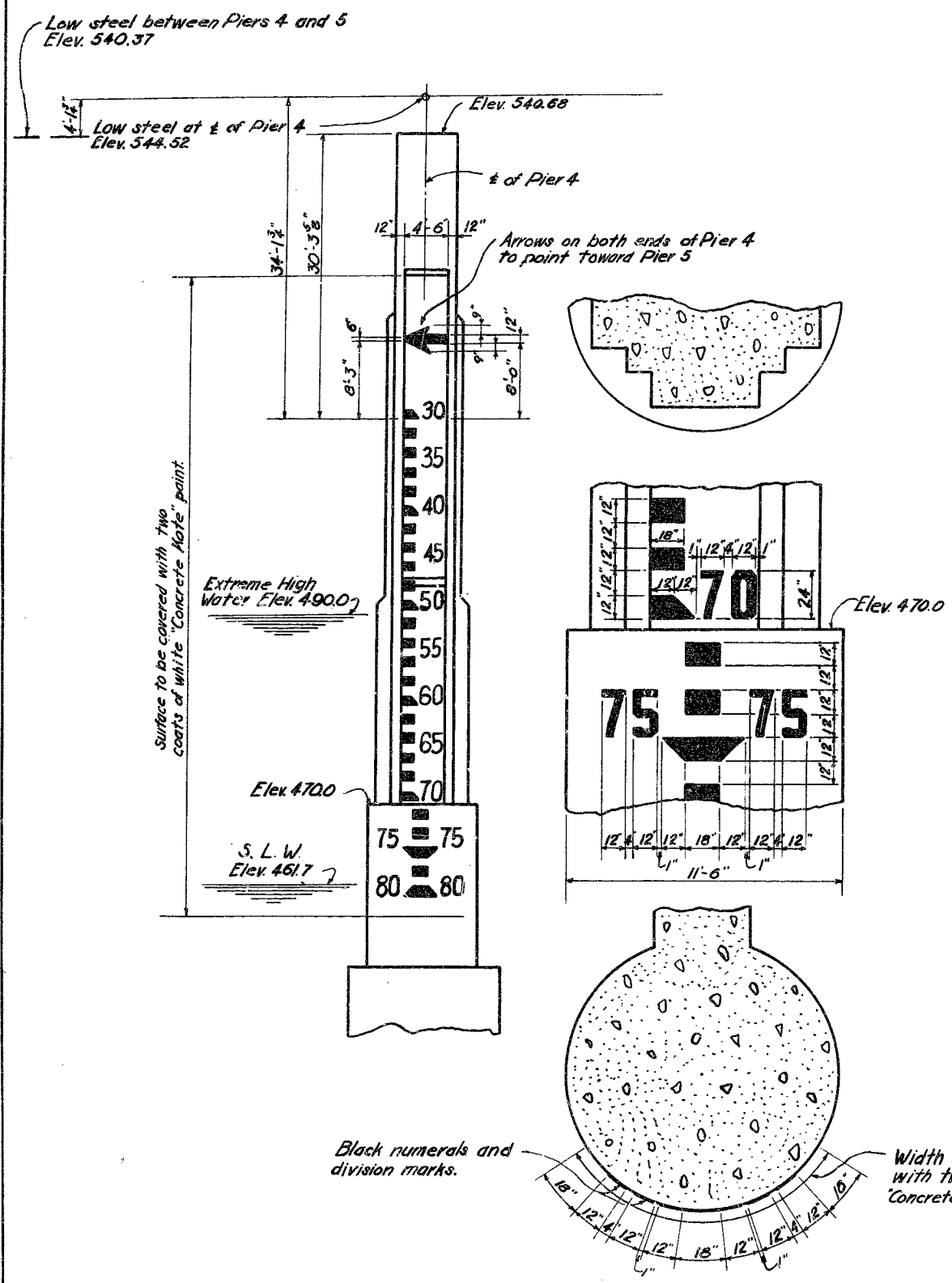
SHEET NO. X3

1-207
From 110 - Warren
E. 47

346

347

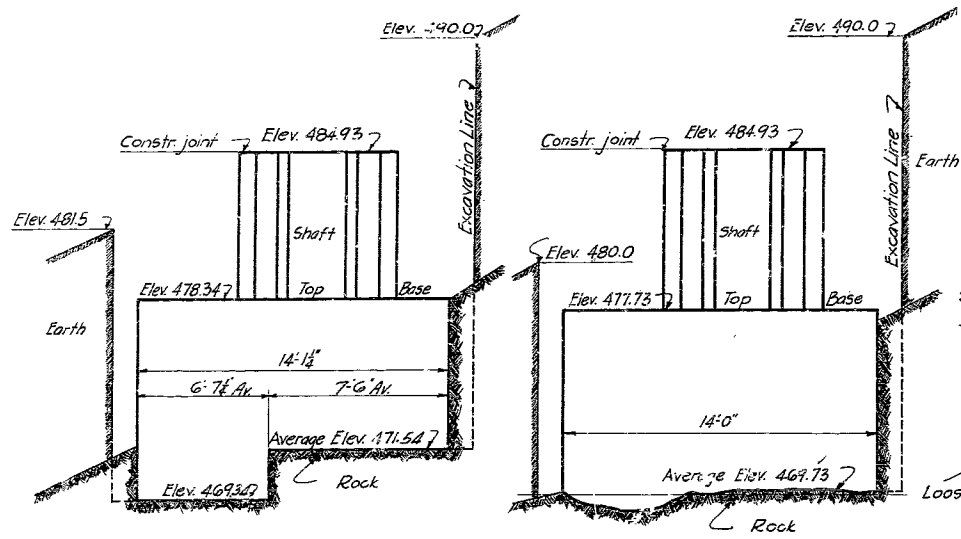
Rev and re-traced July 7, 1936.
Rev June 29, 1936
A-426



Notes:-
The entire height of the 4'-6" projection on the pier shaft and the portion of the dumbbell section indicated shall receive two coats of white "Concrete Note" paint as furnished by the Waugh Paint Co. of St. Louis, Mo., or an approved equal. The numerals and black division marks shall be painted with Sash Black paint as furnished by the same concern, or an approved equal.
Gauge shall be painted on both upstream and downstream ends of Pier 4.

BRIDGE OVER MISSOURI RIVER
AT WASHINGTON, MISSOURI
FOR CITY OF WASHINGTON, MO.
DETAILS OF CLEARANCE GAUGE
SVERDRUP & PARCEL
CONSULTING ENGINEERS
ST. LOUIS MO.

Made by W.L.W. 6-36
Checked by A.E.F. 6-36 K-969 SHEET NO. X4
Franklin-Warren Co.
Pt. 47



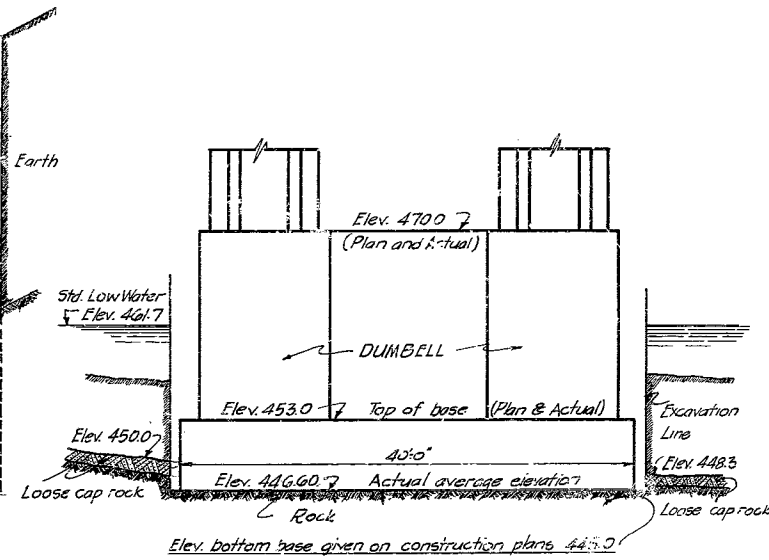
Plan Elevations { Top of base 464.0
Bottom of base 456.0

SECTION OF WEST BASE

SECTION OF EAST BASE

Contract		Final	
Excavation	549.0 cu yds.	Excavation	274.1 cu yds.
Base Concrete	100.0 "	Base Concrete	98.8 "
Shaft Concrete	502.0 "	Shaft Concrete	248.7 "

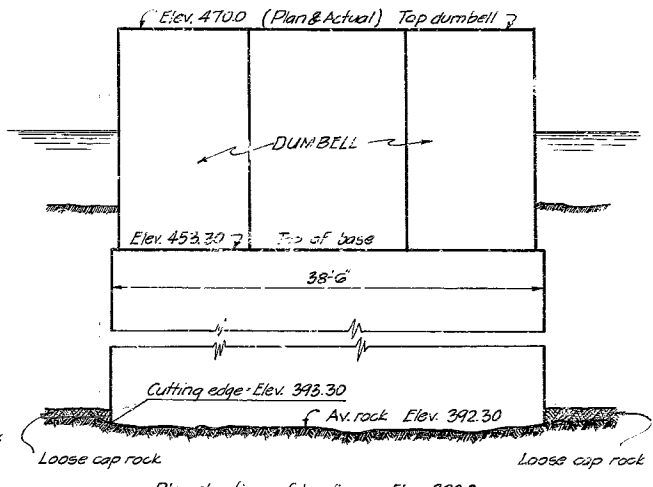
PIER 3



SECTION OF BASE AND DUMBELL

Contract		Final	
Excavation	531.0 cu yds.	Excavation	469.8 cu yds.
Base Concrete	3.0 "	Base Concrete	170.7 "
Shaft	525.0 "	Shaft	325.3 "

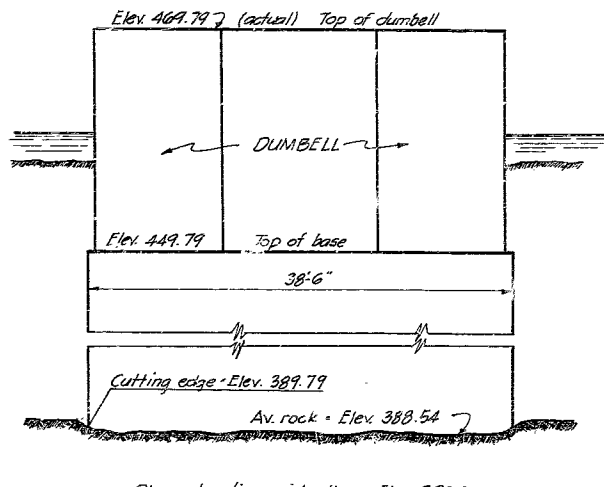
PIER 4



SECTION OF BASE AND DUMBELL

Contract		Final	
Dumbell	196.0 cu yds.	Dumbell	163.7 cu yds.
Base	1369.0 "	Base	1391.7 "
Shaft	332.0 "	Shaft	331.9 "

PIER 5

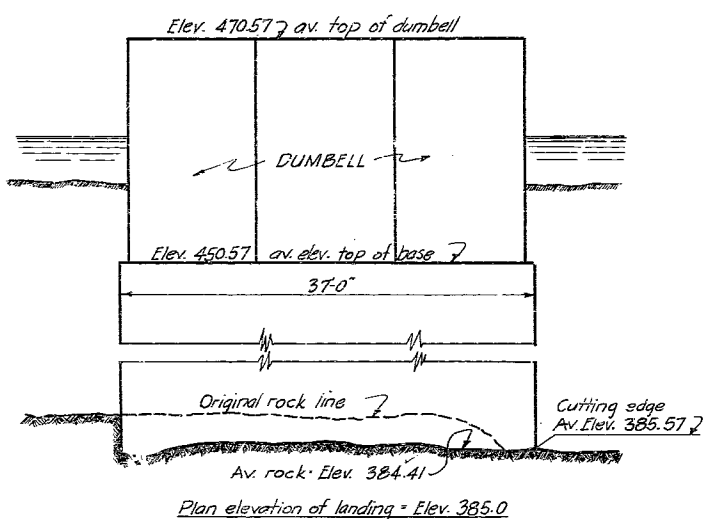


SECTION OF BASE AND DUMBELL

Contract		Final	
Dumbell	196.0 cu yds.	Dumbell	196.0 cu yds.
Base	1369.0 "	Base	1397.4 "
Shaft	293.0 "	Shaft	294.5 "

PIER 6

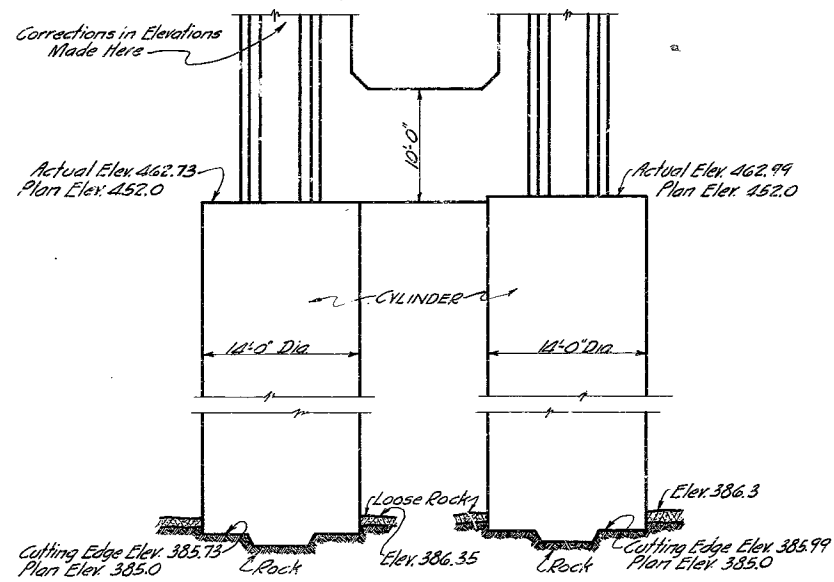
348



SECTION OF BASE AND DUMBELL

Contract		Final	
Dumbell	156.54 cu yds.	Dumbell	157.08 cu yds.
Base	1425.0 "	Base	1450.62 "
Shaft	221.46 "	Shaft	218.45 "

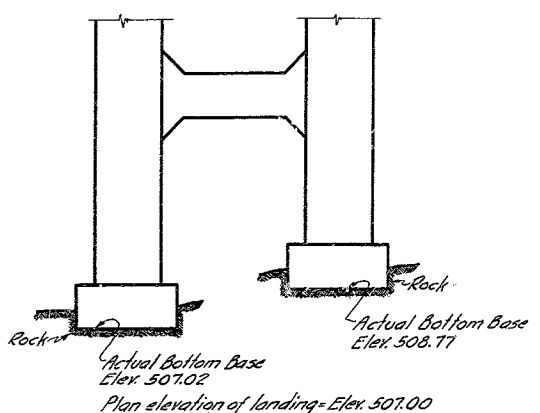
PIER 7



SECTION OF CYLINDERS

Contract		Final	
Cylinders	764.00 cu yds.	Cylinders	765.66 cu yds.
Shaft	205.00 "	Shaft	197.99 "

PIER 8



SECTION OF BASE

Contract		Final	
Excavation	740 cu yds.	Excavation	62.3 cu yds.
Columns	27.0 "	Columns	26.02 "

BENT B2

BRIDGE OVER MISSOURI RIVER AT WASHINGTON MISSOURI FOR CITY OF WASHINGTON MO.

FINAL ELEVATIONS OF PIER FOOTINGS

SVERDRUP AND PARCEL CONSULTING ENGINEERS ST. LOUIS, MO.

MADE BY H.R.D. 5-18-35
TRACED BY H.R.D. 9-20-35
CHECKED BY A.E.F. 9-20-35

SUBSTRUCTURE CHANGE ORDER NO. 1
FRANKLIN - WARRIN
P. 27

WASHINGTON BRIDGE

FEDERAL EMERGENCY ADMINISTRATION
OF PUBLIC WORKS
PROJECT NO. 3393

THIS BRIDGE BECAME A REALITY
THROUGH THE EFFORTS OF
CITY OF WASHINGTON, MISSOURI.

BRIDGE COMMITTEE
F. J. RUETHER - MAYOR

O. F. SCHULTE O. W. ARCULARIUS

FINANCED IN CO-OPERATION WITH
MISSOURI STATE HIGHWAY COMMISSION

SCOTT WILSON - CHAIRMAN
T. H. CUTLER - CHIEF ENGINEER

CONSULTING ENGINEERS
SVERDRUP AND PARCEL
ST. LOUIS, MO

CONTRACTORS
STUPP BRO'S. BRIDGE & IRON CO.
MO. VALLEY BRIDGE & IRON CO.

A.D. 1935

FULL SIZE ELEVATION
2 REQUIRED

SEC. A-A

Nameplates to be made of cast bronze.
Backing plate to be 1/4" thick with 1/8" raised letters and border.
Face of letters and borders of plates to have polished surface.
Background to have pebbled finish.
Bolts for attaching plates to be 3/8" bronze bolts with hexagonal heads and nuts.

BRIDGE OVER MISSOURI RIVER
AT WASHINGTON, MO.
FOR CITY OF WASHINGTON, MO.

DETAIL OF NAMEPLATES

SVERDRUP AND PARCEL
CONSULTING ENGINEERS,
ST. LOUIS, MO.

FINISHED K-762 FINISH SH. X 6

FRONT 4-11-35
Rt 47

Made by H.A.T. & A.R.D. May, 1935
Traced by A.R.D. May, 1935
Checked by

349

WASHINGTON BRIDGE

THIS BRIDGE BECAME A REALITY
THROUGH THE EFFORTS OF
CITY OF WASHINGTON, MISSOURI.

BRIDGE COMMITTEE

F. J. RUETHER - MAYOR

O. F. SCHULTE

O. W. ARCULARIUS

FINANCED BY

FEDERAL EMERGENCY ADMINISTRATION

DOCKET NO. 3393

OF PUBLIC WORKS

PROJECT NO. 52

IN CO-OPERATION WITH

MISSOURI STATE HIGHWAY COMMISSION

SCOTT WILSON-CHAIRMAN

T. H. CUTLER-CHIEF ENGINEER

SVERDRUP AND PARCEL
CONSULTING ENGINEERS

MO. VALLEY BRIDGE & IRON CO.
STUPP BROS. BRIDGE & IRON CO.

A. D. 1935

FULL SIZE ELEVATION
2 REQUIRED

*Nameplates to be made of cast bronze.
Backing plate to be 1/2" thick with 1/8" raised letters and border.
Face of letters and border of plate to have polished surface.
Background to have a pebbled finish.
Bolts for attaching plate to be 3/8" bronze bolts with hexagon heads & nuts.*

BRIDGE OVER MISSOURI RIVER
AT WASHINGTON, MO.

FOR CITY OF WASHINGTON MO.

DETAIL OF NAMEPLATES

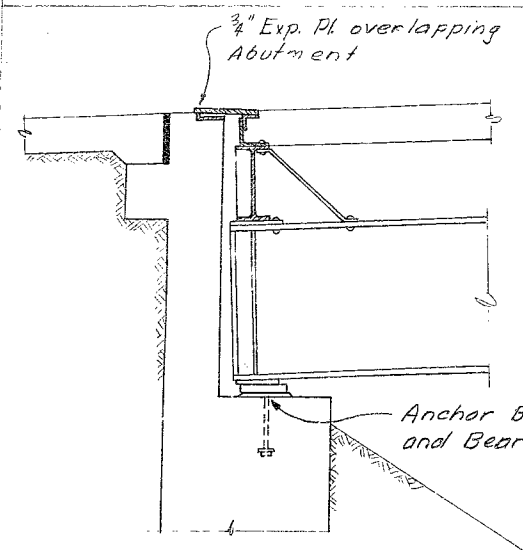
SVERDRUP AND PARCEL
CONSULTING ENGINEERS
ST. LOUIS, MO.

Made by - H. A. T. - APRIL 1935
Traced by - H. A. T. - APRIL 1935
Checked by -

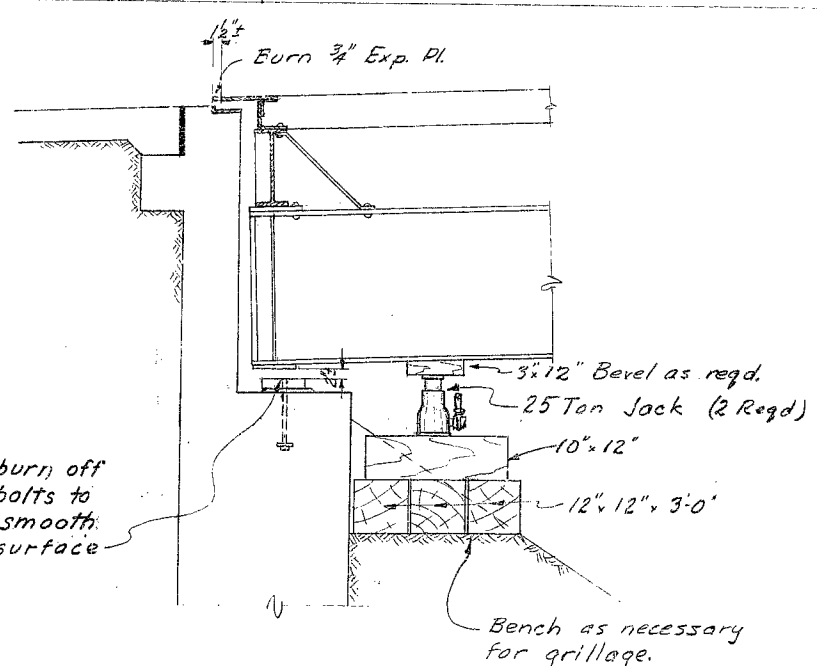
K-969
Franklin - Warren Cos
Rt. 47

SHEET NO. X7

350



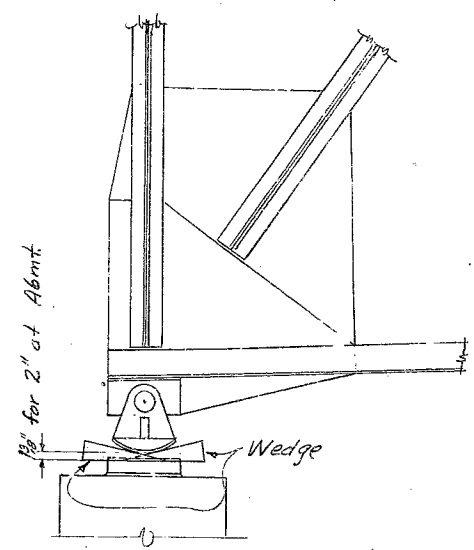
SECTION THRU ABUTMENT
SHOWING EXISTING CONDITIONS



Note: Jack both beams together

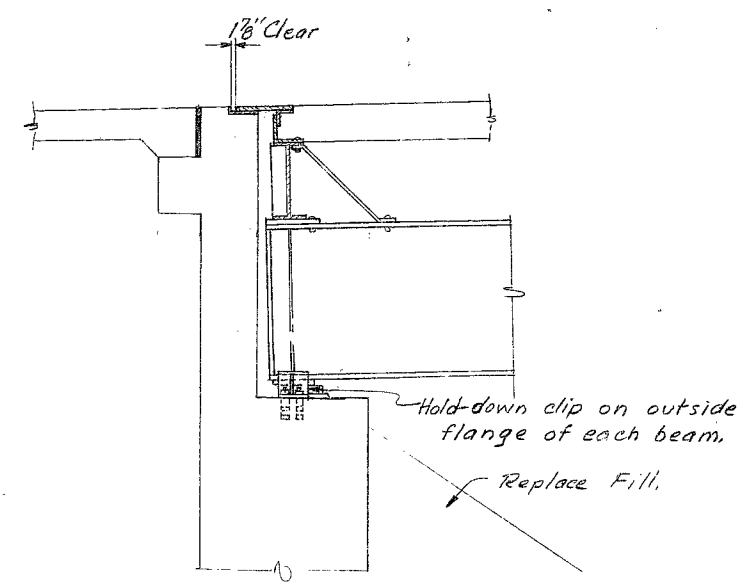
SECTION THRU ABUTMENT

NOTE: Jacking of Abutment and wedging at Bent No. 9 should be carried out simultaneously. Adjustments must be made at all points so as to keep the vertical movements in the proportions shown.

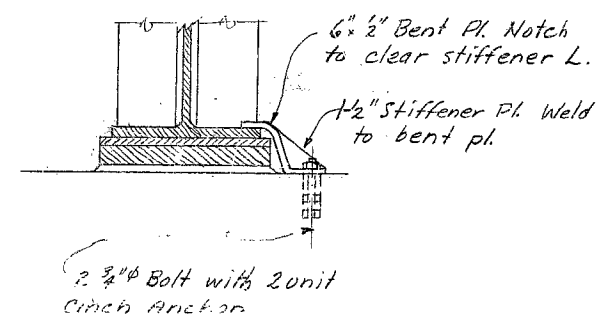


Note: Raise Truss with wedges as beams are jacked at Abutment.

DETAIL AT BENT 9



SECTION THRU ABUTMENT
AFTER REPAIRS



DETAIL OF HOLD-DOWN CLIP

FINISHED

BRIDGE OVER MISSOURI RIVER
AT WASHINGTON, MISSOURI

REPAIRS AT NORTH ABUTMENT

SVERDRUP & PARCEL INC.
CONSULTING ENGR'S
ST. LOUIS, MO.

3h. X8
FINISHED

28 August, 1950

K-969
Franklin - Warren
Rt 47

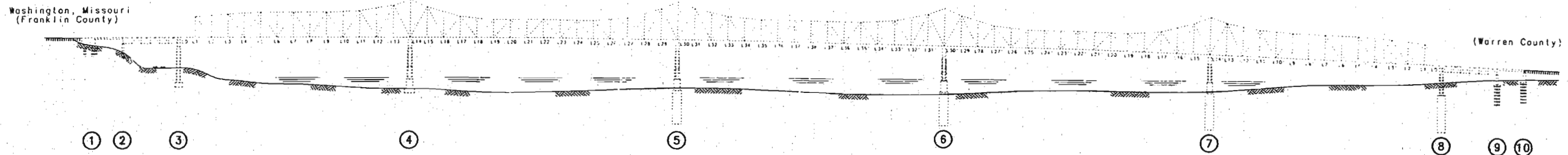
351

435A

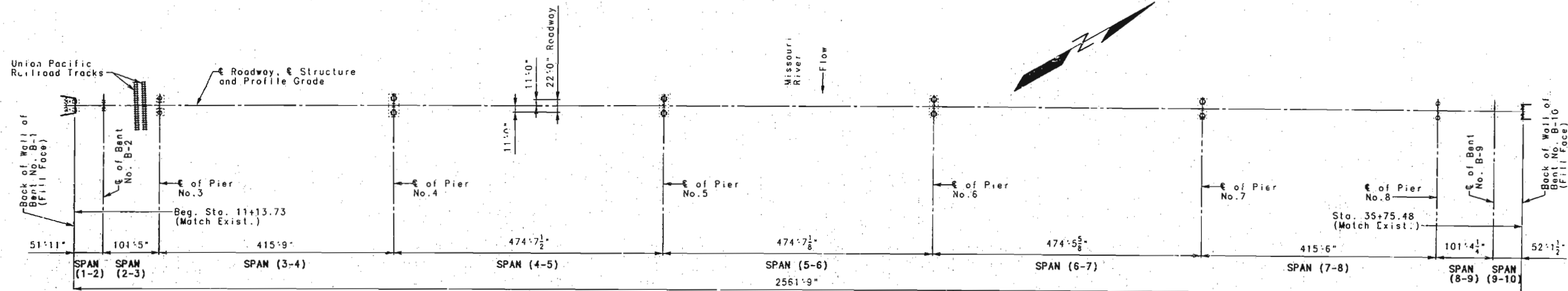
MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

STATE	PROJ. NO.	SHEET NO.
MO.		35
SEC./SUR. 23 TWP. 44N RGE. 1W		

U.I.P.-Redeck and Rehabilitate 50' WF, 100' Deck Truss
(415'-3" • 475'-415') Thru Truss, 100' Deck Truss, 50' WF



GENERAL ELEVATION



PLAN

TABLE OF CONTENTS

SHEET NOS.	ITEM	SHEET NOS.	ITEM
1	General Elevation and Plan	22	Floorbeam Top Flange Repair
2	General Notes and Quantities	23	Floorbeam Top Flange Replacement
3	Stage Construction	24-28	Floorbeam Replacement
4-5	Bent No. 1	29	Floorbeam Shear Connectors
6-7	Bent No. 10	30, 63	Preformed Compression Joint Seal
8-9	Temporary Traffic Barrier (Three Beam)	31-41	Finger Plate Expansion Devices
10	App. Span Crossbeam and Strap Replacement	42-45	Slab Drains
11	App. Span Crossbeam Replacement (W16x45)	46	Paint Test Panels
12	Replacement Bearing and Pin at Pier No. 3	47-67	Slab
13	9" Crossbeam Strengthening or Replacement	68-69	Concrete Curb
14	Stringer Clip Angle Repair	70-76	Bridge Rail (Two Tube Structural Steel)
15	Stringer End Repair	77-81	Partial Modifications
16	Floorbeam Assessment Flowchart	82-90	Sway Frame Modifications
17-20	Partial Shop Drawing Legend	91-96	Navigation Lighting System
21	Floorbeam Bottom Flange Repair	97	Bill of Reinforcing Steel

Note: See Sheet No. 2 for General Notes and Estimated Quantities.

B.M. ELEV. 550.32 EXIST. "□" ON SOUTH END OF BRIDGE OVER MO. RIVER, SOUTH END OF WINGWALL 15' RT. OF EXIST. & RTE. 47.

BRIDGE OVER MISSOURI RIVER

STATE RTE. 47

AT WASHINGTON

PROJECT NO.

JOB NO. J6P0820

FRANKLIN-WARREN COUNTIES

STA. 11+13.73

RTE. 47

DATE 01/03/96

STD.
STD. 706.55
K09691

DESIGNED JUNE 1995
DETAILED JUNE 1995
CHECKED NOV. 1995

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

SHEET NO. 1 OF 97

44-268

ESTIMATED QUANTITIES				
ITEM		SUBSTR.	SUPERSTR.	TOTAL
Removal of Existing Bridge Rail	Lin. Ft.		5,172	5,172
Partial Removal of Substructure Concrete	Lump Sum	1		1
Removal of Existing Bridge Deck	Sq. Ft.		60,201	60,201
Class 1 Excavation	Cu. Yd.	40		40
Temporary Shoring	Lump Sum	1		1
Temporary Traffic Barrier (Thrie Beam)	Lump Sum		1	1
Class B Concrete (Substructure)	Cu. Yd.	21.5		21.5
Clean and Seal Bent Caps	Lump Sum	1		1
Class B-2 Concrete	Cu. Yd.		1,442.0	1,442.0
Concrete Curb and Parapet	Lin. Ft.		76	76
Concrete Curb	Lin. Ft.		5,119	5,119
Preformed Compression Expansion Joint Seal (2.25 in.)	Lin. Ft.		176	176
Preformed Compression Expansion Joint Seal (4.5 in.)	Lin. Ft.		44	44
Mechanical Bar Splice (Epoxy Coated)	Each		5,255	5,255
Navigation Lighting System	Lump Sum		1	1
Reinforcing Steel (Epoxy Coated)	Pound	2,330	549,390	551,720
Expansion Device (8.5" Finger Plate)	Lin. Ft.		66	66
Expansion Device (11.5" Finger Plate)	Lin. Ft.		22	22
Portal Modification	Each		14	14
Sway Frame Modification	Each		28	28
Approach Span Crossbeam Replacement (#16x40)	Each		2	2
Approach Span Crossbeam Replacement (#16x45)	Each		2	2
Approach Span Strap Replacement	Each		48	48
Crossbeam Strengthening or Replacement	Each		446	446
Modified W8x21 (A572)	Each		16	16
Furnish Main Span Floorbeam	Each		14	14
Install Main Span Floorbeam	Each		8	8
Floorbeam Top Flange Replacement	Each		2	2
Floorbeam Top Flange Repair	Lin. Ft.		175	175
Floorbeam Bottom Flange Repair	Lin. Ft.		125	125
Shear Connectors	Each		2,144	2,144
Stringer Clip Angle Repair (Exterior)	Each		31	31
Stringer Clip Angle Repair (Centerline)	Each		2	2
Missing Rivet Replacement	Each		15	15
Stringer End Repair	Each		1	1
Bearing and Pin Replacement	Each		1	1
Bridge Rail (Two Tube Structural Steel)	Lin. Ft.		5,124	5,124
Slab Drain (WF Spans)	Each		20	20
Slab Drain (Deck Truss Spans)	Each		30	30
Slab Drain (Thru Truss Spans)	Each		456	456
Spot Cleaning Existing Steel	Sq. Ft.		65,000	65,000
Repainting Existing Steel	Lump Sum		1	1
Transporting Lead Contaminated Residue to Storage Area	Lump Sum		1	1
Transporting Lead Contaminated Residue to the Smelter	Lump Sum		1	1
Disposal of Lead Contaminated Residue	Lump Sum		1	1
Painting Clearance Gauges	Lump Sum		1	1

Note: See Special Provisions for methods of forming slab.

Note: Concrete above the upper construction joint in backwall at Bent Nos. 1 and 10 is included with Class B-2 concrete quantity.

GENERAL NOTES:

Design Specifications: A.A.S.H.T.O.-1992 and Interims thru 1994

Design Loading:
HS20-44
No Future Wearing Surface
Earth 120#/Cu. Ft., Equivalent Fluid Pressure 45#/Cu. Ft.

Design Unit Stresses:
Class B Concrete (Substructure) f'c=3,000 psi
Class B1 Concrete (Concrete Curb & Parapet) f'c=4,000 psi
Class B2 Concrete (Slab) f'c=4,000 psi
Reinforcing Steel (Grade 60) fy=60,000 psi
Structural Carbon Steel fy=36,000 psi
Structural Steel Tubing fy=36,000 psi
Structural Steel (A.S.T.M. A572) Grade 50 fy=50,000 psi

Structural Steel:
Structural Steel shall be A36 except as noted.

Notch Toughness:
Notch Toughness is required for all new wide flange beams.

Navigation and Clearance Lights:
All Navigation and Clearance Lighting shall be kept in operation during all phases of construction.

Traffic:
Traffic over structure to be maintained in accordance with Job Special Provisions.

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

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

Painting:
All exposed surfaces of structural steel shall be cleaned and coated with a calcium sulfonate system. See Job Special Provisions for exceptions.

Rivets:
All missing or deteriorated rivets shall be removed and replaced with high strength bolts. The cost of furnishing and installing these high strength bolts will be paid for at the contract unit price for Missing Rivet Replacement per each.

Note: 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.

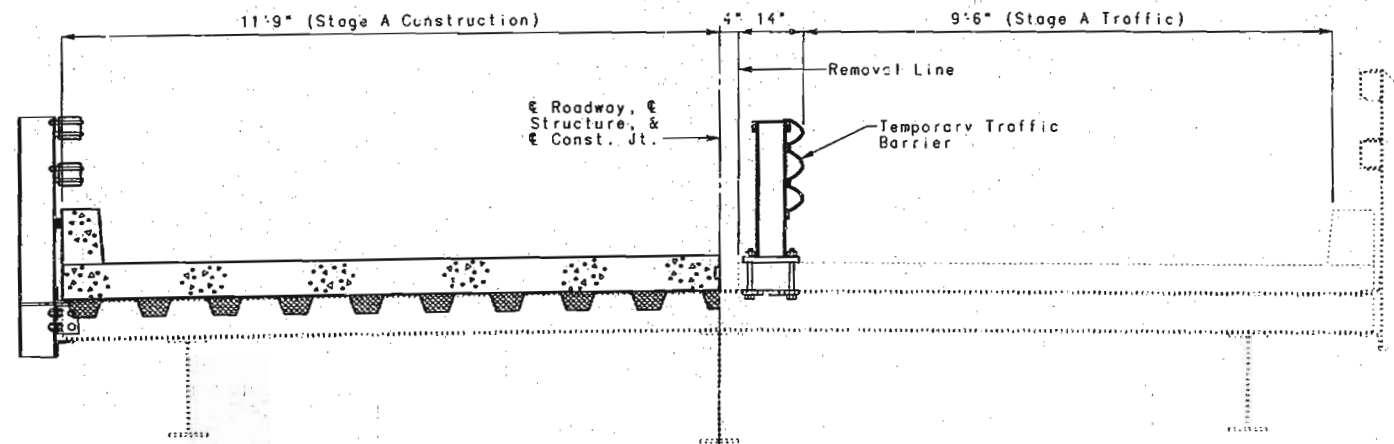
Light dotted lines indicate old work. Heavy lines indicate new work.

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

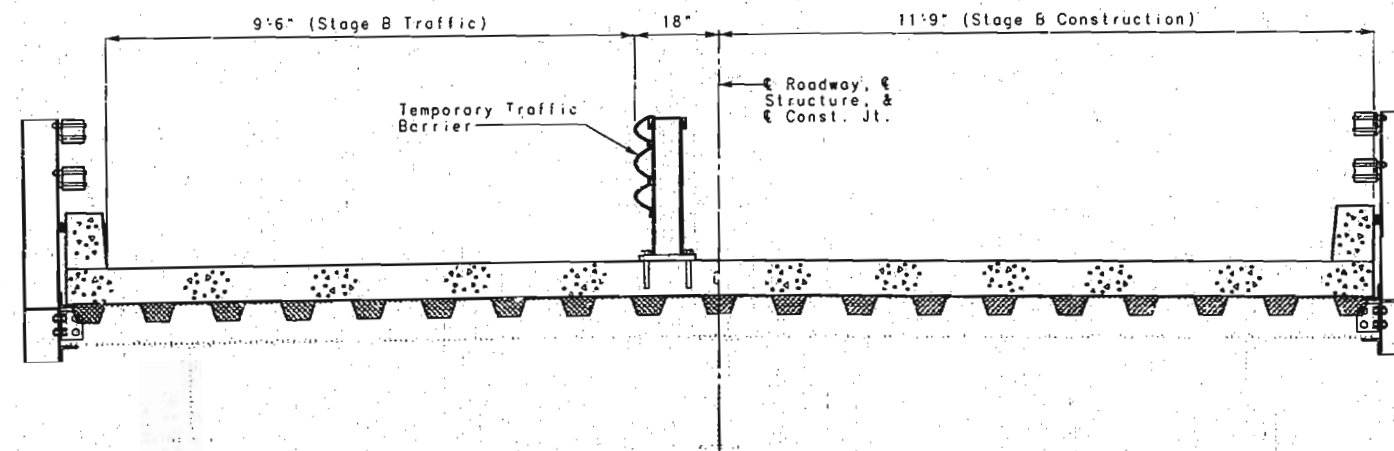
Profile Grade Elevations shall be 1/2" above existing profile grade.

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

Construction Clearance:
A minimum vertical clearance of 21'-6" from top of rails and a minimum lateral clearance of 10'-0" from the centerline of track to the nearest temporary construction falsework shall be maintained during construct.



STAGE A CONSTRUCTION



STAGE B CONSTRUCTION

DETAILS OF STAGED CONSTRUCTION

Note: Section through main (Thru-Truss) spans shown. Approach spans are similar.

46270

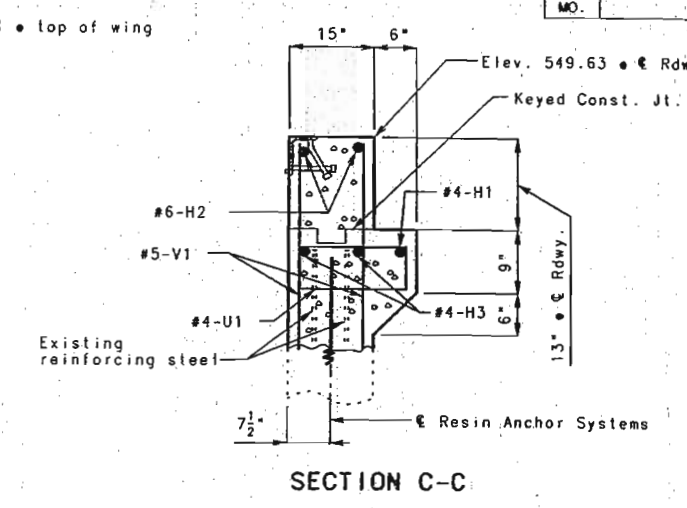
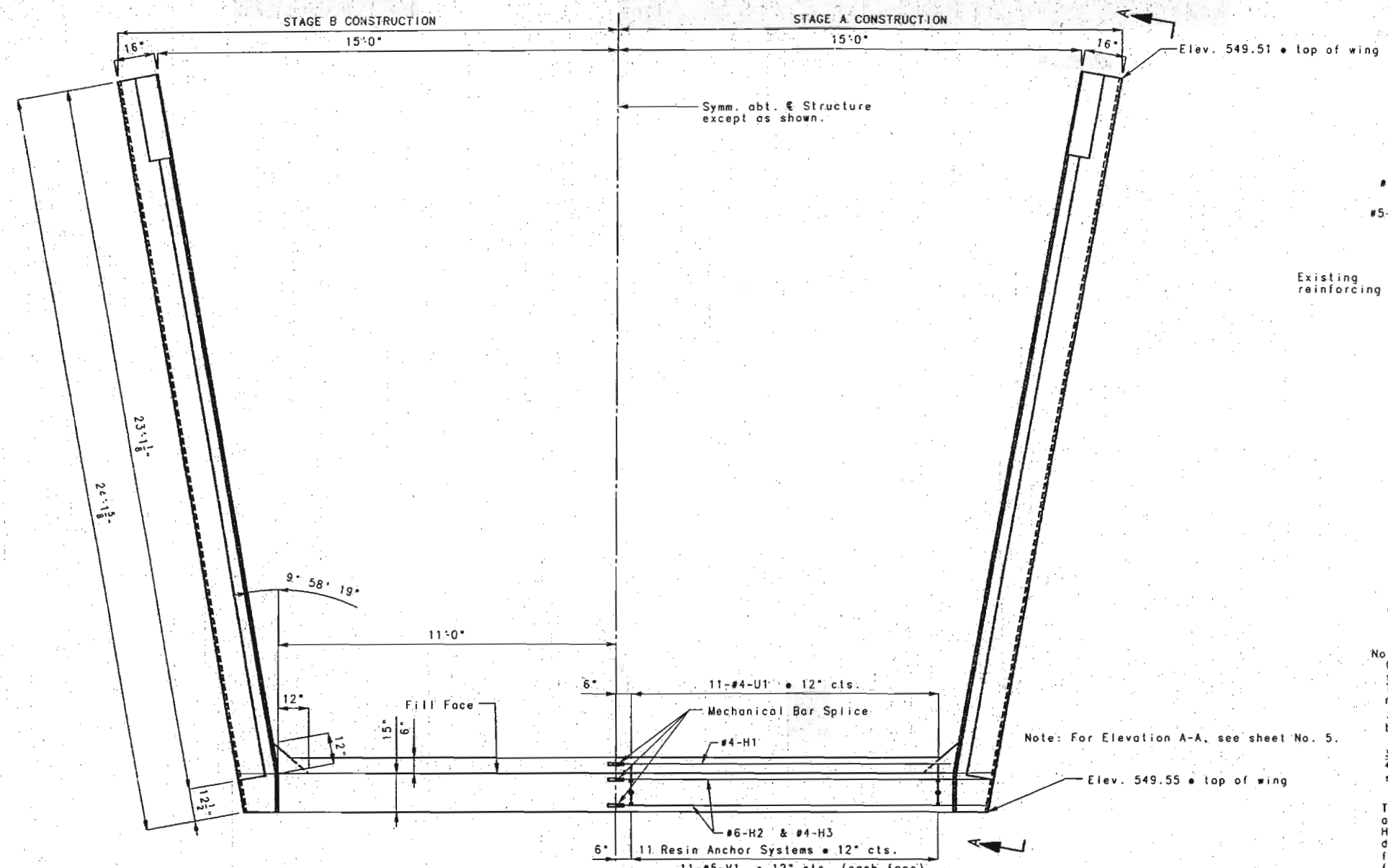
DETAILED AUG. 1995
CHECKED NOV. 1995

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

SHEET NO. 3 OF 97

FRANKLIN-WARREN COUNTIES K09691

STATE	PROJ. NO.	SHEET NO.
MO.		38



Ⓐ = 2'-6" in wing
= 15" in backwall

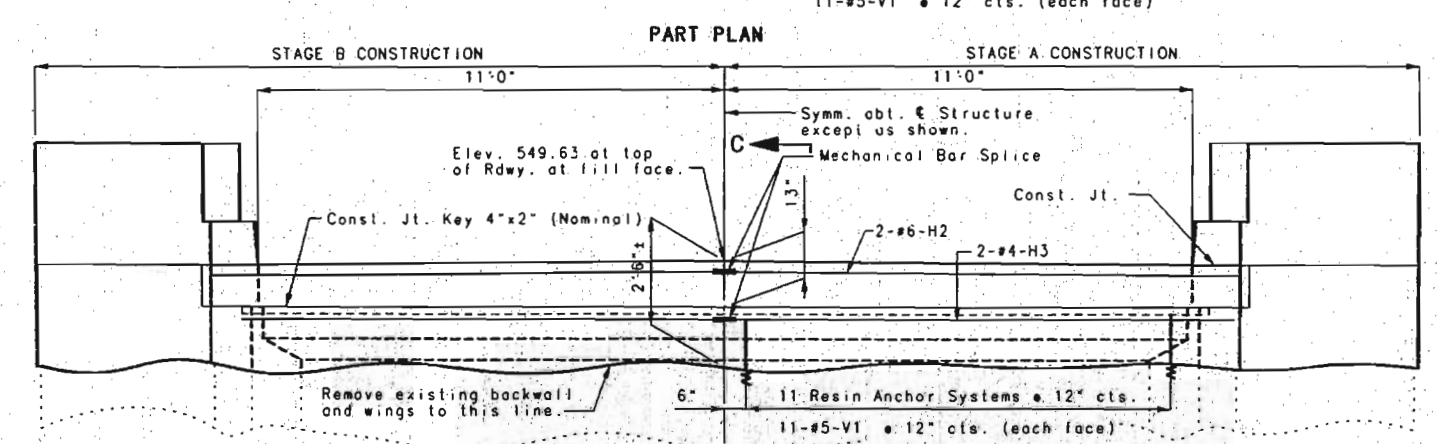
Note: Cost of furnishing and installing resin anchor systems shall be included in the contract price bid for Class B Concrete. These anchor systems shall be installed according to the manufacturer's specifications except as modified by the job special provisions and that a #6 reinforcing bar Ⓐ long shall be substituted for the threaded rod stud.

3/4" ⌀ Resin Anchor Systems shall have an ultimate pullout strength of 20,400 pounds in 4,000 psi concrete. (See Special Provisions)

The contractor shall use a mechanical bar splice for the H1, H2, and H3 bars at the specified location. The total bar lengths for the H1, H2, and H3 bars shown in the Bill of Materials for Reinforcing Steel are determined based on the end of the bars being located flush to the face of the construction joint. Extra bar lengths from that specified in the bar list may be required depending on the specific splice system to be used. No payment will be made for additional bar lengths added. See job special provisions for additional requirements of mechanical bar splices. Mechanical bar splices for epoxy coated bars shall be epoxy coated.

Cost of furnishing and installing these mechanical bar splices shall be included in the contract price bid for Class B Concrete.

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



ITEM	QUANTITY
CLASS 1 EXCAVATION	CU. YDS. 10
CLASS B CONCRETE (SUBSTR.)	CU. YDS. 7.8
REINFORCING STEEL (EPOXY COATED)	LBS. 330

Note: These quantities are included in the Estimated Quantities table on Sheet No. 2.

47271

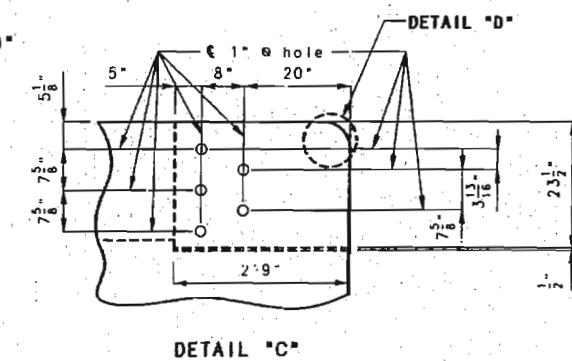
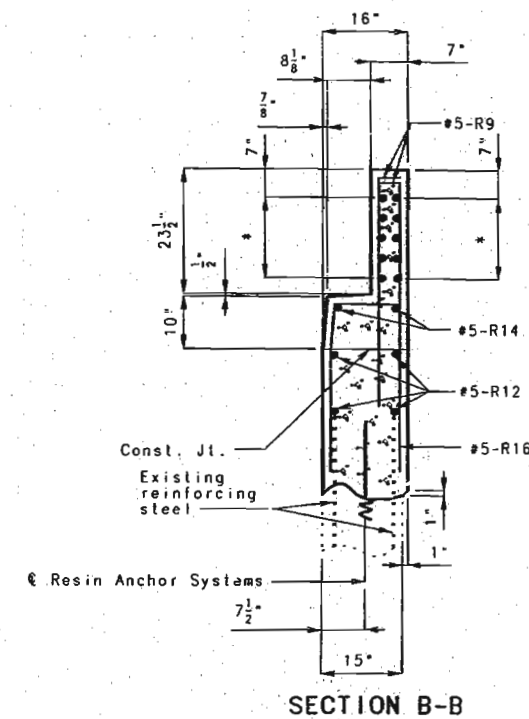
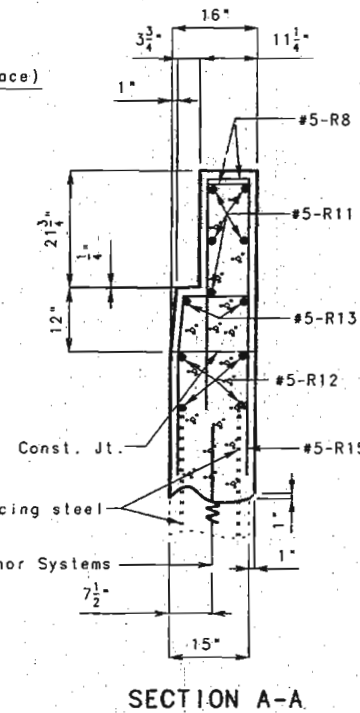
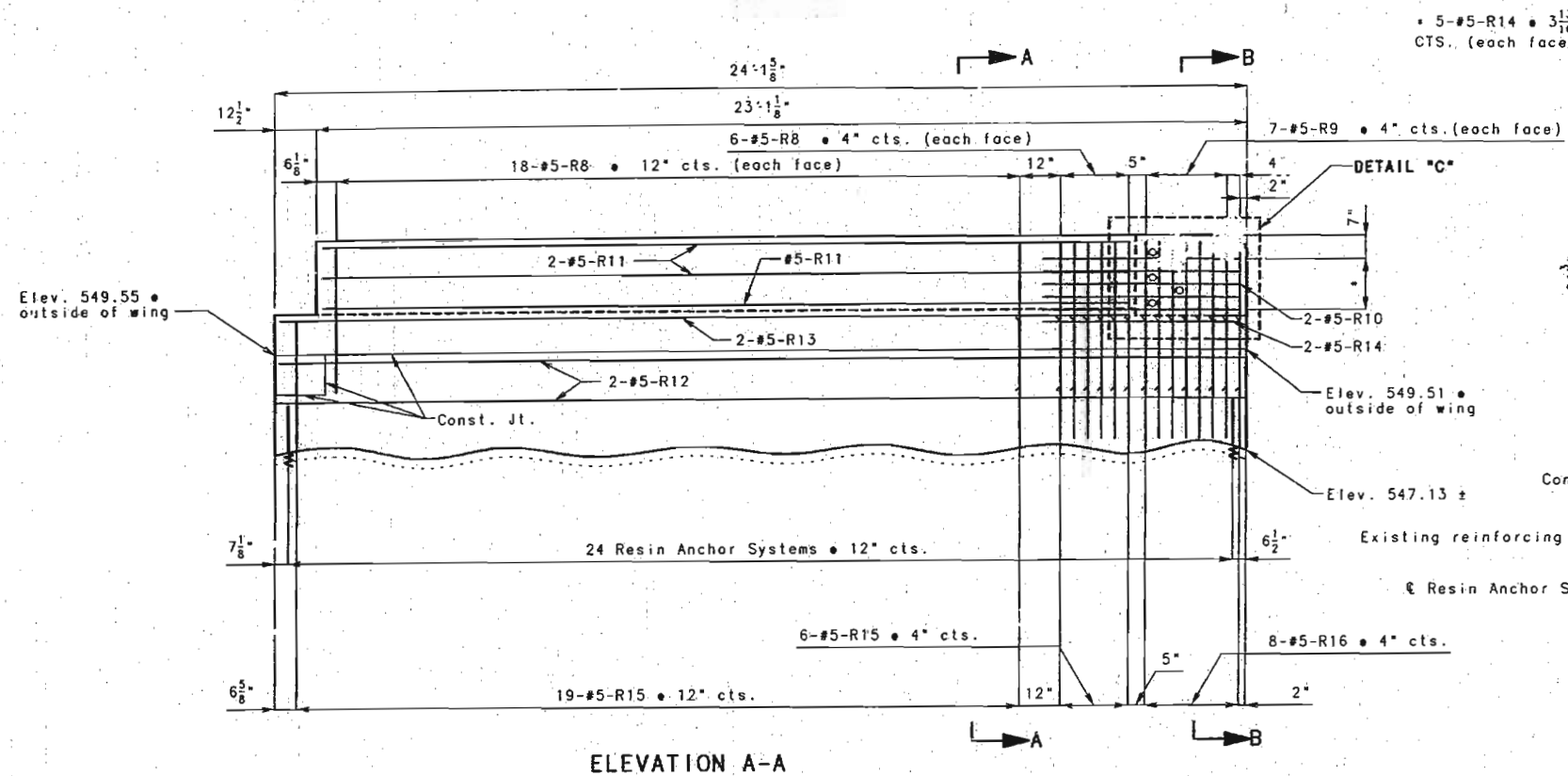
DETAILED JULY 1995
CHECKED NOV. 1995

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

DETAILS OF BENT NO. 1

SHEET NO. 4 OF 97

FRANKLIN-WARREN COUNTIES K09691



Note: For location of Elevation A-A, see sheet No. 4.

NOTE:
 All dimensions shown are horizontal.
 For details of bridge rail attachment, see sheet No. 70.
 All exposed edges of curb shall have either a 1/2" radius or a 3/8" bevel, unless otherwise noted.
 The contract unit price for Concrete Curb and Parapet shall include the cost of all concrete and reinforcement, complete-in-place.
 All concrete above the construction joint shall be class B1.
 Measurement of Concrete Curb and Parapet is to the nearest linear foot measured along the outside top of slab from end of curb to end of curb.

DETAILS OF BENT NO. 1

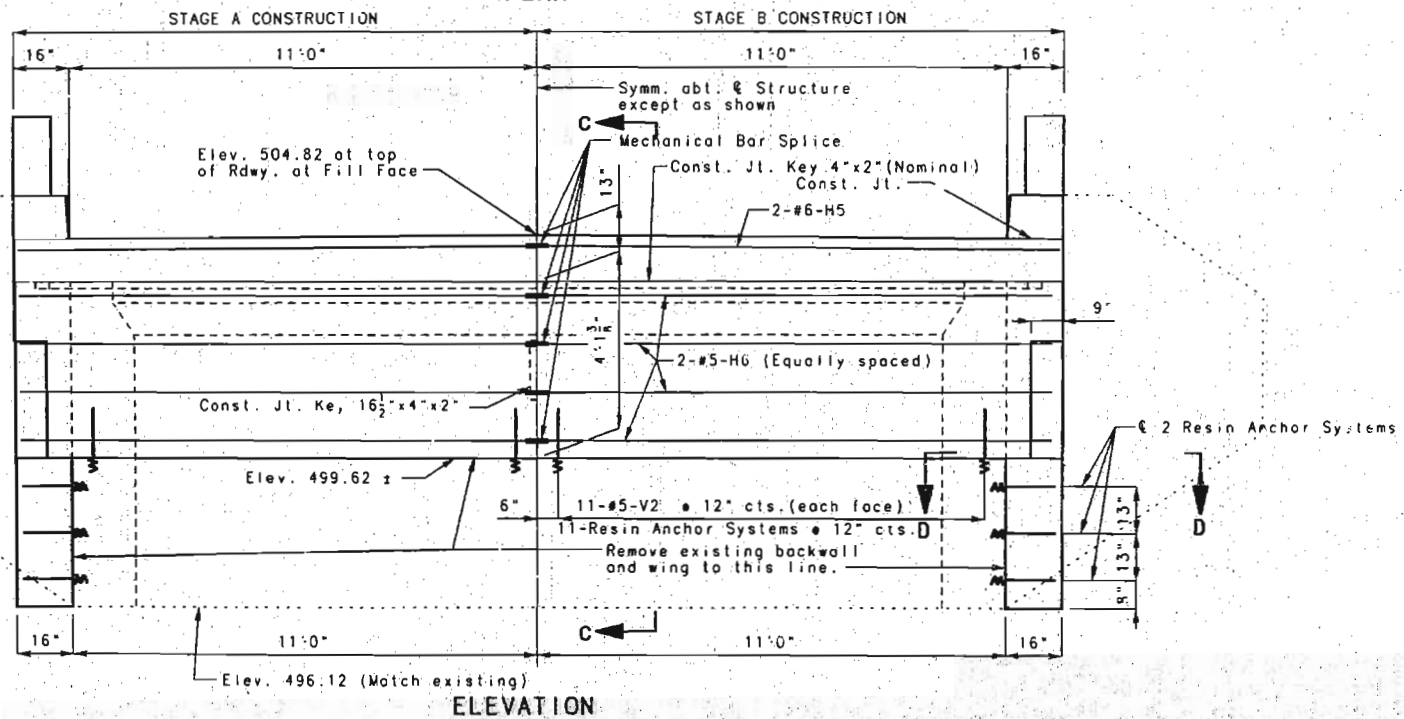
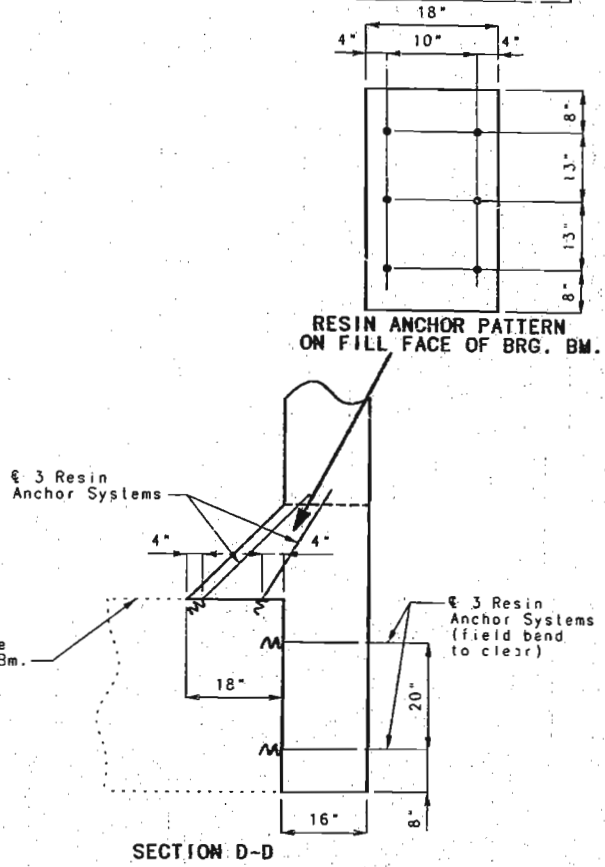
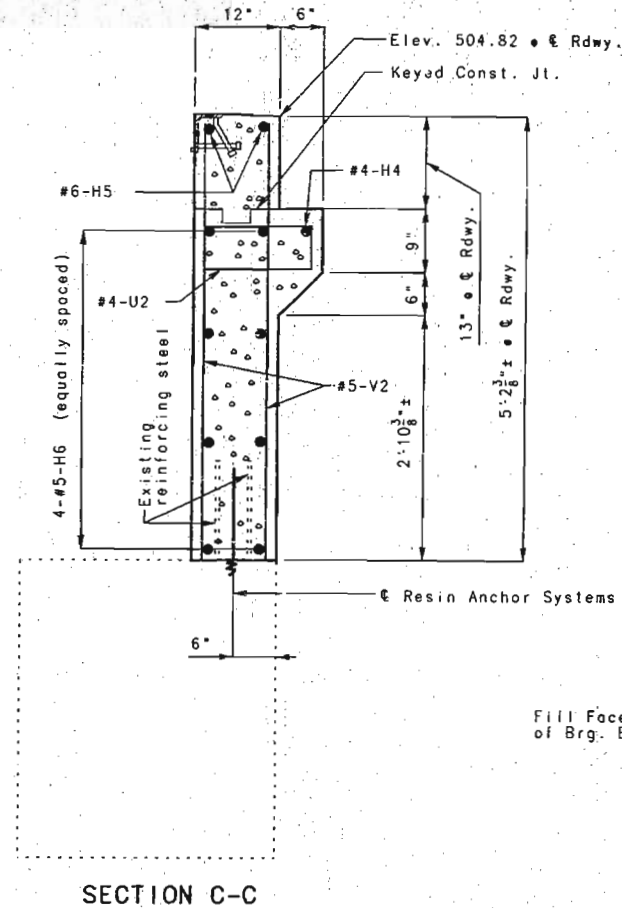
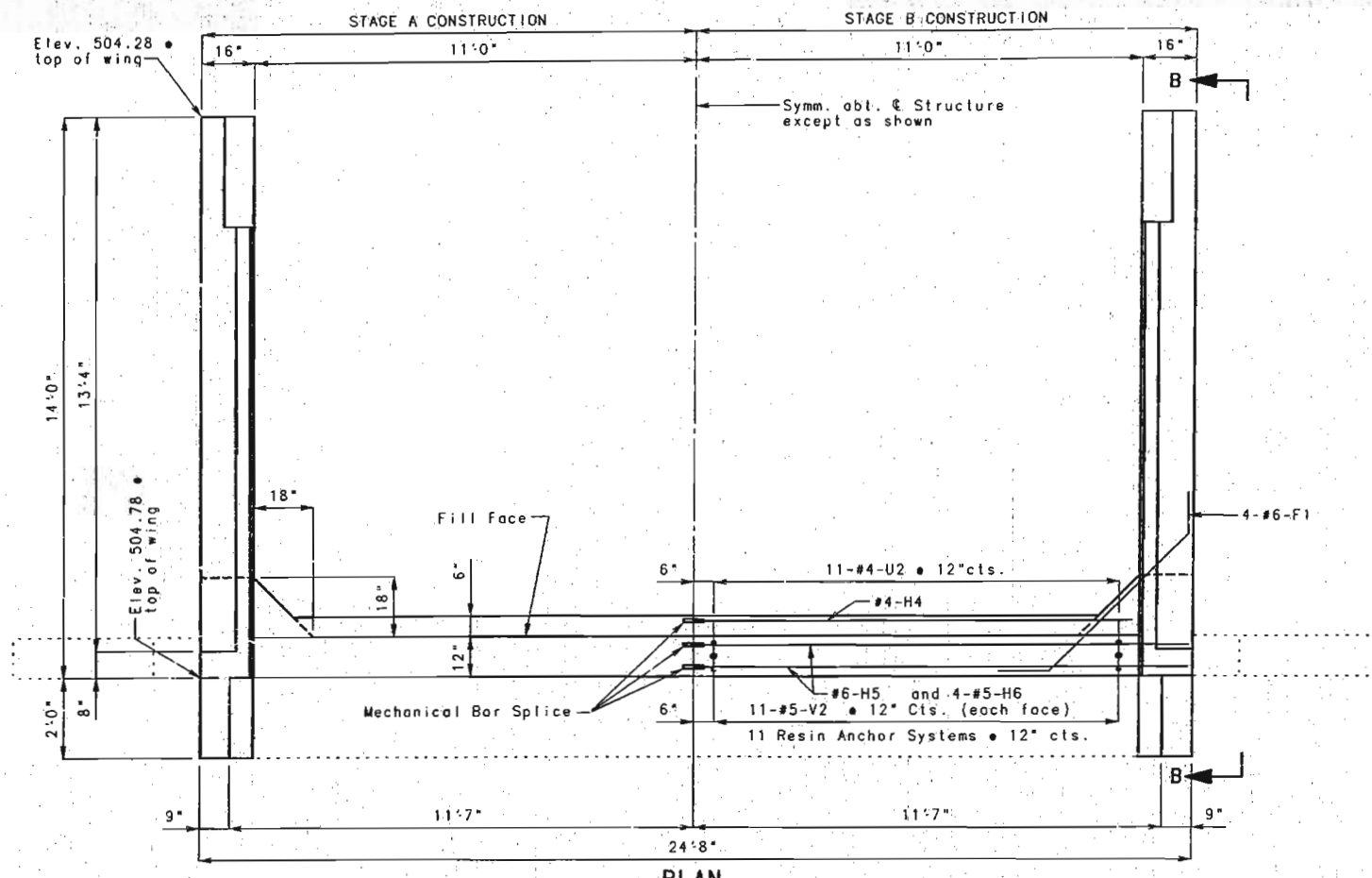
DETAILED JULY 1995
 CHECKED NOV. 1995

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

SHEET NO. 5 OF 97

FRANKLIN-WARREN COUNTIES K09691

48077



Note:
 Cost of furnishing and installing resin anchor systems shall be included in the contract price bid for Class B Concrete. These anchor systems shall be installed according to the manufacturer's specifications except as modified by the job special provisions and that a #6 grade 60 reinforcing bar 2'-6" long shall be substituted for the 3/4" threaded rod stud.

3/4" Ø Resin Anchor Systems shall have a minimum ultimate pullout strength of 20,400 pounds in 4,000 psi concrete. (See Special Provisions)

The contractor shall use a mechanical bar splice for the H4, H5, and H6 bars at the specified location. The total bar lengths for the H4, H5, and H6 bars shown 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. Extra bar lengths from that specified in the bar list may be required depending on the specific splice system to be used. No payment will be made for additional bar lengths added. See job special provisions for additional requirements of mechanical bar splices. Mechanical bar splices for epoxy coated bars shall be epoxy coated.

Cost of furnishing and installing these mechanical bar splices shall be included in the contract price bid for Class B Concrete.

Top of backwall and expansion device for end bent No. 10 shall conform to the Crown of Roadway slab. Backwall above upper construction joint shall not be poured until the superstructure slab has been poured in the adjacent span.

ITEM	QUANTITY
CLASS 1 EXCAVATION	CU. YDS. 30
CLASS B CONCRETE (SUBSTR.)	CU. YDS. 13.7
REINFORCING STEEL (EPOXY COATED)	LBS. 2,000

Note: These quantities are included in the Estimated Quantities table on Sheet No. 7.

Note: For Elevation B-B, see sheet No. 7.

DETAILS OF BENT NO. 10

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

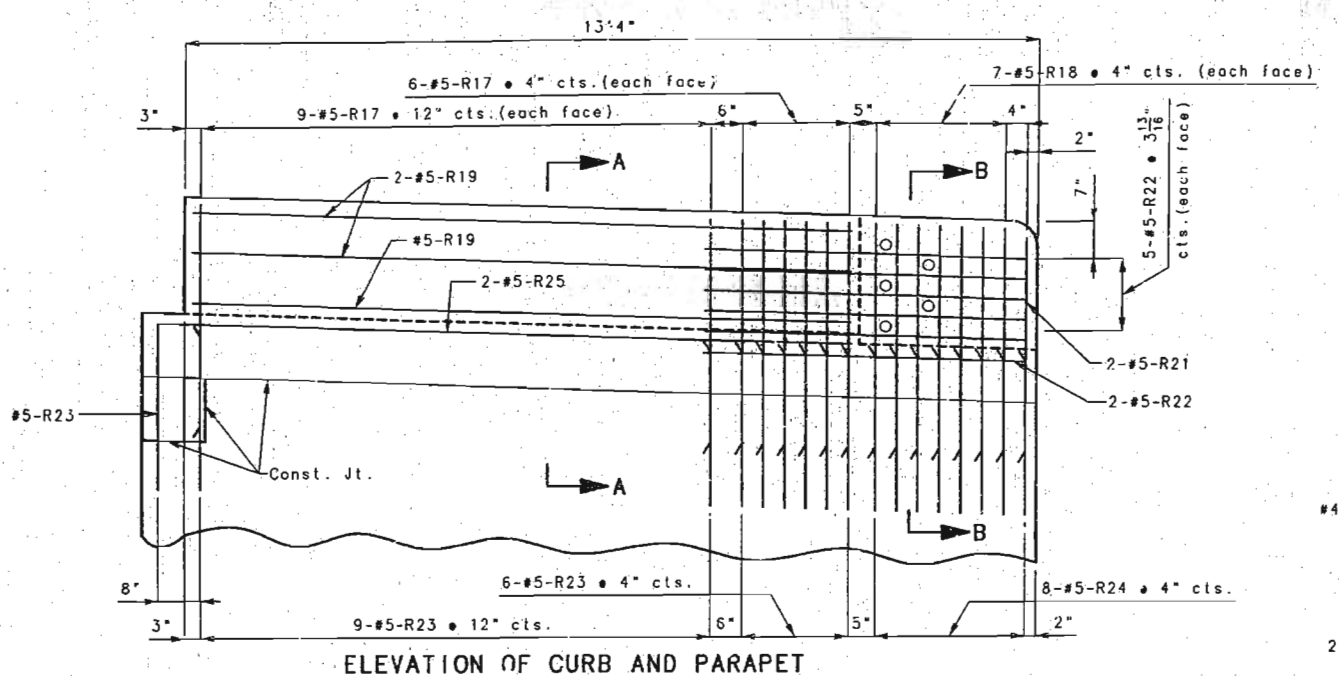
SHEET NO. 6 OF 97.

FRANKLIN-WARREN COUNTIES K09691

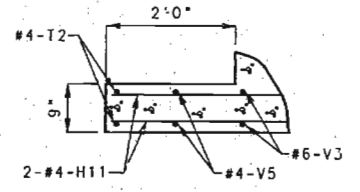
DETAILED JULY 1995
 CHECKED NOV. 1995

48 273

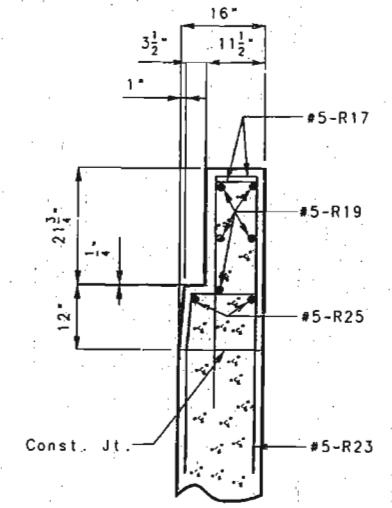
STATE	PROJ. NO.	SHEET NO.
MO.		4



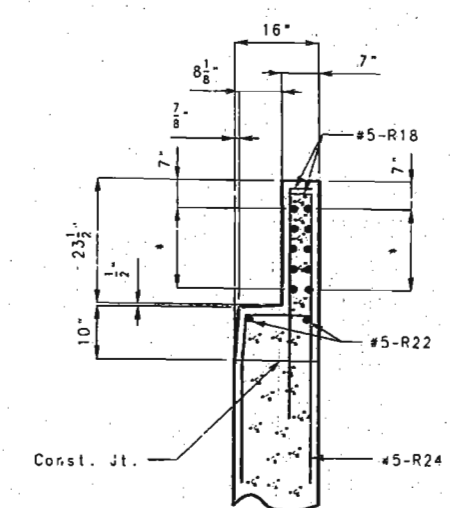
ELEVATION OF CURB AND PARAPET



SECTION D-D

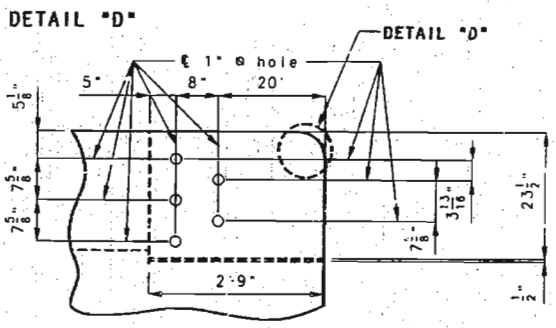


SECTION A-A

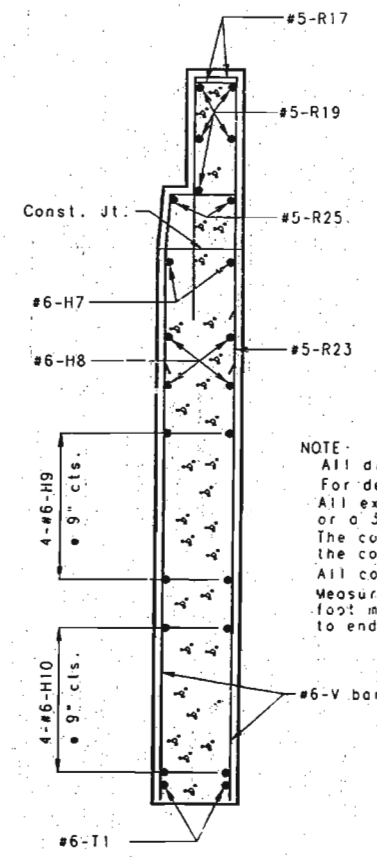


SECTION B-B

• 5-#5-R22 • 3 11/16" cts.



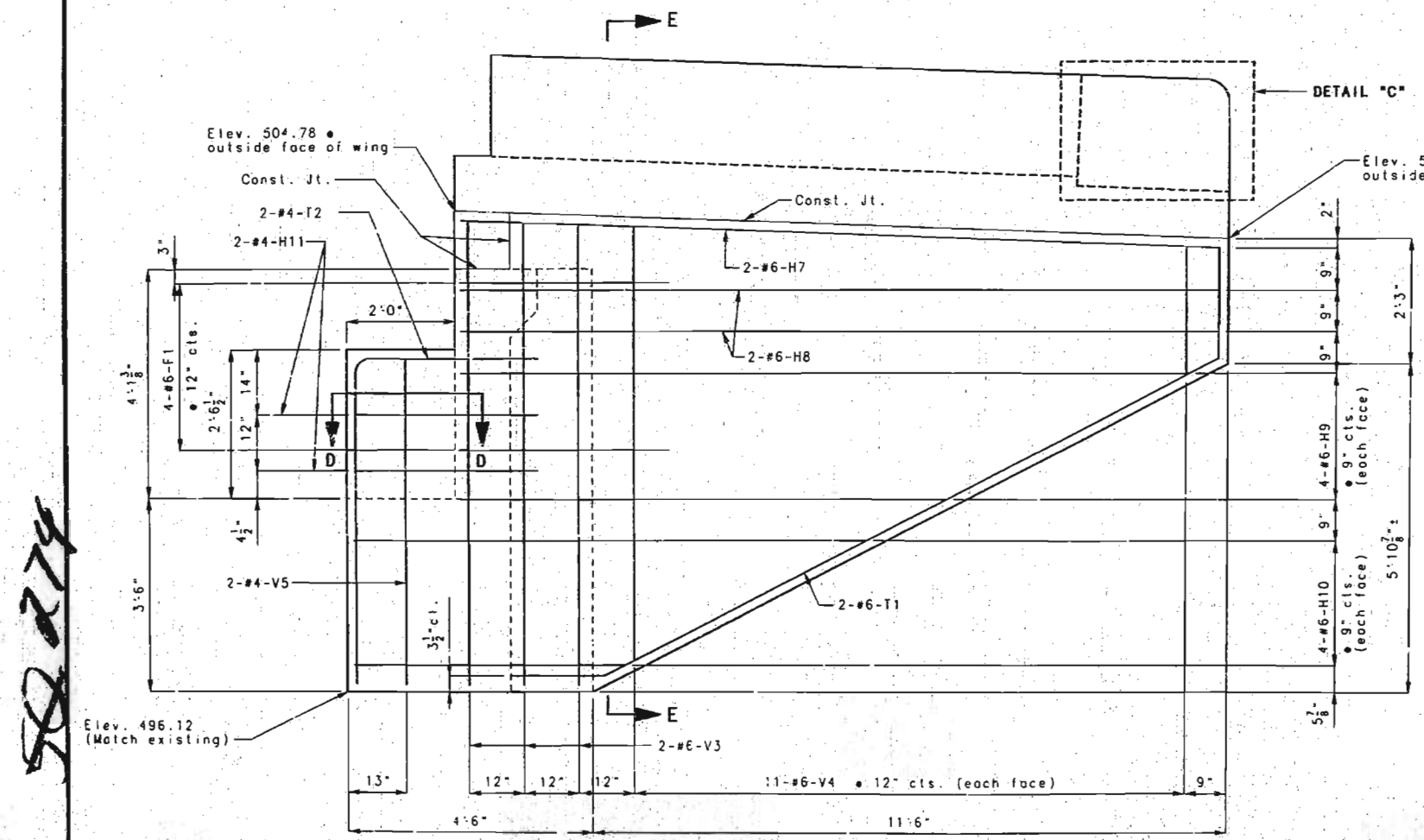
DETAIL C-C



SECTION E-E

NOTE:
 All dimensions shown are horizontal.
 For details of bridge rail attachment, see sheet No. 73.
 All exposed edges of curb shall have either a 1/2" radius or a 5/8" bevel, unless otherwise noted.
 The contract unit price for Concrete Curb and Parapet shall include the cost of all concrete and reinforcement, complete-in-place.
 All concrete above the construction joint shall be class B1.
 Measurement of Concrete Curb and Parapet is to the nearest 1" near foot measured along the outside top of slab from end of curb to end of curb.

Note: For location of Elevation 3-B, see sheet No. 6.



ELEVATION B-B

DETAILS OF BENT NO. 10

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

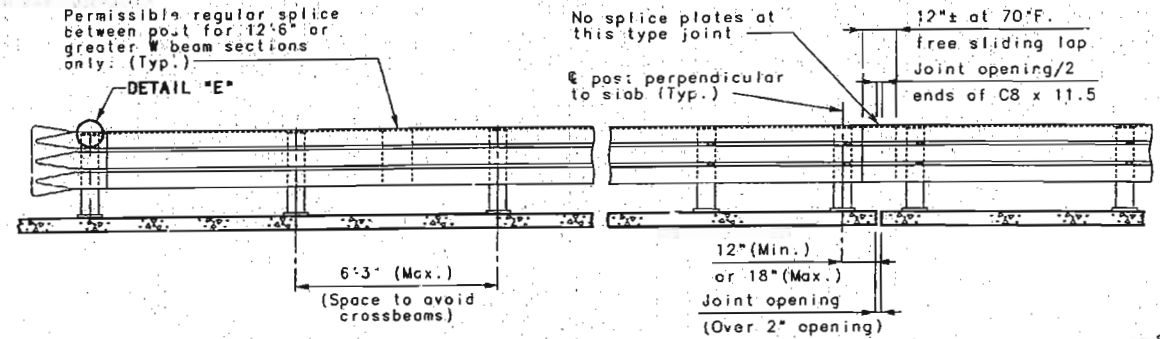
582274

Detailed JULY 1995
 Checked NOV. 1995

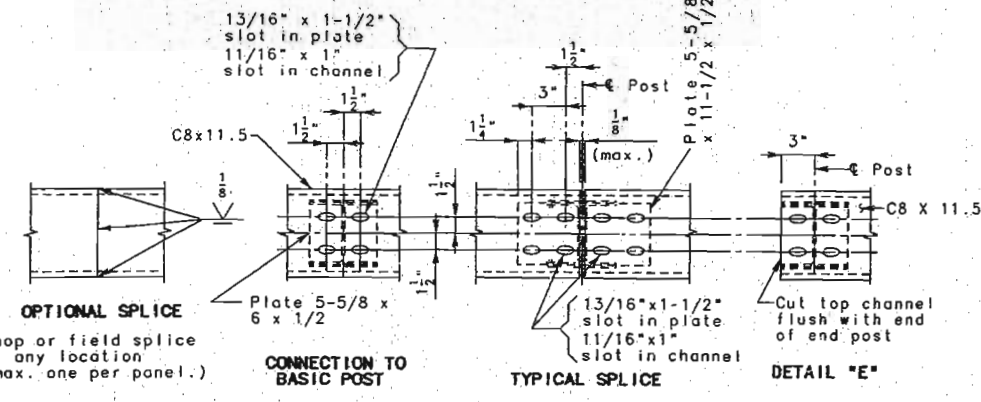
SHEET NO. 7 OF 97

FRANKLIN-WARREN COUNTIES K09691

STATE	PROJ. NO.	SHEET NO.
MO.		



PART SECTION SHOWING W BEAM RAIL



CHANNEL MEMBER DETAILS

GENERAL NOTES:

Panel lengths of channel members shall be attached continuously to a minimum of four posts.

All bolts, nuts, washers and plates are considered as parts of the Temporary Traffic Barrier (Thrie Beam) for payment.

Painting or Galvanizing of Temporary Traffic Barrier is not required.

Minimum length of W beam sections is equal to one post space.

Use 5/8 inch button head, oval shoulder bolts with hex nuts at all slots. (Thickness of hex nuts = 3/8" min.) (Except at posts)

W beam guard rail on the bridge shall be made of steel and shall be 12 gage.

Posts, top plates, base plates, channels and channel splice plates shall be fabricated from A-36 steel.

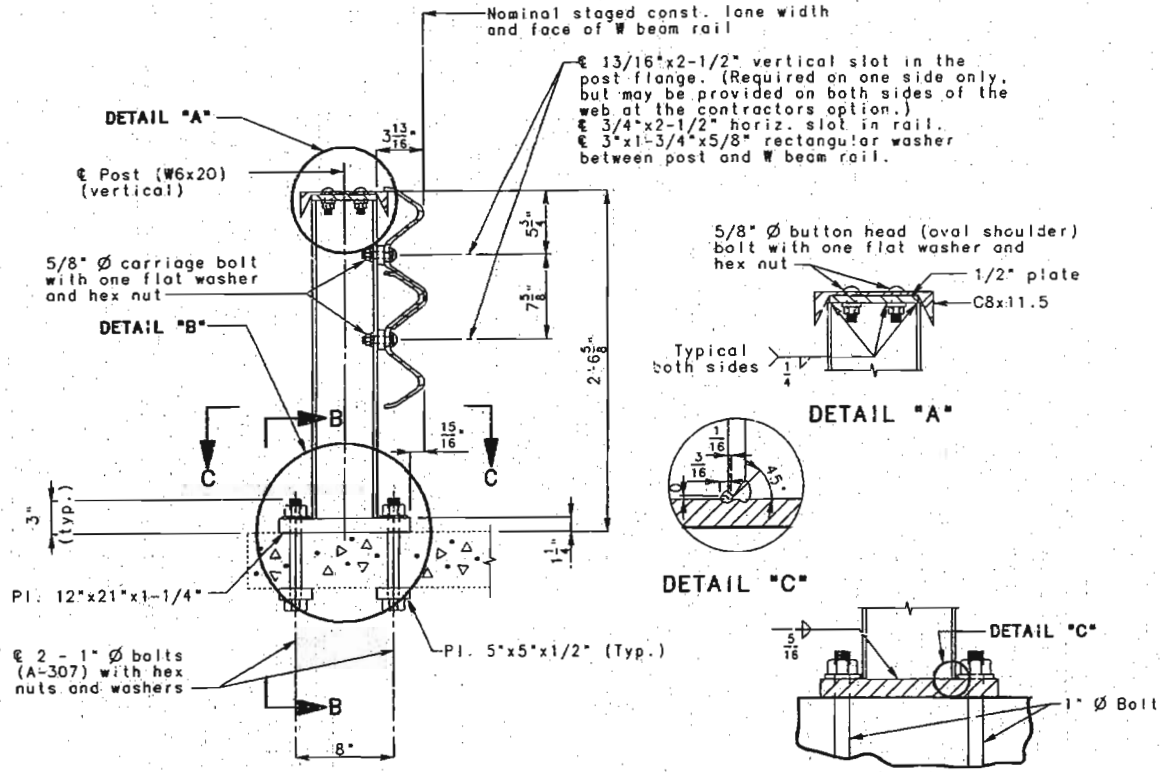
Threaded rods grade A-321 with 2 hex nuts and washers may be substituted for the A-307 anchor bolts.

Washers shall be used at all post bolts (between the bolt head and beam). They shall be rectangular in shape (3" x 1-3/4" x 3/16" min.) and flat with a 11/16" x 1" slot, or when necessary of such design as to fit the contour of the beam. (Use a 3" x 1-3/4" x 5/8" rectangular washer between the post and the W beam rail.)

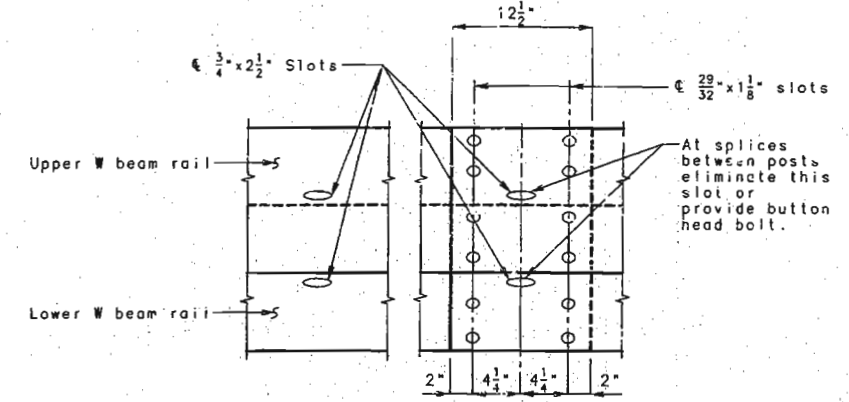
Fabrication of structural steel shall be in accordance with section 712 of the Missouri Standard Specifications.

Shop drawings are not required for Temporary Traffic Barrier (W Beam).

Temporary Screening System (Rday. Item) not shown for clarity.



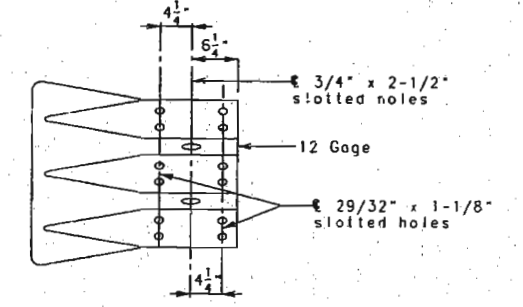
PART SECTION AT RAIL POST CONNECTED TO EXIST. SLAB



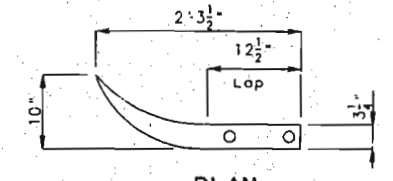
PART ELEVATION W BEAM MEMBERS RAIL SPLICE DETAILS

Note: The upper W beam rail shall be mounted on top of the lower W beam rail as shown.

All slots and holes not being used in splices or connections shall be plugged with 5/8" button head bolts.

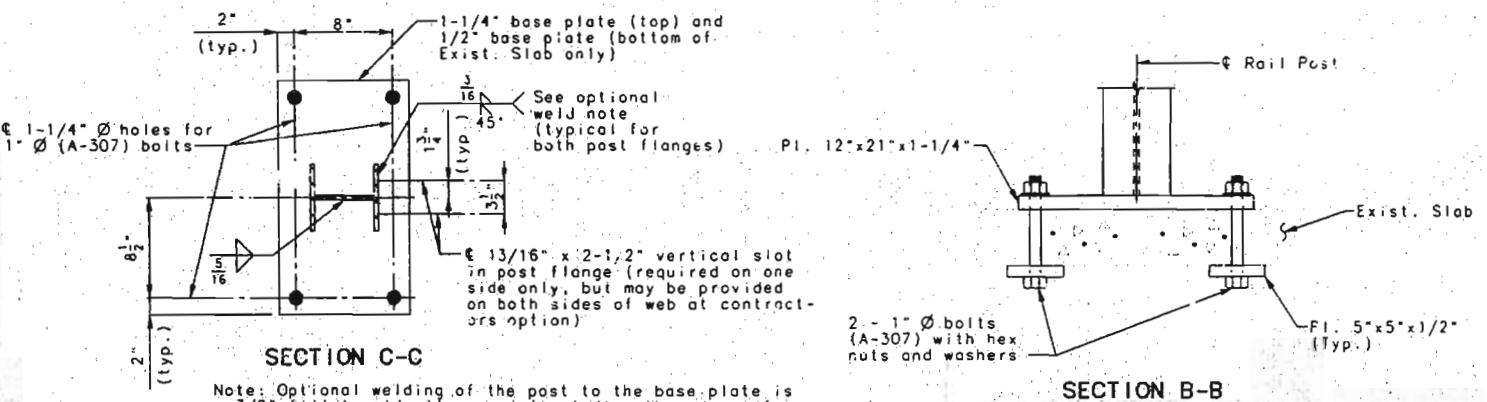


ELEVATION



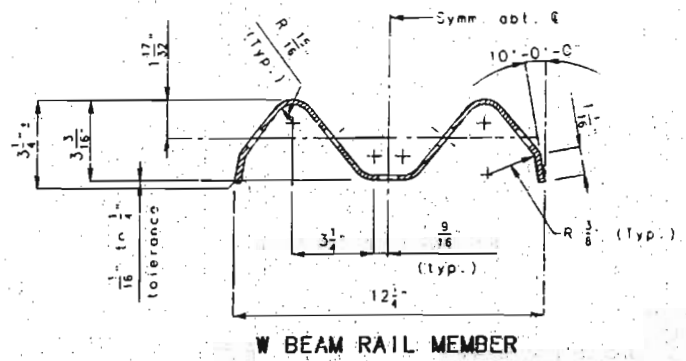
PLAN

DETAIL OF FLARED END



DETAILS OF TEMPORARY TRAFFIC BARRIER

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



W BEAM RAIL MEMBER

TEMP 4, RAIL SH, A

REVISED DEC. 1993
MAY 1991

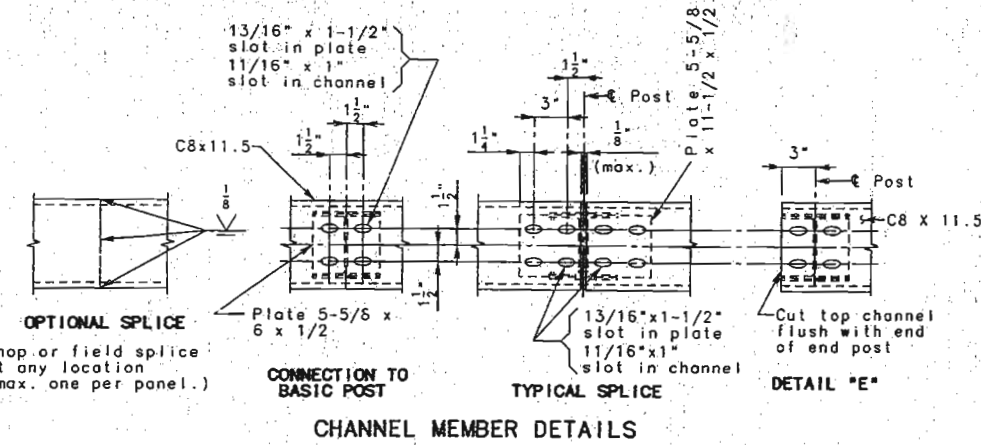
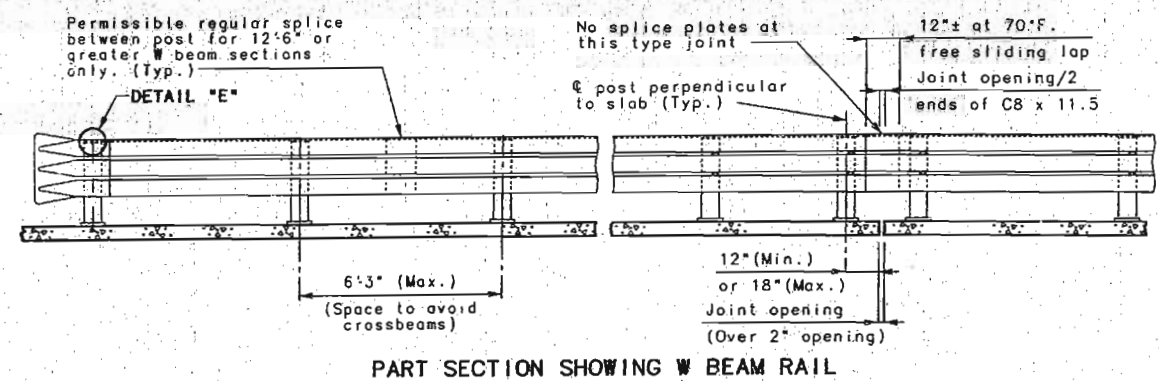
DETAILED MAR. 1996
CHECKED MAR. 1996

ADD

REVISED MARCH 19, 1996 SHEET NO. 82 OF 97

FRANKLIN-WARREN COUNTIES K09691

STATE	PROJ. NO.	SHEET NO.
MO.		



GENERAL NOTES:

Panel lengths of channel members shall be attached continuously to a minimum of four posts.

All bolts, nuts, washers and plates are considered as parts of the Temporary Traffic Barrier (Thrie Beam) for payment.

Painting or Galvanizing of Temporary Traffic Barrier is not required.

Minimum length of W beam sections is equal to one post space.

Use 5/8 inch button head, oval shoulder bolts with hex nuts at all slots. (Thickness of hex nuts = 3/8\" min.) (Except at posts)

W beam guard rail on the bridge shall be made of steel and shall be 12 gage.

Posts, top plates, base plates, channels and channel splice plates shall be fabricated from A-36 steel.

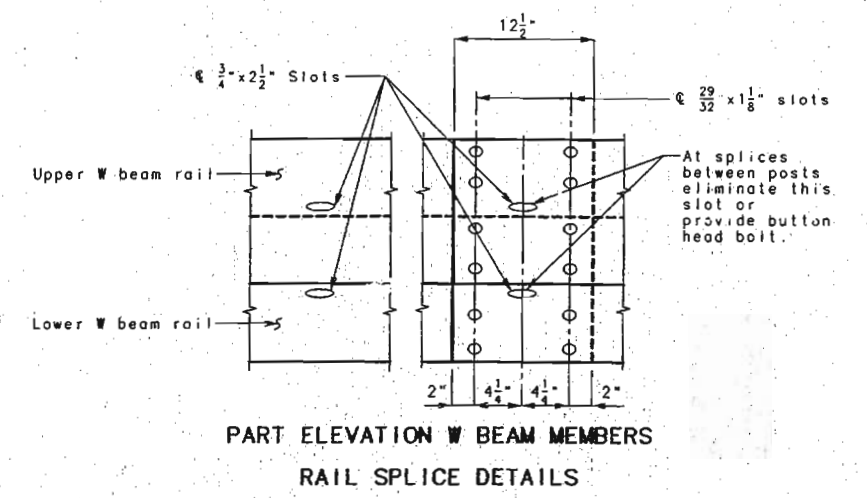
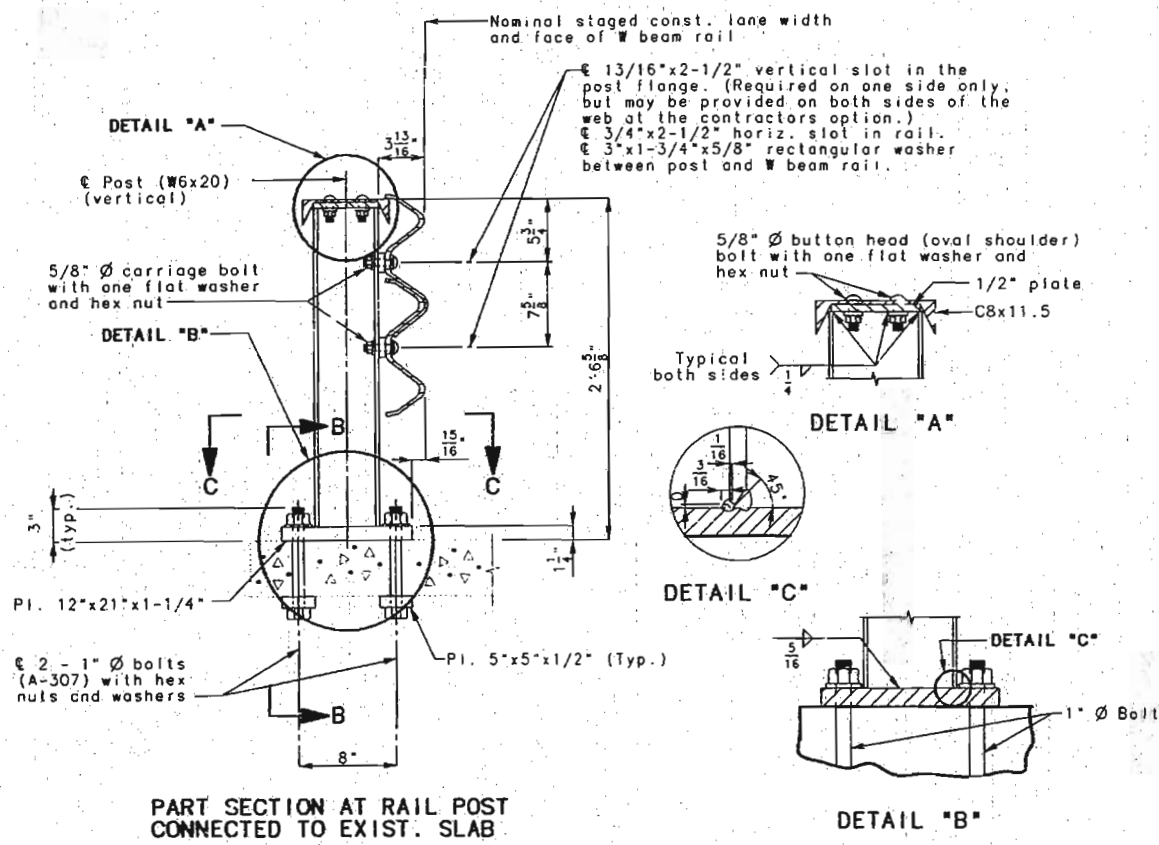
Threaded rods grade A-321 with 2 hex nuts and washers may be substituted for the A-307 anchor bolts.

Washers shall be used at all post bolts (between the bolt head and beam). They shall be rectangular in shape (3\" x 1-3/4\" x 3/16\" min.) and flat with a 11/16\" x 1\" slot, or when necessary of such design as to fit the contour of the beam. (Use a 3\" x 1-3/4\" x 5/8\" rectangular washer between the post and the W beam rail.)

Fabrication of structural steel shall be in accordance with section 712 of the Missouri Standard Specifications.

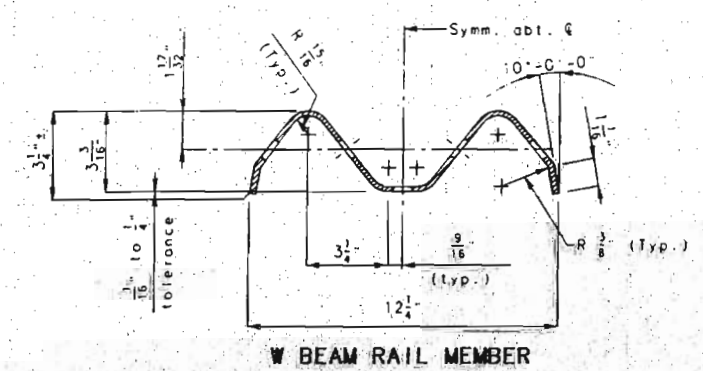
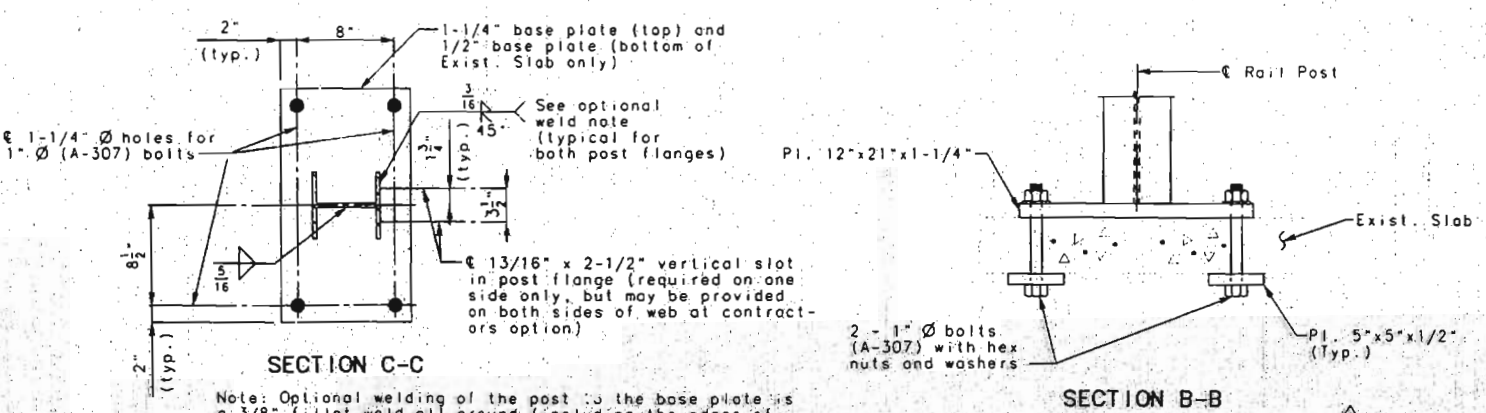
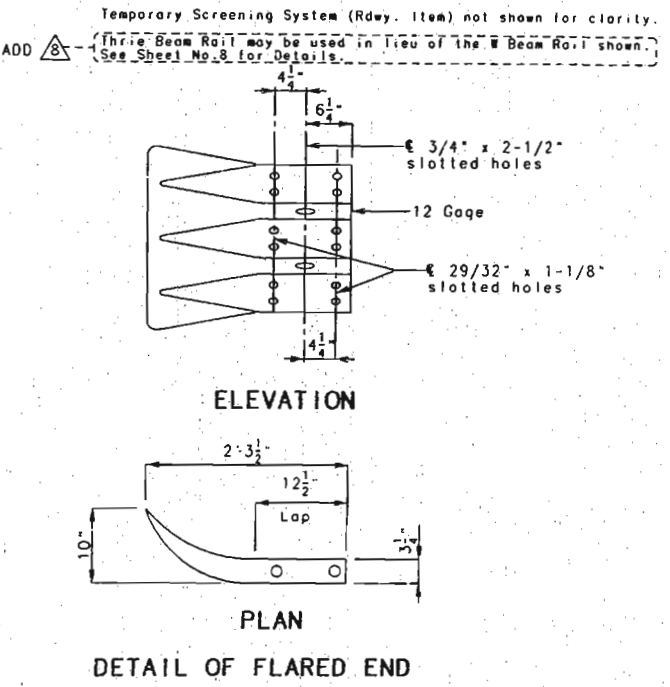
Shop drawings are not required for Temporary Traffic Barrier (W Beam).

Temporary Screening System (Rdwy. Item) not shown for clarity. (Thrie Beam Rail may be used in lieu of the W Beam Rail shown. See Sheet No. 8 for Details.)



Note: The upper W beam rail shall be mounted on top of the lower W beam rail as shown.

All slots and holes not being used in splices or connections shall be plugged with 5/8\"/>



DETAILS OF TEMPORARY TRAFFIC BARRIER

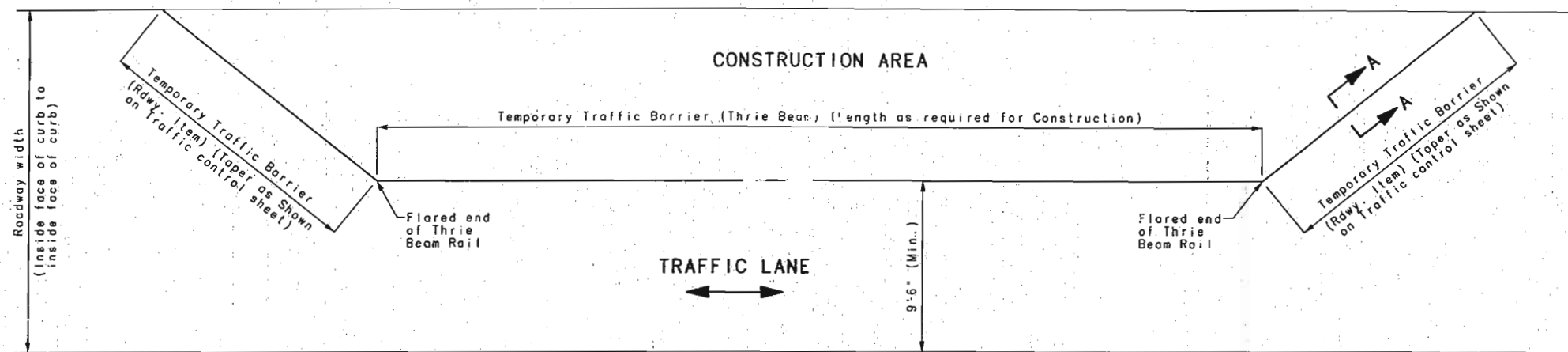
NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

REVISED MAY 2, 1996

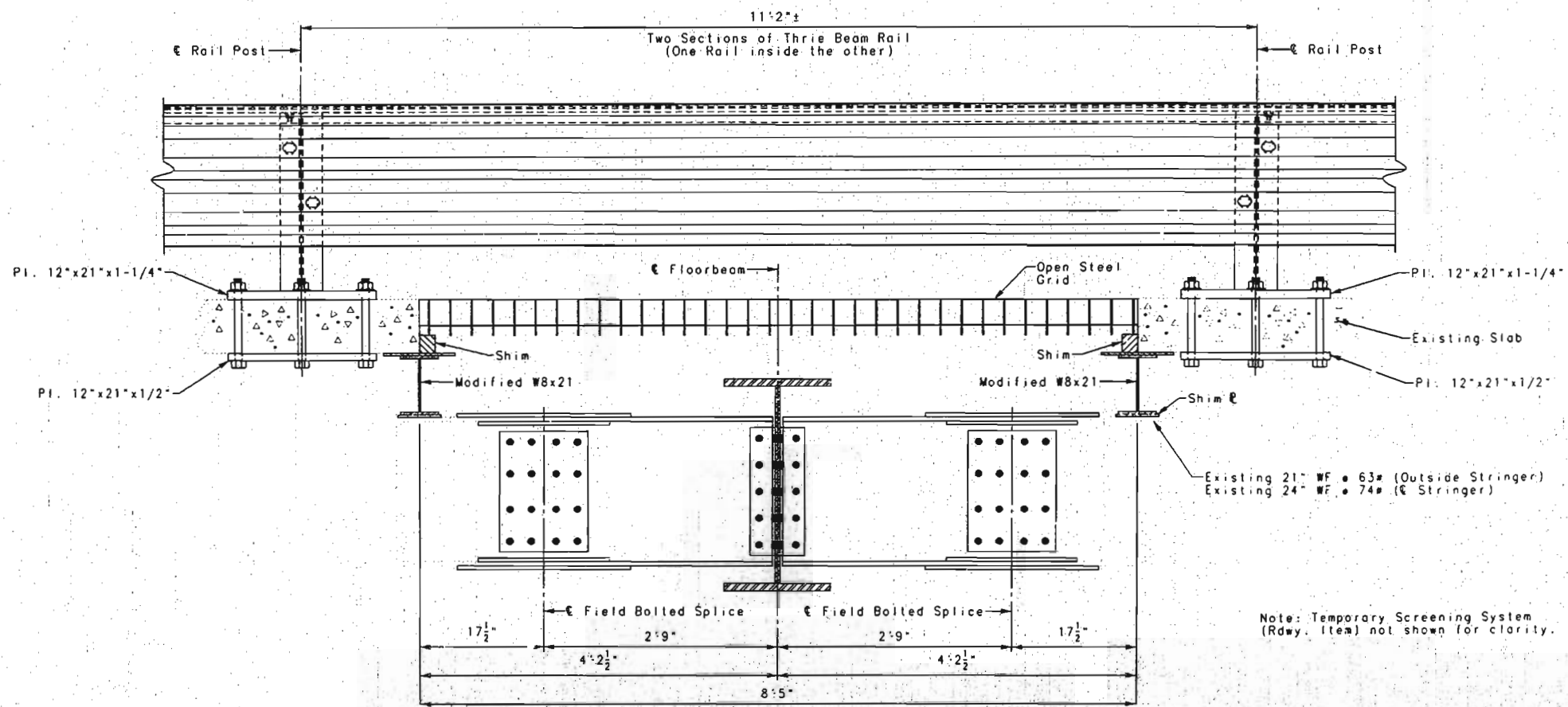
ADD

REVISED MARCH 19, 1996. SHEET NO. 8A OF 97.

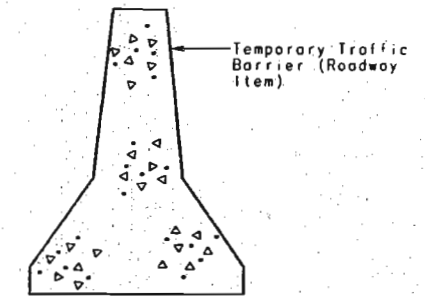
TEMP 4, RAIL SH. A
 REVISED DEC. 1993
 MAY 1991
 DETAILED MAR. 1996
 CHECKED MAR. 1996



PLAN OF CONSTRUCTION AREA

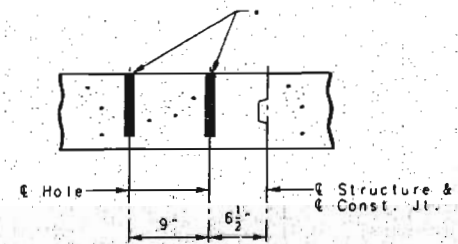


DETAILS OF TEMPORARY TRAFFIC BARRIER AT A FLOORBEAM REPLACEMENT



SECTION A-A

When the temporary traffic barrier is removed from the new slab, the holes in the slab shall be filled with a non-shrink epoxy grout. (See Special Provisions)
 The cost of this work shall be included in the contract unit price for Temporary Traffic Barrier (Three Beam).



FILL DETAIL FOR CONE EXPANSION ANCHOR HOLE

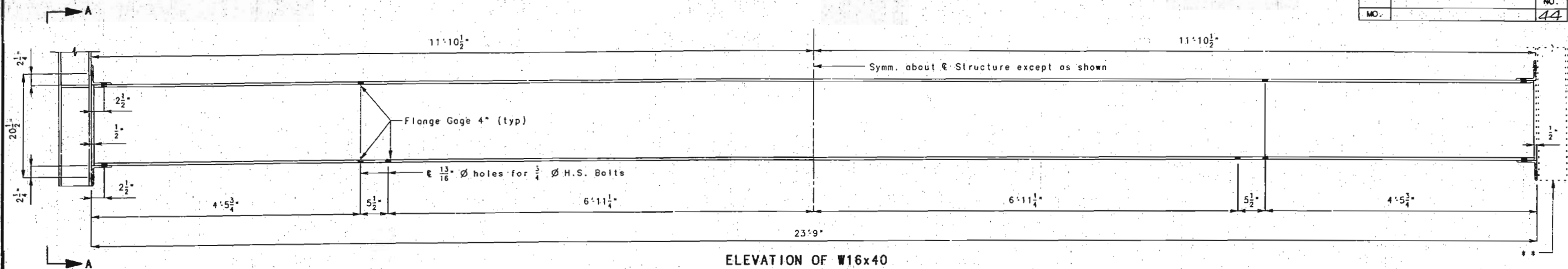
52 778

DETAILED SEPT. 1995
 CHECKED NOV. 1995

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

SHEET NO. 9 OF 97

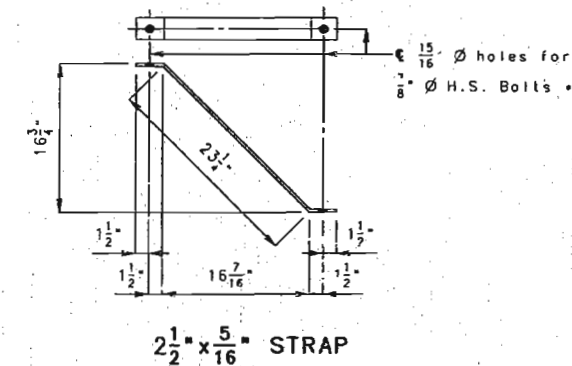
FRANKLIN-WARREN COUNTIES K09691



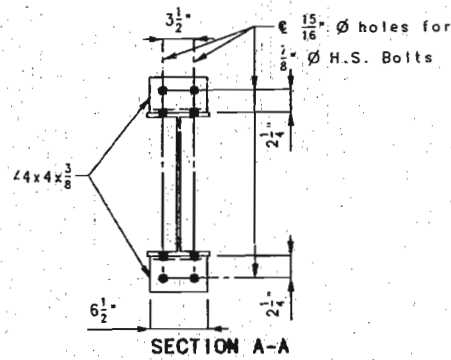
ELEVATION OF W16x40
SPANS (1-2) & (9-10)
(STAGE A SHOWN)

Note: The existing 16" WF40# crossbeams located directly above Bent Nos. 2 & 9 shall be replaced with new W16x40 crossbeams. The slab shall be supported immediately left and right of the crossbeam to be replaced until the new crossbeam is attached to the 33" wide flange stringers. The cost of furnishing, fabricating and installing the new W16x40 beams with high strength bolts will be paid for at the contract unit price for Approach Span Crossbeam Replacement (W16x40) per each.

** This post will be replaced in Stage B.

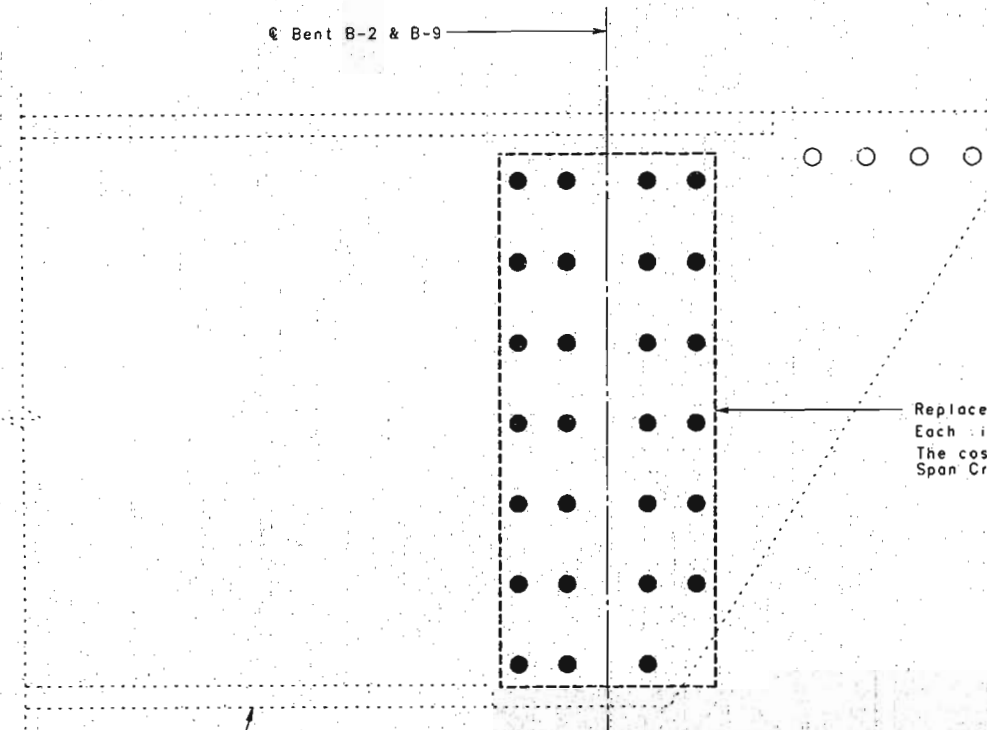


2 1/2" x 5/16" STRAP



SECTION A-A

€ Bent B-2 & B-9



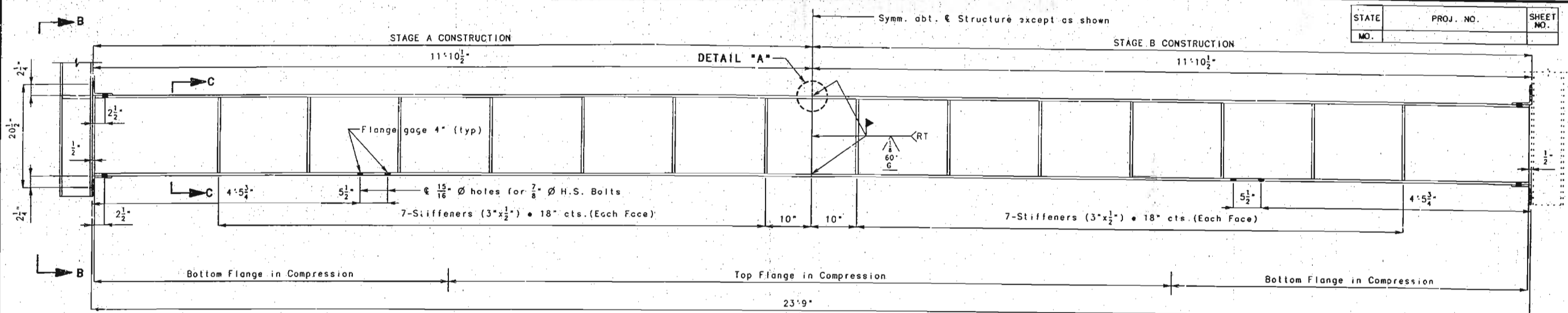
Replace all rivets with 7/8" Ø H.S. Bolts prior to replacement of crossbeam. Each rivet must be removed and replaced before the next rivet is removed. The cost of this work shall be considered incidental to the pay item Approach Span Crossbeam Replacement (W16x40).

Note: All 2 1/2" x 5/16" straps that are cracked shall be replaced. Each 8" x 5/16" strap that is cracked shall be replaced with two 2 1/2" x 5/16" straps. The cost of furnishing, fabricating and installing 2 1/2" x 5/16" straps with high strength bolts will be paid for at the contract unit price for Approach Span Strap Replacement per each. Some of the existing straps have 13/16" Ø holes with 3/4" Ø rivets. If these particular straps need replacing, ream the holes and use 7/8" Ø H.S. Bolts.

Existing Stringer 33" WF 210#

DETAILS OF APPROACH SPAN CROSSBEAM (W16x40) AND STRAP REPLACEMENT

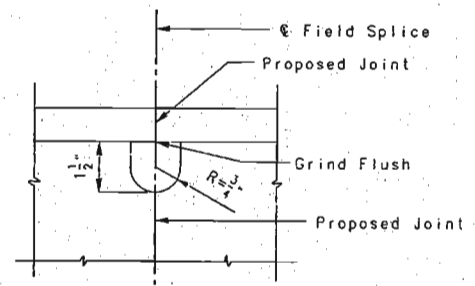
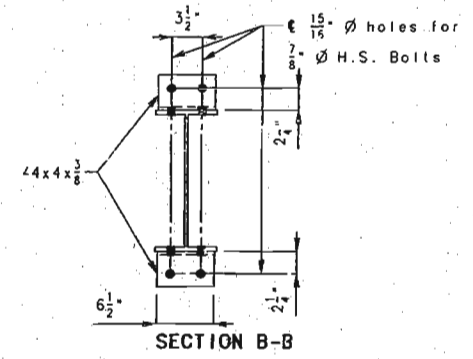
STATE	PROJ. NO.	SHEET NO.
MO.		



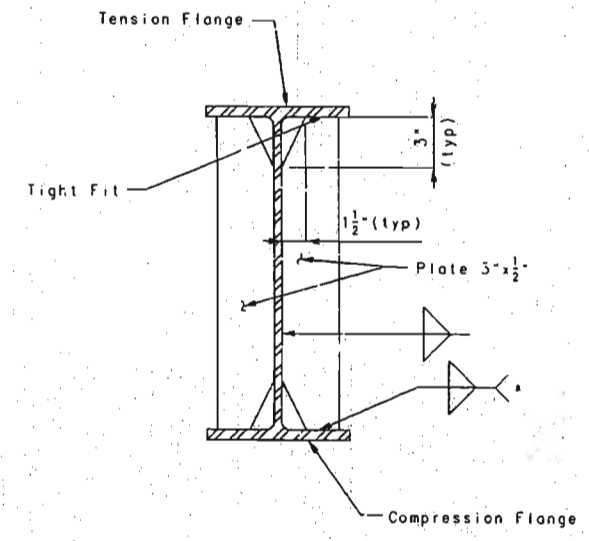
ELEVATION OF W16x45
SPANS (2-3) & (8-9)

Note: See Section A-A on sheet No. 32 and Section A-A on sheet No. 34 for additional details of the W16x45.

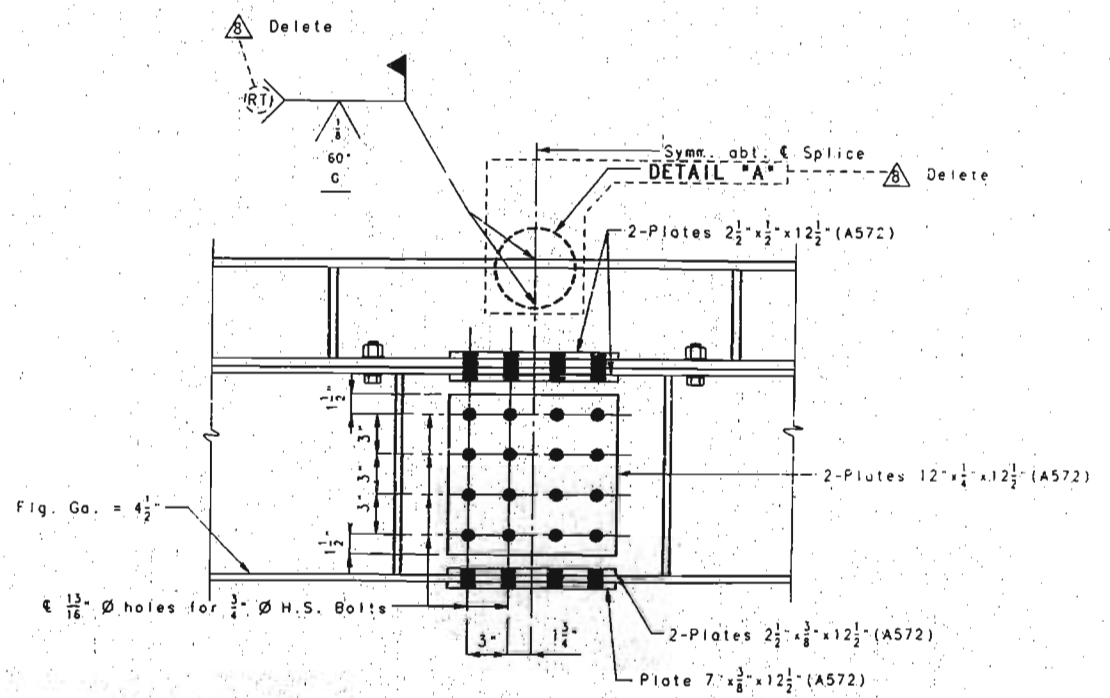
Note:
The existing 16" WF45# crossbeams located directly above Bent Nos. 3 & 8 shall be replaced with new W16x45 crossbeams. The crossbeams may be removed and replaced in sections with the use of shoring off of the bent. The location of the welded field splice may be adjusted from that shown above. The contractor may choose to use a bolted field splice instead of the welded field splice. The cost of furnishing, fabricating and installing the new W16x45 crossbeams with high strength bolts will be paid for at the contract unit price for Approach Span Crossbeam Replacement (W16x45) per each. See sheet Nos. 31-36 for details of Finger Plate Expansion Device. Cost of radiographic testing shall be included in the contract unit price for Approach Span Crossbeam Replacement (W16x45).



DETAIL "A"
(Use for welded field splice only)



SECTION C-C



OPTIONAL BOLTED FIELD SPLICE FOR W16x45

DETAILS OF APPROACH SPAN CROSSBEAM (W16x45) REPLACEMENT

DETAILED SEPT. 1995
CHECKED NOV. 1995

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

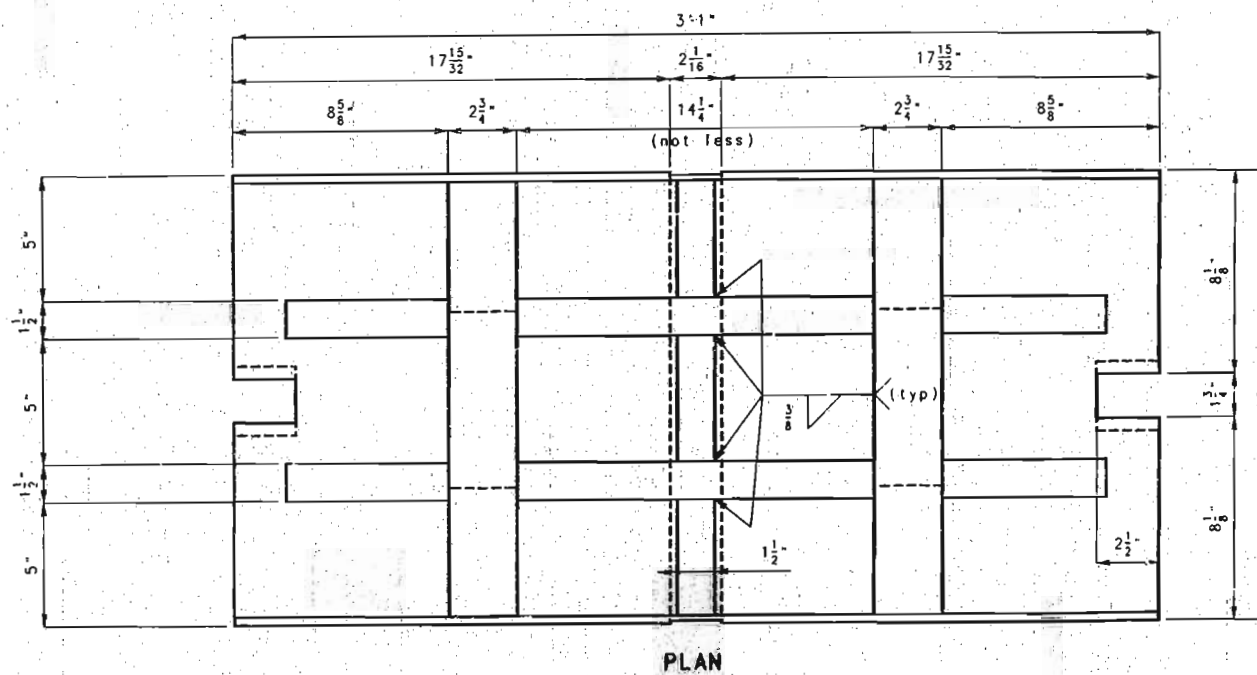
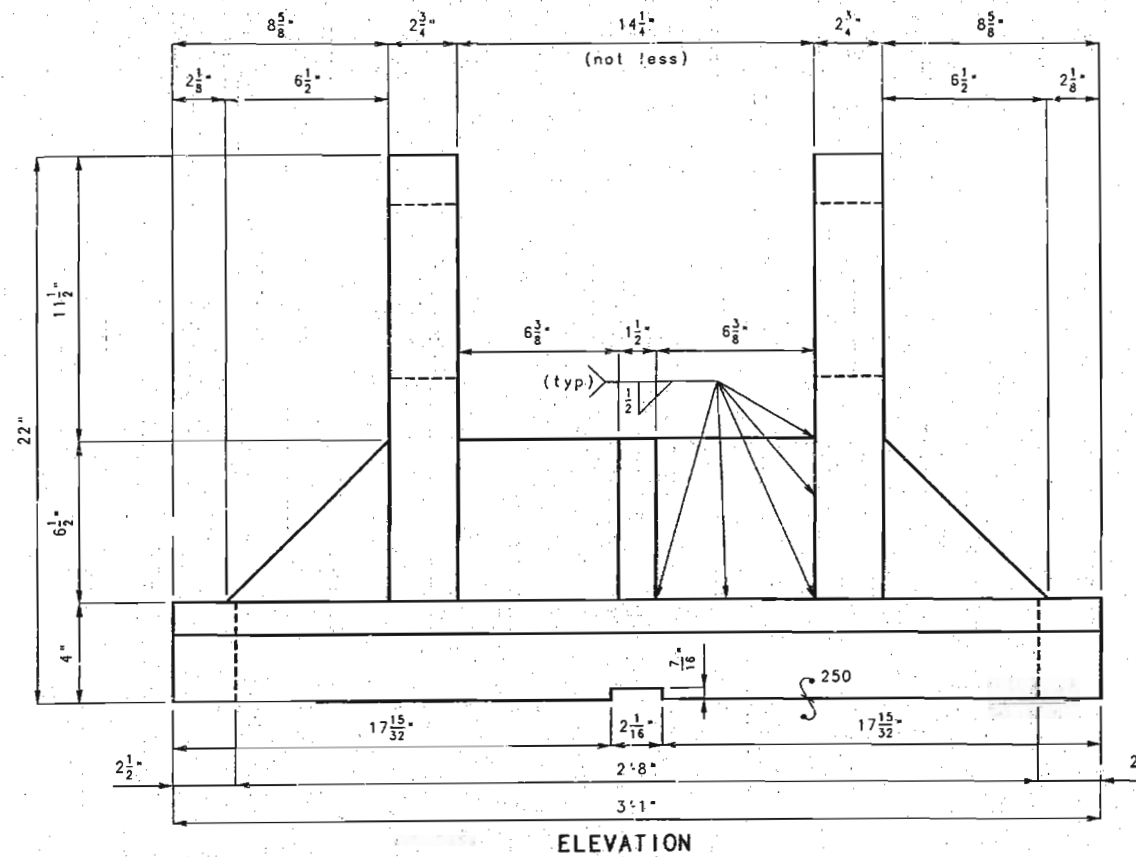
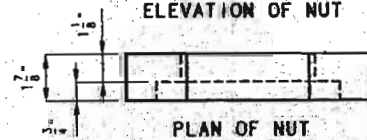
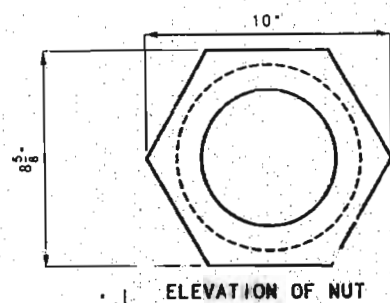
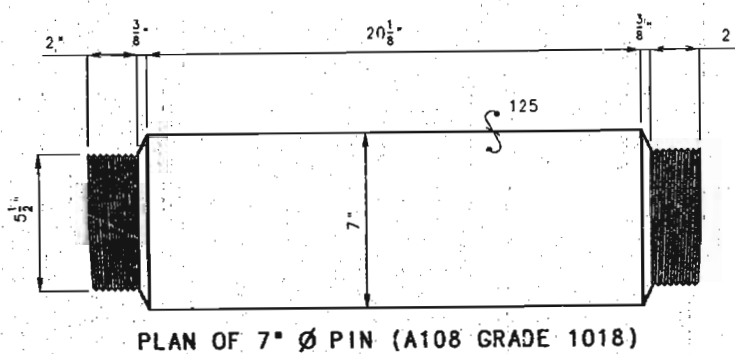
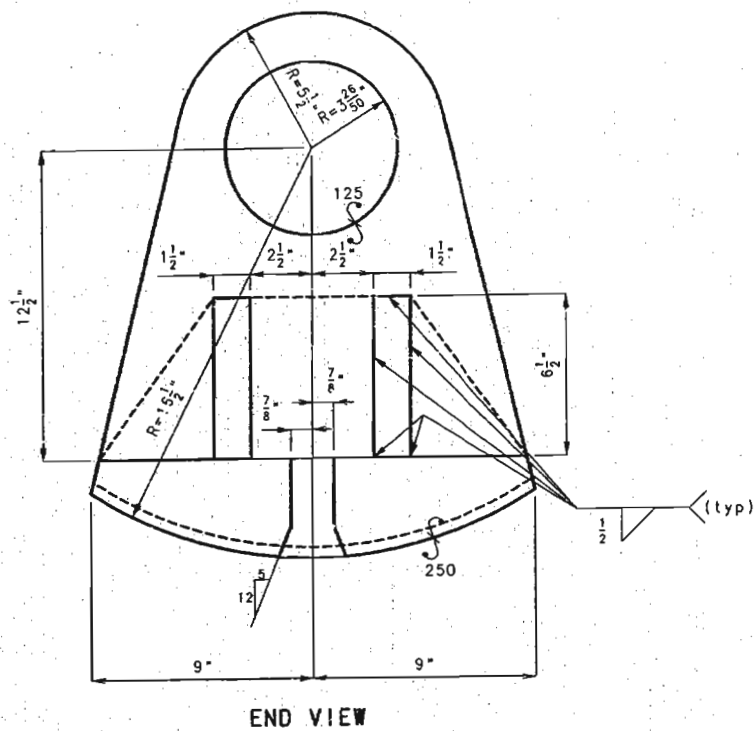
Revised May 2, 1995

SHEET NO. 11 OF 97

FRANKLIN-WARREN COUNTIES K09691

780

1824

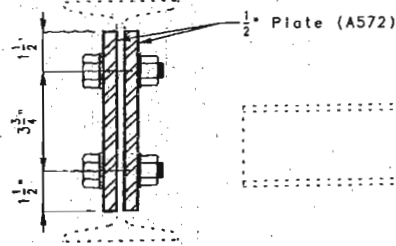


Note:
 Weldments shall be stress relieved and tested prior to any machining or boring.
 Shop coat pin and pin bearing surfaces with National Lubricating Institute No. 3 Multipurpose Grease or an approved equal upon completion of machining.
 All plates, and anchor bolts not shown are to be cleaned, painted and utilized in place.
 The jacking load is estimated to be 360 Kips.

