Sustainable Drainage Systems

Product brochure

MERISTEM DESIGN

Turning the grey green®

Contents

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At Meristem Design, we create bespoke green solutions for business, public and residential areas. We deliver custom sustainable projects that place nature at the forefront to bring benefits to people, communities and the environment.

From project inception through to aftercare, we provide high-quality services such as:

Design

Fabrication

Delivery

Installation

Planting

Maintenance

To find out more go to meristemdesign.co.uk

MERISTEM DESIGN

Our SuDS

SuDS Planters

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Our SuDS

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Sustainable Drainage Systems (SuDS)

As rainfall is becoming more extreme and unpredictable due to climate change, the UK is facing more frequent and intense flash floods, particularly in urban centres like London, where hard surfaces and older drainage systems are struggling to keep up.

With surface water flooding and flash flooding now considered the most likely and disruptive flood threat, strategies like SuDS are becoming an essential part of how we protect our streets, schools, and communities.

Our role in building flood-resilient spaces

At Meristem, we specialise in building SuDS landscapes that create greener, smarter spaces to actively mitigate flood risk whilst also improving biodiversity and wellbeing.

Our SuDS Planters and Rain Gardens help to manage surface water runoff by slowing and absorbing rainwater to reduce pressure on drainage systems and cut the risk of flash floods.


AUDE HOUSE
Project
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Rain Gardens

Project Details


Beauty@East
DIAMOND HAIR SALON
KENDALL
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What is a Rain Garden?

Transforming surface runoff into a sustainable solution, rain gardens capture rainfall before it enters the piped network and either releases it slowly into the network or allows it to infiltrate into the ground, preventing flooding.

Often dominated by concrete and other non-permeable surfaces, urban landscapes have increased surface water runoff. Rain gardens help to improve surface water management while providing amenity, reducing pollution and enhancing biodiversity.

Meristem Design specialises in installing rain gardens that increase climate resilience and support local wildlife while adding beauty to your outdoor space.


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Benefits of Rain Gardens

Low Maintenance

Designed to fit any space, rain gardens are easy to maintain and offer an efficient way to manage rainwater in various urban landscapes.

Supports Wildlife

Rain gardens attract birds, insects, and small wildlife by creating diverse natural habitats, and enriching local biodiversity.

Reduces Flooding & Erosion

Rain gardens can absorb up to 30% more water than lawn grass, slowing down heavy rainfall and reducing the risk of sewer flooding.

They also help to reduce erosion by preventing large volumes of water from washing away soil.

Cleans Water Naturally

Rain gardens act as natural filters, removing up to 90% of pollutants like nutrients and chemicals, and up to 80% of sediments from water runoff.

This helps prevent water pollution and contributes to healthier waterways.

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Designing a rain garden

1: Choose the right location

The first step is to determine the location of your rain garden. Rain gardens are best located at low points where surface water will flow to. However, where rain gardens are being created as part of a larger scheme the overall layout may determine the most suitable location, so some flexibility is required.

2: Composition of a rain garden

A rain garden typically comprises the following features:

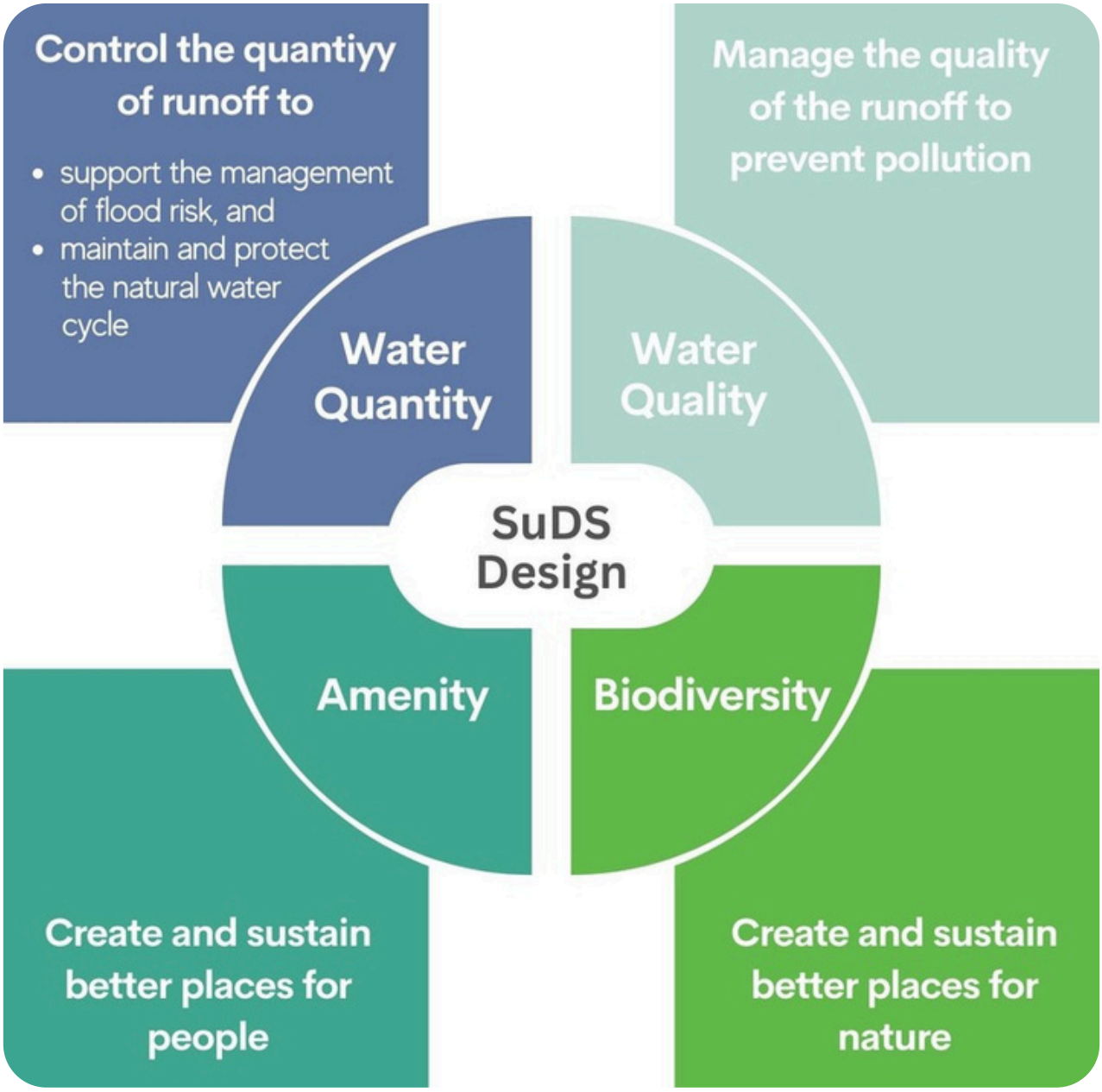
- **Freeboard**: The freeboard provides potential water storage space, above the topsoil. The freeboard depth is measured from the carriageway or footpath level to the top of the topsoil.

- **Topsoil**: Topsoil usually consists of a mixture of soil, sand and compost. Soil permeability can be specified according to the ratio of these three components. Rain gardens often have a sandier soil composition than normal to allow faster infiltration.

- **Sub-base:** The sub-base should be 100-500mm deep. The depth of the sub-base will vary depending on the required storage capacity and budget. A deeper sub-base will help store more water. Attenuation material types differ depending on the location requirements.

3: Calculate the size and depth

Making a rain garden bigger (and therefore storing more water) increases the flood risk management benefit, however, this needs to be balanced against cost and availability of space.



Source: The SuDS Manual 2015, CIRIA

SuDS design principles focus on managing water sustainably while creating better places for people and nature. Effective SuDS slow and store rainwater to reduce flood risk, filter pollutants to improve water quality, and use planting to enhance biodiversity.

Well-designed systems also add amenity value - turning functional infrastructure into attractive, usable spaces that support both climate resilience and community wellbeing.

Rain Gardens in Schools

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Why install a rain garden in a school?

Installing a rain garden in a school is not only beneficial for rainwater management but also creates engaging outdoor spaces that are perfect for educating school children about the environment, nature, biodiversity and climate change.

Planting Days

School children can get involved in rain garden planting - providing them the opportunity to interact with the plants and get their hands dirty, all whilst learning about the importance of flood-resilience.

Rain Gardens in Public Spaces

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Community Engagement

SuDS can help bring communities together. This is especially the case if the community has been involved in the SuDS design process and residents have ownership of the ongoing maintenance. It is essential for the community to understand why installing rain gardens and undertaking other alternative drainage solutions is necessary and beneficial for the area.

Involving the community should be considered an investment in the future success of the scheme. If the community is informed and supportive of rain gardens and their benefits, you are more likely to garner support from the councillors and other stakeholders making implementation easier.

