

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 : 112 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>53.141</td><td>0.441</td><td>0.3</td><td>2.5</td><td>O K</td></tr><tr><td>30 min Summer</td><td>53.256</td><td>0.556</td><td>0.3</td><td>3.2</td><td>O K</td></tr><tr><td>60 min Summer</td><td>53.342</td><td>0.642</td><td>0.4</td><td>3.7</td><td>O K</td></tr><tr><td>120 min Summer</td><td>53.375</td><td>0.675</td><td>0.4</td><td>3.8</td><td>O K</td></tr><tr><td>180 min Summer</td><td>53.372</td><td>0.672</td><td>0.4</td><td>3.8</td><td>O K</td></tr><tr><td>240 min Summer</td><td>53.357</td><td>0.657</td><td>0.4</td><td>3.7</td><td>O K</td></tr><tr><td>360 min Summer</td><td>53.317</td><td>0.617</td><td>0.4</td><td>3.5</td><td>O K</td></tr><tr><td>480 min Summer</td><td>53.279</td><td>0.579</td><td>0.4</td><td>3.3</td><td>O K</td></tr><tr><td>600 min Summer</td><td>53.242</td><td>0.542</td><td>0.3</td><td>3.1</td><td>O K</td></tr><tr><td>720 min Summer</td><td>53.207</td><td>0.507</td><td>0.3</td><td>2.9</td><td>O K</td></tr><tr><td>960 min Summer</td><td>53.142</td><td>0.442</td><td>0.3</td><td>2.5</td><td>O K</td></tr><tr><td>1440 min Summer</td><td>53.037</td><td>0.337</td><td>0.3</td><td>1.9</td><td>O K</td></tr><tr><td>2160 min Summer</td><td>52.923</td><td>0.223</td><td>0.2</td><td>1.3</td><td>O K</td></tr><tr><td>2880 min Summer</td><td>52.845</td><td>0.145</td><td>0.2</td><td>0.8</td><td>O K</td></tr><tr><td>4320 min Summer</td><td>52.759</td><td>0.059</td><td>0.2</td><td>0.3</td><td>O K</td></tr><tr><td>5760 min Summer</td><td>52.743</td><td>0.043</td><td>0.2</td><td>0.2</td><td>O K</td></tr><tr><td>7200 min Summer</td><td>52.736</td><td>0.036</td><td>0.1</td><td>0.2</td><td>O K</td></tr><tr><td>8640 min Summer</td><td>52.731</td><td>0.031</td><td>0.1</td><td>0.2</td><td>O 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Summer</td><td>4.740</td><td>0.0</td><td>434</td></tr><tr><td>960 min Summer</td><td>3.810</td><td>0.0</td><td>566</td></tr><tr><td>1440 min Summer</td><td>2.797</td><td>0.0</td><td>820</td></tr><tr><td>2160 min Summer</td><td>2.051</td><td>0.0</td><td>1188</td></tr><tr><td>2880 min Summer</td><td>1.644</td><td>0.0</td><td>1532</td></tr><tr><td>4320 min Summer</td><td>1.203</td><td>0.0</td><td>2204</td></tr><tr><td>5760 min Summer</td><td>0.963</td><td>0.0</td><td>2904</td></tr><tr><td>7200 min Summer</td><td>0.810</td><td>0.0</td><td>3640</td></tr><tr><td>8640 min Summer</td><td>0.703</td><td>0.0</td><td>4336</td></tr><tr><td>10080 min Summer</td><td>0.624</td><td>0.0</td><td>5016</td></tr><tr><td>15 min Winter</td><td>69.625</td><td>0.0</td><td>18</td></tr></table>						Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status	15 min Summer	53.141	0.441	0.3	2.5	O K	30 min Summer	53.256	0.556	0.3	3.2	O K	60 min Summer	53.342	0.642	0.4	3.7	O K	120 min Summer	53.375	0.675	0.4	3.8	O K	180 min Summer	53.372	0.672	0.4	3.8	O K	240 min Summer	53.357	0.657	0.4	3.7	O K	360 min Summer	53.317	0.617	0.4	3.5	O K	480 min Summer	53.279	0.579	0.4	3.3	O K	600 min Summer	53.242	0.542	0.3	3.1	O K	720 min Summer	53.207	0.507	0.3	2.9	O K	960 min Summer	53.142	0.442	0.3	2.5	O K	1440 min Summer	53.037	0.337	0.3	1.9	O K	2160 min Summer	52.923	0.223	0.2	1.3	O K	2880 min Summer	52.845	0.145	0.2	0.8	O K	4320 min Summer	52.759	0.059	0.2	0.3	O K	5760 min Summer	52.743	0.043	0.2	0.2	O K	7200 min Summer	52.736	0.036	0.1	0.2	O K	8640 min Summer	52.731	0.031	0.1	0.2	O K	10080 min Summer	52.728	0.028	0.1	0.2	O K	15 min Winter	53.197	0.497	0.3	2.8	O K	Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)	15 min Summer	69.625	0.0	18	30 min Summer	46.099	0.0	32	60 min Summer	29.238	0.0	60	120 min Summer	18.009	0.0	96	180 min Summer	13.416	0.0	128	240 min Summer	10.836	0.0	164	360 min Summer	7.992	0.0	232	480 min Summer	6.438	0.0	302	600 min Summer	5.441	0.0	368	720 min Summer	4.740	0.0	434	960 min Summer	3.810	0.0	566	1440 min Summer	2.797	0.0	820	2160 min Summer	2.051	0.0	1188	2880 min Summer	1.644	0.0	1532	4320 min Summer	1.203	0.0	2204	5760 min Summer	0.963	0.0	2904	7200 min Summer	0.810	0.0	3640	8640 min Summer	0.703	0.0	4336	10080 min Summer	0.624	0.0	5016	15 min Winter	69.625	0.0	18
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11 Broomhead Road Wombell Barnsley S73 0SA						
Date 04/07/2019 10:33 File Plots 37-38.SRCX		Designed by Shaun Checked by				
CADS			Source Control 2018.1			
Summary of Results for 30 year Return Period						
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status	
30 min Winter	53.330	0.630	0.4	3.6	O K	
60 min Winter	53.434	0.734	0.4	4.2	O K	
120 min Winter	53.472	0.772	0.4	4.4	O K	
180 min Winter	53.468	0.768	0.4	4.4	O K	
240 min Winter	53.445	0.745	0.4	4.2	O K	
360 min Winter	53.384	0.684	0.4	3.9	O K	
480 min Winter	53.325	0.625	0.4	3.6	O K	
600 min Winter	53.269	0.569	0.3	3.2	O K	
720 min Winter	53.217	0.517	0.3	2.9	O K	
960 min Winter	53.126	0.426	0.3	2.4	O K	
1440 min Winter	52.985	0.285	0.3	1.6	O K	
2160 min Winter	52.843	0.143	0.2	0.8	O K	
2880 min Winter	52.760	0.060	0.2	0.3	O K	
4320 min Winter	52.739	0.039	0.1	0.2	O K	
5760 min Winter	52.731	0.031	0.1	0.2	O K	
7200 min Winter	52.726	0.026	0.1	0.1	O K	
8640 min Winter	52.723	0.023	0.1	0.1	O K	
10080 min Winter	52.720	0.020	0.1	0.1	O K	
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)			
30 min Winter	46.099	0.0	32			
60 min Winter	29.238	0.0	60			
120 min Winter	18.009	0.0	100			
180 min Winter	13.416	0.0	138			
240 min Winter	10.836	0.0	176			
360 min Winter	7.992	0.0	252			
480 min Winter	6.438	0.0	324			
600 min Winter	5.441	0.0	394			
720 min Winter	4.740	0.0	462			
960 min Winter	3.810	0.0	598			
1440 min Winter	2.797	0.0	852			
2160 min Winter	2.051	0.0	1212			
2880 min Winter	1.644	0.0	1524			
4320 min Winter	1.203	0.0	2208			
5760 min Winter	0.963	0.0	2928			
7200 min Winter	0.810	0.0	3656			
8640 min Winter	0.703	0.0	4312			
10080 min Winter	0.624	0.0	5104			
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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>0.362</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) 0.021 <table> <tr> <th colspan="2">Time (mins)</th> <th>Area</th> </tr> <tr> <th>From:</th> <th>To:</th> <th>(ha)</th> </tr> <tr> <td>0</td> <td>4</td> <td>0.021</td> </tr> </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	0.362	Longest Storm (mins)	10080	Summer Storms	Yes	Climate Change %	+0	Time (mins)		Area	From:	To:	(ha)	0	4	0.021
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<u>Model Details</u> Storage is Online Cover Level (m) 53.900 <u>Cellular Storage Structure</u> Invert Level (m) 52.700 Safety Factor 2.0 Infiltration Coefficient Base (m/hr) 0.21400 Porosity 0.95 Infiltration Coefficient Side (m/hr) 0.21400 <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>6.0</td> <td>6.0</td> <td>0.900</td> <td>0.0</td> <td>14.0</td> </tr> <tr> <td>0.800</td> <td>6.0</td> <td>14.0</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	6.0	6.0	0.900	0.0	14.0	0.800	6.0	14.0			
Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)															
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