

Design Settings

Rainfall Methodology	FEH-22	Minimum Velocity (m/s)	1.00
Return Period (years)	1	Connection Type	Level Soffits
Additional Flow (%)	0	Minimum Backdrop Height (m)	0.200
CV	1.000	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)	Invert Level (m)
101	0.015	5.00	77.284	450	394461.133	180853.327	1.084	76.200
102	0.015	5.00	77.218	450	394462.816	180837.315	1.178	76.040
103	0.015	5.00	76.950	450	394470.776	180838.151	1.090	75.860
112	0.022	5.00	76.950	450	394489.323	180855.321	1.160	75.790
104	0.022	5.00	76.922	1200	394490.716	180842.062	1.352	75.570
105	0.022	5.00	76.784	1200	394499.834	180843.020	1.374	75.410
113	0.022	5.00	76.330	1200	394519.484	180837.165	1.280	75.050
106	0.022	5.00	76.700	1200	394501.621	180826.018	1.860	74.840
107	0.022	5.00	76.764	1200	394479.861	180823.732	2.224	74.540
114	0.022	5.00	76.600	450	394503.149	180808.141	0.650	75.950
115	0.022	5.00	76.655	1200	394506.777	180773.618	1.445	75.210
116	0.022	5.00	76.560	1200	394490.218	180771.878	1.515	75.045
108	0.022	5.00	76.579	1200	394484.708	180773.565	2.339	74.240
117	0.021	5.00	76.483	1200	394480.968	180778.755	2.133	74.350
109	0.020	5.00	76.504	1200	394479.919	180772.000	2.304	74.200
110			75.500	1500	394458.675	180767.791	1.600	73.900
111			75.500	1200	394445.638	180766.265	1.680	73.820

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	101	102	16.100	0.600	76.200	76.040	0.160	100.6	150	5.27	32.9
1.001	102	103	8.004	0.600	76.040	75.860	0.180	44.5	150	5.36	32.6
1.002	103	104	20.320	0.600	75.860	75.650	0.210	96.8	150	5.69	31.7
2.000	112	104	13.332	0.600	75.790	75.645	0.145	91.9	150	5.21	33.0
1.003	104	105	9.168	0.600	75.570	75.410	0.160	57.3	225	5.78	31.5
1.004	105	106	17.096	0.600	75.410	74.840	0.570	30.0	225	5.89	31.1
3.000	113	106	21.056	0.600	75.050	74.840	0.210	100.3	225	5.27	32.9
1.005	106	107	21.880	0.600	74.840	74.615	0.225	97.2	225	6.17	30.5

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	1.001	17.7	1.8	0.934	1.028	0.015	0.0	32	0.640
1.001	1.513	26.7	3.5	1.028	0.940	0.030	0.0	37	1.050
1.002	1.021	18.1	5.2	0.940	1.122	0.045	0.0	55	0.882
2.000	1.048	18.5	2.6	1.010	1.127	0.022	0.0	38	0.746
1.003	1.731	68.8	10.1	1.127	1.149	0.089	0.0	58	1.251
1.004	2.397	95.3	12.5	1.149	1.635	0.111	0.0	55	1.674
3.000	1.305	51.9	2.6	1.055	1.635	0.022	0.0	34	0.682
1.005	1.326	52.7	17.1	1.635	1.924	0.155	0.0	87	1.183

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)
1.006	107	108	50.401	0.600	74.540	74.240	0.300	168.0	300	6.86	28.9
4.000	114	115	34.713	0.600	75.950	75.210	0.740	46.9	150	5.39	32.5
4.001	115	116	16.650	0.600	75.210	75.045	0.165	100.9	150	5.67	31.8
4.002	116	108	5.762	0.600	75.045	74.980	0.065	88.7	150	5.76	31.5
1.007	108	109	5.038	0.600	74.240	74.200	0.040	126.0	300	6.92	28.7
5.000	117	109	6.836	0.600	74.350	74.200	0.150	45.6	300	5.05	33.5
1.008	109	110	21.657	0.600	74.200	73.900	0.300	72.2	300	7.12	28.3
1.009	110	111	13.126	0.600	73.900	73.820	0.080	164.1	300	7.30	28.0

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)
1.006	1.210	85.5	18.5	1.924	2.039	0.177	0.0	94	0.970
4.000	1.473	26.0	2.6	0.500	1.295	0.022	0.0	32	0.943
4.001	1.000	17.7	5.0	1.295	1.365	0.044	0.0	55	0.864
4.002	1.068	18.9	7.5	1.365	1.449	0.066	0.0	66	1.009
1.007	1.399	98.9	27.5	2.039	2.004	0.265	0.0	108	1.205
5.000	2.335	165.0	2.5	1.833	2.004	0.021	0.0	25	0.860
1.008	1.852	130.9	31.3	2.004	1.300	0.306	0.0	99	1.528
1.009	1.224	86.6	30.9	1.300	1.380	0.306	0.0	124	1.126

