Appendix D Planning Stage Drainage Design



Legend:

- HB1 — Manhole with Hydro Brake limiting discharge to 1.0lits/sec
- Existing Southern Water manhole with backdrop connection- Subject to S106 Agreement
- Domestic surface water gravity sewer
- Domestic foul water gravity sewer
- Domestic combined gravity sewer
- Type 3 manhole - 450Ø
- Type 4 inspection chamber - 280Ø
- ST — Silt trap inspection chamber - 450Ø
- Surface water attenuation storage for 1 in 100yr storm + 45%CC +10% UC
- FFL: 11.60 — Proposed Finished Floor Level
- +9.45 — Garden levels
- Flood Flow Route

Foul Water Drainage Strategy:

1. The nearest public sewer to achieve a gravity connection is situated 40 metres south of the site in third party land at manhole Ref9102 for which the land owner has given consent to lay a connection through to connect into this manhole.
2. Southern Water have confirmed that there is capacity at manhole Ref9202 to cater for the foul water flow from the proposed development of 0.05lits/sec.
3. Manhole Ref9102 is downstream of manhole Ref9202 and will allow a gravity connection from the site rather than a pumped discharge if the connection was made at manhole Ref9202 situated north of the site in Oak Tree Lane.
4. Connection to manhole Ref9102 will be subject to a S106 agreement with Southern Water

Surface Water Drainage Strategy:

1. In order to provide an acceptable surface water drainage strategy for the proposed development the SuDS hierarchy for sustainable drainage has been followed.
   - Winter monitoring has shown that the recorded groundwater levels preclude the use of domestic soakaways as the means of surface water disposal with the highest recorded level being 0.09m below ground level so it will only be posible to utilise a shallow infiltration system for the permeble block paved drives and access,
   - The nearest watercourse is 0.25Km east of the site and any access to it will be over third party land to which the developer has no rights. The new Water UK 'Design & Construction Guidance for Foul and Surface Water Sewers' precludes the requisitioning of a surface water outfall to a watercourse so this solution is not achievable.
   - Southern Water asset plans show that there is a public sewer south of the site site in third party land for which the land owner has given consent to lay a connection through to connect into manhole Ref9102.
   - Southern Water confirmed in July 2021 that there is adequate capacity in this sewer network to discharge a surface water flow of 1.0lits/sec. Although Southern Water stated that the results were only valid for a 12 months period there has been no material change to the network that would preclude their acceptance of such a small discharge. It should be noted that in line with SuDS it is proposed to install water butts for each property which will help further reduce the flow into the network. Connection will be into manhole Ref9102, which is downstream of manhole Ref9202, this will be subject to a S106 Agreement with Southern Water.
2. Utilising the allowable discharge of 1.0 lits/sec and catering for the 1 in 100 year storm event with an additional 45% allowance for climate change and incorporating a further 10% allowance on the impermeable area for '*urban creep*' the volume of attenuation required calculated by the MicroDrainage suite is 22.1m³.
3. It is proposed that this volume will be stored in a cellular 'Aquacell' tank at the southern end of the site prior to discharging through a 'Hydro Brake' vortex flow control into the sewer network.
4. All surface water drainage features and pollution control measures will be maintained by the site specific management company set up for any site maintenance requirements and which will be funded by an annual payment from residents.
5. Prior to discharging into manhole Ref9102 the surface water and foul discharge from the site will be combined into a single outlet which will be subject to a S106 connection Agreement with Southern Water.

Rev.	Date	Details	Initials
D	28.11.24	Drainage layout amended	KN
C	15.10.24	Drainage layout amended & rainwater butts added	KN
B	06.09.24	Issue size amended	KN
A	02.09.24	Initial issue	KN

Drawing Status
PRELIMINARY FOR PLANNING

Project
RYEFIELD FARMHOUSE, WOODGATE
BARNHAM

Client
DOMUSEA DEVELOPMENTS

KAZYS NARBUTAS CONSULTING
Civil Engineering Consultant
Unit 24b, Romsey Industrial Estate, Greatbridge Road, Romsey, Hants. SO51 0HE
Telephone: 01794 223146 Email: kazys.n@knc.email

Drawing Title
Engineering Details
Drainage Strategy

Drawn	Checked	Scales	Paper Size	Date
KN		1:500	A2	09.24

Job No.	Drawing No.	Revision
KNC2107	602-02	D

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Site NGR - 493998, 104250

104300m.N

104200m.N

104100m.N

OAK TREE LANE

The Dock

Ryefield Farmhouse

The Lodge

Woodgate Centre

WOODGATE ROAD

PADDOCK

PLOUGHED FIELD

Aquacell cellular surface water attenuation tank 18.0x3.0x0.8Volume of storage = 39.0m³ for 1in100yrs+40%CC

Hydro Brake flow control limiting discharge to 2.0lits/sec

150mm Ø surface water drainage connection into Pye Homes network as agreed

150mm Ø foul drainage connection into Pye Homes network as agreed

150Ø Foul Drainage

EXTRACT FROM PYE HOMES DRAINAGE PROPOSALS

0m 10m 20m 30m 40m 50m
1:500m

Surface Water Drainage Strategy:

1. In order to provide an acceptable surface water drainage strategy for the proposed development the SuDS hierarchy for sustainable drainage has been followed.
   - Winter monitoring has shown that the recorded groundwater levels preclude the use of soakaways as the means of surface water disposal with the highest recorded level being 0.09m below ground level
   - The nearest watercourse is 0.25Km east of the site and any access to it will be over third party land to which the developer has no rights. The new Water UK 'Design & Construction Guidance for Foul and Surface Water Sewers' precludes the requisitioning of a surface water outfall to a watercourse so this solution is not achievable.
   - Southern Water asset plans show that there are no public surface water sewers in the vicinity that would provide a discharge solution.
   - Agreement has been reached with Pye Homes that the limited discharge from the site of 2.0 lits/sec can drain into the drainage network serving their adjacent development.
2. Utilising the allowable discharge of 2.0 lits/sec and catering for the 1 in 100 year storm event with an additional 40% allowance for climate change and incorporating a further 10% allowance on the impermeable area for 'urban creep' the volume of attenuation required calculated by the MicroDrainage suite is 61.5m³.
3. It is proposed that this volume will be stored in a cellular 'Aquacell' tank at the southern end of the site prior to discharging through a 'Hydro Brake' vortex flow control into the Pye Homes network.
4. All surface water drainage features and pollution control measures will be maintained by the site specific management company set up for any site maintenance requirements and which will be funded by an annual payment from residents.

Foul Water Drainage Strategy:

1. The nearest public foul sewer is situated 55 metres west of the site in Oak Tree Lane. Due to the level differences between the site and the nearest manhole Ref 9202 it is not possible to provide a gravity discharge from the site to the public sewer.
2. Agreement has been reached with Pye Homes that the foul water discharge from the development can discharge into the foul sewer system serving their adjacent development.

Legend:

- HB1 — Manhole with Hydro Brake limiting discharge
- Domestic surface water gravity sewer
- Domestic foul water gravity sewer
- Type 3 manhole - 450Ø
- Type 4 inspection chamber - 280Ø
- ST — Silt trap inspection chamber - 450Ø
- Surface water attenuation storage
- FFL; 11.60 — Proposed Finished Floor Level
- +9.45 — Garden levels
- Flood Flow Route

E	22.03.22	Layout revised	KN
D	23.11.21	Drainage levels added	KN
C	10.11.21	Parking amended	KN
B	08.11.21	Foul & surface water drainage systems amended to gravity discharges	KN
A	12.05.21	Initial issue	KN
Rev.	Date	Details	Initials

Drawing Status
PRELIMINARY FOR PLANNING

Project
RYEFIELD FARMHOUSE
WOODGATE

Client
DOMUSEA DEVELOPMENTS

SAFETY, HEALTH & ENVIRONMENTAL INFORMATION
CDM Regulations 2015

In addition to the hazards/risks normally associated with the type of work detailed on this drawing note should be made of the following:

- Working in vicinity of live highway
- Services to be located prior to any excavation work being undertaken
- Working on live foul sewers
- Deep excavations

It is assumed that all works will be carried out by a competent contractor working, where appropriate, to an approved method statement. Contractor is not relieved of any of his obligations under all applicable health and safety regulations.

KAZYS NARBUTAS CONSULTING
Civil Engineering Consultant
Unit 5B, Tannery Court, Tannery Lane, East Wellow, Romsey, Hants. SO51 6DP
Telephone: 01794 322903 Email: kazys.n@knc.email

Drawing Title
Engineering Details
Drawing Strategy

Drawn	Checked	Scales	Paper Size	Date
KN		1:500	A1	05.21
Job No.		Drawing No.		Revision
KNC2107		602-01		E

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Dimensions should be checked and verified on site and any discrepancies should be reported to Kazys Narbutas Consulting as soon as possible.

ARUN DISTRICT COUNCIL AUTOCAD

Appendix E Southern Water S106 Approval

from Southern Water

Mrs Mandy Lake
Unit 24b
Romsey Industrial Estate
Greatbridge Road
Romsey
Hampshire
SO51 0HR

Your ref
17050

Our ref
DSA000037049

Date
09 January 2025

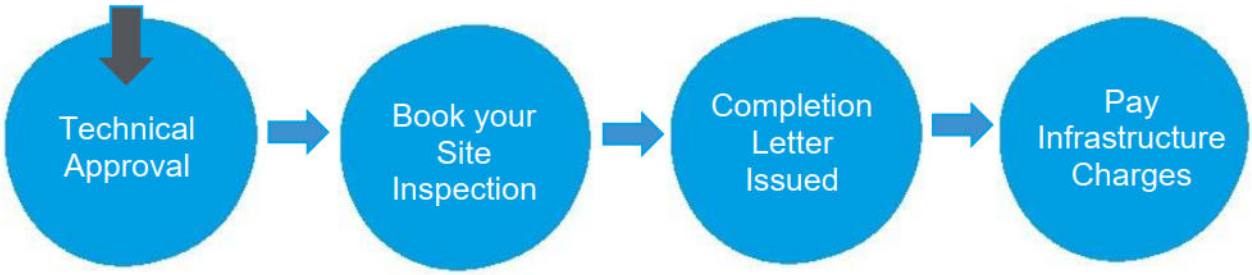
[redacted]

Dear Mrs Lake,

Application to Connect to the Public Sewerage System - Section 106.

Location: Ryefields Farmhouse, Oak Tree Lane, Woodgate, Aldingbourne, West Sussex, PO20 3GU.

You are here



What happens next?

1. This is your technical approval.
2. Construction of the wastewater connection begins. Once completed, ensure you book a site inspection, so we know the connection is in line with your application.
3. Once the site inspection has confirmed the work is satisfactory, a completion letter will be issued. See the Essential Sewer Connection Information document to find out why this letter is important.
4. Your infrastructure charge invoice will be issued (if applicable*).

Southern Water Services Ltd, Registered Office: Southern House, Yeoman Road, Worthing, West Sussex, BN13 3NX Registered in England No. 2366670

How to book your site Inspection

To progress, select the **'Accept'** option on the Get Connected customer dashboard. Or, if you have further questions, please select the 'Query' option. If you do not wish to progress with the application, then please select the 'Withdraw' option.

Now you have received our approval, you will need to arrange with your contractor to carry out your works on site to connect into our sewer. Once the connection has been made it is a mandatory requirement for the point of connection to be inspected by one of our Assistant Adoption Managers.

To arrange this inspection, please select **'Ready for Inspection'** on your Get Connected customer dashboard. Once this has been selected, please contact **Mick Vince** our Assistant Adoption Manager for this area on **07803 259227** and request an inspection giving at least two full working days' notice.

Once we are happy that your connection to the public sewer complies with our requirements and have passed our inspection, we will send you a completion letter within 7 working days. It's important to ensure your connection is inspected to prevent any risk of disconnection at a later date.

Technical Approval

We are pleased to advise that your Section 106 application to connect to the public **foul** sewer, as shown on your drawing **602-02,** Revision **D,** dated **28/11/24**, is approved by Southern Water **for both the site's foul and surface water discharges**. Our approval means we are satisfied with your connection method. Inspection of the wastewater connection is required to complete your Section 106 application.

