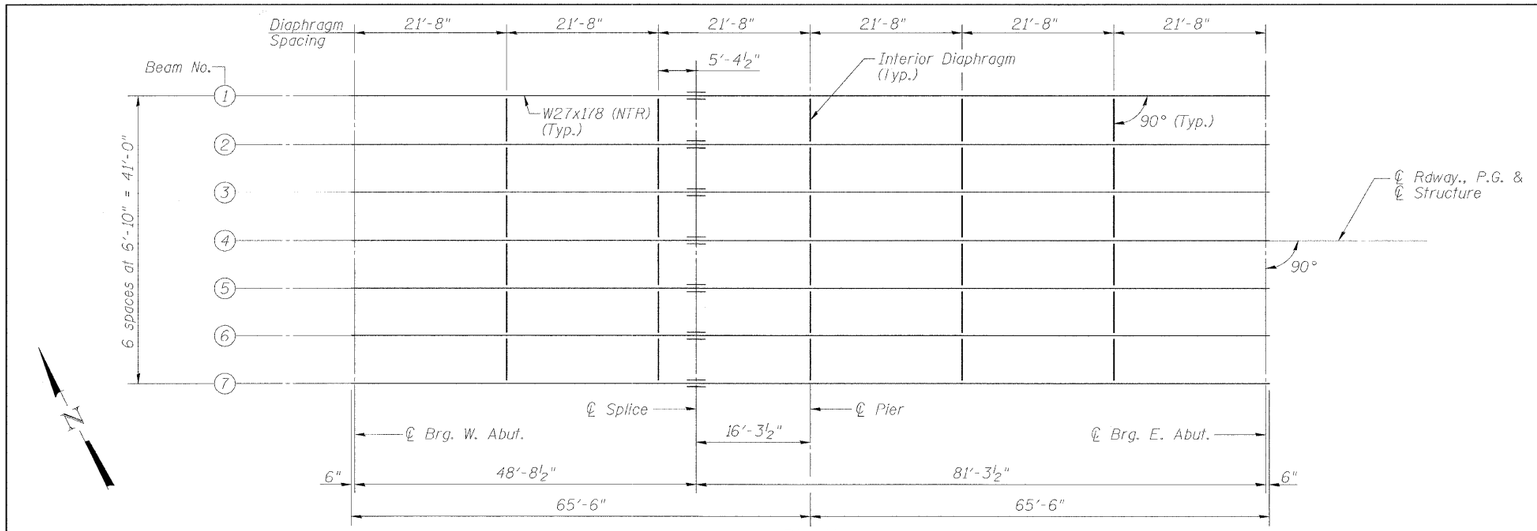
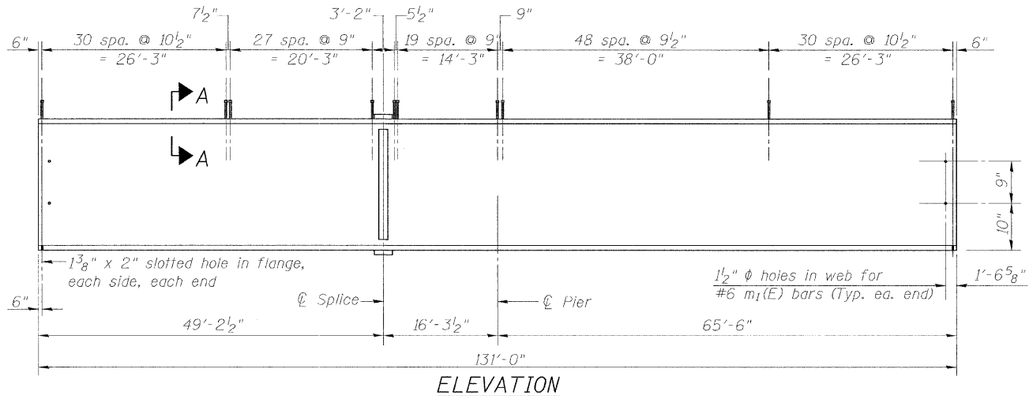



## PLAN




## ELEVATION

## TOP OF BEAM ELEVATIONS

(For Fabrication Only)

| | ℄ Brg. W. Abut. | ℄ Splice | ℄ Pier | ℄ Brg. E. Abut. |
|---|---|---|---|---|
| Beam 1 | 625.324 | 625.509 | 625.602 | 625.974 |
| Beam 2 | 625.467 | 625.657 | 625.749 | 626.117 |
| Beam 3 | 625.585 | 625.776 | 625.868 | 626.235 |
| Beam 4 | 625.692 | 625.882 | 625.975 | 626.342 |
| Beam 5 | 625.585 | 625.776 | 625.868 | 626.235 |
| Beam 6 | 625.467 | 625.657 | 625.749 | 626.117 |
| Beam 7 | 625.324 | 625.509 | 625.602 | 625.974 |

