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Drainage Strategy Report

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Reviewed by:

Date: 09/26
Date:

Project Title

Document Ref

Land Adjacent to Pear Tree House
Cricklade
SN6 6EA

26-110-R-C-01

Document

Revision

Drainage Strategy Report	A	B			
	08	09			
	09	09			
	26	26			
Issued to	e	e			
Rob Freeman – NWD Design					
Purpose of Issue	A	B			

P = Preliminary, C = Construction, A = Approval, CT = Comment, T = Tender, I = Information, R = Record, # = paper issue, e = e-mail issue
(e.g. 3/e denotes 3 paper copies + e-mail)

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Drainage Strategy

Item	Details	Notes
Site Location Map		SN6 6EA
Method of Foul Water Discharge	Foul water flows are to drain via a private gravity system to discharge into the Thames Water drainage network via a new indirect connection into an existing private lateral drain which crosses the site. Connection subject to Thames Water approval. The on-site system will be privately maintained by the owners of the freehold or their representatives.	
Method of Surface Water Discharge	Surface water falling onto the roof and hardstanding areas is to be drained via a new surface water gravity drainage system, and discharge into the Thames Water drainage network via a new indirect connection into an existing private lateral drain which crosses the site. The discharge is to be via a flow control chamber limited to Greenfield Runoff Rates. Connection subject to Thames Water approval. Direct infiltration has been proven unviable by on site infiltration testing. Discharge to the adjacent watercourse is unviable due to limitations in invert levels.	
Local Ground Conditions	Mapping data from the online BGS Geology Viewer indicates 'Oxford Clay Formation - Mudstone' in the site area.	
Infiltration Rate	On site infiltration testing was undertaken which concluded an impermeable stratum offering only shallow infiltration within the topsoil. The data can be found within the Appendices.	

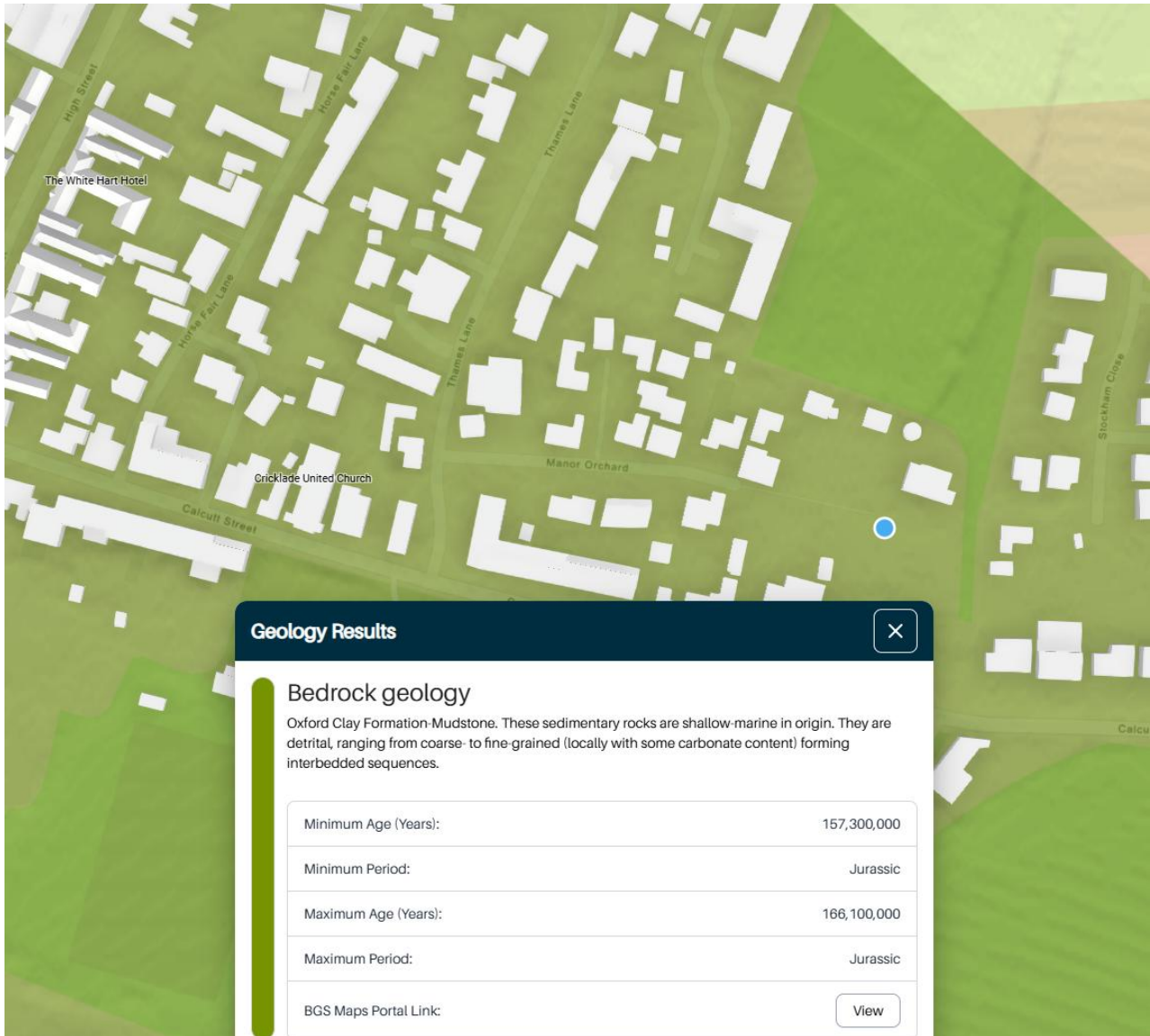
Surface Water Calculations	The surface water drainage system has been designed for a 1 in 100-year event, plus an allowance of 40% for climate change. <u>Contributing Areas</u> House Roof Area = 151 m² Garage Roof Area = 30 m² Drained Hardstanding Area = 105 m² Total Area = 286 m²	
Ground Water	No groundwater was encountered in any infiltration test excavation.	
Exceedance Flows	The proposed surface water drainage measures will be designed to contain the peak storm event that can be expected for a 1 in 100-year situation. A 40% allowance has already been applied to the site to account for future climate change, and an additional 10% allowance for urban creep.	
Flood Risk Mapping	The Environment Agency flood map for the development site suggests that the site wholly falls within Flood Zone 1, which is defined as land assessed as having a less than 1 in 1000 annual probability of river flooding in any one year.	
SuDS Maintenance	During construction, the SuDS systems will be maintained by the contractor. Upon practical completion, the SuDS drainage system inclusive of permeable paving, silt traps, flow control, and attenuation tank is to be maintained by the owner of the freehold or their appointed representative(s).	Refer to SuDS Maintenance Schedule.

