

Design Settings

Rainfall Methodology	FSR	Maximum Time of Concentration (mins)	30.00
Return Period (years)	100	Maximum Rainfall (mm/hr)	50.0
Additional Flow (%)	40	Minimum Velocity (m/s)	1.00
FSR Region	England and Wales	Connection Type	Level Soffits
M5-60 (mm)	20.000	Minimum Backdrop Height (m)	0.600
Ratio-R	0.400	Preferred Cover Depth (m)	1.200
CV	1.000	Include Intermediate Ground	✓
Time of Entry (mins)	5.00	Enforce best practice design rules	x

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
1	0.042	5.00	3.830	600	498811.687	102668.256	1.030
2	0.018	5.00	3.790	600	498835.291	102685.958	1.209
3	0.041	5.00	3.830	600	498823.683	102652.501	1.030
4	0.016	5.00	3.815	600	498845.556	102669.424	1.235
5	0.039	5.00	3.775	600	498842.803	102677.043	1.263
Soakaway	0.000		3.740		498844.451	102678.048	1.240

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
1.000	1	2	29.504	0.600	2.800	2.581	0.219	134.7	225	5.38	50.0
1.001	2	5	11.658	0.600	2.581	2.512	0.069	169.0	225	5.53	50.0
2.000	3	4	27.655	0.600	2.800	2.580	0.220	125.7	225	5.35	50.0
2.001	4	5	8.101	0.600	2.580	2.512	0.068	119.1	225	5.43	50.0
1.002	5	Soakaway	1.930	0.600	2.512	2.500	0.012	160.8	225	5.54	50.0

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
1.000	1.124	44.7	10.6	0.805	0.984	0.042	0.0	74	0.924
1.001	1.003	39.9	15.2	0.984	1.038	0.060	0.0	96	0.936
2.000	1.165	46.3	10.4	0.805	1.010	0.041	0.0	73	0.945
2.001	1.197	47.6	14.4	1.010	1.038	0.057	0.0	85	1.052
1.002	1.028	40.9	39.5	1.038	1.015	0.156	0.0	179	1.166

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
1.000	29.504	134.7	225	Circular	3.830	2.800	0.805	3.790	2.581	0.984
1.001	11.658	169.0	225	Circular	3.790	2.581	0.984	3.775	2.512	1.038
2.000	27.655	125.7	225	Circular	3.830	2.800	0.805	3.815	2.580	1.010
2.001	8.101	119.1	225	Circular	3.815	2.580	1.010	3.775	2.512	1.038

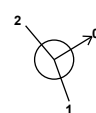
Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.000	1	600	Manhole	Adoptable	2	600	Manhole	Adoptable
1.001	2	600	Manhole	Adoptable	5	600	Manhole	Adoptable
2.000	3	600	Manhole	Adoptable	4	600	Manhole	Adoptable
2.001	4	600	Manhole	Adoptable	5	600	Manhole	Adoptable

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
1.002	1.930	160.8	225	Circular	3.775	2.512	1.038	3.740	2.500	1.015

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.002	5	600	Manhole	Adoptable	Soakaway		Junction	

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
1	498811.687	102668.256	3.830	1.030	600				
						0	1.000	2.800	225
2	498835.291	102685.958	3.790	1.209	600		1	1.000	2.581
						0	1.001	2.581	225
3	498823.683	102652.501	3.830	1.030	600				
						0	2.000	2.800	225
4	498845.556	102669.424	3.815	1.235	600		1	2.000	2.580
						0	2.001	2.580	225
5	498842.803	102677.043	3.775	1.263	600		1	2.001	2.512
						2	1.001	2.512	225
						0	1.002	2.512	225
Soakaway	498844.451	102678.048	3.740	1.240			1	1.002	2.500
								2.500	225

Simulation Settings

Rainfall Methodology	FSR	Analysis Speed	Normal
FSR Region	England and Wales	Skip Steady State	x
M5-60 (mm)	20.000	Drain Down Time (mins)	240
Ratio-R	0.400	Additional Storage (m³/ha)	0.0
Summer CV	1.000	Check Discharge Rate(s)	x
Winter CV	1.000	Check Discharge Volume	x

Storm Durations

15 | 30 | 60 | 120 | 180 | 240 | 360 | 480 | 600 | 720 | 960 | 1440

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
1	0	0	0
30	0	0	0
100	45	10	0

Node Soakaway Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.06120	Safety Factor	2.0	Invert Level (m)	2.325
Side Inf Coefficient (m/hr)	0.06120	Porosity	1.00	Time to half empty (mins)	239

