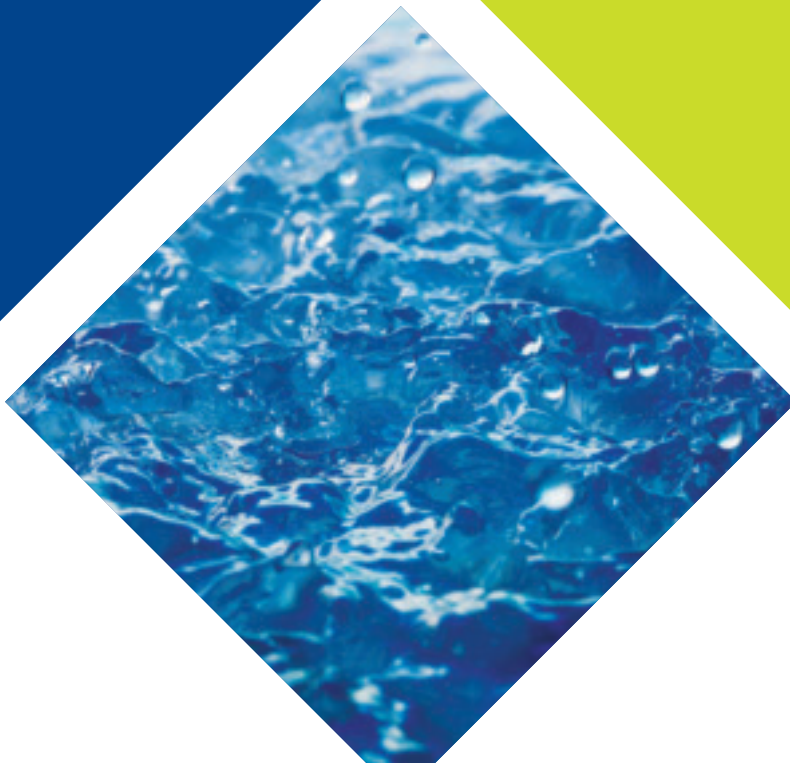


FlowBlock™ modular water storage cells



The logo for FlowBlock™ is displayed in white text on a large, lime-green diamond-shaped background. The diamond is positioned in the upper right quadrant of the page. To the left of the diamond, there is a vertical strip of blue water with bubbles, and a blue triangular shape is visible in the top left corner.

FlowBlock™

Introduction

Stormwater Management Limited are specialists in the design, supply and installation of Sustainable Urban Drainage Systems (SUDS).

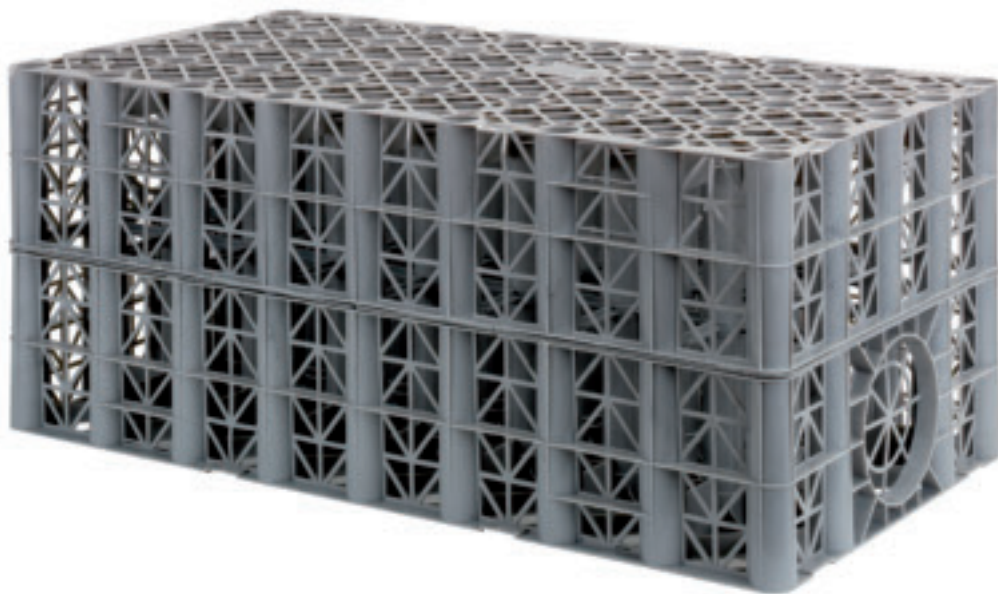
Our experience and expertise in this area is helping specifiers, consultants, engineers and contractors to get the best from SUDS and prevent flooding in urban areas.

