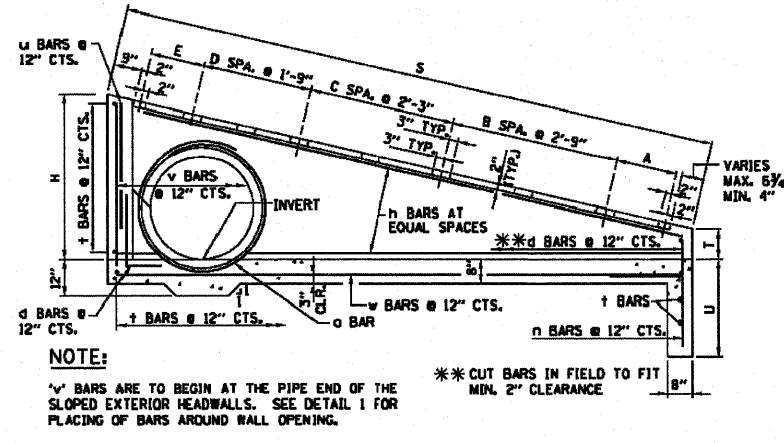


DIMENSIONS AND QUANTITIES IN ONE HEADWALL TYPE III 1:4 SLOPE

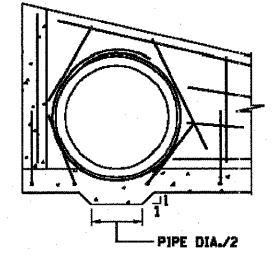
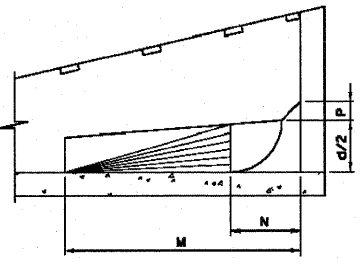
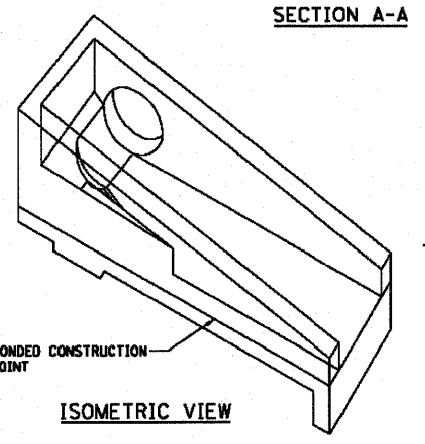
| PIPE DIA | DIMENSIONS |        |       |        |    |             |    |       |       |        |       |       |    |    | NO. OF SPACES | CONCRETE CLASS 51 CU. YD. | REINF. STEEL LBS. |
|----------|------------|--------|-------|--------|----|-------------|----|-------|-------|--------|-------|-------|----|----|---------------|---------------------------|-------------------|
|          | H          | L      | M     | N      | P  | S           | T  | U     | V     | W      | A     | E     | B  | C  |               |                           |                   |
| 18"      | 3'-2"      | 12'-0" | 3'-6" | 1'-6"  | 4" | 12'-4 1/2"  | 2" | 2'-8" | 3'-0" | 4'-4"  | 2'-8" | 2'-8" | 2  | -- | --            | 2.8                       | 244               |
| 24"      | 3'-8"      | 14'-0" | 4'-3" | 1'-8"  | 4" | 14'-5 1/4"  | 2" | 2'-8" | 4'-0" | 5'-4"  | 2'-2" | 1'-8" | -- | 4  | --            | 4.1                       | 316               |
| 30"      | 4'-3"      | 16'-4" | 4'-8" | 1'-10" | 6" | 16'-10"     | 2" | 2'-8" | 5'-0" | 6'-4"  | 2'-8" | 1'-8" | 4  | -- | --            | 5.6                       | 422               |
| 36"      | 4'-9"      | 18'-4" | 5'-0" | 2'-0"  | 6" | 18'-10 3/4" | 2" | 2'-8" | 6'-0" | 7'-4"  | 2'-2" | 1'-8" | -- | 6  | --            | 7.2                       | 514               |
| 42"      | 5'-4"      | 20'-8" | 5'-4" | 2'-3"  | 6" | 21'-3 3/4"  | 2" | 3'-2" | 6'-6" | 7'-10" | 2'-8" | 2'-2" | 3  | 3  | --            | 8.8                       | 625               |
| 48"      | 5'-11"     | 23'-0" | 5'-8" | 2'-6"  | 6" | 23'-8 1/2"  | 2" | 3'-2" | 7'-0" | 8'-4"  | 2'-8" | 2'-2" | 3  | 4  | --            | 10.6                      | 731               |

