



Soakaway 5 – 1 in 30 Year Cellular Crate

Soakaway Calculations

Willow Walk, Spalding

Burmor Construction Limited

5th May 2019

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Unit 6 Neepsend Triangle Business 1 Burton Road Sheffield S3 8BW	Willow Walk, Spalding Soakaway 5 - 1 in 30 Year Cellular Crate Soakaway	
Date 05/05/2019 File SOAKAWAY 5.SRCX	Designed by S. Griffiths Checked by S. Griffiths	
XP Solutions	Source Control 2017.1.2	

Summary of Results for 30 year Return Period

Half Drain Time : 77 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	3.895	0.255	0.2	1.2	O K
30 min Summer	3.953	0.313	0.2	1.5	O K
60 min Summer	3.985	0.345	0.2	1.6	O K
120 min Summer	3.993	0.353	0.2	1.7	O K
180 min Summer	3.983	0.343	0.2	1.6	O K
240 min Summer	3.969	0.329	0.2	1.6	O K
360 min Summer	3.938	0.298	0.2	1.4	O K
480 min Summer	3.910	0.270	0.2	1.3	O K
600 min Summer	3.885	0.245	0.2	1.2	O K
720 min Summer	3.863	0.223	0.2	1.1	O K
960 min Summer	3.825	0.185	0.2	0.9	O K
1440 min Summer	3.769	0.129	0.1	0.6	O K
2160 min Summer	3.717	0.077	0.1	0.4	O K
2880 min Summer	3.691	0.051	0.1	0.2	O K
4320 min Summer	3.678	0.038	0.1	0.2	O K
5760 min Summer	3.670	0.030	0.1	0.1	O K
7200 min Summer	3.665	0.025	0.1	0.1	O K
8640 min Summer	3.662	0.022	0.1	0.1	O K
10080 min Summer	3.659	0.019	0.0	0.1	O K
15 min Winter	3.928	0.288	0.2	1.4	O K
30 min Winter	3.995	0.355	0.2	1.7	O K
60 min Winter	4.035	0.395	0.3	1.9	O K
120 min Winter	4.040	0.400	0.3	1.9	O K
180 min Winter	4.024	0.384	0.2	1.8	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
15 min Summer	72.014	0.0	18
30 min Summer	46.909	0.0	32
60 min Summer	29.238	0.0	56
120 min Summer	17.704	0.0	88
180 min Summer	13.070	0.0	122
240 min Summer	10.495	0.0	156
360 min Summer	7.666	0.0	224
480 min Summer	6.135	0.0	290
600 min Summer	5.158	0.0	356
720 min Summer	4.475	0.0	420
960 min Summer	3.575	0.0	544
1440 min Summer	2.602	0.0	784
2160 min Summer	1.892	0.0	1144
2880 min Summer	1.508	0.0	1472
4320 min Summer	1.094	0.0	2200
5760 min Summer	0.871	0.0	2912
7200 min Summer	0.729	0.0	3672
8640 min Summer	0.631	0.0	4392
10080 min Summer	0.558	0.0	5136
15 min Winter	72.014	0.0	18
30 min Winter	46.909	0.0	32
60 min Winter	29.238	0.0	58
120 min Winter	17.704	0.0	94
180 min Winter	13.070	0.0	132

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Summary of Results for 30 year Return Period

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m ³)	Status
240 min Winter	4.002	0.362	0.2	1.7	O K
360 min Winter	3.956	0.316	0.2	1.5	O K
480 min Winter	3.916	0.276	0.2	1.3	O K
600 min Winter	3.881	0.241	0.2	1.1	O K
720 min Winter	3.850	0.210	0.2	1.0	O K
960 min Winter	3.801	0.161	0.2	0.8	O K
1440 min Winter	3.732	0.092	0.1	0.4	O K
2160 min Winter	3.687	0.047	0.1	0.2	O K
2880 min Winter	3.678	0.038	0.1	0.2	O K
4320 min Winter	3.667	0.027	0.1	0.1	O K
5760 min Winter	3.662	0.022	0.1	0.1	O K
7200 min Winter	3.658	0.018	0.0	0.1	O K
8640 min Winter	3.656	0.016	0.0	0.1	O K
10080 min Winter	3.654	0.014	0.0	0.1	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Time-Peak (mins)
240 min Winter	10.495	0.0	168
360 min Winter	7.666	0.0	240
480 min Winter	6.135	0.0	310
600 min Winter	5.158	0.0	376
720 min Winter	4.475	0.0	442
960 min Winter	3.575	0.0	568
1440 min Winter	2.602	0.0	808
2160 min Winter	1.892	0.0	1120
2880 min Winter	1.508	0.0	1468
4320 min Winter	1.094	0.0	2208
5760 min Winter	0.871	0.0	2936
7200 min Winter	0.729	0.0	3672
8640 min Winter	0.631	0.0	4408
10080 min Winter	0.558	0.0	5040

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Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	30	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	19.000	Shortest Storm (mins)	15
Ratio R	0.400	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+0

Time Area Diagram

Total Area (ha) 0.010

Time (mins) Area
From: To: (ha)

0 5 0.010

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Model Details

Storage is Online Cover Level (m) 4.640

Cellular Storage Structure

Invert Level (m) 3.640 Safety Factor 1.0

Infiltration Coefficient Base (m/hr) 0.07056 Porosity 0.95

Infiltration Coefficient Side (m/hr) 0.07056

Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)
0.000	5.0	5.0	0.400	5.0	13.0	0.401	0.0	13.0