

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	x
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)
S1	0.003	4.00	75.650	300	531299.385	139382.669	0.468
S2	0.003	4.00	75.700	300	531298.166	139389.299	0.510
S3	0.003	4.00	75.650	300	531298.170	139390.876	0.461
S4	0.003	4.00	76.450	300	531298.522	139397.638	1.268
S5			76.600	450	531301.790	139394.876	1.465
S6			76.600	450	531302.057	139386.413	1.464
SA2	0.000		75.712	450	531304.842	139386.584	0.900
SA1			75.712	450	531304.350	139394.973	0.900
CarPark1	0.005		75.430		531282.653	139392.455	0.500
CarPark2	0.006		75.430		531283.040	139385.923	0.500

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)
4.000	S1	S6	4.600	0.600	75.182	75.136	0.046	100.0	100	4.10	50.0
3.001	S2	1	1.900	0.600	74.275	74.255	0.020	95.0	100	4.07	50.0
4.000	S3	1	1.000	0.600	74.275	74.265	0.010	100.0	100	4.02	50.0
3.001	S6	SA2	2.790	0.600	75.136	74.812	0.324	8.6	100	4.12	50.0
2.000	S7	S6	7.340	0.600	75.800	75.600	0.200	36.7	150	4.07	50.0
3.000	S2	S6	4.844	0.600	75.190	75.136	0.054	89.7	100	4.10	50.0
1.001	S5	S8	7.644	0.600	75.164	75.088	0.076	100.6	150	4.40	50.0
1.002	S8	SA2	1.000	0.600	75.438	75.350	0.088	11.4	150	4.40	50.0
3.002	1	SA1	1.000	0.600	74.255	74.245	0.010	100.0	100	4.10	50.0
1.000	S3	S5	5.395	0.600	75.189	75.135	0.054	99.9	100	4.12	50.0
1.001	S5	SA1	2.562	0.600	75.135	74.812	0.323	7.9	100	4.13	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)
4.000	0.769	6.0	0.5	0.368	1.364	0.003	0.0	21	0.479
3.001				1.325					
4.000				1.275					
3.001	2.650	20.8	1.1	1.364	0.800	0.006	0.0	15	1.373
2.000					0.850				
3.000	0.812	6.4	0.5	0.410	1.364	0.003	0.0	20	0.494
1.001				1.286					
1.002					0.212				
3.002					1.367				
1.000	0.769	6.0	0.5	0.361	1.365	0.003	0.0	21	0.479
1.001	2.762	21.7	1.1	1.365	0.800	0.006	0.0	15	1.432

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	S4	S5	4.279	0.600	75.182	75.135	0.047	91.0	100	4.09	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)
2.000	0.806	6.3	0.5	1.168	1.365	0.003	0.0	20	0.491

Pipeline Schedule

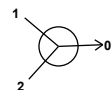
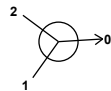
Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
4.000	4.600	100.0	100	Circular	75.650	75.182	0.368	76.600	75.136	1.364
3.001	1.900	95.0	100		75.700	74.275	1.325		74.255	
4.000	1.000	100.0	100		75.650	74.275	1.275		74.265	
3.001	2.790	8.6	100	Circular	76.600	75.136	1.364	75.712	74.812	0.800
2.000	7.340	36.7	150			75.800		76.600	75.600	0.850
3.000	4.844	89.7	100	Circular	75.700	75.190	0.410	76.600	75.136	1.364
1.001	7.644	100.6	150		76.600	75.164	1.286		75.088	
1.002	1.000	11.4	150			75.438		75.712	75.350	0.212
3.002	1.000	100.0	100			74.255		75.712	74.245	1.367
1.000	5.395	99.9	100	Circular	75.650	75.189	0.361	76.600	75.135	1.365
1.001	2.562	7.9	100	Circular	76.600	75.135	1.365	75.712	74.812	0.800
2.000	4.279	91.0	100	Circular	76.450	75.182	1.168	76.600	75.135	1.365

