

TA 2.5 Meeting our Statutory and Licence Obligations Technical Annex

September 2018

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TA 2.5 – Meeting Our Statutory and Licence Obligations

Purpose: This report is intended to assist the Board in providing assurance that the business plan: (1) will enable Southern Water to meet its statutory and licence obligations, over the AMP7 period and in the long term; and (2) takes account of the UK Government's strategic policy statement. This annex should be read in conjunction with Chapter 2 – Trust, Confidence and Assurance.

The table below summarises the Ofwat tests that are addressed by the evidence in this Annex.

Table 1: Relevant Ofwat tests

Ref	Ofwat test		Comment
Primary Focus Areas			
CA4	To what extent has the company's full Board provided comprehensive assurance to demonstrate that the business plan will deliver – and that the Board will monitor delivery of – its outcomes (which should meet relevant statutory requirements and licence obligations and take account of the UK and Welsh Governments' strategic policy statements)?	High quality plan The Board assurance statement will include assurance that the business plan will, over the next control period and in the long term, enable the company to meet its statutory and licence obligations, take account of the UK and Welsh Government's strategic policy statements and deliver operational, financial and corporate resilience.	The report outlines each key area of statutory and Licence obligations to which Southern Water is subject sub-divided by compliance area, and, for each area, an explanation of what Southern Water does to comply with each of the obligations, relevant key risks, and how the Business Plan will enable Southern Water to meet the obligations.

About this report

As set out in Ofwat's PR19 Final Methodology, Ofwat expects the full Board of each water company to provide Ofwat with an assurance statement that explains how it has challenged and satisfied itself that the Business Plan: (1) will enable the company to meet its statutory and licence obligations, now and in the future; and (2) takes account of the UK Government's strategic policy statement. Ofwat considers that a high-quality business plan will include comprehensive assurance in this regard, and it will test the extent to which the full Board has provided such comprehensive assurance to demonstrate that the Business Plan will deliver – and that the Board will monitor delivery of – its outcomes, which should meet relevant statutory and licence obligations and take account of the UK Government's strategic policy statement.

This report was prepared to assist the Board in gaining assurance that the business plan: (1) will enable Southern Water to meet its statutory and licence obligations, over the AMP7 period and in the long term; and (2) takes account of the UK Government's strategic policy statement. The report is appended as technical annex 2.5 to *Chapter 2 – Trust, Confidence and Assurance* of the Business Plan.

The first section of the report provides background and context to the compliance issues Southern Water has faced in the recent past and explains how it is addressing these issues.

The second section describes Southern Water's approach to taking account of the UK Government's strategic policy statement.

The report then outlines each key area of statutory and licence obligations to which Southern Water is subject sub-divided by compliance area, and, for each area, an explanation of what Southern Water does to comply with each of the obligations, relevant key risks, and how the Business Plan will enable Southern Water to meet the obligations. In compiling the summary of obligations for these purposes, key personnel responsible for the business units within Southern Water with knowledge of the key legal obligations to the company's operations were consulted.

This report is not a full statement of each and every legal obligation to which Southern Water is subject; rather, the key obligations have been identified and aggregated to ensure adequate consideration of how the Business Plan enables compliance. The obligations covered include those referred to specifically in Ofwat's PR19 Final Methodology; namely:

- obligations on Southern Water as a water and sewerage undertaker in its Licence and under the Water Industry Act 1991;
- and
- obligations set out in the Environment Agency (EA) and Natural England's water industry strategic environmental requirements (WISER) document, which relate to the

environmental, resilience and flood risk obligations that water companies must take into account when developing their business plans.¹

There are two appendices to this report:

- **Appendix 1 – 'Complying with the Licence'**: This describes how we comply with the conditions of our Licence where these conditions do not require a specific cost or approach that is set out in our Business Plan.²
- **Appendix 2 – 'Checklist of expectations in the WISER document'**: This sets out the EA's checklist of expectations in its WISER document, along with references to the parts of our Business Plan where these expectations are addressed.

There is also reference in this report to several other directly Technical Annexes, including the following:

- **Technical Annex: TA 2.6 Legal Instruments (WINEP and DWI Notices)**. This sets out the legal instruments issued by the Drinking Water Inspectorate and Environment Agency in regards to AMP7.
- **Technical Annex: TA 7.2 – Ethical Business Practice and Modern Compliance Framework**. This provides greater detail of our work to develop and embed a Modern Compliance Framework supported by Ethical Business Practices. This is to support our wider cultural change programmes, including Water First and Environment+, and improve compliance across our water and wastewater operations.

¹ See further Appendix 2.

² See further section 0 below.

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Context: Recent events and transformational change

Introduction

We fully recognise the public interest in, and are committed to, ensuring that high standards are observed with respect to compliance by Southern Water with the legal obligations imposed on water and sewerage undertakers, in particular as regards matters of regulatory reporting, water quality and environmental practice.

The Board recognised the need to change and has responded to interventions by the Drinking Water Inspectorate (DWI) regarding water quality, and ongoing investigations by the Environment Agency (EA) regarding performance of certain wastewater sites and by Ofwat regarding, amongst other things, the reporting of relevant compliance information. We identified in our 2016–17 Annual Report the need to conduct a thorough and far reaching internal review and improve our end-to-end reporting processes with a view to implementing process and control improvements. Our review identified that we had fallen short of these high standards and identified shortcomings in the application of our business processes.

The Board, working with the company's executives and senior managers, has since 2017 enabled a number of specific organisational changes to ensure the Board is more able to satisfy itself that the organisation will meet its core legal obligations, by:

- putting in place a new senior management team at executive level (including a new CEO) to drive through change;
- strengthening the Board through the appointment of new directors;
- setting up a new Compliance and Asset Resilience Directorate (CAR);
- instigating transformational cultural change in the business – including the promotion of whistleblowing through a new “Speak Up” campaign and policies;
- investing in new operational technology (OT) and information technology (IT) to significantly improve information management;
- improving controls with regard to our water quality information management and self-monitoring of wastewater treatment works performance;
- additional independent external assurance;
- working with independent experts in establishing and embedding an appropriate ethical business framework in Southern Water.

We are significantly improving the level of internal and independent assurance of our processes and compliance data, and have worked collaboratively with our regulators and stakeholders in designing a number of workstreams across the business designed to ensure that:

- there is a change in culture across the entire business which values and aspires to ensure compliance with its obligations, and encourages values-based and ethical behaviours; and

- adequate systems and processes are quickly put in place to enable us more fully to comply with our obligations going forward.

We continue to collaborate with our regulators in relation to the implementation of these workstreams; in particular, we are working proactively with DWI to agree and put in place adequate arrangements to meet the DWI's concerns³, and with Ofwat and the EA to resolve ongoing investigations regarding the operation of our wastewater treatment works and reporting processes.

This section outlines the specific workstreams that are driving transformative change in response to these issues. These workstreams represent a significant investment now and through AMP7, dedicated to ensuring compliance with Southern Water's legal and regulatory obligations.⁴

Delivering this programme of transformational change is a high priority for us. Such transformation will inevitably take time to implement in full. However, we have started by working to be brilliant at all the basics so that our customers routinely receive high quality core services: clean, safe drinking water supply; wastewater removal; and customer care. We acknowledge that there is a lot of work still to do to take Southern Water to the place that it needs to be.

We are encouraged by the progress that has been made to date and are confident that the groundwork has been laid to enable Southern Water to establish the change that is required in a timely manner. We will continue to prioritise this work throughout AMP7. Accordingly, we are confident that our PR19 Business Plan will enable us meet our legal obligations during AMP7, including our Licence obligations, our general duties under sections 37 and 94 of the Water Industry Act 1991, and our other statutory duties, as described in further detail in this document.

Cultural Transformation and Structural Change

The Plan has been prepared at a time when the company is under investigation by the EA and Ofwat, and under scrutiny by the DWI for a number of historical issues. Our investigations and assessments show these are related to aspects of our organisational structure, processes, culture and behaviours that have not always led to the right outcomes for customers, regulators, stakeholders and the environment. In this context, the Board has made, and continues to oversee, wider changes (both cultural and structural) to governance and assurance processes to make sustained improvements. This includes improvements to the quality and accuracy of all data, not just compliance.

³ See separate *Technical Annex: TA 2.6 Legal Instruments (WINEP and DWI Notices)*

⁴ Our broader programme of transformative change in terms of operational performance is described in *Chapter 7 – Delivering Resilience in the Round* of the Business Plan.

We are fully committed to ethical business practice and we believe that a strong, healthy, ethical culture drives superior results for our customers, communities and the environment. We recognise that it is the right thing to do for all and to improve the confidence of our stakeholders and regulators in us.

Furthermore, it is consistent with the approach set out in the June 2018 Financial Reporting Council consultation on “The Wates Corporate Governance Principles for Large Private Companies”. On values and culture, it advises:

“... the company’s values (should) support appropriate behaviours and practices within the organisation. This includes discouraging misconduct and unethical practices and promoting behaviour that balances short-term needs with long-term aspirations.

A healthy company culture is critical to the company’s competitive advantage, and vital to the creation and protection of long-term value. A board is responsible for fostering and maintaining the company culture.”

We recognise that significant cultural and structural change requires a change in management. Since late 2016 the company has therefore made personnel changes at Board and senior executive level (including a new Chairman and CEO).

The changes we have made (more fully described below) have already started yielding positive results. The Board monitors compliance risks and issues closely with a standing agenda item at all Board meetings for an update on compliance matters, delivered by the Director of Compliance and Asset Resilience. The change in organisational culture is beginning to happen - for example, we have seen an increased openness amongst Southern Water and contractor staff, who are willing to come forward to speak informally with the Compliance team about risks or issues of concern (outside of the formal whistleblowing process); there is a stronger interaction between the operations teams (water and wastewater) and the Compliance teams leading to interventions in order to improve risk management and mitigation.

Cultural Transformation

Our new leadership, in particular our new Chairman and CEO, have made it clear that shortcomings in behaviour will not be tolerated and will be dealt with openly and decisively. Structural and cultural changes to put in place a modern, transparent and ethical compliance framework have begun to this end.

We are working with independent experts in the field to establish and embed an appropriate ethical business practice in Southern Water to provide a better basis for an effective relationship between us as a business and our regulators, customers and stakeholders, resulting in better outcomes for all.

Further detail on our proposals and action plan is provided in *Technical Annex: Technical Annex: TA.7.2 – Ethical Business Practice and Modern Compliance Framework* .

The Board is committed to driving, supporting and challenging this cultural transformation programme.

Cultural Transformation – Whistleblowing

We have replaced our previous whistleblowing policy with a new 'Speak Up' policy, launched at the end of 2016 under the banner 'I Care'. An ongoing internal campaign shows Board members and executives holding up banners with the words 'I Care' with the message that all employees should care because the company cares about doing the right thing in all circumstances, so as to make the company better for customers, suppliers, staff and the environment. The Speak Up policy actively encourages employees (including employees of contractors) to 'speak up' if they think they have observed any suspected wrongdoing, such as: non-compliance with legal and regulatory requirements or company policies; inadequate or improper record keeping; or, disregard for the environment or environmental regulations and policies.

As well as providing for the usual internal lines of communications (through line managers or trusted team members, such as HR representatives or Health and Safety advisers), Speak Up includes a 24 hour a day, 365 day a year, free, confidential and anonymous external Speak Up service (available online and by telephone). The Speak Up policy expressly assures those who speak up that they will be protected from any form of retaliation for doing so. There are also independent reporting avenues through the Company Secretary, Head of Legal, Head of Internal Audit, Chair of the Probity Committee, and Chair of the Audit and Risk Review Committee of the Board (ARRC).

An update on the use of the Speak Up policy (the issues that have been raised and the actions and follow up that have been taken, and any wider policy or practice implications, etc.) is provided to the ARRC each quarter.

Structural Change – the Compliance and Asset Resilience Directorate

Our wholesale water and wastewater divisions, along with compliance oversight and monitoring for those divisions, were previously the responsibility of a single 'Operations Directorate'. We have divided this Operations Directorate into three new directorates in order to improve oversight of the day to day operations of the respective divisions and separate the roles of those responsible for operations and those responsible for compliance.

The three directorates are: one each for wholesale water and wastewater with responsibility for operations and performance in those areas, and a third, the new Compliance and Asset Resilience Directorate (CAR), with overall responsibility for compliance and asset resilience matters. In addition, our specialists with responsibility for advising on regulatory policy, who previously sat within our 'Strategy Directorate', have been incorporated into the CAR.

The purpose of the CAR is to drive organisational focus on compliance and develop improved resilience in our assets. The CAR provides a 'second line of defence' by scrutinising and assuring the data provided by the two operational directorates thereby strengthening our accountability process and reporting procedures. The operational directorates retain primary

responsibility and accountability for collecting high quality and accurate data.

The CAR is split into five teams:

- i. the water quality and compliance team, which is responsible for all water quality compliance matters, including overseeing the catchment risk team, new monitoring scientist and inspectors;
- ii. the wastewater compliance team, with responsibility for all wastewater compliance matters e.g. environmental policy and permitting, wastewater monitoring and sampling, certification and inspection, etc.;
- iii. a team responsible for water asset planning and resilience;
- iv. an equivalent team for wastewater; and
- v. a team responsible for asset intelligence, including responsibility for development and implementation of the Modern Compliance Framework; new Risk and Controls framework; asset management systems, and for supporting, and where necessary designing, end to end processes for regulatory data collection and reporting (as discussed further below).

The formation of the CAR was announced in March 2017 and took place throughout 2017. The Board monitors the development of the CAR, principally through the ARRC, which receives regular reports on the activities of the CAR and the progress it is making. From April 2018 CAR also took on accountability for the annual data assurance and regulatory compliance reporting, to embed those activities more closely within the new Modern Compliance Framework (see further details below).

We are confident that this restructuring, with a large dedicated team focussed on compliance issues, will assist in better ensuring that Southern Water has adequate management resources and systems of planning and internal controls to secure the carrying out of our regulated activities as required by Condition F of our Licence.

The CAR is currently engaged in a significant volume of work which collectively is designed to transform the way compliance is handled at Southern Water. In the paragraphs below, we outline the main areas of work that the CAR is leading: the development of a Modern Compliance Framework, the overhaul of our information management systems and processes, and the transformation programmes that are in place for both water (Water First) and wastewater (Environment+).

Structural Change – Other Significant Changes

In addition, a number of other structural changes have been implemented which are intended to enhance our compliance capability:

- a cross-directorate Data Team which is continuing to improve our approach to data management and reporting by centralising data governance, management, reporting and analysis. This enables improvements in monitoring delivery and maintaining assurance of our procedures. The Data Team enables us to make more use of advanced analysis and data science and going forward will able us to maximise our use of artificial intelligence and machine learning;

- the Governance and Assurance team within Engineering and Construction has had its remit extended to include Operations. This team will adhere to a defined Project Lifecycle Process⁵ providing a structure for translation of the AMP7 Business Plan into portfolios to be delivered; and
- more integrated project delivery to improve outcomes for customers. Delivery partners will be engaged early in the planning process, impact assessments will be improved and findings integrated into future projects and all high risk or high-cost programmes will be externally reviewed.

Modern Compliance Framework

One of the primary activities of the CAR is the implementation of a Modern Compliance Framework. The programme has two workstreams, Compliance Framework and Regulatory Reporting, covering six categories: Asset Risk, External Commitments, Compliance Assurance, Training, External Assurance and Information Management. The overall goal of the Modern Compliance Framework is to ensure that we have three lines of defence in place when it comes to compliance matters:

- First line: high quality data reporting at the operational level, with appropriate accountability requirements and managerial review and oversight;
- Second line: oversight by the CAR; and
- Third line: oversight and assurance by internal and external audit.

The implementation of the Modern Compliance Framework consists of the following core workstreams:

- Embedding ethical business practice – a values based approach to performance and compliance across our company in parallel with our culture change programme – underpinning our improvement programmes⁶.
- The creation and implementation of new standard governance structures and compliance processes. At present the approach to compliance and sign-off of regulatory reporting at Southern Water is not connected to the level we require, with different approaches applied in different circumstances. A programme of work is underway to ensure there is a single harmonised approach which, for example, assures that the appropriate level of sign-off (including full Board where necessary) is obtained for all regulatory submissions.
- An in-depth series of end-to-end process reviews, so that we can reliably track data from the point at which it is first recorded to the point at which it is ultimately submitted to a regulator. We have identified significant historic failings in our end-to-end process, with for instance some data reporting processes having multiple instances of manual intervention and single points of failure between capture, recording and reporting, often

⁵ Aligned to the Association of Project Management methodology.

⁶ See *Technical Annex: TA.7.2 – Ethical Business Practice and Modern Compliance Framework* for more details

with inadequate oversight. We estimate that this particular programme of work will take approximately two years in total to complete, having commenced in January 2018. We are carrying out a risk-based review which has identified a number of high-risk reporting processes which will form the focus of the programme for the next two years. At present the programme is prioritising key elements of our reporting to the DWI and the EA.

- Our Regulatory Reporting and Assurance workstream focuses on ensuring accurate information and data is recognised as a priority (see the Information Management section below). Accuracy is paramount to improve asset intelligence, strengthen the “three lines of defence” and move from prescriptive assurance.
- The development of a Register of Obligations which will bring together all technical and regulatory requirements to which Southern Water is subject, including non-binding guidance and codes of practice. At present this information is dispersed across our business (including within and outside the CAR). Pending completion of this exercise, it is being supplemented by collaboration and knowledge sharing within the company.
- Revision of our approach to our annual Statement of Compliance so as to enable consistent reporting across the business and incorporate a greater degree of second line of defence assurance to more accurately identify high risk areas of concern.

The Modern Compliance Framework is intended to embed a culture of compliance through every division of Southern Water. The intention is that compliance should not be viewed as a separate workstream, despite being overseen and assured by a dedicate directorate, but as a fundamental part of how we operate.

Information Management

A significant criticism levelled at Southern Water by our regulators has been our inability to consistently report performance data across the business. The root cause of this was our information management and our OT and IT infrastructure, which were not fit for purpose and called for too many manual interventions in data capture, recording and reporting. Consistent and accurate reporting of data is vital not just for compliance with Condition M of the Licence (and a broad range of other legal obligations requiring us to submit information to regulators, both on a regular basis and on request)⁷, but also because poor quality data creates significant issues of trust in the data we present, a cornerstone of the relationship between us and our customers and regulators.

In response, we are rebuilding our OT and IT infrastructure and data management capabilities to ensure that we have a modern, reliable and fit for purpose system, and our s.19 undertakings to the DWI make this rebuild legally binding. Whilst the concerns which initially precipitated the rebuild first arose in the context of a DWI investigation (hence the undertakings that have been given to the DWI⁸), the same issues arise in respect of our

⁷ See further section 1 (Provision of Information) below.

⁸ See further: *Technical Annex: TA 2.6 Legal Instruments (WINEP and DWI Notices)*

wastewater business, and so we are rebuilding our OT and IT infrastructure for both our water and wastewater businesses.

This is a significant undertaking and we anticipate that it will take four to five years to be fully implemented and embedded across the organisation. However, the work is already having demonstrable effects on how we present regulatory information and data.

In addition, in September 2017 we commenced a data transformation programme led by a newly-created Data Team and Chief Data Officer. This transformation has enabled us to begin to make more use of advanced analytics and data science, and the organisation can now look forward to maximising our use of revolutionary artificial intelligence and machine learning.

We are particularly proud to have instituted a cross-sector initiative (established by our Data Team in November 2017) to create a shared portal for common regulatory data and to release open data sets. The team collaborated with technology partners and delivered the platform, called DataWell, which now has seven water companies, a group of universities, Ofwat, the EA and Open Data Institute involved in the project.

The significance of this workstream and its importance to the Board is recognised in the focus it is given in this Plan. Approximately one third of the IT budget for PR19 has been ring-fenced for this project,⁹ which is in addition to c.£13 million which will be invested during the remainder of AMP6.

Water and Wastewater Transformation Programmes

The compliance issues that we have experienced exposed significant weaknesses in the way in which we previously conducted both our water and wastewater businesses. In response, as well as the general overhaul of our organisational culture, compliance and information management as detailed above, we have commenced two specific programmes of transformational change: 'Water First' for water, and 'Environment+' for wastewater.

- Water First is our multi-AMP improvement programme, developed with the DWI, to embed public health protection at the heart of our water services. It spans our people, processes, systems, culture, training, risk management, information management supported by asset improvements and expanded catchment management.
- Environment+ is our holistic environmental improvement programme, which builds on the good work already underway and ensures we are better at the basics and transforming our environmental performance. It is transforming the way we protect, respect and enhance the environment by improving our performance, capability, compliance, sustainability and resilience. It ensures that the environment is at the centre of all of our day-to-day activities by embedding more collaborative, effective and transparent work practices alongside sustainable improvements to our policies, processes and reporting.

⁹ See further section 0 (GDPR and NIS) below.

Further details are set out in *Chapter 7 – Delivering Resilience in the Round* of our Plan.

We are also developing and sharing with Ofwat a specific action plan which incorporates some of the general foundations of compliance improvements as described above, in addition to specific corrective action identified as required following initial findings of ongoing regulatory investigations. This liaison will continue directly with Ofwat and we will agree regular progress updates via specific engagement as is appropriate for that action plan once finalised.

The UK Government's Strategic Policy Statement

Ofwat's PR19 Methodology requires business plans to take account of the UK Government's strategic policy statement (SPS), which is set out in a document entitled 'The Government's strategic priorities and objectives for Ofwat', published in September 2017. The SPS sets out the Government's priorities and objectives for Ofwat in relation to the water industry.

The SPS sets out two main priorities:

- *securing long-term resilience* (water supply, having particular regard to drought risk and supply and demand management; wastewater supply; resilience against flood risk; the environment, including enhancing the natural resilience of catchments and prioritising investment to meet companies' obligations to protect health and the environment; and population growth); and
- *protecting customers* (in particular focusing on ensuring affordability of bills and protecting vulnerable customers (e.g. by offering social tariffs)).

In addition, the SPS describes what the Government's expectations for the evolution of markets in the water sector, and in particular how these will address the priorities above.

The SPS is directed to Ofwat, with the Government expecting that Ofwat will embed the priorities and objectives set out in the SPS through its organisation and to explain how they are featuring in its work. The Government also expects that its priorities and objectives will be reflected in the strategic direction of the regulated water industry.

Ofwat notes in its PR19 Methodology that the methodology reflects the SPS, both in terms of the general approach and strategy underpinning it, and as regards the detail of Ofwat's approach in relation to relevant specific areas, such as resilience and affordability and vulnerability. Our Business Plan takes account of the SPS, not least because it has been prepared with full regard to Ofwat's PR19 Methodology.

In particular the following chapters of our Plan explain how the priorities and obligations set out in the SPS have been taken into account:

- *Chapter 7 – Delivering Resilience in the Round* which describes our approach to building a resilient water future for the South East. This is supplemented by *Chapters 11 – Wholesale Water* and *12 – Wholesale Wastewater*, and their accompanying technical annexes, which describe in detail our approach to ensuring resilient water and wastewater services, including with regard to drought-risk, leakage, catchment management, drainage, the environment, and growth.
- *Chapter 8 – Helping customers who need our support – our response to the challenges of Affordability and Vulnerability*: which describes our approach to ensuring our

services are affordable and offer value for money, and outlines the support we offer to vulnerable customers. See also Section 0 below which describes our approach to meeting our obligations in respect of vulnerable customers.

- *Chapter 15 – Direct Procurement for Customers*: which describes how we will use markets via DPC, where appropriate, to ensure efficiency and value for money to our customers. Our approach to using markets during AMP7 is also described throughout our Plan where relevant; for example, see *Chapter 11 – Wholesale Water* which explains how we will use markets effectively to balance supply and demand and provide best value for customers.

