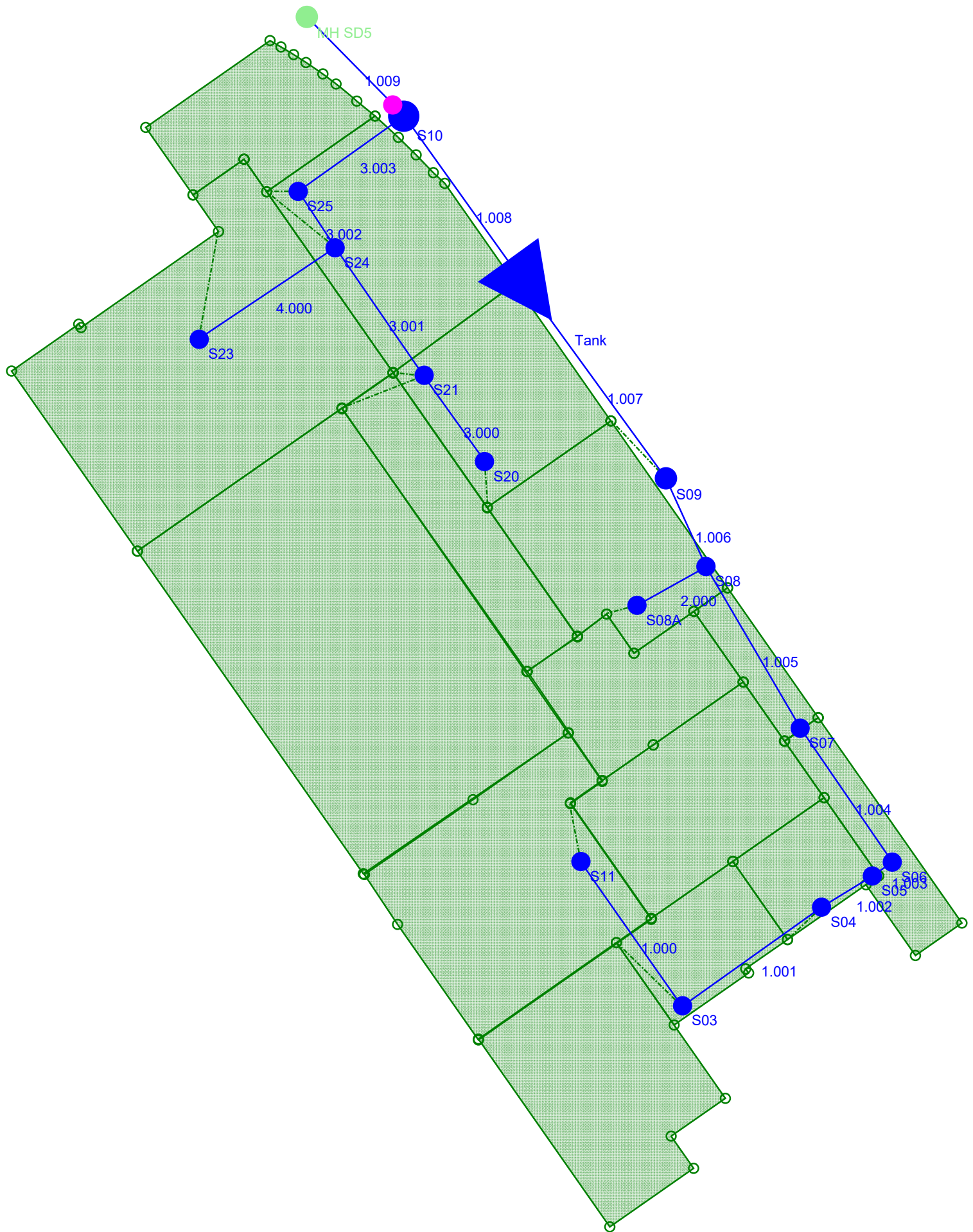




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STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for Storm