Working with the community from the outset fosters a sense of ownership, which is crucial for the ongoing maintenance and success of the rain gardens.

Interactive Features in Rain Gardens

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Integrating interactive features is a great way to create green spaces for people to enjoy. They deliver fun and attractive designs to brighten up areas and encourage people to engage with it. Features can include stepping stones, gabion style seating, walkways/pathways and more.

Rain Gardens in Pocket Parks

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Biodiverse Urban Design

Green infrastructure has the power to do more than just manage rainwater. When thoughtfully designed it can also create spaces for people to gather and connect with the natural world, even in dense urban spaces. By transforming underused, grey areas into green, functional spaces, we can manage surface water more sustainably while creating places people enjoy, pass through and connect with.

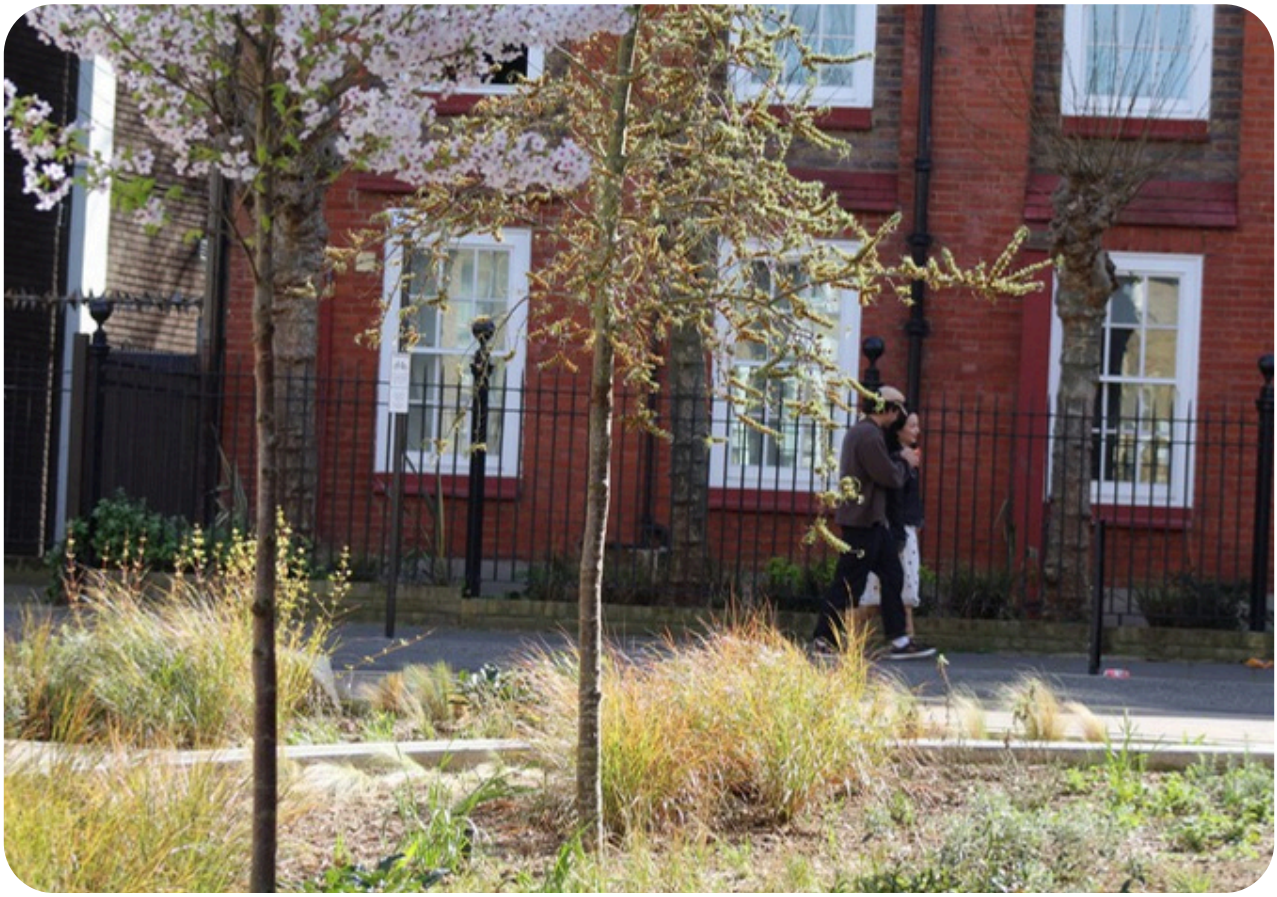
Creating green spaces within urban areas not only improves the local environment but also provides important mental and physical health benefits to residents and visitors.

