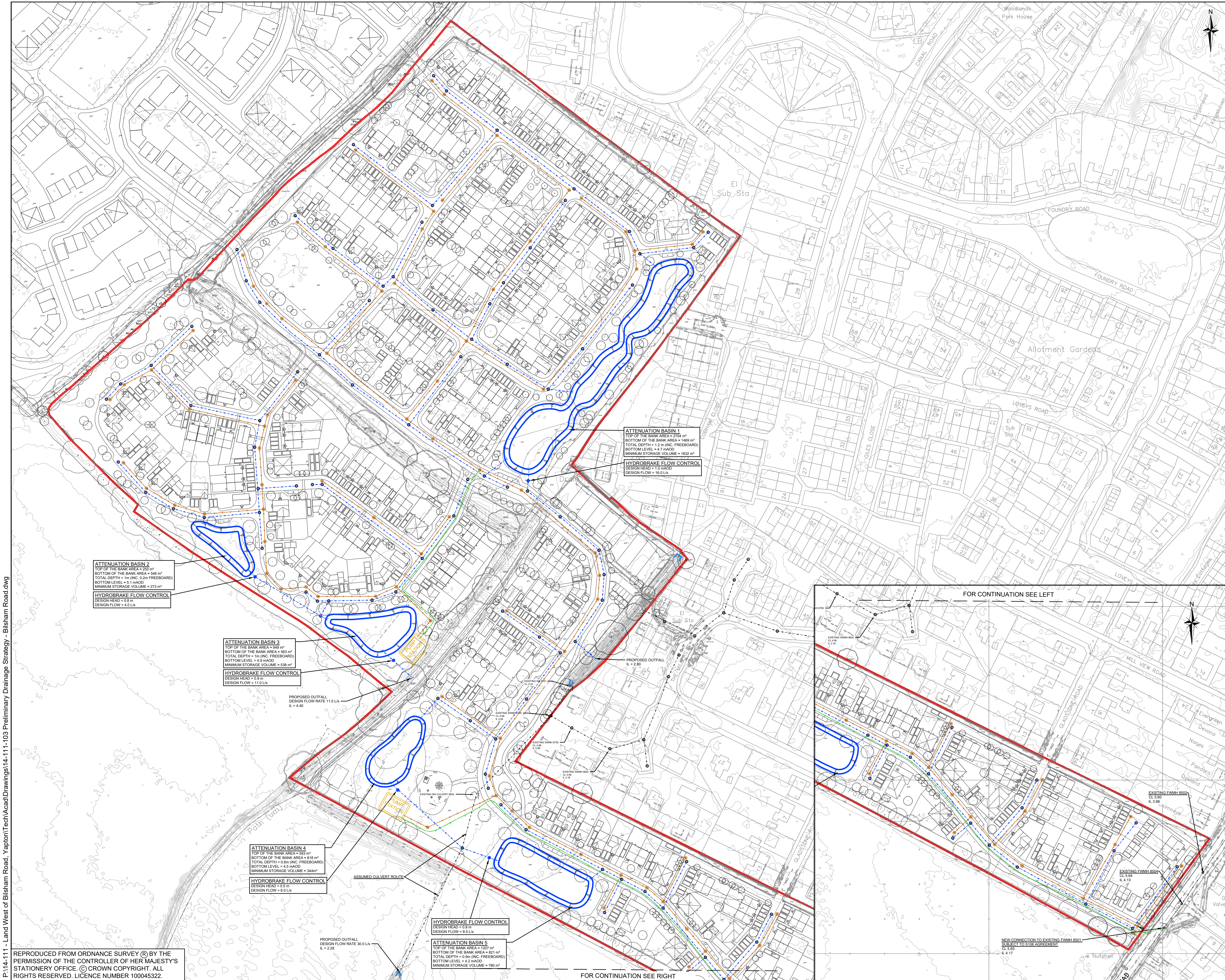




Odyssey Markides LLP		Page 1
Tuscany House White Hart Lane Basingstoke RG21 4AF	Land at Bilsham Road Yapton Greenfield Runoff	
Date 22/11/2017 16:09 File	Designed by NA Checked by GG	
Micro Drainage Source Control 2017.1.2		
<u>ICP SUDS Mean Annual Flood</u> Input Return Period (years) 100 Soil 0.400 Area (ha) 11.700 Urban 0.000 SAAR (mm) 747 Region Number Region 7 Results l/s QBAR Rural 43.0 QBAR Urban 43.0 Q100 years 137.0 Q1 year 36.5 Q30 years 97.3 Q100 years 137.0		
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Tuscany House White Hart Lane Basingstoke RG21 4AF		Land at Bilsham Road Yapton Catchment 1 Pond				
Date 23/11/2017 15:00 File Pond 1.srcx		Designed by NA Checked by GG				
Micro Drainage		Source Control 2017.1.2				
<u>Summary of Results for 100 year Return Period (+40%)</u>						
Storm Event		Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m³)	Status
15 min Summer		5.120	0.420	16.0	696.8	O K
30 min Summer		5.195	0.495	16.0	839.0	O K
60 min Summer		5.278	0.578	16.0	1003.7	O K
120 min Summer		5.368	0.668	16.0	1188.2	O K
180 min Summer		5.421	0.721	16.0	1302.6	O K
240 min Summer		5.457	0.757	16.0	1382.1	O K
360 min Summer		5.503	0.803	16.0	1483.9	O K
480 min Summer		5.529	0.829	16.0	1543.1	O K
600 min Summer		5.544	0.844	16.0	1577.7	O K
720 min Summer		5.552	0.852	16.0	1595.9	O K
960 min Summer		5.522	0.822	16.0	1525.9	O K
1440 min Summer		5.469	0.769	16.0	1407.7	O K
2160 min Summer		5.395	0.695	16.0	1246.4	O K
2880 min Summer		5.323	0.623	16.0	1095.3	O K
4320 min Summer		5.250	0.550	16.0	947.2	O K
5760 min Summer		5.178	0.478	16.0	806.6	O K
7200 min Summer		5.111	0.411	16.0	681.3	O K
8640 min Summer		5.053	0.353	16.0	575.5	O K
10080 min Summer		5.004	0.304	16.0	488.9	O K
15 min Winter		5.165	0.465	16.0	781.4	O K
30 min Winter		5.247	0.547	16.0	941.8	O K
Storm Event		Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)	
15 min Summer		163.213	0.0	661.2	19	
30 min Summer		99.086	0.0	804.1	34	
60 min Summer		60.155	0.0	1020.7	64	
120 min Summer		36.520	0.0	1240.8	122	
180 min Summer		27.273	0.0	1389.9	182	
240 min Summer		22.171	0.0	1505.9	242	
360 min Summer		16.558	0.0	1684.5	362	
480 min Summer		13.460	0.0	1822.2	482	
600 min Summer		11.462	0.0	1934.6	600	
720 min Summer		10.052	0.0	2029.1	720	
960 min Summer		7.824	0.0	2093.7	836	
1440 min Summer		5.496	0.0	2161.7	1082	
2160 min Summer		3.861	0.0	2394.7	1472	
2880 min Summer		3.005	0.0	2484.0	1848	
4320 min Summer		2.244	0.0	2775.4	2640	
5760 min Summer		1.824	0.0	3030.7	3400	
7200 min Summer		1.554	0.0	3224.4	4112	
8640 min Summer		1.362	0.0	3389.7	4840	
10080 min Summer		1.219	0.0	3530.1	5544	
15 min Winter		163.213	0.0	741.8	19	
30 min Winter		99.086	0.0	899.5	33	
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Tuscany House White Hart Lane Basingstoke RG21 4AF		Land at Bilsham Road Yapton Catchment 1 Pond			
Date 23/11/2017 15:00 File Pond 1.srcx		Designed by NA Checked by GG			
