

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	SHEET NO. 209 313 SHEETS
F.A.I. 39	50-4B	LASALLE		234	
FED. ROAD DIST. NO. 7	ILLINOIS		FED. AID PROJECT-		

Contract # 66586

Properties	0.4 Span 42	Pier 42	0.6 Span 43
Is	(in4) 109134	263312	153548
Ic(n)	(in4) 264851	-----	351654
Ic(3n)	(in4) 190862	-----	249871
Ss	(in3) 2431	5240	3600
Sc(n)	(in3) 3410	-----	4876
Sc(3n)	(in3) 3072	-----	4384
\bar{D}	(k/ft) 1.312	1.950	1.417
M \bar{D}	(k-ft) 1867	10322	4739
S \bar{D}	(k/ft) 0.380	-----	0.380
Ms \bar{D}	(k-ft) 672	-----	1367
M \bar{L}	(k-ft) 2211	3100	3167
M (Imp)	(k-ft) 363	479	462
$^5_3(M \bar{L} + M (Imp))$	(k-ft) 4299	5976	6061
* Mu	(k-ft) 10756	-----	19755
Ma	(k-ft) 8890	21187	15817
fs \bar{D} (non-composite)	(ksi) 9.2	23.6	15.8
fs \bar{D} (composite)	(ksi) 2.6	-----	3.7
fs $^5_3(M \bar{L} + M (Imp))$	(ksi) 15.1	13.7	14.9
fs (Overload)	(ksi) 27.0	37.3	34.5
** fs (Total)	(ksi) -----	48.5	-----
VR	(k) 86.8	-----	92.3

Properties	0.4 Span 42	Pier 42	0.6 Span 43
Is	(in4) 101796	275969	153548
Ic(n)	(in4) 243379	-----	351654
Ic(3n)	(in4) 176975	-----	249871
Ss	(in3) 2179	5478	3600
Sc(n)	(in3) 3081	-----	4876
Sc(3n)	(in3) 2770	-----	4384
\bar{D}	(k/ft) 1.301	1.967	1.417
M \bar{D}	(k-ft) 2289	10972	4564
S \bar{D}	(k/ft) 0.380	-----	0.380
Ms \bar{D}	(k-ft) 802	-----	1314
M \bar{L}	(k-ft) 2412	3302	3184
M (Imp)	(k-ft) 383	502	465
$^5_3(M \bar{L} + M (Imp))$	(k-ft) 4666	6353	6093
* Mu	(k-ft) 12905	-----	19889
Ma	(k-ft) 10084	22522	15563
fs \bar{D} (non-composite)	(ksi) 12.6	24.0	15.2
fs \bar{D} (composite)	(ksi) 3.5	-----	3.6
fs $^5_3(M \bar{L} + M (Imp))$	(ksi) 18.2	13.9	15.0
fs (Overload)	(ksi) 34.2	38.0	33.8
** fs (Total)	(ksi) -----	49.3	-----
VR	(k) 87.9	-----	93.8

Properties	0.5 Span 44
Is	(in4) 15000
Ic(n)	(in4) 38844
Ic(3n)	(in4) 27943
Ss	(in3) 836
Sc(n)	(in3) 1207
Sc(3n)	(in3) 1086
\bar{D}	(k/ft) 1.272
M \bar{D}	(k-ft) 833
S \bar{D}	(k/ft) 0.380
Ms \bar{D}	(k-ft) 249
M \bar{L}	(k-ft) 861
M (Imp)	(k-ft) 218
$^5_3(M \bar{L} + M (Imp))$	(k-ft) 1803
* Mu	(k-ft) 4506
Ma	(k-ft) 3751
fs \bar{D} (non-composite)	(ksi) 12.0
fs \bar{D} (composite)	(ksi) 2.8
fs $^5_3(M \bar{L} + M (Imp))$	(ksi) 17.9
fs (Overload)	(ksi) 32.6
** fs (Total)	(ksi) -----
VR	(k) 71.7

Properties	Pier 41	Pier 42	Pier 43
R \bar{D}	(k) 95.9	468.4	147.2
R \bar{L}	(k) 64.2	154.6	73.7
Imp.	(k) 10.5	14.8	10.8
R (Total)	(k) 170.6	637.8	231.7

Properties	Pier 41	Pier 42	Pier 43
R \bar{D}	(k) 104.6	482.9	144.7
R \bar{L}	(k) 66.3	158.4	73.9
Imp.	(k) 10.5	14.9	10.8
R (Total)	(k) 181.4	656.2	229.3

Properties	Pier 43	Pier 44
R \bar{D}	(k) 59.8	59.8
R \bar{L}	(k) 56.5	56.5
Imp.	(k) 14.3	14.3
R (Total)	(k) 130.6	130.6

NOTES:

- 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(3n) and Sc(3n) 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 within the composite portion of the span.
- Ma (Applied Moment) = $1.3[M \bar{D} + Ms \bar{D} + ^5_3(M \bar{L} + M (Imp))]$.
- The plastic moment capacity (Mu) is computed according to AASHTO 10.48.1 and 10.50.1.1.
- fs (Overload) is the sum of the stresses due to M \bar{D} + Ms \bar{D} + $^5_3(M \bar{L} + M (Imp))$.
- fs (Total) is the sum of the stresses due to $1.3[M \bar{D} + Ms \bar{D} + ^5_3(M \bar{L} + M (Imp))]$.
- M \bar{D} - Moment due to dead loads on non-composite section.
- Ms \bar{D} - Moment due to dead loads on composite section.
- M \bar{L} - Moment due to live load on non-composite or composite section.
- M (Imp) - Moment due to live load impact on non-composite or composite section.

- * Compact, Braced section.
- ** Non-Compact section.

DESIGNED -	KWS
CHECKED -	AJK
DRAWN -	VH
CHECKED -	MRB

benesch
alfred benesch & company
Engineers • Surveyors • Planners
205 North Michigan Avenue, Suite 2400
Chicago, Illinois 60601
312-565-0450
Job # 3856

STEEL PLATE GIRDER TABLES - 9 OF 9
ABRAHAM LINCOLN MEMORIAL BRIDGE OVER
THE ILLINOIS RIVER (PUBLIC WATERS)
F.A.I. ROUTE 39 SEC. (50-4B) BR
LASALLE COUNTY
STATION 863+16.00
STRUCTURE NO. 050-0191 (SB & NB)

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