Pipe Sizes STANDARD Manhole Sizes STANDARD

FSR Rainfall Model - England and Wales

Return Period (years)	2	PIMP (%)	100
M5-60 (mm)	18.000	Add Flow / Climate Change (%)	0
Ratio R	0.359	Minimum Backdrop Height (m)	0.200
Maximum Rainfall (mm/hr)	50	Maximum Backdrop Height (m)	1.500
Maximum Time of Concentration (mins)	30	Min Design Depth for Optimisation (m)	1.200
Foul Sewage (l/s/ha)	0.000	Min Vel for Auto Design only (m/s)	1.00
Volumetric Runoff Coeff.	0.750	Min Slope for Optimisation (1:X)	500

Designed with Level Soffits

Time Area Diagram for Storm

Time (mins)	Area (ha)	Time (mins)	Area (ha)
0-4	0.154	4-8	0.055

Total Area Contributing (ha) = 0.208

Total Pipe Volume (m³) = 4.348

Network Design Table 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)	Section Type	Auto Design
1.000	11.801	0.590	20.0	0.020	5.00	0.0	0.600	o	150	Pipe/Conduit	
1.001	11.398	0.114	100.0	0.016	0.00	0.0	0.600	o	150	Pipe/Conduit	
1.002	3.985	0.036	110.7	0.006	0.00	0.0	0.600	o	150	Pipe/Conduit	
1.003	1.623	0.013	124.8	0.005	0.00	0.0	0.600	o	150	Pipe/Conduit	
1.004	10.872	0.071	153.1	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	
1.005	12.516	0.083	150.8	0.021	0.00	0.0	0.600	o	150	Pipe/Conduit	
2.000	5.288	0.177	29.9	0.009	5.00	0.0	0.600	o	150	Pipe/Conduit	
1.006	6.478	0.043	150.7	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	
1.007	15.523	0.020	776.2	0.013	0.00	0.0	0.600	o	300	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
1.000	50.00	5.09	39.420	0.020	0.0	0.0	0.0	2.26	40.0	2.7
1.001	50.00	5.28	38.830	0.036	0.0	0.0	0.0	1.00	17.8	4.9
1.002	50.00	5.35	38.716	0.042	0.0	0.0	0.0	0.95	16.9	5.7
1.003	50.00	5.38	38.680	0.047	0.0	0.0	0.0	0.90	15.9	6.4
1.004	50.00	5.60	38.667	0.047	0.0	0.0	0.0	0.81	14.3	6.4
1.005	50.00	5.86	38.596	0.068	0.0	0.0	0.0	0.82	14.4	9.3
2.000	50.00	5.05	38.690	0.009	0.0	0.0	0.0	1.85	32.7	1.2
1.006	50.00	5.99	38.513	0.077	0.0	0.0	0.0	0.82	14.4	10.4
1.007	50.00	6.45	38.320	0.090	0.0	0.0	0.0	0.56	39.3	12.2

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Network Design Table 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)	Section Type	Auto Design
1.008	14.382	0.040	360.0	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit	
3.000	7.040	0.070	100.6	0.009	5.00	0.0	0.600	o	150	Pipe/Conduit	
3.001	10.402	0.415	25.1	0.055	0.00	0.0	0.600	o	150	Pipe/Conduit	
4.000	10.957	0.300	36.5	0.031	5.00	0.0	0.600	o	150	Pipe/Conduit	
3.002	4.508	0.045	100.2	0.014	0.00	0.0	0.600	o	150	Pipe/Conduit	
3.003	8.665	0.595	14.6	0.008	0.00	0.0	0.600	o	150	Pipe/Conduit	
1.009	9.278	0.056	165.7	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
1.008	50.00	6.74	38.300	0.090	0.0	0.0	0.0	0.82	58.2	12.2
3.000	50.00	5.12	39.535	0.009	0.0	0.0	0.0	1.00	17.7	1.2
3.001	50.00	5.20	39.465	0.064	0.0	0.0	0.0	2.02	35.7	8.7
4.000	50.00	5.11	39.350	0.031	0.0	0.0	0.0	1.67	29.5	4.3
3.002	50.00	5.28	39.050	0.110	0.0	0.0	0.0	1.00	17.7	14.9
3.003	50.00	5.33	39.005	0.118	0.0	0.0	0.0	2.65	46.9	16.0
1.009	50.00	6.90	38.260	0.208	0.0	0.0	0.0	1.01	40.3	28.2