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	265.0	265.0	0.400	265.0	265.0	0.401	0.0	265.0

Approval Settings

Node Size	✓	Minimum Full Bore Velocity (m/s)	
Node Losses	✓	Maximum Full Bore Velocity (m/s)	3.000
Link Size	✓	Proportional Velocity	✓
Minimum Diameter (mm)	150	Return Period (years)	
Link Length	✓	Minimum Proportional Velocity (m/s)	0.750
Maximum Length (m)	100.000	Maximum Proportional Velocity (m/s)	3.000
Coordinates	✓	Surcharged Depth	✓
Accuracy (m)	1.000	Return Period (years)	
Crossings	✓	Maximum Surcharged Depth (m)	0.100
Cover Depth	✓	Flooding	✓
Minimum Cover Depth (m)		Return Period (years)	30
Maximum Cover Depth (m)	3.000	Time to Half Empty	x
Backdrops	✓	Discharge Rates	✓
Minimum Backdrop Height (m)		Discharge Volume	✓
Maximum Backdrop Height (m)	1.500	100 year 360 minute (m³)	
Full Bore Velocity	✓		

Results for 1 year Critical Storm Duration. Lowest mass balance: 99.79%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	1	10	2.862	0.062	7.5	0.0174	0.0000	OK
15 minute summer	2	11	2.665	0.084	10.6	0.0239	0.0000	OK
15 minute summer	3	10	2.860	0.060	7.3	0.0169	0.0000	OK
15 minute summer	4	11	2.658	0.078	10.1	0.0220	0.0000	OK
15 minute summer	5	11	2.655	0.143	27.0	0.0405	0.0000	OK
180 minute summer	Soakaway	124	2.388	-0.112	9.4	16.6095	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
15 minute summer	1	1.000	2	7.4	0.700	0.166	0.3285
15 minute summer	2	1.001	5	10.4	0.520	0.262	0.2347
15 minute summer	3	2.000	4	7.2	0.746	0.156	0.2828
15 minute summer	4	2.001	5	9.9	0.510	0.207	0.1573
15 minute summer	5	1.002	Soakaway	27.1	1.063	0.662	0.0491
180 minute summer	Soakaway	Infiltration		2.3			

Results for 30 year Critical Storm Duration. Lowest mass balance: 99.79%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	1	10	2.899	0.099	18.4	0.0281	0.0000	OK
15 minute summer	2	11	2.823	0.242	26.1	0.0686	0.0000	SURCHARGED
15 minute summer	3	10	2.896	0.096	18.0	0.0272	0.0000	OK
15 minute summer	4	11	2.811	0.231	24.8	0.0654	0.0000	SURCHARGED
15 minute summer	5	11	2.784	0.272	66.4	0.0769	0.0000	SURCHARGED
180 minute winter	Soakaway	172	2.501	0.001	14.8	46.5909	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
15 minute summer	1	1.000	2	18.2	0.761	0.408	0.8352
15 minute summer	2	1.001	5	25.7	0.646	0.644	0.4637
15 minute summer	3	2.000	4	17.8	0.782	0.385	0.7731
15 minute summer	4	2.001	5	24.4	0.614	0.513	0.3222
15 minute summer	5	1.002	Soakaway	66.5	1.673	1.627	0.0752
180 minute winter	Soakaway	Infiltration		2.3			

Results for 100 year +45% CC +10% A Critical Storm Duration. Lowest mass balance: 99.79%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
240 minute winter	1	236	3.689	0.889	6.7	0.2516	0.0000	FLOOD RISK
240 minute winter	2	236	3.689	1.108	9.6	0.3136	0.0000	FLOOD RISK
240 minute winter	3	236	3.689	0.889	6.5	0.2516	0.0000	FLOOD RISK
240 minute winter	4	236	3.689	1.109	9.1	0.3138	0.0000	FLOOD RISK
240 minute winter	5	236	3.690	1.178	24.8	0.3334	0.0000	FLOOD RISK
240 minute winter	Soakaway	236	3.688	1.188	24.8	106.1325	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
240 minute winter	1	1.000	2	6.7	0.665	0.150	1.1734
240 minute winter	2	1.001	5	9.6	0.516	0.240	0.4637
240 minute winter	3	2.000	4	6.5	0.712	0.140	1.0999
240 minute winter	4	2.001	5	9.1	0.511	0.191	0.3222
240 minute winter	5	1.002	Soakaway	24.8	1.041	0.607	0.0768
240 minute winter	Soakaway	Infiltration		2.3			