

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	✓
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)
SA			49.800	450	993.355	1019.636	1.000
PP1	0.002		49.600	450	1011.205	999.961	0.420
RE1		4.00	49.900	450	1013.884	1010.612	0.500
RE2		4.00	49.900	450	1000.230	997.792	0.500
S01	0.011	4.00	49.900	450	1003.612	1020.849	0.645
S02			49.900	450	996.035	1016.609	0.738
S03	0.011	4.00	49.900	450	990.834	1009.291	0.648

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)
2.000	RE1	S01	14.502	0.600	49.400	49.255	0.145	100.0	100	4.31	58.5
2.001	S01	S02	8.683	0.600	49.255	49.162	0.093	93.4	100	4.50	58.5
1.002	S02	SA	4.043	0.600	49.162	48.800	0.362	11.2	150	4.54	58.5
1.000	RE2	S03	14.850	0.600	49.400	49.252	0.148	100.0	100	4.32	58.5
1.001	S03	S02	8.978	0.600	49.252	49.162	0.090	100.0	100	4.52	58.5

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)
2.000	0.769	6.0	0.0	0.400	0.545	0.000	0.0	0	0.000
2.001	0.796	6.3	2.3	0.545	0.638	0.011	0.0	43	0.740
1.002	3.031	53.6	4.6	0.588	0.850	0.022	0.0	30	1.860
1.000	0.769	6.0	0.0	0.400	0.548	0.000	0.0	0	0.000
1.001	0.769	6.0	2.3	0.548	0.638	0.011	0.0	43	0.721

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)
2.000	14.502	100.0	100	Circular	49.900	49.400	0.400	49.900	49.255	0.545
2.001	8.683	93.4	100	Circular	49.900	49.255	0.545	49.900	49.162	0.638
1.002	4.043	11.2	150	Circular	49.900	49.162	0.588	49.800	48.800	0.850
1.000	14.850	100.0	100	Circular	49.900	49.400	0.400	49.900	49.252	0.548

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
2.000	RE1	450	Manhole	Adoptable	S01	450	Manhole	Adoptable
2.001	S01	450	Manhole	Adoptable	S02	450	Manhole	Adoptable
1.002	S02	450	Manhole	Adoptable	SA	450	Manhole	Adoptable
1.000	RE2	450	Manhole	Adoptable	S03	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)
1.001	8.978	100.0	100	Circular	49.900	49.252	0.548	49.900	49.162	0.638
	Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type	
	1.001	S03	450	Manhole	Adoptable	S02	450	Manhole	Adoptable	

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
SA	993.355	1019.636	49.800	1.000	450		1	1.002	48.800	150
PP1	1011.205	999.961	49.600	0.420	450					
RE1	1013.884	1010.612	49.900	0.500	450		0	2.000	49.400	100
RE2	1000.230	997.792	49.900	0.500	450		0	1.000	49.400	100
S01	1003.612	1020.849	49.900	0.645	450		1	2.000	49.255	100
S02	996.035	1016.609	49.900	0.738	450		1	2.001	49.162	100
							2	1.001	49.162	100
							0	1.002	49.162	150
S03	990.834	1009.291	49.900	0.648	450		1	1.000	49.252	100
							0	1.001	49.252	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	30	60	120	180	240	360	480	600	720	960	1440
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Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
10	0	0	0
30	0	0	0
30	40	0	0
100	0	0	0
100	45	10	0

Node SA Soakaway Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	48.800	Depth (m)	0.400
Side Inf Coefficient (m/hr)	0.10800	Time to half empty (mins)	1340	Inf Depth (m)	
Safety Factor	2.0	Pit Width (m)	16.500	Number Required	1
Porosity	0.95	Pit Length (m)	3.000		

Node PP1 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.10800	Invert Level (m)	49.180	Slope (1:X)	30.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	19	Depth (m)	0.300
Safety Factor	2.0	Width (m)	2.500	Inf Depth (m)	
Porosity	0.30	Length (m)	10.000		

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
720 minute winter	SA	690	48.999	0.199	0.6	9.3767	0.0000	OK
30 minute summer	PP1	23	49.330	0.150	0.7	0.2408	0.0000	OK
15 minute summer	RE1	1	49.400	0.000	0.0	0.0000	0.0000	OK
15 minute summer	RE2	1	49.400	0.000	0.0	0.0000	0.0000	OK
15 minute summer	S01	10	49.322	0.067	4.5	0.0107	0.0000	OK
15 minute summer	S02	9	49.211	0.049	9.0	0.0078	0.0000	OK
15 minute summer	S03	10	49.320	0.068	4.5	0.0109	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
720 minute winter	SA	Infiltration		0.1			
30 minute summer	PP1	Infiltration		0.2			
15 minute summer	RE1	2.000	S01	0.0	0.000	0.000	0.0405
15 minute summer	RE2	1.000	S03	0.0	0.000	0.000	0.0424
15 minute summer	S01	2.001	S02	4.5	0.970	0.719	0.0403
15 minute summer	S02	1.002	SA	9.1	2.516	0.169	0.0181
15 minute summer	S03	1.001	S02	4.5	0.957	0.745	0.0421

