Sewers for Adoption in England

A changed approach to surface water sewers

Image courtesy of Susdrain

WATER UK

1. Introduction

For many years, water and sewerage companies have been recognised as the most suitable owners and operators of the country's sewerage network. The legislation applying to water companies supports this and every year, using that legislation, responsibility for sewers for many new developments is transferred by a site developer to the local water and sewerage company.

Over recent years, both government and other interested parties including drainage engineers and environmental NGOs have come to the view that traditional sewerage systems, relying largely on pipes and hard engineered structures, are not always the best way to deal with the drainage of surface water. It may be preferable if surface water – rainwater falling on hard surfaces like roofs and hard standing around houses – is left to infiltrate into the ground rather than flowing into a piped sewer system. The aim is to mimic the natural processes by which surface water runoff is absorbed by the land (or flows into natural watercourses) through a range of techniques which are often described as sustainable drainage systems (SuDS).

Not only will this reduce the chances of the sewer pipes overflowing in times of heavy rain, but it could create additional headroom in the sewer system to allow for more housing development. Such systems often provide other benefits as well, such as enhancing the amenity value of an area by creating green spaces and absorbing certain pollutants in surface water.

A number of water and sewerage companies have already taken steps to encourage this approach, but there has until now been no nationally agreed approach on the part of the water and sewerage companies towards the transfer to them (technically called "adoption") of these types of sewer.

This brochure outlines a new approach which has been developed to allow all English water and sewerage companies to adopt a wider range of sewer types, including those with sustainable elements.

2. Context for the new guidance

In 2010, the Flood and Water Management Act (FWMA) was passed which would have provided a comprehensive approach to surface water drainage. Under that legislation, SuDS Adoption Bodies would have approved the surface water drainage arrangements for new developments and would subsequently have adopted the built system.

Unfortunately, this legislation has not been implemented in England. However, it is currently being implemented in Wales. As the FWMA was never fully implemented, a review of sewerage legislation has been carried out by water and sewerage companies.

The review concluded that while water and sewerage companies can only adopt "sewers" – a term which is contained, but not explained, within legislation, some sustainable drainage assets could be designed as a sewer, and adopted as such, provided they fulfil a sewerage function.

Subsequently, Water UK, working with a wide range of stakeholders under the chairmanship of Professor David Balmforth, has developed a new guide to adoptable surface water sewers. This is now Part C of the publication – Sewers for Adoption (SfA).

SfA has for many years set out the standards to which drainage assets need to be built if they are to be adopted by the local water and sewerage company. This latest version of SfA – SfA 8 – has now been published. You can find it here.

The new guidance has been published for information only at this stage given that there is to be wholesale change in the sector's adoption arrangements during 2019.

The biggest change will be that once the new arrangements have been approved by Ofwat, water and sewerage companies will be required to comply with those arrangements, where sewers are offered for adoption by developers. By contrast, compliance with the current version of SfA is voluntary.

It is expected that the content of SfA 8 will be incorporated into the new sectoral guidance. This is subject to any changes which may be introduced as part of the adoption codes implementation work.

Water and sewerage companies are currently preparing themselves to accept adoption applications under the new standards. The date on which they will come into force depends on the period Ofwat needs to approve the new adoption arrangements but this is not expected to be before mid-2019. Once the new arrangements have come into force, all changes will be subject to approval by a new codes panel that is to be set up. This will include equal numbers of water and sewerage companies and developers.

Image courtesy of Susdrain

3. A guide to adopting sewers with sustainable drainage elements

Criteria

In order to give practical guidance on the basic criteria that need to be met for a sewer to be "adoptable" to developers and those designing surface water drainage, the following positive and negative criteria have been identified. Ultimately, it is for the water and sewerage company to apply these criteria to assets that are being offered for adoption:

Included / Positive criteria
Constructed for the drainage of buildings and yards appurtenant to buildings
Has a channel
Conveys and returns flows to a sewer or to a surface water body or to groundwater
Has an effective point of discharge, which must have lawful authority to discharge into a watercourse or other water body or onto or into land
May allow for some infiltration into the system – provided that is not the designed purpose of the system

Excluded / negative criteria
Watercourses as defined in law
Built primarily for the drainage of surface water from streets or for the drainage of land
Built to manage groundwater
Part of the structure of a building or yard
An integral part of the structure of a street
Forms part of a private curtilage

