BPS

conceptual drainage calculations

project:	94 Brighton Road. Lancing
client:	Mr J Walls
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24005	CA-D-0750-S4	P01

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)	5.00	Include Intermediate Ground	✓
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)	Width (mm)	Easting (m)	Northing (m)	Depth (m)
1	0.012	5.00	2.500	450	450	-19.542	77.427	1.300
2			2.300	450	450	-19.526	75.498	1.121
2_OUT			2.300			-23.202	75.507	1.540

Simulation Settings

Rainfall Methodology	FEH-22	Skip Steady State	✓	Check Discharge Rate(s)	x
Winter CV	1.000	Drain Down Time (mins)	1440	Check Discharge Volume	x
Analysis Speed	Detailed	Additional Storage (m³/ha)	0.0		

Storm Durations

15	60	180	360	600	960	2160	4320	7200	10080
30	120	240	480	720	1440	2880	5760	8640	

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
2	0	0	0
30	0	0	0
100	0	0	0

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Results for 2 year Critical Storm Duration. Lowest mass balance: 95.13%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	1	10	1.242	0.042	2.1	0.0086	0.0000	OK
15 minute winter	2	10	1.200	0.021	2.0	0.0042	0.0000	OK
15 minute winter	2_OUT	10	0.780	0.020	2.0	0.0000	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)
15 minute winter	1	1.000	2	2.0	0.958	0.321	0.0042	
15 minute winter	2	1.001	2_OUT	2.0	1.748	0.087	0.0034	1.0

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Results for 30 year Critical Storm Duration. Lowest mass balance: 95.13%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	1	10	1.274	0.074	5.5	0.0150	0.0000	OK
15 minute winter	2	10	1.213	0.034	5.3	0.0070	0.0000	OK
15 minute winter	2_OUT	10	0.793	0.033	5.2	0.0000	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)
15 minute winter	1	1.000	2	5.3	1.225	0.842	0.0083	
15 minute winter	2	1.001	2_OUT	5.2	2.272	0.229	0.0069	2.5

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Results for 100 year Critical Storm Duration. Lowest mass balance: 95.13%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	1	11	1.287	0.087	6.9	0.0176	0.0000	OK
15 minute winter	2	11	1.218	0.039	6.6	0.0079	0.0000	OK
15 minute winter	2_OUT	11	0.797	0.037	6.6	0.0000	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)
15 minute winter	1	1.000	2	6.6	1.282	1.054	0.0097	
15 minute winter	2	1.001	2_OUT	6.6	2.408	0.287	0.0082	3.2

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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)	0.600
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)	50.0		

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
1	0.012	5.00	2.500	450	-19.542	77.427	0.800
2			2.300	450	-19.526	75.488	0.700
2_OUT			2.300		-23.202	75.507	0.750
PP		5.00	2.200		-17.728	75.500	0.530

Simulation Settings

Rainfall Methodology	FEH-22	Skip Steady State	✓	Check Discharge Rate(s)	x
Winter CV	1.000	Drain Down Time (mins)	1440	Check Discharge Volume	x
Analysis Speed	Detailed	Additional Storage (m³/ha)	0.0		

Storm Durations

15	60	180	360	600	960	2160	4320	7200	10080
30	120	240	480	720	1440	2880	5760	8640	

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
2	0	0	0
30	0	0	0
100	45	0	0

Node 2 Online Orifice Control

Flap Valve	x	Invert Level (m)	1.600	Diameter (m)	0.050
Downstream Link	1.001	Design Depth (m)	0.450	Discharge Coefficient	0.600
Replaces Downstream Link	✓	Design Flow (l/s)	3.5		

Node 2 Online Weir Control

Flap Valve	x	Replaces Downstream Link	✓	Width (m)	0.100
Downstream Link	1.001	Invert Level (m)	2.070	Discharge Coefficient	0.590

Node PP Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	1.670	Slope (1:X)	14.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	15	Depth (m)	0.400
Safety Factor	2.0	Width (m)	5.000	Inf Depth (m)	0.400
Porosity	0.30	Length (m)	5.500		

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Results for 2 year Critical Storm Duration. Lowest mass balance: 95.12%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	1	10	1.726	0.026	2.1	0.0042	0.0000	OK
15 minute winter	2	12	1.722	0.122	2.1	0.0194	0.0000	SURCHARGED
15 minute winter	2_OUT	1	1.550	0.000	1.6	0.0000	0.0000	OK
15 minute winter	PP	12	1.722	0.052	0.3	0.0331	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)
15 minute winter	1	1.000	2	2.1	0.681	0.151	0.0092	
15 minute winter	2	Orifice	2_OUT	1.6				1.0
15 minute winter	2	Weir	2_OUT	0.0				0.0
15 minute winter	PP	2.000	2	-0.3	-0.221	-0.053	0.0091	

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Results for 30 year Critical Storm Duration. Lowest mass balance: 95.12%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	1	13	1.895	0.195	5.5	0.0310	0.0000	SURCHARGED
15 minute winter	2	14	1.886	0.286	4.8	0.0455	0.0000	SURCHARGED
15 minute winter	2_OUT	1	1.550	0.000	2.7	0.0000	0.0000	OK
15 minute winter	PP	14	1.887	0.217	1.9	0.5079	0.0000	SURCHARGED

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	1	1.000	2	4.8	0.915	0.349	0.0152	
15 minute winter	2	Orifice	2_OUT	2.7				2.5
15 minute winter	2	Weir	2_OUT	0.0				0.0
15 minute winter	PP	2.000	2	-1.9	0.282	-0.298	0.0141	

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Results for 100 year +45% CC Critical Storm Duration. Lowest mass balance: 95.12%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	1	12	2.093	0.393	10.0	0.0625	0.0000	SURCHARGED
30 minute winter	2	23	2.067	0.467	7.3	0.0742	0.0000	FLOOD RISK
15 minute winter	2_OUT	1	1.550	0.000	3.4	0.0000	0.0000	OK
30 minute winter	PP	24	2.067	0.397	3.6	1.6767	0.0000	FLOOD RISK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	1	1.000	2	8.9	1.132	0.640	0.0152	
30 minute winter	2	Orifice	2_OUT	3.5				6.2
30 minute winter	2	Weir	2_OUT	0.0				0.0
30 minute winter	PP	2.000	2	-3.6	-0.464	-0.569	0.0141	

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