



Drainage Maintenance Plan

Burwell Road, Stevenage

Application No: 22/00437/FPM - Condition 29

Prepared for
S J M & Co Ltd

Project Number: 21210
Doc Number: 21210-FCE-XX-XX-RP-D-0004

Rev	Issue Purpose	Author	Checked	Approved	Date
P01	Issued for information	DR	CR	DR	30.04.24

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1. Introduction

- 1.1 The purpose of this document is to outline the proposed maintenance schedule for the drainage system and all SuDS features for the proposed development at 10A and 10B Burwell Road, Stevenage, SG2 9RF.
- 1.2 The maintenance schedule set out here complies with the CIRIA SuDS Manual (C753), which is identified as providing current best practice in the industry. The report does not replace manufacturers' requirements, and these should be followed for each product in addition to the information in this document.
- 1.3 For the proposed extents of SuDS features on a plan drawing, please refer to the separate drainage layout plans – drawing **21210-FCE-XX-XX-DR-D-0500** in **Appendix A**.

2. Organisation Responsible

- 2.1 As the development is comprised of a single curtilage, it is unlikely that the on-site drainage will be adopted by Thames Water.
- 2.2 Therefore, the developer/landlord will set up a Site Management Team/ company to maintain the surface water drainage network, in addition to the communal parking areas and bin store. The management company could be financed by a yearly maintenance fee chargeable to residents. The name of the Management Company is to be advised.

3. Conventional Drainage Systems

Gullies, Silt Traps, Manholes, Catchpits & Pipework

- 3.1 On completion of construction, the internal surfaces of the sewers and manholes shall be thoroughly cleansed to remove all deleterious matter, without such matter being passed forward into the existing sewers.
- 3.2 All trapped gullies, silt traps, manholes and catchpits are to be regularly inspected every three months and cleared out on a regular frequency for the first nine months. After this period, the frequency can be reduced to every six months.
- 3.3 All drainage runs will be inspected once a year. The system is to be jetted clear if/when necessary.

Flow controls (including Hydro-Brakes)

- 3.4 The manhole containing the flow control is to be regularly inspected once a year and any debris and silt are to be removed from the sump and manhole.
- 3.5 Orifice plate flow controls should be maintained in accordance with the manufacturer's requirements.

4. SuDS Features

Introduction

- 4.1 During the first year of the operation of all types of SuDS should be inspected at least monthly and after significant storm events to ensure that the system is functioning as designed and that no damage or faults are evident.
- 4.2 It is recommended that a report on the condition of the SuDS is undertaken further to an inspection at least once annually.

Below ground soakaway tank

- 4.3 Regular maintenance and inspection of below ground attenuation tanks are required to ensure the effective long term operation of attenuation tanks. The main activity is associated with dealing with debris and silt.
- 4.4 Before connecting a newly constructed upstream drainage system to an attenuation tank, the new drainage system should be jetted and cleaned thoroughly.
- 4.5 **Table 1** provides the proposed operation and maintenance regime for the attenuation tanks. This is adapted from The SuDS Manual (C753).

Table 1: Operation and maintenance requirements for geo-cellular soakaway tank

Maintenance Schedule	Required Action	Frequency
Regular maintenance	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 requested
Remedial actions	Repair/rehabilitate inlets, outlet, overflows and vents.	As required
Monitoring	Inspect/check all inlets, outlets, vents and overflows to ensure that they are in good condition and operating as designed.	Annually
	Survey inside of the tank for sediment build –up and remove if necessary	Every 5 years or as required

Permeable pavements

- 4.6 The pavement should be inspected regularly for clogging, litter, weeds and water ponding, preferably during and after heavy rainfall to check effective operation. Permeable pavements need to be regularly cleaned of silt and other sediments to preserve their infiltration capacity. The SuDS Manual indicates that sweeping once per year is sufficient for most sites, however the sweeping frequency should be adjusted to suit site specific conditions and should also be informed by annual inspection reports.
- 4.7 Care should be taken in adjusting vacuuming equipment to avoid removal of joining material. Any lost material should be replaced.
- 4.8 **Table 2** outlines the proposed operation and maintenance regime for permeable pavements. This is adapted from The SuDS Manual (C753).

Table 2: Operation and maintenance requirements for permeable pavements

Maintenance Schedule	Required Action	Frequency
Regular maintenance	Brushing and vacuuming (standard cosmetic sweep over whole surface)	Once a year, after autumn leaf fall or reduced frequency as required, based on site- specification observations of clogging - pay particular attention to areas where water runs onto pervious surface from adjacent impermeable areas as this area is most likely to collect the most sediments
Occasional maintenance	Stabilise and mow contributing and advancement areas	As required
	Removal of weeds or management using glyphosphate applied directly into the weeds by an applicator rather than spraying	As required –once per year on less frequently used pavements
Remedial actions	Remediate any landscaping which through vegetation maintenance or soil slip, has been raised to within 50 mm of the level of the paving	As required
	Remedial work to any depressions rutting and cracked or broken blocks considered detrimental to the structural performance or a hazard to users, and replace lost jointing material	As required
	Rehabilitation of surface and upper structure by remedial sweeping.	Every 10 to 15 years or as required (if infiltration performance is reduced due to significant clogging)
Monitoring	Initial inspection	Monthly for three months after installation
	Inspect for evidence of poor operation and/or weed growth- if required, take remedial action	Three-monthly, 48h after large storms in first six months
	Inspect silt accumulation rates and establish appropriate brushing frequencies	Annually
	Monitor inspection chambers	Annually

Rain Gardens

- 4.9 Bioretention systems are shallow landscaped depressions that can reduce runoff rates and volumes, and treat pollution through the use of engineered soils and vegetation. This section is also relevant to the small rain gardens proposed for the site. Bioretention systems will require ongoing regular maintenance to ensure continuing operation to design performance standards.
- 4.10 Maintenance of bioretention areas is relatively straightforward for landscape contractors, and typically there should only be a small amount of extra work (if any) required for a SuDS detention basin over and above what is necessary for standard public open space.
- 4.11 Litter and debris removal should be undertaken as part of general landscape maintenance for the site and before any other SuDS management task. All litter should be removed from site. All vegetation management activities should take account of the need to maximise biosecurity and prevent the spread of invasive species.
- 4.12 The main cause of failure of bioretention systems is clogging of the surface, which is easily visible. Underdrains and drainage layers are beneath the ground, and malfunctioning is not so easy to detect and therefore could potentially be ignored. However, the results of any malfunction are likely to cause surface ponding.
- 4.13 During the first few months after installation, the system should be visually inspected after rainfall events, and the amount of deposition measured, to give the operator an idea of the expected rate of sediment deposition. After this initial period, systems should be inspected each quarter, to verify the appropriate level of maintenance.
- 4.14 Occasionally sediment will need to be removed. Sediments excavated from bioretention system that receive runoff from residential or standard road and roof areas should be safely disposed of in accordance with current waste management legislation. However, consultation should take place with the environmental regulator to confirm appropriate protocols. In the majority of cases on low-risk sites with source control and a Management Train, it will be acceptable to distribute the sediment on site, if there is an appropriate safe and acceptable location to do so.
- 4.15 **Table 3** outlines the proposed operation and maintenance regime for swales. This is adapted from The SuDS Manual (C753). Specific maintenance needs of the bioretention area should be monitored, and maintenance schedules adjusted to suit requirements.

Table 3: Operation and maintenance requirements for rain gardens

Maintenance schedule	Required Action	Typical Frequency
Regular inspections	Inspect infiltration surfaces for silting and ponding, record de-watering time of the facility and assess standing water levels in underdrain (if appropriate) to determine if maintenance is necessary	Quarterly
	Check operation of underdrains by inspection of flows after rain	Annually
	Assess plants for disease infection, poor growth, invasive species etc and replace as necessary	Quarterly
	Inspect inlets and outlets for blockage	Quarterly
Regular maintenance	Remove litter and surface debris and weeds	Quarterly (or more frequently for tidiness or aesthetic reasons)
	Replace any plants, to maintain planting density	As required
	Remove sediment, litter and debris build-up from around inlets or from forebays	Quarterly to biannually
Occasional maintenance	Infill any holes or scour in the filter medium, improve erosion protection if required	As required
Remedial actions	Repair minor accumulations of silt by raking away surface mulch, scarifying surface of medium and replacing mulch	As required
	Remove and replace filter medium and vegetation above	As required but likely to be >20 years

Sedum/Green Roofs

- 4.16 The green roof growing medium provides a mechanism for water to be intercepted and run-off to be slowed down, as well as insulation to the building, and biodiversity benefits. The areas designated as green roofs will have a 40mm deep drainage layer.
- 4.17 Table 4 outlines the proposed operation and maintenance regime for the green roof. This is adapted from The SuDS Manual (C753). The manufacturer's specification and maintenance should take precedence over points listed below. The specific maintenance needs of blue / green roof should be monitored and maintenance schedules adjusted to suit site specific conditions.

