SRN PR19

Business Plan Data Tables Supporting Commentary –

Updated in response to IAP Queries:

- SRN-DD-PD-001
- SRN-DD-CE-003
- SRN_11 (response from Ofwat)

Date 26th April 2019

Version 2.0 Final

Southern Water

Contents

* Table updated as a result of IAP actions.

** New table following IAP

*** Commentary updated only (no change to data table)

**** Table updated in response to IAP queries (note previous updates above may also still apply)

Please note, amendments/additions to the commentary post IAP have been highlighted by * updates to existing data tables, ** updates in new data tables and *** if only the commentary has been updated. Where an update has been made but cannot be tied back to a specific IAP action reference an explanation has been provided.
**** denotes any updates made following post IAP queries raised by or to Ofwat.

**** Models Commentary	
Totex menu PR14 reconciliation	**** We have updated this model in line with query SRN_11, to reflect the correct transitional expenditure.
WRFIM PR14 reconciliation	This model is associated with Tables WS13 and WWS13.The commentary provided with Tables WS13 and WWS13 provides detailed information on our inputs to the WRFIM model.
Residential (household) retail PR14 reconciliation	This model is associated with Table R9.The commentary provided with Table R9 provides detailed information on the inputs to the model E391.We would note that our total re-forecast customer numbers for 2019-20 are around 40,000 higher than our PR14 forecast. This is primarily due to our on-going 'voids recovery programme'. Differences in the two forecasts for 2019-20 at customer class level reflect that meter penetration from metering programmes has been lower than originally forecast. In the absence of a definitive figure we have over-written the discount rate of 100% pre-populated by Ofwat with a discount rate of 3.6% as per the WRFIM model. We believe that this rate will not be used given that the materiality test in the "Calcs" Worksheet results in no adjustment being required.
Revenue Adjustment feeder model	**** We have updated this model in line with the changes to the totex menu model resulting from query SRN_11.
RCV adjustments feeder model	**** We have updated this model in line with the changes to the totex menu model resulting from query SRN_11. *** *Consistent with the September submission, for inputs F87 and F106, we included the CIS correction that accounts for the run-off, as the model does not seem to adjust for this otherwise.*
Financial model	**** This has been re-run to reflect impact of additional £75m capex re IAP query SRN-DD-CE-003 and following response to query SRN_11 from Ofwat.

*** Wastewater Treatment Works Performance Reporting
*** *As disclosed in our Annual Report for 2018–19 and our Business Plan 2020-25, the company faces investigations by the Environment Agency (EA) regarding the performance of certain wastewater sites, and an investigation by Ofwat into the performance of our wastewater treatment sites and the reporting of relevant compliance information, focused on the years from 2010 to 2017.*

We have revisited the reporting of the Wastewater Treatment Works (WwTW) number of failed works and population equivalent performance measures provided in previous years. We have reviewed the relevant reported WwTW data for the years 2010 to 2017. We have engaged in a discussion with Ofwat regarding the initial findings from the review and the consequences in relation to potential serviceability and Outcome Delivery Incentive penalties that should have been applicable in respect of AMP5 and AMP6. We are working closely with Ofwat to resolve this matter in the coming months. The Ofwat investigation could result in Ofwat taking enforcement action. It is possible that other investigations may also result in other enforcement actions and fines being imposed.

As we have also reported to our regulators elsewhere, during the year 2018 we undertook a very significant amount of work in relation to resolving long standing issues with the reporting of spill data. The details of the steps that have been taken and that continue to be taken, to improve the robustness of the spill data collection and data processing systems and the assurance of that data, have been shared with the EA and Ofwat, and we have also been sharing the progress of the resolution of those issues. As those steps have not yet reached completion, the data supplied would continue to have an error band of +/- 10%.

Our new Risk and Compliance (formerly Compliance and Asset Resilience) directorate is leading improvements in our business processes and systems, governance and controls as well as data integrity and the planning, scheduling, monitoring and performance reporting to the Environment Agency and Ofwat. In our 2019 Final Assurance Plan we detailed our approach to assurance in relation to our performance information and acknowledged the importance of accurate information in building trust and confidence.

We are committed to driving structural and cultural change to support the development of a modern, transparent and ethical compliance framework. We have adopted the 'three lines of defence' framework for our reporting governance and assurance activity. This helps to assure performance information by applying multiple levels of control. We apply internal controls and have processes in place to mitigate the risk of supplying incorrect or inaccurate information on all our non-financial regulatory reporting, with ultimate oversight from the Board and Audit Committee.

We have significantly strengthened our performance monitoring capability, which underpins the completeness and accuracy of our performance data and provides more confidence in the reporting we publish. This leads to improved assurance with fewer issues being identified and increased trust and confidence in our data. Our end-to-end process work is being undertaking by our internal assurance specialists, with independent external assurance of our reported data. This will ensure our regulators are provided with an independent third line assurance opinion of our data returns, as currently required by Ofwat.

Further information on this programme can be found in our Final Assurance Plan 2019, which is available on our website ***southernwater.co.uk/our-reports****.*

* App1 – Performance commitments (PCs) and outcome delivery incentives (ODIs)	
PC Name	Commentary
All PCs	For all PCs the relative customer priority column is based on our triangulated customer research (excluding stakeholders) which is set out in TA 4.3.

	* *Column (EJ-EN) and (EU-EY) all of our P90 and P10 performance levels have a constant variance from our target for all years, these have not been changed and the details behind these are set out in T.A.6.2. Unless specifically referred to in the commentary below.*	
Water quality compliance (CRI)	2016-17 and 2017-18 provided by DWI shadow reporting (AL7 to AN7), From 2018/19 (AO7) to 2019-20 (AP7) this is our forecast performance we are aiming to achieve. From 2020-21 onwards we have set the target at zero as required by Ofwat, and a deadband where we expect to achieve our performance, this is 0.95 in 2024-25 which is our forecast upper quartile. Forecast performance post 2024-25 is set at zero, although in PR24 we would review the deadband to set appropriate stretch in AMP8 onwards. * *We have updated our deadband and collar as per IAP action ref. SRN.OC.A9.* * *We have updated our 18/19 and 19/20 targets to reflect recent performance.*	CRI is an underperformance payment only common PC. The penalty incentive rate applies from the deadband to the underperformance collar. This is derived from our marginal cost (EP) and our marginal benefit (ER). The method we have used to derive the marginal benefit and marginal cost is explained in TA.6.1. See T.A.6.2 for detailed information for each individual PC. * *We have updated our P10 level of performance to give a variance of 8 index point, this is based on the collar we are setting and a reassessment of our current performance.* * *We have updated our incentive rates and marginal benefits as per SRN.OC.A3 and SRN.OC.A8.*
Leakage	2016-17 and 2017-18 is based on the application of the new shadow reporting methodology to historic data. From 2018-19 (AO8) to 2019-20 (AP8) we forecast our expected performance. From 2021/22 to 2024/25 (AU8), we have forecast upper quartile performance for these years and from 2025/26 (AV8) onwards we have assumed a 2.5% improvement up to 2030 a 2% improvement to 2035 and a 1.5% improvement thereafter due to diminishing returns. Forecast performance post 2024/25 should be treated as indicative only.	Leakage is a common PC. The penalty incentive rate applies from the target to the underperformance collar and the outperformance incentive rate applies from the target to the outperformance cap. These are derived from our marginal cost (EP) and our marginal benefit (ER). The method we have used to derive the marginal benefit and marginal cost is explained in TA.6.1. We have two sets of benefit valuations for Leakage, we have used the sliders research absolute value to derive our marginal benefit. See TA.6.2 for detailed information for each individual PC.

		* *We have updated our incentive rates and marginal benefits as per SRN.OC.A3 and SRN.OC.A11.*
Per capita consumption (PCC)	2016-17 and 2017-18 is based on the application of the new shadow reporting methodology to historic data. From 2018-19 (AO8) to 2019-20 (AP8) we forecast our expected performance. From 2020-21 to 2024-25 (AU8), we have forecast over and above upper quartile performance for these years and from 2025-26 (AV8) onwards we have assumed a 1.5% improvement as we will be frontier at this point. Forecast performance post 2024-25 should be treated as indicative only.	Per capita consumption is a common PC. The incentive are derived from our marginal cost (EP) and our marginal benefit (ER). The method we have used to derive the marginal benefit and marginal cost is explained in TA.6.1. We have two sets of benefit valuations for water supply interruptions, we have used the sliders research absolute value to derive our marginal benefit. See TA.6.2. for detailed information for each individual PC. * *We have updated our incentive rates and marginal benefits as per SRN.OC.A3 and SRN.OC.A13.*
Drinking water appearance	No data in per 1,000 contact reporting format available before 2013-14. 2013-14 (AJ11) to 2024-25 (AU11) is our cost beneficial level. Projection from 2025-26 (AV11) to 2040-45 (Bk11) based on 5% improvement per year to 2030 and then 2% improvement a year improvement to 2045. Forecast performance post 2024-25 should be treated as indicative only. * *We have removed the cap and collar as per SRN.OC.A4*	Appearance is a comparative bespoke PC. The incentive rates are derived from our marginal cost (EP) and our marginal benefit (ER). The method we have used to derive the marginal benefit and marginal cost is explained in TA.6.1. See TA.6.2. for detailed information for each individual PC. * *We have updated our incentive rates and marginal benefits as per SRN.OC.A3.*
Drinking water taste and odour	No data in per 1,000 contact reporting format available before 2013-14. 2013-14 (AJ12) to 2024-25 (AU12) is our cost beneficial level. Projection from 2025-26 (AV12) to 2040-45 (Bk12) based on 5% improvement per year to 2030 and then 2% improvement a year to 2045. Forecast performance post 2024-25 should be treated as indicative only. * *We have removed the cap and collar as per SRN.OC.A4*	Taste and odour is a comparative bespoke PC. The incentive rates are derived from our marginal cost (EP) and our marginal benefit (ER). The method we have used to derive the marginal benefit and marginal cost is explained in TA.6.1. See TA.6.2 for detailed information for each individual PC.

		* *We have updated our incentive rates and marginal benefits as per SRN.OC.A3 and SRN.OC.A41.*
Effluent re-use	The target is set at zero. This is due to the PC being reward only.	Effluent reuse is an outperformance payment only bespoke PC. The outperformance incentive rate applies from the target to the outperformance cap. This is derived from our marginal benefit (EP). The method we have we used to derive the marginal benefit is explained in TA.6.1. See TA.6.2. for detailed information for each individual PC.
Renewable generation	Targets up until 2020 are based on our AMP6 performance commitment. Targets from 2020-21 are a continuation of the current rate of improvement. Long term targets from 2025-26 onwards are forecast to 100%, in line with the EU 2050 carbon emissions targets. Forecast performance post 2024-25 should be treated as indicative only. * *We have removed the cap and collar as per SRN.OC.A4*	Renewable generation is a bespoke PC. The penalty incentive rate applies from the target to the underperformance collar and the outperformance incentive rate applies from the target to the outperformance cap. These are derived from our marginal cost (EP) and our marginal benefit (ER). The method we have used to derive the marginal benefit and marginal cost is explained in TA.6.1. See TA.6.2. for detailed information for each individual PC. * *We have updated our incentive rates and marginal benefits as per SRN.OC.A3.*
Satisfactory bioresources recycling	The targets from 2018-19 onwards are based on achieving 100% compliance. Forecast performance post 2024-25 should be treated as indicative only, as compliance regulations can change over time. * *We have removed the cap and collar as per SRN.OC.A4.* * *We have reassessed our P10 rates based on historic performance as we believe it is highly unlikely we will go below 99%.*	Satisfactory bioresources recycling is an underperformance payment only bespoke PC. The penalty incentive rate applies from the target to the underperformance collar. This is derived from our marginal cost (EP). The method we have used to derive the marginal cost is explained in TA.6.1. See TA.6.2. for detailed information for each individual PC.

River water quality	The targets from 2020-21 to 2024-25 are based on the delivery obligations of our WINEP programme, these are subject to change by ministerial decisions until the final WINEP programme is confirmed in 2021. * *We have removed the cap and collar as per SRN.OC.A4.* * *We have reassessed our P90 and P10 rates as explained in SRN.OC.A48.*	River water quality is a bespoke PC. The penalty incentive rate applies from the target to the underperformance collar, the outperformance incentive rate applies if we deliver the target early. The penalty rate is derived from under delivery of 25% of the rivers improved in the WINEP and our marginal cost (EP). The outperformance incentive rate is derived from our marginal benefit which comes from our secondary WTP research on unit value of improving a km of river. The figures are shown as the total cumulative kilometres improved per year over AMP7. See TA.6.2 for detailed information for each individual PC. * *We have updated our incentive rates and marginal benefits as per SRN.OC.A47.*
Abstraction Incentive Mechanism	Our target for AMP7 is 15 Ml/d under September target each year. More information on how this works is in the full definition in T.A.6.2. From 2024-25 onwards this is still set at 15 Ml/d although this is indicative and will be reviewed.	Abstraction incentive mechanism is a mandatory bespoke PC. The penalty incentive rate applies from the target to the underperformance collar and the outperformance incentive rate applies from the target to the outperformance cap. These are derived from our marginal cost (EP) and our marginal benefit (ER). The method we have used to derive the marginal benefit and marginal cost is explained in TA.6.1. See TA.6.2. for detailed information for each individual PC. * *We have updated our incentive rates and marginal benefits as per SRN.OC.A3.*
Maintaining bathing waters at 'excellent'	The target is based on maintaining the amount of bathing waters at excellent in AMP7. This is to protect customers following the AMP6 special cost claim for improving these bathing waters.	Maintaining bathing water quality is an underperformance only bespoke PC. The penalty incentive rate applies from the target to the underperformance collar. This is derived from

		level of funding for our AMP6 special cost claim. The method we have we used to derive the marginal cost is explained in TA.6.1. See TA.6.2. for detailed information for each individual PC.
Improve the number of bathing waters to at least 'good' (Cost Adjustment claim)	The target for 2024-25 is to deliver 5 named bathing waters to good, as per our bathing water cost adjustment claim. *We have removed the cap and collar as per SRN.OC.A4.*	Improve the number of bathing waters to good is a bespoke PC associated with our cost adjustment claim. The incentive rates are derived from the costs within our CAC and we have used the benefit valuation for bathing waters to excellent as improving the bathing waters to excellent for this PC is outperformance. See T.A.6.2. for detailed information for each individual PC. **We have updated our incentive rates and marginal benefits as per SRN.OC.A3 and SRN.OC.A55. Further we have updated our marginal cost due to a change in the CAC and underperformance incentive rates as per SRN.OC.A55*
Target 100	The target of 49% for 2019-20 and 55% for 2024-25 is taken from our WRMP analysis. All years in between are an extrapolation based on the PCC figure for that year (1 l/h/d = 0.86%). The same extrapolation is used to 2044-45.	n/a
Water saved from water efficiency visits	This is a cumulative target in m3 - assumes flat profile of 500m3 saved per annum to 2500m3 target by 2024-25. In longer term projections this is kept at 500m3 based on 20,000 customer visits per year until all households (~1.1m) are visited. The longer term projections are also shown as cumulative to 15000m3 saved by 2045. 2029-30 is based on 100% smart meter penetration by 2030. This then flat lines due to WS3 not having connection projections beyond 2030 (from WS1)	* *We have now made this a non-financial commitment as per SRN.OC.A58*
Access to daily water consumption data	The target is set at zero. This is due to the PC being reward only.	Access to daily water consumption is an outperformance payment only bespoke PC. The outperformance incentive rate applies from the

		target to the outperformance collar. This is derived from our marginal benefit (EP). The method we have used to derive the marginal benefit is explained in TA.6.1. The maximum over the AMP is 17,644. See TA.6.2. for detailed information for each individual PC.
Developer services measure of experience (D-MeX)	We have allocated the PC between water network plus and wastewater network plus according to our developer services revenues in APP28 (water revenues are B6 + C7 + C9 + C11 * 92% and wastewater revenues are J83 + J84). As we are still in the early stages of the development of the measure we have set the 2024-25 performance commitment level at upper quartile, as we aim to ensure our developers have some of the best service in the industry and we aim to ensure we are at this level by the end of AMP7.	n/a
Improve the bathing waters at excellent quality (Cost adjustment claim)	The target for 2024-25 is to deliver 2 named bathing waters to excellent as per the bathing water cost adjustment claim. ** We have removed the cap and collar as per SRN.OC.A4 and SRN.OC.A40.*	Improve the number of bathing waters at excellent is a bespoke PC associated with our cost adjustment claim. The incentive rate applies from the target to 0 (the collar derives from not meeting the expectations of the CAC). The outperformance payment applies from the target to the 4 named bathing waters in the definition. This is based on going over and above the CAC and getting all 4 named bathing waters to excellent. The marginal costs are derived from our CAC. We have two sets of benefit valuations for bathing waters to excellent, we have used the sliders research absolute value to derive our marginal benefit. See TA.6.2. for detailed information for each individual PC. ** We have updated our incentive rates and marginal benefits as per SRN.OC.A3 and SRN.OC.A39. Further we have updated our marginal cost due to a change in the CAC and*

		underperformance incentive rates as per SRN.OC.A39
Customer measure of experience (C-MeX)	As we are still in the early stages of the development of the C-MeX measure we have set the 2024-25 performance commitment level at above average rank. This is the most ambitious target we believe is achievable given the performance of SIM and the current knowledge of how C-MeX will work.	n/a
Void properties	We are proposing a target of 2.1% voids, which is industry upper quartile for wastewater companies. Our long term projections will be maintained at this level of performance. To forecast our voids target rate to 2024-25 we have considered forecasts of Southern Water supply, South East Water joint billing and WOC supply. We have forecast the optimal levels of these three different types of water supplies, aiming for upper quartile performance. We have made the forecasts based on historical performance and expert judgement to be able to come up with a realistic performance target for AMP7.	Void properties is a mandatory bespoke PC. The incentive rates are derived from our marginal cost (EP) and our marginal benefit (ER). The method we have used to derive the marginal benefit and marginal cost is explained in TA.6.1. See TA.6.2. for detailed information for each individual PC.
Effectiveness of Financial Assistance	We have set ourselves an ambitious glide path to achieve 90% effectiveness by 2025 which is close to the maximum attainable level. We will sustain this performance in the long term. This is an indicative forecast only.	n/a
Customer satisfaction with vulnerability support	We have set ourselves an ambitious glide path to achieve 90% effectiveness by 2025 which is close to the maximum attainable level. We will sustain this performance in the long term. This is an indicative forecast only.	n/a
Replace lead customer pipes	The target is set at zero. This is due to the PC being reward only.	Replace lead customer pipes is an outperformance payment only bespoke PC. The outperformance incentive rate applies from the target to the outperformance collar. This is derived from our marginal benefit (EP). The method we have used to derive the marginal benefit is explained in TA.6.1. See TA.6.2. for detailed information for each individual PC.
Surface water management	The target is set at zero. This is due to the PC being reward only.	Surface water management is an outperformance payment only bespoke PC. The outperformance

		incentive rate applies from the target to the outperformance collar. This is derived from our marginal benefit (EP). The method we have used to derive the marginal benefit is explained in TA.6.1. See TA.6.2. for detailed information for each individual PC.
Community engagement	The target is set at UQ rank for the end of AMP7.	n/a
Schools visited and engagement with kids	* *We have updated our targets to represent an outcome as per SRN.OC.A70*	n/a
Water supply interruptions	No data to 2016-17 as this is prior to DG3 shadow reporting. 2016-17 (AM33) taken from APR and 2017-18 (AN33) taken from the RCF421 APR which includes shadow reporting figures. From 2018-19 (AO33) to 2019-20 (AP33) we forecast our expected performance. From 2022-23 to 2024-25 (AU38), we have forecast upper quartile performance for these years and from 2025-26 (AV38) onwards we assume a 3% improvement target per annum. Forecast performance post 2024-25 should be treated as indicative only. * *We have updated our targets at per SRN.OC.A14*	Water supply interruptions is a common PC. The penalty incentive rate applies from the target to the underperformance collar and the outperformance incentive rate applies from the target to the outperformance cap. These are derived from our marginal cost (EP) and our marginal benefit (ER), how we have derived the marginal benefit and marginal cost is explained in TA.6.1. We have two sets of benefit valuations for water supply interruptions, we have used the sliders research absolute value to derive our marginal benefit. See TA.6.2. for detailed information for each individual PC. **We have updated our incentive rates and marginal benefits as per SRN.OC.A3 and SRN.OC.A15.*
Internal sewer flooding	No consistent data before 2016-17 as this was prior to shadow reporting. The figures 2016-17 onwards are the new shadow reporting method which includes severe weather. Projections for 2018/19 are based on activities to improve performance with an average 9% uplift added for projected severe weather. Targets for AMP7 are based on industry wide upper quartile. Targets from 2024-25 onwards are estimated projections of our long term ambitions and should be treated as indicative only.	Internal sewer flooding is a common PC. The penalty incentive rate applies from the target to the underperformance collar and the outperformance incentive rate applies from the target to the outperformance cap. These are derived from our marginal cost (EP) and our marginal benefit (ER). The method we have used to derive the marginal benefit and marginal cost is explained in TA.6.1. We have two sets of benefit valuations for internal

	* *We have normalised our targets and updated them to reflect SRN.OC.A17*	sewer flooding. We have used the sliders research absolute value to derive our marginal benefit and half of the marginal benefit from sewer collapses. We have transferred the benefit from sewer collapses as flooding is the main customer outcome from a sewer collapse. See TA.6.2 for detailed information for each individual PC. * *We have updated our incentive rates and marginal benefits as per SRN.OC.A3 and SRN.OC.A18.*
Pollution incidents (categories 1, 2 and 3) per 10,000km sewers	Projections are based on steady improvements 2017-18 to 2019-20. AMP7 figures are based on industry upper quartile, assuming upper quartile will improve 1% per year. Longer term projections are based on our ambition to aim for zero with -5 pollutions per year until 2040. Forecast performance post 2024-25 should be treated as indicative only. * *We have normalised our targets* * *We have updated our 18/19 and 19/20 targets to reflect recent performance.*	Pollution incidents (cat 1-3) is a common PC. The penalty incentive rate applies from the target to the underperformance collar and the outperformance incentive rate applies from the target to the outperformance cap. These are derived from our marginal cost (EP) and our marginal benefit (ER). The method we have used to derive the marginal benefit and marginal cost is explained in TA.6.1. We have two sets of benefit valuations for pollution incidents although the secondary WTP research was based on just Category 3 pollution incidents. We have used the sliders research absolute value to derive our marginal benefit. See TA.6.2. for detailed information for each individual PC. * *We have updated our incentive rates and marginal benefits as per SRN.OC.A3 and SRN.OC.A22.*
Risk of severe restrictions in a drought	The forecast performance is based on our WRMP Summary (1 in 200) throughout. The target is 0% of customers at risk.	n/a

