



188 Seatown, Cullen
Proposed Replacement House
Planning Ref No: 24/00076/APP

The proposals are to connect the surface water drains from the replacement house to the existing surface water drain on the site which are connected to public sewers. As the building is in an area of high risk from surface water flooding the drainage is to be attenuated.

Attenuation Pit

$$\begin{aligned} A &= \text{Additional area to be drained} \\ &= (5.97 \times 3.4 \times 2) + (4.9 \times 3.4 \times 2) + (5.4 \times 2.1) \\ &= 90.156\text{m}^2 \end{aligned}$$

$$\begin{aligned} a &= \text{The internal surface area of the attenuation pit to 50\% effective volume, excluding the base in m}^2 \text{ This is to be assumed for initial calculation purpose} \\ &= 2 (2.5+1.0) 0.8 \times 0.5 \\ &= 2.8\text{m}^2 \end{aligned}$$

$$\begin{aligned} f &= \text{The soil infiltration rate in m/s (percolation time = 120sec/mm)} \\ &= 1/120/1000 \\ &= 0.0000083 \end{aligned}$$

$$\begin{aligned} \text{Attenuation Pit} &= (A \times 0.0145) - (a \times f \times 900) \\ &= (90.156 \times 0.0145) - (2.8 \times 0.0000083 \times 900) \\ &= 1.307 - 0.021 \\ &= 1.286\text{m}^3 \end{aligned}$$

$$\begin{aligned} \text{1 in 30 year} &= 1.286 \times 1.99 \\ \text{Factor} &= 2.559\text{m}^3 \end{aligned}$$

$$\begin{aligned} \text{Allowance for} &= 2.559 + (35\% \text{ of } 2.559) \\ \text{Climate Change} &= 3.455\text{m}^3 \end{aligned}$$

$$\begin{aligned} \text{Rainwater Harvesting Tank} & \\ \text{Volume} &= 5,000\text{litre Tank (5.0m}^3) \end{aligned}$$