East Lothian Council

local development plan 2018

Sustainable Drainage Systems (SuDS)

supplementary planning guidance

Cross-service SuDS Working Group
East Lothian Council
Final Version – June 2019

Executive Summary

Sustainable Drainage Systems (SuDS) deal with excess water from a site, and return it to the water system in a controlled manner to alleviate flood risk and reduce discharge of diffuse pollutants. SuDS should replace the traditional system of surface water entering directly into combined surface water and foul water sewers.

CIRIA's latest edition of *The SuDS Manual* provides advice on designing SuDS, some of which Scottish Water will vest if the SuDS also complies with their *Sewers for Scotland* technical guidance. Sewers for Scotland provides the minimum requirements for compliance, and has often been interpreted in a way that has resulted in SuDS features functioning as a water attenuation and treatment solution, but not maximising the full capability of the SuDS feature for biodiversity, recreational and amenity value.

This SuDS Supplementary Planning Guidance has been prepared by East Lothian Council's cross-service SuDS Working Group. It supplements the Local Development Plan 2018 policies regarding SuDS and flood risk management and links with wider Council policies, strategies and priorities. The SPG sets out the Council's preferred approach to the design, functionality and management of new SuDS features for all types of development to ensure that they are visually attractive, add value in terms of recreation, amenity and biodiversity, and can be maintained effectively.

Figure 1: Detention basin providing water detention as well as usable attractive amenity space with a wide base and relatively shallow slopes. Source: The SuDS Manual C753

Credits

All images (unless stated otherwise) courtesy of Woods Ballard, B, Wilson, D, Udale-Clarke, H, Illman, S, Scott, T, Ashley, R, Kellagher, R (2015) ***The SuDS Manual C753****, CIRIA, London (ISBN: 978-0-86017-759-3) www.ciria.org*

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1. Overview

Sustainable Drainage Systems (SuDS) are an effective flood risk management and water treatment strategy within the built environment, helping to protect existing and new communities from the harmful effects of surface water flooding. SuDS function by managing surface water run-off by treating it as near to source as possible, slowing down the rate of discharge, treating water sustainably, and releasing it in a controlled way to watercourses or groundwater. Since 2006 SuDS have been a legal requirement[1] for most new developments[2].

1.1 National Policy and Guidance

Scottish Planning Policy (SPP) 2014 (paragraphs 254-268) requires Planning Authorities to promote flood avoidance, flood reduction, and avoidance of increased surface water flooding through the use of SuDS. Within Development Planning, this should be achieved through assessing flood risk at Strategic Flood Risk Assessment level, and the use of the flood probability risk framework to guide development. At the Development Management stage, regard must be had for the site characteristics, and the design and use of the proposed development. Depending on site location and characteristics, an assessment of flood risk through Flood Risk Assessments and Drainage Assessments should be undertaken in order to inform decision-making.

Designing Streets: A Policy Statement for Scotland uses six key qualities to define the characteristics and qualities of design and place. These are: Distinctive, Welcoming, Safe and Pleasant, Easy to Move Around, Adaptable and Resource Efficient. SuDS have a significant contribution to make in relation to the quality of the built environment and towards achieving these placemaking principles.

Further national guidance is also given in Planning Advice Note 61 Planning and Sustainable Urban Drainage Systems and Planning Advice Note 79 Water and Drainage.

1.2 Local Policy

The Local Development Plan 2018 recognises the contribution SuDS can make towards high quality design and placemaking. It sets out in Chapter 6 (Advice Box 6: Water Environment and Policy NH9: Water Environment) the strategies and principles to be applied when designing new developments to protect and enhance the water environment. Policy NH10: Sustainable Drainage Systems explains how developers must incorporate SuDS features into new developments and the relevant standards to be applied depending on the type and location of SuDS feature. The LDP 2018 encourages the effective design and management of SuDS from the outset of development design. This is reflected through the requirement in Policy DP4: Major Development Sites criteria 16, where masterplans must describe and illustrate "*the type, location and incorporation of Sustainable Drainage Systems".* Different types of SuDS require more areas of land than others, and consideration must be given at the start as to how buildings and SuDS can best be integrated into site layouts. This is particularly important to ensure that the benefits of SuDS for green networks, flood risk management, water quality, amenity, biodiversity, climate change adaptation and economic gain are maximised. Policy NH11: Flood Risk sets out how the Council will consider flood risk in relation to new development. This SuDS SPG also links closely to Policy DC10: The Green Network and the approved Green Network Strategy SPG.

