



# SUSTAINABLE DRAINAGE SYSTEMS (SuDS) Technical Guide

CONTENTS	Section 1. Overall aim	Section 2. Key design objectives and principles
<p><b>Section 1.</b> Overall aim</p> <p><b>Section 2.</b> Key design objectives and Principles</p> <p><b>Section 3.</b> Process and necessary approvals</p> <p><b>Section 4.</b> Guidance notes applied to each stage:</p> <p><b>Stage A</b> - Preparation- Assess the site and develop concept design</p> <p><b>Stage B</b> - Pre-application -Design development</p> <p><b>Stage C</b> - Planning application</p> <p><b>Stage D</b> - Post Planning Approvals</p> <p><b>Section 5.</b> What will LCC adopt and commuted maintenance sums</p> <p><b>Section 6.</b> Design guidance and requirements</p> <p><b>Section 7.</b> Appendices</p> <p><b>Appendix A:</b> Roles and Responsibilities</p> <p><b>Appendix B:</b> Standard Planning Conditions</p> <p><b>Appendix C:</b> Standard Landscape Condition</p>	<p>Leicester City Council is at the forefront of delivering innovative SuDS features. This document is informal guidance for developers on how to achieve the adoption of sustainable drainage in developments. This guidance explains how to achieve planning and other approvals for your development in respect of the provision of sustainable drainage.</p> <ul style="list-style-type: none"> <li>• The overall aim of this guide is to help applicants deliver high quality, easily maintained SuDS that are safe and contribute to the public realm.</li> <li>• Information is provided as a series of simple steps. Working through these steps should ensure a greater likelihood of an easier and faster route through the planning approvals process with regard to sustainable drainage.</li> <li>• It is a unified Council response considered by all services with a responsibility for sustainable drainage.</li> <li>• Provides clarification on what LCC will adopt or not adopt.</li> </ul>	<ul style="list-style-type: none"> <li>• To reduce surface water discharge.</li> <li>• To ensure each site and plot manages its own surface water runoff using natural drainage processes.</li> <li>• To keep water on the surface as much as possible.</li> <li>• To address four areas of concern to the environment; improve water quality, provide amenity value and biodiversity and manage flood risk.</li> <li>• Encourage the safe multifunctional use of green space and the efficient use of land.</li> <li>• At the same time, reduce maintenance costs by combining open space with surface water management.</li> <li>• Reduce the carbon footprint of new development.</li> <li>• Ensure the long term management and maintenance of SuDS features is secured.</li> <li>• Support innovation and shared learning.</li> <li>• Reduce the cost of providing drainage solutions.</li> </ul> <p>All SuDS should be designed in accordance with the DEFRA non-statutory technical standards or current standards for sustainable drainage systems and the CIRIA SuDS manual (C753) 2015.</p> <p><b>Leicester City Council's Flood Risk Management Webpage:</b>  <a href="https://www.leicester.gov.uk/planning-and-building/urban-design-and-sustainability/flood-risk-management/">https://www.leicester.gov.uk/planning-and-building/urban-design-and-sustainability/flood-risk-management/</a></p>



## INTRODUCTION

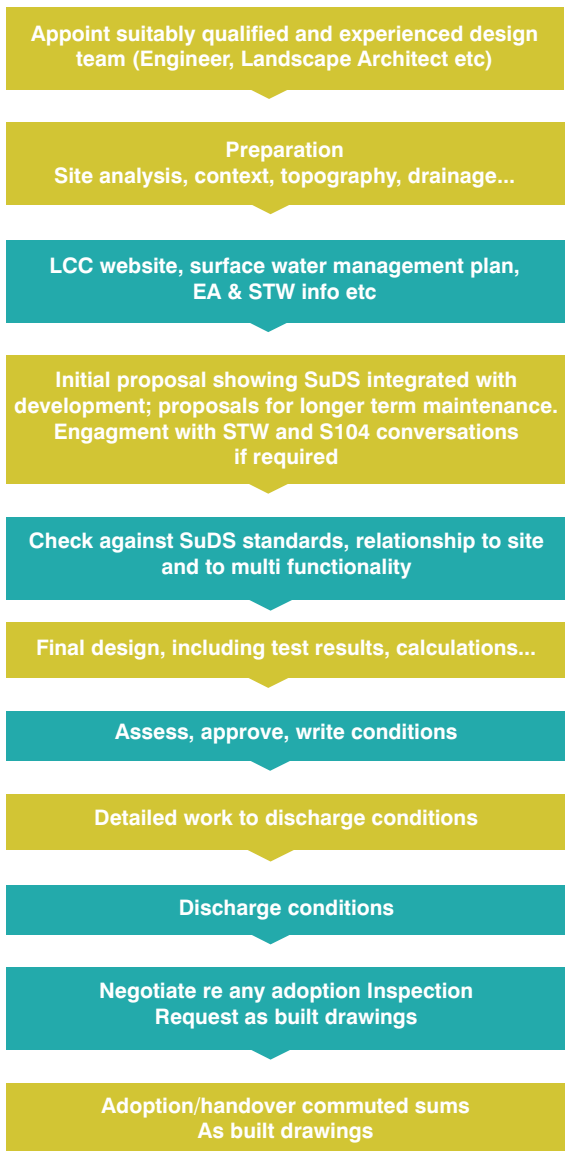
The existing LCC Sustainable Drainage Guide outlines why Leicester needs to improve surface water management across the city. It details the types of techniques that can be used wherever possible using local examples to illustrate what can be done.

This technical guide concerns the adoption of SuDS.



In the event SuDS are not used within a development, evidence will be required to show that complying with the national standards for SuDS, set by DEFRA, would not be technically feasible.  
**Available for download online at:**  
[www.leicester.gov.uk/media/179759/suds-guidance-april-2015.pdf](http://www.leicester.gov.uk/media/179759/suds-guidance-april-2015.pdf)

## THE PLANNING PROCESS



Developer

LCC/Other agencies

## SECTION 3. PROCESS AND NECESSARY APPROVALS

There are 4 stages to be followed in providing sustainable drainage for your development (see section 4). This guide provides an overview of responsibilities for the developer / householder and Leicester City Council.

