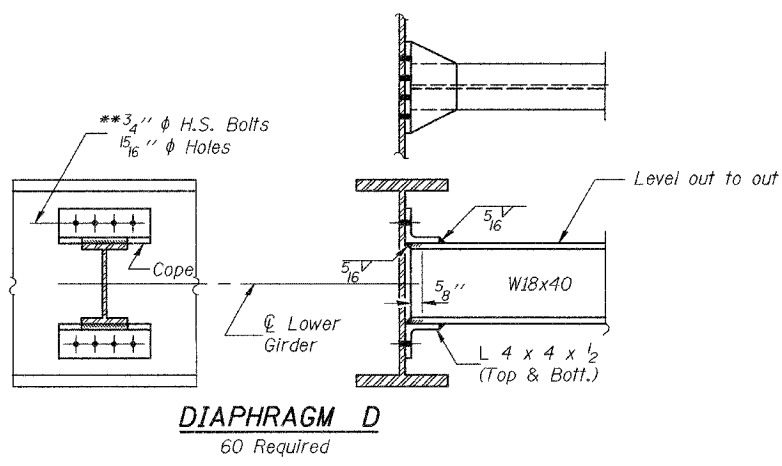


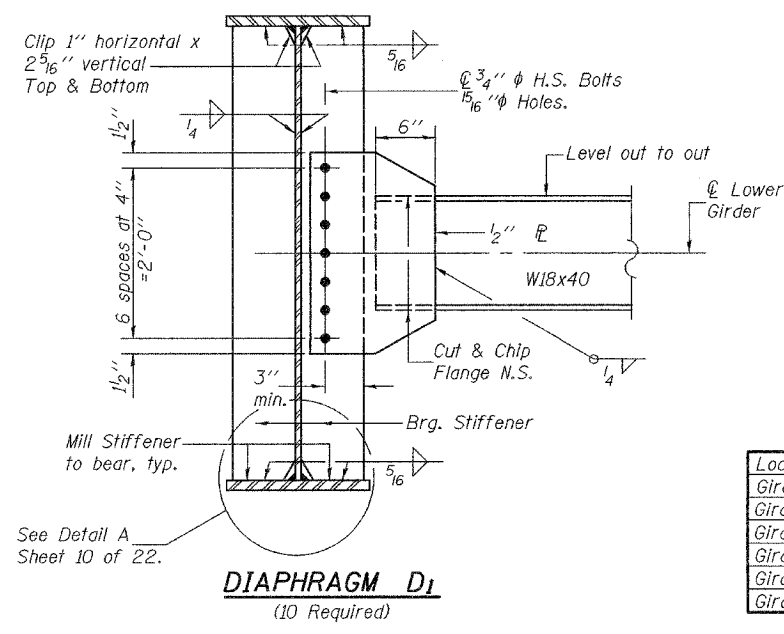
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO. F.A.S. 1842	SECTION 106BR	COUNTY ST. CLAIR	SHEET NO. 61	SHEET NO. 32	SHEET NO. 11 22 SHEETS
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-		

Contract No. 76129



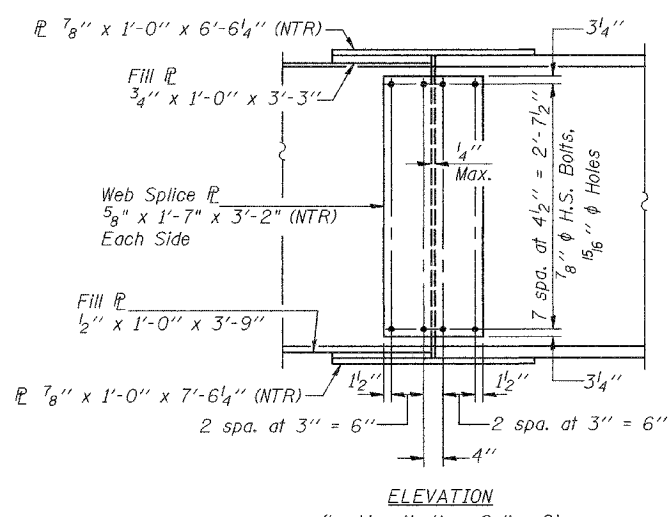
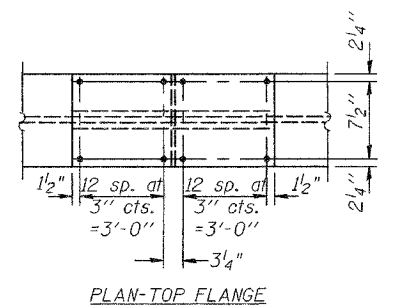
DIAPHRAGM D
60 Required



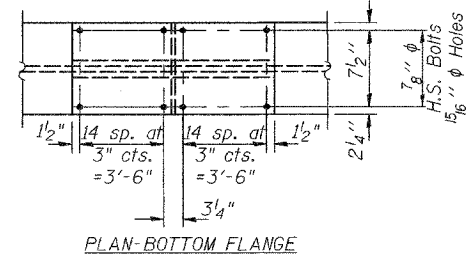
DIAPHRAGM D1
(10 Required)

**Use 1 5/16" x 1 1/2" vertical slotted holes in top and bottom angles of Diaphragm D at North side of Girder 4 only. Provide 5/16" plate washers for slotted holes. The bolts for slotted holes shall be finger tightened prior to the deck pour for Stage II Construction and then fully tightened after completion of the deck pour for Stage II Construction.

