
Update of SuDS construction guidance

Summary

A good SuDS design can be misinterpreted and let down by poor construction and detailing which affects performance and ultimately can cause failure. With SuDS becoming more common place and the diversity of schemes and applications growing it is now timely for this project to update guidance on SuDS construction to ensure SuDS are built as designed and provide the functionality and performance required.

Background

Over recent years SuDS delivery in the UK has steadily increased, improving our knowledge and experiences particularly around the construction of SuDS. In some cases the construction of SuDS can occasionally be affected by misinterpretation, lack of understanding of SuDS and construction drawings which can lead to inefficiencies and failures that negatively impact on overall SuDS performance. These problems can often be overcome by improved and timely communication and easy to use guidance.

These challenges are likely to become more frequent and critical as SuDS delivery becomes more common place. Since the production of guidance on the construction of SuDS in 2007 our knowledge and experience have improved together with greater diversity in the application and scale of SuDS as well as the procurement models used for SuDS delivery, eg design and build.

Construction guidance is available (CIRIA publication C698) and within the SuDS manual which is currently being updated (CIRIA project RP992). This information will be updated and repackaged to improve contractors' understanding of SuDS, firstly as a concept and secondly as a functional system requiring best practice construction techniques. Appropriate construction methodologies are available to ensure what gets built, adequately reflects the original design concept, specification and detailed design criteria. However, these are not widely understood and applied to the SuDS construction process and this needs to be rectified to support SuDS delivery.

The proposed guidance on the construction of SuDS will cover the delivery of soft and vegetated SuDS components as well as those that are more engineered. This will include surface, subsurface and below ground SuDS components covering pervious surfaces and proprietary products. A well designed SuDS component or scheme can fail due in part to poor construction and implementation.

Justification

This guidance will cover a number of applications, particularly around new build and retrofit situations. SuDS construction is different (rather than difficult) in comparison to traditional drainage infrastructure, requiring a combination of understood landscaping and civil engineering skills to be appropriately applied to specific SuDS projects. Like with any new practices there are some challenges the guidance will help overcome in regard to SuDS construction, these include:

- **Initial contractor briefing** – Communication and the initial briefing from the SuDS designer to those supervising or managing the construction of SuDS needs to explain the design concept, functionality of components, key considerations and potential construction risks.

- **Appropriate supervision** – It is important to ensure that there is appropriate supervision (at key milestones or critical project stages) and inspection of the SuDS construction process (eg to check resource availability, mitigate any potential problems).
- **Construction programming** – Getting the sequence and programming for SuDS and approaches for rehabilitation is important to ensure that the SuDS components function as designed.
- **Understanding of components** – Understanding how components function and operate in terms of conveyance, storage and treatment of water is important as this should reduce the risk of mistakes.
- **Tolerances and attention to detail** – Accurate groundworks and levels are vital for the flow and management of surface water. A matter of centimetres can inadvertently restrict or divert flows, or alter the amount of storage previously designed.
- **Construction processes** – Successful SuDS schemes are dependent on reducing the risk of soil compaction and erosion and siltation of components, guidance is required to minimise these risks during construction.

The guidance will be developed with experience and knowledge on SuDS delivery reflecting any potential changes in practices and applications. In recent years, retrofitting SuDS has become more common and in some circumstances this can complicate the construction process with greater consideration given to working environments, space and underground services.

Stakeholders that will benefit from the project include clients (developers, local authorities, sewerage undertakers), contractors, consultants, practitioners and others with an interest in construction sites, i.e. Clerk of Works, Resident Engineers. The expected benefits of this project are to:

- Formalise the inclusion of a simple briefing/pre-construction pack and advice on setting out.
- Reduce the gap in knowledge and expertise in the construction of good SuDS schemes.
- Reduce the risk of failure, problems and faults with SuDS construction.
- Improve the resource and time efficiency of SuDS construction.
- Support the delivery of SuDS components and schemes that are in accordance with good practice and standards.
- Improve the communication between the designers and contractors.
- Augment and repackage guidance, knowledge and experiences on SuDS construction.
- Ensure that the guidance on SuDS construction is relevant to the target users and the SuDS schemes and components being delivered.
- Create better links with standard specifications and prescribed processes / work plans (e.g. Specification for Reinstatements of Opening in the Highway, NBS, and BSI)
- Widely disseminate good practice on SuDS construction.

