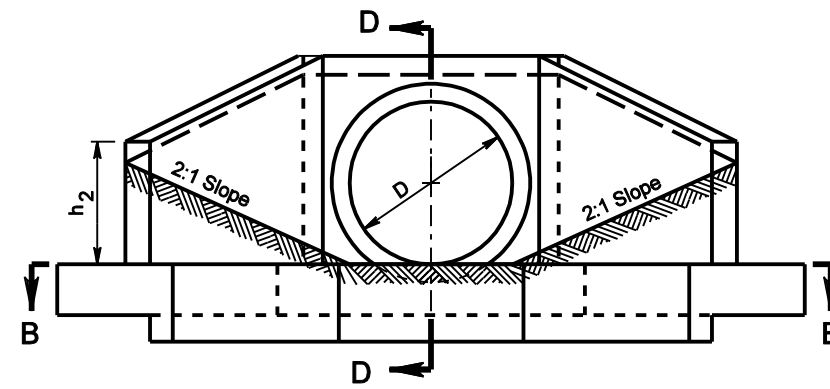
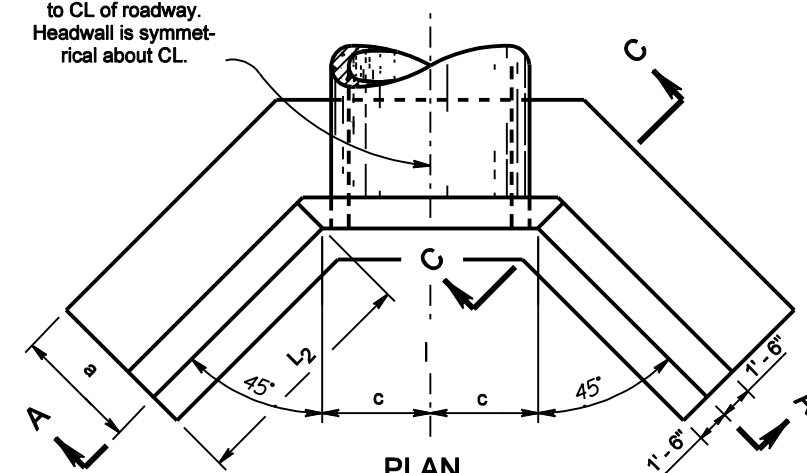


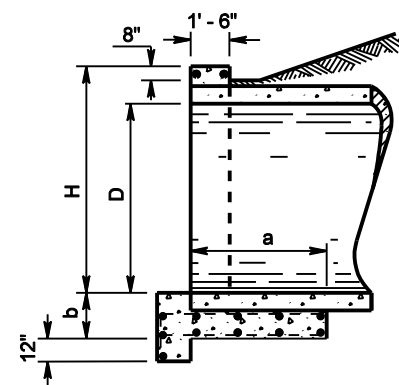


CL of culvert normal  
to CL of roadway.  
Headwall is symmet-  
rical about CL.

