Greenfield runoff rate estimation for sites

HR Wallingford — *Working with water*

Calculated by:	Rebecca Wilson
Site name:	Brill Place
Site location:	London

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.

Site Details

Latitude:	51.52922° N
Longitude:	0.12704° W
Reference:	3940150858
Date:	Oct 09 2019 14:49

Runoff estimation approach

FEH Statistical

Site characteristics

Total site area (ha):	0.1

Methodology

Q_{MED} estimation method:	Calculate from BFI and SAAR
BFI and SPR method:	Specify BFI manually
HOST class:	N/A
BFI / BFIHOST:	0.621
Q_{MED} (l/s):	
Q_{BAR} / Q_{MED} factor:	1.14

Hydrological characteristics

	Default	Edited
SAAR (mm):	627	627
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

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 ≤ 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):		0.16
1 in 1 year (l/s):		0.14
1 in 30 years (l/s):		0.37
1 in 100 year (l/s):		0.51
1 in 200 years (l/s):		0.6

For 0.04ha Site Area:
Qbar = 0.064
1 in 1 year = 0.056
1 in 30 years = 0.148
1 in 100 years = 0.204

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. . .	Brill Place Rainfall Profile 1 in 2 Year	Micro Drainage
Date 29/10/2019 16:04 File	Designed by UKBAB002 Checked by UKLSC006	
XP Solutions	Source Control 2019.1	