Manhole Schedules for Storm

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam., L*W (mm)	PN	Pipe Out Invert Level (m)	Diameter (mm)	PN	Pipes In Invert Level (m)	Diameter (mm)	Backdrop (mm)
S11	40.200	0.780	Open Manhole	450	1.000	39.420	150				
S03	40.050	1.220	Open Manhole	450	1.001	38.830	150	1.000	38.830	150	
S04	40.050	1.334	Open Manhole	450	1.002	38.716	150	1.001	38.716	150	
S05	40.050	1.370	Open Manhole	450	1.003	38.680	150	1.002	38.680	150	
S06	40.150	1.483	Open Manhole	450	1.004	38.667	150	1.003	38.667	150	
S07	40.050	1.454	Open Manhole	450	1.005	38.596	150	1.004	38.596	150	
S08A	40.100	1.410	Open Manhole	450	2.000	38.690	150				
S08	40.100	1.587	Open Manhole	450	1.006	38.513	150	1.005	38.513	150	
								2.000	38.513	150	
S09	40.150	1.830	Open Manhole	1500	1.007	38.320	300	1.006	38.470	150	
Tank	40.100	1.800	Open Manhole	1500	1.008	38.300	300	1.007	38.300	300	
S20	40.200	0.665	Open Manhole	450	3.000	39.535	150				
S21	40.200	0.735	Open Manhole	450	3.001	39.465	150	3.000	39.465	150	
S23	40.200	0.850	Open Manhole	450	4.000	39.350	150				
S24	40.200	1.150	Open Manhole	450	3.002	39.050	150	3.001	39.050	150	
								4.000	39.050	150	
S25	40.200	1.195	Open Manhole	450	3.003	39.005	150	3.002	39.005	150	
S10	40.350	2.090	Open Manhole	2100	1.009	38.260	225	1.008	38.260	300	
								3.003	38.410	150	
MH SD5	40.650	2.446	Open Manhole	1500		OUTFALL		1.009	38.204	225	75

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
S11	385120.486	396292.879	385120.486	396292.879	Required	
S03	385127.280	396283.229	385127.280	396283.229	Required	
S04	385136.574	396289.827	385136.574	396289.827	Required	
S05	385139.970	396291.913	385139.970	396291.913	Required	
S06	385141.302	396292.840	385141.302	396292.840	Required	
S07	385135.145	396301.801	385135.145	396301.801	Required	
S08A	385124.236	396310.020	385124.236	396310.020	Required	
S08	385128.844	396312.615	385128.844	396312.615	Required	

Manhole Schedules for Storm

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
S09	385126.170	396318.515	385126.170	396318.515	Required	
Tank	385117.084	396331.101	385117.084	396331.101	Required	
S20	385114.038	396319.638	385114.038	396319.638	Required	
S21	385110.007	396325.409	385110.007	396325.409	Required	
S23	385094.964	396327.815	385094.964	396327.815	Required	
S24	385104.051	396333.937	385104.051	396333.937	Required	
S25	385101.582	396337.709	385101.582	396337.709	Required	
S10	385108.637	396342.741	385108.637	396342.741	Required	
MH SD5	385102.158	396349.382			No Entry	

