

Design Settings

Rainfall Methodology	FSR	Maximum Time of Concentration (mins)	30.00
Return Period (years)	100	Maximum Rainfall (mm/hr)	50.0
Additional Flow (%)	0	Minimum Velocity (m/s)	1.00
FSR Region	England and Wales	Connection Type	Level Soffits
M5-60 (mm)	20.000	Minimum Backdrop Height (m)	0.200
Ratio-R	0.400	Preferred Cover Depth (m)	1.200
CV	0.750	Include Intermediate Ground	✓
Time of Entry (mins)	5.00	Enforce best practice design rules	✓

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
1	0.167	5.00	0.000	1200	527.900	699.900	1.425
2			0.000	1200	529.900	692.400	1.471
3			0.000	1200	526.000	692.300	1.494

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	1	2	7.762	0.600	-1.425	-1.471	0.046	168.7	225	5.13	50.0
2	2	3	3.901	0.600	-1.471	-1.494	0.023	169.6	225	5.19	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	1.003	39.9	22.6	1.200	1.246	0.167	0.0	122	1.035
2	1.001	39.8	22.6	1.246	1.269	0.167	0.0	122	1.032

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	7.762	168.7	225	Circular	0.000	-1.425	1.200	0.000	-1.471	1.246
2	3.901	169.6	225	Circular	0.000	-1.471	1.246	0.000	-1.494	1.269

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1	1	1200	Manhole	Adoptable	2	1200	Manhole	Adoptable
2	2	1200	Manhole	Adoptable	3	1200	Manhole	Adoptable

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
1	527.900	699.900	0.000	1.425	1200		0	1	-1.425	225
2	529.900	692.400	0.000	1.471	1200		1	1	-1.471	225
							0	2	-1.471	225

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
3	526.000	692.300	0.000	1.494	1200	1	2	-1.494	225



Simulation Settings

Rainfall Methodology	FSR	Drain Down Time (mins)	240
FSR Region	England and Wales	Additional Storage (m³/ha)	20.0
M5-60 (mm)	20.000	Check Discharge Rate(s)	✓
Ratio-R	0.400	1 year (l/s)	1.1
Summer CV	0.750	30 year (l/s)	2.6
Winter CV	0.840	100 year (l/s)	3.3
Analysis Speed	Normal	Check Discharge Volume	✓
Skip Steady State	x	100 year +40% 360 minute (m³)	58

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	0	0	0
100	40	0	0

Pre-development Discharge Rate

Site Makeup	Brownfield	Time of Concentration (mins)	5.00
Brownfield Method	MRM	Betterment (%)	50
Contributing Area (ha)	0.176	Q 1 year (l/s)	1.1
PIMP (%)	100	Q 30 year (l/s)	2.6
CV	0.750	Q 100 year (l/s)	3.3

Pre-development Discharge Volume

Site Makeup	Brownfield	CV	0.750	Betterment (%)	50
Brownfield Method	MRM	Return Period (years)	100	PR	0.750
Contributing Area (ha)	0.176	Climate Change (%)	40	Runoff Volume (m³)	58
PIMP (%)	100	Storm Duration (mins)	360		

Node 2 Online Depth/Flow Control

Flap Valve x | Replaces Downstream Link ✓ | Invert Level (m) -1.471

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.200	0.700	0.400	1.200	1.000	1.400	1.300	2.900
0.300	1.100	0.800	2.500	1.200	1.900	1.467	3.300

Node 2 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	-1.471
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.95	Time to half empty (mins)	

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	77.0	0.0	1.300	77.0	0.0	1.301	0.0	0.0

Results for 1 year Critical Storm Duration. Lowest mass balance: 99.82%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
360 minute winter	1	272	-1.195	0.230	3.8	0.8314	0.0000	SURCHARGED
360 minute winter	2	272	-1.195	0.276	3.6	20.4969	0.0000	SURCHARGED
15 minute summer	3	1	-1.494	0.000	0.4	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)
360 minute winter	1	1	2	3.6	0.602	0.091	0.3087	
360 minute winter	2	Depth/Flow	3	1.0				21.3

Results for 30 year Critical Storm Duration. Lowest mass balance: 99.82%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
360 minute winter	1	280	-0.832	0.593	8.4	2.1437	0.0000	SURCHARGED
360 minute winter	2	280	-0.832	0.639	8.1	47.4546	0.0000	SURCHARGED
15 minute summer	3	1	-1.494	0.000	1.1	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)
360 minute winter	1	1	2	8.1	0.714	0.202	0.3087	
360 minute winter	2	Depth/Flow	3	2.0				44.1

Results for 100 year Critical Storm Duration. Lowest mass balance: 99.82%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
240 minute winter	1	228	-0.629	0.796	14.9	2.8763	0.0000	SURCHARGED
240 minute winter	2	228	-0.630	0.841	14.3	62.5021	0.0000	SURCHARGED
15 minute summer	3	1	-1.494	0.000	1.2	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)
240 minute winter	1	1	2	14.3	0.869	0.358	0.3087	
240 minute winter	2	Depth/Flow	3	2.5				47.4

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 99.82%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
240 minute winter	1	232	-0.201	1.224	20.8	4.4230	0.0000	FLOOD RISK
240 minute winter	2	232	-0.202	1.269	19.9	94.2765	0.0000	FLOOD RISK
15 minute summer	3	1	-1.494	0.000	1.7	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)
240 minute winter	1	1	2	19.9	0.934	0.499	0.3087	
240 minute winter	2	Depth/Flow	3	2.6				44.4