

REVISED 09-14 - CHANGED REFERENCE TO THE BARRIER RAIL & OPEN RAIL TO THE J40-14 STANDARDS INSTEAD OF J40-06 STANDARDS.

### BILL OF REINFORCING STEEL FOR SUPERSTRUCTURE - 110' BRIDGE

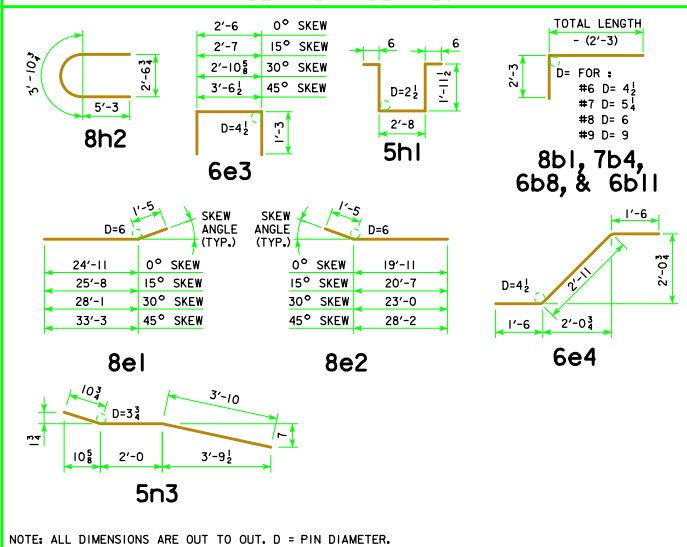
| LOCATION  | SKEW | SHAPE | 0°      |        |        |        | 15°     |        |        |     | 30°     |        |        |        | 45°     |        |        |      |
|---|------|-------|---------|--------|--------|--------|---------|--------|--------|-----|---------|--------|--------|--------|---------|--------|--------|------|
|   |      |       | BAR NO. | LENGTH | WEIGHT |        | BAR NO. | LENGTH | WEIGHT |     | BAR NO. | LENGTH | WEIGHT |        | BAR NO. | LENGTH | WEIGHT |      |
| SLAB LONGITUDINAL BOTTOM                        |      |       | 801     | 53     | 24'-3  | 3432   | 53      | 24'-3  | 3432   | 53  | 24'-3   | 3432   | 53     | 24'-3  | 3432    | 53     | 24'-3  | 3432 |
| SLAB LONGITUDINAL BOTTOM                        |      |       | 902     | 53     | 38'-3  | 6893   | 53      | 38'-3  | 6893   | 53  | 38'-3   | 6893   | 53     | 38'-3  | 6893    | 53     | 38'-3  | 6893 |
| SLAB LONGITUDINAL BOTTOM                        |      |       | 803     | 53     | 34'-3  | 4847   | 53      | 34'-3  | 4847   | 53  | 34'-3   | 4847   | 53     | 34'-3  | 4847    | 53     | 34'-3  | 4847 |
| SLAB LONGITUDINAL BOTTOM                        |      |       | 904     | 52     | 31'-9  | 5614   | 52      | 31'-9  | 5614   | 52  | 31'-9   | 5614   | 52     | 31'-9  | 5614    | 52     | 31'-9  | 5614 |
| SLAB LONGITUDINAL BOTTOM                        |      |       | 805     | 26     | 41'-0  | 2847   | 26      | 41'-0  | 2847   | 26  | 41'-0   | 2847   | 26     | 41'-0  | 2847    | 26     | 41'-0  | 2847 |
| SLAB LONGITUDINAL BOTTOM, AT RAIL               |      |       | 906     | 8      | 39'-3  | 1068   | 8       | 39'-3  | 1068   | 8   | 39'-3   | 1068   | 8      | 39'-3  | 1068    | 8      | 39'-3  | 1068 |
| SLAB LONGITUDINAL BOTTOM, AT RAIL               |      |       | 907     | 4      | 42'-8  | 581    | 4       | 42'-8  | 581    | 4   | 42'-8   | 581    | 4      | 42'-8  | 581     | 4      | 42'-8  | 581  |
| SLAB LONGITUDINAL BOTTOM, AT RAIL               |      |       | 808     | 8      | 23'-9  | 508    | 8       | 23'-9  | 508    | 8   | 23'-9   | 508    | 8      | 23'-9  | 508     | 8      | 23'-9  | 508  |
| SLAB LONGITUDINAL BOTTOM, AT RAIL               |      |       | 809     | 4      | 24'-0  | 257    | 4       | 24'-0  | 257    | 4   | 24'-0   | 257    | 4      | 24'-0  | 257     | 4      | 24'-0  | 257  |
| SLAB LONGITUDINAL TOP                           |      |       | 801     | 53     | 13'-0  | 1840   | 53      | 13'-0  | 1840   | 53  | 13'-0   | 1840   | 53     | 13'-0  | 1840    | 53     | 13'-0  | 1840 |
| SLAB LONGITUDINAL TOP                           |      |       | 10b2    | 53     | 28'-4  | 6462   | 53      | 28'-4  | 6462   | 53  | 28'-4   | 6462   | 53     | 28'-4  | 6462    | 53     | 28'-4  | 6462 |
| SLAB LONGITUDINAL TOP                           |      |       | 10b3    | 53     | 25'-7  | 5835   | 53      | 25'-7  | 5835   | 53  | 25'-7   | 5835   | 53     | 25'-7  | 5835    | 53     | 25'-7  | 5835 |