Maintenance Schedule

Item	Required Maintenance	Frequency
Pipes, chambers, roof gutters, & channel drains	CCTV camera survey of pipework. Flush, descale, repair as necessary.	5 Years or upon poor performance
	Cleaning of gutters and any filters on downpipes & channel drains.	Annually (or as required based on inspections)
Pervious paving	Brushing / vacuuming	Three times/year at end of winter, mid-summer, after autumn leaf fall, or as required based on site specific observations of clogging or manufacturers' recommendations.
	Stabilise and mow contributing and adjacent areas.	As required.
	Removal of weeds or management using treatment applied directly into the weeds by an applicator rather than spraying	As required – once per year on less frequently used pavements.
	Remediate any landscaping which, through vegetation maintenance or soil slip, has been raised to within 50 mm of the level of the paving.	Check within the first 12 months of construction and then annually and arrange remedial works if/as required.
	Remedial work to any depressions, rutting and cracked or broken blocks considered detrimental to the structural performance or a hazard to users.	Check within the first 12 months of construction and then annually and arrange remedial works if/as required.
	Rehabilitation of surface and upper sub-structure.	Every 10 to 15 years or as required if infiltration performance appears to be reduced due to significant clogging.
	Initial inspection	Monthly for 3 months after installation
	Inspect for evidence of poor operation and/or weed growth. If required, take remedial action.	3-monthly, 48 h after large storms.
	Inspect silt accumulation rates and establish appropriate brushing frequencies	Annually.
	Monitor inspection chambers.	Annually.
Silt traps and catchpits	Inspect and identify any areas that are not operating correctly. If required, take remedial action.	Monthly for 3 months, then six monthly
	Debris removal from catchment surface (where may cause risks to performance)	Monthly
	Inspection of silt traps and catch pits to assess silt accumulation	Monthly (and after large storms)
	Removal of accumulated silt from silt trap and catch pit sumps	Annually, or as required
	Repair/rehabilitation of inlets, outlet, overflows and vents	As required

	Inspect/check all inlets, outlets, and overflows to ensure that they are in good condition and operating as designed	Annually and after large storms
Attenuation Tanks	Inspect and identify any areas that are not operating correctly. If required, take remedial action	Monthly for 3 months, then annually
	Remove debris from the catchment surface (where it may cause risks to performance)	Monthly
	For systems where rainfall infiltrates into the tank from above, check surface of filter for blockage by sediment, algae or other matter; remove and replace surface infiltration medium as necessary.	Annually
	Remove sediment from pre-treatment structures and/or internal forebays	Annually, or as required
	Repair/rehabilitate inlets, outlet, overflows and vents	As required
	Inspect/check all inlets, outlets, vents and overflows to ensure that they are in good condition and operating as designed	Annually
	Survey inside of tank for sediment build-up and remove if necessary	Every 5 years or as required