[1] Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended):
[2] Exceptions are single dwellings and low-risk direct discharges to coastal waters

The level of SuDS required is dependent on the nature and size of the proposed development and the environmental risk posed by it. SEPA's "Simple Index Approach" (SIA) should be used to identify what level of treatment is appropriate for the development. Guidance on use of the SIA can be found in SEPA's Regulatory Method 08 (WAT-RM-08) or Section 26.7.1 of the CIRIA SuDS Manual C753.

1.3 The Aim of this SuDS SPG

This SuDS Supplementary Planning Guidance seeks to provide developers with a clear understanding of how and why SuDS design and management must be carefully considered and form part of the overall design strategy for any development in East Lothian. SuDS design must be as a response to the specific location and context of the site, and developers/designers must demonstrate how the SuDS feature will provide additional benefits beyond just the engineering requirements of surface water management. CIRIA describe the four main categories of benefits that can be achieved by SuDS, referring to them as the four pillars of SuDS design, as shown in the diagram below.

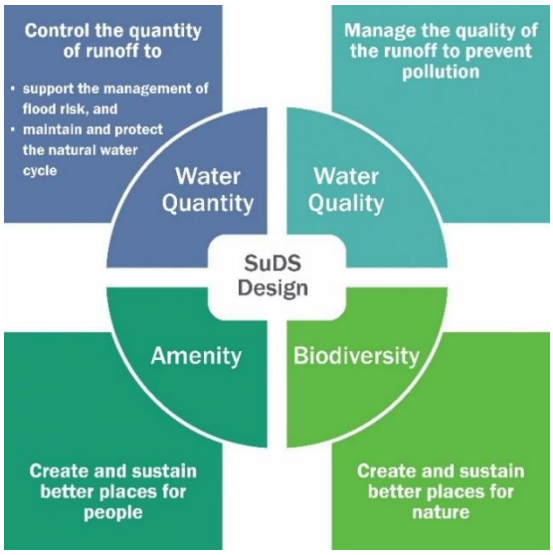


Figure 2: Four pillars of SuDS design as defined by CIRIA
Source: The SuDS Manual C753

East Lothian Council require SuDS features to be well-designed to integrate with and enhance the built environment and surrounding landscape and contribute to high quality green space in line with LDP 2018 policies and CIRIA The SuDS Manual. SuDS can offer a wealth of opportunities within developments for both passive and active recreation for the local community. How these benefits will be achieved must be demonstrated in new development layouts, utilising one or more in the wide variety of SuDS features including (but not limited to) green roofs, rain gardens, soakaways, bio-retention, swales, filter trenches, permeable paving, detention basins and ponds. Multiple SuDS features can be used within a single site to provide the necessary treatment, and they must each contribute towards high quality design and placemaking.

To be considered as part of the Council's on site open space requirements for new housing, SuDS need to provide both suitable surface water treatment (including flood attenuation and water quality) **and** enhanced landscape setting, benefits to biodiversity or useable recreational space. East Lothian Council supports well-designed SuDS solutions within amenity areas. In terms of public safety for ponds and similar features, the Council promotes the use of soft boundaries (i.e. planting) around SuDS and the avoidance of steep drops or sudden changes in level. This may avoid the need to fence them off. However, this would always require to be considered via an appropriate risk assessment.

1.4 Maintenance of SuDS – Memorandum of Understanding & Section 7 Agreements

At the time of writing this SuDS SPG, East Lothian Council are in discussions regarding a Memorandum of Understanding (MOU) between East Lothian Council and Scottish Water for the vesting and management/maintenance of SuDS that deals with surface water from both private curtilages and roads. It is the intention that the agreement will set out clear responsibilities for both above ground and below ground maintenance of SuDS features that are vested by Scottish Water and also deal with road run-off.

Figure 3: Pond at Toll House Neuk in Windygoul, Tranent providing a distinctive area of wildlife and biodiversity interest well overlooked by surrounding housing adding to their visual amenity and contributing to placemaking principles. Source: author's photo

2. Planning Applications – Submission Requirements for SuDS

SuDS must form an integral part of the design process from the start, be considered fully through the planning application process in terms of contribution to placemaking and environmental improvement, and into the construction, operation and maintenance phases.

