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Peter, a chara,

COMMITTEE FOR INFRASTRUCTURE: FOLLOW-UP FROM MEETING ON 19 NOVEMBER 2025 – SUDS BRIEFING FOLLOW-UP

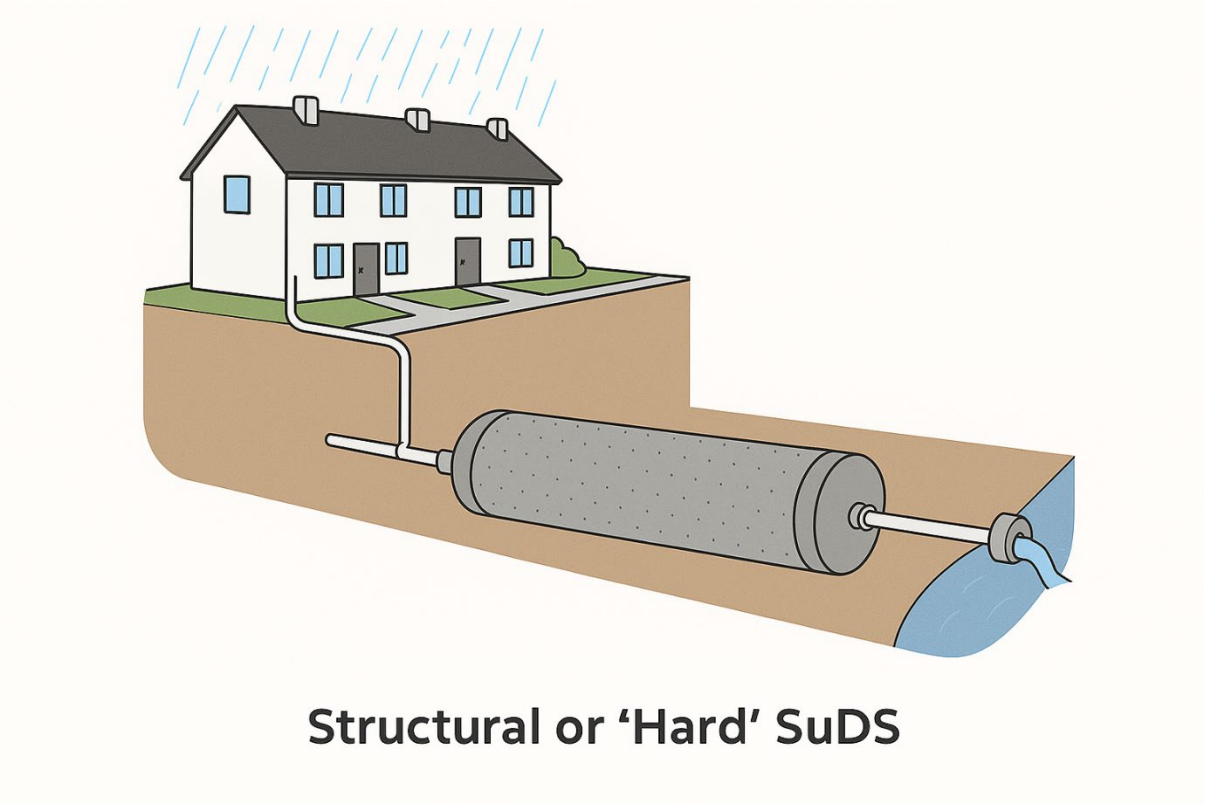
The Committee has requested further detail on how ‘Hard’ SuDS operate in practice.

Structural or ‘Hard’ SuDS can generally be described as underground engineered storage structures such as tank sewers (oversized pipes) or tanks that are designed to store rainwater temporarily before releasing it to the receiving river or sewer at an approved discharge rate.

Structural or ‘Hard’ SuDS are designed and constructed in conjunction with traditional drainage systems, which consist of underground pipes and surface gullies. During heavy rainfall these traditional drainage systems collect and transport runoff rapidly downstream, generating high peak flows which can cause sewers or rivers to be overwhelmed causing pollution and flooding to occur.

It is for this reason that Structural or ‘Hard’ SuDS are integrated into new drainage systems, with the tank to act as a buffer, storing large volumes of water that would otherwise overwhelm sewers or cause surface flooding. Water is released gradually through an outlet control structure sometimes referred to as a hydro break. This slows down the discharge rate into rivers, streams, or sewer systems, reducing flood risk.

‘Hard’ SuDS are primarily about attenuation, slowing down and controlling runoff before it enters the receiving watercourse or sewer. They do not provide significant water quality benefits.



The Committee also requested provision of illustrative materials demonstrating the mechanics of SuDS, specifically detention and attenuation ponds.

I have attached illustrative examples of nature-based SuDS at Annex A.

I hope this information is helpful.

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LIZ KIMMINS MLA
Minister for Infrastructure

Illustrative Examples of Nature-based Sustainable Drainage Systems:

Property Level SuDS

Permeable Paving

Permeable paving is designed to allow rainwater to filter into the ground rather than pooling on the surface and running off into storm drains.

Water Butt

Image: Greenleaf Ireland

A water butt is a container designed to collect and store rainwater from roofs for outdoor use, typically in the garden.
A water butt planter has a planter tray on top of the water butt, which draws up some of the stored rainwater to the plants.

Street Level SuDS

Raingarden

Rain gardens are small dips in the ground, designed to collect surface water from roofs and driveways and allow it to filter into the ground. They are planted out with suitable plants that can withstand waterlogging and help to manage runoff, whilst providing attractive low maintenance wildlife friendly spaces.

Grassed Swale

Image: The CIRIA SuDS Manual

Swales are typically shallow grassed or planted channels designed to collect and convey water. Their gentle side slopes and flat base allow water to flow in most cases in a thin layer. Some swales may include an underdrain system using perforated pipes.

In addition to conveying water, swales can also provide some storage and filtration.

Landscaped Swale

Development Levels SuDS

Detention Basin

Image: The CIRIA SuDS Manual

Detention Basins are open, usually flat areas of grass that are normally dry, except after periods of heavy rainfall. When it rains heavily, they can fill with water to provide storage for a short time. They are designed primarily to control flood risks and to manage stormwater flow rates.

Attenuation Pond

Attenuation Ponds are open areas of shallow water, designed to collect rainwater and provide storage for excess runoff. During periods of rainfall, the water level rises for a short time before returning to normal. Attenuation ponds differ from detention basins in that they contain a permanent pool of water, even when it is not raining.

Sometimes the general term ‘attenuation pond’ is used to describe the overall collection of the larger SuDS storage features.

All nature-based SuDS features can help to improve water quality through filtration, provide wildlife habitats and improve the aesthetics of a development.