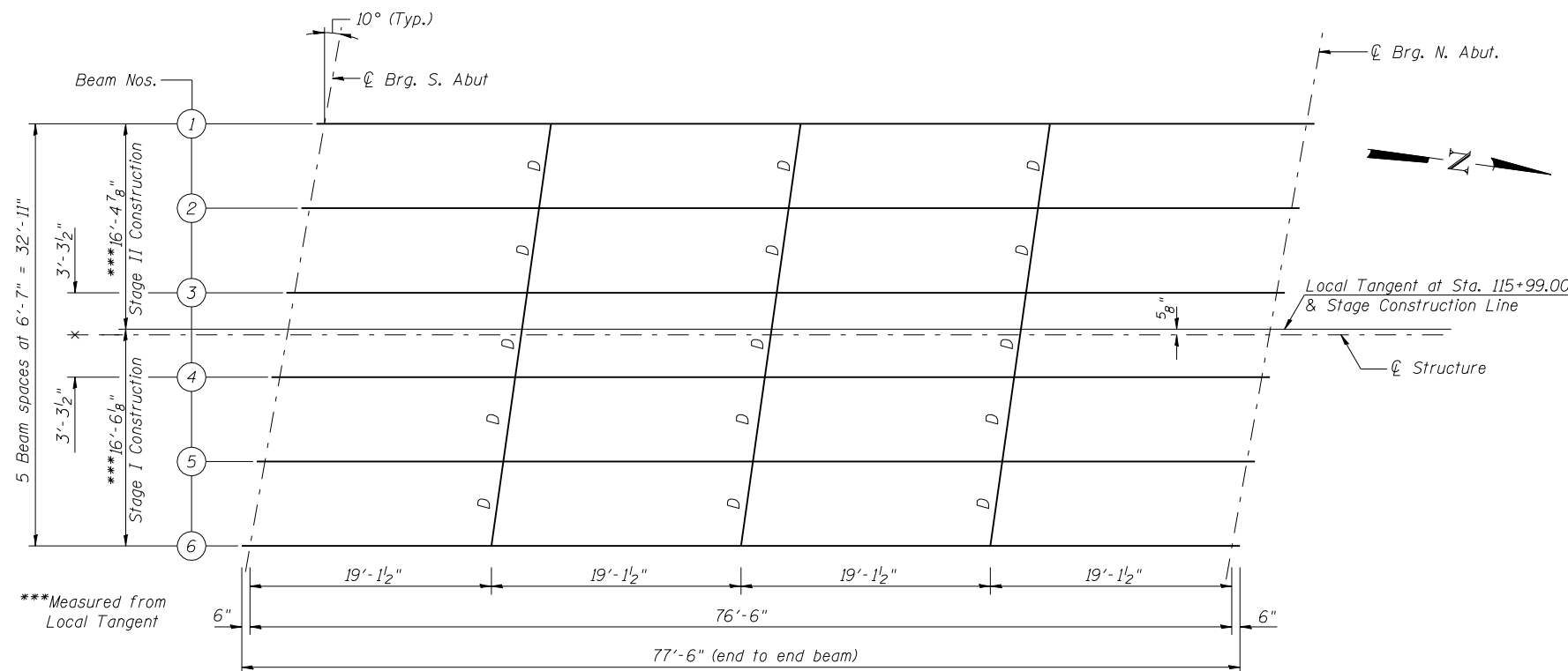
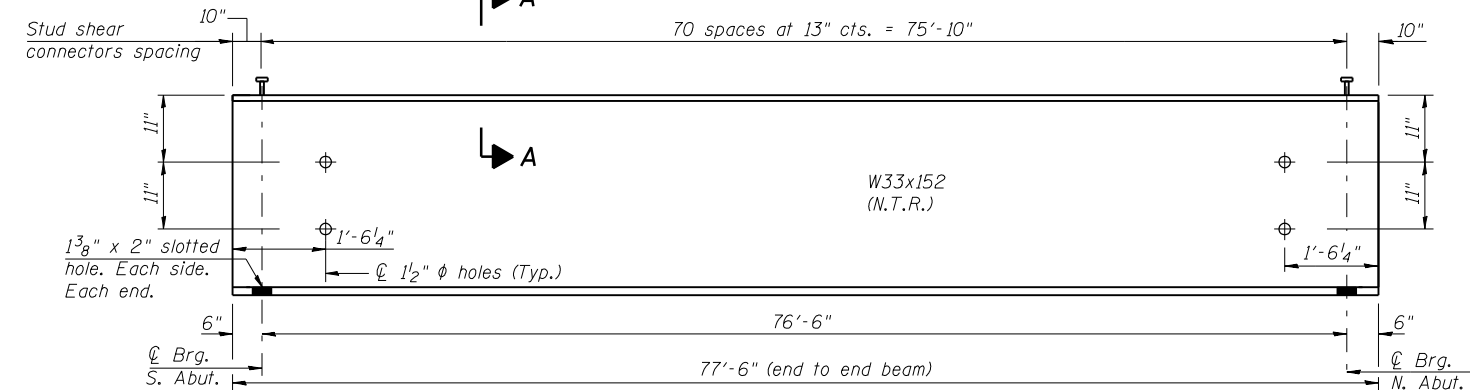


