

DARLING ASSOCIATES
ARCHITECTS

Drainage

PLANNING CONDITION 08

Site 3 - JDE

Ruscote Avenue, Banbury

Planning Permission Nr.: 21/04171/F

March 2023

Revision A



Condition 08

Overview

Prior to the first occupation of the development, a record of the installed SuDS and site wide drainage scheme shall be submitted to and approved in writing by the Local Planning Authority for deposit with the Lead Local Flood Authority Asset Register. The details shall include:

- (a) As builtplans in both .pdf and .shp file format;
- (b) Photographs to document each key stage of the drainage system when installed on site;
- (c) Photographs to document the completed installation of the drainage structures on site;
- (d) The name and contact details of any appointed management company information.

1 Drainage Strategy

1.1 Drainage Strategy

A SuDS scheme is proposed incorporating type C permeable paving, catchpits, and flow control device to restrict the discharge rate.

The type C permeable paving will provide sufficient storage for all storms up to and including a 1 in 100 year plus 40% for climate change. Flows will be restricted by means of a flow control device to an existing surface water ditch north-east of the site.

The discharge rate will be restricted to 25.3l/s which provides 40% betterment to the existing brownfield rate. The existing ditch is located to the north-east of the proposed Starbucks café development, adjacent to Ruscote Avenue (A422).

Foul drainage from the proposed Starbucks development will discharge into the Thames Water public foul sewer via a junction connection. The proposed foul junction connection is located to the northeast of the proposed development, close to the existing surface water ditch described above.

Rainwater falls onto the surface...

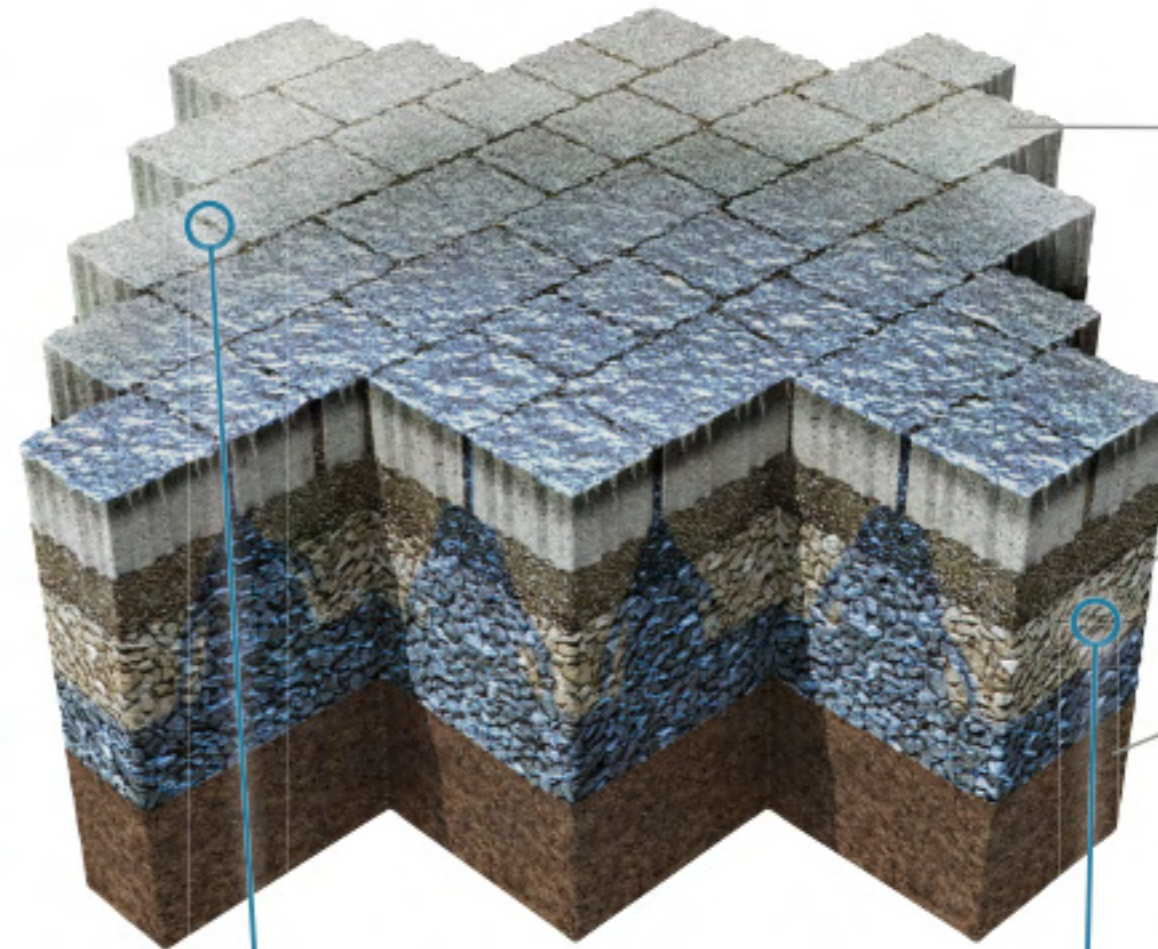
...where it seeps immediately through the specially created voids between the blocks...

...into the specially designed sub-base...

...where it is stored...

...until it permeates into the ground...

...or is released into water courses at a controlled rate.



Marshalls Piora deals with water **Quantity** issues by eliminating pooling

The system improves water **Quality** by filtering the water as it falls through the sub-base.

It also provides **Bio-diversity** benefits by replenishing the water table at source, which will maximise ecosystem services in the area.

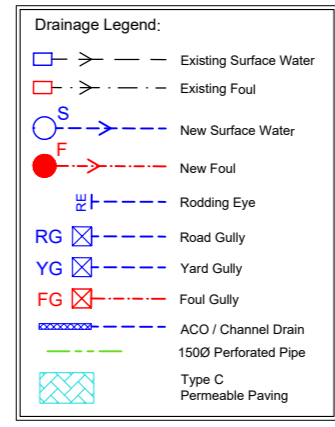
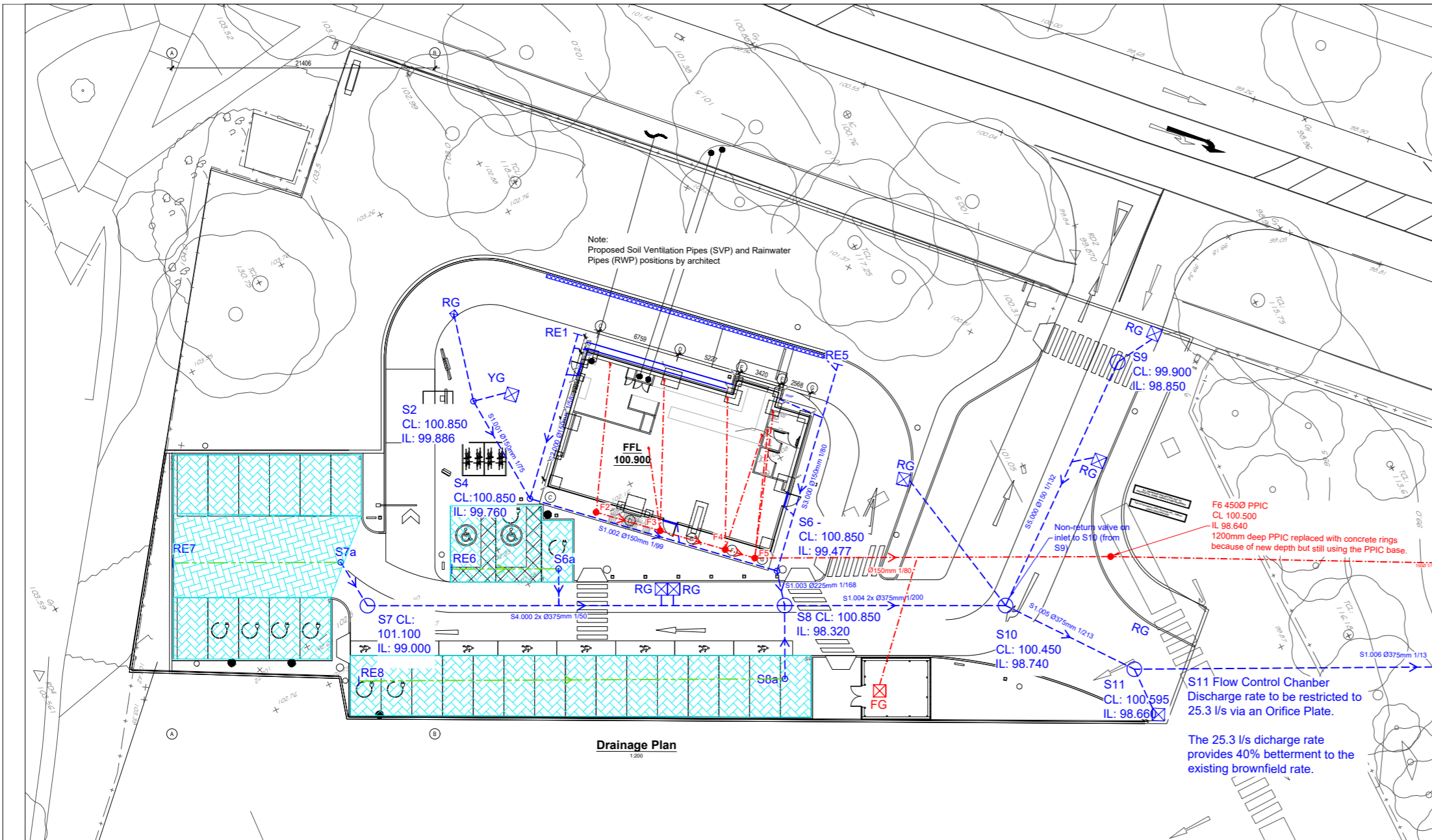


Each block features a number of carefully spaced, patented nibs around its edge, which interlock on eight separate faces in three different directions. These nibs also create the voids through which water run-off percolates into the sub-base.



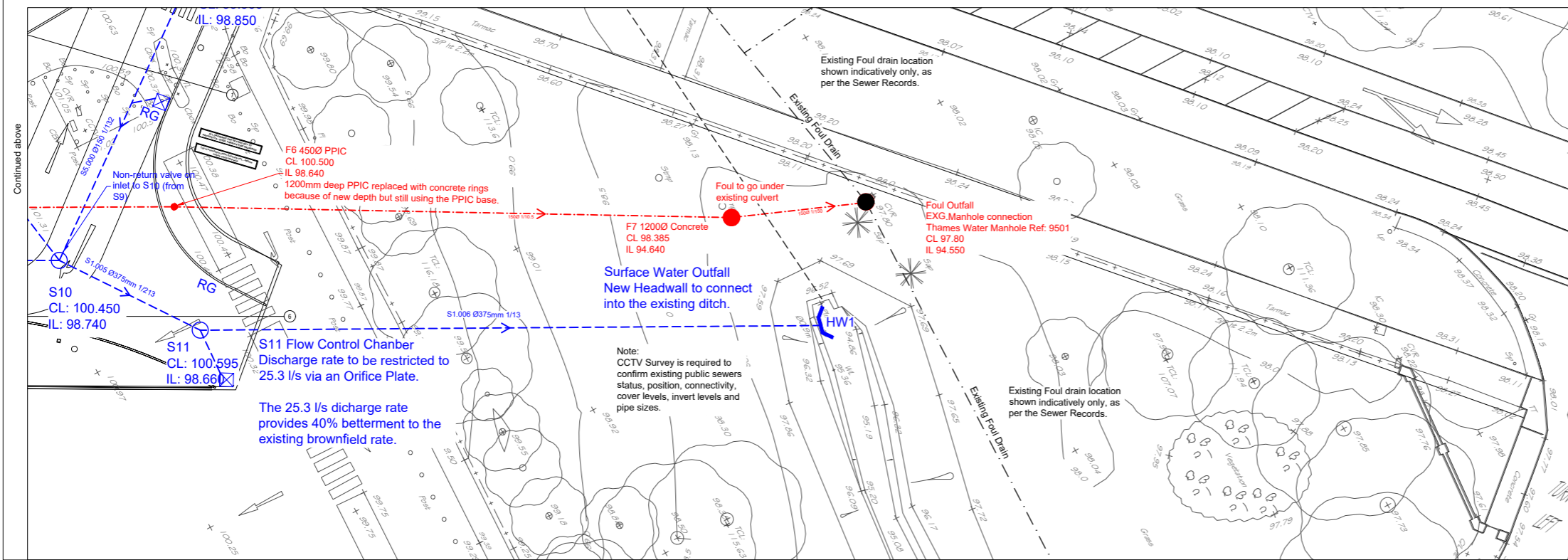
The sub-base is composed of two different grades of aggregate. These are specially selected to provide maximum internal friction (offering enhanced stability) whilst also providing a void ratio of over 32% (offering adequate water storage) (see page 21)

2 As Built Plans



- Notes:**
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 - Drawing is to be read in conjunction with all relevant architect's drawings. Any inconsistencies should be reported to PRP immediately.
 - All levels and dimensions are to be checked on site before any work commences.
 - For more information see PRP drawings: 63364 - 100series - Drainage and External Works, 63364 - 200series - Foundations, 63364 - 300series - Superstructure
 - The Health and Safety at Work act is to be complied with at all times. Attention is drawn to the wearing of hard hats, safety boots, reflective clothing, and the use of any other required safety equipment.
- Drainage:**
- The position, line, level and diameter of all existing drainage apparatus should be confirmed on site prior to the commencement of the works. Any discrepancies should be reported to PRP immediately.
 - The connection of foul and surface water drainage to the existing public sewer system shall be subject to the approval of the water authority
 - For positions of all rainwater pipes & foul outlets refer to Architect's drawings.
 - Drainage designed in accordance with the Sewerage Sector Guidance, Design and Construction Guidance ("the Code") Approved Version 2.0, 10 March 2020.
 - All joints between precast manhole components shall have a minimum uncompressed thickness of 10mm of proprietary bitumen or resin mastic sealant.
 - Storm & foul branch connections are to be laid at gradients of between 1:10 & 1:80
 - All in-situ concrete shall be minimum grade GEN3.
 - Precast concrete cover & reducing slabs to be heavy duty reinforced concrete to BS 5911.
 - Manhole covers & frames shall be manufactured in cast iron or ductile iron & shall comply with requirements of BS EN 124 & shall be kite marked or equivalent.
 - Where there is no intermediate manhole between the start of a surface water pipe run and the soakaway the gradient of the run shall be not less than 1 : 60.
 - All completed work shall be suitably protected from damage by construction work. Damaged drainage will not be accepted. It is recommended that no heavy loading or underground work is permitted above or near unprotected drainage, and that dumpers, trucks, fork lifts or other heavy vehicles are not driven along or near pipe runs.
 - Inspection chambers, soakaways and flow control units are to be installed strictly in accordance with manufacturer guidance and instructions

