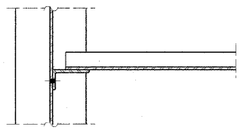
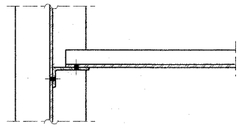
F.A.P.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	465 (HB&VB) F	COOK	31	28
STA. 173+50	TO	STA. 195+00		
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT		

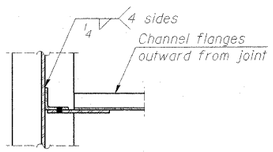
Contract # 60121 SHEET NO. S27 of S30



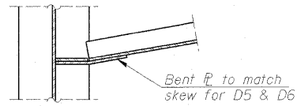
SECTION A-A



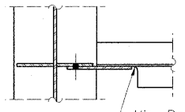
SECTION A1-A1



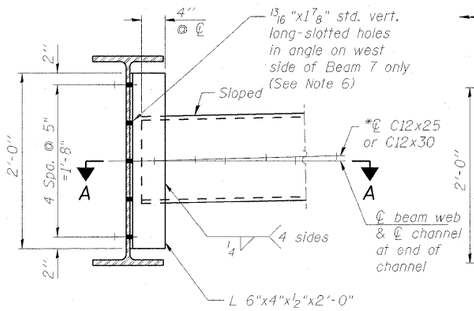
SECTION B-B



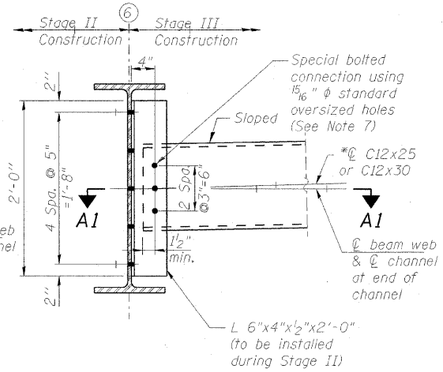
SECTION C-C



SECTION D-D

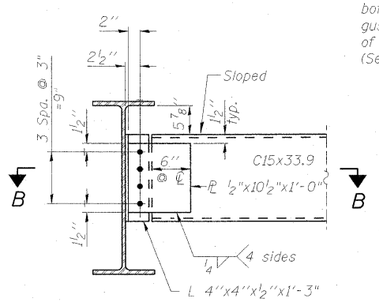


INTERIOR DIAPHRAGM D1
(UNITS 1 & 3)
(550 total)

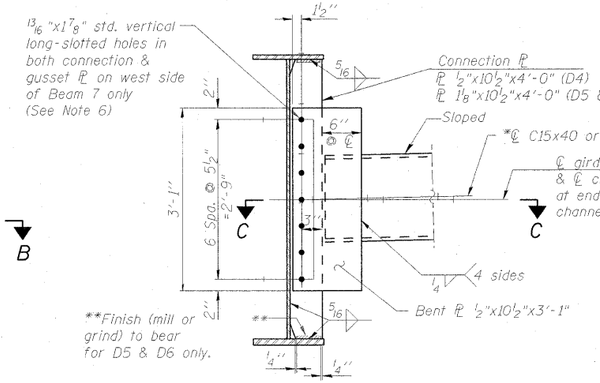


INTERIOR DIAPHRAGM D1a
(UNITS 1 & 3)
(55 total)

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

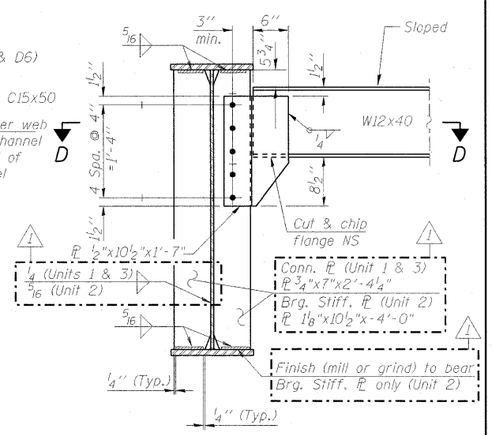


END DIAPHRAGM D2
(UNITS 1 & 3)
(20 total)

