

**DIMENSIONS AND QUANTITIES IN ONE HEADWALL TYPE III 1:4 SLOPE
TWIN PIPE CULVERT**

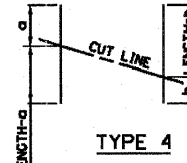
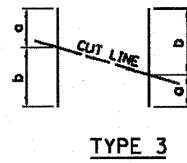
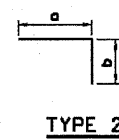
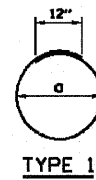
| PIPE DIA | DIMENSIONS | | | | | | | | | | | NO. OF SPACES | | | CONCRETE CLASS SI CU. YD. | REINF. STEEL LBS. |
|----------|------------|--------|-------|----|-------------|----|-------|-------|--------|-------|-------|---------------|----|----|---------------------------|-------------------|
| | H | L | M | P | S | T | U | V | W | A | E | B | C | D | | |
| 18" | 2'-0" | 7'-4" | 2'-3" | 2" | 7'-6 3/4" | 2" | 2'-8" | 3'-0" | 8'-0" | 2'-2" | 1'-8" | -- | 1 | -- | 2.9 | 228 |
| 24" | 2'-8" | 10'-0" | 3'-0" | 3" | 10'-3 3/4" | 2" | 2'-8" | 4'-0" | 10'-0" | 2'-2" | 2'-2" | -- | 2 | -- | 4.6 | 347 |
| 30" | 3'-2" | 12'-0" | 3'-6" | 4" | 12'-4 1/2" | 2" | 2'-8" | 5'-0" | 12'-0" | 2'-8" | 2'-8" | 2 | -- | -- | 7.1 | 475 |
| 36" | 3'-8" | 14'-0" | 4'-3" | 4" | 14'-5 1/4" | 2" | 2'-8" | 6'-0" | 14'-0" | 2'-2" | 1'-8" | -- | 4 | -- | 9.7 | 611 |
| 42" | 4'-3" | 16'-4" | 4'-8" | 6" | 16'-10" | 2" | 3'-2" | 6'-6" | 15'-0" | 2'-8" | 1'-8" | 4 | -- | -- | 12.5 | 766 |
| 48" | 4'-9" | 18'-4" | 5'-0" | 6" | 18'-10 3/4" | 2" | 3'-2" | 7'-0" | 16'-0" | 2'-2" | 1'-8" | -- | 6 | -- | 15.1 | 890 |

**DIMENSIONS AND QUANTITIES IN ONE HEADWALL TYPE III 1:6 SLOPE
TWIN PIPE CULVERT**

| PIPE DIA | DIMENSIONS | | | | | | | | | | | NO. OF SPACES | | | CONCRETE CLASS SI CU. YD. | REINF. STEEL LBS. |
|----------|------------|--------|-------|----|-------------|----|-------|-------|--------|-------|-------|---------------|----|----|---------------------------|-------------------|
| | H | L | M | P | S | T | U | V | W | A | E | B | C | D | | |
| 18" | 2'-0" | 11'-0" | 2'-3" | 2" | 11'-1 1/4" | 2" | 2'-8" | 3'-0" | 8'-0" | 2'-2" | 1'-8" | -- | 1 | 2 | 5.1 | 312 |
| 24" | 2'-8" | 15'-0" | 3'-0" | 3" | 15'-2 1/2" | 2" | 2'-8" | 4'-0" | 10'-0" | 2'-8" | 2'-8" | 3 | -- | -- | 6.7 | 476 |
| 30" | 3'-2" | 18'-0" | 3'-6" | 4" | 18'-3" | 2" | 2'-8" | 5'-0" | 12'-0" | 2'-2" | 1'-8" | -- | 5 | 1 | 9.6 | 662 |
| 36" | 3'-8" | 21'-0" | 4'-3" | 4" | 21'-3 1/2" | 2" | 2'-8" | 6'-0" | 14'-0" | 2'-8" | 2'-2" | 3 | 3 | -- | 13.2 | 852 |
| 42" | 4'-3" | 24'-6" | 4'-8" | 6" | 24'-10 1/2" | 2" | 3'-2" | 6'-6" | 15'-0" | 2'-8" | 1'-8" | 5 | -- | 3 | 16.9 | 1079 |
| 48" | 4'-9" | 27'-6" | 5'-0" | 6" | 27'-10 1/2" | 2" | 3'-2" | 7'-0" | 16'-0" | 2'-8" | 2'-2" | 7 | 1 | -- | 20.4 | 1255 |

