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Landscape Led Solutions for Water Management

Integrating water management and green spaces

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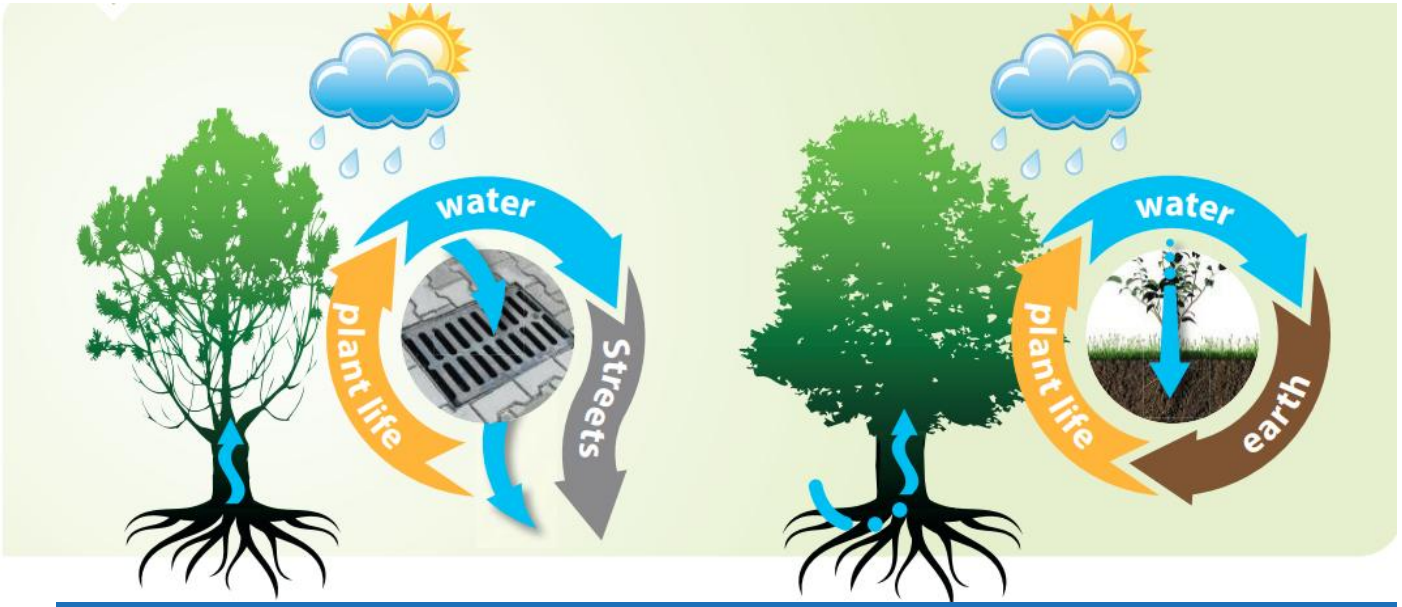
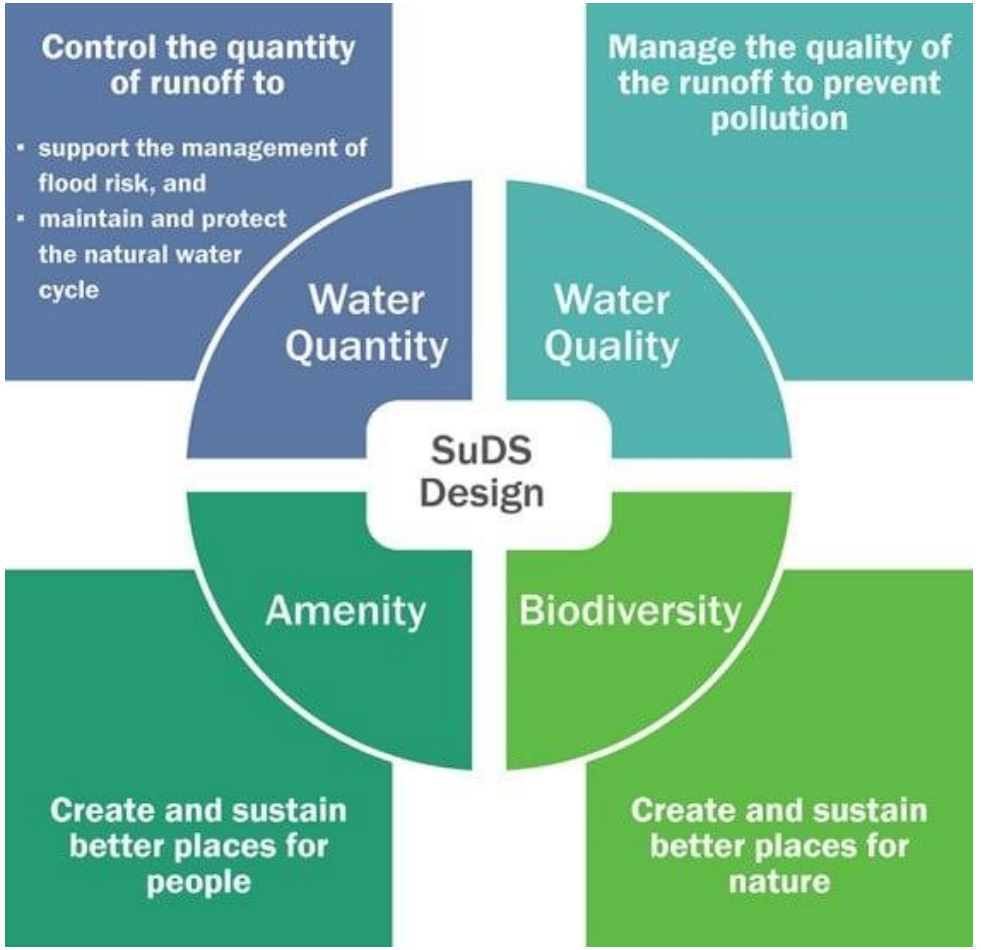


