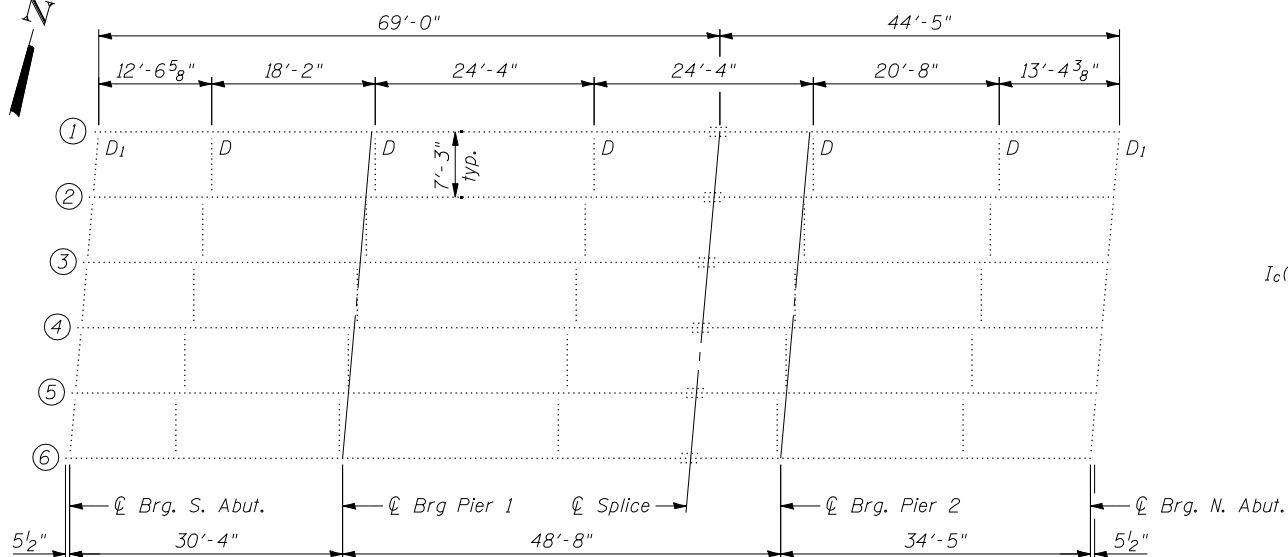
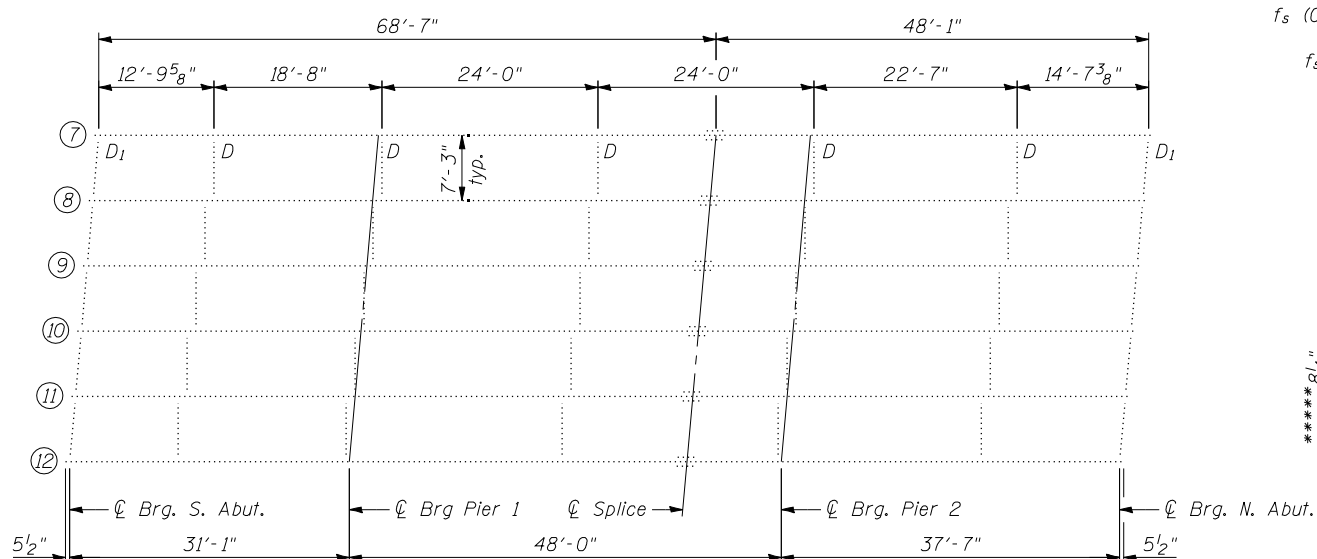


