

NOTE: CONCRETE DECK SLAB SHALL BE PLACED IN SECTIONS AND SEQUENCES INDICATED. ALTERNATE PROCEDURES FOR PLACING SLAB CONCRETE MAY BE SUBMITTED FOR APPROVAL TOGETHER WITH A STATEMENT OF THE PROPOSED METHOD AND EVIDENCE THAT THE CONTRACTOR POSSESSES THE NECESSARY EQUIPMENT AND FACILITIES TO ACCOMPLISH THE REQUIRED RESULTS.

| ESTIMATED QUANTITIES<br>(SUPERSTRUCTURE PLUS INTEGRAL ABUTMENTS) |                                     | £-£ ABUT. BRG. | 138'-10 | 151'-4 | 163'-10 | 176'-4 | 188'-10 | 201'-4 | 213'-10 | 226'-4  | 243'-0  |
|------------------------------------------------------------------|-------------------------------------|----------------|---------|--------|---------|--------|---------|--------|---------|---------|---------|
| STRUCTURAL CONCRETE SUPERSTRUCTURE<br>(INCLUDES ABUTMENT WINGS)  | WITH BARRIER RAIL<br>WITH OPEN RAIL | C.Y.           | 238.3   | 253.3  | 278.9   | 294.1  | 309.7   | 338.2  | 353.4   | 369.3   | 390.1   |
| STRUCTURAL CONCRETE ABUTMENTS (w/ WOOD PILES) ***                |                                     | C.Y.           | 38.3    | 38.1   | 38.0    | 38.0   | 37.9    | -----  | -----   | -----   | -----   |
| STRUCTURAL CONCRETE ABUTMENTS (w/ STEEL H PILES) ***             |                                     | C.Y.           | 40.0    | 40.0   | 40.0    | 40.0   | 40.0    | 47.8   | 47.8    | 47.8    | 47.8    |
| PRETENSIONED PRESTRESSED CONCRETE BEAM, CENTER SPAN              |                                     | NO.            | 7-450   | 7-A55  | 7-B59   | 7-B63  | 7-B67   | 7-C71  | 7-C75   | 7-C80   | 7-C80   |
| PRETENSIONED PRESTRESSED CONCRETE BEAM, END SPAN                 |                                     | NO.            | 14-A42  | 14-A46 | 14-B50  | 14-B55 | 14-B59  | 14-C63 | 14-C67  | 14-C71  | 14-C71  |
| CONCRETE RAIL (BARRIER OR OPEN)                                  |                                     | L.F.           | 311.9   | 336.9  | 361.9   | 386.9  | 411.9   | 456.7  | 481.7   | 506.7   | 540.0   |
| STRUCTURAL STEEL (w/ PILE BENT PIERS & DRAINS)                   |                                     | L.B.           | 5577    | 5577   | 5665    | 5665   | 5665    | 5630   | 5630    | 5630    | 5630    |
| STRUCTURAL STEEL (w/ PILE BENT PIERS & NO DRAINS)                |                                     | L.B.           | 5009    | 5009   | 5009    | 5009   | 5009    | 4894   | 4894    | 4894    | 4894    |
| STRUCTURAL STEEL (w/ TEE PIERS & DRAINS)                         |                                     | L.B.           | 6831    | 6831   | 6919    | 6919   | 6919    | 7111   | 7111    | 7111    | 7111    |
| STRUCTURAL STEEL (w/ TEE PIERS & NO DRAINS)                      |                                     | L.B.           | 6263    | 6263   | 6263    | 6263   | 6263    | 6375   | 6375    | 6375    | 6375    |
| EPOXY COATED REINF. STEEL (w/ WOOD PILES & BARRIER RAIL)         |                                     | L.B.           | 66,715  | 71,451 | 76,291  | 81,500 | 86,201  | -----  | -----   | -----   | -----   |
| EPOXY COATED REINF. STEEL (w/ WOOD PILES & OPEN RAIL)            |                                     | L.B.           | 67,380  | 72,072 | 77,059  | 82,444 | 87,001  | -----  | -----   | -----   | -----   |
| EPOXY COATED REINF. (w/ STEEL H PILES & BARRIER RAIL)            |                                     | L.B.           | 66,900  | 71,529 | 76,260  | 81,446 | 85,966  | 93,737 | 99,278  | 103,804 | 109,713 |
| EPOXY COATED REINF. (w/ STEEL H PILES & OPEN RAIL)               |                                     | L.B.           | 67,565  | 72,150 | 77,028  | 82,390 | 86,840  | 95,581 | 101,031 | 105,754 | 111,709 |
| NO. OF WOOD PILES, TREATED FOR TWO ABUTMENTS                     |                                     | NO.            | 30      | 32     | 34      | 34     | 36      | -----  | -----   | -----   | -----   |
| NO. OF STEEL H-PILES FOR TWO ABUTMENTS (HP 10 x 57)              |                                     | NO.            | 14      | 14     | 14      | 16     | 16      | 20     | 22      | 22      | 22      |
| PREBORED HOLES (W/WOOD PILES)                                    |                                     | L.F.           | 300     | 320    | 340     | 340    | 360     | -----  | -----   | -----   | -----   |
| PREBORED HOLES (W/STEEL H-PILES)                                 |                                     | L.F.           | 140     | 140    | 140     | 160    | 160     | 200    | 220     | 220     | 220     |