Statutory and Licence Obligations

The following sections outline each key compliance area to which we are subject, and set out an explanation of what we currently do to comply with each of the obligations, relevant key risks, and how the Business Plan will enable us to meet those obligations.

We anticipate that there are likely to be changes to some of the legal obligations addressed below during AMP7 or beyond. Such changes are identified in the sections below, and we explain any proposed changes to our approach to compliance to account for such changes. This applies in respect of aspects of the following sections in particular: 0 (Drinking Water Directive) (which also impacts on 0 (Raw Water Deterioration) and 7 (Other Substances and Organisms)); 0 (Reservoir Safety); 17 (Shellfish Water); 0 (Marine Conservation Zones); 0 (Industrial Emissions (including Integrated Pollution Prevention and Control)); and 0 (Transfer of Private Sewers).

In addition to the key areas set out in Sections 1 to 0 below, Southern Water is subject to a range of legal obligations which impact on our operations on a day-to-day basis (e.g. health and safety, statutory maintenance, competition law, anti-bribery and corruption, modern slavery and procurement law). These obligations are not covered in detail in this report. They do not require any specific investments in our Business Plan. See further, Section 0 below.

1. Provision of Information

Legal obligations

We have a number of obligations to provide information and data to our regulators, both as part of regular reporting and in response to specific requests. These obligations are set out in our Licence, in particular Condition M, and a broad range of statutory provisions (including the Water Industry Act 1991 and other primary and secondary legislation). It is essential that the information and data we provide to our regulators is accurate, robust and assured.

In addition, any person may request 'environmental information' from us pursuant to the Environmental Information Regulations 2004.

Our approach

Our Compliance and Asset Resilience Directorate (CAR) has primary responsibility for responding to regulatory data information requests, with relevant business units also having responsibility for routine regulatory reporting.

Data is assured using a three lines of defence process;

- First line: high quality data reporting at the operational level, with appropriate managerial review and oversight;
- Second line: oversight by the CAR; and
- Third line: oversight and assurance by internal and external audit.

We are currently in the process of transforming our approach to data collection and assurance and regulatory reporting. This is described further above in the section entitled 'Context: Recent Events and Transformational Change'.

How the Business Plan will enable us to meet our obligations

As described above in the section 'Context: Recent Events and Transformational Change', we are currently in the process of transforming our IT and OT infrastructure and data gathering, assuring and reporting processes. This programme of change was embarked upon by us in response to concerns raised by Ofwat, the Drinking Water Inspectorate and the Environment Agency regarding our inability to consistently report performance data across the business.

Approximately one third of the PR19 IT budget has been ring-fenced for this project. It will entail a complete rebuild of the IT infrastructure for both our water and wastewater businesses, and is expected to be complete by the end of AMP7. Further details of the scope and status of this project are described in the 'Recent Events and Transformational Change' section.¹⁰

2. Systems and Controls

Legal obligations

Condition F of our Licence requires us to, amongst other obligations, ensure at all times that we have adequate financial resources and facilities, management resources and systems of planning and internal control to enable us to secure our regulated activities.

Our approach

This obligation impacts on every aspect of the way in which we structure and carry out our business.

As described further above, in the section entitled 'Context: Recent Events and Transformational Change', we have undergone an internal restructuring which includes creating a dedicated Compliance and Assert Resilience Directorate with overall responsibility for compliance matters, including overseeing and assisting in the design and implementation of our systems and controls. In addition, as described in that section, we are implementing a new Modern Compliance Framework, which includes work to strengthen our systems and controls.

¹⁰ See further section 0 (GDPR and NIS) below.

How the Business Plan will enable us to meet our obligations

Our Business Plan has been developed so as to ensure that it provides adequate financial resources to enable us to secure our regulated activities.

In addition, the Plan has been designed so that it supports the work of the Compliance and Asset Resilience Directorate, and the development and implementation of the Modern Compliance Framework, as described further above in the section 'Context: Recent Events and Transformational Change'.

3. Supply and Demand Planning

Legal obligations

We are subject to a number of legal duties to supply sufficient water to meet demand and to effectually drain our appointed area through a system of public sewers.

S.37 of the Water Industry Act 1991 (WIA) places a duty on us to develop and maintain an efficient and economical system of water supply. S.94 WIA places a duty on us to provide, improve and extend a system of public sewer to ensure that our appointed area is effectively drained and that the contents of its sewers are dealt with. In doing so, we must also make provision for the transmission and treatment of trade effluent.

The following items of legislation include obligations relevant to supply and demand planning:

- The WIA as amended by the Water Act 2003 and The Water Resources Management Plan Regulations 2007;
- The Water Resources Management Plan Direction 2012 (Directions);
- Water Framework Directive (WFD);
- Water Resources Planning Guideline (Environment Agency) 2013;
- Habitats Directive 92/43/EEC; and
- Conservation of Habitats and Species Regulations 2010.

In addition, we are required to set forecasts of demand for water, taking into account factors such as population growth and climate change.

Our approach

Water Supply and Demand

As required by the applicable legislation, we produce and publish a Water Resources Management Plan (WRMP). This is an integral part of resource planning in light of the challenges we face from, e.g., climate change, reductions in abstraction, and population growth.

Our WRMP sets out how we propose to ensure there is a sufficient supply of water to meet the anticipated demands of all of our customers during the 50-year planning period up to 2070 across our 14 Water Resource Zones (WRZs). The WRMP considers, e.g., the impact of new legislation, sustainability reductions, housing growth, population growth and the effects of climate change on these WRZs.

The WRMP has been developed in conjunction with Ofwat, the Drinking Water Inspectorate (DWI), the Environment Agency (EA) and Natural England (NE). Each of these regulators was consulted on a draft of the WRMP and their input will be reflected in the final draft. All regulators with the exception of the DWI provided input, and we understand that the DWI will be issuing a publication setting out what it expects to see included in a WRMP. The timing of this is currently unknown. In addition, we consulted customers and other stakeholders and reflected their input during the development of the WRMP.

Through the WRMP we have identified the strategic water supply and demand schemes required to deliver required service levels over AMP7 and beyond. We have developed a plan that can cater for a range of population growths from 7% to 71%; sustainability reductions ranging from a loss of 184 MI/d to 296 MI/d; climate change ranging from a gain of 44 MI/d or a loss of 56 MI/d. The combined effect of these various impacts results in an anticipated supply deficit range of 300 MI/d to 600 MI/d. How we will solve these challenges is set out in the plan. The plan also sets out several alternative strategies if the central option for the plan fails. Each of the strategies is further tested through a sensitivity analysis. The aspects of the plan that will be delivered during AMP7 are set out below.

Wastewater Supply and Demand

We manage wastewater supply and demand through appropriate assessment and modelling of growth which we use to inform future investment.

We have 368 discrete wastewater catchments, which range from a handful of properties to many thousands.

Taking this starting point, we have considered the impact of 2020 to 2025 housing and population growth against the capacity of our existing wastewater network and treatment works (WTW). Uncertainties in these forecasts can be more acute in these assessments, especially in the smaller catchments. Our initial WTW capacity assessment is based on our AM410 tool which allows us to understand capacity at our WTWs. This tool uses the latest Experian Data to forecast likely capacity issues in the future. Overall, we expect that around 115,000 new properties will be connected to our wastewater network during 2020 to 2025.

We have undertaken further detailed modelling of 15 of our catchments with the highest levels of growth forecast within the 2020 to 2025 period. This work has allowed the development of catchment wide solutions and also informed our forecast for the value of the network reinforcement programme in the AMP7 period. We have also forward predicted elements of costs based on our AMP6 baseline.

All the properties used to derive flows for the network modelling were in development sites that

were included in local authority plans. Those without planning permission were at a status of at least being for land with a planned allocation of properties during 2020 to 2025 or included in local authority five-year allocations. Although only the development locations considered likely were selected, it is recognised that the specific timing and location of the growth taking place will be uncertain.

In addition, where a site has a statutory quality driver, where required, the scheme includes an allowance for growth.

Our approach has excluded investment for increased surface water from new development as our AMP6 strategy was to work with developers and our other drainage stakeholders to manage surface water at source. This has been largely successful and will continue into AMP7. When determining specific solutions in 2020 to 2025 we will review the potential to work with stakeholders to disconnect surface water to allow capacity in the network to accommodate growth. Also impervious area 'creep' (the building over of front gardens etc.) has been excluded from this growth assessment because our studies have shown that population growth and climate change are more dominant factors.

How the Business Plan will enable us to meet our obligations

Water Supply and Demand

We supplied 541 million litres of high-quality drinking water every day to over 2.5 million customers in parts of Hampshire, Sussex, Kent and the Isle of Wight during 2017-18. Our current average per capita consumption and leakage figures are among the lowest in the UK.

We have been actively working with the EA and other stakeholders to reduce the environmental impact of our abstractions. See further section 0 (Abstraction Licensing) below.

Over the period 2020-2045, our customer base is forecast to grow by 20%. In order to ensure that our customers continue to enjoy uninterrupted supplies in all but extreme drought conditions, we have adopted a 'no regrets' approach to future planning considering both demand-side and supply-side options. As part of this approach, we will be delivering schemes that are required but at the same time investigating schemes that are not confirmed as required at this stage but may be required in the future. This will increase the resilience of our supply system by enabling us to implement schemes as soon as their need is confirmed.

We have carried out industry leading work to assess the amount of water that will be available to us under a range of climate scenarios including more severe droughts than we have experienced in the past. We have similarly developed a number of demand scenarios to account for the uncertainties associated with our forecasts of growth, customer behaviour etc. This has enabled us to look at a number for possible supply-demand 'futures' and plan for them accordingly.

We have set ourselves very ambitious targets to reduce consumption and leakage over AMP7 and beyond but the severe loss of supply in Hampshire, and possibly Sussex, has

necessitated much higher investment in supply-side options than has been the case in the past.

Against this challenging backdrop, we have designed a Business Plan that enables us to comply with our obligations and continue to meet demand throughout AMP7. The Supply and Demand Business case is detailed in *Technical Annex: TA.11.WN01 – Supply Demand Balance*, and includes a substantial increase in totex from AMP6.

Appendix 1 to the Supply-Demand business case¹¹ sets out in detail the work that we will undertake in the first five years of our next WRMP period (i.e. AMP7). The key features of this work that drive performance, resilience and efficiency are:

- planning for more severe droughts than have been historically experienced using industry-leading models and assessment techniques;
- better account of uncertainties in supply and demand forecasts by considering a range of possible ‘futures’ rather than a single future scenario;
- a reduction in the total volume water put into supply by reducing per capita consumption to 100 litres per person per day by 2040 and reducing leakage by 15% over AMP7 (details covered in *Technical Annex: TA.11.WN04 – Water Networks*).
- improved resilience through promotion of inter-zonal and inter-company transfers and developing water reuse and desalination schemes that do not require taking additional water from the environment;
- reduction in reliance on end-of-pipe engineering solutions to address water quality issues by investing in catchment management initiatives to promote environmentally sustainable agricultural and land management practices (see *Technical Annex: TA.11.WR03 – Catchment Management Solutions*).

Overall, the WRMP envisages spending up to £1.6 billion over the next 50 years on developing resources in the South East of England.

We note that the Drinking Water Directive is likely to be updated during AMP7 and that environmental legislation may change as a new environmental regulator is established. However, these are unlikely to result in new or changed obligations during AMP7.¹²

Wastewater Supply and Demand

Our Business Plan includes a comprehensive transformation and development of how we plan to support growth in the AMP7 period. Effectively supporting growth is hugely important to many of our key stakeholders and the plan represents ongoing development of the changes that we have started to implement in AMP6 and will further drive performance and service provision improvements through AMP7. The full details can be found in the *Chapter 12 – Wholesale Wastewater* of the Business Plan and *Technical Annex: TA.12.WW05 – Wastewater Growth*. The key features are:

¹¹ *Technical Annex: TA.11.WN01 – Supply Demand Balance*

¹² See further section 0 (Drinking Water Directive) below.

- a significant step up from AMP6 funding and expenditure for growth at WTWs in the AMP7 period, reflecting the scope of the work identified; and
- dedicated funding for network reinforcement (excluding income from the infrastructure charge) to reflect infrastructure wastewater growth.

These investments will align with our AMP6 planning and delivery work as growth is an ongoing feature within the region that we need to support. We will also consider our investments against other drivers and customer needs in order to drive efficient delivery of our overall plans.

4. Resilience Planning – SEMD and Civil Contingencies Act

Legal obligations

Our approach to resilience generally is detailed in *Chapter 7 – Delivering Resilience in the Round* of the Business Plan and the supporting technical annexes. This section of the report considers specifically our compliance with the Security and Emergency Measures Direction 1998 (SEMD) and the Civil Contingencies Act 2004 (CCA).

Water and wastewater undertakers are required to comply with the SEMD. This requires undertakers to have plans in place to provide essential water supplies and wastewater services in the event of a civil emergency, i.e., natural disaster or other emergency, such as flooding, or an event affecting national security.

Similar requirements are imposed on licensed water suppliers in subsequent directions. Companies also have responsibilities under the CCA.

Our approach

We also use resilience planning to assist in emergency planning, by identifying assets or groups of assets at risk of critical failures and using this data to develop or update emergency plans.

During AMP6, specific funding was ringfenced for compliance with SEMD requirements. SEMD work is required to be completed by 31 March 2020. This includes, e.g. the implementation of electronic security measures and Analytical CCTV installation across our water supply works and wastewater treatment works.

Further, in respect of water supply, we carry out enhanced testing of our resilience against potential 1 in 500 year droughts. See further sections 0 (Supply and Demand Planning) and 0 (Drought Plans) of this annex and the Business Plan chapters and technical annexes referred to therein.

We are also reviewing our emergency planning processes and capabilities to ensure adequate

response is provided in time of need.

Southern Water's compliance with the SEMD for the Drought plan (DP) and Water Resources Management Plan (WRMP) has been audited by Atkins. We periodically undertake an assessment of our resilience capability against the BS65000 Organisational Resilience framework.

How the Business Plan will enable us to meet our obligations

In AMP7 we will shift from having specific funding for SEMD and resilience schemes, to having to manage investment as part of business as usual maintenance and this is reflected in our capital maintenance budget. In order to manage this transition, and as part of the drive within Southern Water to enhance our resilience culture and improve our decision-making processes by developing robust strategies for managing water and wastewater supply in an integrated and sustainable way, a resilience assessment and trial has been put in place to establish these processes and to ensure transition is in place for AMP7. Though this resilience assessment is not specifically designed to address the SEMD regulations on its own; it will inform compliance with our wider legal obligations.

5. Drinking Water Directive

Legal obligations

The Drinking Water Directive 98/83/EC (DWD) is the main instrument that sets standards for drinking water quality. The DWD was implemented in relation to public water supplies in England by the Water Supply (Water Quality) Regulations 2016 (as amended) (and predecessor regulations which have since been repealed). These contain the water quality standards of the Directive, together with national standards. Under the Regulations, water undertakers are required to implement a risk-based approach using the World Health Organisation (WHO) 2004 Guidelines for drinking water quality using the Drinking Water Safety Plan (DWSP) methodology.

This legislation is primarily enforced by the Drinking Water Inspectorate (DWI).

Our approach

We consider that ensuring the quality of our drinking water is crucial to the service we provide to our customers.

We are required by the DWI to implement and maintain the DWSP methodology for the management of drinking water quality. The DWSP methodology is a risk-based approach that requires us to identify and pro-actively manage risks to drinking water quality from catchments to customers' taps. It is central to the way in which we ensure a continuous supply of high-quality drinking water now and in the future.

As part of the DWSP approach we regularly monitor the quality of water before, during and after water treatment, and test a number of key drinking water quality parameters e.g. micro-organisms, chemicals, metals, turbidity, taste and odour. Should we detect that a water quality parameter is likely to exceed a prescribed concentration value, we immediately investigate and, where necessary, take action to manage the risk. We have enhanced our DWSP process throughout AMP6 and continue to do so through the Hazard Identification Review (HAZREV) described below.

During AMP6 we have worked closely with the DWI to develop the legal instruments necessary to protect water quality. This resulted in the DWI issuing "Final Decision Letters" on 30 May 2018 in support of the work we proposed. We will continue to work with the DWI to develop the "Final Decision Letters" into "Notices". The DWI plans to issue these "Notices" by the end of 2018.

Technical Annex: TA 2.6 Legal Instruments (WINEP and DWI Notices) contains copies of all these DWI final decision letters.

How the Business Plan will enable us to meet our obligations

During the course of AMP6, there were a number of instances of us failing to comply with the DWD, the Regulations and the DWSP. This has led to multiple enforcement actions being taken by the DWI.

The DWI has issued Notices under the Regulations in relation to:

- Nitrate – notices have been issued for schemes to be delivered during AMP6 and decision letters, which will be developed into formal notices, have been issued for schemes that will be required to be delivered during AMP7;
- Service Reservoir Inspections;
- Discolouration – at Rownhams and the Isle of Wight;
- Surface and Groundwater water works compliance;
- HAZREV for all sites. HAZREV is a process whereby each site is reviewed in detail to identify all potential water safety risks. The findings of HAZREVs and the remedial work required are detailed in our DWSP.

We have also given an undertaking in respect of pesticide catchment management.

In addition, to address the concerns underlying the instances of non-compliance which have led to the above measures, the DWI has issued a Notice in respect of training and culture and we have given an undertaking in respect of data management (as described further in the 'Context: Recent Events and Transformational Change' section above).

The 'training and culture' notice was issued in response to concerns that inadequate training of Southern Water staff was a root cause of several water quality issues. It requires us to review our training programmes and improve where necessary. We have conducted an initial review to identify necessary improvements and an action plan has been compiled. The works required by this Notice will be completed by the end of October 2022.

The undertaking given in respect of data management and our approach to the works required by it are described in the 'Context: Recent Events and Transformational Change' section above.

Further, we consider that the following areas are areas where there is a risk of us failing to comply with our obligations under the DWD and the Regulations unless remedial action is taken:

- Service Reservoirs – contamination risk at sites that have not recently been inspected, cleaned and remedied;
- Nitrate – nitrate concentration levels are rising and at some sources are exceeding PCV due to a number of issues including historic application, fast pathways to the groundwater and weather conditions. Not all water supply works have nitrate mitigation measures such as blending or nitrate removal currently in place; and
- Pesticides – pesticide concentrations are exceeding PCV at surface water supply works due to a number of reasons including high concentrations coming from the catchment, effectiveness of traditional treatment or other suitable treatment processes not being present.

Accordingly, we have included a comprehensive programme of work in our Business Plan to address these concerns and ensure compliance during AMP7:

- All works required by DWI instruments to take place during AMP7 are reflected in the Plan. *Technical Annex: TA 2.6 Legal Instruments (WINEP and DWI Notices)* contains details of these works and copies of the relevant DWI final decision letters; and
- We have developed schemes to resolve risks identified in the DWSP to water quality and sufficiency that will require resolution in a future AMP (beyond AMP7). These are referred to as 'D and E risks'.

Funding has been allocated to these workstreams as detailed further in *Technical Annexes: TA.11.WR03 – Catchment Management Solutions; TA.11.WN02 – Nitrate; TA.11.WN03 – Water Treatment; and TA.11.WN05 – Service Reservoirs.*

However, the HAZREV identified above is due to be complete by 2020 and therefore will not be complete in time to inform our Business Plan. There is therefore a risk that, following the outcome of this process, the DWI will require us to undertake work which is not already proposed in the Plan. This is a risk that we will need to actively manage, and work will be re-prioritised to accommodate the findings of the HAZREV where possible.

Additionally, the DWD is currently being updated, and the proposed amendments with the largest impact on us are likely to be related to requirements to increase sampling frequencies and new sampling requirements in relation to, for example, endocrine disruptors, viruses and uranium. We anticipate that this legislation will not be passed until May 2019 at the earliest (and the UK would then have two years to implement the revised Directive through, e.g., revised Regulations). We are liaising with Water UK (the body responsible for representing the

UK water industry in Europe) on the revision to the DWD.

6. Raw Water Deterioration

Legal obligations

Where there is a failure or a likelihood of a failure to meet the required standards at consumers' taps set out in the Water Supply (Water Quality) Regulations 2016 (as amended), water undertakers are required to report to the Drinking Water Inspectorate (DWI) as set out in the Water Industry (Suppliers' Information) Direction 2017.

To safeguard drinking water quality Drinking Water Protected Areas (DrWPAs) are established, under the Water Framework Directive, for water bodies (reservoirs, rivers, lakes and groundwater) from which water for human consumption is abstracted. Under existing water treatment provisions, treated water from DrWPAs must meet the Drinking Water Directive (DWD) standards.

Our approach

We proactively carry out Drinking Water Safety Plan risk assessments to determine whether risks identified at customers' taps are reportable in accordance with the Regulations and the Direction. Action plans are put in place to remedy and mitigate the risks identified, such as additional treatment steps or catchment management.

In addition, we conduct quarterly meetings with the Environment Agency (EA) in relation to DrWPA work. 50 DrWPA investigations on substances 'at risk' within catchments, such as nitrate and pesticides, were submitted to the EA in 2017 and we are currently in the process of agreeing with the EA the scope of the 23 DrWPA investigations and 43 DrWPA catchment schemes that will be required during AMP7.

During AMP6 we have worked closely with the DWI to develop the legal instruments necessary to protect water quality. This resulted in the DWI issuing "Final Decision Letters" on 30 May 2018 in support of the work proposed by us. We will continue to work with the DWI to develop the "Final Decision Letters" into "Notices". The DWI plans to issue these "Notices" by the end of 2018.

Technical Annex: TA 2.6 Legal Instruments (WINEP and DWI Notices) contains details of these works and copies of the relevant DWI final decision letters.

How the Business Plan will enable us to meet our obligations

During AMP6 the DWI has issued a number of Notices to us in response to raw water deterioration. This primarily relates to increasing nitrate concentrations in ground water, as well as undertakings in relation to pesticides, specifically:

- the DWI issued Notices in relation to nitrate for five groundwater supply works that

- required work during AMP6. A Notice has also been agreed for AMP7 covering a further 35 groundwater supply works (identified and proposed by us); and
- the DWI issued undertakings in relation to six surface water supply works that required work during AMP6 in relation to pesticides. The deadline for delivering this work has been extended into AMP7 with the addition of one additional surface water supply works.

Nitrate and pesticides remain key areas of compliance risk during the remainder of AMP6 and into AMP7:

- Nitrate – nitrate concentration levels are rising and at some sources are exceeding PCV due to a number of issues including historic application, fast pathways to the groundwater and weather conditions. Not all water supply works have nitrate mitigation measures such as blending or nitrate removal currently in place; and
- Pesticides – pesticide concentrations are exceeding PCV at surface water supply works due to a number of reasons including high concentrations coming from the catchment, effectiveness of traditional treatment or other suitable treatment processes not being present.

In order to ensure compliance in this area in AMP7, our Business Plan includes a comprehensive programme to address all DWI instruments including schemes requiring investment in AMP7¹³:

- Nitrate management measures to mitigate rising nitrate levels and ensure that concentrations at customers' taps are maintained below the PCV. The mitigation measures that will be employed during AMP7 include raw water blending, treated water blending and nitrate removal through ion exchange. In addition, to reduce nitrate levels in the long term we will also be carrying out nitrate catchment management;
- Pesticide catchment management will be carried out in accordance with our pesticide undertaking; and
- DrWPA programme has work planned for AMP7 including 43 catchment schemes due for delivery by 2025 and 23 investigations due for delivery by 2022. We are due to start the enhanced catchment monitoring programme in 2019 which will feed into these investigations/schemes and provide a baseline to assess effectiveness of any subsequent catchment management schemes implemented.

