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)	4.00	Include Intermediate Ground	x
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)
SSA	0.000		8.590	450	-612.571	-223.528	0.840
S1	0.004	4.00	8.600	450	-613.015	-237.261	0.555
S2	0.004	4.00	8.600	450	-613.005	-225.332	0.674
Carpark 1	0.002		8.600	150	-604.809	-238.630	0.420

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	S1	S2	11.929	0.600	8.045	7.926	0.119	100.0	100	4.26	50.0
1.001	S2	SSA	1.855	0.600	7.926	7.750	0.176	10.5	100	4.27	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	0.769	6.0	0.7	0.455	0.574	0.004	0.0	23	0.511
1.001	2.394	18.8	1.4	0.574	0.740	0.008	0.0	19	1.430

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	11.929	100.0	100	Circular	8.600	8.045	0.455	8.600	7.926	0.574
1.001	1.855	10.5	100	Circular	8.600	7.926	0.574	8.590	7.750	0.740

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
1.001	S2	450	Manhole	Adoptable	SSA	450	Manhole	Adoptable

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
SSA	-612.571	-223.528	8.590	0.840	450	1	1.001	7.750	100
S1	-613.015	-237.261	8.600	0.555	450	0 0	1.000	8.045	100

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Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
S2	-613.005	-225.332	8.600	0.674	450	1	1.000	7.926	100
						0	1.001	7.926	100
Carpark 1	-604.809	-238.630	8.600	0.420	150				

Simulation Settings

Rainfall Methodology	FEH-22	Analysis Speed	Normal	Additional Storage (m³/ha)	0.0
Summer CV	1.000	Skip Steady State	x	Check Discharge Rate(s)	x
Winter CV	1.000	Drain Down Time (mins)	240	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 %)
10	0	0	0
10	40	0	0
30	40	0	0
100	0	0	0
100	45	0	0

Node SSA Soakaway Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	7.440	Depth (m)	0.800
Side Inf Coefficient (m/hr)	0.14900	Time to half empty (mins)	156	Inf Depth (m)	
Safety Factor	1.0	Pit Width (m)	4.500	Number Required	1
Porosity	0.95	Pit Length (m)	1.000		

Node Carpark 1 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.14900	Invert Level (m)	8.180	Slope (1:X)	100.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	14	Depth (m)	0.300
Safety Factor	2.0	Width (m)	3.000	Inf Depth (m)	
Porosity	0.30	Length (m)	5.000		

Approval Settings

Node Size	✓	Maximum Cover Depth (m)	3.000
Node Losses	✓	Backdrops	✓
Link Size	✓	Minimum Backdrop Height (m)	
Minimum Diameter (mm)	150	Maximum Backdrop Height (m)	1.500
Link Length	✓	Full Bore Velocity	✓
Maximum Length (m)	100.000	Minimum Full Bore Velocity (m/s)	
Coordinates	✓	Maximum Full Bore Velocity (m/s)	3.000
Accuracy (m)	1.000	Proportional Velocity	✓
Crossings	✓	Return Period (years)	
Cover Depth	✓	Minimum Proportional Velocity (m/s)	0.750
Minimum Cover Depth (m)		Maximum Proportional Velocity (m/s)	3.000

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Approval Settings

Surcharged Depth	✓	Time to Half Empty	x
Return Period (years)		Discharge Rates	✓
Maximum Surcharged Depth (m)	0.100	Discharge Volume	✓
Flooding	✓	100 year 360 minute (m^3)	
Return Period (years)	30		

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Results for 10 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
180 minute summer	SSA	120	7.941	0.191	1.2	2.1724	0.0000	OK
15 minute summer	S1	10	8.083	0.038	1.7	0.0060	0.0000	OK
15 minute summer	S2	10	7.959	0.033	3.4	0.0052	0.0000	OK
30 minute summer	Carpark 1	21	8.241	0.061	0.7	0.1640	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
180 minute summer	SSA	Infiltration		0.2			
15 minute summer	S1	1.000	S2	1.7	0.688	0.281	0.0295
15 minute summer	S2	1.001	SSA	3.4	1.651	0.181	0.0038
30 minute summer	Carpark 1	Infiltration		0.3			

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Results for 10 year +40% CC 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
180 minute summer	SSA	128	8.087	0.337	2.1	2.8179	0.0000	OK
15 minute summer	S1	10	8.091	0.046	2.4	0.0073	0.0000	OK
180 minute summer	S2	128	8.087	0.161	1.6	0.0255	0.0000	SURCHARGED
30 minute summer	Carpark 1	22	8.267	0.087	1.0	0.2797	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
180 minute summer	SSA	Infiltration		0.3			
15 minute summer	S1	1.000	S2	2.4	0.744	0.397	0.0385
180 minute summer	S2	1.001	SSA	2.1	1.264	0.114	0.0145
30 minute summer	Carpark 1	Infiltration		0.3			

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Results for 30 year +40% CC 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
240 minute summer	SSA	164	8.203	0.453	2.8	3.3324	0.0000	OK
240 minute summer	S1	164	8.203	0.158	0.8	0.0251	0.0000	SURCHARGED
240 minute summer	S2	164	8.203	0.277	1.6	0.0440	0.0000	SURCHARGED
30 minute summer	Carpark 1	23	8.303	0.123	1.4	0.4413	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
240 minute summer	SSA	Infiltration		0.3			
240 minute summer	S1	1.000	S2	0.8	0.571	0.133	0.0933
240 minute summer	S2	1.001	SSA	2.8	1.139	0.147	0.0145
30 minute summer	Carpark 1	Infiltration		0.3			

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Results for 100 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
240 minute winter	SSA	172	8.127	0.377	1.0	2.9965	0.0000	OK
240 minute winter	S1	172	8.127	0.082	0.5	0.0131	0.0000	OK
240 minute winter	S2	172	8.127	0.201	1.2	0.0320	0.0000	SURCHARGED
30 minute summer	Carpark 1	23	8.289	0.109	1.2	0.3783	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
240 minute winter	SSA	Infiltration		0.3			
240 minute winter	S1	1.000	S2	0.5	0.521	0.083	0.0877
240 minute winter	S2	1.001	SSA	1.0	1.129	0.053	0.0145
30 minute summer	Carpark 1	Infiltration		0.3			

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Results for 100 year +45% CC 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
180 minute summer	SSA	144	8.556	0.806	1.8	3.5503	0.0000	OK
180 minute summer	S1	144	8.556	0.511	1.3	0.0812	0.0000	FLOOD RISK
180 minute summer	S2	144	8.556	0.630	2.2	0.1001	0.0000	FLOOD RISK
60 minute summer	Carpark 1	42	8.345	0.165	1.3	0.6343	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
180 minute summer	SSA	Infiltration		0.4			
180 minute summer	S1	1.000	S2	1.1	0.615	0.179	0.0933
180 minute summer	S2	1.001	SSA	1.8	1.202	0.095	0.0145
60 minute summer	Carpark 1	Infiltration		0.3			

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