

Sustainable Drainage News



The bi-annual bulletin of news and development in sustainable drainage systems

Issue 6 – July 2004

This is the sixth bi-annual newsletter concerning sustainable drainage systems (SUDS). The newsletters aim to communicate the latest innovations in SUDS practices and encourage their widespread incorporation in developments.

This issue discusses the development of an Interim Code of Practice for the implementation of SUDS, and highlights an example of how to apply this approach to a brownfield site. It also gives an update on current research initiatives.

SUDS – an Interim Code of Practice

It is widely acknowledged by champions for a sustainable approach to drainage, that the benefits of SUDS has yet to be fully realised in the UK due to limited uptake. The National SUDS Working Group aims to improve the implementation of SUDS in England and Wales. To this end, it has recently produced an Interim Code of Practice for sustainable drainage systems, based on its consultation last year on a framework for SUDS.

The Interim Code of Practice for SUDS provides greater clarity on the challenging areas of planning for SUDS and the allocation of responsibilities for their long term management. The aim of the code is to support planners, developers and practitioners by highlighting how SUDS can be implemented within the current legislation.

The Interim Code of Practice for SUDS lays out options for adoption and provides a set of model agreements between those public organisations with statutory or regulatory responsibilities for SUDS and will have a bearing on interactions between practitioners, regulators and other stakeholders including local authorities, highway authorities and sewerage undertakers. Early dialogue between these stakeholders in implementing SUDS is essential.

A wide range of stakeholders including central and local government, regulators, the water industry and developers have been closely

In this issue

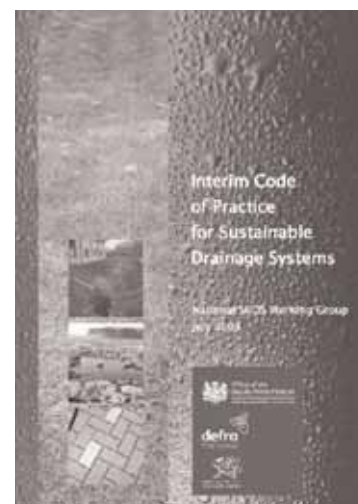
- development of an Interim Code of Practice for SUDS
- DayWater – SUDS contributes to sustainable urban living
- inspiration and biodiversity on a brownfield site
- research on SUDS performance.

involved in the development of the Interim Code of Practice for SUDS. As its name suggests, the document is interim and will be a living document periodically updated to reflect any relevant changes to planning and regulatory considerations.

To download a copy of the Interim Code of Practice for SUDS visit the Environment Agency website,

www.environment-agency.gov.uk/suds. The code is also available, along with the associated model agreements, on CIRIA's SUDS website www.ciria.org/suds/icop.htm.

Phil Chatfield
Environment Agency



ODDS & SUDS

CIRIA and Sustainable Drainage Associates will be running modular SUDS training courses during the autumn and winter of 2004. For further information visit www.ciria.org/suds

DayWater – contribution of SUDS to sustainable urban living

Urban areas are highly dynamic and complex, with a wide range of stakeholders whose concerns and priorities may differ considerably. To achieve a sustainable urban environment, a balance has to be struck between potentially conflicting interests. This means a methodology is needed which enables various differing concerns to be taken into account when considering the most appropriate type of SUDS for a particular catchment area.

DayWater (a three-year EU-funded programme) aims to provide such a methodology, by bringing together environmental scientists, urban hydrologists, computer software developers and end-users to develop an adaptive decision-support system (ADSS). This will enable end-users to employ catchment-specific information to make optimum decisions on stormwater management.

Development of the ADSS will involve a risk assessment of stormwater management projects; analysis of SUDS performance under varying conditions; an assessment of the interactions of stormwater management with other urban processes and policies; and the development of urban sources and a flux model. A strong emphasis is placed on the involvement of end-users (such as local authorities, property developers, environmental agencies and water companies) who are providing feedback on each stage of the project as it develops, to ensure that the ADSS is a tool appropriate to their requirements. Parallel with this, DayWater will promote the use of stormwater source control and integrated water management in urban policy making and disseminate information on SUDS.

For further information on DayWater, please email Dr Lian Scholes at l.scholes@mdx.ac.uk

Lian Scholes
Middlesex University

Inspiration and biodiversity on a brownfield site

In many ways, the Monyhull hospital development site is typical of suburban brownfield land in presenting a range of challenges for the design team, planning authority and developer. These include the need to retain existing trees and buildings, the listed Monyhull Hall, the presence of contaminated land, the need to move a major power line and, not least, the interest of local people.

What makes the site unique is the multi-disciplinary approach adopted, with the principles of sustainable design at its heart, which is paying dividends. Crucially, a Section 106 Agreement was in place before developer Bellway Homes (West Midlands) acquired the site, which underlines the importance of planning policies in setting a framework.

The 16 hectare development area is flanked by 17 hectares of degraded open land. A heavily-canalised reach of the Chinn brook, a tributary of the river Cole, passes through the southern part of the site. Landscape architect Munro + Whitten led the promotion of SUDS techniques at master planning stage, identifying early in the process that these would be appropriate at Monyhull. Munro + Whitten worked closely with Bellway, its engineer, Neil Pye of AIG Consultants Ltd, architects PRP, Loughborough Ecologists and most importantly, Birmingham City Council officers and Ian Baird at the Environment Agency. The opportunity to take a sustainable approach was seized and issues of adoption addressed very early on.

