

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

F.A. PTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
"	184-10-3(27)(3-1) BP	SANGAMON	15	1
* FAI 72A, FAP 662,666		ILLINOIS	CONTRACT NO. 72K74	

D-96-060-18

FOR INDEX OF SHEETS, SEE SHEET NO. 2

**PROPOSED  
BRIDGE PAINTING**

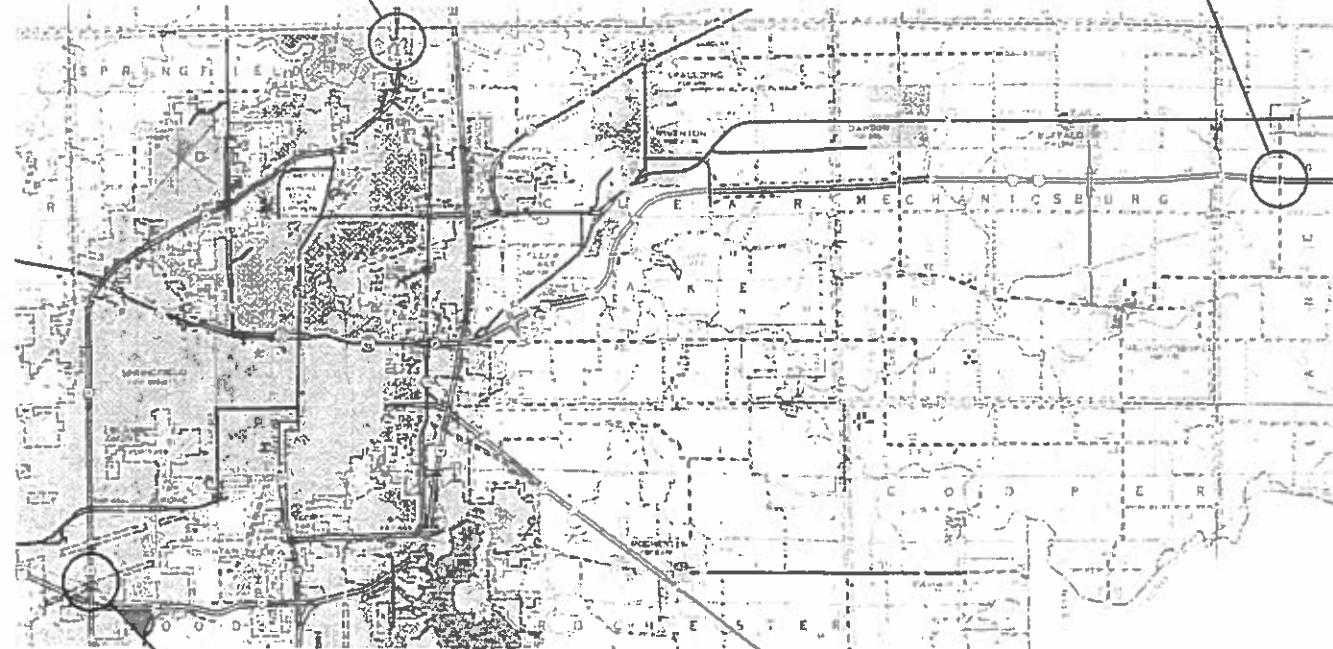
FAI 72A, FAP 662, 666 (I-72, I-55 BUS, IL 4)  
SECTION (84-10-3)(27)(3-1) BP  
PROJECT NHPP-SA7Z(851)  
BRIDGE PAINTING  
SANGAMON COUNTY

C-96-108-18



LOCATION #4  
SN 084-0030  
BL 55 OVER SANGAMON R.  
0.9 MI N DIRKSEN PKWY

LOCATION #1  
SN 054-0159  
LANESVILLE RD OVER I-72  
3 MI E OF BUFFALO INT.



LOCATION #2  
SN 054-0188  
SB IL 4 OVER NS & GW RR  
0.2 MI N I-72

LOCATION #3  
SN 084-0189  
NB IL 4 OVER NS & GW RR  
0.2 MI N I-72



FULL SIZE PLANS HAVE BEEN PREPARED USING STANDARD ENGINEERING SCALES. REDUCED SIZED PLANS WILL NOT CONFORM TO STANDARD SCALES. IN MAKING MEASUREMENTS ON REDUCED PLANS, THE ABOVE SCALES MAY BE USED.

J.U.L.I.E.  
JOINT UTILITY LOCATION INFORMATION FOR EXCAVATION  
1-800-892-0123  
OR 811

BRIDGE MAINTENANCE ENGINEER: BRANDON DUDLEY (217) 785-9290

GROSS LENGTH = x.xx FT. = x.xxx MILE  
NET LENGTH = x.xx FT. = x.xxx MILE

CONTRACT NO. 72K74

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

SUBMITTED 10 October 2018

*[Signature]*  
REGIONAL ENGINEER

Dec 7 2018  
*[Signature]*  
ENGINEER OF DESIGN AND ENVIRONMENT

Dec 7 2018  
*[Signature]*  
DIRECTOR OF HIGHWAYS PROJECT IMPLEMENTATION

PRINTED BY THE AUTHORITY  
OF THE STATE OF ILLINOIS



MODEL: Default  
 FILE NAME: \\CENTRAL\OPERATIONS\Bridges\Bridges\CAD\72K74 - Sangamon County.pain, 2018\sheet.dgn

CODE NO.	ITEM	UNIT	TOTAL QUANTITY	0-01515-6004	0-01515-6005
				NHPP 90/10	NHPP 80/20
				BRIDGE-RURAL 0047 SANGAMON	BRIDGE-URBAN 0047 SANGAMON
67100100	MOBILIZATION	L SUM	1	0.25	0.75
70100207	TRAFFIC CONTROL AND PROTECTION, STANDARD 701402	EACH	2	2	0
70100310	TRAFFIC CONTROL AND PROTECTION, STANDARD 701421	L SUM	1	0	1
70400100	TEMPORARY CONCRETE BARRIER	FOOT	600	600	0
70400200	RELOCATE TEMPORARY CONCRETE BARRIER	FOOT	600	600	0
70600260	IMPACT ATTENUATORS, TEMPORARY (FULLY REDIRECTIVE, NARROW), TEST LEVEL 3	EACH	2	2	0
70600332	IMPACT ATTENUATORS, RELOCATE (FULLY REDIRECTIVE, NARROW), TEST LEVEL 3	EACH	2	2	0
X5060602	CONTAINMENT AND DISPOSAL OF NON-LEAD PAINT CLEANING RESIDUES NO. 2	L SUM	1	0	1
X5060603	CONTAINMENT AND DISPOSAL OF NON-LEAD PAINT CLEANING RESIDUES NO. 3	L SUM	1	0	1
X5060604	CONTAINMENT AND DISPOSAL OF NON-LEAD PAINT CLEANING RESIDUES NO. 4	L SUM	1	0	1
70107025	CHANGEABLE MESSAGE SIGN	CAL DA	90	30	60
Z0007101	CONTAINMENT AND DISPOSAL OF LEAD PAINT CLEANING RESIDUES NO. 1	L SUM	1	1	0
Z0010501	CLEANING AND PAINTING STEEL BRIDGE NO. 1	L SUM	1	1	0
Z0010502	CLEANING AND PAINTING STEEL BRIDGE NO. 2	L SUM	1	0	1

REV. - MS

USER NAME = dudleybm DRAWN - PLOT SCALE = 100.0000 ' / in. PLOT DATE = 10/5/2018	DESIGNED - DRAWN - CHECKED - DATE -	REVISED - REVISED - REVISED - REVISED -	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	<b>SUMMARY OF QUANTITIES</b>	F.A. RTE: * (84-10-3)(27)(3-1) BP * FAI 72A, FAP 662, 666	SECTION COUNTY SANGAMON	TOTAL SHEETS 19	SHEET NO. 3	CONTRACT NO. 72K74	ILLINOIS FED. AID PROJECT
SCALE:				SHEET OF SHEETS	STA. TO STA.					



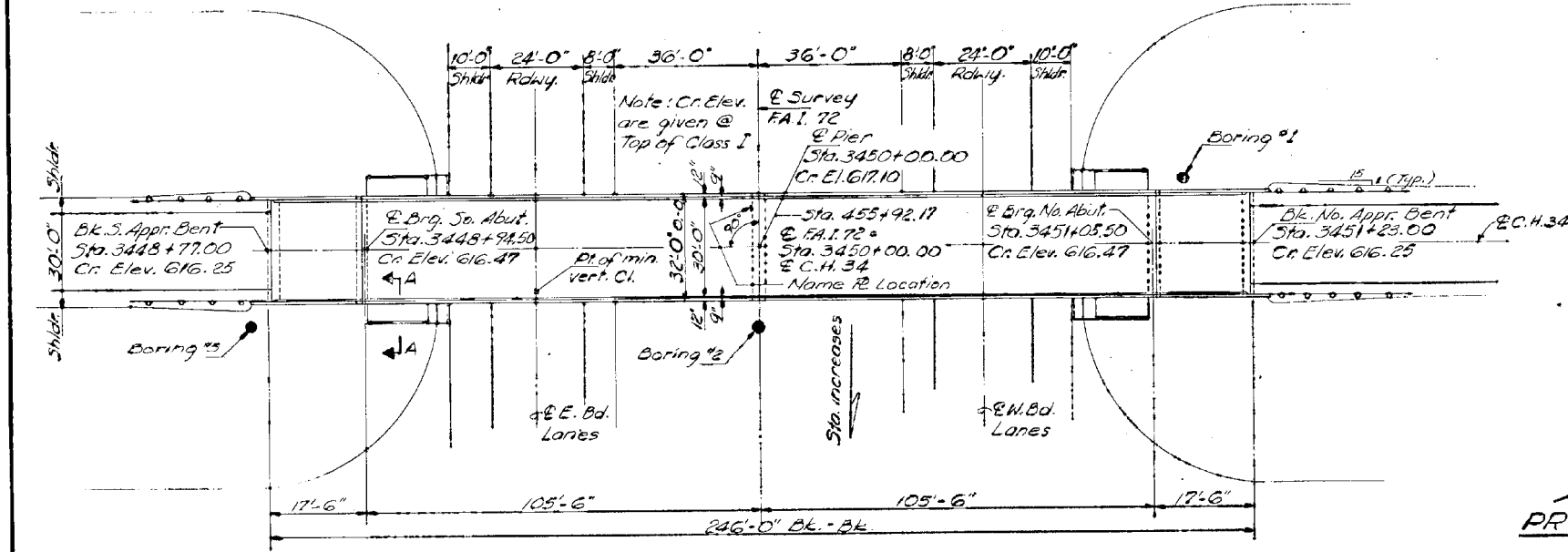
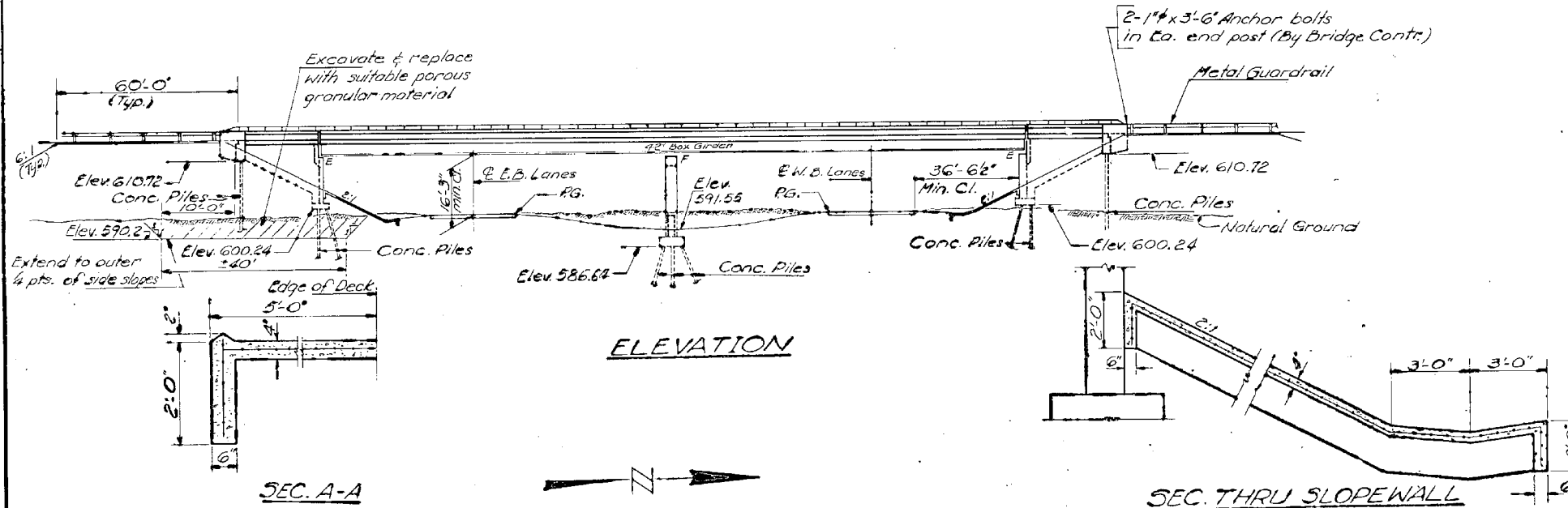
B.M. #44 R.R. spike in PP on West R.O.W.  
Line C.H. 34 750' L.F. @ FA.I. 72 Elev. 591.077

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	SHEET NO.	TOTAL SHEETS
84-10-34B	SANGAMON	37	10
SHEET NO. 1			

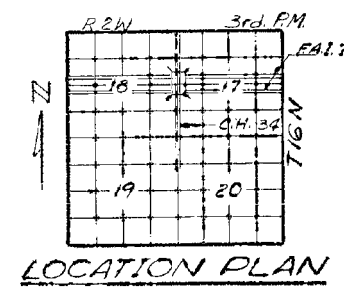
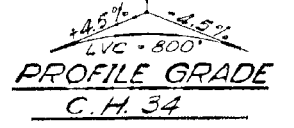
GENERAL NOTES

All reinforcement bars shall be lapped 28 diameters unless otherwise shown.  
Fasteners shall be high strength bolts. Bolts 3/8" open holes 15/16", unless otherwise noted.  
Calculated weight of Structural Steel = 210,700 pounds  
The basic lead silico chromate paint system shall be used for shop and field painting of Structural Steel.  
Field welding of construction accessories will not be permitted to the bottom flange of beams or girders nor to the top flange for a distance equal to one-fourth the span length each way from the 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 supports.  
Slope wall shall be reinforced with welded wire fabric 6"x6" mesh, weighing 55# per 100sq. ft.  
The Contractor shall drive one (1) concrete test pile in a permanent location at Pier as directed by the Engineer before ordering the remainder of piles.  
The embankment configuration shown shall be the minimum embankment that must be constructed prior to construction of the abutments.  
The concrete rail section above the mandatory construction joint at the top of the slab shall be constructed of Class X Concrete, except the aggregates shall conform to the requirements of Handrail Concrete.  
Protective Coat shall not be applied to surfaces to which Coal Tar Interlayer Protective Coat is applied.  
All interior surfaces of Box Girders shall be given two shop coats of paint and spot painted in the field after cross frames and forms are removed. No additional field coat will be required for interior surfaces.  
Concrete piles at bents shall be driven in holes prepared through the embankment in accordance with Art. 513.09(c) of the Std. Specifications.