Risk of sewer flooding in a storm	Target is based on hydraulic models which calculate properties affected in a 1-in-50 year storm. This figure is forecast to remain the same for AMP7, until the method and data has improved. The longer term goal once the method is well defined is to reduce the percentage of properties at risk whilst catering for growth and climate change.	n/a
Asset Health: Mains bursts	2010-11 (AG38) to 2017-18 (AN38) is historic data based on our Annual Performance Reports and June Returns. From 2018-19 (AO38) to 2024-25 (AU38) the forecast is based on getting to industry upper quartile as soon as possible by 2022-23. 2025-26 to 2045 improvements are paired to our leakage % improvement. Forecast performance post 2024-25 should be treated as indicative only. * *We have removed the deadband and increased the level of cap and collar as per SRN.OC.A29*	Asset health: mains bursts is a common PC. The penalty incentive rate applies from the deadband to the underperformance collar and the outperformance incentive rate applies from the deadband to the outperformance cap. These are derived from our marginal cost (EP) and our marginal benefit (ER). The method we have used to derive the marginal benefit and marginal cost is explained in TA.6.1. See TA.6.2. for detailed information for each individual PC. * *We have updated our incentive rates and marginal benefits as per SRN.OC.A3 and SRN.OC.A28.*
Asset Health: Unplanned outage	From 2018-19 to 2024-25 is based on our cost beneficial level of performance. Forecast performance post 2024-25 should be treated as indicative only. * *We have removed the collar as per SRN.OC.A4*	Asset health: unplanned outage is a common PC. The penalty incentive is derived from our marginal cost (EP) The method we have used to derive the marginal benefit and marginal cost is explained in TA.6.1. See TA.6.2 for detailed information for each individual PC. * *We have amended the incentive rates to make a cost based penalty as per SRN.OC.A32.*

Asset Health: Sewer collapses Sewer collapses per 100km sewers	Figures up to 2015-16 are based on industry comparatives. The forecast to the end of AMP7 are based on 0.05% improvements per year. This is the best performance we can achieve given the high costs of reducing sewer collapses. Longer term projections are based on a 0.01 reduction per 1.000km of sewer. Targets from 2025-26 onwards are indicative only. * *We have normalised our targets* * *We have removed the collar as per SRN.OC.A4 and SRN.OC.A34*	Asset health: Sewer collapses is a common PC. The penalty incentive rate applies from the deadband to the underperformance collar. This is derived from our marginal cost (EP) and our marginal benefit (ER), how we have derived the marginal benefit and marginal cost is explained in TA.6.1. We have transferred the marginal benefit of sewer collapses to internal and external flooding for the generation of the outperformance payments for these two PCs as these are the main customer outcomes from a sewer collapse. See TA.6.2 for detailed information for each individual PC. * *We have amended the incentive rates to make a cost based penalty as per SRN.OC.A33.* * *We have updated the marginal costs to share with external sewer flooding as per SRN.OC.A3*
Asset Health: Treatment works compliance	Data for 2016-17 and 2017-18 has been restated. See our 2017-18 APR for details. AMP6 was based on WTW discharges only: • 2015-16 - 99.31%. 2 failures based on 291 WW EPA discharges • 2016-17 - 99.32%. 2 failures based on 293 WW EPA discharges • 2017-18 - 98.38%. 5 failures based on 309 WW EPA discharges • 2018-19 - 99.03%. 3 failures based on 309 WW EPA discharges • 2019-20 - 99.03%. 3 failures based on 309 WW EPA discharges AMP7 onwards is based on WTW and WSW discharges: • 2020-21 - 98.17%. 6 failures based on 328 total EPA discharges • 2021-22 - 98.48%. 5 failures based on 328 total EPA discharges • 2022-23 - 98.78%. 4 failures based on 328 total EPA discharges • 2023-24 - 99.09%. 3 failures based on 328 total EPA discharges • 2024-25 - 99.08%. 3 failures based on 325 total EPA discharges • 2025 onwards - 99.08%. 3 failures based on 325 total EPA discharges	Asset health: treatment works compliance is a common PC. The penalty rate applies from the target to the underperformance collar. The penalty incentive rate will be split to apply half to the PE of treatment works and half to each treatment works. This is detailed further in T.A.6.2. * *We have amended the incentive rate as per SRN.OC.A35*

	* *We have updated our 18/19 target to reflect recent performance.*	
Water supply resilience	No data available for AMP6. AMP7 profile is a cumulative linear projection based on our Network 2030 programme. We have set an ambitious glide path to achieve 90% effectiveness by 2025 which is close to the maximum attainable level. We will sustain this performance in the long term.	n/a
Properties at risk of receiving low pressure	AMP6 figures are from our Annual Performance Report. AMP7 onwards is a flat projection at 257 properties on DG2 register, consistent with customer expectations of no deterioration. * *We have updated current and forecasts based on latest information*	n/a
External Sewer Flooding	Data for 2016-17 onwards is based on the new shadow reporting method, which includes severe weather. Projections for 2018-19 are based on activities to improve performance. Improvements are to target above average performance by the end of 2024-25, with the industry average assumed to improve by 2% per year. From 2025-26 onwards targets are estimated projections of our long term ambitions and should be treated as indicative only. * *We have updated our 18/19 and 19/20 targets to reflect recent performance.* * *We have updated our targets, caps and collars as per SRN.OC.A76.*	External sewer flooding is an asset health PC. The penalty incentive rate applies from the target to the underperformance collar and the outperformance incentive rate applies from the target to the outperformance cap. These are derived from our marginal cost (EP) and our marginal benefit (ER). The method we have used to derive the marginal benefit and marginal cost is explained in TA.6.1. We have two sets of benefit valuations for internal sewer flooding, we have used the sliders research absolute value to derive our marginal benefit and half of the marginal benefit from sewer collapses. We have transferred the benefit from sewer collapses as flooding is the main customer outcome from a sewer collapse. See TA.6.2. for detailed information for each individual PC.

		* *We have updated our incentive rates and marginal benefits as per SRN.OC.A3 and SRN.OC.A75.* * *We have updated the marginal costs to share with external sewer flooding as per SRN.OC.A3*
Combined Sewer Overflows (CSO) monitoring	Target is for 100% by the end of AMP7 and to keep this for the long term. Data not available before 2015.	n/a
Natural Capital	The target for AMP7 is based on having natural capital accounts for 3 out of 10 of our catchments	n/a
Gap Sites	We are currently unable to set a levels based target as we are unable to define an appropriate metric to track our gap sites performance. We do not have any historic, comparative, willingness to pay or other information to measure gap site performance or an appropriate target level. We will gather appropriate data in the final two years of AMP6, and baseline our performance from the first year of AMP7. We are committing to a 1.25% year on year improvement on the measure we define.	n/a
Thanet Sewers	This is a cost adjustment claim where the 2024-25 target is based on delivery of the scheme.	Thanet sewers is a bespoke PC associated with our cost adjustment claim. The penalty incentive rate is derived from the amount of our CAC. See TA.6.2. for detailed information for each individual PC. * *We have updated as per CAC updates and added a delay penalty*
Distribution Input	The performance from 2010-11 to 2017/18 is actual distribution input from our Annual Performance Reports and June Returns. The targets from 2018-19 onwards are based on our WRMP.	n/a

Value for Money	* *We have kept this performance commitment as per SRN.OC.A1.*	n/a
Priority services register	* *We have included this performance commitment as per SRN.AV.A2*	n/a
Large new water resource schemes	* *We have included this performance commitment as per SRN.CE.A2*	* *The penalty incentive is derived from the amount spent on the scheme. Further, we have added a delay penalty for added customer protection.*
Long term supply demand schemes	* *We have included this performance commitment as per SRN.CMI.A3*	* *The penalty incentive is derived from the amount spent on the scheme. Further, we have added a delay penalty for added customer protection.*

** App1a – Outcome delivery incentive (ODI) additional information	
Line description	Commentary
All PCs	** *All information set out in the table is supporting information for table APP1*
Column 14: Triangulated WTP / Marginal benefits estimate	** *All information is derived from our most recent triangulated benefits as explained in SRN.OC.A3. On a per household level using financial year average household figures.*
Column 15: Marginal Costs	** *This is as column 154 in APP1 and is detailed further in SRN.OC.A3*
Column 16: Number of households	** *These are our 2017/18 financial year average total connected properties for water and wastewater*
Column 17: Totex sharing rate	** *We have inputted 50% sharing rate as standard, albeit line 12: "Improve the number of Bathing water to at least 'Good' (Cost adjustment claim)" we have explained in SRN.OC.A55 why the sharing rate is 0% on this commitment*
Column 18: Type of ODI rate formula	** *This is a drop down, we have used a standard formula where possible, the only reasons being where MC>MB, we have no WTP or it's a unique scheme specific ODI (such as a CAC)*
Column 19: Reason for using alternative formula	** *The reasons where we have not used a standard formula are where MC>MB, we have no WTP or it's a unique scheme specific ODI (such as a CAC)*
Column 20: Alternative formula	** *We have used a cost-only ODI rate formula where we have not used the standard ODI rate formula*
Column 21: Chosen Underperformance Penalty incentive rate	** *This is derived from column 97 in APP1*

Column 23: Reason for any difference between columns 21 and 22	** *Reasons are explained where further information is needed above column 19*
Column 25: Type of ODI rate formula	** *We have used the standard ODI rate for all outperformance incentives*
Column 28: Chosen outperformance payment incentive rate	** *This is derived from column 101 in APP1*
Column 32: Other standard ODI rates proposed by the company	** *The ODIs are more complex or there is an additional incentive on the commitment this is explained*

** App1b – PC and ODI Supplemental Measurement Information	
PC name	Commentary
All PCs	** *All information is as per APP1 unless stated otherwise.*
Line 37 External sewer flooding	** We *have normalised the targets, caps and collars. The property information used was as per WWS3 for each year until 2024/25, to normalise future years, 2024/25 property umbers have been used. The incentive rate has been updated to reflect the normalisation of the targets.*

* App2 – Leakage additional information and old definition reporting		
Line description		Commentary
A	Leakage: new definition reporting	
1	Leakage region 1 or whole company	Whole Company
2	Upper limit of sustainable economic level of leakage (SELL)	This data is based on uplifted AMP6 shadow leakage methodology.
3	Central point of sustainable economic level of leakage (SELL)	
4	Lower limit of sustainable economic level of leakage (SELL)	
5	WRMP leakage targets	Higher leakage in 2018/19 is forecast, based on a long term projection from 2016/17 (111 Ml/d) to 19/20 (105.4 Ml/d). The shadow leakage performance (102.6 Ml/d) in 17/18 was lower than the expected forecast; as shadow leakage is a new measure we aren't able to confirm this trend will continue and so have kept future years (to 2045) aligned to the long term projection.
6	Leakage/property/day	
7	Leakage/km of main/day	

8	Total connected properties at year end	* *Data taken from equivalent lines in WS3 (line 8) and WN2 (line 1)*
9	Total length of potable mains as at 31 March	* *Data taken from equivalent lines in WS3 (line 8) and WN2 (line 1)*
B	PR14 measurement of leakage: old definition reporting	
37	Leakage region 1 or whole company	Whole Company
38	Leakage	* *Higher leakage in 2017/18 was due to the impact of the freeze thaw. The 2018/19 figure updated based on current performance. We have recognised that we have had recent poor performance for leakage and have undertaken investigations to establish the root cause. This investigation has highlighted a Meter Under Registration (MUR) issue which will see the 18/19 figure reduce. We will update later this year once this figure has been independently validated. Beside MUR we recognise that we need to improve leakage performance. In February 2019 our board approved measures to improve our performance and the 2019/20 Figure has been updated based on this (including an assumption for MUR). However it was recognised by our Board that this programme would not achieve the AMP6 target but would allow the AMP7 target to be achieved.*
39	Central point of sustainable economic level of leakage (SELL)	Post 2020 data comes from WRMP tables, pre AMP 7 uses actuals up to and including 2017/18 and WRMP14 forecast for 2018-2020
C	Per capita consumption (old definition)	
49	Per capita consumption (PCC)	Annual variability in PCC is reflected in the remaining AMP6 forecast.
D	PR14 measurement of supply interruptions (old definition)	
50	4 - Average minutes per property lost through water supply interruptions of greater than 3 hrs.	Increase in 17/18 due to the freeze thaw event.
E	PR14 measurement of internal sewer flooding incidents (old definition)	
51	2 - The total number of internal flooding incidents (all causes, including private sewers)	* *Update following industry wide target set by Ofwat – Action: SRN.OC.A17*

App3 – Abstraction Incentive Mechanism - surface and ground water abstractions under the AIM threshold	
Abstraction site name	Contextual information relating to AIM performance
Hampshire water efficiency mechanism (Totford)	The Totford scheme runs in AMP6 only and assumes that 0.1 Ml/d savings are made a day from scheme to the end of AMP

Otterbourne & Twyford	The Itchen scheme changes in AMP7 to reflect an additional 450 Ml reduction in September each year. 17/18 performance was impacted by an abstraction meter inaccuracy which has been rectified. Penalty and reward are aligned with an average daily target of 15 Ml/d during September. Assumes that 17/18 totals are continued savings to the end of AMP.

* App4 – Customer metrics		
Line description		Commentary
* *Note, this table has been updated in response to IAP action SRN.AV.2.*		
A	Affordability	
1	Real bill profile tested with customers from 2020-2021 to 2024-2025	* *AMP7 Bill profile data used as part of the customer research.*
2	Real bill profile tested with customers beyond 2025	* *New requirement relates to AMP8 bill profile used to test customer affordability. Note AMP8 bill profile data not used in research. Specific points:* *1. Our longer term affordability testing (i.e. beyond 2025) has been through qualitative work with a perception that bills are likely to remain flat in real terms.* *2. We have not tested specific values, but given the view customers find bills affordable today and there are not predications of notable increases to customers, testing the values is unlikely to provide high quality insight.* *3. Our qualitative work with customers and stakeholders is very clear – that if bills remain relatively stable (or reduce) then bills are likely to remain affordable.*
4	Customers finding their combined bills affordable: (b) for companies who charge for both water and wastewater (WaSCs)	* *Baseline data sourced for 17/18 via customer research. Indication through Acceptability testing that no significant deviation from the baseline is expected unless impacted by material economic changes. With increased focus on Affordability and Vulnerability in the AMP7 period this measure should improve. 5% improvement from the baseline by the end of the AMP7 period is realistic. This represents a year on year 1% increase from the end of 2019/20.* *New requirement in February 2019 to extend the forecast to the end of the AMP8 period. Use increase of 1% for each of the AMP8 years.*
7	Customers finding their combined bills acceptable: (b) for companies who charge for both water and wastewater (WaSCs)	* *Baseline data sourced for 17/18 via customer research. Indication through Acceptability testing that no significant deviation from the baseline is expected unless impacted by material economic changes. With CMEX related focus in AMP7 that this measure should improve. 5% improvement from the baseline by the end of the AMP7 period is realistic. This represents a year on year 1% increase from the end of 2019/20.*

		New requirement in February 2019 to extend the forecast to the end of the AMP8 period. Use increase of 1% for each of the AMP8 years.
9	Total value of social tariff discounts (excluding WaterSure)	** New requirement following the Initial Assessment of Plans.* *Profile of Essentials Tariffs for AMP7 already part of the Business Plan submission. The new requirement covers an extension of the forecast through to the end of the AMP8 period. Following information sourced:* *1. Average charge details covering the AMP7 period* *2. Split of Essentials tariff by charging type (water, sewerage and combined)* *3. Average discount of 25% for customers on the Essentials tariff* *Based on the above data a profile of discounted values was calculated for the period 2019/20 through to 2024-25.* *For the prior year periods, the same methodology was used by taking the profile of Essentials customers and the average bills per year and then applying 25% discount*
10	Cost of social tariff cross-subsidy (per customer)	** New requirement following the Initial Assessment of Plans.* *Value of annual discounts for Essentials customers sourced from Line ID 9.* *Discounted values divided by charge connection counts less void connections.*
11	Cost of company contribution to social tariff (per customer)	** No company contribution to the Essentials tariff*
12	Number of customers receiving social tariffs (excluding WaterSure)	** Profile of Essentials tariff for AMP7 part of the original Business Plan submission. Projections for AMP8 agreed*
13	Total value of WaterSure and WaterSure Plus discounts	** New requirement following the Initial Assessment of Plans* *Profile of Watersure Tariffs for AMP7 already part of the Business Plan submission. The new requirement covers an extension of the forecast through to the end of the AMP8 period.* *Following information sourced:* *1) Average charge details covering the AMP7 period* *2) Discounted values for Watersure customers for 19/20 by charging segment* *3) Apportionment of 18/19 Watersure customers by charging segment* *Based on the above data a profile of discounted values was calculated for the period 2019/20 through to 2024-25 based on the percentage movement in average bills and applying this percentage movement to the baseline discounted values for 19/20.*

		For the prior year periods, the same methodology was used by taking the profile of Watersure customers and the average bills per year and then applying the percentage movement in average bills to the baseline Watersure discounted values.
14	Cost of WaterSure and WaterSure Plus cross-subsidy (per customer)	* *New requirement following the Initial Assessment of Plans.* *Value of annual discounts for Essentials customers sourced from Line ID 13* *Discounted values divided by charge connection counts less void connections.*
15	Number of customers receiving WaterSure and WaterSure Plus	* *Profile of Watersure tariff for AMP7 part of the original Business Plan submission.*
16	Total value of hardship funds	* *Nil return as SW does not and has no plans to operate a Hardship Fund*
17	Number of customers receiving hardship funds	* *Nil return as SW does not and has no plans to operate a Hardship Fund*
18	Total value of payment matching support	* *Data provided by Finance team relating to value of payments matched for New Start customers. Forecast of future values calculated based on historical matching and alignment of New Start growth for AMP7/AMP8*
19	Cost of payment matching cross-subsidy	* *There is no cross subsidy for New Start customers.*
20	Number of customers receiving payment matching support	* *Profile of New Start growth for AMP7 part of the original Business Plan submission. AMP8 forecast agreed*
21	Cost of company contribution to payment matching support (per customer)	* *Based on output from Line ID 18 and divided by household customer portfolio less void connections*
B	Vulnerability	
22	Customers aware of the non-financial vulnerability assistance measures offered	* *Baseline data sourced for 17/18 via customer research. Linked forecast to the growth in the Priority Services Register customer numbers due to focus in this area (APP4 Line 23). Forecast assumes a ratio of 3:1 in terms of increased customer awareness and actual customer PSR growth. Workings uploaded to Share Point* *New requirement in February 2019 to extend the forecast to the end of the AMP8 period. Existing agreed methodology extended to cover the AMP8 period.*
	PSR customers - there may be more than one customer per HH but we don't have that level of detail available and have calculated the below as % of HH billed.	

23	Customers on Special Assistance Register/ Priority Service Register (SAR/PSR)	*The baseline overall count for 2017/18 was sourced from the Priority Services Register. For forecasting through to 2024/25, a profiled growth to reach 7% of property connections by the end of AMP7 was calculated. This aligns to Ofwat's feedback through the Initial Assessment of Plans For the AMP8 period further annual growth of 0.5%.
24	Customers on Special Assistance Register/ Priority Service Register (SAR/PSR)	*Derived from Line ID 23 and calculated as a percentage of all Household property connections in the SW region less void connections
25	Customers receiving services through the SAR/PSR: (a) support with communication	*Data sourced from Line B23 and then mapped across to segmented support types
26	Customers receiving services through the SAR/PSR: (b) support with mobility and access restrictions	
27	Customers receiving services through the SAR/PSR: (c) support with supply interruption	
28	Customers receiving services through the SAR/PSR: (d) support with security	
29	Customers receiving services through the SAR/PSR: (e) support with 'other needs'	*Table entries set to zero as undefined for line ID B29.
30	Customers satisfied that the services are easy to access	*Baseline data sourced for 17/18 via customer research. 20% improvement from the baseline was achievable by the end of the AMP7 period. The profile of the forecast is linear based. *New requirement in February 2019 to extend the forecast to the end of the AMP8 period. Use increase of 1% for each of the AMP8 years.
31	Customers on SAR/PSR contacted over the previous two years to ensure they are still receiving the right support	*Entries aligned to Ofwat's feedback through the Interim Determination process to ensure all customers on the PSR are contacted over a 2 year period. The initial year (2018/19) has been set against forecast customer checks.

* App5 - PR14 reconciliation – performance commitments	
Line description	Commentary
As a general approach to forecasting these numbers, we began by considering our performance in the AMP to date. We then took into consideration any remedial activity or projects which would impact the outcome to forecast our performance. The final forecasts were signed off by subject matter experts within the operational directorates of the business and have been reviewed by PwC for reasonableness. *For the IAP submission, where there were material differences in the initial business plan submission, a most likely forecast has been submitted. This may change for the 15th of July submission as information is assured.	

PR14SRNWSW_3	3: Leakage (including customer supply-pipe leakage) - five-year average target	* *We recognise an increasing trajectory in leakage in between 2016-17 and 2017-18. We now have a number of improvement initiatives in place, however we are still forecasting to miss our 2018-19 and 2019-20 forecasts. We are forecasting a five-year average of 91Ml/day. This is 4Ml/day above our penalty deadband and we are therefore forecasting a £2.74m penalty.*
PR14SRNWSW_4	4: Interruptions to supply	Interruptions in 17/18 were above target, resulting in a penalty. This increase was related to the freeze/thaw event in March 2018. This was an unprecedented event and we expect performance in 2018-19 and 2019-20 to be in line with our target.
PR14SRNWSW_8	8: Per capita consumption (PCC) – five-year average target	Our performance to date has consistently been better than target and the reward collar. Based on ongoing efforts, we are forecasting to remain below this collar for the remainder of the AMP, resulting in a reward based on the five year average performance.
PR14SRNWSWW_1a	1a: Category 3 pollution incidents (including transferred assets and excluding private pumping stations)	* *Due predominantly to the effects of a dry summer in 2018 the number of pollution incidents increased above the forecasts. In light of this, the 2018-19 and 2019-20 forecasts have been revised to 144 and 128 respectively.*
PR14SRNWSWW_3	3: External flooding incidents	* *Similar to Cat3 pollution incidents, the dry summer has led to an increase in sewer flooding incidents which has therefore been revised upwards for 2018-19.*
PR14SRNWSWW_4	4: Sewer blockages	* *Due to the dry summer in 2018 there has been an increase in the number of sewer blockages being reported.*
PR14SRNWSWW_5	5: Odour complaints (Portswood and Tonbridge treatment works)	We are forecasting an ODI penalty for odour complaints. There has been a delay in the delivery of our odour management project at Portswood WWTW, which has resulted in odour complaints already this year (2018-19). * *The project was completed by the end of August 2018 and it is expected that odour complaints will reduce in 2019-20.*
PR14SRNWSWW_6	6: Wastewater treatment works numeric compliance	* *For more information regarding wastewater treatment works numeric compliance, see pages 4 and 5 of our Data Assurance Summary, published on our website at southernwater.co.uk/data-assurance-summary.* *The company is revisiting the reporting of its Wastewater Treatment Works performance measures provided in previous years. Please see more detailed commentary in this regard at pages 5-6 of this document under the heading "Wastewater Treatment Works Performance Reporting".*

PR14SRNWSWW_7	7: Proportion of energy from renewable sources	* *We expect a slight reduction in our proportion of energy from renewables as a result of some delays in completing planned maintenance.*
PR14SRNWSWW_8	8: Bathing waters with 'excellent' water quality (part 1)	Due to extreme weather conditions in year 1 of the AMP we were not able to achieve our performance commitment and incurred a penalty. Performance in years 2 and 3 has been improved and while below target is within the deadband. * *We expect to exceed our target of 54 bathing waters at excellent for 2018-19 while for 2019-20 we are expecting to be below target but within the deadband.*
PR14SRNWSWW_9	9: Bathing waters with 'excellent' water quality (part 2)	* *We have been able to deliver 5 bathing waters to excellent one year ahead of schedule. This performance would attract a reward of £246 750 per bathing water per year. The total reward is therefore £1.234m.*
PR14SRNWSWW_11	11: Serious pollution incidents (Category 1 and 2 pollution incidents, as report by the EA on MD109)	* *Due predominantly to the effects of a dry summer in 2018 the number of pollution incidents increased above the forecasts. The forecasts have therefore been revised to reflect this impact.*
PR14SRNHHR_8	8: Service Incentive Mechanism (SIM)	Our SIM score has been less than our target for the whole of AMP6. While we are targeting significant improvements for 2018-19 and 2019-20, for the purposes of this submission we have been deliberately conservative in our forecast and assumed no improvement in these years, compared with 2017-18. As referenced in Chapter 17 - Accounting for Past Delivery we have forecast a target of 79 in App5 for our penalty modelling, however our internal target for SIM is a more stretching 81. Line 251/Column AG - SIM score updated from July submission to reflect availability of new information on other companies SIM scores for 2017-18.

