Q11 Are best practice techniques already used by other water companies being considered?

Answer

We are constantly reviewing and improving our business to meet and exceed industry standards, to implement best practice and to drive innovation. We lead and participate in a large number of industry forums both in the UK and worldwide, to share and expand our learning; with the ultimate aim of improving services for customers.

We are deploying industry best practice techniques throughout our Drainage Strategy work, and also trialling new technology that is innovative within our industry, to achieve the best possible drainage outcomes for customers and their local environment.

Q12 Why are you collecting climate change data rather than 'climate proofing' assets?

Answer

We are committed to responding to climate change and to reducing our contribution to it by reducing emissions in accordance with government policy. Our voluntary target is to achieve a challenging 20 per cent reduction in emissions (compared to 1990 levels), for our Scope 1 and 2 emissions*. We continue to assess and collect climate change data and its impact on assets across our region, to ensure that we are fully informed and can prioritise our plans, targeted actions and investments. For more information please see the Climate Change section on the Homepage of our website.

*Scope 1 emissions refer to greenhouse gas emissions associated with the operation of our assets. Scope 2 emissions are emissions associated with the use of grid electricity.

Q13 What is the impact on local rivers of overflow points?

Answer

During extreme weather conditions foul sewers may become overwhelmed through a combination of surface water or ground water, resulting in a much diluted sewage. The impact on local rivers is dependent on the nature and size of the river, and on the overflow.

To reduce the environmental impact on local watercourses we will only use overflow points when groundwater and river levels are high, and therefore sewage dilution rates are also high. Additionally, we are also investigating deploying mobile biological filters to prevent litter and other matter from entering local rivers. If during the development of our drainage strategy we consider that temporary overflow points are necessary in the local network, we will update the Drainage Strategy document to reflect this position.

Fairford Drainage Strategy

Technical Document

Thames Water

At the heart of daily life

Stage 1: Initialise / Prepare

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About this document

Based on customer research

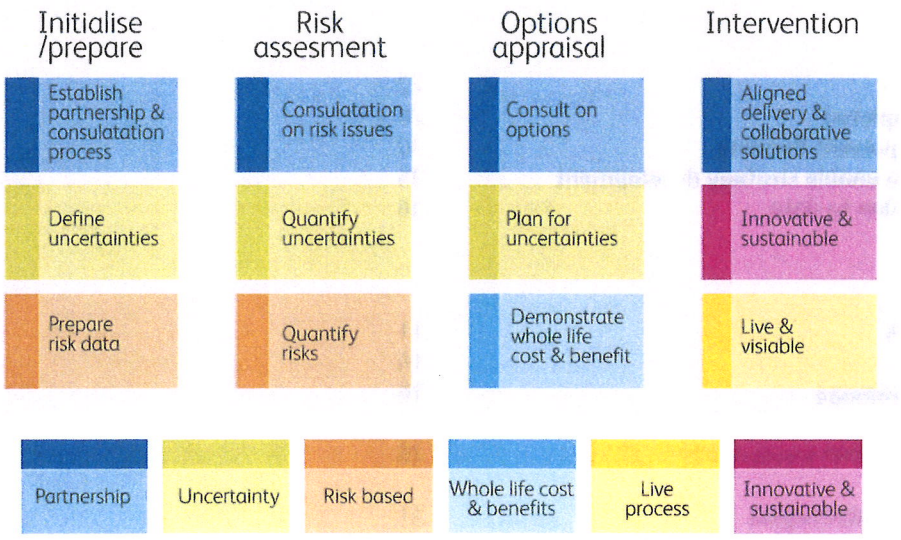
Undertaking extensive customer research has been a fundamental step in our business plan preparation for 2015-20. Our research findings have informed our business planning activities, and contributed to the development of a set of long-term customer 'outcomes'.

The water industry economic regulator, Ofwat, defines 'outcomes' as "High-level objectives that company actions, activities and achievements are intended to help deliver. [they] represent what customers and society value". As a company, we are committed to achieving our customer outcomes, a number of which are focussed on alleviating sewer flooding issues within our region, through effective, economic and sustainable drainage. This document describes the strategy that we will follow in delivering our long-term customer outcomes for drainage, specifically in the Fairford catchment, in a sustainable and economic manner.

Approved approach

We have adopted the Drainage Strategy Framework[1] outlined in Figure 1 below, developed by the Environment Agency and Ofwat. It identifies 4 key stages to producing a good-practice drainage strategy. Drainage strategies typically focus on the sewerage network, and not the performance of sewage treatment works. The Fairford drainage strategy is currently at the first stage of this framework - the Initialise/Prepare stage. In this document, we describe the activities that we plan to undertake to address current issues and future challenges facing the catchment, and the data that we need to gather to complete the risk assessment and options appraisal stages.