¹³ *Technical Annex: TA 2.6 Legal Instruments (WINEP and DWI Notices)* contains details of these works and copies of the relevant DWI final decision letters.

7. Other Substances and Organisms

Legal obligations

The Water Supply (Water Quality) Regulations 2016 (as amended) require that water must not contain any substance at a level which would constitute a potential danger to human health. Water undertakers must also assess the risk posed by contamination of the raw water and have water treatment in place to ensure that the disinfection process is robust and able to either inactivate or remove all pathogenic organisms, including viruses, parasites and bacteria. Water companies are also required to verify the robustness of the disinfection process before water is supplied.

Our approach

We have water treatment processes and control measures in place to ensure compliance with these requirements. In accordance with our Drinking Water Safety Plan, we have carried out risk assessments and have verified that these processes and controls are robust. Further, all of Southern Water's disinfection processes have been tested using the UK Water Industry Research's concentration and contact time tool.

We continue to monitor our processes and controls to ensure that they provide the required level of protection from potentially pathogenic organisms and take appropriate action where any deficiencies are identified.

During AMP6 we have worked closely with the Drinking Water Inspectorate (DWI) to develop the legal instruments necessary to protect water quality. This resulted in the DWI issuing "Final Decision Letters" on 30 May 2018 in support of the work proposed by us. We will continue to work with the DWI to develop the "Final Decision Letters" into "Notices". The DWI plans to issue these "Notices" by the end of 2018.

Technical Annex: TA 2.6 Legal Instruments (WINEP and DWI Notices) contains details of these works and copies of the relevant DWI final decision letters.

How the Business Plan will enable us to meet our obligations

During AMP6 the DWI has issued a number of Notices to us in relation to compliance with water quality requirements in respect of other substances and organisms:

- Service Reservoir inspections – cleaning, inspection and mitigation to remove ingress pathways;
- Surface and Ground water works compliance – treatment works upgrades to improve robustness of pathogen treatment;
- Hazard Identification Review (HAZREV) for all sites; and
- Catchment Management - to identify and intervene in raw water risks.

Further, we consider that there is a risk of us failing to comply with our obligations under the DWD and the Regulations unless remedial action is taken in respect of contamination of raw

water from microbiological pathogens such as viruses and cryptosporidium.

Accordingly, we have set out a comprehensive programme of work in our Business Plan to address these concerns and ensure compliance during AMP7:

- all DWI instruments requiring work during AMP7 are reflected in the Plan; and
- investment in a fleet of temporary mobile treatment plants that can be rapidly deployed to sites to protect water supplies from pathogens and turbidity.

See *Technical Annexes: TA.11.WN03 – Water Treatment; TA.11.WN05 – Service Reservoirs, and TA 2.6 Legal Instruments (WINEP and DWI Notices)*.

8. Drinking Water Safety Plans (including Distribution Operation and Maintenance Strategies)

Legal obligations

The Water Supply (Water Quality) Regulations 2016 (as amended), specifically Regulation 27, require every water company to carry out a risk assessment of each of its treatment works and connected supply system in order to establish whether there is a significant risk of supplying water from those works or supply system that could constitute a potential danger to human health or is likely to be unwholesome. Whilst there is a formal obligation for the risk assessments to be reported to the Drinking Water Inspectorate (DWI) once a year, under Regulation 28, these assessments must be kept under continuous review.

Our approach

In order to comply with this obligation, we ensure that water safety planning is a business as usual process. We have in place Drinking Water Safety Plans, a recognised mechanism to comply with the obligations under the Regulations. These Plans are designed to ensure that we provide safe, high quality, reliable drinking water supplies which have the trust of our customers. This approach is based on the World Health Organisation's methodology but has been tailored to fit our business model ensuring it fulfils both regulatory requirements for risk assessment and risk management and aligns with our internal risk management principles.

In addition, we carry out routine reporting to the DWI as required by Regulation 28. All D and E risks (i.e. risks which must be mitigated by the end of AMP7) were accurate as of November 2017 (based on the October 2017 Regulation 28 submission).

How the Business Plan will enable us to meet our obligations

The key areas of compliance risk that we have identified in this area are:

- lack of resources to carry out and review risk assessments;
- failures in the IT systems which store and report the information to the DWI;
- D and E category risks identified across our water supply network.

Our wholesale water investment plan addresses all of these risks to ensure compliance with our legal obligations. This includes carrying out Hazard Identification Review (HAZREV) for all sites. This investment is detailed in the following *Technical Annexes*:

- *TA.11.WR01 Raw Water Pumping*
- *TA.11.WR02 Impounding Reservoirs*
- *TA.11.WR03 Catchment Management Solutions*
- *TA.11.WN02 Nitrate*
- *TA.11.WN03 Water Treatment*
- *TA.11.WN04 Water Networks*
- *TA.11.WN05 Service Reservoirs*
- *TA.12.MG02 Data and Information Technology*

9. Abstraction Licensing

Legal obligations

The Water Resources Act 1991 and the Environment Act 1995 set out the circumstances in which Southern Water is required to hold and comply with an abstraction licence. In practice, Southern Water is required to hold (and does hold) valid abstraction licences, issued by the Environment Agency (EA) for all the abstractions it takes from rivers and ground waters in order to provide subsequently treated water to customers.

The conditions of Southern Water's abstraction licences can be relaxed during instances of drought. In order for this to take place Southern Water is required to obtain drought permits or drought orders from the EA. The effect of these is to allow abstractions to continue that would otherwise have to cease or, if continued without such special permission, would be illegal.

We may require the following additional permits in connection with our abstraction activities:

- drilling and/or test pumping consents when we are exploring new groundwater abstraction sites or potential changes to existing sites;
- related site investigation, site management or construction activities may require other permissions, for example, flood risk management consents from the EA, sites of special scientific interest (SSSI) related consents from Natural England, or even planning permissions from the local authority; and
- we must also have regard to the wider requirements imposed upon it by the EA's Water Industry National Environment Programme (WINEP), which includes obligations relating to, e.g., the Water Framework Directive, the Habitats Directive, Eels

In addition, Ofwat incentivises sustainable abstraction through its Abstraction Incentive Mechanism (AIM). Ofwat also encourages shared water resources schemes, including inter-company bulk supply arrangements. We choose to participate in both of these voluntary schemes.

Our approach

We manage our compliance in this area through frequent monitoring of data, using a dedicated performance monitoring procedure, and reporting to and liaison with the EA.

As regards reporting:

- we are obliged to submit to the EA daily data for all of our abstractions as part of a formal annual return. In practice, we submit this data voluntarily on a quarterly basis and are planning to move to monthly reporting of this data;
- in the event that we detect any breaches of our abstraction licence conditions, we voluntarily self-report this to the EA. We have found this to be well received by the EA in practice;
- we report to the EA annually to update it on the progress of the implementation of our water resources management plan (WRMP) and on the progress of our WINEP programme;
- we voluntarily report annually to both Ofwat and the EA on our implementation of Ofwat's AIM schemes;
- we report annually to Ofwat on our supply and demand balancing as part of our overall business performance reporting;¹⁵ and
- we provide the EA with regular progress updates on our abstraction metering improvement plan.

How the Business Plan will enable us to meet our obligations

The key compliance risks we face during the remainder of AMP6 and into AMP7 are changes to our abstraction licences which will reduce the amount of abstraction that it is permitted to carry out.

We have been working with the EA to agree significant changes to certain of our abstraction licences. These changes will result in the loss of 200 MI/d of our (currently) drought reliable supplies – the majority of our reliable supply for Hampshire. We forecast that it will take at least ten years to confirm and implement the major investments needed to provide replacement reliable supplies.

¹⁴ See further sections 15 to 0 below.

¹⁵ See further section 0 (Supply and Demand Planning) above.

Pending these investments, we will be dependent upon making drought permit/drought order applications to relax our revised licence conditions to terms comparable to our current licence conditions in times of drought. We have entered into a Water Resources Act s. 20 operating agreement which, in exchange for us accepting the licence modifications, sets out a protocol that will be followed when we request drought permits or orders. This agreement was entered into following our initial objection to the EA's plans to limit our abstraction, which led to a Public Enquiry in March 2018, which was adjourned to allow the agreement to be developed.

We anticipate further reductions of current drought-reliable supplies as new (reduced) abstraction limits will be required on some licences during AMP7 (though these may not take place until AMP8/9). Technical investigations currently ongoing or to be undertaken in AMP7 will define requirements.

Our Business Plan takes account of these abstraction licence changes and the accommodation reached with the EA as detailed in paragraphs 5.63 – 5.64 of the WRMP. However, given the full extent of the licence changes that will take place in AMP7 remains unclear, the Plan, throughout *Technical Annex: TA.11.WN01 – Supply Demand Balance to Chapter 11 – Wholesale Water*, includes further feasibility work and investigation to reduce this uncertainty (using the "Real Options Appraisal" technique), and notes key future decision points on implementing actual new infrastructure options.

In addition, we have an ongoing (voluntary) commitment in place to improve our abstraction metering so that it is fit for the future. Our current infrastructure and functionality meets compliance requirements though it is weaker at some sites. In particular, we need to demonstrate more progress as regards improvement of our abstraction metering, data handling and reporting. We intend to undertake a degree of upgrade work in order to improve transparency, the depth of monitoring and robustness to risks.

Finally, an EA investigation [REDACTED] is currently underway in connection with a series of days of over-abstraction that took place intermittently at one site from the end of January to mid-March this year. There is no final outcome yet, but in response to this we have already implemented improvements to the site control issues that caused some of the over-abstraction, and we are developing proposals for improvement to network resilience in the area.

10. Eel Regulations

Legal obligations

Under European Council Regulation (EC) No 1100/2007 the UK must take action to halt and reverse the decline in the European eel stock. European member states are to prepare Eel Management Plans to describe the current status of eel stocks and highlight management actions that will be taken.

The Eels (England and Wales) Regulations 2009 (Eels Regulations) implement the Regulation

and establish measures for the recovery of the stock of European eel.

Our approach

We are currently implementing the Eels Regulations, working to EA guidance on 'best practice' and cost benefit assessment. We are working toward our surface water intakes being compliant before each of their current exemptions expire. In any event, however, Southern Water is permitted to approach the EA for extension of an exemption, with a suitable case made by the company and agreed by the EA. We meet regularly with the nominated local EA representatives in relation to compliance with the Eels Regulations and exemptions, and to agree site-specific solutions.

How the Business Plan will enable us to meet our obligations

As regards compliance with the Eels Regulations, there is some risk that it may be impossible to comply with the EA's view of 'best practice' at some sites within the originally expected timescales (i.e., the original exemption deadlines). At some other sites, 'best practice' may be theoretically and technically possible but extremely costly, though within the EA's cost-benefit assessment limit. We have identified three sites in particular which pose significant engineering challenges to achieve EA 'best practice' requirements. Where compliance difficulties require more design time, consultation time or, if there are opportunities for efficiencies by delaying implementation, such as procurement and contractor deployment efficiencies, the EA has confirmed compliance dates can be relaxed on a case by case basis.

So far we have agreed change to six river intake sites and four reservoir sites with the EA. The deadlines for five river intake sites have been moved from September 2018 to dates between September 2019 and December 2025, while one currently unused river intake site has been given an indefinite exemption. The deadlines for the four reservoir sites have been moved from March 2020 to March 2021. Two small recently unused river intake sites have been decommissioned and the abstraction licences given up rather than implement a compliant eel screen. We expect three or four intake sites to have new compliant eel screens successfully implemented by September 2019, with a further four requiring more discussion with the EA. We will continue to liaise with the EA throughout the design process. Recently the EA advised that it is reviewing its national guidance in respect of emergency or rare events under which it would accept an exemption. This could be significant for the three to five sites under ongoing design discussions with the EA.

Our AMP6 Business Plan accommodated compliance with the Eels Regulations by including a specific capital project to meet these requirements. A number of schemes originally expected to be implemented by 2020 have now been moved into the 2020 to 2025 period in agreement with the EA. As we have already been funded to deliver compliance with the Eels Regulations, our PR19 Business Plan does not include any additional funding for compliance with the Eels Regulations.

11. Drought Plans

Legal obligations

Water undertakers, under section 39B of the Water Industry Act 1991 (WIA), must prepare, consult upon and adopt a drought plan that sets out how they will continue to meet their duties under part III of the WIA, to supply adequate quantities of wholesome water during drought periods. The Drought Plan demonstrates how the company would manage the security of supplies in the event of impending or actual drought events, which are normally of short duration (typically affecting water supplies over a period of one to two years).

Our approach

We abide by the process specified in section 39B of the WIA and in other regulations. We prepared, consulted on and produced our previous Final Drought Plan in February 2013 and this plan will remain in place until it is replaced by a revised plan. We have recently consulted on our revised draft Drought Plan and have submitted a draft to Defra, reflecting the consultation responses.

The revised drought plan has been technically assured by Jacobs and it has also been subject to a legal review by our in-house legal team, particularly to ensure that it reflects the s.20 agreement between Southern Water and the Environment Agency.

How the Business Plan will enable us to meet our obligations

Our Business Plan includes the detailed costs of developing both the Drought Plan and the Water Resources Management Plan. See *Technical Annex: TA.11.WN01 – Supply Demand Balance*.

12. Reservoir Safety

Legal obligations

Under the Reservoirs Act 1975 (as amended by the Flood and Water Management Act 2010), Southern Water, as operator or owner of a reservoir has ultimate responsibility for its safety, supervision and reporting. The Act applies to all 'large raised reservoirs', i.e. all reservoirs capable of holding at least 25,000 cubic metres of water above the natural level of any ground adjoining the reservoir.

Our approach

We comply with our obligations in this regard through the appropriate operation, maintenance and monitoring of our reservoir assets, so as to ensure that the integrity of our reservoirs is maintained.

The primary means by which we ensure compliance in this area is through regular reservoir inspections conducted by an All Reservoir Panel (ARP) Engineer (as described below), and by completing any remedial works identified as necessary by such inspections.

The Reservoirs Act requires inspections to be reported to the Environment Agency (EA):

- so called 'Section 10 Inspections' which are carried out and reported to the EA at ten yearly intervals to ensure that the facilities meet the requirements of the Reservoirs Act and any planned changes (e.g. to drawdown capacity requirements (i.e. the time required to empty the reservoir in the event of an emergency)); and
- so called 'Section 12 Inspections' which are carried out and reported to the EA at six monthly intervals and include recommendations and suggestions for the continued safety of Southern Water's regulated reservoirs.

On top of this mandatory reporting to the EA, we carry out internal reporting to the Executive Leadership Team every six months, setting out progress against the requirements of Section 10 and Section 12 Inspections.

In addition, we follow the guidance issued by the EA on the requirements of the Reservoirs Act.

How the Business Plan will enable us to meet our obligations

We are confident the systems and processes we have in place regarding reservoir safety ensure that the risks of non-compliance are low. However, failure to take remedial action required by an ARP engineer, irrespective of scale, can lead to enforcement action being taken by the EA.

Section 10 and 12 Inspections conducted during AMP6 have identified the following specific changes to Southern Water's obligations which will take place during AMP7 and require work to be completed over AMP7 and into AMP8:

- new DEFRA/EA guidance is due to be published in Autumn 2018, the key element of which are changes to best practice drawdown capacity times; and
- it is also anticipated that the On-Site Emergency Plans are likely to become mandatory during AMP7.

Accordingly, our Business Plan (*Technical Annex: TA.11.WR02 – Impounding Reservoirs*) includes work to address specific investments required following Section 10 Inspection at Bewl Water, Darwell and Weirwood to replace the current system of hydraulic piezometers and increase emergency drawdown capacity (i.e. decrease the time it takes to empty a reservoir in an emergency). It has been agreed with our ARP Engineer that, whilst the drawdown schemes will be commenced during AMP7, they will not be delivered in the entirety until 2027.

In addition, funding is included in the plan within our capital maintenance planning for on-going

assessment of our regulated reservoirs, required Section 10 and Section 12 Inspections and any minor remedial works arising from such inspections that will be resolved during AMP7.

Further, we note the possibility of provisions in the Water Act 2014 lowering the Reservoirs Act threshold to 10,000m³ may coming into force in England during the next AMP (this is already in place in Scotland and Wales). This would result in over 50 additional water service reservoirs becoming regulated. However, at present we understand that the probability of this occurrence is low, and it may not take place until AMP8 or beyond.

13. Metering

Legal obligations

Under the Water Resources Management Plan Direction 2017 all undertakers must consider a programme of metering within their area in their Water Resources Management Plans (WRMP). However, undertakers whose areas have been determined to be under serious water stress are required to consider the case for the compulsory metering of household customers. This requirement is set out in the Water Industry (Prescribed Conditions) Regulations 1999.

The whole of the South East of England has been designated as being in an 'area of serious water stress' by the Environment Agency (EA). It is also the area with the greatest environmental and resource pressures in the country but are also likely to be in the forefront of the effects of climate change. Therefore, we must set out in our WRMP our intended programme for the implementation of domestic metering and our estimate of the cost of that programme, including the costs of installation and operation of meters.

Our approach

We first made the case for universal metering at PR09 in our 2009 WRMP. This programme of meter installations was delivered during AMP5 and the first year of AMP6. The current meter penetration rate within Southern Water is 88%. We are continuing to install further meters as new properties are connected to our network and customers choose to switch to meters.

How the Business Plan will enable us to meet our obligations

As set out in our WRMP and our Business Plan (*Technical Annex: TA.11.WN01 – Supply Demand Balance*) we are seeking to increase the proportion of metered properties connected to our network to 92% in specified water resource zones. This will be delivered by the end of March 2025. It is either impractical or not cost effective to install meters at those properties that will remain unmetered after this point.

In addition, *Technical Annex: TA.11.WN04 Water Networks* details how we will maintain metering stock that has already been installed.

14. Obligations as to Constancy and Pressure (ss. 65-66 WIA 1991)

Legal obligations

Section 65 of the Water Industry Act 1991 requires water companies to ensure that water is constantly supplied at sufficient pressure to reach the top storey of every building in its area to the extent it is supplying domestic premises or fire hydrants.

Our approach

We have a number of procedures in place to investigate and resolve complaints of low flow/pressure and to collect, analyse and report on data concerning low pressure risks. We report to Ofwat on an annual basis concerning performance against Southern Water's AMP6 Performance Commitment regarding water pressure. We expect to maintain stable service levels, with no drop-in performance, throughout the AMP6 period.

How the Business Plan will enable us to meet our obligations

The key risks faced by Southern Water in respect of constancy and pressure are burst water mains leading to interruptions to supply as a result of extremes of weather and asset deterioration.

Our Business Plan will enable us to meet our constancy and pressure obligations by ensuring that pressure performance remains stable and aligns to customer and stake holder obligations. The Plan (see *Technical Annex: TA.11.WN04 Water Networks*) includes the total expenditure covering localised solutions such as small water booster stations and new network cross connections.

15. River Basin Management Plans / Water Framework Directive

Legal obligations

The Water Framework Directive (WFD) 2000/60/EC established a strategic approach to managing the water environment. It takes a common approach to setting environmental objectives for groundwater, dependent wetlands and surface water bodies within the European Commission, compliance with standards and objectives set for protected areas, and the implementation of programmes of measures to meet those objectives.

The WFD applies to all water bodies, including those that are man-made. It replaces existing legislation with a single and integrated regime for managing all the impacts within entire river basins. The first River Basin Management Plans (RBMPs) were published in 2009. They were

prepared in consultation with a wide range of organisations and individuals, including Southern Water; and are the first of a series of six-year planning cycles.

The WFD sets environmental targets requiring all inland and coastal waters to reach, preferably by 2021 and no later than 2027, 'good' ecological status and 'good' ecological potential for Heavily Modified Water Bodies. The Environment Agency (EA) has started the process of reviewing and updating the next round of RBMP planning and is aiming to announce the third series of RBMPs in December 2021.

The requirements of the WFD and its daughter directives are for the most part imposed through the Water Industry Act 1991 (WIA 1991) and the Water Resources Act 1991 (WRA 1991).

Our approach

We are delivering catchment management schemes to aim to meet the WFD environmental targets.

To ensure compliance with discharge environmental permits, discharges are routinely sampled and analysed for water quality. Any non-compliance would require changes to the operation of the asset and/or capital investment to improve treatment to meet the compliance standards.

We are delivering quality improvement schemes in order to prevent deterioration in WFD classifications or to improve them. We have met all our regulatory deadlines for environmental schemes thus far in AMP6. In order to enable compliance with these schemes by the regulatory deadlines, we have an internal monitoring plan to track progress against regulatory outcome dates. We also follow a specified asset lifecycle process in developing new schemes. Failure to meet a National Environment Programme (NEP) regulatory deadline would result in Southern Water's NEP scheme delivery environmental performance assessment (EPA) metric being negatively impacted. This could have adverse consequences for Southern Water's business as a whole, due to the potential impact of that metric on, for example, reputation, Southern Water's financial rating (as EA EPA company ratings are used by ratings agencies to help determine level of risk and financial exposure of companies), and the risk of enforcement action and potential financial sanctions from the EA or other regulators.

We have ongoing contact and involvement with the relevant regulatory and industry bodies:

- Until the spring of 2017, when River Basin Panels were dissolved nationally, we represented water companies on the South East River Basin Panel. We worked with other sector representatives and the EA (who acted as Chair) to ensure that river basin planning and progress was objective and compliant with the requirements of the WFD. This has also been supported by our active and ongoing involvement in all ten catchment partnerships spanning the South East River Basin District;
- Throughout AMP6 we continue to deliver both WFD-related investigations and improvements, the latter largely relating to reduction in phosphorus arising from our wastewater treatment works discharges;

- In relation to these statutory obligations under the NEP, we liaise regularly with the EA to confirm progress. Completion of statutory NEP obligations is reported to the EA and indirectly (via the EA) to Ofwat; and
- We have worked with the EA to deliver abstraction licence changes to the Otterbourne and Testwood water supply works.¹⁶

How the Business Plan will enable us to meet our obligations

Key compliance risks for Southern Water are:

- ensuring that Southern Water successfully delivers WFD related statutory NEP obligations on time; and
- ensuring that all WFD driven NEP improvement schemes are compliant with their permits, in order to drive WFD-related water quality outcomes across the region.

Our Business Plan provides for a very ambitious programme of quality improvements. It addresses the above risks and will enable us to meet our obligations. The programme includes:

- 29 schemes to prevent deterioration in WFD status with details of totex investment (see *Technical Annex: TA.12.WW06 – Wastewater Environmental Programme*, Section 7.4);
- 65 schemes to improve WFD status with details of totex investment (see *Technical Annex: TA.12.WW06 – Wastewater Environmental Programme*, Section 7.3);
- several wastewater nominated catchment management schemes (see *Technical Annex: TA.12.WW06 – Wastewater Environmental Programme*, Section 7.3.2); and
- WFD investigations at 22 sites with details of investment (see *Technical Annex: TA.12.WW06 – Wastewater Environmental Programme*, Section 7.3.12).

Additionally, under our draft 2019 Water Resources Management Plan, the Business Plan also includes schemes to meet Restoring Sustainable Abstraction (RSA) objectives at two sites as well as investigations at over 80 sites in anticipation of what will be required by the EA under its RSA as required by the WFD (see *Technical Annex: TA.11.WR03 Catchment Management Solutions*).

16. Groundwater Protection (WFD Daughter Directive)

Legal obligations

The WFD repealed many existing European directives, including the 1980 Groundwater Directive (GWD) (80/68/EEC). It allows a more flexible approach to regulation while still

¹⁶ See further section 0 (Abstraction Licensing) above.

providing an equivalent level of environmental protection through the Groundwater Daughter Directive (GWDD) (2008/116/EC).