| CONCRETE PLACEMENT QUANT.<br>(SUPERSTRUCTURE PLUS INTEGRAL ABUTMENTS)  |                   | Σ-Σ ABUT. BRG. | 138'-10 | 151'-4 | 163'-10 | 176'-4 | 188'-10 | 201'-4 | 213'-10 | 226'-4 | 243'-0 |
|------------------------------------------------------------------------|-------------------|----------------|---------|--------|---------|--------|---------|--------|---------|--------|--------|
| SLAB INCLUDING HAUNCH, ABUT. DIAPHRAGM, & WINGWALLS***, SECTIONS 1 & 3 | WITH BARRIER RAIL | C.Y.           | 130.2   | 138.8  | 153.6   | 162.4  | 171.2   | 189.8  | 198.8   | 208.2  | 229.0  |
|                                                                        | WITH OPEN RAIL    | C.Y.           | 131.5   | 140.2  | 155.2   | 164.1  | 173.1   | 191.7  | 200.8   | 210.4  | 231.4  |
| SLAB INCLUDING HAUNCH, SECTION 2                                       | WITH BARRIER RAIL | C.Y.           | 47.3    | 51.1   | 54.9    | 58.7   | 62.3    | 66.4   | 70.2    | 74.1   | 74.1   |
|                                                                        | WITH OPEN RAIL    | C.Y.           | 48.0    | 51.9   | 55.7    | 59.6   | 63.3    | 67.4   | 71.2    | 75.2   | 75.2   |
| SLAB INCLUDING HAUNCH & PIER DIAPHRAGM, SECTIONS 4 & 5                 | WITH BARRIER RAIL | C.Y.           | 53.6    | 56.2   | 62.8    | 65.4   | 68.6    | 73.6   | 76.0    | 78.6   | 78.6   |
|                                                                        | WITH OPEN RAIL    | C.Y.           | 54.1    | 56.7   | 63.4    | 66.0   | 69.2    | 74.2   | 76.7    | 79.3   | 79.3   |
| ABUTMENT WINGS                                                         |                   | C.Y.           | 7.2     | 7.2    | 7.6     | 7.6    | 7.6     | 8.4    | 8.4     | 8.4    | 8.4    |
| ABUTMENT FOOTINGS (w/ WOOD PILES) ***                                  |                   | C.Y.           | 38.3    | 38.1   | 38.0    | 38.0   | 37.9    | -----  | -----   | -----  | -----  |
| ABUTMENT FOOTINGS (w/ STEEL H PILES) ***                               |                   | C.Y.           | 40.0    | 40.0   | 40.0    | 40.0   | 40.0    | 47.8   | 47.8    | 47.8   | 47.8   |

