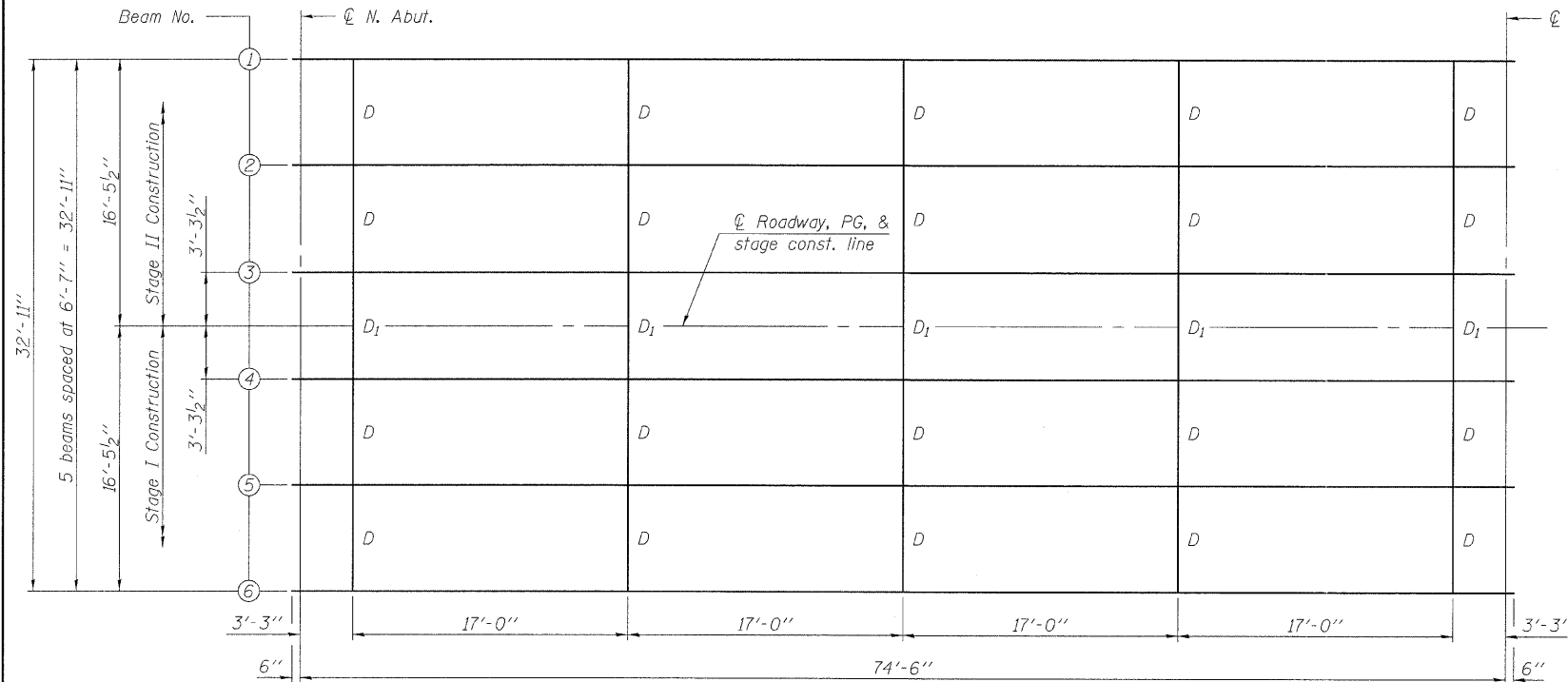
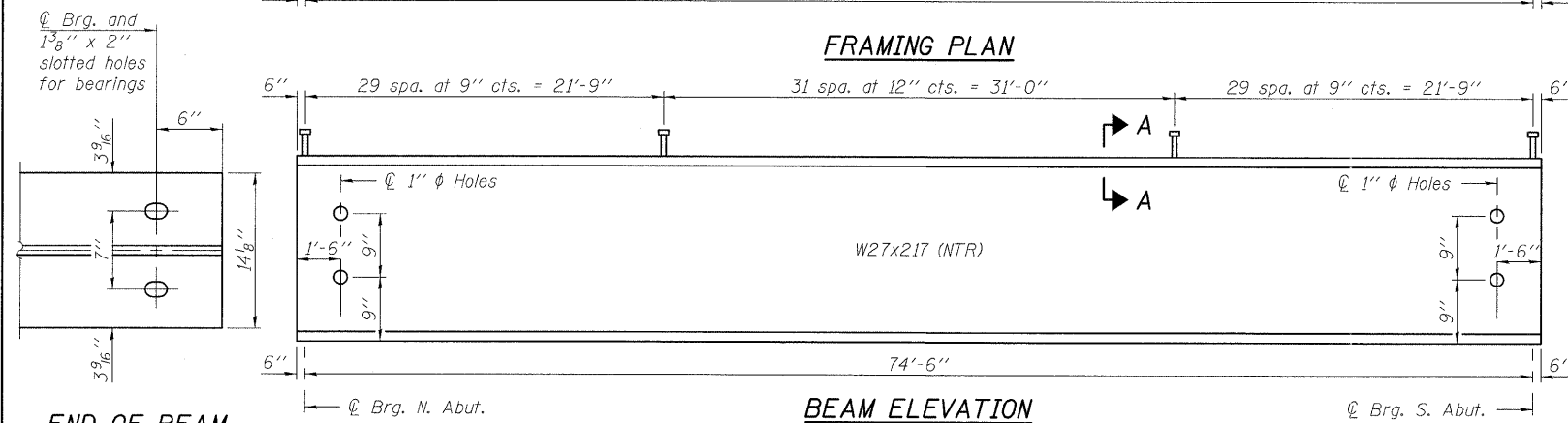


