

		Abut.
R _l	(K)	105.4
R _t	(K)	205.8
Imp.	(K)	47.4
R (Total)	(K)	358.6

		0.5 Sp. 1
I _s	(in ⁴)	16,800
I _c (n)	(in ⁴)	36,636
I _c (3n)	(in ⁴)	26,457
S _s	(in ³)	895.0
S _c (n)	(in ³)	1,227.9
S _c (3n)	(in ³)	1,095.0
ϕ	(k/')	1.24
M _l	(k)	1,312
s _l	(k/')	0.53
M _s ϕ	(k)	556.0
M _l	(k)	1,217
M _{Imp}	(k)	255
5/3 [M _l + M _{Imp}]	(k)	2,453
M _a	(k)	5,618
* M _u	(k)	5,717
f _s ϕ non-comp	(ksi)	17.6
f _s ϕ (comp)	(ksi)	6.1
f _s 5/3 [M _l + M _{Imp}]	(ksi)	24.0
f _s (Overload)	(ksi)	47.7
VR	(k)	74.6

Note: Members designated N.T.R. shall conform to supplemental requirements for Notch Toughness (Zone 2).

* Compact section

I_s, S_s: Non-composite moment of inertia and section modulus of the steel section used for computing f_s (Total and Overload) 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 and Overload) 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 and Overload) due to long-term composite (superimposed) dead loads (in⁴ and in³).

ϕ: Un-factored non-composite dead load (kips/ft.).

M_l: Un-factored moment due to non-composite dead load (kip-ft.).

s_l: Un-factored long-term composite (superimposed) dead load (kips/ft.).

M_sϕ: Un-factored moment due to long-term composite (superimposed) dead load (kip-ft.).

M_l: Un-factored live load moment (kip-ft.).

M_{Imp}: Un-factored moment due to impact (kip-ft.).

M_a: Factored design moment (kip-ft.).

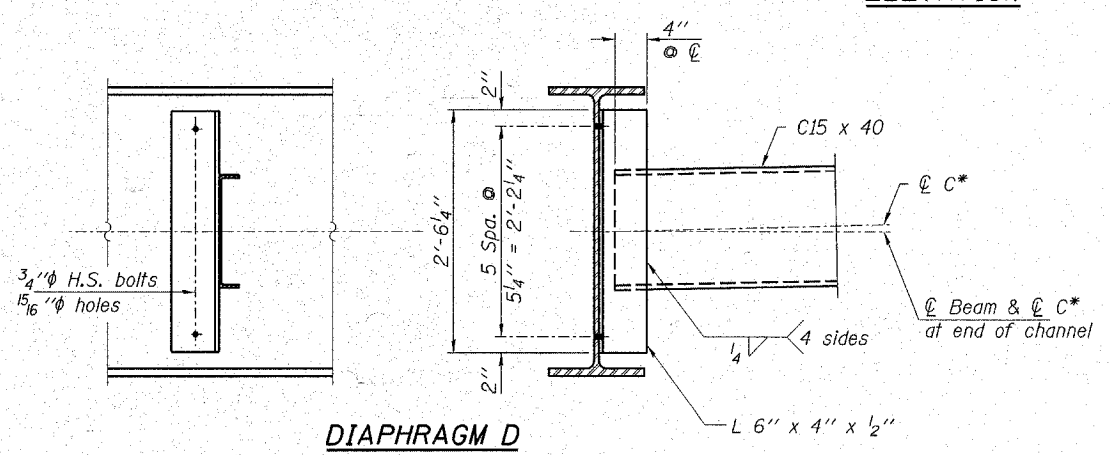
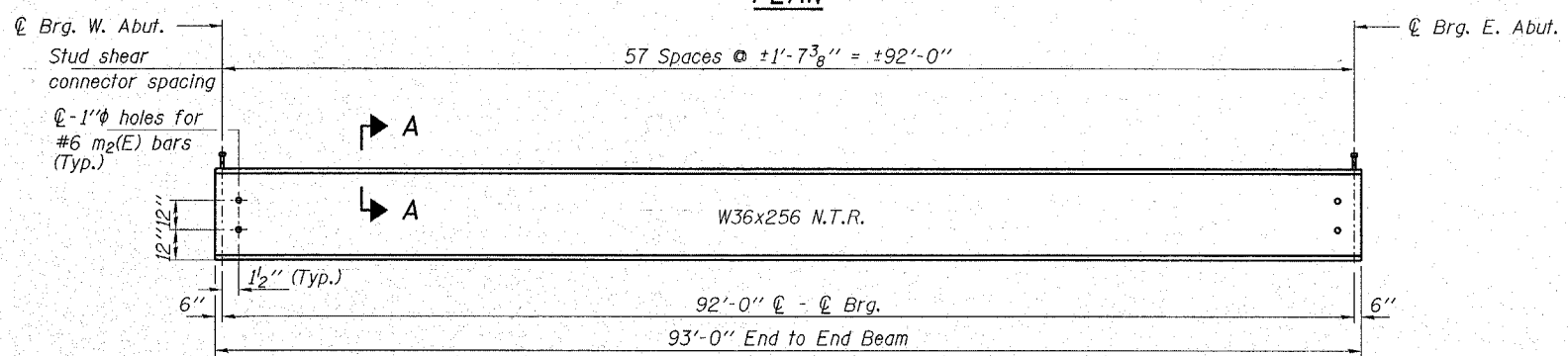
1.3 [M_l + M_sϕ + 5/3 (M_l + M_{Imp})]