Continued below



Rev	Date	Description	By / Chk
C5	13/01/2023	Foul drainage layout amended, threshold drains added	DB / MAS
C4	03/01/2023	Outfall position updated to reflect existing manhole location	MAS/ HP
C3	15/12/2022	F7a added, drainage updated between F7 and outfall.	DB / HP
C2	08/09/2022	Issued for Construction	DB / HP
C1	18/08/2022	Site layout updated to latest revision. Bin Store position relocated. Foul Gully & Yard Gully Relocated	MAS/ HP
T2	23/12/2021	Amended to suit Starbucks spec	ST / HP
T1	23/11/2021	Foul levels added, issued for tender	ST / HP

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Northampton
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Client: Paloma | Propco Ltd

Architect: Darling Associates

Project: Ruscote Avenue, Banbury

Title: Drainage Layout

Status: **CONSTRUCTION**

Engineer: SK	Date: Aug 2021
Drawn: JD	Scales @ A 1:
Checked: HP	1:200
Project No: 63364	Drg No: 101 Rev: C5

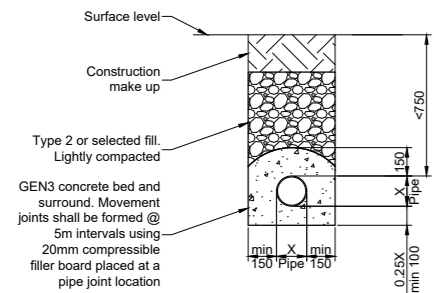
SAFETY, HEALTH & ENVIRONMENTAL HAZARD INFORMATION BOX

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CONSTRUCTION RISKS:

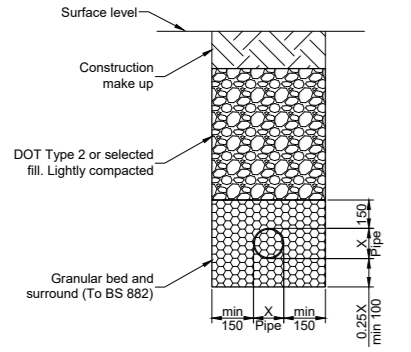
DEMOLITION RISKS:

MAINTENANCE / CLEANING RISKS:



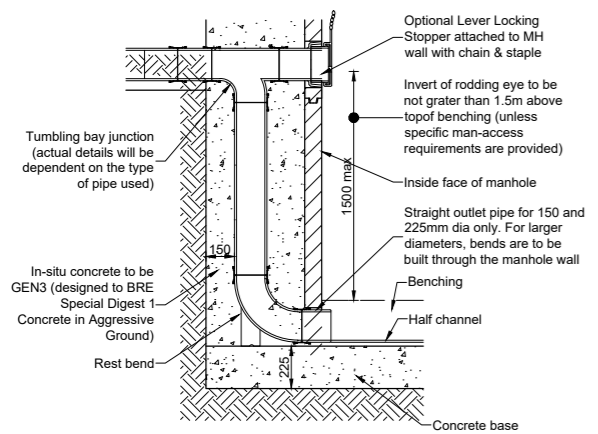
Typical Pipe Bedding With Concrete Bed and Surround

GEN3 concrete bed and surround to be used under paved areas where the depth between the finished construction level and the Barrel of the drain is less than 750mm.



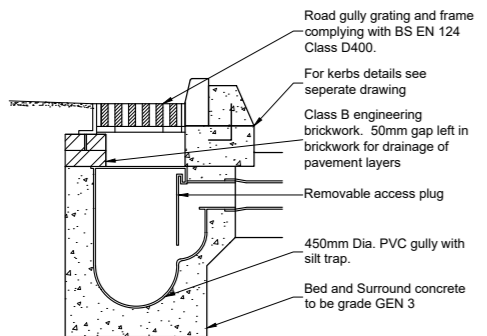
Typical Pipe Bedding With Granular Bed and Surround

Granular bed and surround to be used where concrete bed and surround are not required.

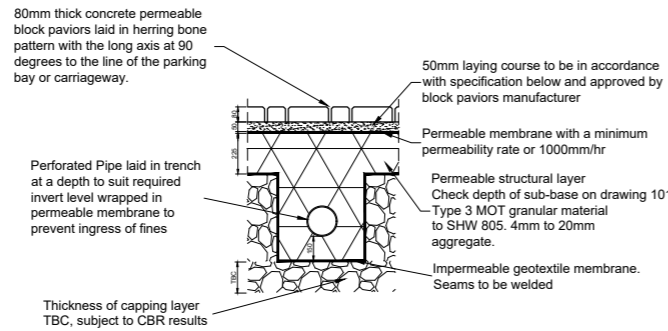


Typical Vertical Backdrop Detail

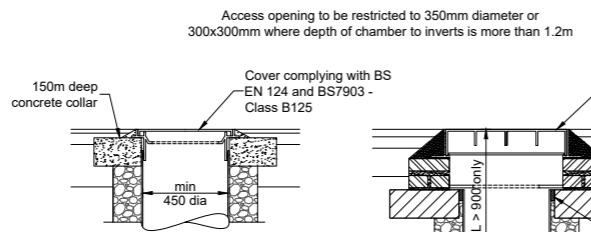
Note: steeper gradients are preferred to the use of backdrops. Type of backdrop (vertical or 45deg ramped) to be used to be agreed with Undertaker.



Typical PVC Gully Detail

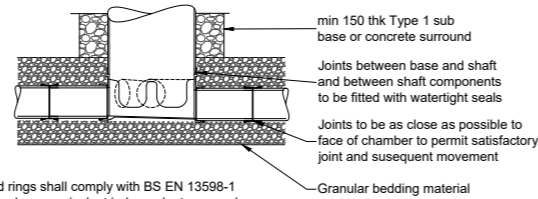


Typical Porous Pipe in Permeable Block Paved Areas Providing Attenuation

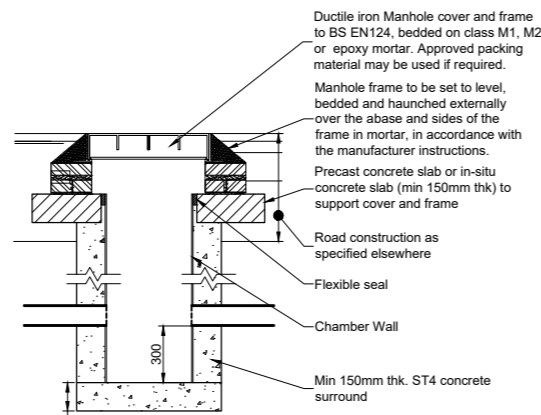


Cover for Driveways, Footpaths and Landscaped Areas

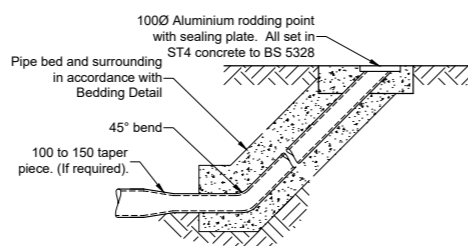
Cover for Roads and Carparks



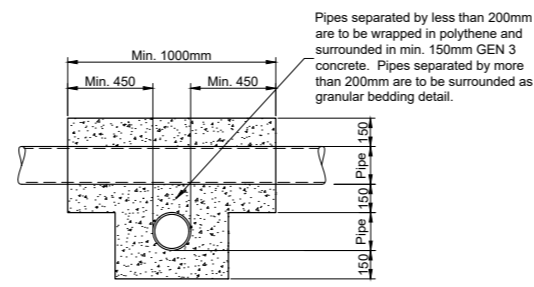
Polypropylene Inspection Chamber (PPIC) Detail



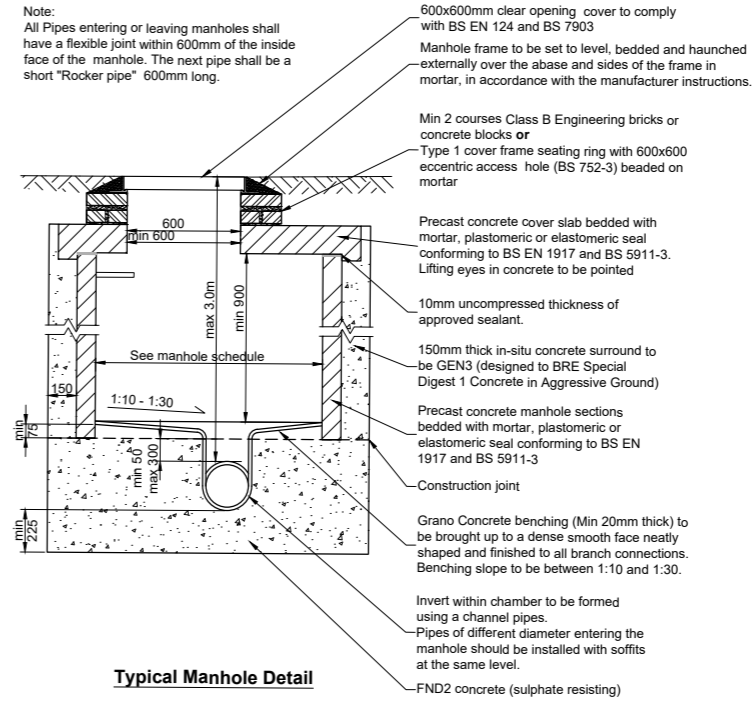
Typical Catchpit Detail



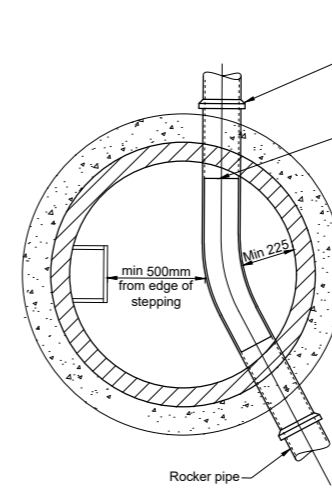
Rodding Eye Detail



Typical Pipe Crossing Detail

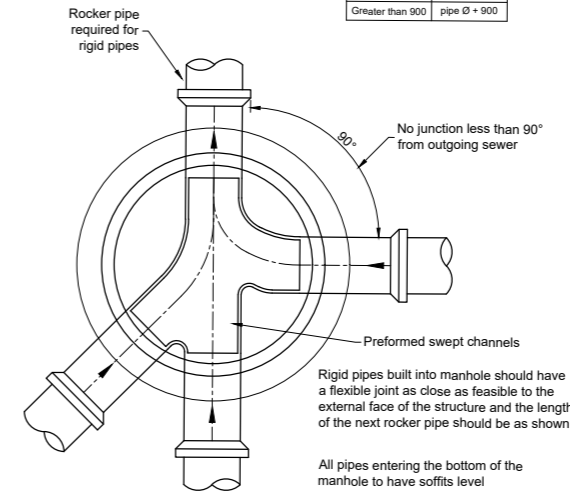


Typical Manhole Detail



Sewer Diameter [mm]	Effective Length [mm]
150 to 600	600
over 600 to 750	1000
over 750	1250

Min Manhole Diameters	
Largest Pipe Ø in manhole [mm]	Internal Ø of manhole [mm]
Less than 375	1200
375 - 450	1350
500 - 700	1500
750 - 900	1800
Greater than 900	pipe Ø + 900



Arrangement of Pipe Junctions Within Manholes

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DEMOLITION RISKS:

MAINTENANCE / CLEANING RISKS:

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Rev	Date	Description	By / Chk
C2	08/09/2022	Issued for Construction	DB / HP
C1	23/11/2021	Issued for contract	MAS/ HP
T1	23/11/2021	Issued for tender	JD / HP
P1	13/08/2021	Issued for comments	JD / HP



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Client: Paloma I Propco Ltd

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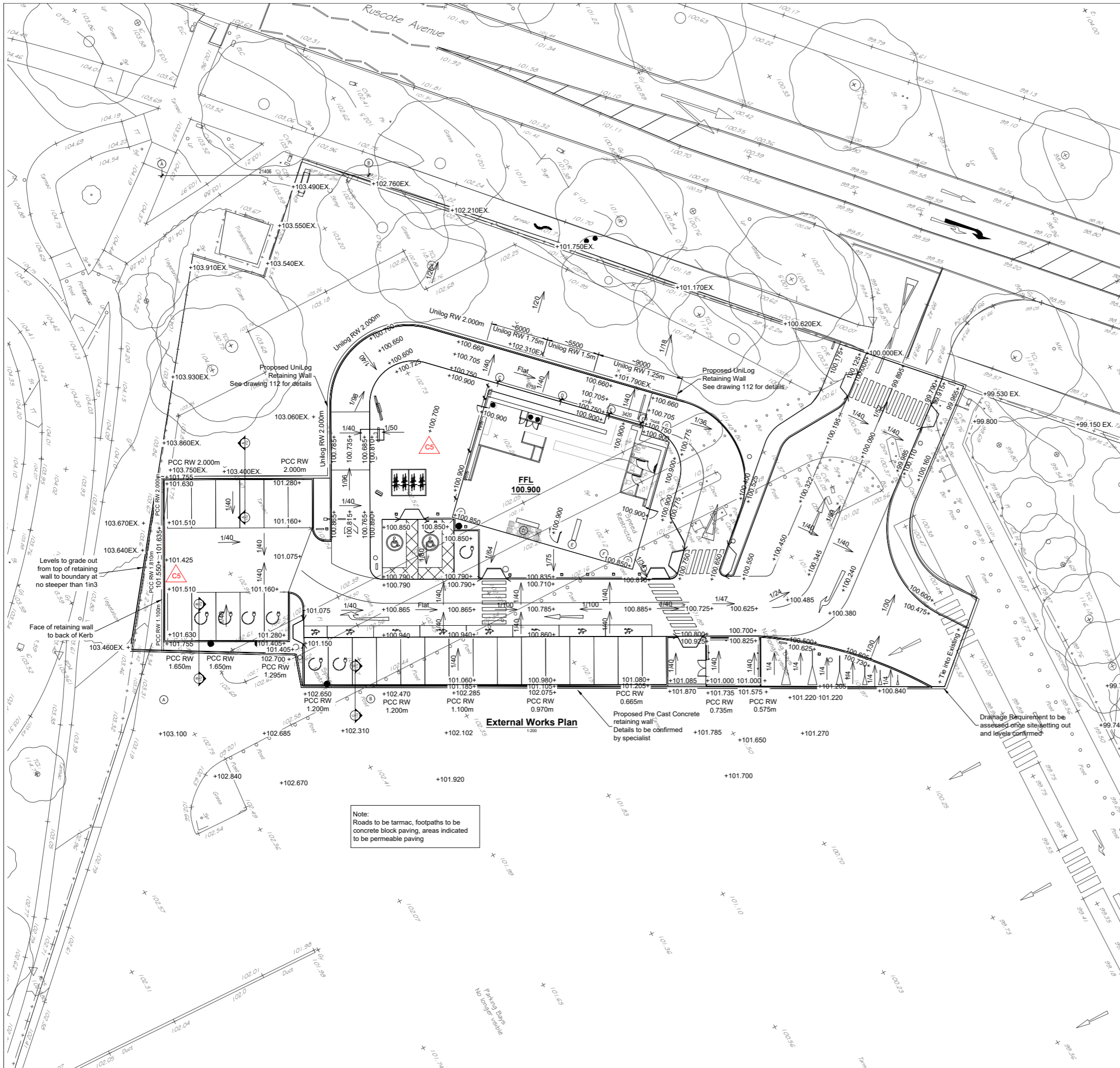
Project: Ruscote Avenue, Banbury

