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Date 01/06/2023 File 81270 - ATTENUATION BASIN	Designed by AGS Checked by DE																																																																																																																																																																																																																																																																					
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<u>Summary of Results for 1 year Return Period</u> Half Drain Time: 715 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 Control (l/s)</th><th>Max Outflow (l/s)</th><th>Max Volume (m³)</th><th>Status</th></tr><tr><td>15 min Summer</td><td>98.424</td><td>0.119</td><td>3.5</td><td>2.0</td><td>1.5</td><td>107.576</td><td>O K</td></tr><tr><td>30 min Summer</td><td>98.461</td><td>0.156</td><td>3.5</td><td>2.0</td><td>1.5</td><td>141.024</td><td>O K</td></tr><tr><td>60 min Summer</td><td>98.500</td><td>0.195</td><td>3.5</td><td>2.0</td><td>1.5</td><td>176.280</td><td>O K</td></tr><tr><td>120 min Summer</td><td>98.538</td><td>0.233</td><td>3.5</td><td>2.0</td><td>1.5</td><td>210.632</td><td>O K</td></tr><tr><td>180 min Summer</td><td>98.560</td><td>0.255</td><td>3.5</td><td>2.0</td><td>1.5</td><td>230.520</td><td>O K</td></tr><tr><td>240 min Summer</td><td>98.574</td><td>0.269</td><td>3.6</td><td>2.0</td><td>1.6</td><td>243.176</td><td>O K</td></tr><tr><td>360 min Summer</td><td>98.592</td><td>0.287</td><td>3.6</td><td>2.0</td><td>1.6</td><td>259.448</td><td>O K</td></tr><tr><td>480 min Summer</td><td>98.603</td><td>0.298</td><td>3.6</td><td>2.0</td><td>1.6</td><td>269.392</td><td>O K</td></tr><tr><td>600 min Summer</td><td>98.610</td><td>0.305</td><td>3.6</td><td>2.0</td><td>1.6</td><td>275.720</td><td>O K</td></tr><tr><td>720 min Summer</td><td>98.614</td><td>0.309</td><td>3.6</td><td>2.0</td><td>1.6</td><td>279.336</td><td>O K</td></tr><tr><td>960 min Summer</td><td>98.618</td><td>0.313</td><td>3.6</td><td>2.0</td><td>1.6</td><td>282.952</td><td>O K</td></tr><tr><td>1440 min Summer</td><td>98.614</td><td>0.309</td><td>3.6</td><td>2.0</td><td>1.6</td><td>279.336</td><td>O K</td></tr><tr><td>2160 min Summer</td><td>98.604</td><td>0.299</td><td>3.6</td><td>2.0</td><td>1.6</td><td>269.992</td><td>O K</td></tr><tr><td>2880 min Summer</td><td>98.596</td><td>0.287</td><td>3.6</td><td>2.0</td><td>1.6</td><td>259.448</td><td>O K</td></tr><tr><td>4320 min Summer</td><td>98.574</td><td>0.265</td><td>3.6</td><td>2.0</td><td>1.6</td><td>239.560</td><td>O K</td></tr><tr><td>5760 min Summer</td><td>98.554</td><td>0.245</td><td>3.5</td><td>2.0</td><td>1.5</td><td>221.480</td><td>O K</td></tr><tr><td>7200 min Summer</td><td>98.535</td><td>0.226</td><td>3.5</td><td>2.0</td><td>1.5</td><td>204.304</td><td>O K</td></tr><tr><td>8640 min Summer</td><td>98.513</td><td>0.208</td><td>3.5</td><td>2.0</td><td>1.5</td><td>188.032</td><td>O