

FOR TYPICAL SECTION, NOTES AND OTHER DETAILS, REFER TO STANDARD BCD-DT.

BCD-40

| SPAN | | HGHT | | REINFORCING STEEL | | | | | | | | | | | QUAN./LF | | HEADWALLS | | | | | | | WINGWALL | | | | |
|-------|-------|------|-------------|-------------------|-------------|---------|-------------|-------------|----------|-------|-----------------|--------|-----------------|-----------------|-----------------------------------|---------------------------|-----------------------------|------|---------|------|---------|--------------|--------------|----------|----------------------------|-------------------------------|-----------------------------|--------------------------------|
| (FT.) | (FT.) | SIZE | SPACING C-C | BT I | | | | | | | | LENGTH | NO. BL1 #4 BARS | NO. BL2 #3 BARS | REINFORCING STEEL (LBS./LONG. JT) | CONCRETE CLASS A4 (CY/LF) | REINFORCING STEEL (LBS./LF) | G | | HW I | | NO. HW2 BARS | NO. HW3 BARS | | INLET CONCRETE CL. A4 (CY) | INLET REINFORCING STEEL (LBS) | OUTLET CONCRETE CL. A4 (CY) | OUTLET REINFORCING STEEL (LBS) |
| | | | | a | b | c | d | e | f | g | HEADWALL LENGTH | | | | | | | SIZE | LENGTH | | | | | | | | | |
| 3 | 3 | 4 | 12" | 2'- 7" | 0'- 4" | 1'- 10" | 0'- 5 1/8" | 0'- 3 1/4" | 7'- 8" | ----- | 7'-10" | 32 | 12 | 30.950 | 0.694 | 89.205 | 9'- 6" | 6 | 9'- 2" | 6 | 9'- 2" | 1 | 4 | 1.433 | 67.988 | 1.425 | 55.073 | A |
| 3 | 4 | 4 | 12" | 2'- 7" | 0'- 4" | 1'- 10" | 0'- 5 1/8" | 0'- 3 1/4" | 7'- 8" | ----- | 7'-10" | 32 | 18 | 33.065 | 0.768 | 91.575 | 9'- 6" | 6 | 9'- 2" | 6 | 9'- 2" | 1 | 5 | 1.531 | 71.439 | 1.517 | 55.073 | C |
| 4 | 3 | 4 | 12" | 3'- 3" | 0'- 6" | 2'- 3" | 0'- 8" | 0'- 5 1/4" | 9'- 8" | ----- | 10'- 0" | 40 | 12 | 37.630 | 0.916 | 93.570 | 11'- 6" | 6 | 11'- 2" | 6 | 11'- 2" | 1 | 4 | 1.631 | 80.004 | 1.630 | 67.089 | B |
| 4 | 4 | 4 | 12" | 3'- 3" | 0'- 6" | 2'- 3" | 0'- 8" | 0'- 5 1/4" | 9'- 8" | ----- | 10'- 0" | 40 | 18 | 39.754 | 0.989 | 99.834 | 11'- 6" | 6 | 11'- 2" | 6 | 11'- 2" | 1 | 5 | 1.730 | 83.455 | 1.722 | 67.089 | D |
| 4 | 5 | 4 | 12" | 3'- 3" | 0'- 6" | 2'- 3" | 0'- 8" | 0'- 5 1/4" | 9'- 8" | ----- | 10'- 0" | 40 | 24 | 41.860 | 1.063 | 106.098 | 11'- 6" | 6 | 11'- 2" | 6 | 11'- 2" | 1 | 6 | 1.829 | 86.907 | 1.815 | 67.089 | F |
| 4 | 6 | 4 | 12" | 3'- 3" | 0'- 6" | 2'- 3" | 0'- 8" | 0'- 5 1/4" | 9'- 8" | ----- | 10'- 0" | 40 | 30 | 43.975 | 1.136 | 126.186 | 11'- 6" | 6 | 11'- 2" | 6 | 11'- 2" | 1 | 7 | 1.928 | 90.358 | 1.908 | 67.089 | H |
