ADOPTING A NEW APPROACH

SUSTAINABLE DRAINAGE SYSTEMS CAN NOW BE ADOPTED AS SEWERS BUT WHAT OPPORTUNITIES AND CHALLENGES DOES THIS BRING?

A WHITE PAPER PRESENTED BY

wavin

New Civil Engineer

INTRODUCTION

It is more than two years since Wavin and *New Civil Engineer* brought you the previous report in their series of white papers on sustainable drainage systems (SuDS). Yet while so much has changed in the world since 2019, progress on the use of SuDS in England has been frustratingly slow.

Construction research body Ciria states that sustainable drainage has the potential to reduce flood risk and pollution while increasing amenity and developing habitat to encourage biodiversity. It is hard to find an organisation that actively opposes the use of properly designed and thought out SuDS.

Indeed, the previous white paper, reported that three major documents published in the summer of 2018 gave real optimism that political will would drive the issue into the mainstream the following year.

First the Department for Environment, Food & Rural Affairs (Defra) published *Surface Water Management: An Action Plan*. This told local planning authorities that strategic flood risk assessments "must consider flood risk from all sources including surface water". Water firms were informed that they must ensure that drainage and wastewater management plans were fit for purpose and delivered "significant improvements to drainage of wastewater".

Then ministers updated the *National Planning Policy Framework* requiring schemes in areas of flood risk to "incorporate sustainable drainage systems unless there is clear evidence that this would be inappropriate".

Completing the trilogy, water companies trade association Water UK released a draft version of the eighth edition of its *Sewers for Adoption* booklet, which said it would "give guidance, for the first time, on the design and construction of sustainable drainage systems".

The previous white paper said that there is no doubt that *Sewers for Adoption 8* represents a major breakthrough for SuDS campaigners, helping overcome the concerns of developers and water companies by setting out hard and fast rules on what each party has to do to.

KEY FACT

1 April 2020
Date the *Design and Construction Guide* was launched allowing SuDS to be adopted under sewer guidance

Water companies can adopt SuDS but progress is slow

Such positivity. Yet as you read this in 2021, it is unlikely you are sat by a swale or pond being used to capture surface water runoff and deliver the four pillars of boosting water quality, managing flood risk and creating nice spaces for people and wildlife.

Put simply, SuDS are still not coming through in the volumes that were anticipated and that many people believe are necessary. So, what happened?

"Although Water UK issued a draft document with an intention, circumstances overtook it and *Sewers for Adoption 8* never saw the light of day," explains Wavin product manager Martin Lambley. "Eventually it was subsumed into a bigger project and became appendix C of Ofwat's *Code for Adoption*, becoming known as the *Design and Construction Guide* (*DCG*)."

Wessex Water development engineering manager Mike Gale was involved in the creation of the *Code for Adoption* – and it was a lengthy process.

"The *DCG* is effectively *Sewers for Adoption 8* and it didn't come into force until 1 April 2020," he says. "*Sewers for Adoption 7* had to be rewritten to align with the code and that took longer than first anticipated.

"Water UK hosted meetings with representatives from the industry. We went to London regularly for a day just going through the changes discussed and reviewing and reviewing until everyone agreed with it."

Even when the code finally went live – effectively enabling water companies to adopt any sustainable drainage element that meets the criteria set out in the attached *DCG* – there was a grace period for developers.

"There was a six month period where you could continue applying for permission through the old rules," says Gale. "And there was no requirement under *Sewers for Adoption 7* to offer SuDS for adoption."

This meant developers did not have to comply with the *DCG* until October last year, with the knock-on effect, according to Gale, that "water companies may not be clear about the procedures or charges they would use to adopt SuDS" until that point.

Given the lengthy nature of most planning applications and construction processes, few sustainable drainage schemes designed specifically to meet the needs of the new code and its *DCG* will have appeared above ground yet.

