

### **HAZARD REDUCTION, MITIGATION AND WATER EXCLUSION STRATEGY**

Landscaping to Rear and Front Gardens: The proposed gardens will have ground soil, a wooden decking with steps from the proposed bi folding doors. This will allow water to drain away directly back into the ground soil. The gardens will be laid to fall away from the building.

The proposed extension will be constructed using resistant construction techniques and resilient materials with a concrete floor to the lower part of the proposed extension and hard floor finishes. This construction will provide structural strength and integrity in respect of potential future flood events to proposed ground FFL

### **PLANNED EVACUATION**

The proposed ground floor levels are above Flood Zone depths predicted on Chudleigh Road at the site frontage, which are predicted at less than 100mm. Estimated Flood levels from surface water are predicted at 300mm or below, and would impact the lower part of the extension if at all. Escape is up the steps to the kitchen and remainder of the property, both of which are above EA estimated flood levels.

### **Twickenham Rainfall Statistics / Flash Flooding**

- Based on maximum rainfall (risk of flooding) the rainfall/month = 60mm
- Rainfall/ day = 2.00mm (per square metre)
- Based on average flood period/rainfall storm of 1hr = 2 x average rainfall/day = 4.00mm

### **SURFACE WATER RUN-OFF REDUCTION**

Rainwater run-off from the house roofs will be taken at the rear and front of the existing house to a soakaway in the rear garden, 5m from nearby buildings.

The new extension roof area is 48m<sup>2</sup>.

Additional Flows (storm):

- Average additional rainwater flow (Twickenham/day) :  $2\text{mm} \times 48\text{m}^2 = 96\text{mm}^2/\text{day} = 96 \text{ litres/day} = 4 \text{ litres /hr}$
- Storm flash flood flow = 8 litres /hr /sqm
  - = 0.13 litres/minute storm water for the additional extension area

For residential applications, the most commonly used size for a soakaway is 1m<sup>3</sup> for 50m<sup>2</sup> of roof area, which requires crates with a water storage volume of 1,000 litres. **The proposed geocellular soakaway will be 1.2m<sup>3</sup>, allowing for any additional rainwater.**

### **SUMMARY OF PROPOSAL IMPACTS**

Through increase in the net area of permeable surfaces on the site, and the attenuation of surface water flows from residual permeable surfaces, the proposals will provide a positive contribution to borough wide efforts to reduce flood risk through a reduction in run-off relative to the existing.

**Chudleigh Road Run-off estimate below**

Calculated by:	Faraz Nasir
Site name:	Chudleigh Road
Site location:	Twickenham

## Site Details

Latitude:	51.45330° N
Longitude:	0.33815° W
Reference:	3591358148
Date:	Oct 02 2024 22:31

This is an estimation of the greenfield runoff rates that are used to meet normal best practice criteria in line with Environment Agency guidance "Rainfall runoff management for developments", SC030219 (2013), the SuDS Manual C753 (Ciria, 2015) and the non-statutory standards for SuDS (Defra, 2015). This information on greenfield runoff rates may be the basis for setting consents for the drainage of surface water runoff from sites.

## Runoff estimation approach

IH124

## Site characteristics

Total site area (ha):	0.1
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## Methodology

$Q_{BAR}$ estimation method:	Calculate from SPR and SAAR
SPR estimation method:	Calculate from SOIL type

## Notes

(1) Is  $Q_{BAR} < 2.0$  l/s/ha?

When  $Q_{BAR}$  is  $< 2.0$  l/s/ha then limiting discharge rates are set at 2.0 l/s/ha.

## Soil characteristics

	Default	Edited
SOIL type:	2	2
HOST class:	N/A	N/A
SPR/SPRHOST:	0.3	0.3

(2) Are flow rates  $< 5.0$  l/s?

Where flow rates are less than 5.0 l/s consent for discharge is usually set at 5.0 l/s if blockage from vegetation and other materials is possible. Lower consent flow rates may be set where the blockage risk is addressed by using appropriate drainage elements.

## Hydrological characteristics

	Default	Edited
SAAR (mm):	600	600
Hydrological region:	6	6
Growth curve factor 1 year:	0.85	0.85
Growth curve factor 30 years:	2.3	2.3
Growth curve factor 100 years:	3.19	3.19
Growth curve factor 200 years:	3.74	3.74

(3) Is  $SPR/SPRHOST \leq 0.3$ ?

Where groundwater levels are low enough the use of soakaways to avoid discharge offsite would normally be preferred for disposal of surface water runoff.

## Greenfield runoff rates

Default Edited

$Q_{BAR}$ (l/s):	0.15	0.15
1 in 1 year (l/s):	0.13	0.13
1 in 30 years (l/s):	0.35	0.35
1 in 100 year (l/s):	0.49	0.49
1 in 200 years (l/s):	0.57	0.57

This report was produced using the greenfield runoff tool developed by HR Wallingford and available at [www.uksubs.com](http://www.uksubs.com). The use of this tool is subject to the UK SuDS terms and conditions and licence agreement, which can both be found at [www.uksubs.com/terms-and-conditions.htm](http://www.uksubs.com/terms-and-conditions.htm). The outputs from this tool are estimates of greenfield runoff rates. The use of these results is the responsibility of the users of this tool. No liability will be accepted by HR Wallingford, the Environment Agency,