

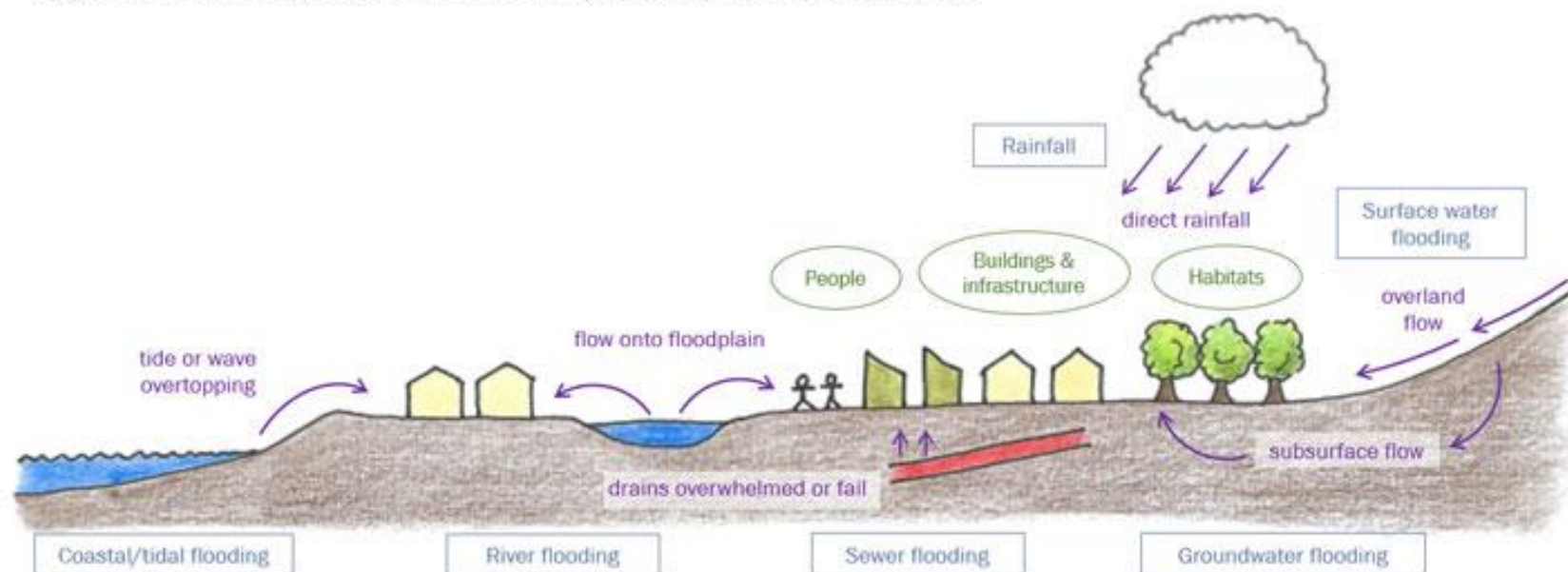
Natural Flood Management for Residents

Dr Chloe Apicella



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Types of flooding and the source-pathway receptor model

