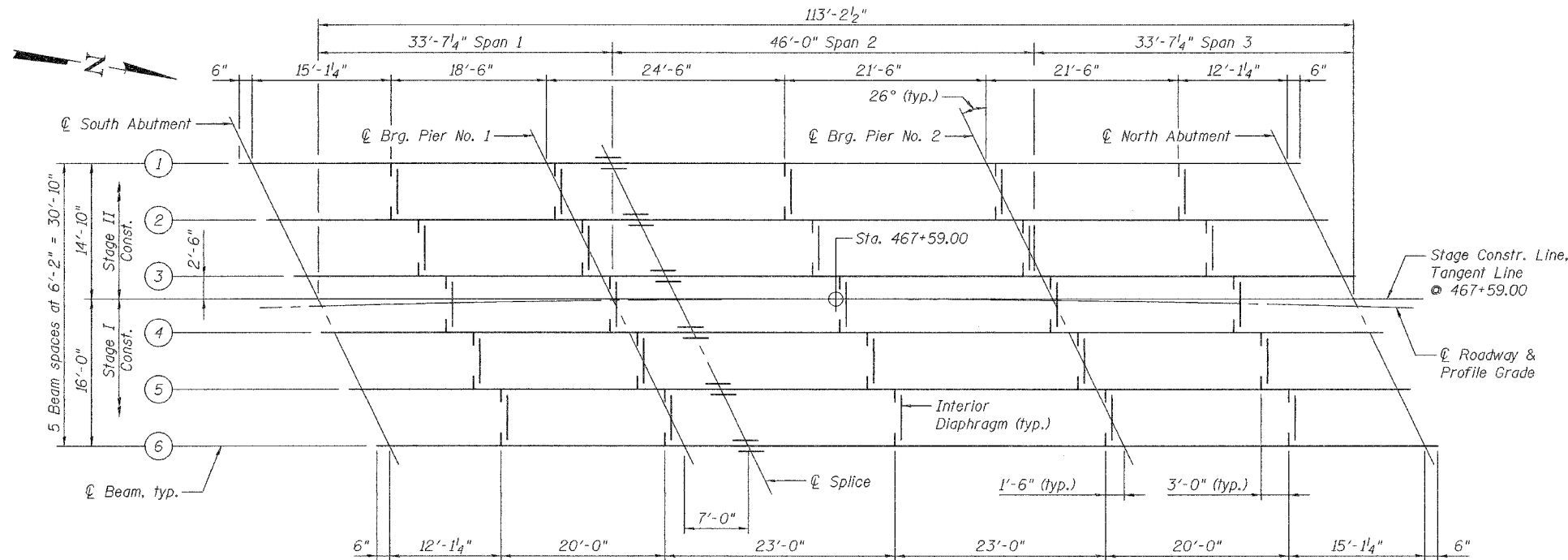


STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO. F.A.P. 304	SECTION 5BR-2	COUNTY CALHOUN	TOTAL SHEETS 48	SHEET NO. 39	SHEET NO. 15 28 SHEETS
FED. ROAD DIST. NO. 7		ILLINOIS FED. AID PROJECT			

Contract #76948



FRAMING PLAN

Note:
For Beam Elevation, Field Splice and Interior Diaphragm Details, See Sheet No. 16 of 28.
For Details of Diaphragms at the Abutments, see Sheet No. 14 of 28.

		0.4 Sp. 1 0.6 Sp. 3	Pier 1 or Pier 2	0.5 Sp. 2
I_s	(in ⁴)	2,850	2,850	2,850
$I_c(n)$	(in ⁴)	8,549	-	8,625
$I_c(3n)$	(in ⁴)	6,390	-	6,472
S_s	(in ³)	213	213	213
$S_c(n)$	(in ³)	331	-	332
$S_c(3n)$	(in ³)	300	-	301
Z	(in ³)	-	-	-
DC1	(k/')	0.728	0.728	0.728
M _{DC1}	(k)	51	120	73
DC2	(k/')	0.149	0.149	0.149
M _{DC2}	(k)	11	24	15
DW	(k/')	0.308	0.308	0.308
M _{DW}	(k)	22	50	31
M _{ℓ + Imp}	(k)	310	272	327
M _u (Strength I)	(k)	653	731	729
φ _r M _n , φ _r M _{nc}	(k)	1,741	820	1,723
f _s DC1	(ksi)	2.873	6.761	4.113
f _s DC2	(ksi)	0.620	1.352	0.845
f _s DW	(ksi)	0.880	2.817	1.236
f _s 1.3(ℓ+I)	(ksi)	14.610	19.921	15.365
f _s (Service II)	(ksi)	18.983	30.851	21.559
f _s (Total)(Strength I)	(ksi)	25.354	41.183	28.735
V _r	(k)	16.2	20.0	16.8

		S. Abut. or N. Abut.	Pier 1 or Pier 2
R _{DC1}	(k)	8.7	32.5
R _{DC2}	(k)	1.8	6.7
R _{DW}	(k)	3.7	13.8
R _{ℓ + Imp}	(k)	56.3	80.0
R _{Total}	(k)	117.2	209.7

- 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 (in⁴ and in³).
- $I_c(n), S_c(n)$: 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 (in⁴ and in³).
- $I_c(3n), S_c(3n)$: 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 (in⁴ and in³).
- Z: Plastic section modulus of the steel section in non-composite areas. Omit line in Moment Table if not used in design calculations (in³).
- DC1: Un-factored non-composite dead load (kips/ft.).
- M_{DC1}: 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.).
- M_{DC2}: 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.).
- M_{DW}: Un-factored moment due to long-term composite (superimposed future wearing surface only) dead load (kip-ft.).
- M_{ℓ + Imp}: 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_{ℓ + Imp}
- φ_rM_n: Compact composite positive moment capacity computed according to Article 6.10.7.1 (kip-ft.).
- φ_rM_{nc}: Non-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_{ℓ + Imp}
- 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_{ℓ + Imp}
- V_r: Factored shear range computed according to Article 6.10.10.

Notes:
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.

DESIGNED	YSS
CHECKED	RLM
DRAWN	PRC
CHECKED	RLM



02/27/08

FRAMING PLAN AND DESIGN DATA
IL. ROUTE 100 OVER
CRAWFORD CREEK
F.A.P. ROUTE 304 - SECTION 5BR-2
CALHOUN COUNTY
STATION 467+59.00
STRUCTURE NO. 007-0027