STATION 455+92.17  
BUILT 197 BY  
STATE OF ILLINOIS  
FA.I. RTE. 72 SEC. 84-10-34B  
PROJ. I-72-1(20)  
LOADING HS 15

NAME PLATE  
See Std. 2113



**TOTAL BILL OF MATERIAL**

Item	Unit	Super	Sub	Total
Structure Excavation	Cu. Yd.		85	85
Sand Backfill	Cu. Yd.		140	140
Bituminous Concrete Surface	Ton	66		66
Course Class I	Sq. Yd.	191		191
Protective Coat	Sq. Yd.	254.9	160.8	415.7
Class X Concrete	Lump Sum			1
Structural Steel	Lump Sum			1680
Stud Shear Connectors	Co.	1680		1680
Aluminum Railing	Lin. Ft.	506		506
Reinforcement Bars	Pound	61130	19150	80280
Concrete Piles	Lin. Ft.		1568	1568
Test Piles Concrete	Co.		1	1
Name Plates	Co.		1	1
Slope Wall (4")	Sq. Yd.		335	335
Coal Tar Interlayer Protective Coat	Sq. Yd.	776		776
Preformed Joint Sealer	Lin. Ft.	64		64
Earth Excavation	Cu. Yd.		650	650
Porous Granular Embankment	Cu. Yd.		650	650

**DESIGN STRESSES**  
 Fc = 1200 psi Deck Slab  
 Fc = 1400 psi Curb, Parapet, Sub & Appr. Slab  
 F9 = 20000 psi Reinf.  
 F9 = 20000 psi Structural  
 vc = 75 psi Ftg.  
 n = 10  
 Design Specifications 1969 AASHTO (as applicable)  
 Allow for 25% Sq. Ft. for future W.S.  
 LOADING HS15-44

**PROFILE GRADE**  
FA.I. RTE. 72  
(at median edge)

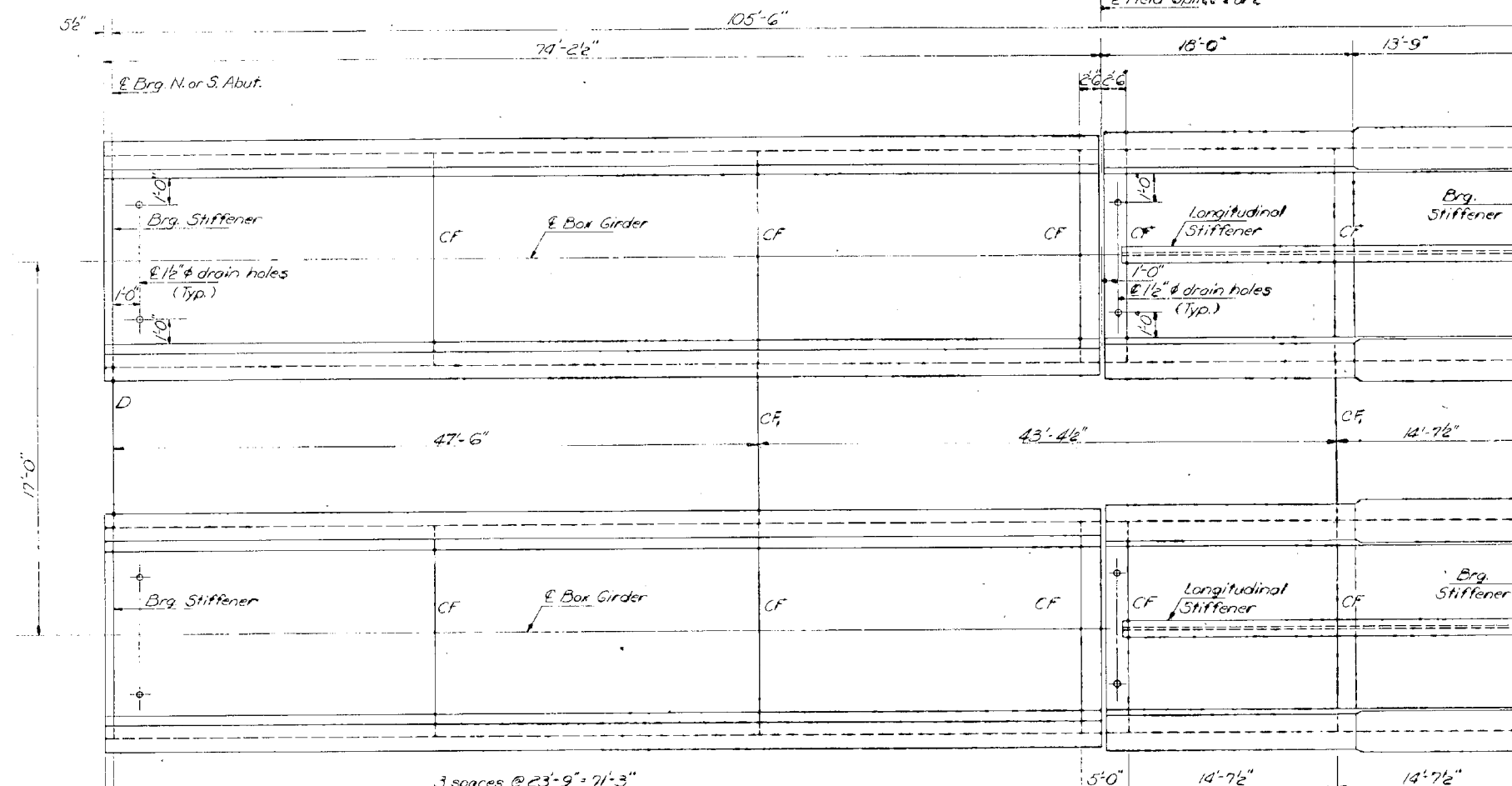
**GENERAL PLAN & ELEVATION**  
PROJECT I-72-1(20)14  
C.H. 34 OVER FA.I. RTE. 72  
FA.I. RTE. 72 SEC. 84-10-34B  
SANGAMON COUNTY  
STA. 455+92.17

DESIGNED: [Signature]  
EXAMINED: [Signature]  
CHECKED: [Signature]  
DRAWN: [Signature]  
CHECKED: [Signature]

APPROVED: [Signature]  
DATE: July 21 1972

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

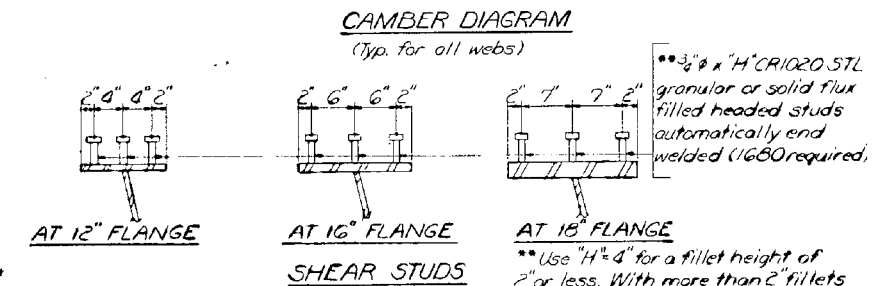
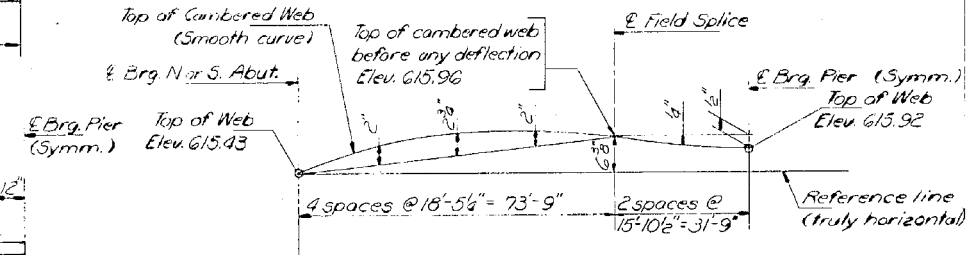
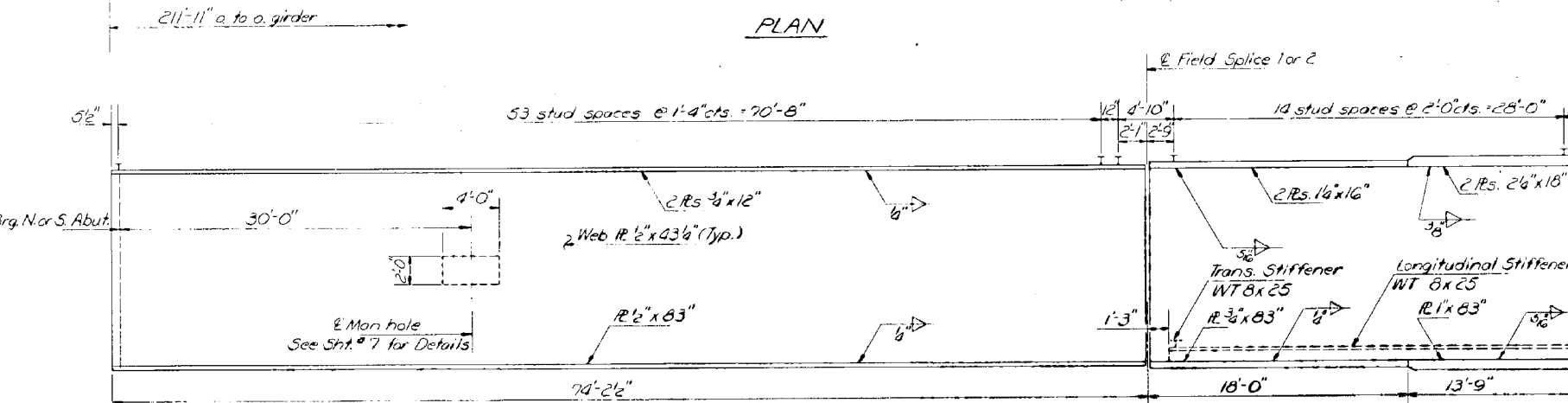
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	SHEET NO. 6
F.A.I. 72	3HB	SANGAMON	31	15	11 SHEETS
FED. ROAD DIST. NO. 1	ILLINOIS	FED. AID PROJECT			



	0.4 Sp. 1	Pier
$I_s$ (in <sup>4</sup> )	30,902	85,960
$I_c$ (in <sup>4</sup> )	82,690	98,687
$S_s$ Top (in <sup>3</sup> )	1162	3622
$S_s$ Bott. (in <sup>3</sup> )	1855	3994
$S_c$ Top (in <sup>3</sup> )	8059	4571
$S_c$ Bott. (in <sup>3</sup> )	2507	4171
$I_x$ (in <sup>4</sup> )	2,053	2,053
$M_x$ (k)	1306	3589
$f_s$ (ksi)	845	11.89
$S_x$ (in <sup>3</sup> )	1052	1052
$M_x$ (k)	811	1485
$M_x$ (k)	1095	1062
$M$ Imp. (k)	238	231
Total (k)	2144	2778
$f_s + S_x$ (ksi)	1026	7.29
$f_s$ total (ksi)	18.71	19.18
$VR$ (k)	71.9	69.4

	Abut.	Pier
$R_x$ (k)	115.7	423.7
$R_y$ (k)	33.5	92.3
Imp. (k)	11.6	20.0
$R$ Total (k)	180.8	536.0

$I_s$  &  $S_s$  are the moment of inertia & section modulus of the steel section.  
 $I_c$  &  $S_c$  are the moment of inertia & section modulus of the composite section.  
 $VR$  is the maximum  $\pm$  Impact shear range in span used to determine shear stud spacing.



DESIGNED: [Signature]  
 CHECKED: [Signature]  
 DRAWN: J. Sutherland  
 CHECKED: Chi Tsun Chiu

EXAMINED: [Signature]  
 PASSED: [Signature]  
 APPROVED: [Signature]

DATE: June 21 1976

	Box 1 & 2
Brq. South Abut.	615.43
Splice 1 *	615.96
Brq. Pier	615.92
Splice 2 *	615.96
Brq. North Abut.	615.43

(for fabrication only)

Note: See Sht. # 7 for remainder of Structural Steel Details

STRUCTURAL STEEL  
 F.A.I. RT. 72 SEC. 84-10-3HB  
 SANGAMON COUNTY  
 STATION 455+92.17

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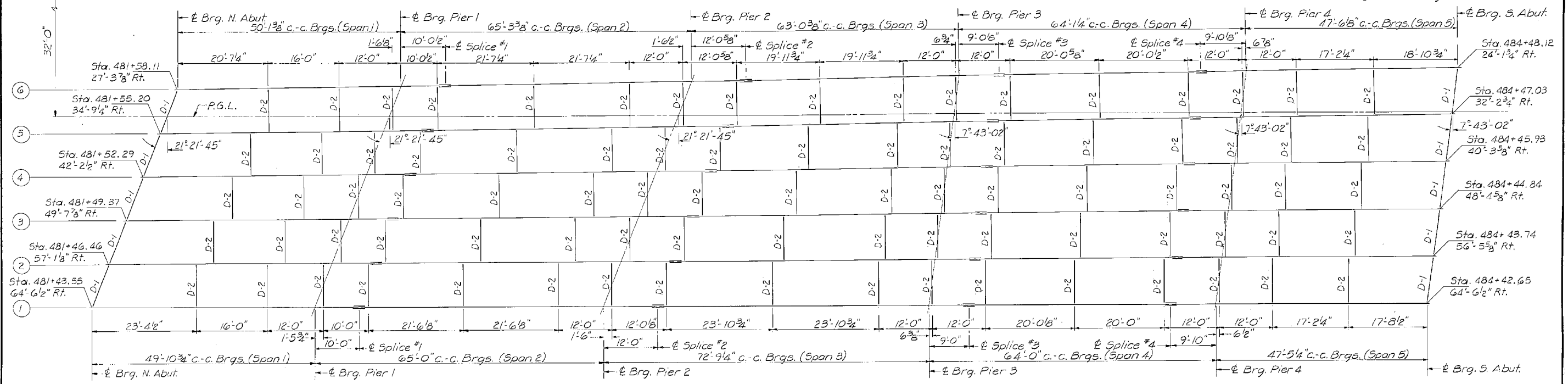




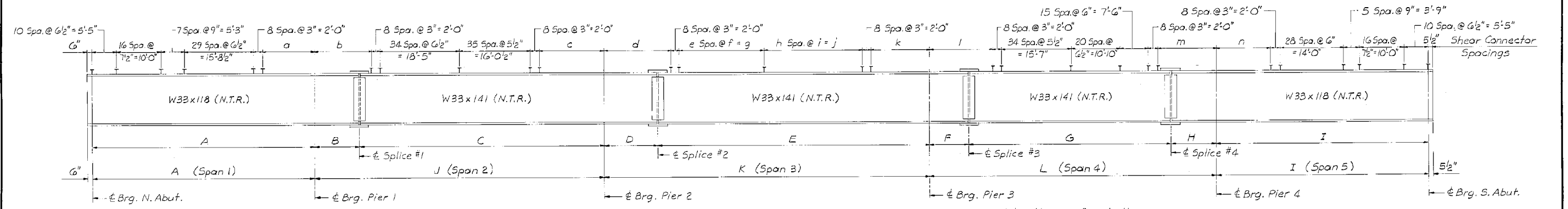




CAPITAL CITY RAILROAD RELOCATION AUTHORITY SPRINGFIELD, ILLINOIS				
FED. AID PROJECT NO.	CCRRRA PROJECT NO.	SECTION	COUNTY	TOTAL SHEETS
RR-1(1)	*	*	SANGAMON	72
X-Usable Segment No. 3, VB				SHEET NO.
				41



FRAMING PLAN



BEAM ELEVATION

Note: N.T.R. refers to the Supplemental Requirements for Notch Toughness.