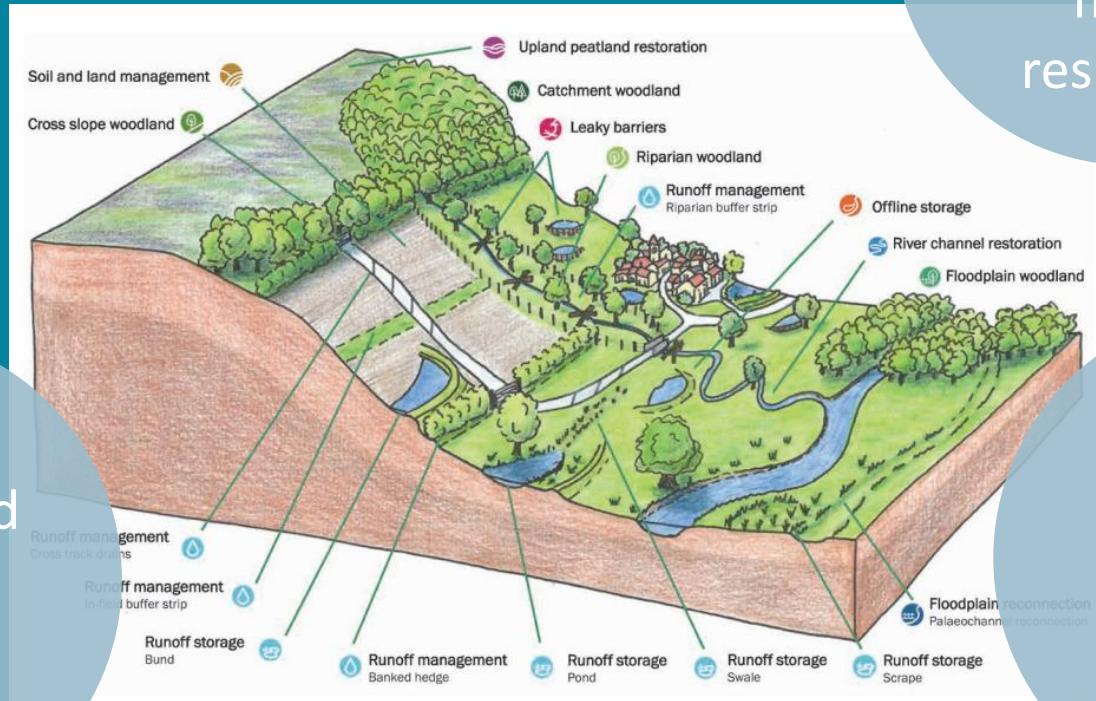


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Natural Flood Management (NFM)

Uses natural processes to increase flood resilience

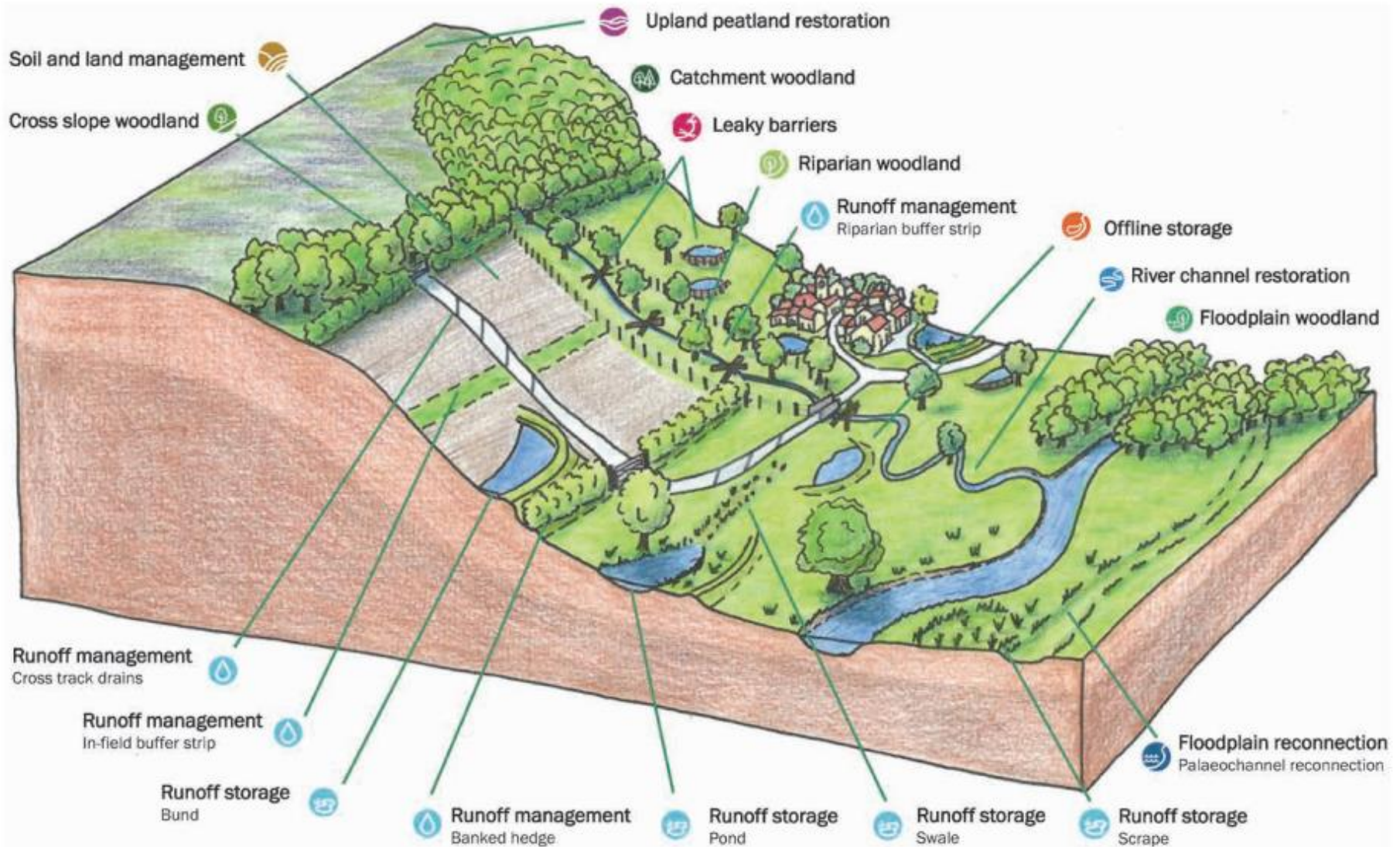
Protects, restores and mimics natural functions



