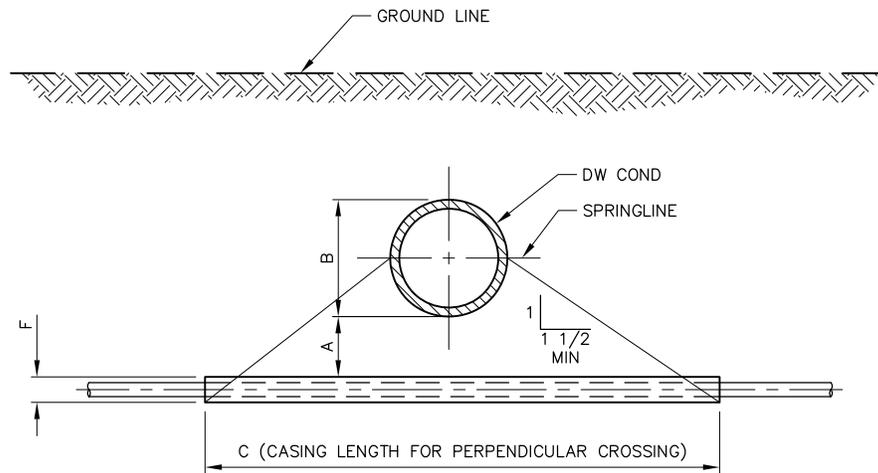


**PLAN**  
FOR PERPENDICULAR CROSSING

**PLAN**  
FOR ANGLE CROSSING



**PROFILE**

FORMULA FOR FINDING C:

$$C = B + (2)(1.5) \left[ \frac{B}{2} + A + F \right]$$

PERPENDICULAR CROSSING CASING LENGTH — C  
 OD DW COND — B  
 CONSTANT — 1.5  
 RATIO OF MIN SLOPE — 1 1/2 MIN  
 CASING OD — B  
 VERT DIST BTWN CASING & DW COND — A  
 1/2 OD DW COND — F

FORMULA FOR FINDING L:

$$L = \frac{C}{\sin \theta}$$

NOTES:

1. THE BORING & CASING METHOD & MATERIALS SHALL APPROVED BY DENVER WATER.
2. SOIL AT ENDS OF CASING SHALL BE STABLE AT ALL TIMES.
3. CATHODIC PROTECTION SHALL BE PROVIDED FOR STEEL CASING AS REQUIRED BY DENVER WATER.
4. CASING PIPE SHALL BE STRAIGHT, ROUND, & OF NEW MATERIAL.

<b>DENVER WATER</b> 1600 West 12th Avenue • Denver, Colorado 80204 Phone (303) 628-6000 • Telecopier No. (303) 628-6851	
<b>BORED CROSSING BENEATH CONDUITS</b>	
Scale: <u>NONE</u>	Date: <u>March 2012</u>
Drawn: <u>C.B.B.</u>	Ck: <u>K ROSS</u>
Approved: <u>[Signature]</u>	Dr. <u>127</u> No. <u>35</u>