The key organisations who have responsibility with regards to SuDS are;

### Leicester City Council: (LCC) which includes the following,

- Lead Local Flood Authority (LLFA)
- Planning Department
- Highways Authority
- Parks Department
- Building Regulations
- Property Department

### Environment Agency (EA)

### Severn Trent Water (STW)

### Canal and Rivers Trust (CRT)

### Inland Waterways Association (IWA)

### Management Companies

Further details on the responsibilities of each organisation is provided in Appendix A.

## SECTION 3. PROCESS AND NECESSARY APPROVALS

### Technical requirements

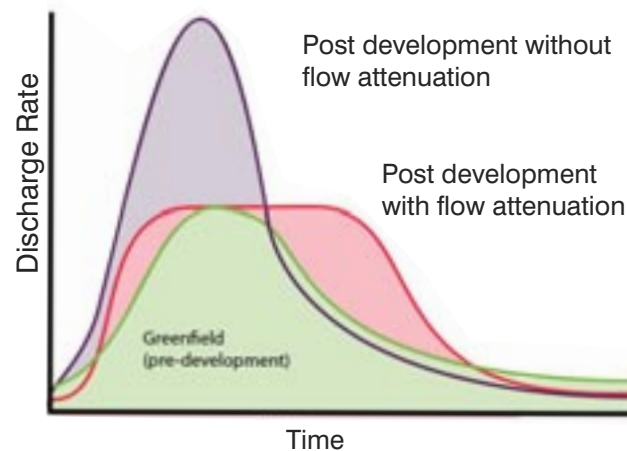
#### Peak flow control:

For greenfield developments, the peak runoff rate from the development to any surface water body (watercourse), sewer or highway drain for the 1 in 1 year rainfall event and the 1 in 100 year rainfall event should never exceed the peak greenfield runoff rate for the same event.

For developments which were previously developed, the peak runoff rate from the development to any drain, sewer or surface water body for the 1 in 1 year rainfall event and the 1 in 100 year rainfall event must be as close as reasonably practicable to the greenfield runoff volume for the same rainfall event, but should never exceed the rate of discharge from the development prior to redevelopment for that event.

### Aims of SuDs

Diagram showing rainfall against time for it to discharge



- Maintain greenfield run off rate from the site
- Ensure that the first 5mm of rainfall is retained within site to maintain water quality
- Brownfield sites; want to achieve at least a 50% reduction of existing peak run off rate

### Volume control:

Where reasonably practicable, for greenfield development to any highway drain, sewer or surface water body in the 1 in 100 year, 6 hour rainfall event should never exceed the greenfield runoff volume for the same event.

The volume of water must be constrained to a value as close as is reasonably practicable to the greenfield runoff volume for the same event. It should never exceed the runoff volume from the development site prior to redevelopment.

Where it is not reasonably practicable to constrain the volume of runoff to any surface water body (watercourse), sewer or highway drain in accordance with the paragraphs above, the runoff volume must be discharged at a rate that does not adversely affect flood risk.

A minimum limit of discharge rate of 5 litres per second, using an appropriate vortex or other flow control device, should be provided to reduce the chance of blockage (ref 1). Where proposed discharge rates are lower than 5l/s; these will be reviewed on a case by case basis.

For further information see BS 8582:2013 Code of Practice for Surface Water Drainage of Development Sites.

Ref 1 - EA Technical Report SC030219: Rainfall Runoff Management (Rev E)

## SECTION 4. GUIDANCE NOTES FOR DEVELOPERS

### STAGE A: PREPARATION - ASSESS THE SITE AND DEVELOP CONCEPT DESIGN

Initial enquiries should come to planning in the form of a pre-application enquiry. The planning case officer will co-ordinate correspondence between the applicant, statutory consultees and other LCC departments. They may also refer you to the appropriate department for specialist advice.

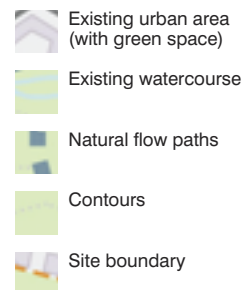
#### Please contact:

<https://www.leicester.gov.uk/planning-and-building/planning-applications/apply-for-pre-application-advice/>

#### Develop an understanding of relevant features of the site and the surrounding area that could influence the SuDS design options:

- Site topography
- Existing site hydrology
- Potential for infiltration and on site attenuation (requires permeability / infiltration tests)
- Potential for surface water discharge
- Site flood risks
- Existing site land use
- Soil quality
- Existing site infrastructure (above and below ground)
- Existing green or blue assets on or near the sites
- Existing habitats and natural features

#### Plan showing a site and its existing features



#### Develop objectives of the proposed development that could influence the SuDS and wider development design.

- Proposed topography, land use and landscape characteristics
- Site constraints and opportunities
- Planning constraints and opportunities
- Features to be retained
- Key connections (pedestrian, cycle and vehicle)
- Proposed built form and key views
- Proposed flood risk management strategy
- Proposed adoption and maintenance of the surface water management system

#### Check List

- Environment Agency flood risk zones
- Surface water hotspot
- Critical Drainage Area
- STW/EA/CRT/IWA/LCC discharge requirements
- Infiltration possible on site
- Location of site catchments and channels
- Location of any existing ditches, drains or watercourses

## SECTION 4. STAGE B: PRE-APPLICATION - DESIGN DEVELOPMENT

### Identify design criteria for the SuDS scheme that;

- Delivers on the objectives of improving water quality, reducing volume of surface water runoff, amenity and biodiversity and reduces flood risk.
- Takes account of the opportunities, challenges and constraints identified by the site and the proposed wider development design.
- Takes account of the strategic surface water management objectives established for the site.
- Manages water within the site and reduced flood risk.

Section 6 sets out examples of how this can be achieved.

### Identify feasible points of discharge

The destination for surface water should be selected in accordance with the drainage hierarchy (*Building Regulations Part H, 2010*). In order of preference:

#### Infiltration

#### Via a watercourse

#### Public sewer systems.

Checks should be made of any potential receiving surface waters, environmental designations, discharge constraints and consents required from the LLFA, EA, CRT, IWA or STW.

If discharges to sewers are being considered, STW should be consulted so that the likely available sewer capacity and opportunities and/or constraints with respect to any connections can be identified. This will include indirect connections to sewers such as where highway water flows into a highway system that then drains to a STW system. Note; surface water should not be discharged to a foul sewer.

