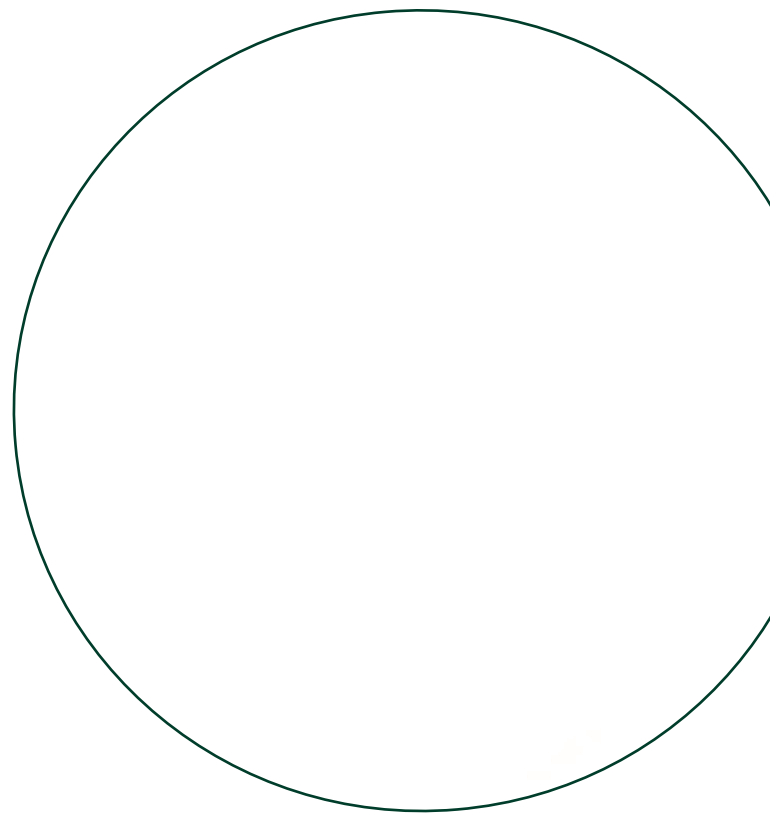




Draft Supplementary Planning Guidance

No.19 Water Conservation and Sustainable Drainage Systems



Purpose

It is Flintshire County Council's intention to prepare and keep up to date a series of Supplementary Planning Guidance (SPG) Notes which will provide detailed guidance on a range of development issues and topics. The purposes of these Notes are:

- To assist the public and their agents in preparing planning proposals and to guide them in discussions with officers prior to the submission of planning applications,
- To guide officers in handling, and officers and councillors in deciding, planning applications, and
- To assist Inspectors in the determination of appeals

The overall aim is to improve the quality of new development and facilitate a consistent and transparent approach to decision making.

Planning policies: the Flintshire context

The Development Plan

Under planning legislation, the planning policies for each area should be set out formally in the Development Plan. Flintshire County Council, as the Local Planning Authority (LPA), has a legal duty to prepare and keep up to date a development plan for the County, and the Flintshire Unitary Development Plan was adopted in 2011. The UDP provides broad policies together with allocations of land for all the main uses such as housing, employment and retailing, and will help to shape the future of Flintshire in a physical and environmental sense as well as influencing it in economic and social terms. The Plan therefore seeks:

- To help the Council make rational and consistent decisions on planning applications by providing a policy framework consistent with national policy and
- To guide development to appropriate locations over the period up to 2015.

The need for Supplementary Planning Guidance

Despite the Plan containing policies with which the Council can make consistent and transparent decisions on development proposals, it cannot in itself give all the detailed advice needed by officers and prospective applicants to guide proposals at the local level, such as house extensions or conversions of agricultural buildings. The Council's intention is to prepare a range of Supplementary Planning Guidance notes (SPG) to support the UDP by providing more detailed guidance on a range of topics and issues to help the interpretation and implementation of the policies and proposals in the UDP. The review of the Local Planning Guidance Notes will be undertaken on a phased basis and details of the available SPG's can be found on the Council's website. Where there is a need to refer to another SPG this will be clearly referenced. These SPG Notes are freely available from Planning Services, Directorate of Environment, County Hall, Mold, Flintshire CH7 6NF (telephone 01352 703228), at the Planning Services reception at County Hall and can be downloaded from the Planning Web pages www.flintshire.gov.uk/planning

The status of Supplementary Planning Guidance

Supplementary planning guidance can be taken into account as a material consideration in the decision making process. The National Assembly will give substantial weight to SPG which derives out of and is consistent with the development plan. In accordance with National Assembly advice the Council's suite of SPG's has been the subject of public consultation and Council resolution. The draft of this SPG was approved for public consultation on _____ (Council Minute no.). The SPG was the subject of a public consultation exercise between _____ and _____. The X comments submitted to the Council have been taken into account and where appropriate amendments have been incorporated into this final draft which was approved by the Council on _____ (Council Minute no.) for use as a material consideration in determining planning applications and appeals. A summary of the representations and the Council's response is set out in Appendix X.

This document should therefore be afforded considerable weight as a material planning consideration.

No. 19 Water Conservation and Sustainable Drainage Systems

1 - Background

1.1 - The provision of adequate drainage facilities to serve proposed developments has long been an important planning consideration. Where new development introduces hard, impermeable surfaces, such as roads, driveways, and the roofs of buildings, rainwater cannot soak into the ground as readily as when it falls on to soil or grass.