Geotechnical Review



Infiltration Testing



Dixon Civils

Drainage & Infrastructure Design

BRE Digest 365
Soil Infiltration Test Record

TEST RECORD

Test Pit Number: _____

Pit dimensions: 1.4m Long x 4m Wide x 1.6m Deep

	Reading (% full)	Depth of water from base	Time
Test 1	100%		○
	75%		19mins
	~~50%~~ 71%		19hrs 25mins
	25% ~~26%~~ 269%		52hrs.
Test 2	100%		
	75%		
	50%		
	25%		
Test 3	100%		
	75%		
	50%		
	25%		

Calculated Infiltration Rate =

Tuesday
12.18

Test failed

Greenfield Runoff Rate



Greenfield runoff rate estimation tool

www.uksuds.com | Greenfield runoff rate estimation tool (<https://www.uksuds.com/>)

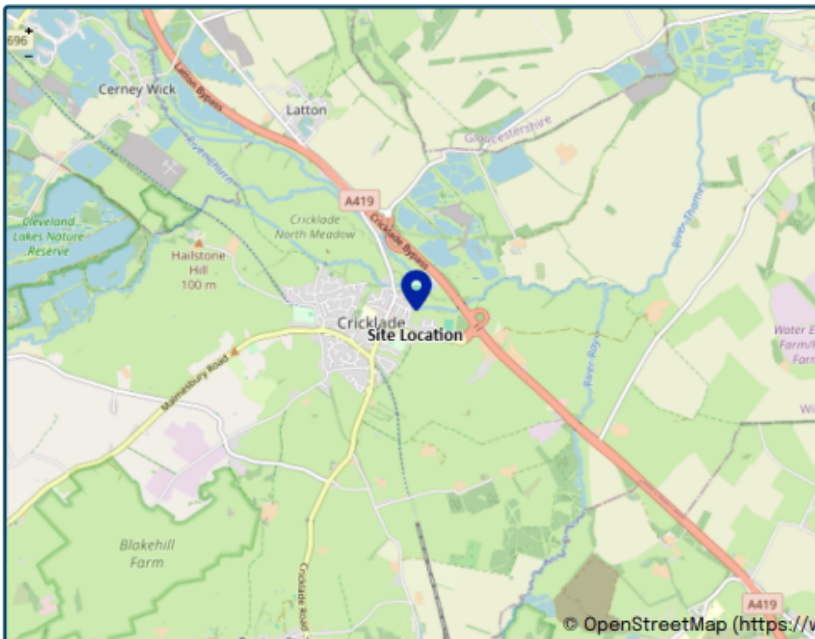
This is an estimation of the greenfield runoff rates that are used to meet normal best practice criteria in line with Environment Agency guidance "Rainfall runoff management for developments", SC030219 (2013), the SuDS Manual C753 (CIRIA, 2015) and the non-statutory standards for SuDS (Defra, 2015). This information on greenfield runoff rates may be the basis for setting consents for the drainage of surface water runoff from sites.

Project details

Date	02/09/2026
Calculated by	MPM
Reference	26-110
Model version	2.2.3

Location

Site name	Pear Tree Cottage
Site location	Cricklade



Site easting (British National Grid)	410354
Site northing (British National Grid)	193572

Site details

Total site area (ha)	0.08	ha
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Greenfield runoff

Method

Method

IH124

IH124

SAAR (mm)

My value

685

mm

Map value

☐

685

How should SPR be derived?

Estimate using BFI

BFIHOST

0.463

SPR

0.412

QBar (IH124) (l/s)

0.3

l/s

Growth curve factors

Hydrological region

My value

6

Map value

☐

6

1 year growth factor

0.85

2 year growth factor

0.88

10 year growth factor

1.62

30 year growth factor

2.3

100 year growth factor

3.19

200 year growth factor

3.74

Results

Method

IH124

Flow rate 1 year (l/s)

0.2

l/s

Flow rate 2 year (l/s)

0.2

l/s

Flow rate 10 years (l/s)

0.5

l/s

Flow rate 30 years (l/s)

0.7

l/s

Flow rate 100 years (l/s)

0.9

l/s

Flow rate 200 years (l/s)

