

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)	0.350
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)	75.0		

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Node Type	Manhole Type	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
PP1.1	0.004	5.00	4.700	Manhole	Adoptable	100	553.461	128.837	0.610
PP1			4.380	Manhole	Adoptable	100	558.261	128.921	0.610
PP2.1	0.005	5.00	4.380	Manhole	Adoptable	100	559.000	128.921	0.610
PP2			3.900	Manhole	Adoptable	100	569.151	128.948	0.610
PP3.1	0.004	5.00	4.700	Manhole	Adoptable	100	551.461	136.437	0.610
PP3			4.380	Manhole	Adoptable	100	555.261	136.437	0.610
PP4.1	0.005	5.00	4.380	Manhole	Adoptable	100	556.261	136.437	0.610
PP4			3.900	Manhole	Adoptable	100	566.864	136.437	0.610
PP5.1	0.004	5.00	4.700	Manhole	Adoptable	100	549.961	144.828	0.610
PP5			4.380	Manhole	Adoptable	100	553.761	144.828	0.610
PP6.1	0.005	5.00	4.380	Manhole	Adoptable	100	554.761	144.828	0.610
PP6			3.900	Manhole	Adoptable	100	563.996	144.828	0.610
PP7.1	0.004	5.00	4.700	Manhole	Adoptable	100	548.961	153.416	0.610
PP7			4.380	Manhole	Adoptable	100	552.761	153.416	0.610
PP8.1	0.005	5.00	4.380	Manhole	Adoptable	100	553.761	153.416	0.610
PP8			3.900	Manhole	Adoptable	100	562.134	153.416	0.610

Links (Input)

Name	US Node	DS Node	Length (m)	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)
5.000	PP1.1	PP1	4.801	4.090	3.770	0.320	15.0	100
2.000	PP2.1	PP2	10.151	3.770	3.290	0.480	21.1	100
8.000	PP3.1	PP3	3.800	4.090	3.770	0.320	11.9	100
1.000	PP4.1	PP4	10.603	3.770	3.290	0.480	22.1	100
7.000	PP5.1	PP5	3.800	4.090	3.770	0.320	11.9	100
3.000	PP6.1	PP6	9.235	3.770	3.290	0.480	19.2	100
6.000	PP7.1	PP7	3.800	4.090	3.770	0.320	11.9	100
4.000	PP8.1	PP8	8.373	3.770	3.290	0.480	17.4	100

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	MH Type	Connections	Link	IL (m)	Dia (mm)	Link Type
PP1.1	553.461	128.837	4.700	0.610	100	Adoptable					
							0	5.000	4.090	100	Circular
PP1	558.261	128.921	4.380	0.610	100	Adoptable		1	5.000	3.770	100 Circular
PP2.1	559.000	128.921	4.380	0.610	100	Adoptable					
							0	2.000	3.770	100	Circular
PP2	569.151	128.948	3.900	0.610	100	Adoptable		1	2.000	3.290	100 Circular
PP3.1	551.461	136.437	4.700	0.610	100	Adoptable					
							0	8.000	4.090	100	Circular
PP3	555.261	136.437	4.380	0.610	100	Adoptable		1	8.000	3.770	100 Circular
PP4.1	556.261	136.437	4.380	0.610	100	Adoptable					
							0	1.000	3.770	100	Circular
PP4	566.864	136.437	3.900	0.610	100	Adoptable		1	1.000	3.290	100 Circular
PP5.1	549.961	144.828	4.700	0.610	100	Adoptable					
							0	7.000	4.090	100	Circular
PP5	553.761	144.828	4.380	0.610	100	Adoptable		1	7.000	3.770	100 Circular
PP6.1	554.761	144.828	4.380	0.610	100	Adoptable					
							0	3.000	3.770	100	Circular
PP6	563.996	144.828	3.900	0.610	100	Adoptable		1	3.000	3.290	100 Circular
PP7.1	548.961	153.416	4.700	0.610	100	Adoptable					
							0	6.000	4.090	100	Circular

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	MH Type	Connections	Link	IL (m)	Dia (mm)	Link Type
PP7	552.761	153.416	4.380	0.610	100	Adoptable	1 	6.000	3.770	100	Circular
PP8.1	553.761	153.416	4.380	0.610	100	Adoptable	0 	4.000	3.770	100	Circular
PP8	562.134	153.416	3.900	0.610	100	Adoptable	1 	4.000	3.290	100	Circular

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 %)
1	0	0	0
10	0	0	0
30	45	0	0
100	45	0	0

