

CLASS 2 GREYWATER PIT SIZING CALCULATIONS

EXAMPLE: Dwelling with a tub/shower and two sinks, supplied with a pressurized water supply, and native sandy soils with a 10min/cm percolation rate.

PRESSURIZED WATER SYSTEM:

$$\text{Daily Design Sewage Flow (Litres/Day)} = \# \text{ of Fixture Units} * 200$$

$$\begin{aligned} \text{Daily Design Sewage Flow} &= 4.5 * 200 \\ &= \mathbf{900 \text{ L/Day}} \end{aligned}$$

$$\begin{aligned} L_R \text{ (Side Wall Loading Rate)} &= \frac{400}{T} \quad \text{where, } T = \text{Percolation Rate of the native soil (min/cm)} \\ &= \frac{400}{10} \\ &= \mathbf{40 \text{ L/Day/m}^2} \end{aligned}$$

$$\begin{aligned} \text{Side Wall Area (1)} &= \frac{\text{Daily Sewage Flow (L/Day)}}{\text{Loading Rate (L/Day/m}^2)} \\ &= \frac{900}{40} \\ &= \mathbf{22.5\text{m}^2} \end{aligned}$$

$$\text{Minimum Required Side Wall Area of Greywater Pit} = \mathbf{22.5\text{m}^2}$$

DIMENSIONS OF GREYWATER PIT:

$$\text{Height} = 1.0\text{m} \quad \text{Length} = 5.50\text{m} \quad \text{Width} = 6.0\text{m}$$

$$\begin{aligned} \text{Side Wall Area} &= H * L * 2 \text{ (# of sides)} \\ &= 1\text{m} * \mathbf{5.5\text{m}} * 2 \\ &= 11\text{m}^2 \end{aligned}$$

$$\begin{aligned} \text{Side Wall Area} &= H * W * 2 \text{ (# of sides)} \\ &= 1\text{m} * \mathbf{6.0\text{m}} * 2 \\ &= 12\text{m}^2 \end{aligned}$$

$$\begin{aligned} \text{Total Calculated Side Wall Area (2)} &= [H*L*2] + [H*W*2] \\ &= 11\text{m}^2 + 12\text{m}^2 \\ &= \mathbf{23.0\text{m}^2} \end{aligned}$$



