

April 2021

NEW ISLINGTON PHASE 3 – PHASE 3A

DRAINAGE MANAGEMENT AND MAINTENANCE PLAN

1.0 INTRODUCTION

- 1.1 The site has been developed to provide residential accommodation, arranged in three terraces each comprised of seven modular houses. The development includes landscaping and a link road for Coppersmith Road.

A post development site layout for New Islington Phase 3 is included in Appendix A.

2.0 DRAINAGE PROPOSALS

- 2.1 The agreed drainage strategy is outlined in the previously submitted Drainage Statement, ref: 284/05 – Drainage Statement – Revision E, dated July 2020.
- 2.2 The site is drained utilising new private foul and surface water drainage systems as shown on the proposed Drainage Layout drawing, ref: 284-05-50 included in Appendix B.

3.0 SURFACE WATER DRAINAGE

- 3.1 As agreed with the Local Authority Flood Risk Management Team and United Utilities, surface water drainage from the site is managed sustainably via on site attenuation storage and subsequent discharge to the combined sewer network at controlled rates.
- 3.2 Details of the contractor designed proprietary attenuation tank and hydrobrake flow control manhole are included in appendices C and D respectively.

4.0 MANAGEMENT AND MAINTENANCE

- 4.1 Management and maintenance of the new private surface water network will be required to secure the operation of the sustainable drainage scheme through its lifetime. The process is to be managed by the appointed property management company, details as noted below.

Residential Management Group
3 Chepstow Street
Manchester
M1 5FW

0345 003 0044

- 4.2 The management company will be responsible for inspection of manholes and catch pits upstream and downstream of the attenuation tank and for the appropriate removal of silt build up as required. It is anticipated that this work will be undertaken on a regular 3 monthly basis or as required following large storm events.
- 4.3 Where proprietary products have been used, such as for attenuation tanks or hydrobrake flow controls, appropriate maintenance periods are outlined in trade literature included in appendices C and D and summarised below.

4.2.1 ATTENUATION TANK

Extract from manufacturer's O&M manual:

General Operation & Maintenance

Like any other conventional drainage system, storm water attenuation tanks and associated flow control chambers should be inspected regularly and correctly maintained to ensure optimum performance.

A Maintenance Plan should be initiated with the end user to periodically inspect the efficient function of the tanks to permit and allow free flow of storm water into the tank structure and the controlled discharge at the flow control manhole and then the outfall headwall.

The tank and flow control installations on this site are static structures and do not possess any mechanical accessories that require inspection and maintenance however the efficient performance can be affected by the entry and subsequent contamination of deleterious debris and general litter that may from time to time occur from the upstream infrastructure.

To reduce or negate the entry of such debris and the like regular inspection of the upstream chambers/catch pits should be undertaken and the removal of any individual objects or silts that may have been intercepted there.

Keeping the upstream infrastructure clean and clear will ensure the tanks will not suffer from possible flow restriction from deleterious objects.

The tanks are completely sealed and enclosed with limited accessibility and this is only gained from the inlet and outlet pipe connections. In the absence of internal access channels it is very important to ensure that the entry and exit points to the tank are maintained clear of obstruction.

Following the cleaning of any upstream chambers a jet flushing process may be undertaken through the inlet and outlet points to remove any obstructions and ensure its complete clear and efficient function.

The end user should have his attention drawn to the ground level location of the vent outlet pipe which there is one fitted to the top centre of this tank in a position identified by PAS (NW) Ltd. - please note that the exact position of the surface vent outlet was determined by PAS (NW) Ltd following completion of the tank construction – this will need to be kept clear of blockage at all times.

With a scheduled code of practice to inspect and check the system at 6 monthly intervals for the first year of handover followed by routine annual or biennial inspection thereafter the tank on this site will continue to function without reason for concern for the lifetime of the structure.

4.2.2 HYDROBRAKE FLOW CONTROL

Extract from the manufacturer's O&M manual:

Operation.

The Vortex Flow Control unit is a surface water regulator. It is entirely self activating and requires no manual intervention.

Maintenance

The flow control unit requires no routine maintenance. Action is only required in the event of a blockage or suspected blockage.

Inspection

The chamber containing the flow control unit and disc valve should be inspected in line with normal practice. Any debris or silt should be removed. Any visible fixing bolts should be checked. If an internal blockage is suspected the vortex unit can be inspected internally and cleaned out by opening the inspection/access cover on the upstream end. The cover must be replaced and secured before the unit becomes operational.

Emergency Draindown

An emergency draindown valve is provided in the chamber to allow the upstream system to be drained independently, bypassing the flow control unit entirely. The draindown valve is operated by pulling the wire cable fixed near the chamber access.

APPENDIX A – POST DEVELOPMENT SITE LAYOUT



- 01 entrance
 - new car park entrance formed off highway
- 02 public square
- 03 parking spaces
 - bollard access
- 04 residents shared parking spaces
 - 1 space per house
- 05 shared surface
- 06 public promenade
- 07 block paved house driveway
- 08 shared refuse store
 - gated resident access
 - details + spec refer to landscape architect
- 09 secure shared garden
 - gated resident access
 - details + spec refer to landscape architect
- 10 secure access pathway
 - details + spec refer to landscape architect
- 11 public access pathway
 - details + spec refer to landscape architect
- 12 public gardens
 - details + spec refer to landscape architect
- 13 garden seating area
 - details + spec refer to landscape architect
- 14 private decking
 - details + spec refer to landscape architect
- 15 residents entrance
- 16 substation
- 17 existing artex site cabins
- 18 turning head for fire tender
- 19 accessible parking space
- 20 car charging point
- 21 gabion retaining wall
- 22 LL feeder pillar cabinet

NI3 complete site red line

notes
• for phase A scheme overview plan ref NI3 (00) 110
• for site phasing plan ref NI3 (00) 116