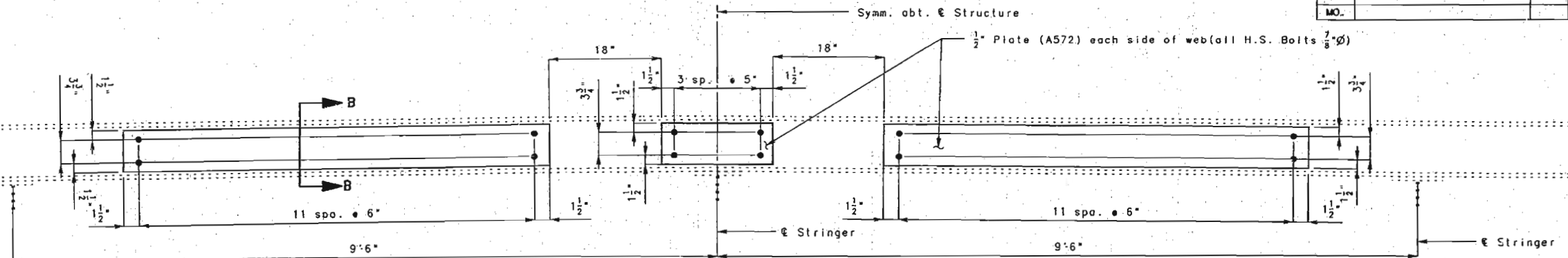
Note: The cost of furnishing, fabricating and installing the rocker, pin and 2 nuts will be paid for at the contract unit price for Bearing and Pin Replacement per each.

DETAILS OF REPLACEMENT BEARING AND PIN AT PIER NO. 3 - EAST

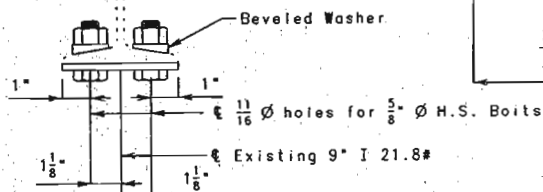
SS 781



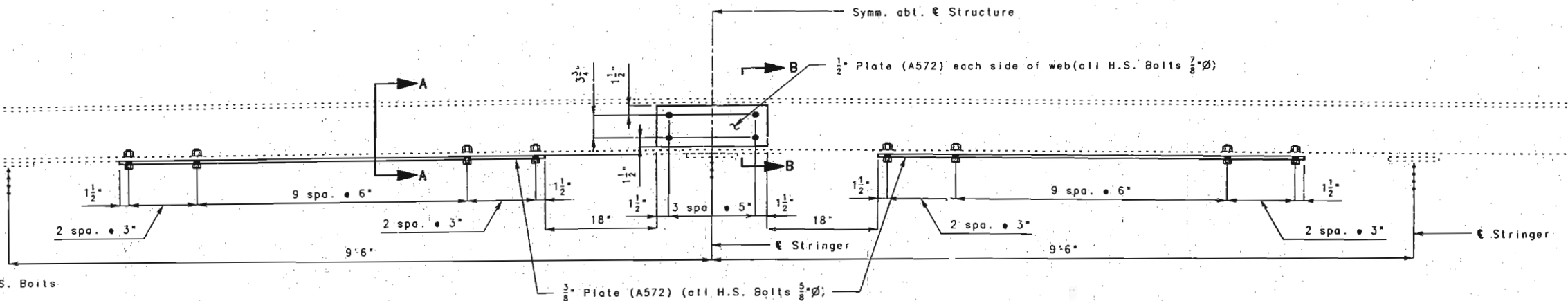
SECTION B-B



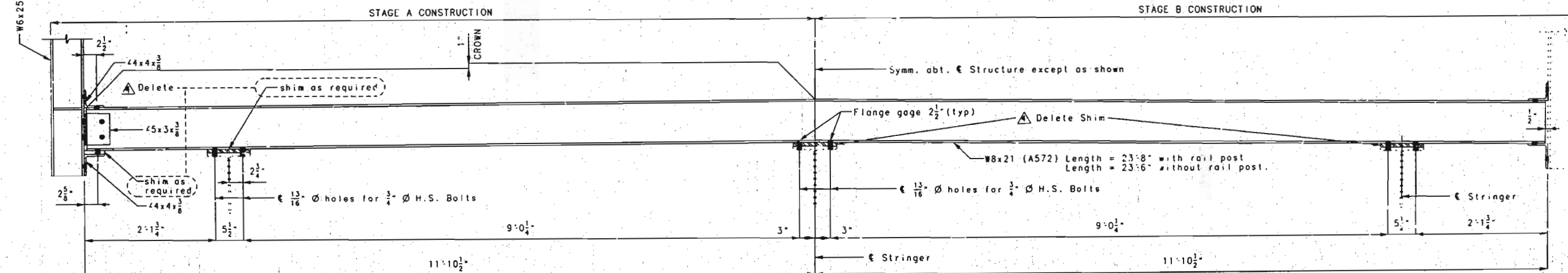
OPTION A



SECTION A-A



OPTION B



OPTION C

GENERAL NOTES:

The contractor may use any combination of options A, B and C. Those 9" crossbeams immediately left and right of a floorbeam being replaced shall be replaced with modified W8x21 beams. See sheet No. 25. Any 9" crossbeam that has more than 25% of its top flange thickness lost after cleaning shall be replaced (Option C). These details apply to all 9" crossbeams between panel points L0 and L0' unless they are otherwise replaced. Regardless of the option used, the cost of furnishing, fabricating and installing the plates or new W8x21's with high strength bolts will be paid for at the contract unit price for Crossbeam Strengthening or Replacement per each.

OPTION C NOTES:

In Option C the W8x21(A572) will replace the existing 9" I 21.8#. The existing slab shall be supported on each side of the crossbeam being replaced. These temporary supports shall be placed at a distance of no more than 2'0" from the crossbeam being replaced. Once the new W8x21 is in place, temporary steel shims (9"x3" min.) may be needed to provide support between the top flange and bottom of existing slab. The maximum distance between slab's support points along the length of the W8x21 shall be 2'6". The shims shall be placed with the 9" leg parallel to the centerline of the roadway and may be field bent to prevent slippage. Any costs associated with the furnishing and placing of the temporary supports and shims shall be considered incidental to the pay item Crossbeam Strengthening or Replacement.

DETAILS OF 9" CROSSBEAM STRENGTHENING OR REPLACEMENT

DETAILED JAN. 1996
CHECKED JAN. 1996

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

Revised March 19, 1996

SHEET NO. 13 OF 97.

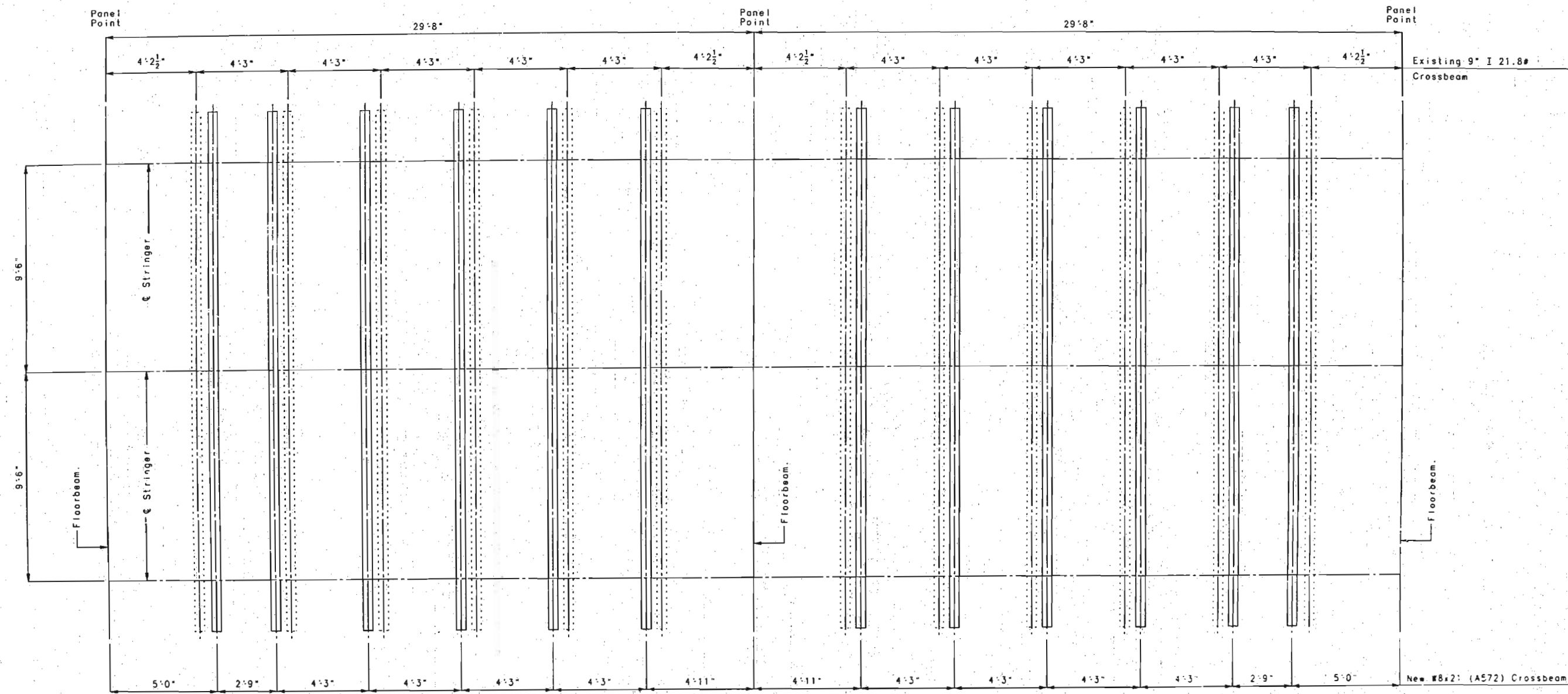
FRANKLIN-WARREN

COUNTIES

K09691

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OPTION C CROSSBEAM SPACING-TYPICAL 2 PANEL PATTERN



Note:
 All holes in the top flange of the stringers that result from this change in crossbeam spacing shall be plugged with $\frac{3}{4}$ " \varnothing H.S. Bolts.
 See sheet No. 13 for additional Option C notes and details.
 The crossbeam spacing shown here may be adjusted in the field with the following restrictions:
 1) Max. spacing = 5'-0" and min. spacing = 2'-9"
 2) A total of 6 new crossbeams are required per Thru-Truss Panel.
 Those 9" crossbeams immediately left and right of a floorbeam being replaced shall be replaced with modified W8x21 beams. See Sheet No. 25.

883

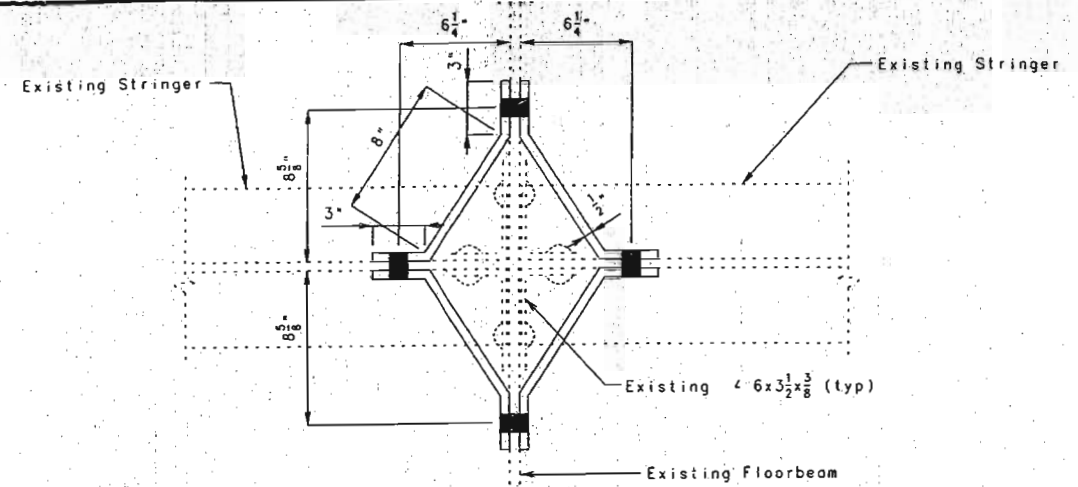
DETAILED MAR. 1996
 CHECKED MAR. 1996

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

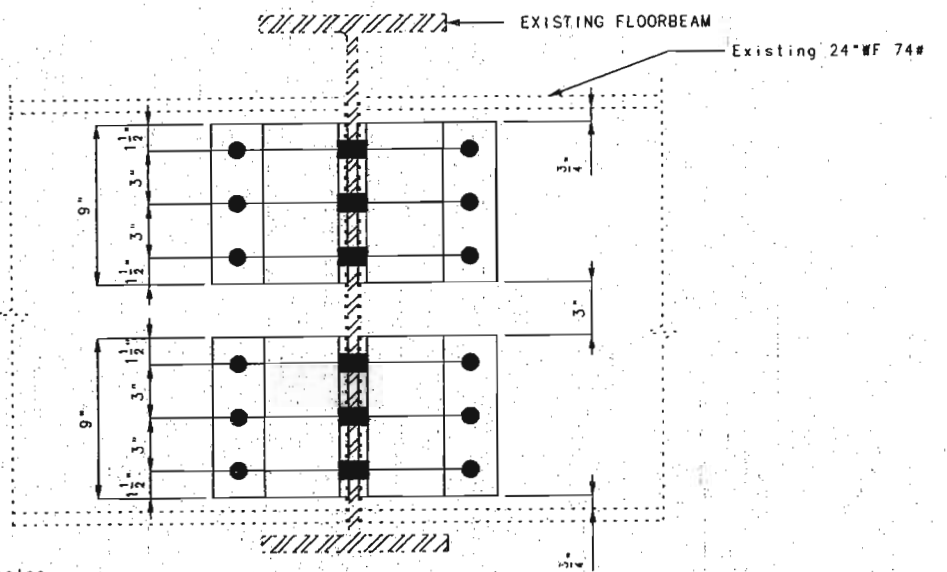
Revised March 13, 1996

ADD
 SHEET NO. 13A OF 97

FRANKLIN-WARREN COUNTIES K09691

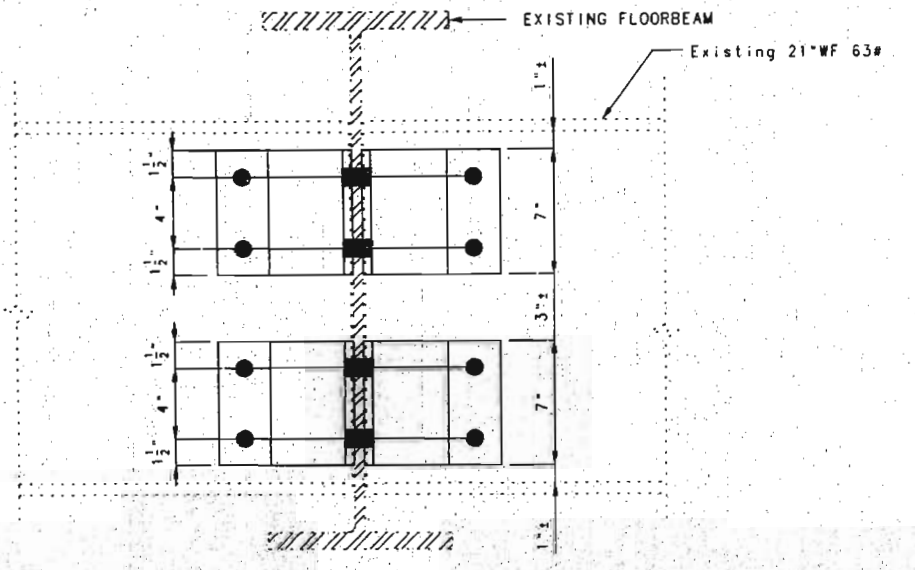


PLAN SHOWING CONNECTION PLATES



ELEVATION OF ϵ STRINGERS

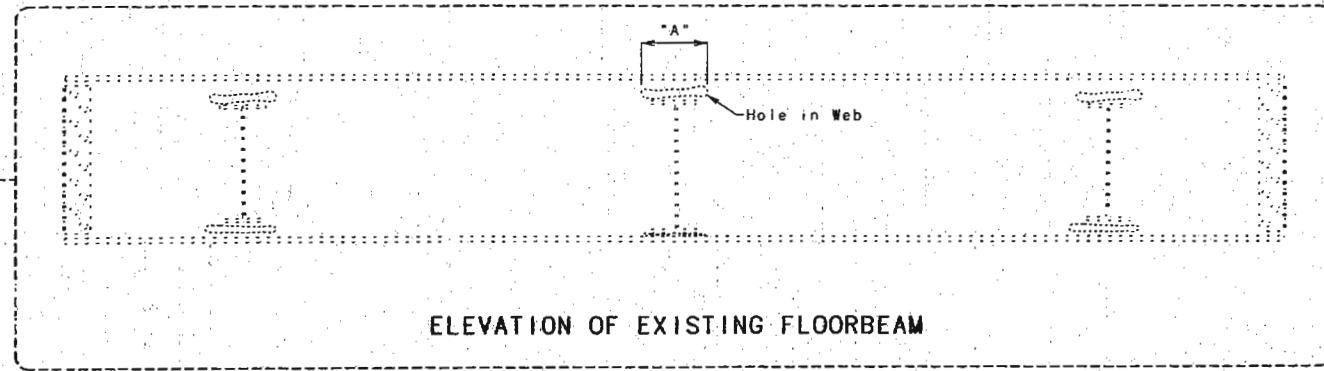
Note: Existing clip angles not shown for clarity.



ELEVATION OF EXTERIOR STRINGERS

NOTE:
 If one or more of the 4 clip angles connecting the stringers to the floorbeam are cracked and the floorbeam is not being replaced, then 8 new connection plates shall be installed. The existing connection (clip) angles shall be cleaned and coated in accordance with the job special provisions prior to the installation of the new connection plates.
 All bolts shall be $\frac{3}{4}$ " ϕ H.S. with $\frac{13}{16}$ " ϕ holes.
 The cost of furnishing, fabricating and installing one set of 8 connection plates with high strength bolts will be paid for at the contract unit price for Stringer Clip Angle Repair per each.
 One set of connection plates shall be installed at the east stringer at L35' whether or not the existing clip angles are cracked or not.

MOVED \triangle



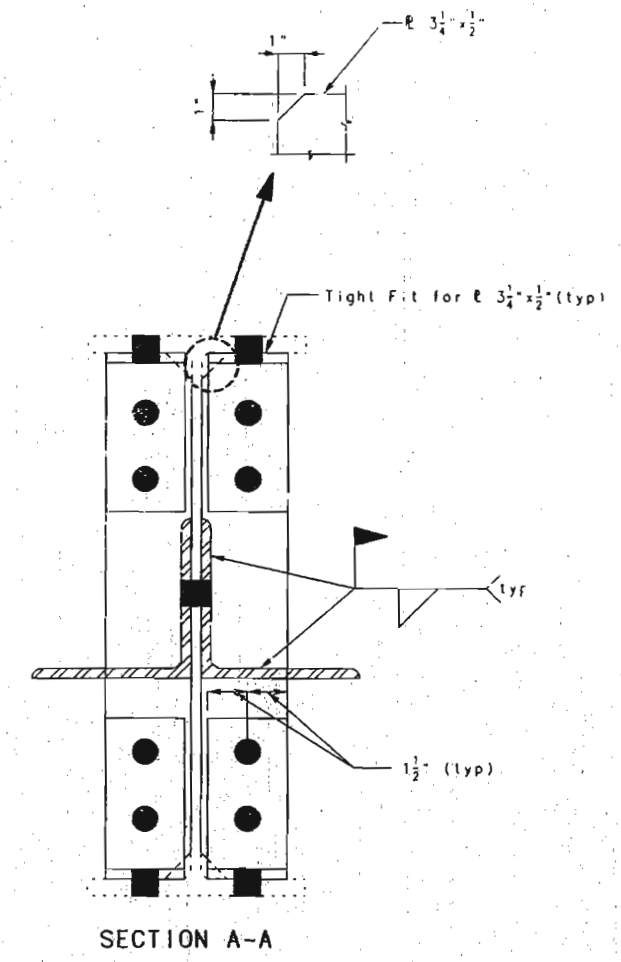
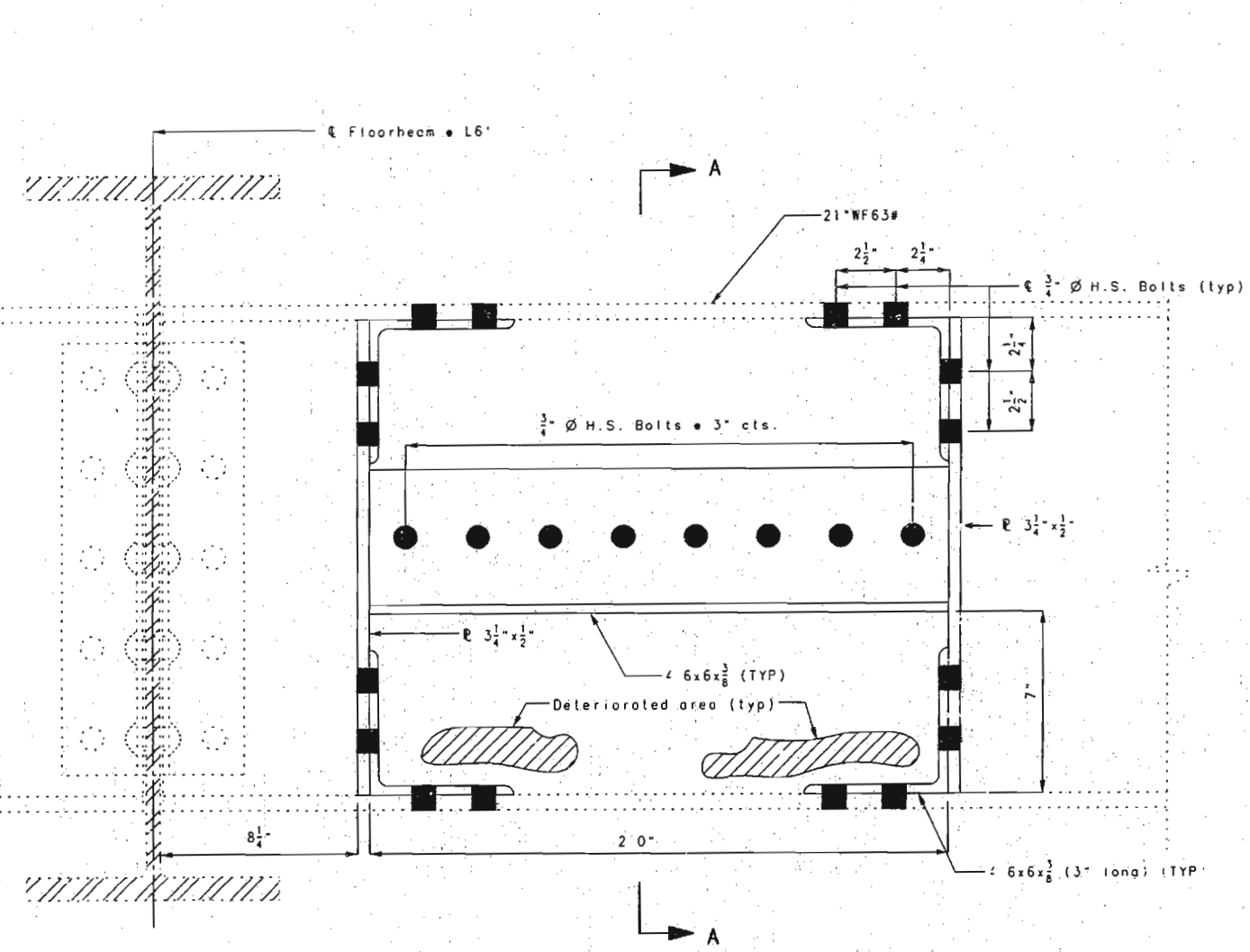
ADD \triangle

NOTES CONCERNING HOLES IN WEB OF FLOORBEAM NEAR STRINGERS:
 If the dimension "A" is greater than or equal to 13", then the floorbeam may need to be replaced.
 If the dimension "A" is less than 13" but greater than or equal to 10" and the floorbeam is not being replaced, then 8 new connection plates shall be installed.

ADD \triangle

DETAILS OF STRINGER CLIP ANGLE REPAIR

789



NORTH SIDE OF L6' WEST EXTERIOR STRINGER

Note: The cost of furnishing, fabricating and installing these plates, angles and high strength bolts will be paid for at the contract unit price for Stringer End Repair per each.

DETAILS OF STRINGER END REPAIR

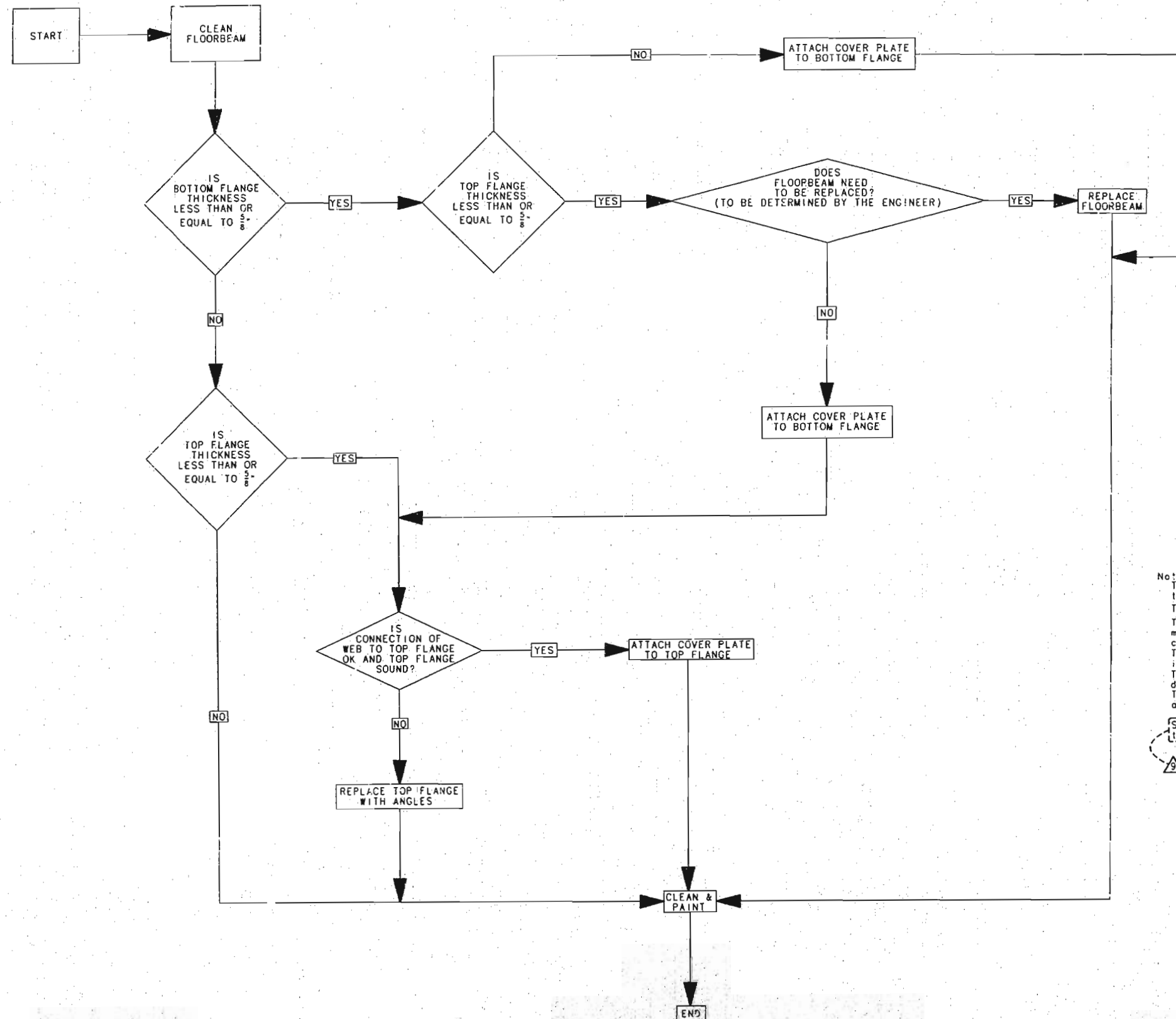
NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

SHEET NO. 15 OF 97

FRANKLIN-WARREN

COUNTIES K09691

58 785



Note:
 This flowchart applies to all floorbeams in the through trusses except those at LO and LO'.
 The original thickness of the top and bottom flanges was $\frac{15}{16}$.
 The flange thicknesses referred to in this flowchart are those measured by the contractor after the deterioration has been cleaned off.
 The concrete slab shall be removed before the top flange is cleaned and measured.
 This flowchart is meant to be a guide. For more detailed descriptions of the actual repairs, see the following sheets.
 The flange thickness referred to is the average thickness across the width of the flange at any one section.

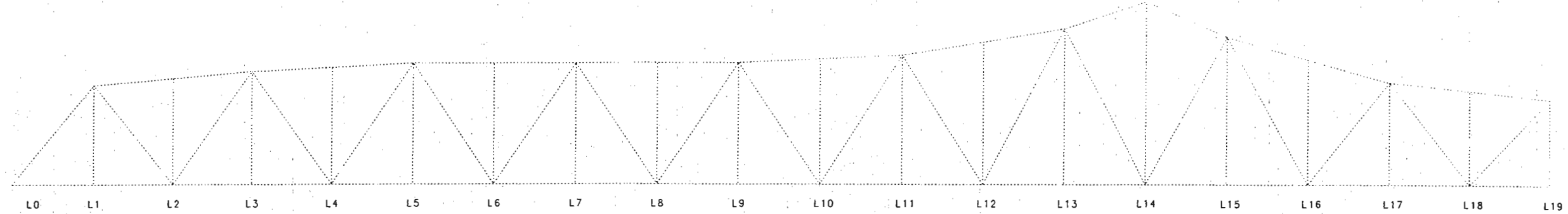
See Sheet No. 14 for notes concerning holes in the webs of the floorbeams.

ADD

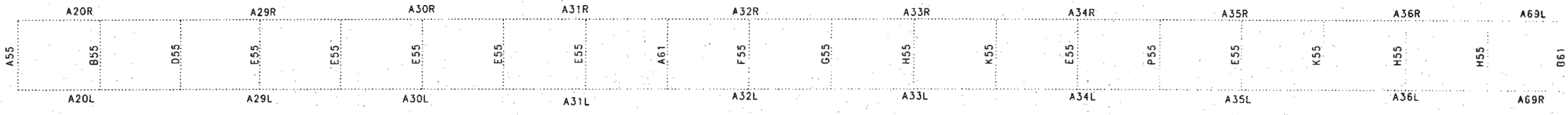
286

FLOORBEAM ASSESSMENT FLOWCHART

STATE	PROJ. NO.	SHEET NO.
MO.		51



PART GENERAL ELEVATION



PART PLAN SHOWING FLOORBEAMS AND BOTTOM CHORDS

Note: This sheet details the original shop drawing member marks.
These marks may be used to facilitate the repair or replacement of floorbeams.

PARTIAL SHOP DRAWING LEGEND

207

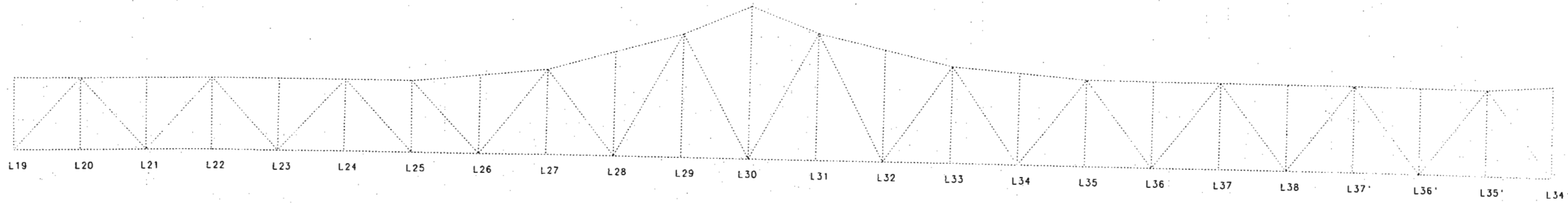
DETAILED OCT. 1995
CHECKED NOV. 1995

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

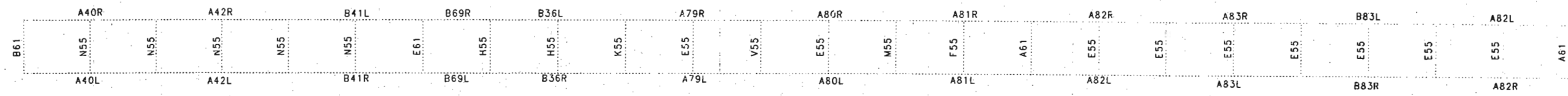
SHEET NO. 17 OF 97.

FRANKLIN-WARREN COUNTIES K09691

STATE	PROJ. NO.	SHEET NO.
MO.		52



PART GENERAL ELEVATION



PART PLAN SHOWING FLOORBEAMS AND BOTTOM CHORDS

Note: This sheet details the original shop drawing member marks.
 These marks may be used to facilitate the repair or replacement of floorbeams.

PARTIAL SHOP DRAWING LEGEND

DETAILED AUG. 1995
 CHECKED NOV. 1995

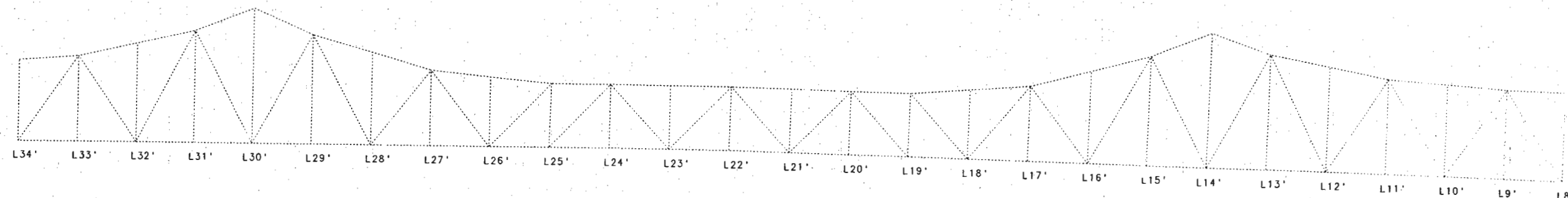
NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

SHEET NO. 18 OF 97.

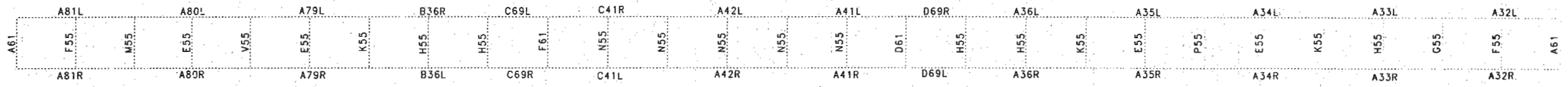
FRANKLIN-WARREN COUNTIES K09691

8/2005

STATE	PROJ. NO.	SHEET NO.
MO.		53



PART GENERAL ELEVATION



PART PLAN SHOWING FLOORBEAMS AND BOTTOM CHORDS

Note: This sheet details the original shop drawing member marks.
These marks may be used to facilitate the repair or replacement of floorbeams.

PARTIAL SHOP DRAWING LEGEND

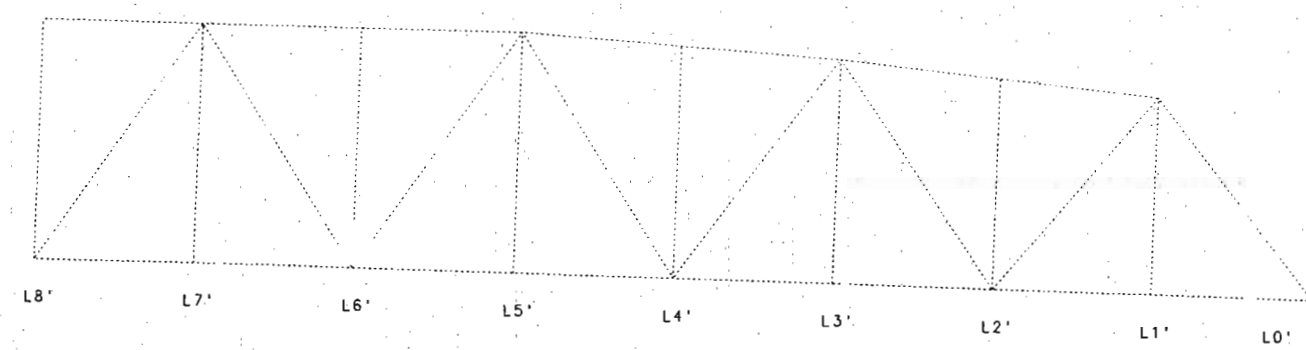
62 209
 DETAILED AUG. 1995
 CHECKED NOV. 1995

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

SHEET NO. 19 OF 97

FRANKLIN-WARREN COUNTIES K09691

STATE	PROJ. NO.	SHEET NO.
		54



PART GENERAL ELEVATION



PART PLAN SHOWING FLOORBEAMS AND BOTTOM CHORDS

Note: This sheet details the original shop drawing member marks. These marks may be used to facilitate the repair or replacement of floorbeams.

83 290

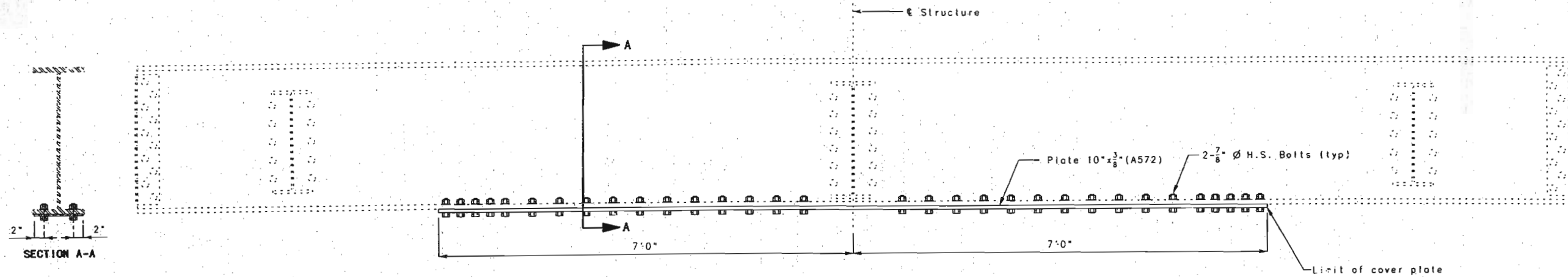
PARTIAL SHOP DRAWING LEGEND

DETAILED AUG. 1995
CHECKED NOV. 1995

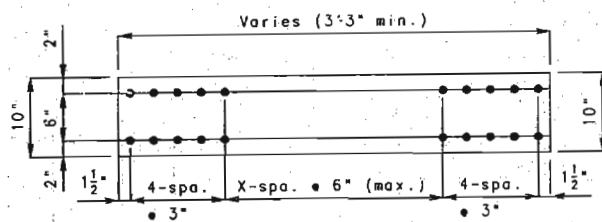
NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

SHEET NO. 20 OF 97.

FRANKLIN-WARREN COUNTIES K09691



ELEVATION OF EXISTING FLOORBEAM



Note: If the bottom flange thickness is less than or equal to $\frac{5}{8}$ " , then bolt a $10 \times \frac{3}{8}$ " cover plate to the bottom flange. The cover plate shall continue until the exist. bottom flange thickness, after cleaning, is greater than or equal to $\frac{13}{16}$ " . In no case shall the cover plate extend beyond the limits shown above. The minimum length of cover plate is 3'-3". Use $\frac{7}{8}$ " ϕ H.S. Bolts with a max. spacing of 6". More than one cover plate per floorbeam may be used. The cover plates may be cut to length in the field. The bottom flange should be cleaned in accordance with the job special provisions before the flange thickness is measured. The cost of furnishing, fabricating and installing bottom flange cover plates with high strength bolts will be paid for at the contract unit price for Floorbeam Bottom Flange Repair per linear foot. If the bottom flange thickness is less than or equal to $\frac{7}{16}$ " , the engineer should consider replacing the floorbeam. Bolts may be omitted where they would interfere with the stringer. The flange thickness referred to is the average thickness across the width of the flange at any one section.

DETAILS OF FLOORBEAM BOTTOM FLANGE REPAIR

DETAILED SEPT 1995
CHECKED NOV. 1995

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

SHEET NO. 21 OF 97

FRANKLIN-WARREN

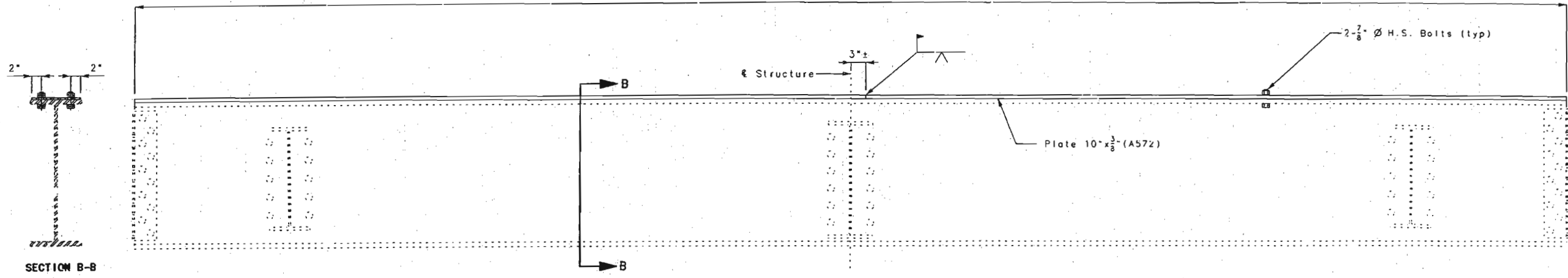
COUNTIES K09691

68 791

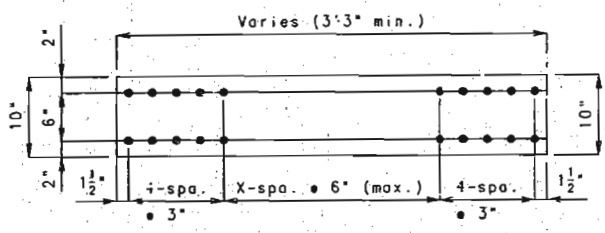
1824

STATE	PROJ. NO.	SHEET NO.
MO.		56

$\frac{7}{8}$ " \varnothing H.S. Bolts @ 6" cts. (max.) spaced as shown below.



ELEVATION OF EXISTING FLOORBEAM



Note: If the top flange thickness is less than or equal to $\frac{5}{8}$ " and the top flange to web connection is sound, then bolt a $10 \times \frac{3}{8}$ " cover plate to the top flange. The cover plate shall continue until the exist. top flange thickness, after cleaning, is greater than or equal to $\frac{3}{4}$ ".
 If the top flange to web connection is unsound or if the top flange thickness is less than or equal to $\frac{7}{16}$ ", then the top flange should be replaced. See sheet No. 23.

The minimum length of cover plate is 3'-3" and more than one cover plate per floorbeam may be used. The cover plate may be cut to length in the field. Use $\frac{7}{8}$ " \varnothing H.S. Bolts with a max. spacing of 6". The top flange should be cleaned in accordance with the job special provisions before the flange thickness is measured. The cost of furnishing, fabricating and installing top flange cover plates with high strength bolts will be paid for at the contract unit price for Floorbeam Top Flange Repair per linear foot. See sheet No. 29 for details of floorbeam shear connectors. The flange thickness referred to is the average thickness across the width of the flange at any one section.

DETAILS OF FLOORBEAM TOP FLANGE REPAIR

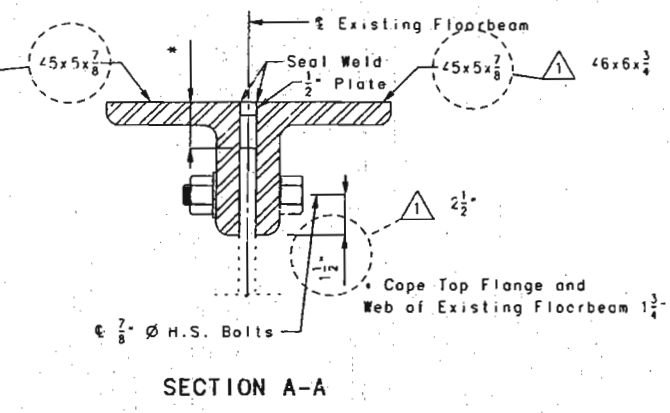
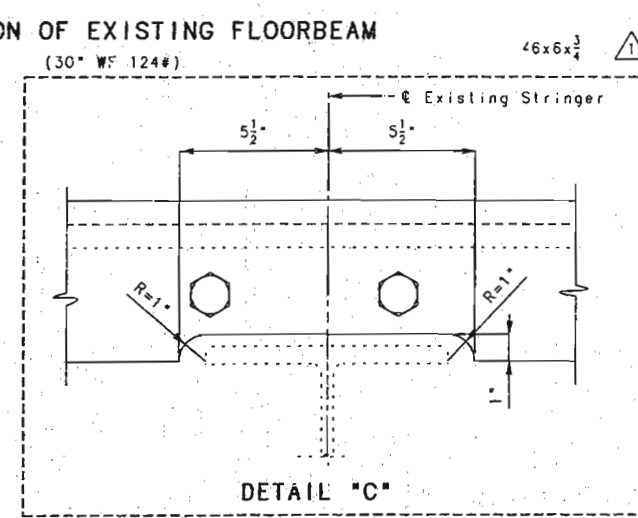
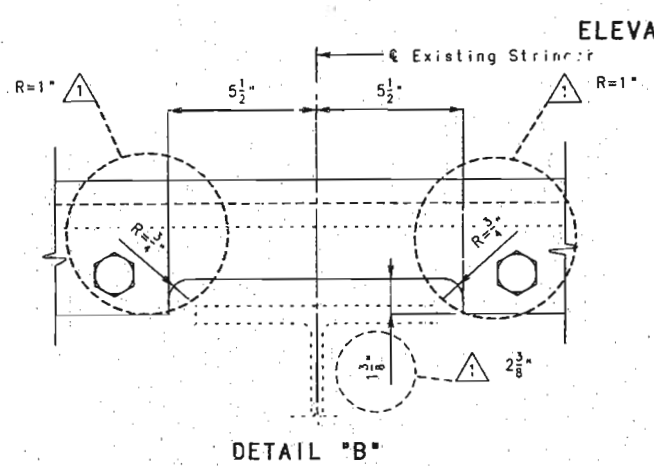
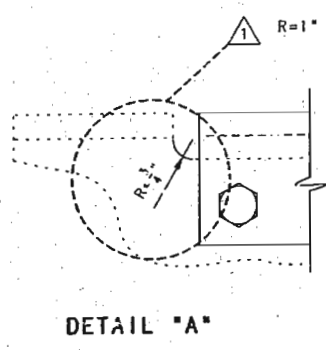
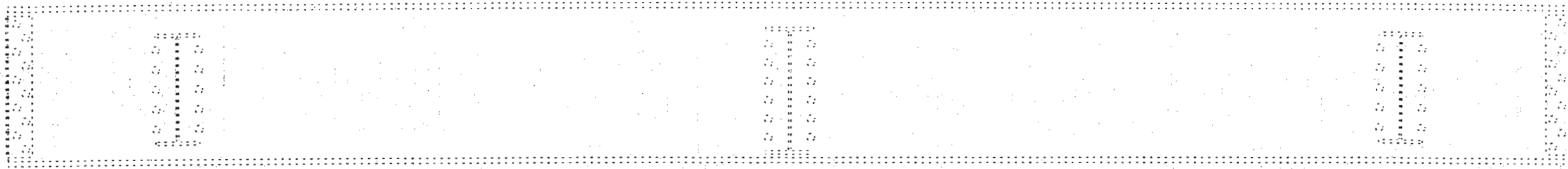
DETAILED SEPT 1995
 CHECKED NOV. 1995

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

SHEET NO. 22 OF 97.

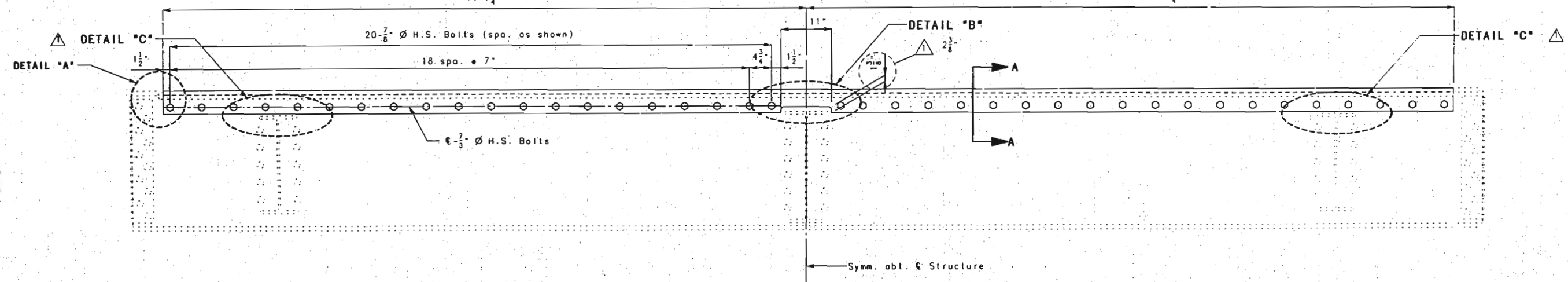
FRANKLIN-WARREN COUNTIES K09691

1824



ELEVATION OF EXISTING FLOORBEAM
(30" WF 124#)

SECTION A-A



NOTE: If the top flange thickness is less than 1 1/2 inches, the flange to web connection is not sound. Then remove the existing top flange and replace it with two angles as detailed above. The top flange should be cleaned in accordance with the job special provisions before the flange thickness is measured. (30" WF 124#)

The bridge must be closed to traffic for the duration of the time that there is no top flange. The cost of furnishing, fabricating and installing these angles with high strength bolts and removal of the existing flange will be paid for at the contract unit price for Floorbeam Top Flange Replacement per each. The flange thickness referred to is the average thickness across the width of the flange at any one section.

Note: Top of angle to match existing theoretical top of floorbeam (without section loss).

DETAILS OF FLOORBEAM TOP FLANGE REPLACEMENT

293
 DETAILED SEPT 1995
 CHECKED NOV. 1995

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

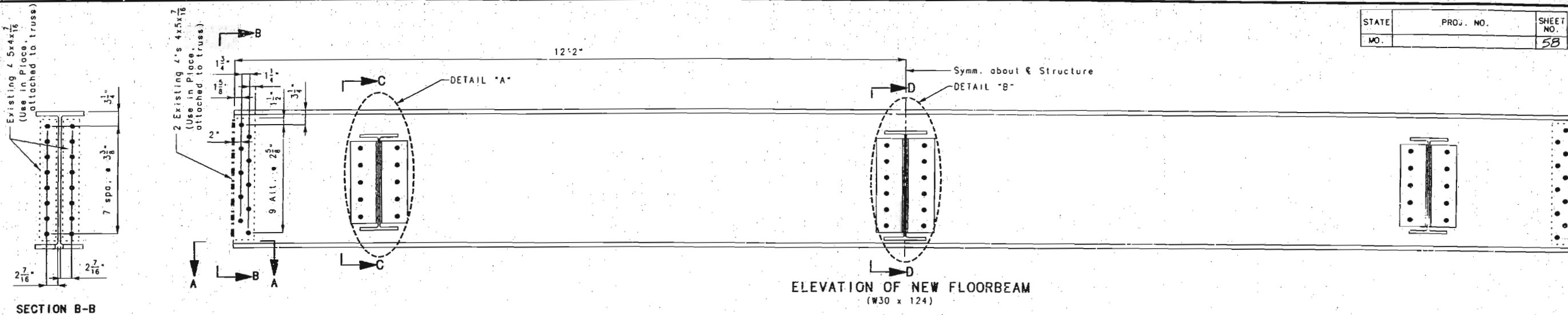
REVISOR: [Symbol] REVISED MARCH 11, 1996

SHEET NO. 23 OF 97

FRANKLIN-WARREN

COUNTIES

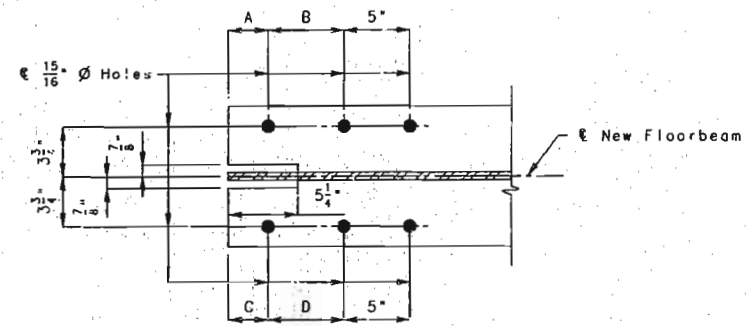
K09691



SECTION B-B

Note: For Sections C-C and D-D, see sheet No. 25.

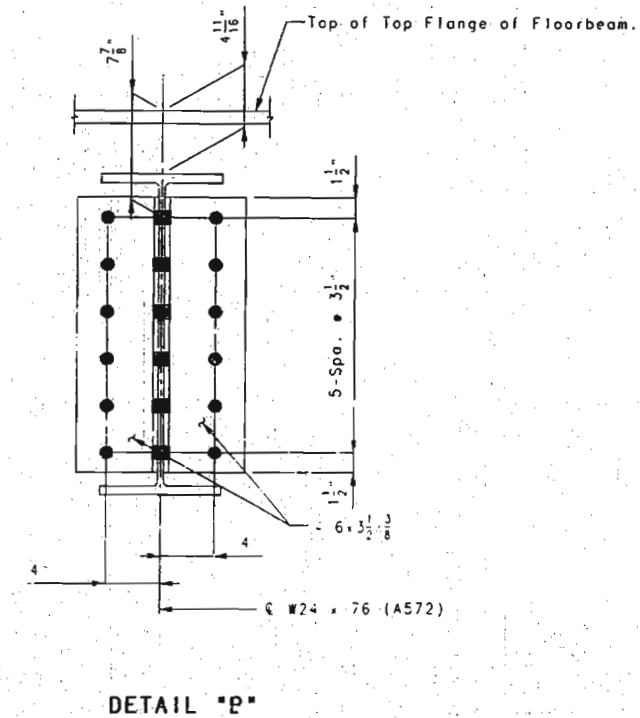
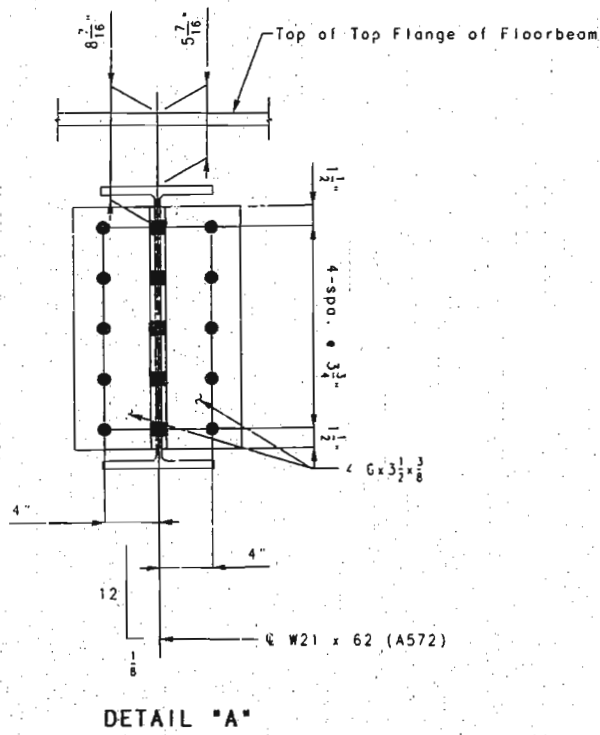
Note: $\frac{7}{8}$ "- ϕ H.S. Bolts shall be used to connect the new floorbeam to the existing bottom chord gusset plate and the existing end connection angles. $\frac{13}{16}$ "- ϕ holes for $\frac{7}{8}$ "- ϕ H.S. Bolts unless otherwise noted.



SECTION A-A (Bottom Flange Only)

FLOORBEAMS TO BE REPLACED						
Panel Points	No. to Install	Original Shop. Dwg.	A	B	C	D
L2	1	D55	2-5/8"	5-1/2"	2-3/16"	5-15/16"
L6, L13	2	E55	2-5/8"	5-1/2"	2-5/8"	5-1/2"
L10	1	G55	2-3/8"	5-3/4"	2-1/2"	5-5/8"
L11	1	H55	2-3/8"	5-3/4"	2-3/8"	5-3/4"
L12, L16	2	K55	2-5/8"	5-1/2"	2-3/8"	5-3/4"
L32	1	M55	2-1/2"	5-5/8"	2-5/8"	5-1/2"

Note:
 A total of 14 W30x124 floorbeams shall be fabricated. The locations for 8 of these floorbeams, along with their bottom flange bolt patterns, are listed in the above table. The remaining 6 floorbeams, should be delivered to the site without their bottom flange bolt holes drilled and will be used in case other floorbeams need replacing. Each of the 14 floorbeams should be supplied with one set of 6 stringer stubs with splice plates. The details for these stringer stubs and splice plates can be found on sheet No. 25. The cost of furnishing and fabricating the floorbeams along with the necessary stringer stubs, splice plates, connection angles and high strength bolts will be paid for at the contract unit price for furnish Main Span Floorbeam per each. The cost of installing the floorbeams, stringer stubs, splice plates and connection angles will be paid for at the contract unit price for install Main Span Floorbeam per each.



DETAILS OF FLOORBEAM REPLACEMENT

DETAILED SEPT. 1995
 CHECKED NOV. 1995

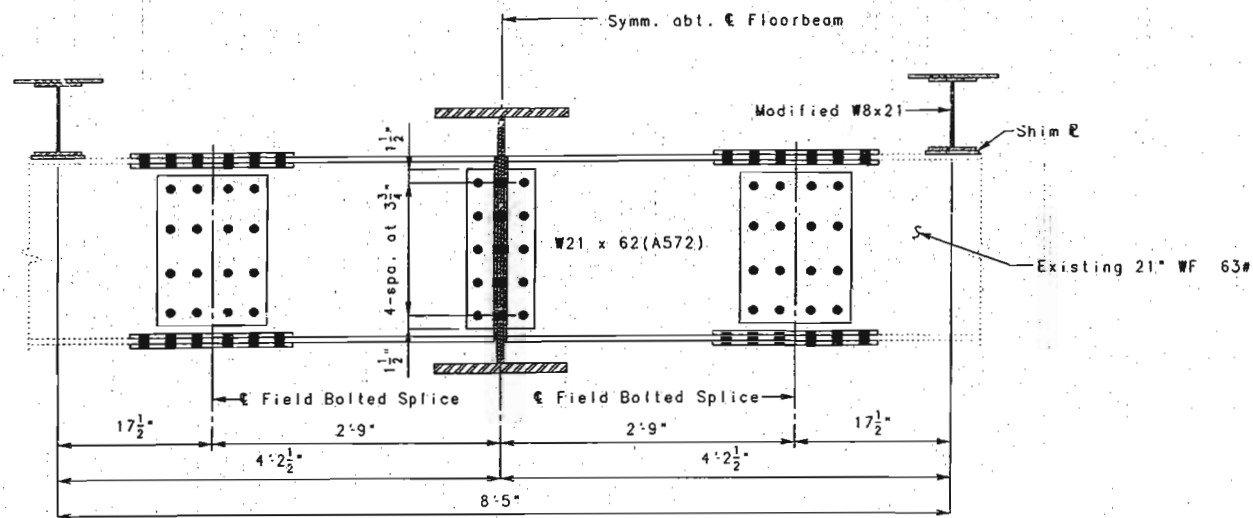
NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

SHEET NO. 24 OF 97.

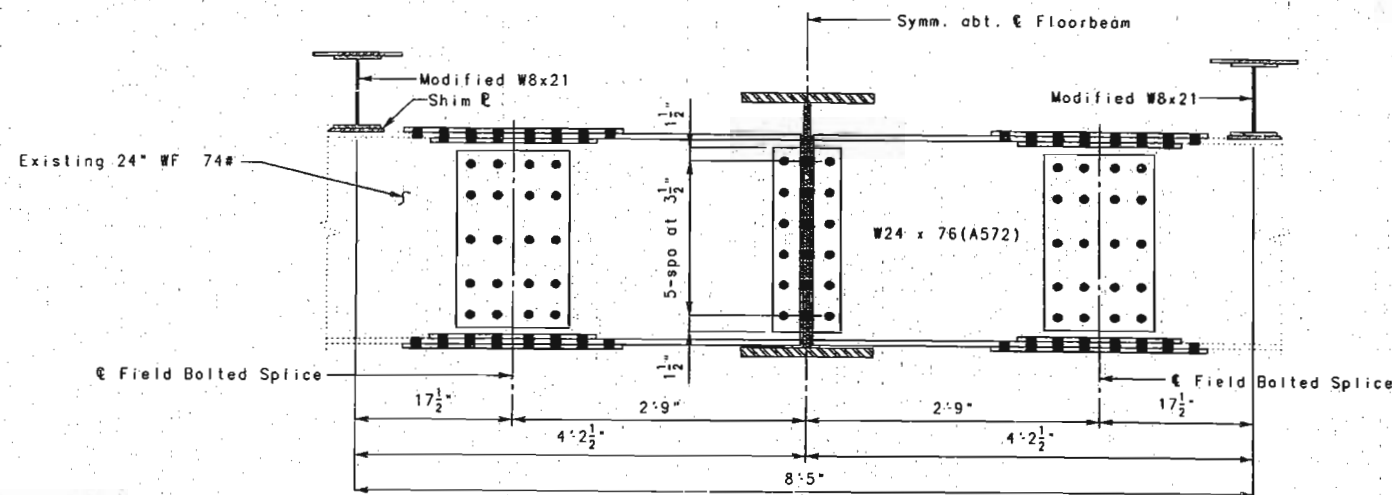
FRANKLIN-WARREN

COUNTIES **K09691**

67 294

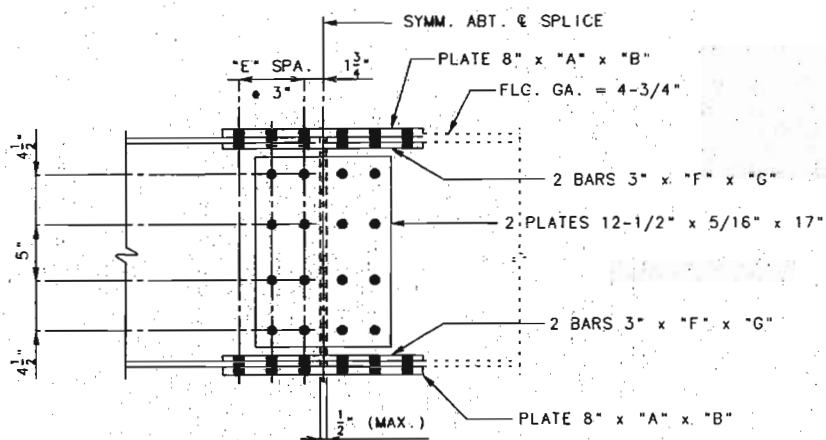


SECTION C-C



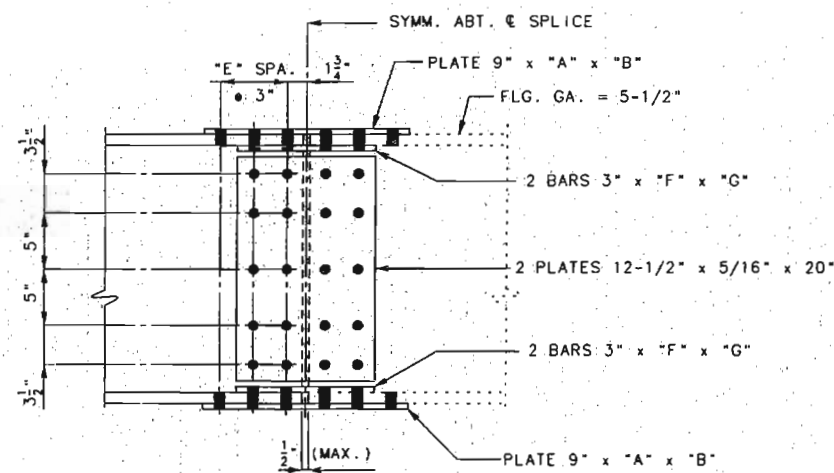
SECTION D-D

Note: For location of Sections C-C and D-D, see sheet No. 24.



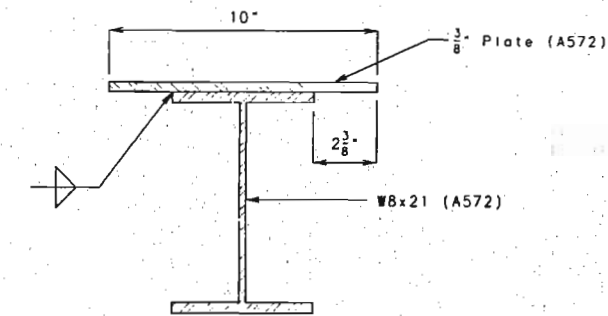
W21 x 62 TO 21" WF 63#

SPLICE LOCATION	"A"	"B"	"E"	"F"	"G"
W21 x 62 TO 63	3/8"	18-1/2"	.2	1/2"	18-1/2"
W24 x 76 TO 74	1/2"	2'-0 1/2"	3	1/2"	18-1/2"

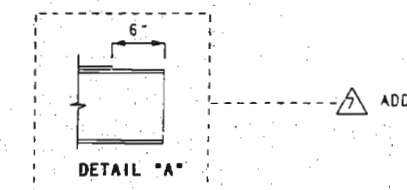


W24 x 76 TO 24" WF 74#

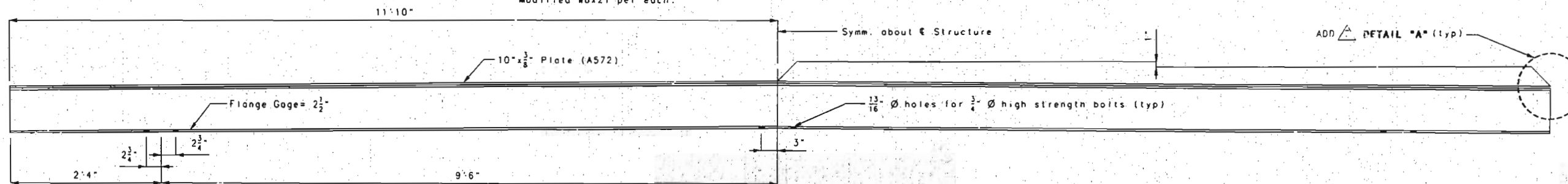
Note: 15/16" ϕ holes for 7/8" ϕ high strength bolts unless otherwise noted.
 All splice plates to be A572 structural steel.
 The cost of furnishing, fabricating and installing the modified W8x21 crossbeams, complete with high strength bolts and shim plates, will be paid for at the contract unit price for Modified W8x21 per each.



DETAILS OF MODIFIED W8x21
 (One required each side of floorbeam replacement)



ADD \triangle DETAIL "A" (typ)



ELEVATION OF MODIFIED W8x21

DETAILS OF FLOORBEAM REPLACEMENT

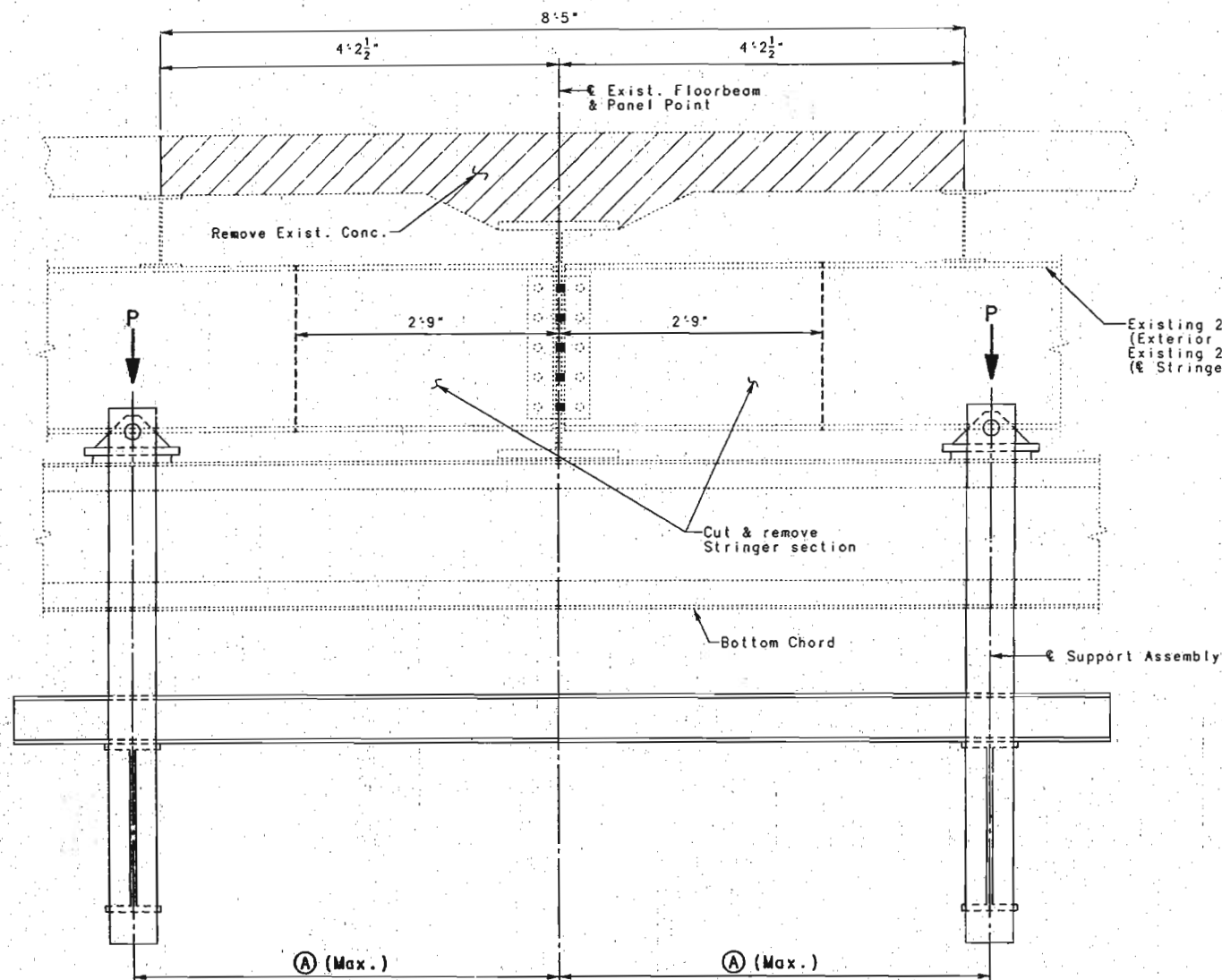
295
 DETAILED OCT. 1995
 CHECKED NOV. 1995

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

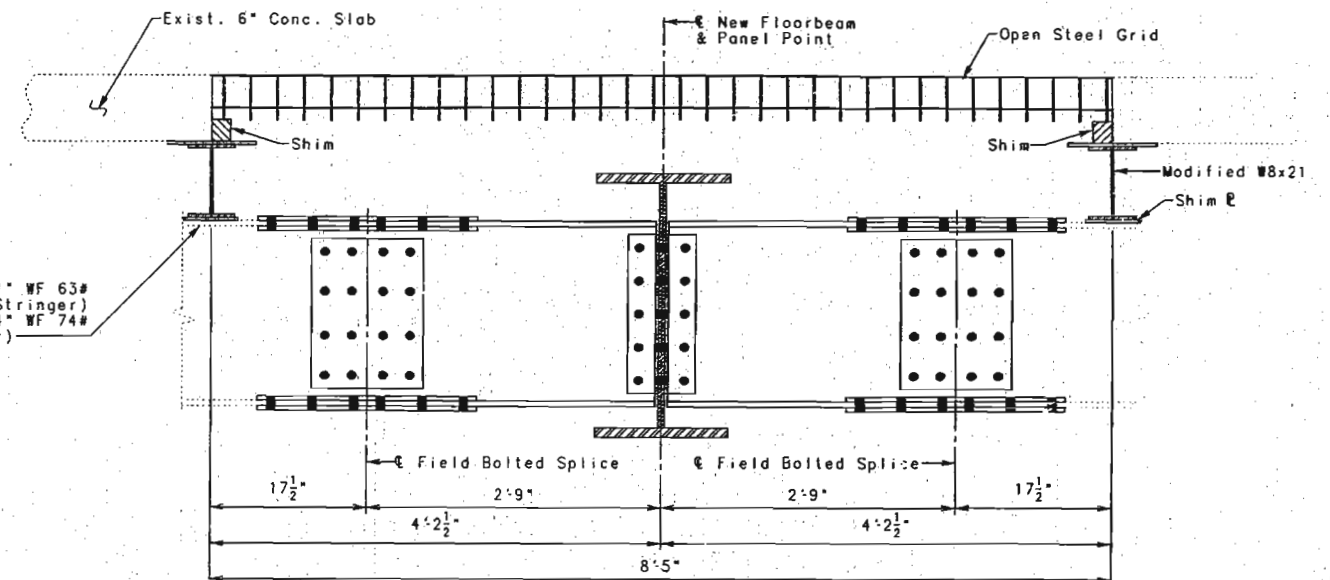
REVISED APRIL 15, 1996
 AT CONTRACTOR'S REQUEST
 SHEET NO. 25 OF 97.

FRANKLIN-WARREN COUNTIES K09691

Note: Vertical and diagonal truss members not shown for clarity.



SECTION SHOWING EXISTING FLOORBEAM BEFORE REPLACEMENT



SECTION SHOWING NEW FLOORBEAM AFTER REPLACEMENT
(Exterior Stringer Shown)

Note: See Sheet No.9 for details concerning the placement of the Temporary Traffic Barrier in the vicinity of a floorbeam being replaced.

The location of the support assemblies shall be adjusted as necessary to avoid interference with the bottom chord lateral bracing; however, their distance from \bar{C} Floorbeam shall not exceed \bar{A} .

The cost of designing, furnishing, fabricating and installing the support assemblies and open steel grid decking shall be considered incidental to the pay item Install Main Span Floorbeam per each.

PANEL POINTS*	\bar{A}	P
L1-L3	4'-6"	40 Kips
L4-L13, L15, L29-L38	5'-6"	40 Kips
L16-L17, L27-L28	5'-0"	40 Kips
L0, L14, L18-L26, L30	Do not replace	

P = Maximum Allowable Load

* This information also applies to the "prime" panel points. For example, L1'-L3' have the same restrictions as L1-L3.

FLOORBEAM REPLACEMENT

DETAILED SEPT. 1995
CHECKED - NOV. 1995

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

SHEET NO. 26 OF 97

FRANKLIN-WARREN

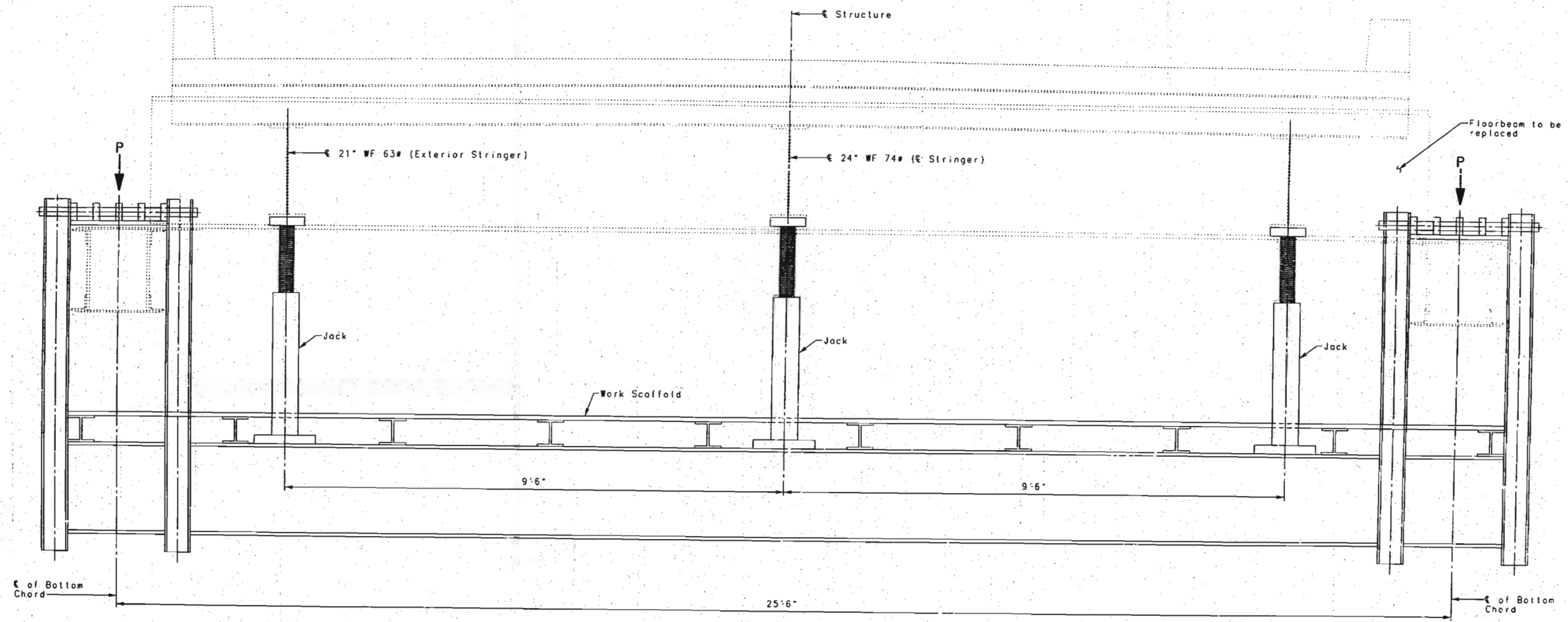
COUNTIES

K09691

689 296

STATE	PROJ. NO.	SHEET NO.
MO.		61

Note: The contractor shall provide for smooth and continuous contact between the support assembly and the top of the bottom chord. If necessary, any riveted lace bars may be replaced with A36 plates of the same or greater thickness. These plates shall be connected to the bottom chord with high strength bolts and may be left in place.



FLOORBEAM REPLACEMENT SUPPORT ASSEMBLY
(Two Required Per Floorbeam)

Note: The jacking load (Dead load only) is estimated to be 14 kips for each exterior stringer and 20 kips for the I-stringer.

Note: These details of the support assembly are general in nature. See the Job Special Provisions.

See Sheet No. 26 for the Maximum Allowable Load "P" of the support assembly to the bottom chord of the thru truss.

78-797

DETAILED JULY 1995
CHECKED NOV. 1995

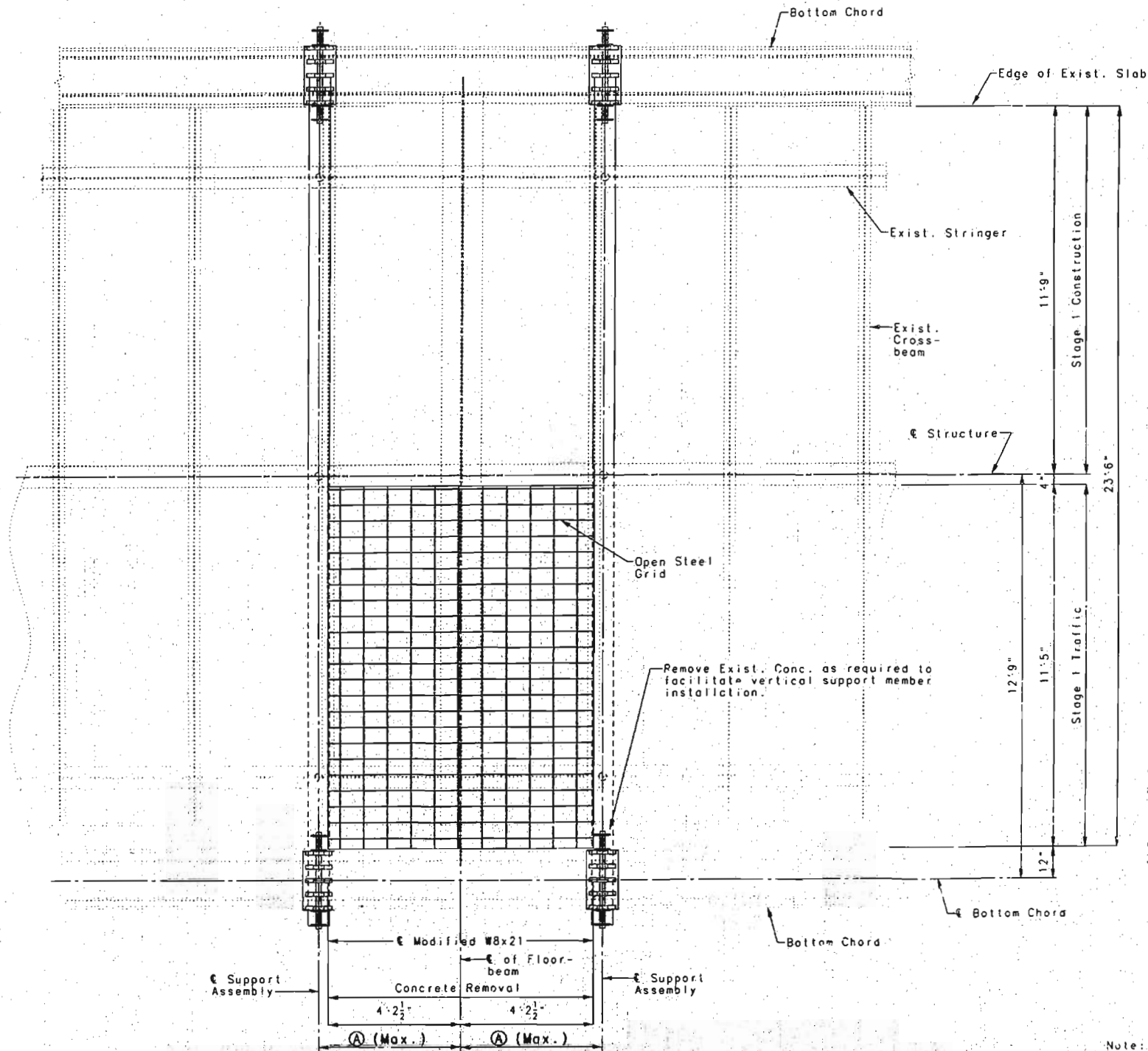
NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

SHEET NO. 27 OF 97

FRANKLIN-WARREN

COUNTIES

K09691

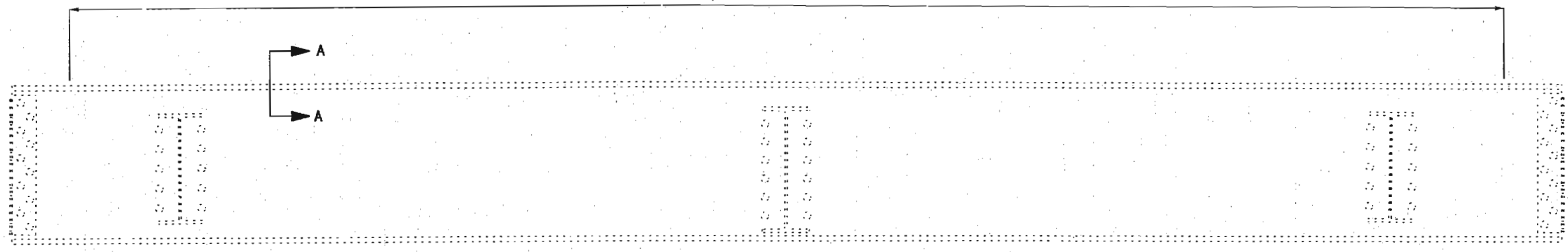


PART PLAN OF SLAB SHOWING DETAILS OF FLOORBEAM REPLACEMENT

Note: These details are general in nature. See Job Special Provisions.
See Sheet No. 26 for Ⓐ

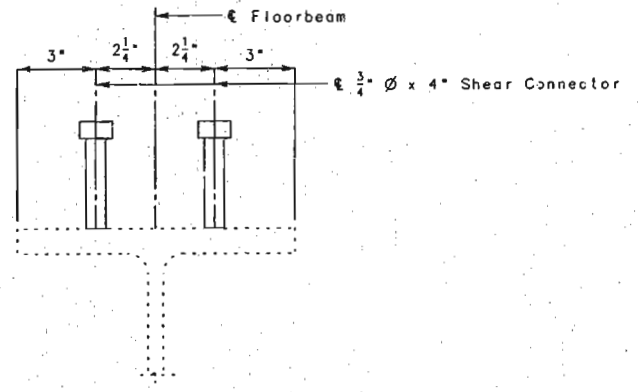
817 798

16 Pairs of $\frac{3}{4}$ " \varnothing shear connectors at 18" cts.



ELEVATION OF FLOORBEAM

Note: Exist. Floorbeam shown, shear connectors are the same for new replacement floorbeam.



SECTION A-A

NOTE:

$\frac{3}{4}$ " \varnothing shear connectors shall be placed on all floorbeams in the main truss except at panel points L0, L8, L19, L25, L34, L34', L25', L19', L8', and L0'. Their location on the top flange may be adjusted in the field to clear bolts that connect cover plates to the top flange. Individual shear connectors may also be omitted if the flange is not suitable for welding in their location. See job special provisions. It should be determined whether a floorbeam needs to be replaced before the shear connectors are attached to the top flange. If a floorbeam is being replaced, the shear connectors may be attached in the shop. The top flange should be prepared in accordance with the job special provisions and repaired if necessary before the shear connectors are attached to the top flange. The cost of fabricating and installing shear connectors will be paid for at contract unit price for Shear Connectors per each.

72799

DETAILS OF FLOORBEAM SHEAR CONNECTORS

DETAILED SEPT 1995
CHECKED NOV. 1995

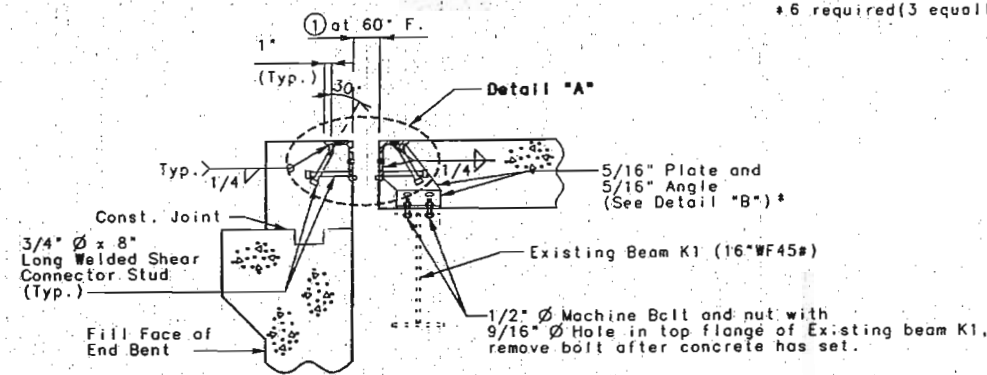
NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

SHEET NO. 29 OF 97

FRANKLIN-WARREN

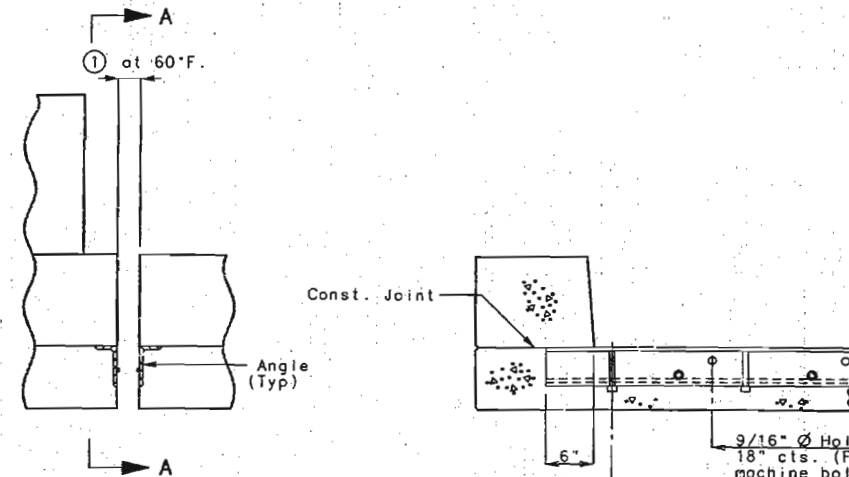
COUNTIES

K09691

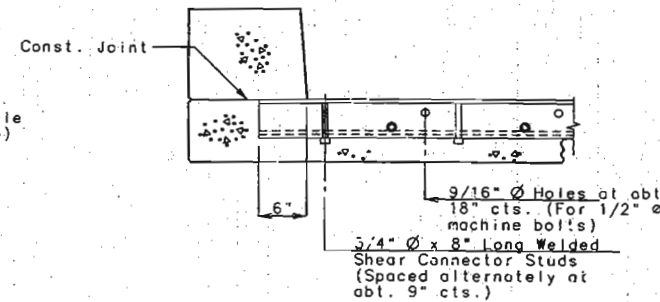


PART SECTION D-D

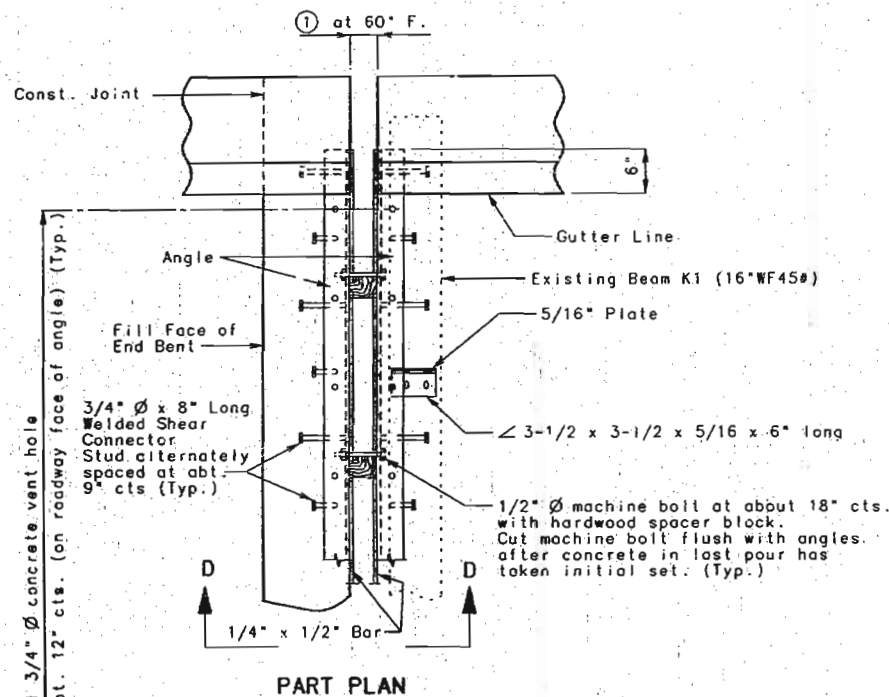
Note: Concrete shall be forced under armor angle and around studs by trowelling or other approved methods for proper consolidation and anchorage.



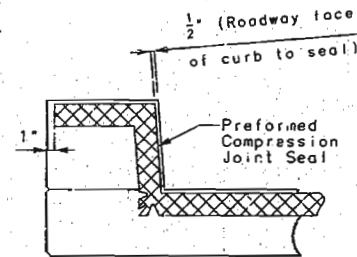
PART ELEVATION OF CURB



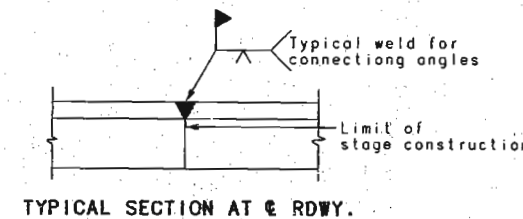
PART SECTION A-A



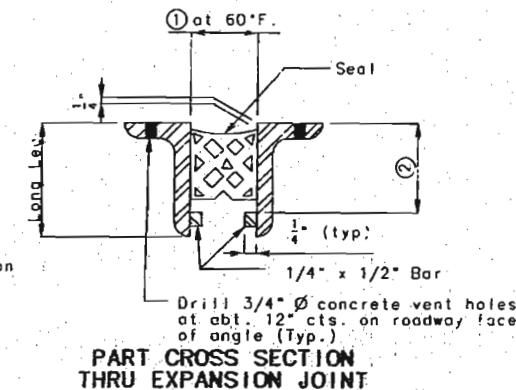
PART PLAN



PART SECTION THRU JOINT SEAL



TYPICAL SECTION AT CURB RDWY.



PART CROSS SECTION THRU EXPANSION JOINT

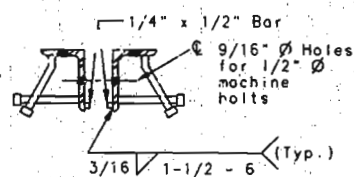
TABLE OF TRANSVERSE BRIDGE SEAL DIMENSIONS			
Seal (Width)	①	②	Required Movement Range
4.5"	2-3/4"	Manufacturer's Recommended Height	1.9"

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

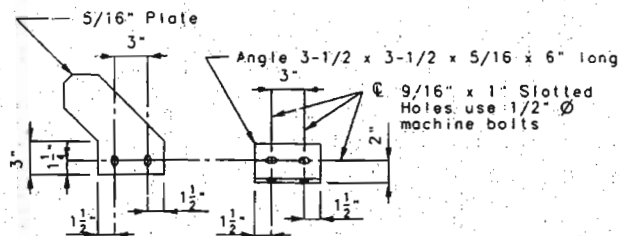
SIZE OF ARMOR JOINT

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

If a seal size larger than that indicated on the plans is used, the movement range, the opening at 50° and all dimensions for the armor angles shall be shown on the shop drawings.



DETAIL "A"



DETAIL "B"

DETAILS OF PREFORMED COMPRESSION JOINT SEAL AT BENT NOS. 1 AND 10

73 300

STATE	PROJ. NO.	SHEET NO.
MO.		65

General Notes:

Finger plates shall be cut with a machine guided gas torch from one plate. The plate from which fingers are cut may be spliced before fingers are cut. The surface of cut shall be perpendicular to the surface of the plate. The cut shall not exceed 1/8" in width. The centerline of cut shall not deviate more than 1/16" from the position of centerline of cut shown. No splicing of finger plate or finger plate assembly will be allowed after fingers are cut.

Plan dimensions are based on installation at 60°F. The expansion gap and other dimensions shall be increased 5/16" for each 10°F fall in temperature and decreased 5/16" for each 10°F rise in temperature at installation.

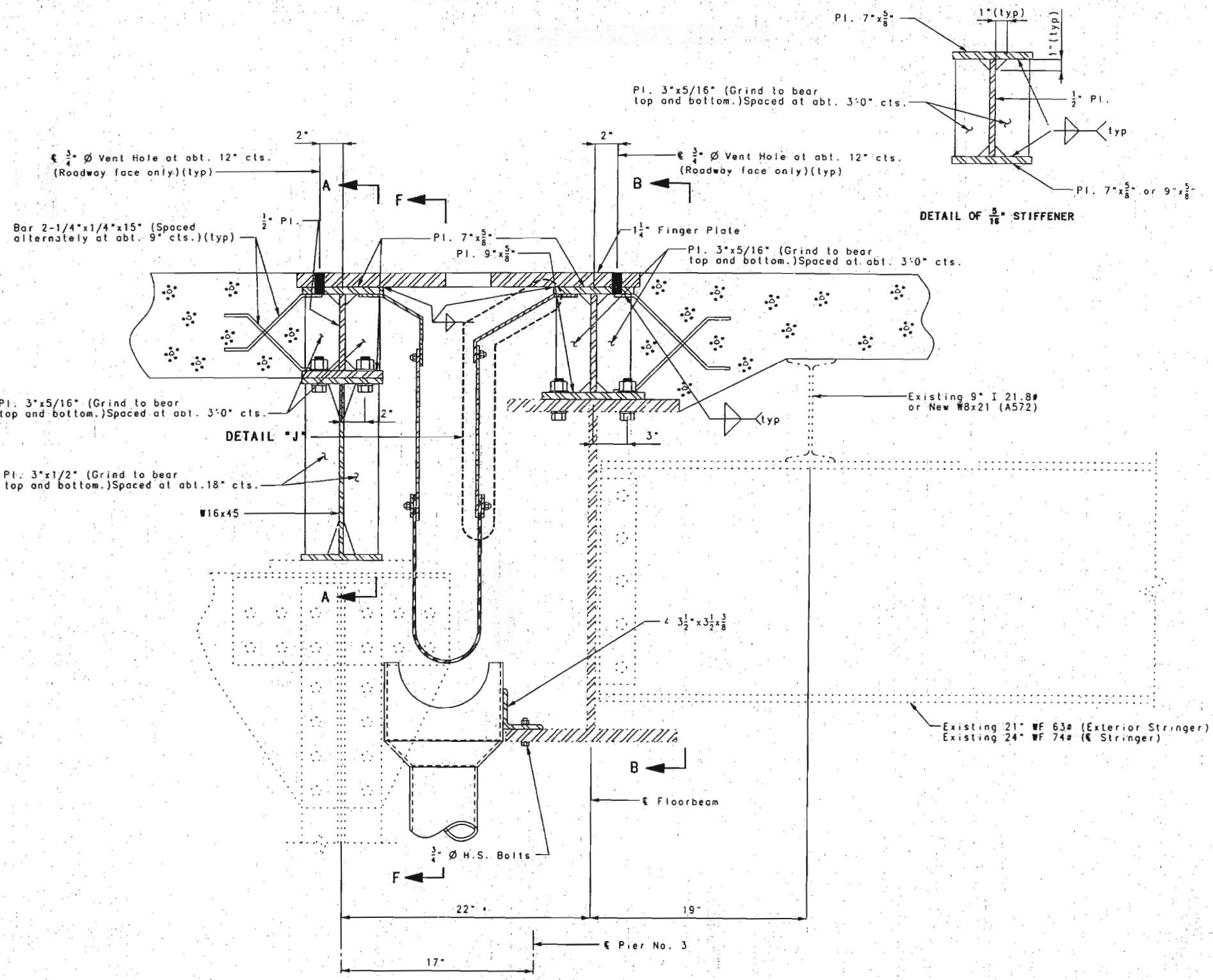
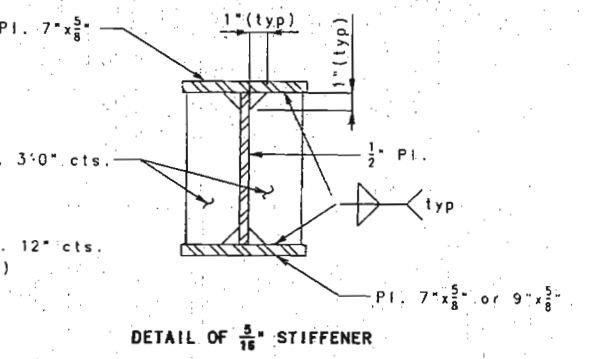
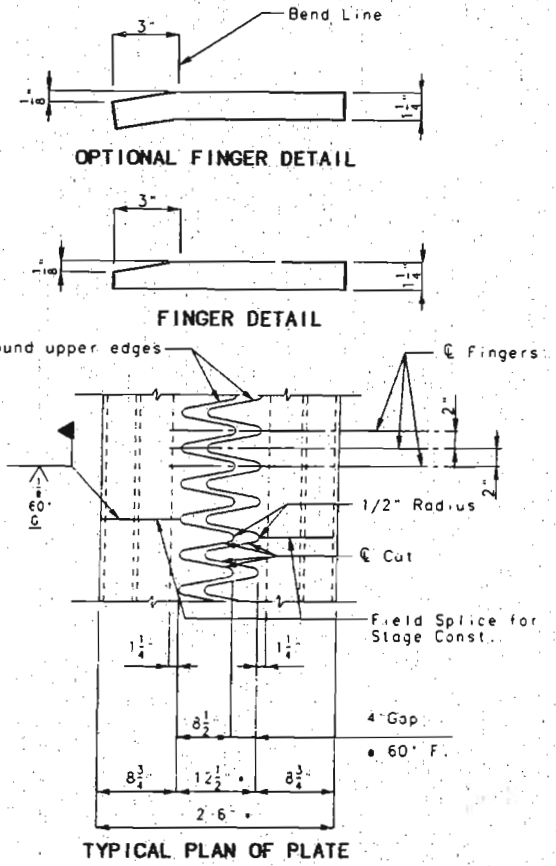
Structural steel for the expansion device and curb shall be painted with a minimum of two coats of inorganic zinc primer (5 mils minimum) in accordance with the Special Provisions. Anchors need not be protected from overspray.

Payment for furnishing, painting and installing structural steel for the expansion device, along with the neoprene trough and drain pipe, will be made at the contract unit price for Expansion Device (8.5" Finger Plate) per lin. ft.

1-1/4" Finger Plate shall be bent to conform to crown of roadway.

Longitudinal reinforcing steel shall be placed so that ends shall not be more than 1" from 3/4" web plate.

Material for the expansion device shall be A36 structural grade steel. Anchors for the expansion device shall be approved stud welded anchors (C1010 thru C1020). Stay-In-Place Forms not shown for clarity.



Note: Concrete shall be forced under finger plate supporting hardware, studs, angles and bars by troweling or other approved methods for proper consolidation and anchorage.

Note: For Sections A-A and B-B, see sheet No. 32.
 For Detail "J", see sheet No. 35.
 For Section F-F, see sheet No. 35.
 * Dimensions at 60°F.

SECTION THRU FINGER PLATE EXPANSION DEVICE NEAR C OF STRUCTURE AT PIER NO. 3

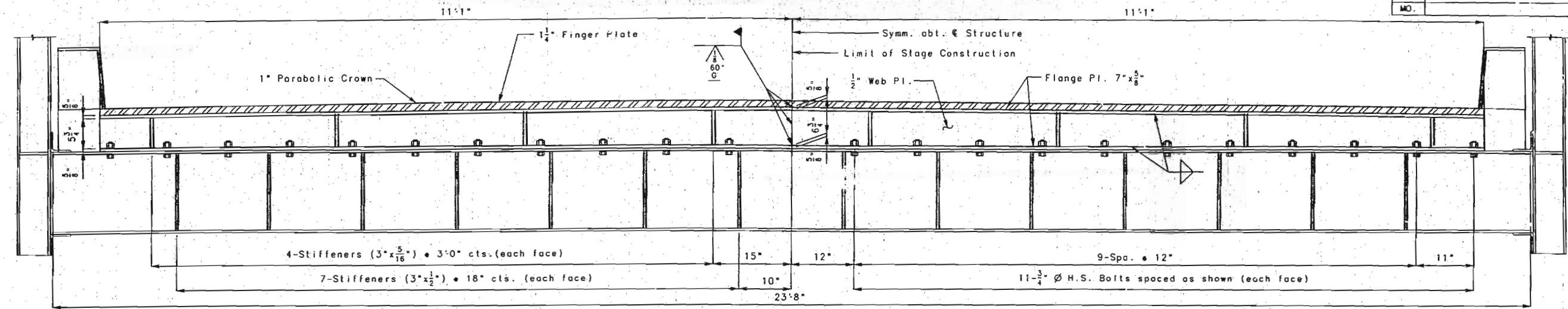
NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

SHEET NO. 31 OF 97.

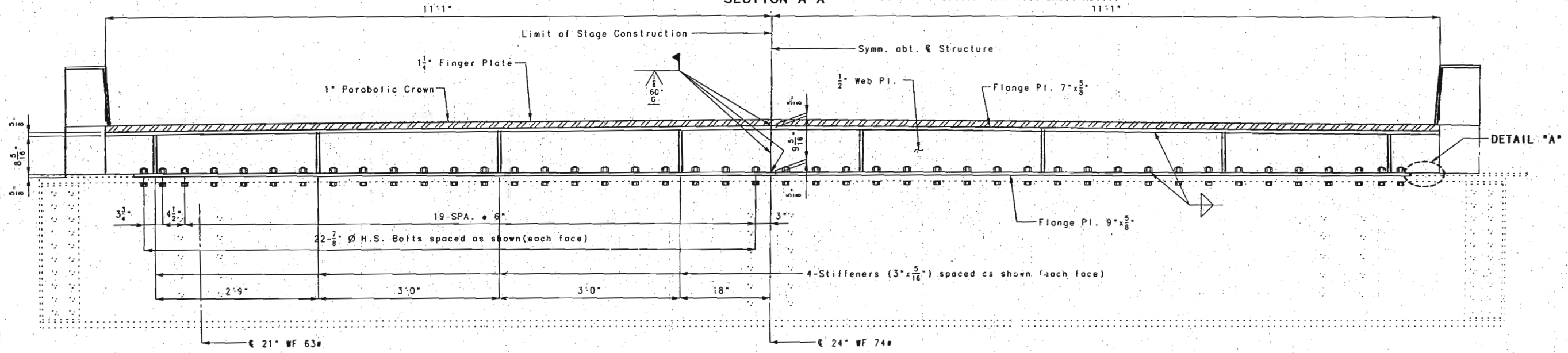
FRANKLIN-WARREN COUNTIES K09691

74 301

DETAILED JULY 1995
 CHECKED NOV. 1995



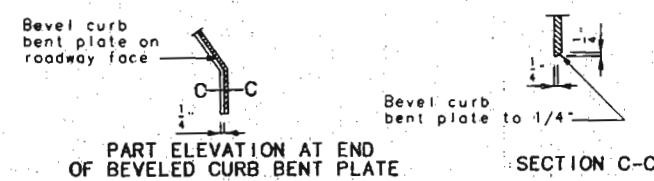
SECTION A-A Note: Work Section A-A with sheet No. 11.



SECTION B-B

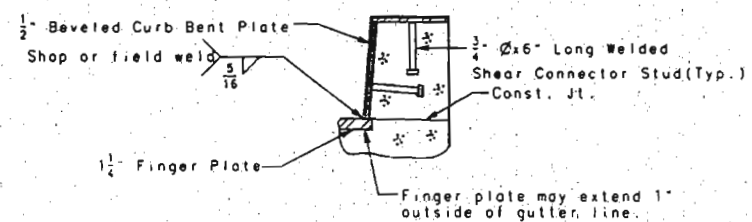
Note: For location of Sections A-A and B-B, see sheet No. 31.

Note: For details of expansion device not shown, see sheet No. 31. For details of curb, see sheet No. 68.

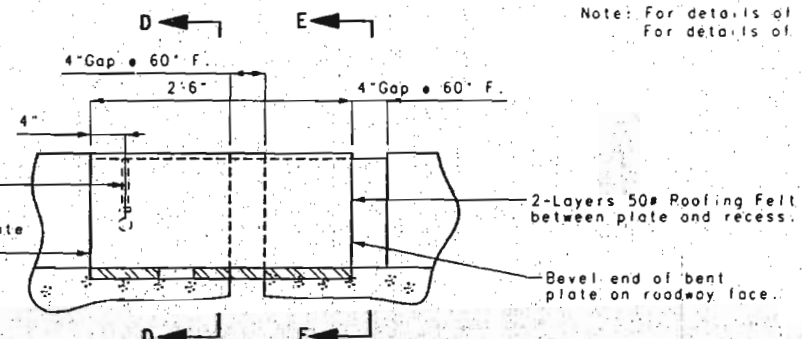


PART ELEVATION AT END OF BEVELED CURB BENT PLATE

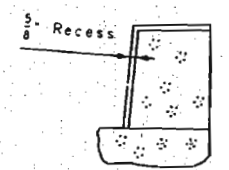
SECTION C-C



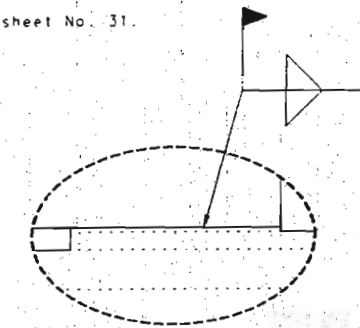
PART SECTION D-D



ELEVATION OF CURB PLATE



PART SECTION E-E



DETAIL "A"

EXPANSION DEVICE AT PIER NO. 3

75 302
 DETAILED JULY 1995
 CHECKED NOV. 1995

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

SHEET NO. 32 OF 97.

FRANKLIN-WARREN

COUNTIES

K09691

STATE	PROJ. NO.	SHEET NO.
MO.		67

General Notes:

Finger plates shall be cut with a machine guided gas torch from one plate. The plate from which fingers are cut may be spliced before fingers are cut. The surface of cut shall be perpendicular to the surface of the plate. The cut shall not exceed 1/8" in width. The centerline of cut shall not deviate more than 1/16" from the position of centerline of cut shown. No splicing of finger plate or finger plate assembly will be allowed after fingers are cut.

Plan dimensions are based on installation at 60°F. The expansion gap and other dimensions shall be increased 5/16" for each 10°F fall in temperature and decreased 5/16" for each 10°F rise in temperature at installation.

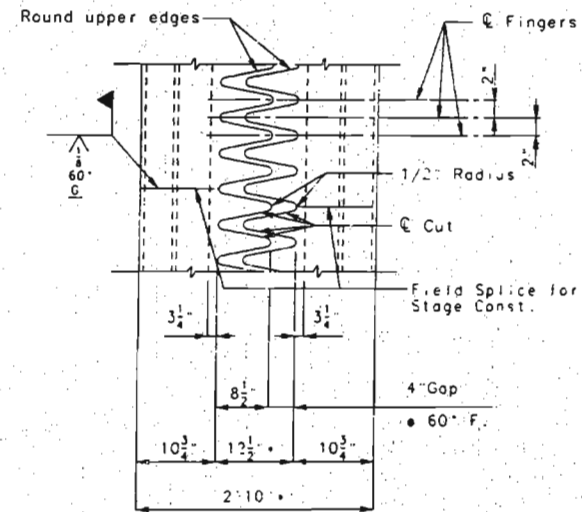
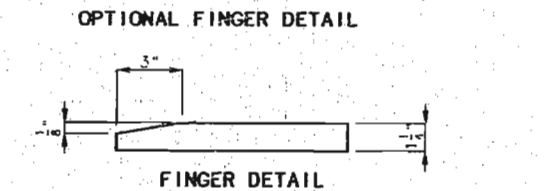
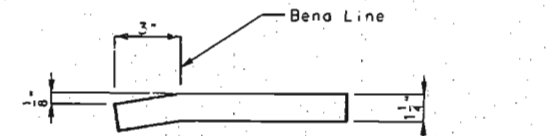
Structural steel for the expansion device and curb shall be painted with a minimum of two coats of inorganic zinc prime (5 mills minimum) in accordance with the Special Provisions. Anchors need not be protected from overspray.

Payment for furnishing, painting and installing structural steel for the expansion device, along with the neoprene trough and drain pipe, will be made at the contract unit price for Expansion Device (8.5" Finger Plate) per lin. ft.

1-1/4" Finger Plate shall be bent to conform to crown of roadway.

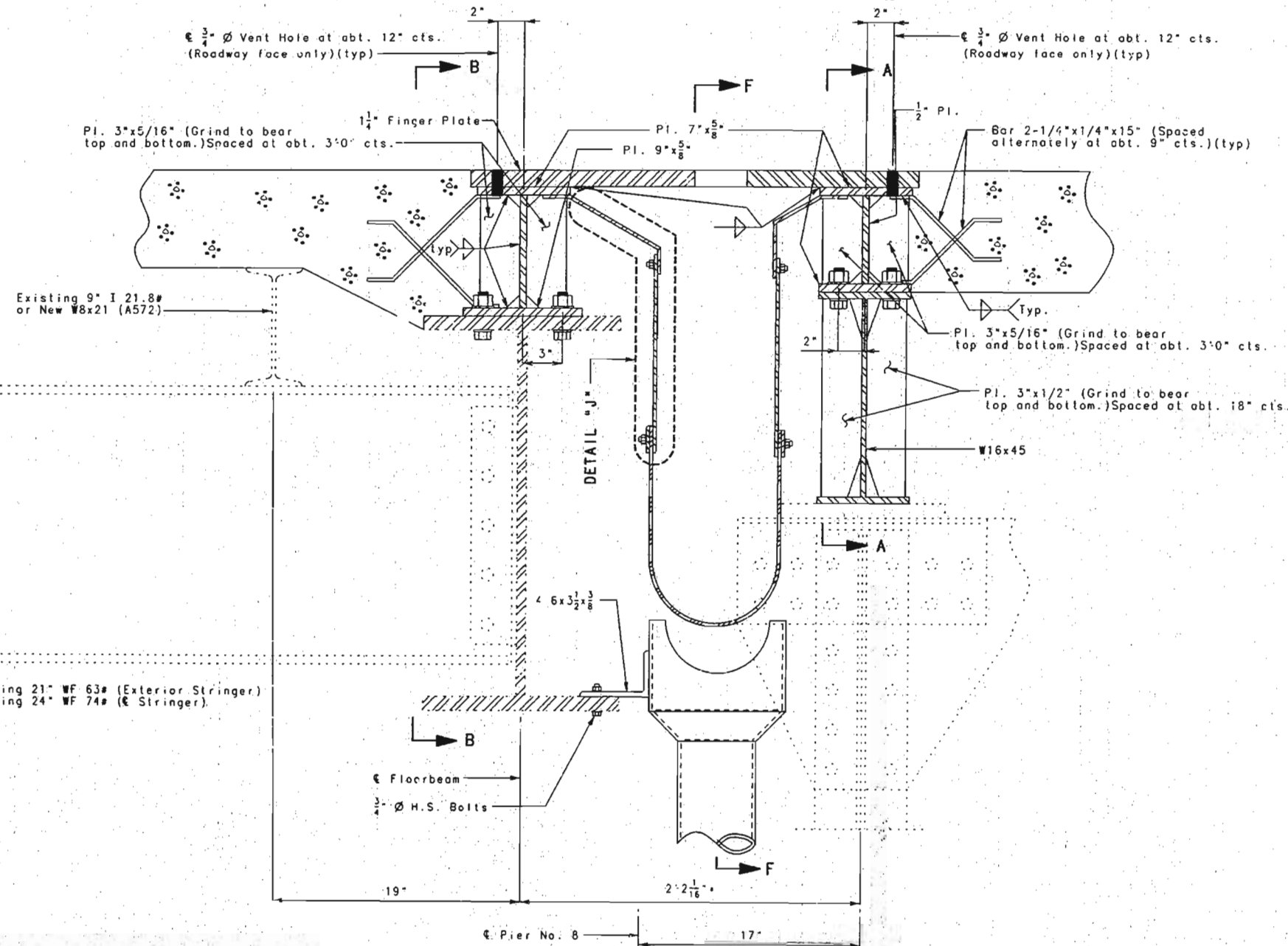
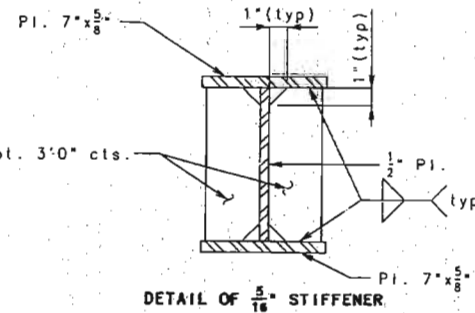
Longitudinal reinforcing steel shall be placed so that ends shall not be more than 1"± from 1/2" web plate.

Material for the expansion device shall be A36 structural grade steel. Anchors for the expansion device shall be approved stud welded anchors (C1010 thru C1020). Stay-In-Place Forms not shown for clarity.



Note: Concrete shall be forced under finger plate supporting hardware, studs, angles and bars by troweling or other approved methods for proper consolidation and anchorage.

Note: For Sections A-A and B-B, see sheet No. 34.
For Detail "J", see sheet No. 35.
For Section F-F, see sheet No. 35.
• Dimension at 60° F.



SECTION THRU FINGER PLATE EXPANSION DEVICE NEAR C OF STRUCTURE AT PIER NO. 8

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

SHEET NO. 33 OF 97

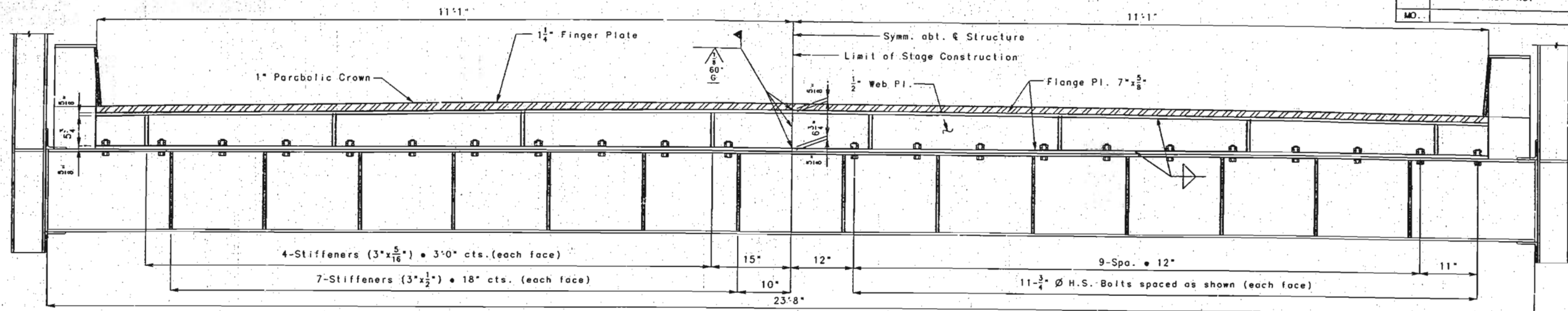
FRANKLIN-WARREN

COUNTIES K09691

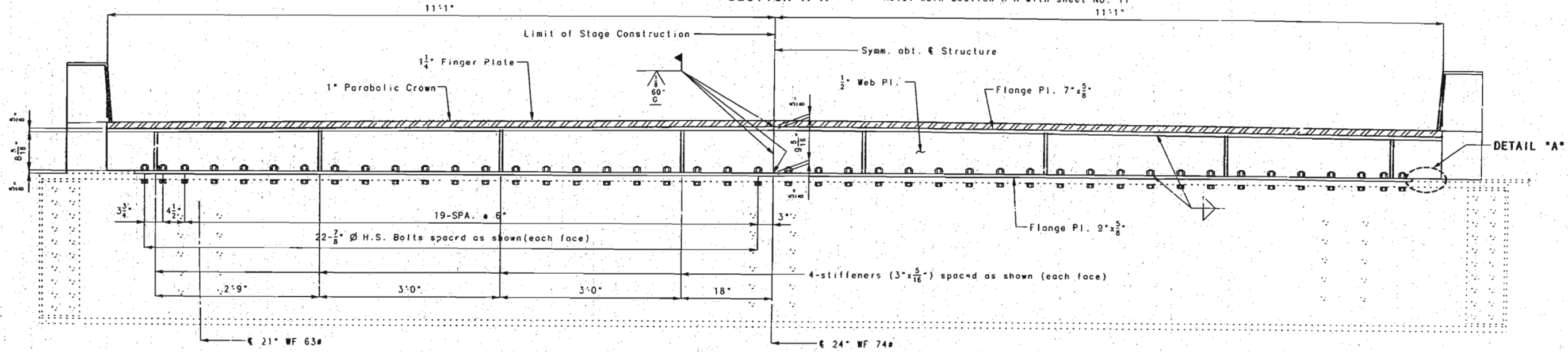
DETAILED JULY 1995
CHECKED NOV. 1995

76 303

1224



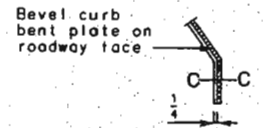
SECTION A-A Note: Work Section A-A with sheet No. 11



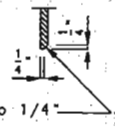
SECTION B-B

Note: For location of Sections A-A and B-B, see sheet No. 33.

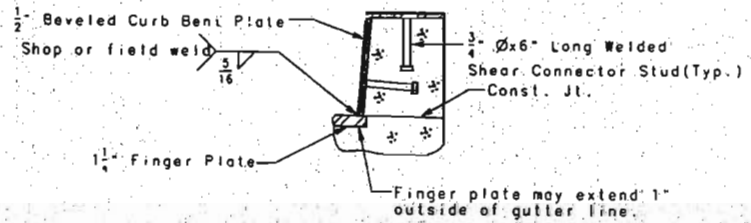
Note: For details of expansion device not shown, see sheet No. 33. For details of curb, see sheet No. 69.



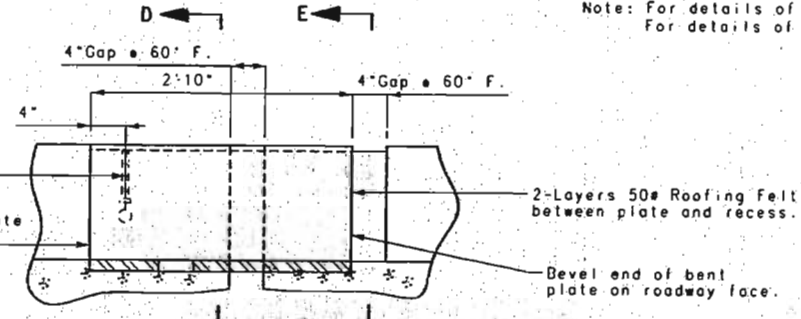
PART ELEVATION AT END OF BEVELED CURB BENT PLATE



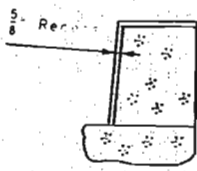
SECTION C-C



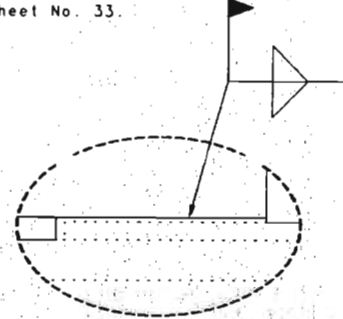
PART SECTION D-D



ELEVATION OF CURB PLATE



PART SECTION E-E



DETAIL A-A

EXPANSION DEVICE AT PIER NO. 8

DETAILED JULY 1995
CHECKED NOV. 1995

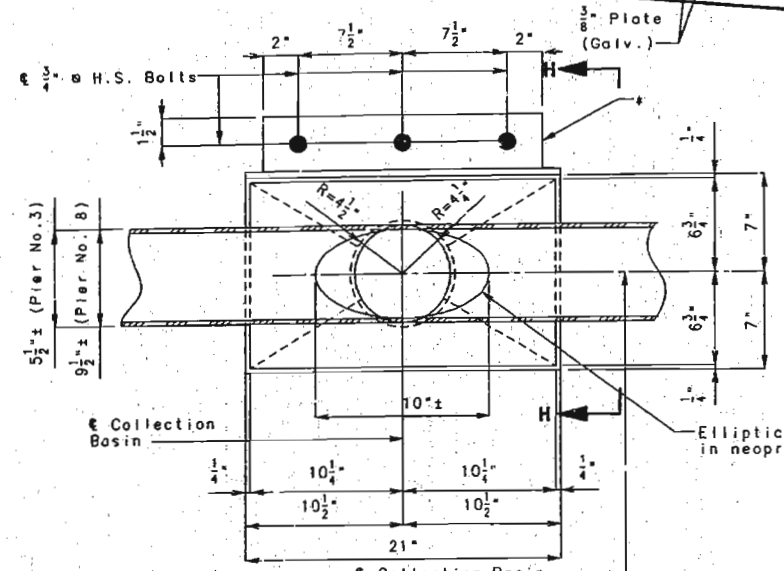
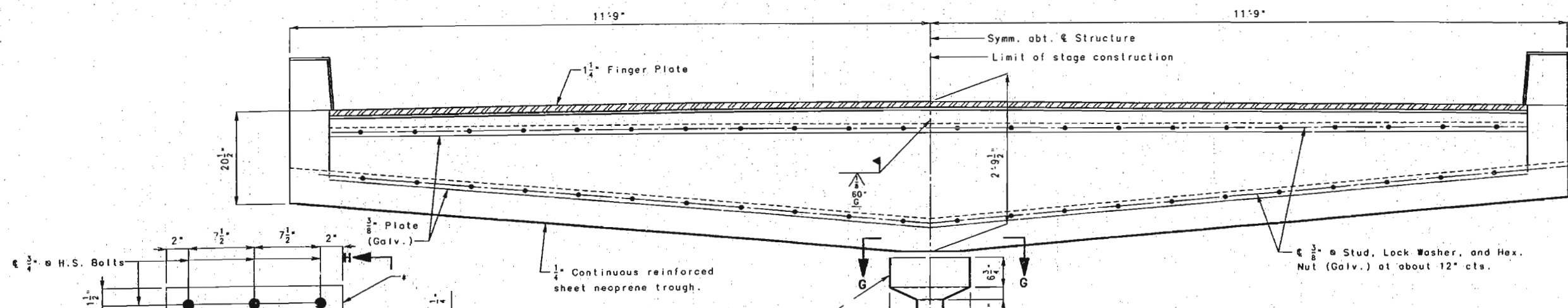
NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

SHEET NO. 34 OF 97.