The Sustainable Drainage System forms an important component of the open space. It includes a number of novel features: extensive areas of marshland, which provide both ecological and groundwater recharge functions, border the more traditional detention basins, swales and Typha reedbeds. The design treats the new landscape as a whole. It improves the status of the site (already a Site of Local Importance for Nature Conservation) without compromising flood defence, the reedbeds' and marshlands' ability to improve water quality, or the amenity aspects of what will effectively become a new park for the people of Kings Norton and Kings Heath.

ODDS & SUDS

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The design of the control structures focuses on 'soft' engineering approaches, such as the use of timber from trees felled on the site and extensive earth mounding to reduce visual impact, cost and maintenance. A number of reduced-flow outfalls from the system to the Chinn Brook are being provided to avoid the need to build structures. Open water is included, but has been designed in accordance with BCC standards to minimise risks to residents. Simple, common sense measures, such as avoiding steep banks, planting marginal shelves and setting a maximum water depth of 600mm mean the features can be adopted with confidence.

The design solutions at Monyhull prove that with SUDS, one size definitely does not fit all. The support of the developer and, most importantly, the adopting authority - in this case BCC Leisure and Culture - is obviously of prime importance in enabling SUDS to become an important component of the new landscape.

Planning permission was granted in July 2003 and construction is now well advanced. Over the coming years, the progress of the design will be carefully monitored to assess whether the original aims are being met. We are confident that the new Monyhull will provide a functional, diverse and enjoyable landscape.

David Singleton
Munro + Whitten



David Singleton checking the marginal shelf on detention basin at Monyhull.

ODDS & SUDS

Coventry University and the University of Abertay are managing a new network for SUDS research called SUDSnet their website is <http://sudsnet.abertay.ac.uk>



Oak selected for re-use as reed bed baffle structure.

Research on SUDS performance

SNIFFER (Scottish Northern Ireland Forum for Environmental Research) has recently published a new report on results from the Scottish SUDS Monitoring Programme*. This presents the results of a monitoring programme that indicates SUDS implementation in Scotland has been a great success in terms of achieving desired water quality and flow control objectives. A wide range of systems has been monitored and although some problems were found, the results clearly show that the systems are at least producing the hydrological and water quality benefits desired. The studies reported here can be expected to inform design guides, providing information details such as treatment volume, percentage runoff, changes in water quality, as well as inlet and outlet detailing.

Two principal categories of SUDS system were monitored: source control and site/regional control systems. The source control systems investigated primarily operate on a hydrological basis, successfully controlling rates of surface runoff. It is clear that most source control SUDS in Scotland serve contributing areas with relatively low levels of contamination and that SUDS, unlike conventional drainage systems, localise and treat contaminants. The site/regional control systems also provide significant benefits in hydrological terms, but also attenuate peak concentrations of pollutants. Assessments of the quantity and quality of sediments, biodiversity of ponds and public perception are also reported.

Two notes of caution must be added to this very positive report:

1. Maintenance is an absolute necessity for all drainage systems, SUDS being no exception, and observations on maintenance are an underlying theme of the report.
2. The local acceptability of SUDS depends on their appearance (some of systems monitored have a wholly unsatisfactory appearance). Nevertheless, a number of systems that were in great need of maintenance to improve their appearance performed excellently.

Below-ground assets are generally in poor condition and those being monitored showed indifferent performance. A number of discrepancies between design and installation were found. Most of the particularly poor examples were designed during the early implementation of SUDS systems, while more recent examples had been designed to a better standard.

The monitoring programme was supported and strongly encouraged by the Sustainable Urban Drainage Scotland Working Party, and received financial support from Scottish Water, the Scottish Environment Protection Agency, the Environment Agency, SNIFFER, Wilcon Homes, Formpave Ltd, Yorkshire Water and Dundee City Council.

* SUDS in Scotland – the Monitoring Programme of the Scottish Universities SUDS Monitoring Group. SNIFFER Report SR (02)51

Professor Chris Jefferies
University of Abertay

Supporting dissemination of SUDS work...

This newsletter and CIRIA's SUDS website (www.ciria.org/suds) are the outputs of a project to promote good practice relating to SUDS. If you would like to sponsor the newsletter and website and participate in the project please contact CIRIA on: 020 7549 3300

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Sustainable Drainage News has been sponsored by the following organisations:



Useful links and contacts

Listed below are websites, featuring SUDS work, which you may find useful:

www.ciria.org/suds
www.environment-agency.gov.uk
www.sepa.org.uk

CIRIA has published the following on SUDS:

- C521 Sustainable urban drainage systems – design manual for Scotland and Northern Ireland
- C522 Sustainable urban drainage systems – design manual for England and Wales
- C523 Sustainable urban drainage systems – best practice manual
- C582 Source control using constructed pervious surfaces
- C609 Sustainable drainage systems – hydraulic structural and water quality advice.
- C625 Model agreements for SUDS.