The control of surface water run off has become crucial to our local environment. Integrated systems incorporating attenuation tanks, large capacity drainage channels, lagoons or ponds, porous paving and rain water harvesting are now an essential part of any new development.

Utilised in the right way these systems are environmentally friendly and can be used as part of a landscaping scheme. And as well as being cost-effective they are often vital in obtaining planning approvals.

Fully registered with Her Majesty's Revenue & Customs for the Construction Industry Scheme, we are holders of CIS5. We can advise and assist you all the way from design through to installation and support you by implementing the complete project or providing sub-contract services for individual stages.

For more information on our other systems not included in this brochure please contact: sales@storm-water.co.uk



FlowBlock™ and FlowBlock Lite™ are modular water storage cells with a high void ratio and are ideal for creating underground storage tanks or soakaways.

The Environment Agency and The Scottish Environment Protection Agency are increasingly promoting the use of Sustainable Urban Drainage Systems (SUDS) in new developments in order to reduce flood risk and reduce pollution.

The FlowBlock™ system supports the achievement of SUDS, and can reinforce planning applications where this is a particular consideration. Already a major component in many SUDS, the FlowBlock™ system has the added advantage of BBA certification to give you the reassurance of long-lasting and effective performance.

Easy to handle and environmentally friendly, the FlowBlock™ System provides you with these superior properties:

- Non-blocking free-flowing structure.
- High strength.
- 95% void ratio.
- Lightweight.
- Cost effective.
- Simple, straightforward installation.
- Interconnecting units for greater stability.

FlowBlock™ Performance

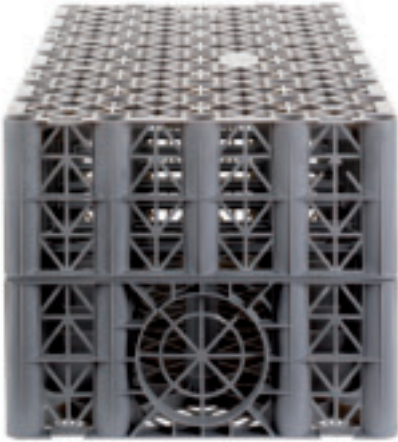
Manufactured from polypropylene, FlowBlock™ units are strong and robust with high compressive strength and are specifically designed for use in trafficked areas including heavy-duty applications. FlowBlock Lite™ is ideal for landscaped or non trafficked locations.

The FlowBlock™ system is used to retain surface water runoff below ground, and release it at a pre-determined rate or facilitate the infiltration of surface water into the ground.

FlowBlock™ units are lightweight and easily assembled on site by stacking and linking together using the shear connectors provided. Large modular tanks can be created and the units can be easily configured to suit different sites.

The whole assembly is then wrapped in either a geotextile or a geomembrane, depending on the application, and connected to the drainage system.





FlowBlock™ – For use in trafficked or deep installations.

FlowBlock™ has already proven its performance capabilities in SUDS applications with thousands of cubic metres installed throughout the United Kingdom.

FlowBlock™ gives you these advantages and benefits:

- BBA approved and can meet the technical requirements of NHBC.
- Minimum ultimate compressive strength of 400kN/m².
- Minimum lateral loading capacity of 60kN/m².
- Minimum void ratio of 95%.
- Maximum depth of installation 3.7 metres.
- Allows 'brick bonding' assembly for greater stability.
- Proven inter-unit connection system.

Technical Data for FlowBlock™

Unit type	FlowBlock™
Dimensions	1m x 0.5m x 0.4m high
Total volume	0.2 m per cube
Unit weight	** 9kg
Cube Storage System	0.19m (190 litres)
Surface area	48% perforated
Compressive strength	Minimum of 400kN/m ²
Lateral strength	Minimum 60kN/m ²
Maximum burial depth	3.7m ***

* Each unit includes 4 clips and 2 shear connectors.

