ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAS 622	04-00077 -01-BR	SANGAMON	22	12
	ILLINOIS	PROJECT		

CONTRACT NO. 93414
Sheet 7 of 13

—Z—

FRAMING PLAN

71'-0'' end to end of beam
70'-0'' c.-c. brgs.
6''
24'-11''
23'-4''
21'-9''
6''

℄ Brg N. Abut.
℄ Brg S. Abut.
℄ Structure

5 Beam Spaces @ 6'-10'' = 34'-2''

① ② ③ ④ ⑤ ⑥

D D D D D D D D D D

W33x141 (NTR)
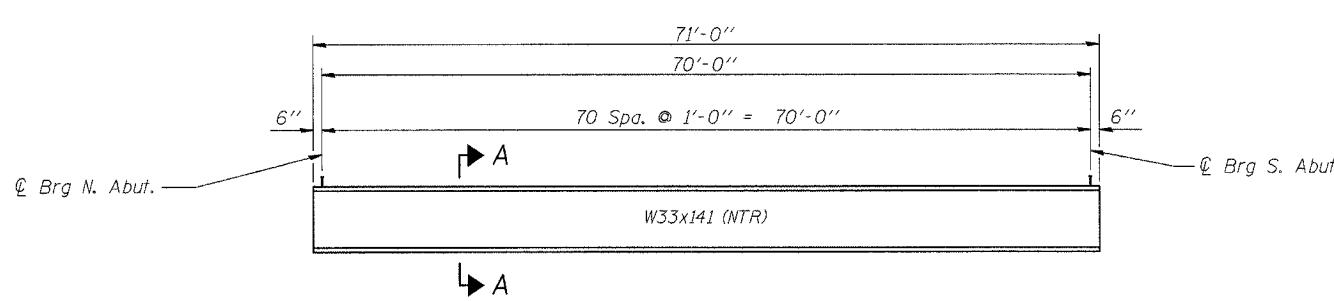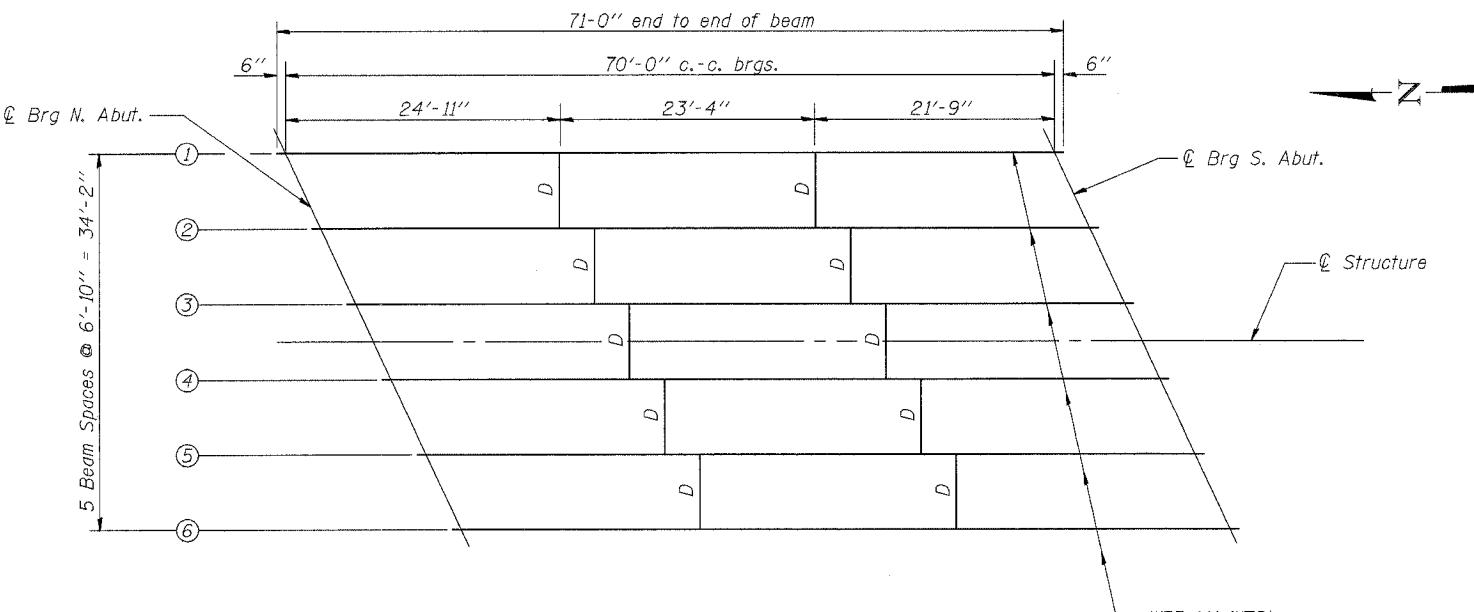
BEAM ELEVATION
(Showing Shear Connector Spacing)
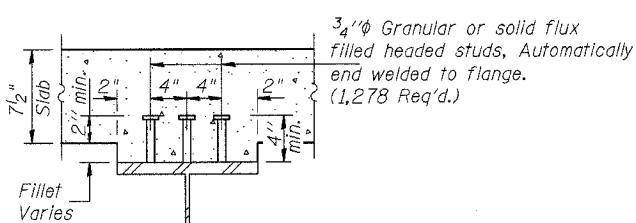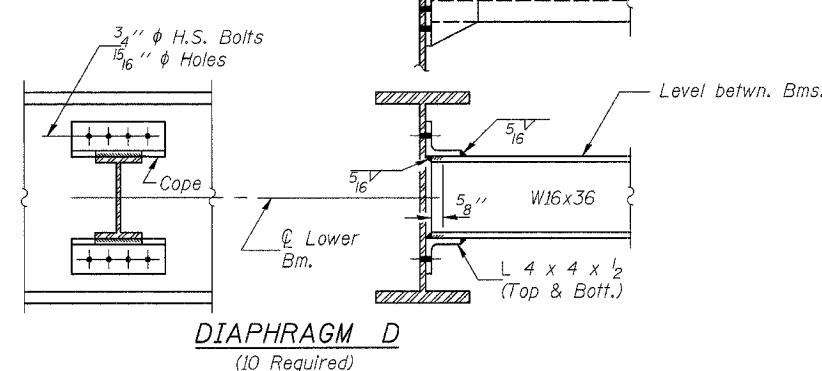
71'-0''
70'-0''
6''
70 Spa. @ 1'-0'' = 70'-0''
6''