East Lothian Council requires sufficient information to be submitted with any planning application that includes a SuDS to allow a full assessment to be made. This information must include how the SuDS features will contribute towards water management and flood risk reduction, placemaking, biodiversity, amenity and other benefits. A Drainage Assessment should be submitted with relevant planning applications, the content and detail of which will vary depending on the size of the development (see Part 3 of the SUDSWP Water Assessment and Drainage Assessment Guide for further guidance). Planning Advice Note 79: Water and Drainage should also be referred to. The assessment and accompanying drawings must demonstrate that the SuDS features have been sized to the required Treatment Volume (as per Simple Index Approach (SIA)), and confirm that the proposals comply with Sewers for Scotland standards (where applicable) or CIRIA The SuDS Manual where they are not to be vested.

Scottish Water should be contacted at an early stage to discuss the principle of development, network capacity and proposed SuDS. Although every site and proposal will vary, the following information should be provided, in addition to the engineering and technical details, to allow the full assessment of proposed SuDS features:

2.1 Applications for Planning Permission in Principle

- **An overall drainage strategy** - including a flood risk assessment and drainage assessment
- **SuDS Plan** - An appropriately scaled annotated site plan to show the approximate locations and land-take of the proposed SUDS features

2.2 Applications for Detailed Planning Permission

- **SuDS Plan** - An appropriately scaled annotated site plan to show the locations and land-take of the proposed SuDS features
- **SuDS sections** –sections through SuDS features showing its form and relationship with surrounding land
- **SuDS Features Maintenance Schedule** - Details of the annual and long-term maintenance which will be required for the system.
- **SuDS Maintenance Plan –** a plan showing who will have maintenance responsibilities for each area of land (for instance, the Local Authority, a communal factor, Scottish Water or individual home owners).
- **SuDS Features Risk Assessment** – Demonstrating that risks have been appropriately considered and mitigated
- **Details of compliance with *Sewers for Scotland* or *CIRIA The SuDS Manual* (as applicable)**
- **Outputs from Simple Index Approach (SIA) tool**

2.3 Ownership and Maintenance

The ownership and post-construction maintenance responsibilities of SuDS must be clearly set out from the start, whether this will be for homeowners, through communal factoring, Scottish Water or East Lothian Council. Refer to section 1.4 above on Maintenance of SuDS. For submission of planning applications, the maintenance schedule should accord with CIRIA C753 guidance. Additional

information is available in the SCOTS National Roads Development Guide: http://www.scotsnet.org.uk/phone/national-roads-development-guide.html. Should planning permission be granted, as part of the approval and the conditions of a planning permission, the Council will ensure compliance with the management and maintenance strategy.

2.4 Roads Construction Consent (RCC)

Scottish Water approval will be required for SuDS they intend to vest in order to obtain Road Construction Consent (RCC).Scottish Water should be consulted as early as possible in the design process in order to confirm the features which are intended for them to vest are compliant with the current edition of Sewers for Scotland.

2.5 Assessing SuDS design at the Planning Application stage

When assessing a proposal at project level, the key determining factor will be the policies in the Local Development Plan 2018. In addition to technical compliance, the Council will have regard to the following considerations on the suitability of a SuDS feature:

- Does the SuDS positively contribute to the visual amenity of the development?
- Does it contribute positively to the biodiversity value of the site?
- Is the developer proposing a SuDS feature to form part of their open space requirements, and if so, is it accessible and useable for the majority of the year?
- Why has this particular location and design been chosen?
- What alternatives locations and design have been considered? Why have they been dismissed?
- Has the Drainage Strategy demonstrated that the development has maximised opportunities to deal with surface water using SuDS features, thereby minimising the need for or use of underground pipes?

3. Design Guidance on SuDS

SuDS features, when designed and managed effectively, have a valuable contribution to make towards placemaking within new developments. They can significantly enhance the character of a development by providing attractive environments that buildings can be positioned around, create a focal point for a site or neighbourhood, link with other (existing or new) blue and green infrastructure, encourage social interaction, recreation and play, provide educational benefits on environment and wildlife, and help plant and animal species to thrive.

The following section describes the range of SuDS features that should be used within East Lothian to maximise the above benefits. In all cases SuDS must contribute positively to placemaking. For each type, the SPG provides any specific design requirements or considerations and how maintenance must be carried out. Photos of existing SuDS have been used to illustrate positive design features. For all SuDS types, the use of appropriate signage should be considered.