** Pallet weight dependant upon order quantity and transport type.

*** In weak clay the maximum burial depth will be reduced, please contact Stormwater Management Limited Technical Team for guidance.



FlowBlock Lite™ – For use in non trafficked, landscaped installations.

FlowBlock Lite™ has been designed as a low-cost option for less demanding applications but still provides you with all of the advantages and benefits of the popular FlowBlock™ unit:

- Minimum ultimate compressive strength of 200kN/m².
- Minimum lateral loading capacity of 47kN/m².
- Minimum void ration of 95%.
- Maximum depth of installation 2 metres.
- Allows 'brick bonding' assembly for greater stability.
- Proven inter unit connection system.

Technical Data for FlowBlock Lite™

Unit type	FlowBlock Lite™
Dimensions	1m x 0.5m x 0.4m high
Total volume	0.2 m per cube
Unit weight	** 7kg
Cube Storage System	0.19m (190 litres)
Surface area	55% perforated
Compressive strength	Minimum of 200kN/m ²
Lateral strength	Minimum 47kN/m ²
Maximum burial depth	2m ***

* Each unit includes clips and 2 shear connectors.

** Pallet weight dependant upon order quantity.

*** In weak clay the maximum burial depth should not exceed 1.5 metres. Do not install FlowBlock Lite™ below water table. For installations deeper than the recommended 2 metres please contact Stormwater Management Limited Technical Team.

Case studies are available for the following FlowBlock™ installations;

- Prologis Distribution Centre, Milton Keynes 3500m³
- Catterick Garrison 2400m³
- Bellway Homes, Pulborough 1530m³
- Morrisons, Wednesbury 900m³

Contact us for more details on these projects.

Structural Considerations

Several factors need to be considered before deciding which FlowBlock™ product should be used and whether to attenuate or infiltrate including;

- Soil type.
- Groundwater.
- Surface finish.
- Depth of cover.
- Loading — vertical and lateral.

Whilst each installation should be designed as a structure by a suitably qualified engineer the table below gives minimum cover depths and maximum installation depths for each FlowBlock™ product.

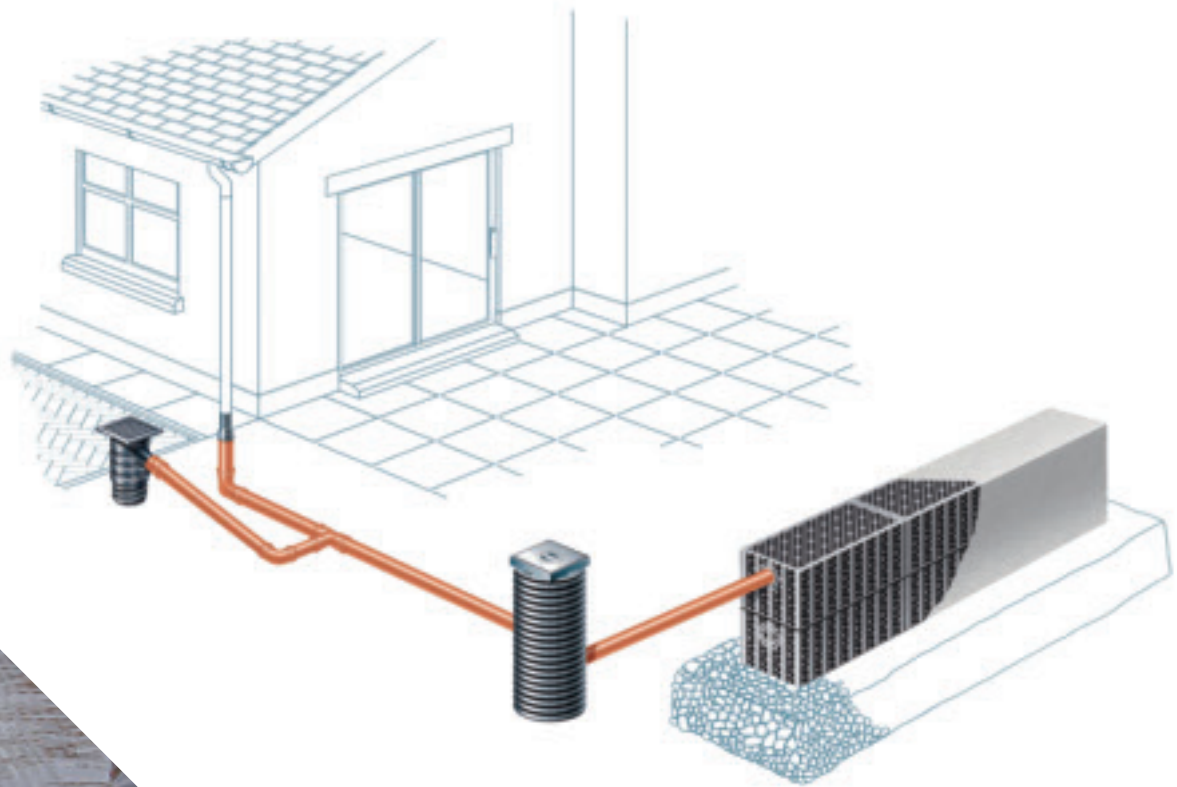
Application	Minimum cover depth	
	FlowBlock™	FlowBlock Lite™
Non trafficked applications	0.5m	0.3m ⁽¹⁾
Car Park — vehicle mass up to 2500kg	0.6m	N/A
Car Park — vehicle mass over 2500kg	0.75m	N/A
Maximum installation depth	3.7m ⁽²⁾	2m ⁽²⁾