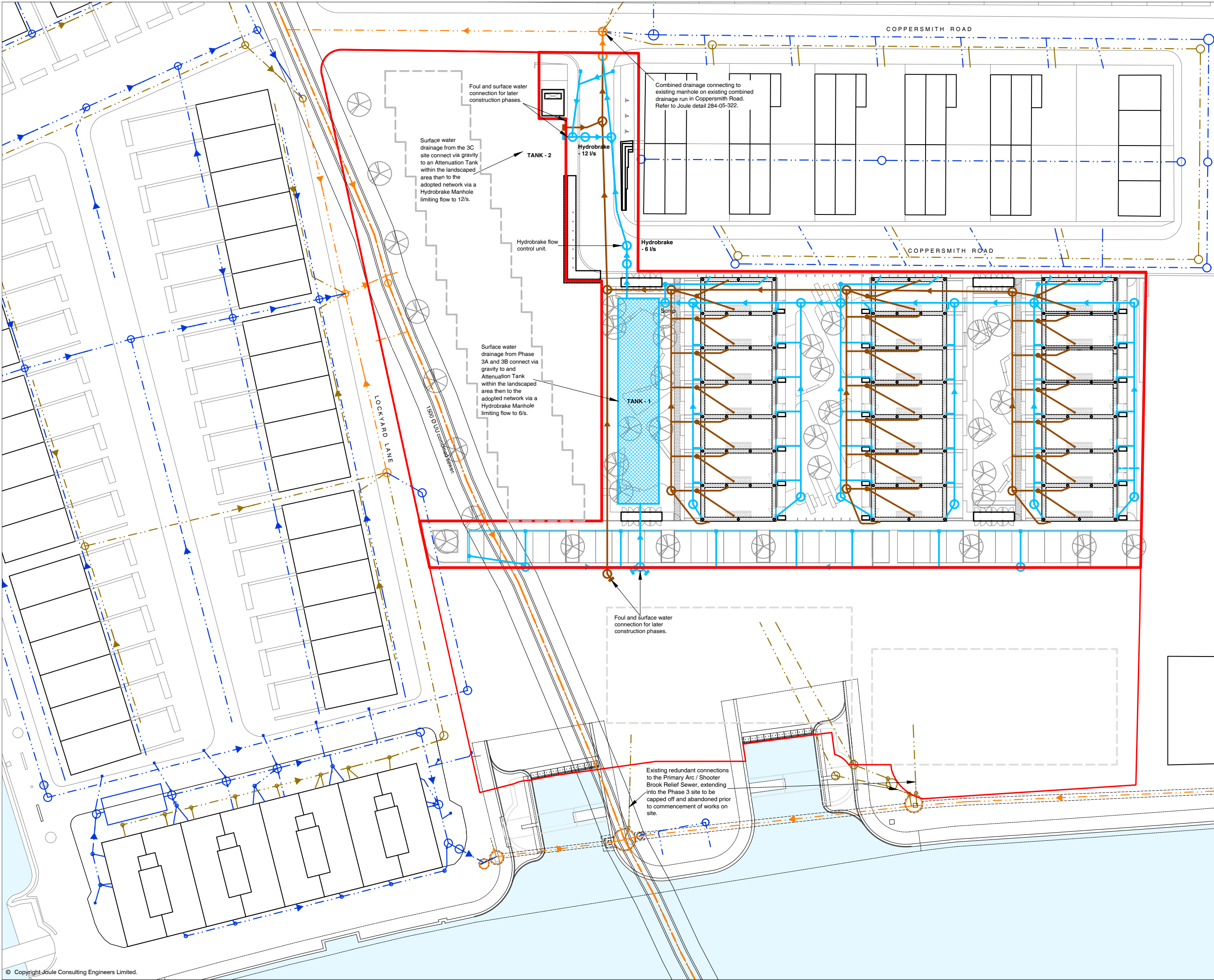
b • update - parking revised, gabion wall, 3C
footpath revised
a • update - coppersmith link road + alignment
• first issue
rev • description

29 01 21 • hw • rt
15 09 20 • hw • ar
10 06 20 • hw • ar
issued • drawn • checked

shedkm	+44 (0)151 709 8211 +44 (0)207 253 8881
project	NI3
client	urban splash
drawing number	NI3 (00) 100 b
scale	1:500 @ a3
status	information

site plan • complete scheme red line
do not scale from this drawing • all dimensions are to be set out and checked on site prior to starting construction • any discrepancy found between information given on this drawing and that given elsewhere or recorded on site shall be brought to the attention of the project architect immediately

APPENDIX B – PROPOSED DRAINAGE LAYOUT



Notes:

1. This drawing is to be read in conjunction with the site survey and all relevant Architects and Engineers drawings and the specification.
2. For general notes refer to drawing no. 284-05-N01 & N02.
3. For setting out refer to Architects details.
4. For assumed site build ups over formation level, refer to drawing 284-05-410 to 412.

Key:

- Phase 3A Site Boundary.
- Phase 3 Site Boundary.
- Phase 3 Later Construction Building Outline.

Drainage Key:

- Existing Drainage, (Surface Water).
- Existing Drainage, (Foul).
- Existing Drainage, (Combined).
- Proposed Drainage, (Surface Water).
- Proposed Drainage Attenuation Tank, (Surface Water).
- Proposed Drainage, (Foul).
- Proposed Drainage, (Combined).

BD - Back Drop.
RG - Road Gully.

All vent pipes and rainwater pipes are to be roddable above ground. Refer to Architects details.

Drainage gradients noted are minimum gradients between access points. Refer to invert levels at each end of drainage runs.

All surface water drainage 100mm Ø @ 1:80, unless noted otherwise.

All foul drainage 100mm Ø @ 1:80, all foul drainage below houses 100mm Ø @ 1:40, unless noted otherwise.

Cover levels refer to Architects drawings.

FINAL DESIGN INFORMATION

19.03.21	Issued for Final Design Information.	G	TP	SW
22.01.21	Issued for Construction, site boundary updated, road drainage updated.	G	TP	SW
01.10.20	Issued for Construction, drainage layout updated to increase attenuation, land drains omitted, notes updated.	F	TP	SW
04.06.20	Issued for Construction of Foul Drainage only, site boundary updated.	E	TP	SW
21.05.20	Issued for Information, drainage layout updated, RC slab added, pile layout updated, tie beams omitted, retaining walls updated, land drain added.	D	TP	SW
29.04.20	Issued for Information, gulleys added.	C	TP	SW
29.04.20	Issued for Information, cover levels updated, drainage layout updated.	B	TP	SW
29.02.20	Issued for Information, existing drainage updated, proposed drainage updated, site phasing added.	A	TP	SW
10.07.19	Issued for Information.	-	TP	SW
Date	Issue	Rev	Prepared	Checked

joule

Joule Consulting Engineers Ltd
T: 0161 832 3487
W: www.jouleconsultingengineers.co.uk
E: mail@jouleconsultingengineers.co.uk

Timber Wharf
40 Worsley Street
Castlefield
Manchester
M15 4LD

Project:
N13,
New Islington,
Manchester.

Title:
Proposed,
Drainage,
Phase 3A,
Overall Site.

