

Project:	Date: 27/09/2024			
	Designed by: charlottelickma	Checked by:	Approved By:	
Report Details:	Company Address:			
Type: Inflows Storm Phase: SuDS Design (1) Flow Path: Flow Path				



Catchment Area

Type : Catchment Area

Area (ha)	0.068
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Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	1.000
Winter Volumetric Runoff	1.000
Time of Concentration (mins)	5
Percentage Impervious (%)	100

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Name	Junction Type	Easting (m)	Northing (m)	Cover Level (m)	Depth (m)	Invert Level (m)	Chamber Shape	Diameter (m)
Manhole (1)	Manhole	281813.590	202507.127	22.350	2.350	20.000	Circular	1.200
Manhole (2)	Manhole	281826.711	202499.506	22.070	2.970	19.100	Circular	1.200
Manhole (4)	Manhole	281854.978	202482.221	21.450	2.450	19.000	Circular	1.200
Manhole	Manhole	281847.386	202464.048	21.380	2.480	18.900	Circular	1.200
Manhole (5)	Manhole	281864.876	202432.605	18.800	0.300	18.500	Circular	1.200

Name	Lock
Manhole (1)	None
Manhole (2)	None
Manhole (4)	None
Manhole	None
Manhole (5)	Levels

Inlets

Junction	Inlet Name	Incoming Item(s)	Bypass Destination	Capacity Type
Manhole (1)	Inlet	Catchment Area	(None)	No Restriction
Manhole (2)	Inlet	Pipe (1)	(None)	No Restriction
Manhole (4)	Inlet	Pipe 1 (1)	(None)	No Restriction
Manhole	Inlet	Pipe 2	(None)	No Restriction
Manhole (5)	Inlet	Pipe 3	(None)	No Restriction

Outlets

Junction	Outlet Name	Outgoing Connection	Outlet Type
Manhole (1)	Outlet	Pipe	Free Discharge
Manhole (2)	Outlet	Pipe 1 (1)	Free Discharge
Manhole (4)	Outlet	Pipe 2	Free Discharge
Manhole	Outlet	Pipe 3	Free Discharge

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Bioretention

Type : Bioretention

Ponding Area

Exceedance Level (m)	20.000
Depth (m)	0.400
Base Level (m)	19.600
Top Area (m²)	160.00
Side Slope (1:X)	0.00
Base Area (m²)	160.00
Freeboard (mm)	100
Porosity (%)	100
Length (m)	17.000
Long. Slope (1:X)	0.00
Filtration Rate (m/hr)	0.2
Friction Scheme	Manning's n
n	0.035
Total Volume (m³)	69.693

Filter Area

Base Level (m)	19.200
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Under Drain

Height Above Base (m)	0.000
Diameter (mm)	100
No. of Barrels	1
Friction Scheme	Manning's n
n	0.015
Release Height (m)	0.000

Filtration Layers

Use	Name	Filtration Layer Depth (mm)	Porosity (%)	Conductivity (m/hr)	Soil Type
☒	Soil	150	40	0.3	Soil Type
	Storage	250	30	300.0	

Inlets

Inlet

Inlet Type	Point Inflow
Incoming Item(s)	Pipe
Bypass Destination	(None)
Inlet Destination	Subsurface Area
Capacity Type	No Restriction

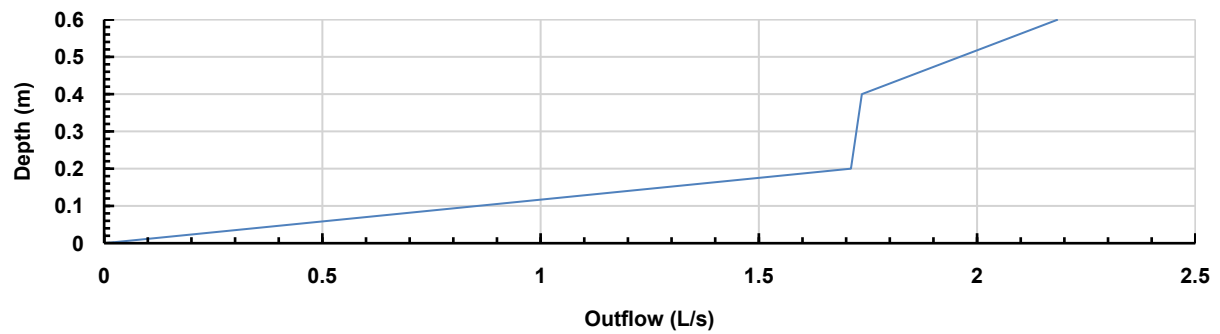
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Outlets

