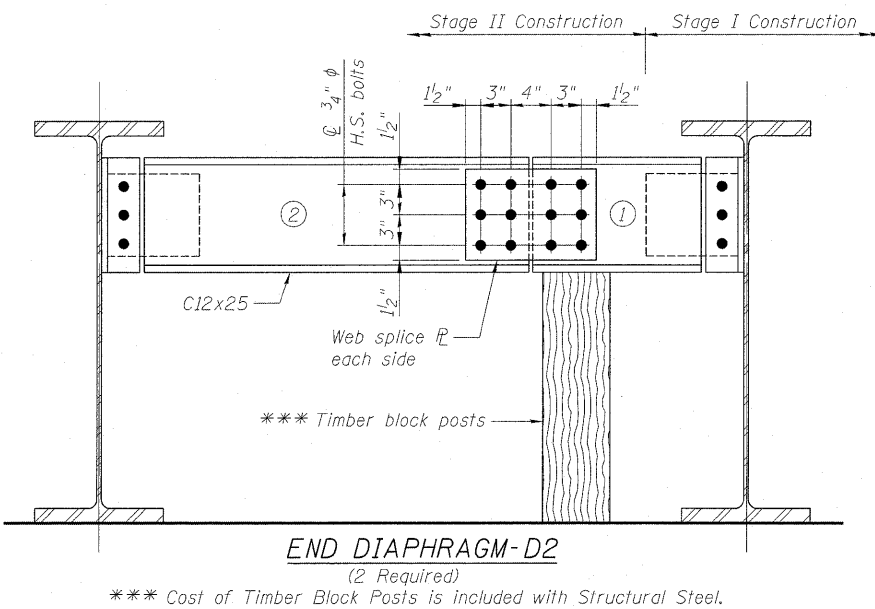
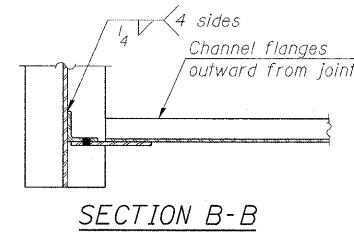
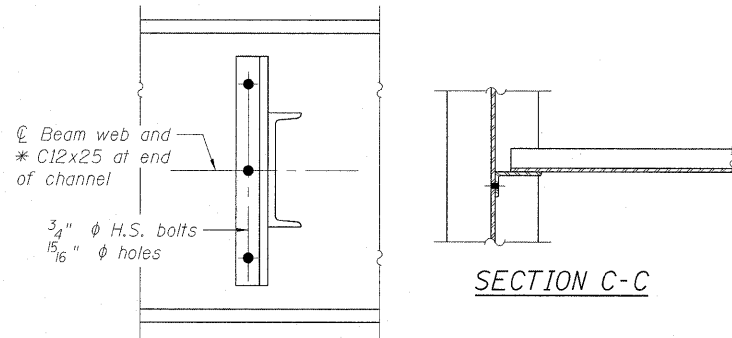
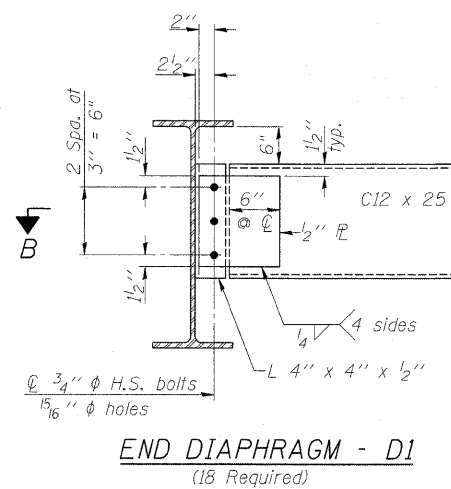
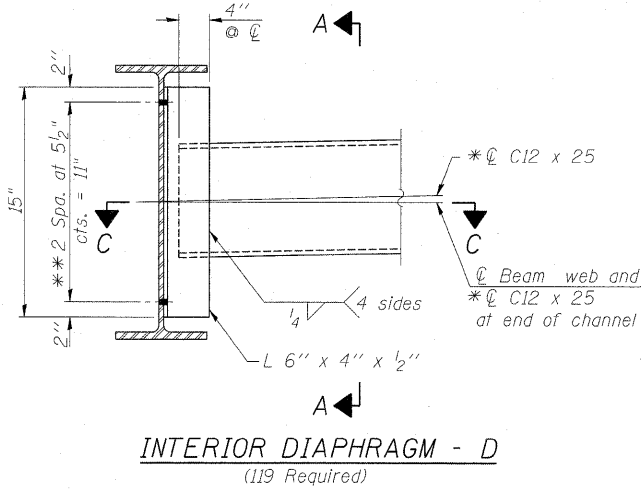
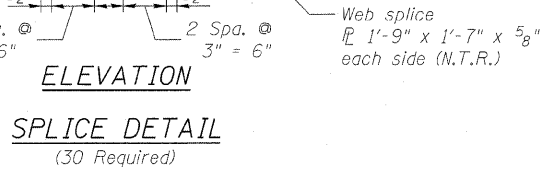
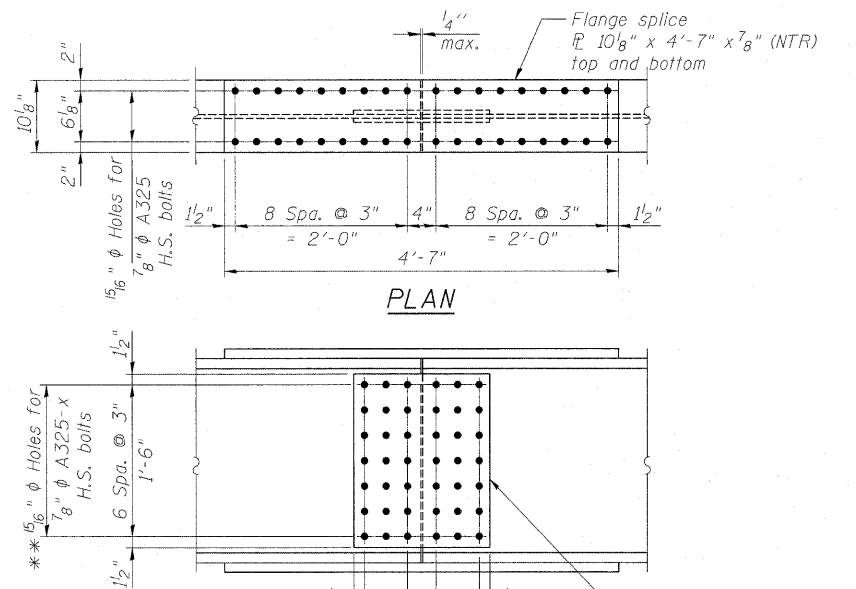


STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



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

STAGE CONSTRUCTION SEQUENCE

- Order Diaphragm in two sections.
- Attach section ① of Diaphragm to Beam 5.
- Place Timber Block Posts between section ① of diaphragm and sbtment bearing section.
- Attach section ② of diaphragm to both Beam 6 and section ① of diaphragm during Stage II Construction with splice plates.
- Remove Timber Block Posts.

TOP OF BEAM ELEVATIONS

For fabrication only

Beam No.	¢ Brg. W. Abut.	¢ Brg. Pier 1	¢ Splice 1	¢ Brg. Pier 2	¢ Splice 2	¢ Brg. Pier 3	¢ Splice 3	¢ Brg. W. Abut.
1	657.222	657.438	657.481	657.565	657.580	657.463	657.442	657.288
2	657.329	657.545	657.587	657.671	657.687	657.569	657.548	657.395
3	657.436	657.652	657.694	657.778	657.793	657.676	657.655	657.502
4	657.543	657.758	657.801	657.884	657.900	657.783	657.762	657.609
5	657.649	657.865	657.908	657.991	658.007	657.889	657.868	657.715
6	657.649	657.865	657.908	657.991	658.007	657.889	657.868	657.715
7	657.543	657.758	657.801	657.884	657.900	657.783	657.762	657.609
8	657.436	657.652	657.694	657.778	657.793	657.676	657.655	657.502
9	657.329	657.545	657.587	657.671	657.687	657.569	657.548	657.395
10	657.222	657.438	657.481	657.565	657.580	657.463	657.442	657.288

