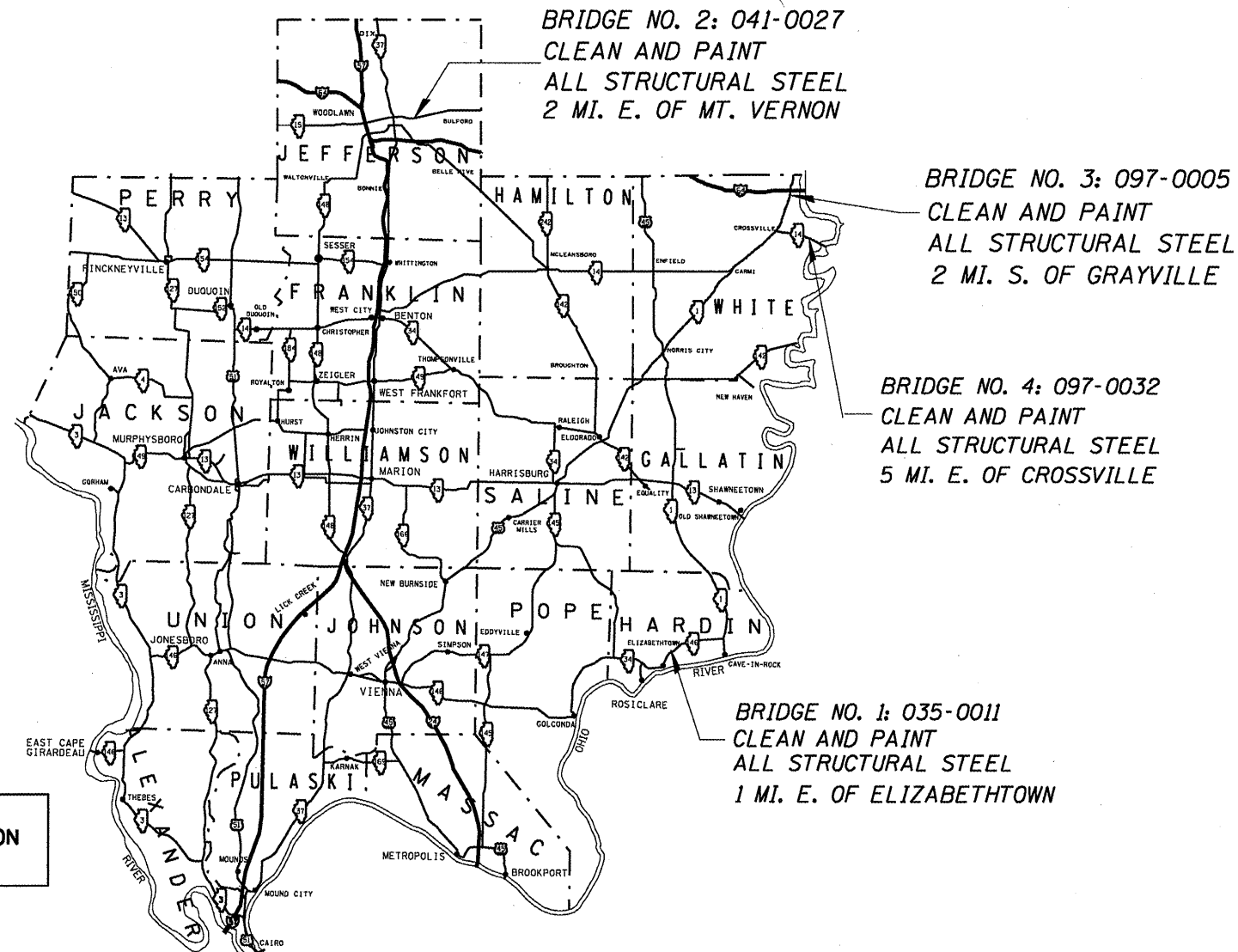
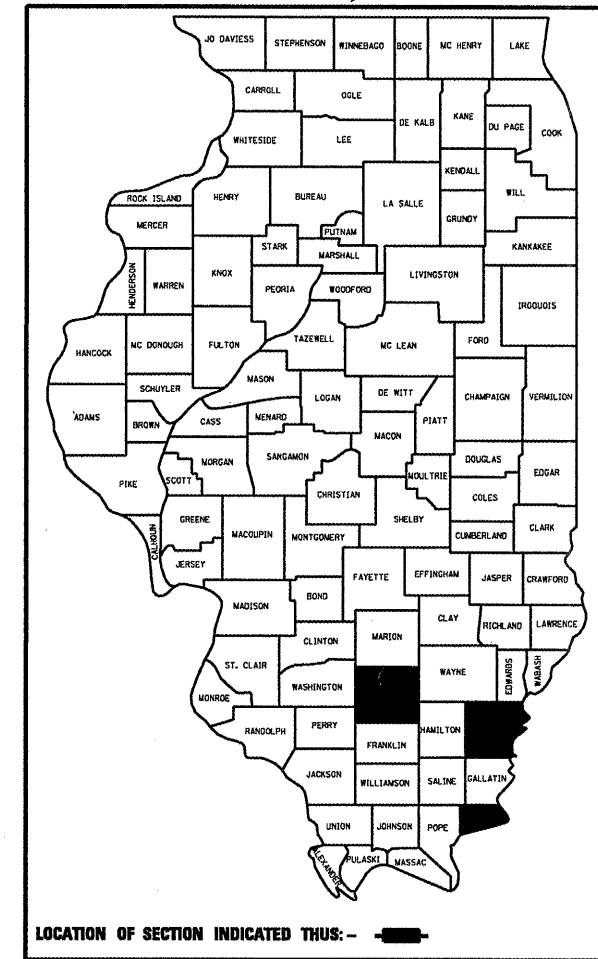


FOR INDEX OF SHEETS, SEE SHEET NO. 2.  
FOR SUMMARY OF QUANTITIES, SEE SHEET NO. 4.

**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**  
**DIVISION OF HIGHWAYS**  
**PROPOSED**  
**HIGHWAY PLANS**  
**VARIOUS ROUTES**  
**SECTION D9 BRIDGE PAINTING FY 09-1**  
**HARDIN, JEFFERSON & WHITE COUNTIES**  
**C-99-003-09**

RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR.	*	**	31	1

\*D9 BRIDGE PAINTING FY 09-1  
CONTRACT NO. 78093  
*Hardin, Jefferson, White*



J.U.L.I.E.  
JOINT UTILITY LOCATION INFORMATION FOR EXCAVATION  
1-800-892-0123 or [www.julie1call.com](http://www.julie1call.com)

**CONTRACT NO. 78093**

**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**  
**DIVISION OF HIGHWAYS**

SUBMITTED 9/13 2008  
*Mary C. Lami*  
DEPUTY DIRECTOR OF HIGHWAYS, REGION ENGINEER

October 3, 2008  
*Eric E. Harm*  
Interim ENGINEER OF DESIGN AND ENVIRONMENT

October 3, 2008  
*Christine M. Reed*  
DIRECTOR OF HIGHWAYS, CHIEF ENGINEER

**PRINTED BY THE AUTHORITY**  
**OF THE STATE OF ILLINOIS**

*Rev.*

PROJECT ENGINEER: CASEY TECKENBROCK PHONE: (618) 549-2171  
SQUAD LEADER: RITA GAUTNEY

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR.	.	VARIOUS	31	2

\*09 BRIDGE PAINTING FY 09-1  
CONTRACT NO. 78093

INDEX OF SHEETS

<u>SHEET NO.</u>	<u>DESCRIPTION</u>
1	COVER SHEET
2	INDEX OF SHEETS, STANDARDS, SIGNATURES
3	GENERAL NOTES
4	SUMMARY OF QUANTITIES
5	HARDIN COUNTY STRUCTURES
6	035-0011 GENERAL PLAN AND ELEVATION
7-12	035-0011 STRUCTURAL STEEL FOR INFORMATION ONLY
13	JOHNSON COUNTY STRUCTURES
14	044-0027 GENERAL PLAN AND ELEVATION
15-19	044-0027 STRUCTURAL STEEL FOR INFORMATION ONLY
20	WHITE COUNTY STRUCTURES
21	097-0005 GENERAL PLAN AND ELEVATION
22-24	097-0005 STRUCTURAL STEEL FOR INFORMATION ONLY
25	097-0032 GENERAL PLAN AND ELEVATION
26-31	097-0032 STRUCTURAL STEEL FOR INFORMATION ONLY

STANDARDS

701201-03	LANE CLOSURE, 2L, 2W, DAY ONLY, FOR SPEEDS >= 45 MPH
701901-01	TRAFFIC CONTROL DEVICES

Approved:	<u>Aug 13</u> 20 <u>09</u>
DATE	<u>May Chami</u>
	DEPUTY DIRECTOR OF HIGHWAYS/REGION 5 ENGINEER
Prepared By:	<u>Kevin Hammer</u> DISTRICT OPERATIONS ENGINEER
Examined By:	<u>Danny Clayton</u> ASSISTANT REGIONAL ENGINEER
Examined By:	<u>Joshua Emery</u> DISTRICT LAND ACQUISITION ENGINEER
Examined By:	<u>Carrie Nelson</u> DISTRICT PROGRAM DEVELOPMENT ENGINEER
Examined By:	<u>Joe Zampieri</u> DISTRICT STUDIES & PLANS ENGINEER
Examined By:	<u>Jim Smothers</u> DISTRICT CONSTRUCTION ENGINEER
Examined By:	<u>Bruce Stubble</u> DISTRICT MATERIALS ENGINEER
Examined By:	<u>Jim Smothers</u> DISTRICT PROJECT IMPLEMENTATION ENGINEER

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR.	•	VARIOUS	31	3

\*09 BRIDGE PAINTING FY 09-1  
CONTRACT NO. 78093

## GENERAL NOTES

All structural steel shall be cleaned and painted on each structure. Cleaning and painting shall conform to the requirements of special provision "Cleaning And Painting Existing Steel Structures". Near White Metal Blast Cleaning - SSPC - SP10 and Paint System 1 - 0Z/E/U shall be used unless otherwise noted.

SSPC - QP1 and SSPC - QP2 Painting Contractor Certifications are required.

The color of the final finish coat on all structures shall be Gray, Munsell No. 5B 7/1.

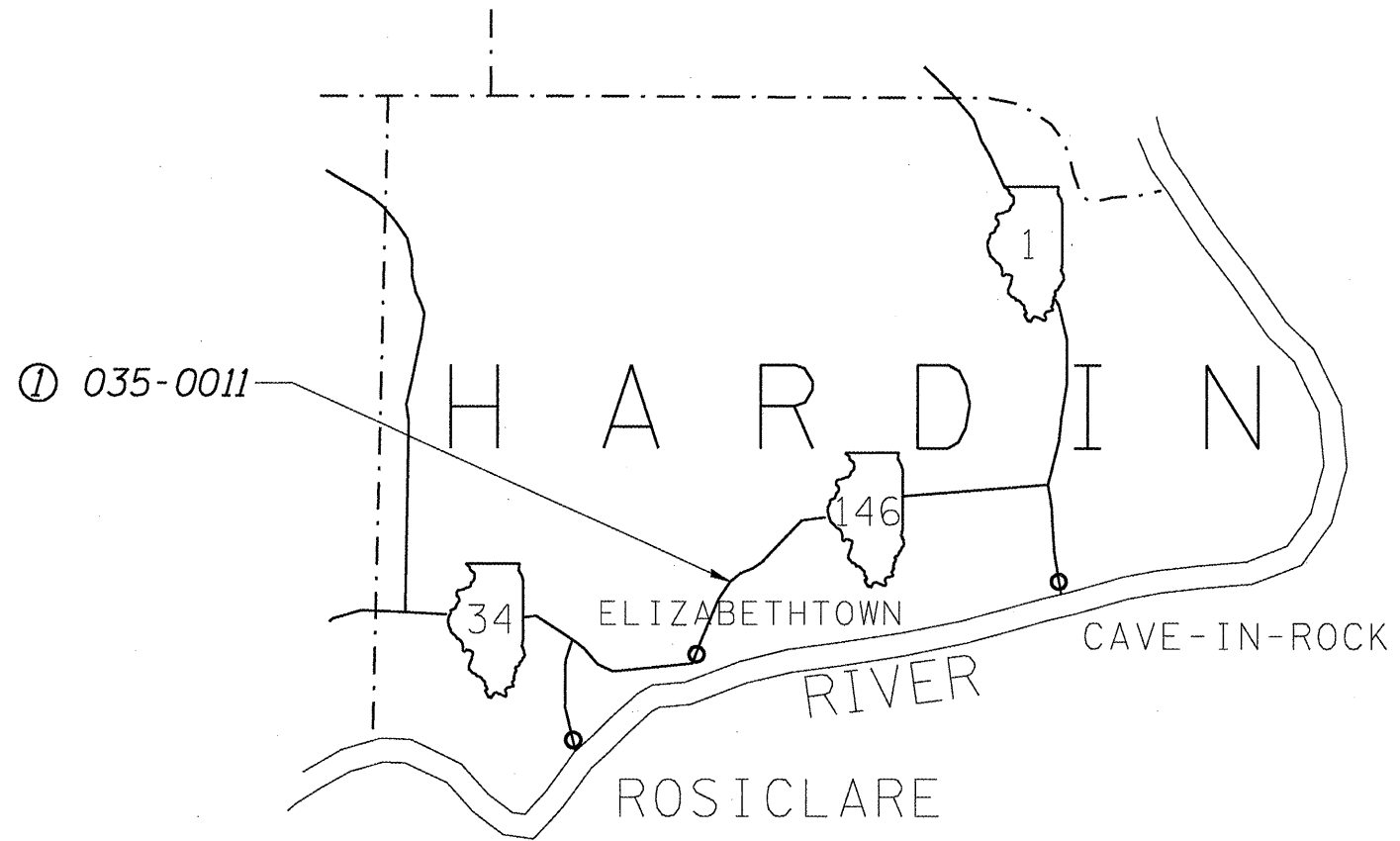
On Structure 041-0027 (Bridge No. 2), two fascia beams and associated diaphragms and appurtenances are new, with an existing inorganic zinc prime coat applied by others. See item (c) of special provision "Cleaning and Painting Existing Steel Structures."



STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR.	*	VARIOUS	31	5

\* D9 BRIDGE PAINTING FY 09-1  
CONTRACT NO. 78093



① 035-0011	<p>1 MILE EAST OF ELIZABETHTOWN ILL 146 OVER HOSICK CREEK LENGTH: 129.3 FT.      WIDTH: 33.8 FT. ADT = 2150, 6% TRUCKS POSTED SPEED = 55 M.P.H. INVENTORY RATING HS 21.8 OPERATING RATING HS 36.3</p>
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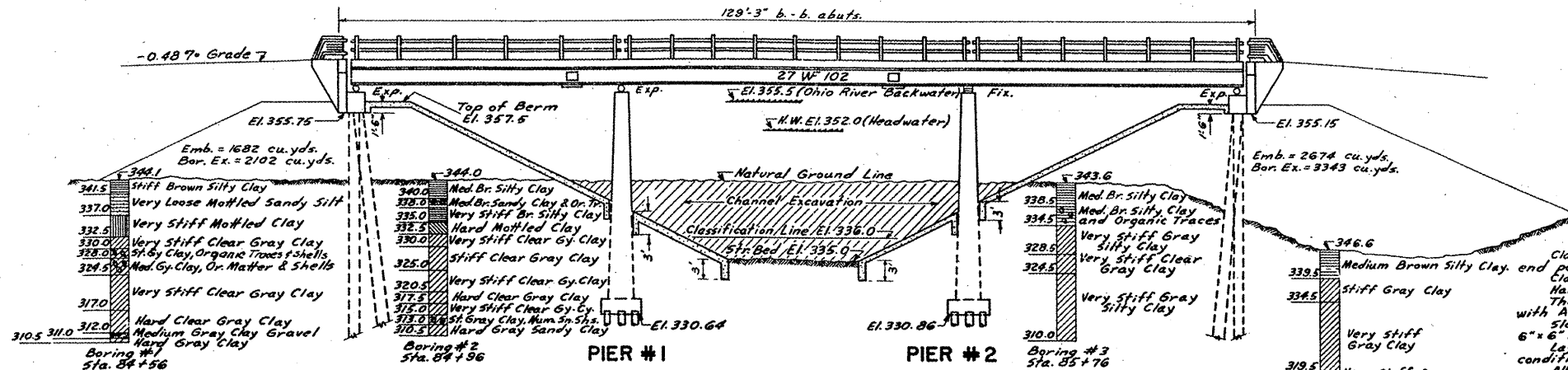
B.M. 5. & 2W. Roof 31' Pecan  
 120' Lt. Sta. 86+50 Elev. 344.18  
 Existing structure to remain in place.  
 Located approx. 1200' upstream from Proposed Bridge.

STATE OF ILLINOIS  
 DEPARTMENT OF PUBLIC WORKS & BUILDINGS  
 DIVISION OF HIGHWAYS

VARIOUS ROUTES  
 D9 BRIDGE PAINTING FY 09-1  
 VARIOUS COUNTIES  
 CONTRACT 78093  
 FOR INFORMATION ONLY  
 SHEET 6 OF 31

TYPICAL SECTION  
 BRANCH CHANNEL

TYPICAL SECTION  
 MAIN CHANNEL



ELEVATION  
 Scale 3/32" = 1'-0"

STATION 85+51.37  
 BUILT 195 BY  
 STATE OF ILLINOIS  
 F.A. RTE. 35 SEC. II-B-1  
 F.A. PROJ. F-610(5)  
 LOADING H20-S16

LETTERING FOR  
 NAME PLATE  
 See Std. 1882

GENERAL NOTES

Class X Concrete shall be used throughout except in rail end posts and in Piers.  
 Class A Concrete shall be used in Piers.  
 Handrail Concrete shall be used in Rail End Posts.  
 The Concrete Floor Slab shall be finished in accordance with Art. 51.18 (a) of the Std. Specs.  
 Slope Wall shall be reinforced with welded wire fabric 6"x6" mesh, #4 wires, weighing 50 #/100 sq. ft.  
 Layout of slope wall may be varied to suit ground conditions in the field as directed by the Engineer.  
 All rivets shall be 3/8", open holes 1/8", unless otherwise noted.  
 All field connections shall be riveted.  
 Railings shall be adjusted to true alignment after curbs have been poured.  
 All rollers, rockers, bearing plates, lead plates, pintles, and anchor bolts shall be fabricated and set in accordance with Art. 54.14 of the Std. Specs. and are included for payment as Structural Steel.  
 Anchor bolts shall be set before riveting diaphragms over supports.  
 Expansion Guards are included for payment as Structural Steel.  
 Except as otherwise provided, all Structural Steel shall receive one shop coat of red lead paint and two field coats of aluminum paint. See Art. 57.1 to 57.5 inclusive of the Std. Specs.  
 All paint shall be furnished and applied by the Contractor.  
 The Contractor shall drive one Precast Concrete Test Pile in a permanent location as directed by the Engineer before casting the remainder of the Concrete Piles.  
 The Contractor shall drive one Timber Test Pile in a permanent location as directed by the Engineer before ordering the remainder of the Timber Piles. All Timber Piles shall be untreated. Boring Data are shown on the plans only as a guide to bidders in estimating soil conditions which may be encountered in the work.

TOTAL BILL OF MATERIAL

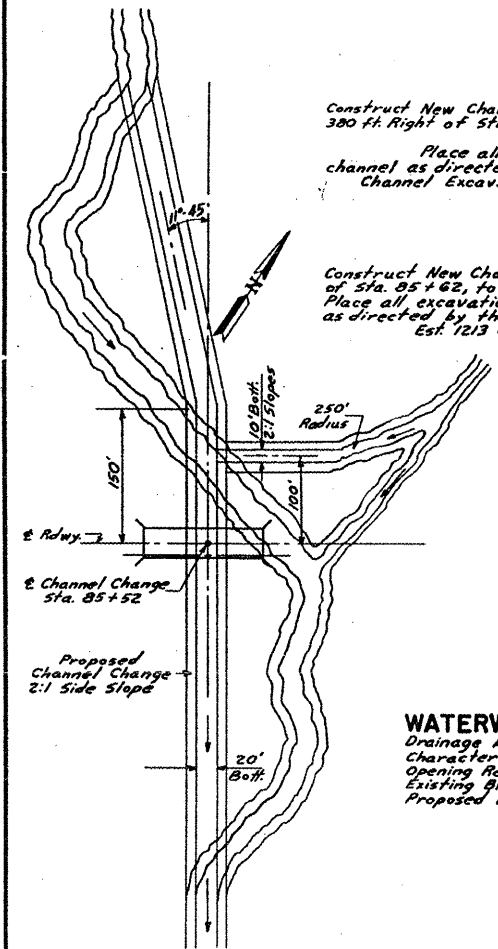
Item	Unit	Super	Abuts.	Piers	Total
Class X Concrete	cu. yd.	116.7	44.5		161.2
Class A Concrete	cu. yd.			288.2	288.2
Handrail Concrete	cu. yd.			1.6	1.6
Reinforcement Bars	lb.	18,790	3,440	9,960	32,190
Structural Steel	lb.	100,020			100,020
Metal Handrail	lin. ft.	256.83			256.83
Name Plate	ea.				1
Concrete Slope Wall	sq. yd.				1630
Channel Excavation	cu. yd.				12,093
Precast Concrete Piles (40 lb.)	lin. ft.		440		440
Precast Concrete Test Piles	ea.		1		1
Untreated Timber Piles (16 lb.)	lin. ft.			1120	1120
Untreated Timber Test Piles	ea.			1	1
Class A Excavation for Struct	cu. yd.			240	240
Class B Excavation for Struct	cu. yd.			210	210
Borrow Excavation	cu. yd.		5445		5445

Construct New Channel 800 ft Left and 300 ft Right of Sta. 85+52.

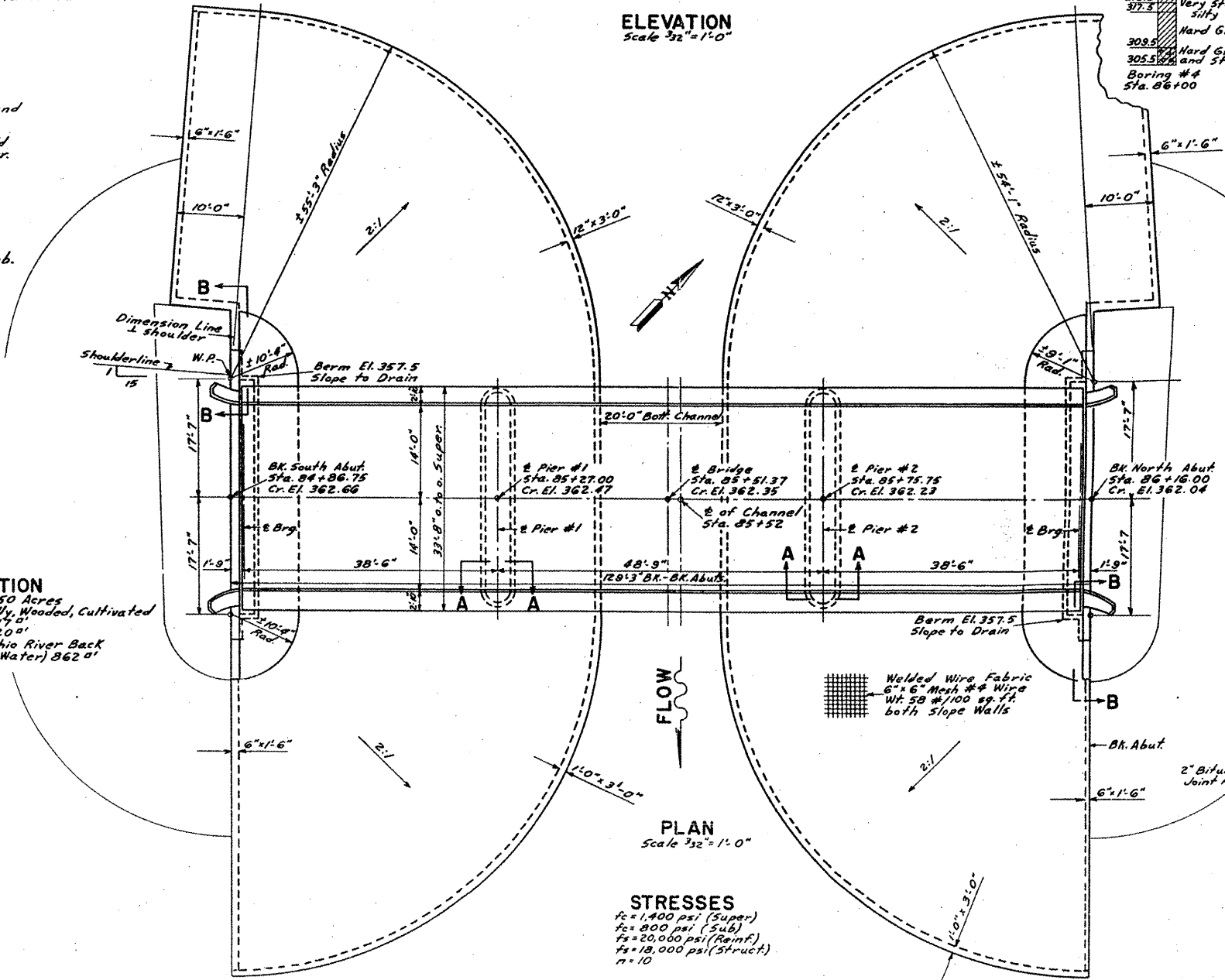
Place all excavation in old channel as directed by the Engineer. Channel Excav. Est. 10,880 c.y.

Construct New Channel 100 ft left of Sta. 85+62, to Sta. 88+50. Place all excavation in adj. road emb. as directed by the Engineer. Est. 1213 c.y.

**WATERWAY INFORMATION**  
 Drainage Area --- 1750 Acres  
 Character --- Nilly, Wooded, Cultivated  
 Opening Reg. of (Cr. & Talbot) --- 217 ft  
 Existing Bridge Opening --- 220 ft  
 Proposed Bridge Opening --- (Ohio River Back Water) 362 ft

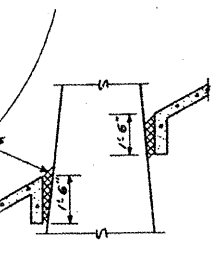


CHANNEL CHANGE LAYOUT

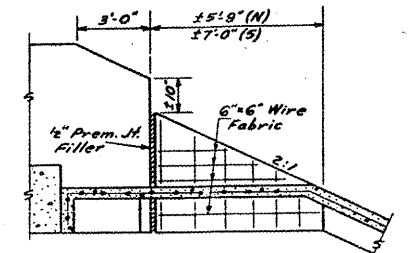


PLAN  
 Scale 3/32" = 1'-0"

**STRESSES**  
 f<sub>c</sub> = 1,400 psi (Super)  
 f<sub>c</sub> = 800 psi (Sub)  
 f<sub>s</sub> = 20,000 psi (Reinf.)  
 f<sub>s</sub> = 18,000 psi (Struct.)  
 n = 10



SECTION A-A



SECTION B-B

DESIGNED *P.A. Sandoral*  
 CHECKED *James J. Hanning*  
 DRAWN *W.A. Sausaman, Jr.*  
 CHECKED *James J. Hanning*

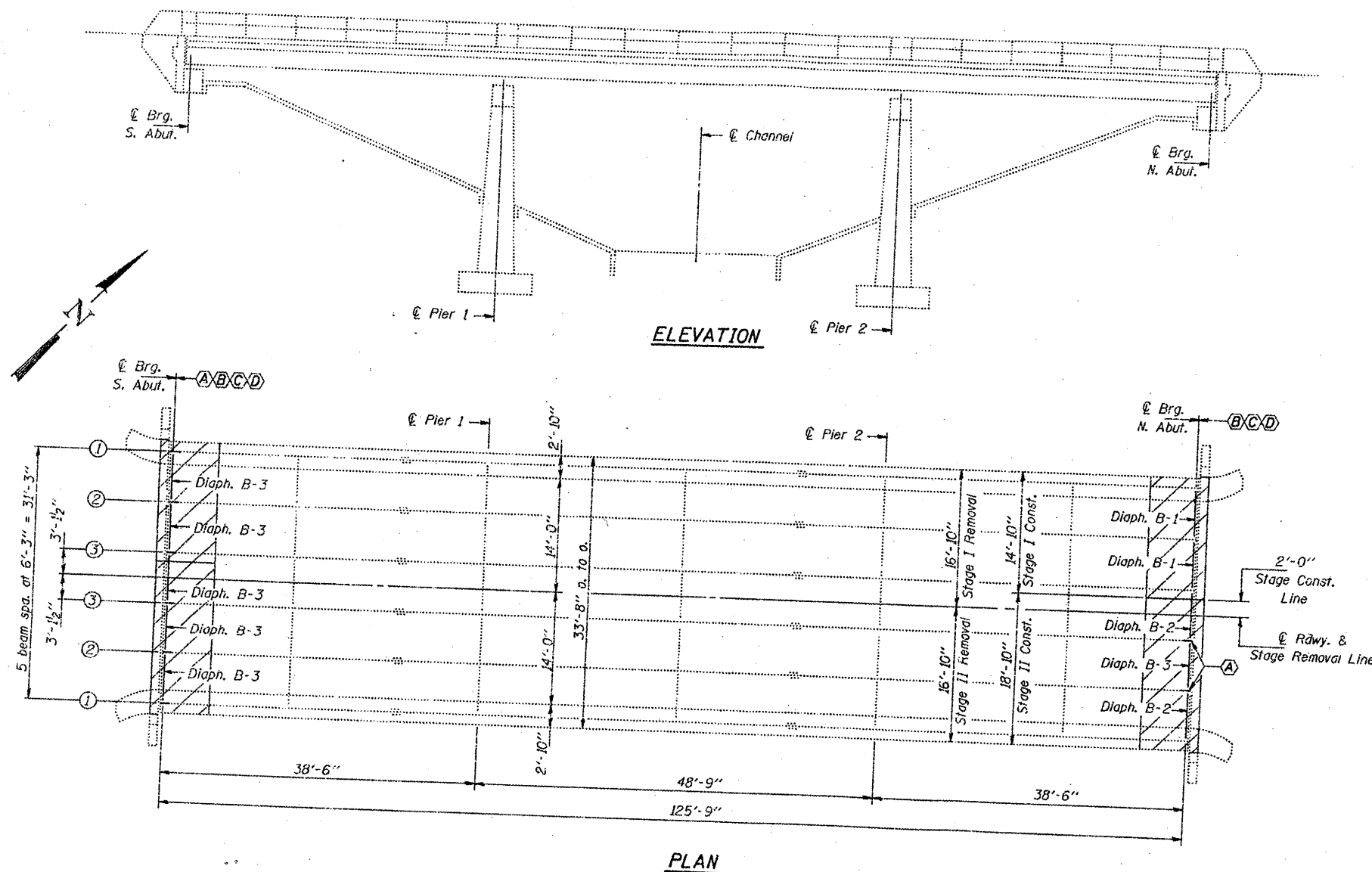
EXAMINED *W. Johnson*  
 PASSED *E. Ch... ..*  
 APPROVED *F. N. Barker*

Nov. 24 1952

BRIDGE NO. 1  
 BRIDGE OVER HOSICK CREEK  
 F.A. RTE. 35 SEC. II-B-1  
 HARDIN COUNTY  
 STA. 85+51.37

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

VARIOUS ROUTES  
D9 BRIDGE PAINTING FY 09-1  
VARIOUS COUNTIES  
CONTRACT 78093  
FOR INFORMATION ONLY  
SHEET 7 OF 31



**GENERAL NOTES**

All new structural steel shall conform to AASHTO Classification M-270 Gr. 36. All new fasteners shall be high strength bolts. Holes shall be subpunched or subdrilled  $\frac{1}{16}$ " and reamed in the field to  $\frac{1}{16}$ " for  $\frac{3}{4}$ " high strength bolts (except as noted on the plans) after new structural steel sections are properly fitted into position.