1.2 - Traditionally surface water run-off drainage systems were designed to take the peak discharge excess rainwater away from the immediate locality and to enter the watercourse as quickly as possible. This has a number of implications for river quality, flooding and water resources, such as:

- Increasing flooding downstream, the erosion of riverbanks and damage to habitats.
- The washing of pollutants into river water.
- Stopping water from soaking into the ground can deplete ground water and reduce flows in periods of dry weather lowering the natural water table and thus adversely affecting trees and other plants in the vicinity.
- Altering the flow regime of a catchment area, which can cause flooding elsewhere the overload of combined foul and surface water sewer systems may cause overflows of foul effluent to watercourses.

1.3 - It is predicted that as a result of climate change, the UK is going to see wetter winters and more extreme rainfall events, which will lead to increased surface water run-off and flash floods. Recent events have already shown how severe the impacts of these can be e.g. at Boscastle (August 2004) and in the Gloucester area (July 2007). The current approach (known as attenuation) at times of very heavy rainfall, is to control the rainfall at or close to the development site in controlled conditions through sustainable drainage systems (SUDS), until its release is less likely to contribute to or exacerbate flooding downstream. Flooding is not confined to flood plains, because heavy rain falling on to waterlogged ground can cause localised flooding almost anywhere.

1.4 - Here in Wales during autumn 2000, nearly 2,000 properties were affected by flooding, including a large number in Flintshire. In Wales, over 150,000 residential properties, as well as many commercial and industrial properties, and other key infrastructure, together with important environmental and historic sites are at risk of flooding. Sustainable Urban Drainage Systems (SuDS) are a method by which new development can deal with surface water run off. They should be designed to manage water on site by minimising run off, reducing discharge rates and detaining water for passive treatment. SuDS can reduce localised flooding by filtering water into the soil and therefore reducing reliance on drainage systems. They can also encourage the re-charge of ground water, provide wildlife habitats and amenity areas, and maintain water quality. Planning for SuDS early in the design of a project is essential to enable the successful integration of sustainable drainage systems into the overall site concept and layout, and to ensure agreement on how the system will be adopted, maintained and operated.

1.5 - It is also important that SuDS measures are geared to reducing the risk of pollution. In Flintshire this is particularly important as the River Dee and its estuary are designated as a Site of Special Scientific Interest (SSSI), a Special Protection Area (SPA), a RAMSAR site and is also a Special Area of Conservation (SAC). Also, the structure of conventional road drainage systems, incorporating the use of gully pots, can result in harm to animals protected under EU legislation. In Flintshire amphibians, especially great crested newts, are of particular concern.

1.6 - Paragraph 19.80 of the UDP requires SuDS to be considered in all new development proposals where practicable, particularly within and adjacent to areas with existing or potential flooding problems. It is acknowledged that some difficulties are being experienced with regard to the adoption and maintenance of SuDs and consequently arrangements for schemes will be made on a site by site basis.

1.7 - This SPG contains information of the most common forms of SuDS but is not meant to be prescriptive and as new technology and best practice emerges, new approaches and forms of SuDS may be appropriate.

2 - Policy / Legislation

2.1 - Nationally, the Flood and Water Management Act 2010 has SuDs as one of its key features. It encourages the uptake of SuDs by removing the automatic right to connect to sewers and provides for unitary and county councils to adopt SuDs for new developments and re-developments. The implementation of the SuDS provisions in the Act and the planned transfer of private sewers to water and sewerage companies and the introduction of minimum build standards for new sewers represent the most significant changes to legislation governing drainage and sewers since the Public Health Act 1936.

2.2 - In Wales, paragraph 13.4.2 of Planning Policy Wales (PPW), published by the Welsh Government in 2014, states **‘In determining applications for development, local planning authorities should work closely with the Natural Resources Wales (NRW), drainage bodies, sewage undertakers, prospective developers and other relevant authorities to ensure that surface water run-off is to be controlled as near to the source as possible by the use of sustainable urban drainage systems. They should also ensure that development does not:**

- » **increase the risk of flooding elsewhere by loss of flood storage or flood flow route; or**
- » **increase the problem of surface water run-off’.**

2.3 - PPW also refers to climate responsive developments and paragraph 4.12.3 states that **“Development proposals should also include features that provide effective adaptation to, and resilience against, the current and predicted future effects of climate change, for example by incorporating green space to provide shading and sustainable drainage systems to reduce run-off, and are designed to prevent overheating and to avoid the need for artificial cooling of buildings”.** TAN12 Design 2009 states that criterion for development layout and approaches that can be included within a design could include ‘sustainable drainage measures through layout and design features which enable the consequences of flooding to be acceptably managed’.

2.4 - Surface water drainage is a material planning consideration. Technical Advice Note 15: Development and Flood Risk (TAN 15), published by WG in 2004, explains that development should not create 2.5

2.5 - additional run-off compared with the undeveloped situation and redevelopment schemes should aim to reduce run-off where possible. (SuDS can be applied to existing developments.) Paragraph 8.5 states **“Planning authorities may consider imposing a condition requiring developers to examine the SUDS option and provide the planning authority with details and options. If it is demonstrated that SuDS could work on a site, and subject to the appropriate agreements being in place with regard to adoption, then the planning authority would require SuDS to be implemented. Developers will need to give good reason why SuDS could not be implemented. If a conventional drainage system does not improve the status quo or has a negative impact then this can be a valid reason for refusal.”** In practice, it is likely that there are very few sites where SuDS will not be technically possible. Flintshire County Council will require details of SuDS schemes to be part of all planning applications and for solutions to be identified at an early stage. This would ensure that conditions are not attached to a planning permission requiring a SuDS scheme which is later proven to be impossible to implement for technical reasons. Removing such conditions can require a new application and delay the start of the development. Where a SuDS scheme is possible, the guidance in TAN15 as set out above would apply.