DESIGNED - DF
CHECKED - TAH
DRAWN - LAM
CHECKED - DF

	0.4 Sp. 1 or 0.6 Sp. 2	Pier 1 or Pier 3	0.5 Sp. 2 or Sp. 3	Pier 2
I_s	4080	4080	4080	4080
$I_c(n)$	11985		11985	
$I_c(3n)$	8952		8952	
S_s	299	299	299	299
$S_c(n)$	457		457	
$S_c(3n)$	414		414	
DC1	0.826	0.826	0.826	0.826
MDC1	140	258	133	265
DC2	0.138	0.138	0.138	0.138
MDC2	26	35	29	38
DW	0.344	0.344	0.344	0.344
MDW	66	88	71	96
$M\ell + IM$	561	343	637	378
M_u (Strength I)	1288.3	1098.5	1423.8	1184.3
$\phi_r M_n, \phi_r M_{nc}$	2337.2	-	2342.1	-
f_s DC1	5.62	10.35	5.34	10.64
f_s DC2	1.04	1.40	1.16	1.53
f_s DW	1.91	3.53	2.06	3.85
f_s 1.3($\ell + IM$)	19.2	17.9	21.7	19.7
f_s (Service II)	27.7	33.2	30.3	35.7
f_s (Total)(Strength I)	44.1	44.1	47.5	47.5
V_r	20.1		17.7	

	W. Abut.	Pier 1 or 3	Pier 2	E. Abut.
(2) R_{DC1}	16.7	53.3	53.8	18.3
R_{DC2}	2.7	8.3	8.6	2.7
R_{DW}	6.7	20.8	21.5	6.7
$R\ell + IM$	66.0	95.6	97.4	66.0
R_{Total}	92.1	177.9	181.2	93.8

Compact section

Braced non-compact and partially braced section

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.).
MDC1: 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.).
MDC2: 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.).
MDW: Un-factored moment due to long-term composite (superimposed future wearing surface only) dead load (kip-ft.).
 $M\ell + IM$: Un-factored live load moment plus dynamic load allowance (impact) (kip-ft.).

M_u (Strength I): Factored design moment (kip-ft.).
 $1.25 (M_{DC1} + M_{DC2}) + 1.5 M_{DW} + 1.75 M\ell + IM$
 $\phi_r M_n$: Compact composite positive moment capacity computed according to Article 6.10.7.1 (kip-ft.).
 $\phi_r M_{nc}$: Compact non-composite negative moment capacity computed according to Article A6.1.1 (kip-ft.).
 f_s (Service II): Sum of stresses as computed from the moments below (ksi).
 $M_{DC1} + M_{DC2} + M_{DW} + 1.3 M\ell + IM$
 f_s (Total)(Strength I): Sum of stresses as computed from the moments below on non-compact section (ksi).
 $1.25 (M_{DC1} + M_{DC2}) + 1.5 M_{DW} + 1.75 M\ell + IM$
 V_r : Maximum factored shear range in composite portion of span computed according to Article 6.10.10.

- Sign structure loading does not result in significant differences to exterior beam moment table, therefore, not shown for clarity.
- Exterior beam accounting for sign structure loading, all other values for interior beam.

NOTES

- Load carrying components designated "NTR" shall conform to the Supplemental Requirements for Notch Toughness, Zone 2.
- All beams and splice plates shall be AASHTO M270 Grade 50.
- Two hardened washers required for each set of oversized holes.
- See sheet S-18 of S-30 for Bearing Details.
- All cross frames or diaphragms shall be installed as steel is erected and secured with erection pins and bolts except as otherwise noted. Individual cross frames or diaphragms at supports may be temporarily disconnected to install bearing anchor rods.

BOWMAN, BARRETT & ASSOCIATES INC.
CONSULTING ENGINEERS
Chicago, Illinois
312.228.0100
www.bbainc.com
Job. No. 910

SHEET NO. S-17 S-30 SHEETS	F.A.P RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	0353	0303.1B-1	COOK	91	62
SN 016-0275			CONTRACT NO. 60C05		
FED. ROAD DIST. NO.		ILLINOIS FED. AID PROJECT			