### Define surface water catchments and flow routes

Flow routes and development clusters should be used to define surface water sub-catchments, particularly on larger sites. These will form discrete drainage areas, each with their own drainage characteristics with the run off from them conveyed downstream to the drainage outfall.

### Define parks, opens spaces and corridors

Where appropriate, planned parks and open spaces should be located at the downstream end of sub-catchments to provide space for larger scale surface water attenuation and controls.

Flow routes can often form part of open space corridors and be used to provide wildlife corridors to link existing and proposed natural features.

### Plan showing different areas for water management



### Plan showing the proposed open green spaces





## SECTION 4. STAGE B: PRE-APPLICATION - DESIGN DEVELOPMENT

### Define the street network and connections, and key urban design objectives for the development.

The sub catchment boundaries should help define the configuration of the street network and development blocks. The street network can be structured to complement and manage flow pathways by;

- Integrating SuDS components into street cross sections, ensuring street widths are adequate
- Using SuDS to compliment and give character to the streetscape, providing multi-functionality by integrating with other street features including tree planting, traffic calming, parking bays, verges etc.
- Making best use of available space to accommodate a wide range of depths, widths and profiles, where feasible.

#### Plan showing proposed roads on the site



Roads

### Consider proposals for adoption and maintenance

Consider the organisation that will be responsible for the maintenance of the SuDS, streets and green / open spaces. Ensure that the independent approval criteria, processes and level of maintenance required of the adoption body are clearly understood. See Section 5.

#### Detail SuDS design features

- Select SuDS components for the Management Train giving initial estimates of likely scales of SuDS components and space required
- Establish methods of run off collection from all site surfaces
- Select interception components for all hard surfaces
- Select storage components
- Select conveyance components to link interception and storage components (see Section 6)
- Establish treatment delivery
- Identify exceedance routes and storage locations to keep free from development .
- Identify any challenges between SuDS and development objectives with a view to resolution

### Check List

Identify who will maintain the SuDS features and obtain their agreement.

- Agree points and volume of discharge with the relevant bodies.
- Provide evidence that discharge will not adversely impact on quality of receiving water body.
- Carry out permeability/infiltration tests to inform level of on site attenuation to BRE 365 or other agreed standard.
- Confirm and detail measures designed to deal with additional runoff if the impermeable footprint of the site is set to increase with development (LLFA).
- Provide evidence that the system is designed to accommodate changes predicted from climate change (LLFA).
- Get drainage catchments and calculations agreed (LLFA).
- Explain how the first 5mm of rainfall will be retained on site (interception storage for water quality) (LLFA).
- Carry out a condition survey of any drainage assets, infrastructure or watercourse that is to be utilised.(LLFA, Highway Authority).

## SECTION 4. STAGE C: PLANNING APPLICATION

By this stage the majority of the work should have been completed. The application should be submitted through the Planning Portal to the planning department for processing

### 1. Demonstrate hydraulic performance of the scheme

This can be done through the submission of drainage calculations using drainage software or manual calculation.

### 2. Confirm scheme meets design criteria and agreed standards

This is done through the submission of detailed design layout and construction drawings. The planning case officer will continue to manage all correspondence between council departments and the applicant.

### 3. Amendments

Any amendments to the scheme should be agreed in writing before approval of the planning application.

### 4. Planning approval

Some details may be secured by condition when the application is approved.

### Plan showing proposed buildings on the site



Flow paths

### Check List

- Agree Heads of Terms on adoption agreement and conditions.
- Provide detailed plans with SuDS features, including volumes, dimensions, slopes etc. and management responsibility clearly annotated.
- Provide full calculations for the overall scheme and individual components.
- Provide a construction management plan detailing the measures to be implemented that will ensure flood risk on the site and to neighbouring land will not increase during construction, and the measures to limit the discharge of excess surface water runoff into the public sewer system and/or watercourse during construction.
- Where there are multiple SuDS features to be included in the development, provide a phasing plan for the construction of the SuDS features and include any phasing details of the construction of connections into the public sewer system and/or outfalls into watercourses.



## SECTION 4. STAGE D: POST PLANNING APPROVALS

Following planning approval construction can start subject to the discharge of any pre-commencement conditions.

**The developer must make arrangements for the adoption of the Sustainable Drainage System (SuDS) that is to be constructed as part of the site development.**

The following organisations can adopt any part or all of the SuDS to safeguard their future maintenance;

- **Leicester City Council** as highway authority. Under Section 38 or 278 of the Highways Act 1980.
- **A Management Company** (ManCo) under an agreement whereby each property owner benefitting from the scheme pays an annual fee.
- **Severn Trent Water Ltd.** From April 2020 developers can apply for STW to consider SuDS for adoption. See <http://www.water.org.uk/policy-topics/managing-sewage-and-drainage/sustainable-drainage/>

Where it is intended for a Management Company to maintain the SuDS, this needs to be communicated before construction can start. Inspections may still take place by LCC to ensure compliance with planning approval, but no commuted maintenance sums will be sought.

### Leicester City Council Adoption Process

Leicester City Council as the Highway Authority will consider adopting SuDS systems that are an integral part of the highway system under S38 and S278 agreements of the Highways Act 1980.

1. Early engagement with the Highway Authority, LLFA and the Parks service is essential, and no construction is to start before the next stages are complete.
2. Technical approval as set out in the agreement.
3. Agreement of a 20-year commuted maintenance sum is to be signed.
4. The submission of works programme.
5. The developer is responsible for ensuring that the works are constructed in accordance with the Technical Approval.
6. LCC will issue key stage certificates: This is provided the works meet technical approval. If the works do not meet with Technical Approval or the developer has not arranged a Key Stage Meeting at the appropriate time then a Certificate of Non-Compliance will be issued and the adoption agreement will be suspended until the situation is rectified.

7. At the commencement of the maintenance period the developer will maintain the SuDS for 12 months.
8. At the meeting on **completion** of the 12-month maintenance period responsibility for maintenance will transfer to the Council as Highway Authority.
9. A SuDS scheme may involve adoption by a combination of both the Water Company and the Highways Authority and this may require a hybrid approach to adoption.
10. SuDS features on individually owned land should be recorded on house deeds.