Job No:	284-05	Orig No:	50	Rev:	G
Scale:	1:500@A3	Date:	02.19	Drawn:	TP

APPENDIX C – CONTRACTOR DESIGNED PROPRIETARY ATTENUATION TANK

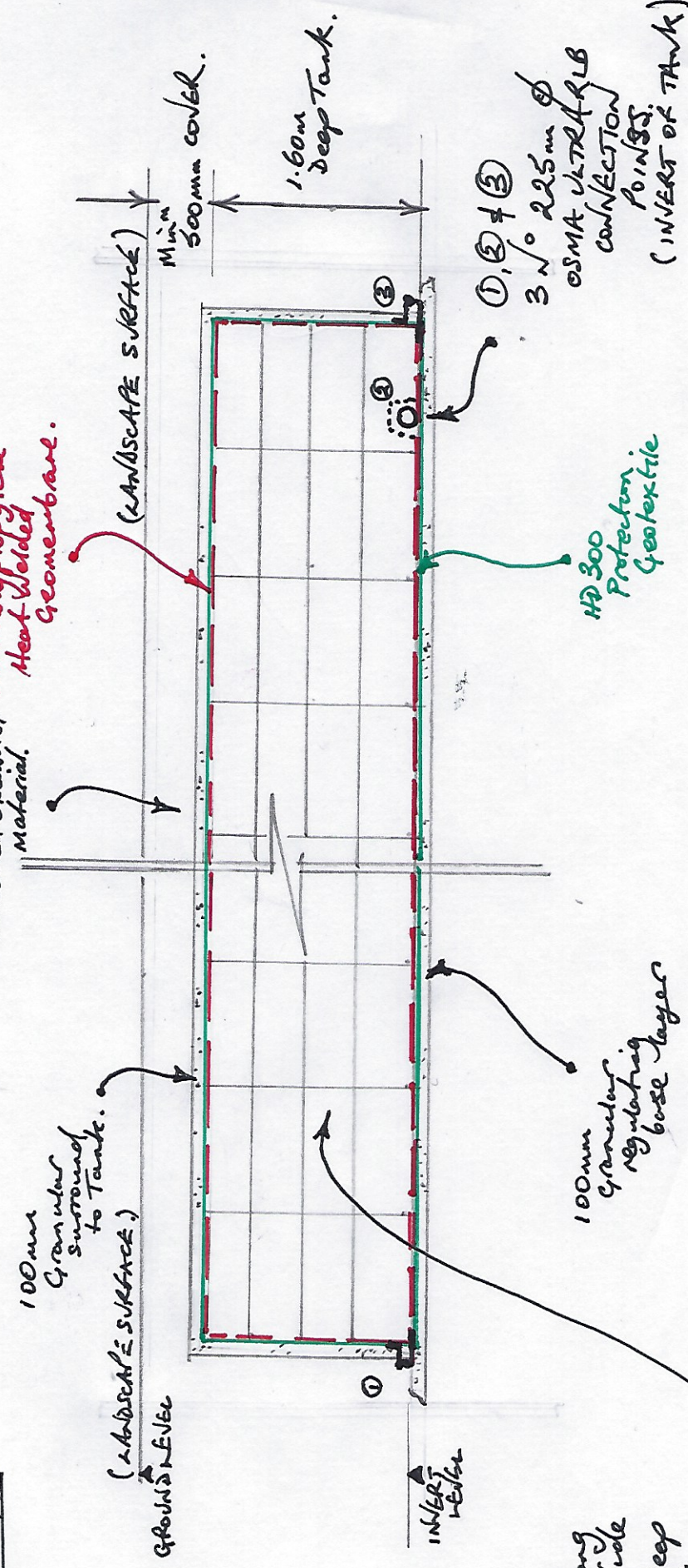
INDEPENDENT WATER RATE CONSULTANTS

URBAN SLOUGH
NEWISLAND GREEN MANCOTES FARM

P48 (NW) L2B

ATTENTION TANK
DETAIL.

Backfill with
compactable
selected excavated 1mm Polypropylene
Heat Welded
Geomembrane.



Tank:

30.00m Long
6.00m Wide
1.60m Deep

288.00m³

FOR STORM PSM1a
GEOCELLULAR
UNITS.

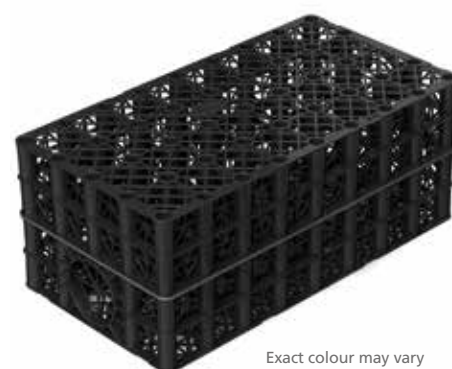
SECTION.

Drawn by: Russell WaterB
: 8th February 2021.

Product code: PSM1A

The Polystorm-R modular cell is ideally suited for loaded applications at greater depths, such as housing, commercial and infrastructure projects and has a compressive strength of up to 61 tonnes/m². It offers all the proven performance of the Polystorm cell, with the added benefits of being manufactured from over 90% recycled material content.

Wherever performance criteria and standards allow, we will always maximise the sustainability of our products by using post consumer plastics in their manufacture. By sourcing and carefully controlling the quality of the recycled material we use our precision injection moulding. Therefore we are able to guarantee consistent quality in our recycled plastic, giving you the confidence and the performance levels you expect from the market leader.



Exact colour may vary due to recycled materials.

Key Benefits

- Made from specially selected and controlled recycled materials
- Environmentally friendly, sustainable solution
- Has undergone stringent testing to ensure product performance
- Compressive strength of 61 tonnes/m²
- Ideal for retention, attenuation and infiltration applications with a suitable geomembrane or geotextile
- BBA approved
- Allow flexibility of shape - ideal for shallow excavation systems, narrow strips or use in restricted areas
- Can be used as part of a value engineered hybrid system with Polystorm, Polystorm Lite and Polystorm Xtra
- Integrated inlet and outlet
- 3D flow throughout the structure
- 95% void ratio
- Light weight yet robust - excellent Health and Safety and installation benefits
- 60 years creep limited life expectancy

Technical Support

Detailed guidance and assistance is available.

For further information, please contact our Technical Team on **+44 (0) 1509 615100** or email civils@polypipe.com



ELEMENT	VALUE
PHYSICAL PROPERTIES	
Length	1m
Width	0.5m
Depth	0.4m
Total volume	0.2m ³
Unit weight	9kg (approx)
Unit storage volume	0.19m ³ (190 litres)
Void ratio	95%
SHORT TERM COMPRESSIVE STRENGTH	
Vertical	610 kN/m ² **
Lateral	63 kN/m ² **
SHORT TERM DEFLECTION	
Short-term vertical deflection	60 kN/m ² per mm
LONG TERM DEFLECTION	
Estimated long term vertical deflection (creep)	0.2798 Ln (design life in hrs) +0.485 [Based on an applied test load = 162 kN/m ²] Creep data limit 60 years
Estimated long term lateral deflection (creep)	1.0192 Ln (design life in hrs) -3.864 [Based on an applied test load = 30.8 kN/m ²] Creep data limit 60 years

Note: Polystorm-R is ideal for use in trafficked and pedestrian applications subject to a structural design check and suitable installation conditions

* Each unit includes 4 Clips and 2 Shear Connectors.