K</td></tr><tr><td>10080 min Summer</td><td>98.497</td><td>0.192</td><td>3.5</td><td>2.0</td><td>1.5</td><td>173.568</td><td>O K</td></tr></table> <table><tr><th>Storm Event</th><th>Rain (mm/hr)</th><th>Flooded Volume (m³)</th><th>Discharge Volume (m³)</th><th>Time-Peak (mins)</th></tr><tr><td>15 min Summer</td><td>94.901</td><td>0.0</td><td>116.7</td><td>23</td></tr><tr><td>30 min Summer</td><td>62.350</td><td>0.0</td><td>125.3</td><td>38</td></tr><tr><td>60 min Summer</td><td>39.045</td><td>0.0</td><td>232.6</td><td>68</td></tr><tr><td>120 min Summer</td><td>23.639</td><td>0.0</td><td>243.6</td><td>126</td></tr><tr><td>180 min Summer</td><td>17.399</td><td>0.0</td><td>249.9</td><td>186</td></tr><tr><td>240 min Summer</td><td>13.918</td><td>0.0</td><td>253.6</td><td>246</td></tr><tr><td>360 min Summer</td><td>10.103</td><td>0.0</td><td>255.0</td><td>364</td></tr><tr><td>480 min Summer</td><td>8.053</td><td>0.0</td><td>255.2</td><td>484</td></tr><tr><td>600 min Summer</td><td>6.750</td><td>0.0</td><td>255.2</td><td>604</td></tr><tr><td>720 min Summer</td><td>5.840</td><td>0.0</td><td>255.1</td><td>722</td></tr><tr><td>960 min Summer</td><td>4.644</td><td>0.0</td><td>254.5</td><td>962</td></tr><tr><td>1440 min Summer</td><td>3.357</td><td>0.0</td><td>252.8</td><td>1284</td></tr><tr><td>2160 min Summer</td><td>2.423</td><td>0.0</td><td>487.7</td><td>1644</td></tr><tr><td>2880 min Summer</td><td>1.921</td><td>0.0</td><td>494.2</td><td>2024</td></tr><tr><td>4320 min Summer</td><td>1.382</td><td>0.0</td><td>493.3</td><td>2856</td></tr><tr><td>5760 min Summer</td><td>1.094</td><td>0.0</td><td>806.9</td><td>3688</td></tr><tr><td>7200 min Summer</td><td>0.911</td><td>0.0</td><td>812.8</td><td>4472</td></tr><tr><td>8640 min Summer</td><td>0.785</td><td>0.0</td><td>817.7</td><td>5272</td></tr><tr><td>10080 min Summer</td><td>0.692</td><td>0.0</td><td>822.0</td><td>6056</td></tr></table>			Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Outflow (l/s)	Max Volume (m³)	Status	15 min Summer	98.424	0.119	3.5	2.0	1.5	107.576	O K	30 min Summer	98.461	0.156	3.5	2.0	1.5	141.024	O K	60 min Summer	98.500	0.195	3.5	2.0	1.5	176.280	O K	120 min Summer	98.538	0.233	3.5	2.0	1.5	210.632	O K	180 min Summer	98.560	0.255	3.5	2.0	1.5	230.520	O K	240 min Summer	98.574	0.269	3.6	2.0	1.6	243.176	O K	360 min Summer	98.592	0.287	3.6	2.0	1.6	259.448	O K	480 min Summer	98.603	0.298	3.6	2.0	1.6	269.392	O K	600 min Summer	98.610	0.305	3.6	2.0	1.6	275.720	O K	720 min Summer	98.614	0.309	3.6	2.0	1.6	279.336	O K	960 min Summer	98.618	0.313	3.6	2.0	1.6	282.952	O K	1440 min Summer	98.614	0.309	3.6	2.0	1.6	279.336	O K	2160 min Summer	98.604	0.299	3.6	2.0	1.6	269.992	O K	2880 min Summer	98.596	0.287	3.6	2.0	1.6	259.448	O K	4320 min Summer	98.574	0.265	3.6	2.0	1.6	239.560	O K	5760 min Summer	98.554	0.245	3.5	2.0	1.5	221.480	O K	7200 min Summer	98.535	0.226	3.5	2.0	1.5	204.304	O K	8640 min Summer	98.513	