Time Area Diagram for Storm

Time (mins)	Area (ha)	Time (mins)	Area (ha)
0-4	0.067	4-8	0.029

Total Area Contributing (ha) = 0.096

Total Pipe Volume (m^3) = 3.249

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Existing Network Details for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)
S1.000	13.360	0.220	60.7	0.040	5.00	0.0	0.600	o	150
S2.000	23.063	0.120	192.2	0.040	5.00	0.0	0.600	o	150
S1.001	14.502	0.281	51.6	0.010	0.00	0.0	0.600	o	225
S3.000	8.411	0.036	233.6	0.000	5.00	0.0	0.600	o	225
S1.002	14.502	0.100	145.0	0.006	0.00	0.0	0.600	o	375
S1.003	5.235	0.049	106.8	0.000	0.00	0.0	0.600	o	150

Network Results Table

PN	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Vel (m/s)	Cap (l/s)
S1.000	3.070	0.040	0.0	1.29	22.8
S2.000	2.970	0.040	0.0	0.72	12.7
S1.001	2.775	0.090	0.0	1.82	72.6
S3.000	2.530	0.000	0.0	0.85	33.8
S1.002	2.344	0.096	0.0	1.50	165.9
S1.003	2.244	0.096	0.0	0.97	17.2

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PIPELINE SCHEDULES for Storm

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
S1.000	o	150	S1	3.600	3.070	0.380	Open Manhole	1200
S2.000	o	150	S6	3.600	2.970	0.480	Open Manhole	1200
S1.001	o	225	S2	3.600	2.775	0.600	Open Manhole	1200
S3.000	o	225	S4	3.450	2.530	0.695	Open Manhole	1200
S1.002	o	375	S5	2.850	2.344	0.131	Open Manhole	1200
S1.003	o	150	S5	2.900	2.244	0.506	Open Manhole	1200

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
S1.000	13.360	60.7	S2	3.600	2.850	0.600	Open Manhole	1200
S2.000	23.063	192.2	S2	3.600	2.850	0.600	Open Manhole	1200
S1.001	14.502	51.6	S5	2.850	2.494	0.131	Open Manhole	1200
S3.000	8.411	233.6	S5	2.850	2.494	0.131	Open Manhole	1200
S1.002	14.502	145.0	S5	2.900	2.244	0.281	Open Manhole	1200
S1.003	5.235	106.8	S	2.600	2.195	0.255	Open Manhole	0

Free Flowing Outfall Details for Storm

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
S1.003	S	2.600	2.195	0.000	0	0

Simulation Criteria for Storm

Volumetric Runoff Coeff	0.750	Additional Flow - % of Total Flow	0.000
Areal Reduction Factor	1.000	MADD Factor * 10m³/ha Storage	2.000
Hot Start (mins)	0	Inlet Coeffiecient	0.800
Hot Start Level (mm)	0	Flow per Person per Day (l/per/day)	0.000
Manhole Headloss Coeff (Global)	0.500	Run Time (mins)	60
Foul Sewage per hectare (l/s)	0.000	Output Interval (mins)	1

Number of Input Hydrographs 0 Number of Offline Controls 0
Number of Online Controls 1 Number of Storage Structures 1

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Simulation Criteria for Storm

Number of Time/Area Diagrams 0 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model	FSR	Profile Type	Summer
Return Period (years)	100	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	19.900	Storm Duration (mins)	15
Ratio R	0.340		

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Online Controls for Storm

Hydro-Brake® Manhole: S5, DS/PN: S1.003, Volume (m³): 2.2

Design Head (m) 0.800 Hydro-Brake® Type Md6 SW Only Invert Level (m) 2.244
Design Flow (l/s) 4.0 Diameter (mm) 88

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	2.5	1.200	4.8	3.000	7.7	7.000	11.7
0.200	3.5	1.400	5.2	3.500	8.3	7.500	12.1
0.300	3.3	1.600	5.6	4.000	8.8	8.000	12.5
0.400	3.2	1.800	5.9	4.500	9.4	8.500	12.9
0.500	3.3	2.000	6.2	5.000	9.9	9.000	13.3
0.600	3.5	2.200	6.6	5.500	10.4	9.500	13.6
0.800	4.0	2.400	6.8	6.000	10.8		
1.000	4.4	2.600	7.1	6.500	11.3		

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Storage Structures for Storm

Cellular Storage Manhole: S4, DS/PN: S3.000

Invert Level (m) 2.530 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.98
Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)
0.000	200.0	100.0	0.400	200.0	132.0

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Summary of Critical Results by Maximum Pipe Volume (Rank 1) for Storm

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	2.000
Hot Start Level (mm)	0	Inlet Coeffiecient	0.800
Manhole Headloss Coeff (Global)	0.500	Flow per Person per Day (l/per/day)	0.000
Foul Sewage per hectare (l/s)	0.000		

Number of Input Hydrographs	0	Number of Storage Structures	1
Number of Online Controls	1	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model		FSR Ratio R	0.339
Region	England and Wales	Cv (Summer)	0.750
M5-60 (mm)	19.900	Cv (Winter)	0.840

Margin for Flood Risk Warning (mm)	300.0
Analysis Timestep	2.5 Second Increment (Extended)
DTS Status	ON
DVD Status	ON
Inertia Status	ON

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440
Return Period(s) (years)	1, 30, 100
Climate Change (%)	0, 0, 30

PN	Storm	Return Period	Climate Change	First X Surcharge	First Y Flood	First Z Overflow	O/F Act.	Lvl Exc.
S1.000	15 Winter	100	+30%					
S2.000	15 Winter	100	+30%	100/15 Summer				
S1.001	15 Winter	100	+30%					
S3.000	120 Winter	100	+30%					
S1.002	15 Winter	100	+30%	30/15 Summer				
S1.003	15 Summer	100	+30%	1/15 Summer				

PN	US/MH Name	Water Level (m)	Surch'ed Depth (m)	Flooded Volume (m³)	Flow / Cap.	O'flow (l/s)	Pipe Flow (l/s)	Status
S1.000	S1	3.211	-0.009	0.000	1.00	0.0	20.9	OK
S2.000	S6	3.334	0.214	0.000	1.65	0.0	19.9	FLOOD RISK
S1.001	S2	2.991	-0.009	0.000	0.71	0.0	45.2	OK
S3.000	S4	2.673	-0.082	0.000	0.16	0.0	4.3	OK
S1.002	S5	2.846	0.127	0.000	0.11	0.0	14.0	FLOOD RISK
S1.003	S5	2.861	0.467	0.000	0.25	0.0	3.5	FLOOD RISK

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