Reinforcement bars shall conform to the requirements of AASHTO M-31, M-42 or M-53 Grade 60.

Prior to pouring the new concrete for the deck, all loose rust, loose mill scale, and all other foreign material shall be removed from the embedded portions of flanges of beams. The removal shall be accomplished in accordance with the requirements of the SSPC Surface Preparation Specifications SP3 for Power Tool Cleaning or SP2 for Hand Tool Cleaning. Cost shall be incidental to Concrete Removal.

The Contractor will be required to mark, on the top of the concrete deck, the location of the top flange of the steel beams prior to any removal of the concrete bridge deck. Saw cutting directly over the top of the beam is not permitted.

Any reinforcement bars that are damaged during concrete removal shall be replaced with an approved bar splicer or anchorage system. Cost incidental to "Concrete Removal".

Plan dimensions and details relative to existing structure have been taken from existing plans and are subject to nominal construction variations. It shall be the Contractor's responsibility to verify such dimensions and details in the field and make necessary approved adjustments prior to construction or ordering of materials. Such variations shall not be cause for additional compensation for a change in the scope of the work, however, the Contractor will be paid for the quantity actually furnished at the unit price bid for the work.

Existing Structural steel shall only be cleaned and painted as required by the Special Provision "Cleaning and Painting Adjacent Areas of Existing Steel Structures".

The inorganic zinc-silicate/acrylic/acrylic paint system shall be used for shop and field painting of new structural steel except where otherwise noted. The color of the acrylic finish coat shall be Light Grey, Munsell No. 10Y 7/1. See Special Provisions.

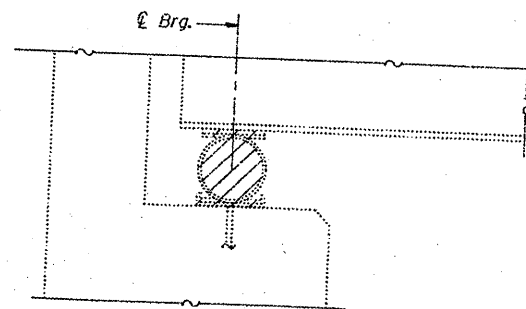
Removal of all damaged members necessary to complete the work as detailed on the plans and as specified in the Special Provisions shall be considered incidental to the contract.

Traffic control shall be determined by the District.

**TOTAL BILL OF MATERIAL**

ITEM	UNIT	QUANTITY
Concrete Removal	Cu. Yd.	15.2
Concrete Superstructure	Cu. Yd.	15.2
Furnishing and Erecting Structural Steel	Pound	7550
Elastomeric Bearing Assembly Type I	Each	6
Elastomeric Bearing Assembly Type II	Each	6
Jack and Remove Existing Bearings	Each	12
Reinforcement Bars, Epoxy Coated	Pound	2290
Traffic Control # Prot 2309	L.S.	1
Polymer Modified Portland Cement Mortar	Cu. Ft.	21
Stud Shear Connectors	Each	216

- Notes: (A) Existing Beam ends to be repaired.  
(B) Replace and diaphragms.  
(C) Remove and replace existing bearings.  
(D) Existing expansion joint to be removed and replaced.  
Cross-hatching indicates Concrete Removal.



Minimum jack capacity shall be 15 Tons.  
Before installing the new bearings, remove the top plate of the existing bearing assembly from the bottom flange using the air-arc method and grind smooth all weld material remaining on the bottom flange. Burn existing anchor bolts flush with existing concrete surfaces. Grind existing anchor bolt smooth and seal with epoxy. Cost is incidental to "Jack & Remove Existing Bearings".

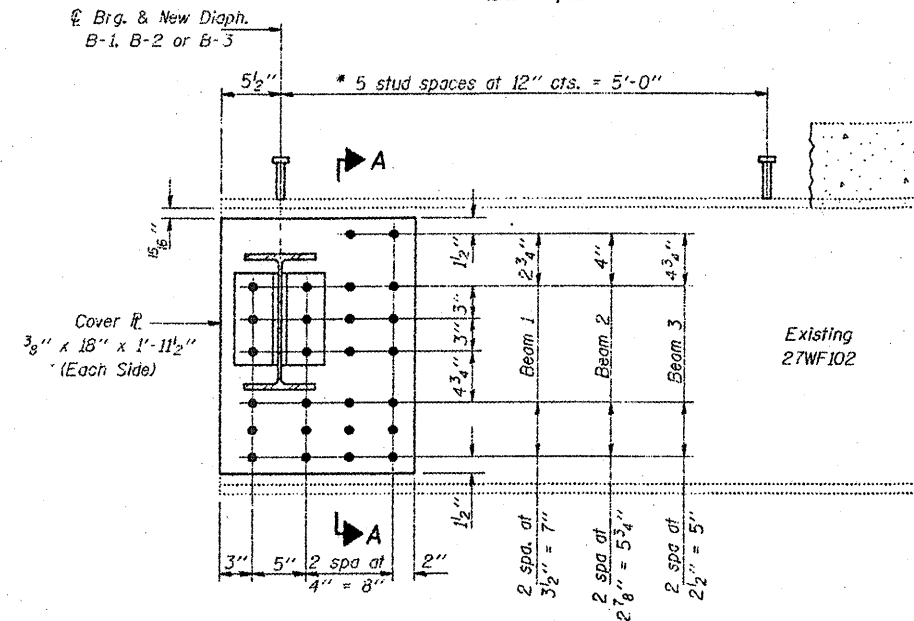
DESIGNED *Nicholas J. Lovell* DECEMBER 8 1994  
CHECKED *Kenneth P. Stutte* EXAMINED *James E. Adams*  
DRAWN *D. Herbert* PASSED  
CHECKED *NJS KPS* ENGINEER OF BRIDGES AND STRUCTURES

BRIDGE REPAIRS  
F.A. RTE. 35 (IL 146) SEC. 11-B-1  
OVER HOSICK CREEK  
HARDIN COUNTY  
S.N. 035-0011

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

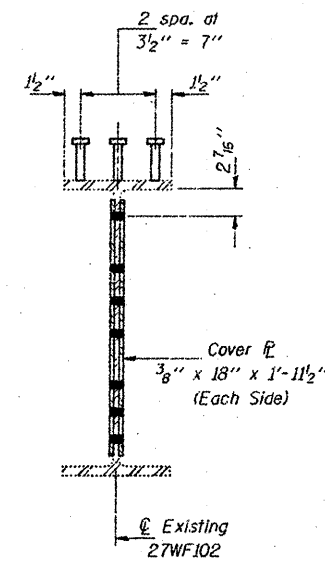
VARIOUS ROUTES  
D9 BRIDGE PAINTING FY 09-1  
VARIOUS COUNTIES  
CONTRACT 78093  
FOR INFORMATION ONLY  
SHEET 8 OF 31

\*  $\frac{3}{4}$ "  $\phi$  x 4" granular or solid flux filled headed studs automatically end welded in accordance with Art. 706.32 of the Std. Specs. (216 Req'd.)

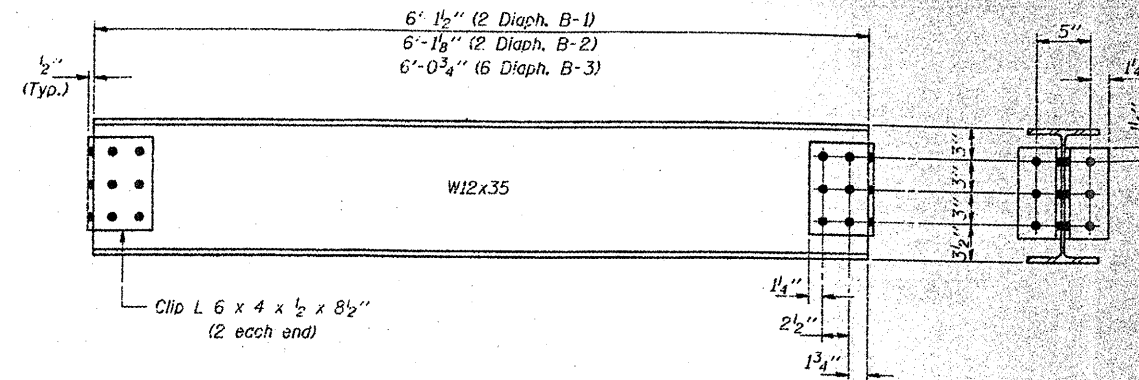


**ELEVATION  
BEAM END REPAIR**

**REPAIR A  
(8 Locations)**

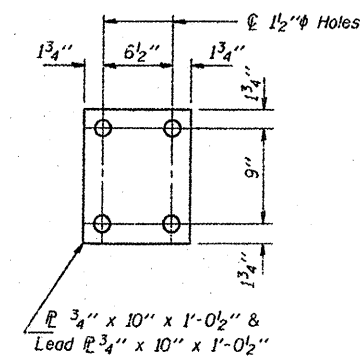


**SECTION A-A**



**REPLACEMENT DIAPHRAGMS  
(Number Req'd. = 10)**

**REPAIR B**



**ANCHOR P  
(Number Req'd. = 4)  
See Sheet 2 for location.**

DESIGNED	NJS	DECEMBER 8	1994
CHECKED	KPS	EXAMINED	<i>Joseph E. Adam</i> ENGINEER OF STRUCTURAL SERVICES
DRAWN	D-Herbert	PASSED	<i>[Signature]</i> ENGINEER OF BRIDGES AND STRUCTURES
CHECKED	NJS KPS		

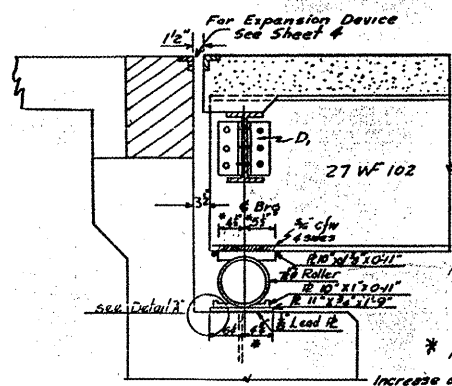
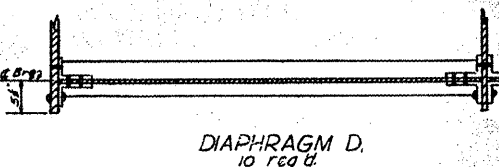
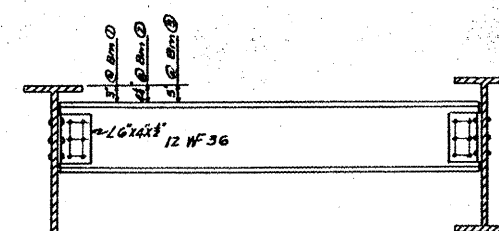
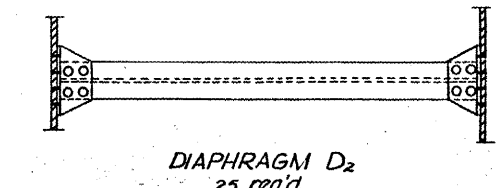
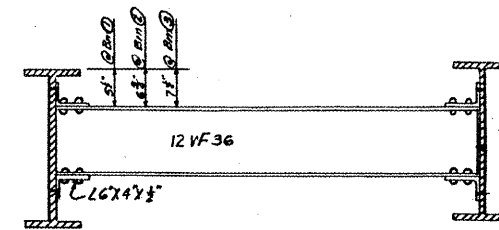
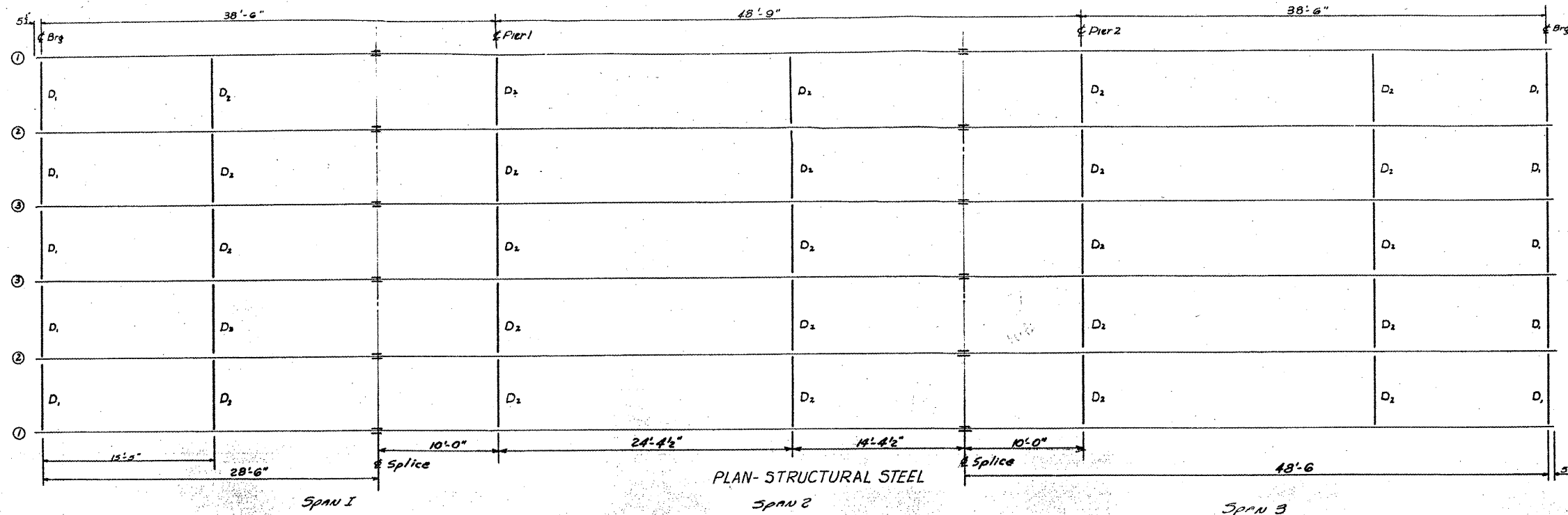
BRIDGE NO. 1

**BRIDGE REPAIRS  
STRUCTURAL STEEL DETAILS  
F.A. RTE. 35 (IL 146) SEC. 11-B-1  
HARDIN COUNTY  
S.N. 035-0011**

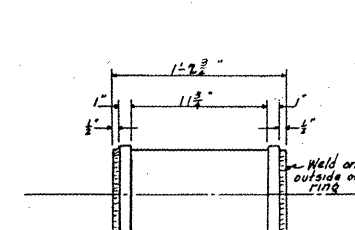
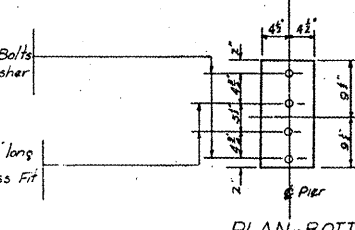
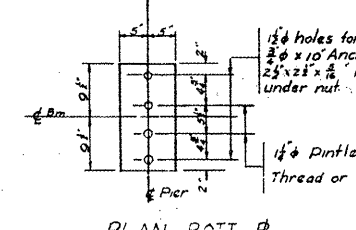
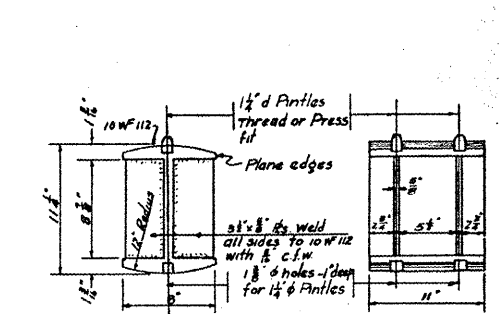
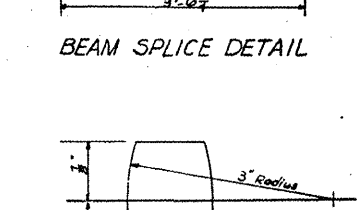
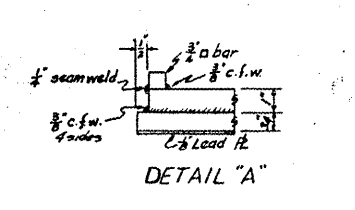
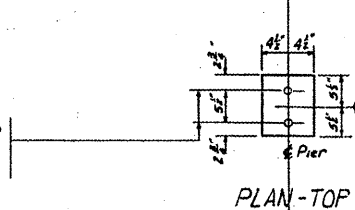
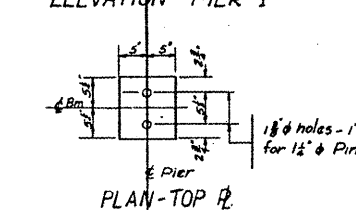
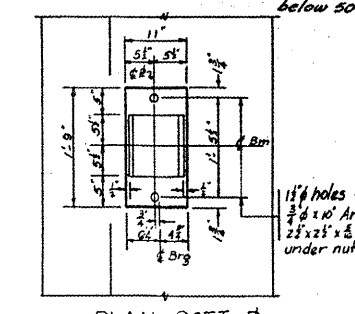
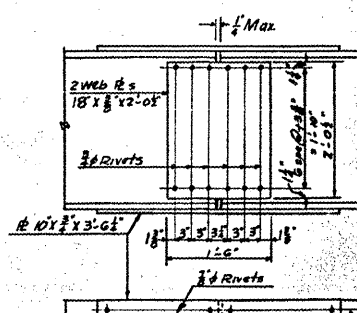
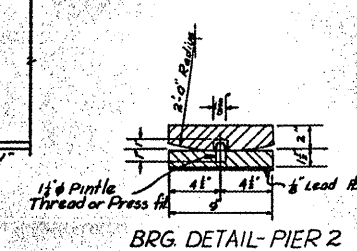
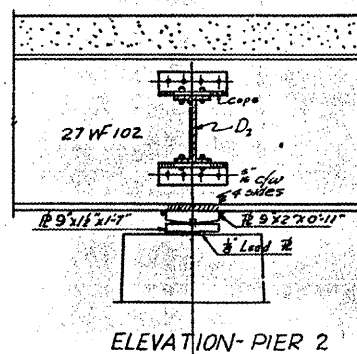
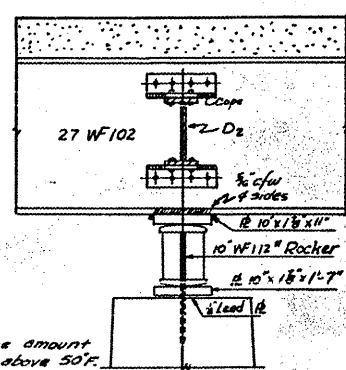


STATE OF ILLINOIS  
DEPARTMENT OF PUBLIC WORKS & BUILDINGS  
DIVISION OF HIGHWAYS

VARIOUS ROUTES  
D9 BRIDGE PAINTING FY 09-1  
VARIOUS COUNTIES  
CONTRACT 78093  
FOR INFORMATION ONLY  
SHEET 9 OF 31



\* NOTE TO ERECTOR  
Increase each dimension by same amount if Abut has moved or if temp. is above 50°F.  
Decrease each by same amt if temp. is below 50°F.



STRUCTURAL STEEL

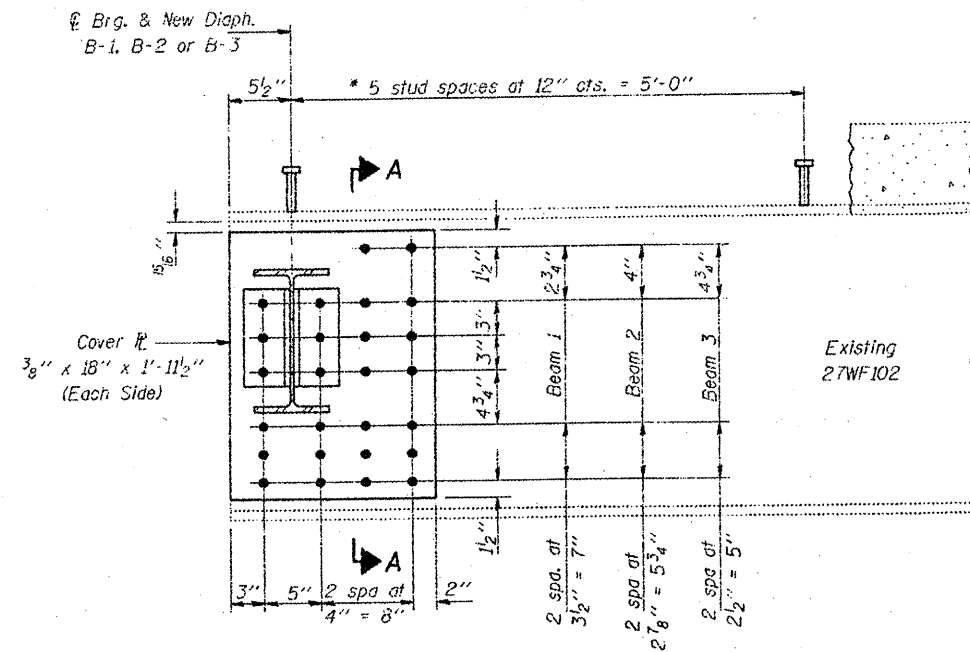
DESIGNED	<i>R. Anderson</i>	EXAMINED	<i>W. E. Hanson</i>
CHECKED	<i>James J. Manning</i>	PASSED	<i>E. J. ...</i>
DRAWN	<i>Ras</i>	APPROVED	<i>F. N. Baker</i>
CHECKED	<i>James J. Manning</i>		

BRIDGE NO. 1  
F.A.R.T.E. 35 SEC II-B-1  
HARDIN COUNTY  
STA. 85+51.37

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

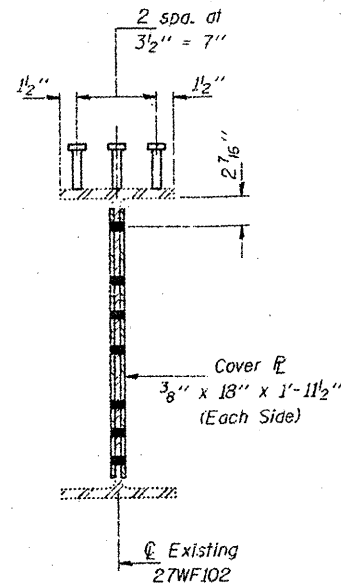
VARIOUS ROUTES  
D9 BRIDGE PAINTING FY 09-1  
VARIOUS COUNTIES  
CONTRACT 78093  
FOR INFORMATION ONLY  
SHEET 10 OF 31

\*  $\frac{3}{4}$ "  $\phi$  x 4" granular or solid flux filled headed studs automatically end welded in accordance with Art. 706.32 of the Std. Specs. (2.16 Req'd.)

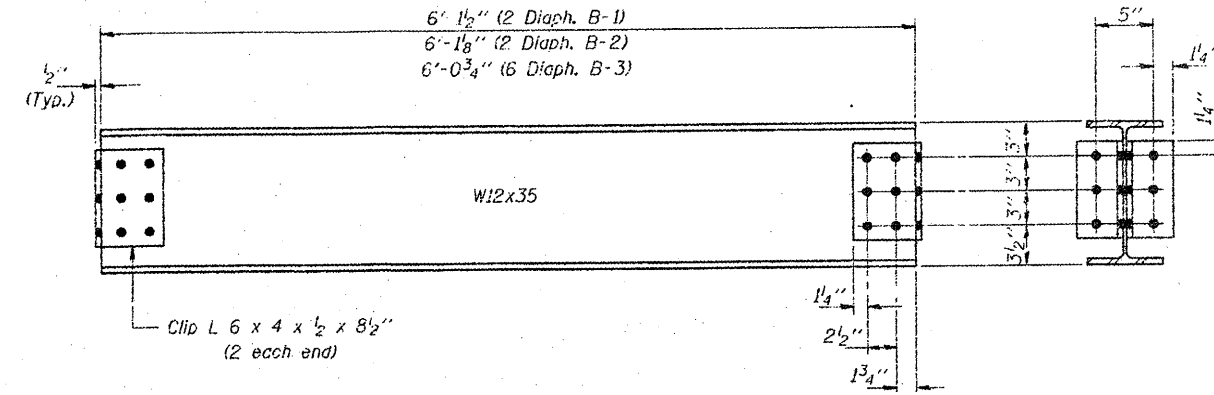


**ELEVATION  
BEAM END REPAIR**

**REPAIR A  
(8 Locations)**

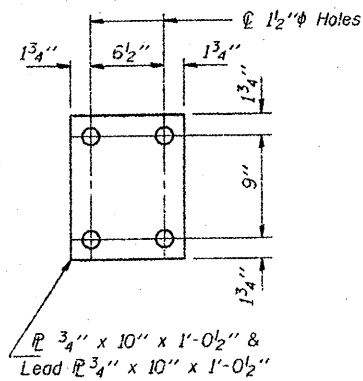


**SECTION A-A**



**REPLACEMENT DIAPHRAGMS  
(Number Req'd. = 10)**

**REPAIR B**



**ANCHOR PL**

(Number Req'd. = 4)  
See Sheet 2 for location.