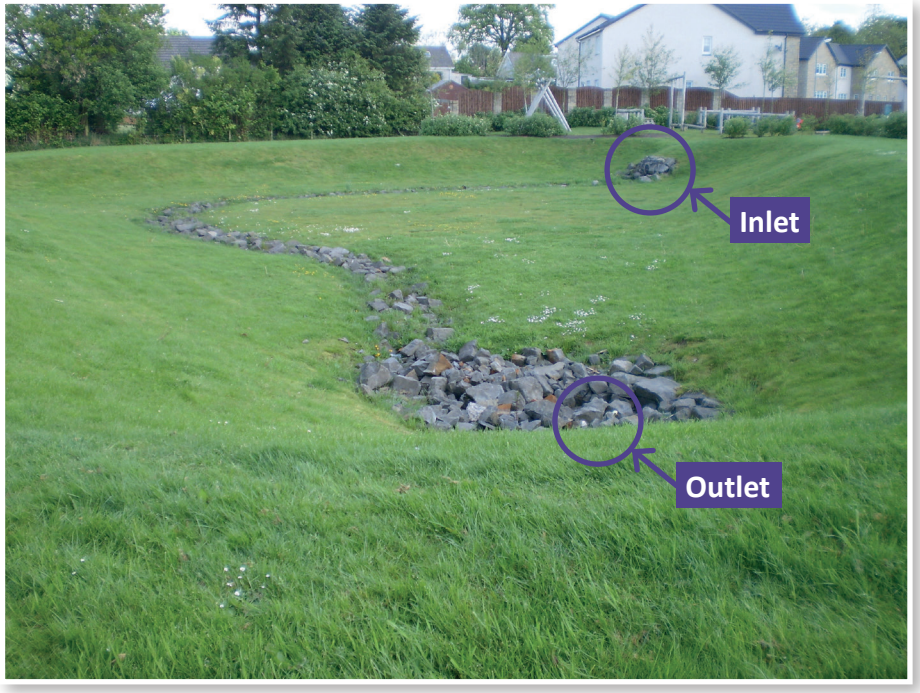
Adoptable asset types

The following are examples of systems, components, or features which may be adoptable as a public surface water sewer. In all these cases, the system carries away surface water from buildings and surrounding land, such as hardstanding around a house, and, via a defined channel, returns it to the ground or to another body of water such as a stream or river.

Most of these sewer elements in public open space will be potentially adoptable by the water and sewerage company, if they serve more than one property and meet the criteria set out in the guidance. Early discussion should be held with the company to determine what will be maintained as a public surface water sewer feature, and what will be maintained as public open space.

Example 1 – Detention basins

This dry basin is an open aspect feature adjacent to residential property and a children's play-park. Water flows in to the basin through an inlet, is carried through the channel where some of the flow infiltrates into the ground and is then discharged through a pipe to a receiving water body, like a stream.



Example 2 – Swales

A set of public sewers from a development site discharge surface water from houses into a series of interconnected swales. The flow is carried through the swales and discharged to a river.

Image courtesy of Susdrain

Example 3 – Rills

This is an example of a more architecturally landscaped feature. Property roof-water drainage and footpath run-off is diverted to vegetated channels. These not only reduce the volume of water entering the sewer, but also provide a pleasing public open space.

Example 4 – Under-drained swales

These linear swales are under-drained – that means they have a pipe underneath the feature into which the surface water can flow. Both through the channel itself and the under-drain the water is discharged back to the public sewer.

Example 5 – Ponds/wetlands

This retention pond is part of a residential development and acts to attenuate flows, reduce flood risk, improve water quality, enhance biodiversity, create habitats and enhance community amenity. Receiving property roof-water and some highway run-off from the development site, it has been specifically designed with landscaping to be a feature within the development site. Water flows into the pond through an inlet structure, and it is carried through the "channel" and discharged via an effective outfall to a receiving water body. The pond performs the function of carrying away surface water, and it provides an additional "cleansing" function.

Example 6 – Infiltration basins and soakaways

Only a suitably designed and constructed infiltration basin or soakaway would qualify as a public sewer or sewer ancillary. This is a specifically designed feature to receive the volume of flow arriving at it and effectively distribute/ discharge it to the ground.

Image courtesy of Susdrain

Non-adoptable sustainable drainage systems

The following are examples of systems, components, or features which are not adoptable as a public surface water sewer.

Example 7 – Highway drainage

Any system that only provides highway drainage is not adoptable by the water and sewerage company. A system may accept some highway drainage, but this cannot be the main purpose of the system.

Developers should speak to their local Highway Authority to discuss the adoption of assets that just serve the highway.

Early discussions should be had with both the water and sewerage company, and Highway Authority for sewerage systems that serve both the highway and property. As at present, there needs to be an agreement in place for highway drainage to be discharged through a sustainable drainage feature that is a sewer.

