

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	0.750	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)	Easting (m)	Northing (m)	Depth (m)
3	0.015	5.00	7.452	600	503114.248	103682.390	1.350
4	0.030	5.00	7.158	600	503164.709	103675.717	1.350
2	0.028	5.00	7.217	600	503135.390	103679.594	1.779
1	0.011	5.00	7.449	1200	503136.740	103689.762	2.349

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	3	2	21.326	0.600	6.102	5.438	0.664	32.1	150	5.20	50.0
2.000	4	2	29.574	0.600	5.808	5.438	0.370	80.0	150	5.44	50.0
1.001	2	1	10.257	0.600	5.438	5.100	0.338	30.3	150	5.53	50.0

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	1.782	31.5	2.0	1.200	1.629	0.015	0.0	26	1.011
2.000	1.125	19.9	4.1	1.200	1.629	0.030	0.0	46	0.886
1.001	1.834	32.4	9.9	1.629	2.199	0.073	0.0	57	1.610

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	21.326	32.1	150	Circular_Default Sewer Type	7.452	6.102	1.200	7.217	5.438	1.629
2.000	29.574	80.0	150	Circular_Default Sewer Type	7.158	5.808	1.200	7.217	5.438	1.629
1.001	10.257	30.3	150	Circular_Default Sewer Type	7.217	5.438	1.629	7.449	5.100	2.199

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.000	3	600	Manhole	Adoptable	2	600	Manhole	Adoptable
2.000	4	600	Manhole	Adoptable	2	600	Manhole	Adoptable
1.001	2	600	Manhole	Adoptable	1	1200	Manhole	Adoptable

Simulation Settings

Rainfall Methodology	FEH-22	Analysis Speed	Normal	Starting Level (m)	
Rainfall Events	Singular	Skip Steady State	✓	Check Discharge Rate(s)	✓
Summer CV	0.750	Drain Down Time (mins)	1440	Check Discharge Volume	✓
Winter CV	0.840	Additional Storage (m³/ha)	20.0	100 year 360 minute (m³)	

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 %)
2	0	0	0
10	45	0	0
30	20	0	0
100	20	0	0

Pre-development Discharge Rate

Site Makeup	Greenfield	Growth Factor 30 year	1.95
Greenfield Method	IH124	Growth Factor 100 year	2.48
Positively Drained Area (ha)		Betterment (%)	0
SAAR (mm)		QBar	
Soil Index	1	Q 1 year (l/s)	
SPR	0.10	Q 30 year (l/s)	
Region	1	Q 100 year (l/s)	
Growth Factor 1 year	0.85		

Pre-development Discharge Volume

Site Makeup	Greenfield	Return Period (years)	100
Greenfield Method	FSR/FEH	Climate Change (%)	0
Positively Drained Area (ha)		Storm Duration (mins)	360
Soil Index	1	Betterment (%)	0
SPR	0.10	PR	
CWI		Runoff Volume (m³)	

Node 1 Soakaway Storage Structure

Base Inf Coefficient (m/hr)	0.03600	Invert Level (m)	3.000	Depth (m)	0.800
Side Inf Coefficient (m/hr)	0.03600	Time to half empty (mins)	1439	Inf Depth (m)	
Safety Factor	3.0	Pit Width (m)	5.000	Number Required	1
Porosity	0.95	Pit Length (m)	5.000		

Node 2 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	6.740	Slope (1:X)	300.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	540	Depth (m)	0.450
Safety Factor	2.0	Width (m)	6.000	Inf Depth (m)	
Porosity	0.30	Length (m)	16.800		

Node 2 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	6.440	Slope (1:X)	300.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Depth (m)	0.450
Safety Factor	2.0	Width (m)	6.000	Inf Depth (m)	
Porosity	0.30	Length (m)	15.200		

Node 2 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	6.590	Slope (1:X)	300.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	1350	Depth (m)	0.450
Safety Factor	2.0	Width (m)	6.000	Inf Depth (m)	
Porosity	0.30	Length (m)	10.000		

Node 1 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	6.790	Slope (1:X)	300.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Depth (m)	0.450
Safety Factor	2.0	Width (m)	6.000	Inf Depth (m)	
Porosity	0.30	Length (m)	8.300		

Results for 2 year 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 winter	3	10	6.129	0.027	2.2	0.0135	0.0000	OK
15 minute winter	4	10	5.856	0.048	4.5	0.0349	0.0000	OK
15 minute winter	2	10	5.501	0.063	10.8	0.0375	0.0000	OK
960 minute winter	1	915	3.743	-1.357	1.0	17.6575	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
15 minute winter	3	1.000	2	2.2	0.497	0.069	0.0969
15 minute winter	4	2.000	2	4.4	0.748	0.222	0.1746
15 minute winter	2	1.001	1	10.5	1.578	0.325	0.0685
960 minute winter	1	Infiltration		0.1			

Results for 10 year +45% CC Critical Storm Duration. Lowest mass balance: 94.09%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
1440 minute winter	3	1410	6.887	0.785	0.3	0.3965	0.0000	SURCHARGED
1440 minute winter	4	1410	6.887	1.079	0.6	0.7845	0.0000	FLOOD RISK
1440 minute winter	2	1410	6.887	1.449	1.4	21.0492	0.0000	SURCHARGED
1440 minute winter	1	1410	6.887	1.787	1.5	22.5747	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
1440 minute winter	3	1.000	2	0.3	0.308	0.010	0.3754
1440 minute winter	4	2.000	2	0.6	0.423	0.030	0.5206
1440 minute winter	2	1.001	1	1.3	0.887	0.040	0.1806
1440 minute winter	1	Infiltration		0.1			

Results for 30 year +20% CC Critical Storm Duration. Lowest mass balance: 93.99%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
1440 minute winter	3	1410	6.907	0.805	0.7	0.4066	0.0000	SURCHARGED
1440 minute winter	4	1410	6.907	1.099	0.6	0.7990	0.0000	FLOOD RISK
1440 minute winter	2	1410	6.907	1.469	1.5	22.1171	0.0000	SURCHARGED
1440 minute winter	1	1410	6.907	1.807	1.6	22.8975	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
1440 minute winter	3	1.000	2	-0.4	0.308	-0.011	0.3754
1440 minute winter	4	2.000	2	0.6	0.438	0.030	0.5206
1440 minute winter	2	1.001	1	1.4	0.905	0.043	0.1806
1440 minute winter	1	Infiltration		0.1			

Results for 100 year +20% CC Critical Storm Duration. Lowest mass balance: 93.76%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
1440 minute winter	3	1410	7.140	1.038	0.4	0.5243	0.0000	SURCHARGED
1440 minute winter	4	1410	7.140	1.332	0.8	0.9685	0.0000	FLOOD RISK
1440 minute winter	2	1410	7.140	1.702	1.9	31.7051	0.0000	FLOOD RISK
1440 minute winter	1	1410	7.140	2.040	1.7	26.6647	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
1440 minute winter	3	1.000	2	0.4	0.308	0.012	0.3754
1440 minute winter	4	2.000	2	0.8	0.438	0.038	0.5206
1440 minute winter	2	1.001	1	1.5	0.905	0.046	0.1806
1440 minute winter	1	Infiltration		0.1			