



RPS P&D		Page 1
20 Milton Park Abingdon Oxfordshire OX14 4SH	Land North of Green Lane Chesterton Basin 1 (Partial Infiltration)	
Date 09/10/2015 File Basin 1 + Hydrobreak.srcx	Designed by HSS Checked by JR	
Causeway		Source Control 2014.1.1

Summary of Results for 100 year Return Period (+30%)

Half Drain Time : 161 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Σ Outflow (l/s)	Max Volume (m ³)	Status
15 min Summer	75.643	0.243	6.2	2.8	8.8	113.9	Flood Risk
30 min Summer	75.702	0.302	7.8	2.8	10.5	144.8	Flood Risk
60 min Summer	75.749	0.349	9.0	2.8	11.8	169.9	Flood Risk
120 min Summer	75.770	0.370	9.6	2.8	12.4	181.5	Flood Risk
180 min Summer	75.772	0.372	9.7	2.8	12.5	182.7	Flood Risk
240 min Summer	75.769	0.369	9.6	2.8	12.4	180.9	Flood Risk
360 min Summer	75.758	0.358	9.3	2.8	12.1	174.6	Flood Risk
480 min Summer	75.744	0.344	8.9	2.8	11.7	167.1	Flood Risk
600 min Summer	75.729	0.329	8.5	2.8	11.3	159.3	Flood Risk
720 min Summer	75.715	0.315	8.1	2.8	10.9	151.7	Flood Risk
960 min Summer	75.691	0.291	7.5	2.8	10.2	138.6	Flood Risk
1440 min Summer	75.651	0.251	6.4	2.8	9.0	118.0	Flood Risk
2160 min Summer	75.606	0.206	5.2	2.8	7.8	95.4	Flood Risk
2880 min Summer	75.573	0.173	4.3	2.8	6.9	78.9	O K
4320 min Summer	75.524	0.124	3.1	2.8	5.5	55.9	O K
5760 min Summer	75.488	0.088	2.2	2.8	4.7	39.2	O K
7200 min Summer	75.462	0.062	1.5	2.8	4.2	27.2	O K
8640 min Summer	75.442	0.042	1.0	2.8	3.7	18.5	O K
10080 min Summer	75.427	0.027	0.7	2.8	3.4	11.7	O K
15 min Winter	75.670	0.270	6.9	2.8	9.6	128.0	Flood Risk


Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Discharge Volume (m ³)	Time-Peak (mins)
15 min Summer	128.285	0.0	120.1	18
30 min Summer	84.226	0.0	157.8	33
60 min Summer	52.662	0.0	197.2	62
120 min Summer	31.800	0.0	238.1	108
180 min Summer	23.353	0.0	262.5	138
240 min Summer	18.644	0.0	279.4	172
360 min Summer	13.543	0.0	304.4	240
480 min Summer	10.792	0.0	323.7	310
600 min Summer	9.043	0.0	338.8	380
720 min Summer	7.823	0.0	351.8	448
960 min Summer	6.219	0.0	372.7	578
1440 min Summer	4.493	0.0	404.1	838
2160 min Summer	3.241	0.0	437.5	1216
2880 min Summer	2.568	0.0	462.0	1588
4320 min Summer	1.847	0.0	498.7	2336
5760 min Summer	1.461	0.0	525.8	3056
7200 min Summer	1.217	0.0	547.4	3816
8640 min Summer	1.048	0.0	565.8	4496
10080 min Summer	0.923	0.0	581.3	5240
15 min Winter	128.285	0.0	134.5	18