DIMENSIONS AND QUANTITIES IN ONE HEADWALL TYPE III 1:6 SLOPE

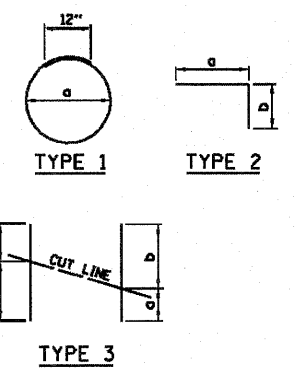
| PIPE DIA | DIMENSIONS |        |       |        |    |             |    |       |       |        |       |       |    |    | NO. OF SPACES | CONCRETE CLASS 51 CU. YD. | REINF. STEEL LBS. |
|----------|------------|--------|-------|--------|----|-------------|----|-------|-------|--------|-------|-------|----|----|---------------|---------------------------|-------------------|
|          | H          | L      | M     | N      | P  | S           | T  | U     | V     | W      | A     | E     | B  | C  |               |                           |                   |
| 18"      | 3'-2"      | 18'-0" | 3'-6" | 1'-6"  | 4" | 18'-3"      | 2" | 2'-8" | 3'-0" | 4'-4"  | 2'-2" | 1'-8" | -- | 5  | 1             | 4.1                       | 340               |
| 24"      | 3'-8"      | 21'-0" | 4'-3" | 1'-8"  | 4" | 21'-3 1/2"  | 2" | 2'-8" | 4'-0" | 5'-4"  | 2'-8" | 2'-2" | 3  | 3  | --            | 5.7                       | 440               |
| 30"      | 4'-3"      | 24'-6" | 4'-8" | 1'-10" | 6" | 24'-10"     | 2" | 2'-8" | 5'-0" | 6'-4"  | 2'-8" | 1'-8" | 5  | -- | 3             | 7.8                       | 593               |
| 36"      | 4'-9"      | 27'-6" | 5'-0" | 2'-0"  | 6" | 27'-10 1/2" | 2" | 2'-8" | 6'-0" | 7'-4"  | 2'-8" | 2'-2" | 7  | 1  | --            | 10.0                      | 722               |
| 42"      | 5'-4"      | 31'-0" | 5'-4" | 2'-3"  | 6" | 31'-5 1/4"  | 2" | 3'-2" | 6'-6" | 7'-10" | 2'-8" | 2'-2" | 5  | 5  | --            | 12.3                      | 874               |
| 48"      | 5'-11"     | 34'-6" | 5'-8" | 2'-6"  | 6" | 34'-11 3/4" | 2" | 3'-2" | 7'-0" | 8'-4"  | 2'-8" | 2'-2" | 3  | 9  | --            | 14.7                      | 1025              |



NOTE:  
 'v' BARS ARE TO BEGIN AT THE PIPE END OF THE SLOPED EXTERIOR HEADWALLS. SEE DETAIL 1 FOR PLACING OF BARS AROUND WALL OPENING.  
 \*\* CUT BARS IN FIELD TO FIT MIN. 2" CLEARANCE



NOTE:  
 'd' BARS, 'v' BARS AND 'w' BARS SHALL BE BENT OR DIPPED AS REQUIRED, AROUND THE WALL OPENING. 'h' BARS SHALL BE BENT OR CUT AS REQUIRED, AROUND THE OPENING.



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

REINFORCING BAR SCHEDULE FOR ONE HEADWALL TYPE III 1:4 SLOPE

| PIPE DIA | NO. 4 REINFORCING BARS |      |            |        |       |
|----------|------------------------|------|------------|--------|-------|
|          | MARK                   | TYPE | NO. REQ'D. | LENGTH | a b   |
| 18"      | d18                    | 1    | 1          | 8'-7"  | 2'-5" |
|          | d18                    | 2    | 30         | 2'-3"  | 1'-6" |
|          | h18                    | STR. | 8          | 17'-8" | 9"    |
|          | n18                    | 2    | 5          | 3'-0"  | 2'-0" |
|          | u18                    | STR. | 19         | 4'-0"  | 1'-0" |
|          | w18                    | STR. | 4          | 3'-0"  | 1'-0" |
| 24"      | o24                    | 1    | 1          | 10'-5" | 3'-0" |
|          | d24                    | 2    | 35         | 2'-3"  | 1'-6" |
|          | h24                    | STR. | 8          | 13'-8" | 9"    |
|          | n24                    | 2    | 6          | 3'-0"  | 2'-0" |
|          | u24                    | STR. | 22         | 5'-0"  | 1'-0" |
|          | w24                    | STR. | 5          | 3'-6"  | 1'-0" |
| 30"      | o30                    | 1    | 1          | 11'-9" | 3'-5" |
|          | d30                    | 2    | 42         | 2'-3"  | 1'-6" |
|          | h30                    | STR. | 10         | 16'-0" | 9"    |
|          | n30                    | 2    | 7          | 3'-0"  | 2'-0" |
|          | u30                    | STR. | 24         | 6'-0"  | 1'-0" |
|          | w30                    | STR. | 6          | 4'-1"  | 1'-0" |
| 36"      | o36                    | 1    | 1          | 13'-7" | 4'-0" |
|          | d36                    | 2    | 47         | 2'-3"  | 1'-6" |
|          | h36                    | STR. | 10         | 18'-0" | 9"    |
|          | n36                    | 2    | 8          | 3'-0"  | 2'-0" |
|          | u36                    | STR. | 27         | 7'-0"  | 1'-0" |
|          | w36                    | STR. | 7          | 4'-7"  | 1'-0" |
| 42"      | o42                    | 1    | 1          | 15'-5" | 4'-7" |
|          | d42                    | 2    | 52         | 2'-3"  | 1'-6" |
|          | h42                    | STR. | 12         | 20'-4" | 9"    |
|          | n42                    | 2    | 8          | 3'-6"  | 2'-6" |
|          | u42                    | STR. | 30         | 7'-6"  | 1'-0" |
|          | w42                    | STR. | 8          | 5'-2"  | 1'-0" |
| 48"      | o48                    | 1    | 1          | 17'-3" | 5'-2" |
|          | d48                    | 2    | 56         | 2'-3"  | 1'-6" |
|          | h48                    | STR. | 12         | 22'-8" | 9"    |
|          | n48                    | 2    | 9          | 3'-6"  | 2'-6" |
|          | u48                    | STR. | 33         | 8'-0"  | 1'-0" |
|          | w48                    | STR. | 8          | 5'-9"  | 1'-0" |