Beam	A	B	C	D	E	F	G	H	I	J	K	L
1	49'-10 3/4"	10'-0"	55'-0"	12'-0"	60'-9 1/4"	9'-0"	45'-2"	9'-10"	47'-5 1/4"	65'-0"	72'-9 1/4"	64'-0"
2	49'-11 1/4"	10'-0 1/8"	55'-0 1/8"	12'-0 1/8"	58'-9 3/4"	9'-0"	45'-2 1/4"	9'-10"	47'-5 3/8"	65'-0 1/8"	70'-9 1/8"	64'-0 1/4"
3	49'-11 3/4"	10'-0 1/8"	55'-1 1/4"	12'-0 1/4"	56'-10 1/4"	9'-0 1/8"	45'-2 1/4"	9'-10 1/8"	47'-5 3/8"	65'-1 1/8"	68'-10 1/2"	64'-0 1/2"
4	50'-0 1/4"	10'-0 1/4"	55'-1 3/4"	12'-0 3/8"	54'-10 3/4"	9'-0 1/8"	45'-2 1/2"	9'-10 1/8"	47'-5 3/4"	65'-2"	66'-11 1/8"	64'-0 3/4"
5	50'-0 1/2"	10'-0 1/2"	55'-2 1/8"	12'-0 1/2"	52'-11 1/4"	9'-0 1/8"	45'-2 5/8"	9'-10 1/8"	47'-5 3/8"	65'-2 1/4"	64'-1 1/4"	64'-0 1/8"
6	50'-1 1/8"	10'-0 1/2"	55'-2 1/8"	12'-0 1/8"	50'-11 3/4"	9'-0 1/8"	45'-3"	9'-10 1/8"	47'-6 1/8"	65'-3 1/8"	63'-0 1/8"	64'-1 1/4"

Beam	a	b	c	d	e	f	g	h	i	j	k	l	m	n
1	11'-6 1/4"	12'-1"	14'-5 1/2"	14'-6"	34	7"	19'-10"	35	7 1/2"	21'-10 1/2"	12'-6 3/4"	14'-2"	11'-11"	12'-3 1/4"
2	11'-6 3/4"	12'-1 1/8"	14'-6"	14'-5 3/8"	35	6 1/2"	18'-11 1/2"	34	7 1/2"	21'-3"	12'-2"	14'-2 1/8"	11'-11 1/8"	12'-3 3/8"
3	11'-7 1/4"	12'-1 1/8"	14'-6 3/4"	14'-4 3/4"	34	6 1/2"	18'-5"	35	6 1/2"	18'-11 1/2"	13'-1 1/4"	14'-2 1/4"	11'-11 1/4"	12'-3 5/8"
4	11'-7 3/4"	12'-1 1/4"	14'-7 1/4"	14'-5 1/8"	34	6"	17'-0"	35	6"	17'-6"	13'-11 1/2"	14'-2 3/8"	11'-11 3/8"	12'-3 3/4"
5	11'-8 1/4"	12'-1 3/8"	14'-7 7/8"	14'-5 5/8"	35	5 1/2"	16'-0 1/2"	35	6"	17'-6"	12'-11 3/8"	14'-2 3/8"	11'-11 1/2"	12'-3 3/8"
6	11'-8 3/8"	12'-1 1/2"	14'-8 3/8"	14'-10"	34	5"	14'-2"	36	5 1/2"	16'-6"	13'-6 3/8"	14'-2 3/8"	11'-11 3/8"	12'-4 1/8"

	Beam #1	Beam #2	Beam #3	Beam #4	Beam #5	Beam #6
€ Brg. No. Abut.	636.13	636.27	636.39	636.44	636.32	636.17
€ Brg. Pier #1	635.92	636.07	636.18	636.23	636.10	635.94
€ Splice #1	635.88	636.03	636.14	636.18	636.05	635.90
€ Brg. Pier #2	635.67	635.82	635.93	635.96	635.83	635.66
€ Splice #2	635.62	635.77	635.88	635.91	635.78	635.61
€ Brg. Pier #3	635.34	635.50	635.62	635.65	635.52	635.36
€ Splice #3	635.30	635.46	635.58	635.60	635.48	635.31
€ Splice #4	635.08	635.24	635.37	635.38	635.25	635.08
€ Brg. Pier #4	635.04	635.20	635.32	635.33	635.20	635.04
€ Brg. So. Abut.	634.83	634.99	635.11	635.11	634.98	634.81

\* For Fabrication Only

STRUCTURAL STEEL - SOUTH BOUND  
ILL. RT. 4 - VETERANS PKWY. over  
C.M.N.W. and N.W. Railroads  
USABLE SEGMENT NO. 3, VB  
SANGAMON COUNTY  
STATION 483+05.86 (F.A. RTE 662)

DESIGNED: MDM  
CHECKED: CRN  
DRAWN: DAN  
CHECKED: MDM

**HANSON ENGINEERS**  
INCORPORATED  
SPRINGFIELD, PEORIA & ROCKFORD, ILLINOIS

FILE NO.: 8553092  
DATE: 4-18-89

USER NAME = dudleybm	DESIGNED -	REVISED -
	DRAWN -	REVISED -
PLOT SCALE = 100.0000' / in.	CHECKED -	REVISED -
PLOT DATE = 11/26/2018	DATE -	REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

EXISTING STRUCTURE PLANS, SN 084-0188 & 0189  
(FOR INFORMATION ONLY)

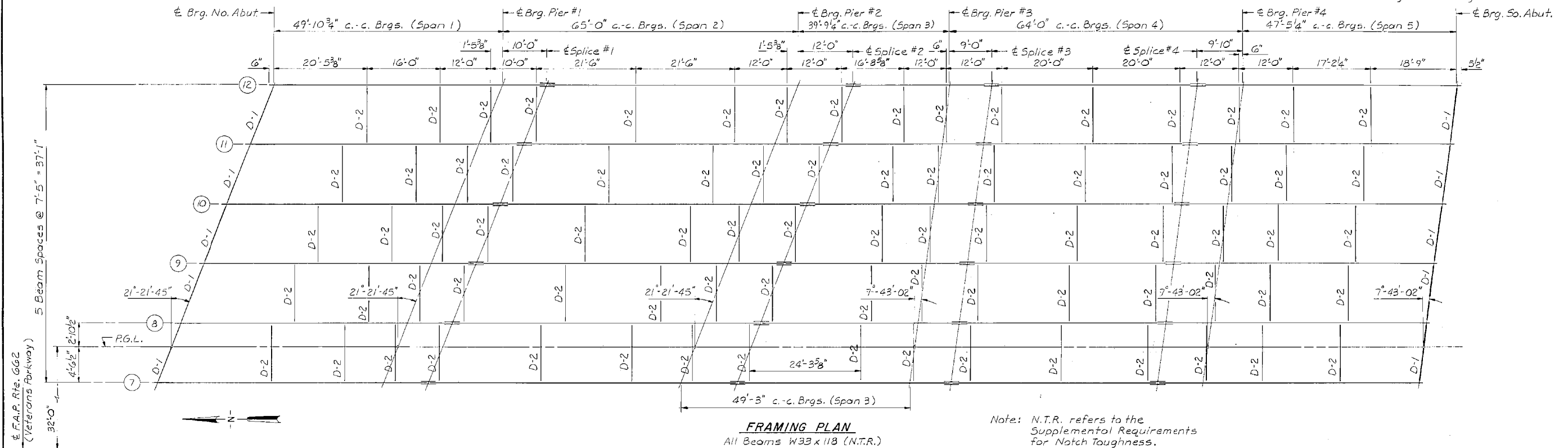
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F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
*	(84-10-3)(27)(3-1) BP	SANGAMON	19	9
* FAI 72A, FAP 662, 666		CONTRACT NO. 72K74		
ILLINOIS		FED. AID PROJECT		

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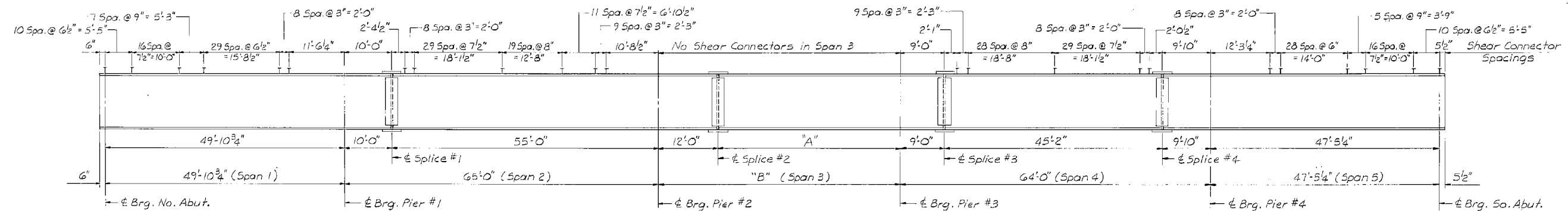
CAPITAL CITY RAILROAD RELOCATION AUTHORITY SPRINGFIELD, ILLINOIS					
FED. AID PROJECT NO.	CCRRA PROJECT NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
RR-1(1)		X	SANGAMON	72	42

X - Usable Segment No. 3, VB



**FRAMING PLAN**  
All Beams W33 x 118 (N.T.R.)

Note: N.T.R. refers to the Supplemental Requirements for Notch Toughness.



**BEAM ELEVATION**

TOP OF BEAM ELEVATIONS *						
	Beam #12	Beam #11	Beam #10	Beam #9	Beam #8	Beam #7
€ Brg. No. Abut.	635.99	636.16	636.29	636.36	636.25	636.12
€ Brg. Pier #1	635.76	635.92	636.05	636.13	636.02	635.89
€ Splice #1	635.71	635.87	636.01	636.08	635.97	635.84
€ Brg. Pier #2	635.46	635.62	635.76	635.83	635.73	635.60
€ Splice #2	635.40	635.57	635.70	635.78	635.68	635.55
€ Brg. Pier #3	635.28	635.44	635.57	635.63	635.52	635.39
€ Splice #3	635.24	635.40	635.53	635.59	635.48	635.35
€ Splice #4	634.99	635.15	635.28	635.34	635.23	635.10
€ Brg. Pier #4	634.94	635.10	635.23	635.30	635.19	635.05
€ Brg. So. Abut.	634.71	634.87	635.00	635.07	634.96	634.83

\* For Fabrication Only

Beam No.	Dimension "A"	Dimension "B"
12	27'-9 1/4"	39'-9 1/4"
11	29'-8"	41'-8"
10	31'-6 3/4"	43'-6 3/4"
9	33'-5 1/2"	45'-5 1/2"
8	35'-4 1/4"	47'-4 1/4"
7	37'-3"	49'-3"

**STRUCTURAL STEEL - NORTH BOUND**  
ILL. RT. 4 - VETERANS PKWY. over  
C.M.W. and N.W. Railroads  
USABLE SEGMENT NO. 3, VB  
SANGAMON COUNTY  
STATION 483+05.86 (F.A. RTE 662)

DESIGNED: MDM		FILE NO. 8553092
CHECKED: CRN		DATE 4-18-89
DRAWN: D.A.N.		
CHECKED: MDM		

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USER NAME = dudleybm	DESIGNED -	REVISED -
	DRAWN -	REVISED -
PLOT SCALE = 100,0000' / in.	CHECKED -	REVISED -
PLOT DATE = 10/5/2018	DATE -	REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

EXISTING STRUCTURE PLANS, SN 084-0188 & 0189  
(FOR INFORMATION ONLY)

SCALE: SHEET OF SHEETS STA. TO STA.

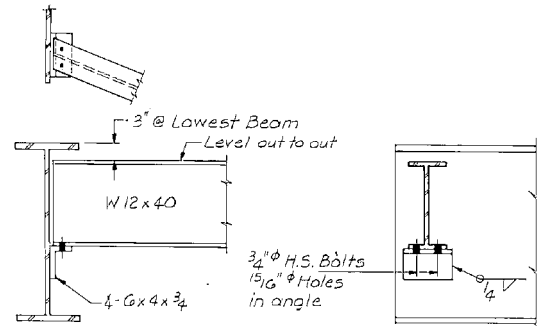
F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
*	(84-10-3)(27)(3-1) BP	SANGAMON	19	10
* FAI 72A, FAP 662, 666			CONTRACT NO. 72K74	
ILLINOIS		FED. AID PROJECT		

**SOUTH BOUND LANES**

	0.4 Span 1	Pier 1	0.5 Span 2	Pier 2	0.5 Span 3	Pier 3	0.5 Span 4	Pier 4	0.6 Span 5
$I_s$ (in <sup>4</sup> )	5,900	5,900	7,450	7,450	7,450	7,450	7,450	5,900	5,900
$I_c$ (n=27) (in <sup>4</sup> )	11,801	—	13,937	—	13,937	—	13,937	—	11,801
$I_c$ (n=9) (in <sup>4</sup> )	15,725	—	18,755	—	18,755	—	18,755	—	15,725
$S_s$ (in <sup>3</sup> )	359	359	448	448	448	448	448	359	359
$S_c$ (n=27) (in <sup>3</sup> )	473	—	572	—	572	—	572	—	473
$S_c$ (n=9) (in <sup>3</sup> )	519	—	629	—	629	—	629	—	519
$Z$ (in <sup>3</sup> )	—	415	—	514	—	514	—	415	—
$M$ (K)	0.846	1.170	0.881	1.209	0.894	1.225	0.907	1.242	0.896
$M_e$ (K)	143	365	150	471	203	476	154	344	138
$s$ (K)	0.324	—	0.328	—	0.331	—	0.335	—	0.338
$M_s$ (K)	62	—	71	—	91	—	72	—	58
$M_e$ (K)	359	223	456	282	493	284	465	218	360
$M_{IMP}$ (K)	102	61	120	73	126	74	123	60	104
$M_3$ (M <sub>e</sub> +I) (K)	763	473	960	592	1,032	597	980	463	773
$M_o$ (K)	1,265	1,089	1,535	1,382	1,724	1,395	1,568	1,049	1,260
$M_u$ (K)	2,306	1,245	2,746	1,542	2,746	1,542	2,746	Non-Compact	2,306
$f_s$ @ non-comp. (ksi)	4.8	12.2	4.0	12.6	5.4	12.8	4.1	11.5	4.6
$f_s$ @ comp. (ksi)	1.6	—	1.5	—	1.9	—	1.5	—	1.5
$f_s$ @ (M <sub>e</sub> +I) (ksi)	17.8	15.8	18.3	15.9	19.7	16.0	18.7	16.5	17.9
$f_s$ (Overload) (ksi)	24.2	28.0	25.8	28.5	27.0	28.8	24.3	27.0	24.0
$f_s$ (Total) (ksi)	—	Compact	—	Compact	—	Compact	—	Compact	—
VR (K)	55	—	50	—	51	—	52	—	55

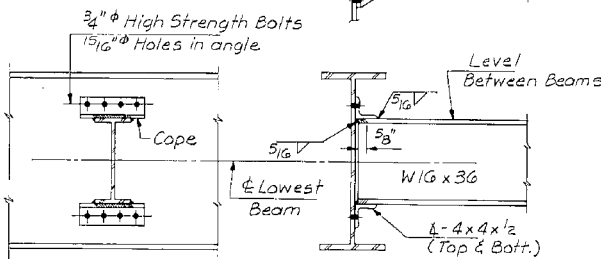
	No. Abut.	Pier #1	Pier #2	Pier #3	Pier #4	So. Abut.
R <sub>e</sub> (K)	22	74	84	85	74	22
R <sub>e</sub> (K)	38	47	52	52	49	39
Imp. (K)	11	13	13	14	14	12
R <sub>TOTAL</sub> (K)	71	134	149	151	137	73

$I_s$  and  $S_s$  are the moment of inertia and section modulus of the steel section used in computing  $f_s$  (Total & Overload).  
 $I_c$  and  $S_c$  are the moment of inertia and section modulus of the composite section used in computing  $f_s$  (Total & Overload).  
 VR is the maximum  $\frac{1}{4}$  + Impact shear range in span.  
 $Z$  is the plastic section modulus used to determine the Fully Plastic Moments in the non-composite areas.  
 $M_o$  (Applied Moment) =  $1.3 [M_e + M_s + M_3 (M_e + I)]$ .  
 $M_u$  is the Full Plastic Moment Capacity for Compact, Braced section.  
 $f_s$  (Overload) is the sum of the stresses due to  $M_e + M_s + M_3 (M_e + I)$ .  
 $f_s$  (Total) is the sum of the stresses due to  $1.3 [M_e + M_s + M_3 (M_e + I)]$ .



