

Design Settings

Rainfall Methodology	FEH-22	Maximum Time of Concentration (mins)	30.00	Preferred Cover Depth (m)	1.200
Return Period (years)	100	Maximum Rainfall (mm/hr)	50.0	Include Intermediate Ground	✓
Additional Flow (%)	0	Minimum Velocity (m/s)	1.00	Enforce best practice design rules	x
CV	1.000	Connection Type	Level Soffits		
Time of Entry (mins)	5.00	Minimum Backdrop Height (m)	1.000		

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)	Invert Level (m)
PAVING	0.390	5.00	66.000	1350	515317.585	231782.440	0.600	65.400
PAVING OUTFALL			65.920		515334.456	231779.986	0.970	64.950
SWALE OUTLET	1.838	5.00	65.920		515339.006	231759.579	0.970	64.950
POND INLET			65.920		515341.063	231723.179	1.120	64.800
POND OUTLET	0.535	5.00	65.920	1200	515332.014	231699.434	1.120	64.800

Links (Input)

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	Link Type	T of C (mins)	Rain (mm/hr)
1.000	PAVING	PAVING OUTFALL	17.048	0.600	65.400	65.100	0.300	56.8	300	Circular	5.14	50.0
1.002	SWALE OUTLET	POND INLET	36.458	0.600	64.950	64.800	0.150	243.1	300	Circular	5.61	50.0

Simulation Settings

Rainfall Methodology	FEH-22	Winter CV	1.000	Drain Down Time (mins)	4320	Check Discharge Rate(s)	x
Rainfall Events	Singular	Analysis Speed	Normal	Additional Storage (m³/ha)	0.0	Check Discharge Volume	x
Summer CV	1.000	Skip Steady State	x	Starting Level (m)			

Storm Durations

15 | 30 | 60 | 120 | 180 | 240 | 360 | 480 | 600 | 720 | 960 | 1440 | 2160 | 2880

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)	Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
1	0	0	0	100	40	0	0
30	35	0	0				

Node PAVING Online Orifice Control

Flap Valve	✓	Invert Level (m)	65.400	Discharge Coefficient	0.600
Replaces Downstream Link	x	Diameter (m)	0.020		

Node PAVING Online Weir Control

Flap Valve	x	Invert Level (m)	65.850	Discharge Coefficient	0.590
Replaces Downstream Link	✓	Width (m)	1.000		

Node POND OUTLET Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	x	Sump Available	✓
Invert Level (m)	64.800	Product Number	CTL-SHE-0113-5500-0800-5500
Design Depth (m)	0.800	Min Outlet Diameter (m)	0.150
Design Flow (l/s)	5.5	Min Node Diameter (mm)	1200

Node POND OUTLET Pond Storage Structure

Invert Level (m)	64.800	Time to half empty (mins)	Analyse flow through structure	x
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Inlets

POND INLET

Depth (m)	Area (m²)	Depth (m)	Area (m²)	Depth (m)	Area (m²)	Depth (m)	Area (m²)	Depth (m)	Area (m²)	Depth (m)	Area (m²)
0.000	880.3	0.200	1092.8	0.400	1314.3	0.600	1542.9	0.800	1778.5	1.000	2021.0
0.100	984.6	0.300	1202.7	0.500	1427.8	0.700	1659.8	0.900	1898.9	1.120	2168.3

Node SWALE OUTLET Pond Storage Structure

Invert Level (m) 64.950 | Time to half empty (mins) 3480 | Analyse flow through structure x

Inlets

PAVING OUTFALL

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	503.2	0.200	1434.3	0.400	1932.7	0.600	2434.5	0.800	2939.7	0.970	3371.8
0.100	1010.0	0.300	1683.0	0.500	2183.1	0.700	2686.7	0.900	3193.6		

Node PAVING Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Porosity	0.30	Width (m)	78.000	Depth (m)
Side Inf Coefficient (m/hr)	0.00000	Invert Level (m)	65.400	Length (m)	50.000	Inf Depth (m)
Safety Factor	2.0	Time to half empty (mins)		Slope (1:X)	999.0	

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
2160 minute winter	PAVING	2100	65.500	0.100	2.1	88.0876	0.0000	OK
240 minute summer	PAVING OUTFALL	148	65.099	0.149	22.9	0.0000	0.0000	OK
240 minute summer	SWALE OUTFLET	144	65.101	0.151	75.2	130.8492	0.0000	OK
720 minute summer	POND INLET	585	65.075	0.275	26.2	0.0000	0.0000	OK
720 minute summer	POND OUTFLET	585	65.071	0.271	19.7	279.6570	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
2160 minute winter	PAVING	1.000	PAVING OUTFALL	0.2	0.400	0.002	0.0106	
2160 minute winter	PAVING	Weir	PAVING OUTFALL	0.0				
240 minute summer	SWALE OUTFLET	1.002	POND INLET	37.1	1.251	0.523	1.5266	
720 minute summer	POND OUTFLET	Hydro-Brake®		5.5				549.5

Results for 30 year +35% CC Critical Storm Duration. Lowest mass balance: 99.99%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
2880 minute winter	PAVING	2820	65.703	0.303	5.4	325.1183	0.0000	FLOOD RISK
960 minute winter	PAVING OUTFALL	975	65.493	0.543	22.2	0.0000	0.0000	OK
960 minute winter	SWALE OUTFALL	945	65.493	0.543	65.4	835.8060	0.0000	SURCHARGED
960 minute winter	POND INLET	945	65.493	0.693	29.0	0.0000	0.0000	OK
960 minute winter	POND OUTFALL	945	65.488	0.688	22.7	868.9052	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
2880 minute winter	PAVING	1.000	PAVING OUTFALL	0.4	0.452	0.003	0.6977	
2880 minute winter	PAVING	Weir	PAVING OUTFALL	0.0				
960 minute winter	SWALE OUTFALL	1.002	POND INLET	29.0	0.887	0.408	2.5673	
960 minute winter	POND OUTFALL	Hydro-Brake®		5.5				1535.4

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 99.99%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
2880 minute winter	PAVING	2880	65.781	0.381	6.8	417.1396	0.0000	FLOOD RISK
1440 minute winter	PAVING OUTFALL	1440	65.614	0.664	19.8	0.0000	0.0000	OK
1440 minute winter	SWALE OUTLET	1410	65.615	0.665	58.0	1132.8980	0.0000	SURCHARGED
1440 minute winter	POND INLET	1410	65.614	0.814	18.7	0.0000	0.0000	OK
1440 minute winter	POND OUTLET	1410	65.609	0.809	20.3	1077.6420	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
2880 minute winter	PAVING	1.000	PAVING OUTFALL	0.5	0.402	0.003	1.0021	
2880 minute winter	PAVING	Weir	PAVING OUTFALL	0.0				
1440 minute winter	SWALE OUTLET	1.002	POND INLET	18.7	0.846	0.264	2.5673	
1440 minute winter	POND OUTLET	Hydro-Brake®		5.5				1692.2