



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	1.000	Preferred Cover Depth (m)	1.200
Time of Entry (mins)	6.00	Include Intermediate Ground	✓
Maximum Time of Concentration (mins)	30.00	Enforce best practice design rules	✓
Maximum Rainfall (mm/hr)	500.0		

Circular Default Sewer Type Link Type

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

Available Diameters (mm)
100 | 150

CHANNEL Link Type

Shape Open User Defined | Auto Increment (mm) 150 | Velocity Manning
Barrels 1 | Follow Ground x | ks (mm) / n 0.045

Available Diameters (mm)
1000

Width / Total	Depth / Total	Width / Total	Depth / Total	Width / Total	Depth / Total	Width / Total	Depth / Total
0.000	1.000	1.000	0.000	2.000	0.000	3.000	1.000

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
56	0.293	6.00	69.068	1500	379178.054	407557.407	1.618
58	0.049	6.00	68.589	1500	379208.573	407519.971	1.689
60	0.033	6.00	68.771	1350	379250.545	407503.031	1.528
62	0.191	6.00	68.232	1500	379227.189	407493.083	1.832
64	0.294	6.00	67.239	1500	379246.892	407446.792	3.014
66	0.099	6.00	67.130	1200	379192.410	407408.575	1.630
68	0.081	6.00	67.280	1500	379252.141	407434.403	3.180
70	0.114	6.00	67.160	1200	379279.869	407446.370	1.760
72	0.108	6.00	66.928	1500	379268.851	407441.674	2.978
74	0.211	6.00	66.550	1350	379264.857	407373.767	1.650
76	0.208	6.00	66.322	1800	379292.141	407386.796	2.522
78	0.154	6.00	65.000	1350	379314.748	407338.804	1.350
80	0.009	6.00	65.131	1800	379324.834	407347.124	1.856
82	0.128	6.00	65.500	1500	379341.421	407359.438	2.300
HW	0.000		65.000	1	379351.273	407351.336	1.850
CC84	0.288	6.00	65.000	2400	379339.156	407332.149	2.100
OUTFALL	0.000		62.472	1	379340.579	407321.081	1.372

Links (Input)

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	56	58	48.300	0.600	67.450	66.900	0.550	87.8	375	6.42	45.6
1.001	58	62	32.703	0.600	66.900	66.400	0.500	65.4	375	6.66	44.7
2.000	60	62	25.386	0.600	67.243	66.550	0.693	36.6	225	6.20	46.2
1.002	62	64	50.310	0.600	66.400	64.300	2.100	24.0	375	6.88	43.6
1.003	64	68	13.455	0.600	64.225	64.175	0.050	269.1	450	7.07	43.4
3.000	66	68	65.075	0.600	65.500	64.400	1.100	59.2	225	6.64	44.9
1.004	68	72	18.223	0.600	64.100	64.025	0.075	243.0	525	7.28	43.1
4.000	70	72	11.977	0.600	65.400	64.325	1.075	11.1	225	6.05	46.5

Links (Input)

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)
1.005	72	76	59.616	0.600	63.950	63.800	0.150	397.4	600	8.10	42.1
5.000	74	76	30.235	0.600	64.900	64.025	0.875	34.6	300	6.19	45.9
1.006	76	80	51.407	0.600	63.800	63.275	0.525	97.9	600	8.44	41.3
6.000	78	80	13.075	0.600	63.650	63.575	0.075	174.3	300	6.18	46.5
1.007	80	82	20.658	0.600	63.275	63.200	0.075	275.4	600	8.68	41.0
1.008	82	HW	12.755	0.600	63.200	63.150	0.050	255.1	600	8.82	40.8
1.009	HW	CC84	22.693	0.045	63.150	62.900	0.250	90.8	750	9.12	40.5
1.010	CC84	OUTFALL	11.159	0.600	62.900	61.100	1.800	6.2	300	9.15	40.3

