

Design Settings

Rainfall Methodology	FEH-22	Minimum Velocity (m/s)	1.00
Return Period (years)	2	Connection Type	Level Soffits
Additional Flow (%)	0	Minimum Backdrop Height (m)	0.200
CV	0.750	Preferred Cover Depth (m)	0.900
Time of Entry (mins)	5.00	Include Intermediate Ground	✓
Maximum Time of Concentration (mins)	30.00	Enforce best practice design rules	✓
Maximum Rainfall (mm/hr)	50.0		

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
1		5.00	172.100	600	40.854	99.014	1.050
2	0.025	5.00	172.500	600	16.770	82.394	1.718
3	0.025	5.00	172.200	600	-0.131	70.986	1.608
6	0.025	5.00	171.500	600	6.488	60.563	1.036
7			171.400	600	0.009	56.197	1.050
9			170.000	600	19.869	18.451	1.358
10			170.000	600	39.446	28.873	1.663
4		5.00	172.000	600	47.756	89.014	1.050
5	0.025	5.00	172.000	600	23.671	72.394	1.318
Soakaway 1			170.000		46.488	32.958	1.782
8			170.000	600	10.016	37.330	1.066

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	40.190	0.600	171.050	170.782	0.268	150.0	150	5.82	42.8
1.002	3	6	19.236	0.600	170.592	170.464	0.128	150.0	150	6.79	40.0
1.004	7	8	28.318	0.600	170.350	168.934	1.416	20.0	150	7.18	39.0
1.007	10	Soakaway 1	12.000	0.600	168.337	168.218	0.119	100.8	150	8.38	36.3
1.006	9	10	30.744	0.600	168.642	168.337	0.305	100.8	150	8.18	36.7
2.000	4	5	40.190	0.600	170.950	170.682	0.268	150.0	150	5.82	42.8
2.001	5	6	29.091	0.600	170.682	170.488	0.194	150.0	150	6.41	41.0
1.003	6	7	10.902	0.600	170.464	170.350	0.114	95.6	150	6.97	39.5
1.001	2	3	28.491	0.600	170.782	170.592	0.190	150.0	150	6.40	41.1
1.005	8	9	29.442	0.600	168.934	168.642	0.292	100.8	150	7.67	37.8

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	0.818	14.5	0.0	0.900	1.568	0.000	0.0	0	0.000
1.002	0.818	14.5	5.4	1.458	0.886	0.050	0.0	64	0.760
1.004	2.262	40.0	10.6	0.900	0.916	0.100	0.0	52	1.912
1.007	1.000	17.7	9.8	1.513	1.632	0.100	0.0	80	1.027
1.006	1.001	17.7	10.0	1.208	1.513	0.100	0.0	81	1.030
2.000	0.818	14.5	0.0	0.900	1.168	0.000	0.0	0	0.000
2.001	0.818	14.5	2.8	1.168	0.862	0.025	0.0	45	0.635
1.003	1.028	18.2	10.7	0.886	0.900	0.100	0.0	83	1.069
1.001	0.818	14.5	2.8	1.568	1.458	0.025	0.0	45	0.635
1.005	1.000	17.7	10.3	0.916	1.208	0.100	0.0	82	1.038