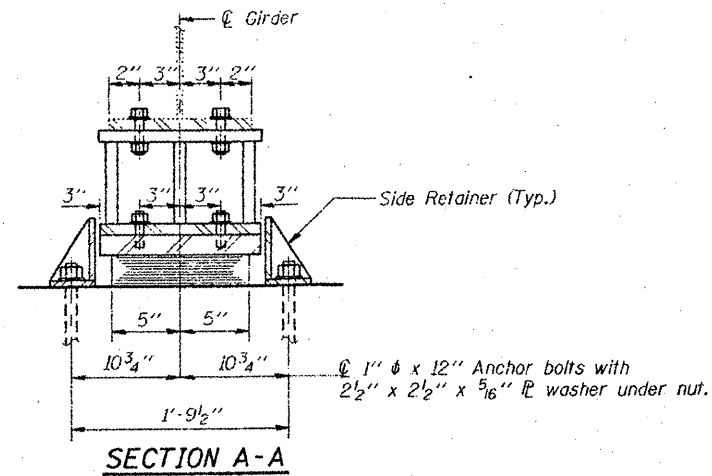
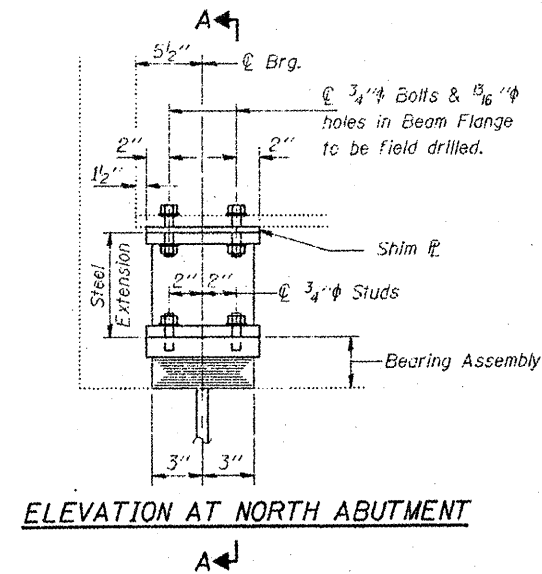
DESIGNED	NJS	DECEMBER 8	19 94
CHECKED	KPS	EXAMINED	<i>Scott E. Adams</i> ENGINEER OF STRUCTURAL SERVICES
DRAWN	Dierbert	PASSED	
CHECKED	NJS KPS		ENGINEER OF BRIDGES AND STRUCTURES

BRIDGE NO. 1

**BRIDGE REPAIRS  
STRUCTURAL STEEL DETAILS  
F.A. RTE. 35 (IL 146) SEC. 11-B-1  
HARDIN COUNTY  
S.N. 035-0011**

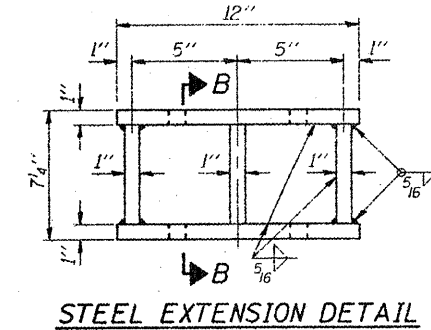
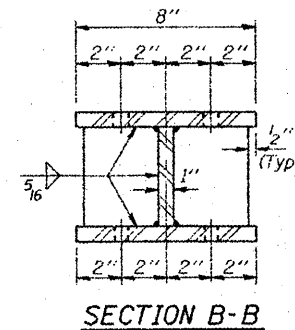
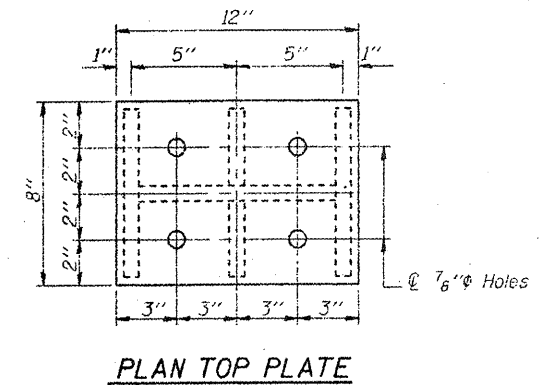
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

VARIOUS ROUTES  
D9 BRIDGE PAINTING FY 09-1  
VARIOUS COUNTIES  
CONTRACT 78093  
FOR INFORMATION ONLY  
SHEET 11 OF 31

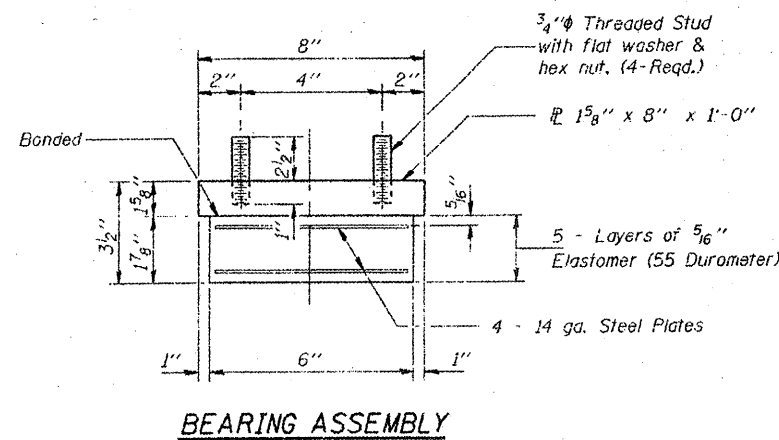


**GIRDER REACTIONS**

RP	(K)	15.0
R <sub>L</sub>	(K)	29.3
Imp.	(K)	8.8
R (Total)	(K)	53.1

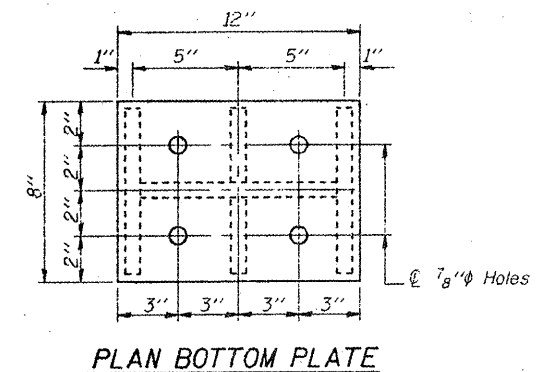


**TYPE I ELASTOMERIC EXP. BRG.**



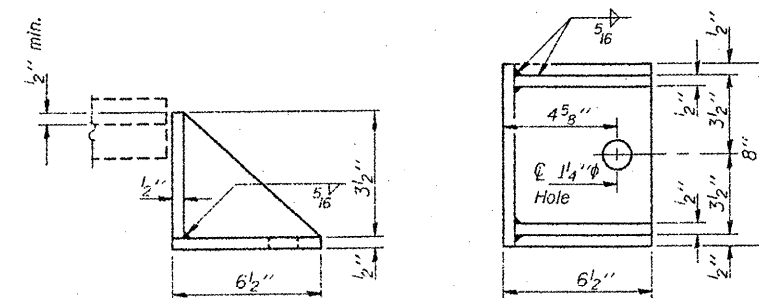
Note: Shim plates shall not be placed under Bearing Assembly.

Notes: Diaphragm removal and replacement may be required to facilitate drilling holes in bottom flange for bearing attachment. Cost is incidental to "Furnishing and Erecting Structural Steel". New steel extensions, connection bolts and anchor bolts are included in "Furnishing and Erecting Structural Steel". See sheet 7 for Anchor Bolt Installation. Prior to ordering any material, the Contractor shall verify in the field all bearing height and shim thickness dimensions.



**BILL OF MATERIAL**

Item	Unit	Total
Elastomeric Bearing Assembly Type I	Each	6



Equivalent rolled angle with stiffeners will be allowed in lieu of welded plates.

DESIGNED	NJS	DECEMBER 8 1994
CHECKED	KPS	EXAMINED <i>Joseph E. Adams</i>
DRAWN	Dierbert	PASSED
CHECKED	NJS KPS	ENGINEER OF BRIDGES AND STRUCTURES

BRIDGE NO. 1

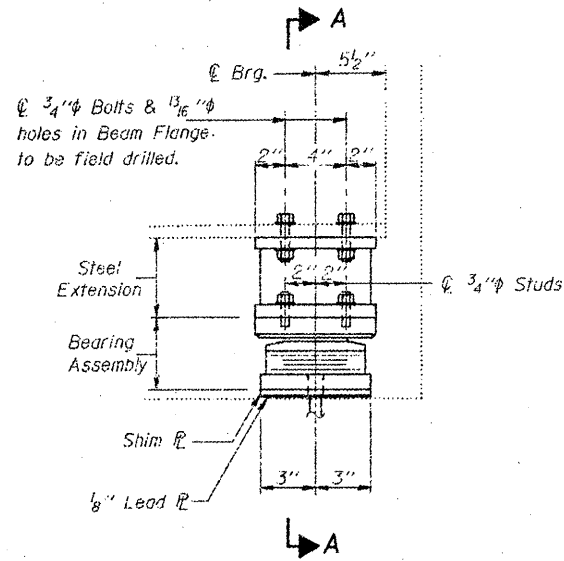
**NORTH ABUTMENT**  
**TYPE I BEARING REPLACEMENT**  
**F.A. RTE. 35 (IL 146) SEC. 11-B-1**  
**HARDIN COUNTY**  
**S.N. 035-0011**

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

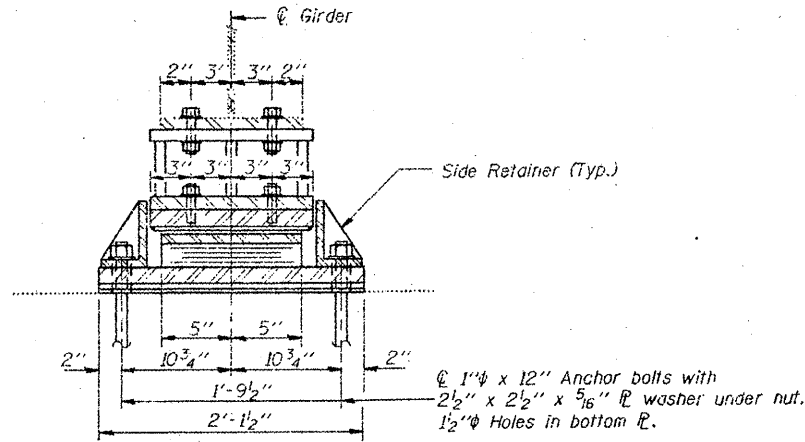
GIRDER REACTIONS

R <sub>1</sub>	(K)	15.0
R <sub>2</sub>	(K)	29.3
Imp.	(K)	8.8
R (Total)	(K)	53.1

VARIOUS ROUTES  
D9 BRIDGE PAINTING FY 09-1  
VARIOUS COUNTIES  
CONTRACT 78093  
FOR INFORMATION ONLY  
SHEET 12 OF 31



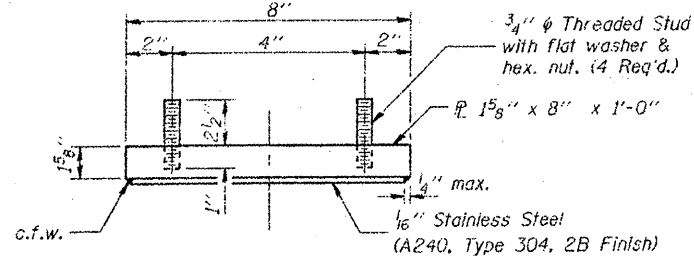
ELEVATION AT SOUTH ABUTMENT



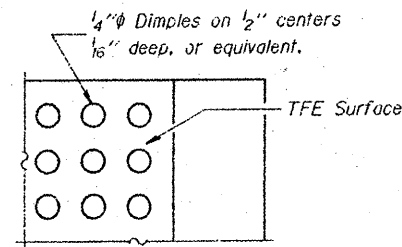
SECTION A-A

Notes: Diaphragm removal and replacement may be required to facilitate drilling holes for Anchor Bolts. Cost is incidental to "Furnishing and Erecting Structural Steel".  
New steel extensions, side retainers, lead plates, connection bolts and anchor bolts are included in "Furnishing and Erecting Structural Steel".  
See sheet 7 for Anchor Bolt installation.  
Prior to ordering any material, the Contractor shall verify in the field all bearing height and shim thickness dimensions.

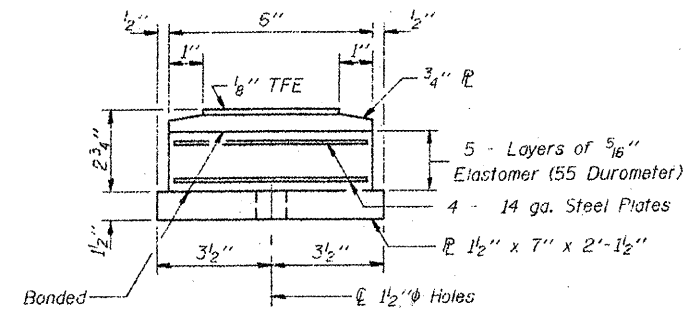
TYPE II TFE ELASTOMERIC EXP. BRG.



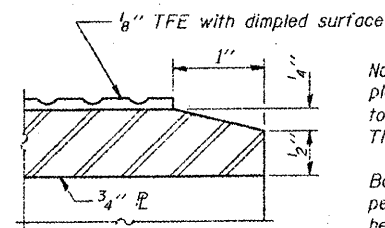
TOP BEARING ASSEMBLY



PLAN-TFE SURFACE



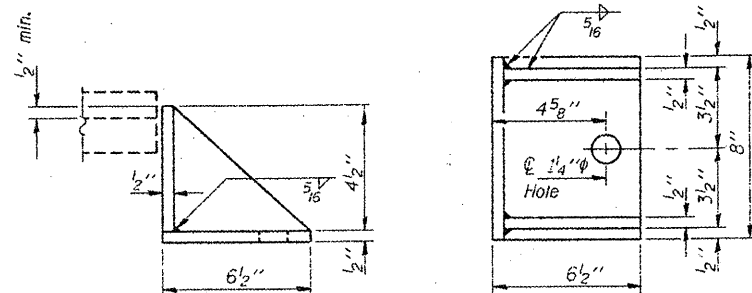
BOTTOM BEARING ASSEMBLY



SECTION THRU TFE

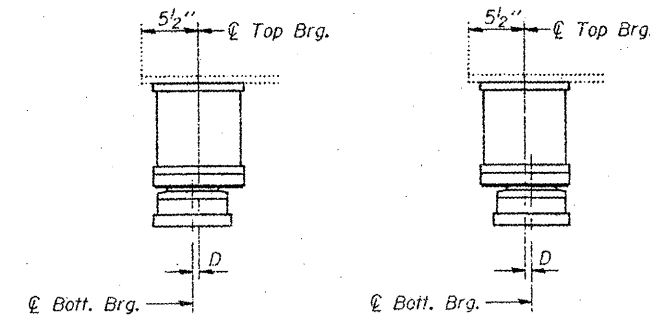
Note: The 1/8" TFE sheet shall be bonded directly to the top steel plate with a two-component, medium viscosity epoxy resin, conforming to the requirements of the Federal Specification MMM-A-134, Type I. The bond agent shall be applied on the full area of the contact surfaces.

Bonding of 1/8" TFE sheet during vulcanizing process will be permitted provided the process and method of adjusting assembly height is approved by the Engineer.



SIDE RETAINER

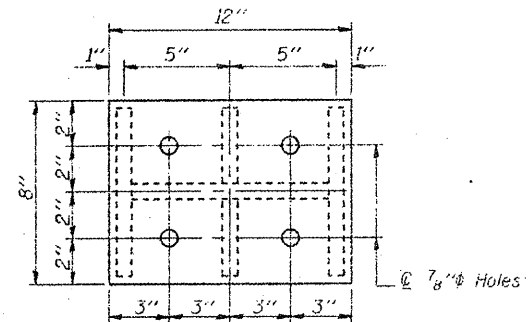
Equivalent rolled angle with stiffeners will be allowed in lieu of welded plates.



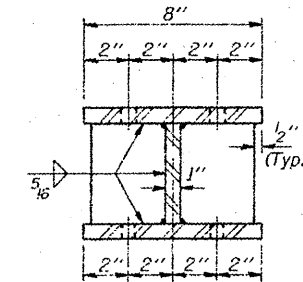
BELOW 50°F. (Move bott. brg. away from fixed brg.)  
ABOVE 50°F. (Move bott. brg. toward)

SETTING ANCHOR BOLTS AT EXP. B

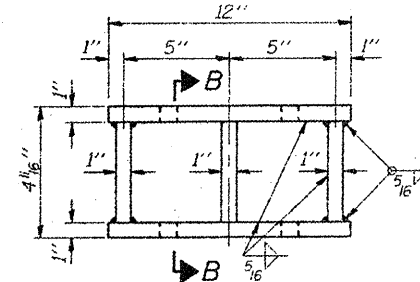
D=1/8" per each 100' of expansion for every 15° temp change from the normal temp. of 50°F.



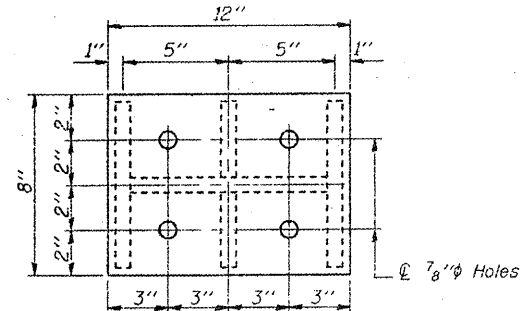
PLAN TOP PLATE



SECTION B-B



STEEL EXTENSION DETAIL



PLAN BOTTOM PLATE

BILL OF MATERIAL

Item	Unit	Total
Elastomeric Bearing Assembly Type II	Each	6

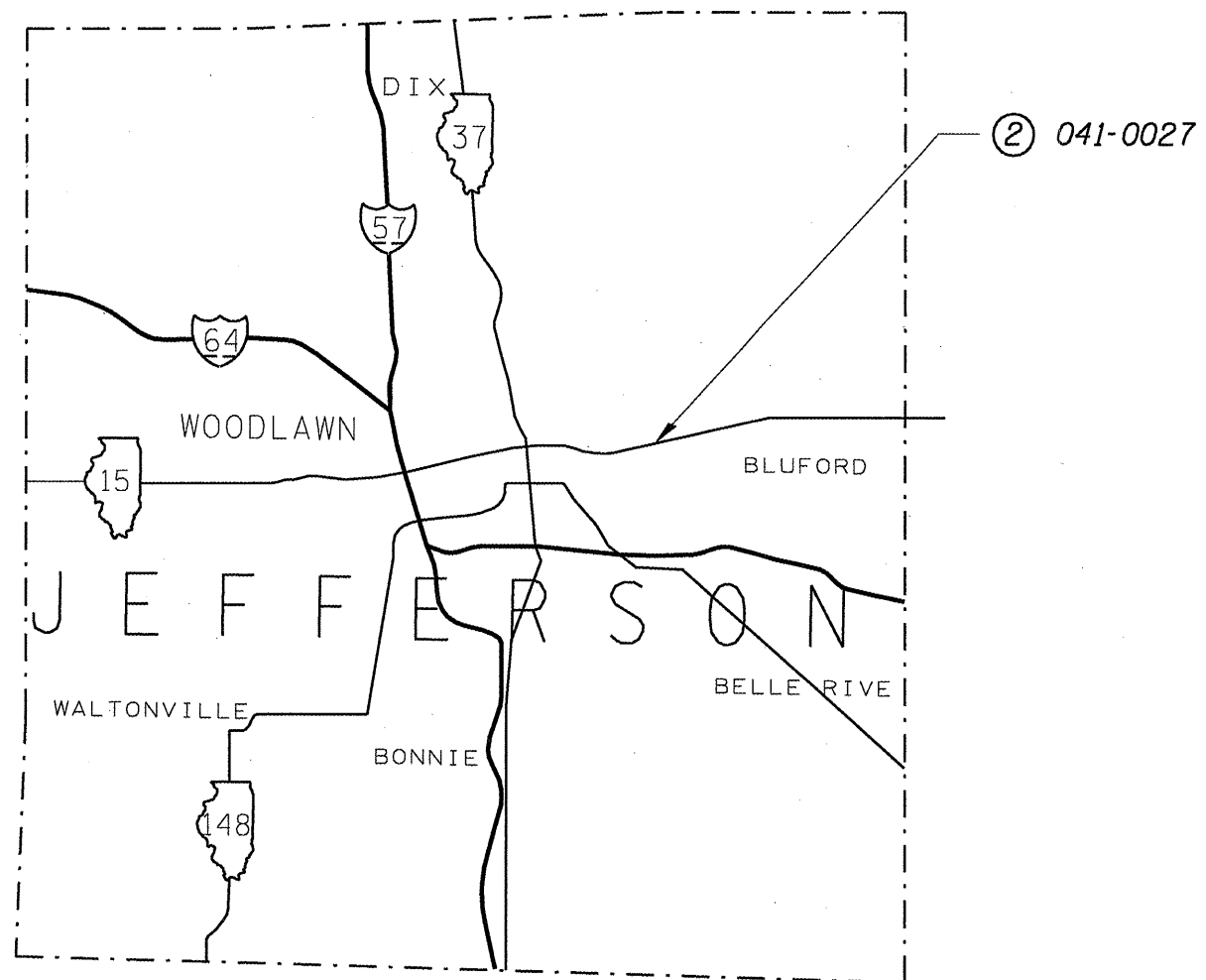
DESIGNED	NJS	DECEMBER 8 1994
CHECKED	KPS	EXAMINED Todd E. Adams
DRAWN	D-Herbert	ENGINEER OF STRUCTURAL SERVICES
CHECKED	NJS KPS	PASSED
		ENGINEER OF BRIDGES AND STRUCTURES

SOUTH ABUTMENT  
TYPE II BEARING REPLACEMENT  
F.A. RTE. 35 (IL 146) SEC. 11-B-1  
HARDIN COUNTY  
S.N. 035-0011

BRIDGE NO. 1

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

VARIOUS ROUTES  
D9 BRIDGE PAINTING FY 09-1  
VARIOUS COUNTIES  
CONTRACT 78093  
FOR INFORMATION ONLY  
SHEET 13 OF 31



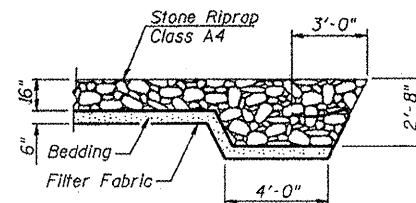
② 041-0027	2 MILES EAST OF MT. VERNON ILL 15 OVER SEVEN MILE CREEK LENGTH: 168.0 FT.    WIDTH: 44.17 FT. ADT = 5200, 7% TRUCKS POSTED SPEED = 55 M.P.H. INVENTORY RATING HS 25.0 OPERATING RATING HS 36.7
------------	--

B.M. #403 Chiseled Square on the Northeast Wingwall of Structure 041-0027, 17.5' Lt of Sta. 130+90, Elev. 455.235

Existing Structure: S.N. 041-0027, Built in 1957 as SBI-15 Section 15-2B at Station 129+81. The existing structure is a Three Span Non-Composite Continuous Wide Flange Beam Bridge supporting a R.C. Slab on concrete pile bent piers and abutments. Overall length is 168'-0" back to back of abutments. Bridge width is 34'-5" out to out of deck with two 14'-0" traffic lanes measured face to face curbs. The contractor will remove and replace the existing concrete deck, widen substructure, add new beam lines and complete other work as described in the plans.

Traffic shall be maintained at all times utilizing Stage Construction.

No Salvage.

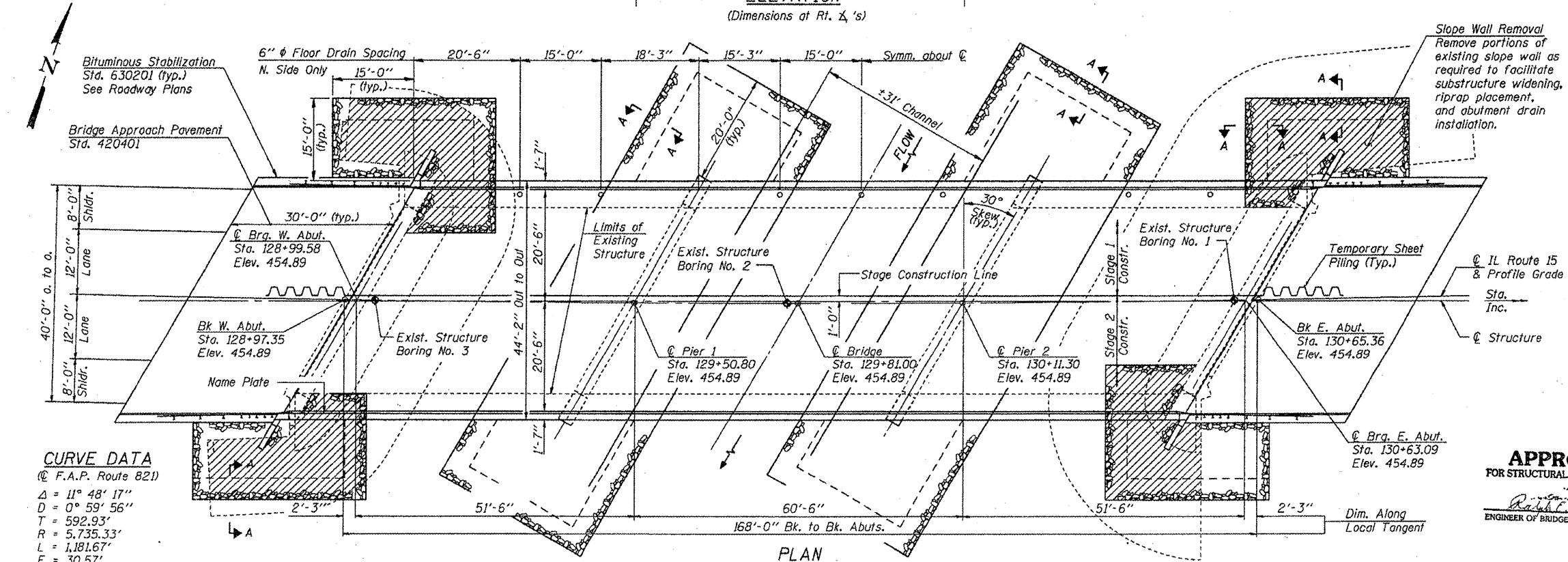
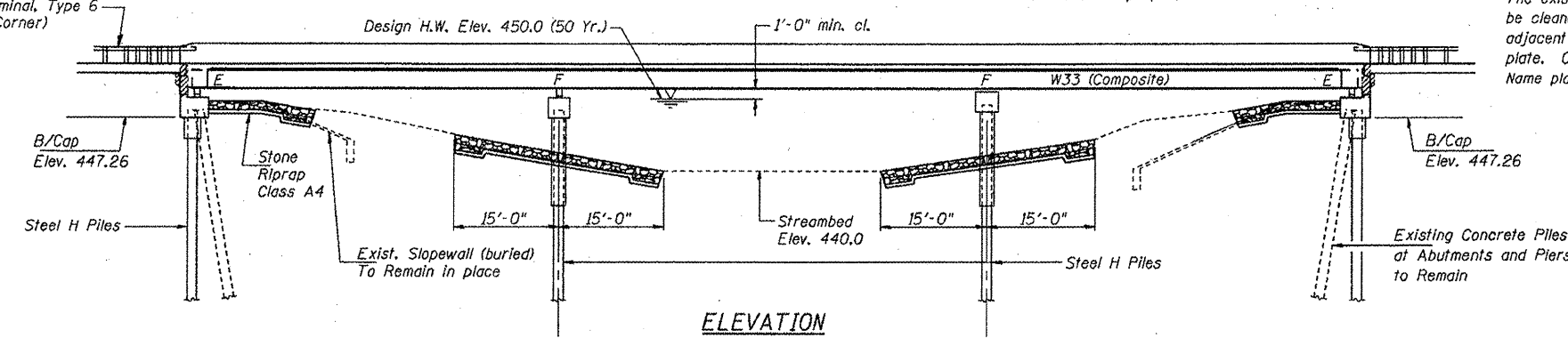


STATION 129+81  
REBUILT 200 BY  
STATE OF ILLINOIS  
F.A.P. RT. 821 SEC. (15-2)BR  
F.A. PROJ.  
LOADING HS20  
STR. NO. 041-0027

**LETTERING FOR NAME PLATES**

See Std. 515001  
The existing name plate shall be cleaned and relocated adjacent to the new name plate. Cost included with Name plates.

Traffic Barrier Terminal, Type 6  
Std. 631031 (Each Corner)



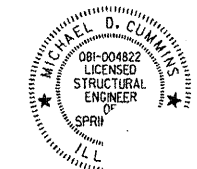
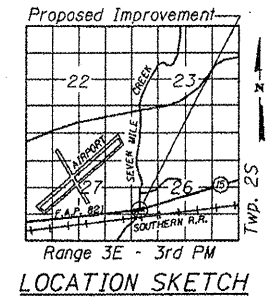
**CURVE DATA**  
@ F.A.P. Route 821  
Δ = 11° 48' 17"  
D = 0° 59' 56"  
T = 592.93'  
R = 5,735.33'  
L = 1,181.67'  
E = 30.57'  
P.C. Sta. = 120+72.65  
P.I. Sta. = 126+65.59  
P.T. Sta. = 132+54.32  
S.E. = 0.02'/ft.