Please note, that the peak flow rate for the site's surface water discharge must not exceed the agreed flow rate of 1.0L/S.

Connections to existing/new Southern Water assets (i.e., manholes) and the arrangement of Southern Water assets (i.e., pipe junctions within manholes) should always be in accordance with the new Design and Construction Guidance manual ("the Code") and Southern Water's guidance documentation. water.org.uk/sewerage-sector-guidance-approved-documents/

This Section 106 approval does not confirm that public sewer network capacity is available at your location for the proposed development. The availability of capacity may be assessed through the Pre-Planning Enquiry process.

Please note that your connection should not proceed if:

- There are unapproved changes to your submitted plan or to the intended connection point. Any unapproved changes may lead to us disconnecting your connection under Section 109 of the Water Industry Act 1991.
- The relevant Planning Authority has set out conditions relating to the site's drainage and those conditions have not yet been discharged.
- You have not consulted our Health and Safety Advisory that can be viewed at the following link southernwater.co.uk/developing-building/health-and-safety

Southern Water Services Ltd, Registered Office: Southern House, Yeoman Road, Worthing, West Sussex, BN13 3NX Registered in England No. 2366670

- You have not obtained the necessary Building Regulations Approvals or, if relevant, obtained a Highway Authority Road Opening License.

- Landowner consent has not been obtained where your connection is to be made through another Party's land.

Please contact the Developer Services Team via the Get Connected customer dashboard / on [redacted] should you require any further advice.

Yours sincerely,

[redacted]

Dale Hughes
Technical Coordinator - Wastewater

[redacted]

Southern Water Services Ltd, Registered Office: Southern House, Yeoman Road, Worthing, West Sussex, BN13 3NX Registered in England No. 2366670

from Southern Water

Essential Sewer Connection Information

1. Site Inspection Checklist
2. What happens if the sewer connection is not inspected?
3. Adoption of a sewer
4. Infrastructure charges
5. Enforcement Policy

1. Site Inspection Checklist

We have prepared a site inspection checklist so that inspection of your sewer connection can be passed first time southernwater.co.uk/media/3028/ds-site-inspection-checklist.pdf

2. What happens if the sewer connection is not inspected and a completion letter is not issued?

Incidences where construction of the sewer connection has been completed but a site inspection has not been requested then the sewer connection application is not completed. You will need to request for a site inspection to finalise the application. If the sewer connection has not been built as per the designs submitted then we will ask you to rectify.

3. Adoption of a sewer

When a new development is planned, the developer can construct the sewers using approved materials and to a standard, which makes them suitable for adoption by Southern Water when construction is complete.

An adoption agreement can be entered into under Section 104 of the Water Industry Act 1991, prior to the sewers being built. This is the most desirable arrangement and if all new developments were covered by such adoption agreements, there would be few, if any, new private sewers on housing estates. However, there are many kilometres of existing private sewers that were built without an adoption agreement in place.

Section 102 of the Water Industry Act 1991 provides for the adoption of such sewers to be considered. It is important to draw a distinction between sewers, drains, and lateral drains:

- Sewers are pipes carrying sewage from more than one property
- Drains are pipes carrying sewage from only one property to the curtilage of the building or premises
- Lateral drains are those pipes which extend from the curtilage of a single building to the point of connection with an existing public of private sewer

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To start the process of having the private sewer adopted, please visit our website and fill in the S102 Adoption Form.

4. Infrastructure charges

New developments increase the load on our networks and may require investment in upstream network reinforcement. This investment is funded through the Infrastructure Charge where the cost of network reinforcement is levied per property at the time of final connection.

* In addition to the sewer connection application charge, a charge for sewerage infrastructure is levied on each dwelling connecting onto the sewerage system. Non domestic properties will be individually assessed according to the number of appliances/fittings producing wastewater. Infrastructure charges are applicable even if the connection is made via a private sewer providing that the private sewer ultimately discharges into the public system.

There are three scenarios:

1. Water and wastewater connections are made within Southern Waters supply area. Infrastructure charges will be included in you water connection quote.

2. Water connections are made within another water company's supply zone and Wastewater is within the Southern Water supply area. Infrastructure charges will be invoiced following connection of the meters as advised by each water company.

3. You already have a water connection and require a wastewater connection in the Southern Water supply area. Infrastructure charges will be invoiced directly following completion of the wastewater connection.

For information and our current Connection Charges please refer to section 2 of the Southern Water Charging Arrangements Connection charging arrangements (southernwater.co.uk)

5. Enforcement Policy

It is an offence to not comply with the requirements of a S106 Water Industry Act 1991, which are detailed in the body of the letter. This can result in prosecution and a fine and/or removal of the illegal connection.

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Appendix F Evidence of Deed of Easement

Outlook

FW: AL/68/26/DOC - Land West of Ryefield Farmhouse

From: BAYLEY, Duncan (LPSOUTH[redacted]>
Sent: 28 September 2026 10:32
To: [redacted]
Cc: Hebe.Smith@arun.gov.uk
Subject: AL/68/26/DOC - Land West of Ryefield Farmhouse

Dear Ed

Thank you for your email. Further to our recent correspondence please see our response below which we hope will be of assistance with your application.

Having reviewed the proposed restricted discharge of less than 1.0 litre per second from land adjacent to Ryefields Farmhouse, we are not presently aware of any technical reason why the adjoining drainage network cannot accommodate these flows. Further modelling and confirmation with our consulting civil engineer and IWNL are being undertaken as part of the adoption and operational approval process.

We can also confirm that the relevant surface-water drainage infrastructure has been constructed materially in accordance with the drainage drawings approved by the Local Authority.

If we can be of any further assistance and/or provide more reassurance, please do let me now.

Trust this helps.

Kind regards
Duncan

Duncan Bayley
Technical Manager

LOVELL

A **MORGAN SINDALL GROUP** COMPANY

[redacted]
Suite A, Broadmede House, Farnham Business Park,, Farnham, GU9 8QT
lovell.co.uk

From: Edward Rees
To: Edward Rees
Subject: Ryefields.
Date: 03 October 2024 12:18:01
Attachments: image038778.png
image429206.png
image244617.png
image969620.png
image045315.png

Your reference: DSA000037049

To whom it may concern,

We write in relation to an application to connect to the public sewerage system – Section 106. This application concerns land at Ryefields Farmhouse, Oak Tree Lane, Woodgate, Aldingbourne, West Sussex, PO20 3GU (Dominant Land) and relates to a connection into a public sewer that adjoins a neighbouring parcel of land to the south known as Woodgate Centre, Oak Tree Lane, Woodgate, Chichester PO20 3GU (Servient Land). Please take this email as confirmation that the Dominant Land benefits from a legal agreement with the owner of the Servient Land which will provide the Dominant Land with legal easements so that surface and foul water can be drained from the Dominant Land over the adjoining Servient Land.

Yours faithfully
Moore Barlow LLP

Ben Loosemore
Partner

For and on behalf of Moore Barlow LLP
[redacted]

Private wealth | Family | Employment | Property | Corporate | Commercial | Schools | Charities | Disputes | Serious injury

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You will never be notified by phone or email that our bank account details (account number or sort code) have changed. If you are asked to send money to a different bank account please telephone (do not email) and speak to the person dealing with your matter or the Accounts Department BEFORE transferring funds.

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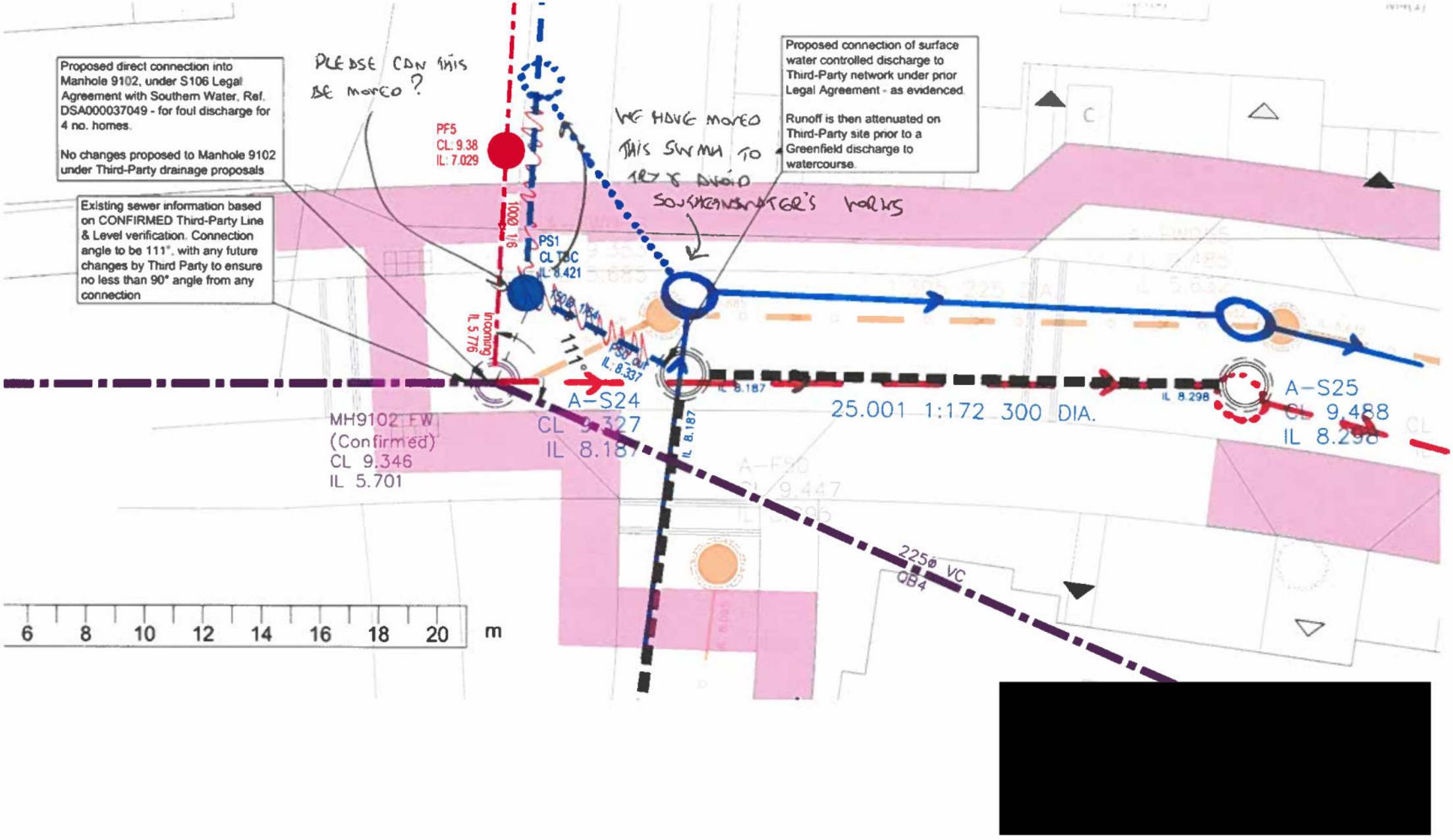

Proposed direct connection into Manhole 9102, under S106 Legal Agreement with Southern Water, Ref. DSA000037049 - for foul discharge for 4 no. homes.
No changes proposed to Manhole 9102 under Third-Party drainage proposals
Existing sewer information based on CONFIRMED Third-Party Line & Level verification. Connection angle to be 111°, with any future changes by Third Party to ensure no less than 90° angle from any connection
PLEASE CAN THIS BE MOVED ?
WE HAVE MOVED THIS SWMH TO TRY & AVOID SOUTHERN WATER'S WORKS
Proposed connection of surface water controlled discharge to Third-Party network under prior Legal Agreement - as evidenced.
Runoff is then attenuated on Third-Party site prior to a Greenfield discharge to watercourse.
PF5
CL 9.38
IL 7.029
1000 1/6
PS1
CL TBC
IL 8.421
150Ø 1/64
Incoming
IL 5.776
PS1 Out
IL 8.337
111°
A-S24
CL 9.327
IL 8.187
MH9102 FW
(Confirmed)
CL 9.346
IL 5.701
IL 8.187
IL 8.187
25.001 1:172 300 DIA.
IL 8.298
A-S25
CL 9.488
IL 8.298
225Ø VC
OB4
6 8 10 12 14 16 18 20 m