| SLAB LONGITUDINAL TOP                           |      |       | 7b4     | 53     | 21'-5  | 2321   | 53      | 21'-5  | 2321   | 53  | 21'-5   | 2321   | 53     | 21'-5  | 2321    | 53     | 21'-5  | 2321 |
| SLAB LONGITUDINAL TOP                           |      |       | 10b5    | 52     | 26'-6  | 5930   | 52      | 26'-6  | 5930   | 52  | 26'-6   | 5930   | 52     | 26'-6  | 5930    | 52     | 26'-6  | 5930 |
| SLAB LONGITUDINAL TOP                           |      |       | 6b6     | 26     | 27'-4  | 1068   | 26      | 27'-4  | 1068   | 26  | 27'-4   | 1068   | 26     | 27'-4  | 1068    | 26     | 27'-4  | 1068 |
| SLAB LONGITUDINAL TOP, AT RAIL                  |      |       | 6b8     | 8      | 26'-9  | 322    | 8       | 26'-9  | 322    | 8   | 26'-9   | 322    | 8      | 26'-9  | 322     | 8      | 26'-9  | 322  |
| SLAB LONGITUDINAL TOP, AT RAIL                  |      |       | 10b9    | 8      | 27'-3  | 939    | 8       | 27'-3  | 939    | 8   | 27'-3   | 939    | 8      | 27'-3  | 939     | 8      | 27'-3  | 939  |
| SLAB LONGITUDINAL TOP, AT RAIL                  |      |       | 6b10    | 4      | 21'-0  | 127    | 4       | 21'-0  | 127    | 4   | 21'-0   | 127    | 4      | 21'-0  | 127     | 4      | 21'-0  | 127  |
| SLAB LONGITUDINAL TOP, AT RAIL                  |      |       | 6b11    | 8      | 30'-3  | 364    | 8       | 30'-3  | 364    | 8   | 30'-3   | 364    | 8      | 30'-3  | 364     | 8      | 30'-3  | 364  |
| SLAB LONGITUDINAL TOP, AT RAIL                  |      |       | 10b12   | 8      | 19'-6  | 672    | 8       | 19'-6  | 672    | 8   | 19'-6   | 672    | 8      | 19'-6  | 672     | 8      | 19'-6  | 672  |
| SLAB TRANSVERSE BOTTOM                          |      |       | 6c1     | 107    | 23'-5  | 3764   | 107     | 24'-3  | 3898   | 98  | 23'-5   | 3447   | 88     | 23'-5  | 3096    |        |        |      |
| SLAB TRANSVERSE BOTTOM                          |      |       | 6c2     | 107    | 21'-3  | 3416   | 107     | 22'-0  | 3536   | 99  | 21'-3   | 3160   | 91     | 21'-3  | 2905    |        |        |      |
| SLAB TRANSVERSE ENDS, BOTTOM                    |      |       | 6c3     | -      | -      | -      | -       | -      | -      | 12  | VARIES  | 223    | 20     | VARIES | 411     |        |        |      |
| SLAB TRANSVERSE ENDS, BOTTOM                    |      |       | 6c4     | -      | -      | -      | -       | -      | -      | 11  | VARIES  | 219    | 20     | VARIES | 386     |        |        |      |
| SLAB TRANSVERSE ENDS, BOTTOM                    |      |       | 6c5     | -      | -      | -      | -       | -      | -      | 11  | VARIES  | 176    | 18     | VARIES | 302     |        |        |      |
| SLAB TRANSVERSE ENDS, BOTTOM                    |      |       | 6c6     | -      | -      | -      | -       | -      | -      | 11  | VARIES  | 190    | 17     | VARIES | 311     |        |        |      |
| SLAB TRANSVERSE TOP                             |      |       | 5d1     | 107    | 23'-9  | 2651   | 107     | 24'-7  | 2744   | 98  | 23'-9   | 2428   | 88     | 23'-9  | 2180    |        |        |      |