**WATERWAY INFORMATION**

Drainage Area = 21.10 Sq. Mi. Low Grade Elevation: 454.7 ft. @ Sta. 128+00

Flood	Freq. Yr.	Opening Sq. Ft.		Nat. H.W.E.		Head - Ft.		Headwater El.	
		Exist.	Prop.	Exist.	Prop.	Exist.	Prop.	Exist.	Prop.
Design	10	2090	651	449.5	0.9	0.9	450.4	450.4	450.4
Base	100	3440	741	450.2	1.7	1.7	451.9	451.9	451.9
Overtopping	500	4355	794	450.6	2.4	2.4	453.0	453.0	453.0
Max. Calc.	500	4355	794	450.6	2.4	2.4	453.0	453.0	453.0

DESIGNED Ruben V. Boehler  
CHECKED Tim S. Howard  
DRAWN TSH / RVB  
CHECKED Michael D. Cummins



BRIDGE NO. 2

Michael D. Cummins  
(Expires)

**INDEX OF SHEETS**

1. General Plan and Elevation
2. General Notes and Total Bill of Material
3. Stage Construction Details
- 4-5. Top of Slab Elevations
6. Superstructure
7. Superstructure Details
8. Diaphragm Details
- 9-10. Structural Steel
- 11-12. Bearing Details
13. Abutment Concrete Removal Details
14. Abutments
15. Abutment Details
16. Piers
17. Bar Splicer Assembly Details
18. Anchor Bolt Details
19. Temporary Concrete Barrier

**DESIGN SPECIFICATIONS**

2002 AASHTO  
1995 Seismic Retrofitting Manual for Highway Bridges FHWA-RD-94-052

**LOADING HS20-44**

Allow 25#/Sq. Ft. for future wearing surface

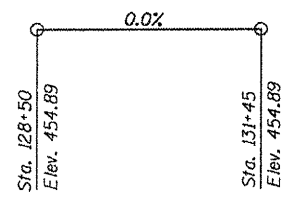
**SEISMIC DATA**

Seismic Performance Category (SPC) = B  
Bedrock Acceleration Coefficient (A) = 0.098g  
Site Coefficient (S) = 1.2

**DESIGN STRESSES**

**New Construction**  
 $f'_c = 3,500$  psi  
 $f_y = 36,000$  psi (Structural Steel)  
 $f_y = 60,000$  psi (Reinforcement)

**Existing Structure**  
 $f'_c = 1,400$  psi (Superstructure)  
 $f'_c = 800$  psi (Substructure)  
 $f_s = 20,000$  psi (Reinforcement)  
 $f_s = 18,000$  psi (Structural Steel)



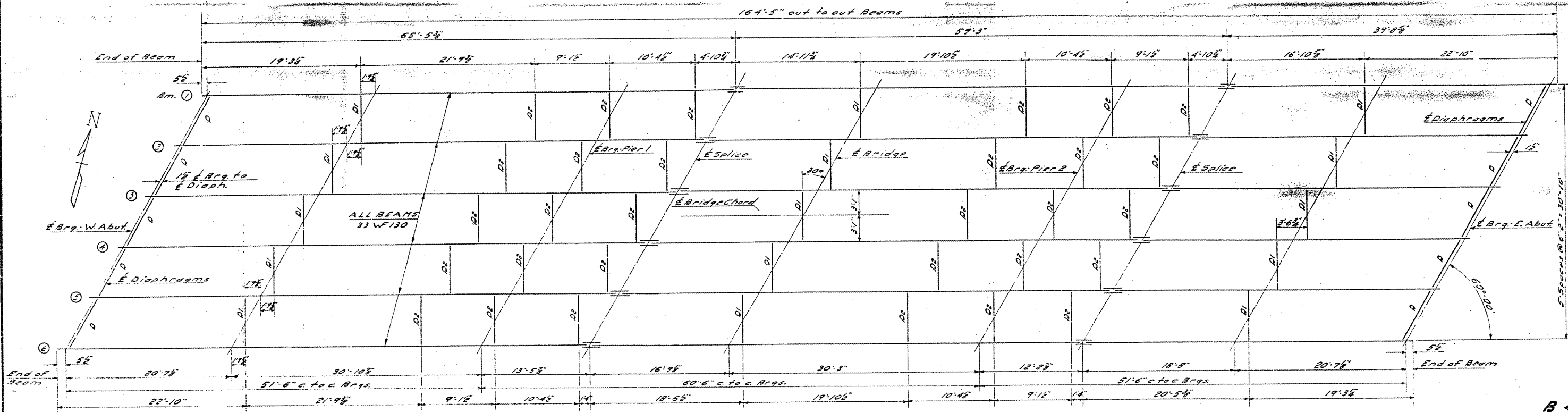
**PROFILE GRADE**  
(along @ F.A.P. Rte. 821)

**APPROVED**  
FOR STRUCTURAL ADEQUACY ONLY  
Michael D. Cummins  
ENGINEER OF BRIDGES AND STRUCTURES

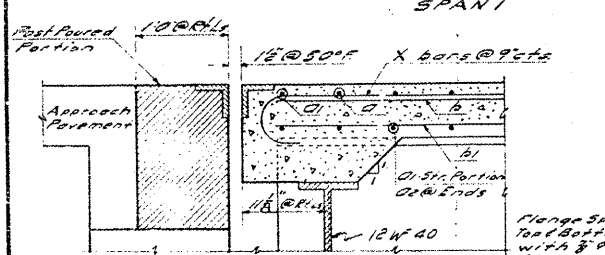
**GENERAL PLAN & ELEVATION**

IL ROUTE 15 OVER SEVEN MILE CREEK  
F.A.P. ROUTE 821 SECTION (15-2)BR  
JEFFERSON COUNTY  
STA. 129+81.00  
S.N. 041-0027

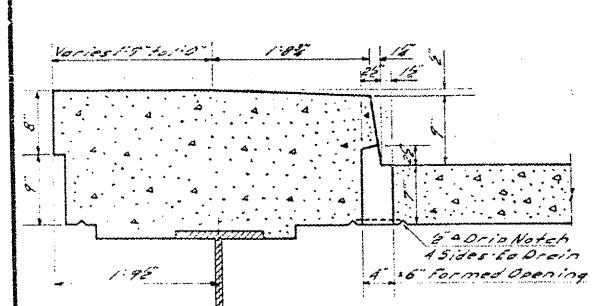
CUMMINS ENGINEERING CORPORATION  
JOB #: 2175  
FILE: 2175gpa  
DATE: 8/7/06



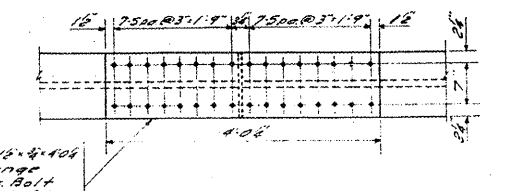
**PLAN OF STRUCTURAL STEEL**



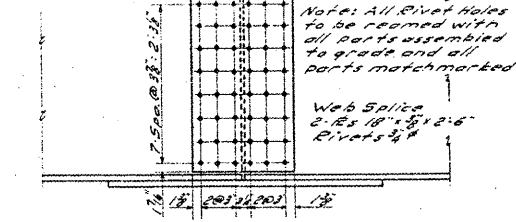
**SECTION AT ABUTMENT**  
Show Reinforcement



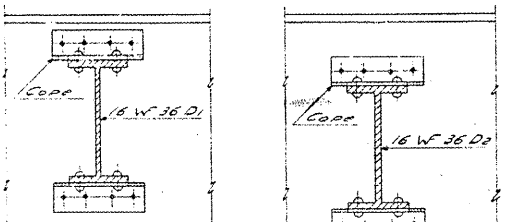
**FLOOR DRAIN DETAIL**



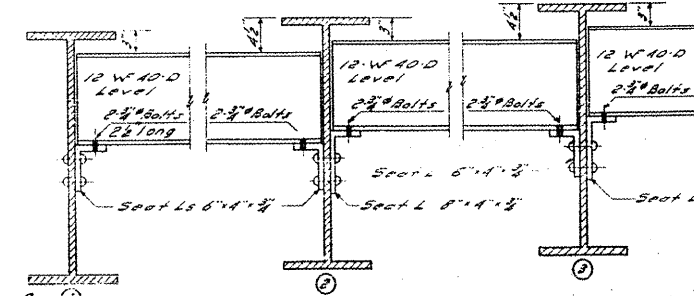
**DETAIL OF BEAM SPLICE**  
12 Required



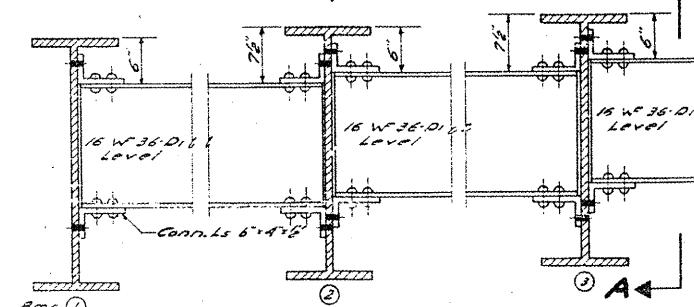
**DETAIL OF DIAPHRAGM-D**  
10 Required



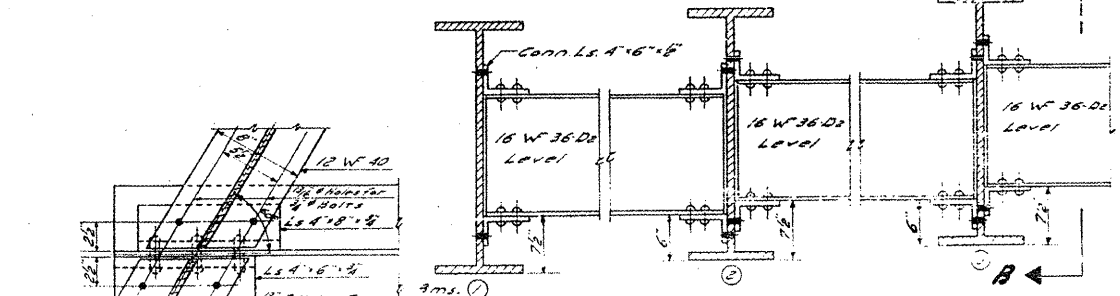
**DETAIL OF DIAPHRAGM-D1**  
15 Required



**PLAN OF DIAPHRAGM-D**



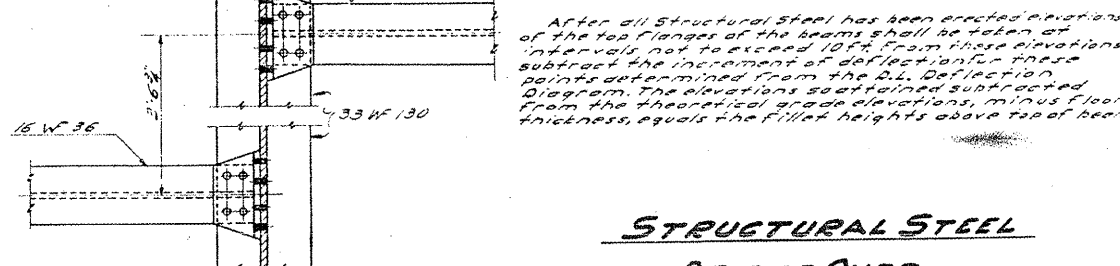
**PLAN OF DIAPHRAGM-D1**



**DETAIL OF DIAPHRAGM-D2**  
30 Required



**METHOD OF DETERMINING FILLET HEIGHTS**



**PLAN OF DIAPHRAGM-D1 & D2**

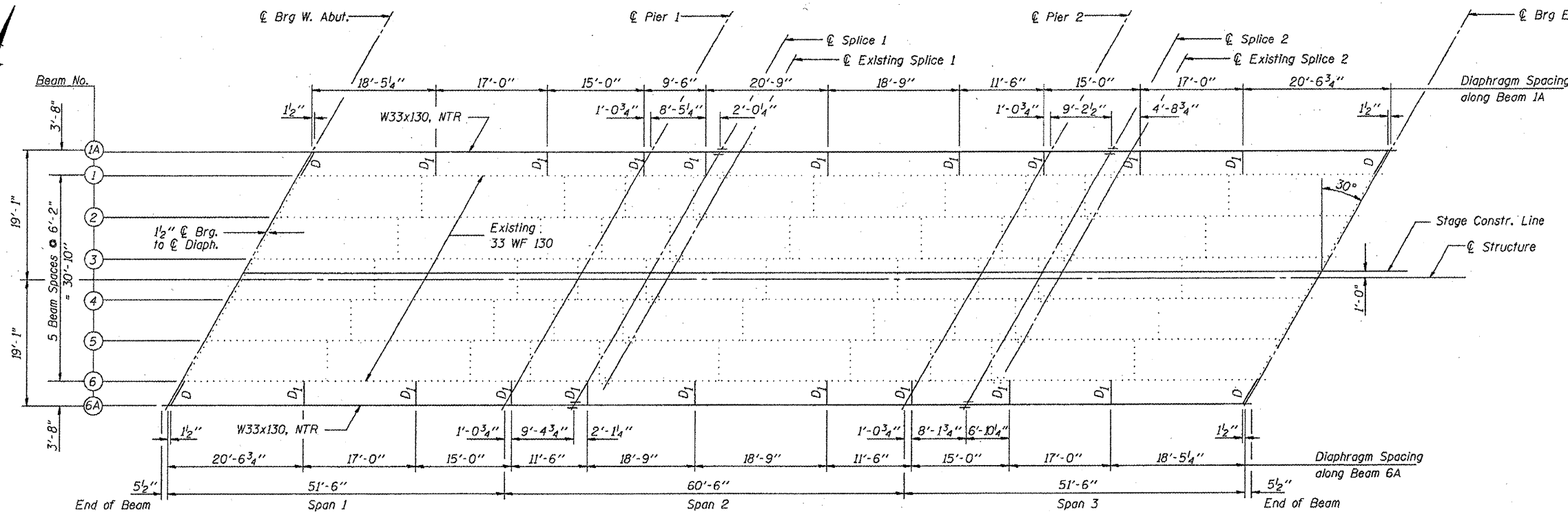
DESIGNED	Joseph R. Rissay
CHECKED	J. Kellogg
DRAWN	E. W. Falley
CHECKED	J. J. R.

DATE	APRIL 24 1956
EXAMINED	W. M. Romine
PASSED	C. L. Hart
APPROVED	R. P. Bartholomew

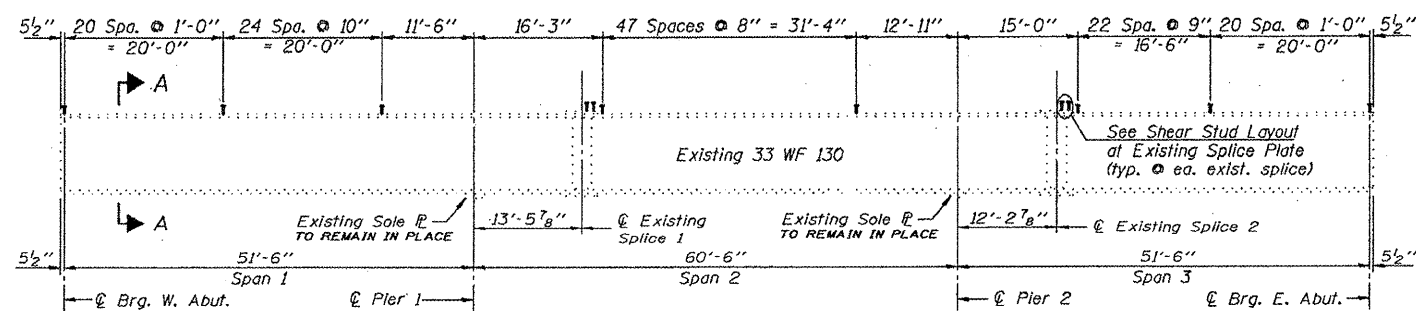
**SECTION A-A**      **SECTION B-B**

**STRUCTURAL STEEL**  
**BRIDGE OVER**  
**SEVEN MILE CREEK**  
BRIDGE NO. 2      F.A. ROUTE 16 (S.B.T. RT. 15) SEC. 15-2B  
JEFFERSON COUNTY  
STATION 129+81

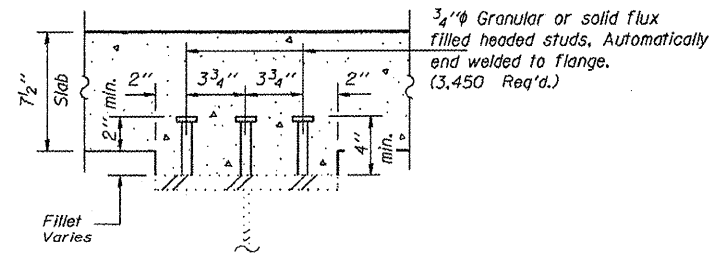
VARIOUS ROUTES  
 D9 BRIDGE PAINTING FY 09-1  
 VARIOUS COUNTIES  
 CONTRACT 78093  
 FOR INFORMATION ONLY  
 SHEET 16 OF 31



**FRAMING PLAN**

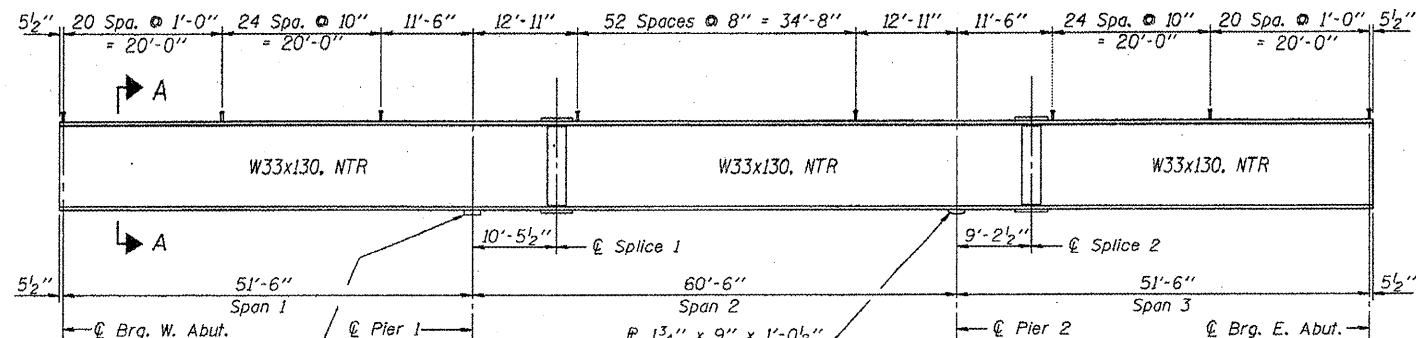


**BEAM ELEVATION**  
Existing Beams 1 thru 6



**SECTION A-A**

(Except at existing splices)  
 Applies to both Existing & Proposed Beams.  
 Existing Beams Shown.



**BEAM ELEVATION**

New Beams 1A & 6A

Notes:  
 "NTR" denotes members to which Notch Toughness Requirements, Zone 2 are applicable.  
 Work this sheet with sheet 10 of 19.

DESIGNED	Ruben V. Boehler
CHECKED	Tim S. Howard
DRAWN	TSH / RVB
CHECKED	Michael D. Cummins

**STRUCTURAL STEEL**

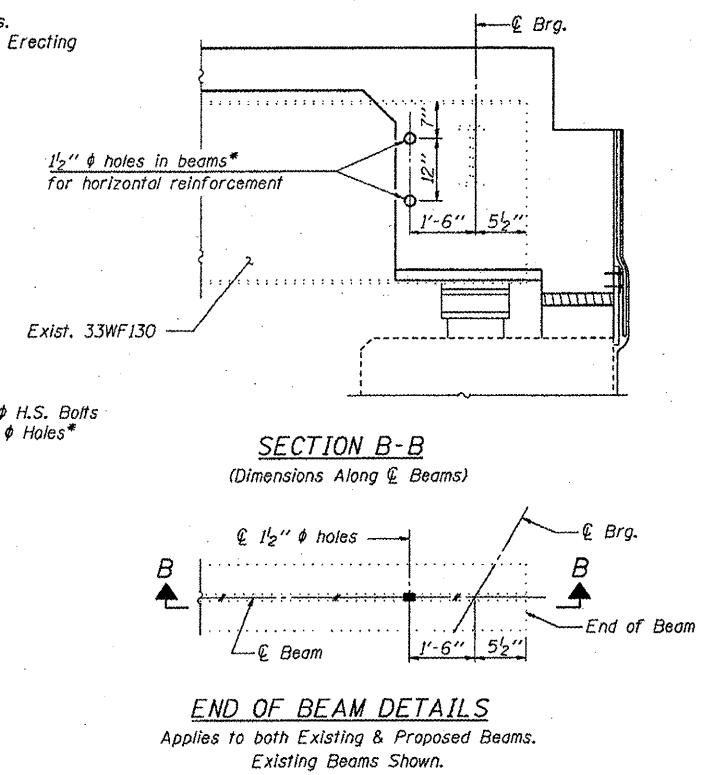
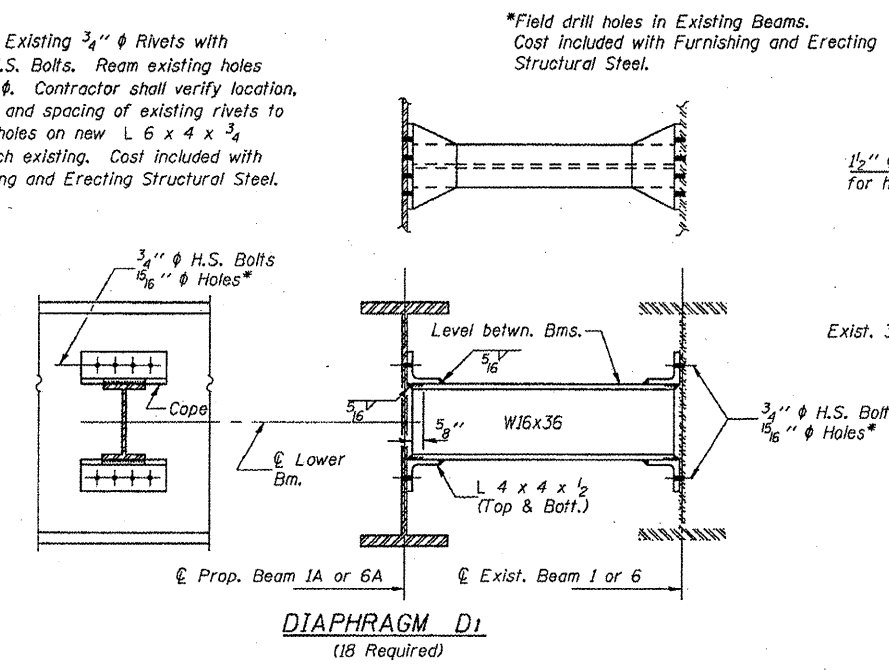
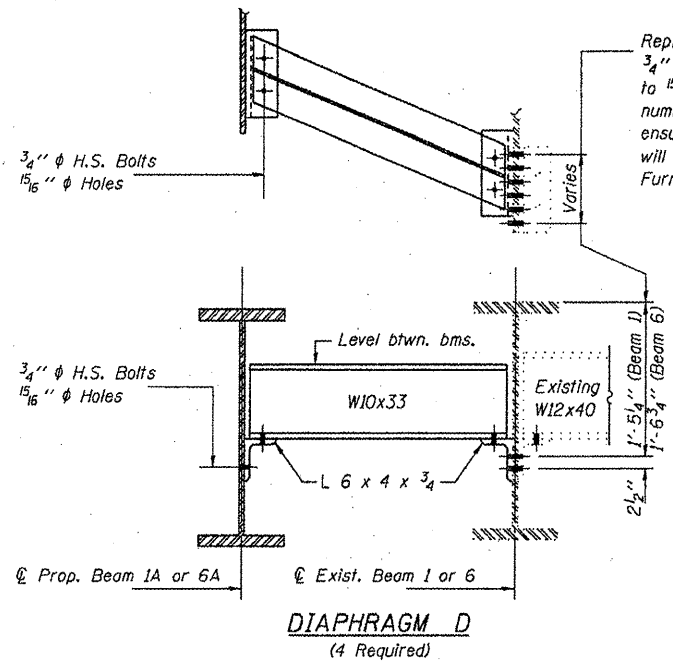
IL ROUTE 15 OVER SEVEN MILE CREEK  
 F.A.P. ROUTE 821 SECTION (15-2)BR  
 JEFFERSON COUNTY  
 STA. 129+81.00  
 S.N. 041-0027

CUMMINS ENGINEERING CORPORATION

JOB #:	2175
FILE:	2175ss
DATE:	5/26/06

BRIDGE NO. 2





INTERIOR BEAM REACTION TABLE

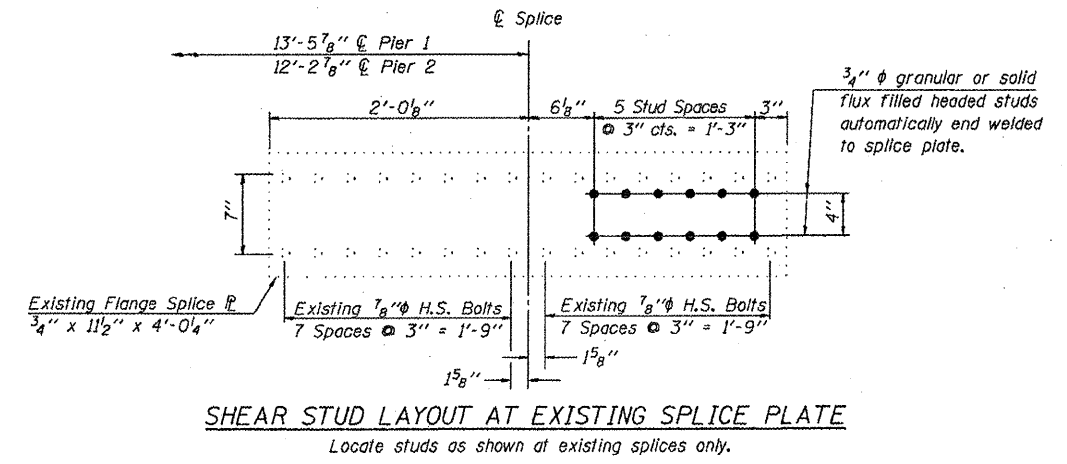
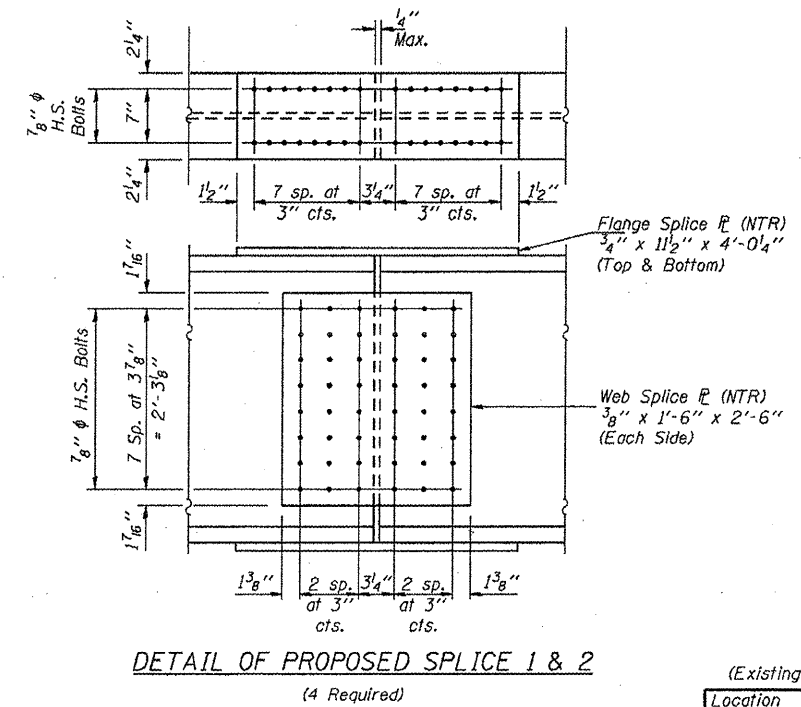
	Abut.	Piers
RP (k)	46.4	61.8
RL (k)	32.1	37.9
Imp. (k)	9.0	10.6
R (Total) (k)	87.5	110.3

INTERIOR BEAM MOMENT TABLE

	0.4 Sp. 1 0.6 Sp. 4	Piers 1 & 2	0.5 Sp. 2
Is (in <sup>4</sup> )	6710	6710	6710
Ic (n) (in <sup>4</sup> )	17200	---	17200
Ic (sn) (in <sup>4</sup> )	12590	---	12590
Ss (in <sup>3</sup> )	406	406	406
Sc (n) (in <sup>3</sup> )	586	---	586
Sc (sn) (in <sup>3</sup> )	529	---	529
fp (k/ft.)	0.75	1.00	0.75
Mp (k)	145	298	108
sp (k/ft.)	0.25	---	0.25
Msp (k)	55	---	53
Ml (k)	316	170	323
M (Imp) (k)	89	48	87
5 <sub>3</sub> [Ml + M(Imp)] (k)	675	363	683
Ma (k)	1140	860	1100
Mu (k)	1520	---	1540
fs non-comp (k.s.i.)	4.3	8.8	3.2
fs (comp) (k.s.i.)	1.2	---	1.2
fs5 <sub>3</sub> (k + Imp) (k.s.i.)	13.8	10.7	14.0
fs (Overload) (k.s.i.)	19.3	19.5	18.4
fs (Total) (k.s.i.)	---	25.4	---
VR (k)	44.8	---	39.1

\*\*Compact, braced section.  
\*\*\*Non-compact, braced section.

Is and Ss are the moment of inertia and section modulus of the steel section used in computing fs (Total & Overload).  
Ic(n) and Sc(n) are the moment of inertia and section modulus of the composite section used in computing stresses due to Live Load.  
Ic(sn) and Sc(sn) are the moment of inertia and section modulus of the composite section used in computing stresses due to superimposed dead loads. (see AASHTO 10.38)  
VR is the maximum Live Load + Impact shear range in span.  
The Plastic Moment capacity (Mu) is computed according to AASHTO 10.48.1 and 10.50.1.1.  
fs (Total) (Non-compact section) is the sum of the stresses due to 1.3[Mp + Msp] + 5<sub>3</sub>(Ml + M(Imp)).  
fs (Overload) is the sum of the stresses due to Mp + Msp + 5<sub>3</sub>(Ml + M(Imp)).  
Mp - Moment due to dead loads on non-composite section.  
Msp - Moment due to dead loads on composite section.  
Ml - Moment due to live loads on non-composite or composite section.  
M (Imp) - Moment due to live load impact on non-composite or composite section.  
Ma (Applied Moment) = 1.3[Mp + Msp] + 5<sub>3</sub>(Ml + M(Imp)).



TOP OF BEAM ELEVATIONS  
(Existing Beams 1-6 For Information Only; Proposed 1A & 6A For Fabrication Only)

Location	Beam 1A	Beam 1	Beam 2	Beam 3	Beam 4	Beam 5	Beam 6	Beam 6A
⊕ Brg. W. Abut.	453.77	453.84	453.97	454.09	454.22	454.34	454.47	454.54
⊕ Pier 1	453.72	453.79	453.92	454.04	454.17	454.29	454.42	454.49
⊕ Splice 1	453.71	453.78	453.91	454.03	454.16	454.28	454.41	454.48
⊕ Pier 2	453.71	453.78	453.91	454.03	454.16	454.28	454.41	454.48
⊕ Splice 2	453.71	453.78	453.91	454.03	454.16	454.28	454.41	454.48
⊕ Brg. E. Abut.	453.77	453.84	453.97	454.09	454.22	454.34	454.47	454.54

Note: Elevations have been taken from the existing plans and reduced by 0.40' to match the new bench mark datum.

