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#gardens #raingardens #suds  
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# CPRE London Front Gardens 10 minutes!!

**Wendy Allen**  
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# Rain Gardens and Rain Planters: Layers and Levels of Giving Back with Simple SuDS

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# Rainwater Pathways - Garden as Catchment



## 'The Rain Chain' RHS Hampton Court Palace Flower Show 2009

Designed and built by Wendy Allen Designs, **Gold** medal & Best Sustainable Garden.



- Rain gardens and rain planters are two examples of **SuDS components**



# Rain Chains - Examples - Pinterest







# London front gardens from 2010-2011

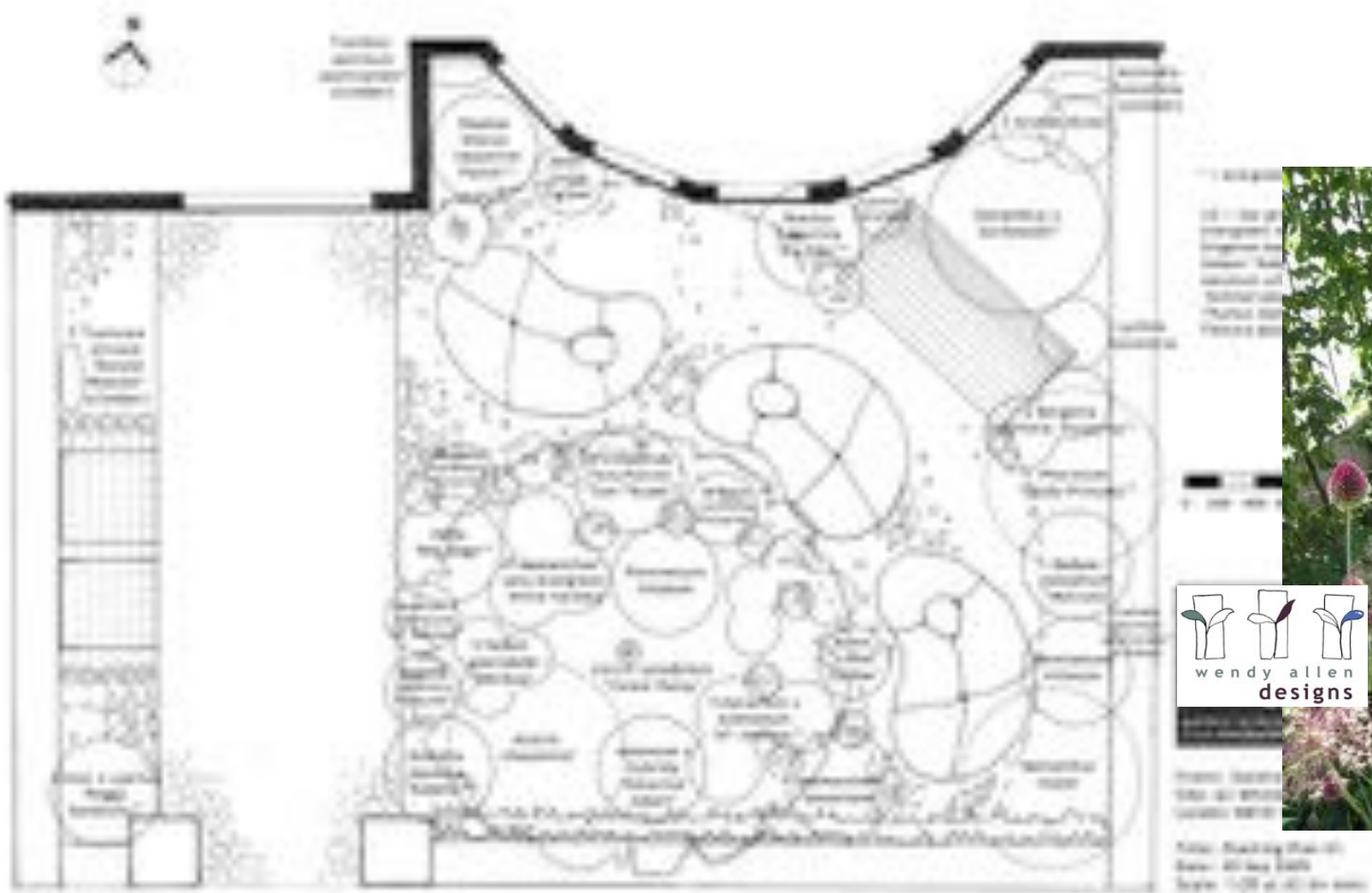
## Permeable surfaces with crushed brick mulch