Guidance

National standards for sustainable drainage systems (SuDS)

Published 19 June 2025




ROAD
CLOSED
DUE TO
FLOODING

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Sponge Cities

"A sponge city absorbs and holds excess water that results from rainfall, storms or flooding in its green spaces – essentially acting like a sponge."

Prof. Kongjian Yu

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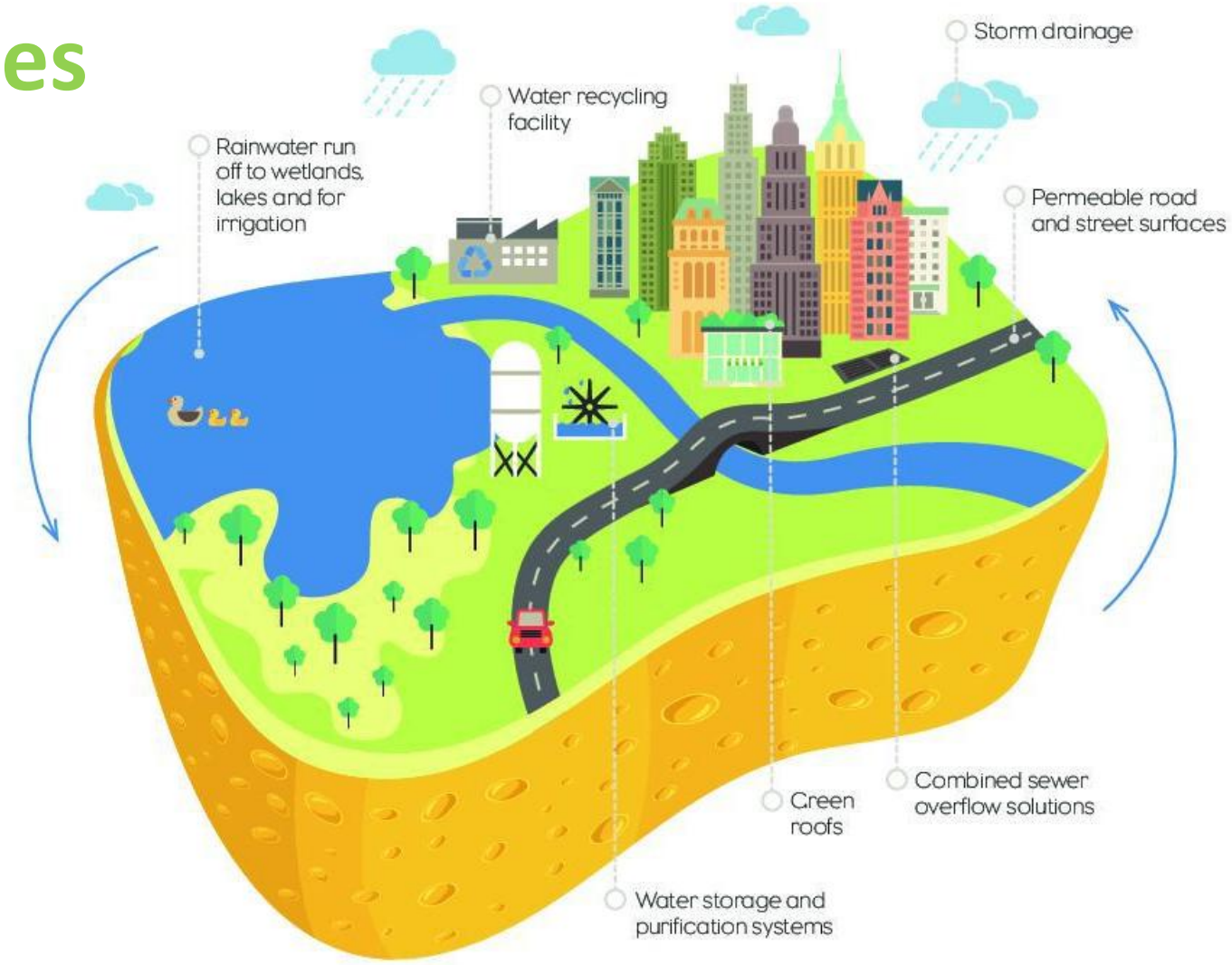
Benefits of Sponge Cities