| 5 | 3 | 4 | 11" | 3'- 10" | 0'- 8 1/2" | 2'- 8" | 0'- 11 1/2" | 0'- 7 3/4" | 11'- 8" | ----- | 12'- 2" | 48 | 12 | 44.316 | 1.224 | 94.204 | 13'- 6" | 6 | 13'- 2" | 6 | 13'- 2" | 1 | 4 | 1.786 | 92.020 | 1.791 | 79.105 | B |
| 5 | 4 | 4 | 11" | 3'- 10" | 0'- 8 1/2" | 2'- 8" | 0'- 11 1/2" | 0'- 7 3/4" | 11'- 8" | ----- | 12'- 2" | 48 | 18 | 46.425 | 1.298 | 100.590 | 13'- 6" | 6 | 13'- 2" | 6 | 13'- 2" | 1 | 5 | 1.885 | 95.471 | 1.884 | 79.105 | D |
| 5 | 5 | 4 | 11" | 3'- 10" | 0'- 8 1/2" | 2'- 8" | 0'- 11 1/2" | 0'- 7 3/4" | 11'- 8" | ----- | 12'- 2" | 48 | 24 | 48.540 | 1.372 | 106.975 | 13'- 6" | 6 | 13'- 2" | 6 | 13'- 2" | 1 | 6 | 1.984 | 98.923 | 1.977 | 79.105 | F |
| 5 | 6 | 4 | 11" | 3'- 10" | 0'- 8 1/4" | 2'- 8" | 0'- 11 1/8" | 0'- 7 1/2" | 11'- 8" | ----- | 12'- 2" | 48 | 30 | 50.655 | 1.425 | 128.640 | 13'- 6" | 6 | 13'- 2" | 6 | 13'- 2" | 1 | 7 | 2.078 | 102.374 | 2.065 | 79.105 | H |
| 5 | 7 | 4 | 11" | 3'- 10" | 0'- 8 1/4" | 2'- 8" | 0'- 11 1/8" | 0'- 7 1/2" | 11'- 8" | ----- | 12'- 2" | 48 | 36 | 52.770 | 1.498 | 153.361 | 13'- 6" | 6 | 13'- 2" | 6 | 13'- 2" | 1 | 8 | 2.177 | 105.825 | 2.158 | 79.105 | J |
| 6 | 4 | 4 | 9" | 4'- 6" | 0'- 10 1/2" | 3'- 0" | 1'- 2 3/8" | 0'- 9 3/4" | 13'- 8" | ----- | 14'- 4" | 56 | 18 | 53.105 | 1.621 | 153.154 | 15'- 6" | 6 | 15'- 2" | 6 | 15'- 2" | 1 | 5 | 2.009 | 107.487 | 2.015 | 91.121 | D |
| 6 | 5 | 4 | 9" | 4'- 6" | 0'- 10 1/2" | 3'- 0" | 1'- 2 3/8" | 0'- 9 3/4" | 13'- 8" | ----- | 14'- 4" | 56 | 24 | 55.220 | 1.695 | 159.864 | 15'- 6" | 6 | 15'- 2" | 6 | 15'- 2" | 1 | 6 | 2.102 | 110.939 | 2.102 | 91.121 | F |
| 6 | 6 | 4 | 9" | 4'- 6" | 0'- 10 1/4" | 3'- 0" | 1'- 2" | 0'- 9 1/2" | 13'- 8" | ----- | 14'- 3" | 56 | 30 | 57.335 | 1.746 | 172.388 | 15'- 6" | 6 | 15'- 2" | 6 | 15'- 2" | 1 | 7 | 2.207 | 114.390 | 2.201 | 91.121 | H |
| 6 | 7 | 4 | 9" | 4'- 6" | 0'- 10 1/4" | 3'- 0" | 1'- 2" | 0'- 9 1/2" | 13'- 8" | ----- | 14'- 3" | 56 | 36 | 59.450 | 1.818 | 202.599 | 15'- 6" | 6 | 15'- 2" | 6 | 15'- 2" | 1 | 8 | 2.306 | 117.841 | 2.293 | 91.121 | J |
| 6 | 8 | 4 | 9" | 4'- 6" | 0'- 10 1/4" | 3'- 0" | 1'- 2" | 0'- 9 1/2" | 13'- 9" | ----- | 14'- 4" | 56 | 42 | 61.565 | 1.922 | 224.956 | 15'- 6" | 6 | 15'- 2" | 6 | 15'- 2" | 1 | 9 | 2.405 | 121.293 | 2.386 | 91.121 | L |
| 7 | 4 | 4 | 8" | 5'- 1" | 1'- 0 1/2" | 3'- 5" | 1'- 5 1/8" | 0'- 11 3/4" | 15'- 8" | ----- | 16'- 5" | 64 | 18 | 59.785 | 1.994 | 202.803 | 17'- 6" | 6 | 17'- 2" | 6 | 17'- 2" | 1 | 5 | 2.132 | 119.503 | 2.144 | 103.137 | E |
| 7 | 6 | 5 | 9" | 5'- 2" | 1'- 0 1/4" | 3'- 5" | 1'- 4 3/4" | 0'- 11 3/8" | 15'- 8" | ----- | 16'- 5" | 64 | 30 | 64.015 | 2.116 | 223.899 | 17'- 6" | 6 | 17'- 2" | 6 | 17'- 2" | 1 | 7 | 2.330 | 126.406 | 2.330 | 103.137 | I |