Slows and stores water



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Floodplain reconnection

Chapter 12 provides more detail

What is floodplain reconnection?

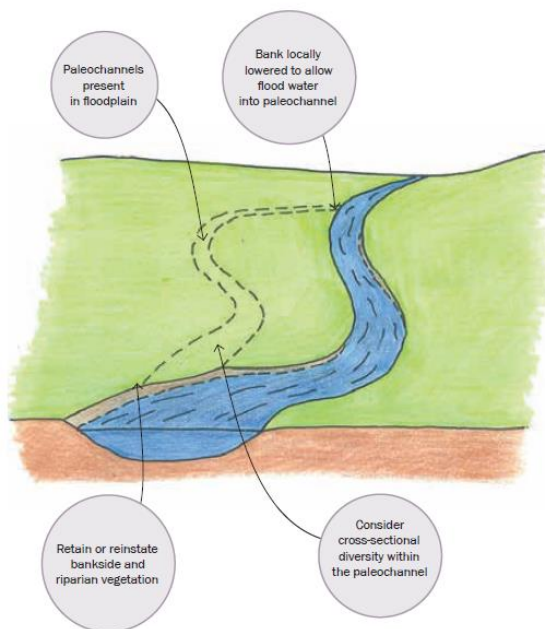
- 'Reactivation' of floodplains to reverse previously reduced connection between the river and its floodplain
- Increases the frequency and/or spatial extent of floodplain inundation
- Allows water to be stored outside the main channel in times of flood
- Deliver adjacent to the river channel, usually in the middle to lower reaches of a river catchment

Key metrics

- ££ Moderate to high cost
- Moderate build complexity
- Low maintenance requirements
- Indefinite design life

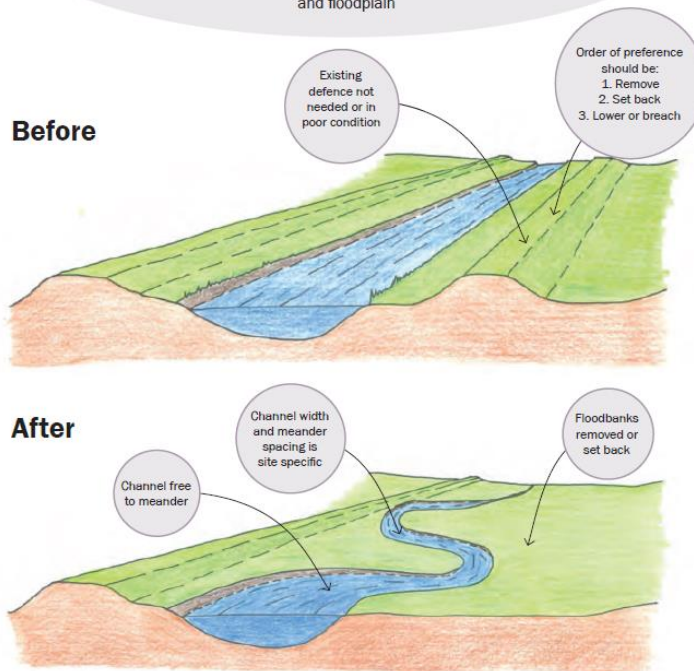
Paleochannel reconnection

Allows former river channels (in the floodplain) to become inundated in times of higher flows/flood