As Lambley says: "We are still to see whether this is the document that answers the question about who manages SuDS – and whether this will make the breakthrough."

That question is what this white paper will attempt to answer.

HISTORY

First, let us not forget why this matters. The first *NCE*/Wavin white paper on SuDS, published in 2017, looked back at floods in 2014, 2010, 2005, 1998 and even 1952 to highlight the fact that not enough had been done in between these events to prepare for the next crisis.

It looked at a National Needs Assessment (NNA) report published in 2016 by a panel chaired by then Institution of Civil Engineers president Sir John Armitt. This declared that the annual £920M cost previously cited by the Environment Agency to provide "optimum" long term flood and coastal erosion protection could be reduced by "land use and catchment-wide measures".

A study by the cross-party Environmental Audit Committee published the same year found "a lack of effective long term strategic planning about how to manage flood risk", adding that the government "appears to be reactive rather than proactive" in this area.

Recommendations in the Pitt Review, published following the 2007 floods, mooted a range of changes to boost the use of SuDS.

Following this, the Flood & Water Management Act 2010 was published by the Labour government. Within it was Schedule 3 which required the formation of SuDS Adoption Bodies (or Sabs) by local authorities. These would approve and then adopt surface water drainage in all relevant development projects.

However, as the second white paper explained, a change of government and a wealth of arguments made by developers and other parties against the prompt enforcement of SuDS legislation meant Schedule 3 was never implemented by Westminster. Instead a softer system was introduced through the planning system, which many felt had too many loopholes to be effective.

There is concern about a lack of long term planning to manage flood risk

Pressure for rapid and powerful enforcement of SuDS in developed spaces grew. A Business in the Community report in 2017 used a Ciria evaluation tool to calculate the potential benefits of a roll out across all schools and health centres in Greater Manchester. In the decade to 2028, a net present value of up to £65M was estimated, with a possible benefit to cost ratio of 2:1.

The Landscape Institute said on its website that SuDS should be part of every local plan: "All new developments should integrate SuDS and there should be a comprehensive programme of retrofitting SuDS."

In 2018 the trilogy of policy papers was published and optimism grew but, as we now know, the Ofwat Code for Adoption has only recently come into force in a bid to truly take this forward.

So here we are in 2021. *NCE* and Wavin have spoken to a range of experts, as well as polling more than 500 attendees of a webinar they held on the topic, and reading all the available documents. This has enabled them to come up with the best analysis possible on what next for SuDS.

THE OFWAT CODE

Regulator Ofwat says on its website that – following the lengthy process of drafting and revising the text with water firms – sewage sector guidance documents have been approved and "form part of the *Code for Adoption Agreements*" from 1 April 2020.

Titled *Sector Guidance in Relation to the Adoption of Sewerage Assets by Sewerage Companies in England*, the main sewer sector guidance paper, published in October 2019, states that sewerage companies are "obliged by the code to comply with the sewerage sector guidance" adding that "any failure to do so may result in investigation and sanction by Ofwat under its regulatory powers".

It goes on to say that rules to be adhered to include one that says that "all sewerage companies will adopt sewers complying with the requirements of the *DCG*" and makes

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clear that all works referred to in the guide can be carried out by third parties.

So the *DCG* takes on great significance – and it contains some long awaited support for sustainable drainage.

"Surface water drainage proposals should fully explore the surface water hierarchy and provide evidence to support alignment with national and local flood risk strategies and policies before connection to a sewer is considered," it states. This hierarchy says surface water should be collected for use where possible, with discharge to a body of surface water preferable to sending flows into combined sewers.

The guidance adds that the *National Planning Policy Framework* "gives an expectation that sustainable drainage systems should be used as first preference in developments of any size".

Later comes a passage that could have the potential to start unlocking the SuDS puzzle.

"This guidance provides the mechanism by which sewerage companies can secure the adoption of a wide range of SuDS components that are compliant with the legal definition of a sewer," says the *DCG*. "This is a significant step change which will deliver better managed and integrated surface water systems that align more closely with the direction of government and regulatory policy."

