



Dellwood Hospital

Leibenrood Road

Reading

Storm Water Outflow - Existing

Existing site area 0.25ha

Existing impermeable area 0.22ha

Qbar greenfield runoff rate 0.41 l/s

Estimated runoff rate for 1 in 1 year storm = 37 l/s

Estimated runoff rate for 1 in 2 year storm = 47 l/s

Storm Water Outflow - Proposed

Proposed discharge rate for new development will be restricted to 2 l/s.

Whilst the proposed 2 l/s discharge rate is greater than the greenfield Qbar rate, it does provide a significant reduction compared to the existing rates.

Calculated by:

Nigel Bartram

Site name:

Dellwood Hospital

Site location:

Reading

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:

51.44908° N

Longitude:

1.00272° W

Reference:

1424431313

Date:

Jun 11 2020 11:30

Runoff estimation approach

IH124

Site characteristics

Total site area (ha):

.25

Methodology

Q_{BAR} estimation method:

Calculate from SPR and SAAR

SPR estimation method:

Calculate from SOIL type

Soil characteristics

	Default	Edited
SOIL type:	2	2
HOST class:	N/A	N/A
SPR/SPRHOST:	0.3	0.3

Hydrological characteristics

	Default	Edited
SAAR (mm):	641	641
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):	0.41	0.41
1 in 1 year (l/s):	0.35	0.35
1 in 30 years (l/s):	0.95	0.95
1 in 100 year (l/s):	1.31	1.31
1 in 200 years (l/s):	1.54	1.54

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.

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413 Hagley Road West Quinton Birmingham B32 2AD	Dellwood Hospital Existing 1 yr	
Date 26 November 2025 11:43 File 20007.SIM	Designed By BAKER HALL Checked By	
Micro Drainage	Simulation W.10.4	

Global Variables

Region	FSR - England & Wales
Return Period (yrs)	1
M5-60 (mm)	19.000
Ratio R	0.400
Volumetric Runoff Coef	1.000
Profile Type	Summer
PIMP (%)	100
Areal Reduction Factor	1.000
Storm Duration (mins)	30
Hot Start (mins)	0
Manhole Headloss Coefficient	0.500
MADD Factor * 10m ³ /ha Storage	2.000
Foul Sewage/Hectare (l/s)	0.00
Additional Flow - % of Total Flow	0
Number of Input Hydrographs	0
Number of Time/Area Diagrams	0
Number of Bifurcations	0
Number of Overflows	0
Number of Off-Line Controls	0
Number of On-Line Controls	0

Freely Discharging Outfalls

Outfall Pipe Number	Outfall MH/No	C.Level (m)	I.Level (m)	D,L (mm)	B (mm)
1.001	1	57.000	55.600	1200	0

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Network Details

PN	Length (m)	Fall (m)	Slope (1:x)	Area (ha)	T.E. (mins)	Rain Pro	k (mm)	Hyd Sect	Dia (mm)
1.000	25.00	0.250	100.0	0.230	4.00	1	0.600	o	225
1.001	25.00	0.250	100.0	0.000	0.00	1	0.600	o	225

PN	USMH No.	US/CL (m)	US/IL (m)	US/Dep (m)	DS/CL (m)	DS/IL (m)	DS/Dep (m)	Ctrl No.	US/MH (mm)
1.000	1	57.300	56.100	0.975	57.300	55.850	1.225		1050
1.001	2	57.300	55.850	1.225	57.000	55.600	1.175		1050

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Summary of Results

Return Period (year)	1	Analysis Time Step	Fine
Storm Duration (mins)	30	DVD Status	OFF
Profile Type	Summer	Inertia Status	OFF
Margin for Flood Risk warning (mm)	300		

PN	Water Lev. (m)	Surcharged Depth (m)	Flooded Vol (m³)	Flow/ Capacity	Overflow (l/s)	Pipe Flow (l/s)	Status
1.000	56.250	-0.075	0.000	0.76	0	37	0 K
1.001	55.999	-0.076	0.000	0.77	0	37	0 K

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Micro Drainage	Simulation W.10.4	

Global Variables

Region	FSR - England & Wales
Return Period (yrs)	2
M5-60 (mm)	19.000
Ratio R	0.400
Volumetric Runoff Coef	1.000
Profile Type	Summer
PIMP (%)	100
Areal Reduction Factor	1.000
Storm Duration (mins)	30
Hot Start (mins)	0
Manhole Headloss Coefficient	0.500
MADD Factor * 10m ³ /ha Storage	2.000
Foul Sewage/Hectare (l/s)	0.00
Additional Flow - % of Total Flow	0
Number of Input Hydrographs	0
Number of Time/Area Diagrams	0
Number of Bifurcations	0
Number of Overflows	0
Number of Off-Line Controls	0
Number of On-Line Controls	0

Freely Discharging Outfalls

Outfall Pipe Number	Outfall MH/No	C.Level (m)	I.Level (m)	D,L (mm)	B (mm)
1.001	1	57.000	55.600	1200	0

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Network Details

PN	Length (m)	Fall (m)	Slope (1:x)	Area (ha)	T.E. (mins)	Rain Pro	k (mm)	Hyd Sect	Dia (mm)
1.000	25.00	0.250	100.0	0.230	4.00	1	0.600	o	225
1.001	25.00	0.250	100.0	0.000	0.00	1	0.600	o	225

PN	USMH No.	US/CL (m)	US/IL (m)	US/Dep (m)	DS/CL (m)	DS/IL (m)	DS/Dep (m)	Ctrl No.	US/MH (mm)
1.000	1	57.300	56.100	0.975	57.300	55.850	1.225		1050
1.001	2	57.300	55.850	1.225	57.000	55.600	1.175		1050

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Summary of Results

Return Period (years)	2	Analysis Time Step	Fine
Storm Duration (mins)	30	DVD Status	OFF
Profile Type	Summer	Inertia Status	OFF
Margin for Flood Risk warning (mm)	300		

PN	Water Lev. (m)	Surcharged Depth (m)	Flooded Vol (m³)	Flow/ Capacity	Overflow (l/s)	Pipe Flow (l/s)	Status
1.000	56.283	-0.042	0.000	0.98	0	47	0 K
1.001	56.029	-0.046	0.000	0.98	0	47	0 K