2.6 - The Flintshire Unitary Development Plan (UDP) contains two policies relevant to sustainable drainage systems. GEN1 General Requirements for Development outlines the principle whereby development should not increase, or be susceptible to, flooding problems. The reasoned justification to Policy EWP17 Flood Risk refers to the consideration SuDS in all new development proposals where practicable.

2.7 - The Building Regulations stem from different legislation to planning. H3 of Part H of the Building Regulations 2000 (2002 edition) relates to the drainage of rainwater and requires:

- Adequate provision shall be made for rainwater to be carried from the roof of the building.
- Paved areas around the building shall be so constructed as to be adequately drained.
- Rainwater from a system provided in connection with (1) or (2) above shall discharge to one of the following, listed in order of priority:
 - a. an adequate soakaway or some other adequate infiltration system; or where that is not reasonably practicable,
 - b. a watercourse; or where that is not reasonably practicable,
 - c. a sewer.

2.8 - The Regulations stipulate that infiltration measures should not be sited within 5 metres of any building to protect the integrity of the foundations. Where the use of infiltration devices are not suitable the Council will expect other SuDS techniques to be considered in accordance with the hierarchical approach contained in the Regulations.

3 - Sustainable Drainage Systems

3.1 - It isn't possible to prevent flooding, but it is possible to 'manage' floods to some extent which means reducing the likelihood of them occurring and minimising their impact. It is now Natural Resources Wales (NRW) policy firstly to establish SuDS as normal drainage practice where appropriate for all new development and secondly to retrofit SuDS on existing surface water drainage systems which have an adverse effect on the environment.

3.2 - In summary, the benefits of SuDS are:

- Reducing flood risk from development (i.e. water quantity control)
- Minimising pollution from surface water run-off, both dispersed and to groundwater (i.e. water quality control)
- Minimising environmental damage, e.g. bank erosion
- Maintaining groundwater levels
- Often producing cost savings in comparison with traditional drainage systems
- Enhancing the nature conservation and amenity (and therefore economic) value of developments
- Collecting and treating water for consumption by building occupants for non-potable use, which also reduces water use

3.3 - A variety of engineering techniques can be employed and fall into three broad groups which aim to:

- reduce the quantity of runoff from the site
- slow the speed of the runoff to allow settlement, filtering and infiltration
- treat collected surface water before discharge into groundwater or to a watercourse

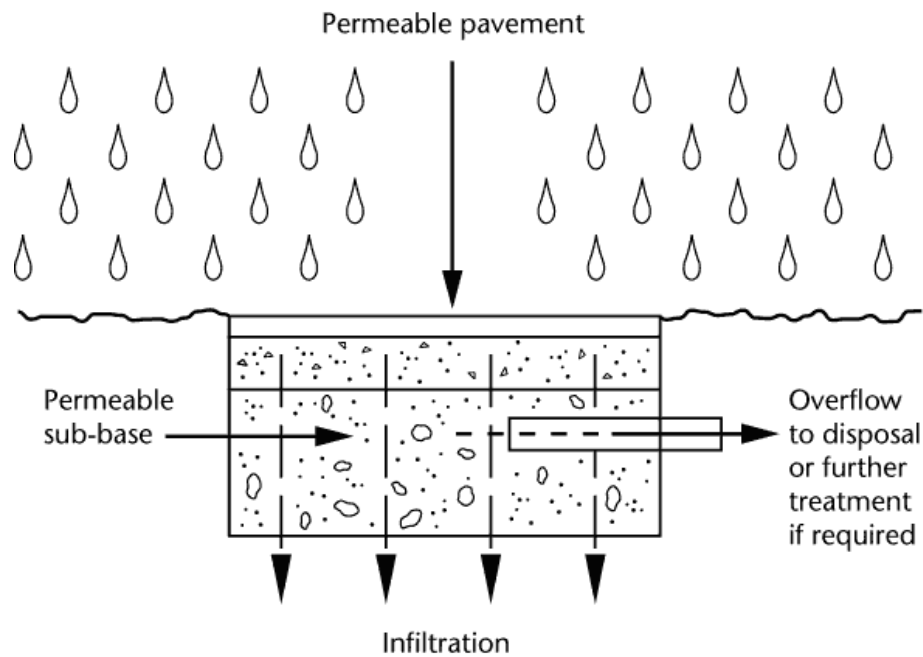
3.4 - These are expanded below and it is important to note that an effectively functioning SuDS system may involve a range of approaches, from management at the source via detention ponds along the way, in order to provide effective recurrent and emergency flood and pollution control.

3.5 - In Sept 2013 the Welsh Government made changes to permitted development rights. Permitted development rights now apply to the provision of new or replacement hard surfaces within the curtilage of a house on the condition that porous materials are used, or provision is made to direct any water run-off to a surface or area that allows the water to drain away naturally, for example to a permeable garden boundary. Any proposal that would result in the laying of traditional, impermeable driveways that will not allow the water to run off to a permeable area will require the submission of a planning application.