Results for 30 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
720 minute summer	SA	720	49.044	0.244	1.2	11.5247	0.0000	OK
60 minute summer	PP1	40	49.360	0.180	0.7	0.3404	0.0000	OK
15 minute summer	RE1	1	49.400	0.000	0.0	0.0000	0.0000	OK
15 minute summer	RE2	1	49.400	0.000	0.0	0.0000	0.0000	OK
15 minute summer	S01	10	49.337	0.082	5.8	0.0130	0.0000	OK
15 minute summer	S02	9	49.217	0.055	11.6	0.0088	0.0000	OK
15 minute summer	S03	10	49.336	0.084	5.8	0.0133	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
720 minute summer	SA	Infiltration		0.1			
60 minute summer	PP1	Infiltration		0.2			
15 minute summer	RE1	2.000	S01	0.0	0.000	0.000	0.0496
15 minute summer	RE2	1.000	S03	0.0	0.000	0.000	0.0519
15 minute summer	S01	2.001	S02	5.8	1.037	0.927	0.0482
15 minute summer	S02	1.002	SA	11.7	2.594	0.218	0.0248
15 minute summer	S03	1.001	S02	5.8	1.024	0.960	0.0505

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
1440 minute winter	SA	1320	49.118	0.318	0.6	15.0254	0.0000	OK
60 minute summer	PP1	42	49.400	0.220	0.9	0.5038	0.0000	OK
15 minute summer	RE1	10	49.415	0.015	0.5	0.0024	0.0000	OK
15 minute summer	RE2	10	49.419	0.019	0.5	0.0031	0.0000	OK
15 minute summer	S01	10	49.416	0.161	8.1	0.0256	0.0000	SURCHARGED
15 minute summer	S02	9	49.223	0.061	15.1	0.0097	0.0000	OK
15 minute summer	S03	10	49.419	0.167	8.1	0.0265	0.0000	SURCHARGED

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
1440 minute winter	SA	Infiltration		0.2			
60 minute summer	PP1	Infiltration		0.2			
15 minute summer	RE1	2.000	S01	-0.5	-0.090	-0.077	0.0623
15 minute summer	RE2	1.000	S03	-0.5	-0.090	-0.080	0.0659
15 minute summer	S01	2.001	S02	7.6	1.108	1.213	0.0557
15 minute summer	S02	1.002	SA	15.2	2.650	0.283	0.0360
15 minute summer	S03	1.001	S02	7.5	1.101	1.246	0.0576

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
960 minute winter	SA	915	49.089	0.289	0.8	13.6302	0.0000	OK
30 minute winter	PP1	25	49.387	0.207	0.9	0.4464	0.0000	OK
15 minute summer	RE1	1	49.400	0.000	0.0	0.0000	0.0000	OK
15 minute summer	RE2	1	49.400	0.000	0.0	0.0000	0.0000	OK
15 minute summer	S01	10	49.387	0.132	7.2	0.0209	0.0000	SURCHARGED
15 minute summer	S02	9	49.220	0.058	13.9	0.0093	0.0000	OK
15 minute summer	S03	10	49.391	0.139	7.2	0.0221	0.0000	SURCHARGED

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
960 minute winter	SA	Infiltration		0.2			
30 minute winter	PP1	Infiltration		0.2			
15 minute summer	RE1	2.000	S01	0.0	0.000	0.000	0.0567
15 minute summer	RE2	1.000	S03	0.0	0.000	0.000	0.0581
15 minute summer	S01	2.001	S02	7.0	1.023	1.114	0.0546
15 minute summer	S02	1.002	SA	13.9	2.625	0.260	0.0318
15 minute summer	S03	1.001	S02	7.0	1.024	1.152	0.0565

Results for 100 year +45% CC +10% A Critical Storm Duration. Lowest mass balance: 99.84%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
600 minute winter	SA	570	49.724	0.924	1.8	18.9804	0.0000	OK
60 minute summer	PP1	42	49.455	0.275	1.4	0.7843	0.0000	OK
600 minute winter	RE1	570	49.724	0.324	0.1	0.0515	0.0000	FLOOD RISK
600 minute winter	RE2	570	49.724	0.324	0.1	0.0515	0.0000	FLOOD RISK
600 minute winter	S01	570	49.724	0.469	0.9	0.0745	0.0000	FLOOD RISK
600 minute winter	S02	570	49.724	0.562	1.8	0.0893	0.0000	FLOOD RISK
600 minute winter	S03	570	49.724	0.472	0.9	0.0750	0.0000	FLOOD RISK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
600 minute winter	SA	Infiltration		0.2			
60 minute summer	PP1	Infiltration		0.3			
600 minute winter	RE1	2.000	S01	-0.1	-0.014	-0.014	0.1135
600 minute winter	RE2	1.000	S03	-0.1	-0.014	-0.014	0.1162
600 minute winter	S01	2.001	S02	0.9	0.660	0.144	0.0679
600 minute winter	S02	1.002	SA	1.8	1.161	0.034	0.0712
600 minute winter	S03	1.001	S02	0.9	0.650	0.149	0.0702