A SuDS component is potentially adoptable under the code as a sewer if it is built for the drainage of buildings and their yards; has a channel with a definite boundary; conveys and returns flows to a sewer, surface water body or groundwater; and has an effective and lawful discharge into a watercourse, water body or land.

Government guidance has led to an expactation that SuDS should be used on new developments

The guidance tells developers to submit completed copies of relevant checklists from Appendix B of the Ciria *SuDS Manual* along with their section 104 adoption application. A management plan is required to outline maintenance proposals for soft SuDS components, along with a long term vision statement for how certain elements such as wild flower grasslands are expected to develop over time.

Overall, surface SuDS features designed to deal with a one in100 year rainfall event, taking into account climate change, and where provision is made for flows to reach a particular feature, will "normally be adoptable" says the guidance.

REACTION

"I am optimistic that this could be the mechanism we've been waiting for," says Lambley. "It is a positive start."

He does say he would like to see green roofs and permeable paving included in the scope of the sustainable drainage measures that water companies would adopt if designed correctly – as these do not include channels they do not currently qualify.

A bigger hurdle comes in the form of utility opposition to the code's latest sewerage guidance, according to Lambley.

"Some water companies are being very pragmatic about it, accepting that it is there and needs to be adjusted to, whereas others have been less positive about the change."

So what happens if a water firm goes against the guidance, or interprets it differently to a developer?

"I think the industry feels that one of the water companies will put its foot down on an adoption request and there will possibly be a legal case to establish a precedent," says Lambley.

Thames Water business services and wastewater operations manager Nick Ayling says his company is "against calling SuDS sewers".

"We said there needed to be a change in the law," he explains. "We campaigned in 2019 for changes to the Environment Act to allow water companies to own SuDS as something other than sewers. That has not happened."

He expresses a lack of confidence in the ability of the sewerage guidance in the code to ramp up the

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use of SuDS in new development.

"If I'm honest I think it will make very little difference in England. There is a lack of government legislation and an element of interpretation over which SuDS and how much of a SuDS can be classed as a sewer and what people really want to own and maintain.

"Some water companies might just adopt a channel down the middle of a dry pond that turns into a lake they don't want to be responsible for. They don't want to cut the grass banks. I think developers might get turned off at the application stage when they see this is how it could work."

Gale concedes that the code has got off to a slow start, as water companies slowly switch from the old system to the new regime and gear up for a new way of working. He adds that it is not just the utilities that need to adjust.

"I am pleased with the final *DCG*," he says. "It just needs everyone to get on board with it. A year after it first came out a lot of developers are unaware of what is in it.

"Developers are still unclear how offering SuDS for adoption would benefit them. When a planning authority or lead local flood authority asks for above-ground SuDS features that affect the developer building the number of homes it wants to on a site – it can be a clash of priorities.

"Until we can convince developers of the benefits, I don't think we'll see many SuDS coming through."

OPINION POLL DATA

Earlier this year, *NCE* and Wavin polled more than 500 registered attendees of a webinar on the topic of the sewerage guidance now forming part of the Ofwat code.

Just one in five of these people – who represented water companies, local authorities, consultants, developers and others – said they were fully aware of the guidance and were applying it.

There are questions about who takes responsibility for maintaining SuDS

The results showed that almost a year after the *DCG* went live, four in five people interested enough in it to attend an event on it were still not using it. Speakers at the event suggested that a random poll of developers not at the webinar could potentially have shown an even more dismal level of awareness.

More than half of survey respondents said they had no knowledge of the changes that the *DCG* introduced from the *Sewers for Adoption 7* document it replaced. These changes, of course, include the all-important requirement to adopt certain properly designed and built SuDS elements.

In fact, little over a quarter of those polled claimed to be fully aware that some SuDS infrastructure could be adopted through the s104 process – and just 5% had actually applied this approach.