| 7 | 8 | 5 | 9" | 5'- 2" | 1'- 0 1/4" | 3'- 5" | 1'- 4 3/4" | 0'- 11 3/8" | 15'- 8" | ----- | 16'- 5" | 64 | 42 | 68.245 | 2.259 | 291.161 | 17'- 6" | 6 | 17'- 2" | 6 | 17'- 2" | 1 | 9 | 2.528 | 133.309 | 2.515 | 103.137 | M |
| 7 | 10 | 4 | 9" | 5'- 4" | 1'- 0 1/4" | 3'- 5" | 1'- 4 7/8" | 0'- 11 1/2" | 16'- 0" | ----- | 16'-10" | 64 | 54 | 72.475 | 2.601 | 315.835 | 17'- 6" | 6 | 17'- 2" | 6 | 17'- 2" | 1 | 11 | 2.687 | 140.211 | 2.662 | 103.137 | Q |
| 8 | 4 | 5 | 9" | 5'- 9" | 1'- 2 1/2" | 3'- 10" | 1'- 7 7/8" | 1'- 1 5/8" | 17'- 8" | ----- | 18'- 7" | 72 | 18 | 66.474 | 2.415 | 266.568 | 19'- 6" | 6 | 19'- 2" | 6 | 19'- 2" | 1 | 5 | 2.211 | 131.519 | 2.230 | 115.153 | E |
| 8 | 6 | 5 | 9" | 5'- 9" | 1'- 2 1/2" | 3'- 10" | 1'- 7 7/8" | 1'- 1 5/8" | 17'- 8" | ----- | 18'- 7" | 72 | 30 | 70.695 | 2.562 | 287.084 | 19'- 6" | 6 | 19'- 2" | 6 | 19'- 2" | 1 | 7 | 2.400 | 138.422 | 2.407 | 115.153 | I |
| 8 | 8 | 5 | 9" | 5'- 9" | 1'- 2 3/4" | 3'- 10" | 1'- 8 1/4" | 1'- 1 7/8" | 17'- 9" | ----- | 18'- 8" | 72 | 42 | 74.925 | 2.768 | 344.193 | 19'- 6" | 6 | 19'- 2" | 6 | 19'- 2" | 1 | 9 | 2.589 | 145.325 | 2.583 | 115.153 | M |
| 8 | 10 | 5 | 9" | 5'- 11" | 1'- 2 1/2" | 3'- 10" | 1'- 7 7/8" | 1'- 1 5/8" | 18'- 0" | ----- | 19'- 0" | 72 | 54 | 79.155 | 3.052 | 392.132 | 19'- 6" | 6 | 19'- 2" | 6 | 19'- 2" | 1 | 11 | 2.756 | 152.227 | 2.737 | 115.153 | Q |
| 9 | 4 | 6 | 9" | 6'- 5" | 1'- 4 1/2" | 4'- 3" | 1'- 10 5/8" | 1'- 3 1/2" | 19'- 8" | ----- | 20'- 8" | 80 | 18 | 73.154 | 2.886 | 318.325 | 21'- 6" | 6 | 21'- 2" | 6 | 21'- 2" | 1 | 5 | 2.266 | 143.535 | 2.292 | 127.169 | E |
| 9 | 6 | 6 | 9" | 6'- 5" | 1'- 4 1/2" | 4'- 3" | 1'- 10 5/8" | 1'- 3 1/2" | 19'- 8" | ----- | 20'- 8" | 80 | 30 | 77.375 | 3.033 | 339.090 | 21'- 6" | 6 | 21'- 2" | 6 | 21'- 2" | 1 | 7 | 2.464 | 150.438 | 2.477 | 127.169 | I |
| 9 | 8 | 6 | 9" | 6'- 5" | 1'- 4 1/4" | 4'- 3" | 1'- 10 1/4" | 1'- 3 1/4" | 19'- 8" | ----- | 20'- 8" | 80 | 42 | 81.605 | 3.146 | 393.408 | 21'- 6" | 6 | 21'- 2" | 6 | 21'- 2" | 1 | 9 | 2.662 | 157.341 | 2.663 | 127.169 | M |
| 9 | 10 | 6 | 9" | 6'- 8" | 1'- 4" | 4'- 3" | 1'- 9 7/8" | 1'- 3" | 20'- 2" | ----- | 21'- 2" | 80 | 54 | 85.835 | 3.507 | 437.714 | 21'- 6" | 6 | 21'- 2" | 6 | 21'- 2" | 1 | 11 | 2.829 | 164.243 | 2.818 | 127.169 | Q |
| 9 | 12 | 6 | 9" | 6'- 10" | 1'- 4 1/2" | 4'- 3" | 1'- 10 5/8" | 1'- 3 1/2" | 20'- 6" | ----- | 21'- 6" | 80 | 66 | 90.065 | 3.941 | 505.735 | 21'- 6" | 6 | 21'- 2" | 6 | 21'- 2" | 1 | 13 | 2.858 | 171.146 | 2.833 | 127.169 | U |
