

Design Settings

Rainfall Methodology	FEH-22	Minimum Velocity (m/s)	1.00
Return Period (years)	100	Connection Type	Level Soffits
Additional Flow (%)	40	Minimum Backdrop Height (m)	0.200
CV	1.000	Preferred Cover Depth (m)	1.200
Time of Entry (mins)	5.00	Include Intermediate Ground	✓
Maximum Time of Concentration (mins)	30.00	Enforce best practice design rules	x
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)
IC-0101 S	0.006	5.00	3.450	450	524719.806	323013.540	0.600
IC-0102 S			3.540	450	524719.416	323049.026	0.930
IC-0103 S	0.001	5.00	3.590	450	524674.432	323050.213	1.280
MH-001 S	0.009	5.00	3.410	1200	524642.497	323050.831	1.320
IC-0104 S	0.001	5.00	3.640	450	524642.497	323005.831	1.160
Ex-6051-S			3.400	1200	524626.842	323052.138	1.420
Dummy Node			3.410	1200	524641.397	323050.859	1.321

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)
PN001-S	IC-0101 S	IC-0102 S	35.488	0.600	2.850	2.610	0.240	147.9	150	5.72	50.0
PN002-S	IC-0102 S	IC-0103 S	45.000	0.600	2.610	2.310	0.300	150.0	225	6.42	50.0
PN003-S	IC-0103 S	MH-001 S	31.941	0.600	2.310	2.090	0.220	145.2	300	6.83	50.0
PN004-S	Dummy Node	Ex-6051-S	14.611	0.600	2.089	1.980	0.109	134.0	150	7.13	50.0
PN005-S	IC-0104 S	MH-001 S	45.000	0.600	2.480	2.090	0.390	115.4	150	5.80	50.0
Dummy Pipe	MH-001 S	Dummy Node	1.100	0.600	2.090	2.089	0.001	1100.4	1100	6.85	50.0

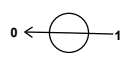
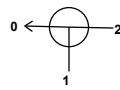
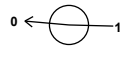
Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
PN001-S	0.824	14.6	1.5	0.450	0.780	0.006	0.0	33	0.532
PN002-S	1.065	42.3	1.5	0.705	1.055	0.006	0.0	29	0.509
PN003-S	1.302	92.1	1.8	0.980	1.020	0.007	0.0	28	0.512
PN004-S	0.866	15.3	4.3	1.171	1.270	0.017	0.0	54	0.744
PN005-S	0.934	16.5	0.3	1.010	1.170	0.001	0.0	13	0.339
Dummy Pipe	1.060	1007.5	4.3	0.220	0.221	0.017	0.0	51	0.271

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)
PN001-S	35.488	147.9	150	Circular	3.450	2.850	0.450	3.540	2.610	0.780
PN002-S	45.000	150.0	225	Circular	3.540	2.610	0.705	3.590	2.310	1.055
PN003-S	31.941	145.2	300	Circular	3.590	2.310	0.980	3.410	2.090	1.020
PN004-S	14.611	134.0	150	Circular	3.410	2.089	1.171	3.400	1.980	1.270
PN005-S	45.000	115.4	150	Circular	3.640	2.480	1.010	3.410	2.090	1.170
Dummy Pipe	1.100	1100.4	1100	Circular	3.410	2.090	0.220	3.410	2.089	0.221

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
PN001-S	IC-0101 S	450	Manhole	Adoptable	IC-0102 S	450	Manhole	Adoptable
PN002-S	IC-0102 S	450	Manhole	Adoptable	IC-0103 S	450	Manhole	Adoptable
PN003-S	IC-0103 S	450	Manhole	Adoptable	MH-001 S	1200	Manhole	Adoptable
PN004-S	Dummy Node	1200	Manhole	Adoptable	Ex-6051-S	1200	Manhole	Adoptable
PN005-S	IC-0104 S	450	Manhole	Adoptable	MH-001 S	1200	Manhole	Adoptable
Dummy Pipe	MH-001 S	1200	Manhole	Adoptable	Dummy Node	1200	Manhole	Adoptable