- Stores excess water from storms reducing flood risk
- Supports and provides water supply
- Improves air quality
- Creates green spaces for communities



LINGANG STARRY SKY, SHANGHAI

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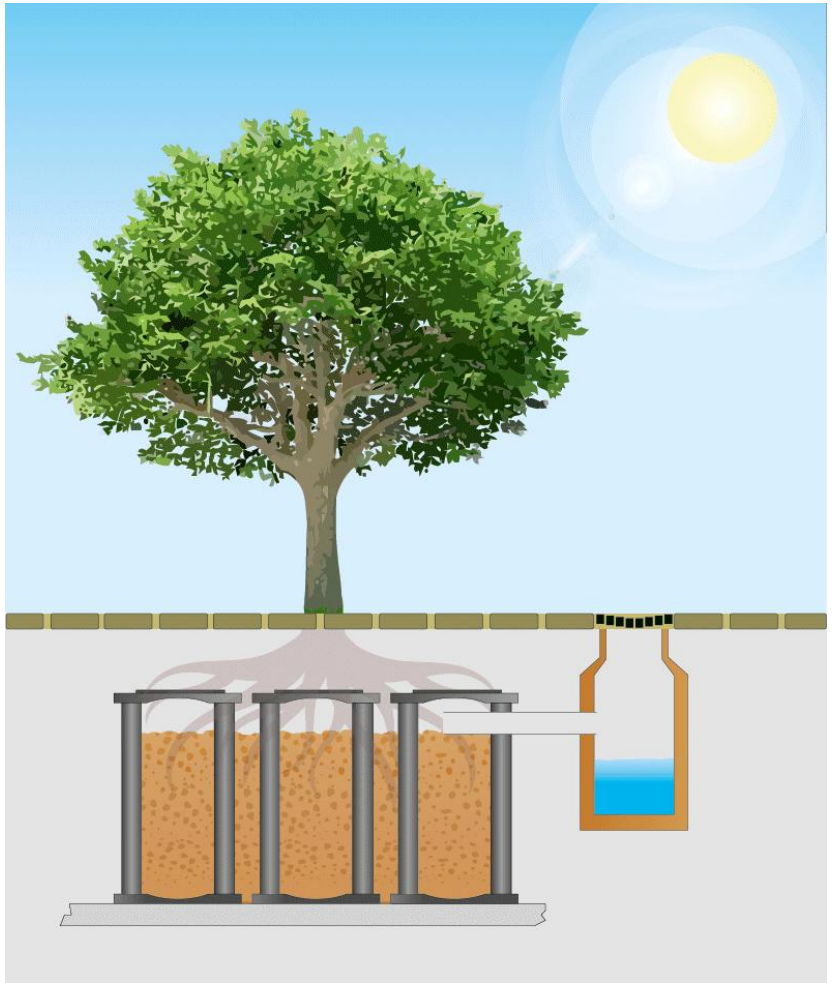
Nature Based Solutions

"Nature-based infrastructure in cities is **42% less expensive** than grey infrastructure and provides **36% more value** when accounting for avoided costs and co-benefits."



green-tech		File: sk1-greentech.pfd Network: Storm Network AMP 16/02/2024	Page 1 Tree Pit Infiltration 3.6m x 3.6 Example

Design Settings

Rainfall Methodology	FSR	Maximum Time of Concentration (mins)	30.00
Return Period (years)	100	Maximum Rainfall (mm/hr)	50.0
Additional Flow (%)	0	Minimum Velocity (m/s)	1.00
FSR Region	England and Wales	Connection Type	Level Soffits
M5-60 (mm)	20.000	Minimum Backdrop Height (m)	0.200
Ratio-R	0.400	Preferred Cover Depth (m)	1.200
CV	0.750	Include Intermediate Ground	✓
Time of Entry (mins)	2.00	Enforce best practice design rules	✓

Nodes

Name	Area (ha)	Cover Level (m)	Easting (m)	Northing (m)	Depth (m)
Depth/Area 1	0.025	100.000	15.378	67.431	1.180

