



WINTER HOUSE, 81 SWAINS LANE, HIGHGATE
SURFACE WATER DRAINAGE PROPOSALS

The following outlines the surface water drainage proposals for the development area.

The site will also be designed to cater for a 1:100 year return storm for a duration of one hour.

The rainfall intensity rate for roof areas to be utilised is 108 mm/hr with a 30% increase for climatic change.

The development site is approximately 563 m² in plan area.

Greenfield run-off rates are not applicable for this site, based on the planning condition; even though the site previously discharged surface water. The outfall will be limited and controlled to a specific flow rate by a vortex inducing hydrobroke (HRD). The maximum allowable surface water discharge rate to the Thames Water Utility sewer of 1.25 l/s at any time.

The total design flow rate based on the design intensity is 9.6 l/s for the roof/ hard paved areas within the development plan area. Permeable areas, soakaway's and infiltration trenches will be provided for the other parts of the development. The permeable areas have been increased over the existing condition.

However, the total design flow rate/available storage volume based on the design intensity will be lower than this (But not deducted), noting the following;

Rainwater recovery for irrigation.

Green roof area storage/slow percolation.

WDR – Wind driven rain has been factored into the figures (Increasing the nett area).

Surface wetting/ air drying and natural infiltration has not been taken, apart from green and permeable areas.

Irrigation supplies to the gardens - draw off.

The effective storage requirement for a sustainable urban drainage system (SUDS) is therefore based on an actual retention volume of 22.6M³, the allowable discharge rate of 1.25 l/s (3.37 M³/Hr), plus allowing for additional storage within pipes, manholes, chambers and catchpits etc (5M³).

This therefore provides a maximum retention design volume of 30.97M³.

The maximum 1:100 year storm is noted as 92.16 M³ storage over a six hour period.

The first 5mm of rainfall will be stored within the retention tank and utilised via rainwater harvesting for irrigation purposes. Catchpits and traps will be utilised.

The surface discharge flow rate to the sewer will be no greater post development (1.25l/s), compared to pre-development (3.3l/s); this is a 62% reduction over the existing condition.

The main tank will be a concrete tank and shall be positioned not directly below the building line within the garden area.

Surface water will gravitate from the house site to the tank and then gravitate to the sewer within the property via a hydrobrake.

The tank and drainage system will incorporate emergency overflows.

A period of 441 minutes will be required to fully drain the tank at the allowable 1.25 l/s discharge rate to the sewer (Excluding other deductions), this then provides capacity for several events within the same day.

The sewer within Swains Lane is some 3.85m lower than the existing ground floor level.

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