M_u: Compact composite moment capacity according to AASHTO LFD 10.50.1.1 or compact non-composite moment capacity according to AASHTO LFD 10.48.1 (kip-ft.).

f_s (Overload): Sum of stresses as computed from the moments below (ksi).

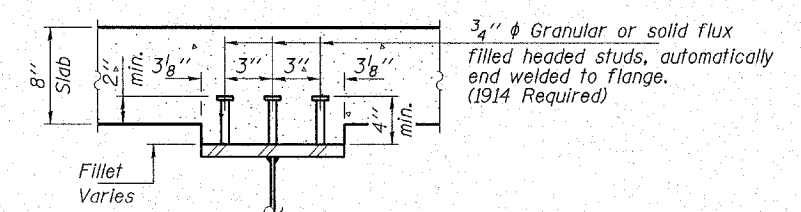
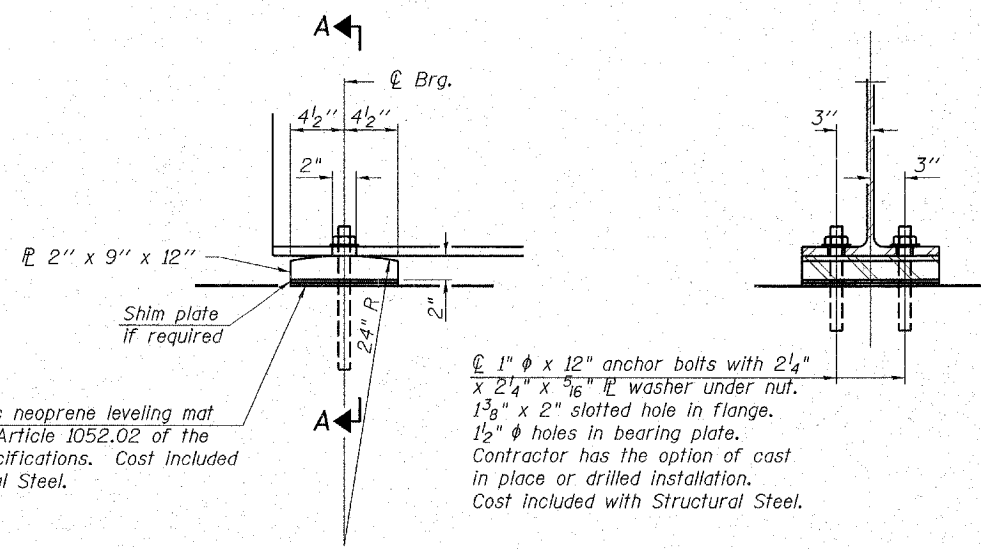
M_l + M_sϕ + 5/3 (M_l + M_{Imp})

VR: Maximum live load + impact horizontal shear range within the composite portion of the span for stud shear connector design (kips).



Note: Two hardened washers required for each set of oversized holes.

* Alternate channels are permitted to facilitate material acquisition. Calculated weight of structural steel is based on the lighter section.



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ELGIN • SPRINGFIELD

PROJECT NUMBER: 12-05-0050-1 DATE: 08/29/07
DESIGNED: R.J.P. CHECKED: S.W.M. DRAWN: D.A.B.

STRUCTURAL STEEL

SECTION 01-00268-00-BR

F.A.S. 2111 / FAYAN PARKWAY

KANE COUNTY

STATION 18+97 / STRUCTURE NO. 045-3019

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