Micro Drainage		Source Control 2017.1.2			
<u>Summary of Results for 100 year Return Period (+40%)</u>					
Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m³)	Status
60 min Winter	5.339	0.639	16.0	1128.1	O K
120 min Winter	5.438	0.738	16.0	1340.0	O K
180 min Winter	5.497	0.797	16.0	1469.9	O K
240 min Winter	5.537	0.837	16.0	1560.8	O K
360 min Winter	5.589	0.889	16.0	1681.3	O K
480 min Winter	5.620	0.920	16.0	1755.6	Flood Risk
600 min Winter	5.640	0.940	16.0	1802.5	Flood Risk
720 min Winter	5.652	0.952	16.0	1831.5	Flood Risk
960 min Winter	5.622	0.922	16.0	1759.1	Flood Risk
1440 min Winter	5.557	0.857	16.0	1608.0	O K
2160 min Winter	5.469	0.769	16.0	1408.2	O K
2880 min Winter	5.372	0.672	16.0	1196.5	O K
4320 min Winter	5.249	0.549	16.0	944.8	O K
5760 min Winter	5.133	0.433	16.0	720.6	O K
7200 min Winter	5.033	0.333	16.0	538.7	O K
8640 min Winter	4.957	0.257	15.8	406.7	O K
10080 min Winter	4.906	0.206	15.5	321.7	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)	
60 min Winter	60.155	0.0	1144.3	62	
120 min Winter	36.520	0.0	1389.9	122	
180 min Winter	27.273	0.0	1556.2	180	
240 min Winter	22.171	0.0	1685.2	238	
360 min Winter	16.558	0.0	1883.0	354	
480 min Winter	13.460	0.0	2033.9	470	
600 min Winter	11.462	0.0	2154.8	584	
720 min Winter	10.052	0.0	2252.8	694	
960 min Winter	7.824	0.0	2310.5	906	
1440 min Winter	5.496	0.0	2316.4	1140	
2160 min Winter	3.861	0.0	2682.3	1600	
2880 min Winter	3.005	0.0	2782.3	2044	
4320 min Winter	2.244	0.0	3110.1	2852	
5760 min Winter	1.824	0.0	3395.4	3576	
7200 min Winter	1.554	0.0	3612.7	4256	
8640 min Winter	1.362	0.0	3798.6	4920	
10080 min Winter	1.219	0.0	3958.0	5448	
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Tuscany House White Hart Lane Basingstoke RG21 4AF	Land at Bilsham Road Yapton Catchment 1 Pond	
Date 23/11/2017 15:00 File Pond 1.srcx	Designed by NA Checked by GG	
Micro Drainage Source Control 2017.1.2		

Model Details

Storage is Online Cover Level (m) 5.900

Tank or Pond Structure

Invert Level (m) 4.700

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	1469.0	1.200	2704.0	1.201	0.0

Hydro-Brake® Optimum Outflow Control

Unit Reference	MD-SHE-0180-1600-1000-1600
Design Head (m)	1.000
Design Flow (l/s)	16.0
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	180
Invert Level (m)	4.700
Minimum Outlet Pipe Diameter (mm)	225
Suggested Manhole Diameter (mm)	1500

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.000	16.0
Flush-Flo™	0.324	16.0
Kick-Flo®	0.706	13.6
Mean Flow over Head Range	-	13.6

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	6.3	1.200	17.4	3.000	27.0	7.000	40.7
0.200	15.4	1.400	18.8	3.500	29.1	7.500	42.1
0.300	16.0	1.600	20.0	4.000	31.0	8.000	43.4
0.400	15.9	1.800	21.2	4.500	32.9	8.500	44.7
0.500	15.6	2.000	22.3	5.000	34.6	9.000	45.9
0.600	15.0	2.200	23.3	5.500	36.2	9.500	47.2
0.800	14.4	2.400	24.3	6.000	37.7		
1.000	16.0	2.600	25.2	6.500	39.2		