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
IC-0101 S	524719.806	323013.540	3.450	0.600	450				
						0	PN001-S	2.850	150
IC-0102 S	524719.416	323049.026	3.540	0.930	450		1	PN001-S	2.610
						0	PN002-S	2.610	225
IC-0103 S	524674.432	323050.213	3.590	1.280	450		1	PN002-S	2.310
						0	PN003-S	2.310	300
MH-001 S	524642.497	323050.831	3.410	1.320	1200		1	PN005-S	2.090
						2	PN003-S	2.090	300
						0	Dummy Pipe	2.090	1100
IC-0104 S	524642.497	323005.831	3.640	1.160	450				
						0	PN005-S	2.480	150
Ex-6051-S	524626.842	323052.138	3.400	1.420	1200		1	PN004-S	1.980
Dummy Node	524641.397	323050.859	3.410	1.321	1200		1	Dummy Pipe	2.089
							0	PN004-S	2.089

Simulation Settings

Rainfall Methodology	FEH-22	Analysis Speed	Detailed	Additional Storage (m ³ /ha)	0.0
Summer CV	0.750	Skip Steady State	x	Check Discharge Rate(s)	x
Winter CV	0.840	Drain Down Time (mins)	1440	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 %)
2	0	0	0
5	0	0	0
10	0	0	0
30	0	0	0
30	35	0	0
50	0	0	0
100	0	0	0
100	40	0	0

Node MH-001 S Online Orifice Control

Flap Valve	✓	Design Depth (m)	1.320	Discharge Coefficient	0.600
Replaces Downstream Link	x	Design Flow (l/s)	0.1		
Invert Level (m)	2.090	Diameter (m)	0.006		

Node IC-0103 S Online Orifice Control

Flap Valve	✓	Invert Level (m)	2.310	Discharge Coefficient	0.600
Replaces Downstream Link	✓	Diameter (m)	0.450		

Node IC-0104 S Online Orifice Control

Flap Valve	✓	Invert Level (m)	2.480	Discharge Coefficient	0.600
Replaces Downstream Link	✓	Diameter (m)	0.450		

Results for 2 year Critical Storm Duration. Lowest mass balance: 96.29%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	IC-0101 S	11	2.875	0.025	0.8	0.0039	0.0000	OK
15 minute winter	IC-0102 S	12	2.631	0.021	0.8	0.0033	0.0000	OK
720 minute winter	IC-0103 S	600	2.563	0.253	0.1	0.0402	0.0000	OK
240 minute winter	MH-001 S	220	3.178	1.088	0.5	1.2300	0.0000	OK
120 minute summer	IC-0104 S	72	2.549	0.069	0.1	0.0109	0.0000	OK
240 minute winter	Ex-6051-S	224	1.988	0.008	0.1	0.0000	0.0000	OK
240 minute winter	Dummy Node	224	2.097	0.008	0.1	0.0089	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	IC-0101 S	PN001-S	IC-0102 S	0.8	0.495	0.055	0.0591	
15 minute winter	IC-0102 S	PN002-S	IC-0103 S	0.8	0.460	0.018	0.3517	
720 minute winter	IC-0103 S	Orifice	MH-001 S	0.4				
240 minute winter	MH-001 S	Dummy Pipe	Dummy Node	0.1	0.074	0.000	0.0011	
120 minute summer	IC-0104 S	Orifice	MH-001 S	0.1				
240 minute winter	Dummy Node	PN004-S	Ex-6051-S	0.1	0.231	0.005	0.0049	2.8

Results for 5 year Critical Storm Duration. Lowest mass balance: 96.29%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	IC-0101 S	10	2.883	0.033	1.5	0.0053	0.0000	OK
1440 minute winter	IC-0102 S	1110	2.653	0.043	0.2	0.0068	0.0000	OK
1440 minute winter	IC-0103 S	990	2.653	0.343	0.2	0.0545	0.0000	SURCHARGED
240 minute winter	MH-001 S	144	3.410	1.320	1.5	1.4929	0.3915	FLOOD
120 minute winter	IC-0104 S	82	2.672	0.192	0.1	0.0305	0.0000	SURCHARGED
120 minute summer	Ex-6051-S	116	1.988	0.008	0.1	0.0000	0.0000	OK
120 minute summer	Dummy Node	118	2.097	0.008	0.1	0.0093	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 winter	IC-0101 S	PN001-S	IC-0102 S	1.5	0.589	0.100	0.0896	
1440 minute winter	IC-0102 S	PN002-S	IC-0103 S	-0.2	0.090	-0.005	1.0128	
1440 minute winter	IC-0103 S	Orifice	MH-001 S	0.6				
240 minute winter	MH-001 S	Dummy Pipe	Dummy Node	0.1	0.077	0.000	0.0012	
120 minute winter	IC-0104 S	Orifice	MH-001 S	0.3				
120 minute summer	Dummy Node	PN004-S	Ex-6051-S	0.1	0.238	0.006	0.0053	3.4