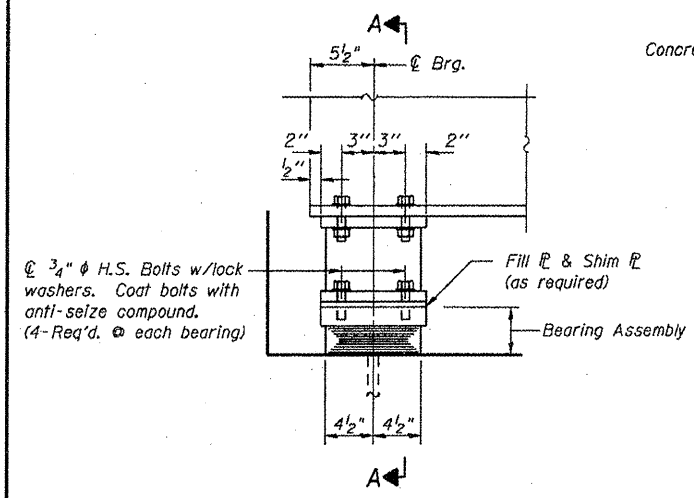
Notes:  
Beams 1A & 6A (W33x130), L's and splice plates shall be AASHTO M270, Grade 36.  
"NTR" denotes members to which Notch Toughness Requirements, Zone 2 are applicable.  
Work this sheet with sheet 9 of 19.

STRUCTURAL STEEL

IL ROUTE 15 OVER SEVEN MILE CREEK  
F.A.P. ROUTE 821 SECTION (15-2)BR  
JEFFERSON COUNTY  
STA. 129+81.00  
S.N. 041-0027

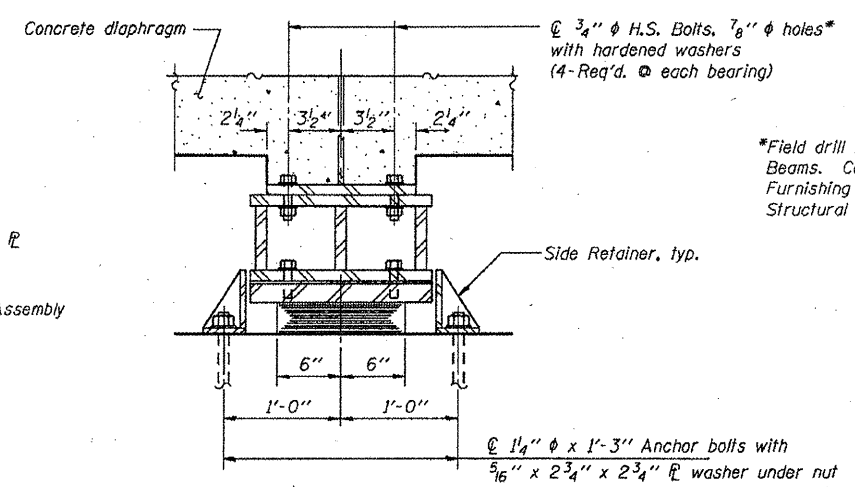
CUMMINS ENGINEERING CORPORATION	JOB #: 2175
	FILE: 2175ss
	DATE: 3/07/06

DESIGNED	Ruben V. Boehler
CHECKED	Tim S. Howard
DRAWN	TSH / RVB
CHECKED	Michael D. Cummins

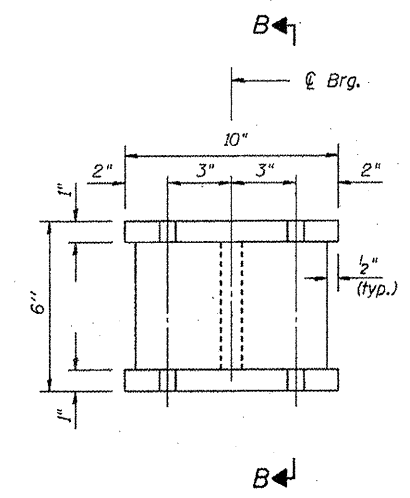


ELEVATION AT ABUT.

TYPE I ELASTOMERIC EXP. BRG. AT ABUTMENTS

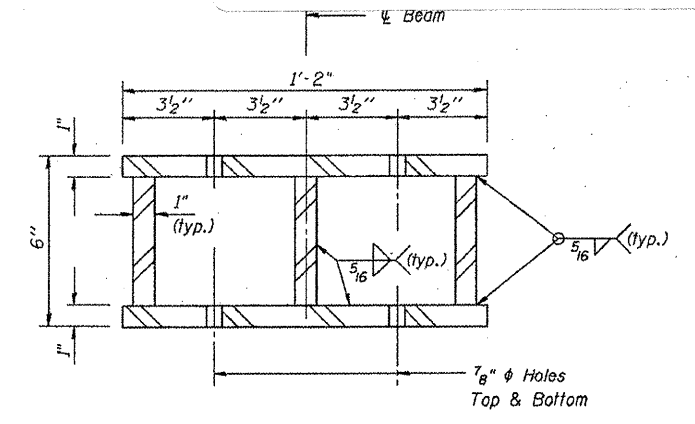


SECTION A-A

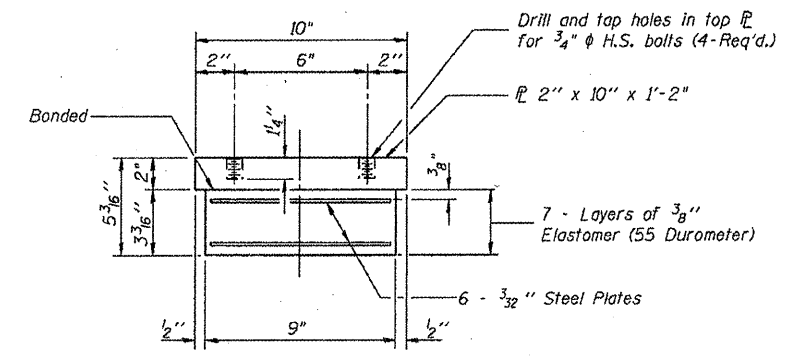


ELEVATION STEEL EXTENSION

(16 Required)



SECTION B-B



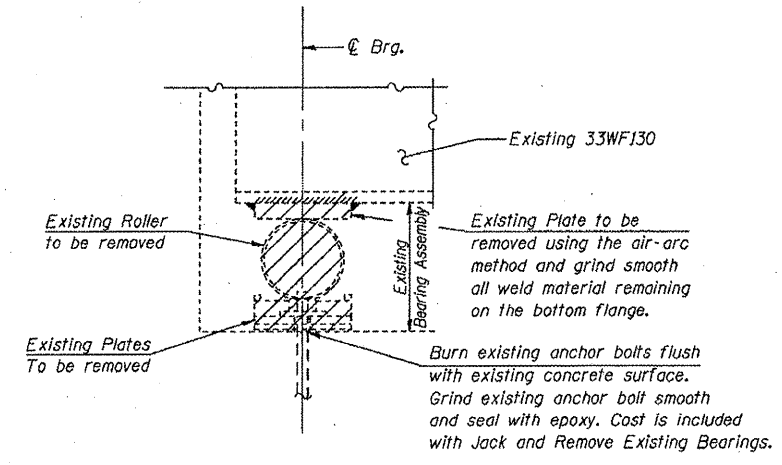
BEARING ASSEMBLY

Note: Shim plates shall not be placed under Bearing Assembly.

FILL <math>\ell</math>'s AT BOTH ABUTMENTS

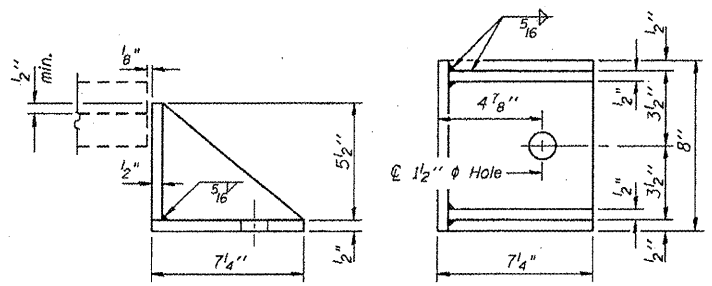
	Beam 1A	Beams 1 thru 6	Beam 6A
Thickness	—	3/4"	1 1/2"

Dimension same as top bearing plate.



EXISTING BEARING REMOVAL AT ABUTS

@ Reaction @ Abuts. = 4 kips (Wt. of steel only)  
Min. Jack Capacity @ Abuts. = 3 tons



SIDE RETAINER

Equivalent rolled angle with stiffeners will be allowed in lieu of welded plates.

DESIGNED	Ruben V. Boehler
CHECKED	Tim S. Howard
DRAWN	TSH / RVB
CHECKED	Michael D. Cummins

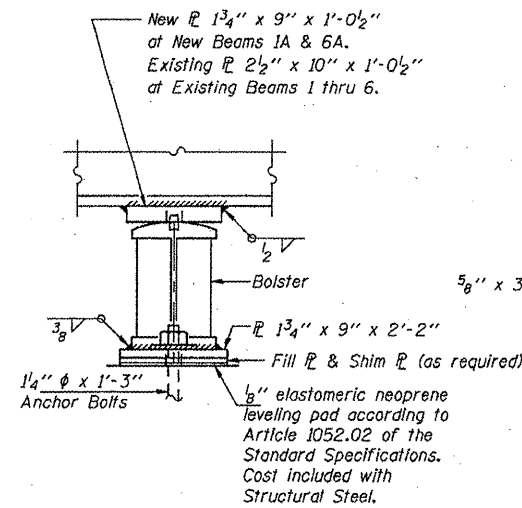
BILL OF MATERIAL

Item	Unit	Total
Elastomeric Bearing Assembly Type I	Each	16
Jack and Remove Existing Bearings	Each	12

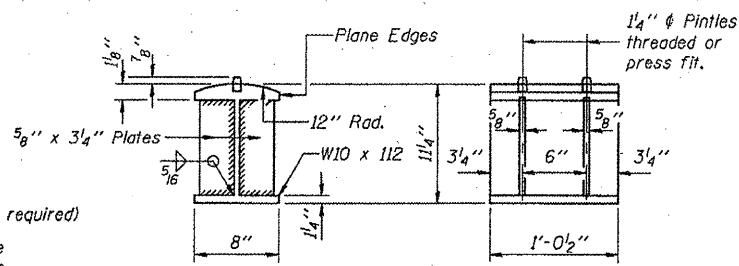
**BEARING DETAILS ABUTMENTS**  
IL ROUTE 15 OVER SEVEN MILE CREEK  
F.A.P. ROUTE 821 SECTION (15-2)BR  
JEFFERSON COUNTY  
STA. 129+81.00  
S.N. 041-0027

CUMMINS ENGINEERING CORPORATION

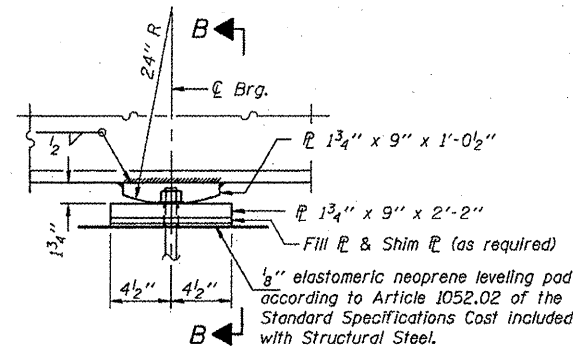
JOB #:	2175
FILE #:	2175brg
DATE:	4/10/06



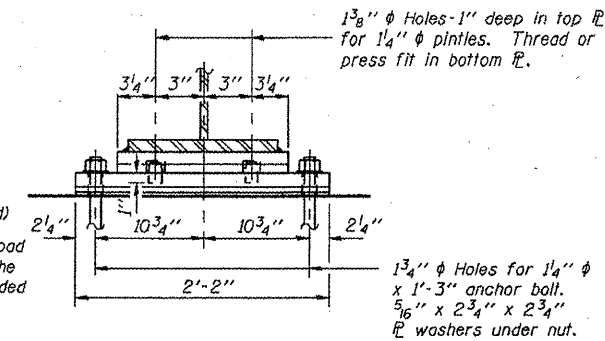
ELEVATION AT PIER 1



DETAIL OF BOLSTER



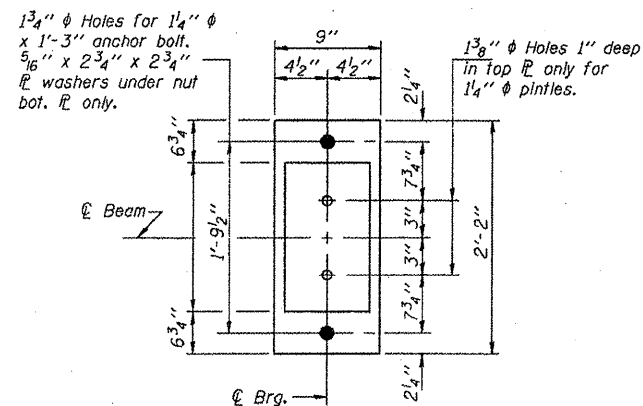
ELEVATION AT PIER 2



SECTION B-B

**FIXED BEARING AT PIER 1**

(8 Required at Existing & New Beams)



PLAN AT PIER 1

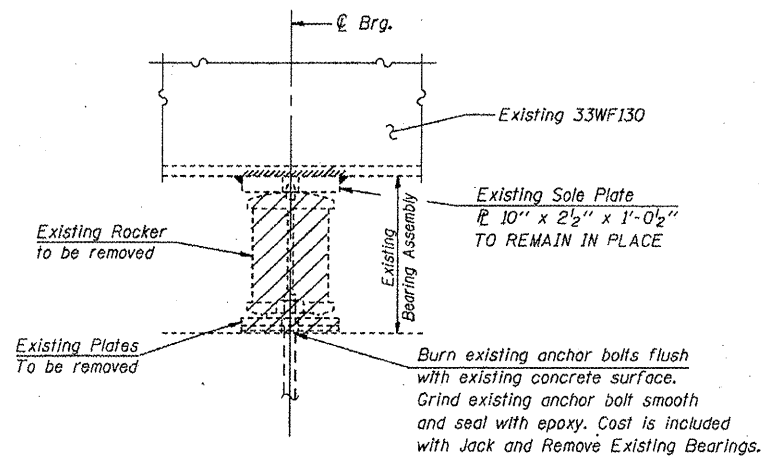
**FILL P's AT BOTH PIERS**

	Beam 1A	Beams 1 thru 6	Beam 6A
Thickness	—	—	1 3/4"

Dimension same as bottom bearing plate.

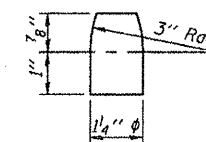
**FIXED BEARING AT PIER 2**

(2 Required at New Beams 1A & 6A)



**EXISTING BEARING REMOVAL AT PIER 1**

⊙ Reaction ⊙ Pier 1 = 10 kips (Wt. of steel only)  
Min. Jack Capacity ⊙ Abuts. = 8 tons



DETAIL OF PINTLE

**BILL OF MATERIAL**

Item	Unit	Total
Jack and Remove Existing Bearings.	Each	6

DESIGNED	Ruben V. Boehler
CHECKED	Tim S. Howard
DRAWN	TSH / RVB
CHECKED	Michael D. Cummins

Notes: Diaphragm removal and replacement may be required to facilitate drilling holes. Cost shall be included with Furnishing and Erecting Structural Steel.  
Cost of bearing PL's, bolsters, shim PL's, fill PL's, pintles and anchor bolts are included with Furnishing and Erecting Structural Steel.  
See sheet 18 of 19 for Anchor Bolt Installation.  
Prior to ordering any material, the Contractor shall verify in the field all bearing height and shim thickness dimensions.

BRIDGE NO. 2

**BEARING DETAILS PIERS**

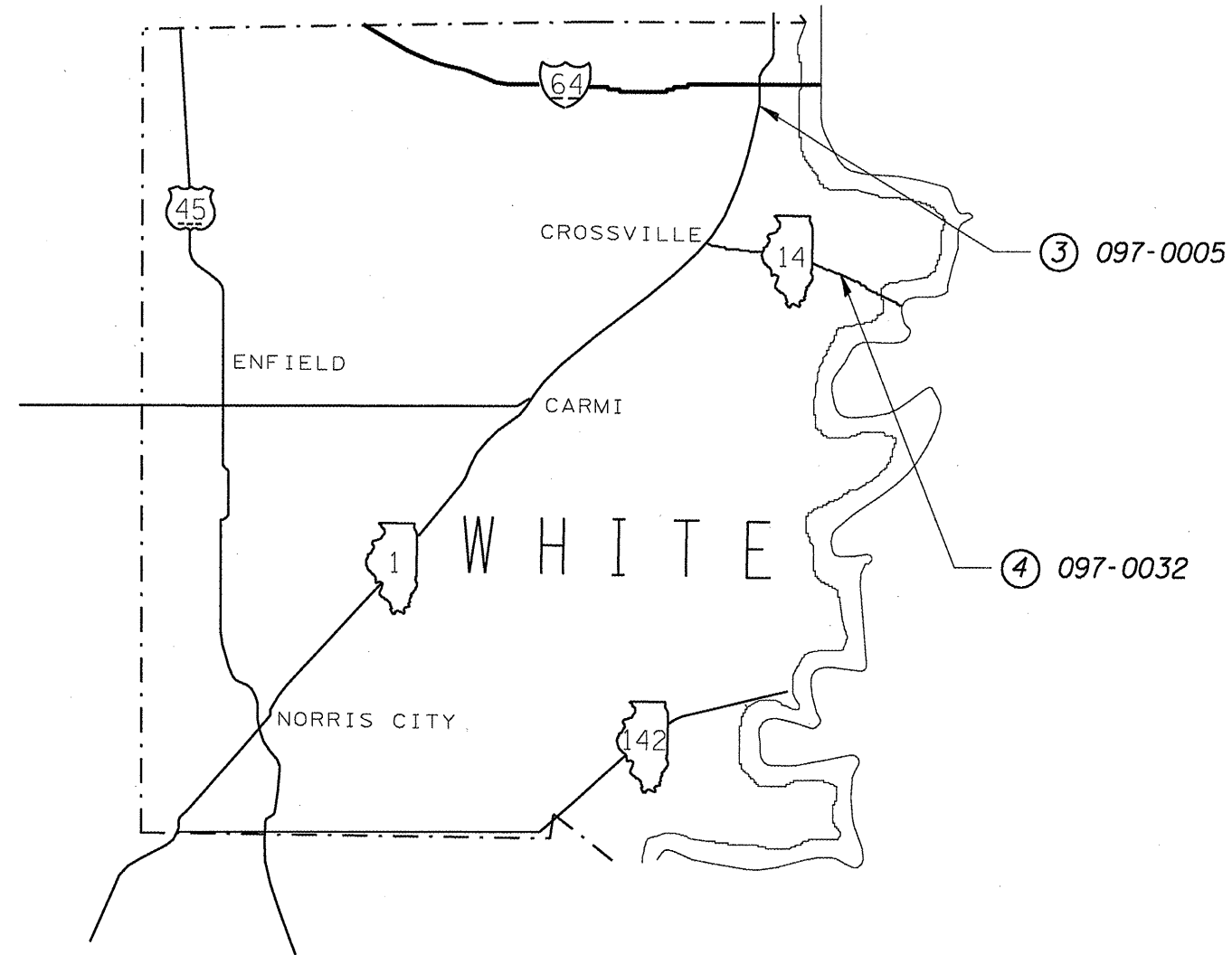
IL ROUTE 15 OVER SEVEN MILE CREEK  
F.A.P. ROUTE 821 SECTION (15-2)BR  
JEFFERSON COUNTY  
STA. 129+81.00  
S.N. 041-0027

CUMMINS ENGINEERING CORPORATION

JOB #:	2175
FILE #:	2175brg
DATE:	4/10/06

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

VARIOUS ROUTES  
D9 BRIDGE PAINTING FY 09-1  
VARIOUS COUNTIES  
CONTRACT 78093  
FOR INFORMATION ONLY  
SHEET 20 OF 31



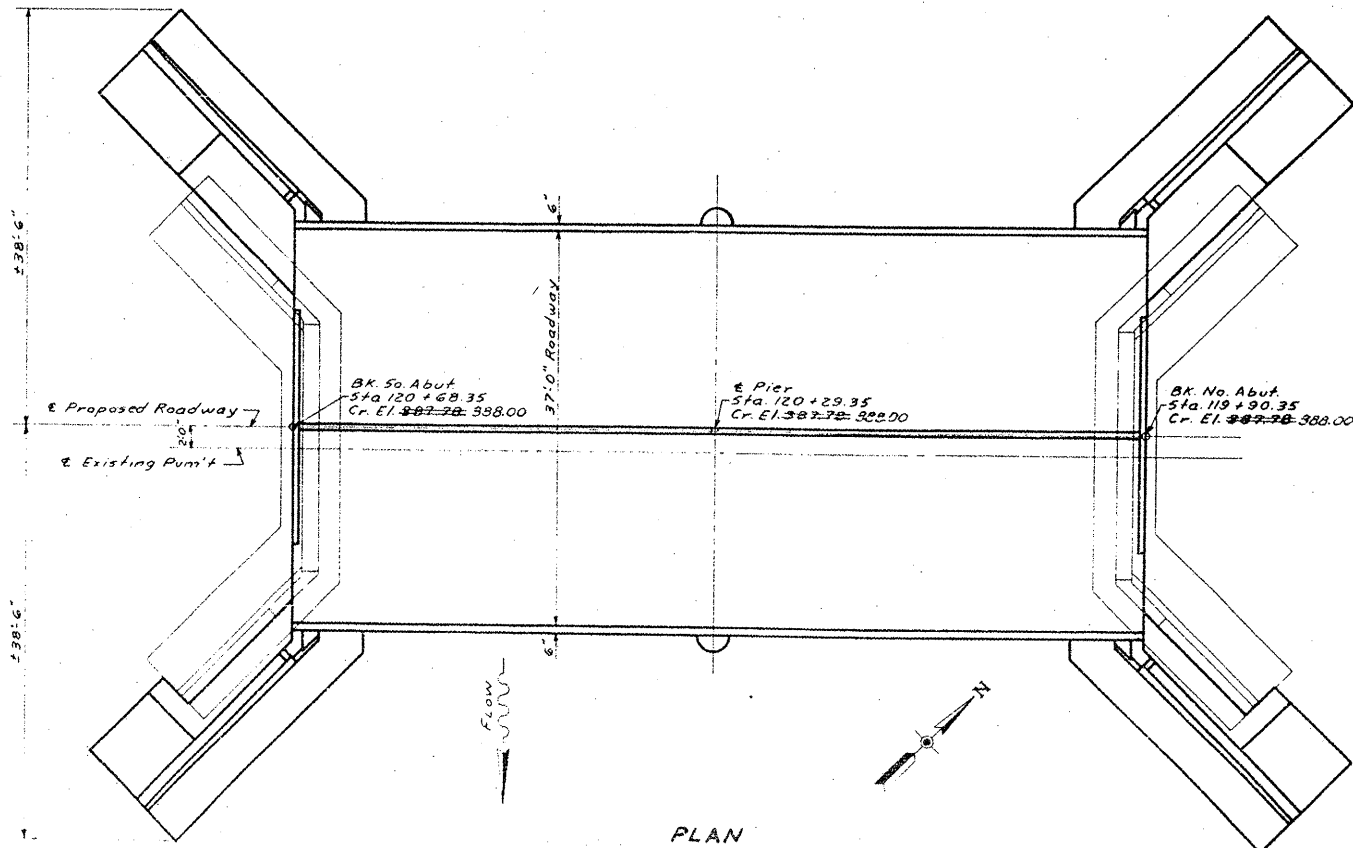
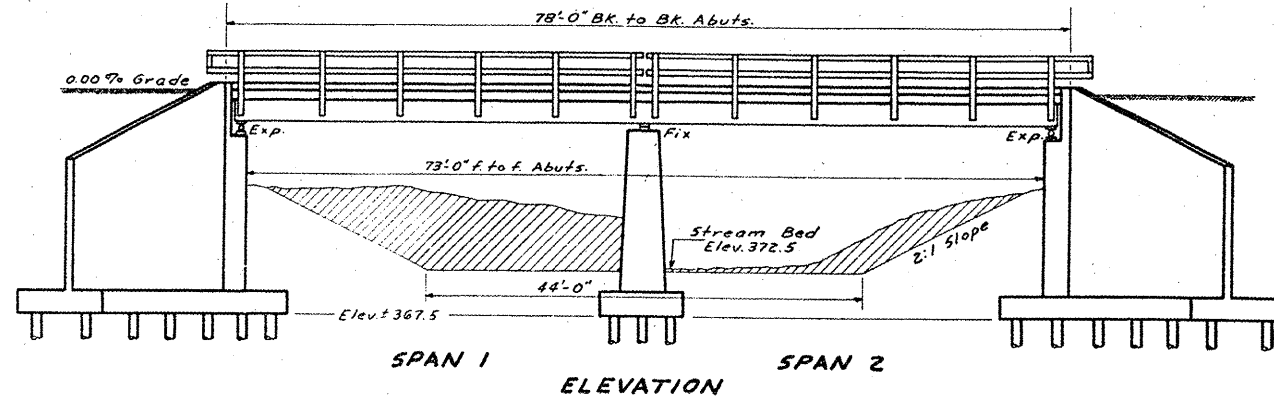
<p>③ 097-0005</p>	<p>2 MILES SOUTH OF GRAYVILLE ILL 1 OVER FRENCH CREEK LENGTH: 78.0 FT.    WIDTH: 37.8 FT. ADT = 3650, 20% TRUCKS POSTED SPEED = 55 M.P.H. INVENTORY RATING HS 26.7 OPERATING RATING HS 38.9</p>
-------------------	---

<p>④ 097-0032</p>	<p>5 MILES EAST OF CROSSVILLE ILL 14 OVER FOX RIVER SLOUGH LENGTH: 284.3 FT.    WIDTH: 34.0 FT. ADT = 950, 4% TRUCKS POSTED SPEED = 55 M.P.H. INVENTORY RATING HS 20.6 OPERATING RATING HS 34.4</p>
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B.M. x Top N.E. Wingwall of Bridge  
 Sta. 120+29 Elev. 385.77  
 Existing Structure: R.C. Thru Girder  
 @ 35' Rdwy. 20' R.C. Abutts.  
 Bridge Contractor to remove superstructure  
 during construction of new Bridge.  
 No Salvage of Superstructure.

STATE OF ILLINOIS  
 DEPARTMENT OF PUBLIC WORKS & BUILDINGS  
 DIVISION OF HIGHWAYS

VARIOUS ROUTES  
 D9 BRIDGE PAINTING FY 09-1  
 VARIOUS COUNTIES  
 CONTRACT 78093  
 FOR INFORMATION ONLY  
 SHEET 21 OF 31



**GENERAL NOTES**  
 Class X Concrete shall be used thru out  
 Concrete floor slab shall be finished in accordance  
 with Art. 61.3 (e) of the Standard Specs. and shall be  
 poured in one continuous operation on either side of  
 the center joint.  
 All connections shall be riveted, except as noted.  
 Rivets shall be 3/4" and holes 1/2", except as noted.  
 All holes for splices shall be punched 1/2" and  
 reamed to proper size (1/2" in web and 1/2" in  
 flange) with all stringers assembled in shop in proper  
 position with or without diaphragms in place.  
 Leave assembled in shop for inspection.  
 All rollers, bearing plates, lead plates, and Anchor  
 bolts shall be finished, painted and set in accordance  
 with Art. 54.3 (d) of the Standard Specs. and are  
 included for payment as structural steel. Est.  
 Weight 6190 #.  
 Structural Steel shall receive one shop coat of red  
 lead paint after inspection and two field coats of  
 Aluminum paint. All paint to be furnished and applied  
 by the Contractor.  
 Anchor bolts shall be set before riveting diaphragms  
 over abutments and piers.  
 Welding shall comply with Art. 55.6 (36) of the  
 Standard Specs.  
 Railing shall be readjusted to true alignment  
 after the floor slab and curb have been poured.  
 The contract unit price each for "Expansion  
 Bolts" shall include furnishing, drilling holes and  
 setting Expansion Bolts.  
 For waterproofing at backs of Abutments. See Special  
 Provisions.