**END DIAPHRAGM D1**  
(20 Required)

Note: Hardened washers shall be required over all holes in diaphragm connections.

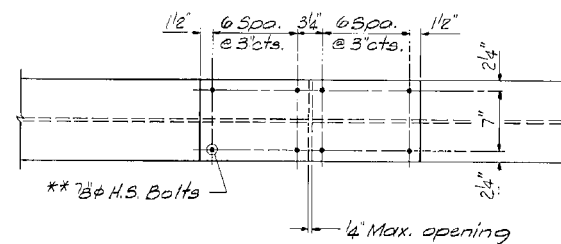


**INTERIOR DIAPHRAGM D2**  
(165 Required)

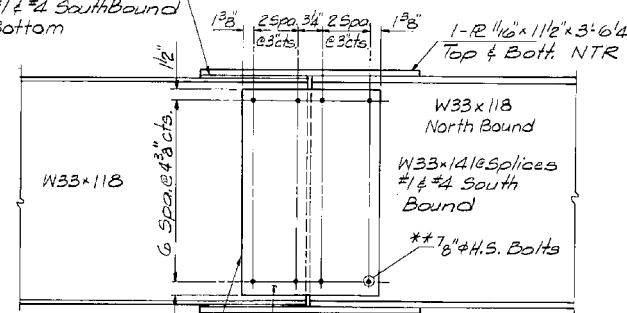
**NORTH BOUND LANES**

	0.4 Span 1	Pier 1	0.5 Span 2	Pier 2	0.5 Span 3	Pier 3	0.5 Span 4	Pier 4	0.6 Span 5
$I_s$ (in <sup>4</sup> )	5,900	5,900	5,900	5,900	5,900	5,900	5,900	5,900	5,900
$I_c$ (n=27) (in <sup>4</sup> )	11,761	—	11,761	—	—	—	11,761	—	11,761
$I_c$ (n=9) (in <sup>4</sup> )	15,687	—	15,687	—	—	—	15,687	—	15,687
$S_s$ (in <sup>3</sup> )	359	359	359	359	359	359	359	359	359
$S_c$ (n=27) (in <sup>3</sup> )	473	—	473	—	—	—	473	—	473
$S_c$ (n=9) (in <sup>3</sup> )	519	—	519	—	—	—	519	—	519
$Z$ (in <sup>3</sup> )	—	415	—	415	—	415	—	415	—
$M$ (K)	0.839	1.162	0.839	1.162	1.162	0.839	1.162	0.839	0.839
$M_e$ (K)	131	397	181	293	30	292	178	375	113
$s$ (K)	0.323	—	0.323	—	—	—	0.323	—	0.323
$M_s$ (K)	59	—	85	—	—	—	83	—	51
$M_e$ (K)	361	220	433	223	232	221	425	212	334
$M_{IMP}$ (K)	103	60	114	62	67	61	112	59	97
$M_3$ (M <sub>e</sub> +I) (K)	773	467	912	475	498	470	895	452	718
$M_o$ (K)	1,252	1,123	1,513	1,005	686	991	1,503	1,075	1,147
$M_u$ (K)	2,317	1,245	2,317	—	1,245	—	2,317	—	2,317
$f_s$ @ non-comp. (ksi)	4.4	13.3	4.0	9.9	1.0	9.7	5.9	12.5	3.8
$f_s$ @ comp. (ksi)	1.5	—	2.2	—	—	—	2.1	—	1.3
$f_s$ @ (M <sub>e</sub> +I) (ksi)	17.9	15.6	21.1	15.9	16.6	15.7	20.7	15.1	16.6
$f_s$ (Overload) (ksi)	23.8	28.9	29.3	25.8	17.6	25.4	28.7	27.6	21.7
$f_s$ (Total) (ksi)	—	—	—	33.6	—	33.1	—	35.9	—
VR (K)	54	—	57	—	52	—	57	—	53

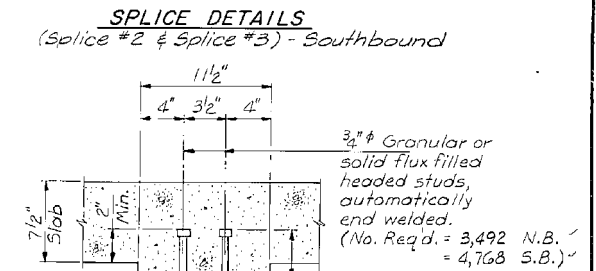
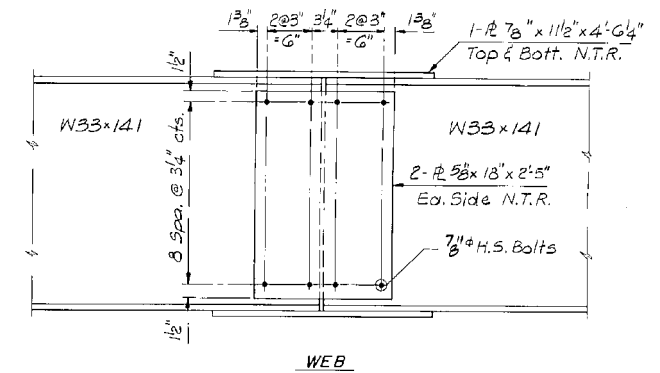
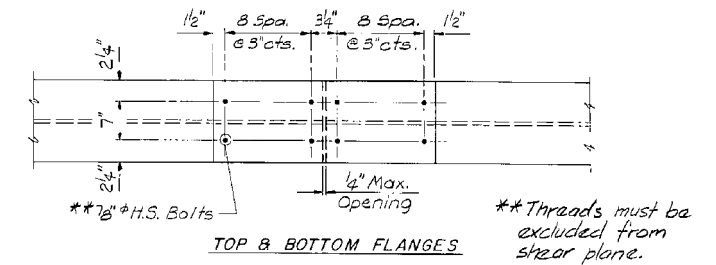
	No. Abut.	Pier #1	Pier #2	Pier #3	Pier #4	So. Abut.
R <sub>e</sub> (K)	21	76	64	63	74	20
R <sub>e</sub> (K)	38	46	45	45	45	38
Imp. (K)	11	13	13	13	13	11
R <sub>TOTAL</sub> (K)	70	135	122	121	132	69



**TOP & BOTTOM FLANGES**  
(Splice #1 & Splice #2) - Southbound



**WEB**  
(Splice #1 & Splice #4) - Southbound  
(Splice #1 thru Splice #2) - Northbound



**SHEAR CONNECTOR DETAIL**

**STRUCTURAL STEEL DETAILS**  
 ILL. RT. 4 - VETERANS PKWY. over  
 C.M.N.W. and N.B.W. Railroads  
 USABLE SEGMENT NO. 3, VB  
 SANGAMON COUNTY  
 STATION 483 + 05.86 (F.A. RTE 662)

DESIGNED MDM		FILE NO.
CHECKED CRN		8553092
DRAWN D.A.N.		DATE
CHECKED MDM		4-15-89

MODEL: Default FILE NAME: C:\CONTRAC\OPERATIONS\Bridges\Bridges\Bridges\Bridges\CAD\72K74 - Sangamon County.pdmt 2019/03/28/10:00:00

USER NAME = dudleybm	DESIGNED -	REVISED -
PLOT SCALE = 100.0000' / in.	DRAWN -	REVISED -
PLOT DATE = 10/5/2018	CHECKED -	REVISED -
	DATE -	REVISED -

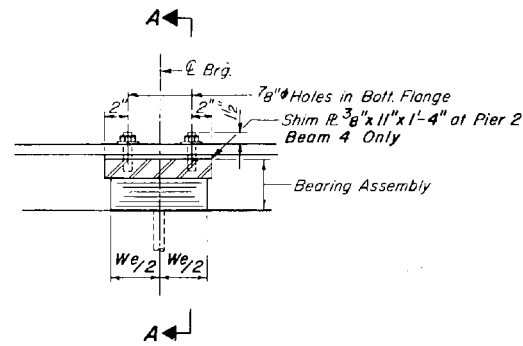
STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

EXISTING STRUCTURE PLANS, SN 084-0188 & 0189  
 (FOR INFORMATION ONLY)  
 SCALE: SHEET OF SHEETS STA. TO STA.

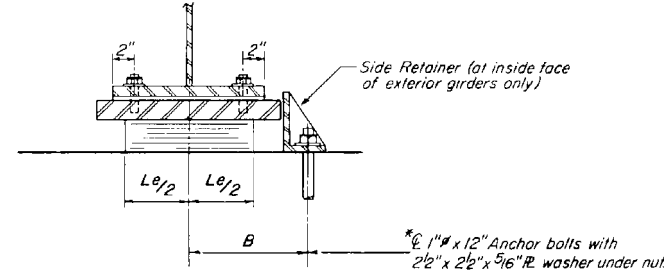
F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
*	(84-10-3)(27)(3-1) BP	SANGAMON	19	11
* FAI 72A, FAP 662, 666		CONTRACT NO. 72K74		
ILLINOIS FED. AID PROJECT				

CAPITAL CITY RAILROAD RELOCATION AUTHORITY SPRINGFIELD, ILLINOIS					
FED. AID PROJECT NO.	CCRRA PROJECT NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
RR-1(1)		*	SANGAMON	72	44

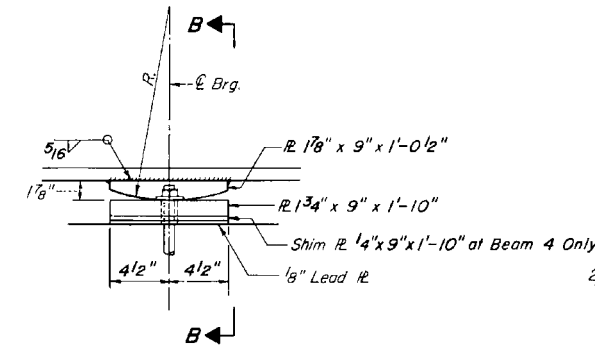
\* Usable Segment No. 3, VB



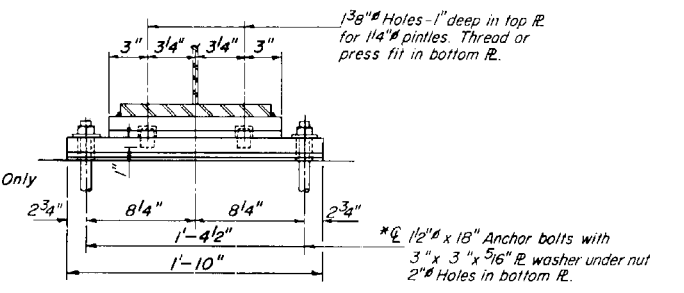
SECTION AT PIERS 2 & 4



SECTION A-A

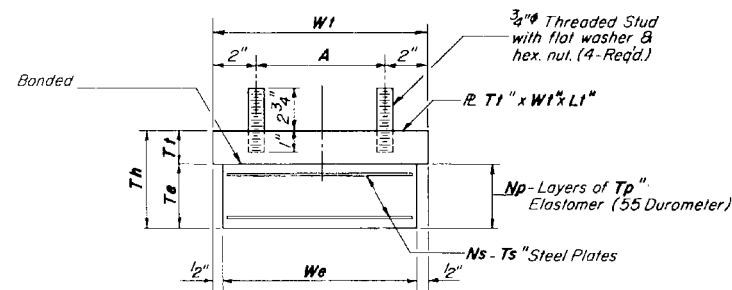


ELEVATION AT PIER 3



SECTION B-B

**TYPE I ELASTOMERIC EXP. BRG.**

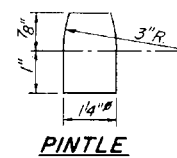


BEARING ASSEMBLY

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

	BEAMS 7-12 NORTH BOUND		BEAMS 1-6 SOUTH BOUND	
	PIER 2 (6-REQ'D)	PIER 4 (6-REQ'D)	PIER 2 (6-REQ'D)	PIER 4 (6-REQ'D)
We (in.)	10	11	11	11
Wt (in.)	11	12	12	12
Le (in.)	14	16	16	16
Lt (in.)	16	18	18	18
Te (in.)	2 1/16	2 3/8	2 3/8	2 3/8
Tl (in.)	2 1/2	2 5/8	2 3/4	2 5/8
Th (in.)	5 3/16	5	5 1/8	5
Np	5	4	4	4
Tp (in.)	7/16	1/2	1/2	1/2
Ns	4	3	3	3
Ts (in.)	1/8	1/8	1/8	1/8
A (in.)	7	8	8	8
B (in.)	10 1/4	11 1/4	11 1/4	11 1/4
C (in.)	5 1/2	5 1/2	5 1/2	5 1/2

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



PINTLE

**FIXED BEARING  
(12 - REQ'D.)**

**MATERIALS for ILLINOIS COIL-LOCK ANCHOR BOLT**

The anchor bolt shall be fabricated from cold drawn or hot finished seamless carbon steel mechanical tubing conforming to ASTM A519, Grade 1026 and supplied with hexagonal nuts and cut washers. The coil wire shall be made of any suitable soft steel wire. The finished anchor bolt shall be cleaned of rust and other foreign materials and wrapped or packaged to prevent contamination until they are installed. The epoxy grout shall be a two-component, epoxy resin bonding system conforming to ASTM C881, Type I, Grade I and of a class suitable for the temperature at installation.

**INSTALLATION PROCEDURE for the ILLINOIS COIL-LOCK ANCHOR BOLT**

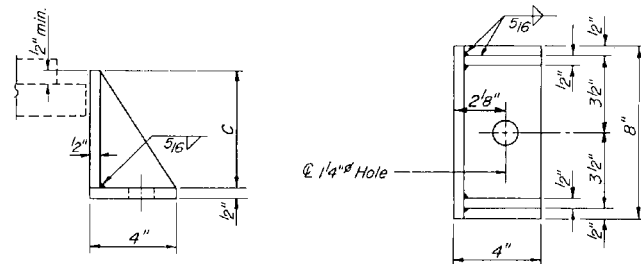
1. With the coil wire in place, the bolt shall be inserted into the hole and turned clockwise to a snug fit in the hole. Nut and washer shall be placed on the bolt. The nut shall be tensioned until the steel base plates are held securely to the concrete bearing seat.
2. Epoxy grout shall be pumped through the zerk fitting with a pressure gun. Pumping shall continue until the epoxy overflows the hole around the bolt shank. After pumping is discontinued, excess epoxy shall be immediately wiped off.