1.1

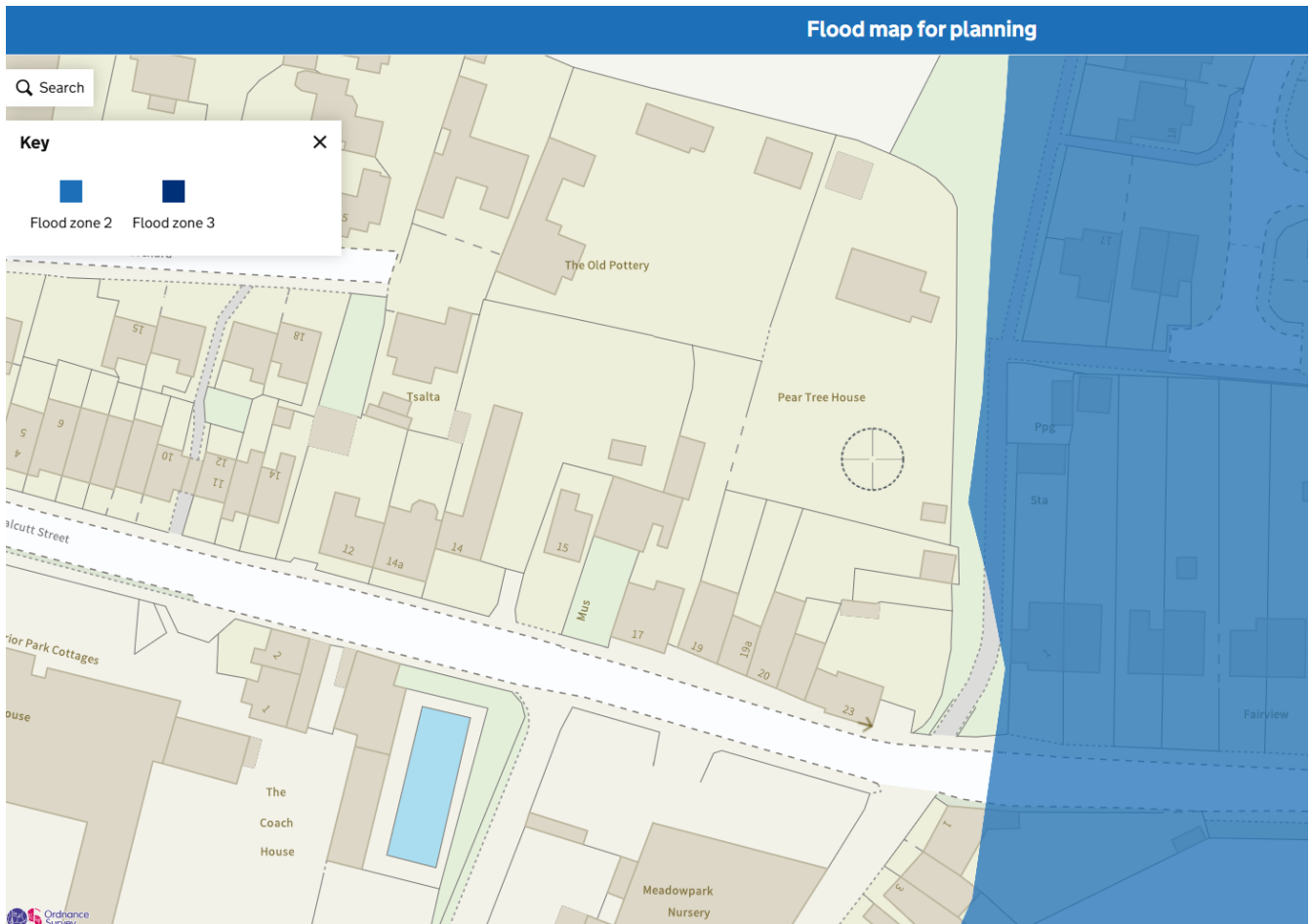
l/s

Please note runoff estimation is subject to significant uncertainty. Results are therefore normally reported to only 1 decimal place. Where 2 decimal places are provided, this does not indicate accuracy to this level, it has been adopted to prevent 'zero' figures from being reported. Outputs less than 0.01 l/s are reported as 0.01 l/s.

Disclaimer

This report was produced using the Greenfield runoff rate estimation tool (2.2.3) developed by HR Wallingford and available at [uksuds.com](https://www.uksuds.com/) (<https://www.uksuds.com/>). The use of this tool is subject to the UK SuDS terms and conditions and licence agreement, which can both be found at [uksuds.com/terms-conditions](https://www.uksuds.com/terms-conditions) (<https://www.uksuds.com/terms-conditions>). The outputs from this tool have been used to estimate Greenfield runoff rates. The use of these results is the responsibility of the users of this tool. No liability will be accepted by HR Wallingford, the Environment Agency, Centre for Ecology and Hydrology, Wallingford Hydrosolutions or any other organisation for the use of these data in the design or operational characteristics of any drainage scheme.