**GIRDER ELEVATION**

\* N.B. Structure  
\*\* S.B. Structure

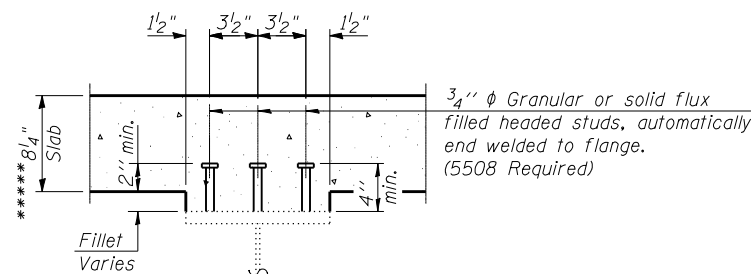


**DIAPHRAGM LAYOUT S.B. STRUCTURE**



**DIAPHRAGM LAYOUT N.B. STRUCTURE**

$I_s, S_s$ : Non-composite moment of inertia and section modulus of the steel section used for computing  $f_s$  (Total and Overload) due to non-composite dead loads (in.<sup>4</sup> and in.<sup>3</sup>).  
 $I_c(n), S_c(n)$ : Composite moment of inertia and section modulus of the steel and deck based upon the modular ratio, "n", used for computing  $f_s$  (Total and Overload) due to short-term composite live loads (in.<sup>4</sup> and in.<sup>3</sup>).  
 $I_c(3n), S_c(3n)$ : 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 and Overload) due to long-term composite (superimposed) dead loads (in.<sup>4</sup> and in.<sup>3</sup>).  
 $\phi$ : Un-factored non-composite dead load (kips/ft.).  
 $M\phi$ : Un-factored moment due to non-composite dead load (kip-ft.).  
 $s\phi$ : Un-factored long-term composite (superimposed) dead load (kips/ft.).  
 $M_s\phi$ : Un-factored moment due to long-term composite (superimposed) dead load (kip-ft.).  
 $M_L$ : Un-factored live load moment (kip-ft.).  
 $M_I$ : Un-factored moment due to impact (kip-ft.).  
 $M_o$ : Factored design moment (kip-ft.).  
 $1.3 [M\phi + M_s\phi + \frac{5}{3} (M_L + M_I)]$   
 $M_u$ : Compact composite moment capacity according to AASHTO LFD 10.50.1.1 or compact non-composite moment capacity according to AASHTO LFD 10.48.1 (kip-ft.).  
 $f_s$  (Overload): Sum of stresses as computed from the moments below (ksi).  
 $M\phi + M_s\phi + \frac{5}{3} (M_L + M_I)$   
 $f_s$  (Total): Sum of stresses as computed from the moments below on non-compact section (ksi).  
 $1.3 [M\phi + M_s\phi + \frac{5}{3} (M_L + M_I)]$   
 $VR$ : Maximum  $L +$  impact shear range within the composite portion of the span for stud shear connector design (kips).



**SECTION A-A**

\*\*\*\*\* Prior to grinding

		0.4 Sp. 1	Pier 1	0.5 Sp. 2	Pier 2	0.6 Sp. 3
$I_s$	(in <sup>4</sup> )	3226	4483	3226	4483	3226
$I_c(n)$	(in <sup>4</sup> )	9855	-	9855	-	9855
$I_c(3n)$	(in <sup>4</sup> )	7433	-	7433	-	7433
$S_s$	(in <sup>3</sup> )	240	324	240	324	240
$S_c(n)$	(in <sup>3</sup> )	374	-	374	-	374
$S_c(3n)$	(in <sup>3</sup> )	340	-	340	-	340
$\phi$	(k/')	0.896	1.43	0.896	1.43	0.896
$M\phi$	(k)	37	224	103	246	60
$s\phi$	(k/')	0.534	-	0.534	-	0.534
$M_s\phi$	(k)	31	-	85	-	45
$M_L$	(k)	160	127	283	134	189
$M_I$	(k)	48	39	82	40	57
$\phi_3 [M_L + M_I]$	(ksi)	347	277	608	290	410
$M_o$	(k)	539	652	1036	697	669
$M_u$	(k)	1078	-	1029	-	1049
$f_s\phi$ (non-comp)	(ksi)	1.8	8.3	5.2	9.1	3.0
$f_s\phi$ (comp)	(ksi)	1.1	-	3.0	-	1.6
$f_s \phi_3 [M_L + M_I]$	(ksi)	11.1	10.1	19.5	10.7	13.2
$f_s$ (Overload)	(ksi)	14.6	18.5	28.1	19.8	18.2
$f_s$ (Total)	(ksi)	-	24.1	-	25.7	-
$VR$	(k)	45.7	-	41.4	-	46.6