The GWDD was implemented by the Groundwater Regulations 2009 which were almost immediately subsumed by the Environmental Permitting Regulations 2010 (EPR 2010). The regulations create no new objectives over and above those that are already in the WFD but do provide essential clarification for some of the WFD objectives. These regulations have since been superseded by the Environmental Planning Regulations 2016 (EPR 2016), which state that all necessary measures are taken to prevent the input of hazardous substances, and to limit the input of non-hazardous pollutants to groundwater.

The GWDD aims to protect groundwater from pollution by controlling discharges and disposals of certain dangerous substances to groundwater. This is vital to us and other water undertakers in the South East who are reliant on groundwater resources for the provision of essential water services. Groundwater and surface water sources are important resources not only for the supply of drinking water but also in maintaining wetlands and river flows in dry periods. Often wastewater services and Drinking Water Protected Areas (DWPAs) co-exist along with other land users.

As the competent authority in England and Wales, the EA also has a duty under the WFD to designate as DWPAs all water bodies (both surface water and groundwater) from which water is abstracted or intended to be abstracted in the future for human consumption in excess of 10 m³/day as an average or which serve more than 50 people.

Under Article 7.3 of the WFD it is a requirement that measures are implemented to prevent deterioration in raw water quality due to pollution of DWPAs caused by human activities so that, as a minimum, the need for additional water treatment is avoided and ideally the level of treatment can be reduced over time.

Our approach

The EA protects groundwater under the EPR 2016 by preventing or limiting the inputs of polluting substances into groundwater. Working with the EA, we have established two locations where improvements to prevent groundwater pollution are required. In addition, we have been working with the EA to identify potential sources of contamination of the raw water in existing DWPAs.

In terms of our wastewater treatment works that discharge to groundwater, we are carrying out at 16 of these works a five-year EGWMAP (Effluent & Groundwater Monitoring Action Plan) programme to monitor and enable compliance with the EPR 2016 in respect of discharges from Southern Water's wastewater treatment works. We have regular meetings with EA technical specialists to discuss the results of the EGWMAP sampling and to amend the sampling programme if required.

How the Business Plan will enable us to meet our obligations

Our Business Plan will enable compliance with the requirements to protect groundwater from pollution by investment in an environment quality programme. This involves the proposed investment to complete the third phase of the Thanet Sewers project to prevent exfiltration of wastewater from the Thanet sewer system through a programme of sealing and refining. See *Technical Annex: TA.12.WW06 – Wastewater Environmental Programme* at section 7.11.

See also section 0 (Raw Water Deterioration) above, which sets out how the Business Plan provides for proposed investment in relation to Drinking Water Protected Areas: this is also relevant to groundwater protection and provides further detail.

17. Shellfish Waters

Legal obligations

Shellfish Quality (as a Protected Area under the Water Framework Directive)

The Shellfish Waters Directive (SWD) was repealed at the end of 2013 and its requirements transferred to the Water Framework Directive (WFD). The environmental requirements for shellfish water protected areas in England are set out in the Water Environment (Water Framework Directive) (England and Wales) (WFD) Regulations 2017 and the Shellfish Water Protected Areas Directions 2016. The Environment Agency (EA) is the appropriate agency in England for the purposes of the Regulations and Directions.

Upon transfer to the WFD, all the provisions of the WFD became applicable to shellfish water protected areas including no deterioration, cost-benefit and the use of exemptions where appropriate. The Regulations set environmental objectives under the WFD (to comply with Articles 4 and 7) and the Environmental Quality Standards Directive (EQSD) in addition to a specific microbial standard of 300 E.coli/100g shellfish flesh and intravalvular fluid – this is the quality of shellfish flesh that Southern Water must endeavour to observe in all shellfish waters.

Shellfish as a foodstuff

The classification of a defined production area determines the treatment required before Live Bivalve Molluscs (LBMs) may be marketed for human consumption. LBM production and relay areas are classified according to the levels of E. coli detected in shellfish flesh. Levels of E. coli are measured per 100g flesh. In all cases, the health standards are set out in:

- Annex III of European Community Regulation 853/2004; and
- Annex II of European Community Regulation 854/2004.

The end-product microbiological criteria specified in the European Regulation 2073/2005 must also be met.

The production area is classified as "A", "B" or "C", with "A" as the least and "C" as the most

contaminated. The level of treatment required to remove contamination from the LBMs after harvesting depends on this classification. If contamination levels are consistently so high that a class "C" cannot be achieved, then harvesting from the area may be prohibited. The Food Standards Agency is responsible for the management of shellfish quality (as a foodstuff) in England.

Potential future developments during AMP7

A norovirus standard has been considered and discussed at length, but it has not been developed further. It is currently uncertain whether such standard will be adopted in the UK due to Brexit.

Our approach

Historically, we have invested significantly in the improvement and protection of designated shellfish waters. To demonstrate the performance of selected discharge points and better validate our models which may inform future investment, we have been supplementing event duration monitoring and undertaking investigations as part of the AMP6 National Environment Programme (NEP).

During AMP6 we carried out four shellfish driver National Environment Programme (NEP) investigations that investigated the operation of our intermittent discharges to Langstone Harbour, Portsmouth Harbour and the Cowes and Medina Shellfisheries and compared the operation of our CSOs against model runs on the hydraulic models for these sewerage catchments. These were delivered under the PR14 S2 driver.

Additionally, under the PR14 S8 driver during AMP6, Southern Water was funded to install event and duration monitoring (EDM) equipment at 20 intermittent discharges that discharge in the vicinity of shellfish waters. Each of these EDM installations were delivered during AMP6.

Southern Water operates its wastewater assets in line with the Environmental Permits issued to it by the EA. These contain reporting requirements including at some assets; namely, spill reporting requirements and the reporting of sampling results at those treatment works where UV disinfection has been installed with the aim of reducing the impact of the releases on shellfish quality.

We also respond to requests for information from the Centre for Environment, Fisheries and Aquaculture Science (CEFAS) (who are working on behalf of the Food Standards Agency) about the operation of our wastewater assets when shellfish samples are taken that exceed action state trigger concentration values. These responses are also copied to the EA. This information can be used to discount samples taken following a 1 in 5 year storm event and/or a major sewage treatment works failure that has since been rectified. The discounting of samples can help to maintain the categorisation of shellfish under the "ABCD" standards noted above.

We have ongoing contact and involvement with the relevant regulatory and industry bodies. For example:

- We liaise with the EA and stakeholders as part of our representation in Stakeholder /

Regulatory groups; namely, the Solent Forum, the Sussex Marine and Coastal Forum, the Southampton Waters User Group, the East Hampshire WFD Catchment Partnership and the North Kent / Medway Swale Estuary Partnership, the Chichester Harbour Oyster Partnership Initiative, the Thames Estuary Shellfish Liaison Group and the Shellfish Liaison Group (Solent);

- We liaise directly with EA Environment Officers and Marine Officers to provide information about our operations, including in the event of an incident;
- We meet with EA Marine Specialists on a six-monthly basis to discuss bathing water, shellfish water and coastal water quality issues;
- A Southern Water representative was a Co-chair of the Water UK Shellfish Task and Finish Group, along with a representative of the EA during AMP6;
- We attend DEFRA Clean Seas Forum meetings (at which the EA are also present); and
- We have met with EA Marine Experts to discuss PR19 investment in this area.

How the Business Plan will enable us to meet our obligations

The guidance received from the EA is to improve discharges to meet the WFD microbial standard and where recommended by previous investigations and where required at newly designated waters.

The key drivers for Shellfish Waters are :

- schemes requiring event duration monitoring on storm overflows discharges impacting on shellfish waters and protected areas (SW_MON);
- measures to improve discharges to meet the WFD microbial standard (SW_IMP);
- measures to prevent deterioration in current water body status recommended by the shellfish water no deterioration assessment methodology (SW_ND).
(see *Technical Annex: TA 2.6 Legal Instruments (WINEP and DWI Notices)*)

Our Business Plan will enable compliance with the above requirements of the SW_MON driver by including an upgrade to existing event duration monitors at 166 locations of storm overflows impacting shellfish waters. This will increase reporting frequency from 15 minutes to 2 minutes. See *Technical Annex: TA.12.WW06 – Wastewater Environmental Programme*, Section 15.6.

Improvements to shellfish waters (SW_IMP) are subject to cost benefit analysis. Improvements to combined sewer outflows (CSOs) in Portsmouth Harbour, Cowes and Medina failed this assessment and are therefore not included. Schemes to prevent deterioration of shellfish water quality (SW_ND) include UV treatment at Millbrook and Slowhill Copse and additional storage at Blechynden Terrace CSO, Ensign Park Hamble CEO, Downes Park Totton CEO, and storm storage at Slowhill Copse: see *Technical Annex: TA.12.WW06 – Wastewater Environmental Programme*, Section 7.9.

18. Priority Substances and Specific Pollutants

Legal obligations

The Environmental Quality Standards Directive (2008/105/EC) (EQSDir) is a 'daughter Directive' of the Water Framework Directive (WFD) and sets out the criteria for good surface water chemical status under that directive. It is implemented through the Environmental Permitting Regulations. This takes the form of a list of Priority Substances and Priority Hazardous Substances, together with their Environmental Quality Standards (EQSs) which must be met to achieve 'Good Chemical Status'. The European Commission is required to update this priority list every four years, and it issued revised EQSs for some bio-available metals in December 2015.

Our approach

Control over a wide range of potential contaminants is an important requirement of the WFD. To meet this requirement, the Chemicals Investigations Programme (CIP) has been designed to investigate the management and control of concentrations of Priority Substances. Results of the CIP programme have been used by the Environment Agency (EA) to set future numeric permit limits on our wastewater treatment works for various metals in the PR19 Water Industry National Environment Programme (WINEP).

We work with the following relevant regulators and stakeholder groups in this area.

DEFRA - EA Chemicals Strategy 2016

DEFRA has a broad strategy to manage chemicals in surface waters in England. The EA is working with DEFRA to develop a strategy proposal which will need to be signed off at a ministerial level. The aim of the strategy is to balance source control (e.g. managing substances such as PFOS (perfluorooctanesulfonic acid) and flame retardants that cause widespread EQS failures), with end of pipe treatments for localised EQS failures such as metals. The EA has been reviewing its approach to setting numeric 'standstill' limits for priority hazardous chemicals, priority chemicals and specific pollutants in water discharge activity permits. The EA has been working with Southern Water and the other WaSCs to help better understand these changes in preparation for the PR19 investment programme.

EA - Water UK Task & Finish Group - PR19 chemicals permitting and drivers (2016 - 2017)

The purpose of the group was to review and input to developing aspects of the permitting approaches for chemicals in treated wastewater discharges, including relevant aspects of the standstill, no deterioration and pathway to good PR19 WINEP drivers.

EA - Water UK Task & Finish Group - Options for flexible chemicals permitting (May 2018 - ongoing)

The EA is keen to work with the water industry to develop a flexible permitting approach to chemicals that takes into account the uncertainty around technical feasibility and technology, and to reduce concerns about the regulatory risk of meeting these limits. This is within the

overall aim of achieving water quality objectives for chemicals and delivering the Defra chemicals strategy through PR19, PR24 and beyond.

How the Business Plan will enable us to meet our obligations

Key compliance risks for Southern Water and mitigation strategies in this area are:

- as noted above, the EA has set future limits for metals. This applies in respect of 7 of Southern Water's wastewater treatment works permits in PR19: Billingshurst (zinc); Cuckfield (iron); Eden Vale (zinc, cadmium); Lidsey (nickel); Sidlesham (nickel); Tunbridge Wells North (zinc); and Vines Cross (zinc). The most effective methods for removing metals from the wastewater treatment process remain uncertain. The EA is working with Southern Water and others in the water industry to develop a flexible permitting approach to reduce compliance failure; and
- emerging substances such as pharmaceuticals and micro-plastics present a risk in the future. These are being investigated in AMP7 under the third tranche of the CIP (CIP3) led by UK Water Industry Research (UKWIR, a body that conducts research on behalf of companies in the water industry) covering 2020-25. Southern Water is funding £2.5 million worth of investigations under this driver in PR19, which will contribute to the wider industry CIP3 research programme (see *Technical Annex: TA.12.WW06 – Wastewater Environmental Programme*, Section 7.12).

Our Business Plan will enable compliance more generally with the requirements in this area though our wastewater environmental programme. Specifically:

- the Chemical Investigation Programme, known as CIP2, and referred to in *Technical Annex: TA.12.WW06 – Wastewater Environmental Programme* at Section 7.10.1, is a monitoring programme which commenced in 2010 (in AMP6) and will continue during AMP7 until 2020, and covers more chemicals, works and locations at a much larger scale than previously at over 600 works monitoring more specific chemicals. More than 60,000 samples will be taken in total generating over 2.5 million data points. CIP2 has been split into 4 Tranches, which is carried out over a 2-year period. As noted above, this will then be replaced by the third tranche of the CIP until 2025; and
- proposed investment into 10 improvement and no deterioration schemes to reduce chemical levels in effluent and to comply with the WFD (see *Technical Annex: TA.12.WW06 – Wastewater Environmental Programme*, Section 7.10).

19. Wildlife and Countryside – Sites of Special Scientific Interest (SSSIs)

Legal obligations

The Wildlife and Countryside Act 1981 (WCA) (as amended by the Countryside and Rights of

Way Act 2000 (CRoW)) and the Natural Environmental and Rural Communities Act 2006 (NERC), requires Natural England to identify any areas of land of special interest by reason of their flora, fauna, or geological or physiographical features and notify them as Sites of Special Scientific Interest (SSSIs). Our duties include:

- the restoration or enhancement of biodiversity and habitat in our work (s.40 NERC);
- following statutory guidance on environmental matters (s.2A WIA);
- conserving and enhancing natural beauty, flora and fauna and taking into account the effect the proposals may have on these (s.3 WIA);
- notifying Natural England when our activities may affect a SSSI (s.4 WIA, Sch 9 CROW);
- avoiding damage to SSSIs and specified flora, fauna and habitats (s.28P WACA).

Natural England has a right to serve a management notice on the owner of a SSSI and to purchase the land if the owner does not comply (Sch 9 CROW).

Our approach

In 2018 we assessed that we had a total area of 208 hectares of SSSI land in our ownership. Ten sites accounted for 95% of the SSSI landholding. Assented Management Plans for these sites are now in place to maintain or to bring each site into favourable ecological status. We do not have the large non-operational landholding that other companies have. In areas of chalk we have not required strategic landholdings to protect water quality through ecological management of non-operational strategic land.

We have consulted widely with environmental stakeholders to produce our Business Plan. SSSIs have been an element in these consultations to specify the requisite wastewater discharge and source abstraction standards that our Business Plan aims to meet. We monitor the status of the SSSIs that we own and maintain these landholdings in a way that will protect their biodiversity.

We assess all capital projects and put in place measures to avoid damage to SSSIs and protected species and habitats, and to prevent the spread of invasive species. When required we seek assent from Natural England to undertake work on SSSIs and establish new invasive species management plans when invasive species are discovered on our land (see Section 22 'Invasive Non-native Species', below). We also work closely with our delivery partners on contractors to ensure that important habitats and species are protected during construction work, and any opportunities for enhancements are explored.

Our ISO14001 governance processes provide protection for protected habitats and species and controls for invasive species.

We meet with Natural England on a quarterly basis to report on capital projects, protected species licencing, assents gained and management of our SSSIs.

How the Business Plan will enable us to meet our

obligations

The main risk in this area is unilateral action by Southern Water's contractors. In order to mitigate this risk, we now have regular meetings with all main contractors to share best practice and to learn lessons from environmental incidents. We are also considering how our contracts can be drafted to provide a consistent approach to contractor responsibility for assessing and managing compliance risks.

More generally, our Business Plan (see *Technical Annex: TA.12.WW06 – Wastewater Environmental Programme*, Sections 7.5, 7.6 and 7.12) will enable compliance with our obligations in this area by conducting one of our largest ever wastewater environment investment programmes in PR19, which includes:

- 2 Phosphorous improvement schemes under a CROW/Habs driver; and
- investment in improvement works at four sites to improve SSSI status through tighter phosphorus consents; and undertaking five SSSI investigations. These investigations will confirm the cost and feasibility of reaching or maintaining revised Common Standards Monitoring Guidance (CSMG) at these sites.

20. England Biodiversity Strategy

Legal obligations

The Biodiversity Strategy for England (Biodiversity 2020) promotes an integrated large-scale approach to conservation through initiatives, such as Nature Improvement Areas, and had a series of quantifiable outcomes to halt overall biodiversity loss including those on habitat condition, extent and connectivity. It contributed to compliance with international commitments for conserving and enhancing species and habitats identified as principal importance for the conservation of biological diversity in England.

The document specified twenty high level national targets, based on international commitments, which were reviewed in a subsequent document "UK Biodiversity Indicators 2017". While not strictly a legal obligation on the water industry, the national targets set the context for discharging the Natural Environment and Rural Communities Act Section 40 biodiversity obligation. The two main Biodiversity 2020 targets over which the Water Industry had most influence in the AMP6 Business Plan were as follows:

1. "By 2020, at the latest, Governments, business and stakeholders at all levels have taken steps to achieve or have implemented plans for sustainable production and consumption and have kept the impacts of use of natural resources well within safe ecological limits." This was addressed by the AMP6 Business Plan targets to:
 - reduce leakage to 86 million litres per day by 2020;
 - reduce the amount of water take from the environment, despite predicted population growth of four per cent;
 - reduce average water use by 2020 with better advice on saving water, energy

- and money by 10 per cent; and
 - maintain the proportion of renewable energy used.
2. "By 2020, pollution, including from excess nutrients, has been brought to levels that are not detrimental to ecosystem function and biodiversity." This was addressed by the AMP6 Business Plan targets of:
- no increase in the number of incidents of sewer flooding affecting outside areas;
 - no 'serious pollution incidents' affecting local rivers, streams and beaches caused by our operations by 2020; and
 - aim for 100 per cent compliance by our wastewater treatment works with required standards.

The Government has published a new strategic document entitled "A Green Future: Our 25 Year Plan to Improve the Environment".¹⁷ This document promises to implement the international commitments made by the UK Government by publishing a new strategy for nature, building on the current strategy, Biodiversity 2020.

Our approach

Our policy for discharging our Section 40 biodiversity duty is set out in our environment policy, biodiversity policy and ISO14001 certification, in which biodiversity and heritage are core aspects. All our investment schemes are assessed for environmental impact and we agree the enhancements that will be appropriate to fulfil our biodiversity duties, in liaison with our stakeholders. This includes the protection and enhancement of designated sites and the protection of landscapes, species and habitats from our activities. Existing sensitive sites are managed through specific programmes: see also Section 0, 'Wildlife and Countryside – Sites of Special Scientific Interest (SSSIs)', above.

How the Business Plan will enable us to meet our obligations

Specific proposals in AMP7 that will enable us to meet our Biodiversity 2020 targets (described above) are:

- Water Framework Directive liaison through regular engagement with stakeholders;
- Investment to reduce nutrients in line with WFD objectives and obligations falling to the water sector – delivered through WINEP (see *Technical Annex: TA. 12.WW06 – Wastewater Environmental Programme*, Section 7.4);
- Investments to drive further reduction in leakage levels, to allow specific abstractions to be reduced, and to reduce overall demand for water are outlined in the Water Resources Management Plan (WRMP) (see Appendix 14 of the Draft WRMP);

¹⁷ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/693158/25-year-environment-plan.pdf

- Our Drought Plan sets out how we will manage demand for water from customers as well as our obligations to protect the environment in the event of drought conditions (see Annexes 11 and 12 of the Draft Drought Plan);
- Our Water Efficiency Strategy details how we will work with our customers proactively to reduce water consumption (see *Technical Annex: TA.11.WN01 – Supply Demand Balance*);
- Investment in improvement works at four sites to improve SSSI status (*Technical Annex: TA.12.WW06 – Wastewater Environmental Programme*, Section 7.6);
- We are undertaking five SSSI investigations (*Technical Annex: TA.12.WW06 – Wastewater Environmental Programme*, Section 7.12);
- We are investing in new biogas engines which will increase the proportion of renewable energy we produce to 24% (see *Technical Annex: TA.12.BR01 – Bioresources Treatment and Growth*).
- We are investing to reduce pollution incidents by 40% in 2024 compared to 2016 (see *Technical Annex: TA.12.WW07 – Flooding and Pollution Strategies*).
- We are investing to meet our Performance Commitment of 100% compliant effluent discharges at our wastewater sites (see *Technical Annex: TA.12.WW01 – Wastewater Treatment*).

Our Business Plan also includes a new ODI to introduce natural capital accounting in three of our ten river catchments; a core aspect of this being an assessment of biodiversity. This was included in response to feedback from Natural England concerning our proposed AMP7 ODIs and our wish to evolve our thinking and embrace natural capital.

21. The Habitats and Wild Birds Directives; Natura 2000 and Ramsar sites

Legal obligations

The Habitats and Wild Birds Directives (92/43/EEC and 79/409/EEC respectively) contribute towards protecting and enhancing biodiversity through the conservation of natural habitats and species most in need of conservation in Europe.

The Habitats Directive established protected areas of national and international importance called 'Natura 2000' sites. Under the Habitats Directive, Special Areas of Conservation (SACs) are designated to ensure the favourable conservation status of each habitat type and species throughout their range within the EU. Under the Wild Birds Directive, the network must include Special Protection Areas (SPAs) designated for particularly threatened species and all migratory bird species

In the UK, the Habitats Directive is implemented by the Conservation of Habitats and Species Regulations 2017 (SI 2017/1012). The regulations protect European sites from damaging operations and protect specified wild animals and plants (e.g. deliberate capture, killing or disturbance of the animals, and picking, cutting or destroying the plants). The effect on a

European site must be considered before consents are granted for planning permission, pipelines, environmental permits, abstraction licences and marine works.

Natural England is the competent authority for the implementation of the Conservation of Habitats and Species Regulations 2017.

The Environmental Agency (EA) states that Ramsar sites (that is, sites designated under the Ramsar Convention) should be treated in the same way as SACs and SPAs under government policy.

Our approach

We assess projects to ensure all relevant permissions are secured prior to delivery and to avoid damage to protected species, habitats and protected areas. Our Environmental Management System sets the standards for delivery of Business Plan projects. In addition, we protect designated sites with bespoke INNS (Invasive Non-Native Species) management plans to conserve biodiversity (e.g. eradication of Japanese Knotweed, control of Himalayan Balsam and signal crayfish): see Section 22 'Invasive Non-native Species', below.

Responsibility for Habitats Regulations assessment of plans, projects or permissions rests with Natural England. We liaise with the Environment Agency (EA) for its National Environment Programme, which protects areas designated under the Directive. We liaise with Natural England to maintain its 10 largest Sites of Special Scientific Interest (SSSIs) and to secure assent for management plans that will bring the sites into favourable status as defined in the conservation objectives of the SSSI, where these sites are also designated under the Directive (see also Section 0 'Wildlife and Countryside – Sites of Special Scientific Interest (SSSIs)', above).

Wildlife and Countryside – Sites of Special Scientific Interest (SSSIs)', above).

We assess all capital projects against risks to SPAs and SACs. For each project we undertake a Desk based Environmental, Ecological and Third-Party Planning Appraisal (DE3PPA) and a Preliminary Ecological Appraisal (PEA), where any environmental and ecological risks are highlighted and appropriate actions and/or mitigation proposed. These further actions / mitigation measures are then carried out during the outline and detailed design stages, including relevant consultations with the statutory regulators such as Natural England and the EA. We then prepare a handover document called an Environmental, Ecological and Third-Party Planning Assessment (EE3PPA), which is included in the contract documents for the contractors to ensure that all environmental commitments are undertaken during construction. We then monitor and audit compliance on site.