Flood Risk Mapping



The site resides wholly within Flood Zone 1

Water Quality Management

SUMMARY TABLE		DESIGN CONDITIONS			
		1	2	3	4
Land Use Type	Residential parking				
Pollution Hazard Level	Low				
Pollution Hazard Indices					
TSS	0.5				
Metals	0.4				
Hydrocarbons	0.4				
SuDS components proposed					
Component 1	None				
Component 2	None				
Component 3	None				
SuDS Pollution Mitigation Indices					
TSS	0				
Metals	0				
Hydrocarbons	0				
Groundwater protection type	Pervious pavement underlain by 300 mm minimum depth of soils with good contamination attenuation potential	All designs must include a minimum of 1 m unsaturated depth of subsoil or aquifer material between the infiltration surface and the maximum likely groundwater level. Infiltration components should always be preceded by upstream component(s) that trap(s) silt, or designed specifically to retain sediment in a separate lined zone, easily accessible for maintenance, such that the sediment will not be re-suspended in subsequent events	The permeable pavement must include a suitable filtration layer provides treatment and must include a geotextile at the base separating the foundation from the sub-grade. The underlying soils must provide good contaminant attenuation potential (eg as recommended in Sniffer 2008 (a) and (b) / Scott Wilson (2010) or other appropriate guidance). Alternative depth and soil combinations must provide equivalent protection to the underlying groundwater		
Groundwater protection					
Pollution Mitigation Indices					
TSS	0.7				
Metals	0.6				
Hydrocarbons	0.7				
Combined Pollution Mitigation Indices					
TSS	0.7				
Metals	0.6				
Hydrocarbons	0.7				
Acceptability of Pollution Mitigation					
TSS	Sufficient				
Metals	Sufficient				
Hydrocarbons	Sufficient				

Surface Water Modelling



Design Settings

Rainfall Methodology	FEH-22	Minimum Velocity (m/s)	1.00
Return Period (years)	30	Connection Type	Level Soffits
Additional Flow (%)	10	Minimum Backdrop Height (m)	0.200
CV	1.000	Preferred Cover Depth (m)	0.300
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)	Node Type	Manhole Type	Diameter (mm)	Depth (m)
✓	RWP1	0.004	5.00	79.700	Manhole	Adoptable	100	0.250
✓	RWP2	0.003	5.00	79.700	Manhole	Adoptable	100	0.250
✓	RWP3&4	0.003	5.00	79.700	Manhole	Adoptable	100	0.250
✓	RWP5	0.002	5.00	79.700	Manhole	Adoptable	100	0.250
✓	RWP6	0.002	5.00	79.700	Manhole	Adoptable	100	0.250
✓	RWP7	0.002	5.00	79.650	Manhole	Adoptable	100	0.250
✓	RWP8	0.002	5.00	79.650	Manhole	Adoptable	100	0.250
✓	Parking	0.011	5.00	79.700	Manhole	Adoptable	100	0.700
✓	MH SW1-01			79.700	Manhole	Adoptable	450	0.450
✓	MH SW1-02			79.700	Manhole	Adoptable	450	0.750
✓	MH SW1-03			79.700	Manhole	Adoptable	450	0.950
✓	MH SW1-04			79.650	Manhole	Adoptable	450	1.000
✓	ATT01			79.700	Junction			1.300
✓	MH SW1-05			79.700	Manhole	Adoptable	100	1.350

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)
1.000	RWP1	MH SW1-01	9.000	0.600	79.450	79.250	0.200	45.0	100	5.13	50.0
2.000	RWP2	MH SW1-01	2.000	0.600	79.450	79.250	0.200	10.0	100	5.01	50.0
1.001	MH SW1-01	MH SW1-02	8.000	0.600	79.250	78.950	0.300	26.7	100	5.22	50.0
3.000	RWP3&4	MH SW1-02	2.000	0.600	79.450	78.950	0.500	4.0	100	5.01	50.0
4.000	Parking	MH SW1-02	1.000	0.600	79.000	78.950	0.050	20.0	100	5.01	50.0
1.002	MH SW1-02	MH SW1-03	11.000	0.600	78.950	78.750	0.200	55.0	150	5.35	50.0
6.000	RWP5	MH SW1-03	1.000	0.600	79.450	78.750	0.700	1.4	100	5.00	50.0
5.000	RWP6	MH SW1-03	12.000	0.600	79.450	78.750	0.700	17.1	100	5.11	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)
1.000	1.152	9.0	0.8	0.150	0.350	0.004	0.0	20	0.703
2.000	2.458	19.3	0.6	0.150	0.350	0.003	0.0	12	1.098
1.001	1.500	11.8	1.4	0.350	0.650	0.007	0.0	23	1.001
3.000	3.894	30.6	0.6	0.150	0.650	0.003	0.0	10	1.512
4.000	1.734	13.6	2.2	0.600	0.650	0.011	0.0	27	1.268
1.002	1.359	24.0	4.2	0.600	0.800	0.021	0.0	42	1.025
6.000	6.525	51.2	0.4	0.150	0.850	0.002	0.0	7	1.952
5.000	1.874	14.7	0.4	0.150	0.850	0.002	0.0	11	0.800