| SLAB TRANSVERSE TOP                             |      |       | 5d2     | 107    | 21'-3  | 2372   | 107     | 22'-0  | 2456   | 99  | 21'-3   | 2195   | 91     | 21'-3  | 2017    |        |        |      |
| SLAB TRANSVERSE ENDS, TOP                       |      |       | 5d3     | -      | -      | -      | -       | -      | -      | 12  | VARIES  | 155    | 20     | VARIES | 286     |        |        |      |
| SLAB TRANSVERSE ENDS, TOP                       |      |       | 5d4     | -      | -      | -      | -       | -      | -      | 11  | VARIES  | 152    | 20     | VARIES | 268     |        |        |      |
| SLAB TRANSVERSE ENDS, TOP                       |      |       | 5d5     | -      | -      | -      | -       | -      | -      | 11  | VARIES  | 122    | 18     | VARIES | 210     |        |        |      |
| SLAB TRANSVERSE ENDS, TOP                       |      |       | 5d6     | -      | -      | -      | -       | -      | -      | 11  | VARIES  | 132    | 17     | VARIES | 216     |        |        |      |
| SLAB TRANSVERSE AT ABUTMENT                     |      |       | 8e1     | 18     | 26'-4  | 1266   | 18      | 27'-1  | 1302   | 18  | 29'-6   | 1418   | 18     | 34'-8  | 1667    |        |        |      |
| SLAB TRANSVERSE AT ABUTMENT                     |      |       | 8e2     | 18     | 21'-4  | 1026   | 18      | 22'-0  | 1058   | 18  | 24'-5   | 1174   | 18     | 29'-7  | 1422    |        |        |      |
| SLAB, HAIRPINS, AT ABUTMENT                     |      |       | 6e3     | 92     | 5'-0   | 691    | 92      | 5'-1   | 703    | 92  | 5'-5    | 749    | 92     | 6'-1   | 841     |        |        |      |
| SLAB, DIAGONALS, AT ABUTMENT                    |      |       | 6e4     | 92     | 5'-11  | 818    | 92      | 5'-11  | 818    | 92  | 5'-11   | 818    | 92     | 5'-11  | 818     |        |        |      |
| PIER CAP HOOPS                                  |      |       | 5h1     | 66     | 7'-7   | 523    | 66      | 7'-7   | 523    | 88  | 7'-7    | 697    | 88     | 7'-7   | 697     |        |        |      |
| PIER CAP ENDS                                   |      |       | 8h2     | 4      | 14'-5  | 154    | 4       | 14'-5  | 154    | 4   | 14'-5   | 154    | 4      | 14'-5  | 154     |        |        |      |
| PIER CAP, BOTTOM LONGITUDINAL                   |      |       | 8h3     | 8      | 25'-5  | 543    | 8       | 26'-7  | 568    | 8   | 29'-4   | 627    | 8      | 35'-0  | 748     |        |        |      |
| PIER CAP, BOTTOM LONGITUDINAL                   |      |       | 8h4     | 8      | 19'-11 | 426    | 8       | 20'-3  | 433    | 8   | 22'-2   | 474    | 8      | 26'-10 | 574     |        |        |      |
| PIER CAP, TOP LONGITUDINAL                      |      |       | 8h5     | 4      | 26'-2  | 280    | 4       | 27'-5  | 293    | 4   | 30'-4   | 324    | 4      | 36'-1  | 386     |        |        |      |
| PIER CAP, TOP LONGITUDINAL                      |      |       | 8h6     | 4      | 21'-5  | 229    | 4       | 21'-10 | 234    | 4   | 23'-11  | 256    | 4      | 28'-8  | 307     |        |        |      |
