

**Appendix 9-4: Greenfield Runoff
Modelling**

APPENDIX 9-4: HYDROLOGY AND HYDROGEOLOGY 9

REFH2 Greenfield Runoff Rates

Return period (yrs)	As-rural peak flow (m ³ /s)	As-rural peak flow (l/s)
1	0.0196	19.6
2	0.0228	22.8
5	0.0338	33.8
10	0.0426	42.6
30	0.0598	59.8
50	0.0705	70.5
75	0.0807	80.7
100	0.0891	89.1
200	0.1123	112.3
1000	0.1756	175.6

APPENDIX 9-4: HYDROLOGY AND HYDROGEOLOGY 9



estimation for sites

www.uksuds.com | Greenfield runoff tool

Calculated by:
 Site name:
 Site location:

Site Details
 Latitude:
 Longitude:
 Reference:
 Date:

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

Site characteristics

Total site area (ha):

Methodology

Q_{MED} estimation method:
 BFI and SPR method:
 HOST class:
 BFI / BFIHOST:
 Q_{MED} (l/s):
 Q_{BAR} / Q_{MED} factor:

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.

(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.

(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.

Hydrological characteristics

	Default	Edited
SAAR (mm):	619	619
Hydrological region:	5	5
Growth curve factor 1 year:	0.87	0.87
Growth curve factor 30 years:	2.45	2.45
Growth curve factor 100 years:	3.56	3.56
Growth curve factor 200 years:	4.21	4.21

Greenfield runoff rates

	Default	Edited
Q_{BAR} (l/s):		22.35
1 in 1 year (l/s):		19.44
1 in 30 years (l/s):		54.76
1 in 100 year (l/s):		79.57
1 in 200 years (l/s):		94.1

This report was produced using the greenfield runoff tool developed by HR Wallingford and available at www.uksuds.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.uksuds.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, CEH, Hydrosolutions or any other organisation for the use of this data in the design or operational characteristics of any drainage scheme.