Nature Gardens offers a respite from the hustle and bustle of everyday life, giving people a place to relax and reflect, while contributing to a healthier, more sustainable environment.

Nature Gardens

Compact green spaces such as nature gardens are more than just visual upgrades, they are designed to absorb, store, and slow rainwater to help reduce surface water flooding while creating healthier, more inviting urban environments.

These spaces can offer a more inviting, climate-resilient route for pedestrians and passers-by while incorporating features that support active travel and support biodiversity. Tree planting can also be included to improve air quality, and urban aesthetics..



Residential Rain Gardens

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Repurposing Parking Spaces

Repurposing parking spaces for rain gardens is an effective way to make streets greener, more resilient, and people-focused. By replacing hard, impermeable surfaces with planted areas that capture and filter rainwater, these spaces help reduce local flooding, improve water quality, and support biodiversity.

What were once car-dominated areas can become pockets of nature that cool the street, create habitat for pollinators, and make neighbourhoods more pleasant for everyone - showing how small design interventions can deliver big environmental and social benefits.


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Rain Gardens & Bike Lanes


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Supporting Active Travel

Integrating rain gardens alongside bike lanes brings together sustainable transport and climate resilience. They provide a natural buffer between cyclists and traffic, improving safety, comfort and air quality. The result is a more attractive, biodiverse, and functional street environment that encourages active travel.


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SuDS Planters


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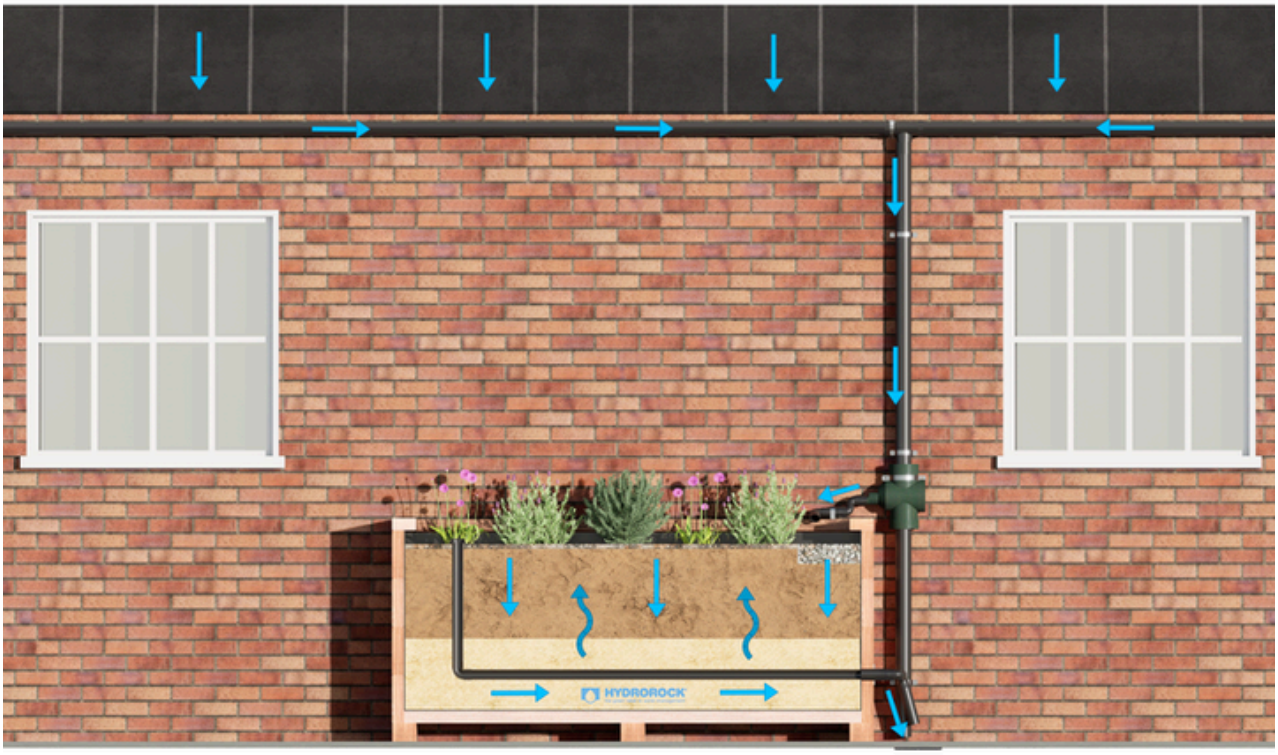
What is a SuDS Planter?