0.208	3.5	2.0	1.5	188.032	O K	10080 min Summer	98.497	0.192	3.5	2.0	1.5	173.568	O K	Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)	15 min Summer	94.901	0.0	116.7	23	30 min Summer	62.350	0.0	125.3	38	60 min Summer	39.045	0.0	232.6	68	120 min Summer	23.639	0.0	243.6	126	180 min Summer	17.399	0.0	249.9	186	240 min Summer	13.918	0.0	253.6	246	360 min Summer	10.103	0.0	255.0	364	480 min Summer	8.053	0.0	255.2	484	600 min Summer	6.750	0.0	255.2	604	720 min Summer	5.840	0.0	255.1	722	960 min Summer	4.644	0.0	254.5	962	1440 min Summer	3.357	0.0	252.8	1284	2160 min Summer	2.423	0.0	487.7	1644	2880 min Summer	1.921	0.0	494.2	2024	4320 min Summer	1.382	0.0	493.3	2856	5760 min Summer	1.094	0.0	806.9	3688	7200 min Summer	0.911	0.0	812.8	4472	8640 min Summer	0.785	0.0	817.7	5272	10080 min Summer	0.692	0.0	822.0	6056
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Catherine House Old Harborough Road Brixworth NN6 9BX			Kyngs Golf Club - 81270 1 in 100 year storm				
Date 01/06/2023 File 81270 - ATTENUATION BASIN			Designed by AGS Checked by DE				
Micro Drainage Source Control 2018.1.1							
Summary of Results for 1 year Return Period							
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Outflow (l/s)	Max Volume (m³)	Status
15 min Winter	98.438	0.133	3.5	2.0	1.5	102.152	O K
30 min Winter	98.480	0.175	3.5	2.0	1.5	158.200	O K
60 min Winter	98.522	0.217	3.5	2.0	1.5	196.618	O K
120 min Winter	98.565	0.260	3.6	2.0	1.6	235.040	O K
180 min Winter	98.590	0.285	3.6	2.0	1.6	257.640	O K
240 min Winter	98.606	0.301	3.6	2.0	1.6	272.104	O K
360 min Winter	98.626	0.321	3.6	2.0	1.6	290.184	O K
480 min Winter	98.639	0.334	3.6	2.0	1.6	301.396	O K
600 min Winter	98.648	0.343	3.6	2.0	1.6	310.072	O K
720 min Winter	98.654	0.349	3.6	2.0	1.6	315.496	O K
960 min Winter	98.660	0.355	3.6	2.0	1.6	320.920	O K
1440 min Winter	98.659	0.354	3.6	2.0	1.6	320.016	O K
2160 min Winter	98.646	0.341	3.6	2.0	1.6	308.264	O K
2880 min Winter	98.631	0.326	3.6	2.0	1.6	294.704	O K
4320 min Winter	98.601	0.296	3.6	2.0	1.6	267.584	O K
5760 min Winter	98.571	0.266	3.6	2.0	1.6	240.464	O K
7200 min Winter	98.543	0.238	3.5	2.0	1.5	215.152	O K
8640 min Winter	98.517	0.212	3.5	2.0	1.5	191.648	O K
10080 min Winter	98.494	0.189	3.5	2.0	1.5	170.856	O K
	Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)		
	15 min Winter	94.901	0.0	120.4	23		
	30 min Winter	62.350	0.0	126.7	37		
	60 min Winter	39.045	0.0	238.9	66		
	120 min Winter	23.639	0.0	251.0	124		
	180 min Winter	17.399	0.0	256.2	184		
	240 min Winter	13.918	0.0	257.0	242		
	360 min Winter	10.103	0.0	257.7	358		
	480 min Winter	8.053	0.0	258.0	476		
	600 min Winter	6.750	0.0	258.1	592		
	720 min Winter	5.840	0.0	258.0	706		
	960 min Winter	4.644	0.0	257.5	934		
	1440 min Winter	3.357	0.0	255.8	1370		
	2160 min Winter	2.423	0.0	501.7	1732		
	2880 min Winter	1.921	0.0	506.7	2188		
	4320 min Winter	1.382	0.0	500.0	3112		
	5760 min Winter	1.094	0.0	823.9	3984		