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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)
1.000	o	150	S11	40.200	39.420	0.630	Open Manhole	450
1.001	o	150	S03	40.050	38.830	1.070	Open Manhole	450
1.002	o	150	S04	40.050	38.716	1.184	Open Manhole	450
1.003	o	150	S05	40.050	38.680	1.220	Open Manhole	450
1.004	o	150	S06	40.150	38.667	1.333	Open Manhole	450
1.005	o	150	S07	40.050	38.596	1.304	Open Manhole	450
2.000	o	150	S08A	40.100	38.690	1.260	Open Manhole	450
1.006	o	150	S08	40.100	38.513	1.437	Open Manhole	450
1.007	o	300	S09	40.150	38.320	1.530	Open Manhole	1500
1.008	o	300	Tank	40.100	38.300	1.500	Open Manhole	1500
3.000	o	150	S20	40.200	39.535	0.515	Open Manhole	450
3.001	o	150	S21	40.200	39.465	0.585	Open Manhole	450
4.000	o	150	S23	40.200	39.350	0.700	Open Manhole	450
3.002	o	150	S24	40.200	39.050	1.000	Open Manhole	450
3.003	o	150	S25	40.200	39.005	1.045	Open Manhole	450
1.009	o	225	S10	40.350	38.260	1.865	Open Manhole	2100

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)
1.000	11.801	20.0	S03	40.050	38.830	1.070	Open Manhole	450
1.001	11.398	100.0	S04	40.050	38.716	1.184	Open Manhole	450
1.002	3.985	110.7	S05	40.050	38.680	1.220	Open Manhole	450
1.003	1.623	124.8	S06	40.150	38.667	1.333	Open Manhole	450
1.004	10.872	153.1	S07	40.050	38.596	1.304	Open Manhole	450
1.005	12.516	150.8	S08	40.100	38.513	1.437	Open Manhole	450
2.000	5.288	29.9	S08	40.100	38.513	1.437	Open Manhole	450
1.006	6.478	150.7	S09	40.150	38.470	1.530	Open Manhole	1500
1.007	15.523	776.2	Tank	40.100	38.300	1.500	Open Manhole	1500
1.008	14.382	360.0	S10	40.350	38.260	1.790	Open Manhole	2100
3.000	7.040	100.6	S21	40.200	39.465	0.585	Open Manhole	450
3.001	10.402	25.1	S24	40.200	39.050	1.000	Open Manhole	450
4.000	10.957	36.5	S24	40.200	39.050	1.000	Open Manhole	450
3.002	4.508	100.2	S25	40.200	39.005	1.045	Open Manhole	450
3.003	8.665	14.6	S10	40.350	38.410	1.790	Open Manhole	2100
1.009	9.278	165.7	MH SD5	40.650	38.204	2.221	Open Manhole	1500

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Area Summary for Storm

Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
1.000	User	-	100	0.020	0.020	0.020
1.001	User	-	100	0.016	0.016	0.016
1.002	User	-	100	0.006	0.006	0.006
1.003	User	-	100	0.005	0.005	0.005
1.004	-	-	100	0.000	0.000	0.000
1.005	User	-	100	0.013	0.013	0.013
	User	-	100	0.003	0.003	0.016
	User	-	100	0.005	0.005	0.021
2.000	User	-	100	0.009	0.009	0.009
1.006	-	-	100	0.000	0.000	0.000
1.007	User	-	100	0.013	0.013	0.013
1.008	-	-	100	0.000	0.000	0.000
3.000	User	-	100	0.009	0.009	0.009
3.001	User	-	100	0.044	0.044	0.044
	User	-	100	0.011	0.011	0.055
4.000	User	-	100	0.031	0.031	0.031
3.002	User	-	100	0.014	0.014	0.014
3.003	User	-	100	0.008	0.008	0.008
1.009	-	-	100	0.000	0.000	0.000
				Total	Total	Total
				0.208	0.208	0.208

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)
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1.009	MH SD5	40.650	38.204	36.635	1500	0
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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 Coefficient	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 Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 1 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model	FSR	Profile Type	Summer
Return Period (years)	2	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	18.000	Storm Duration (mins)	30
Ratio R	0.359		

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Online Controls for Storm

Hydro-Brake® Optimum Manhole: S10, DS/PN: 1.009, Volume (m³): 8.3

Unit Reference	MD-SHE-0150-1270-1800-1270
Design Head (m)	1.800
Design Flow (l/s)	12.7
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	150
Invert Level (m)	38.260
Minimum Outlet Pipe Diameter (mm)	225
Suggested Manhole Diameter (mm)	1500