**DIMENSIONS AND QUANTITIES IN ONE HEADWALL TYPE III 1:10 SLOPE
TWIN PIPE CULVERT**

| PIPE DIA | DIMENSIONS | | | | | | | | | | | NO. OF SPACES | | | CONCRETE CLASS SI CU. YD. | REINF. STEEL LBS. |
|----------|------------|---------|-------|----|-------------|----|-------|-------|--------|-------|-------|---------------|----|----|---------------------------|-------------------|
| | H | L | M | P | S | T | U | V | W | A | E | B | C | D | | |
| 18" | 2'-0" | 18'-4" | 2'-3" | 2" | 18'-5" | 2" | 2'-8" | 3'-0" | 8'-0" | 2'-2" | 1'-8" | -- | 5 | 1 | 6.0 | 472 |
| 24" | 2'-8" | 25'-0" | 3'-0" | 3" | 25'-11 1/2" | 2" | 2'-8" | 4'-0" | 10'-0" | 2'-2" | 1'-8" | -- | 8 | 1 | 10.2 | 739 |
| 30" | 3'-2" | 30'-0" | 3'-6" | 4" | 30'-13 3/4" | 2" | 2'-8" | 5'-0" | 12'-0" | 2'-2" | 1'-8" | -- | 11 | -- | 14.7 | 1039 |
| 36" | 3'-8" | 35'-0" | 4'-3" | 4" | 35'-2" | 2" | 2'-8" | 6'-0" | 14'-0" | 2'-2" | 2'-2" | -- | 13 | -- | 20.0 | 1340 |
| 42" | 4'-3" | 40'-10" | 4'-8" | 6" | 41'-0 1/2" | 2" | 3'-2" | 6'-6" | 15'-0" | 2'-2" | 1'-8" | -- | 12 | 5 | 25.7 | 1714 |
| 48" | 4'-9" | 45'-10" | 5'-0" | 6" | 46'-0 3/4" | 2" | 3'-2" | 7'-0" | 16'-0" | 2'-2" | 1'-8" | -- | 15 | 4 | 31.1 | 2002 |



