

ROUTE No.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. 331	(8X-1)B	SALINE CO.	220	130
STA.		TO STA.		
F.H.W.A. REGION		ILLINOIS	PROJECT	

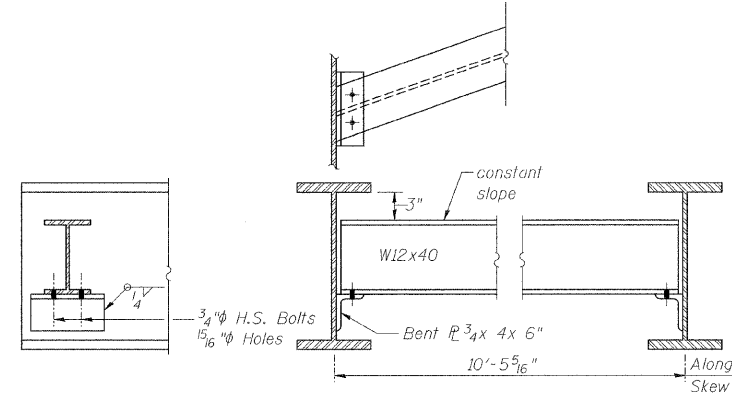
Contract # 78058

	0.4 Span 1 or 0.6 Span 3	Pier 1 or Pier 2	0.5 Span 2
I_s	(in ⁴)	6710	6710
I_c (n)	(in ⁴)	-----	17689
I_c (3n)	(in ⁴)	-----	12985
S_s	(in ³)	406	406
S_c (n)	(in ³)	-----	592
S_c (3n)	(in ³)	-----	536
Z	(in ³)	467	-----
Q	(k/ft)	1.438	0.918
M_Q	(k-ft)	115	251
S_Q	(k/ft)	-----	0.520
$M_s Q$	(k-ft)	-----	170
M_L	(k-ft)	291	542
M (Imp)	(k-ft)	87	138
$\frac{5}{3} [M_L + M(Imp)]$	(k-ft)	629	1133
M_u	(k-ft)	1854	2735
M_a	(k-ft)	968	2021
$f_s Q$ (non-comp)	(ksi)	3.4	7.4
$f_s Q$ (composite)	(ksi)	-----	3.8
$f_s \frac{5}{3} [M_L + M(Imp)]$	(ksi)	18.6	23.0
f_s (Overload)	(ksi)	22.0	34.2
f_s (Total)	(ksi)	-----	40.5
VR	(k)	65.6	68.2

	West Abutment	Pier 1 or 2	East Abutment
R_Q	(k)	19.8	19.8
R_L	(k)	43.5	43.5
Imp.	(k)	12.9	12.9
R (Total)	(k)	76.2	76.2

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 (See AASHTO 10.38).
 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.
 The Plastic Moment Capacity (M_u) is computed according to AASHTO 10.48.1 & 10.50.1.1
 M_a (Applied Moment) = $1.3 [M_Q + M_s Q + \frac{5}{3}(M_L + M(Imp))]$.
 f_s (Overload) is the sum of the stresses due to
 $M_Q + M_s Q + \frac{5}{3}(M_L + M(Imp))$.
 f_s (Total) is the sum of the stresses due to
 $1.3 [M_Q + M_s Q + \frac{5}{3}(M_L + M(Imp))]$.
 M_Q - Moment due to dead loads on non-composite section.
 $M_s Q$ - Moment due to dead loads on composite section.
 M_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.

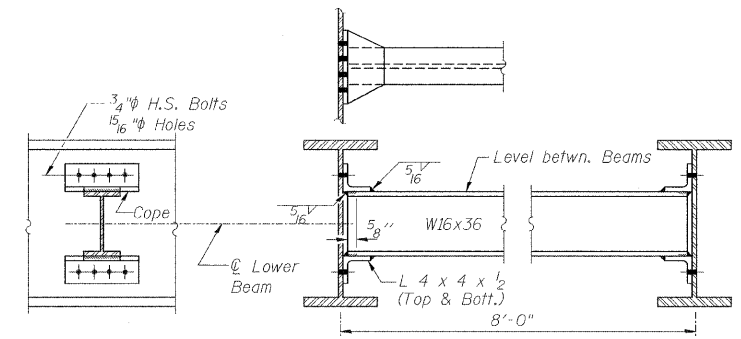
DESIGNED	KWS/EJB
CHECKED	TL/MRB
DRAWN	LM
CHECKED	MRB



END DIAPHRAGM D1

D1 - 22 Required

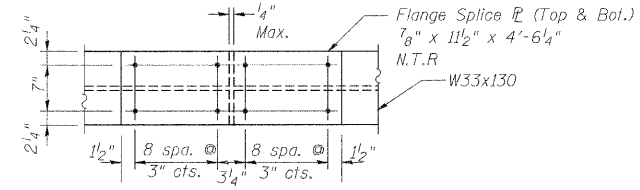
Note:
Two hardened washers shall be required over all oversize holes for diaphragms.



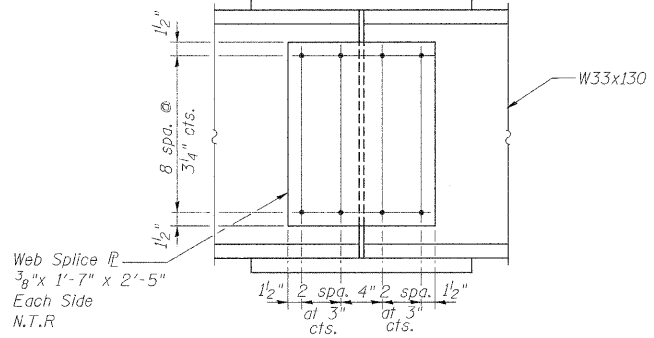
INTERIOR DIAPHRAGM D2

D2 - 77 Required

Note:
Two hardened washers shall be required over all oversize holes for diaphragms.



FLANGE SPLICE



WEB SPLICE

DETAIL OF SPLICE #1 AND #2
(All splice bolts shall be 7/8 inch H.S. Bolts with 15/16 inch Holes.)

BILL OF MATERIAL

Pay Item	Unit	Total
Furnishing and Erecting Structural Steel	L.Sum	1
Stud Shear Connectors	Each	4,464

NOTES:

- All structural steel shall be AASHTO M 270 GRADE 50.
- "N.T.R." denotes beams and plates to which notch toughness requirements are applicable.

benesch

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JOB NO. 3526

ILLINOIS DEPARTMENT OF TRANSPORTATION
RELOCATED ILLINOIS ROUTE 13 OVER
HARRISBURG DITCH
F.A.P. 331 SECTION (8X-1)B

STRUCTURAL STEEL DETAILS

SN: 083-0060
SALINE CO., IL.

STA. 1013+38.50
DATE: FEB 4, 2009