Preventative measures at the source

3.6 - Controlling water at the source forms the start of the surface water management process, and can make a significant contribution to minimising surface water run-off and its pollution. Methods include:

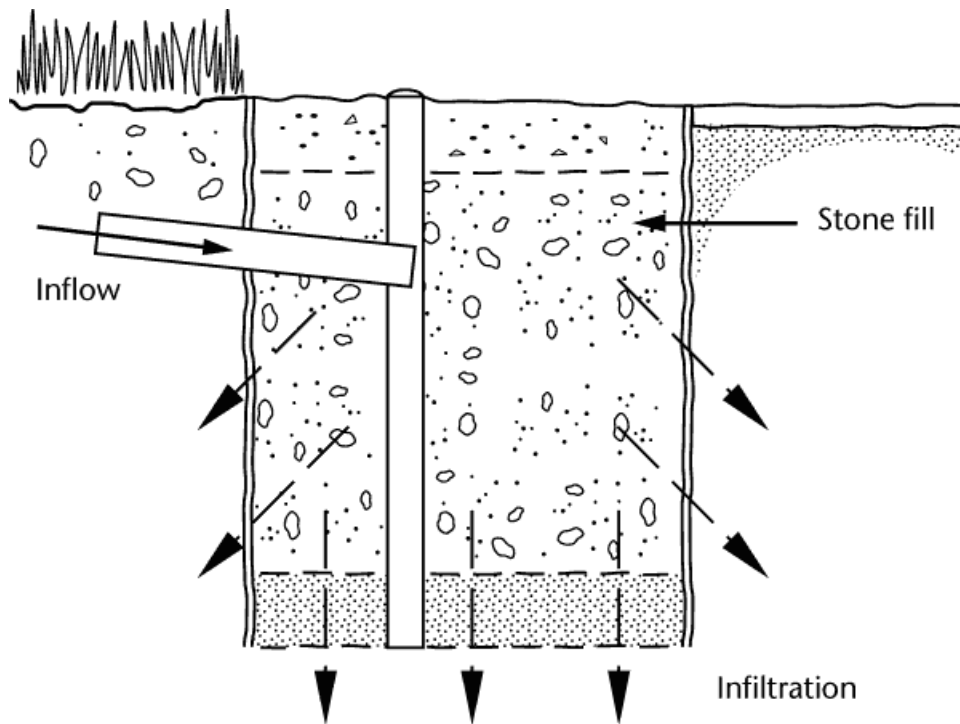
- Minimising paved areas and maximising the use of areas such as gardens and parklands, allowing surface water to drain off naturally to gardens and open space.
- Using permeable / porous surfaces such as pervious paving, porous asphalt, gravel, crushed stone, grass-crete and grass which allow water to permeate into the ground rather than draining away from it. Then, depending on the ground conditions, water can either infiltrate directly into subsoil or be retained in an underground reservoir (of crushed stone or similar) for delayed discharge. Pollutants are held below the surface to degrade slowly or be removed by filtering down through the sub soil.



SuDS permeable paving cross section

Source: Sustainable Drainage Systems (SUDS) A guide for developers – Natural Resources Wales (NRW)

- Rainwater recycling and harvesting systems can range from the simplest device in the form of a water butt to much more expensive systems. By capturing rainwater from roofs and using it for flushing toilets, storing it in butts for car washing and garden watering, or if filtered and purified, for using within the main water system (known as “grey water”), water can be both re-used in times of shortage and prevented from adding to flooding problems in times of high rainfall.
- Using green roofs i.e. the use of plants on roofs to reduce the volume and rate of water runoff. They can retain up to 90% of rainfall which reduces the flow of rainwater. These are an important technique as they divert rainwater away from drainage systems. Green roofs can range from complete roof gardens to smaller areas of sedum roof e.g. on garages. They can also help to reduce urban heat and air pollution, provide thermal insulation and enhance biodiversity.
- Allowing flooding on part of a development site under some circumstances e.g. allowing the occasional shallow flooding of a car park for short periods to alleviate problems further downstream.
- Education is an important element in minimising pollution from surface water run-off. Simple measures such as keeping paved areas clean from litter and animal waste can help.
- Infiltration trenches and basins work by collecting rainwater and from these it gradually infiltrates into the ground. The trenches are generally shallow and backfilled with stone to create an underground reservoir, from where the water either infiltrates gradually into the subsoil or discharges to another structure at a controlled rate. The incorporation of a filter strip, gully or sump pit at the inflow will remove excessive solids, and enhance their longevity. An infiltration basin is normally free of water in dry weather conditions but available to store surface water run-off until it gradually infiltrates through the soil. Again, by slowing down the movement of the water, filtering and decomposition assist in the break down of pollutants. Generally these will be small scale systems, designed to fit into landscaped areas and mimicking natural drainage patterns.