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DEPARTMENT OF TRANSPORTATION



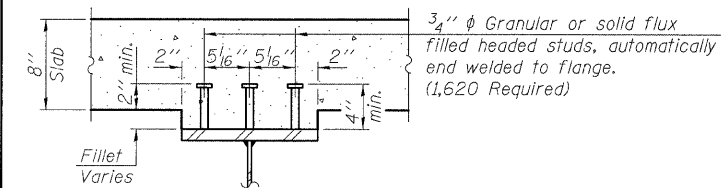
FRAMING PLAN



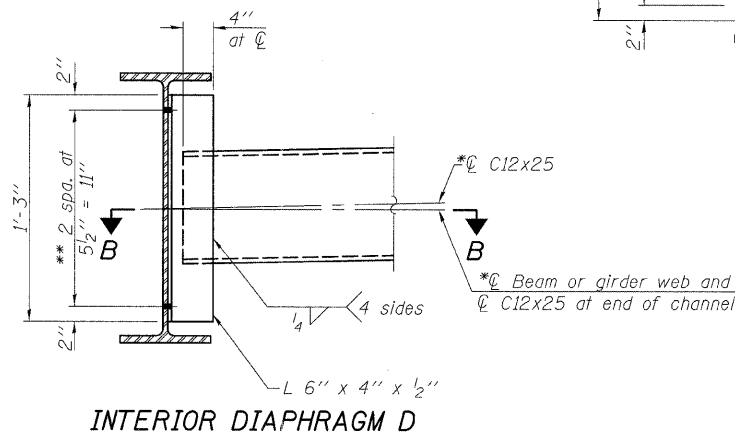
BEAM ELEVATION

"NTR" denotes elements to which notch toughness requirements are applicable.

