



SECTION OF BARREL

END ELEVATION

REINFORCEMENT FOR 24' CULVERT

| OPENING      |                  | BARREL REINFORCEMENT ALL # 6 BARS |        |        |        |        |        |        |        |        |        | WING AND CURB REINFORCEMENT ALL # 6 BARS |        |        |         |        |        |        |        |        |        |
|--------------|------------------|-----------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|------------------------------------------|--------|--------|---------|--------|--------|--------|--------|--------|--------|
| Clear Height | Total Clear Span | Bars a                            |        | Bars b |        | Bars c |        | Bars d |        | Bars e |        | Bars f                                   |        | Bars g |         | Bars h |        | Bars i |        | Bars j |        |
|              |                  | No.                               | Length | No.    | Length | No.    | Length | No.    | Length | No.    | Length | No.                                      | Length | No.    | Length  | No.    | Length | No.    | Length | No.    | Length |
| 3            | 6                | 10                                | 8'-3"  | 9      | 7'-0"  | 78     | 3'-9"  | 12     | 25'-9" | 31'-3" | 3'-6"  | 34'-9"                                   | 2      | 2      | 34'-10" | 6      | 25'-9" | 2      | 11'-3" | 24     | 1'-3"  |
|              | 9                | 10                                | 11'-9" | 9      | 14'-0" | 104    | 3'-9"  | 18     | 25'-9" | 31'-3" | 3'-6"  | 34'-9"                                   | 2      | 2      | 34'-10" | 6      | 25'-9" | 2      | 11'-3" | 24     | 1'-3"  |
|              | 12               | 10                                | 15'-3" | 9      | 17'-0" | 130    | 3'-9"  | 24     | 25'-9" | 31'-3" | 3'-6"  | 34'-9"                                   | 2      | 2      | 34'-10" | 6      | 25'-9" | 2      | 11'-3" | 24     | 1'-3"  |
|              | 15               | 10                                | 18'-9" | 9      | 20'-0" | 156    | 3'-9"  | 30     | 25'-9" | 31'-3" | 3'-6"  | 34'-9"                                   | 2      | 2      | 34'-10" | 6      | 25'-9" | 2      | 11'-3" | 24     | 1'-3"  |
|              | 18               | 10                                | 22'-3" | 9      | 23'-0" | 182    | 3'-9"  | 36     | 25'-9" | 31'-3" | 3'-6"  | 34'-9"                                   | 2      | 2      | 34'-10" | 6      | 25'-9" | 2      | 11'-3" | 24     | 1'-3"  |
| 4            | 6                | 10                                | 10'-4" | 9      | 7'-0"  | 78     | 4'-9"  | 16     | 25'-9" | 31'-3" | 3'-6"  | 34'-9"                                   | 2      | 2      | 37'-0"  | 4      | 25'-9" | 2      | 10'-3" | 22     | 1'-3"  |
|              | 9                | 10                                | 13'-8" | 9      | 10'-0" | 104    | 4'-9"  | 24     | 25'-9" | 31'-3" | 3'-6"  | 34'-9"                                   | 2      | 2      | 37'-0"  | 4      | 25'-9" | 2      | 10'-3" | 22     | 1'-3"  |
|              | 12               | 10                                | 17'-2" | 9      | 13'-0" | 130    | 4'-9"  | 32     | 25'-9" | 31'-3" | 3'-6"  | 34'-9"                                   | 2      | 2      | 37'-0"  | 4      | 25'-9" | 2      | 10'-3" | 22     | 1'-3"  |
|              | 15               | 10                                | 20'-6" | 9      | 16'-0" | 156    | 4'-9"  | 40     | 25'-9" | 31'-3" | 3'-6"  | 34'-9"                                   | 2      | 2      | 37'-0"  | 4      | 25'-9" | 2      | 10'-3" | 22     | 1'-3"  |
|              | 18               | 10                                | 24'-0" | 9      | 19'-0" | 182    | 4'-9"  | 48     | 25'-9" | 31'-3" | 3'-6"  | 34'-9"                                   | 2      | 2      | 37'-0"  | 4      | 25'-9" | 2      | 10'-3" | 22     | 1'-3"  |