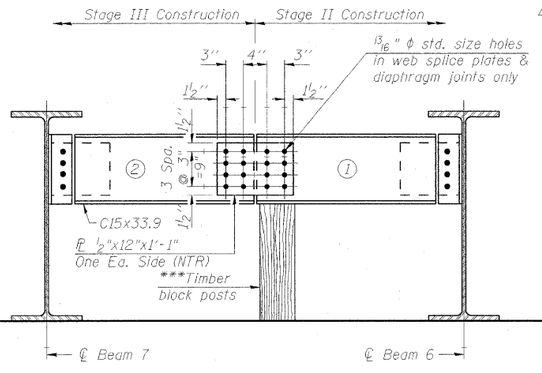


INTERIOR DIAPHRAGMS D4, D5, & D6
(UNIT 2)
(162-D4, 11-D5, 11-D6)

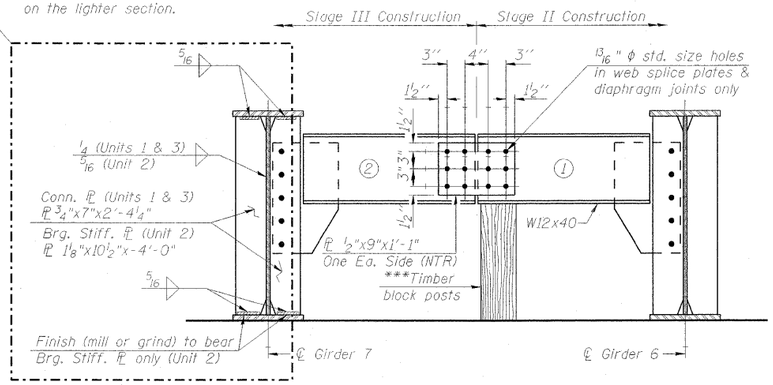
Diaph.	Girder Spa. along Skew
D4	8'-6"
D5	9'-8 5/8"
D6	9'-11 5/8"



END DIAPHRAGM D7
(UNITS 1, 2, & 3)
(40 total)



END DIAPHRAGM D3
(UNITS 1 & 3)
(2 total)

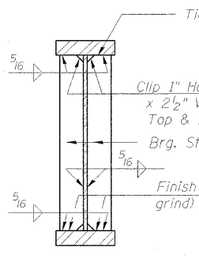


END DIAPHRAGM D8
(UNITS 1, 2, & 3)
(4 total)

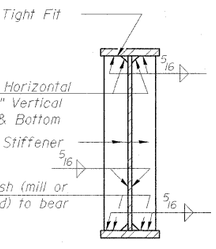
*** Cost of Timber Block Posts is included with Structural Steel.

END DIAPHRAGM STAGE CONSTRUCTION SEQUENCE

1.) Order Diaphragm in two sections.
2.) Attach section (1) of Diaphragm to Beam/Girder.
3.) Place Timber Block Posts between section (1) of Diaphragm and abutment bearing section.
4.) Attach section (2) of Diaphragm to both Beam/Girder and section (1) of Diaphragm during Stage III Construction with splice plates.
5.) Remove Timber Block Posts.



SECTION AT PIERS 7 & 8



SECTION AT PIER 6-N & PIER 9-S

Notes:

1. See Sheets S24-S26 for diaphragm locations.
2. AASHTO M270 Grade 36 or 50 steel shall be used for all diaphragms.
3. H.S. bolts for diaphragms shall be 3/4" ϕ AASHTO M164/ASTM A325 H.S. bolts (Type 1) in 15/16" ϕ standard oversized holes unless otherwise noted.
4. Two hardened washers required for each set of oversized holes.
5. All diaphragms between beams 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.
6. Bolts in slots shall be finger tight until the second stage pour is complete, and position slots so bolts start at one end with no concrete load and finish near the opposite end under deck load, allowing maximum displacement without laterally stressing main members.
7. Special bolted connection required on the west side of Interior Diaphragms D1a to allow the installation of the connection angles on both sides of Beam 6 during Stage II Construction. Note that the east side of Interior Diaphragms D1a use the standard welded connections for Interior Diaphragms D1.

REVISIONS	
NAME	DATE

EARTH TECH | AECOM

ILLINOIS DEPARTMENT OF TRANSPORTATION

STEEL DETAILS I

FAP 330 US 12/45 (MANNHEIM RD.) OVER SOO LINE RR & FRANKLIN AVE.
STRUCTURE NO. 016-2815
SECTION 465 (HB & VB) F COOK COUNTY
STA. 183+33.30 DRAWN BY JHR
DATE 6/2009 CHECKED BY DEV

8/26/2009 27SteelDI_St09.dgn

1 Revised 8/26/09 CLS