Proposals that involve enhancement of biodiversity in and around SuDS features should help to implement the Council's Green Network Strategy SPG. The location of SuDS and their amenity value should also be considered in relation to providing points of interest along sustainable travel corridors.

Proposals must also demonstrate that changes to the existing topography will not have a detrimental effect on existing wetlands, habitat, groundwater or watercourses.

In order to improve awareness of maintenance responsibilities and to promote educational benefits of SuDS features, the use of interpretation boards close to the SuDS feature is strongly encouraged. This should include details of the function of the SuDS, such as whether it is a generally wet or dry feature, safety information such as the maximum water depth (where applicable), how the SuDS may change during heavy rainfall, types of planting used and the insect and animal species it may attract, and contact details in the event that there is a need to report a maintenance or safety issue.

Figure 4: A detention basin in North Berwick with shallow depth and side slopes providing water detention as well as attractive amenity space. A space that contributes to placemaking values by being welcoming, safe and pleasant, as well as resource efficient. Source: author's photo

3.1 Detention Basins

Detention Basins are indentations which capture surface water run-off in times of flood, and release it slowly into the downstream system. They are expected to be dry for much of the year. Detention basins can be designed for either infiltration or attenuation, depending on site conditions.

If detention basins are to be included as recreational open space, consideration should be given to the following:

- The area must be accessible to all. This means side slopes of a suitable gradient for at least part of the basin or accessible paths across steeper slopes.
- It must be easy for people to escape the basin in times of a flood.
- *Sewers for Scotland* notes that the dual use of detention basins as passive public open space for recreation activities can be considered where the area is subject to flooding from events less frequent than the 1-year return period and where it can be clearly distinguished from the area providing flood storage for more frequent events.
- Where a dual use is proposed, the installation of educational and warning signage i.e. explaining the purpose/operation of the basin and any other measures identified within an appropriate risk assessment by the developer.
- Detention basins with a flat base size of a minimum of 60m x 40m can form an informal sports pitch.

In all cases the following will apply:

- The slope gradient, depth and profile of a detention basin must be considered together and must be informed by site specific characteristics and landscape, design, amenity and biodiversity objectives.
- Although *Sewers for Scotland* specifies that the side slopes of basins must not be steeper than 1 in 4, East Lothian Council strongly encourages shallower slopes and a variety of slope gradients to create visual interest.
- In accordance with Sewers for Scotland and CIRIA, the shape profile of basins should not be geometric and angular but curved, giving a more natural and interesting appearance.
- Where the side slopes are designed to be grass covered and cut the gradient must be agreed with East Lothian Council to enable reasonable maintenance.
- Planting should be low maintenance.

Figure 5: Detention basin with amenity planting and easy access for maintenance. A space that contributes to placemaking values by being welcoming, safe and pleasant. Source: The SuDS Manual C753

If other adequate informal recreational space is delivered elsewhere within the development and within an adequate radius of the housing units then a detention basin can be considered to form part of the landscape setting and potentially biodiversity enhancement. Although detention basins are typically grassed, where basins are not lined, they should be planted with a mix of suitable low-maintenance native plant species, including flowering plants, to benefit amenity and biodiversity by providing wildlife habitats (see ELC Green Network Strategy SPG). Planting can also help prevent erosion and slow flows across the basin thereby increasing sediment settling.

Figure 6: Detention basin providing water detention as well as usable attractive amenity space with raised areas for planting and a variety of side slope gradients, being adaptable and resource efficient. Source: The SuDS Manual C753

Topsoil depths should be appropriate for the type of planting.

- 100mm subsoil for wildflower meadow planting
- 150mm topsoil for amenity grass
- 450mm for shrub planting
- Trees will require individual pits up to 1m in depth

Planting within SuDS basins must comprise of robust plants that are tolerant of a wide range of conditions, both wet and dry. When determining planting species, consideration must also be given to the effects of varying water levels, extreme winds, and seasonal changes (e.g. autumn) on the increased risk of blockage to flow control features. Small pools planted with wetland and marginal plants may be included as a feature of a detention basin. However, consideration must be given to the possibility of these drying out completely in summer months and the consequences for the planting.

To ensure that the SuDS feature remains attractive and well-maintained, a maintenance schedule must be provided at the planning application stage to allow assessment of the long-term maintenance

responsibility. An example of a maintenance schedule is given in table 22.1 on page 483 of the CIRIA C753 The SuDS Manual.

