

BEAL Consulting Engineers Ltd					Page 1																																																																																																																																																																																																																		
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Summary of Results for 100 year Return Period (+40%) Half Drain Time : 1075 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>8.217</td><td>0.217</td><td>0.1</td><td>4.9</td><td>O K</td></tr><tr><td>30 min Summer</td><td>8.291</td><td>0.291</td><td>0.1</td><td>6.6</td><td>O K</td></tr><tr><td>60 min Summer</td><td>8.370</td><td>0.370</td><td>0.1</td><td>8.4</td><td>O K</td></tr><tr><td>120 min Summer</td><td>8.449</td><td>0.449</td><td>0.1</td><td>10.2</td><td>O K</td></tr><tr><td>180 min Summer</td><td>8.490</td><td>0.490</td><td>0.1</td><td>11.2</td><td>O K</td></tr><tr><td>240 min Summer</td><td>8.514</td><td>0.514</td><td>0.1</td><td>11.7</td><td>O K</td></tr><tr><td>360 min Summer</td><td>8.545</td><td>0.545</td><td>0.1</td><td>12.4</td><td>O K</td></tr><tr><td>480 min Summer</td><td>8.561</td><td>0.561</td><td>0.1</td><td>12.8</td><td>O K</td></tr><tr><td>600 min Summer</td><td>8.568</td><td>0.568</td><td>0.1</td><td>13.0</td><td>O K</td></tr><tr><td>720 min Summer</td><td>8.570</td><td>0.570</td><td>0.1</td><td>13.0</td><td>O K</td></tr><tr><td>960 min Summer</td><td>8.566</td><td>0.566</td><td>0.1</td><td>12.9</td><td>O K</td></tr><tr><td>1440 min Summer</td><td>8.552</td><td>0.552</td><td>0.1</td><td>12.6</td><td>O K</td></tr><tr><td>2160 min Summer</td><td>8.525</td><td>0.525</td><td>0.1</td><td>12.0</td><td>O K</td></tr><tr><td>2880 min Summer</td><td>8.497</td><td>0.497</td><td>0.1</td><td>11.3</td><td>O K</td></tr><tr><td>4320 min Summer</td><td>8.443</td><td>0.443</td><td>0.1</td><td>10.1</td><td>O K</td></tr><tr><td>5760 min Summer</td><td>8.392</td><td>0.392</td><td>0.1</td><td>8.9</td><td>O K</td></tr><tr><td>7200 min Summer</td><td>8.348</td><td>0.348</td><td>0.1</td><td>7.9</td><td>O K</td></tr><tr><td>8640 min Summer</td><td>8.307</td><td>0.307</td><td>0.1</td><td>7.0</td><td>O K</td></tr><tr><td>10080 min Summer</td><td>8.270</td><td>0.270</td><td>0.1</td><td>6.2</td><td>O K</td></tr><tr><td>15 min Winter</td><td>8.243</td><td>0.243</td><td>0.1</td><td>5.5</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>127.527</td><td>0.0</td><td>19</td></tr><tr><td>30 min Summer</td><td>86.161</td><td>0.0</td><td>34</td></tr><tr><td>60 min Summer</td><td>55.544</td><td>0.0</td><td>64</td></tr><tr><td>120 min Summer</td><td>34.524</td><td>0.0</td><td>124</td></tr><tr><td>180 min Summer</td><td>25.720</td><td>0.0</td><td>182</td></tr><tr><td>240 min Summer</td><td>20.715</td><td>0.0</td><td>242</td></tr><tr><td>360 min Summer</td><td>15.292</td><td>0.0</td><td>362</td></tr><tr><td>480 min Summer</td><td>12.308</td><td>0.0</td><td>482</td></tr><tr><td>600 min 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Summer	8.291	0.291	0.1	6.6	O K	60 min Summer	8.370	0.370	0.1	8.4	O K	120 min Summer	8.449	0.449	0.1	10.2	O K	180 min Summer	8.490	0.490	0.1	11.2	O K	240 min Summer	8.514	0.514	0.1	11.7	O K	360 min Summer	8.545	0.545	0.1	12.4	O K	480 min Summer	8.561	0.561	0.1	12.8	O K	600 min Summer	8.568	0.568	0.1	13.0	O K	720 min Summer	8.570	0.570	0.1	13.0	O K	960 min Summer	8.566	0.566	0.1	12.9	O K	1440 min Summer	8.552	0.552	0.1	12.6	O K	2160 min Summer	8.525	0.525	0.1	12.0	O K	