ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 244	04-16101-02-BR	IROQUOIS	24	12
ROAD DIST.	ILLINOIS	MARTINTON		

Sheet 9 of 16 Contract No. 87445

INTERIOR BEAM MOMENT TABLE				
		0.4 Sp. 1 or 0.6 Sp. 3	Pier 1 or 2	0.5 Sp. 2
I_s	(in^4)	2,100	2,100	2,100
$I_c(n)$	(in^4)	7,125	———	7,125
$I_c(3n)$	(in^4)	5,409	———	5,409
S_s	(in^3)	176	176	176
$S_c(n)$	(in^3)	288	———	288
$S_c(3n)$	(in^3)	261	———	261
Z	(in^3)	———	200	———
DC1	(k/')	0.750	0.750	0.750
M_{DC1}	('k)	80	150	78
DC2	(k/')	0.040	0.040	0.040
M_{DC2}	('k)	1.8	2.2	2.1
DW	(k/')	0.300	0.300	0.300
M_{DW}	('k)	38	48	45
M_{L+IM}	('k)	391	231	465
M_u (Strength I)	('k)	844	667	981
*** $\phi_f M_n$, $\phi_f M_{nc}$	('k)	1,450	833	1,450
f_s DC1	(ksi)	5.4	10.2	5.3
f_s DC2	(ksi)	0.1	0.2	0.1
f_s DW	(ksi)	1.8	3.3	2.1
f_s 1.3(L+IM)	(ksi)	21.2	20.5	25.2
f_s (Service II)	(ksi)	28.5	34.2	32.7
**** f_s (Total)(Strength I)	(ksi)	38.1	45.5	43.8
V_f	(k)	20.1	———	18.6

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

INTERIOR BEAM REACTION TABLE			
		Abuts.	Pier 1 & 2
R_{DC1}	(k)	10.8	36.5
R_{DC2}	(k)	0.2	0.7
R_{DW}	(k)	4.8	14.7
R_{L+IM}	(k)	64.2	93.2
R_{Total}	(k)	80	145.1

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 (in.^{4} and in.^{3}).

$I_c(n)$, $S_c(n)$: 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 (in.^{4} and in.^{3}).

$I_c(3n)$, $S_c(3n)$: 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 (in.^{4} and in.^{3}).

Z: Plastic Section Modulus of the steel section in non-composite areas.

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.).
$1.25\ (M_{DC1} + M_{DC2}) + 1.5\ M_{DW} + 1.75\ M_{L+IM}$

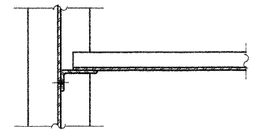
$\phi_f M_n$: Compact composite positive moment capacity computed according to Article 6.10.7.1 (kip-ft.).

$\phi_f M_{nc}$: Compact non-composite negative moment capacity computed according to Article A6.1.1 (kip-ft.).

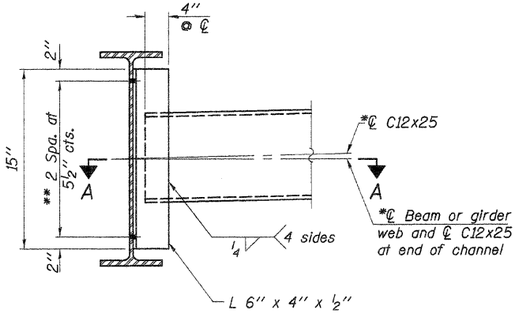
f_s (Service II): Sum of stresses as computed from the moments below (ksi).
$M_{DC1} + M_{DC2} + M_{DW} + 1.3\ M_{L+IM}$

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_f: Maximum factored shear range in composite portion of span computed according to Article 6.10.10.

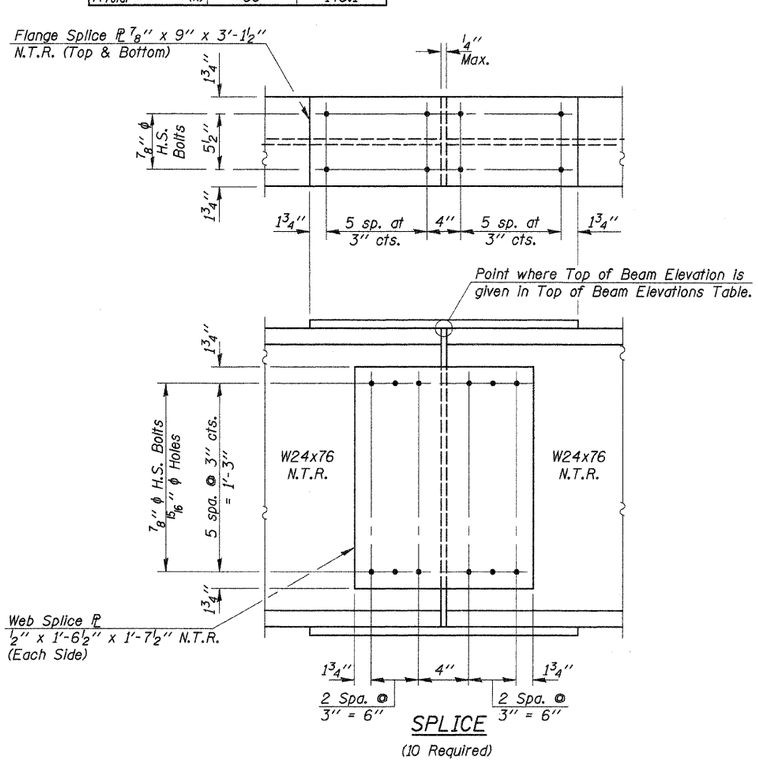


SECTION A-A

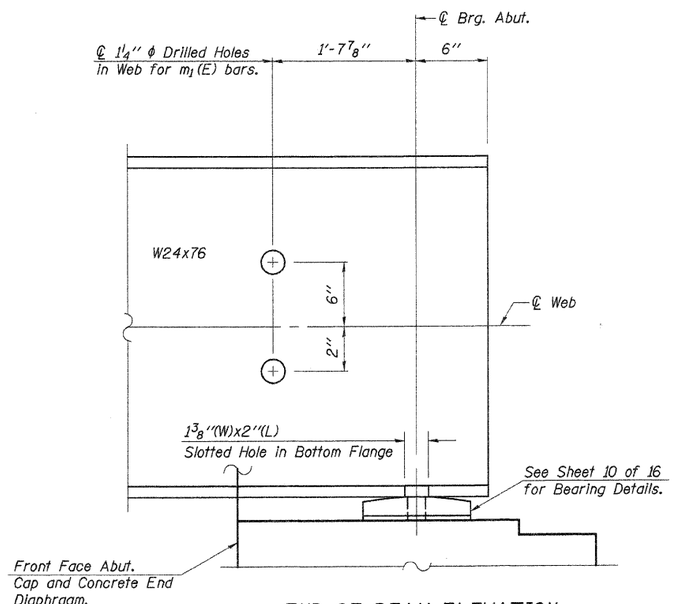


INTERIOR DIAPHRAGM - D
(24 Required)

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, $^{15}/_{16}$" ϕ holes



SPLICE
(10 Required)



END OF BEAM ELEVATION
(Typical)

Work this Sheet with Sheets 8 & 10 of 16.

DESIGNED -	A.R.K.
CHECKED -	A.L.S.
DRAWN -	S.A.P.
CHECKED -	A.R.K. & A.L.S.

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SECTION 04-16101-02-BR
MARTINTON ROAD DISTRICT
IROQUOIS COUNTY
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DATE: 12/04/09