**Note:** For developers working on council owned land a licence must be obtained by the developer and this licence will detail what agreements need to be in place before any work will be permitted to take place on that land.

**Note:** there is new guidance for water companies about adopting SuDS; PART C; DESIGN AND CONSTRUCTION OF NEW SURFACE WATER DRAINAGE SYSTEMS; March 2020.

## SECTION 5. ADOPTION

The maintenance and management of the SuDS will be the responsibility of one or a combination of the following;

- LCC Highways / Parks Service or
- Management Company

Early discussion with those who will adopt SuDS features should take place.

The maintenance and management of the SuDS will be the responsibility of one of the following:

**For LCC Highways and Parks to adopt SuDS features they will need to comply with:**

- LCC design guidance and requirements (section 6) outlined below
- Key design objectives and principles outlined in Section 2

City Council adoption of any SuDS scheme will be subject to a commuted sum payment to cover associated maintenance costs for a period of 20 years.

The commuted sum calculation is based on the annual maintenance cost to which an assumed allowance is applied in terms of anticipated rates of inflation and investment return.

### SuDS commuted maintenance sums

Schedule of rates for SuDS maintenance	£/m <sup>2</sup>
Litter picking	0.22
Grass cutting	0.26
Meadow cutting and taking arisings off site.	0.53
Swale; manage as meadow.	1.24
Wetland management; only the reeds to be dealt with (cut back 30% wetland planting, leave to dry and take off site).	8.73
Removal of silt (as required, not annually)	317
Clearance around outfall	95
Clearance around check dam	63

The above rates are indicative of typical maintenance operations for a SuDS but will be subject to variation for each bespoke design. Actual maintenance costs will be calculated and provided once detailed designs have been submitted and approved. Where trees form part of the scheme the costs for maintenance will be considered on an individual basis.

## SECTION 6. DESIGN GUIDANCE AND REQUIREMENTS

### Hierarchy of drainage features

The list below gives a hierarchy of surface water drainage features. Wetlands, swales and storage areas are preferred above all other drainage features. Conventional drainage is only to be used as a last resort.

1. Wetlands.
2. Swale and storage areas.
3. Filter strip.
4. Kerb run off to filter strip.
5. Rain gardens.
6. Permeable paving.
7. Conventional drainage.

The diagrams on the following pages show examples of drainage features that LCC would prefer.

Approved diagrams are available from the city council, please contact:

**Highwaysdc@leicester.gov.uk**

To be read in conjunction with the Leicester City Council Street Design Guide <https://www.leicester.gov.uk/media/186708/leicester-street-design-guide-first-edition.pdf>

### Using the design guidance

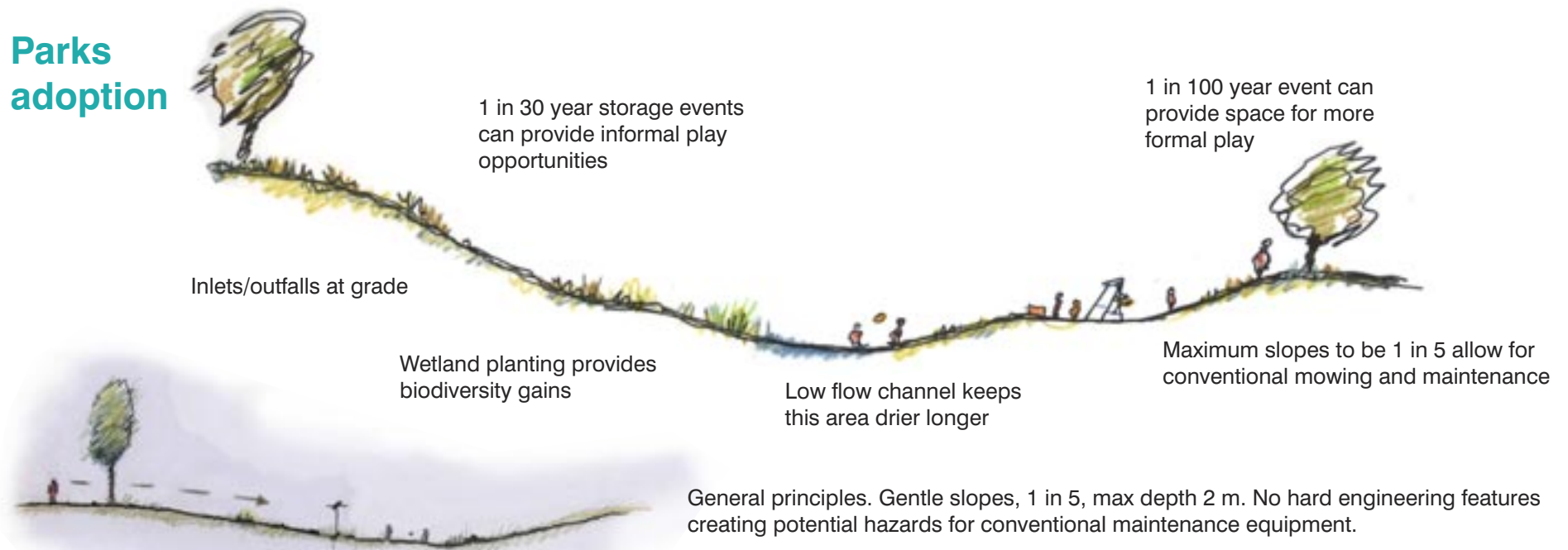
SuDS will be represented by a general drawing which is supported by more detailed design guidance.

The following section sets out the key design criteria for SuDS in Leicester.



## SECTION 6. WELANDS

### Parks adoption



Plan of completed pond in new housing area Photo of new pond



Ashton Green, agreed proposal and post construction wetland/attenuation area

Photo of changes to an existing ditch widened to create attractive safe ponds



Swans Nest wetland - showing 'level bench' beside water

## SECTION 6. SWALES AND STORAGE AREAS

Drop 50mm

### Section through a swale showing shallow sloping sides

Sides slopes 1 in 5 or less

Base 0.5 - 1.5m

Max depth 0.45m

Kerb channel and edgings  
SHD-11 series drawings  
7 to 14.

Perforated pipe > 1.50m and the  
filter media (DOT type 3)

Outfall and headwalls  
must be at grade to  
avoid dangerous drops.