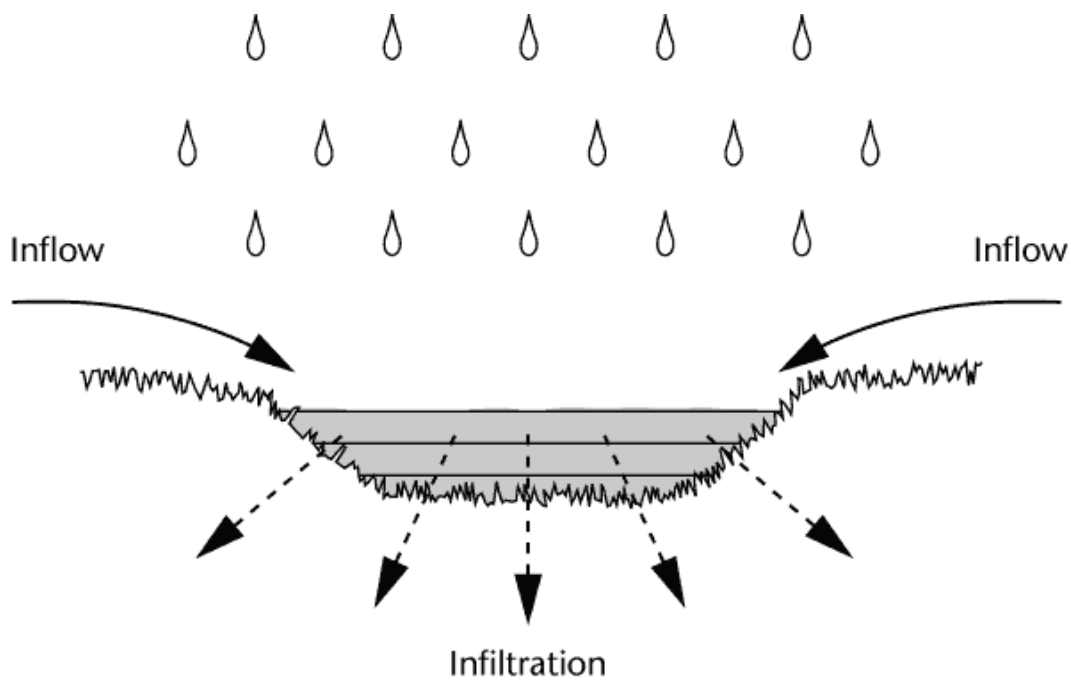
SUDS infiltration trench cross section

Source: Sustainable Drainage Systems (SUDS) A guide for developers – Natural Resources Wales (NRW)

Conveyance systems

3.7 - The techniques used should minimise the quantity of water discharged directly to a river and move runoff slowly, allowing storage, filtering and some loss of the runoff water.

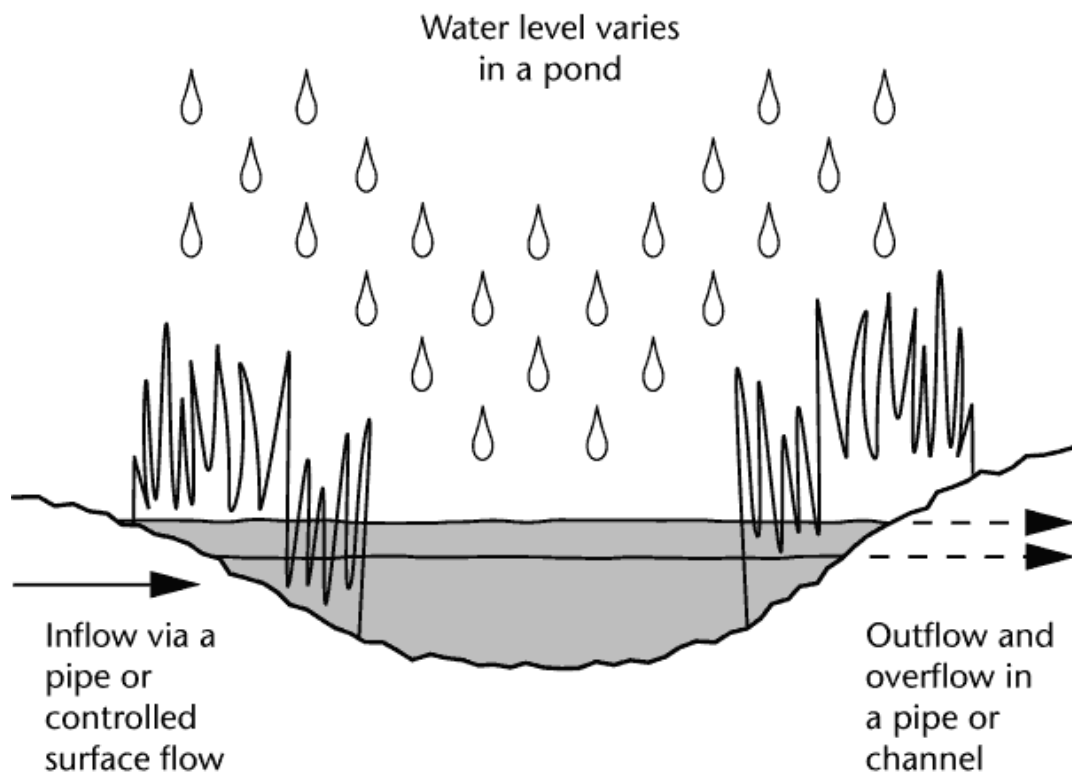
- Filter drains (or French drains) are similar structures through which a perforated pipe runs, facilitating the storage, filtering and infiltration of water from the source to the discharge point.
- Swales are very shallow, wide linear, usually grassed depressions, often alongside roads, which are normally dry but take water during rainfall and allow it to infiltrate as it slowly travels to a pond or wetland prior to its discharge to a watercourse. The rate of discharge is slowed by providing a gentle gradient or a series of low dams or pounds on the channel bottom to hold back the water. Thus, pollutants are filtered naturally by filtering or microbial decomposition. Swales are often installed as part of a drainage network connected to a balance pond. On side roads swales can replace traditional kerbs, saving on construction and maintenance costs, and assisting the ecology by providing green corridors.