⁽¹⁾ No traffic, including construction traffic must be allowed to run over the installation.

⁽²⁾ Maximum installation depth is dependent on soil conditions. In poor soil conditions a shallower depth may apply. For project specific detail please contact our technical department.

* Please note; installation depth may be increased by incorporating the design of relevant ground reinforcement systems, subject to ground conditions.





FlowBlock™ installation.

The correct installation of FlowBlock™ is essential for efficient and lasting performance. Incorrect installation can have serious and costly implications including tank collapse or flooding. By taking advantage of our considerable experience of installing FlowBlock™ you'll have the reassurance of a professional service and durable system.

Sub-Contract Service.

We offer a complete sub-contract supply and installation service for FlowBlock™ attenuation and soakaway systems. Fully registered with Her Majesty's Revenue & Customs for the Construction Industry Scheme and holders of CIS5, we can undertake the whole project or individual elements as a sub-contract package.

Attenuation systems.

The membrane surrounding the FlowBlock™ has to be sufficiently robust to resist damage during construction and over the service life of the tank. The membrane also needs to span across the gaps on the side of the FlowBlock™ requiring sufficient tensile strength. To achieve this a robust membrane with welded joints is required — typically 1mm thick with welded joints and installed by a specialist contractor.

A few pounds saved by installing a poor quality membrane will be minor in comparison to the costs that will occur if the tank leaks. This can result in groundwater pollution, settlement of paved areas and car parks or the undermining of foundations.

In line with industry guidelines, and as advised by CIRIA, we recommend that all attenuation systems use a fully welded membrane solution installed by qualified technicians.

Infiltration systems.

FlowBlock™ units require a geotextile wrapping when used as an infiltration system. For this to work effectively the geotextile must allow free movement of water out of the system whilst preventing surrounding soil from entering.

In deciding which geotextile to use careful consideration should be given — in particular:

- The flow rate of the geotextile.
- The pore size of the geotextile.
- The soil conditions.
- The porosity of surrounding soils.

The FlowBlock™ system after installation.

FlowBlock™ has been designed to withstand heavy loads once the installation is completed with the correct backfilling and surface.

We understand that in the majority of cases this is only reached at the end of the contract which is why we recommend that the installation is either isolated from any traffic situation, installed at the very end of the contract, or both.



Bespoke fabrications.

With an in-house fabrications department we can offer an unrivalled breadth of bespoke solutions. As well as benefiting from off-site construction you'll have the reassurance that everything has been designed and built to your individual specification.

Our up-to-date facilities give us the capability to produce a wide range of fabrications including large diameter manholes and catchpits, advanced silt traps and fittings. This puts us in the unique position of being able to offer a comprehensive choice of water management systems, from rainwater harvesting tanks, attenuation and soakaway systems through to vortex flow control devices.

All the welders in our fabrications department are fully qualified and have successfully undertaken the TWI welders institute training scheme.