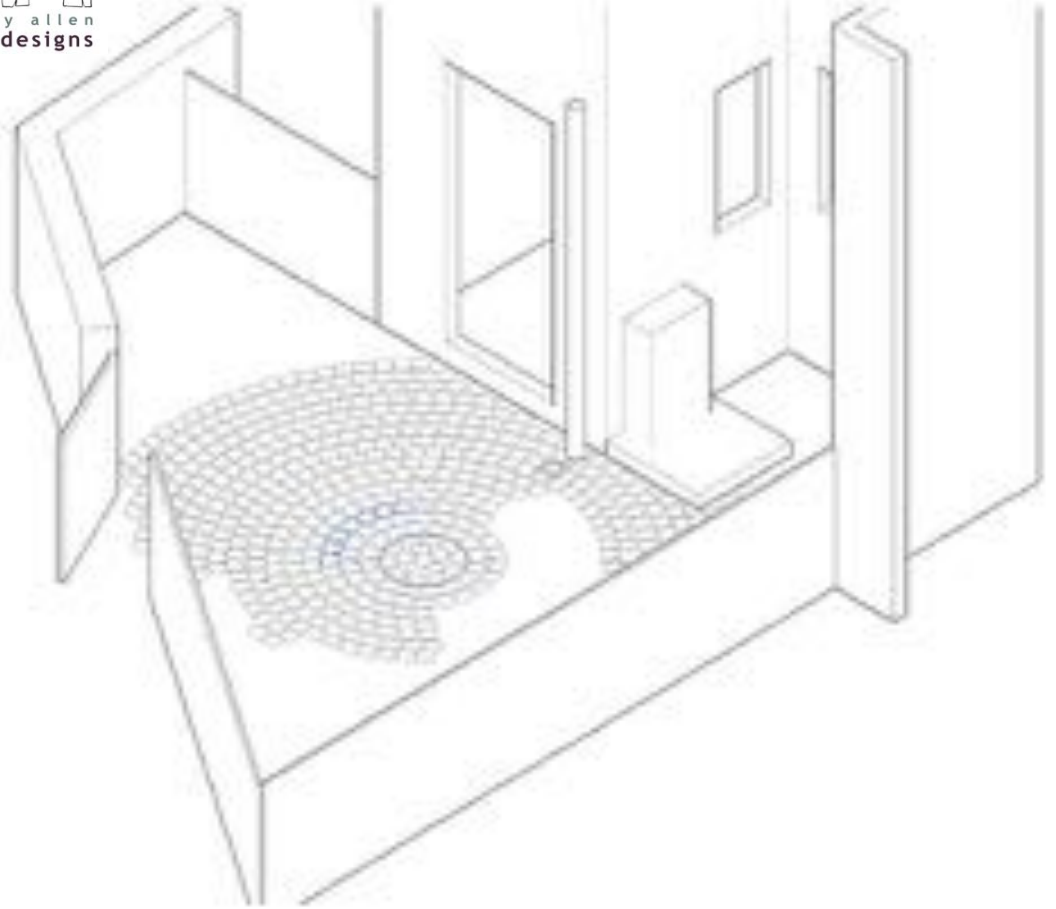