Pipeline Schedule

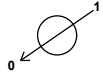
Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
1.000	40.190	150.0	150	Circular_Default Sewer Type	172.100	171.050	0.900	172.500	170.782	1.568
1.002	19.236	150.0	150	Circular_Default Sewer Type	172.200	170.592	1.458	171.500	170.464	0.886
1.004	28.318	20.0	150	Circular_Default Sewer Type	171.400	170.350	0.900	170.000	168.934	0.916
1.007	12.000	100.8	150	Circular_Default Sewer Type	170.000	168.337	1.513	170.000	168.218	1.632
1.006	30.744	100.8	150	Circular_Default Sewer Type	170.000	168.642	1.208	170.000	168.337	1.513
2.000	40.190	150.0	150	Circular_Default Sewer Type	172.000	170.950	0.900	172.000	170.682	1.168
2.001	29.091	150.0	150	Circular_Default Sewer Type	172.000	170.682	1.168	171.500	170.488	0.862
1.003	10.902	95.6	150	Circular_Default Sewer Type	171.500	170.464	0.886	171.400	170.350	0.900
1.001	28.491	150.0	150	Circular_Default Sewer Type	172.500	170.782	1.568	172.200	170.592	1.458
1.005	29.442	100.8	150	Circular_Default Sewer Type	170.000	168.934	0.916	170.000	168.642	1.208

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
1.002	3	600	Manhole	Adoptable	6	600	Manhole	Adoptable
1.004	7	600	Manhole	Adoptable	8	600	Manhole	Adoptable
1.007	10	600	Manhole	Adoptable	Soakaway 1		Junction	
1.006	9	600	Manhole	Adoptable	10	600	Manhole	Adoptable
2.000	4	600	Manhole	Adoptable	5	600	Manhole	Adoptable
2.001	5	600	Manhole	Adoptable	6	600	Manhole	Adoptable
1.003	6	600	Manhole	Adoptable	7	600	Manhole	Adoptable
1.001	2	600	Manhole	Adoptable	3	600	Manhole	Adoptable
1.005	8	600	Manhole	Adoptable	9	600	Manhole	Adoptable

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
1	40.854	99.014	172.100	1.050	600				
						0	1.000	171.050	150
2	16.770	82.394	172.500	1.718	600		1	1.000	170.782
						0	1.001	170.782	150
3	-0.131	70.986	172.200	1.608	600		1	1.001	170.592
						0	1.002	170.592	150
6	6.488	60.563	171.500	1.036	600		1	2.001	170.488
						2	1.002	170.464	150
						0	1.003	170.464	150
7	0.009	56.197	171.400	1.050	600		1	1.003	170.350
						0	1.004	170.350	150
9	19.869	18.451	170.000	1.358	600		1	1.005	168.642
						0	1.006	168.642	150

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
10	39.446	28.873	170.000	1.663	600		1	1.006	168.337	150
							0	1.007	168.337	150
4	47.756	89.014	172.000	1.050	600					
							0	2.000	170.950	150
5	23.671	72.394	172.000	1.318	600		1	2.000	170.682	150
							0	2.001	170.682	150
Soakaway 1	46.488	32.958	170.000	1.782			1	1.007	168.218	150
8	10.016	37.330	170.000	1.066	600		1	1.004	168.934	150
							0	1.005	168.934	150

Simulation Settings

Rainfall Methodology	FSR	Analysis Speed	Normal
Rainfall Events	Singular	Skip Steady State	x
FSR Region	England and Wales	Drain Down Time (mins)	240
M5-60 (mm)	20.000	Additional Storage (m³/ha)	20.0
Ratio-R	0.250	Starting Level (m)	
Summer CV	0.750	Check Discharge Rate(s)	x
Winter CV	0.840	Check Discharge Volume	x

Storm Durations

15	60	180	360	600	960	2160	4320	7200	10080
30	120	240	480	720	1440	2880	5760	8640	

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
1	0	0	0
2	0	0	0
30	0	0	0
100	40	0	0

Node Soakaway 1 Soakaway Storage Structure

Base Inf Coefficient (m/hr)	2.81400	Invert Level (m)	168.000	Depth (m)	
Side Inf Coefficient (m/hr)	2.81400	Time to half empty (mins)	5	Inf Depth (m)	
Safety Factor	2.0	Pit Width (m)	1.500	Number Required	1
Porosity	0.30	Pit Length (m)	8.000		