Pipeline Schedule

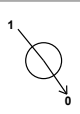
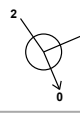
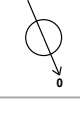
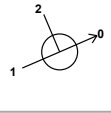
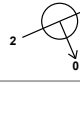
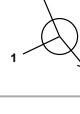
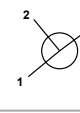
Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
1.000	48.300	87.8	375	Circular_Default Sewer Type	69.068	67.450	1.243	68.589	66.900	1.314
1.001	32.703	65.4	375	Circular_Default Sewer Type	68.589	66.900	1.314	68.232	66.400	1.457
2.000	25.386	36.6	225	Circular_Default Sewer Type	68.771	67.243	1.303	68.232	66.550	1.457
1.002	50.310	24.0	375	Circular_Default Sewer Type	68.232	66.400	1.457	67.239	64.300	2.564
1.003	13.455	269.1	450	Circular_Default Sewer Type	67.239	64.225	2.564	67.280	64.175	2.655
3.000	65.075	59.2	225	Circular_Default Sewer Type	67.130	65.500	1.405	67.280	64.400	2.655
1.004	18.223	243.0	525	Circular_Default Sewer Type	67.280	64.100	2.655	66.928	64.025	2.378
4.000	11.977	11.1	225	Circular_Default Sewer Type	67.160	65.400	1.535	66.928	64.325	2.378
1.005	59.616	397.4	600	Circular_Default Sewer Type	66.928	63.950	2.378	66.322	63.800	1.922
5.000	30.235	34.6	300	Circular_Default Sewer Type	66.550	64.900	1.350	66.322	64.025	1.997
1.006	51.407	97.9	600	Circular_Default Sewer Type	66.322	63.800	1.922	65.131	63.275	1.256
6.000	13.075	174.3	300	Circular_Default Sewer Type	65.000	63.650	1.050	65.131	63.575	1.256
1.007	20.658	275.4	600	Circular_Default Sewer Type	65.131	63.275	1.256	65.500	63.200	1.700
1.008	12.755	255.1	600	Circular_Default Sewer Type	65.500	63.200	1.700	65.000	63.150	1.250
1.009	22.693	90.8	750	CHANNEL	65.000	63.150	1.100	65.000	62.900	1.350
1.010	11.159	6.2	300	Circular_Default Sewer Type	65.000	62.900	1.800	62.472	61.100	1.072

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.000	56	1500	Manhole	Adoptable	58	1500	Manhole	Adoptable
1.001	58	1500	Manhole	Adoptable	62	1500	Manhole	Adoptable
2.000	60	1350	Manhole	Adoptable	62	1500	Manhole	Adoptable
1.002	62	1500	Manhole	Adoptable	64	1500	Manhole	Adoptable
1.003	64	1500	Manhole	Adoptable	68	1500	Manhole	Adoptable
3.000	66	1200	Manhole	Adoptable	68	1500	Manhole	Adoptable
1.004	68	1500	Manhole	Adoptable	72	1500	Manhole	Adoptable
4.000	70	1200	Manhole	Adoptable	72	1500	Manhole	Adoptable
1.005	72	1500	Manhole	Adoptable	76	1800	Manhole	Adoptable
5.000	74	1350	Manhole	Adoptable	76	1800	Manhole	Adoptable
1.006	76	1800	Manhole	Adoptable	80	1800	Manhole	Adoptable
6.000	78	1350	Manhole	Adoptable	80	1800	Manhole	Adoptable
1.007	80	1800	Manhole	Adoptable	82	1500	Manhole	Adoptable
1.008	82	1500	Manhole	Adoptable	HW	1	Manhole	Adoptable
1.009	HW	1	Manhole	Adoptable	CC84	2400	Manhole	Adoptable
1.010	CC84	2400	Manhole	Adoptable	OUTFALL	1	Manhole	Adoptable

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
56	379178.054	407557.407	69.068	1.618	1500	 0	1.000	67.450	375

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections		Link	IL (m)	Dia (mm)
58	379208.573	407519.971	68.589	1.689	1500		1	1.000	66.900	375
							0	1.001	66.900	375
60	379250.545	407503.031	68.771	1.528	1350		0	2.000	67.243	225
62	379227.189	407493.083	68.232	1.832	1500			1	2.000	66.550
						2		1.001	66.400	375
							0	1.002	66.400	375
64	379246.892	407446.792	67.239	3.014	1500		1	1.002	64.300	375
							0	1.003	64.225	450
66	379192.410	407408.575	67.130	1.630	1200		0	3.000	65.500	225
68	379252.141	407434.403	67.280	3.180	1500			1	3.000	64.400
						2		1.003	64.175	450
							0	1.004	64.100	525
70	379279.869	407446.370	67.160	1.760	1200		0	4.000	65.400	225
72	379268.851	407441.674	66.928	2.978	1500			1	4.000	64.325
						2		1.004	64.025	525
							0	1.005	63.950	600
74	379264.857	407373.767	66.550	1.650	1350		0	5.000	64.900	300
76	379292.141	407386.796	66.322	2.522	1800			1	5.000	64.025
						2		1.005	63.800	600
							0	1.006	63.800	600
78	379314.748	407338.804	65.000	1.350	1350		0	6.000	63.650	300
80	379324.834	407347.124	65.131	1.856	1800			1	6.000	63.575
						2		1.006	63.275	600
							0	1.007	63.275	600
82	379341.421	407359.438	65.500	2.300	1500		1	1.007	63.200	600
							0	1.008	63.200	600
HW	379351.273	407351.336	65.000	1.850	1		1	1.008	63.150	600
							0	1.009	63.150	750