**ALTERNATE ANCHOR BOLTS**

The Contractor may use, at his option, the capsule or the adhesive cartridge type anchor rods that have been previously tested and given a prior approval by the Department. The Contractor shall install these anchor rods in pre-drilled holes in accordance with the manufacturer's recommendations and procedures. The capsule or the adhesive cartridge type anchor rods shall be a two part system composed of:

1. A threaded rod stud with nut and washer conforming to ASTM A307.
2. A sealed glass capsule or a sealed glass adhesive cartridge containing premeasured amounts of the adhesive chemical.

The Illinois Coil-Lock Anchor Bolt is a proprietary item which is the property of the Illinois Department of Transportation. Use, reproduction or disclosure without express written permission is prohibited and protected under Federal copyright laws. The production and the fabrication of this bolt for use on highway projects in the State of Illinois shall be permitted and there shall be no incurred charges or fees to the manufacturer or the fabricator for producing or fabricating this bolt.



SIDE RETAINER

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

**GENERAL NOTES**

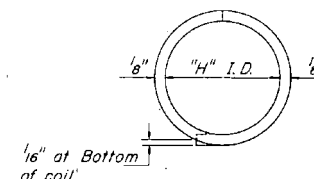
Holes in the masonry for anchor bolts shall be drilled through the base plates to the diameter and depth shown or in accordance with the manufacturer's recommendation after beams or girders have been erected and adjusted.

Prior to setting the bolts, the holes shall be dry and all dust and loose particles shall be removed by the use of compressed air or vacuuming.

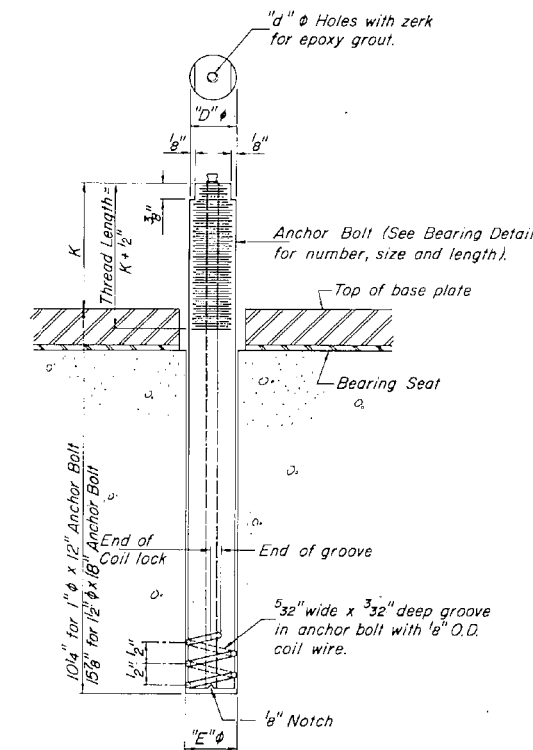
The anchor bolts, furnished and installed and including the epoxy grout or capsules shall not be paid for separately but shall be included in the unit bid price for "Furnishing and Erecting Structural Steel".

Anchor bolts, nuts and washers shall be completely coated by either the hot-dipped process conforming with AASHTO M232 or the mechanical plating method conforming to ASTM B695, Class 50. Zinc coated nuts shall be tapped oversize in accordance with the requirements of AASHTO M291 and shall meet the supplementary requirements S1.1 thru S1.2.1 of the same specifications for lubricant and testing.

D	E	H	K	"d"
1"	1 1/8"	1 3/8"	1 3/4"	1/4"
1 1/2"	1 5/8"	1 5/8"	2 1/8"	1/2"
2"	2 1/8"	1 3/4"	2 1/8"	1/2"
2 1/2"	2 3/8"	2 3/8"	3 3/8"	1"



PLAN - COIL WIRE



ILLINOIS COIL-LOCK ANCHOR BOLT

**BEARINGS - FIXED & TYPE I  
ILL. RT. 4 - VETERANS PKWY. over  
C.M.N.W. and N.B.W. Railroads  
USABLE SEGMENT NO. 3, VB  
SANGAMON COUNTY  
STATION 483 + 05.86 (F.A. RTE 662)**

DESIGNED: MDM		FILE NO.
CHECKED: CRN		8553092
DRAWN: MAE		DATE
CHECKED: MDM		4-18-89

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

EXISTING STRUCTURE PLANS, SN 084-0188 & 0189  
(FOR INFORMATION ONLY)

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
*	(84-10-3)(27)(3-1) BP	SANGAMON	19	12
* FAI 72A, FAP 662, 666			CONTRACT NO. 72K74	

SCALE: SHEET OF SHEETS STA. TO STA.

ILLINOIS FED. AID PROJECT



B.M. - "D" Chisel "a" West end South abutment Bridge Sta 166+94 Elev. 532.72

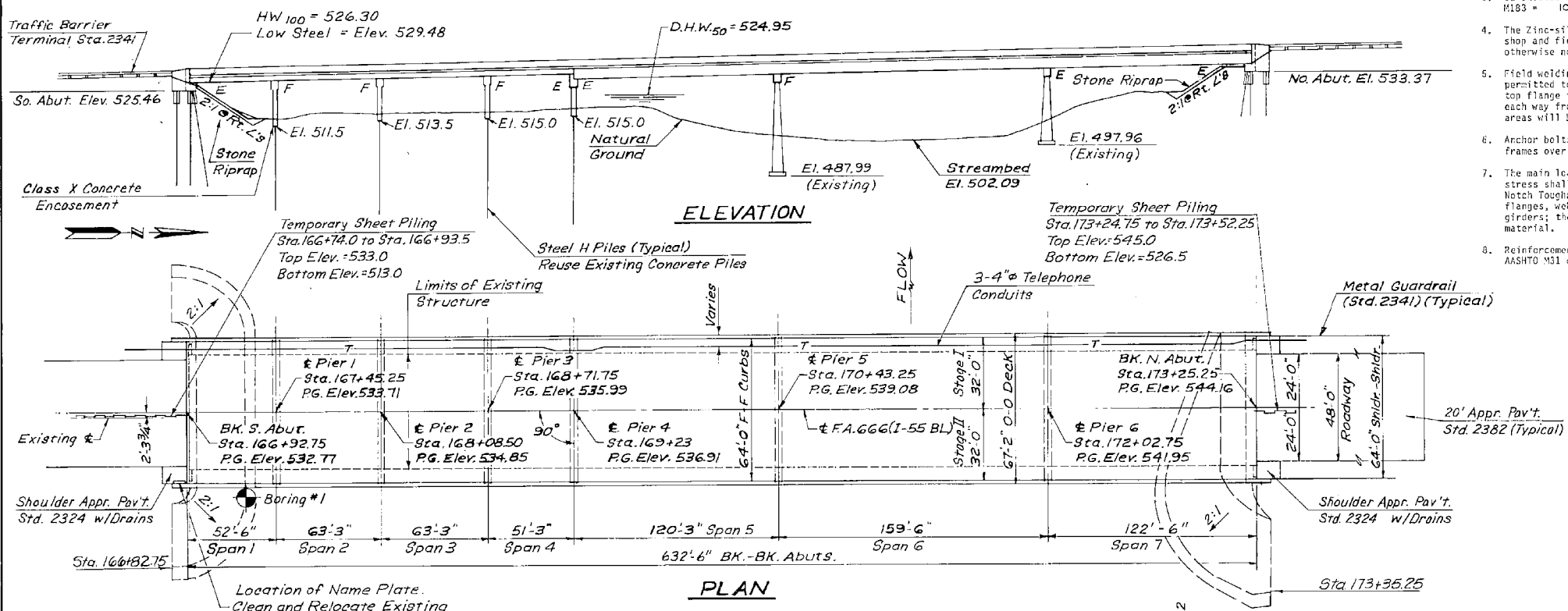
Existing Bridge - Structure No. 084-0030 - 7 Span reinforced concrete deck on steel beams and plate Girders w/44.6 roadway & 4.0' walkway, 631.25' long bk. - bk. abutments. Constructed in 1937 & deck rehabilitated in 1971. Remove superstructure. Widen & rehabilitate substructure.

**GENERAL NOTES**

- See Proposal for Boring Data.
- Fasteners shall be high strength bolts. Bolts 7/8" dia., open holes 15/16" dia., unless otherwise noted.
- Calculated weight of Structural Steel: M183 = 104,950 lbs. M223 Gr.50 949,620 lbs.
- The Zinc-silicate and vinyl paint system shall be used for shop and field painting of Structural Steel except where otherwise noted.
- Field welding of construction accessories will not be permitted to the bottom flange of beams or girders nor to the top flange for a distance equal to one-fourth the span length each way from the pier supports. Field welding in other areas will be permitted only when approved by the Engineer.
- Anchor bolts shall be set before bolting diaphragms or cross frames over supports.
- 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 steel girders; the wide flange beams and their splice plate material.
- Reinforcement bars shall conform to the requirements of AASHTO M31 or M53 Grade 60.
- The embankment configuration shown shall be the minimum embankment that must be constructed prior to construction of the abutments.
- 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 1/8" adjusting shims, of the dimension of the bottom bearing plate, shall be provided for each bearing in addition to all other plates or shims.
- The contractor shall drive two steel test piles in permanent locations at the South Abutment and Pier #4 as directed by the Engineer before ordering the remainder of piles.
- Layout of Stone Riprap may be varied in the field to suit ground conditions as directed by the Engineer.
- Plan dimensions and details relative to existing structure have been taken from existing plans and are subject to normal 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 work, however, the Contractor will be paid for the quantity actually furnished at the unit price bid for the work.
- Expansion bolts shall consist of approved expansion anchors, providing minimum certified proof load = 4,080 lbs., and 3/4" x 12" hooked bolts.

**TOTAL BILL OF MATERIAL**

Item	Units	Superstructure	Substructure	Total
Removal of Existing Superstructures	Each			1
Concrete Removal	Cu. Yd.		133.3	133.3
Floor Drains	Each	50		50
Protective Coat	Sq. Yd.	5007		5007
Neoprene Expansion Joint (4")	Lin. Ft.	132		132
Elastomeric Bearing Assembly, Type II	Each	50		50
Class X Concrete	Cu. Yd.	1,190.4	298.8	1,489.2
Furn. and Erect Structural Steel	L. Sum.	1		1
Stud Shear Connectors	Each	13,090		13,090
Reinforcement Bars	Lbs.		28,160	28,160
Reinforcement Bars (Epoxy Coated)	Lbs.		278,570	278,570
Furn. Steel Piles HP10 x 42	Lin. Ft.		1,019	1,019
Furn. Steel Piles HP12 x 53	Lin. Ft.		371	371
Driving Steel Piles	Lin. Ft.		1,318	1,318
Test Pile Steel HP10 x 42	Each		1	1
Test Pile Steel HP12 x 53	Each		1	1
Class X Concrete Encasement	Cu. Yd.		19.0	19.0
Metal Shoes	Each		27	27
Name Plates	Each		1	1
Stone Riprap	Sq. Yd.			1,028
Temporary Concrete Barrier	Lin. Ft.			1,300
Expansion Bolts, 3/4" inch	Each		136	136
Preformed Joint Seal 4"	Lin. Ft.	68		68
Setting Piles in Rock	Each		6	6
Temporary Sheet Piling	Sq. Ft.			900



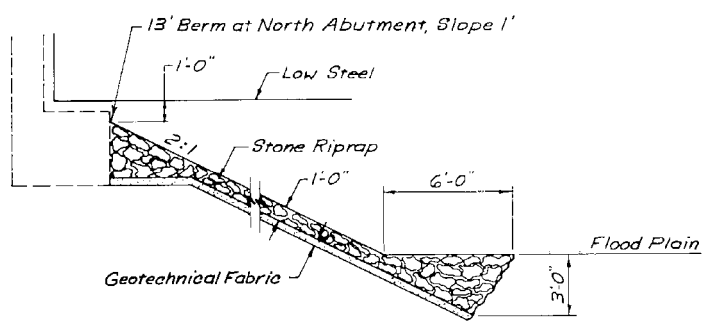
**PLAN**

**PROFILE GRADE**

STATION 170+09  
REBUILT 198 BY  
STATE OF ILLINOIS  
F.A. PROJ. BR-666 ( )  
LOADING HS 20  
STR. NO. 084-0030

**NAME PLATE**  
See Standard #2113

**STONE RIPRAP TREATMENT**



**WATERWAY INFORMATION**

\* Drainage Area = 2736 Sq. Mi. Low Grade Elev. 527.74 @ Sta. 150+00

Flood Yr.	Q CFS	Opening Sq. Ft.		Nar.	Head-Ft.		Headwater-EI.		
		EXIST.	PROP.		EXIST.	PROP.	EXIST.	PROP.	
Design	50	43,000	6785	6785	524.95	.37	.37	525.32	525.32
Base	100	46,950	7504	7504	526.30	.51	.51	526.81	526.81
Overtopping	200	50,300	8245	8245	527.65	.58	.58	528.23	528.23
Max. Calc.	500								

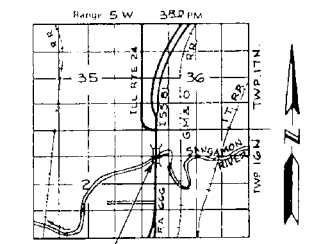
\* Includes Area for Overflow Structure No. 084-0179

**DESIGN SPECIFICATIONS**  
AASHTO (1983) & 1984 Interim Load Factor Design

**LOADING HS 20-44**  
Allow 25 p.s.f. for future wearing surface

**DESIGN STRESSES**

$f_a = 3,500$  p.s.i.  
 $f_y = 60,000$  (Reinf.)  
 $f_y = 50,000$  (Struct.) M223 Gr.50  
 $f_y = 36,000$  p.s.i. (M183)



**LOCATION SKETCH**



William L. Wells 2-20-86  
William L. Wells Date  
Registered Structural Engineer  
State of Illinois No. 4362

APPROVED  
FOR STRUCTURAL ADEQUACY ONLY  
James J. Rayburn  
Engineer of Bridges and Structures