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
4.000	S1	300	Manhole	Adoptable	S6	450	Manhole	Adoptable
3.001	S2	300	Manhole	Adoptable				
4.000	S3	300	Manhole	Adoptable				
3.001	S6	450	Manhole	Adoptable	SA2	450	Manhole	Adoptable
2.000					S6	450	Manhole	Adoptable
3.000	S2	300	Manhole	Adoptable	S6	450	Manhole	Adoptable
1.001	S5	450	Manhole	Adoptable				
1.002					SA2	450	Manhole	Adoptable
3.002					SA1	450	Manhole	Adoptable
1.000	S3	300	Manhole	Adoptable	S5	450	Manhole	Adoptable
1.001	S5	450	Manhole	Adoptable	SA1	450	Manhole	Adoptable
2.000	S4	300	Manhole	Adoptable	S5	450	Manhole	Adoptable

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
S1	531299.385	139382.669	75.650	0.468	300				
						0	4.000	75.182	100
S2	531298.166	139389.299	75.700	0.510	300				
						0	3.000	75.190	100

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
S3	531298.170	139390.876	75.650	0.461	300		0	1.000	75.189	100
S4	531298.522	139397.638	76.450	1.268	300		0	2.000	75.182	100
S5	531301.790	139394.876	76.600	1.465	450		1	2.000	75.135	100
							2	1.000	75.135	100
							0	1.001	75.135	100
S6	531302.057	139386.413	76.600	1.464	450		1	4.000	75.136	100
							2	3.000	75.136	100
							0	3.001	75.136	100
SA2	531304.842	139386.584	75.712	0.900	450		1	3.001	74.812	100
SA1	531304.350	139394.973	75.712	0.900	450		1	1.001	74.812	100
CarPark1	531282.653	139392.455	75.430	0.500						
CarPark2	531283.040	139385.923	75.430	0.500						

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

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	0	0

Node SA1 Soakaway Storage Structure

Base Inf Coefficient (m/hr)	0.16200	Invert Level (m)	74.812	Depth (m)	0.400
Side Inf Coefficient (m/hr)	0.16200	Time to half empty (mins)	106	Inf Depth (m)	
Safety Factor	2.0	Pit Width (m)	3.000	Number Required	1
Porosity	0.95	Pit Length (m)	2.000		

Node SA2 Soakaway Storage Structure

Base Inf Coefficient (m/hr)	0.16200	Invert Level (m)	74.812	Depth (m)	0.400
Side Inf Coefficient (m/hr)	0.16200	Time to half empty (mins)	106	Inf Depth (m)	
Safety Factor	2.0	Pit Width (m)	3.000	Number Required	1
Porosity	0.95	Pit Length (m)	2.000		

Node CarPark1 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.16200	Invert Level (m)	74.930	Slope (1:X)	30.0
Side Inf Coefficient (m/hr)	0.16200	Time to half empty (mins)	21	Depth (m)	0.300
Safety Factor	2.0	Width (m)	8.000	Inf Depth (m)	
Porosity	0.30	Length (m)	8.000		

Node CarPark2 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.16200	Invert Level (m)	74.930	Slope (1:X)	30.0
Side Inf Coefficient (m/hr)	0.16200	Time to half empty (mins)	70	Depth (m)	0.300
Safety Factor	2.0	Width (m)	8.000	Inf Depth (m)	
Porosity	1.00	Length (m)	8.000		

