

Design Settings											
Rainfall Methodology	FEH-13	Minimum Velocity (m/s)	0.10								
Return Period (years)	100	Connection Type	Level Soffits								
Additional Flow (%)	0	Minimum Backdrop Height (m)	0.200								
CV	0.750	Preferred Cover Depth (m)	1.200								
Time of Entry (mins)	10.00	Include Intermediate Ground	✓								
Maximum Time of Concentration (mins)	30.00	Enforce best practice design rules	x								
Maximum Rainfall (mm/hr)	1.0										

Nodes							
Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
MH-0001-S	0.000		3.050	1200	519039.738	329633.835	1.500
MH-0002-S	0.196	10.00	3.260	1200	519038.608	329638.976	1.695
MH-0003-S	0.025	10.00	3.300	1200	519032.333	329669.011	1.650

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)
PN-0001-S	MH-0003-S	MH-0002-S	30.683	0.600	1.650	1.565	0.085	361.0	375	10.54	1.0
PN-0002-S	MH-0002-S	MH-0001-S	5.264	0.600	1.565	1.550	0.015	350.9	375	10.63	1.0

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)
PN-0001-S	0.948	104.7	0.1	1.275	1.320	0.025	0.0	8	0.128
PN-0002-S	0.961	106.2	0.6	1.320	1.125	0.221	0.0	20	0.260

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)
PN-0001-S	30.683	361.0	375	Circular	3.300	1.650	1.275	3.260	1.565	1.320
PN-0002-S	5.264	350.9	375	Circular	3.260	1.565	1.320	3.050	1.550	1.125

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
PN-0001-S	MH-0003-S	1200	Manhole	Adoptable	MH-0002-S	1200	Manhole	Adoptable
PN-0002-S	MH-0002-S	1200	Manhole	Adoptable	MH-0001-S	1200	Manhole	Adoptable

Manhole Schedule										
Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
MH-0001-S	519039.738	329633.835	3.050	1.500	1200	1 	1	PN-0002-S	1.550	375
MH-0002-S	519038.608	329638.976	3.260	1.695	1200	1  0 	1	PN-0001-S	1.565	375
							0	PN-0002-S	1.565	375

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
MH-0003-S	519032.333	329669.011	3.300	1.650	1200		0	PN-0001-S	1.650 375

Simulation Settings

Rainfall Methodology	FEH-13	Analysis Speed	Normal	Additional Storage (m³/ha)	0.0
Summer CV	0.750	Skip Steady State	x	Check Discharge Rate(s)	x
Winter CV	0.840	Drain Down Time (mins)	240	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
100	0	0	0
100	40	0	0

Node MH-0001-S Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	✓	Sump Available	✓
Invert Level (m)	1.550	Product Number	CTL-SHE-0138-1000-1500-1000
Design Depth (m)	1.500	Min Outlet Diameter (m)	0.150
Design Flow (l/s)	10.0	Min Node Diameter (mm)	1200

Node MH-0002-S Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	1.565
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.95	Time to half empty (mins)	112

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	0.0	0.0	0.295	117.0	0.0	1.096	0.0	0.0
0.294	0.0	0.0	1.095	117.0	0.0			

Results for 2 year Critical Storm Duration. Lowest mass balance: 99.68%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
30 minute winter	MH-0001-S	27	1.883	0.333	11.1	0.3771	0.0000	OK
30 minute winter	MH-0002-S	27	1.884	0.319	23.1	3.0329	0.0000	OK
15 minute winter	MH-0003-S	19	1.892	0.242	6.6	0.2739	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)
30 minute winter	MH-0001-S	Hydro-Brake®		9.9				18.9
30 minute winter	MH-0002-S	PN-0002-S	MH-0001-S	11.1	0.351	0.104	0.5352	
15 minute winter	MH-0003-S	PN-0001-S	MH-0002-S	7.7	0.155	0.074	2.6789	