SuDS swale diagram

Treatment systems

- Treatment systems use natural processes to remove and break down pollutants from surface water runoff.
- Filter strips are vegetated sections of land designed to accept runoff as overland sheet flow. In order to be effective they should be 5-15 metres wide and may adopt any natural vegetated form, from grassy meadows to small woods. They are best used at the upstream end of a drainage system, accepting runoff from areas up to 2 ha and can be used to effectively remove excess solids and pollution before discharge to an infiltration system. They can prevent erosion along stream banks by reducing flow speed and spreading the flow across a wide area. They can also provide a wildlife habitat.
- Detention basins are used to hold back storm runoff for a few hours to allow solids to settle. They are dry the rest of the time and are designed to hold back flood waters, reduce peak flows and limit the risk of flooding.
- Ponds and wetlands are likely to be well down the system, and be fed by swales, filter drains or piped systems. They can be designed to be normally dry, and are known as detention basins, existing to accommodate temporary flooding for a few hours, and may be used for other purposes (e.g. open space) when not required for drainage. However, they will probably contribute more to amenity and biodiversity if established as a wet pond or wetland. They can be designed to accommodate considerable variations in water levels, and to have considerable spare capacity, thereby enhancing flood storage capacity during storms and reducing flood levels in streams. By allowing adequate detention time they can trap sediment and hold back pollution where it can be broken down or - after a flood or pollution event - removed later. The algae and plants of wetlands can provide a particularly good level of filtering and nutrient removal, and reeds at inlets and outlets will cleanse water on its way through the pond. Where ponds are located close to residential areas, for example, safety measures should be incorporated into the design, such as very gently sloping floors and avoiding sudden changes in depth, and perhaps fencing or barrier planting. Ponds and wetlands can provide valuable wildlife habitats, recreational opportunities and contribute to open space requirements.



SuDS pond diagram

Source: Sustainable Drainage Systems (SUDS) A guide for developers – Environment Agency

Site considerations

3.8 - Not all SuDS techniques are suitable for every site, as their effectiveness is dependent on ground conditions and ground water levels in the area. Developers should establish and take into account the soil, geological and hydrological conditions in determining which type of SuDS is most appropriate. This includes looking at ground and groundwater conditions, consideration of a drainage impact assessment and the structure of foul water sewers.

3.9 - Where permeability is low, as on clays, swales and ponds are more likely to be effective than infiltration devices, but the solution will depend on the space available. Other subterranean solutions will always be possible. Infiltration rates can be measured and related to different types of technique. In the vicinity of old mine workings, which occur in parts of the county, SuDS must be designed to avoid feeding into such features.

3.10 - Similarly, assessments should consider the topography of the site, whether it has been previously developed or contaminated, its relationship to watercourses on or adjacent to the site (be they natural, culverted or channelled), existing marshy or wet areas on or near the site, ecology in the locality, and groundwater levels and protection zones. The choice of SuDS technique must also take account of pollutants present in the run-off.

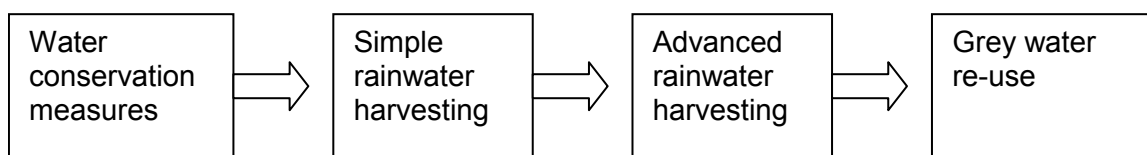
3.11 - The Council and Natural Resources Wales will provide basic guidance on the appropriateness of SuDS techniques for development sites.

Water Conservation and Management

3.12 - Developers should integrate measures to promote water efficiency and water conservation as this can both reduce water consumption and surface water run-off. This can include systems which 'harvest' rainwater and those which recycle water. There are many simple and inexpensive ways of doing this such as:

- installing appliances which are water efficient
- installing low / dual flush toilets
- installing spray taps
- installing water butts
- collection of rainwater for watering the garden and washing the car
- using grasses and plant types in the garden which require less water than standard varieties

Installing rainwater harvesting and grey water systems (water recycling) are more expensive but can reduce domestic water use by up to 30%. Rainwater harvesting should be the preferred option as the re-use of grey water requires treatment of water. The costs and benefits in terms of reducing water use and saving money will depend on the type of system installed, which can be as simple as a water butt on a rain water downpipe.



The measures outlined above should not be restricted to new build development, but should also be retrofitted when on existing properties.

The sequence for investing in water conservation and recycling measures is shown below.

4 - Natural Resources Wales

4.1 - Natural Resources Wales (NRW) has two roles in respect of development and flooding. Firstly, it has to consider how development would affect rivers, and existing and new flood defence operations, taking account of conservation interests. Secondly, NRW can advise on how proposed development would itself affect flood risk by providing a broad assessment of the potential flooding effects, and of the scope for engineering works to alleviate it. As part of pre-application discussions, NRW will provide information to assist developers in complying with TAN15. When consulted NRW will indicate what further information is needed to enable consideration of the application, provide detailed advice on the flood consequences assessment accompanying an application, suggest alleviation works and conditions, and object to the proposed development where the consequences of a flood event cannot be acceptably managed in terms of the risk to people and property, and natural heritage.