Simulation Settings

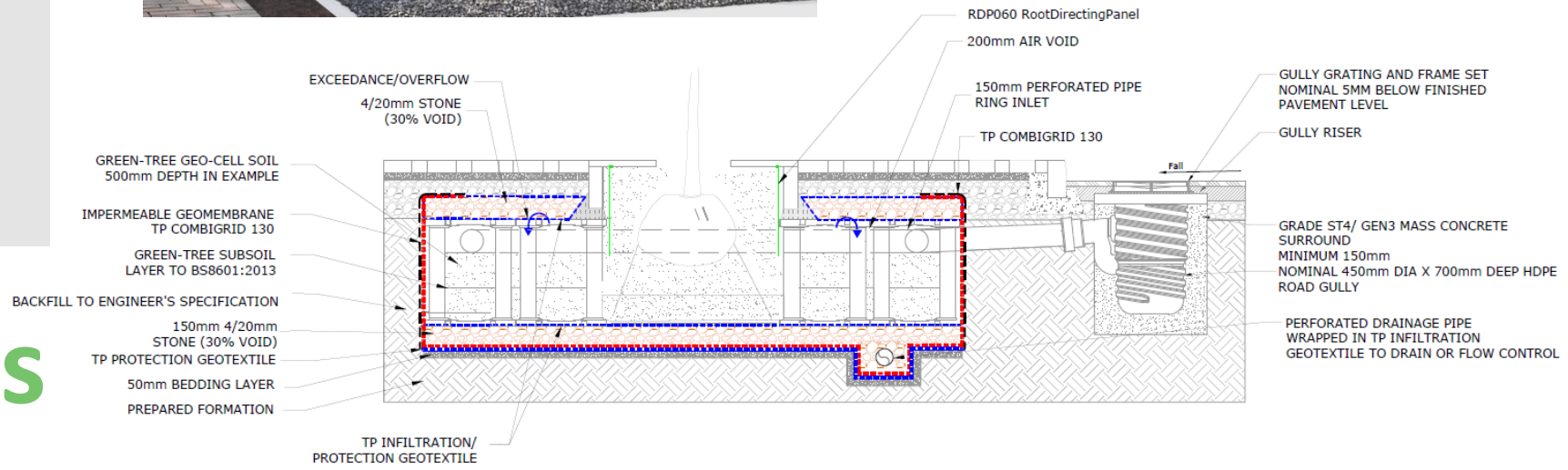
Rainfall Methodology	FSR	Analysis Speed	Normal
FSR Region	England and Wales	Skip Steady State	x
M5-60 (mm)	20.000	Drain Down Time (mins)	240
Ratio-R	0.400	Additional Storage (m³/ha)	20.0
Summer CV	0.750	Check Discharge Rate(s)	x
Winter CV	0.840	Check Discharge Volume	x

Storm Durations

15	30	60	120	180	240	360	480	600	720	960	1440

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
1	0	0	0
10	0	0	0
30	0	0	0

Urban Tree Pits and SuDS



SK2 - TREEPARKER SUDS TREEPIT
700mm DEEP TREEPARKER SYSTEM WITH 200mm AIRGAP AND 150mm CLEAN STONE TOP AND BASE

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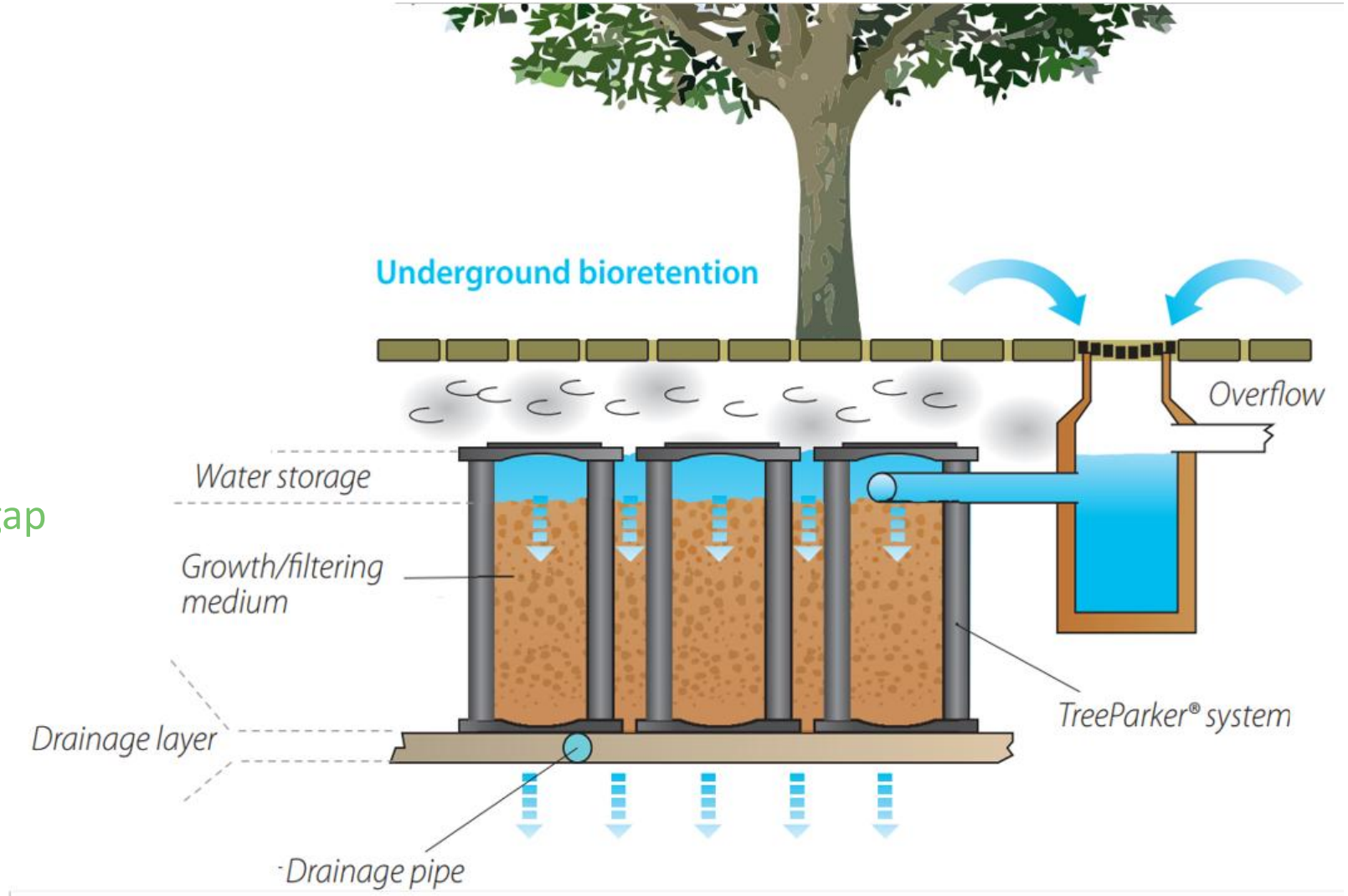
SuDS Tree Pits

