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

Circular Link Type

Shape	Circular	Auto Increment (mm)	75
Barrels	1	Follow Ground	x

Available Diameters (mm)

100	150

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
H1	0.002	5.00	66.240	1350	435252.420	403723.613	1.350
H2	0.004	5.00	65.390	1350	435252.207	403714.570	1.195
H3	0.029	5.00	65.870	1350	435251.956	403704.110	1.570
EX1	0.000		65.960	1200	435241.677	403714.822	1.871

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)
2.000	H1	H2	9.046	0.600	64.890	64.195	0.695	13.0	100	5.08	50.0
1.000	H3	H2	10.463	0.600	64.300	64.195	0.105	99.6	100	5.17	50.0
1.001	H2	EX1	10.533	0.600	64.195	64.089	0.106	99.4	150	5.35	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)
2.000	2.153	16.9	0.5	1.250	1.095	0.002	0.0	12	0.961
1.000	0.770	6.0	7.3	1.470	1.095	0.029	0.0	100	0.791
1.001	1.008	17.8	8.9	1.045	1.721	0.035	0.0	75	1.006

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)
2.000	9.046	13.0	100	Circular	66.240	64.890	1.250	65.390	64.195	1.095
1.000	10.463	99.6	100	Circular	65.870	64.300	1.470	65.390	64.195	1.095
1.001	10.533	99.4	150	Circular	65.390	64.195	1.045	65.960	64.089	1.721

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
2.000	H1	1350	Manhole	Adoptable	H2	1350	Manhole	Adoptable
1.000	H3	1350	Manhole	Adoptable	H2	1350	Manhole	Adoptable
1.001	H2	1350	Manhole	Adoptable	EX1	1200	Manhole	Adoptable

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
H1	435252.420	403723.613	66.240	1.350	1350	0	2.000	64.890	100
H2	435252.207	403714.570	65.390	1.195	1350	1	2.000	64.195	100
						2	1.000	64.195	100
						0	1.001	64.195	150
H3	435251.956	403704.110	65.870	1.570	1350	0	1.000	64.300	100
EX1	435241.677	403714.822	65.960	1.871	1200	1	1.001	64.089	150

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 (m^3/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	40	10	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 (m^3)	
Full Bore Velocity	✓		

Results for 1 year Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	H1	10	64.900	0.010	0.4	0.0147	0.0000	OK
15 minute summer	H2	11	64.259	0.064	6.1	0.0914	0.0000	OK
15 minute summer	H3	10	64.375	0.075	5.2	0.1071	0.0000	OK
15 minute summer	EX1	11	64.150	0.061	6.1	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	H1	2.000	H2	0.4	0.138	0.021	0.0256	
15 minute summer	H2	1.001	EX1	6.1	0.889	0.344	0.0727	2.7
15 minute summer	H3	1.000	H2	5.1	0.881	0.841	0.0603	

Results for 30 year Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	H1	10	64.906	0.016	0.9	0.0223	0.0000	OK
15 minute summer	H2	11	64.302	0.107	13.7	0.1533	0.0000	OK
15 minute summer	H3	11	64.739	0.439	12.7	0.6280	0.0000	SURCHARGED
15 minute summer	EX1	11	64.187	0.098	13.6	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	H1	2.000	H2	0.9	0.182	0.052	0.0389	
15 minute summer	H2	1.001	EX1	13.6	1.063	0.765	0.1350	6.7
15 minute summer	H3	1.000	H2	11.2	1.429	1.849	0.0819	

Results for 100 year +40% CC +10% A Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	H1	10	64.912	0.022	1.8	0.0315	0.0000	OK
15 minute summer	H2	12	64.474	0.279	24.3	0.3992	0.0000	SURCHARGED
15 minute summer	H3	12	65.870	1.570	25.4	2.2467	0.0000	FLOOD RISK
15 minute summer	EX1	12	64.227	0.138	24.1	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	H1	2.000	H2	1.8	0.325	0.105	0.0412	
15 minute summer	H2	1.001	EX1	24.1	1.369	1.353	0.1818	13.3
15 minute summer	H3	1.000	H2	19.9	2.547	3.295	0.0819	