| 10 | 4 | 6 | 8" | 7'- 0" | 1'- 6 3/4" | 4'- 8" | 2'- 1 3/4" | 1'- 5 3/4" | 21'- 8" | ----- | 22'-10" | 88 | 18 | 79.825 | 3.440 | 380.166 | 23'- 6" | 6 | 23'- 2" | 6 | 23'- 2" | 1 | 5 | 2.290 | 155.551 | 2.323 | 139.185 | F |
| 10 | 6 | 6 | 8" | 7'- 0" | 1'- 6 3/4" | 4'- 8" | 2'- 1 3/4" | 1'- 5 3/4" | 21'- 8" | ----- | 22'-10" | 88 | 30 | 84.055 | 3.587 | 402.516 | 23'- 6" | 6 | 23'- 2" | 6 | 23'- 2" | 1 | 7 | 2.488 | 162.454 | 2.508 | 139.185 | J |
| 10 | 8 | 6 | 8" | 7'- 0" | 1'- 6 1/2" | 4'- 8" | 2'- 1 3/8" | 1'- 5 1/2" | 21'- 8" | ----- | 22'-10" | 88 | 42 | 88.285 | 3.697 | 458.144 | 23'- 6" | 6 | 23'- 2" | 6 | 23'- 2" | 1 | 9 | 2.698 | 169.357 | 2.706 | 139.185 | N |
| 10 | 10 | 6 | 8" | 7'- 2" | 1'- 6 1/4" | 4'- 8" | 2'- 1 1/8" | 1'- 5 1/4" | 22'- 0" | ----- | 23'- 2" | 88 | 54 | 92.515 | 3.976 | 508.710 | 23'- 6" | 6 | 23'- 2" | 6 | 23'- 2" | 1 | 11 | 2.866 | 176.259 | 2.861 | 139.185 | R |
| 10 | 12 | 6 | 9" | 7'- 5" | 1'- 6 1/4" | 4'- 8" | 2'- 1 1/8" | 1'- 5 1/4" | 22'- 5" | ----- | 23'- 7" | 88 | 66 | 96.745 | 4.385 | 598.699 | 23'- 6" | 6 | 23'- 2" | 6 | 23'- 2" | 1 | 13 | 2.914 | 183.162 | 2.895 | 139.185 | V |
| 12 | 6 | 7 | 9" | 8'- 3" | 1'- 11 1/2" | 5'- 5" | 2'- 8 3/8" | 1'- 10 1/4" | 25'- 8" | ----- | 27'- 2" | 104 | 30 | 97.415 | 4.900 | 543.924 | 27'- 6" | 6 | 27'- 2" | 6 | 27'- 2" | 1 | 7 | 2.468 | 186.486 | 2.501 | 163.217 | J |
| 12 | 8 | 7 | 9" | 8'- 3" | 1'- 11" | 5'- 5" | 2'- 7 5/8" | 1'- 9 3/4" | 25'- 8" | ----- | 27'- 1" | 104 | 42 | 101.645 | 4.964 | 603.378 | 27'- 6" | 6 | 27'- 2" | 6 | 27'- 2" | 1 | 9 | 2.681 | 193.389 | 2.702 | 163.217 | N |
| 12 | 10 | 7 | 9" | 8'- 5" | 1'- 11" | 5'- 5" | 2'- 7 5/8" | 1'- 9 3/4" | 25'- 11" | ----- | 27'- 4" | 104 | 54 | 105.875 | 5.241 | 674.441 | 27'- 6" | 6 | 27'- 2" | 6 | 27'- 2" | 1 | 11 | 2.835 | 200.291 | 2.843 | 163.217 | R |
| 12 | 12 | 7 | 9" | 8'- 7" | 1'- 10 3/4" | 5'- 5" | 2'- 7 1/4" | 1'- 9 1/2" | 26'- 3" | ----- | 27'- 9" | 104 | 66 | 110.138 | 5.617 | 720.581 | 27'- 6" | 6 | 27'- 2" | 6 | 27'- 2" | 1 | 13 | 2.860 | 207.194 | 2.855 | 163.217 | V |

A COPY OF THE ORIGINAL SEALED AND SIGNED DRAWING IS ON FILE IN THE CENTRAL OFFICE.

| | | | | |
|-------------------------|---|--|---------------|--------------|
| SPECIFICATION REFERENCE | <h2>DOUBLE BOX CULVERTS</h2> <h3>30 TO 40 FT. FILLS</h3> <p>VIRGINIA DEPARTMENT OF TRANSPORTATION</p> |  ROAD AND BRIDGE STANDARDS | REVISION DATE | SHEET 2 OF 2 |
| | | | 07/11 | 1003.16 |