RPS P&D		Page 2
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Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Σ (l/s)	Max Outflow (l/s)	Max Volume (m ³)	Status
30 min Winter	75.737	0.337	8.7	2.8	11.5	163.1		Flood Risk
60 min Winter	75.789	0.389	10.1	2.8	13.0	192.1		Flood Risk
120 min Winter	75.816	0.416	10.9	2.9	13.8	207.1		Flood Risk
180 min Winter	75.816	0.416	10.9	2.9	13.8	207.2		Flood Risk
240 min Winter	75.811	0.411	10.8	2.9	13.6	204.5		Flood Risk
360 min Winter	75.794	0.394	10.3	2.9	13.1	195.0		Flood Risk
480 min Winter	75.775	0.375	9.7	2.8	12.6	184.1		Flood Risk
600 min Winter	75.755	0.355	9.2	2.8	12.0	173.3		Flood Risk
720 min Winter	75.736	0.336	8.7	2.8	11.5	163.0		Flood Risk
960 min Winter	75.702	0.302	7.8	2.8	10.5	144.7		Flood Risk
1440 min Winter	75.648	0.248	6.3	2.8	9.0	116.7		Flood Risk
2160 min Winter	75.591	0.191	4.8	2.8	7.4	88.1		O K
2880 min Winter	75.551	0.151	3.8	2.8	6.3	68.4		O K
4320 min Winter	75.493	0.093	2.3	2.8	4.8	41.3		O K
5760 min Winter	75.454	0.054	1.3	2.8	4.0	23.7		O K
7200 min Winter	75.428	0.028	0.7	2.8	3.4	12.0		O K
8640 min Winter	75.409	0.009	0.2	2.8	3.0	4.0		O K
10080 min Winter	75.400	0.000	0.0	2.7	2.7	0.0		O K

Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Discharge Volume (m ³)	Time-Peak (mins)
30 min Winter	84.226	0.0	176.6	32
60 min Winter	52.662	0.0	221.0	60
120 min Winter	31.800	0.0	267.0	114
180 min Winter	23.353	0.0	293.9	144
240 min Winter	18.644	0.0	312.9	182
360 min Winter	13.543	0.0	341.1	258
480 min Winter	10.792	0.0	362.5	332
600 min Winter	9.043	0.0	379.7	404
720 min Winter	7.823	0.0	394.2	476
960 min Winter	6.219	0.0	417.7	616
1440 min Winter	4.493	0.0	452.7	882
2160 min Winter	3.241	0.0	489.7	1276
2880 min Winter	2.568	0.0	517.4	1644
4320 min Winter	1.847	0.0	558.5	2420
5760 min Winter	1.461	0.0	588.6	3120
7200 min Winter	1.217	0.0	613.2	3824
8640 min Winter	1.048	0.0	633.6	4504
10080 min Winter	0.923	0.0	651.4	0

RPS P&D		Page 3
20 Milton Park Abingdon Oxfordshire OX14 4SH	Land North of Green Lane Chesterton Basin 1 (Partial Infiltration)	
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Rainfall Details

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)	20.000	Shortest Storm (mins)	15
Ratio R	0.400	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+30

Time Area Diagram

Total Area (ha) 0.500

Time (mins)		Area
From:	To:	(ha)
0	4	0.500

RPS P&D		Page 4
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Model Details

Storage is Online Cover Level (m) 75.900

Infiltration Basin Structure

Invert Level (m) 75.400 Safety Factor 2.0
 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 1.00
 Infiltration Coefficient Side (m/hr) 0.54720

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	430.0	0.500	600.0

Hydro-Brake Optimum® Outflow Control

Unit Reference MD-SHE-0082-3000-1040-3000
 Design Head (m) 1.040
 Design Flow (l/s) 3.0
 Flush-Flo™ Calculated
 Objective Minimise upstream storage
 Diameter (mm) 82
 Invert Level (m) 74.860
 Minimum Outlet Pipe Diameter (mm) 100
 Suggested Manhole Diameter (mm) 1200

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.040	3.0
Flush-Flo™	0.315	3.0
Kick-Flo®	0.651	2.4
Mean Flow over Head Range	-	2.6

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	2.4	1.200	3.2	3.000	4.9	7.000	7.3
0.200	2.9	1.400	3.4	3.500	5.3	7.500	7.5
0.300	3.0	1.600	3.7	4.000	5.6	8.000	7.8
0.400	3.0	1.800	3.9	4.500	5.9	8.500	8.0
0.500	2.9	2.000	4.0	5.000	6.2	9.000	8.2
0.600	2.6	2.200	4.2	5.500	6.5	9.500	8.4
0.800	2.7	2.400	4.4	6.000	6.8		
1.000	2.9	2.600	4.6	6.500	7.0		