

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

\* For Fabrication only

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.I. 74	(48-26HB-4)I	KNOX	54	39
FED. ROAD DIST. NO.		ILLINOIS	PROJECT	

CONTRACT 88919

	0.4 Sp. 1	Pier 1	0.5 Sp. 2	Pier 2	0.5 Sp. 3	Pier 3	0.6 Sp. 4
$I_s$ (in <sup>4</sup> )	6990	6990	6990	6990	6990	6990	6990
$I_c$ (n) (in <sup>4</sup> )	*		17620		17620		*
$I_c$ (3n) (in <sup>4</sup> )	*		12619		12619		*
$S_s$ (in <sup>3</sup> )	502	502	502	502	502	502	502
$S_c$ (n) (in <sup>3</sup> )	*		720		720		*
$S_c$ (3n) (in <sup>3</sup> )	*		645		645		*
$Z$ (in <sup>3</sup> )			567				
$\bar{I}$ (k/ft.)	1.264	1.264	0.850	1.264	0.850	1.264	1.264
$M\bar{I}$ (k)	66	577	302	837	285	552	76
$s\bar{I}$ (k/ft.)	*		0.414		0.414		*
$Ms\bar{I}$ (k)	*		178		169		*
$M\bar{I}$ (k)	264	290	573	358	563	285	263
$M$ (Imp) (k)	78	76	135	85	134	75	78
$S_3[M\bar{I} + M(Imp)]$ (k)	570	610	1181	738	1161	599	569
$M_a$ (k)	827	1543	2160	2047	2099	1496	838
$M_u$ (k)	2363	2092	3307	2363	3307	2092	2363
$f_s\bar{I}$ non-comp (k.s.i.)	1.6	13.8	7.2	20.0	6.8	13.2	1.8
$f_s\bar{I}$ (comp) (k.s.i.)	*		3.3		3.1		*
$f_s S_3(4 + Imp)$ (k.s.i.)	13.6	14.6	19.7	17.6	19.3	14.3	13.6
$f_s$ (Overload) (k.s.i.)	15.2	28.4	30.2	37.6	29.3	27.5	15.4
$f_s$ (Total) (k.s.i.)		36.9					35.8
$VR$ (k)	50.7		52.6		54.4		50.6

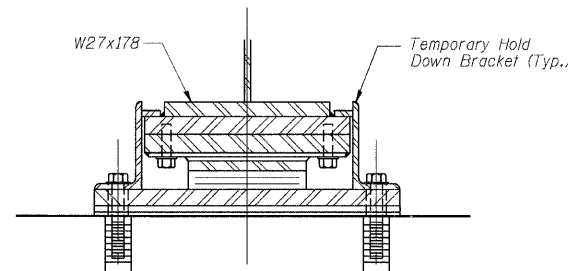
\* These sections were not considered as composite because the ultimate strength provisions of AASHTO article 10.38.5.1.2 for the design of the shear studs was not met. Only the fatigue provisions of AASHTO article 10.38.5.1 have been satisfied.

	W. Abut.	Pier 1	Pier 2	Pier 3	E. Abut.
$R\bar{I}$ (k)	15.0	92.8	114.9	91.0	15.5
$R\bar{I}$ (k)	33.5	47.2	53.4	46.8	33.5
$Imp.$ (k)	9.9	12.4	12.7	12.3	9.9
$R$ (Total) (k)	58.4	152.4	181	150.1	58.9

$I_s$  and  $S_s$  are the moment of inertia and section modulus of the steel section used in computing  $f_s$  (Total & Overload).  
 $I_{c(n)}$  and  $S_{c(n)}$  are the moment of inertia and section modulus of the composite section used in computing stresses due to Live Load.  
 $I_{c(3n)}$  and  $S_{c(3n)}$  are the moment of inertia and section modulus of the composite section used in computing stresses due to superimposed dead loads.  
 $VR$  is the maximum Live Load + Impact shear range in span.  
 $Z$  is the plastic section modulus used to determine the fully plastic moments in the non-composite areas.  
 $M_a$  (Applied Moment) =  $1.3[M\bar{I} + Ms\bar{I} + S_3(M\bar{I} + M(Imp))]$ .  
The Plastic Moment capacity ( $M_u$ ) is computed according to AASHTO 10.48.1 and 10.50.1.1.  
 $f_s$  (Overload) is the sum of the stresses due to  $M\bar{I} + Ms\bar{I} + S_3(M\bar{I} + M(Imp))$ .  
 $f_s$  (Total) (Non-compact section) is the sum of the stresses due to  $1.3[M\bar{I} + Ms\bar{I} + S_3(M\bar{I} + M(Imp))]$ .

