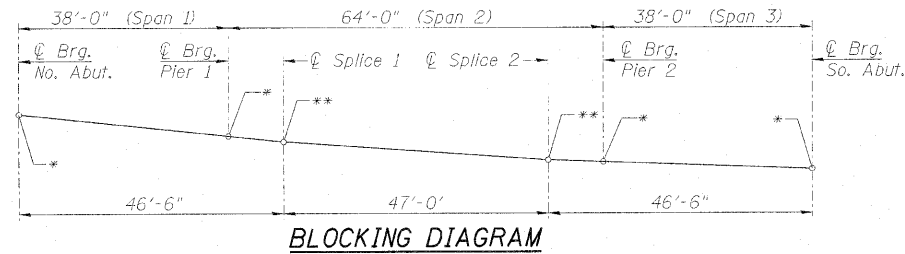


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DEPARTMENT OF TRANSPORTATION



* See Table for Final Top of Beam Elevations at abutments and piers.
** Theoretical Top of Beam Elevations before dead load deflections.

TOP of BEAM ELEVATIONS TABLE
For Fabrication Only

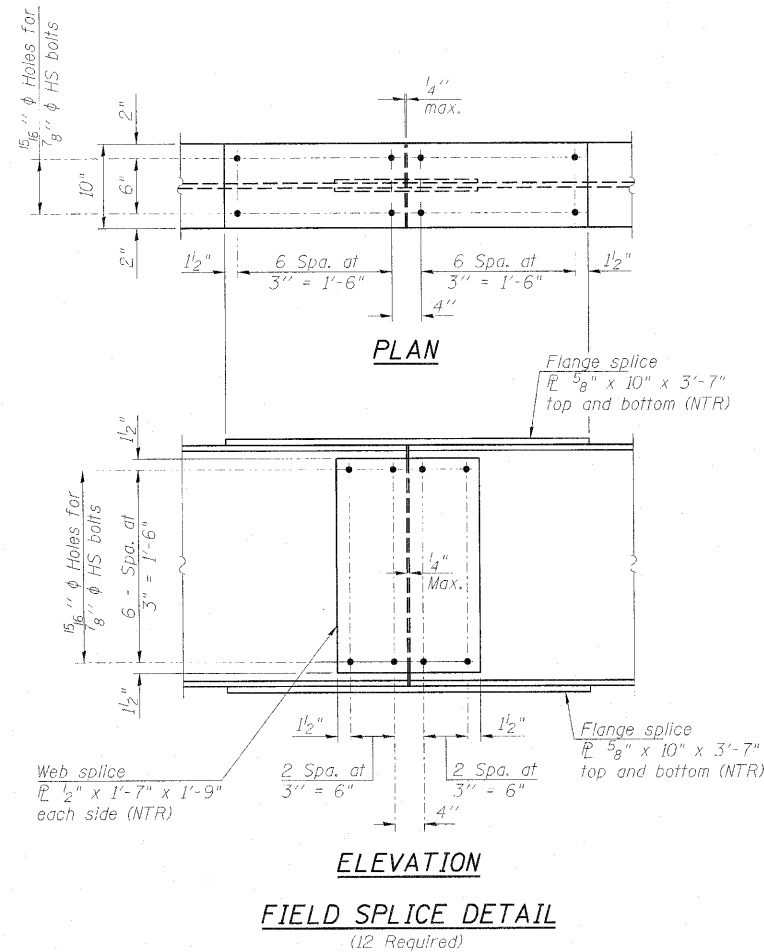
Beam Number	Brig. No. Abut.	Brig. Pier 1	Splice No. 1	Splice No. 2	Brig. Pier 2	Brig. So. Abut.
Beam 1	358.08	357.58	357.47	357.04	356.99	356.79
Beam 2	358.18	357.68	357.57	357.14	357.10	356.89
Beam 3	358.27	357.77	357.66	357.23	357.18	356.98
Beam 4	358.27	357.77	357.66	357.23	357.18	356.98
Beam 5	358.18	357.68	357.57	357.14	357.10	356.89
Beam 6	358.08	357.58	357.47	357.04	356.99	356.79