Our SuDS planters are designed to manage rainwater sustainably in urban environments. By incorporating natural elements like vegetation, these innovative systems slow the flow of water, reducing runoff and the risk of flooding.

Sustainable Urban Drainage Systems (SuDS), like our AquaPlanter®, address the challenges posed by impermeable surfaces in cities, helping to manage surface water, improve water quality, and create greener, more climate resilient spaces.

A versatile water management system, these planters can be installed in urban areas, commercial settings, school estates and residential properties to effectively reduce the risk of surface water flooding.



How does it work?

A SuDS planter makes use of the water that lands on the roof. Water from the downpipe is directed into the planter.

The soil/compost mix absorbs and stores the rainwater for the plants to use. Excess rainwater filters into the gravel layer where it is stored and at a controlled rate released from the base drainage pipe.

Tanked with an internal drainage system including an overflow and drainage outlet pipe, ready to fit into the existing site drainage system.

The planter is lined to form a waterproof seal to retain the stormwater for regulated slow release.

Fabricated in our London workshop and perfectly designed to fit into any urban setting, seamlessly working with any existing drainage infrastructure.

Planter Features

Planting

Mulch layer

Gravel tray scour protection

Rainwater diverter

Downpipe

Geotextile membrane

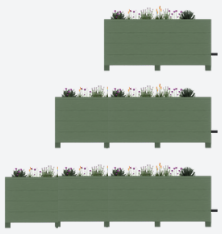
Drain

Shingle subsrate

Perforated pipe

Selecting your planter size

Size	Dimensions	Storage (litres)
Small	1000 x 800 x 950	300-400
Medium	1600 x 800 x 950	400-800
Large	2400 x 800 x 950	800+



Customisation

Powder-coated steel

- ✓ Highly resistant to weather and rust
- ✓ Enhanced durability and long lasting

Painted Timber

- ✓ Custom RAL colours
- ✓ Quality finish

Engagement/Education

- ☆ Bespoke seating and children's steps
- ☆ Engaging inlets and custom rain features
- ☆ Educational artwork and play items

Bio Habitat

- Includes watering hole for birds and amphibians
- Incorporates bee bricks, bug hotel, and hedgehog house
- Provides compost zone and hollow stems

Benefits

Bespoke design

The planters are available in various sizes, colours and shapes and can be tailored to meet your requirements. Available in hardwood timber, treated softwood and powder coated steel.

Environmental Benefits

Using natural processes, SuDS planters improve water quality and quantity while supporting biodiversity, contributing to the creation of new drainage systems that are more environmentally friendly.

Nationwide Installation

Crafted and fully assembled in our London workshop, with installation and delivery services across the UK.

Award-Winning Innovation

Recognised for their significant contribution to sustainability and flood resilience at the prestigious Flood and Coast Awards.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SuDS Planters in Schools

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Transforming spaces with innovative SuDS Planters

SuDS (Sustainable Drainage Systems) planters offer practical learning opportunities about water management and sustainability.

They enhance outdoor spaces by integrating greenery, improve drainage on campuses, and help reduce surface water flooding, creating safer environments for students and staff.

Co-benefits of SuDS Planters for Schools

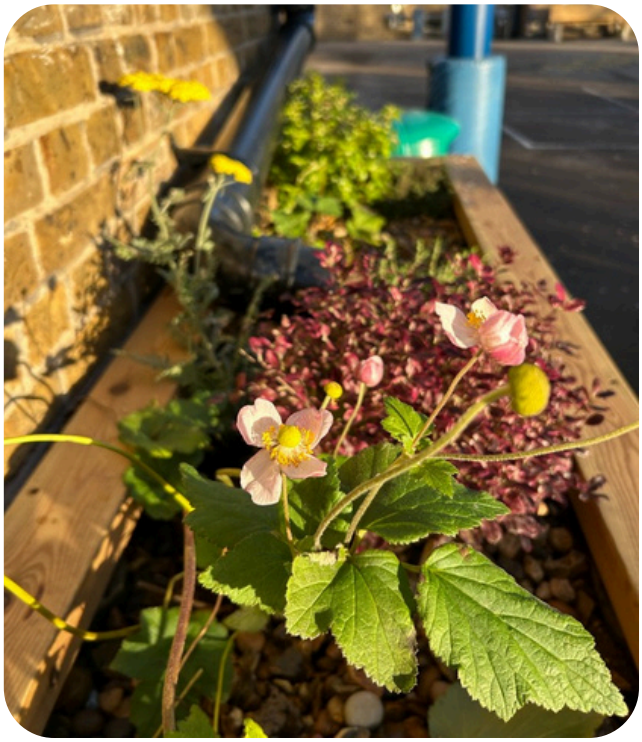
Better Flood Control: Absorb rainwater, reducing flooding risks on campus.

