

Shaun Tonge Engineering				Page 1																																																																																																																																																																																																																			
11 Broomhead Road Wombell Barnsley S73 0SA																																																																																																																																																																																																																							
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<u>Summary of Results for 30 year Return Period</u> Half Drain Time : 92 minutes. <table><tr><th>Storm Event</th><th>Max Level (m)</th><th>Max Depth (m)</th><th>Max Infiltration (l/s)</th><th>Max Volume (m³)</th><th>Status</th></tr><tr><td>15 min Summer</td><td>68.367</td><td>0.367</td><td>0.2</td><td>1.0</td><td>O K</td></tr><tr><td>30 min Summer</td><td>68.571</td><td>0.571</td><td>0.2</td><td>1.3</td><td>O K</td></tr><tr><td>60 min Summer</td><td>68.754</td><td>0.754</td><td>0.2</td><td>1.5</td><td>O K</td></tr><tr><td>120 min Summer</td><td>68.816</td><td>0.816</td><td>0.2</td><td>1.6</td><td>O K</td></tr><tr><td>180 min Summer</td><td>68.790</td><td>0.790</td><td>0.2</td><td>1.5</td><td>O K</td></tr><tr><td>240 min Summer</td><td>68.733</td><td>0.733</td><td>0.2</td><td>1.5</td><td>O K</td></tr><tr><td>360 min Summer</td><td>68.605</td><td>0.605</td><td>0.2</td><td>1.3</td><td>O K</td></tr><tr><td>480 min Summer</td><td>68.444</td><td>0.444</td><td>0.2</td><td>1.2</td><td>O K</td></tr><tr><td>600 min Summer</td><td>68.390</td><td>0.390</td><td>0.2</td><td>1.1</td><td>O K</td></tr><tr><td>720 min Summer</td><td>68.358</td><td>0.358</td><td>0.2</td><td>1.0</td><td>O K</td></tr><tr><td>960 min Summer</td><td>68.302</td><td>0.302</td><td>0.2</td><td>0.9</td><td>O K</td></tr><tr><td>1440 min Summer</td><td>68.217</td><td>0.217</td><td>0.1</td><td>0.6</td><td>O K</td></tr><tr><td>2160 min Summer</td><td>68.132</td><td>0.132</td><td>0.1</td><td>0.4</td><td>O K</td></tr><tr><td>2880 min Summer</td><td>68.079</td><td>0.079</td><td>0.1</td><td>0.2</td><td>O K</td></tr><tr><td>4320 min Summer</td><td>68.044</td><td>0.044</td><td>0.1</td><td>0.1</td><td>O K</td></tr><tr><td>5760 min Summer</td><td>68.036</td><td>0.036</td><td>0.1</td><td>0.1</td><td>O K</td></tr><tr><td>7200 min Summer</td><td>68.030</td><td>0.030</td><td>0.1</td><td>0.1</td><td>O K</td></tr><tr><td>8640 min Summer</td><td>68.026</td><td>0.026</td><td>0.1</td><td>0.1</td><td>O 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Summer</td><td>4.793</td><td>0.0</td><td>420</td></tr><tr><td>960 min Summer</td><td>3.858</td><td>0.0</td><td>548</td></tr><tr><td>1440 min Summer</td><td>2.837</td><td>0.0</td><td>794</td></tr><tr><td>2160 min Summer</td><td>2.084</td><td>0.0</td><td>1148</td></tr><tr><td>2880 min Summer</td><td>1.672</td><td>0.0</td><td>1500</td></tr><tr><td>4320 min Summer</td><td>1.225</td><td>0.0</td><td>2200</td></tr><tr><td>5760 min Summer</td><td>0.982</td><td>0.0</td><td>2904</td></tr><tr><td>7200 min Summer</td><td>0.827</td><td>0.0</td><td>3648</td></tr><tr><td>8640 min Summer</td><td>0.718</td><td>0.0</td><td>4376</td></tr><tr><td>10080 min Summer</td><td>0.638</td><td>0.0</td><td>5024</td></tr><tr><td>15 min Winter</td><td>69.167</td><td>0.0</td><td>17</td></tr></table>						Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status	15 min Summer	68.367	0.367	0.2	1.0	O K	30 min Summer	68.571	0.571	0.2	1.3	O K	60 min Summer	68.754	0.754	0.2	1.5	O K	120 min Summer	68.816	0.816	0.2	1.6	O K	180 min Summer	68.790	0.790	0.2	1.5	O K	240 min Summer	68.733	0.733	0.2	1.5	O K	360 min Summer	68.605	0.605	0.2	1.3	O K	480 min Summer	68.444	0.444	0.2	1.2	O K	600 min Summer	68.390	0.390	0.2	1.1	O K	720 min Summer	68.358	0.358	0.2	1.0	O K	960 min Summer	68.302	0.302	0.2	0.9	O K	1440 min Summer	68.217	0.217	0.1	0.6	O K	2160 min Summer	68.132	0.132	0.1	0.4	O K	2880 min Summer	68.079	0.079	0.1	0.2	O K	4320 min Summer	68.044	0.044	0.1	