The Pevensy Levels is a large wet grassland complex criss-crossed with freshwater ditches with Special Areas of Conservation (SAC) status and designated as a SSSI and a Ramsar site. Phosphorus levels have been assessed as needing to be reduced in order to protect the ram's-horn snail and wider freshwater invertebrate and plant assemblages. This is alongside a need to control invasive species (see Section 22 'Invasive Non-native Species', below) and appropriately manage water levels within the Levels, all of which have been identified in Natural England's site improvement plan.

In AMP5 the EA undertook a Habitats Review of Consents relating to the Pevensey Levels and this has since driven a number of NEP Habitats Directive related obligations that need to be delivered in AMP6 and early AMP7, as follows:

- Hailsham South wastewater treatment works: a phosphorus investigation into potential misconnections, completed by September 2017;
- Improvements to reduce phosphorus and sanitary-based parameters from our wastewater treatment works discharges at Hooe, Windmill Hill and Rushlake Green, to be completed by March 2020; and
- Improvements to reduce phosphorus and sanitary-based parameters from our wastewater treatment works discharges at Hailsham North and Hailsham South, to be completed by December 2021.

These planned improvements will help move the Pevensey Levels towards favourable status as assessed by Natural England.

In AMP6 we are completing redevelopment of Woolston wastewater treatment works, which was deferred from AMP5. This is to meet quality requirements driven by the Urban Wastewater Treatment Regulations and Habitats Directive.

How the Business Plan will enable us to meet our obligations

Key compliance risks for Southern Water and mitigation strategies in this area are:

- further reduction in abstraction licence volumes driven by habitat directive impact. We are mitigating this by carrying out a comprehensive review of all abstractions in AMP7 to determine environmental impact and implication for abstraction licence volumes (see *Technical Annex: TA.11.WR03 - Catchment Management Solutions*, Section 4.1);
- discharges may be at risk if they affect the naturalised flow within a Natura 2000 site. This risk is being mitigated through investigations within AMP7 (see below); and
- the possibility that activity by contractors deviates from the required standards. In order to mitigate this risk, we include express contractual obligations with our partners to require these standards to be adhered to.

More generally, our Business Plan will enable compliance with our obligations in this area by proposing one of our largest ever wastewater environment investment programmes, which includes:

- investigations into two sites for Common Standards Monitoring Guidance (CSMG) schemes. If these investigations determine that a scheme is required to deliver compliance then this would be funded through PR24 (see *Technical Annex: TA.12.WW06 – Wastewater Environmental Programme*, Section 7.12);
- delivery of two Phosphorous schemes in Hampshire (see *Technical Annex: TA.12.WW06 – Wastewater Environmental Programme*, Section 7.5).

Our Business Plan also includes a new ODI to introduce natural capital accounting in three of

our ten river catchment areas, a core aspect of this being an assessment of biodiversity. This was included in response to feedback from Natural England concerning our proposed AMP7 ODIs and our wish to evolve our thinking and embrace natural capital.

In addition, we will make significant changes to the way we operate our two surface water abstractions in Hampshire in order to comply with Habitats Directive flow drivers (see section **Error! Reference source not found.** **Error! Reference source not found.** **Error! Reference source not found.**), which outlines the changes to our abstraction licences and the resulting work provided for in our Business Plan) and the Water Framework Directive. We will be investing approximately £0.5 billion over the next 50 years in Hampshire and the Isle of Wight, with the bulk of this being spent to mitigate the impact of these changes (see *Technical Annex: TA.11.WN01 – Supply Demand Balance*). As noted above in section **Error! Reference source not found.**, we have entered into a Water Resources Act s. 20 operating agreement with the EA. This specifies environmental monitoring and mitigation work that will be undertaken in order to improve environmental resilience and compliance in advance of any drought order that may be required, whilst the above long-term solution is being implemented over the next 50 years.

22. Invasive Non-native Species

Legal obligations

An invasive non-native, or 'alien', species (INNS) is defined as a species introduced outside its normal past or present distribution. INNS are those which threaten ecosystems, habitats or species with environmental or socio-economic harm and can include common species such as grey squirrel and muntjac deer. The UK has international and national obligations and laws to control the spread of INNS. The European Union Regulation on Invasive Alien Species (IAS), the WFD Regulations and the Great Britain (GB) Invasive Non-Native Species Strategy all aim to limit spread, implement controls and prevent risks from INNS. The Wildlife and Countryside Act 1981 (as amended) provides controls on the release of non-native species into the wild in Great Britain. Both the IAS and the GB strategy have a focus on understanding, management and mitigation of pathways of spread. The GB strategy states that the most cost beneficial and least damaging way to manage invasive species is to prevent their arrival and spread.

The Wildlife and Countryside Act 1981 (as amended by Part 4 of the Infrastructure Act 2015) permits a regulator to enforce the eradication of INNS on private land.

Our approach

Southern Water has bespoke INNS management plans for sites where INNS have been identified. The management plans will include, for example, eradication of Japanese Knotweed, control of Himalayan Balsam and signal crayfish as appropriate to the risk on site.

Our Environmental Management System sets the standards for the management INNS on our sites and in the delivery of Business Plan projects.

In 2017 Lord Gardiner launched an INNS awareness campaign that Southern Water is helping to fund. The campaign aims to improve biosecurity to prevent the spread of waterborne INNS (zebra and quagga mussels, killer and demon shrimps, and floating pennywort for example). Branded as "Check, clean, dry" the DEFRA initiative will raise the awareness of anglers and other water users to the risk of inadvertently spreading INNS from water body to body, and across national borders.

Part of the Bewl Heavily Modified Water Body (HMWB) – National Environment Programme (NEP) project is to develop operational protocols for the management of INNS at Yalding and Bewl Water, in addition to developing outline designs for physical measures to reduce risk of transfer of INNS at Yalding and (potentially) Bewl Water spillway. This includes work to change how we transfer water between our Bewl and Darwell reservoirs to ensure this does not provide a pathway for INNS species. This project originally started in AMP5 and has been running through AMP6 with a completion date of March 2020. A survey undertaken as part of this project identified zebra mussels at the Bewl draw off tower and we are investigating measures to remove these invasive mussels on a regular basis to prevent their spread.

We are also working on a number of other NEP projects, including one at Weirwood, that have INNS control as part of their scope. These will be completed by the end of AMP6.

We interact regularly with relevant agencies; for example, we attend DEFRA INNS liaison meetings, quarterly meetings with Natural England, and regular meetings with the EA throughout the Bewl project (above) to develop the approach.

How the Business Plan will enable us to meet our obligations

A key compliance risk for Southern Water in this area is the inadvertent introduction of critical INNS at a reservoir; for example, quagga mussel. In order to mitigate this risk, we are undertaking a programme of monitoring and investment into removing pathways for transmission of INNS.

More generally, our Business Plan will enable compliance with the requirements in this area through one of our largest ever wastewater environment investment programmes (the Environment Quality Programme) which includes proposed investments:

- into investigation for biosecurity of "other" pathways (e.g. transfer of INNS on boating and fishing gear, recreational users, walkers, etc.) (which includes all water company operations, recreation activities and assets) incorporating options appraisal, mitigation measures assessment and delivery of operational changes/small cost interventions as pilot projects/further investigation (these may include, for example, wash down facilities, awareness raising, etc. to mitigate the risk of introducing INNS) (see *Technical Annex: TA.12.WW06 – Wastewater Environmental Programme*, Section 7.12); and
- to provide INNS/biosecurity training material to all staff – see (see *Technical Annex: TA.12.WW06 – Wastewater Environmental Programme*, Section 7.12).

23. Salmon Fisheries (Salmon and Freshwater Fisheries Act 1975)

Legal obligations

Salmon are a protected species and an indicator of the health of the water environment. The Government's management objective for salmon stocks in England is that they should meet or exceed their conservation limits in at least four years out of five, on average.

Salmon passage needs are included in species-specific legislation (Salmon and Freshwater Fisheries Act 1975), and site-specific legislation for protected areas such as Special Areas of Conservation or SSSI, which are designated under the Habitats Directive/Regulations and Wildlife and Countryside Act 1981, respectively. Salmon passage requirements can also be a legal requirement when included as conditions in permits and licences.

Our approach

During AMP6 we will be accommodating the changes to our abstraction licence on the Rivers Itchen and Test which are in large part designed to reduce the risk of higher abstraction on the migratory fish population. As a result of the agreement reached at the Public Inquiry into these proposed licence changes, we will be implementing mitigation measures on the Rivers Itchen and Test during the remainder of AMP6 and in AMP7. Most of these measures are targeted at overall ecological resilience of the two rivers, and some are intended to be targeted at migratory fish more directly.

During AMP7 we will be investigating the further implications of meeting the Salmon Action Plan for the Rivers Test and Itchen.

We liaise regularly with the Environmental Agency (EA) and Natural England as well as other environmental stakeholders and fisheries representatives in order to facilitate compliance in this area.

How the Business Plan will enable us to meet our obligations

A key compliance risk for us in this area is the risk that we will be hampered in our ability to implement the Salmon Action Plan as a result of the investigation noted above, due to lack of agreement from our counterparties to land and river access agreements. In particular, local fishing lease holders in respect of the Lower Test River have not thus far accepted relevant agreements. While the most recent negotiations have appeared positive, until an agreement is finalised, we cannot assume full flexibility to proceed. However, the agreement reached at the Public Inquiry into proposed licence changes (referred to above) minimises risks to our ability to maintain supplies in respect of securing drought permit and drought orders: if landowners

refuse access for implementation of monitoring or mitigation measures, the EA will not use this as reason to refuse a drought permit or object to a drought order. The EA, Wildlife Trust and Natural England have also indicated that they will encourage and facilitate us in implementing expected measures, including use of their legal powers, in so far as they can in so far as it does not breach their regulatory independence. The Salmon Action Plan includes activities that we will require collaborative support from these and other organisations.

More generally, our Business Plan will enable compliance with the requirements in this area through its inclusion of the WINEP3 commitments (and, accordingly, the Salmon Action Plan investigation referred to above) – see *Technical Annex: TA.11.WR03 Catchment Management Solutions* at section 3.1. The Business Plan also includes all the AMP7 work that Southern Water will need to undertake in response to accommodating the abstraction licence changes on the Rivers Test and Itchen – see *Technical Annex: TA.11.WN01 – Supply Demand Balance*.

24. Marine Conservation Zones (Marine and Coastal Access Act 2009)

Legal obligations

The Marine and Coastal Access Act 2009 (MACA) provides the legal mechanism to help ensure clean, healthy, safe, productive and biologically diverse oceans and seas by putting in place a new system for improved management and protection of the marine and coastal environment. Marine Conservation Zones (MCZs) are a national designation created by the MACA to protect nationally important marine wildlife, habitats, geology and geomorphology in offshore and inshore waters.

The legislation requires public authorities (so far as consistent with the proper exercise of their functions) to exercise those functions in a manner they consider best furthers the MCZ's conservation objectives and where that is not possible, to exercise them in a manner that least hinders those objectives. This would embrace considering whether to review or change permits that pose a risk to an MCZ.

Activities of water companies, primarily those influencing water quality, may have the potential to negatively impact on the MCZ features. For these new designations the EA, in consultation with Natural England, is undertaking a national scoping assessment of sites and permits. There is a consultation on proposals to designate new MCZs, which include possible new MCZ designations within Southern Water's operational area. Where risks to MCZs are identified the EA will explore this further with relevant water companies.

Our approach

Southern Water does not currently have any permits issued in respect of any MCZs which would be affected. However, as set out below, Southern Water has planned for the possibility that this may change.

How the Business Plan will enable us to meet our obligations

There is a risk that future MCZ designations will affect the conditions of permits in respect of the Summer Lane Pagham wastewater treatment works and the Sidlesham wastewater treatment works and associated combined sewer overflows. This could include Main Road Hunston and Pagham Road North Munden.

Our Business Plan addresses these potential risks by providing for two MCZ catchment investigations for Pagham Harbour listed under the "MCZ_INV" driver. These investigations will evaluate the impact of Southern Water assets and other sources on the features of the MCZ and evaluate if there is a significant impact on the ability to maintain in a favourable condition and what can be done to mitigate any impact. These cover the Summer Lane Pagham wastewater treatment works and the Sidlesham wastewater treatment works. See *Technical Annex: TA.12.WW06 – Wastewater Environmental Programme*, Section 7.12.

25. Urban Wastewater Treatment Directive

Legal obligations

The Urban Wastewater Treatment Directive (UWWTD) (91/271/EEC), as implemented by the Urban Wastewater Treatment (England and Wales) Regulations 1994 (UWWTR), aims to protect the environment from the adverse effects of discharges of urban wastewater. Southern Water's obligations under these instruments should be viewed in the context of the general duty to provide, improve and extend the wastewater system imposed by s.94 of the Water Industry Act 1991.

The UWWTR require that all significant (defined by reference to population equivalent thresholds based on the area served by the treatment works) discharges of wastewater into receiving waters are treated. The standards to be met depend on the size of population which is served and the sensitivity of the receiving waters. Higher levels of treatment are required when wastewater is discharged into sensitive areas (specified by the Defra).

Our approach

We currently operate 139 treatment works that fall within the scope of the UWWTR. Each of these works is sampled as part of our self-monitoring programme. These sampling results are submitted to the Environment Agency (EA) on a monthly basis. The EA then assesses the results for compliance with the UWWTR. The results of this assessment are reported back to Southern Water on a monthly basis as part of the EA's Environmental Performance Tracker. Other than in respect of Woolston wastewater treatment works, as described below, the EA did not raise any issues regarding Southern Water's compliance with UWWTR during AMP6.

Should the EA consider that any wastewater treatment works require improvement works,

these will be identified in the Water Industry National Environment Programme (WINEP). These are reflected in our Business Plan as set out below.

We carry out a review of the population equivalent for each wastewater catchment annually as part of the wastewater sample programme preparation. If the population equivalent served by a treatment works increases above the UWWTR threshold, for example due to growth or a new trader, then the works will be added to the UWWTR sample programme for the following calendar year and Southern Water's discharge permit for that site will be varied to reflect this change in status.

The key compliance risk faced by us during the remainder of AMP6 is the delivery of the Woolston wastewater treatment works scheme, which has faced delays as a result of planning and funding issues. We are required to complete these works by May 2019 in order to comply with an enforcement notice issued by the EA, which requires us to construct a new wastewater treatment works to meet the requirements of a delayed AMP5 UWWTR and Habitats Directive scheme. This scheme will ensure compliance with a new total nitrogen limit. We are on track to deliver this scheme by the May 2019 deadline and accordingly no provision for this scheme is included in our Business Plan as the scheme is due to be completed within AMP6.

How the Business Plan will enable us to meet our obligations

As set out in further detail in *Technical Annex: TA.12.WW06 – Wastewater Environmental Programme*, our Business Plan includes in excess of £290 million to support compliance with the UWWTR, including:

- flow compliance works at 60 named schemes (*Technical Annex: TA.12.WW06 – Wastewater Environmental Programme*, section 7.2.3);
- upgrade works to 36 storm tanks (*Technical Annex: TA.12.WW06 – Wastewater Environmental Programme*, section 7.2.4);
- updates at two wastewater treatment works that have crossed population equivalent thresholds, and sampling at a further six sites, in order to reduce phosphate levels to 2 mg/l (*Technical Annex: TA.12.WW06 – Wastewater Environmental Programme*, section 7.2.1); and
- upgrade works at the Dittons Road Polegate combined sewer overflow, a frequently spilling combined sewer overflow, which passed cost benefit analysis (*Technical Annex: TA.12.WW06 – Wastewater Environmental Programme*, section 7.2.2).

26. Bathing Waters

Legal obligations

The health of bathers and the maintenance of the aesthetic quality at identified bathing waters are protected through the Bathing Water Directive, implemented by the Bathing Water Regulations 2013.

The Bathing Water Directive (2006/7/EC) is an updated version of the previous Bathing Water Directive (76/160/EEC). It sets more stringent water quality standards and also puts stronger emphasis on beach management and public information. The Bathing Water Directive has four classifications: "Poor", "Sufficient", "Good" and "Excellent".

The revised directive came into force in 2015 and required bathing waters to meet a minimum classification of "Sufficient" by that date. Nationally a small number of bathing waters have not complied with the minimum "Sufficient" classification for bathing water quality. In the Southern Water area, only Walpole Bay failed to meet the "Sufficient" classification in 2015 and 2016. All Southern Water bathing waters met this standard in 2017. From our experience, bacteria at Southern Water's bathing waters, in particular any with the "Poor" classification, may arise from faecal contamination inputs within and outside our immediate control.

Potential future changes during AMP7

The current Bathing Water Directive was originally intended to have just 3 classifications ("Excellent", "Good" and "Poor"). The "Sufficient" classification was introduced in order to provide a transitional period between the previous (76/160/EEC) and current (2006/7/EC) directives. There is a possibility that the EU or the UK government may decide to review the classifications and withdraw the "Sufficient" classification. The risk will be mitigated, but not eliminated, by our 'willingness to pay' driven schemes (see below).

Our approach

The Environment Agency's (EA) Water Industry National Environment Programme (WINEP3) includes several specific requirements to investigate and monitor to establish if our assets are causing pollution. There are also complementary drivers to invest for improved standards in shellfish waters.

As well as these mandatory NEP requirements, we set out our plan to go beyond our regulatory obligations as customer-supported enhancements (see *Technical Annex: TA.12.WW06 – Wastewater Environmental Programme*, Section 5.8). We propose to undertake investigations at 5 bathing waters which are not currently reliably at the "Good" classification and at 4 bathing waters which are not currently reliably at the "Excellent" classification to determine the issues preventing them achieving this. Using the results of these studies we propose to deliver improvements at the 5 bathing waters which are not currently reliably at "Good" to provide a robust "Good" classification. Similarly using the results of these studies, from the 4 bathing waters not currently reliably at the "Excellent" classification, we propose to select two bathing waters for improvement to a robust "Excellent" classification.

The EA provided important clarification with respect to the status and breadth of bathing waters obligations within WINEP3 on 5 July 2018. The communication provided that DEFRA now advises that the investigations for waters at risk of not achieving the "Good" classification should be regarded as "Green" (i.e., "likely to go ahead"). However, it is possible that this list may be refined downwards. There are 31 bathing waters with this driver in Southern Water's area. In addition, there are also 2 investigations for waters at risk of deterioration to a planning class of "Poor" and 3 investigations for waters failing their baseline class. However, the 2

waters at risk of deterioration to a planning class of "Poor" also appear in the waters at risk of not achieving the "Good" classification and water quality issues at 5 of the waters are being addressed in AMP6 by our 'willingness to pay' driven schemes. Taking these factors into account, at present there is a total of 29 bathing water investigations.

How the Business Plan will enable us to meet our obligations

We propose to undertake investigations at nine bathing waters as willingness to pay driven schemes and subsequently to deliver improvements at seven of these bathing waters to provide a robust "Good" or "Excellent" classification: see *Technical Annex: TA.12.WW06 – Wastewater Environmental Programme*, section 7.8. These schemes will enable us to meet our bathing water obligations to our customers.

In addition, our plan currently includes investigations at 29 bathing waters under 3 WINEP3 investigation drivers: see *Technical Annex: TA.12.WW06 – Wastewater Environmental Programme*, section 7.8.

The key compliance risks we face, and the relevant mitigation strategies, in this area are as follows:

- In AMP6, we assessed compliance for 'willingness to pay' driven schemes using sampling results from just one year (typically 20 samples) and it is also proposed that this approach be applied in AMP7. This method of assessing compliance is riskier than the more stable method defined in the directive typically using 80 samples. We have decided to base these assessments on a single year of data as this allows the success of these schemes to be judged within AMP7. To mitigate these risks, we plan to liaise closely with the EA and Ofwat to allow, where appropriate, a longer assessment period or the discounting of samples at waters where unforeseen contamination occurs, or in the case of abnormal seasonal weather; and
- From our experience, bacteria at bathing waters may arise from faecal contamination inputs within and outside our immediate control. This provides additional compliance risk. To mitigate this risk, we plan to carry out detailed investigations of diffuse sources and to work closely with partner organisations such as local councils and farming organisations to minimise contamination arising from these diffuse sources.

An early start is recommended for these 'willingness to pay' driven schemes as this will mitigate the risk of non-completion before the end of AMP7. Similarly, an early start is recommended for the investigations under WINEP3 to ensure that these investigations are all complete by the end of AMP7.

More generally, our approach to discharging our statutory maintenance obligations is not changing through PR19. We have included sufficient totex funds within our investment plan to ensure we can continue to meet our obligations and undertake asset replacements in response to risk based reviews.

27. Flow Monitoring of Discharges from Treatment Works

Legal obligations

The Water Resources Act 1991 (as amended by the Environment Act 1995) places a duty upon dischargers to install, maintain and test wastewater flow monitoring equipment as part of the permit for wastewater treatment works with a consented dry weather flow greater than 50m³ per day. In addition, Southern Water is required to monitor the discharges from its water supply works into sewers.

Our approach

Flow monitoring of significant discharges has a vital role in protecting environmental water quality by helping us ensure that permitted flow limits are not exceeded and by providing data that helps us understand the volumetric impact of discharges on the water environment.

This is managed through the regular review and reporting of said data in combination with both planned and reactive work on all regulated flow monitoring installations. Daily dry weather flow (DWF) data is reviewed on a monthly basis by the MCERTS (MCerts, or 'Measurement certification standard' is the Environment Agency (EA)'s standard for flow meters) co-ordinators. This data is submitted to the EA on an annual basis, in the following February of each year.

In addition, we hold bi-annual meetings with the EA to discuss any sites which are exceeding or at risk of exceeding their permitted DWF limited and the associated action plans.

How the Business Plan will enable us to meet our obligations

The compliance risks faced by Southern Water in this area are:

- **Failure to provide correct amount of data in annual submission to EA.** Monthly reports are generated showing the amount of missing days' worth of data per site. If the number of days approaches the breach limit of 14 consecutive days or greater than 10% over the whole year for each individual site, then intervention will be undertaken to minimise the risk of technical failure by monitoring corrective controls; and
- **Failure of site/sites to comply with DWF limits.** If a site fails to comply with its DWF limit, DWF action plans are produced by the Integrated Planning Team detailing the actions planned to bring the site back into control. These are shared with the EA and discussed at bi-annual meetings. We have developed plans to remedy our sites that currently exceed DWF limits

Our Business Plan enables us to comply with our obligations in this area by including

investment covering the following workstreams (see *Technical Annex: TA.12.WW06 – Wastewater Environmental Programme*):

- updated event duration monitoring at 145 locations;
- bathing water and shellfish water monitoring at 184 locations;
- installation of event duration monitoring on overflows to storm tanks at 40 locations where there are concerns regarding the ability of the existing monitors to ensure compliance with flow to full treatment settings; and
- installation of first-time monitoring at three sites where the permitted or maximum daily flow rate is greater than 50m³ per day.

28. Forestry

Legal obligations

Water companies should have reference to 'Woodland for Water' guidance to identify any measures they could take, where appropriate, to support forest management and the restoration of degraded forests. The UK Forestry Standard and 'Forests and Water Guidelines' set out the Government's approach to sustainable forest management and outline the legal and good practice requirements relevant to the freshwater environment.

Our approach

For any new developments in capital delivery, we identify the presence of ancient woodland, registered parks and gardens, woodland habitats, etc. via production of appraisals, ecology site visits and ecology and environmental constraints mapping. This process is undertaken to avoid having to build through such habitat where possible through design.