*** App6 – PR14 reconciliation ~ sub-measures		
Line description		Commentary
9	WwTW population equivalent compliance	*** *For more information regarding wastewater treatment works numeric compliance, see pages 4 and 5 of our Data Assurance Summary, published on our website at southernwater.co.uk/data-assurance-summary.*

		The company is revisiting the reporting of its Wastewater Treatment Works performance measures provided in previous years. Please see more detailed commentary in this regard at pages 5-6 of this document under the heading "Wastewater Treatment Works Performance Reporting".

**** App7 - Proposed price limits and average bills		
Line description		Commentary
E	K factors and bioresources average revenue per tonne of dry solid	
21	Wholesale water resources k factor including PR14 reconciliation adjustments	* *Financial model output, extracted using BPT tab of Ofwat mapping tool* **** Updated in response to IAP query SRN-DD-CE-003 and following response to query SRN_11 from Ofwat.
22	Wholesale water network plus k factor including PR14 reconciliation adjustments	
23	Wholesale wastewater network plus k factor including PR14 reconciliation adjustments	
24	Wholesale bioresources average revenue per tonne of dry solids	
H	Average total bills ~ residential	
39	Average total bill ~ water	Note that water and wastewater average bills are for water only and wastewater only customers. These differ from average water and wastewater bills quoted elsewhere in our plan, which include all customers. * *Average bills have changed as a result of our revised plan.* * *Note: On 6 March 2019 Ofwat released an updated financial model, which changed the approach for allocating retail costs to customer bills. The data tables do not yet reflect the updated approach, and therefore the bills reported in Block H (calculated by embedded, protected formulas and reference to other entries in the data tables) do not reflect those calculated in the financial model and reported elsewhere in our revised plan.*
40	Average total bill ~ wastewater	
41	Average total combined bill	* *Average bills for 2018-19 and 2019-20 have been updated to reflect the final 2019-20 charges submission to Ofwat.* * *Average bills have changed as a result of our revised plan.* *On 6 March 2019 Ofwat released an updated financial model, which changed the approach for allocating retail costs to customer bills. The data tables do not yet reflect the updated approach, and therefore the bills reported in Block H (calculated by embedded, protected formulas and*

		reference to other entries in the data tables) do not reflect those calculated in the financial model and reported elsewhere in our revised plan.
J	Reprofiling	
46	Discount rate for reprofiling allowed revenue	CPIH Wholesale Wacc of 3.3%

**** App8 - Appointee financing		
Line description		Commentary
A	Financial	
1	Net debt	Opening dent (App19) less opening Cash (App12)_ deflated to 2017/18 CPIH
2	Equity dividends paid	Dividends per App20 deflated to 2017/18 CPIH. **** Updated in response to IAP query SRN-DD-CE-003 and following response to query SRN_11 from Ofwat.
11	Water ~ totex menu RCV adjustment at 2017 – 18 FYE CPIH deflated price base	**** Updated following response to query SRN_11 from Ofwat.
B	RCV Year End balances	
5 – 12	Various	Outcome from RCV feeder model
44 - 50	Various	Outcome from RCV feeder model. **** Updated following response to query SRN_11 from Ofwat.

* App9 - Adjustments to RCV from disposals of interest in land		
Line description		Commentary
A	RCV midnight adjustment ~ land sales water	
1	Forecast at previous review	PR14 water share (15.62%) of forecast land sales (£0.130m) from the Ofwat PR14 feeder model "pap_tec1412feederrcvfdsrn" as per line instruction. Inflated from 2012-13 to 2014/15 average prices.
2	Actual and current forecast sales	Land sales. Zero value for all years as per Annual Performance Report and budget
11	Water ~ NPV effect of 50% of proceeds from disposals of interest in land at 2017-18 FYA CPIH deflated price base	This figure has been updated since the July submission (0.009 to 0.008) – reason being update to indexation.
B	RCV midnight adjustment ~ land sales wastewater	

12	Forecast at previous review	PR14 wastewater share (84.38%) of forecast land sales (£0.130m) from the Ofwat PR14 feeder model "pap_tec1412feederrcvfdsrn" as per line instruction. Inflated from 2012-13 to 2014-15 average prices.
13	Actual and current forecast sales	Land sales. Zero value for all years as per Annual Performance Report and Budget.
22	Wastewater ~ NPV effect of 50% of proceeds from disposals of interest in land at 2017-18 FYA CPIH deflated price base	This figure has been updated since the July submission (0.049 to 0.047) – reason being update to indexation.

**** App10 - Financial ratios		
Line Description		Commentary
A	Financial ratios ~ Notional capital structure	
1	Gearing	Per Financial model and mapping tool – post financeability adjustments Inactive. **** Updated in response to IAP query SRN-DD-CE-003 and following response to query SRN_11 from Ofwat.
2	Interest cover	
3	Adjusted cash interest cover	
4	Adjusted cash interest cover (alternative calculation)	
5	FFO/Net Debt	
6	FFO/Net Debt (alternative calculation)	
7	Dividend cover	
8	RCF/Net Debt	
9	RCF/Capex	
10	Return on capital employed	
11	RORE	
12	Target Credit Rating	* *Referenced to result of alternative calculation of ratios. i.e. Adjusted cash interest cover (alternative calculation) average of 1.35 is below the 1.5 guidance level for a Baa1 credit rating. However, financial ratios only account for 40% of the rating so Baa1 is reasonable given remaining stability of regulatory framework and operational risk of the notional geared company. The FFO/net Debt equivalent average is 11.36% which is a comfortable BBB+*
B	Financial ratios ~Actual capital structure	
23	Gearing	Per Financial model and mapping tool – Un-notionalised and post financeability adjustments Active. **** Updated in response to IAP query SRN-DD-CE-003 and following response to query SRN_11 from Ofwat.
24	Interest cover	
25	Adjusted cash interest cover	

26	Adjusted cash interest cover (alternative calculation)	
27	FFO/Net Debt	
28	FFO/Net Debt (alternative calculation)	
29	Dividend cover	
30	RCF/Net Debt	
31	RCF/Capex	
32	Return on capital employed	
33	RORE	
34	Target credit rating	*Actual credit rating commensurate with Actual adjusted FFO/interest above 1.3 and Actual adjusted FFO/net debt above 6%

**** App11 - Income statement based on the actual company structure		
Line description		Commentary
A	Income statement ~ actual company structure	
1	Revenue	Output of financial model. **** Updated to reflect impact of additional £75m capex re IAP query SRN-DD-CE-003 and following response to query SRN_11 from Ofwat.
2	Operating expenditure	Output of financial model.
3	Depreciation	Output of financial model adjusted to align with depreciation from App 16. * *Variance in depreciation due to more sophisticated depreciation projection used in App 16 workings, taking into account levels of assets under construction, assets fully depreciated and treating capex gross of grants and contributions.* **** Updated to reflect impact of additional £75m capex re IAP query SRN-DD-CE-003 and following response to query SRN_11 from Ofwat.
4	Amortisation	Nil – all assets classified as tangible for PR19 tables.
5	Operating income	Output of financial model.
7	Other income	Output of financial model plus grants and contributions re-classified from net capex and amortisation of long-term credits including sewer adoptions.

Depreciation	2020-21	2021-22	2022-23	2023-24	2024-25
Model output	-254.582	-269.067	-280.548	-289.415	-307.519
Adjustment to align with App 16	-7.537	7.633	13.096	15.373	29.534
Income statement App11	-262.119	-261.433	-267.452	-274.041	-277.984

		Other income / 2020-21 / 2021-22 / 2022-23 / 2023-24 / 2024-25 Model output: 7.468 / 8.452 / 9.469 / 9.622 / 10.698 Reclassify grants from net capex: 43.129 / 43.351 / 43.934 / 44.512 / 44.774 Amortisation of long term creditor/adoptions: 1.504 / 1.746 / 2.060 / 2.295 / 2.469 Income statement App11: 52.101 / 53.549 / 55.462 / 56.428 / 57.941
8	Interest income	Output of financial model.
9	Interest expense	Output of financial model interest plus indexation adjusted to include interest on finance leases and amortisation of issue costs. **** Updated to reflect impact of additional £75m capex re IAP query SRN-DD-CE-003 and following response to query SRN_11 from Ofwat. **Interest expense** / 2020-21 / 2021-22 / 2022-23 / 2023-24 / 2024-25 Model output: -125.572 / -134.874 / -153.642 / -160.818 / -156.286 Issue costs and finance lease interest: 8.509 / 8.546 / 8.585 / 8.627 / 8.672 Income statement App11: -117.063 / -126.328 / -145.057 / -152.191 / -147.614
10	Interest expense related to the unwinding of discounted liabilities	Interest charge to the pension deficit, not included in the financial model.
12	Fair value gains/(losses) on derivative financial instruments	* *Assumed to be nil for forecast purposes.*
14	UK Corporation tax	* *Output of financial model.* **** Updated to reflect impact of additional £75m capex re IAP query SRN-DD-CE-003 and following response to query SRN_11 from Ofwat.
15	Deferred tax	Output of financial model. **** Updated to reflect impact of additional £75m capex re IAP query SRN-DD-CE-003 and following response to query SRN_11 from Ofwat.
B	Dividends	
17	Dividends	Output of financial model.

**** App11a - Income statement based on a notional company structure		
Line description		Commentary
Price base		
A	Income statement ~ notional company structure	
1	Revenue	Output of financial model. **** Revenue updated to reflect impact of additional £75m capex re IAP query SRN-DD-CE-003 and following response to query SRN_11 from Ofwat.
2	Operating expenditure	
3	Depreciation	Output of financial model adjusted to align with depreciation from App 16. * *Variance in depreciation due to more sophisticated depreciation projection used in App 16 workings, taking*

<table>
<tr><td></td><td></td><td>into account levels of assets under construction, assets fully depreciated and treating capex gross of grants and contributions. **** Updated to reflect impact of additional £75m capex re IAP query SRN-DD-CE-003 and following response to query SRN_11 from Ofwat.
<table>
<tr><th>Depreciation</th><th>2020-21</th><th>2021-22</th><th>2022-23</th><th>2023-24</th><th>202</th></tr>
<tr><td>Model output</td><td>-254.582</td><td>-269.067</td><td>-280.548</td><td>-289.415</td><td>-30</td></tr>
<tr><td>Adjustment to align with App 16</td><td>-7.537</td><td>7.633</td><td>13.096</td><td>15.373</td><td>2</td></tr>
<tr><td>Income statement App11a</td><td>-262.119</td><td>-261.433</td><td>-267.452</td><td>-274.041</td><td>-27</td></tr>
</table></td></tr>
<tr><td>4</td><td>Amortisation</td><td>Nil – all assets classified as tangible for PR19 tables.</td></tr>
<tr><td>5</td><td>Operating income</td><td>Output of financial model.</td></tr>
<tr><td>7</td><td>Other income</td><td>Output of financial model plus grants and contributions re-classified from net capex and amortisation of long-term credits including sewer adoptions.
<table>
<tr><th>Other income</th><th>2020-21</th><th>2021-22</th><th>2022-23</th><th>2023-24</th><th>2024-25</th></tr>
<tr><td>Model output</td><td>7.468</td><td>8.452</td><td>9.469</td><td>9.622</td><td>10.698</td></tr>
<tr><td>Reclassify grants from net capex</td><td>43.129</td><td>43.351</td><td>43.934</td><td>44.512</td><td>44.774</td></tr>
<tr><td>Amortisation of long term creditor/adoptions</td><td>1.504</td><td>1.746</td><td>2.060</td><td>2.295</td><td>2.469</td></tr>
<tr><td>Income statement App11a</td><td>52.101</td><td>53.549</td><td>55.462</td><td>56.428</td><td>57.941</td></tr>
</table></td></tr>
<tr><td>8</td><td>Interest income</td><td>Output of financial model.</td></tr>
<tr><td>9</td><td>Interest expense</td><td>Output of financial model interest plus indexation adjusted to include interest on finance leases and amortisation of issue costs. **** Updated to reflect impact of additional £75m capex re IAP query SRN-DD-CE-003 and following response to query SRN_11 from Ofwat.
<table>
<tr><th>Interest expense</th><th>2020-21</th><th>2021-22</th><th>2022-23</th><th>2023-24</th><th>202</th></tr>
<tr><td>Model output</td><td>-133.116</td><td>-141.336</td><td>-152.400</td><td>-161.905</td><td>-16</td></tr>
<tr><td>Issue costs and finance lease interest</td><td>8.509</td><td>8.546</td><td>8.585</td><td>8.627</td><td></td></tr>
<tr><td>Income statement App11a</td><td>-124.607</td><td>-132.790</td><td>-143.815</td><td>-153.278</td><td>-15</td></tr>
</table></td></tr>
<tr><td>10</td><td>Interest expense related to the unwinding of discounted liabilities</td><td>Interest charge to the pension deficit, not included in the financial model.</td></tr>
<tr><td>12</td><td>Fair value gains/(losses) on derivative financial instruments</td><td>Nil</td></tr>
<tr><td>14</td><td>UK Corporation tax</td><td>* Output of financial model. **** Updated to reflect impact of additional £75m capex re IAP query SRN-DD-CE-003 and following response to query SRN_11 from Ofwat.</td></tr>
<tr><td>15</td><td>Deferred tax</td><td>Output of financial model. **** Updated to reflect impact of additional £75m capex re IAP query SRN-DD-CE-003 and following response to query SRN_11 from Ofwat.</td></tr>
</table>

B	Dividends	
17	Dividends	Output of financial model.

**** App12 - Balance sheet based on the actual company structure		
Line Description		Commentary
A	Non-current assets ~ actual company structure	
2	Intangible assets	All assets classified as tangible for purposes of PR19 modelling and tables.
3	Investments ~ loans to group companies	Internal loan to SWSG. Assumed to be £125.037m following refinancing planned to be completed before March 2020. Model output reclassified from row 9.
4	Investments ~ other	Nil.
5	Derivative financial instruments	Nil.
6	Retirement benefit assets	Nil.
B	Current assets ~ actual company structure	
8	Inventories ~ actual company structure	Assumed constant through AMP7.
9	Trade and other receivables	Aligned to App 13 adjusted for loans to group companies, reclassified to row 3, and consolidation of the internal trade receivable from retail to wholesale as per response to query 342 published on 15 May. Note the model in un-notionalised mode calculates a different value for this internal debtor and so it does not consolidate out – the difference has been adjusted through cash for the completion of the financial statements. **** Updated to reflect impact of additional £75m capex re IAP query SRN-DD-CE-003 and following response to query SRN_11 from Ofwat.
10	Derivative financial instruments	Nil.
C	Current liabilities ~ actual company structure	
13	Trade and other payables	Aligned to App 14 adjusted for the consolidation of the internal trade receivable from retail to wholesale as per response to query 342 published on 15 May. **** Updated to reflect

Trade and other receivables	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25
Model output	504.828	516.1115	537.5718	559.0696	580.8699	602.9964
Reclassification of loan to group company	-125.037	-125.037	-125.037	-125.037	-125.037	-125.037
Internal detor wholesale to retail -consol adj	-78.450	-77.103	-79.715	-82.312	-84.874	-87.455
Model difference in wholesale debtor adjusted	0.000	-0.469	-0.464	-0.325	-0.392	-0.619
Balance Sheet App12	301.341	313.502	332.355	351.395	370.567	389.886

<table>
<tr><td></td><td></td><td>impact of additional £75m capex re IAP query SRN-DD-CE-003 and following response to query SRN_11 from Ofwat.

<table><tr><th>Trade and other payables</th><th>2019-20</th><th>2020-21</th><th>2021-22</th><th>2022-23</th><th>2023-24</th><th>2024-25</th></tr><tr><td>Model output - trade creditors</td><td>-262.369</td><td>-267.137</td><td>-270.650</td><td>-274.954</td><td>-278.321</td><td>-281.454</td></tr><tr><td>Model output - dividend creditor</td><td>0.000</td><td>-17.864</td><td>-18.459</td><td>-19.074</td><td>-19.708</td><td>-20.363</td></tr><tr><td>Internal detor wholesale to retail -consol adj</td><td>78.450</td><td>77.103</td><td>79.715</td><td>82.312</td><td>84.874</td><td>87.455</td></tr><tr><td>Balance Sheet App12</td><td>-183.919</td><td>-207.899</td><td>-209.394</td><td>-211.716</td><td>-213.155</td><td>-214.362</td></tr></table></td></tr>
<tr><td>15</td><td>Borrowings</td><td>Value of loans to be repaid in the next year (from App19) plus movements on debt issue costs and finance lease balances in the next year.
<table><tr><th>Borrowings (current)</th><th>2019-20</th><th>2020-21</th><th>2021-22</th><th>2022-23</th><th>2023-24</th><th>2024-25</th></tr><tr><td>Repayment loans following year (App19)</td><td>-189.631</td><td>-17.113</td><td>-283.484</td><td>-18.119</td><td>-18.645</td><td>-18.645</td></tr><tr><td>Amortisation of debt issue costs</td><td>-9.035</td><td>-9.035</td><td>-9.035</td><td>-9.035</td><td>-9.035</td><td>-9.035</td></tr><tr><td>Repayment/interest on finance leases</td><td>-1.317</td><td>-1.409</td><td>-1.505</td><td>-1.606</td><td>-1.290</td><td>-1.376</td></tr><tr><td>Balance Sheet App12</td><td>-199.983</td><td>-27.557</td><td>-294.024</td><td>-28.760</td><td>-28.970</td><td>-29.056</td></tr></table></td></tr>
<tr><td>16</td><td>Derivative financial instruments</td><td>Nil.</td></tr>
<tr><td>17</td><td>Current tax liabilities ~ actual company structure</td><td>Assumed constant through AMP7.</td></tr>
<tr><td>18</td><td>Provisions</td><td>Nil.</td></tr>
<tr><td>E</td><td colspan="2">Non-current liabilities ~ actual company structure</td></tr>
<tr><td>21</td><td>Trade and other payables</td><td>Long-term deposits, assumed constant through AMP7.</td></tr>
<tr><td>22</td><td>Borrowings</td><td>Output of borrowings from the model adjusted for debt issue costs, finance leases and transfer to current borrowings.
<table><tr><th>Borrowings (non-current)</th><th>2019-20</th><th>2020-21</th><th>2021-22</th><th>2022-23</th><th>2023-24</th><th>2024-25</th></tr><tr><td>Model output</td><td>-3713.13</td><td>-3701.91</td><td>-3965.24</td><td>-4264.04</td><td>-4480.12</td><td>-4539.63</td></tr><tr><td>Debt issue costs</td><td>-90.346</td><td>-81.311</td><td>-72.276</td><td>-63.241</td><td>-54.206</td><td>-45.171</td></tr><tr><td>Finance lease balance</td><td>-19.840</td><td>-18.523</td><td>-17.114</td><td>-15.609</td><td>-14.003</td><td>-18.008</td></tr><tr><td>Reclassify to short-term</td><td>199.983</td><td>27.557</td><td>294.024</td><td>28.760</td><td>28.970</td><td>29.056</td></tr><tr><td>Balance Sheet App12</td><td>-3623.330</td><td>-3774.185</td><td>-3760.601</td><td>-4314.134</td><td>-4519.357</td><td>-4573.753</td></tr></table></td></tr>
<tr><td>23</td><td>Derivative financial instruments</td><td>Assumed to be same as September 2018 balance.</td></tr>
<tr><td>24</td><td>Retirement benefit obligations</td><td>Output from model adjusted to reflect other movements in pension deficit, for example interest costs and differences between cash and current service cost. A reconciliation can be provided if required but has been excluded from here for commercial reasons.</td></tr>
<tr><td>25</td><td>Provisions</td><td>Provisions, assumed constant through AMP7.</td></tr>
</table>

<table>
<tr><td>26</td><td>Deferred income ~ G&C's</td><td>Grants and contributions based on App 28 (row 10) which are deferred on the balance sheet and amortised through other income.
<table>
<tr><th>Deferred income G&C's</th><th>2019-20</th><th>2020-21</th><th>2021-22</th><th>2022-23</th><th>2023-24</th><th>2024-25</th></tr>
<tr><td>Opening balance</td><td></td><td>-19.192</td><td>-19.856</td><td>-22.246</td><td>-26.780</td><td>-29.069</td></tr>
<tr><td>Capital contributions deferred (App 28 row 10)</td><td></td><td>-1.348</td><td>-3.157</td><td>-5.457</td><td>-3.292</td><td>-1.713</td></tr>
<tr><td>Amortised through other income</td><td></td><td>0.685</td><td>0.767</td><td>0.923</td><td>1.002</td><td>1.026</td></tr>
<tr><td>Closing balance</td><td>-19.192</td><td>-19.856</td><td>-22.246</td><td>-26.780</td><td>-29.069</td><td>-29.756</td></tr>
</table></td></tr>
<tr><td>27</td><td>Deferred income ~ adopted assets</td><td>* Creditor associated with adopted assets – capital addition included within fixed assets App 16, creditor from App 28 deferred on Balance Sheet for PR19 purposes. Under IFRS 15 this credit will be recognised as revenue, creating a non-distributable reserve.
<table>
<tr><th>Deferred income adopted assets</th><th>2019-20</th><th>2020-21</th><th>2021-22</th><th>2022-23</th><th>2023-24</th><th>2024-25</th></tr>
<tr><td>Opening balance</td><td></td><td>-64.836</td><td>-81.117</td><td>-96.870</td><td>-112.481</td><td>-127.939</td></tr>
<tr><td>Additions (App 28 row 16 + row 32)</td><td></td><td>-17.101</td><td>-16.731</td><td>-16.747</td><td>-16.750</td><td>-16.388</td></tr>
<tr><td>Amortised through other income</td><td></td><td>0.819</td><td>0.978</td><td>1.136</td><td>1.292</td><td>1.443</td></tr>
<tr><td>Closing balance</td><td>-64.836</td><td>-81.117</td><td>-96.870</td><td>-112.481</td><td>-127.939</td><td>-142.883</td></tr>
</table></td></tr>
<tr><td>28</td><td>Preference share capital</td><td>Aligned with App 18 and App 14</td></tr>
<tr><td>G</td><td colspan="2">Deferred tax ~ actual company structure</td></tr>
<tr><td>31</td><td>Deferred tax ~ actual company structure</td><td>Output of financial model. **** Updated to reflect impact of additional £75m capex re IAP query SRN-DD-CE-003 and following response to query SRN_11 from Ofwat.</td></tr>
<tr><td>I</td><td colspan="2">Equity ~ actual company structure</td></tr>
<tr><td>35</td><td>Other reserves</td><td>Nil.</td></tr>
<tr><td>J</td><td colspan="2">Wholesale and retail line item split ~ actual company structure</td></tr>
<tr><td>37</td><td>Retained profits ~ wholesale</td><td>Output of financial model adjusted for combination of the changes highlighted above **** Updated to reflect impact of additional £75m capex re IAP query SRN-DD-CE-003 and following response to query SRN_11 from Ofwat.</td></tr>
<tr><td>38</td><td>Retained profits ~ residential retail</td><td>Output from financial model. **** Updated to reflect impact of additional £75m capex re IAP query SRN-DD-CE-003 and following response to query SRN_11 from Ofwat.</td></tr>
<tr><td>39</td><td>Retained profits ~ business retail</td><td>Nil, exited business retail market.</td></tr>
<tr><td>41</td><td>Capex creditor ~ wholesale</td><td>Output of financial model adjusted for additional finance lease in 2024-25. **** Updated to reflect impact of additional £75m capex re IAP query SRN-DD-CE-003 and following response to query SRN_11 from Ofwat.</td></tr>
</table>

		Capital creditor (wholesale) | 2019-20 | 2020-21 | 2021-22 | 2022-23 | 2023-24 | 2024-25 Model output | -73.528 | -78.4538 | -101.603 | -105.57 | -85.9858 | -81.9288 New finance lease | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 5.295 Balance Sheet App12 | -73.528 | -78.454 | -101.603 | -105.570 | -85.986 | -76.634
42	Capex creditor ~ residential retail	Output from financial model. **** Updated to reflect impact of additional £75m capex re IAP query SRN-DD-CE-003 and following response to query SRN_11 from Ofwat.
43	Capex creditor ~ business retail	Nil, exited business retail market.
45	Cash and cash equivalents ~ wholesale	Output of financial model adjusted by cash impact of adjustments to trade payables, pensions and finance leases as described above. **** Updated to reflect impact of additional £75m capex re IAP query SRN-DD-CE-003 and following response to query SRN_11 from Ofwat.
46	Cash and cash equivalents ~ residential retail	Output of financial model adjusted by cash impact of adjustments to pensions as described above. **** Updated to reflect impact of additional £75m capex re IAP query SRN-DD-CE-003 and following response to query SRN_11 from Ofwat.
47	Cash and cash equivalents ~ business retail	Nil, exited business retail market.