| TOP OF SLAB, TRANSVERSE, AT RAIL                |      |       | 5j1     | 212    | 8'-6   | 1880   | 212     | 8'-6   | 1880   | 202 | 8'-6    | 1791   | 196    | 8'-6   | 1738    |        |        |      |
| WING, VERTICAL                                  |      |       | 5m1     | 40     | 4'-5   | 185    | 40      | 4'-5   | 185    | 40  | 4'-5    | 185    | 40     | 4'-5   | 185     |        |        |      |
| WING, HORIZONTAL BACK FACE                      |      |       | 5n1     | 24     | 6'-8   | 167    | 24      | 6'-8   | 167    | 24  | 6'-8    | 167    | 24     | 6'-8   | 167     |        |        |      |
| WING, HORIZONTAL TRAFFIC FACE                   |      |       | 5n3     | 24     | 6'-9   | 169    | 24      | 6'-9   | 169    | 24  | 6'-9    | 169    | 24     | 6'-9   | 169     |        |        |      |
| SUB EPOXY COATED TOTAL - LBS.                   |      |       |         |        |        | 72,487 |         |        | 73,048 |     |         | 73,529 |        |        | 74,388  |        |        |      |
| BARRIER RAIL - SEE LIST ON RAIL SHEET J40-46-14 |      |       |         |        |        | 4504   |         |        | 4504   |     |         | 4504   |        |        | 4504    |        |        |      |
| OPEN RAIL - SEE LIST ON RAIL SHEET J40-49-14    |      |       |         |        |        | 4770   |         |        | 4770   |     |         | 4770   |        |        | 4770    |        |        |      |
| EPOXY COATED RAIL TOTAL - LBS.                  |      |       |         |        |        | 76,991 |         |        | 77,552 |     |         | 78,033 |        |        | 78,892  |        |        |      |
| WITH MONOLITHIC PIER CAP                        |      |       |         |        |        | 77,257 |         |        | 77,818 |     |         | 78,299 |        |        | 79,158  |        |        |      |
| EPOXY COATED RAIL TOTAL - LBS.                  |      |       |         |        |        | 74,836 |         |        | 75,347 |     |         | 75,501 |        |        | 76,026  |        |        |      |
| WITH MONOLITHIC PIER CAP                        |      |       |         |        |        | 75,102 |         |        | 75,613 |     |         | 75,767 |        |        | 76,292  |        |        |      |
| SAME AS ABOVE EXCEPT ALL "h" BARS DELETED       |      |       |         |        |        |        |         |        |        |     |         |        |        |        |         |        |        |      |
| STAINLESS STEEL RAIL TOTAL - LBS.               |      |       |         |        |        | 2458   |         |        | 2458   |     |         | 2458   |        |        | 2458    |        |        |      |
| WITH BARRIER RAIL                               |      |       |         |        |        | 2491   |         |        | 2491   |     |         | 2491   |        |        | 2491    |        |        |      |
| WITH OPEN RAIL                                  |      |       |         |        |        |        |         |        |        |     |         |        |        |        |         |        |        |      |