TWIN PIPE DESIGN

Paul Kovacs
APPROVED DATE 6-1-2009
CIVIL ENGINEER

**REINFORCING BAR SCHEDULE FOR ONE HEADWALL
TYPE III 1:4 SLOPE TWIN PIPE CULVERT**

| PIPE DIA | NO. 4 REINFORCING BARS | | | | | |
|----------|------------------------|------|------------|--------|--------|-------|
| | MARK | TYPE | NO. REQ'D. | LENGTH | a b | |
| 18" | o18 | 1 | 2 | 8'-7" | 2'-5" | |
| | d18 | 2 | 32 | 2'-6" | 1'-9" | |
| | h18 | STR. | 9 | 7'-0" | | |
| | n18 | 2 | 9 | 3'-0" | 2'-0" | |
| | t18 | STR. | 10 | 7'-8" | | |
| | u18 | STR. | 8 | 1'-9" | | |
| | w18 | STR. | 9 | 7'-0" | | |
| | 24" | o24 | 1 | 2 | 10'-5" | 3'-0" |
| | | d24 | 2 | 41 | 2'-3" | 1'-6" |
| | | h24 | STR. | 9 | 9'-8" | |
| n24 | | 2 | 11 | 3'-0" | 2'-0" | |
| t24 | | STR. | 13 | 9'-8" | | |
| u24 | | STR. | 8 | 2'-6" | | |
| v24 | | 3 | 6 | 3'-9" | 1'-3" | |
| m24 | | 4 | 3 | 3'-9" | 2'-0" | |
| w24 | | STR. | 11 | 9'-8" | | |
| o30 | | 1 | 2 | 11'-9" | 3'-5" | |
| 30" | d30 | 2 | 47 | 2'-3" | 1'-6" | |
| | h30 | STR. | 12 | 11'-8" | | |
| | n30 | 2 | 13 | 3'-0" | 2'-0" | |
| | t30 | STR. | 15 | 11'-8" | | |
| | u30 | STR. | 8 | 3'-0" | | |
| | v30 | 3 | 8 | 4'-3" | 1'-3" | |
| | m30 | 4 | 4 | 4'-3" | 3'-0" | |
| | w30 | STR. | 13 | 11'-8" | | |
| | o36 | 1 | 2 | 13'-7" | 4'-0" | |
| | 36" | d36 | 2 | 57 | 2'-3" | 1'-6" |
| h36 | | STR. | 12 | 13'-8" | | |
| n36 | | 2 | 15 | 3'-0" | 2'-0" | |
| t36 | | STR. | 17 | 13'-8" | | |
| u36 | | STR. | 12 | 3'-6" | | |
| v36 | | 3 | 10 | 4'-9" | 1'-3" | |
| m36 | | 4 | 5 | 4'-9" | 3'-6" | |
| w36 | | STR. | 15 | 13'-8" | | |
| o42 | | 1 | 2 | 15'-5" | 4'-7" | |
| 42" | | d42 | 2 | 63 | 2'-3" | 1'-6" |
| | h42 | STR. | 15 | 16'-0" | | |
| | n42 | 2 | 16 | 3'-6" | 2'-6" | |
| | t42 | STR. | 19 | 14'-8" | | |
| | u42 | STR. | 12 | 4'-1" | | |
| | v42 | 3 | 12 | 5'-4" | 1'-3" | |
| | m42 | 4 | 6 | 5'-4" | 4'-1" | |
| | w42 | STR. | 16 | 16'-0" | | |
| | o48 | 1 | 2 | 17'-3" | 5'-2" | |
| | 48" | d48 | 2 | 69 | 2'-3" | 1'-6" |
| h48 | | STR. | 15 | 18'-0" | | |
| n48 | | 2 | 17 | 3'-6" | 2'-6" | |
| t48 | | STR. | 21 | 15'-8" | | |
| u48 | | STR. | 12 | 4'-7" | | |
| v48 | | 3 | 14 | 5'-10" | 1'-3" | |
| m48 | | 4 | 7 | 5'-10" | 4'-7" | |
| w48 | | STR. | 17 | 18'-0" | | |