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Tuscany House White Hart Lane Basingstoke RG21 4AF	Land at Bilsham Road Yapton Catchment 2 Pond																																																																																																																																																																																																																		
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<u>Cascade Summary of Results for Pond 2.srcx</u> Upstream Outflow To Overflow To Structures (None) Pond 3.srcx (None) <table><thead><tr><th>Storm Event</th><th>Max Level (m)</th><th>Max Depth (m)</th><th>Max Control (l/s)</th><th>Max Volume (m³)</th><th>Status</th></tr></thead><tbody><tr><td>15 min Summer</td><td>5.497</td><td>0.397</td><td>4.0</td><td>119.4</td><td>O K</td></tr><tr><td>30 min Summer</td><td>5.562</td><td>0.462</td><td>4.0</td><td>143.2</td><td>O K</td></tr><tr><td>60 min Summer</td><td>5.632</td><td>0.532</td><td>4.0</td><td>170.0</td><td>O K</td></tr><tr><td>120 min Summer</td><td>5.702</td><td>0.602</td><td>4.0</td><td>198.2</td><td>O K</td></tr><tr><td>180 min Summer</td><td>5.738</td><td>0.638</td><td>4.0</td><td>213.6</td><td>O K</td></tr><tr><td>240 min Summer</td><td>5.760</td><td>0.660</td><td>4.0</td><td>222.9</td><td>O K</td></tr><tr><td>360 min Summer</td><td>5.782</td><td>0.682</td><td>4.0</td><td>232.3</td><td>O K</td></tr><tr><td>480 min Summer</td><td>5.788</td><td>0.688</td><td>4.0</td><td>234.9</td><td>O K</td></tr><tr><td>600 min Summer</td><td>5.788</td><td>0.688</td><td>4.0</td><td>235.2</td><td>O K</td></tr><tr><td>720 min Summer</td><td>5.787</td><td>0.687</td><td>4.0</td><td>234.7</td><td>O K</td></tr><tr><td>960 min Summer</td><td>5.752</td><td>0.652</td><td>4.0</td><td>219.4</td><td>O K</td></tr><tr><td>1440 min Summer</td><td>5.691</td><td>0.591</td><td>4.0</td><td>193.6</td><td>O K</td></tr><tr><td>2160 min Summer</td><td>5.601</td><td>0.501</td><td>4.0</td><td>157.7</td><td>O K</td></tr><tr><td>2880 min Summer</td><td>5.516</td><td>0.416</td><td>4.0</td><td>126.2</td><td>O K</td></tr><tr><td>4320 min Summer</td><td>5.420</td><td>0.320</td><td>4.0</td><td>92.8</td><td>O K</td></tr><tr><td>5760 min Summer</td><td>5.341</td><td>0.241</td><td>4.0</td><td>67.6</td><td>O K</td></tr><tr><td>7200 min Summer</td><td>5.284</td><td>0.184</td><td>3.9</td><td>50.3</td><td>O K</td></tr><tr><td>8640 min Summer</td><td>5.246</td><td>0.146</td><td>3.8</td><td>39.2</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>Discharge Volume (m³)</th><th>Time-Peak (mins)</th></tr></thead><tbody><tr><td>15 min Summer</td><td>163.213</td><td>0.0</td><td>120.6</td><td>19</td></tr><tr><td>30 min Summer</td><td>99.086</td><td>0.0</td><td>146.6</td><td>33</td></tr><tr><td>60 min Summer</td><td>60.155</td><td>0.0</td><td>179.6</td><td>64</td></tr><tr><td>120 min Summer</td><td>36.520</td><td>0.0</td><td>218.2</td><td>122</td></tr><tr><td>180 min Summer</td><td>27.273</td><td>0.0</td><td>244.5</td><td>182</td></tr><tr><td>240 min Summer</td><td>22.171</td><td>0.0</td><td>265.0</td><td>242</td></tr><tr><td>360 min Summer</td><td>16.558</td><td>0.0</td><td>296.9</td><td>360</td></tr><tr><td>480 min Summer</td><td>13.460</td><td>0.0</td><td>321.8</td><td>468</td></tr><tr><td>600 min Summer</td><td>11.462</td><td>0.0</td><td>342.5</td><td>520</td></tr><tr><td>720 min Summer</td><td>10.052</td><td>0.0</td><td>360.4</td><td>586</td></tr><tr><td>960 min Summer</td><td>7.824</td><td>0.0</td><td>373.9</td><td>710</td></tr><tr><td>1440 min Summer</td><td>5.496</td><td>0.0</td><td>393.6</td><td>980</td></tr><tr><td>2160 min Summer</td><td>3.861</td><td>0.0</td><td>416.4</td><td>1384</td></tr><tr><td>2880 min Summer</td><td>3.005</td><td>0.0</td><td>432.1</td><td>1756</td></tr><tr><td>4320 min Summer</td><td>2.244</td><td>0.0</td><td>483.6</td><td>2468</td></tr><tr><td>5760 min Summer</td><td>1.824</td><td>0.0</td><td>525.1</td><td>3168</td></tr><tr><td>7200 min Summer</td><td>1.554</td><td>0.0</td><td>558.9</td><td>3824</td></tr><tr><td>8640 min Summer</td><td>1.362</td><td>0.0</td><td>588.0</td><td>4496</td></tr></tbody></table>			Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m³)	Status	15 min Summer	5.497	0.397	4.0	119.4	O K	30 min Summer	5.562	0.462	4.0	143.2	O K	60 min Summer	5.632	0.532	4.0	170.0	O K	120 min Summer	5.702	0.602	4.0	198.2	O K	180 min Summer	5.738	0.638	4.0	213.6	O K	240 min Summer	5.760	0.660	4.0	222.9	O K	360 min Summer	5.782	0.682	4.0	232.3	O K	480 min Summer	5.788	0.688	4.0	234.9	O K	600 min Summer	5.788	0.688	4.0	235.2	O K	720 min Summer	5.787	0.687	4.0	234.7	O K	960 min Summer	5.752	0.652	4.0	219.4	O K	1440 min Summer	5.691	0.591	4.0	193.6	O K	2160 min Summer	5.601	0.501	4.0	157.7	O K	2880 min Summer	5.516	0.416	4.0	126.2	O K	4320 min Summer	5.420	0.320	4.0	92.8	O K	5760 min Summer	5.341	0.241	4.0	67.6	O K	7200 min Summer	5.284	0.184	3.9	50.3	O K	8640 min Summer	5.246	0.146	3.8	39.2	O K	Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)	15 min Summer	163.213	0.0	120.6	19	30 min Summer	99.086	0.0	146.6	33	60 min Summer	60.155	0.0	179.6	64	120 min Summer	36.520	0.0	218.2	122	180 min Summer	27.273	0.0	244.5	182	240 min Summer	22.171	0.0	265.0	242	360 min 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Odyssey Markides				Page 2	
Tuscany House White Hart Lane Basingstoke RG21 4AF		Land at Bilsham Road Yapton Catchment 2 Pond			
Date 23/11/2017 17:28 File Ponds 2 & 3 Cascade.casx		Designed by NA Checked by GG			
XP Solutions		Source Control 2017.1.2			
<u>Cascade Summary of Results for Pond 2.srcx</u>					
Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m³)	Status
10080 min Summer	5.222	0.122	3.7	32.3	O K
15 min Winter	5.538	0.438	4.0	134.0	O K
30 min Winter	5.609	0.509	4.0	161.0	O K
60 min Winter	5.686	0.586	4.0	191.6	O K
120 min Winter	5.763	0.663	4.0	224.0	O K
180 min Winter	5.804	0.704	4.0	242.2	Flood Risk
240 min Winter	5.830	0.730	4.0	253.8	Flood Risk
360 min Winter	5.858	0.758	4.0	266.7	Flood Risk
480 min Winter	5.869	0.769	4.0	272.0	Flood Risk
600 min Winter	5.871	0.771	4.0	273.1	Flood Risk
720 min Winter	5.868	0.768	4.0	271.7	Flood Risk
960 min Winter	5.827	0.727	4.0	252.7	Flood Risk
1440 min Winter	5.750	0.650	4.0	218.7	O K
2160 min Winter	5.633	0.533	4.0	170.2	O K
2880 min Winter	5.502	0.402	4.0	121.3	O K
4320 min Winter	5.353	0.253	4.0	71.1	O K
5760 min Winter	5.256	0.156	3.9	42.1	O K
7200 min Winter	5.214	0.114	3.6	30.0	O K
8640 min Winter	5.200	0.100	3.2	26.1	O K
10080 min Winter	5.190	0.090	2.9	23.5	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)	
10080 min Summer	1.219	0.0	613.5	5152	
15 min Winter	163.213	0.0	135.2	19	
30 min Winter	99.086	0.0	164.2	33	
60 min Winter	60.155	0.0	201.2	62	
120 min Winter	36.520	0.0	244.4	120	
180 min Winter	27.273	0.0	273.8	178	
240 min Winter	22.171	0.0	296.8	236	
360 min Winter	16.558	0.0	332.5	350	
480 min Winter	13.460	0.0	360.4	462	
600 min Winter	11.462	0.0	383.6	568	
720 min Winter	10.052	0.0	403.6	666	
960 min Winter	7.824	0.0	418.7	750	
1440 min Winter	5.496	0.0	440.6	1054	
2160 min Winter	3.861	0.0	466.4	1512	
2880 min Winter	3.005	0.0	484.1	1872	
4320 min Winter	2.244	0.0	541.8	2552	
5760 min Winter	1.824	0.0	588.2	3176	
7200 min Winter	1.554	0.0	626.0	3744	
8640 min Winter	1.362	0.0	658.7	4416	
10080 min Winter	1.219	0.0	687.3	5144	
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Odyssey Markides		Page 4
Tuscany House White Hart Lane Basingstoke RG21 4AF	Land at Bilsham Road Yapton Catchment 2 Pond	
Date 23/11/2017 17:28 File Ponds 2 & 3 Cascade.casx	Designed by NA Checked by GG	
XP Solutions Source Control 2017.1.2		