**** App12a - Balance sheet based on a notional company structure		
Line	Description	Commentary
A	Non-current assets ~ notional company structure	
2	Intangible assets	All assets classified as tangible for purposes of PR19 modelling and tables.
3	Investments ~ loans to group companies	Internal loan to SWSG. Assumed to be £125.037m following refinancing planned to be completed before March 2020. Model output reclassified from row 9.
4	Investments ~ other	Nil.
6	Retirement benefit assets	Nil.
B	Current assets ~ notional company structure	
8	Inventories	Assumed constant through AMP7.
9	Trade and other receivables	Output from the financial model adjusted for reclassifications and consolidation of the internal debtor between wholesale and retail as shown below. **** Updated to reflect impact of additional £75m capex re IAP query SRN-DD-CE-003 and following response to query SRN_11 from Ofwat.

<table>
<tr><td></td><td></td><td>
<table>
<tr><th>Trade and other receivables</th><th>2019-20</th><th>2020-21</th><th>2021-22</th><th>2022-23</th><th>2023-24</th><th>2024-25</th></tr>
<tr><td>Model output</td><td>504.828</td><td>515.643</td><td>537.108</td><td>558.745</td><td>580.478</td><td>602.377</td></tr>
<tr><td>Reclassification of loan to group company</td><td>-125.037</td><td>-125.037</td><td>-125.037</td><td>-125.037</td><td>-125.037</td><td>-125.037</td></tr>
<tr><td>Internal detor wholesale to retail -consol adj</td><td>-78.450</td><td>-77.103</td><td>-79.715</td><td>-82.312</td><td>-84.874</td><td>-87.455</td></tr>
<tr><td>Minor rounding</td><td>0.000</td><td>0.000</td><td>0.000</td><td>0.000</td><td>0.000</td><td>0.000</td></tr>
<tr><td>Balance Sheet App12a</td><td>301.341</td><td>313.502</td><td>332.355</td><td>351.395</td><td>370.567</td><td>389.885</td></tr>
</table>
</td></tr>
<tr><td>C</td><td colspan="2">Current liabilities ~ notional company structure</td></tr>
<tr><td>13</td><td>Trade and other payables</td><td>Output from the financial model adjusted for the consolidation of the internal creditor between wholesale and retail as shown below. **** Updated to reflect impact of additional £75m capex re IAP query SRN-DD-CE-003 and following response to query SRN_11 from Ofwat and following response to query SRN_11 from Ofwat.
<table>
<tr><th>Trade and other payables</th><th>2019-20</th><th>2020-21</th><th>2021-22</th><th>2022-23</th><th>2023-24</th><th>2024-25</th></tr>
<tr><td>Model output - trade creditors</td><td>-262.369</td><td>-267.137</td><td>-270.65</td><td>-274.954</td><td>-278.321</td><td>-281.454</td></tr>
<tr><td>Model output - dividend creditor</td><td>0.000</td><td>0.000</td><td>0.000</td><td>0.000</td><td>0.000</td><td>0.000</td></tr>
<tr><td>Internal detor wholesale to retail -consol adj</td><td>78.450</td><td>77.103</td><td>79.715</td><td>82.312</td><td>84.874</td><td>87.455</td></tr>
<tr><td>Roundings</td><td>0.000</td><td>0.000</td><td>0.001</td><td>0.000</td><td>0.000</td><td>0.000</td></tr>
<tr><td>Balance Sheet App12a</td><td>-183.919</td><td>-190.034</td><td>-190.933</td><td>-192.642</td><td>-193.447</td><td>-193.999</td></tr>
</table>
</td></tr>
<tr><td>15</td><td>Borrowings</td><td>Amortisation of issue costs and movement on finance leases.
<table>
<tr><th>Borrowings (current)</th><th>2019-20</th><th>2020-21</th><th>2021-22</th><th>2022-23</th><th>2023-24</th><th>2024-25</th></tr>
<tr><td>Amortisation of debt issue costs</td><td>-9.035</td><td>-9.035</td><td>-9.035</td><td>-9.035</td><td>-9.035</td><td>-9.035</td></tr>
<tr><td>Repayment/interest on finance leases</td><td>-1.317</td><td>-1.409</td><td>-1.505</td><td>-1.606</td><td>-1.290</td><td>-1.376</td></tr>
<tr><td>Balance Sheet App12a</td><td>-10.352</td><td>-10.444</td><td>-10.540</td><td>-10.641</td><td>-10.325</td><td>-10.411</td></tr>
</table>
</td></tr>
<tr><td>17</td><td>Current tax liabilities</td><td>Assumed constant through AMP7.</td></tr>
<tr><td>18</td><td>Provisions</td><td>Nil.</td></tr>
<tr><td>E</td><td colspan="2">Non-current liabilities ~ notional company structure</td></tr>
<tr><td>21</td><td>Trade and other payables</td><td>Long-term deposits, assumed constant through AMP7.</td></tr>
<tr><td>22</td><td>Borrowings</td><td>Output of borrowings from the model adjusted for debt issue costs, finance leases and transfer to current borrowings.</td></tr>
</table>

<table>
<tr><td></td><td></td><td>
<table>
<tr><th>Borrowings (non-current)</th><th>2019-20</th><th>2020-21</th><th>2021-22</th><th>2022-23</th><th>2023-24</th><th>2024-25</th></tr>
<tr><td>Model output</td><td>-3286.980</td><td>-3316.819</td><td>-3347.553</td><td>-3379.209</td><td>-3411.815</td><td>-3445.399</td></tr>
<tr><td>Debt issue costs</td><td>-90.346</td><td>-81.311</td><td>-72.276</td><td>-63.241</td><td>-54.206</td><td>-45.171</td></tr>
<tr><td>Finance lease balance</td><td>-19.840</td><td>-18.523</td><td>-17.114</td><td>-15.609</td><td>-14.003</td><td>-18.008</td></tr>
<tr><td>Reclassify to short-term</td><td>10.352</td><td>10.444</td><td>10.540</td><td>10.641</td><td>10.325</td><td>10.411</td></tr>
<tr><td>Balance Sheet App12a</td><td>-3386.815</td><td>-3406.209</td><td>-3426.404</td><td>-3447.419</td><td>-3469.699</td><td>-3498.167</td></tr>
</table>
</td></tr>
<tr><td>24</td><td>Retirement benefit obligations</td><td>Output from model adjusted to reflect other movements in pension deficit, for example interest costs and differences between cash and current service cost. A reconciliation can be provided if required but has been excluded from here for commercial reasons.</td></tr>
<tr><td>25</td><td>Provisions</td><td>Provisions, assumed constant through AMP7.</td></tr>
<tr><td>26</td><td>Deferred income ~ G&C's</td><td>Grants and contributions based on App 28 (row 10) which are deferred on the balance sheet and amortised through other income.
<table>
<tr><th>Deferred income G&C's</th><th>2019-20</th><th>2020-21</th><th>2021-22</th><th>2022-23</th><th>2023-24</th><th>2024-25</th></tr>
<tr><td>Opening balance</td><td></td><td>-19.192</td><td>-19.856</td><td>-22.246</td><td>-26.780</td><td>-29.069</td></tr>
<tr><td>Capital contributions deferred (App 28 row10)</td><td></td><td>-1.348</td><td>-3.157</td><td>-5.457</td><td>-3.292</td><td>-1.713</td></tr>
<tr><td>Amortised through other income</td><td></td><td>0.685</td><td>0.767</td><td>0.923</td><td>1.002</td><td>1.026</td></tr>
<tr><td>Closing balance</td><td>-19.192</td><td>-19.856</td><td>-22.246</td><td>-26.780</td><td>-29.069</td><td>-29.756</td></tr>
</table>
</td></tr>
<tr><td>27</td><td>Deferred income ~ adopted assets</td><td>* Creditor associated with adopted assets – capital addition included within fixed assets App 16, creditor from App 28 deferred on Balance Sheet for PR19 purposes. Under IFRS 15 this credit will be recognised as revenue, creating a non-distributable reserve.
<table>
<tr><th>Deferred income adopted assets</th><th>2019-20</th><th>2020-21</th><th>2021-22</th><th>2022-23</th><th>2023-24</th><th>2024-25</th></tr>
<tr><td>Opening balance</td><td></td><td>-64.836</td><td>-81.117</td><td>-96.870</td><td>-112.481</td><td>-127.939</td></tr>
<tr><td>Additions (App 28 row 16 + row 32)</td><td></td><td>-17.101</td><td>-16.731</td><td>-16.747</td><td>-16.750</td><td>-16.388</td></tr>
<tr><td>Amortised through other income</td><td></td><td>0.819</td><td>0.978</td><td>1.136</td><td>1.292</td><td>1.443</td></tr>
<tr><td>Closing balance</td><td>-64.836</td><td>-81.117</td><td>-96.870</td><td>-112.481</td><td>-127.939</td><td>-142.883</td></tr>
</table>
</td></tr>
<tr><td>28</td><td>Preference share capital</td><td>Nil in notional structure.</td></tr>
<tr><td>G</td><td colspan="2">Deferred tax ~ notional company structure</td></tr>
<tr><td>31</td><td>Deferred tax ~ notional company structure</td><td>Output of financial model. **** Updated to reflect impact of additional £75m capex re IAP query SRN-DD-CE-003 and following response to query SRN_11 from Ofwat.</td></tr>
<tr><td>I</td><td colspan="2">Equity ~ notional company structure</td></tr>
<tr><td>35</td><td>Other reserves</td><td>Nil</td></tr>
<tr><td>J</td><td colspan="2">Wholesale and retail line item split ~ notional company structure</td></tr>
</table>

37	Retained profits ~ wholesale	Output of financial model adjusted for changes highlighted above. **** Updated to reflect impact of additional £75m capex re IAP query SRN-DD-CE-003 and following response to query SRN_11 from Ofwat.
38	Retained profits ~ residential retail	Output from financial model. **** Updated to reflect impact of additional £75m capex re IAP query SRN-DD-CE-003 and following response to query SRN_11 from Ofwat.
39	Retained profits ~ business retail	Nil, exited business retail market.
41	Capex creditor ~ wholesale	Output of financial model adjusted for additional finance lease in 2024-25. **** Updated to reflect impact of additional £75m capex re IAP query SRN-DD-CE-003 and following response to query SRN_11 from Ofwat.

Capital creditor (wholesale)	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25
Model output	-73.528	-78.4538	-101.603	-105.57	-85.9858	-81.9288
New finance lease	0.000	0.000	0.000	0.000	0.000	5.295
Balance Sheet App12	-73.528	-78.454	-101.603	-105.570	-85.986	-76.634

42	Capex creditor ~ residential retail	Output from financial model. **** Updated to reflect impact of additional £75m capex re IAP query SRN-DD-CE-003 and following response to query SRN_11 from Ofwat.
43	Capex creditor ~ business retail	Nil, exited business retail market.
45	Cash and cash equivalents ~ wholesale	Output of financial model adjusted by cash impact of adjustments to trade payables, pensions and finance leases as described above. **** Updated to reflect impact of additional £75m capex re IAP query SRN-DD-CE-003 and following response to query SRN_11 from Ofwat.
46	Cash and cash equivalents ~ residential retail	Output of financial model adjusted by cash impact of adjustments to pensions as described above. **** Updated to reflect impact of additional £75m capex re IAP query SRN-DD-CE-003 and following response to query SRN_11 from Ofwat.
47	Cash and cash equivalents ~ business retail	Nil, exited business retail market.

**** App13 - Trade receivables		
Line Description		Commentary
A	Retail	
1	Residential retail unmeasured trade receivables ~ net	Output of financial model aligned with the underlying billing, cash collection and bad debt assumptions. **** Updated to reflect impact of additional £75m capex re IAP query SRN-DD-CE-003 and following response to query SRN_11 from Ofwat

2	Residential retail measured trade receivables ~ net	Output of financial model aligned with the underlying billing, cash collection and bad debt assumptions. **** Updated to reflect impact of additional £75m capex re IAP query SRN-DD-CE-003 and following response to query SRN_11 from Ofwat.
3	Business customers / business retail unmeasured trade receivables ~ net	Nil – exited business retail market.
4	Business customers / business retail measured trade receivables ~ net	Nil – exited business retail market.
5	Retail other trade receivables ~ net	Other small retail trade debtors based on 2017-18 actuals.
6	Residential retail measured income accrual	Output of financial model aligned with the underlying billing, cash collection and bad debt assumptions. **** Updated to reflect impact of additional £75m capex re IAP query SRN-DD-CE-003 and following response to query SRN_11 from Ofwat.
7	Business customers / business retail measured income accrual	Nil
8	Prepayments and accrued income ~ retail	Nil
9	Corporation tax ~ retail	Nil
B	Wholesale	
11	Trade and other receivables ~ net	Output from financial model, includes internal debtor between wholesale and retail, external debtor for wholesale charges to retailers, other debtors and long-term inter-company debtor of £125.037m as reported in App12 row3. **** Updated to reflect impact of additional £75m capex re IAP query SRN-DD-CE-003 and following response to query SRN_11 from Ofwat.
12	Prepayments and accrued income ~ wholesale	Output from financial model, includes accrued debt for wholesale charges to retailers.
13	Wholesale ~ corporation tax	Nil

**** App14 - Trade and other payables		
Line description		Commentary
A	Trade and other payables	
1	Wholesale trade payables	Forecast projection of trade creditors based on creditor day assumption and aligned with the financial model
2	Wholesale other payables	Forecast projection of other creditors based on 2017-18 actual creditors and aligned with the financial model
4	Wholesale creditors ~ residential retail	Internal creditor – between retail and wholesale based on 1.5 months credit terms – output from financial model. **** Updated to reflect impact of additional £75m capex re query SRN-DD-CE-003 and following response to query SRN_11 from Ofwat.

5	Wholesale creditors ~ business retail	Nil – exited business retail market.
6	Retail trade payables	Forecast projection of trade creditors based on creditor day assumption and aligned with the financial model
7	Retail other payables	Forecast projection of other creditors based on 2017-18 actual creditors and aligned with the financial model
8	Residential retail unmeasured advance receipts	Output of financial model aligned with the underlying billing, cash collection and bad debt assumptions. **** Updated to reflect impact of additional £75m capex re query SRN-DD-CE-003 and following response to query SRN_11 from Ofwat.
9	Residential retail measured advance receipts	Output of financial model aligned with the underlying billing, cash collection and bad debt assumptions
10	Business customers / business retail unmeasured advance receipts	Nil – exited business retail market.
11	Business customers / business retail measured advance receipts	Nil – exited business retail market.
12	Retail Tax Credits	Nil
B	Wholesale	
16	Trade creditor days ~ water resources	We have used an underlying assumption of creditor days as 65 days of certain opex costs (e.g. excluding pay, rates, bad debt). Due to the calculation approach in the model this translates into the days presented in the table
17	Trade creditor days ~ water network plus	
18	Trade creditor days ~ wastewater network plus	
19	Trade creditor days ~ bio resources	
21	Capex creditor days ~ wholesale	*Capex creditor from App12/capex expenditure WS1 and WWS1 (net of grants and contributions to align with financial model) inflated to nominal prices. **** Updated to reflect impact of additional £75m capex re query SRN-DD-CE-003 and following response to query SRN_11 from Ofwat.
C	Retail	
26	Retail creditor months: Payment terms ~ Residential retail pays wholesaler in arrears (advance)	Set to 1.5 months
27	Retail creditor months: Payment terms ~ Business retail pays wholesaler in arrears (advance)	Nil- exited business retail market
D	Dividend creditors wholesale retail split	
28	Dividend creditors ~ wholesale	Output from the financial model. **** Updated to reflect impact of additional £75m capex re query SRN-DD-CE-003 and following response to query SRN_11 from Ofwat.
29	Dividend creditors ~ residential retail	Output from the financial model.

30	Dividend creditors ~ business retail	Nil

**** App15 - Cash flow based on the actual company structure

Line description		Commentary
B	Adjustments ~ actual company structure	
5	Changes in working capital ~ Inventories, trade and other receivables	Output from financial model adjusted for the consolidation of the internal debtor/creditor between wholesale and retail. **** Updated to reflect impact of additional £75m capex re query SRN-DD-CE-003 and following response to query SRN_11 from Ofwat.
6	Changes in working capital ~ Trade and other payables	
7	Changes in retirement benefits scheme provision	Output of financial model – adjusted by difference between current service cost and retail cash.

Changes in retirement benefits	2020-21	2021-22	2022-23	2023-24	2024-25
Model output wholesale cash	-20.455	-20.760	-21.244	-21.265	-21.565
Additional cash (retail)	-1.945	-1.940	-1.956	-1.935	-1.935
Currrent service cost (in operating profit)	5.600	5.200	4.900	4.600	4.300
Cashflow App15	-16.800	-17.500	-18.300	-18.600	-19.200

D	Interest and tax ~ actual company structure	
10	Net interest paid	Output from financial model. **** Updated to reflect impact of additional £75m capex re query SRN-DD-CE-003 and following response to query SRN_11 from Ofwat.
11	Tax paid	
F	Investing activities (net of grants and contributions) ~ actual company structure	
13	Net capex	* *Output from financial model, adjusted for grants and contributions which have been reclassified as other income.* **** Updated to reflect impact of additional £75m capex re query SRN-DD-CE-003 and following response to query SRN_11 from Ofwat.
14	Investment in other non-current assets	Nil
H	Cash flows from financing activities ~ actual company structure	
17	Equity dividends paid	Output from financial model. **** Updated to reflect impact of additional £75m capex re query SRN-DD-CE-003 and following response to query SRN_11 from Ofwat.
18	Net loans received	Output from financial model adjusted to include cash movement on finance leases
19	Cash inflow from equity financing	Nil

**** App15a - Cash flow based on a notional company structure

Line	Description	Commentary
B	Adjustments ~ notional company structure	
5	Changes in working capital ~ Inventories, trade and other receivables	Output from financial model adjusted for the consolidation of the internal debtor/creditor between wholesale and retail. **** Updated to reflect impact of additional £75m capex re query SRN-DD-CE-003 and following response to query SRN_11 from Ofwat.
6	Changes in working capital ~ Trade and other payables	
7	Changes in retirement benefits scheme provision	Output of financial model – adjusted by difference between current service cost and retail cash.
D	Interest and tax ~ notional company structure	
10	Net interest paid	Output from financial model. **** Updated to reflect impact of additional £75m capex re query SRN-DD-CE-003 and following response to query SRN_11 from Ofwat.
11	Tax paid	
F	Investing activities (net of grants and contributions) ~ notional company structure	
13	Net capex	* *Output from financial model, adjusted for grants and contributions which have been reclassified as other income.* **** Updated to reflect impact of additional £75m capex re query SRN-DD-CE-003 and following response to query SRN_11 from Ofwat.
14	Investment in other non-current assets	Nil
H	Cash flows from financing activities ~ notional company structure	
17	Equity dividends paid	Output from financial model. **** Updated to reflect impact of additional £75m capex re query SRN-DD-CE-003 and following response to query SRN_11 from Ofwat.
18	Net loans received	Output from financial model adjusted to include cash movement on finance leases
19	Cash inflow from equity financing	Nil

**** App16 - Tangible fixed assets		
Line	Description	Commentary
A	Fixed asset cost at 31 March	
1	Fixed asset cost at 31 March ~ wholesale water resources	March 20 position is based on 2017-18 actual position and projections for capex additions in WS1 and WWS1 for 2018-19 and 2019-20.
2	Fixed asset cost at 31 March ~ wholesale water network plus	

3	Fixed asset cost at 31 March ~ wholesale wastewater network plus	
4	Fixed asset cost at 31 March ~ wholesale bioresources	
6	Fixed asset cost at 31 March ~ residential retail	
7	Fixed asset cost at 31 March ~ business retail	
8	Total fixed asset cost at 31 March	
B	Fixed asset additions in the year	
9	Fixed asset additions in the year ~ wholesale water resources	Additions from WS1 and WWS1 inflated to nominal prices **** Rows 9 and 10 updated to reflect impact of additional £75m capex re query SRN-DD-CE-003 and following response to query SRN_11 from Ofwat.
10	Fixed asset additions in the year ~ wholesale water network plus	
11	Fixed asset additions in the year ~ wholesale wastewater network plus	
12	Fixed asset additions in the year ~ wholesale bioresources	
14	Fixed asset additions in the year ~ residential retail	
15	Fixed asset additions in the year ~ business retail	
16	Total fixed asset additions in the year	
C	Fixed asset disposals in the year at cost	
17	Fixed asset disposals in the year at cost ~ wholesale water resources	Disposals assumed at nil – we would anticipate them to have nil book value and so have excluded from the forecast projection
18	Fixed asset disposals in the year at cost ~ wholesale water network plus	
19	Fixed asset disposals in the year at cost ~ wholesale wastewater network plus	
20	Fixed asset disposals in the year at cost ~ wholesale bioresources	
22	Fixed asset disposals in the year at cost ~ residential retail	
23	Fixed asset disposals in the year at cost ~ business retail	
24	Total fixed asset disposals in the year at cost	
D	Fixed asset accumulated depreciation at 31 March	
25	Fixed asset accumulated depreciation at 31 March ~ wholesale water resources	Depreciation calculated from projections from 2017-18 actual depreciation and assumptions regarding AUC and the timing of commissioning of capital schemes

26	Fixed asset accumulated depreciation at 31 March ~ wholesale water network plus	from 2018-19 through to 2024-25. **** Rows 25 and 26 updated to reflect impact of additional £75m capex re IAP query SRN-DD-CE-003 and following response to query SRN_11 from Ofwat.
27	Fixed asset accumulated depreciation at 31 March ~ wholesale wastewater network plus	
28	Fixed asset accumulated depreciation at 31 March ~ wholesale bioresources	
30	Fixed asset accumulated depreciation at 31 March ~ residential retail	
31	Fixed asset accumulated depreciation at 31 March ~ business retail	
32	Total fixed asset accumulated depreciation at 31 March	
F	Average asset lives for all fixed assets ~ legacy assets plus new additions	
41	Average asset lives for all fixed assets ~ wholesale water resources	*Calculated based on approach used in financial model: * *(brought forward net book value + additions x 50%) / depreciation charge*
42	Average asset lives for all fixed assets ~ wholesale water network plus	
43	Average asset lives for all fixed assets ~ wholesale wastewater network plus	
44	Average asset lives for all fixed assets ~ wholesale bioresources	
46	Average asset lives for all fixed assets ~ residential retail	
47	Average asset lives for all fixed assets ~ business retail	
48	Total average asset lives for all fixed assets ~ legacy assets plus new additions	
G	Accumulated Depreciation	
49	Include accumulated depreciation in financial model	Set to yes

App17 - Appointee revenue summary

Table auto-populates.

