

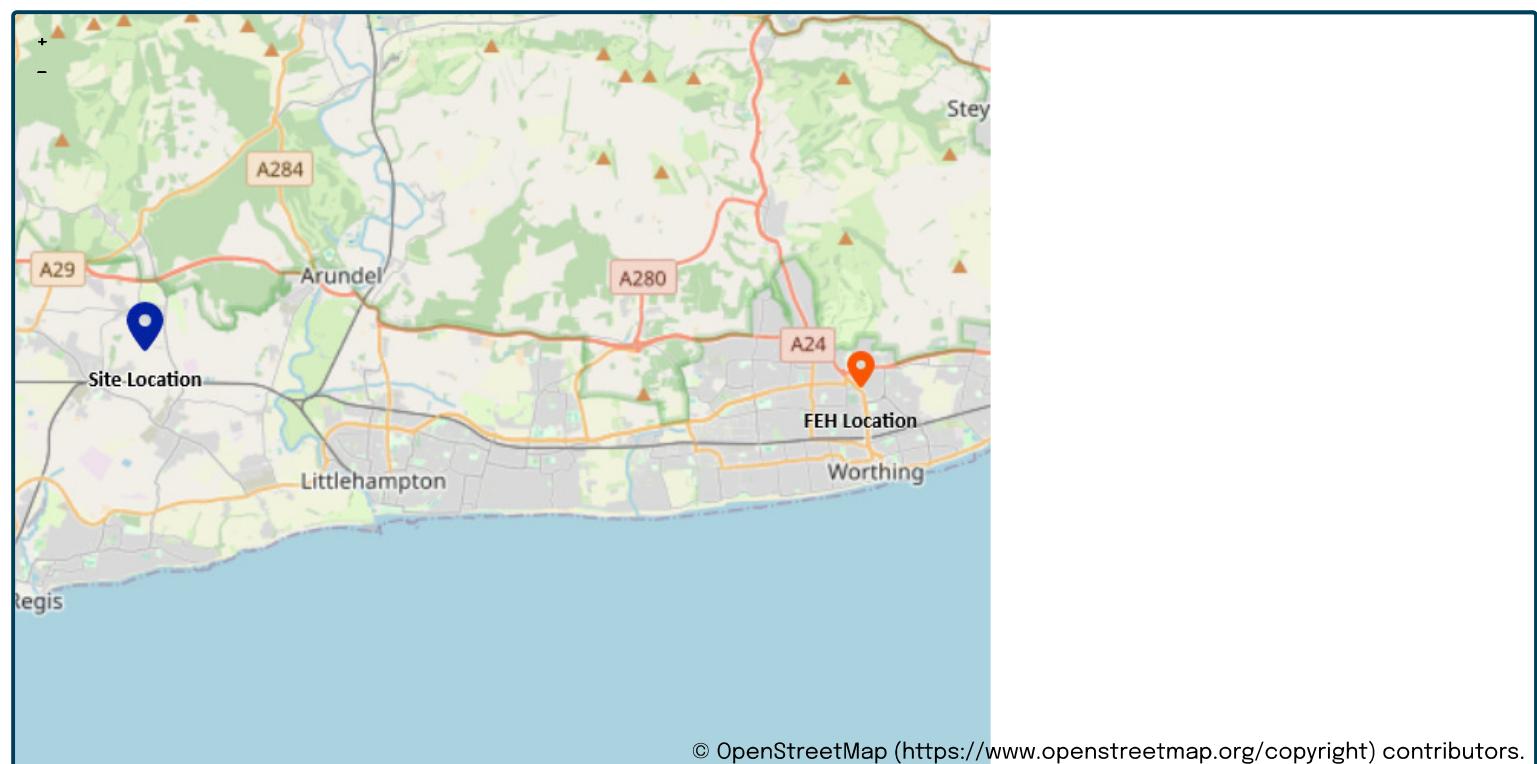
This is an estimation of the storage volume requirements that are needed to meet normal best practice criteria in line with Environment Agency guidance "Rainfall runoff management for developments", SC030219 (2013), the SuDS Manual C753 (CIRIA, 2015) and the non-statutory standards for SuDS (Defra, 2015). It is recommended that the total storage volume for the site is distributed across the site using multiple SuDS and that hydraulic modelling software is used to undertake and finalise the detailed design of the drainage system.