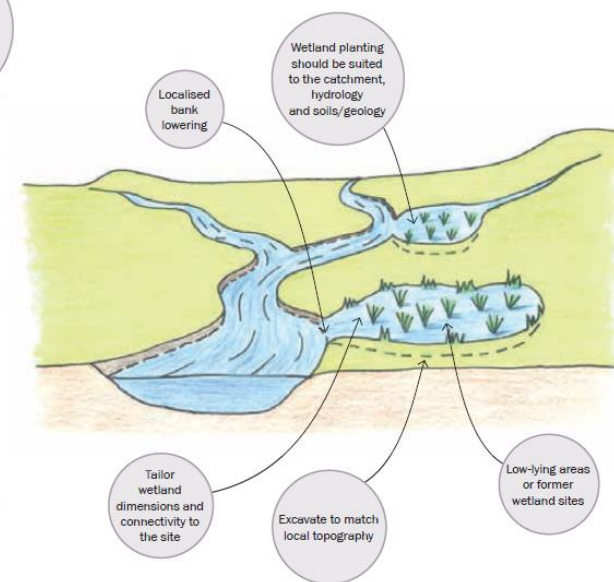
Remove, set back or lower flood banks

Allows the physical transfer of water between a river and floodplain



Floodplain wetland restoration

Create or restore wetland areas within the floodplain



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Runoff management

Chapter 7 provides more detail

What is runoff management?

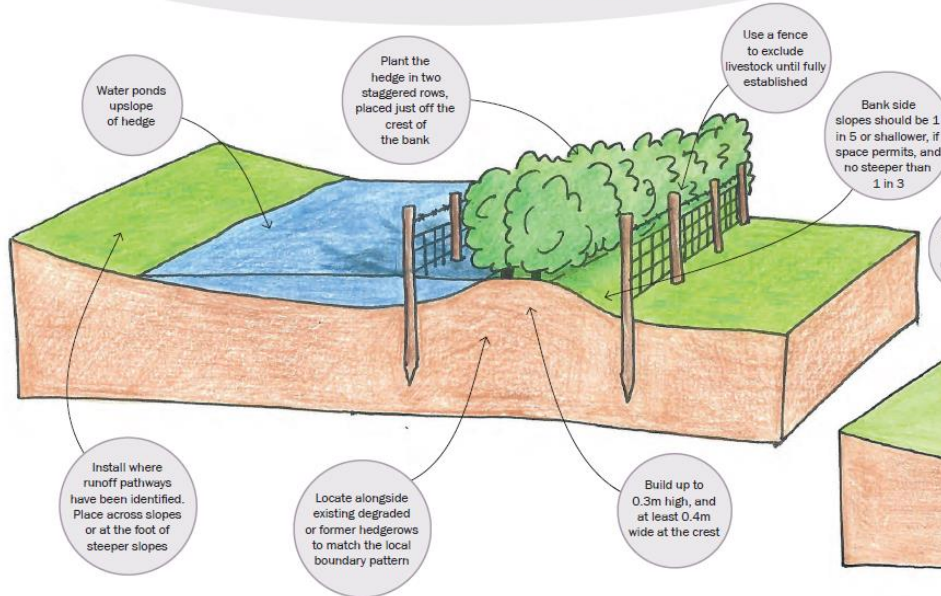
- Aims to interrupt, slow or divert overland flow pathways across the landscape
- Encourages infiltration into the ground and diverts water away from challenging locations
- Includes cross drains and deflectors; cross slope hedges and buffer strips

Key metrics

- £ Low cost
- 🔧 Easy to build
- 🛠️ Moderate maintenance requirements
- ⌚ Indefinite design life if maintained