Table 4: Operation and maintenance requirements for sedum roof

Maintenance Schedule	Required Action	Frequency	
Regular Inspections	Inspect all components including soil substrate, vegetation, drains, irrigation systems (if applicable), membranes (if accessible) and roof structure for proper operation, integrity of waterproofing and structural stability	Annually and after severe storms	
	Inspect soil substrate for evidence of erosion channels and identify any sediment sources		
	Inspect drain inlets to ensure unrestricted runoff from the drainage layer to the conveyance or roof drain system		
	Inspect underside of roof for evidence of leakage		
Regular Maintenance	Inspect flow control chamber for blue roof	Six monthly and annually or as required	
	Remove debris and litter to prevent clogging of inlet drains and interference with plant growth		
	During establishment (ie year one), replace dead plants as required		Monthly (but usually responsibility of manufacturer)
	Post establishment, replace dead plants as required (where 5% of coverage)		Annually (in autumn)
	Remove fallen leaves and debris from deciduous plant foliage		Six monthly or as required
	Remove nuisance and invasive vegetation, including weeds		
	Mow grasses, prune shrubs and manage other planting (if appropriate) as required — clippings should be removed and not allowed to accumulate		
Clean and remove any material blocking the flow control inlet for blue roofs.			
Remedial Actions	If erosion channels are evident these should be stabilised with extra soil substrate similar to the original material, and sources of erosion damage should be identified and controlled	As required	
	If drain inlet has settled, cracked or moved, investigate and repair as appropriate		

5. SuDS Programme

- 5.1 The proposed SuDS for the site will come online approximately Summer 2026.
- 5.2 The contractor should ensure that during the construction phase (or in any other phasing associated with the site coming online) that SuDS are not damaged by construction works.
- 5.3 Prior to construction, the Contractor will ensure that consultation with the local sewerage undertakers and the relevant environmental agencies has been undertaken to ensure that all necessary permissions / discharge consents are obtained prior to works commencing.
- 5.4 A methodology for surface water management and groundwater protection during construction will be developed by the contractor and detailed in the Construction Environmental Management Plan (CEMP). At this stage it is expected that the CEMP will include provisions such as:
 - New temporary and /or permanent drainage ditches to prevent uncontrolled surface runoff of contaminated water.
 - Silt traps within drainage ditches to reduce the flow of suspended solids from site.
 - Suitable layout of the construction site and application of suitable management techniques to prevent runoff from stockpiles directly into watercourses/groundwater.
 - All fuel bowzers will be bunded to 110% of their capacity; all re-fuelling will be undertaken at a designated location on site and services of mobile plant will only be permitted on site in exceptional circumstances.

6. Operation and Maintenance Manual Records

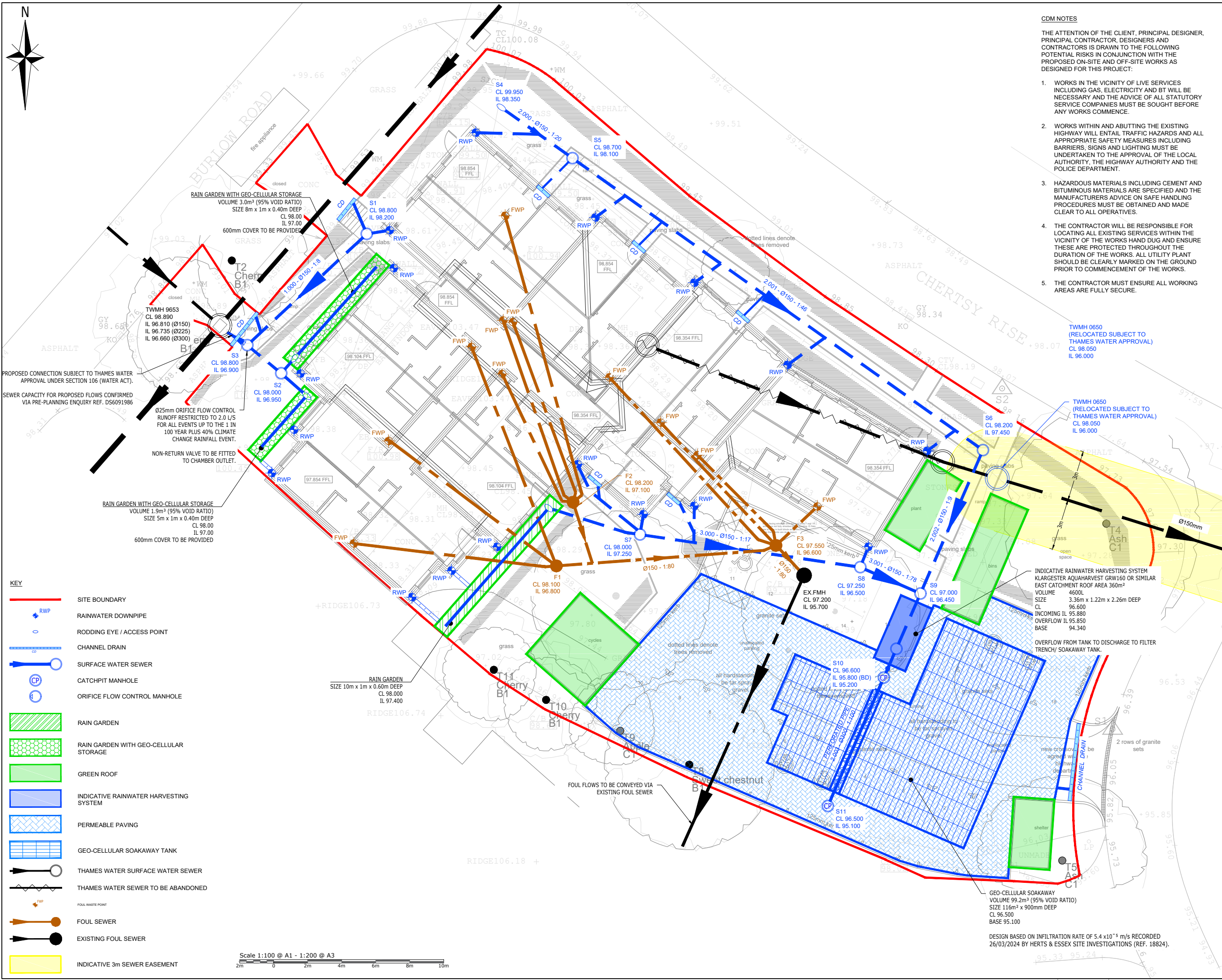
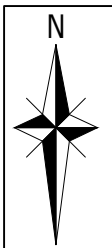
Documents to be handed over

- 6.1 This document should be provided to the construction contractor, and Site Management Team for inclusion within the site's Operation and Maintenance Manual.
- 6.2 The client will have copies of the drainage design drawings which show locations of the proposed SuDS and any 'as-builts' provided by the contractor.

Maintenance Records

- 6.3 This report includes the standard Maintenance proforma based on best practice from CIRIA document C753 The SuDS Manual to enable the Site Management Team to record the outcomes of inspections.

APPENDIX A – SITE PLANS & DRAINAGE INFORMATION



- CDM NOTES**
- THE ATTENTION OF THE CLIENT, PRINCIPAL DESIGNER, PRINCIPAL CONTRACTOR, DESIGNERS AND CONTRACTORS IS DRAWN TO THE FOLLOWING POTENTIAL RISKS IN CONJUNCTION WITH THE PROPOSED ON-SITE AND OFF-SITE WORKS AS DESIGNED FOR THIS PROJECT:
- WORKS IN THE VICINITY OF LIVE SERVICES INCLUDING GAS, ELECTRICITY AND BT WILL BE NECESSARY AND THE ADVICE OF ALL STATUTORY SERVICE COMPANIES MUST BE SOUGHT BEFORE ANY WORKS COMMENCE.
 - WORKS WITHIN AND ABUTTING THE EXISTING HIGHWAY WILL ENTAIL TRAFFIC HAZARDS AND ALL APPROPRIATE SAFETY MEASURES INCLUDING BARRIERS, SIGNS AND LIGHTING MUST BE UNDERTAKEN TO THE APPROVAL OF THE LOCAL AUTHORITY, THE HIGHWAY AUTHORITY AND THE POLICE DEPARTMENT.
 - HAZARDOUS MATERIALS INCLUDING CEMENT AND BITUMINOUS MATERIALS ARE SPECIFIED AND THE MANUFACTURERS ADVICE ON SAFE HANDLING PROCEDURES MUST BE OBTAINED AND MADE CLEAR TO ALL OPERATIVES.
 - THE CONTRACTOR WILL BE RESPONSIBLE FOR LOCATING ALL EXISTING SERVICES WITHIN THE VICINITY OF THE WORKS HAND DUG AND ENSURE THESE ARE PROTECTED THROUGHOUT THE DURATION OF THE WORKS. ALL UTILITY PLANT SHOULD BE CLEARLY MARKED ON THE GROUND PRIOR TO COMMENCEMENT OF THE WORKS.
 - THE CONTRACTOR MUST ENSURE ALL WORKING AREAS ARE FULLY SECURE.