Title: Drainage Construction Details

Status: **CONSTRUCTION**

Engineer: SK	Date: Aug 2021
Drawn: JD	Scales @ A 1:
Checked: HP	1:20
Project No: 63364	Drg No: 102 Rev: C2

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External Works:

- Prior to any works being carried out within or immediately adjacent to the public highway, a scheme for the safe control of traffic and pedestrians is to be agreed with the Highway Authority and implemented
- Any utilities shown on this drawing are indicative only. It is the Contractor's responsibility to trace and indicate the precise location and nature of all services.
- The Developer/Contractor shall be responsible for liaison with the Statutory Undertakers and other cable service companies for the provision of all required services, diversion.
- Special care is to be taken when excavating in the vicinity of existing trees, it is not intended that any tree roots should be severed or damaged and specialist advice should be sought when major roots present a problem.
- The formation of all surfaces shall be trimmed, rolled and treated with a glyphosate based weedkiller in accordance with the manufacturers instructions prior to laying the sub-base
- All in situ concrete shall be Designated Concrete GEN3 produced in accordance with BS 8500-2006.
- In all instances sulphate resisting cement is to be used.
- Half Battered and Splayed kerbs face shall be 125mm above the channel level. Bullhosed kerb shall be 0-6mm above wearing course for pedestrian crossing and 25mm for vehicular access
- The minimum depth of concrete below all kerbs shall be 150mm. Kerbs shall be laid on a 10-40mm bed of Class 1 cement mortar unless laid with the foundation in one operation.
- Adequate bond must be made between foundation and haunch if laid in more than one operation. Preferred method of bonding to be by means of steel U-bars reinforcement, any other method to be approved by PRP.
- Mortar joints between kerbs not to be provided unless specified. Gaps between kerbs to be 1 to 2mm.
- The sub-grade shall be prepared to falls to ensure that construction thickness remain uniform. Following trimming of the sub-grade it shall be protected against the ingress of water, failure to do so will seriously weaken the sub-grade.
- All soft spots shall be excavated and replaced with compacted sub-base material
- The minimum total carriageway construction thickness shall not be less than 450mm.
- All materials used in top 450mm of carriageway construction shall be non-frost susceptible.

External Works Legend:

- +100.00 Existing Levels
- +100.000 New Levels
- +100.000 New Levels updated 04/10/2021
- +100.000 Site 4 Proposed Levels added
- 1/40 Slope
- 1/40 Slope updated
- Type C Permeable Paving
- New Tarmac Areas
- New Block Paved Areas
- Unilog Retaining Wall
- Banking Works

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Rev	Date	Description	By / Chk
C5	13/01/2023	Site Layout updated to reflect latest architect site plan. Retaining wall repositioned to back of kerb.	MAS/ HP
C4	05/10/2022	Unilog RW added	GAJ/ TC
C3	15/09/2022	Minor text amendments	MAS/ HP
C2	08/09/2022	Issued for Construction	DB / HP
WIP	02/09/2022	WIP - Retaining Wall Section Markers Added. Levels under review.	MAS/ HP
C1	18/08/2022	Site layout updated to latest revision. Bin Store position relocated. Unilog retaining wall extended to accommodate	MAS/ HP
T3	19/07/2022	Turning Head Levels amended	MAS/ HP
T2	23/12/2021	Updated to suit Starbucks spec	ST / HP
T1	23/11/2021	Layout updated, issued for tender	ST / HP
P2	04/10/2021	Proposed Levels along southern Site Boundary reviewed against Site 4 (Amazon) proposed site levels. Proposed levels and retaining wall sizes updated. Banking added where is required.	SK / HP
P1	13/08/2021	Issued for comments	SK / HP

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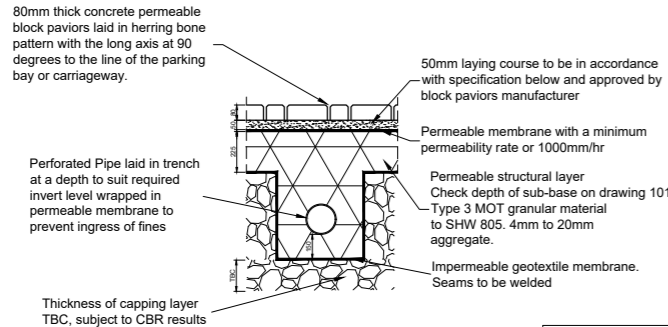
Project: Ruscote Avenue, Banbury

Title: External Works Layout

Status: **CONSTRUCTION**

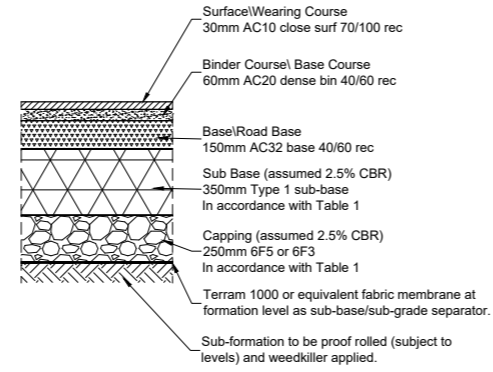
Engineer: SK	Date: Aug 2021
Drawn: JD	Scales @ A 1:
Checked: HP	1:200
Project No: 63364	Drg No: 110 Rev: C5

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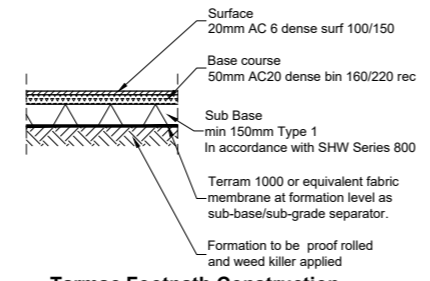


Typical Porous Pipe in Permeable Block Paved Areas Providing Attenuation

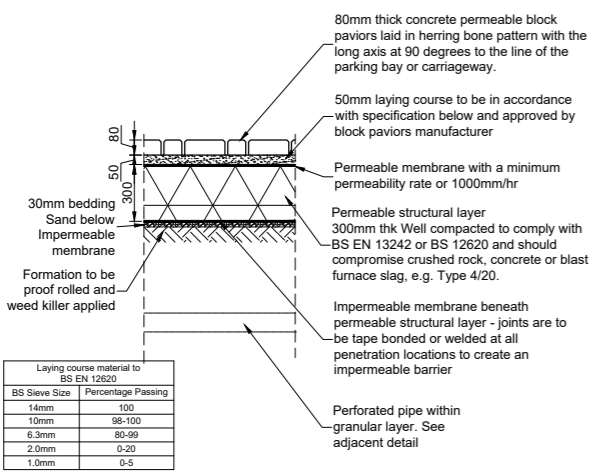
Laying course material to BS EN 12620	
BS Sieve Size	Percentage Passing
14mm	100
10mm	98-100
6.3mm	85-99
2.0mm	0-20
1.0mm	0-5



Tarmac Road Construction

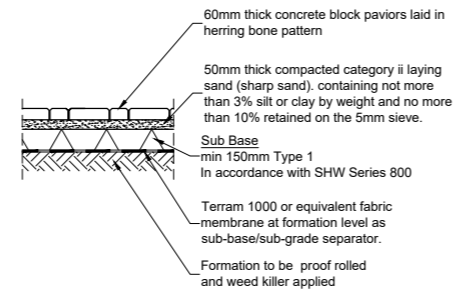


Tarmac Footpath Construction



Permeable Block Paving Construction

Laying course material to BS EN 12620	
BS Sieve Size	Percentage Passing
14mm	100
10mm	98-100
6.3mm	85-99
2.0mm	0-20
1.0mm	0-5

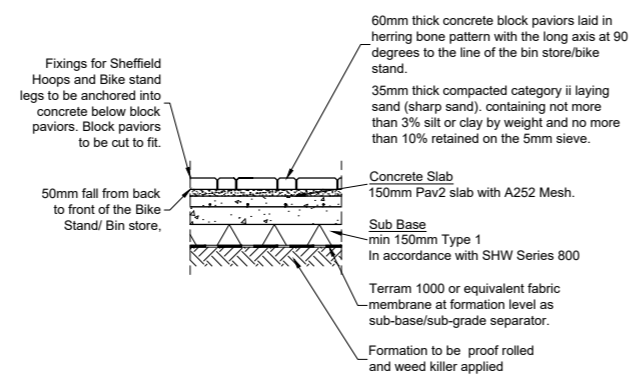


Block Paved Footpath Construction

Sub-Base / Sub-Grade Thickness (Access Roads & Service Yards)		
CBR Value	Sub Base + Capping (mm)	Sub Base Alone (mm)
< 2%	150 sub-base + 600 capping	N/A
2.5%	150 sub-base + 400 capping	N/A
3%	150 sub-base + 350 capping	300
5%	150 sub-base + 250 capping	225
10%	150 sub-base + 190 capping	180
15%	150 sub-base + 150 capping	150
> 15%	150 sub-base	0

On frost susceptible sub-grades minimum total construction thickness = 450mm
The formation is to be proof rolled prior to laying of any sub-base material.
Clause references shown on this drawing refer to DTP Specification for Highway Works.
Any make-up necessary beneath Type 1 Sub-base to be Type 1 or Class 6F2 Capping material.

Sub-Base / Sub-Grade Thickness (Car Parking)	
CBR Value	Sub Base + Capping (mm)
< 2%	150 sub-base + 350 capping
2%	150 sub-base + 250 capping
3%	150 sub-base + 150 capping
4%	150 sub-base + 100 capping
> 5%	200 sub-base



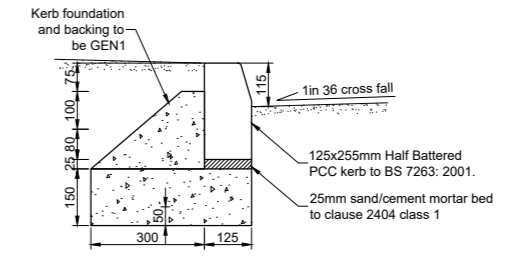
Binstore / Cycle stand Slab Detail



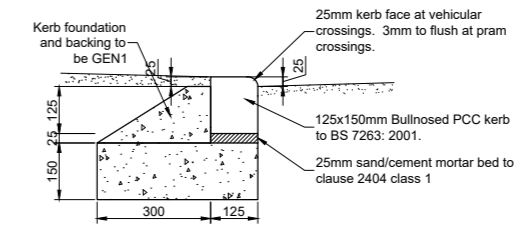
Parking Bays:

Brett Landscaping - Omega Permeable Block Paving

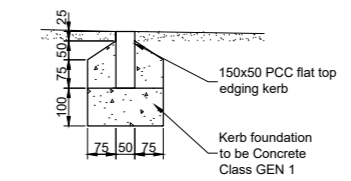
Finish - Natural



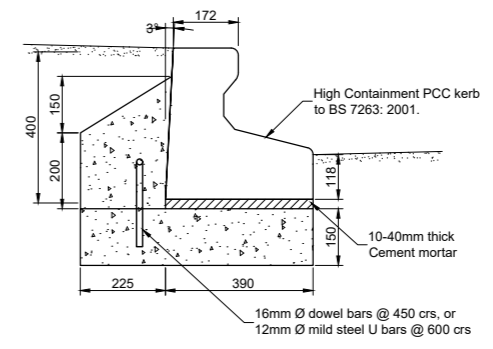
Concrete Kerb Type: HB



Concrete Kerb Type: BN

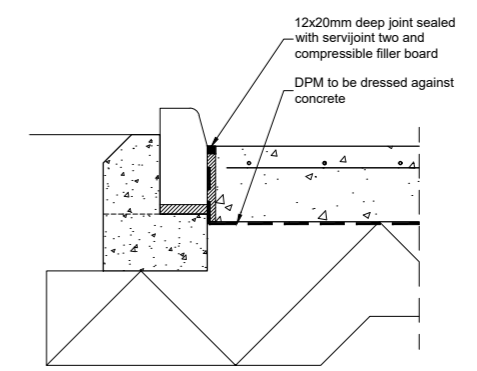


Footpath/Footway Edging Type: ED



High Containment Kerb: HK

Dowel bars and mortar to be used only when kerb base set prior to laying kerb and kerb backing



Kerb Joint - KJ

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Rev	Date	Description	By / Chk
C2	08/09/2022	Issued for Construction	DB / HP
C1	23/11/2021	Issued for contract	MAS/ HP
T1	23/11/2021	Issued for tender	ST / HP
P1	13/08/2021	Issued for comments	SK / HP

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northampton@prp.co.uk
www.prp.co.uk

Leicester
Northampton
London

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Client: Paloma I Propco Ltd

Architect: Darling Associates

Project: Ruscote Avenue, Banbury

Title: External Works Details

Status: **CONSTRUCTION**

Engineer: SK	Date: Aug 2021
Drawn: JD	Scales @ A 1:
Checked: HP	As Shown
Project No: 63364	Drg No: 111 Rev: C2

3 Photographs to Document Key Stages of Installation

PHOTOGRAPHS TO DOCUMENT KEY STAGES OF INSTALLATION

3.1 Surface Water Outfall Construction



Photographs to Document Key Stages of Installation

3.2 Installation of the Drainage Chamber Flow control devise



3.3 Evidence of Manholes and Drainage Routes



3.4 Permeable block paving construction - Formation level - evidence of impermeable liner being laid (tanking for car parking bay) atop of some sand blinding