Figure 1 The Drainage Strategy Framework



[1] http://www.ofwat.gov.uk/future/sustainable/drainage/rpt_com201305drainagestrategy.pdf

Consultation and publication

We will update and republish this document to provide the results of our risk assessment, options appraisal and our selected strategy for intervention, once data from instrumentation and other fieldwork has been collected and analysed.

Throughout this process we will attend local flood forums for ongoing communication and consultation with customers and stakeholders. We will also make the Drainage Strategy documents available on the Drainage Strategies webpage of our website.

Meeting the Infiltration Reduction Plan (IRP)

To ensure that this Drainage Strategy meets the requirements of an Infiltration Reduction Plan, as set out in the Environment Agency's Regulatory Position Statement on discharges made from groundwater surcharged sewers, we have included a section in this document which defines if, how and when we propose to operate temporary overflows. This is in addition to our plans to reduce infiltration over time, where it has been identified as a root cause of sewer flooding. Please see Section 8 in the Drainage Strategy document below.

Executive summary

In recent years the foul sewerage system in Fairford has become overwhelmed in some locations following prolonged and heavy rainfall. This has resulted in properties suffering from sewer flooding and restricted toilet use.

The foul sewerage system is recorded as a separate foul system rather than a combined network. We believe that the system has surcharged due to of a combination of groundwater infiltration to public sewers and private drainage, significant volumes of surface water run-off from surrounding saturated fields, inundation from highways and public spaces, surface water misconnections (i.e. downpipes from roofs), and river water overflowing from the River Coln.

The root causes of sewer surcharges are therefore numerous and the resolution of the issues complex, requiring all stakeholders responsible for drainage in the catchment to work together to resolve them. The Floods and Water Management Act 2010 places a responsibility on lead local flood authorities (LLFAs), to manage flood risk from surface and groundwater, plus a duty on all risk management authorities (RMAs), to cooperate regarding flood risk. In our role as a RMA, Thames Water will work with Gloucestershire County Council as the Lead Local Flood Authority, Cotswold District Council and the Environment Agency to ensure that a collaborative approach can be developed to address the problems.

In response, this drainage strategy follows the Environment Agency and Ofwat's 4-stage framework. The Fairford strategy is currently at Stage 1 (Initialise/Prepare). We describe in this document the actions that we plan to carry out to complete the risk assessment and options appraisal stages. We will update and republish this document once this work has been completed.

In preparing our company business plan for the 5 year period 2015 to 2020, we have listened very carefully to the views of customers. Beyond being able to maintain the current service that we provide, customers have told us that they would like to see a reduction in instances of sewer flooding and odour nuisance and an improvement in river water quality. Our research indicates that customers are willing to pay for these improvements to service[2]; a summary of our related customer research can be found on our website via the hyperlink below.

We have therefore developed a set of company outcomes that we are committed to working towards over the next 5 years and beyond. The outcomes relevant to the Fairford drainage strategy are:

- Asset health - a composite range of measures against which we will manage the health of our sewerage network
- Properties and public areas protected from sewer flooding
- River water quality meets customer's expectations and regulatory requirements.

This drainage strategy must also address future challenges to the Fairford catchment. We assess these to be:

- Climate change – analysis of the latest data suggests that rainfall could become 15% more intensive by 2080 increasing the likelihood of flooding. Longer wetter winters may also mean groundwater levels are high more often; this could also exacerbate fluvial flooding from local watercourses
- Urban creep – paving over of front gardens and loss of green space results in more strain on the sewerage network when it rains heavily. Modelling we have undertaken suggests urban creep rates in Fairford are about average for the Thames Operational Area.
- Population growth – the population in the South East is set to grow rapidly. A number of possible developments are identified around Fairford, and we will continue to track these and any other emerging applications for this catchment arising in the future.