- NOTES**
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE RELEVANT SPECIFICATION AND ALL OTHER RELATED DRAWINGS ISSUED BY THE ENGINEER.
 - DO NOT SCALE FROM THIS DRAWING. WORK FROM FIGURED DIMENSIONS ONLY. TO CHECK THAT THIS DRAWING HAS BEEN PRINTED TO THE INTENDED SCALE THIS BAR SHOULD BE 50mm LONG @ A1 OR 25mm LONG @ A3.
 - ALL DIMENSIONS SHOWN ON THIS DRAWING ARE IN METRES, UNLESS OTHERWISE STATED.
 - ALL DIMENSIONS, LEVELS AND SURVEY GRID CO-ORDINATES ARE TO BE CHECKED ON SITE AND THE ENGINEER NOTIFIED IMMEDIATELY OF ANY DISCREPANCIES PRIOR TO THE COMMENCEMENT OF THE WORKS.
 - NO DEVIATION FROM THE DETAILS SHOWN ON THIS DRAWING IS PERMITTED WITHOUT PRIOR PERMISSION FROM THE ENGINEER.
 - THIS DRAWING HAS BEEN BASED ON FILE REFERENCE "13761-Master-WD" RECEIVED FROM HERTFORD PLANNING SERVICE ON 23.04.2024.
 - THIS DRAWING HAS BEEN BASED ON DRAWING No. SJG3870, BY SJ GEOMATICS, DATED 23.12.2021.
 - ALL SURFACE WATER SEWERS TO BE Ø150mm AND LAID MIN. 1:100 GRADIENT UNLESS OTHERWISE NOTED.
 - ALL FOUL SEWERS TO BE Ø100mm AND LAID MIN. 1:80 GRADIENT UNLESS OTHERWISE NOTED.
 - REFER TO ARCHITECTS LAYOUT TO CONFIRM RWP, SVP & SS LOCATIONS AND SETTING OUT.
 - RAINWATER HARVESTING SYSTEM SHOWN INDICATIVELY. VENTILATION, ELECTRICAL SUPPLY AND INTEGRATION WITH WATER SUPPLY DESIGN BY OTHERS.

PROPOSED CONNECTION SUBJECT TO THAMES WATER APPROVAL UNDER SECTION 106 (WATER ACT).
SEWER CAPACITY FOR PROPOSED FLOWS CONFIRMED VIA PRE-PLANNING ENQUIRY REF. DS6091986

Ø25mm ORIFICE FLOW CONTROL RUNOFF RESTRICTED TO 2.0 L/S FOR ALL EVENTS UP TO THE 1 IN 100 YEAR PLUS 40% CLIMATE CHANGE RAINFALL EVENT.
NON-RETURN VALVE TO BE FITTED TO CHAMBER OUTLET.

RAIN GARDEN WITH GEO-CELLULAR STORAGE
VOLUME 1.9m³ (95% VOID RATIO)
SIZE 5m x 1m x 0.40m DEEP
CL 98.00
IL 97.00
600mm COVER TO BE PROVIDED

- KEY**
- SITE BOUNDARY
 - RAINWATER DOWNPIPE
 - RODDING EYE / ACCESS POINT
 - CHANNEL DRAIN
 - SURFACE WATER SEWER
 - CATCHPIT MANHOLE
 - ORIFICE FLOW CONTROL MANHOLE
 - RAIN GARDEN
 - RAIN GARDEN WITH GEO-CELLULAR STORAGE
 - GREEN ROOF
 - INDICATIVE RAINWATER HARVESTING SYSTEM
 - PERMEABLE PAVING
 - GEO-CELLULAR SOAKAWAY TANK
 - THAMES WATER SURFACE WATER SEWER
 - THAMES WATER SEWER TO BE ABANDONED
 - FOUL WASTE POINT
 - FOUL SEWER
 - EXISTING FOUL SEWER
 - INDICATIVE 3m SEWER EASEMENT

Scale 1:100 @ A1 - 1:200 @ A3
2m 0 2m 4m 6m 8m 10m

TWMH 0650
(RELOCATED SUBJECT TO THAMES WATER APPROVAL)
CL 98.050
IL 96.000

TWMH 0650
(RELOCATED SUBJECT TO THAMES WATER APPROVAL)
CL 98.050
IL 96.000

INDICATIVE RAINWATER HARVESTING SYSTEM
KLARGESTER AQUAHARVEST GRW160 OR SIMILAR
EAST CATCHMENT ROOF AREA 360m²
VOLUME 4600L
SIZE 3.36m x 1.22m x 2.26m DEEP
CL 96.600
INCOMING IL 95.880
OVERFLOW IL 95.850
BASE 94.340

OVERFLOW FROM TANK TO DISCHARGE TO FILTER TRENCH/ SOAKAWAY TANK.

GEO-CELLULAR SOAKAWAY
VOLUME 99.2m³ (95% VOID RATIO)
SIZE 116m² x 900mm DEEP
CL 96.500
BASE 95.100

DESIGN BASED ON INFILTRATION RATE OF 5.4 x 10⁻⁵ m/s RECORDED 26/03/2024 BY HERTS & ESSEX SITE INVESTIGATIONS (REF. 18824).

FOR INFORMATION ONLY

Rev	Description	Drm	Chk	App	Date
P04	FOR INFORMATION	DR	CR	DR	30.04.24
P04.1	FOR INFORMATION	DR	CR	DR	26.04.24
P03	FOR INFORMATION	DR	CR	DR	06.10.23
P02	FOR INFORMATION	DR	CR	DR	22.02.23
P01.2	FOR INFORMATION	DR	CR	DR	08.04.22
P01.1	FOR COORDINATION	DR	CR	DR	16.02.22
P01.0	FOR COORDINATION	DR	CR	DR	07.02.22

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Client
S J M AND CO LIMITED

Project Title
10A & 10B BURWELL ROAD STEVENAGE, SG2 9RF

Drawing Title
INDICATIVE SURFACE WATER & FOUL DRAINAGE STRATEGY

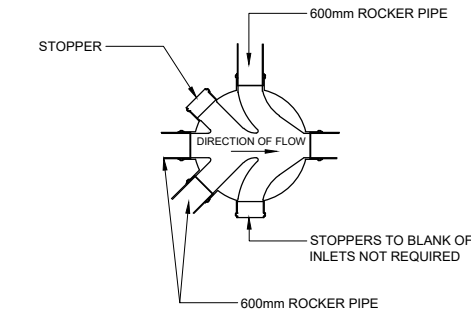
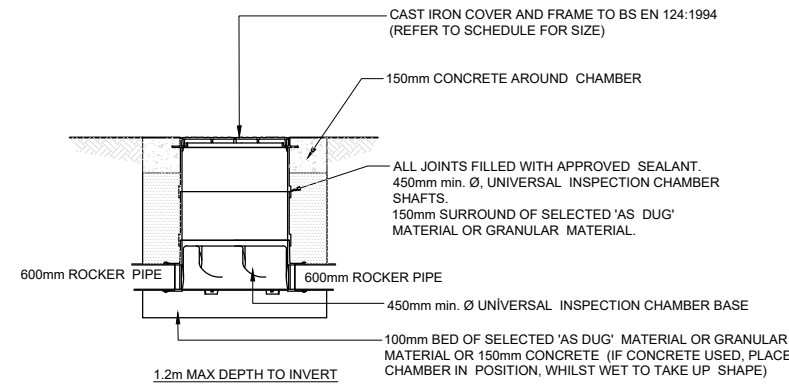
A1 Scale	Date	Designed by
1:100	FEB 2022	DR
Drawn by	Checked by	Approved by
DR	CR	DR
Drawing Number	Rev	
21210-FCE-XX-XX-DR-D-0500	P04	

Type	Depth to invert from cover level (m)	Internal sizes		Cover sizes		
		Rectangular length and width	Circular diameter	Rectangular length and width	Circular diameter	
Rodding Eye		As drain but min 100			Same size as pipework (1)	
Access Fittings						
small	150 dia 150x100	0.6 or less, except where situated in a chamber	150x100	150	150x100 (1)	Same size as access fitting
large	225x100		225x100	225	225x100 (1)	
Inspection Chamber						
Shallow	0.6 or less	225x100	190 (2)	-	190 (1)	
Deep	1.2 or less >1.2 but <3.0	450x450	450	Min 430x430 max 300x300 (3)	430	Access restricted to max 350 (3)

NOTES:
 (1) THE CLEAR OPENING MAY BE REDUCED BY 20MM IN ORDER TO PROVIDE PROPER SUPPORT FOR THE COVER AND FRAME.
 (2) DRAINS UPTO 150mm.
 (3) A LARGER CLEAR OPENING MAY BE USED IN CONJUNCTION WITH A RESTRICTED ACCESS. THE SIZE IS RESTRICTED FOR HEALTH AND SAFETY REASONS TO DETER ENTRY.