Cleaner Air: Planting improves local air quality and reduces CO_2.

Learning & Wellbeing: Opportunities for outdoor learning, wildlife habitats, and mindful spaces.

Cooling Effect: Reduces urban heat and creates more comfortable outdoor areas.

Food Education & Herb Planting: Schools may also choose herb planting, reconnecting children with food and encouraging them to grow, taste, and care for produce.



Engagement

Engaging inlets and custom rain features

Nature Workshops

School children planting days and interactive workshops

SuDS Planters - Hammersmith and Fulham Council

SuDS Planters - Westminster Council

Education

SuDS (Sustainable Drainage Systems) planters offer fun ways for school children to learn about their environment and how to care for it.

By installing features that give them a visual way of understanding how they work, this not only improves their learning experience but enhances the look of the school ground. Features can include:

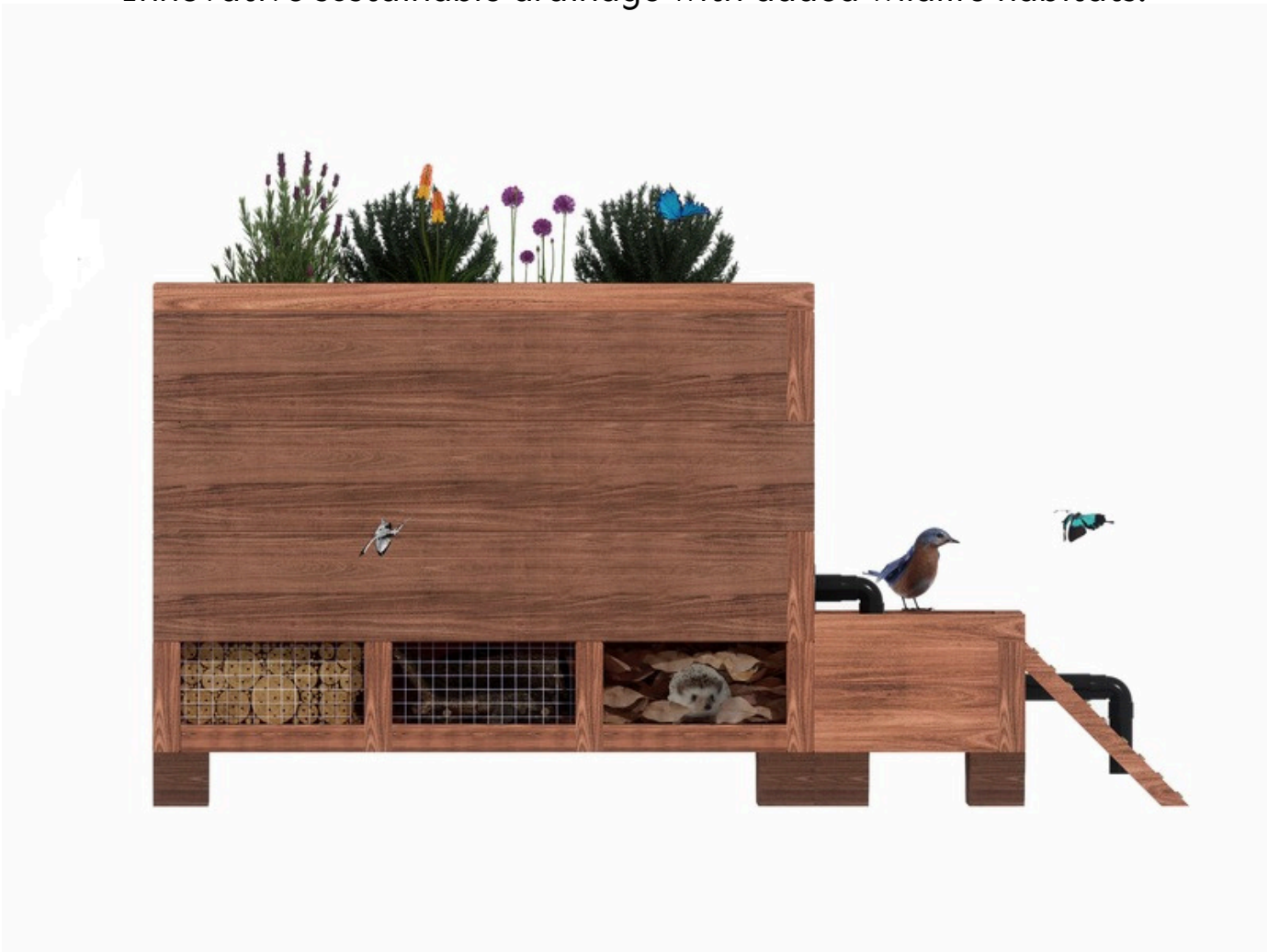
- Boat races in water pipes
- School children designed artwork
- Educational information boards
- Cascading water flows
- Bespoke water flow diverters
- Planted wall hoppers and clear downpipes