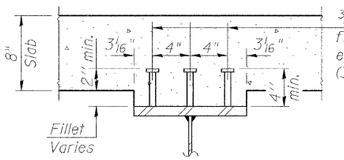
| INTERIOR GIRDER REACTION TABLE | | | |
|---|---|---|---|
| | | Abut. | Pier |
| $R_{DC1}$ | (k) | 22.6 | 75.0 |
| $R_{DC2}$ | (k) | 3.1 | 10.5 |
| $R_{DW}$ | (k) | 7.7 | 25.5 |
| $R_{L+IM}$ | (k) | 72.0 | 120.4 |
| $R_{Total}$ | (k) | 105.4 | 231.4 |

Notes:

Load carrying components designated "NTR" shall conform to the Supplemental Requirements for Notch Toughness, Zone 2.

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.

All structural steel beams shall conform to the requirements of AASHTO M 270 Grade 50W.




¾" ϕ Granular or solid flux filled headed studs, automatically end welded to flange. (3339 Required)

## SECTION A-A

| INTERIOR GIRDER MOMENT TABLE | | | |
|---|---|---|---|
| | | 0.4 Sp. 1 or 0.6 Sp. 2 | Pier |
| $I_s$ | ($in^4$) | 7020 | 7020 |
| $I_c(n)$ | ($in^4$) | 18310 | |
| $I_c(3n)$ | ($in^4$) | 13083 | |
| $I_c(cr)$ | ($in^4$) | | 9046 |
| $S_s$ | ($in^3$) | 505 | 505 |
| $S_c(n)$ | ($in^3$) | 736 | |
| $S_c(3n)$ | ($in^3$) | 658 | |
| $S_c(cr)$ | ($in^3$) | | 568 |
| DC1 | (k/') | 0.925 | 0.925 |
| $M_{DC1}$ | ('k) | 275.4 | 483.5 |
| DC2 | (k/') | 0.129 | 0.129 |
| $M_{DC2}$ | ('k) | 38.4 | 67.4 |
| DW | (k/') | 0.314 | 0.314 |
| $M_{DW}$ | ('k) | 93.5 | 164.1 |
| $M_{L+IM}$ | ('k) | 738.3 | 710.6 |
| $M_u$ (Strength I) | ('k) | 1824.5 | 2178.4 |
| $\phi_f M_n$ | ('k) | 3378.5 | 2211.8 |
| $f_s$ DC1 | (ksi) | 6.54 | 11.49 |
| $f_s$ DC2 | (ksi) | 0.70 | 1.42 |
| $f_s$ DW | (ksi) | 1.71 | 3.47 |
| $f_s$ (L+IM) | (ksi) | 12.04 | 15.01 |
| $f_s$ (Service II) | (ksi) | 24.60 | 35.89 |
| $0.95R_hF_{yf}$ | (ksi) | 47.5 | 47.5 |
| $f_s$ (Total)(Strength I) | (ksi) | - | 47.61 |
| $\phi_f F_n$ | (ksi) | - | 50.0 |
| $V_r$ | (k) | 15.7 | 25.2 |

$I_s$, $S_s$: 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 $in.^3$).

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.).

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

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

$\phi_f M_n$: Compact composite positive moment capacity computed according to Article 6.10.7.1 (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.

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

$f_s$ (Service II): Sum of stresses as computed below (ksi).
$f_{sDC1} + f_{sDC2} + f_{sDW} + 1.3\,f_s(L+IM)$

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

$f_s$ (Total)(Strength I): Sum of stresses as computed below (ksi)
$1.25\,(f_{sDC1} + f_{sDC2}) + 1.5\,f_{sDW} + 1.75\,f_{sL+IM}$

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

$V_r$: Maximum factored shear range in composite portion of span computed according to Article 6.10.10.

URS
345 EAST ASH AVENUE, SUITE B
DECATUR, ILLINOIS 62526
PH. 217-875-4800

| | | | | | |
|---|---|---|---|---|---|
| FILE NAME = | USER NAME = Brian K. Nicholson | DESIGNED - MJP | REVISED - --- | STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION | STRUCTURAL STEEL STRUCTURE NO. 058-6026 |
| | | CHECKED - KWB | REVISED - --- | | |
| | PLOT SCALE = | DRAWN - BKN | REVISED - --- | | SHEET NO. 11 OF 22 SHEETS |
| | PLOT DATE = | CHECKED - KWB | REVISED - --- | | |

| F.A.U. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| 7398 | 09-00905-00-BR | MACON | 63 | 41 |
| | | CONTRACT NO. 95687 | | |
| | ILLINOIS FED. AID PROJECT | | | |