Contract #72150

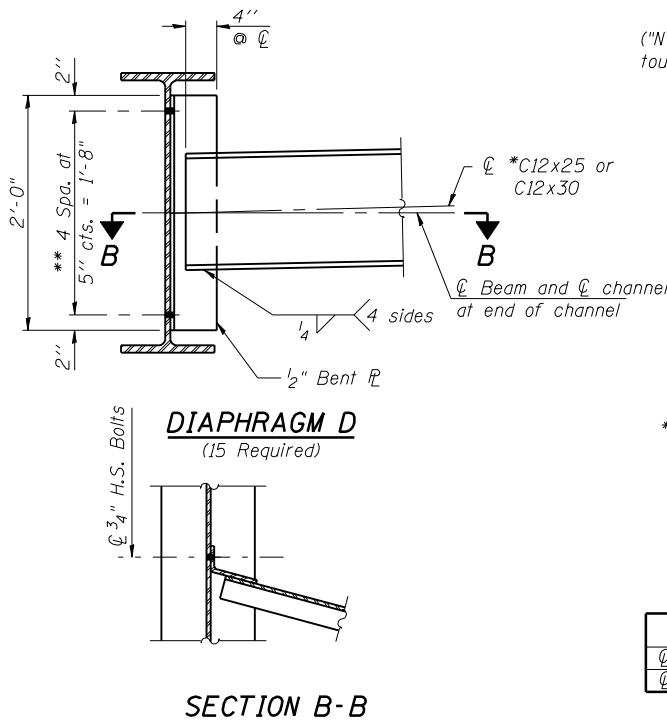


**FRAMING PLAN**



**BEAM ELEVATION**

("NTR" denotes members to which notch toughness requirements are applicable)



**DIAPHRAGM D**  
(15 Required)

**SECTION B-B**

Note:  
Two hardened washers required for each set of oversized holes and 5/16" plate washer over slotted holes.

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

\*\* 3/4"  $\phi$  HS bolts, 5/16"  $\phi$  holes. For diaphragms at stage construction provide 13/16" x 1 7/8" vertical slotted holes at east side of beam 3 in bent plate and for west side of beam 4 provide oversize holes in bent plate and beam. Bolts in slotted holes shall be finger tightened prior to the deck slab pouring and then fully tightened after completion of the pour.

**TOP OF BEAM ELEVATIONS**

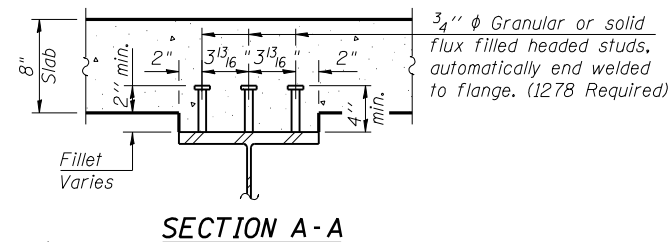
(For Fabrication Only)

Location	Beam 1	Beam 2	Beam 3	Beam 4	Beam 5	Beam 6
Brg. S. Abut.	564.37	564.21	564.05	563.88	563.72	563.56
Brg. N. Abut.	564.30	564.13	563.97	563.81	563.64	563.48