Outlet

Outgoing Connection	Pipe (1)
Outlet Type	Multiple
Invert Level (m)	19.200

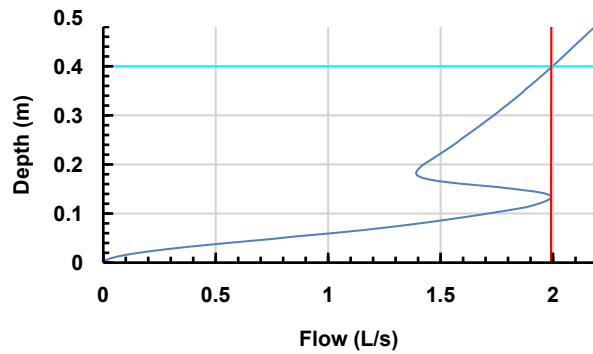
Combined Outflow



Hydro-Brake®

Depth Above Invert (m)	0.100
Design Depth (m)	0.400
Design Flow (L/s)	2.0
Objective	Minimise Upstream Storage Requirements
Application	Surface Water Only
Sump Available	☐

Unit Reference	CHE-0075-2000-0400-2000
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Advanced

Ponding Area

Base Perimeter (m)	52.824
Top Perimeter (m)	52.824

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Flow Options

Peak Flow Calculation	(UK) Modified Rational Method
Min. Time of Entry (mins)	5
Max. Travel Time (mins)	30

Pipe Options

Lock Slope Options	None
Design Options	Minimise Excavation
Design Level	Level Soffits
Min. Cover Depth (m)	1.200
Min. Slope (1:X)	500.00
Max. Slope (1:X)	40.00
Min. Velocity (m/s)	1.0
Max. Velocity (m/s)	3.0
Use Flow Restriction	☐
Reduce Channel Depths	☐

Pipe Size Library

Default

Add. Increment (mm)	75
Max. Diameter (mm)	0

Diameter (mm)	Min. Slope (1:X)	Max. Slope (1:X)
100	0.00	0.00
150	0.00	0.00

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Manhole Options

Apply Offset ☐

Manhole Size Library

Default

Diameter / Width

Connection (mm)	Diameter / Length (m)	Width (m)
0	1.200	0.000
375	1.350	0.000
500	1.500	0.000
750	1.800	0.000

Additional Sizing

Connection (mm)	900
Diameter / Length (m)	0.900
Width (m)	0.000

Depth

Depth (m)	Diameter / Length (m)	Width (m)
0.000	1.050	0.000
1.500	1.200	0.000

Access

Depth (m)	Ladder Protrusion (mm)
0.000	130
3.000	230

Benching Requirements

Landing Width (mm)	500
Benching Width (mm)	225

Project:	Date: 27/09/2024			
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Outfalls

Outfall	Outfall Type	Fixed Surcharged Level (m)	Level Curve
Manhole (5)	Free Discharge		

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FEH (1): 2 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Depth