| 5            | 6                | 10                                | 12'-7" | 8      | 7'-6"  | 76     | 5'-9"  | 20     | 25'-9" | 31'-3" | 3'-6"  | 34'-9"                                   | 2      | 2      | 39'-8"  | 5      | 25'-9" | 2      | 12'-4" | 26     | 1'-3"  |
|              | 9                | 10                                | 16'-1" | 8      | 11'-0" | 102    | 5'-9"  | 30     | 25'-9" | 31'-3" | 3'-6"  | 34'-9"                                   | 2      | 2      | 39'-8"  | 5      | 25'-9" | 2      | 12'-4" | 26     | 1'-3"  |
|              | 12               | 10                                | 19'-5" | 8      | 14'-0" | 128    | 5'-9"  | 40     | 25'-9" | 31'-3" | 3'-6"  | 34'-9"                                   | 2      | 2      | 39'-8"  | 5      | 25'-9" | 2      | 12'-4" | 26     | 1'-3"  |
|              | 15               | 10                                | 22'-9" | 8      | 17'-0" | 154    | 5'-9"  | 50     | 25'-9" | 31'-3" | 3'-6"  | 34'-9"                                   | 2      | 2      | 39'-8"  | 5      | 25'-9" | 2      | 12'-4" | 26     | 1'-3"  |
|              | 18               | 10                                | 26'-3" | 8      | 20'-0" | 180    | 5'-9"  | 60     | 25'-9" | 31'-3" | 3'-6"  | 34'-9"                                   | 2      | 2      | 39'-8"  | 5      | 25'-9" | 2      | 12'-4" | 26     | 1'-3"  |
| 6            | 6                | 10                                | 14'-7" | 7      | 8'-6"  | 74     | 6'-11" | 24     | 25'-9" | 31'-3" | 3'-6"  | 34'-9"                                   | 2      | 2      | 41'-6"  | 6      | 25'-9" | 2      | 14'-4" | 30     | 1'-4"  |
|              | 9                | 10                                | 18'-1" | 7      | 12'-0" | 100    | 6'-11" | 36     | 25'-9" | 31'-3" | 3'-6"  | 34'-9"                                   | 2      | 2      | 41'-6"  | 6      | 25'-9" | 2      | 14'-4" | 30     | 1'-4"  |
|              | 12               | 10                                | 21'-5" | 7      | 15'-0" | 126    | 6'-11" | 48     | 25'-9" | 31'-3" | 3'-6"  | 34'-9"                                   | 2      | 2      | 41'-6"  | 6      | 25'-9" | 2      | 14'-4" | 30     | 1'-4"  |
|              | 15               | 10                                | 24'-9" | 7      | 18'-0" | 152    | 6'-11" | 60     | 25'-9" | 31'-3" | 3'-6"  | 34'-9"                                   | 2      | 2      | 41'-6"  | 6      | 25'-9" | 2      | 14'-4" | 30     | 1'-4"  |
|              | 18               | 10                                | 28'-3" | 7      | 21'-0" | 178    | 6'-11" | 72     | 25'-9" | 31'-3" | 3'-6"  | 34'-9"                                   | 2      | 2      | 41'-6"  | 6      | 25'-9" | 2      | 14'-4" | 30     | 1'-4"  |
| 8            | 6                | 10                                | 16'-7" | 5      | 10'-0" | 70     | 7'-3"  | 32     | 25'-9" | 32'-0" | 3'-6"  | 34'-9"                                   | 2      | 2      | 43'-8"  | 8      | 25'-9" | 2      | 16'-4" | 34     | 1'-4"  |
|              | 9                | 10                                | 20'-1" | 5      | 13'-0" | 96     | 7'-3"  | 48     | 25'-9" | 32'-0" | 3'-6"  | 34'-9"                                   | 2      | 2      | 43'-8"  | 8      | 25'-9" | 2      | 16'-4" | 34     | 1'-4"  |
|              | 12               | 10                                | 23'-5" | 5      | 16'-0" | 122    | 7'-3"  | 64     | 25'-9" | 32'-0" | 3'-6"  | 34'-9"                                   | 2      | 2      | 43'-8"  | 8      | 25'-9" | 2      | 16'-4" | 34     | 1'-4"  |
|              | 15               | 10                                | 26'-9" | 5      | 19'-0" | 148    | 7'-3"  | 80     | 25'-9" | 32'-0" | 3'-6"  | 34'-9"                                   | 2      | 2      | 43'-8"  | 8      | 25'-9" | 2      | 16'-4" | 34     | 1'-4"  |
|              | 18               | 10                                | 30'-3" | 5      | 22'-0" | 174    | 7'-3"  | 96     | 25'-9" | 32'-0" | 3'-6"  | 34'-9"                                   | 2      | 2      | 43'-8"  | 8      | 25'-9" | 2      | 16'-4" | 34     | 1'-4"  |