FRANKLIN-WARREN

COUNTIES K09691

177 304

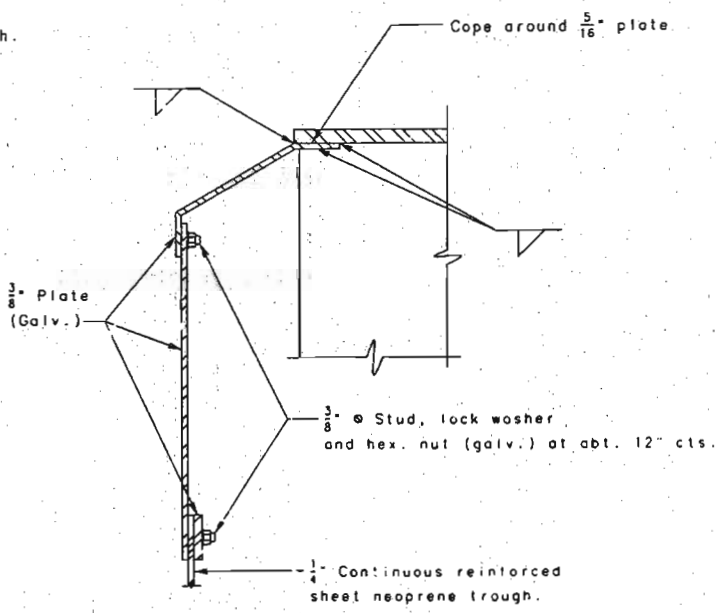


SECTION G-G

SECTION F-F

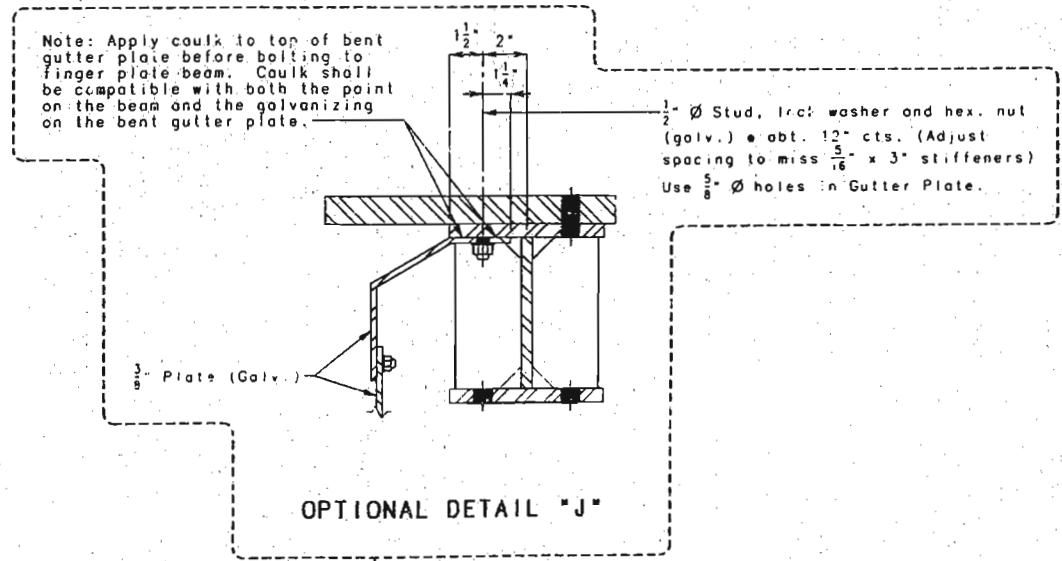
Note: For locations of Section F-f, see sheet Nos. 31 and 33. See sheet No. 36 for details of drain.

Note: Stainless steel collection basin shall be fabricated from type 302 stainless steel. See special provisions.

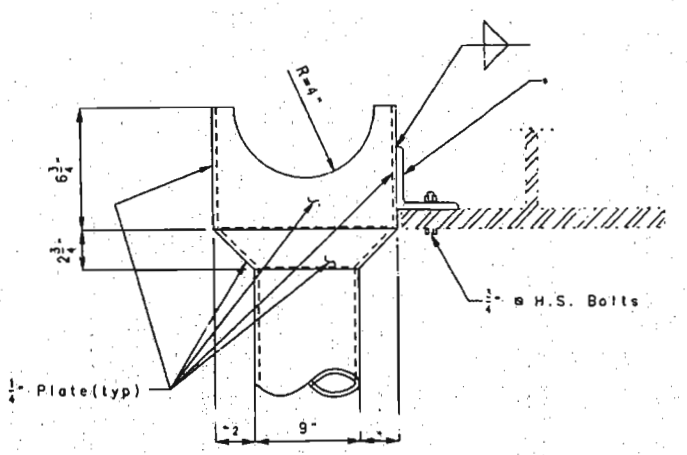


DETAIL "J"

Note: For locations of Detail "J", see sheet Nos. 31 & 33.



OPTIONAL DETAIL "J"



SECTION H-H

EXPANSION DEVICE DRAIN AT PIER NOS. 3 & 8

DETAILED AUG. 1996
CHECKED AUG. 1996

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

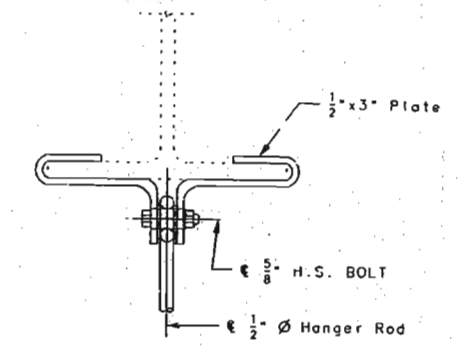
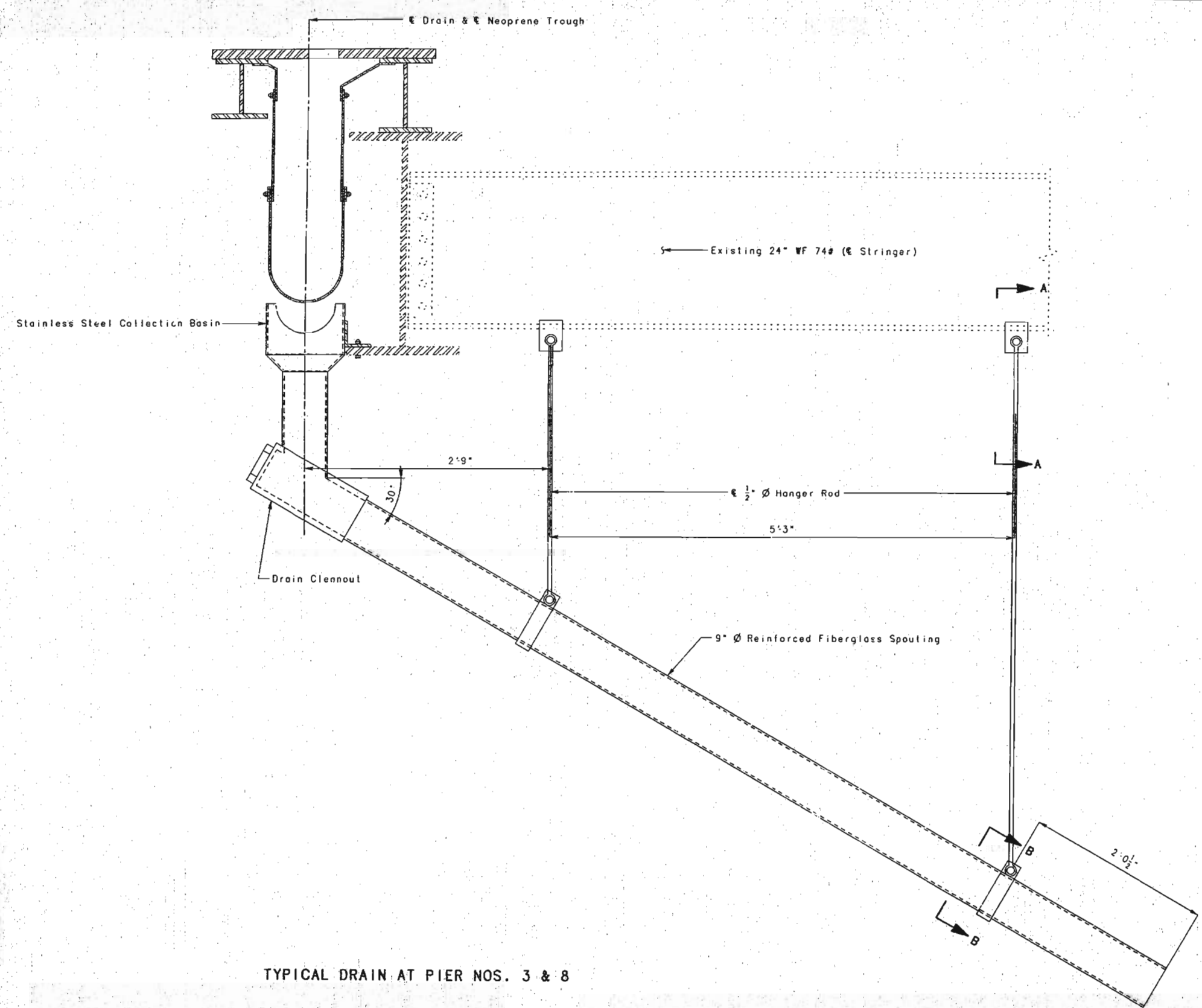
10 REVISED AUG. 5, 1996

SHEET NO. 35 OF 97

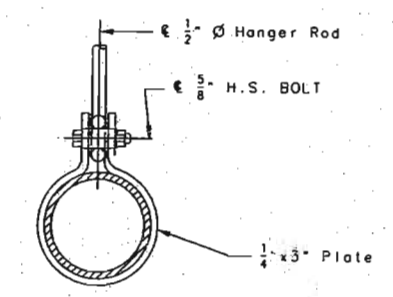
FRANKLIN-WARREN

COUNTIES K09691

STATE	PROJ. NO.	SHEET NO.
MO.		70



SECTION A-A



SECTION B-B

Note: Reinforced fiberglass spouting shall be Fibercast Centricast pipe or approved equal. See special provisions. See sheet No. 35 for details of collection basin.

TYPICAL DRAIN AT PIER NOS. 3 & 8

RR 306

DETAILED AUG 1995
CHECKED NOV 1995

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

SHEET NO. 36 OF 97

FRANKLIN-WARREN

COUNTIES K09691

STATE	PROJ. NO.	SHEET NO.
MO.		71

General Notes:

Finger plates shall be cut with a machine guided gas torch from one plate. The plate from which fingers are cut may be spliced before fingers are cut. The surface of cut shall be perpendicular to the surface of the plate. The cut shall not exceed 1/8" in width. The centerline of cut shall not deviate more than 1/16" from the position of centerline of cut shown. No splicing of finger plate or finger plate assembly will be allowed after fingers are cut.

Plan dimensions are based on installation at 60°F. The expansion gap and other dimensions shall be increased 3/4" for each 10°F fall in temperature and decreased 3/4" for each 10°F rise in temperature at installation.

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

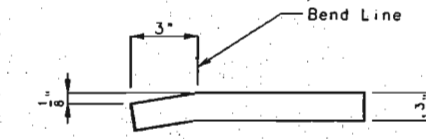
Payment for furnishing, painting and installing structural steel for the expansion device, along with the neoprene trough and drain pipe, will be made of the contract unit price for Expansion Device (11.5" Finger Plate) per lin. ft.

1-3/4" Finger Plate shall be bent to conform to crown of roadway.

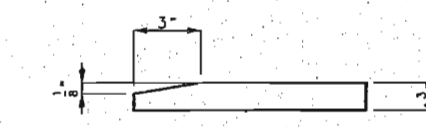
Longitudinal reinforcing steel shall be placed so that ends shall not be more than 1" from 1/2" web plate.

Material for the expansion device shall be A36 structural grade steel. Anchors for the expansion device shall be approved stud welded anchors (C1010 thru C1020).

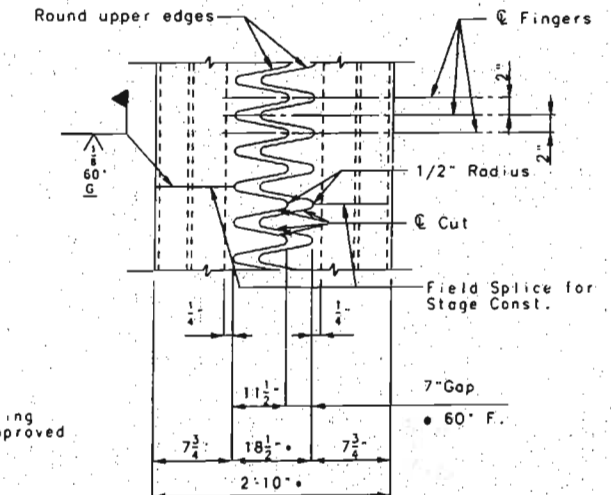
Stay-In-Place Forms not shown for clarity.



OPTIONAL FINGER DETAIL

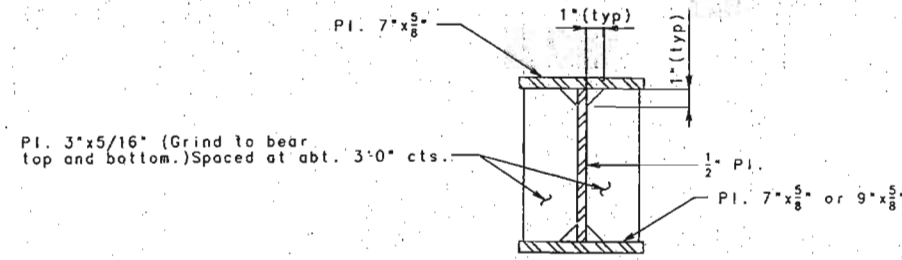


FINGER DETAIL

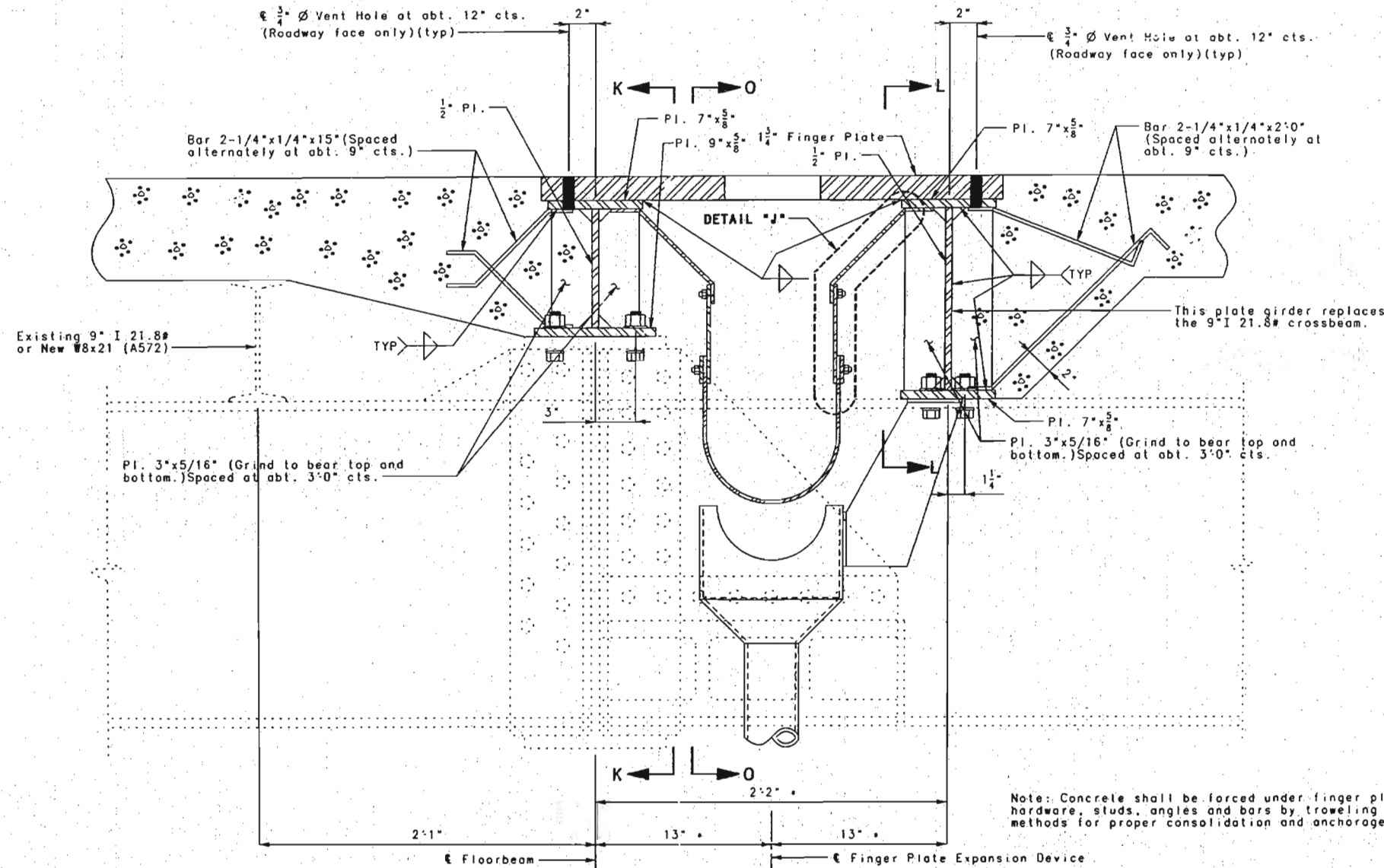


TYPICAL PLAN OF PLATE

Note: For Sections K-K and L-L, see sheet No. 38.
 For Detail "J", see sheet No. 41.
 For Section O-O, see sheet No. 41.
 • Dimension at 60°F.



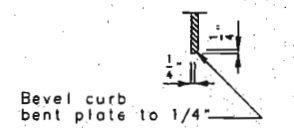
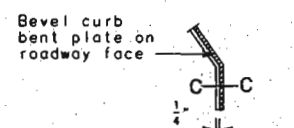
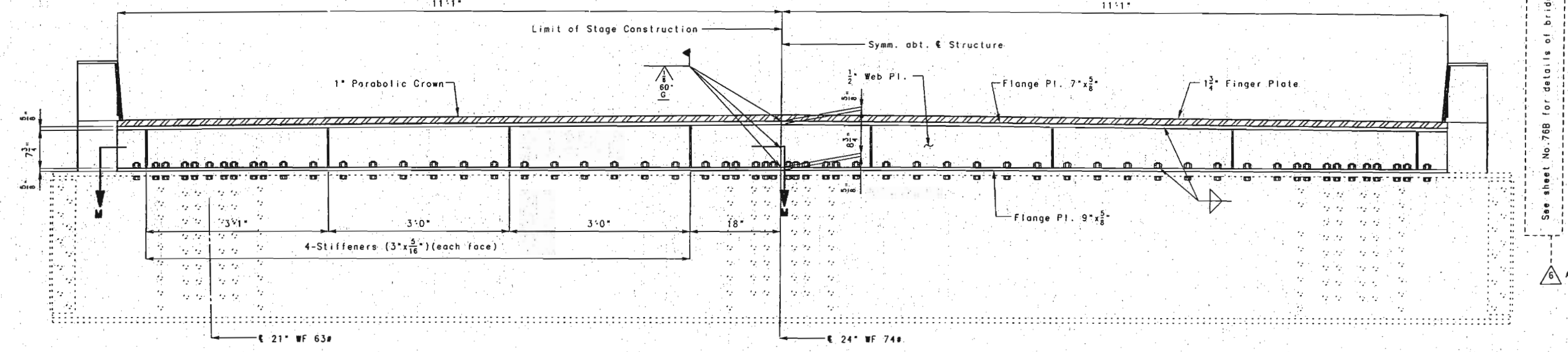
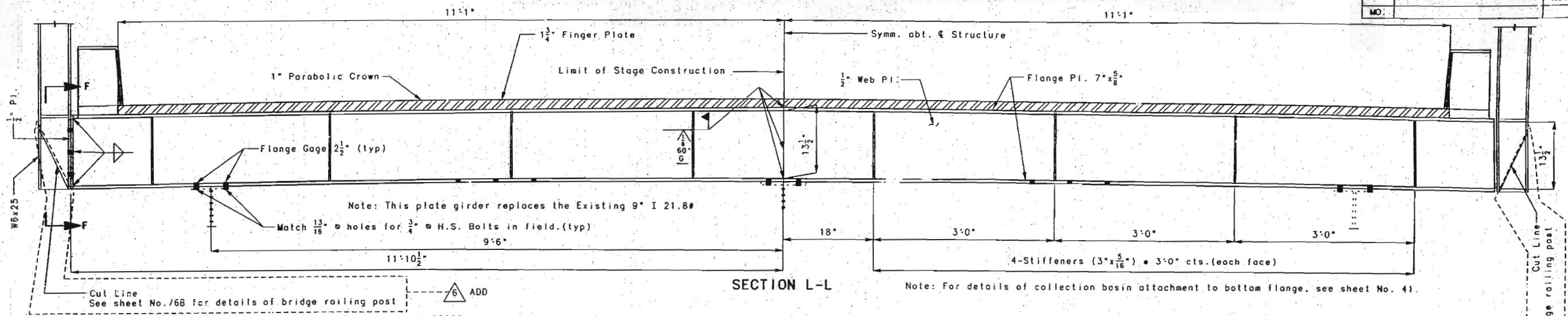
DETAIL OF 5/16" STIFFENER



SECTION THRU FINGER PLATE EXPANSION DEVICE NEAR ϵ OF STRUCTURE AT L25

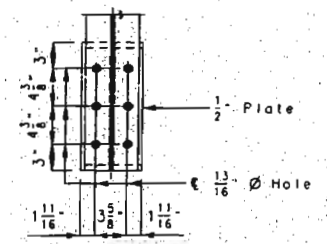
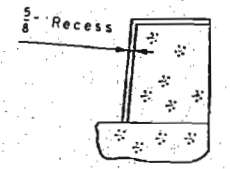
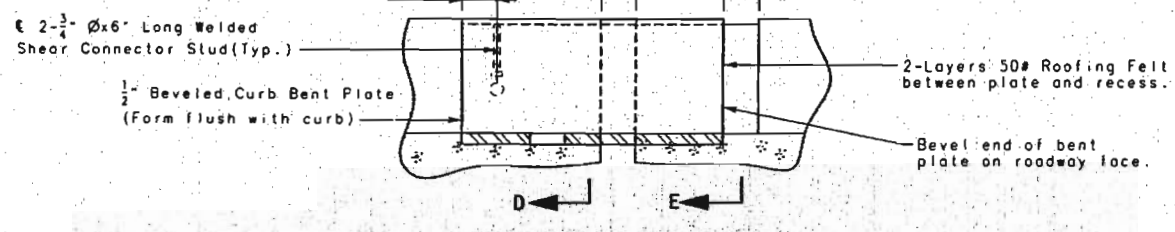
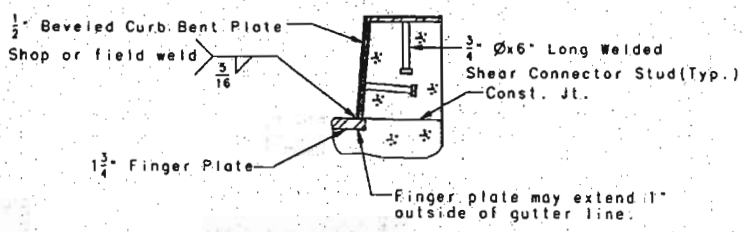
Note: Concrete shall be forced under finger plate supporting hardware, studs, angles and bars by troweling or other approved methods for proper consolidation and anchorage.

88 307



Note: For location of Sections K-K and L-L, see sheet No. 37.
 For Section M-M, see sheet No. 41.
 Note: For details of expansion device not shown, see sheet No. 37.
 For details of curb, see sheet No. 68.

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EXPANSION DEVICE AT L25

DETAILED AUG. 1995
 CHECKED NOV. 1995

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

REVISED APRIL 4, 1996

SHEET NO. 38 OF 97

FRANKLIN-WARREN

COUNTIES

K09691

STATE	PROJ. NO.	SHEET NO.
MO.		73

General Notes:

Finger plates shall be cut with a machine guided gas torch from one plate. The plate from which fingers are cut may be spliced before fingers are cut. The surface of cut shall be perpendicular to the surface of the plate. The cut shall not exceed 1/8" in width. The centerline of cut shall not deviate more than 1/16" from the position of centerline of cut shown. No splicing of finger plate or finger plate assembly will be allowed after fingers are cut.

Flange dimensions are based on installation at 60°F. The expansion gap and other dimensions shall be increased 3/8" for each 10°F fall in temperature and decreased 3/8" for each 10°F rise in temperature at installation.

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

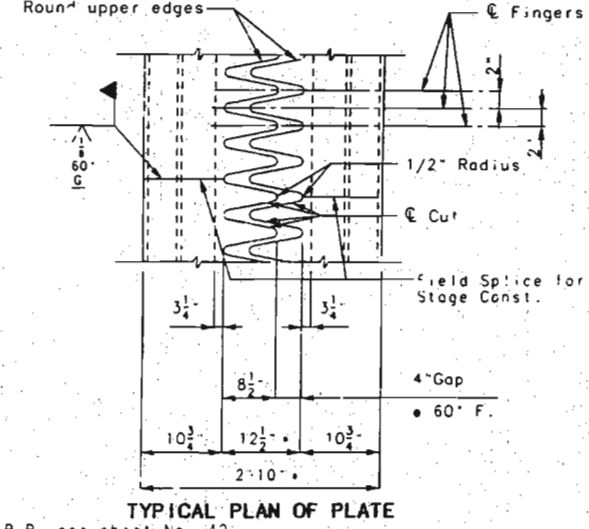
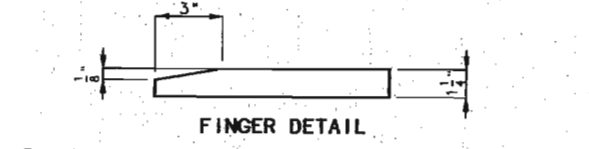
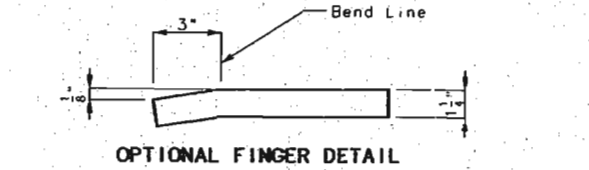
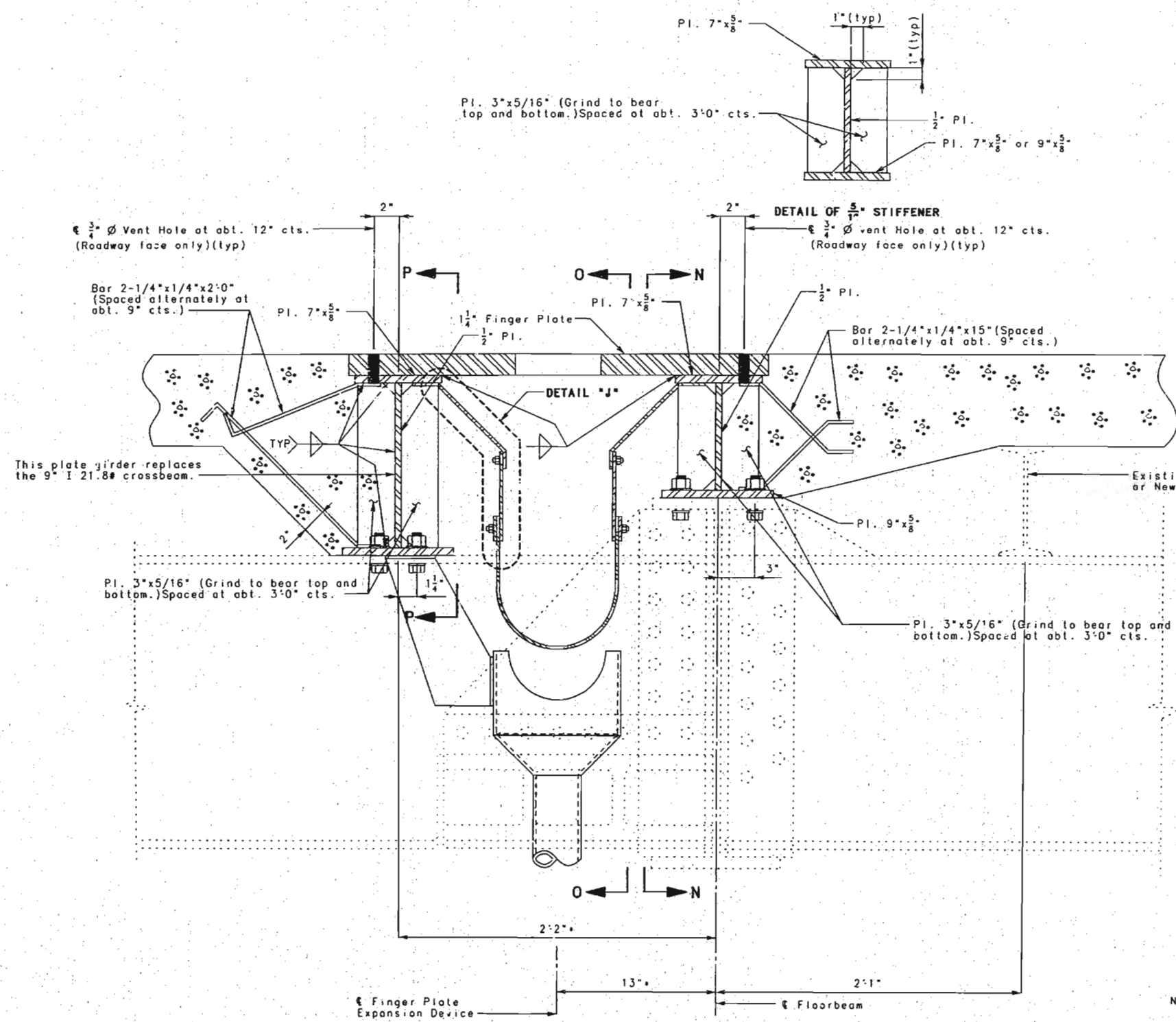
Payment for furnishing, painting and installing structural steel for the expansion device, along with the neoprene trough and drain pipe, will be made at the contract unit price for Expansion Device (8.5" Finger Plate) per lin. ft.

1-1/4" Finger Plate shall be bent to conform to crown of roadway.

Longitudinal reinforcing steel shall be placed so that ends shall not be more than 1" from 1/2" web plate.

Material for the expansion device shall be A36 structural grade steel. Anchors for the expansion device shall be approved stud welded anchors (C1010 thru C1020).

Stay-In-Place Forms not shown for clarity.



Note: For Sections N-N and P-P, see sheet No. 40.
 For Detail 'J', see sheet No. 41.
 For Section O-O, see sheet No. 41.

* Dimension at 60° F.

Note: Concrete shall be forced under finger plate supporting hardware, studs, angles and bars by troweling or other approved methods for proper consolidation and anchorage.

82309

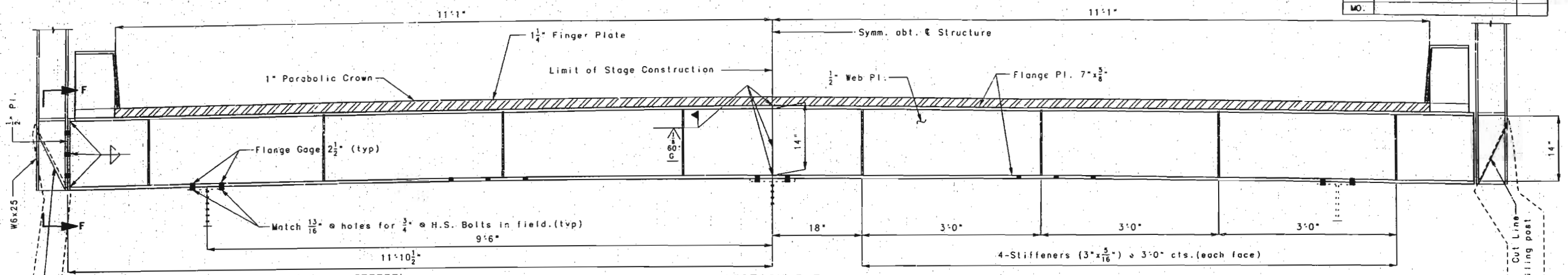
DETAILED JULY 1995
 CHECKED NOV. 1995

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

SHEET NO. 39 OF 97.

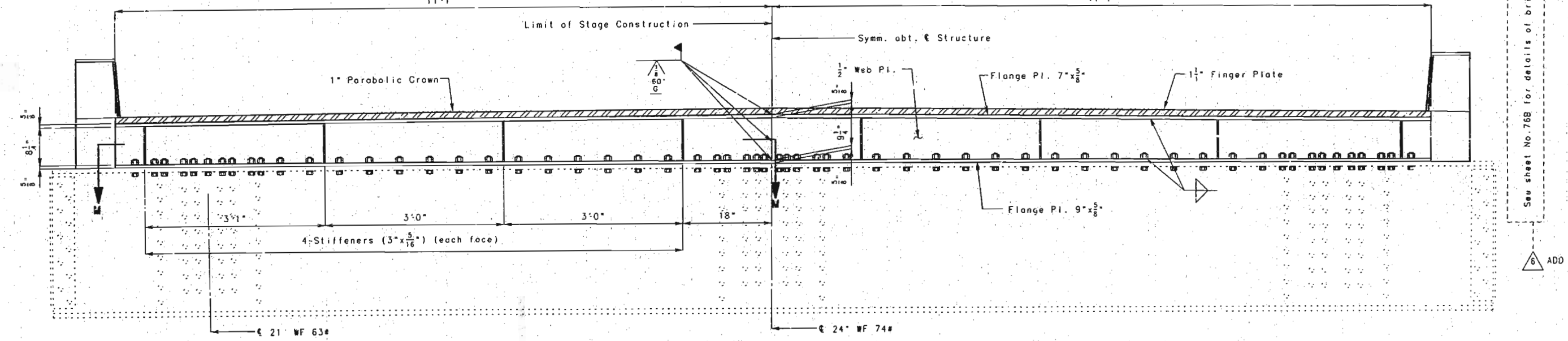
FRANKLIN-WARREN

COUNTIES K09691

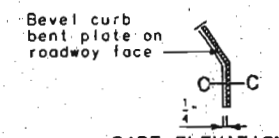


SECTION P-P

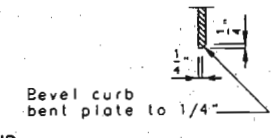
Note: This plate girder replaces the 9" I 21.8# crossbeam.
 Note: For details of collection basin attachment to bottom flange, see sheet No. 41.



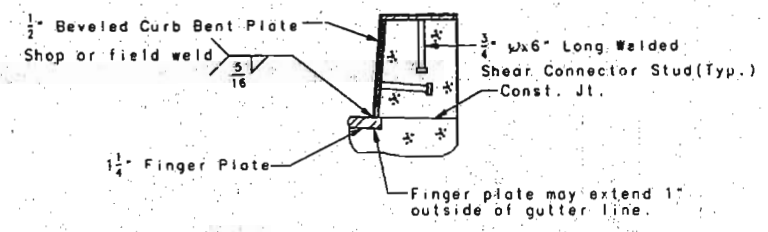
SECTION N-N



PART ELEVATION AT END OF BEVELED CURB BENT PLATE



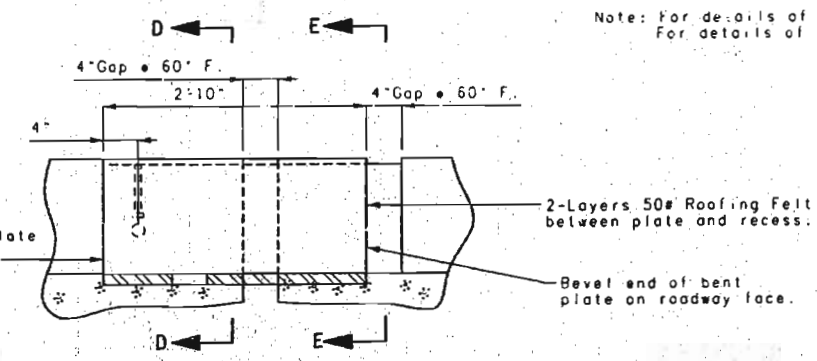
SECTION C-C



PART SECTION D-D

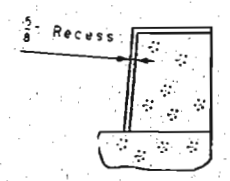
2-3/4" Øx6" Long Welded Shear Connector Stud(Typ.)

1/2" Beveled Curb Bent Plate (Form flush with curb)

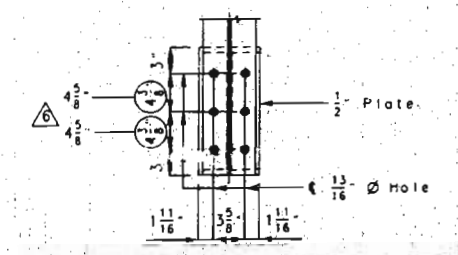


ELEVATION OF CURB PLATE

Note: For location of Sections N-N and P-P, see sheet No. 39.
 For Section M-M, see sheet No. 41.
 Note: For details of expansion device not shown, see sheet No. 39.
 For details of curb, see sheet No. 69.



PART SECTION E-E



SECTION F-F

EXPANSION DEVICE AT L25'

REVISED APRIL 4, 1996

DETAILED AUG. 1995
 CHECKED NOV. 1995

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

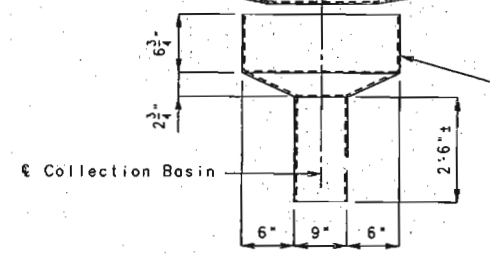
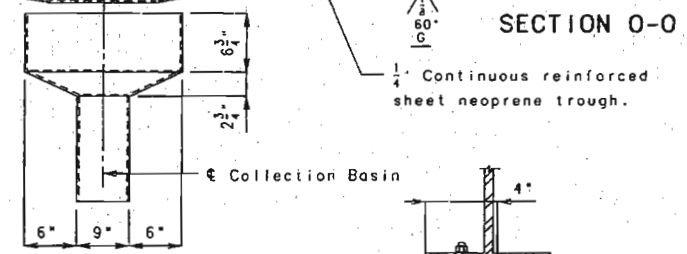
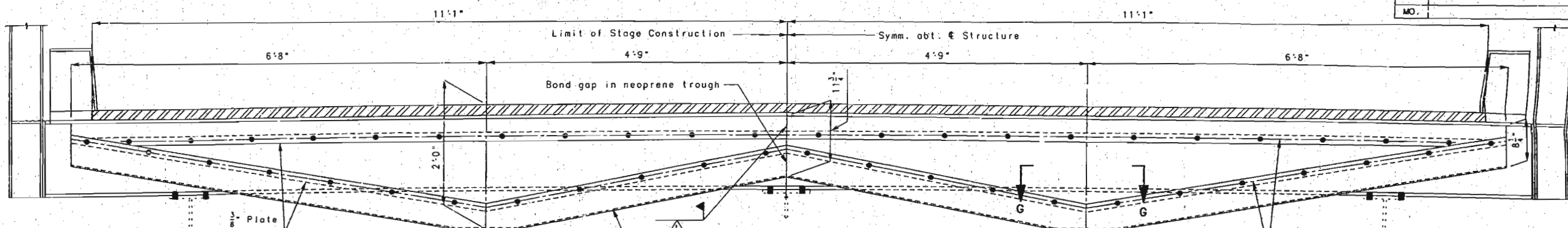
SHEET NO. 40 OF 97

FRANKLIN-WARREN

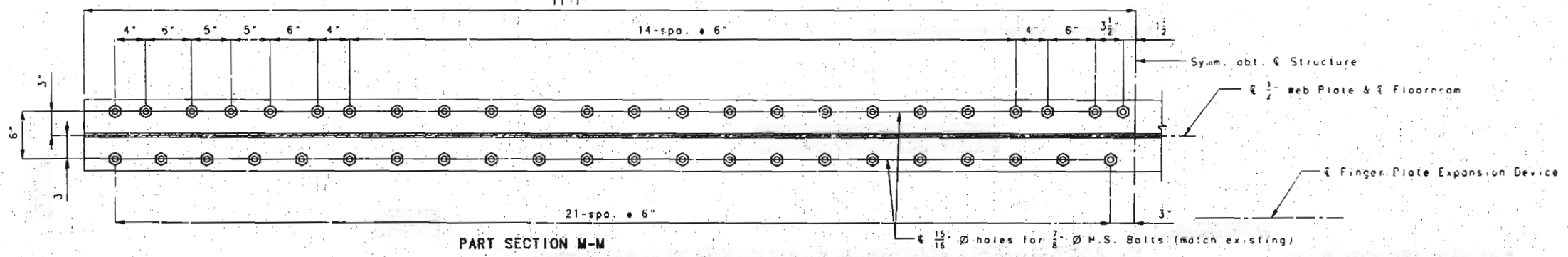
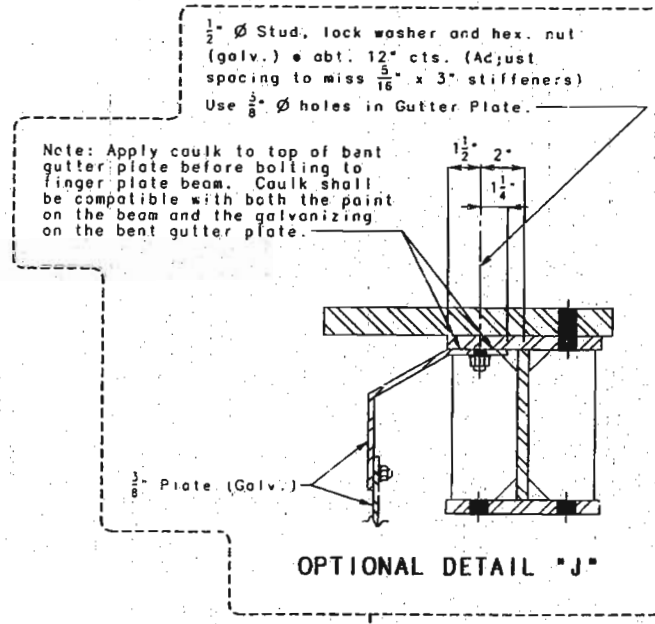
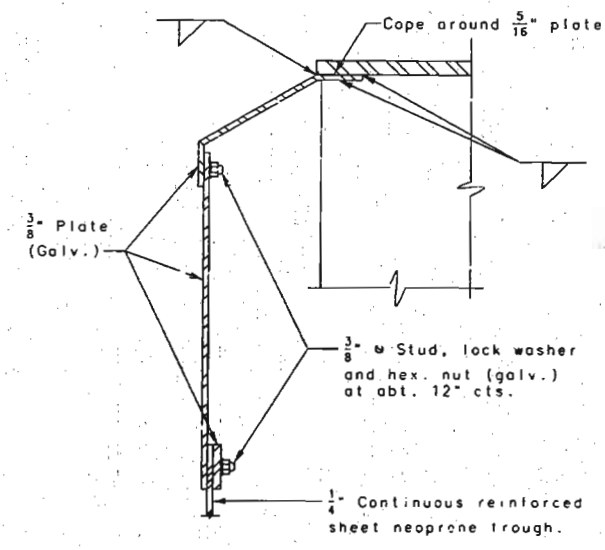
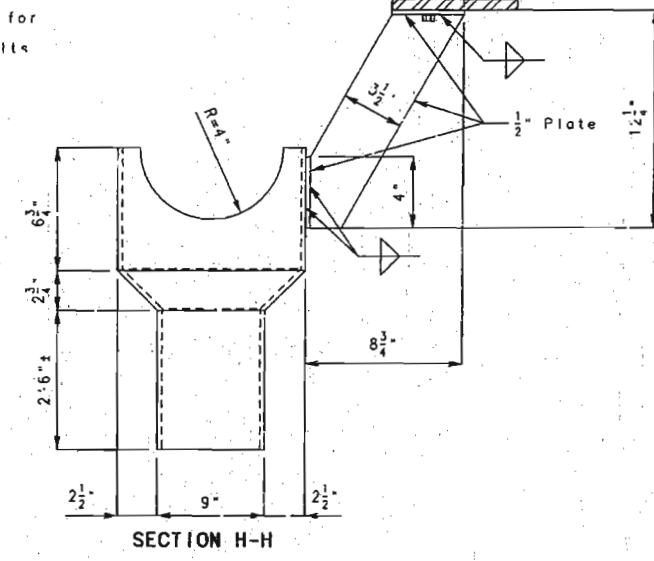
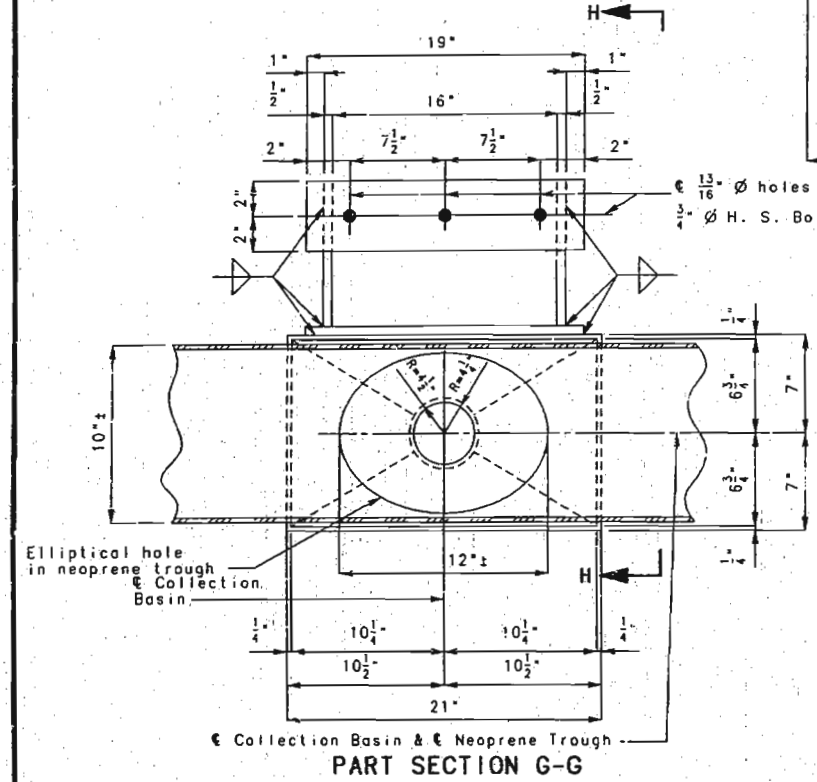
COUNTIES

K09691

310



Note: Stainless Steel Collection Basin shall be fabricated from type 302 Stainless Steel. See Special Provisions.



Note: For location of Section M-M, see sheet Nos. 38 and 40.
 Note: For locations of Section 0-0, see sheet Nos. 37 & 39.

DETAILED AUG. 1996
 CHECKED AUG. 1996

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

REVISED AUG. 5, 1996

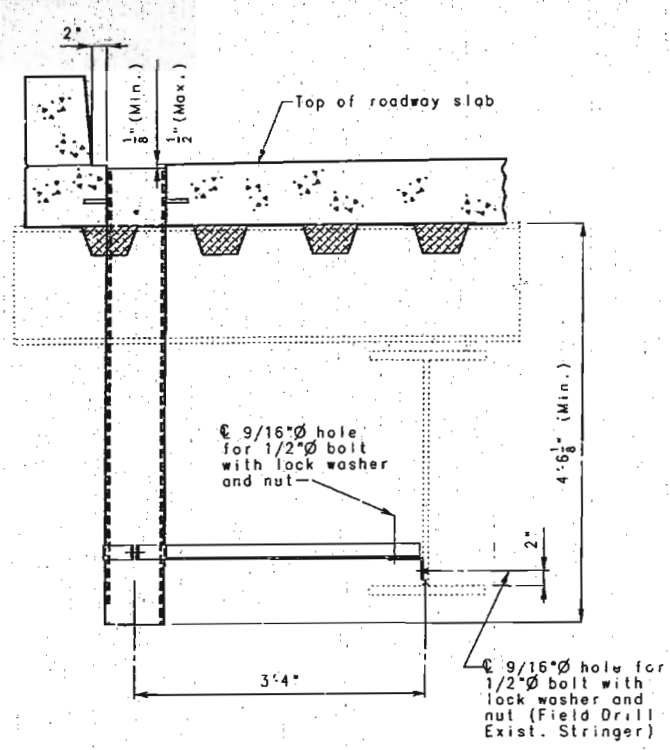
SHEET NO. 41 OF 97

FRANKLIN-WARREN

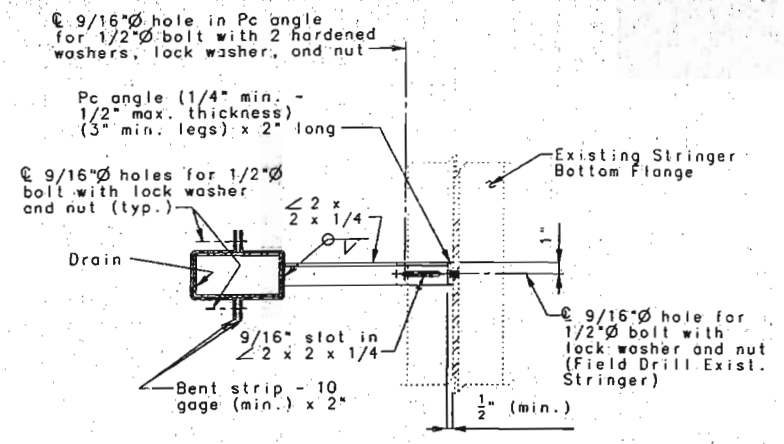
COUNTIES K09691

1824

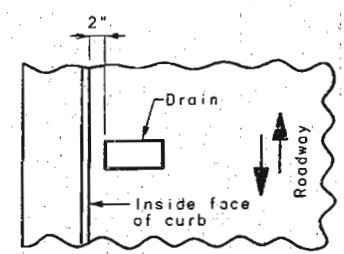
STATE	PROJ. NO.	SHEET NO.
MO.		76



PART SECTION NEAR DRAIN

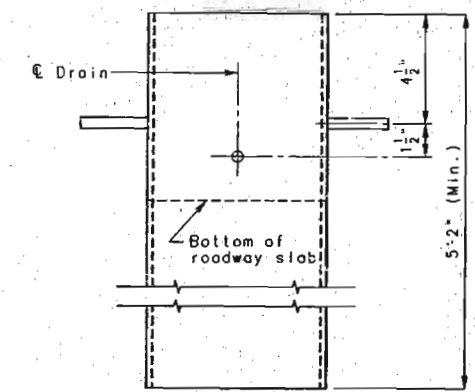


PART SECTION SHOWING BRACKET ASSEMBLY

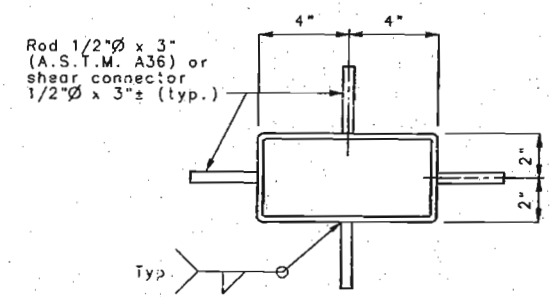


PART PLAN OF SLAB AT DRAIN

DETAILS OF DRAINS TRANSVERSE TO ROADWAY



ELEVATION OF DRAIN



PLAN OF DRAIN

Slab drains may be fabricated of either 1/4\"/>

Outside dimensions of drains are 8\"/>

Locate drains in the slab by dimensions shown in the Part Section.

Shift reinforcing in field where necessary to clear drains.

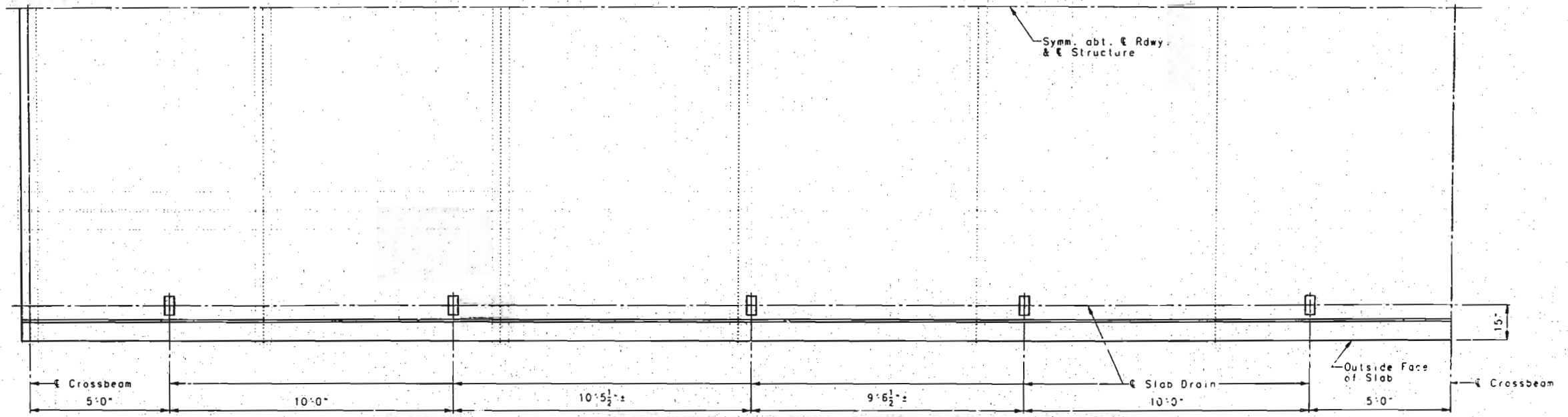
The drains and bracket assembly shall be galvanized in accordance with A.S.T.M. A123.

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

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

The cost of furnishing, fabricating and installing the drains and bracket assemblies, complete-in-place, will be paid for at the contract unit price for Slab Drain (WF Spans) per each.

SLAB DRAIN DETAILS



TYPICAL PLAN OF WIDE FLANGE APPROACH SPAN SLAB SHOWING SLAB DRAIN LOCATIONS

Note: Stay-in-Place Forms not shown for clarity.

85 3/2

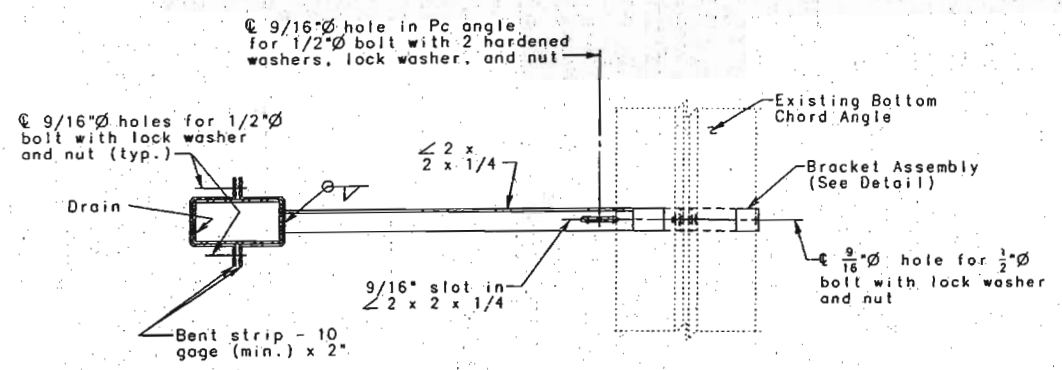
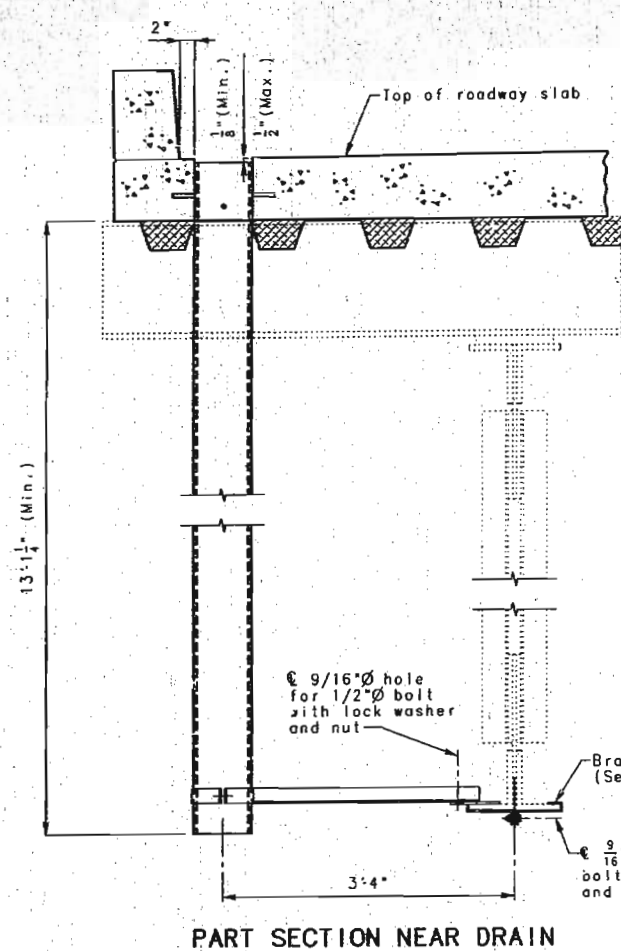
DETAILED SEPT. 1995
CHECKED NOV. 1995

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

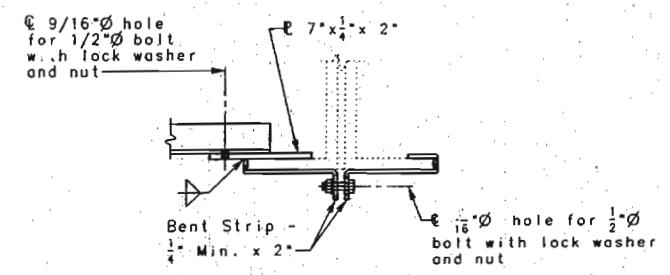
SHEET NO. 42 OF 97

FRANKLIN-WARREN COUNTIES K09691

STATE	PROJ. NO.	SHEET NO.
MO.		77

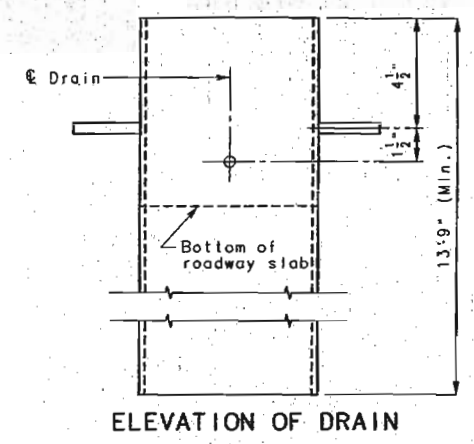


PART SECTION SHOWING BRACKET ASSEMBLY

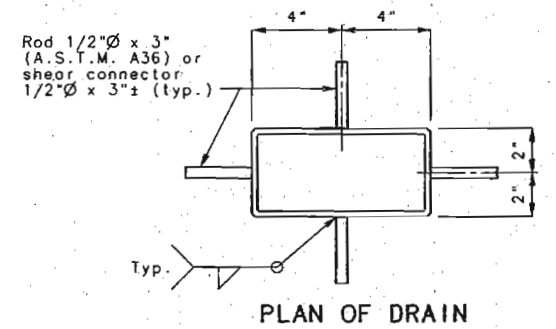


DETAIL OF BRACKET ASSEMBLY

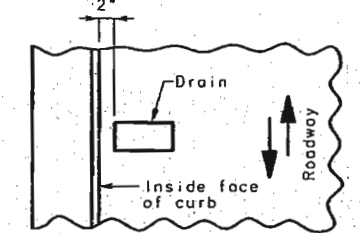
SLAB DRAIN DETAILS



ELEVATION OF DRAIN

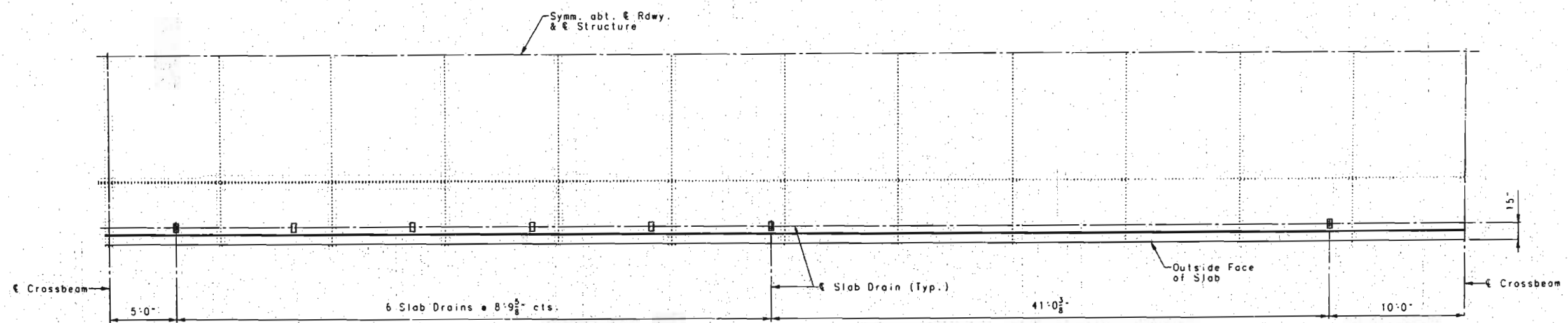


PLAN OF DRAIN



PART PLAN OF SLAB AT DRAIN
DETAILS OF DRAINS TRANSVERSE
TO ROADWAY

Note: Stay-In-Place forms not shown for clarity.



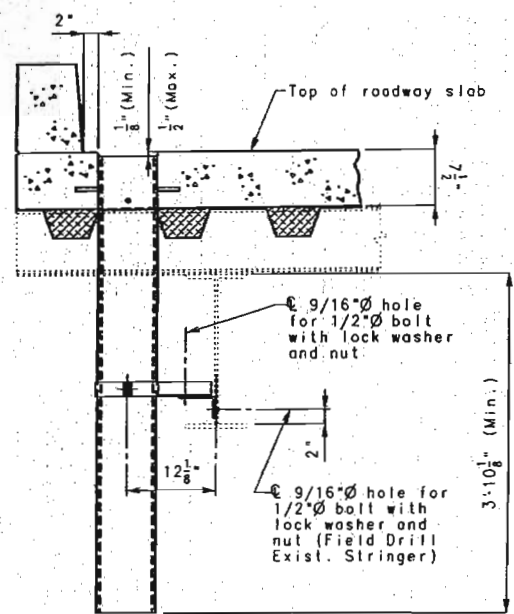
PLAN OF DECK TRUSS APPROACH SPAN (2-3)
SLAB SHOWING SLAB DRAIN LOCATIONS

86 312
DETAILED SEPT. 1995
CHECKED NOV. 1995

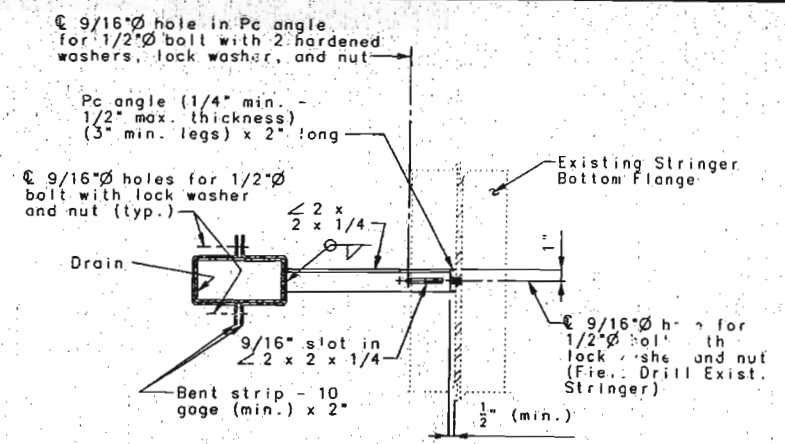
NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

SHEET NO. 43 OF 97

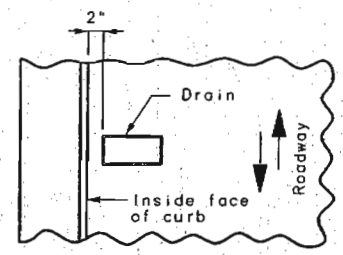
FRANKLIN-WARREN COUNTIES K09691



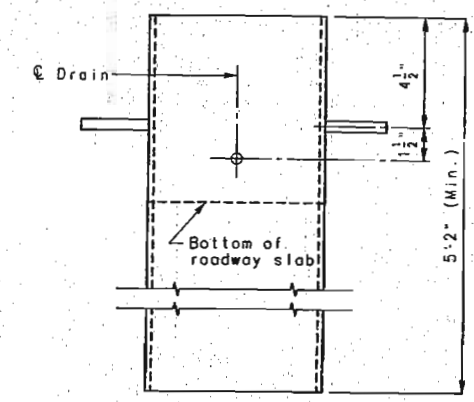
PART SECTION NEAR DRAIN



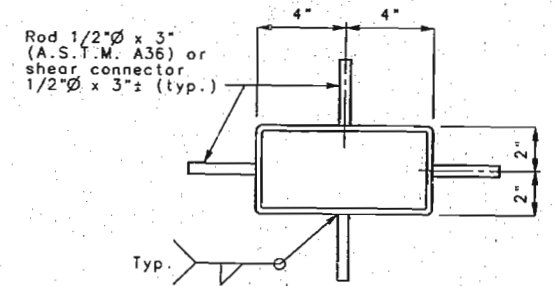
PART SECTION SHOWING BRACKET ASSEMBLY



PART PLAN OF SLAB AT DRAIN
DETAILS OF DRAINS TRANSVERSE TO ROADWAY



ELEVATION OF DRAIN



PLAN OF DRAIN

STATE	PROJ. NO.	SHEET NO.
MO.		

Slab drains may be fabricated of either 1/4" welded sheets of A.S.T.M. A36 steel or from 1/4" structural steel tubing A.S.T.M. A500 or A501. Outside dimensions of drains are 8" x 4".

Locate drains in the slab by dimensions shown in the Part Section.

Shift reinforcing in field where necessary to clear drains.

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

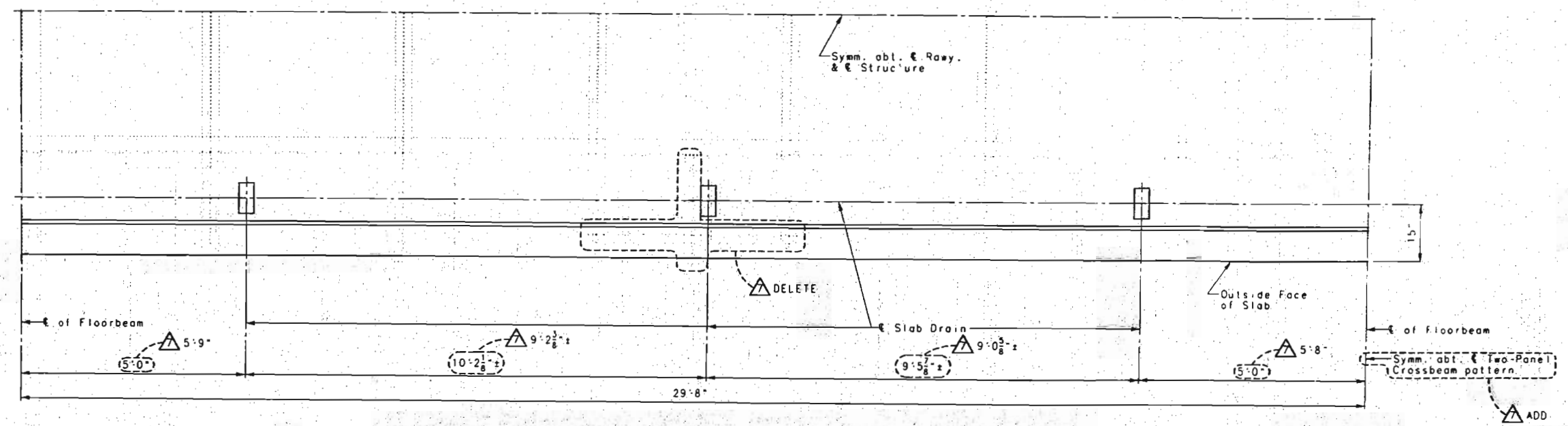
All bolts, hardened washers, lock washers and nuts shall be galvanized in accordance with A.S.T.M. A153.

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

The cost of furnishing, fabricating and installing the drains and bracket assemblies, complete-in-place, will be paid for at the contract unit price for Slab Drain (Thru Truss Spans) per each.

SLAB DRAIN DETAILS

Note: Stay-In-Place Forms not shown for clarity.



PLAN OF SLAB FOR A TYPICAL PANEL IN MAIN TRUSS SHOWING SLAB DRAIN LOCATIONS

314
 DETAILED SEPT. 1995
 CHECKED NOV. 1995

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

REVISED APRIL 15, 1996
 AT CONTRACTOR'S REQUEST SHEET NO. 44 OF 97

FRANKLIN-WARREN COUNTIES K09691

STATE	PROJ. NO.	SHEET NO.
MO.		79

Slab drains may be fabricated of either 1/4" welded sheets of A.S.T.M. A36 steel or from 1/4" structural steel tubing A.S.T.M. A500 or A501. Outside dimensions of drains are 8" x 4".

Locate drains in the slab by dimensions shown in the Part Section.

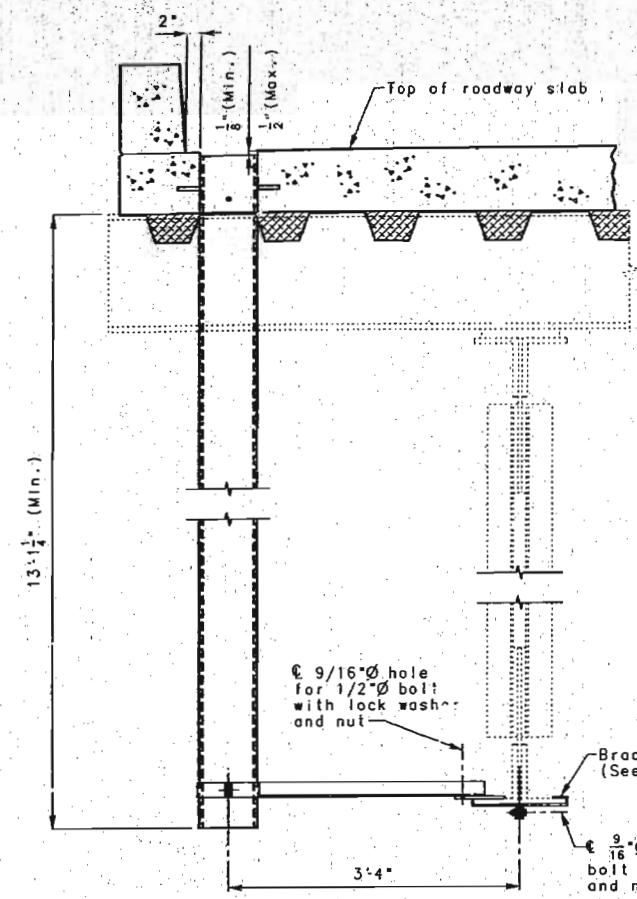
Shift reinforcing in field where necessary to clear drains.

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

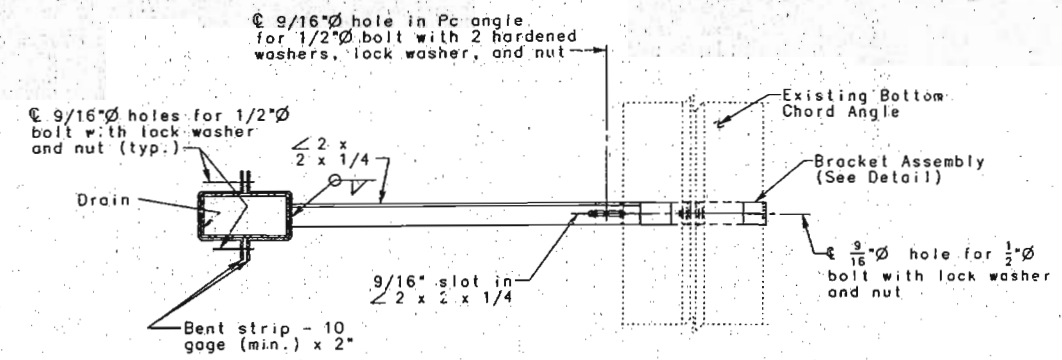
All bolts, hardened washers, lock washers and nuts shall be galvanized in accordance with A.S.T.M. A153.

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

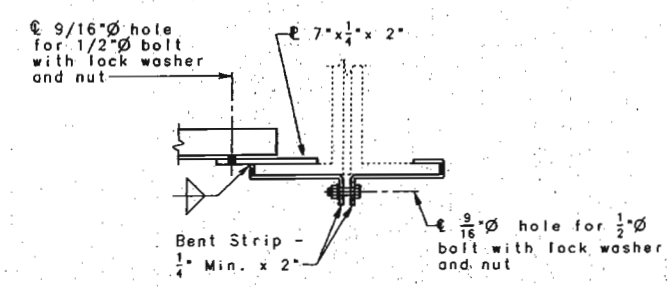
The cost of furnishing, fabricating and installing the drains and bracket assemblies, complete-in-place, will be paid for at the contract unit price for Slab Drain (Deck Truss Spans) per each.



PART SECTION NEAR DRAIN

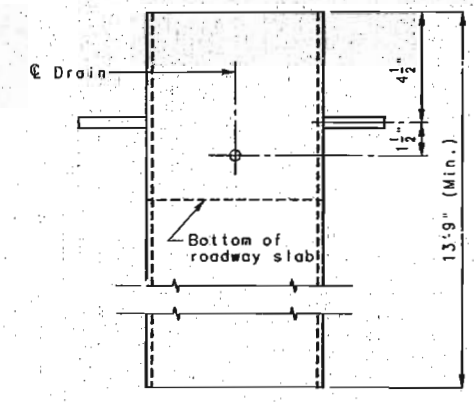


PART SECTION SHOWING BRACKET ASSEMBLY

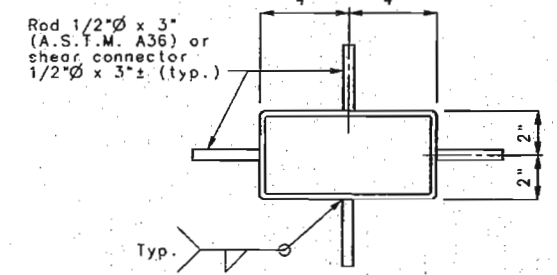


DETAIL OF BRACKET ASSEMBLY

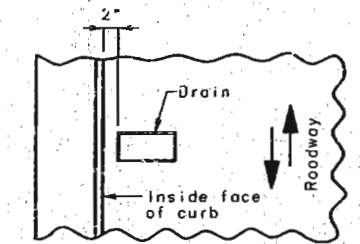
SLAB DRAIN DETAILS



ELEVATION OF DRAIN

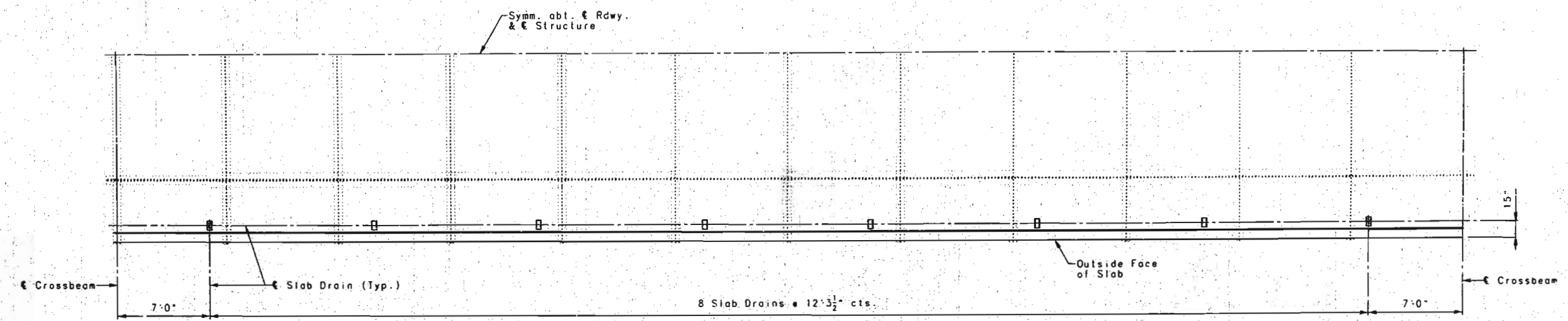


PLAN OF DRAIN



PART PLAN OF SLAB AT DRAIN
DETAILS OF DRAINS TRANSVERSE
TO ROADWAY

Note: Stay-In-Place forms not shown for clarity.



PLAN OF DECK TRUSS APPROACH SPAN (8-9) SLAB
SHOWING SLAB DRAIN LOCATIONS

DETAILED SEPT. 1995
CHECKED NOV. 1995

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

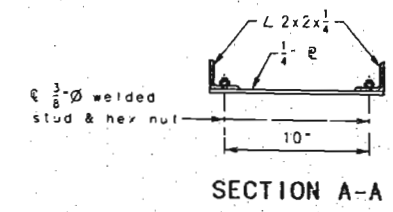
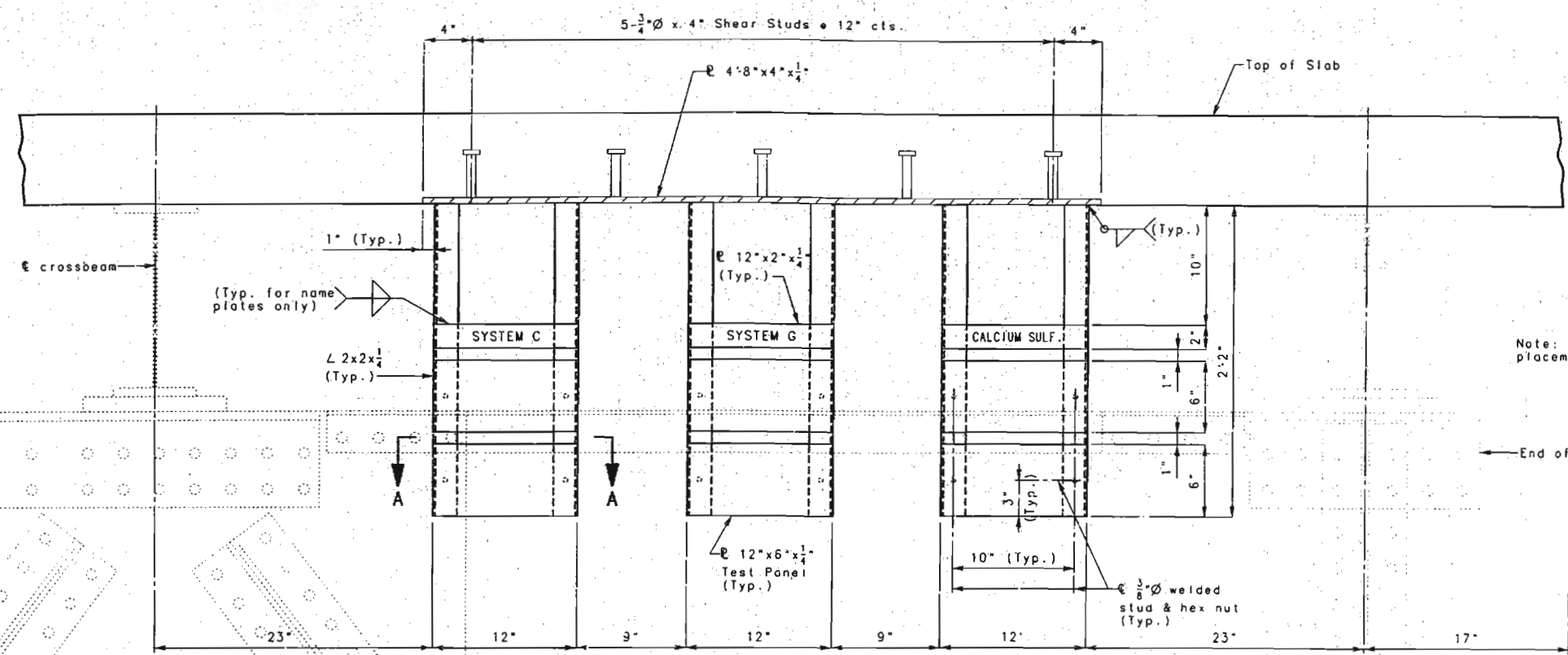
SHEET NO. 45 OF 97

FRANKLIN-WARREN COUNTIES K09691

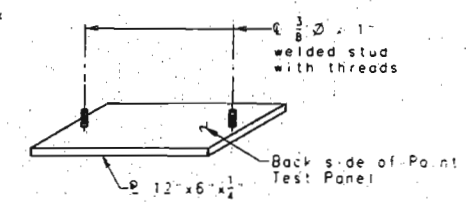
315

1024

STATE	PROJ. NO.	SHEET NO.
MO:		80

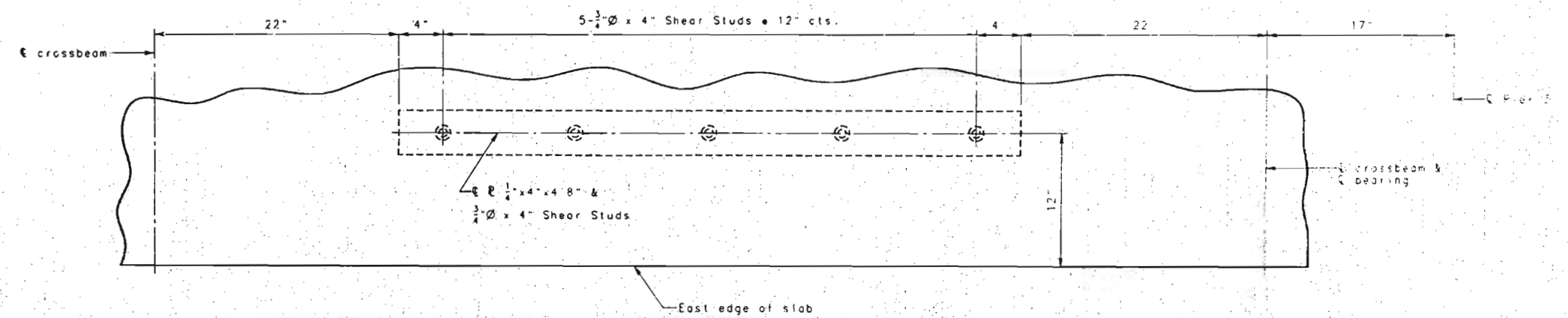


Note: Shift slab reinforcement as necessary for placement of Paint Test Panel Bracket in slab.
Stay-In-Place Forms not shown for clarity.



Note: Paint Test Panel attachment studs shall be insulated from the support angles with non-conductive bushings & washers.
Paint Test Panels shall be installed and paid for in accordance with the Job Special Provisions.

ELEVATION OF SPAN (2-3) DECK TRUSS (EAST SIDE) SHOWING PAINT TEST PANEL DETAILS



PART PLAN OF SLAB SHOWING PANEL BRACKET ATTACHMENT TO SLAB

Note: Also in Sheet with Sheet No. 52.

89 3/16

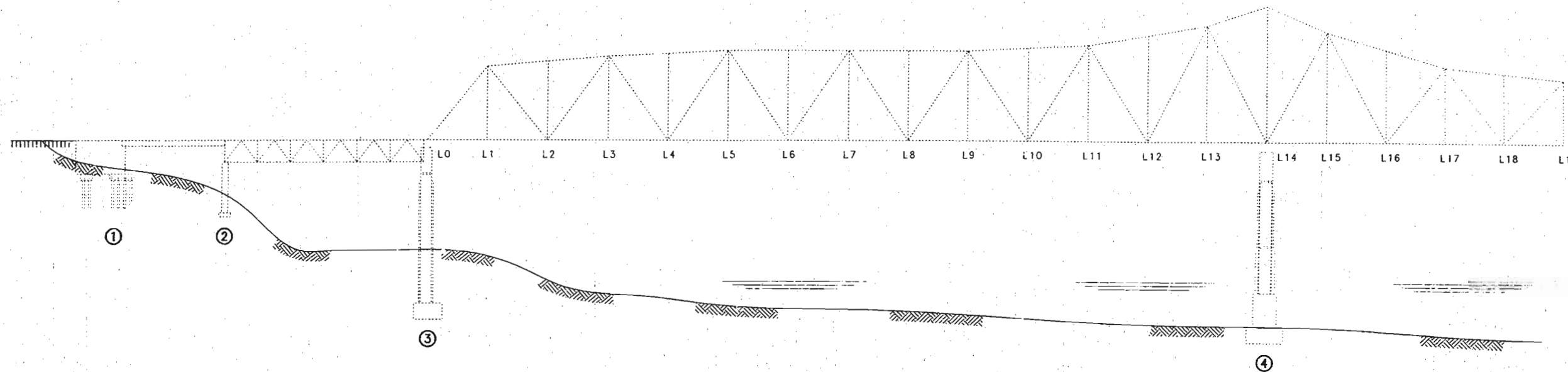
DETAILED SEPT. 1995
CHECKED: NOV. 1995

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

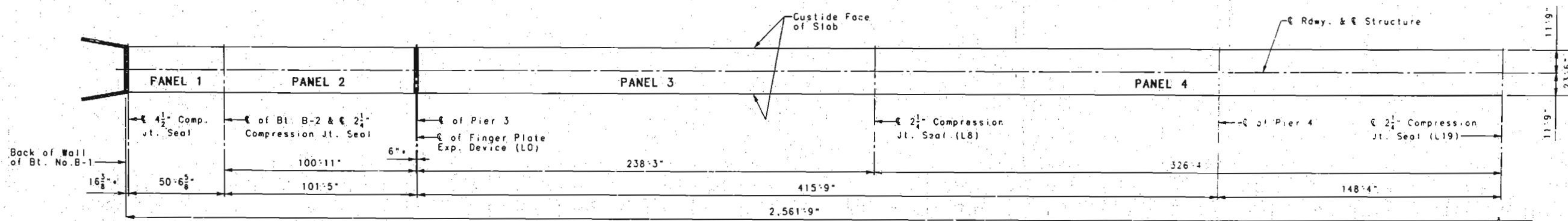
SHEET NO. 46 OF 97

FRANKLIN-WARREN COUNTIES K09691

STATE	PROJ. NO.	SHEET NO.
MO.		81



PART GENERAL ELEVATION



PART PLAN OF SLAB

• Dimension at 60° F.
 See Sheet No. 51 for Panel 1 Slab Details.
 See Sheet No. 52 for Panel 2 Slab Details.
 See Sheet No. 54 for Panel 3 Slab Details.
 See Sheet No. 55 for Panel 4 Slab Details.

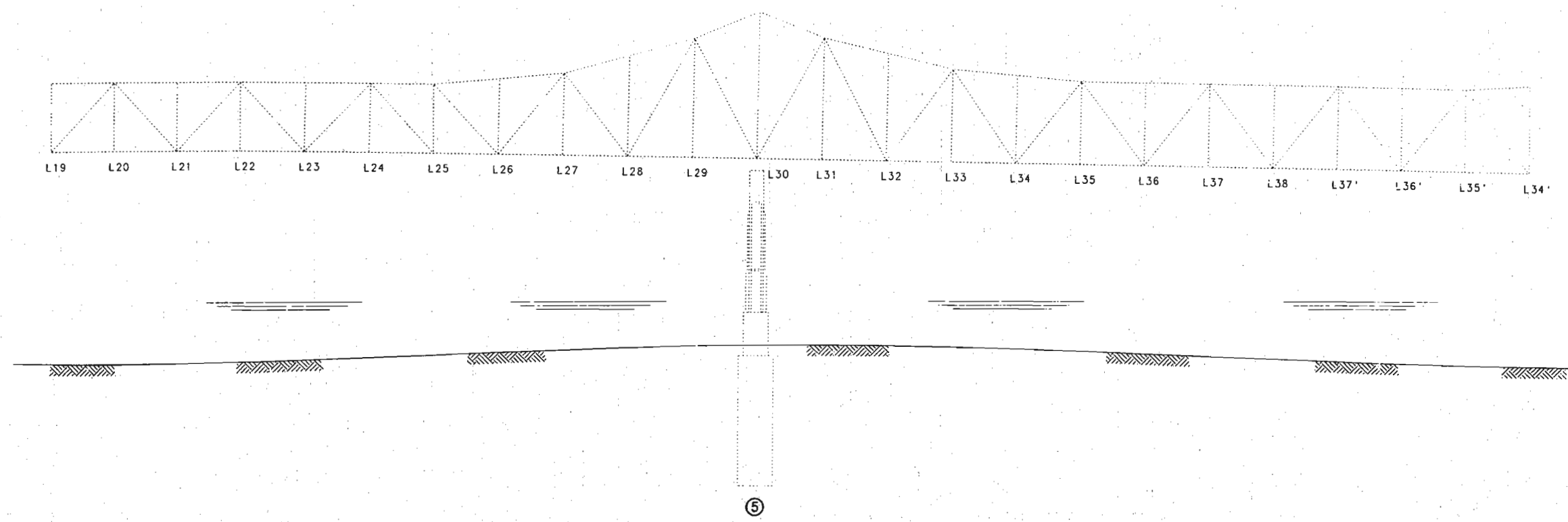
982717
 DETAILED AUG. 1995
 CHECKED NOV. 1995

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

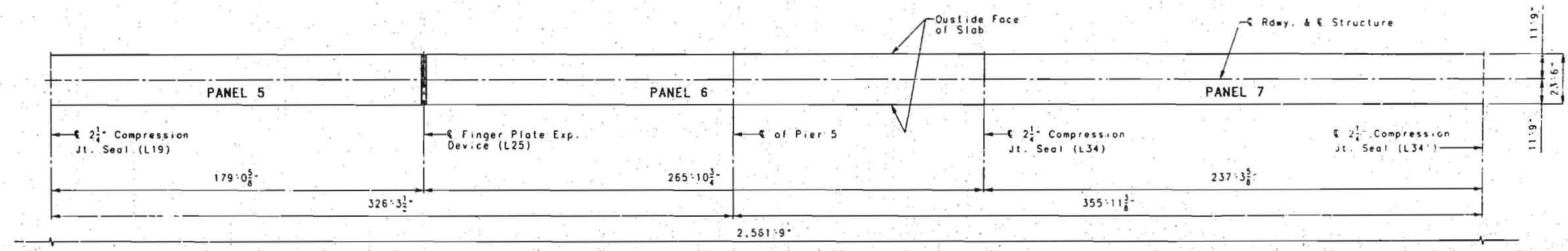
SHEET NO. 47 OF 97

FRANKLIN-WARREN COUNTIES K09691

STATE	PROJ. NO.	SHEET NO.
MO.		82



⑤
PART GENERAL ELEVATION



PART PLAN OF SLAB

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See Sheet No. 56 for Panel 5 Slab Details.
See Sheet No. 57 for Panel 6 Slab Details.
See Sheet No. 58 for Panel 7 Slab Details.

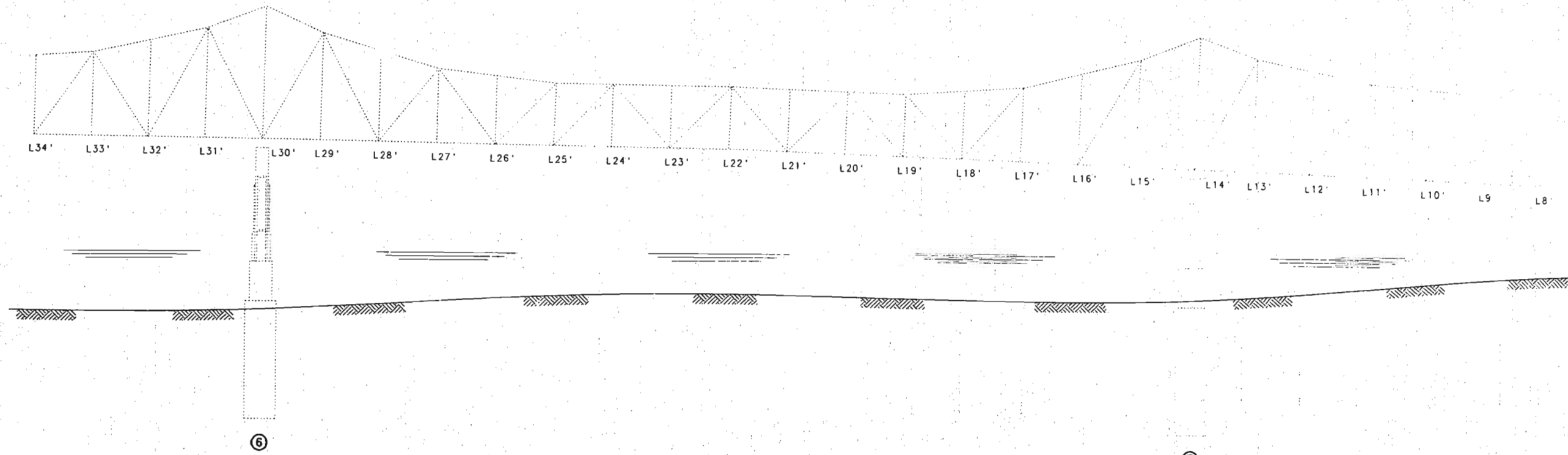
DETAILED AUG. 1995
CHECKED NOV. 1995

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

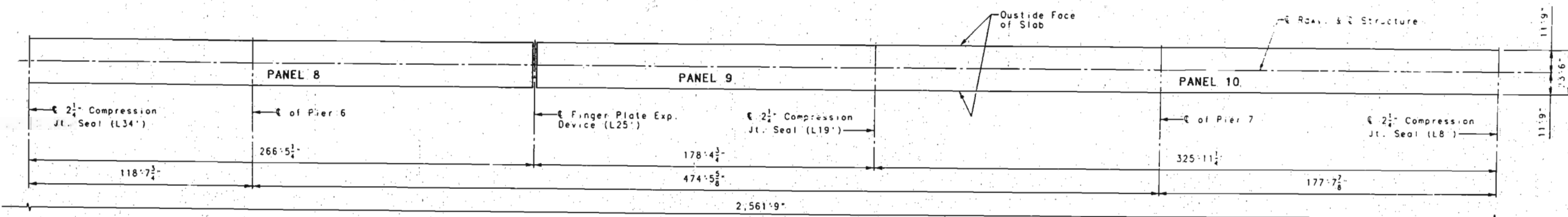
SHEET NO. 48 OF 97

FRANKLIN-WARREN COUNTIES K09691

STATE	PROJ. NO.	SHEET NO.
MO.		83



PART GENERAL ELEVATION



PART PLAN OF SLAB

See Sheet No. 59 for Panel 8 Slab Details.
 See Sheet No. 60 for Panel 9 Slab Details.
 See Sheet No. 61 for Panel 10 Slab Details.

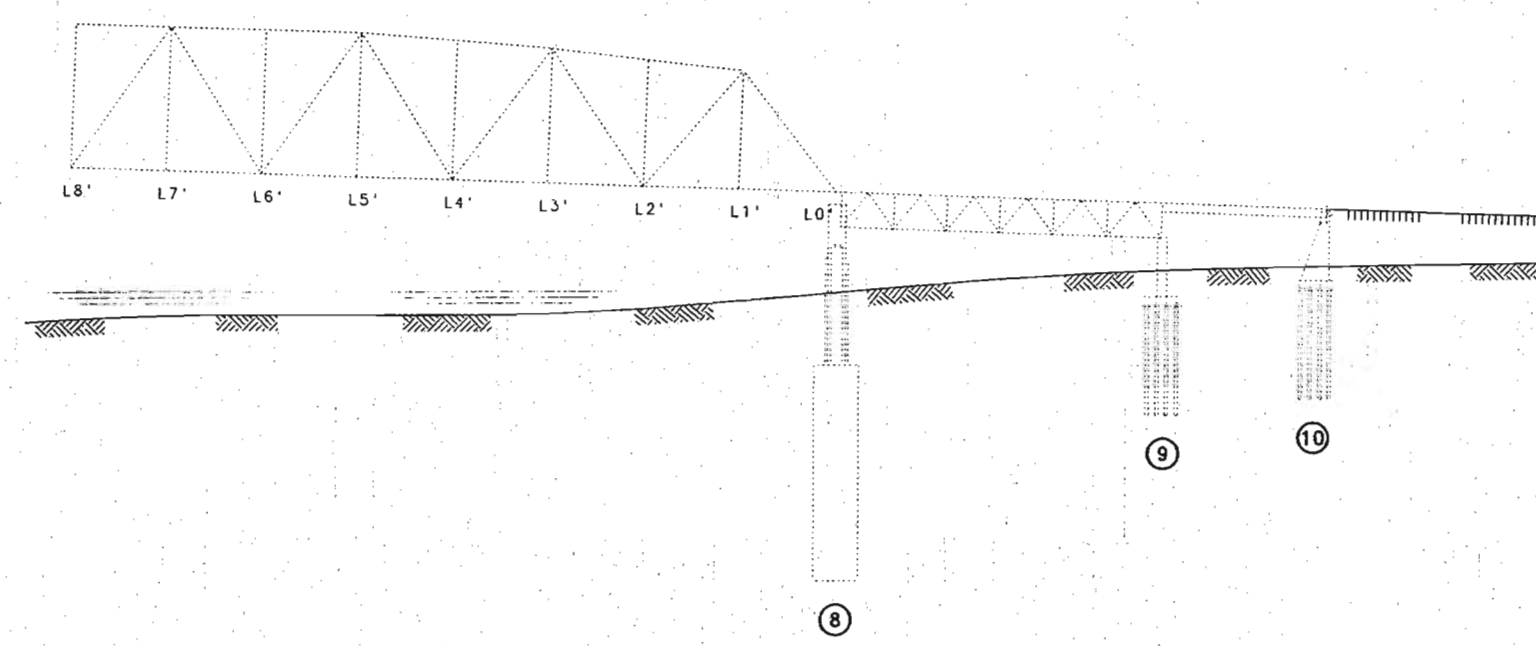
92 319
 DETAILED AUG. 1995
 CHECKED NOV. 1995

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

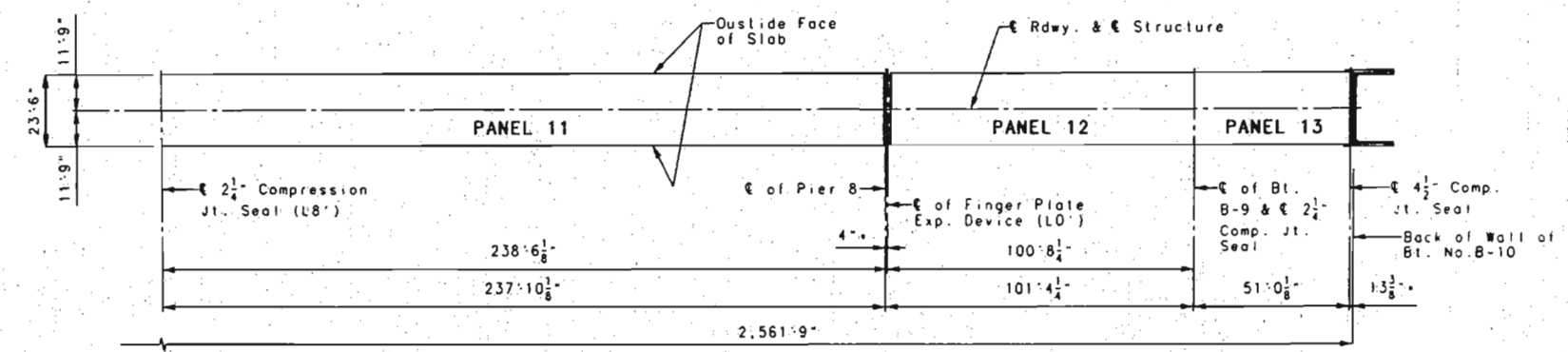
SHEET NO. 49 OF 97

FRANKLIN-WARREN COUNTIES K09691

STATE	PROJ. NO.	SHEET NO.
MO.		84



PART GENERAL ELEVATION



PART PLAN OF SLAB

• Dimension • 60" F.
 See Sheet No. 62 for Panel 11 Slab Details.
 See Sheet No. 65 for Panel 12 Slab Details.
 See Sheet No. 66 for Panel 13 Slab Details.

93-3020

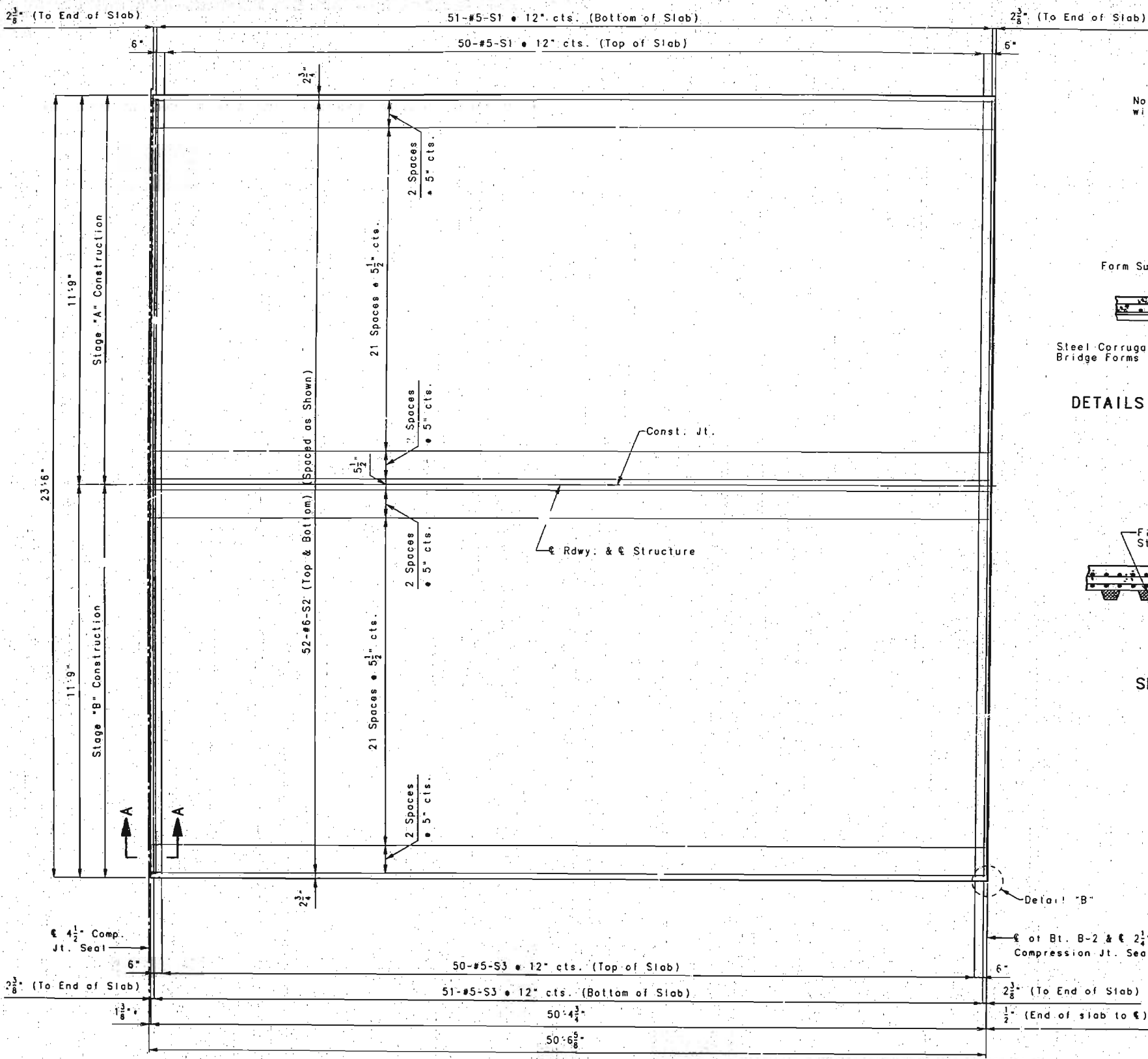
DETAILED AUG. 1995
 CHECKED NOV. 1995

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

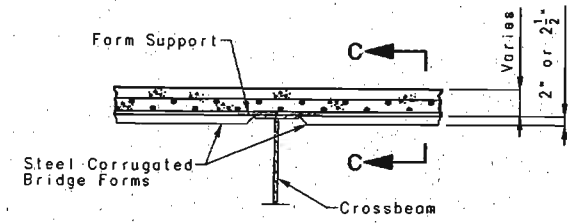
SHEET NO. 50 OF 97

FRANKLIN-WARREN COUNTIES K09691

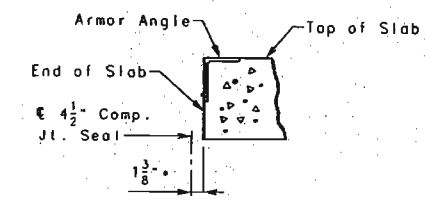
STATE	PROJ. NO.	SHEET NO.
MO.		85



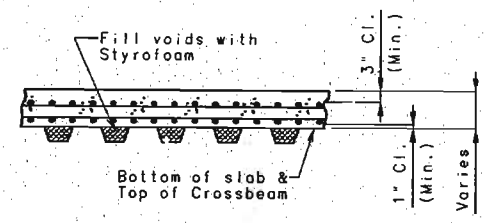
Note: Each #5-S1 to be joined with a #5-S3 with an epoxy coated mechanical bar splice.



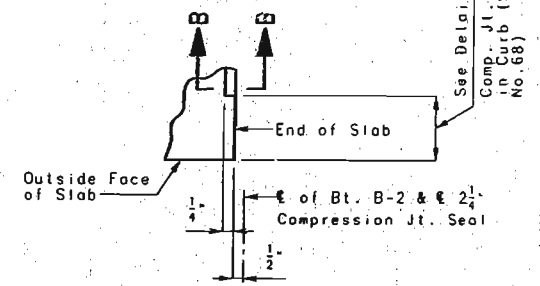
DETAILS OF STAY-IN-PLACE FORMS



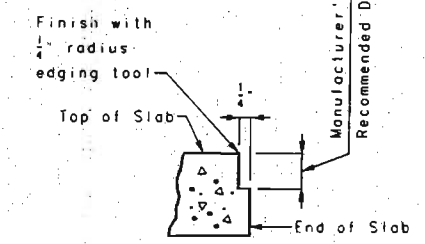
PART SECTION A-A



SECTION C-C



DETAIL "B"



PART SECTION B-B

• Dimension at 60° F.

Note: See Sheet No 30 for details of 4 1/2" Comp. Jt. Seal.
 See Sheet No.53 for Typical Section Thru Slab.
 See Sheet No.42 for details of Slab Drains.
 See Sheet No.68 for details and reinforcement of curb.

Note: All Dimensions shown are Horizontal.
 See Sheet No.47 for location of Panel 1.

94 321

PANEL 1 SLAB DETAILS

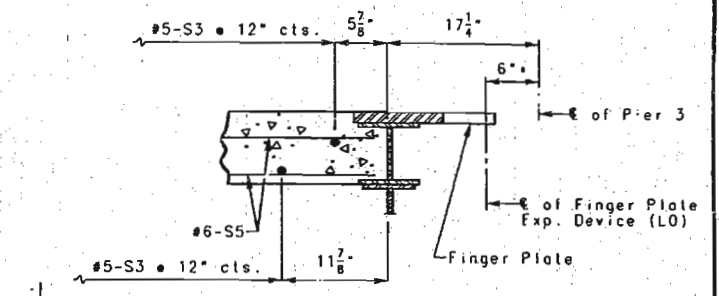
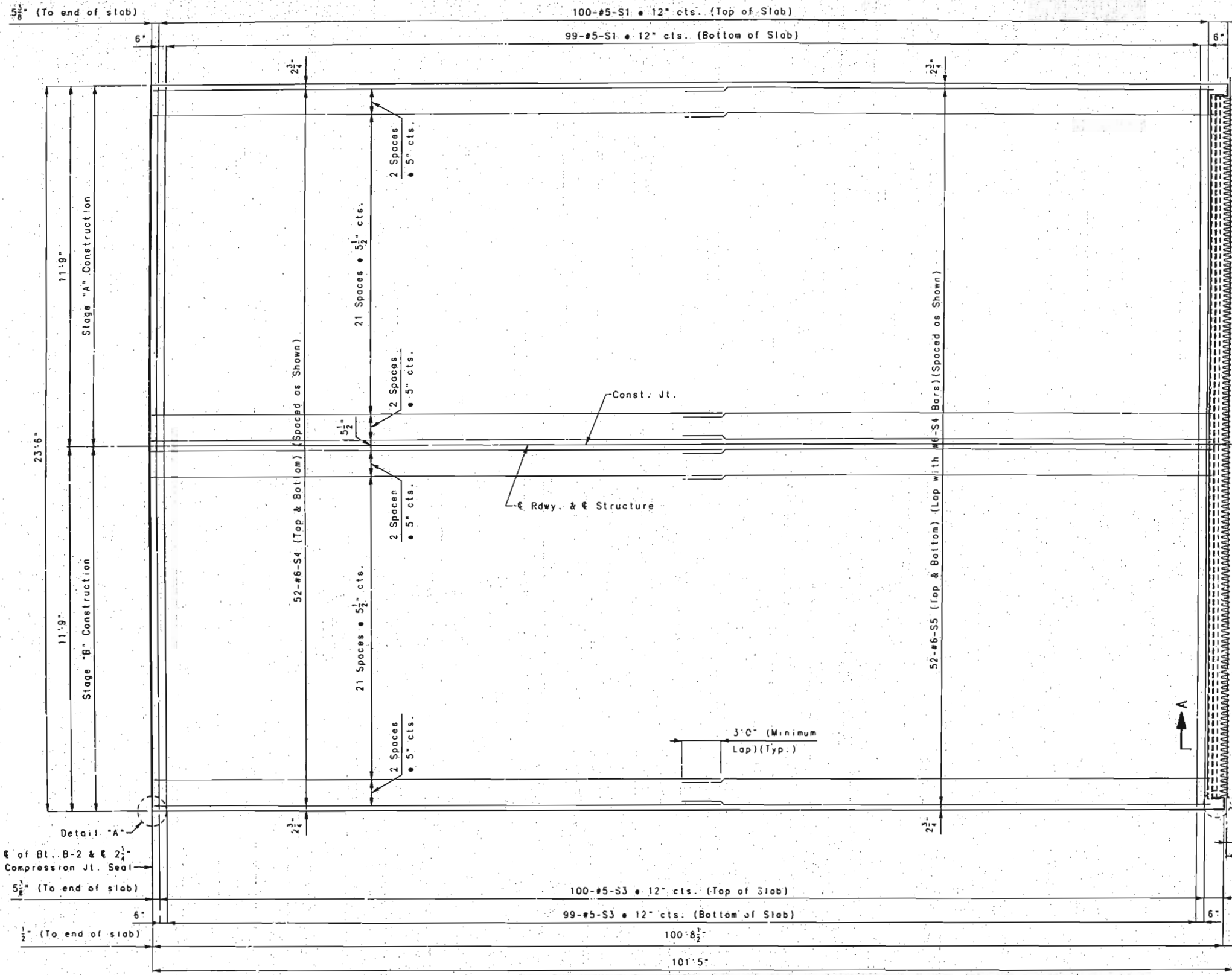
DETAILED AUG. 1995
 CHECKED NOV. 1995

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

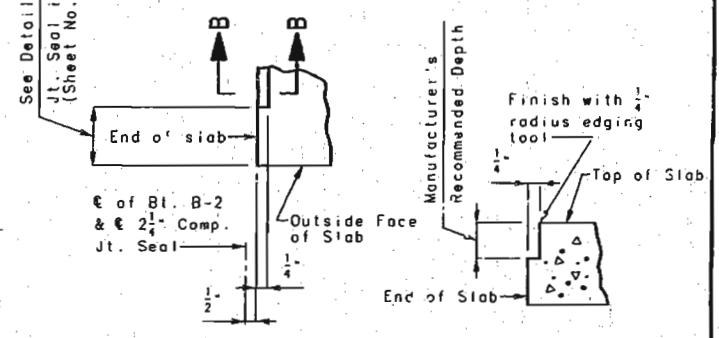
SHEET NO. 51 OF 97

FRANKLIN-WARREN COUNTIES K09691

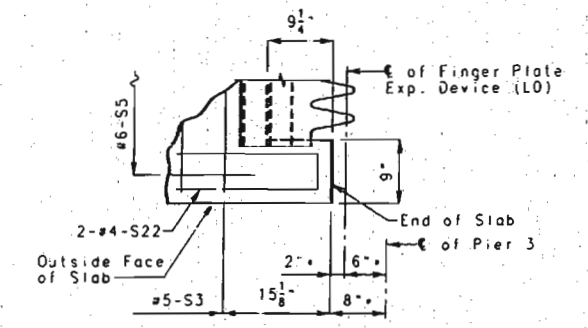
STATE	PROJ. NO.	SHEET NO.
MO.		86



PART SECTION A-A



DETAIL "A" PART SECTION B-B



DETAIL "B"

PANEL 2 SLAB DETAILS

Note: Each #5-S1 to be joined with a #5-S3 with an epoxy coated mechanical bar splice.

Note: All Dimensions shown are Horizontal.
See Sheet No. 47 for location of Panel 2.
See Sheet No. 51 for details of Stay-In-Place Forms.
See Sheet No. 46 for details of Paint Test Panels.

Note: See Sheet No. 53 for Typical Section Thru Slab.
See Sheet No. 43 for details of Slab Drains.
See Sheet No. 31 for Finger Plate Expansion Device Details.
See Sheet No. 68 for details and reinforcement of curb.

95 Jdd
DETAILED AUG. 1995
CHECKED NOV. 1995

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

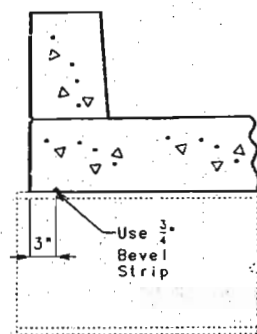
SHEET NO. 52 OF 97

FRANKLIN-WARREN COUNTIES K09691

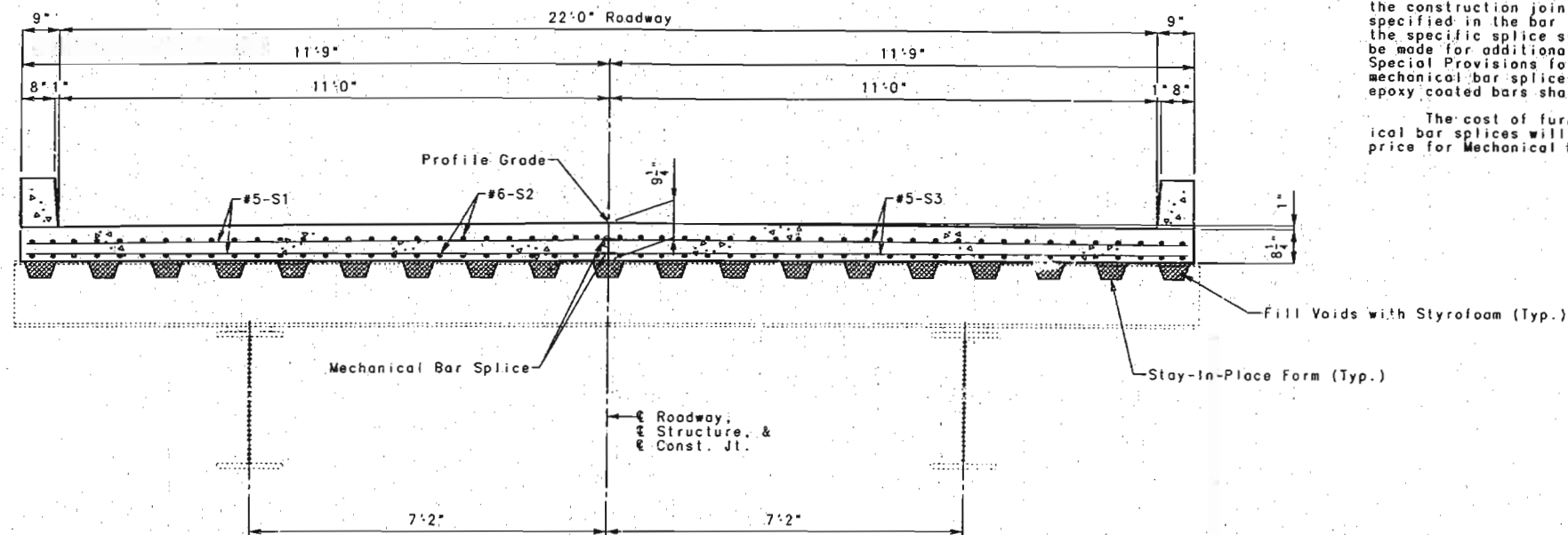
STATE	PROJ. NO.	SHEET NO.
MO.		87

Note: The contractor shall use a mechanical bar splice for the #5-S1 and #5-S3 bars at the specified location. The total bar lengths for the S1 and S3 bars shown 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. Extra bar lengths from that specified in the bar list may be required depending on the specific splice system to be used. No payment will be made for additional bar lengths added. See job Special Provisions for additional requirements of mechanical bar splices. Mechanical bar splices for epoxy coated bars shall be epoxy coated.

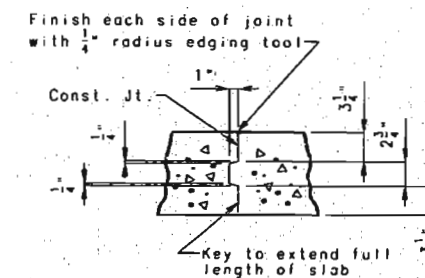
The cost of furnishing and installing these mechanical bar splices will be paid for at the contract unit price for Mechanical Bar Splice (Epoxy Coated) Per Each.



EDGE OF SLAB DETAIL FOR C.I.P. OPTION

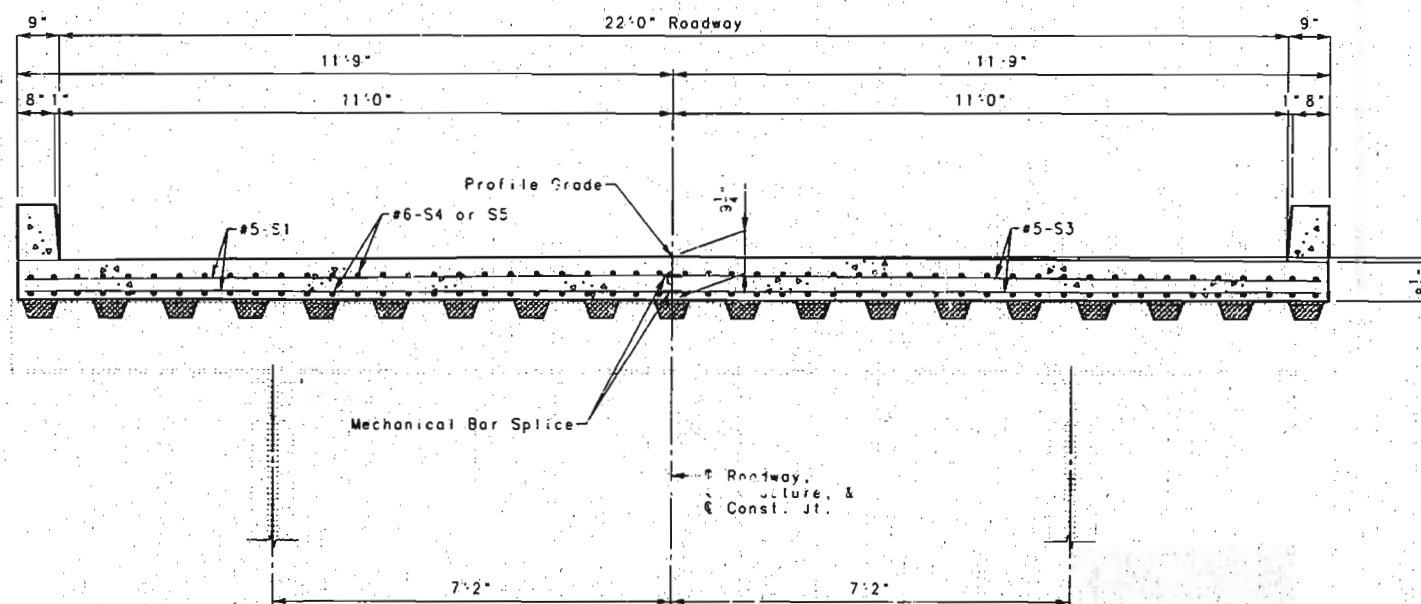


PANEL 1 TYPICAL SECTION THRU SLAB



DETAIL OF LONGITUDINAL CONSTRUCTION JOINT

Note: The dimensions of the construction joint key may be adjusted to accommodate the mechanical bar splices.



PANEL 2 TYPICAL SECTION THRU SLAB

Note: The Contractor shall pour and satisfactorily finish the roadway slab at a rate of not less than 25 cubic yards per hour.

Machine finishing as specified in Section 703.3.14 will not be required.

Note: See Sheet No. 51 for Panel 1 Details.

See Sheet No. 52 for Panel 2 Details.

DETAILED AUG. 1995
CHECKED NOV. 1995

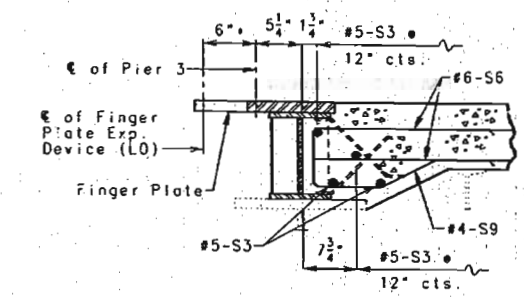
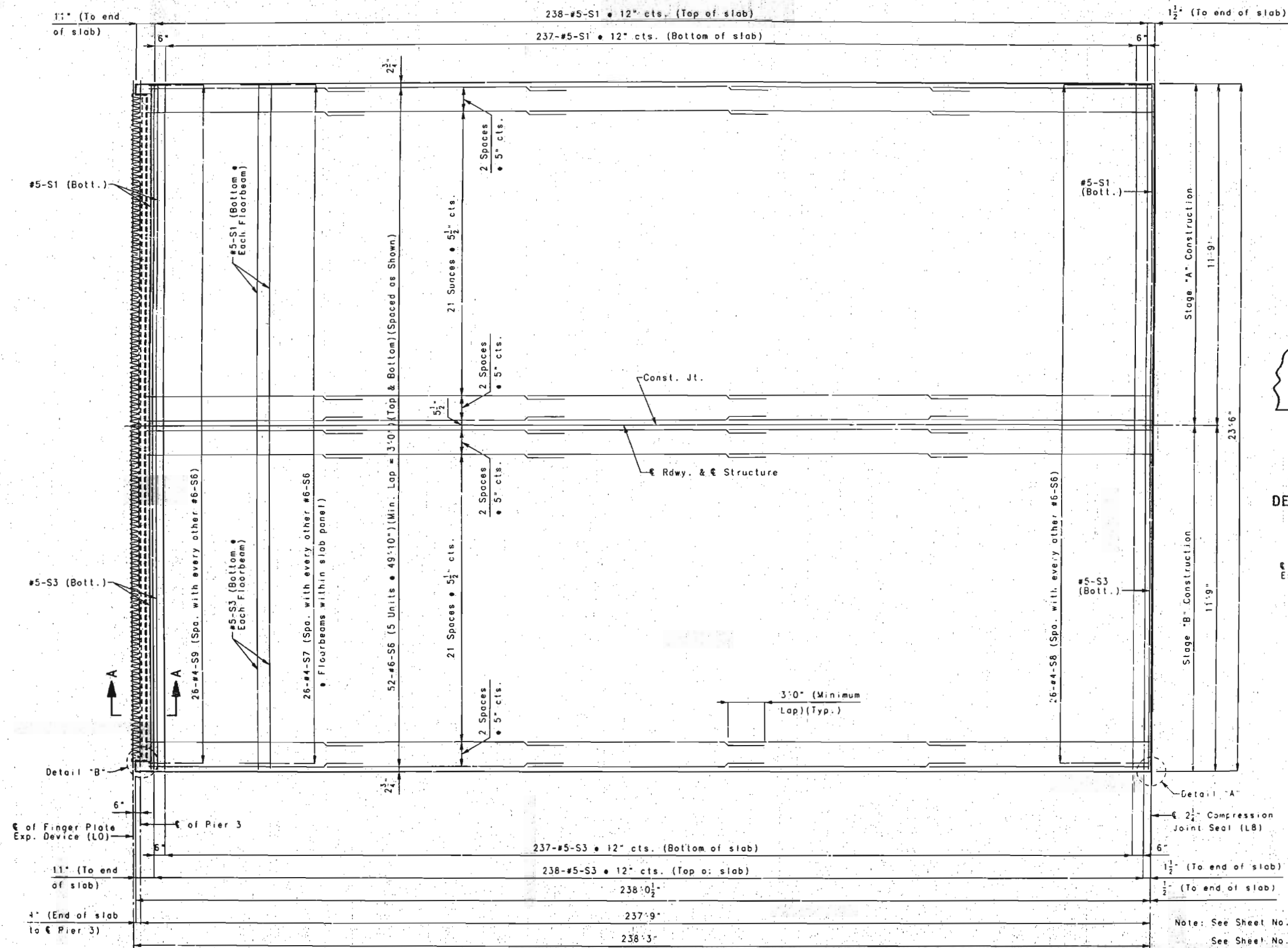
NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

SHEET NO. 53 OF 57

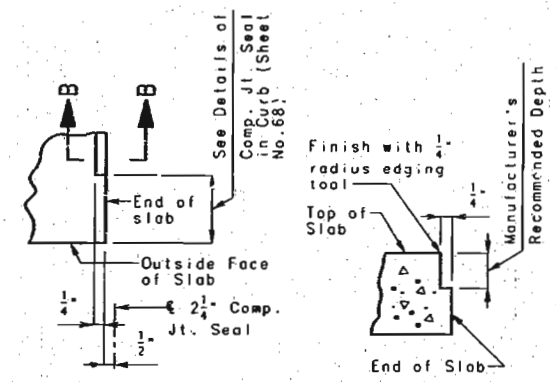
FRANKLIN-WARREN COUNTIES K09691

97-324

STATE	PROJ. NO.	SHEET NO.
MO.		88

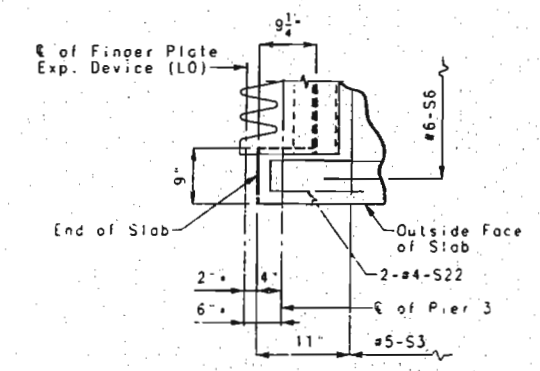


PART SECTION A-A



DETAIL 'A'

PART SECTION B-B



DETAIL 'B'

* Dimension at 60° F.

Note: All dimensions shown are Horizontal.
Slab haunches not shown for clarity.
Each #5-S1 to be joined with a #5-S3 with an epoxy coated mechanical bar splice.

Note: See Sheet No. 64 for Typical Section Thru Slab.
See Sheet No. 44 for details of Slab Drains.
See Sheet No. 31 for Finger Plate Expansion Device details.
See Sheet No. 68 for details and reinforcement of curb.

Note: See Sheet No. 47 for location of Panel 3.
See Sheet No. 63 for Slab haunch reinforcement details.
See Sheet No. 51 for details of Stay-in-Place Forms.

PANEL 3 SLAB DETAILS

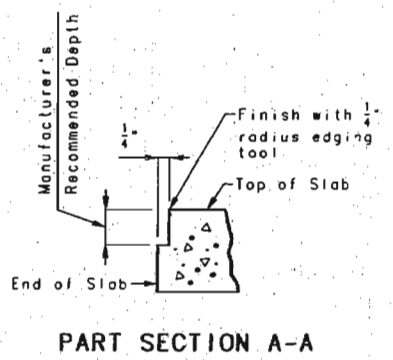
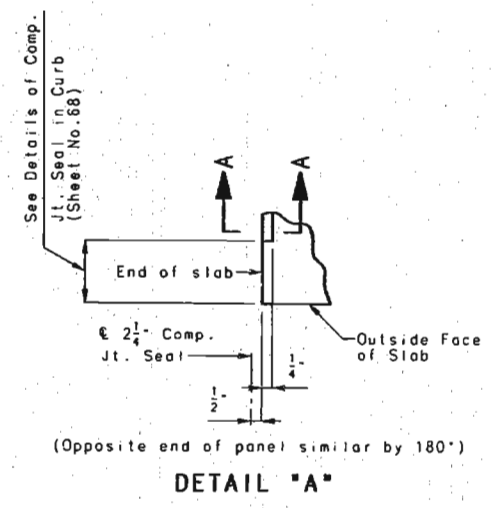
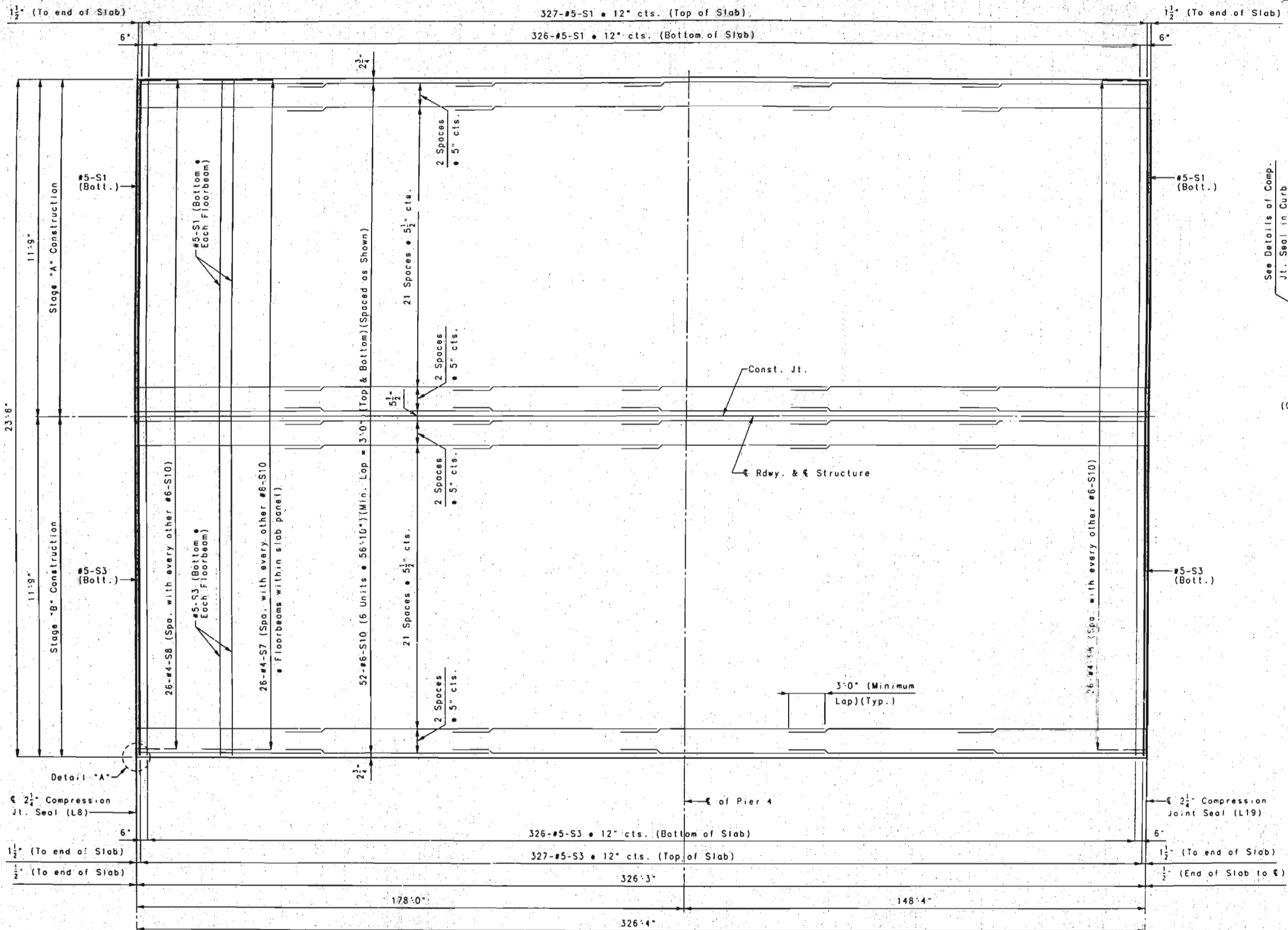
DETAILED AUG. 1995
CHECKED NOV. 1995

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

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Note: Slab haunches not shown for clarity.
 Each #5-S1 to be joined with a #5-S3 with an epoxy coated mechanical bar splice.