Results for 10 year Critical Storm Duration. Lowest mass balance: 96.29%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	IC-0101 S	10	2.888	0.038	1.9	0.0060	0.0000	OK
240 minute winter	IC-0102 S	356	2.699	0.089	0.4	0.0142	0.0000	OK
240 minute winter	IC-0103 S	296	2.700	0.390	0.5	0.0620	0.0000	SURCHARGED
360 minute winter	MH-001 S	192	3.410	1.320	1.5	1.4929	0.8583	FLOOD
120 minute winter	IC-0104 S	86	2.720	0.240	0.1	0.0382	0.0000	SURCHARGED
120 minute summer	Ex-6051-S	96	1.988	0.008	0.1	0.0000	0.0000	OK
120 minute summer	Dummy Node	98	2.097	0.008	0.1	0.0093	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 winter	IC-0101 S	PN001-S	IC-0102 S	1.9	0.630	0.127	0.1071	
240 minute winter	IC-0102 S	PN002-S	IC-0103 S	0.4	0.347	0.009	1.2254	
240 minute winter	IC-0103 S	Orifice	MH-001 S	1.3				
360 minute winter	MH-001 S	Dummy Pipe	Dummy Node	0.1	0.077	0.000	0.0012	
120 minute winter	IC-0104 S	Orifice	MH-001 S	0.6				
120 minute summer	Dummy Node	PN004-S	Ex-6051-S	0.1	0.238	0.006	0.0053	3.7

Results for 30 year Critical Storm Duration. Lowest mass balance: 96.29%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	IC-0101 S	10	2.894	0.044	2.6	0.0070	0.0000	OK
360 minute winter	IC-0102 S	512	2.798	0.188	0.4	0.0299	0.0000	OK
360 minute winter	IC-0103 S	456	2.799	0.489	0.4	0.0777	0.0000	SURCHARGED
180 minute winter	MH-001 S	88	3.410	1.320	1.5	1.4929	1.9549	FLOOD
240 minute winter	IC-0104 S	156	2.840	0.360	0.1	0.0572	0.0000	SURCHARGED
60 minute summer	Ex-6051-S	62	1.988	0.008	0.1	0.0000	0.0000	OK
60 minute winter	Dummy Node	62	2.097	0.008	0.1	0.0093	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 winter	IC-0101 S	PN001-S	IC-0102 S	2.5	0.687	0.172	0.1326	
360 minute winter	IC-0102 S	PN002-S	IC-0103 S	0.4	0.347	0.009	1.6938	
360 minute winter	IC-0103 S	Orifice	MH-001 S	1.9				
180 minute winter	MH-001 S	Dummy Pipe	Dummy Node	0.1	0.078	0.000	0.0012	
240 minute winter	IC-0104 S	Orifice	MH-001 S	0.4				
60 minute winter	Dummy Node	PN004-S	Ex-6051-S	0.1	0.238	0.006	0.0053	4.1

Results for 30 year +35% CC Critical Storm Duration. Lowest mass balance: 96.29%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
480 minute winter	IC-0101 S	512	3.165	0.315	0.4	0.0501	0.0000	FLOOD RISK
480 minute winter	IC-0102 S	480	3.165	0.555	0.6	0.0883	0.0000	SURCHARGED
480 minute winter	IC-0103 S	464	3.165	0.855	0.4	0.1360	0.0000	SURCHARGED
240 minute winter	MH-001 S	104	3.410	1.320	2.2	1.4929	3.3130	FLOOD
360 minute winter	IC-0104 S	232	3.008	0.528	0.1	0.0840	0.0000	SURCHARGED
60 minute summer	Ex-6051-S	59	1.988	0.008	0.1	0.0000	0.0000	OK
60 minute summer	Dummy Node	61	2.097	0.008	0.1	0.0093	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)
480 minute winter	IC-0101 S	PN001-S	IC-0102 S	0.4	0.354	0.027	0.6248	
480 minute winter	IC-0102 S	PN002-S	IC-0103 S	0.4	0.347	0.009	1.7897	
480 minute winter	IC-0103 S	Orifice	MH-001 S	2.1				
240 minute winter	MH-001 S	Dummy Pipe	Dummy Node	0.1	0.077	0.000	0.0012	
360 minute winter	IC-0104 S	Orifice	MH-001 S	0.6				
60 minute summer	Dummy Node	PN004-S	Ex-6051-S	0.1	0.238	0.006	0.0053	4.6