Figure 7: A SuDS basin within a larger area of landscaping creating an attractive landscaped area that is distinctive, welcoming, safe and pleasant, adaptable and resource efficient. Pinkie Park, Battlefield Drive, Musselburgh. Source: author's photo

3.2 Swales

Swales are shallow, flat bottomed, vegetated, open channels that can have multiple functions including:

- Water conveyance – the swale collects surface water run-off and moves it to another part of the treatment system.
- Water treatment – if the swale includes a filter trench in the base this provides water collection and treatment through a filter medium.
- Water retention - swales can also be designed to be wet with a permanent shallow level of water in the base supporting wetland planting.

Swales provide the opportunity to introduce green vegetated areas into road corridors where there would be limited open space value of grass as play space. Vehicles must be prevented from parking or over-running the edges. Short sections of swale between driveways need to be carefully designed to discourage vehicle encroachment. This may be achieved by use of planting with shrubs or trees rather than grassed.

Figure 8: Shallow formal grassed swale wide and shallow enough to be cut by a ride-on mower. Note low fence to prevent vehicle over-run. Source: The SuDS Manual C753

The depth, width and slope gradient of swales must be considered together, informed by site characteristics, the design objectives for the site and a risk assessment.

As it can be difficult for grass-cutting equipment to navigate the swales, alternative planting material should be considered as appropriate for the function of the swale and whether it is expected to be predominantly wet or dry. Where the side slope is designed to be grass covered and cut as part of the maintenance schedule, the gradient must be agreed with East Lothian Council.

Planting in a swale in natural soil must be robust and tolerant of a wide range of conditions, both wet and dry. Planting schemes in an under-drained swale must be drought tolerant. Trees should be kept to the natural soil banks.

Figure 9 (above and right): Examples of wet and dry planted swales, contributing to placemaking principles by being distinctive, welcoming, safe and pleasant, adaptable and resource efficient. Source: The SuDS Manual C753

As swales are generally shallow surface features they must be designed in order not to present significant risk or danger to the health and safety of the public. This needs to be considered as part of an appropriate risk assessment by the developer.

Figure 10: Natural play within a shallow swale providing distinctive adaptable and resource efficient space that is well overlooked and has high amenity value. Source: The SuDS Manual C753

3.3 Ponds or Wetlands

Well-designed and maintained permanent water bodies such as ponds and wetlands can offer important aesthetic, amenity and wildlife benefits to development sites. While in dense urban environments, a hard landscaped pond may be appropriate, in the semi-rural setting of East Lothian ponds or wetlands are likely to be naturalistic features with shallow planted and grassed side slopes.

Ponds which are to function as SuDS features should be designed by appropriately skilled landscape professionals in conjunction with engineers in order to ensure aesthetic quality, effective integration within the landscape and performance as a community resource.

Depending on their location, the balance of visual amenity and habitat provision can be adjusted accordingly:

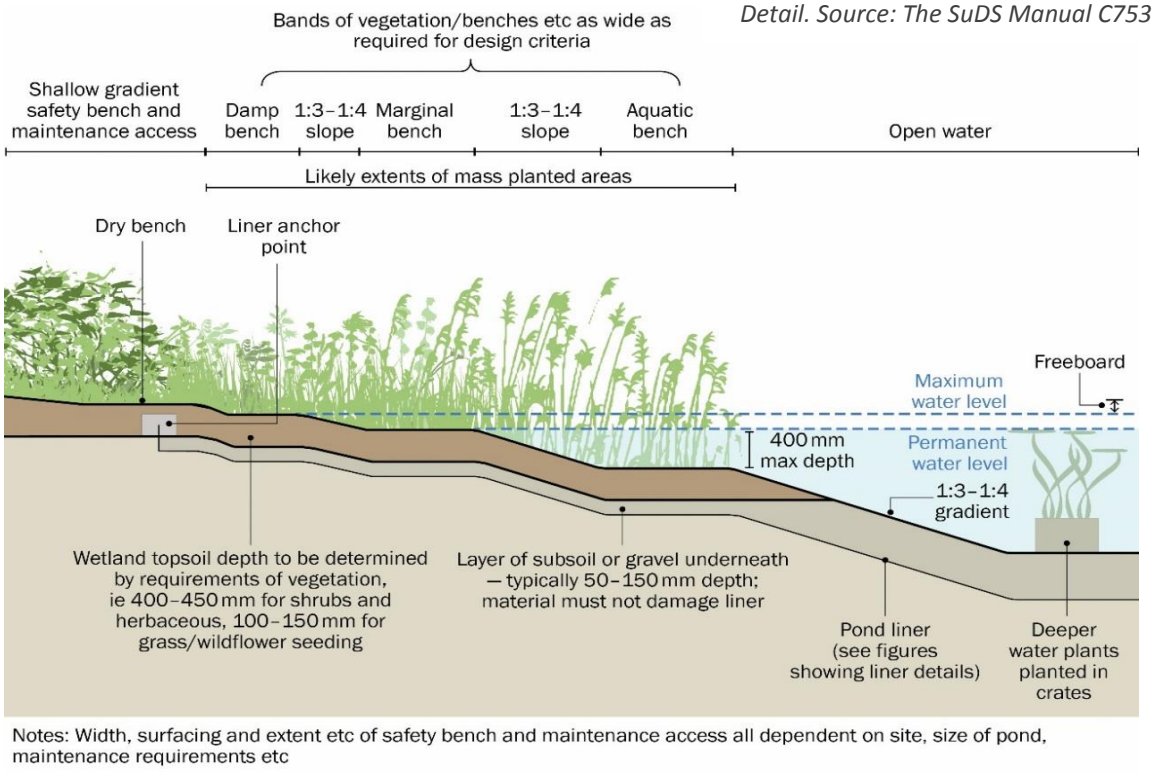
- At the core of the development – a pond or wetland should provide an aesthetically pleasing feature with a range of habitats to suit native and desirable species.
- As part of the wider landscape setting or on the periphery of the site, the focus should be on biodiversity and habitat provision within a landscape that reflects native species. In such cases the design should demonstrate connectivity with adjacent green corridors to enable species migration.

In terms of public safety, the Council promotes soft boundaries and the avoidance of steep drops and sudden changes in level. This may eliminate a requirement for fencing and retains a more naturalistic appearance to the SuDS pond. However, this would also require to be considered via an appropriate risk assessment by the developer. This approach also enables efficient maintenance by allowing the use of ride on grass cutting equipment. Soft boundaries can be achieved by incorporation of low to medium height marginal planting, varying grass cutting heights and gentle shelves to ponds.

Figure 11: SuDS basin / pond in North Berwick for C400 houses within a larger area of landscaping creating an attractive more formal landscaped area that is both distinctive and welcoming, contributing to placemaking. Source: author's photo

In order to provide effective water treatment functions the 'effective' area of a pond needs to be 1 metre deep. However, there should be a mix of water depths (as indicated in Figure 11 below) and a minimum of 150mm water depth to provide adequate capacity to sustain desirable species. Gentle changes in slope around the pond perimeter as indicated in Figure 11 below allow the development of different types of wetland vegetation. Locating new ponds close to existing water bodies can benefit biodiversity.

Figure 12: Typical Planted Pond Edge Detail. Source: The SuDS Manual C753



Notes: Width, surfacing and extent etc of safety bench and maintenance access all dependent on site, size of pond, maintenance requirements etc

Further information on the design of ponds can be found in the current edition of Sewers for Scotland and/or CIRIA guidance. Information on appropriate planting for ponds can be found in Appendix B.

Figure 13: Roads and playing pitches drainage at Law Primary, Haddington Road, North Berwick, naturally regenerating with local species, and providing access for education via a boardwalk. Source: author's photo

3.4 Filter Trenches

Filter drains or filter trenches are linear features filled with a filter material such as gravel. They may have perforated pipes along the bottom to convey the water that percolates down through the filter material. They can be positioned at the bottom of dry swales or be on their own. They must be protected from silting up through upstream protection. Roadside filter trenches can be of the 'French style' that are open, usually stone filled up to the ground surface, or enclosed under a hard or soft surface. With reference to the following section on permeable paving, it is the Council's preference (in residential areas) to have filter trenches located underground with access chambers at significant changes in direction, or at a maximum spacing of 20 metres to facilitate ease of maintenance.

3.5 Permeable Paving

Permeable paving can be accepted in private parking areas and driveways. East Lothian Council will not generally accept permeable paving on roads and parking areas that will be adopted by the Council.

