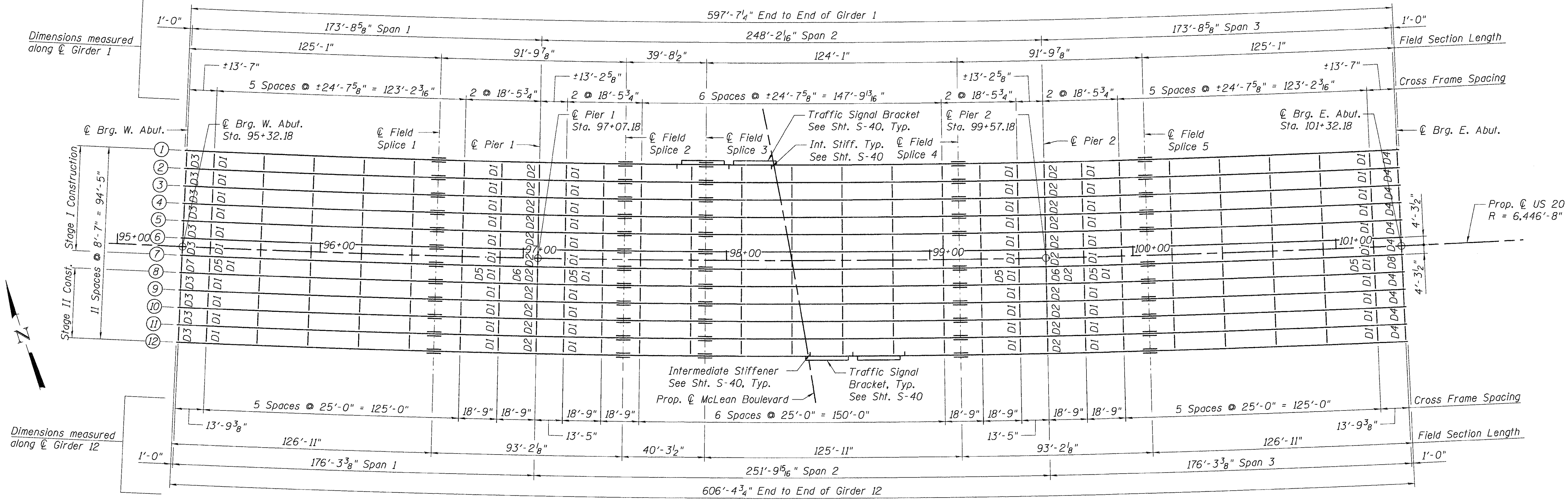

EXTERIOR GIRDER MOMENT TABLE		0.4 Sp. 1 0.6 Sp. 3	Pier 1 Pier 2	0.5 Sp. 2
I_s	(in⁴)	85,359	234,486	93,084
$I_c(n)$	(in⁴)	194,552	- - -	218,454
$I_c(3n)$	(in⁴)	139,090	- - -	153,595
$I_c(cr)$	(in⁴)	- - -	252,456	- - -
S_s	(in³)	2,508	5,360	2,959
$S_c(n)$	(in³)	3,338	- - -	3,908
$S_c(3n)$	(in³)	3,025	- - -	3,550
$S_c(cr)$	(in³)	- - -	6,062	- - -
S_{xc}	(in³)	3,124	7,019	3,565
DC1	(k/')	1.200	1.503	1.226
M_{DC1}	('k)	1,801	6,907	2,995
DC2	(k/')	0.225	0.225	0.225
M_{DC2}	('k)	363	1,207	579
DW	(k/')	0.400	0.400	0.400
M_{DW}	('k)	639	2,140	1,035
M_{LL+IM}	('k)	3,871	5,279	4,543
f_l (Strength I)	(ksi)	1.9	0.6	1.6
$M_u + \frac{1}{3} f_l S_{xc}$	('k)	12,417	23,995	15,871
$\phi_f M_n$	('k)	16,018	25,000	19,591
f_s DC1	(ksi)	8.6	13.9	12.2
f_s DC2	(ksi)	1.5	2.4	2.0
f_s DW	(ksi)	2.5	4.3	3.5
f_s (LL+IM)	(ksi)	13.9	10.4	14.0
f_l (Service II)	(ksi)	1.5	0.5	1.2
$f_s + f_l/2$ (Service II)	(ksi)	31.4	34.2	36.4
$0.95R_hF_{yf}$	(ksi)	47.5	47.5	47.5
$f_s + f_l/3$ (Total)(Strength I)	(ksi)	41.4	44.6	47.8
$\phi_f F_n$	(ksi)	50.0	50.0	50.0
V_f	(k)	53.4	75.4	58.4

