

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)	0.350
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)	75.0		

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)	Invert Level (m)
S2	0.036	5.00	9.750	450	495750.094	104541.613	0.610	9.140
S3	0.019	5.00	9.610	1200	495761.520	104563.110	1.400	8.210
ExSWMH	0.000		8.340	1050	495788.529	104568.165	1.960	6.380
ExSWS			8.340	1200	495791.178	104566.728	1.990	6.350

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	S2	S3	24.345	0.600	9.140	8.210	0.930	26.2	150	5.21	55.9
1.001	S3	ExSWMH	27.478	0.600	8.210	6.380	1.830	15.0	150	5.38	55.2
1.002	ExSWMH	ExSWS	3.014	0.600	6.380	6.350	0.030	100.5	150	5.43	55.0

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)
1.000	1.976	34.9	7.3	0.460	1.250	0.036	0.0	47	1.569
1.001	2.613	46.2	11.0	1.250	1.810	0.055	0.0	50	2.144
1.002	1.002	17.7	10.9	1.810	1.840	0.055	0.0	85	1.054

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	24.345	26.2	150	Circular	9.750	9.140	0.460	9.610	8.210	1.250
1.001	27.478	15.0	150	Circular	9.610	8.210	1.250	8.340	6.380	1.810
1.002	3.014	100.5	150	Circular	8.340	6.380	1.810	8.340	6.350	1.840

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.000	S2	450	Manhole	Adoptable	S3	1200	Manhole	Adoptable
1.001	S3	1200	Manhole	Adoptable	ExSWMH	1050	Manhole	Adoptable
1.002	ExSWMH	1050	Manhole	Adoptable	ExSWS	1200	Manhole	Adoptable

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
S2	495750.094	104541.613	9.750	0.610	450		0	1.000	9.140	150
S3	495761.520	104563.110	9.610	1.400	1200		1	1.000	8.210	150
ExSWMH	495788.529	104568.165	8.340	1.960	1050		0	1.001	8.210	150
							1	1.001	6.380	150
ExSWS	495791.178	104566.728	8.340	1.990	1200		0	1.002	6.380	150
							1	1.002	6.350	150

Simulation Settings

Rainfall Methodology	FEH-22	Skip Steady State	x	1 year (l/s)	0.1
Rainfall Events	Singular	Drain Down Time (mins)	240	10 year (l/s)	0.3
Summer CV	1.000	Additional Storage (m³/ha)	0.0	30 year (l/s)	0.3
Winter CV	1.000	Starting Level (m)	8.210	100 year (l/s)	0.4
Analysis Speed	Normal	Check Discharge Rate(s)	✓	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 %)
1	45	0	0
10	45	0	0
30	45	0	0
100	45	0	0

Pre-development Discharge Rate

Site Makeup	Greenfield	Growth Factor 30 year	1.95
Greenfield Method	FEH	Growth Factor 100 year	2.48
Positively Drained Area (ha)	0.136	Betterment (%)	0
SAAR (mm)	762	QMed	0.2
Host	7	QBar	0.2
BFIHost	0.790	Q 1 year (l/s)	0.1
Region	1	Q 10 year (l/s)	0.3
QBar/QMed conversion factor	1.111	Q 30 year (l/s)	0.3
Growth Factor 1 year	0.85	Q 100 year (l/s)	0.4
Growth Factor 10 year	1.45		

Node S3 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	x	Sump Available	✓
Invert Level (m)	8.210	Product Number	CTL-SHE-0030-5000-1300-5000
Design Depth (m)	1.300	Min Outlet Diameter (m)	0.075
Design Flow (l/s)	0.5	Min Node Diameter (mm)	1200

Node S3 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	8.300
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.95	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	60.0	60.0	0.800	60.0	82.0	0.801	0.0	82.0

Results for 1 year +45% CC Critical Storm Duration. Lowest mass balance: 72.46%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	S2	10	9.184	0.044	6.5	0.0070	0.0000	OK
360 minute winter	S3	344	8.477	0.267	2.0	10.4179	0.0000	SURCHARGED
15 minute summer	ExSWMH	1	6.507	0.127	0.3	0.1103	0.0000	OK
15 minute summer	ExSWS	1	6.464	0.114	16.5	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	S2	1.000	S3	6.5	0.677	0.185	0.2494	
360 minute winter	S3	1.001	ExSWMH	0.3	0.494	0.007	0.0170	
15 minute summer	ExSWMH	1.002	ExSWS	16.5	1.085	0.931	0.0457	5.3

Results for 10 year +45% CC Critical Storm Duration. Lowest mass balance: 88.67%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	S2	10	9.219	0.079	19.0	0.0125	0.0000	OK
360 minute winter	S3	352	8.783	0.573	4.1	28.2113	0.0000	SURCHARGED
15 minute summer	ExSWMH	1	6.507	0.127	0.3	0.1103	0.0000	OK
15 minute summer	ExSWS	1	6.464	0.114	16.5	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	S2	1.000	S3	19.0	1.238	0.544	0.3286	
360 minute winter	S3	1.001	ExSWMH	0.4	0.516	0.008	0.0190	
15 minute summer	ExSWMH	1.002	ExSWS	16.5	1.085	0.931	0.0457	5.2

Results for 30 year +45% CC Critical Storm Duration. Lowest mass balance: 91.27%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	S2	10	9.233	0.093	24.6	0.0148	0.0000	OK
480 minute winter	S3	472	8.924	0.714	4.0	36.4104	0.0000	SURCHARGED
15 minute summer	ExSWMH	1	6.507	0.127	0.3	0.1103	0.0000	OK
15 minute summer	ExSWS	1	6.464	0.114	16.5	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	S2	1.000	S3	24.6	1.525	0.703	0.3537	
480 minute winter	S3	1.001	ExSWMH	0.4	0.531	0.008	0.0203	
15 minute summer	ExSWMH	1.002	ExSWS	16.5	1.085	0.931	0.0457	5.2

Results for 100 year +45% CC Critical Storm Duration. Lowest mass balance: 92.99%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
600 minute winter	S2	585	9.303	0.163	2.7	0.0259	0.0000	SURCHARGED
600 minute winter	S3	585	9.303	1.093	4.1	46.8927	0.0000	SURCHARGED
15 minute summer	ExSWMH	1	6.507	0.127	0.3	0.1103	0.0000	OK
15 minute summer	ExSWS	1	6.464	0.114	16.5	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)
600 minute winter	S2	1.000	S3	2.7	0.225	0.077	0.4286	
600 minute winter	S3	1.001	ExSWMH	0.5	0.560	0.010	0.0232	
15 minute summer	ExSWMH	1.002	ExSWS	16.5	1.085	0.931	0.0457	5.6