

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

| | | | | | |
|-----------------------|-----------|-------------------|--------------|-----------|--------------|
| ROUTE NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. | SHEET NO. 17 |
| F.A.P. 308 | * | ROCK ISLAND | 210 | 164 | 28 SHEETS |
| FED. ROAD DIST. NO. / | TITLE/NO. | FED. AID PROJECT- | | | |

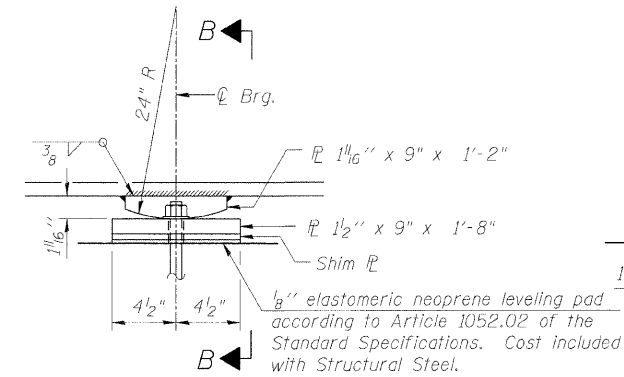
Contract #64814 * (1HB, HB-1, VB, HB-2)R

| | | 0.3 Sp. 1 or 0.7 Sp. 3 | Pier 1 or Pier 2 | 0.5 Span 2 |
|--------------------------|--------------------|------------------------|------------------|------------|
| I_s | (in ⁴) | 3100 | 3100 | 3100 |
| $I_c(n)$ | (in ⁴) | - | - | 8314 |
| $I_c(3n)$ | (in ⁴) | - | - | 6182 |
| S_s | (in ³) | 258 | 258 | 258 |
| $S_c(n)$ | (in ³) | - | - | 370 |
| $S_c(3n)$ | (in ³) | - | - | 336 |
| Z | (in ³) | 289 | 289 | - |
| ρ | (k/') | 1.18 | 1.18 | 0.77 |
| $M \rho$ | (k) | 11 | 277 | 154 |
| $s \rho$ | (k/') | - | - | 0.41 |
| $M_s \rho$ | (k) | - | - | 100 |
| M_L | (k) | 112 | 145 | 310 |
| M_{Imp} | (k) | 34 | 43 | 84 |
| $^{5/8} [M_L + M_{Imp}]$ | (k) | 243 | 313 | 657 |
| M_a | (k) | 330 | 767 | 1184 |
| M_u | (k) | 1204 | 1204 | 1762 |
| $f_s \rho$ (nc) | (ksi) | 0.5 | 12.9 | 7.2 |
| $f_s \rho$ (c) | (ksi) | - | - | 3.6 |
| f_s (Overload) | (ksi) | 11.8 | 27.4 | 32.1 |
| f_s (Total) | (ksi) | - | - | - |
| VR | (k) | 44.6 | - | 39.5 |

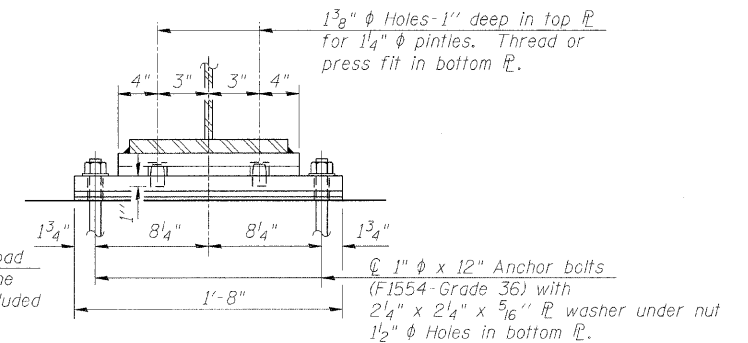
| | | S. Abut. | Pier 1 | Pier 2 | N. Abut. |
|-------------|-----|----------|--------|--------|----------|
| $R \rho$ | (k) | 6.9 | 61.7 | 61.7 | 6.9 |
| R_L | (k) | 29.0 | 41.3 | 41.3 | 29.0 |
| Imp. | (k) | 8.7 | 9.7 | 9.7 | 8.7 |
| R_{Total} | (k) | 44.6 | 112.7 | 112.7 | 44.6 |

- * Compact section
- ** Braced non-compact and partially braced section
- *** Values listed are for critical case interior beam

- 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 (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 and Overload) 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 and Overload) due to long-term composite (superimposed) dead loads (in⁴ and in³).
- Z: Plastic Section Modulus of the steel section in non-composite areas (in³).
- ρ : Un-factored non-composite dead load (kips/ft.).
- $M \rho$: Un-factored moment due to non-composite dead load (kip-ft.).
- $s \rho$: Un-factored long-term composite (superimposed) dead load (kips/ft.).
- $M_s \rho$: Un-factored moment due to long-term composite (superimposed) dead load (kip-ft.).
- M_L : Un-factored live load moment (kip-ft.).
- M_{Imp} : Un-factored moment due to impact (kip-ft.).
- M_a : Factored design moment (kip-ft.).
 $1.3 [M \rho + M_s \rho + \frac{5}{8} (M_L + M_{Imp})]$
- 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).
 $M \rho + M_s \rho + \frac{5}{8} (M_L + M_{Imp})$
- f_s (Total): Sum of stresses as computed from the moments below on non-compact section (ksi).
 $1.3 [M \rho + M_s \rho + \frac{5}{8} (M_L + M_{Imp})]$
- VR: Maximum $\frac{1}{2}$ + impact horizontal shear range within the composite portion of the span for stud shear connector design (kips).