Utility services should be minimised under permeable paving to avoid disruption to the water attenuation and treatment elements of the permeable paving, should access to the underground services be required.

Permeable paving must be clearly identified on the maintenance and factoring plan and details on the maintenance of these features included within the maintenance schedule. Information on the requirement to retain and maintain these must be provided to householders where provided within private curtilages.

3.6 Other SuDS Features

There are a variety of other types of SuDS features that may be supported where they follow the recommendations of the SPG, and subject to detailed design and statutory consents.

3.7 Further Guidance and Best Practice Examples

A number of examples of best practice exist and applicants are recommended to refer to these. In particular, The CIRIA SuDS Manual Version 6 and subsequent updates published by CIRIA, offers detailed guidance on the technical requirements of SuDS design, as well as demonstrating how the ethos of combining technical requirements with amenity, aesthetic and biodiversity considerations can be best achieved.

Figure 14: Swale planted for biodiversity and amenity, adding to placemaking principles by being distinctive and welcoming. Source: The SuDS Manual C753

Figure 15: Wet swale example contributing to placemaking by creating attractive and distinctive space that is overlooked to be safe and pleasant, shallow slopes to be easy to move around, and being adaptable and resource efficient. Source: The SuDS Manual C753

Figure 16: Pond example with barrier planting preventing access to standing water and interpretation board with information on the requirements for and biodiversity value of the pond. Source: The SuDS Manual C753

Figure 17: Pond example with dipping platform over shallow water.
Source: The SuDS Manual C753

Appendix A: Local Development Plan 2018 policies and advice

POLICY NH10: Sustainable Drainage Systems

All development proposals must demonstrate that appropriate provision for Sustainable Drainage Systems (SuDS) has been made at the time of submitting a planning application, except for single dwellings or developments in coastal locations that discharge directly to coastal waters where there is no or a low risk to designated bathing sites and identified Shellfish Waters. Sufficient space for proposed SuDS provision, including the level and type of treatment appropriate to the scheme of proposed development, must be safeguarded in site layouts. Provision must also be made for appropriate long-term maintenance arrangements to the satisfaction of the Council.

A drainage assessment may also be required to show the impact of a 1 in 200-year rainstorm event. SUDS schemes should be designed with an allowance for climate change.

Proposals must also demonstrate how SuDS will be used to promote wider benefits such as placemaking, green networks and biodiversity enhancement.

See also preamble text from paragraph 6.25 to paragraph 6.30 and Advice Box 8.

POLICY NH11: Flood Risk

Development that would be at unacceptable risk of flooding will not be permitted. New development within areas of medium to high risk of coastal or watercourse flooding (with greater than 0.5% annual probability of flooding) should generally be avoided In accordance with the provisions set out in Advice Box 8.

All relevant development proposals will be assessed based on the probability of a flood affecting the site and the nature and vulnerability of the proposed use, taking into account the following:

a) the characteristics of the site and any existing or previous development on it;

b) the design and use of the proposed development, including use of water resistant materials and construction;

c) the size of the area likely to flood;

d) depth of flood water, likely flow rate and path, and rate of rise and duration;

e) the vulnerability and risk of wave action for coastal sites;

f) committed and existing flood protection methods: extent, standard and maintenance regime;

g) the effects of climate change, including an appropriate allowance for freeboard;

h) surface water run-off from adjoining land;

i) culverted watercourses, drains and field drainage;

j) cumulative effects, especially the loss of storage capacity;

k) cross-boundary effects and the need for consultation with adjacent authorities;

l) effects of flood on access including by emergency services; and

m) effects of flood on proposed open spaces including gardens.

Flood Risk Assessments will normally be required for proposals within the medium to high risk category of flood risk. They may also be required in the low to medium category in certain circumstances, for example at the upper end of the probability range or for essential infrastructure and the most vulnerable uses.

Development proposals will not be supported if they would increase the probability of flooding elsewhere. Piecemeal reduction of the functional floodplain will be resisted given the cumulative effects of reducing storage capacity.

Areas of land that contribute to sustainable flood management, or have the potential to do so, will also be safeguarded from inappropriate development by this policy. These areas will include locations where the Council will promote flood defences in Musselburgh and Haddington once solutions are identified through the outputs of its Local Flood Risk Management Plan.