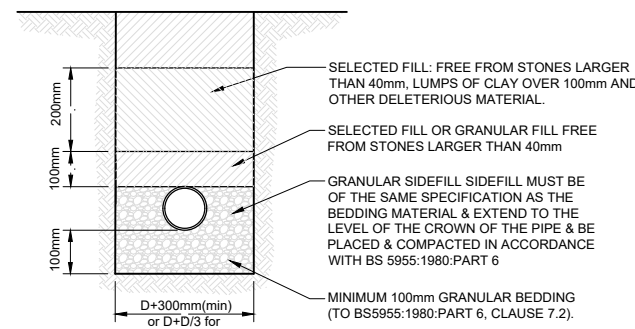
Type	Size of largest pipe (DN)	Min. internal dimensions (1) Rectangular length and width	Circular diameter	Min. clear opening size (1) Rectangular length and width	Circular diameter
Manhole <1.5m deep to soffit	<= 150	750 x 675 (7)	1000 (7)	750 x 675 (2)	na (3)
	225	1200 x 675	1200	1200 x 675 (2)	
	300	1200 x 750	1200		
	>300	1800 x (DN+450)	The larger of 1800 or (DN+450)		
>1.5m deep to soffit	<= 225	1200 x 1000	1200	600 x 600	600
	300	1200 x 1075	1200		
	375-450	1350 x 1225	1200		
	>450	1800 x (DN+775)	The larger of 1800 or (DN+775)		
Manhole shaft (4)	Steps (5)	1050 x 800	1050	600 x 600	600
	Ladder (5)	1200 x 800	1200		
	Winch (6)	900 x 800	900	600 x 600	600

NOTES:
 (1) LARGER SIZES MAY BE REQUIRED FOR MANHOLES ON BENDS OR WHERE THERE ARE JUNCTIONS.
 (2) MAY BE REDUCED TO 600 BY 600 WHERE REQUIRED BY HIGHWAY LOADING CONSIDERATIONS, SUBJECT TO A SAFE SYSTEM OF WORK BEING SPECIFIED.
 (3) NOT APPLICABLE DUE TO WORKING SPACE NEEDED.
 (4) MINIMUM HEIGHT OF CHAMBER IN SHAFTED MANHOLE 2m FROM BENCHING TO UNDERSIDE OF REDUCING SLAB.
 (5) MIN CLEAR SPACE BETWEEN LADDER OR STEPS AND THE OPPOSITE FACE OF THE SHAFT SHOULD BE APPROXIMATELY 900mm.
 (6) WINCH ONLY - NO STEPS OF LADDERS, PERMANENT OR REMOVABLE.
 (7) THE MINIMUM SIZE OF ANY MANHOLE SERVING A SEWER (I.E. ANY DRAIN SERVING MORE THAN ONE PROPERTY) SHOULD BE 1200x675mm RECTANGULAR OR 1200mm Ø.



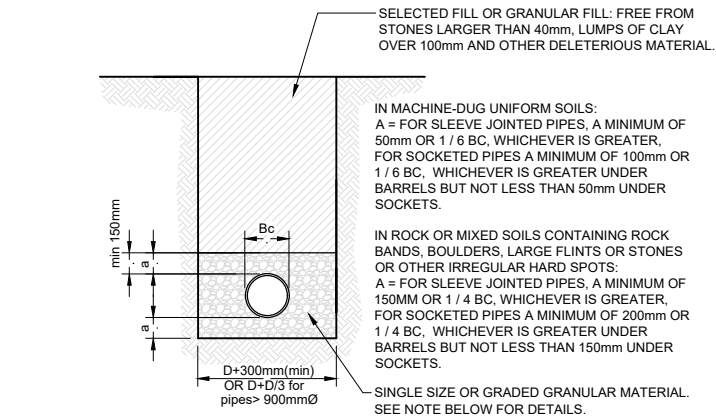
TYPICAL 450 Ø PPIC INSPECTION CHAMBER DETAIL

SCALE 1:20



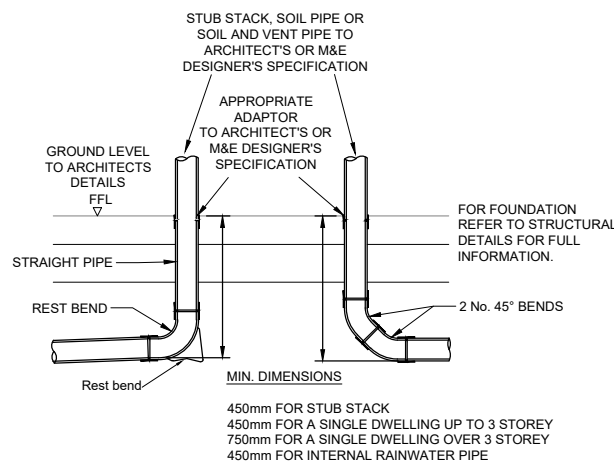
BEDDING DETAIL FOR FLEXIBLE PIPES

SCALE 1:20



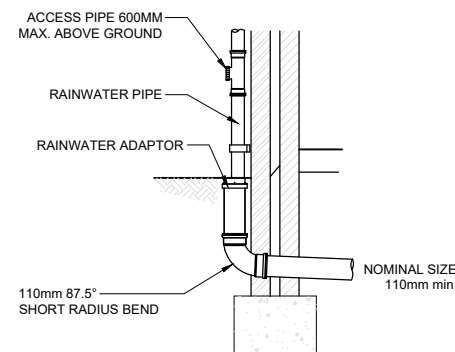
BEDDING TYPES DETAILS FOR RIGID PIPES

SCALE 1:20



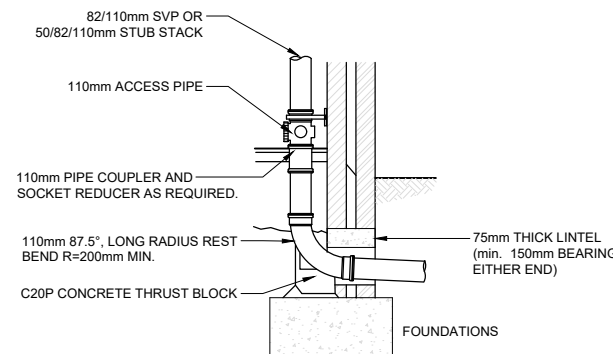
STUB STACK, SOIL VENT PIPE & INTERNAL RAINWATER PIPE DETAIL

SCALE 1:20



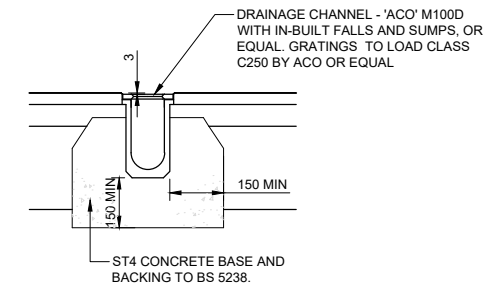
EXTERNAL RAINWATER PIPE TO DRAIN

SCALE 1:20



SOIL & VENT PIPE CONNECTION & STUB STACK CONNECTION

SCALE 1:20



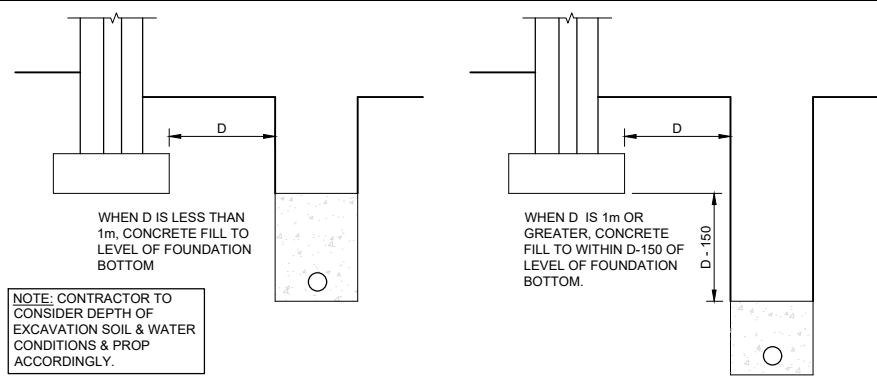
LINEAR DRAINAGE CHANNEL

SCALE 1:20

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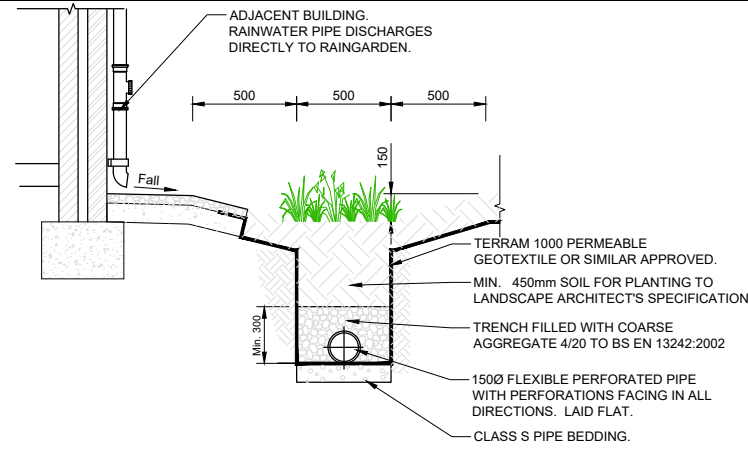
FOR INFORMATION ONLY