5 - Planning Applications

5.1 - Surface water drainage is a material consideration when determining planning applications. The Council, as local planning authority, must have regard to the degree of flood risk in determining the planning application, and make clear that approval does not imply the absence of flood risk. The Council will seek to ensure applicants consider SuDS for all developments in line with UDP policy EWP17. It is essential to consider sustainable drainage early in the development process because there may be implications for land purchase or design and layout; furthermore, retro-fitting SuDS to a pre-existing design layout is generally more difficult, less effective and more costly.

Pre-application discussions

5.2 - Developers are advised to discuss drainage issues with the Council before submitting a planning application. It is advisable for developers to provide an initial assessment of drainage options at this time, having considered soils and geology, or having consulted those with experience in the field, to enable constructive discussions with the Council.

Information to accompany planning applications

5.3 - An Indicative Drainage Strategy should be submitted with outline planning applications. For larger developments a Drainage Impact Assessment will also be required at this stage. For full applications and reserved matters a Detailed Drainage Design will be necessary, and information relating to SuDS may form part of the design and access statement.

Planning obligations and conditions, adoption and maintenance

5.4 - In Flintshire, according to the UDP **'Within problem areas or areas likely to pose a flooding risk to existing built up areas, all developments which involve the installation of impermeable surfaces should be required to incorporate appropriate sustainable designs'**.

5.5 - At present the adoption of SuDS is an issue at the national level, which the NRW and others are seeking to resolve in the form of an agreed code of practice providing a clear and consistent responsibility procedure. (Thus far, there is an Interim Code of Practice, produced by the National SuDS Working Group in July 2004.) There are currently no legally binding obligations relating to the provision and maintenance of SuDS as opposed to conventional foul and surface water drainage systems. Until these matters are resolved nationally, arrangements for sites will be made on a site by site basis. It has to be pointed out that highway authorities generally are reluctant to accept off-highway works. An alternative might be for the Council in its land drainage capacity to have a policy for the adoption of SuDS measures.

5.6 - The most appropriate method of achieving implementation and long-term maintenance of SuDS is under Section 106 of the Town and Country Planning Act. SPG 22 Planning Obligations explains the process in greater detail.

5.7 - The Construction Industry Research and Information Association (CIRIA) have produced three Model Agreements which (1) provide a tool for planning authorities to encourage the use of SuDS and ensure effective management, (2) should be useful to developers and householders who wish to ensure effective management of their drainage systems, and (3) help to promote increased take up of SuDS. They are designed to be flexible and are available from CIRIA. They do not stipulate which organisations should maintain particular drainage elements as this will vary according to the type of SuDS, the maintenance required, and the experience of the organisation involved.

5.8 - The Council, before granting planning permission, may require that a Section 106 planning obligation be entered into to ensure that any SuDS schemes can be properly implemented and thereafter maintained for the lifetime of the development. An example of such an agreement can be found on CIRIA's SuDS website. This allows the Council to ensure that:

- The SuDS is properly designed and the maintenance issues have been considered.
- Long term maintenance is planned for.
- Revenue can be raised to support the long term maintenance.

5.9 - Within the Section 106 Agreement, the options for SuDS maintenance are:

- SuDS maintained in the local authority
- SuDS vested in the local authority
- SuDS maintained by a third party
- SuDS maintained by a management trust

5.10 - In connection with the above list, it is important to emphasise that a properly-functioning SuDS system should be low-tech and involve minimum maintenance.

5.11 - CIRIA have also prepared a Maintenance Framework Agreement. It allows the local authority or a sewerage undertaker to undertake ownership of the system, and allows maintenance to be carried out by a private contractor.

5.12 - CIRIA's model Private SuDS Agreement allows any property owner or facilities manager to contract out the maintenance of SuDS, independently of the planning process.

5.13 - In relatively simple and straightforward cases the Council may instead choose to impose planning conditions to ensure that the work is carried out properly. A maintenance strategy will be required as a condition. Commuted sums for maintenance will usually be sought where drainage schemes incorporate open space or amenity space and/or the physical maintenance of drains, filters and other similar works. Permanent utility vehicle and maintenance access must be incorporated into the landscaping or works.

5.14 - All proposals for SuDS should respect amenity and ecology, particularly where a watercourse is affected. Full details of any alterations to watercourses must be submitted to the drainage authority for approval, before any works commence on site.

5.15 - It is important that the SuDS network, and its interface with drainage networks, may be effectively maintained in perpetuity. Therefore a developer will be expected to liaise with the water/drainage authorities in order to provide appropriate solutions and conform with national guidance.

6 - Summary

6.1 - SuDS are a cost effective way of overcoming flooding issues and are an essential part of adapting to the predicted change in climate. They are suitable for a wide range of developments, from small domestic extensions through to major industrial developments. The incorporation of SuDS into a scheme needs to be undertaken at an early stage to ensure the appropriate technique/s are used for the site. SuDS can also be retro-fitted to existing developments and can also help reduce water use.

6.2 - The Council will require SuDS as set out above and it is also recommended that developers follow the good practice guidelines set out below.

Good Practice:

- New development should provide appropriate SuDS for the disposal of surface water.
- SuDS should be incorporated within the development site. Where this is not possible, developers should contribute towards the cost of SuDS off-site.
- SuDS can be used to provide benefits in terms of public amenity space and wildlife and habitat improvements.
- Where possible, rainwater should be stored so it can be re-used for irrigation or within a 'grey water' system.