Results for 5 year Critical Storm Duration. Lowest mass balance: 99.68%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
30 minute winter	MH-0001-S	29	1.957	0.407	11.9	0.4608	0.0000	OK
30 minute winter	MH-0002-S	30	1.957	0.392	36.1	11.3142	0.0000	SURCHARGED
30 minute winter	MH-0003-S	29	1.965	0.315	6.0	0.3560	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)
30 minute winter	MH-0001-S	Hydro-Brake®		10.0				30.6
30 minute winter	MH-0002-S	PN-0002-S	MH-0001-S	11.9	0.351	0.112	0.5806	
30 minute winter	MH-0003-S	PN-0001-S	MH-0002-S	6.9	0.163	0.066	3.2075	

Results for 10 year Critical Storm Duration. Lowest mass balance: 99.68%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
30 minute winter	MH-0001-S	32	2.021	0.471	11.4	0.5328	0.0000	OK
30 minute winter	MH-0002-S	31	2.022	0.457	46.1	18.5601	0.0000	SURCHARGED
30 minute winter	MH-0003-S	27	2.028	0.378	6.5	0.4271	0.0000	SURCHARGED

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
30 minute winter	MH-0001-S	Hydro-Brake®		10.0				39.2
30 minute winter	MH-0002-S	PN-0002-S	MH-0001-S	11.4	0.359	0.107	0.5806	
30 minute winter	MH-0003-S	PN-0001-S	MH-0002-S	8.5	0.133	0.081	3.3834	

Results for 30 year Critical Storm Duration. Lowest mass balance: 99.68%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute winter	MH-0001-S	53	2.139	0.589	10.9	0.6665	0.0000	OK
60 minute winter	MH-0002-S	53	2.139	0.574	45.1	31.7266	0.0000	SURCHARGED
60 minute winter	MH-0003-S	53	2.139	0.489	4.9	0.5531	0.0000	SURCHARGED

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
60 minute winter	MH-0001-S	Hydro-Brake®		10.0				67.0
60 minute winter	MH-0002-S	PN-0002-S	MH-0001-S	10.9	0.356	0.103	0.5806	
60 minute winter	MH-0003-S	PN-0001-S	MH-0002-S	6.9	0.132	0.066	3.3842	

Results for 30 year +35% CC Critical Storm Duration. Lowest mass balance: 99.68%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute winter	MH-0001-S	58	2.326	0.776	11.6	0.8779	0.0000	OK
60 minute winter	MH-0002-S	60	2.327	0.762	58.6	52.8179	0.0000	SURCHARGED
60 minute winter	MH-0003-S	60	2.327	0.677	6.6	0.7656	0.0000	SURCHARGED

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
60 minute winter	MH-0001-S	Hydro-Brake®		10.0				90.4
60 minute winter	MH-0002-S	PN-0002-S	MH-0001-S	11.6	0.360	0.109	0.5806	
60 minute winter	MH-0003-S	PN-0001-S	MH-0002-S	7.0	0.151	0.066	3.3842	

Results for 100 year Critical Storm Duration. Lowest mass balance: 99.68%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute winter	MH-0001-S	60	2.332	0.782	11.0	0.8847	0.0000	OK
60 minute winter	MH-0002-S	60	2.332	0.767	58.5	53.4036	0.0000	SURCHARGED
60 minute winter	MH-0003-S	60	2.332	0.682	6.6	0.7715	0.0000	SURCHARGED

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
60 minute winter	MH-0001-S	Hydro-Brake®		10.0				91.0
60 minute winter	MH-0002-S	PN-0002-S	MH-0001-S	11.0	0.360	0.104	0.5806	
60 minute winter	MH-0003-S	PN-0001-S	MH-0002-S	7.3	0.151	0.070	3.3842	

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 99.68%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
120 minute winter	MH-0001-S	114	2.874	1.324	10.7	1.4980	0.0000	OK
120 minute winter	MH-0002-S	114	2.875	1.310	53.6	90.5131	0.0000	SURCHARGED
120 minute winter	MH-0003-S	114	2.875	1.225	6.1	1.3855	0.0000	SURCHARGED

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
120 minute winter	MH-0001-S	Hydro-Brake®		10.0				158.0
120 minute winter	MH-0002-S	PN-0002-S	MH-0001-S	10.7	0.325	0.101	0.5806	
120 minute winter	MH-0003-S	PN-0001-S	MH-0002-S	7.1	0.136	0.068	3.3842	