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9 Joyce Way Whitchurch Shropshire SY13 1TZ		Willington Grange 1 in 100 + 30% attenu...				
Date 01.09.14 File 1 in 100 + 30% A...		Designed by ag Checked by				
Micro Drainage		Source Control W.12.6.1				
<u>Summary of Results for 100 year Return Period (+30%)</u>						
Storm Event		Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m³)	Status
15 min Summer		98.203	0.325	4.5	3.8	O K
30 min Summer		98.230	0.352	4.7	4.2	O K
60 min Summer		98.213	0.335	4.6	4.0	O K
120 min Summer		98.163	0.285	4.2	3.2	O K
180 min Summer		98.114	0.236	3.7	2.4	O K
240 min Summer		98.077	0.199	3.4	1.8	O K
360 min Summer		98.026	0.148	2.8	1.1	O K
480 min Summer		97.995	0.117	2.4	0.7	O K
600 min Summer		97.976	0.098	2.1	0.5	O K
720 min Summer		97.965	0.087	1.9	0.4	O K
960 min Summer		97.953	0.075	1.5	0.3	O K
1440 min Summer		97.939	0.061	1.1	0.2	O K
2160 min Summer		97.928	0.050	0.8	0.1	O K
2880 min Summer		97.921	0.043	0.6	0.1	O K
4320 min Summer		97.913	0.035	0.5	0.1	O K
5760 min Summer		97.910	0.032	0.4	0.1	O K
7200 min Summer		97.908	0.030	0.3	0.1	O K
8640 min Summer		97.906	0.028	0.3	0.0	O K
10080 min Summer		97.904	0.026	0.2	0.0	O K
15 min Winter		98.231	0.353	4.7	4.2	O K
30 min Winter		98.277	0.399	5.0	4.9	O K
60 min Winter		98.236	0.358	4.7	4.3	O K
120 min Winter		98.147	0.269	4.0	2.9	O K
Storm Event		Rain (mm/hr)		Time-Peak (mins)		
15 min Summer		114.281		16		
30 min Summer		75.158		25		
60 min Summer		47.182		42		
120 min Summer		28.693		72		
180 min Summer		21.198		104		
240 min Summer		17.014		134		
360 min Summer		12.387		192		
480 min Summer		9.861		252		
600 min Summer		8.268		310		
720 min Summer		7.157		368		
960 min Summer		5.695		488		
1440 min Summer		4.121		732		
2160 min Summer		2.977		1100		
2880 min Summer		2.361		1440		
4320 min Summer		1.701		2148		
5760 min Summer		1.347		2880		
7200 min Summer		1.123		3672		
8640 min Summer		0.968		4376		
10080 min Summer		0.853		5080		
15 min Winter		114.281		16		
30 min Winter		75.158		25		
60 min Winter		47.182		44		
120 min Winter		28.693		76		
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<u>Summary of Results for 100 year Return Period (+30%)</u>						
Storm Event		Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m³)	Status
180 min Winter		98.083	0.205	3.5	1.9	O K
240 min Winter		98.040	0.162	3.0	1.3	O K
360 min Winter		97.989	0.111	2.3	0.6	O K
480 min Winter		97.965	0.087	1.9	0.4	O K
600 min Winter		97.955	0.077	1.6	0.3	O K
720 min Winter		97.948	0.070	1.4	0.3	O K
960 min Winter		97.939	0.061	1.1	0.2	O K
1440 min Winter		97.928	0.050	0.8	0.1	O K
2160 min Winter		97.918	0.040	0.6	0.1	O K
2880 min Winter		97.913	0.035	0.5	0.1	O K
4320 min Winter		97.909	0.031	0.3	0.1	O K
5760 min Winter		97.905	0.027	0.3	0.0	O K
7200 min Winter		97.903	0.025	0.2	0.0	O K
8640 min Winter		97.901	0.023	0.2	0.0	O K
10080 min Winter		97.900	0.022	0.2	0.0	O K
Storm Event		Rain (mm/hr)		Time-Peak (mins)		
180 min Winter		21.198		106		
240 min Winter		17.014		136		
360 min Winter		12.387		192		
480 min Winter		9.861		250		
600 min Winter		8.268		314		
720 min Winter		7.157		370		
960 min Winter		5.695		492		
1440 min Winter		4.121		726		
2160 min Winter		2.977		1104		
2880 min Winter		2.361		1436		
4320 min Winter		1.701		2156		
5760 min Winter		1.347		2968		
7200 min Winter		1.123		3600		
8640 min Winter		0.968		4224		
10080 min Winter		0.853		5208		
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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)	18.000	Shortest Storm (mins)	15
Ratio R	0.400	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+30

Pipe Network

Volume in Pipe Network (m³)	1	Dia of Outfall Pipe (m)	0.1
Slope of Outfall Pipe (1:X)	81	Roughness of Outfall Pipe (mm)	0.600

Time / Area Diagram

Total Area (ha) 0.033

Time (mins)	Area (ha)
0-4	0.033

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<u>Model Details</u> Storage is Online Cover Level (m) 98.850 <u>Pipe Structure</u> Diameter (m) 0.450 Length (m) 33.000 Slope (1:X) 400.000 Invert Level (m) 97.878 <u>Orifice Outflow Control</u> Diameter (m) 0.063 Discharge Coefficient 0.600 Invert Level (m) 97.878		
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