STATION 120+29.35  
 BUILT 1950 BY  
 STATE OF ILLINOIS  
 S.B.I. RT.1 SEC.5-B-Y  
 F.A.PROJ.F-52(7)  
 LOADING H20-516

NAME PLATE  
 See Std. 1801

**TOTAL BILL OF MATERIAL**

Item	Super	Substr.	Total
Class X Concrete cu.yds.	70.5	3485.40	3555.90
Reinforcement Bars lbs.	13,150	21990	35140
Structural Steel lbs.	81,990		81,990
Name Plate ea.	1		1
Unfr. Timber Piles (30'lg.) lin.ft.		3990	3990
Removal of Ex. Structures ea.		1	1
Masonry Removal cu.yds.		89.3	89.3
Expansion Bolts ea.		45	45

**WATERWAY INFORMATION**

Drainage Area 11,520 Acres  
 Character Rolling  
 Opening Req'd. (C-45 Talbot) 500 Sq Ft  
 Proposed Opening 753 Sq Ft

**STRESSES**

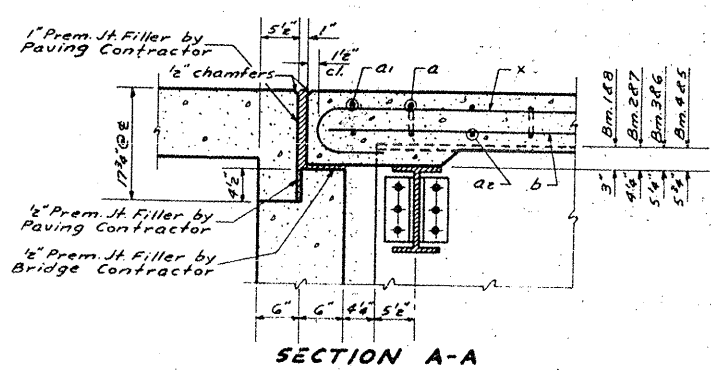
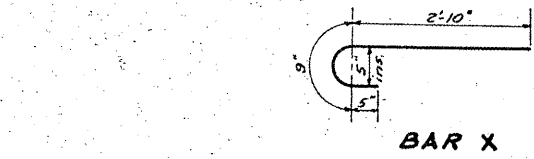
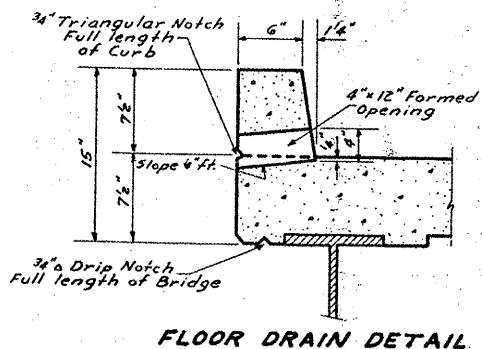
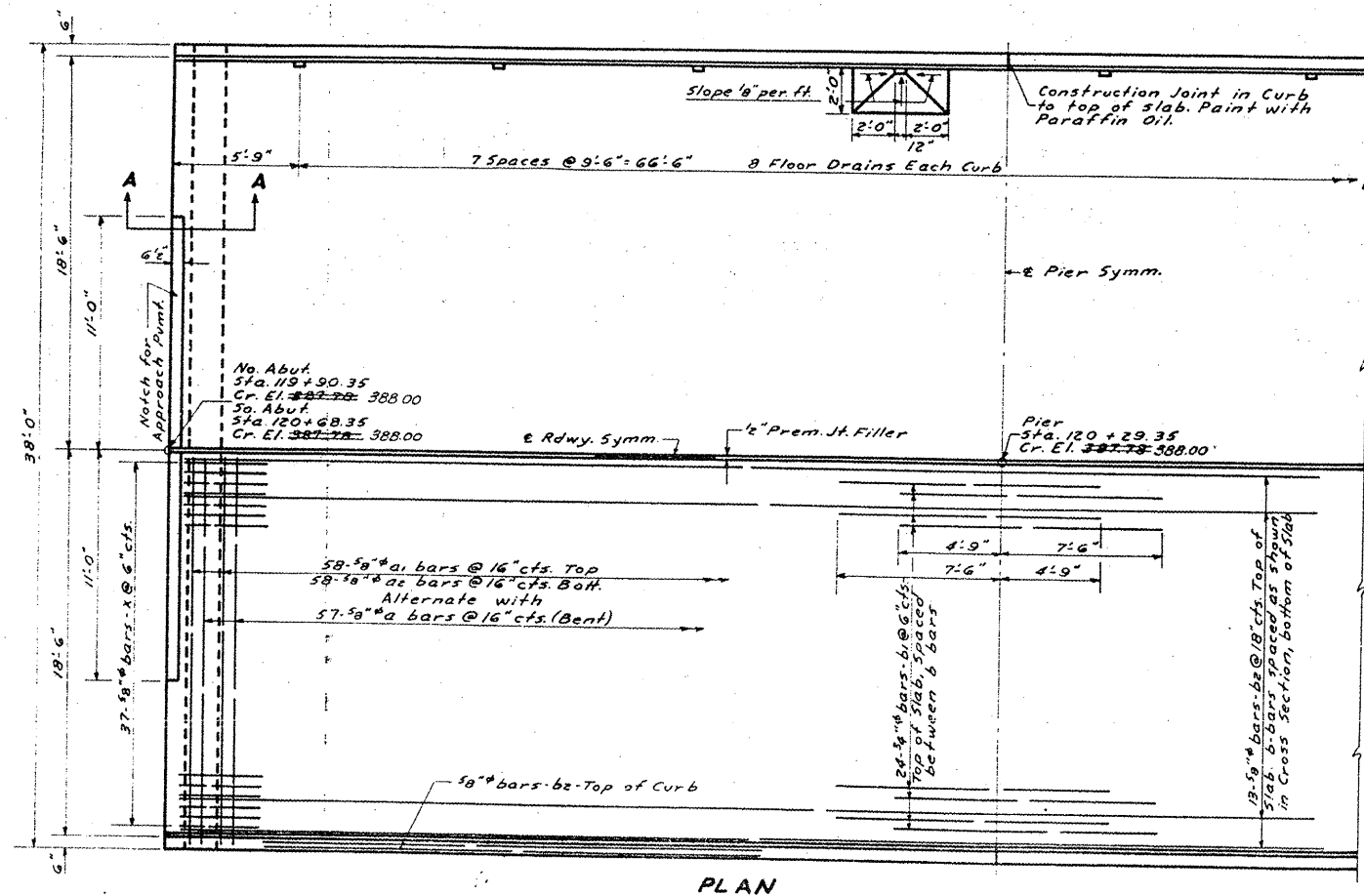
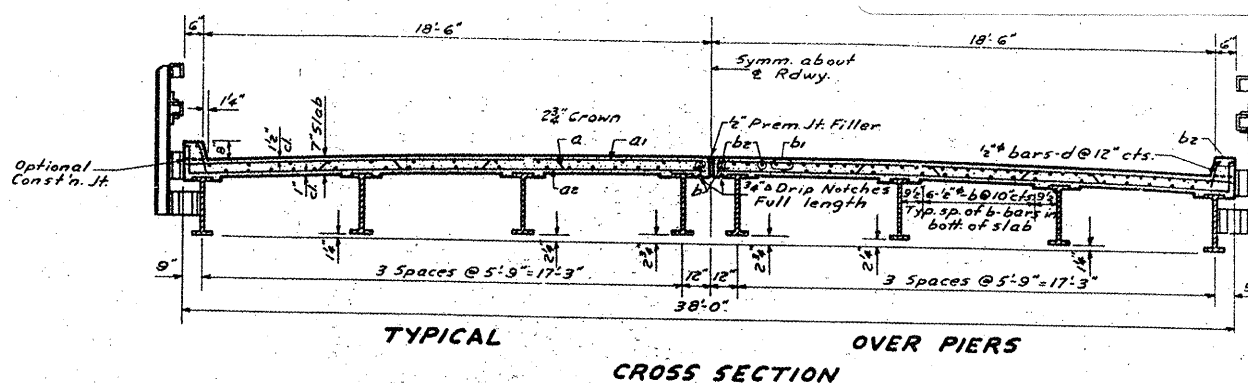
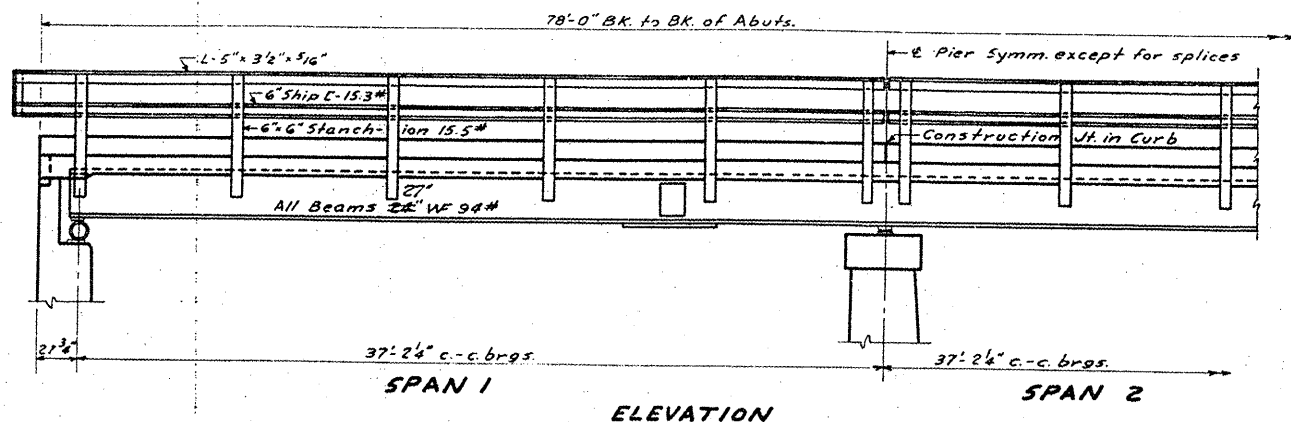
f<sub>s</sub> = 20,000 Reinf.  
 f<sub>s</sub> = 18,000 Structural  
 f<sub>c</sub> = 1200 Super  
 f<sub>c</sub> = 800 2-2-2  
 n = 10  
 H-20 S-16-44 Loading

GENERAL PLAN & ELEVATION  
 PROJ. F-52(7)  
 BRIDGE OVER FRENCH CREEK  
 F.A. RT. 1 (S.B. I. RT. 1) SEC. 5-B-Y  
 WHITE COUNTY  
 STA. 120+29.35

BRIDGE NO. 3

STATE OF ILLINOIS  
DEPARTMENT OF PUBLIC WORKS & BUILDINGS  
DIVISION OF HIGHWAYS

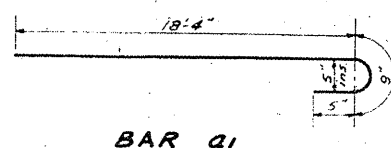
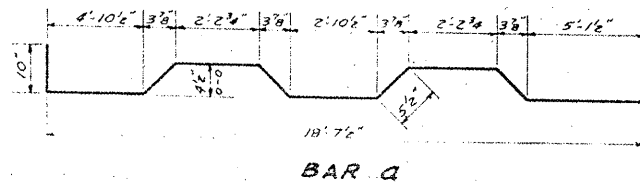
VARIOUS ROUTES  
D9 BRIDGE PAINTING FY 09-1  
VARIOUS COUNTIES  
CONTRACT 78093  
FOR INFORMATION ONLY  
SHEET 22 OF 31



**BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
a	114	5/8"	20'-0"	
a1	116	5/8"	19'-6"	
a2	116	5/8"	18'-9"	
b	152	1/2"	20'-0"	
b1	48	3/4"	12'-3"	
b2	120	5/8"	20'-0"	
d	156	1/2"	1'-0"	
x	148	5/8"	4'-0"	
Class X Concrete			cu. yds	70.5
Reinforcement Bars			lbs	13,150
* Structural Steel			lbs	81,990
Name Plate			ea	1

\* Weight of Rollers, Bearing Rs, Lead Rs, and Anchor Bolts included as Structural Steel. Est. Weight 6190.



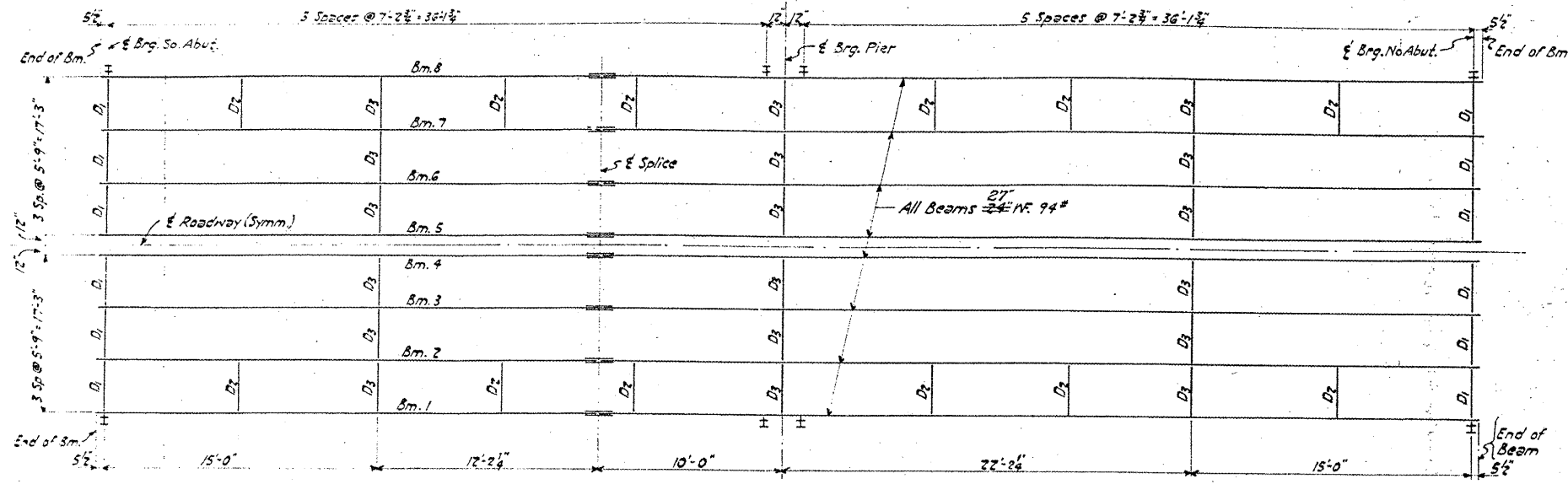
Rev. 4-16-10 - Optional Const. Jt. in Slab  
Rev. 1-2-10 - Optional Const. Jt. removed from Slab  
Rev. 1-2-10 - 1/2" Prem. Jt. Filler

**SUPERSTRUCTURE**  
PROJ. F-52 (7)  
BRIDGE OVER FRENCH CREEK  
FA-RT-1 (S.B. I. RT. 1) SEC. 5-B-Y  
WHITE COUNTY  
STA. 120 + 29.35

BRIDGE NO. 3

STATE OF ILLINOIS  
DEPARTMENT OF PUBLIC WORKS & BUILDINGS  
DIVISION OF HIGHWAYS

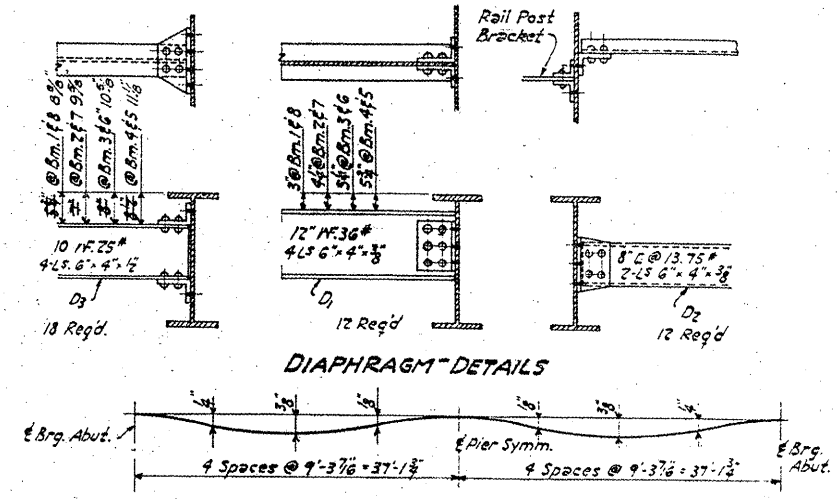
VARIOUS ROUTES  
D9 BRIDGE PAINTING FY 09-1  
VARIOUS COUNTIES  
CONTRACT 78093  
FOR INFORMATION ONLY  
SHEET 23 OF 31



SPAN-1

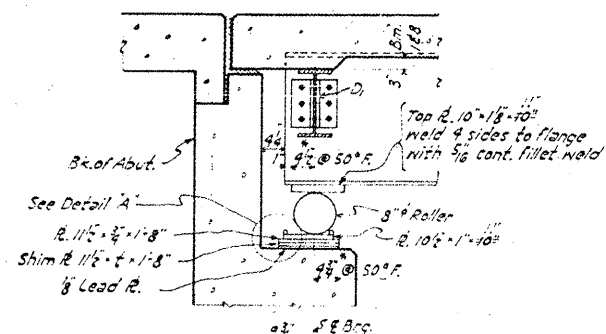
SPAN 2

PLAN OF STRUCTURAL STEEL

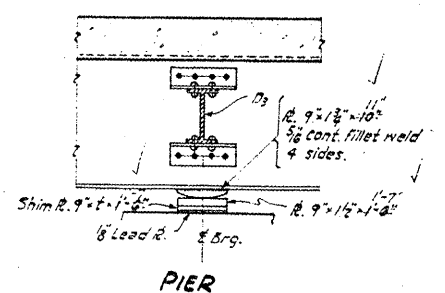


DIAPHRAGM DETAILS

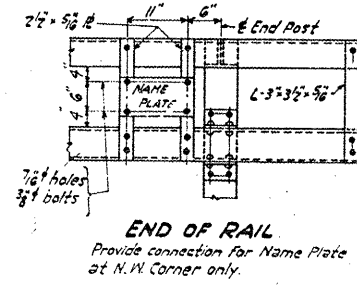
DL DEFLECTION DIAGRAM



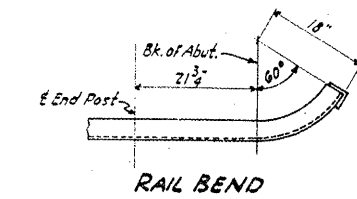
SECTION AT ABUTMENT



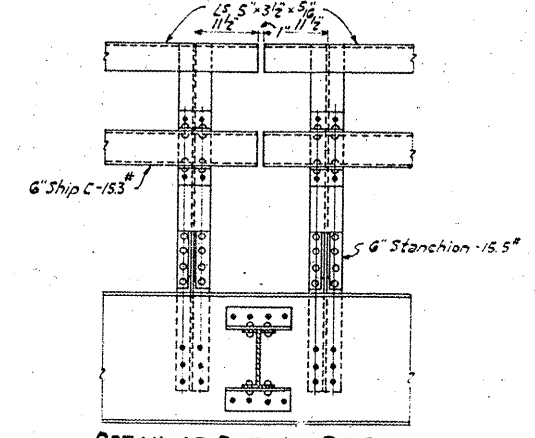
PIER



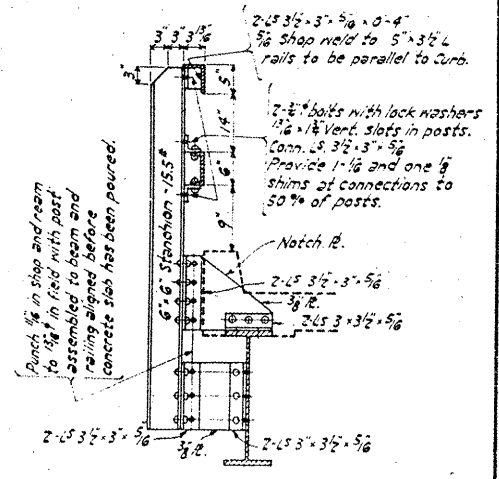
END OF RAIL



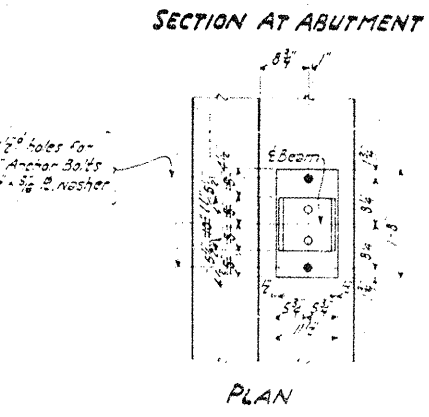
RAIL BEND



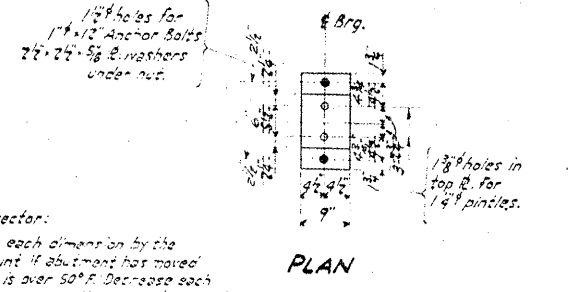
DETAIL OF RAIL AT PIER



RAIL POST DETAILS

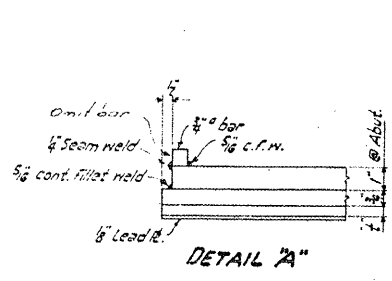


PLAN

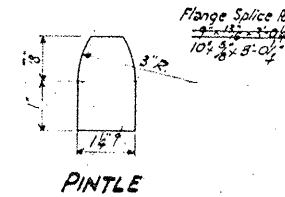


PLAN

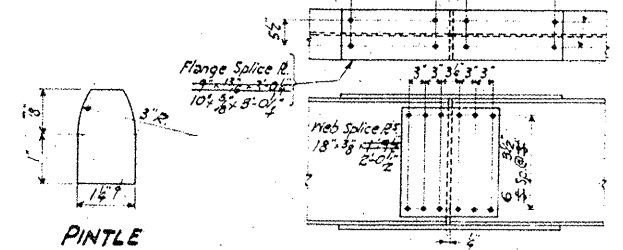
Note to Erector:  
Increase each dimension by the same amount if abutment has moved or if temp. is over 50°F. Decrease each by the same amount if temp. is below 50°F.



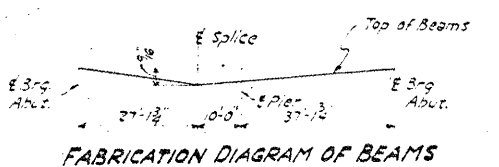
DETAIL "A"



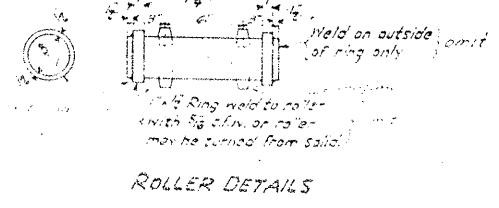
PINTLE



DETAIL OF SPLICE



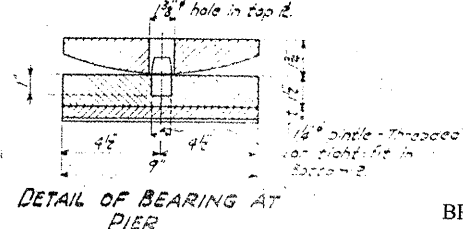
FABRICATION DIAGRAM OF BEAMS



ROLLER DETAILS

TABLE OF 1/2" DIMENSIONS

BEAM NO.	1	2	3	4	5	6	7	8
ASSETS	0	0	0	2	2	0	0	0
Pie.	0	0	0	12	7	0	0	0



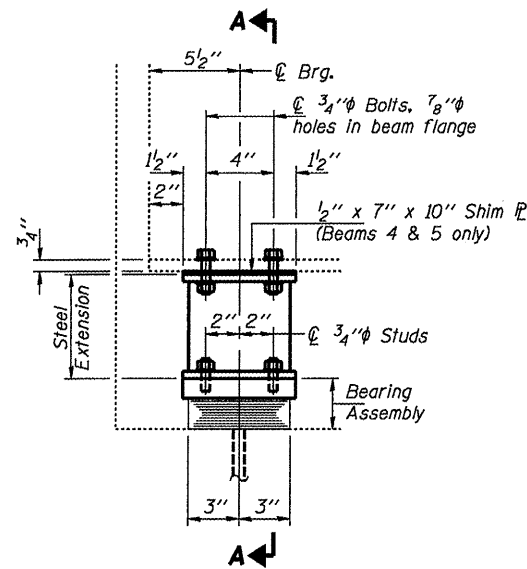
DETAIL OF BEARING AT PIER

STRUCTURAL STEEL  
PROJ. F-52(7)  
BRIDGE OVER FRENCH CREEK  
R. 1 (S.B. 1 R. 1) SEC. 5 B.Y.  
WHITE COUNTY  
STA. 120 + 29.35

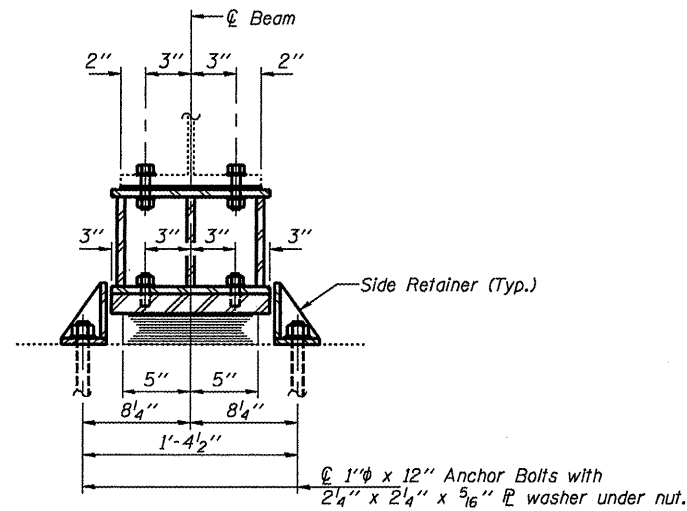
BRIDGE NO. 3

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

VARIOUS ROUTES  
D9 BRIDGE PAINTING FY 09-1  
VARIOUS COUNTIES  
CONTRACT 78093  
FOR INFORMATION ONLY  
SHEET 24 OF 31

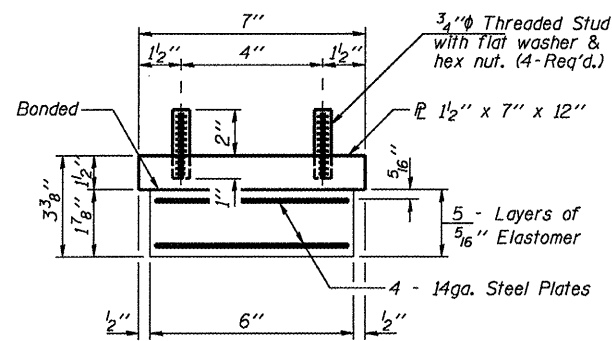


ELEVATION AT ABUTMENT



SECTION A-A

TYPE I ELASTOMERIC EXP. BRG.



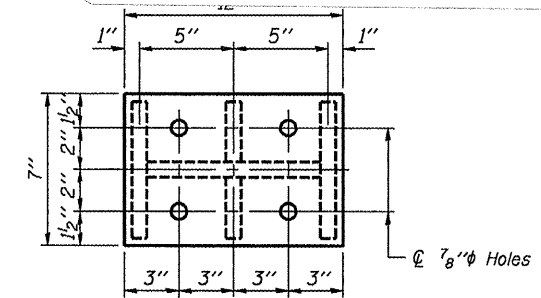
BEARING ASSEMBLY

Note:  
Shim plates shall not be placed under Bearing Assembly.

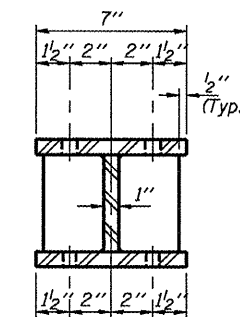
BEAM REACTIONS

R <sub>P</sub>	(K)	11.7
R <sub>L</sub>	(K)	26.5
Imp.	(K)	8.0
R (Total)	(K)	46.2

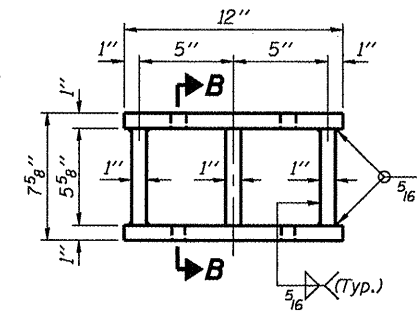
Notes:  
Diaphragm removal and reinstallation may be required to facilitate drilling holes. Cost included with Furnishing and Erecting Structural Steel.  
New steel extensions, shim plates and connection bolts are included with Furnishing and Erecting Structural Steel.  
Prior to ordering any material, the Contractor shall verify in the field all bearing height and shim thickness dimensions. Min. Jack capacity = 25 Tons.  
Anchor bolts shall be ASTM F1554 all-thread (or an Engineer-approved alternate material) of the grade(s) and diameter(s) specified. ASTM A307 Grade C anchor bolts may be used in lieu of ASTM F1554 Grade 36 (Fy=36ksi). The corresponding specified grade of AASHTO M314 anchor bolts may be used in lieu of ASTM F1554.  
Drilled and set anchor bolts shall be installed according to Article 521.06 of the Standard Specifications.  
Side retainers shall be included in the cost of Elastomeric Bearing Assembly, Type I.



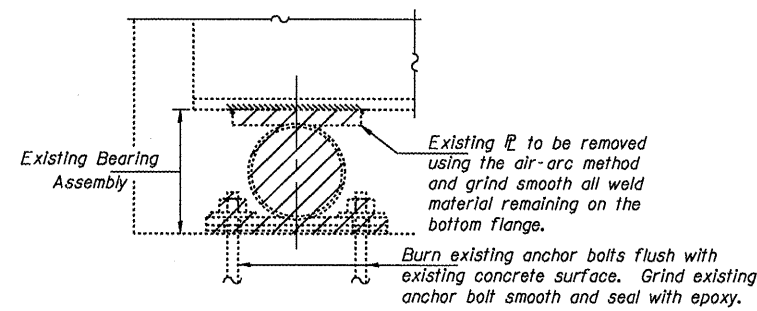
PLAN TOP AND BOTTOM PLATE



SECTION B-B

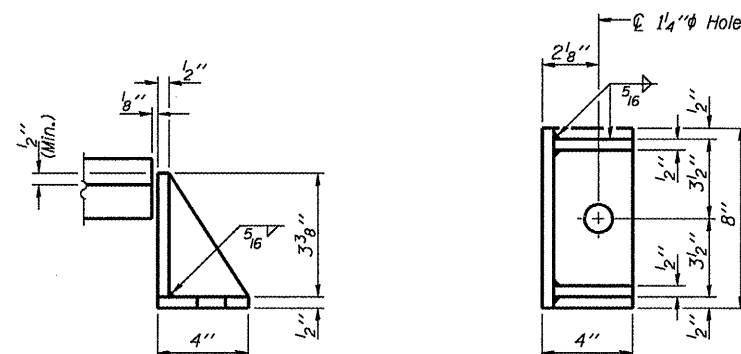


STEEL EXTENSION DETAIL



EXISTING BEARING REMOVAL DETAIL

Cost Included with Jack and Remove Existing Bearings.