Appendix G Hydraulic Modelling Calculations

Network Details

Manhole Schedule

Manhole	Catchment Area (ha)	Size (mm)	Type	CL (m)	IL (m)	Depth To Soffit (m)	Easting (m)	Northing (m)
RWHT6	0.005	180	Type E	9.900	9.400	0.400	494023.640	104243.212
PS14	0.000	250	250 Inspection	9.904	9.350	0.454	494024.695	104243.230
RWHT7	0.003	180	Type E	9.900	9.400	0.400	494022.744	104250.221
D2	0.004	710x710	Type E	9.920	9.350	0.470	494025.958	104249.717
PS8	0.000	450	450 Inspection	9.915	9.210	0.555	494024.713	104251.599
RWHT5	0.003	180	Type E	9.800	9.300	0.400	494011.110	104250.300
PS7	0.000	450	450 Inspection	9.812	9.115	0.547	494011.106	104251.654
RWHT4	0.005	180	Type E	9.800	9.300	0.400	494009.593	104243.194
PS16	0.000	450	450 Inspection	9.815	9.250	0.465	494008.452	104243.540
D3	0.008	710x710	Type E	9.817	9.250	0.467	494006.018	104249.173
PS6	0.000	450	450 Inspection	9.788	9.095	0.543	494008.451	104251.187
D4	0.026	710x710	Type E	9.676	9.080	0.446	494008.658	104257.378
PS5	0.000	450	450 Inspection	9.805	9.035	0.620	494002.101	104257.339
PS11	0.004	180	Type E	9.890	9.340	0.450	493994.670	104243.224
RWHT3	0.005	180	Type E	9.900	9.400	0.400	493994.991	104254.934
PS10	0.000	450	450 Inspection	9.949	9.050	0.799	493994.597	104255.470
PS12	0.003	180	Type E	9.890	9.340	0.450	493994.055	104243.400
RWHT2	0.002	180	Type E	9.900	9.400	0.400	493993.617	104254.956
PS4	0.000	450	450 Inspection	10.018	8.980	0.888	493993.973	104257.318
D1	0.007	710x710	Type E	9.798	9.300	0.398	493985.867	104267.131
PS9	0.000	450	450 Inspection	9.816	9.100	0.616	493983.854	104266.299
RWHT1	0.005	180	Type E	9.895	9.395	0.400	493984.359	104251.654
PS13	0.000	180	Type E	9.890	9.340	0.450	493983.803	104251.768
PS3	0.000	600	Type E	9.804	8.910	0.744	493983.756	104257.293
PS2	0.000	450	450 Inspection	9.732	8.835	0.747	493972.584	104257.264
PS1	0.000	1200	Type B	9.400	8.460	0.790	493968.944	104201.402
PS0_out	0.000	180	Type E	9.270	8.404	0.716	493968.802	104192.979

Pipe Schedule

Pipe Number	US Manhole	US IL (m)	DS Manhole	DS IL (m)	Shape	Dimension (mm)	Length (m)	Gradient (1:x)	Roughness (mm)	US Depth To Soffit (m)	DS Depth To Soffit (m)
1.000	RWHT6	9.400	PS14	9.350	Circ	100	1.055	21	0.600	0.400	0.454
1.001	PS14	9.350	PS8	9.260	Circ	100	8.369	93	0.600	0.454	0.555
2.000	RWHT7	9.400	PS8	9.260	Circ	100	2.403	17	0.600	0.400	0.555
3.000	D2	9.350	PS8	9.260	Circ	100	2.257	25	0.600	0.470	0.555
1.002	PS8	9.210	PS7	9.115	Circ	150	13.606	143	0.600	0.555	0.547
4.000	RWHT5	9.300	PS7	9.165	Circ	100	1.354	10	0.600	0.400	0.547
1.003	PS7	9.115	PS6	9.095	Circ	150	2.696	135	0.600	0.547	0.543
5.000	RWHT4	9.300	PS16	9.250	Circ	100	1.192	24	0.600	0.400	0.465
5.001	PS16	9.250	PS6	9.145	Circ	100	7.647	73	0.600	0.465	0.543
6.000	D3	9.250	PS6	9.145	Circ	100	3.158	30	0.600	0.467	0.543
1.004	PS6	9.095	PS5	9.035	Circ	150	8.842	147	0.600	0.543	0.620
7.000	D4	9.080	PS5	9.035	Circ	150	6.557	146	0.600	0.446	0.620
1.005	PS5	9.035	PS4	8.980	Circ	150	8.128	148	0.600	0.620	0.888
8.000	PS11	9.340	PS10	9.050	Circ	100	12.246	42	0.600	0.450	0.799
9.000	RWHT3	9.400	PS10	9.050	Circ	100	0.665	2	0.600	0.400	0.799
8.001	PS10	9.050	PS4	9.030	Circ	100	1.951	98	0.600	0.799	0.888
10.000	PS12	9.340	PS4	9.030	Circ	100	13.918	45	0.600	0.450	0.888
11.000	RWHT2	9.400	PS4	9.030	Circ	100	2.389	6	0.600	0.400	0.888
1.006	PS4	8.980	PS3	8.910	Circ	150	10.216	146	0.600	0.888	0.744
12.000	D1	9.300	PS9	9.100	Circ	100	2.179	11	0.600	0.398	0.616
12.001	PS9	9.100	PS3	8.960	Circ	100	9.006	64	0.600	0.616	0.744
13.000	RWHT1	9.395	PS13	9.340	Circ	100	0.568	10	0.600	0.400	0.450

Pipe Schedule

Pipe Number	US Manhole	US IL (m)	DS Manhole	DS IL (m)	Shape	Dimension (mm)	Length (m)	Gradient (1:x)	Roughness (mm)	US Depth To Soffit (m)	DS Depth To Soffit (m)
13.001	PS13	9.340	PS3	8.960	Circ	100	5.525	15	0.600	0.450	0.744
1.007	PS3	8.910	PS2	8.835	Circ	150	11.172	149	0.600	0.744	0.747
1.008	PS2	8.835	PS1	8.460	Circ	150	55.981	149	0.600	0.747	0.790
1.009	PS1	8.460	PS0_out	8.404	Circ	150	8.424	150	0.600	0.790	0.716

Permeable Paving Schedule

Permeable Paving	Assigned Manhole	Effective Storage Volume (m3)	CL (m)	IL (m)	Storage Infil Rate (m/hr)	Safety Factor	Easting (m)	Northing (m)
PP2	D2	3.879	9.920	9.440	0.00000000	2.00	494025.708	104248.862
PP3	D3	8.084	9.817	9.337	0.00000000	2.00	494005.846	104244.091
PP4	D4	22.545	9.676	9.246	0.00000000	2.00	494023.605	104256.158
PP1	D1	7.138	9.798	9.318	0.00000000	2.00	493987.462	104264.424

Outfall Details

Outfall Manhole PS0_out : Free Discharge

Flow Control Details

Controls within Manhole RWHT6

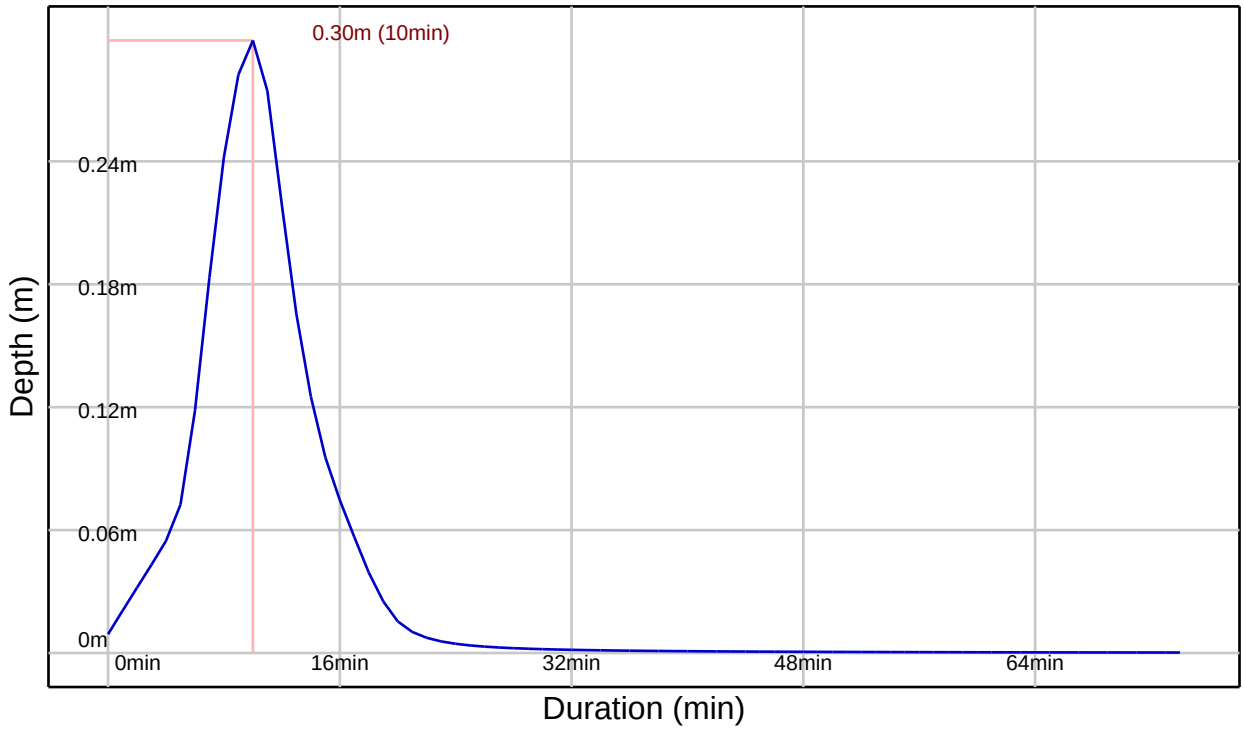
Orifice Control

Invert Offset (m)	Orifice Diameter (m)	Discharge Coeff
0.000	0.060	0.600

Tank Structure at Manhole RWHT6

Tank Invert (m)	Tank Height (m)	Porosity Ratio (%)	Area (m2)	Effective Area (m2) Area x Porosity Ratio	Max Storage (m3) Effective Area x Height	Infil Base (m/hr)	Infil Side (m/hr)	Safety Factor
9.400	0.500	100.00	0.600	0.600	0.300	0.00000000	0.00000000	2.00

Tank 6 at RWHT6 (100Yr+45% 15Min Summer)