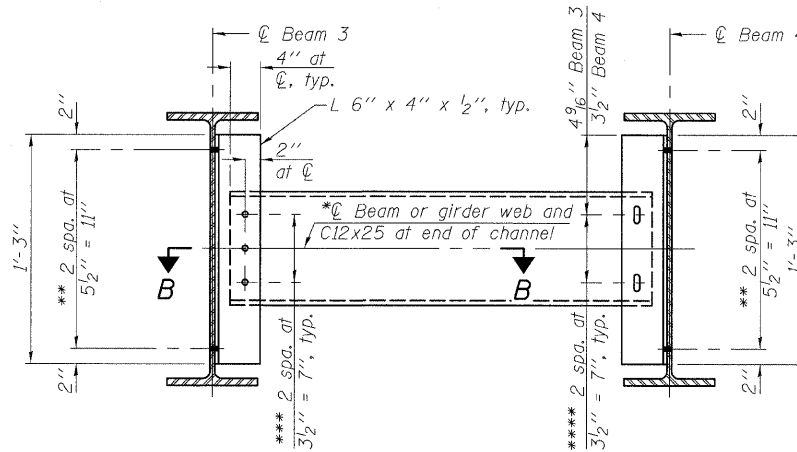
END OF BEAM  
DETAIL



SECTION A-A



INTERIOR DIAPHRAGM D



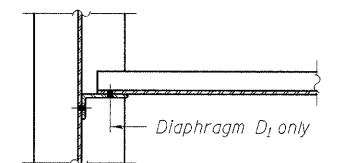
INTERIOR DIAPHRAGM D1

Notes:  
Two hardened washers required for each set of oversized holes.  
Bolts in slots shall be finger tight until second stage pour is complete.  
\* Alternate channel C12x30 is 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" phi HS bolts, 15/16" phi holes  
\*\*\* 3/4" phi HS bolts, 15/16" phi holes in channel.  
\*\*\*\* 1 7/8" x 13/16" slotted holes in angle.

\*\*\*\*\*TOP OF BEAM ELEVATIONS

Location	@ Brg. N. Abut.	@ Brg. S. Abut.
Beam 1	464.32	464.46
Beam 2	464.44	464.59
Beam 3	464.55	464.69
Beam 4	464.55	464.69
Beam 5	464.44	464.59
Beam 6	464.32	464.46

\*\*\*\*\* For Fabrication Only



SECTION B-B

STRUCTURAL STEEL  
STRUCTURE NO. 014-0079

INTERIOR GIRDER MOMENT TABLE		0.5 Sp. 1
$I_s$	(in <sup>4</sup> )	8,910
$I_c(n)$	(in <sup>4</sup> )	20,377
$I_c(3n)$	(in <sup>4</sup> )	14,712
$S_s$	(in <sup>3</sup> )	627
$S_c(n)$	(in <sup>3</sup> )	859
$S_c(3n)$	(in <sup>3</sup> )	771
DC1	(k/')	0.934
M <sub>DC1</sub>	(k)	648
DC2	(k/')	0.150
M <sub>DC2</sub>	(k)	104
DW	(k/')	0.300
M <sub>DW</sub>	(k)	208
$M_L + IM$	(k)	1,074
$M_u$ (Strength I)	(k)	3,132
$\phi_r M_n$	(k)	3,888
$f_s$ DC1	(ksi)	12.40
$f_s$ DC2	(ksi)	1.62
$f_s$ DW	(ksi)	3.24
$f_s$ 1.3(L+IM)	(ksi)	19.51
$f_s$ (Service II)	(ksi)	36.76
$f_s$ (Total)(Strength I)	(ksi)	-
$V_f$	(k)	24.3

INTERIOR GIRDER REACTION TABLE		Abut.
R <sub>DC1</sub>	(k)	34.8
R <sub>DC2</sub>	(k)	5.6
R <sub>DW</sub>	(k)	11.2
R <sub>L + IM</sub>	(k)	76.7
R <sub>Total</sub>	(k)	128.3

$I_s, S_s$ : 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<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-Strength I, and Service II) 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-Strength I, and Service II) due to long-term composite (superimposed) dead loads (in<sup>4</sup> and in<sup>3</sup>).  
DC1: Un-factored non-composite dead load (kips/ft.).  
M<sub>DC1</sub>: 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<sub>DC2</sub>: 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<sub>DW</sub>: 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.).  
 $1.25 (M_{DC1} + M_{DC2}) + 1.5 M_{DW} + 1.75 M_L + IM$   
 $\phi_r M_n$ : Compact composite positive moment capacity computed according to Article 6.10.7.1 (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.

DESIGNED	KAK
CHECKED	EML
DRAWN	KAK
CHECKED	EML

Notes:

All cross frames or diaphragms shall be installed as steel is erected and secured with erection pins and bolts except as otherwise noted. Individual cross frames or diaphragms at supports may be temporarily disconnected to install bearing anchor rods.

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

The W27x217 beams shall be according to AASHTO M270, Grade 50.

HORNER &  
SHIFRIN, INC.  
ENGINEERS

SHEET NO. 17	F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
25 SHEETS	690	481B	CLINTON	46	34
CONTRACT NO. 76C21					
FED. ROAD DIST. NO.		ILLINOIS		FED. AID PROJECT	