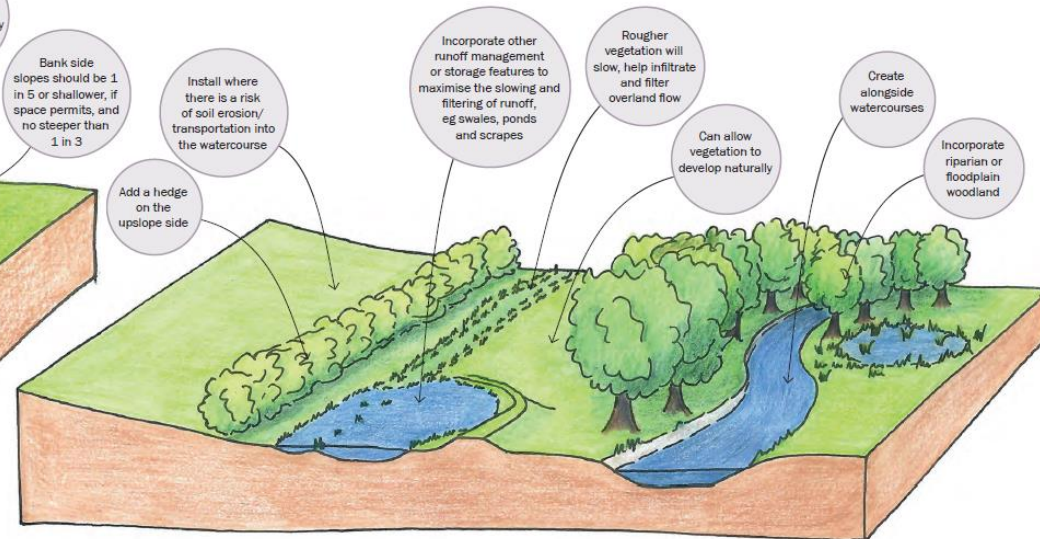
Banked hedge

Hedges planted cross slope on a raised bed or bank, to intercept flow pathways and store water, to increase infiltration and transpiration



Enhanced riparian buffer strip

Linear features strategically placed across a slope alongside a watercourse to allow the establishment of rougher vegetation to slow, and help infiltrate and filter overland flow



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Runoff storage

Chapter 8 provides more detail

What is runoff storage?

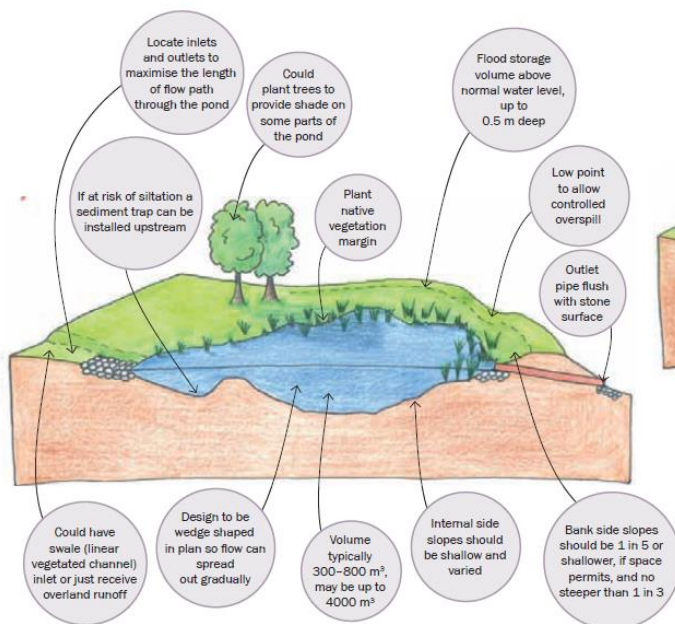
- Measures that temporarily store water
- They fill during rainfall events and empty slowly
- Increase water storage across a catchment which reduces flood risk downstream
- Best in locations with sloping topography where runoff flows in defined pathways
- Include ponds, scrapes, swales and bunds

Key metrics

- ££ Moderate cost
- Moderate build complexity
- Moderate maintenance requirements
- Indefinite design life if maintained