1 medium tree = 14m3 soil volume

4.8m x 4.8m @ 800mm deep
600mm soil volume + 200mm water gap

= 4.6m3 water storage/4,600ltrs!

+ 240 Overflows!



Bioretention soil

Type

- Standard
- High performance

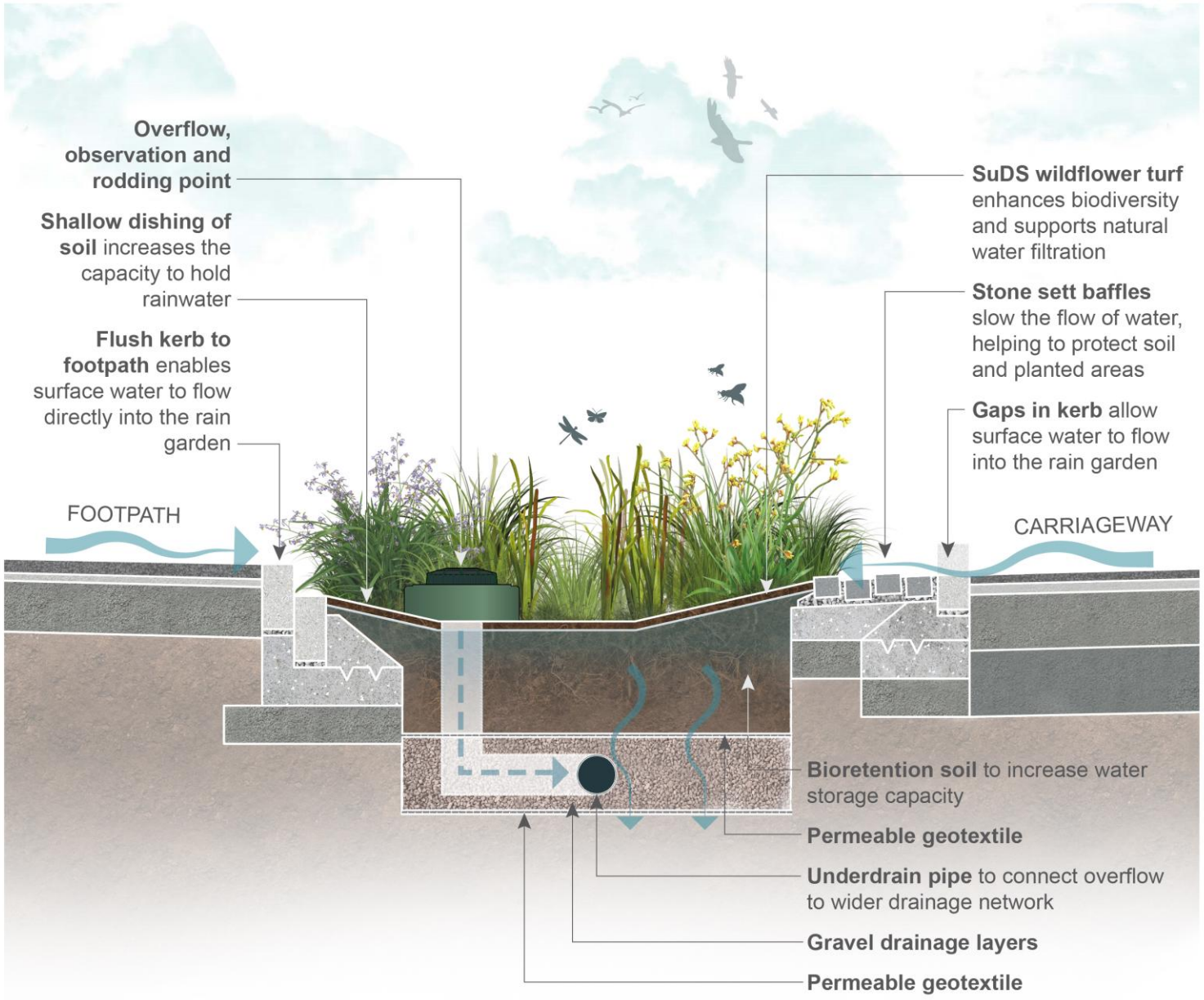
Total Porosity

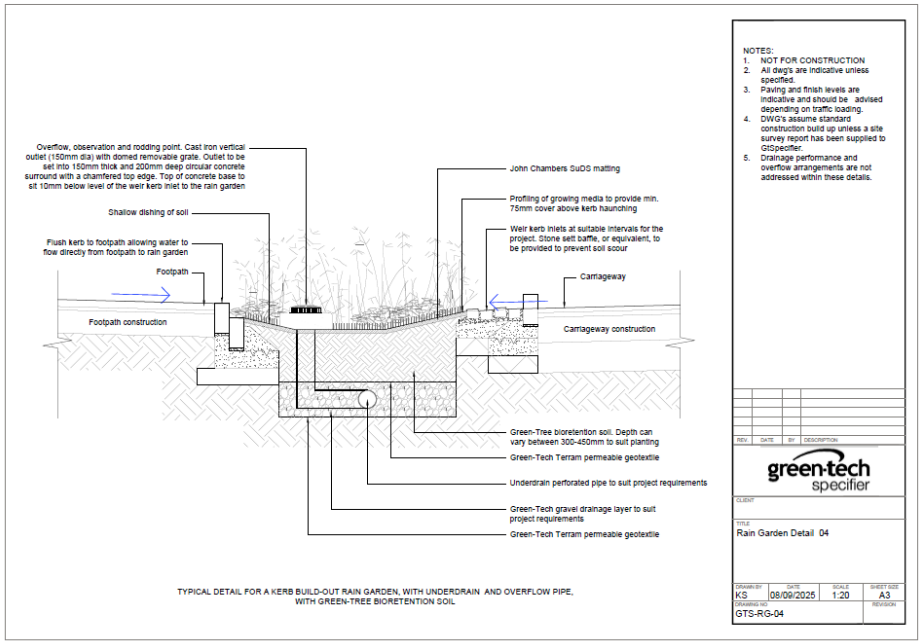
- 38.6% - 42.9%

Saturated Hydraulic Conductivity

- 2.1mm – 6.2mm (min-1)
- 126.00mm – 372.00mm (hour1)

RAIN GARDENS





TYPICAL DETAIL FOR A KERB BUILD-OUT RAIN GARDEN, WITH UNDERDRAIN AND OVERFLOW PIPE, WITH GREEN-TREE BIORETENTION SOIL

WWW.GTSPECIFIER.CO.UK

GREEN ROOFS

Green roofs as source control for SuDS:

The table below highlights the reduction in rainfall run-off, as the depth of substrate increases.