Education

Educational artwork, downpipes and play items

Bio Habitat SuDS Planter

Innovative sustainable drainage with added wildlife habitats.



The Bio Habitat SuDS Planter is an innovative sustainable drainage solution designed to deliver climate resilience while actively supporting urban biodiversity.

Combining all the water management capabilities of our standard SuDS planter with integrated wildlife features, it provides a multifunctional green infrastructure tool that captures the imagination and inspires environmental engagement.

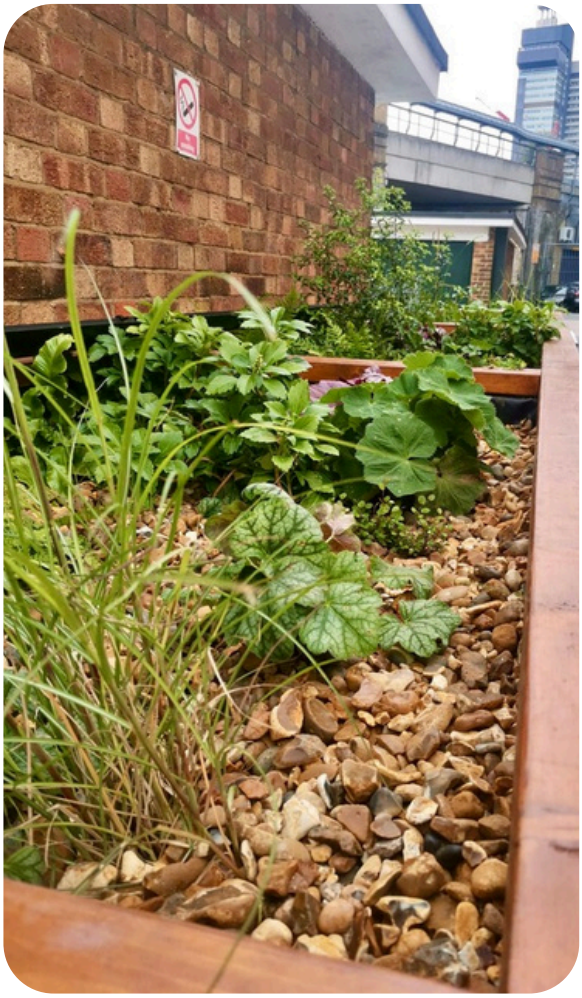
Ideal for schools, streetscapes and public spaces

Features

- Includes watering hole for birds and amphibians
- Incorporates bee bricks, bug hotel, and hedgehog house
- Provides compost zone and hollow stems