℄ Brg N. Abut.
℄ Brg S. Abut.

A
A

W33x141 (NTR)

Is and Ss are the moment of inertia and section modulus of the steel section used in computing fs (Overload).
Ic(n) and Sc(n) are the moment of inertia and section modulus of the composite section used in computing stresses due to Live Load.
Ic(3n) and Sc(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.
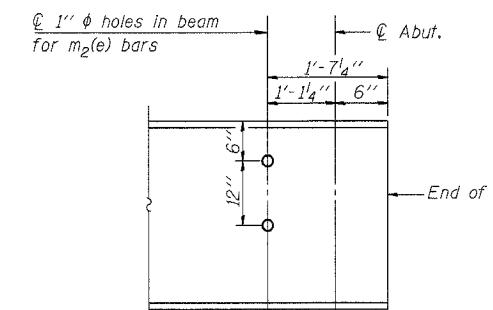The Plastic Moment capacity (Mu) is computed according to AASHTO 10.48.1 and 10.50.1.1.
fs (Overload) is the sum of the stresses due to $M\ell + Ms\ell + \frac{5}{3}(M\ell + M(Imp))$.
$M\ell$ - Moment due to dead loads on non-composite section.
$Ms\ell$ - Moment due to dead loads on composite section.
$M\ell$ - Moment due to live loads on composite section.
M (Imp) - Moment due to live load impact on composite section.
Ma (Applied Moment)=$1.3[M\ell + Ms\ell + \frac{5}{3}(M\ell + M(Imp))]$.

INTERIOR GIRDER REACTION TABLE

		Abuts.
Rℓ	(k)	49.6
Rℓ	(k)	38.7
Imp.	(k)	10.1
R (Total)	(k)	98.4

INTERIOR GIRDER MOMENT TABLE

		0.5 Span
Is	(in^4)	7450
Ic (n)	(in^4)	19065
Ic (3n)	(in^4)	13986
Ss	(in^3)	448
Sc (n)	(in^3)	643
Sc (3n)	(in^3)	582
ℓ	(k/ft.)	1.062
Mℓ	('k)	650
sℓ	(k/ft.)	0.353
Msℓ	('k)	216
Mℓ	('k)	612
M (Imp)	('k)	159
$\frac{5}{3}[M\ell+M(Imp)]$	('k)	1285
Ma	('k)	2796
* Mu	('k)	3053
fsℓ non-comp (k.s.i.)		17.4
fsℓ (comp)	(k.s.i.)	4.5
fs$\frac{5}{3}(\ell+Imp)$ (k.s.i.)		24.0
fs (Overload) (k.s.i.)		45.9
VR	(k)	48.8

*Compact, Braced Section

SECTION A-A

$\frac{3}{4}$''ϕ Granular or solid flux filled headed studs. Automatically end welded to flange.
(1,278 Req'd.)

$7\frac{1}{2}$'' Slab
2'' min.
4'' 4''
2''
$4\frac{3}{4}$'' min.
Fillet Varies

DIAPHRAGM D
(10 Required)

$\frac{3}{4}$'' ϕ H.S. Bolts
$\frac{15}{16}$'' ϕ Holes
Cope
Level betwn. Bms.
℄ Lower Bm.
$\frac{5}{16}$ V
$\frac{5}{16}$
$\frac{5}{8}$''
W16x36
L 4 x 4 x $\frac{1}{2}$
(Top & Bott.)

TYP. END OF BEAM ELEVATION

℄ 1'' ϕ holes in beam for m₂(e) bars
℄ Abut.
1'-$7\frac{1}{4}$''
1'-$1\frac{1}{4}$''
6''
12'' 6''
End of Beam

Notes:
All steel for beams, diaphragms and connection L's shall be AASHTO M270, Grade 50W.
Two hardened washers shall be required over all $\frac{15}{16}$'' ϕ holes.
"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	589.46	590.05
Beam 2	589.63	590.22
Beam 3	589.77	590.36
Beam 4	589.80	590.39
Beam 5	589.73	590.32
Beam 6	589.63	590.22

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

STRUCTURAL STEEL

C.H. 15 OVER LITTLE SPRING CREEK
SECTION 04-00077-01-BR
SANGAMON COUNTY
STA. 45+35
S.N. 084-3407

CUMMINS ENGINEERING CORPORATION

JOB #: 2157
FILE: 2157SS
DATE: 10/13/05