0.1	O K	5760 min Summer	68.036	0.036	0.1	0.1	O K	7200 min Summer	68.030	0.030	0.1	0.1	O K	8640 min Summer	68.026	0.026	0.1	0.1	O K	10080 min Summer	68.023	0.023	0.0	0.1	O K	15 min Winter	68.417	0.417	0.2	1.2	O K	Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)	15 min Summer	69.167	0.0	17	30 min Summer	45.942	0.0	31	60 min Summer	29.238	0.0	60	120 min Summer	18.069	0.0	92	180 min Summer	13.484	0.0	126	240 min Summer	10.903	0.0	160	360 min Summer	8.058	0.0	228	480 min Summer	6.499	0.0	292	600 min 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Date 10/10/2019 13:40 File soakaway 6.SRCX		Designed by Shaun Checked by			
CADS		Source Control 2019.1			
<u>Summary of Results for 30 year Return Period</u>					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
30 min Winter	68.756	0.756	0.2	1.5	O K
60 min Winter	68.987	0.987	0.2	1.7	Flood Risk
120 min Winter	69.055	1.055	0.2	1.8	Flood Risk
180 min Winter	69.012	1.012	0.2	1.7	Flood Risk
240 min Winter	68.923	0.923	0.2	1.7	O K
360 min Winter	68.719	0.719	0.2	1.5	O K
480 min Winter	68.526	0.526	0.2	1.3	O K
600 min Winter	68.387	0.387	0.2	1.1	O K
720 min Winter	68.342	0.342	0.2	1.0	O K
960 min Winter	68.268	0.268	0.2	0.8	O K
1440 min Winter	68.161	0.161	0.1	0.5	O K
2160 min Winter	68.066	0.066	0.1	0.2	O K
2880 min Winter	68.044	0.044	0.1	0.1	O K
4320 min Winter	68.032	0.032	0.1	0.1	O K
5760 min Winter	68.026	0.026	0.1	0.1	O K
7200 min Winter	68.022	0.022	0.0	0.1	O K
8640 min Winter	68.019	0.019	0.0	0.1	O K
10080 min Winter	68.017	0.017	0.0	0.0	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
30 min Winter	45.942	0.0	31		
60 min Winter	29.238	0.0	60		
120 min Winter	18.069	0.0	98		
180 min Winter	13.484	0.0	136		
240 min Winter	10.903	0.0	174		
360 min Winter	8.058	0.0	246		
480 min Winter	6.499	0.0	314		
600 min Winter	5.497	0.0	378		
720 min Winter	4.793	0.0	442		
960 min Winter	3.858	0.0	570		
1440 min Winter	2.837	0.0	822		
2160 min Winter	2.084	0.0	1148		
2880 min Winter	1.672	0.0	1468		
4320 min Winter	1.225	0.0	2188		
5760 min Winter	0.982	0.0	2936		
7200 min Winter	0.827	0.0	3640		
8640 min Winter	0.718	0.0	4392		
10080 min Winter	0.638	0.0	4944		
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<u>Rainfall Details</u> <table> <tr> <td>Rainfall Model</td> <td>FSR</td> <td>Winter Storms</td> <td>Yes</td> </tr> <tr> <td>Return Period (years)</td> <td>30</td> <td>Cv (Summer)</td> <td>0.750</td> </tr> <tr> <td>Region</td> <td>England and Wales</td> <td>Cv (Winter)</td> <td>0.840</td> </tr> <tr> <td>M5-60 (mm)</td> <td>19.000</td> <td>Shortest Storm (mins)</td> <td>15</td> </tr> <tr> <td>Ratio R</td> <td>0.355</td> <td>Longest Storm (mins)</td> <td>10080</td> </tr> <tr> <td>Summer Storms</td> <td>Yes</td> <td>Climate Change %</td> <td>+0</td> </tr> </table> <u>Time Area Diagram</u> Total Area (ha) 0.009 <table> <thead> <tr> <th colspan="2">Time (mins)</th> <th>Area</th> </tr> <tr> <th>From:</th> <th>To:</th> <th>(ha)</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>4</td> <td>0.009</td> </tr> </tbody> </table>			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	0.355	Longest Storm (mins)	10080	Summer Storms	Yes	Climate Change %	+0	Time (mins)		Area	From:	To:	(ha)	0	4	0.009
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<u>Model Details</u> Storage is Online Cover Level (m) 69.250 <u>Cellular Storage Structure</u> Invert Level (m) 68.000 Safety Factor 2.0 Infiltration Coefficient Base (m/hr) 0.21420 Porosity 0.95 Infiltration Coefficient Side (m/hr) 0.21420 <table border="1"> <thead> <tr> <th>Depth (m)</th> <th>Area (m²)</th> <th>Inf. Area (m²)</th> <th>Depth (m)</th> <th>Area (m²)</th> <th>Inf. Area (m²)</th> </tr> </thead> <tbody> <tr> <td>0.000</td> <td>3.0</td> <td>3.0</td> <td>0.500</td> <td>0.0</td> <td>6.2</td> </tr> <tr> <td>0.400</td> <td>3.0</td> <td>6.2</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>			Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)	0.000	3.0	3.0	0.500	0.0	6.2	0.400	3.0	6.2			
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