Node PP1 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.05220	Invert Level (m)	3.770	Slope (1:X)	15.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	83	Depth (m)	0.500
Safety Factor	2.0	Width (m)	3.800	Inf Depth (m)	
Porosity	0.30	Length (m)	10.000		

Node PP2 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.05220	Invert Level (m)	3.290	Slope (1:X)	15.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	82	Depth (m)	0.500
Safety Factor	2.0	Width (m)	5.400	Inf Depth (m)	
Porosity	0.30	Length (m)	10.000		

Node PP3 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.05220	Invert Level (m)	3.770	Slope (1:X)	15.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	83	Depth (m)	0.500
Safety Factor	2.0	Width (m)	3.800	Inf Depth (m)	
Porosity	0.30	Length (m)	10.000		

Node PP4 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.05220	Invert Level (m)	3.290	Slope (1:X)	15.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	82	Depth (m)	0.500
Safety Factor	2.0	Width (m)	5.400	Inf Depth (m)	
Porosity	0.30	Length (m)	10.000		

Node PP5 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.05220	Invert Level (m)	3.770	Slope (1:X)	15.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	83	Depth (m)	0.500
Safety Factor	2.0	Width (m)	3.800	Inf Depth (m)	
Porosity	0.30	Length (m)	10.000		

Node PP6 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.05220	Invert Level (m)	3.290	Slope (1:X)	15.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	82	Depth (m)	0.500
Safety Factor	2.0	Width (m)	5.400	Inf Depth (m)	
Porosity	0.30	Length (m)	10.000		

Node PP7 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.05220	Invert Level (m)	3.770	Slope (1:X)	15.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	83	Depth (m)	0.500
Safety Factor	2.0	Width (m)	3.800	Inf Depth (m)	
Porosity	0.30	Length (m)	10.000		

Node PP8 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.05220	Invert Level (m)	3.290	Slope (1:X)	15.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	82	Depth (m)	0.500
Safety Factor	2.0	Width (m)	5.400	Inf Depth (m)	
Porosity	0.30	Length (m)	10.000		

Results for 1 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	PP1.1	11	4.102	0.012	0.5	0.0001	0.0000	OK
240 minute summer	PP1	156	3.962	0.192	0.2	0.2547	0.0000	OK
15 minute summer	PP2.1	11	3.785	0.015	0.6	0.0001	0.0000	OK
180 minute summer	PP2	112	3.467	0.177	0.3	0.3010	0.0000	OK
15 minute summer	PP3.1	11	4.102	0.012	0.5	0.0001	0.0000	OK
240 minute summer	PP3	156	3.963	0.193	0.2	0.2574	0.0000	OK
15 minute summer	PP4.1	11	3.785	0.015	0.6	0.0001	0.0000	OK
180 minute summer	PP4	112	3.466	0.176	0.3	0.2995	0.0000	OK
15 minute summer	PP5.1	11	4.102	0.012	0.5	0.0001	0.0000	OK
240 minute summer	PP5	156	3.963	0.193	0.2	0.2574	0.0000	OK
15 minute summer	PP6.1	11	3.784	0.014	0.6	0.0001	0.0000	OK
180 minute summer	PP6	112	3.468	0.178	0.3	0.3040	0.0000	OK
15 minute summer	PP7.1	11	4.102	0.012	0.5	0.0001	0.0000	OK
240 minute summer	PP7	156	3.963	0.193	0.2	0.2574	0.0000	OK
15 minute summer	PP8.1	11	3.784	0.014	0.6	0.0001	0.0000	OK
180 minute summer	PP8	112	3.468	0.178	0.3	0.3069	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	PP1.1	5.000	PP1	0.5	0.717	0.032	0.0201	
240 minute summer	PP1	Infiltration		0.1				
15 minute summer	PP2.1	2.000	PP2	0.6	0.650	0.045	0.0430	
180 minute summer	PP2	Infiltration		0.1				
15 minute summer	PP3.1	8.000	PP3	0.5	0.763	0.028	0.0158	
240 minute summer	PP3	Infiltration		0.1				
15 minute summer	PP4.1	1.000	PP4	0.6	0.641	0.046	0.0449	
180 minute summer	PP4	Infiltration		0.1				
15 minute summer	PP5.1	7.000	PP5	0.5	0.763	0.028	0.0158	
240 minute summer	PP5	Infiltration		0.1				
15 minute summer	PP6.1	3.000	PP6	0.6	0.669	0.043	0.0390	
180 minute summer	PP6	Infiltration		0.1				
15 minute summer	PP7.1	6.000	PP7	0.5	0.763	0.028	0.0158	
240 minute summer	PP7	Infiltration		0.1				
15 minute summer	PP8.1	4.000	PP8	0.6	0.689	0.041	0.0353	
180 minute summer	PP8	Infiltration		0.1				