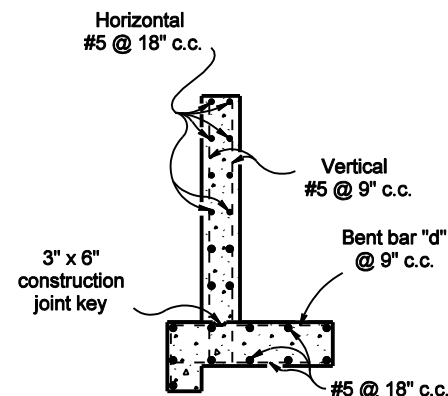
ELEVATION



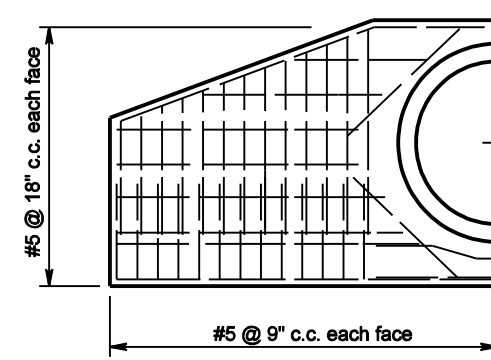
PLAN  
TYPE I



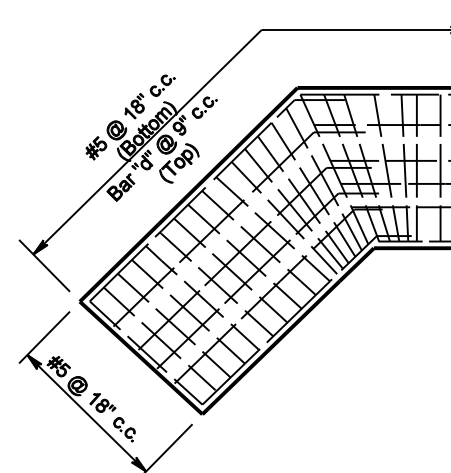
SECTION D-D



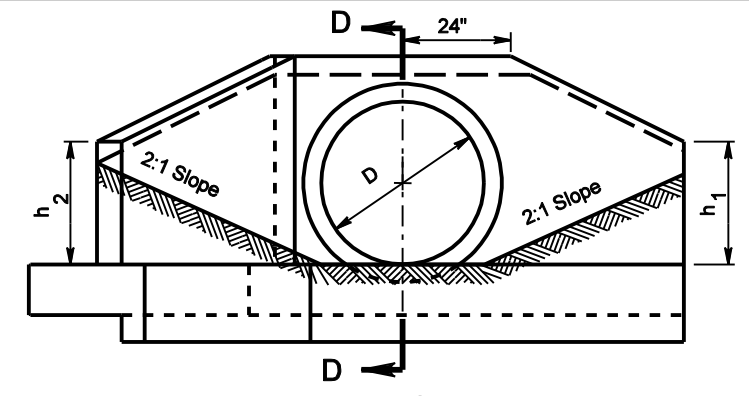
SECTION C-C



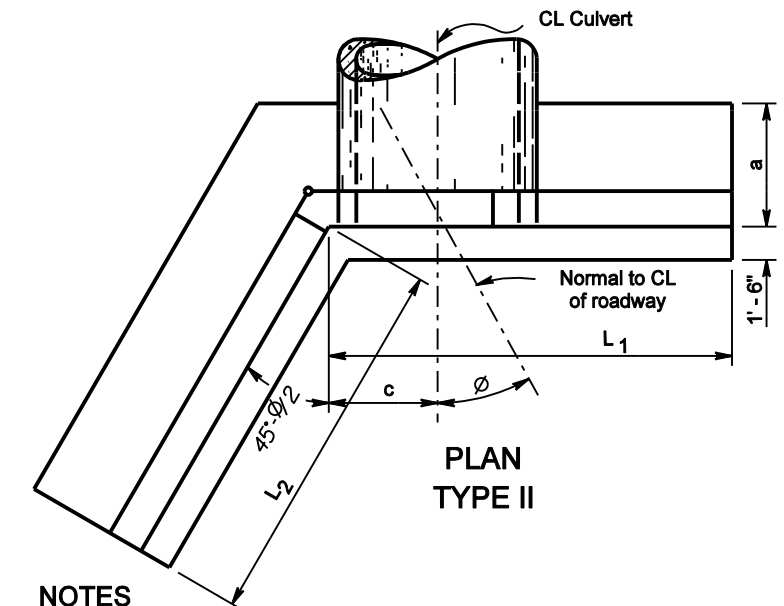
HALF-SECTION A-A



HALF-SECTION B-B



ELEVATION



PLAN  
TYPE II

### NOTES

TYPE C HEADWALL WHERE REQUIRED WILL BE PROVIDED FOR SKEWED AND NONSKEWED CULVERTS HAVING A DIAMETER OR RISE OF 42 TO 84 INCHES INCLUSIVE.

TYPE I IS USED WHEN THE SKEW ANGLE IS 10 DEGREES OR LESS AND TYPE II WHEN THE SKEW ANGLE IS 11 DEGREES AND OVER.

CONCRETE SHALL BE CLASS "A".

REINFORCING STEEL BARS SHALL BE 5/8" ROUND.

DIMENSIONS AND QUANTITIES ARE SHOWN FOR CIRCULAR SECTIONS ONLY. WHEN USED WITH REINFORCED ELLIPTICAL CONCRETE PIPE OR CORRUGATED METAL ARCHES IT WILL BE NECESSARY TO DETERMINE SUCH DIMENSIONS AND QUANTITIES WHICH SHALL GENERALLY CONFORM WITH THOSE LISTED FOR THE NEAREST SIZE CIRCULAR PIPE. THE DIMENSIONS ESTABLISHED BY VERTICAL DIAMETER SHALL APPLY TO SPAN.

CHAMFER ALL EXPOSED CORNERS 3/4 OF AN INCH.

WHERE THE SOIL BORINGS INDICATE A BEARING CAPACITY OF LESS THAN 2600 POUNDS PER SQUARE FOOT IT WILL BE NECESSARY TO INCREASE THE WIDTH OF THE FOOTING.