Simulation Settings

Rainfall Methodology	FEH-22	Analysis Speed	Normal	Starting Level (m)	
Rainfall Events	Singular	Skip Steady State	✓	Check Discharge Rate(s)	x
Summer CV	1.000	Drain Down Time (mins)	240	Check Discharge Volume	x
Winter CV	1.000	Additional Storage (m³/ha)	0.0		

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	0	0

Node 110 Online Orifice Control

Flap Valve	x	Invert Level (m)	73.900	Discharge Coefficient	0.600
Replaces Downstream Link	x	Diameter (m)	0.031		

Node 110 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	74.000
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	63.0	63.0	1.500	297.0	306.4

Node 109 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	74.400
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	136.0	136.0	0.800	136.0	169.1	0.801	0.0	169.1

Results for 1 year Critical Storm Duration. Lowest mass balance: 99.53%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	101	10	76.230	0.030	1.6	0.0048	0.0000	OK
15 minute summer	102	10	76.075	0.035	3.2	0.0055	0.0000	OK
15 minute summer	103	10	75.913	0.053	4.7	0.0085	0.0000	OK
15 minute summer	112	10	75.827	0.037	2.4	0.0059	0.0000	OK
15 minute summer	104	10	75.630	0.060	9.4	0.0674	0.0000	OK
15 minute summer	105	10	75.463	0.053	11.7	0.0596	0.0000	OK
15 minute summer	113	10	75.082	0.032	2.4	0.0365	0.0000	OK
15 minute summer	106	11	74.929	0.089	16.2	0.1004	0.0000	OK
15 minute summer	107	11	74.633	0.093	18.4	0.1054	0.0000	OK
15 minute summer	114	10	75.980	0.030	2.4	0.0048	0.0000	OK
15 minute summer	115	11	75.262	0.052	4.7	0.0591	0.0000	OK
15 minute summer	116	11	75.113	0.068	6.9	0.0774	0.0000	OK
720 minute summer	108	525	74.391	0.151	5.9	0.1709	0.0000	OK
720 minute summer	117	525	74.391	0.041	0.4	0.0465	0.0000	OK
720 minute summer	109	525	74.391	0.191	6.7	0.2162	0.0000	OK
720 minute summer	110	525	74.391	0.491	6.6	37.4729	0.0000	SURCHARGED
720 minute summer	111	525	73.846	0.026	1.4	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)
15 minute summer	101	1.000	102	1.6	0.563	0.089	0.0452	
15 minute summer	102	1.001	103	3.1	0.732	0.118	0.0347	
15 minute summer	103	1.002	104	4.7	0.849	0.258	0.1114	
15 minute summer	112	2.000	104	2.3	0.708	0.126	0.0441	
15 minute summer	104	1.003	105	9.3	1.201	0.135	0.0708	
15 minute summer	105	1.004	106	11.5	1.105	0.121	0.1844	
15 minute summer	113	3.000	106	2.3	0.281	0.045	0.1892	
15 minute summer	106	1.005	107	16.2	1.147	0.307	0.3092	
15 minute summer	107	1.006	108	18.3	0.817	0.214	1.1300	
15 minute summer	114	4.000	115	2.3	0.597	0.090	0.1383	
15 minute summer	115	4.001	116	4.6	0.695	0.260	0.1105	
15 minute summer	116	4.002	108	6.9	0.934	0.366	0.0426	
720 minute summer	108	1.007	109	5.9	0.775	0.060	0.2089	
720 minute summer	117	5.000	109	0.4	0.134	0.002	0.1817	
720 minute summer	109	1.008	110	6.6	0.241	0.050	1.2754	
720 minute summer	110	1.009	111	1.4	0.454	0.016	0.0395	55.3