Junction	Storm Event	Cover Level (m)	Invert Level (m)	Max. Level (m)	Max. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
Manhole (1)	FEH (1): 2 years: +0 %: 15 mins: Summer	22.350	20.000	20.053	0.053	11.6	0.060	0.000	11.5	5.071	OK
Manhole (2)	FEH (1): 2 years: +0 %: 960 mins: Summer	22.070	19.100	19.148	0.048	1.9	0.054	0.000	1.9	34.260	OK
Manhole (4)	FEH (1): 2 years: +0 %: 960 mins: Summer	21.450	19.000	19.041	0.041	1.9	0.047	0.000	1.9	34.256	OK
Manhole	FEH (1): 2 years: +0 %: 960 mins: Summer	21.380	18.900	18.933	0.033	1.9	0.037	0.000	1.9	34.253	OK
Manhole (5)	FEH (1): 2 years: +0 %: 960 mins: Summer	18.800	18.500	18.532	0.032	1.9	0.000	0.000	1.9	34.253	Flood Risk

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FEH (1): 30 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Depth

Junction	Storm Event	Cover Level (m)	Invert Level (m)	Max. Level (m)	Max. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
Manhole (1)	FEH (1): 30 years: +0 %: 15 mins: Summer	22.350	20.000	20.417	0.417	27.3	0.471	0.000	22.6	11.973	Surcharged
Manhole (2)	FEH (1): 30 years: +0 %: 120 mins: Summer	22.070	19.100	19.148	0.048	2.0	0.055	0.000	2.0	18.701	OK
Manhole (4)	FEH (1): 30 years: +0 %: 120 mins: Winter	21.450	19.000	19.042	0.042	2.0	0.047	0.000	2.0	18.738	OK
Manhole	FEH (1): 30 years: +0 %: 60 mins: Winter	21.380	18.900	18.933	0.033	2.0	0.038	0.000	2.0	8.392	OK
Manhole (5)	FEH (1): 30 years: +0 %: 60 mins: Winter	18.800	18.500	18.533	0.033	2.0	0.000	0.000	2.0	8.392	Flood Risk

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FEH (1): 100 years: Increase Rainfall (%): +40: Critical Storm Per Item: Rank By: Max. Depth

Junction	Storm Event	Cover Level (m)	Invert Level (m)	Max. Level (m)	Max. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
Manhole (1)	FEH (1): 100 years: +40 %: 15 mins: Summer	22.350	20.000	22.029	2.029	56.5	2.294	0.000	43.5	24.705	Surcharged
Manhole (2)	FEH (1): 100 years: +40 %: 480 mins: Winter	22.070	19.100	19.148	0.048	2.0	0.055	0.000	2.0	88.939	OK
Manhole (4)	FEH (1): 100 years: +40 %: 960 mins: Summer	21.450	19.000	19.042	0.042	2.0	0.047	0.000	2.0	120.528	OK
Manhole	FEH (1): 100 years: +40 %: 960 mins: Winter	21.380	18.900	18.933	0.033	2.0	0.038	0.000	2.0	120.480	OK
Manhole (5)	FEH (1): 100 years: +40 %: 960 mins: Winter	18.800	18.500	18.533	0.033	2.0	0.000	0.000	2.0	120.480	Flood Risk

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FEH (1): 2 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Avg. Depth

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Residant Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Percentage Available (%)	Status
Bioretention	FEH (1): 2 years: +0 %: 60 mins: Summer	19.612	19.353	0.412	0.153	8.1	13.904	0.000	0.000	0.8	2.278	80.050	OK

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FEH (1): 30 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Avg. Depth

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Residant Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Percentage Available (%)	Status
Bioretention	FEH (1): 30 years: +0 %: 480 mins: Summer	19.678	19.678	0.478	0.478	7.2	33.389	0.000	0.000	2.0	45.111	52.091	OK

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FEH (1): 100 years: Increase Rainfall (%): +40: Critical Storm Per Item: Rank By:
Max. Avg. Depth

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Residant Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Percentage Available (%)	Status
Bioretention	FEH (1): 100 years: +40 %: 960 mins: Summer	19.898	19.898	0.698	0.698	8.7	68.621	0.000	0.000	2.0	120.540	1.539	OK

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Report Details: Type: Connections Summary Storm Phase: SuDS Design (1) Flow Path: Flow Path	Company Address:		