ROOF TYPE	RUN-OFF PERCENTAGE
STANDARD	81%
STANDARD + 50mm of Gravel	77%
Green Roof + 50mm of Substrate	50%
Green Roof + 100mm of Substrate	45%
Green Roof + 150mm of Substrate	40%

Castlefields Manchester

Castlefields Manchester

Photo: Jill Jennings

8 JUNE 2025

United Kingdom and Ireland

50 km

EUMETSAT ASCAT and Sentinel-1

SWI-SWI002

Blue colours indicate high soil moisture

Great Britain

Ireland

United Kingdom

Brown pixels indicate dry conditions

DROUGHT EMERGENCY

ENGLAND

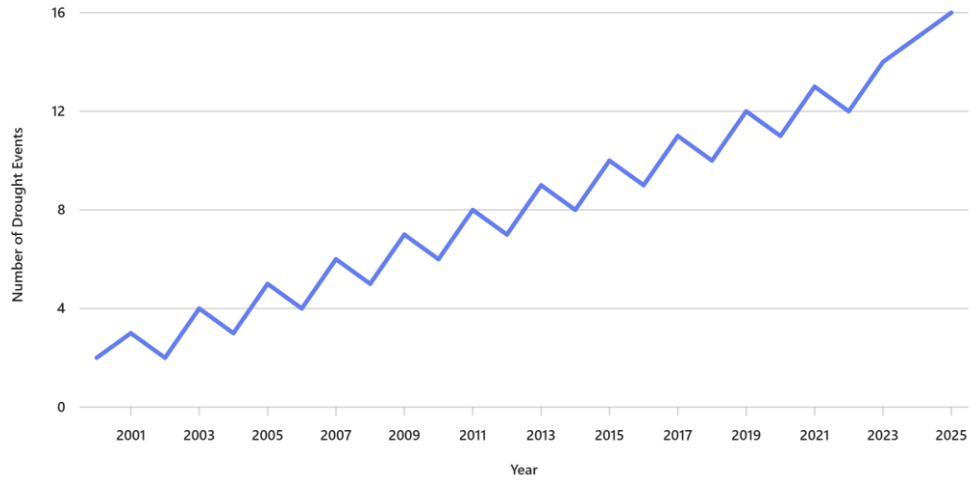
Devon and Cornwall
Solent and South Downs
Kent and South London
Herts and North London
East Anglia
Thames
Lincolnshire and Northamptonshire
East Midlands