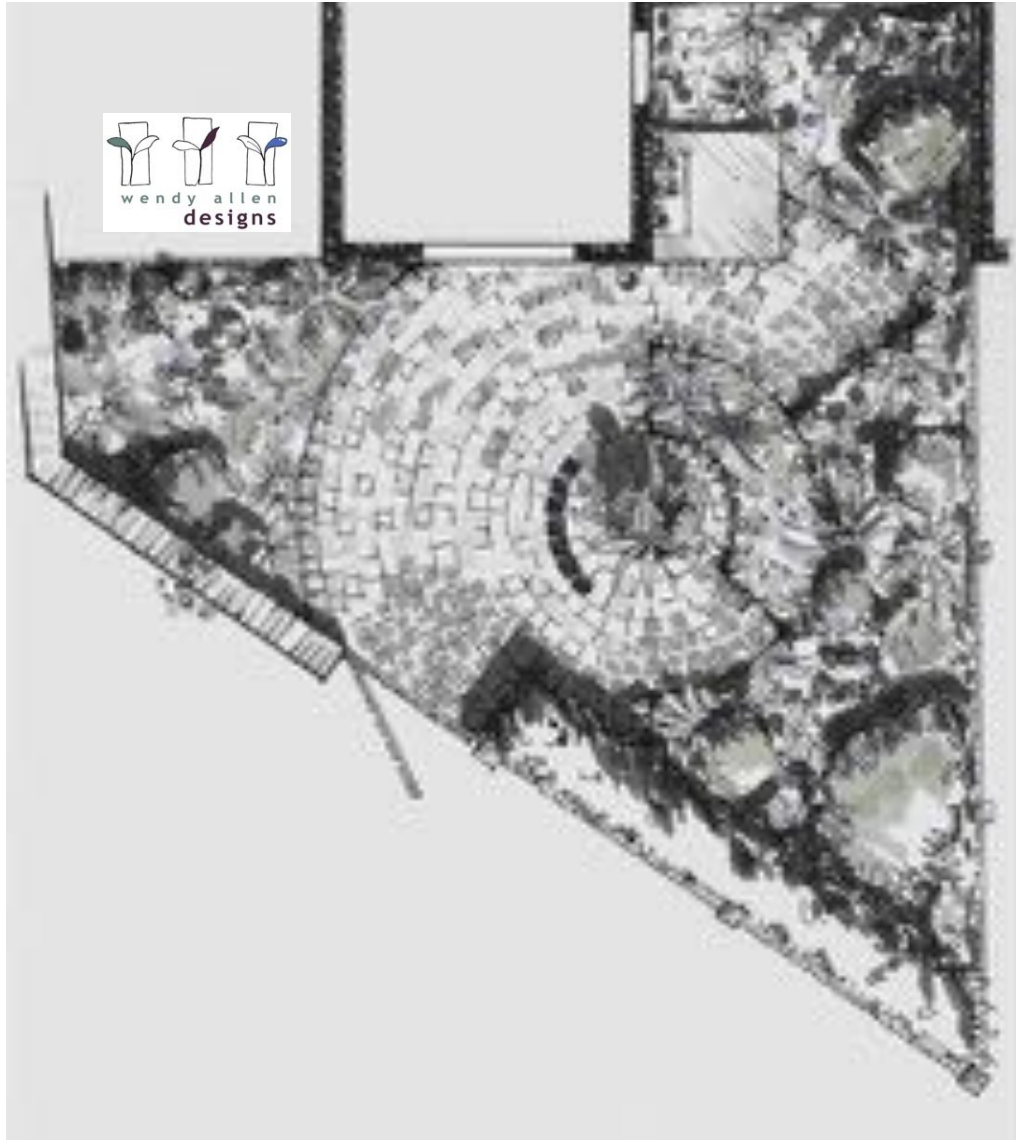
- Real plants!