P01	FOR INFORMATION	DR	CR	DR	30.04.24
Rev	Description	Dm	Chk	App	Date
The Fernbrook Business Centre 40 Bowling Green Lane London EC1R 0NE info@fernbrook.co					
S J M AND CO LIMITED					
Project Title: 10A & 10B BURWELL ROAD, STEVENAGE, SG1 9RF					
Drawing Title: TYPICAL DRAINAGE DETAILS SHEET 1					
A1 Scale	Date	Designed by			
AS NOTED	APR 24	DR			
Drawn by	Checked by	Approved by			
DR	CR	DR			
Drawing Number	21210-FCE-XX-XX-DR-D-0550				Rev
					P01



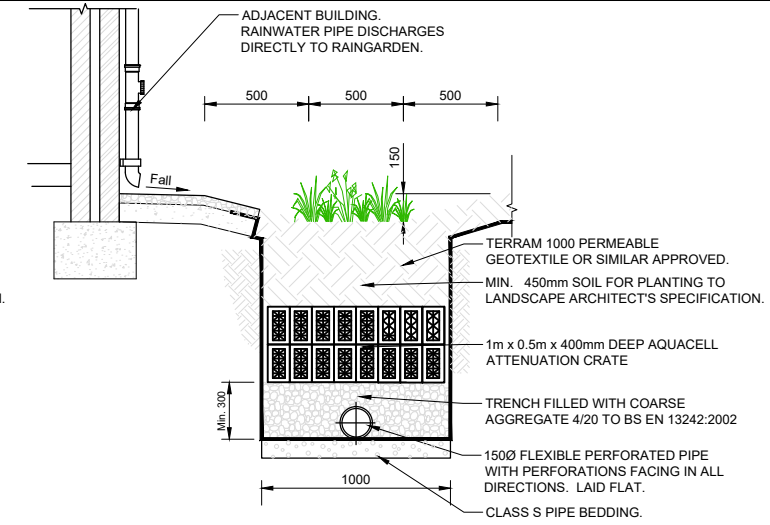
PIPES NEAR BUILDINGS

SCALE NTS



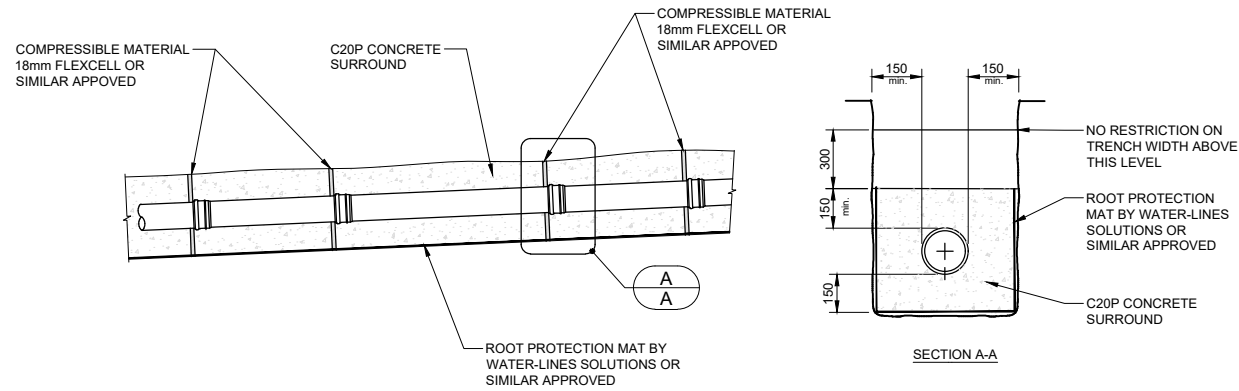
TYPICAL RAIN GARDEN DETAIL

(SCALE 1:20)



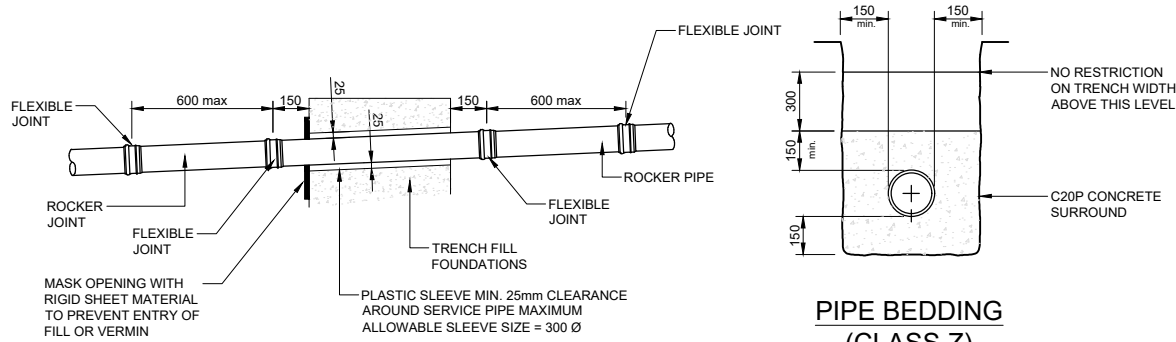
TYPICAL RAIN GARDEN DETAIL WITH GEO-CELLULAR STORAGE

(SCALE 1:20)



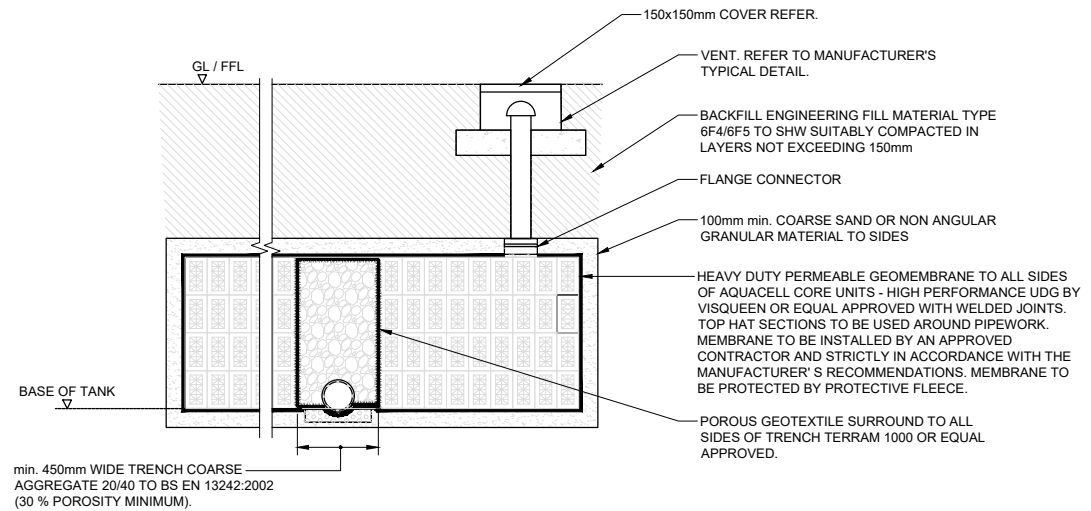
PIPE PROTECTION AGAINST ROOT INTRUSION

(FLEXIBLE JOINTS AT JOINT OF PIPES)
SCALE NTS



PIPE BEDDING (CLASS Z)

(FLEXIBLE JOINTS AT NOT GREATER THAN 8M CENTRES TO COINCIDE WITH OUTER FACE OF PIPE SOCKET)