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	PP1.1	10	4.111	0.021	1.5	0.0002	0.0000	OK
120 minute summer	PP1	84	4.108	0.338	0.7	0.7592	0.0000	OK
15 minute summer	PP2.1	10	3.795	0.025	1.8	0.0002	0.0000	OK
120 minute summer	PP2	86	3.600	0.310	0.8	0.9044	0.0000	OK
15 minute summer	PP3.1	10	4.110	0.020	1.5	0.0002	0.0000	OK
120 minute summer	PP3	84	4.109	0.339	0.7	0.7638	0.0000	OK
15 minute summer	PP4.1	10	3.795	0.025	1.8	0.0002	0.0000	OK
120 minute summer	PP4	86	3.600	0.310	0.8	0.9018	0.0000	OK
15 minute summer	PP5.1	10	4.110	0.020	1.5	0.0002	0.0000	OK
120 minute summer	PP5	84	4.109	0.339	0.7	0.7638	0.0000	OK
15 minute summer	PP6.1	10	3.794	0.024	1.8	0.0002	0.0000	OK
120 minute summer	PP6	86	3.601	0.311	0.8	0.9094	0.0000	OK
15 minute summer	PP7.1	10	4.110	0.020	1.5	0.0002	0.0000	OK
120 minute summer	PP7	84	4.109	0.339	0.7	0.7638	0.0000	OK
15 minute summer	PP8.1	10	3.794	0.024	1.8	0.0002	0.0000	OK
120 minute summer	PP8	86	3.602	0.312	0.8	0.9142	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	PP1.1	5.000	PP1	1.5	0.817	0.094	0.0216	
120 minute summer	PP1	Infiltration		0.1				
15 minute summer	PP2.1	2.000	PP2	1.8	0.650	0.135	0.0474	
120 minute summer	PP2	Infiltration		0.2				
15 minute summer	PP3.1	8.000	PP3	1.5	0.866	0.084	0.0169	
120 minute summer	PP3	Infiltration		0.1				
15 minute summer	PP4.1	1.000	PP4	1.8	0.644	0.138	0.0497	
120 minute summer	PP4	Infiltration		0.2				
15 minute summer	PP5.1	7.000	PP5	1.5	0.866	0.084	0.0169	
120 minute summer	PP5	Infiltration		0.1				
15 minute summer	PP6.1	3.000	PP6	1.8	0.661	0.129	0.0429	
120 minute summer	PP6	Infiltration		0.2				
15 minute summer	PP7.1	6.000	PP7	1.5	0.866	0.084	0.0169	
120 minute summer	PP7	Infiltration		0.1				
15 minute summer	PP8.1	4.000	PP8	1.8	0.673	0.122	0.0387	
120 minute summer	PP8	Infiltration		0.2				