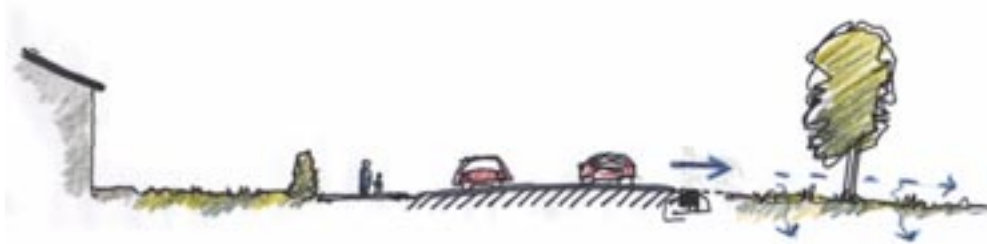
Picture of brick built headwall



Picture of hard construction in line  
with the slope

## SECTION 6. FILTER STRIP

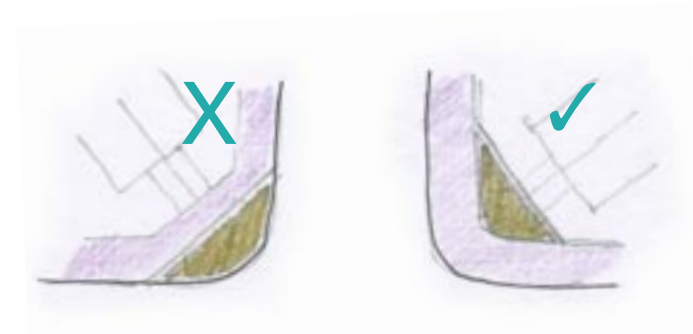
Section through road beside landscaped areas



Highway adjacent to soft areas

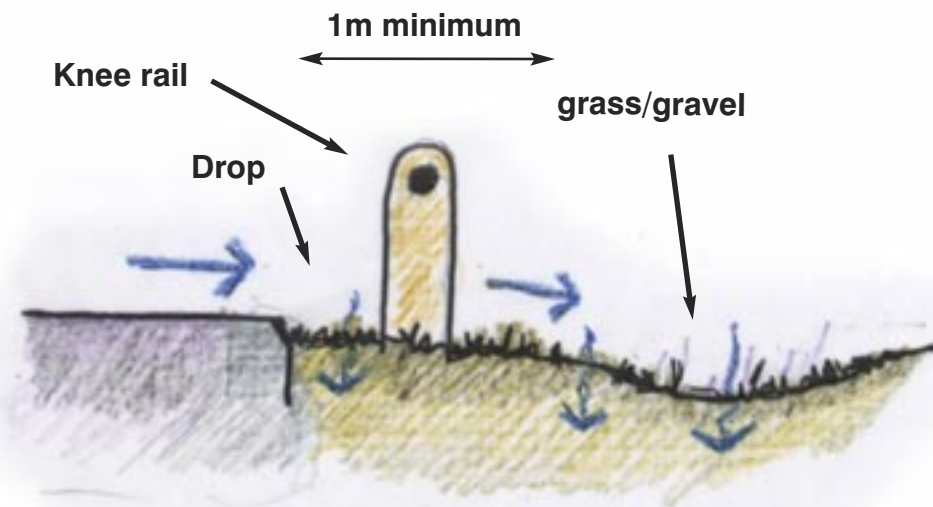
Good edge restraint allows for water to reach 'soft land'

Diagram showing soft edges adjacent to highway



Filter strip - preferred is that it stays within the management company land and not within the highway

Section showing edge and knee rail detail to highway



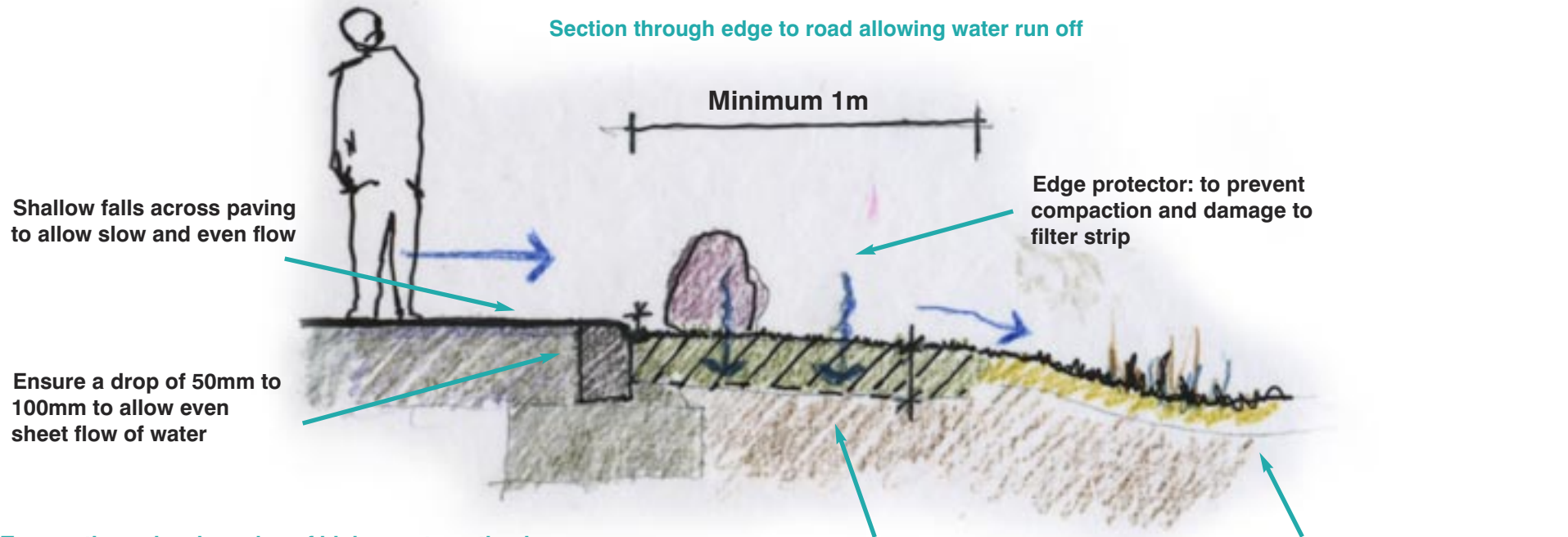
### LCC drawings for details

- Bituminous footway SHD-07-11
- Grass landscaped service margin construction detail SHD-07-13
- Kerb channel and edgings SHD-11 series drawings 7 to 14