Cascade Model Details for Pond 2.srcx

Storage is Online Cover Level (m) 6.100

Tank or Pond Structure

Invert Level (m) 5.100

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	250.0	1.000	548.0	1.001	0.0

Hydro-Brake® Optimum Outflow Control

Unit Reference	MD-SHE-0098-4000-0800-4000
Design Head (m)	0.800
Design Flow (l/s)	4.0
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	98
Invert Level (m)	5.100
Minimum Outlet Pipe Diameter (mm)	150
Suggested Manhole Diameter (mm)	1200

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	0.800	4.0
Flush-Flo™	0.238	4.0
Kick-Flo®	0.525	3.3
Mean Flow over Head Range	-	3.5

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	3.2	1.200	4.8	3.000	7.4	7.000	11.1
0.200	4.0	1.400	5.2	3.500	8.0	7.500	11.4
0.300	4.0	1.600	5.5	4.000	8.5	8.000	11.8
0.400	3.8	1.800	5.8	4.500	9.0	8.500	12.1
0.500	3.5	2.000	6.1	5.000	9.4	9.000	12.5
0.600	3.5	2.200	6.4	5.500	9.9	9.500	12.8
0.800	4.0	2.400	6.7	6.000	10.3		
1.000	4.4	2.600	6.9	6.500	10.7		

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Tuscany House White Hart Lane Basingstoke RG21 4AF			Land at Bilsham Road Yapton Catchment 3 Pond																																																																																																																																																																																																																			
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Cascade Summary of Results for Pond 3.srcx Upstream Structures Outflow To (None) Overflow To (None) <table><thead><tr><th>Storm Event</th><th>Max Level (m)</th><th>Max Depth (m)</th><th>Max Control (l/s)</th><th>Max Volume (m³)</th><th>Status</th></tr></thead><tbody><tr><td>15 min Summer</td><td>5.300</td><td>0.400</td><td>11.0</td><td>253.3</td><td>O K</td></tr><tr><td>30 min Summer</td><td>5.371</td><td>0.471</td><td>11.0</td><td>304.5</td><td>O K</td></tr><tr><td>60 min Summer</td><td>5.450</td><td>0.550</td><td>11.0</td><td>363.1</td><td>O K</td></tr><tr><td>120 min Summer</td><td>5.534</td><td>0.634</td><td>11.0</td><td>428.7</td><td>O K</td></tr><tr><td>180 min Summer</td><td>5.583</td><td>0.683</td><td>11.0</td><td>467.9</td><td>O K</td></tr><tr><td>240 min Summer</td><td>5.614</td><td>0.714</td><td>11.0</td><td>493.7</td><td>Flood Risk</td></tr><tr><td>360 min Summer</td><td>5.651</td><td>0.751</td><td>11.0</td><td>524.4</td><td>Flood Risk</td></tr><tr><td>480 min Summer</td><td>5.669</td><td>0.769</td><td>11.0</td><td>539.5</td><td>Flood Risk</td></tr><tr><td>600 min Summer</td><td>5.676</td><td>0.776</td><td>11.0</td><td>545.4</td><td>Flood Risk</td></tr><tr><td>720 min Summer</td><td>5.678</td><td>0.778</td><td>11.0</td><td>547.2</td><td>Flood Risk</td></tr><tr><td>960 min Summer</td><td>5.644</td><td>0.744</td><td>11.0</td><td>518.7</td><td>Flood Risk</td></tr><tr><td>1440 min Summer</td><td>5.583</td><td>0.683</td><td>11.0</td><td>468.4</td><td>O K</td></tr><tr><td>2160 min Summer</td><td>5.497</td><td>0.597</td><td>11.0</td><td>399.3</td><td>O K</td></tr><tr><td>2880 min Summer</td><td>5.420</td><td>0.520</td><td>11.0</td><td>340.5</td><td>O K</td></tr><tr><td>4320 min Summer</td><td>5.334</td><td>0.434</td><td>11.0</td><td>277.3</td><td>O K</td></tr><tr><td>5760 min Summer</td><td>5.254</td><td>0.354</td><td>11.0</td><td>221.2</td><td>O K</td></tr><tr><td>7200 min Summer</td><td>5.186</td><td>0.286</td><td>11.0</td><td>175.4</td><td>O K</td></tr><tr><td>8640 min Summer</td><td>5.133</td><td>0.233</td><td>10.9</td><td>140.8</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>Discharge Volume (m³)</th><th>Time-Peak (mins)</th></tr></thead><tbody><tr><td>15 min Summer</td><td>163.213</td><td>0.0</td><td>369.7</td><td>19</td></tr><tr><td>30 min Summer</td><td>99.086</td><td>0.0</td><td>449.7</td><td>34</td></tr><tr><td>60 min Summer</td><td>60.155</td><td>0.0</td><td>555.8</td><td>64</td></tr><tr><td>120 min Summer</td><td>36.520</td><td>0.0</td><td>675.4</td><td>122</td></tr><tr><td>180 min Summer</td><td>27.273</td><td>0.0</td><td>756.8</td><td>182</td></tr><tr><td>240 min Summer</td><td>22.171</td><td>0.0</td><td>820.4</td><td>242</td></tr><tr><td>360 min Summer</td><td>16.558</td><td>0.0</td><td>919.1</td><td>362</td></tr><tr><td>480 min Summer</td><td>13.460</td><td>0.0</td><td>996.0</td><td>480</td></tr><tr><td>600 min Summer</td><td>11.462</td><td>0.0</td><td>1060.0</td><td>596</td></tr><tr><td>720 min Summer</td><td>10.052</td><td>0.0</td><td>1115.1</td><td>646</td></tr><tr><td>960 min Summer</td><td>7.824</td><td>0.0</td><td>1156.4</td><td>762</td></tr><tr><td>1440 min Summer</td><td>5.496</td><td>0.0</td><td>1215.7</td><td>1018</td></tr><tr><td>2160 min Summer</td><td>3.861</td><td>0.0</td><td>1292.6</td><td>1408</td></tr><tr><td>2880 min Summer</td><td>3.005</td><td>0.0</td><td>1341.1</td><td>1792</td></tr><tr><td>4320 min Summer</td><td>2.244</td><td>0.0</td><td>1499.8</td><td>2556</td></tr><tr><td>5760 min Summer</td><td>1.824</td><td>0.0</td><td>1631.0</td><td>3288</td></tr><tr><td>7200 min Summer</td><td>1.554</td><td>0.0</td><td>1735.7</td><td>3968</td></tr><tr><td>8640 min Summer</td><td>1.362</td><td>0.0</td><td>1825.6</td><td>4664</td></tr></tbody></table>						Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m³)	Status	15 min Summer	5.300	0.400	11.0	253.3	O K	30 min 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Date 23/11/2017 17:28 File Ponds 2 & 3 Cascade.casx		Designed by NA Checked by GG			
XP Solutions		Source Control 2017.1.2			
<u>Cascade Summary of Results for Pond 3.srcx</u>					
Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m³)	Status
10080 min Summer	5.095	0.195	10.7	116.3	O K
15 min Winter	5.343	0.443	11.0	284.0	O K
30 min Winter	5.422	0.522	11.0	341.9	O K
60 min Winter	5.509	0.609	11.0	408.7	O K
120 min Winter	5.602	0.702	11.0	483.6	Flood Risk
180 min Winter	5.655	0.755	11.0	528.0	Flood Risk
240 min Winter	5.690	0.790	11.0	558.1	Flood Risk
360 min Winter	5.734	0.834	11.0	595.7	Flood Risk
480 min Winter	5.757	0.857	11.0	616.3	Flood Risk
600 min Winter	5.769	0.869	11.0	627.0	Flood Risk
720 min Winter	5.774	0.874	11.0	631.3	Flood Risk
960 min Winter	5.732	0.832	11.0	594.6	Flood Risk
1440 min Winter	5.661	0.761	11.0	533.0	Flood Risk
2160 min Winter	5.554	0.654	11.0	444.6	O K
2880 min Winter	5.439	0.539	11.0	354.8	O K
4320 min Winter	5.296	0.396	11.0	250.1	O K
5760 min Winter	5.170	0.270	11.0	164.7	O K
7200 min Winter	5.087	0.187	10.6	111.0	O K
8640 min Winter	5.055	0.155	9.8	91.3	O K
10080 min Winter	5.040	0.140	8.8	82.3	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)	
10080 min Summer	1.219	0.0	1903.5	5288	
15 min Winter	163.213	0.0	414.6	19	
30 min Winter	99.086	0.0	503.8	33	
60 min Winter	60.155	0.0	622.8	62	
120 min Winter	36.520	0.0	756.7	122	
180 min Winter	27.273	0.0	847.9	180	
240 min Winter	22.171	0.0	919.0	238	
360 min Winter	16.558	0.0	1029.4	352	
480 min Winter	13.460	0.0	1115.4	466	
600 min Winter	11.462	0.0	1186.9	578	
720 min Winter	10.052	0.0	1248.3	686	
960 min Winter	7.824	0.0	1294.2	866	
1440 min Winter	5.496	0.0	1359.2	1094	
2160 min Winter	3.861	0.0	1447.9	1552	
2880 min Winter	3.005	0.0	1502.4	1960	
4320 min Winter	2.244	0.0	1680.7	2724	
5760 min Winter	1.824	0.0	1826.9	3352	
7200 min Winter	1.554	0.0	1944.3	3896	
8640 min Winter	1.362	0.0	2045.2	4496	
10080 min Winter	1.219	0.0	2133.2	5240	
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Tuscany House	Land at Bilsham Road	
White Hart Lane	Yapton	
Basingstoke RG21 4AF	Catchment 3 Pond	
Date 23/11/2017 17:28	Designed by NA	
File Ponds 2 & 3 Cascade.casx	Checked by GG	
XP Solutions	Source Control 2017.1.2	