** Compressive strength at yield, maximum recommended value for design purposes.

RECOMMENDED MAXIMUM DEPTH OF INSTALLATION (to cell invert) [m]

TYPICAL SOIL TYPE	TYPICAL ANGLE OF SHEAR RESISTANCE	SOIL WEIGHT kN/m ³	WITHOUT GROUNDWATER (below base of cells) NORMAL CASE		WITH GROUNDWATER AT 1M BELOW GROUND LEVEL AND UNITS WRAPPED IN GEOMEMBRANE	
			Pedestrian	Trafficked (cars) <3000kg GVW	Pedestrian	Trafficked (cars) <3000kg GVW
Stiff over consolidated clay e.g. London clay	24	20.0	2.2	1.9	1.8	1.6
Normally consolidated silty sandy clay e.g. alluvium, made ground	26	19.0	2.4	2.2	1.9	1.7
Loose sand and gravel	30	18.0	3.0	2.7	2.0	1.9
Medium dense sand and gravel	33	19.0	3.2	2.9	2.0	1.9
Dense sand and gravel	38	20.0	3.7	3.5	2.1	2.0

Note:

1) Stated depths based on the calculation methodology detailed within CIRIA C680 (2008)

2) Assuming water density = 10.0kN/m³

3) Assumed ultimate limit state (ULS) partial factor of safety applied to: Material = 2.75 Lateral pressure = 1.35

Durability

The polymer material used in the manufacture of the Polystorm-R unit has an adequate resistance to attack from the type and quantities of chemicals that may be expected to naturally occur in uncontaminated soils and rainwater runoff. When installed in accordance with our recommendations, it is expected that the Polystorm-R unit will have a design life in excess of 60 years*. The installer of a proposed geocellular structure should ensure that an appropriate design check has been undertaken, in accordance with the recommended methodology and factors of safety given in CIRIA C680 (2008), Structural Design of Modular Geocellular Drainage Tanks, prior to the commencement of construction activities.

* Derived from long term extrapolated creep testing

Notes

1. Unless stated, all values are nominal and may vary within normal production tolerances.
2. The characteristic unit parameters stated have been based on Polypipe BBA certificate N° 06/4297, sheet 3.
3. Polypipe reserve the right to change product specifications without prior notice.
4. This document is uncontrolled and updates will not be issued automatically.

RECOMMENDED MINIMUM COVER LEVELS [m]

LIVE LOAD CONDITIONS	PEDESTRIAN	LIGHT TRAFFICKED	
		Car park with vehicle mass <GVW	
Minimum cover depth required (m)	0.50	<3000kg 0.50	<9000kg 0.65

Note

1) Stated depths based on the calculation methodology detailed within CIRIA C680 (2008)

2) Assumed serviceability limit state (SLS) partial factor of safety applied to: Material = 1.5 Live load = 1.0 Dead load = 1.0

3) Shallower minimum burial depths may be applicable subject to an assessment of the specific site conditions. For further details please consult our Technical Team on 01509 615100.

All descriptions and illustrations in this publication are intended for guidance only and shall not constitute a 'sale by description'. All dimensions given are nominal and Polypipe may modify and change the information, products and specifications from time to time for a variety of reasons, without prior notice. The information in this publication is provided 'as is' on September 2017. Updates will not be issued automatically. This information is not intended to have any legal effect, whether by way of advice, representation or warranty (express or implied). We accept no liability whatsoever (to the extent permitted by law) if you place any reliance on this publication you must do so at your own risk. All rights reserved. Copyright in this publication belongs to Polypipe and all such copyright may not be used, sold, copied or reproduced in whole or part in any manner in any media to any person without prior consent. Polypipe is a registered trademark of Polypipe. All Polypipe products are protected by Design Right under CDPA 1988. Copyright © 2016 Polypipe. All rights reserved.

Polypipe Civils

Charnwood Business Park, Loughborough, Leicestershire LE11 1LE

Tel: +44 (0) 1509 615100 Fax: +44 (0) 1509 610215 Email: civils@polypipe.com

www.polypipe.com/wms

water8solutions

INDEPENDENT WATER RATE CONSULTANTS

URBAN SPLASH – NEW ISLINGTON PHASE 4 MANCHESTER

For

URBAN SPLASH / PAS (NW) LTD

OPERATION & MAINTENANCE MANUAL

For

STORMWATER TANK INSTALLATIONS

By

WATER 8 SOLUTIONS LTD

February 2021

water8solutions

INDEPENDENT WATER RATE CONSULTANTS

Water 8 Solutions Ltd Attenuation Tank Installation at the New Islington Development Phase 4 Manchester for Urban Splash / PAS (NW) Ltd

General Details

There is one storm water attenuation tank installed at this project site.

Tank 1: 30.00 x 6.00 x 1.60m deep – 288.00m³

The Specification

The attenuation tank specification has been exclusively created and recommended by Water 8 Solutions in its association with the Manufacturer of the cellular system Polypipe Ltd.

Please refer to Document: [08FEB21 Sectional Sketch Detail Polystorm Tank Urban Splash New Islington](#) for typical arrangement and encapsulation specification for this tank.

The tank is constructed using 1,440 No. Polystorm PSM1a (R) cellular units in a four layered tank.

Each unit measured 1000 x 500 x 400mm deep.

The tank is a fully encapsulated closed systems and by design does not have any integral inspection channels running through it from inlets or outlet. Therefore, internal accessibility to this structure is limited.

The tank has been be fully encapsulated using a Heavy Duty 1.00mm thick robust WaterFlex Polypropylene Geomembrane that has been heat sealed at the seams using hot air wedge welding equipment and handheld heat guns.

Where the inlet and outlet pipes interface with the tank, bespoke smooth pipe flanged connections have been provided to connect to the OSMA Ultrarib pipes using VIPSeal VAC special rubber pipe adaptors provided with this tank.

A heavy duty 300gms/m² textile fleece completes the structure as a protection layer to the fully sealed geomembrane.

1 x 110mm o/d diameter plastic pipe vent outlet has been sealed to the top of the tank at a location as indicated which rises to a ground level surface vent and positioned and installed by Urban Splash / PAS (NW) Ltd.

The installation was carried out by industry trained professionals employed by Water 8 Solutions Ltd using materials and construction methods recommended by the Product Manufacturer.

Cellular Tank Product Manufacturer:

Polypipe Civils Ltd
Charnwood Business Park
North Road
Loughborough
LE11 1LE

The product used in this specification for the structure of this tank is Polystorm-R or PSM1a – [refer to the particular Product Data Sheet attached to this document for specific information.](#)

water8solutions

INDEPENDENT WATER RATE CONSULTANTS

Cellular Tank Installation Contractor:

Water 8 Solutions Ltd
Bakestone House
5 Denshaw Road
Delph
Oldham
OL3 5HN

The draft tank specification and the installation contract were carried out wholly by Water 8 Solutions Ltd supported by its associated partners.

All other recommended permanent materials for the tank structure were provided by W8S Ltd.