Control Points	Head (m)	Flow (l/s)	Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.800	12.7	Kick-Flo®	1.099	10.1
Flush-Flo™	0.522	12.7	Mean Flow over Head Range	-	11.1

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)	Depth (m)	Flow (l/s)
0.100	5.4	0.800	12.2	2.000	13.3	4.000	18.6	7.000	24.3
0.200	11.0	1.000	11.1	2.200	14.0	4.500	19.6	7.500	25.1
0.300	12.0	1.200	10.5	2.400	14.5	5.000	20.6	8.000	25.9
0.400	12.5	1.400	11.3	2.600	15.1	5.500	21.6	8.500	26.6
0.500	12.7	1.600	12.0	3.000	16.2	6.000	22.5	9.000	27.4
0.600	12.6	1.800	12.7	3.500	17.4	6.500	23.4	9.500	28.1

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Storage Structures for Storm

Cellular Storage Manhole: Tank, DS/PN: 1.008

Invert Level (m) 38.300 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)
0.000	34.0	0.0	1.075	34.0	0.0	1.076	0.0	0.0

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2 year Return Period Summary of Critical Results by Maximum Level (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 Coefficient 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 Offline Controls 0 Number of Time/Area Diagrams 0
 Number of Online Controls 1 Number of Storage Structures 1 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FSR M5-60 (mm) 18.000 Cv (Summer) 0.750
 Region England and Wales Ratio R 0.359 Cv (Winter) 0.840

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
 Analysis Timestep Fine Inertia Status OFF
 DTS Status ON

Profile(s) Summer and Winter
 Duration(s) (mins) 15, 30, 60, 120, 240, 360, 480, 960, 1440
 Return Period(s) (years) 2, 30, 100
 Climate Change (%) 0, 0, 40

										Water	Surcharged	Flooded
PN	US/MH Name Storm	Return Period	Climate Change	First (X) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Level (m)	Depth (m)	Volume (m ³)		
1.000	S11 15 Winter	2	+0%	100/15 Summer				39.450	-0.120	0.000		
1.001	S03 15 Winter	2	+0%	30/15 Summer				38.889	-0.091	0.000		
1.002	S04 15 Winter	2	+0%	30/15 Summer				38.793	-0.073	0.000		
1.003	S05 15 Winter	2	+0%	30/15 Summer				38.766	-0.064	0.000		
1.004	S06 15 Winter	2	+0%	30/15 Summer				38.744	-0.073	0.000		
1.005	S07 15 Winter	2	+0%	30/15 Summer				38.691	-0.055	0.000		
2.000	S08A 15 Winter	2	+0%	100/15 Summer				38.712	-0.128	0.000		
1.006	S08 15 Winter	2	+0%	30/15 Summer				38.623	-0.040	0.000		
1.007	S09 30 Winter	2	+0%	30/15 Summer				38.493	-0.127	0.000		
1.008	Tank 30 Winter	2	+0%	30/15 Summer				38.483	-0.117	0.000		
3.000	S20 15 Winter	2	+0%	100/15 Summer				39.566	-0.119	0.000		
3.001	S21 15 Winter	2	+0%	100/15 Summer				39.518	-0.097	0.000		
4.000	S23 15 Winter	2	+0%	100/15 Summer				39.394	-0.106	0.000		
3.002	S24 15 Winter	2	+0%	2/15 Summer				39.211	0.011	0.000		
3.003	S25 15 Winter	2	+0%	100/15 Summer				39.072	-0.083	0.000		
1.009	S10 30 Winter	2	+0%	30/15 Summer				38.478	-0.007	0.000		