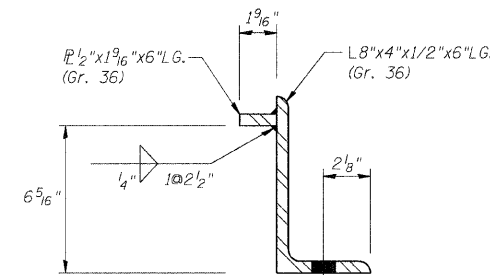
Location	Beam 1	Beam 2	Beam 3	Beam 4	Beam 5	Beam 6	Beam 7	Beam 8
℄ Brg. W. Abut.	825.94	826.00	826.14	826.28	826.39	826.48	826.37	826.25
℄ Brg. Pier 1	826.07	826.15	826.29	826.43	826.54	826.63	826.52	826.40
Splice #1	826.10	826.18	826.32	826.46	826.57	826.66	826.55	826.43
Splice #2	826.19	826.29	826.43	826.58	826.69	826.77	826.67	826.55
℄ Brg. Pier 2	826.19	826.29	826.43	826.58	826.69	826.77	826.67	826.55
Splice #3	826.19	826.29	826.43	826.58	826.69	826.77	826.67	826.55
Splice #4	826.04	826.17	826.32	826.46	826.57	826.66	826.55	826.43
℄ Brg. Pier 3	826.01	826.14	826.29	826.43	826.54	826.63	826.52	826.40
℄ Brg. E. Abut.	825.85	825.99	826.14	826.28	826.39	826.48	826.37	826.26

Location	Beam 9	Beam 10	Beam 11	Beam 12	Beam 13	Beam 14	Beam 15	Beam 16
℄ Brg. W. Abut.	826.25	826.37	826.47	826.39	826.27	826.13	825.99	825.84
℄ Brg. Pier 3	826.40	826.52	826.62	826.54	826.42	826.28	826.14	826.01
Splice #1	826.43	826.55	826.65	826.57	826.46	826.31	826.17	826.04
Splice #2	826.55	826.67	826.77	826.69	826.58	826.43	826.29	826.19
℄ Brg. Pier 2	826.55	826.67	826.77	826.69	826.58	826.43	826.29	826.19
Splice #3	826.55	826.67	826.77	826.69	826.58	826.43	826.29	826.19
Splice #4	826.43	826.55	826.66	826.58	826.46	826.32	826.18	826.10
℄ Brg. Pier 1	826.40	826.52	826.63	826.55	826.43	826.29	826.15	826.07
℄ Brg. E. Abut.	826.26	826.38	826.48	826.40	826.29	826.15	826.01	825.94

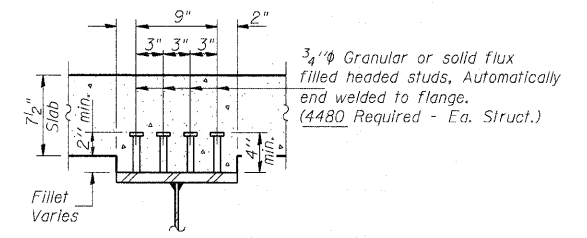


ELEVATION

(Bearing Assembly at Abutments)



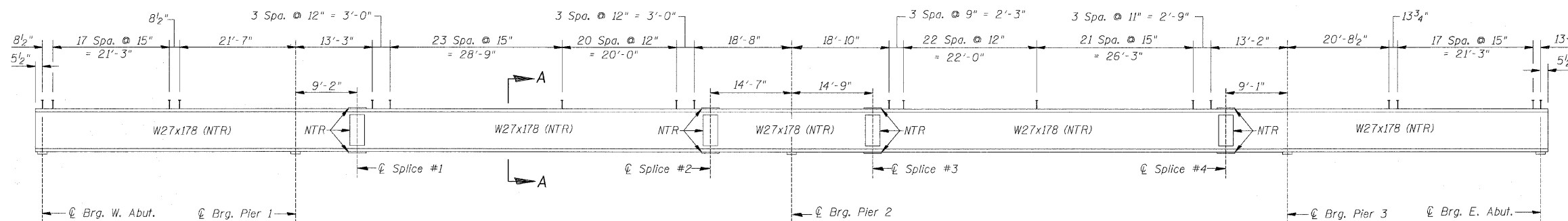
HOLD-DOWN BRACKET



SECTION A-A

HOLD-DOWN BRACKET DETAILS

Note: Beams shall be held down at the Abutment on the opposite end of Bridge from which the Deck pour is commenced. After pouring is completed the Hold-Down Assembly shall be removed and Side Retainer and Nuts placed on Anchor Bolts. Cost of Hold-Down Assembly included in cost of Concrete Superstructure.



BEAM ELEVATION - W.B. STRUCTURE

(Showing Shear Stud Spacing)  
(E.B. Structure Same by Rotation Through 180° About Sta. 627+71.90 U.S. Rte. 34)  
(Beams: M270 Gr. 50)

STRUCTURAL STEEL

Date	Designed ACW	U.S. ROUTE 34 OVER F.A.I. ROUTE 74 F.A.I. RTE. 74 SECTION (48-26HB-4)I KNOX COUNTY STA. 212+20.71 STRUCTURES NO. 048-0019 (WB) & 048-0020 (EB)	Sheet No.
Revisions	Drawn SRS		15
	Checked KWB		of 30
	Approved KWB		
Prepared by: WVP CORPORATION A Division of URS Greiner Woodward Clyde		Engineers - Architects - Planners Decatur, Illinois - St. Louis, Missouri	WVP Job No. 210000161.04