**** App18 - Share capital and dividends

Line description		Commentary
A	Equity shares	
1	Nominal share value	Per 2018 Annual Report – no future changes assumed
2	Closing number of ordinary shares	
4	Number of ordinary shares issued in the year	
5	Share premium	
B	Equity dividends	
7	Special ordinary dividend declared per share	None
8	Ordinary dividend	Assumed 2.4% real on actual regulated equity (dividend retained to finance RCV growth).
9	Dividend yield	*Assume 1.3%. **** Updated in response to IAP query SRN-DD-CE-003 and following response to query SRN_11 from Ofwat.
10	Real dividend growth	Alternative to Line 8 (not used}
11	Percentage of profits distributed	Alternative to Line 8 (not used}
12	Interim dividends	None assumed
13	% of ordinary dividend paid as interim dividend	None assumed
14	% of dividends issued as scrip shares	None assumed
C	Preference shares	
15	Preference shares	Current outstanding balance – no future changes assumed
16	Preference shares issued in the year	None assumed
17	Preference shares repaid in the year	None assumed
18	Preference share dividends paid	Calculated with reference to terms of preference shares

* App19 - Debt and interest costs		
Line description		Commentary
A	Equity shares	
1	Fixed rate debt (opening)	Forecast opening debt incorporating planned financing activity to March 2020
2	Floating rate debt (opening)	Forecast opening debt incorporating planned financing activity to March 2020
3	Index-linked debt (opening)	Forecast opening debt incorporating planned financing activity to March 2020
4	Fixed rate debt issued	Assumed profile of fixed rate debt issued in order to maintain cash liquidity over the period
5	Floating rate debt issued	None assumed

6	Index-linked debt issued	None assumed
7	Fixed rate debt repaid	Repayment of maturing legacy debt outstanding at March 2020
8	Floating rate debt repaid	Repayment of maturing legacy debt outstanding at March 2020
9	Index linked debt repaid	Repayment of maturing legacy debt outstanding at March 2020
10	Indexation of index-linked loans	Value calculated by financial model based upon 3.0% RPI indexation
B	Interest rates and financing costs	
11	Interest rate for existing fixed rate debt	Weighted average interest rate from outstanding debt at March 2020
12	Interest rate for new fixed rate debt	Consistent with Final Methodology advised WACC cost of new debt
13	Interest rate for existing index-linked debt	Weighted average interest rate from outstanding debt at March 2020
14	Interest rate for new index-linked debt	Consistent with Final Methodology advised WACC cost of new debt
15	Weighted interest rate for new and existing fixed rate debt	Calculated with reference to opening debt
16	Weighted interest rate for new and existing index-linked debt	* *Calculated with reference to opening debt and new debt and incorporating the result of re-couponing inflation linked derivatives as part of the strategic capital restructuring.*
17	Floating rate debt interest paid	Calculated with reference to forward swap rates
18	Bank interest rate (receivable)	Calculated with reference to forward swap rates
19	Interest receivable (other)	£nil forecast
20	Bank overdraft interest rate	Assumed to be the same cost as fixed rate debt
21	Residential retail working capital financing cost rate	
22	Business retail working capital financing cost rate	
C	Adjustments for reconciliation with balance sheet	
23	Fixed rate debt adjustment for reconciliation with balance sheet	No variance
24	Floating rate debt adjustment for reconciliation with balance sheet	No variance
25	Index-linked debt adjustment for reconciliation with balance sheet	No variance
26	Other adjustment for reconciliation with balance sheet	* *Balance of unamortised costs, premiums, fees and leases and reconciling items to FRS101*

*** App21 - Direct procurement for customers
Commentary
*** *Our technical assessment and value for money assessment found three schemes suitable for DPC delivery: Fawley desalination plant, Peacehaven indirect potable re-use, and Slowhill Copse industrial re-use. Peacehaven and Slowhill Copse are in our WRMP as strategic alternatives and Fawley has been removed from our revised plan while we engage with other water companies to determine whether other schemes selected on a regional basis would allow us to meet our statutory requirements more cheaply. For this reason, this table is currently a nil return.*

* App23 - Inflation Measures		
Line Description		Commentary
A	Retail price index	
1 - 13	RPI: Months of actual data for Financial Year Retail Price Index for each month	RPI inflation assumptions: We have used actual RPI, as pre-populated by Ofwat (to March 2018) and published by the ONS (April 2018). Our short-term monthly forecasts, from May 2018 to October 2019 (inclusive), are based on the average of inflation forecasts received from Lloyds and Barclays. Remaining months reflect a long-term forecast assumption, consistent with the underlying inflation (3.0%) implicit in the PR19 WACC. As at 9 July 2018, inflation zero coupon yields are at c.3.3% - 3.4%. These are currently priced at a premium due to demand, and therefore a forecast of c.3% appears reasonable. * *Inflation indices for May 2018 to January 2019 have been overwritten with actuals. Short-term forecasts for February 2019 to March 2020 (the end of AMP6) have been updated to reflect revised forecasts by Lloyds and Barclays. Long-term forecasts, as described above, are reflected from April 2020 onwards.*
B	Consumer price index (including housing costs)	
14-26	CPIH: Months of actual data for Financial Year Consumer Price Index including Housing for each month	CPIH inflation assumptions: Treatment and assumptions for CPIH are consistent with that documented for Block A (RPI), with the long-term assumption set at 2.0%. This reflects the long-term assumption of a 1% 'wedge' against our RPI forecast.
C	Indexation rate for linked debt percentage increase	

27	Indexation rate for linked debt percentage increase	The indexation rate for index-linked debt reflects our forecast for year-average RPI, a measure consistent with our current inflation-linked instruments. In the medium term we do not intend to raise inflation-linked debt, and therefore the introduction of CPIH through a blended rate is not necessary.
F	Long term inflation rates	
37	Long term RPI inflation rate	Long-term inflation rates. These are populated at 3.0% and 2.0%, consistent with the long-term inflation implicit in the PR19 Final Methodology indicative WACC, which we have used for all price controls

* App24 - Input proportions		
Line description		Commentary
A	Wholesale water ~ water resources	
1	Labour	Opex input proportions are derived from our bottom up detailed opex plan (as described in WS1 and WWS1) and supplemented by a 3rd party assessment of inputs on the capex programme to arrive at a blended view of input proportions. This is then presented in the relevant price controls.
2	Energy	
3	Chemicals	
4	Materials, plant and equipment	
5	Other	
B	Wholesale water ~ network plus	
7	Labour	Opex input proportions are derived from our bottom up detailed opex plan (as described in WS1 and WWS1) and supplemented by a 3rd party assessment of inputs on the capex programme to arrive at a blended view of input proportions. This is then presented in the relevant price controls.
8	Energy	
9	Chemicals	
10	Materials, plant and equipment	
11	Other	
C	Wholesale wastewater ~ network plus	
13	Labour	Opex input proportions are derived from our bottom up detailed opex plan (as described in WS1 and WWS1) and supplemented by a 3rd party assessment of inputs on the capex programme to arrive at a blended view of input proportions. This is then presented in the relevant price controls.
14	Energy	
15	Chemicals	
16	Materials, plant and equipment	
17	Other	
D	Wholesale wastewater ~ bioresources	
19	Labour	

20	Energy	Opex input proportions are derived from our bottom up detailed opex plan (as described in WS1 and WWS1) and supplemented by a 3rd party assessment of inputs on the capex programme to arrive at a blended view of input proportions. This is then presented in the relevant price controls.
21	Chemicals	
22	Materials, plant and equipment	
23	Other	
E	Residential retail	
25	Labour	Opex input proportions are derived from the detailed Retail Model cost forecast tool which has been used to populate R1.
26	Outsourced	Outsourced costs include third party contract for customer services, debt management and meter reading.
27	Bad debt charge	The bad debt charge.
28	Other	All other costs include bank charges, fees paid to water only companies for meter readings, and all other costs not included in the categories above.

App24a - Real price effects (RPEs) and efficiency gains

We note an error in the model, line 1 - Based on Ofwat guidance description in the right column 'Data Validation blocks, line 1 is to be copied from App 23 line 36. We noted that on the template, copy cells are linked to line 34 and not 36. Similarly in Block C, D, F and I - Each blocks should total to 100% and are out due to roundings. * *Apparent formula error in cells G32, G34, G41 & G42 which aren't calculating correctly and in turn impacts cells G68, G70, G77 and G78 – see query SRN_9 dated 18.03.19*

Line description		Commentary
B	Real price effects included in wholesale water resources	
2	Operating expenditure (RPEs in water resources)	CPIH applied to 2017/18 price base
3	Maintaining the long-term capability of the assets infrastructure (RPEs in water resources)	
4	Maintaining the long-term capability of the assets non-infrastructure (RPEs in water resources)	
5	Other capital expenditure ~ infra (RPEs in water resources)	
6	Other capital expenditure ~ non infra (RPEs in water resources)	
C	Real price effects included in wholesale water network plus	
7	Operating expenditure (RPEs in water network plus)	CPIH applied to 2017/18 price base
8	Maintaining the long-term capability of the assets infrastructure (RPEs in water network plus)	

9	Maintaining the long-term capability of the assets non-infrastructure (RPEs in water network plus)	
10	Other capital expenditure ~ infra (RPEs in water network plus)	
11	Other capital expenditure ~ non infra (RPEs in water network plus)	
D	Real price effects included in wholesale wastewater network plus	
12	Operating expenditure (RPEs in wastewater network plus)	CPIH applied to 2017/18 price base
13	Maintaining the long-term capability of the assets infrastructure (RPEs in wastewater network plus)	
14	Maintaining the long-term capability of the assets non-infrastructure (RPEs in wastewater network plus)	
15	Other capital expenditure ~ infra (RPEs in wastewater network plus)	
16	Other capital expenditure ~ non infra (RPEs in wastewater network plus)	
E	Real price effects included in wholesale bioresources	
17	Operating expenditure (RPEs in bioresources)	CPIH applied to 2017/18 price base
18	Maintaining the long-term capability of the assets infrastructure (RPEs in bioresources)	
19	Maintaining the long-term capability of the assets non-infrastructure (RPEs in bioresources)	
20	Other capital expenditure ~ infra (RPEs in bioresources)	
21	Other capital expenditure ~ non infra (RPEs in bioresources)	
G	Input price pressures included in business retail	
24	Total operating expenditure (IPPs in business retail)	Not applicable
25	Total capital expenditure (IPPs in business retail)	Not applicable
H	Assumed efficiency gains in wholesale water resources	
26	Operating expenditure (efficiency in water resources)	We have reviewed and challenged our efficiency on a totex level. The figures in the table reflect the total efficiency built into our plan for the whole of AMP7 and the annual figures are therefore not cumulative.
27	Maintaining the long-term capability of the assets infrastructure (efficiency in water resources)	

28	Maintaining the long-term capability of the assets non-infrastructure (efficiency in water resources)	For further information, please see the efficiency chapter. Note we updated this section of the table in line with our response to query "Query_SRN_IAP_CA_006".
29	Other capital expenditure ~ infra (efficiency in water resources)	
30	Other capital expenditure ~ non infra (efficiency in water resources)	
I	Assumed efficiency gains in wholesale water network plus	
31	Operating expenditure (efficiency in water network plus)	We have reviewed and challenged our efficiency on a totex level. The figures in the table reflect the total efficiency built into our plan for the whole of AMP7 and the annual figures are therefore not cumulative. For further information, please see the efficiency chapter. Note we updated this section of the table in line with our response to query "Query_SRN_IAP_CA_006".
32	Maintaining the long-term capability of the assets infrastructure (efficiency in water network plus)	
33	Maintaining the long-term capability of the assets non-infrastructure (efficiency in water network plus)	
34	Other capital expenditure ~ infra (efficiency in water network plus)	
35	Other capital expenditure ~ non infra (efficiency in water network plus)	
J	Assumed efficiency gains in wholesale wastewater network plus	
36	Operating expenditure (efficiency in wastewater network plus)	We have reviewed and challenged our efficiency on a totex level. The figures in the table reflect the total efficiency built into our plan for the whole of AMP7 and the annual figures are therefore not cumulative. For further information, please see the efficiency chapter. Note we updated this section of the table in line with our response to query "Query_SRN_IAP_CA_006".
37	Maintaining the long-term capability of the assets infrastructure (efficiency in wastewater network plus)	
38	Maintaining the long-term capability of the assets non-infrastructure (efficiency in wastewater network plus)	
39	Other capital expenditure ~ infra (efficiency in wastewater network plus)	
40	Other capital expenditure ~ non Infra (efficiency in wastewater network plus)	
K	Assumed efficiency gains in wholesale bioresources	
41	Operating expenditure (efficiency in bioresources)	We have reviewed and challenged our efficiency on a totex level. The figures in the table reflect the total efficiency built into our plan for the whole of AMP7 and the annual figures are therefore not cumulative. For further information, please see the efficiency chapter.
42	Maintaining the long-term capability of the assets infrastructure (efficiency in bioresources)	
43	Maintaining the long-term capability of the assets non-infrastructure (efficiency in bioresources)	

44	Other capital expenditure ~ infra (efficiency in bioresources)	Note we updated this section of the table in line with our response to query "Query_SRN_IAP_CA_006".
45	Other capital expenditure ~ non Infra (efficiency in bioresources)	
L	Assumed efficiency gains in residential retail	
46	Total operating expenditure ~ residential (efficiency in residential retail)	Residential retail opex efficiency gains have been calculated as the year on year % change in Cost to serve per customer. Total costs are Total residential retail costs (R1 row 14) excluding the pensions deficit repair costs and depreciation. Customer numbers are weighed by 1.3 for dual service customers.
47	Total capital expenditure ~ residential (efficiency in residential retail)	Residential retail capex expenditure efficiency gains have been calculated as the year on year % change in capex expenditure per customer (R1 row 15). Customer numbers are weighed by 1.3 for dual service customers.
M	Assumed efficiency gains in business retail	
48	Total operating expenditure ~ business (efficiency in business retail)	Not applicable
49	Total capital expenditure ~ business (efficiency in business retail)	Not applicable

* App25 - PR14 reconciliation adjustments summary		
Line description		Commentary
A	Further 2010-15 reconciliation adjustments	
7	Water ~ Total Adjustment RCV carry forward to PR19 at 2017-18 FYA CPIH deflated price base	** Since the September submission, we have updated our inflation forecast (see App23). This is the only source of change in the submitted figures.*
8	Water ~ Total Adjustment Revenue carry forward to PR19 at 2017-18 FYA CPIH deflated price base	
9	Wastewater ~ Total Adjustment RCV carry forward to PR19 at 2017-18 FYA CPIH deflated price base	
10	Wastewater ~ Total Adjustment Revenue carry forward to PR19 at 2017-18 FYA CPIH deflated price base	
11	Water ~ CIS RCV inflation correction at 2017-18 FYA CPIH deflated price base	

12	Wastewater ~ CIS RCV inflation correction at 2017-18 FYA CPIH deflated price base	

* App26 - RoRE Scenarios

Commentary

This commentary gives a high level description of the process used to generate individual risks the business could face in AMP 7, how they could combine to form the P10 and P90 ranges of risk as expressed by impact on RORE, and how they have been used to construct a number of scenarios specific to Southern Water. The resulting risks and scenarios have been used to inform our analysis of RORE risks, carried out by Oxera, and to inform the review of financeability, assured by KPMG. We supplied our assumptions as described below to Oxera. Oxera's Report is sent as a Technical Annex (TA.16.1) Risk Assessment: Methodology and Assumptions.

Individual risks

Development

We have consulted a wide range of sources and business experts to identify the nature and magnitude of risks to be included in the analysis. These sources are:

The existing company risk register

The uncertainty that has been considered around our PR19 totex cost forecasts, where we have forecasts for capex that reflect a c.P50 level of confidence in the costs.

Recent events within Southern Water and elsewhere in the industry, to identify sources and magnitudes of risks (for example, the recent freeze-thaw and dry weather events, recent precedent on pollution incidents and resulting fines)

Workshops to generate sources of risk relevant to the PR19 plan

We have used these inputs to generate a long list of potential risks, covering variations in volume and revenue, and a range of sources of risk to opex, capex, financing costs and ODIs. Potential areas of risk include, for example:

- Macroeconomic shocks, Power costs, Chemical costs, Business Rates , Pollution, Compliance failures, IT systems failures, Extreme weather, including "too cold", "too wet", and "too dry", Network problems resulting from deteriorating asset health conditions, Rising bad debt, Customer service performance, Developer service performance

The long list has then been discussed with business experts within Southern Water in each area. The experts have identified known examples of occurrences within or outside Southern Water to inform the magnitude of a severe but still plausible level of risk, which may be significantly larger than the precedent considered. Where there was no obvious recent precedent to draw on, judgement has been used by the experts to identify appropriate upside and downside risks.

Mitigation

In each case, the experts have considered what mitigation of the risk is available, and have adjusted the risk to allow for such mitigation having taken place in the event the risk crystalizes. It is assumed that the magnitude of the events extend beyond the ability of short term mitigation to reduce the impact, in the case of downside risks.
For example, it is possible to hedge short term fluctuation in power costs by using combinations of buying forward, options and swaps in the traded or over the counter markets. But eventually, these hedges will expire and when they need to be replaced, it may be that the cost of replacing them has increased (or decreased) unavoidably due to movements in the market prices of power.
Similarly, the company has in place a range of strategies and tools for avoiding and managing down bad debt from our retail customers. An economic downturn or a large reduction in trust in the company could nevertheless cause an increase in bad debt beyond our ability to manage the change (or conversely, could reduce bad debt in the event of positive movements).
In each case, the magnitude of the risks shown is assumed to exceed the short term ability to mitigate the effects. Totex shocks are shown before any impact of cost sharing rates.

Likelihood
For each specific risk, the experts have used judgement to identify the magnitude of a P10 (downside) and P90 (upside) event. The "centre" of the event is assumed to be what is expressed in the plan, i.e. zero totex out or underperformance, delivery performance is on target, ODIs do not trigger etc.
Oxera has then used these inputs to model the distribution of P10 and P90 RORE impacts overall.

* *In response to Ofwat feedback in the IAP we have altered the balance between the downside (P10) and upside (p90) scenarios, to make the risks more symmetric. In general we have assumed the same upside as downside for totex risks. There are however exceptions, where we believe that totex risks are skewed to the downside, such as additional totex to remedy compliance failures, or remedies for It systems problems. We have used a statistical process to determine which risks are included in the overall p10 / P90 scenario. Overall, we have included in our RoRE scenario totex downside risks of £121m, and upsides of the same magnitude, as shown in the table below. Details of this process are given below, and in our response to IAP action SRN.RR.A6.*

**We have also updated the RoRE analysis for up to date values for our ODIs and RCVs*

**Summary of all impacts included in the RoRE analysis*

* Impact	P10 impacts £m - original	P10 impacts £m - new	P90 impacts £m - original	P90 impacts £m - new
Revenue	0	0	0	0
Totex	121	121	-78	-111
Residential retail costs	30	30	0	0
ODIs	116	217	-35	-87
WaterworCX	35	35	-37	-37
Financing	28	27	-28	-27
Total	330	430	-178	-262

Specific Scenarios - Development

The individual risks and the impact data described above have been used to create a number of company-specific scenarios, that are intended to capture a narrower range of events but, where risks crystallize, they are more severe. So, for example, the single year dry weather costs identified above have been used to extend the risk to a three year long drought occurring within AMP7. A severe wet weather event is assumed to cause flooding sufficiently severe that both an important water treatment works and waste water treatment works are out of action at the same time, incurring extra remedy costs, penalty ODIs and fines for non-compliance with our permits at the treatment works.

These scenarios are intentionally downside only, in order to explore our resilience in the case of reasonably severe large scale or long duration events.

Mitigation

The scenarios generally use individual mitigated annual risks in combination, but sometimes over several years. In reality in the event of long duration incidents we anticipate we could take further action by re-prioritising activity, using learning from the early stages of a sustained event to find lower cost solutions, finding temporary solutions that increase resilience in the short term etc.

Likelihood

We have considered downside-only scenarios, so as a result the company-specific scenarios do not show upside values. We consider that, while large scale upside shocks are possible, they are both less likely and would be of smaller magnitude than downside shocks.

We do not attach a specific probability to the company specific scenarios. By combining a limited number of individual risks at the P10 level, and extending the scope and / or duration as appropriate, we are implicitly creating scenarios with a probability between p10 and P50. Since we have not added extra mitigation actions the company could take in the event of severe or extended duration events, it is likely that the probability of the company-specific scenarios is in the lower half of the P10 – P50 range.

1. P10 / P90 scenario ODIs and approach to totex shocks

The overall P10 / P90 scenario has been created by Oxera's modelling process, described in their report. We have used a statistical approach to construct an overall P10 and P90 scenario. We have considered each ODI to be represented by a series of bi-nominal distribution, and have taken the standard deviation of the distribution in order to identify how many ODIs, each individually calibrated at the P10 and P90 levels, might trigger over the five year period.