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)
1.003	MH SW1-03	MH SW1-04	5.000	0.600	78.750	78.650	0.100	50.0	150	5.41	50.0
7.000	RWP7	MH SW1-04	6.000	0.600	79.400	78.650	0.750	8.0	100	5.04	50.0
8.000	RWP8	MH SW1-04	2.000	0.600	79.400	78.650	0.750	2.7	100	5.01	50.0
1.004	MH SW1-04	ATT01	1.000	0.600	78.650	78.400	0.250	4.0	150	5.42	50.0
1.005	ATT01	MH SW1-05	1.000	0.600	78.400	78.350	0.050	20.0	150	5.42	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)
1.003	1.426	25.2	5.0	0.800	0.850	0.025	0.0	45	1.108
7.000	2.750	21.6	0.4	0.150	0.900	0.002	0.0	10	1.065
8.000	4.772	37.5	0.4	0.150	0.900	0.002	0.0	7	1.539
1.004	5.074	89.7	5.8	0.850	1.150	0.029	0.0	25	2.849
1.005	2.262	40.0	5.8	1.150	1.200	0.029	0.0	38	1.614

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)
1.000	9.000	45.0	100	Circular	79.700	79.450	0.150	79.700	79.250	0.350
2.000	2.000	10.0	100	Circular	79.700	79.450	0.150	79.700	79.250	0.350
1.001	8.000	26.7	100	Circular	79.700	79.250	0.350	79.700	78.950	0.650
3.000	2.000	4.0	100	Circular	79.700	79.450	0.150	79.700	78.950	0.650
4.000	1.000	20.0	100	Circular	79.700	79.000	0.600	79.700	78.950	0.650
1.002	11.000	55.0	150	Circular	79.700	78.950	0.600	79.700	78.750	0.800
6.000	1.000	1.4	100	Circular	79.700	79.450	0.150	79.700	78.750	0.850
5.000	12.000	17.1	100	Circular	79.700	79.450	0.150	79.700	78.750	0.850
1.003	5.000	50.0	150	Circular	79.700	78.750	0.800	79.650	78.650	0.850
7.000	6.000	8.0	100	Circular	79.650	79.400	0.150	79.650	78.650	0.900
8.000	2.000	2.7	100	Circular	79.650	79.400	0.150	79.650	78.650	0.900
1.004	1.000	4.0	150	Circular	79.650	78.650	0.850	79.700	78.400	1.150
1.005	1.000	20.0	150	Circular	79.700	78.400	1.150	79.700	78.350	1.200

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.000	RWP1	100	Manhole	Adoptable	MH SW1-01	450	Manhole	Adoptable
2.000	RWP2	100	Manhole	Adoptable	MH SW1-01	450	Manhole	Adoptable
1.001	MH SW1-01	450	Manhole	Adoptable	MH SW1-02	450	Manhole	Adoptable
3.000	RWP3&4	100	Manhole	Adoptable	MH SW1-02	450	Manhole	Adoptable
4.000	Parking	100	Manhole	Adoptable	MH SW1-02	450	Manhole	Adoptable
1.002	MH SW1-02	450	Manhole	Adoptable	MH SW1-03	450	Manhole	Adoptable
6.000	RWP5	100	Manhole	Adoptable	MH SW1-03	450	Manhole	Adoptable
5.000	RWP6	100	Manhole	Adoptable	MH SW1-03	450	Manhole	Adoptable
1.003	MH SW1-03	450	Manhole	Adoptable	MH SW1-04	450	Manhole	Adoptable
7.000	RWP7	100	Manhole	Adoptable	MH SW1-04	450	Manhole	Adoptable
8.000	RWP8	100	Manhole	Adoptable	MH SW1-04	450	Manhole	Adoptable
1.004	MH SW1-04	450	Manhole	Adoptable	ATT01		Junction	
1.005	ATT01		Junction		MH SW1-05	100	Manhole	Adoptable