**REINFORCING BAR SCHEDULE FOR ONE HEADWALL
TYPE III 1:6 SLOPE TWIN PIPE CULVERT**

| PIPE DIA | NO. 4 REINFORCING BARS | | | | | |
|----------|------------------------|------|------------|--------|--------|-------|
| | MARK | TYPE | NO. REQ'D. | LENGTH | a b | |
| 18" | o18 | 1 | 2 | 8'-7" | 2'-5" | |
| | d18 | 2 | 44 | 2'-6" | 1'-9" | |
| | h18 | STR. | 9 | 10'-8" | | |
| | n18 | 2 | 9 | 3'-0" | 2'-0" | |
| | t18 | STR. | 14 | 7'-8" | | |
| | u18 | STR. | 8 | 1'-9" | | |
| | w18 | STR. | 9 | 10'-8" | | |
| | 24" | o24 | 1 | 2 | 10'-5" | 3'-0" |
| | | d24 | 2 | 56 | 2'-3" | 1'-6" |
| | | h24 | STR. | 9 | 14'-8" | |
| n24 | | 2 | 11 | 3'-0" | 2'-0" | |
| t24 | | STR. | 18 | 9'-8" | | |
| u24 | | STR. | 8 | 2'-6" | | |
| v24 | | 3 | 8 | 3'-9" | 1'-3" | |
| m24 | | 4 | 4 | 3'-9" | 2'-0" | |
| w24 | | STR. | 11 | 14'-8" | | |
| o30 | | 1 | 2 | 11'-9" | 3'-5" | |
| 30" | d30 | 2 | 65 | 2'-3" | 1'-6" | |
| | h30 | STR. | 12 | 17'-8" | | |
| | n30 | 2 | 13 | 3'-0" | 2'-0" | |
| | t30 | STR. | 21 | 11'-8" | | |
| | u30 | STR. | 8 | 3'-0" | | |
| | v30 | 3 | 11 | 4'-3" | 1'-3" | |
| | m30 | 4 | 6 | 4'-3" | 3'-0" | |
| | w30 | STR. | 13 | 17'-8" | | |
| | o36 | 1 | 2 | 13'-7" | 4'-0" | |
| | 36" | d36 | 2 | 78 | 2'-3" | 1'-6" |
| h36 | | STR. | 12 | 20'-8" | | |
| n36 | | 2 | 15 | 3'-0" | 2'-0" | |
| t36 | | STR. | 24 | 13'-8" | | |
| u36 | | STR. | 12 | 3'-6" | | |
| v36 | | 3 | 14 | 4'-9" | 1'-3" | |
| m36 | | 4 | 7 | 4'-9" | 3'-6" | |
| w36 | | STR. | 15 | 20'-8" | | |
| o42 | | 1 | 2 | 15'-5" | 4'-7" | |
| 42" | | d42 | 2 | 87 | 2'-3" | 1'-6" |
| | h42 | STR. | 15 | 24'-2" | | |
| | n42 | 2 | 16 | 3'-6" | 2'-6" | |
| | t42 | STR. | 27 | 14'-8" | | |
| | u42 | STR. | 12 | 4'-1" | | |
| | v42 | 3 | 17 | 5'-4" | 1'-3" | |
| | m42 | 4 | 9 | 5'-4" | 4'-1" | |
| | w42 | STR. | 16 | 24'-2" | | |
| | o48 | 1 | 2 | 17'-3" | 5'-2" | |
| | 48" | d48 | 2 | 95 | 2'-3" | 1'-6" |
| h48 | | STR. | 15 | 27'-2" | | |
| n48 | | 2 | 17 | 3'-6" | 2'-6" | |
| t48 | | STR. | 30 | 15'-8" | | |
| u48 | | STR. | 12 | 4'-7" | | |
| v48 | | 3 | 20 | 5'-10" | 1'-3" | |
| m48 | | 4 | 10 | 5'-10" | 4'-7" | |
| w48 | | STR. | 17 | 27'-2" | | |