SIDE RETAINER

Equivalent rolled angle with stiffeners will be allowed in lieu of welded plates.

BILL OF MATERIAL

Item	Unit	Total
Elastomeric Bearing Assembly Type I	Each	16
Jack and Remove Existing Bearings	Each	16
Furnishing and Erecting Structural Steel	Pound	1530
Anchor Bolts	Each	32

DESIGNED	DAB
CHECKED	AJB
DRAWN	ballva
CHECKED	DAB AJB

TYI/REPS 11-01-2006

BRIDGE NO. 3  
BRIDGE REPAIRS  
FA-132 OVER FRENCH CREEK  
WHITE COUNTY  
SN 097-0005

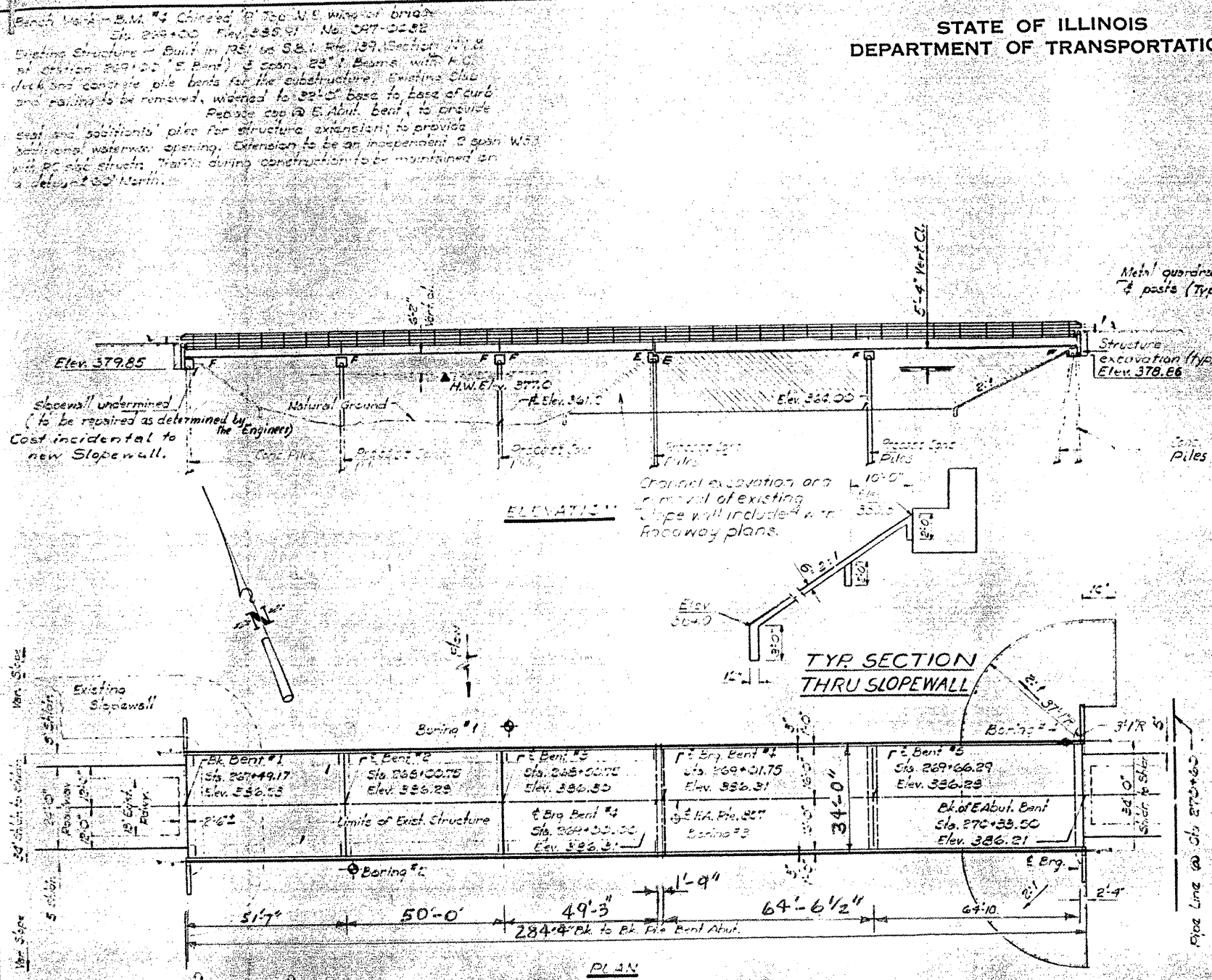


STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

VARIOUS ROUTES  
D9 BRIDGE PAINTING FY 09-1  
VARIOUS COUNTIES  
CONTRACT 78093  
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SHEET 25 OF 31

GENERAL

See Proposal for Boring Data  
Fasteners shall be high strength bolts. Bolts  
Calculated weight of Structural Steel M-163 = 172870 lbs.  
The basic lead silico chromate paint system shall be used for shop and field painting of new Structural Steel.  
Field welding of construction accessories will not be permitted to the bottom flange of beams nor to the top flange in spans 4 & 5 for a distance equal to one-fourth each way from pier supports. Field welding in other areas will be permitted only when approved by the Engineer.  
Anchor bolts shall be set before bolting diaphragms over support.  
Layout of slope walls may be varied in the field to suit ground conditions as directed by the Engineer.  
The Contractor shall drive one (1) Precast concrete test pile in a permanent location at Bent #4 and one (1) concrete test pile in a permanent location at the East Abutment bent, as directed by the Engineer, before ordering the remainder of piles.  
Plan dimensions and details relative to existing structure have been taken from existing plans and are subject to nominal construction variations. It shall be the Contractor's responsibility to verify such dimensions and details in the field and make necessary approved adjustments prior to construction or ordering of materials. Such variations shall not be cause for additional compensation for a change in the scope of the work, however, the Contractor will be paid for the quantity actually furnished at the unit price bid for the work.  
Bearing seat surfaces shall be constructed or adjusted to the designated elevations within a tolerance of 1/8 inch. Adjustment shall be made either by grinding the surface or by shimming the bearing. Two 1/2" adjusting shims of the dimensions of the bottom bearing plate for Type II bearing, and top bearing plate for Type I bearings, shall be provided for each bearing in addition to all other plates or shims.  
The main load carrying member components subject to tensile stress shall conform to the Supplemental Requirements for Notch Toughness Zone 2. These components are the tension flanges, webs and all splice plate material of the wide flange beams.  
Reinforcement bars shall conform to the requirements of AASHTO M-31 or M-53 Grade 60.  
Slope wall shall be reinforced with welded wire fabric 6" W40xW40, weighing 55# per 100 sq. ft.  
Expansion bolts shall consist of approved expansion anchors, providing certified Min proof load = 4080 lbs, and 5/8" x 12" hooked bolts.  
All existing Structural Steel shall be cleaned by Method I and painted with three coats of basic lead silico chromate paint system (Approximately 50 tons of existing structural steel to be painted).



STATION 268+25.75  
REBUILT 198 BY  
STATE OF ILLINOIS  
FA.Pc. 857 SEC. 101-BR2  
FA PROJECT  
LOADING HS20  
\*STRUCT. # 097-0032

NAME PLATE  
Std. 2113  
\* Structure Number to be  
Supplied by the District.

TOTAL BILL OF MATERIAL

Item	Unit	Super	Sub	Total
Name Plates	Each			1
Slope Wall (6")	Sq. Yds		450	450
Preformed Joint Seal (2")	Lin. Ft.	68		68
Concrete Removal	Cu. Yds.		13	13
Expansion Bolts (3/4")	Each		57	57
Removal of Existing Concrete Deck	L.S.	1		1
Structure Excavation	Cu. Yds.		92	92
Floor Drains	Each	68		68
Protective Coat	Sq. Yds.	1107		1107
Class "X" Concrete	Cu. Yds.	247.2	62.7	309.9
Structural Steel	L.S.			1
Stud Shear Connectors	Each	2208		2208
Steel Rolling Type T-1	Lin. Ft.	569		569
Cleaning and Painting Steel Bridge	L.S.			1
Reinforcement Bars	Lbs	25230	5610	30840
Reinforcement Bars (Epoxy Coated)	Lbs	34010		34010
Precast Concrete Piles (14")	Lin. Ft.		821	821
Concrete Piles	Lin. Ft.		376	376
Test Pile Precast Concrete	Each		1	1
Test Pile Concrete	Each		1	1
Pav't. Removal & P.C.C. Repl. Type II (10")	Sq. Yds	10		10
Jacking and Cribbing	L. Sum			1
Neoprene Expansion Joint (4")	Lin. Ft.	34		34
Elastomeric bearing, Assembly, Type I	Each		7	7
Elastomeric bearing, Assembly, Type II	Each		8	8
Jack and Replace Bearings	Each	6		6
Web repair	Each	12		12
Remove and Replace Diaphragms	Each	9		9

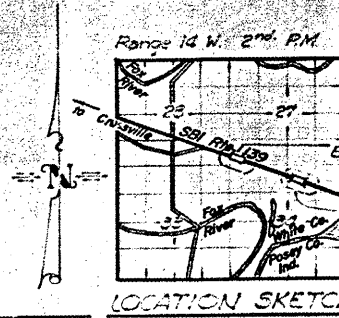
WATERWAY INFORMATION

Drainage Area 30000 sq. ft. @ Sta. Low Grade Elev. 386.0

Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft.		Nat. H.W.E.	Head - Ft.		Headwater El.	
			Exist.	Prop.		Exist.	Prop.	Exist.	Prop.
Design	50	12182	3500	3200	377				
Base	100	13950	3800	3478	378				
Overlapping									
Max. Calc.	500	17680	4150	3895	379.5				

DESIGN STRESSES (NEW CONSTR.)  
Ft = 3500 psi  
Fy = 60,000 psi Reinforcement  
Fy = 36,000 psi Structural steel

LOADING HS 20-44  
Design Specifications: 1977 AASHTO  
1979 & 1979 Interim Specifications.



GENERAL PLAN & ELEVATION  
FA.Pc. 857 FOX RIVER OVERFLOW  
FA.Pc. 357 (S.B. 1.57) SECTION 101 BR-2  
WHITE COUNTY  
STA. 268+25.75

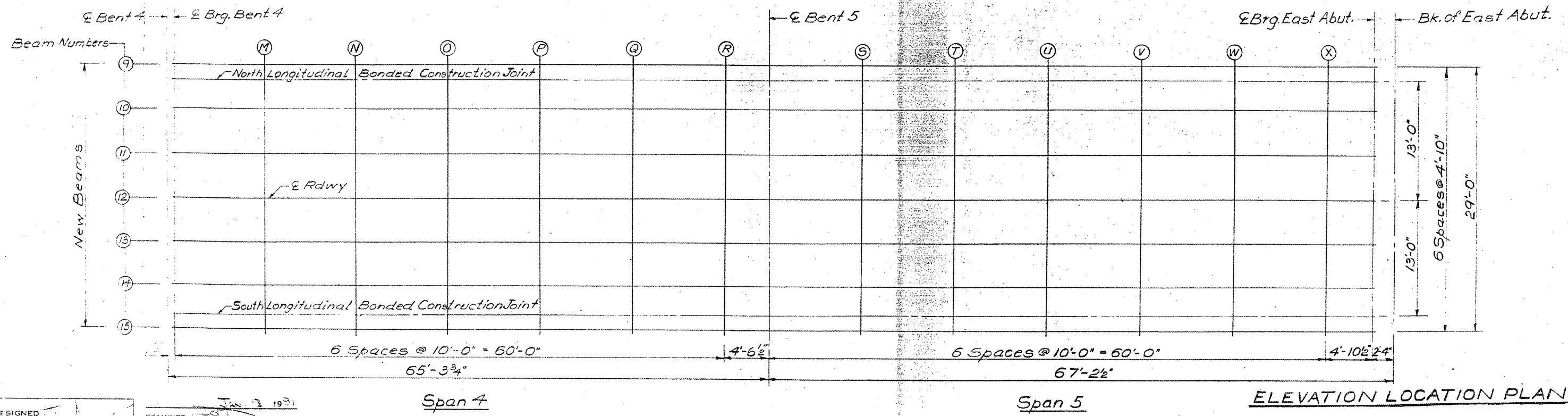
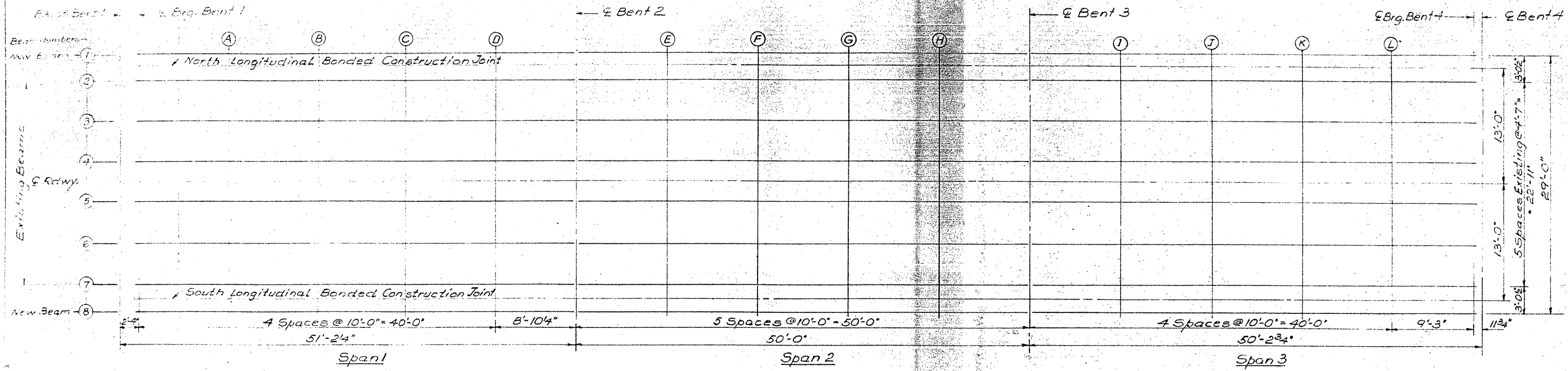
BRIDGE NO. 4

DESIGNED  
CHECKED  
DRAWN  
CHECKED

EXAMINED  
PASSED  
APPROVED

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

VARIOUS ROUTES  
D9 BRIDGE PAINTING FY 09-1  
VARIOUS COUNTIES  
CONTRACT 78093  
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SHEET 26 OF 31



DESIGNED	EXAMINED
CHECKED	PASSED
DRAWN V.H.	APPROVED
CHECKED	

Jan 13 1991  
ENGINEER OF BRIDGES AND TRAFFIC STRUCTURES  
ENGINEER OF DESIGN  
DIRECTOR OF HIGHWAYS

ELEVATION LOCATION PLAN  
FA. RTE. 857-SECTION 101 BR-2

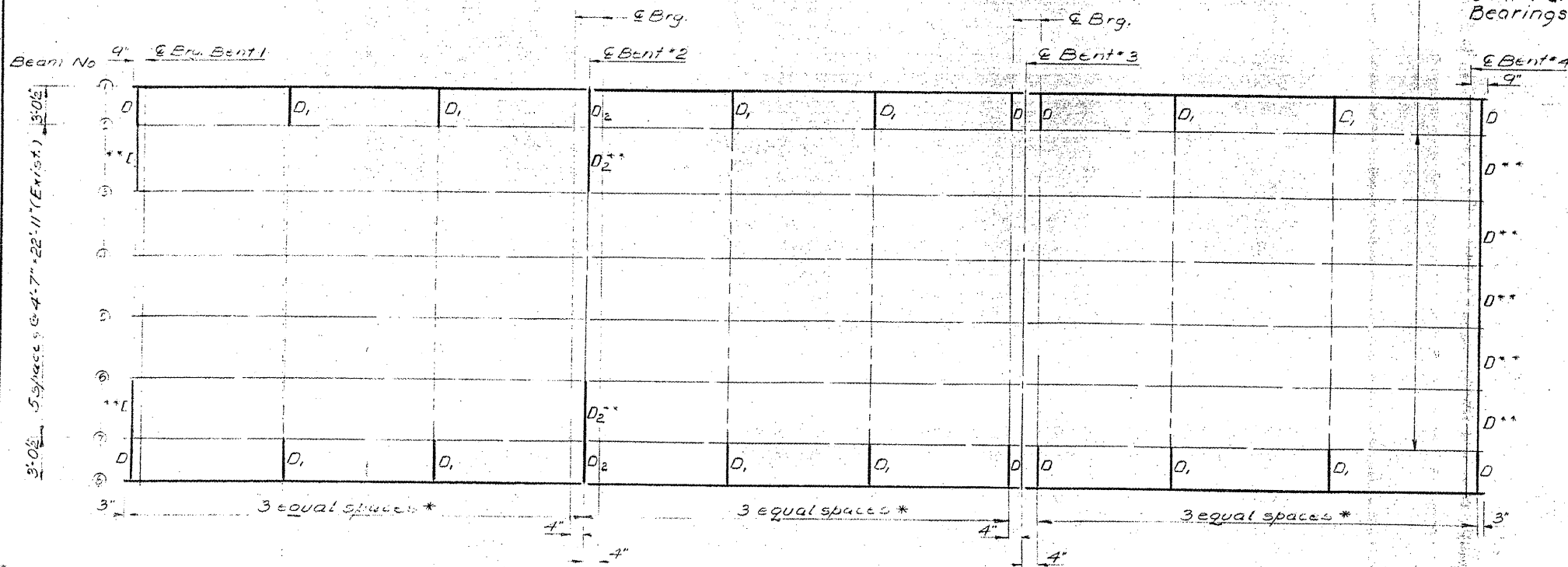
WHITE COUNTY

STA. 268 + 25.75

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

VARIOUS ROUTES  
D9 BRIDGE PAINTING FY 09-1  
VARIOUS COUNTIES  
CONTRACT 78093  
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SHEET 27 OF 31

Bms. 2 thru 7 shall be jacked and cribbed during reconstruction of Bent 4 and placement of New Bearings See Special Provisions.



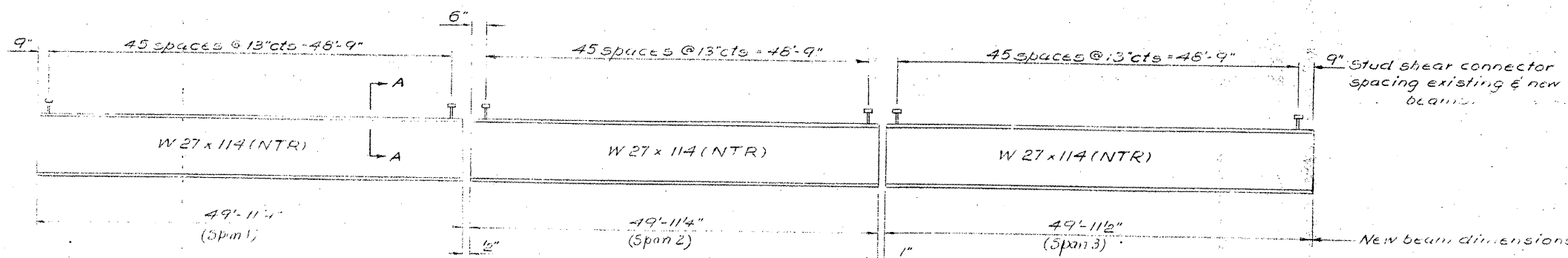
FRAMING PLAN

\* Holes for Diaphragms shall be field drilled to match existing Diaphragm holes  
\*\* Existing Diaphragms to be removed and replaced with new Diaphragms. Cost included with "Remove & Replace Diaphragms".  
All contact surfaces of joints for the diaphragms shall be free of paint or lacquer.

MOMENT TABLE  
(at Midspan)

	Exist. beams	Beam 1&8
$I_s$ (in <sup>4</sup> )	3711	4090
$I_c$ (in <sup>4</sup> )	8389	8396
$I_c$ (in <sup>4</sup> )	6445	6107
$S_s$ (in <sup>3</sup> )	265.1	300
$S_c$ (in <sup>3</sup> )	366.2	398.2
$S_c$ (in <sup>3</sup> )	331.4	356.1
$Q$ (K/1)	.537	.423
$M_Q$ (I-K)	164	129
$f_s$ (Non-Comp)(KSI)	7.4	5.2
$S_Q$ (K/1)	.05	.05
$M_{SQ}$ (I-K)	15	15
$f_s$ (Superimposed)(KSI)	.5	.5
$M_{\frac{1}{2}}$ (I-K)	308	308
$M_{imp}$ (I-K)	89	89
$M_{\frac{1}{2}} + imp$ (I-K)	397	397
$f_s$ (live load)(KSI)	13.0	12.0
$f$ (total Stress)(KSI)	20.9	17.7
$V_r$ (K)	37.7	37.7

$I_c$  &  $S_c$  are the section modulus and moment of inertia of the composite section. (where the modular Ratio = 1, used in computing  $f_s$  (Non-Comp) and  $f_s$  (Live Load))  
 $I_c$  &  $S_c$  are the section modulus and moment of inertia of the composite section (where the modular Ratio = 30, used in computing  $f_s$  (Superimposed)).

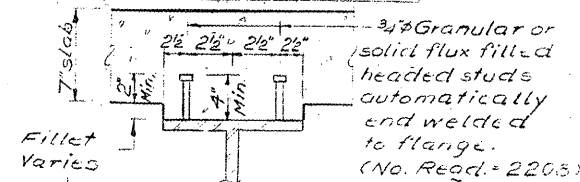


ELEVATION

TOP OF FLANGE ELEVATIONS (FOR FABRICATION PURPOSES ONLY)

Location	± Brg. Bent #1	± Brg. Bent #2	± Brg. Bent #3	± Brg. Bent #4
Girder 1	385.22	385.30	385.30	385.30
Girder 8	385.22	385.30	385.30	385.30

The main load carrying members of steel bridges subject to tensile stresses shall conform to the Supplemental Requirements in Hatch, Toughness (2003). These tensile members are the beam and are designated by NTR.



SECTION A-A

REACTION TABLE  
(Beams 1&8)

	Bent 1&4	Bent 2&3
$R_Q$ (K)	11.7	11.7
$R_{\frac{1}{2}}$ (K)	29.2	29.2
$R_{IMP}$ (K)	8.5	8.5
$R_{TOTAL}$ (K)	49.4	49.4

REACTION TABLE  
(Existing Beams)

	Bent 1&4	Bent 2&3
$R_Q$ (K)	14.5	14.5
$R_{\frac{1}{2}}$ (K)	29.2	29.2
$R_{IMP}$ (K)	8.4	8.4
$R_{TOTAL}$ (K)	52.1	52.1

STRUCTURAL STEEL  
SPANS 1, 2 & 3

F.A.RTE. 857-SECTION 101 BR-2

WHITE COUNTY

STA. 268 +25.75

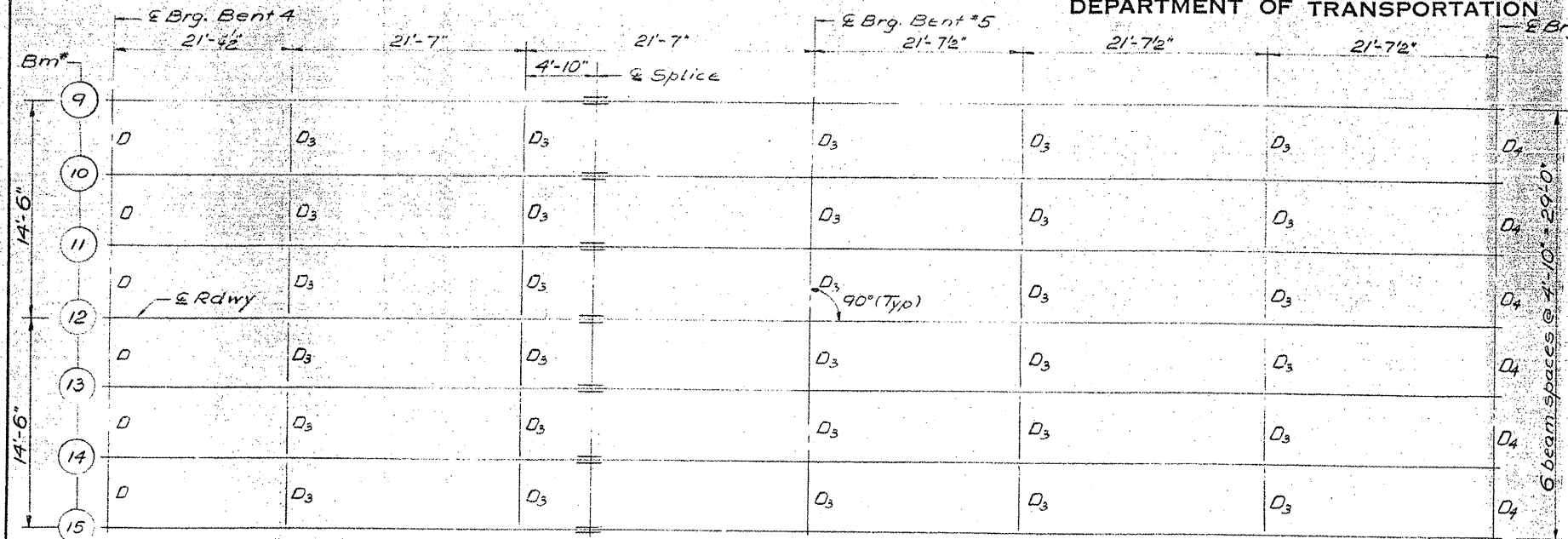
DESIGNED	Steve A. Meyer
CHECKED	
DRAWN	V.F.I.
CHECKED	

EXAMINED	JAN 13 1991
PASSED	
APPROVED	

BRIDGE NO. 4

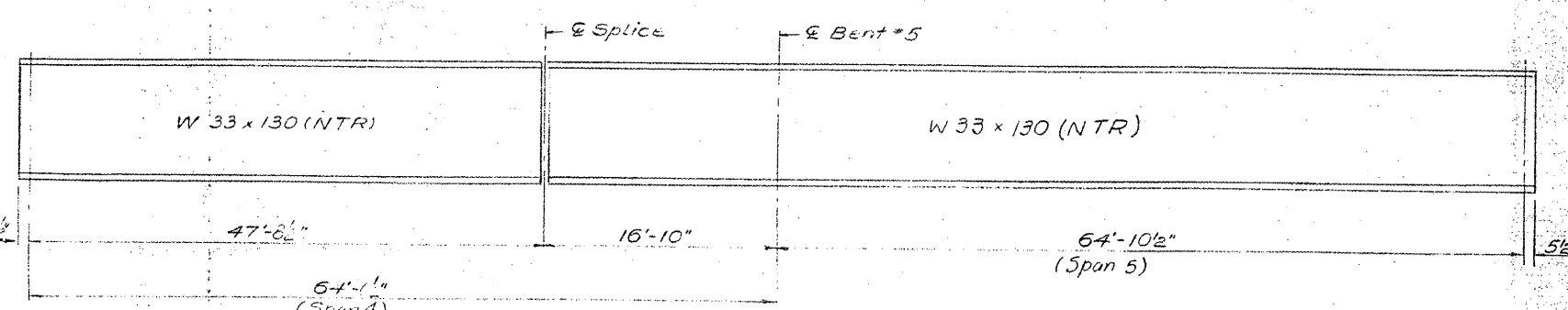
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

VARIOUS ROUTES  
D9 BRIDGE PAINTING FY 09-1  
VARIOUS COUNTIES  
CONTRACT 78093  
FOR INFORMATION ONLY  
SHEET 28 OF 31



FRAMING PLAN

All contact surfaces of joints for the diaphragms shall be free of paint or lacquer.



BEAM ELEVATION

Note: The main load carrying members of steel bridges subject to tensile stresses shall conform to the Supplemental Requirements for Notch Toughness (Zone 2). These tensile members, including beams and splice plates, are designated by (NTR).