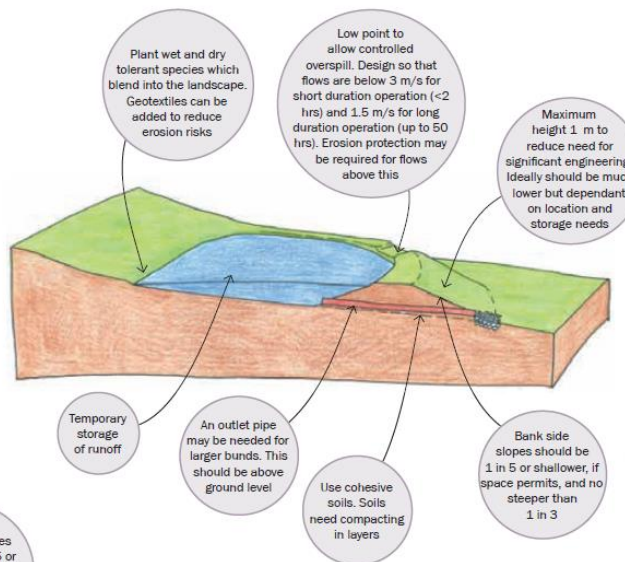
Pond

Depression that holds water permanently with additional capacity for storm events



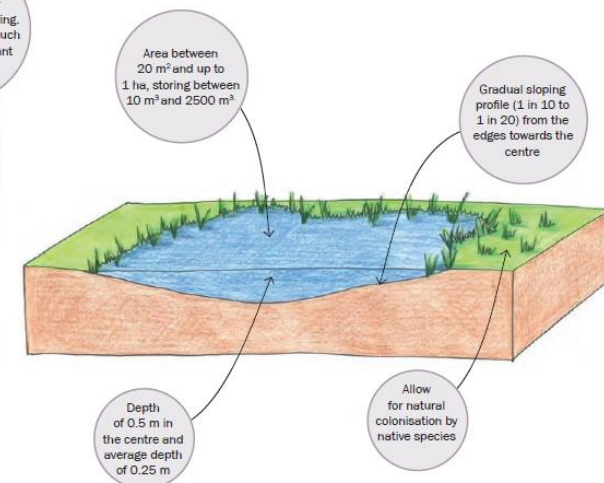
Earth bund

A bank created to provide flood storage or to help divert runoff



Scrape

Depressions that fill with water in the winter and gradually dry out in the spring and summer



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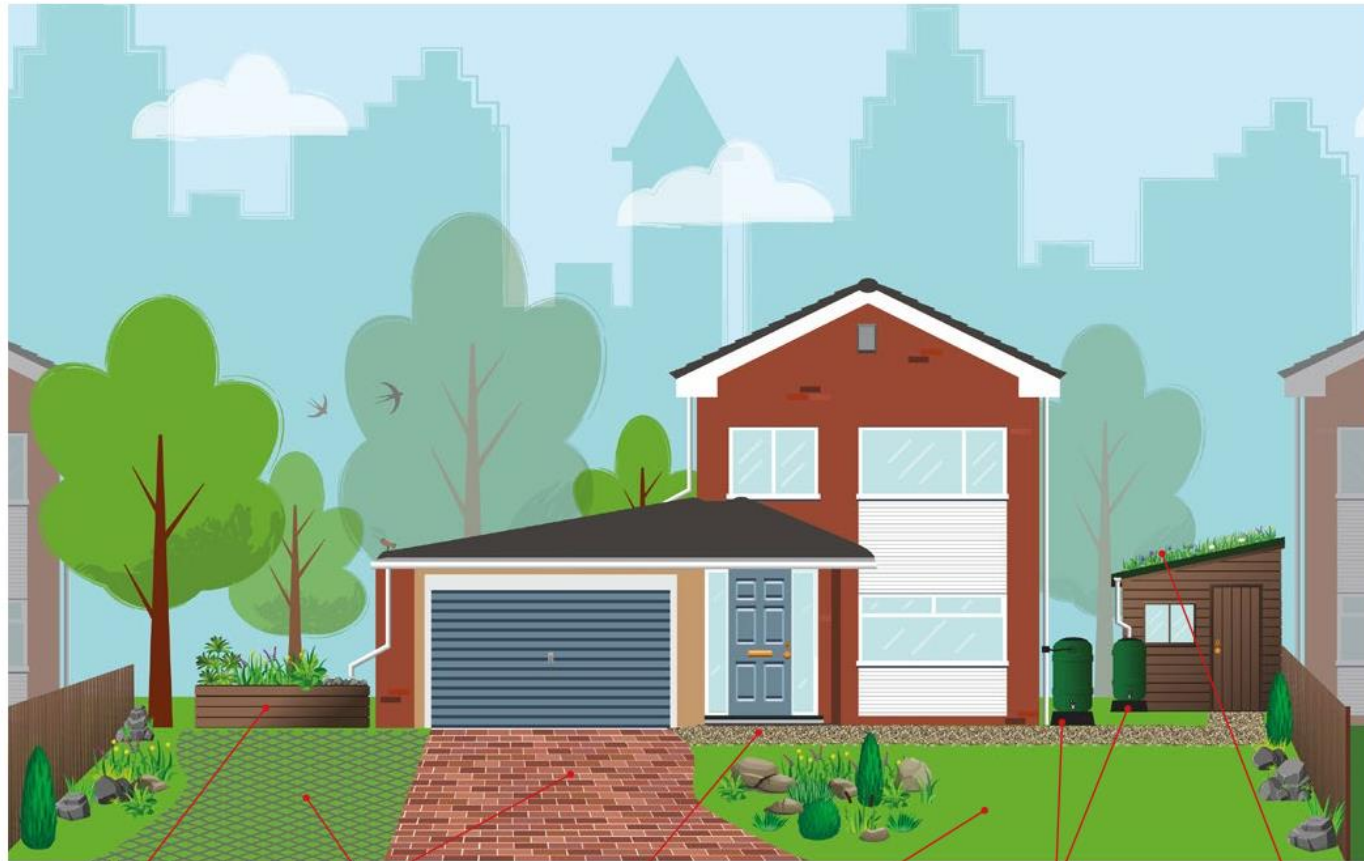
Urban Areas