Results for 1 year Critical Storm Duration. Lowest mass balance: 95.74%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	1	1	171.050	0.000	0.0	0.0000	0.0000	OK
15 minute winter	2	11	170.827	0.045	3.0	0.0259	0.0000	OK
15 minute winter	3	11	170.657	0.065	5.8	0.0388	0.0000	OK
15 minute winter	6	11	170.558	0.094	11.4	0.0717	0.0000	OK
15 minute winter	7	11	170.405	0.055	11.4	0.0155	0.0000	OK
15 minute winter	9	12	168.732	0.089	11.3	0.0253	0.0000	OK
15 minute winter	10	13	168.426	0.089	11.3	0.0252	0.0000	OK
15 minute summer	4	1	170.950	0.000	0.0	0.0000	0.0000	OK
15 minute winter	5	11	170.727	0.045	3.0	0.0298	0.0000	OK
15 minute winter	Soakaway 1	15	168.356	0.138	11.1	1.2812	0.0000	OK
15 minute winter	8	12	169.023	0.089	11.4	0.0253	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	0.0	0.000	0.000	0.0870
15 minute winter	2	1.001	3	2.9	0.487	0.198	0.1681
15 minute winter	3	1.002	6	5.7	0.603	0.395	0.1820
15 minute winter	6	1.003	7	11.4	1.311	0.627	0.0948
15 minute winter	7	1.004	8	11.4	1.362	0.284	0.2364
15 minute winter	9	1.006	10	11.3	1.034	0.638	0.3353
15 minute winter	10	1.007	Soakaway 1	11.1	1.045	0.630	0.1512
15 minute summer	4	2.000	5	0.0	0.000	0.000	0.0870
15 minute winter	5	2.001	6	2.9	0.481	0.198	0.1812
15 minute winter	Soakaway 1	Infiltration		7.3			
15 minute winter	8	1.005	9	11.3	1.034	0.638	0.3221

Results for 2 year Critical Storm Duration. Lowest mass balance: 95.74%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	1	1	171.050	0.000	0.0	0.0000	0.0000	OK
15 minute winter	2	11	170.834	0.052	3.9	0.0298	0.0000	OK
15 minute winter	3	11	170.668	0.076	7.6	0.0453	0.0000	OK
15 minute winter	6	11	170.577	0.113	15.0	0.0862	0.0000	OK
15 minute winter	7	11	170.414	0.063	14.9	0.0180	0.0000	OK
15 minute winter	9	12	168.751	0.109	14.8	0.0308	0.0000	OK
15 minute winter	10	15	168.530	0.193	14.7	0.0547	0.0000	SURCHARGED
15 minute summer	4	1	170.950	0.000	0.0	0.0000	0.0000	OK
15 minute winter	5	11	170.734	0.052	3.9	0.0344	0.0000	OK
15 minute winter	Soakaway 1	16	168.496	0.278	14.4	1.7861	0.0000	OK
15 minute winter	8	12	169.042	0.108	14.9	0.0307	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	0.0	0.000	0.000	0.1046
15 minute winter	2	1.001	3	3.8	0.523	0.260	0.2054
15 minute winter	3	1.002	6	7.5	0.643	0.519	0.2231
15 minute winter	6	1.003	7	14.9	1.390	0.823	0.1160
15 minute winter	7	1.004	8	14.9	1.444	0.373	0.2925
15 minute winter	9	1.006	10	14.7	1.086	0.833	0.4397
15 minute winter	10	1.007	Soakaway 1	14.4	1.095	0.813	0.2113
15 minute summer	4	2.000	5	0.0	0.000	0.000	0.1045
15 minute winter	5	2.001	6	3.8	0.482	0.260	0.2364
15 minute winter	Soakaway 1	Infiltration		8.4			
15 minute winter	8	1.005	9	14.8	1.088	0.835	0.4020