Objectives

The aim of this project is to update and augment guidance on the construction of SuDS to improve robustness and cost effectiveness of construction and reduce the risks of faults and/or poor performance. The specific objectives include:

1. Undertake consultation to understand common SuDS construction challenges and approaches to overcome them.
2. Undertake consultation to understand the most useful format of guidance and support for those constructing SuDS.
3. Update and improve existing guidance to improve the robustness of SuDS construction.
4. Disseminate the guidance widely through information widely and develop
5. Develop appropriate training material and courses and potentially collaborate with appropriate organisations.*

Outputs

The target audience for the guidance is primarily those supervising and undertaking the construction of SuDS components and schemes on site. However, within the guidance there will also be specific

sections for SuDS designers and approval/adopting bodies as they have vital interactions with the construction process (but potentially different focuses).

The outputs will be easy to use, simple and concise guidance with plenty of checklists and images to reduce text and ensure it is easy to use on site. The outputs will need to have a number of images that present good and bad practice and use approaches to reduce text. The outputs will be accompanied with PowerPoint presentations covering the main topics with notes (maximum of an hour's presentation). Potential formats are listed below; depending on available budget these can be combined.

- Guidance document(s)
- Concise site pocket handbook
- Posters
- PowerPoint presentations (with notes)
- Tool-box/Table-top talks
- Table-top talks
- Videos for YouTube*
- Smartphone or tablet apps*
- Training course for contractors*

* dependent on funds raised.

CIRIA and the Project Steering Group (PSG) will also liaise with other organisations involved in the specification of construction processes to ensure compatibility and encourage inclusion of good practice related to SuDS construction in their outputs.

Approach and methodology

The extensive contacts of CIRIA and the project team will be used to exploit synergies with other initiatives and organisations to produce consensus based guidance, tools and disseminate outputs. The project will be managed to foster collaboration and consensus as well as utilise extensive links and momentum with related initiatives and others in the industry. The project team will include those involved in the practical delivery and construction of SuDS schemes.

The project will utilise consultation approaches and a Project Steering Group to secure input from diverse disciplines such as SuDS practitioners, engineers, landscape architects, contractors, consultants to ensure that the outputs are informative and efficiently targeted.

The project will involve the following work stages:

1. **Consultation** – This will be undertaken with SuDS practitioners and contractors to determine what aspects of the current guidance need updating, and whether there are any new challenges and good practice related to the delivery of SuDS on new and retrofit developments that need to be included. The consultation will also be used to seek images and feedback on the most appropriate format of guidance (although this will be dependent on funds raised).
2. **Scoping** – Following the consultation a scoping document with recommendations on the format of the outputs and appropriate content will be developed. Content is likely to include:
 - Construction practice
 - Construction planning (different sites/applications)
 - Communication
 - Supervision
 - Programming
 - Erosion control
 - Sedimentation
 - Pollution control
 - Pollution sources and prevention
 - Contractor's method statements
 - Construction of different SuDS components
 - Handover inspection
 - Checklists

3. **Drafting and development of guidance** – this is primarily going to be an update of the existing guidance to reflect the requirements of the consultation and deliver the recommendations in the scoping report. The outputs developed will primarily depend on feedback from the consultation.
4. **Dissemination** – CIRIA will use susdrain and its other outputs and relationships to disseminate the outputs far. This will include three workshops to disseminate the guidance to a wide audience.

Project information

It is anticipated that the project will last for 18 months, and the overall project cost including contributions in kind is £130,000.

Benefits of involvement

Providing funds to the project provides an opportunity for your organisation to be represented on the Project Steering Group. This provides early access to good practice being developed from the project and enables you to influence and steer the independently chaired group. Involvement in the PSG also provides an opportunity to network with peers and raise your profile as well as promote your organisation's commitment to good practice amongst peers and construction clients (through inclusion of logo on outputs).

For further information contact:

Paul Shaffer
020 7549 3309
paul.shaffer@ciria.org

Suzanne Simmons
020 7549 3308
suzzane.simmons@ciria.org