SuDS Planters in Public Spaces

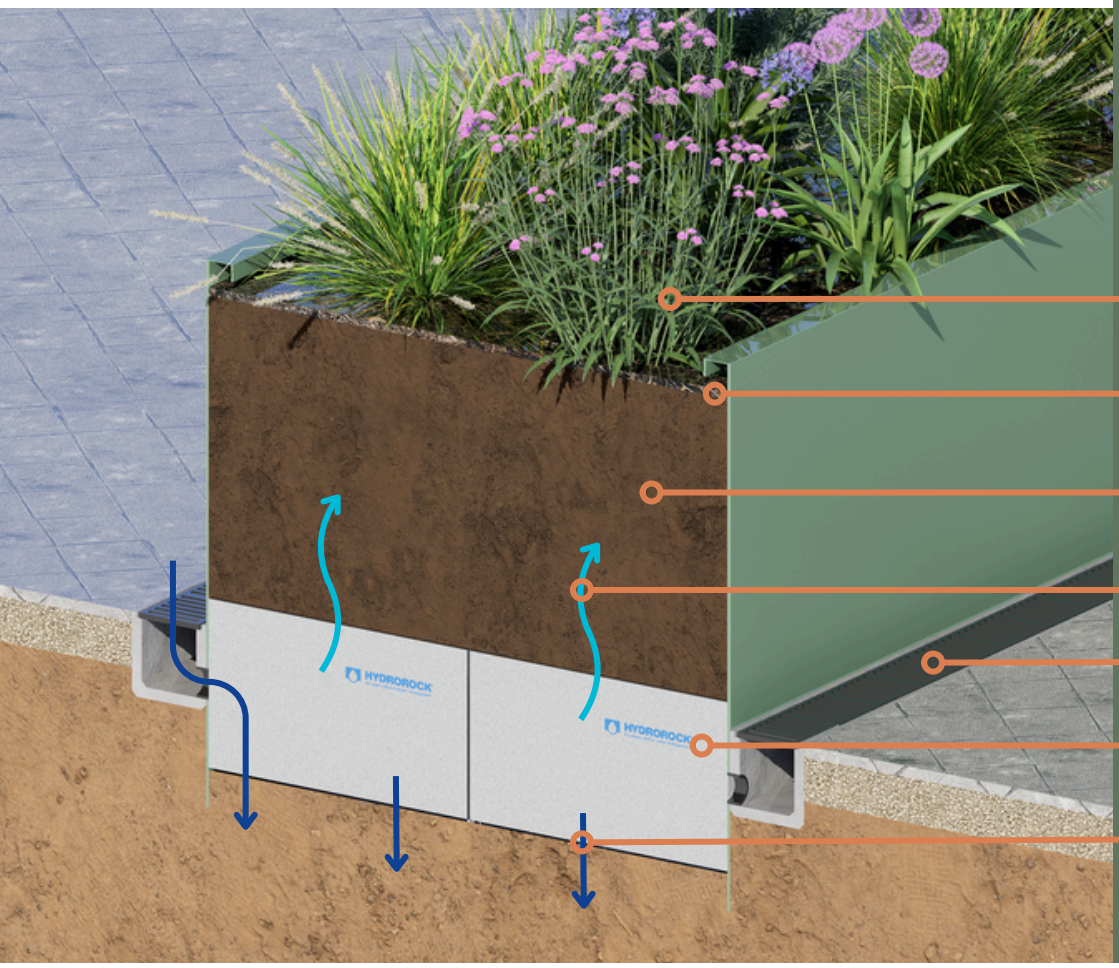
Our award-winning SuDS planters offer an innovative solution for urban flood risk and pollution control, by effectively absorbing, filtering and retaining rainwater. These help to reduce the burden on traditional or older drainage systems



Hybrid SuDS Planter

Hybrid SuDS Planters

Combines innovative SuDS Planters technology with Rain Gardens



Hybrid SuDS System for Water Attenuation and Flood Management.

- Biodiverse planting
- Mulch layer
- Soil
- Water drawn up to soil via capillary action
- Channel drain
- Hydrorock attenuating medium
- Excess water infiltration to ground

The biggest challenge with installing rain gardens into our towns is the amount of utility services running underground.

Our customisable Hybrid SuDS Planter can mitigate this with its shallow, Hydrorock filled base. This prevents the need for deeper excavation and allows water to flow in and be absorbed upwards into the planting substrate.

This capillary action provides both storage and a gradual release of surface water back into the drainage system, helping to reduce pressure on the drainage network.

To find out more email enquiries@meristemdesign.co.uk

Hybrid SuDS Planters

- Customisable to fit any site's drainage requirements
- Suitable for locations including soft ground, paving or tarmac surfaces
- Can include trees, seating and custom planters
- Planted with a mix of drought-tolerant and low-maintenance species


Soft ground
installation

Paving installation

Tarmac installation


Tree planting

To find out more go to
meristemdesign.co.uk

Meristem Design
45-47 Clerkenwell Green,
London, EC1R 0EB

+44 (0) 20 31376971

@meristemdesign