PROGRAMME OF THE EUROPEAN UNION

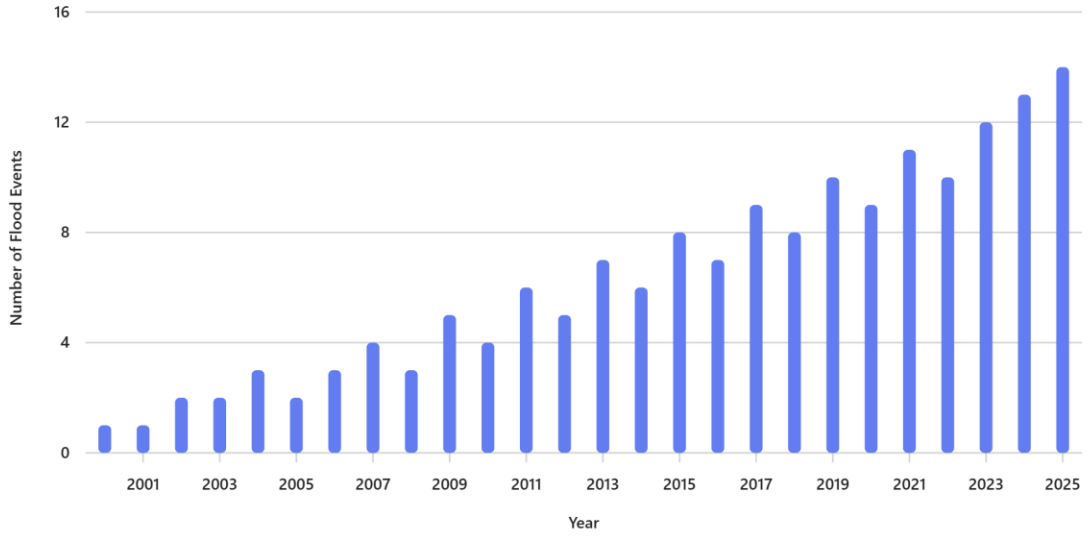
Copernicus Europe's eyes on Earth

esa

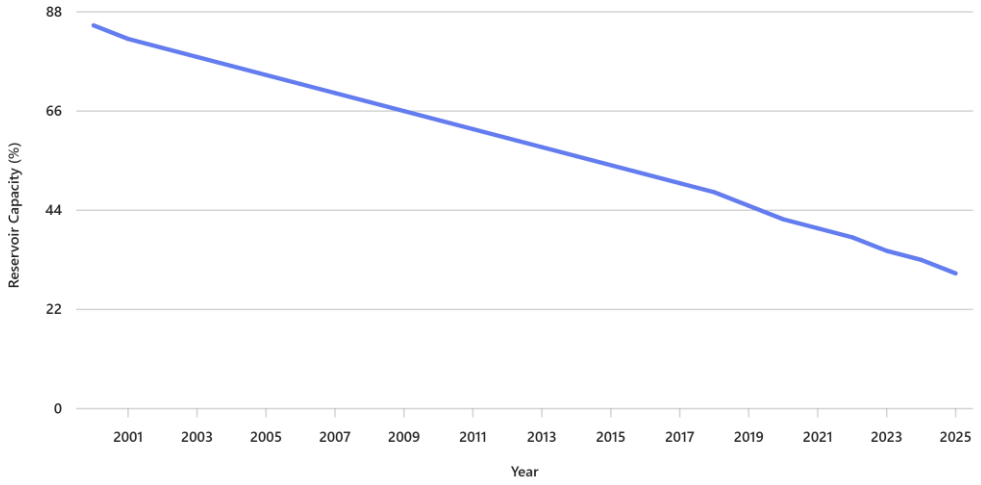
Increasing Drought Frequency (2000–2025)



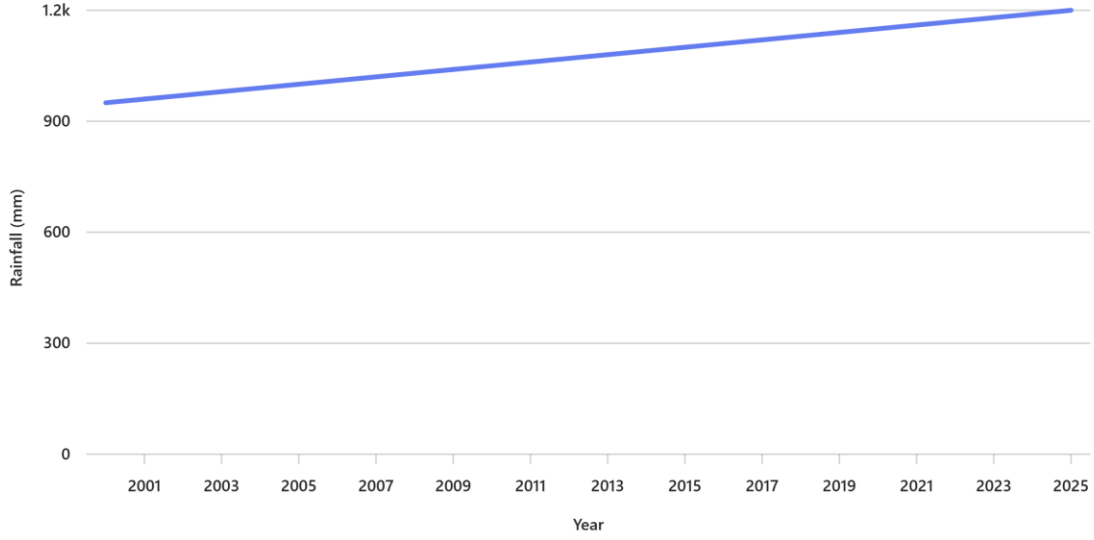
Flood Events Over Time (2000–2025)