Controls within Manhole RWHT7

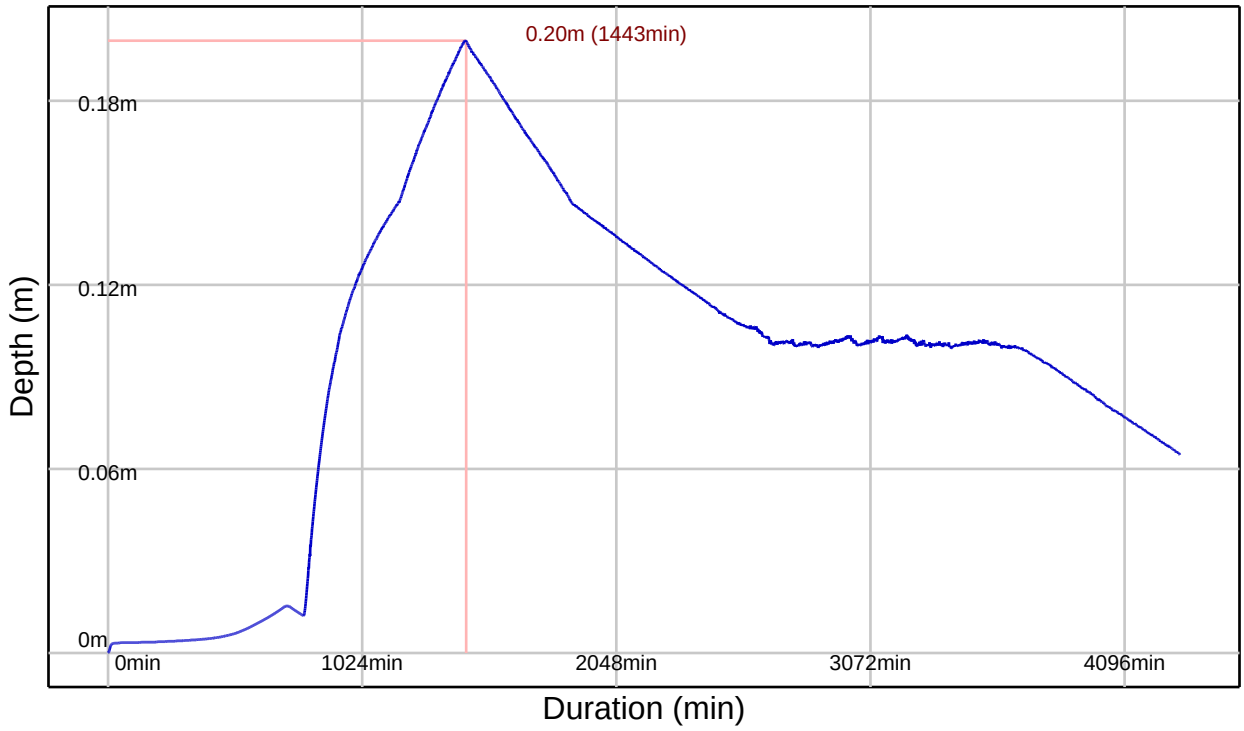
Orifice Control

Invert Offset (m)	Orifice Diameter (m)	Discharge Coeff
0.000	0.060	0.600

Tank Structure at Manhole RWHT7

Tank Invert (m)	Tank Height (m)	Porosity Ratio (%)	Area (m2)	Effective Area (m2) Area x Porosity Ratio	Max Storage (m3) Effective Area x Height	Infil Base (m/hr)	Infil Side (m/hr)	Safety Factor
9.400	0.500	100.00	0.600	0.600	0.300	0.00000000	0.00000000	2.00

Tank 7 at RWHT7 (100Yr+45% 1440Min Summer)



Controls within Manhole RWHT5

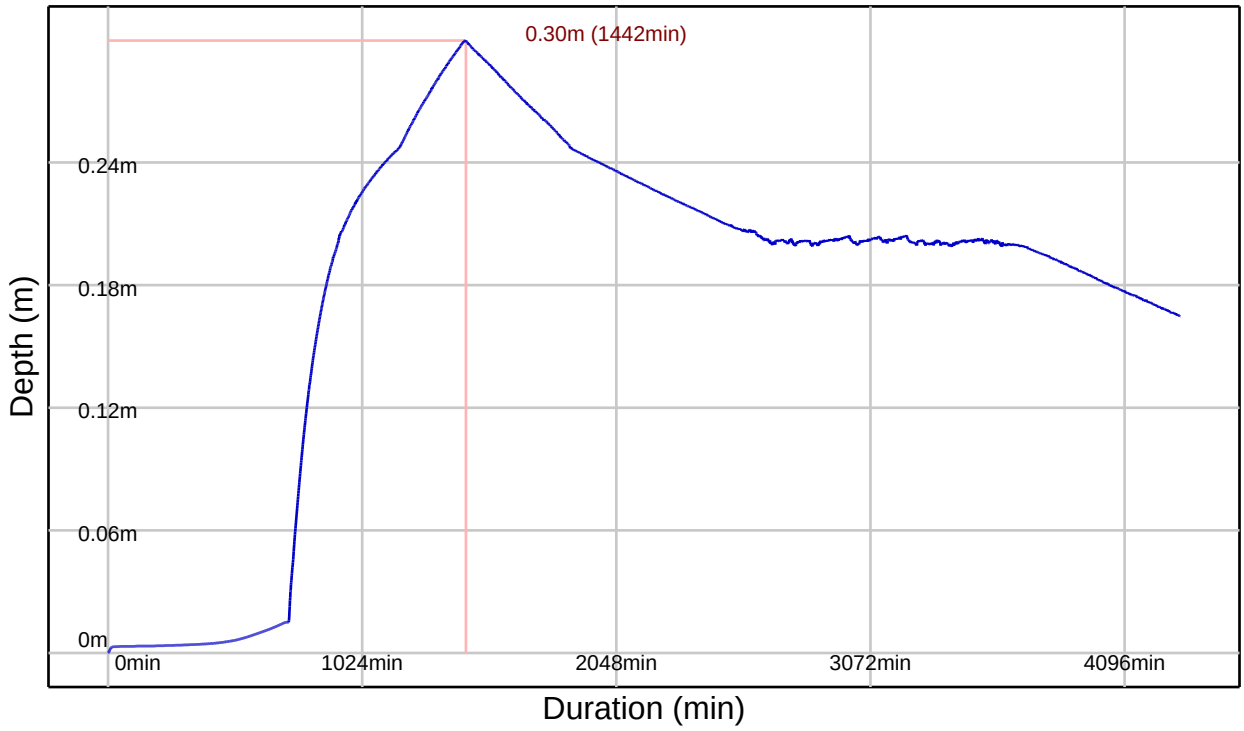
Orifice Control

Invert Offset (m)	Orifice Diameter (m)	Discharge Coeff
0.000	0.060	0.600

Tank Structure at Manhole RWHT5

Tank Invert (m)	Tank Height (m)	Porosity Ratio (%)	Area (m2)	Effective Area (m2) Area x Porosity Ratio	Max Storage (m3) Effective Area x Height	Infil Base (m/hr)	Infil Side (m/hr)	Safety Factor
9.300	0.500	100.00	0.600	0.600	0.300	0.00000000	0.00000000	2.00

Tank 5 at RWHT5 (100Yr+45% 1440Min Summer)



Controls within Manhole RWHT4

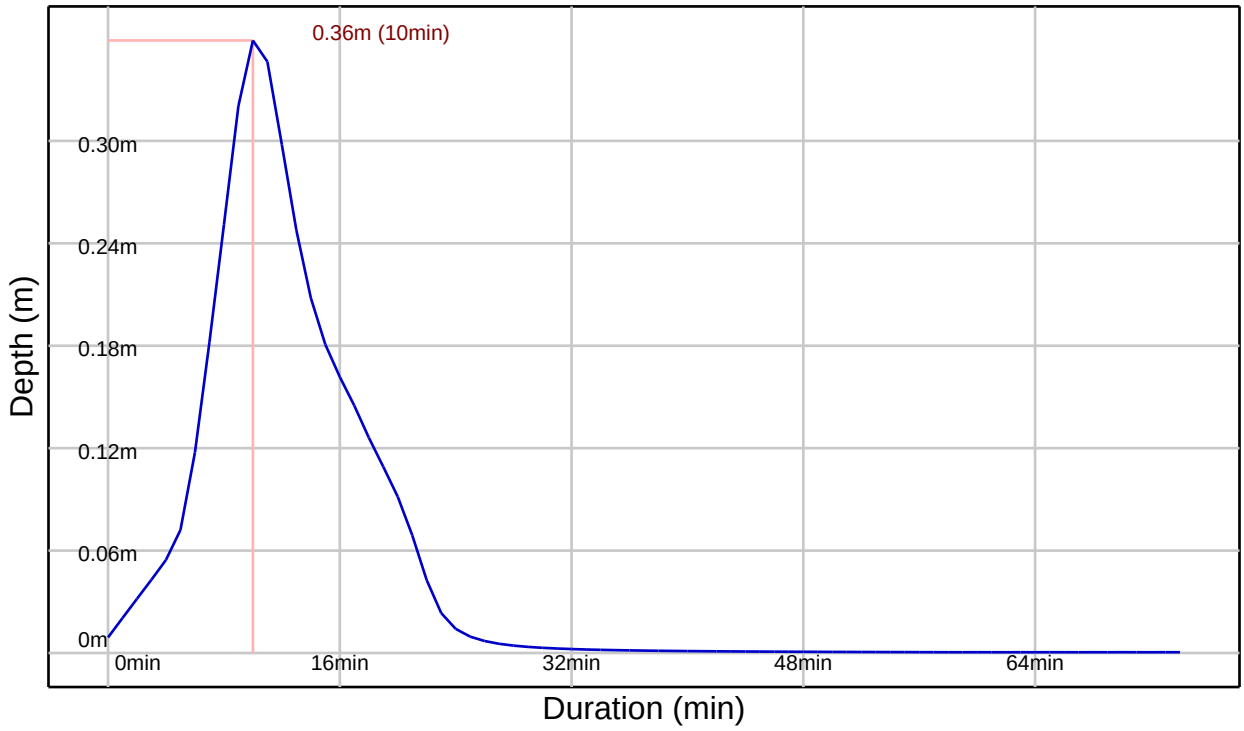
Orifice Control

Invert Offset (m)	Orifice Diameter (m)	Discharge Coeff
0.000	0.060	0.600

Tank Structure at Manhole RWHT4

Tank Invert (m)	Tank Height (m)	Porosity Ratio (%)	Area (m2)	Effective Area (m2) Area x Porosity Ratio	Max Storage (m3) Effective Area x Height	Infil Base (m/hr)	Infil Side (m/hr)	Safety Factor
9.300	0.500	100.00	0.600	0.600	0.300	0.00000000	0.00000000	2.00

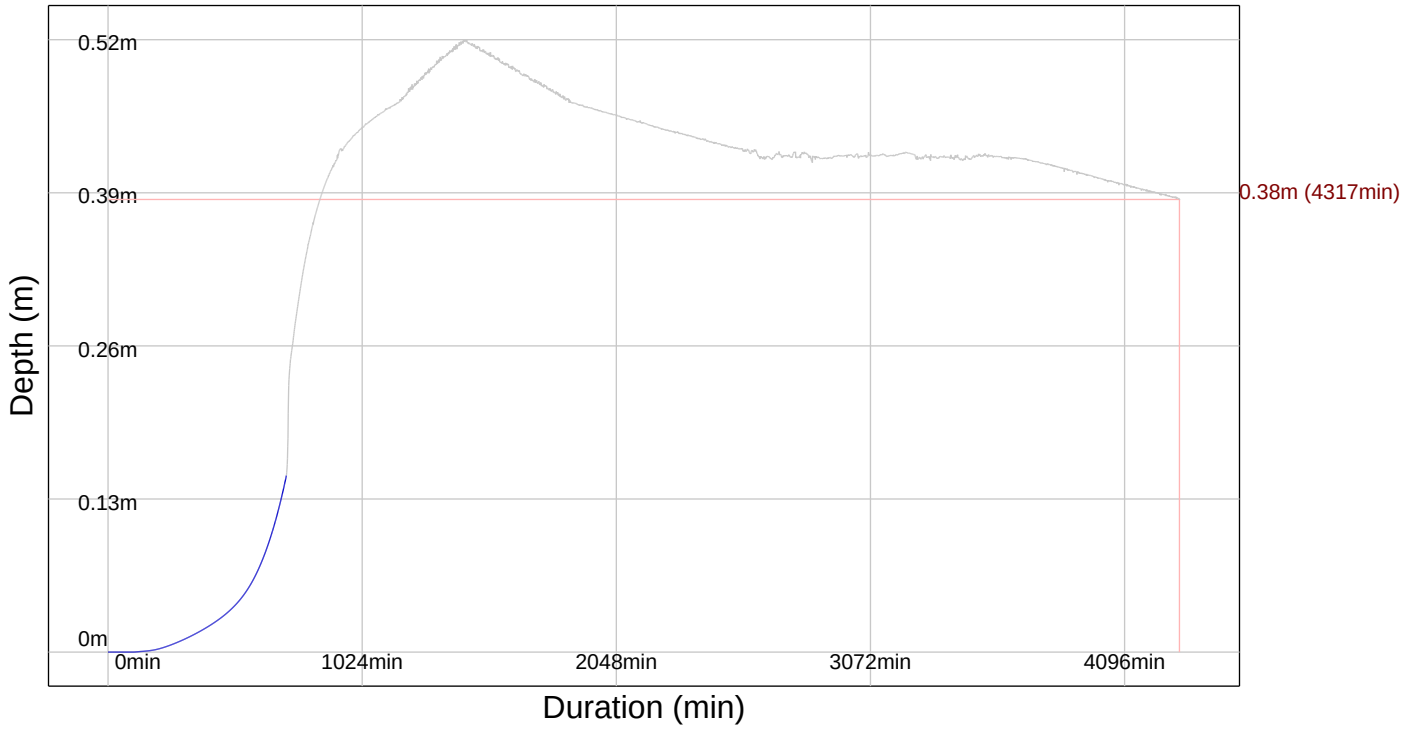
Tank 4 at RWHT4 (100Yr+45% 15Min Summer)