Where new pipeline routes must go through woodland or forests, we use trenchless techniques (such as directional drilling) where possible to avoid any damage to woodland habitat. Where works need to go through woodland, we utilise existing gaps through the trees where we can and narrow the working areas as much as possible. Contractors are also obliged to carry out the works in accordance with relevant standards requirements (namely, Volume 4 Street Works UK Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees; and British Standards BS5837 (2012) and BS3998 (2010)) which provide guidance on how to manage tree works and protect them during construction.

In instances where we have had to remove trees/woodland, we have an obligation to replant. On the rare occasion where we have had to remove some ancient woodland, this was carried out following consultation with Natural England and the Local Planning Authority and agreements reached in relation to replanting.

In instances where a tree or woodland is protected by a tree preservation order, we seek Tree Preservation Order (TPO) consent from the local planning authority or provide notification of works to trees, if the tree is a conservation area (for planning).

For the River Bewl HMWB (Heavily Modified Water Body) project, which has been ongoing for the last two years and due for completion at the end of AMP6, we were required to carry out tree coppicing works. As the volume of coppicing exceeded 5 m³ per quarter of a year, we obtained a tree felling licence from the Forestry Commission in close liaison with Natural England. The requirement for the tree felling licence was only applicable where the project scope could not be linked to the carrying out of our statutory function. In the case of the River Bewl HMWB project, the Forestry Commission conveyed its opinion to us that it considered a licence was required because it was a river enhancement project. The coppicing was undertaken in accordance with a Riparian Management Plan, which was heavily linked to woodland management to increase light levels in the river but with due regard to the qualifying features of the SSSI. There are a number of similar National Environment Programme (NEP) schemes being undertaken during the latter half of AMP6, and at the start of AMP7, where due to river / general habitat enhancement works we will need to undertake coppicing and tree felling to improve environmental features.

We routinely liaise with Natural England and obtain SSSI assent for works in SSSIs that include woodland as a qualifying feature.

We also actively manage SSSIs that have woodland habitat within them such as Boldre, Slowhill Copse and Weirwood and have obtained SSSI assent from Natural England.

How the Business Plan will enable us to meet our obligations

We will continue to fulfil our forestry responsibilities and seek opportunities on a project-by-project basis (where appropriate) to protect and enhance woodland. There are no specific investments required in the Business Plan in relation to enabling compliance with Southern Water's forestry obligations.

29. Duties to Act Consistently and have Regard to National and Local Flood Risk Management Strategies and the Duty to Co-Operate

Legal obligations

Under the Flood and Water Management Act 2010 (FWMA 2010) the statutory duties of water companies under Section 94 of the Water Industry Act 1991 (WIA 1991) (in relation to any sewer that conveys surface water) are defined as flood risk management functions and water companies (appointed under the WIA 1991) are defined as risk management authorities.

Under the FWMA 2010, water companies who are risk management authorities must exercise their flood risk management functions, acting in a manner which is consistent with the national

flood and coastal erosion risk management strategy (the 'National Strategy', prepared pursuant to sections 7-8 FWMA 2010) and guidance on its application published by the EA.

They must have regard to the relevant local flood risk management strategy (the Local Strategy) developed by lead local flood authorities (LLFAs) in their area (prepared pursuant to sections 9-10 FWMA 2010).

Our approach

We recognise our responsibilities under the FWMA and the need to co-operate with all interested parties and stakeholders. We are in contact with other parties with Risk Management Authority duties. We have liaised with both the EA and LLFAs over flooding and coastal issues. We have held meetings with all the county councils and unitary authorities within our area and intend to maintain this liaison on a regular basis. We have been (or are currently) in discussions with our partners over sharing information, particularly with reference to Surface Water Management Plans and Sustainable urban drainage schemes.

As regards resilience as referred to by the National Infrastructure Commission, we will actively co-operate with other risk management authorities to enhance resilience of our network as part of statutory responders' duties. More specifically, we have a representative on the Southern Region Flood and Coast Committee within the Southern flood risk and coastal community. We meet the EA on a regular basis to liaise at a national, regional and local level. We also meet regularly with the LLFAs in Southern Water's area. We will continue to liaise with a range of additional stakeholders including Ofwat, county councils, flood authorities and the Highways Agency as part of business as usual. We will continue to attend meetings and reviews to establish schemes and solutions that have a wider stakeholder benefit. As part of Southern Water's partnership role with other risk management authorities (for example, local authorities, EA and Local Resilience Forums) we have been approached regarding coastal flood risk management schemes which are also of benefit to our assets and will enhance the likelihood of collaborative funding from all parties for a wider national benefit.

How the Business Plan will enable us to meet our obligations

Our Business Plan will enable us to meet our legal obligations in this area, including through the following:

- Investment is included to allow for an appropriate level of co-operation with the relevant stakeholders. We have included specific funding for the resolution of a number of partnership schemes, including a reduction of flood risks through a partnership based SuDS scheme, see "SuDS – Sustainable Drainage Systems": see *Technical Annex: TA.12.WW04 – Sewers and Rising Mains*, section 5.1.6; and
- Significant capital investment is also included in order to ensure sewerage models and data are current, and of value to all parties involved in flood management. This is a key part of our being able to deliver the requirement to hold Drainage and Waste Management Plans. See *Technical Annex: TA.12.WW04 – Sewers and Rising Mains*, section 5.1.10.

30. Sewage Sludge

Legal obligations

The Sewage Sludge Directive is transposed into English law by the Sludge (Use in Agriculture) Regulations 1989 (Regulations). The Regulations introduce prohibitions on the supply and use of sludge in agriculture otherwise than in accordance with requirements for treatment and use which reflect the directive requirements. The Urban Wastewater Treatment Directive (UWWTD) requires re-use of sludge where practicable. However, recycling of sludge to land should not also threaten Water Framework Directive objectives.

In addition, the Reduction and Prevention of Agricultural Diffuse Pollution (England) Regulations 2018 impose the following obligations on farmers in respect of recycling sewage sludge to land:

- keep soil on the land;
- match nutrient to crop and soil needs; and
- keep livestock fertilisers and manures out of water sources.

The requirement to match nutrient content of sludge to crop and soil requirements has an impact on Southern Water's approach to recycling sludge for land.

Our approach

We process sludge at 16 Sludge Treatment Centres (STCs). We recycle 100% of Biosolids to agriculture and have done so since 2014.

We have invested in new sludge treatment capacity at two sites during AMP6 (Budds Farm and Millbrook) to meet future growth in Hampshire and West Sussex.

We are accredited by the Biosolids Assurance Scheme. This certifies that its Bioresource treatment and recycling activities meet regulatory requirements and best practice. We are subject to annual audits by an independent certification body (NSF Certification on behalf of Assured Biosolids Limited) to ensure that it conforms to the scheme standards.

In addition, we are subject to an annual audit by the Environment Agency to ensure that it is complying with our obligations in respect of sludge treatment and disposal.

How the Business Plan will enable us to meet our obligations

The key risk factor faced by us in this area in AMP7 is faster than predicted sludge growth using up existing treatment capacity headroom, resulting in us being unable to treat all sludge.

Our Business Plan includes investments which will offset this risk and allow us to continue to meet our obligations in this area. Specifically, the Plan (see *Technical Annex: TA.12.BR01 – Bioresources Treatment and Growth*) provides for:

- on-going maintenance of relevant facilities, including 10 specific named schemes where digesters will be refurbished;
- improved biogas production; and
- specific funding during AMP7 to increase capacity to satisfy anticipated growth.

In addition, the Plan considers pro-active options to manage potential future capacity shortfalls in AMP8 and beyond. In particular, it details that we will explore the available options once the market opens in 2020, including direct sludge exports to neighbouring undertakers, or working with third parties to provide additional treatment capacity.

The Plan also details that, looking over the next 25 years we anticipate that the way we develop options to meet sludge growth in the future to be very different. Post 2020 we propose to publish annual statements of our forecast sludge capacity volumes and invite tenders for market-based solutions to meet any capacity constraints. We will also design up solutions for how we could deliver new capacity and use detailed cost benefit assessments to determine which solution is preferred.

We also note the emerging future risks concerning micro-plastics and pharmaceuticals in biosolids and the impact this could have on our ability to recycle to land. We are part of the National Chemical Investment Programme, the remit of which includes assessing these issues. Funding for investigating these issues is included in the PR19 Plan.

In addition, there is uncertainty as to what approach we should apply in respect of nutrient management arising from the EA not publishing guidance on this issue. To mitigate this risk, we have conducted an analysis of the possible worst-case implications of the new requirements (which may require us to increase its landbank) and are working together with other water and sewerage companies through Water UK to agree a common approach to nutrient management.

31. Odour from Wastewater Treatment Works

Legal obligations

Nuisance caused by odour from wastewater treatment works (WTW) is regulated by local authority environmental health practitioners under the statutory nuisance provisions of Part III of the Environmental Protection Act 1990 (EPA 1990).

Southern Water aims to operate its wastewater treatment works in compliance with the Government's published 'Nuisance smells: how councils deal with complaints' detailing how enforcement under the EPA 1990 will be carried out.

Our approach

Compliance in this area is achieved through good operational practice and investment where necessary to mitigate risks.

During AMP6 we will carry out works to address the nuisance associated with odour at Portswood WTW and Tonbridge WTWs. The work at Portswood WTW involves installation of an odour control system, including covers, and a storm tank cleaning system. At Tonbridge WTW we determined that the phosphorus removal scheme that was put in place during AMP5 had resolved the odour issue at that site. During AMP6 an operational plan has been put in place to ensure that odour is monitored and controlled. These workstreams will deliver significant improvement by reducing the odour from these sites to more than 3,300 residential and commercial properties.

We have a company target within our AMP6 Business Plan to limit the number of customer contacts as result of unpleasant smells to 403 per annum for the AMP6 period, along with an ambition to achieve 360 contacts per annum. Currently (on a rolling yearly basis to the end of June 2018) this sits at 402 complaints. Of these, 35 relate to Portswood WTW.

We have specific AMP6 performance commitment to reduce complaints at Portswood WTW and Tonbridge WTW to zero. 35 odour complaints have been received in respect of Portswood so far this year and this figure is forecast to increase to 40 by the end of the year. This is attributable to a delay in planned works which were due to be completed by March 2018 but have been delayed until August 2018 as a result of design and supply chain issues. Once this scheme is delivered we anticipate that odour from Portswood WTW will be significantly reduced and it will be able to achieve this performance commitment during the remainder of AMP6. Tonbridge WTW has received no odour complaints in AMP6 to date.

We constantly monitor customer contacts relating to odour on a monthly basis. Since 2003 (to the end of 2017) we have received complaints about 164 WTWs and 751 Wastewater Pumping Stations. However, for many of these sites the odour issues have been either isolated events or resolved permanently through operational or capital interventions. During the last rolling 12 months there have been complaints about 39 Wastewater Treatment Works and 90 Wastewater Pumping Stations.

In addition, we report odour complaints data to Ofwat on a yearly basis.

How the Business Plan will enable us to meet our obligations

Southern Water faces a number of compliance risks in this area throughout the remainder of AMP6 and into AMP7, namely:

- the Environment Agency (EA) does not consider the that Odour Management Plan at Ashford WTW is compliant with the applicable obligations. Accordingly, our Plan is being rewritten to address the EA's concerns; and

- new developments located near WTWs requires action to mitigate odour risk. Due to the uncertainties surrounding when and where new development will take place, and therefore the associated odour impact, it is not always practicable to implement a proactive mitigation solution. Southern Water is therefore required to address these potential risks as and when they arise

The customer engagement we carried out during the preparation of our Business Plan revealed that customers do not rate odour control amongst the top priorities for improved service. Accordingly, we have produced a PR19 Business Plan which reflects customers' priorities but also addresses the potential odour complaint issues identified above.

Investment required to maintain stable performance as regards odour is included within the wastewater treatment works capital maintenance budget, as discussed in more detail in *Technical Annex: TA.12.WW01 – Wastewater Treatment*. Investment will be identified using an evidence led, risk-based approach to ensure the right risks are prioritised according to Southern Water's business needs and our customers' priorities.

32. Industrial Emissions (including Integrated Pollution Prevention and Control)

Legal obligations

The introduction of the Environmental Permitting Regulations (2010) replaced PPC Regulations. The regulations have more recently been amended to the Environmental Permitting (England and Wales) (Amendment) Regulations 2013, which brought about the implementation of the Industrial Emissions Directive (IED).

With the introduction of the Directive came the capture of previously exempt sludge treatment activities, this is sludge treatment of 100 tonnes per day of capacity by anaerobic digestion (AD) which meets the threshold for application of the Regulations, whether the activity is disposal, recovery or a mix of recovery and disposal.

There is however an "Urban Wastewater Treatment Directive (UWWTD) Exemption" for AD of sewage sludge in the IED. Defra has never confirmed that this applies to AD plants in England but the Environment Agency (EA) has adopted a "Regulatory Position" since the implementation of the IED which means that existing AD plants are exempt from the requirement for an IED permit. The effect of this is that at present no permits are required for:

- pre-treatment for incineration or co-incineration type activities; or
- sewage sludge digestion at sewage treatment works and the associated burning of biogas.

This exclusion does not apply to co-digestion or to AD currently permitted as installations.

Our approach

At present we do not operate any co-digestion plants and therefore does not carry out any activities which currently require a permit under the Environmental Permitting Regulations.

How the Business Plan will enable us to meet our obligations

At present we are not required to hold any relevant permits and therefore no investment is required during AMP7.

However, there is a risk that the EA's 'Regulatory Position' could change and we would then require permits for all of our AD plants. This would be a significant change that would impact the entire water and sewerage industry. Our understanding of the current position is that, following legal advice, Natural Resource Wales took the decision in late 2017 that the "UWWTD Exemption" does not apply to the biological treatment of sewage sludge. This decision has gone to IPCSG, a joint regulators group that discusses, *inter alia*, the IED and to Defra and EA. We await further guidance from Defra and the EA as regards AD plants in England.

In the event that permits are required for our AD activities we anticipate that the required investment would be funding through early AMP8 expenditure or deferred until AMP8.

In addition, the Bureau of the EU Parliament issued a "Best Available Technology Reference Document for Waste Treatment" in 2016 which applies to all activities captured by the IED. In the event that permits are required for Southern Water's AD activities, this may impose additional obligations on us in order to comply with those permits.

33. Sewerage Planning

Legal obligations

Sewerage undertakers must understand how their networks currently perform and how they interact with other drainage systems, so they can effectively manage future pressures. In doing so sewerage undertakers are required to have regard to:

- the Drainage Strategy Framework published in May 2013;
- the 21st Century Drainage Project;
- the National Information Commissions requirement for Drainage and Waste Management Plans to be completed by 2022; and
- Ofwat's resilience metric requiring quantification of the percentage of properties at risk from flooding in a 1 in 50 year storm event.

Our approach

We have seen an increase in the number of new connections during AMP6, as was anticipated

in our AMP6 business Plan. We expect that this will continue over 2020 to 2025 due to increased government led focus on housebuilding and ongoing government incentives for home ownership. Southern Water's region in particular suffers from a shortage of affordable homes and we recognise our duty to enable effectual drainage of housing and to promote economic growth.

Following the new connection charging mechanism which was implemented at the start of 2018/19, we have adopted a new approach to connection charging which enables a more strategic catchment-based approach for supporting growth. This approach complements our Drainage Area Plans and is a key element of our proposed collaborative approach for supporting growth.

We have actively participated in the Drainage and Waste Management Planning in both the Strategic and Project Steering Groups at national level, ensuring a consistent understanding between all English water and sewerage companies, as well as Welsh Water, Scottish Water and Northern Ireland Water. As regards the requirement to produce Drainage and Waste Management Plans (DWMP) by 2022, we will test our approach to 21st Century Drainage Requirements in AMP6 to ensure it embeds the correct approach into AMP7.

We pro-actively review the likelihood and location of new development with local authorities and developers, shares with them the areas with capacity, and identify those areas where capacity will be particularly difficult to deliver. We upsize sewer assets where the requirements of the Water Industry Act 1991 are met.

How the Business Plan will enable us to meet our obligations

Our Business plan includes a risk-based funding assessment to deliver the number of homes that we consider will need increases in sewer headroom to allow connection. This is based on local plan information, which was included for modelling in catchments where there is either limited capacity, or where significant growth is expected. Our modelling has identified where growth will cause an increase in flooding or pollution spills from sewer overflows and funding has been included to increase capacity in the network to such that there is no deterioration in service performance, for example by increasing infiltration reduction activities. This is explained also in *Technical Annex: TA.12.WW04 – Sewers and Rising Mains* and *Technical Annex: TA.12.WW05 – Wastewater Growth* of our Plan. In addition, we have identified a number of catchments which are subject to major growth in the periphery of the catchment for which larger scale reinforcement work is required to accommodate the additional flow and maintain an effectual sewerage service.

Specifically, the Plan embraces the core principles of the Drainage Strategy Framework with the intent of putting in place additional capabilities in 2020 to 2025 to allow us to fully develop drainage strategies and surface water management plans and models. Our comprehensive approach to wastewater planning is set out in the *Chapter 12 – Wholesale Wastewater* of the Plan and accompanying technical annexes. Key investments include:

- substantial funding for wastewater growth schemes during AMP7 – see *Technical Annex: TA.12.WW05 – Wastewater Growth*; and
- funding for improvements to the way in which Southern Water undertakes Drainage Area Plans, and to embrace the principles of the 21st Century Drainage approach including the development of DWMPs. In addition Southern Water anticipates an increase in the number of Surface Water Management Plans that Southern water will need to assist local authorities in delivering – see *Technical Annex: TA.12.WW04 - Sewers and Rising Mains*, section 5.1.10.

34. First Time Sewerage

Legal obligations

Section 101a of the Water Industry Act 1991 (as amended by the Environment Act 1995) places a duty on wastewater undertakers to provide first time mains drainage (by connection to a foul sewer) in an area where non-mains wastewater arrangements are causing an environmental or amenity problem or are likely to do so if no preventative action is taken.

Our approach

Southern Water complies with its obligations under s.101a and has delivered schemes under this obligation in both current and previous AMPs.

Where appropriate, we liaise with the Environment Agency (EA) regarding the scope of the works required to comply with s.101a in particular circumstances. For example, we are currently engaged in on-going discussions with the EA regarding a s.101a application at Snowdown Village in Kent, which will be delivered during AMP6.

How the Business Plan will enable us to meet our obligations

At present we are reviewing three s.101a applications to determine whether the requirements for Southern Water to provide first time mains drainage are met. Due to uncertainties in the development and planning processes, it is difficult to predict how many schemes will need to be delivered during AMP7. Our Business Plan includes our current funding allowance estimate in relation to s.101a schemes – see *Technical Annex: TA.12.WW05 – Wastewater Growth*, section 5.1. Table 5.

35. Transfer of Private Sewers

Legal obligations

From October 1, 2011 the Water Industry (Schemes for Adoption of Private Sewers) Regulations 2011 (Regulations) transferred responsibility for existing private sewers and lateral

drains to Water and Sewerage Companies. Pumping stations constructed prior to 2011 were subject to later transfer by 1st October 2016.

Our approach

All transfers have now been completed and are now part of business as usual in terms of ongoing operation, maintenance and refurbish/renew/replace strategy. Southern Water has therefore satisfied its obligations under the Regulations.

How the Business Plan will enable us to meet our obligations

The on-going operation and maintenance that is required is supported by our Business Plan in the following ways:

- *Technical Annex: TA.12.WW04 – Sewers and Rising Mains* sets out details of provision for funding to maintain and repair Southern Water's sewer asset base, which includes the sewers that were transferred pursuant to the Regulations. This has currently been assessed as sufficient funding to ensure an effective service throughout AMP7; and
- *Technical Annex: TA.12.WW02 – Network Pumping Stations* sets out details of provision for funding to maintain all pumping stations, including the circa 800 pumping stations that were adopted in 2016 pursuant to the Regulations.

There is a possibility that a further 90 pumping stations will be transferred to Southern Water during AMP7. The timing of this remains uncertain as it requires legislative change that has not taken place. However, given the scope of this transfer (90 pumping stations versus the 800 that were transferred in 2016) and the fact that our Business Plan includes an allowance should this take place during AMP7, Southern Water considers that this presents a low compliance risk.

36. Developer Services

Legal obligations

Southern Water is subject to a number of legal duties to supply sufficient water to meet demand and to effectually drain our appointed area through a system of public sewers.

The WIA also includes specific provisions in respect of development related activity:

- Sewer connections - connection to the public sewer system, guidance and technical specification (s.106)
- Water main requisitions - the duty on us to comply with water main requisitions and to make connections with the water main (ss. 41 and 45);
- Sewer and water main diversions - the duty on Southern Water to alter or relocate any of its apparatus upon receipt of a notice (s.185);

- Sewer Adoptions – s.104 makes provision for agreements for the adoption of new sewers and wastewater pumping stations that are to be constructed as part of new developments;
- Adoption of existing sewers – we can consider and review the adoption of existing sewers; wastewater pumping stations or treatment works under a s.102 agreement;
- Self-lay of water mains - a national Code of Practice for the self-laying of water mains is now available. This sets out the requirements from the initial application and proposal through to entering into a formal agreement and completion of the work on site, with subsequent adoption by the water company; and
- Infrastructure charges – we are permitted to apply an infrastructure charge as a contribution to the overall costs of developing and maintaining the water supply and wastewater networks. Infrastructure charges are payable where new or existing premises are connected for the first time to the public water supply or to a public sewer, either directly or indirectly (for example, via a private sewer or drain). The infrastructure charges Southern Water are permitted to charge are governed by Condition C of the Instrument of Appointment, which was updated in November 2017.

There has been a government mandate since 2010 to enable faster home development due to the reform of town and country planning. This is projected to be 1 million new homes by 2020 with 500,000 more by 2023. Southern Water anticipates that this will increase connections by 30% by 2045 and catchment areas by 4.5km² per year. For utility companies and infrastructure providers, the Government is offering a clear framework and simpler plans to help them understand the demands made, and has implemented, through Ofwat, a simplified approach to developer contributions to help pay for new infrastructure in the form of new charging. In return, the Government expects infrastructure providers to deliver the infrastructure that new housing developments need in good time so that development is not delayed.

In the Housing White Paper, 'Fixing our broken housing market' (published 7 February 2017), it was made clear that the government's priority is 'building the new homes this country needs'. The emphasis of the White Paper is on four areas:

- Local Planning Authorities planning for the right homes in the right places
- Building homes faster – in particular for utility companies this requires: 'securing timely connections to utilities so that this does not hold up getting homes built'
- Diversifying the housing market
- Helping people right now to invest in affordable homes

Specifically, for 'utility companies and infrastructure providers', the White Paper states that 'the Government is offering a clear framework and simpler plans to help them understand the demands made on them and is exploring an improved approach to developer contributions to help pay for new infrastructure. In return, the Government expects infrastructure providers to deliver the infrastructure that new housing needs in good time so that development is not delayed.'

This new approach to developer contributions has taken the form of 'New Charging' with a modified approach and plain tariffs set by each water company. The new charging tariffs for

Southern Water were established by taking a historic view of spend, in year current position and forecast spend to the end of the amp on all aspects of developer activity. The new charges and the tariff were published in January 2018 and went live in April 2018.

To underline the importance of providing housing, the Department for Communities and Local Government became the Ministry of Housing, Communities & Local Government on 9 January 2018.

Home Builders Federation (HBF) - Housing Pipeline Report 2017 Q4 (Published May 2018) states planning permissions were granted for over 350,000 new homes in 2017, the highest since HBF and Glenigan started the Housing Pipeline series in 2006, a positive indicator of future supply levels. The HBF state 217k new homes were completed last year (this differs from the Government figure of 180k completions, as the HBF include figures for conversions/change of use as new home completions). However not all of the permissions will yet be at the stage where builders can actually start work on site and the HBF comment that one of the challenges for Government as it revises the National Planning Policy Framework will be to speed up the time it takes to get from an outline permission, when it is agreed to build on a plot of land, to an implementable one, whereby construction work can actually start, this will include infrastructure provision.