Image courtesy of Susdrain

Example 8 – Private drainage features

SuDS features, such as water-butts, cisterns, water-barrels; permeable paving; rain water harvesting systems and rainsave planters; and green or blue roofs are classed as building drainage, even where flows from more than one property are conveyed. These cannot qualify as public sewers and will remain the responsibility of the homeowners.

Their use, however, plays a crucial role in an integrated approach to water management.

Capturing rainwater is an important way of helping to secure future supplies. These source control features reduce the volume of water draining to the sewer system. Collecting this water in water butts and rainwater harvesting systems provides an important supply of water to use around the home, helping to reduce demand.

Image courtesy AW Direct

Image courtesy of Susdrain

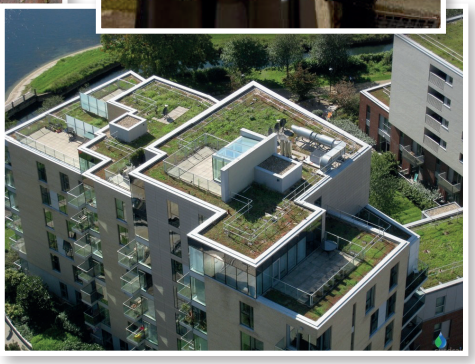


Image courtesy of Susdrain

4. Implementation

The National Planning Policy Framework (NPPF) expects that SuDS should be used as first preference in developments of any size. Specifically, priority should have been given to the use of sustainable drainage systems in areas at risk of flooding. There is a significant amount of guidance about good SuDS design and Box 1 contains reference to some of the most important of these documents. Others are referred to in Appendix 1.

Who does what?

A range of local authorities and other stakeholders have a key role in determining the surface water drainage arrangements on new developments. This includes all aspects of the new drainage system, including both above and below ground features.

- The Local Planning Authority (LPA) approves the surface water drainage arrangements for new developments and redevelopments in accordance with the NPPF, local policies and any supplementary planning documents.

- The Lead Local Flood Authority (LLFA) provides guidance to the LPA as a statutory consultee for all major developments. They may provide advice, where resources permit, for other developments. The LLFA will also regulate any work carried out in or in proximity to non-main rivers (ordinary watercourses) except in areas where there is an internal drainage board.

- The Environment Agency (EA) is a statutory consultee to the LPA in areas designated as critical drainage areas and sites within 20 m of a main river. The EA also regulates any work carried out in or in proximity to a main river.

- In some areas the Internal Drainage Boards (IDBs) will regulate any work carried out in or in proximity to non-main rivers (ordinary watercourses). Check the Association of Drainage Authorities (ADA) website to see if your site is in an IDB district - www.ada.org.uk. Where IDBs do not exist, these powers are carried out by the LLFA.

Image courtesy of Susdrain

- The Highway Authority will assess, approve and adopt highway drainage features that only serve the highway. This may include SuDS features.

- The water and sewerage company will assess proposals for drainage systems on new and re-developments where the developer applies to have the sewers adopted. To ensure that there are no delays, early engagement with the water and sewerage company is essential – many water and sewerage companies have a dedicated pre-development service team to assist with this. The water and sewerage company will only adopt sewers that take surface water from properties and their land. Land drainage and highway drainage features are not adoptable by the water and sewerage company.

The designer should submit detailed construction drawings and calculations to show how the proposed design meets the requirements of the stakeholders listed above, with confirmation of the arrangements for the operation and maintenance of the system in perpetuity.

The water and sewerage company will need to be satisfied that the proposed minimum standards of operation and maintenance are appropriate for both adoptable elements and any connecting non-adoptable elements system. Initial discussions should be held at the earliest possible opportunity, likely to be during master planning or reserved matters stages.