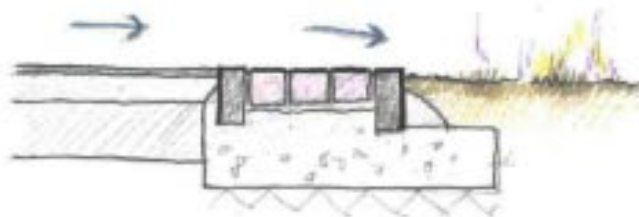
## SECTION 6. KERB RUN OFF TO FILTER STRIP

Section through edge to road allowing water run off



Two sections showing edge of highway strengthening

Good edge



Reinforced edge



Permeable area adjacent to highway: allows infiltration/possible over-run

Filter strip needs dense cover of grass: ensure min 100mm topsoil and amenity grass seed mix

Wildflower mix seeding should be beyond filter strip

Photo showing highway edge/filter drain



Water from car park entering filter drain and then to Swale. ASDA Leicester

## SECTION 6. RAIN GARDENS

### Rain gardens; for private land, management company adopted land

Offering potential to manage water locally; at grade or to sides of highways

#### Photos of colourful planting

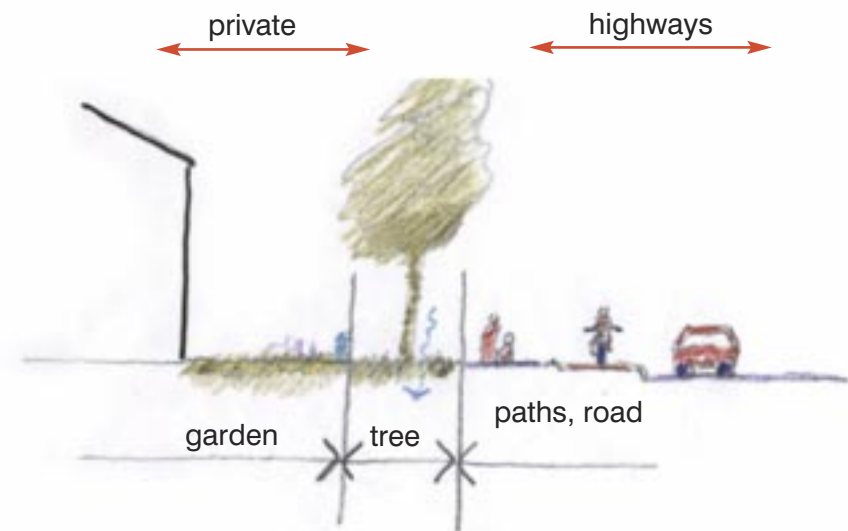


Retrofit highway rain garden on former verge

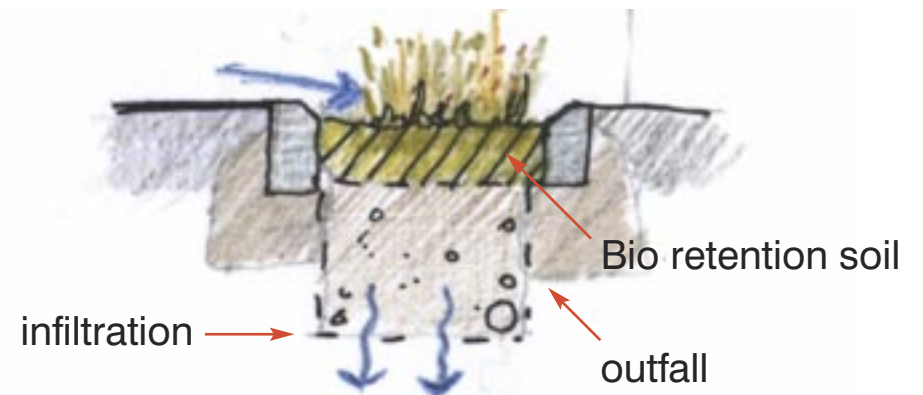


Mill Lane Leicester  
Connected rain  
gardens

#### Section through house front garden, footpath and road



#### Diagram showing roadside planting detail



## SECTION 6. PERMEABLE PAVING

### Permeable paving

Residential road with permeable paving could be adopted by the Highway Authority subject to agreement of detailed design.

Photo of car parking bay



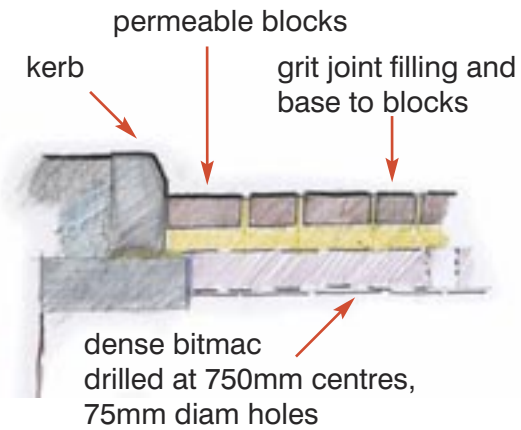
Parking area Dartmouth Gardens

Photo of shallow roadside drainage



Adopted permeable block paving  
Damson Drive, Leicester

Diagram of block paved road



Plan of base to road

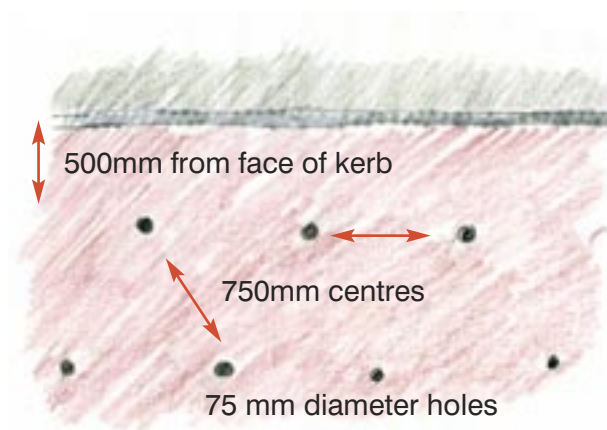


Photo of car park construction

Bitmac base for construction period then cored prior to laying blocks allowing water through





## SECTION 6. DESIGNS FOR SMALL DEVELOPMENTS

### Backland development (former garden)

#### Permeable paving

It is no longer permitted development to pave over front gardens for anything over 5m<sup>2</sup> with impermeable materials unless planning approval has been granted. However, planning permission is not required where permeable materials are used. For example: impermeable strips within gravel areas, permeable paving, grid systems, porous surfaces. See: 'Guidance on the permeable surfacing of front gardens' (2008):

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/7728/pavingfrontgardens.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/7728/pavingfrontgardens.pdf)

### Existing house

#### Gardens

Gardens contribute to urban water management through absorbing rainfall and reducing the rate at which surface water reaches other vulnerable areas. This increases the city's resilience to flooding from surface water.

