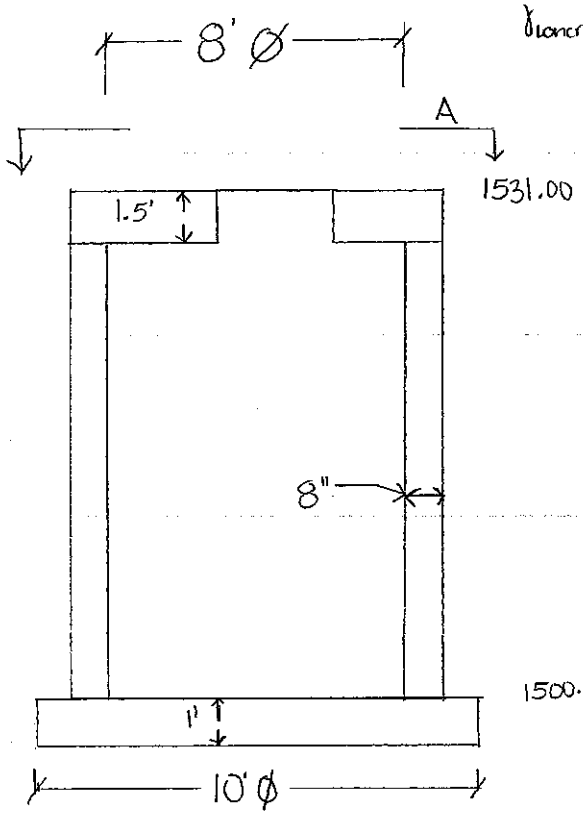
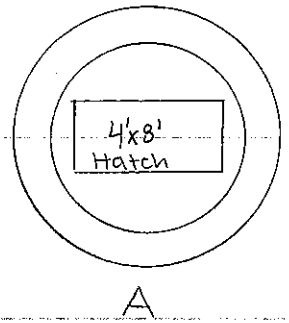


$\gamma_{concrete} = 145\ ^{\#}/Ft^3$

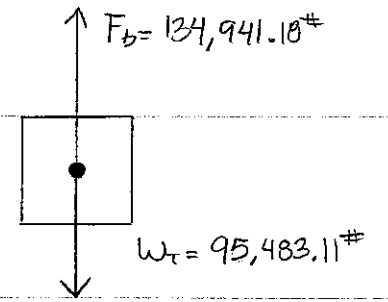


$V_w = \frac{\pi(112/12)^2}{4} \times 30.46' = 2083.98\ Ft^3$

$V_w = \frac{\pi(10)^2}{4} \times 1 = 78.54\ Ft^3$

$V_{WT} = 2,162.52\ Ft^3$

$F_B = 2,162.52\ Ft^3 \times 62.4\ ^{\#}/Ft^3 = 134,941.18^{\#}$



1) Lid

$\frac{\pi(112/12)^2}{4} \times 1.5' = 102.63\ Ft^3$

$-4'x8'x1.5' = -48\ Ft^3$

$54.63\ Ft^3 \times 145\ ^{\#}/Ft^3 = \boxed{7,921.35^{\#}}$

2) $A_1 - A_2 = \frac{\pi(112/12)^2}{4} - \frac{\pi(96/12)^2}{4} = 18.14\ Ft^2 \times 28.96\ Ft = 525.33\ Ft^3$

1529.50
- 1500.54
28.96 ft

$525.33\ Ft^3 \times 145\ ^{\#}/Ft^3 = \boxed{76,173.49^{\#}}$

3) $\frac{\pi(10)^2}{4} \times 1 = 78.54\ Ft^3 \times 145\ ^{\#}/Ft^3 =$ $\boxed{11,388.27^{\#}}$

$\boxed{\Sigma_w = 95,483.11^{\#}}$

Find D Acceptable

$95,483.11^{\#}/1.25 = 76,386.48^{\#}$

$76,386.48^{\#} = [78.54\ Ft^3 + 68.42D]\ 62.4\ ^{\#}/Ft^3$

$D = 16.74'$

So water must be below 1517.28 for F.S. 1.25