POLICY DC10: The Green Network

All relevant development must make provision for the Green Network in accordance with the relevant Development Brief and the Council's Green Network Strategy supplementary planning guidance once adopted. This will include the provision of off-site Green Network measures where identified in the Green Network Strategy, and where relevant as set out in a Development Brief. Where loss or reduction in quality to any element of the Green Network is required to facilitate development, alternative provision to the satisfaction of the Council must be provided.

See also preamble text from paragraph 5.24 to 5.26.

Policy OS3: Minimum Open Space Standard for New General Needs Housing Development

See paragraph 3.127 and Advice Box 2.

Developments of 20 and more dwellings must provide open space in line with Section 1. On-site provision of open space is encouraged for developments of less than 20 dwellings but is not required. The Council will require developer contributions in lieu of on-site provision of open space in line with Section 2. Developers must make provision for the future management and maintenance of open space to the satisfaction of the Council.

<u>Section 1: On-site provision</u>

For developments of 20 and more dwellings the minimum requirement for on-site provision of open space is 60m2 per dwelling. This will consist of provision of formal and informal open space as well as space for equipped play areas in accordance with Policy OS4. Proposal shall also make provision for natural green space, which will provide suitable recreational opportunities close to home, and where possible will link these areas to wider networks including core paths and recreational routes. Arrangements must be in place for management and maintenance of all types of open space to the satisfaction of the Council.

Where a development forms part of an area for which there is a masterplan approved by the Council, open space must be provided in accordance with the approved masterplan; this may require greater provision than that described above.

Where developers justify an exceptional circumstance that is acceptable to the Council it may reduce the minimum standard.

<u>Section 2: Off-site enhancement</u>

The Council will require developer contributions toward off-site enhancement of existing open space in circumstances where:

i. The open space to be enhanced is easily accessible from the development and is of a size that can accommodate increased use generated by the development; and

ii. The fabric of the open space requires enhancement as a direct consequence of the development.

Arrangements must be in place for management and maintenance to the satisfaction of the Council.

Appendix B: Guidance on Plant Species for SuDS

The following lists native species that should grow well in marshy or aquatic conditions in East Lothian, and is provided for guidance only. Species should be selected based on site conditions and adjacent habitats and planting locations should be determined in consultation with a specialist, such as a landscape architect. Each species is available from commercial stockists, either as part of a seed mix or as plug plants. *Typha* species should be used with caution as they have the potential to dominate a wetland area. These species should therefore only be used in specific circumstances, where conditions will limit the spread.

Low Growing Pond and Marsh Species

These species are preferred as they commonly grow as a mix of species to create diverse wetland vegetation communities.

- *Achillea ptarmica* (Sneezewort)
- *Alisma plantago-aquaticaI* (Water Plantain)
- *Angelica sylvestris* (Wild Angelica)
- *Caltha palustris* (Marsh Marigold)
- *Carex ovalis* (Oval Sedge)
- *Dipsacus fullonum* (Teasel)
- *Eriophorum vaginatum* (Hare's-tail Cotton Grass)
- *Geum rivale* (Water Avens)
- *Galium palustre* (Marsh Bedstraw)
- *Hypericum tetrapterum* (Square-Stalked St John's Wort)
- *Lychnis flos-cuculi* (Ragged Robin)
- *Lythrum salicaria* (Purple Loosestrife)
- *Mentha aquatic* (Water Mint)
- *Myosotis scorpioides* (Water Forget-me-not)
- *Polygonum amphibium* (Amphibious Bistort)
- *Potentilla palustris* (Marsh Cinquefoil)
- *Primula veris* (Cowslip)
- *Primula vulgaris* (Primrose)
- *Prunella vulgaris* (Selfheal)
- *Ranunculus flamula* (Spearwort)
- *Stachys palustris* (Marsh Woundwort)
- *Valeriana dioica* (Marsh Valerian)
- *Veronica beccabunga* (Brooklime)

Tall Species

These species are taller and more robust, and therefore suitable for planting around water margins as they are tolerant of a range of conditions including shallow water or damp ground. They can become dominant if the conditions are suitable, which will reduce overall plant diversity and can reduce landscape quality. Pond design should take into account planting conditions when using these species to restrict their spread.

- *Filipendula ulmaria* (Meadowsweet)
- *Iris psuedacorus* (Yellow Flag Iris)
- *Juncus spp* (Rushes)
- *Phalaris arundinacea* (Reed Canary Grass)
  Phragmites communis (Common Reed)

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