Tank Structure at Manhole D4

Tank Invert (m)	Tank Height (m)	Porosity Ratio (%)	Area (m2)	Effective Area (m2) Area x Porosity Ratio	Max Storage (m3) Effective Area x Height	Infil Base (m/hr)	Infil Side (m/hr)	Safety Factor
9.080	0.150	95.00	251.012	238.461	35.769	0.00000000	0.00000000	2.00

Tank 8 at D4 (100Yr+45% 1440Min Summer)



Controls within Manhole RWHT3

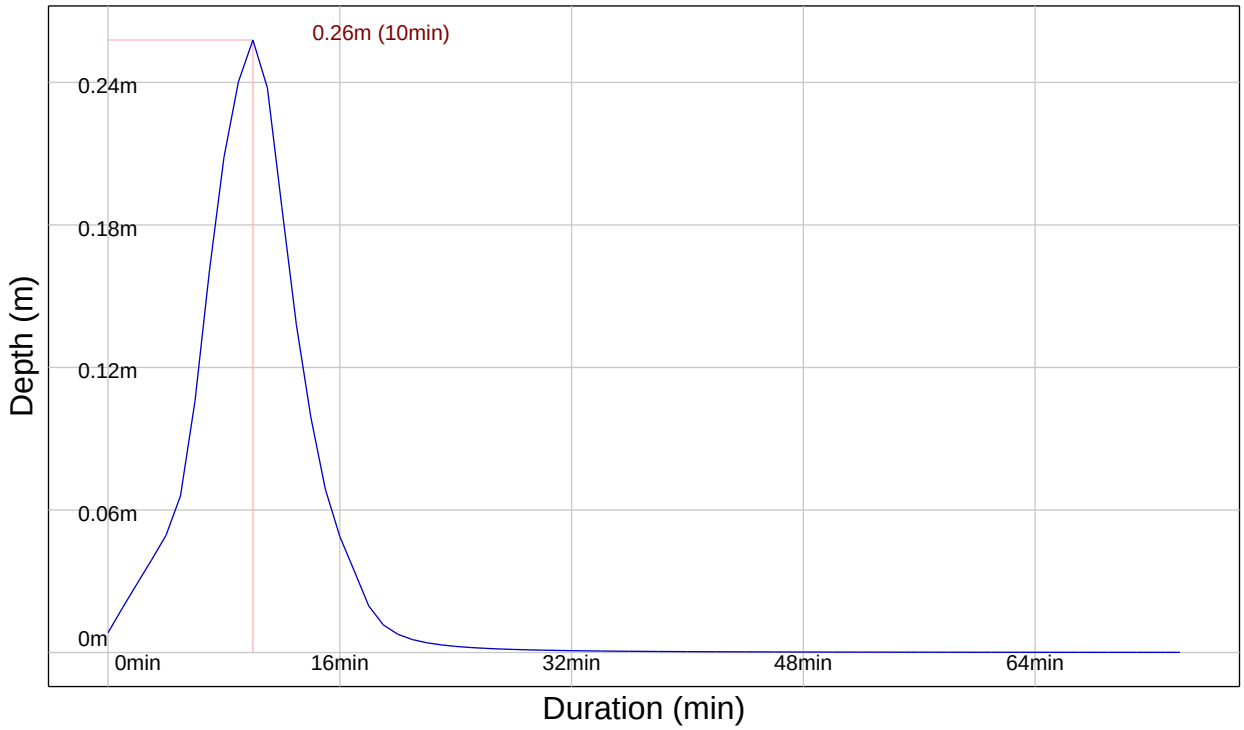
Orifice Control

Invert Offset (m)	Orifice Diameter (m)	Discharge Coeff
0.000	0.060	0.600

Tank Structure at Manhole RWHT3

Tank Invert (m)	Tank Height (m)	Porosity Ratio (%)	Area (m2)	Effective Area (m2) Area x Porosity Ratio	Max Storage (m3) Effective Area x Height	Infil Base (m/hr)	Infil Side (m/hr)	Safety Factor
9.400	0.500	100.00	0.600	0.600	0.300	0.00000000	0.00000000	2.00

Tank 3 at RWHT3 (100Yr+45% 15Min Summer)



Controls within Manhole RWHT2

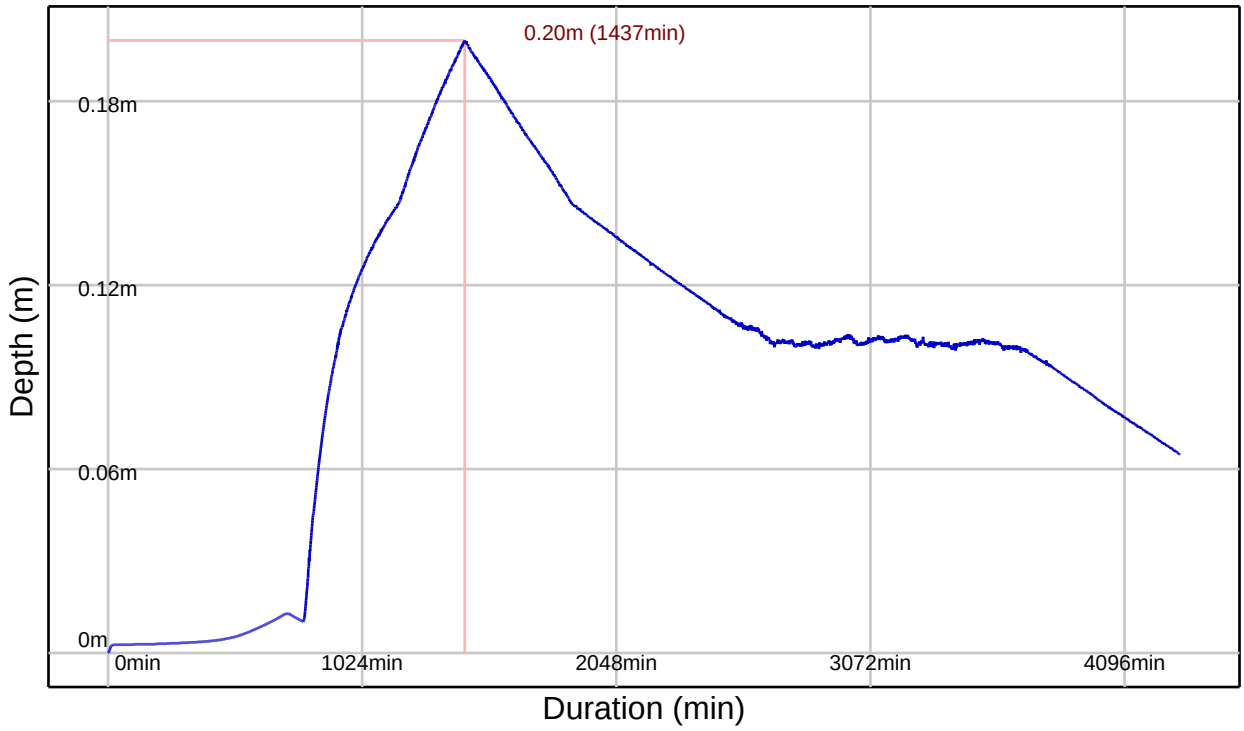
Orifice Control

Invert Offset (m)	Orifice Diameter (m)	Discharge Coeff
0.000	0.060	0.600

Tank Structure at Manhole RWHT2

Tank Invert (m)	Tank Height (m)	Porosity Ratio (%)	Area (m2)	Effective Area (m2) Area x Porosity Ratio	Max Storage (m3) Effective Area x Height	Infil Base (m/hr)	Infil Side (m/hr)	Safety Factor
9.400	0.500	100.00	0.600	0.600	0.300	0.00000000	0.00000000	2.00

Tank 2 at RWHT2 (100Yr+45% 1440Min Summer)



Controls within Manhole RWHT1

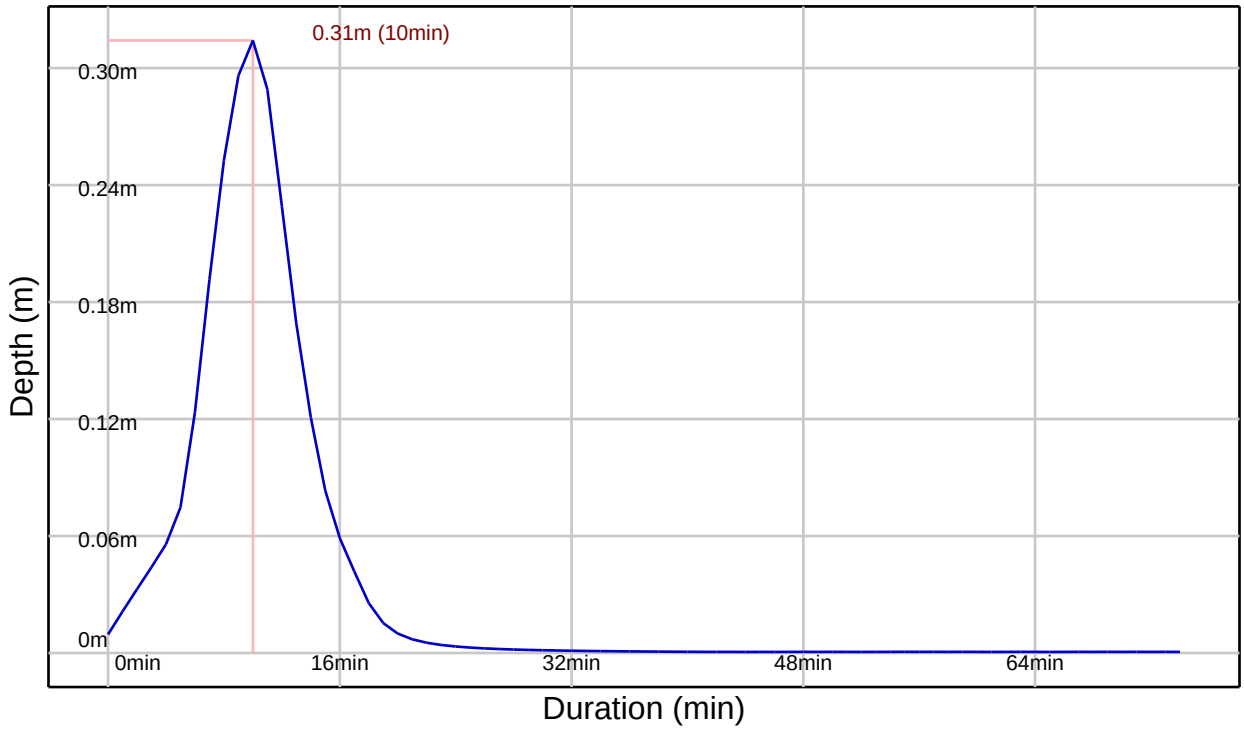
Orifice Control

Invert Offset (m)	Orifice Diameter (m)	Discharge Coeff
0.000	0.060	0.600

Tank Structure at Manhole RWHT1

Tank Invert (m)	Tank Height (m)	Porosity Ratio (%)	Area (m2)	Effective Area (m2) Area x Porosity Ratio	Max Storage (m3) Effective Area x Height	Infil Base (m/hr)	Infil Side (m/hr)	Safety Factor
9.395	0.500	100.00	0.600	0.600	0.300	0.00000000	0.00000000	2.00

Tank 1 at RWHT1 (100Yr+45% 15Min Summer)



