


Tufthorn Avenue Coleford GL16 8PR	7 Greville Place, Kilburn London. Aquaflow Design	
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Date 18.07.2016 File FSC3649 - Aquaflow Des...	Designed by TU Checked by JL	
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XP Solutions	Source Control 2015.2
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Summary of Results for 100 year Return Period (+30%)

Half Drain Time : 174 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Σ Outflow (l/s)	Max Volume (m <sup>3</sup> )	Status
15 min Summer	43.618	0.118	0.0	0.1	0.1	1.3	O K
30 min Summer	43.652	0.152	0.0	0.1	0.1	1.6	O K
60 min Summer	43.678	0.178	0.0	0.1	0.1	1.9	O K
120 min Summer	43.688	0.188	0.0	0.1	0.1	2.0	O K
180 min Summer	43.683	0.183	0.0	0.1	0.1	2.0	O K
240 min Summer	43.676	0.176	0.0	0.1	0.1	1.9	O K
360 min Summer	43.661	0.161	0.0	0.1	0.1	1.7	O K
480 min Summer	43.649	0.149	0.0	0.1	0.1	1.6	O K
600 min Summer	43.638	0.138	0.0	0.1	0.1	1.5	O K
720 min Summer	43.627	0.127	0.0	0.1	0.1	1.4	O K
960 min Summer	43.607	0.107	0.0	0.1	0.1	1.1	O K
1440 min Summer	43.573	0.073	0.0	0.1	0.1	0.8	O K
2160 min Summer	43.537	0.037	0.0	0.1	0.1	0.4	O K
2880 min Summer	43.515	0.015	0.0	0.1	0.1	0.2	O K
4320 min Summer	43.500	0.000	0.0	0.1	0.1	0.0	O K
5760 min Summer	43.500	0.000	0.0	0.1	0.1	0.0	O K
7200 min Summer	43.500	0.000	0.0	0.1	0.1	0.0	O K
8640 min Summer	43.500	0.000	0.0	0.0	0.0	0.0	O K
10080 min Summer	43.500	0.000	0.0	0.0	0.0	0.0	O K
15 min Winter	43.635	0.135	0.0	0.1	0.1	1.5	O K
30 min Winter	43.673	0.173	0.0	0.1	0.1	1.9	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m <sup>3</sup> )	Discharge Volume (m <sup>3</sup> )	Time-Peak (mins)
15 min Summer	136.659	0.0	1.4	18
30 min Summer	88.315	0.0	1.8	33
60 min Summer	54.281	0.0	2.3	62
120 min Summer	32.230	0.0	2.7	120
180 min Summer	23.456	0.0	3.0	148
240 min Summer	18.621	0.0	3.2	180
360 min Summer	13.418	0.0	3.4	246
480 min Summer	10.633	0.0	3.6	314
600 min Summer	8.872	0.0	3.8	384
720 min Summer	7.649	0.0	3.9	450
960 min Summer	6.048	0.0	4.1	580
1440 min Summer	4.339	0.0	4.4	836
2160 min Summer	3.108	0.0	4.7	1188
2880 min Summer	2.451	0.0	4.9	1528
4320 min Summer	1.752	0.0	5.2	0
5760 min Summer	1.379	0.0	5.3	0
7200 min Summer	1.145	0.0	5.5	0
8640 min Summer	0.983	0.0	5.5	0
10080 min Summer	0.864	0.0	5.6	0
15 min Winter	136.659	0.0	1.5	18
30 min Winter	88.315	0.0	2.0	32

Forterra Formpave		Page 2
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Summary of Results for 100 year Return Period (+30%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Σ Outflow (l/s)	Max Volume (m³)	Status
60 min Winter	43.704	0.204	0.0	0.1	0.1	2.2	O K
120 min Winter	43.719	0.219	0.0	0.1	0.1	2.4	O K
180 min Winter	43.714	0.214	0.0	0.1	0.1	2.3	O K
240 min Winter	43.705	0.205	0.0	0.1	0.1	2.2	O K
360 min Winter	43.687	0.187	0.0	0.1	0.1	2.0	O K
480 min Winter	43.669	0.169	0.0	0.1	0.1	1.8	O K
600 min Winter	43.652	0.152	0.0	0.1	0.1	1.6	O K
720 min Winter	43.636	0.136	0.0	0.1	0.1	1.5	O K
960 min Winter	43.607	0.107	0.0	0.1	0.1	1.2	O K
1440 min Winter	43.560	0.060	0.0	0.1	0.1	0.6	O K
2160 min Winter	43.514	0.014	0.0	0.1	0.1	0.1	O K
2880 min Winter	43.500	0.000	0.0	0.1	0.1	0.0	O K
4320 min Winter	43.500	0.000	0.0	0.1	0.1	0.0	O K
5760 min Winter	43.500	0.000	0.0	0.0	0.0	0.0	O K
7200 min Winter	43.500	0.000	0.0	0.0	0.0	0.0	O K
8640 min Winter	43.500	0.000	0.0	0.0	0.0	0.0	O K
10080 min Winter	43.500	0.000	0.0	0.0	0.0	0.0	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
60 min Winter	54.281	0.0	2.5	60
120 min Winter	32.230	0.0	3.1	116
180 min Winter	23.456	0.0	3.3	168
240 min Winter	18.621	0.0	3.5	190
360 min Winter	13.418	0.0	3.9	268
480 min Winter	10.633	0.0	4.1	342
600 min Winter	8.872	0.0	4.2	416
720 min Winter	7.649	0.0	4.4	486
960 min Winter	6.048	0.0	4.6	624
1440 min Winter	4.339	0.0	5.0	880
2160 min Winter	3.108	0.0	5.3	1208
2880 min Winter	2.451	0.0	5.5	0
4320 min Winter	1.752	0.0	5.9	0
5760 min Winter	1.379	0.0	6.1	0
7200 min Winter	1.145	0.0	6.2	0
8640 min Winter	0.983	0.0	6.3	0
10080 min Winter	0.864	0.0	6.4	0

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Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	100	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	20.600	Shortest Storm (mins)	15
Ratio R	0.437	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+30

Time Area Diagram

Total Area (ha) 0.006

Time (mins)		Area
From:	To:	(ha)
0	4	0.006

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Model Details

Storage is Online Cover Level (m) 43.850

Porous Car Park Structure

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	6.0
Membrane Percolation (mm/hr)	4500	Length (m)	6.0
Max Percolation (l/s)	45.0	Slope (1:X)	10000.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	43.500	Membrane Depth (m)	0

Orifice Outflow Control

Diameter (m) 0.010 Discharge Coefficient 0.600 Invert Level (m) 43.300