| OPENING                      |                    | BARREL     |         |      |         |     |         |     |         |     |         | WINGS AND CURB |         |     |         |     |         |     |         |     |         |
|------------------------------|--------------------|------------|---------|------|---------|-----|---------|-----|---------|-----|---------|----------------|---------|-----|---------|-----|---------|-----|---------|-----|---------|
| Dimensions of single opening | Number of openings | Clear Span |         | Area |         | X   |         | I   |         | N   |         | K              |         | O   |         | M   |         | A   |         | B   |         |
|                              |                    | Fl.        | So. Fl. | Fl.  | So. Fl. | Fl. | So. Fl. | Fl. | So. Fl. | Fl. | So. Fl. | Fl.            | So. Fl. | Fl. | So. Fl. | Fl. | So. Fl. | Fl. | So. Fl. | Fl. | So. Fl. |
| 3x3                          | 2                  | 6          | 18      | 3    | 6       | 6   | 6       | 4   | 4       | 4   | 4       | 4              | 4       | 4   | 4       | 4   | 4       | 4   | 4       | 4   | 4       |
|                              | 3                  | 9          | 27      | 3    | 6       | 6   | 6       | 4   | 4       | 4   | 4       | 4              | 4       | 4   | 4       | 4   | 4       | 4   | 4       | 4   | 4       |
|                              | 4                  | 12         | 36      | 3    | 6       | 6   | 6       | 4   | 4       | 4   | 4       | 4              | 4       | 4   | 4       | 4   | 4       | 4   | 4       | 4   | 4       |
|                              | 5                  | 15         | 45      | 3    | 6       | 6   | 6       | 4   | 4       | 4   | 4       | 4              | 4       | 4   | 4       | 4   | 4       | 4   | 4       | 4   | 4       |
|                              | 6                  | 18         | 54      | 3    | 6       | 6   | 6       | 4   | 4       | 4   | 4       | 4              | 4       | 4   | 4       | 4   | 4       | 4   | 4       | 4   | 4       |
| 4x4                          | 2                  | 8          | 24      | 3    | 6       | 6   | 6       | 4   | 4       | 4   | 4       | 4              | 4       | 4   | 4       | 4   | 4       | 4   | 4       | 4   | 4       |
|                              | 3                  | 12         | 36      | 3    | 6       | 6   | 6       | 4   | 4       | 4   | 4       | 4              | 4       | 4   | 4       | 4   | 4       | 4   | 4       | 4   | 4       |
|                              | 4                  | 16         | 48      | 3    | 6       | 6   | 6       | 4   | 4       | 4   | 4       | 4              | 4       | 4   | 4       | 4   | 4       | 4   | 4       | 4   | 4       |
|                              | 5                  | 20         | 60      | 3    | 6       | 6   | 6       | 4   | 4       | 4   | 4       | 4              | 4       | 4   | 4       | 4   | 4       | 4   | 4       | 4   | 4       |
|                              | 6                  | 24         | 72      | 3    | 6       | 6   | 6       | 4   | 4       | 4   | 4       | 4              | 4       | 4   | 4       | 4   | 4       | 4   | 4       | 4   | 4       |
| 5x5                          | 2                  | 10         | 30      | 3    | 7       | 6   | 6       | 4   | 4       | 4   | 4       | 4              | 4       | 4   | 4       | 4   | 4       | 4   | 4       | 4   | 4       |
|                              | 3                  | 15         | 45      | 3    | 7       | 6   | 6       | 4   | 4       | 4   | 4       | 4              | 4       | 4   | 4       | 4   | 4       | 4   | 4       | 4   | 4       |
|                              | 4                  | 20         | 60      | 3    | 7       | 6   | 6       | 4   | 4       | 4   | 4       | 4              | 4       | 4   | 4       | 4   | 4       | 4   | 4       | 4   | 4       |
|                              | 5                  | 25         | 75      | 3    | 7       | 6   | 6       | 4   | 4       | 4   | 4       | 4              | 4       | 4   | 4       | 4   | 4       | 4   | 4       | 4   | 4       |
|                              | 6                  | 30         | 90      | 3    | 7       | 6   | 6       | 4   | 4       | 4   | 4       | 4              | 4       | 4   | 4       | 4   | 4       | 4   | 4       | 4   | 4       |
| 6x6                          | 2                  | 12         | 36      | 3    | 7       | 6   | 6       | 4   | 4       | 4   | 4       | 4              | 4       | 4   | 4       | 4   | 4       | 4   | 4       | 4   | 4       |
|                              | 3                  | 18         | 54      | 3    | 7       | 6   | 6       | 4   | 4       | 4   | 4       | 4              | 4       | 4   | 4       | 4   | 4       | 4   | 4       | 4   | 4       |
|                              | 4                  | 24         | 72      | 3    | 7       | 6   | 6       | 4   | 4       | 4   | 4       | 4              | 4       | 4   | 4       | 4   | 4       | 4   | 4       | 4   | 4       |
|                              | 5                  | 30         | 90      | 3    | 7       | 6   | 6       | 4   | 4       | 4   | 4       | 4              | 4       | 4   | 4       | 4   | 4       | 4   | 4       | 4   | 4       |
|                              | 6                  | 36         | 108     | 3    | 7       | 6   | 6       | 4   | 4       | 4   | 4       | 4              | 4       | 4   | 4       | 4   | 4       | 4   | 4       | 4   | 4       |

**GENERAL NOTES & DESIGN DATA**

General Specifications: - La. State Highway Commission

Concrete: All class "A", 1-6" min.

Steel: All #6 deformed bars.

All exposed surfaces to be chamfered 2" min.

All exposed surfaces to be given a smooth finish.

Design Loads: -

Concentrated load = 15 tons typical truck with 30% impact allowance distributed in specified manner.

Entire weight of all fill above culvert must be applied.

All dimensions relating to bars are to centerline bars.

Bars of splices are to be lapped 2'-0".

Reinforcing bars should be wired at intersections and secured against displacement during placing of concrete.

Expansion joints to be used only when number of openings and in excess of number provided in table of quantities.

Special instructions will be given by Bridge Engineer.

**MULTIPLE CONCRETE BOX CULVERTS**

SPACING WING WALLS

6 FT. TO 10 FT. SPACING

3 FT. TO 4 FT. HEIGHT