		0.4 Sp. 1	Pier 1	0.5 Sp. 2	Pier 2	0.6 Sp. 3
$I_s$	(in <sup>4</sup> )	3226	4483	3226	4483	3226
$I_c(n)$	(in <sup>4</sup> )	9855	-	9855	-	9855
$I_c(3n)$	(in <sup>4</sup> )	7433	-	7433	-	7433
$S_s$	(in <sup>3</sup> )	240	324	240	324	240
$S_c(n)$	(in <sup>3</sup> )	374	-	374	-	374
$S_c(3n)$	(in <sup>3</sup> )	340	-	340	-	340
$\phi$	(k/')	0.896	1.43	0.896	1.43	0.896
$M\phi$	(k)	44	218	95	259	81
$s\phi$	(k/')	0.534	-	0.534	-	0.534
$M_s\phi$	(k)	34	-	78	-	58
$M_L$	(k)	165	127	267	139	233
$M_I$	(k)	50	39	77	41	70
$\phi_3 [M_L + M_I]$	(ksi)	358	277	573	300	505
$M_o$	(k)	568	645	971	726	837
$M_u$	(k)	1078	-	1036	-	1049
$f_s\phi$ (non-comp)	(ksi)	2.2	8.1	4.7	9.6	4.1
$f_s\phi$ (comp)	(ksi)	1.2	-	2.8	-	2.0
$f_s \phi_3 [M_L + M_I]$	(ksi)	11.5	10.3	18.4	11.1	16.2
$f_s$ (Overload)	(ksi)	15.4	18.4	26.4	20.7	22.7
$f_s$ (Total)	(ksi)	-	23.9	-	26.9	-
$VR$	(k)	45.7	-	41.2	-	49.4

\*\*\* Compact sections  
\*\*\*\* Braced non-composite sections

		SOUTH BOUND STRUCTURE				NORTH BOUND STRUCTURE			
		S. Abut.	N. Abut.	Pier 1	Pier 2	S. Abut.	N. Abut.	Pier 1	Pier 2
$R\phi$	(k)	14.3	17.5	63.4	67.0	15.2	20.0	62.8	68.9
$R_L$	(k)	31.0	33.0	42.8	42.1	31.0	34.9	42.0	42.8
$R_I$	(k)	9.3	9.9	12.8	12.6	9.3	10.5	12.6	12.8
$R_{Total}$	(k)	54.6	60.4	119.0	121.7	55.5	65.4	117.4	124.5

$R\phi$  does not include weight of Diaphragm & Appr. slab

FILE NAME =	USER NAME = .MML.	DESIGNED - GJB	REVISED -
... \0540065-0066-72e11-024-framing-plan.dgn		CHECKED - MCB/RKM	REVISED -
	PLOT SCALE = 214.000000 "/ IN.	DRAWN - CFC	REVISED -
CB PROJECT NO 10065-1	PLOT DATE = 3/18/2013	CHECKED - MCB/GJB	REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

FRAMING PLAN  
STRUCTURE NO. 054-0065 (N.B.) & 054-0066 (S.B.)

SHEET NO. 24 OF 39 SHEETS

**CB** Coombe-Bloxdorf P.C.  
- CIVIL ENGINEERS -  
- STRUCTURAL ENGINEERS -  
- LAND SURVEYORS -  
Design Firm License No. 184-002703

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	D6 LOGAN CO BR 2011-1	LOGAN	429	347
				CONTRACT NO. 72E11
ILLINOIS FED. AID PROJECT				