				Pipe		
PN	US/MH Name	Flow / Cap.	Overflow (l/s)	Flow (l/s)	Status	Level Exceeded
1.000	S11	0.09		3.1	OK	
1.001	S03	0.32		5.2	OK	
1.002	S04	0.51		6.0	OK	
1.003	S05	0.62		6.7	OK	
1.004	S06	0.52		6.7	OK	
1.005	S07	0.72		9.5	OK	
2.000	S08A	0.05		1.4	OK	
1.006	S08	0.88		10.7	OK	
1.007	S09	0.49		10.2	OK	
1.008	Tank	0.17		7.7	OK	
3.000	S20	0.09		1.4	OK	

2 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

		US/MH Flow / Overflow		Pipe Flow	Level	
PN	Name	Cap.	(l/s)	(l/s)	Status	Exceeded
3.001	S21	0.27		8.6	OK	
4.000	S23	0.18		4.9	OK	
3.002	S24	1.16		15.4	SURCHARGED	
3.003	S25	0.40		16.6	OK	
1.009	S10	0.34		11.2	OK	

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30 year Return Period Summary of Critical Results by Maximum Level (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 Coefficient 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 Offline Controls 0 Number of Time/Area Diagrams 0
 Number of Online Controls 1 Number of Storage Structures 1 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FSR M5-60 (mm) 18.000 Cv (Summer) 0.750
 Region England and Wales Ratio R 0.359 Cv (Winter) 0.840

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
 Analysis Timestep Fine Inertia Status OFF
 DTS Status ON

Profile(s) Summer and Winter
 Duration(s) (mins) 15, 30, 60, 120, 240, 360, 480, 960, 1440
 Return Period(s) (years) 2, 30, 100
 Climate Change (%) 0, 0, 40

									Water	Surcharged	Flooded
PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Level (m)	Depth (m)	Volume (m³)
1.000	S11	15 Winter	30	+0%	100/15 Summer				39.460	-0.110	0.000
1.001	S03	15 Winter	30	+0%	30/15 Summer				39.094	0.114	0.000
1.002	S04	15 Winter	30	+0%	30/15 Summer				39.051	0.185	0.000
1.003	S05	15 Winter	30	+0%	30/15 Summer				39.018	0.188	0.000
1.004	S06	15 Winter	30	+0%	30/15 Summer				38.977	0.160	0.000
1.005	S07	15 Winter	30	+0%	30/15 Summer				38.908	0.162	0.000
2.000	S08A	30 Winter	30	+0%	100/15 Summer				38.802	-0.038	0.000
1.006	S08	30 Winter	30	+0%	30/15 Summer				38.801	0.138	0.000
1.007	S09	30 Winter	30	+0%	30/15 Summer				38.787	0.167	0.000
1.008	Tank	30 Winter	30	+0%	30/15 Summer				38.782	0.182	0.000
3.000	S20	15 Winter	30	+0%	100/15 Summer				39.586	-0.099	0.000
3.001	S21	15 Winter	30	+0%	100/15 Summer				39.576	-0.039	0.000
4.000	S23	15 Winter	30	+0%	100/15 Summer				39.459	-0.041	0.000
3.002	S24	15 Winter	30	+0%	2/15 Summer				39.423	0.223	0.000
3.003	S25	15 Winter	30	+0%	100/15 Summer				39.113	-0.042	0.000
1.009	S10	30 Winter	30	+0%	30/15 Summer				38.776	0.291	0.000

		Pipe		Level	
PN	US/MH Name	Flow / Cap. (l/s)	Overflow (l/s)	Status	Exceeded
1.000	S11	0.16	5.9	OK	
1.001	S03	0.62	9.9	SURCHARGED	
1.002	S04	0.97	11.5	SURCHARGED	
1.003	S05	1.17	12.7	SURCHARGED	
1.004	S06	0.99	12.7	SURCHARGED	
1.005	S07	1.38	18.2	SURCHARGED	
2.000	S08A	0.08	2.0	OK	
1.006	S08	1.37	16.7	SURCHARGED	
1.007	S09	0.87	18.3	SURCHARGED	
1.008	Tank	0.26	11.5	SURCHARGED	
3.000	S20	0.17	2.6	OK	