**KLINGNER & ASSOCIATES, P.C.**  
CONSULTING ENGINEERS  
613 BROADWAY  
QUINCY, ILLINOIS 62301 217-223-3670

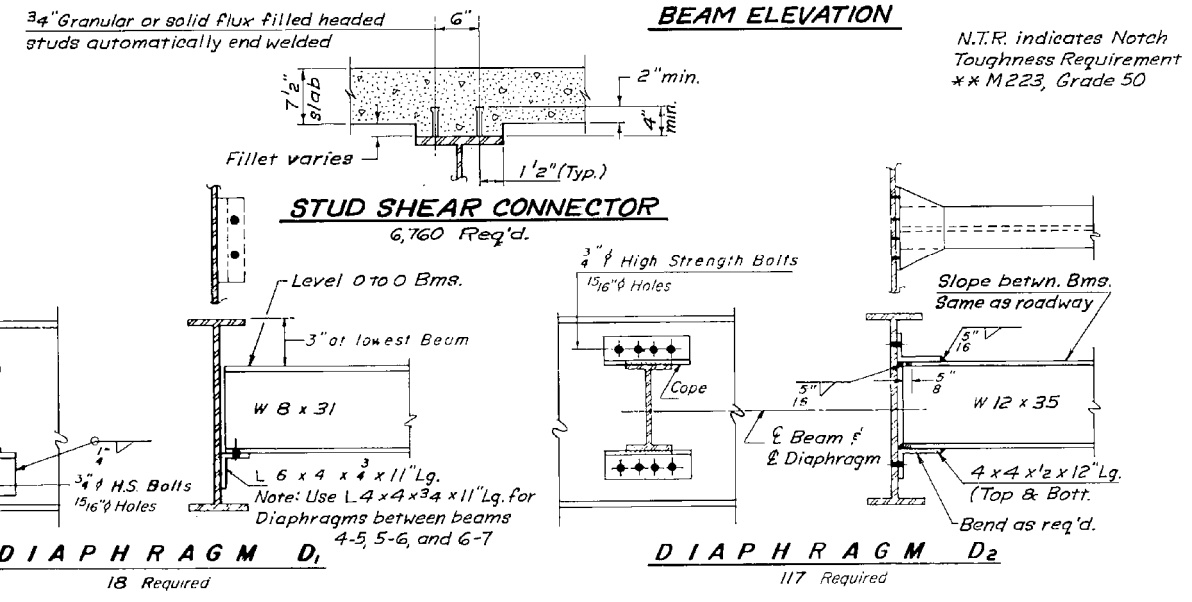
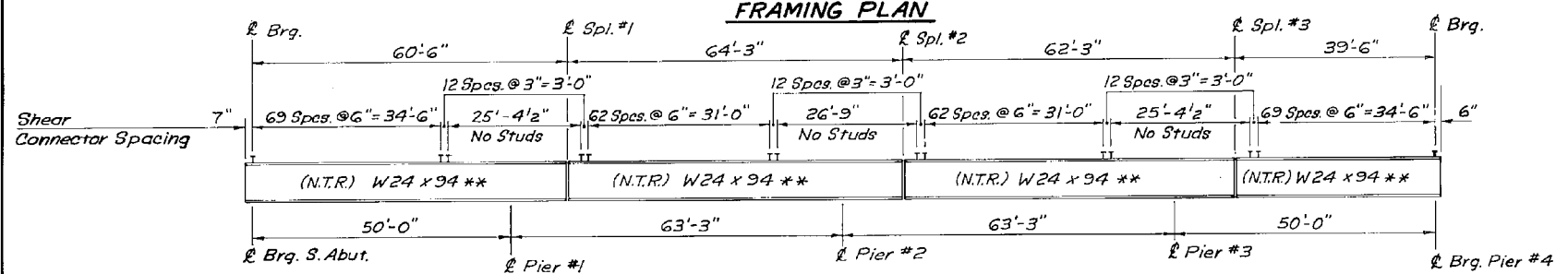
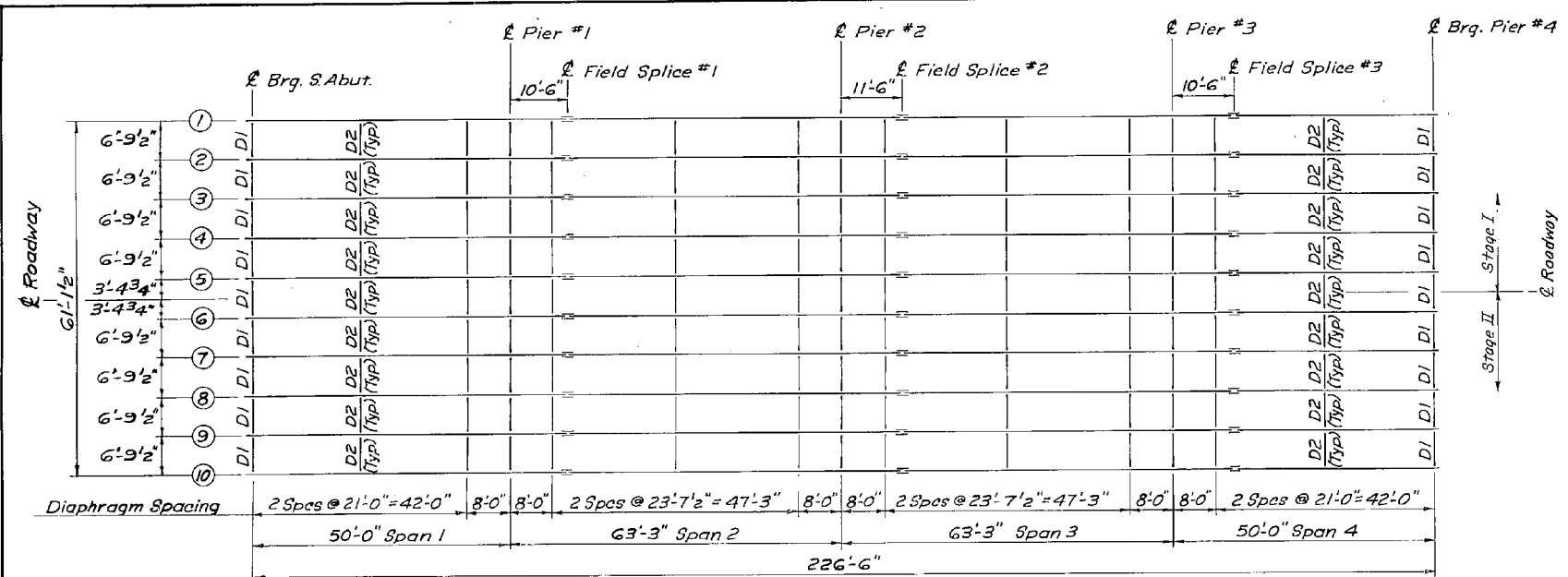
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

EXISTING STRUCTURE PLANS, SN 084-0030  
(FOR INFORMATION ONLY)

USER NAME = dudleybm	DESIGNED -	REVISED -	
	DRAWN -	REVISED -	
PLOT SCALE = 100,0000' / in.	CHECKED -	REVISED -	
PLOT DATE = 10/5/2018	DATE -	REVISED -	

SCALE: SHEET OF SHEETS STA. TO STA.





Note: Two hardened washers shall be required over all 1 5/16" holes in diaphragm connections.

**KLINGNER & ASSOCIATES, P.C.**  
CONSULTING ENGINEERS  
613 BROADWAY  
QUINCY, ILLINOIS 62301 217-223-3670

**NOTES**

$I_s$  and  $S_s$  are the moment of inertia and section modulus of the steel section used in computing  $f_s$  (Total and Overload).

$I_c$  and  $S_c$  are the moment of inertia and section modulus of the composite section used in computing  $f_s$  (Total and Overload).

$V_R$  is the maximum LL + impact shear range in span.

$Z$  is the plastic section modulus used to determine the Fully Plastic Moments in the non-composite areas.

The Fully Plastic Moment Capacity ( $M_u$ ) is computed according to AASHTO 10.48.1 & 10.50.1.

$f_s$  (Total) is the sum of the stresses due to  $1.3 [M_{DL} + M_{SDL} + 5/3 (M_{LL} + I)]$

$f_s$  (Overload) is the sum of the stresses due to  $M_{DL} + M_{SDL} + 5/3 (M_{LL} + I)$

$M_{DL}$  - Moment due to dead loads on non-composite section.

$M_{SDL}$  - Moment due to dead loads on composite section.

$M_{LL}$  - Moment due to Live Load on non-composite or composite section.

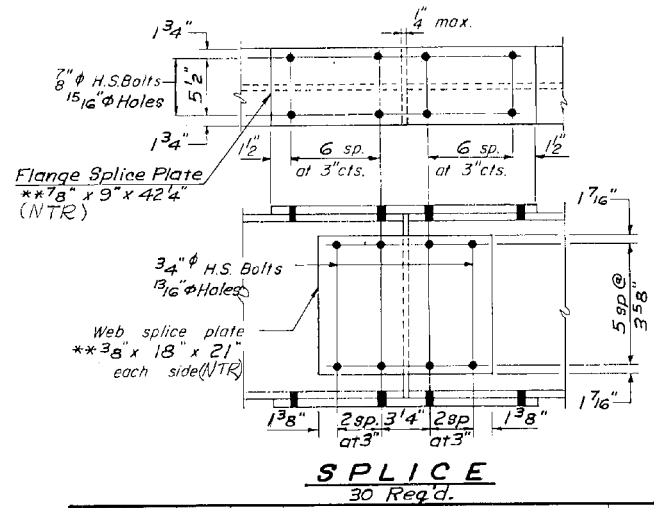
$I$  - Live Load Impact

**TOP OF BEAM ELEVATIONS (For Fabrication Only)**

Beam Line	ℓ Brg. S. Abut.	Pier 1	Splice 1	Pier 2	Splice 2	Pier 3	Splice 3	ℓ Brg. Pier 4
1 and 10	531.51	532.41	532.62	533.55	533.78	534.69	534.89	535.59
2 and 9	531.65	532.55	532.76	533.69	533.92	534.83	535.03	535.73
3 and 8	531.79	532.69	532.90	533.83	534.06	534.97	535.18	535.87
4 and 7	531.93	532.83	533.04	533.97	534.19	535.10	535.31	536.00
5 and 6	532.07	532.97	533.18	534.11	534.30	535.21	535.41	536.11

**INTERIOR BEAM MOMENT TABLE**

Units	0.4 Span 1 if 0.6 Span 4	Piers 1 & 3	0.5 Spans 2 & 3	Pier 2
$I_s$ (in <sup>4</sup> )	2700	2700	2700	2700
$I_c$ (in <sup>4</sup> )	8309	8309	8309	8309
$S_s$ (in <sup>3</sup> )	222	222	222	222
$S_c$ (in <sup>3</sup> )	349	349	349	349
$Z$ (in <sup>3</sup> )		254		254
DL (k/ft)	0.760	1.002	0.760	1.002
M <sub>DL</sub> (k)	140.7	273.2	155.3	290.5
S <sub>DL</sub> (k/ft)	0.242		0.242	
M <sub>SDL</sub> (k)	51.9		65.7	
M <sub>LL</sub> (k)	342.1	167.8	408.4	185.6
I (k)	97.8	46.1	108.6	49.4
5/3 (M <sub>LL</sub> + I) (k)	733.2	356.2	861.7	391.7
M <sub>a</sub> (k)	1203.5	818.6	1407.5	886.9
* M <sub>u</sub> (k)	2016	1058	2016	1058
$f_s$ DL (non-comp) (KSI)	7.6	12.9	8.4	13.7
$f_s$ DL (comp) (KSI)	1.8		2.3	
$f_s$ 5/3 (LL+I) (KSI)	25.2	16.8	29.6	18.5
$f_s$ (Overload) (KSI)	34.6	29.7	40.3	32.2
V <sub>R</sub> (K)	50.3		42.0	



**INTERIOR BEAM REACTION TABLE**

Units	S. Abut. ℓ Pier 4	Piers 1 & 3	Pier 2
R <sub>DL</sub> (K)	18.6	62.9	63.8
R <sub>LL</sub> (K)	35.0	41.8	43.1
Imp. (K)	10.0	11.5	11.4
R <sub>TOTAL</sub> (K)	63.6	116.2	118.3

(Composite in Positive Moment Area Only)

\* M<sub>u</sub> = Full Plastic Moment Capacity for Compact, Braced Section

M<sub>a</sub> (Applied Moment) = 1.3 [M<sub>DL</sub> + M<sub>SDL</sub> + 5/3 (M<sub>LL</sub> + I)]

REV. NO. DRAWN CHKD. APPD. DESCRIPTION DATE

1/86

**F.A. ROUTE 666 (1-55 BL)**  
**SECTION 27 BR-I**  
**SANGAMON COUNTY, ILLINOIS**  
**STA. 170+09.00**  
**STRUCTURAL STEEL DETAILS**  
**SPANS 1 THRU 4**  
**STRUCTURE NO. 084-0030**

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	DATE -	REVISED -

**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**

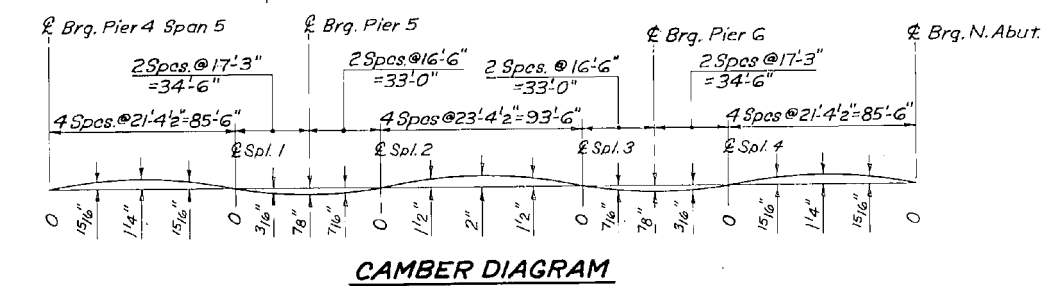
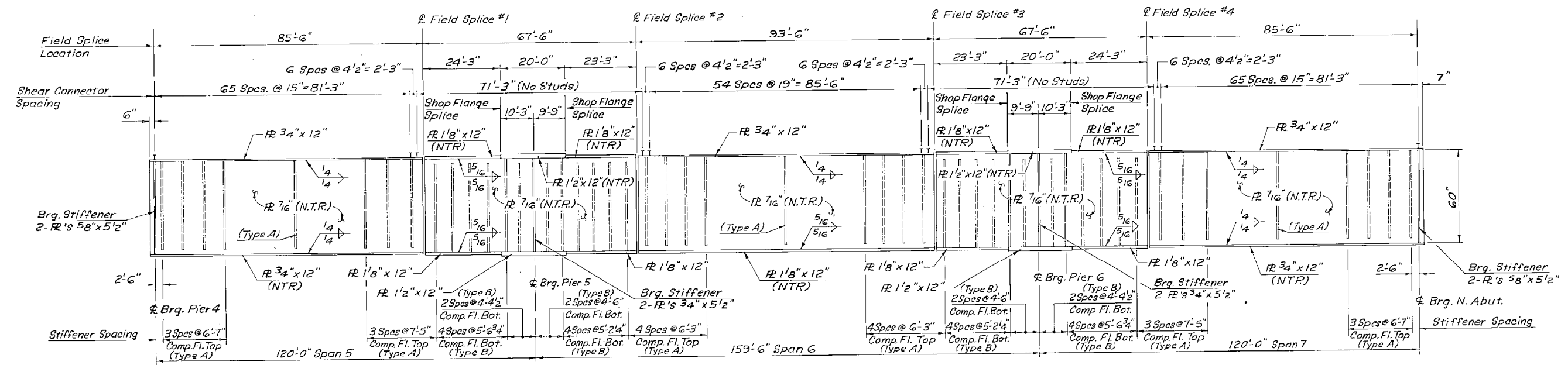
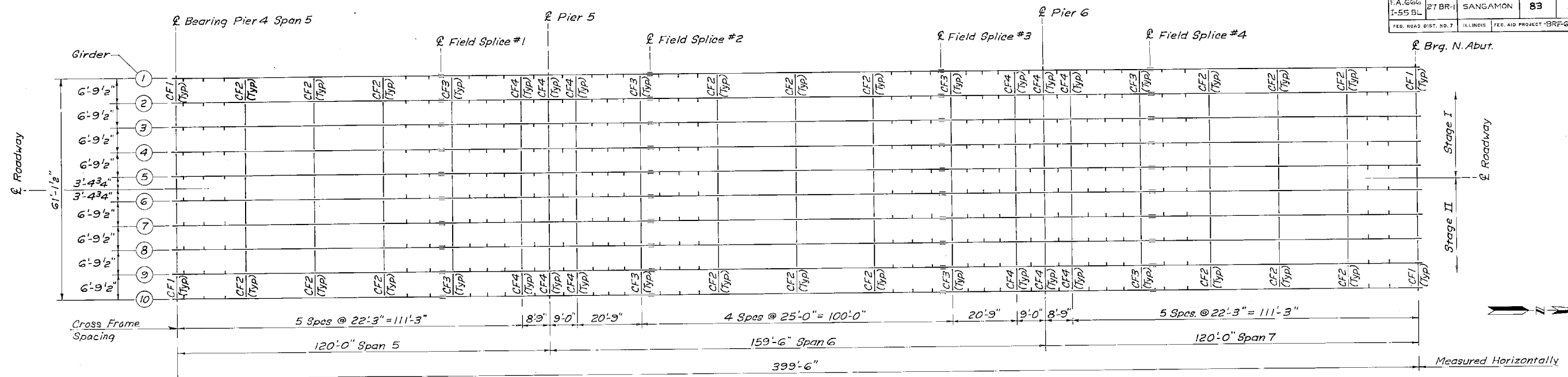
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**(FOR INFORMATION ONLY)**

SCALE: SHEET OF SHEETS STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
*	(84-10-3)(27)(3-1) BP	SANGAMON	19	15
* FAI 72A, FAP 662, 666		CONTRACT NO. 72K74		
ILLINOIS		FED. AID PROJECT		

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FA. 666 I-55 BL	27 BR-1	SANGAMON	83	54
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT "BRF666"		

SHEET NO. 17  
OF  
26 SHEETS



**TOP OF WEB ELEVATIONS (For Fabrication Only)**

Girder Line	Brg. Pier 4	Splice 1	Pier 5	Splice 2	Splice 3	Pier 6	Splice 4	Brg. N. Abut.
1 and 10	535.47	537.08	537.63	538.32	540.01	540.50	541.19	542.66
2 and 9	535.61	537.22	537.77	538.46	540.15	540.64	541.33	542.80
3 and 8	535.75	537.36	537.91	538.60	540.29	540.78	541.47	542.94
4 and 7	535.89	537.50	538.05	538.74	540.43	540.92	541.61	543.08
5 and 6	535.99	537.60	538.15	538.84	540.53	541.02	541.71	543.18

- NOTES:**
1. N.T.R. indicates Notch Toughness Requirement
  2. All Flange Plates, Web Plates, Splice Plates, and Bearing Stiffener Plates shall be M 223, Gr. 50 Steel.