### ESTIMATED QUANTITIES FOR SUPERSTRUCTURE - 110' BRIDGE

| ITEM                          | SKEW     | WITH MONOLITHIC PIER CAP |        |        |        | WITH NON-MONOLITHIC PIER CAP |        |        |        |  |  |  |  |  |  |  |  |  |
|-------------------------------|----------|--------------------------|--------|--------|--------|------------------------------|--------|--------|--------|--|--|--|--|--|--|--|--|--|
|                               |          | 0°                       | 15°    | 30°    | 45°    | 0°                           | 15°    | 30°    | 45°    |  |  |  |  |  |  |  |  |  |
| WITH BARRIER RAIL             |          |                          |        |        |        |                              |        |        |        |  |  |  |  |  |  |  |  |  |
| *STRUCTURAL CONCRETE (BRIDGE) | C.Y.     | 302.5                    | 303.5  | 306.8  | 314.0  | 296.4                        | 297.2  | 299.9  | 305.6  |  |  |  |  |  |  |  |  |  |
| REINF. STEEL EPOXY COATED     | LBS.     | 76,991                   | 77,552 | 78,033 | 78,892 | 74,836                       | 75,347 | 75,501 | 76,026 |  |  |  |  |  |  |  |  |  |
| REINF. STEEL STAINLESS STEEL  | LBS.     | 2458                     | 2458   | 2458   | 2458   | 2458                         | 2458   | 2458   | 2458   |  |  |  |  |  |  |  |  |  |
| CONCRETE BARRIER OR OPEN RAIL | LIN. FT. | 242.0                    | 242.2  | 242.9  | 244.5  | 242.0                        | 242.2  | 242.9  | 244.5  |  |  |  |  |  |  |  |  |  |
| WITH OPEN RAIL                |          |                          |        |        |        |                              |        |        |        |  |  |  |  |  |  |  |  |  |
| *STRUCTURAL CONCRETE (BRIDGE) | C.Y.     | 302.3                    | 303.2  | 306.6  | 313.8  | 296.2                        | 297.0  | 299.7  | 305.4  |  |  |  |  |  |  |  |  |  |
| REINF. STEEL EPOXY COATED     | LBS.     | 77,257                   | 77,818 | 78,299 | 79,158 | 75,102                       | 75,613 | 75,767 | 76,292 |  |  |  |  |  |  |  |  |  |
| REINF. STEEL STAINLESS STEEL  | LBS.     | 2491                     | 2491   | 2491   | 2491   | 2491                         | 2491   | 2491   | 2491   |  |  |  |  |  |  |  |  |  |

\* INCLUDES 4 WINGS @ 0.68 C.Y. EACH; EXCLUDES RAIL CONCRETE.

### BENT BAR DETAILS



#### NOTES:

ALL BARRIER RAIL REINFORCING STEEL IS TO BE EITHER EPOXY COATED OR STAINLESS STEEL AS SHOWN OR NOTED. THE STAINLESS STEEL REINFORCING STEEL SHALL BE DEFORMED BAR GRADE 60 MEETING THE REQUIREMENTS OF MATERIALS I.M.452.

ALL OTHER REINFORCING STEEL IS TO BE EPOXY COATED.

THE TRANSVERSE REBARS ARE DETAILED WITH A SPLICE LAP. AT THE CONTRACTOR'S OPTION, THIS LAP MAY BE ELIMINATED BY FURNISHING FULL LENGTH BARS WITH NO REDUCTION IN PAY WEIGHT FOR SAME.

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| 09-14<br>LATEST REVISION DATE<br><br><i>Thomas E. McQuillan</i><br>APPROVED BY BRIDGE ENGINEER |  |
|  | STANDARD DESIGN - 40' ROADWAY, 3 SPAN BRIDGES<br><b>CONTINUOUS CONCRETE SLAB BRIDGES</b><br>JULY, 2014 |
|  | <b>SUPERSTRUCTURE DETAILS</b><br><b>110'-0 BRIDGE</b>  |

J40-11-14