Controls within Manhole PS3

Orifice Control

Invert Offset (m)	Orifice Diameter (m)	Discharge Coeff
0.000	0.011	0.600

Simulation Settings

FEH2022 (point): Filename=FEH_Point_Descriptors_493987_104248_v5_1_0.xml

Summer (Cv: 1.00), Winter (Cv: 1.00)

Global Time of Entry: 5.0 mins

Durations (mins): 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440

Return Periods (yrs) + Climate Change: (1, +0%), (10, +40%), (30, +40%), (100, +45%)

Manhole Flood Risk Freeboard: 0.150m

Simulated Rainfall Events

Storm	Average Intensity (mm/hr)	Runoff Continuity %	Flow Continuity %	Storm	Average Intensity (mm/hr)	Runoff Continuity %	Flow Continuity %
1Yr 15Min Winter	15.600	0.00	1.64	30Yr+40% 15Min Summer	113.152	0.00	3.64
1Yr 15Min Summer	15.600	0.00	1.60	30Yr+40% 15Min Winter	113.152	0.00	3.58
1Yr 30Min Winter	10.400	0.00	1.37	30Yr+40% 30Min Summer	75.408	0.00	4.64
1Yr 30Min Summer	10.400	0.00	1.37	30Yr+40% 30Min Winter	75.408	0.00	4.66
1Yr 60Min Winter	6.643	0.00	0.88	30Yr+40% 60Min Summer	48.093	0.00	4.86
1Yr 60Min Summer	6.643	0.00	0.88	30Yr+40% 60Min Winter	48.093	0.00	4.89
1Yr 120Min Summer	5.313	0.00	0.48	30Yr+40% 120Min Summer	29.302	0.00	4.77
1Yr 120Min Winter	5.313	0.00	0.48	30Yr+40% 120Min Winter	29.302	0.00	4.77
1Yr 180Min Summer	4.471	0.00	0.26	30Yr+40% 180Min Summer	21.664	0.00	4.30
1Yr 180Min Winter	4.471	0.00	0.26	30Yr+40% 180Min Winter	21.664	0.00	4.29
1Yr 240Min Summer	3.707	0.00	0.18	30Yr+40% 240Min Summer	17.405	0.00	3.66
1Yr 240Min Winter	3.707	0.00	0.18	30Yr+40% 240Min Winter	17.405	0.00	3.53
1Yr 360Min Summer	2.898	0.00	0.00	30Yr+40% 360Min Summer	12.632	0.00	1.44
1Yr 360Min Winter	2.898	0.00	0.00	30Yr+40% 360Min Winter	12.632	0.00	1.47
1Yr 480Min Summer	2.407	0.00	0.00	30Yr+40% 480Min Summer	10.015	0.00	0.38
1Yr 480Min Winter	2.407	0.00	0.00	30Yr+40% 480Min Winter	10.015	0.00	0.83
1Yr 600Min Summer	2.045	0.00	0.00	30Yr+40% 600Min Summer	8.343	0.00	-0.55
1Yr 600Min Winter	2.045	0.00	0.00	30Yr+40% 600Min Winter	8.343	0.00	-0.23
1Yr 720Min Winter	1.778	0.00	0.00	30Yr+40% 720Min Summer	7.172	0.00	-0.78
1Yr 720Min Summer	1.778	0.00	0.00	30Yr+40% 720Min Winter	7.172	0.00	-0.66
1Yr 960Min Summer	1.443	0.00	0.00	30Yr+40% 960Min Summer	5.647	0.00	-2.38
1Yr 960Min Winter	1.443	0.00	0.00	30Yr+40% 960Min Winter	5.647	0.00	-1.70
1Yr 1440Min Summer	1.083	0.00	0.00	30Yr+40% 1440Min Summer	4.039	0.00	-0.05
1Yr 1440Min Winter	1.083	0.00	0.00	30Yr+40% 1440Min Winter	4.039	0.00	-0.04
10Yr+40% 15Min Summer	87.997	0.00	2.93	100Yr+45% 15Min Summer	147.195	0.00	4.54
10Yr+40% 15Min Winter	87.997	0.00	2.90	100Yr+45% 15Min Winter	147.195	0.00	4.50
10Yr+40% 30Min Summer	57.561	0.00	3.59	100Yr+45% 30Min Summer	98.984	0.00	5.50
10Yr+40% 30Min Winter	57.561	0.00	3.62	100Yr+45% 30Min Winter	98.984	0.00	5.52
10Yr+40% 60Min Summer	36.582	0.00	3.98	100Yr+45% 60Min Summer	63.544	0.00	6.04
10Yr+40% 60Min Winter	36.582	0.00	4.01	100Yr+45% 60Min Winter	63.544	0.00	6.04
10Yr+40% 120Min Winter	22.971	0.00	3.77	100Yr+45% 120Min Summer	38.005	0.00	5.65
10Yr+40% 120Min Summer	22.971	0.00	3.76	100Yr+45% 120Min Winter	38.005	0.00	5.49
10Yr+40% 180Min Summer	17.247	0.00	3.33	100Yr+45% 180Min Summer	27.852	0.00	5.34
10Yr+40% 180Min Winter	17.247	0.00	3.33	100Yr+45% 180Min Winter	27.852	0.00	5.25
10Yr+40% 240Min Summer	13.876	0.00	2.79	100Yr+45% 240Min Summer	22.385	0.00	4.58
10Yr+40% 240Min Winter	13.876	0.00	2.82	100Yr+45% 240Min Winter	22.385	0.00	4.35
10Yr+40% 360Min Summer	10.144	0.00	1.83	100Yr+45% 360Min Summer	16.261	0.00	2.83
10Yr+40% 360Min Winter	10.144	0.00	1.76	100Yr+45% 360Min Winter	16.261	0.00	3.02
10Yr+40% 480Min Summer	8.084	0.00	1.07	100Yr+45% 480Min Summer	12.907	0.00	2.08
10Yr+40% 480Min Winter	8.084	0.00	1.00	100Yr+45% 480Min Winter	12.907	0.00	2.13
10Yr+40% 600Min Winter	6.745	0.00	0.55	100Yr+45% 600Min Summer	10.771	0.00	1.03
10Yr+40% 600Min Summer	6.745	0.00	0.61	100Yr+45% 600Min Winter	10.771	0.00	1.01
10Yr+40% 720Min Summer	5.800	0.00	0.34	100Yr+45% 720Min Summer	9.274	0.00	0.73
10Yr+40% 720Min Winter	5.800	0.00	0.25	100Yr+45% 720Min Winter	9.274	0.00	0.34
10Yr+40% 960Min Summer	4.577	0.00	0.20	100Yr+45% 960Min Summer	7.309	0.00	-0.79
10Yr+40% 960Min Winter	4.577	0.00	0.13	100Yr+45% 960Min Winter	7.309	0.00	-0.52
10Yr+40% 1440Min Summer	3.293	0.00	0.18	100Yr+45% 1440Min Winter	5.220	0.00	-1.17
10Yr+40% 1440Min Winter	3.293	0.00	0.19	100Yr+45% 1440Min Summer	5.220	0.00	-1.36

Simulation Results

Return Period (yrs) + Climate Change (%):

1yr+0%

Manholes

Manhole	Critical Storm	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Flood (m3)	Status
RWHT6	15 min Summer	9	9.431	0.031	0.445		OK
PS14	15 min Summer	10	9.368	0.018	0.427		OK
RWHT7	15 min Summer	9	9.420	0.020	0.227		OK
D2	180 min Summer	102	9.356	0.006	0.115		OK
PS8	15 min Summer	10	9.231	0.021	0.644		OK
RWHT5	15 min Summer	9	9.320	0.020	0.229		OK
PS7	120 min Summer	65	9.165	0.050	0.547		OK
RWHT4	15 min Summer	9	9.331	0.031	0.443		OK
PS16	15 min Summer	10	9.267	0.017	0.425		OK
D3	240 min Summer	138	9.259	0.009	0.183		OK
PS6	120 min Summer	66	9.165	0.070	0.987		OK
D4	1440 min Winter	1216	9.123	0.043	0.044		OK
PS5	120 min Summer	66	9.165	0.130	1.602		OK
PS11	15 min Summer	8	9.354	0.014	0.412		OK
RWHT3	15 min Summer	9	9.428	0.028	0.403		OK
PS10	120 min Summer	66	9.165	0.115	0.391		Surcharged
PS12	15 min Summer	8	9.352	0.012	0.306		OK
RWHT2	15 min Summer	9	9.416	0.016	0.181		OK
PS4	120 min Summer	66	9.165	0.185	0.798		Surcharged
D1	180 min Summer	106	9.306	0.006	0.170		OK
PS9	120 min Summer	66	9.165	0.065	0.064		OK
RWHT1	15 min Summer	9	9.427	0.032	0.463		OK
PS13	15 min Summer	10	9.351	0.011	0.444		OK
PS3	120 min Summer	66	9.165	0.255	0.303		Surcharged
PS2	15 min Summer	15	8.845	0.010	0.117		OK
PS1	120 min Summer	70	8.470	0.010	0.124		OK
PS0_out	120 min Summer	70	8.413	0.009	0.124		Outfall

Conduits

Pipe No.	Critical Storm	Peak (mins)	US Manhole	DS Manhole	Flow Depth (m)	Max Velocity (m/s)	Max Flow (l/s)	Flow / Capacity	Status
1.000	15 min Summer	10	RWHT6	PS14	0.015	0.604	0.430	0.032	OK
1.001	15 min Summer	10	PS14	PS8	0.018	0.464	0.431	0.069	OK
2.000	15 min Summer	10	RWHT7	PS8	0.008	0.698	0.212	0.014	OK
3.000	180 min Summer	102	D2	PS8	0.006	0.536	0.115	0.010	OK
1.002	120 min Summer	65	PS8	PS7	0.034	0.324	0.420	0.028	OK
4.000	15 min Summer	10	RWHT5	PS7	0.007	0.874	0.216	0.011	OK
1.003	120 min Summer	66	PS7	PS6	0.060	0.310	0.691	0.045	OK
5.000	15 min Summer	10	RWHT4	PS16	0.014	0.630	0.428	0.034	OK
5.001	15 min Summer	10	PS16	PS6	0.016	0.508	0.429	0.061	OK
6.000	120 min Summer	78	D3	PS6	0.013	0.515	0.138	0.012	OK
1.004	120 min Summer	69	PS6	PS5	0.100	0.266	0.970	0.067	OK
7.000	120 min Summer	341	D4	PS5	0.066	0.032	0.112	0.008	OK
1.005	120 min Summer	66	PS5	PS4	0.140	0.179	0.129	0.009	OK
8.000	120 min Summer	62	PS11	PS10	0.055	0.259	0.245	0.026	OK
9.000	120 min Summer	62	RWHT3	PS10	0.052	0.339	0.246	0.006	OK
8.001	60 min Summer	36	PS10	PS4	0.100	0.379	0.877	0.144	Surcharged
10.000	60 min Summer	33	PS12	PS4	0.055	0.361	0.207	0.023	OK
11.000	30 min Summer	19	RWHT2	PS4	0.053	0.690	0.155	0.006	OK
1.006	15 min Summer	14	PS4	PS3	0.150	0.363	0.852	0.058	Surcharged
12.000	120 min Summer	77	D1	PS9	0.035	0.483	0.130	0.007	OK
12.001	120 min Summer	77	PS9	PS3	0.083	0.041	0.215	0.028	OK
13.000	15 min Summer	9	RWHT1	PS13	0.011	0.975	0.452	0.024	OK
13.001	15 min Summer	10	PS13	PS3	0.056	0.639	0.449	0.028	OK
1.007	120 min Summer	67	PS3	PS2	0.010	0.256	0.125	0.009	OK
1.008	120 min Summer	69	PS2	PS1	0.010	0.257	0.125	0.009	OK
1.009	120 min Summer	70	PS1	PS0_out	0.009	0.264	0.124	0.009	OK

Permeable Paving Storage

Permeable Paving	Critical Storm	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Flood (m3)	Surface Runoff (m3)	Status
PP2	180 min Summer	102	9.448	0.008	0.114			OK
PP3	240 min Summer	137	9.349	0.012	0.185			OK
PP4	360 min Summer	213	9.266	0.019	0.388			OK
PP1	180 min Summer	106	9.329	0.011	0.171			OK