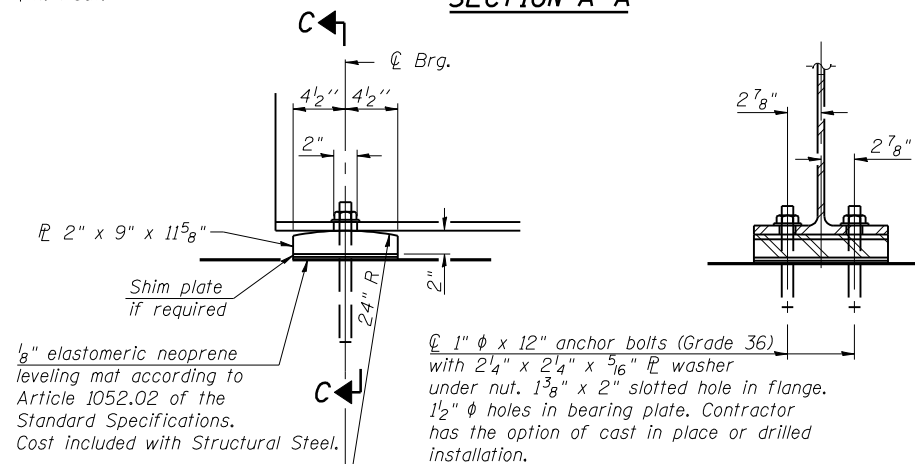
	0.5 Span
$I_s$	(in <sup>4</sup> ) 8160
$I_c(n)$	(in <sup>4</sup> ) 21450
$I_c(3n)$	(in <sup>4</sup> ) 15549
$S_s$	(in <sup>3</sup> ) 487
$S_c(n)$	(in <sup>3</sup> ) 714
$S_c(3n)$	(in <sup>3</sup> ) 642
$\rho$	(k/')
$M \rho$	(k)
$s \rho$	(k/')
$M_s \rho$	(k)
$M \ddot{L}$	(k)
$M_{Imp}$	(k)
$s_3 [M \ddot{L} + M_{Imp}]$	(k)
$M_o$	(k)
$M_u$	(k)
$f_s \rho$ non-comp	(ksi)
$f_s \rho$ (comp)	(ksi)
$f_s s_3 [M \ddot{L} + M_{Imp}]$	(ksi)
$f_s$ (Overload)	(ksi)
VR	(k)

	Abut.
$R \rho$	(k) 49.8
$R \ddot{L}$	(k) 37.8
Imp.	(k) 9.4
$R_{Total}$	(k) 97.0

⊗ Compact section



**SECTION A-A**



**ELEVATION AT ABUTMENT**

**SECTION C-C**

**FIXED BEARING**

$I_s, S_s$ : 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 (in<sup>4</sup> and in<sup>3</sup>).

$I_c(n), S_c(n)$ : 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 (in<sup>4</sup> and in<sup>3</sup>).

$I_c(3n), S_c(3n)$ : 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 (in<sup>4</sup> and in<sup>3</sup>).

$\rho$ : Un-factored non-composite dead load (kips/ft.).

$M \rho$ : Un-factored moment due to non-composite dead load (kip-ft.).

$s \rho$ : Un-factored long-term composite (superimposed) dead load (kips/ft.).

$M_s \rho$ : Un-factored moment due to long-term composite (superimposed) dead load (kip-ft.).

$M \ddot{L}$ : Un-factored live load moment (kip-ft.).

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

$M_o$ : Factored design moment (kip-ft.).

$M_u$ : 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).

$VR$ : Maximum  $\ddot{L}$  + impact horizontal shear range within the composite portion of the span for stud shear connector design (kips).

**NOTES:**

- All diaphragms shall be installed as steel is erected and secured with erection pins and bolts except as otherwise noted.
- Load carrying components designated "NTR" shall conform to the Supplemental Requirements for Notch Toughness, Zone 2.
- Anchor bolts shall be ASTM F1554 all-thread (or an Engineer approved alternate material) of the grade(s) and diameter(s) specified. ASTM A307 Grade C anchor bolts may be used in lieu of ASTM F1554 Grade 36 (Fy=36ksi). The corresponding specified grade of AASHTO M314 anchor bolts may be used in lieu of ASTM F1554.
- Drilled and set anchor bolts shall be installed according to Article 521.06 of the Standard Specifications.

ILLINOIS DEPARTMENT OF TRANSPORTATION  
**FRAMING PLAN & STEEL DETAILS**  
 ILLINOIS ROUTE 127 OVER  
 LITTLE BEARCAT CREEK  
 F.A.P. ROUTE 42 - SECTION 106 (B-2)  
 MONTGOMERY COUNTY  
 STATION 115+99.00  
 STRUCTURE NO. 068-0507

**Lin Engineering, Ltd.**  
 Consulting Engineers  
 Chatham, Illinois

Designed By: RKM  
 Checked By: MTH  
 Date: 04/07

Files: 068-0507.DGN  
 Drawn By: AUF

REVISIONS	
NAME	DATE

\$FILEABBREV\$

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