2880 min Summer	8.497	0.497	0.1	11.3	O K	4320 min Summer	8.443	0.443	0.1	10.1	O K	5760 min Summer	8.392	0.392	0.1	8.9	O K	7200 min Summer	8.348	0.348	0.1	7.9	O K	8640 min Summer	8.307	0.307	0.1	7.0	O K	10080 min Summer	8.270	0.270	0.1	6.2	O K	15 min Winter	8.243	0.243	0.1	5.5	O K	Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)	15 min Summer	127.527	0.0	19	30 min Summer	86.161	0.0	34	60 min Summer	55.544	0.0	64	120 min Summer	34.524	0.0	124	180 min Summer	25.720	0.0	182	240 min Summer	20.715	0.0	242	360 min 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Date 14/11/2019 15:16 File REAR SOAKAWAY 1-100+40C...		Designed by Felice Checked by			
XP Solutions		Source Control 2015.1			
Summary of Results for 100 year Return Period (+40%)					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
30 min Winter	8.327	0.327	0.1	7.4	O K
60 min Winter	8.416	0.416	0.1	9.5	O K
120 min Winter	8.506	0.506	0.1	11.5	O K
180 min Winter	8.553	0.553	0.1	12.6	O K
240 min Winter	8.582	0.582	0.1	13.3	O K
360 min Winter	8.620	0.620	0.1	14.1	O K
480 min Winter	8.641	0.641	0.1	14.6	O K
600 min Winter	8.652	0.652	0.1	14.9	O K
720 min Winter	8.658	0.658	0.1	15.0	O K
960 min Winter	8.657	0.657	0.1	15.0	O K
1440 min Winter	8.637	0.637	0.1	14.5	O K
2160 min Winter	8.602	0.602	0.1	13.7	O K
2880 min Winter	8.562	0.562	0.1	12.8	O K
4320 min Winter	8.481	0.481	0.1	11.0	O K
5760 min Winter	8.406	0.406	0.1	9.3	O K
7200 min Winter	8.340	0.340	0.1	7.8	O K
8640 min Winter	8.282	0.282	0.1	6.4	O K
10080 min Winter	8.230	0.230	0.1	5.2	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
30 min Winter	86.161	0.0	33		
60 min Winter	55.544	0.0	62		
120 min Winter	34.524	0.0	122		
180 min Winter	25.720	0.0	180		
240 min Winter	20.715	0.0	238		
360 min Winter	15.292	0.0	354		
480 min Winter	12.308	0.0	470		
600 min Winter	10.390	0.0	584		
720 min Winter	9.043	0.0	694		
960 min Winter	7.256	0.0	908		
1440 min Winter	5.309	0.0	1142		
2160 min Winter	3.876	0.0	1604		
2880 min Winter	3.096	0.0	2072		
4320 min Winter	2.251	0.0	2940		
5760 min Winter	1.793	0.0	3800		
7200 min Winter	1.506	0.0	4608		
8640 min Winter	1.305	0.0	5360		
10080 min Winter	1.156	0.0	6144		
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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>100</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>19.600</td> <td>Shortest Storm (mins)</td> <td>15</td> </tr> <tr> <td>Ratio R</td> <td>0.339</td> <td>Longest Storm (mins)</td> <td>10080</td> </tr> <tr> <td>Summer Storms</td> <td>Yes</td> <td>Climate Change %</td> <td>+40</td> </tr> </table> <u>Time Area Diagram</u> Total Area (ha) 0.021 <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>0.021</td> </tr> </tbody> </table>			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)	19.600	Shortest Storm (mins)	15	Ratio R	0.339	Longest Storm (mins)	10080	Summer Storms	Yes	Climate Change %	+40	Time (mins)		Area	From:	To:	(ha)	0	4	0.021
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Model Details

Storage is Online Cover Level (m) 10.000

Cellular Storage Structure

Invert Level (m) 8.000 Safety Factor 1.0
Infiltration Coefficient Base (m/hr) 0.01260 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.01260

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	24.0	24.0	0.500	24.0	33.8
0.100	24.0	26.0	0.600	24.0	35.8
0.200	24.0	27.9	0.700	24.0	37.7
0.300	24.0	29.9	0.800	24.0	39.7
0.400	24.0	31.8			

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