REINFORCING BAR SCHEDULE FOR ONE HEADWALL TYPE III 1:6 SLOPE

| PIPE DIA | NO. 4 REINFORCING BARS |      |            |        |       |
|----------|------------------------|------|------------|--------|-------|
|          | MARK                   | TYPE | NO. REQ'D. | LENGTH | a b   |
| 18"      | o18                    | 1    | 1          | 8'-7"  | 2'-5" |
|          | d18                    | 2    | 43         | 2'-3"  | 1'-6" |
|          | h18                    | STR. | 8          | 17'-8" | 9"    |
|          | n18                    | 2    | 5          | 3'-0"  | 2'-0" |
|          | u18                    | STR. | 25         | 4'-0"  | 1'-0" |
|          | w18                    | STR. | 4          | 3'-0"  | 1'-0" |
| 24"      | o24                    | 1    | 1          | 10'-5" | 3'-0" |
|          | d24                    | 2    | 50         | 2'-3"  | 1'-6" |
|          | h24                    | STR. | 8          | 20'-8" | 9"    |
|          | n24                    | 2    | 6          | 3'-0"  | 2'-0" |
|          | u24                    | STR. | 29         | 5'-0"  | 1'-0" |
|          | w24                    | STR. | 5          | 3'-6"  | 1'-0" |
| 30"      | o30                    | 1    | 1          | 11'-9" | 3'-5" |
|          | d30                    | 2    | 58         | 2'-3"  | 1'-6" |
|          | h30                    | STR. | 10         | 24'-2" | 9"    |
|          | n30                    | 2    | 7          | 3'-0"  | 2'-0" |
|          | u30                    | STR. | 33         | 6'-0"  | 1'-0" |
|          | w30                    | STR. | 6          | 4'-1"  | 1'-0" |
| 36"      | o36                    | 1    | 1          | 13'-7" | 4'-0" |
|          | d36                    | 2    | 65         | 2'-3"  | 1'-6" |
|          | h36                    | STR. | 10         | 27'-2" | 9"    |
|          | n36                    | 2    | 8          | 3'-0"  | 2'-0" |
|          | u36                    | STR. | 37         | 7'-0"  | 1'-0" |
|          | w36                    | STR. | 7          | 4'-7"  | 1'-0" |
| 42"      | o42                    | 1    | 1          | 15'-5" | 4'-7" |
|          | d42                    | 2    | 72         | 2'-3"  | 1'-6" |
|          | h42                    | STR. | 12         | 30'-8" | 9"    |
|          | n42                    | 2    | 8          | 3'-6"  | 2'-6" |
|          | u42                    | STR. | 40         | 7'-6"  | 1'-0" |
|          | w42                    | STR. | 8          | 5'-2"  | 1'-0" |
| 48"      | o48                    | 1    | 1          | 17'-3" | 5'-2" |
|          | d48                    | 2    | 80         | 2'-3"  | 1'-6" |
|          | h48                    | STR. | 12         | 34'-2" | 9"    |
|          | n48                    | 2    | 9          | 3'-6"  | 2'-6" |
|          | u48                    | STR. | 45         | 8'-0"  | 1'-0" |
|          | w48                    | STR. | 8          | 5'-9"  | 1'-0" |

**Illinois Tollway**  
 Open Roads for a Faster Future

HEADWALL TYPE III  
 18"-24"-30"-36"-42"-48"  
 FOR 1:4, 1:6 AND 1:10 SLOPES

STANDARD B6-02

Paul Horvath  
 APPROVED... ENGINEER... DATE 6-1-2009...