		0.4 Sp. 1 or 0.6 Sp. 2	Pier 1 or 2	0.5 Sp. 2
I_s	(in ⁴)	3270	3270	3270
$I_c(n)$	(in ⁴)	9469	-	9469
$I_c(3n)$	(in ⁴)	7023	-	7023
S_s	(in ³)	243	243	243
$S_c(n)$	(in ³)	370	-	370
$S_c(3n)$	(in ³)	335	-	335
DC1	(k/')	0.713	0.713	0.713
M _{DC1}	(k)	39	211	154
DC2	(k/')	0.150	0.150	0.150
M _{DC2}	(k)	12	36	41
DW	(k/')	0.267	0.267	0.267
M _{DW}	(k)	21	64	72
M _{L + IM}	(k)	355	284	582
M _u (Strength I)	(k)	715	902	1371
$\phi_r M_{nc}$	(k)	1946	-	1853
f_s DC1	(ksi)	1.93	10.41	7.61
f_s DC2	(ksi)	0.41	1.79	1.46
f_s DW	(ksi)	0.73	3.18	2.59
f_s L3(L+IM)	(ksi)	14.95	18.20	24.54
f_s (Service II)	(ksi)	18.03	33.58	36.20
f_s (Total/Strength I)	(ksi)	-	44.52	-
V _r	(k)	17.6	-	19

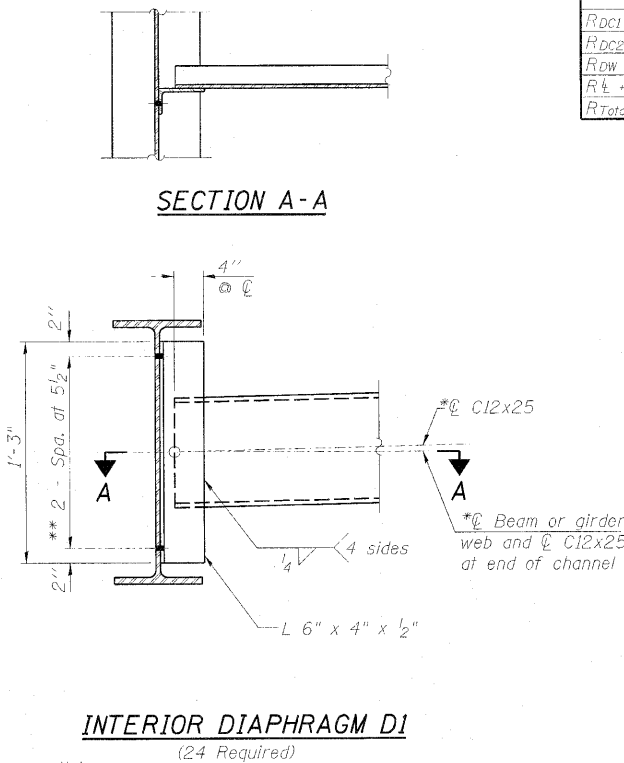
**** Compact sections
***** Non-Compact and slender sections

		Abuts.	Pier 1 or 2
R _{DC1}	(k)	8.0	41.9
R _{DC2}	(k)	1.9	8.6
R _{DW}	(k)	3.4	15.3
R _{L + IM}	(k)	53.4	83.7
R _{Total}	(k)	66.7	149.5