Slow and
store
water



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For the smaller garden



Rain planter for runoff from garage roof

Permeable surfaces on car parking areas

Pathways of gravel over weed-suppressant fabric

Grass rather than paved areas

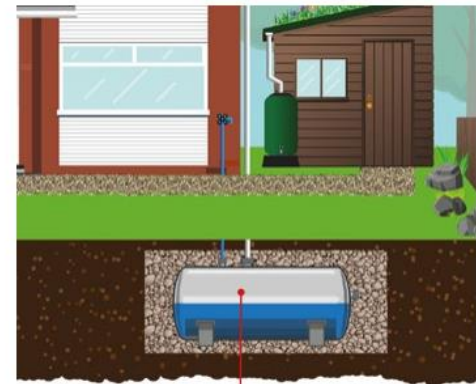
Water butts for collecting rain from roofs

Green roof (lightweight) on garden shed

For the larger garden



Below ground runoff storage and attenuation crates



Below ground rain harvesting tank



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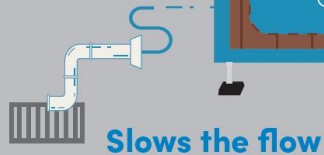
Rain Planters



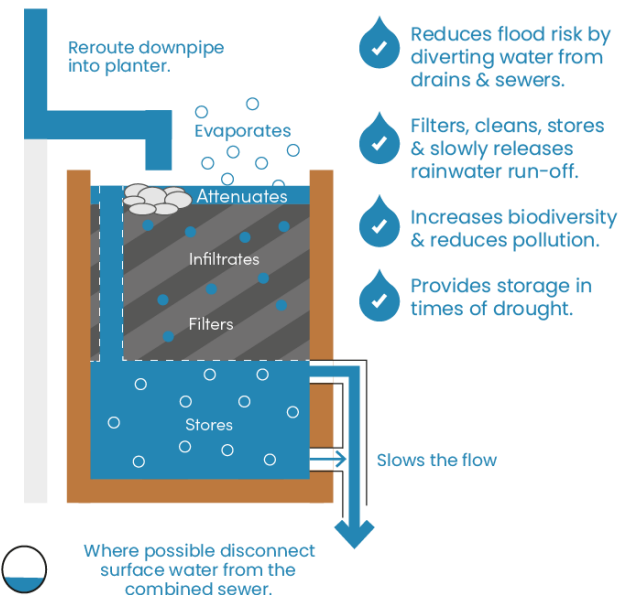
Roof water capture



Water Storage

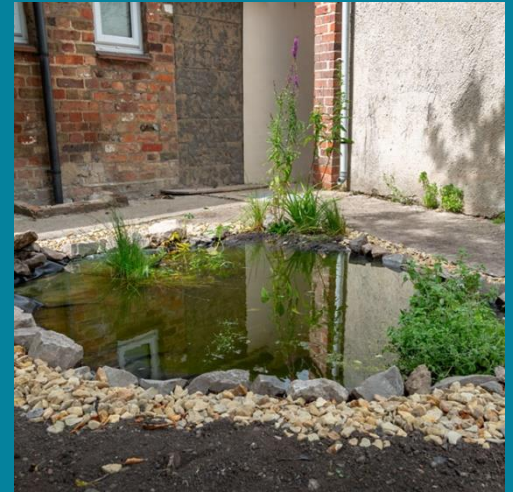


Slows the flow