Rainfall profile

Storm duration (mins) 15

FEH Data

FEH Rainfall Version	2013
Site Location	GB 529864 183148
Data Type	Point
Peak Intensity (mm/hr)	132.421
Ave. Intensity (mm/hr)	37.471
Return Period (years)	2.0
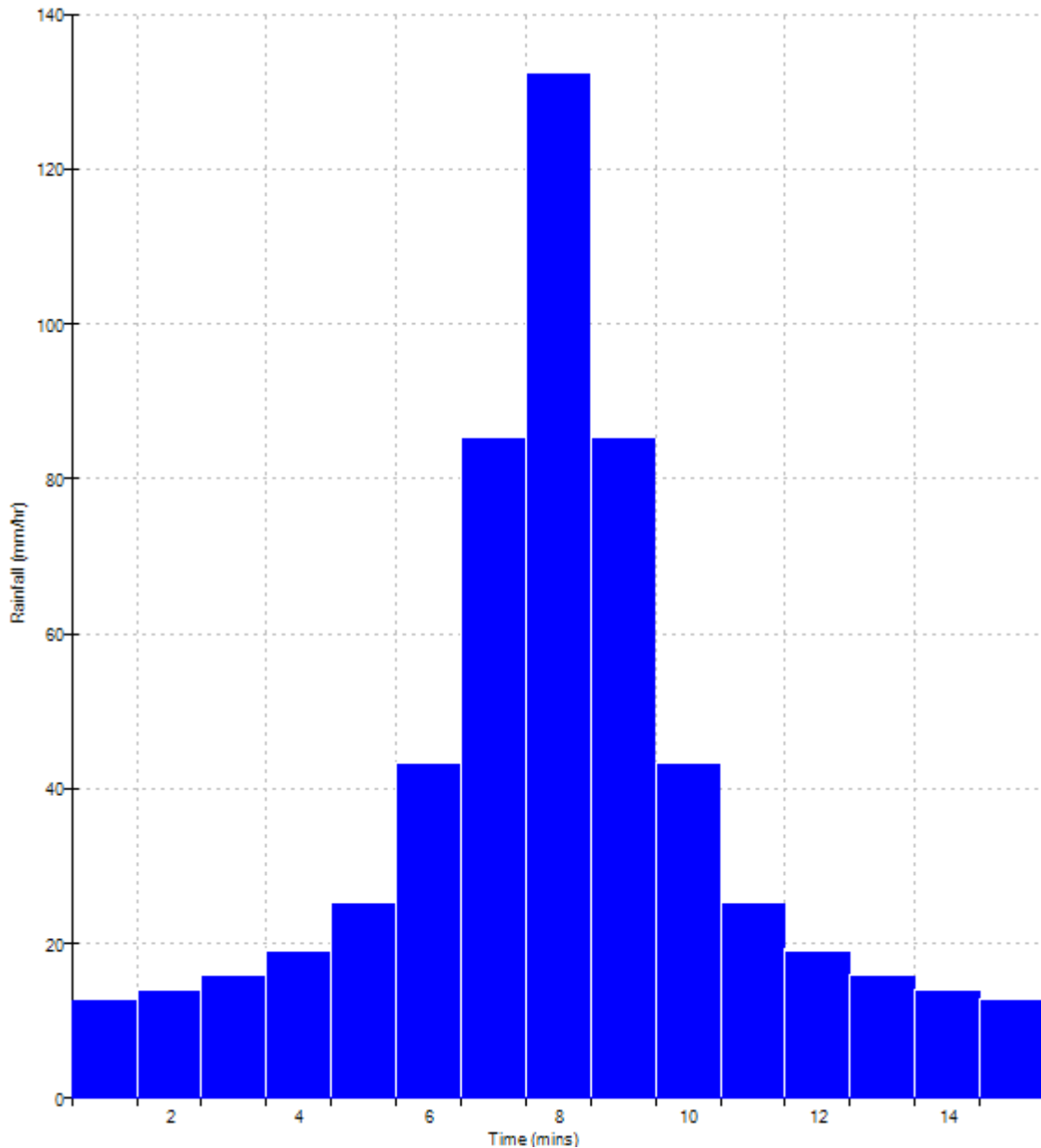
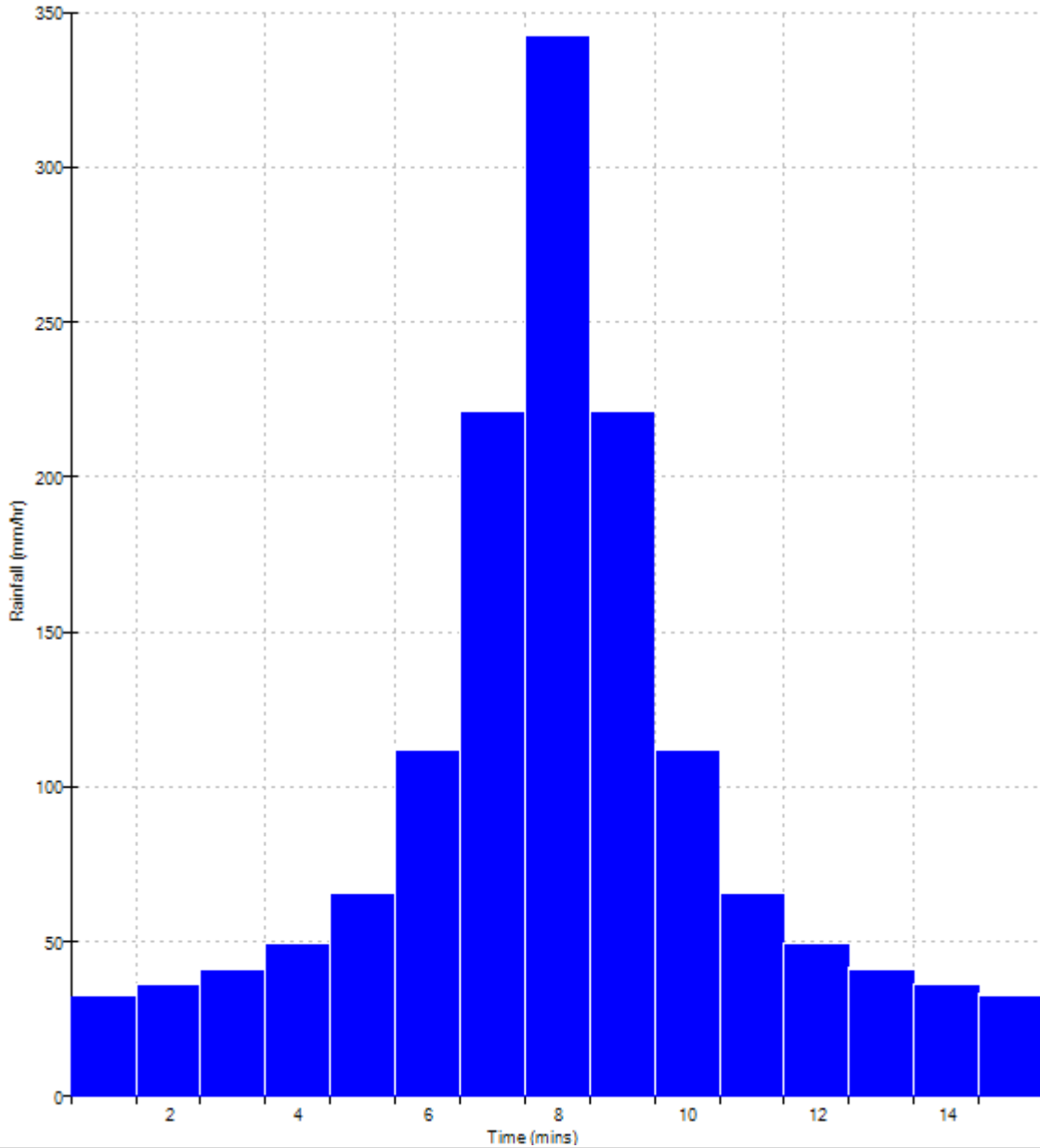| WSP Group Ltd		Page 1
. . .	Brill Place Rainfall Profile 1 in 30 Year	Micro Drainage
Date 29/10/2019 File	Designed by UKBAB002 Checked by UKLSC006	
XP Solutions	Source Control 2019.1	

Rainfall profile

Storm duration (mins) 15

FEH Data
FEH Rainfall Version   2013
Site Location GB 529864 183148
Data Type   Point
Peak Intensity (mm/hr)   342.410
Ave. Intensity (mm/hr)   96.890
Return Period (years)   30.0