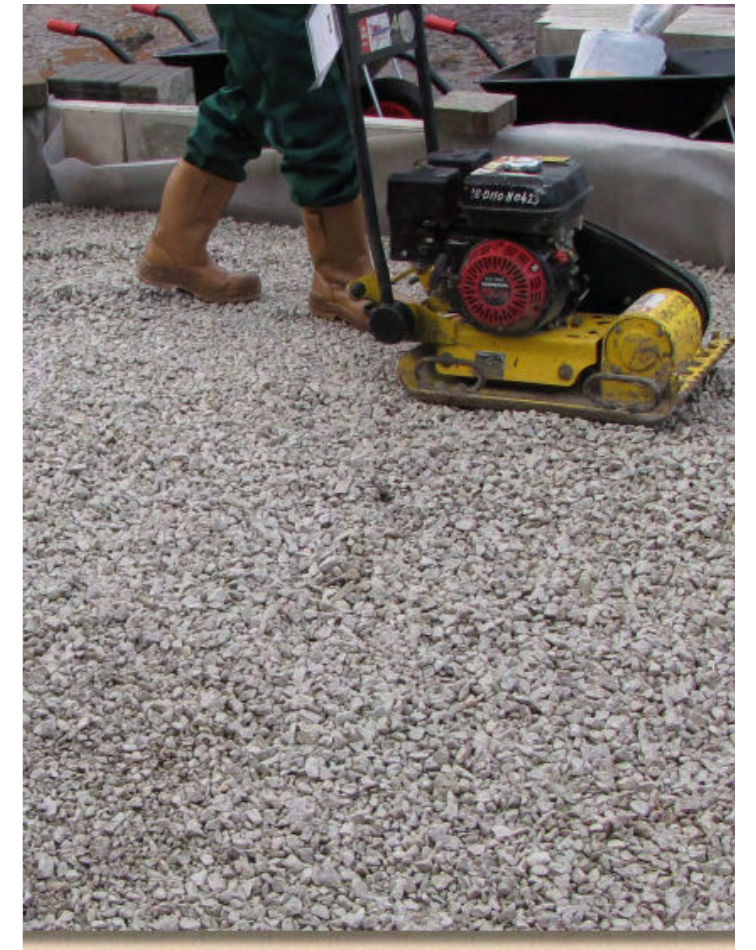


Photographs to Document Key Stages of Installation

3.5 Permeable block paving construction - Sub-base (porous MOT type 3 or Type 4/20 CGA with no fines) being laid



3.6 Permeable block paving construction - Terram (permeable separation membrane) above sub-base and then permeable grit being screeded for laying of Permeable block work



Photographs to Document Key Stages of Installation

3.7 Permeable block paving construction - laying of permeable block work on top of the permeable grit



Photographs to Document Key Stages of Installation

3.8 Surface level drainage features



PHOTOGRAPHS TO DOCUMENT KEY STAGES OF INSTALLATION

3.9 Deep Connection Foul connection into existing Thames water Foul Sewer



PHOTOGRAPHS TO DOCUMENT KEY STAGES OF INSTALLATION

3.10 Foul connections into the slab



NOTE:
Pop-ups to be left in slab for future connection at completion of shell and core works - Fit out team to install Sanitary ware and FF&E as part of separate works.



4 Photographs to document the completed installation of the drainage structures on site

Photographs to document the completed installation of the drainage structures on site

4.1 Completed permeable paving



Photographs to document the completed installation of the drainage structures on site

4.2 Completed permeable paving



Photographs to document the completed installation of the drainage structures on site

4.3 Completed Outflow connection



5 Datasheets

Description

Manufacturing Standard : **BS EN 1338: 2003**
 Manufacturing Process : Semi dry pressed & vibrated concrete
 Product Type: Precast Concrete Paving Blocks
 Incorporates 60 and 80mm Omega Flow

Application: Domestic and Commercial use; hardstanding for vehicular & pedestrian pavements including footpaths, cycle tracks, driveways, adoptable highways, commercial pavements, heavy duty pavements, roof top and balcony applications etc. (please see www.brettpaving.co.uk for further guidance on applications)

Product Performance

Strength Characteristic tensile splitting strength ≥ 3.6 Mpa; Failing load ≥ 250 N/mm
 Abrasion Resistance ≤ 23 mm - Determined by Wide Wheel Abrasion Test
 Durability Class 3 $\leq 1,0$ kg/m² with no individual result $\leq 1,5$ kg/m²
 Slip / Skid Resistance Unpolished Slip Resistance Value ≥ 55 - Potential for slip - Low
 Reaction to fire Class A1 when used for internal flooring
 External Fire Performance Deemed to satisfy
 Emission of asbestos No content
 Thermal Conductivity 1.2 W/(mK)

Dimensions (mm) & Typical Unit Weights (Kg)

Product	Size / Code	Working. Dims (mm)	Unit Weight (kg)
Omega Flow Block Paving 60mm	Full Block	215x115	2.6
Omega Flow Block Paving 80mm	Full Block	215x115	3.6

Tolerance on Working Dimensions Thickness ± 3 mm ; Plan Size ± 2 mm
 Chamfer 7mm x 2mm

Product Information

Design Standard BS 7533-1:2001; BS 7533-2:2001; Heavy Duty Pavement Design Manual
 Installation Standard BS 7533-3:2005 + A1:2009
 NBS Specification 45-20-64/400 Precast concrete paving blocks / Q24 115 117 119
 Colour Autumn Gold, Brindle, Burnt Oak, Charcoal, Natural
 Other 0

<u>Product</u>	<u>Size</u>	<u>No. per pack</u>	<u>No. per m²</u>	<u>m² per pack</u>	<u>Pack Weight (kg)</u>	<u>Pack Type</u>
Omega Flow Block Paving 60mm	Full Block	404	50	8.08	1015	Void
Omega Flow Block Paving 80mm	Full Block	308	50	6.16	1090	Void

Useful Links

Brett Website - Domestic	https://www.brett paving.co.uk/home-owners/permeable-paving-1/value-3/omega-flow-1/
Brett Website - Commercial	https://www.brett paving.co.uk/commercial/machine-lay/omega-flow-2/
NBS Specification	https://www.ribaproductselector.com/SearchAll.aspx?s=omega+flow+permeable+block+paving
BIM Model	https://www.nationalbimlibrary.com/en-gb/brett-landscaping/omega-flow-permeable-block-paving/
Cleaning & Maintenance	https://www.brett paving.co.uk/knowledge-hub/maintenance-guides/

Contact Details

Telephone	0345 608 0570
E-Mail	project.designer@brett.co.uk



T1000 Non Woven GeoTextile Membrane

Technical Specification

The T1000 range of Staple Fibre Needle Punched and Thermally Bonded Nonwoven Geotextiles have been designed to offer optimum performance per unit weight. Their resulting mechanical robustness and excellent hydraulic properties make them the ideal choice for separation and filtration. Produced on state of the art equipment, the T1000 geotextile range sets standards in terms of quality and mechanical performance.



Typical applications for TNW thermally bonded non woven geotextiles include:

Typical Uses and Applications:

- As a general purpose separator for use under site access roads and areas of hard standing
- As a separation and strengthening layer under new roadways, car parks, industrial units etc.
- As a filter surround in the construction of a French drain or granular drainage blanket
- For separation: to prevent the intermixing of dissimilar soil layers
- For filtration: to allow the passage of fluids whilst preventing the uncontrolled passage of soil

Properties	Test Method	Unit	T1000
Tensile Strength - MD	EN ISO 10319	kN/m	8.4
Tensile Strength - XD	EN ISO 10319	kN/m	9.8
Elongation at Break - MD	EN ISO 10319	%	85.0
Elongation at Break - XD	EN ISO 10319	%	60.0
CBR Puncture Resistance	EN ISO 10319	N	1500
Dynamic Core Drop	EN ISO 10319	Mm	25.0
Hydraulic Properties	Test Method	Units	T1000
Characteristics Opening size	EN ISO 10319	UM	110.0
Permeability	EN ISO 10319	m/s	110x10 ³
Waterflow normal to the plane	EN ISO 10319	l/m ² .s	120
Physical Properties	Test Method	Units	T1000
Thickness Under 2kPa	EN ISO 9863-1	mm	0.85
Weight	EN ISO 9864	g/m ²	115
Roll Size		m	4.5x100m
Roll Diameter (+/- 10%)		cm	30

The information contained herein is, to the best of our knowledge, accurate in all material respects. However, since the circumstances and conditions in which such information and the products mentioned herein can be used may vary and are beyond our control, no representation or warranty, express or implied, of any nature whatsoever is or will be made and no responsibility or liability is or will be accepted by us, any of our affiliates or our or their respective directors, officers, employees or agents in relation to the accuracy or completeness or use of the information contained herein or any such products and any such liability is expressly disclaimed. As part of our continual improvement process GCL Products Ltd reserve the right to change the properties listed on this data sheet without prior notice.

Visqueen Urban Drainage Geomembrane

Features and benefits

- Multi functional geomembrane - used in stormwater attenuation systems and as an impermeable membrane in permeable paving systems
- Flexible - easy to detail and install on site

Product description

Visqueen Urban Drainage Geomembrane is a 100% recycled polyethylene geomembrane, black in colour, 0.5mm thick and supplied in multi folded rolls 4m x 12.5m.

Approvals and standards

- Suitable for use as an impermeable membrane in a permeable paving systems to BS 7533-13:2009 (System C - no infiltration)
- Quality Management System ISO 9001:2015
- Occupational Health and Safety System ISO 45001:2018
- Environmental Management System ISO 14001:2015

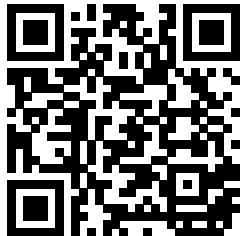
Usage

Visqueen Urban Drainage Geomembrane is a flexible membrane suitable for a variety of geomembrane applications including the wrapping of underground stormwater attenuation crates in light duty situations (maximum 2 units deep), and as an impermeable membrane placed on top of the subgrade formation level and to the sides of the sub-base within a permeable paving system.

System components

- Visqueen Urban Drainage Geomembrane (UDG) Double Sided Jointing Tape, 100mm x 15m
- Visqueen GR Lap Tape, 150mm x 10m
- Visqueen Top Hat Units
- VisqueenPro Detailing Strip, 300mm x 10m, 500mm x 10m
- Visqueen Medium Duty Protection Board
- Visqueen TreadGUARD 300, 2m x 75m

Find your local stockist



NEW VISQUEEN CLASS B FR VAPOUR CHECK

- Visqueen Class B FR Vapour Check is a fire resistant AVCL (air and vapour control layer)
- Surpasses all national Building Regulations and Standards for air and vapour control layers
- Fire classification B - s1, d0
- Competitive, efficient and fully tested system (including tapes) for fire resistance

NEW ANOTHER FIRE PROTECTION PRODUCT FROM VISQUEEN

To discover the Visqueen difference visit www.visqueen.com or call us on +44 (0) 333 202 6800

Visqueen Urban Drainage Geomembrane

Storage and handling

Visqueen Urban Drainage Geomembrane should be stored horizontally, under cover in its original packaging.

Care should be taken when handling the product in line with current manual handling regulations.

Preparation

Visqueen Urban Drainage Geomembrane can be cut with a sharp retractable safety knife or robust scissors.

For small scale works, Visqueen Medium Duty Protection Board is available as an alternative to Visqueen Treadguard 300 protection layer.

Installation

Visqueen Urban Drainage Geomembrane should be clean and dry at the time of jointing. It should be overlapped by at least 150mm and the lap bonded with Visqueen UDG Double Sided Jointing Tape. In demanding site conditions also seal lap joints with Visqueen GR Lap Tape. All lap joints should be pressed and rolled to ensure a completely sealed joint is achieved.

Alternatively lap joints can be heat welded to achieve an effective seal. Welded lap joints can be less than 150mm provided the joint integrity is not compromised.

Visqueen Preformed Top Hat Units should be used for sealing pipe penetrations. The base of the top hat and the upstand should be bonded using Visqueen UDG Double Sided Jointing Tape. The upstand should be secured with the supplied jubilee clip. Alternatively Visqueen Pro Detailing Strip can be used to seal pipe penetrations.

If the geomembrane is punctured or perforated a patch of the same material should be lapped at least 150mm beyond the limits of the puncture and bonded with Visqueen UDG Double Sided Jointing Tape. Alternatively a patch can be formed using Visqueen Pro Detailing Strip and lapped at least 150mm beyond the extents of the puncture.

When used as a liner for stormwater attenuation crates, ensure that the base of the trench is level and free from voids or protrusions. Blind the substrate with minimum 100mm sand blinding, level and compact. When installing the geomembrane, it should be protected on both faces with Visqueen TreadGuard 300 protection layer. Visqueen UDG Corner Units (unit dimension 150mm x 150mm x 150mm) should be positioned at the external corners of the crate system.

When used in a System C permeable paving application, the geomembrane should be laid on a smooth continuous blinded subgrade free from irregularities such as voids or protrusions, or alternatively the blinding can be replaced with a layer of Visqueen TreadGuard 300 protection. The upper face of the geomembrane should be protected with Visqueen TreadGuard 300 protection layer prior to laying the sub-base coarse graded aggregate.

Usable temperature range

It is recommended that Visqueen Urban Drainage Geomembrane and all associated system components should not be installed below 5°C.

Additional information

For additional detailing information, contact Visqueen Technical Services +44 (0) 333 202 6800.

The product is recyclable and categorised under LDPE recycling code 4.

Visqueen is part of Berry bpi, the largest European recycler of polyethylene. This product is recyclable and should be segregated on site in accordance with site management procedures for plastic waste. We have 4 recycling sites in the UK where the plastic waste could be recycled and converted back into a second life product. Please contact us to find out more.

The information in this datasheet was correct at the time of publication. It is the user's responsibility to obtain the latest version of the datasheet as it is updated on a regular basis. The information contained in the latest datasheet supersedes all previously published editions.