Results for 30 year Critical Storm Duration. Lowest mass balance: 95.74%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	1	1	171.050	0.000	0.0	0.0000	0.0000	OK
15 minute winter	2	12	170.876	0.094	7.4	0.0541	0.0000	OK
15 minute winter	3	11	170.849	0.257	14.4	0.1527	0.0000	SURCHARGED
15 minute winter	6	11	170.744	0.280	25.1	0.2143	0.0000	SURCHARGED
15 minute winter	7	13	170.437	0.087	24.2	0.0247	0.0000	OK
30 minute winter	9	24	169.427	0.785	18.7	0.2221	0.0000	SURCHARGED
30 minute winter	10	26	169.157	0.820	17.2	0.2320	0.0000	SURCHARGED
15 minute summer	4	1	170.950	0.000	0.0	0.0000	0.0000	OK
15 minute winter	5	12	170.772	0.090	7.4	0.0598	0.0000	OK
30 minute winter	Soakaway 1	26	169.082	0.864	15.8	3.8945	0.0000	OK
30 minute winter	8	23	169.731	0.797	22.4	0.2256	0.0000	FLOOD RISK

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	0.0	0.000	0.000	0.1912
15 minute winter	2	1.001	3	7.0	0.577	0.486	0.4168
15 minute winter	3	1.002	6	11.9	0.686	0.827	0.3386
15 minute winter	6	1.003	7	24.2	1.546	1.331	0.1540
15 minute winter	7	1.004	8	24.1	1.544	0.604	0.4000
30 minute winter	9	1.006	10	17.2	1.104	0.970	0.5412
30 minute winter	10	1.007	Soakaway 1	15.8	1.067	0.896	0.2113
15 minute summer	4	2.000	5	0.0	0.000	0.000	0.1867
15 minute winter	5	2.001	6	7.0	0.492	0.487	0.4173
30 minute winter	Soakaway 1	Infiltration		12.7			
30 minute winter	8	1.005	9	18.7	1.105	1.057	0.5183

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 95.74%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
30 minute winter	1	22	171.474	0.424	5.8	0.1199	0.0000	SURCHARGED
30 minute winter	2	22	171.470	0.688	11.2	0.3947	0.0000	SURCHARGED
30 minute winter	3	22	171.411	0.819	16.6	0.4867	0.0000	SURCHARGED
30 minute winter	6	22	171.256	0.792	32.9	0.6062	0.0000	FLOOD RISK
30 minute winter	7	22	170.879	0.529	31.8	0.1496	0.0000	SURCHARGED
60 minute winter	9	48	169.751	1.109	20.4	0.3139	0.0000	FLOOD RISK
120 minute winter	10	78	169.493	1.156	17.2	0.3271	0.0000	SURCHARGED
30 minute winter	4	22	171.318	0.368	5.1	0.1041	0.0000	SURCHARGED
30 minute winter	5	22	171.315	0.633	11.2	0.4189	0.0000	SURCHARGED
60 minute winter	Soakaway 1	49	169.390	1.172	17.4	5.0054	0.0000	OK
60 minute winter	8	32	170.000	1.066	25.5	0.3017	7.2487	FLOOD

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
30 minute winter	1	1.000	2	-5.8	-0.378	-0.400	0.7075
30 minute winter	2	1.001	3	8.5	0.582	0.589	0.5016
30 minute winter	3	1.002	6	14.8	0.843	1.027	0.3386
30 minute winter	6	1.003	7	31.8	1.806	1.749	0.1919
30 minute winter	7	1.004	8	29.0	1.646	0.725	0.4985
60 minute winter	9	1.006	10	18.9	1.076	1.071	0.5412
120 minute winter	10	1.007	Soakaway 1	16.3	0.996	0.924	0.2113
30 minute winter	4	2.000	5	-5.1	-0.331	-0.356	0.7075
30 minute winter	5	2.001	6	8.3	0.482	0.576	0.5121
60 minute winter	Soakaway 1	Infiltration		15.0			
60 minute winter	8	1.005	9	20.4	1.157	1.152	0.5183