The survey also uncovered an alarming ignorance of water company stances on SuDS, with almost half of the few who were aware of them saying their local utility was against adoption of sustainable drainage.

AWARENESS

"I am not surprised by the survey results regarding a lack of awareness," said Lambley. "There are a number of factors.

"First, the timescale from ratification in October 2019 to a go-live of the document on 1 April 2020 was not long enough to get prepared. Covid has also played a huge part as the document went live a week after the country went into national lockdown for the first time. And the name of the new document doesn't help anyone – everyone was calling it *Sewers for Adoption 8* and the new name just doesn't resonate in the same way."

Gale told webinar delegates that Wessex Water had made a concerted effort to raise awareness of the new sewerage guidance and what it meant for adoption of sustainable drainage.

"We need to get the message out there that maintenance of adopted SuDS will be paid for in the annual sewerage charge and there will be a one-stop shop for maintenance," he said.

"Most companies have held developer days. We've added banners to our website, we've put tags on our emails. I hoped awareness would be higher but with the pandemic and the lack of a proper launch event it will take longer to get the message out there."

Wessex is taking giant strides towards adopting sustainable drainage on a bigger scale, Gale added.

"Up until publication of the *DCG*,

we had very little internal knowledge of adoption and maintenance of SuDS – it's a big steep learning curve for us. We've had to change how we work.

"We have already adopted SuDS such as attenuation tanks and we have more SuDS schemes at the design and construction stage. We currently have agreements in place which will adopt Suds features. We have an internal SuDS policy and a SuDS steering group."

Ayling agreed that ignorance was holding the code back. "Lack of awareness is evident. People are unaware of the code's existence or its requirements so we are having to direct consultants to the Water UK website," he told delegates.

He also put this down to the "lack of an official launch and the timing of Covid" adding that "95% of the code is the same as its predecessors in terms of what you build on site". Developers continue to bury concrete pipes without considering the cost, carbon and speed benefits of plastic, for example, he claimed.

Ayling also raised three big concerns that Thames Water has about adopting SuDS as sewers.

"Sewers have an automatic right of connection, so a developer building adjacent to a swale has a right to discharge into that at any rate agreed at planning," he said.

Adding that all private sewers connecting to the public network were supposed to transfer to water companies in 2011. Ayling warned that classifying SuDS as sewers now could lead to an "avalanche" of pre-dated maintenance claims.

"Funding is a concern," he added. "Water companies are primarily funded to take sewerage flows away. They may not maintain SuDS as amenities. They could just make sure they work, and SuDS could become overgrown."

THE FUTURE

Gale said Wessex Water had "made it clear that we will adopt any SuDS which qualify as adoptable" and that the utility would then "deal with any issues as they come forward".

Lambley said reaction to the code was "very geographic".

"In some water company areas we are seeing a lot of requests about how SuDS products are integrated – and in others we are not seeing so much."

Water companies now have to learn how to maintain SuDS following adoption

The entire supply chain would have to play its part for sustainable drainage to truly break through into the mainstream, he added.

"Is this perfect? Probably not. But it is better than what we had previously. "From a design and developer point of view, they need to think about delivering the four pillars and not just being restricted to SuDS components included in the *DCG*," he added.

"They need to deliver on best practice in sustainable drainage, not just what they can get adopted."

With so much disagreement and uncertainty about how the sewerage design and construction guidance will be implemented with regard to SuDS, what is the next step?

"The government has not created legislation to enforce SuDS," says Ayling. "A legislation change is needed to make the owner clearer."

As ever it appears that despite the industry's best efforts to drive to its own destination on this, all roads lead back to Schedule 3 of the Flood & Water Management Act 2010.

"This has been enabled in Wales so SuDS there are not sewers, they are owned by local authorities," says Ayling. "I would like to see this enacted in England."

Lambley agrees that enacting this long dormant legislation is the "solution many people would prefer", and Gale concurs.