# Front Gardens



Be aware that **any NEW or REPLACEMENT paved area over 5 square metres (m<sup>2</sup>) at the FRONT of a property needs planning permission, unless:**

- 'It uses permeable (or porous) surfacing which allows water to drain through, such as gravel, permeable concrete block paving or porous asphalt, **or if the rainwater is directed to a lawn or border to drain naturally.**'
- Guidance on the Paving Front Gardens can be found here, but is not particularly clear, so may be confusing for homeowners:
- [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/7728/pavingfrontgardens.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/7728/pavingfrontgardens.pdf)
- **Remember - draining to a rain garden could be an option!**

Wendy Allen Designs 2011: A residential permeable driveway with granite sett paving, Type 3 sub-base, 6mm bedding layer, Rompox joints, and free draining planting strip under car

## 2011 - Wendy Moves to Wiltshire!

If you are looking for a great front garden designer in London - Wendy recommends:

Caro Garden Design

<https://www.carogardendesign.co.uk/>

- This is the info from Caro's website about the garden designed as an "example" for people who need/want to park their cars off road in front of their houses - <https://www.carogardendesign.co.uk/portfolios/greening-a-grey-front-garden/>
- And this is the link to the RHS website about the garden
- <https://www.rhs.org.uk/garden-design/how-to-green-your-grey-front-gardenn.co.uk>



# Achievable Rain Gardens as Retrofit

What does retrofit mean, and what UK rain garden guidance is out there?

- **UK Rain Garden Guide** free download from [www.raingardens.info](http://www.raingardens.info)
- **New development is only 1% of UK housing stock.**
- **Improving what we already have is incredibly important.**
  - For residential and small scale use
  - Dig a test pit and check infiltration rate
  - 20% of catchment area





## BUILDING A RAIN GARDEN Where?

- Lowest point in site, using gravity makes SuDS sense
- Recommend at least 3m from property, the building regulations 5m rule is for soakaways
- Consider overflow point
- Dig a test pit – involve stakeholders!



# Rivers Trusts - Action for the River Kennet



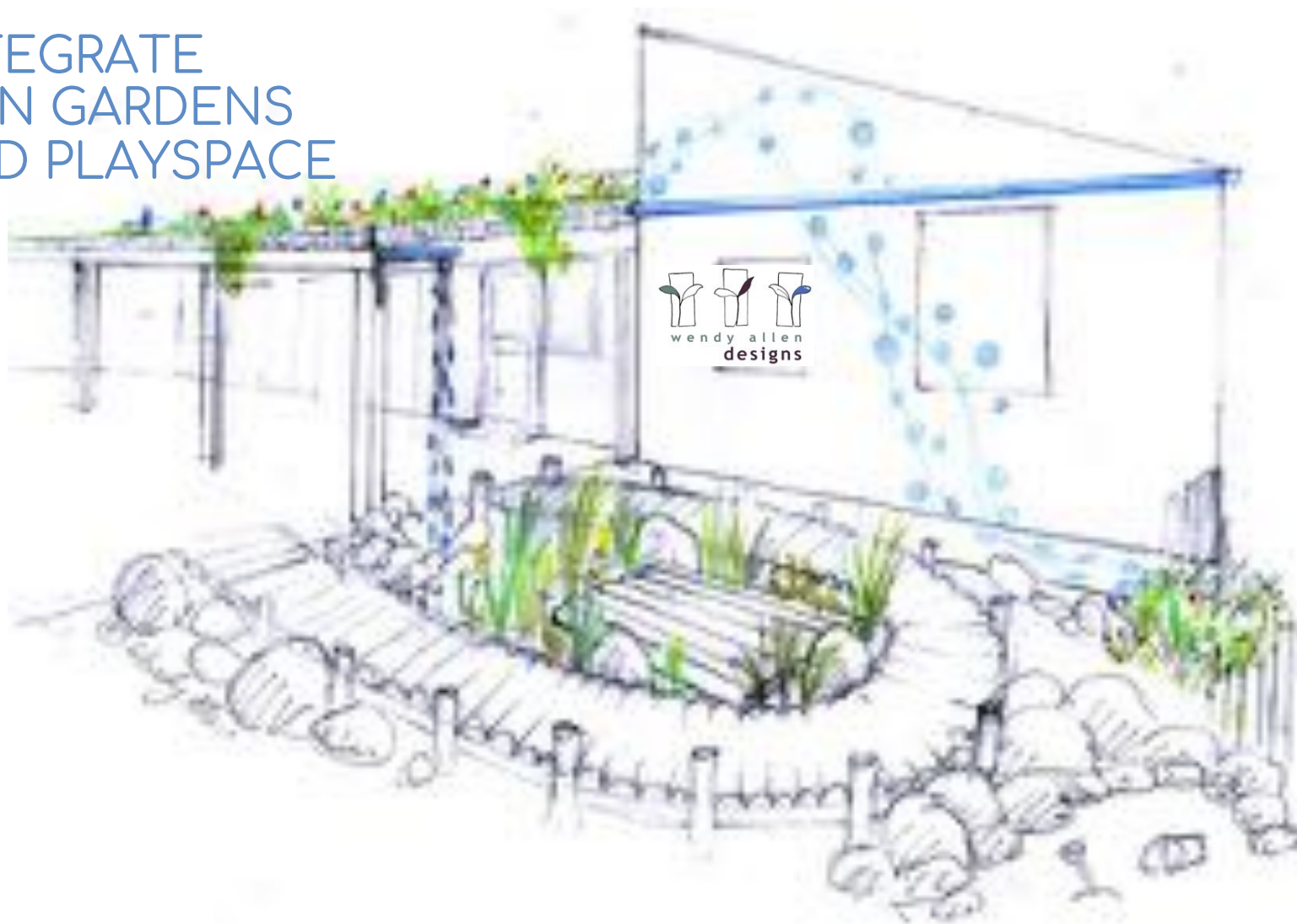
[Action for the River Kennet \(ARK\)](http://www.riverkennet.org)

