

Appendix C

Current Site Proposals and Drainage Strategy DW1705-C-DS01-B

Greenfield Run off Calculations

Attenuation Storage Calculations Rev A

Calculated by: Chris Corrigan

Site name: HB Swadlincote

Site location: Coppice Side

Site coordinates

Latitude: 52.77017° N

Longitude: 1.55487° W

This is an estimation of the greenfield runoff rate limits 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 SuDS Manual, C753 (Ciria, 2015). This information on greenfield runoff rates may be the basis for setting consents for the drainage of surface water runoff from sites.

Reference: 6398538

Date: 2018-07-06T10:17:08

Methodology

IH124

Site characteristics

Total site area (ha)	0.3955
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Methodology

Qbar estimation method	Calculate from SPR and SAAR
SPR estimation method	Calculate from SOIL type

	Default	Edited
SOIL type	4	4
HOST class	---	---
SPR/SPRHOST	0.47	0.47

Hydrological characteristics

	Default	Edited
SAAR (mm)	662	662
Hydrological region	4	4
Growth curve factor: 1 year	0.83	0.83
Growth curve factor: 30 year	2	2
Growth curve factor: 100 year	2.57	2.57

Notes:

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

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

Where flow rates are less than 5.0 l/s consents are usually set at 5.0 l/s if blockage from vegetation and other materials is possible. Lower consent flow rates may be set in which case blockage work must be addressed by using appropriate drainage elements

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

Greenfield runoff rates

	Default	Edited
Qbar (l/s)	1.79	1.79
1 in 1 year (l/s)	1.48	1.48
1 in 30 years (l/s)	3.58	3.58
1 in 100 years (l/s)	4.6	4.6

Calculated by: Chris Corrigan

Site name: HB swadlincote

Site location: Coppice Side

Site coordinates

Latitude: 52.77026° N

Longitude: 1.5547° W

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 SuDS Manual, C753 (Ciria, 2015). It is not to be used for detailed design of drainage systems. It is recommended that hydraulic modelling software is used to calculate volume requirements and design details before finalising the drainage scheme.

Reference: 6398540

Date: 2019-02-13T14:44:13

Methodology

IH124

Site characteristics

Total site area (ha)	0.3955
Significant public open space (ha)	0.23
Area positively drained (ha)	0.1655
Pervious area contribution (%)	30
Impermeable area (ha)	0.1655
Percentage of drained area that is impermeable (%)	100
Impervious area drained via infiltration (ha)	0
Return period for infiltration system design (year)	10
Impervious area drained to rainwater harvesting systems (ha)	0
Return period for rainwater harvesting system design (year)	10
Compliance factor for rainwater harvesting system design (%)	66
Net site area for storage volume design (ha)	0.17
Net impermeable area for storage volume design (ha)	0.17

* Where rainwater harvesting or infiltration has been used for managing surface water runoff such that the effective impermeable area is less than 50 % of the 'area positively drained', the 'net site area' and the estimates of Qbar and other flow rates will have been reduced accordingly.

Design criteria

Volume control approach	Use long term storage	
	Default	Edited
Climate change allowance factor	1.4	1.4
Urban creep allowance factor	1.1	1.1
Interception rainfall depth (mm)	5	5
Minimum flow rate (l/s)	5	5
Qbar estimation method	Calculate from SPR and SAAR	
SPR estimation method	Calculate from SOIL type	
	Default	Edited
Qbar total site area (l/s)	1.79	--
SOIL type	4	4
HOST class	N/A	N/A
SPR	0.47	0.47

Hydrology

	Default	Edited
SAAR (mm)	662	662
M5-60 Rainfall Depth (mm)	20	20
'r' Ratio M5-60/M5-2 day	0.4	0.4
Rainfall 100 yrs 6 hrs	63	
Rainfall 100 yrs 12 hrs	81.62	
FEH/FSR conversion factor	1.06	1.06
Hydrological region	4	
Growth curve factor: 1 year	0.83	0.83
Growth curve factor: 10 year	1.49	1.49
Growth curve factor: 30 year	2	2
Growth curve factor: 100 year	2.57	2.57

Site discharge rates

	Default	Edited
Qbar total site area (l/s)	1.79	1.79
Qbar net site area (l/s)	0.75	0.75
1 in 1 year (l/s)	5	5
1 in 30 years (l/s)	5	5
1 in 100 years (l/s)	5	5

Estimated storage volumes

	Default	Edited
Interception storage (m³)	7	7
Attenuation storage (m³)	65	65
Long term storage (m³)	0	0
Treatment storage (m³)	20	20
Total storage (excluding treatment) (m³)	72	72