Summary of Results for 100 year Return Period (+45%)

Half Drain Time : 39 minutes.

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
15 min Summer	7.214	0.835	0.0	1.1	1.1	3.1	Flood Risk
30 min Summer	7.362	0.983	0.0	1.1	1.1	3.6	Flood Risk
60 min Summer	7.414	1.035	0.0	1.2	1.2	3.8	Flood Risk
120 min Summer	7.366	0.987	0.0	1.1	1.1	3.6	Flood Risk
180 min Summer	7.275	0.896	0.0	1.1	1.1	3.3	Flood Risk
240 min Summer	7.176	0.797	0.0	1.0	1.0	2.9	O K
360 min Summer	6.997	0.618	0.0	1.0	1.0	2.3	O K
480 min Summer	6.828	0.449	0.0	1.0	1.0	1.6	O K
600 min Summer	6.641	0.262	0.0	1.0	1.0	1.0	O K
720 min Summer	6.550	0.171	0.0	1.0	1.0	0.6	O K
960 min Summer	6.473	0.094	0.0	0.9	0.9	0.3	O K
1440 min Summer	6.438	0.059	0.0	0.7	0.7	0.2	O K
2160 min Summer	6.422	0.043	0.0	0.5	0.5	0.2	O K
2880 min Summer	6.415	0.036	0.0	0.4	0.4	0.1	O K
4320 min Summer	6.408	0.029	0.0	0.3	0.3	0.1	O K
5760 min Summer	6.405	0.026	0.0	0.2	0.2	0.1	O K
7200 min Summer	6.402	0.023	0.0	0.2	0.2	0.1	O K
8640 min Summer	6.400	0.021	0.0	0.2	0.2	0.1	O K
10080 min Summer	6.399	0.020	0.0	0.2	0.2	0.1	O K
15 min Winter	7.217	0.838	0.0	1.1	1.1	3.1	Flood Risk

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
15 min Summer	129.084	0.0	3.9	16
30 min Summer	86.782	0.0	5.2	28
60 min Summer	55.699	0.0	6.7	44
120 min Summer	34.527	0.0	8.3	80
180 min Summer	25.719	0.0	9.3	114
240 min Summer	20.720	0.0	9.9	148
360 min Summer	15.232	0.0	11.0	214
480 min Summer	12.240	0.0	11.7	280
600 min Summer	10.322	0.0	12.4	326
720 min Summer	8.975	0.0	12.9	380
960 min Summer	7.191	0.0	13.8	492
1440 min Summer	5.252	0.0	15.1	732
2160 min Summer	3.828	0.0	16.5	1100
2880 min Summer	3.055	0.0	17.6	1440
4320 min Summer	2.218	0.0	19.2	2172
5760 min Summer	1.765	0.0	20.3	2912
7200 min Summer	1.478	0.0	21.3	3576
8640 min Summer	1.279	0.0	22.1	4376
10080 min Summer	1.132	0.0	22.8	5056
15 min Winter	129.084	0.0	3.9	16

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Summary of Results for 100 year Return Period (+45%)

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
30 min Winter	7.372	0.993	0.0	1.1	1.1	3.6	Flood Risk
60 min Winter	7.411	1.032	0.0	1.2	1.2	3.8	Flood Risk
120 min Winter	7.310	0.931	0.0	1.1	1.1	3.4	Flood Risk
180 min Winter	7.168	0.789	0.0	1.0	1.0	2.9	O K
240 min Winter	7.024	0.645	0.0	1.0	1.0	2.4	O K
360 min Winter	6.683	0.304	0.0	1.0	1.0	1.1	O K
480 min Winter	6.512	0.133	0.0	1.0	1.0	0.5	O K
600 min Winter	6.458	0.079	0.0	0.9	0.9	0.3	O K
720 min Winter	6.445	0.066	0.0	0.8	0.8	0.2	O K
960 min Winter	6.431	0.052	0.0	0.6	0.6	0.2	O K
1440 min Winter	6.418	0.039	0.0	0.4	0.4	0.1	O K
2160 min Winter	6.410	0.031	0.0	0.3	0.3	0.1	O K
2880 min Winter	6.406	0.027	0.0	0.3	0.3	0.1	O K
4320 min Winter	6.402	0.023	0.0	0.2	0.2	0.1	O K
5760 min Winter	6.399	0.020	0.0	0.2	0.2	0.1	O K
7200 min Winter	6.397	0.018	0.0	0.1	0.1	0.1	O K
8640 min Winter	6.396	0.017	0.0	0.1	0.1	0.1	O K
10080 min Winter	6.395	0.016	0.0	0.1	0.1	0.1	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
30 min Winter	86.782	0.0	5.2	29
60 min Winter	55.699	0.0	6.7	48
120 min Winter	34.527	0.0	8.3	86
180 min Winter	25.719	0.0	9.3	122
240 min Winter	20.720	0.0	9.9	158
360 min Winter	15.232	0.0	11.0	216
480 min Winter	12.240	0.0	11.7	262
600 min Winter	10.322	0.0	12.4	310
720 min Winter	8.975	0.0	12.9	368
960 min Winter	7.191	0.0	13.8	488
1440 min Winter	5.252	0.0	15.1	718
2160 min Winter	3.828	0.0	16.5	1068
2880 min Winter	3.055	0.0	17.6	1440
4320 min Winter	2.218	0.0	19.2	2180
5760 min Winter	1.765	0.0	20.3	2872
7200 min Winter	1.478	0.0	21.3	3632
8640 min Winter	1.279	0.0	22.1	4280
10080 min Winter	1.132	0.0	22.8	5040

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Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	100	Cv (Summer)	1.000
Region	England and Wales	Cv (Winter)	1.000
M5-60 (mm)	19.000	Shortest Storm (mins)	15
Ratio R	0.350	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+45

Time Area Diagram

Total Area (ha) 0.012

Time (mins) From:	To:	Area (ha)
0	4	0.012

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Model Details

Storage is Online Cover Level (m) 7.501

Lined Soakaway Structure

Infiltration Coefficient Base (m/hr)	0.00000	Ring Diameter (m)	1.20
Infiltration Coefficient Side (m/hr)	0.00000	Pit Multiplier	1.0
Safety Factor	1.0	Number Required	3
Porosity	0.30	Cap Volume Depth (m)	0.000
Invert Level (m)	6.379	Cap Infiltration Depth (m)	0.000

Hydro-Brake Optimum® Outflow Control

Unit Reference	MD-SCL-0048-1200-1124-1200
Design Head (m)	1.124
Design Flow (l/s)	1.2
Flush-Flo™	Calculated
Objective	Minimise blockage risk
Application	Surface
Sump Available	Yes
Diameter (mm)	48
Invert Level (m)	6.379
Minimum Outlet Pipe Diameter (mm)	75
Suggested Manhole Diameter (mm)	1200

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.124	1.2
Flush-Flo™	0.196	1.0
Kick-Flo®	0.426	0.8
Mean Flow over Head Range	-	0.9

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake Optimum® as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	0.9	1.200	1.2	3.000	1.9	7.000	2.7
0.200	1.0	1.400	1.3	3.500	2.0	7.500	2.8
0.300	1.0	1.600	1.4	4.000	2.1	8.000	2.9
0.400	0.8	1.800	1.5	4.500	2.2	8.500	3.0
0.500	0.8	2.000	1.6	5.000	2.4	9.000	3.1
0.600	0.9	2.200	1.6	5.500	2.5	9.500	3.2
0.800	1.0	2.400	1.7	6.000	2.6		
1.000	1.1	2.600	1.7	6.500	2.7		

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