

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 : 269 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>70.703</td><td>0.353</td><td>0.0</td><td>1.0</td><td>O K</td></tr><tr><td>30 min Summer</td><td>70.810</td><td>0.460</td><td>0.1</td><td>1.3</td><td>O K</td></tr><tr><td>60 min Summer</td><td>70.911</td><td>0.561</td><td>0.1</td><td>1.6</td><td>O K</td></tr><tr><td>120 min Summer</td><td>70.992</td><td>0.642</td><td>0.1</td><td>1.8</td><td>O K</td></tr><tr><td>180 min Summer</td><td>71.017</td><td>0.667</td><td>0.1</td><td>1.9</td><td>O K</td></tr><tr><td>240 min Summer</td><td>71.026</td><td>0.676</td><td>0.1</td><td>1.9</td><td>O K</td></tr><tr><td>360 min Summer</td><td>71.031</td><td>0.681</td><td>0.1</td><td>1.9</td><td>O K</td></tr><tr><td>480 min Summer</td><td>71.028</td><td>0.678</td><td>0.1</td><td>1.9</td><td>O K</td></tr><tr><td>600 min Summer</td><td>71.020</td><td>0.670</td><td>0.1</td><td>1.9</td><td>O K</td></tr><tr><td>720 min Summer</td><td>71.008</td><td>0.658</td><td>0.1</td><td>1.9</td><td>O K</td></tr><tr><td>960 min Summer</td><td>70.982</td><td>0.632</td><td>0.1</td><td>1.8</td><td>O K</td></tr><tr><td>1440 min Summer</td><td>70.927</td><td>0.577</td><td>0.1</td><td>1.6</td><td>O K</td></tr><tr><td>2160 min Summer</td><td>70.856</td><td>0.506</td><td>0.1</td><td>1.4</td><td>O K</td></tr><tr><td>2880 min Summer</td><td>70.798</td><td>0.448</td><td>0.1</td><td>1.3</td><td>O K</td></tr><tr><td>4320 min Summer</td><td>70.708</td><td>0.358</td><td>0.0</td><td>1.0</td><td>O K</td></tr><tr><td>5760 min Summer</td><td>70.641</td><td>0.291</td><td>0.0</td><td>0.8</td><td>O K</td></tr><tr><td>7200 min Summer</td><td>70.591</td><td>0.241</td><td>0.0</td><td>0.7</td><td>O K</td></tr><tr><td>8640 min Summer</td><td>70.550</td><td>0.200</td><td>0.0</td><td>0.6</td><td>O 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Summer	70.992	0.642	0.1	1.8	O K	180 min Summer	71.017	0.667	0.1	1.9	O K	240 min Summer	71.026	0.676	0.1	1.9	O K	360 min Summer	71.031	0.681	0.1	1.9	O K	480 min Summer	71.028	0.678	0.1	1.9	O K	600 min Summer	71.020	0.670	0.1	1.9	O K	720 min Summer	71.008	0.658	0.1	1.9	O K	960 min Summer	70.982	0.632	0.1	1.8	O K	1440 min Summer	70.927	0.577	0.1	1.6	O K	2160 min Summer	70.856	0.506	0.1	1.4	O K	2880 min Summer	70.798	0.448	0.1	1.3	O K	4320 min Summer	70.708	0.358	0.0	1.0	O K	5760 min Summer	70.641	0.291	0.0	0.8	O K	7200 min Summer	70.591	0.241	0.0	0.7	O K	8640 min Summer	70.550	0.200	0.0	0.6	O K	10080 min Summer	70.517	0.167	0.0	0.5	O K	15 min Winter	70.747	0.397	0.1	1.1	O K	Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)	15 min Summer	69.430	0.0	18	30 min Summer	46.032	0.0	33	60 min Summer	29.238	0.0	62	120 min Summer	18.034	0.0	120	180 min Summer	13.445	0.0	176	240 min Summer	10.864	0.0	202	360 min Summer	8.020	0.0	264	480 min Summer	6.464	0.0	332	600 min 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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	70.866	0.516	0.1	1.5	O K	
60 min Winter	70.982	0.632	0.1	1.8	O K	
120 min Winter	71.077	0.727	0.1	2.1	O K	
180 min Winter	71.110	0.760	0.1	2.2	O K	
240 min Winter	71.118	0.768	0.1	2.2	O K	
360 min Winter	71.121	0.771	0.1	2.2	O K	
480 min Winter	71.113	0.763	0.1	2.2	O K	
600 min Winter	71.098	0.748	0.1	2.1	O K	
720 min Winter	71.079	0.729	0.1	2.1	O K	
960 min Winter	71.037	0.687	0.1	2.0	O K	
1440 min Winter	70.957	0.607	0.1	1.7	O K	
2160 min Winter	70.857	0.507	0.1	1.4	O K	
2880 min Winter	70.778	0.428	0.1	1.2	O K	
4320 min Winter	70.664	0.314	0.0	0.9	O K	
5760 min Winter	70.585	0.235	0.0	0.7	O K	
7200 min Winter	70.528	0.178	0.0	0.5	O K	
8640 min Winter	70.484	0.134	0.0	0.4	O K	
10080 min Winter	70.450	0.100	0.0	0.3	O K	
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)			
30 min Winter	46.032	0.0	33			
60 min Winter	29.238	0.0	62			
120 min Winter	18.034	0.0	118			
180 min Winter	13.445	0.0	174			
240 min Winter	10.864	0.0	224			
360 min Winter	8.020	0.0	278			
480 min Winter	6.464	0.0	354			
600 min Winter	5.465	0.0	432			
720 min Winter	4.762	0.0	506			
960 min Winter	3.830	0.0	654			
1440 min Winter	2.814	0.0	938			
2160 min Winter	2.065	0.0	1344			
2880 min Winter	1.656	0.0	1732			
4320 min Winter	1.213	0.0	2508			
5760 min Winter	0.971	0.0	3232			
7200 min Winter	0.817	0.0	3968			
8640 min Winter	0.709	0.0	4680			
10080 min Winter	0.630	0.0	5440			
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CADS		Source Control 2019.1

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	0.359	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+0

Time Area Diagram

Total Area (ha) 0.008

Time (mins)		Area
From:	To:	(ha)
0	4	0.008

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<u>Model Details</u> Storage is Online Cover Level (m) 71.900 <u>Cellular Storage Structure</u> Invert Level (m) 70.350 Safety Factor 2.0 Infiltration Coefficient Base (m/hr) 0.04680 Porosity 0.95 Infiltration Coefficient Side (m/hr) 0.04680 <table border="1" style="width: 100%; border-collapse: collapse;"> <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>0.900</td> <td>0.0</td> <td>13.4</td> </tr> <tr> <td>0.800</td> <td>3.0</td> <td>13.4</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	0.900	0.0	13.4	0.800	3.0	13.4			
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