PANEL 4 SLAB DETAILS

Note: All Dimensions shown are Horizontal.
 See Sheet No. 47 for location of Panel 4.
 See Sheet No. 63 for slab haunch reinforcement details.
 See Sheet No. 51 for details of Stay-In-Place Forms.

Note: See Sheet No. 64 for Typical Section Thru Slab.
 See Sheet No. 44 for details of Slab Drains.
 See Sheet No. 68 for details and reinforcement of curb.

DETAILED AUG. 1995
 CHECKED NOV. 1995

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

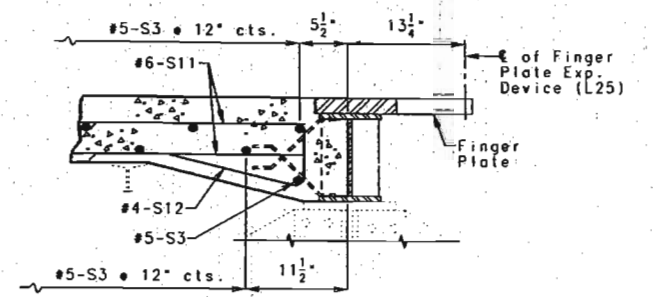
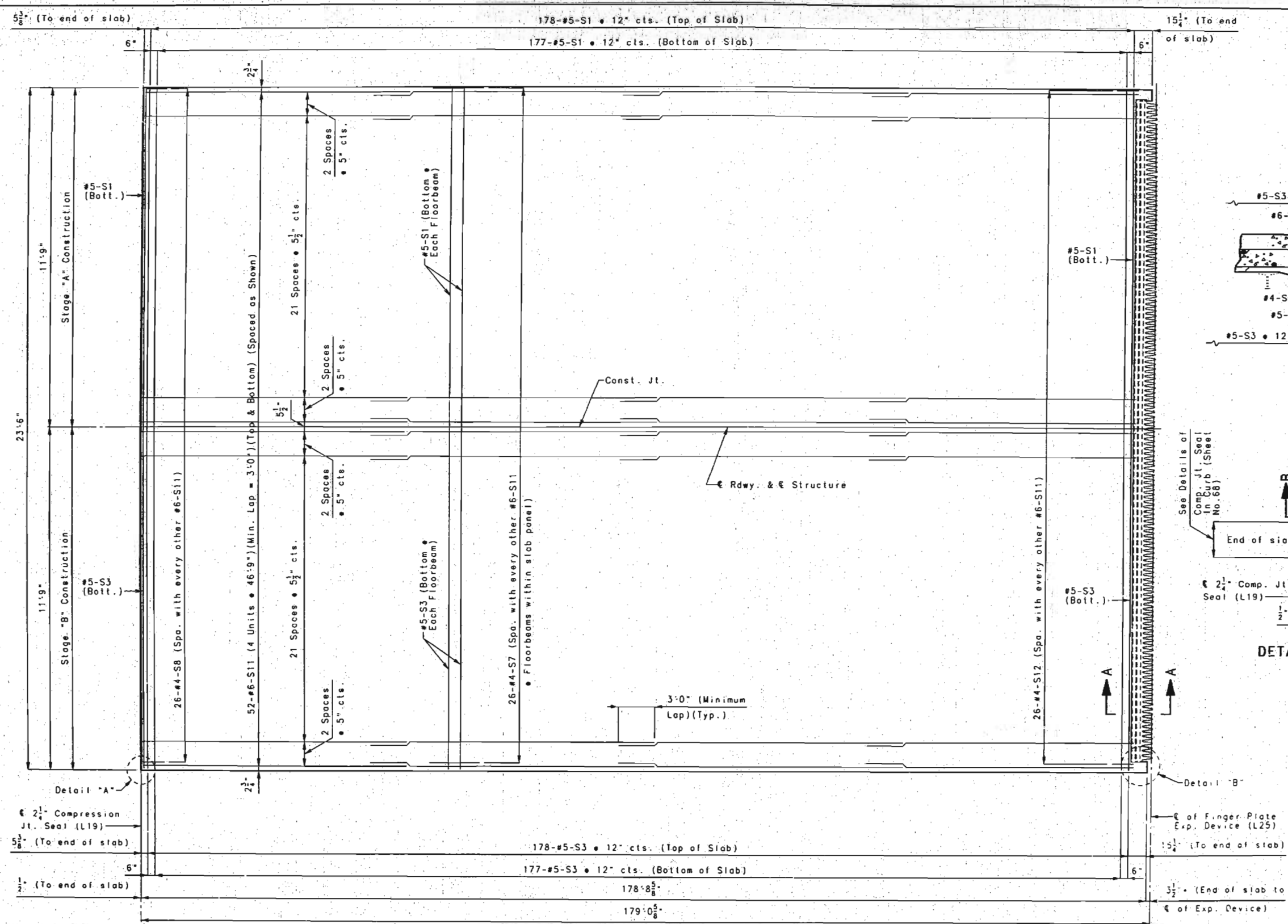
SHEET NO. 55 OF 97

FRANKLIN-WARREN COUNTIES K09691

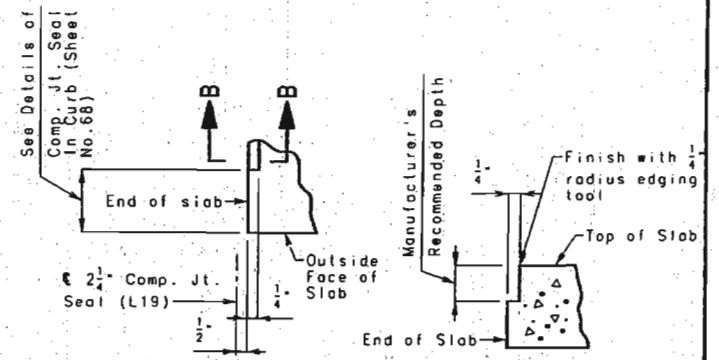
98-325

1024

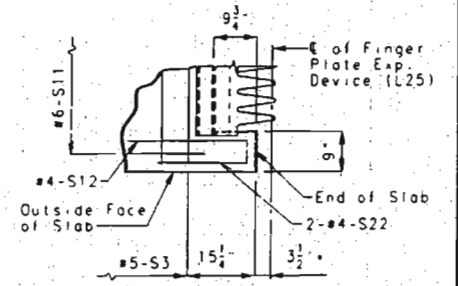
STATE	PROJ. NO.	SHEET NO.
MO.		90



PART SECTION A-A



DETAIL 'A' PART SECTION B-B



DETAIL 'B'

* Dimension at 60° F.

Note: Slab haunches not shown for clarity.
Each #5-S1 to be joined with a #5-S3 with an epoxy coated mechanical bar splice.

Note: All Dimensions shown are horizontal.
See Sheet No. 48 for location of Panel 5.
See Sheet No. 63 for Slab haunch reinforcement details.
See Sheet No. 51 for details of Stay-In-Place Forms.

Note: See Sheet No. 64 for Typical Section Thru Slab.
See Sheet No. 44 for details of Slab Drains.
See Sheet No. 37 for Finger Plate Expansion Device details.
See Sheet No. 68 for details and reinforcement of curb.

PANEL 5 SLAB DETAILS

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

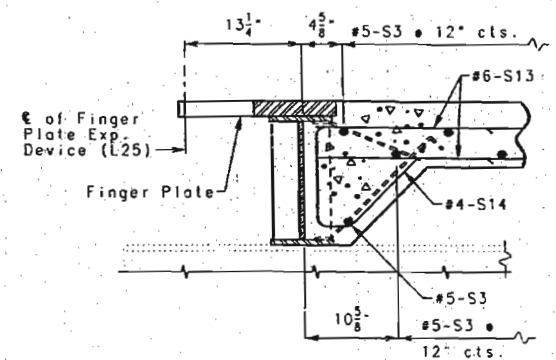
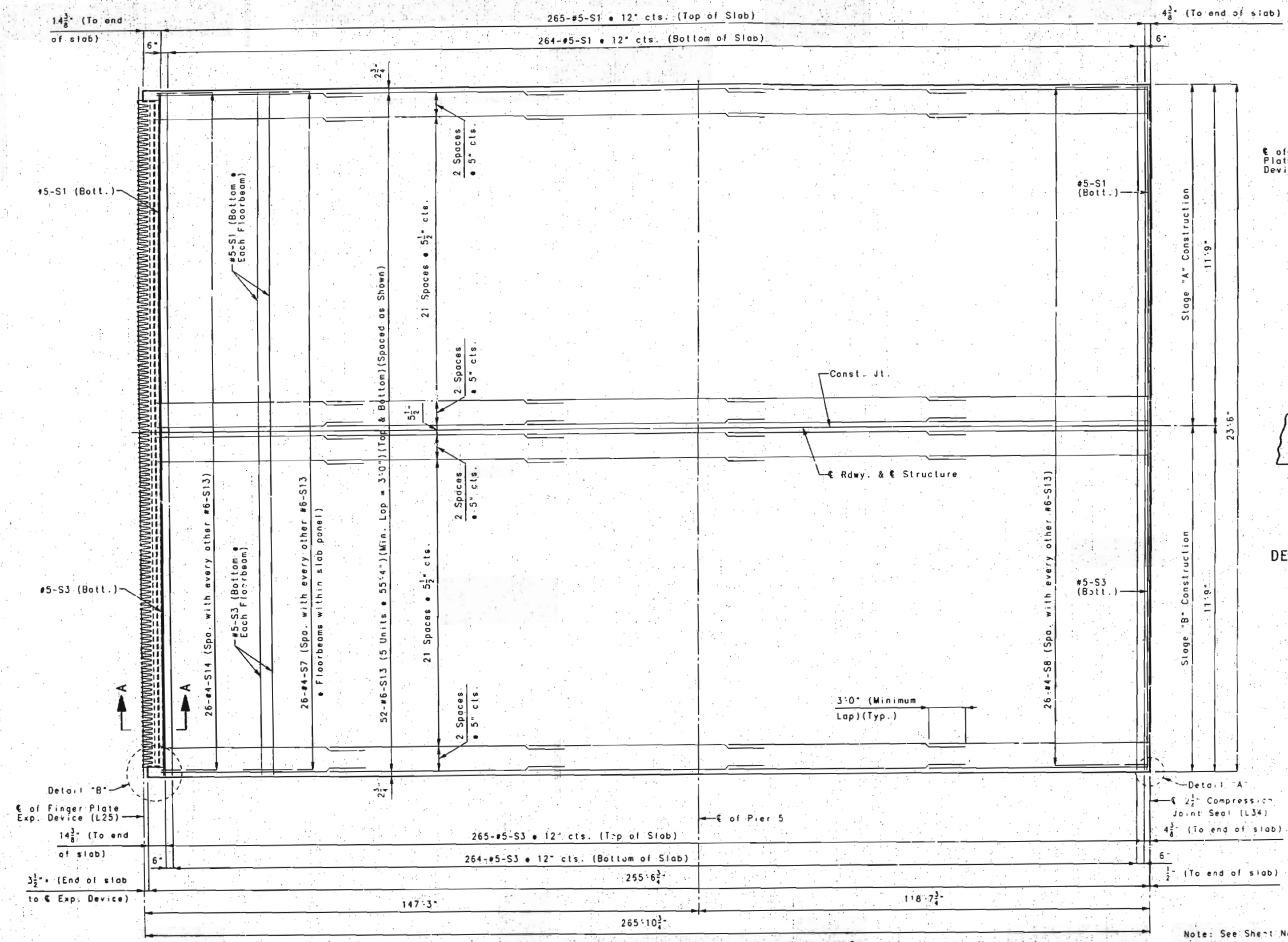
DETAILED AUG. 1995
CHECKED NOV. 1995

SHEET NO. 56 OF 97

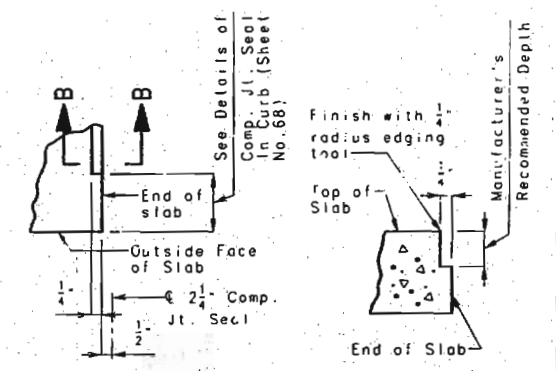
FRANKLIN-WARREN COUNTIES K09691

99 3026

STATE	PROJ. NO.	SHEET NO.
MO.		91

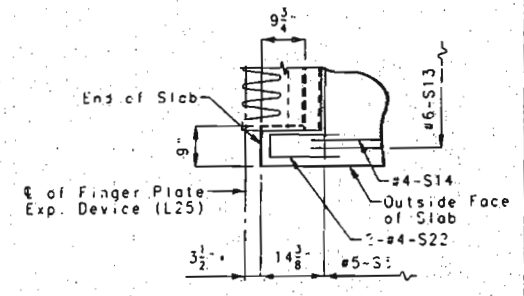


PART SECTION A-A



DETAIL 'A'

PART SECTION B-B



DETAIL 'B'

LSC 387

Note: Each #5-S1 to be joined with a #5-S3 with an epoxy coated mechanical bar splice.
Slab haunches not shown for clarity.

Note: All Dimensions shown are Horizontal.
See Sheet No. 48 for location of Panel 6.
See Sheet No. 63 for Slab haunch reinforcement details.
See Sheet No. 51 for details of Stay-In-Place Forms.

Note: See Sheet No. 54 for Typical Section Thru Slab.
See Sheet No. 44 for details of Slab Drains.
See Sheet No. 37 for Finger Plate Expansion Device details.
See Sheet No. 68 for details and reinforcement of curb.

PANEL 6 SLAB DETAILS

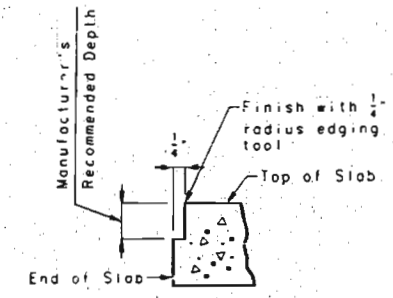
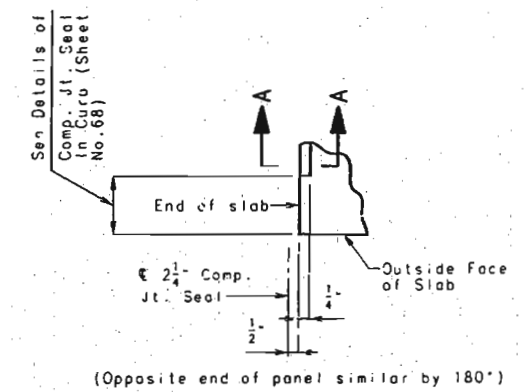
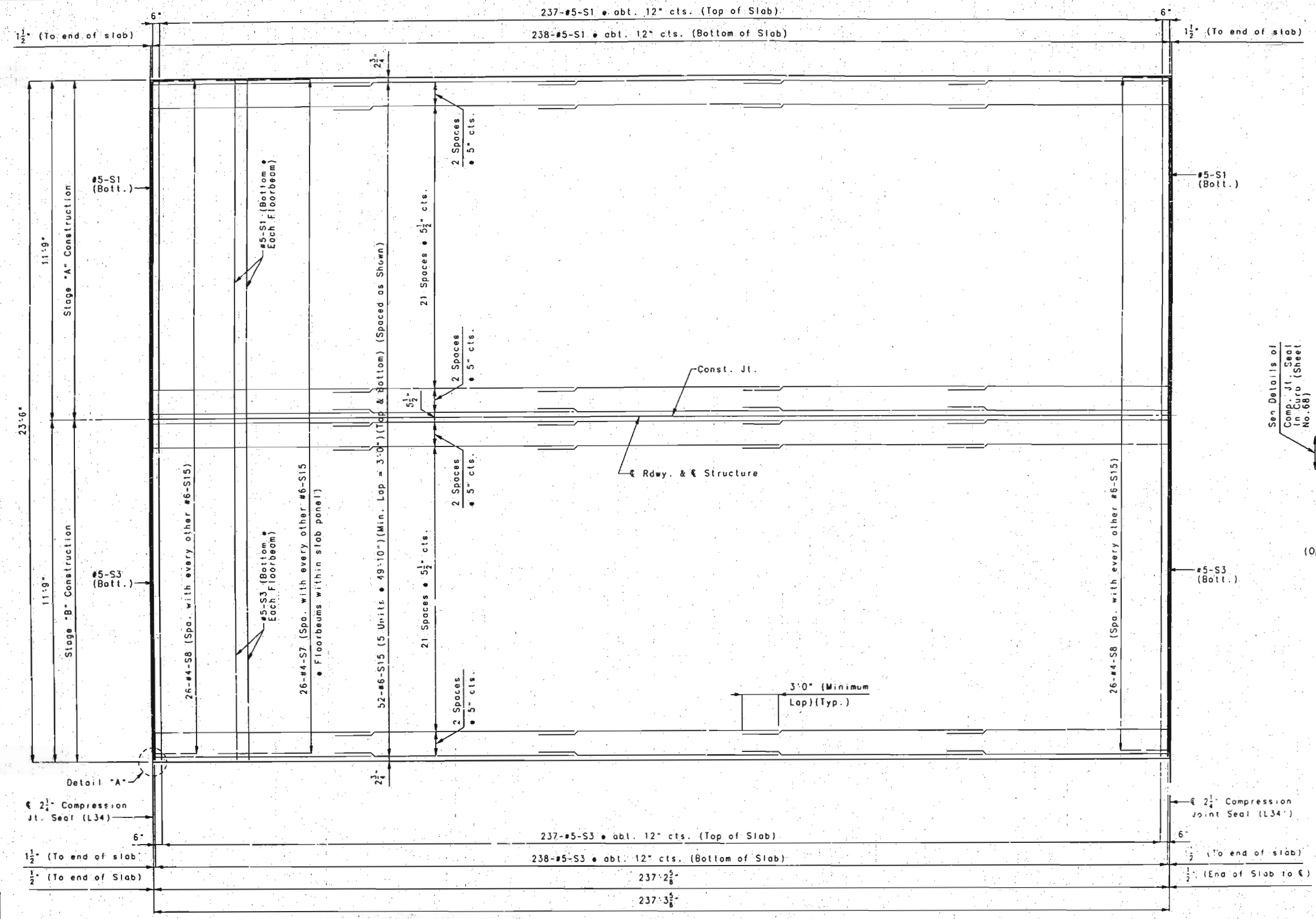
NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

DETAILED AUG. 1995
CHECKED NOV. 1995

SHEET NO. 57 OF 97

FRANKLIN-WARREN COUNTIES K09691

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MO.		92



PANEL 7 SLAB DETAILS

Note: Slab haunches not shown for clarity.
 Each #5-S1 to be joined with a #5-S3 with an epoxy coated mechanical bar splice.

Note: All Dimensions shown are Horizontal.
 See Sheet No. 48 for location of Panel 7.
 See Sheet No. 63 for slab haunch reinforcement details.
 See Sheet No. 51 for details of Stay-In-Place Forms.

Note: See Sheet No. 64 for Typical Section Thru Slab.
 See Sheet No. 44 for details of Slab Drains.
 See Sheet No. 68 for details and reinforcement of curb.

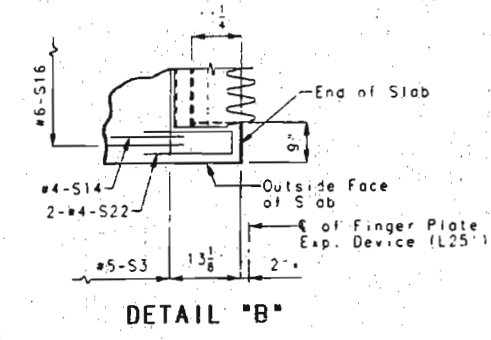
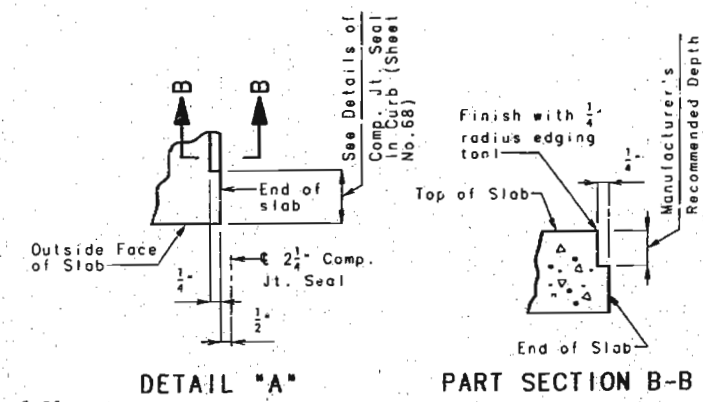
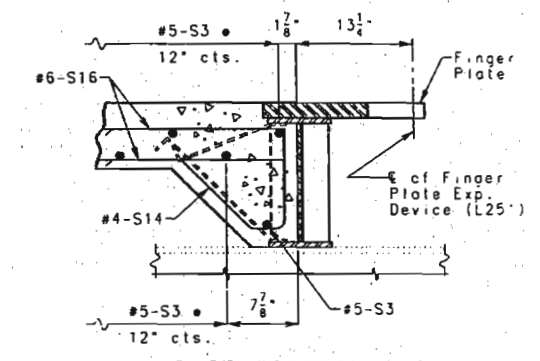
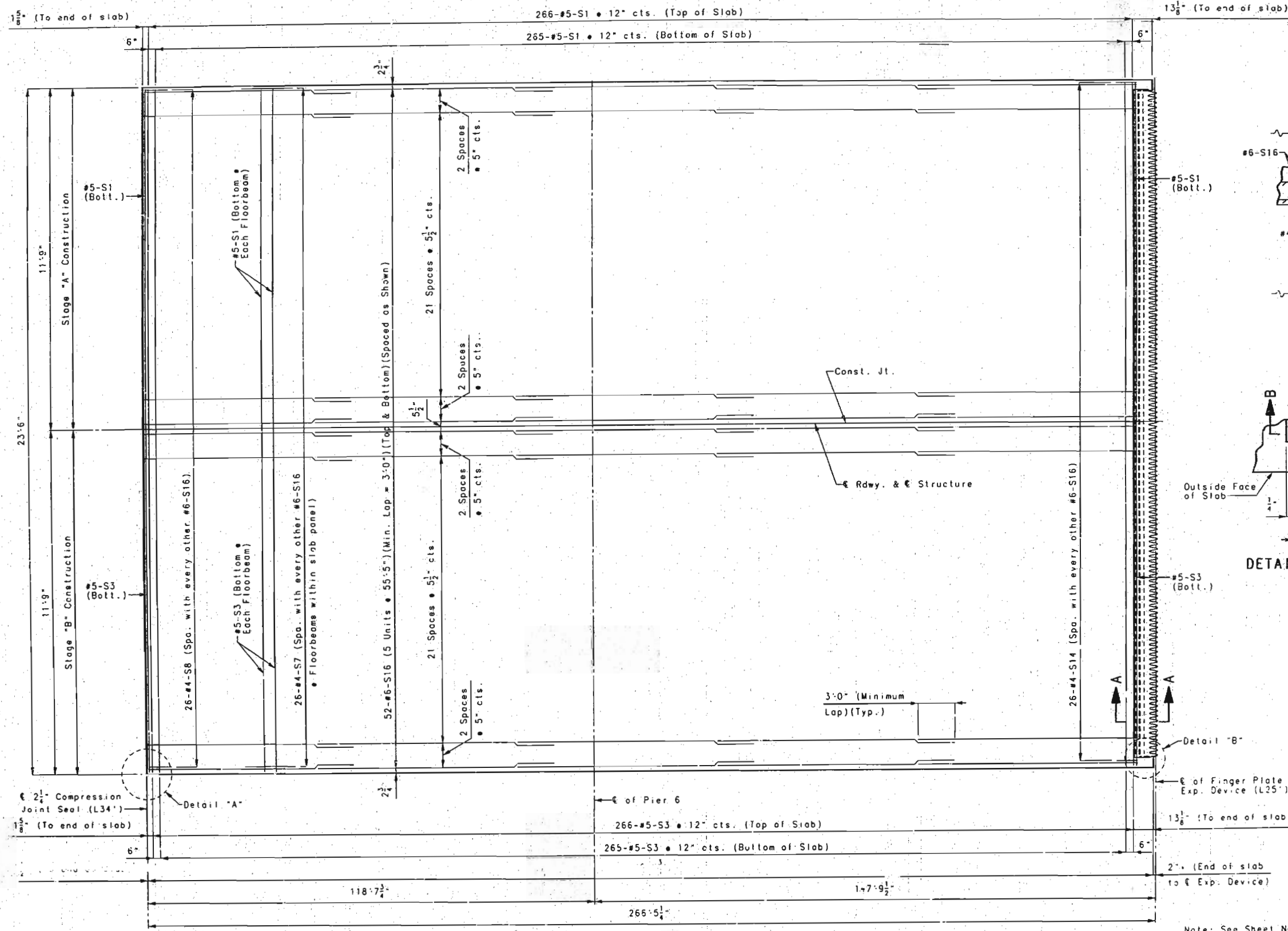
DETAILED AUG. 1995
 CHECKED NOV. 1995

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

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FRANKLIN-WARREN COUNTIES K09691

781 3028



• Dimension at 60° F.

Note: Slab haunches not shown for clarity.
 Each #5-S1 to be joined with a #5-S3 with an epoxy coated mechanical bar splice.

Note: All Dimensions shown are Horizontal.
 See Sheet No. 49 for location of Panel 8.
 See Sheet No. 63 for Slab-haunch reinforcement details.
 See Sheet No. 51 for details of Stay-In-Place Forms.

Note: See Sheet No. 64 for Typical Section Thru Slab.
 See Sheet No. 44 for details of Slab Drains.
 See Sheet No. 39 for Finger Plate Expansion Device details.
 See Sheet No. 69 for details and reinforcement of curb.

PANEL 8 SLAB DETAILS

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

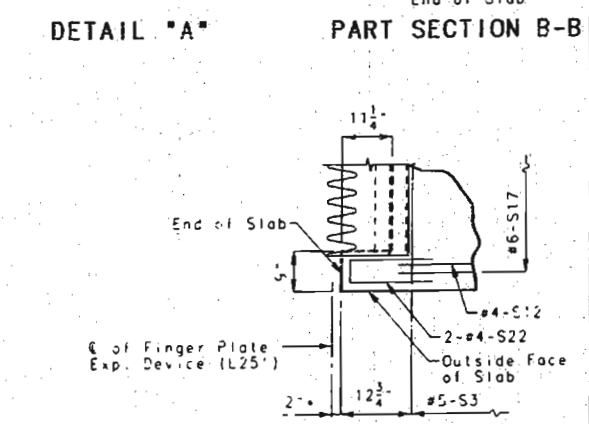
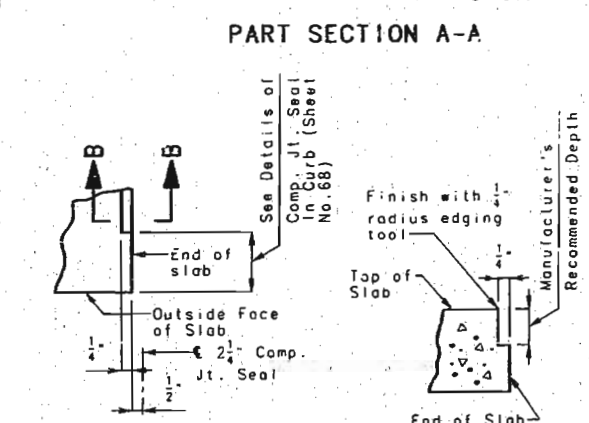
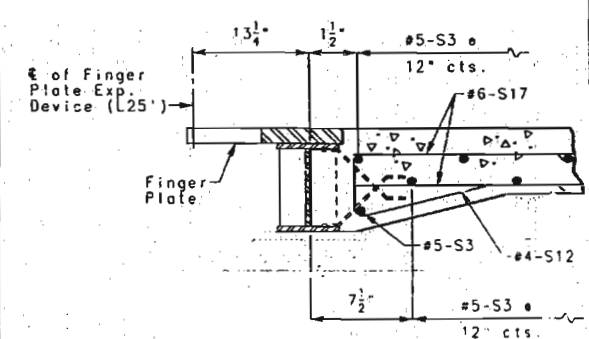
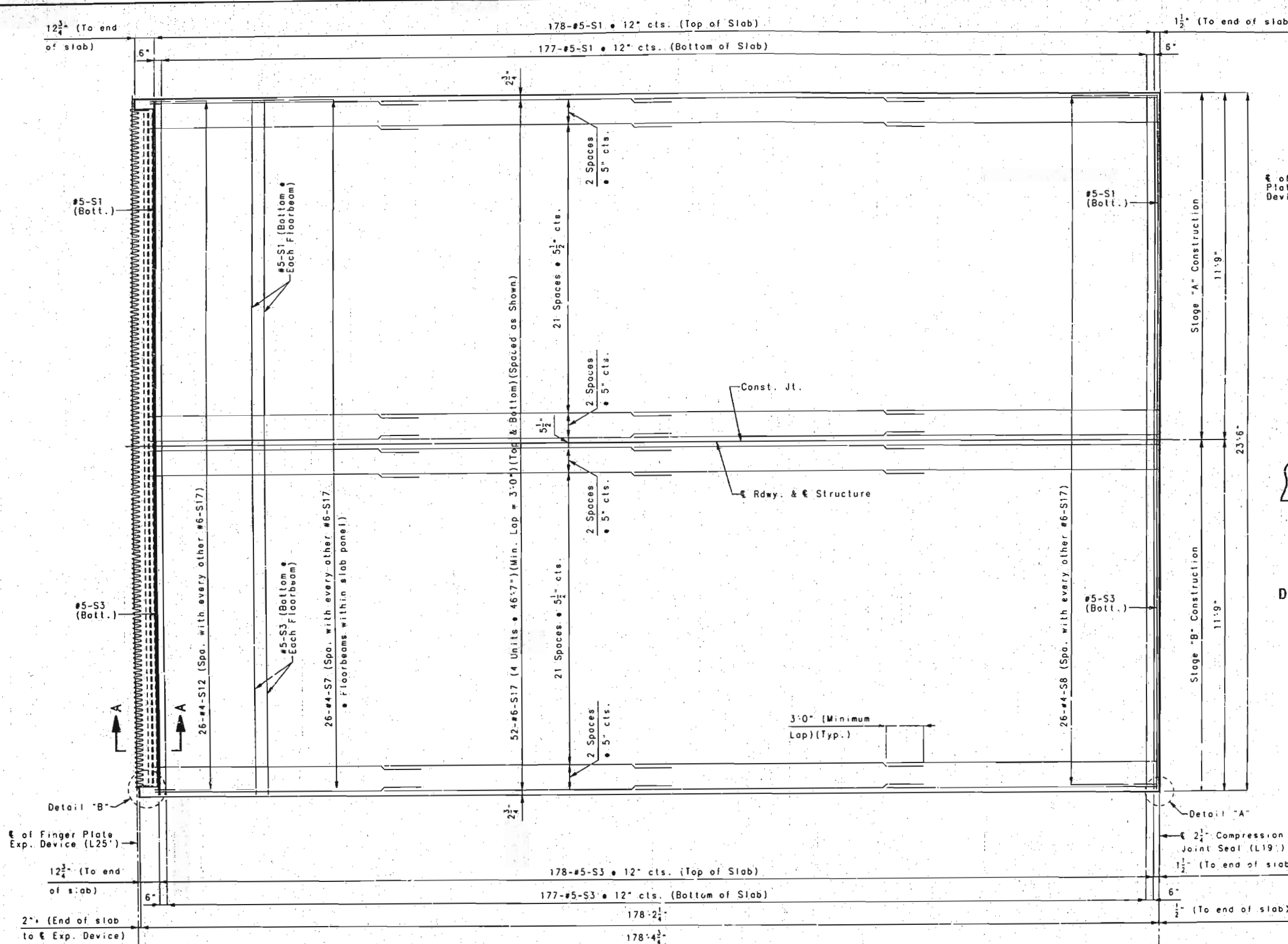
DETAILED AUG. 1995
 CHECKED NOV. 1995

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FRANKLIN-WARREN COUNTIES K09691

7882 329

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MO.		94



Note: Slab haunches not shown for clarity.
 Each #5-S1 to be joined with a #5-S3 with an epoxy coated mechanical bar splice.

PANEL 9 SLAB DETAILS

Note: All Dimensions shown are Horizontal.
 See Sheet No. 49 for location of Panel 9.
 See Sheet No. 63 for Slab haunch reinforcement details.
 See Sheet No. 51 for details of Stay-in-Place Forms.

Note: See Sheet No. 64 for Typical Section Thru Slab.
 See Sheet No. 44 for details of Slab Drains.
 See Sheet No. 39 for Finger Plate Expansion Device details.
 See Sheet No. 69 for details and reinforcement of curb.

DETAILED AUG. 1995
 CHECKED NOV. 1995

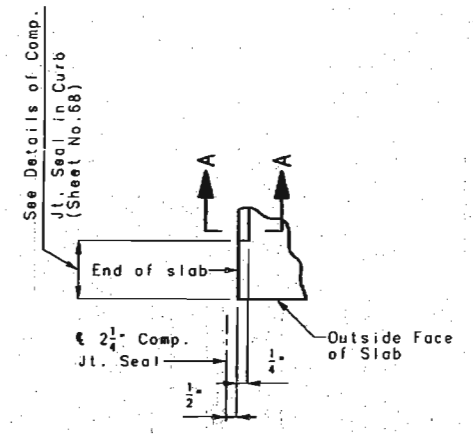
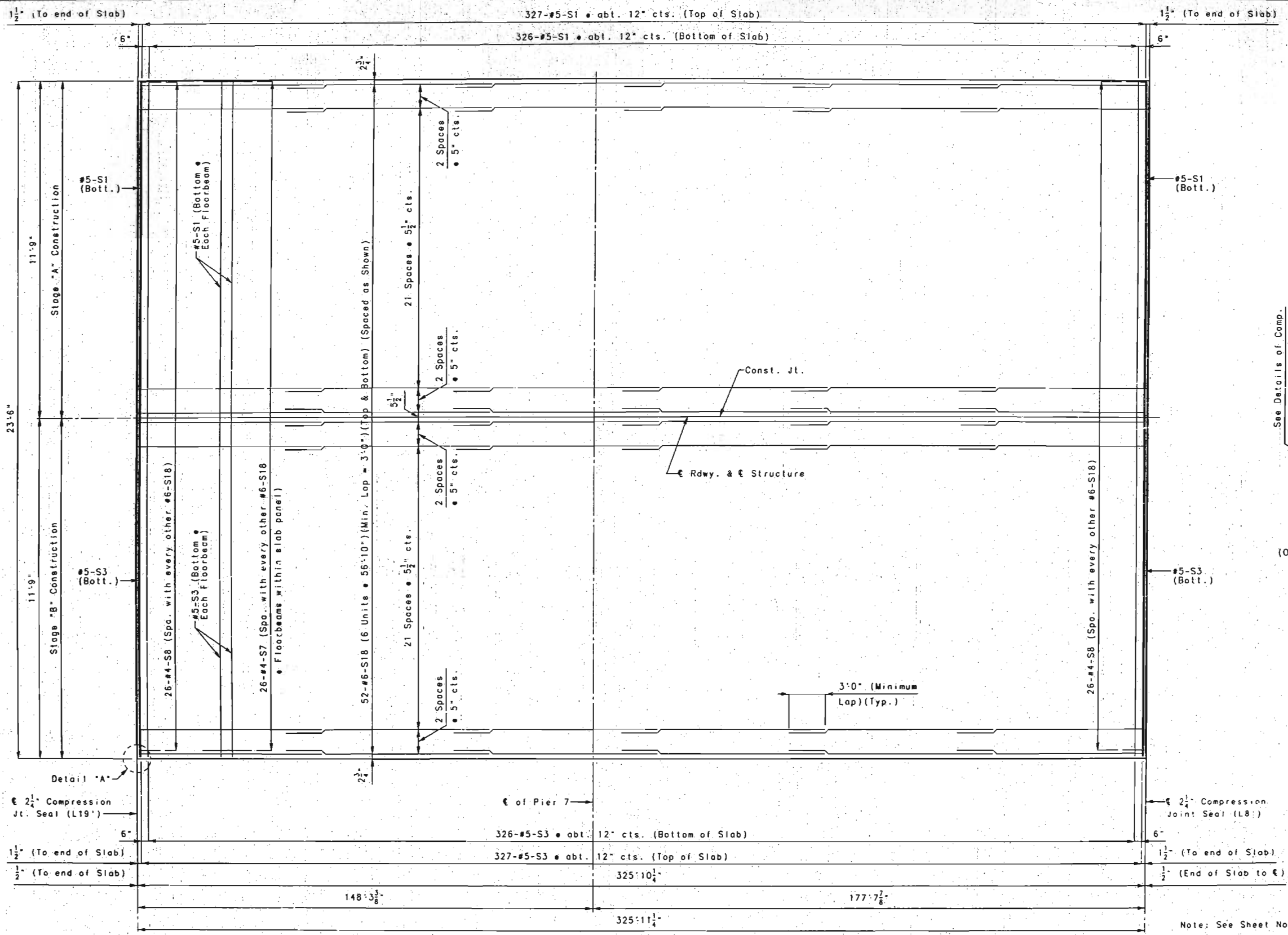
NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

SHEET NO. 60 OF 97

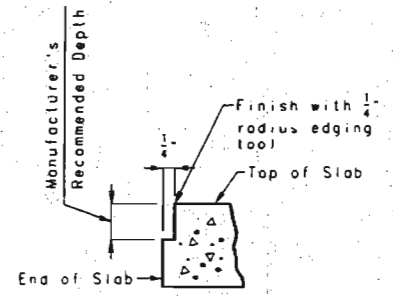
FRANKLIN-WARREN COUNTIES K09691

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MO.		95



(Opposite end of panel similar by 180°)
DETAIL "A"



PART SECTION A-A

Note: Slab haunches not shown for clarity.
Each #5-S1 to be joined with a #5-S3 with an epoxy coated mechanical bar splice.

Note: All Dimensions shown are Horizontal.
See Sheet No. 49 for location of Panel 10.
See Sheet No. 63 for slab haunch reinforcement details.

Note: See Sheet No. 64 for Typical Section Thru Slab.
See Sheet No. 44 for details of Slab Drains.
See Sheet No. 69 for details and reinforcement of curb.
See Sheet No. 51 for details of Stay-In-Place Forms.

PANEL 10 SLAB DETAILS

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

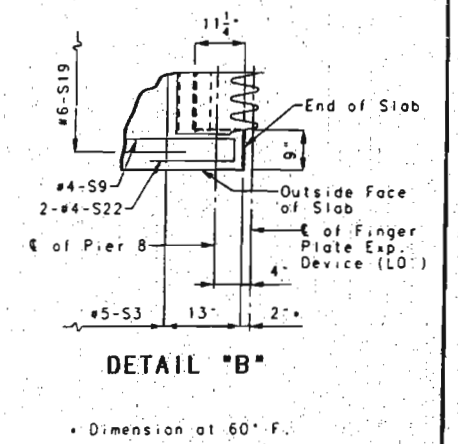
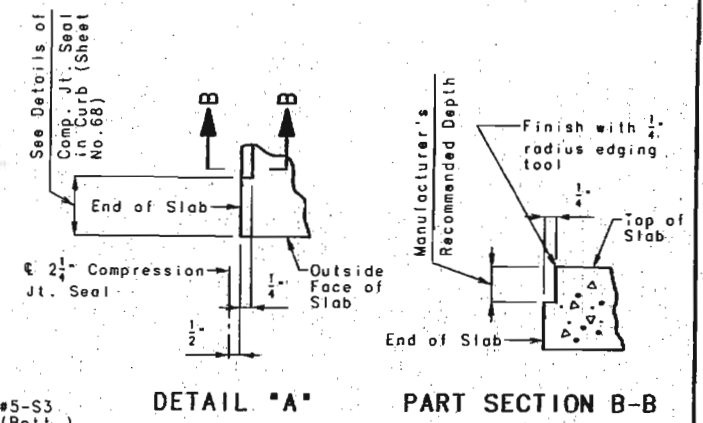
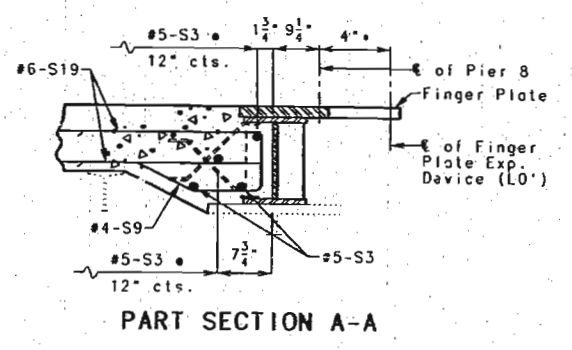
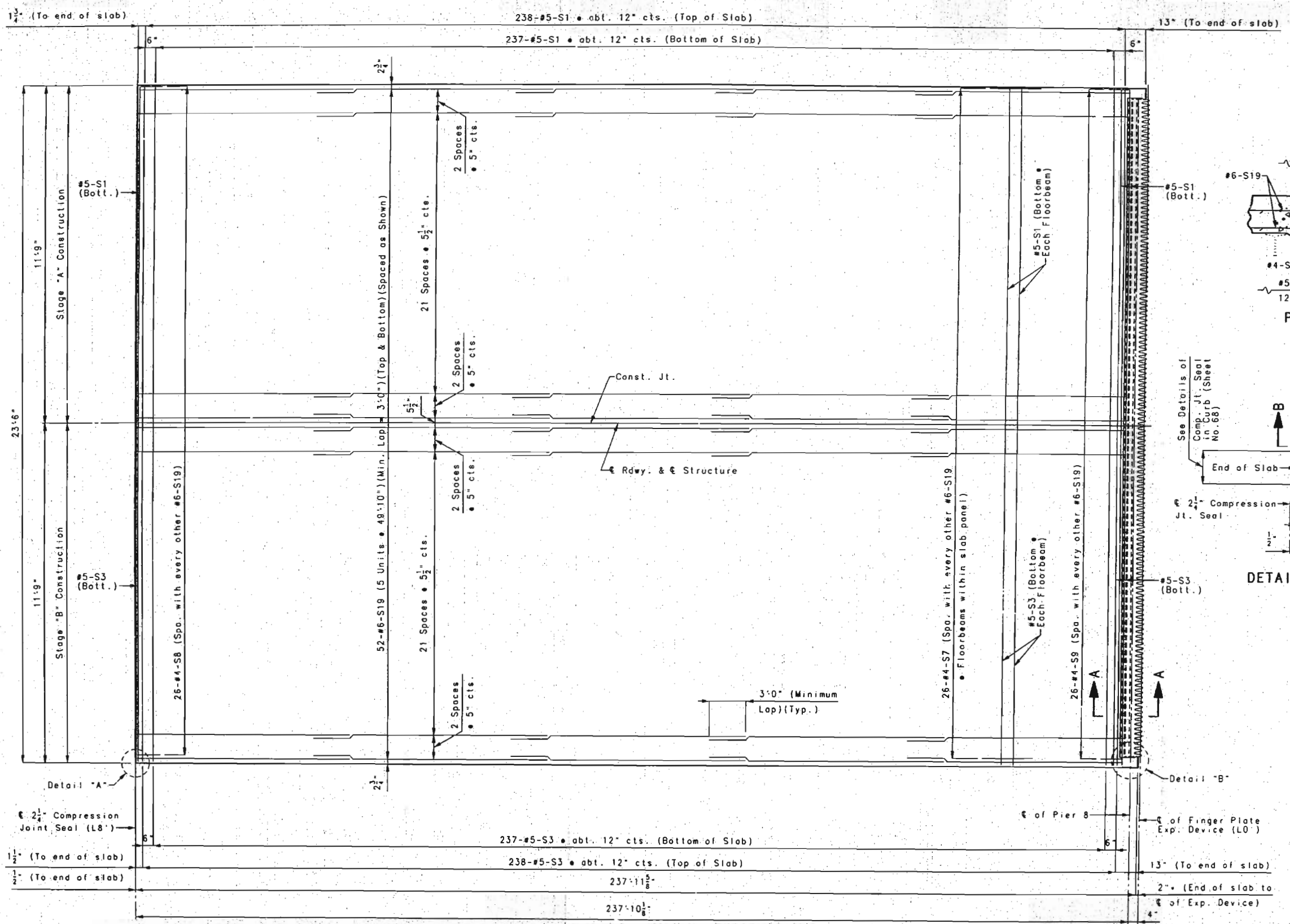
SHEET NO. 61 OF 97

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DETAILED AUG. 1995
CHECKED NOV. 1995

184 331

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MO.		96



Note: Slab haunches not shown for clarity.
Each #5-S1 to be joined with a #5-S3 with an epoxy coated mechanical bar splice.

Note: All Dimensions shown are Horizontal.
See Sheet No. 50 for location of Panel 11.
See Sheet No. 63 for Slab haunch reinforcement details.
See Sheet No. 51 for details of Stay-In-Place Forms.

Note: See Sheet No. 64 for Typical Section Thru Slab.
See Sheet No. 44 for details of Slab Drains.
See Sheet No. 33 for Finger Plate Expansion Device details.
See Sheet No. 69 for details and reinforcement of curb.

PANEL 11 SLAB DETAILS

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

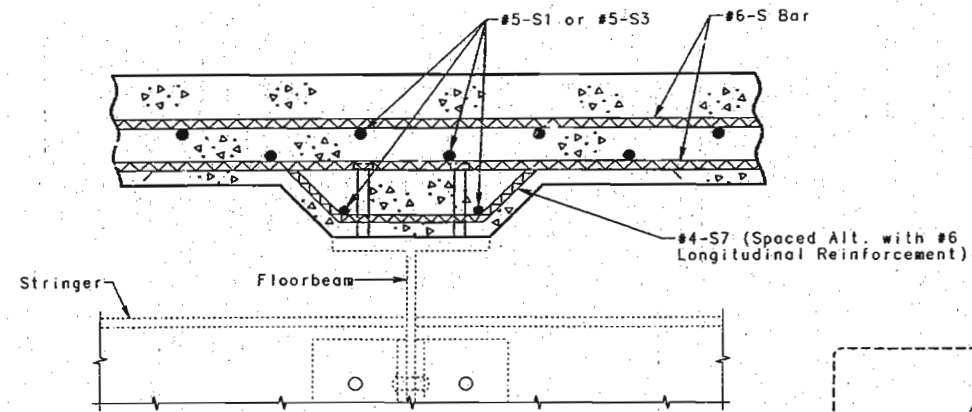
FRANKLIN-WARREN COUNTIES K09691

705 332

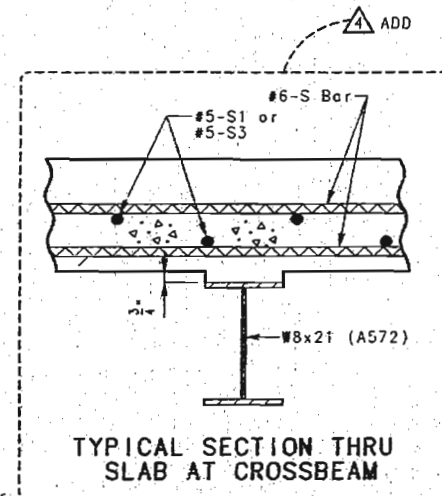
DETAILED AUG. 1995
CHECKED NOV. 1995

SHEET NO. 62 OF 97

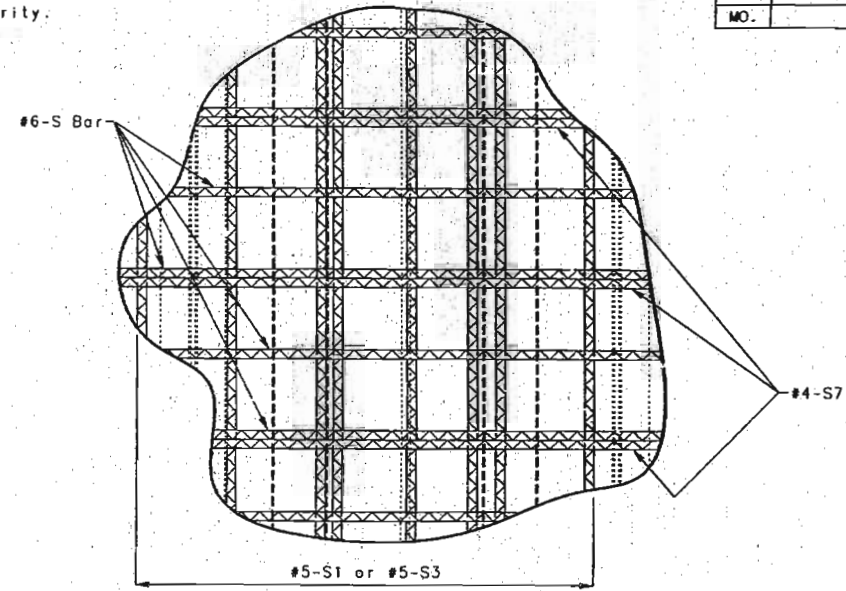
Note: Stay-In-Place Forms not shown for clarity.



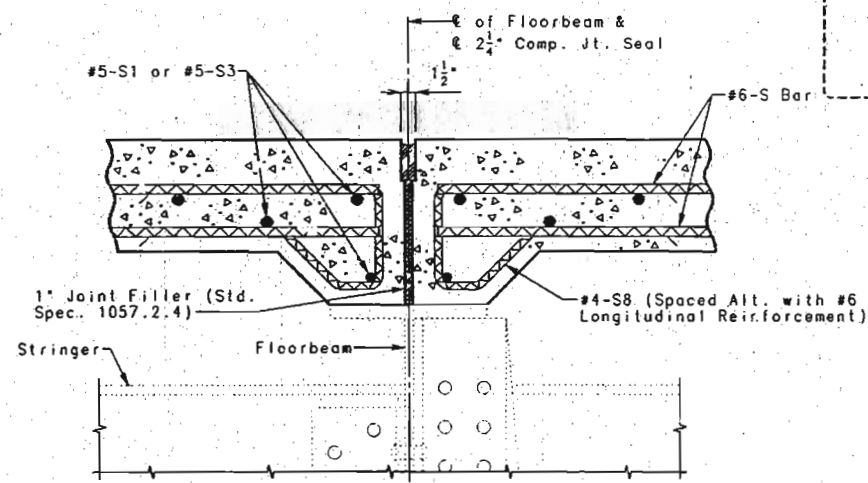
TYPICAL SECTION THRU SLAB AT FLOORBEAM



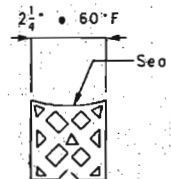
TYPICAL SECTION THRU SLAB AT CROSSBEAM



TYPICAL PART PLAN OF SLAB AT FLOOR BEAM SHOWING #4-S7 PLACEMENT

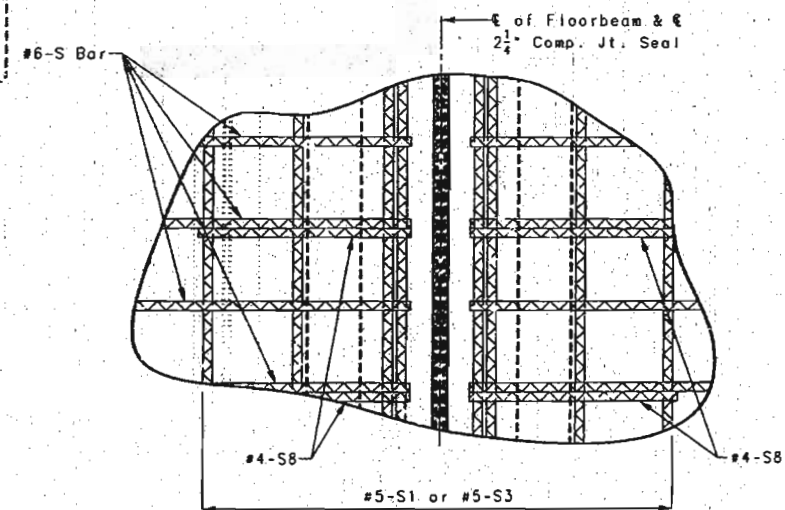


TYPICAL SECTION THRU SLAB AT 2 1/4" COMPRESSION JOINT SEAL



PART SECTION THRU PREFORMED COMPRESSION JOINT SEAL (At Bl. B-2, L8, L19, L34, L34', L19', L8' & Bl. B-9)

Note: Depth of seal shall not be less than width of seal. See Special Provisions for requirements of Preformed Compression Joint Seal.

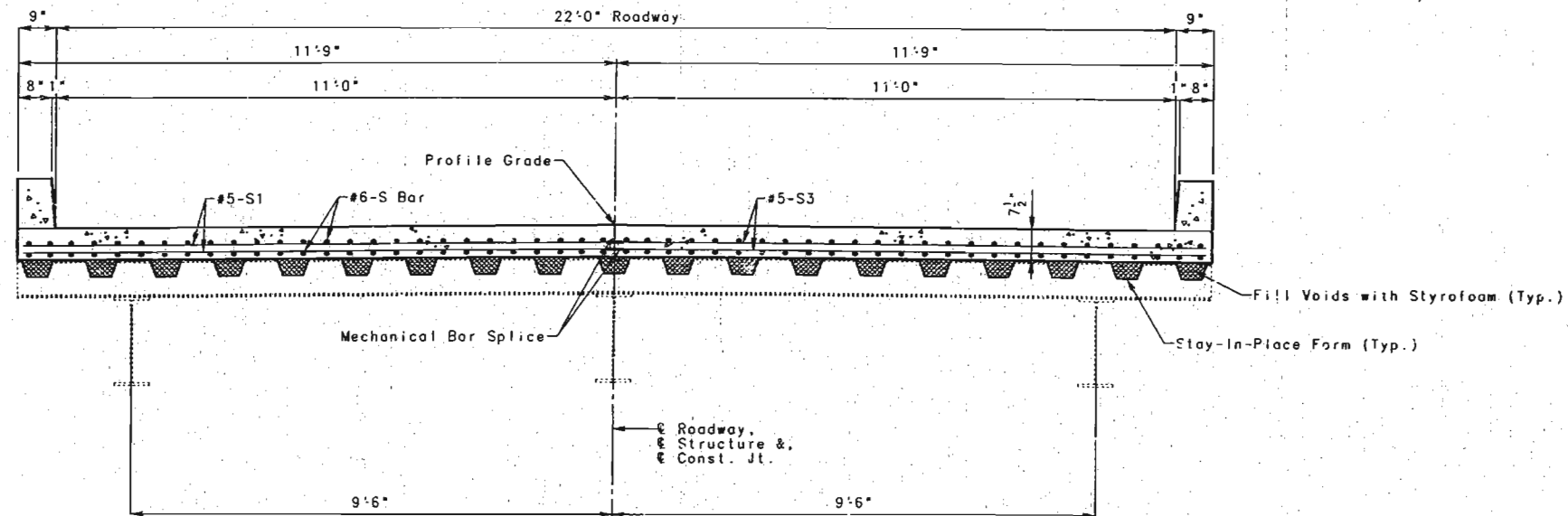


TYPICAL PART PLAN OF SLAB AT 2 1/4" COMPRESSION JOINT SEAL SHOWING #4-S8 PLACEMENT

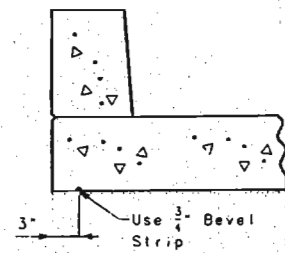
Note: See Sheet No. 29 for details of floorbeam shear connectors

DETAILS OF SLAB HAUNCH REINFORCEMENT (PANELS 3-11)

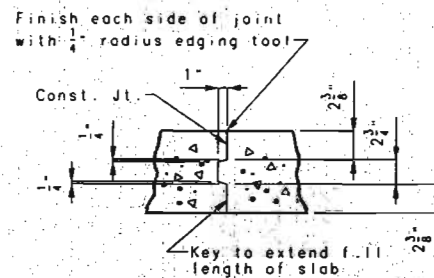
STATE	PROJ. NO.	SHEET NO.
MO.		98



PANELS 3 THRU 11 TYPICAL SECTION THRU SLAB



EDGE OF SLAB DETAIL FOR C.I.P. OPTION



DETAIL OF LONGITUDINAL CONSTRUCTION JOINT

Note: The dimensions of the construction joint key may be adjusted to accommodate the mechanical bar splices.

Note: The contractor shall use a mechanical bar splice for the #5-S1 and #5-S3 bars at the specified location. The total bar lengths for the S1 and S3 bars shown 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. Extra bar lengths from that specified in the bar list may be required depending on the specific splice system to be used. No payment will be made for additional bar lengths added. See job Special Provisions for additional requirements of mechanical bar splices. Mechanical bar splices for epoxy coated bars shall be epoxy coated.

The cost of furnishing and installing these mechanical bar splices will be paid for at the contract unit price for Mechanical Bar Splice (Epoxy Coated) Per Each.

Note: The Contractor shall pour and satisfactorily finish the roadway slab at a rate of not less than 25 cubic yards per hour.

Machine finishing as specified in Section 703.3.14 will not be required.

Note: See Sheet Nos. 54 thru 62 for Panels 3 thru 11 Details.

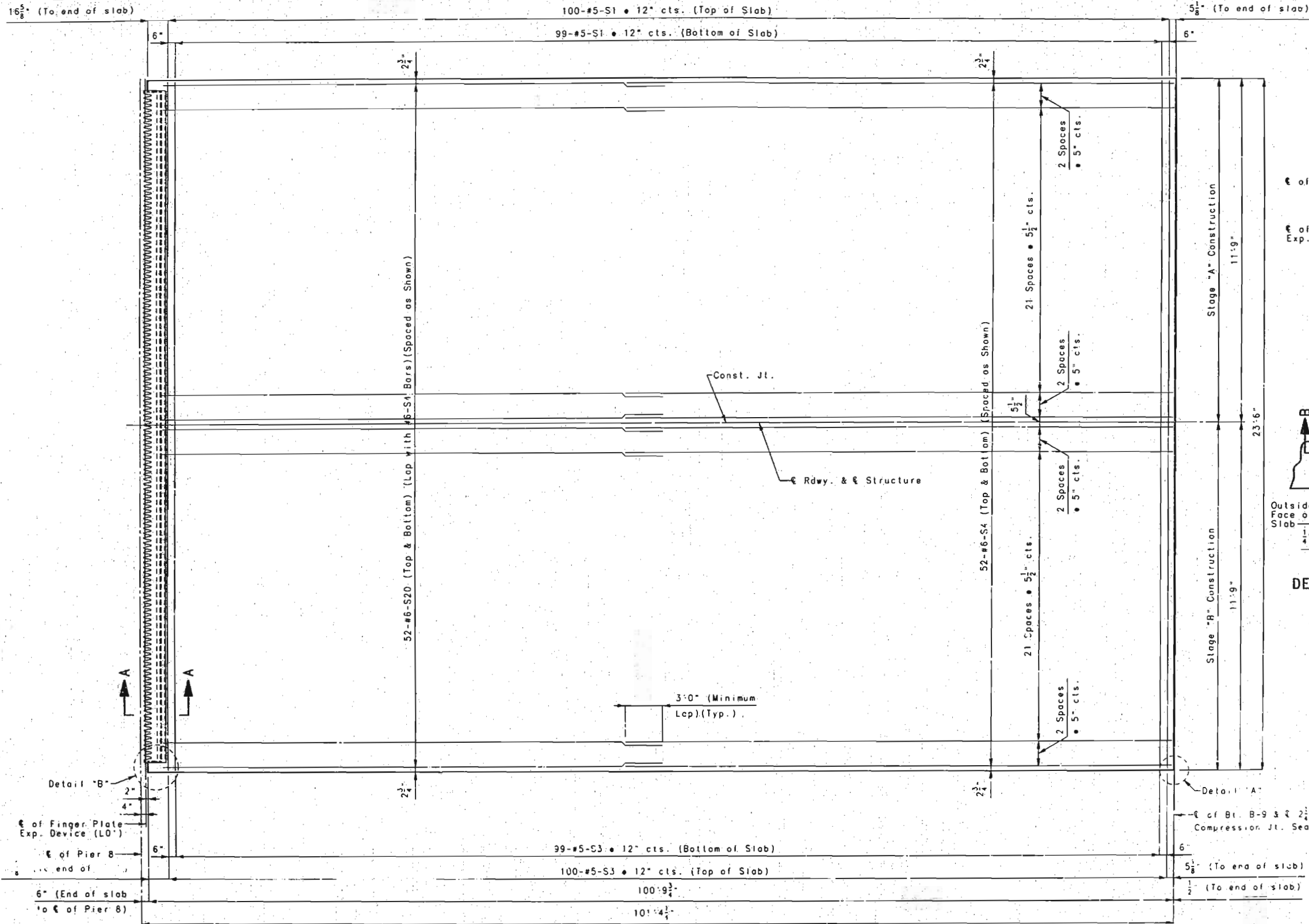
107 334
 DETAILED AUG. 1995
 CHECKED NOV. 1995

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

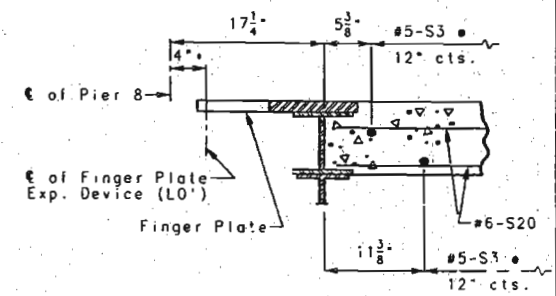
SHEET NO. 64 OF 97

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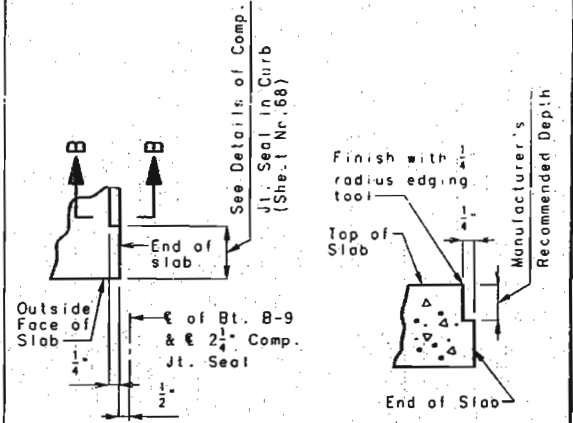
1824



STATE	PROJ. NO.	SHEET NO.
MO.		99

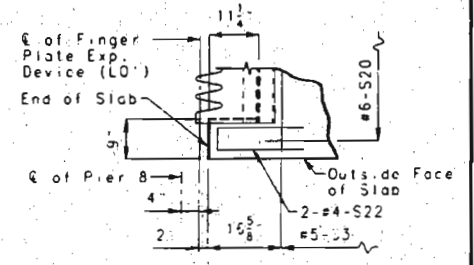


PART SECTION A-A



DETAIL 'A'

PART SECTION B-B



DETAIL 'B'

• Dimension at 60° F.

Note: Each #5-S1 to be joined with a #5-S3 with an epoxy coated mechanical bar splice.

PANEL 12 SLAB DETAILS

Note: All Dimensions shown are Horizontal.
See Sheet No. 50 for location of Panel 12.
See Sheet No. 51 for details of Stay-in-Place Forms.

Note: See Sheet No. 52 for Plate Expansion Device details.
See Sheet No. 67 for Typical Section Thru...
See Sheet No. 45 for details of Slab Drains.
See Sheet No. 69 for details and reinforcement of curb.

DETAILED AUG. 1995
CHECKED NOV. 1995

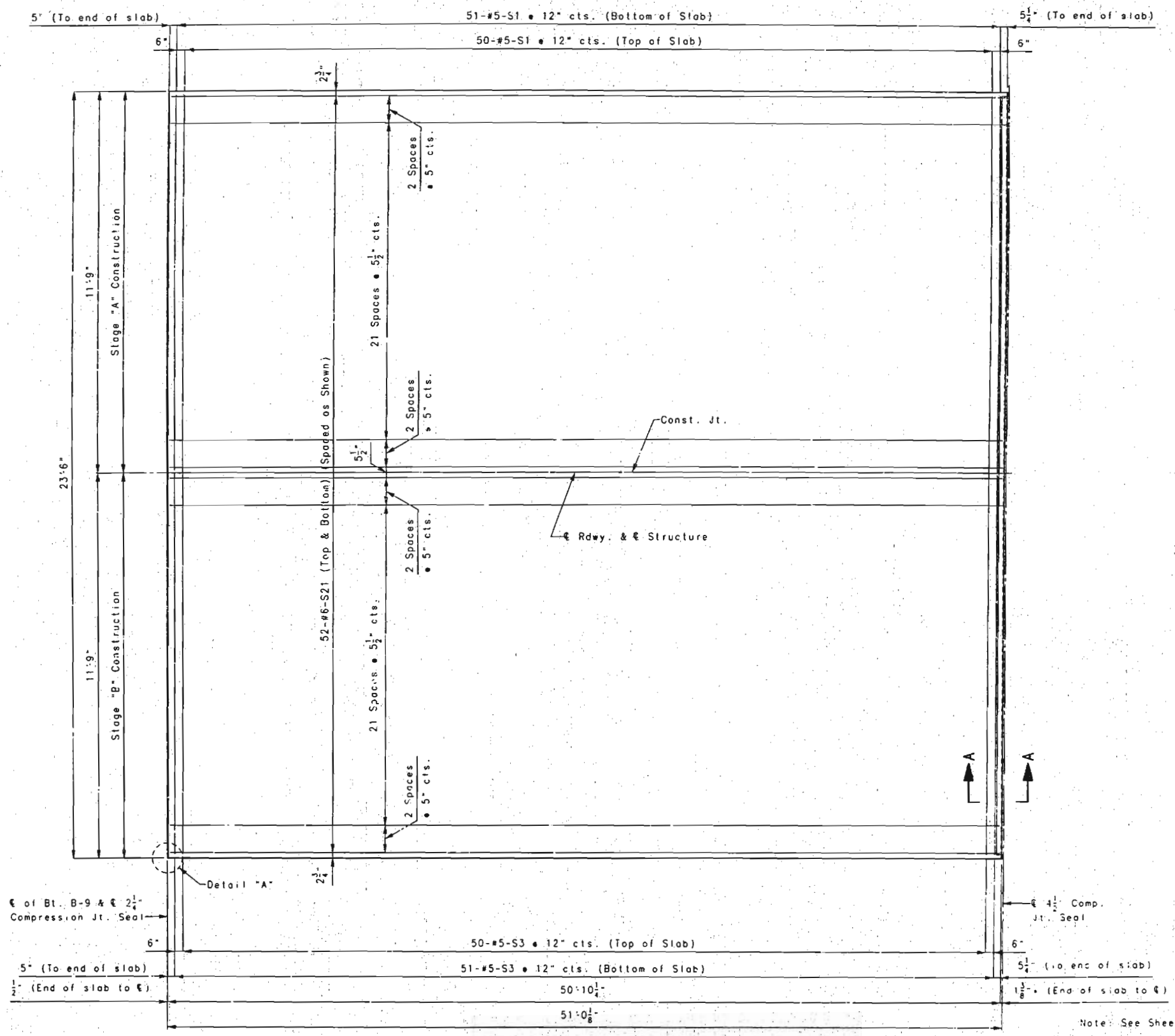
NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

SHEET NO. 65 OF 97

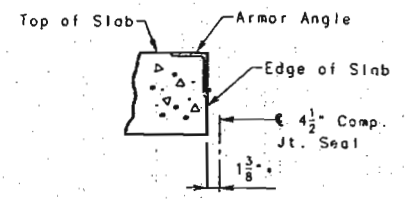
FRANKLIN-WARREN COUNTIES K09691

108 335

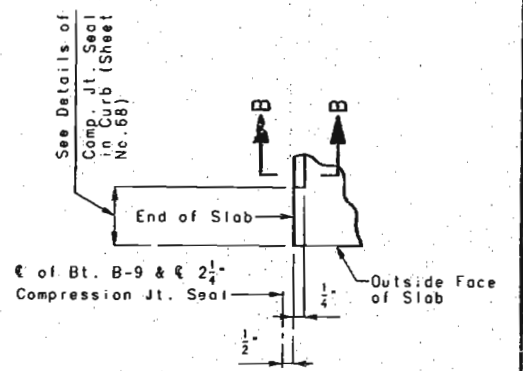
TOP 336



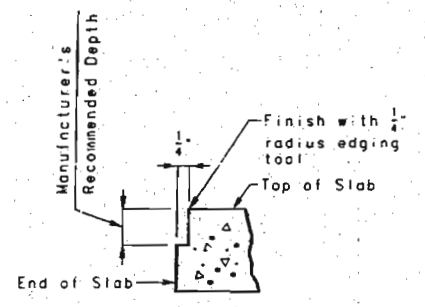
STATE	PROJ. NO.	SHEET NO.
MO.		100



PART SECTION A-A



DETAIL "A"



PART SECTION B-B

* Dimension at 60° F.
 Note: Each #5-S1 to be joined with a #5-S3 with an epoxy coated mechanical bar splice.

Note: See Sheet No. 67 for typical Section Thru Slab.
 See Sheet No. 42 for details of Slab Drains.
 See Sheet No. 69 for details and reinforcement of curb.
 See Sheet No. 30 for details of 4 1/2" Comp. Jt. Seal.

Note: All Dimensions shown are Horizontal.
 See Sheet No. 50 for location of Panel 13.
 See Sheet No. 51 for details of Stay-In-Place Forms.

PANEL 13 SLAB DETAILS

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

SHEET NO. 66 OF 97

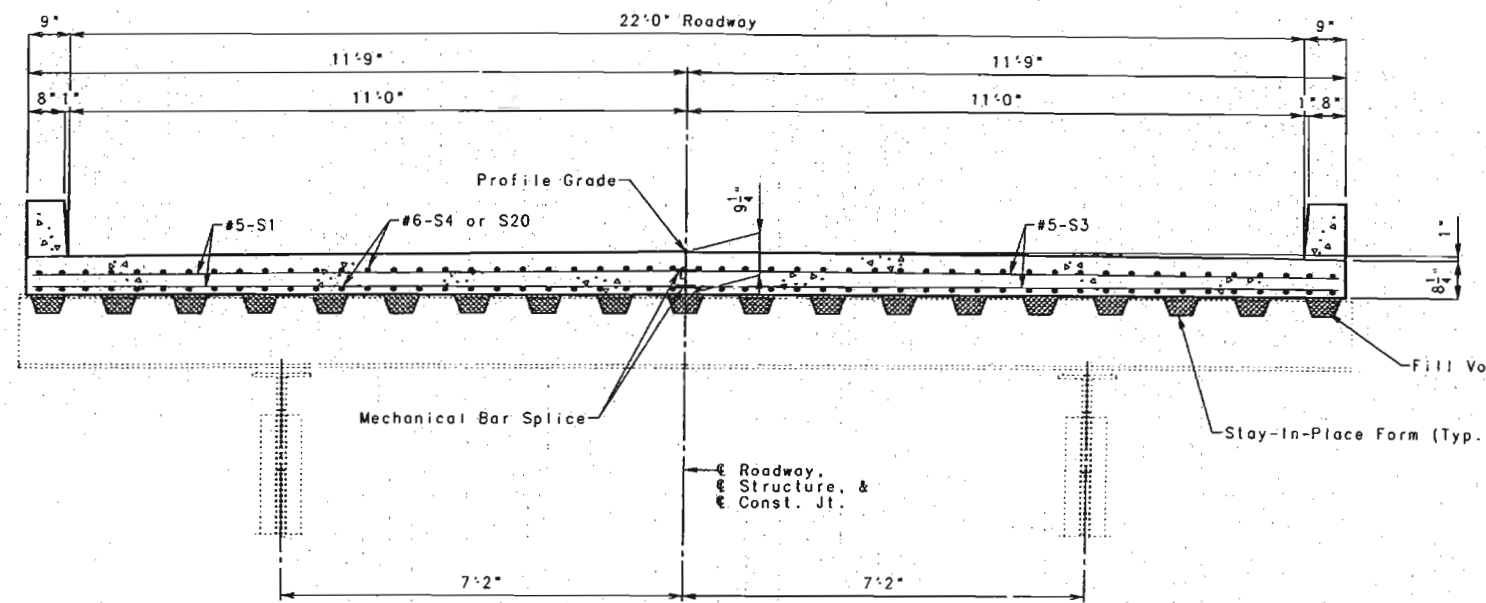
FRANKLIN-WARREN COUNTIES K09691

DETAILED AUG. 1995
 CHECKED NOV. 1995

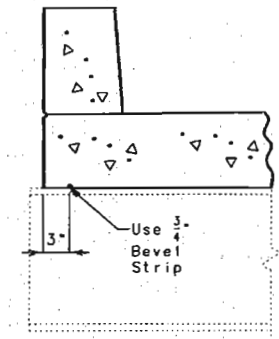
STATE	PROJ. NO.	SHEET NO.
MO.		101

Note: The contractor shall use a mechanical bar splice for the #5-S1 and #5-S3 bars at the specified location. The total bar lengths for the S1 and S3 bars shown 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. Extra bar lengths from that specified in the bar list may be required depending on the specific splice system to be used. No payment will be made for additional bar lengths added. See job Special Provisions for additional requirements of mechanical bar splices. Mechanical bar splices for epoxy coated bars shall be epoxy coated.

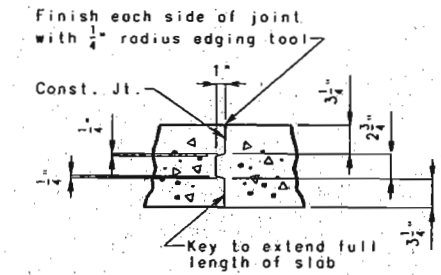
The cost of furnishing and installing these mechanical bar splices will be paid for at the contract unit price for Mechanical Bar Splice (Epoxy Coated) Per Each.



PANEL 12 TYPICAL SECTION THRU SLAB

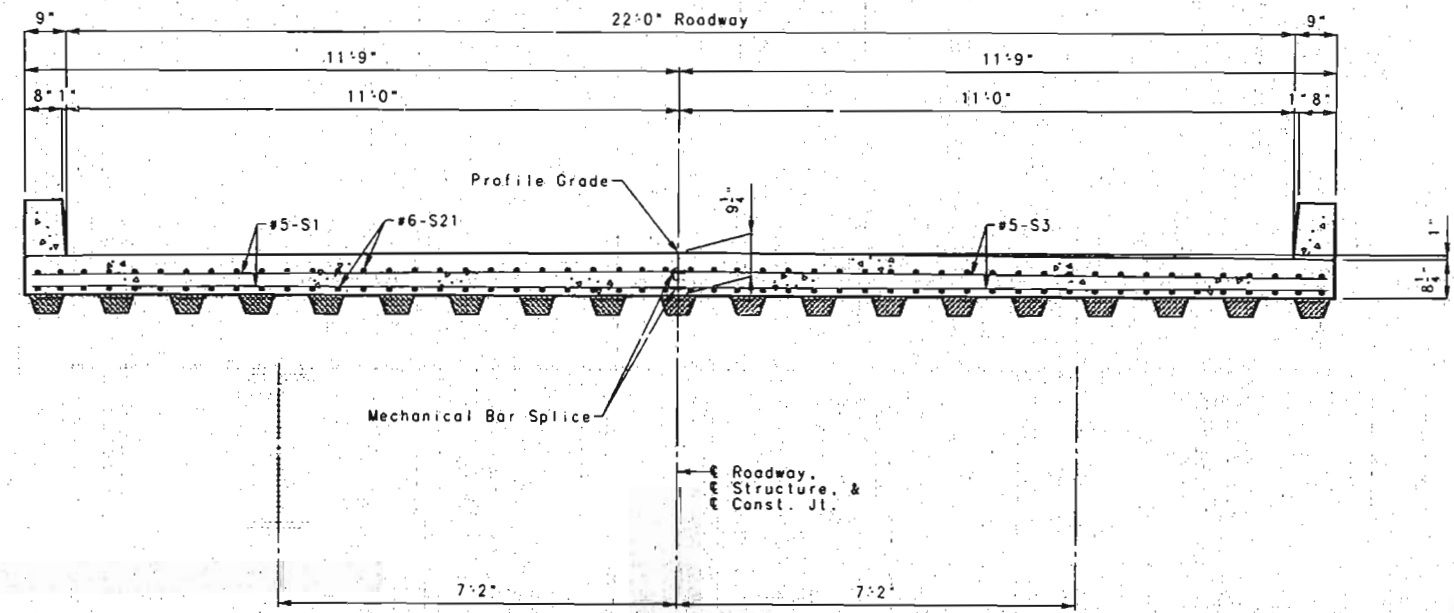


EDGE OF SLAB DETAIL FOR C.I.P. OPTION



DETAIL OF LONGITUDINAL CONSTRUCTION JOINT

Note: The dimensions of the construction joint key may be adjusted to accommodate the mechanical bar splices.



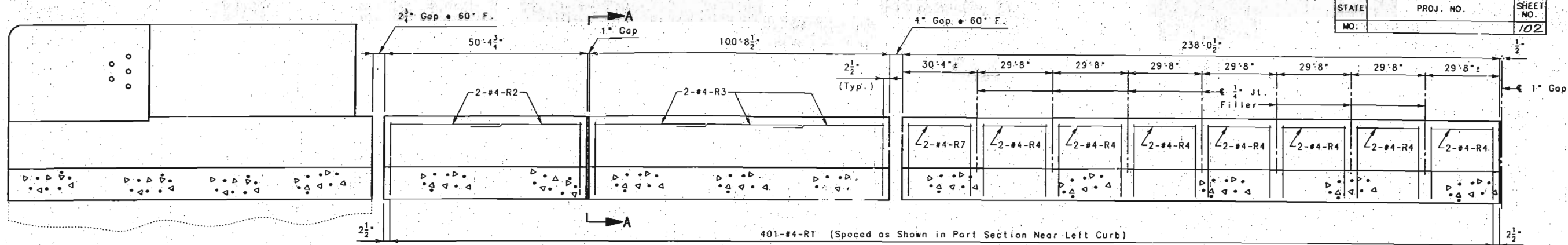
PANEL 13 TYPICAL SECTION THRU SLAB

Note: The Contractor shall pour and satisfactorily finish the roadway slab at a rate of not less than 25 cubic yards per hour.

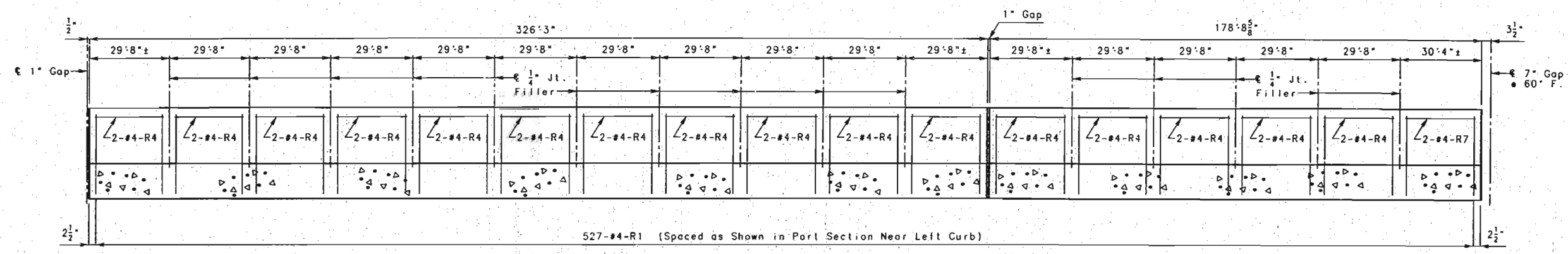
Machine finishing as specified in Section 703.3.14 will not be required.

Note: See Sheet No. 65 for Panel 12 Details. See Sheet No. 66 for Panel 13 Details.

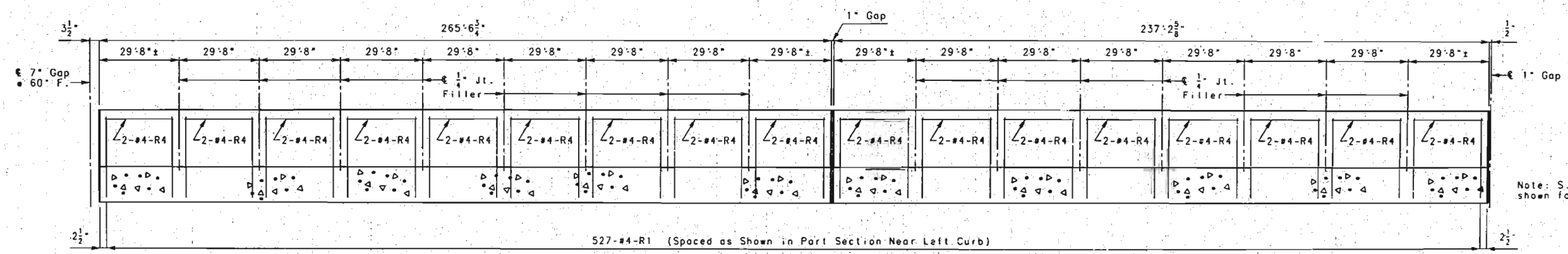
718 337



(PANEL 1) (PANEL 2) (PANEL 3)

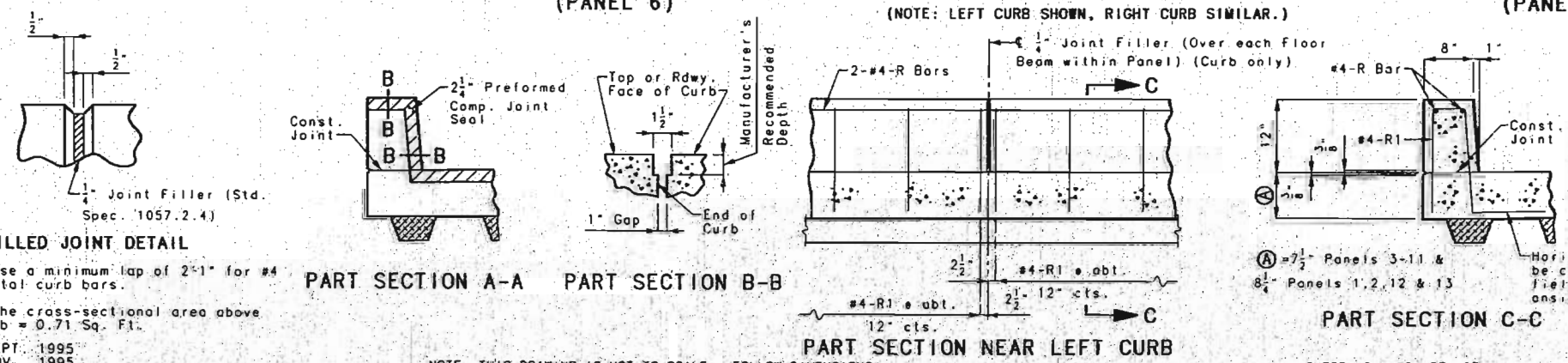


(PANEL 4) (PANEL 5)



(PANEL 6) (PANEL 7)

SECTION NEAR LEFT CURB
(NOTE: LEFT CURB SHOWN, RIGHT CURB SIMILAR.)

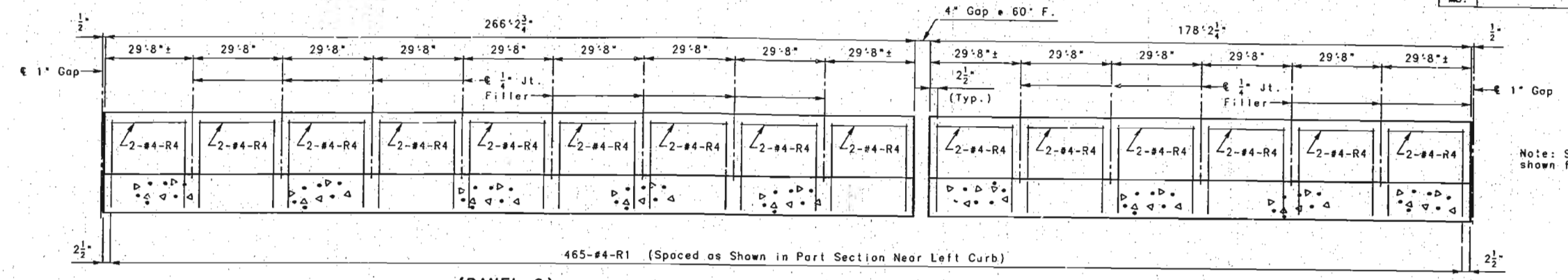


NOTE: All dimensions shown are horizontal.
 For details of curb at end bent, see sheet No. 5.
 For details of bridge rail attachment, see sheet Nos. 70 thru 76.
 For details of curb at Exp. Devices, see sheet Nos. 30, 32 and 38.
 Top of curb shall be built parallel to grade with curb joints normal to grade.
 All exposed edges of curb shall have either a 1/2" radius or a 3/8" bevel, unless otherwise noted.
 When the curb is bid by Linear feet, the Contract Unit price shall include the cost of all concrete and reinforcement, complete in-place.
 Concrete in the curb shall be class B1.
 Measurement of curb is to the nearest linear foot, measured along the outside top of slab from end of curb to end of curb.

FILLED JOINT DETAIL
 NOTE: Use a minimum lap of 2'-1" for #4 horizontal curb bars.
 The cross-sectional area above the slab = 0.71 Sq. Ft.

PART SECTION A-A **PART SECTION B-B** **PART SECTION C-C**
 NOTE: THIS DRAWING IS NOT TO SCALE, FOLLOW DIMENSIONS.

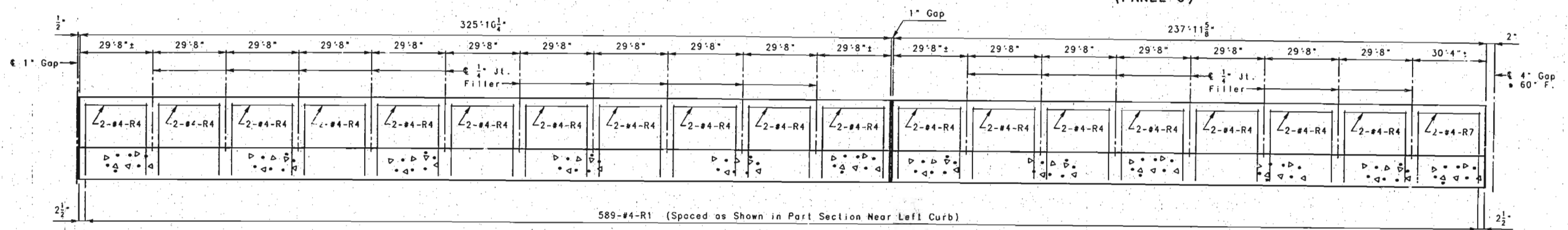
338



Note: S.I.P. Forms not shown for clarity.

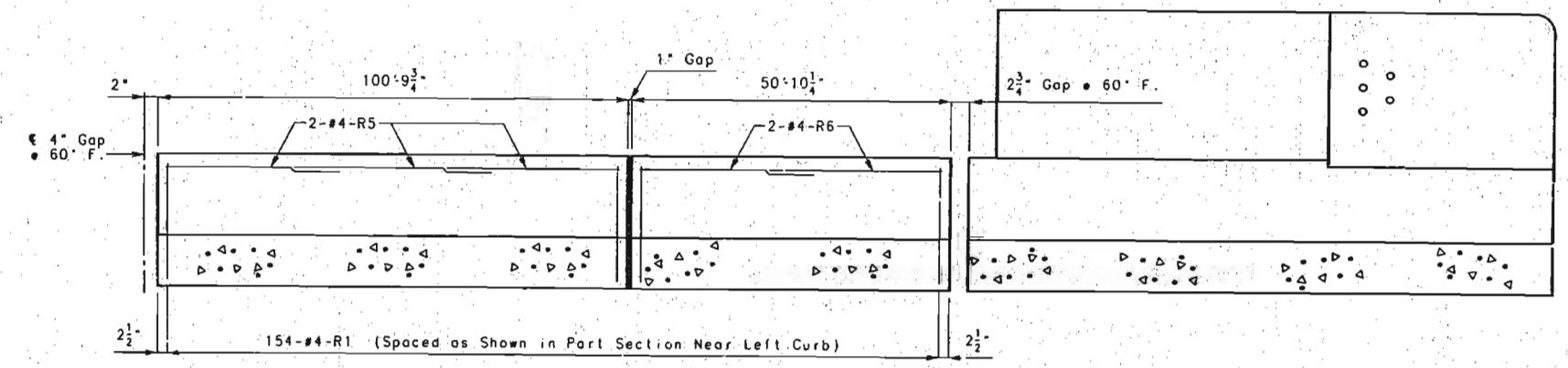
(PANEL 8)

(PANEL 9)



(PANEL 10)

(PANEL 11)

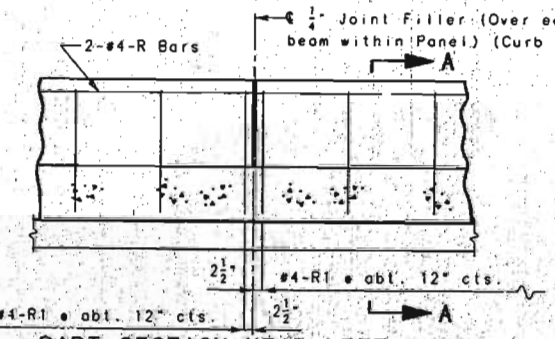


(PANEL 12)

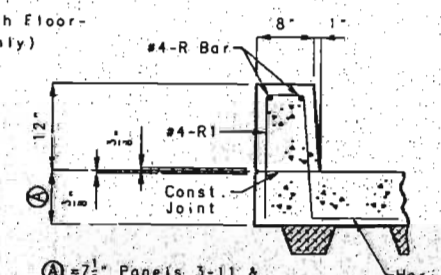
(PANEL 13)

SECTION NEAR LEFT CURB

(NOTE: LEFT CURB SHOWN, RIGHT CURB SIMILAR.)



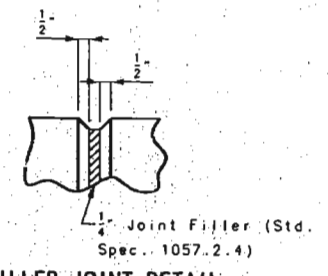
PART SECTION NEAR LEFT CURB



Ⓐ = 7 1/2" Panels 3-11 & 8 1/2" Panels 1, 2, 12 & 13

PART SECTION A-A

NOTE: All dimensions shown are horizontal.
 For details of curb at end bent, see sheet No. 7.
 For details of bridge rail attachment, see sheet Nos. 70 thru 76.
 For details of curb at Exp. Device, see sheet Nos. 30, 34 and 40.
 Top of curb shall be built parallel to grade with joints normal to grade.
 All exposed edges of curb shall have either a 1/2" radius or a 3/8" bevel, unless otherwise noted.
 When the curb is bid by Linear feet, the Contract Unit price shall include the cost of all concrete and reinforcement, complete-in-place.
 Concrete in the curb shall be class B1.
 Measurement of curb is to the nearest linear foot, measured along the outside top of slab from end of curb to end of curb.



FILLED JOINT DETAIL

NOTE: Use a minimum lap of 2'-1" for #4 horizontal curb bars.
 The cross-sectional area above the slab = 0.71 Sq. Ft.

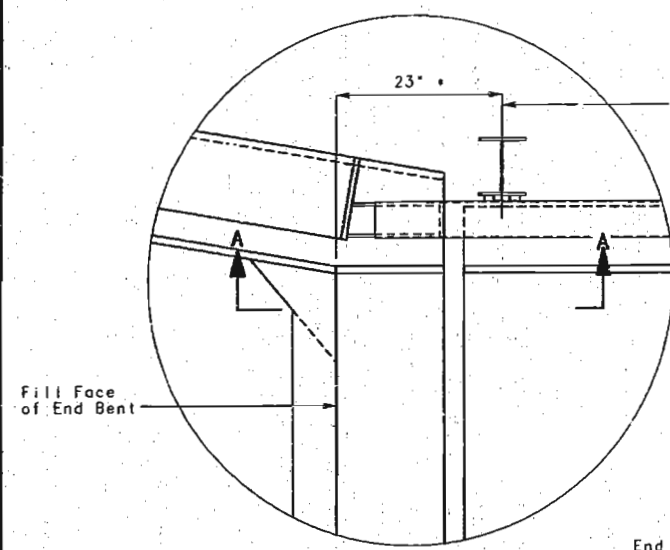
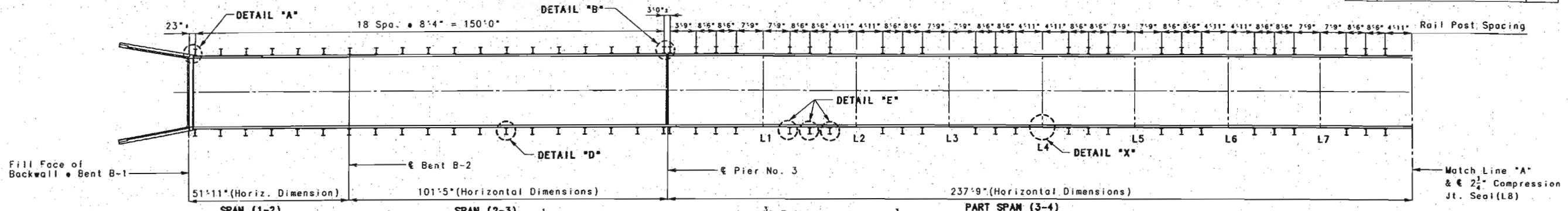
NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

DETAILED SEPT. 1995
 CHECKED NOV. 1995

SHEET NO. 69 OF 97

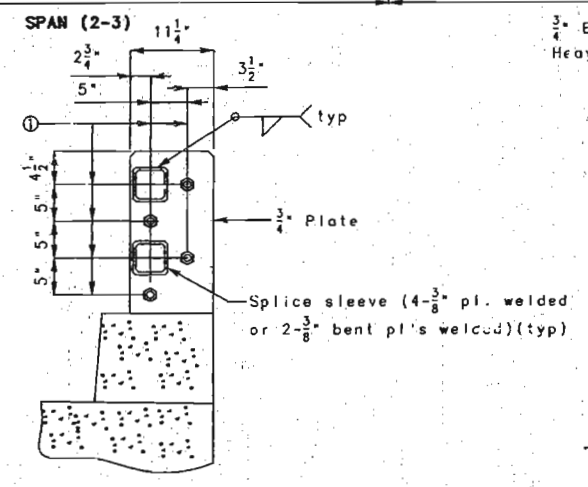
FRANKLIN-WARREN COUNTIES K09691

112 339

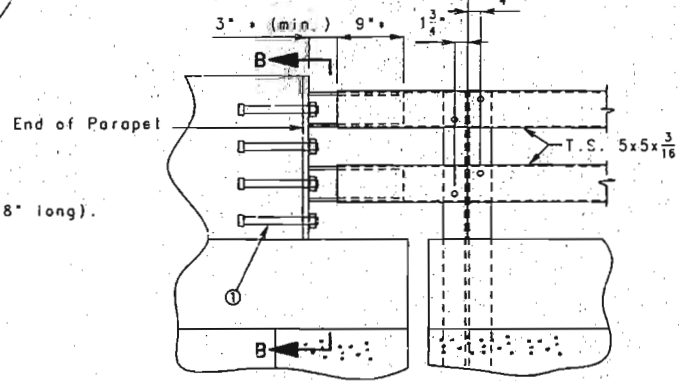


DETAIL "A"

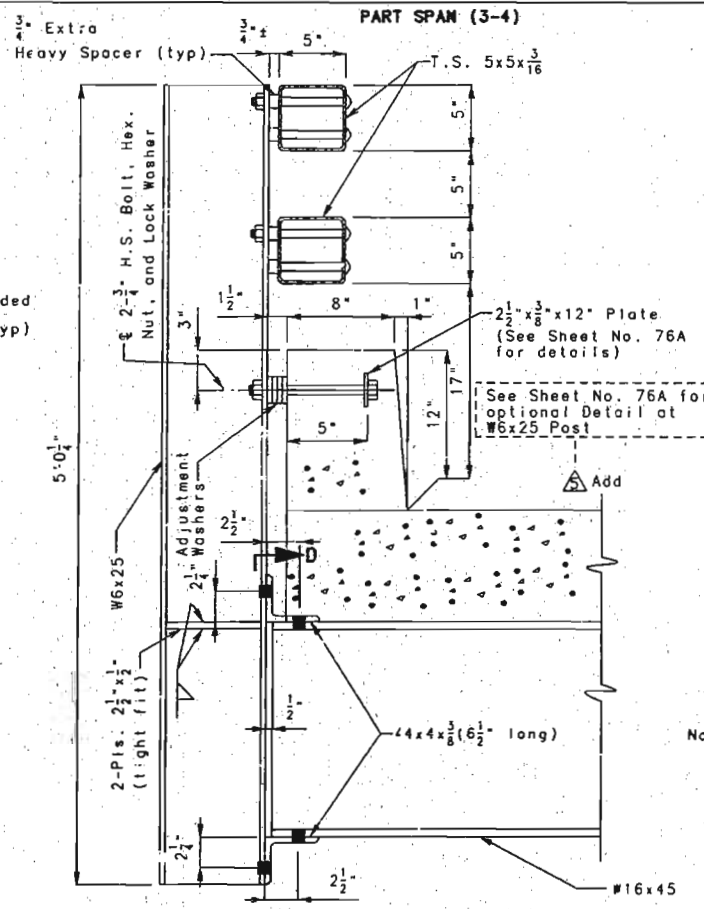
① 1" \varnothing Anchor bolt (A-307) with hex nut and washer (18" long).
(Entire assembly at end post to be galvanized.)



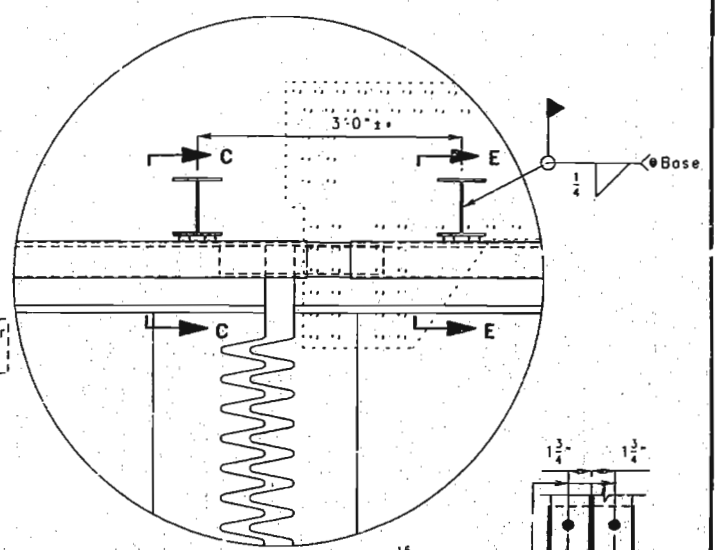
SECTION B-B



SECTION A-A

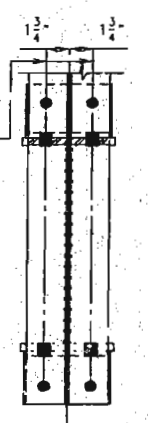


SECTION C-C

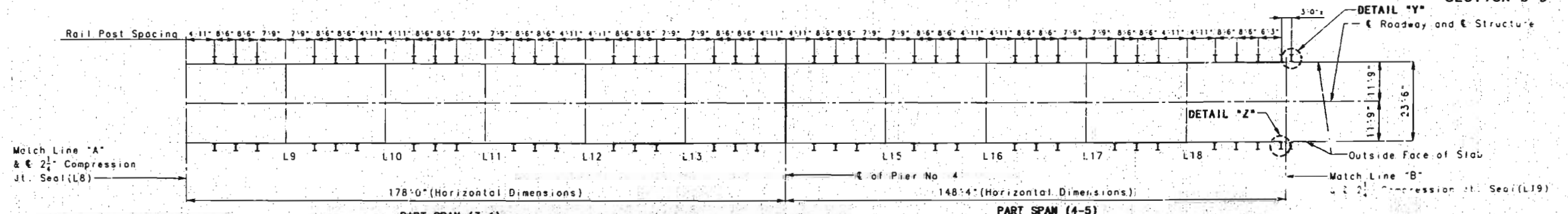


DETAIL "B"

Note: For Section E-E, see sheet No. 76A.
Note: For Detail "D", see sheet No. 75A.
For Detail "E", see sheet No. 74A.
For Detail "X", see sheet No. 75A.
For Detail "Y", see sheet No. 73A.
For Detail "Z", see sheet No. 76A.
Stay-In-Place Forms not shown for clarity.



SECTION D-D



PART PLAN SHOWING RAIL POST SPACING

Note: For location of Match Line "B", see sheet No. 71A.
Dimension at 60' F.

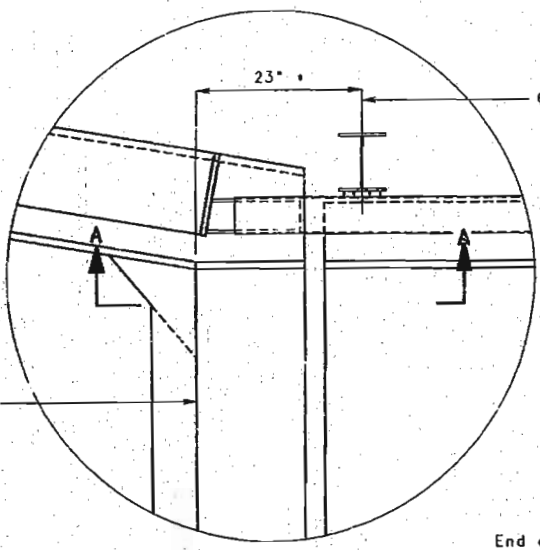
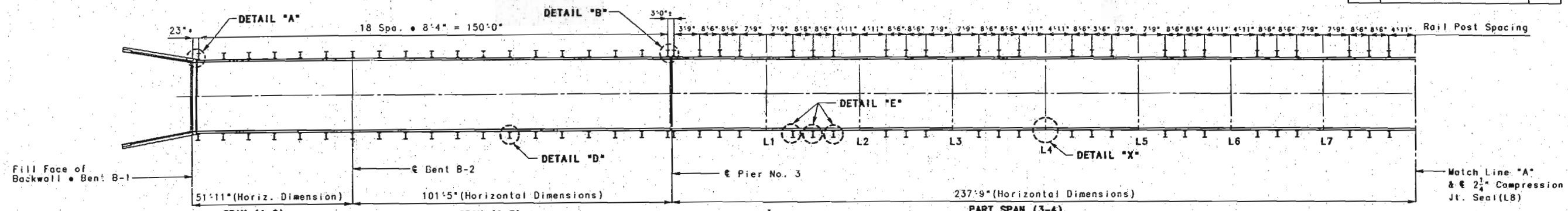
DETAILED MAR. 1996
CHECKED MAR. 1996

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

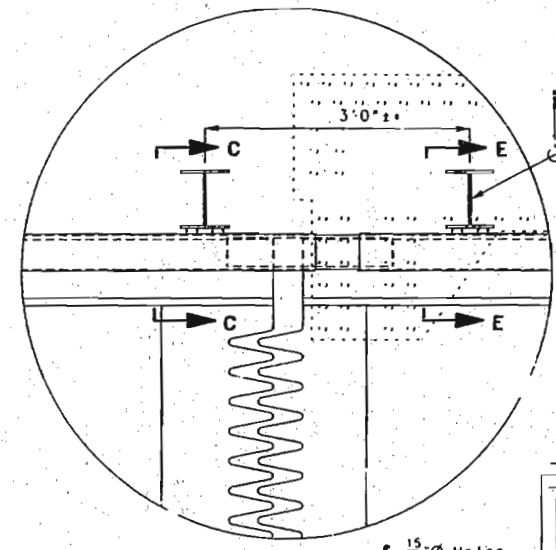
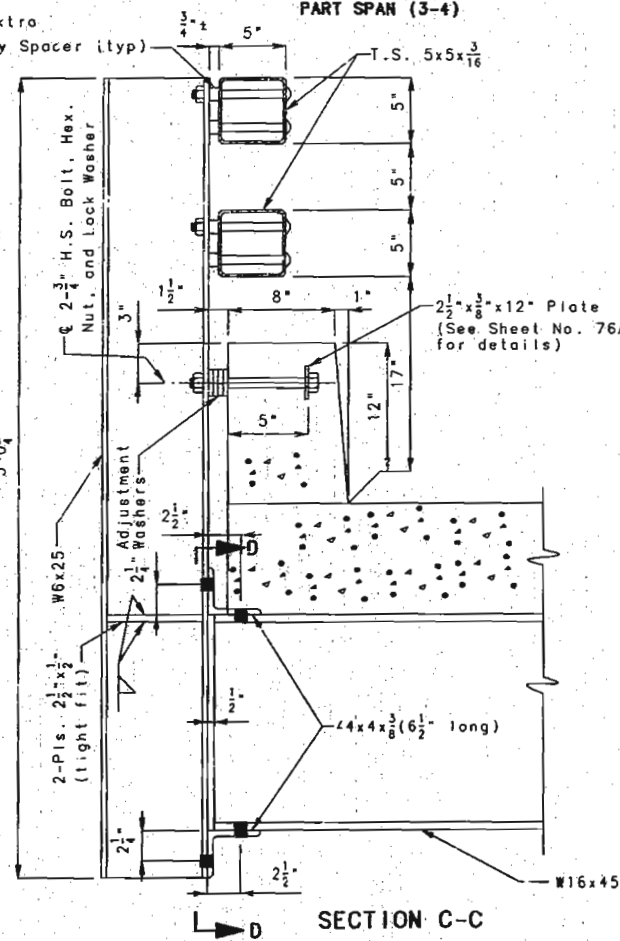
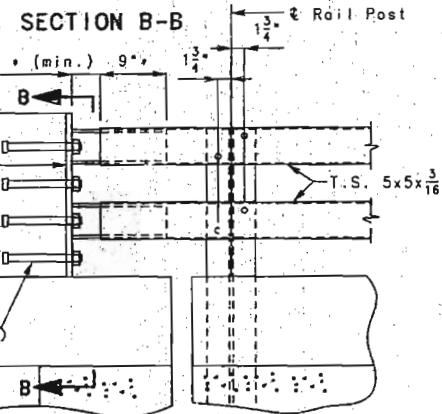
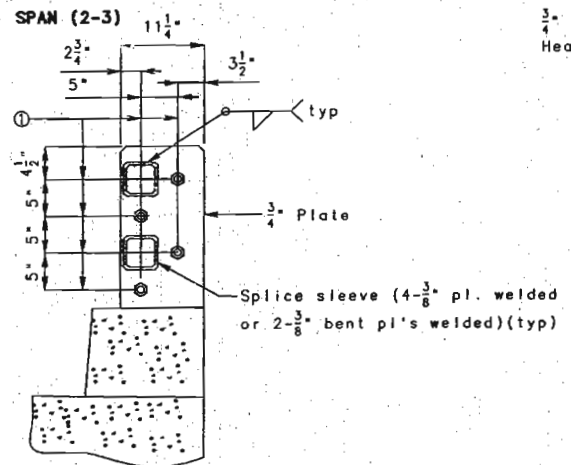
REVISED MARCH 28, 1996
AT CONTRACTOR'S REQUEST
REVISED MARCH 13, 1996

SHEET NO. 70A OF 97

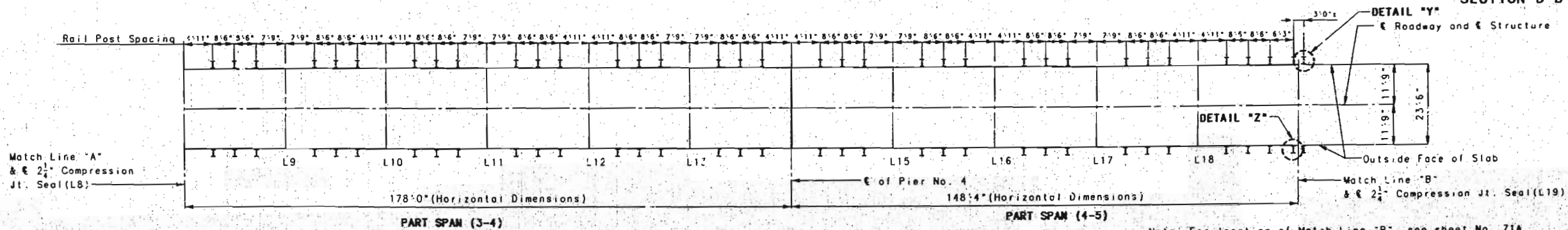
FRANKLIN-WARREN COUNTIES K09691



① \varnothing 1" \varnothing Anchor bolt (A-307) with hex nut and washer (18" long).
(Entire assembly at end post to be galvanized.)



Note: For Section E-E, see sheet No. 76A.
 Note: For Detail "D", see sheet No. 75A.
 For Detail "E", see sheet No. 74A.
 For Detail "X", see sheet No. 75A.
 For Detail "Y", see sheet No. 73A.
 For Detail "Z", see sheet No. 76A.
 Stay-In-Place Forms not shown for clarity.



PART PLAN SHOWING RAIL POST SPACING

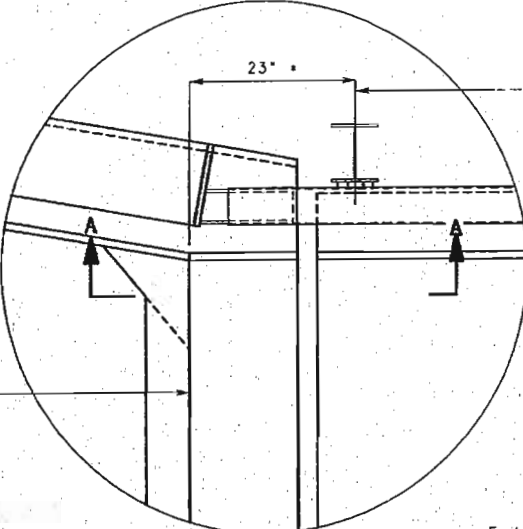
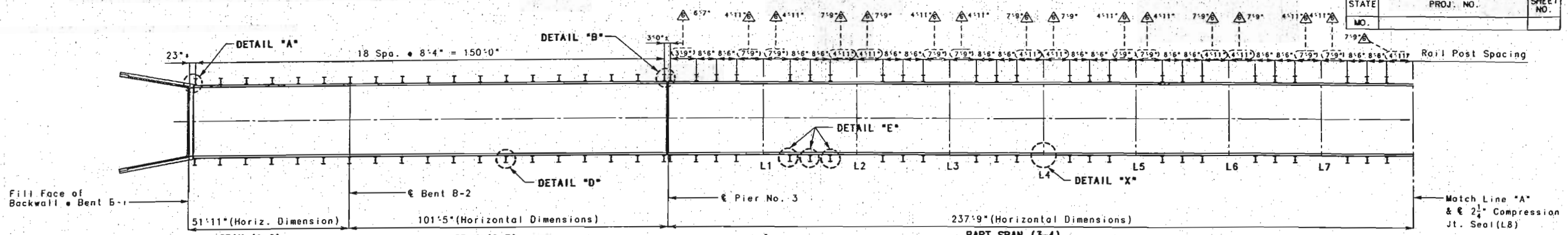
342
 DETAILED MAR. 1996
 CHECKED MAR. 1996

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

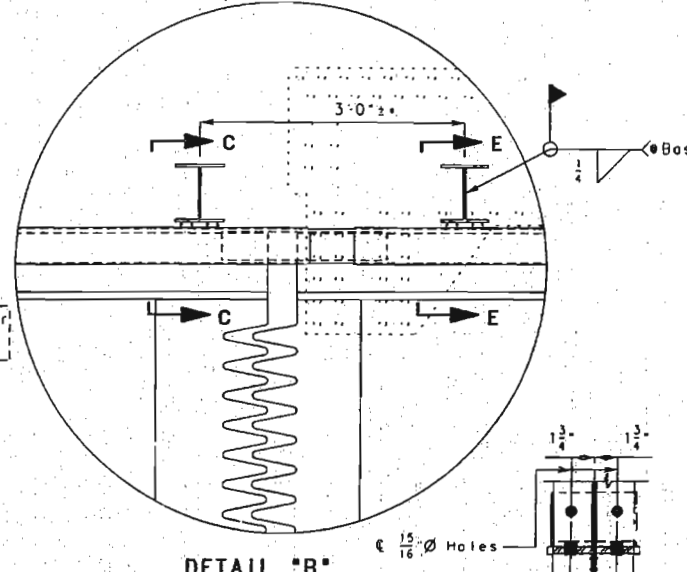
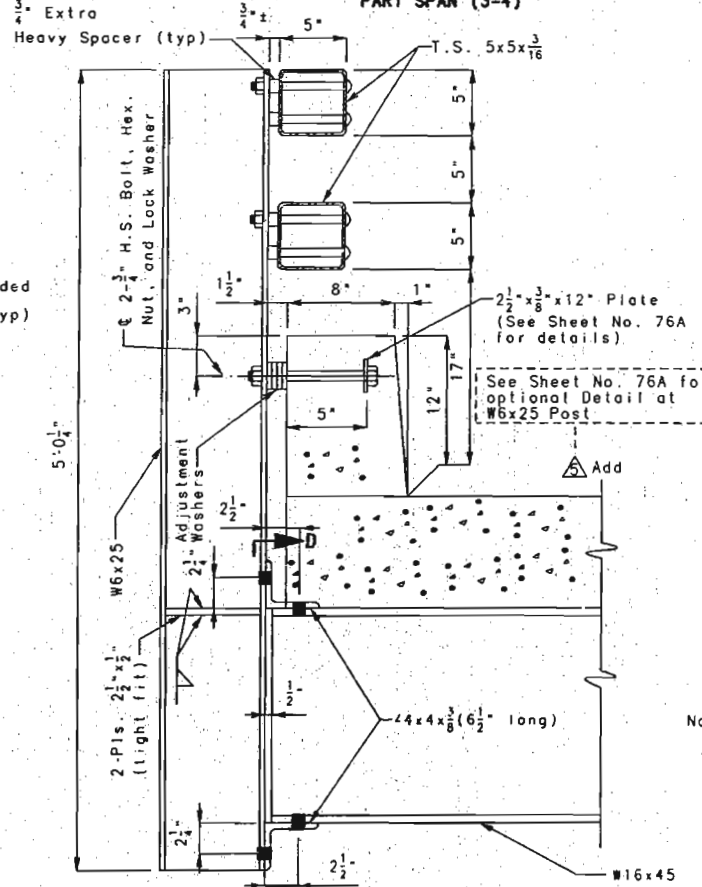
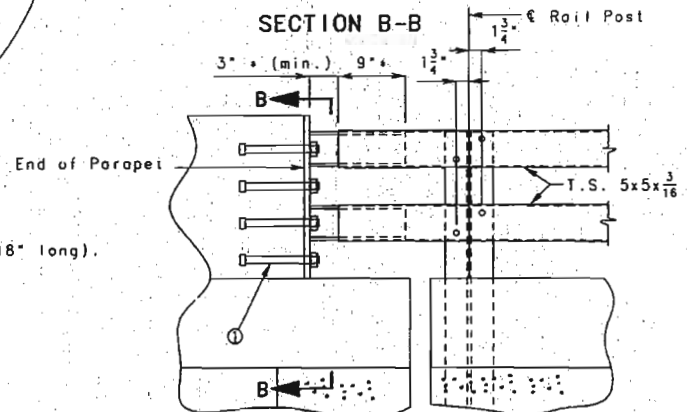
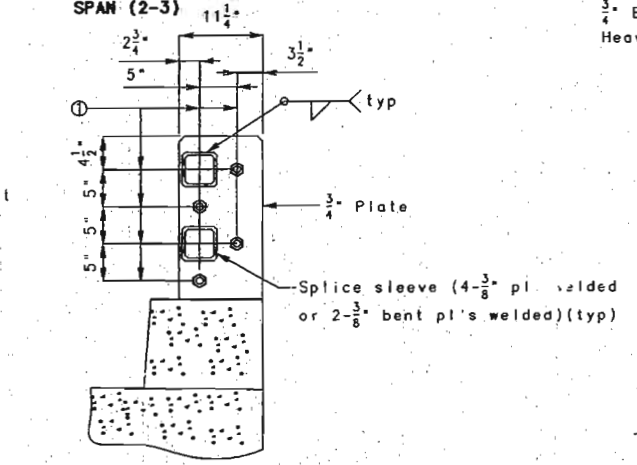
REVISED MARCH 13, 1996

SHEET NO. 70A OF 97

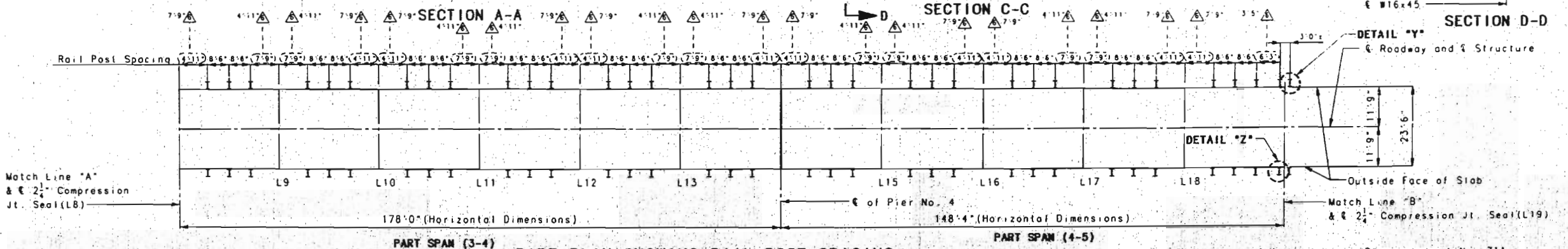
FRANKLIN-WARREN COUNTIES K09691



① 1" \varnothing Anchor bolt (A-307) with hex nut and washer (18" long).
(Entire assembly at end post to be galvanized.)



Note: For Section E-E, see sheet No. 76A.
Note: For Detail "D", see sheet No. 75A.
For Detail "E", see sheet No. 74A.
For Detail "X", see sheet No. 75A.
For Detail "Y", see sheet No. 73A.
For Detail "Z", see sheet No. 76A.
Stay-In-Place Forms not shown for clarity.



343

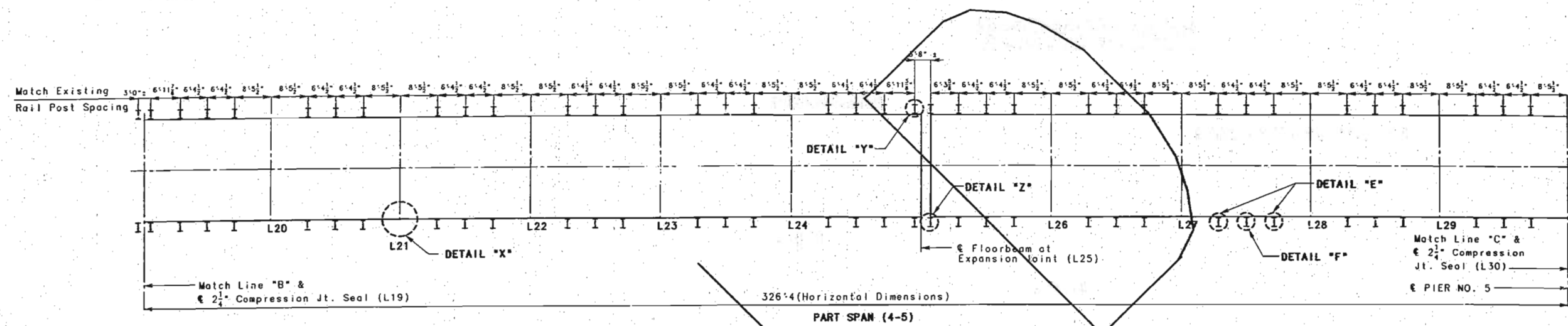
DETAILED MAR. 1996
CHECKED MAR. 1996

REVISD APRIL 4, 1996
REVISD MARCH 28, 1996 AT CONTRACTOR'S REQUEST
REVISD MARCH 13, 1996

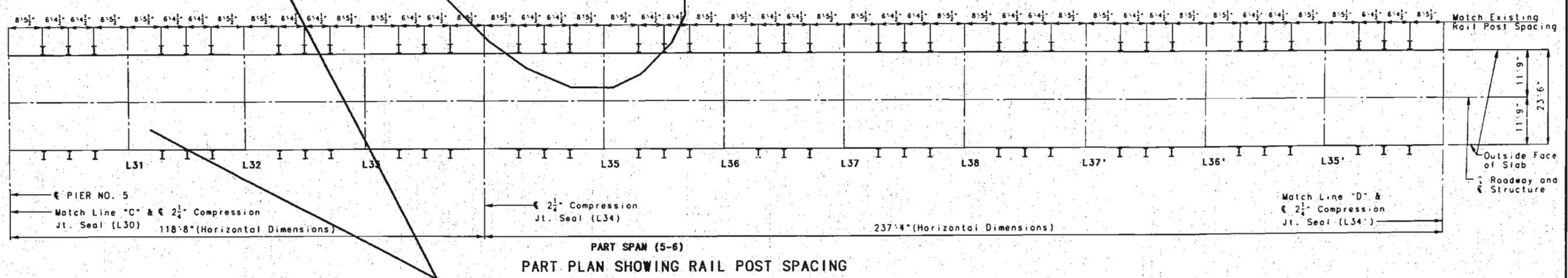
SHEET NO. 70A OF 97

FRANKLIN-WARREN COUNTIES K09691

STATE	PROJ. NO.	SHEET NO.
MO.		



Note: For Detail "E", see sheet No. 74.
 For Detail "F", see sheet No. 76.
 For Detail "X", see sheet No. 75.
 For Detail "Y", see sheet No. 73.
 For Detail "Z", see sheet No. 76.



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DETAILED AUGUST 1995
 CHECKED NOV. 1995

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

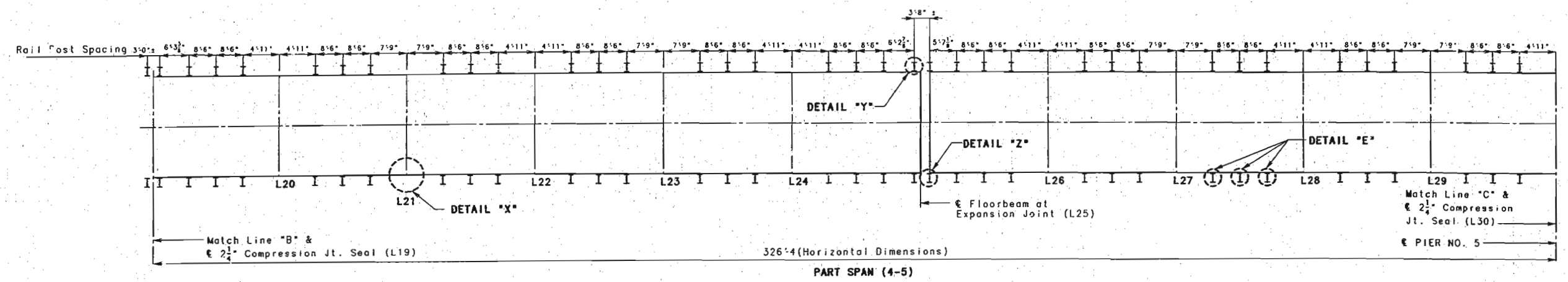
REVISED MARCH 13, 1996

SHEET NO. 71 OF 97

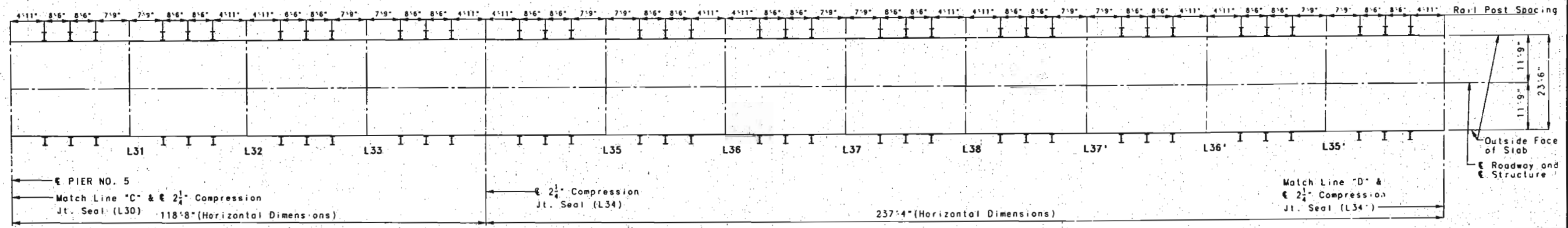
FRANKLIN-WARREN COUNTIES

K09691

STATE	PROJ. NO.	SHEET NO.
MO.		



Note: For Detail "E", see sheet No. 74A.
 For Detail "X", see sheet No. 75A.
 For Detail "Y", see sheet No. 73A.
 For Detail "Z", see sheet No. 76A.



PART PLAN SHOWING RAIL POST SPACING

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DETAILED MAR. 1996
 CHECKED MAR. 1996

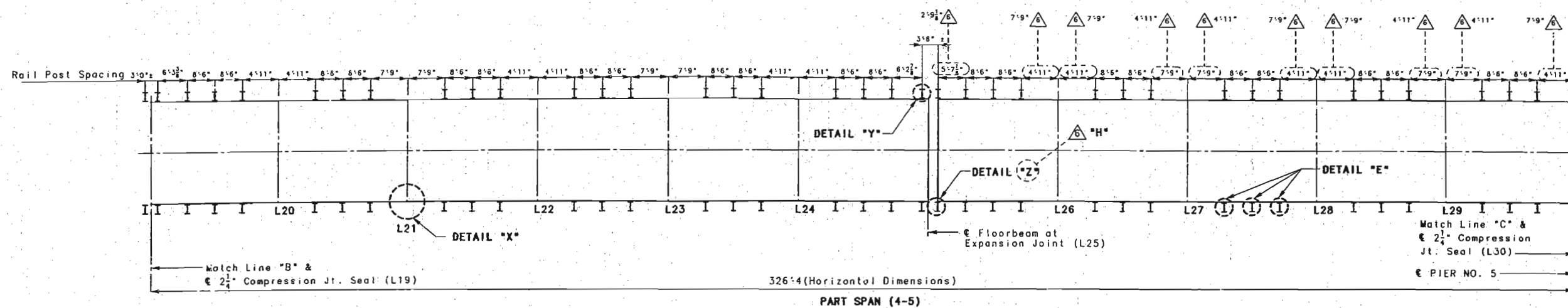
NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

REVISED MARCH 13, 1996

ADD
 SHEET NO. 71A OF 97

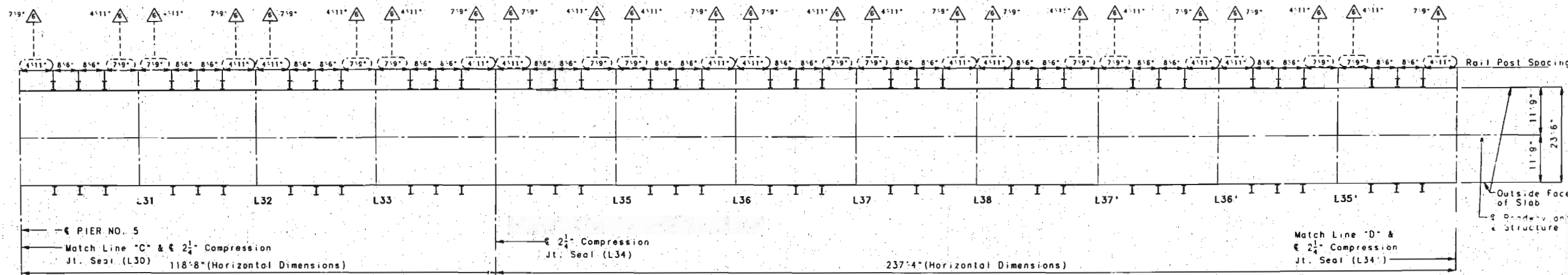
FRANKLIN-WARREN COUNTIES K09691

STATE	PROJ. NO.	SHEET NO.
MO.		



Note: For Detail "E", see sheet No. 74A.
 For Detail "X", see sheet No. 75A.
 For Detail "Y", see sheet No. 73A.
 For Detail "Z", see sheet No. 76A.
 For Detail "H", see sheet No. 76B.

