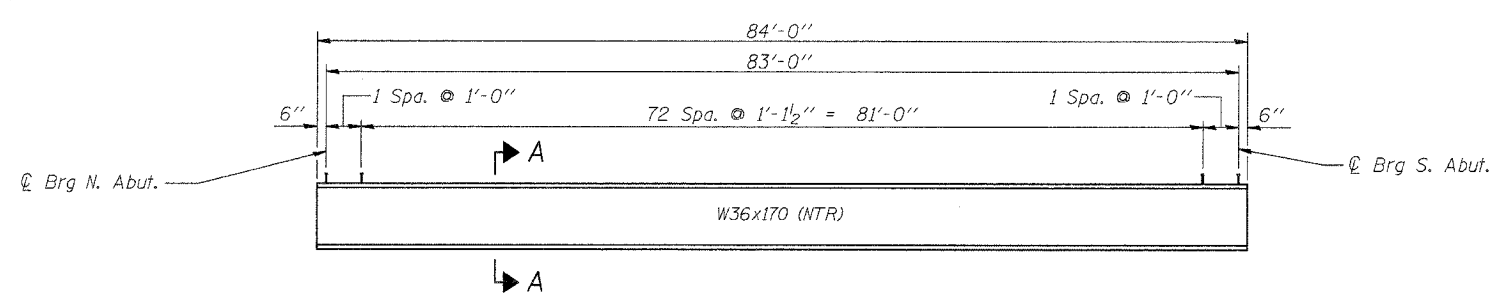
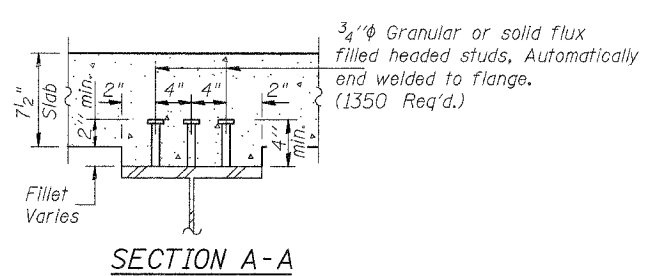


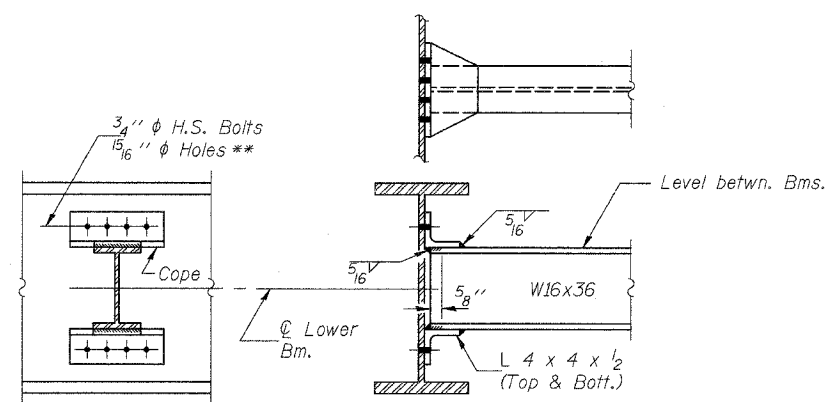
FRAMING PLAN



BEAM ELEVATION
(Showing Shear Connector Spacing)



SECTION A-A



DIAPHRAGM D
(15 Required)

**Use 1 5/16" wide x 1 1/2" long slotted holes in L's for diaphragm connections between beams 3 & 4. Bolts shall be finger tightened prior to deck pour for stage 2 construction and then fully tightened after completion of deck pour for stage 2 construction.