Schematic of method			
Standard deviation of binomial distribution			
In one year		**In five years**	
N = number of ODIs	= 20	N = number of ODIs observations =	100
p = number that trigger the maximum penalty, which happens with probability of 1 / 10		p = number that trigger the maximum penalty, which happens with probability of 1 / 10q	
q = 1-p			

variance	σ^2= npq	variance	= σ^2
	20 * (1/10) * (9/10)		=100 * (1/10) * (9/10)
	=1.8		=9
standard deviation	=σ	standard deviation	=σ
	=1.3		=3
centre of the distribution is 2		Centre of the distribution is 9	
At the 98% confidence level (2 standard deviations)		At the 98% confidence level (2 standard deviations)	
2 + (2 * 1.3) ODIs trigger at maximum		9 + (2 * 3) ODIs trigger at maximum	
	=4.6		=15
		Or about 3 trigger at max in each year	
		In order to show a conservative measure, choose highest value and 2 close to average	

In order to show a conservative value, we have intentionally chosen the largest ODI by absolute value, and then the remainder of the number of ODIs suggested by the statistics from the median by absolute value, and the relevant number on either side of the median.

We have adopted a similar approach in the P10 and P90 scenario for the individual totex, revenue or other cost shocks we have identified. We do not have a framework that can assign specific probabilities to the risks we identified. Instead we ranked the risk in order of absolute size, and chose all the risks in the 2nd and third quartiles as those that would be included in to overall P10 / P90 scenario.

2. Prolonged drought

Scenario: A prolonged period of drought, beginning relatively early in AMP 7, requires the implementation of drought plans for a sustained period, encompassing three dry winters and two dry summers.

Measures that we would introduce include:

- Maximising use of water import trades. These are generally higher cost sources so totex over-runs are incurred relative to the plan.

- Advertising and marketing campaigns to reduce consumption; temporary use bans and drought orders to manage supply; recommissioning of unused sources, network distribution modifications and tinkering. The magnitude has been assumed to be three times the level of the single year event contained in the P10 / P90 scenario.
- The magnitude is considered to be a conservative estimate of the costs and in reality other mitigation actions at lower cost might be found over time.

Other events that occur:
- ODI penalties are triggered and are paid out at the maximum level for water availability and service interruptions for three years
- Interruptions to supply and usage restrictions impact perceptions of customer service and the company's position on the C-Mex incentive falls, triggering additional ODI penalties of £15m.

Magnitude:
Additional totex costs: £77m
ODI Penalties including C-Mex £43m
Total: £120m

3. Severe bad weather
A period of sustained heavy rainfall causes flooding and disruption in a particular year. The combination of flooding and disruption to power supplies causes unplanned outages at a significant water treatment works and waste treatment works at the same time.

Measures that we would introduce include:
- Identify alternative sources of temporary or mobile power supply, increasing totex
- Incur additional remedy measures for both water and waste to re-direct supply, restore capacity and re-commission the affected works.

Other events that occur:
- Environmental and regulatory compliance failures cause fines from both the EA and DWI and / or Ofwat
- Flooding ODIs trigger for the waste water measures
- There is an impact on customer service and penalties are incurred via C-Mex

Magnitude:
Additional totex costs: £45m
ODI Penalties including C-Mex: £34m
Total: £79m

4. Major compliance failure
Performance deteriorates at wastewater treatment works, resulting in material compliance failures around discharge consents into the environment. The nature of the failure is such that significant unplanned expenditure is needed in multiple treatment works and supporting systems.
Other events that occur:
- The failure is sufficiently severe that Ofwat imposed fines for a breach of Licence. Fines are not subject to cost sharing. All the scenarios consider the impact of totex downsides before any cost sharing.
- Waste water compliance ODIs trigger material penalties

Magnitude:
Additional totex costs: £40m
Fine: £20m
ODI Penalties: £60m
The magnitude is derived from the events concerning Thames Water's failure to meet its leakage targets.

* App27 - PR14 reconciliation - financial outcome delivery incentives summary		
Commentary		
We have no in-period ODIs. ODI penalties and rewards and their allocation to price controls are as set out in the Table App5. Note we have not included SIM in this table, as it is separately reported in Table R10. **These calculations are based on current unaudited forecasts and may be updated for the 15th of July submission.*		
B	End of period ODI revenue adjustments by PR14 price control units (2012-13 prices)	
6	Net Performance payment/(penalty) applied to revenue at end of ODI adjustment – wholesale water	** 2017-18 data and total data updated due to SRN.PD.A1 action Ref. As a result of the freeze/thaw event in 2017-18 year, we exceeded our Interruptions to Supply deadband by 5 minutes. This results in a penalty for this year of £287k and not £294k as previously submitted. The error being the use of an incorrect incentive rate. The incorrect rate used was £58,875 per minute lost while the correct rate is £57,403 per minute lost.* *2019-20 data and total data updated due to SRN.PD.A2 action Ref. The change in this number from 6.875 to 4.138 is as a result of the forecast leakage penalty of 2.737.*
7	Net Performance payment/(penalty) applied to revenue at end of ODI adjustment – wholesale wastewater	** 2018-19 data and total data updated due to SRN.PD.A2 action Ref. The change from -1.580 to -0.346 is to reflect the forecast reward of 1.233 for achieving 5 bathing waters at excellent one year ahead of schedule.*
E	End of period ODI revenue adjustments allocated to PR19 price control units (2012-13 prices)	

23	Net Performance payment/(penalty) applied to revenue at end of ODI adjustment - Water Networks Plus	* *2017-18 data and total data updated due to action reference: SRN.PD.A1. The update included using the correct incentive rate for Interruptions to Supply.* *2019-20 data and total data updated due to action reference: SRN.PD.A2. This was updated to reflect the forecast leakage penalty for AMP6.*
24	Net Performance payment/(penalty) applied to revenue at end of ODI adjustment - Wastewater Networks Plus	* *2018-19 data and total data updated due to SRN.PD.A2 action Ref. As a result of the forecast reward for bathing waters, this number was updated.*
H	End of period ODI revenue adjustments input to PR19 financial model (2017-18 prices)	
41	ODI end of period revenue adjustment ~ Water resources at 2017~18 FYA CPIH deflated price base	* *Updated in line with changes to section B of table app27.*
42	ODI end of period revenue adjustment ~ Water network plus at 2017~18 FYA CPIH deflated price base	
43	ODI end of period revenue adjustment ~ Wastewater network plus at 2017~18 FYA CPIH deflated price base	

* App28 - Developer services (wholesale)		
Line description		Commentary
A	Activity forecasts ~ wholesale water service	
1	Total number of new residential connections	Total number of new residential connections is based on growth forecast provided by an external service provider (Experian) that have been produced in line with UKWIR and Environment Agency guideline.
2	Total number of new business connections	Total number of new business connections is based on growth forecast provided by an external service provider (Experian) that have been produced in line with UKWIR and Environment Agency guideline.
B	Infrastructure network reinforcement expenditure forecasts ~ wholesale water service	
3	Distribution and trunk mains	Includes Itchingfield trunk main upgrade scheme
4	Pumping and storage facilities	Includes Turners Hill and Weeke Down Pump Station Upgrade schemes

5	Other assets	No other assets included in planned network reinforcement schemes.
C	Grants and contributions received ~ wholesale water service	
7	Connection charges (s45)	Includes anticipated S45 connection
8	Infrastructure charge receipts (s146)	There is not forecast to be any infrastructure charge receipts due to the accommodation of the AMP6 income offset into the redefined Infrastructure Charge (see D14 below). This is following changes proposed within 'New connection charges for the future - England'.
9	Requisitioned mains (s43, s55 & s56)	Includes requisitioned mains (S41)
10	Other contributions (price control)	Contributions in relation to schemes on bulk supply assets (e.g. River Medway Scheme)
D	Infrastructure charges / adopted assets	
14	Total value of income offset allowances included within a company's redefined water infrastructure charge	The income offset that is currently applied to requisitions in AMP6 has been incorporated within the redefined water infrastructure charge as proposed within 'New connection charges for the future - England'. As our proposed expenditure on Network Reinforcement is low, the maximum income offset that it is possible to accommodate within the price control has been incorporated resulting in a zero charge
15	Total value of any discounts included within a company's redefined water infrastructure charge	There is no current proposal for a discount within the redefined water infrastructure charge
16	Total value of any adopted water assets	Nil
E	Activity forecasts ~ wholesale wastewater service	
17	Residential properties connected during the year	Total number of new residential connections is based on growth forecast provided by an external service provider (Experian) that have been produced in line with UKWIR and Environment Agency guidelines.
18	Business properties connected during the year	Total number of new business connections is based on growth forecast provided by an external service provider (Experian) that have been produced in line with UKWIR and Environment Agency guidelines.
F	Infrastructure network reinforcement expenditure forecasts ~ wholesale wastewater service	
19	Foul and combined systems	Proportion of network reinforcement expenditure on foul and combined systems based on analysis of our 15 scoped strategic catchments.
20	Surface water only systems	Proportion of network reinforcement expenditure on surface water only systems based on analysis of our 15 scoped strategic catchments.
21	Pumping and storage facilities	Proportion of network reinforcement expenditure on pumping and storage facilities based on analysis of our 15 scoped strategic catchments. This includes the associated civil structures for any pumping and storage facilities.

22	Other assets	Proportion of network reinforcement expenditure on Other Assets based on analysis of our 15 scoped strategic catchments. * *In line with IAP action ref. SRN.CE.A1*
G	Grants and contributions received ~ wholesale wastewater service	
24	Infrastructure charge receipts (s146)	Infrastructure Charge receipts includes total annual income associated with the Redefined Infrastructure Charge. This included changes that were made in 2018 associated with 'Charging Rules for New Connections Services' and 'Charges Scheme Rules' and proposed changes in 2020 as defined in 'New connection charges for the future - England'. The AMP6 levels of income offset have been possible to accommodate within the redefined Infrastructure Charge. * *These figures have been adjusted for AMP7 due to the adjusted network reinforcement investment plan. In line with IAP action ref. SRN.CE.A1*
25	Requisitioned sewers (s100)	Includes redefined anticipated income from wastewater requisitions (100% contribution) in line with the 2020 'New connection charges for the future - England' approach. Forecast is based on our AMP proportion of 'Site Specific' requisitions.
26	Other contributions (price control)	* *As per Ofwat query response from 18 March 2019 - S104 Inspection and Supervision fees*
27	Diversions (s185)	Forecast for income associated with S185 Diversion costs
28	Other contributions (non-price control)	* Forecast *income for non-price control relates to Goddards Green odour control in 2018-19 and 2019-20.*
H	Infrastructure charges / adopted assets	
30	Total value of income offset allowances included within a company's redefined wastewater infrastructure charge	Total value of annual Income Offset Allowances within the redefined wastewater infrastructure charge. This includes elements of income offset incorporated within the charge in 2018 as a result of the December 2016 'Charging Rules for New Connections Services' and 'Charges Scheme Rules' update. It also includes changes proposed within 'New Connection charges for the future - England'. This has now been incorporated into the new Infrastructure Charge calculation. * *These figures have been adjusted for AMP7 due to the adjusted network reinforcement investment plan. In line with IAP action ref. SRN.CE.A1.*
31	Total value of any discounts included within a company's redefined wastewater infrastructure charge	There is no current proposal for a discount within the wastewater infrastructure charge
32	Total value of any adopted wastewater assets	Estimate for sewer adoptions for AMP7 based on number of properties in block E
I	Revenue correction inputs – wholesale water services	
33	Definition of Band A – wholesale water services	Single band for all connection services. This is due to the fact that a consistent approach was deemed important as there has been much change in this area and little opportunity for comprehensive historic data to develop. As most contestable work involves new development

		sites, which includes both connections and new mains, we felt a single band was appropriate without the need to separate * *This band is for connections on new development sites. This is a change from our early submission predominantly driven by likely changes in the definition of contestable activities for water connections*
34	Band A – number of properties connected during the year	Taken directly from lines A1/A2 above - total properties connected. * *The forecast number of properties within the band connecting per year*
35	Band A – number of properties to which contestable services were provided during the year	Forecast of properties that we will provide contestable services to per year. Contestable proportion calculated through the developer services connection data determining the non-contestable proportion connecting to an existing water main and the contestable proportion connecting to a new main. **All properties with this band will have an element of contestable service provision (the construction component)*
36	Band A – grants and contributions received during the year – for non-contestable works	Forecast grants and contributions for non-contestable water infrastructure works. This is the proportion of the individual grants and contributions lines that are considered non-contestable. * *Forecast grants and contributions for non-contestable service provision for this band (the Application and Administration component)*
37	Band A – grants and contributions received during the year – for contestable works	Forecast grants and contributions forecast for contestable water infrastructure works. This is the proportion of the individual grants and contributions lines that are considered contestable. **Forecast grants and contributions for contestable service provision for this band (the construction component)*
38	Band A – forecast contestable services expenditure	Forecast expenditure for non-contestable water infrastructure works. This is the proportion of the expenditure categories that are considered non-contestable. * *Forecast expenditure on non-contestable service provision for this band (the Application and Administration component)*
39	Band A – infrastructure expenditure forecast	Forecast expenditure for contestable water infrastructure works. This is the proportion of the expenditure categories that are considered contestable. * *Forecast expenditure contestable service provision for this band (the construction component)*
42	Definition of Band B – wholesale water services	* *This band is for connections on Side Roads/Main Roads as defined in our Charging Arrangements. This is a change from our early submission predominantly driven by likely changes in the definition of contestable activities for water connections*
43	Band B – number of properties connected during the year	* *The forecast number of properties within the band connecting per year*

44	Band B – number of properties to which contestable services were provided during the year	* *All properties with this band will have an element of contestable service provision (the construction component)*
45	Band B – grants and contributions received during the year – for non-contestable works	* *Forecast grants and contributions for non-contestable service provision for this band (the Application and Administration component)*
46	Band B – grants and contributions received during the year – for contestable works	* *Forecast grants and contributions for contestable service provision for this band (the construction component)*
47	Band B – forecast contestable services expenditure	* *Forecast expenditure on non-contestable service provision for this band (the Application and Administration component)*
48	Band B – infrastructure expenditure forecast	* *Forecast expenditure contestable service provision for this band (the construction component)*
51	Definition of Band C – wholesale water services	* *This band is for connections on Large Diameter connections as defined in our Charging Arrangements. This is a change from our early submission predominantly driven by likely changes in the definition of contestable activities for water connections*
52	Band C – number of properties connected during the year	* *The forecast number of properties within the band connecting per year*
53	Band C – number of properties to which contestable services were provided during the year	* *All elements of these activities are currently considered non-contestable*
54	Band C – grants and contributions received during the year – for non-contestable works	* *Forecast grants and contributions for non-contestable service provision for this band (all elements)*
55	Band C – grants and contributions received during the year – for contestable works	* *Forecast grants and contributions for contestable service provision for this band*
56	Band C – forecast contestable services expenditure	* *Forecast expenditure on non-contestable service provision for this band (all elements)*
57	Band C – infrastructure expenditure forecast	* *Forecast expenditure contestable service provision for this band*
60	Definition of Band D – wholesale water services	* *This band is for new site specific mains laying (requisitioned mains)*
61	Band D – number of properties connected during the year	* *The forecast number of properties within the band connecting per year*
62	Band D – number of properties to which contestable services were provided during the year	* *All properties within the band will receive an element of contestable service (construction activities)*

63	Band D – grants and contributions received during the year – for non-contestable works	* *Forecast grants and contributions for non-contestable service provision for this band (predominantly application, administration, design and connection to existing mains costs)*
64	Band D – grants and contributions received during the year – for contestable works	* *Forecast grants and contributions for contestable service provision for this band (mainly construction related costs)*
65	Band D – forecast contestable services expenditure	* *Forecast expenditure on non-contestable service provision for this band (predominantly application, administration, design and connection to existing mains costs)*
66	Band D – infrastructure expenditure forecast	* *Forecast expenditure contestable service provision for this band (mainly construction related costs)*
69	Definition of Band E – wholesale water services	* *This band is associated with Network Reinforcement. Although this is currently forecast to receive zero grants and contributions this will remain in pending further understanding at draft determination on how this will be treated.*
70	Band E – number of properties connected during the year	* *The forecast number of properties within the band connecting per year*
71	Band E – number of properties to which contestable services were provided during the year	* *All elements of these activities are currently considered non-contestable*
72	Band E – grants and contributions received during the year – for non-contestable works	* *Forecast grants and contributions for non-contestable service provision for this band (all elements)*
73	Band E – grants and contributions received during the year – for contestable works	* *Forecast grants and contributions for contestable service provision for this band*
74	Band E – forecast contestable services expenditure	* *Forecast expenditure on non-contestable service provision for this band (all elements)*
75	Band E – infrastructure expenditure forecast	* *Forecast expenditure contestable service provision for this band*
J	Revenue correction inputs – wholesale wastewater services	
78	Definition of Band A – wholesale wastewater services	Single band for all connection services. This was considered the best approach due to clear separation between contestable and non-contestable activities within the wastewater network+ price control.
79	Band A – number of properties connected during the year	Taken directly from E17/18 above - total properties connected
80	Band A – number of properties to which contestable services were provided during the year	Contestable forecast based on the number of properties associated with development sites that may require a requisition or contestable diversion * *Contestable forecast based on the number of properties associated with development sites that may require a requisition*

81	Band A – grants and contributions received during the year – for non-contestable works	Forecast grants and contributions for non-contestable wastewater infrastructure works. This is the proportion of the individual grants and contributions lines that are considered non-contestable.
82	Band A – grants and contributions received during the year – for contestable works	Forecast grants and contributions for contestable wastewater infrastructure works. This is the proportion of the individual grants and contributions lines that are considered contestable.
83	Band A – forecast contestable services expenditure	Forecast expenditure for non-contestable wastewater infrastructure works. This is the proportion of the expenditure categories that are considered non-contestable. This includes network reinforcement spend and a proportion of diversions * *Forecast expenditure for non-contestable wastewater infrastructure works. This is the proportion of the expenditure categories that are considered non-contestable. This includes network reinforcement spend*
84	Band A – infrastructure expenditure forecast	Forecast expenditure for contestable water infrastructure works. This is the proportion of the expenditure categories that are considered contestable. This includes requisition expenditure and a contestable element of diversions * *Forecast expenditure for contestable water infrastructure works. This is the proportion of the expenditure categories that are considered contestable. This includes requisition expenditure*

* App29 - Wholesale tax		
A	Brought forward capital allowance pool ~ General 18%	Commentary
1	Brought forward capital allowance 18% ~ Water resources	We have worked with Chandler KBS to develop our analysis of capital allowances and estimate the value of our brought forward capital allowance pools. The closing value of the General and Long-life Pools at 31 March 2017 (our most recently submitted tax returns) are used as a baseline. The capital allowance analysis already performed for our draft 2017/18 tax computations, has been used to establish our capital allowance pool additions in this year, and the data from our capital delivery programme for the remaining two years of AMP6 has been entered into a financial model, to which we have applied appropriate capital allowances analyses. **We have reviewed the capital allowance pool closing balances for 2017/18 in conjunction with our work to finalise the tax computations for that year. While the computations are not yet finalised, they are broadly consistent and so this remains unchanged in our underlying analysis.* **Our revised capex forecast for 2018/19 and 2019/20 has been incorporated into our capital allowance analysis to the end of AMP6.*
2	Brought forward capital allowance 18% ~ Water network plus	
3	Brought forward capital allowance 18% ~ Wastewater network plus	
4	Brought forward capital allowance 18% ~ Bioresources	
B	Brought forward capital allowance pool ~ Longlife 8%	
7	Brought forward capital allowance 6% ~ Water resources	
8	Brought forward capital allowance 6% ~ Water network plus	

9	Brought forward capital allowance 6% ~ Wastewater network plus	The financial model adopts the same principles and assumptions as those used in preparing the annual corporation tax computation. **The resulting additions for each remaining year of AMP6 have been used to calculate the written down value of the general, long-life pools and the new structures and buildings pool at March 2020.* The additions figure for each of the relevant years has been included at outturn prices. The calculations do not reflect the availability of group relief and the pool values have been determined on the basis that capital allowances are claimed in full in each of the years 2017/18, 2018/19 and 2019/20. The balances have been apportioned across the different price controls on the basis of the Regulatory Capital Value (RCV) split. * *The reduction in the writing down allowances for special rate expenditure from 8% to 6% from 1 April 2019 has been recalculated in the brought forward long-life expenditure (Block B).* * *Block C contains the brought forward capital expenditure following the introduction of Structural Building Allowances (SBAs) from October 2018 on the premise that there will be a modest claim for completed SBAs.*
C	Brought forward capital allowance pool ~ Structures and buildings 2%	
13	Brought forward capital allowance 2% ~ Water resources	
14	Brought forward capital allowance 2% ~ Water network plus	
15	Brought forward capital allowance 2% ~ Wastewater network plus	
16	Brought forward capital allowance 2% ~ Bioresources	
17	Brought forward capital allowance 2% ~ Dummy control	
18	Total brought forward capital allowance pool ~ Structures and buildings 2%	
D	New capital expenditure	
19	Proportion of new capital expenditure qualifying for the general (18%) pool ~ Water resources	We have worked with Chandler KBS to develop our analysis of capital allowances and estimate the proportions of our capital expenditure in our forecast programme qualifying for capital allowances. **A financial model was used to derive an initial position and to populate the relevant percentages included in Block D.* **The tools which underpin the capital allowance analysis include the provision to allocate forecast capital expenditure to one of 13 different tax categories.* The allocation across these categories is determined by an assessment that is applied either using standard assessment policies, or generic models and experience. **The calculations have been revised based on the content of the new capital expenditure programme and the analysis has been updated to account for Structural Building Allowances (SBAs).* The base data used in the model is consistent with the capital expenditure as included in the PR19 business plan, and in other tables.
20	Proportion of new capital expenditure qualifying for the longlife (6%) pool ~ Water resources	
21	Proportion of new capital expenditure qualifying for the structures and buildings (2%) pool ~ Water resources	
22	Proportion of new capital expenditure not qualifying for a full deduction in the year ~ Water resources	
23	Proportion of new capital expenditure qualifying for a tax full tax deduction in the year ~ Water resources	

24	Proportion of new capital expenditure qualifying for a tax deduction based on depreciation ~ Water resources	
E	Disallowable expenditure	
54	P&L expenditure not allowable as a deduction from taxable trading profits ~ Water resources	We have considered the normal tax adjustments that are made in the tax computations of Southern Water Services Limited to determine whether similar adjustments need to be made to the taxable profits of each year of the Price Review period. We do not consider that there will be any amounts in relation to car leases that will need to be adjusted for tax, due to a change in our company car policy. * *The expenditure in our plan does not include any amounts that would be treated as disallowable expenditure in the tax computations.*
55	P&L expenditure not allowable as a deduction from taxable trading profits ~ Water network plus	
56	P&L expenditure not allowable as a deduction from taxable trading profits ~ Wastewater network plus	
57	P&L expenditure not allowable as a deduction from taxable trading profits ~ Bioresources	
59	P&L expenditure relating to renewals not allowable as a deduction from taxable trading profits ~ Water resources	n/a for SRN
60	P&L expenditure relating to renewals not allowable as a deduction from taxable trading profits ~ Water network plus	n/a for SRN
61	P&L expenditure relating to renewals not allowable as a deduction from taxable trading profits ~ Wastewater network plus	n/a for SRN
62	P&L expenditure relating to renewals not allowable as a deduction from taxable trading profits ~ Bioresources	n/a for SRN
64	Change in general provisions ~ Water resources	We forecast no change in general provisions during 2020 to 2025. The P&L expenditure for each of the years in the Price Review period does not include movements on provisions which have been classified as general provisions for tax purposes, therefore no entries have been made to adjust for amounts that would not be an allowable deduction from taxable trading profits.
65	Change in general provisions ~ Water network plus	
66	Change in general provisions ~ Wastewater network plus	
56	Change in general provisions ~ Bioresources	
F	Allowable expenditure	