FEH (1): 2 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Flow

Connection	Storm Event	Connection Type	From	To	Upstream Cover Level (m)	Max. US Water Level (m)	Max. Flow Depth (m)	Discharge Volume (m³)	Max. Velocity (m/s)	Flow / Capacity	Max. Flow (L/s)	Status
Pipe	FEH (1): 2 years: +0 %: 15 mins: Summer	Pipe	Manhole (1)	Bioretention	22.350	20.053	0.100	5.071	3.4	0.46	11.5	OK
Pipe (1)	FEH (1): 2 years: +0 %: 960 mins: Summer	Pipe	Bioretention	Manhole (2)	18.448	19.491	0.041	34.261	0.6	0.25	1.9	Surcharged
Pipe 1 (1)	FEH (1): 2 years: +0 %: 960 mins: Summer	Pipe	Manhole (2)	Manhole (4)	22.070	19.148	0.045	34.260	0.4	0.2	1.9	OK
Pipe 2	FEH (1): 2 years: +0 %: 960 mins: Summer	Pipe	Manhole (4)	Manhole	21.450	19.041	0.037	34.256	0.6	0.15	1.9	OK
Pipe 3	FEH (1): 2 years: +0 %: 960 mins: Summer	Pipe	Manhole	Manhole (5)	21.380	18.933	0.033	34.253	0.7	0.1	1.9	OK

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FEH (1): 30 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Flow

Connection	Storm Event	Connection Type	From	To	Upstream Cover Level (m)	Max. US Water Level (m)	Max. Flow Depth (m)	Discharge Volume (m³)	Max. Velocity (m/s)	Flow / Capacity	Max. Flow (L/s)	Status
Pipe	FEH (1): 30 years: +0 %: 15 mins: Summer	Pipe	Manhole (1)	Bioretention	22.350	20.417	0.100	11.973	4.1	0.89	22.6	Surcharged
Pipe (1)	FEH (1): 30 years: +0 %: 60 mins: Summer	Pipe	Bioretention	Manhole (2)	18.448	19.640	0.042	8.682	0.6	0.25	2.0	Surcharged
Pipe 1 (1)	FEH (1): 30 years: +0 %: 240 mins: Winter	Pipe	Manhole (2)	Manhole (4)	22.070	19.148	0.045	30.960	0.4	0.21	2.0	OK
Pipe 2	FEH (1): 30 years: +0 %: 120 mins: Winter	Pipe	Manhole (4)	Manhole	21.450	19.042	0.038	18.738	0.6	0.16	2.0	OK
Pipe 3	FEH (1): 30 years: +0 %: 60 mins: Winter	Pipe	Manhole	Manhole (5)	21.380	18.933	0.033	8.392	0.7	0.11	2.0	OK

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FEH (1): 100 years: Increase Rainfall (%): +40: Critical Storm Per Item: Rank By: Max. Flow

Connection	Storm Event	Connection Type	From	To	Upstream Cover Level (m)	Max. US Water Level (m)	Max. Flow Depth (m)	Discharge Volume (m³)	Max. Velocity (m/s)	Flow / Capacity	Max. Flow (L/s)	Status
Pipe	FEH (1): 100 years: +40 %: 15 mins: Summer	Pipe	Manhole (1)	Bioretention	22.350	22.029	0.100	24.705	5.5	1.72	43.5	Surcharged
Pipe (1)	FEH (1): 100 years: +40 %: 960 mins: Winter	Pipe	Bioretention	Manhole (2)	18.448	19.876	0.042	120.493	0.6	0.25	2.0	Surcharged
Pipe 1 (1)	FEH (1): 100 years: +40 %: 1440 mins: Winter	Pipe	Manhole (2)	Manhole (4)	22.070	19.148	0.045	141.431	0.4	0.21	2.0	OK
Pipe 2	FEH (1): 100 years: +40 %: 1440 mins: Summer	Pipe	Manhole (4)	Manhole	21.450	19.042	0.038	141.415	0.6	0.16	2.0	OK
Pipe 3	FEH (1): 100 years: +40 %: 960 mins: Winter	Pipe	Manhole	Manhole (5)	21.380	18.933	0.033	120.480	0.7	0.11	2.0	OK