#### Biodiversity

Trees, hedges, planting can all provide biodiversity and amenity; whilst opening up soils to allow water to stay on site for longer. Planting can also reduce noise, dust and wind.



Plan of new housing in former rear garden

#### Loss of former garden

- Retain existing planting where possible
- Paths permeable or drain to soft areas
- Planting in common areas
- Green roofs to garages
- Permeable paving to tanked system or infiltration
- Planting to boundaries
- Driveway; permeable surface / shallow filter drain to side. First 5m back from highway to be impermeable.

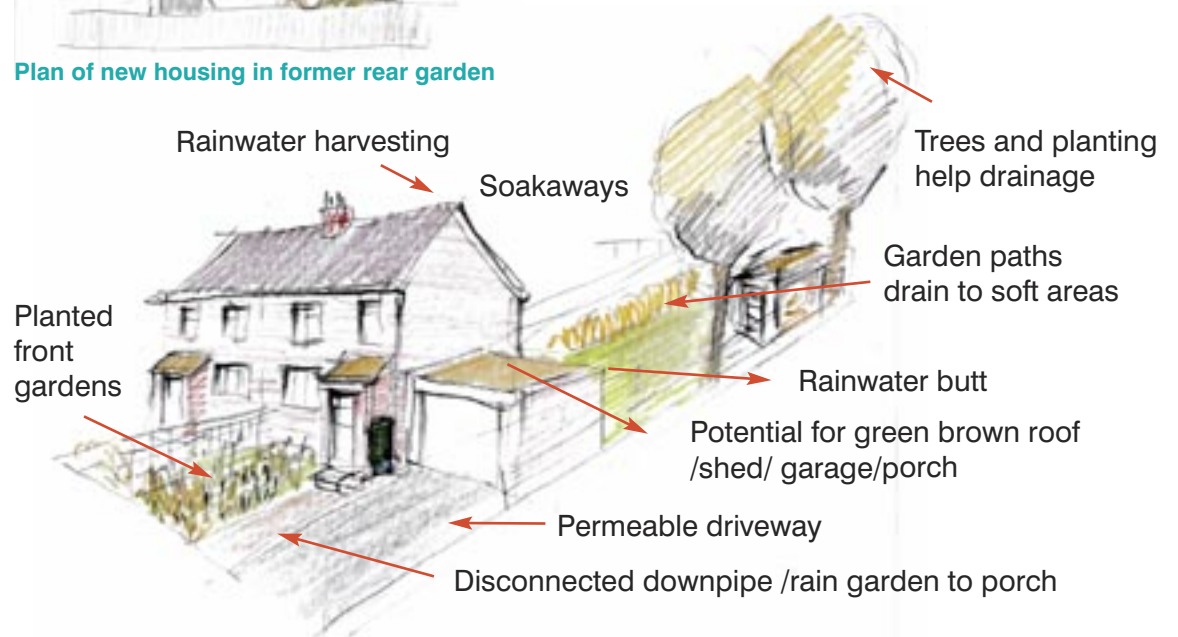


Diagram showing drainage friendly features for a house

## Section 7. Appendice A: Roles and responsibilities

### Roles and responsibilities

#### Leicester City Council

##### Lead Local Flood Authority

- Flood Risk management duty
- SuDS advice and approval Body; focus on volume control
- Advice on planning applications and policy with flood risk implications
- Assess scheme potential volume and rates of discharge and test against Surface Water Management Plan (SWMP) and EA Modelling
- Technical appraisal and advice on larger applications (National Standards)
- Advice on developments within Critical Drainage Areas and hotspots
- Riparian ownership and consultation
- Ordinary Watercourse management.
- Water quality

##### Planning

- Adopt and apply planning policy
- Assess SuDS in terms of water quality, amenity and biodiversity
- Advise on small schemes SuDS
- Process applications in the light of secured consultation responses from:
  - EA (major schemes)
  - LLFA
  - Severn Trent Water (non statutory)
  - Highways
  - Parks
  - IWA and CRT
- Potential signatory to s.106, s.38 or s.278

- Planning register feeds Land Charges (inc new SuDS maintenance obligations)
- Note also removal of permitted development rights re paving over front gardens

##### Highways Authority

- Advice to planning authority
- Highway drainage approval
- Advice on technical standards if Management Company route to be followed by developer
- Potential signatory to s.106, s.38 or s.278

##### Building Regulations

- Sign off compliance of construction in accordance with B. Regs 2010, Part H (amended 2017).

##### Property

- Ensure planning and highway obligations considered in potential disposals
- Ensure conveyancing and obligations effectively transacted and responsibilities recorded

##### Parks

- Maintain open spaces and SuDS features.
- Ensure designs are safe.

##### Environment Agency

- River Basin Management Plan (Water Framework Directive requirement)
- Catchment Flood Management Plan
- Main Rivers consenting body
- Water Framework Directive
- Consultee on major planning applications
- Enforcement/compliance under Environment regulations.

##### Severn Trent Water

- Water supply and sewerage disposal
- Maintain integrity and performance of adopted foul and surface water sewer network
- To advise on planning applications (non-statutory)
- Sign off and adoption of developer proposals
- STW must be provided with a SuDS easement over features where there is an incoming and outgoing pipe.
- Where outfalls are to ditches/watercourses STW must be provided with rights to discharge in perpetuity.
- When appropriate, STW will want to see permission from the landowner for the feature to be built.
- Reduce water consumption
- Advice for developers is available at; <https://www.stwater.co.uk/building-and-developing/overview/>

##### Canals and Rivers Trust

- Maintain Canals and associated land.
- Comment on development near to their development near to their waterways.
- May accept discharge from development sites.