REV. NO.	DRAWN	CHKD.	APPD.	DESCRIPTION	DATE
	RLW	M.D.K.	W.L.W.		2/86

**F.A. ROUTE 666 (I-55 BL)  
SECTION 27 BR-1  
SANGAMON COUNTY, ILLINOIS  
STA. 170+09.00  
STRUCTURAL STEEL DETAILS  
SPANS 5 THRU 7  
STRUCTURE NO. 084-0030**

**KLINGNER & ASSOCIATES, P.C.**  
CONSULTING ENGINEERS  
613 BROADWAY  
QUINCY, ILLINOIS 62301 217-223-3670

USER NAME = dudleybm	DESIGNED -	REVISED -
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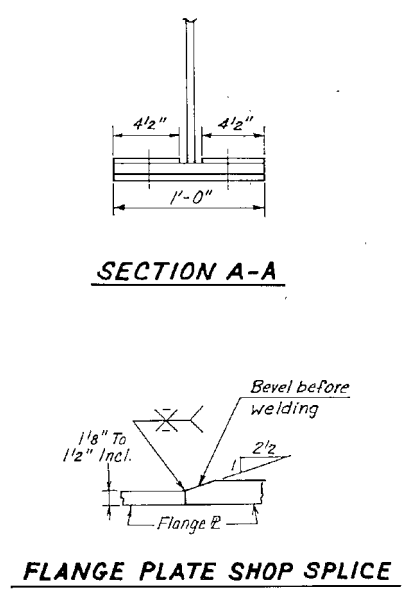
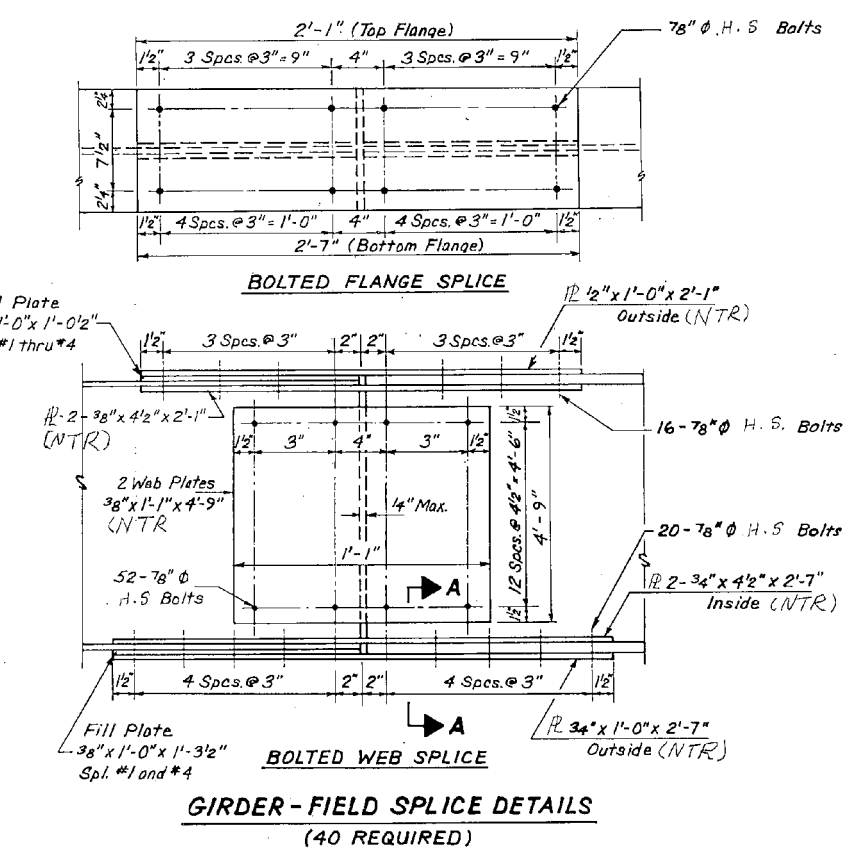
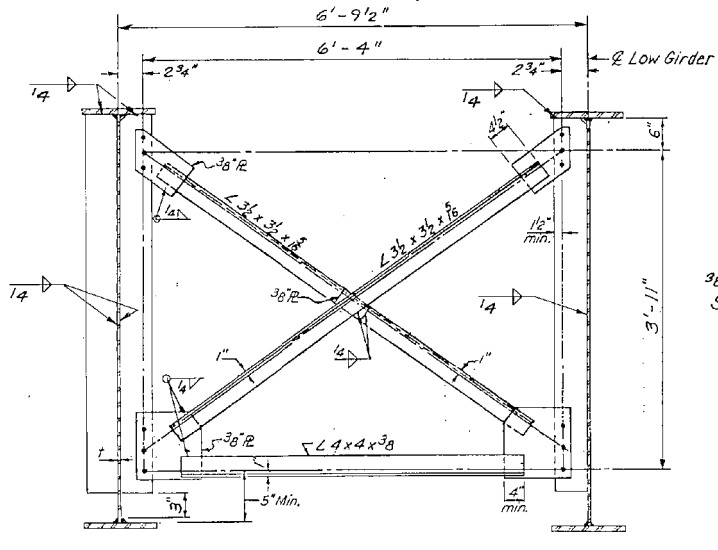
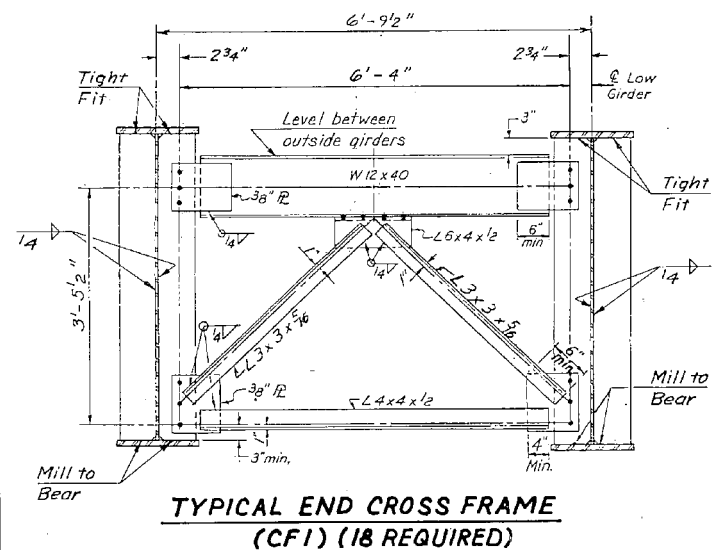
**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**EXISTING STRUCTURE PLANS, SN 084-0030  
(FOR INFORMATION ONLY)**

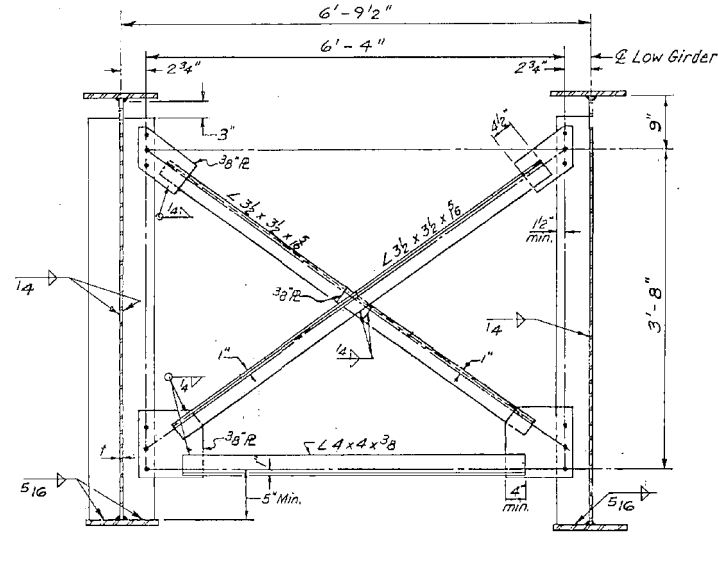
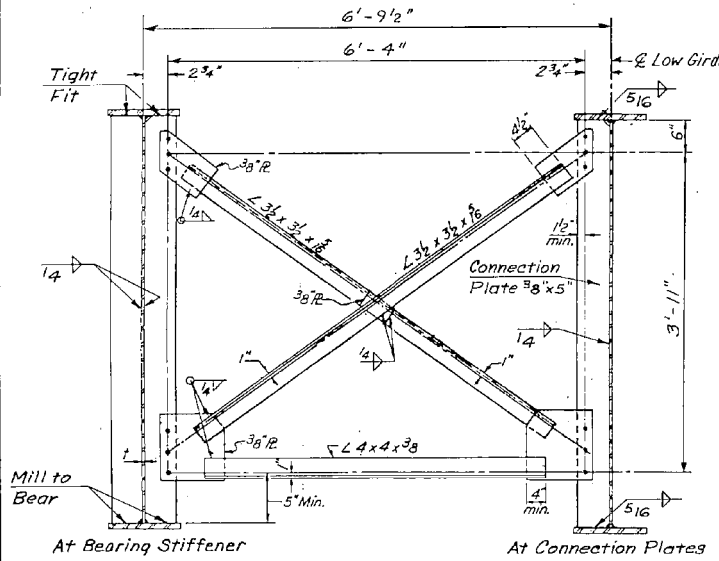
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F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	(84-10-3)(27)(3-1) BP	SANGAMON	19	16
	* FAI 72A, FAP 662, 666	CONTRACT NO. 72K74		
	ILLINOIS	FED. AID PROJECT		

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Note: Connection Plate Welded to both flanges.

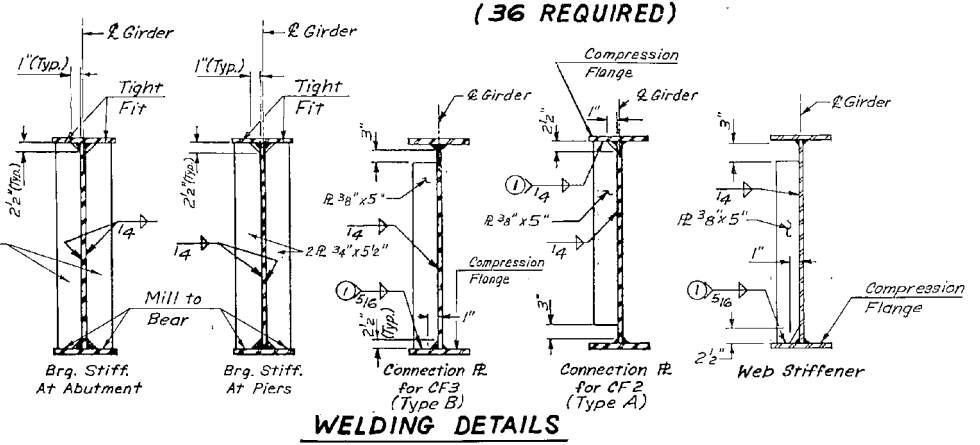
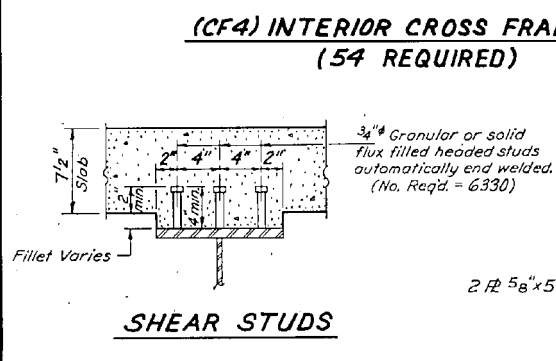


Note: For definition of  $I_g, S_g, I_c, S_c, V_R$  etc. See Sht. 16

**INTERIOR GIRDER MOMENT TABLE**

Units	0.4 Span 5 & 0.6 Span 7	Piers 5 & 6	0.5 Span 6
$I_s$ (in. <sup>4</sup> )	24483	41922	33098
$I_c$ (in. <sup>4</sup> )	58560		70426
$S_s$ (in. <sup>3</sup> )	796	1331	1011
$S_c$ (in. <sup>3</sup> )	1121		1392
$DL$ (k/Ft.)	.831	1.134	.846
$MDL$ (Ft-k)	710.1	2259.6	865.9
$SDL$ (k/Ft.)	.242		.242
$MSDL$ (Ft-k)	248.0	997.1	344.0
$MLL$ (Ft-k)	976.6	1140.1	
$I$ (Ft-k)	199.2	188.5	200.7
$S/S(MLL + I)$ (Ft-k)	1959.7	1976.0	2234.7
$Ma$ (Ft-k)	3793.1	5506.3	4478.0
$f_s DL$ (non-comp) (KSI)	10.7	20.4	10.3
$f_s DL$ (comp) (KSI)	2.6		3.0
$f_s S/3(LL+I)$ (KSI)	21.0	17.8	19.2
$f_s$ (Overload) (KSI)	34.3	38.2	32.5
$f_s$ (Total) (KSI)	44.6	49.6	42.3
$VR$ (K)	53.6		37.7

- NOTES:**
- Intermediate Stiffeners shall be located on the inside face of Girders ① and ⑩ and on either face of Girders ② thru ⑨.
  - Plates designated by (N.T.R.) 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 Steel Girder.
  - Weld Intermediate Web Stiffeners to Compression Flanges as located on Girder Elevation.
  - Holes in Cross Frames shall be  $15/16"$   $\phi$  holes for  $3/4"$   $\phi$  H.S. Bolts. Holes in splices shall be detailed with  $15/16"$   $\phi$  holes for  $7/8"$   $\phi$  H.S. Bolts in flanges and webs. Two (2) hardened washers per bolt shall be provided for oversize holes in Diaphragm connections.