| GENERAL DATA                                        |                                                     |  | උ-උ | ABUT. BRG. | 138'-10               | 151'-4               | 163'-10               | 176'-4               | 188'-10               | 201'-4               | 213'-10               | 226'-4               | 243'-0               |
|-----------------------------------------------------|-----------------------------------------------------|--|-----|------------|-----------------------|----------------------|-----------------------|----------------------|-----------------------|----------------------|-----------------------|----------------------|----------------------|
| VERTICAL CURVE                                      | TOP OF SLAB TO ABUT. CONSTR. JT. AT C.L. ABUT. BRG. |  |     | "U"        | 3'-8 $\frac{1}{2}$    | 3'-7 $\frac{1}{2}$   | 4'-2 $\frac{1}{2}$    | 4'-2 $\frac{1}{2}$   | 4'-2 $\frac{1}{2}$    | 4'-8 $\frac{1}{2}$   | 4'-8 $\frac{1}{2}$    | 4'-9 $\frac{1}{2}$   | 4'-9 $\frac{1}{2}$   |
|                                                     | TOP OF SLAB TO PIER TOP AT C.L. PIER*               |  |     | "U"        | 3'-6 $\frac{1}{2}$    | 3'-6 $\frac{1}{2}$   | 4'-1 $\frac{1}{2}$    | 4'-1 $\frac{1}{2}$   | 4'-1 $\frac{1}{2}$    | 4'-7 $\frac{1}{2}$   | 4'-7 $\frac{1}{2}$    | 4'-7 $\frac{1}{2}$   | 4'-7 $\frac{1}{2}$   |
| STRAIGHT GRADE                                      | TOP OF SLAB TO ABUT. CONSTR. JT. AT C.L. ABUT. BRG. |  |     | "U"        | 3'-8 $\frac{1}{2}$    | 3'-7 $\frac{1}{2}$   | 4'-2 $\frac{1}{2}$    | 4'-2 $\frac{1}{2}$   | 4'-3 $\frac{1}{2}$    | 4'-8 $\frac{1}{2}$   | 4'-8 $\frac{1}{2}$    | 4'-9 $\frac{1}{2}$   | 4'-10                |
|                                                     | TOP OF SLAB TO PIER TOP AT C.L. PIER*               |  |     | "U"        | 3'-6 $\frac{1}{2}$    | 3'-6 $\frac{1}{2}$   | 4'-1 $\frac{1}{2}$    | 4'-1 $\frac{1}{2}$   | 4'-2 $\frac{1}{2}$    | 4'-7 $\frac{1}{2}$   | 4'-7 $\frac{1}{2}$    | 4'-8 $\frac{1}{2}$   | 4'-10 $\frac{1}{2}$  |
| D.L. PIER REACTION (D.L. + F.W.S.)                  |                                                     |  |     | KIPS       | 481.4                 | 519.5                | 594.8                 | 635.1                | 675.5                 | 812.5                | 858.0                 | 903.9                | 948.7                |
| L.L. PIER REACTION (HL93) NO IMPACT                 |                                                     |  |     | KIPS       | 264.7                 | 274.5                | 283.9                 | 293.1                | 302.2                 | 311.0                | 322.9                 | 341.9                | 362.6                |
| NO. OF SPACES FOR 6 <i>a</i> i BARS (TOP)           |                                                     |  |     | "E"        | 155                   | 170                  | 185                   | 200                  | 215                   | 230                  | 245                   | 260                  | 280                  |
| NO. OF SPACES FOR 6 <i>a</i> i BARS (BOTTOM)        |                                                     |  |     | "H"        | 154                   | 169                  | 184                   | 199                  | 214                   | 229                  | 244                   | 259                  | 279                  |
| NO. OF SPACES FOR 5 <i>j</i> i BARS (TOP)           |                                                     |  |     | "J"        | 167                   | 182                  | 197                   | 212                  | 227                   | 242                  | 257                   | 272                  | 292                  |
| OUT TO OUT OF SLAB                                  |                                                     |  |     | "S"        | 141'-11 $\frac{1}{2}$ | 154'-5 $\frac{1}{2}$ | 166'-11 $\frac{1}{2}$ | 179'-5 $\frac{1}{2}$ | 191'-11 $\frac{1}{2}$ | 204'-5 $\frac{1}{2}$ | 216'-11 $\frac{1}{2}$ | 229'-5 $\frac{1}{2}$ | 246'-1 $\frac{1}{2}$ |
| SLAB TRANSVERSE CONSTR. JT. DISTANCE FROM C.L. PIER |                                                     |  |     | "X"        | 6'-7                  | 7'-1                 | 7'-7                  | 8'-1                 | 8'-8                  | 9'-2                 | 9'-8                  | 10'-2                | 10'-2                |

\* VALUES SHOWN ARE FOR FIXED PIERS ONLY AND ALLOW FOR  $\frac{1}{16}$  INCH DEFLECTION OF THE 1 INCH NEOPRENE BEARING PAD. AT EXPANSION PIER LOCATIONS ADD  $3\frac{1}{16}$  INCHES TO "U" VALUES SHOWN.

\*\* WINGWALLS APPLY ONLY TO BRIDGES USING "C" BEAMS.

\*\*\* SEE SHEET H44-17-07 FOR ADDITIONAL CONCRETE  
REQUIRED IN ABUTMENT FOOTINGS.

|                                                         |                                                                                                                                             |           |
|---------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| 07-10<br>LATEST REVISION DATE                           |  Iowa Department of Transportation<br>Highway Division |           |
|                                                         | STANDARD DESIGN - 44' ROADWAY, THREE SPAN BRIDGE<br>PRETENSIONED PRESTRESSED<br>CONCRETE BEAM BRIDGES<br>MARCH, 2007                        |           |
| APPROVED BY BRIDGE ENGINEER<br><i>Norman E. McQuinn</i> | SUPERSTRUCTURE DETAILS<br>15° SKEW                                                                                                          | H44-15-07 |