NB: This SPG deals only with surface water drainage, not foul drainage as such, although it should be noted that small scale natural systems can assist with the latter e.g. reed bed filtration

Appendix 1: Main Relevant National Policies and Guidance

Planning Policy Wales 2011
 Technical Advice Note 5 Nature Conservation and Planning 2009
 Technical Advice Note 12 Design 2009
 Technical Advice Note 15 Development and Flood Risk
 Environment Strategy for Wales 2006
 One Wales: One Planet, a New Sustainable Development Scheme for Wales 2009
 Strategic Policy Statement on Water 2011, Welsh Assembly Government
 Flood and Water Management Act 2010

Appendix 2: Main Relevant UDP Policies

Topic	UDP Policy	Paragraph
New Development	<ul style="list-style-type: none"> » STR1 New Development » GEN1 General Requirements for Development 	
Water Resources	» EWP16 Water Resources	
Flood Risk	» EWP17 Flood Risk	
SuDS	» EWP17 Flood Risk	19.80 19.81
Nature Conservation / Biodiversity	<ul style="list-style-type: none"> » STR7 Natural Environment » WB6 Enhancement of Nature Conservation Interests 	
Design	» D1 Design Quality, Location and Layout	

Appendix 3: Glossary

- Amenity – the perceived quality of life in terms of the value attached to a place or space
- Biodiversity - the variety of all living things (plants, animals, fish, insects etc) which exist in a particular area and the habitats which support them.
- Development – s55 of the Town & Country Planning Act 1990 defines development as ‘The carrying out of building, engineering, mining or other operations in, on, over or under land, or the making of any material change in the use of any buildings or other land’.
- Ecology – the study of living things in relation to their environment or surroundings.
- Natural Resources Wales (NRW) is the body appointed by the National Assembly for Wales responsible for environmental regulation to ensure air, water and soil quality
- Fauna – the animals of an area or region
- Flood risk – the likelihood of an existing or proposed development being flooded is

- usually based on assessment carried out by the Environment Agency
- Flora – the plants of an area or region
- Foul water – water containing waste which is produced by a development and which requires treatment, in contrast to water which runs off the surface of development e.g. hardstandings and roofs, which should generally not require treatment
- Full / detailed application – a planning application whereby no matters are reserved for subsequent approval
- Ground water – water held in aquifers which is used for drinking water, the quality of which should be protected
- Habitat – a site or area inhabited by and supporting a particular plant or animal (often referred to in the context of protected species)
- Nature Conservation – a general term applied to the protection and enhancement of the natural environment (both flora and fauna)
- Non-potable water – not of drinking water quality but may be used for other purposes depending on its quality
- Planning application – an application submitted to the local planning authority for permission to carry out development accompanied by a fee (where necessary)
- Planning permission – where the local planning authority approves a development as set out in a decision notice which may or may not set out planning conditions which the development will need to satisfy
- Reserved matters – those matters which were not considered as part of an outline application must be considered as part of a subsequent reserved matters application and may include siting, design, external appearance, access and landscaping
- Section 106 agreement – a legal agreement between a Council, and applicant (and sometimes third parties) to ensure that certain actions, relevant to the development, are carried out satisfactorily, where these are not capable of being enforced through a planning condition
- Surface water runoff – water which runs off a development e.g. from hardstandings or roofs

Appendix 4: Further Reading

- Guidance on the permeable surfacing of front gardens – Department of Communities and Local Government / Environment Agency 2008
- Interim Code of Practice for Sustainable Drainage Systems – National SuDS Working Group 2004
- Model agreements for sustainable water management systems. Model agreements for Sustainable Drainage Systems – CIRIA
- Planning for SuDS – making it happen – CIRIA 2010
- Site Handbook for the Construction of SuDS – CIRIA 2007
- SuDS An Introduction – Environment Agency
- Building a Better Environment A Guide for Developers – Environment Agency 2006

- Sustainable Urban Drainage Systems Best Practice Manual for England, Scotland, Wales and Northern Ireland – CIRIA
- Sustainable Urban Drainage Systems Design Manual for England and Wales CIRIA
- The SuDS Manual – CIRIA 2007

Appendix 5: Contacts

Further advice and information can be found on the following websites:

Construction Industry Research and Information Association (CIRIA) –
 Classic House
 174 - 180 Old Street
 London EC1V 9BP, UK
 020 7549 3300
www.ciria.org
www.ciria.com/suds

Natural Resources Wales (NRW)
 Ty Cambria
 29 Newport Road
 Cardiff
 CF 24 OTP
 0300 065 3000
enquiries@naturalresourceswales.gov.uk

Department of Communities and Local Government -
 Eland House
 Bressenden Place
 London
 SW1E 5DU
 0303 444 0000
www.communities.gov.uk

Welsh Assembly Government -
 Cathays Park
 Cardiff
 CF10 3NQ
 0300 0603300
www.wales.gov.uk

SuDs Wales
www.sudswales.com

Appendix 6 – Examples of SuDs in Flintshire

- A5117 Deeside – design and incorporation of 11 hybrid wetlands to provide drainage and attenuation and to treat run-off whilst enhancing biodiversity.
See www.landscapeinstitute.org/casestudies/casestudy.php?id=79
- Ewloe Green Housing Site – SuDs required for surface water drainage to ensure the discharge rate is limited to the Greenfield runoff rate
- A55 Flintshire – constructed January 2000 and incorporated an infiltration trench
- Warren Hall Business Park – not yet constructed. Incorporates: pond, porous paving, rain water harvesting system, swale