**INTERIOR GIRDER REACTION TABLE**

Units	Pier 4 & N. Abut.	Piers 5 & 6
$RDL$ (K)	45.7	172.0
$RLL$ (K)	40.3	79.9
$Imp.$ (K)	8.2	15.1
$RTOTAL$ (K)	94.2	267.0

(Composite in Positive Moment Area Only)

\*\* Non-Compact Section  
 $Ma$  (Applied Moment) =  $1.3 [MDL + MSDL + S/S (MLL + I)]$

**KLINGNER & ASSOCIATES, P.C.**  
CONSULTING ENGINEERS  
613 BROADWAY  
QUINCY, ILLINOIS 62301 217-223-3670

**F.A. ROUTE 666 (1-55 BL)**  
**SECTION 27 BR-1**  
**SANGAMON COUNTY, ILLINOIS**  
**STA. 170+09.00**  
**STRUCTURAL STEEL DETAILS**  
**SPANS 5 THRU 7**  
**STRUCTURE NO. 084-0030**

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PLOT DATE = 10/5/2018	DATE -	REVISED -

**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**

**EXISTING STRUCTURE PLANS, SN 084-0030**  
**(FOR INFORMATION ONLY)**

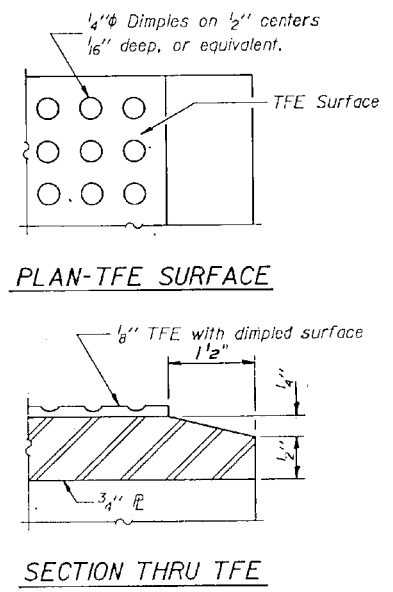
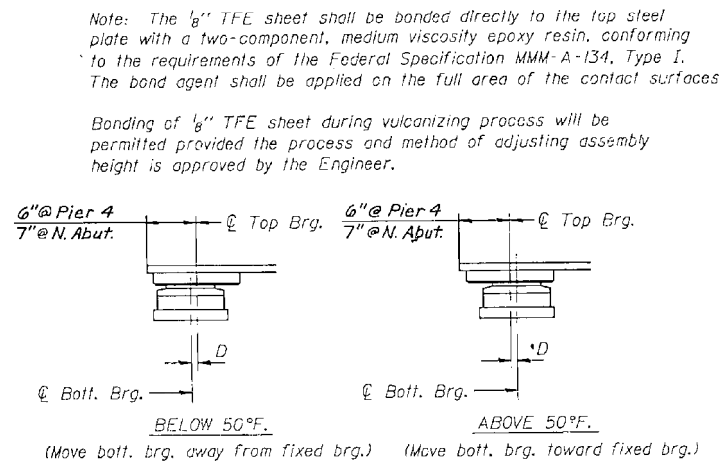
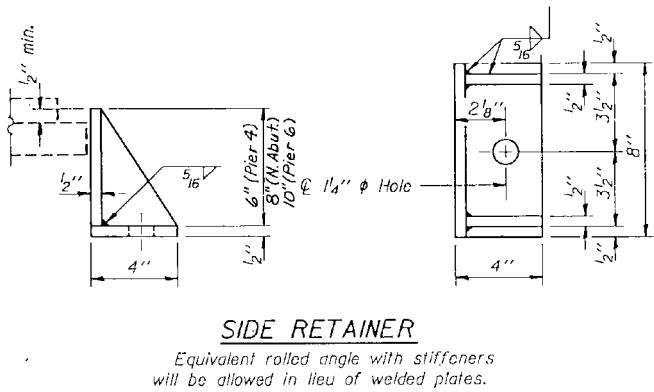
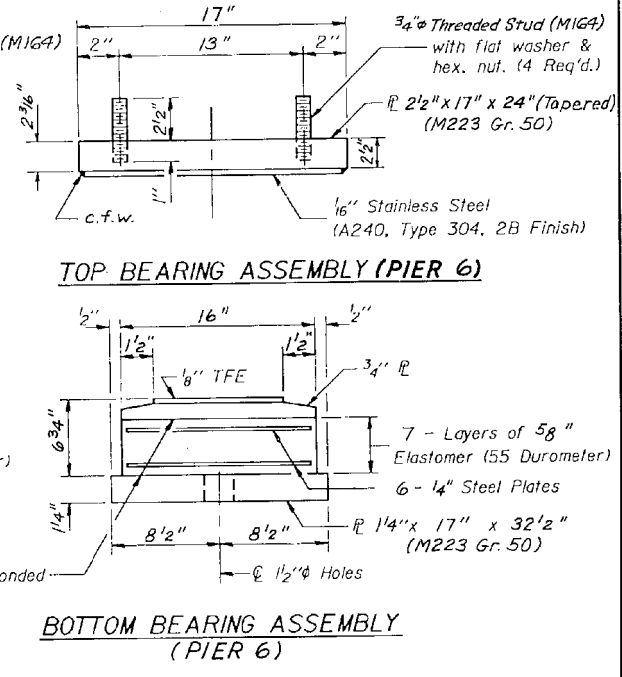
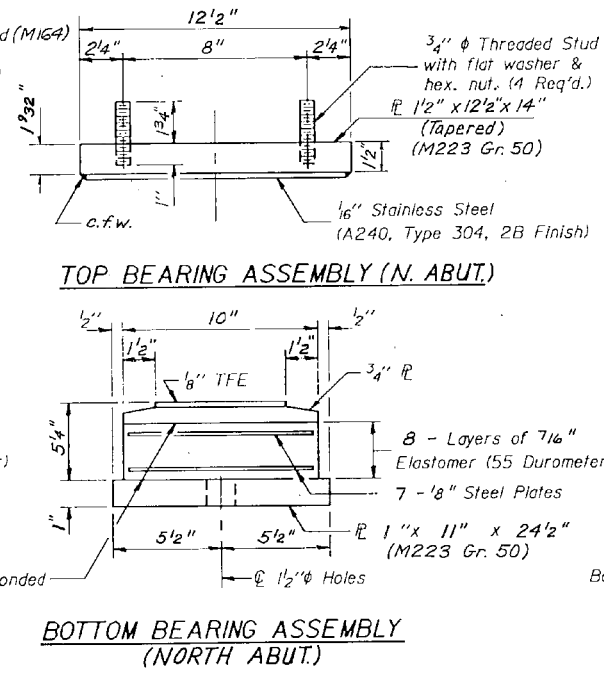
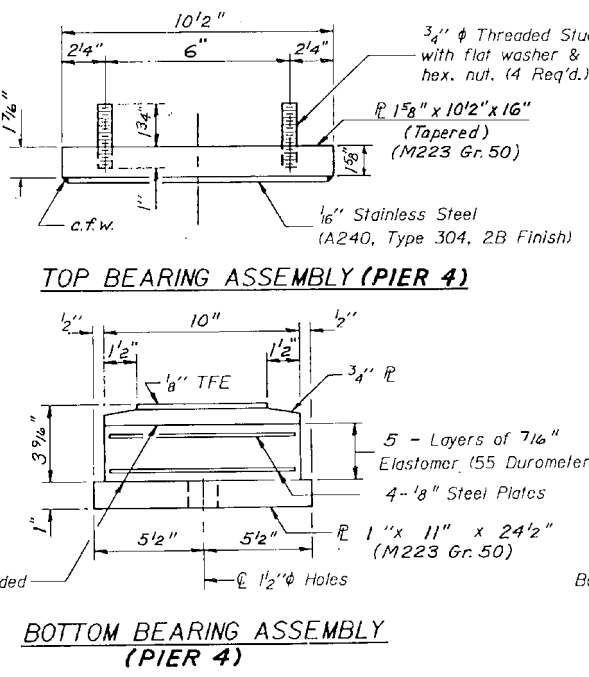
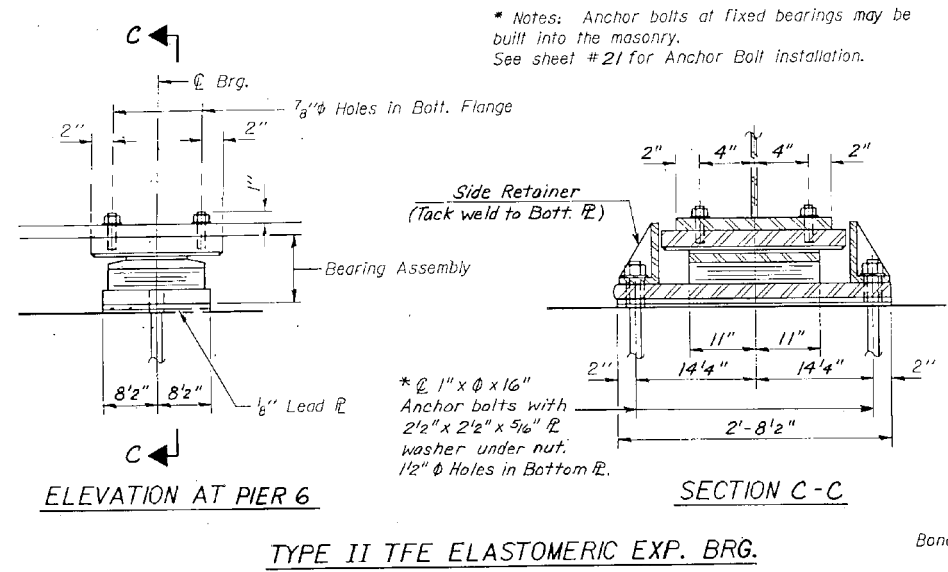
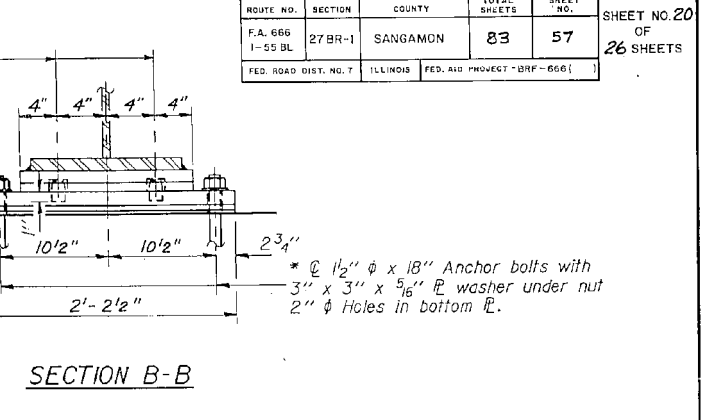
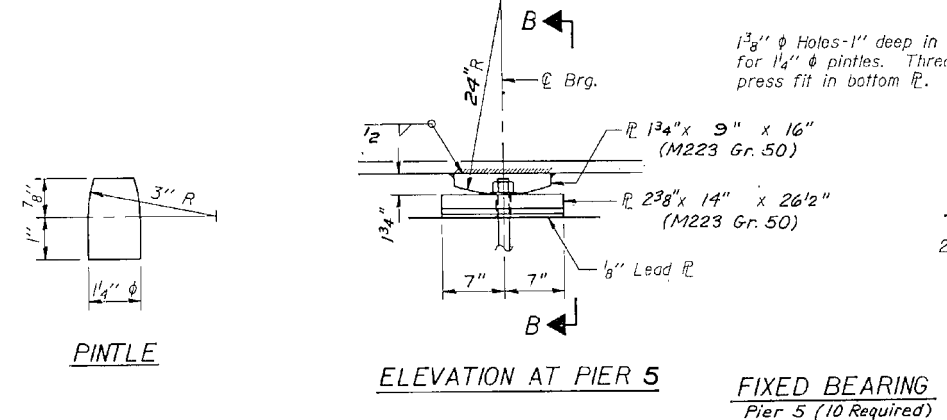
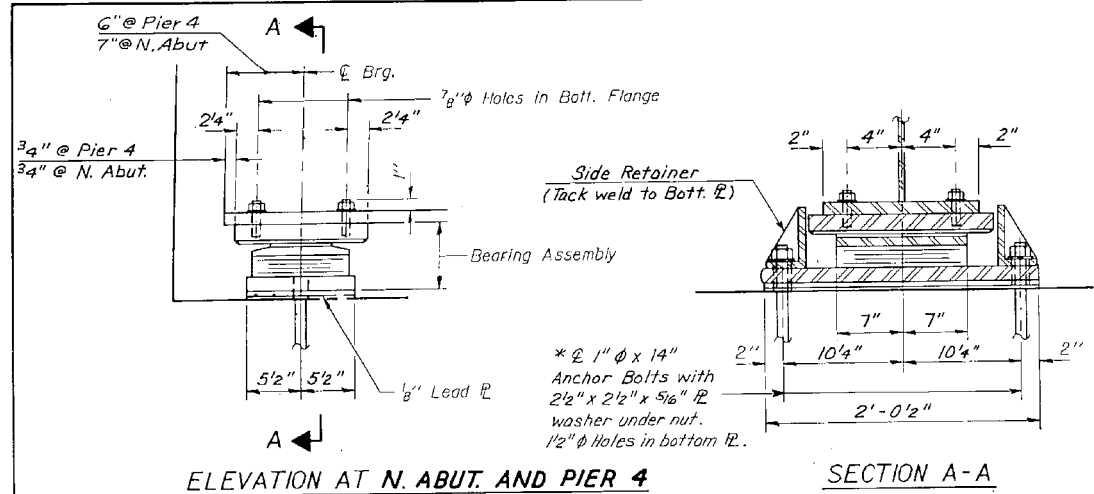
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F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
-	(84-10-3)(27)(3-1) BP	SANGAMON	19	17
* FAI 72A, FAP 662, 666		CONTRACT NO. 72K74		
	ILLINOIS	FED. AID PROJECT		



ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A. 666 1-55 BL	27 BR-1	SANGAMON	83	57
FED. ROAD DIST. NO. 7			ILLINOIS	FED. AID PROJECT "DRP-666"

SHEET NO. 20  
OF  
26 SHEETS



**BILL OF MATERIAL**

Item	Unit	Total
Elastomeric Bearing Assembly Type II	Each	30

R.L.W.	M.D.K.	W.L.W.		2/86
REV. NO.	DRAWN	CHKD.	APPD.	DATE
F.A. ROUTE 666 (1-55 BL) SECTION 27 BR-1 SANGAMON COUNTY, ILLINOIS STA. 170+09.00 BEARING ASSEMBLY, TYPE II SPANS 5 THRU 7 STRUCTURE NO. 084-0030				

**KLINGNER & ASSOCIATES, P.C.**  
CONSULTING ENGINEERS  
613 BROADWAY  
QUINCY, ILLINOIS 62301 217-223-3670

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

EXISTING STRUCTURE PLANS, SN 084-0030  
(FOR INFORMATION ONLY)

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	(84-10-3)(27)(3-1) BP	SANGAMON	19	19
* FAI 72A, FAP 662, 666			CONTRACT NO. 72K74	
ILLINOIS FED. AID PROJECT				

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