

Surface water storage requirements for sites

Site name: Land off Elker Lane

Site location: Billington, Lancashire BB7 9HZ

Site coordinates

Latitude: 53.81571° N

Longitude: 2.4295° W

Reference: gcw60syghx3q / 2.7

Date: 13 Apr 2016

This is an estimation of the storage volume requirements that are needed to meet normal best practice criteria in line with Environment Agency guidance "Preliminary rainfall runoff management for developments", W5-074/A/TR1/1 rev. E (2012) and the CIRIA SUDS Manual (2007). It is not to be used for detailed design of drainage systems. It is recommended that every drainage scheme uses hydraulic modelling software to finalise volume requirements and design details before drawings are produced.

Site characteristics

Total site area	2.7	ha
Significant public open space	0	ha
Area positively drained	2.7	ha
Impermeable area	1.35	ha
Percentage of drained area that is impermeable	50	%
Impervious area drained via infiltration	0	ha
Return period for infiltration system design	10	year
Impervious area drained to rainwater harvesting systems	0	ha
Return period for rainwater harvesting system design	10	year
Compliance factor for rainwater harvesting system design	66	%
Net site area for storage volume design	2.7	ha

Methodology

Greenfield runoff method	IH124
Volume control approach	Use Long Term Storage
Qbar estimation method	Calculate from SPR and SAAR
SPR estimation method	Calculate from SOIL type
SOIL type	4
HOST class	N/A
SPR	0.47

Hydrological characteristics

	Default	Edited	
SAAR	1140	1140	mm
M5-60 Rainfall Depth	20	20	mm
'r' Ratio M5-60/M5-2 day	0.3	0.3	
FEH/FSR conversion factor	0.86	0.86	
Hydrological region	10	10	
Growth curve factor: 1 year	0.87	0.87	
Growth curve factor: 10 year	1.38	1.38	
Growth curve factor: 30 year	1.7	1.7	
Growth curve factor: 100 year	2.08	2.08	

Design criteria

Climate change allowance factor	1.3	
Urban creep allowance factor	1.1	
Interception rainfall depth	5	mm

Greenfield runoff rates

	Default	Edited	
Qbar	23.06	23.06	l/s
1 in 1 year	20.07	20.07	l/s
1 in 30 years	39.21	39.21	l/s
1 in 100 years	47.97	47.97	l/s

Please note that a minimum flow of 5 l/s applies to any site

Estimated storage volumes

	Default	Edited	
Interception storage	54.00	54.00	m ³
Attenuation storage	813.09	813.09	m ³
Long term storage	0.00	0.00	m ³
Treatment storage	162.00	162.00	m ³
Total storage	867.09	867.09	m ³