	7200 min Winter	0.911	0.0	830.5	4832		
	8640 min Winter	0.785	0.0	836.0	5696		
	10080 min Winter	0.692	0.0	840.8	6456		
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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>1</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>19.300</td> <td>Shortest Storm (mins)</td> <td>15</td> </tr> <tr> <td>Ratio R</td> <td>0.400</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) 2.710 <table> <thead> <tr> <th>Time (mins)</th> <th>Area</th> <th>Time (mins)</th> <th>Area</th> </tr> <tr> <th>From:</th> <th>To:</th> <th>From:</th> <th>To:</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>4</td> <td>4</td> <td>8</td> </tr> <tr> <td></td> <td>1.540</td> <td></td> <td>1.170</td> </tr> </tbody> </table>			Rainfall Model	FSR	Winter Storms	Yes	Return period(years)	1	Cv (Summer)	0.750	Region	England and Wales	Cv (Winter)	0.840	M5-60 (mm)	19.300	Shortest Storm (mins)	15	Ratio R	0.400	Longest Storm (mins)	10080	Summer Storms	Yes	Climate Change%	+0	Time (mins)	Area	Time (mins)	Area	From:	To:	From:	To:	0	4	4	8		1.540		1.170
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Catherine House Old Harborough Road Brixworth NN6 9BX	Kyngs Golf Club - 81270 1 in 100 year storm																																					
Date 01/06/2023 File 81270 - ATTENUATION BASIN	Designed by AGS Checked by DE																																					
Micro Drainage		Source Control 2018.1.1																																				
<u>Model Details</u> Storage is Online Cover Level (m) 100.40 <table> <tr> <td>Invert Level (m)</td> <td>98.305</td> <td>Safety Factor</td> <td>2.0</td> </tr> <tr> <td>Infiltration Coefficient Base (m/hr)</td> <td>0.3816</td> <td>Porosity</td> <td>1.00</td> </tr> <tr> <td>Infiltration Coefficient Side (m/hr)</td> <td>0.3816</td> <td></td> <td></td> </tr> </table> <table> <thead> <tr> <th>Depth (m)</th> <th>Area (m²)</th> <th>Depth (m)</th> <th>Area (m²)</th> </tr> </thead> <tbody> <tr> <td>0.000</td> <td>934.0</td> <td>0.700</td> <td>984.0</td> </tr> </tbody> </table> <u>Pipe Outflow Control</u> <table> <tr> <td>Diameter (m)</td> <td>0.150</td> <td>Entry Loss Coefficient</td> <td>0.500</td> </tr> <tr> <td>Slope (1:x)</td> <td>150.0</td> <td>Coefficient of Contraction</td> <td>0.600</td> </tr> <tr> <td>Length (m)</td> <td>95.230</td> <td>Upstream Invert Level (m)</td> <td>101.640</td> </tr> <tr> <td>Roughness k (mm)</td> <td>0.600</td> <td></td> <td></td> </tr> </table>			Invert Level (m)	98.305	Safety Factor	2.0	Infiltration Coefficient Base (m/hr)	0.3816	Porosity	1.00	Infiltration Coefficient Side (m/hr)	0.3816			Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	0.000	934.0	0.700	984.0	Diameter (m)	0.150	Entry Loss Coefficient	0.500	Slope (1:x)	150.0	Coefficient of Contraction	0.600	Length (m)	95.230	Upstream Invert Level (m)	101.640	Roughness k (mm)	0.600		
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