Results for 30 year Critical Storm Duration. Lowest mass balance: 99.61%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	101	10	76.262	0.062	6.1	0.0098	0.0000	OK
15 minute summer	102	10	76.116	0.076	12.1	0.0121	0.0000	OK
15 minute summer	103	11	75.993	0.133	18.3	0.0212	0.0000	OK
15 minute summer	112	10	75.867	0.077	8.9	0.0122	0.0000	OK
15 minute summer	104	10	75.699	0.129	35.4	0.1461	0.0000	OK
15 minute summer	105	11	75.517	0.107	44.1	0.1209	0.0000	OK
15 minute summer	113	11	75.148	0.098	8.9	0.1104	0.0000	OK
15 minute summer	106	11	75.139	0.299	61.6	0.3385	0.0000	SURCHARGED
15 minute summer	107	11	74.740	0.200	67.3	0.2257	0.0000	OK
15 minute summer	114	10	76.010	0.060	8.9	0.0096	0.0000	OK
15 minute summer	115	11	75.453	0.243	17.7	0.2743	0.0000	SURCHARGED
15 minute summer	116	11	75.283	0.238	24.6	0.2693	0.0000	SURCHARGED
600 minute winter	108	555	74.688	0.448	10.8	0.5067	0.0000	SURCHARGED
600 minute winter	117	555	74.688	0.338	0.8	0.3823	0.0000	SURCHARGED
600 minute winter	109	555	74.688	0.488	12.3	37.8257	0.0000	SURCHARGED
600 minute winter	110	555	74.688	0.788	8.6	81.6856	0.0000	SURCHARGED
600 minute winter	111	555	73.849	0.029	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)
15 minute summer	101	1.000	102	6.1	0.775	0.342	0.1273	
15 minute summer	102	1.001	103	12.2	0.942	0.455	0.1017	
15 minute summer	103	1.002	104	17.9	1.132	0.992	0.3252	
15 minute summer	112	2.000	104	8.8	1.005	0.476	0.1170	
15 minute summer	104	1.003	105	35.3	1.674	0.512	0.1930	
15 minute summer	105	1.004	106	43.9	1.436	0.461	0.4988	
15 minute summer	113	3.000	106	9.9	0.374	0.191	0.5924	
15 minute summer	106	1.005	107	58.8	1.481	1.116	0.8415	
15 minute summer	107	1.006	108	67.2	1.127	0.786	2.9594	
15 minute summer	114	4.000	115	8.8	0.790	0.339	0.4202	
15 minute summer	115	4.001	116	16.1	0.917	0.913	0.2931	
15 minute summer	116	4.002	108	24.4	1.384	1.291	0.0996	
600 minute winter	108	1.007	109	10.5	0.726	0.106	0.3548	
600 minute winter	117	5.000	109	1.1	0.133	0.007	0.4814	
600 minute winter	109	1.008	110	8.6	0.232	0.066	1.5251	
600 minute winter	110	1.009	111	1.7	0.487	0.020	0.0471	71.0

Results for 100 year +45% CC Critical Storm Duration. Lowest mass balance: 99.57%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	101	12	76.940	0.740	11.3	0.1177	0.0000	SURCHARGED
15 minute summer	102	12	76.904	0.864	18.6	0.1375	0.0000	SURCHARGED
15 minute summer	103	12	76.824	0.964	26.4	0.1533	0.0000	FLOOD RISK
15 minute summer	112	12	76.512	0.722	16.5	0.1149	0.0000	SURCHARGED
15 minute summer	104	12	76.425	0.855	55.5	0.9666	0.0000	SURCHARGED
15 minute summer	105	12	76.304	0.894	68.5	1.0116	0.0000	SURCHARGED
15 minute summer	113	12	76.014	0.964	16.5	1.0897	0.0000	SURCHARGED
15 minute summer	106	12	75.997	1.157	87.3	1.3091	0.0000	SURCHARGED
15 minute summer	107	12	75.234	0.694	100.3	0.7848	0.0000	SURCHARGED
15 minute summer	114	12	76.378	0.428	16.5	0.0680	0.0000	FLOOD RISK
15 minute summer	115	12	76.127	0.917	30.3	1.0369	0.0000	SURCHARGED
15 minute summer	116	11	75.615	0.570	43.2	0.6451	0.0000	SURCHARGED
1440 minute summer	108	1170	75.129	0.889	15.5	1.0051	0.0000	SURCHARGED
1440 minute summer	117	1170	75.129	0.779	1.2	0.8807	0.0000	SURCHARGED
1440 minute summer	109	1170	75.129	0.929	17.8	95.2579	0.0000	SURCHARGED
1440 minute summer	110	1170	75.129	1.229	11.4	172.6388	0.0000	SURCHARGED
1440 minute summer	111	1170	73.853	0.033	2.2	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)
15 minute summer	101	1.000	102	8.4	0.798	0.474	0.2834	
15 minute summer	102	1.001	103	16.8	0.955	0.629	0.1409	
15 minute summer	103	1.002	104	25.3	1.437	1.402	0.3577	
15 minute summer	112	2.000	104	15.4	1.063	0.832	0.2347	
15 minute summer	104	1.003	105	52.8	1.663	0.767	0.3646	
15 minute summer	105	1.004	106	60.9	1.532	0.639	0.6799	
15 minute summer	113	3.000	106	16.1	0.434	0.310	0.8374	
15 minute summer	106	1.005	107	87.0	2.187	1.650	0.8702	
15 minute summer	107	1.006	108	99.9	1.419	1.168	3.5492	
15 minute summer	114	4.000	115	14.5	0.923	0.558	0.6111	
15 minute summer	115	4.001	116	28.2	1.605	1.598	0.2931	
15 minute summer	116	4.002	108	42.4	2.407	2.246	0.1004	
1440 minute summer	108	1.007	109	15.4	0.599	0.156	0.3548	
1440 minute summer	117	5.000	109	1.1	0.109	0.007	0.4814	
1440 minute summer	109	1.008	110	11.4	0.161	0.087	1.5251	
1440 minute summer	110	1.009	111	2.2	0.521	0.025	0.0553	168.8