Cascade Rainfall Details for Pond 3.srcx

Rainfall Model	FEH
Return Period (years)	100
FEH Rainfall Version	1999
Site Location	GB 497050 103400 SU 97050 03400
C (1km)	-0.025
D1 (1km)	0.395
D2 (1km)	0.244
D3 (1km)	0.395
E (1km)	0.309
F (1km)	2.339
Summer Storms	Yes
Winter Storms	Yes
Cv (Summer)	0.750
Cv (Winter)	0.840
Shortest Storm (mins)	15
Longest Storm (mins)	10080
Climate Change %	+40

Time Area Diagram

Total Area (ha) 0.843

Time (mins)	Area
From:	To: (ha)
0	4 0.843

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Tuscany House White Hart Lane Basingstoke RG21 4AF	Land at Bilsham Road Yapton Catchment 3 Pond	
Date 23/11/2017 17:28 File Ponds 2 & 3 Cascade.casx	Designed by NA Checked by GG	
XP Solutions Source Control 2017.1.2		

Cascade Model Details for Pond 3.srcx

Storage is Online Cover Level (m) 5.900

Tank or Pond Structure

Invert Level (m) 4.900

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	563.0	1.000	949.0	1.001	0.0

Hydro-Brake® Optimum Outflow Control

Unit Reference	MD-SHE-0154-1100-0900-1100
Design Head (m)	0.900
Design Flow (l/s)	11.0
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	154
Invert Level (m)	4.900
Minimum Outlet Pipe Diameter (mm)	225
Suggested Manhole Diameter (mm)	1200

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	0.900	11.0
Flush-Flo™	0.286	11.0
Kick-Flo®	0.629	9.3
Mean Flow over Head Range	-	9.3

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	5.5	1.200	12.6	3.000	19.5	7.000	29.2
0.200	10.7	1.400	13.5	3.500	20.9	7.500	30.2
0.300	11.0	1.600	14.4	4.000	22.3	8.000	31.2
0.400	10.8	1.800	15.2	4.500	23.6	8.500	32.1
0.500	10.5	2.000	16.0	5.000	24.9	9.000	33.0
0.600	9.7	2.200	16.8	5.500	26.0	9.500	33.8
0.800	10.4	2.400	17.5	6.000	27.1		
1.000	11.5	2.600	18.2	6.500	28.2		