The government's Affordable Homes Programme will increase from £7.1 billion of public funding to £9.1 billion, and the £2 billion additional funding for affordable housing could lever in total investment by housing associations and councils of up to £5 billion. Since April 2010, around 333,000 affordable homes have been delivered, including 240,000 for rent. More than twice as much council housing has been built since 2010 than in the previous 13 years. This £2 billion additional funding can supply around 25,000 more homes for social rent over the course of Parliament. Affordable housing is typically of a higher density than other new build developments, increasing the demand on the utility infrastructure provision.

Our approach

Southern Water's dedicated Developer Services team is responsible for interaction with any customers wishing to connect or effect change to a water or wastewater asset as a consequence of development. The team's activities are supported by the recently created Key Account team in relation to construction activities. The Developer Services team has direct contact with customers in a number of ways including processing, managing and respond to both enquiries and applications in a number of ways.

The Southern Water website publishes details on customer-led work streams, including information required by the statutory provisions listed in the section above. This guidance is continually reviewed and update and this will continue into the next AMP.

In line with the Ofwat guidance, new charging was implemented in April 2018 which provided a more transparent charging model for developer enabling them to more efficient understand the cost of infrastructure to support the development. Although the new charging structure saw Southern Water's wastewater infrastructure charge increase to an average across all developments by size of £657 per property, it also provided a decrease in our Water

infrastructure charge from £379 to £200 per property. In line with Southern Water's 'Target 100' initiative it is also offering a 100% discount on water infrastructure charges for new homes that are built to building regulation control for water stressed areas of 110 litres per capita consumption.

The Developer Services team also frequently liaises with relevant regulators (Ofwat, the Environment Agency and the Drinking Water Inspectorate) regarding our obligations, on both general and specific issues. There is currently one live determination open before Ofwat, between Southern Water and Linden Homes (a developer) relating to the wastewater network reinforcement required for the Novartis site in Sussex. The case was opened in 2015 and has not yet reached a draft determination.

How the Business Plan will enable us to meet our obligations

As a result of the government's focus on increased development as discussed above, there is pressure on water companies to reduce overall journey times, provide cost transparency and visibility of progress to customers. Since 2013 Southern Water have seen a 71% increase in applications, a 65% increase in planning consultations and an increase in NAV (New Appointments and Variations) and Self Lay Providers (SLPs) focused on maintaining transparency and fairness through quotations. There is a challenge for Developer-focused satisfaction obtained through surveys and existing metrics, with penalties of up to 5% of revenue. This is driving companies to accelerate Developer Services improvements, including: digital channels, process and commercial model reviews.

During AMP7 the developer services measure of experience (D-Mex) will be introduced as an ODI. This is expected to take the form of a mix of quantitative and qualitative scoring, resulting in published league table with financial rewards and penalties for water companies based on league table performance. Poor league table performance is a potential risk to Southern Water during AMP7.

In addition, at present Southern Water does not meet industry deadlines for completion of construction project related to new development.

In order to address these challenges, we have implemented an improvement project which focuses on how it plans and delivers development work across the business to reduce lead times and improve relationships with customers. The objectives of this project are:

- implementing a process led, transformational change focused on customer needs delivered through collaborative internal teams engaging customers and suppliers;
- higher cross-functional performance and customer satisfaction, including readiness for D-MeX;
- improved relationship with Developers, SLPs, NAVs, Ofwat and planning authorities;
- reducing opex in-line with companywide efficiency goals;
- efficient timing and scale of capex investment; and
- better visibility and performance throughout the planning cycle, applications and

delivery processes.

Investment required during AMP7 in respect of developer services is detailed in the Wastewater Growth Investment Case (*Technical Annex: TA.12.WW05 – Wastewater Growth*), and the Water Supply and Demand Investment Case (*Technical Annex: TA.11.WN01 – Supply Demand Balance*).

37. Obligations in respect of Vulnerable Groups and Social Tariffs

Legal obligations

An undertaker's charges scheme under s.143 of the Water Industry Act 1991 may include provision designed to reduce charges for individuals who would have difficulty paying in full. S.44 of the Flood and Water Management Act 2010 requires water companies to have regard to any published ministerial guidance regarding the application of social tariffs.

The Vulnerable Groups and Social Tariffs (Water Industry (Charges) (Vulnerable Groups) Regulations 1999 define vulnerable groups who are to be given assistance with water and sewerage charges by water and sewerage undertakers and specify matters including the nature of such assistance and how eligibility for such assistance is established.

Our approach

Southern Water offers a range of financial assistance interventions for customers struggling to pay or those in financial hardship, namely: Social Tariffs (Essentials), Water Direct, Watersure, New Start and water efficiency and debt advice.

Southern Water is also required to maintain, and actively promote, a Priority Services Register through which it provides a range of non-financial support (e.g. bottled water to vulnerable customers in the event of an outage; braille bills). Southern Water also adopts a safeguarding policy for instances where customers are at imminent risk of harm.

How the Business Plan will enable us to meet our obligations

As detailed in *Chapter 8 – Helping customers who need our support – our response to the challenges of Affordability and Vulnerability*, Southern Water is committing to delivering effective support to customers struggling with both financial and non-financial vulnerability. By the end of AMP7, Southern Water will have delivered support that allows at least 90% of our customers who receive assistance to pay their bills, and non-financial support such that 90% of customers receiving this support feel that it meets their individual needs and requirements.

We will work with trusted partners to reach and support our customers. We have launched a Customer Inclusion Partnership network formed of experts in vulnerability, including AgeUK,

MIND, StepChange and the Citizens Advice Bureau, to help us identify and deliver support to customers. We are also leading a cross-regional working group of water services providers to implement a common approach to supporting customers in the South East.

Our approach to delivering affordability and vulnerability is built on a closer relationship with customers. Our dedicated customer research has helped to design tailored support, including payment holidays for those who move in and out of vulnerability. Our improvements, which include pre-population of forms, best-practice approaches to receiving disclosure, using data sharing, and adopting a case management approach to monitor customers' changing requirements, will allow it to deliver more effective support.

38. Guaranteed Standards of Service

Legal obligations

The Water Supply and Sewerage Services (Customer Service Standards) Regulations 2008 specify certain service standards that water and sewerage companies must achieve in respect of their water supply services and compensation which must be paid to customers should those standards not be achieved.

In particular, the standards relate to the following customer service areas:

- Keeping of appointments;
- Complaints, account queries and requests about payment arrangements;
- Notice of interruption of supply;
- Restoring of supply;
- Pressure standards; and
- Flooding of sewers (internal and external flooding);

Our approach

Southern Water's Code of Practice for Domestic Customers details the minimum standards that customers can expect and the payments it will make should it not achieve these standards. The Code emphasises Southern Water's commitment to household customers.

Performance against Guaranteed Standards of Service (GSS) is managed across Southern Water within the individual departments with responsibility for service activities which attract GSS for prescribed standards. Each of these departments are guided and assured against a documented Regulatory Compliance Framework (RCF), and the controls and reports associated with payment of GSS are independently audited annually.

A communal company-wide access data base system, the GSS system, is the central repository for the records of all events triggering standards payments, and this system is updated as part of usual business through a mixture of manual and automated feeds, from the base record systems maintained by the departmental teams across Southern Water's

business.

The entries to the GSS system initiate payment procedures, and a dedicated team record all GSS payments types in the Customer Billing system and apply them to the individual affected customer account record.

Monthly reconciliation of payments made (in the Billing system) against standards payments due and reported (in the GSS database) is completed independently by Southern Water's Data Reporting team and all GSS standards events are reported monthly to the Executive Leadership Team. The GSS payments are also reported to Southern Water's Finance team and all associated costs are included in the Customer Service Department budget. As this includes all the variable types of GSS payment; for both customer service and operational standards, a recharge of the wholesale related GSS charges to Operations is completed to ensure these are reported in the relevant price control.

How the Business Plan will enable us to meet our obligations

As there are no confirmed changes to GSS proposed for AMP7, our Business Plan does not include specific provision for any change in approach or additional costs. All costs associated with GSS payments are included in the Customer Service Department budget, specifically in the cost centre budget. This includes all the variable types of GSS payment; all customer service and operational event failure payments.

However, on 2 August 2018 Ofwat issued a call for evidence seeking views on whether the threshold for GSS payments in the event of interruption for supply should be changed, whether the level of payment should be increased and whether there should be any change to the exemptions that are currently in place. Ofwat has issued this call for evidence in the light of freeze thaw incidents that took place in early 2018. The deadline for responding to the call for evidence is 11 September 2018. Accordingly, any proposed changes will not be known ahead of the submission of our Business Plan. We will assess any action that needs to be taken once any proposed changes are finalised.

39. GDPR and NIS

Legal obligations

GDPR

The General Data Protection Regulation (GDPR) came into force on 25 May 2018. It introduced a comprehensive reform of the previous EU data protection regime. Southern Water is a data controller for the purposes of the GDPR. The key requirements of the GDPR are:

- Fair Processing Information – the GDPR requires data controllers to provide data subjects with privacy notices including significant information about, e.g., how data will

- be stored and processed, and what rights the data subject has in respect of their data;
- Purpose Limitation – data controllers must collect and use personal data only for the purposes specified in the legislation;
- Storage Limitation – data controllers must keep personal data for no longer than is necessary;
- Integrity and Confidentiality – data controllers must process personal data with appropriate security arrangements;
- Rights of Data Subjects – the GDPR grants data subjects a number of rights as regards the processing of personal data, including enhanced rights to access, rectify, delete, restrict or object to the processing of their data;
- Data Protection by Default and Design – data protection requirements must be integral to the information lifecycle;
- Controller/Processor Relationships – increased safeguards and obligations placed on both parties when a data controller commissions another organisation (a data processor) to process personal data on our behalf;
- Transfers Outside the EEA – the GDPR sets out specific requirements in relation to the international transfer of data;
- Accountability – the onus is on the data controller to demonstrate compliance with the legislation;
- Data Protection Officer – all organisations processing personal data on a large scale or monitoring data subjects are required to appoint a data protection officer;
- Data breaches - the GDPR introduces a mandatory reporting requirement requiring notification to the relevant regulatory authority of personal data security breaches within 72 hours; and
- Sanctions – the GDPR provides for fines of up to €20 million or 4% of annual turnover (whichever is greater).

NIS

The EU Network and Information Security Directive (NIS Directive) came into force on 9 May 2018. It imposes obligations on Southern Water as an 'operator of essential services' to adopt risk management practices and report major security incidents to a designated Competent Authority. The Drinking Water Inspectorate (DWI) has been appointed as the Competent Authority for the water industry.

The scope of the NIS Directive is broader than cyber-security only and extends to operational failure as a potential reportable incident.

Our approach

Southern Water established a Corporate Information Governance Council (IGC) on January 2018, which is responsible for overseeing and ensuring compliance with legal and regulatory requirements relating to the management of information assets. This incorporates compliance with the GDPR and NIS Directive.

GDPR

Southern Water appointed a Data Protection Officer on 9 January 2017. Southern Water has

committed to collect, store and use information about people in a secure, respectful way that complies with the relevant legislation. We are completing the first phase of our GDPR delivery programme, designed to ensure the company is compliant with the legislation. Key elements which have progress significantly, but are not yet fully completed are:

- Completion of work to add GDPR-compliant clauses to all relevant contracts;
- Completion of the review, revision and implementation of Southern Water's information security policies, which impact the secure handling of personal information;
- Validation of the corporate information asset register to reflect Southern Water's current position and to extend it to cover all areas of Southern Water's business which involves the processing of key information assets containing personal data;
- Updating of Southern Water's published records retention schedule, incorporating information collected as part of the information audit;
- Embedding data protection best practice into business as usual;
- Creation of a data protection monitoring and reporting framework; and
- The validation of priority, funding and risk appetite for IT and Operational Technology (OT) projects.

Much of this work will be completed during the remainder of AMP6. However, some of the longer-term projects will continue into the AMP7, notably the IT and OT projects, as described further below.

NIS

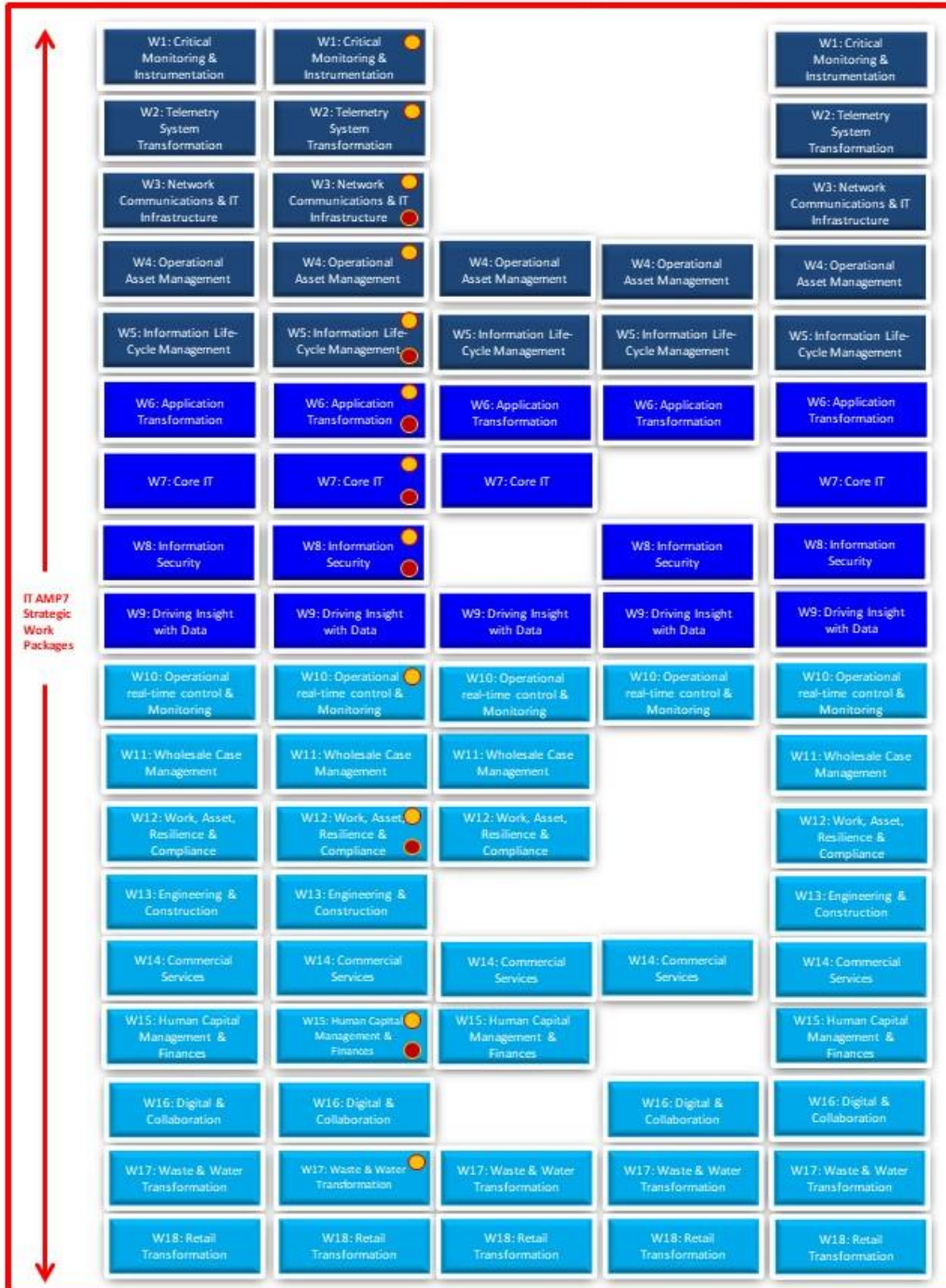
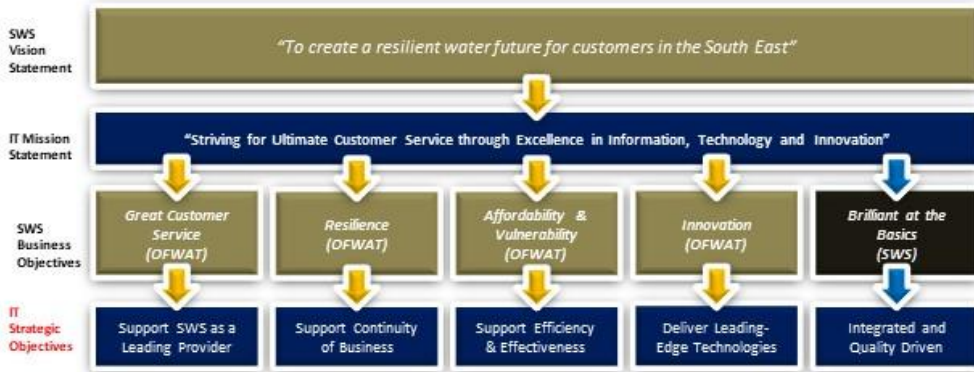
We have been working closely with the National Cyber Security Council (NCSC) in relation to compliance with the NIS Directive.

We have engaged KPMG to undertake a review of Southern Water to identify potential NIS Directive compliance risks. The purpose of this review is to assess operational activities and give Southern Water a repeatable review and metrics framework to utilise across NIS, GDPR and other areas on an annual basis.

In parallel to the assessment being carried out by KPMG, we are also undertaking a programme of 10 separate workstreams to address IT and OT risks that have been identified in order to promote improved NIS Directive compliance going forwards. Work will continue throughout the remainder of AMP6 and into AMP7.

How the Business will enable us to meet our obligations

The following diagram provides an overview of the IT and OT work-packages and identifies which packages support improving our risk posture in relation to the NIS / GDPR Directives:



Key: ● = supports NIS risk posture ● = supports GDPR risk posture

Each work-package identified in the diagram will support improving our risk posture in relation to NIS / GDPR Directives. This will be with regard to improvements in:

- how Southern Water operates;
- information management;
- security and resilience of infrastructure / systems; and
- providing better insight and decision-making for Southern Water's business in the management of risk.

The following table summarises each work package that is being delivered to support NIS Directive and/or GDPR compliance:

Technology Work-package	Area	Directive
W1: Critical Monitoring and instrumentation replacement	DWI	NIS
W2: Telemetry System replacement	DWI	NIS
W3: Network Communications and IT Infrastructure	DWI	NIS / GDPR
W4: Operational Asset Management	DWI	NIS
W5: Information Life-Cycle Management	DWI	NIS / GDPR
W6: Application Transformation	Core	NIS / GDPR
W7: Core IT	Core	NIS / GDPR
W8: Information Security	Core	NIS / GDPR
W10: Operational real-time control and monitoring	Business Enablement	NIS
W12: Work, Asset resilience and compliance	Business Enablement	NIS / GDPR
W14: Human Capital Management & Finances	Business Enablement	NIS / GDPR
W17: Waste & Water Transformation	Business Enablement	NIS

See *Technical Annex TA.12.MG02 M&G Data and Information Management* for more information regarding the work-packages.

40. Climate Change

Legal obligations

In December 2008, the Climate Change Act 2008 (CCA) became law in England and Wales. Our primary focus is the reduction of the emission of greenhouse gases (as well as mitigating and adapting to climate change).

We are an energy-intensive business and we recognise the impact that our activities can have on the environment through the emission of greenhouse gases. We are also aware of the impacts that extreme weather events may have on our ability to deliver water and wastewater services.

We are subject to two specific reporting requirements in respect of climate change:

- s.62 CCA allows Defra to request reports from us on how we are addressing current and future climate change effects; and
- the Carbon Reduction Commitment Regulations 2010 (Regulations) require us, as an energy intensive business, to report our energy consumption and generation and to procure carbon allowances to meet the carbon dioxide impact of this energy usage.

Our approach

Southern Water currently holds certification under the Carbon Trust Standard for good practice in the measurement and management of greenhouse gases. In addition, it is accredited for ISO14001:2015 certification for our Environmental Management System.

We manage compliance with our requirements in this area in a number of ways as detailed below.

Water Resource Management Planning

The effects of climate change are embedded into Southern Water's decisions on future water resource strategy. Our 2014 Water Resources Management Plan (WRMP) was the first of our management plans to include non-historic droughts in order to test Southern Water's supply system's resilience to drought and the performance of alternative solutions and this will be repeated in the 2019 WRMP. Our approach is to minimise demand and leakage as well as preparing new supply sources. We are undertaking catchment management schemes to address issues such as nitrate and metaldehyde in our water sources, mitigating the need to develop energy intensive treatment solutions.

Climate Change Mitigation

We minimise the negative impacts of climate change by reducing our greenhouse gas emissions.

Our approach is to reduce consumption, through energy efficiency and replace the fossil fuel impact of importing grid power by implementing economic opportunities for renewable energy generation. Southern Water's portfolio currently includes biogas CHP and solar PV.

Climate Change Adaptation

We take action to ensure Southern Water can cope with the extremities of weather in the future. Our approach has been to consider the risks of climate change to our services and put in place interventions that address those which are significant, in a phased, responsible and appropriate manner. We have used sound science and evidence to develop our adaptation approaches. Our Climate Change Adaptation Plan 2015 provides more detail. An updated report, based on the Government's requirements for the third round of Climate Change Adapting reporting, is due in 2021.

Carbon Emissions Reporting and Trading

We collate and report the greenhouse gas impact of providing water and wastewater services. We report the carbon dioxide impact of power consumption and procure the requisite number of carbon allowances in accordance with the Regulations.

How the Business Plan will enable us to meet our obligations

The work that we propose in our Business Plan to meet tighter quality standards and address raw water deterioration will increase our energy demand and may therefore increase our greenhouse gas emissions.

The following investments set out in our Business Plan seek to mitigate any adverse impact on the environment that such investments may have:

- our Plan includes increased renewable energy production by 5% from 17% to 24% by the end of AMP7. This will be achieved through investing in new, improved Combined Heat and Power engines to increase the amount of renewable energy produced from sludge (see *Technical Annex: TA.12.BR01 – Bioresources Treatment and Growth*);
- the In-stream Catchment Resilience Schemes (ICRS) take on the aims of the Supply and Demand business case to deliver sustainable water use, resilient to climate change and economic pressures (see *Technical Annex: TA.11.WN01 – Supply Demand Balance*);
- investments to transform our wastewater treatment works into resource hubs. This is driven in part by an ambition to maximise the resources recovered from our treatment works and in doing so minimise the impact we have on the environment (see *Technical Annex: TA.12.BR01 – Bioresources Treatment and Growth*);
- our WRMP has considered a wider range of stochastically derived droughts than ever before and is projecting climate change impacts upon supply over a 60 year time frame to ensure we capture these impacts in our planning and have developed solutions that will meet these; and (see *Technical Annex: TA.11.WN01 – Supply Demand Balance*);
- we are incorporating more extreme rainfall events through our wastewater resilience performance commitment, which aims to reduce the percentage of our customer population at high risk of sewer flooding in a 1 in 50 year storm. In doing so, we have adopted the methodology created by Water UK (see *Technical Annex: TA.12.WW04 – Sewers and Rising Mains, Section 5.2*); and
- the Drainage 2020 transformative approach will make use of upstream catchment interventions to reduce the impact of increased surface flows upon our works following intense rainfall events. (see: Business Plan, *Chapter 12 – Wholesale Wastewater*).

41. Other obligations

Licence obligations

In addition to the obligations described in detail in the sections above, Southern Water is subject to a broad range of obligations under our Licence which will continue to apply in AMP7 and beyond. These obligations, and an overview of Southern Water's approach to compliance with them, are set out in Appendix 1 to this report.