**REINFORCING BAR SCHEDULE FOR ONE HEADWALL
TYPE III 1:10 SLOPE TWIN PIPE CULVERT**

| PIPE DIA | NO. 4 REINFORCING BARS | | | | | |
|----------|------------------------|------|------------|--------|--------|-------|
| | MARK | TYPE | NO. REQ'D. | LENGTH | a b | |
| 18" | o18 | 1 | 2 | 8'-7" | 2'-5" | |
| | d18 | 2 | 65 | 2'-6" | 1'-9" | |
| | h18 | STR. | 9 | 18'-0" | | |
| | n18 | 2 | 9 | 3'-0" | 2'-0" | |
| | t18 | STR. | 21 | 7'-8" | | |
| | u18 | STR. | 8 | 1'-9" | | |
| | w18 | STR. | 9 | 18'-0" | | |
| | 24" | o24 | 1 | 2 | 10'-5" | 3'-0" |
| | | d24 | 2 | 86 | 2'-3" | 1'-6" |
| | | h24 | STR. | 9 | 24'-8" | |
| n24 | | 2 | 11 | 3'-0" | 2'-0" | |
| t24 | | STR. | 28 | 9'-8" | | |
| u24 | | STR. | 8 | 2'-6" | | |
| v24 | | 3 | 13 | 3'-9" | 1'-3" | |
| m24 | | 4 | 7 | 3'-9" | 2'-0" | |
| w24 | | STR. | 11 | 24'-8" | | |
| o30 | | 1 | 2 | 11'-9" | 3'-5" | |
| 30" | d30 | 2 | 101 | 2'-3" | 1'-6" | |
| | h30 | STR. | 12 | 29'-8" | | |
| | n30 | 2 | 13 | 3'-0" | 2'-0" | |
| | t30 | STR. | 33 | 11'-8" | | |
| | u30 | STR. | 8 | 3'-0" | | |
| | v30 | 3 | 18 | 4'-3" | 1'-3" | |
| | m30 | 4 | 9 | 4'-3" | 3'-0" | |
| | w30 | STR. | 13 | 29'-8" | | |
| | o36 | 1 | 2 | 13'-7" | 4'-0" | |
| | 36" | d36 | 2 | 120 | 2'-3" | 1'-6" |
| h36 | | STR. | 12 | 34'-8" | | |
| n36 | | 2 | 15 | 3'-0" | 2'-0" | |
| t36 | | STR. | 38 | 13'-8" | | |
| u36 | | STR. | 12 | 3'-6" | | |
| v36 | | 3 | 23 | 4'-9" | 1'-3" | |
| m36 | | 4 | 12 | 4'-9" | 3'-6" | |
| w36 | | STR. | 15 | 34'-8" | | |
| o42 | | 1 | 2 | 15'-5" | 4'-7" | |
| 42" | | d42 | 2 | 138 | 2'-3" | 1'-6" |
| | h42 | STR. | 15 | 40'-6" | | |
| | n42 | 2 | 16 | 3'-6" | 2'-6" | |
| | t42 | STR. | 44 | 14'-8" | | |
| | u42 | STR. | 12 | 4'-1" | | |
| | v42 | 3 | 27 | 5'-4" | 1'-3" | |
| | m42 | 4 | 14 | 5'-4" | 4'-1" | |
| | w42 | STR. | 16 | 40'-6" | | |
| | o48 | 1 | 2 | 17'-3" | 5'-2" | |
| | 48" | d48 | 2 | 153 | 2'-3" | 1'-6" |
| h48 | | STR. | 15 | 45'-6" | | |
| n48 | | 2 | 17 | 3'-6" | 2'-6" | |
| t48 | | STR. | 49 | 15'-8" | | |
| u48 | | STR. | 12 | 4'-7" | | |
| v48 | | 3 | 32 | 5'-10" | 1'-3" | |
| m48 | | 4 | 16 | 5'-10" | 4'-7" | |
| w48 | | STR. | 17 | 45'-6" | | |

NOTES:

- THE 'v' BARS, TYPE 3, AND 'm' BARS, TYPE 4, SHALL BE ORDERED FULL LENGTH AND CUT IN THE FIELD. THE REMAINING PORTION OF THE 'v' BARS SHALL BE USED IN THE OTHER EXTERIOR WALL. THE 'm' BARS SHALL BE USED IN THE INTERIOR WALL.
- THE LONG LEG OF THE 'd' AND 'n' BARS SHALL BE VERTICAL.
- QUANTITIES ON THIS DRAWING ARE BASED ON THE CAST-IN-PLACE DESIGN.
- "STR." = STRAIGHT BAR.
- ALL REINFORCING BARS ARE #4 BARS.
- ALL SLOPES ARE EXPRESSED AS UNITS OF VERTICAL DISPLACEMENT TO UNITS OF HORIZONTAL DISPLACEMENT (V:H).

SHEET 3 OF 5

Illinois Tollway
Open Roads for a Better Future

HEADWALL TYPE III
18''-24''-30''-36''-42''-48''
FOR 1:4, 1:6, AND 1:10 SLOPES
STANDARD B6-O2

Rev. 1-9-12