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5 Waverley Road Huddersfield West Yorkshire, HD1 5NA		SOAKAWAY CALCULATIONS WEST HEATON AVE, CLECKHEATON
Date DEC 2017 File H17074-R1 Soakaway Desi...		Designed by TB Checked by
XP Solutions		Source Control 2016.1



Summary of Results for 100 year Return Period (+40%)

Half Drain Time : 52 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m ³)	Status
15 min Summer	126.110	0.510	7.2	28.1	O K
30 min Summer	126.228	0.628	7.8	34.6	O K
60 min Summer	126.292	0.692	8.1	38.1	O K
120 min Summer	126.294	0.694	8.1	38.3	O K
180 min Summer	126.259	0.659	7.9	36.3	O K
240 min Summer	126.214	0.614	7.7	33.8	O K
360 min Summer	126.129	0.529	7.3	29.2	O K
480 min Summer	126.053	0.453	6.9	25.0	O K
600 min Summer	125.986	0.386	6.6	21.3	O K
720 min Summer	125.928	0.328	6.3	18.1	O K
960 min Summer	125.832	0.232	5.8	12.8	O K
1440 min Summer	125.707	0.107	5.2	5.9	O K
2160 min Summer	125.646	0.046	4.5	2.5	O K
2880 min Summer	125.637	0.037	3.6	2.0	O K
4320 min Summer	125.627	0.027	2.7	1.5	O K
5760 min Summer	125.622	0.022	2.1	1.2	O K
7200 min Summer	125.618	0.018	1.8	1.0	O K
8640 min Summer	125.616	0.016	1.5	0.9	O K
10080 min Summer	125.614	0.014	1.4	0.8	O K
15 min Winter	126.179	0.579	7.5	31.9	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Time-Peak (mins)
15 min Summer	122.736	0.0	17
30 min Summer	83.131	0.0	30
60 min Summer	53.779	0.0	48
120 min Summer	33.582	0.0	82
180 min Summer	25.102	0.0	118
240 min Summer	20.261	0.0	152
360 min Summer	14.960	0.0	218
480 min Summer	12.053	0.0	282
600 min Summer	10.184	0.0	344
720 min Summer	8.869	0.0	406
960 min Summer	7.123	0.0	528
1440 min Summer	5.219	0.0	758
2160 min Summer	3.815	0.0	1092
2880 min Summer	3.051	0.0	1460
4320 min Summer	2.221	0.0	2200
5760 min Summer	1.771	0.0	2928
7200 min Summer	1.487	0.0	3672
8640 min Summer	1.289	0.0	4384
10080 min Summer	1.143	0.0	5080
15 min Winter	122.736	0.0	17


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Summary of Results for 100 year Return Period (+40%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m ³)	Status
30 min Winter	126.322	0.722	8.2	39.8	O K
60 min Winter	126.397	0.797	8.6	43.9	O K
120 min Winter	126.390	0.790	8.6	43.5	O K
180 min Winter	126.331	0.731	8.3	40.3	O K
240 min Winter	126.261	0.661	7.9	36.4	O K
360 min Winter	126.133	0.533	7.3	29.4	O K
480 min Winter	126.024	0.424	6.7	23.4	O K
600 min Winter	125.932	0.332	6.3	18.3	O K
720 min Winter	125.855	0.255	5.9	14.0	O K
960 min Winter	125.735	0.135	5.3	7.5	O K
1440 min Winter	125.646	0.046	4.5	2.5	O K
2160 min Winter	125.634	0.034	3.3	1.8	O K
2880 min Winter	125.627	0.027	2.6	1.5	O K
4320 min Winter	125.620	0.020	1.9	1.1	O K
5760 min Winter	125.616	0.016	1.5	0.9	O K
7200 min Winter	125.613	0.013	1.3	0.7	O K
8640 min Winter	125.612	0.012	1.1	0.6	O K
10080 min Winter	125.610	0.010	1.0	0.6	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Time-Peak (mins)
30 min Winter	83.131	0.0	30
60 min Winter	53.779	0.0	50
120 min Winter	33.582	0.0	90
180 min Winter	25.102	0.0	126
240 min Winter	20.261	0.0	162
360 min Winter	14.960	0.0	232
480 min Winter	12.053	0.0	298
600 min Winter	10.184	0.0	362
720 min Winter	8.869	0.0	424
960 min Winter	7.123	0.0	540
1440 min Winter	5.219	0.0	722
2160 min Winter	3.815	0.0	1096
2880 min Winter	3.051	0.0	1424
4320 min Winter	2.221	0.0	2164
5760 min Winter	1.771	0.0	2944
7200 min Winter	1.487	0.0	3568
8640 min Winter	1.289	0.0	4320
10080 min Winter	1.143	0.0	5184

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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)	19.000	Shortest Storm (mins)	15
Ratio R	0.335	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+40

Time Area Diagram

Total Area (ha) 0.145

Time (mins)		Area
From:	To:	(ha)
0	4	0.145

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Model Details

Storage is Online Cover Level (m) 128.200

Cellular Storage Structure

Invert Level (m) 125.600 Safety Factor 2.0
 Infiltration Coefficient Base (m/hr) 0.57600 Porosity 0.95
 Infiltration Coefficient Side (m/hr) 0.57600

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	58.0	58.0	0.801	0.0	107.6
0.800	58.0	107.6			