##### Inland Waterways Association

- Membership charity who protect and restore canals and rivers.

##### Management Companies

- Private companies that maintain open spaces and SuDS features

## Section 7. Appendice B: Standard Planning Conditions

### Standard Planning Conditions

1. Prior to the commencement of use, the Sustainable Drainage System (SuDS) shall be implemented in accordance with the approved details. The Sustainable Drainage System shall be managed and maintained thereafter in accordance with the approved management and maintenance plan. (To reduce surface water runoff and to secure other related benefits in accordance with policy CS02 of the Core Strategy.)
2. Prior to the commencement of development full details of the Sustainable Drainage System (SuDS) together with implementation, long term maintenance and management of the system shall be submitted to and approved by the local planning authority. No flat shall be occupied/the use shall not commence until the system has been implemented. It shall thereafter be managed and maintained in accordance with the approved details. Those details shall include: (i) full design details, (ii) a timetable for its implementation, and (iii) a management and maintenance plan for the lifetime of the development which shall include the arrangements for adoption by any public body or statutory undertaker, or any other arrangements to secure the operation of the system throughout its lifetime. (To reduce surface

water runoff and to secure other related benefits in accordance with policy CS02 of the Core Strategy. To ensure that the details are approved in writing by Leicester City Council as Local Planning Authority in time to be incorporated into the development, this is a PRE COMMENCEMENT condition).

3. Prior to the commencement of development details of drainage, and especially foul drainage, shall be submitted to and approved in writing by Leicester City Council as the Local Planning Authority. No flat shall be occupied/the use shall not commence until the drainage has been installed in accordance with the approved details. It shall be retained and maintained thereafter. (To ensure appropriate drainage is installed in accordance with policy CS02 of the Core Strategy. To ensure that the details are approved in time to be incorporated into the development this is a PRE-COMMENCEMENT condition).
4. Prior to the commencement of development, a detailed Landscape and Ecological Management Plan (LEMP) showing the treatment and maintenance of all parts of the site which will remain unbuilt upon shall be submitted to and approved in writing by the City Council as local planning authority. The scheme shall include details of: (i) the position and spread of all existing trees, shrubs and hedges to be retained or removed; (ii) new tree and shrub planting, including plant type, size, quantities and locations; (iii) means of planting, staking, and tying of trees, including

tree guards; (iv) other surface treatments; (v) fencing and boundary treatments, including details of the entrance gates; (vi) any changes in levels; (vii) the position and depth of service and/or drainage runs (which may affect tree roots), (viii) a detailed plan of the biodiversity enhancements on the site such as meadow creation and hedgerow improvements including a management scheme to protect habitat during site preparation and post-construction. The LEMP shall contain details on the after-care and maintenance of all soft landscaped areas and shall be carried out within one year of the completion of the development. For a period of not less than five/ten years from the date of planting, the applicant or owners of the land shall maintain all planted material. This material shall be replaced if it dies, is removed or becomes seriously diseased. The replacement planting shall be completed in the next planting season in accordance with the LEMP and a written assessment of the landscaped/habitat areas and their use by wildlife/species present shall be submitted annually and approved in writing by the City Council as local planning authority. (In the interests of amenity, and in accordance with policy UD06 of the City of Leicester Local Plan and Core Strategy policy CS03 Urban Design, CS 17 Biodiversity).

To ensure that the details are agreed in time to be incorporated into the development, this is a PRE-COMMENCEMENT condition).

## Section 7. Appendice C: Standard Landscape Condition

### Standard Landscape Condition

Where a retention pond/detention basin(s) or swale(s) are to be located within Public Open Space (P.O.S) (forming part of the sites SuDS strategy to manage and attenuate surface water), which is being considered for land transfer to or maintenance by Leicester City Council. Each retention/detention basin or swale must be designed in accordance with the following criteria and satisfy each of the requirements to be considered eligible for adoption by Leicester City Council:

- A layout plan of each retention pond/detention basin or swale with contours is required. This must be supported with a long section and a series of cross-sections for each, with the permanent water level added and the modelled water levels for 1:30, 1:100 and 1:100+40% presented.
- The maximum depth of each retention/detention basin or swale must be presented in mAOD relative to the surrounding ground level in mAOD.
- Each detention basin or swale must be as wide and shallow as practically possible to ensure that the space is multi-functional (for play, recreation as well as flood alleviation) and avoids having areas of the basin fenced off, which are then effectively out of use. Tiering of any

retention/detention basin is considered acceptable, assuming any permanently wetted areas are clearly defined. Where retention ponds are proposed, these should be as small and shallow as practically possible to minimise the proportion of adoptable P.O.S. they inhabit. This ensures that as much as the P.O.S is multifunctional and can be used for recreational purposes, minimises the proportion of P.O.S that must be fenced off and minimises the any possible Health and Safety risk associate with permanent bodies of water.

- Each retention pond/detention basin or swale must have slope gradients of 1:4 or shallower to allow safe access and maintenance.
- There must be a minimum 3m maintenance strip associated with each retention pond/detention basin - in accordance with the CIRIA C753 the SuDS Manual
- Any inlets and outlets associated with any retention pond/detention basin or swale must be as small as practically possible, to ensure they are discrete and do not impact the amenity value of the P.O.S.
- In addition, any inlets/outlets should avoid having handrails installed where possible, as this can cause significant health and safety hazards for children (encouraged to climb and falls become hazard).

- Where it is determined that handrails must be used, these should be painted leaf green (RAL 6002) and metal mesh installed on the frontage of the rail to minimise the likelihood of children climbing on the handrails.
- In addition, any inlets/outlets from with diameters of greater than 225mm must install security screens to eliminate the risk of children getting any part of their body stuck within the pipe (heads, shoulders etc). (this is based on the test
- It must be confirmed whether any part of a retention pond/detention basin's or swale's structure will be permanently wetted.





Photo showing planting that also holds water  
Cover images: Mill Lane, Leicester connected rain gardens.