

ENGLISH/INCHES/FEET - FBJ-01-12 - THIS SHEET ISSUED 04-12.

ESTIMATE OF QUANTITIES - FLUME BELL JOINTS

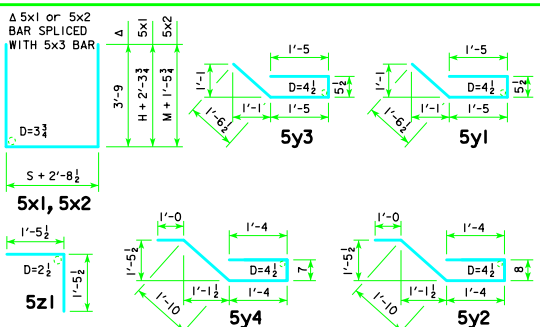
| JUNCTION BELL JOINT | | 3' x 3' | | 4' x 4' | | 5' x 3' | | 5' x 4' | | 5' x 5' | | 5' x 6' | | | | | | | | | |
|---------------------|---------------|---------|-----|---------|--------|---------|--------|---------|-----|---------|--------|---------|--------|--------|--|--|-----|--|--|--|-----|
| BAR | LOCATION | SHAPE | NO. | LENGTH | WEIGHT | NO. | LENGTH | WEIGHT | NO. | LENGTH | WEIGHT | NO. | LENGTH | WEIGHT | | | | | | | |
| 5x1 | WALLS & FLOOR | | 3 | 16'-4" | 51 | 3 | 14'-3" | 45 | 3 | 18'-4" | 57 | 3 | 15'-3" | 48 | | | | | | | |
| 5x3 | WALLS VERT. | | -- | -- | -- | 6 | 4'-4" | 27 | -- | -- | -- | 6 | 4'-4" | 27 | | | | | | | |
| 5y1 | WALLS HORIZ. | | 10 | 4'-10" | 50 | 12 | 4'-10" | 60 | 10 | 4'-10" | 50 | 12 | 4'-10" | 60 | | | | | | | |
| 5y2 | FLOOR VERT. | | 5 | 6'-2" | 32 | 6 | 6'-2" | 39 | 7 | 6'-2" | 45 | 7 | 6'-2" | 45 | | | | | | | |
| 5z1 | FLOOR VERT. | | 5 | 2'-11" | 15 | 6 | 2'-11" | 18 | 7 | 2'-11" | 21 | 7 | 2'-11" | 21 | | | | | | | |
| TOTAL WEIGHT (LBS.) | | | | | 148 | | | 189 | | | 173 | | | 201 | | | 218 | | | | 235 |
| CONCRETE (CY) | | | | | | | | | | | | | | | | | | | | | |
| FOOTING | | | | | 0.7 | | | 0.8 | | | 0.8 | | | 0.8 | | | | | | | 0.8 |
| WALLS | | | | | 0.4 | | | 0.6 | | | 0.6 | | | 0.7 | | | | | | | 0.8 |
| TOTAL | | | | | 1.1 | | | 1.4 | | | 1.4 | | | 1.5 | | | | | | | 1.6 |
| CHUTE BELL JOINT | | | | | | | | | | | | | | | | | | | | | |
| FOOTING | | | | | 0.7 | | | 0.8 | | | 0.8 | | | 0.8 | | | | | | | 0.8 |
| WALLS | | | | | 0.2 | | | 0.3 | | | 0.3 | | | 0.4 | | | | | | | 0.5 |
| TOTAL | | | | | 0.9 | | | 1.0 | | | 1.1 | | | 1.2 | | | | | | | 1.3 |

BARREL & CHUTE DIMENSIONS

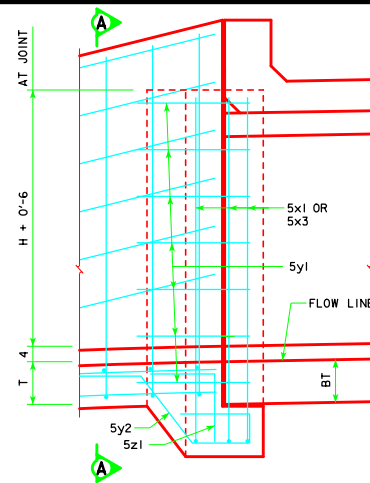
| S x H | M | T | U | BT | BU |
|---------|-------|----|---|----|----|
| 3' x 3' | 2'-3" | 11 | 9 | 10 | 9 |
| 4' x 4' | 3'-0" | 11 | 9 | 10 | 9 |
| 5' x 3' | 2'-3" | 11 | 9 | 10 | 9 |
| 5' x 4' | 3'-0" | 11 | 9 | 10 | 9 |
| 5' x 5' | 3'-9" | 11 | 9 | 10 | 9 |
| 5' x 6' | 4'-6" | 11 | 9 | 10 | 9 |