Visqueen Urban Drainage Geomembrane

Property	Test method	Units	Compliance criteria	Result
Colour				Black
Length	EN 1848-2	m	-10/+10%	12.5
Width	EN 1848-2	m	-2.5%/+2.5%	4
Puncture	ASTM D4883	N	MDV	135
Impact resistance	EN 12691	mm	MLV	200
Jointed membrane watertightness @ 60kPa	EN 1928	-	Pass/Fail	Pass
Jointed membrane watertightness @ 250kPa	MOAT 27 5.1.4		Pass/Fail	Pass
Tensiles strength MD	EN 12311	N/mm2	MLV	15
Tensiles strength CD	EN 12311	N/mm2	MLV	15
Elongation @ break MD	EN 12311	%	MLV	400
Elongation @ break CD	EN 12311	%	MLV	400
Thickness	EN 1849-2	mm	+/- 12%	0.5

Health and safety information

Refer to the Visqueen Urban Drainage Geomembrane material safety datasheet (MSDS).

Visqueen Urban Drainage Geomembrane

About Visqueen

The Visqueen name has long been recognised as one of the leading manufacturers of high quality advanced membrane technologies and design based solutions by specifiers, distributors, builders merchants and contractors throughout the UK and Europe.

For further guidance on the Visqueen services shown below, please refer to the relevant section of the Visqueen website (www.visqueen.com) or contact Visqueen Technical Services on +44 (0) 333 202 6800 or enquiries@visqueen.com

Complete Range, Complete Solution



Structural Waterproofing



Gas Protection



Damp Proof Membrane



Tapes



Damp Proof Course



Stormwater



Vapour Control

Visqueen Technical Support

Visqueen combine an extensive product portfolio with industry leading levels of service and support which includes guidance over the phone, bespoke CAD drawings to help with complex detailing, electronic NBS specifications and access to a dedicated team of highly knowledgeable and experienced field based Technical Support Managers.

Visqueen Technical Support is available to all our customers including architects, specifiers, distributors, builders merchants, contractors and end users. All of our technical team have been awarded the industry recognised qualification Certificated Surveyor in Structural Waterproofing (CSSW).

Visqueen CPD Seminars

The Visqueen Continuing Professional Development (CPD) Seminars provide up-to-date information on changes within Building Regulations/Building Standards and nationally recognised industry guidance affecting damp proofing, water vapour control, hazardous ground gas protection and below ground structural waterproofing.

The one hour seminars have been produced for design specialists within the construction sector and are delivered by our team of Technical Support Managers.

Visqueen PI designs and special projects

From initial design to the completed project, Visqueen are with you every step of the way. Whether it be hazardous ground gas protection and/or below ground waterproofing protection employing barrier, structurally integral or drained systems, Visqueen can offer professional indemnity (PI) insurance for bespoke Visqueen design solutions.

Visqueen Technical Support Managers work with all stakeholders to provide cost effective Visqueen solutions offering complete peace of mind throughout the construction phase and beyond.

Visqueen Training Academy

Based at our manufacturing facility in Derbyshire, the Visqueen Training Academy is available to support Visqueen customers throughout the UK by providing a wide range of both theory and practical skills related training.

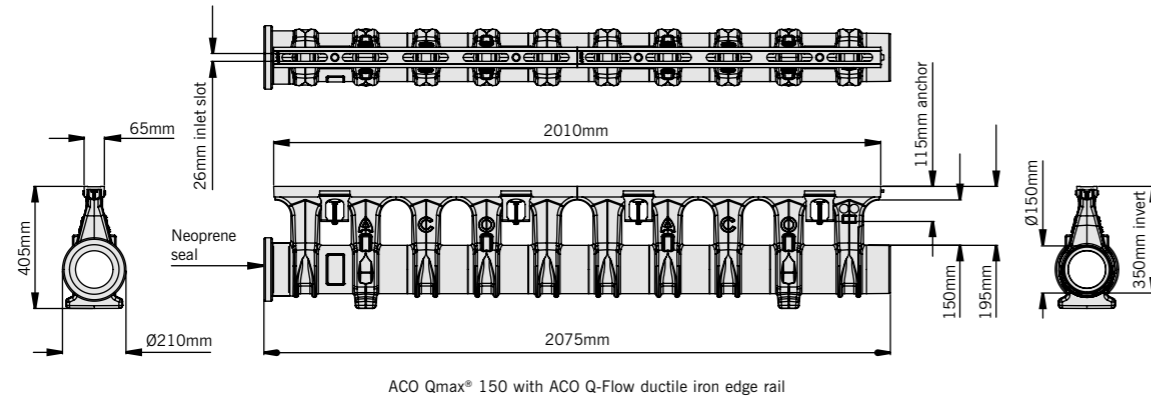
Courses include one day product awareness training for our distributors and builders merchants to help them in their day-to-day jobs, through to intensive three day courses giving detailed hands-on training in the practical skills required for safe and robust product installation.

ACO Qmax® 150

[Click here](#) for details regarding the access/outlet/inlet/silt chambers for use with this system.

ACO Qmax® 150 with ACO Q-Flow ductile iron edge rail

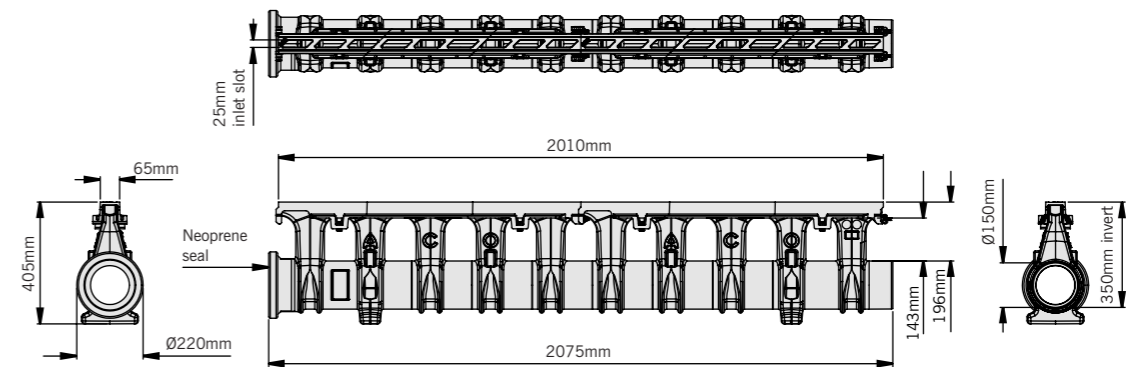
Product code	Description	Length (mm)	Width overall (mm)	Depth overall (mm)	Slot width (mm)	Weight (kg)
32990	ACO Qmax® 150 channel assembly complete with ACO Q-Flow ductile iron edge rail	2010	Ø210	405	26	22



ACO Qmax® 150 with ACO Q-Flow ductile iron edge rail

ACO Qmax® 150 with ACO Q-Flow composite edge rail

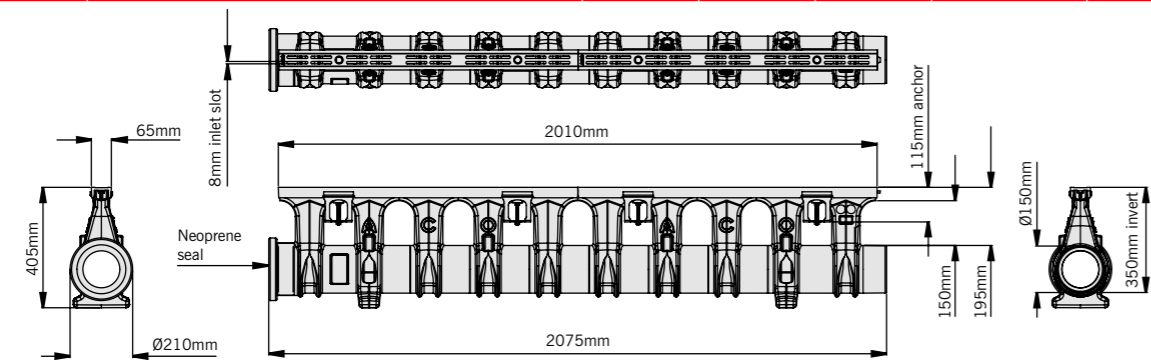
Product code	Description	Length (mm)	Width overall (mm)	Depth overall (mm)	Slot width (mm)	Weight (kg)
32893	ACO Qmax® 150 channel assembly complete with ACO Q-Flow composite edge rail -Black	2010	Ø210	405	25	13.3
32895	ACO Qmax® 150 channel assembly complete with ACO Q-Flow composite edge rail -Grey	2010	Ø210	405	25	13.3



ACO Qmax® 150 with ACO Q-Flow composite edge rail

ACO Qmax® 150 with ACO Q-Guard ductile iron edge rail

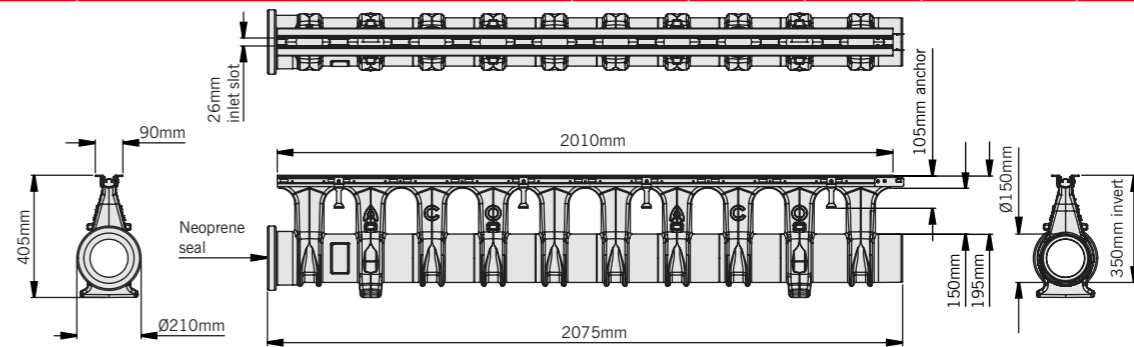
Product code	Description	Length (mm)	Width overall (mm)	Depth overall (mm)	Slot width (mm)	Weight (kg)
32991	ACO Qmax® 150 channel assembly complete with ACO Q-Guard ductile iron edge rail	2010	Ø210	405	2 x 8	23



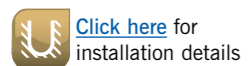
ACO Qmax® 150 with ACO Q-Guard ductile iron edge rail

ACO Qmax® 150 with ACO Q-Flow galvanised steel edge rail

Product code	Description	Length (mm)	Width overall (mm)	Depth overall (mm)	Slot width (mm)	Weight (kg)
32992	ACO Qmax® 150 channel assembly complete with ACO Q-Flow galvanised steel edge rail	2010	Ø210	405	26	12



ACO Qmax® 150 with ACO Q-Flow galvanised steel edge rail



[Click here](#) for installation details



[Click here](#) for details of product hydraulic capacities

Note: For details regarding the access/outlet/inlet/silt chambers for use with this system please [click here](#).

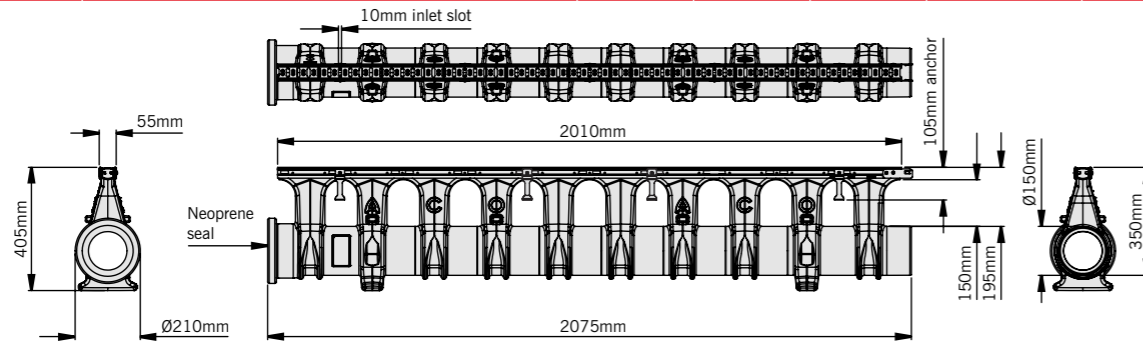
These products are subject to weight and dimensional tolerances. The dimensions shown on this page are for guidance purposes only.

ACO Qmax® 150

[Click here](#) for details regarding the access/outlet/inlet/silt chambers for use with this system.

ACO Qmax® 150 with ACO Q-Guard galvanised steel edge rail

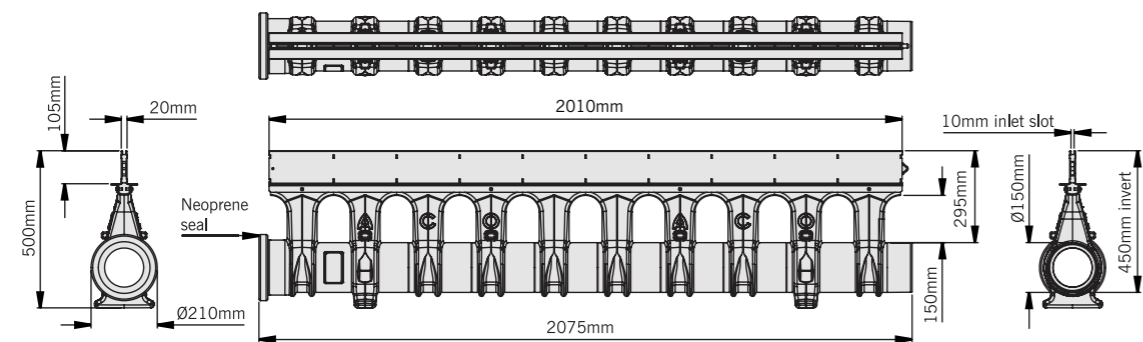
Product code	Description	Length (mm)	Width overall (mm)	Depth overall (mm)	Slot width (mm)	Weight (kg)
32993	ACO Qmax® 150 channel assembly complete with ACO Q-Guard galvanised steel edge rail	2010	Ø210	405	10	12



ACO Qmax® 150 with ACO Q-Guard galvanised steel edge rail

ACO Qmax® 150 with ACO Q-Slot galvanised steel edge rail

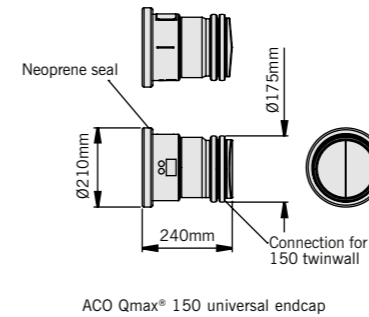
Product code	Description	Length (mm)	Width overall (mm)	Depth overall (mm)	Slot width (mm)	Weight (kg)
32994	ACO Qmax® 150 channel assembly complete with ACO Q-Slot galvanised steel edge rail	2010	Ø210	500	10	20.5



ACO Qmax® 150 with ACO Q-Slot galvanised steel edge rail

ACO Qmax® 150 multifunctional end cap (closing/outlet/inlet)

Product code	Description	Length (mm)	Width overall (mm)	Depth overall (mm)	Weight (kg)
32997	ACO Qmax® 150 universal endcap assembly	240	Ø210	-	1



ACO Qmax® 150 universal endcap

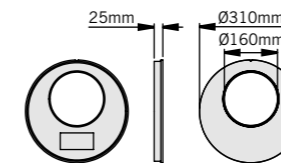
ACO Qmax® 150 multifunctional end cap has the following functions:

- ▶ Male and female closing end cap
- ▶ Male and female inlet/outlet end cap for connection to Ø150mm twinwall pipe
- ▶ Simple fitting

Installation instructions supplied

ACO Qmax® 150 to 225 step connector

Product code	Description	Length (mm)	Width overall (mm)	Depth overall (mm)	Weight (kg)
32995	ACO Qmax® 150 to 225 step connector (M to F)	-	Ø310	25	0.4



ACO Qmax® 150 to 225 step connector

ACO Qmax® 150 to 225 step connector has the following functions:

- ▶ Enables step fall installations of ACO Qmax® 150 and ACO Qmax® 225 channels
- ▶ For use between ACO Qmax® 150 male and ACO Qmax® 225 female channel connections
- ▶ Simple fitting

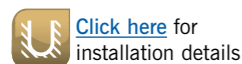
Installation instructions supplied

ACO Qmax® ductile iron edge rail protector

Product code	Description	Length (m)	Width overall (mm)	Depth overall (mm)	Weight (kg)
32854	ACO Qmax® ductile iron edge rail protector 15.25m roll	15.25	65	1.5	5.0

ACO Qmax® ductile iron edge rail protector has the following functions:

- ▶ Used to cover and protect rails from debris during installation
- ▶ Simple fitting
- ▶ Can be reused



[Click here](#) for installation details



[Click here](#) for details of product hydraulic capacities

Note: For details regarding the access/outlet/inlet/silt chambers for use with this system please [click here](#).