Project details

Date	09/10/2025
Calculated by	Simon Dent Associates
Reference	1859 - Sussex Business Centre Barnham
Model version	2.1.2

Location

Site name	SBC - Barnham
Site location	Barnham



Site easting (British National Grid)	497214
Site northing (British National Grid)	104612

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Site areas

Total site area (ha)	0.1405	ha
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Roof area

Total roof area (ha)	0.0263	ha
Contributing roof area (ha)	0.0263	ha
Non-contributing roof area (ha)	0	ha

Paved area

Total paved area (ha)	.0281	ha
Contributing paved area (ha)	.0281	ha
Non-contributing paved area (ha)	0	ha

Grass / vegetated area

Total grass / vegetated area (ha)	.0861	ha
Contributing grass / vegetated area (ha)		ha
Non-contributing grass / vegetated area (ha)	0.0861	ha

Total area

Total contributing area (ha)	0.0544	ha
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Contributing areas with urban creep allowance

Urban creep allowance factor	+10%	
Contributing roof area (adjusted for urban creep) (ha)	0.0263	ha
Contributing paved area (adjusted for urban creep) (ha)	0.0281	ha
Contributing grass / vegetated area (adjusted for urban creep) (ha)	0	ha

Storage design parameters

Storage base shape	Rectangular / square	
Storage base length to width ratio	1:1 (square)	
Storage design depth (m)	0.5	m
Storage side slope (1 in x)	1 in 1	
Storage voids ratio (%)	90% (e.g. geocellular crate systems)	
Storage volume design return period (years)	1:100 years	

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Discharge flow rate from the site

Method

Type of site	Greenfield
Specify the method	User specified

User specified discharge

Flow rate (user specified) (l/s)	0.7	l/s
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Final discharge rate

Runoff calculation method	User specified	
Design flow rate (l/s)	0.7	l/s

Blockage risk

Specify the method	Orifice diameter	
Minimum orifice diameter to prevent blockage (mm)	21	mm
Design orifice diameter (mm)	21	mm
Flow rate of orifice (l/s)	0.65	l/s

Rainfall and runoff

Rainfall input type	FEH22 CSV file	
	FEH_Point_Rainfall_FEH22_POT_514534_103783.csv	
Distance from FEH location to site (km)	17.3	km
Climate change allowance factor	145%	
Specify the runoff method from grass / vegetated areas	Fixed percentage - based on rainfall event depth and SPR	
How should SPR be derived?	WRAP soil type	Map value
WRAP soil type	2	2
SPR	0.3	

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Model results

- **Maximum discharge flow rate:** 0.6 (l/s)
- **Outflow orifice diameter:** 21 (mm)
- **Storage base length:** 9.9 (m)
- **Storage base width:** 9.9 (m)
- **Storage base area:** 98 (m²)
- **Storage total volume:** 54 (m³)
- **Storage total water volume:** 49 (m³)
- **Storm return periods run:** 1, 2, 10, 30, 100, 200 (years)
- **Storm durations run:** 15, 30, 60, 120, 180, 240, 360, 540, 720, 900, 1080, 1440, 1800, 2160, 2880, 3600, 4320, 5040, 5760 (minutes)

Return Period (years)	Critical Duration (minutes)	Peak Flow Rate (l/s)	Max Depth (m)	Max water volume (m ³)	Max storage volume (m ³)
1	540	0.4	0.16	15	17
2	540	0.4	0.21	19	21
10	540	0.5	0.32	30	33
30	540	0.6	0.40	38	42
100	540	0.6	0.50	49	54
200	540	0.7	0.57	56	62

Please note runoff estimation and storage volume estimation are subject to uncertainty. Storage volume results are therefore reported to the nearest 1 m³ value, unless storage volumes are less than 10 m³, in which case, storage volumes are provided to 1 decimal place.

Disclaimer

This report was produced using the surface water storage volume design tool (2.1.2) developed by HR Wallingford and available at [uksuds.com](http://www.eksuds.com/) (<https://www.eksuds.com/>). The use of this tool is subject to the UK SuDS terms and conditions and licence agreement, which can both be found at [uksuds.com/terms-conditions](http://www.eksuds.com/terms-conditions) (<https://www.eksuds.com/terms-conditions>). The outputs from this tool have been used to estimate surface water storage volumes for the whole site based on a limiting discharge rate from the site. 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, Centre for Ecology and Hydrology, Wallingford Hydrosolutions or any other organisation for the use of these data in the design or operational characteristics of any drainage scheme.

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