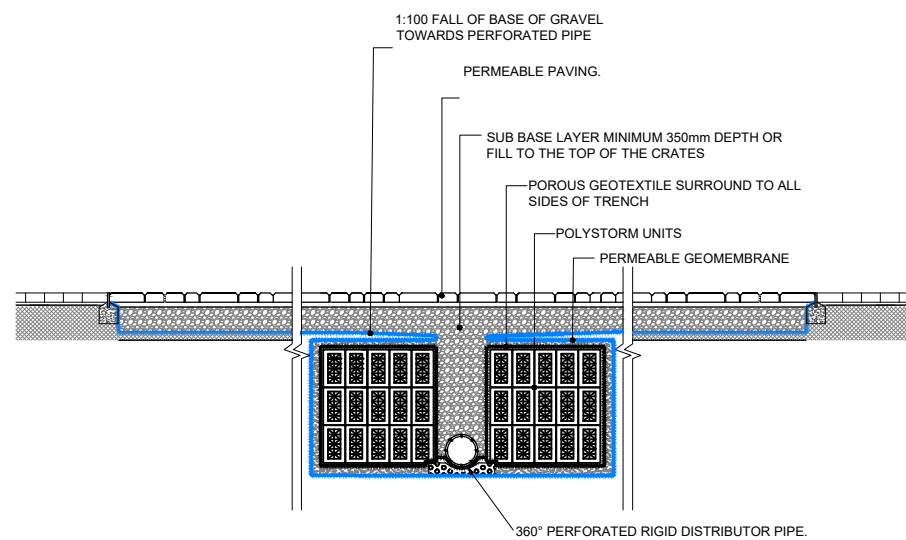


CROSS SECTION A-A

AQUACELL UNITS TO BE LAID PARALLEL HORIZONTALLY AND BONDED LIKE BRICKS VERTICAL IN ORDER TO AVOID CONTINUOUS VERTICAL JOINTS. SINGLE LAYER APPLICATIONS SHOULD BE FIXED USING WAVIN CLIPS AND MULTI LAYER APPLICATIONS SHOULD BE FIXED USING SHEAR CONNECTORS AND CLIPS. ALL TO BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

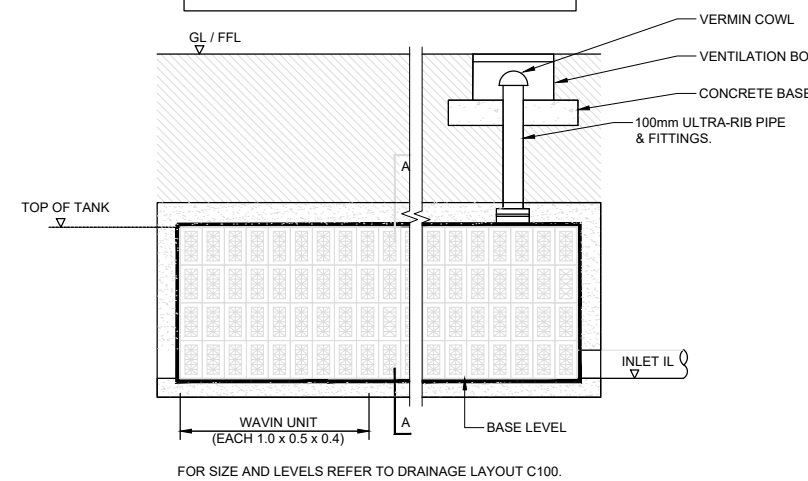
CONCRETE PROTECTION FOR PIPE CROSSOVERS

SCALE 1:20



TYPICAL PERMEABLE PAVING WITH GEO-CELLULAR SUB-BASE DETAIL

(NOT TO SCALE)



TYPICAL GEO-CELLULAR SOAKAWAY TANK DETAIL

NOT TO SCALE

NOTES

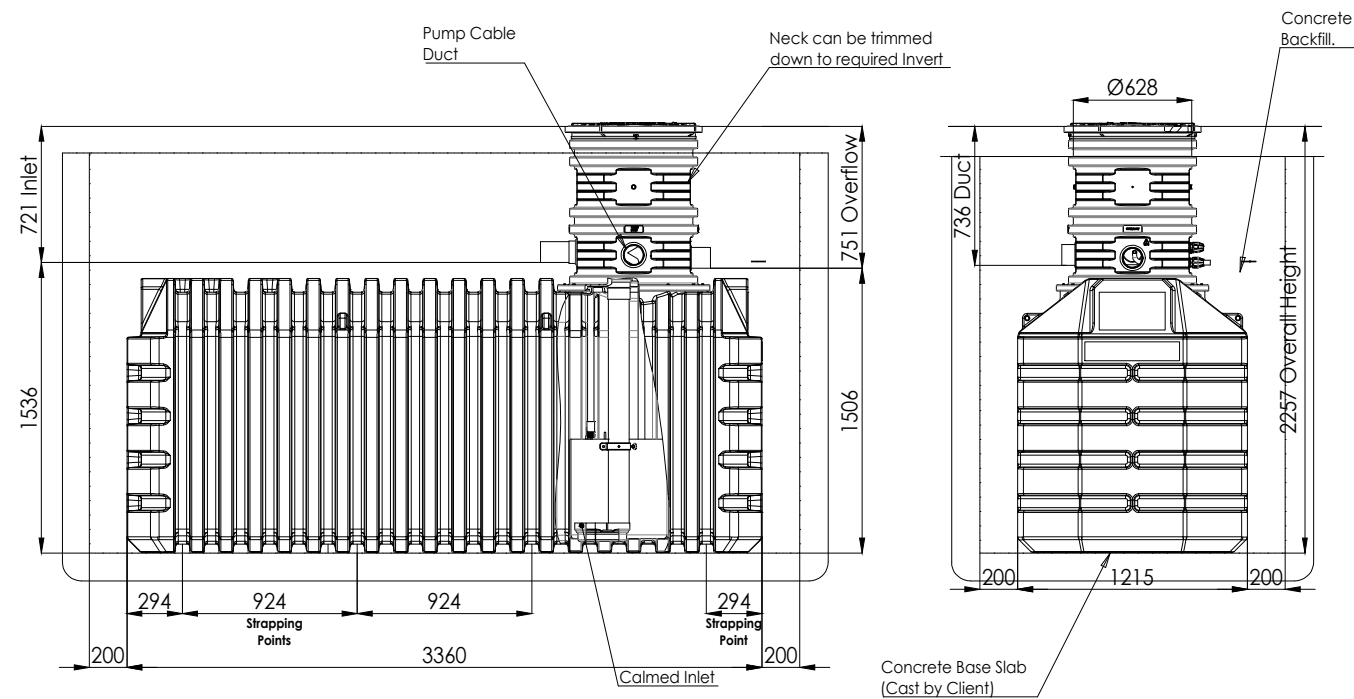
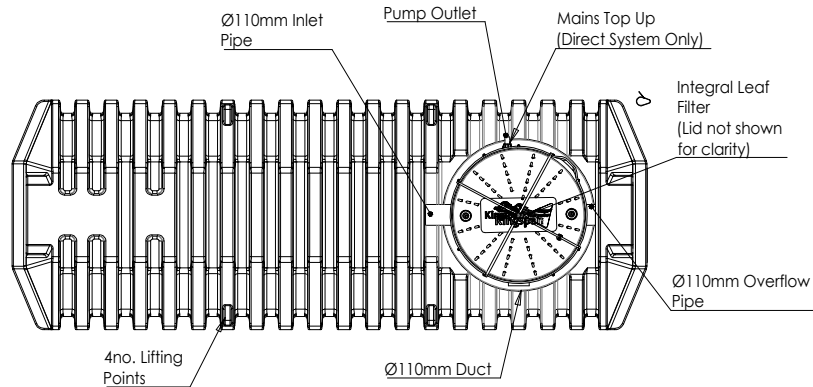
1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE RELEVANT SPECIFICATION AND ALL OTHER RELATED DRAWINGS ISSUED BY THE ENGINEER.
2. DO NOT SCALE FROM THIS DRAWING. WORK FROM FIGURED DIMENSIONS ONLY. TO CHECK THAT THIS DRAWING HAS BEEN PRINTED TO THE INTENDED SCALE THIS BAR SHOULD BE 50mm LONG @ A1 OR 25mm LONG @ A3.
3. ALL DIMENSIONS SHOWN ON THIS DRAWING ARE IN METRES, UNLESS OTHERWISE STATED.
4. ALL DIMENSIONS, LEVELS AND SURVEY GRID CO-ORDINATES ARE TO BE CHECKED ON SITE AND THE ENGINEER NOTIFIED IMMEDIATELY OF ANY DISCREPANCIES PRIOR TO THE COMMENCEMENT OF THE WORKS.
5. NO DEVIATION FROM THE DETAILS SHOWN ON THIS DRAWING IS PERMITTED WITHOUT PRIOR PERMISSION FROM THE ENGINEER.