△ DELETE --- △ ADD



PART SPAN (5-6)
 PART PLAN SHOWING RAIL POST SPACING

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 DETAILED MAR. 1996
 CHECKED MAR. 1996

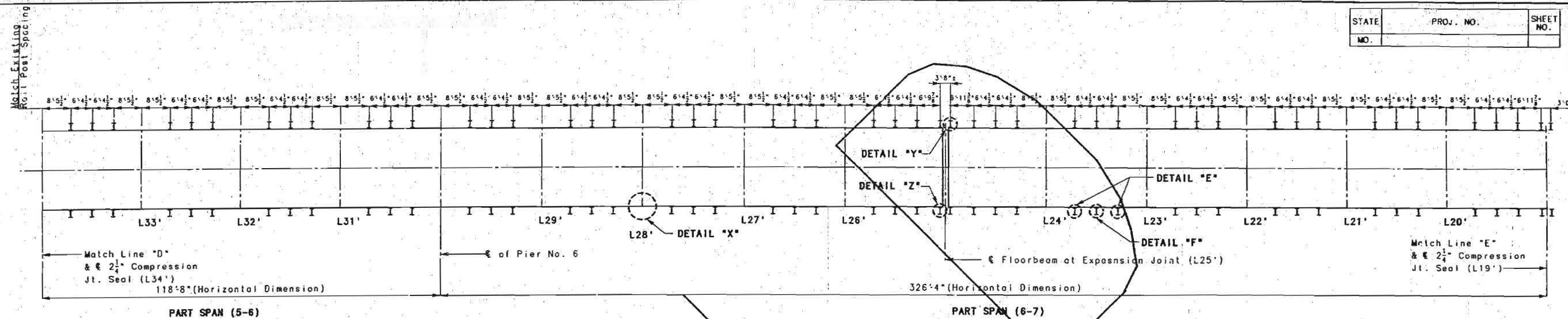
NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

△ REVISED APRIL 4, 1996
 △ REVISED MARCH 13, 1996

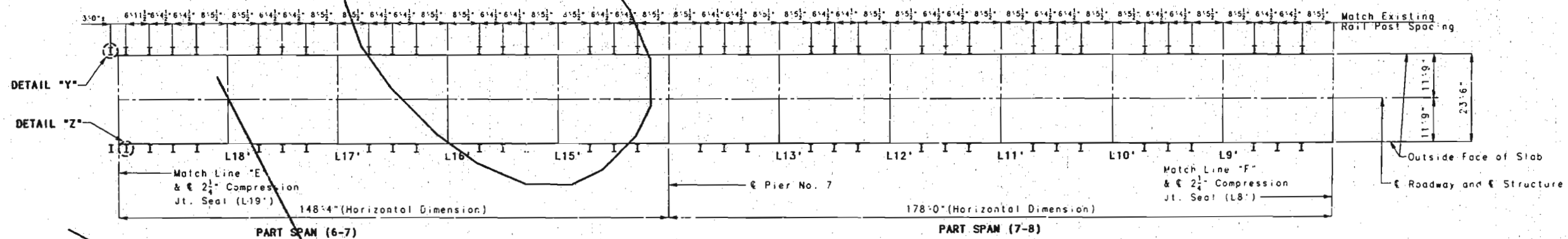
△ ADD
 SHEET NO. 71A OF 97

FRANKLIN-WARREN COUNTIES K09691

STATE	PROJ. NO.	SHEET NO.
MO.		



Note: For Detail "E", see sheet No. 74.
 For Detail "F", see sheet No. 76.
 For Detail "X", see sheet No. 75.
 For Detail "Y", see sheet No. 73.
 For Detail "Z", see sheet No. 76.



PART PLAN SHOWING RAIL POST SPACING

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 DETAILED AUGUST 1995
 CHECKED NOV. 1995

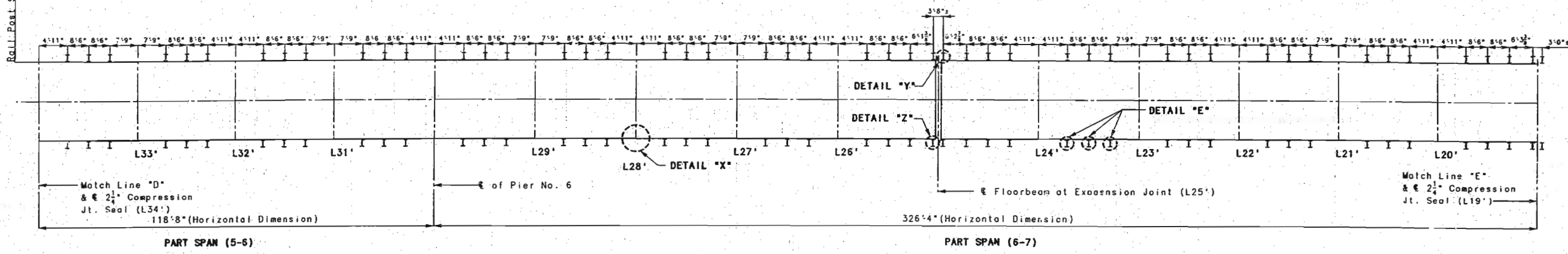
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REVISED MARCH 13, 1996

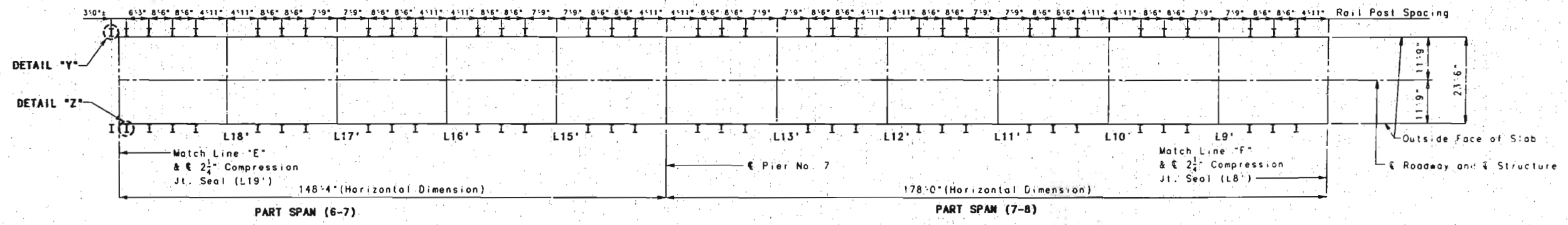
SHEET NO. 72 OF 97

FRANKLIN-WARREN COUNTIES K09691

STATE	PROJ. NO.	SHEET NO.
MO.		



Note: For Detail "E", see sheet No. 74A.
 For Detail "X", see sheet No. 75A.
 For Detail "Y", see sheet No. 73A.
 For Detail "Z", see sheet No. 76A.



PART PLAN SHOWING RAIL POST SPACING

300
 300

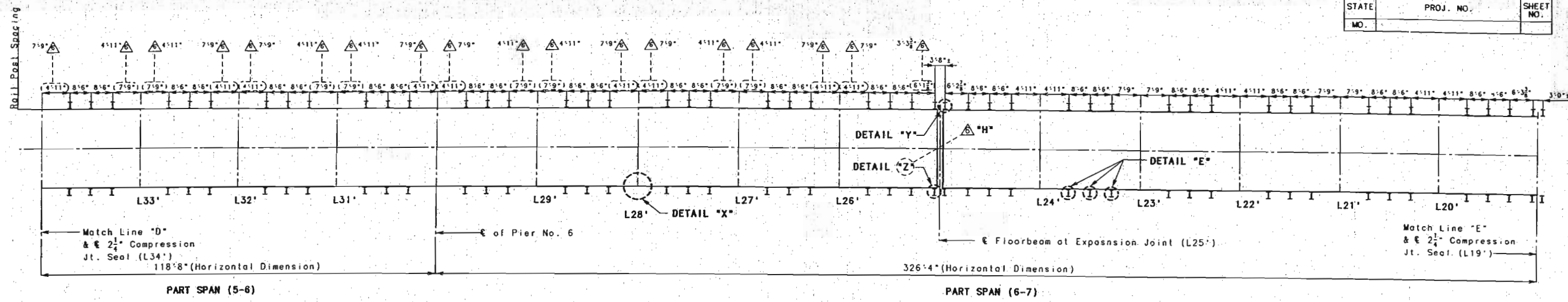
DETAILED MAR. 1996
 CHECKED MAR. 1996

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

REVISED MARCH 13, 1996
 SHEET NO. 72A OF 97

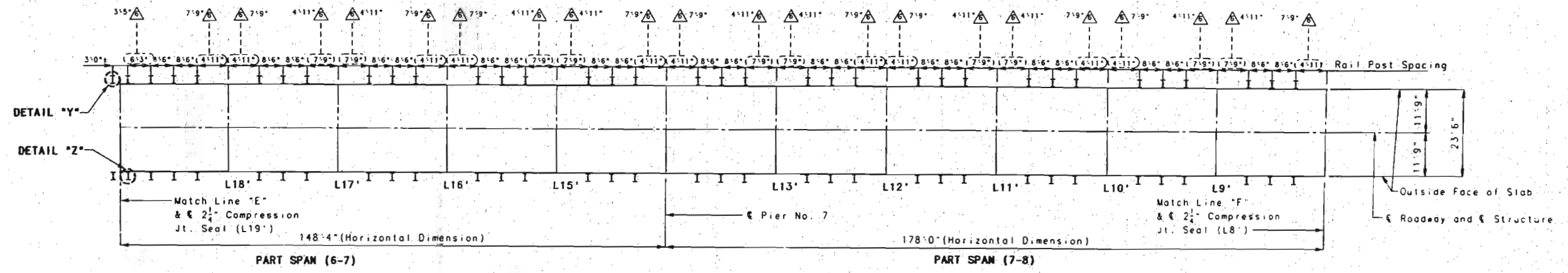
FRANKLIN-WARREN COUNTIES K09691

STATE	PROJ. NO.	SHEET NO.
MO.		



Note: For Detail "E", see sheet No. 74A.
 For Detail "X", see sheet No. 75A.
 For Detail "Y", see sheet No. 73A.
 For Detail "Z", see sheet No. 76A.

For Detail "H", see sheet No. 76B. ADD



PART PLAN SHOWING RAIL POST SPACING

REVISED APRIL 4, 1996

REVISED MARCH 13, 1996

ADD

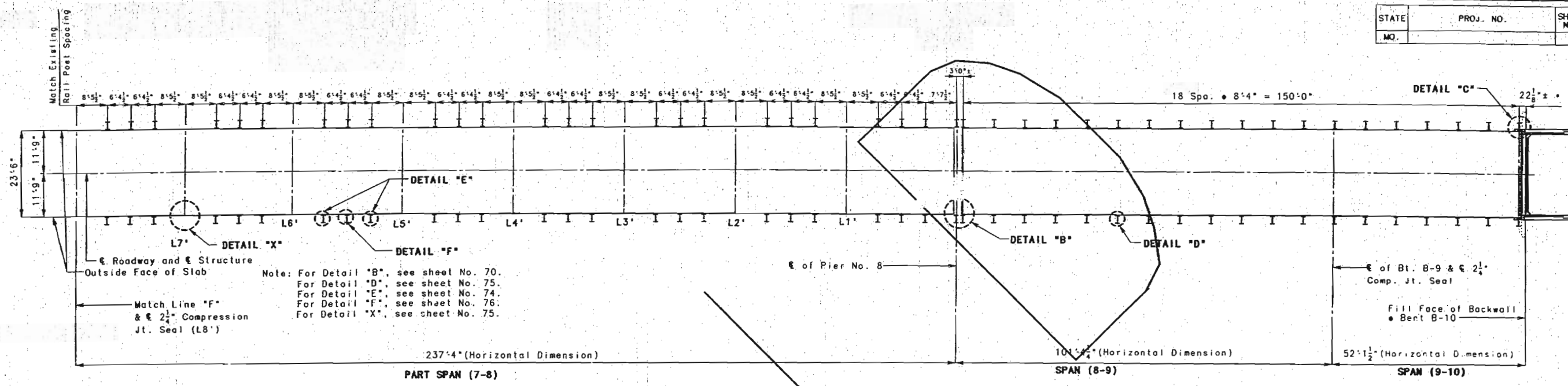
SHEET NO. 72A OF 97

FRANKLIN-WARREN COUNTIES K09691

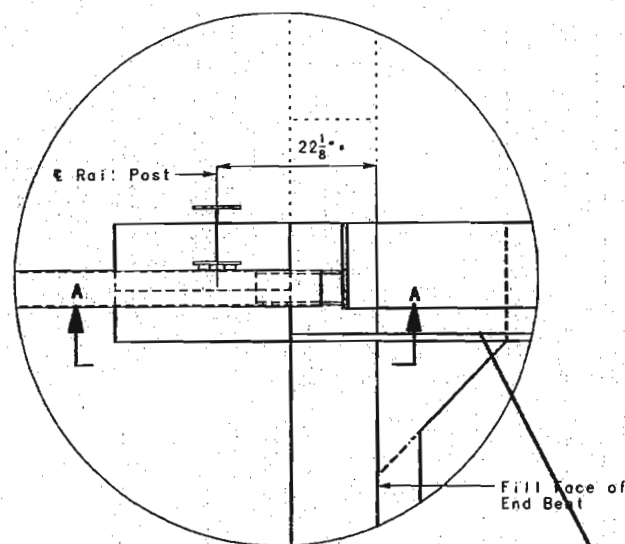
DETAILED MAR. 1996
 CHECKED MAR. 1996

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

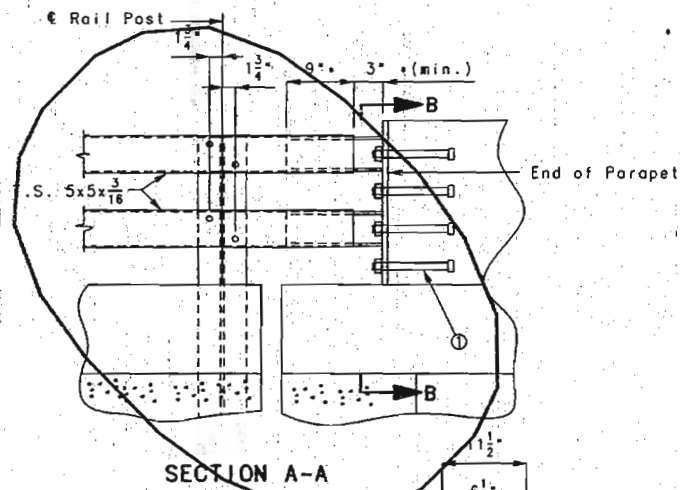
349



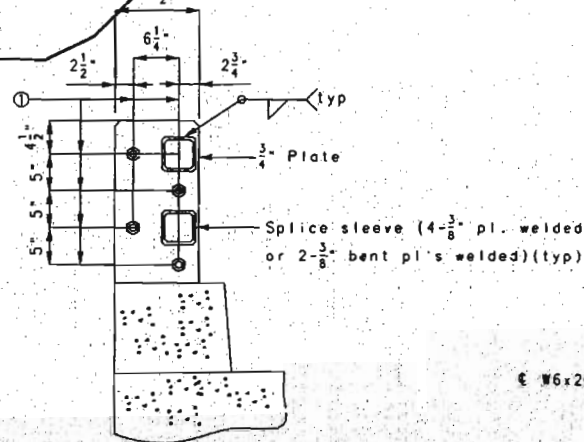
PART PLAN SHOWING RAIL POST SPACING



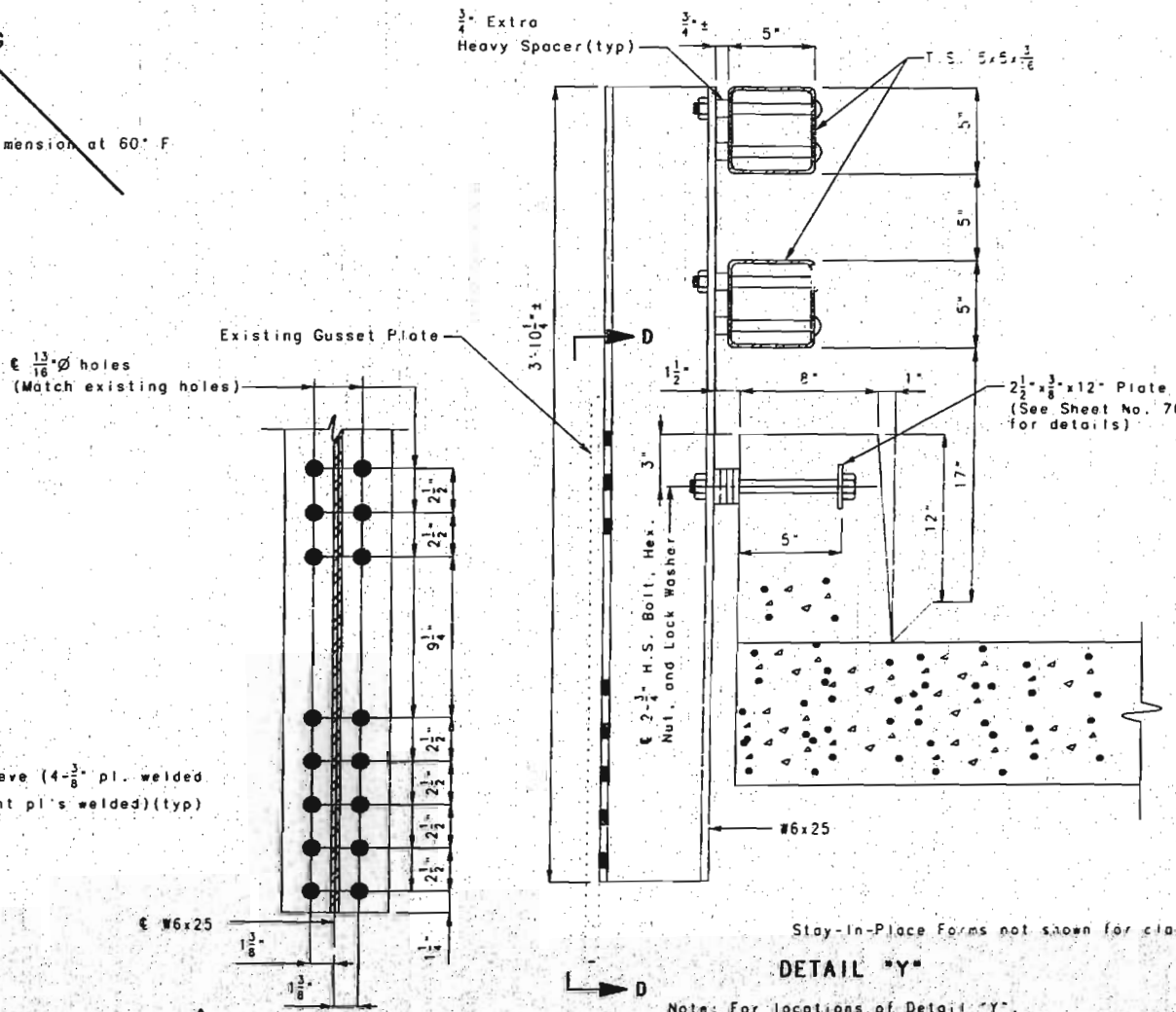
DETAIL "C"



SECTION A-A



SECTION B-B



DETAIL "Y"

SECTION D-D

300
 DETAILED AUGUST 1995
 CHECKED NOV. 1995

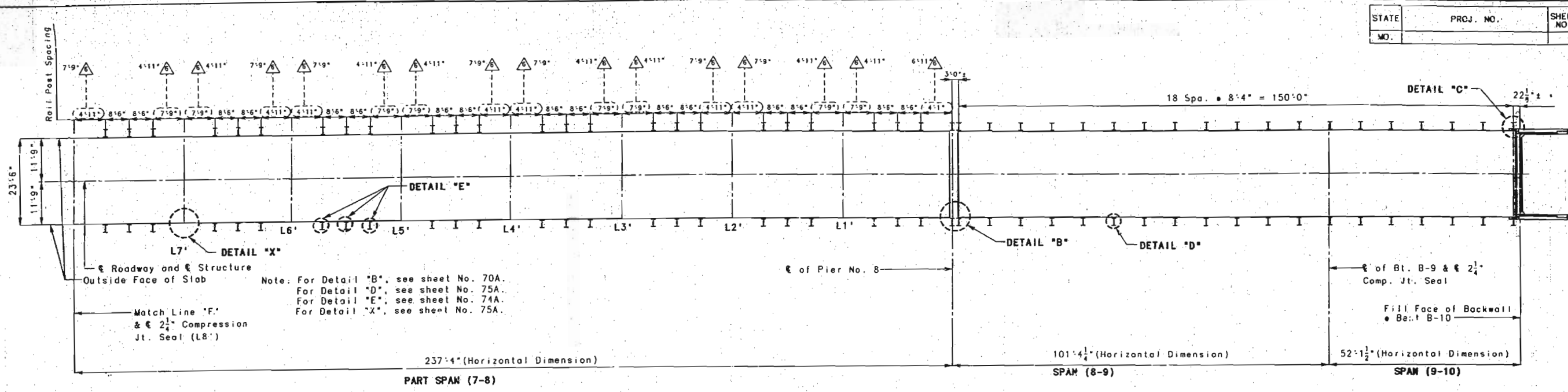
NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

REVISOR: [Symbol] REVISED MARCH 13, 1996

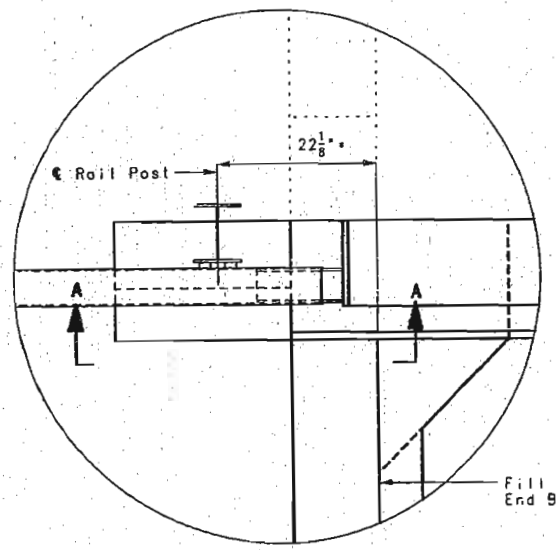
SHEET NO. 73 OF 97

FRANKLIN-WARREN COUNTIES K09691

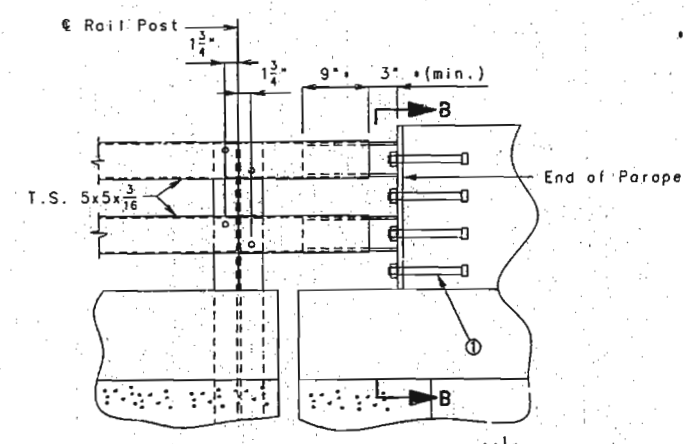
STATE	PRCJ. NO.	SHEET NO.
MO.		



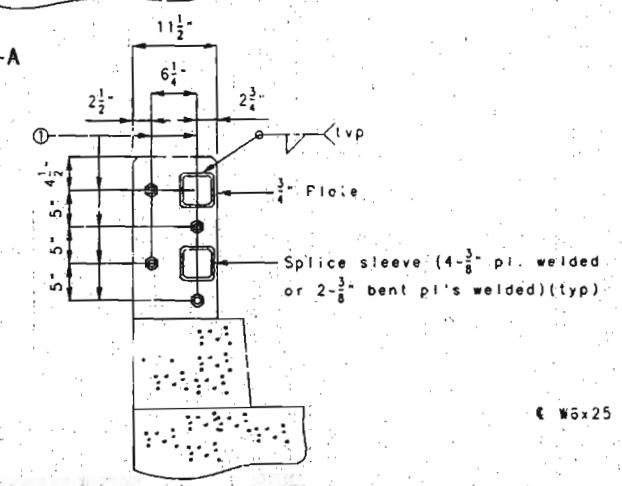
PART PLAN SHOWING RAIL POST SPACING



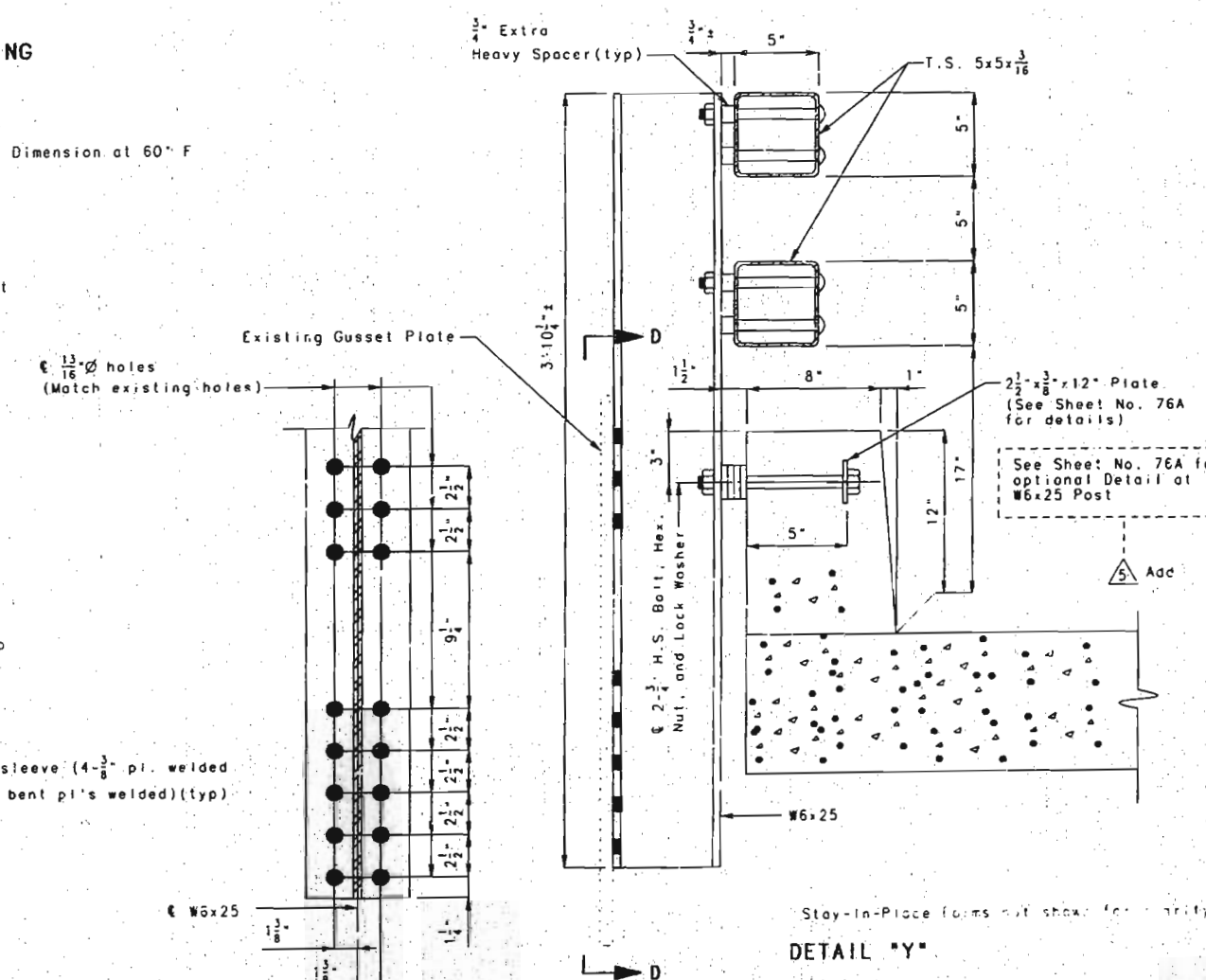
DETAIL "C"



SECTION A-A



SECTION B-B



SECTION D-D

DETAIL "Y"

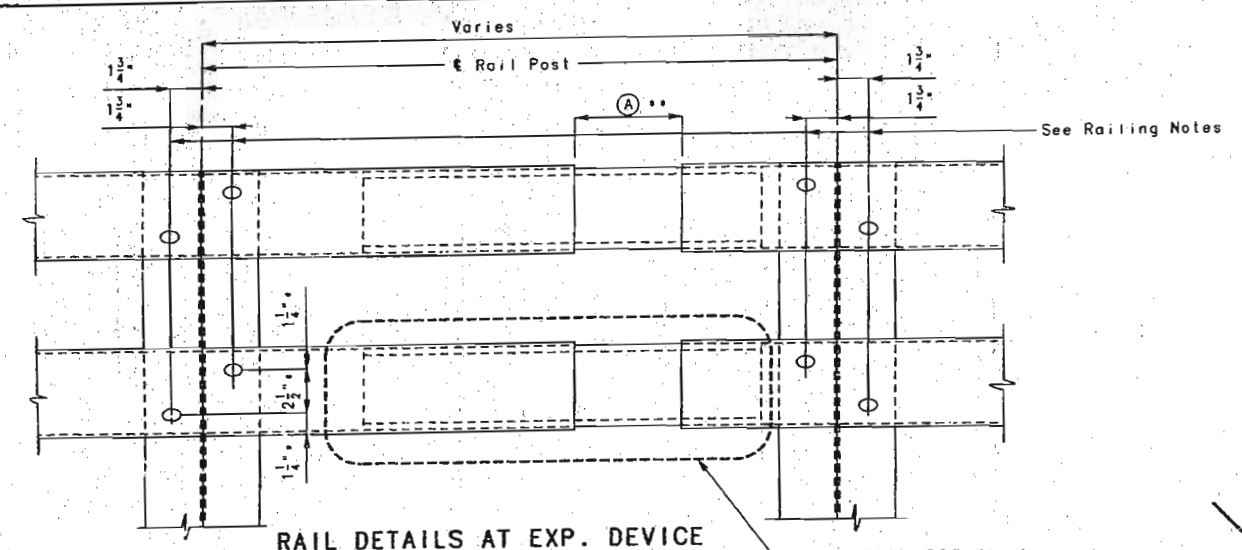
353

DETAILED MAR. 1996
CHECKED MAR. 1996

REVISD APRIL 4, 1996
REVISD MARCH 28, 1996 AT CONTRACTOR'S REQUEST
REVISD MARCH 13, 1996
NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

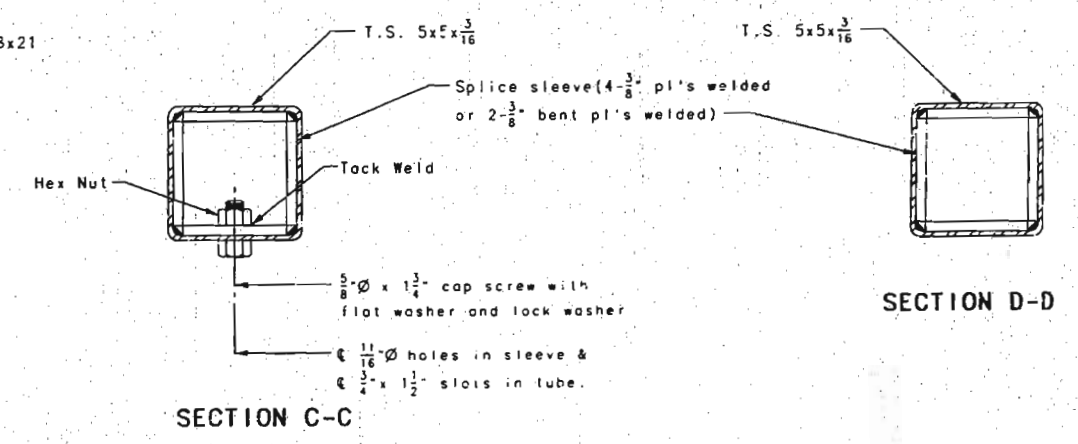
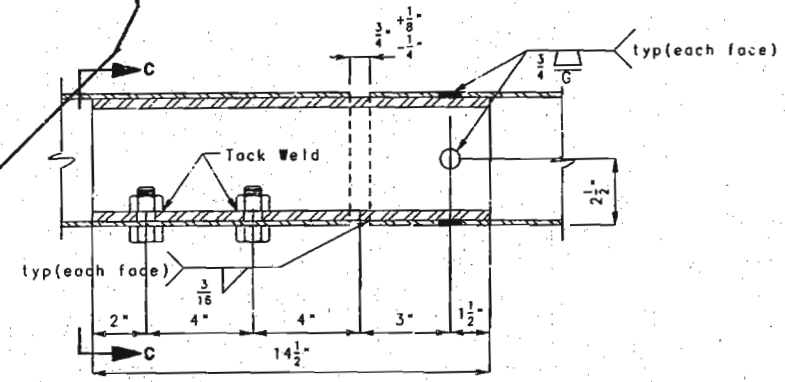
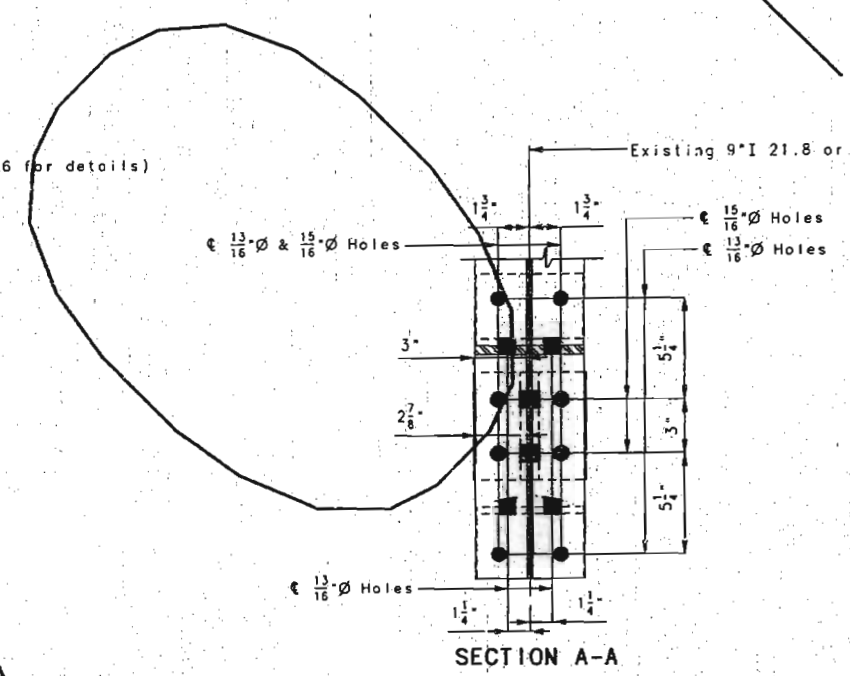
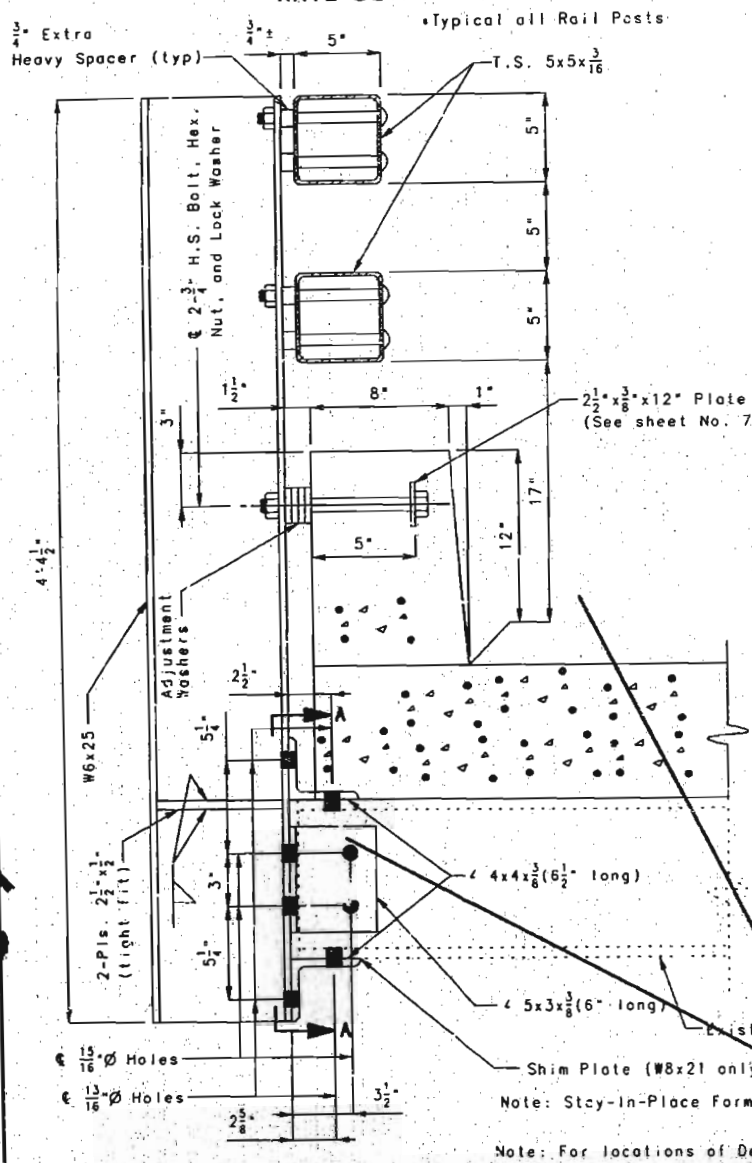
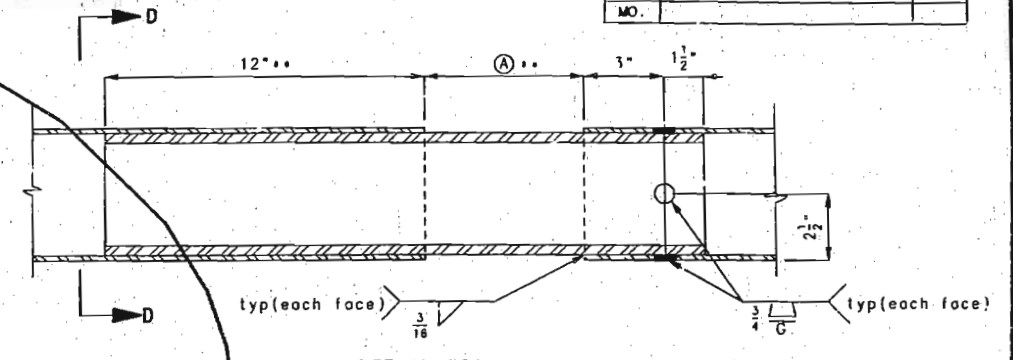
ADD SHEET NO. 73A OF 197

FRANKLIN-WARREN COUNTIES K09691



(A)	PANEL POINT
4"	L0, L25', L0'
7"	L25
1"	L8, L19, L34, L34', L19', L8'

** Dimension at 60' F.



RAILING NOTES:
 Railing shall be fabricated in two or three panel lengths unless otherwise approved.
 Structural steel tube railing and rail post including connecting plates, bolts, nuts, and washers shall be galvanized in accordance with ASTM A123 or A153.
 Structural steel tube railing shall conform to requirements of ASTM designation A500 or A501.
 Splice in rail shall be provided at about 1/4 point between posts. Rail expansion splice should be provided at open joints in slab.
 Fabrication of structural steel shall be in accordance with section 712 of Standard Specifications.
 If rail is shop drilled use 11/16" x 1" horizontal slot in TS 5x5x3/16 with 11/16" hole in rail post flange. Use 5/8" button head bolts (oval shoulder) with one flat washer and hex nut.
 If rail is field drilled use 11/16" hole in TS 5x5x3/16 with 11/16" hole in rail post flange. Use 5/8" button head bolt with one flat washer and hex nut.
 Location of slots or holes is to be at dimensions shown regardless of method used to install proposed rails.
 5/8" studs to be fastened to TS 5x5x3/16 (shop or field applied) may be used in lieu of 5/8" button head bolts. A 1" extra heavy spacer shall be used in place of the 3/4" extra heavy spacer if 5/8" studs are used.
 The cost of furnishing, fabricating and installing the rails, posts, plates, miscellaneous shapes and bolts shall be paid for at the contract unit price for Bridge Rail (Two Tube Structural Steel) per linear foot. Use 3/4" High Strength Bolts in 1 3/16" Holes and 5/8" High Strength Bolts in 1 5/16" Holes.

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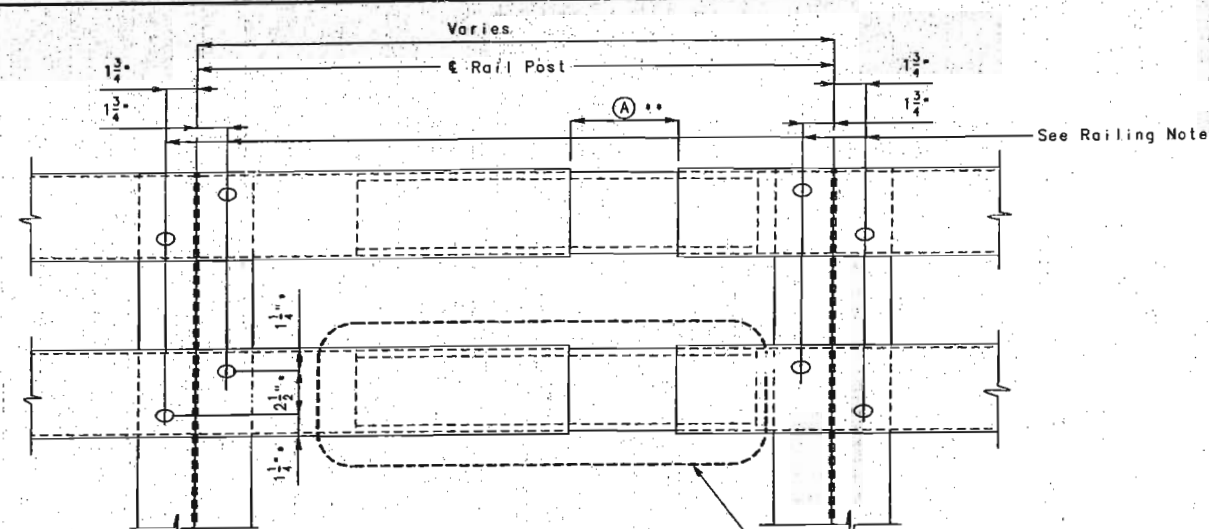
DETAILED AUGUST 1995
 CHECKED NOV. 1995

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

REVISD MARCH 13, 1996

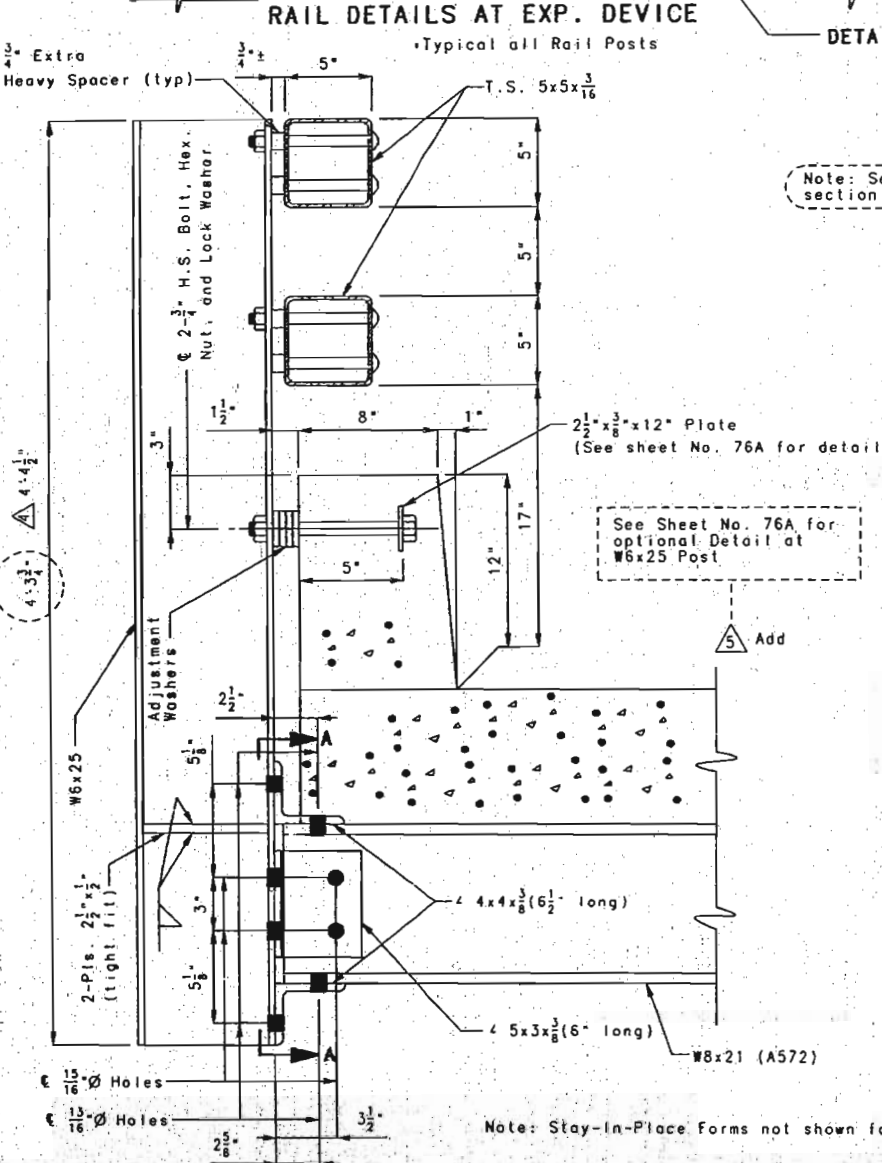
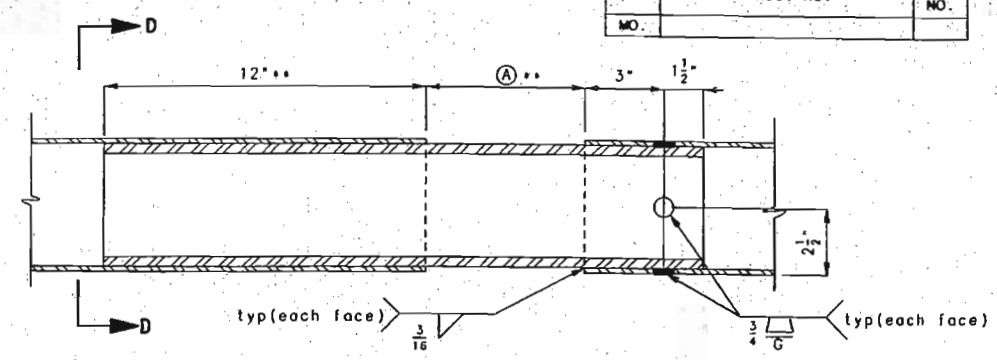
SHEET NO. 74 OF 97

FRANKLIN-WARREN COUNTIES K09691



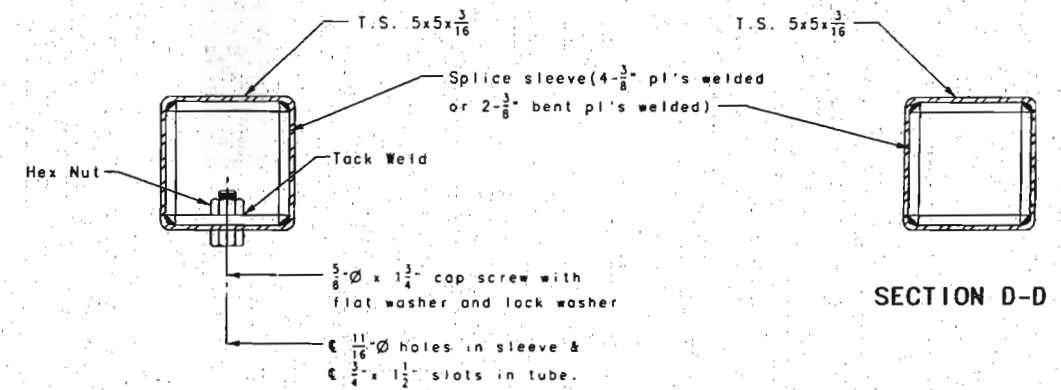
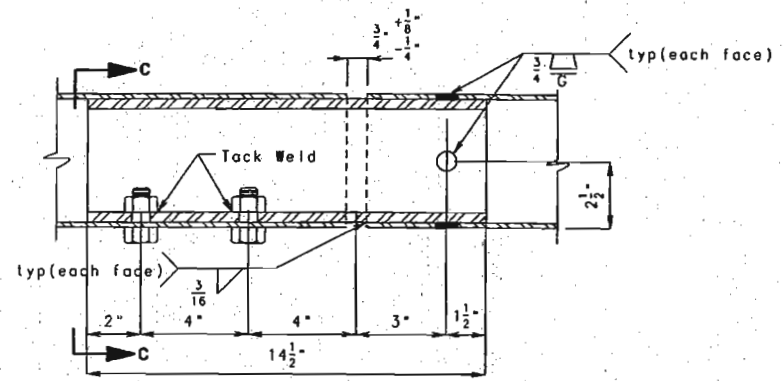
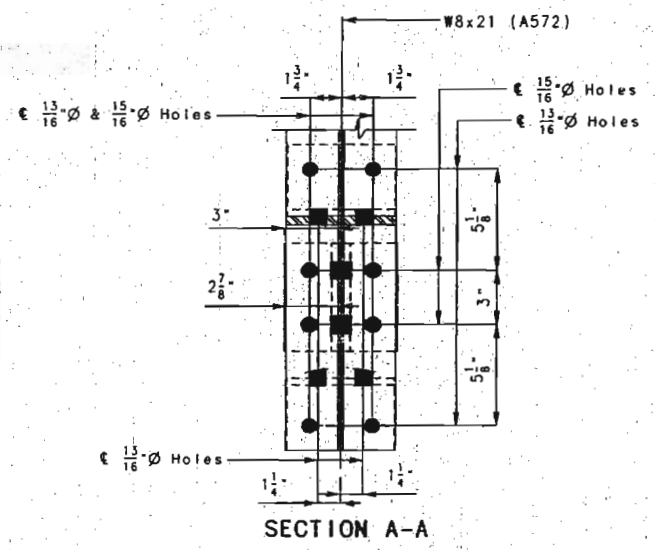
(A)	PANEL POINT
4"	L0, L25', L0'
7"	L25
1"	L8, L19, L34, L34', L19', L8'

** Dimension at 60' F.



Note: See sheet No. 63 for section thru slab at crossbeam. Add

See Sheet No. 76A for optional Detail at W8x25 Post



RAILING NOTES:
 In no case shall the spacing of the bridge rail supports (post or truss connections) exceed 8'-6".
 Railing shall be fabricated in two or three panel lengths unless otherwise approved.
 Structural steel tube railing and rail post including connecting plates, bolts, nuts, and washers shall be galvanized in accordance with ASTM A123 or A153.
 Structural steel tube railing shall conform to requirements of ASTM designation A500 or A501.
 Splice in rail shall be provided at about 1/4 point between posts. Rail expansion splice should be provided at open joints in slab.
 Fabrication of structural steel shall be in accordance with section 712 of Standard Specifications.
 If rail is shop drilled use 11/16" x 1" horizontal slot in TS 5x5x3/16 with 11/16" hole in rail post flange. Use 5/8" button head bolts (oval shoulder) with one flat washer and hex nut.
 If rail is field drilled use 11/16" hole in TS 5x5x3/16 with 11/16" hole in rail post flange. Use 5/8" button head bolt with one flat washer and hex nut.
 Location of slots or holes is to be at dimensions shown regardless of method used to install proposed rails.
 5/8" studs to be fastened to TS 5x5x3/16 (shop or field applied) may be used in lieu of 5/8" button head bolts. A 1" extra heavy spacer shall be used in place of the 3/4" extra heavy spacer if 5/8" studs are used.
 The cost of furnishing, fabricating and installing the rails, posts, plates, miscellaneous shapes and bolts shall be paid for at the contract unit price for Bridge Rail (Two Tube Structural Steel) per linear foot. Use 3/4" High Strength Bolts in 13/16" holes and 7/8" High Strength Bolts in 15/16" holes.

Note: Stay-In-Place Forms not shown for clarity.
 Note: For locations of Detail "E", see sheet Nos. 70A, 71A, 72A & 73A.

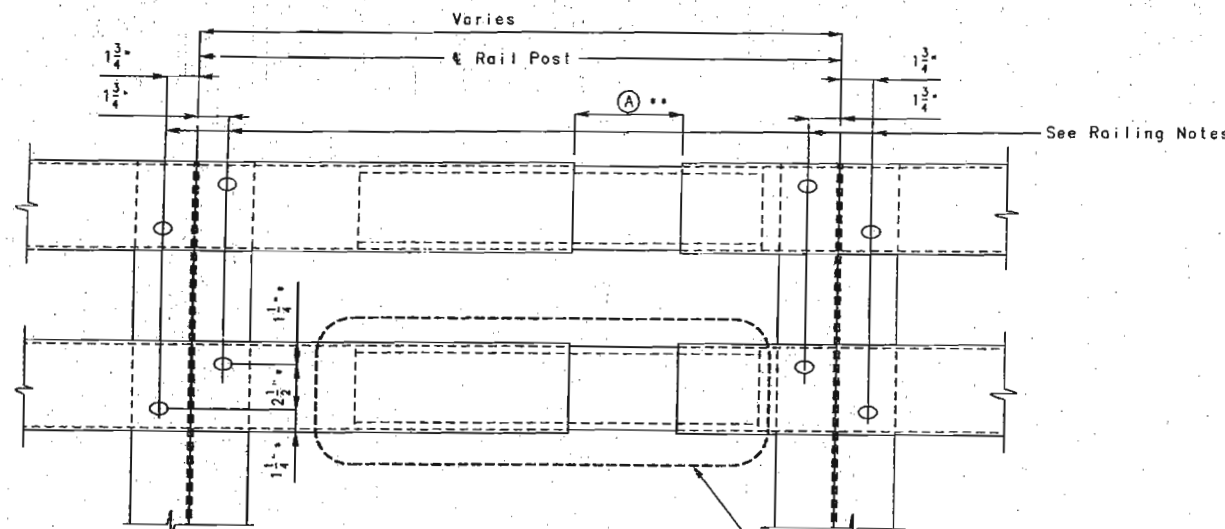
- 5 REVISED MARCH 28, 1996 AT CONTRACTOR'S REQUEST
- 4 REVISED MARCH 19, 1996
- 3 REVISED MARCH 13, 1996

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 DETAILED MAR. 1996
 CHECKED MAR. 1996

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

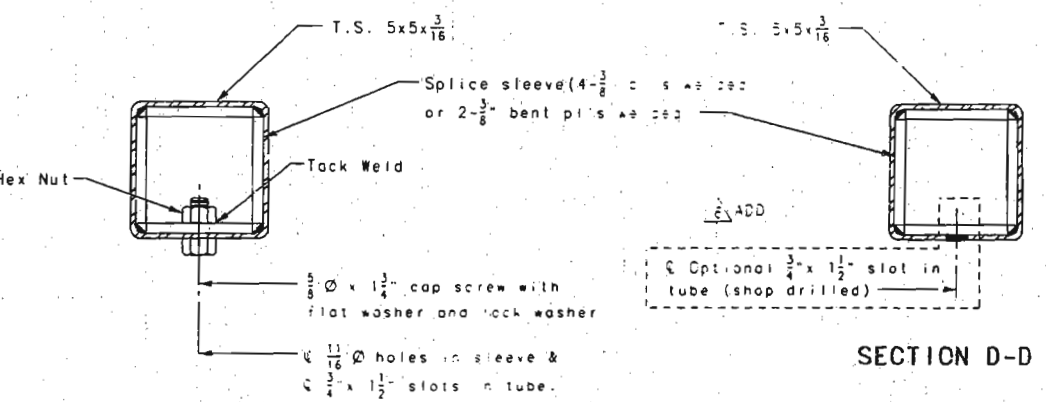
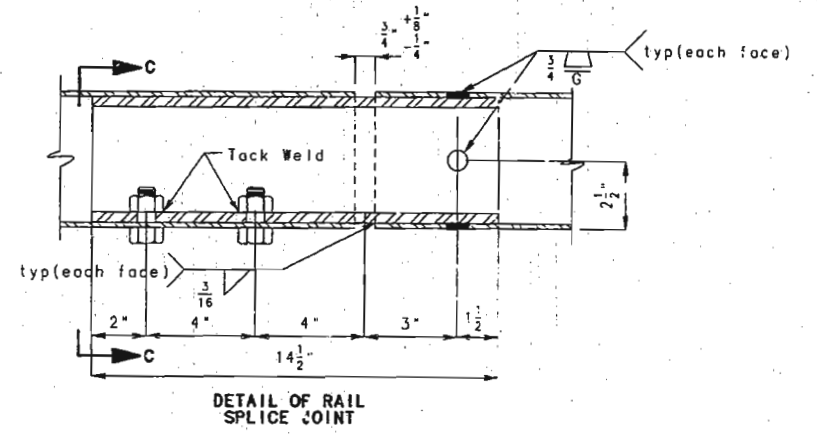
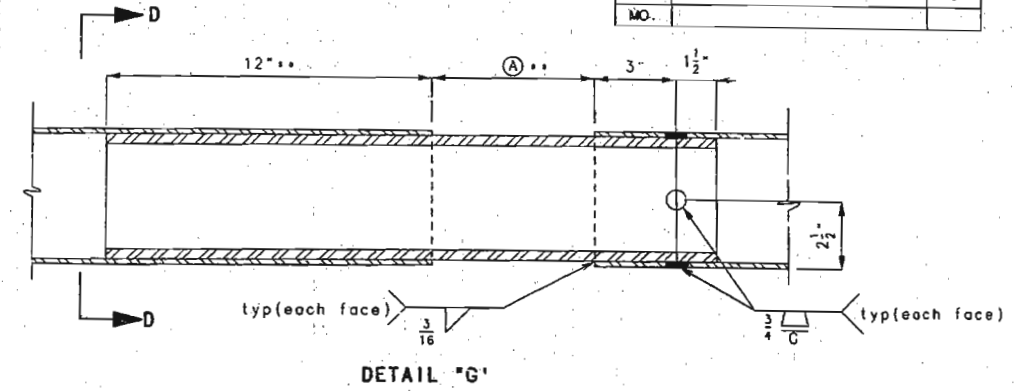
SHEET NO. 74A OF 97

FRANKLIN-WARREN COUNTIES K09691



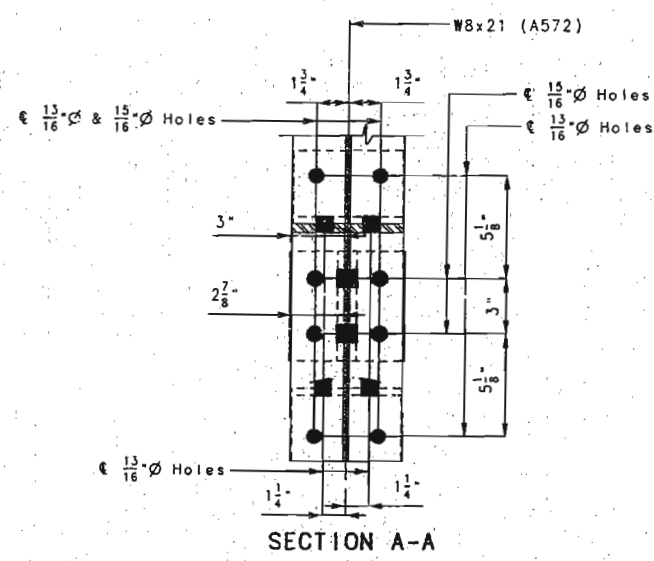
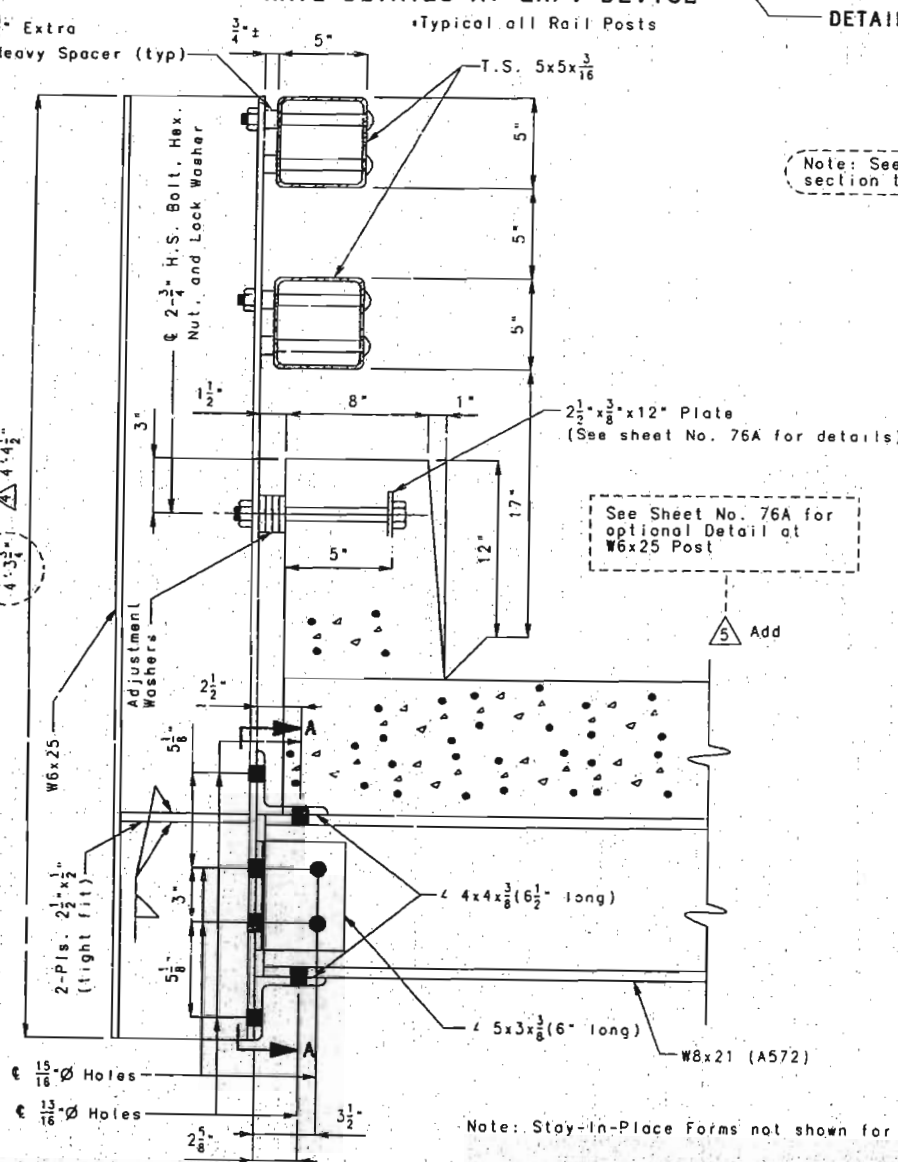
(A)	PANEL POINT
4"	L0, L25', L0'
7"	L25
1"	L8, L19, L34, L34', L19', L8'

** Dimension at 60° F.



SECTION C-C

RAILING NOTES:
 In no case shall the spacing of the bridge rail supports (post or truss connections) exceed 8'-6".
 Railing shall be fabricated in two or three panel lengths unless otherwise approved.
 Structural steel tube railing and rail post including connecting plates, bolts, nuts, and washers shall be galvanized in accordance with ASTM A123 or A153.
 Structural steel tube railing shall conform to req. ...
 Splice in rail shall be provided at about 1/4 point between posts. Rail expansion splice should be provided at open joints in slab.
 Fabrication of structural steel shall be in accordance with section 712 or Standard Specifications.
 If rail is shop drilled use 11/16"x1" horizontal slot in TS 5x5x3/16 with 11/16" hole in rail post flange. Use 5/8" button head bolts (oval shoulder) with one flat washer and hex nut.
 If rail is field drilled use 11/16" hole in TS 5x5x3/16 with 11/16" hole in rail post flange. Use 5/8" button head bolt with one flat washer and hex nut.
 Location of slots or holes is to be at dimensions shown regardless of method used to install proposed rails.
 5/8" studs to be fastened to TS 5x5x3/16 (shop or field applied) may be used in lieu of 5/8" button head bolts. A 1" extra heavy spacer shall be used in place of the 3/4" extra heavy spacer if 5/8" studs are used.
 The cost of furnishing, fabricating and installing the rails, posts, plates, miscellaneous shapes and bolts shall be paid for at the contract unit price for Bridge Rail (Two Tube Structural Steel) per linear foot. Use 3/4" High Strength Bolts in 13/16" holes and 5/8" High Strength Bolts in 11/16" holes.



SECTION A-A

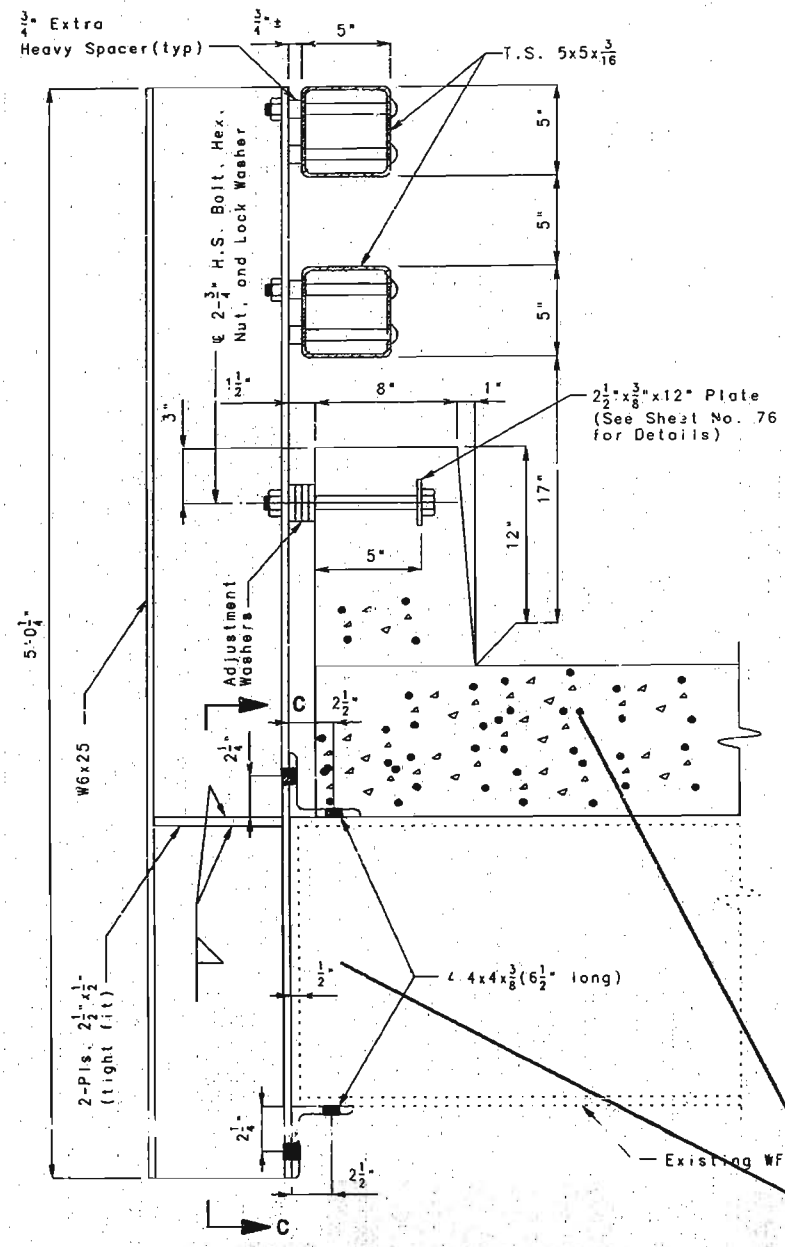
- 6 REVISED APRIL 4, 1996 AT CONTRACTOR'S REQUEST
- 5 REVISED MARCH 28, 1996 AT CONTRACTOR'S REQUEST
- 4 REVISED MARCH 19, 1996
- 3 REVISED MARCH 13, 1996

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

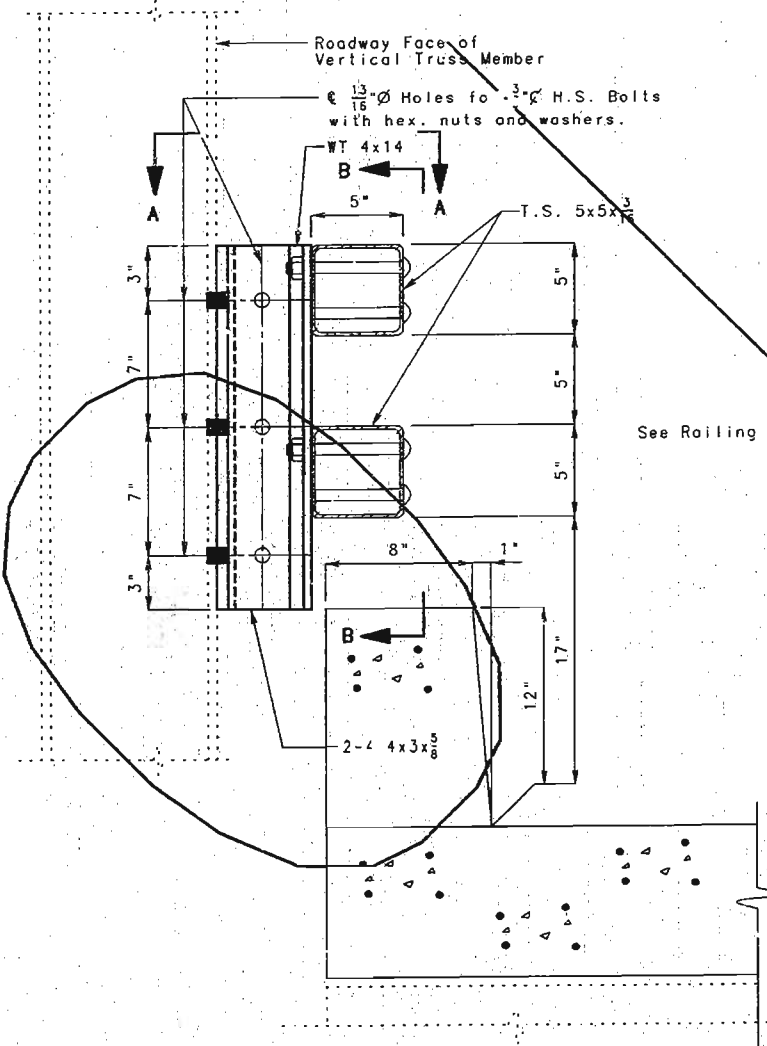
358
 DETAILED MAR. 1996
 CHECKED MAR. 1996

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STATE	PROJ. NO.	SHEET NO.
MO.		



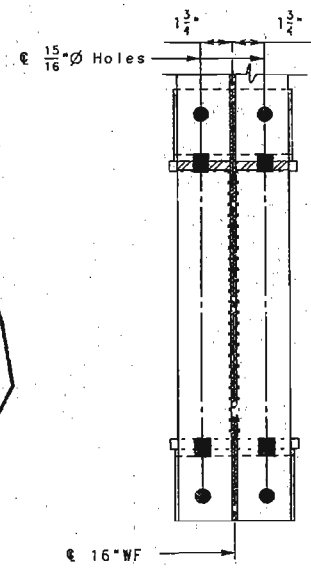
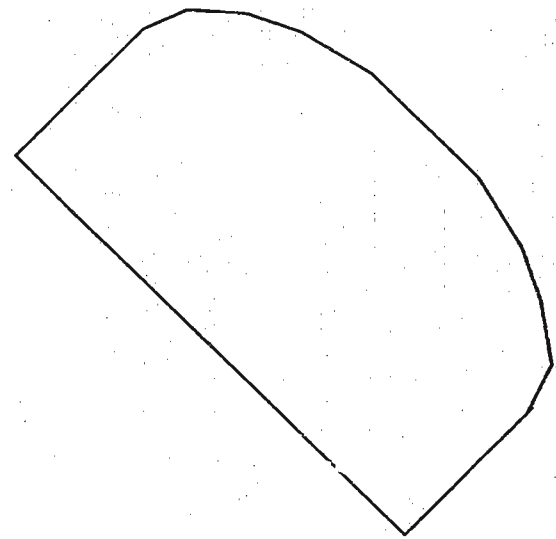
DETAIL "D"



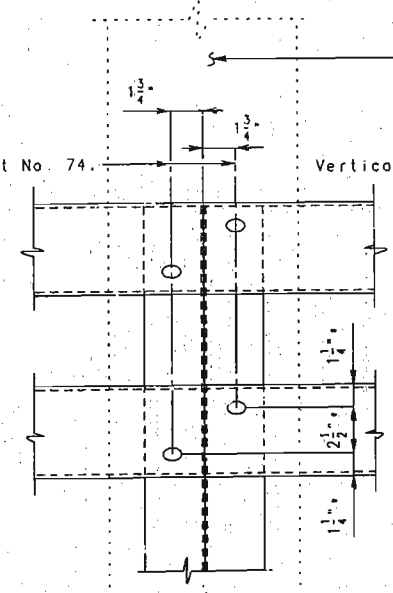
DETAIL "X"

Note: For locations of Detail "X", see sheet Nos. 70, 71, 72 & 73.
 For locations of Detail "D", see sheet Nos. 70 & 73.

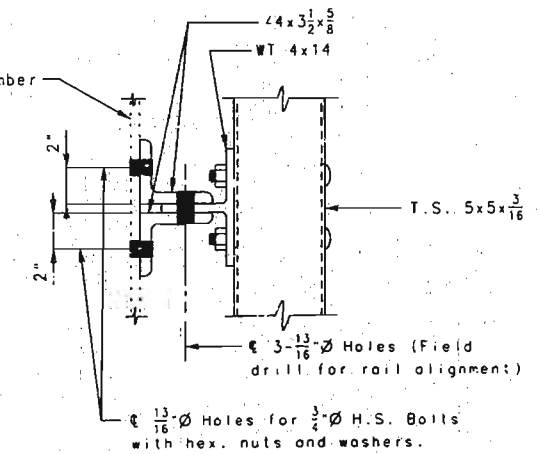
Stay-in-Place Forms not shown for clarity.



SECTION C-C



SECTION B-B
 Typical all Rail Posts



SECTION A-A

See Railing Notes on sheet No. 74.

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DETAILED AUGUST 1995
 CHECKED NOV. 1995

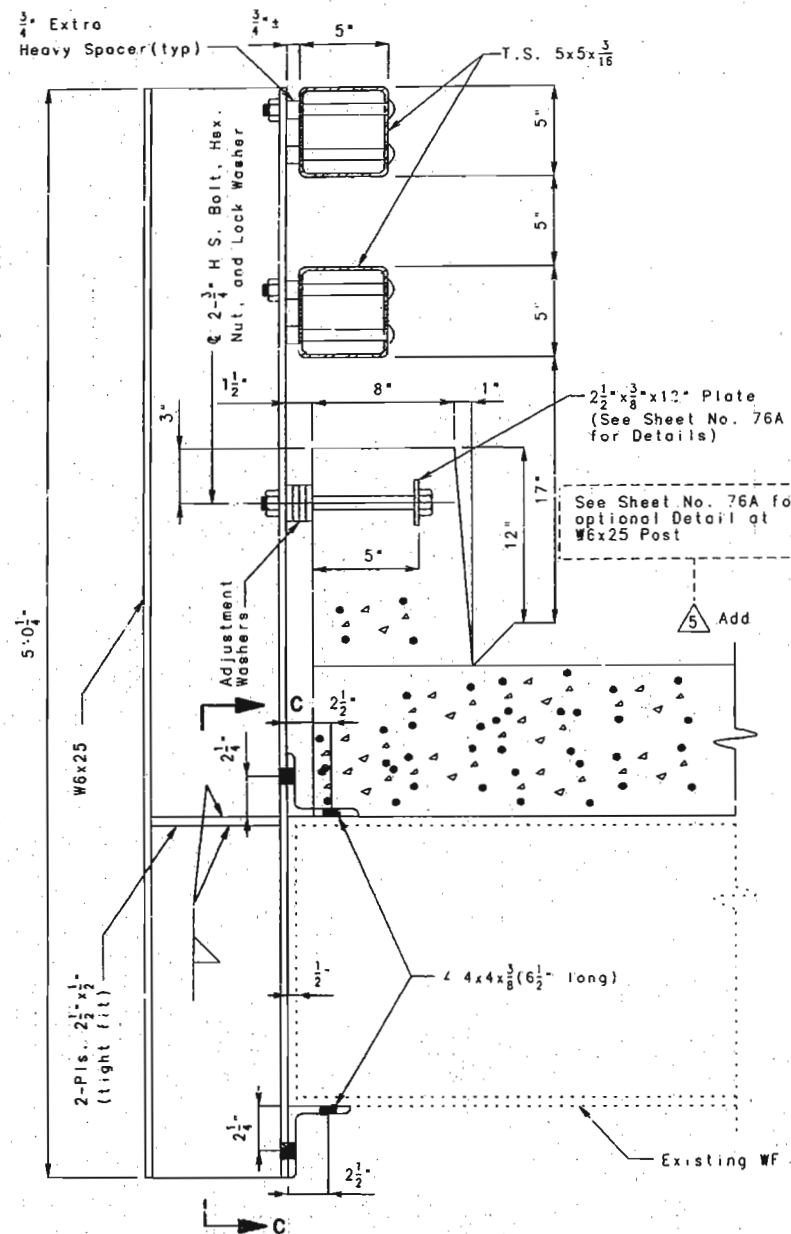
NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

REVISED MARCH 13, 1996

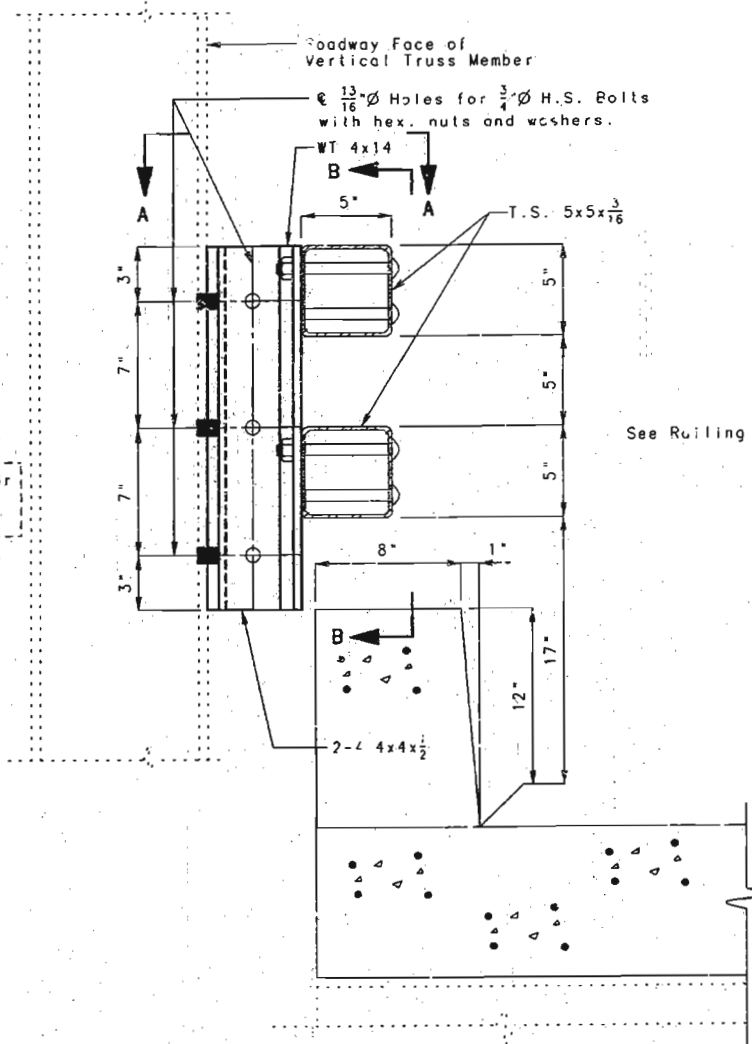
SHEET NO. 25 OF 97

FRANKLIN-WARREN COUNTIES K09691

STATE	PROJ. NO.	SHEET NO.
MO:		



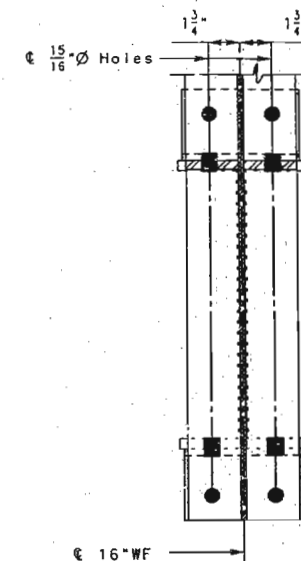
DETAIL "D"



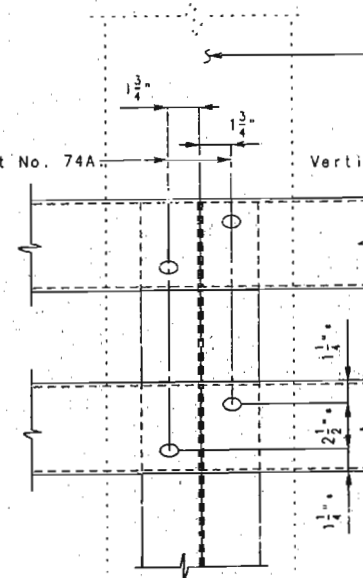
DETAIL "X"

Note: For locations of Detail "X", see sheet Nos. 70A, 71A, 72A & 73A.
For locations of Detail "D", see sheet Nos. 70A & 73A.

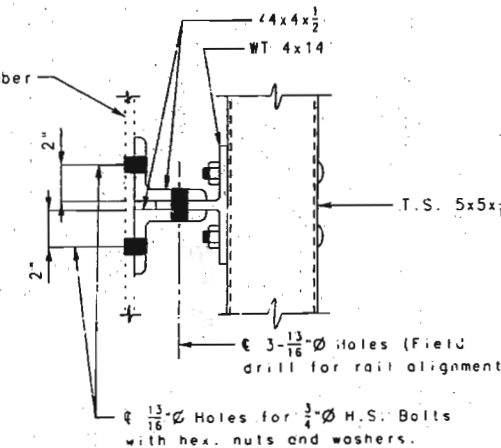
Stay-in-Place Forms not shown for clarity.



SECTION C-C



SECTION B-B
Typical all Rail Posts



SECTION A-A

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 DETAILED MAR. 1996
 CHECKED MAR. 1996

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

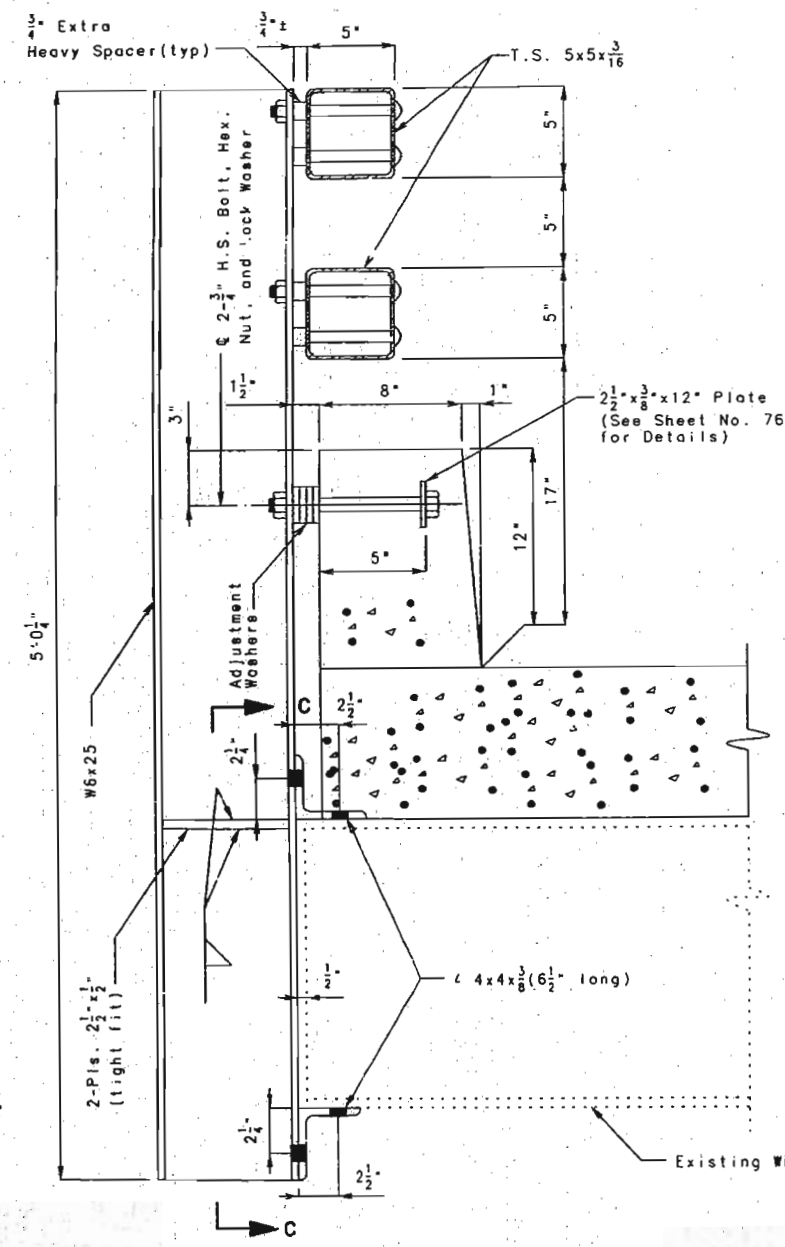
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REVISOR: [Symbol] REVISED MARCH 13, 1996

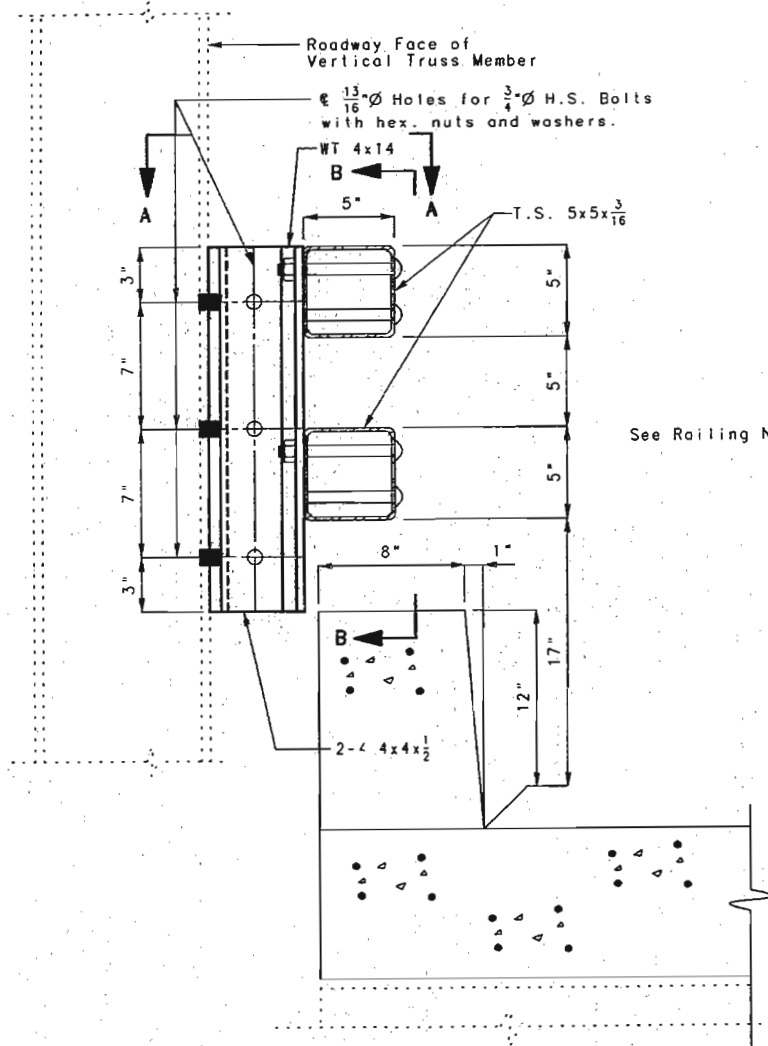
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 SHEET NO. 75A OF 97

FRANKLIN-WARREN COUNTIES K09691

STATE	PROJ. NO.	SHEET NO.
NO.		



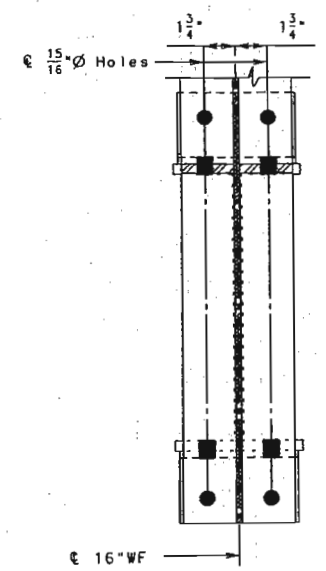
DETAIL "D"



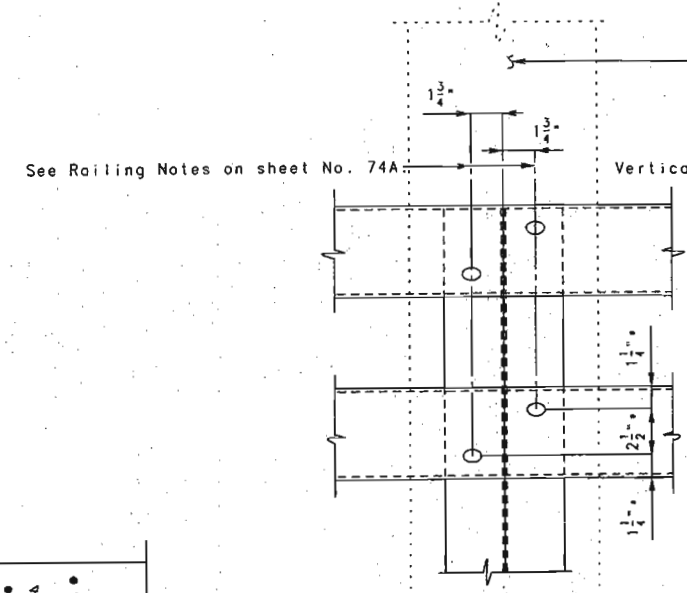
DETAIL "X"

Note: For locations of Detail "X", see sheet Nos. 70A, 71A, 72A & 73A.
 For locations of Detail "D", see sheet Nos. 70A & 73A.

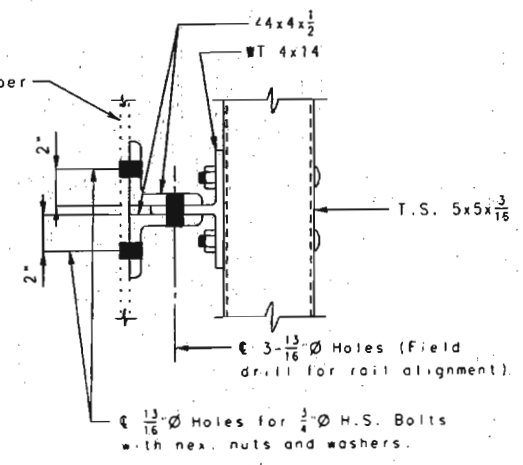
Stay-in-Place Forms not shown for clarity.



SECTION C-C



SECTION B-B
 Typical all Rail Posts



SECTION A-A

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DETAILED MAR. 1996
 CHECKED MAR. 1996

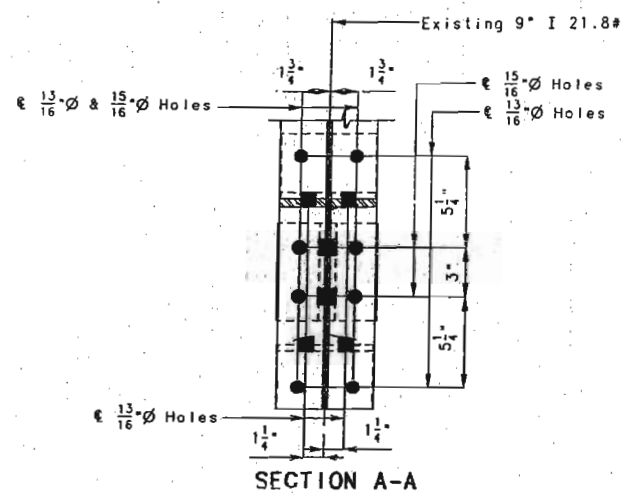
NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

REVISED MARCH 13, 1996

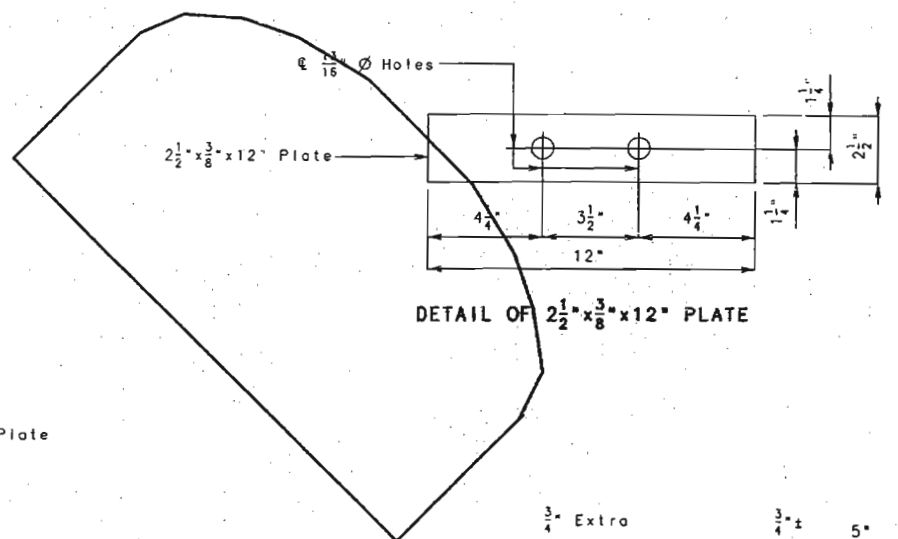
SHEET NO. 75A OF 97

FRANKLIN-WARREN COUNTIES K09691

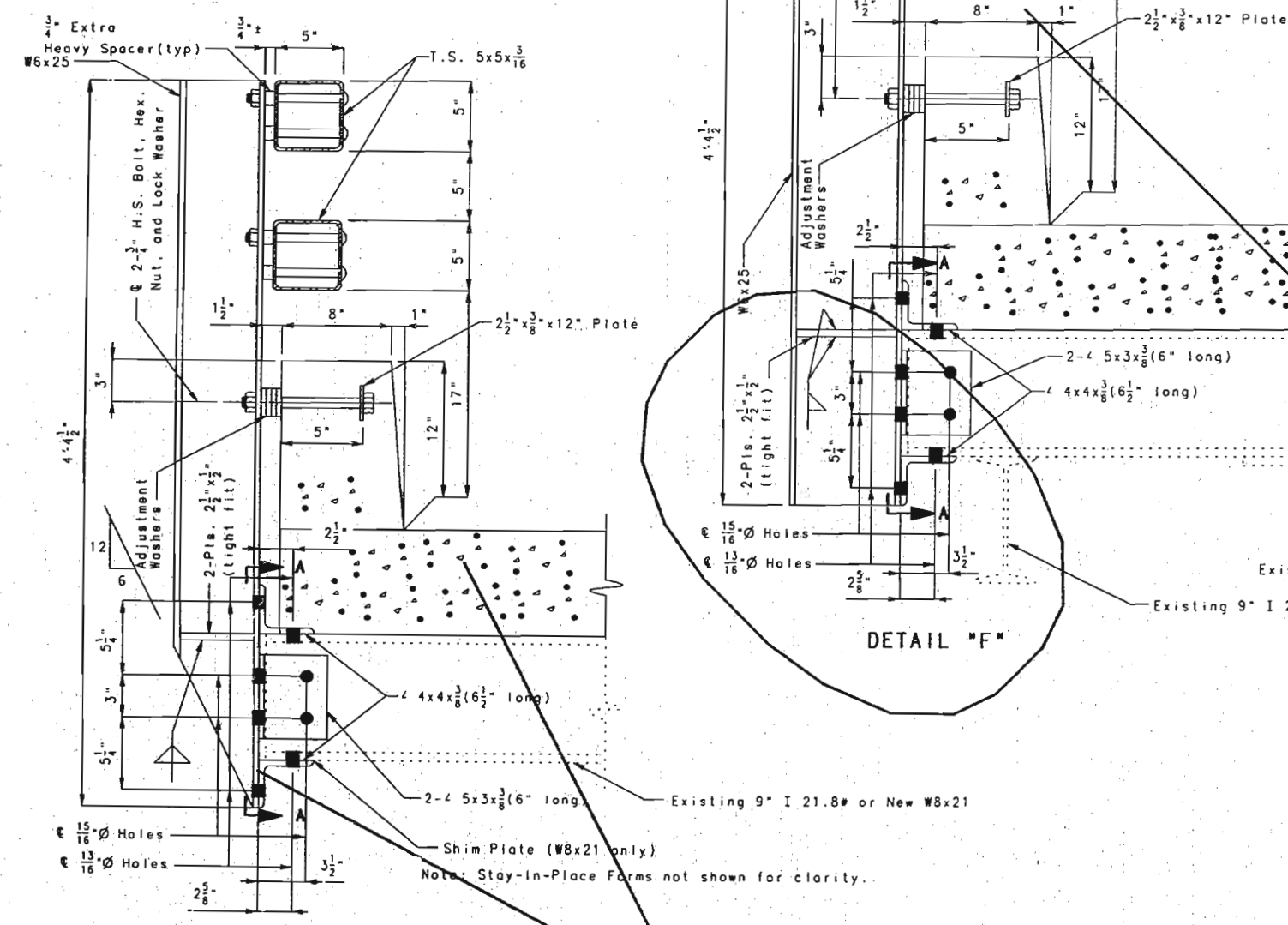
STATE	PROJ. NO.	SHEET NO.
MO.		



SECTION A-A



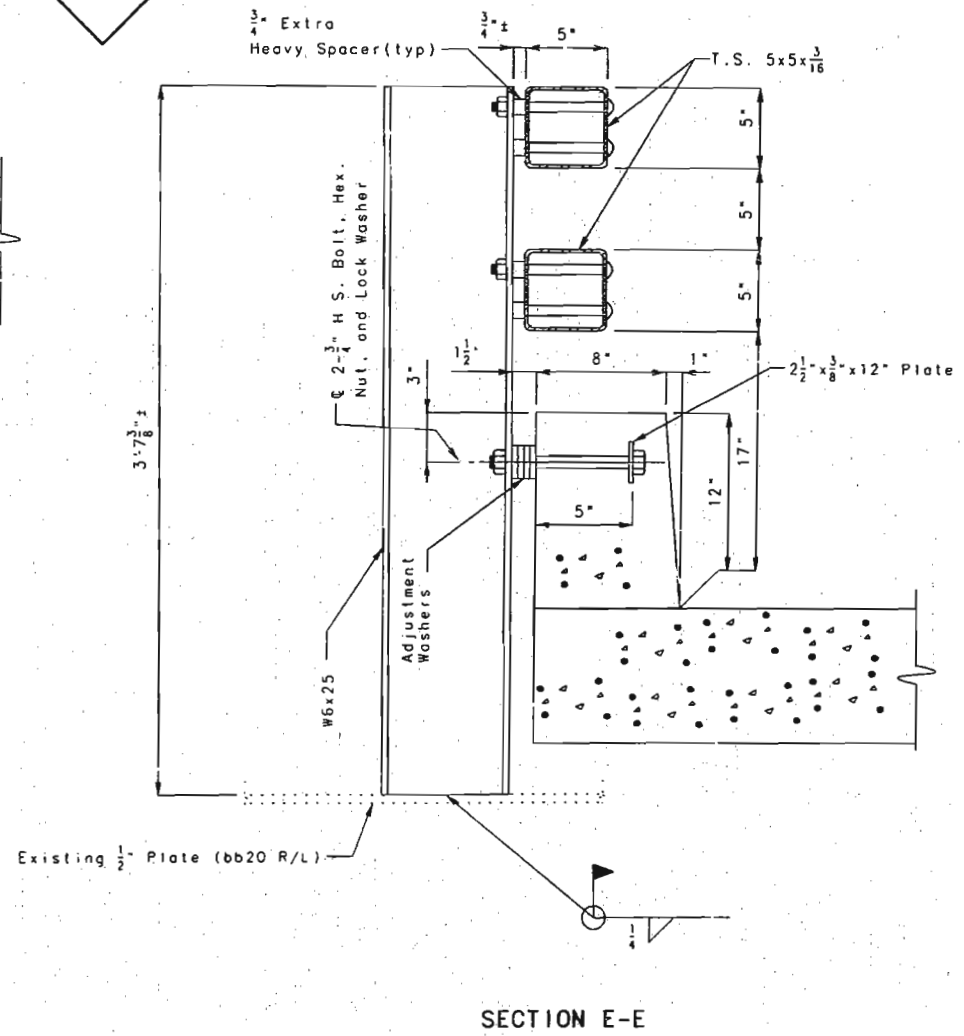
DETAIL OF 2 1/2" x 3/8" x 12" PLATE



DETAIL "Z"

DETAIL "F"

Note: For locations of Detail "Z", see sheet Nos. 70, 71 & 72.
 For locations of Detail "F", see sheet Nos. 70, 71, 72 & 73.



SECTION E-E

Note: For location of Section E-E, see sheet No. 70.

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DETAILED AUGUST 1995
 CHECKED NOV. 1995

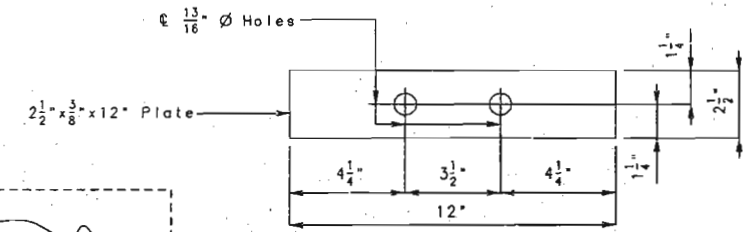
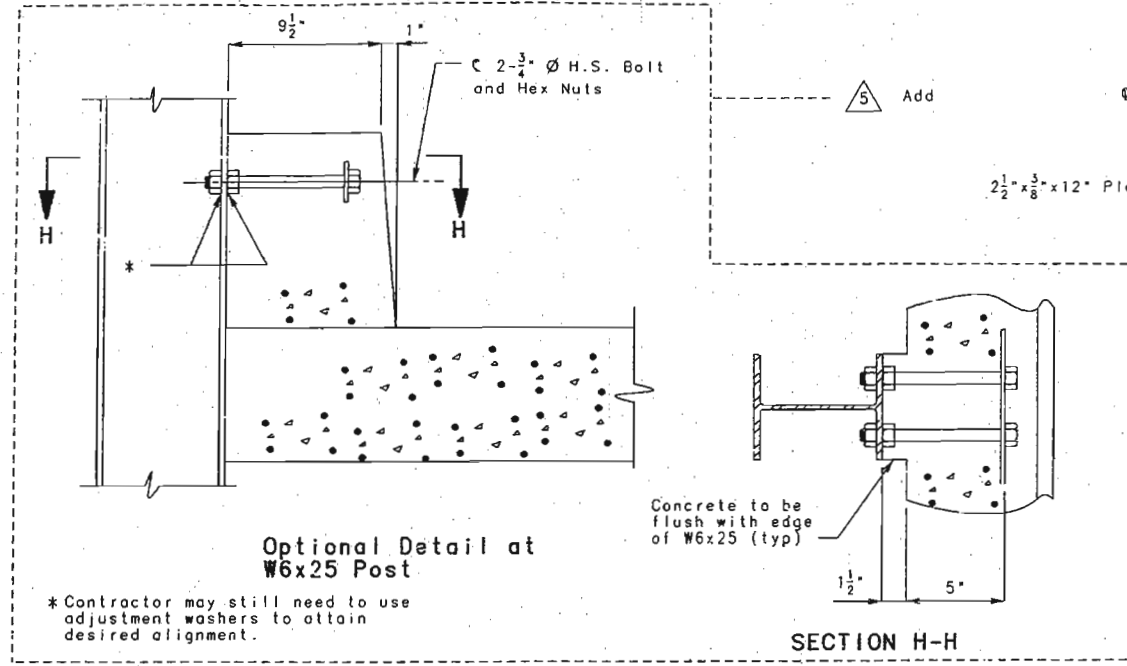
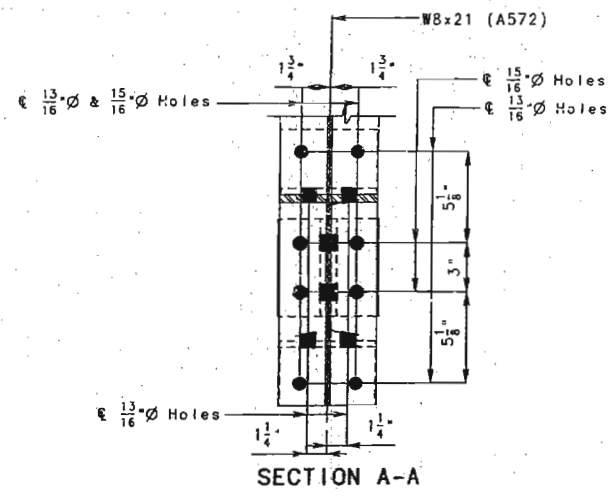
NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

REVISED MARCH 13, 1996

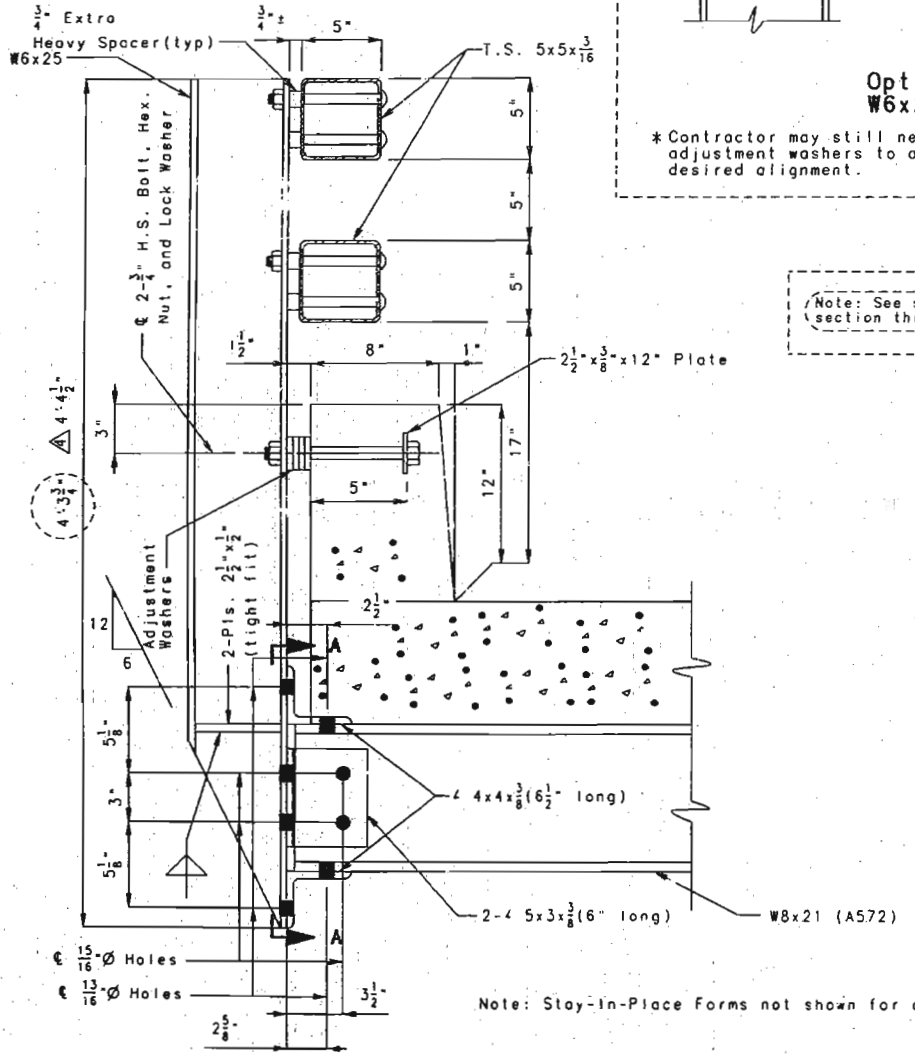
SHEET NO. 76 OF 97

FRANKLIN-WARREN COUNTIES K09691

STATE	PROJ. NO.	SHEET NO.
MO.		

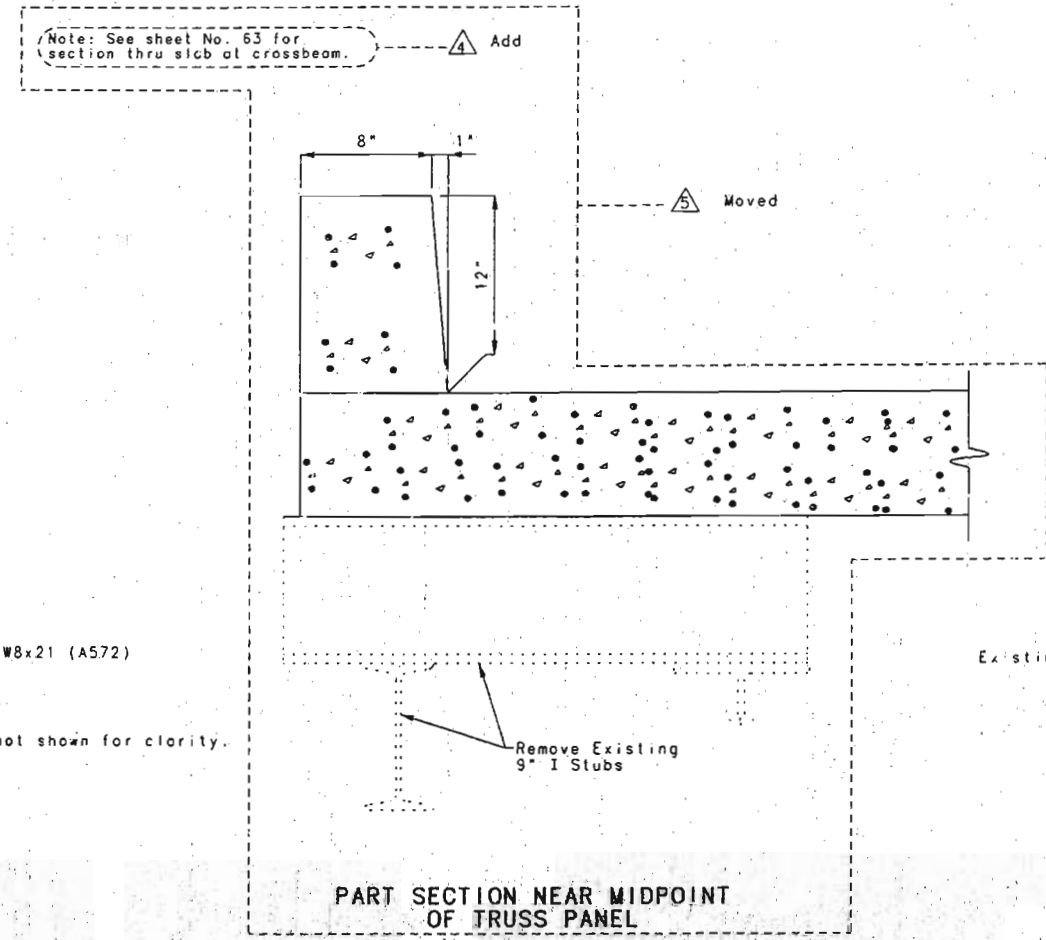


DETAIL OF 2 1/2" x 3/8" x 12" PLATE

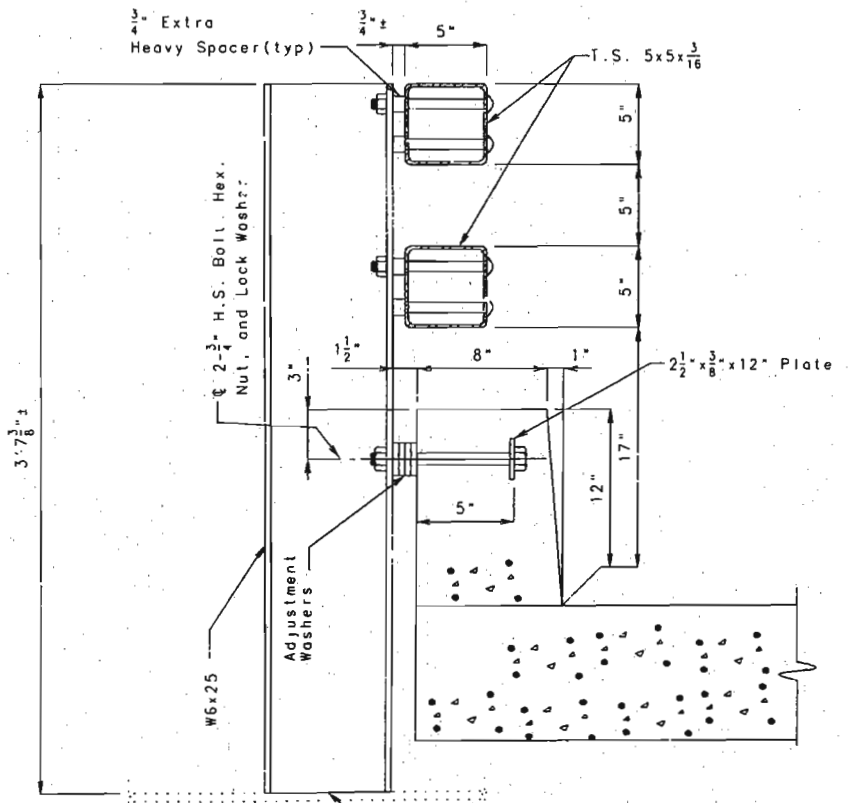


DETAIL "Z"

Note: For locations of Detail "Z", see sheet Nos. 70A, 71A & 72A.



PART SECTION NEAR MIDPOINT OF TRUSS PANEL



SECTION E-E

Note: For location of Section E-E, see sheet No. 70A.

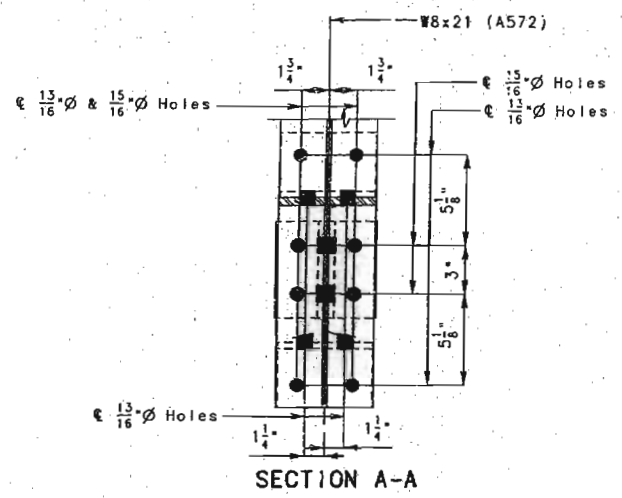
- △ REVISED MARCH 28, 1996 AT CONTRACTOR'S REQUEST
- △ REVISED MARCH 19, 1996
- △ REVISED MARCH 13, 1996

△ ADD
SHEET NO. 76A OF 97

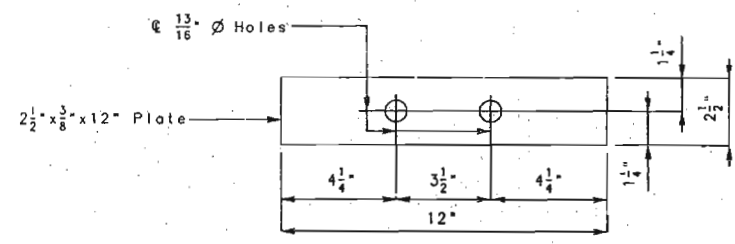
363
DETAILED MAR. 1996
CHECKED MAR. 1996

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

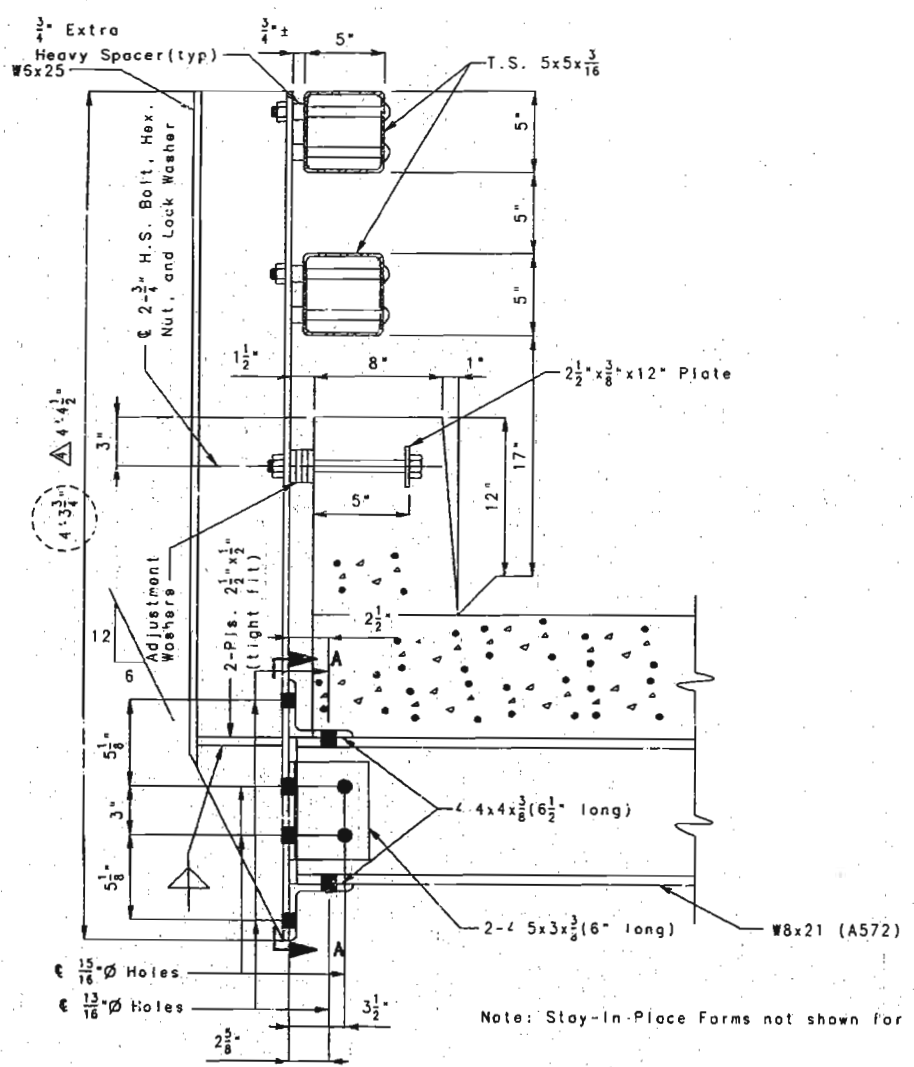
STATE	PROJ. NO.	SHEET NO.
MO.		



Note: See sheet No. 63 for section thru slab at crossbeam. Δ Add

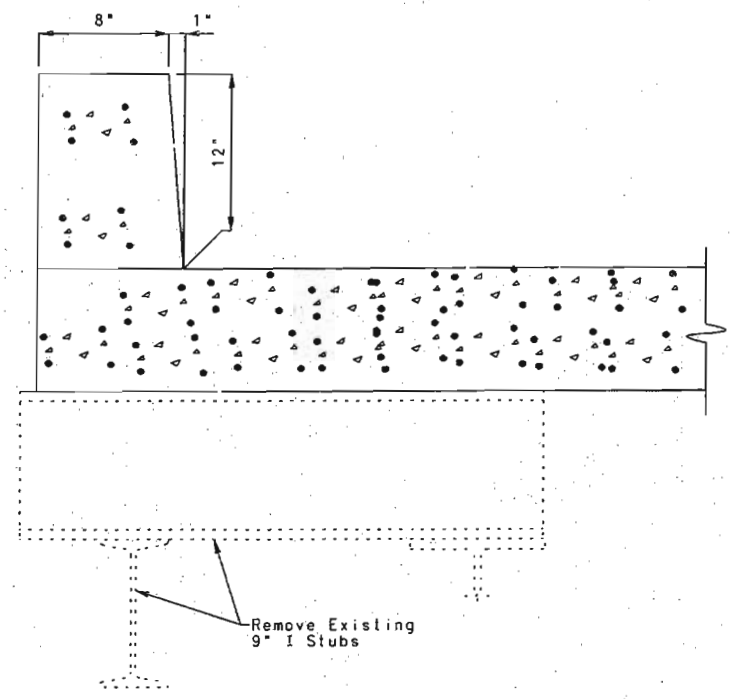


DETAIL OF 2 1/2" x 3/8" x 12" PLATE

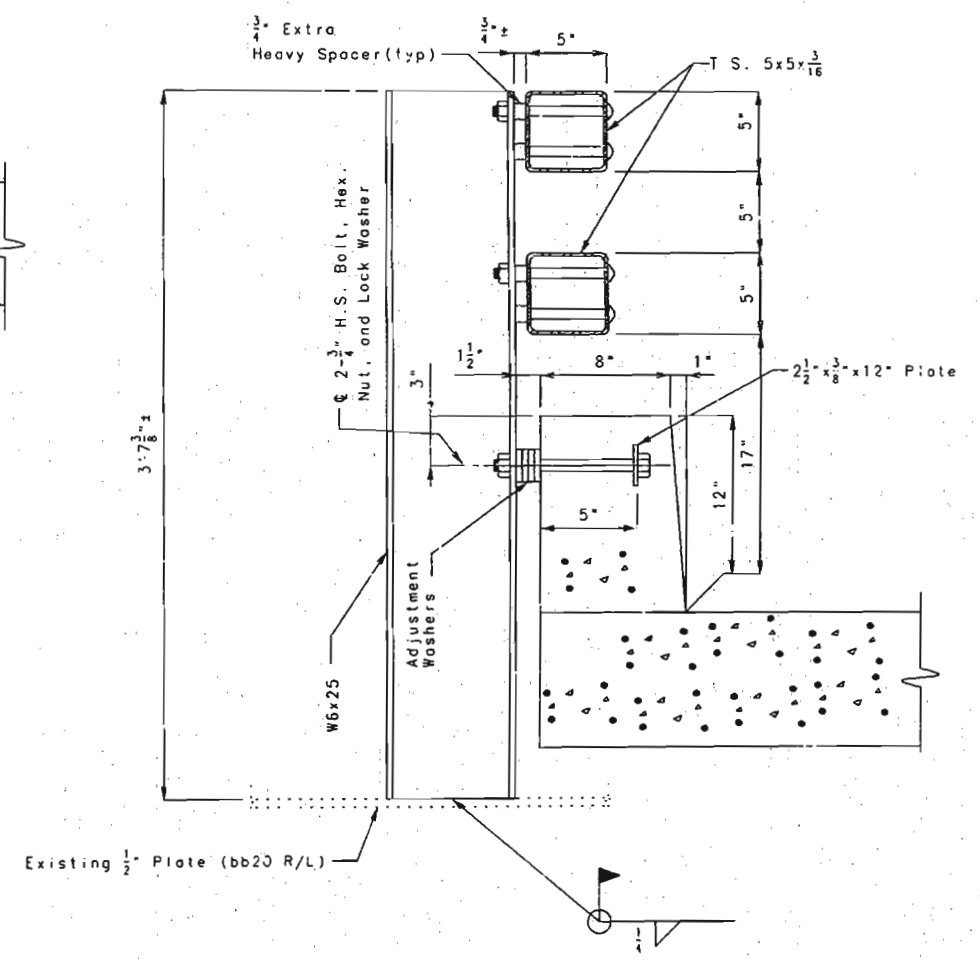


Note: Stay-In-Place Forms not shown for clarity.

DETAIL "Z"



PART SECTION NEAR MIDPOINT OF TRUSS PANEL



Note: For location of Section E-E, see sheet No. 70A.

SECTION E-E

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DETAILED MAR. 1996
CHECKED MAR. 1996

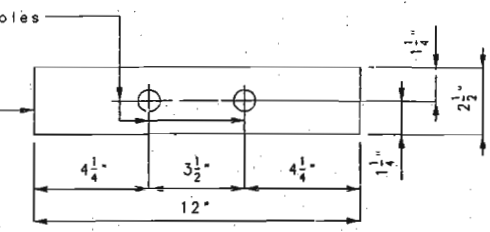
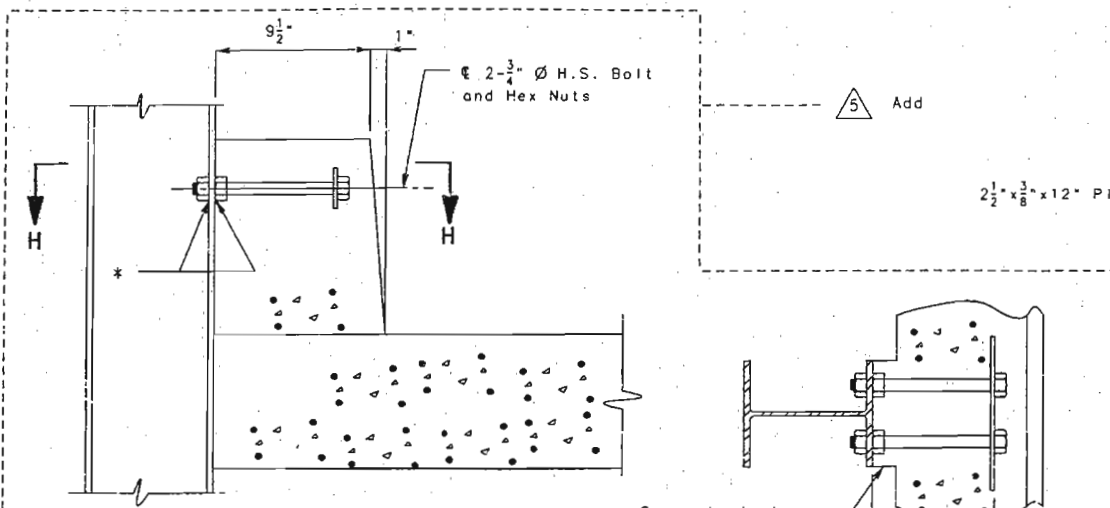
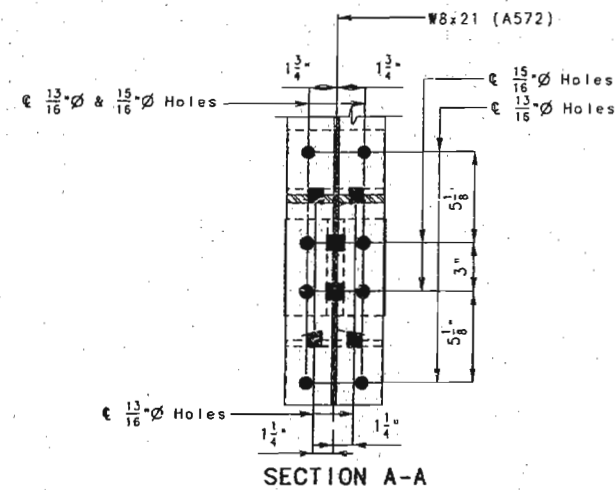
NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

Δ REVISED MARCH 19, 1996
 Δ REVISED MARCH 13, 1996

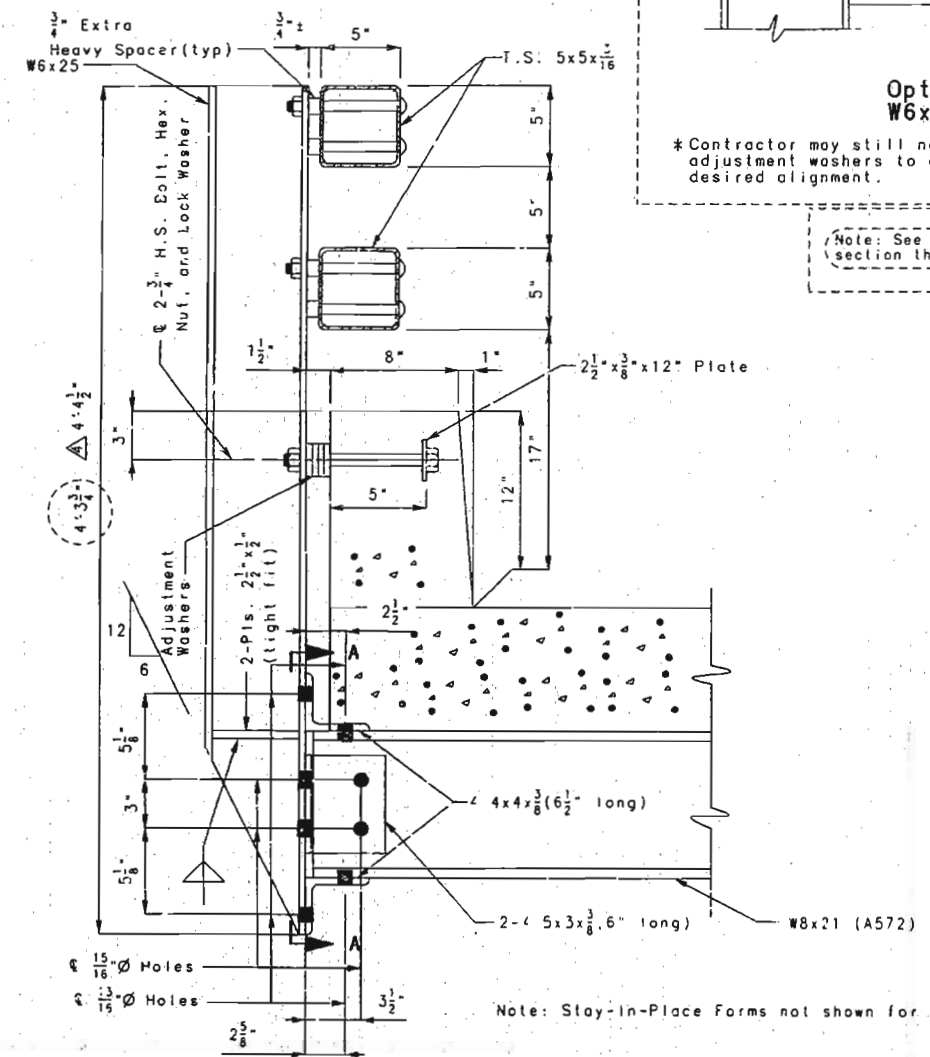
Δ ADD
SHEET NO. 76A OF 97

FRANKLIN-WARREN COUNTIES K09691

STATE	PROJ. NO.	SHEET NO.
MO.		