Manhole Schedule

Node	CL (m)	Depth (m)	Dia (mm)	Node Type	MH Type	Connections	Link	IL (m)	Dia (mm)	Link Type
RWP1	79.700	0.250	100	Manhole	Adoptable		0	1.000	79.450	100 Circular
RWP2	79.700	0.250	100	Manhole	Adoptable		0	2.000	79.450	100 Circular
RWP3&4	79.700	0.250	100	Manhole	Adoptable		0	3.000	79.450	100 Circular
RWP5	79.700	0.250	100	Manhole	Adoptable		0	6.000	79.450	100 Circular
RWP6	79.700	0.250	100	Manhole	Adoptable		0	5.000	79.450	100 Circular
RWP7	79.650	0.250	100	Manhole	Adoptable		0	7.000	79.400	100 Circular
RWP8	79.650	0.250	100	Manhole	Adoptable		0	8.000	79.400	100 Circular
Parking	79.700	0.700	100	Manhole	Adoptable		0	4.000	79.000	100 Circular
MH SW1-01	79.700	0.450	450	Manhole	Adoptable		1 2 0	2.000 1.000 1.001	79.250 79.250 79.250	100 Circular 100 Circular 100 Circular
MH SW1-02	79.700	0.750	450	Manhole	Adoptable		1 2 3 0	4.000 3.000 1.001 1.002	78.950 78.950 78.950 78.950	100 Circular 100 Circular 100 Circular 150 Circular
MH SW1-03	79.700	0.950	450	Manhole	Adoptable		1 2 3 0	6.000 5.000 1.002 1.003	78.750 78.750 78.750 78.750	100 Circular 100 Circular 150 Circular 150 Circular
MH SW1-04	79.650	1.000	450	Manhole	Adoptable		1 2 3 0	8.000 7.000 1.003 1.004	78.650 78.650 78.650 78.650	100 Circular 100 Circular 150 Circular 150 Circular
ATT01	79.700	1.300		Junction			1 0	1.004 1.005	78.400 78.400	150 Circular 150 Circular



Manhole Schedule

Node	CL (m)	Depth (m)	Dia (mm)	Node Type	MH Type	Connections	Link	IL (m)	Dia (mm)	Link Type
MH SW1-05	79.700	1.350	100	Manhole	Adoptable	1	1.005	78.350	150	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	✓
Winter CV	1.000	Additional Storage (m³/ha)	0.0	100 year 360 minute (m³)	

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 %)
30	0	10	0
100	40	10	0

Pre-development Discharge Volume

Site Makeup	Greenfield	Return Period (years)	100
Greenfield Method	FSR/FEH	Climate Change (%)	0
Positively Drained Area (ha)	0.078	Storm Duration (mins)	360
Soil Index	2	Betterment (%)	30
SPR	0.30	PR	
CWI		Runoff Volume (m³)	

Node MH SW1-05 Online Head/Flow Control

Flap Valve x | Replaces Downstream Link x | Invert Level (m) 78.350

Head (m)	Flow (l/s)
0.500	0.700

Node ATT01 Soakaway Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	78.400	Depth (m)	0.800
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	24	Inf Depth (m)	
Safety Factor	1.0	Pit Width (m)	3.000	Number Required	1
Porosity	0.95	Pit Length (m)	8.000		

Node Parking Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	79.000	Slope (1:X)	70.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	0	Depth (m)	0.250
Safety Factor	1.0	Width (m)	6.000	Inf Depth (m)	
Porosity	0.30	Length (m)	16.500		