FOR INFORMATION ONLY

P01	FOR INFORMATION	DR	CR	DR	30.04.24
Rev	Description	Drm	Chk	App	Date
<p>The Finbury Business Centre 40 Bowring Green Lane London EC1R 0NE info@fernbrook.co</p>					
<p>S J M AND CO LIMITED</p>					
<p>Project Title: 10A & 10B BURWELL ROAD, STEVENAGE, SG1 9RF</p>					
<p>Drawing Title: TYPICAL DRAINAGE DETAILS SHEET 2</p>					
A1 Scale	Date	Designed by			
AS NOTED	APR 24	DR			
Drawn by	Checked by	Approved by			
DR	CR	DR			
Drawing Number	21210-FCE-XX-XX-DR-D-0551				Rev
					P01

Notes:

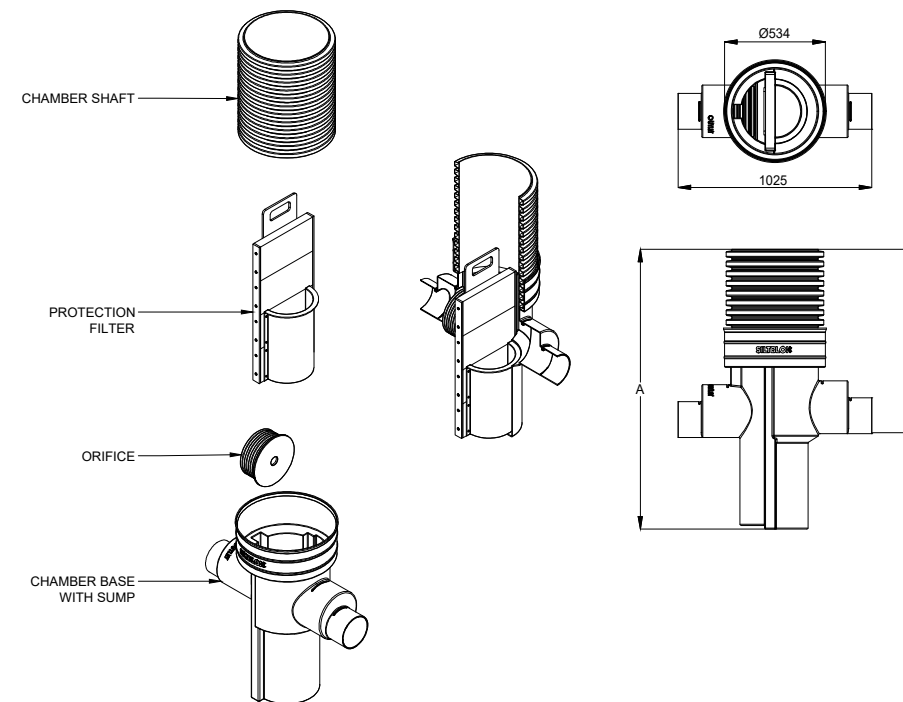
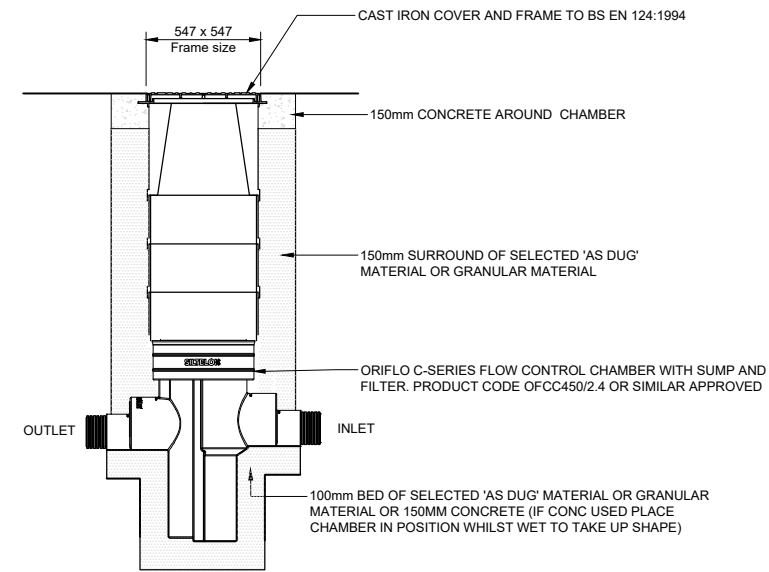
1. This drawing is for 'Dimensional Information' only. It is essential that this drawing is read in conjunction with the 'Installation Guidelines' supplied with the unit (copies available from the sales department)
2. Pump Outlet and Mains Top up connections are Ø25 mm (3/4")
3. Electrical and water connections from the tank to appliances to be the responsibility of others.
4. Tank has a trimmable Inlet Invert from 220mm to 720mm. Neck can be trimmed at 100mm increments to required Invert. Refer to drawing DS1296P.
5. Dry Site and Wet Site: Backfill with Concrete
6. Tank Weight (Empty) - 310 Kgs



Strapping Positions				
Unit	1	2	3	4
GRW160	295mm	925mm	925mm	295mm

**RAINWATER HARVESTING SYSTEM
AQUAHARVEST DOMESTIC - 4600L PRODUCT CODE GRW 160
BY KINGSPAN OR SIMILAR APPROVED.**

NOT TO SCALE



PRODUCT CODE	Pipework Options	Depth A (mm)	Invert B (mm)	Approx Weight (Kg)	Pallet Qty
	Ø (mm)				
OFCC500/1.5	150-225	1480	965	34	2
OFCC500/2	150-225	1990	1475	39	2
OFCC500/2.4	150-225	2400	1885	44	N/A
OFCC500/3	150-225	3000	2485	50	N/A

**ORIFICE PLATE FLOW CONTROL CHAMBER
PLATE PROTECTION MODEL
BY TURTLE ENVIRO OR SIMILAR APPROVED.**

NOT TO SCALE

NOTES

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2. DO NOT SCALE FROM THIS DRAWING. WORK FROM FIGURED DIMENSIONS ONLY. TO CHECK THAT THIS DRAWING HAS BEEN PRINTED TO THE INTENDED SCALE THIS BAR SHOULD BE 50mm LONG @ A1 OR 25mm LONG @ A3.
3. ALL DIMENSIONS SHOWN ON THIS DRAWING ARE IN METRES, UNLESS OTHERWISE STATED.
4. ALL DIMENSIONS, LEVELS AND SURVEY GRID CO-ORDINATES ARE TO BE CHECKED ON SITE AND THE ENGINEER NOTIFIED IMMEDIATELY OF ANY DISCREPANCIES PRIOR TO THE COMMENCEMENT OF THE WORKS.
5. NO DEVIATION FROM THE DETAILS SHOWN ON THIS DRAWING IS PERMITTED WITHOUT PRIOR PERMISSION FROM THE ENGINEER.

Rev	Description	DR	CR	DR	09.02.24
P01	FOR INFORMATION	DR	CR	DR	09.02.24

The Fernbrook Business Centre
40 Bowling Green Lane
London
EC1R 0NE
info@fernbrook.co

Client: **S J M AND CO LIMITED**

Project Title: **10A & 10B BURWELL ROAD, STEVENAGE, SG1 9RF**

Drawing Title: **TYPICAL DRAINAGE DETAILS SHEET 3**

A1 Scale	Date	Designed by
AS NOTED	APR 24	DR
Drawn by	Checked by	Approved by
DR	CR	DR

Drawing Number: 21210-FCE-XX-XX-DR-D-0552 Rev P01



Flow Control Systems

Orifice Flow Control Chamber

Product Type: Orifice Flow Control

Model: OFCC500

450mm diameter, pre-assembled protected flow control chamber, delivered ready to install. This model uses 150mm or 225mm main channel socket connections. The basket attached to the BLOK has a capacity of 17.5kg with a recommended inspection, emptying and cleaning schedule depending on usage.

Application

- Above ground access for inspection and maintenance of surface water pipe systems.
- Suitable for Adoptable and Non-Adoptable applications.
- Maximum installation depth to soffit of pipe - Adoptable 3000mm and Non-Adoptable 3000mm.
- Designed for medium to large housing or commercial developments.

Built to the following standards

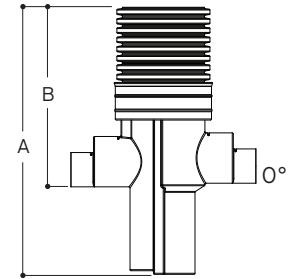
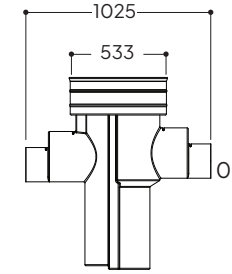
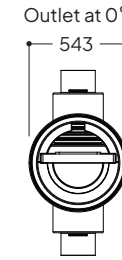
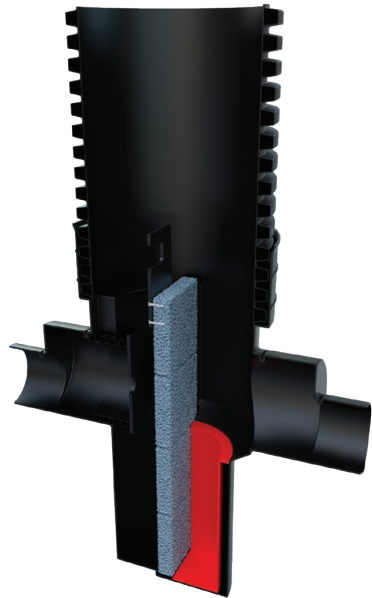
- Design & Construction Guidance (DCG) - Section C7.12
- CIRIA75310.2 - 20.5 Compliance
- BS 8582 - 9.6

Features

- Single piece, pre-assembled chambers.
- Durable rotational moulded LLDPE base - chemical and impact resistant.
- 480mm sump depth.
- Compatible with all UK Twinwall pipe systems.
- Profiled base which improves overall strength.
- Three standard depths available.
- Access shafts are easily cut onsite to the required depth.
- Chambers can be installed in granular backfill.