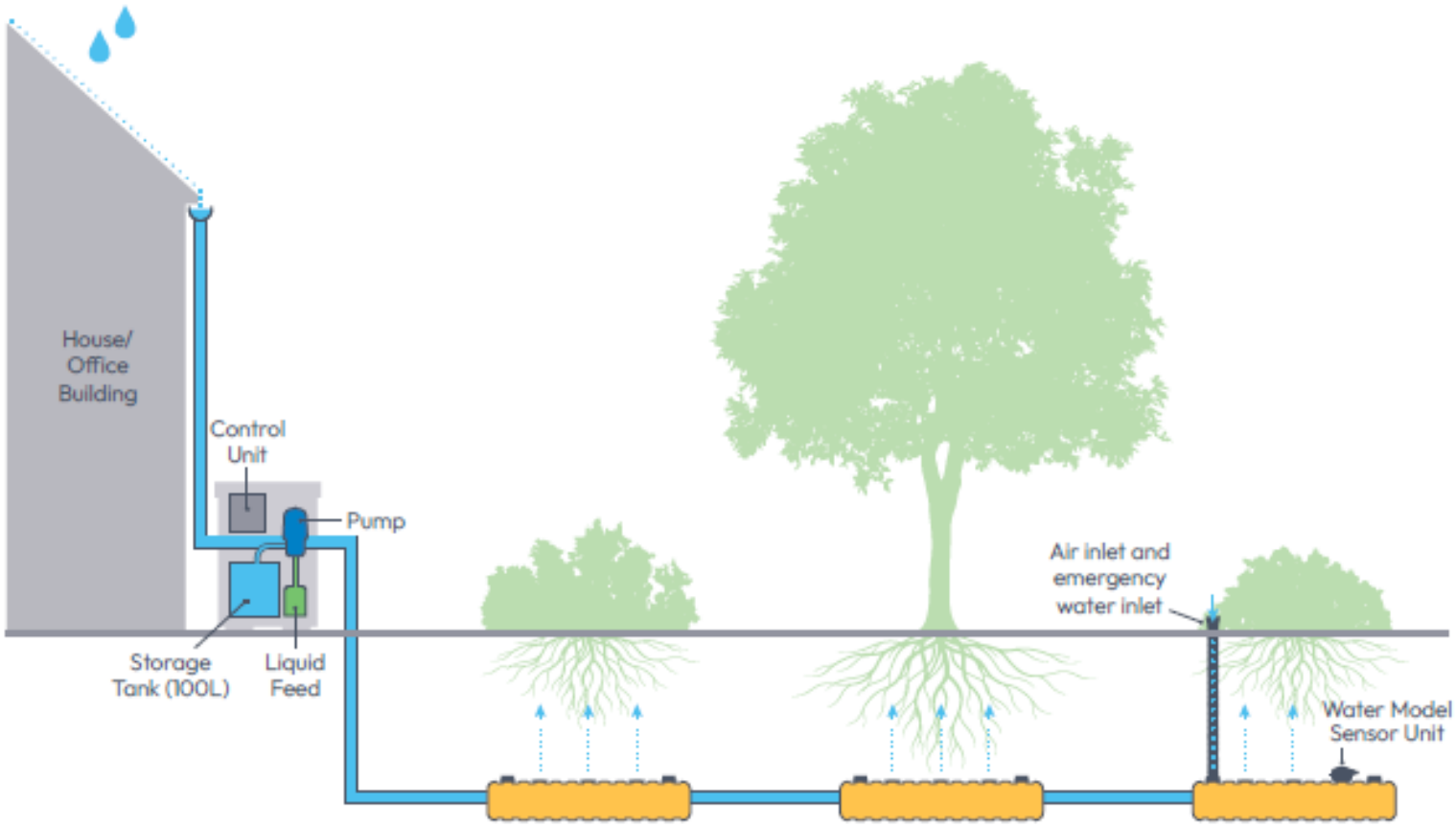


Declining Reservoir Levels (2000–2025)



Annual Rainfall Trend (2000–2025)





monapluvia
Inspired by Nature

Rainwater re-use for irrigation

Rainwater re-use - because it just makes sense!

- 🌧️ On demand irrigation - watering only when the plants need it.
- 🌧️ Resourceful use of water - rainwater not mains.
- 🌧️ No water wastage - closed loop system, no leaky pipe.
- 🌧️ 💰 Save money - no potted water required.

Save water, save time, save money – save the Landscape!

Any questions?

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