[www.riverkennet.org](http://www.riverkennet.org)

Director Charlotte Hitchmough

All UK Rivers Trusts with their CBA Catchment Based Approach are great for Garden and Landscape Designers, contractors and community groups to forge links with

# INTEGRATE RAIN GARDENS AND PLAYSPACE





# Rain Gardens - fill with plants, not mulch



## NATURE BASED SOLUTIONS



An Action for the River Kennet project with garden designer Wendy Allen

# Ramsbury Primary School



An Action for the River Kennet project with garden designer Wendy Allen

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# You say Drainpipe, I say Downpipe

An Action for the River Kennet project with garden designer Wendy Allen  
Preshute Primary School, Manton



# Impermeable Surfaces



- Temperatures are increasing from climate change
- Warm air can store more water
- There may be longer periods of drought, but
- Rainfall intensity is increasing

This photo was taken by Wendy Allen during a **cloudburst rain event** Storm Aurore passed over SW Cornwall, Oct 2021

At least 30mm of rain fell on each square metre of surface in one hour before the local weather station rain gauges failed



Wendy Allen



## Water Butt Second Overflow

**To reuse the rainwater in another feature, e.g. a rain planter, dipping tank or rain garden, install a lower overflow on the water butt.**

- A new outlet can be drilled into the water butt below the diverter connection.
- The resulting outlet and flexible hose can direct the rainwater elsewhere, e.g. a rain planter.
- Jargon: Use a 25mm (1") flexible hose, the connector is a '25mm barbed hose tail to 1" Male threaded BSP'. With a back nut!
  - To drill the hole, use the correct diameter holesaw for the threaded (BSP) end.



# Water Butts - Volumes



220L



800L



1000L  
= 1 cubic  
metre(m<sup>3</sup>)



1,000+ litres is  
also one UK  
persons water  
for one week -  
or ONE HOUR of  
a hosepipe or  
sprinkler ...



- Useful IBC fittings available.
- Self-emptying water butts.



## Area in square metres for Volume of Run-off

'Catchment area' is the area that supplies your SuDS component with surface water run off - a roof, patio or domestic driveway = low contaminant.

If you know how big your roof or catchment area is in square metres, you can calculate how much rain will run off it as a volume - in litres.

**catchment area in  $m^2$**       E.g. roof size 4mx5m = 20 square meters  $m^2$   
**x rainfall event (depth) in  $mm$**   
**= volume of runoff in litres**

20 $m^2$  area x **5mm rainfall depth** = 100 litres of run-off

70 $m^2$  area x **5mm rainfall depth** = 350 litres of run-off

*50  $m^2$  x 20mm = 1000 litres*

# Rain Planters with Habitat



Gabion rain planters, designed and built by Wendy Allen.