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
15 minute summer	S1	10	75.214	0.032	1.2	0.0023	0.0000	OK
15 minute summer	S2	10	75.221	0.031	1.2	0.0022	0.0000	OK
15 minute summer	S3	10	75.221	0.032	1.2	0.0023	0.0000	OK
15 minute summer	S4	10	75.213	0.031	1.2	0.0022	0.0000	OK
15 minute summer	S5	10	75.158	0.023	2.4	0.0036	0.0000	OK
15 minute summer	S6	10	75.159	0.023	2.4	0.0037	0.0000	OK
120 minute summer	SA2	108	75.023	0.211	1.0	1.2350	0.0000	OK
120 minute summer	SA1	108	75.023	0.211	1.0	1.2362	0.0000	OK
30 minute summer	CarPark1	21	75.044	0.114	1.8	0.4785	0.0000	OK
60 minute summer	CarPark2	40	75.010	0.080	1.5	0.7709	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 summer	S1	4.000	S6	1.2	0.685	0.199	0.0081
15 minute summer	S2	3.000	S6	1.2	0.700	0.188	0.0084
15 minute summer	S3	1.000	S5	1.2	0.693	0.199	0.0094
15 minute summer	S4	2.000	S5	1.2	0.705	0.189	0.0073
15 minute summer	S5	1.001	SA1	2.4	1.562	0.111	0.0113
15 minute summer	S6	3.001	SA2	2.4	1.530	0.115	0.0123
120 minute summer	SA2	Infiltration		0.2			
120 minute summer	SA1	Infiltration		0.2			
30 minute summer	CarPark1	Infiltration		0.7			
60 minute summer	CarPark2	Infiltration		0.5			

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
15 minute summer	S1	10	75.219	0.037	1.6	0.0027	0.0000	OK
15 minute summer	S2	10	75.226	0.036	1.6	0.0026	0.0000	OK
15 minute summer	S3	10	75.226	0.037	1.6	0.0027	0.0000	OK
15 minute summer	S4	10	75.219	0.037	1.6	0.0026	0.0000	OK
15 minute summer	S5	10	75.161	0.026	3.2	0.0041	0.0000	OK
15 minute summer	S6	10	75.163	0.027	3.2	0.0042	0.0000	OK
120 minute summer	SA2	120	75.082	0.270	1.4	1.5791	0.0000	OK
120 minute summer	SA1	120	75.082	0.270	1.4	1.5805	0.0000	OK
30 minute summer	CarPark1	22	75.066	0.136	2.3	0.6730	0.0000	OK
60 minute summer	CarPark2	42	75.026	0.096	2.0	1.1080	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 summer	S1	4.000	S6	1.6	0.742	0.265	0.0100
15 minute summer	S2	3.000	S6	1.6	0.757	0.251	0.0103
15 minute summer	S3	1.000	S5	1.6	0.751	0.265	0.0116
15 minute summer	S4	2.000	S5	1.6	0.763	0.253	0.0090
15 minute summer	S5	1.001	SA1	3.2	1.614	0.148	0.0120
15 minute summer	S6	3.001	SA2	3.2	1.578	0.154	0.0131
120 minute summer	SA2	Infiltration		0.2			
120 minute summer	SA1	Infiltration		0.2			
30 minute summer	CarPark1	Infiltration		0.8			
60 minute summer	CarPark2	Infiltration		0.5			

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
15 minute summer	S1	10	75.227	0.045	2.2	0.0032	0.0000	OK
15 minute summer	S2	10	75.233	0.043	2.2	0.0031	0.0000	OK
15 minute summer	S3	10	75.234	0.045	2.2	0.0032	0.0000	OK
15 minute summer	S4	10	75.226	0.044	2.2	0.0031	0.0000	OK
120 minute winter	S5	94	75.204	0.069	1.2	0.0110	0.0000	OK
120 minute winter	S6	94	75.204	0.068	1.2	0.0108	0.0000	OK
120 minute winter	SA2	94	75.204	0.392	1.2	2.2968	0.0000	OK
120 minute winter	SA1	94	75.204	0.392	1.2	2.2974	0.0000	OK
30 minute summer	CarPark1	22	75.098	0.167	3.2	1.0202	0.0000	OK
60 minute summer	CarPark2	42	75.047	0.117	2.8	1.6539	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 summer	S1	4.000	S6	2.2	0.809	0.364	0.0126
15 minute summer	S2	3.000	S6	2.2	0.825	0.345	0.0130
15 minute summer	S3	1.000	S5	2.2	0.819	0.364	0.0146
15 minute summer	S4	2.000	S5	2.2	0.832	0.347	0.0114
120 minute winter	S5	1.001	SA1	1.2	1.300	0.055	0.0174
120 minute winter	S6	3.001	SA2	1.2	1.268	0.058	0.0188
120 minute winter	SA2	Infiltration		0.2			
120 minute winter	SA1	Infiltration		0.2			
30 minute summer	CarPark1	Infiltration		1.0			
60 minute summer	CarPark2	Infiltration		0.7			