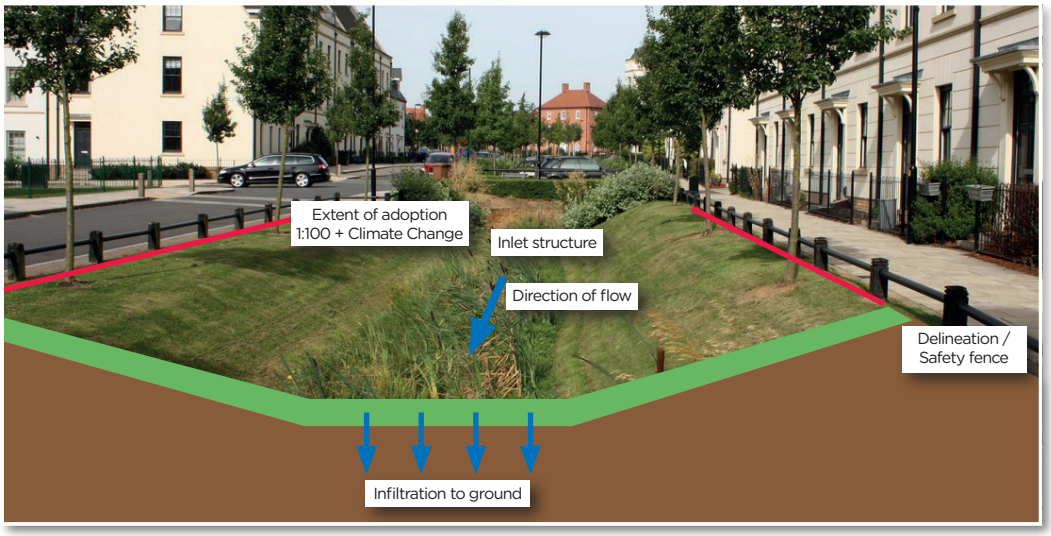
For those parts of England where the water and sewerage company is one whose area is mainly in Wales, other regulations apply.

What is the extent of adoption?

The water and sewerage company will be responsible for the conveyance and storage functions of the drainage features. This limits transfer to the surface of the channel and the contents of the channel, such as vegetation, inlets, outlets and flow control devices, up to the line based on the extent of the asset needed to deal with 1:100-year rainfall events, including an allowance for climate change.

Adoption is similar in most cases, but will vary slightly depending on the type of feature being adopted. In most cases adoption will usually include:

- The sides and base of a channel, any vegetation that is part of the function of the feature and any under-drainage including any liner, check dam, flow control or erosion control measure
- The whole area used for temporary ponding of water, the inlet and outlet structures and any engineered soil structures, including the vegetation
- The banks of basins or ponds that are designed to retain water, the inlet and outlet structures, any storage below the ground surface, impermeable liners and under drains
- Underground features will usually include the whole structure up to the external face.



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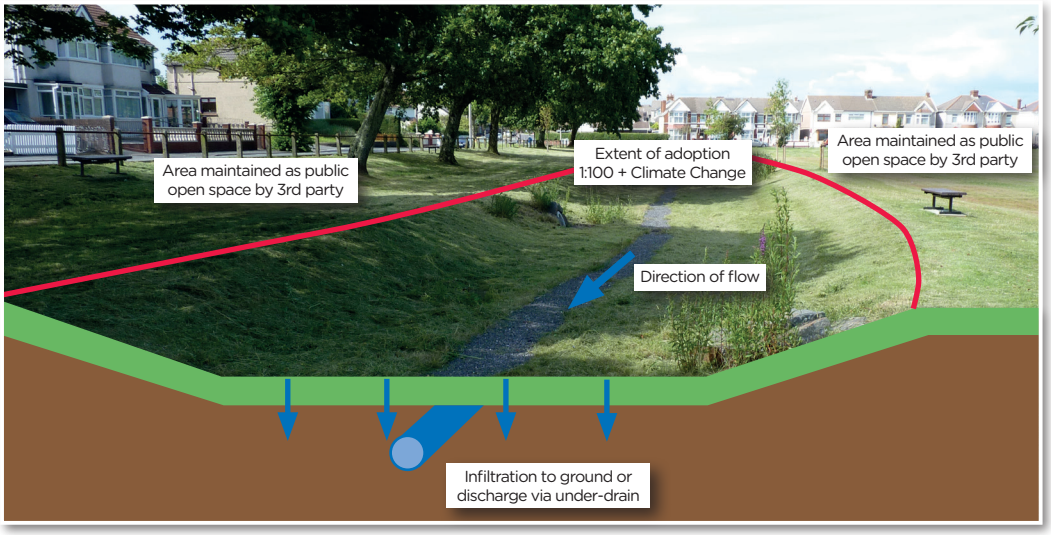

Box 1: Other guidance documents

The Department for Environment, Food and Rural Affairs (Defra) have issued "Non-statutory Technical Standards for Sustainable Drainage Systems" in England. These technical standards relate to the design, construction, operation and maintenance of SuDS and have been published as guidance for those designing schemes.

The Local Authorities SuDS Officers' Organisation (LASOO) has also issued practice guidance in relation to both the NPPF and the non-statutory technical standards. This guidance supports Defra's technical standard, and provides brief explanations to provide clarity.