MINIMUM COVER FOR REINFORCING STEEL SHALL BE 2 INCHES.

| PIPE<br>DIA.<br>D | H      | a     | b      | c     | Bar<br>D | $\phi \sim 0^\circ$ |                |                                     |                                     |                 | $\phi \sim 15^\circ$ |                |                |                |                                     |                                     | $\phi \sim 30^\circ$ |                |                |                |                |                                     | $\phi \sim 45^\circ$                |                 |                |                |                |                | PIPE<br>DIA.<br>D |                                     |                                     |                 |
|-------------------|--------|-------|--------|-------|----------|---------------------|----------------|-------------------------------------|-------------------------------------|-----------------|----------------------|----------------|----------------|----------------|-------------------------------------|-------------------------------------|----------------------|----------------|----------------|----------------|----------------|-------------------------------------|-------------------------------------|-----------------|----------------|----------------|----------------|----------------|-------------------|-------------------------------------|-------------------------------------|-----------------|
|                   |        |       |        |       |          | L <sub>2</sub>      | h <sub>2</sub> | Conc.<br>CMP<br>(yds.) <sup>3</sup> | Conc.<br>RCP<br>(yds.) <sup>3</sup> | Steel<br>(lbs.) | L <sub>1</sub>       | L <sub>2</sub> | h <sub>1</sub> | h <sub>2</sub> | Conc.<br>CMP<br>(yds.) <sup>3</sup> | Conc.<br>RCP<br>(yds.) <sup>3</sup> | Steel<br>(lbs.)      | L <sub>1</sub> | L <sub>2</sub> | h <sub>1</sub> | h <sub>2</sub> | Conc.<br>CMP<br>(yds.) <sup>3</sup> | Conc.<br>RCP<br>(yds.) <sup>3</sup> | Steel<br>(lbs.) | L <sub>1</sub> | L <sub>2</sub> | h <sub>1</sub> | h <sub>2</sub> |                   | Conc.<br>CMP<br>(yds.) <sup>3</sup> | Conc.<br>RCP<br>(yds.) <sup>3</sup> | Steel<br>(lbs.) |
| 42"               | 4'-11" | 3'-3" | 1'-6"  | 2'-6" | #5       | 3'-7"               | 3'-1"          | 7.0                                 | 6.7                                 | 598             | 8'-9"                | 4'-6"          | 3'-8"          | 3'-2"          | 7.3                                 | 7.1                                 | 619                  | 7'-10"         | 5'-9"          | 3'-2"          | 3'-3"          | 7.5                                 | 7.3                                 | 633             | 7'-10"         | 7'-9"          | 3'-2"          | 3'-3"          | 8.7               | 8.5                                 | 718                                 | 42"             |
| 48"               | 5'-5"  | 3'-6" | 1'-6"  | 2'-9" | #5       | 4'-4"               | 3'-4"          | 8.5                                 | 8.2                                 | 793             | 10'-0"               | 5'-4"          | 4'-1"          | 3'-5"          | 9.0                                 | 8.7                                 | 776                  | 8'-9"          | 6'-10"         | 3'-5"          | 3'-6"          | 9.1                                 | 8.8                                 | 801             | 8'-9"          | 9'-2"          | 3'-5"          | 3'-7"          | 10.6              | 10.3                                | 925                                 | 48"             |
| 54"               | 5'-11" | 3'-9" | 1'-6"  | 3'-0" | #5       | 5'-2"               | 3'-8"          | 10.3                                | 10.0                                | 1,069           | 11'-4"               | 6'-3"          | 4'-6"          | 3'-8"          | 10.9                                | 10.5                                | 1,026                | 9'-8"          | 7'-11"         | 3'-8"          | 3'-9"          | 10.8                                | 10.5                                | 1,024           | 9'-8"          | 10'-7"         | 3'-8"          | 3'-10"         | 12.6              | 12.2                                | 1,188                               | 54"             |
| 60"               | 6'-6"  | 4'-0" | 1'-6"  | 3'-3" | #5       | 5'-11"              | 3'-11"         | 12.3                                | 11.8                                | 1,149           | 12'-7"               | 7'-2"          | 4'-10"         | 4'-0"          | 12.9                                | 12.4                                | 1,174                | 10'-7"         | 9'-0"          | 3'-10"         | 4'-1"          | 12.7                                | 12.3                                | 1,157           | 10'-7"         | 12'-0"         | 3'-10"         | 4'-1"          | 14.8              | 14.3                                | 1,354                               | 60"             |
| 72"               | 7'-7"  | 4'-6" | 1'-7"  | 3'-9" | #7       | 7'-5"               | 4'-5"          | 17.0                                | 16.2                                | 1,783           | 15'-1"               | 8'-11"         | 5'-7"          | 4'-6"          | 17.8                                | 17.1                                | 1,811                | 12'-5"         | 11'-2"         | 4'-3"          | 4'-7"          | 17.3                                | 16.6                                | 1,788           | 12'-5"         | 14'-10"        | 4'-3"          | 4'-8"          | 20.2              | 19.6                                | 2,076                               | 72"             |
| 84"               | 8'-8"  | 5'-0" | 1'-10" | 4'-3" | #8       | 9'-0"               | 5'-0"          | 23.7                                | 22.8                                | 2,595           | 17'-7"               | 10'-9"         | 6'-4"          | 5'-1"          | 24.8                                | 23.9                                | 2,596                | 14'-7"         | 13'-4"         | 4'-10"         | 5'-2"          | 24.1                                | 23.3                                | 2,511           | 14'-3"         | 17'-8"         | 4'-8"          | 5'-2"          | 27.9              | 27.0                                | 2,990                               | 84"             |