These include:

1.00mm WaterFlex Polypropylene Geomembrane – *See Data Sheet attached to this document.*
HD300 Textile Fleece – *See Data Sheet attached to this document.*

Bespoke sealed pipe connections to the tanks:

2 x 225mm ID inlet pipes at tank invert level
1 x 225mm ID outlet pipe at tank invert level
1 x 110mm OD smooth pipe vent outlet connection to the top of the tank

Construction Phase Photographs

TANK

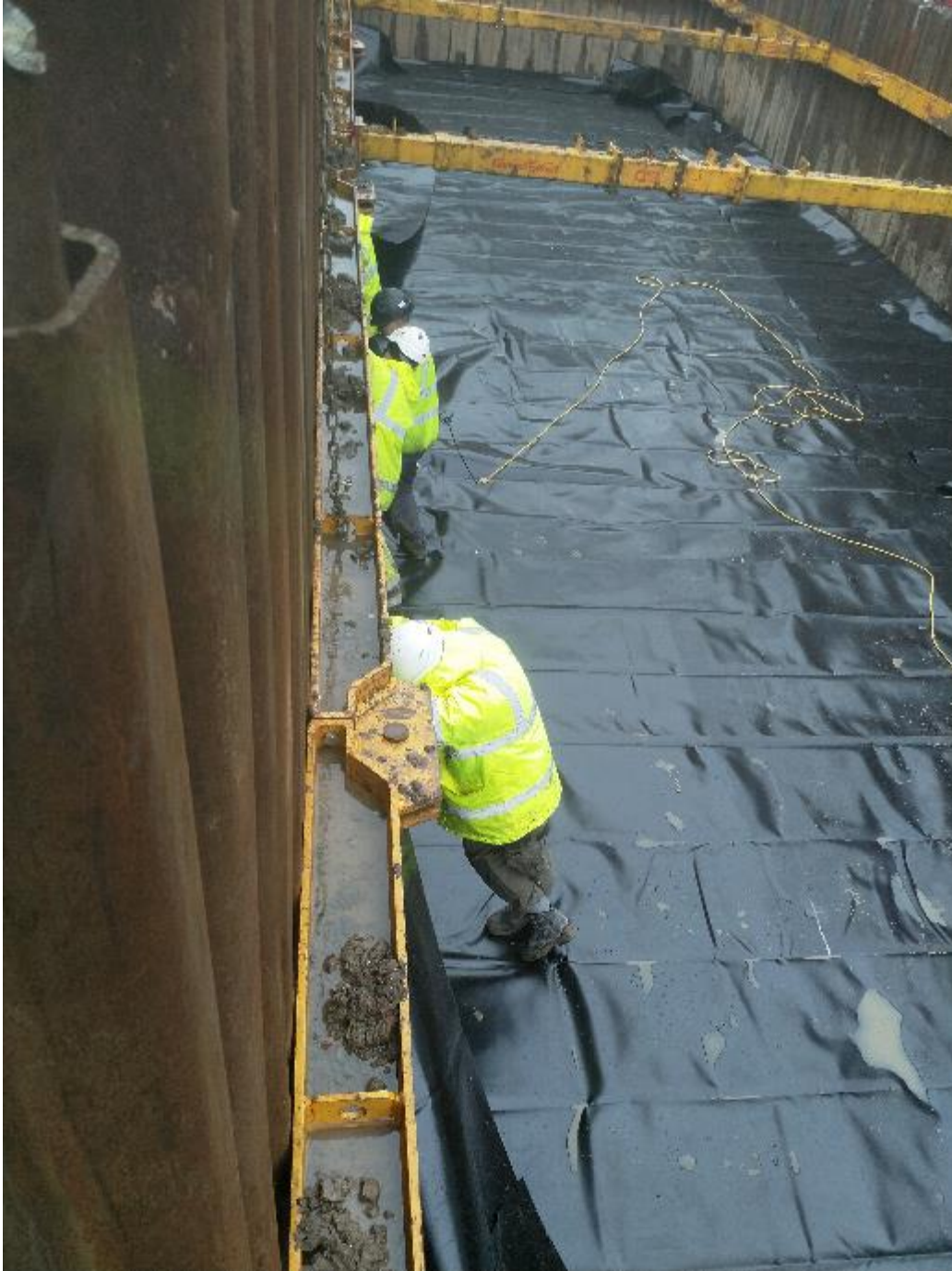
02FEB21 Lining the Excavation with Geotextile & Geomembrane



water8solutions

INDEPENDENT WATER RATE CONSULTANTS

02FEB21 Heat Welding Vertical & Horizontal Cross Seams



water8solutions

INDEPENDENT WATER RATE CONSULTANTS

03FEB21 Tank under Construction



water8solutions

INDEPENDENT WATER RATE CONSULTANTS

04FEB21 Tank Under Construction



04FEB21 225mm Inlet Connection at Tank Invert Level – Inside View



water8solutions

INDEPENDENT WATER RATE CONSULTANTS

04FEB21 225mm Inlet Connection at Tank Invert Level – Outside View



05FEB21 Geomembrane to Top of Tank



water8solutions

INDEPENDENT WATER RATE CONSULTANTS

05FEB21 Heat Welding Seams to Top of the Tank



05FEB21 The Completed Structure Wrapped in Heavy Duty Protective Geotextile



water8solutions

INDEPENDENT WATER RATE CONSULTANTS

General Operation & Maintenance

Like any other conventional drainage system, storm water attenuation tanks and associated flow control chambers should be inspected regularly and correctly maintained to ensure optimum performance.

A Maintenance Plan should be initiated with the end user to periodically inspect the efficient function of the tanks to permit and allow free flow of storm water into the tank structure and the controlled discharge at the flow control manhole and then the outfall headwall.

The tank and flow control installations on this site are static structures and do not possess any mechanical accessories that require inspection and maintenance however the efficient performance can be affected by the entry and subsequent contamination of deleterious debris and general litter that may from time to time occur from the upstream infrastructure.

To reduce or negate the entry of such debris and the like regular inspection of the upstream chambers/catch pits should be undertaken and the removal of any individual objects or silts that may have been intercepted there.

Keeping the upstream infrastructure clean and clear will ensure the tanks will not suffer from possible flow restriction from deleterious objects.

The tanks are completely sealed and enclosed with limited accessibility and this is only gained from the inlet and outlet pipe connections. In the absence of internal access channels it is very important to ensure that the entry and exit points to the tank are maintained clear of obstruction.

Following the cleaning of any upstream chambers a jet flushing process may be undertaken through the inlet and outlet points to remove any obstructions and ensure its complete clear and efficient function.

The end user should have his attention drawn to the ground level location of the vent outlet pipe which there is one fitted to the top centre of this tank in a position identified by PAS (NW) Ltd. - please note that the exact position of the surface vent outlet was determined by PAS (NW) Ltd following completion of the tank construction – this will need to be kept clear of blockage at all times.

With a scheduled code of practice to inspect and check the system at 6 monthly intervals for the first year of handover followed by routine annual or biennial inspection thereafter the tank on this site will continue to function without reason for concern for the lifetime of the structure.

Attached with this document are relevant data sheets and further details of the products used and the typical arrangement of the installation.