Formed with two layers 50mm weldmesh sheet cut to size, 150mm gap reinforced, filled with reclaimed local aggregate and lined with underlay and EPDM.



An Action for the River Kennet Project



# Mini Biodiversity with Considered Planting



Photo: Swansea Community Farm

Swansea  
Community Farm.  
Design by Wendy  
Allen and build to  
teach local  
volunteers about  
local Heath habitats  
– and rain planters.  
Local provenance  
plants sourced from:



Swansea local  
mulch – cockle  
shells!

See [wendyallendesigns.co.uk/training](http://wendyallendesigns.co.uk/training)



### Rain Planters

A planter fed by rainwater which usually goes into a drain, usually go into a drain.

- Disconnect the Downpipe
- Sealed unit - various options for your design to add to - get most use
- Rainwater (surface water) is contained, filtered, slowed
- Key advantage - unlike infiltration rain gardens, rain planters can be positioned close to buildings.
- Outflow can be directed back down the original drain or PREFERABLY onwards into the garden.

### Plants and Soil for Rain Gardens

Despite the name, rain gardens only contain shallow water for brief periods after heavy rain. Rain gardens are free-draining. Clay soil may not be suitable. Rain gardens are mostly dry features, unless after 24 hours. Plants should be able to withstand brief waterlogging but also be drought tolerant.

**INFILTRATION**

I am not a pond!

### Cross Section of an Infiltration Rain Garden

Water slowly infiltrates to join groundwater or aquifer

Water slowly infiltrates to join groundwater or aquifer



# SuDS: A Few Useful SuDS Resource Links (and a mailing list in progress) [www.wendyallendesigns/training](http://www.wendyallendesigns/training)

Compiled by Wendy Allen Designs

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*Infiltration rain gardens, filtration rain planters, creative biodiverse simple domestic garden retrofit small SuDS solutions - online training & consultancy  
@wendyallendesigns*

# A Few Useful SuDS Resource Links

Compiled by Wendy Allen Oct 2024. Suggestions only; no responsibility for link content or costs



**CIWEM:** some excellent free webinars about the wider water industry [www.ciwem.org/events](http://www.ciwem.org/events)

**CIRIA** [www.ciria.org](http://www.ciria.org) – UK industry best practice including C753 SuDS Manual, and training for industry professionals.

Relevant publications for retrofit include: C768 Guidance on the construction of SuDS, C713 Retrofitting to Manage Surface Water, Using SuDS Close to Buildings, Health and Safety Principles for SuDS RP992

**susdrain** - [www.susdrain.org](http://www.susdrain.org) An excellent blog post here about how to best navigate the minefield of information on the website: <https://www.susdrain.org/community/blog/new-to-suds/>

**SuDS:** <https://robertbrayassociates.co.uk> landscape architects has excellent portfolio examples and public realm SuDS training

**GLA SuDS by Sector Overview Guidance:** Schools, Social Housing, Parks, Hospital, Commercial, Retail

<https://www.london.gov.uk/what-we-do/environment/climate-change/surface-water/suds-sector-guidance>

Look up Sheffield's Grey to Green scheme, and also see University of Sheffield's

[https://orda.shef.ac.uk/articles/report/Community\\_Engagement\\_for\\_Nature-Based\\_Solutions/21997478](https://orda.shef.ac.uk/articles/report/Community_Engagement_for_Nature-Based_Solutions/21997478)

**Guides from other countries are useful references too:** especially the US, Denmark and Melbourne - rain gardens originated in the 1990s in Portland, Oregon, and this state has a wealth of US guidance now on <https://extension.oregonstate.edu>

**UK Rain Garden Guide** for small scale domestic retro-fit **free download:** [www.raingardens.info](http://www.raingardens.info)

**RHS – advice for gardeners:** <https://www.rhs.org.uk/gardening-for-the-environment/water>

**Slow The Flow** Natural Flood Management in Calderdale: <https://slowtheflow.net/you-can-slow-the-flow-at-home/>

*A great SuDS start:  
<https://sudsguide.uk/>*