30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

US/MH			Pipe		Level	
PN	Name	Flow / Cap.	Overflow (1/s)	Flow (1/s)	Status	Exceeded
3.001	S21	0.60		19.2	OK	
4.000	S23	0.35		9.2	OK	
3.002	S24	2.45		32.5	SURCHARGED	
3.003	S25	0.85		34.9	OK	
1.009	S10	0.38		12.7	SURCHARGED	

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100 year Return Period Summary of Critical Results by Maximum Level (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 Coefficient 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 Offline Controls 0 Number of Time/Area Diagrams 0
 Number of Online Controls 1 Number of Storage Structures 1 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FSR M5-60 (mm) 18.000 Cv (Summer) 0.750
 Region England and Wales Ratio R 0.359 Cv (Winter) 0.840

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
 Analysis Timestep Fine Inertia Status OFF
 DTS Status ON

Profile(s) Summer and Winter
 Duration(s) (mins) 15, 30, 60, 120, 240, 360, 480, 960, 1440
 Return Period(s) (years) 2, 30, 100
 Climate Change (%) 0, 0, 40

									Water	Surcharged	Flooded
PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Level (m)	Depth (m)	Volume (m³)
1.000	S11	15 Winter	100	+40%	100/15 Summer				40.016	0.446	0.000
1.001	S03	15 Winter	100	+40%	30/15 Summer				39.983	1.003	0.000
1.002	S04	60 Winter	100	+40%	30/15 Summer				39.916	1.050	0.000
1.003	S05	60 Winter	100	+40%	30/15 Summer				39.912	1.082	0.000
1.004	S06	60 Winter	100	+40%	30/15 Summer				39.910	1.093	0.000
1.005	S07	60 Winter	100	+40%	30/15 Summer				39.900	1.154	0.000
2.000	S08A	60 Winter	100	+40%	100/15 Summer				39.885	1.045	0.000
1.006	S08	60 Winter	100	+40%	30/15 Summer				39.884	1.221	0.000
1.007	S09	60 Winter	100	+40%	30/15 Summer				39.873	1.253	0.000
1.008	Tank	60 Winter	100	+40%	30/15 Summer				39.868	1.268	0.000
3.000	S20	15 Winter	100	+40%	100/15 Summer				40.197	0.512	0.000
3.001	S21	15 Winter	100	+40%	100/15 Summer				40.196	0.581	0.000
4.000	S23	15 Winter	100	+40%	100/15 Summer				40.143	0.643	0.000
3.002	S24	15 Winter	100	+40%	2/15 Summer				40.041	0.841	0.000
3.003	S25	60 Winter	100	+40%	100/15 Summer				39.885	0.730	0.000
1.009	S10	60 Winter	100	+40%	30/15 Summer				39.863	1.378	0.000

		Pipe		Level	
PN	US/MH Name	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status
1.000	S11	0.25		9.0	FLOOD RISK
1.001	S03	0.96		15.4	FLOOD RISK
1.002	S04	0.91		10.8	FLOOD RISK
1.003	S05	1.10		11.9	FLOOD RISK
1.004	S06	0.91		11.8	FLOOD RISK
1.005	S07	1.32		17.3	FLOOD RISK
2.000	S08A	0.08		2.1	FLOOD RISK
1.006	S08	1.58		19.2	FLOOD RISK
1.007	S09	0.99		20.9	FLOOD RISK
1.008	Tank	0.26		11.6	FLOOD RISK
3.000	S20	0.79		12.0	FLOOD RISK

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

				Pipe		
US/MH Flow / Overflow			Flow		Level	
PN	Name	Cap.	(1/s)	(1/s)	Status	Exceeded
3.001	S21	0.76		24.1	FLOOD RISK	
4.000	S23	0.58		15.4	FLOOD RISK	
3.002	S24	3.25		43.2	FLOOD RISK	
3.003	S25	0.76		31.2	SURCHARGED	
1.009	S10	0.38		12.7	SURCHARGED	