Notes:
All Splice plates shall be AASHTO M270, Grade 50, except fill plates.
Two hardened washers shall be required over all oversize holes for diaphragms.
All diaphragms shall be installed as steel is erected and secured with erection pins and bolts except as otherwise noted. Individual 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.



ELEVATION
(Looking North - Splice 2)
(Looking South - Splice 1)

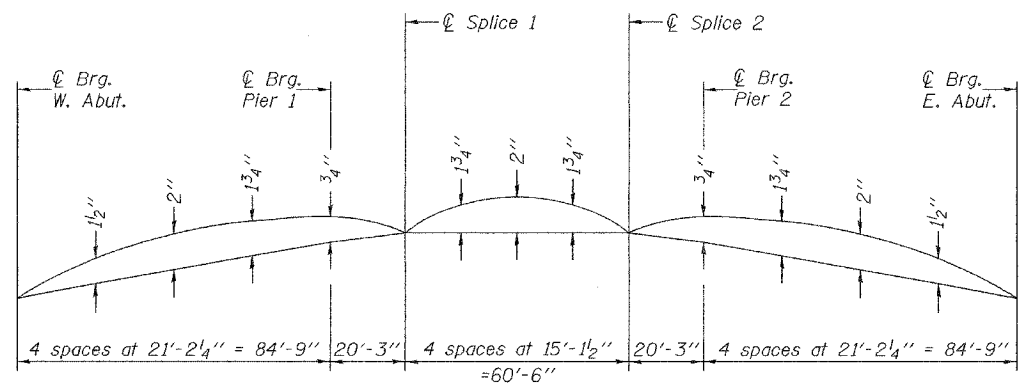


SPLICE DETAIL
(12 Required)

***TOP OF WEB ELEVATIONS**

Location	¢ Brg. W. Abut.	¢ Brg. Pier 1	¢ Splice 1	¢ Splice 2	¢ Brg. Pier 2	¢ Brg. E. Abut.
Girder 1	420.192	420.472	420.461	420.461	420.472	420.192
Girder 2	420.318	420.598	420.586	420.586	420.598	420.318
Girder 3	420.421	420.700	420.689	420.689	420.700	420.421
Girder 4	420.421	420.700	420.689	420.689	420.700	420.421
Girder 5	420.318	420.598	420.586	420.586	420.598	420.318
Girder 6	420.192	420.472	420.461	420.461	420.472	420.192

*For fabrication only



CAMBER DIAGRAM

	0.4 Sp. 1 0.6 Sp. 3	Pier 1 or 2	0.5 Sp. 2
Is (in ⁴)	11352	18174	11352
Ic (in ⁴)	29813		29813
Ic (sn) (in ⁴)	21762		21762
Ss (in ³)	583	845	583
Sc (in ³)	827		827
Sc (sn) (in ³)	754		754
ϕ (k/ft.)	0.793	1.334	0.793
Mϕ (k)	379	1139	253
sϕ (k/ft.)	0.479		0.479
Msϕ (k)	266		242
Mℓ (k)	626	481	634
M (Imp) (k)	149	111	140
ϕ ₅ [Mℓ + M(Imp)] (k)	1292	987	1290
Ma (k)	2518	2764	2321
Mu (k)	3206	3521	3278
fsϕ non-comp (k.s.i.)	7.8	16.2	5.2
fsϕ (comp) (k.s.i.)	4.2		3.9
fs ₅ (ℓ + Imp) (k.s.i.)	18.7	14.0	18.7
fs (Overload) (k.s.i.)	30.7	30.2	27.8
fs (Total) (k.s.i.)		39.4	
VR (k)	50.9		43.8

	Abuts.	Piers
Rℓ (k)	40.6	133.8
Rℓ (k)	37.4	56.7
Imp. (k)	8.9	13.0
R (Total) (k)	86.9	203.5

Is and Ss are the moment of inertia and section modulus of the steel section used in computing fs (Total & 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(sn) and Sc(sn) 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.
Ma (Applied Moment) = 1.3[Mℓ + Msϕ + ϕ₅(Mℓ + M(Imp))].
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 Mℓ + Msϕ + ϕ₅(Mℓ + M(Imp)).
fs (Total) (Non-compact section) is the sum of the stresses due to 1.3[Mℓ + Msϕ + ϕ₅(Mℓ + M(Imp))].
Mℓ - Moment due to dead loads on non-composite section.
Msϕ - Moment due to dead loads on composite section.
Mℓ - Moment due to live load on non-composite or composite section.
M(Imp.) - Moment due to live load impact on non-composite or composite section.

STRUCTURAL STEEL DETAILS
F.A.S. ROUTE 1842 - SECTION 106BR
ST. CLAIR COUNTY
STATION 669+65.50
STRUCTURE NO. 082-0387

DESIGNED	JEK	EXAMINED	January 23, 2007
CHECKED	RLM	<i>Thomas J. Donagale</i> ENGINEER OF BRIDGE DESIGN	
DRAWN	AMC AMBER SEIBER	PASSED	<i>Ralph E. Anderson</i> ENGINEER OF BRIDGES AND STRUCTURES
CHECKED	RLM		