Silt traps

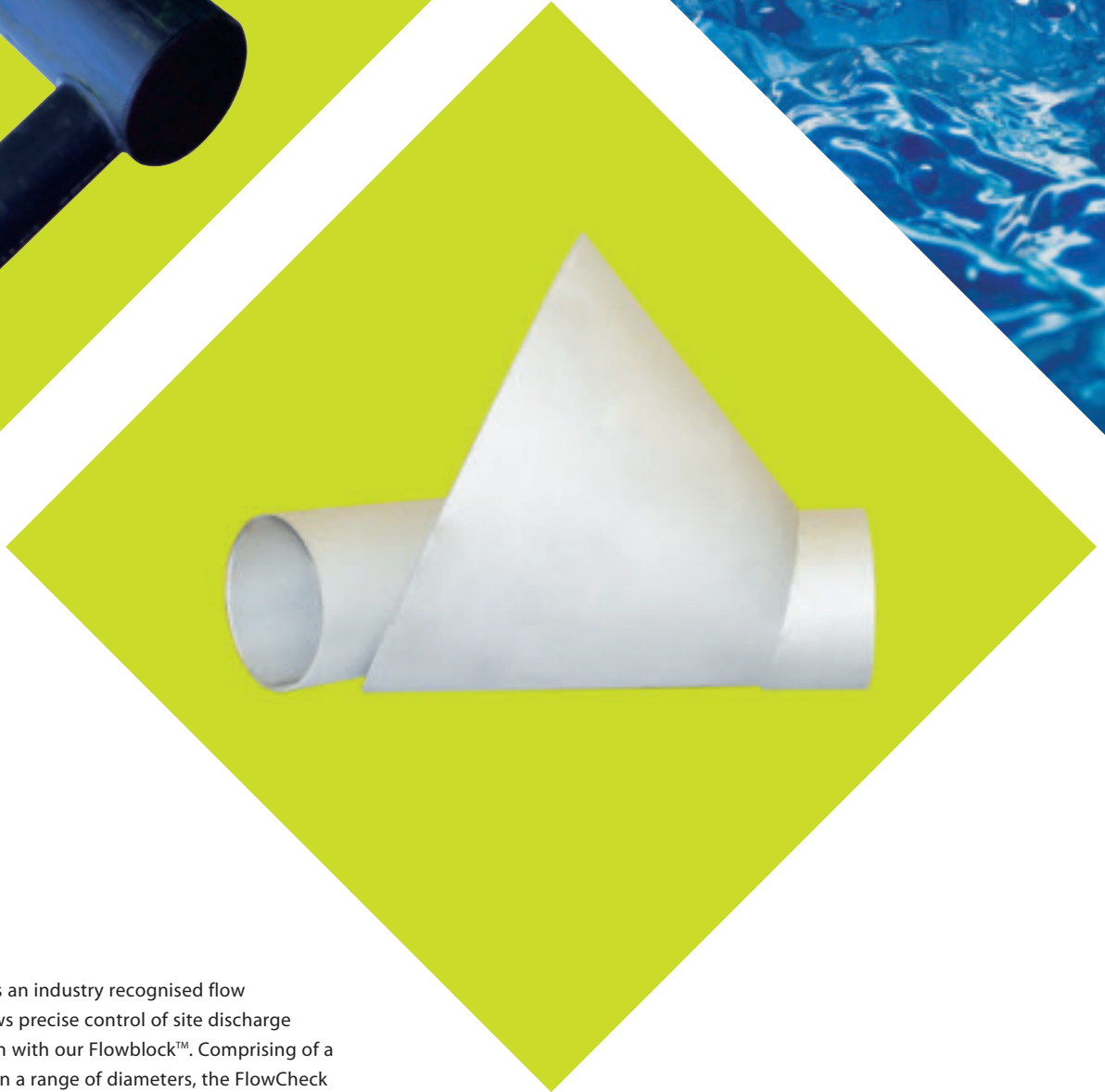
The ingress of debris is prevented through Silt Traps which can be designed and fabricated to suit a particular drainage requirement to give you the following benefits:

- Extended life by preventing debris entering the system.
- Reduction of preventative maintenance costs.
- Fabricated to your exact requirements.
- Constructed off site to save you time and expense.