If A Failure Occurs

In any situation this tank should fail to function due to damage or collapse from overloading by any third party consultation can be sought direct from Water 8 Solutions.

Without admission of any failure on the part of this Specification – should the user require attention to any noticable defect or malfunction of the tank (other than blockage from lack of maintenance inspection) he should contact Water 8 Solutions accordingly.

Further Advice

For further advice on maintenance or aftercare for these tanks the user can contact the relevant Water 8 Solutions representative:

Russell Samuels – Director In Charge
Tel No. 07814 758 588
Email: water8solutions@gmail.com

Water 8 Solutions Limited Company Registration No. 9574093
Bakestone House, 5 Denshaw Road, Delph, Saddleworth, Oldham, Lancashire OL3 5HN
Mobile. +44 (0)7814 758 588
email: water8solutions@gmail.com
Managing Director: Russell Samuels Bsc

APPENDIX D – CONTRACTOR DESIGNED PROPRIETARY HYDROBRAKE FLOW
CONTROL



Operation & Maintenance Instructions

Item: Crown Vortex Flow Control Unit

Operation.

The Vortex Flow Control unit is a surface water regulator. It is entirely self activating and requires no manual intervention.

Maintenance

The flow control unit requires no routine maintenance. Action is only required in the event of a blockage or suspected blockage.

Inspection

The chamber containing the flow control unit and disc valve should be inspected in line with normal practice. Any debris or silt should be removed. Any visible fixing bolts should be checked. If an internal blockage is suspected the vortex unit can be inspected internally and cleaned out by opening the inspection/access cover on the upstream end. The cover must be replaced and secured before the unit becomes operational.

Emergency Draindown

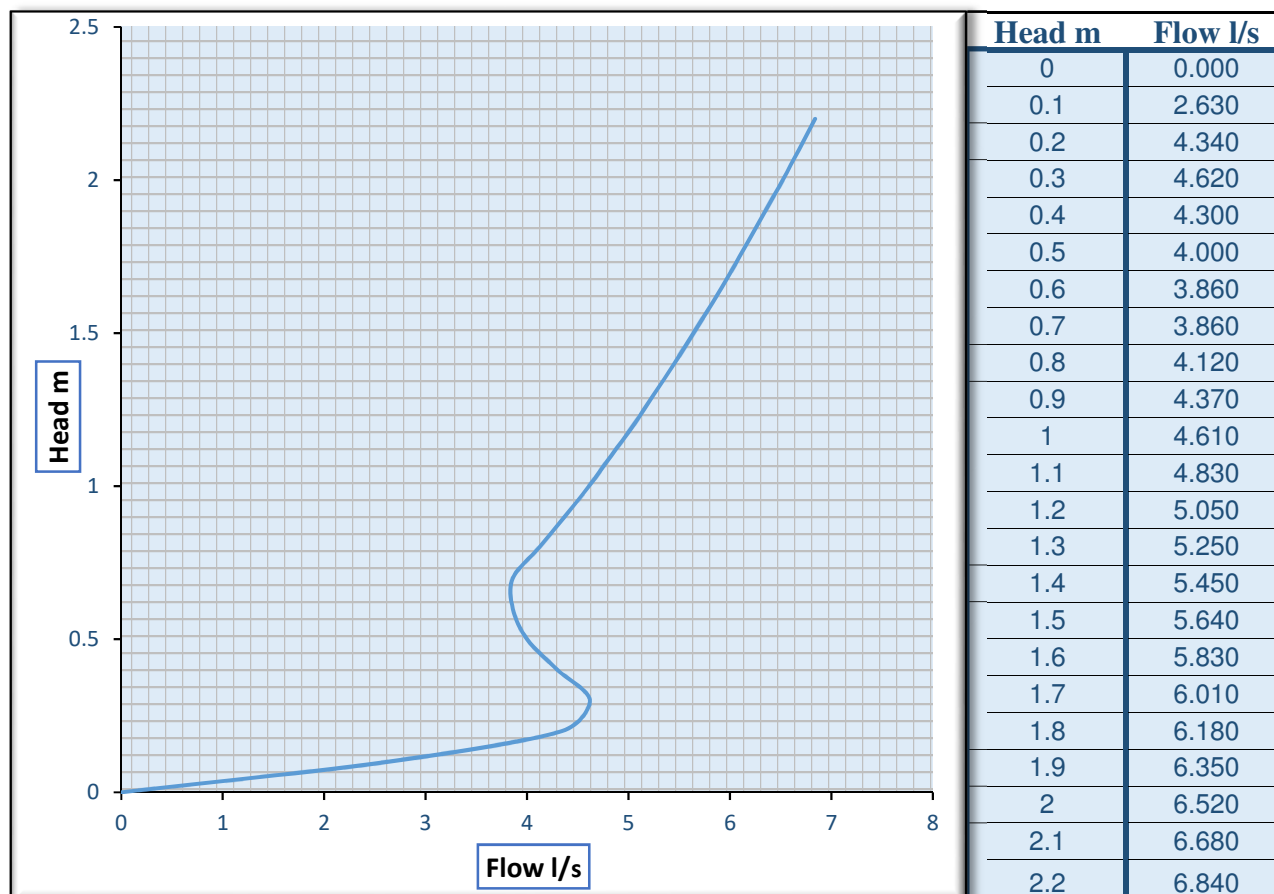
An emergency draindown valve is provided in the chamber to allow the upstream system to be drained independently, bypassing the flow control unit entirely. The draindown valve is operated by pulling the wire cable fixed near the chamber access.

CROWN WATER Data Sheet

102 mm QR5 Type Vortex Flow Control

Job Ref : 4010421

Client Name	PAS NW	Date	01/04/2021
Project Name	TBC	For the attention of	Lydon Molyneaux



Design Flow	6 l/s	Flush Flow	4.64 l/s
Design Head	1.695 m	At Head	0.269 m
Minimum Pipe	225 mm	Kickback Flow	3.79 l/s
Sump Depth	310 mm	At Head	0.657 m

Note: Surface Water Only

Crown Water Ltd
Index House
Ascot SL5 7ET
Tel 01344 886996 Fax 01344 886646
sales@crownwater.com
 Company Registration Number 9514593