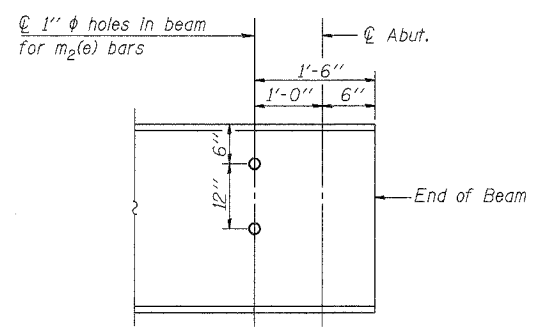
I_s and S_s are the moment of inertia and section modulus of the steel section used in computing f_s (Overload).
 $I_{c(n)}$ and $S_{c(n)}$ are the moment of inertia and section modulus of the composite section used in computing stresses due to Live Load.
 $I_{c(3n)}$ and $S_{c(3n)}$ are the moment of inertia and section modulus of the composite section used in computing stresses due to superimposed dead loads. (see AASHTO 10.38)
 VR is the maximum Live Load + Impact shear range in span.

The Plastic Moment capacity (M_u) is computed according to AASHTO 10.48.1 and 10.50.1.1.
 f_s (Overload) is the sum of the stresses due to $M\ell + M_s\ell + {}^5_3(M\ell + M(Imp))$.
 $M\ell$ - Moment due to dead loads on non-composite section.
 $M_s\ell$ - Moment due to dead loads on composite section.
 $M\ell$ - Moment due to live loads on composite section.
 $M(Imp)$ - Moment due to live load impact on composite section.
 M_a (Applied Moment) = $1.3[M\ell + M_s\ell + {}^5_3(M\ell + M(Imp))]$.

		Abuts.
$R\ell$	(k)	54.3
$R\ell$	(k)	39.3
Imp.	(k)	9.4
R (Total)	(k)	103.0

		0.5 Span
I_s	(in ⁴)	10500
I_c (n)	(in ⁴)	24511
I_c (3n)	(in ⁴)	18004
S_s	(in ³)	580
S_c (n)	(in ³)	800
S_c (3n)	(in ³)	724
ℓ	(k/ft.)	0.850
$M\ell$	(k)	732
$s\ell$	(k/ft.)	0.458
$M_s\ell$	(k)	394
$M\ell$	(k)	748
$M(Imp)$	(k)	180
${}^5_3[M\ell + M(Imp)]$	(k)	1547
M_a	(k)	3474
M_u	(k)	3846
$f_s\ell$ non-comp	(k.s.i.)	15.1
$f_s\ell$ (comp)	(k.s.i.)	6.5
$f_s\ell$ ($\ell + Imp$)	(k.s.i.)	23.2
f_s (Overload)	(k.s.i.)	44.8
VR	(k)	48.7

*Compact, Braced Section



TYP. END OF BEAM ELEVATION

Notes:
 All steel for beams, diaphragms and connection L's shall be AASHTO M270, Grade 50.
 Two hardened washers shall be required over all 1 5/16" diameter holes and two 1 1/2" x 1 1/2" x 5/16" L washers shall be required over all slotted holes for diaphragms.
 "NTR" denotes members to which Notch Toughness Requirements, Zone 2 are applicable.

TOP OF BEAM ELEVATIONS
(For Fabrication Only)

Location	℄ Brg. N. Abut.	℄ Brg. S. Abut.
Beam 1	430.39	429.39
Beam 2	429.97	428.97
Beam 3	429.55	428.55
Beam 4	429.13	428.13
Beam 5	428.71	427.71
Beam 6	428.29	427.29

DESIGNED	Ruben V. Boehler
CHECKED	Tim S. Howard
DRAWN	Nicole L. Darling
CHECKED	Michael D. Cummins

STRUCTURAL STEEL

IL ROUTE 127 OVER TRIBUTARY TO CROOKED CREEK
 F.A.P. ROUTE 42 SECTION 2BR
 WASHINGTON COUNTY
 STA. 487+25
 S.N. 095-0076

CUMMINS ENGINEERING CORPORATION	JOB #: 2158
	FILE: 2158SS
	DATE: 2/10/05