Southern Water is transforming and strengthening its approach to ensuring compliance with

these obligations, through the creation of our Compliance and Asset Resilience Directorate and the implementation of our Modern Compliance Framework, as described in the above section "Context: Recent Events and Transformational Change".

These 'business as usual' obligations do not require any specific investments in our Business Plan, though our Business Plan has been designed in a way that allows Southern Water to continue to ensure compliance with these obligations during AMP7.

Obligations relating to development

Southern Water has certain specific obligations that it must comply with when undertaking certain infrastructure projects. These include both specific obligations on Southern Water as a water and sewerage company (as described in detail in the sections above and in Appendix 1 to this report) and general requirements (e.g. the obligation to obtain planning permission in certain circumstances, or legislation applicable to the disposal of waste).

In addition to the specific detail set out above (including, in particular, strengthening our compliance processes by creating our Compliance and Asset Resilience Directorate and implementing our Modern Compliance Framework) and in Appendix 1 to this report, we ensure compliance with these obligations by following the statutory obligation checklist set out in our Infrastructure Manual. This checklist is completed by our Outcome Delivery Leads to confirm that all statutory, regulatory and legal obligations have been considered, reviewed and reflected as necessary in our Business Plan.

Other obligations

Southern Water is subject to a range of additional legal obligations that are not covered in detail within this report, which impact on our operations on a business-as-usual basis, both under the Water Industry Act 1991 and more broadly including for example, health and safety, statutory maintenance, competition law, anti-bribery and corruption, modern slavery, and procurement law. Whilst no specific investment is required or included in our Business Plan in relation to compliance with these obligations, Southern Water is enhancing its approach to ensuring on-going compliance with such obligations as part of the work of the Compliance and Asset Resilience Directorate and the implementation of the Modern Compliance Framework.

Appendix 1: Complying with the Licence

1 The purpose of the Licence

The Licence is our formal instrument of appointment, issued by the Secretary of State for the Environment. We operate the public water networks in our region and hold appointments as a “water undertaker”, and we operate the public wastewater networks and hold appointments as a “sewerage undertaker”, for the purposes of the Water Industry Act 1991. The Licence enables us to supply water and wastewater services direct to household customers who are connected to our networks.

The most recent consolidated version of the Licence, consolidated as of August 2014, is available on Ofwat's website:

https://www.ofwat.gov.uk/wp-content/uploads/2015/10/lic_lic_srn.pdf

Some Conditions have been updated but the updates are not reflected in the consolidated version. These updates have been published on Ofwat's website and we have reflected the latest version of all Conditions in this document.

2 Overview of the Licence Conditions

The Licence sets out our obligations and rights via a series of schedules and conditions. Most conditions contain many individual provisions under broad headings, and this annex does not describe each individual provision. It groups the conditions into themes that have been set out by Ofwat. The next section outlines how we comply with the conditions that have day to day applicability. It is not intended to be a comprehensive list of everything we do to ensure compliance but sets out an overview of how we comply.

Licence Conditions can be categorised into groups that:

- 1 allow Ofwat to set and monitor price controls and regulate prices for services - e.g. Condition B **Charges**, Condition D **Charges schemes**
- 2 allow Ofwat to require the provision of information they reasonably need to carry out their functions, e.g. Condition M **Provision of information to the Water Services Regulation Authority (Ofwat)**
- 3 prohibit undue preference or undue discrimination in the setting of charges – e.g. Condition E **Undue discrimination**
- 4 set out details of the accounts and financial information which companies are required to produce, and financial obligations they are required to meet – e.g. Condition F **Accounts and accounting**
- 5 require certain information and practices to be made available to customers – e.g. Condition G **Codes of practice for customers**, Condition H **Codes of Practice and Procedures on debt recovery**, Condition I **Code of practice and on leakage**, Condition J **Levels of service information and service targets**
- 6 impose restrictions in relation to transactions with owners and associated companies (the financial “ring-fence”) – e.g. Condition K **Ring fencing and disposals of land**, Condition F **Accounts and accounting information**

- 7 govern interactions with other appointees or licensees – e.g. Condition C **Infrastructure charges, Condition R, Provision of combined and wholesale water supplies, Condition S Customer transfer protocol**
- 8 govern the operation of the retail market – e.g. **Conditions R1 to R5**
- 9 require the payment of licence fees to cover the operating costs of Ofwat, e.g. Condition N **Fees**
- 10 set out the circumstances in which appointments / licences can be revoked – Condition O **Replacement appointment**

3 How we comply

The tables below provide a summary of how we comply with the Licence.

3.1 General conditions

Condition	Our obligations	How we comply
Schedule 1	Sets out the area of our appointments for water and waste	The plan covers all areas of our appointment, taking into account the relevant boundaries for water and waste

3.2 Conditions that allow Ofwat to set and monitor price controls and regulate prices for services

Condition	Our obligations	How we comply
B Charges	Ofwat empowered to make price determinations and periodic reviews	We comply with all price determinations and directions
	We are required to set a range of standard charges	Our charges are published on our website https://www.southernwater.co.uk/our-charges
	Ofwat carries out periodic reviews and we must comply with them	The PR14 final determination sets out allowed revenues, performance commitments and ODIs. We comply annually with the allowed revenues via our tariff setting procedures

	We must publish wholesale charges	Our wholesale charges are on our website https://beta.southernwater.co.uk/worki-ng-with-us/wholesale-charges/
	Provision of information to Ofwat for price determinations	We provide information as required
	We must co-operate on developing the price controls	We participate fully in the consultation processes that lead up to price controls and aim to be constructive.
D Charges schemes	We must maintain schemes of fixed charges	Our household, metering and infrastructure charges schemes are published on our website https://www.southernwater.co.uk/infor-mation-leaflets

3.3 Condition that allows Ofwat to require the provision of information reasonably needed to carry out its functions

Condition	Our obligations	How we comply
M Provision of information to the Water Services Regulation Authority (Ofwat)	Furnish Ofwat with all information it shall reasonably require for the purposes of carrying out its functions	We aim to provide all information requested by Ofwat accurately and comprehensively, in a timely manner. See further section [1] of TA 2.6 - Meeting our Statutory and license obligations.

3.4 Prohibition on undue discrimination

Condition	Our obligations	How we comply
E Undue discrimination	Widely defined prohibition on undue discrimination in relation to charges, obliging us to show no undue discrimination against any class of customers or potential customers	In setting our charges annually we ensure that they reflect the underlying costs of serving different classes of customer. All charges are levied in accordance with a published Charges Scheme, with the exception of a small number of 'special agreements' which reflect historic agreements or specific circumstances. Details of these

	special agreements are published in our wholesale charges publication.
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3.5 Condition covering the accounts and financial information which we are required to produce, and financial obligations we are required to meet

Condition	Our obligations	How we comply
F Accounts and accounting information	Produce reports for the regulated business	Our statutory report and accounts, and regulatory accounts and annual performance reports are published on our website.
	No cross subsidy between the appointed business and associated companies	
	Transfer of assets to associates does not adversely affect the ability to carry out the regulated functions	The most recent results are here: https://www.southernwater.co.uk/our-annual-accounts
	Accounting information is provided regularly to Ofwat	The regulatory accounts and annual performance report are prepared in accordance with the Regulatory Accounting Guidelines for the year
	We must keep accounting records	
	We maintain sufficient financial and managerial resources to carry out regulated activities	An annual statement to this effect is given under condition F. The most recent statement is given on p8 of the 2017/18 annual performance report See further section [2] of TA 2.6 Meeting our Statutory and license obligations
	Transactions with associated companies to be at arm's length	All transactions with associated companies are disclosed in our Annual Performance Report and audited for compliance with this condition by our Statutory Auditors. In 2017/18 we had only one such transaction.
	Pay dividends only in accordance with published dividend policy agreeing to two principles	Our dividend policy is set out on p89 of the 2017/18 annual report

F Accounts and accounting information (continued)	Ring fencing – submit annual certification of sufficient resources	An annual statement to this effect is given under condition F. The most recent statement is given on p8 of the 2017/18 Annual Performance Report
	Conduct the business at all times as if it were the sole business, and as if it were a separate public limited company	The statement on page 8 and 9 of the 2017/18 annual performance report confirms that in the company's view it complies with Condition F
	Directors act independently of the parent company or controlling shareholder and exclusively in the interests of the appointee	Under the Southern Water Code, the Chairman must be independent of shareholders (Commitment B1.1) and independent non-executive directors must be the largest group on the Board (Commitment B2.1) https://www.southernwater.co.uk/southern-water-code
	Follow the governance rules of the FCA	We comply with the requirements of the UK Corporate Governance Code; The Southern Water Code draws extensively on the appropriate principles of the UK Corporate Governance Code (as updated).
	Use all reasonable endeavours to maintain an investment grade credit rating	The company has an investment grade rating from at least two ratings agencies. Credit ratings as at 31 March 2018 are disclosed on page 92 of our 2017/18 Annual Report.
	Publish interim and final results as per requirements of the LSE	Our interim and final results are published on our website https://www.southernwater.co.uk/our-annual-accounts
	Restrictions on the ability to transfer assets outside the ring fence (dividend lock up etc.) if below investment grade	n/a

	Basis of cost allocations set out in the licence	Our accounting separation methodology is published on our website https://www.southernwater.co.uk/Media/Default/PDFs/ASM-Statement-2014-15.pdf
	Provide current cost accounting statements	Current cost accounting statements are contained within our Annual Performance Reports https://www.southernwater.co.uk/our-annual-accounts
	Audit and publication of accounting statements	Audited accounting statements and the associated auditors report are published on our website

3.6 Conditions requiring certain information and practices to be made available to customers

Condition	Our obligations	How we comply
G codes of practice for customers	Submit to Ofwat for approval a code of practice describing nature of services, tariffs, arrangement for bill payment including budget plans, complaints handling procedures, information on emergencies and rights regarding contacting CC Water.	Our code of practice is on our website, dated 2017/18 https://www.southernwater.co.uk/code-of-practice-for-domestic-customers It sets out information about our company, responsibility for pipework and leakage, our metering programme, options when a meter can't be fitted, payment of charges, what we do for customers who need financial assistance and specific needs, our complaints procedures and other information
	Review at least every three years, consulting CC Water, and provide them a copy	
	Submit to Ofwat for approval a code of practice describing nature of services, tariffs, arrangement for bill payment including budget plans, complaints handling procedures, information on emergencies and rights regarding contacting CC Water.	

H codes of practice on debt recovery	Guidance to customers in difficulty paying bills, and procedures for collecting debt	We set out on pages 41-44 of our customer code of conduct how we can help those who need assistance in paying https://www.southernwater.co.uk/Media/Default/PDFs/COPdom.pdf
	Consult CC Water	
	Draw attention to code when requesting payment and publish a copy	Information about our customer code of conduct and how to contact us is provided on our bills
I Code of practice on leakage	Set out our practice in leaks in supply (customer) pipes	We set out on pages 13-16 of our customer code of conduct how we deal with leakage on supply pipes including testing for leakage and adjustment of charges.
	Review at least every three years, consulting CC Water, and provide them a copy	
	Set out procedures when installing a meter and testing for leaks and adjustment for charges	
J Levels of service information and service targets	Provide information to Ofwat on quality of service and levels of service	Levels of Services information under this condition was previously provided as part of the June Return to Ofwat. The requirements of this condition have been superseded by the setting of performance commitments and outcome delivery incentives as part of the 2014 periodic review. Performance against these targets is reported to Ofwat annually and published in our Annual Performance Report.
	Set out service level targets	
	Monitoring and reporting of performance against targets	
	Certification and verification of information	

3.7 Conditions that impose restrictions in relation to transactions with owners and associated companies (the financial “ring-fence”)

Condition	Our obligations	How we comply
K Ring fencing and disposals of land	Ensure that at all times so far as reasonably practicable that there a sufficient assets and resources to enable a special administrator to manage the affairs of the business without having to renegotiate any	As described in condition F, we provide annual certification to this effect in our Annual Performance Report

	contracts	
	Publish an annual statement of compliance	
	The state, condition and capacity of assets are maintained such that conditions J (service levels) and L (underground asset management plans) are met	
	Disposals of protected land will be done at arm's length and proceeds will be shared with customers	There have been no disposals in recent years. Our Financial Instructions Manual sets out the procedures for disposing of property, including the requirements of Condition K.

3.8 Conditions governing interactions with other appointees or licensees

Condition	Our obligations	How we comply
C Infrastructure charges	The method for setting infrastructure charges is set out, changeable via price reviews	Our infrastructure charges are published on our website https://www.southernwater.co.uk/Media/Default/PDFs/Infrastructure-2018-19.pdf
R Provision of wholesale water supplies	We must provide an access code for dealing with a licensed water supplier, setting out feasibility studies we can require, payment of fees, the terms and changes under which it will carry out the services for another licensed operator	Our network access code is published on our website https://www.southernwater.co.uk/network-access-code
	Prohibition on anti-competitive behaviour:	Our compliance code required under Condition R is published on our website https://www.southernwater.co.uk/Media/Default/PDFs/ConditionRComplianceCode.pdf
	Can't sell assets to a retailer without Ofwat consent	
	Carry out all transactions at arm's length	

	Do not show undue preference towards, or undue discrimination against, customers or potential customers of retailer; retailers compared to other retailers: a retailer compared to the company itself	
	Information supplied in dealing with licensed third parties is confidential and use is restricted	
	We must have a compliance code	
S Customer transfer protocol	We must have a clear, standardised process for the transfer of customers to or between licensed operators	Our customer transfer protocol is contained in our network access code https://www.southernwater.co.uk/Media/Default/PDFs/network-access-code.pdf

3.9 Conditions governing the introduction of the retail market

Condition	Our obligations	How we comply
R1 Open Water Programme	We have a funding obligation for Open Water Markets Ltd	Expired on 1 April 2018
R2 Retail Market Opening	We must be ready for the opening of retail market	Expired on Market Go Live Date
R3 MAC	We must comply with the Market Arrangements Code and fund MOSL	We follow the MAC obligations and pay MOSL charges monthly
R4 Stapling Condition	Set out arrangements between wholesale and NHH retail functions where business is integrated	Not applicable following retail exit
R5 Customer protection	Comply with Customer Protection Code of Practice	Not applicable following retail exit

3.10 Conditions that require the payment of licence fees to cover the operating costs of

Ofwat and the Consumer Council for Water

Condition	Our obligations	How we comply
N Fees	To pay a share of Ofwat and any CMA costs via fees.	We pay the fees required and have included the estimated costs in the plan

3.11 Other conditions that require day to day compliance

Condition	Our obligations	How we comply
L Underground asset management plans	Provide an underground asset management plan to Ofwat (water mains and supply pipes, sewer mains and outfalls)	The requirements of this condition are met through the provision of our business plan to Ofwat as part of the periodic review process.
	Plans to enable company to carry out regulated activities economically and efficiently	Our business plan for 2015-20 is published on our website
	To perform the company's obligations in the area	https://www.southernwater.co.uk/five-year-business-plan There are also links to Ofwat's final determination, which sets out the price limits and cost targets for an efficient operator
	Establish and Maintain information systems on state, condition, capacity and performance of network assets	Our asset management policy, which covers these matters, is published on our website
	Provide written descriptions of the systems to Ofwat	https://www.southernwater.co.uk/asset-management-policy
	Plans to be reviewed by a body appointed by Ofwat	The Reporter role set out in this condition has been superseded. Business plans are subject to specific assurance requirements, as set out by Ofwat.

	Annual reporting of opex and capex on network assets	Contained in our Annual Performance Reports
P Ultimate Controllers and UK holding company	<p>Obtain undertakings from ultimate controllers that:</p> <ul style="list-style-type: none"> • all subsidiaries will provide the information the company requires to comply with its obligations • Ultimate Controllers will refrain from activities that would cause the company to be in breach of the Water Act or Licence • ensure that the board has not less than three independent non-executive directors 	<p>The annual report of Greensands Holdings Ltd states:</p> <p>For compliance with Condition P of Southern Water’s Licence, the shareholders who are considered to be the Joint Ultimate Controllers of Southern Water have given undertakings to provide all necessary information to that company, not to cause Southern Water to breach any of its obligations and to ensure that there are not fewer than three independent non-executive directors on the Southern Water board. Copies of those undertakings are published on Southern Water’s website.</p> <p>https://www.southernwater.co.uk/media/default/PDFs/greensands-holdings-account.pdf</p> <p>Undertakings from our ultimate controllers are published on our website</p> <p>https://www.southernwater.co.uk/owner-support</p> <p>We have at least three independent non-executives, including an independent non-executive chair. We are moving to a majority of independent non-executive directors on the board.</p>

Appendix 2: Checklist of expectations in the WISER document

In October 2017 the EA published its Water Industry Strategic Environment Requirements (WISER) document. This document details a number of expectations for water companies, based on both statutory and non-statutory drivers. The legal obligations set out in the WISER document, and how these are addressed in our PR19 Business Plan, are covered in the main body of this report.

The WISER document includes a checklist of the EA's expectations of water companies (pp.15-18). For completeness, we set out below those expectations along with references to the relevant parts of the PR19 Business Plan where those expectations are addressed. There is one table for each of the three categories of WISER expectation: Enhancing the Environment; Improving Resilience; and Excellent Performance.

Further information was provided to the EA on 17 August 2018 in response to a letter from the EA dated 15 June 2018 which sought assurance from water companies that their PR19 Business Plans would meet the expectations set out in the WISER document by the 2025 deadline (or an explanation of why this would not be possible).

Enhancing the Environment

Enhancing the Environment	Priority	Business Case Ref
Measures to prevent deterioration in current water body status	S	WW06, WR03, WN01
Measures to improve water body status	S+	WW06, WR03, WN01
Work with stakeholders and Catchment Based Approach (CaBA) partnerships to explore integrated solutions at a catchment scale	NS	WW06, WR03,
Measures to achieve at least sufficient class	S	WW06
Measures to prevent deterioration in class	S	WW06
Event monitoring of storm overflows impacting on bathing waters	S	WW06
Measures to achieve good / excellent class	NS	WW06
Measures to prevent deterioration in current water body status	S	WW06
Measures to achieve shellfish water protected areas objectives	S+	WW06
Event monitoring of storm overflows impacting on shellfish waters	S	WW06

Enhancing the Environment	Priority	Business Case Ref
Measures that contribute to meeting and or maintaining conservation objectives of Natura 2000 sites (Special Areas of Conservation (SAC) & Special Protection Areas (SPA)) and Ramsar sites	S	WW06, WR03, WN01
Measures that contribute to meeting and/or maintaining Favourable Condition targets for Sites of Special Scientific Interest	S, S+	WW06, WR03, WN01
Measures that contribute to priority habitat and species outcomes as well as other biodiversity actions and measures to enhance ecosystem resilience on your own land or in the catchments within which you operate	S+	WW06, WR03, WN01
Measures that contribute to the conservation objectives of Marine Conservation Zones (MCZ)	S+	WW06
Water Quality		
Screen abstractions and outfalls to prevent the entrainment of eels and salmon	S+	N/A (completed in AMP6)
Address barriers to the passage of fish	S+	WR03
Water Quantity		
Prevent deterioration by reducing the risks of spread of INNS and reducing the impacts of INNS	S	WN01, WW06
Reduce the impacts of INNS, where INNS is a reason for not achieving conservation objectives or good status	S+	WW06
Understand pathways of introduction and spread of INNS	NS	WW06
Wastewater		
Measures to improve wastewater treatment where population thresholds are exceeded	S	WW06
Maintain sewers to demonstrate sewer leakage to ground is minimal, especially in Source Protection Zones	S	WW07, WW04
Water Quality and Quantity		
Catchment measures to prevent deterioration in water quality and to reduce the need for additional treatment	S	WR03
Catchment measures to improve water quality to reduce the level of existing treatment	S+	WR03
Water Quality and Quantity		
Measures to prevent deterioration (includes load standstill measures)	S	WW06
Measures to achieve compliance with environmental quality standards (EQS)	S+	WW06
Work with business customers and catchment partners to explore alternatives to end of pipe treatment solutions	NS	WR03, WW07, WW06, WN01

Improving Resilience

Expectations – Improving Resilience	Priority	Business Case Ref
Flood risk management		
Co-operate with other risk management authorities in exercising your flood risk management functions	S	WW07
Co-ordinate and share information with Cat.1 and 2 responders	S	WW07
Comply with statutory reservoir safety requirements	S	W02
Develop a clear and systematic understanding of service and system risks and include options for reducing the likelihood of future service failures and service failures that lead to flooding	NS	WW07
Reduce sewer flooding of homes and businesses trending towards zero	NS	WW07
Reduce the number of properties at risk of flooding	NS	WW07
Take every opportunity to increase the number of partnership flood schemes achieving multiple benefits	NS	WW07
Work with others to actively identify and build in sustainable drainage options	NS	WW07
Work with government and other utilities to take forward the recommendations of the National Flood Resilience Review	NS	WW07
Future drainage		
Use the 21st Century Drainage Programme workstreams on storm overflows and drainage capacity metrics to inform business plans	NS	WW07
Maintain networks and WwTWs to reduce the risk of future failures	NS	WW07
Event duration monitoring on high significance storm overflows	S	WW07
Ensure compliance with permitted flow to full treatment settings	S	WW07
Water resources security of supply		
Solutions to meet water resources management plan outcomes or measures to protect the environment from the supply-demand component of business plans	NS	WN01
Assess resilience of your water supply system to predicted droughts and other non-drought water supply hazards.	NS	WN01
Measures to reduce demand and per capita consumption	NS	WN01
Achieve a downward trend for leakage with rates at or below the sustainable economic level of leakage.	NS	WN01
Assess universal metering in water stressed areas	S	WN01
Ensure agreed and up to date plans are in place to manage a drought	S	WN01
Demonstrate that Defra's Guiding principles for water resources planning have been met	NS	WN01
Incorporate sustainability changes into supply forecasts	NS	WN01
Current abstractions and operations, and future plans support the achievement of environmental objectives	S, S+	WN01
Climate change		

Expectations – Improving Resilience	Priority	Business Case Ref
Report on understanding of risks from climate change and how they are being addressed via Adaptation Reporting Power (ARP) reports	S	n/a
Reduce total carbon emissions. Ensure Adaptation Reporting Power (ARP) report commitments are consistent with, and embedded within, business plans	NS	BR01 (renewables)

Excellent Performance

Expectations – Excellent Performance	Priority	Business Case Ref
Regulatory compliance and sludge		
A plan in place to achieve 100 per cent compliance for all licences and permits	S	WN01, WW06, WW01
100% compliance with environmental permit conditions at WwTWs with descriptive not numeric limits	S	WW01, WW06
Serious pollution incidents must continue to trend towards zero	S	WW07
Trend to minimise all pollution incidents (category one to three) by 2025. There should be at least a 40% reduction compared to numbers of incidents recorded in 2016	S	WW07
Effective management of transferred private sewers and pumping stations with low levels of pollution incidents	S	WW07, WW02
No D, E, or F rated sites under Operational Risk Appraisal OPRA for waste related sewerage service Environmental Permitting Regulations permits	S	N/A?
Compliance with flow requirements, including MCERTS certification, at WwTWs	S	WW06,
High levels of self-reporting of pollution incidents with at least 80 per cent of incidents self-reported by 202 More than 90% of incidents self-reported for WwTWs and pumping stations	NS	WW07
Business plans include all measures identified within the Water Industry National Environment Programme and these are planned well and completed to agreed timescales and specification	S	WW06, WR03, WN01
Sample and provide data in relation to self-monitoring under Operator Self-Monitoring (OSM), Urban Waste Water Treatment Directive (UWWTD), Flow monitoring and UV disinfection	S	WW01, WW06
Manage sewage sludge treatment and re-use so as not to cause pollution to land, surface water or groundwater	S	BR01