Rainfall profile

Storm duration (mins) 15

FEH Data

FEH Rainfall Version   2013
Site Location GB 529864 183148
Data Type   Point
Peak Intensity (mm/hr)   453.528
Ave. Intensity (mm/hr)   128.333
Return Period (years)   100.0

WSP
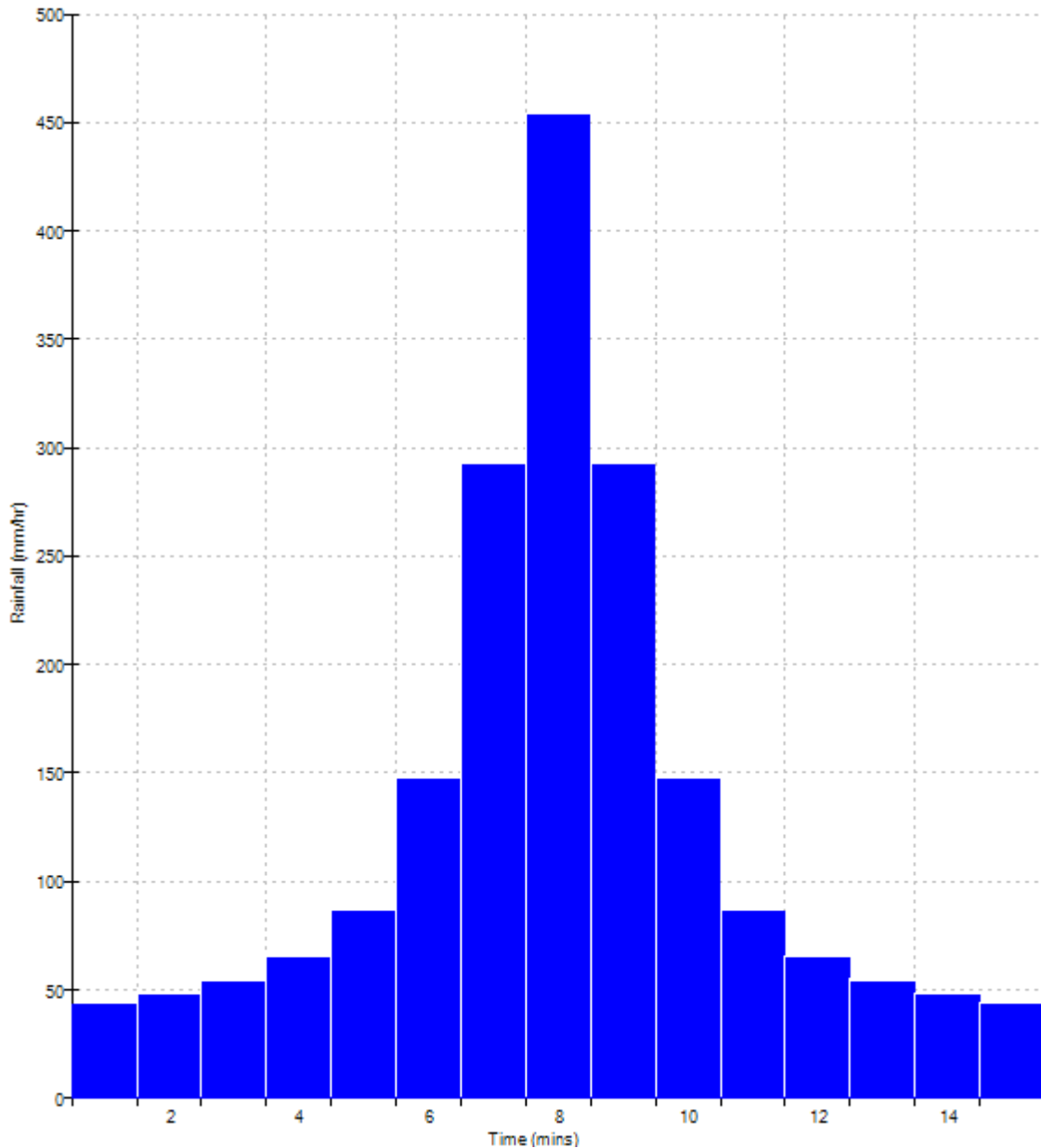
TECHNICAL NOTE 1

DATE:	30 October 2019	**CONFIDENTIALITY:**	Public
SUBJECT:	Brownfield run off		
PROJECT:	Brill Place	**AUTHOR:**	Bryony Bennett
CHECKED:	Insert checker	**APPROVED:**	Insert approver

BROWNFIELD RUNOFF DESIGN NOTE

Assumptions Made

- Existing Impermeable Area = 51m^2 (0.0051ha)

Q = 2.78 * av intensity * Area

Q2 = 2.78 * 37.471 * 0.005

Q2 = 0.531 l/s

Q30 = 2.78 * 96.890 * 0.005

Q30 = 1.374 l/s

Q100 = 2.78 * 128.333 * 0.005

Q100 = 1.820 l/s