69	Allowable depreciation on capitalised revenue expenditure (infra & non-infra) ~ Water resources	* *Tax depreciation of AMP6 Capitalised Revenue Expenditure* *The baseline for our forecast of depreciation of capitalised revenue expenditure is the most recently submitted tax computations (2016-17). The allowable tax deduction for depreciation has been forecast over the remaining three years of AMP6, and for each of the years of AMP7.* *For subsequent years in AMP6 (2017/18 to 2019/20), the proportion of our capital expenditure that will be categorised as capitalised revenue expenditure has been taken from the analysis of our forecast capital programme, as reflected in the Chandler KBS analysis tools. Of these amounts, Infrastructure Renewals Expenditure (IRE) has been estimated, based on an average of the amounts in previous years of the AMP, and depreciated over an expected asset life of 100 years, consistent with treatment in our tax computations. The remainder of the balance is treated as Deferred Revenue Expenditure (DRE), and depreciated over a weighted average asset life of 12.7 years (based on an average of the amounts in previous years of the AMP).* * *Tax depreciation of AMP7 Capitalised Revenue Expenditure* *The values of our capital expenditure during AMP7 that will be categorised as DRE and IRE have been taken from the Chandler KBS capital allowance analysis tools (as used to calculate the proportions in block D), and depreciated over the expected weighted average life of these assets, to calculate the allowable depreciation in each year.* These amounts have been allocated to the various price controls based on the RCV split.
70	Allowable depreciation on capitalised revenue expenditure (infra & non-infra) ~ Water network plus	
71	Allowable depreciation on capitalised revenue expenditure (infra & non-infra) ~ Wastewater network plus	
72	Allowable depreciation on capitalised revenue expenditure (infra & non-infra) ~ Bioresources	
74	Finance lease depreciation ~ Water resources	Amounts have been included here for allowable expenditure relating to assets held under finance leases. Finance lease depreciation is charged on two of our leased buildings which were previously accounted for as an operating lease. These amounts have been allocated to the various price controls based on the RCV split.
75	Finance lease depreciation ~ Water network plus	
76	Finance lease depreciation ~ Wastewater network plus	
77	Finance lease depreciation ~ Bioresources	
G	Other taxable income	
79	Grants and contributions taxable on receipt ~ Water resources	The Grant and Contribution income that we forecast receiving during the price review period, and which is treated as being taxable on receipt have been included here. This includes income relating to Infrastructure Charges (which is currently treated as revenue for accounting and tax purposes.
80	Grants and contributions taxable on receipt ~ Water network plus	

81	Grants and contributions taxable on receipt ~ Wastewater network plus	* *Following further analysis, and development of our response to the change in accounting treatment under IFRS15, amounts that were previously included in relation to diversion and requisition income being taxable on receipt have been removed on the basis that these will still continue to be taxed on a capital basis.*
82	Grants and contributions taxable on receipt ~ Bioresources	
84	Amortisation on grants and contributions ~ Water resources	No amounts have been included here to adjust for amortisation on grants and contributions as these amounts are not included within the forecast income and expenditure of the Price Review period.
85	Amortisation on grants and contributions ~ Water network plus	
86	Amortisation on grants and contributions ~ Wastewater network plus	
87	Amortisation on grants and contributions ~ Bioresources	
89	Other adjustments to taxable profits ~ Water resources	Adjustments have been included here in relation to a prepayment of aerial mast income, to treat the income of £368k per annum as non-taxable, as it was taxed upfront as a chargeable gain. The amounts have been allocated to the price controls on the same basis as the corresponding income.
90	Other adjustments to taxable profits ~ Water network plus	
91	Other adjustments to taxable profits ~ Wastewater network plus	
92	Other adjustments to taxable profits ~ Bioresources	
H	Brought forward losses	
94	Brought forward losses ~ Water resources	We forecast no brought forward losses at 1 April 2020.
95	Brought forward losses ~ Water network plus	
96	Brought forward losses ~ Wastewater network plus	
97	Brought forward losses ~ Bioresources	
I	Statutory corporation tax rate	
99	Statutory corporation tax rate	The corporation tax rate of 17% has been assumed for periods 2020 to 2025

App30 - Void properties	
Line description	Commentary

Note; this table shows a different voids value to WWS3 which excludes water only customers		
1	Number of void properties ~ residential	The methodology for future forecasting of retail void properties has initially taken account of a 4k overstatement of 2017/18 voids and included this in a projection of 2018/19 voids The principal forecasting methodology has been associated with known levels of usage against metered void properties and associated conversion rates, consistency of operational processes, continued levels of voids in WoC supply areas and improved collaboration with WoC's. The movement in voids has been projected based on this but also a forecast of how upper quartile performance will move across the AMP7 period. The key differentiator is the multiple WoC's in our wastewater region. From an operational perspective, the void property data is split between Southern Water supply (metered/unmetered), WoC supply (metered and unmetered) and South East Water joint billing (metered and unmetered). To align to the APP30 reporting components a mapping was then carried out to report against the following components for metered and unmetered properties: Water Only, Water and Wastewater and Waste Only. For Water Only properties, an assumption of 8% (un-metered) and 11% (metered) of Southern Water supply voids is applied. For Water and Wastewater properties, an assumption of 92% and 89% is applied for un-metered and metered respectively Forecasting of void property levels has taken account of Southern Water's current voids position and, specifically, metered consumption being recorded on voids.
2	Number of void properties ~ business	Market was introduced for 2017/18 and has changed the dynamic of recording Vacant/Void premises. The responsibility for evaluating the occupancy status of a premise now sits with multiple retailers. It is their responsibility to ensure that properties are appropriately classified, as this will impact both Wholesale charges and Customer billing. As the incentive to occupy premises now sits with the retailers, it is difficult to evaluate the impact of any endeavours they may implement. Therefore the percentages of Vacant/Void properties with 2017/18 has been applied to the forecast connected business property numbers from WS3: Line 6 (item ref. BN2221) for Water and WWS3: Line 8 (item ref. BN2270) for Waste. BAU process in place that samples current Market Voids, on a bi-monthly basis, to ascertain accuracy of the occupancy status. Conflicts are passed to appropriate retailer to investigate and update market data accordingly.

App32 - Weighted average cost of capital for the Appointee		
A	Appointee WACC ~ based on assumed notional structure (nominal)	
1	Notional gearing	In line with Appendix 12 of final methodology for AMP7 No change assumed for AMP8 for consistency
2	Total Market Return (TMR)	In line with Appendix 12 of final methodology for AMP7 No change assumed for AMP8 for consistency – increase due to risk free rate
3	Risk free rate (RFR)	In line with Appendix 12 of final methodology for AMP7 Increased to 2.5% for AMP8 in line with BOE forecast of 2% to 3%
5	Debt beta	In line with Appendix 12 of final methodology for AMP7 No change assumed for AMP8 for consistency
6	Raw equity beta for listed company comparator	In line with Appendix 12 of final methodology for AMP7 No change assumed for AMP8 for consistency
7	Actual gearing of listed company comparator	In line with Appendix 12 of final methodology for AMP7 No change assumed for AMP8 for consistency
11	Cost of embedded debt	In line with Appendix 12 of final methodology for AMP7 Based on AMP7 for consistency Note: notional metrics inconsistent with assumed Iboxx A-/BBB
12	Cost of new debt	In line with Appendix 12 of final methodology for AMP7 No change assumed for AMP8 for consistency
13	Ratio of embedded to new debt	In line with Appendix 12 of final methodology for AMP7 No change assumed for AMP8 for consistency
14	Issuance and liquidity costs	In line with Appendix 12 of final methodology for AMP7 No change assumed for AMP8 for consistency
17	Tax (marginal rate of corporation tax)	Latest HMRC statements
19	Retail margin deduction	In line with Appendix 12 of final methodology for AMP7 No change assumed for AMP8 for consistency
B	Appointee WACC ~ based on company's actual structure (nominal)	
21	Actual gearing	Updated to 70%
22	Total Market Return (TMR)	In line with Appendix 12 of final methodology for AMP7 No change assumed for AMP8 for consistency– increase due to risk free rate
23	Risk Free Rate (RFR)	In line with Appendix 12 of final methodology for AMP7 Increased to 2.5% for AMP8 in line with BOE forecast of 2% to 3%
25	Debt beta	In line with Appendix 12 of final methodology for AMP7 No change assumed for AMP8 for consistency

26	Raw equity beta for listed company comparator	Solved to equal Notional WACC
27	Actual gearing listed company comparator	In line with Appendix 12 of final methodology for AMP7 No change assumed for AMP8 for consistency
31	Cost of embedded debt	In line with Appendix 12 of final methodology for AMP7 Based on AMP7 for consistency Note: notional metrics inconsistent with assumed Iboxx A-/BBB
32	Cost of new debt	In line with Appendix 12 of final methodology for AMP7 No change assumed for AMP8 for consistency
33	Ratio of embedded to new debt	In line with Appendix 12 of final methodology for AMP7 No change assumed for AMP8 for consistency
34	Insurance and liquidity costs	In line with Appendix 12 of final methodology for AMP7 No change assumed for AMP8 for consistency
37	Tax (marginal rate of corporation tax)	Latest HMRC statements
39	Retail margin deduction	In line with Appendix 12 of final methodology for AMP7 No change assumed for AMP8 for consistency

App33 - Wholesale operating leases reclassified under IFRS16

Commentary		
The amounts in this schedule cover the transfer of two operating leases to finance leases, being our head office, Southern House in Durrington, and our site at Capstone Road Chatham. The annual rentals are £1.384m for Durrington and £0.353m for Chatham. They have been capitalised based on the present value of future lease payments discounted at 2.8%. The discount rate is calculated by averaging 50:50 between the RPI (2.3%) and the real CPIH (3.3%). Our commercial vehicles are currently on finance leases with the outstanding liability at £1.571m which is just the balloon rental. This is not expected to materially change over the AMP		
D	Wastewater network plus	
76	Annual cash cost of leases that expire after 1 April 2025 – existing	This includes the annual lease payment of the Durrington site.
78	Present Value of post 2030 operating lease cash costs for leases that expire after 31 March 2030 - existing	This includes the future payments to March 2032 of the Durrington site discounted at 2.8%
80	Discount rate	The discount rate is calculated by averaging 50:50 between the RPI (2.3%) and the real CPIH (3.3%).
F	Summary of IFRS16 impact	

107	Opex value of leases reclassified under IFRS16 included in other operating expenditure	The amounts of 1.737 includes the cash cost of the Durrington and Chatham sites
108	Opex value of existing operating leases in other operating expenditure	This shows the operating lease costs of the Eccles Lake site.
110	Capex value of leases reclassified under IFRS16 included in other operating expenditure	This is the capex value of the Chatham and Durrington leases reclassified based on the present value of the future lease payments using a discount rate of 2.8%.
111	Balance of finance leases reclassified under IFRS16 included on balance sheet	This shows the related finance obligation for the Chatham and Durrington lease
112	Balance of existing finance leases included on balance sheet	This shows the finance obligation relating to our commercial leases which are currently purchased on Finance leases. As these are largely paid upfront the only amounts outstanding are the balloon payments.

**** WS1 - Wholesale water operating and capital expenditure by business unit		
Line description		Commentary
A	Operating expenditure (excluding Atypical expenditure)	
1	Power	Execution Plan for 2019-20 rolled over into 2020-21 as base Opex. This was then updated for any AFCs, new items of expenditure (principally WRMP related) and any non-inflation related power adjustments. Efficiency was then applied at a totex level, please refer to efficiency chapter. * *Revisions to operating expenditure at the IAP response stage are discussed in 'Response to IAP Annex 6 – Securing Cost Efficiency PART A SRN.CE.A1'.*
2	Income treated as negative expenditure	
3	Abstraction Charges / Discharge consent	
4	Bulk supply	
	Other operating expenditure	
5	~ Renewals expensed in year (Infrastructure)	
6	~ Renewals expensed in year (Non-Infrastructure)	
7	~ Other operating expenditure excluding renewals	
8	Local authority and Cumulo rates	
10	Third Party Services	
B	Capital Expenditure	
14/15	Other capital expenditure	**** Values updated to reflect impact of additional £75m capex re IAP query SRN-DD-CE-003.
C	Totex	

20	Grants and contributions ~ operating expenditure	Nil
21	Grants and contributions ~ capital expenditure	All G&C relate to capital expenditure
D	Atypical expenditure	
23	Pension deficit recovery payments	This is driven by App22
24	Other cash items	No Atypicals have been forecast, so those included are 2017-18 related only
E	Atypical expenditure	
26	Hants Abstraction Enquiry	
28	Discolouration Fine	

**** WS1a - Wholesale water operating and capital expenditure by business unit including operating leases reclassified under IFRS16		
Line description		Commentary
A	Operating expenditure (excluding Atypical expenditure)	
1	Power	This table is identical to WS1 except for the IFRS16 adjustment has been removed. This means that rental costs for two offices continue to go through Opex in WS1A. The capex for the operating lease is found in WWS1A in wastewater networks +, as this is the asset of principal use.
2	Income treated as negative expenditure	
3	Abstraction Charges / Discharge consent	
4	Bulk supply	
	Other operating expenditure	
5	~ Renewals expensed in year (Infrastructure)	
6	~ Renewals expensed in year (Non-Infrastructure)	
7	~ Other operating expenditure excluding renewals	
8	Local authority and Cumulo rates	
B	Capital expenditure	
15	Other capital expenditure ~ no infra	**** Updated in response to IAP query SRN-DD-CE-003.
C	Totex	
20	Grants and contributions ~ operating expenditure	
21	Grants and contributions ~ capital expenditure	

**** WS2 - Wholesale water capital and operating enhancement expenditure by purpose		
Line description		Commentary
A	Enhancement expenditure by purpose ~ capital	
1	WINEP / NEP ~ Making ecological improvements at abstractions (Habitats Directive, SSSI, NERC, BAPs)	This line shows AMP6 capex enhancement investment for NEP making ecological improvements at abstractions (Habitats Directive, SSSI, NERC, BAPs). No capex enhancement investment forecast for making ecological improvements at abstractions in AMP7.
2	WINEP / NEP ~ Eels Regulations (measures at intakes)	No capex enhancement investment forecast for Eels regulations.
3	WINEP / NEP ~ Invasive non-native species	No capex enhancement investment forecast for INNS.
4	Addressing low pressure	No capex enhancement investment forecast for low pressure.
5	Improving taste / odour / colour	No capex enhancement investment forecast for improving taste /odour/ colour.
6	Meeting lead standards	This line shows the AMP7 capex enhancement investment for meeting leads standards. £19.848m has been identified to eliminate lead pipe water quality risk by: - replacing lead communication pipes - replacing all water mains in the District Metered Areas (DMA's) within the Deal Water Supply Zone (WSZ) - as part of a pilot in the Deal WSZ, provide a lead pipe focused advice service and local media campaign - Setup a community fund to subsidise the removal of lead pipework in the home. More information on this enhancement investment requirement is provided in the Wholesale Water TA.11.WN04 Business Case - Water Networks. * *See also 'Response to IAP Annex 6 – Securing Cost Efficiency PART A SRN.CE.A1'.*
7	Supply side enhancements to the supply/demand balance (dry year critical / peak conditions)	This line shows AMP6 and AMP7 capex enhancement investment for Supply side enhancements to the supply/demand balance (dry year critical / peak conditions). The table below summarises the £31.839m capex enhancement investment required to deliver supply side enhancements to the supply/demand balance (dry year critical / peak conditions) in AMP7:

		<table><tr><th>Schemes</th><th>Total Spend</th></tr><tr><td>WRMP Future AMPs Planning</td><td>6.657</td></tr><tr><td>Ford WWTW Indirect Potable Water Reuse (20Ml/d)</td><td>9.635</td></tr><tr><td>Hardham groundwater licence variation</td><td>0.610</td></tr><tr><td>Transfer to Rotherfield WSW & Rogate BH rehabilitation</td><td>3.365</td></tr><tr><td>Scheme to bring Smock Alley back into service</td><td>3.754</td></tr><tr><td>SEW Kingston to SWS KT (Wingham)</td><td>3.425</td></tr><tr><td>Utilise full existing transfer capacity</td><td>2.534</td></tr><tr><td>Flemings and Woodnesborough WSW licence variation</td><td>0.610</td></tr><tr><td>East Woodhay WSW</td><td>1.249</td></tr><tr><td>Mitigation and monitoring activities (Itchen/Candover/Test)</td><td>0.000</td></tr><tr><td>WS2 Line 7 Total</td><td>31.839</td></tr></table> More information on this AMP7 enhancement investment requirement is provided in the Wholesale Water TA.11.WN01 Business Case – Supply Demand Balance. * *Investment in this area has been updated at the IAP response stage and is discussed in more detail in 'Response to IAP Annex 6 – Securing Cost Efficiency PART A SRN.CE.A1'.*
8	Supply side enhancements to the supply/demand balance (dry year annual average conditions)	This line shows AMP6 and AMP7 capex enhancement investment for Supply side enhancements to the supply/demand balance (dry year annual average conditions). The table below summarises the £228.856m capex enhancement investment required to deliver supply side enhancements to the supply/demand balance (dry year annual average conditions) <table><tr><th>WRMP Capex</th><th>Total Spend</th></tr><tr><td>Bournemouth Water supply from Knapp Mill</td><td>£35.220m</td></tr><tr><td>Coastal Desalination - Shoreham Harbour</td><td>£8.752m</td></tr><tr><td>Sussex Coast - Lower Greensand</td><td>£1.855m</td></tr><tr><td>Hardham winter transfer: Stage 2</td><td>£2.363m</td></tr><tr><td>Aylesford WWTW Indirect Potable Water Reuse - Eccles Lake</td><td>£5.132m</td></tr><tr><td>Additional import from PWC Gaters Mill</td><td>£8.967m</td></tr></table>

<table>
<tr><td></td><td></td><td>
<table>
<tr><td>Fawley desalination</td><td>£0.000m</td></tr>
<tr><td>Sandown WwTW Indirect Potable Reuse (8.5Ml/d)</td><td>£4.879m</td></tr>
<tr><td>Otterbourne to Andover to Kingsclere</td><td>£30.321m</td></tr>
<tr><td>Testwood to Otterbourne pipeline</td><td>£26.276m</td></tr>
<tr><td>Romsey Town and Broadlands valve</td><td>£0.998m</td></tr>
<tr><td>WS2 Line 8 Total</td><td>£124.763m</td></tr>
</table>

For more information on this AMP7 enhancement investment requirement is provided in the Wholesale Water TA.11.WN01 Business Case – Supply Demand Balance.

* See also ‘Response to IAP Annex 6 – Securing Cost Efficiency PART A SRN.CE.A1’.</td></tr>
<tr><td>9</td><td>Demand side enhancements to the supply/demand balance (dry year critical / peak conditions)</td><td>No Capex enhancement investment forecast for demand side enhancements to the supply/demand balance (dry year critical / peak conditions)</td></tr>
<tr><td>10</td><td>Demand side enhancements to the supply/demand balance (dry year annual average conditions)</td><td>This line shows AMP6 and AMP7 capex enhancement investment for Demand side enhancements to the supply/demand balance (dry year annual average conditions).
The table below summarises the £33.117m Capex enhancement investment required to deliver demand side enhancements to the supply/demand balance (dry year annual average conditions).

<table>
<tr><th>WRMP Schemes</th><th>Total Spend</th></tr>
<tr><td>Intelligent Network – supply Demand Enhancement</td><td>13.870</td></tr>
<tr><td>Leakage</td><td>19.247</td></tr>
</table>

More information on this AMP7 enhancement investment requirement is provided in the Wholesale Water TA.11.WN01 Business Case – Supply Demand Balance. * See also ‘Response to IAP Annex 6 – Securing Cost Efficiency PART A SRN.CE.A1’.</td></tr>
<tr><td>11</td><td>New developments</td><td>This line shows AMP6 and AMP7 capex enhancement investment for new developments.

£57.708m capex enhancement investment is required in AMP7 to deliver new development requisitions (£55.434m) and water networks enhancements associated with growth (£2.273m).

More information on this AMP7 enhancement investment requirement is provided in the Wholesale Water TA.11.WN01 Business Case - Supply Demand Balance. * See also ‘Response to IAP Annex 6 – Securing Cost Efficiency PART A SRN.CE.A1’.</td></tr>
</table>

<table>
<tr><td>12</td><td>New connections element of new development (CPs, meters)</td><td>£44.955m capex enhancement investment is required to deliver S45 new connections element of new developments (CPs, meters). * See also ‘Response to IAP Annex 6 – Securing Cost Efficiency PART A SRN.CE.A1’.</td></tr>
<tr><td>13</td><td>Investment to address raw water deterioration (THM, nitrates, Crypto, pesticides, others)</td><td>This line shows AMP6 and AMP7 capex enhancement investment for addressing raw water deterioration (THM, nitrates, crypto, pesticides, others).

The table below summarises the £55.412m capex enhancement investment required to deliver raw water deterioration associated with nitrate:

<table><tr><th>Raw Water Deterioration - Capex</th><th>Total</th></tr><tr><td>Nitrate Schemes</td><td>£55.412m</td></tr></table>
More information on this enhancement investment requirement is provided in the Wholesale Water TA.11.WN02 Business Case - Nitrate. * See also ‘Response to IAP Annex 6 – Securing Cost Efficiency PART A SRN.CE.A1’.</td></tr>
<tr><td>14</td><td>Resilience</td><td>No capex enhancement investment forecast for resilience.</td></tr>
<tr><td>15</td><td>SEMD</td><td>This line shows AMP6 capex enhancement investment for SEMD.

No capex enhancement investment forecast for SEMD in AMP7.</td></tr>
<tr><td>16</td><td>Non-SEMD related security enhancement</td><td>No capex enhancement investment forecast for non-SEMD related security.</td></tr>
<tr><td>17</td><td>WINEP / NEP ~ Drinking Water Protected Areas (schemes)</td><td>No capex enhancement investment forecast for WINEP DWPA schemes.</td></tr>
<tr><td>18</td><td>WINEP / NEP ~ Water Framework Directive measures</td><td>No capex enhancement investment forecast for WINEP WFD measures.</td></tr>
<tr><td>19</td><td>WINEP / NEP ~ Investigations</td><td>No capex enhancement investment forecast for WINEP investigations.</td></tr>
<tr><td>20</td><td>Improvements to river flows</td><td>No capex enhancement investment forecast for improvements to river flows.</td></tr>
<tr><td>21</td><td>Metering (excluding cost of providing metering to new service connections) for meters requested by optants</td><td>No capex enhancement investment forecast for meter requested by optants. There is a minor adjustment in 2017/18.