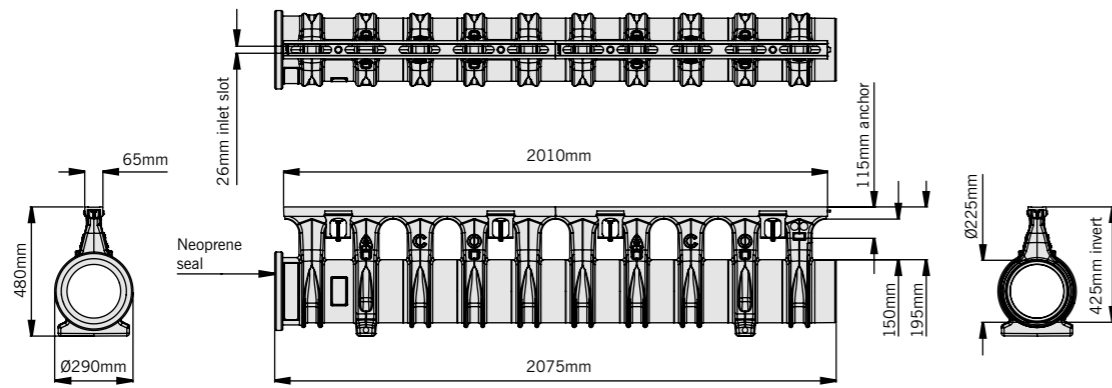
These products are subject to weight and dimensional tolerances. The dimensions shown on this page are for guidance purposes only.

ACO Qmax® 225

[Click here](#) for details regarding the access/outlet/inlet/silt chambers for use with this system.

ACO Qmax® 225 with ACO Q-Flow ductile iron edge rail

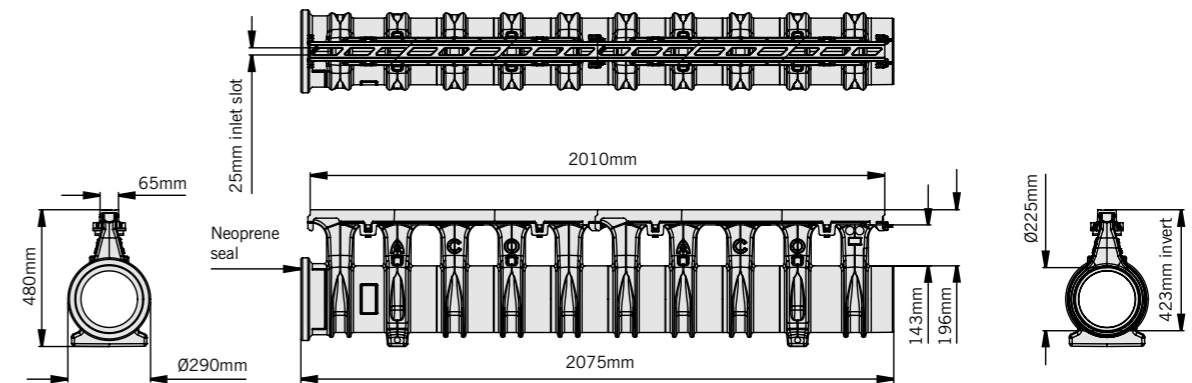
Product code	Description	Length (mm)	Width overall (mm)	Depth overall (mm)	Slot width (mm)	Weight (kg)
32800	ACO Qmax® 225 channel assembly complete with ACO Q-Flow ductile iron edge rail	2010	Ø290	480	26	24



ACO Qmax® 225 with ACO Q-Flow ductile iron edge rail

ACO Qmax® 225 with ACO Q-Flow composite edge rail

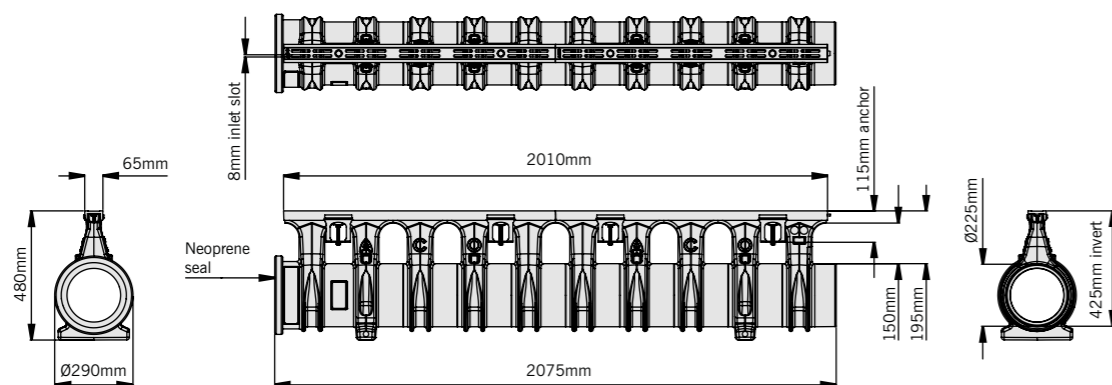
Product code	Description	Length (mm)	Width overall (mm)	Depth overall (mm)	Slot width (mm)	Weight (kg)
32905	ACO Qmax® 225 channel assembly complete with ACO Q-Flow composite edge rail -Black	2010	Ø290	480	25	15.8
32907	ACO Qmax® 225 channel assembly complete with ACO Q-Flow composite edge rail -Grey	2010	Ø290	480	25	15.8



ACO Qmax® 225 with ACO Q-Flow composite edge rail

ACO Qmax® 225 with ACO Q-Guard ductile iron edge rail

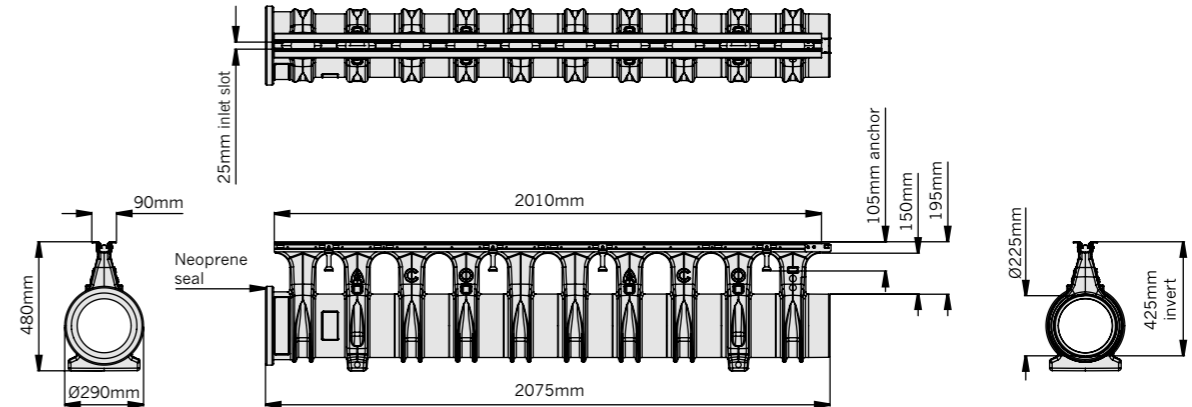
Product code	Description	Length (mm)	Width overall (mm)	Depth overall (mm)	Slot width (mm)	Weight (kg)
32801	ACO Qmax® 225 channel assembly complete with ACO Q-Guard ductile iron edge rail	2010	Ø290	480	2 x 8	25



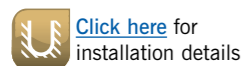
ACO Qmax® 225 with ACO Q-Guard ductile iron edge rail

ACO Qmax® 225 with ACO Q-Flow galvanised steel edge rail

Product code	Description	Length (mm)	Width overall (mm)	Depth overall (mm)	Slot width (mm)	Weight (kg)
32802	ACO Qmax® 225 channel assembly complete with ACO Q-Flow galvanised steel edge rail	2010	Ø290	480	26	17.8



ACO Qmax® 225 with ACO Q-Flow galvanised steel edge rail



[Click here](#) for installation details



[Click here](#) for details of product hydraulic capacities

Note: For details regarding the access/outlet/inlet/silt chambers for use with this system please [click here](#).

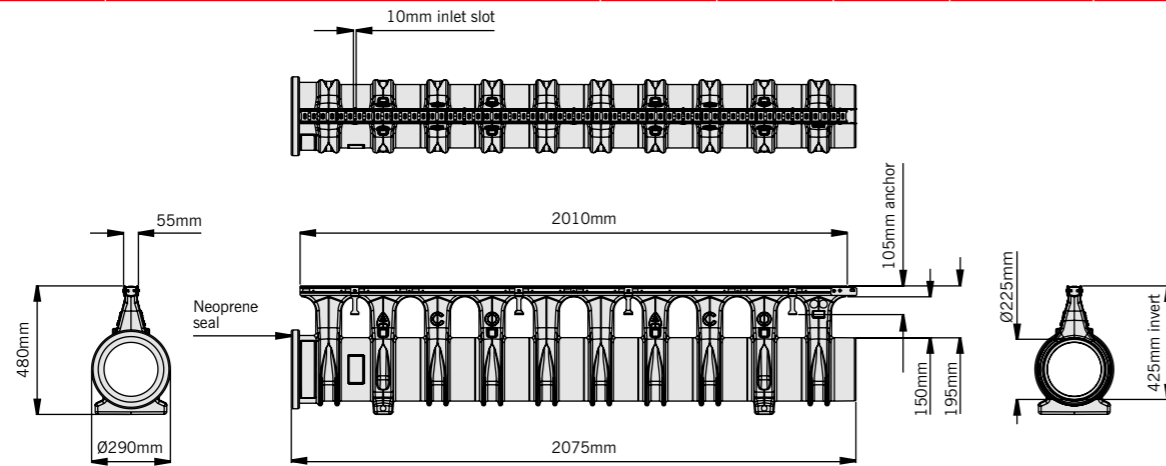
These products are subject to weight and dimensional tolerances. The dimensions shown on this page are for guidance purposes only.

ACO Qmax® 225

[Click here](#) for details regarding the access/outlet/inlet/silt chambers for use with this system.

ACO Qmax® 225 with ACO Q-Guard galvanised steel edge rail

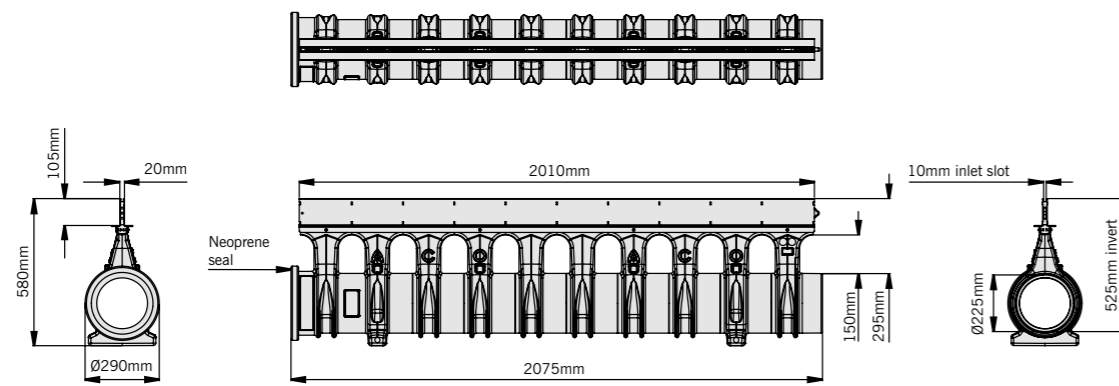
Product code	Description	Length (mm)	Width overall (mm)	Depth overall (mm)	Slot width (mm)	Weight (kg)
32803	ACO Qmax® 225 channel assembly complete with ACO Q-Guard galvanised steel edge rail	2010	Ø290	480	10	15.3



ACO Qmax® 225 with ACO Q-Guard galvanised steel edge rail

ACO Qmax® 225 with ACO Q-Slot galvanised steel edge rail

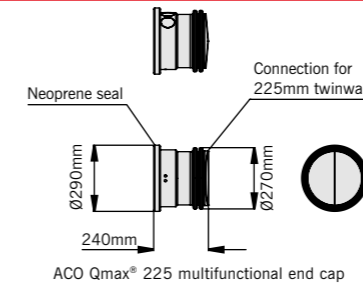
Product code	Description	Length (mm)	Width overall (mm)	Depth overall (mm)	Slot width (mm)	Weight (kg)
32804	ACO Qmax® 225 channel assembly complete with ACO Q-Slot galvanised steel edge rail	2010	Ø290	580	10	22.9