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Tuscany House White Hart Lane Basingstoke RG21 4AF		Land at Bilsham Road Yapton Catchment 4 Pond			
Date 23/11/2017 15:02 File Pond 4.srcx		Designed by NA Checked by GG			
Micro Drainage		Source Control 2017.1.2			
<u>Summary of Results for 100 year Return Period (+40%)</u>					
Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m³)	Status
15 min Summer	4.742	0.242	6.0	153.6	O K
30 min Summer	4.786	0.286	6.0	184.1	O K
60 min Summer	4.834	0.334	6.0	218.2	Flood Risk
120 min Summer	4.885	0.385	6.0	254.5	Flood Risk
180 min Summer	4.911	0.411	6.0	274.1	Flood Risk
240 min Summer	4.927	0.427	6.0	285.7	Flood Risk
360 min Summer	4.941	0.441	6.0	296.5	Flood Risk
480 min Summer	4.946	0.446	6.0	300.2	Flood Risk
600 min Summer	4.948	0.448	6.0	301.9	Flood Risk
720 min Summer	4.948	0.448	6.0	302.0	Flood Risk
960 min Summer	4.924	0.424	6.0	283.8	Flood Risk
1440 min Summer	4.877	0.377	6.0	249.0	Flood Risk
2160 min Summer	4.809	0.309	6.0	200.4	Flood Risk
2880 min Summer	4.754	0.254	6.0	161.8	O K
4320 min Summer	4.693	0.193	6.0	121.3	O K
5760 min Summer	4.653	0.153	5.9	94.7	O K
7200 min Summer	4.630	0.130	5.8	80.0	O K
8640 min Summer	4.618	0.118	5.2	72.1	O K
10080 min Summer	4.609	0.109	4.8	66.5	O K
15 min Winter	4.769	0.269	6.0	172.4	O K
30 min Winter	4.819	0.319	6.0	206.9	Flood Risk
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)	
15 min Summer	163.213	0.0	149.9	19	
30 min Summer	99.086	0.0	183.0	33	
60 min Summer	60.155	0.0	228.5	62	
120 min Summer	36.520	0.0	278.0	122	
180 min Summer	27.273	0.0	311.7	182	
240 min Summer	22.171	0.0	338.0	242	
360 min Summer	16.558	0.0	378.8	360	
480 min Summer	13.460	0.0	410.6	416	
600 min Summer	11.462	0.0	437.1	478	
720 min Summer	10.052	0.0	459.9	542	
960 min Summer	7.824	0.0	477.0	674	
1440 min Summer	5.496	0.0	501.7	952	
2160 min Summer	3.861	0.0	534.4	1324	
2880 min Summer	3.005	0.0	554.2	1700	
4320 min Summer	2.244	0.0	619.0	2416	
5760 min Summer	1.824	0.0	675.0	3064	
7200 min Summer	1.554	0.0	718.2	3744	
8640 min Summer	1.362	0.0	755.1	4488	
10080 min Summer	1.219	0.0	786.6	5152	
15 min Winter	163.213	0.0	168.5	18	
30 min Winter	99.086	0.0	205.5	33	
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Tuscany House White Hart Lane Basingstoke RG21 4AF		Land at Bilsham Road Yapton Catchment 4 Pond			
Date 23/11/2017 15:02 File Pond 4.srcx		Designed by NA Checked by GG			
Micro Drainage		Source Control 2017.1.2			
<u>Summary of Results for 100 year Return Period (+40%)</u>					
Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m³)	Status
60 min Winter	4.873	0.373	6.0	245.9	Flood Risk
120 min Winter	4.929	0.429	6.0	287.3	Flood Risk
180 min Winter	4.959	0.459	6.0	310.0	Flood Risk
240 min Winter	4.977	0.477	6.0	324.0	Flood Risk
360 min Winter	4.996	0.496	6.0	338.7	Flood Risk
480 min Winter	5.003	0.503	6.0	343.7	Flood Risk
600 min Winter	5.002	0.502	6.0	343.5	Flood Risk
720 min Winter	5.002	0.502	6.0	342.9	Flood Risk
960 min Winter	4.971	0.471	6.0	319.7	Flood Risk
1440 min Winter	4.910	0.410	6.0	273.4	Flood Risk
2160 min Winter	4.812	0.312	6.0	202.3	Flood Risk
2880 min Winter	4.731	0.231	6.0	146.1	O K
4320 min Winter	4.649	0.149	5.9	92.1	O K
5760 min Winter	4.619	0.119	5.3	73.1	O K
7200 min Winter	4.605	0.105	4.6	64.1	O K
8640 min Winter	4.595	0.095	4.1	58.2	O K
10080 min Winter	4.589	0.089	3.7	53.9	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)	
60 min Winter	60.155	0.0	256.3	62	
120 min Winter	36.520	0.0	311.6	120	
180 min Winter	27.273	0.0	349.4	178	
240 min Winter	22.171	0.0	378.8	236	
360 min Winter	16.558	0.0	424.5	348	
480 min Winter	13.460	0.0	460.2	454	
600 min Winter	11.462	0.0	489.8	546	
720 min Winter	10.052	0.0	515.3	572	
960 min Winter	7.824	0.0	534.4	722	
1440 min Winter	5.496	0.0	561.9	1026	
2160 min Winter	3.861	0.0	598.7	1428	
2880 min Winter	3.005	0.0	621.1	1788	
4320 min Winter	2.244	0.0	694.0	2420	
5760 min Winter	1.824	0.0	756.2	3056	
7200 min Winter	1.554	0.0	804.6	3752	
8640 min Winter	1.362	0.0	846.1	4496	
10080 min Winter	1.219	0.0	881.8	5152	
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Tuscany House White Hart Lane Basingstoke RG21 4AF	Land at Bilsham Road Yapton Catchment 4 Pond	
Date 23/11/2017 15:02 File Pond 4.srcx	Designed by NA Checked by GG	
Micro Drainage Source Control 2017.1.2		

Rainfall Details

Rainfall Model	FEH
Return Period (years)	100
FEH Rainfall Version	1999
Site Location	GB 497050 103400 SU 97050 03400
C (1km)	-0.025
D1 (1km)	0.395
D2 (1km)	0.244
D3 (1km)	0.395
E (1km)	0.309
F (1km)	2.339
Summer Storms	Yes
Winter Storms	Yes
Cv (Summer)	0.750
Cv (Winter)	0.840
Shortest Storm (mins)	15
Longest Storm (mins)	10080
Climate Change %	+40

Time Area Diagram

Total Area (ha) 0.515

Time (mins)	Area
From:	To: (ha)
0	4 0.515

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Tuscany House White Hart Lane Basingstoke RG21 4AF	Land at Bilsham Road Yapton Catchment 4 Pond	
Date 23/11/2017 15:02 File Pond 4.srcx	Designed by NA Checked by GG	
Micro Drainage Source Control 2017.1.2		

Model Details

Storage is Online Cover Level (m) 5.100

Tank or Pond Structure

Invert Level (m) 4.500

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	593.0	0.600	818.0	0.601	0.0

Hydro-Brake® Optimum Outflow Control

Unit Reference	MD-SHE-0122-6000-0500-6000
Design Head (m)	0.500
Design Flow (l/s)	6.0
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	122
Invert Level (m)	4.500
Minimum Outlet Pipe Diameter (mm)	150
Suggested Manhole Diameter (mm)	1200

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	0.500	6.0
Flush-Flo™	0.189	6.0
Kick-Flo®	0.378	5.3
Mean Flow over Head Range	-	4.9