ISO
9001 : 2015
 REGISTERED

Cert No. 14126867

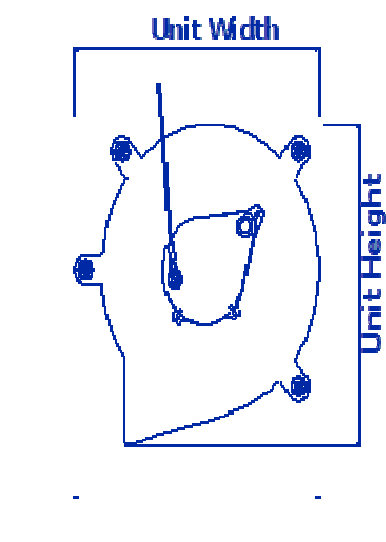
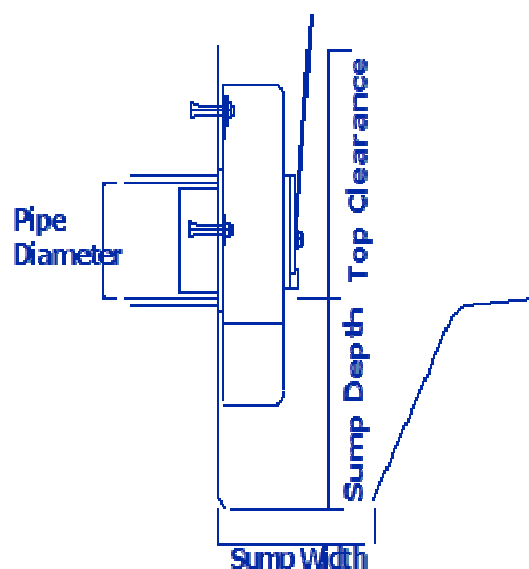
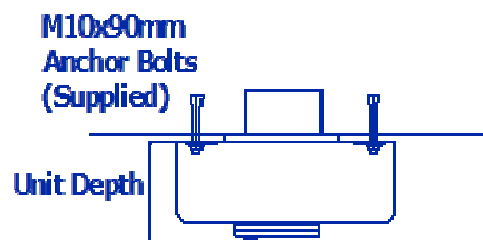
CROWN WATER

Job Ref 4010421

102 mm QR5 Type Vortex Flow Control

Client Name	PAS NW	Date	4/1/2021
Project Name	TBC	For the attention of	Lydon Molyneaux

Crown Water Radial Type Vortex Flow Control Unit Installation Guide



Unit Outlet Diameter	102mm	Sump Depth (Min)	310 mm
Unit Height	560 mm	Sump Width (Min)	290 mm
Unit Width	510 mm	Pipe Diameter (Min)	225mm
Unit Depth	140 mm	Top Clearance(Min)	370 mm

Note: Surface Water Only

Crown Water Ltd
Index House
Ascot SL5 7ET
Tel 01344 886996 Fax 01344 886646
sales@crownwater.com

Company Registration Number 9514593



ISO
9001 : 2015
REGISTERED

Cert No. 14126867

CROWN WATER

FLOW CONTROL QUOTATION REF. 4010421

Product Information and FAQ's

DESIGN

Individual Design.

All of our Vortex Flow Control Units are individually designed to meet the client's optimum performance criteria.

Will our Vortex Flow Control's Block?

The relatively large cross sectional areas and high internal velocities greatly reduce the risk of blockage.

How Long Will They Last?

Crown Water Vortex Flow Control Units have no moving parts to wear or fail. Made from stainless steel plate they will resist scour, degradation and chemical attack. A Vortex Flow Control should outlast the sewer in which it is installed.

MANUFACTURE

Crown Water Vortex Flow Control Units are manufactured to a high standard

- 304 Grade Stainless Steel as standard. Other material optional.
- Plate thickness 3mm as standard Thicker plate used where required.
- Pulse arc Tungsten Inert Gas Welding. All seams continuous for maximum strength.
- Emergency Bypass Door fitted as standard to allow drain down and rodding access.
- Externally regulated ISO 9001:2008 Quality Assurance System

INSTALLATION

All of our Vortex Flow Controls are purpose built to suit the specific site and to fit easily into the drainage infrastructure. Units can be specially designed for retrofitting or for installation in difficult spaces

MAINTENANCE

Vortex Flow Control units themselves require no routine maintenance. Inspection chambers require inspection & maintenance in line with current practice.

WHAT DESIGN INFORMATION DO WE NEED?

We require the following basic information to specify a Vortex Flow Control for you.

- 1) The design Flow - *Maximum Discharge*
- 2) The design Head - *Invert to Top Water Level*

From this information we will size and design the Vortex Flow Control to meet the design criteria and to suit the proposed infrastructure.

SPECIFICATION

Includes: -

- 1) Data Sheet showing the Head/Discharge Characteristic, both graphically and numerically.
- 2) Installation Guide showing the outline dimensions of the specified Vortex Flow Control and the method of fixing.
- 3) Quotation covering the design manufacture and

Note: Surface Water Only

Crown Water Ltd

Index House

Ascot SL5 7ET

Tel 01344 886996 Fax 01344 886646

sales@crownwater.com

Company Registration Number 9514593

www.crownwater.com



**ISO
9001 : 2015
REGISTERED**

Cert No. 14126867

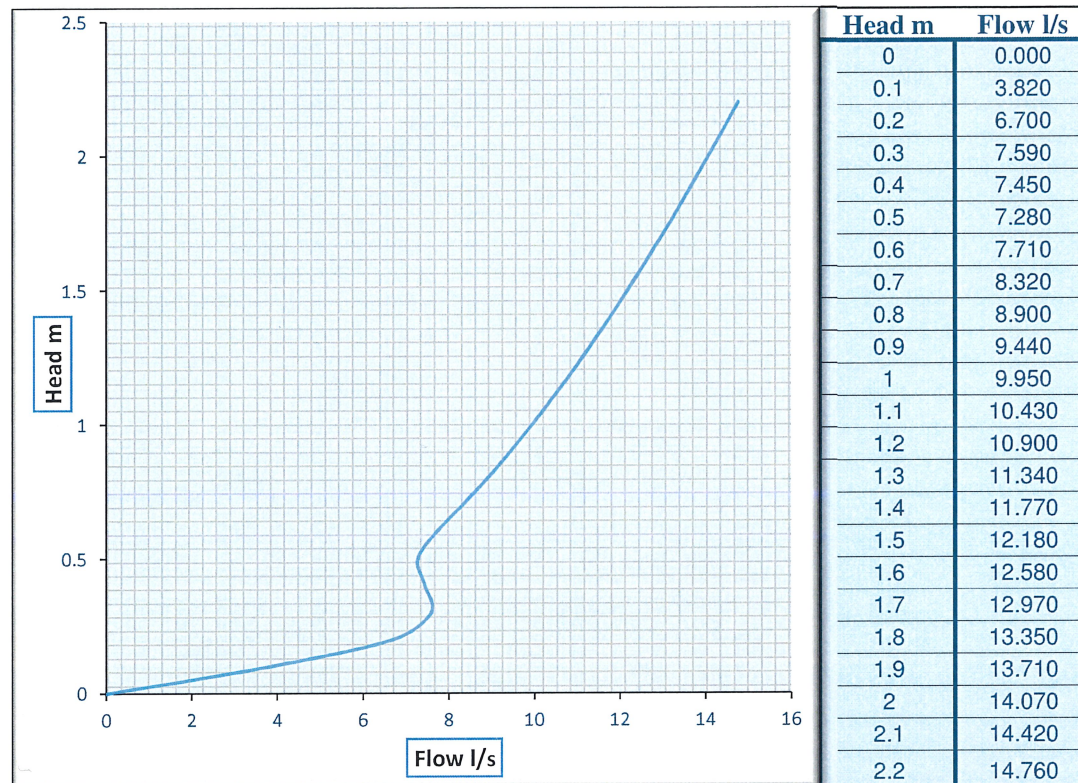
Copyright Crown Water Ltd 2017

CROWN WATER Data Sheet

133 mm QR3 Type Vortex Flow Control

Job Ref : 19080421

Client Name	PAS NW	Date	08/04/2021
Project Name	Manchester	For the attention of	Lyndon Molyneux