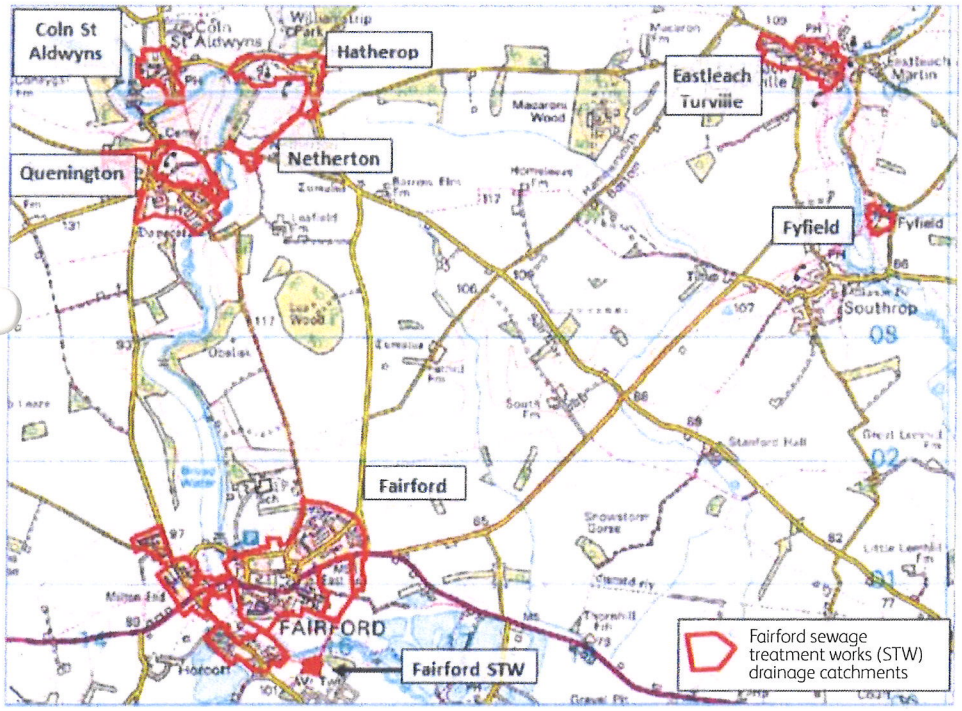
[2] http://www.thameswater.co.uk/cr/Howwedobusiness/Engagingwithourstakeholders/Publicconsultationresearch/index.html

Our strategy is to understand the relative impact of surface water connectivity, floodwater from the River Coln and groundwater infiltration on the capacity of the foul sewerage network. We will then try to identify cost beneficial solutions using customer willingness to pay research. We may carry out some repair works as the strategy develops, in the event that our investigations identify faults or problems with the sewerage network that are highly likely to have contributed to flooding.

We have recently carried out door to door interviews with customers to increase our understanding of how they were affected by flooding in 2012/13 and 2013/14. Our next steps are to continue to collect real-time flow information from the permanent depth monitors we installed at the end of last year in Back Lane and Horcott Road, and to work with stakeholders to identify potential sources of surface inflow into our foul sewers. The depth monitors will remain in place as we move through this 4-stage framework and develop our plans.

The Fairford catchment area is outlined in Figure 2 below.

Figure 2 Fairford catchment area



The extent of the catchment is outlined in red.

1 Thames Water and drainage

1.1 Our statutory responsibilities

Thames Water is a regulated Water and Sewerage Company. We supply water to 9 million customers in London and the Thames Valley and provide wastewater services to 15 million customers across an area that stretches from Gloucestershire to Essex. We operate 108,000km of sewer through which an average of more than 4.4bn litres of wastewater is collected and treated every day at our 350 sewage treatment works.

The primary legislation that sets out our role and responsibilities is the Water Industry Act (1991), which describes the duties and services that we are responsible for and the powers that we have to connect, operate, maintain and extend the sewerage network. We are regulated by the Water Services Regulation Authority (Ofwat). The original 1991 Act has been amended by further legislation in recent years, transferring some drains and sewers that were hitherto in private ownership to Thames Water's responsibility[3].

Other recent pieces of legislation relevant to this Drainage Strategy are the Flood & Water Management Act (2010) and the Water Act (2014). These set out new responsibilities for Thames Water to manage flood risk in partnership with local councils and the Environment Agency, with more emphasis on Sustainable Drainage Systems (SuDS), such as swales and permeable paving to mimic natural drainage.

Thames Water also has a statutory obligation to comply with environmental legislation, including European Directives. The Water Framework Directive establishes a strategic approach to managing the water environment, which the Environment Agency achieves through River Basin Management Plans and setting environmental objectives for groundwater and surface water. The environment is also protected from adverse effects of discharges of urban wastewater through the Urban Wastewater Treatment Directive, which requires us to improve and extend the sewerage system according to section 94 of the Water Industry Act (1991). A comprehensive and detailed list of all legislation relevant to Thames Water can be found in the 'statement of obligations' published by Defra[4].

[3] See http://www.thameswater.co.uk/help-and-advice/8654.htm for more information.
[4] See https://www.gov.uk/government/publications/statement-of-obligations.

1.2 Working in partnership with other stakeholders

Other stakeholders responsible for managing various forms of drainage need to work together with us to reduce the risk of flooding. Each has specific responsibilities as summarised in Figure 3 below.

Figure 3 Stakeholder responsibilities for drainage