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
CC84	379339.156	407332.149	65.000	2.100	2400	 1	1.009	62.900	750
						0	1.010	62.900	300
OUTFALL	379340.579	407321.081	62.472	1.372	1	 1	1.010	61.100	300

Simulation Settings

Rainfall Methodology	FEH-22	Analysis Speed	Detailed	Additional Storage (m³/ha)	20.0
Summer CV	1.000	Skip Steady State	x	Check Discharge Rate(s)	x
Winter CV	1.000	Drain Down Time (mins)	1440	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 %)
100	45	0	0

Node CC84 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	✓	Sump Available	✓
Invert Level (m)	62.900	Product Number	CTL-SHE-0214-2630-1700-2630
Design Depth (m)	1.700	Min Outlet Diameter (m)	0.300
Design Flow (l/s)	26.3	Min Node Diameter (mm)	1800

Node CC84 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	63.000
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.80	Time to half empty (mins)	456

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	640.0	0.0	2.000	1860.0	0.0	2.001	0.0	0.0

Results for 100 year +45% CC Critical Storm Duration. Lowest mass balance: 99.85%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	56	12	69.068	1.618	198.8	8.7194	0.4540	FLOOD
15 minute summer	58	12	68.589	1.689	210.8	3.9641	2.1377	FLOOD
30 minute summer	60	19	68.364	1.121	22.2	2.0886	0.0000	SURCHARGED
30 minute summer	62	19	68.232	1.832	321.5	7.0569	8.5159	FLOOD
15 minute summer	64	11	67.239	3.014	445.5	11.2061	7.2845	FLOOD
30 minute summer	66	18	67.130	1.630	66.5	3.8240	5.9396	FLOOD
15 minute summer	68	12	66.901	2.801	480.8	6.3772	0.0000	SURCHARGED
15 minute summer	70	12	66.961	1.561	77.3	3.7870	0.0000	FLOOD RISK
15 minute summer	72	12	66.618	2.668	612.9	6.6479	0.0000	SURCHARGED
30 minute summer	74	19	66.550	1.650	141.7	6.5819	0.5030	FLOOD
30 minute summer	76	19	66.042	2.242	867.0	9.4032	0.0000	FLOOD RISK
30 minute summer	78	18	65.000	1.350	103.5	5.0126	10.7371	FLOOD
30 minute summer	80	19	64.987	1.712	904.7	4.5239	0.0000	FLOOD RISK
360 minute winter	82	352	64.526	1.326	198.5	3.8192	0.0000	SURCHARGED
360 minute winter	HW	352	64.526	1.376	198.0	0.0000	0.0000	SURCHARGED
360 minute winter	CC84	352	64.526	1.626	222.1	1361.4310	0.0000	SURCHARGED
15 minute summer	OUTFALL	1	61.100	0.000	26.3	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	56	1.000	58	179.5	1.977	0.840	5.3273	
15 minute summer	58	1.001	62	195.5	2.161	0.789	3.6070	
30 minute summer	60	2.000	62	25.3	1.572	0.294	1.0096	
30 minute summer	62	1.002	64	276.7	2.508	0.674	5.5490	
15 minute summer	64	1.003	68	403.7	2.548	2.057	2.1319	
30 minute summer	66	3.000	68	44.5	1.497	0.657	2.5881	
15 minute summer	68	1.004	72	488.3	2.261	1.575	3.9368	
15 minute summer	70	4.000	72	74.1	3.054	0.473	0.4763	
15 minute summer	72	1.005	76	608.3	2.160	1.771	16.7925	
30 minute summer	74	5.000	76	129.5	2.324	0.683	2.1291	
30 minute summer	76	1.006	80	866.7	3.077	1.246	14.4802	
30 minute summer	78	6.000	80	79.8	1.134	0.951	0.9207	
30 minute summer	80	1.007	82	905.0	3.213	2.189	5.8189	
360 minute winter	82	1.008	HW	198.0	1.188	0.461	3.5928	
360 minute winter	HW	1.009	CC84	192.7	0.328	0.137	25.5325	
360 minute winter	CC84	Hydro-Brake®	OUTFALL	26.3				1980.7