Return Period (yrs) + Climate Change (%):

10yr+40%

Manholes

Manhole	Critical Storm	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Flood (m3)	Status
RWHT6	15 min Summer	9	9.533	0.133	2.512		Surcharged
PS14	30 min Summer	19	9.425	0.075	1.850		OK
RWHT7	15 min Summer	8	9.460	0.060	1.340		OK
D2	15 min Summer	12	9.420	0.070	0.536		OK
PS8	15 min Summer	12	9.420	0.210	2.979		Surcharged
RWHT5	30 min Summer	19	9.420	0.120	0.628		Surcharged
PS7	15 min Summer	12	9.415	0.300	3.374		Surcharged
RWHT4	30 min Summer	18	9.458	0.158	1.662		Surcharged
PS16	15 min Summer	12	9.416	0.166	1.097		Surcharged
D3	15 min Summer	12	9.409	0.159	2.225		Surcharged
PS6	15 min Summer	12	9.413	0.318	4.573		Surcharged
D4	960 min Summer	1861	9.356	0.276	0.097		Surcharged
PS5	15 min Summer	12	9.411	0.376	4.787		Surcharged
PS11	30 min Summer	19	9.419	0.079	1.081		OK
RWHT3	15 min Summer	9	9.516	0.116	2.275		Surcharged
PS10	30 min Summer	19	9.416	0.366	2.732		Surcharged
PS12	15 min Summer	12	9.414	0.074	0.503		OK
RWHT2	15 min Summer	9	9.453	0.053	1.020		OK
PS4	15 min Summer	12	9.412	0.432	2.972		Surcharged
D1	30 min Summer	20	9.395	0.095	1.800		OK
PS9	30 min Summer	19	9.397	0.297	2.372		Surcharged
RWHT1	15 min Summer	9	9.535	0.140	2.614		Surcharged
PS13	15 min Summer	11	9.416	0.076	2.291		OK
PS3	15 min Summer	12	9.412	0.502	2.636		Surcharged
PS2	15 min Summer	12	8.847	0.012	0.177		OK
PS1	30 min Summer	24	8.471	0.011	0.172		OK
PS0_out	30 min Summer	24	8.415	0.011	0.173		Outfall

Conduits

Pipe No.	Critical Storm	Peak (mins)	US Manhole	DS Manhole	Flow Depth (m)	Max Velocity (m/s)	Max Flow (l/s)	Flow / Capacity	Status
1.000	15 min Summer	11	RWHT6	PS14	0.051	0.903	2.378	0.179	OK
1.001	30 min Summer	19	PS14	PS8	0.087	0.666	2.084	0.333	OK
2.000	15 min Summer	9	RWHT7	PS8	0.060	1.101	1.371	0.093	OK
3.000	15 min Summer	14	D2	PS8	0.085	0.794	1.078	0.089	OK
1.002	30 min Summer	20	PS8	PS7	0.150	0.392	3.340	0.226	Surcharged
4.000	15 min Winter	19	RWHT5	PS7	0.100	1.231	1.327	0.069	Surcharged
1.003	60 min Summer	36	PS7	PS6	0.150	0.340	4.201	0.276	Surcharged
5.000	30 min Winter	19	RWHT4	PS16	0.100	0.853	2.128	0.171	Surcharged
5.001	60 min Summer	36	PS16	PS6	0.100	0.459	1.866	0.264	Surcharged
6.000	30 min Winter	27	D3	PS6	0.100	0.980	2.874	0.259	Surcharged
1.004	30 min Summer	26	PS6	PS5	0.150	0.494	8.305	0.570	Surcharged
7.000	1440 min Winter	4239	D4	PS5	0.150	0.075	1.331	0.091	Surcharged
1.005	30 min Winter	12	PS5	PS4	0.150	0.179	0.754	0.052	Surcharged
8.000	30 min Summer	19	PS11	PS10	0.090	0.536	2.000	0.214	OK
9.000	15 min Summer	12	RWHT3	PS10	0.057	0.619	2.199	0.049	OK
8.001	15 min Winter	9	PS10	PS4	0.100	0.632	3.253	0.533	Surcharged
10.000	15 min Summer	12	PS12	PS4	0.087	0.605	1.715	0.189	OK
11.000	15 min Summer	9	RWHT2	PS4	0.057	0.926	1.032	0.043	OK
1.006	15 min Winter	6	PS4	PS3	0.150	0.458	1.740	0.119	Surcharged
12.000	30 min Summer	26	D1	PS9	0.098	0.521	2.991	0.162	OK
12.001	30 min Summer	27	PS9	PS3	0.100	0.429	3.371	0.447	Surcharged
13.000	15 min Summer	11	RWHT1	PS13	0.052	1.453	2.477	0.130	OK
13.001	15 min Summer	11	PS13	PS3	0.088	0.802	2.341	0.146	OK
1.007	15 min Summer	12	PS3	PS2	0.012	0.316	0.177	0.012	OK
1.008	30 min Summer	22	PS2	PS1	0.011	0.317	0.176	0.012	OK
1.009	30 min Summer	24	PS1	PS0_out	0.011	0.287	0.173	0.012	OK

Permeable Paving Storage

Permeable Paving	Critical Storm	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Flood (m3)	Surface Runoff (m3)	Status
PP2	30 min Summer	23	9.473	0.033	0.917			OK
PP3	30 min Summer	23	9.406	0.069	1.912			OK
PP4	1440 min Summer	1749	9.340	0.094	0.478			OK
PP1	30 min Summer	23	9.398	0.080	1.688			OK

Return Period (yrs) + Climate Change (%):

30yr+40%

Manholes

Manhole	Critical Storm	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Flood (m3)	Status
RWHT6	15 min Summer	10	9.592	0.192	2.683		Surcharged
PS14	15 min Summer	12	9.464	0.114	3.686		Surcharged
RWHT7	15 min Summer	9	9.478	0.078	1.649		OK
D2	15 min Summer	12	9.455	0.105	0.726		Surcharged
PS8	15 min Summer	11	9.454	0.244	3.078		Surcharged
RWHT5	30 min Summer	18	9.461	0.161	1.127		Surcharged
PS7	15 min Summer	12	9.449	0.334	4.130		Surcharged
RWHT4	30 min Summer	18	9.540	0.240	2.178		Surcharged
PS16	15 min Summer	11	9.455	0.205	2.078		Surcharged
D3	1440 min Winter	1383	9.439	0.189	0.063		Surcharged
PS6	15 min Summer	12	9.447	0.352	6.008		Surcharged
D4	1440 min Winter	1371	9.439	0.359	0.053		Surcharged
PS5	15 min Summer	11	9.444	0.409	4.784		Surcharged
PS11	30 min Summer	18	9.464	0.124	1.941		Surcharged
RWHT3	15 min Summer	9	9.563	0.163	2.925		Surcharged
PS10	15 min Summer	11	9.458	0.408	1.416		Surcharged
PS12	15 min Summer	11	9.450	0.110	1.040		Surcharged
RWHT2	15 min Summer	9	9.461	0.061	1.312		OK
PS4	15 min Summer	11	9.448	0.468	5.845		Surcharged
D1	1440 min Winter	1404	9.439	0.139	0.002		Surcharged
PS9	1440 min Winter	1386	9.439	0.339	0.039		Surcharged
RWHT1	15 min Summer	10	9.596	0.201	2.792		Surcharged
PS13	15 min Summer	12	9.457	0.117	0.000		Surcharged
PS3	15 min Summer	11	9.448	0.538	3.820		Surcharged
PS2	15 min Summer	12	8.847	0.012	0.183		OK
PS1	1440 min Winter	1402	8.472	0.012	0.182		OK
PS0_out	1440 min Winter	1402	8.415	0.011	0.182		Outfall

Conduits

Pipe No.	Critical Storm	Peak (mins)	US Manhole	DS Manhole	Flow Depth (m)	Max Velocity (m/s)	Max Flow (l/s)	Flow / Capacity	Status
1.000	15 min Summer	12	RWHT6	PS14	0.082	0.931	3.686	0.278	OK
1.001	15 min Winter	12	PS14	PS8	0.100	0.721	2.512	0.402	Surcharged
2.000	15 min Summer	12	RWHT7	PS8	0.078	1.196	1.642	0.112	OK
3.000	30 min Summer	24	D2	PS8	0.100	0.935	1.735	0.143	Surcharged
1.002	60 min Summer	34	PS8	PS7	0.150	0.359	4.485	0.304	Surcharged
4.000	30 min Summer	28	RWHT5	PS7	0.100	1.006	1.711	0.089	Surcharged
1.003	30 min Summer	20	PS7	PS6	0.150	0.407	5.240	0.344	Surcharged
5.000	30 min Summer	17	RWHT4	PS16	0.100	0.885	2.263	0.182	Surcharged
5.001	60 min Summer	38	PS16	PS6	0.100	0.471	2.283	0.322	Surcharged
6.000	30 min Summer	28	D3	PS6	0.100	0.990	4.108	0.371	Surcharged
1.004	30 min Winter	27	PS6	PS5	0.150	0.576	10.179	0.699	Surcharged
7.000	240 min Summer	168	D4	PS5	0.150	0.092	1.620	0.111	Surcharged
1.005	240 min Summer	168	PS5	PS4	0.150	0.225	0.851	0.059	Surcharged
8.000	15 min Winter	10	PS11	PS10	0.100	0.608	2.546	0.273	Surcharged
9.000	30 min Summer	19	RWHT3	PS10	0.077	0.662	4.064	0.091	OK
8.001	30 min Winter	20	PS10	PS4	0.100	0.567	4.123	0.676	Surcharged
10.000	15 min Winter	11	PS12	PS4	0.100	0.693	2.042	0.226	Surcharged
11.000	15 min Summer	12	RWHT2	PS4	0.074	0.870	1.335	0.056	OK
1.006	15 min Winter	6	PS4	PS3	0.150	0.515	3.085	0.211	Surcharged
12.000	30 min Summer	28	D1	PS9	0.100	0.628	4.007	0.217	Surcharged
12.001	30 min Winter	29	PS9	PS3	0.100	0.559	4.392	0.582	Surcharged
13.000	15 min Summer	13	RWHT1	PS13	0.081	1.471	3.892	0.205	OK
13.001	15 min Winter	11	PS13	PS3	0.100	0.768	2.521	0.158	Surcharged
1.007	15 min Summer	12	PS3	PS2	0.012	0.320	0.183	0.013	OK
1.008	1440 min Winter	1400	PS2	PS1	0.012	0.287	0.182	0.013	OK
1.009	1440 min Winter	1402	PS1	PS0_out	0.012	0.291	0.182	0.013	OK

Permeable Paving Storage

Permeable Paving	Critical Storm	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Flood (m3)	Surface Runoff (m3)	Status
PP2	30 min Summer	22	9.481	0.041	1.264			OK
PP3	1440 min Winter	1397	9.439	0.102	0.015			OK
PP4	1440 min Winter	1402	9.439	0.193	0.049			OK
PP1	1440 min Winter	1404	9.439	0.121	0.012			OK

Return Period (yrs) + Climate Change (%):