This bespoke service is available through our in-house design and fabrication facility. Working together, our technical support team and fabricators can design and provide solutions to your pipeline problems, responding quickly and efficiently to your needs.

Flow Control Units

Stormwater Management limited can also provide a range of bespoke flow control units, including orifice plates, vortex flow control devices and pipe reducers all manufactured to site specific requirements.



FlowCheck chamber

The new FlowCheck chamber is an industry recognised flow attenuation system which allows precise control of site discharge rates, when used in conjunction with our Flowblock™. Comprising of a prefabricated plastic chamber in a range of diameters, the FlowCheck Chamber has an integral vortex flow control device to give effective and long lasting performance.

Features

- Prefabricated to your specification.
- Choice of depth up to a maximum invert level of six metres.
- Lightweight chamber design.
- Tough and durable.
- Designed to integrate in to the extensive range of Stormwater Management advanced drainage systems.
- Choice of chamber sizes from 1050mm³, 1200mm³, 1500mm³ and 1800mm³.
- All 'Vortex Flow Controllers' and fasteners used in the manufacture of the chambers manufactured from A2 304 stainless steel.
- Optional of Step Irons to BS1247.

Key benefits

- A sealed chamber produced in our dedicated fabrications department, built to your exacting specifications and delivered to your site ready for installation.
- The factory fitted vortex flow control device saves time and expense by reducing on-site construction.
- Vortex flow control devices are widely recognised as being the most hydraulically efficient means of flow regulation - no moving parts, means they are virtually maintenance-free.
- Manufactured with an integral sump for silt catchment and optional drain down system for easy maintenance and silt removal.
- The Vortex Flowcheck Chamber can be integrated with any Stormwater Management SUDS solution and the market leading Ridgidrain System.



Quality Assurance

BBA certified for Performance

In the absence of any British (BS) or European (EN) standards for soakaway and stormwater storage structures, Stormwater Management Limited applied for and received technical approval from the British Board of Agrément for FlowBlock™.

The BBA's Agrément Certificates have been providing authoritative and independent information on the performance of building products for over 35 years. Every Agrément Certificate contains important data on durability, installation and compliance with Building Regulations — not just in England and Wales, but in Scotland and Northern Ireland, too. Assessment involves three distinct areas - laboratory testing (carried out wherever possible to UKAS requirements), site inspections, undertaken by the BBA's own Inspection Services team, and factory production control.

The BBA is the UK member of the European Union of Agrément (UEAtc). It represents the UK in the European Organisation for Technical Approvals, and is responsible for the issue of European Technical Approvals in this country. This enables products - manufactured under an appropriate Attestation of Conformity procedure - to achieve the commercially vital CE marking.



ISO 9000:2000

Certified Quality in Manufacture

FlowBlock™ and FlowBlock Lite™ are manufactured under a quality management system which is certified in accordance with the most comprehensive standards set by the International Organisation for Standardisation; namely ISO 9000:2000. This has been implemented throughout the business to give you greater reliability and improved quality.

Design and Technical Support

A free consultation, design and advisory service is available for the duration of your project. This service includes, project design, product selection, CAD drawings and full installation instructions. From conception stage all the way through to completion Stormwater Management Limited will provide the necessary information you need for successful installation of the FlowBlock™ system into your project.

For specification details and project specific design assistance please contact our sales office on 01455 502222 or e-mail us at: sales@storm-water.co.uk



Specification Clauses for FlowBlock™

The stormwater soakaway / attenuation system shall be FlowBlock™ by Stormwater Management Limited. The system shall be BBA certified.

The stormwater soakaway / attenuation system shall be 1m x 0.5m x 0.4m. The units will have a vertical loading of 400kn/m². Each unit shall have 95% void ratio. The system shall be encapsulated with a 1mm impermeable geomembrane sealed with welded joint. The system shall be installed by an approved installer. The system shall be BBA certified.

BBA

www.bbacerts.co.uk

CIRIA

www.ciria.org

EA

www.environment-agency.gov.uk

Legal Disclaimer

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Stormwater Management Ltd.
Fleming Road
Harrowbrook Ind Est
Hinckley
Leicestershire
LE10 3DU

T: 01455 502222
F: 01455 502223
E: sales@storm-water.co.uk
W: www.storm-water.co.uk



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