The Construction Industry Research and Information Association (CIRIA) published the updated SuDS Manual in 2015. This is considered the 'go to' best practice guidance document for the planning, design, construction, operation and maintenance of SuDS to facilitate their effective implementation in developments.

Individual company variations

As work on the new sewerage adoption arrangements proceeds, it is likely that this will deal with the extent to which individual water and sewerage companies can deviate from the approach set out in SfA 8. Some areas of variation can include:

The use of land transfers or easements

Either a land transfer or the use of an easement may be used by the water and sewerage company to adopt and maintain drainage features of an adoptable sewer.

Early engagement with the water and sewerage company will be essential to reach the best outcome for all concerned. It is considered that the preferred option will be to use easements, rather than transferring land (much like underground piped systems).

Health and Safety

A detailed Health and Safety assessment may be required by some companies to accompany any sustainable sewer assets which are designed for adoption. This will help to ensure that water and sewerage companies meet their legal requirements as an owner or occupier of land operating as a public surface water sewer.

Health and Safety requirements will not alter what is adoptable, but clearly early engagement with your water and sewerage company will help to address any issues early in the design process.

Further guidance can be found in the CIRIA manual referred to earlier.

Early engagement

Early engagement with the local water and sewerage company will be essential to ensure the smooth adoption and maintenance of drainage features. Please find below contact details for the Development Services teams of the water and sewerage companies:

Anglian Water

For further information, please call:
0345 60 66 087 – Option 3

8.30am to 4.30pm – Monday to Thursday
8.30am to 4.00pm – Friday

Or email our Development Services team at:
developmentservices@anglianwater.co.uk

Northumbrian Water

For further information, please call:
0191 419 6591

8.30am to 5.00pm – Monday to Thursday
8.30am to 4.30pm – Friday

Or email our Developer Services team at:
developmentenquiries@nwl.co.uk

Severn Trent Water

For further information, please call:
0800 707 6600

8.30am to 5.00pm – Monday to Thursday
8.30am to 4:30pm – Friday

Or email our Developer Services team at: new.connections@severntrent.co.uk

South West Water

For further information please call:
01392 442831

8.30am to 5.00pm – Monday to Friday
Closed Weekends and Bank Holidays

Or email our Developer Services Team at:
Developerservices@southwestwater.co.uk

Southern Water

For further information, please call:
0330 303 0119 – Option 6

9.00am to 4.30pm – Monday to Friday
Closed Weekends and Bank Holidays

Or email our Developer Services team at:
developerservices@southernwater.co.uk

Thames Water

For further information please call:
0800 009 3921

8.00am to 5.00pm – Monday to Friday

Or email our Developer Services team at:
developer.services@thameswater.co.uk

United Utilities

For further information, please call:
0345 072 6067

8.30am to 5.00pm – Monday to Friday
Closed Weekends and Bank Holidays

Or email our Developer Services team at:
seweradoptions@uuplc.co.uk

Wessex Water

For further information, please call:
01225 526333

8.30am to 4.30pm – Monday to Thursday
8.30am to 4.00pm – Friday

Or email our Developer Services team at:
developer.services@wessexwater.co.uk

Yorkshire Water

For Further information please call:
0345 120 8482 – Option 2

8.00am to 5.00pm – Monday to Friday
Closed Weekends and Bank Holidays

Or email our Developer Services Team at:
technical.sewerage@yorkshirewater.co.uk

Appendix 1

- The susdrain website (The community for sustainable drainage) – https://www.susdrain.org/
- CIRIA guidance in general – https://www.susdrain.org/resources/ciria-guidance.html
- The CIRIA SuDS Manual (C753) 2015 – https://www.susdrain.org/resources/SuDS_Manual.html (which is already shown in Box 1)
- Susdrain fact sheets – https://www.susdrain.org/resources/factsheets.html
- Awareness of companies such as GeoSmart, etc – http://geosmartinfo.co.uk/knowledge-hub/ and http://geosmartinfo.co.uk/sewers-for-adoption-suds-at-the-heart-of-new-development/
- The Big SuDS Survey – The survey generated almost 540 responses, which is believed to be the largest independent survey on SuDS in the UK to date – https://www.ciwem.org/suds/
- Institution of Civil Engineers (ICE) – https://www.ice.org.uk/news-and-insight/the-infrastructure-blog/february-2017/a-place-for-suds
- Institution of Civil Engineers (ICE) – https://www.ice.org.uk/knowledge-and-resources/best-practice/sustainable-drainage-systems

Non-attributed photographs have been contributed by Anglian Water, Yorkshire Water and Dŵr Cymru Welsh Water.