

Design Settings

Rainfall Methodology	FEH-22	Minimum Velocity (m/s)	1.00
Return Period (years)	100	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)	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)	Depth (m)
S1	0.011	5.00	71.150	450	0.700
S2	0.012	5.00	71.000	450	1.750
S3			71.150	450	2.050
S4			69.450	450	0.450
BASIN			69.450	450	1.600
S5			69.150	1200	1.350
S6	0.004	5.00	71.150	450	0.750
S7	0.010	5.00	71.370	450	1.470
S8	0.002	5.00	71.200	450	1.350

Links (Results)

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	2.492	44.0	2.0	0.550	1.600	0.011	0.0	21	1.252
1.002	1.308	23.1	4.2	1.600	1.900	0.023	0.0	43	0.994
1.003	1.521	26.9	7.0	1.900	0.300	0.039	0.0	52	1.285
1.004	2.966	52.4	7.0	0.300	0.450	0.039	0.0	37	2.081
1.005	1.060	18.7	7.0	1.450	1.200	0.039	0.0	64	0.984
2.000	1.031	8.1	0.7	0.650	1.370	0.004	0.0	20	0.629
2.001	0.996	7.8	2.5	1.370	1.250	0.014	0.0	39	0.892
2.002	2.046	16.1	2.9	1.250	1.950	0.016	0.0	29	1.545

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	19.800	16.5	150	Circular	71.150	70.450	0.550	71.000	69.250	1.600
1.002	8.900	59.3	150	Circular	71.000	69.250	1.600	71.150	69.100	1.900
1.003	4.400	44.0	150	Circular	71.150	69.100	1.900	69.450	69.000	0.300
1.004	1.750	11.7	150	Circular	69.450	69.000	0.300	69.450	68.850	0.450
	Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type	
	1.000	S1	450	Manhole	Adoptable	S2	450	Manhole	Adoptable	
	1.002	S2	450	Manhole	Adoptable	S3	450	Manhole	Adoptable	
	1.003	S3	450	Manhole	Adoptable	S4	450	Manhole	Adoptable	
	1.004	S4	450	Manhole	Adoptable	BASIN	450	Manhole	Adoptable	

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)
1.005	4.500	90.0	150	Circular	69.450	67.850	1.450	69.150	67.800	1.200
2.000	28.000	56.0	100	Circular	71.150	70.400	0.650	71.370	69.900	1.370
2.001	3.000	60.0	100	Circular	71.370	69.900	1.370	71.200	69.850	1.250
2.002	10.800	14.4	100	Circular	71.200	69.850	1.250	71.150	69.100	1.950

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.005	BASIN	450	Manhole	Adoptable	S5	1200	Manhole	Adoptable
2.000	S6	450	Manhole	Adoptable	S7	450	Manhole	Adoptable
2.001	S7	450	Manhole	Adoptable	S8	450	Manhole	Adoptable
2.002	S8	450	Manhole	Adoptable	S3	450	Manhole	Adoptable

Manhole Schedule

Node	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
S1	71.150	0.700	450					
				0	1.000	70.450	150	
S2	71.000	1.750	450		1	1.000	69.250	150
				0	1.002	69.250	150	
S3	71.150	2.050	450		1	1.002	69.100	150
				2	2.002	69.100	100	
				0	1.003	69.100	150	
S4	69.450	0.450	450		1	1.003	69.000	150
				0	1.004	69.000	150	
BASIN	69.450	1.600	450		1	1.004	68.850	150
				0	1.005	67.850	150	
S5	69.150	1.350	1200		1	1.005	67.800	150
S6	71.150	0.750	450					
				0	2.000	70.400	100	
S7	71.370	1.470	450		1	2.000	69.900	100
				0	2.001	69.900	100	

Manhole Schedule

Node	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
58	71.200	1.350	450	1	2.001	69.850	100
				0	2.002	69.850	100

Simulation Settings

Rainfall Methodology	FEH-22	Analysis Speed	Normal	Starting Level (m)	
Rainfall Events	Singular	Skip Steady State	x	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	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 %)
100	40	10	0

Node S5 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	x	Sump Available	✓
Invert Level (m)	67.800	Product Number	CTL-SHE-0060-1500-0850-1500
Design Depth (m)	0.850	Min Outlet Diameter (m)	0.075
Design Flow (l/s)	1.5	Min Node Diameter (mm)	1200

Node BASIN Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	67.850
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	138

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	34.0	34.0	0.800	34.0	50.5	0.801	0.0	50.5

Node BASIN Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	68.950
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)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	11.5	11.5	0.500	31.7	33.2	0.501	0.0	33.2

Results for 100 year +40% CC +10% A Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	S1	10	70.502	0.052	11.2	0.0082	0.0000	OK
15 minute summer	S2	11	69.607	0.357	23.4	0.0568	0.0000	SURCHARGED
15 minute summer	S3	11	69.422	0.322	35.0	0.0512	0.0000	SURCHARGED
15 minute summer	S4	11	69.141	0.140	34.8	0.0223	0.0000	OK
120 minute winter	BASIN	120	68.550	0.700	11.7	23.9192	0.0000	SURCHARGED
120 minute winter	S5	120	68.550	0.750	3.7	0.8480	0.0000	OK
15 minute summer	S6	10	70.450	0.050	4.1	0.0079	0.0000	OK
15 minute summer	S7	12	70.255	0.355	14.2	0.0565	0.0000	SURCHARGED
15 minute summer	S8	12	70.073	0.223	14.3	0.0354	0.0000	SURCHARGED
Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	S1	1.000	S2	11.2	0.940	0.253	0.2273	
15 minute summer	S2	1.002	S3	21.9	1.245	0.948	0.1567	
15 minute summer	S3	1.003	S4	34.8	1.976	1.294	0.0764	
15 minute summer	S4	1.004	BASIN	34.6	2.399	0.661	0.0245	
15 minute winter	BASIN	1.005	S5	4.7	0.558	0.248	0.0792	
15 minute summer	S5	Hydro-Brake®		1.5				17.0
15 minute summer	S6	2.000	S7	4.0	0.602	0.499	0.1643	
30 minute summer	S7	2.001	S8	12.3	1.576	1.576	0.0235	
15 minute winter	S8	2.002	S3	13.6	1.757	0.849	0.0845	