And they are not the only voices behind the calls for a law change.

In February, MPs on the cross-party Defra select committee called for a consultation on "measures to improve the uptake of high-quality SuDS features".

This consultation "must include a legislative option, commencing with Schedule 3 of the Flood and Water Management Act 2010 or making equivalent statutory provision" adds the committee in a report.

According to the committee report, Water UK head of policy Rob Wesley told the MPs that the government's decision to leave the legislation unused "cannot be regarded as a particularly successful 10 years".

Written evidence submitted by the water companies' trade association went further, stating that "the legislation is still seen by our members to be the right approach for the country".

Ayling says that he understands Defra is considering bringing forward a fresh consultation on introducing the long-awaited Schedule 3.

Although the department denied it was looking at such a consultation, it confirmed it was planning for the implementation of Section 42 of the

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Floods & Water Management Act, which would require all sewers to be adopted before being connected to the public network.

Ayling said 85% of new sewers currently remain in private hands, creating a risk to homeowners of costs for repairing infrastructure crossing their own and others' land.

Meanwhile the focus turns back to raising awareness of the current rules as set out in the Code and its *DCG*.

"There is a need for an awareness campaign," says Gale.

"We are trying to encourage planners to get developers to engage with us while they have a blank site so they can sort out drainage before they go to consultants for site layout.

"This will also require members of the public to be clear on what they want so that in the local plans there are requirements for certain measures on certain sites."

A spokesman for the Home Builders Federation said above-ground SuDS had proven "a great unique selling point for developers for some time". But he added that the drainage hierarchy meant it was "perfectly acceptable" to discharge to a combined sewer in certain cases.

"Future management is a key issue in considering the appropriate solution, and developers work with planning authorities to agree the most suitable solution for a particular scheme and authority."

Lambley remains optimistic that despite the delays and hurdles, sustainable drainage will eventually have its day.

"In time there will be less and less underground surface water drainage and much more above ground," he says.

APPENDIX

WEBINAR Q&A

A number of questions were submitted to the panel on the Wavin and *New Civil Engineer* webinar looking at the implications of the SuDS guidance in the *DCG*. There were too many to answer at the time so here are as many as space allows.

Q: Please could you provide the link to the website to enable me to download the code?
Mike Gale: https://www.water.org.uk/sewerage-sector-guidance-approved-documents/

Q: The webinar refers to the title *Code of Adoption Sewerage* but none of the Sewer Sector Guidance documents refers to this title. Do we not need to get the title of the code correct first?
Mike Gale: The *Code for Adoption Agreements* is the Ofwat document that has unified the way all parties get sewers adopted. The construction specification is the *DCG* which has replaced *Sewers for Adoption 7*.

Q: Is there a tracked changes version of the code to help understand where the changes are?
Mike Gale: There was a short document produced by Water Research Council which listed the changes, but I'm not sure if that is available publicly.
Nick Ayling: No there isn't a tracked version available. I have given numerous briefings on the main technical and design changes and common areas that are overlooked. I'm happy to work with any companies in the Thames area to increase this awareness.

Q: If developer days are planned by water companies, what engagement is planned for consultants?
Mike Gale: Although we called it a developer day, we invited over 400 people who were a mix of developers, consultants, and others.
Nick Ayling: We held ours a couple of weeks ago and consultants outnumbered housebuilders. We engage with our frequent customers regularly.

Q: Will companies move to adopt more nature-based solutions imminently or in the future?
Mike Gale: We can only adopt what is offered, so this will rely on the planners encouraging these, and developers/consultants building these into their designs.
Nick Ayling: Thames is very supportive of the use of SuDS to reduce volume and slow the flow into our sewers and rivers.

Q: Are SuDS that primarily drain plot drainage and partly land drainage adoptable under the new code?
Mike Gale: Yes, under the *DCG* a sewer can be adopted if it "predominantly" takes flows from impervious areas draining buildings and yards. Wessex Water will allow an element of land drainage to be connected, and an element of highway drainage. However, we will not adopt anything that has been designed to manage ground water or highway flows.