Design Flow	12 l/s	Flush Flow	7.62 l/s
Design Head	1.455 m	At Head	0.32 m
Minimum Pipe/Pipe	150 mm	Kickback Flow	7.28 l/s
Sump Depth	360 mm	At Head	0.495 m

Note: Surface Water Only

Crown Water Ltd
Index House
Ascot SL5 7ET
Tel 01344 886996 Fax 01344 886646
sales@crownwater.com
 Company Registration Number 9514593



ISO
9001 : 2015
REGISTERED

Cert No. 14126867

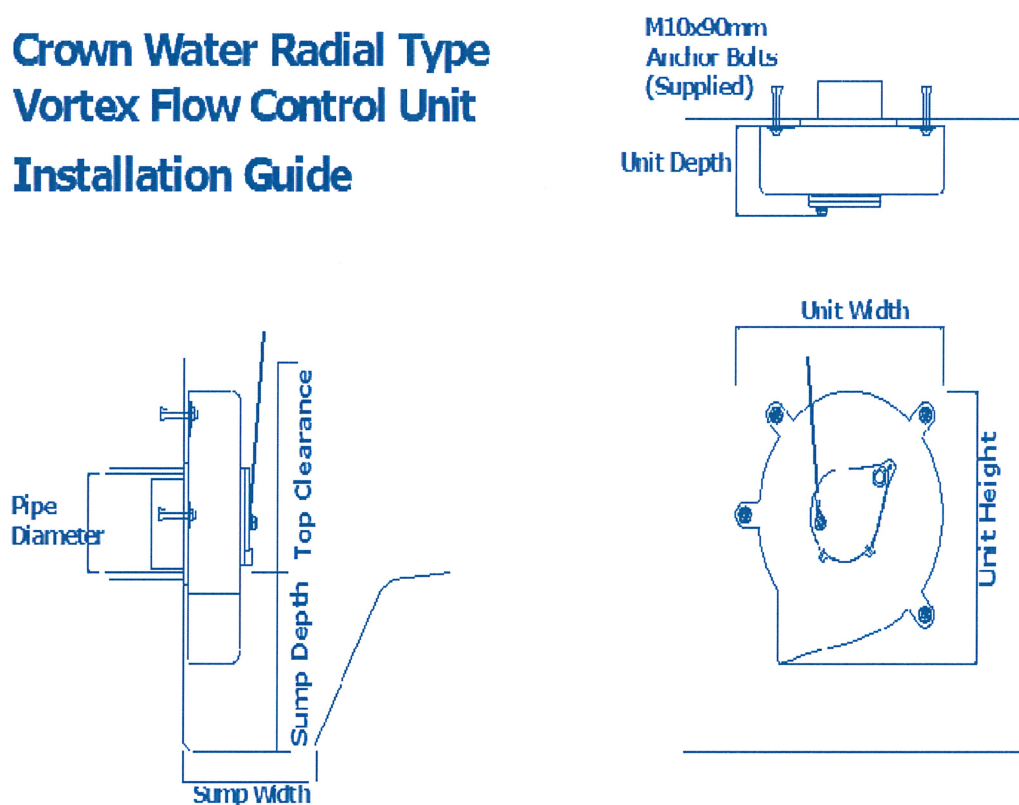
CROWN WATER

Job Ref 19080421

133 mm QR3 Type Vortex Flow Control

Client Name	PAS NW	Date	08/04/2021
Project Name	Manchester	For the attention of	Lyndon Molyneux

Crown Water Radial Type Vortex Flow Control Unit Installation Guide



Unit Outlet Diameter	133mm	Sump Depth (Min)	360 mm
Unit Height	550 mm	Sump Width (Min)	320 mm
Unit Width	520 mm	Pipe Diameter (Min)	150mm
Unit Depth	170 mm	Top Clearance(Min)	420 mm

Note: Surface Water Only

Crown Water Ltd
Index House
Ascot SL5 7ET
Tel 01344 886996 Fax 01344 886646
sales@crownwater.com
 Company Registration Number 9514593



ISO
9001 : 2015
REGISTERED

Cert No. 14126867

CROWN WATER

FLOW CONTROL QUOTATION REF. 19080421

Product Information and FAQ's

DESIGN

Individual Design.

All of our Vortex Flow Control Units are individually designed to meet the client's optimum performance criteria.

Will our Vortex Flow Control's Block?

The relatively large cross sectional areas and high internal velocities greatly reduce the risk of blockage.

How Long Will They Last?

Crown Water Vortex Flow Control Units have no moving parts to wear or fail. Made from stainless steel plate they will resist scour, degradation and chemical attack. A Vortex Flow Control should outlast the sewer in which it is installed.

MANUFACTURE

Crown Water Vortex Flow Control Units are manufactured to a high standard

- 304 Grade Stainless Steel as standard. Other material optional.
- Plate thickness 3mm as standard Thicker plate used where required.
- Pulse arc Tungsten Inert Gas Welding. All seams continuous for maximum strength.
- Emergency Bypass Door fitted as standard to allow drain down and rodding access.
- Externally regulated ISO 9001:2008 Quality Assurance System

INSTALLATION

All of our Vortex Flow Controls are purpose built to suit the specific site and to fit easily into the drainage infrastructure. Units can be specially designed for retrofitting or for installation in difficult spaces

MAINTENANCE

Vortex Flow Control units themselves require no routine maintenance. Inspection chambers require inspection & maintenance in line with current practice.

WHAT DESIGN INFORMATION DO WE NEED?

We require the following basic information to specify a Vortex Flow Control for you.

- 1) The design Flow - *Maximum Discharge*
- 2) The design Head - *Invert to Top Water Level*

From this information we will size and design the Vortex Flow Control to meet the design criteria and to suit the proposed infrastructure.

SPECIFICATION

Includes: -

- 1) Data Sheet showing the Head/Discharge Characteristic, both graphically and numerically.
- 2) Installation Guide showing the outline dimensions of the specified Vortex Flow Control and the method of fixing.

Note: Surface Water Only

Crown Water Ltd

Index House

Ascot SL5 7ET

Tel 01344 886996 Fax 01344 886646

sales@crownwater.com

Company Registration Number 9514593

www.crownwater.com



**ISO
9001 : 2015
REGISTERED**

Cert No. 14126867