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Water Butts and Rain Gardens



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Permeable Driveways



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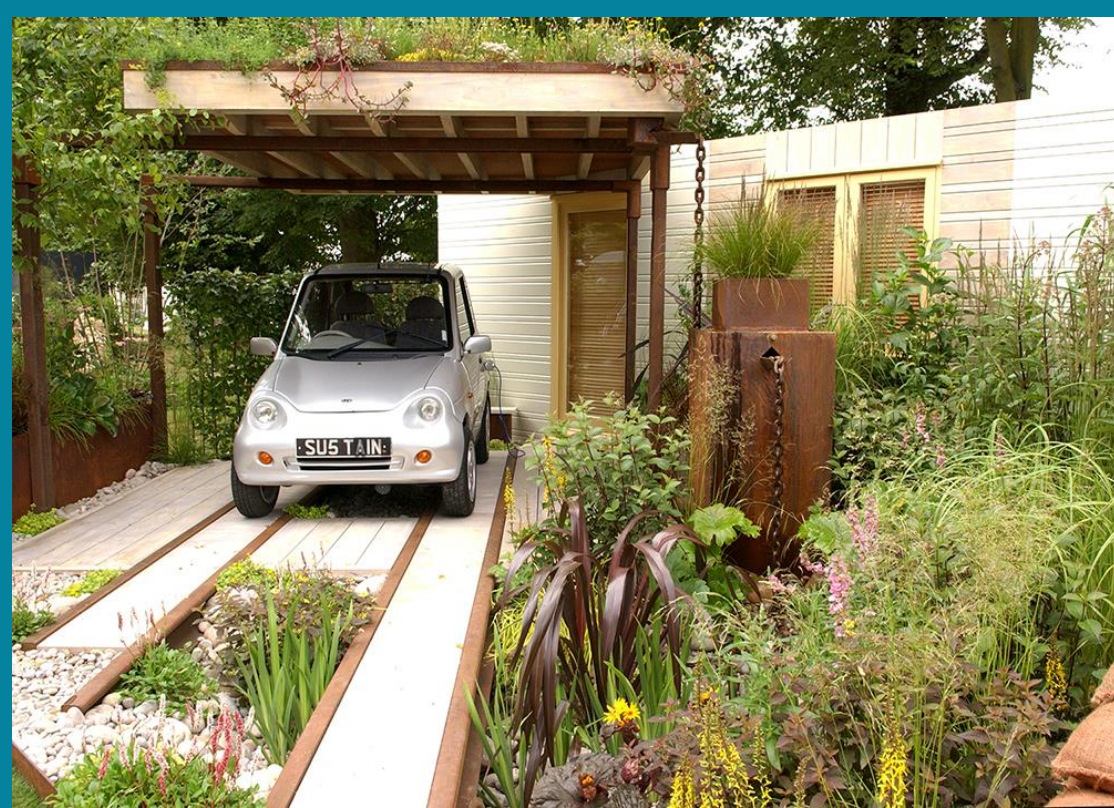
Green Roofs



Photo ©Melissa Jolly



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Wider Landscape



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An aerial photograph showing a large area of flooding. A golf course is partially submerged, with water reaching the edges of the green and fairways. Surrounding the golf course are residential areas with houses and buildings. The water is a muddy brown color, and the sky is overcast.

Thank you.
Any questions?



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