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	4.3	1.200	9.0	3.000	14.0	7.000	21.0
0.200	6.0	1.400	9.7	3.500	15.0	7.500	21.7
0.300	5.8	1.600	10.4	4.000	16.0	8.000	22.5
0.400	5.4	1.800	10.9	4.500	16.9	8.500	23.2
0.500	6.0	2.000	11.5	5.000	17.8	9.000	23.8
0.600	6.5	2.200	12.0	5.500	18.6	9.500	24.5
0.800	7.5	2.400	12.5	6.000	19.4		
1.000	8.3	2.600	13.0	6.500	20.2		

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Tuscany House White Hart Lane Basingstoke RG21 4AF		Land at Bilsham Road Yapton Catchment 5 Pond			
Date 23/11/2017 15:03 File Pond 5.srcx		Designed by NA Checked by GG			
Micro Drainage		Source Control 2017.1.2			
<u>Summary of Results for 100 year Return Period (+40%)</u>					
Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m³)	Status
15 min Summer	4.546	0.346	8.0	308.1	O K
30 min Summer	4.610	0.410	8.0	370.6	O K
60 min Summer	4.682	0.482	8.0	442.5	O K
120 min Summer	4.759	0.559	8.0	522.5	O K
180 min Summer	4.805	0.605	8.0	570.6	Flood Risk
240 min Summer	4.834	0.634	8.0	602.8	Flood Risk
360 min Summer	4.871	0.671	8.0	642.3	Flood Risk
480 min Summer	4.889	0.689	8.0	663.2	Flood Risk
600 min Summer	4.899	0.699	8.0	673.3	Flood Risk
720 min Summer	4.902	0.702	8.0	677.1	Flood Risk
960 min Summer	4.873	0.673	8.0	645.1	Flood Risk
1440 min Summer	4.822	0.622	8.0	589.6	Flood Risk
2160 min Summer	4.750	0.550	8.0	512.8	O K
2880 min Summer	4.681	0.481	8.0	441.3	O K
4320 min Summer	4.608	0.408	8.0	368.2	O K
5760 min Summer	4.540	0.340	8.0	302.4	O K
7200 min Summer	4.482	0.282	8.0	247.7	O K
8640 min Summer	4.435	0.235	8.0	204.2	O K
10080 min Summer	4.400	0.200	7.9	171.8	O K
15 min Winter	4.585	0.385	8.0	345.6	O K
30 min Winter	4.656	0.456	8.0	416.1	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)	
15 min Summer	163.213	0.0	297.4	19	
30 min Summer	99.086	0.0	361.9	34	
60 min Summer	60.155	0.0	454.5	64	
120 min Summer	36.520	0.0	552.5	122	
180 min Summer	27.273	0.0	619.1	182	
240 min Summer	22.171	0.0	671.0	242	
360 min Summer	16.558	0.0	751.4	362	
480 min Summer	13.460	0.0	813.7	480	
600 min Summer	11.462	0.0	865.3	600	
720 min Summer	10.052	0.0	909.4	674	
960 min Summer	7.824	0.0	941.4	782	
1440 min Summer	5.496	0.0	984.0	1036	
2160 min Summer	3.861	0.0	1063.0	1444	
2880 min Summer	3.005	0.0	1102.9	1816	
4320 min Summer	2.244	0.0	1232.5	2592	
5760 min Summer	1.824	0.0	1343.7	3344	
7200 min Summer	1.554	0.0	1429.6	4032	
8640 min Summer	1.362	0.0	1503.2	4680	
10080 min Summer	1.219	0.0	1566.1	5352	
15 min Winter	163.213	0.0	333.7	19	
30 min Winter	99.086	0.0	405.4	33	
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Tuscany House White Hart Lane Basingstoke RG21 4AF		Land at Bilsham Road Yapton Catchment 5 Pond			
Date 23/11/2017 15:03 File Pond 5.srcx		Designed by NA Checked by GG			
Micro Drainage		Source Control 2017.1.2			
<u>Summary of Results for 100 year Return Period (+40%)</u>					
Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m³)	Status
60 min Winter	4.736	0.536	8.0	497.8	O K
120 min Winter	4.822	0.622	8.0	589.1	Flood Risk
180 min Winter	4.872	0.672	8.0	643.9	Flood Risk
240 min Winter	4.906	0.706	8.0	681.4	Flood Risk
360 min Winter	4.948	0.748	8.0	729.2	Flood Risk
480 min Winter	4.972	0.772	8.0	756.7	Flood Risk
600 min Winter	4.986	0.786	8.0	772.3	Flood Risk
720 min Winter	4.993	0.793	8.0	780.2	Flood Risk
960 min Winter	4.958	0.758	8.0	740.5	Flood Risk
1440 min Winter	4.896	0.696	8.0	671.0	Flood Risk
2160 min Winter	4.807	0.607	8.0	572.7	Flood Risk
2880 min Winter	4.707	0.507	8.0	468.0	O K
4320 min Winter	4.586	0.386	8.0	346.9	O K
5760 min Winter	4.482	0.282	8.0	247.4	O K
7200 min Winter	4.405	0.205	7.9	176.9	O K
8640 min Winter	4.358	0.158	7.7	134.5	O K
10080 min Winter	4.339	0.139	7.2	117.6	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)	
60 min Winter	60.155	0.0	509.5	62	
120 min Winter	36.520	0.0	619.1	122	
180 min Winter	27.273	0.0	693.5	180	
240 min Winter	22.171	0.0	751.5	238	
360 min Winter	16.558	0.0	841.1	354	
480 min Winter	13.460	0.0	910.4	468	
600 min Winter	11.462	0.0	967.4	578	
720 min Winter	10.052	0.0	1015.8	688	
960 min Winter	7.824	0.0	1050.0	886	
1440 min Winter	5.496	0.0	1090.9	1098	
2160 min Winter	3.861	0.0	1190.8	1560	
2880 min Winter	3.005	0.0	1235.5	1988	
4320 min Winter	2.244	0.0	1381.7	2764	
5760 min Winter	1.824	0.0	1505.2	3464	
7200 min Winter	1.554	0.0	1601.7	4104	
8640 min Winter	1.362	0.0	1684.4	4664	
10080 min Winter	1.219	0.0	1755.6	5248	
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Tuscany House White Hart Lane Basingstoke RG21 4AF	Land at Bilsham Road Yapton Catchment 5 Pond	
Date 23/11/2017 15:03 File Pond 5.srcx	Designed by NA Checked by GG	
Micro Drainage Source Control 2017.1.2		

Rainfall Details

Rainfall Model	FEH
Return Period (years)	100
FEH Rainfall Version	1999
Site Location	GB 497050 103400 SU 97050 03400
C (1km)	-0.025
D1 (1km)	0.395
D2 (1km)	0.244
D3 (1km)	0.395
E (1km)	0.309
F (1km)	2.339
Summer Storms	Yes
Winter Storms	Yes
Cv (Summer)	0.750
Cv (Winter)	0.840
Shortest Storm (mins)	15
Longest Storm (mins)	10080
Climate Change %	+40