Results for 30 year +10% A Critical Storm Duration. Lowest mass balance: 97.08%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	RWP1	10	79.483	0.033	2.1	0.0003	0.0000	OK
15 minute summer	RWP2	10	79.469	0.019	1.6	0.0002	0.0000	OK
15 minute summer	RWP3&4	10	79.466	0.016	1.6	0.0001	0.0000	OK
15 minute summer	RWP5	10	79.459	0.009	1.1	0.0001	0.0000	OK
15 minute summer	RWP6	10	79.468	0.018	1.1	0.0001	0.0000	OK
15 minute summer	RWP7	10	79.415	0.015	1.1	0.0001	0.0000	OK
15 minute summer	RWP8	10	79.412	0.012	1.1	0.0001	0.0000	OK
15 minute summer	Parking	11	79.063	0.063	5.8	0.2575	0.0000	OK
15 minute summer	MH SW1-01	10	79.288	0.038	3.7	0.0061	0.0000	OK
15 minute summer	MH SW1-02	11	79.023	0.073	10.6	0.0116	0.0000	OK
15 minute summer	MH SW1-03	11	78.838	0.088	12.6	0.0139	0.0000	OK
120 minute winter	MH SW1-04	116	78.822	0.172	4.5	0.0274	0.0000	SURCHARGED
120 minute winter	ATT01	114	78.822	0.422	9.9	9.6269	0.0000	SURCHARGED
120 minute winter	MH SW1-05	114	78.822	0.472	1.7	0.0038	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 summer	RWP1	1.000	MH SW1-01	2.1	0.834	0.230	0.0225	
15 minute summer	RWP2	2.000	MH SW1-01	1.6	0.851	0.082	0.0038	
15 minute summer	RWP3&4	3.000	MH SW1-02	1.6	0.641	0.052	0.0069	
15 minute summer	RWP5	6.000	MH SW1-03	1.1	0.395	0.021	0.0038	
15 minute summer	RWP6	5.000	MH SW1-03	1.1	0.260	0.073	0.0494	
15 minute summer	RWP7	7.000	MH SW1-04	1.1	0.533	0.050	0.0136	
15 minute summer	RWP8	8.000	MH SW1-04	1.1	0.613	0.029	0.0043	
15 minute summer	Parking	4.000	MH SW1-02	5.5	0.976	0.402	0.0057	
15 minute summer	MH SW1-01	1.001	MH SW1-02	3.6	0.822	0.308	0.0353	
15 minute summer	MH SW1-02	1.002	MH SW1-03	10.6	1.102	0.441	0.1056	
15 minute summer	MH SW1-03	1.003	MH SW1-04	12.7	1.622	0.503	0.0392	
120 minute winter	MH SW1-04	1.004	ATT01	9.9	2.148	0.110	0.0176	
120 minute winter	ATT01	1.005	MH SW1-05	1.7	0.457	0.044	0.0176	
120 minute winter	MH SW1-05	Head/Flow		0.7				13.2



Results for 100 year +40% CC +10% A Critical Storm Duration. Lowest mass balance: 97.08%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	RWP1	10	79.496	0.046	3.8	0.0004	0.0000	OK
15 minute summer	RWP2	10	79.476	0.026	2.9	0.0002	0.0000	OK
15 minute summer	RWP3&4	10	79.471	0.021	2.9	0.0002	0.0000	OK
15 minute summer	RWP5	10	79.462	0.012	1.9	0.0001	0.0000	OK
15 minute summer	RWP6	10	79.474	0.024	1.9	0.0002	0.0000	OK
15 minute summer	RWP7	10	79.420	0.020	1.9	0.0002	0.0000	OK
15 minute summer	RWP8	10	79.415	0.015	1.9	0.0001	0.0000	OK
360 minute summer	Parking	288	79.162	0.162	2.1	1.6726	0.0000	SURCHARGED
15 minute summer	MH SW1-01	10	79.304	0.054	6.6	0.0085	0.0000	OK
360 minute summer	MH SW1-02	288	79.163	0.212	4.1	0.0338	0.0000	SURCHARGED
360 minute summer	MH SW1-03	288	79.163	0.413	4.8	0.0657	0.0000	SURCHARGED
360 minute summer	MH SW1-04	288	79.164	0.514	5.3	0.0818	0.0000	SURCHARGED
240 minute summer	ATT01	220	79.162	0.762	7.2	17.3660	0.0000	SURCHARGED
240 minute summer	MH SW1-05	220	79.161	0.811	1.1	0.0065	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 summer	RWP1	1.000	MH SW1-01	3.8	0.965	0.416	0.0351	
15 minute summer	RWP2	2.000	MH SW1-01	2.9	0.990	0.149	0.0059	
15 minute summer	RWP3&4	3.000	MH SW1-02	2.9	0.626	0.094	0.0090	
15 minute summer	RWP5	6.000	MH SW1-03	1.9	1.225	0.037	0.0042	
15 minute summer	RWP6	5.000	MH SW1-03	1.9	0.483	0.128	0.0557	
15 minute summer	RWP7	7.000	MH SW1-04	1.9	0.742	0.087	0.0264	
15 minute summer	RWP8	8.000	MH SW1-04	1.9	1.114	0.051	0.0085	
360 minute summer	Parking	4.000	MH SW1-02	2.1	0.796	0.157	0.0078	
15 minute summer	MH SW1-01	1.001	MH SW1-02	6.6	0.995	0.559	0.0484	
360 minute summer	MH SW1-02	1.002	MH SW1-03	4.0	0.852	0.168	0.1937	
360 minute summer	MH SW1-03	1.003	MH SW1-04	4.5	1.119	0.178	0.0880	
360 minute summer	MH SW1-04	1.004	ATT01	9.5	1.803	0.106	0.0176	
240 minute summer	ATT01	1.005	MH SW1-05	1.1	0.204	0.027	0.0176	
240 minute summer	MH SW1-05	Head/Flow		0.7				16.7