INTERIOR GIRDER MOMENT TABLE		0.4 Sp. 1 0.6 Sp. 3	Pier 1 Pier 2	0.5 Sp. 2
I_s	(in⁴)	85,359	234,486	93,084
$I_c(n)$	(in⁴)	202,172	- - -	227,561
$I_c(3n)$	(in⁴)	144,804	- - -	160,163
$I_c(cr)$	(in⁴)	- - -	253,123	- - -
S_s	(in³)	2,508	5,360	2,959
$S_c(n)$	(in³)	3,372	- - -	3,946
$S_c(3n)$	(in³)	3,065	- - -	3,595
$S_c(cr)$	(in³)	- - -	6,090	- - -
S_{xl}	(in³)	2,641	6,109	3,111
DC1	(k/')	1.244	1.547	1.269
M_{DC1}	('k)	1,882	7,119	3,064
DC2	(k/')	0.225	0.225	0.225
M_{DC2}	('k)	365	1,204	582
DW	(k/')	0.400	0.400	0.400
M_{DW}	('k)	641	2,135	1,040
M_{LL+IM}	('k)	3,286	4,535	3,564
f_l (Strength I)	(ksi)	1.8	0.6	1.7
$M_u + \frac{1}{3} f_l S_{xc}$	('k)	11,407	22,961	14,387
$\phi_f M_n$	('k)	17,021	25,000	18,119
f_s DC1	(ksi)	9.0	14.3	12.4
f_s DC2	(ksi)	1.5	2.4	2.0
f_s DW	(ksi)	2.5	4.2	3.5
f_s (LL+IM)	(ksi)	11.7	8.9	10.9
f_l (Service II)	(ksi)	1.4	0.5	1.3
$f_s + f_l/2$ (Service II)	(ksi)	28.9	32.7	32.6
$0.95R_hF_{yf}$	(ksi)	47.5	47.5	47.5
$f_s + f_l/3$ (Total)(Strength I)	(ksi)	37.9	42.5	42.7
$\phi_f F_n$	(ksi)	50.0	50.0	50.0
V_f	(k)	50.0	70.6	54.8

FRAMING PLAN

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) in uncracked sections 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) in uncracked sections due to long-term composite (superimposed) dead loads (in.⁴ and in.³).

$I_c(cr)$, $S_c(cr)$: Composite moment of inertia and section modulus of the steel and longitudinal deck reinforcement, used for computing f_s (Total-Strength I and Service II) in cracked sections, due to both short-term composite live loads and long-term composite dead loads (in.⁴ and in.³).

S_{xc}: Section modulus about the major axis of section to the controlling flange, tension or compression, taken as yield moment with respect to the controlling flange over the yield strength of the controlling flange (in.³).

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_{LL+IM}: Un-factored live load moment plus dynamic load allowance (impact)(kip-ft.).

M_u (Strength I): Factored design moment (kip-ft.).
$1.25 (M_{DC1} + M_{DC2}) + 1.5 M_{DW} + 1.75 M_{LL+IM}$

Note: M_{LL} and R_{LL} include the effects of centrifugal force and superelevation.

f_l: Factored calculated normal stress at edge of flange for controlling steel flange plate due to lateral bending, Strength I or Service II as applicable (ksi).

$\phi_f M_n$: Factored resistance available according to A6.1.1 (kip-ft).

f_s DC1: Un-factored stress at edge of flange for controlling steel flange due to vertical non-composite dead loads as calculated below (ksi).
M_{DC1} / S_{nc}

f_s DC2: Un-factored stress at edge of flange for controlling steel flange due to vertical composite dead loads as calculated below (ksi).
$M_{DC2} / S_c(3n)$ or $M_{DC2} / S_c(cr)$ as applicable.

f_s DW: Un-factored stress at edge of flange for controlling steel flange due to vertical composite future wearing surface loads as calculated below (ksi).
$M_{DW} / S_c(3n)$ or $M_{DW} / S_c(cr)$ as applicable.

f_s (LL+IM): Un-factored stress at edge of flange for controlling steel flange due to vertical composite live plus impact loads as calculated below (ksi).
$M_{LL+IM} / S_c(n)$ or $M_{LL+IM} / S_c(cr)$ as applicable.

$f_s + f_l/2$ (Service II): Sum of stresses as computed below (ksi).
$f_{s\,DC1} + f_{s\,DC2} + f_{s\,DW} + 1.3 f_{s\,LL+IM} + f_l/2$

$0.95R_hF_yf$: Composite stress capacity for Service II loading according to Article 6.10.4.2 (ksi).

$f_s + f_l/3$ (Total)(Strength I): Sum of stresses as computed below on non-compact section (ksi).
$1.25 (f_{s\,DC1} + f_{s\,DC2}) + 1.5 f_{s\,DW} + 1.75 f_{s\,LL+IM} + f_l/3$

$\phi_f F_n$: Non-Compact composite positive or negative stress capacity for Strength I loading according to Article 6.10.7.2 (ksi).

V_f: Maximum factored shear range computed according to Article 6.10.10.

EXTERIOR GIRDER REACTION TABLE		Abutments	Piers
R_{DC1}	(k)	69.0	315.9
R_{DC2}	(k)	13.1	55.9
R_{DW}	(k)	23.2	97.8
R_{LL+IM}	(k)	105.9	234.5
R_{Total}	(k)	211.2	704.1

INTERIOR GIRDER REACTION TABLE		Abutments	Piers
R_{DC1}	(k)	71.8	325.6
R_{DC2}	(k)	13.1	55.8
R_{DW}	(k)	23.2	97.8
R_{LL+IM}	(k)	120.5	266.8
R_{Total}	(k)	228.6	746.0

Note:

Work this sheet with Shts. S-35 and S-36.

FILE NAME = $FILEL$	USER NAME = $USER$	DESIGNED - MDB	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION US 20 OVER MCLEAN BOULEVARD
TENG & ASSOCIATES, INC. ENGINEERS/ARCHITECTS/PLANNERS CHICAGO, ILLINOIS	PLOT SCALE = $SCALE$	DRAWN - MDB	REVISED -	
	PLOT DATE = $DATE$	CHECKED - CCE	REVISED -	
		DATE - 12/16/11	REVISED -	

FRAMING PLAN

SCALE: | SHEET NO. S-34 OF S-62 | STATION 98+32.18

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
345	8R-R	KANE	794	506
	SN 045-0077	CONTRACT NO. 60H45		
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT		

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