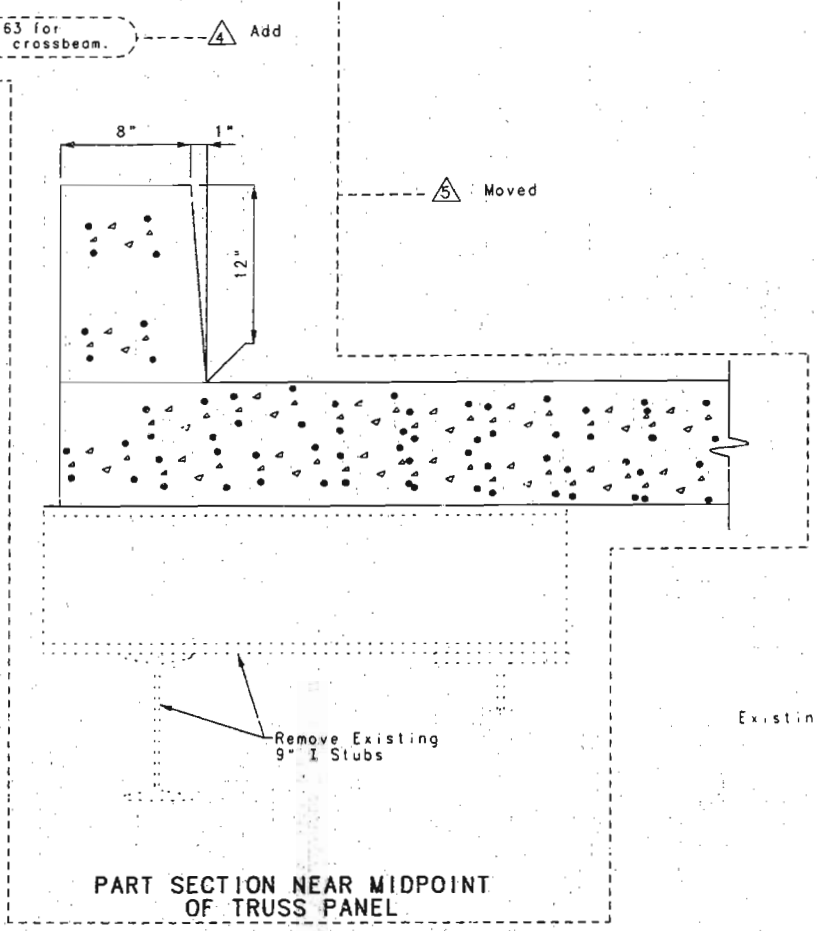
DETAIL OF 2 1/2" x 3/8" x 12" PLATE



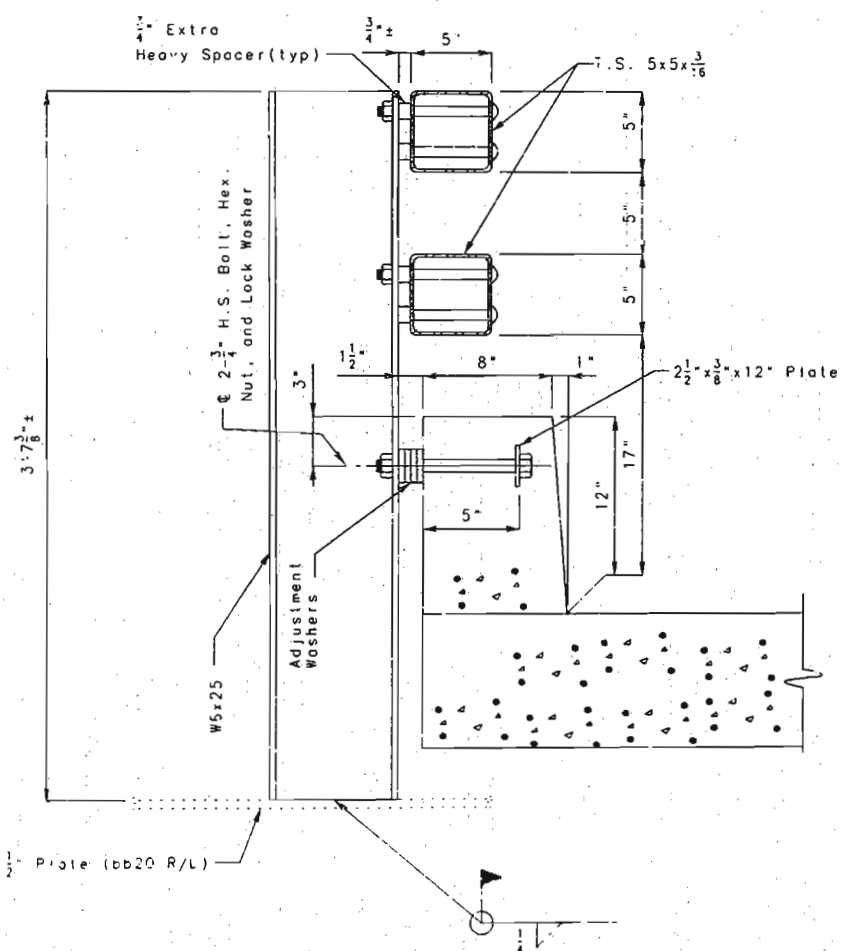
DETAIL "Z"

Note: For locations of Detail "Z", see sheet Nos. 70A, 71A & 72A.

70A & 72A



PART SECTION NEAR MIDPOINT OF TRUSS PANEL



SECTION E-E

Note: For location of Section E-E, see sheet No. 70A.

- △ REVISED APRIL 4, 1996
- △ REVISED MARCH 28, 1996 AT CONTRACTOR'S REQUEST
- △ REVISED MARCH 19, 1996
- △ REVISED MARCH 13, 1996

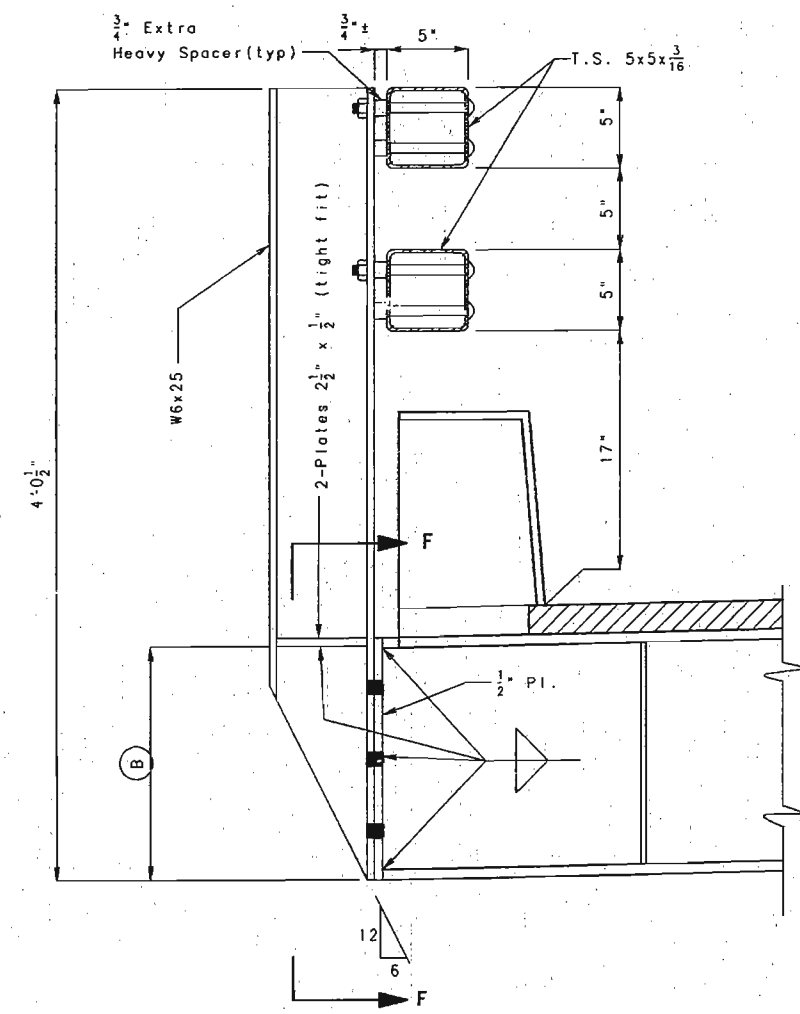
△ ADD
SHEET NO. 76A OF 97

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

366
DETAILED MAR. 1996
CHECKED MAR. 1996

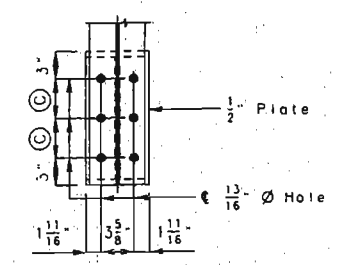
STATE	PROJ. NO.	SHEET NO.
MO.		

Panel Point	(B)	(C)
L25	14 1/4"	4 3/8"
L25	14 3/4"	4 3/8"



DETAIL "H"

Note: For locations of Detail "H", see sheet Nos. 71A & 72A.



SECTION F-F

367

DETAILED APR. 1996
CHECKED APR. 1996

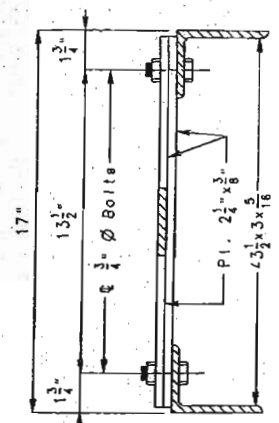
NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

6 ADD
REVISED APRIL 4, 1996

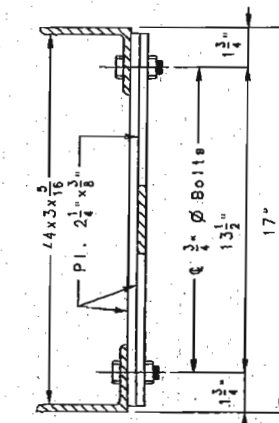
SHEET NO. 76B OF 97

FRANKLIN-WARREN COUNTIES K09691

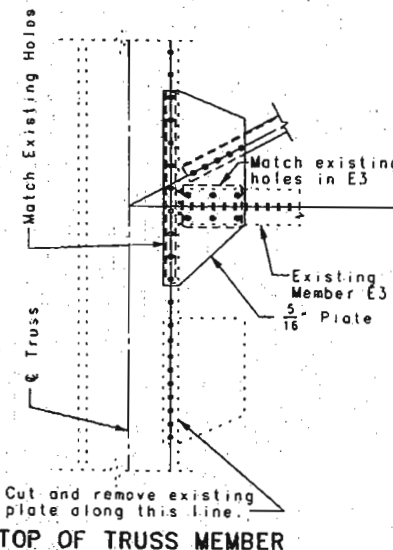
STATE	PROJ. NO.	SHEET NO.
MO.		111



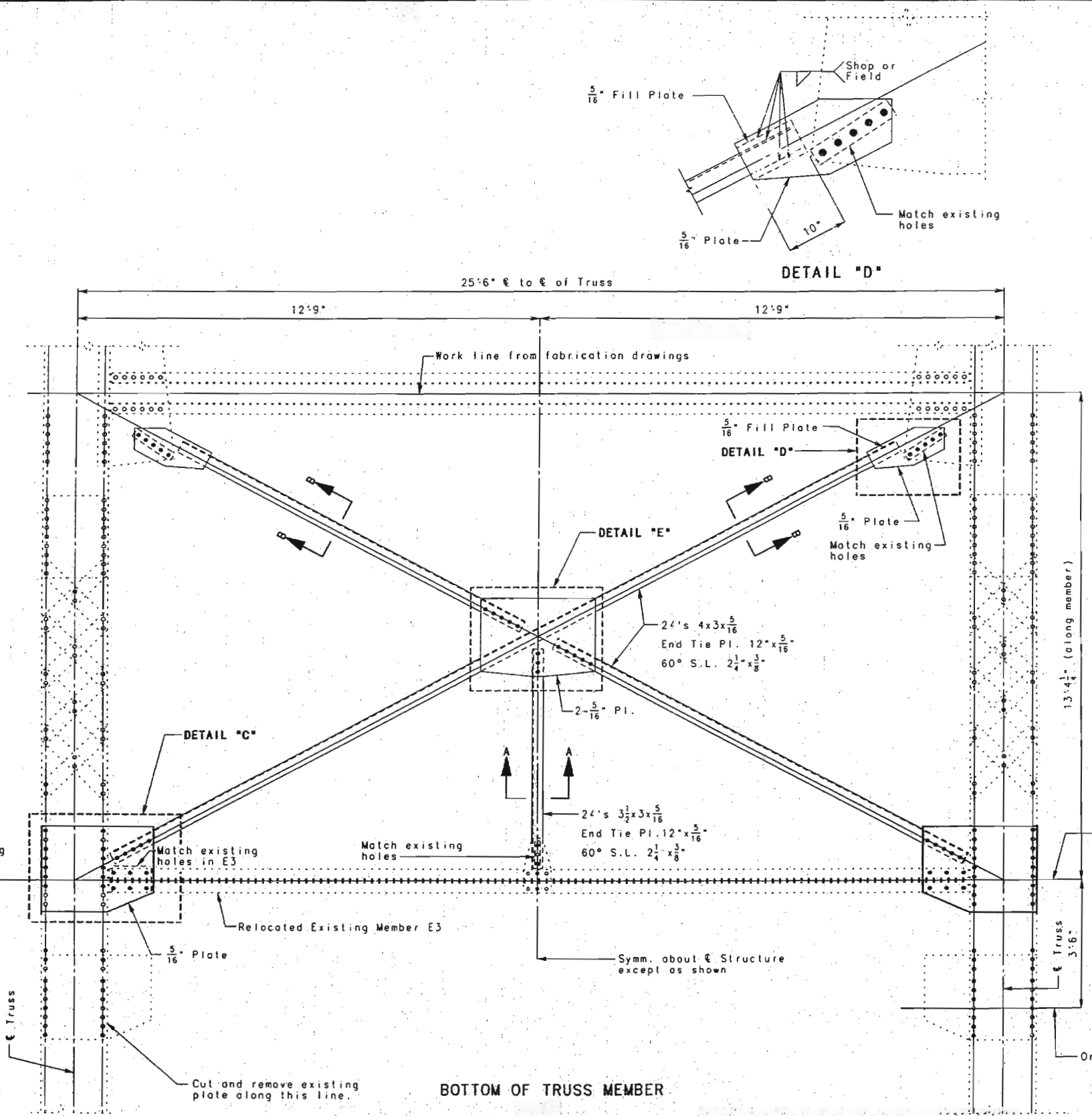
Section A-A



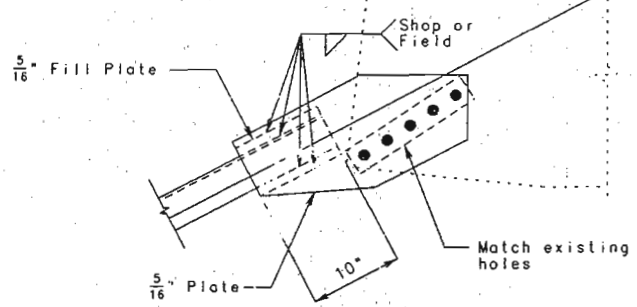
Section B-B



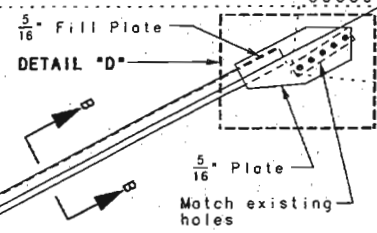
TOP OF TRUSS MEMBER



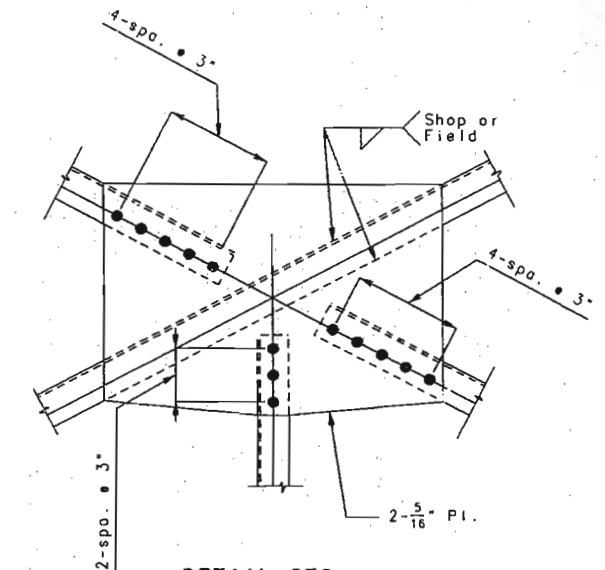
BOTTOM OF TRUSS MEMBER



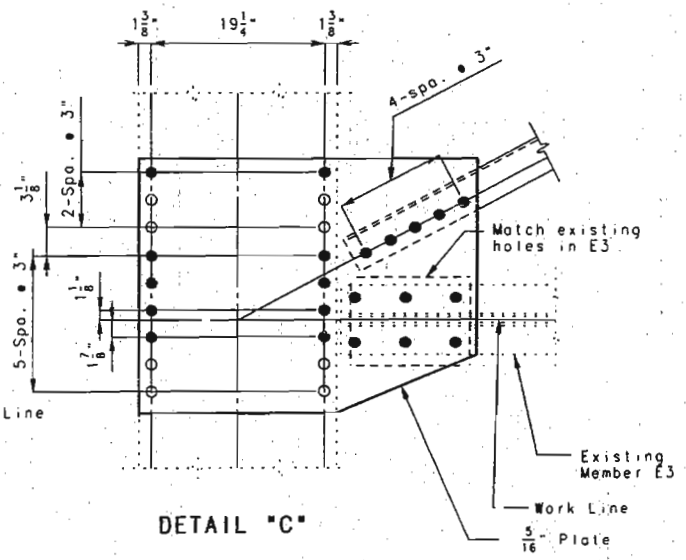
DETAIL "D"



DETAIL "E"



DETAIL "E"



DETAIL "C"

Note: Minimum Vertical clearance from top of new slab shall be 16'-6".
 Note: The cost of furnishing, fabricating and installing the plates, angles, high strength bolts and miscellaneous pieces necessary for each portal will be paid for, at the contract unit price for Portal Modification per each.

Note: Bolts shall be 7/8" Ø H.S. Bolts with washers and heavy hex nuts, except as noted.

● Indicates new bolt.
 ○ Indicates existing rivets.

DETAILS OF PORTAL AT LO-U1 AND LO'-U1'

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

SHEET NO. 77 OF 97.

FRANKLIN-WARREN

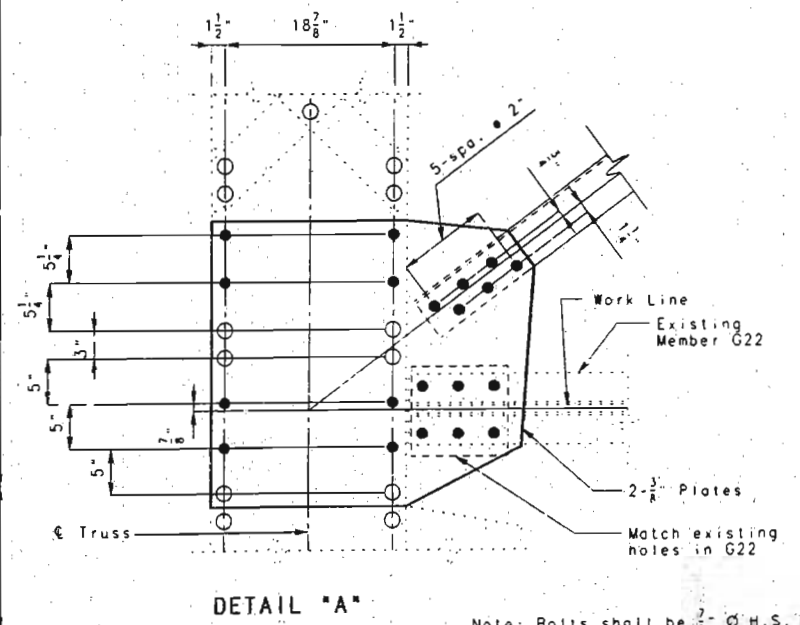
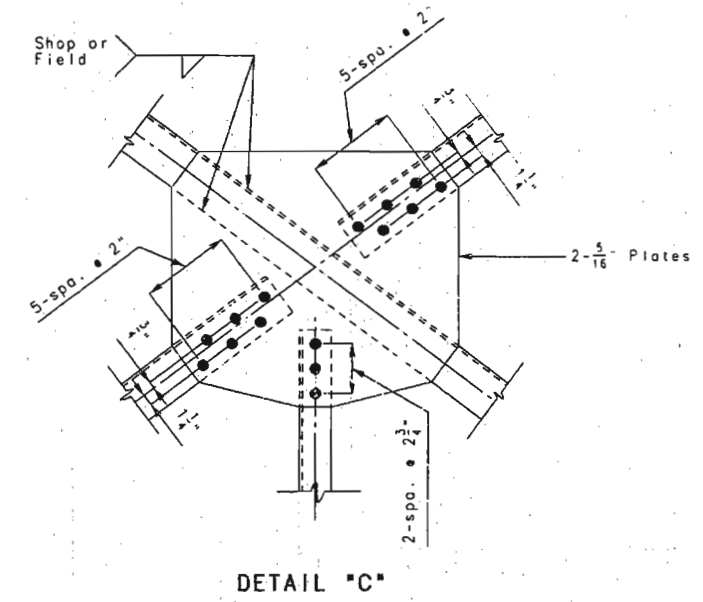
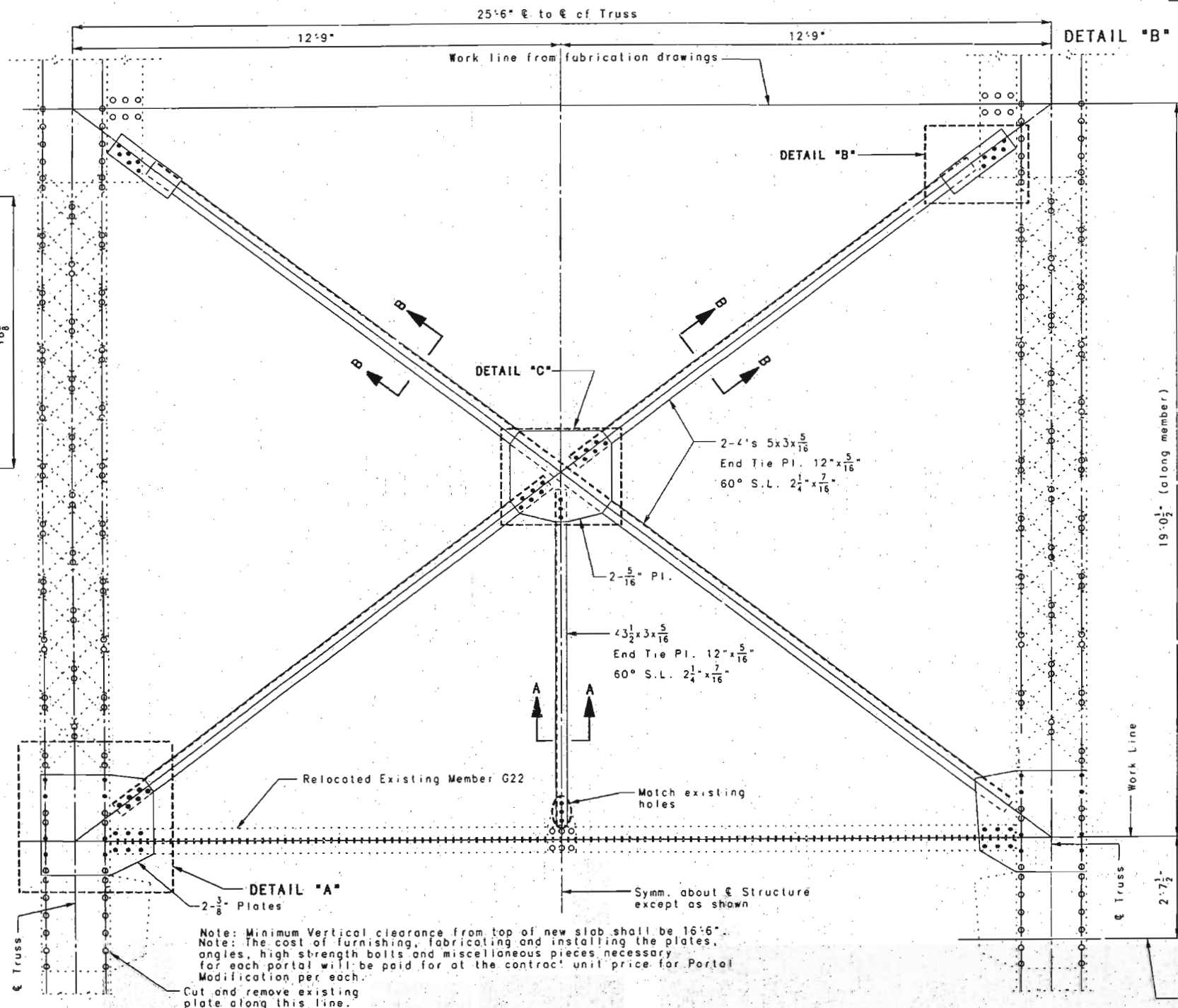
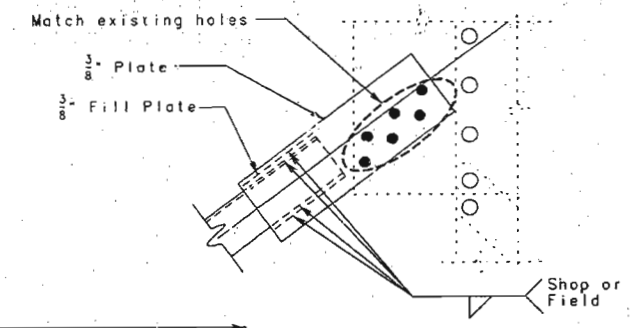
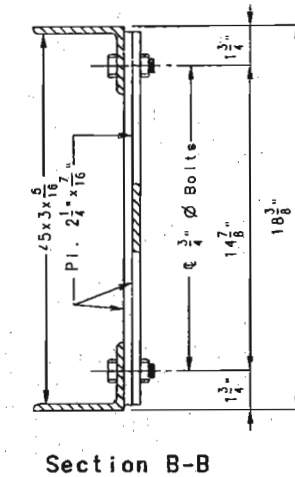
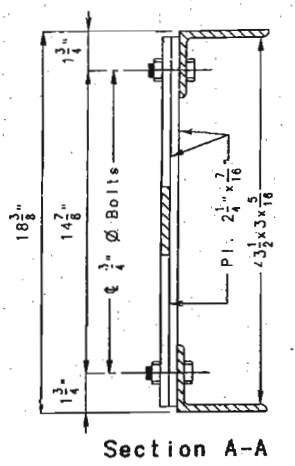
COUNTIES

K09691

368780

DETAILED JUNE 1995
 CHECKED NOV. 1995

STATE	PROJ. NO.	SHEET NO.
MO.		112

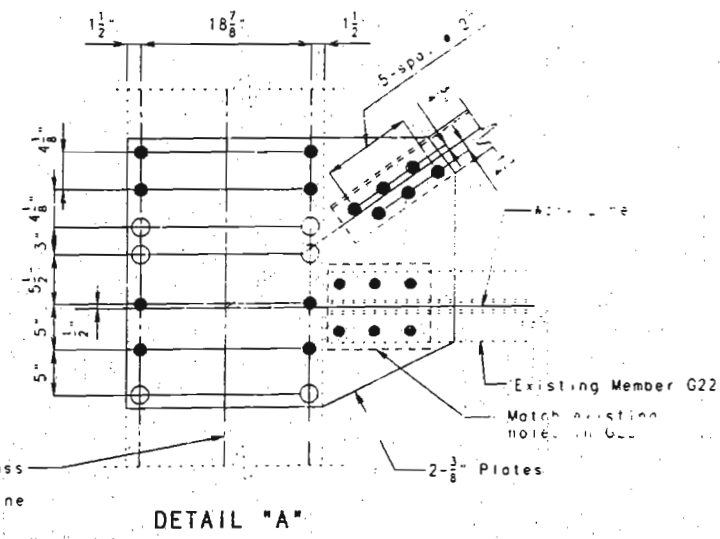
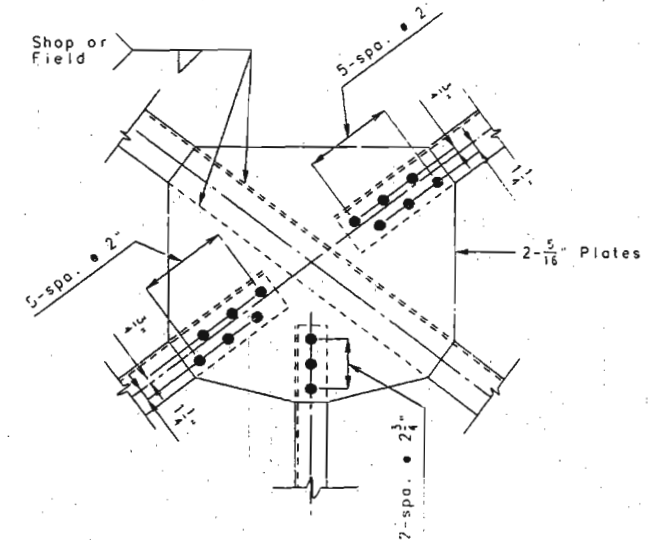
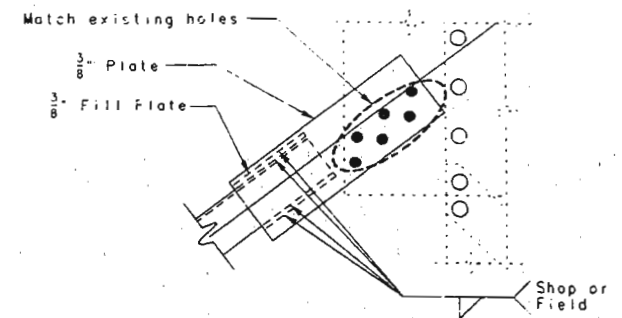
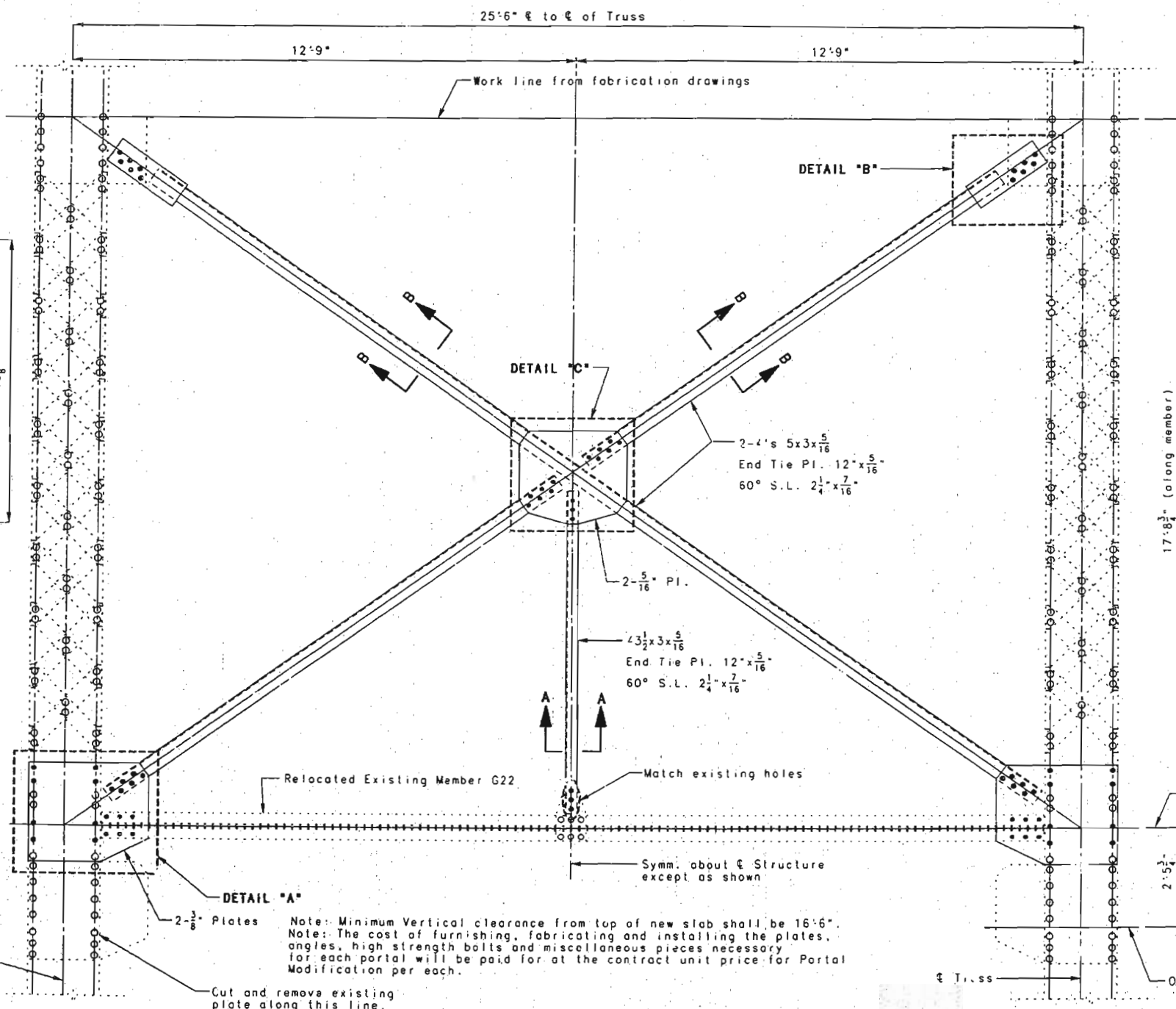
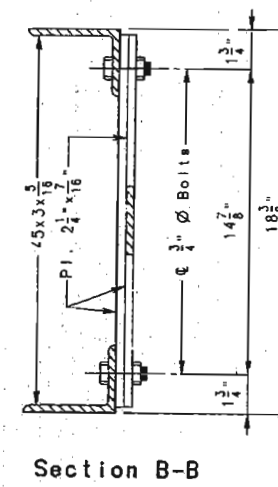
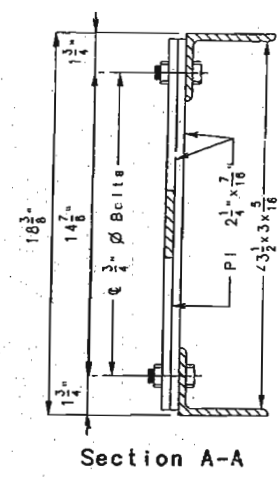


Note: Minimum Vertical clearance from top of new slab shall be 16'6".
 Note: The cost of furnishing, fabricating and installing the plates, angles, high strength bolts and miscellaneous pieces necessary for each portal will be paid for at the contract unit price for Portal Modification per each.
 Cut and remove existing plate along this line.

Note: Bolts shall be 3/4" Ø H.S. Bolts with washers and heavy hex nuts, except as noted.
 • Indicates new bolt.
 ○ Indicates existing rivets.

36978X

STATE	PROJ. NO.	SHEET NO.
MO.		113



Note: Minimum Vertical clearance from top of new slab shall be 16'-6".
 Note: The cost of furnishing, fabricating and installing the plates, angles, high strength bolts and miscellaneous pieces necessary for each portal will be paid for at the contract unit price for Portal Modification per each.
 Cut and remove existing plate along this line.

Note: Bolts shall be 7/8" Ø H.S. Bolts with washers and heavy hex nuts, except as shown.
 • Indicates new bolt.
 ○ Indicates existing rivets.

DETAILS OF PORTAL AT L14-U15, L14'-U15', L30-U29, AND L30'-U29'

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

SHEET NO. 79 OF 97.

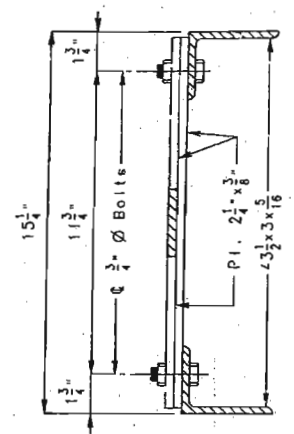
FRANKLIN-WARREN

COUNTIES K09691

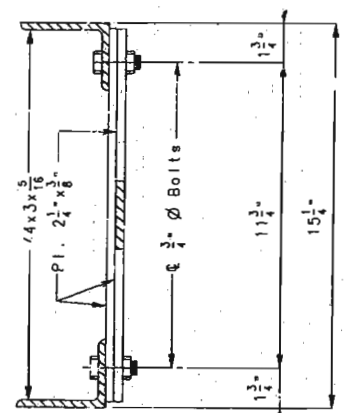
370178

DETAILED JUNE 1995
 CHECKED SEPT. 1995

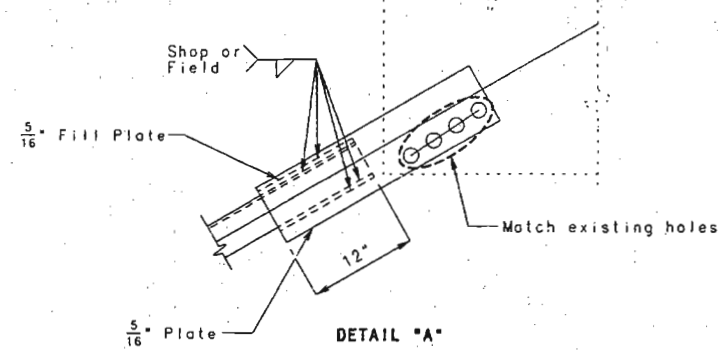
STATE	PROJ. NO.	SHEET NO.
MO.		114



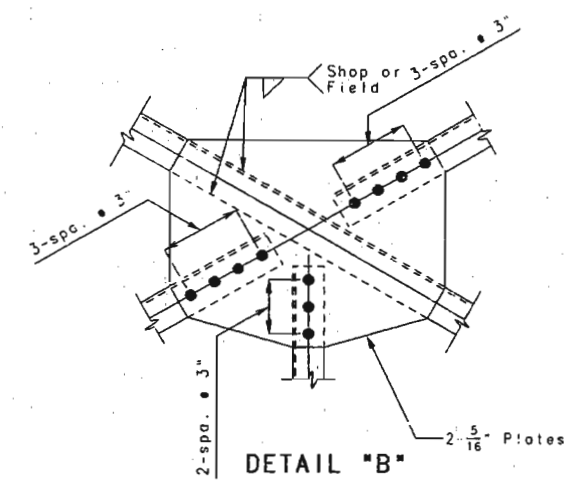
Section A-A



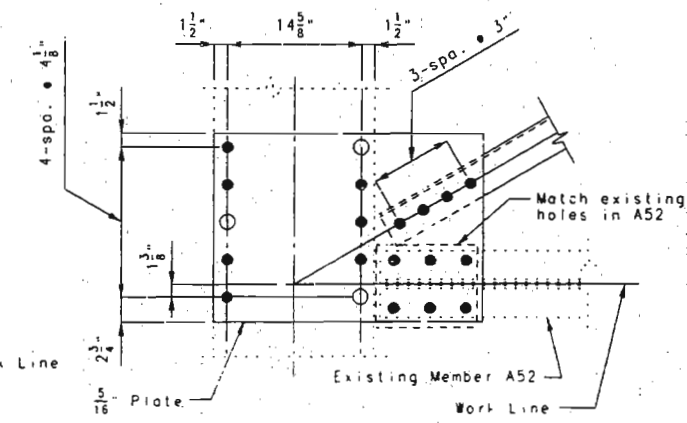
Section B-B



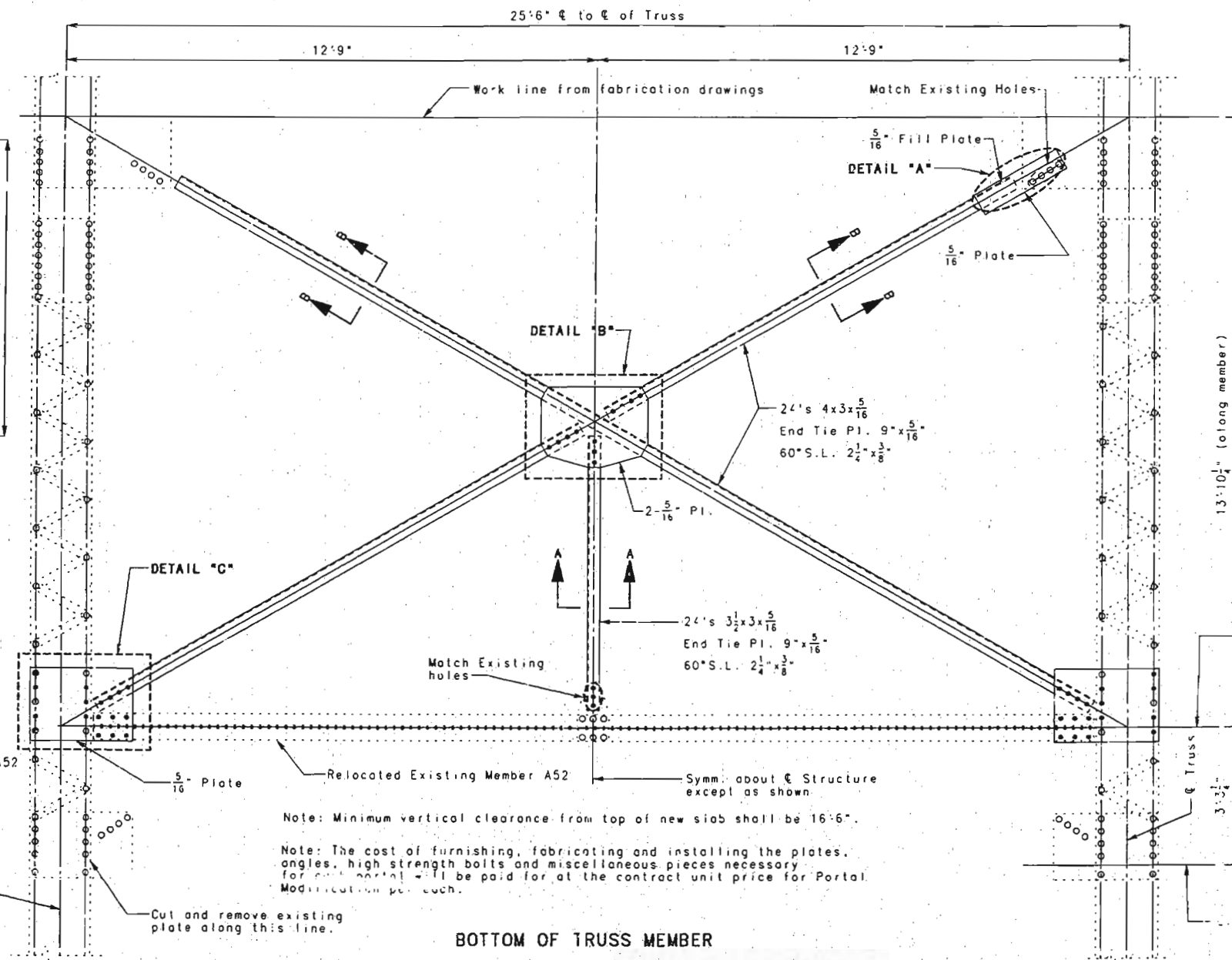
DETAIL "A"



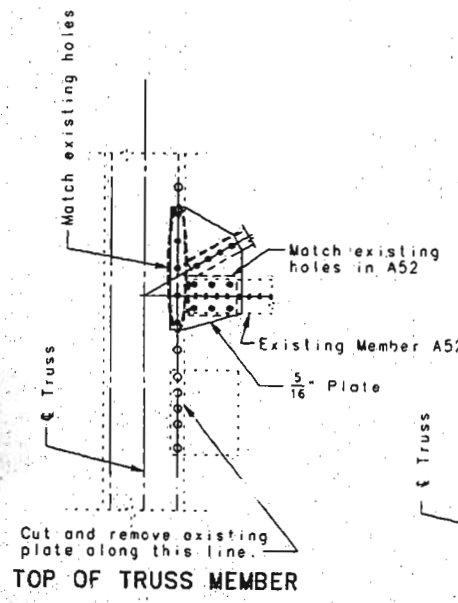
DETAIL "B"



DETAIL "C"



BOTTOM OF TRUSS MEMBER



TOP OF TRUSS MEMBER

Note: Minimum vertical clearance from top of new slab shall be 16'6".

Note: The cost of furnishing, fabricating and installing the plates, angles, high strength bolts and miscellaneous pieces necessary for this portal shall be paid for at the contract unit price for Portal Modification per each.

Note: Bolts shall be 7/8 inch diameter H.S. Bolts with washers and hex nuts, except as noted.

● Indicates new bolt.
○ Indicates existing rivets.

DETAILS OF PORTAL AT L19-U20, L19'-U20', L25-U24 AND L25'-U24'

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

SHEET NO. 80 OF 97

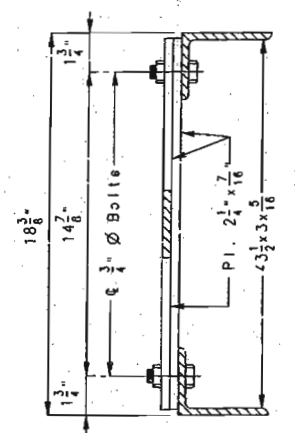
FRANKLIN-WARREN

COUNTIES

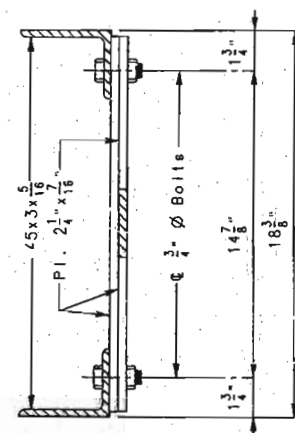
K09691

371 182
 DETAILED JUNE 1995
 CHECKED SEPT. 1995

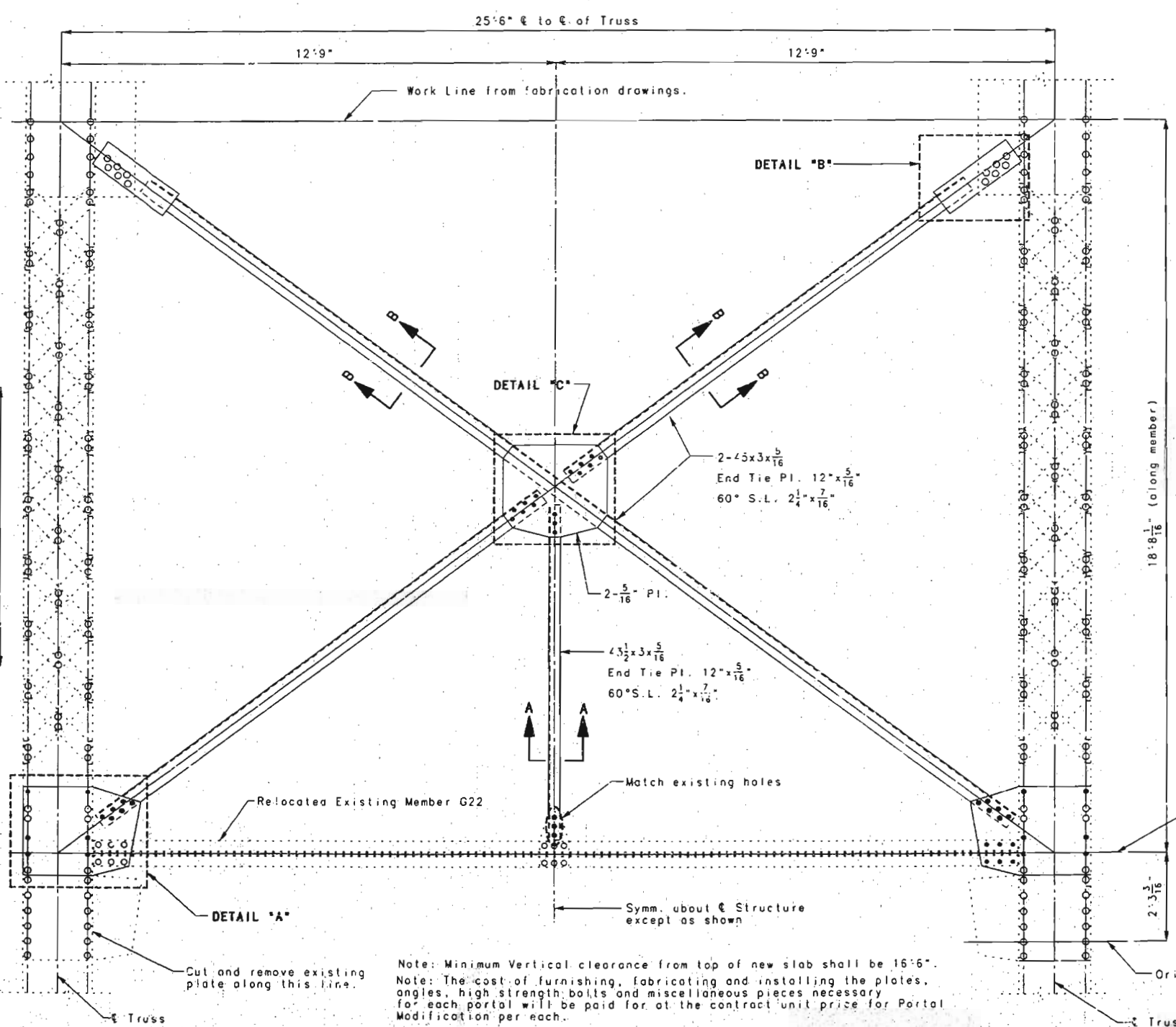
STATE	PROJ. NO.	SHEET NO.
MO.		115



Section A-A

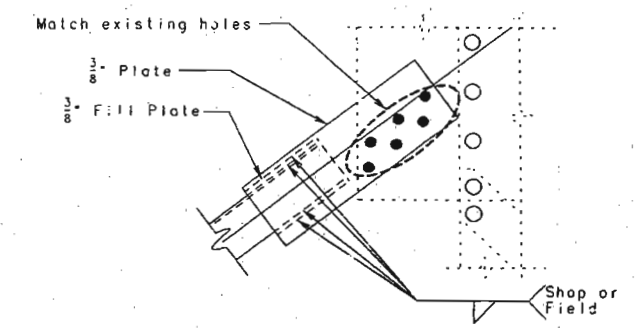


Section B-B

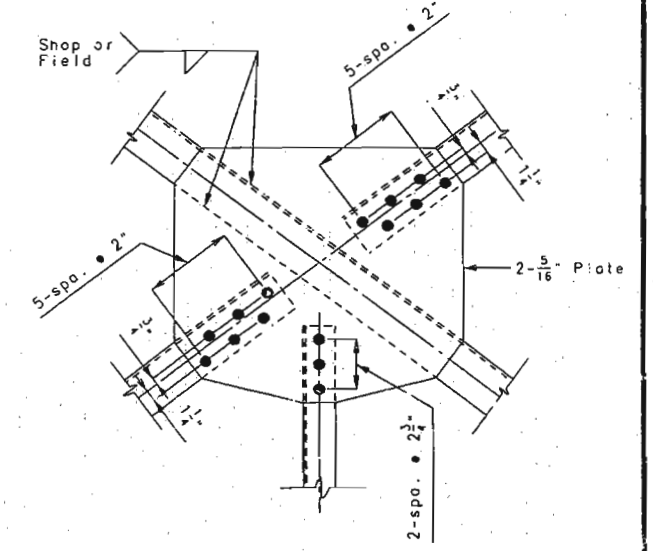


DETAILS OF PORTAL AT L30-U31 AND L30-U31

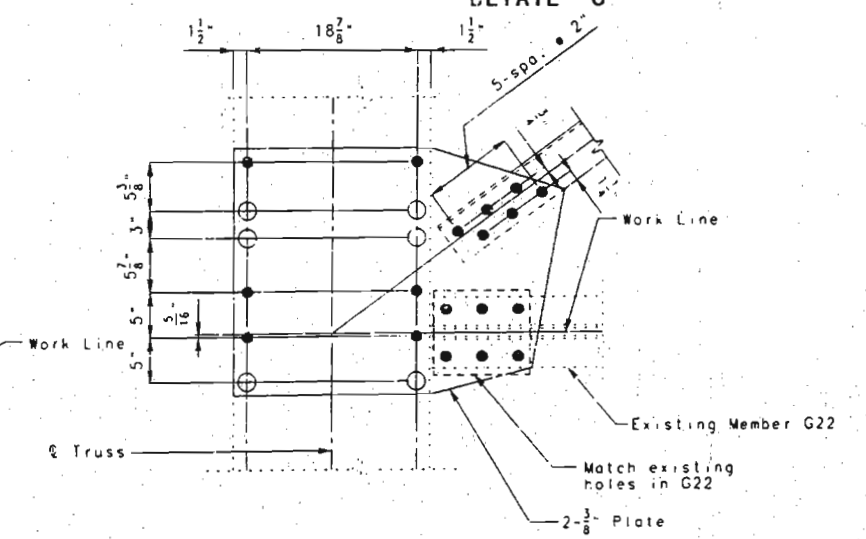
Note: Minimum Vertical clearance from top of new slab shall be 16'-6".
 Note: The cost of furnishing, fabricating and installing the plates, angles, high strength bolts and miscellaneous pieces necessary for each portal will be paid for at the contract unit price for Portal Modification per each.



DETAIL "B"



DETAIL "C"

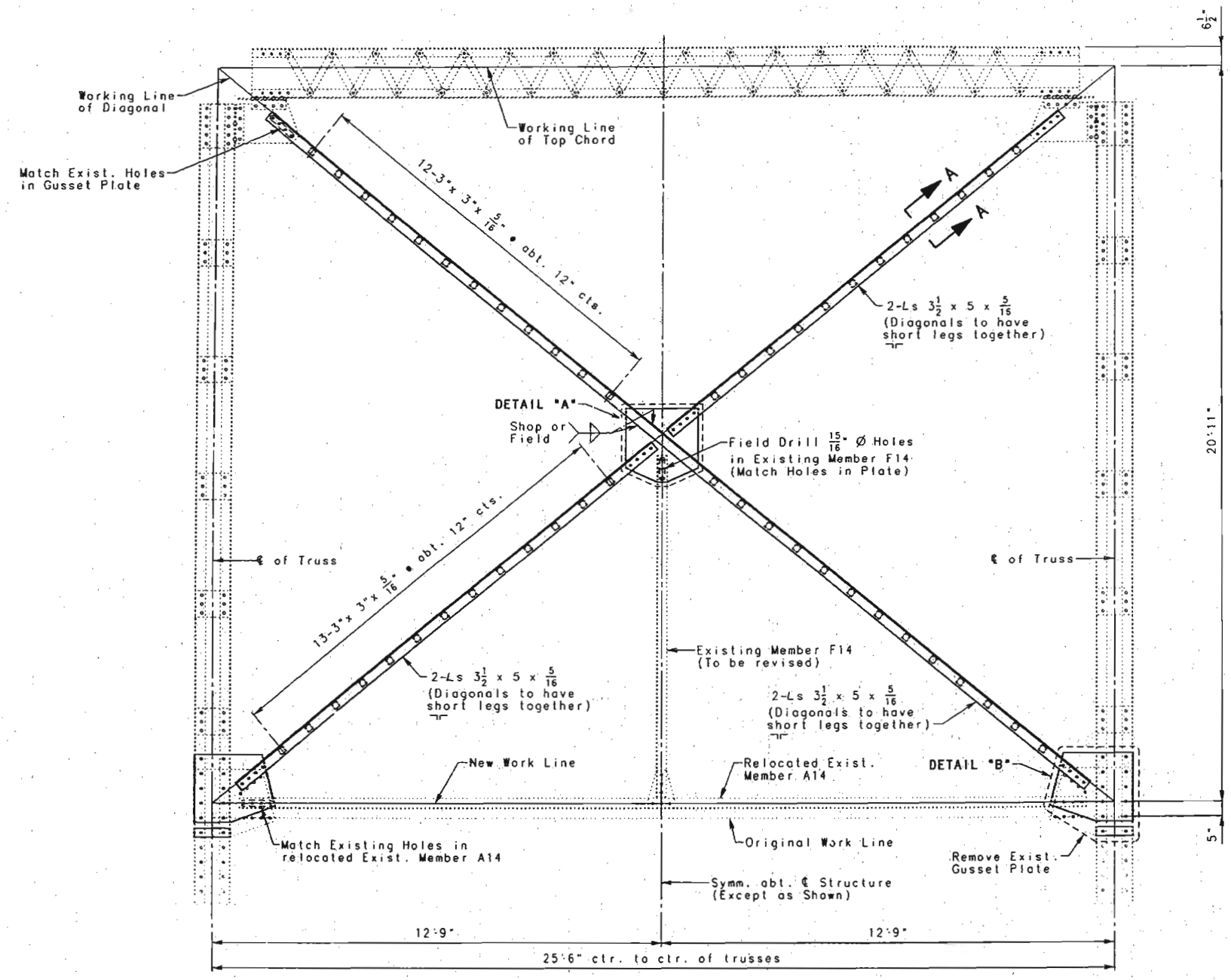


DETAIL "A"

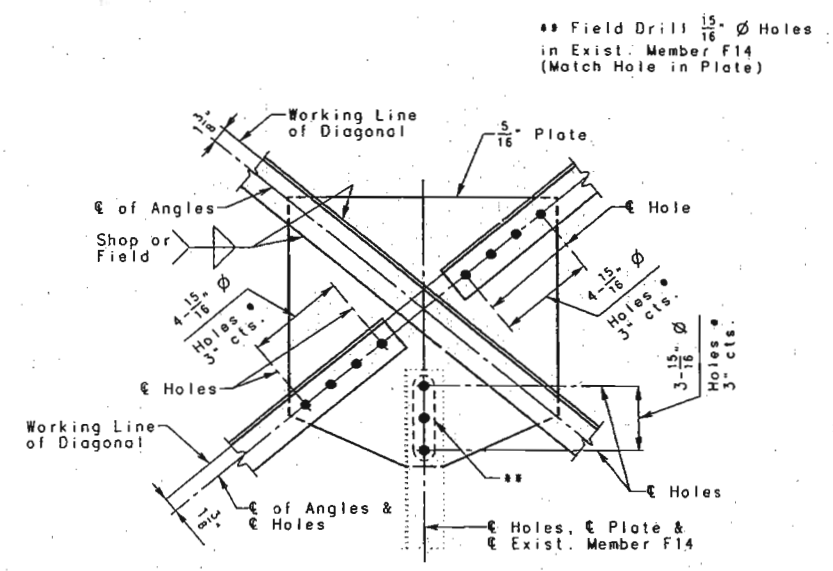
Note: Bolts shall be 7/8" diameter H.S. Bolts with washers and heavy hex. nuts.
 • Indicates new bolt.
 ○ Indicates existing rivets.

3721724

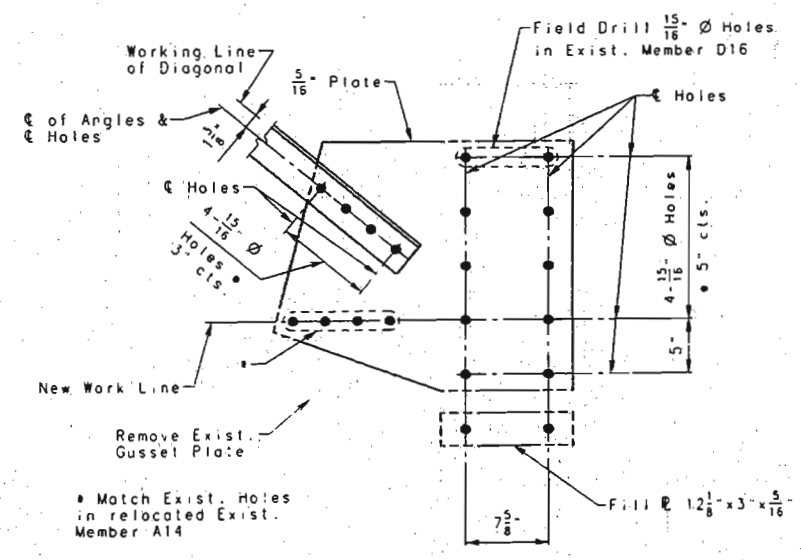
STATE	PROJ. NO.	SHEET NO.
MO.		116



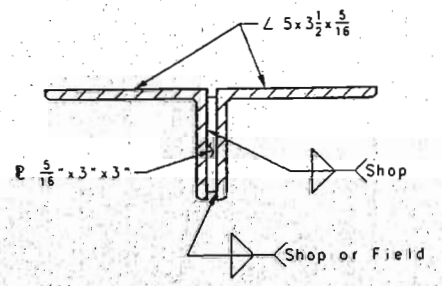
SWAY FRAME AT U3 AND U3'



DETAIL "A"



DETAIL "B"



PART SECTION A-A

Note: Contractor shall have option of Field Drilling Holes.
The cost of furnishing, fabricating and installing the plates, angles, high strength bolts and miscellaneous pieces necessary for each sway frame will be paid for at the contract unit price for Sway Frame Modification per each.

Note: Minimum vertical clearance from top of new slab shall be 16'-6".

Note: Bolts shall be 7/8" H.S. Bolts with Washers and Heavy Hex. Nuts.

Existing Rivet
New Bolt

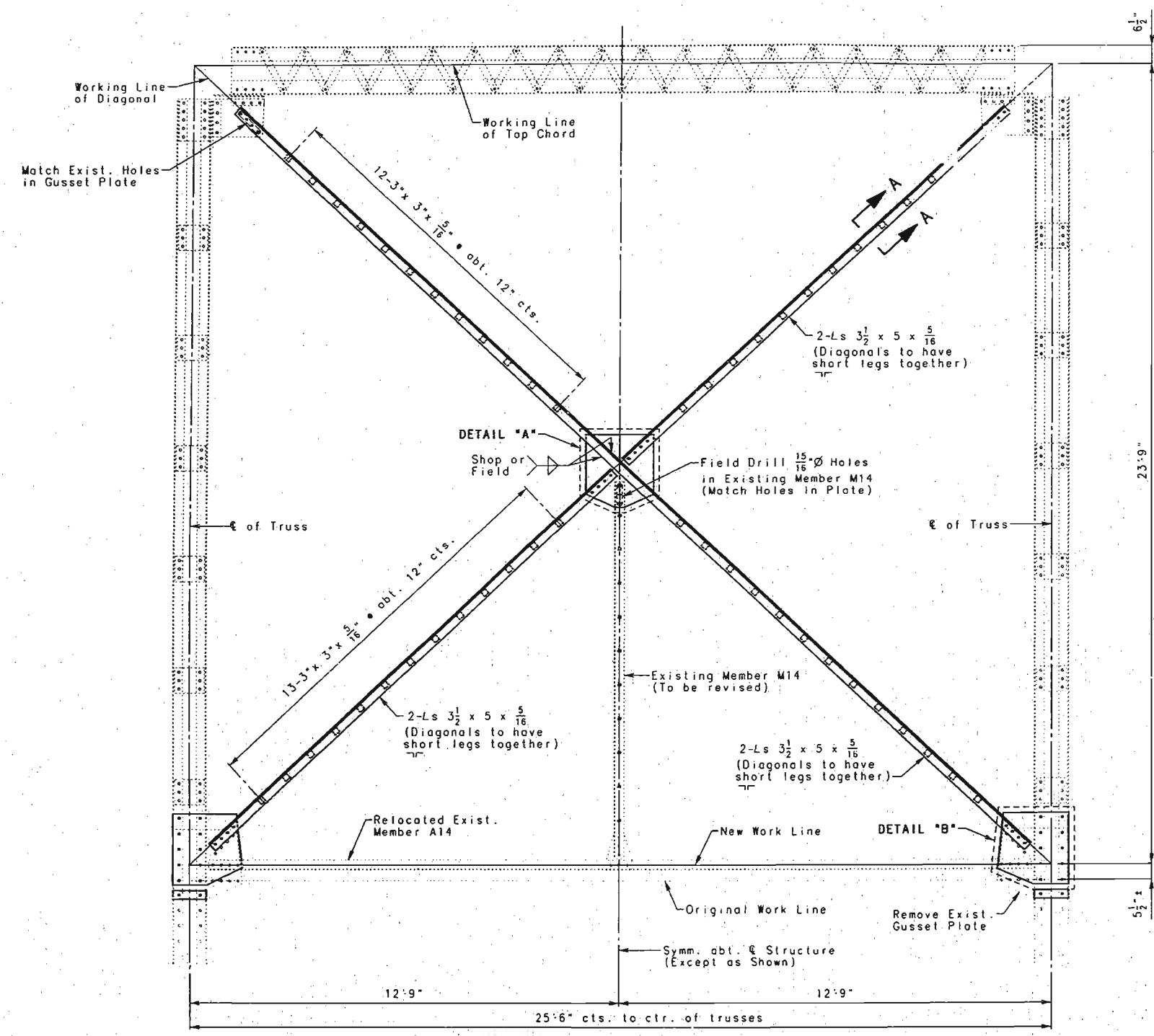
373125

DETAILED JUNE 1995
CHECKED SEPT. 1995

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

SHEET NO. 82 OF 97

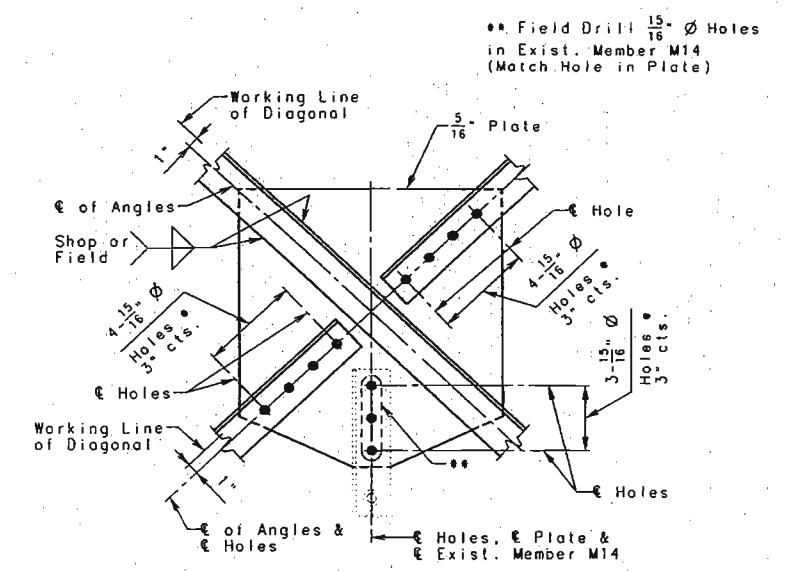
FRANKLIN-WARREN COUNTIES K09691



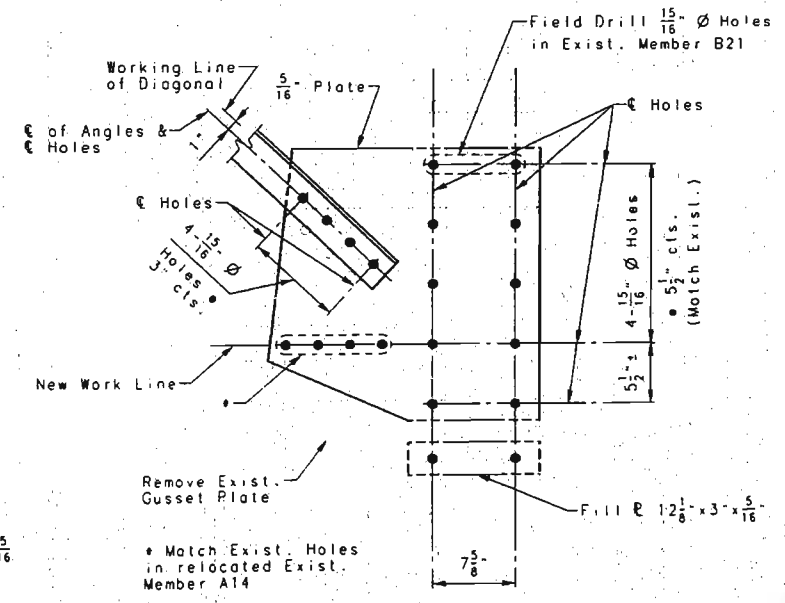
SWAY FRAME AT U5, U7, U5', AND U7'

Note: Contractor shall have option of Field Drilling Holes.
 The cost of furnishing, fabricating and installing the plates, angles, high strength bolts and miscellaneous pieces necessary for each sway frame will be paid for at the contract unit price for Sway Frame Modification per each.

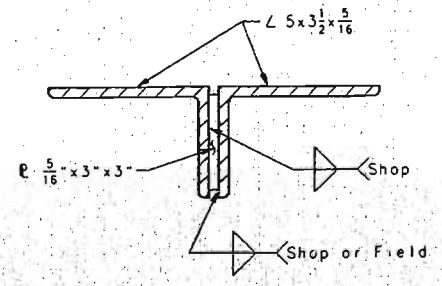
Note: Minimum vertical clearance from top of new slab shall be 16'6".



DETAIL "A"



DETAIL "B"



PART SECTION A-A

Note: Bolts shall be 3/8" H.S. Bolts with Washers and Heavy Hex Nuts.

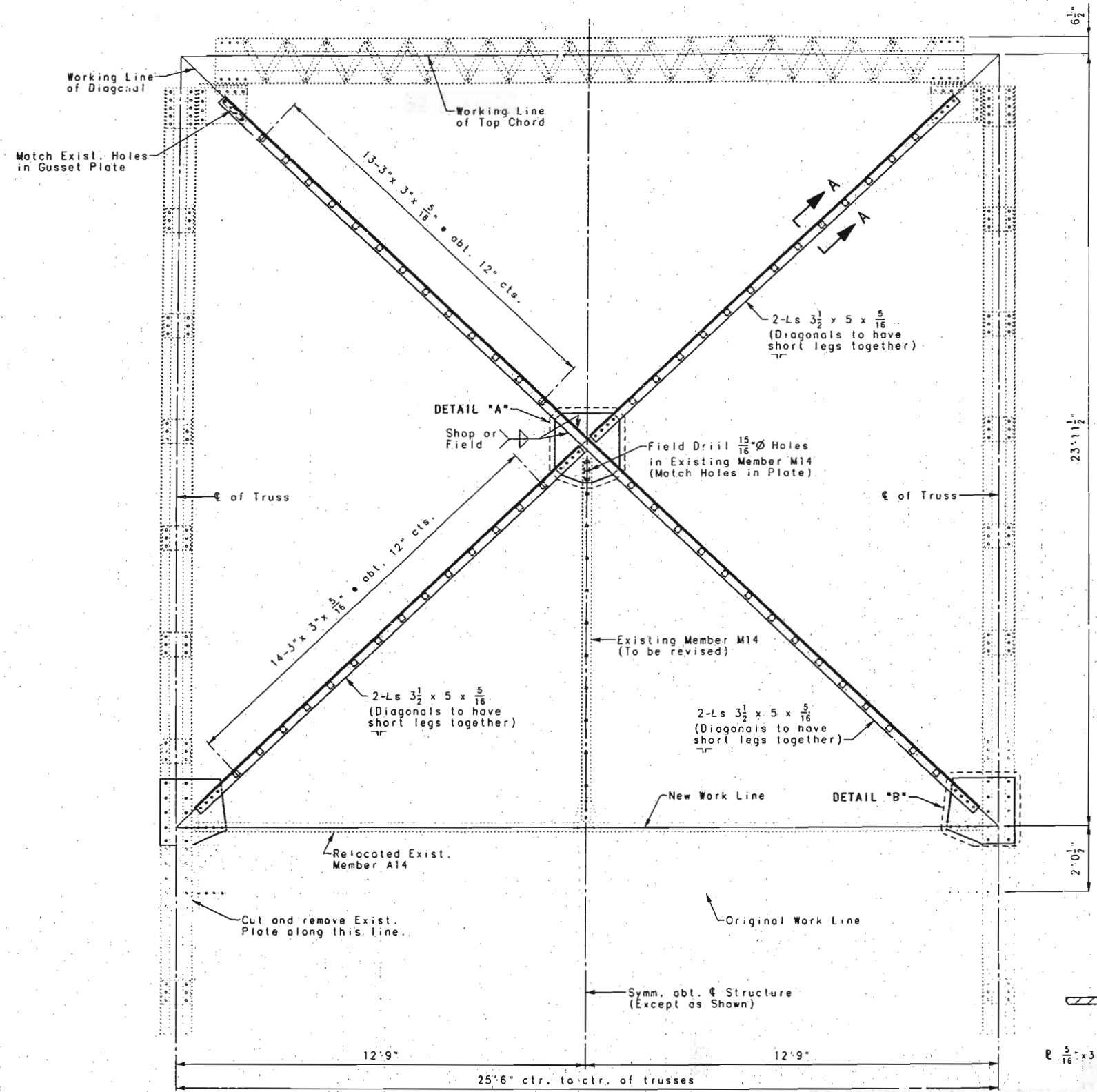
Existing Rivet
 • New Bolt

374786
 DETAILED JUNE 1995
 CHECKED SEPT. 1995

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

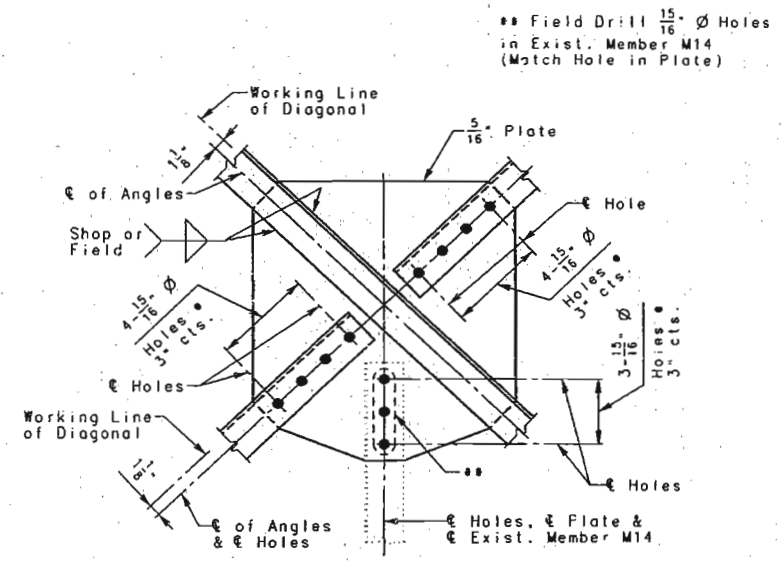
SHEET NO. 83 OF 97

STATE	PROJ. NO.	SHEET NO.
MO.		118



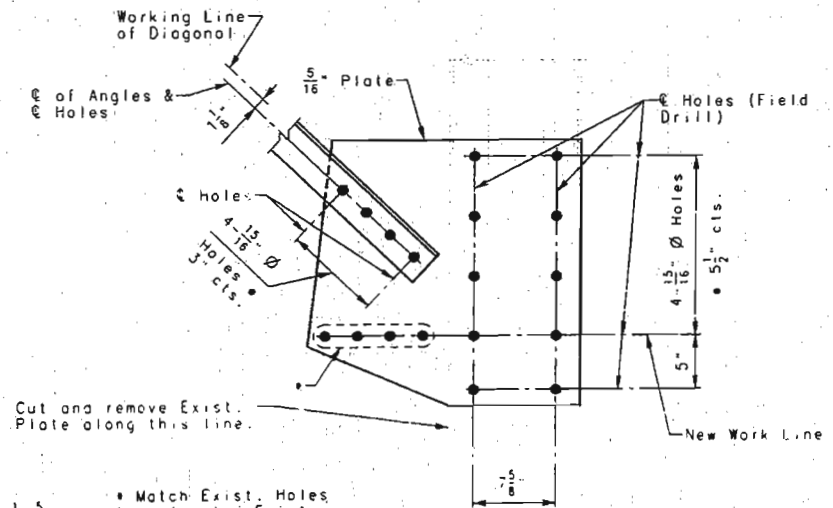
SWAY FRAME AT U9 AND U9'

Note: Minimum vertical clearance from top of new slab shall be 16'-6".

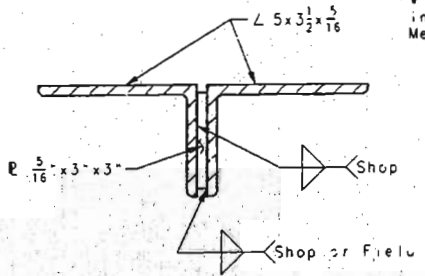


DETAIL "A"

Note: Contractor shall have option of Field Drilling Holes. The cost of furnishing, fabricating and installing the plates, angles, high strength bolts and miscellaneous pieces necessary for each sway frame will be paid for at the contract unit price for Sway Frame Modification per each.



DETAIL "B"



PART SECTION A-A

Note: Bolts shall be 7/8" H.S. Bolts with Washers and Heavy Hex Nuts.

Existing Rivet
New Bolt

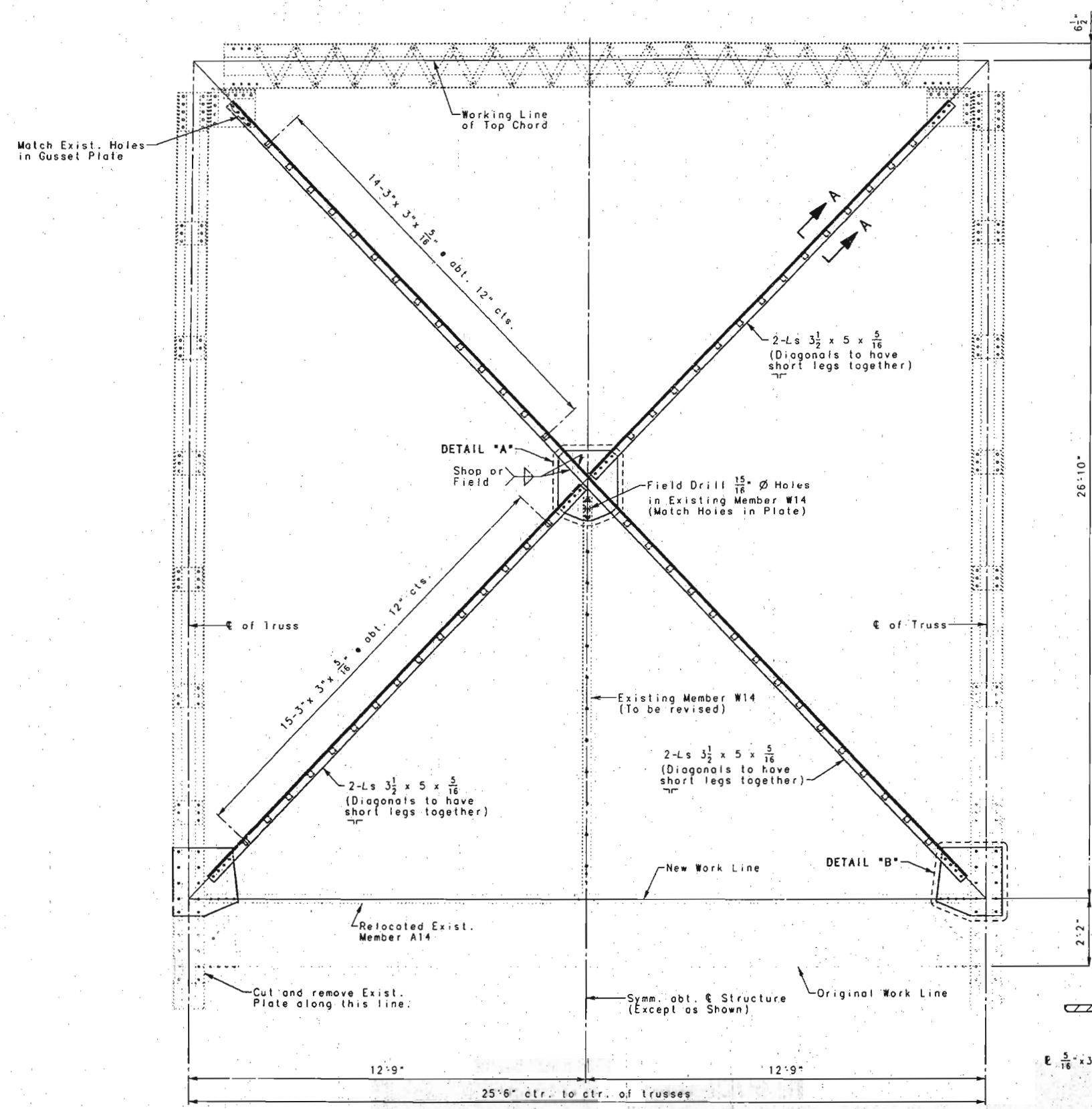
325787
 DETAILED JUNE 1995
 CHECKED SEPT. 1995

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

SHEET NO. 84 OF 97

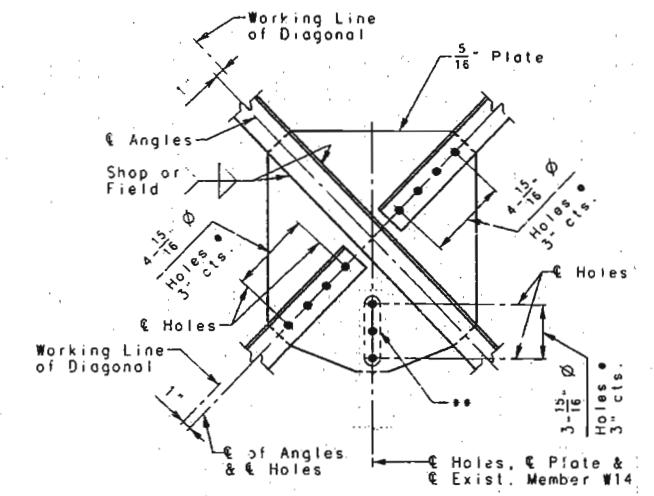
FRANKLIN-WARREN COUNTIES K09691

STATE	PROJ. NO.	SHEET NO.
MO.		119



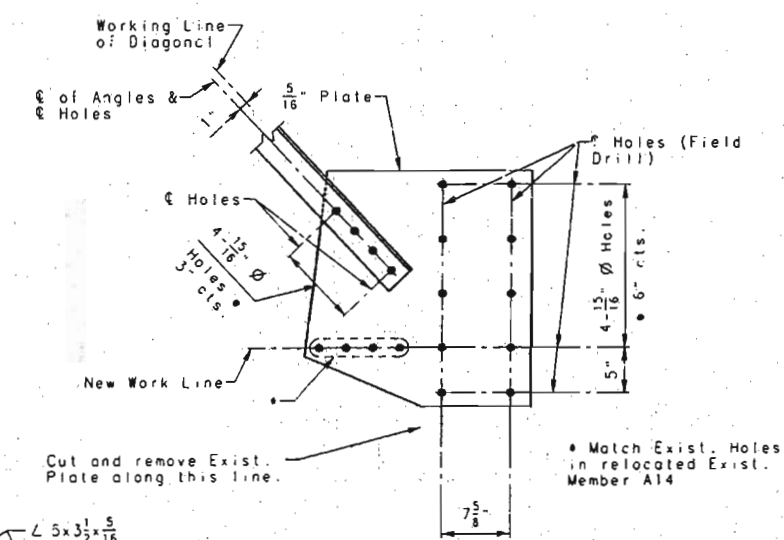
Note: Minimum vertical clearance from top of new slab shall be 16'-6".

** Field Drill 15/16" ϕ Holes in Exist. Member W14 (Match Hole in Plate)

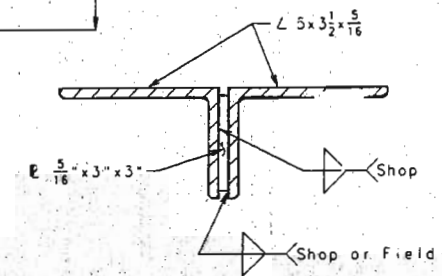


DETAIL "A"

Note: Contractor shall have option of Field Drilling Holes. The cost of furnishing, fabricating and installing the plates, angles, high strength bolts and miscellaneous pieces necessary for each sway frame will be paid for at the contract unit price for Sway Frame Modification per each.



DETAIL "B"



PART SECTION A-A

Note: Bolts shall be 7/8" ϕ H.S. Bolts with Washers and Heavy Hex Nuts.

Existing Rivet
New Bolt

376/188

DETAILED JUNE 1995
CHECKED SEPT. 1995

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

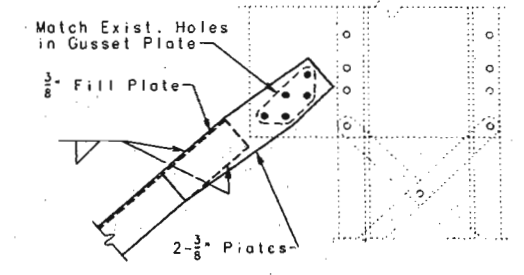
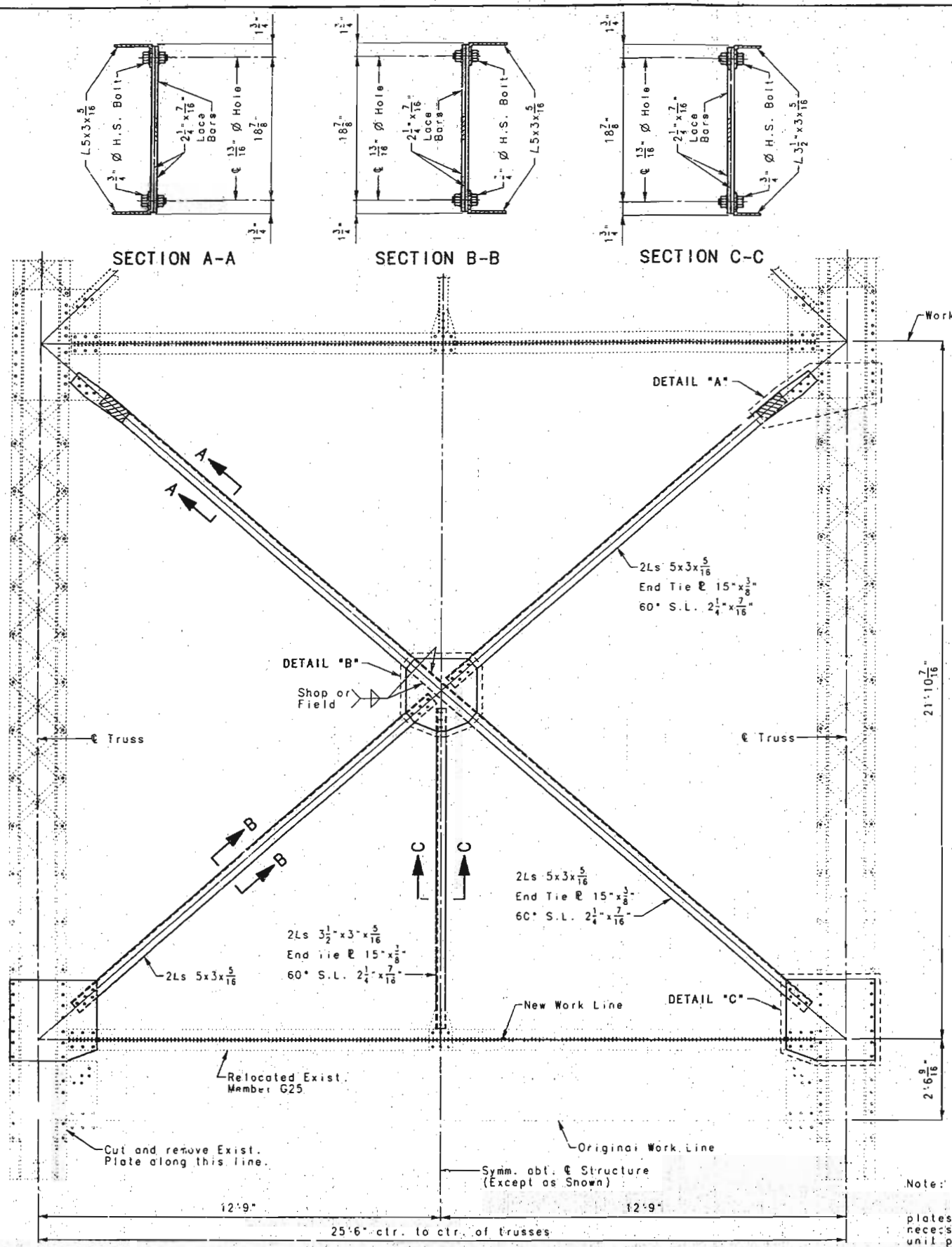
SHEET NO. 85 OF 97.

FRANKLIN-WARREN COUNTIES K09691

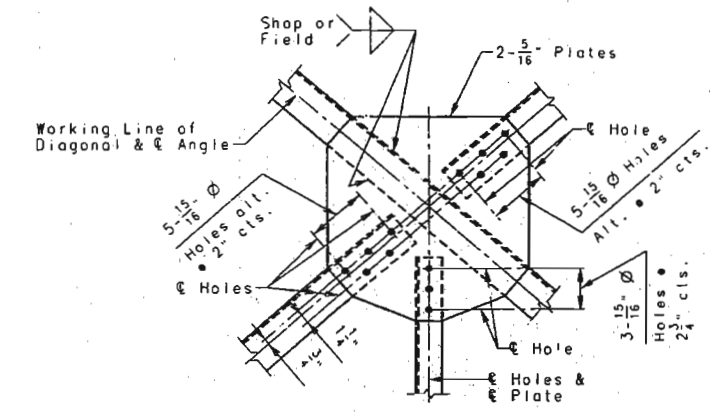
SWAY FRAME AT U11 AND U11'

STATE	PROJ. NO.	SHEET NO.
MO.		120

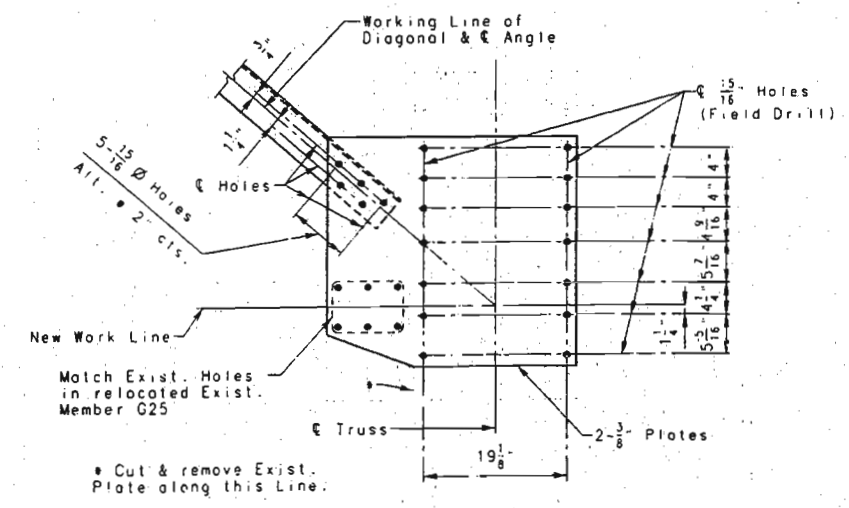
Note: Minimum vertical clearance from top of new slab shall be 16'-6".



DETAIL "A"



DETAIL "B"



DETAIL "C"

Note: Contractor shall have option of Field Drilling Holes.
The cost of furnishing, fabricating and installing the plates, angles, high strength bolts and miscellaneous pieces necessary for each sway frame will be paid for at the contract unit price for Sway Frame Modification per each.

Note: Bolts shall be 3/4" Ø H.S. Bolts with Washers and Heavy Hex Nuts.
Existing Rivet
New Bolt

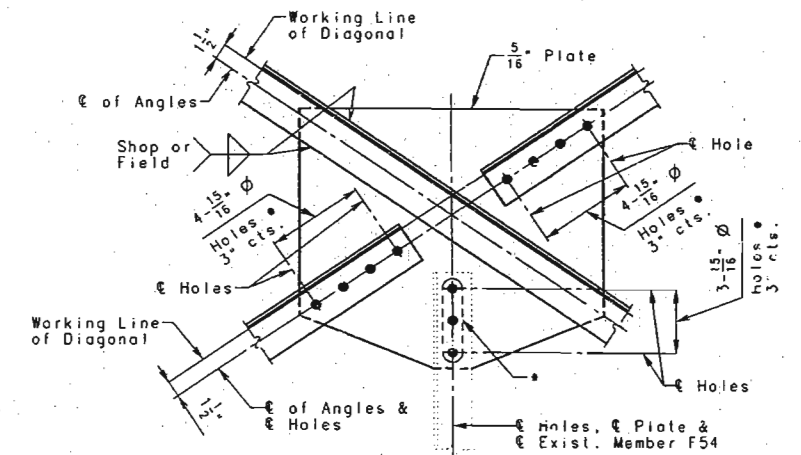
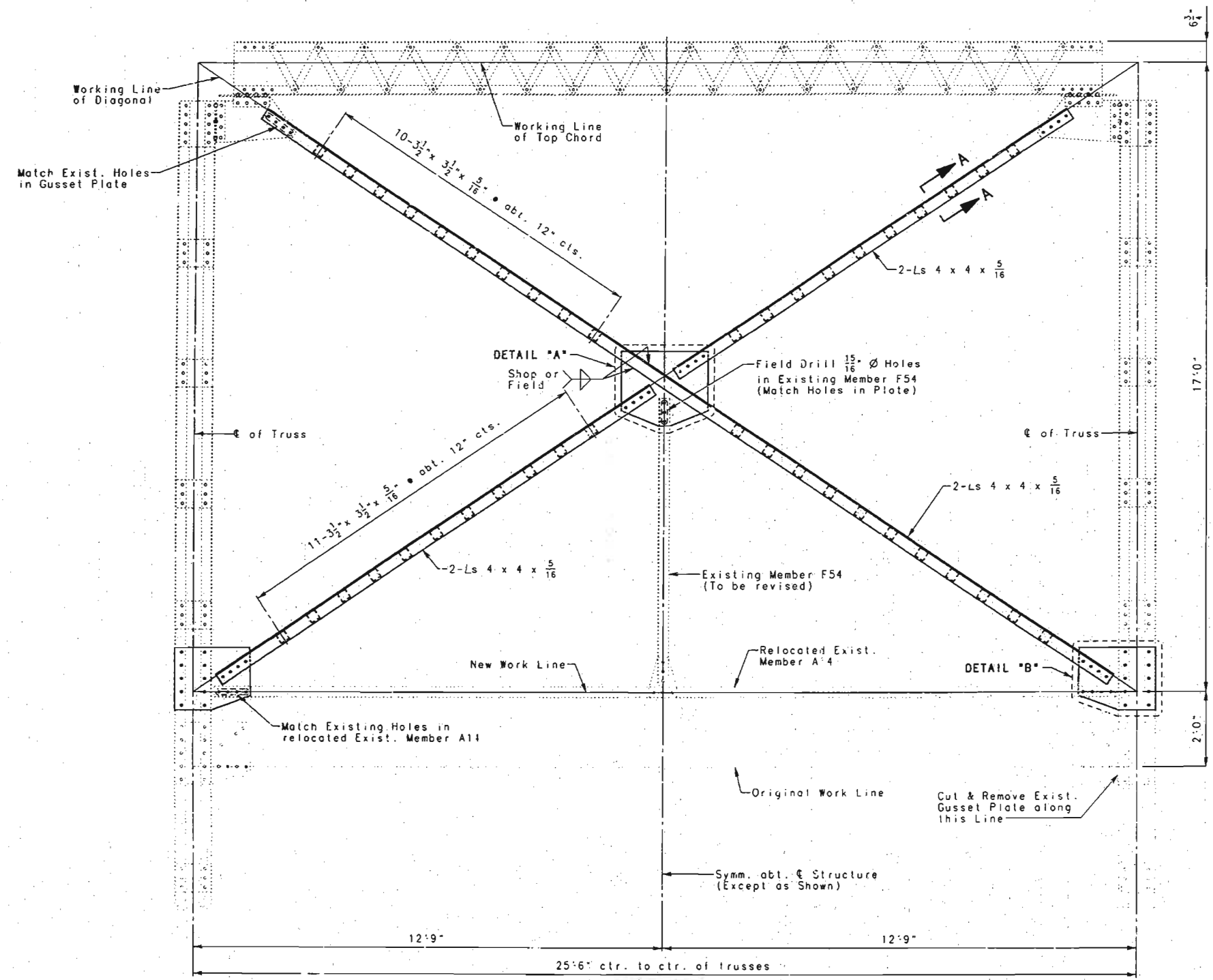
SWAY FRAME AT U14, U30, U14', AND U30'

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

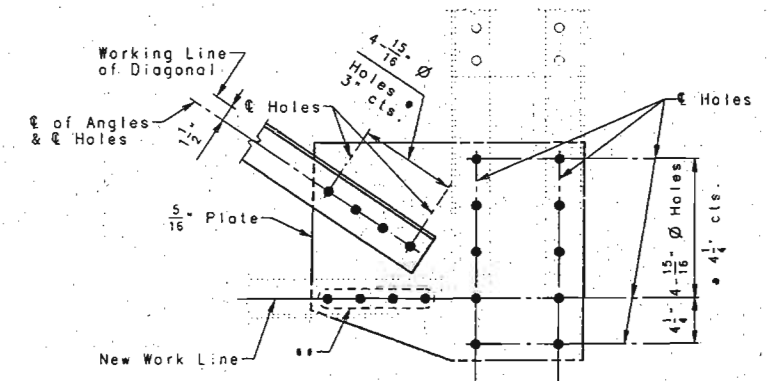
STATE	PROJ. NO.	SHEET NO.
MO.		121

Note: Contractor shall have option of Field Drilling Holes.
 The cost of furnishing, fabricating and installing the plates, angles, high strength bolts and miscellaneous pieces necessary for each sway frame will be paid for at the contract unit price for Sway Frame Modification per each.

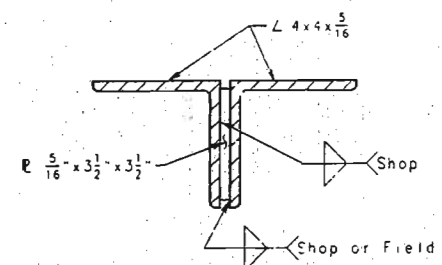
• Field Drill $\frac{15}{16}$ " \emptyset Holes in Existing Member F54 (Match Holes in Plate)



DETAIL "A"



DETAIL "B"



PART SECTION A-A

Note: Bolts shall be $\frac{7}{8}$ " \emptyset H.S. Bolts with Washers and Heavy Hex Nuts.

Existing Rivet
 • New Bolt

Note: Minimum vertical clearance from top of new slab shall be 16'-6"

378/39

DETAILED JULY 1995
 CHECKED SEPT 1995

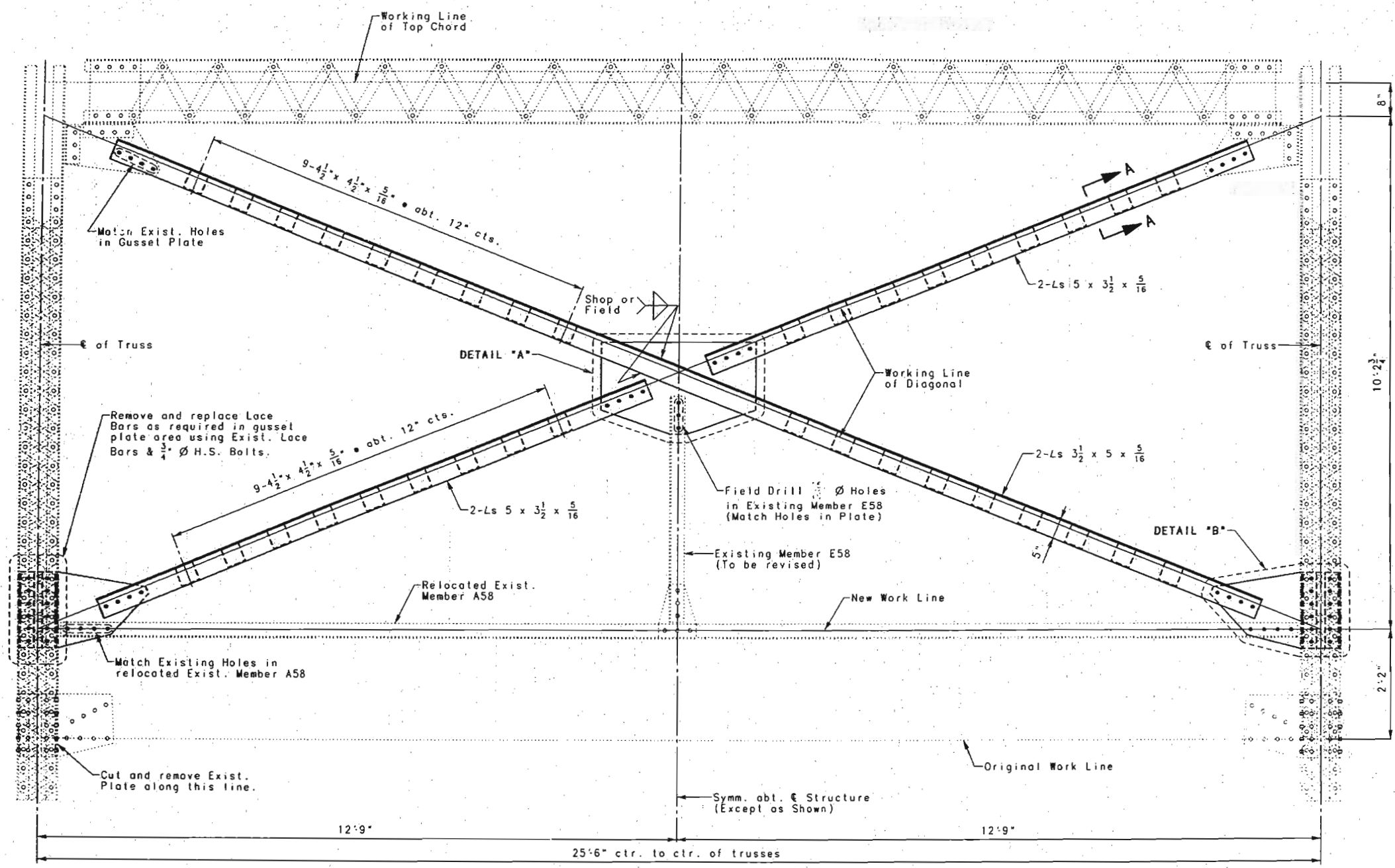
NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

SHEET NO. 87 OF 97

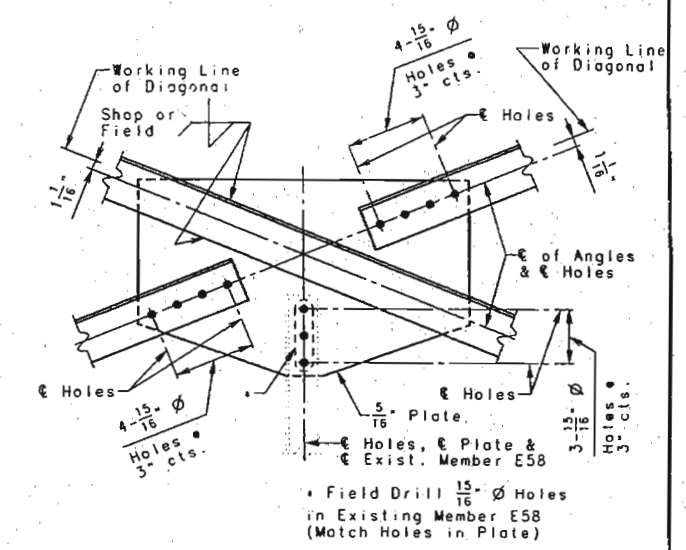
FRANKLIN-WARREN COUNTIES K09691

SWAY FRAME AT U17, U27, U17' AND U27'

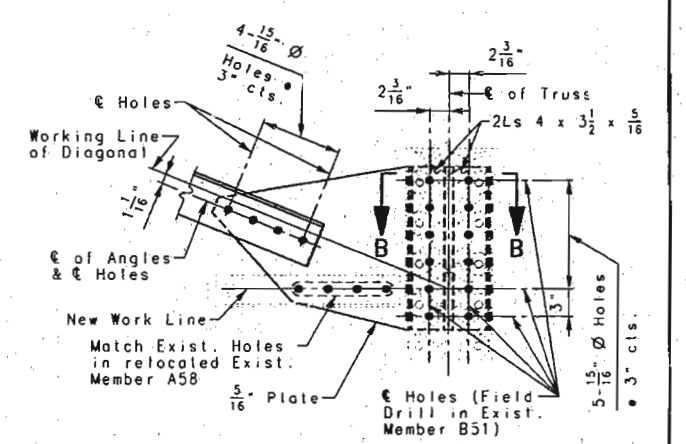
STATE	PROJ. NO.	SHEET NO.
MO.		122



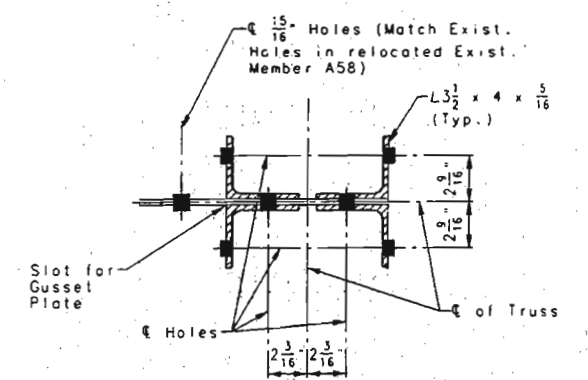
SWAY FRAME AT U21, U23, U21', AND U23'



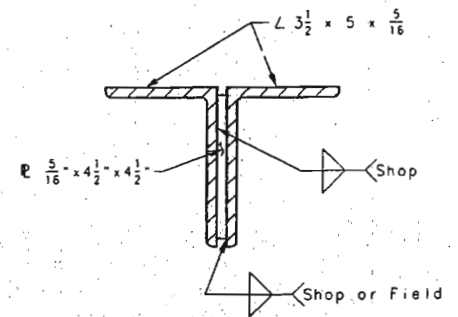
DETAIL "A"



DETAIL "B"



SECTION B-B



PART SECTION A-A

Note: Contractor shall have option of Field Drilling Holes.
The cost of furnishing, fabricating and installing the plates, angles, high strength bolts and miscellaneous pieces necessary for each sway frame will be paid for at the contract unit price for Sway Frame Modification per each.

Note: Minimum vertical clearance from top of new slab shall be 16'-6".

Note: Bolts shall be 7/8" H.S. Bolts with Washers and Heavy Hex Nuts.

Existing Rivet
New Bolt

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

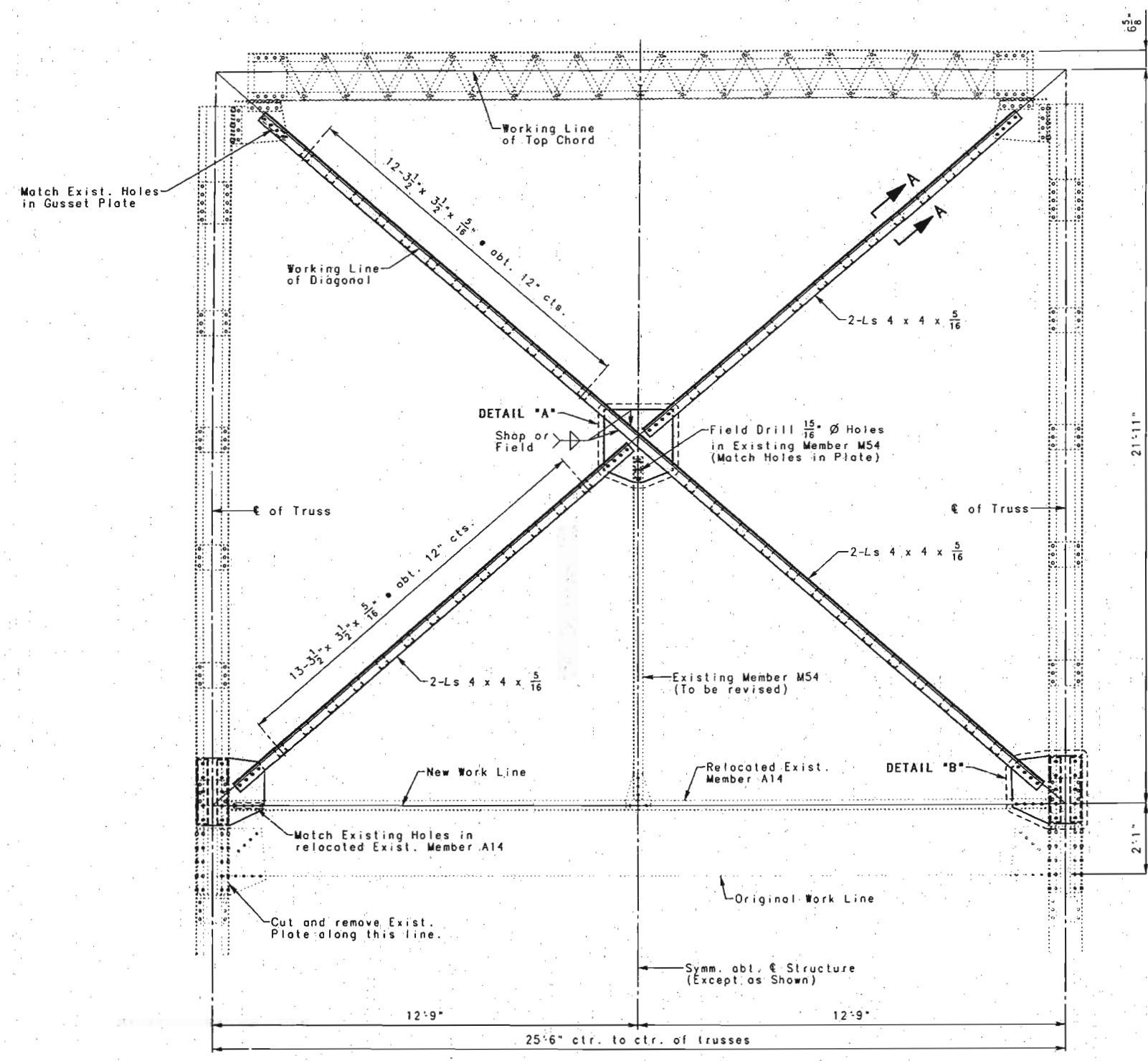
SHEET NO. 88 OF 97

FRANKLIN-WARREN COUNTIES K09691

DETAILED JULY 1995
CHECKED SEPT. 1995

379131

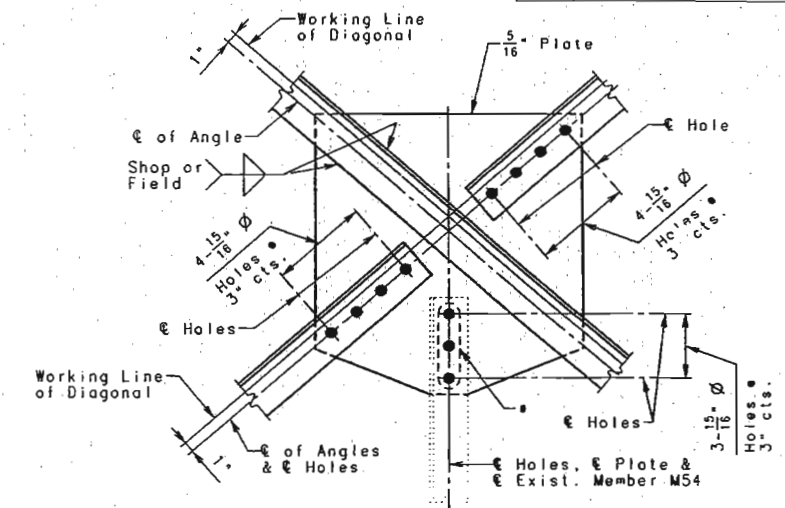
STATE	PROJ. NO.	SHEET NO.
MO.		123



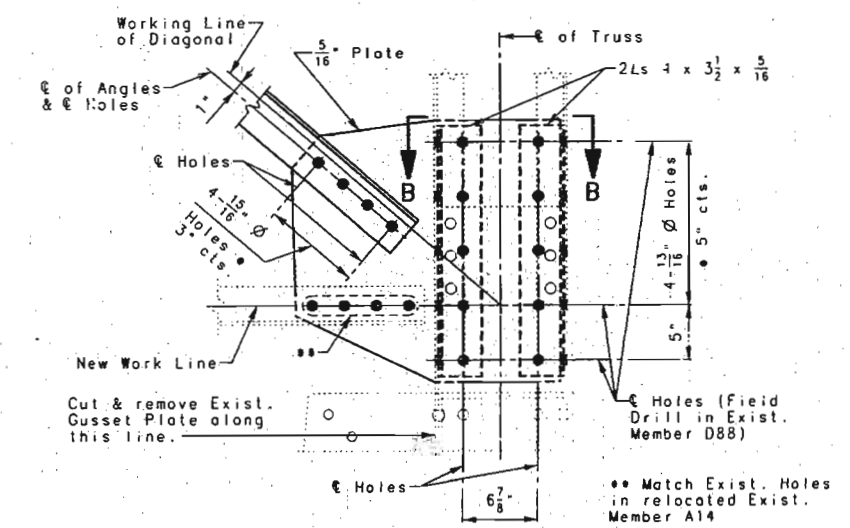
SWAY FRAME AT U33 AND U33'

Note: Contractor shall have option of Field Drilling Holes.
 The cost of furnishing, fabricating and installing the plates, angles, high strength bolts and miscellaneous pieces necessary for each sway frame will be paid for at the contract unit price for Sway Frame Modification per each.

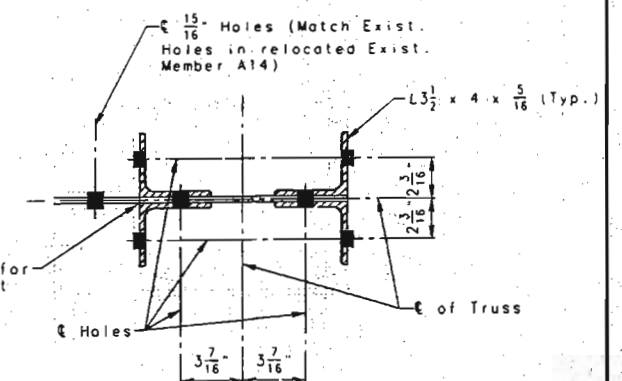
Note: Minimum vertical clearance from top of new slab shall be 16'-6".



DETAIL "A"

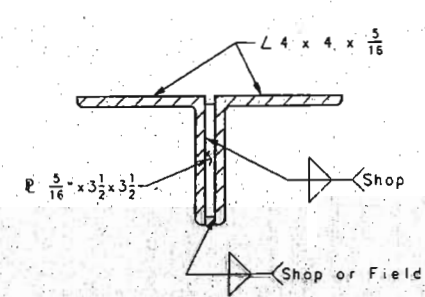


DETAIL "B"



SECTION B-B

Note: Bolts shall be 7/8" H.S. Bolts with Washers and Heavy Hex Nuts.
 Existing Rivet
 New Bolt



PART SECTION A-A

380132

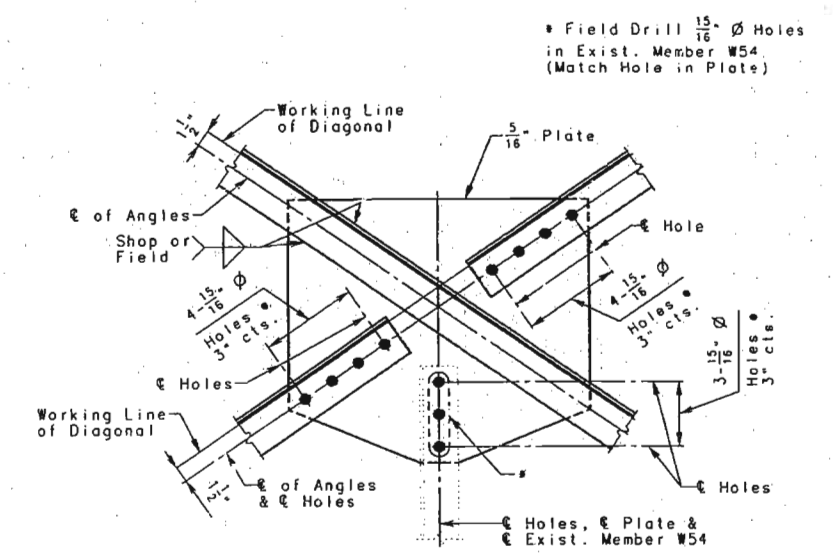
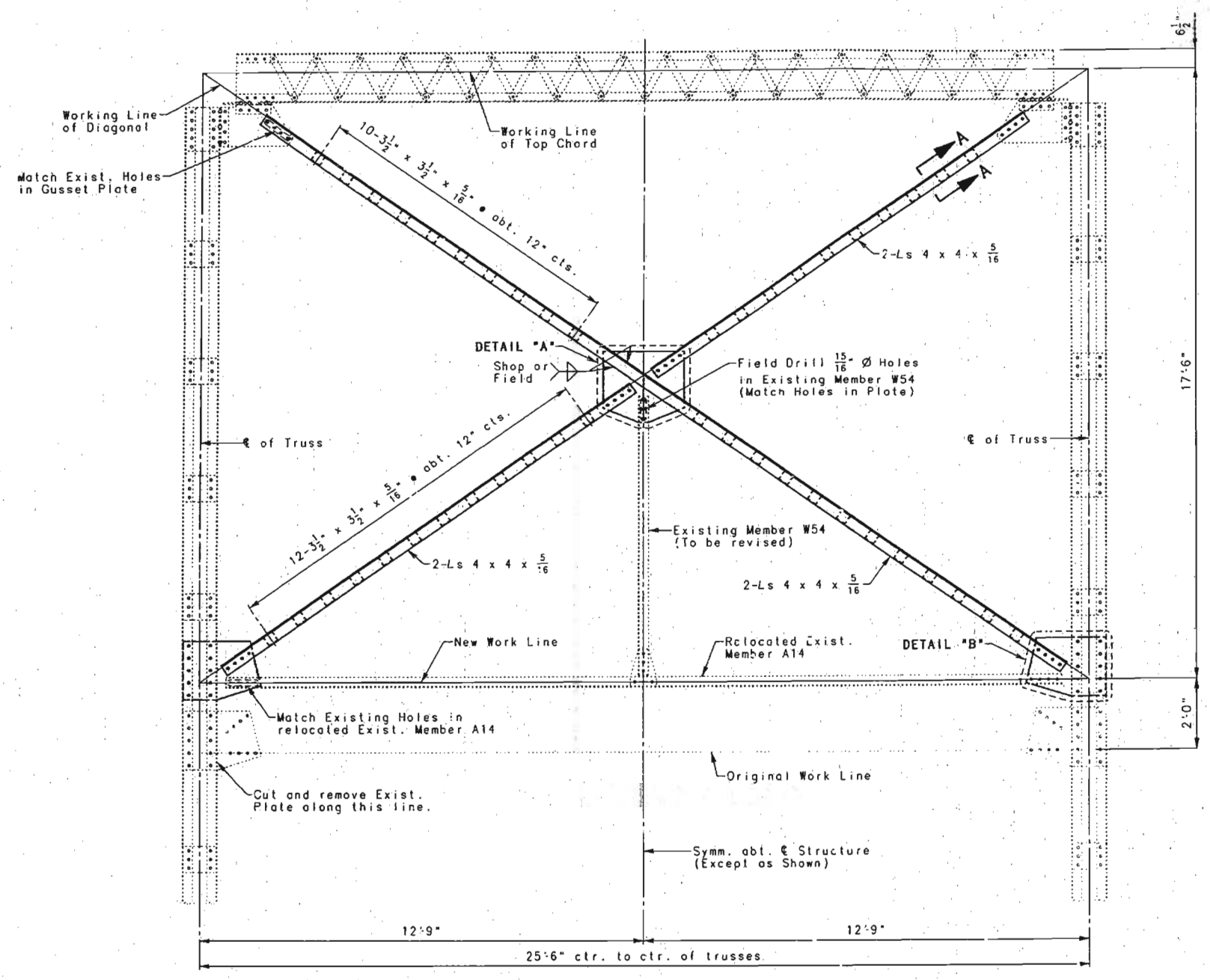
DETAILED JULY 1995
 CHECKED SEPT. 1995

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

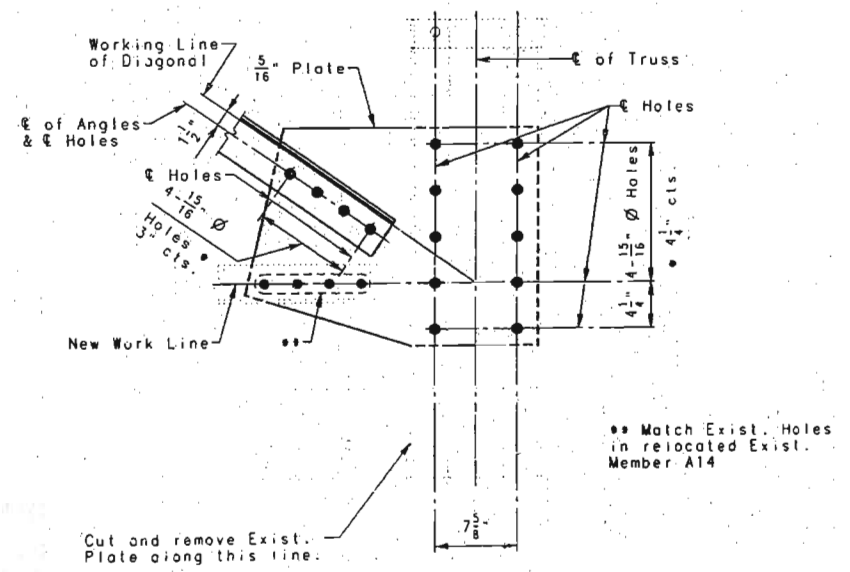
SHEET NO. 89 OF 97

FRANKLIN-WARREN COUNTIES K09691

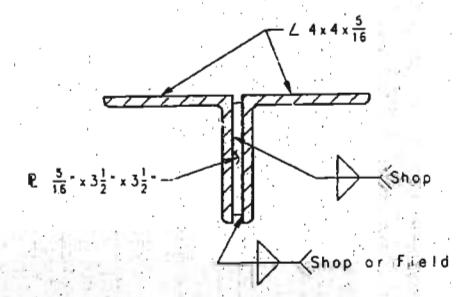
STATE	PROJ. NO.	SHEET NO.
MO.		124



DETAIL "A"



DETAIL "B"



PART SECTION A-A

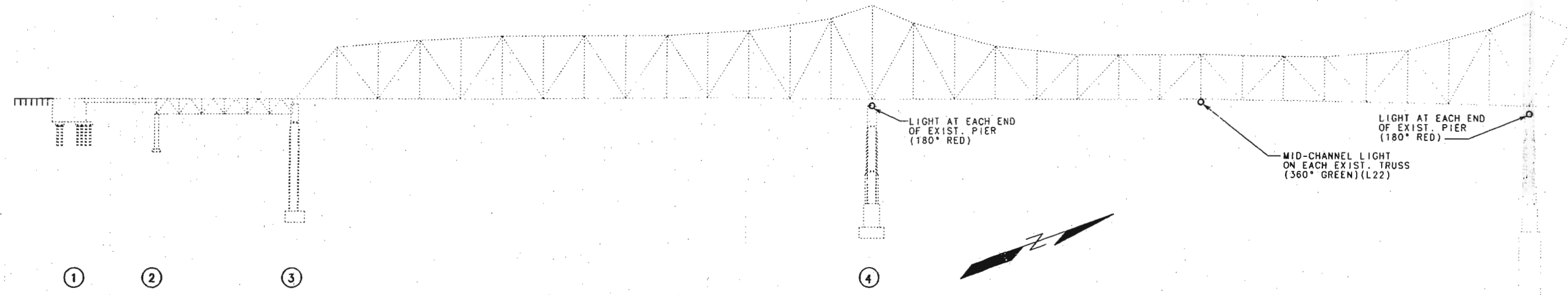
Note: Contractor shall have option of Field Drilling Holes.
The cost of furnishing, fabricating and installing the plates, angles, high strength bolts and miscellaneous pieces necessary for each sway frame will be paid for at the contract unit price for Sway Frame Modification per each.

Note: Minimum vertical clearance from top of new slab shall be 16'-6".

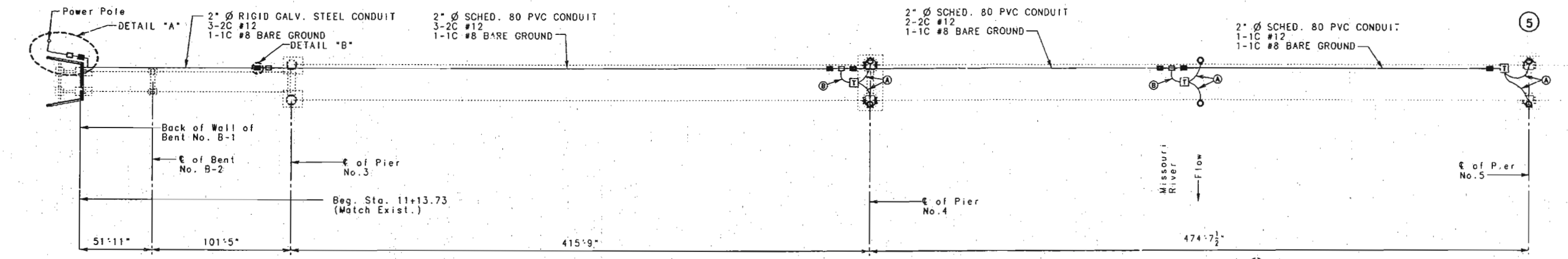
Note: Bolts shall be 7/8" H.S. Bolts with Washers and Heavy Hex Nuts.

Existing Rivet
New Bolt

18-381



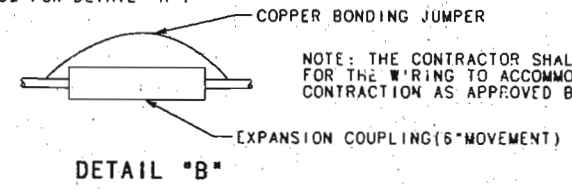
PART ELEVATION SHOWING LOCATION OF NAVIGATION LIGHTS



NOTE: SEE SHEET NO. 92 FOR DETAIL "A".

PART PLAN SHOWING LOCATION OF NAVIGATION LIGHTS

- (A) 1" Ø LIQUATITE FLEXIBLE METALLIC CONDUIT 1-3C #12 TYPE SO HEAVY DUTY POWER CORD.
- (B) 1" Ø LIQUATITE FLEXIBLE METALLIC CONDUIT 1-1C #12 1-1C #8 BARE GROUND



GENERAL NOTES:

CONDUIT SHALL BE GALVANIZED RIGID STEEL IN THE APPROACH SPANS AND SCHED. 80 PVC IN THE THRU TRUSS SPANS. EACH SECTION OF CONDUIT SHALL BEAR THE UNDERWRITERS LABORATORIES, INC. (UL) LABEL.

2" Ø CONDUIT SHALL BE SECURED TO SUPPORTS WITH CLAMPS. ALL CONDUIT FROM THE 2" Ø MAIN CONDUIT TO THE LIGHT FIXTURES SHALL BE 1" Ø FLEXIBLE METALLIC CONDUIT SECURED WITH CLAMPS AT 5'-0" (MAX.) SPACING. ALL CLAMPS SHALL BE GALVANIZED PER AASHTO M111.

RIGID STEEL CONDUIT SHALL BE SECURED WITH CLAMPS AT ABOUT 8'-6" CTS. AND SCHED 80 PVC CONDUIT SHOULD BE SECURED WITH CLAMPS AT 5'-0" CTS. (MAX.)

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

EXPANSION COUPLINGS SHALL BE INSTALLED ON CONDUIT LINES BETWEEN ALL JUNCTION BOXES AND AT EACH SLAB EXPANSION DEVICE. THE LOCATION AND DIRECTION OF CONDUIT MAY BE SHIFTED TO MEET FIELD CONDITIONS AS DIRECTED BY THE ENGINEER.

ALL JUNCTION AND TERMINAL BOXES SHALL BE SURFACE MOUNTED, 12"x12"x4" (MIN.), PVC OR STAINLESS STEEL, DRILLED FOR MOUNTING, AND MEET OTHER REQUIREMENTS OF SEC. 1062 EXCEPT FOR THE REQUIREMENT TO BE FLANGED. THE TERMINATIONS SHALL BE PERMANENT OR SEPARABLE AND WATERPROOF.

THE TERMINATIONS AND COVERS SHALL BE OF WATERTIGHT CONSTRUCTION.

NAVIGATION LIGHTING SHALL MEET THE REQUIREMENTS OF THE U.S. COAST GUARD. EXISTING NAVIGATION LIGHTING SHALL BE KEPT IN OPERATION DURING CONSTRUCTION.

NAVIGATION LIGHTING SYSTEM, COMPLETE IN PLACE, INCLUDES CONDUIT, CONDUIT CLAMPS, BOLTS, NUTS AND WASHERS, JUNCTION BOXES, TERMINAL BOXES, EXPANSION COUPLINGS, FLEXIBLE METALLIC CONDUIT, FIXTURES, LAMPS, BARS, ANGLES, REFLECTIVE MARKERS, ELECTRICAL CONDUCTORS, ANCHORS, DRILLING, AND ALL INCIDENTALS TO COMPLETE THIS WORK.

LIGHT FIXTURES SHALL BE BRIDGE LAMPS AS MANUFACTURED BY THE TIDELAND SIGNAL CORPORATION OF HOUSTON, TEXAS.

THE FIXTURES SHALL BE FURNISHED COMPLETE WITH LAMP-OUT RELAYS, MOUNTINGS AND ALL INCIDENTALS.

