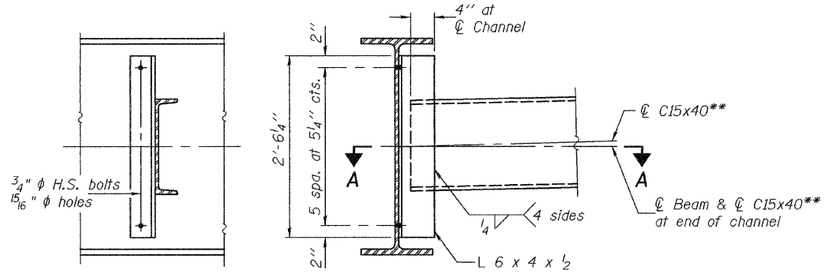
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAP 761	104-BR-2	GREENE	82	62
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-		

SHEET NO. 13
20 SHEETS

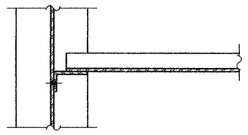
Contract #76987



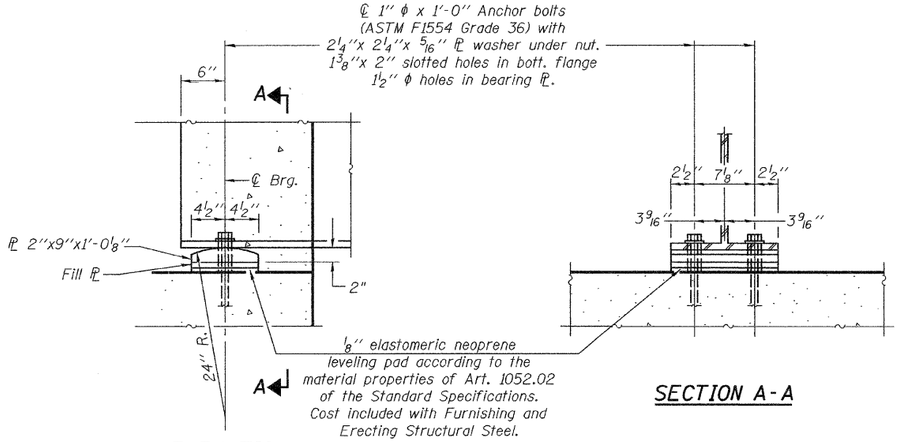
DIAPHRAGM D

(20 Required)

** Alternate channel C15x50 is permitted to facilitate material acquisition. Calculated weight of structural steel is based on the lighter section.



SECTION A-A



ELEVATION

SECTION A-A

*TOP OF BEAM ELEVATIONS

Location	℄ Brg. W. Abut.	℄ Brg. E. Abut.
Beam 1	516.54	517.17
Beam 2	516.67	517.30
Beam 3	516.79	517.40
Beam 4	516.81	517.42
Beam 5	516.74	517.34
Beam 6	516.66	517.25

*For fabrication use only.

INTERIOR BEAM MOMENT TABLE		0.5 Span
I_s	(in^4)	13200
$I_c(n)$	(in^4)	30928
$I_c(3n)$	(in^4)	22054
S_s	(in^3)	719
$S_c(n)$	(in^3)	1022
$S_c(3n)$	(in^3)	906
DC1	(k/')	0.852
M_{DC1}	('k)	756
DC2	(k/')	0.150
M_{DC2}	('k)	133
DW	(k/')	0.296
M_{DW}	('k)	263
M_{L+Im}	('k)	1164
M_u(Strength I)	('k)	3543
$\phi_f M_n$	('k)	4943
f_s DC1	(ksi)	12.6
f_s DC2	(ksi)	1.8
f_s DW	(ksi)	3.5
f_s 1.3(L+Im)	(ksi)	17.8
f_s (Service II)	(ksi)	35.7
V_f	(k)	26.4

INTERIOR BEAM REACTION TABLE HL93 Loading		Abutments
R_{DC1}	(k)	35.9
R_{DC2}	(k)	6.3
R_{DW}	(k)	12.5
R_{L+Imp}	(k)	81.4
R_{Total}	(k)	136.1

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 $in.^3$).

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+Imp}: Un-factored live load moment plus dynamic load allowance (impact) (kip-ft.).

M_u (Strength I): Factored design moment (kip-ft.). $1.25\ (M_{DC1} + M_{DC2}) + 1.5\ M_{DW} + 1.75\ M_{L+Imp}$

$\phi_f M_n$: 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). $M_{DC1} + M_{DC2} + M_{DW} + 1.3\ M_{L+Imp}$

V_f: Factored shear range computed according to Article 6.10.10.

FIXED BEARINGS AT ABUTMENTS

(12 Required)

Notes:

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

All diaphragms shall be installed as steel is erected and secured with erection pins and bolts.

Two hardened washers are required for each set of oversized holes.

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.

Anchor bolts at fixed bearings may be either cast in place or installed in holes drilled after the supported member is in place.

Drilled and set anchor bolts shall be installed according to Article 521.06 of the Standard Specifications.

DESIGNED	Stephen M. Ryan
CHECKED	Michael D. Rolape
DRAWN	BECKY M. LEACH
CHECKED	SMR/MDR

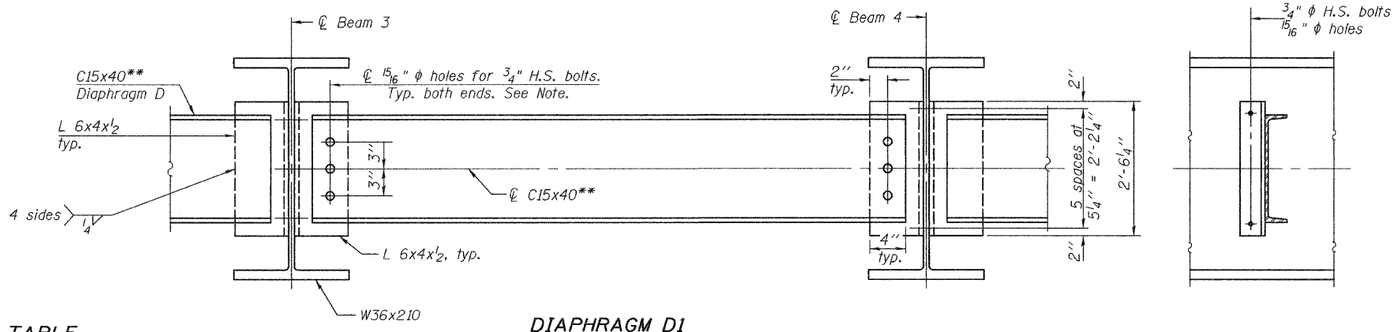
January 22, 2008

EXAMINED Thomas J. Domagalski
ENGINEER OF BRIDGE DESIGN

PASSED Ralph E. Anderson
ENGINEER OF BRIDGES AND STRUCTURES

FILL PLATE TABLE

Beam	3	4
W. Abut.	5/8"	7/8"
E. Abut.	-	¼"



DIAPHRAGM D1

(Looking East) (5 Required)

Install only the center bolt at each end of Diaphragm D1. The bolts shall be finger tightened prior to deck pour to permit rotation of Diaphragm D1. Install the remaining bolts and fully tighten after stage two deck pour is complete.

STRUCTURAL STEEL DETAILS
F.A.P. ROUTE 761 - SECTION 104-BR-2
GREENE COUNTY
STATION 1123+58.50
STRUCTURE NO. 031-0042