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
15 minute summer	S1	10	75.224	0.042	2.0	0.0030	0.0000	OK
15 minute summer	S2	10	75.231	0.041	2.0	0.0029	0.0000	OK
15 minute summer	S3	10	75.231	0.042	2.0	0.0030	0.0000	OK
15 minute summer	S4	10	75.223	0.041	2.0	0.0029	0.0000	OK
60 minute winter	S5	58	75.170	0.035	1.8	0.0056	0.0000	OK
60 minute winter	S6	61	75.169	0.033	1.8	0.0052	0.0000	OK
60 minute winter	SA2	60	75.168	0.356	1.8	2.0839	0.0000	OK
60 minute winter	SA1	59	75.168	0.356	1.8	2.0863	0.0000	OK
30 minute summer	CarPark1	22	75.090	0.160	3.0	0.9264	0.0000	OK
60 minute summer	CarPark2	42	75.042	0.112	2.6	1.5002	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 summer	S1	4.000	S6	2.0	0.788	0.331	0.0117
15 minute summer	S2	3.000	S6	2.0	0.805	0.314	0.0121
15 minute summer	S3	1.000	S5	2.0	0.798	0.331	0.0136
15 minute summer	S4	2.000	S5	2.0	0.811	0.316	0.0106
60 minute winter	S5	1.001	SA1	1.8	1.385	0.083	0.0131
60 minute winter	S6	3.001	SA2	1.8	1.347	0.086	0.0140
60 minute winter	SA2	Infiltration		0.2			
60 minute winter	SA1	Infiltration		0.2			
30 minute summer	CarPark1	Infiltration		0.9			
60 minute summer	CarPark2	Infiltration		0.6			

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 winter	S1	140	75.424	0.242	0.6	0.0172	0.0000	FLOOD RISK
180 minute winter	S2	140	75.424	0.234	0.6	0.0166	0.0000	FLOOD RISK
180 minute winter	S3	140	75.424	0.235	0.6	0.0167	0.0000	FLOOD RISK
180 minute winter	S4	140	75.424	0.242	0.6	0.0172	0.0000	SURCHARGED
180 minute winter	S5	140	75.424	0.289	1.2	0.0459	0.0000	SURCHARGED
180 minute winter	S6	140	75.424	0.288	1.2	0.0457	0.0000	SURCHARGED
180 minute winter	SA2	140	75.424	0.612	1.2	2.3801	0.0000	OK
180 minute winter	SA1	140	75.424	0.612	1.2	2.3801	0.0000	OK
30 minute summer	CarPark1	23	75.129	0.199	4.3	1.4327	0.0000	OK
60 minute summer	CarPark2	43	75.070	0.140	3.8	2.3430	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 winter	S1	4.000	S6	0.6	0.562	0.100	0.0360
180 minute winter	S2	3.000	S6	0.6	0.575	0.095	0.0379
180 minute winter	S3	1.000	S5	0.6	0.568	0.102	0.0422
180 minute winter	S4	2.000	S5	0.6	0.579	0.096	0.0335
180 minute winter	S5	1.001	SA1	1.2	0.829	0.055	0.0200
180 minute winter	S6	3.001	SA2	1.2	0.817	0.058	0.0218
180 minute winter	SA2	Infiltration		0.2			
180 minute winter	SA1	Infiltration		0.2			
30 minute summer	CarPark1	Infiltration		1.1			
60 minute summer	CarPark2	Infiltration		0.8			