Time Area Diagram

Total Area (ha) 1.025

Time (mins)	Area
From:	To: (ha)
0	4 1.025

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Tuscany House White Hart Lane Basingstoke RG21 4AF	Land at Bilsham Road Yapton Catchment 5 Pond	
Date 23/11/2017 15:03 File Pond 5.srcx	Designed by NA Checked by GG	
Micro Drainage Source Control 2017.1.2		

Model Details

Storage is Online Cover Level (m) 5.100

Tank or Pond Structure

Invert Level (m) 4.200

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	821.0	0.900	1207.0	0.901	0.0

Hydro-Brake® Optimum Outflow Control

Unit Reference	MD-SHE-0134-8000-0800-8000
Design Head (m)	0.800
Design Flow (l/s)	8.0
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	134
Invert Level (m)	4.200
Minimum Outlet Pipe Diameter (mm)	150
Suggested Manhole Diameter (mm)	1200

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	0.800	8.0
Flush-Flo™	0.252	8.0
Kick-Flo®	0.559	6.8
Mean Flow over Head Range	-	6.8

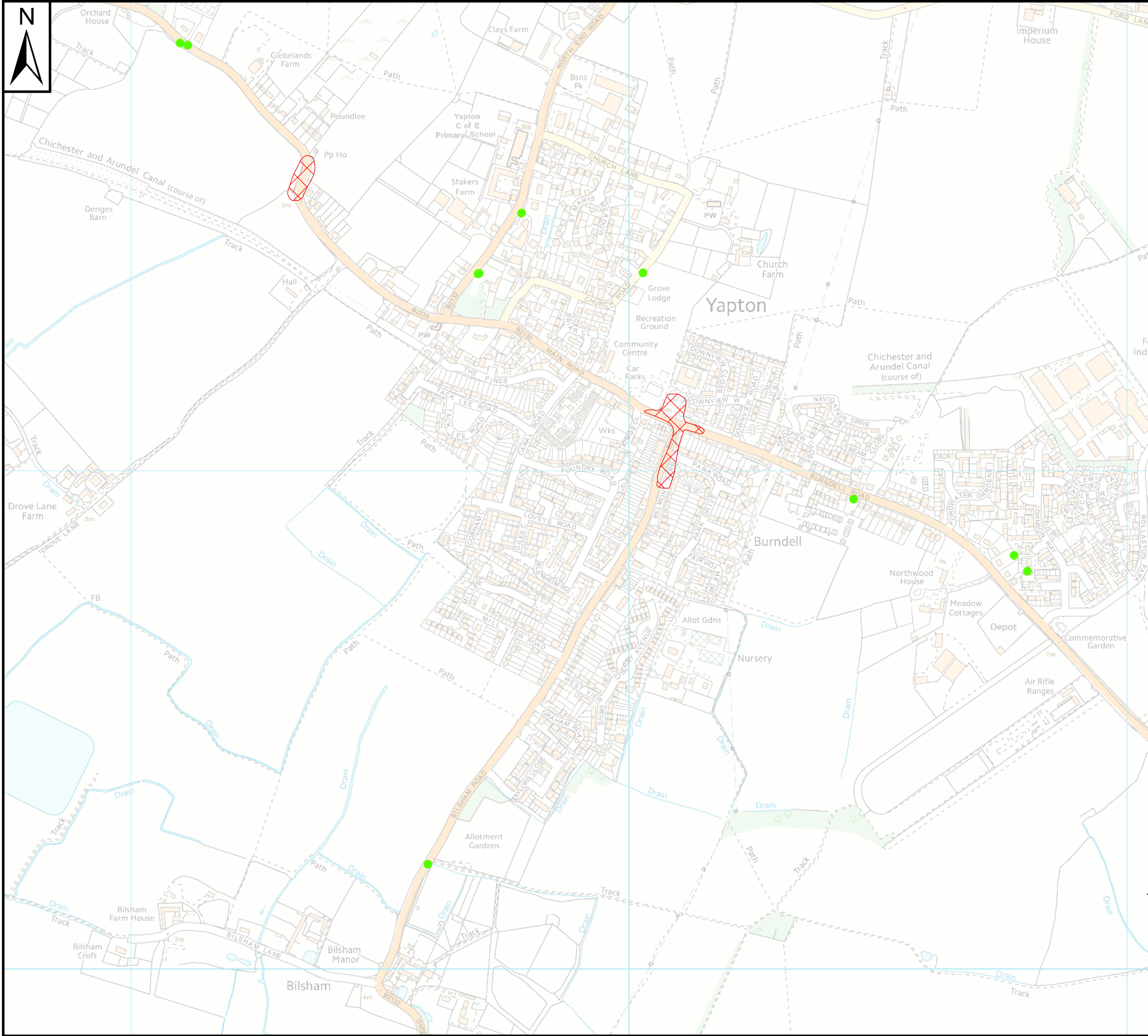
The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	4.8	1.200	9.7	3.000	14.9	7.000	22.4
0.200	7.9	1.400	10.4	3.500	16.1	7.500	23.2
0.300	8.0	1.600	11.1	4.000	17.1	8.000	23.9
0.400	7.8	1.800	11.7	4.500	18.1	8.500	24.5
0.500	7.4	2.000	12.3	5.000	19.1	9.000	25.3
0.600	7.0	2.200	12.9	5.500	20.0	9.500	26.0
0.800	8.0	2.400	13.4	6.000	20.8		
1.000	8.9	2.600	14.0	6.500	21.6		

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APPENDIX I

Strategic Flood Risk Assessment Extracts



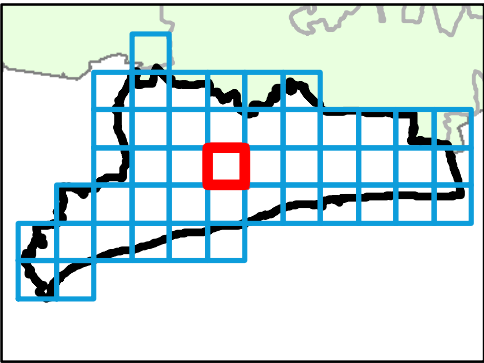
Notes

The Historic Flooding Map shows the recorded incidents and flood outlines provided by Arun District Council, West Sussex County Council, Southern Water and Environment Agency. Historical flood extent was obtained from the Environment Agency.

Flooding incidents provided have been categorised based upon the details provided in the records. Unknown flood points could not be determined from the information provided, and therefore could be from a number of sources.

Please note that not all historical records may be shown on this map, and that it is therefore advised you contact Arun District Council for updated information post 2015.

Key Plan



Legend

-  Arun District SFRA boundary
-  Historic flood outline
- Source of flooding**
-  Fluvial
-  Coastal
-  Tidal
-  Surface Water
-  Failure
-  Unknown



REF	Date	Comments
A	June 2016	-
B		
C		

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ARUN DISTRICT COUNCIL LEVEL 1 SFRA: APPENDIX H HISTORIC FLOODING RECORDS

Sheet No: 23 of 46 Index Number: ADC_23

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