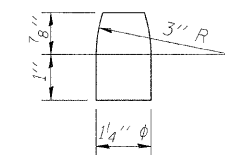


ELEVATION AT PIERS



SECTION B-B

FIXED BEARING
(26 Required)

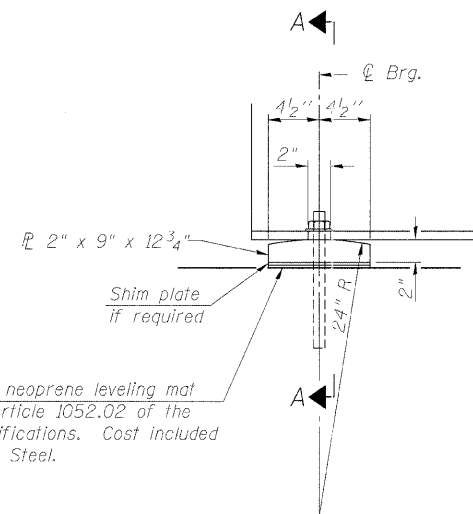


PINTLE

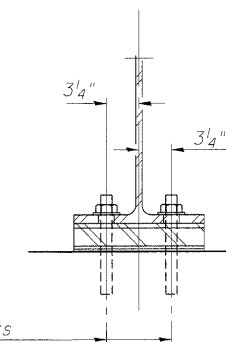
- Notes:
- Anchor bolts shall be ASTM F1554 all-thread (or an Engineer-approved alternate material) of the grade(s) and diameter(s) specified. ASTM A307 Grade C anchor bolts may be used in lieu of ASTM F1554 Grade 36 (Fy=36ksi). The corresponding specified grade of AASHTO M314 anchor bolts may be used in lieu of ASTM F1554.
 - Anchor bolts at fixed bearings may be either cast in place or installed in holes drilled after the supported member is in place.
 - Drilled and set anchor bolts shall be installed according to Article 521.06 of the Standard Specifications.

TOP OF BEAM ELEVATIONS
(For Fabrication only)

| BEAM | ☉ S. Abut. | ☉ Pier 1 | Splice 1 | Splice 2 | ☉ Pier 2 | ☉ N. Abut. |
|------|------------|----------|----------|----------|----------|------------|
| 1 | 579.29 | 579.37 | 579.40 | 579.46 | 579.46 | 579.45 |
| 2 | 579.41 | 579.50 | 579.52 | 579.58 | 579.58 | 579.57 |
| 3 | 579.54 | 579.62 | 579.64 | 579.70 | 579.70 | 579.69 |
| 4 | 579.66 | 579.75 | 579.77 | 579.82 | 579.82 | 579.81 |
| 5 | 579.79 | 579.87 | 579.89 | 579.94 | 579.94 | 579.93 |
| 6 | 579.92 | 579.99 | 580.01 | 580.06 | 580.06 | 580.05 |
| 7 | 580.04 | 580.12 | 580.14 | 580.19 | 580.18 | 580.17 |
| 8 | 580.17 | 580.24 | 580.26 | 580.31 | 580.30 | 580.29 |
| 9 | 580.29 | 580.36 | 580.38 | 580.43 | 580.42 | 580.41 |
| 10 | 580.42 | 580.49 | 580.51 | 580.55 | 580.54 | 580.53 |
| 11 | 580.54 | 580.61 | 580.63 | 580.67 | 580.67 | 580.65 |
| 12 | 580.67 | 580.74 | 580.75 | 580.79 | 580.79 | 580.77 |
| 13 | 580.79 | 580.86 | 580.88 | 580.91 | 580.91 | 580.89 |



INTEGRAL ABUTMENT BEARINGS
(26 Required)



SECTION A-A

BILL OF MATERIAL

| Item | Unit | Total |
|------------------|------|-------|
| Anchor Bolts, 1" | Each | 104 |

NOTES

- For framing plan and beam elevation see Sheet No. 15
- All steel for the bearings, except for anchor bolts or as noted otherwise, shall conform to the requirements of AASHTO M270 Grade 36.
- Two $\frac{1}{2}$ in. adjusting shims shall be provided for each bearing in addition to all other plates or shims and placed as shown on bearing details.

STEEL DETAILS 2
IL ROUTE 92 (CENTENNIAL EXPRESSWAY)
OVER 18th AVENUE
FAP ROUTE 308 SEC. 1(HB-1)R
ROCK ISLAND COUNTY
STATION 1517+79.41
STRUCTURE NO. 081-0171

| | |
|----------|-----|
| DESIGNED | JSD |
| CHECKED | AMK |
| DRAWN | OS |
| CHECKED | AMK |

LOCHNER
H.W. LOCHNER, INC., CHICAGO, ILLINOIS