

Robert Clark Associates				Page 1																																																																																																																																																																																																																			
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<u>Summary of Results for 10 year Return Period (+40%)</u> Half Drain Time : 527 minutes. <table><thead><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></thead><tbody><tr><td>15 min Summer</td><td>3.176</td><td>0.176</td><td>0.1</td><td>1.5</td><td>O K</td></tr><tr><td>30 min Summer</td><td>3.235</td><td>0.235</td><td>0.1</td><td>2.0</td><td>O K</td></tr><tr><td>60 min Summer</td><td>3.295</td><td>0.295</td><td>0.1</td><td>2.5</td><td>O K</td></tr><tr><td>120 min Summer</td><td>3.352</td><td>0.352</td><td>0.1</td><td>3.0</td><td>O K</td></tr><tr><td>180 min Summer</td><td>3.381</td><td>0.381</td><td>0.1</td><td>3.3</td><td>O K</td></tr><tr><td>240 min Summer</td><td>3.397</td><td>0.397</td><td>0.1</td><td>3.4</td><td>O K</td></tr><tr><td>360 min Summer</td><td>3.411</td><td>0.411</td><td>0.1</td><td>3.5</td><td>O K</td></tr><tr><td>480 min Summer</td><td>3.412</td><td>0.412</td><td>0.1</td><td>3.6</td><td>O K</td></tr><tr><td>600 min Summer</td><td>3.412</td><td>0.412</td><td>0.1</td><td>3.6</td><td>O K</td></tr><tr><td>720 min Summer</td><td>3.409</td><td>0.409</td><td>0.1</td><td>3.5</td><td>O K</td></tr><tr><td>960 min Summer</td><td>3.400</td><td>0.400</td><td>0.1</td><td>3.5</td><td>O K</td></tr><tr><td>1440 min Summer</td><td>3.377</td><td>0.377</td><td>0.1</td><td>3.3</td><td>O K</td></tr><tr><td>2160 min Summer</td><td>3.338</td><td>0.338</td><td>0.1</td><td>2.9</td><td>O K</td></tr><tr><td>2880 min Summer</td><td>3.298</td><td>0.298</td><td>0.1</td><td>2.6</td><td>O K</td></tr><tr><td>4320 min Summer</td><td>3.224</td><td>0.224</td><td>0.1</td><td>1.9</td><td>O K</td></tr><tr><td>5760 min Summer</td><td>3.163</td><td>0.163</td><td>0.1</td><td>1.4</td><td>O K</td></tr><tr><td>7200 min Summer</td><td>3.115</td><td>0.115</td><td>0.1</td><td>1.0</td><td>O K</td></tr><tr><td>8640 min Summer</td><td>3.082</td><td>0.082</td><td>0.1</td><td>0.7</td><td>O K</td></tr><tr><td>10080 min Summer</td><td>3.060</td><td>0.060</td><td>0.1</td><td>0.5</td><td>O K</td></tr><tr><td>15 min Winter</td><td>3.200</td><td>0.200</td><td>0.1</td><td>1.7</td><td>O K</td></tr></tbody></table> <table><thead><tr><th>Storm Event</th><th>Rain (mm/hr)</th><th>Flooded Volume (m³)</th><th>Time-Peak (mins)</th></tr></thead><tbody><tr><td>15 min Summer</td><td>76.214</td><td>0.0</td><td>19</td></tr><tr><td>30 min Summer</td><td>50.290</td><td>0.0</td><td>33</td></tr><tr><td>60 min Summer</td><td>31.908</td><td>0.0</td><td>62</td></tr><tr><td>120 min Summer</td><td>19.755</td><td>0.0</td><td>122</td></tr><tr><td>180 min Summer</td><td>14.804</td><td>0.0</td><td>182</td></tr><tr><td>240 min Summer</td><td>12.028</td><td>0.0</td><td>242</td></tr><tr><td>360 min Summer</td><td>8.957</td><td>0.0</td><td>360</td></tr><tr><td>480 min Summer</td><td>7.262</td><td>0.0</td><td>430</td></tr><tr><td>600 min 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Summer	3.235	0.235	0.1	2.0	O K	60 min Summer	3.295	0.295	0.1	2.5	O K	120 min Summer	3.352	0.352	0.1	3.0	O K	180 min Summer	3.381	0.381	0.1	3.3	O K	240 min Summer	3.397	0.397	0.1	3.4	O K	360 min Summer	3.411	0.411	0.1	3.5	O K	480 min Summer	3.412	0.412	0.1	3.6	O K	600 min Summer	3.412	0.412	0.1	3.6	O K	720 min Summer	3.409	0.409	0.1	3.5	O K	960 min Summer	3.400	0.400	0.1	3.5	O K	1440 min Summer	3.377	0.377	0.1	3.3	O K	2160 min Summer	3.338	0.338	0.1	2.9	O K	2880 min Summer	3.298	0.298	0.1	2.6	O K	4320 min Summer	3.224	0.224	0.1	1.9	O K	5760 min Summer	3.163	0.163	0.1	1.4	O K	7200 min Summer	3.115	0.115	0.1	1.0	O K	8640 min Summer	3.082	0.082	0.1	0.7	O K	10080 min Summer	3.060	0.060	0.1	0.5	O K	15 min Winter	3.200	0.200	0.1	1.7	O K	Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)	15 min Summer	76.214	0.0	19	30 min Summer	50.290	0.0	33	60 min Summer	31.908	0.0	62	120 min Summer	19.755	0.0	122	180 min Summer	14.804	0.0	182	240 min Summer	12.028	0.0	242	360 min Summer	8.957	0.0	360	480 min Summer	7.262	0.0	430	600 min Summer	6.168	0.0	492	720 min Summer	5.396	0.0	556	960 min Summer	4.369	0.0	684	1440 min Summer	3.241	0.0	964	2160 min Summer	2.402	0.0	1364	2880 min Summer	1.942	0.0	1760	4320 min Summer	1.437	0.0	2548	5760 min Summer	1.161	0.0	3232	7200 min Summer	0.983	0.0	3896	8640 min Summer	0.859	0.0	4584	10080 min Summer	0.766	0.0	5240	15 min Winter	76.214	0.0	18
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Date 20 April 2021 File SW calcs_pp_10yr with cc.SRCX		Designed by RTFC Checked by			
Micro Drainage		Source Control 2016.1			
Summary of Results for 10 year Return Period (+40%)					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
30 min Winter	3.266	0.266	0.1	2.3	O K
60 min Winter	3.334	0.334	0.1	2.9	O K
120 min Winter	3.401	0.401	0.1	3.5	O K
180 min Winter	3.436	0.436	0.1	3.8	O K
240 min Winter	3.456	0.456	0.1	3.9	O K
360 min Winter	3.477	0.477	0.1	4.1	O K
480 min Winter	3.483	0.483	0.1	4.2	O K
600 min Winter	3.481	0.481	0.1	4.2	O K
720 min Winter	3.475	0.475	0.1	4.1	O K
960 min Winter	3.463	0.463	0.1	4.0	O K
1440 min Winter	3.428	0.428	0.1	3.7	O K
2160 min Winter	3.364	0.364	0.1	3.1	O K
2880 min Winter	3.301	0.301	0.1	2.6	O K
4320 min Winter	3.187	0.187	0.1	1.6	O K
5760 min Winter	3.101	0.101	0.1	0.9	O K
7200 min Winter	3.052	0.052	0.1	0.5	O K
8640 min Winter	3.045	0.045	0.1	0.4	O K
10080 min Winter	3.040	0.040	0.1	0.3	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
30 min Winter	50.290	0.0	33		
60 min Winter	31.908	0.0	62		
120 min Winter	19.755	0.0	120		
180 min Winter	14.804	0.0	178		
240 min Winter	12.028	0.0	236		
360 min Winter	8.957	0.0	350		
480 min Winter	7.262	0.0	460		
600 min Winter	6.168	0.0	564		
720 min Winter	5.396	0.0	602		
960 min Winter	4.369	0.0	742		
1440 min Winter	3.241	0.0	1052		
2160 min Winter	2.402	0.0	1492		
2880 min Winter	1.942	0.0	1904		
4320 min Winter	1.437	0.0	2676		
5760 min Winter	1.161	0.0	3296		
7200 min Winter	0.983	0.0	3752		
8640 min Winter	0.859	0.0	4408		
10080 min Winter	0.766	0.0	5144		
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Micro Drainage Source Control 2016.1		

Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	10	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	19.000	Shortest Storm (mins)	15
Ratio R	0.350	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+40

Time Area Diagram

Total Area (ha) 0.012

Time (mins)	Area
From: To:	(ha)
0 4	0.012

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<u>Model Details</u> Storage is Online Cover Level (m) 3.950 <u>Porous Car Park Structure</u> <table> <tr> <td>Infiltration Coefficient Base (m/hr)</td> <td>0.01664</td> <td>Width (m)</td> <td>6.0</td> </tr> <tr> <td>Membrane Percolation (mm/hr)</td> <td>1000</td> <td>Length (m)</td> <td>4.8</td> </tr> <tr> <td>Max Percolation (l/s)</td> <td>8.0</td> <td>Slope (1:X)</td> <td>0.0</td> </tr> <tr> <td>Safety Factor</td> <td>2.0</td> <td>Depression Storage (mm)</td> <td>5</td> </tr> <tr> <td>Porosity</td> <td>0.30</td> <td>Evaporation (mm/day)</td> <td>3</td> </tr> <tr> <td>Invert Level (m)</td> <td>3.000</td> <td>Membrane Depth (m)</td> <td>0</td> </tr> </table>			Infiltration Coefficient Base (m/hr)	0.01664	Width (m)	6.0	Membrane Percolation (mm/hr)	1000	Length (m)	4.8	Max Percolation (l/s)	8.0	Slope (1:X)	0.0	Safety Factor	2.0	Depression Storage (mm)	5	Porosity	0.30	Evaporation (mm/day)	3	Invert Level (m)	3.000	Membrane Depth (m)	0
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