Results for 30 year +45% CC Critical Storm Duration. Lowest mass balance: 99.33%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
120 minute winter	PP1.1	110	4.241	0.151	0.9	0.0012	0.0000	SURCHARGED
120 minute winter	PP1	110	4.241	0.471	0.8	1.4573	0.0000	OK
15 minute summer	PP2.1	10	3.805	0.035	3.4	0.0003	0.0000	OK
120 minute winter	PP2	96	3.737	0.447	1.1	1.8531	0.0000	OK
120 minute winter	PP3.1	110	4.242	0.152	0.9	0.0012	0.0000	SURCHARGED
120 minute winter	PP3	110	4.242	0.472	0.8	1.4626	0.0000	OK
15 minute summer	PP4.1	10	3.805	0.035	3.4	0.0003	0.0000	OK
120 minute winter	PP4	96	3.736	0.446	1.1	1.8495	0.0000	OK
120 minute winter	PP5.1	110	4.242	0.152	0.9	0.0012	0.0000	SURCHARGED
120 minute winter	PP5	110	4.242	0.472	0.8	1.4626	0.0000	OK
15 minute summer	PP6.1	10	3.804	0.034	3.4	0.0003	0.0000	OK
120 minute winter	PP6	96	3.738	0.448	1.1	1.8605	0.0000	OK
120 minute winter	PP7.1	110	4.242	0.152	0.9	0.0012	0.0000	SURCHARGED
120 minute winter	PP7	110	4.242	0.472	0.8	1.4626	0.0000	OK
15 minute summer	PP8.1	10	3.803	0.033	3.4	0.0003	0.0000	OK
120 minute winter	PP8	96	3.739	0.449	1.1	1.8675	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
120 minute winter	PP1.1	5.000	PP1	0.8	0.313	0.051	0.0376
120 minute winter	PP1	Infiltration		0.2			
15 minute summer	PP2.1	2.000	PP2	3.4	0.758	0.256	0.0519
120 minute winter	PP2	Infiltration		0.3			
120 minute winter	PP3.1	8.000	PP3	0.8	0.312	0.045	0.0297
120 minute winter	PP3	Infiltration		0.2			
15 minute summer	PP4.1	1.000	PP4	3.4	0.746	0.262	0.0544
120 minute winter	PP4	Infiltration		0.3			
120 minute winter	PP5.1	7.000	PP5	0.8	0.312	0.045	0.0297
120 minute winter	PP5	Infiltration		0.2			
15 minute summer	PP6.1	3.000	PP6	3.4	0.786	0.244	0.0469
120 minute winter	PP6	Infiltration		0.3			
120 minute winter	PP7.1	6.000	PP7	0.8	0.312	0.045	0.0297
120 minute winter	PP7	Infiltration		0.2			
15 minute summer	PP8.1	4.000	PP8	3.4	0.815	0.232	0.0421
120 minute winter	PP8	Infiltration		0.3			

Results for 100 year +45% CC Critical Storm Duration. Lowest mass balance: 99.36%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
120 minute winter	PP1.1	96	4.300	0.210	1.1	0.0017	0.0000	SURCHARGED
120 minute winter	PP1	96	4.300	0.530	1.0	1.8364	0.0000	OK
15 minute summer	PP2.1	10	3.809	0.039	4.3	0.0003	0.0000	OK
120 minute summer	PP2	88	3.802	0.512	1.9	2.4234	0.0000	OK
120 minute winter	PP3.1	96	4.301	0.211	1.1	0.0017	0.0000	SURCHARGED
120 minute winter	PP3	96	4.301	0.531	1.0	1.8420	0.0000	OK
15 minute summer	PP4.1	10	3.810	0.040	4.3	0.0003	0.0000	OK
120 minute summer	PP4	88	3.801	0.511	1.9	2.4195	0.0000	OK
120 minute winter	PP5.1	96	4.301	0.211	1.1	0.0017	0.0000	SURCHARGED
120 minute winter	PP5	96	4.301	0.531	1.0	1.8420	0.0000	OK
15 minute summer	PP6.1	10	3.808	0.038	4.3	0.0003	0.0000	OK
120 minute summer	PP6	88	3.803	0.513	1.9	2.4313	0.0000	OK
120 minute winter	PP7.1	96	4.301	0.211	1.1	0.0017	0.0000	SURCHARGED
120 minute winter	PP7	96	4.301	0.531	1.0	1.8420	0.0000	OK
15 minute summer	PP8.1	10	3.807	0.037	4.3	0.0003	0.0000	OK
120 minute summer	PP8	88	3.804	0.514	1.9	2.4387	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
120 minute winter	PP1.1	5.000	PP1	1.0	0.313	0.061	0.0376
120 minute winter	PP1	Infiltration		0.2			
15 minute summer	PP2.1	2.000	PP2	4.3	0.846	0.323	0.0542
120 minute summer	PP2	Infiltration		0.3			
120 minute winter	PP3.1	8.000	PP3	1.0	0.312	0.054	0.0297
120 minute winter	PP3	Infiltration		0.2			
15 minute summer	PP4.1	1.000	PP4	4.3	0.833	0.330	0.0568
120 minute summer	PP4	Infiltration		0.3			
120 minute winter	PP5.1	7.000	PP5	1.0	0.312	0.054	0.0297
120 minute winter	PP5	Infiltration		0.2			
15 minute summer	PP6.1	3.000	PP6	4.3	0.876	0.308	0.0488
120 minute summer	PP6	Infiltration		0.3			
120 minute winter	PP7.1	6.000	PP7	1.0	0.312	0.054	0.0297
120 minute winter	PP7	Infiltration		0.2			
15 minute summer	PP8.1	4.000	PP8	4.3	0.907	0.293	0.0439
120 minute summer	PP8	Infiltration		0.3			