ACO Qmax® 225 with ACO Q-Slot galvanised steel edge rail

ACO Qmax® 225 multifunctional end cap (closing/outlet/inlet)

Product code	Description	Length (mm)	Width overall (mm)	Depth overall (mm)	Weight (kg)
42221	ACO Qmax® 225 multifunctional end cap	240	Ø290	Ø290	1.4



ACO Qmax® 225 multifunctional end cap

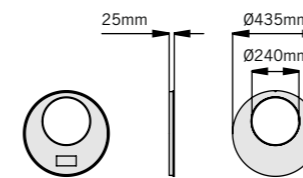
ACO Qmax® 225 multifunctional end cap has the following functions:

- ▶ Male and female closing end cap
- ▶ Male and female inlet/outlet end cap for connection to Ø225mm twinwall pipe
- ▶ Simple fitting

Installation instructions supplied

ACO Qmax® 225 to 350 step connector

Product code	Description	Length (mm)	Width overall (mm)	Depth overall (mm)	Weight (kg)
32880	ACO Qmax® 225 to 350 step connector (M to F)	25	Ø435	-	0.8



ACO Qmax® 225 to 350 step connector

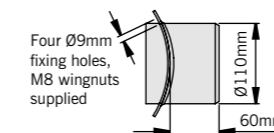
ACO Qmax® 225 to 350 step connector has the following functions:

- ▶ Enables step fall installations of ACO Qmax® 225 and ACO Qmax® 350 channels
- ▶ For use between ACO Qmax® 225 male and ACO Qmax® 350 female channel connections
- ▶ Simple fitting

Installation instructions supplied

ACO Qmax® 225 downpipe connector

Product code	Description	Length (mm)	Width overall (mm)	Depth overall (mm)	Weight (kg)
44344	ACO Qmax® 225 downpipe connector Ø110mm outlet	100	120	146	0.16



ACO Qmax® 225 downpipe connector has the following functions:

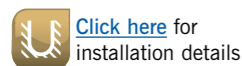
- ▶ Allows the connection of rain water pipes into the body of Qmax channels
- ▶ Simple fitting

ACO Qmax® ductile iron edge rail protector

Product code	Description	Length (m)	Width overall (mm)	Depth overall (mm)	Weight (kg)
32854	ACO Qmax® ductile iron edge rail protector 15.25m roll	15.25	65	1.5	5.0

ACO Qmax® ductile iron edge rail protector has the following functions:

- ▶ Used to cover and protect rails from debris during installation
- ▶ Simple fitting
- ▶ Can be reused



[Click here](#) for installation details



[Click here](#) for details of product hydraulic capacities

Note: For details regarding the access/outlet/inlet/silt chambers for use with this system please [click here](#).

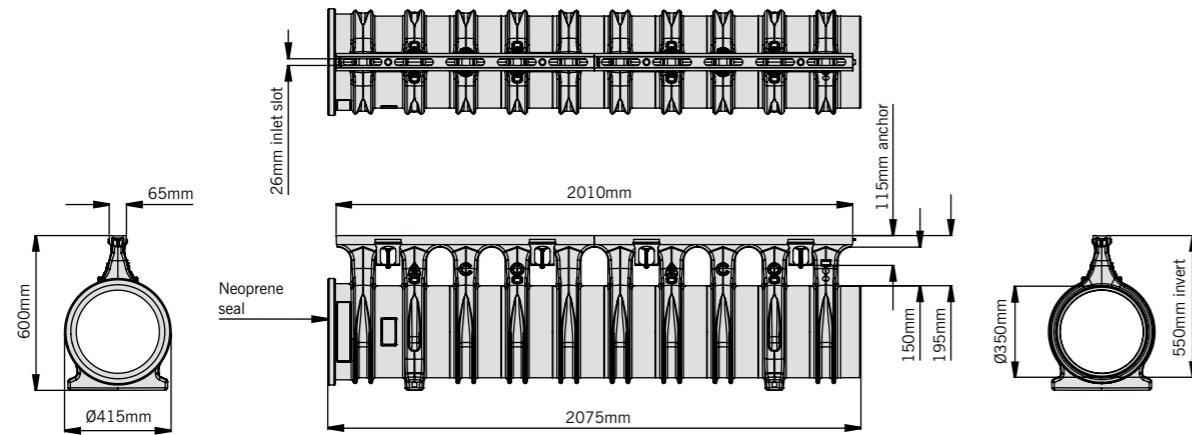
These products are subject to weight and dimensional tolerances. The dimensions shown on this page are for guidance purposes only.

ACO Qmax® 350

[Click here](#) for details regarding the access/outlet/inlet/silt chambers for use with this system.

ACO Qmax® 350 with ACO Q-Flow ductile iron edge rail

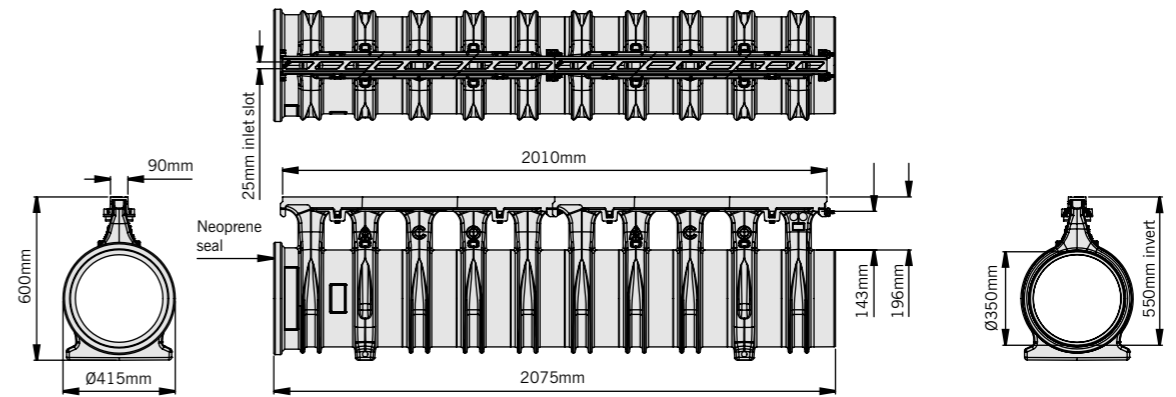
Product code	Description	Length (mm)	Width overall (mm)	Depth overall (mm)	Slot width (mm)	Weight (kg)
32810	ACO Qmax® 350 channel assembly complete with ACO Q-Flow ductile iron edge rail	2010	Ø415	600	26	28.3



ACO Qmax® 350 with ACO Q-Flow ductile iron edge rail

ACO Qmax® 350 with ACO Q-Flow composite edge rail

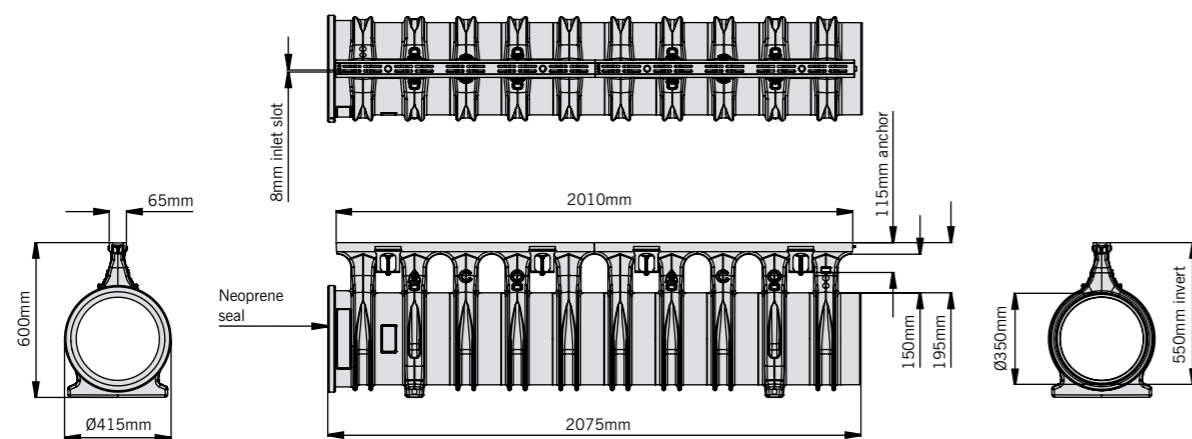
Product code	Description	Length (mm)	Width overall (mm)	Depth overall (mm)	Slot width (mm)	Weight (kg)
32915	ACO Qmax® 350 channel assembly complete with ACO Q-Flow composite edge rail -Black	2010	Ø415	600	25	21.5
32917	ACO Qmax® 350 channel assembly complete with ACO Q-Flow composite edge rail -Grey	2010	Ø415	600	25	21.5



ACO Qmax® 350 with ACO Q-Flow composite edge rail

ACO Qmax® 350 with ACO Q-Guard ductile iron edge rail

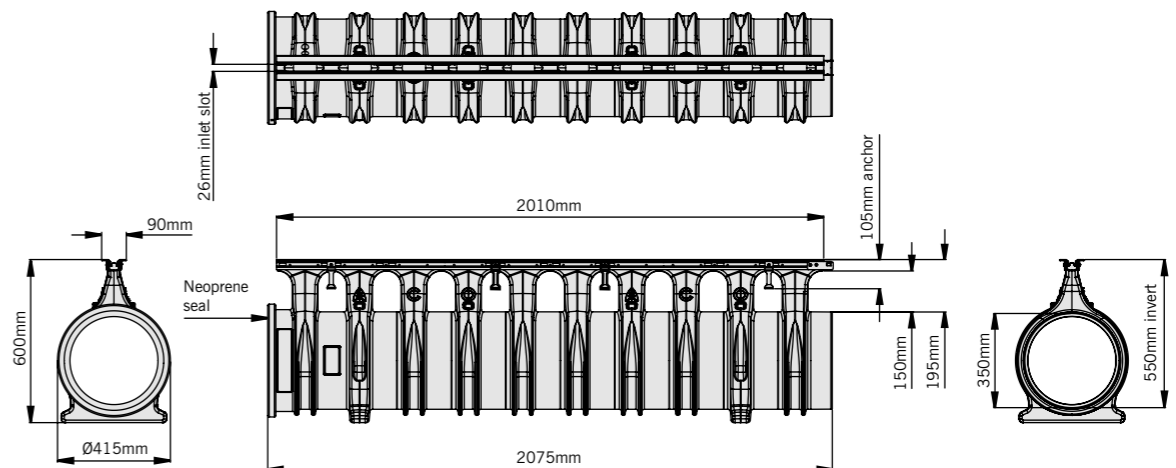
Product code	Description	Length (mm)	Width overall (mm)	Depth overall (mm)	Slot width (mm)	Weight (kg)
32811	ACO Qmax® 350 channel assembly complete with ACO Q-Guard ductile iron edge rail	2010	Ø415	600	2 x 8	29.3




ACO Qmax® 350 with ACO Q-Guard ductile iron edge rail


ACO Qmax® 350 with ACO Q-Flow galvanised steel edge rail

Product code	Description	Length (mm)	Width overall (mm)	Depth overall (mm)	Slot width (mm)	Weight (kg)
32812	ACO Qmax® 350 channel assembly complete with ACO Q-Flow galvanised steel edge rail	2010	Ø415	600	26	24.0



ACO Qmax® 350 with ACO Q-Flow galvanised steel edge rail

 [Click here](#) for installation details

 [Click here](#) for details of product hydraulic capacities

Note: For details regarding the access/outlet/inlet/silt chambers for use with this system please [click here](#).

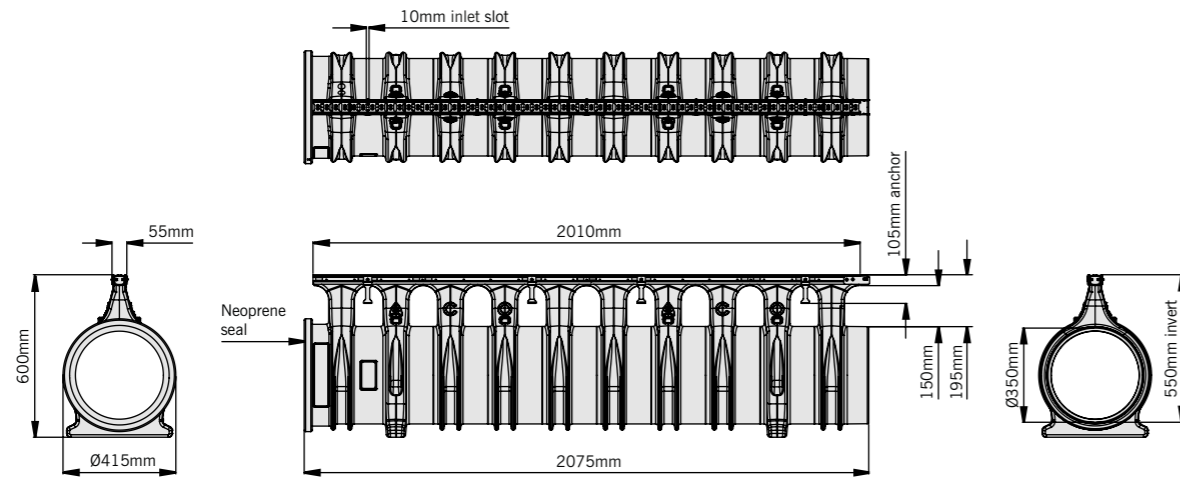
These products are subject to weight and dimensional tolerances. The dimensions shown on this page are for guidance purposes only.

ACO Qmax® 350

[Click here](#) for details regarding the access/outlet/inlet/silt chambers for use with this system.