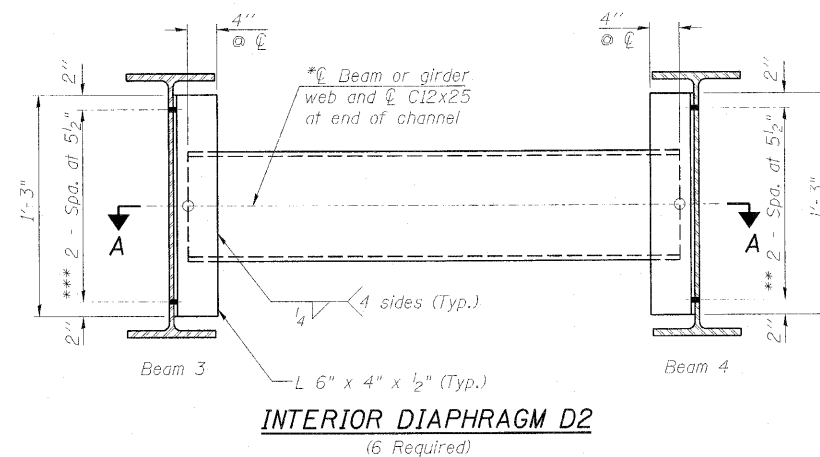
I_s, S_s : Non-composite moment of inertia and section modulus of the steel section used for computing f_s (Total-Strength I, and Service II) due to non-composite dead loads (in⁴ and in³).
 $I_c(n), S_c(n)$: Composite moment of inertia and section modulus of the steel and deck based upon the modular ratio, "n", used for computing f_s (Total-Strength I, and Service II) due to short-term composite live loads (in⁴ and in³).
 $I_c(3n), S_c(3n)$: Composite moment of inertia and section modulus of the steel and deck based upon 3 times the modular ratio, "3n", used for computing f_s (Total-Strength I, and Service II) due to long-term composite (superimposed) dead loads (in⁴ and in³).
DC1: Un-factored non-composite dead load (kips/ft.).
M_{DC1}: Un-factored moment due to non-composite dead load (kip-ft.).
DC2: Un-factored long-term composite (superimposed excluding future wearing surface) dead load (kips/ft.).
M_{DC2}: Un-factored moment due to long-term composite (superimposed excluding future wearing surface) dead load (kip-ft.).
DW: Un-factored long-term composite (superimposed future wearing surface only) dead load (kips/ft.).
M_{DW}: Un-factored moment due to long-term composite (superimposed future wearing surface only) dead load (kip-ft.).
M_{L + IM}: Un-factored live load moment plus dynamic load allowance (impact) (kip-ft.).
M_u (Strength I): Factored design moment (kip-ft.).
 $1.25 (M_{DC1} + M_{DC2}) + 1.5 M_{DW} + 1.75 M_{L + IM}$
 $\phi_r M_{nc}$: Compact composite positive moment capacity computed according to Article 6.10.7.1 (kip-ft.).
 $\phi_r M_{nc}$: Compact non-composite negative moment capacity computed according to Article A6.1.1 (kip-ft.).
 f_s (Service II): Sum of stresses as computed from the moments below (ksi).
 $M_{DC1} + M_{DC2} + M_{DW} + 1.3 M_{L + IM}$
 f_s (Total/Strength I): Sum of stresses as computed from the moments below on non-compact section (ksi).
 $1.25 (M_{DC1} + M_{DC2}) + 1.5 M_{DW} + 1.75 M_{L + IM}$
V_r: Maximum factored shear range in composite portion of span computed according to Article 6.10.10.



Note: Load carrying components designated "NTR" shall conform to the Supplemental Requirements for Notch Toughness, Zone 2.



Note:
Two hardened washers required for each set of oversized holes.
* Alternate channels C12x30 are permitted to facilitate material acquisition. Calculated weight of structural steel is based on the lighter section. The alternate, if utilized, shall be provided at no additional cost to the Department.
*** 3/4" ϕ HS bolts, 13/16" ϕ holes



Note:
All beams, splice plates, connecting angles and diaphragms shall conform to the requirements of AASHTO M270 Grade 50W.
*** 3/4" ϕ H.S. bolts, 13/16" ϕ holes in Beam 3 web and 13/16" x 17/8" vertically slotted holes in connection angle at Beam 3 end of diaphragm assembly.
3/4" ϕ H.S. bolts, 13/16" ϕ holes in in all connection parts at Beam 4 end of diaphragm assembly. Other notes on Diaphragm D1 pertain and Section A-A Similar.

STRUCTURAL STEEL DETAILS
STRUCTURE NO. 076-0029

PROFESSIONAL DESIGN FIRM LICENSE #184-001084		SHEET NO. 19		F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
© Copyright Hanson Professional Services Inc. 2010		29 SHEETS		885	6B-2	Pope	48	38
Hanson Professional Services Inc.		DATE 05/21/10		CONTRACT NO. 78141				
ILLINOIS FED. AID PROJECT								