BUOYANCY CALCULATIONS

MATERIAL	#/CF	#/GAL
SOIL (dry)	100	
SOIL (saturated)	117	
SOIL (net)	83	
WATER	62.4	8.34
CONCRETE	150	

VESSEL	WEIGHT (POUNDS) W	VOLUME (GALLONS) V	AREA (SQ FT) A	COVER (#/INCH) CW	WEIGHT DISPLACED WD=V*8.34	BUOYANT FORCE (POUNDS) BF=WD-W	COVER REQUIRED (INCHES) BF/CW
ST-500	225	537	21.8	150.8	4478.58	4253.58	28.2
ST-750	360	1007	36.8	254.5	8398.38	8038.38	31.6
ST-900	450	1147	43.3	299.5	9565.98	9115.98	30.4
ST-1060	520	1337	50	345.8	11150.58	10630.58	30.7
ST-1250	560	1464	56.3	389.4	12209.76	11649.76	29.9
ST-1500	640	1771	68.9	476.6	14770.14	14130.14	29.7

NOTES:

1. AREA OF TANKS IS CALCULATED WITHOUT MANHOLES.
2. BUOYANCY FORCE IS ASSUMING SATURATED SOIL (WORST CASE SCENARIO).
3. THE NUMBERS CAN BE CHANGED BY CHANGING THE DRY SOIL WEIGHT FOR SITE CONDITIONS..
4. WET SOIL WEIGHT IS INDEXED TO DRY SOIL.
5. TANK IS ASSUMED TO BE FULLY SUBMERGED, IF ONLY 50% SUBMERGED, FORCES ARE HALVED.
6. ALL CALCULATIONS ARE BASED ON AN EMPTY TANK.
7. PLEASE SEE THE ROTH RESTRAINING COLLAR DRAWING FOR HIGH GROUNDWATER .
   THE SAFETY FACTOR NOTED ON THE DRAWING
   DOES NOT CONSIDER THE LOADING OF THE EARTH ON TOP OF THE TANK.