ACO Qmax® 350 with ACO Q-Guard galvanised steel edge rail

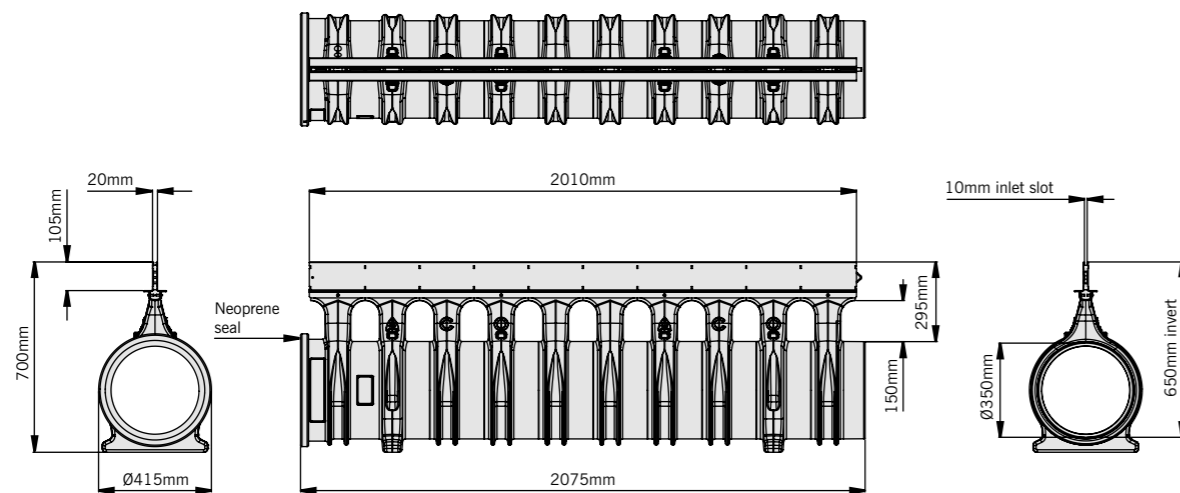
Product code	Description	Length (mm)	Width overall (mm)	Depth overall (mm)	Slot width (mm)	Weight (kg)
32813	ACO Qmax® 350 channel assembly complete with ACO Q-Guard galvanised steel edge rail	2010	Ø415	600	10	21.5



ACO Qmax® 350 with ACO Q-Guard galvanised steel edge rail

ACO Qmax® 350 with ACO Q-Slot galvanised steel edge rail

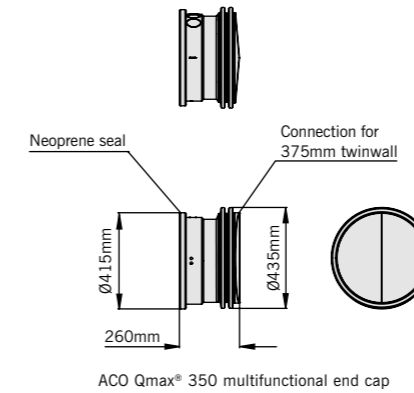
Product code	Description	Length (mm)	Width overall (mm)	Depth overall (mm)	Slot width (mm)	Weight (kg)
32814	ACO Qmax® 350 channel assembly complete with ACO Q-Slot galvanised steel edge rail	2010	Ø415	700	10	29.1



ACO Qmax® 350 with ACO Q-Slot galvanised steel edge rail

ACO Qmax® 350 multifunctional end cap (closing/outlet/inlet)

Product code	Description	Length (mm)	Width overall (mm)	Depth overall (mm)	Weight (kg)
42351	ACO Qmax® 350 multifunctional end cap	260	Ø415	Ø415	2.6



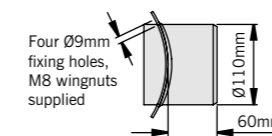
ACO Qmax® 350 multifunctional end cap has the following functions:

- ▶ Male and female closing end cap
- ▶ Male and female inlet/outlet end cap for connection to 375mm twinwall pipe
- ▶ Simple fitting

Installation instructions supplied

ACO Qmax® 350 downpipe connector

Product code	Description	Length (mm)	Width overall (mm)	Depth overall (mm)	Weight (kg)
44344	ACO Qmax® 350 downpipe connector Ø110mm outlet	100	120	146	0.16



ACO Qmax® 350 downpipe connector has the following functions:

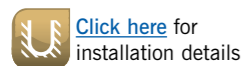
- ▶ Allows the connection of rain water pipes into the body of Qmax channels
- ▶ Simple fitting

ACO Qmax® ductile iron edge rail protector

Product code	Description	Length (m)	Width overall (mm)	Depth overall (mm)	Weight (kg)
32854	ACO Qmax® ductile iron edge rail protector 15.25m roll	15.25	65	1.5	5.0

ACO Qmax® ductile iron edge rail protector has the following functions:

- ▶ Used to cover and protect rails from debris during installation
- ▶ Simple fitting
- ▶ Can be reused



[Click here](#) for installation details



[Click here](#) for details of product hydraulic capacities

Note: For details regarding the access/outlet/inlet/silt chambers for use with this system please [click here](#).

These products are subject to weight and dimensional tolerances. The dimensions shown on this page are for guidance purposes only.

ACO Qmax® 150, 225 and 350 access, outlet/inlet and silt chambers

ACO Qmax® 150, 225 & 350 access, outlet/inlet and silt chambers provide a compact and economical method of gaining access to the channel system for maintenance and cleaning, connections to traditional underground drainage networks, or silt management.

These chambers are specifically designed for use with ACO Qmax® 150, 225 and 350 channels and allow 4-way channel connections to be made for simple directional changes and optimised scheme designs.

ACO Qmax® outlet/inlet and silt chambers provide outlet pipe connection to 160mm PVC-U, 200mm, 225mm and 300mm twinwall or clay pipe work. They also allow 110mm PVC-U inlet connections to be made, reducing the need for additional underground pipe work.

ACO Qmax® access, outlet/inlet and silt chambers are manufactured from PE which is lightweight, tough and chemically resistant.



Cover and frame options

The chambers come complete with a ductile iron slotted cover and frame available in either a lockable D 400 or hinged F 900 versions. An ACO Q-Slot D 400 galvanised steel recessed cover and frame for use with up to 100mm block paving, slab and natural stone is also available.

Materials used in the construction of ACO Qmax® chambers contain high levels of recycled materials and are themselves recyclable at the end of their life.



D 400 / F 900 ductile iron slotted cover and frame



ACO Q-Slot D 400 galvanised steel recessed cover and frame



ACO Qmax® 150, 225 and 350 access, outlet/inlet and silt chambers

ACO Qmax® 150, 225 and 350 channel access, outlet/inlet and silt chambers with slotted cover and frame

Product code	Description	Length (mm)	Width overall (mm)	Depth overall (mm)	Slot width (mm)	Weight (kg)
32970	Access chamber with D 400 slotted cover and frame	565	565	640	10	48
32971	Access chamber with F 900 slotted cover and frame	660	660	640	19	77.5
32972	Outlet/inlet chamber with D 400 slotted cover and frame	565	565	1095	10	52
32973	Outlet/inlet chamber with F 900 slotted cover and frame	660	660	1095	19	81.5
32974	Outlet/inlet/Silt chamber with D 400 slotted cover and frame	565	565	1600	10	60
32975	Outlet/inlet/Silt chamber with F 900 slotted cover and frame	660	660	1600	19	89.5

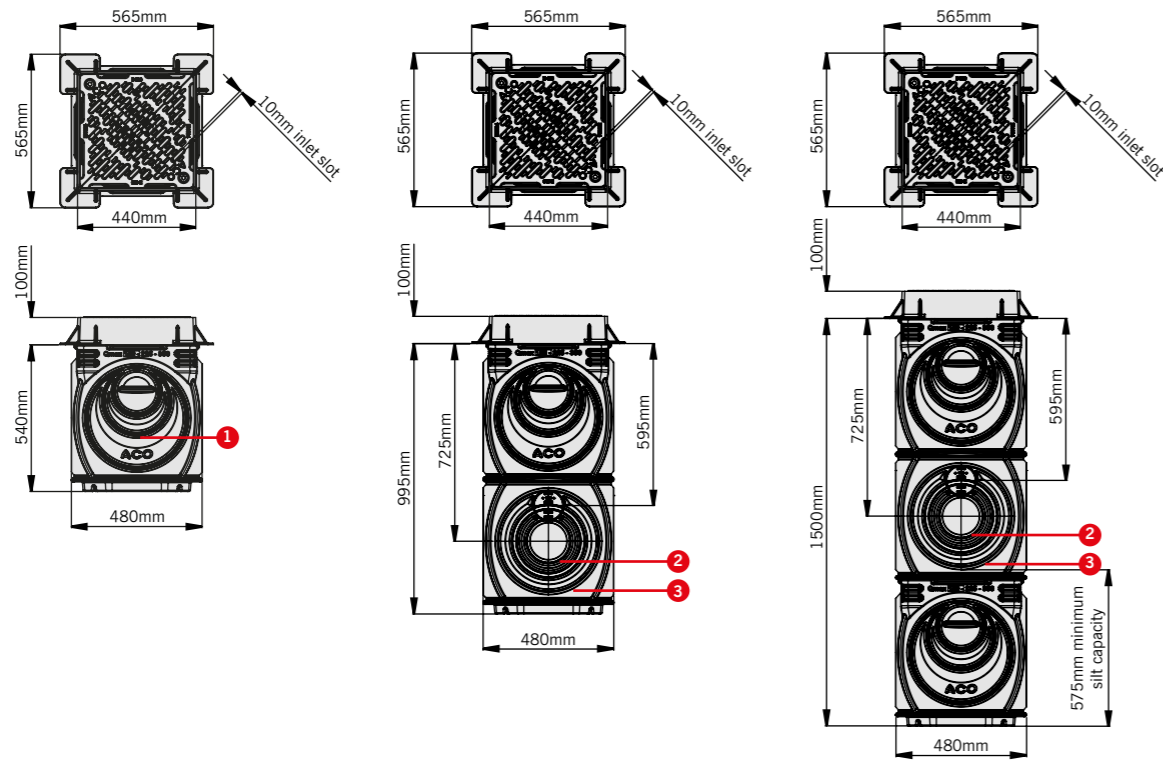


Image shows ACO Qmax® 150, 225 and 350 access chamber with D 400 slotted cover and frame. Also available in Load Class F 900.

Image shows ACO Qmax® 150, 225 and 350 access/outlet/inlet chamber with D 400 slotted cover and frame. Also available in Load Class F 900.

Image shows ACO Qmax® 150, 225 and 350 access/outlet/inlet/silt chamber with D 400 slotted cover and frame. Also available in Load Class F 900.

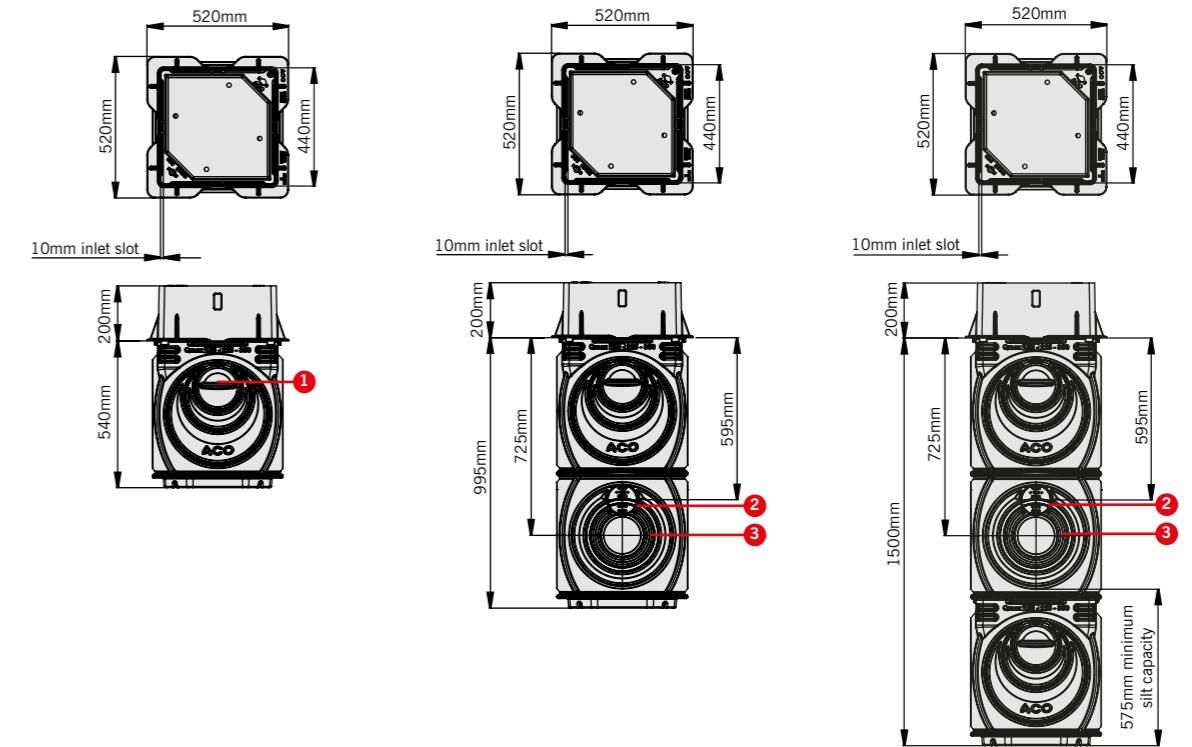
- 1 150, 225 & 350 channel connection
- 2 110mm PVC-U inlet connection
- 3 160mm PVC-U, 200mm, 225mm and 300mm twinwall or clay outlet connection

Maximum outlet capacity (assuming water level to the crown of the channel bore)

160mm	200mm	225mm	300mm
45 l/s	71 l/s	90 l/s	159 l/s

ACO Qmax® 150, 225 and 350 channel access, outlet/inlet and silt chambers with ACO Q-Slot cover and frame

Product code	Description	Length (mm)	Width overall (mm)	Depth overall (mm)	Slot width (mm)	Weight (kg)
32976	Access chamber with D 400 ACO Q-Slot recessed cover and frame	520	520	740	10	55.5
32977	Outlet/inlet chamber with D 400 ACO Q-Slot recessed cover and frame	520	520	1195	10	59.5
32978	Outlet/inlet/silt chamber with D 400 ACO Q-Slot recessed cover and frame	520	520	1700	10	67.5



ACO Qmax® 150, 225 and 350 access chamber with D 400 ACO Q-Slot recessed cover and frame.


ACO Qmax® 150, 225 and 350 outlet/inlet chamber with D 400 ACO Q-Slot recessed cover and frame.

ACO Qmax® 150, 225 and 350 outlet/inlet/silt chamber with D 400 ACO Q-Slot recessed cover and frame.

- 1 150, 225 & 350 channel connection
- 2 110mm PVC-U inlet connection
- 3 160mm PVC-U, 200mm, 225mm and 300mm twinwall or clay outlet connection

Maximum outlet capacity (assuming water level to the crown of the channel bore)

160mm	200mm	225mm	300mm
45 l/s	71 l/s	90 l/s	159 l/s

 [Click here](#) for installation details

6 The Name and Contact details of the management company

THE NAME AND CONTACT DETAILS OF THE MANAGEMENT COMPANY

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