S = CULVERT SPAN
H = CULVERT HEIGHT

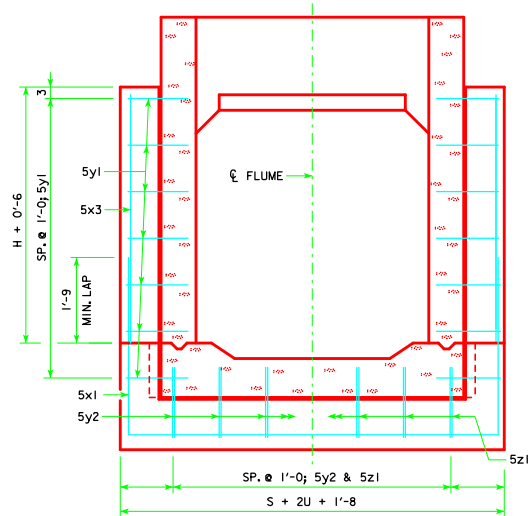
BENT BAR DETAILS



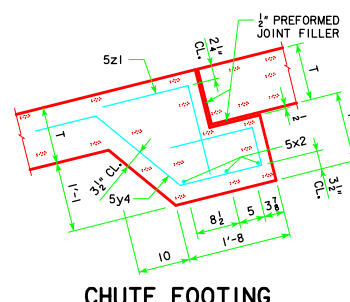
NOTE: ALL DIMENSIONS ARE OUT TO OUT.
D = PIN DIAMETER



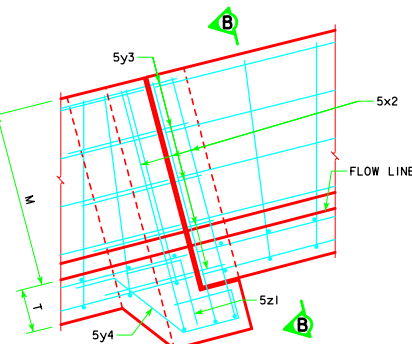
PART ELEV. - JUNCTION BELL JT.



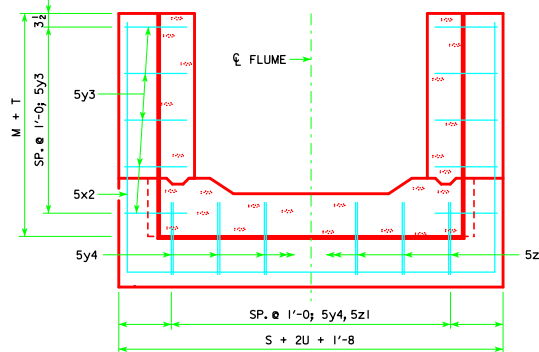
SECTION A-A



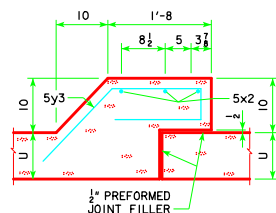
CHUTE FOOTING



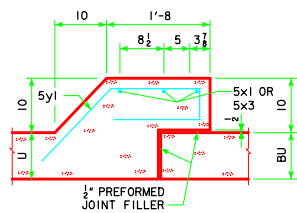
PART ELEVATION - CHUTE BELL JT.



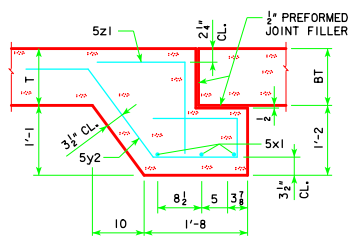
SECTION B-B



CHUTE WALLS



JUNCTION WALLS



JUNCTION FOOTING

NOTES:

1. DIMENSIONS AND QUANTITIES SHOWN BASED ON 'U' FLUME WALLS, 'BU' BARREL WALLS, 'T' FLUME FLOOR AND 'BT' BARREL FLOOR THICKNESSES.
2. CHANGE LENGTHS OF BARS 5x1 AND ADJUST REINFORCING STEEL AND CONCRETE QUANTITIES ACCORDINGLY FOR WALL AND FLOOR THICKNESSES OTHER THAN SHOWN.
3. FLOOR BARS MI ARE TO BE SHORTENED 6\"/>

LATEST REVISION DATE
Matthew E. M. Dwyer
APPROVED BY BRIDGE ENGINEER

Iowa Department of Transportation
Highway Division

STANDARD DESIGN
**REINFORCED CONCRETE
BOX CULVERTS**
APRIL, 2012

**FLUME BELL JOINT
DETAILS**
3', 4' & 5' SPANS

FBJ-01-12