Q: Are highway authorities adopting SuDs?
Mike Gale: Possibly, but that is a question for them.
Nick Ayling: They may do if the SuDS are a primary part of the highway – for example permeable paving/infiltration trenches alongside A-roads and motorways that drain the highway only.

Q: Would water authorities adopt SuDS from highway schemes too?
Mike Gale: If the sewer is predominately designed as a surface water sewer, but there is an element of land or highway drainage, it could be adopted.
Nick Ayling: It depends on primary use of flows – if they primarily come from a highway drain then they don't fall under the definition of a sewer. SuDS adopted by water companies should be taking water from house roofs and driveways.

Q: Are/will these adopted asset types be reported to Ofwat in any form – such as numbers and lengths of swales and rills; numbers of soakaways, detention basins and retention ponds?

Mike Gale: Yes, every year we have to provide Ofwat with the network which we have adopted, broken down into sewer lengths and assets such as outfalls, sewage pumping stations, flow control. SuDS will be added to this yearly register.

Q: Would you adopt a Swale with a French drain beneath?
Mike Gale: Yes, I believe so, but we would need to see the design.

Q: Are costs of SuDS charged back in the general sewage charges to all in the water company area or back just to the owners on the development?

Mike Gale: Post-adoption maintenance is covered in an annual sewerage charge.

Q: Is the ignorance on site deliberate due to cost?
Mike Gale: I believe that cost is one of the factors, and until we can educate the developers about the overall benefits of investing in these features, there may be a reluctance to offer them for adoption.

Q: There have been a few references to SuDS policies and position statements of water companies, but these do not seem to be readily available online. Are they available to the public and where can they be found please?
Mike Gale: Wessex Water has its policy on our website. The final version will be published in March containing checklists to help with adoption applications.
Nick Ayling: I will feed back this request and problem back to the Codes Industry Panel – I agree it would be sensible for them to be consolidated in one place.

Q: Mike, what can you share regarding the arrangements for a third party to own the land but the water company being responsible for the surface asset?
Mike Gale: Unfortunately nothing definitive yet, those arrangements are still being finalised.

Q: In Wales we are now geared up to tackling SuDS with SuDS Approving Bodies. Do you not think England should move to this model?
Martin Lambley: I agree.
Mike Gale: There may be benefits to go that way but we have a suitable system in place which we can run with.

Q: Mike, how many SuDS features did you inherit as a result of the Private Sewer Transfer in 2011 given that there have been no changes to the legal definition of a sewer since 1991?
Mike Gale: Our SuDS panel is actively discussing whether we need to go back and identify which assets could have transferred and we've looked at as-constructed drawings back to 2011, Google Maps, anything we can do to identify ponds, swales, basins that could be our responsibility and then we have to decide as a company whether we agree these legacy SuDS are ours to maintain or not.

Q: What is the life expectancy of underground plastic tank cages before they need to be replaced? How are issues of resident rats/ Weil's disease addressed?
Martin Lambley: The standard in the certification is 60 years, but once they're designed correctly and buried there is not a lot that can go wrong. They become part of the sewers system so the measures taken to prevent rodents in the standard system would be included in the tanks.

Unfortunately, you won't eradicate vermin from the system.

Q: With increases in extreme weather events and flooding, what steps are being taken to prevent regular sewer overflow discharge into rivers and the sea if SuDS are discharged into sewers?
Nick Ayling: Water companies have been charged with drawing up drainage water management plans. We are looking at what we need to do more to model and monitor real time sewer operations so we can act before a sewer is breached.

There is lots to do. More stringent planning requirements are required for on plot/source control SuDS or re-use to reduce volumetric off-site discharge.
Mike Gale: Storage is required for a 1-in-100-year event plus climate change.

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