MATERIAL FOR THE JUNCTION BOX SUPPORTS SHALL BE A-36 STRUCTURAL GRADE STEEL, FABRICATED AND INSTALLED IN ACCORDANCE WITH SECTION 712 OF THE STANDARD SPECIFICATIONS.

ALL STRUCTURAL STEEL SHALL BE GALVANIZED AFTER FABRICATION.

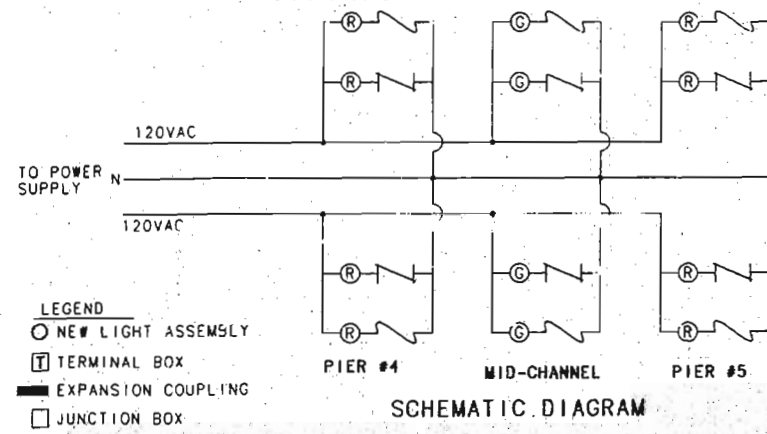
ALL BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED, EXCEPT AS NOTED.

ANY FIELD DRILLED HOLES REQUIRED FOR ATTACHMENT OF ABOVE ITEMS SHALL BE CONSIDERED AS PART OF THE NAVIGATION LIGHTING SYSTEM.

CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND LOCATIONS OF JUNCTION AND TERMINAL BOXES IN FIELD BEFORE ORDERING MATERIALS.

EXISTING LIGHT ACCESS PLATFORMS SHALL BE CLEANED, PAINTED W/CALCIUM SULFONATE AND REUSED.

JUNCTION BOXES SHALL BE USED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE.



NAVIGATION LIGHTING SYSTEM REPLACEMENT

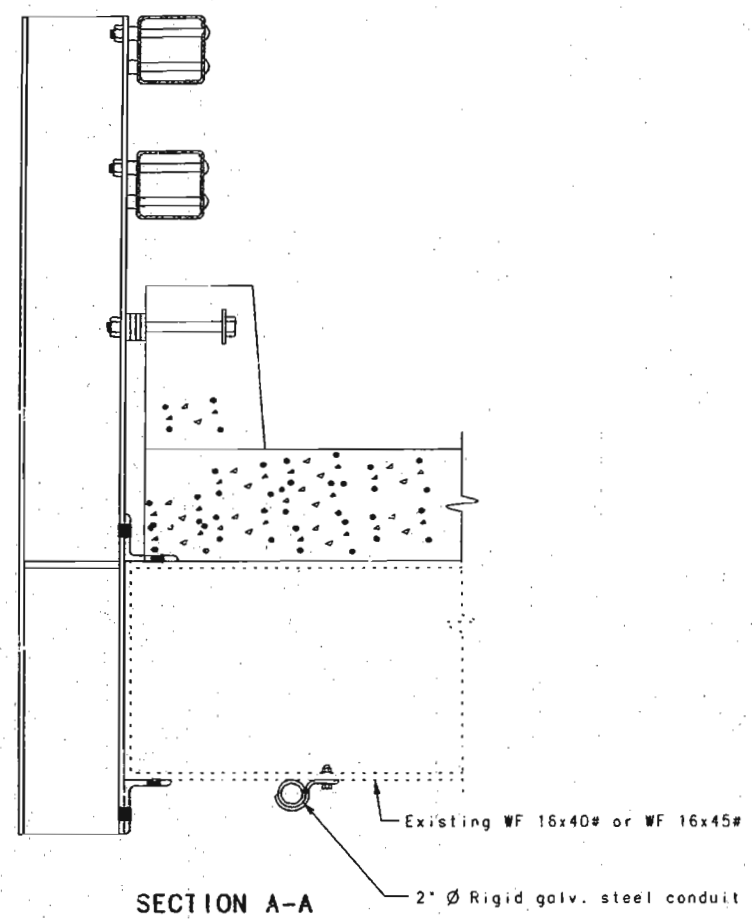
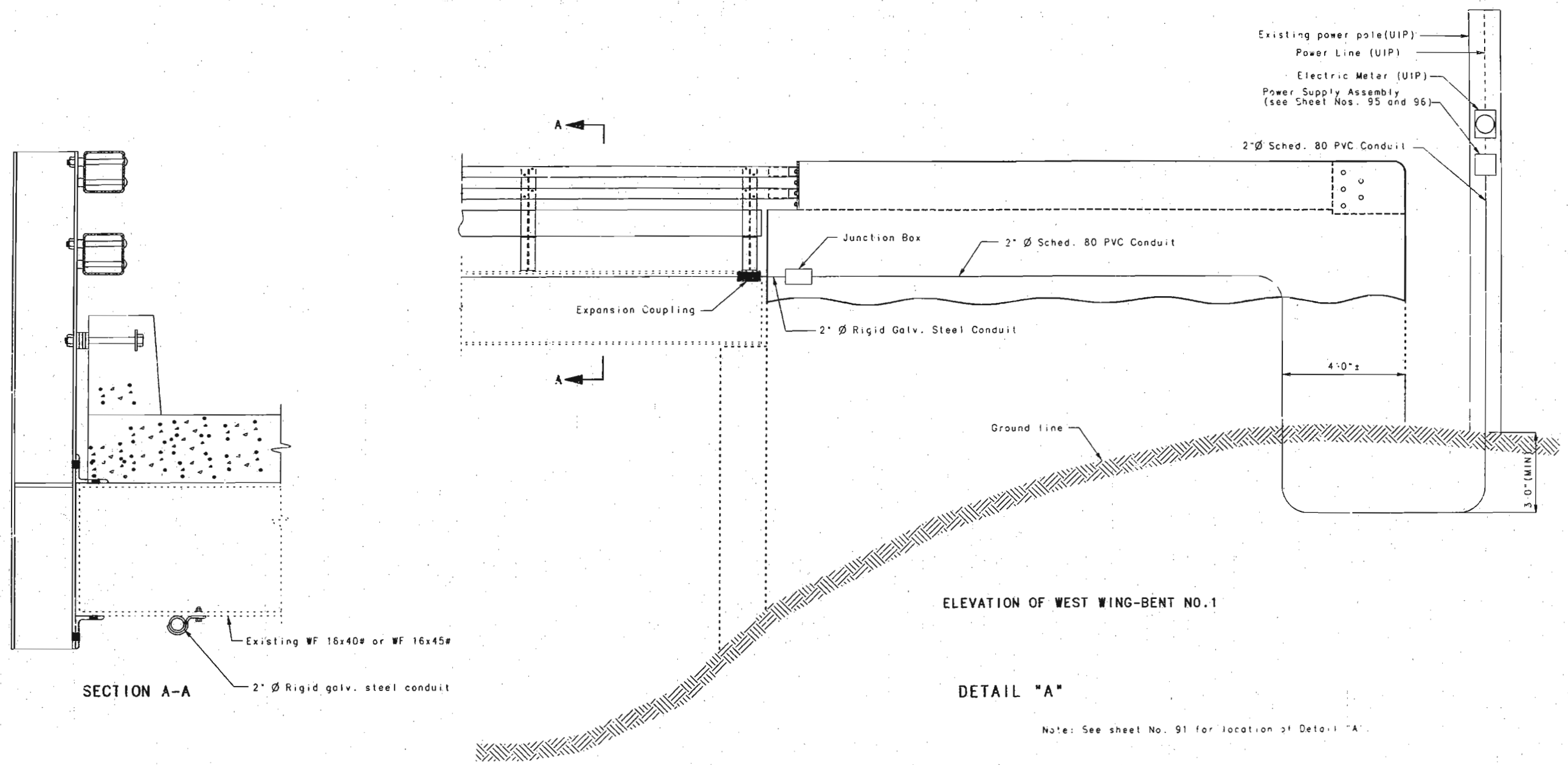
FRANKLIN-WARREN COUNTIES K09691

DETAILED NOV. 1995
CHECKED NOV. 1995

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

SHEET NO. 91 OF 97.

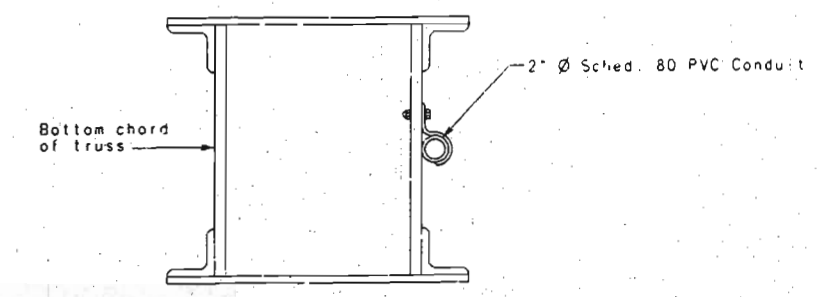
STATE	PROJ. NO.	SHEET NO.
MO.		126



ELEVATION OF WEST WING-BENT NO. 1

DETAIL "A"

Note: See sheet No. 91 for location of Detail "A"



SECTION THRU MAIN TRUSS
SHOWING CONDUIT LOCATION

75-303

DETAILED NOV. 1995
CHECKED NOV. 1995

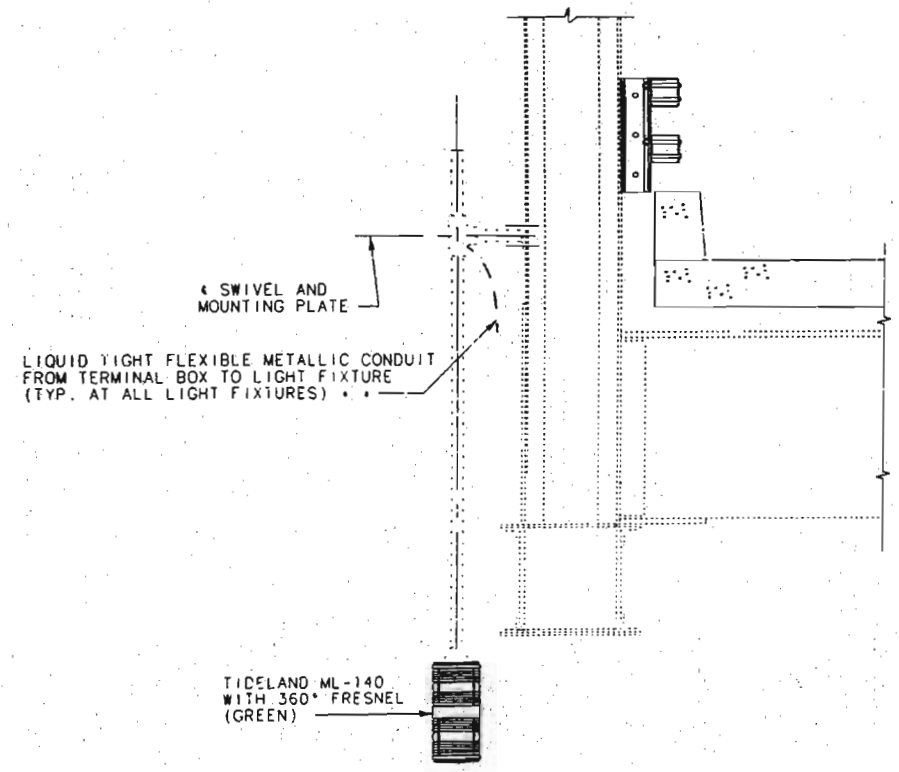
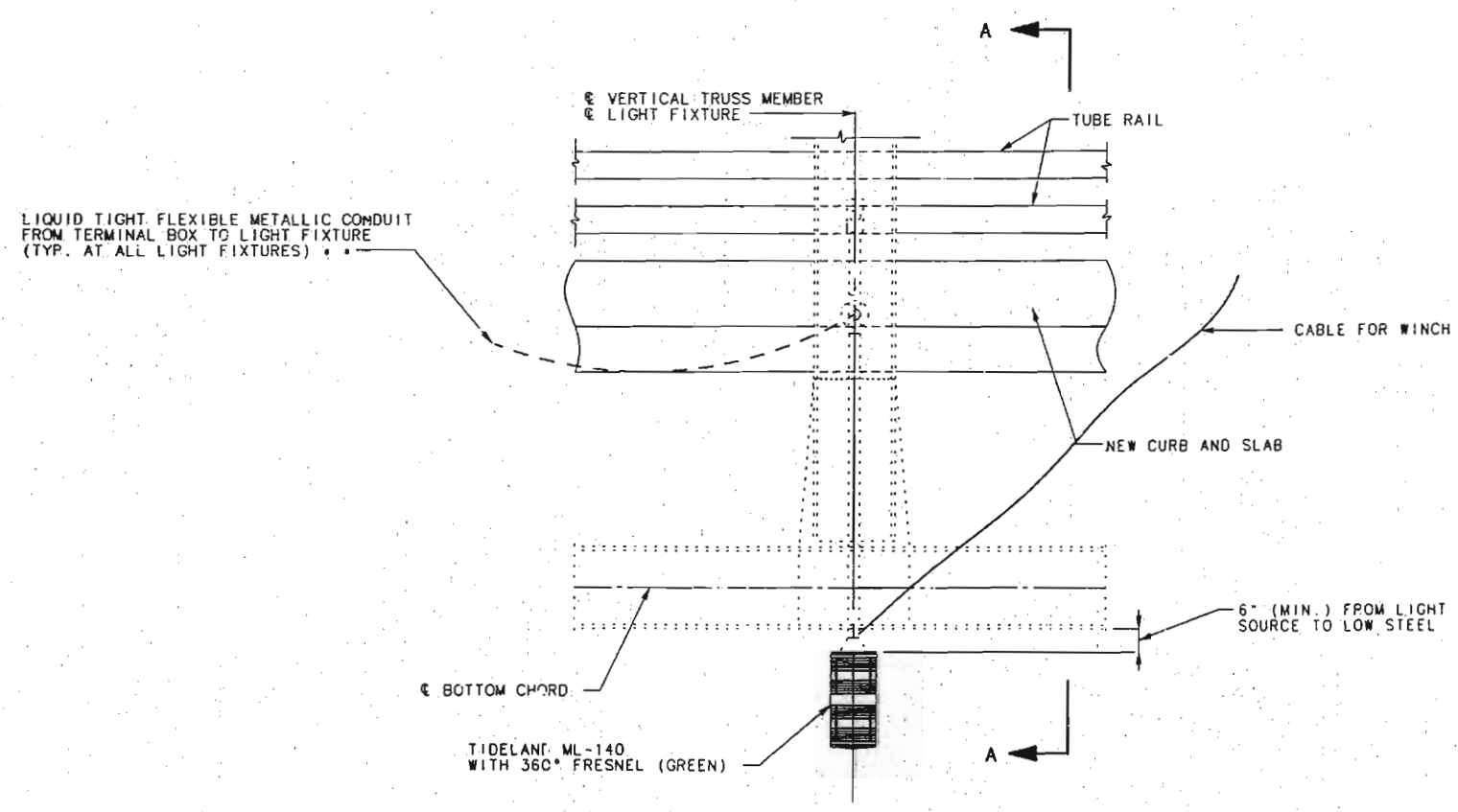
NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

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FRANKLIN-WARREN COUNTIES K09691

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MO.		127

NOTE:
 ** MINIMIZE LENGTH OF FLEXIBLE CONDUIT AS APPROVED BY THE ENGINEER.
 EXISTING SWIVEL MOUNTING BRACKET AND WINCH SHALL BE CLEANED, PAINTED AND REUSED.



NAVIGATION LIGHT DETAIL AT MID-CHANNEL
 (SPAN 4-5) (L22)

126 384

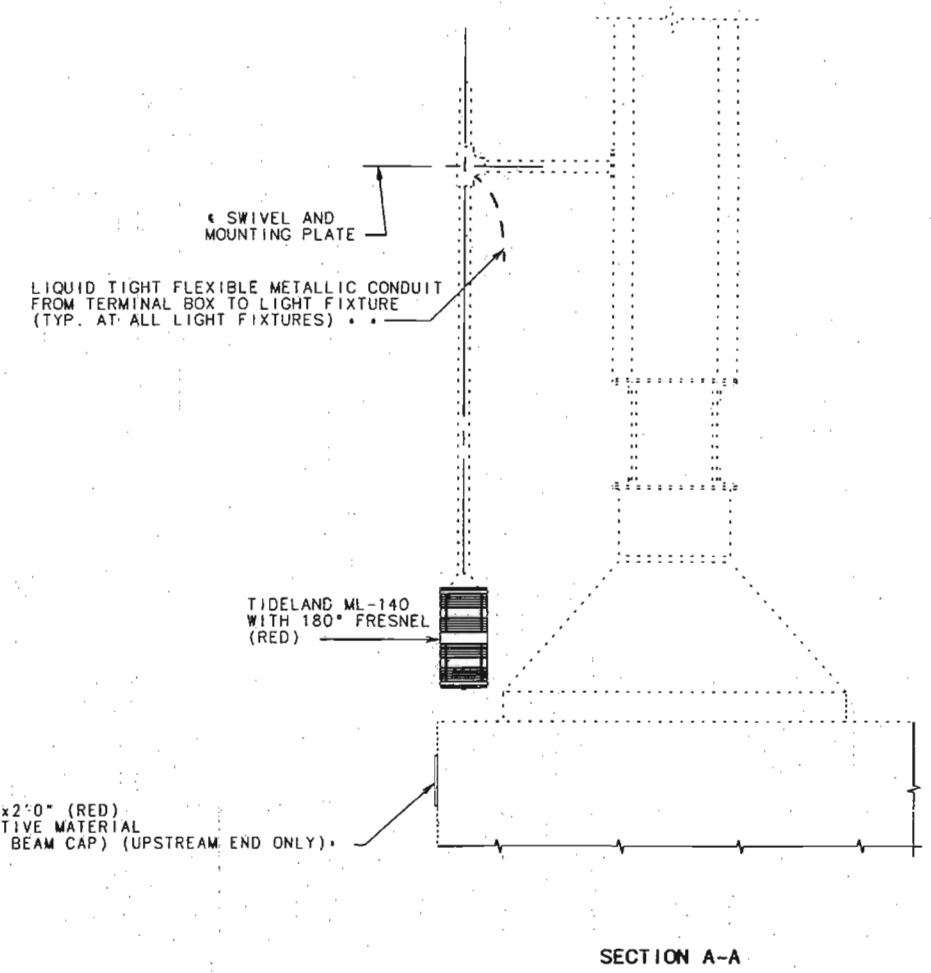
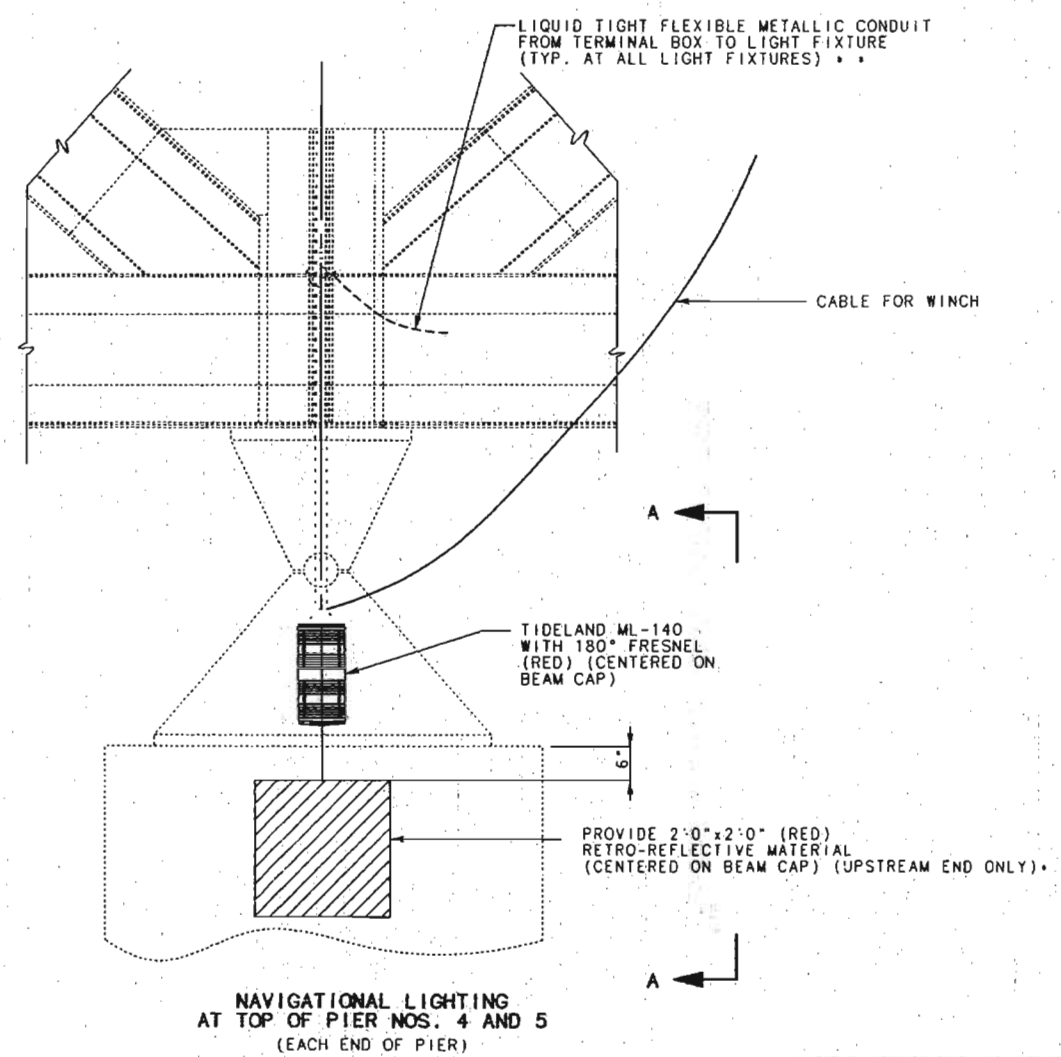
DETAILED NOV. 1995
 CHECKED NOV. 1995

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

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FRANKLIN-WARREN COUNTIES K09691

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NOTE:
 * TYPE 2 REFLECTIVE SHEETING ON AN ALUMINUM FLAT SHEET IN ACCORDANCE WITH SEC. 1042. FOR MOUNTING USE 3/8" Ø STAINLESS STEEL STUDS, WASHERS AND NUTS WITH RESIN ANCHOR SYSTEMS, SEE SPECIAL PROVISIONS. SPACE ALUMINUM FLAT PLATE AWAY FROM EXISTING CONCRETE WITH 3/8" STAINLESS STEEL SPACER.
 * MINIMIZE LENGTH OF FLEXIBLE CONDUIT AS APPROVED BY THE ENGINEER.
 EXISTING SWIVEL MOUNTING BRACKET AND WINCH SHALL BE CLEANED, PAINTED AND REUSED.

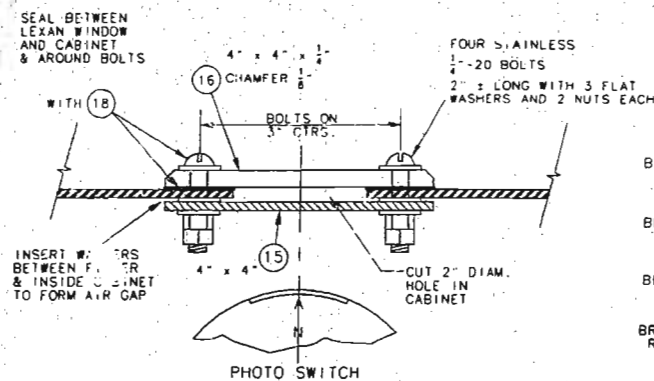
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DETAILED NOV. 1995
 CHECKED NOV. 1995

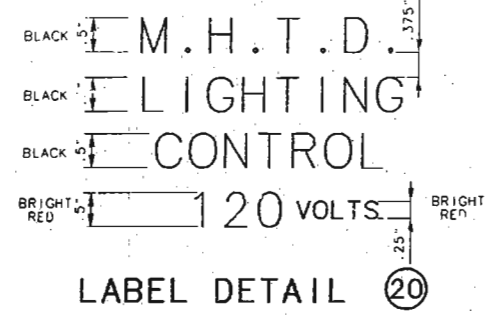
NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

SHEET NO. 94 OF 97

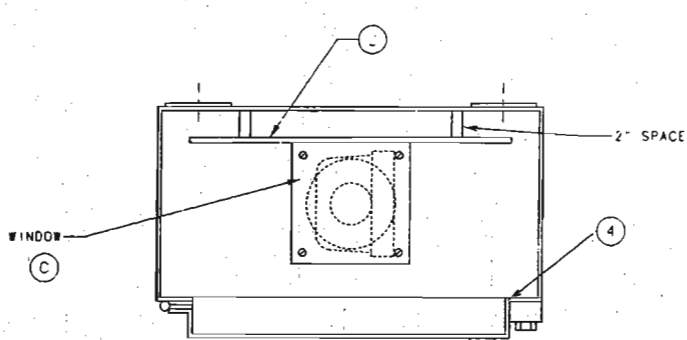
FRANKLIN-WARREN COUNTIES K09691



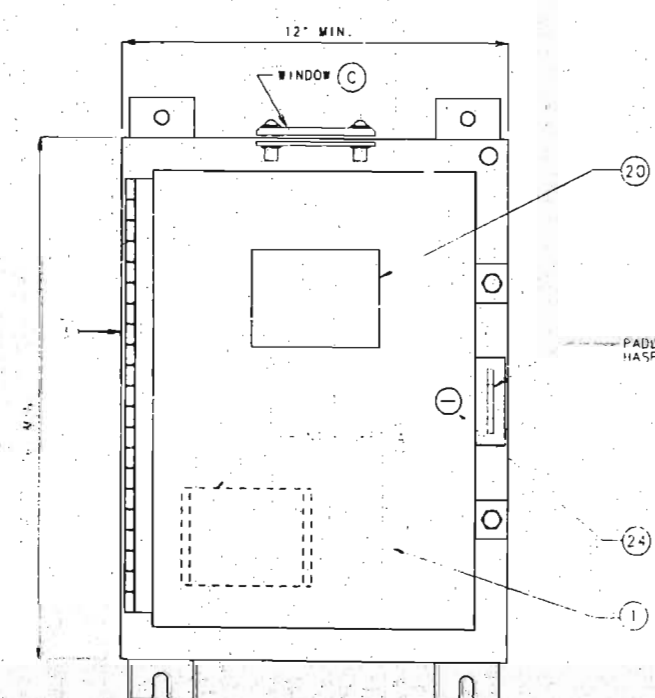
WINDOW DETAIL



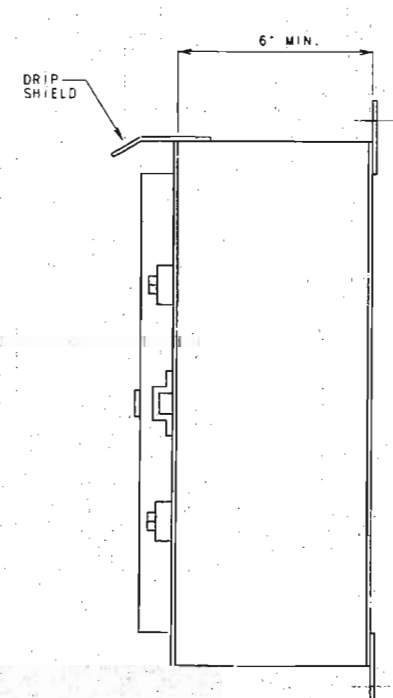
LABEL DETAIL



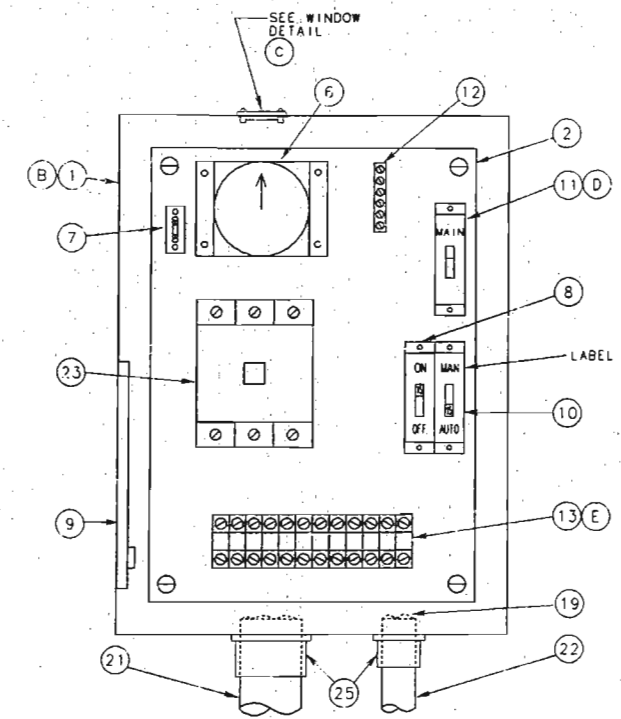
TOP VIEW



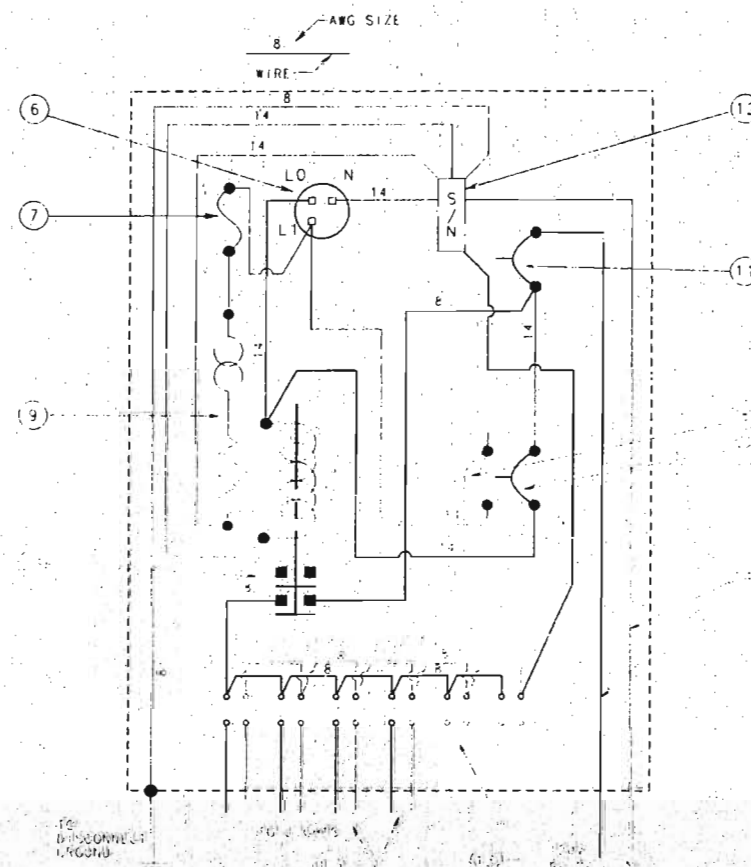
FRONT VIEW



SIDE VIEW



EQUIPMENT LAYOUT



WIRING DIAGRAM

LIST OF MATERIALS	
ITEM	DESCRIPTION
1	CABINET, WATERTIGHT, N.E.M.A. #4, 14 GA MINIMUM THICKNESS (B)
2	PANEL, 12 GA MINIMUM THICKNESS, ALUMINUM OR STAINLESS STEEL
3	CONTINUOUS STAINLESS STEEL HINGE
4	NEOPRENE GASKET
6	PHOTOELECTRIC SWITCH AND SOCKET, 105/285 V., 1000 WATT
7	FUSE BLOCK WITH 5 AMP FUSE
8	15 AMP CONTROL BREAKER, SINGLE POLE, TYPE B
9	HEATER STRIP, 120 VOLT, 100 WATT WITH PRESET THERMOSTAT, 60/75 DEGREES
10	15 AMP AUTO-MANUAL SWITCH, SINGLE POLE BREAKER, TYPE B, WITH LABEL
11	MAIN BREAKER, SINGLE POLE, TYPE B (D)
12	NEUTRAL TERMINAL STRIP
13	LIGHTING TERMINAL BLOCK, INSULATED FROM BACK PANEL, 12 POSITION (E)
14	CABLE, POWER, 8 AWG MIN., 600 V.
15	FILTER, TRANSLUCENT, PLEXIGLASS #2067, 1/8" THICK
16	WINDOW, CLEAR, LEXAN #9034, 1/4" THICK MIN.
17	CABLE, LIGHTING *
18	100 YEAR SILICONE CAULK
19	PLIABLE DUCT SEALANT
20	LABEL-WEATHERPROOF ADHESIVE-VINYL RAISED LETTERING (OR EQUIV.) (SEE DETAIL)
21	CONDUIT, RIGID, 2" MIN. *
22	CONDUIT, RIGID, 1" MIN.
23	LIGHTING CONTACTOR, 2 POLE, 30 AMP, 600 VOLT, 120 VOLT COIL
24	#2 CORBIN LOCK
25	THREADED CONDUIT HUB WITH SEALING WASHERS

NOTES

- (A) SCHEMATIC DIAGRAM SHALL BE MOUNTED ON INSIDE OF CABINET DOOR.
- (B) CABINET SHALL BE ALUMINUM OR STAINLESS STEEL. ALL HANDRAILS, HINGES, CATCHES, ETC. SHALL BE STAINLESS STEEL.
- (C) PHOTO SWITCH BRACKETS MAY VARY. LOCATE CENTER OF WINDOW OVER CENTER OF PHOTO SWITCH.
- (D) MAIN BREAKER SIZE:

TOTAL LIGHT** LOAD (WATTS)	BREAKER SIZE (AMPS)
0-920	15
930-1260	20
1270-1600	25
1610-1930	30
- (E) TERMINAL BLOCK SHALL BE RATED AT 600V, SHALL ACCEPT A BOND UP TO 8 AWG AND SHALL HAVE A BARRIER BETWEEN EACH TERMINAL AND ON EACH END.

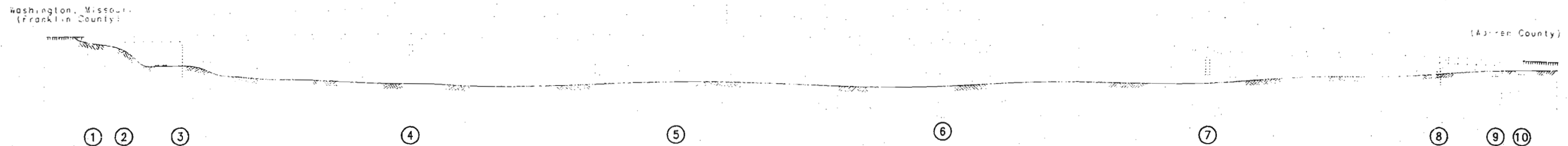
LIGHTING CONTROL CABINET

387 139

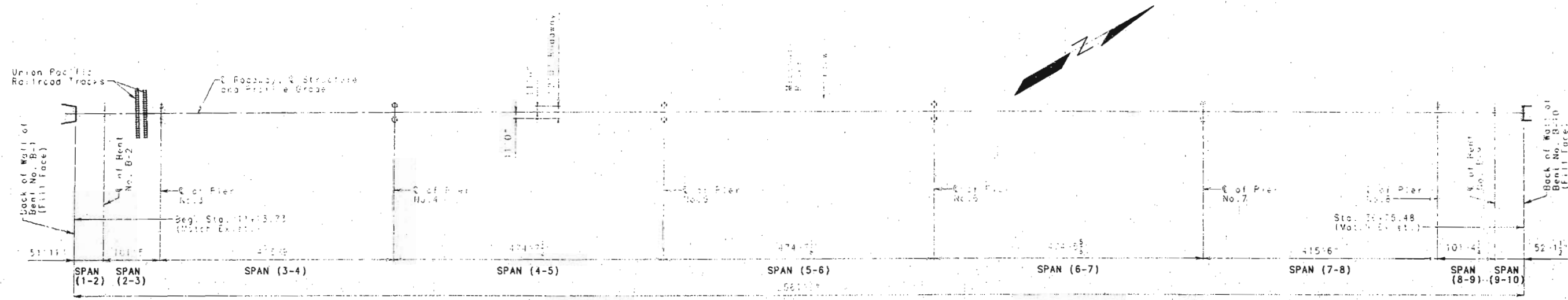
MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

STATE	PRC. NO.	SHEET NO.
MO.	BHF-47-1 (29)	35
SEC./SUR.	23 TWP. 44N. RGE. 1W	
JOB NO. J6P0820		

U.I.F. Deck and Floor (Note for AF, 100' Deck Truss, 415'-11" (118' 412') Truss, 100' Deck Truss, 50' AF



GENERAL ELEVATION



PLAN

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4	Reinforcing Steel	46-47	Concrete Curb
5	Deck	48-49	Bridge Rail (aka Tube) Structural Steel
6	Floorbeam	50-51	Partial Modifications
7	Stringer	52-53	Sway Frame Modifications
8	Diaphragm	54-55	Navigation Lighting System
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10	Truss	58-59	
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ENGINEER'S SEAL AND SIGNATURE
 DRAWN BY: [Signature]
 CHECKED BY: [Signature]
 DATE: 01/03/96

Note: See Sheet No. 2 for General Notes and Estimated Quantities.

B.M. ELEV. ... ON SOUTH END OF BRIDGE OVER MO. RIVER, SOUTH END OF WINGWALL ... RT. OF EX. ST. C. 47.

BRIDGE OVER MISSOURI RIVER

STATE RTE. 47
 AT WASHINGTON
 PROJECT NO. BHF-47-1 (29) STA. 11+13.73
 JOB NO. J6P0820 RTE. 47

FRANKLIN-WARREN COUNTIES

STD.
STD. 706.35
K09691

DESIGNED JUNE 1995
 DETAILED JUNE 1995
 CHECKED NOV. 1995

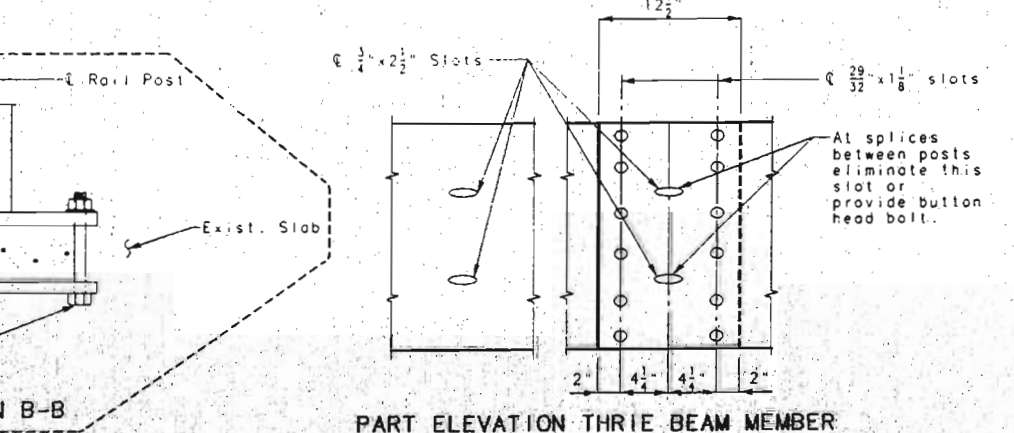
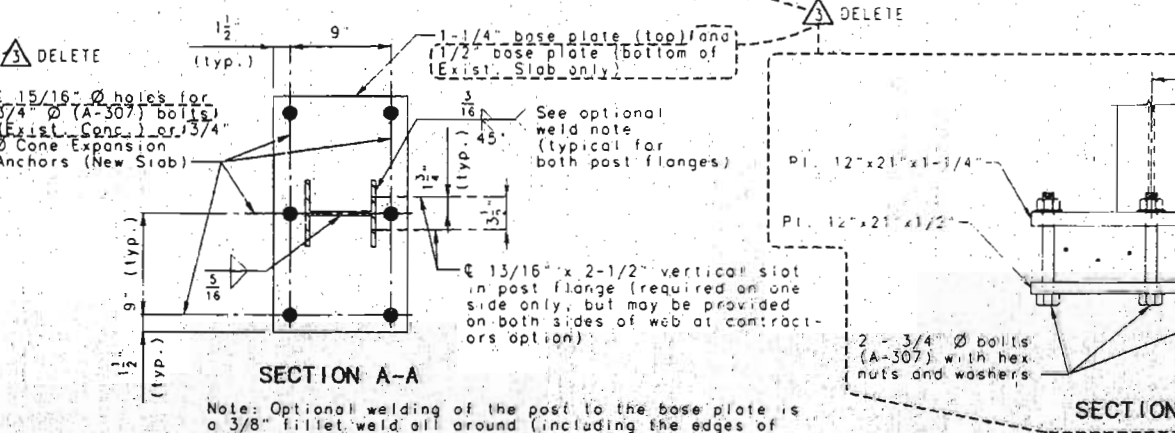
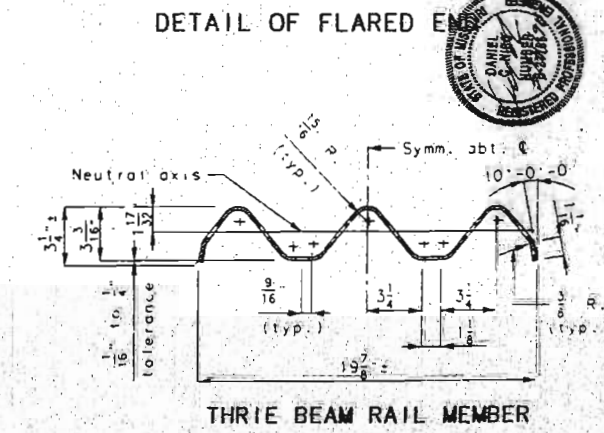
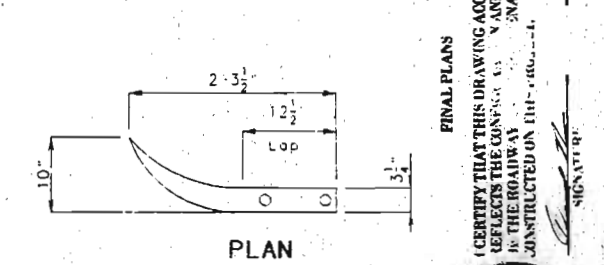
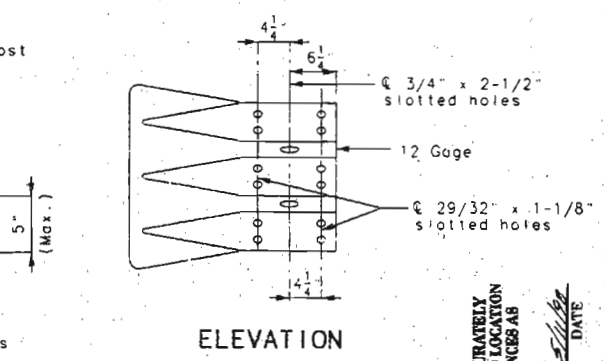
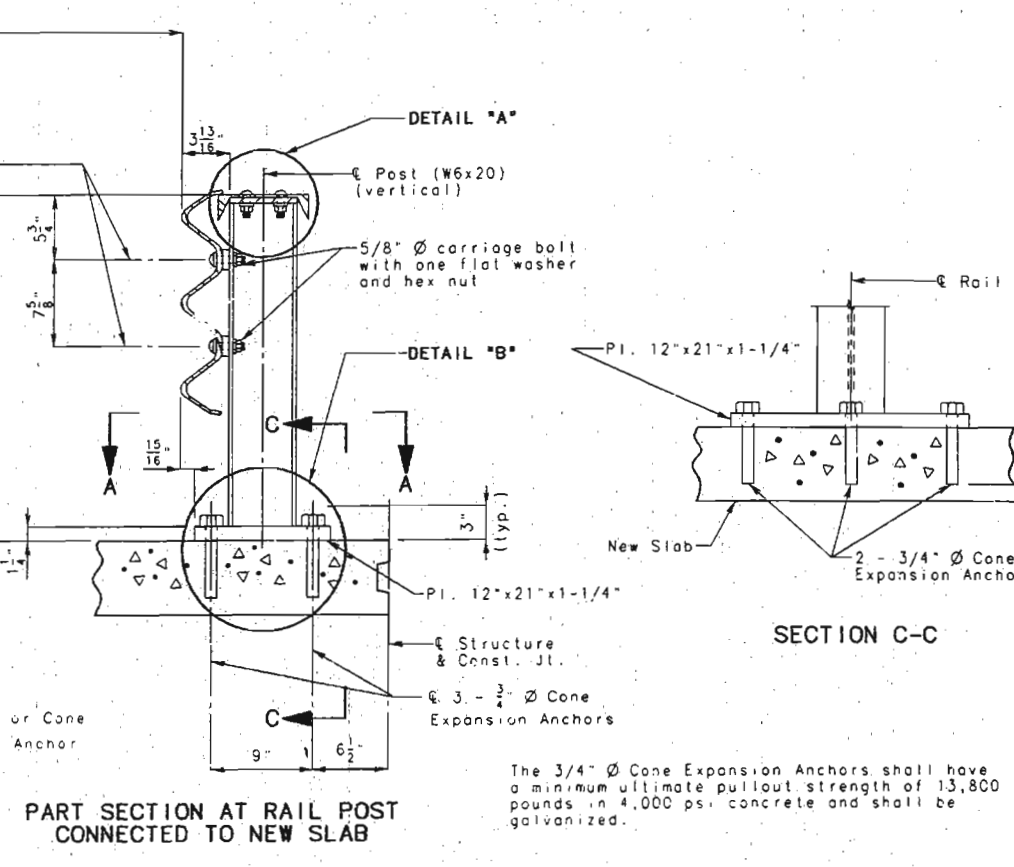
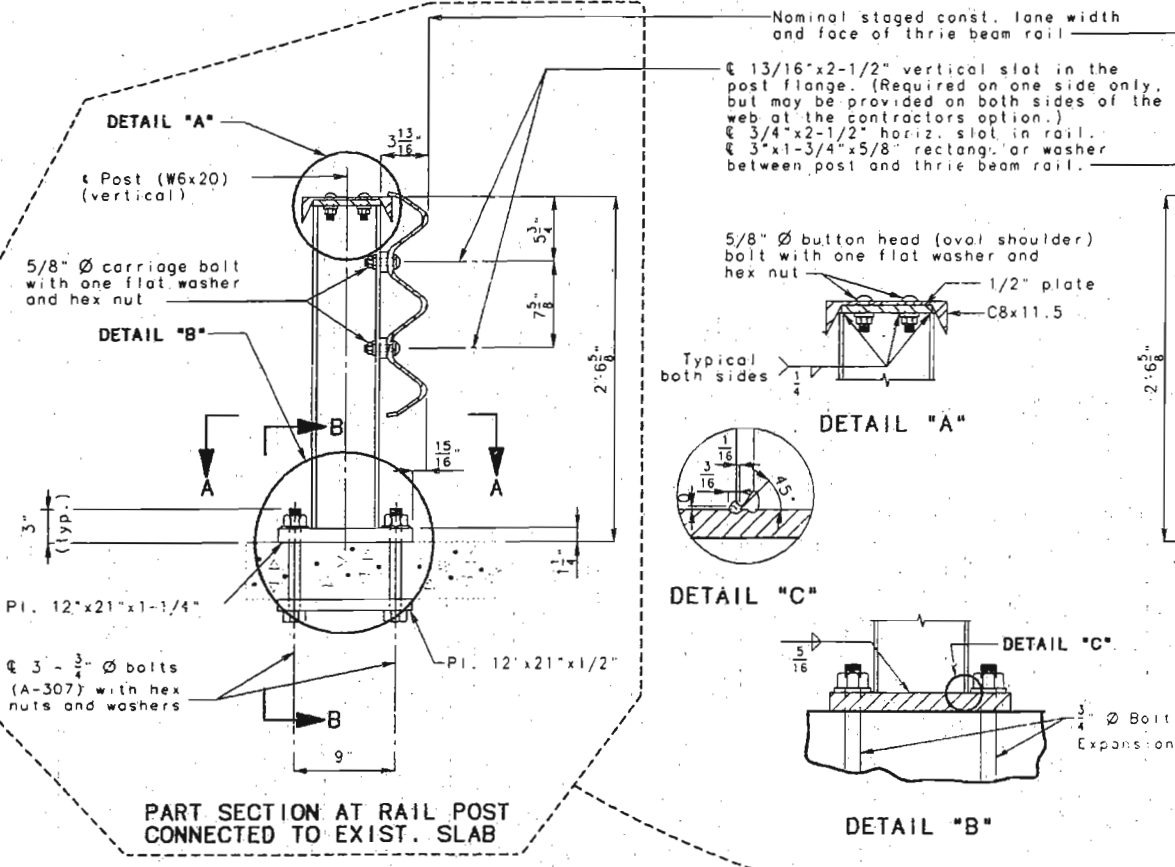
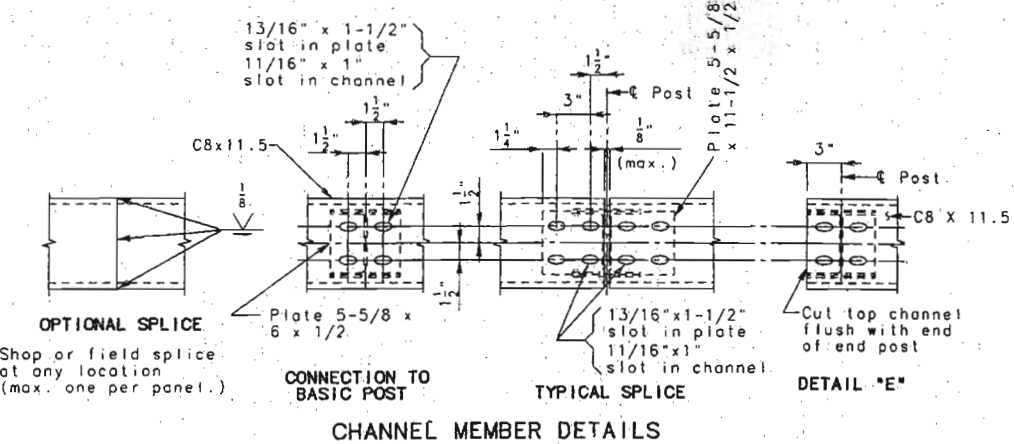
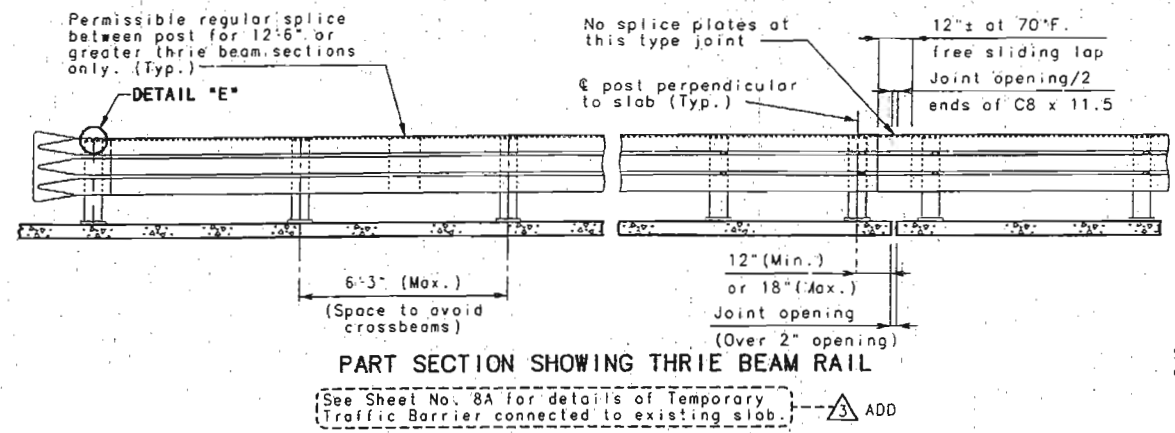
NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

SHEET NO. 35 OF 47

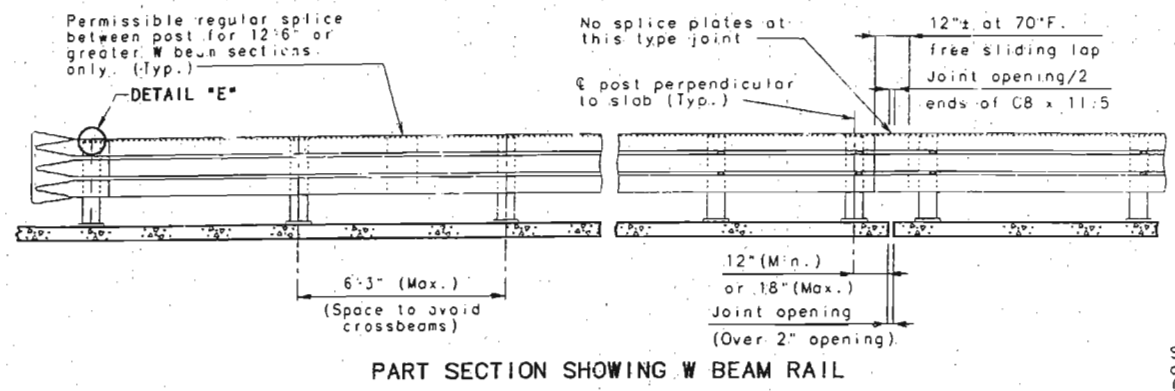
44 389

STATE	PROJ. NO.	SHEET NO.
MO.	BHF 471-29	42

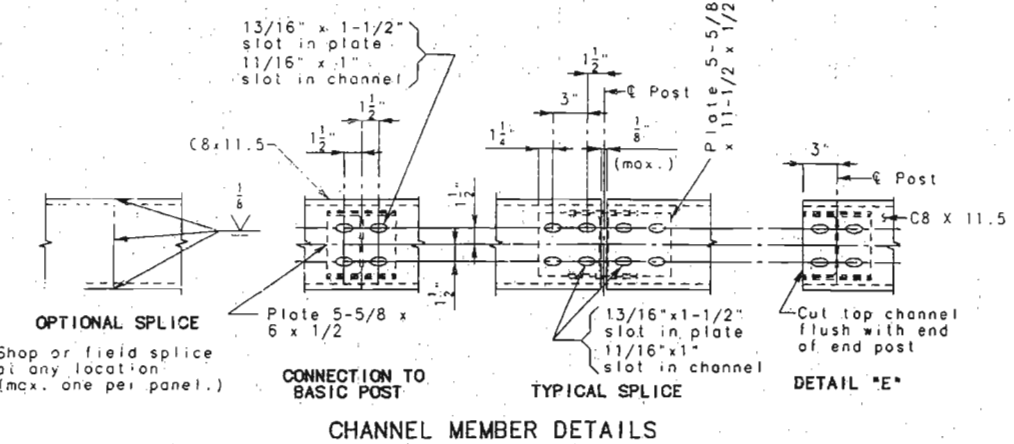
GENERAL NOTES:
 JOB NO. J6P0820
 Panel lengths of channel members shall be attached continuously to a minimum of four posts.
 All bolts, nuts, cone expansion anchors, washers and plates are considered as parts of the Temporary Traffic Barrier (Thrie Beam) for payment.
 Painting or Galvanizing of Temporary Traffic Barrier is not required except that the cone expansion anchors shall be galvanized.
 Minimum length of thrie beam sections is equal to one post space.
 Use 5/8 inch button head, oval shoulder bolts with hex nuts at all slots. (Thickness of hex nuts = 3/8" min.) (Except at posts)
 Thrie beam guard rail on the bridge shall be made of steel and shall be 12 gage.
 Posts, top plates, base plates, channels and channel splice plates shall be fabricated from A-36 steel.
 Threaded rods grade A-321 with 2 hex nuts and washers may be substituted for the A-307 anchor bolts.
 Washers shall be used at all post bolts (between the bolt head and beam). They shall be rectangular in shape (3" x 1-3/4" x 3/16" min.) and flat with a 11/16" x 1" slot, or when necessary of such design as to fit the contour of the beam.
 (Use a 3" x 1-3/4" x 5/8" rectangular washer between the post and the thrie beam rail.)
 Fabrication of structural steel shall be in accordance with section 712 of the Missouri Standard Specifications.
 Shop drawings are not required for Temporary Traffic Barrier (Thrie Beam).
 Temporary Screening System (Road Item) not shown for clarity.



STATE	PROJ. NO.	SHEET NO.
MO.	BHF-47-1 (29)	42A
JOB NO. JEP0820		



PART SECTION SHOWING W BEAM RAIL



CHANNEL MEMBER DETAILS

GENERAL NOTES:

Panel lengths of channel members shall be attached continuously to a minimum of four posts.

All bolts, nuts, washers and plates are considered as parts of the Temporary Traffic Barrier (Three-Beam) for payment.

Painting or Galvanizing of Temporary Traffic Barrier is not required.

Minimum length of W beam sections is equal to one post space.

Use 5/8 inch button head, oval shoulder bolts with hex nuts at all slots. (Thickness of hex nuts = 3/8\"/>

W beam guard rail on the bridge shall be made of steel and shall be 12 gage.

Posts, top plates, base plates, channels and channel splice plates shall be fabricated from A-36 steel.

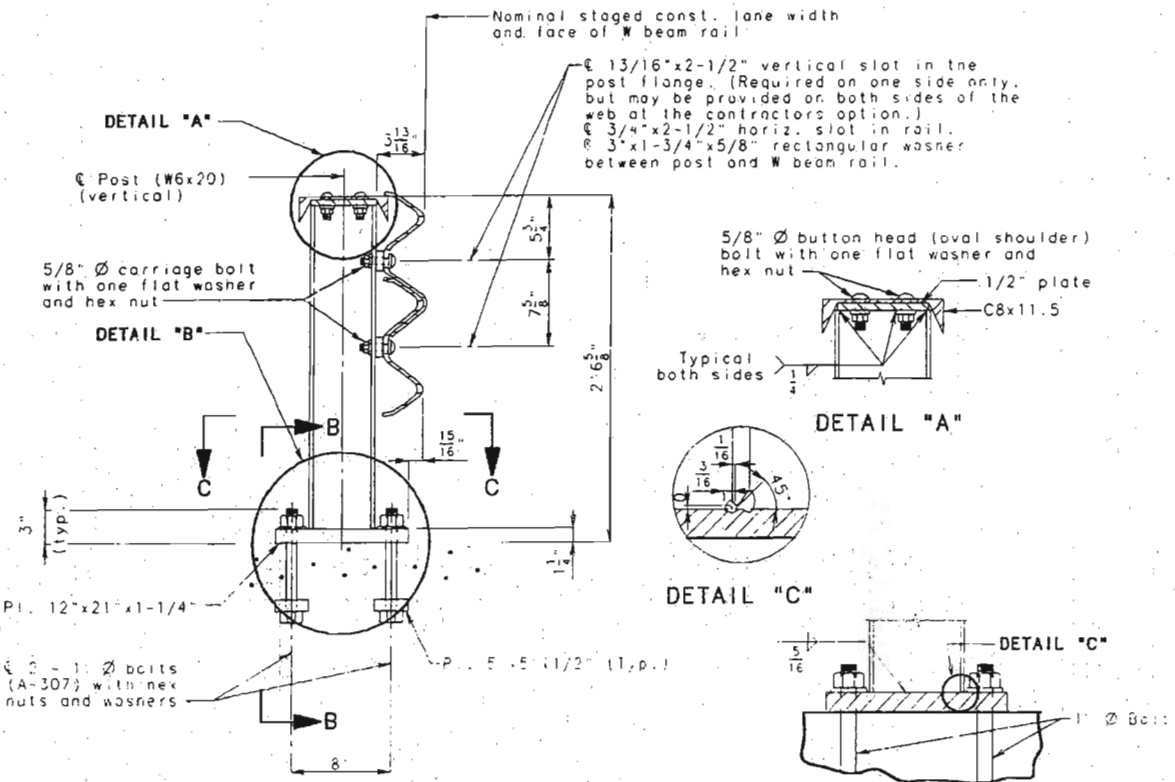
Threaded rods grade A-321 with 2 hex nuts and washers may be substituted for the A-307 anchor bolts.

Washers shall be used at all post bolts (between the bolt head and beam). They shall be rectangular in shape (3\"/>

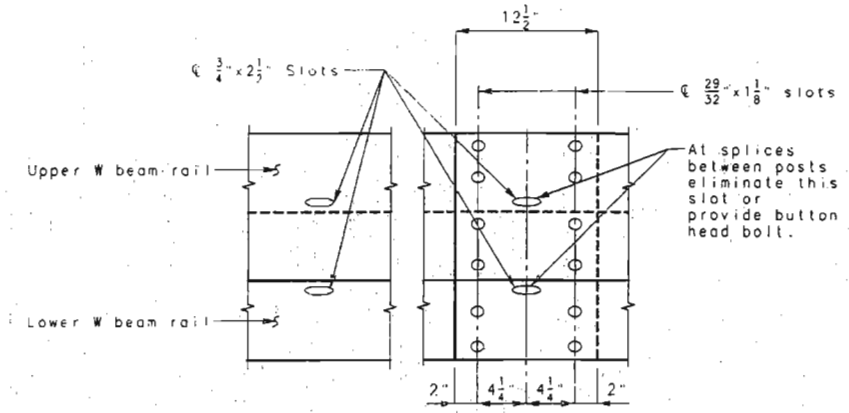
Fabrication of structural steel shall be in accordance with section 712 of the Missouri Standard Specifications.

Shop drawings are not required for Temporary Traffic Barrier (W Beam).

Temporary Screening System (Row, Item) not shown for clarity.

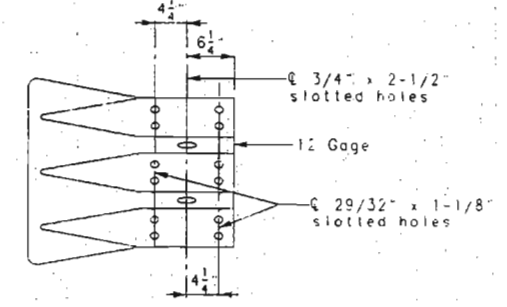


PART SECTION AT RAIL POST CONNECTED TO EXIST. SLAB

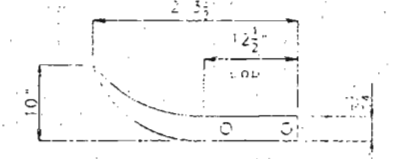


PART ELEVATION W BEAM MEMBERS RAIL SPLICE DETAILS

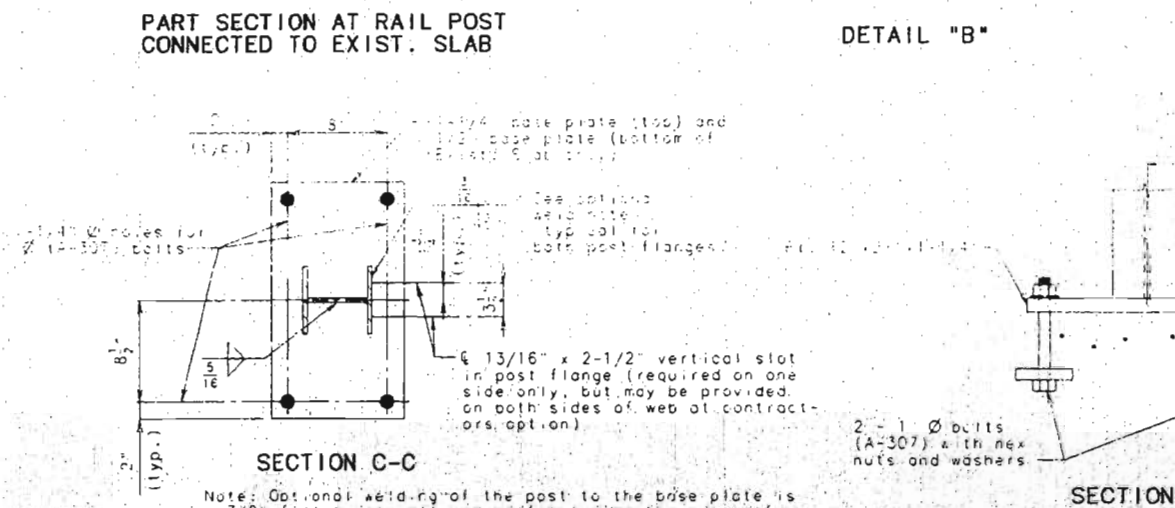
ADD 8 - (Three Beam Rail) may be used in lieu of the W Beam Rail shown. See Sheet No. 8 for Details.



ELEVATION



PLAN
DETAIL OF FLARED END



SECTION C-C

SECTION B-B

Note: Optional welding of the post to the base plate is a 3/8\"/>

DETAILS OF TEMPORARY TRAFFIC BARRIER

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

REVISED MAY 2, 1996

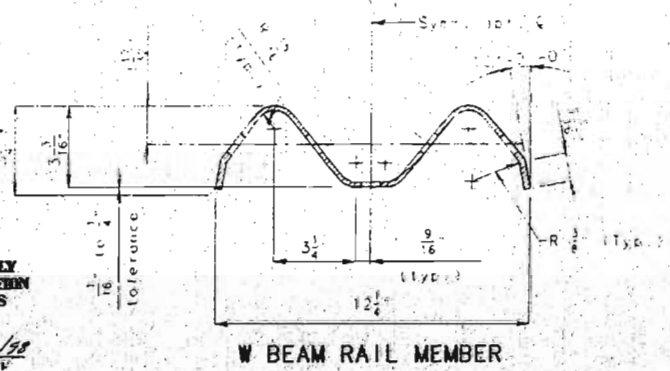
REVISED MARCH 19, 1996

FINAL PLANS
CERTIFY THAT THIS DRAWING ACCURATELY REFLECTS THE CONFIGURATION AND LOCATION OF THE ROADWAY AND UTILITIES AS INDICATED ON THIS PROJECT.

[Signature] 5/16/98 DATE

ADD

SHEET NO. 8A OF 37

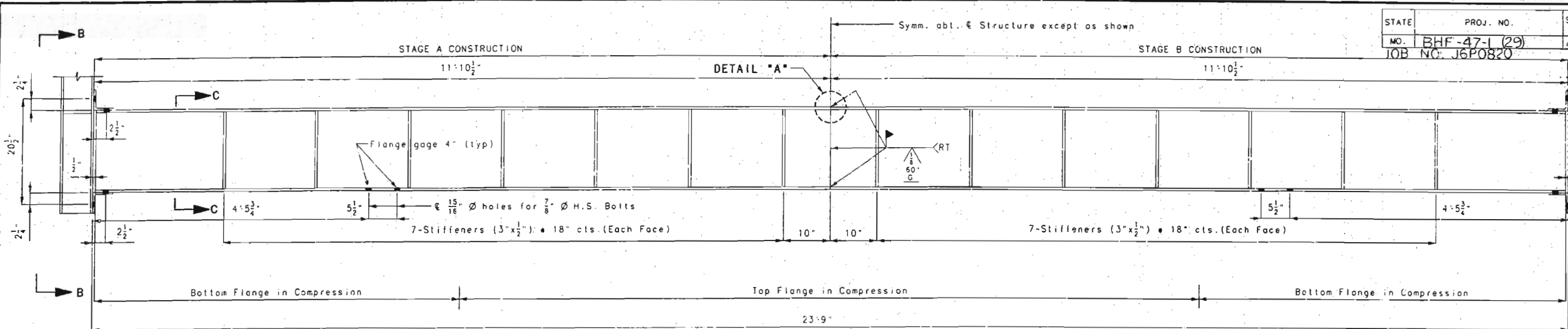


W BEAM RAIL MEMBER

TEMP 4, RAIL SH. A
MAY 1991
REVISED DEC 1993
390

DETAILED MAR. 1996
CHECKED MAR. 1996

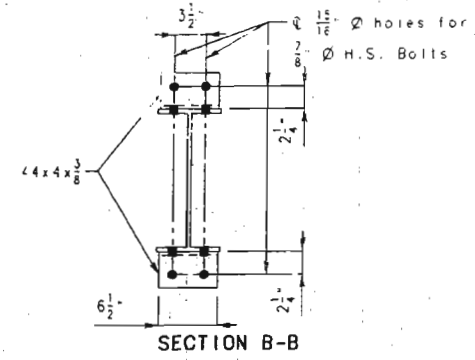
STATE	PROJ. NO.	SHEET NO.
MO. BHF-47-1 (29)		45
JOB NO. J6P0820		



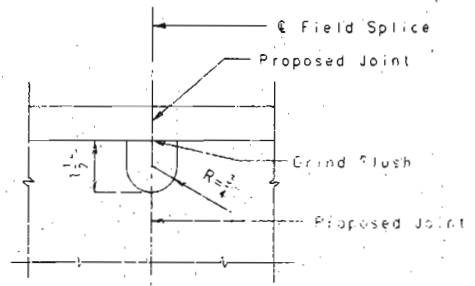
ELEVATION OF W16x45
SPANS (2-3) & (8-9)

Note: See Section A-A on sheet No. 32 and Section A-A on sheet No. 34 for additional details of the W16x45.

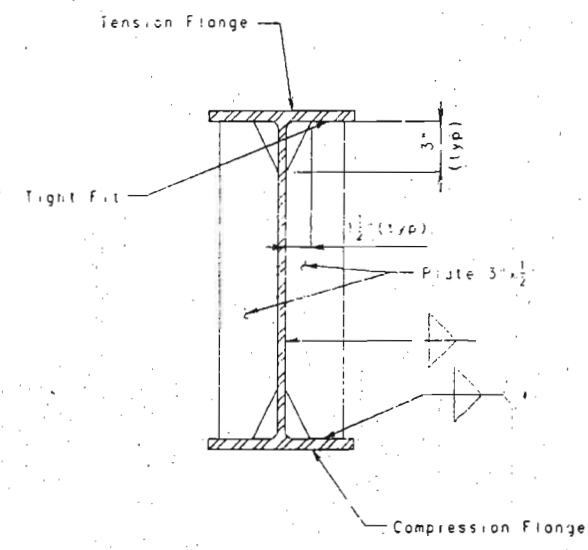
Note:
The existing 16 WF45# crossbeams located directly above Bent No. 3 & 8 shall be replaced with new W16x45 crossbeams. The crossbeams may be removed and replaced in sections with the use of snoring off of the bent. The location of the welded field splice may be adjusted from that shown above. The contractor may choose to use a bolted field splice instead of the welded field splice. The cost of furnishing, fabricating and installing the new W16x45 crossbeams with high strength bolts will be paid for at the contract unit price for Approach Span Crossbeam Replacement (W16x45) per each. See sheet Nos. 31-36 for details of Finger Plate Expansion Device. Cost of radiographic testing shall be included in the contract unit price for Approach Span Crossbeam Replacement (W16x45).



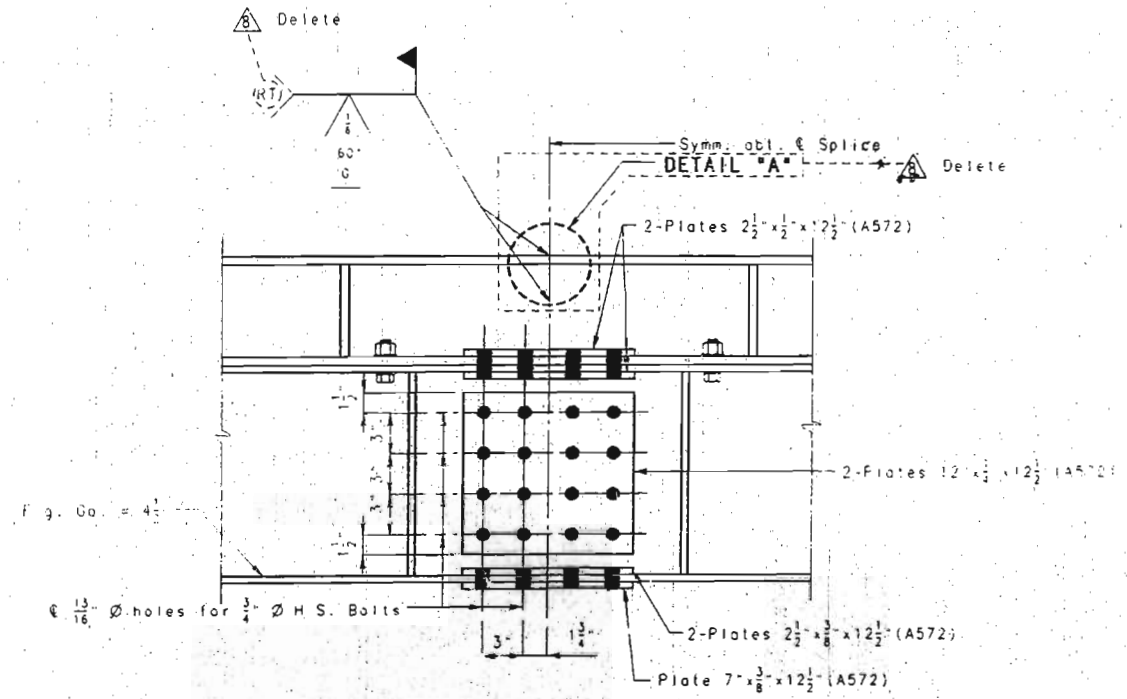
SECTION B-B



DETAIL "A"
(Use for welded field splice only)



SECTION C-C



OPTIONAL BOLTED FIELD SPLICE FOR W16x45

DETAILS OF APPROACH SPAN CROSSBEAM (W16x45) REPLACEMENT



I CERTIFY THAT THIS DRAWING ACCURATELY REFLECTS THE CONFIGURATION AND LOCATION OF THE ROADWAY AND APPURTENANCES AS CONSTRUCTED ON THIS PROJECT.

393
DETAILED SEPT. 1995
CHECKED NOV. 1995

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

Revised May 2, 1996

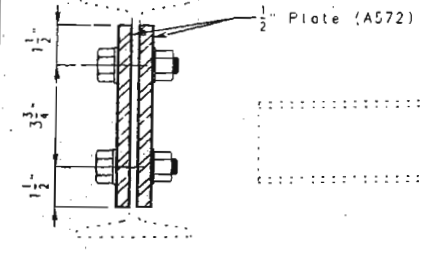
SHEET NO. 11 OF 97.

FRANKLIN-WARREN

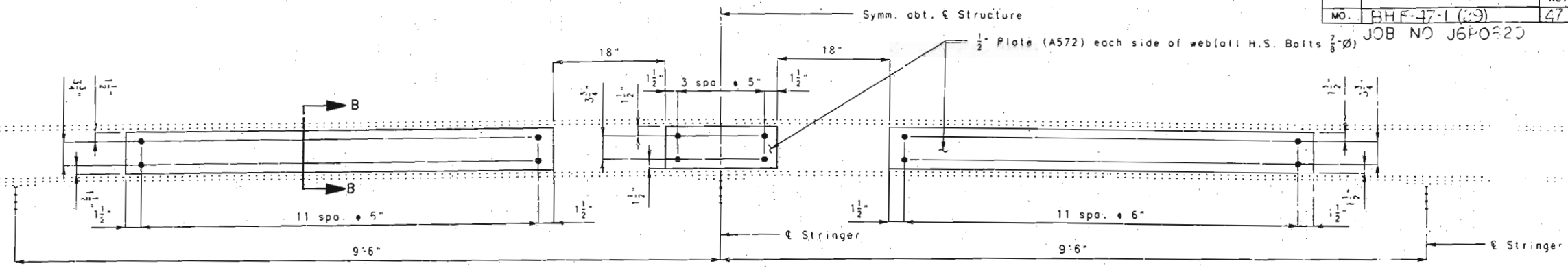
COUNTIES K09691

24 to 1

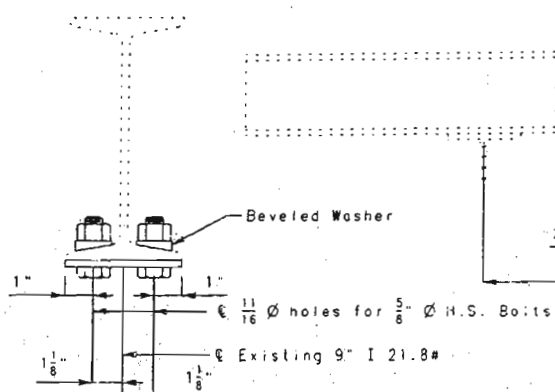
STATE	PROJ. NO.	SHEET NO.
MO.	BHF-17-1 (29)	47
JOB NO J6P0520		



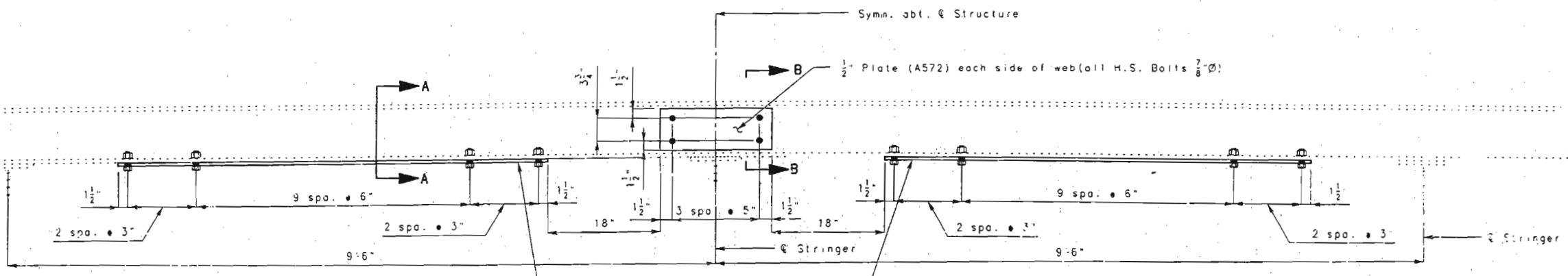
SECTION B-B



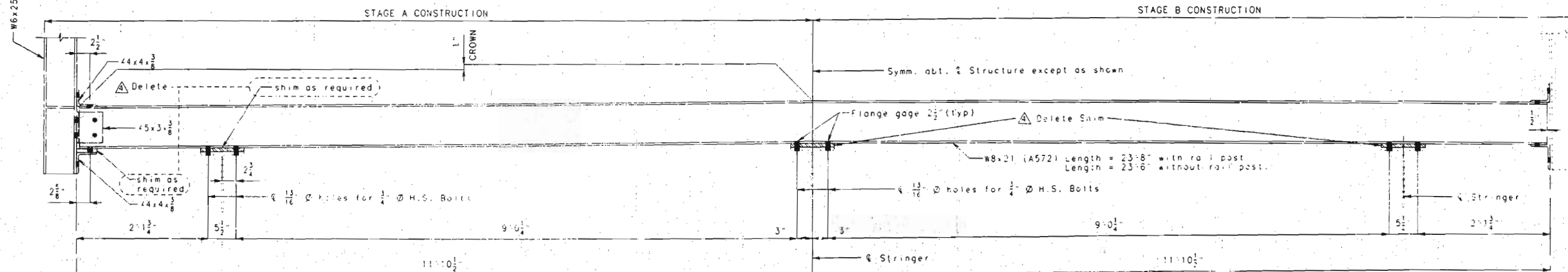
OPTION A



SECTION A-A



OPTION B



OPTION C

GENERAL NOTES:

The contractor may use any combination of options A, B and C. Those 9" crossbeams immediately left and right of a floorbeam being replaced shall be replaced with modified W8x21 beams. See sheet No. 25. Any 9" crossbeam that has more than 25% of its top flange thickness lost after cleaning shall be replaced (Option C). These details apply to all 9" crossbeams between panel points LO and L1 unless they are otherwise replaced. Regardless of the option used, the cost of furnishing, fabricating and installing the plates or new W8x21's with high strength bolts will be paid for at the contract unit price for Crossbeam Strengthening or Replacement per each.

OPTION C NOTES:

In Option C the W8x21(A572) will replace the existing 9" I 21.8#. The existing slab shall be supported on each side of the crossbeam being replaced. These temporary supports shall be placed at a distance of no more than 2'-0" from the crossbeam being replaced. Once the new W8x21 is in place, temporary steel shims (9"x3" min.) may be needed to provide support between the top flange and bottom of existing slab. The maximum distance between slab's support points along the length of the W8x21 shall be 2'-6". The shims shall be placed with the 9" leg parallel to the centerline of the roadway and may be field bent to prevent slippage. Any costs associated with the furnishing and placing of the temporary supports and shims shall be considered incidental to the pay item Crossbeam Strengthening or Replacement.

394

DETAILS OF 9" CROSSBEAM STRENGTHENING OR REPLACEMENT

DETAILED JAN. 1996
CHECKED JAN. 1996

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

Revised March 19, 1996

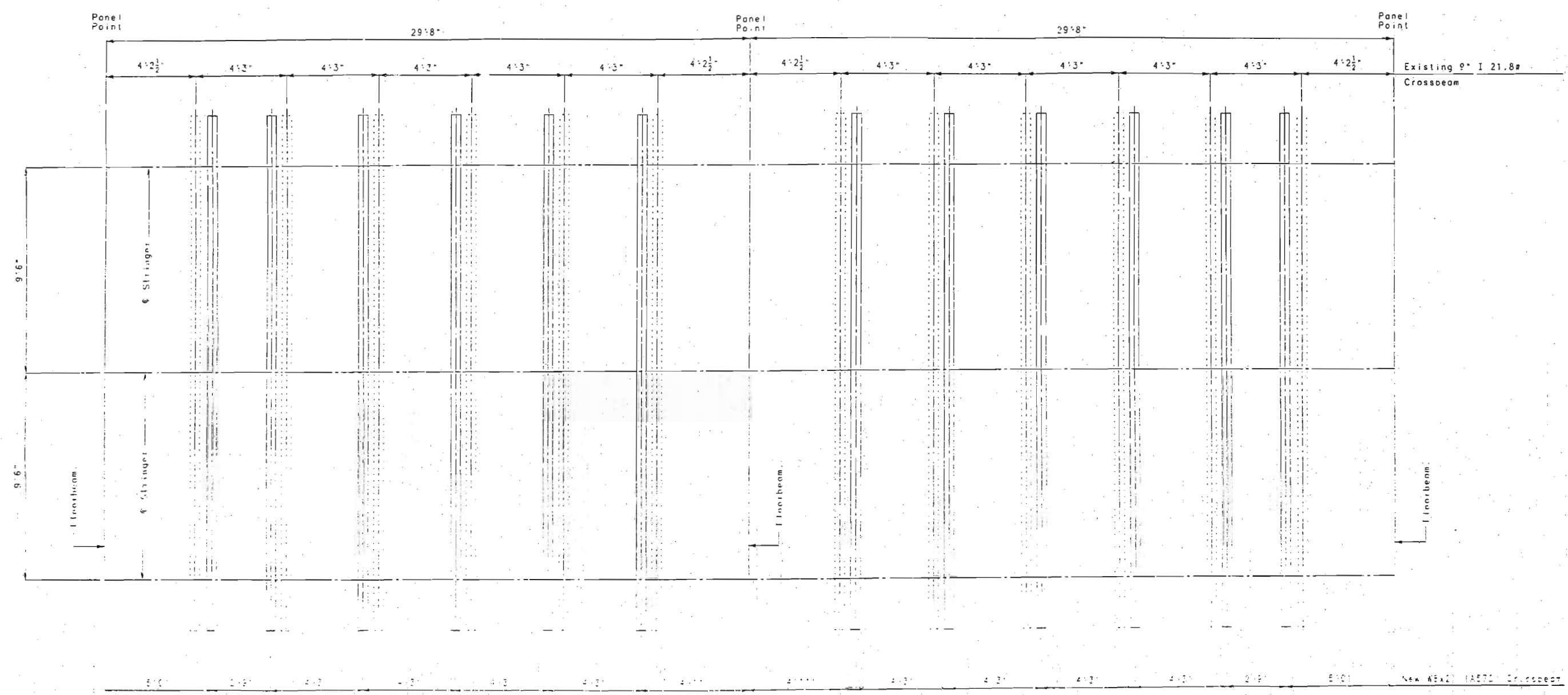
SHEET NO. 13 OF 97.

FRANKLIN-WARREN

COUNTIES K09691

STATE	PROJ. NO.	SHEET NO.
MO. BHF 471 (C)		4-A
JOB NO. J6P0820		

OPTION C CROSSBEAM SPACING-TYPICAL 2 PANEL PATTERN



Note:
 1. See sheet No. 13 for additional details and notes.
 2. The crossbeam spacing shown here may be adjusted in the field with the following restrictions:
 (a) Max. spacing = 5'-0" and min. spacing = 2'-0".
 (b) A total of 6 new crossbeams are required per thru-truss panel.
 Those 6 crossbeams immediately left and right of a crossbeam being replaced shall be replaced with modified W5x21 beams. See Sheet No. 25.



FINAL PLANS
 THAT THIS DRAWING ACCURATELY REFLECTS THE CONFIGURATION AND LOCATION OF THE STRUCTURES AS CONSTRUCTED ON THE PROJECT.
 DATE: 5/16/96

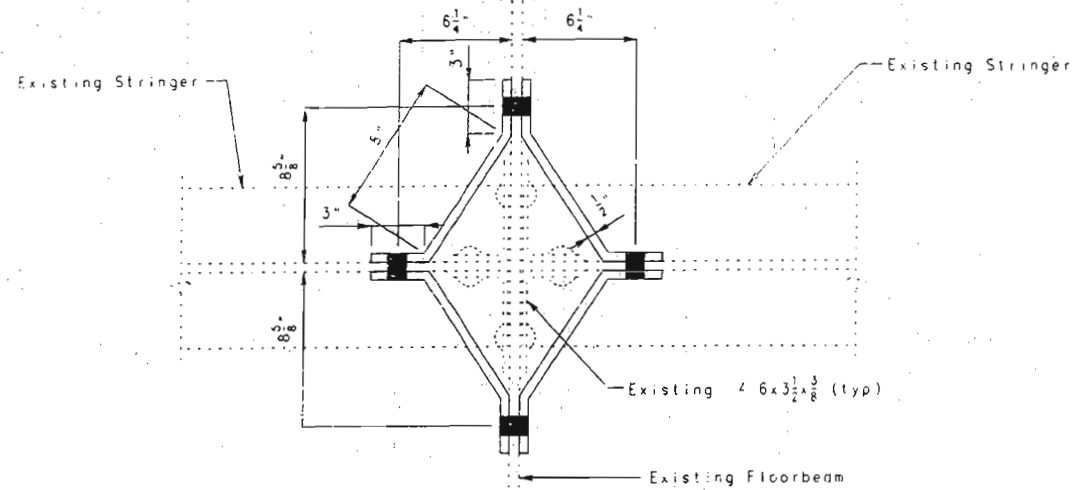
325

DETAILED CHECKED MAR 1996
 MAR 1996

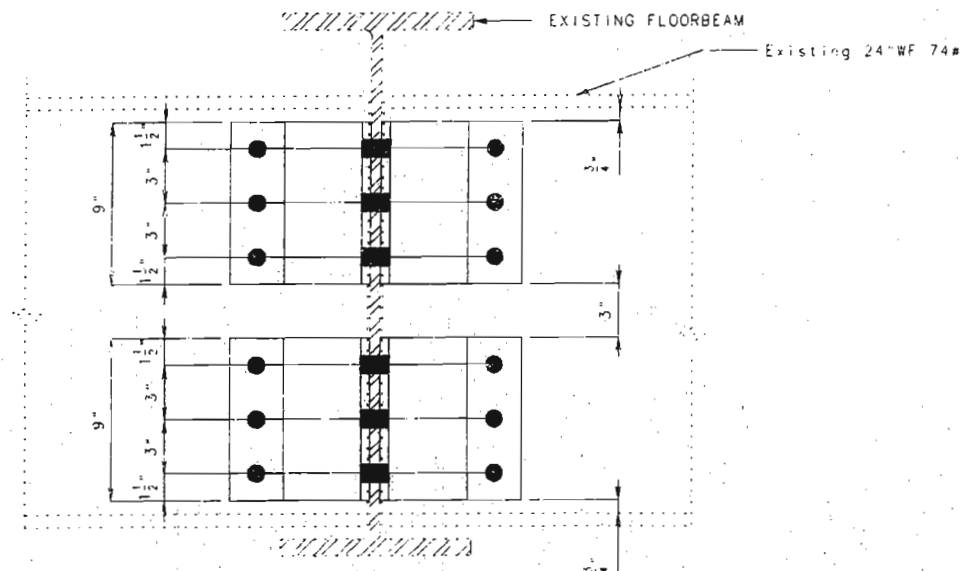
NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS. Revised March 13, 1996

SHEET NO. 134 OF 171

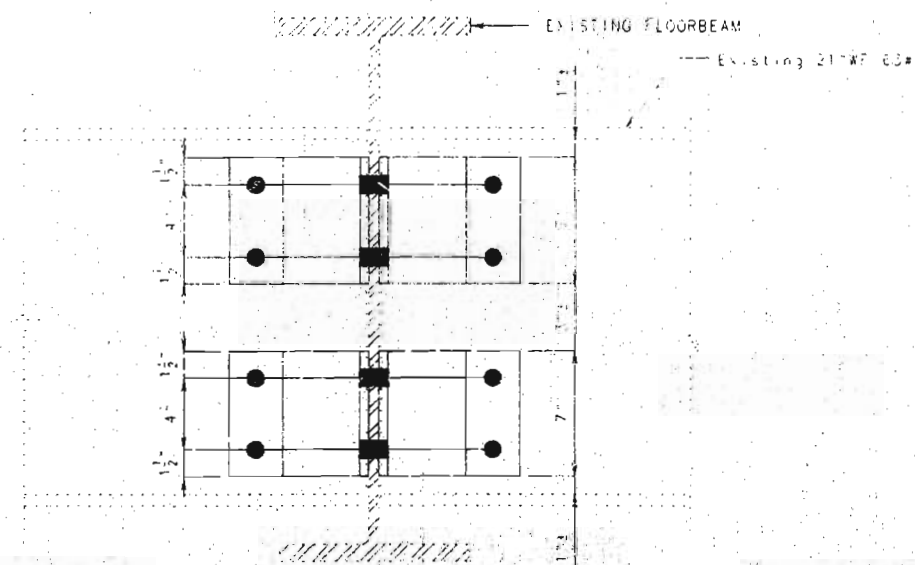
FRANKLIN-WARREN COUNTIES K09691



PLAN SHOWING CONNECTION PLATES



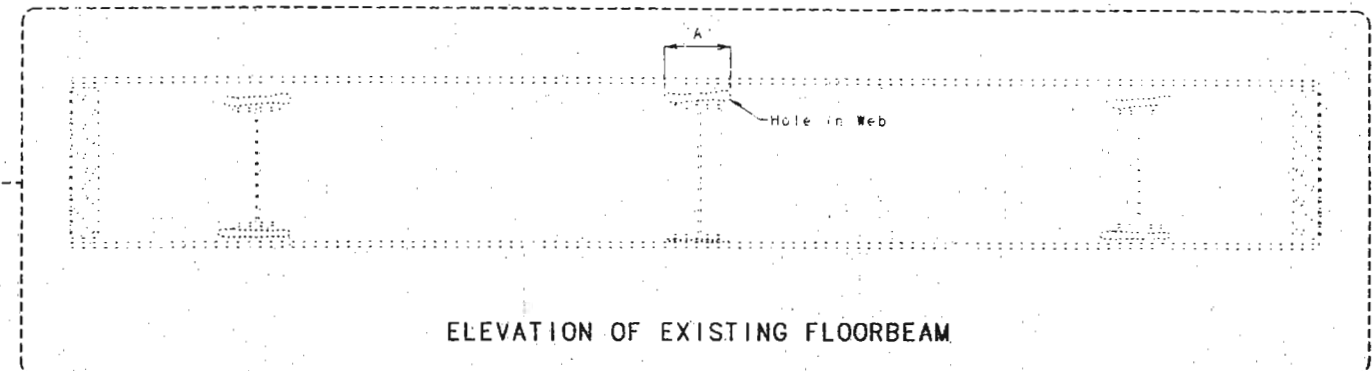
ELEVATION OF C STRINGERS



ELEVATION OF EXTERIOR STRINGERS

NOTE:
 If one or more of the 4 clip angles connecting the stringers to the floorbeam are cracked and the floorbeam is not being replaced, then 8 new connection plates shall be installed. The existing connection (clip) angles shall be cleaned and coated in accordance with the job special provisions prior to the installation of the new connection plates.
 All bolts shall be 3/4" Ø H.S. with 13/16" Ø holes.
 The cost of furnishing, fabricating and installing one set of 8 connection plates with high strength bolts will be paid for at the contract unit price for Stringer Clip Angle Repair per each.
 One set of connection plates shall be installed at the east stringer at L35 whether or not the existing clip angles are cracked or not.

MOVED



ELEVATION OF EXISTING FLOORBEAM

NOTES CONCERNING HOLES IN WEB OF FLOORBEAM NEAR STRINGERS:
 If the dimension 'A' is greater than or equal to 13", then the floorbeam may need to be replaced.
 If the dimension 'A' is less than 13" but greater than or equal to 10" and the floorbeam is not being replaced, then 2 new connection plates shall be installed.

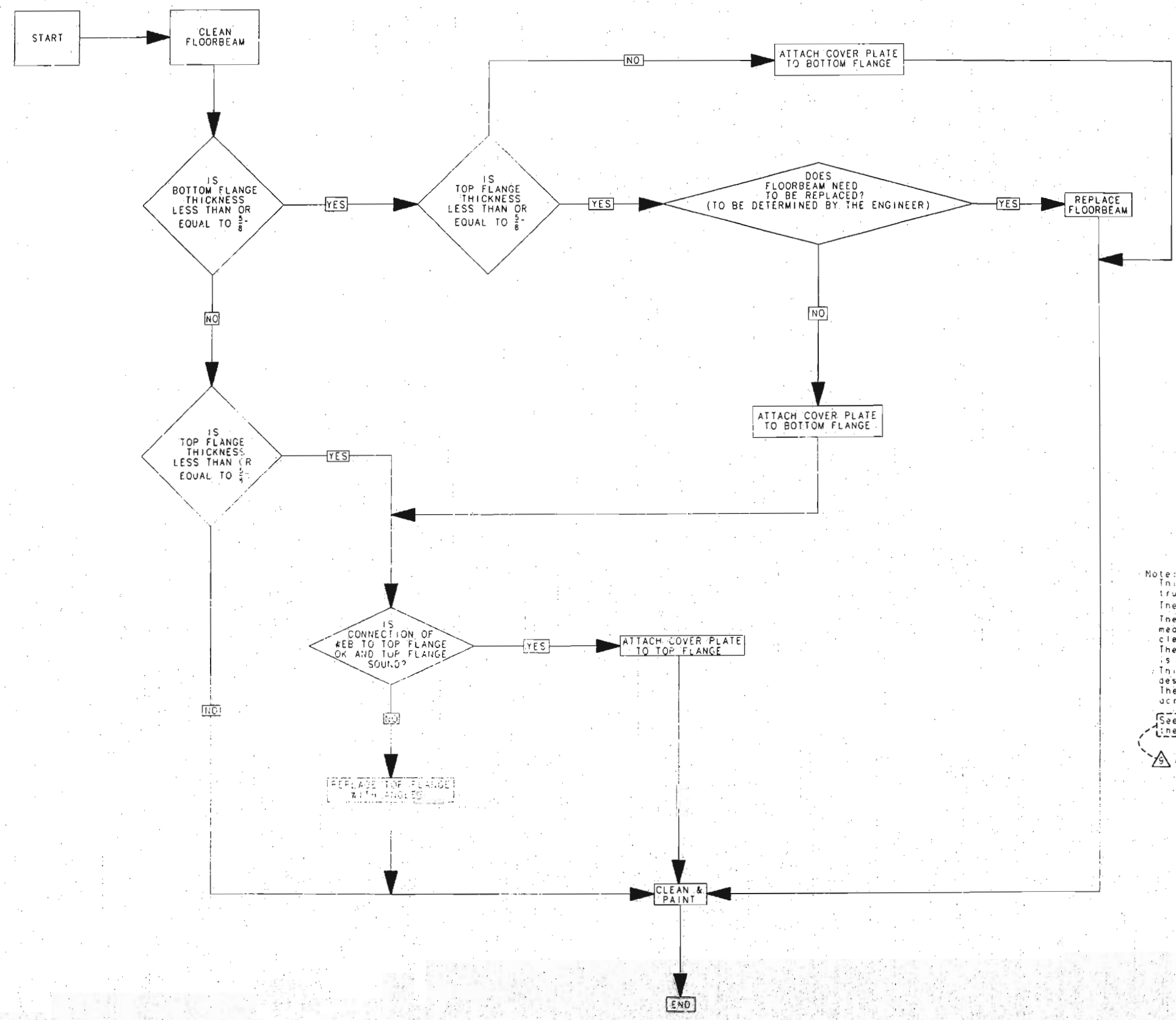
ADD

935



FINAL PLANS
 CERTIFY THAT THIS DRAWING ACCURATELY REFLECTS THE CONFIGURATION AND LOCATION OF THE ROADWAY AND APPURTENANCES AS CONSTRUCTED ON THIS PROJECT.

DETAILS OF STRINGER CLIP ANGLE REPAIR



Note:
 This flowchart applies to all floorbeams in the through trusses except those at L0 and L1.
 The original thickness of the top and bottom flanges was $\frac{15}{16}$.
 The flange thicknesses referred to in this flowchart are those measured by the contractor after the deteriorated on has been cleaned off.
 The concrete slab shall be removed before the top flange is cleaned and measured.
 This flowchart is meant to be a guide. For more detailed descriptions of the actual repairs, see the following sheets.
 The flange thickness referred to is the average thickness across the width of the flange at any one section.
 See Sheet No. 14 for notes concerning holes in the webs of the floorbeams.

ADD

392

FLOORBEAM ASSESSMENT FLOWCHART

DETAILED SEPT. 1995
 CHECKED NOV. 1995

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

REVISED MAY 13, 1996

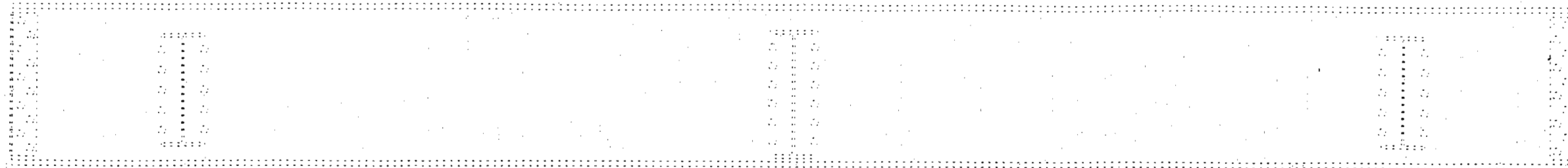
SHEET NO. 16 OF 97

FRANKLIN-WARREN COUNTIES K09691

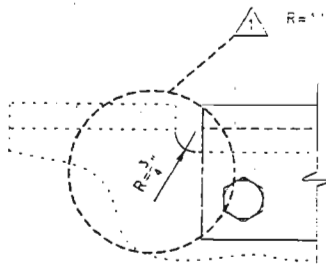
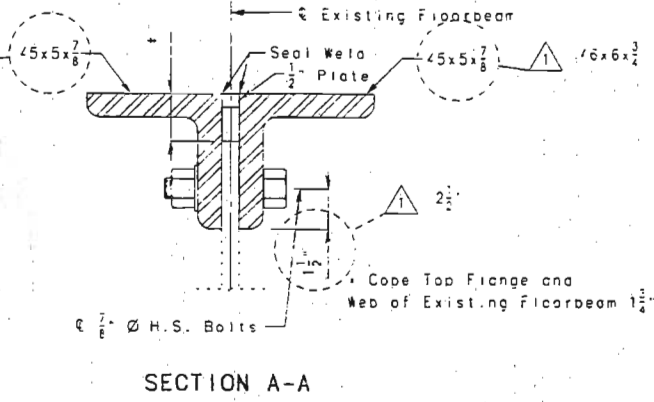
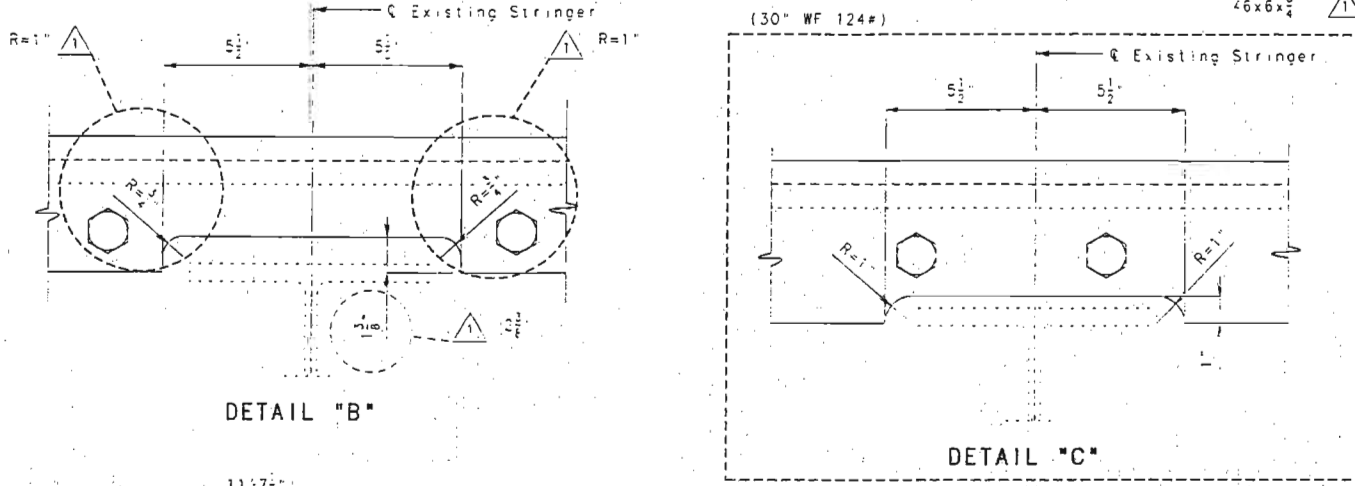


FINAL PLAN
 I CERTIFY THAT THIS DRAWING ACCURATELY REFLECTS THE CONFIGURATION AND LOCATION OF THE ROADWAY AND APPURTENANCES AS CONSTRUCTED ON THIS PROJECT.
 DATE

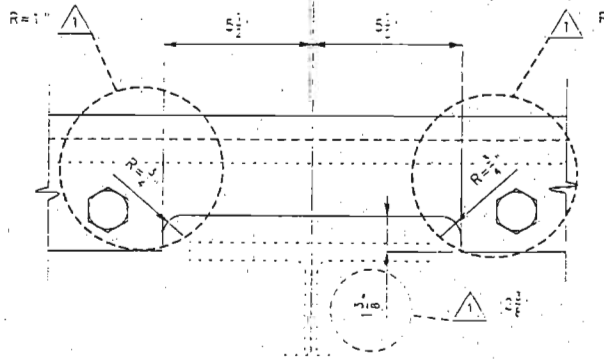
STATE	PROJ. NO.	SHEET NO.
MO. BHF-47-1 (29)		57
JOB NO. J6P0820		



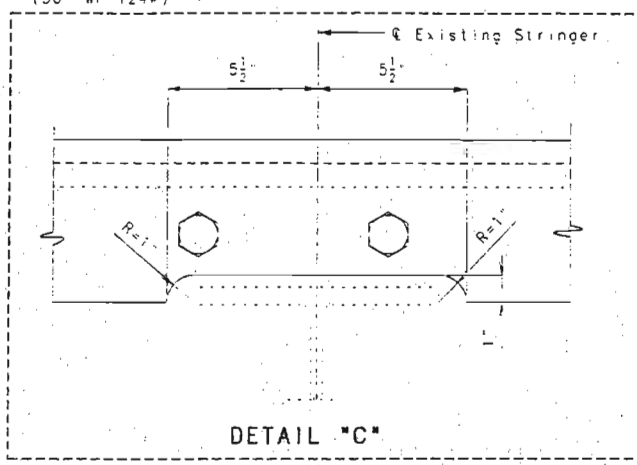
ELEVATION OF EXISTING FLOORBEAM



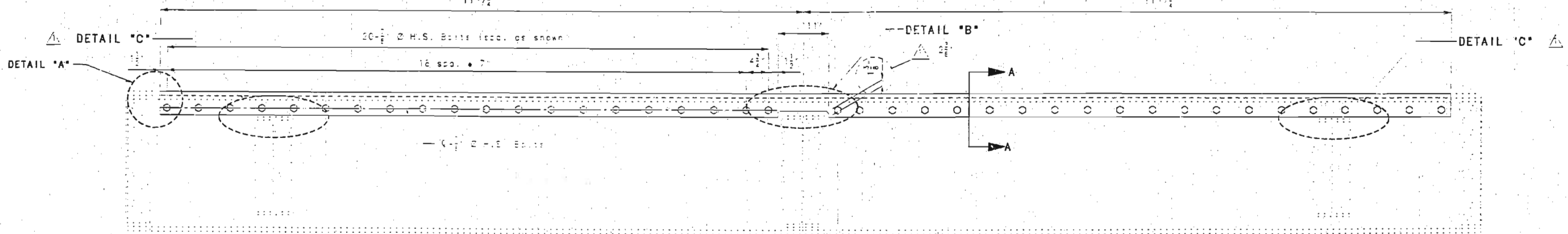
DETAIL "A"



DETAIL "B"



DETAIL "C"



ELEVATION OF MODIFIED FLOORBEAM

NOTE:
 If the top flange thickness is less than or equal to 1/2" and the top flange to web connection is not sound, then remove the existing top flange and replace it with two angles as detailed above.
 The top flange should be cleared in accordance with the special provisions before the flange thickness is measured. (30" WF 124#)
 The bridge must be closed to traffic for the duration of the time that there is no top flange.
 The cost of furnishing, fabricating and installing these angles with their strength bolts and removal of the existing flange shall be paid for at the contract unit price for floorbeam top flange replacement per each.
 The flange thickness hereinafter is the average thickness across the A-A of the flange at any one section.

DETAILS OF FLOORBEAM TOP FLANGE REPLACEMENT

DETAILED SEPT 1995
 CHECKED NOV. 1995

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

REVISED MARCH 11, 1996

SHEET NO. 23 OF 27

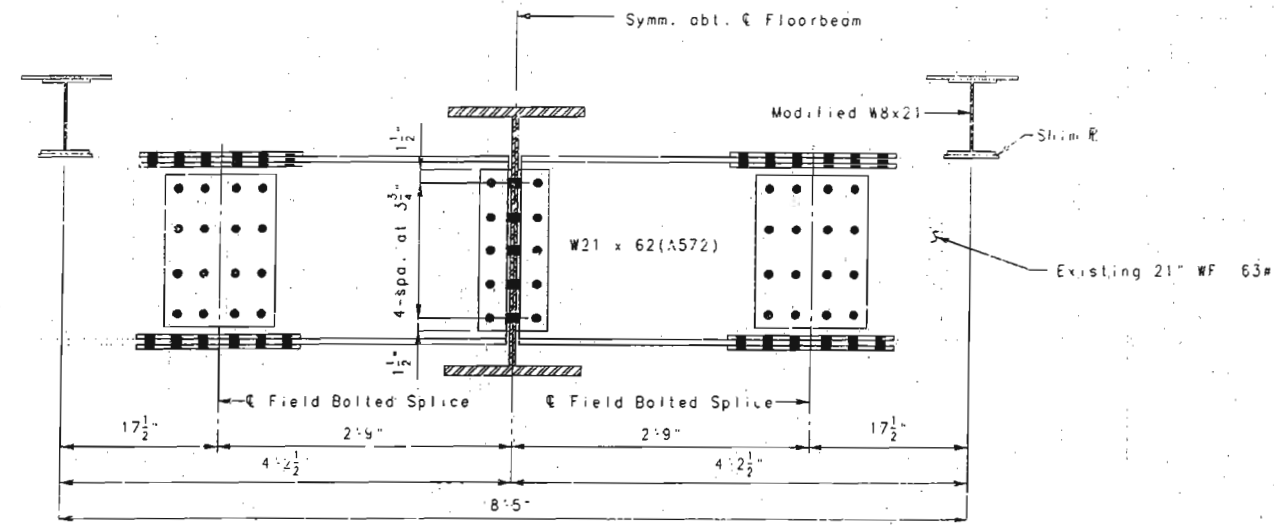
FRANKLIN-WARREN

COUNTIES K09691

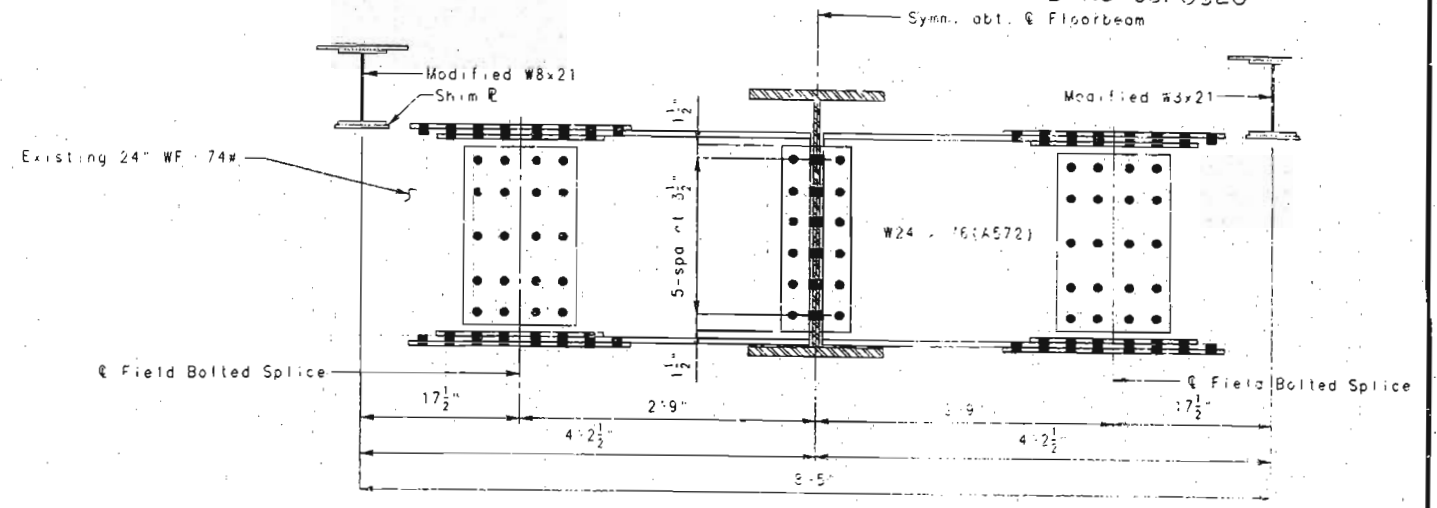


FINAL PLANS
 FRANKLIN-WARREN COUNTY ENGINEERING & SURVEYING
 1111 SOUTH MAIN STREET, WARREN, MISSOURI 64690
 REGISTERED PROFESSIONAL ENGINEERS

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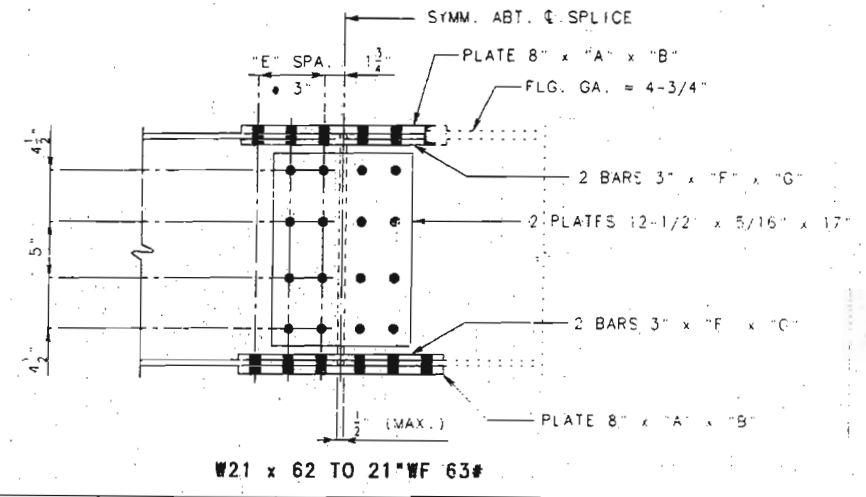


SECTION C-C

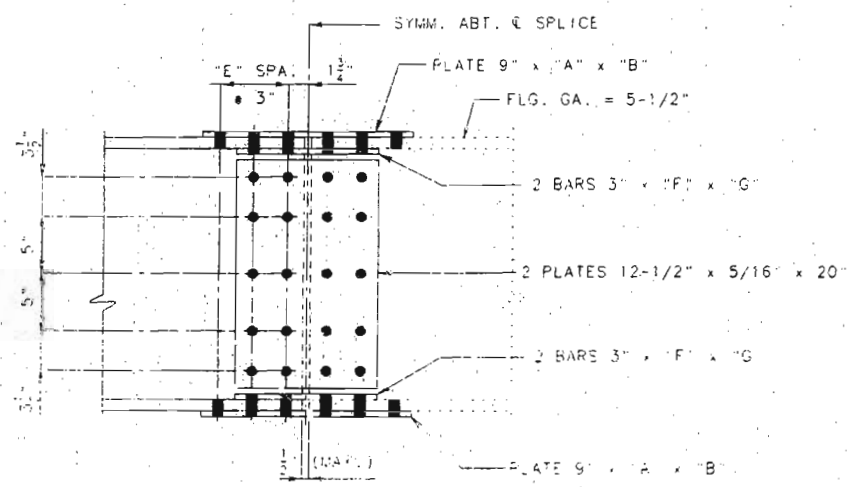


SECTION D-D

Note: For location of Sections C-C and D-D, see sheet No. 24.



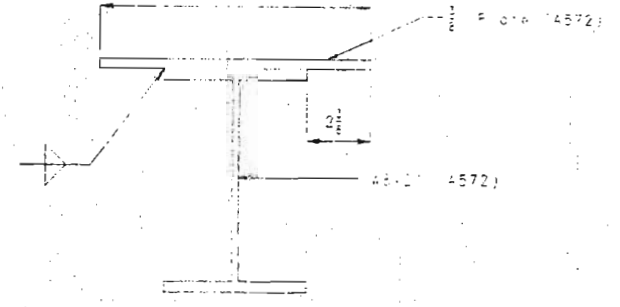
W21 x 62 TO 21" WF 63#



W24 x 76 TO 24" WF 74#

SPLICE LOCATION	"A"	"B"	"E"	"F"	"G"
W21 x 62 TO 63	3/8"	18-1/2"	2"	1 1/2"	18-1/2"
W24 x 76 TO 74	1/2"	2'-0 1/2"	3"	1 1/2"	18-1/2"

Note: 1. All notes for 1/2" or strength bolts unless otherwise noted.
 2. All splice plates to be A572 structural steel.
 3. The cost of furnishing, fabricating and installing the modified W8x21 crossbeams, complete with high strength bolts and end plates, will be paid for at the contract unit price for Modified W8x21 per end.

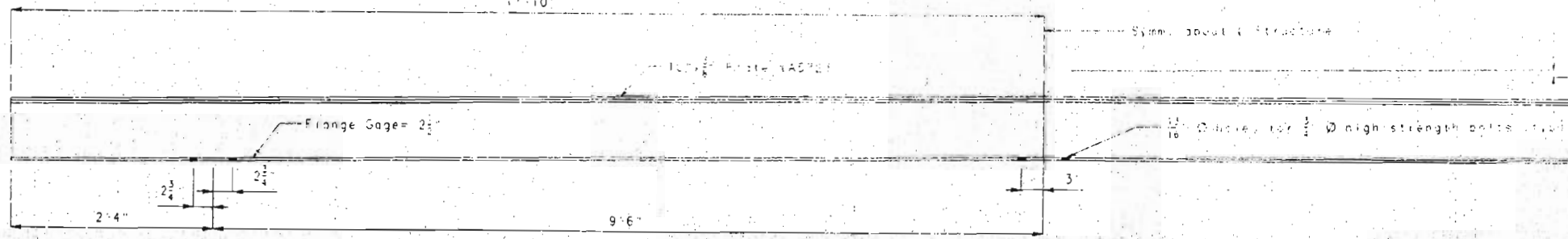


DETAILS OF MODIFIED W8x21

(One required each side of each floorbeam)

DETAIL "A"

DETAIL "A"



ELEVATION OF MODIFIED W8x21

DETAILS OF FLOORBEAM REPLACEMENT

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

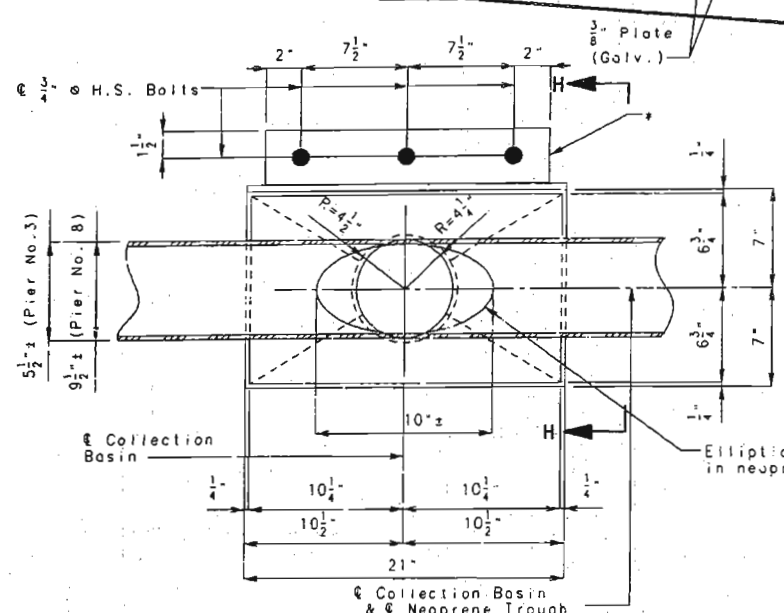
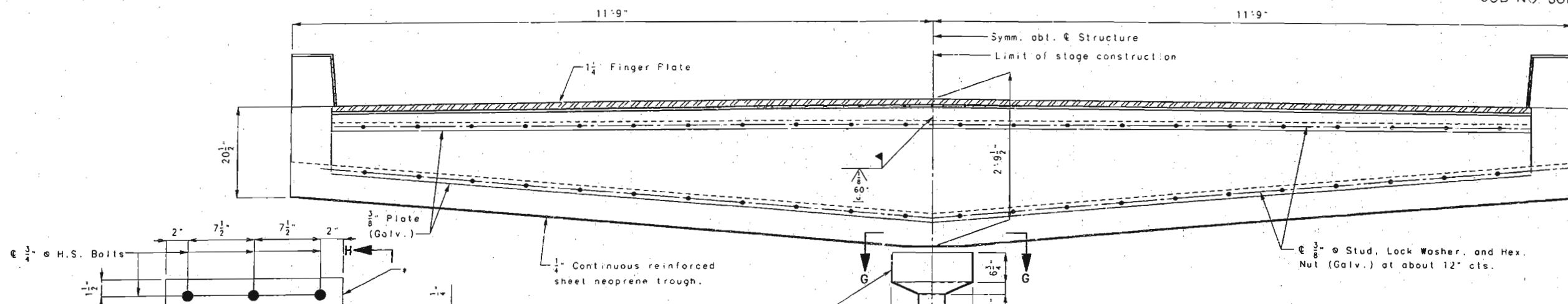
REVISED APRIL 15, 1996
 AT CONTRACTOR'S REQUEST
 SHEET NO. 25 OF 97



FINAL PLANS
 ACCEPTED THAT THIS DRAWING ACCURATELY REPRESENTS THE CONFIGURATION AND LOCATION OF THE ROADWAY AND APPURTENANCES AS CONSTRUCTED ON THIS PROJECT.
 DATE

399

DETAILED OCT 1995
 CHECKED NOV 1995



SECTION G-G

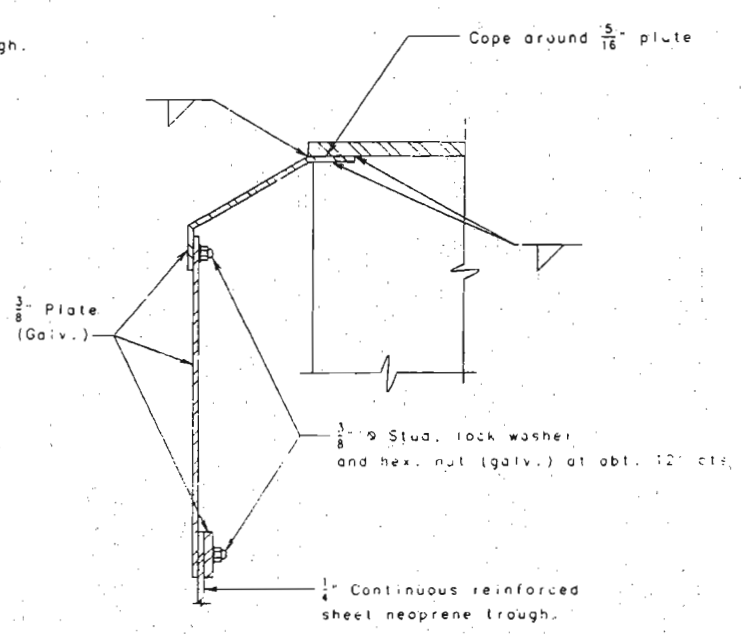
1/4" Plate, Stainless Steel Collection Basin

4 3 1/2 x 3 1/2 x 1/4 at Pier No. 3 and 46 x 3 1/2 x 1/4 at Pier No. 8

SECTION F-F

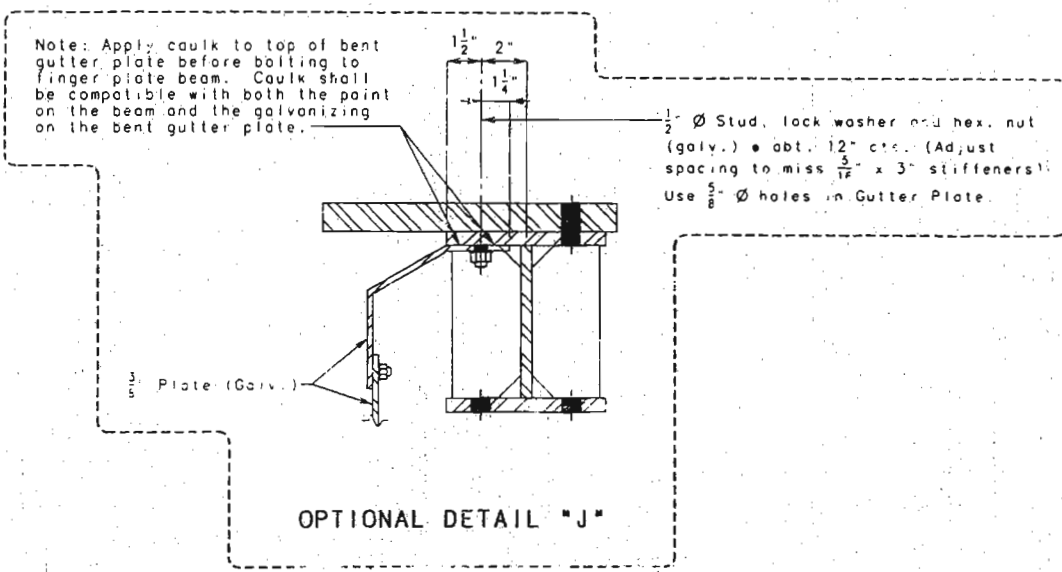
Note: For locations of Section F-F, see sheet Nos. 31 and 33. See sheet No. 36 for details of drain.

Note: Stainless steel collection basin shall be fabricated from type 302 stainless steel. See special provisions.

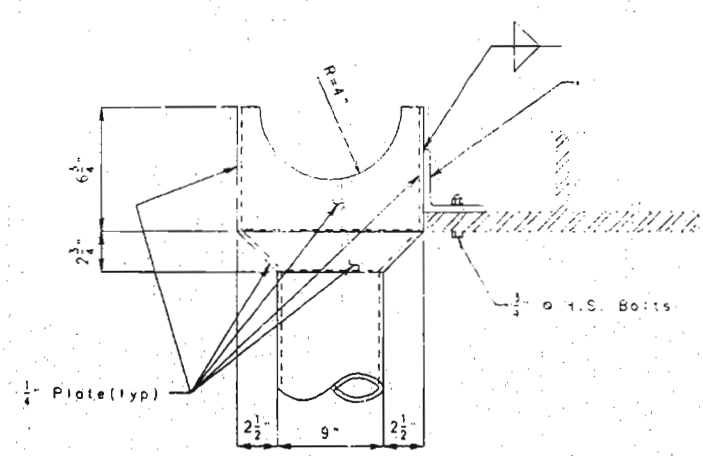


DETAIL "J"

Note: For locations of Detail "J", see sheet Nos. 31 & 33.



OPTIONAL DETAIL "J"



SECTION H-H

EXPANSION DEVICE DRAIN AT PIER NOS. 3 & 8



FINAL PLANS

I CERTIFY THAT THIS DRAWING ACCURATELY REFLECTS THE CONFIGURATION AND LOCATION OF THE ROADWAY AND APPURTENANCES AS CONSTRUCTED ON THIS PROJECT.

SIGNATURE

DATE

400

DETAILED AUG. 1996
CHECKED AUG. 1996

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

10 REVISED AUG. 5, 1996

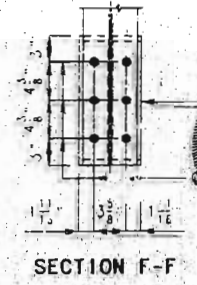
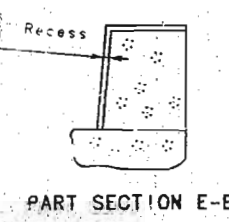
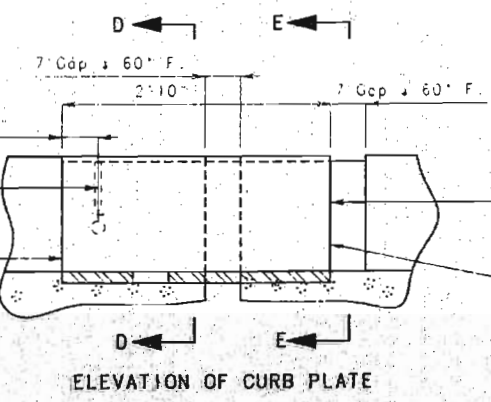
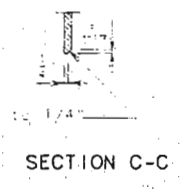
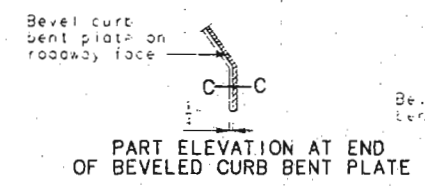
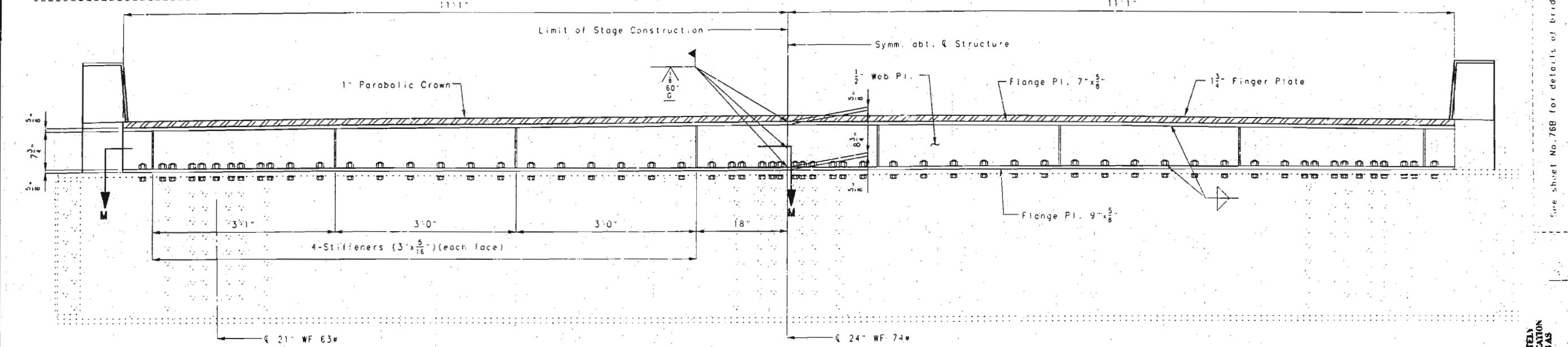
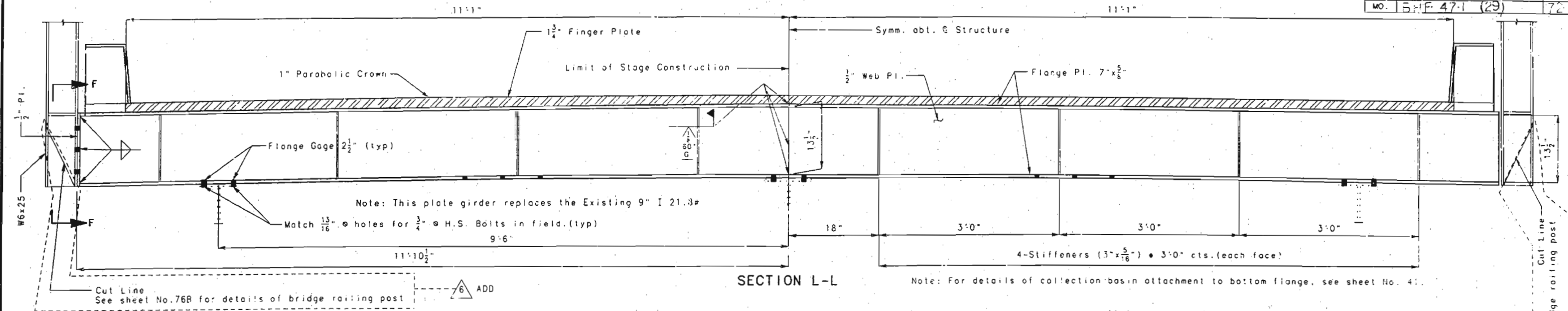
SHEET NO. 35 OF 97.