100yr+45%

Manholes

Manhole	Critical Storm	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Flood (m3)	Status
RWHT6	15 min Summer	10	9.699	0.299	3.490		Surcharged
PS14	1440 min Summer	1440	9.600	0.250	0.007		Surcharged
RWHT7	1440 min Summer	1440	9.600	0.200	0.028		Surcharged
D2	1440 min Summer	1440	9.600	0.250	0.021		Surcharged
PS8	1440 min Summer	1441	9.600	0.390	0.016		Surcharged
RWHT5	1440 min Summer	1438	9.600	0.300	0.006		Surcharged
PS7	1440 min Summer	1440	9.600	0.485	0.031		Surcharged
RWHT4	15 min Summer	10	9.659	0.359	3.471		Surcharged
PS16	1440 min Summer	1439	9.600	0.350	0.023		Surcharged
D3	1440 min Summer	1440	9.600	0.350	0.004		Surcharged
PS6	1440 min Summer	1439	9.600	0.505	0.137		Surcharged
D4	1440 min Summer	1437	9.600	0.520	0.509		Surcharged
PS5	1440 min Summer	1440	9.601	0.566	0.297		Surcharged
PS11	1440 min Summer	1439	9.600	0.260	0.005		Surcharged
RWHT3	15 min Summer	10	9.658	0.258	3.160		Surcharged
PS10	1440 min Summer	1437	9.601	0.551	0.046		Surcharged
PS12	1440 min Summer	1435	9.600	0.260	0.052		Surcharged
RWHT2	1440 min Summer	1437	9.600	0.200	0.007		Surcharged
PS4	1440 min Summer	1438	9.600	0.620	0.243		Surcharged
D1	1440 min Summer	1439	9.600	0.300	0.004		Surcharged
PS9	1440 min Summer	1437	9.600	0.500	0.058		Surcharged
RWHT1	15 min Summer	10	9.709	0.314	3.631		Surcharged
PS13	1440 min Summer	1438	9.600	0.260	0.006		Surcharged
PS3	1440 min Summer	1439	9.600	0.690	0.270		Surcharged
PS2	1440 min Summer	1440	8.847	0.012	0.208		OK
PS1	1440 min Summer	1442	8.472	0.012	0.208		OK
PS0_out	1440 min Summer	1442	8.416	0.012	0.208		Outfall

Conduits

Pipe No.	Critical Storm	Peak (mins)	US Manhole	DS Manhole	Flow Depth (m)	Max Velocity (m/s)	Max Flow (l/s)	Flow / Capacity	Status
1.000	15 min Winter	12	RWHT6	PS14	0.100	0.929	3.085	0.233	Surcharged
1.001	30 min Summer	19	PS14	PS8	0.100	0.625	2.781	0.445	Surcharged
2.000	600 min Summer	478	RWHT7	PS8	0.100	0.777	0.301	0.021	Surcharged
3.000	30 min Winter	28	D2	PS8	0.100	0.974	2.177	0.179	Surcharged
1.002	60 min Summer	35	PS8	PS7	0.150	0.367	5.214	0.353	Surcharged
4.000	30 min Summer	17	RWHT5	PS7	0.100	1.001	1.546	0.080	Surcharged
1.003	60 min Summer	36	PS7	PS6	0.150	0.375	6.391	0.419	Surcharged
5.000	60 min Summer	32	RWHT4	PS16	0.100	0.788	3.464	0.278	Surcharged
5.001	30 min Summer	18	PS16	PS6	0.100	0.572	2.880	0.407	Surcharged
6.000	30 min Winter	29	D3	PS6	0.100	0.732	5.749	0.519	Surcharged
1.004	30 min Winter	28	PS6	PS5	0.150	0.711	12.572	0.863	Surcharged
7.000	180 min Summer	112	D4	PS5	0.150	0.214	3.787	0.259	Surcharged
1.005	180 min Summer	112	PS5	PS4	0.150	0.242	2.970	0.204	Surcharged
8.000	30 min Summer	16	PS11	PS10	0.100	0.577	2.956	0.317	Surcharged
9.000	600 min Winter	1024	RWHT3	PS10	0.100	0.414	2.898	0.065	Surcharged
8.001	30 min Summer	18	PS10	PS4	0.100	0.674	5.296	0.868	Surcharged
10.000	15 min Winter	9	PS12	PS4	0.100	0.656	2.457	0.272	Surcharged
11.000	720 min Summer	534	RWHT2	PS4	0.100	0.251	1.236	0.051	Surcharged
1.006	15 min Winter	10	PS4	PS3	0.150	0.506	2.483	0.170	Surcharged
12.000	30 min Winter	31	D1	PS9	0.100	0.739	5.113	0.277	Surcharged
12.001	30 min Winter	32	PS9	PS3	0.100	0.705	5.535	0.734	Surcharged
13.000	30 min Summer	19	RWHT1	PS13	0.100	1.431	3.330	0.175	Surcharged
13.001	30 min Summer	19	PS13	PS3	0.100	0.800	3.076	0.192	Surcharged
1.007	1440 min Summer	1439	PS3	PS2	0.012	0.299	0.208	0.014	OK
1.008	1440 min Summer	1441	PS2	PS1	0.012	0.299	0.208	0.014	OK
1.009	1440 min Summer	1442	PS1	PS0_out	0.012	0.303	0.208	0.014	OK

Permeable Paving Storage

Permeable Paving	Critical Storm	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Flood (m3)	Surface Runoff (m3)	Status
PP2	1440 min Summer	1441	9.600	0.160	0.005			OK
PP3	1440 min Summer	1440	9.600	0.262	0.019			OK
PP4	1440 min Summer	1436	9.601	0.354	0.102			Flood Risk
PP1	1440 min Summer	1440	9.600	0.282	0.038			OK

Appendix H Sudsstore Controflow Universal Flow Control Detail

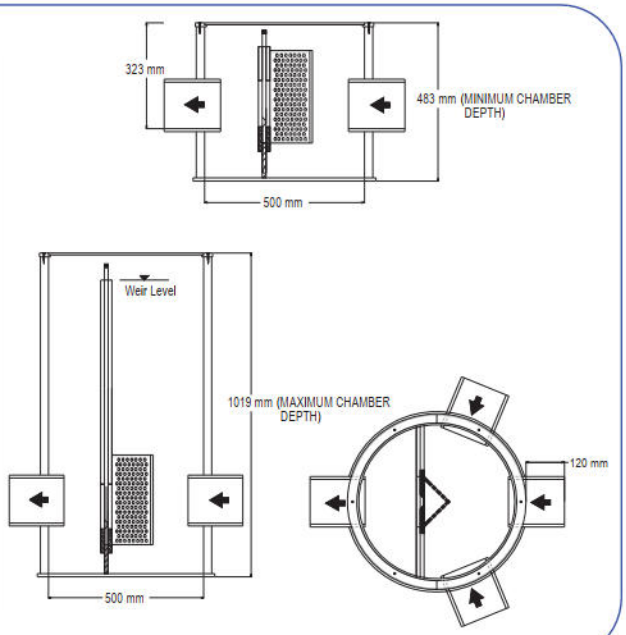
Controflow Universal

SUDS02005

Description

A flexible universal flow control chamber, with level inverts, suitable for any SuDS technique. The slide-out centre plate acts as an overflow weir and contains a circular orifice (to specified diameter), protected by an upstream filter guard. The slide-out centre plate can be temporarily removed to gain access to rod the connections, during regular maintenance services. The Controflow 500 Series Universal Level Invert is available with either 160mm or 110mm diameter connection stubs which offer a flexible layout and is available in depths ranging from 483mm to 925mm. An optional foul air trap is available when connected to the combined sewer. Chambers are supplied with a temporary protective site cover (permanent cover and frame available upon request).





Packaging Details

Element	Value	Unit
Packaging unit dimension	773 x 773 x 1032 (LxWxD)	mm
Packing unit weight	TBC	kg
Number of units per pallet	8	nr
Pallet dimensions	1200 x 1200 x 150 (LxWxD)	mm
Pallet weight	TBC	kg

*packaging dimensions based on maximum chamber depth

Specification

Element	Value	Unit
Maximum depth of chamber	1019	mm
Minimum depth of chamber	483	mm
Overall width	753	mm
Spigot O.D ⌀	160 or 110	mm
Orifice type	Fixed plate	
Unit weight	TBC	kg
Material	HDPE	

Information Check List
(required prior to order being processed)

Element	Value	Unit
Cover level		m (A.O.D)
Pipe invert level		m (A.O.D)
Weir Level		m (A.O.D)
Orifice diameter		mm
Depth of cover and frame to be used		mm
Spigot Diameter		mm
Number of inlet spigots		nr.

A.O.D - Above Ordinance Datum

Appendix I GreenBlue SuDSPod Detail





NEW FEATURE

New cladding style
SuDSPod now comes with vertical cladding, available in a range of stained and painted finishes.

NEW FEATURE

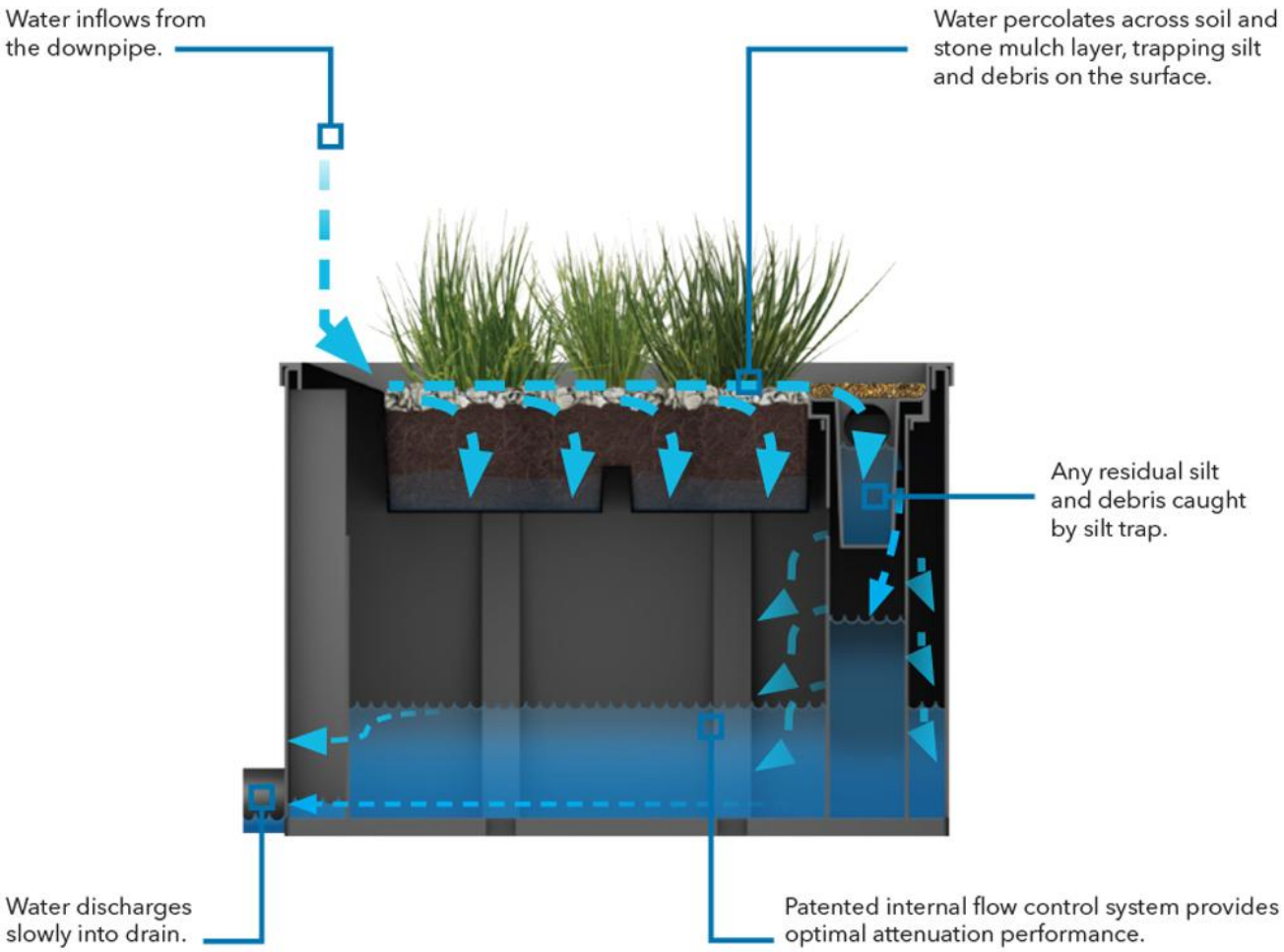
Water storage for reuse
SuDSPod's unique patented internal chamber is now capable of storing water for reuse.



NEW FEATURE

In built levelling system
SuDSPod's comes with an in built levelling system that allows for fast installation and adaptability to suit all sites.

How SuDSPod works



Appendix J Maintenance Schedule



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