Quality Assurance

Before leaving our factory, chambers are tested in accordance to required standards.



Model ref.	Main Pipework Connections Ø (mm)	Overall Depth A (mm)	Inlet Invert B (mm)	Approx. Weight (kg)
OFCC500B/1.5	150, 225	1480	965	35
OFCC500B/2	150, 225	1990	1475	40
OFCC500B/2.4	150, 225	2400	1885	45

- Chambers over 1000mm soffit depth require our reduction/restriction caps to meet DCG.
- Inlet Invert measurements accurate to main channel socket. This measurement will vary depending on pipework used.
- We provide a range of adaptors to connect to various pipework dimensions and pipework types including Marley Quantum, Polysewer and UltraRib.

Our BLOK Filter Technology Within The Oriflo Range

This model is within our protected Oriflo range. This range includes a filter to prevent total suspended solids (TSS) including silt migrating past the filter, protecting the orifice plate and stopping potential blockage. This range allows smaller orifice sizes due to the enhanced protection of the orifice plate.



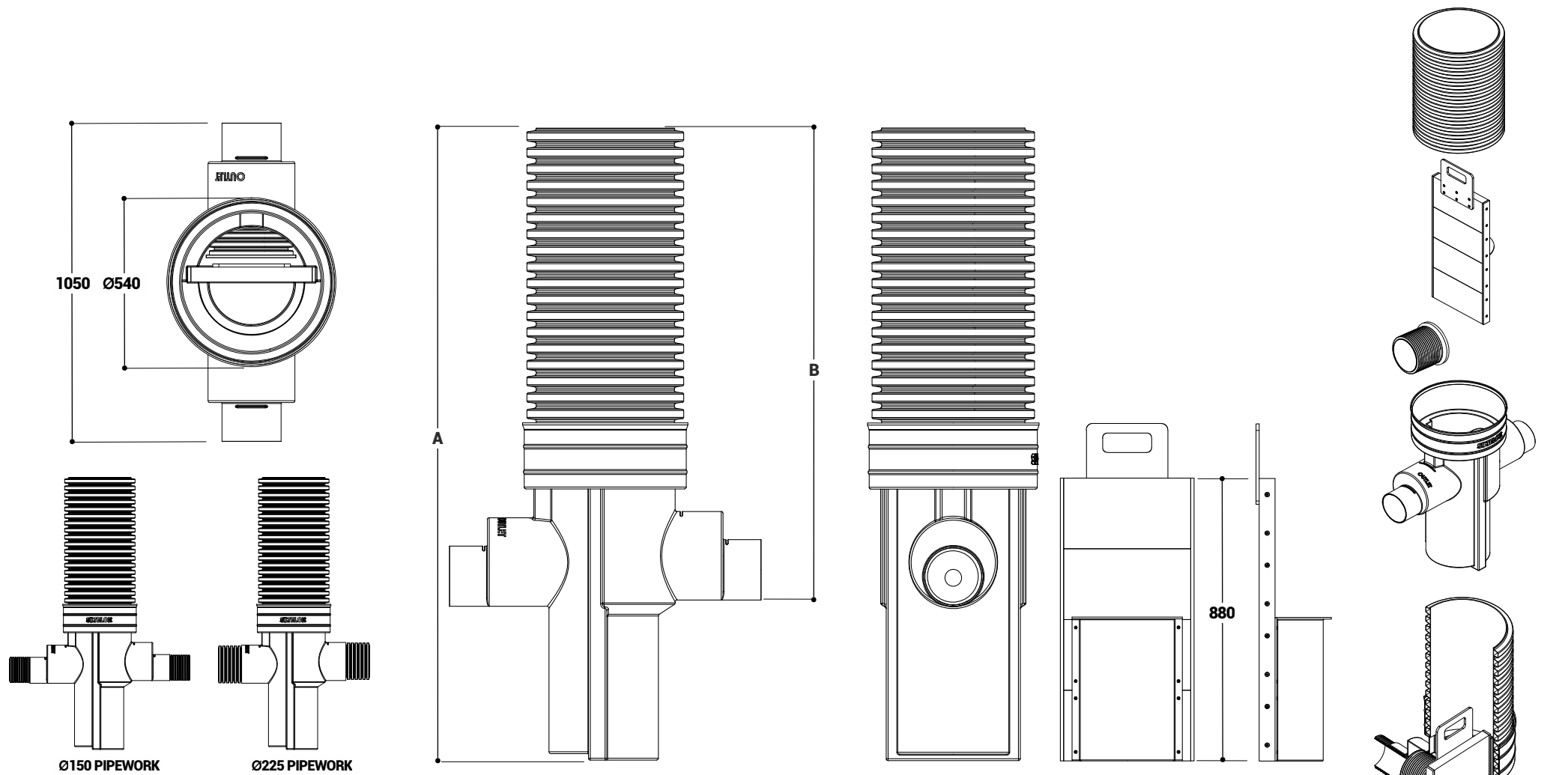
What information do we need to design your ORIFLO chamber?

We have a large range of flow control chambers allowing us to help tailor your choice to what would be best for your implementation. For this we will require:

- Orifice size
- Pipework sizes and configurations
- Invert depths

If you are unsure on the orifice size, you can use our Oriflo Orifice Size Calculator on our website to calculate what orifice size you would need for your chamber.

www.turtleenviro.co.uk/oriflo-OFCC500/#oriflo-calculator



Product Code	Pipework Options	Overall Depth	Inlet Invert	Approx. Weight
	Ø (mm)	A (mm)	B (mm)	
OFCC450/1.5	150-225	1480	965	34
OFCC450/2	150-225	1990	1475	39
OFCC450/2.4	150-225	2400	1885	44
OFCC450/3	150-225	3000	2485	50

PROPRIETARY & CONFIDENTIAL

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DRAWN BY AT	CONTRACT		
DRAWN DATE 27/4/22	PRODUCT DESCRIPTION ORIFICE PLATE FLOW CONTROL CHAMBER PROTECTED PLATE MODEL		
APPROVED BY DVA	PRODUCT/CODE OFCC450		
APPROVED DATE 27/4/22	SCALE: 1:12	SHEET/SIZE A3	REV:

APPENDIX B – MAINTENANCE INSPECTION CHECKLIST

Sustainable Drainage System Maintenance Inspection Checklist



General information			
Site ID			
Site location and co-ordinates (GIS if appropriate)			
Elements forming the SuDS scheme		Approved drawing reference(s)	
Inspection frequency		Approved specification reference	
Type of development		Specific purpose of any parts of the scheme (eg biodiversity, wildlife and visual aspects)	

Inspection date

	Details	Y/N	Action required	Date completed	Details	Y/N	Action required	Date Completed
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General inspection items

Is there any evidence of erosion, channelling, ponding (where not desirable) or other poor hydraulic performance?								
Is there any evidence of accidental spillages, oils, poor water quality, odours or nuisance insects?								
Have any health and safety risks been identified to either the public or maintenance operatives?								
Is there any deterioration in the surface of permeable or porous surfaces (eg rutting, spreading of blocks or signs of ponding water)?								

Silt/sediment accumulation

Is there any sediment accumulation at inlets (or other defined accumulation zones such as the surface of filter drains or infiltration basins and within proprietary devices)? If yes, state depth (mm) and extent. Is removal required? If yes, state waste disposal requirements and confirm that all waste management requirements have been complied with (consult environmental regulator)								
Is surface clogging visible (potentially problematic where water has to soak into the underlying construction or ground (eg underdrained swale or infiltration basin)?								
Does permeable or porous surfacing require sweeping to remove silt?								

System blockages and litter build-up

Is there evidence of litter accumulation in the system? If yes, is this a blockage risk?								
Is there any evidence of any other clogging or blockage of outlets or drainage paths?								

Vegetation

Is the vegetation condition satisfactory (density, weed growth, coverage etc)? (Check against approved planting regime.)								
Does any part of the system require weeding, pruning or mowing? (Check against maintenance frequency stated in approved design.)								
Is there any evidence of invasive species becoming established? If yes, state action required								

Infrastructure

Are any check dams or weirs in good condition?								
Is there evidence of any accidental damage to the system (eg wheel ruts?)								
Is there any evidence of cross connections or other unauthorised inflows?								
Is there any evidence of tampering with the flow controls?								
Are there any other matters that could affect the performance of the system in relation to the design objectives for hydraulic, water quality, biodiversity and visual aspects? (Specify.)								

Other observations

Information appended (eg photos)								
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Suitability of current maintenance regime

Continue as current Increase maintenance Decrease maintenance								
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Next inspection

Proposed date for next inspection								
-----------------------------------	--	--	--	--	--	--	--	--