FRANKLIN-WARREN

COUNTIES K09691

24 to 1

STATE	PROJ. NO.	SHEET NO.
MO. SHF 471 (29)		72



EXPANSION DEVICE AT L25

401
 DETAILED AUG. 1995
 CHECKED NOV. 1995

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

REVISED APRIL 11, 1996

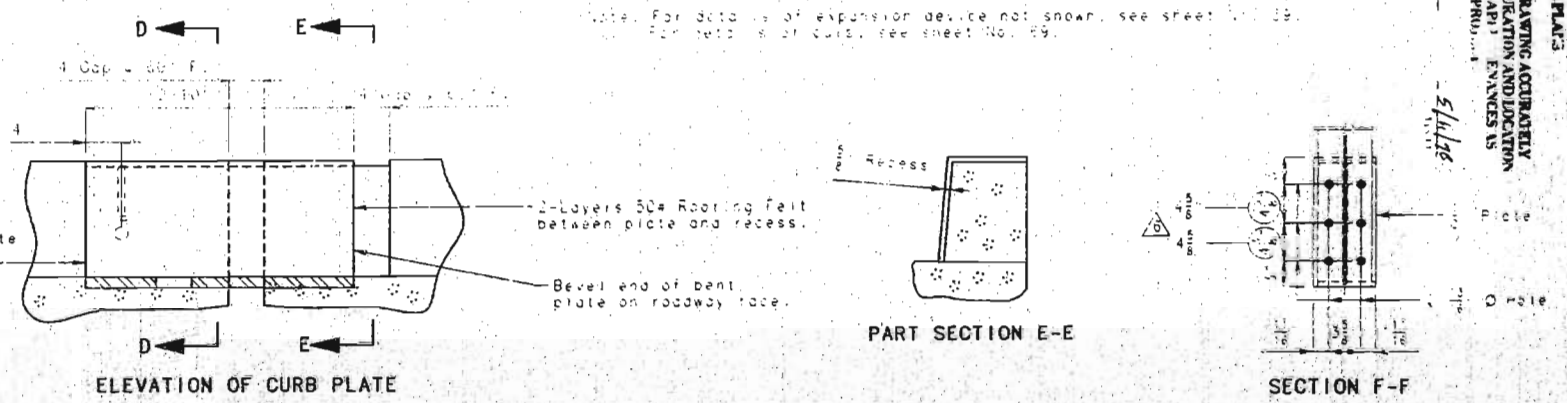
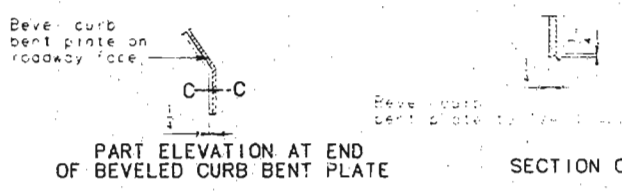
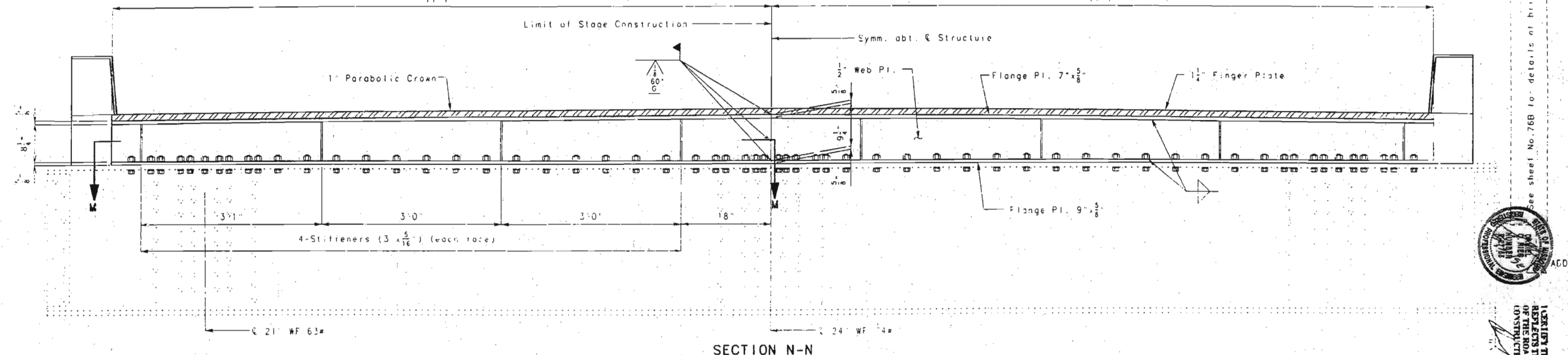
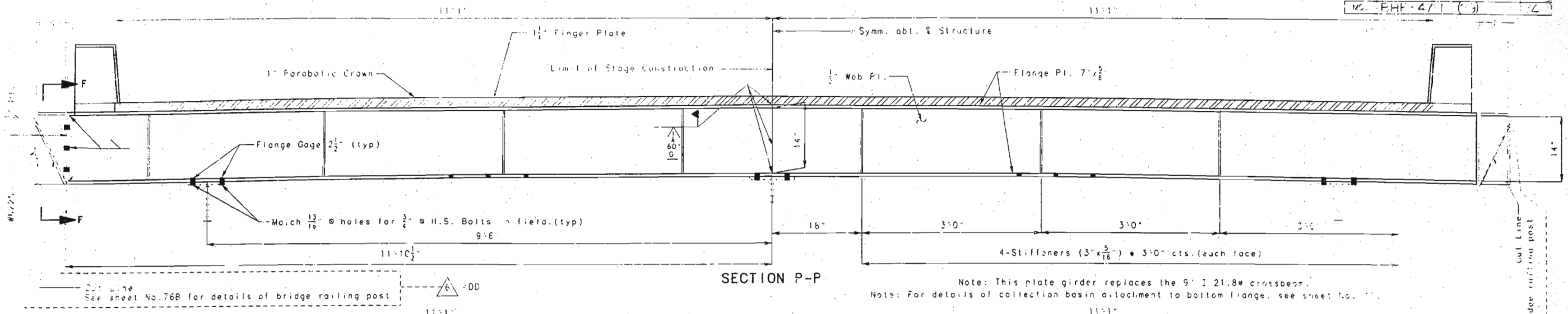
SHEET NO. 38 OF 37

FRANKLIN-WARREN

COUNTIES

K09691

FINAL PLAN
 CERTIFY THAT THIS DRAWING ACCURATELY REFLECTS THE CONFIGURATION AND LOCATION OF THE ROADWAY AND APPURTENANCES AS CONSTRUCTED ON THIS PROJECT.
 SIGNATURE _____ DATE _____



EXPANSION DEVICE AT L25'

DETAILED AUG. 1995
CHECKED NOV. 1995

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

REVISED APRIL 4, 1996

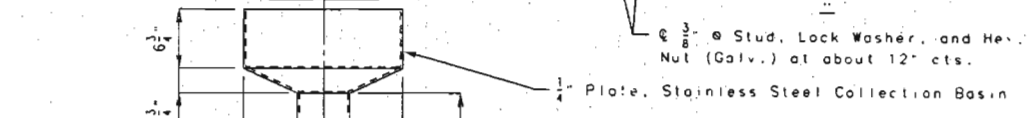
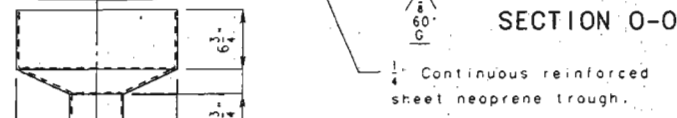
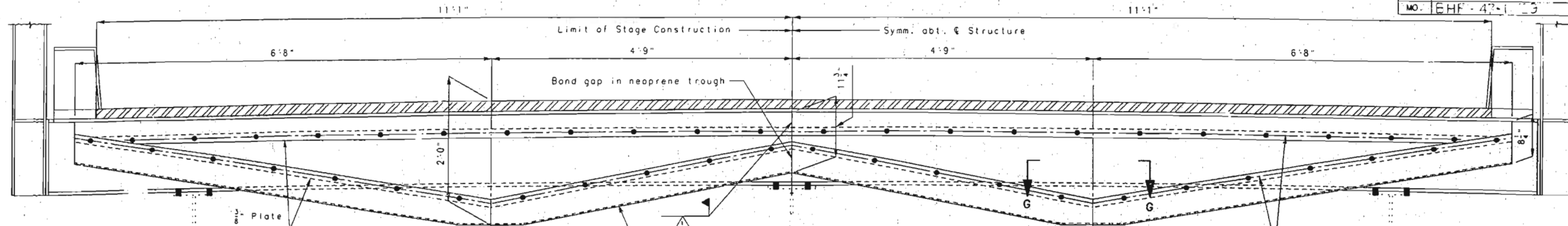
SHEET NO. 40 OF 97

FRANKLIN-WARREN COUNTIES K09691

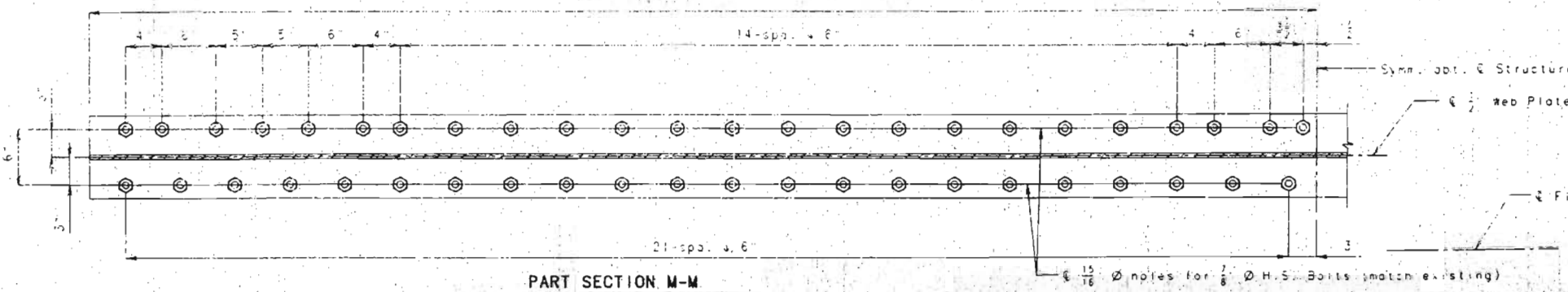
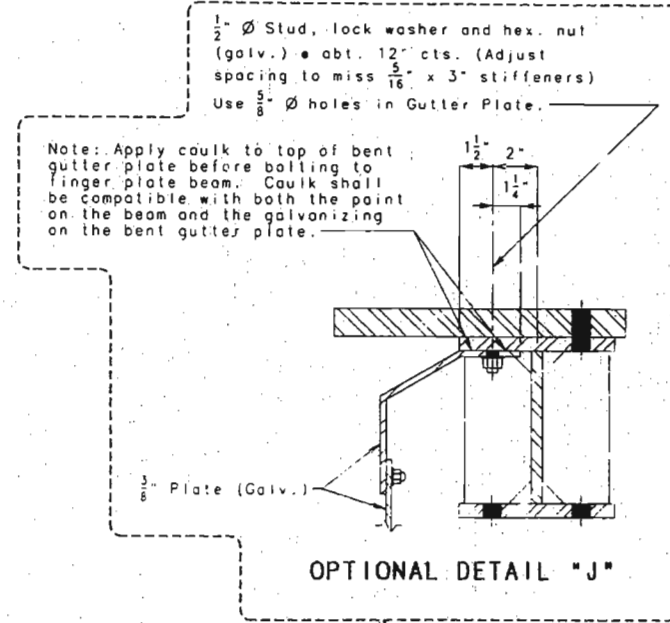
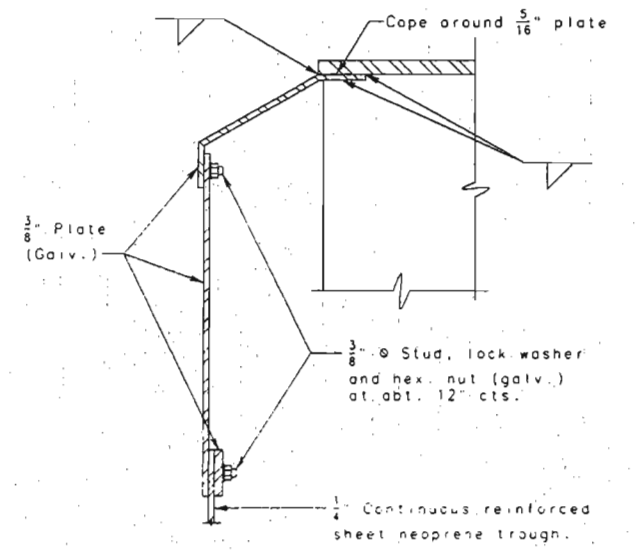
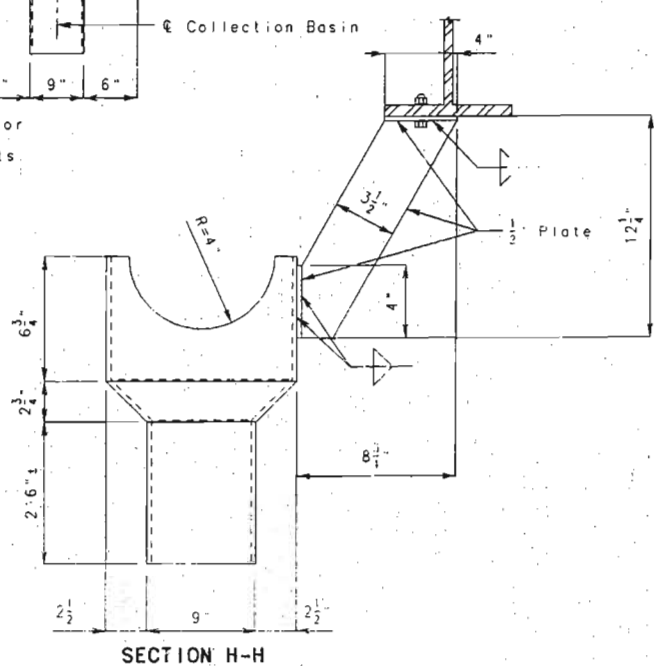
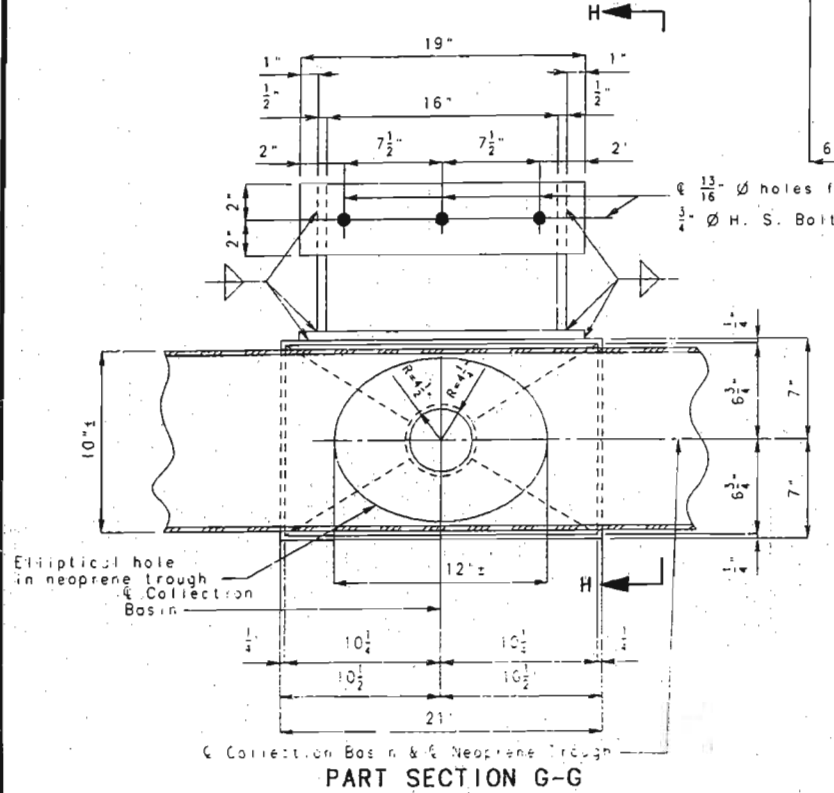


VERIFY THAT THE DRAWING ACCURATELY REFLECTS THE DIMENSIONS AND LOCATION OF THE WORK AND ALL DIMENSIONS AS INDICATED ON THIS DRAWING.

402



Note: Stainless Steel Collection Basin shall be fabricated from type 302 Stainless Steel. See Special Provisions.



Note: For location of Section M-M, see sheet Nos. 38 and 40.
 Note: For locations of Section O-O, see sheet Nos. 37 & 39.

403

DETAILED AUG. 1996
 CHECKED AUG. 1996

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

REVISED AUG. 5, 1996

SHEET NO. 41 OF 97

FRANKLIN-WARREN

COUNTIES K09691



FINAL PLANS
 I CERTIFY THAT THIS DRAWING ACCURATELY
 REPRESENTS THE CONFIDENTIAL AND
 PROPRIETARY INFORMATION OF
 FRANKLIN-WARREN COUNTIES
 MISSOURI
 Daney C. Aiee
 5/11/96
 PROFESSIONAL ENGINEER

STATE	PROJ. NO.	SHEET NO.
MO. BHF-47-1	(29)	13

JOB NO. J6F0320

Slab drains may be fabricated of either 1/4" welded sheets of A.S.T.M. A36 steel or from 1/4" structural steel tubing A.S.T.M. A500 or A501. Outside dimensions of drains are 8" x 4".

Locate drains in the slab by dimensions shown in the Part Section.

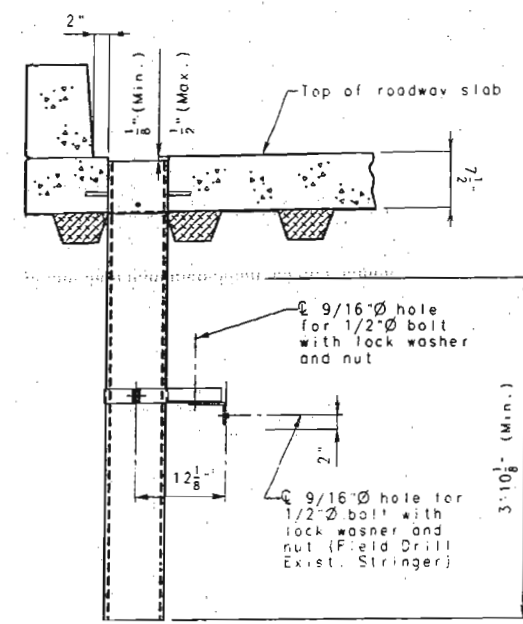
Shift reinforcing in field where necessary to clear drains.

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

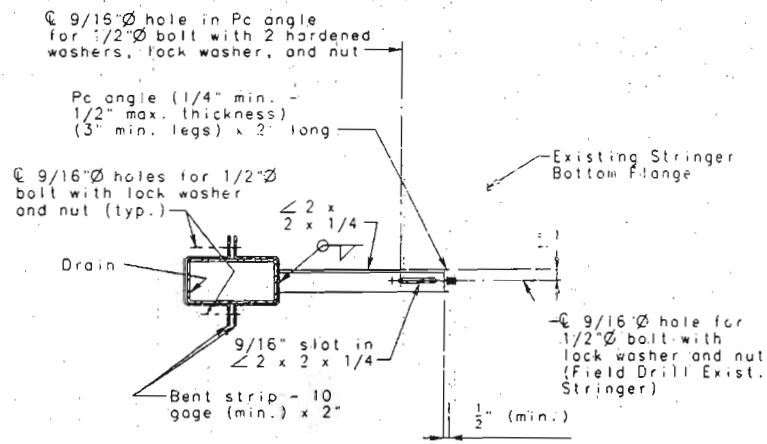
All bolts, hardened washers, lock washers and nuts shall be galvanized in accordance with A.S.T.M. A153.

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

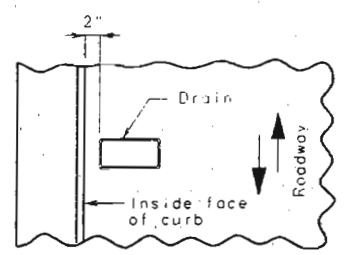
The cost of furnishing, fabricating and installing the drains and bracket assemblies, complete in place, will be paid for at the contract unit price for Slab Drain (Thru Truss Slab) per each.



PART SECTION NEAR DRAIN

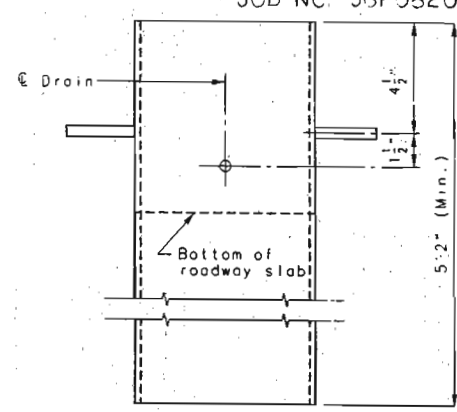


PART SECTION SHOWING BRACKET ASSEMBLY

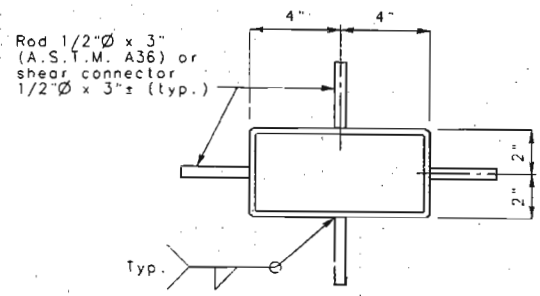


PART PLAN OF SLAB AT DRAIN

DETAILS OF DRAINS TRANSVERSE TO ROADWAY



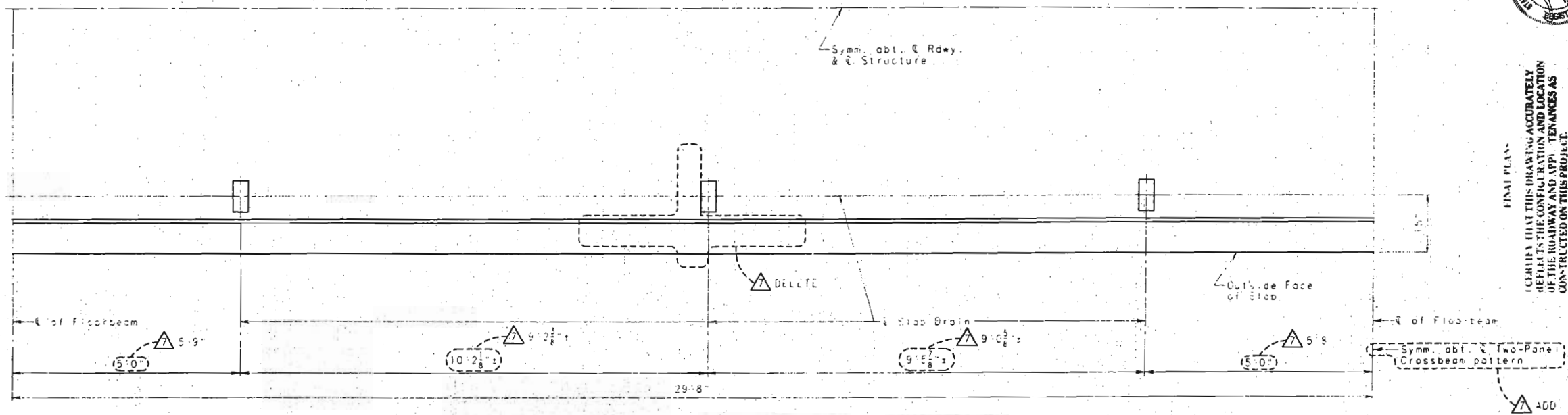
ELEVATION OF DRAIN



PLAN OF DRAIN

SLAB DRAIN DETAILS

Note: Stay-in-Place Forms not shown for clarity.



PLAN OF SLAB FOR A TYPICAL PANEL IN MAIN TRUSS SHOWING SLAB DRAIN LOCATIONS



FINAL PLAN
I CERTIFY THAT THIS DRAWING ACCURATELY REFLECTS THE CONFIGURATION AND LOCATION OF THE ROADWAY AND ADJ. TENANCES AS CONSTRUCTED ON THIS PROJECT.
DATE: 11/14/94
SIGNATURE: [Signature]

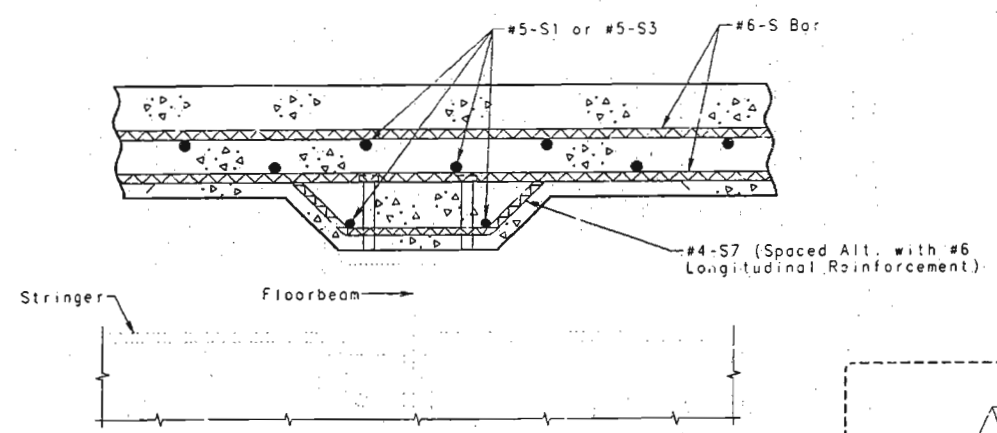
DETAILED SEPT. 1995
CHECKED NOV. 1995

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

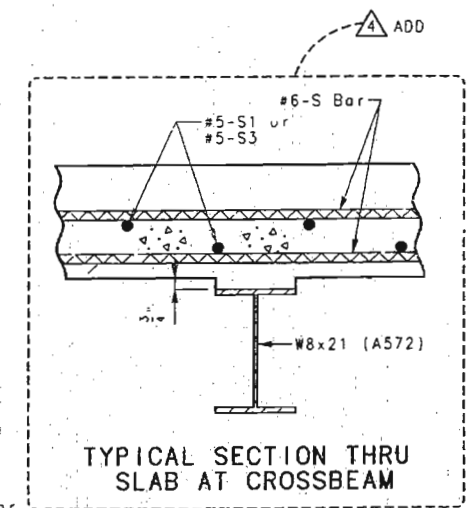
REVISED APRIL 15, 1996 AT CONTRACTOR'S REQUEST SHEET NO. 44 OF 97

FRANKLIN-WARREN COUNTIES K09691

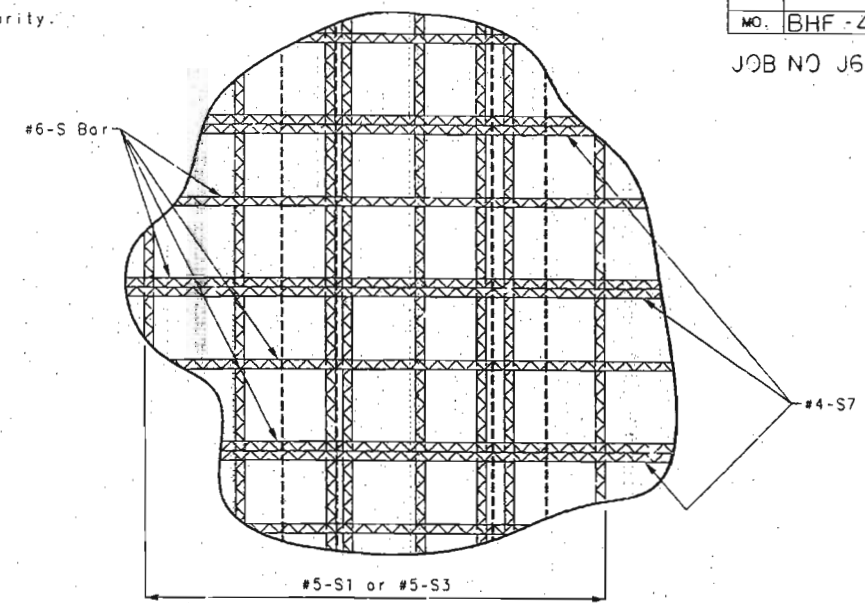
Note: Stay-In-Place Forms not shown for clarity.



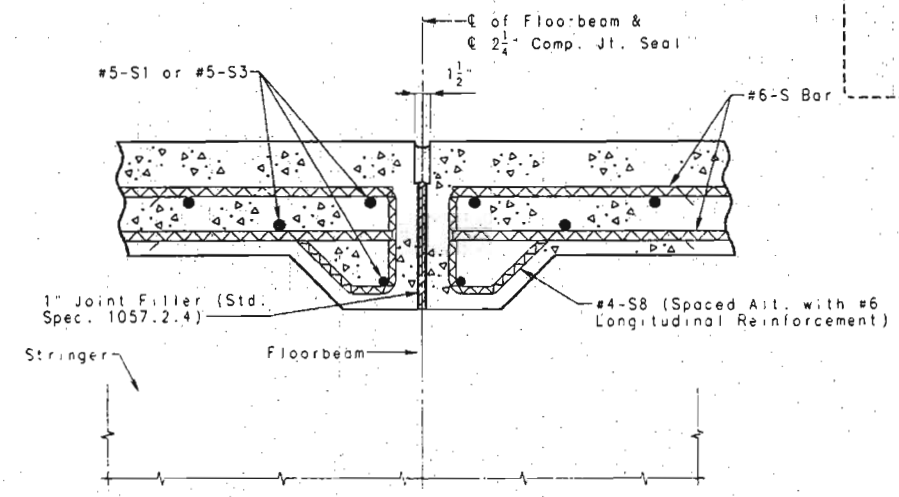
TYPICAL SECTION THRU SLAB AT FLOORBEAM



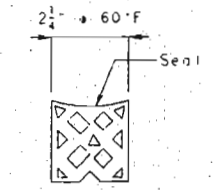
TYPICAL SECTION THRU SLAB AT CROSSBEAM



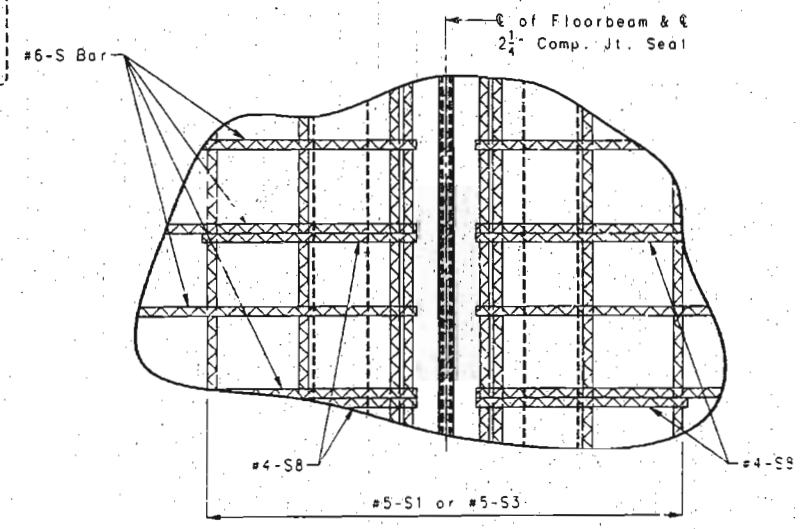
TYPICAL PART PLAN OF SLAB AT FLOOR BEAM SHOWING #4-S7 PLACEMENT



TYPICAL SECTION THRU SLAB AT 2 1/4" COMPRESSION JOINT SEAL



PART SECTION THRU PREFORMED COMPRESSION JOINT SEAL (At Bl. D-2, L8, L19, L34, L34', L19', L8' & Bl. B-9)



TYPICAL PART PLAN OF SLAB AT 2 1/4" COMPRESSION JOINT SEAL SHOWING #4-S8 PLACEMENT

Note: Depth of seal shall not be less than width of seal. See Special Provisions for requirements of Preformed Compression Joint Seal.



Note: See Sheet No. 29 for details of floorbeam shear connectors.

405

DETAILS OF SLAB HAUNCH REINFORCEMENT (PANELS 3-11)

DETAILED AUG. 1995
CHECKED NOV. 1995

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

REVISED MARCH 19, 1996 SHEET NO. 63 OF 97

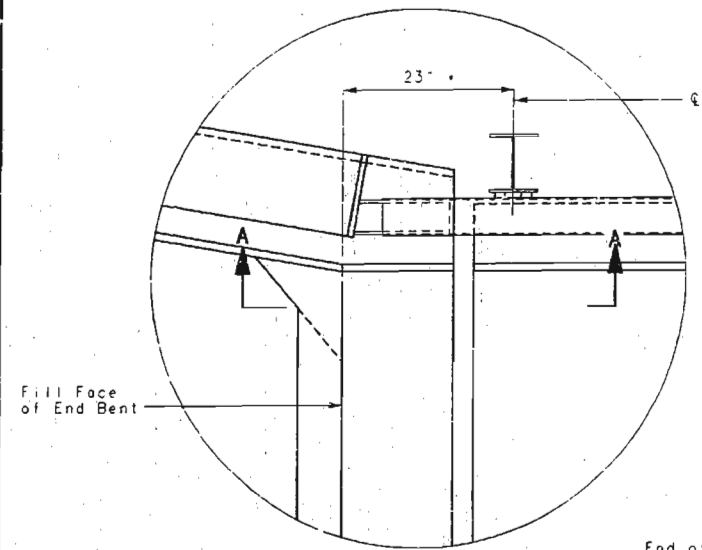
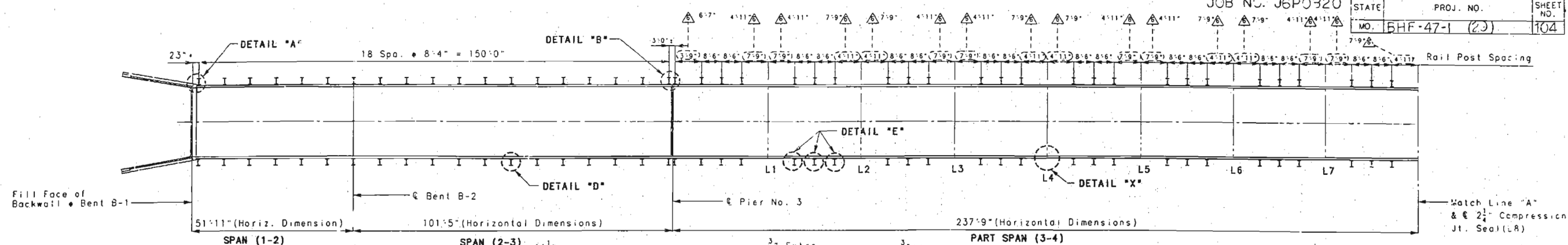
FRANKLIN-WARREN COUNTIES K09691



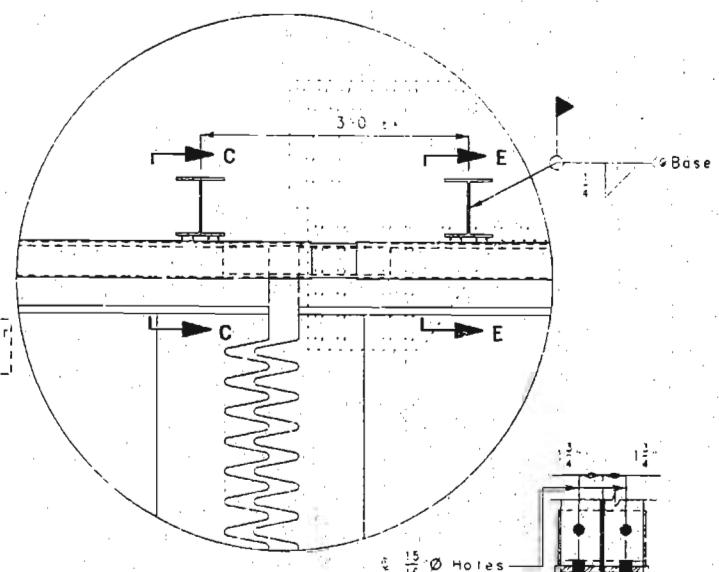
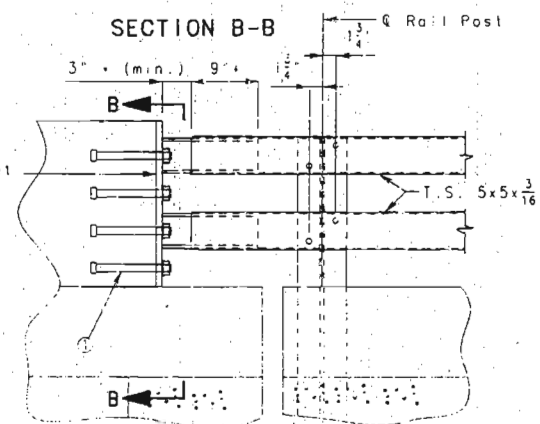
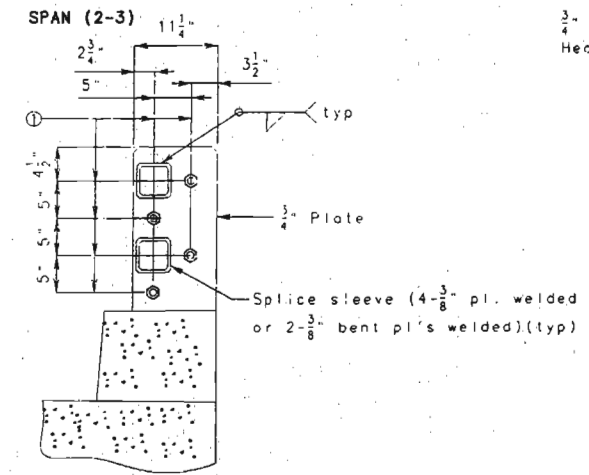
IN THE ROADWAY AND APPURTENANCES AS
CONSTRUCTED ON THIS PROJECT.

SIGNATURE: *[Signature]* DATE: 5/1/95

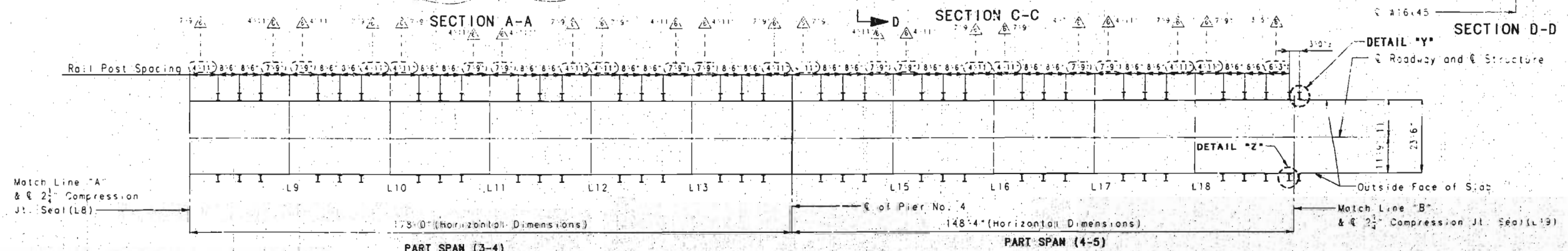
JOB NO. J6P0320 STATE: MO. PROJ. NO. BHF-47-1 (2) SHEET NO. 104



① 1" Ø Anchor bolt (A-307) with hex nut and washer (18" long). (Entire assembly at end post to be galvanized.)



Note: For Section E-E, see sheet No. 75A.
 Note: For Detail "D", see sheet No. 75A.
 For Detail "E", see sheet No. 74A.
 For Detail "X", see sheet No. 75A.
 For Detail "Y", see sheet No. 73A.
 For Detail "Z", see sheet No. 76A.
 Stay-in-Place Forms not shown for clarity.



406

DETAILED MAR. 1996
CHECKED MAR. 1996

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

REVISOR: 6 REVISOR DATE: APRIL 4, 1996

REVISOR: 5 REVISOR DATE: MARCH 28, 1996 AT CONTRACTOR'S REQUEST

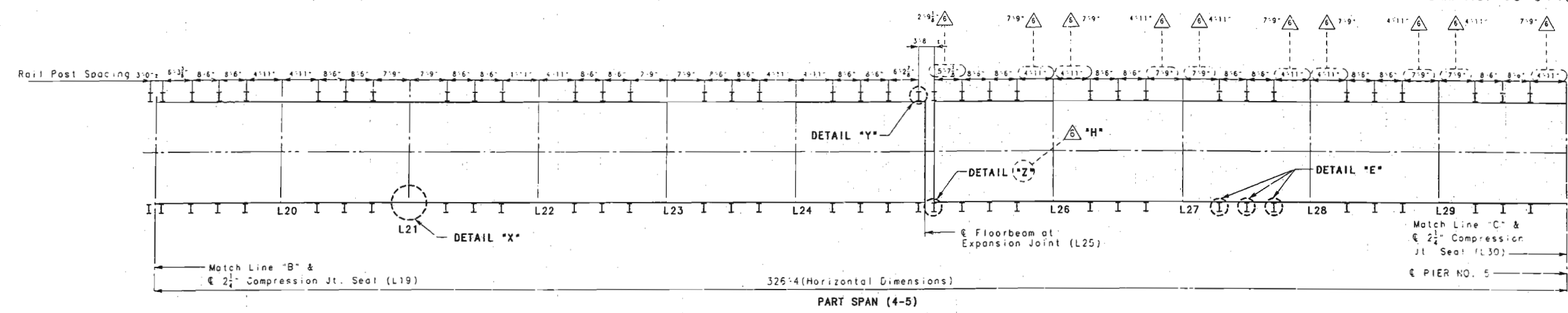
REVISOR: 2 REVISOR DATE: MARCH 13, 1996

SHEET NO. 704 OF 97

FRANKLIN-WARREN COUNTIES K09691

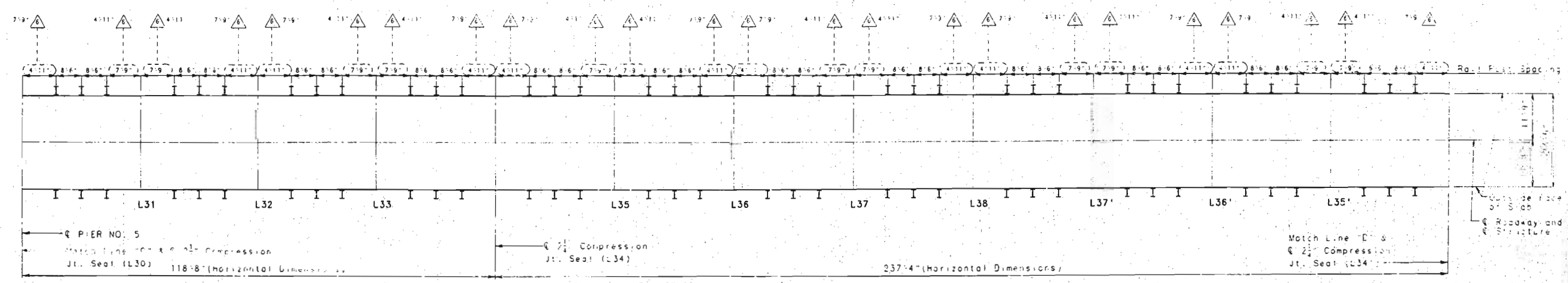
STATE	PROJ. NO.	SHEET NO.
MO.	D-F-47-1 (2)	75

JOB NO. J6P0320



Note: For Detail "E", see sheet No. 74A.
 For Detail "X", see sheet No. 75A.
 For Detail "Y", see sheet No. 73A.
 For Detail "Z", see sheet No. 76A.
 For Detail "H", see sheet No. 76B.

△ DELETE --- △ ADD



PART PLAN SHOWING RAIL POST SPACING.



FINAL PLANS
 I CERTIFY THAT THIS DRAWING ACCURATELY REFLECTS THE CONFIGURATION AND LOCATION OF THE ROADWAY AND APPURTENANCES AS CONSTRUCTED ON THIS PROJECT.

Signature: J. N. Smith
 Date: 3/13/96

△ REVISED APRIL 4, 1996
 △ REVISED MARCH 13, 1996

SHEET NO. 71A OF 97

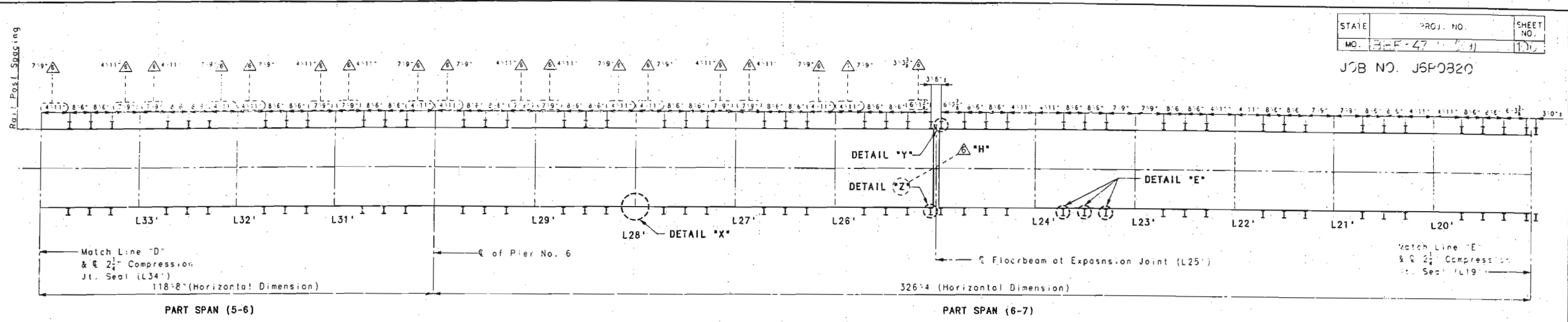
FRANKLIN-WARREN COUNTIES K09691

407
 DETAILED MAR. 1996
 CHECKED MAR. 1996

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

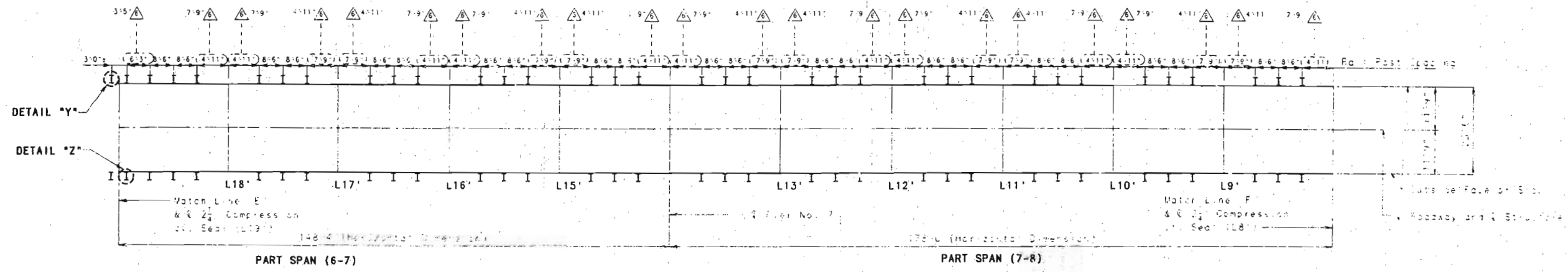
STATE	PRGJ. NO.	SHEET NO.
MO. 3-E-47		102

JOB NO. JSP0320



Note: For Detail "E", see sheet No. 744.
 For Detail "X", see sheet No. 75A.
 For Detail "Y", see sheet No. 73A.
 For Detail "Z", see sheet No. 76A.

For Detail "H" see sheet No. 76B. \triangle ADD



PART PLAN SHOWING RAIL POST SPACING

- \triangle 6 REVISED APRIL 4, 1996
- \triangle 2 ADD
- \triangle 2 REVISED MARCH 13, 1996

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

SHEET NO. 72A OF 97



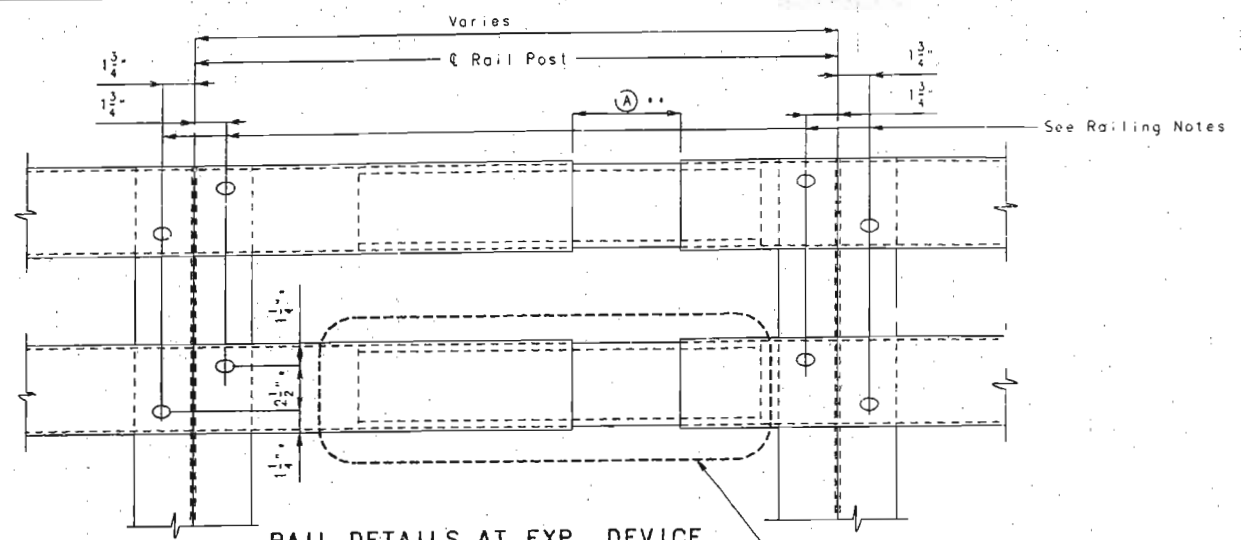
FINAL PLANS
 I CERTIFY THAT THIS DRAWING ACCURATELY REFLECTS THE CONFIGURATION AND LOCATION OF THE ROADWAY AND APPURTENANCES AS CONSTRUCTED ON THIS PROJECT.
 SIGNATURE: [Signature] DATE: 2/1/96

FRANKLIN-WARREN COUNTIES K09691

408

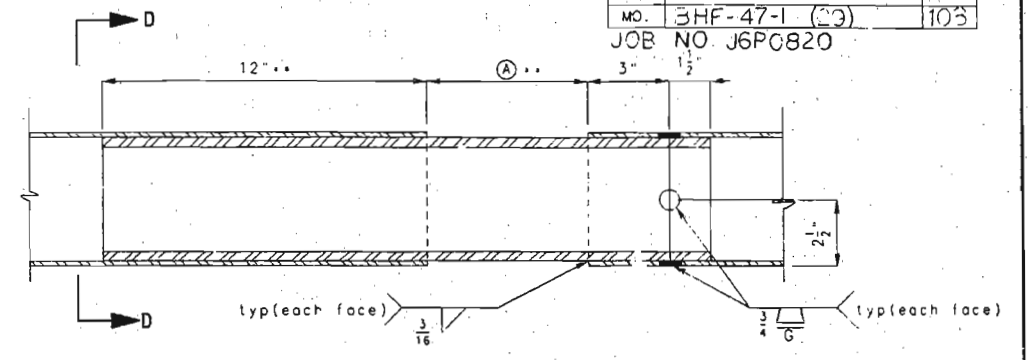
DETAILED MAR. 1996
 CHECKED MAR. 1996

24 to 1

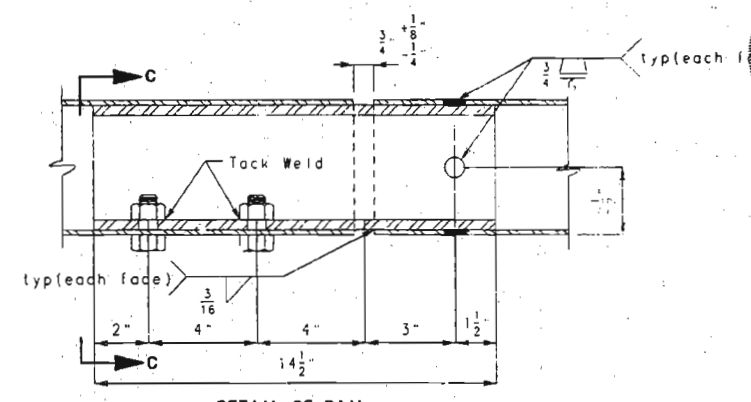


(A)	PANEL POINT
4"	L0, L25, L0
7"	L25
1"	L8, L19, L34, L34, L19, L8

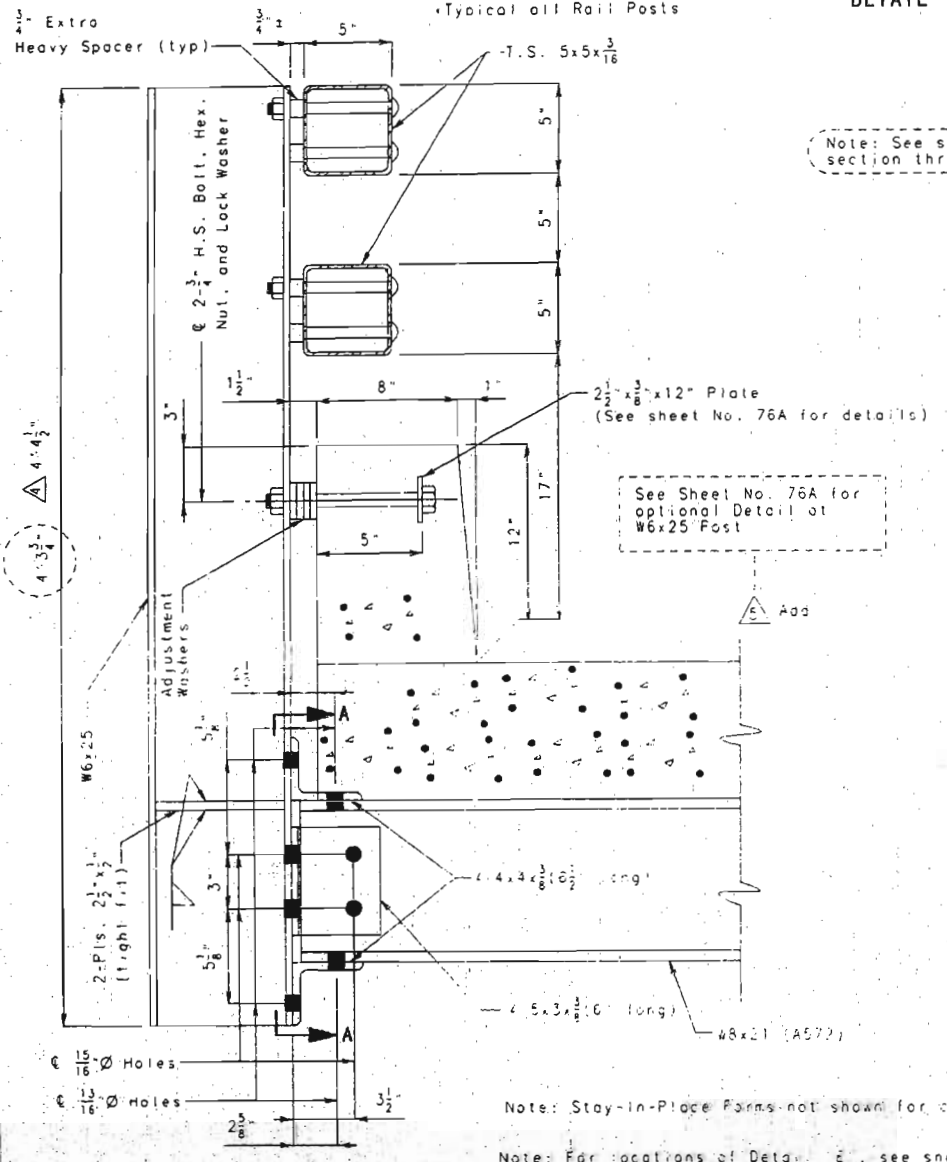
** Dimension at 60' F.



DETAIL 'G'



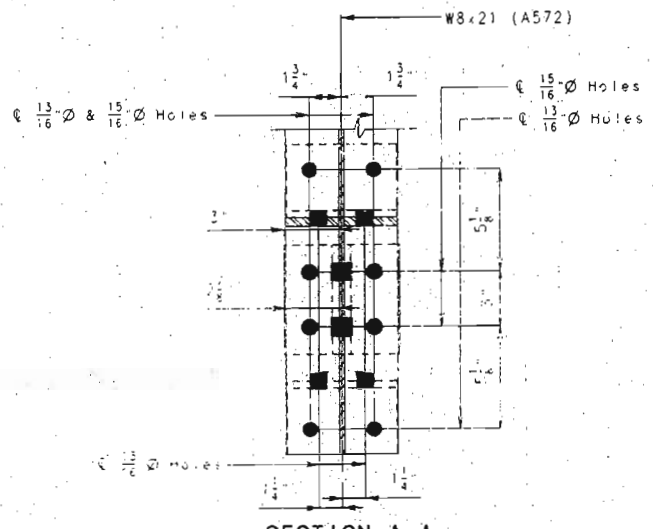
DETAIL OF RAIL SPLICE JOINT



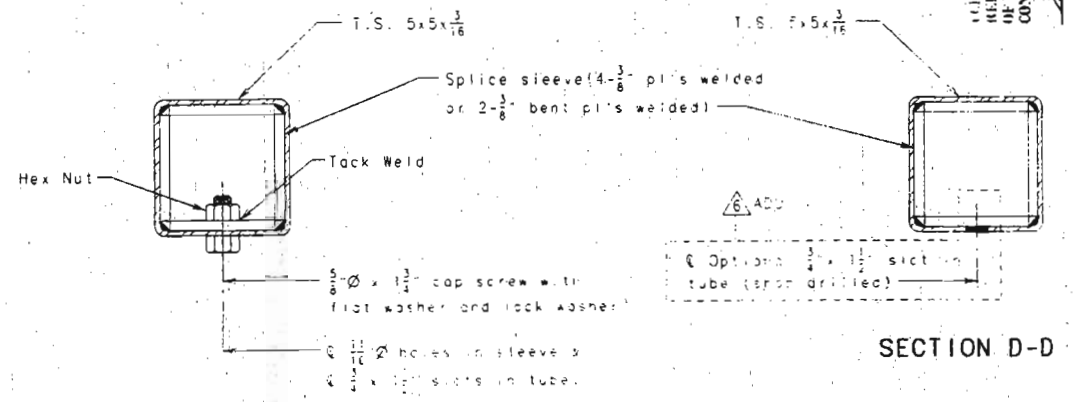
DETAIL 'E'

Note: See sheet No. 63 for section thru slab at crossbeam.

See Sheet No. 76A for optional Detail at W6x25 Post



SECTION A-A



SECTION D-D

RAILING NOTES:

- In no case shall the spacing of the bridge rail supports (posts or truss support) on a deck exceed 8'.
- Railing shall be fabricated in two or three panel lengths unless otherwise approved.
- Structural steel tube railing and rail post, including connecting plates, nuts, bolts, and washers shall be galvanized in accordance with ASTM A153 or A153.
- Structural steel tube railing shall conform to requirements of ASTM designation A500 or A501.
- Splice in rail shall be provided at about 14' points between posts. Rail expansion splice should be provided at open joints in slab.
- Fabrication of structural steel shall be in accordance with section 712 of Standard Specifications. If rail is shop drilled use 11/16\"/>
- If rail is field drilled use 11/16\"/>
- Location of slots or holes is to be at other than snow guard ends of railing to install proposed rails.
- 5/8\"/>
- 5/8\"/>
- The cost of furnishing, fabricating and installing the rail supports, plates, miscellaneous shapes and bolts shall be paid for at the contract unit or be for bridge rail (see Structural Steel) per linear foot.
- Use 3/4\"/>

- REVISED APRIL 4, 1996 AT CONTRACTOR'S REQUEST
- REVISED MARCH 28, 1996 AT CONTRACTOR'S REQUEST
- REVISED MARCH 19, 1996
- REVISED MARCH 13, 1996



CERTIFY THAT THE DRAWING ACCURATELY REFLECTS THE CONFIGURATION AND LOCATION OF THE ROADWAY AND APPURTENANCES AS CONSTRUCTED ON THIS PROJECT.

DATE: 5/11/96

SIGNATURE: [Signature]

DETAILED: MAR. 1996
CHECKED: MAR. 1996

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

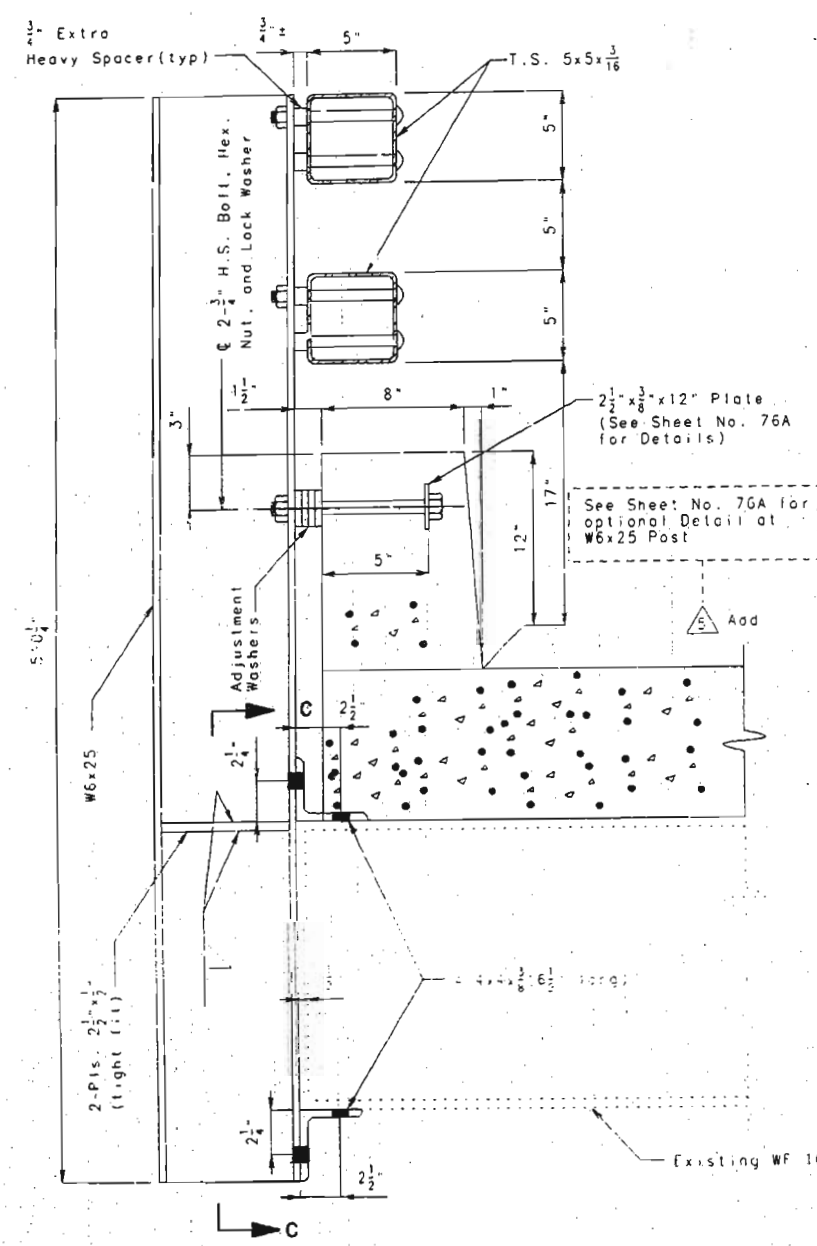
SHEET NO. 74A OF 97

FRANKLIN-WARREN COUNTIES K09691

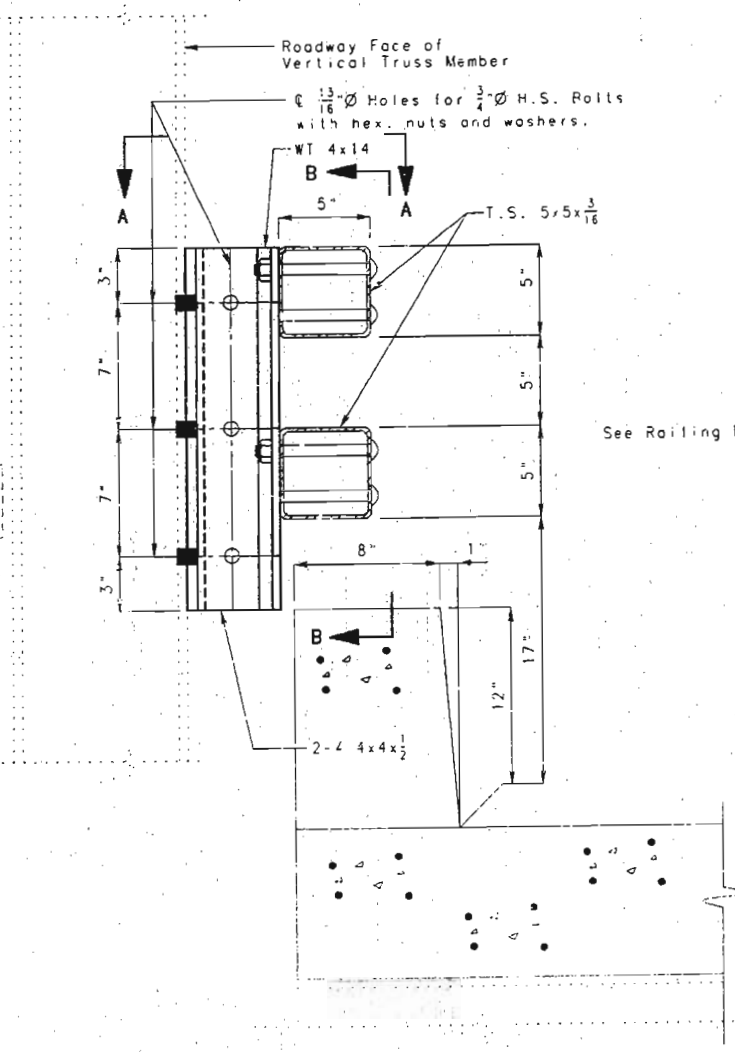
410

STATE	PROJ. NO.	SHEET NO.
MO. I-27	HF 47-1 (29)	109

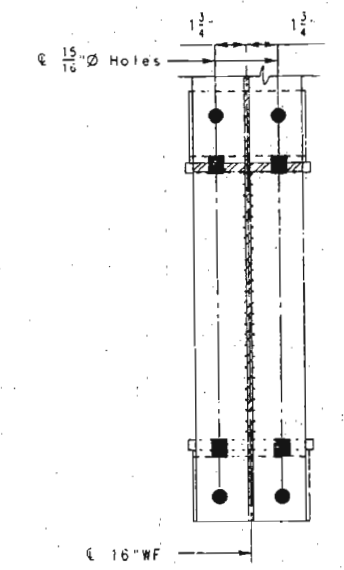
JOB NO. J6P0820



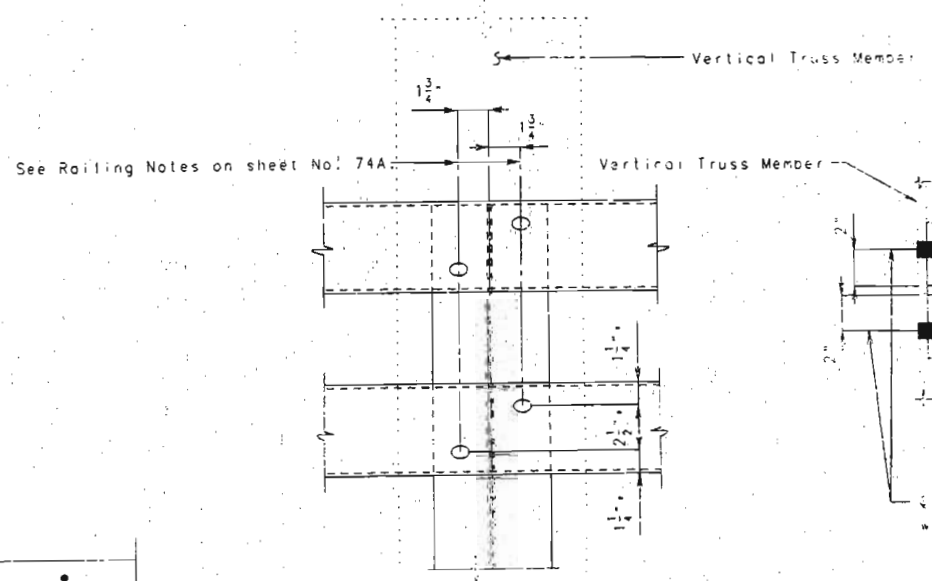
DETAIL "D"



DETAIL "X"



SECTION C-C



SECTION B-B

SECTION A-A

Note: For locations of Detail "X", see sheet Nos. 70A, 71A, 72A & 73A.
For locations of Detail "D", see sheet Nos. 73A & 73A.

Stay-in-Place Forms not shown for clarity.

- △ 5 REVISED MARCH 28, 1996 AT CONTRACTOR'S REQUEST
- △ 2 REVISED MARCH 13, 1996

△ ADD

441
 DETAILED MAR. 1996
 CHECKED MAR. 1996

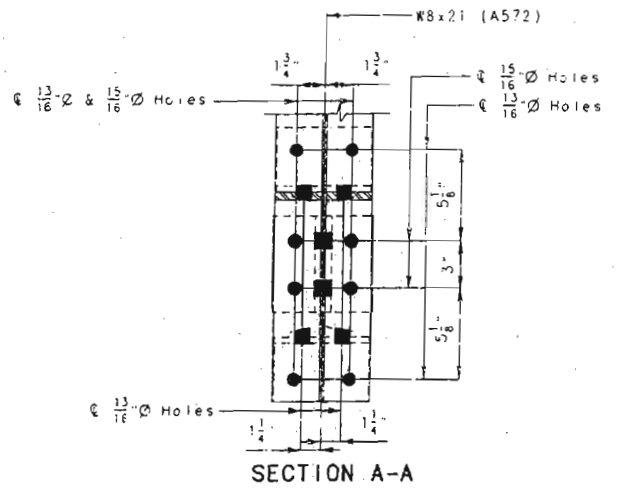
NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

(SHEET NO. 75A OF 97)

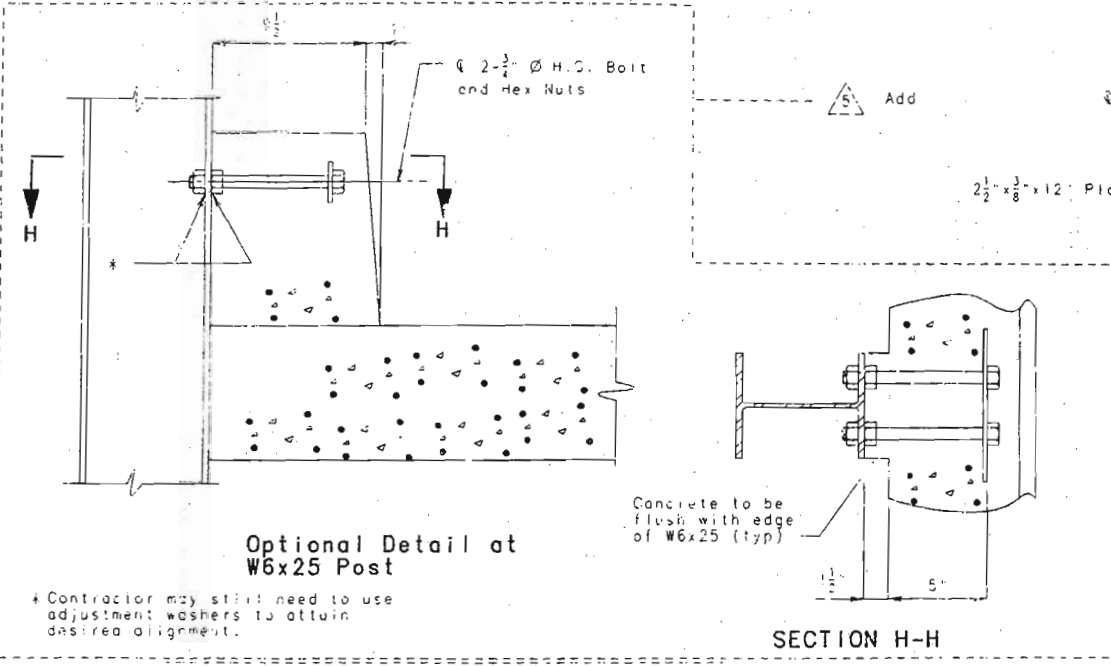


FINAL PLANS
 I CERTIFY THAT THIS DRAWING ACCURATELY REFLECTS THE CONFIGURATION AND LOCATION OF THE ROADWAY AND APPURTENANCES AS CONSTRUCTED ON THIS PROJECT.
 [Signature] DATE 5/17/96

FRANKLIN-WARREN COUNTIES K09691



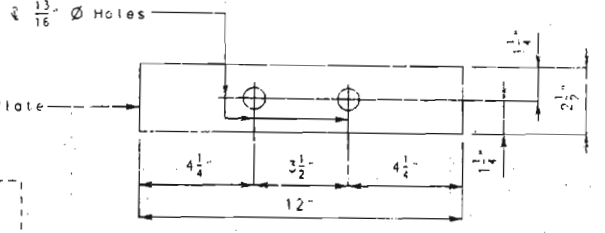
SECTION A-A



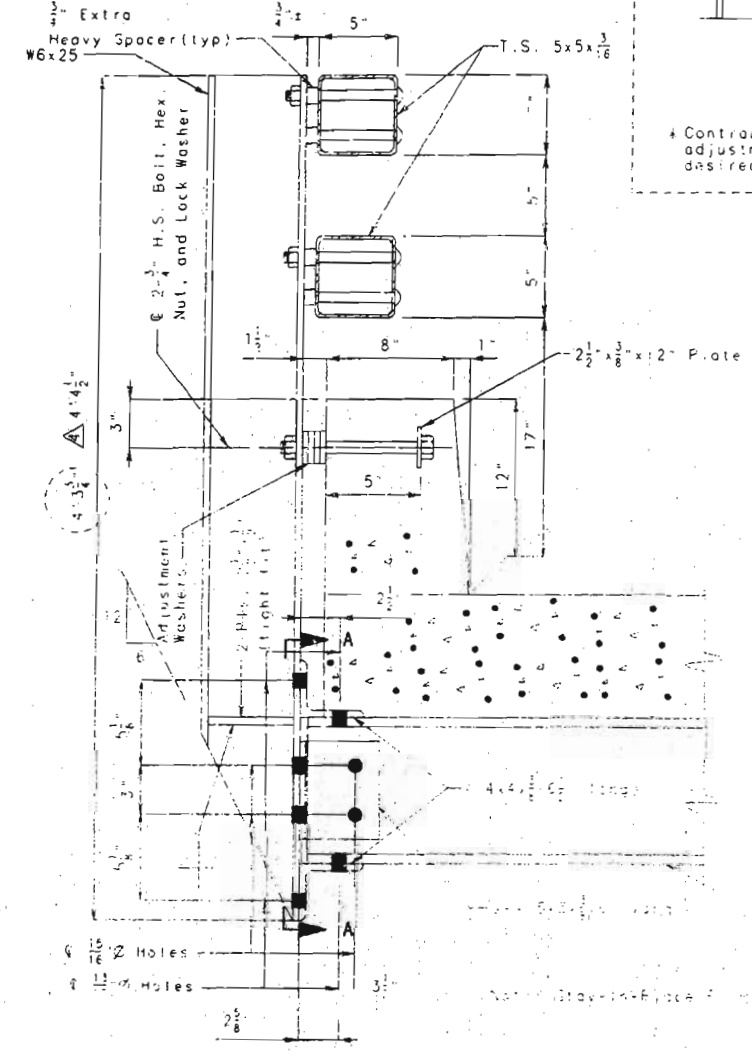
Optional Detail at W6x25 Post

* Contractor may still need to use adjustment washers to attain desired alignment.

SECTION H-H

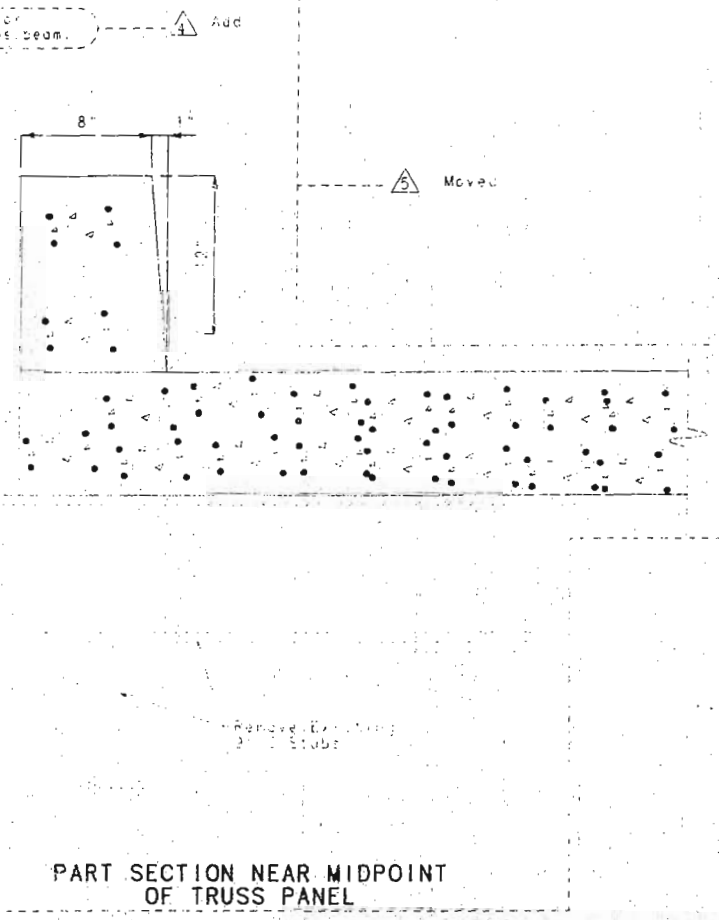


DETAIL OF 2 1/2 x 3/8 x 12\"/>

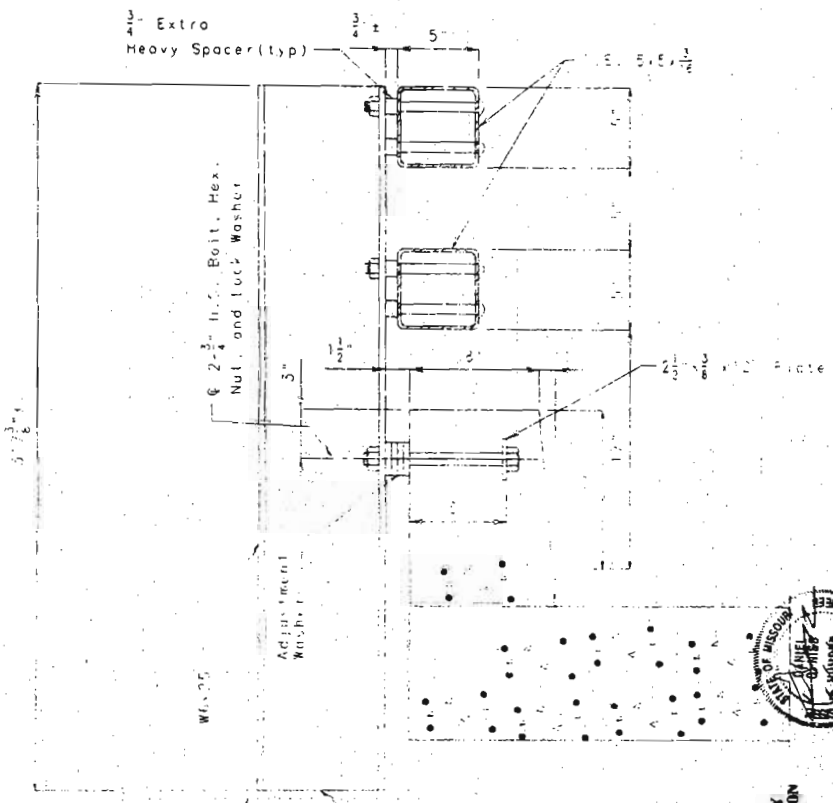


DETAIL \"Z\"

Note: For locations of Detail \"Z\", see sheet Nos. 70A, 71A & 72A.



PART SECTION NEAR MIDPOINT OF TRUSS PANEL



SECTION E-E

Note: For location of Section E-E, see sheet No. 70A.



FINAL PLANS
 I CERTIFY THAT THIS DRAWING ACCURATELY REFLECTS THE CONFIGURATION AND LOCATION OF THE ROADWAY AND APPURTENANCES AS CONSTRUCTED BY THIS PROJECT.
 SIGNATURE: [Signature]
 DATE: [Date]

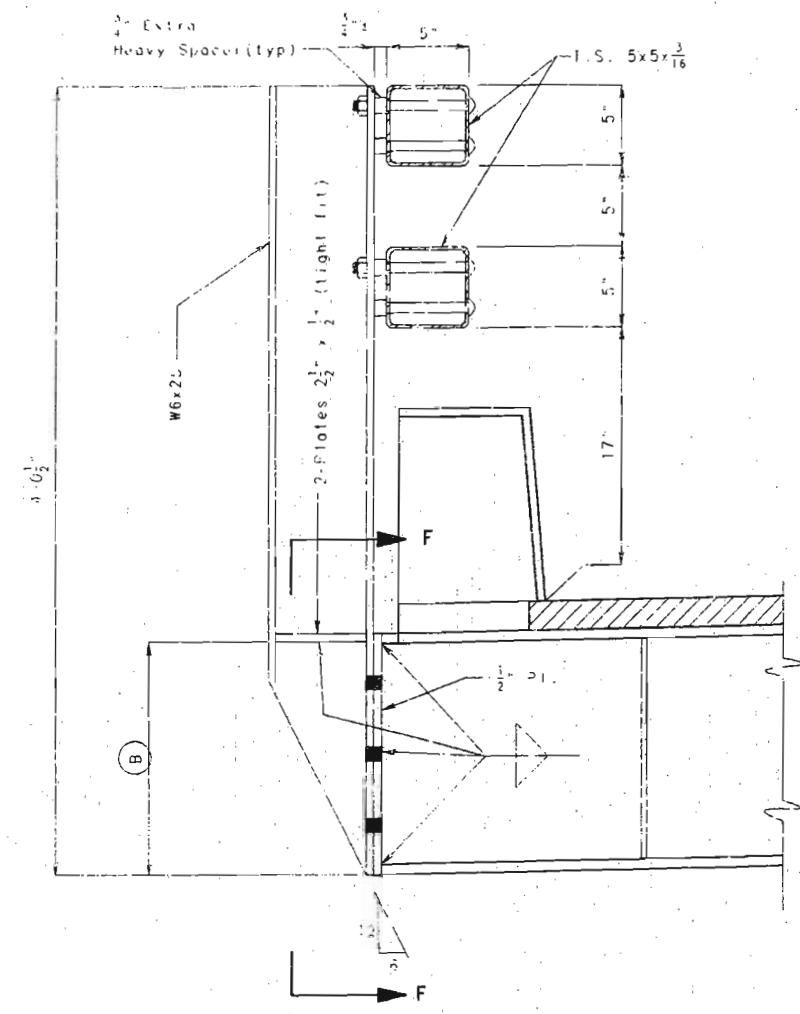
- △ REVISED APRIL 4, 1996
- △ REVISED MARCH 26, 1996 AT CONTRACTOR'S REQUEST
- △ REVISED MARCH 19, 1996
- △ REVISED MARCH 13, 1996

DETAILED MAR 1996
 CHECKED MAR 1996

PLEASE PRINT DRAWING TO SCALE. FOLLOW DIMENSIONS.

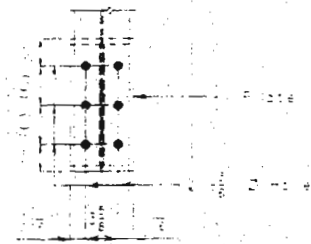
SHEET NO. 70A OF 97

Panel Point	B	C
L25	14 1/4"	4 5/8"
L25	14 1/2"	4 5/8"



DETAIL "H"

Note: For locations of Detail "H", see sheet nos. 71A & 72A.



SECTION F-F

413



FINAL PLANS
 I CERTIFY THAT THIS DRAWING ACCURATELY REFLECTS THE CONFIGURATION AND LOCATION OF THE ROADWAY AND APPURTENANCES AS CONSTRUCTED ON THIS PROJECT.
 [Signature] 5/16/96
 SIGNATURE DATE

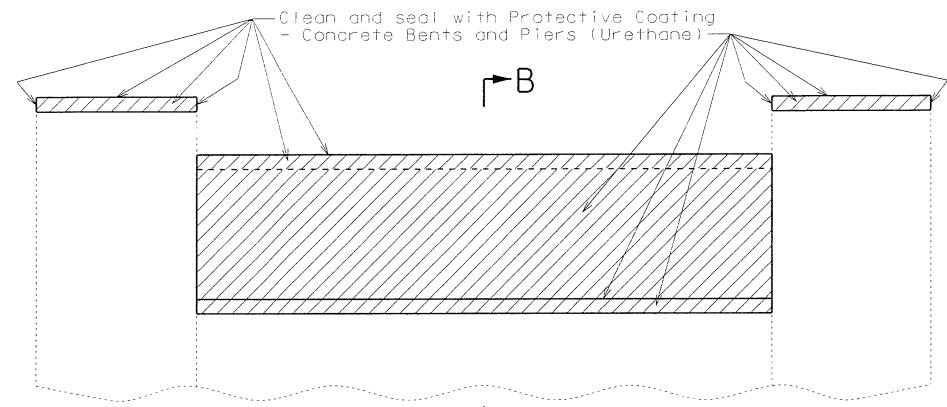
DETAILED APR. 1996
 CHECKED APR. 1996

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

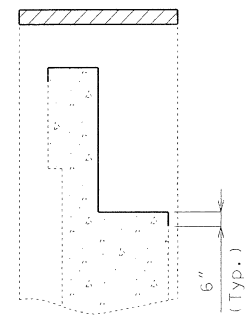
REVISI 6 APRIL 4, 1996

SHEET NO. 76B OF 97

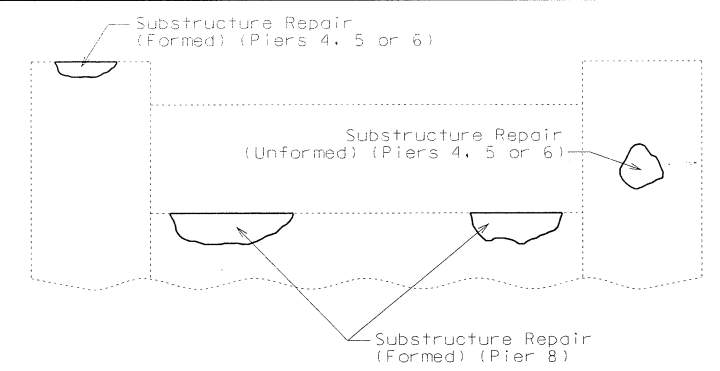
FRANKLIN-WARREN COUNTIES K09691



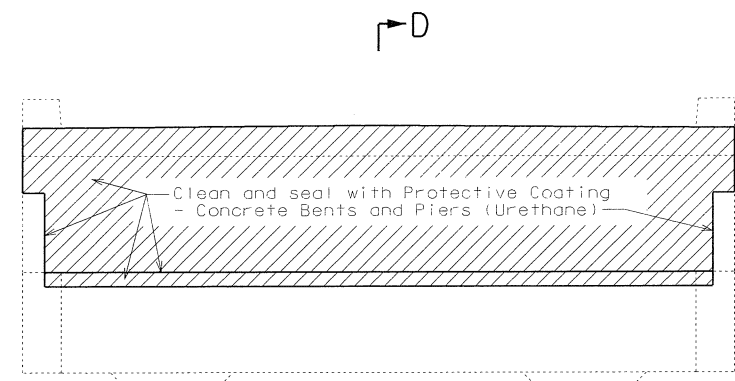
ELEVATION - BENTS 3 & 8



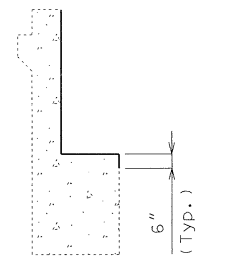
SECTION B-B



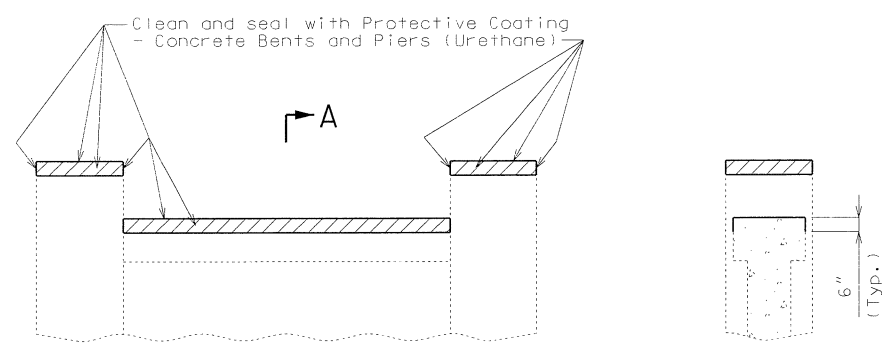
DETAILS OF SUBSTRUCTURE REPAIR



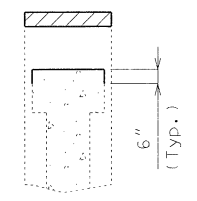
ELEVATION - BENT 10



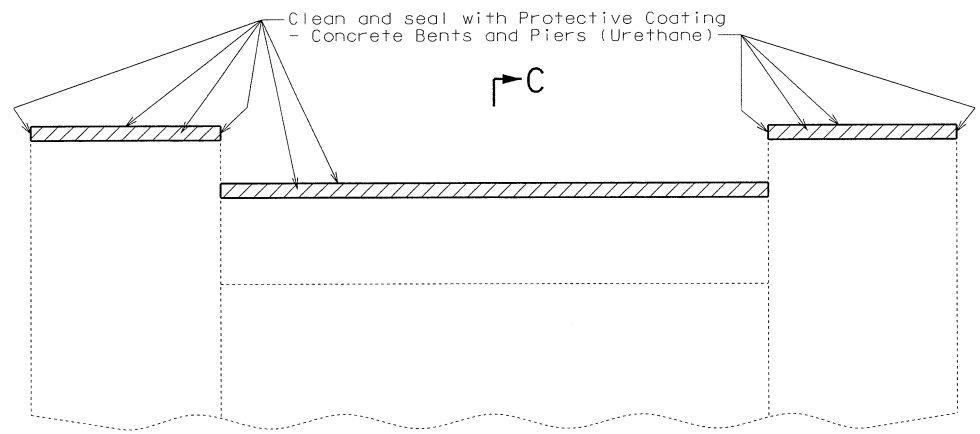
SECTION D-D



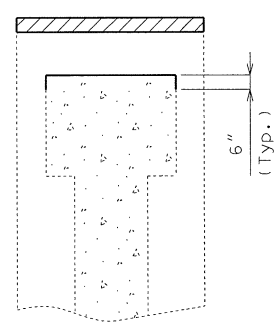
ELEVATION - BENTS 2 & 9



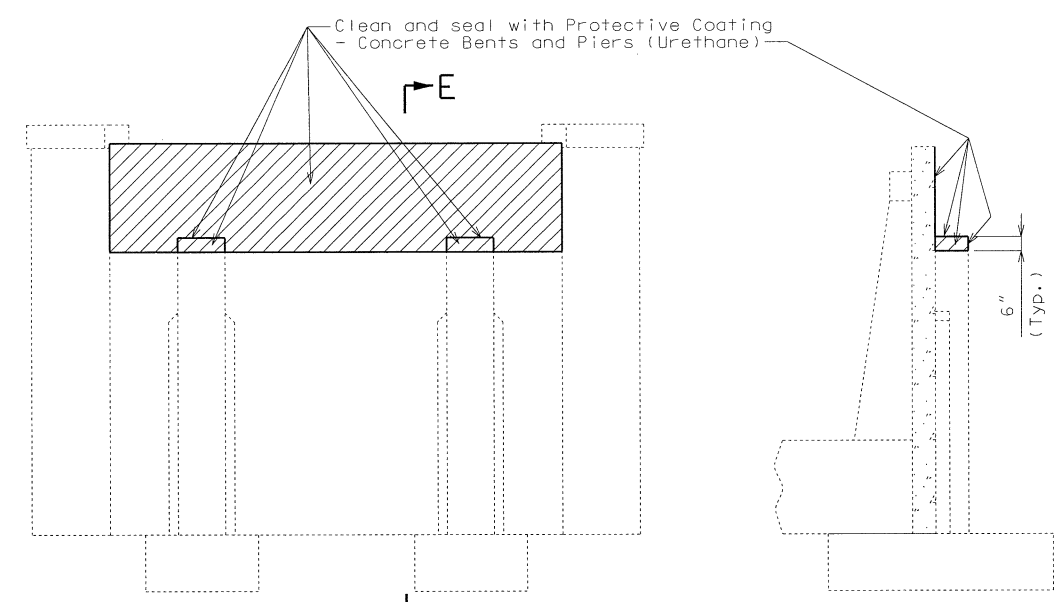
SECTION A-A



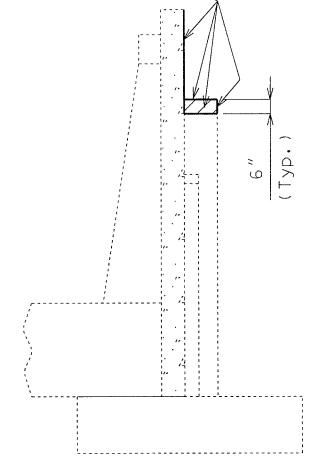
ELEVATION - PIERS 4, 5, 6 & 7



SECTION C-C



ELEVATION - ABUTMENT 1



SECTION E-E

DETAILS OF PROTECTIVE COATING - CONCRETE BENTS AND PIERS (URETHANE)

STATE OF MISSOURI
 RAYMOND J. JANSEN
 NUMBER
 PE-16126
 PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN
 SIGNED, SEALED AND DATED
 ELECTRONICALLY.

DATE PREPARED
 12/3/2008

ROUTE 47 STATE MO

DISTRICT BR SHEET NO. 5

COUNTY
 FRANKLIN-WARREN

JOB NO.
 J6P2158

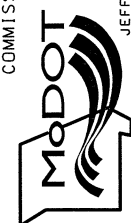
CONTRACT ID.

PROJECT NO.

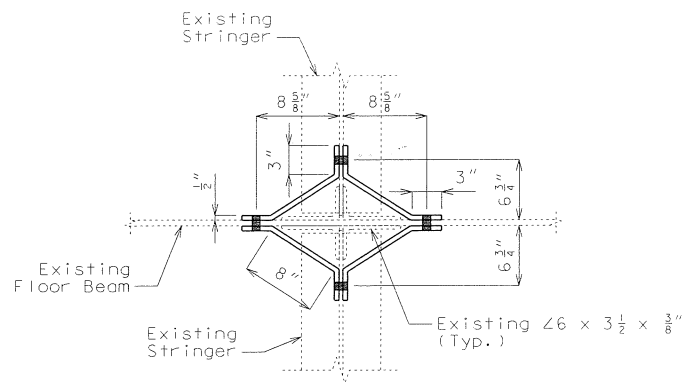
BRIDGE NO.
 K09692

DATE	DESCRIPTION

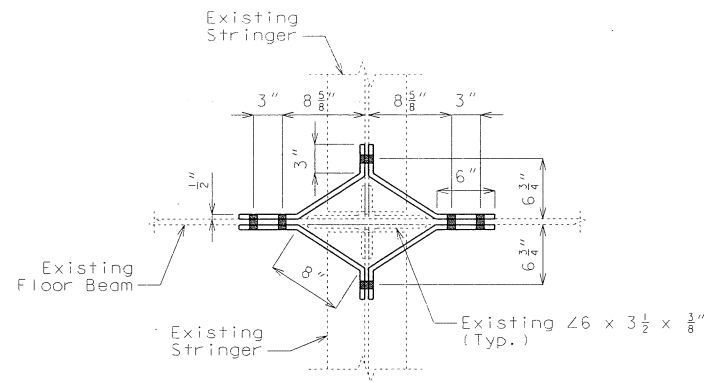
MISSOURI HIGHWAYS AND TRANSPORTATION
 COMMISSION
 105 WEST CAPITOL
 JEFFERSON CITY, MO 65102
 1-888-ASK-MODOT (1-888-275-6636)



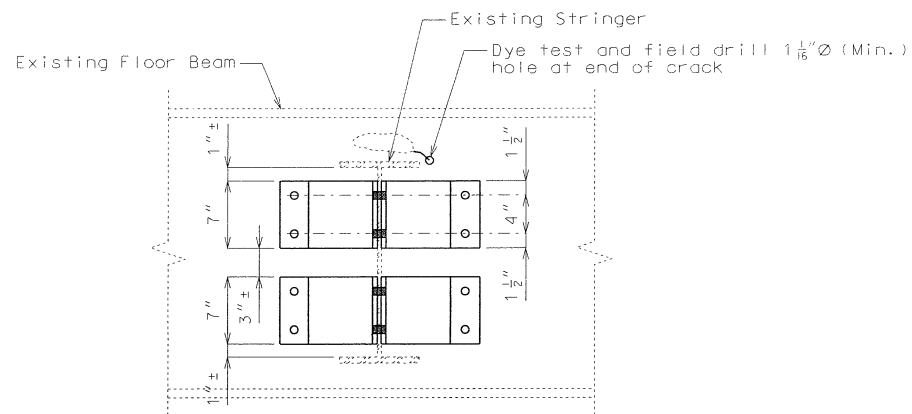
IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.



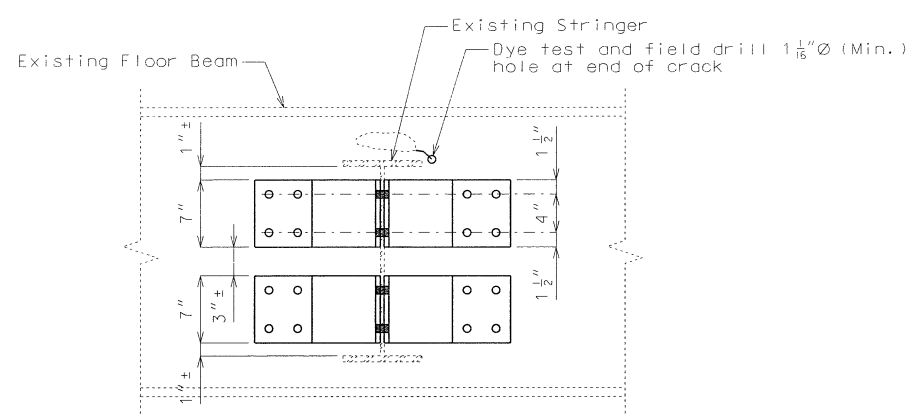
TYPICAL PLAN SHOWING CONNECTION PLATES
(REPAIR "G" AND "H")



TYPICAL PLAN SHOWING CONNECTION PLATES
(REPAIR "I")

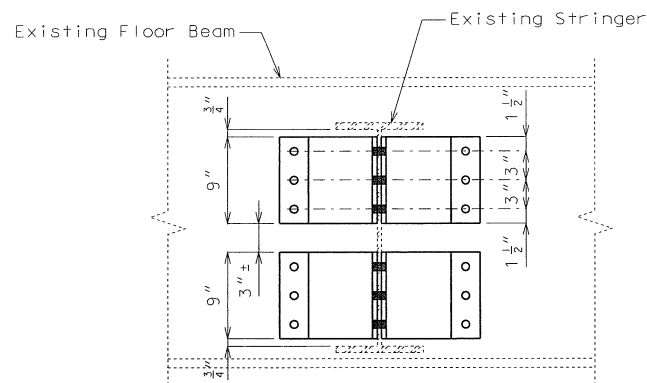


TYPICAL ELEVATION OF FLOOR BEAM THRU EXTERIOR STRINGER
(REPAIR "G")



TYPICAL ELEVATION OF FLOOR BEAM THRU EXTERIOR STRINGER
(REPAIR "I")

Note:
Existing clip angles not shown for clarity.



TYPICAL ELEVATION OF FLOOR BEAM THRU INTERIOR STRINGER
(REPAIR "H")

Notes:

All bolts shall be 3/4" H.S. with 13/16" holes.

Crack repair shall not be performed under live load directly over repair.

Cost of crack repairs including dye test will be considered completely covered by the contract unit price for Fatigue Crack Repair.

The cost of furnishing, fabricating and installing one set of 8 connection plates with high strength bolts will be completely covered by the contract unit price for the appropriate stringer clip angle repair.

DETAILS OF STRINGER CLIP ANGLE REPAIR

STATE OF MISSOURI
RAYMOND J. JANSEN
NUMBER PE-16126
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 12/3/2008
ROUTE 47 STATE MO
DISTRICT BR SHEET NO. 13
COUNTY FRANKLIN-WARREN
JOB NO. J6P2158
CONTRACT ID.
PROJECT NO.
BRIDGE NO. K09692

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

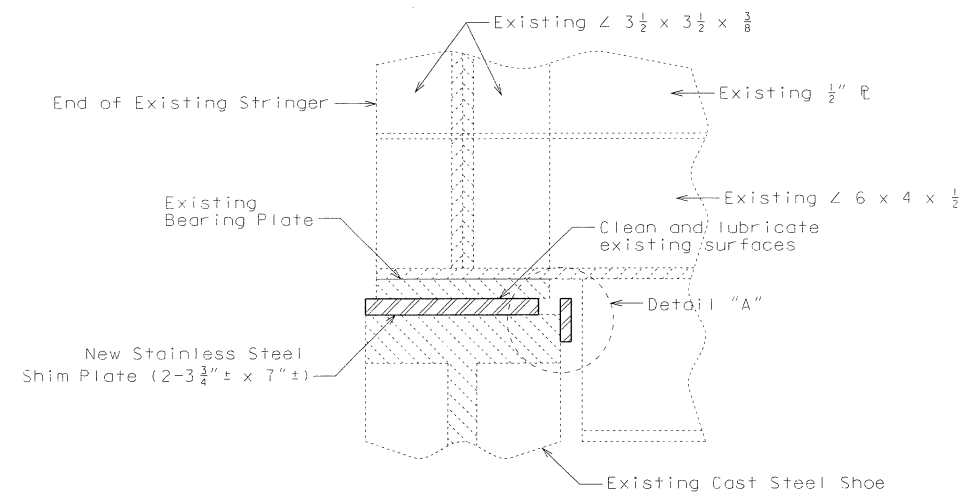


THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 12/3/2008	
ROUTE 47	STATE MO
DISTRICT BR	SHEET NO. 14
COUNTY FRANKLIN-WARREN	
JOB NO. J6P2158	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO. K09692	

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
 105 WEST CAPITOL
 JEFFERSON CITY, MO 65102
 1-888-ASK-MODOT (1-888-275-6636)



SECTION A-A
(Existing rivets not shown for clarity)

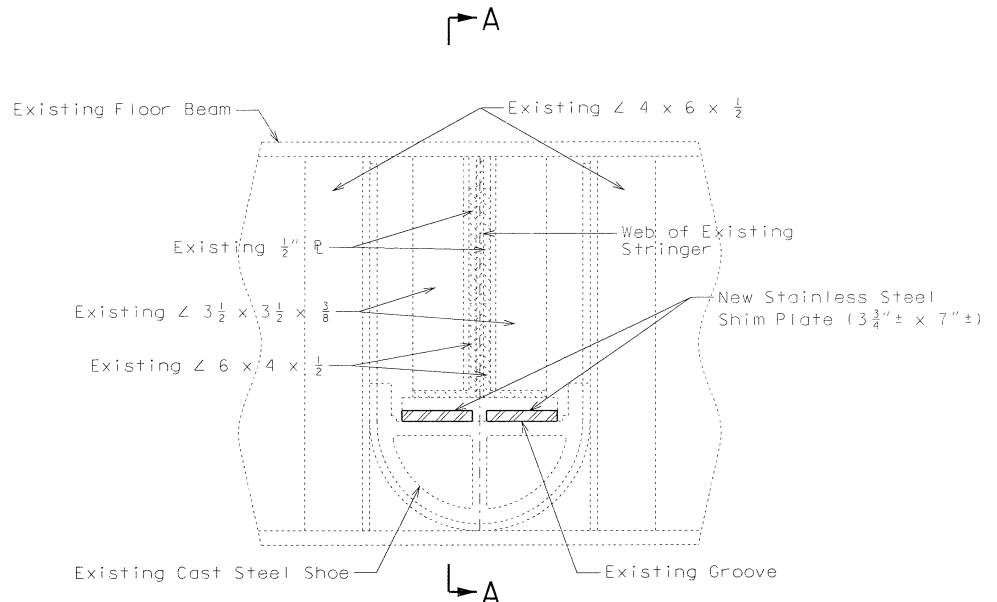
Notes:

Saddle bearings shall be cleaned, lubricated and recoated in accordance with plans prior to installation of shims. Cleaning using abrasives shall be done prior to installing shims.
 The gap between the existing top bearing plate and the existing cast steel shoe shall be measured with "feeler bars". Stainless steel shims shall be placed between the existing bearing plate and cast steel shoe as noted in the following table.

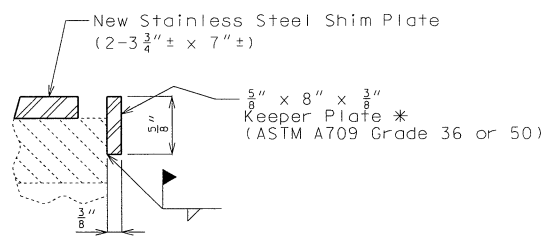
GAP	NUMBER OF 1/8" SHIMS	NUMBER OF 1/4" SHIMS	
< 1/8"	1	0	
1/8"	1	0	
3/16"	0	1	
1/4"	0	1	
5/16"	1	1	1/4" shim plate on top
3/8"	1	1	1/8" shim plate on bottom

SHIM TABLE FOR SADDLE BEARINGS

After the shims are in place, a keeper plate shall be welded to the face of the cast steel shoe as shown in Detail "A".
 The cost of furnishing, fabricating and installing the required shim plate(s) and one keeper plate per saddle bearing will be considered completely covered by the contract unit price for Shim Saddle Bearing per each.
 Payment for inspecting, cleaning, lubricating and resetting existing bearings will be considered completely covered by the contract unit price for Shim Saddle Bearing.



ELEVATION OF SADDLE BEARING WITH SHIM
 (3 each @ L8, L19, L34, L34', L19' and L8')
 (Keeper plate not shown for clarity)
 (Existing rivets not shown for clarity)
 (Bottom flange of existing stringer not shown for clarity)



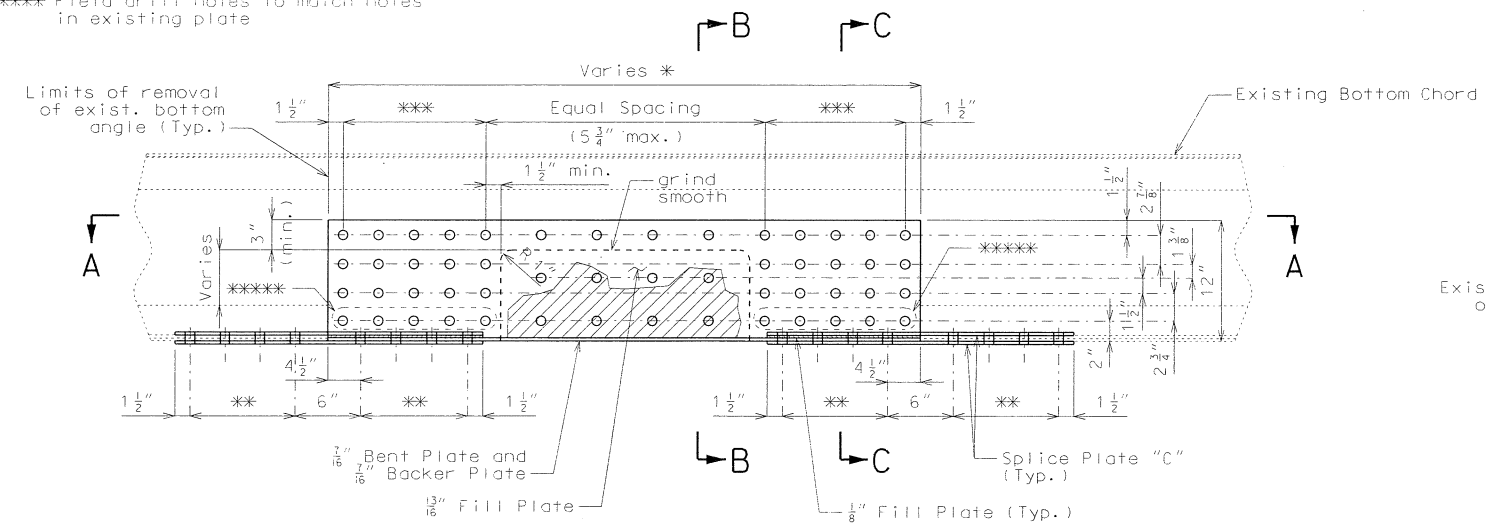
Detail "A"

* The keeper plate shall set approximately 1/16" below the top of the req'd shim plate(s).

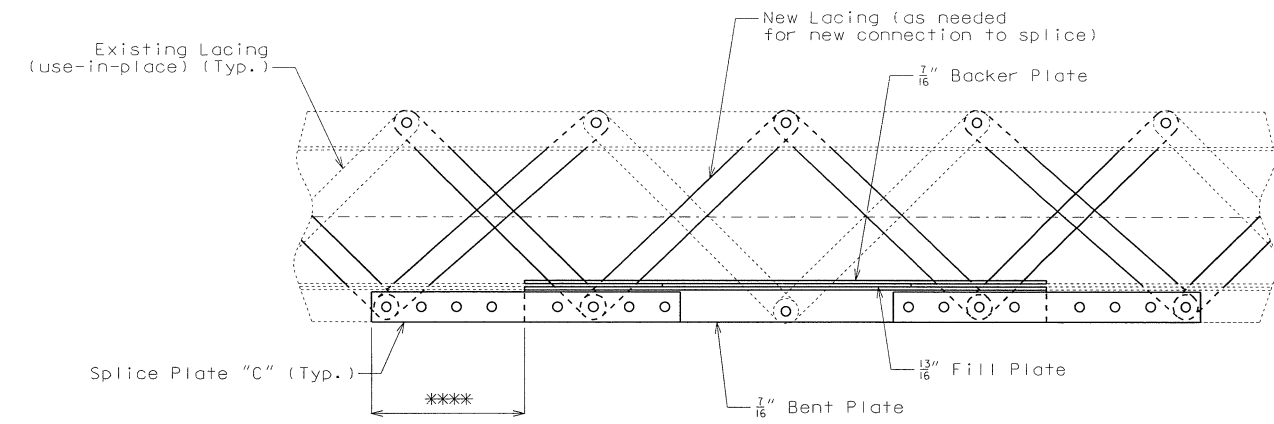
DETAILS OF SADDLE BEARING SHIMS AT L8, L19, L34, L34', L19' AND L8'

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

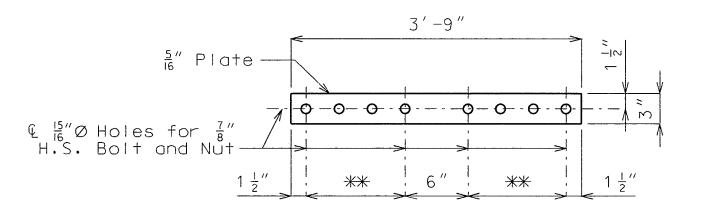
** 3 Spaces @ 6" ±
 *** 4 Spaces @ 6" ±
 ***** Field drill holes to match holes in existing plate



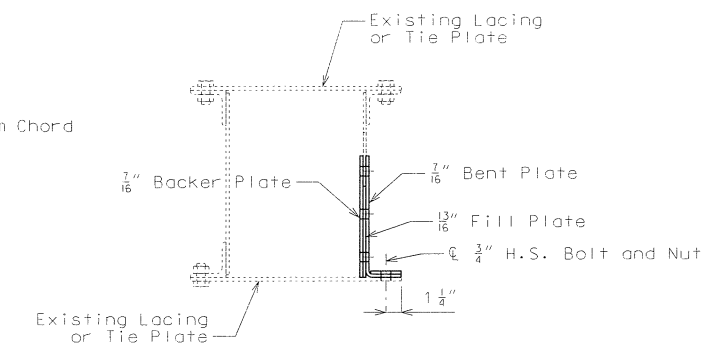
PART ELEVATION OF TYPICAL REPAIR AREA
 (Existing lacing not shown for clarity)



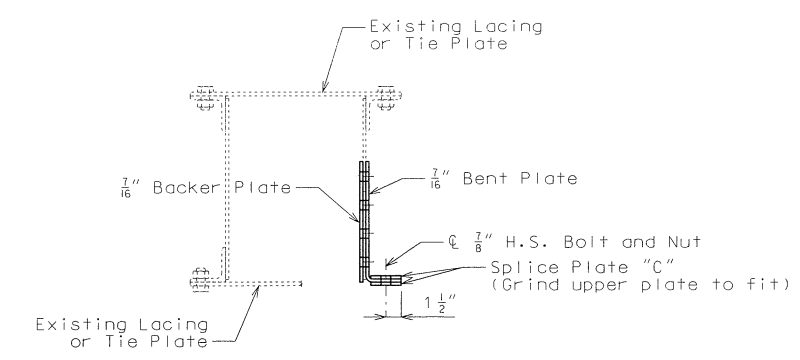
SECTION A-A



SPLICE PLATE "C"
 (4 req'd. for each repair area)



SECTION B-B



SECTION C-C

Notes:

The existing lacing or tie plates shall be cleaned and coated in accordance with the job special provisions prior to the installation of the new plates. Match existing hole locations in existing lacing or tie plates.

Replace rivets with H.S. bolts. All bolts shall be $\frac{7}{8}$ " \varnothing with $\frac{15}{16}$ " \varnothing holes, except for lacing bolts outside of the splice plate, which shall be $\frac{3}{4}$ " \varnothing with $\frac{13}{16}$ " \varnothing holes. See Special Provisions for Rivet Replacement.

The cost of furnishing, fabricating and installing one set of plates with high strength bolts will be completely covered by the contract unit price for Partial Removal and Repair of Lower Chord (Repair "F").

* Length of repair plates shall be increased beyond need of replacement so that lacing plates shall be reconnected approximately at their original locations.

***** Length of plate and spacing of bolts may vary to provide clearance of rivets in vertical leg of existing angle and to accommodate reconnecting lacing plates at their original locations. The minimum edge distance shall be 1-1/2". The maximum edge distance shall be 2-1/2". The minimum bolt spacing shall be 2-5/8". The maximum bolt spacing shall be 5-1/4".

Accepted repairs of the lower chord will be measured for payment to the nearest linear foot of length along the axis of the lower chord for all repair areas. Measurement will be between the limits of removal of the existing bottom angle.

DETAILS OF PARTIAL REMOVAL AND REPAIR OF LOWER CHORD BETWEEN L4-L6 AND L6'-L4'

STATE OF MISSOURI
 RAYMOND J. JANSEN
 NUMBER PE-16126
 PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

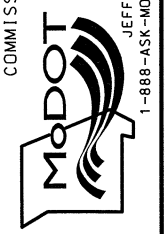
DATE PREPARED: 12/3/2008

ROUTE 47	STATE MO
DISTRICT BR	SHEET NO. 17

COUNTY: FRANKLIN-WARREN
 JOB NO.: J6P2158
 CONTRACT ID.:
 PROJECT NO.:
 BRIDGE NO.: K09692

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION


 105 WEST CAPITOL
 JEFFERSON CITY, MO 65102
 1-888-ASK-MODOT (1-888-275-6636)

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MEMORANDUM
Missouri Department of Transportation
Bridge Division
Central Office

TO: Tim Hellebusch – d6

CC/ATT: Ed Hassinger - 6
Dave Alvers – cm
Kent Nelson - br
John Gahagan- br
Chad Daniel – br
Dale Henderson – br

FROM: Raymond J. Jansen, P.E.
Structural Project Manager

A handwritten signature in black ink that reads "Ray J". The signature is written in a cursive, flowing style.

DATE: August 25, 2009

SUBJECT: Bridge
Bridge No. K09692, Change Order #1
Job No. J6P2158, Route 47, Franklin-Warren County

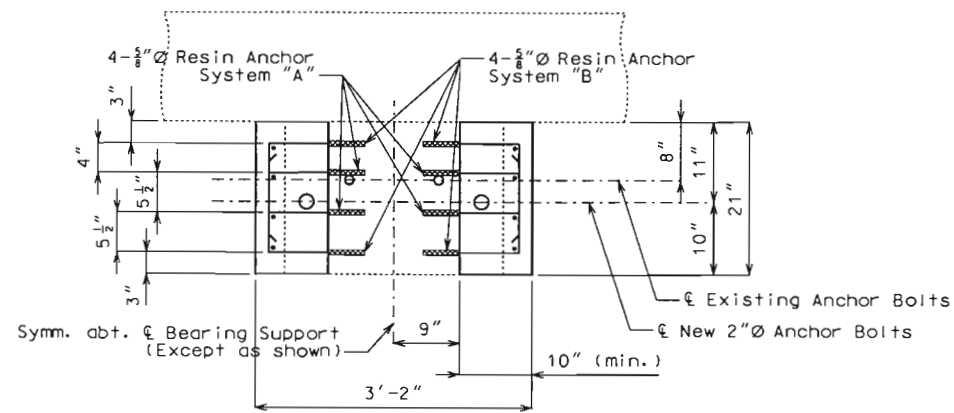
Attached are six sets of half-sized prints of revised sheets 6A and 11A for this bridge, which was let in January of 2009. Sheets 6A and 11A have been added to detail added work that needed to be done while contract work was in progress for this project.

This change order (sheet 6A) details repair work at the two bearing seat locations at abutment 1 that is necessary due to deteriorated concrete conditions, and the addition of bearing stiffeners in the girders at abutments 1 and 10 that became necessary to relocate the centerline of bearing due to replacing the bearing assemblies. And, sheet 11A details added repairs for some of the lower chords that were not addressed in the original plans. This change order documents previous discussions via David Wiles and working sketches that have been furnished previously to expedite the work to be done in a timely manner, considering the completion time restraints.

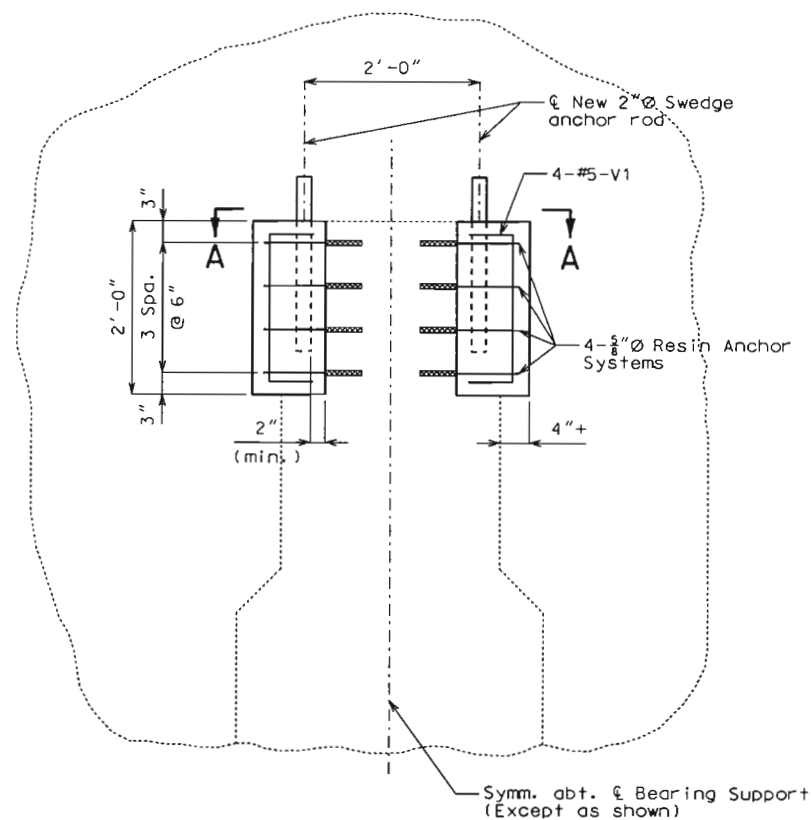
Payment for this work will need to be by agreed prices or some other method since this work was not anticipated in the original plans.

If you have any questions or comments, please do not hesitate to call me at (573) 526-0247.

rjj
Attachments
J:\janser\J6P2158\ChgOrd\J6P2158K0969201.doc

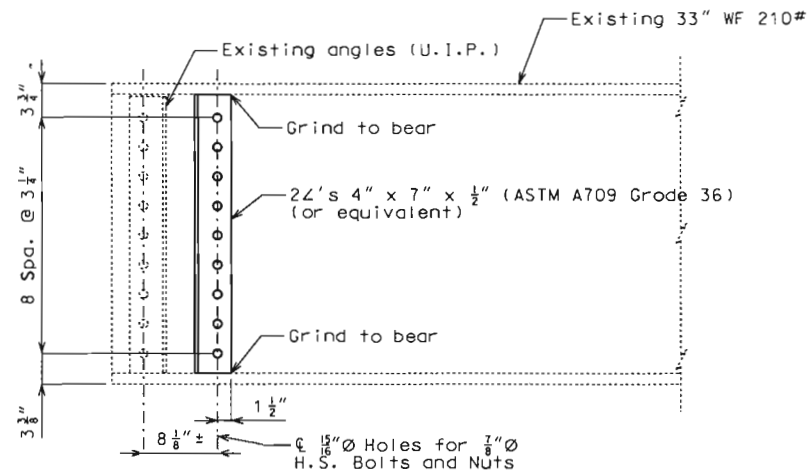


PART SECTION A-A



TYPICAL PART ELEVATION OF BEARING SUPPORT AT ABUTMENT 1 SHOWING MODIFICATION TO BEARING SEAT FOR NEW BEARING INSTALLATION

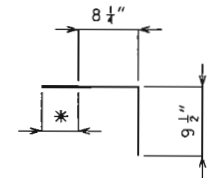
DETAILS OF ABUTMENT 1 BEARING SEAT REPAIR



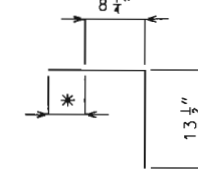
TYPICAL PART ELEVATION OF STRINGER SHOWING NEW STIFFENER INSTALLATION

(Bearing not shown for clarity)

Note:
Stiffeners to be added at Bent No. 10 also.



RESIN ANCHOR SYSTEM "A"
(32 Req'd.)

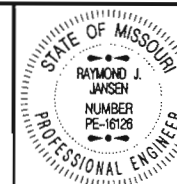


RESIN ANCHOR SYSTEM "B"
(32 Req'd.)

* Manufacturer's Recommended Embedment (5" min.)

Notes:
Cost of work and material to complete this repair for each bearing seat will be considered completely covered by an agreed lump sum price.
Cost of removing existing bearings, grout pad and anchor bolts shall be considered completely covered by the contract unit price for Removal of Existing Bearings and Anchor Bolts.

BILL OF REINFORCING STEEL				
NO.	SIZE & MARK	ACTUAL LENGTH	SHAPE	BENDING DIAGRAM
16	5 V1	2'-7"	10	
				SHAPE 10



THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED
8/25/2009

ROUTE 47 STATE MO

DISTRICT BR SHEET NO. 6A

COUNTY FRANKLIN-WARREN

JOB NO. J6P2158

CONTRACT ID.

PROJECT NO.

BRIDGE NO. K09692

DESCRIPTION

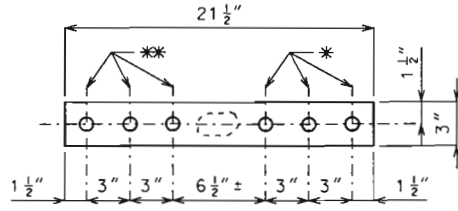
DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

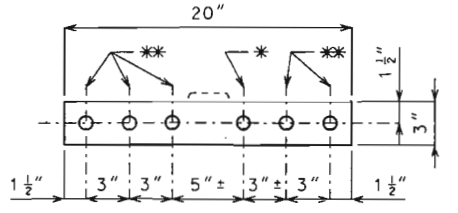


105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

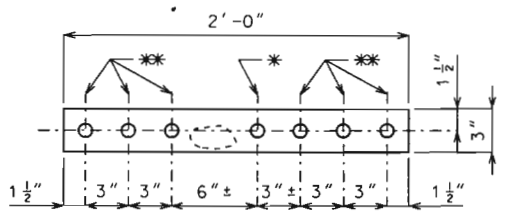
IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.



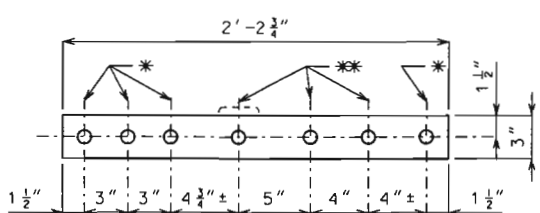
L3-L2 E



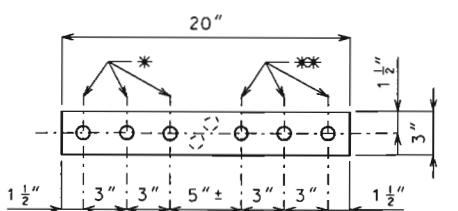
L0-L1 W



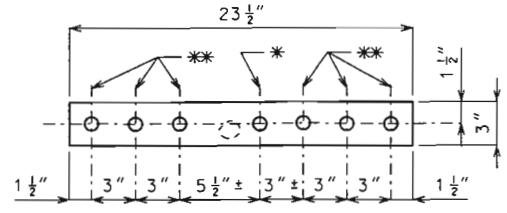
L2'-L1' W



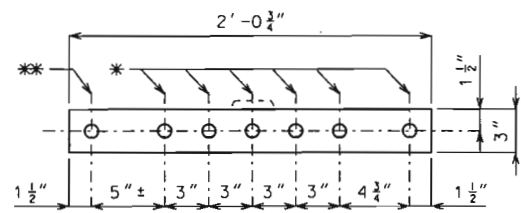
L1'-L2' E Near L1'



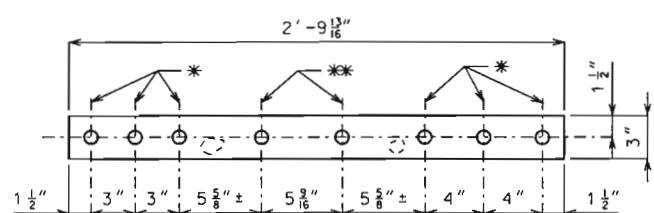
L3-L4 W



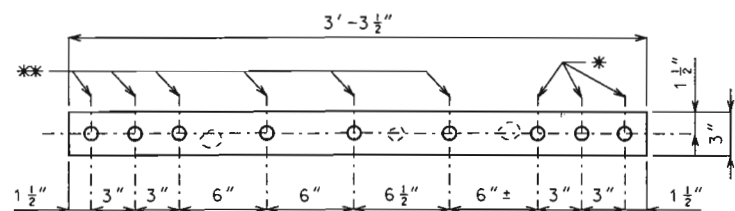
L0'-L1' E



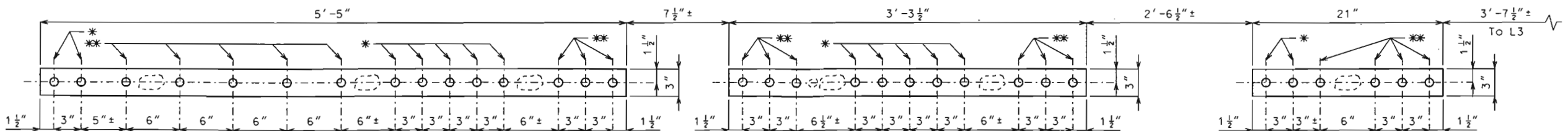
L2'-L1' W Near L1'



L1'-L2' E Near L2'

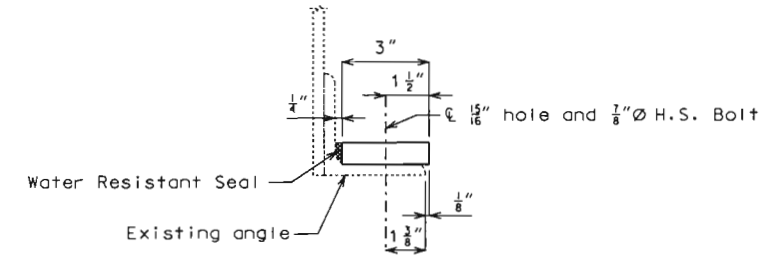


L3-L4 W



L4-L3 E

* Field Drilled (Field drill holes in new plate to match holes in existing angles.)
 ** Shop Drilled (Field drill holes in existing angles to match shop drilled holes in new plate.)



Notes:
 All plate shall be 3" x 3/4".
 All holes shall be 15/16" Ø for 1/2" Ø H.S. Bolts and Nuts.
 Holes in existing angles on bottom chords may need to be drilled to 15/16" Ø to accommodate 1/2" Ø H.S. Bolts.
 To aid in location of plates, the location of deterioration in the existing angles and web is shown with light dashed lines.



THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 8/25/2009

ROUTE 47 STATE MO

DISTRICT BR SHEET NO. 11A

COUNTY FRANKLIN-WARREN

JOB NO. J6P2158

CONTRACT ID.

PROJECT NO.

BRIDGE NO. K09692

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION



DETAILS OF STRUCTURAL STEEL REPAIR OF BOTTOM INSIDE ANGLE OF BOTTOM CHORD

Detailed Aug. 2009
 Checked Aug. 2009

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

Sheet No. 11A of 18

Sheet Added 8/25/09

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