Results for 50 year Critical Storm Duration. Lowest mass balance: 96.29%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
480 minute winter	IC-0101 S	568	2.917	0.067	0.3	0.0107	0.0000	OK
480 minute winter	IC-0102 S	584	2.917	0.307	0.4	0.0488	0.0000	SURCHARGED
480 minute winter	IC-0103 S	552	2.917	0.607	0.3	0.0966	0.0000	SURCHARGED
480 minute winter	MH-001 S	216	3.410	1.320	1.8	1.4929	2.2373	FLOOD
240 minute winter	IC-0104 S	160	2.888	0.408	0.1	0.0649	0.0000	SURCHARGED
60 minute summer	Ex-6051-S	61	1.988	0.008	0.1	0.0000	0.0000	OK
60 minute summer	Dummy Node	63	2.097	0.008	0.1	0.0093	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)
480 minute winter	IC-0101 S	PN001-S	IC-0102 S	0.3	0.354	0.021	0.4481	
480 minute winter	IC-0102 S	PN002-S	IC-0103 S	-0.3	0.347	-0.008	1.7897	
480 minute winter	IC-0103 S	Orifice	MH-001 S	1.8				
480 minute winter	MH-001 S	Dummy Pipe	Dummy Node	0.1	0.077	0.000	0.0012	
240 minute winter	IC-0104 S	Orifice	MH-001 S	0.2				
60 minute summer	Dummy Node	PN004-S	Ex-6051-S	0.1	0.238	0.006	0.0053	4.1

Results for 100 year Critical Storm Duration. Lowest mass balance: 96.29%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
480 minute winter	IC-0101 S	480	3.069	0.219	0.4	0.0348	0.0000	SURCHARGED
480 minute winter	IC-0102 S	512	3.069	0.459	0.6	0.0730	0.0000	SURCHARGED
480 minute winter	IC-0103 S	528	3.069	0.759	0.4	0.1207	0.0000	SURCHARGED
240 minute winter	MH-001 S	108	3.410	1.320	1.7	1.4929	2.9255	FLOOD
360 minute winter	IC-0104 S	232	3.008	0.528	0.1	0.0840	0.0000	SURCHARGED
60 minute summer	Ex-6051-S	60	1.988	0.008	0.1	0.0000	0.0000	OK
60 minute summer	Dummy Node	62	2.097	0.008	0.1	0.0093	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)
480 minute winter	IC-0101 S	PN001-S	IC-0102 S	0.4	0.354	0.027	0.6248	
480 minute winter	IC-0102 S	PN002-S	IC-0103 S	0.3	0.347	0.007	1.7897	
480 minute winter	IC-0103 S	Orifice	MH-001 S	1.7				
240 minute winter	MH-001 S	Dummy Pipe	Dummy Node	0.1	0.078	0.000	0.0012	
360 minute winter	IC-0104 S	Orifice	MH-001 S	0.7				
60 minute summer	Dummy Node	PN004-S	Ex-6051-S	0.1	0.238	0.006	0.0053	4.5

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 96.29%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
720 minute winter	IC-0101 S	465	3.412	0.562	0.4	0.0893	0.0000	FLOOD RISK
720 minute winter	IC-0102 S	555	3.411	0.801	0.4	0.1274	0.0000	FLOOD RISK
480 minute winter	IC-0103 S	456	3.410	1.100	0.4	0.1749	0.0000	FLOOD RISK
960 minute winter	MH-001 S	375	3.410	1.320	2.4	1.4929	8.1660	FLOOD
480 minute winter	IC-0104 S	312	3.248	0.768	0.1	0.1221	0.0000	SURCHARGED
60 minute summer	Ex-6051-S	57	1.988	0.008	0.1	0.0000	0.0000	OK
60 minute summer	Dummy Node	59	2.097	0.008	0.1	0.0093	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)
720 minute winter	IC-0101 S	PN001-S	IC-0102 S	0.4	0.312	0.027	0.6248	
720 minute winter	IC-0102 S	PN002-S	IC-0103 S	0.4	0.307	0.010	1.7897	
480 minute winter	IC-0103 S	Orifice	MH-001 S	2.0				
960 minute winter	MH-001 S	Dummy Pipe	Dummy Node	0.1	0.077	0.000	0.0012	
480 minute winter	IC-0104 S	Orifice	MH-001 S	1.0				
60 minute summer	Dummy Node	PN004-S	Ex-6051-S	0.1	0.238	0.006	0.0053	5.2