Interior Girder Reaction Table

	Abut. or Bent 4	Bent 5
R <sub>D</sub> (K)	16.2	53.8
R <sub>L</sub> (K)	29.5	34.7
IMP (K)	7.7	9.0
P Total (K)	53.5	97.5

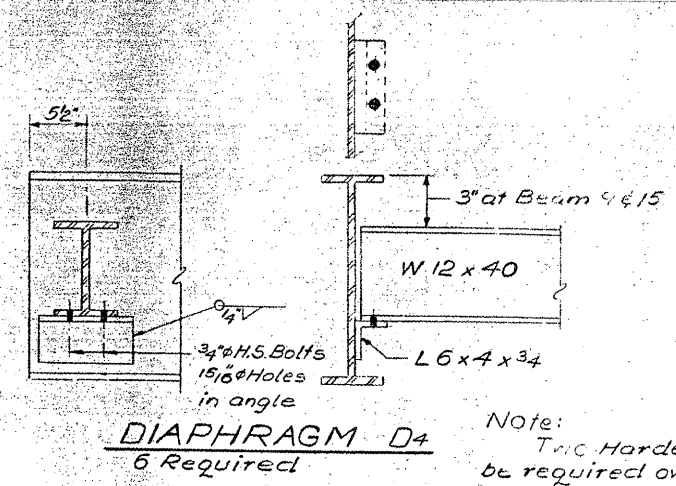
TOP OF FLANGE ELEVATION  
(For fabrication only)

Girder Location	ε Brg. Bent 4	ε Splice	ε Brg. Bent 5	ε Brg. Bent 6
9 & 15	385.41	385.38	385.38	385.31
10 & 14	385.50	385.47	385.47	385.40
11 & 13	385.58	385.54	385.55	385.48
12	385.65	385.62	385.62	385.55

Interior Girder Moment Table

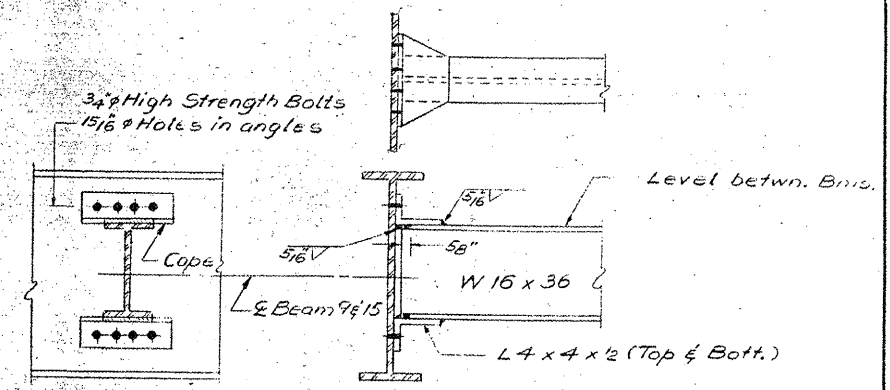
	4 spans 4 or 6 spans 5	Bent 5
I <sub>s</sub> (in <sup>4</sup> )	6710	6710
S <sub>s</sub> (in <sup>3</sup> )	406	406
Q+SQ (in <sup>4</sup> )	.667	.667
M <sub>2</sub> +S <sub>2</sub> (in <sup>4</sup> )	196.8	351.3
f <sub>s</sub> (Q+SQ)(in <sup>4</sup> )	5.8	10.4
M <sub>2</sub> (in <sup>4</sup> )	358.0	244.7
M <sub>1</sub> (in <sup>4</sup> )	93.0	63.6
M <sub>2</sub> +M <sub>1</sub> (in <sup>4</sup> )	451.0	308.3
f <sub>s</sub> (Q+SQ)(in <sup>4</sup> )	13.3	9.1
f <sub>s</sub> (Total)(in <sup>4</sup> )	19.1	19.5

I<sub>s</sub> and S<sub>s</sub> are the moment of inertia and section modulus, respectively of the steel section used in computing f<sub>s</sub>.

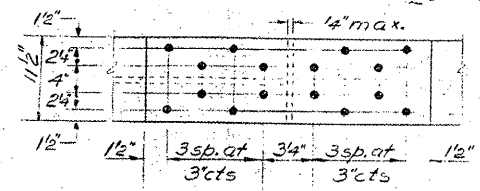


DIAPHRAGM D4  
6 Required

Note: True Hardened washers shall be required over 15/16" holes in angles.



DIAPHRAGM D3  
30 Required



SPlice

2-Web splice plates 76" x 19" x 29" (NTR) (1 each side)  
2-inside Flange splice plates 76" x 42" x 24" (NTR) (1 each side) Top & Bottom Flange  
1-outside Flange splice plate 76" x 112" x 24" (NTR) Top & Bottom Flange

STRUCTURAL STEEL  
SPANS 4 & 5

F.A. RTE. 857-SECTION 101 BR-2

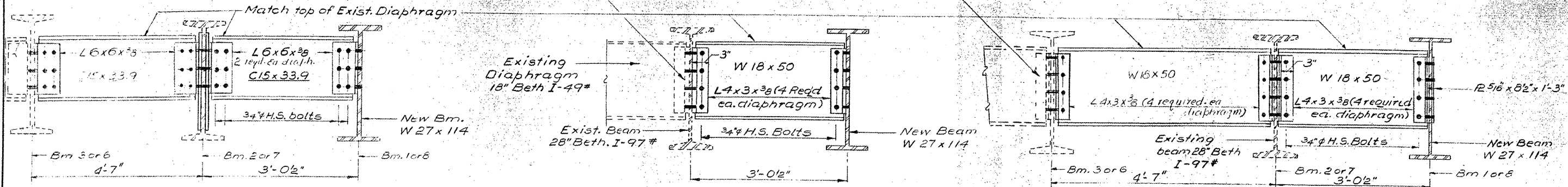
DESIGNED: *Steve Wilson*  
CHECKED: *[Signature]*  
DRAWN: *V.H.*  
CHECKED: *[Signature]*

EXAMINED: *[Signature]* 1981  
PASSED: *[Signature]*  
APPROVED: *[Signature]*

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

VARIOUS ROUTES  
D9 BRIDGE PAINTING FY 09-1  
VARIOUS COUNTIES  
CONTRACT 78093  
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SHEET 29 OF 31

Existing rivets connecting Ls to beam web shall be removed and replaced with 3/4" H.S. Bolts



Span 1. Replace the two exterior diaphragms at Bent #1  
Span 3. Replace all the existing diaphragms at Bent #4  
See special provisions

**D - DIAPHRAGM**  
14 Req'd

**D1 - DIAPHRAGM**  
12 Req'd

**D2 - DIAPHRAGM**  
2 Req'd

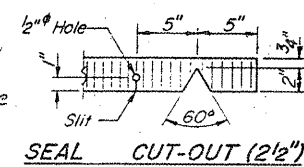
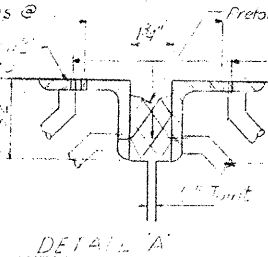
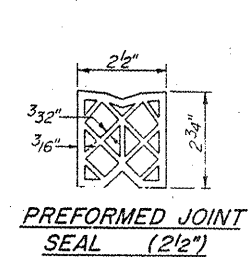
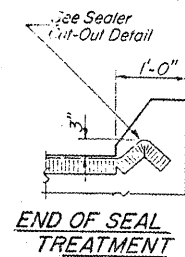
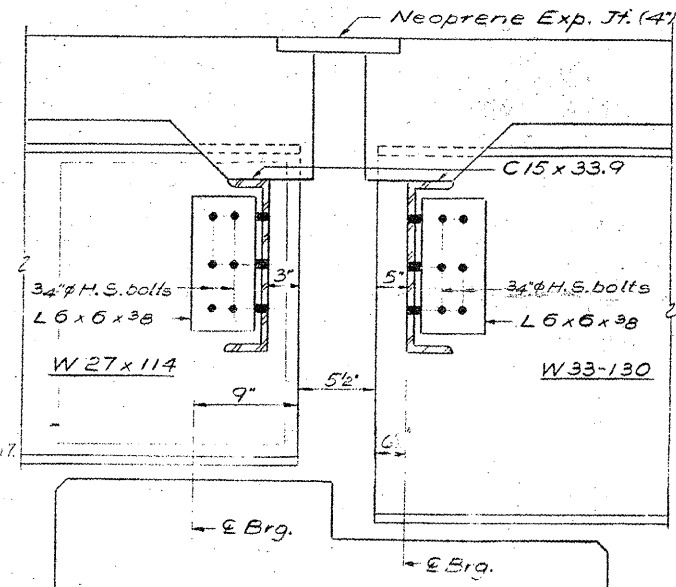
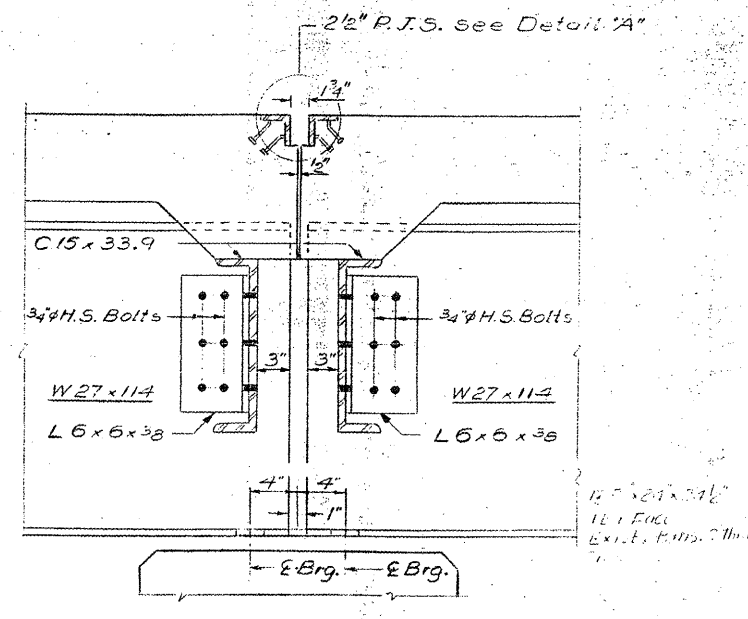
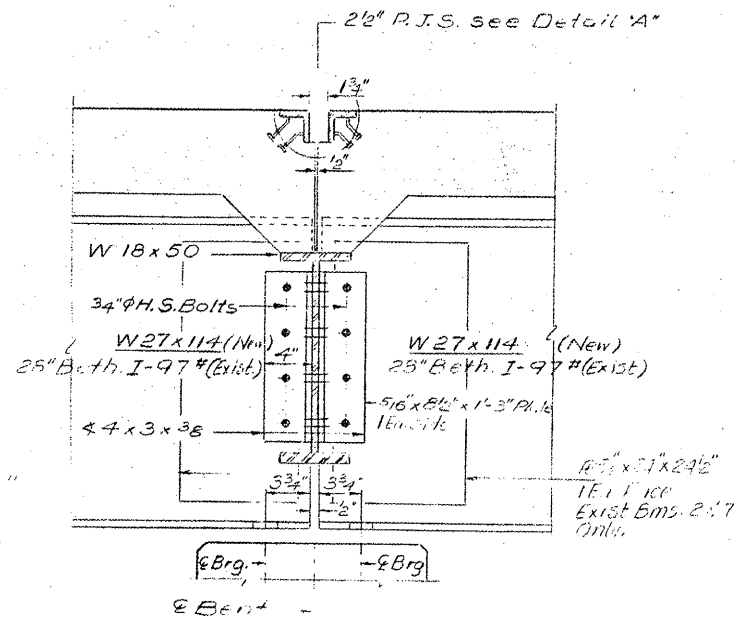
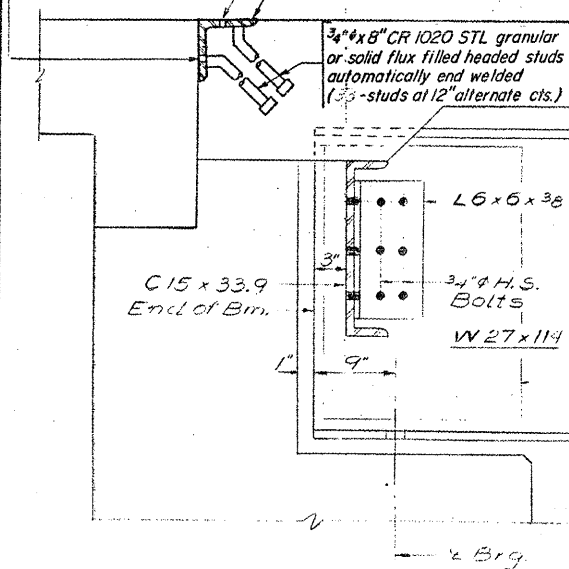
Note:  
Two Hardened washers shall be required over 15/16" holes in angles.

7/16" holes at 12" cts. for 3/8" bolts set on 2 1/2" gage line. All bolts shall be burned, sawed or clipped off flush with back of angles after forms are removed.

7/16" Vent holes at 12" cts. set on 1 5/8" gage line

4 x 5 x 1/2" x 11" long Fabricate to crown

3/4" x 8" CR 1020 STL granular or solid flux filled headed studs automatically end welded (33 studs at 12" alternate cts.)



DESIGNED	Stone & Wang
CHECKED	
DRAWN	V.H.
CHECKED	

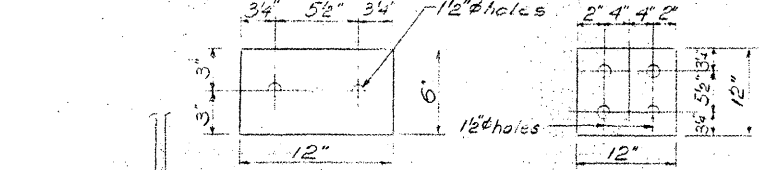
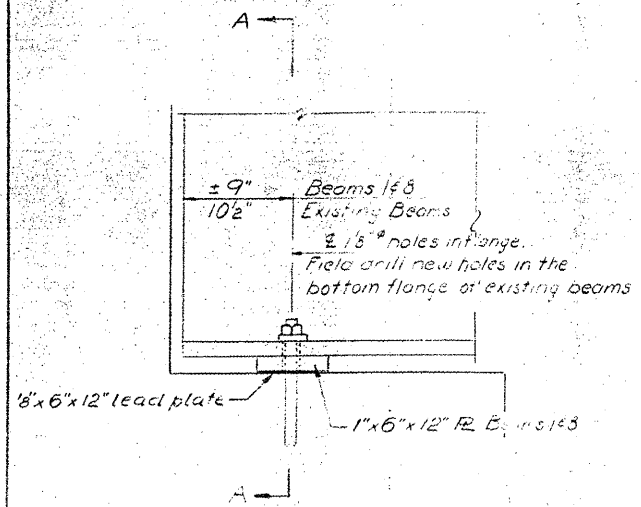
EXAMINED	Jan 13 1981
PASSED	
APPROVED	

**DIAPHRAGM DETAILS**  
F.A.RTE. 857-SECTION 101 BR-2

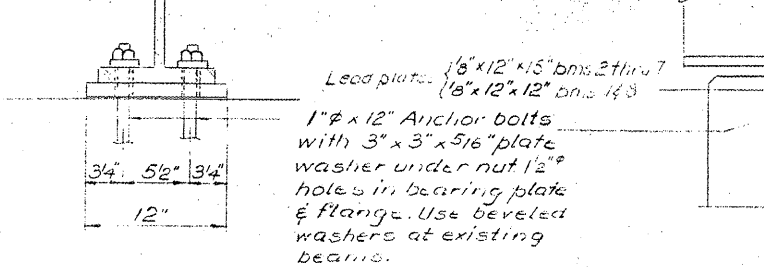
BRIDGE NO. 4  
WHITE COUNTY  
STA. 268 +25.75

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

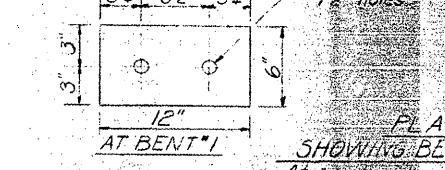
VARIOUS ROUTES  
D9 BRIDGE PAINTING FY 09-1  
VARIOUS COUNTIES  
CONTRACT 78093  
FOR INFORMATION ONLY  
SHEET 30 OF 31



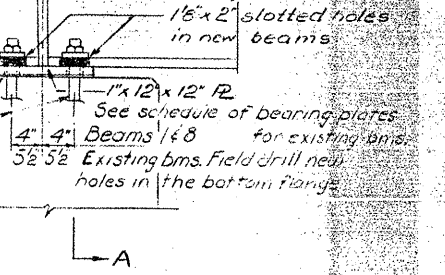
AT BENT #1  
PLAN SHOWING BEARING PLATES  
At beams 1 & 8



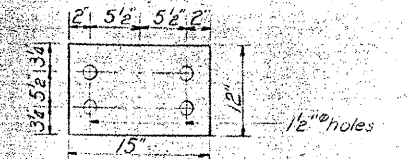
SECTION A-A



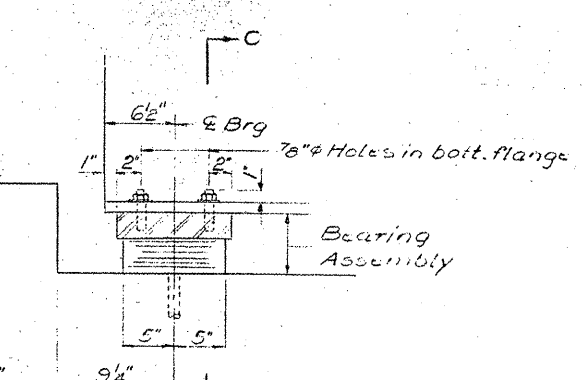
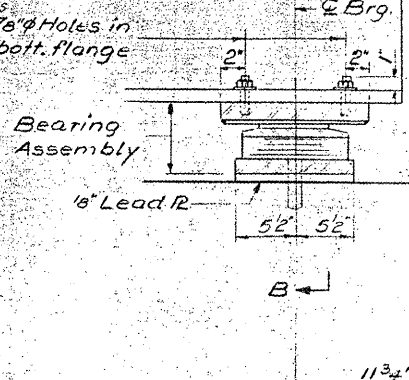
AT BENTS #2 & #3  
PLAN SHOWING BEARING PLATES  
At beams 1 & 8



BENTS #2 & #3



PLAN AT BENT #4  
SHOWING BEARING PLATES  
At existing beams



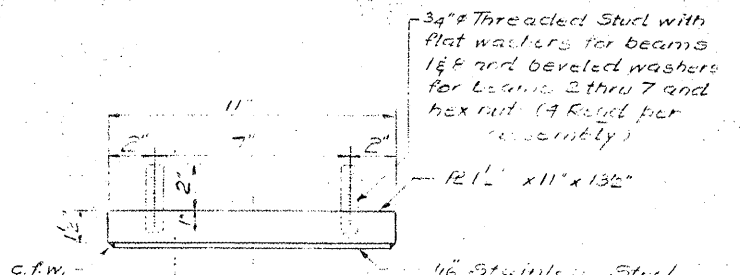
BENT #4  
(Looking North)

See schedule for location & size of new bearing plates under existing beams.

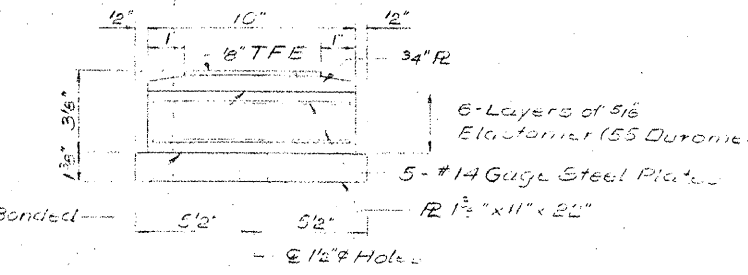
SCHEDULE OF BEARING PLATE REPLACEMENT UNDER EXIST. BEAMS

Location	Bm. 2	Bm. 3	Bm. 4	Bm. 5	Bm. 6	Bm. 7
Bent #1 (N. Abut.)			R 24x6x12			R 34x6x12
Bent #2				R 24x12x15		
Bent #3			R 24x12x15	R 24x12x15	R 12x12x15	
** Bent #4						

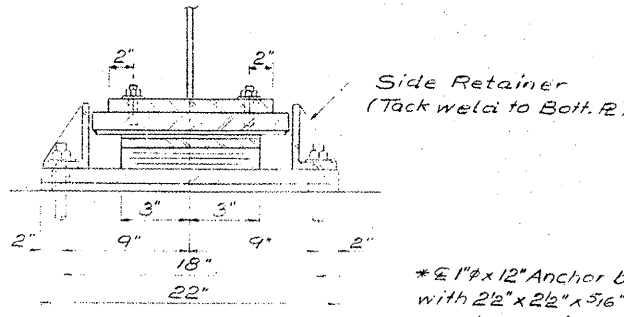
\*\* See special provisions for Jack and replace existing bearings.



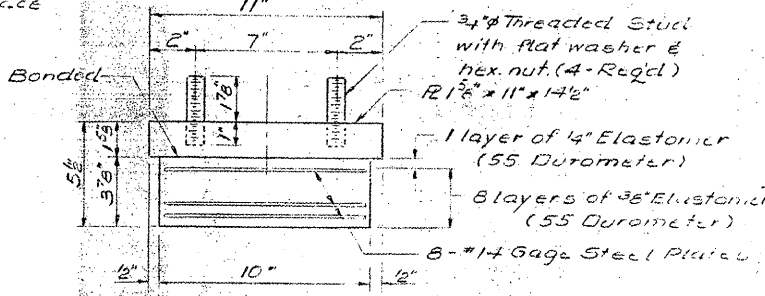
TOP BEARING ASSEMBLY



BOTTOM BEARING ASSEMBLY  
(8 - Required)

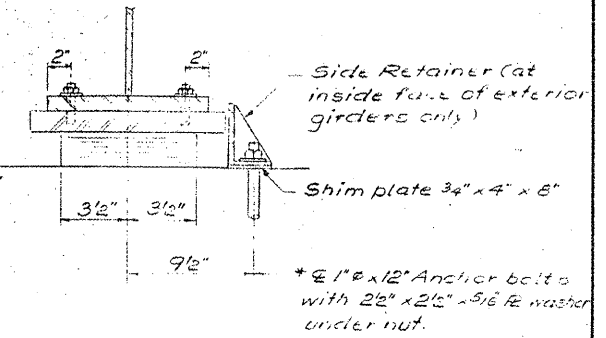


SECTION B-B



BEARING ASSEMBLY  
(7 - Required)

Note: Shim plates shall not be placed under Type I Bearing Assembly



SECTION C-C

TYPE II TFE ELASTOMERIC EXP BRG.  
(WEST SIDE BENT #4)

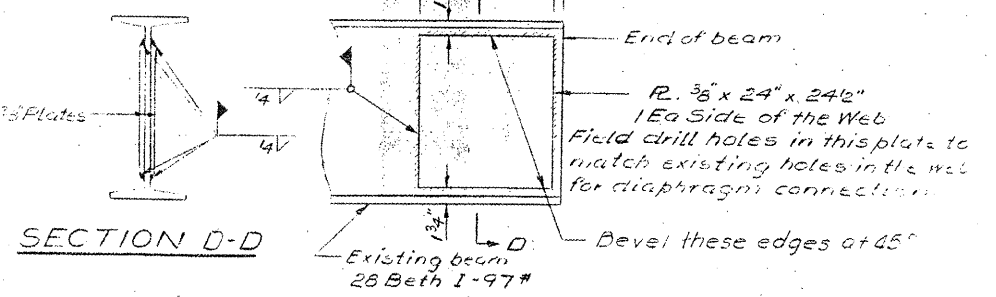
Note: See sheet #12 for TFE Details

SCHEDULE OF WEB REPAIR

Location	Beams to be repaired
Bent #1 (N. Abut.)	Beams 2 and 7 - span 1
Bent #2	Beams 2 and 7 - span 1 & 2
Bent #3	No web repair anticipated
Bent #4	Beams 2, 3, 4, 5, 6 & 7 - Span 3

See special provisions for web repair.

TYPE I ELASTOMERIC EXP BRG.  
(East Side Bent #4)



SECTION D-D

WEB REPAIRS OF EXISTING BEAMS  
(See special provisions)

BEARINGS

FA. RTE. 857-SECTION 101 BR-2

WHITE COUNTY

STA. 268 + 25.75

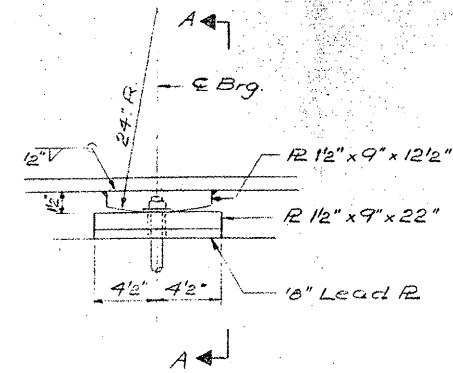
DESIGNED	Jan 13 1981
CHECKED	
DRAWN	
CHECKED	

EXAMINED	Jan 13 1981
PASSED	
APPROVED	

BRIDGE NO. 4

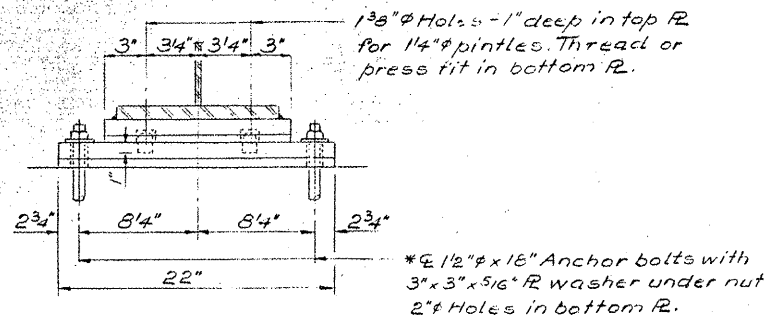
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

VARIOUS ROUTES  
D9 BRIDGE PAINTING FY 09-1  
VARIOUS COUNTIES  
CONTRACT 78093  
FOR INFORMATION ONLY  
SHEET 31 OF 31

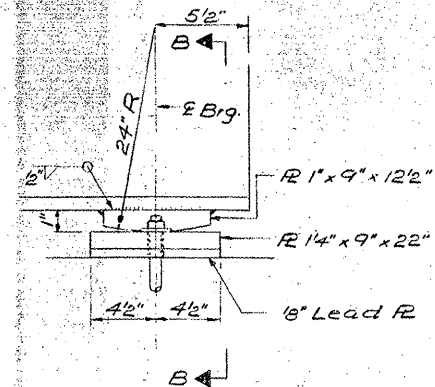


ELEVATION

FIXED BEARING  
Bent #5

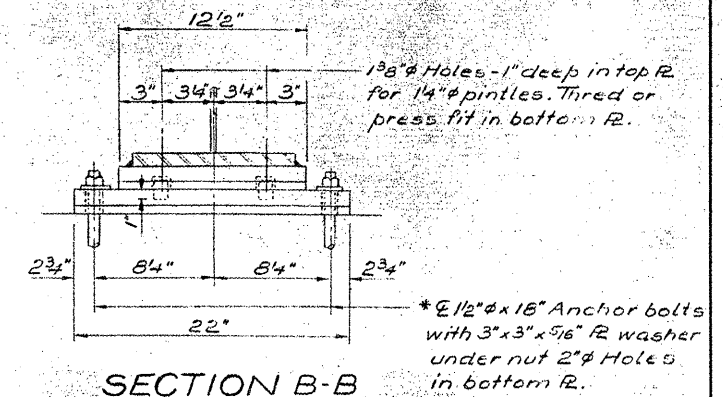


SECTION A-A

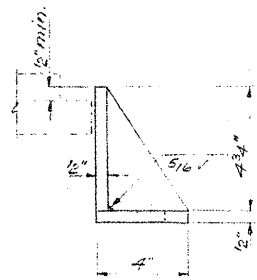


ELEVATION

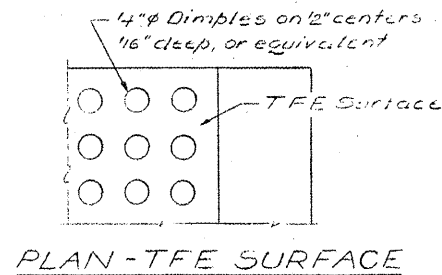
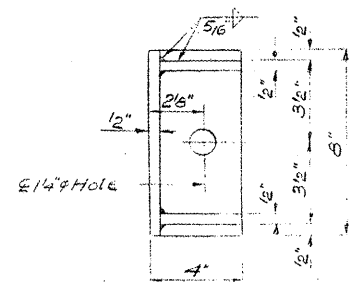
FIXED BEARING  
East Abut



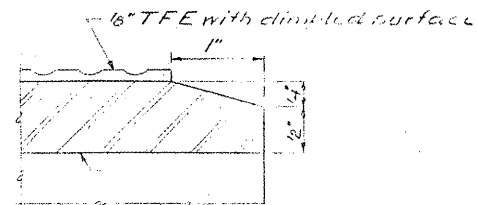
SECTION B-B



SIDE RETAINER

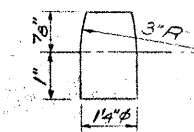


PLAN - TFE SURFACE

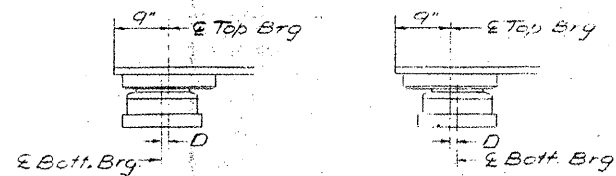


SECTION THRU TFE

\* Note: After girders have been erected holes at expansion bearings shall be drilled and anchor bolts grouted in place. Anchor bolts at fixed bearings may be built into the masonry.



PINTLE



BELOW 50°F (Move bott. brg. away from fixed brg.)  
ABOVE 50°F (Move both brg. toward fixed brg.)

SETTING ANCHOR BOLTS AT EXP. BRG

0-1/8\"/>

Note: The 1/8\"/>

Bonding of 1/8\"/>

DESIGNED <i>Steve Meyer</i>	EXAMINED <i>[Signature]</i>	JAN 13 1981
CHECKED <i>[Signature]</i>	PASSED	
DRAWN <i>V.H.</i>	APPROVED	
CHECKED <i>[Signature]</i>	DIRECTOR OF HIGHWAYS	