It is noted that Southern Water completed a Universal Metering Programme in AMP5/6. Investment associated with increasing metering coverage further is included within Demand side enhancements (see lines 9 and 10 above).</td></tr>
</table>

<table>
<tr><td>22</td><td>Metering (excluding cost of providing metering to new service connections) for meters introduced by companies</td><td>Investment associated with increasing metering coverage further

<table><tr><th>WRMP Schemes</th><th>Total Spend</th></tr><tr><td>Installation of AMR meters</td><td>£10.658m</td></tr></table>
* Investment in this area has been updated at the IAP response stage and is discussed in more detail in ‘Response to IAP Annex 6 – Securing Cost Efficiency PART A SRN.CE.A1’.</td></tr>
<tr><td>23</td><td>Metering (excluding cost of providing metering to new service connections) for businesses</td><td>No capex enhancement investment forecast for metering at businesses.</td></tr>
<tr><td>24</td><td>Impounding Reservoirs enhancement</td><td>£11.513m capex is required to deliver resilience enhancements at our impounding reservoir sites in AMP7. New Environment Agency (EA) reservoir drawdown guidance has led to a requirement for improved facilities at our impounding reservoir sites in AMP7. The table below summarises the investment requirements and the sites

<table><tr><th>Impounding Reservoirs - Capex</th><th>Total Spend</th></tr><tr><td>Impounding Reservoirs - Bewl, Darwell, Weirwood, Powdermill, Testwood Lakes</td><td>£11.513m</td></tr><tr><td>Impounding Reservoirs - South Hill, Hardham, Plenty Brook, Purbrook, Wishing Tree</td><td>£0.000m</td></tr><tr><td>3rd Party Services</td><td>-£2.163m</td></tr><tr><td>WS2 Line 24 Total</td><td>£9.350m</td></tr></table>
Part ownership of assets at Bewl and Weirwood means there is a capex contribution from South East Water. The net Southern Water capex investment for these impounding reservoir resilience enhancements will be £9.350m once 3rd party services have been taken into account.

More information on this enhancement investment requirement is provided in the Wholesale Water TA.11.WR02 Business Case - Impounding Reservoirs.

* Investment in this area has been updated at the IAP response stage and is discussed in more detail in ‘Response to IAP Annex 6 – Securing Cost Efficiency PART A SRN.CE.A1’.</td></tr>
<tr><td>25</td><td>Strategic Regional Solutions</td><td>**** Row added to reflect impact of additional £75m capex re IAP query SRN-DD-CE-003</td></tr>
</table>

B	Enhancement expenditure by purpose ~ operating	
40	WINEP / NEP ~ Making ecological improvements at abstractions (Habitats Directive, SSSI, NERC, BAPs)	No opex enhancement investment forecast for making ecological improvements at abstractions. It is noted that line 57 includes investment for WFD associated water resources abstraction enhancements.
41	WINEP / NEP ~ Eels Regulations (measures at intakes)	This line shows AMP6 and AMP7 opex arising from capex enhancement investment for AMP6 eel regulations schemes. £0.008m opex enhancement investment in AMP7 relates to opex arising from capex associated with the completed delivery of AMP6 eel screen capex schemes. As the AMP6 opex comes from AMP6 investment, this opex has been excluded from the AMP7 investment shown in Wholesale Water TA.11WR01 Business Case – Raw Water Pumping. * *See also 'Response to IAP Annex 6 – Securing Cost Efficiency PART A SRN.CE.A1'.*
42	WINEP / NEP ~ Invasive non-native species	No opex enhancement investment forecast for INNS.
43	Addressing low pressure	No opex enhancement investment forecast for low pressure.
44	Improving taste / odour / colour	No opex enhancement investment forecast for improving taste /odour/ colour.
45	Meeting lead standards	No opex enhancement investment forecast for meeting lead standards.
46	Supply side enhancements to the supply/demand balance (dry year critical / peak conditions)	This line shows AMP6 and AMP7 opex arising from capex enhancement investment for AMP6 Supply side enhancements to the supply/demand balance (dry year critical / peak conditions). No opex enhancement investment forecast in AMP7 for the supply side enhancements to the supply/demand balance (dry year critical / peak conditions). As the AMP6 opex comes from AMP6 investment, this opex has been excluded from the AMP7 investment shown in Wholesale Water TA.11WN01 Business Case – Supply Demand Balance. * *See also 'Response to IAP Annex 6 – Securing Cost Efficiency PART A SRN.CE.A1'.*
47	Supply side enhancements to the supply/demand balance (dry year annual average conditions)	No opex enhancement investment forecast for the supply side enhancements to the supply/demand balance (dry year annual average conditions)

<table>
<tr><td>48</td><td>Demand side enhancements to the supply/demand balance (dry year critical / peak conditions)</td><td>No opex enhancement investment forecast for the demand side enhancements to the supply/demand balance (dry year critical / peak conditions)</td></tr>
<tr><td>49</td><td>Demand side enhancements to the supply/demand balance (dry year annual average conditions)</td><td>The table below summarises the £36.412m opex enhancement investment required in AMP7 to deliver demand side enhancements to the supply/demand balance (dry year annual average conditions)

<table><tr><th>WRMP - Supply/Demand Balance Opex</th><th>Total</th></tr><tr><td>Target 100 water efficiency activity</td><td>£36.412m</td></tr><tr><td>TUBS and NEU Ban Central</td><td>£0.000m</td></tr><tr><td>WS2 Line 49 Total</td><td>£36.412m</td></tr></table>
For more information on this AMP7 enhancement investment requirement is provided in the Wholesale Water Technical Annex TA.11.WN01 Business Case – Supply Demand Balance.

* Investment in this area has been updated at the IAP response stage and is discussed in more detail in ‘Response to IAP Annex 6 – Securing Cost Efficiency PART A SRN.CE.A1’.</td></tr>
<tr><td>50</td><td>New developments</td><td>No opex enhancement investment forecast for new developments.</td></tr>
<tr><td>51</td><td>New connections element of new development (CPs, meters)</td><td>No opex enhancement investment forecast for new connections element of new developments.</td></tr>
<tr><td>52</td><td>Investment to address raw water deterioration (THM, nitrates, Crypto, pesticides, others)</td><td>This line shows AMP6 and AMP7 opex arising from capex enhancement investment for AMP6 and AMP7 raw water deterioration schemes. It also shows the AMP7 opex investments required to deliver raw water deterioration catchment requirements.

The table below summarises the £22.914m opex enhancement investment required to deliver raw water deterioration associated with nitrates, pesticides and other raw water quality deterioration parameters in AMP7:

<table><tr><th>Raw Water Deterioration - Opex</th><th>Total</th></tr><tr><td>AMP7 Nitrate Schemes AFCs</td><td>£3.960m</td></tr><tr><td>AMP7 Nitrate Catchment Schemes</td><td>£5.555m</td></tr><tr><td>AMP7 Pesticide Catchment Schemes</td><td>£4.963m</td></tr><tr><td>AMP7 Catchment Compliance Schemes</td><td>£3.000m</td></tr></table></td></tr>
</table>

		AMP6 Nitrate, Pesticides and Other Raw Water Deterioration Schemes AFCs: £5.436m **WS2 Line 52 Total: £22.914m** £3.960m investment relates opex arising from capex for operation of new nitrate removal plants built in AMP7. £5.555m, £4.963m, and £3.000m of catchment management activity is required as a least cost option for avoiding the need to build or replace nitrate, pesticide and/or other water quality improvement plants in future. £5.436m is included as the opex arising from capex for the AMP6 built nitrate removal plants, pesticide removal (GAC) plants and other AMP6 raw water deterioration schemes. More information on this AMP7 enhancement investment requirement is provided in the Wholesale Water TA.11.WN02 Business Case - Nitrate and the Wholesale Water TA.11.WR03 Business Case - Catchment Management Solutions. As the AMP6 opex comes from AMP6 investment, this opex has been excluded from the AMP7 investment shown in Wholesale Water TA.11.WR03 Business Case - Catchment Management Solutions. Note we have updated this line of the table in line with our response to query "Query_SRN_IAP_CA_008". * *See also 'Response to IAP Annex 6 – Securing Cost Efficiency PART A SRN.CE.A1'.*
53	Resilience	No opex enhancement investment forecast for resilience.
54	SEMD	This line shows AMP6 and AMP7 opex arising from capex enhancement investment for AMP6 eel regulations schemes. £0.960m opex enhancement investment in AMP7 relates to opex arising from capex associated with the completed delivery of AMP6 SEMD capex schemes. As the AMP6 opex comes from AMP6 investment, this opex has been excluded from the AMP7 investment shown in Wholesale Water technical annexes. * *See also 'Response to IAP Annex 6 – Securing Cost Efficiency PART A SRN.CE.A1'.*
55	Non-SEMD related security enhancement	No opex enhancement investment forecast for non-SEMD related security.

56	WINEP / NEP ~ Drinking Water Protected Areas (schemes)	No opex enhancement investment forecast for WINEP DWPA schemes. Note we have updated this line of the table in line with our response to query "Query_SRN_IAP_CA_008".
57	WINEP / NEP ~ Water Framework Directive measures	£2.5m opex enhancement investment is required to deliver WINEP WFD measures in AMP7. More information on this enhancement investment requirement is provided in the Wholesale Water TA.11.WR03 Business Case - Catchment Management Solutions. * *See also 'Response to IAP Annex 6 – Securing Cost Efficiency PART A SRN.CE.A1'.*
58	WINEP / NEP ~ Investigations	£15.209m opex enhancement investment is required in AMP7 to deliver WINEP investigations. Investigations include: DWPA, biodiversity, and water resources abstraction. More information on this enhancement investment requirement is provided in the Wholesale Water TA.11.WR03 Business Case - Catchment Management Solutions. * *See also 'Response to IAP Annex 6 – Securing Cost Efficiency PART A SRN.CE.A1'.*
59	Improvements to river flows	No opex enhancement investment forecast for improvements to river flows.
60	Metering (excluding cost of providing metering to new service connections) for meters requested by optants	No opex enhancement investment forecast for meter requested by optants.
61	Metering (excluding cost of providing metering to new service connections) for meters introduced by companies	No opex enhancement investment forecast for meter requested by companies.
62	Metering (excluding cost of providing metering to new service connections) for businesses	No opex enhancement investment forecast for metering at businesses.
63	Impounding reservoir enhancement	

**** WS2a - Wholesale water cumulative capital enhancement expenditure by purpose	
Commentary	See WWS2

WS3 - Wholesale water properties and population		
Line description		Commentary
1	Residential properties billed for measured water (external meter)	The 2017/18 values differ to those submitted in the APR. The APR incorrectly reported year-end values rather than the mid-year average. The split into externally/internally metered properties is kept constant throughout and is based on 2016-17 data. Population forecast based on data provided by Experian.
2	Residential properties billed for measured water (not external meter)	
3	Business properties billed measured water	All new business properties are assumed to be metered and have been reported as a percentage of all new properties based on base-year residential/business split. Unmetered NHH is forecast as static but metered increases. The expectation is that data from CMOS will mean we can report accurately.
4	Residential properties billed for unmeasured water	The 2017/18 values differ to those submitted in the APR. The APR incorrectly reported year-end values rather than the mid-year average. Unmeasured residential properties are forecast to reduce over AMP7 based on the WRMP, which seeks to increase meter penetration in parts of our supply area to promote water efficiency.
5	Business properties billed unmeasured water	The 2017/18 values differ to those submitted in the APR. The APR incorrectly reported year-end values rather than the mid-year average.
9	Number of residential meters renewed	A significant increase in meter renewals for AMP7 as metering stock requires replacement.
10	Number of business meters renewed	A significant increase in meter renewals for AMP7 as metering stock requires replacement.
11	Number of meters installed at the request of optants	Projected increase in optants as part of drive to increase meter penetration.
12	Number of selective meters installed	Projected increase in selective meters installed to increase meter penetration. Atkins provided optants data.
13	Total number of new business connections	Population growth forecast provided by Experian. South East Water, Portsmouth Water and Southern Water worked with Experian based on Local Authority forecasts. The forecast for total new connections is split into residential/business connections using the 2017-18 proportions.
14	Total number of new residential connections	
15	Total population served	Projected increase in total population served is aligned with local area plans.
16	Number of business meters (billed properties)	We have assumed one meter per property
17	Number of residential meters (billed properties)	

* WS4 - Wholesale water other (explanatory variables)		
Line description		Commentary
1	Number of lead communication pipes replaced for water quality	Significant increase in AMP7 due to implementation of lead strategy supported by DWI and DMA scale mains replacement. Our UMP data was used to prioritise activity.
2	Total supply side enhancements to the supply demand balance (dry year critical / peak conditions)	AMP6 based on WRMP14, AMP7 based on dWRMP19. DYAA and DYCP in 2023 are different when comparable for other years due to introduction of one scheme in the Eastern area. Drought orders excluded Enhancement align to supply/demand proposals including front ended demand management schemes. Significant supply side enhancement schemes are also started in AMP7 but do not deliver benefit until AMP8 (e.g. the Hampshire Grid).
3	Total supply side enhancements to the supply demand balance (dry year annual average conditions)	
4	Total demand side enhancements to the supply demand balance (dry year critical / peak conditions)	
5	Total demand side enhancements to the supply demand balance (dry year annual average conditions)	
10	Compliance Risk Index	The calculation methodology for this is based on impact on population based on data re interruptions and contacts re taste/odour/appearance. * *We have uplifted our forward profile to account for poor performance in CY2018 with a CRI score of 12.18. This has largely been caused (approximately 75% of the total score) by failures at our Testwood Water Supply Works (WSW). We have recognised this issue and we are currently undertaking a significant upgrade of this WSW in alignment with a DWI notice which is due for completion in 2024. This impacts our AMP7 performance and we have updated line 10 to reflect the impact of the Testwood WSW risk until the end 2023/24. The benefit of the completion of this work and other major improvement initiatives means we achieve upper quartile in 2024/25 as per our original target. It should be noted that the interim improvements shown are driven by our Water First transformational programme and by interim construction milestones at our major water supply works (including Testwood WSW).*
11	Event Risk Index	This calculation is not yet fully understood, but is impacted by duration as well as population. We have tied ERI performance to CRI performance (CRI improvement acting as a proxy for ERI improvement and forecast approx. 30% improvement aligned to CRI and have base data for 2016/17 and 2017/18 from DWI. * *Due to the deterioration in CRI performance we have updated the ERI performance forecast accordingly (with ERI performance tied directly to the CRI performance improvement to 24/25).*

12	Volume of leakage above or below the sustainable economic level	See App2 lines 2-5 commentary AMP6 calculations use PC leakage performance. AMP7 calculation uses common PC performance

* WS5 - Other wholesale water expenditure		
Line Description		Commentary
A	Other total expenditure	
1	Employment costs – directly attributable	* *Although there is not a change in costs, there is a change in FTE between the original Sept 2018 submission and this resubmission. This is due to the insourcing of activities previously carried out by contractors. The most notable area for this is IT where our helpdesk (which has been outsourced for many years) is being moved back in-house.*
2	Employment costs – indirectly attributable	
3	Number FTEs consistent with line 1	
4	Number FTEs consistent with line 2	
B	Service charges	
6	Canal & River Trust service charges and discharge consents	
7	Environment Agency service charges/ discharge consents	All of our service charge costs are with the EA
8	Other service charges / permits	
9	Statutory water softening	

* WS7 - Wholesale water local authority rates		
We note an error in the model in line 9 which references cell G8 which is supposed to represent the movement in the year but in fact is the charge for the year		
Line description		Commentary
A	Water wholesale local authority rates	
1	Wholesale Water business rates charge for current year before transitional relief	Figures are from the most recent forecasts for 18/19 and 19/20 and as a result of challenge sessions and review for AMP7 and an assessment of our property estate. * *Forecasts have been amended to reflect the correct rateable values provided by the VOA and the 2017-18 multiplier. This has meant a change in presentation of the values in WS7 and a corresponding change in Other expenditure in WS1 as the reduced*

		ongoing rates liability had already been factored into our Sept submission of Totex for AMP7.
2	Wholesale Water business rates transitional relief	No transitional Relief for water rates
4	Adjustments to wholesale water business rates charge for prior years	As result of actual refunds in 17/18 and forecasts for remainder of AMP6.
B	Analysis of change in charge before transitional relief	
10	Change in wholesale water business rates costs due to the impact of any revaluation	none
11	Change in wholesale water business rates costs due to change in asset stock	none expected
12	Inflation	

* WS8 - Third party costs by business unit for the wholesale water service		
Line description		Commentary
A		
B		

WS10 - Transitional spending in the wholesale water service
Commentary
No transition investment identified. As described in the 'securing cost efficiency' chapter of the draft Ofwat methodology document (July 2017), a move to an outcome and totex based framework means that we are able to manage investments without the need for using the transitional investment mechanism. Through good longer term planning, Southern Water will manage investment to meet regulatory, statutory and legal requirements in AMP7 without the need for AMP7 transitional investment.

WS12 - RCV allocation in the wholesale water service		
Line description		Commentary
A	Water resources net MEAV	
2	Disposals	The net MEAV as at 30th March 2015 is as per the regulatory accounts Table 4a. Additions for 16/17 and 17/18 are as per our annual reports table 4D except for a movement from Resource asset to Network plus assets of £11,554k in 15/16 for expenditure on first time meters for customers. This was a confusion on our part where the purpose was for resource but the assets are network plus. Disposals were likewise taken from the published accounts for both years. Depreciation and inflation were calculated for each year in succession using the models previously employed to prepare Current Cost Accounts and Current Cost Depreciation. The figures have then been combined into a two year movement. The re-classification is a movement of assets associated with river abstraction and movement to reservoirs. For the 14-15 accounts these had been classified as raw water distribution. Under the RAGs for 16-17 these are treated as abstraction resource assets.
3	Reclassification	
4	Inflation	
5	Additions	
6	Depreciation	
7	Other adjustments	
B	Roll forward	
9	Additions 2017-18	Forecast data from the budget setting process for 2018-19 and 2019-20 has been used and analysed. Disposals are assumed to have a nil net book value impact. As such, disposals are ignored for years 2018-19 onwards. We have assumed that all prices are as at 31 March 2018 so there is no indexing involved when calculating the depreciation for these years. New nil book value and AUC adjustments are estimated based upon averages for previous years and sensibility.
10	Depreciation 2017-18	
11	Additions 2018-19	
12	Depreciation 2018-19	
13	Additions 2019-20	
14	Depreciation 2019-20	
15	Other forecast adjustments 2017-2020	
C	RCV as at 31 March 2020	
18	Proposed RCV allocation 31 March 2020 (pre-midnight adjustments)	The closing RCV from the Final Determination (in March 2018 prices) has been apportioned between water resources and water network plus based on the allocation in Block B Line 17. The allocation in this submission is pre-midnight adjustments.

WS12a - Change in RCV allocation in the wholesale water service		
Line description		Commentary
B	Explanation of changes	
5	Inflation from March 2017 to March 2018 prices	Expenditure on Water assets actuals for 17-18 and forecast have increased significantly reflecting the uplift in compliance work as a result of DWI communication. Understandably depreciation will increase along with this increase in expenditure.
6	Changes in forecast expenditure	
7	Changes in forecast capital maintenance charges	
8	Changes to the allocation of assets between business units	

WS13 - PR14 wholesale revenue forecast incentive mechanism for the water service		
Line description		Commentary
A	Company details for WRFIM model	
3	Company has accepted WRFIM licence modification	As confirmed by 'Modification of the Conditions of Appointment of Southern Water Services Limited' made on November 2016 and coming into effect on 15 December 2016. https://www.ofwat.gov.uk/wp-content/uploads/2016/11/Southern-Water-Services-Limited.pdf
E	Revenue recovered	
15	Water: Unmeasured ~ household	Pre-populated data for 2015-16 and 2016-17 has been updated to reflect a historic mis-allocation of revenues between wholesale and retail in our regulatory accounts. Details of the mis-allocation and required corrections were provided with our legacy submission, submitted on 27 July 2018. 2017-18 is actual data taken from Table 2I of the APR. 2018-19 and 2019-20 is forecast data based on the assumption that the total actual revenue for each of these years will align with the total allowed revenue for each of these years. The apportionment of the total revenue over the various revenue streams is based on the allocation of 2017-18 actual revenue.
16	Water: Unmeasured ~ non-household	
17	Water: Measured ~ household	
18	Water: Measured ~ non-household	
19	Water: Third party revenue ~ household	
20	Water: Third party revenue ~ non-household	
21	Water: Revenue collected from household and non-household	
22	Water: Grants and contributions	
23	Water: Revenue recovered	
G	Penalties	

27	Main revenue adjustment as incurred ~ water	Taken from row 41 of our working version of the WRFIM model.
28	Penalty adjustment as incurred ~ water	Taken from row 51 of our working version of the WRFIM model.
29	WRFIM adjustment as incurred ~ water	Taken from row 56 of our working version of the WRFIM model.
30	WRFIM Total reward / (penalty) at the end of AMP6 ~ water	Taken from row 73 of our working version of the WRFIM model.
31	WRFIM Total reward / (penalty) at the end of AMP6 ~ water network plus	This is an output item from the revenue adjustments feeder model.

**** WS15 - PR14 wholesale total expenditure outperformance sharing for the water service		
Line description		Commentary
C	TOTEX	
9	Water: Actual Totex	Pre-populated figures for 2015-16 amended because our cost assessment table records show this should be £126.878m. Amended as per Ofwat email 02.07.2018. 2019-20 Actual totex updated from July submission to reflect IFRS16 incorporation. * *18-19 and 19-20 Totex updated for latest forecasts as per IAP action SRN.PD.A4*
D	Adjustments to TOTEX	
10	Water: Third party services (opex)	
11	Water: Third party services (capex)	This row should align with table 4B in the APR – the figures should be £1.100m for 2015–16 and £2.600m for 2016–17. We believe total grants and contributions figures have been used, some of which are already excluded from the totex figure. Amended as per Ofwat email 02.07.18. * *18-19 and 19-20 updated for latest forecasts of third party services capex as per IAP action SRN.PD.A4, these are presented net of grants and contributions*
13	Water: Other cash items	No 'Other cash Items' to report.
15	Water: Transition expenditure	**** Updated to reflect the correct transition values as per SW query to Ofwat SRN11.
G	Totex menu adjustments	
24	Water: revenue adjustment from totex menu model	
25	Water: RCV adjustment from totex menu model	

26	Water: Totex menu revenue adjustment at 2017-18 FYA CPIH deflated price base	* *Updates reflect input changes in the totex, revenue and RCV models. These models have been provided separately.* **** Updated in response to query to Ofwat SRN_11.
27	Water: Totex menu RCV adjustment at 2017-18 FYA CPIH deflated price base	

WS17 - PR14 water trading incentive reconciliation
Commentary
The final methodology queries and answers published on 22 February 2018 confirmed: "If you do not intend to claim incentives for new trades that started in 2015-20 then you do not need to complete WS17 at this time." Accordingly, we have not submitted this table.

**** WS18 - Explaining the 2019 Final Determination for the water service		
Line description		Commentary
A	Customer service	
2	Number of contacts about drinking water (taste, odour and discolouration)	Forecast increase in contacts as per trend to date. AMP7 investment through smart networks, mains conditioning, mains replacement and treatment upgrades will see a reduction by the end of AMP7. Although we have a PC regarding appearance, this definition is the DWI measure which differs. Discolouration contacts reported to the DWI via water quality events are not included in the final figure submitted.
B	Resilience	
3	Number of catchment management schemes	Significant increase in catchment management activity in AMP7 (WINEP and DWI schemes).
C	Affordability	
4	Number of people receiving help paying their water bill	Please note that the methodology used to measure the number of customers receiving financial assistance in PR19 is different to that being used to calculate performance against the AMP6 cumulative Performance Commitment. For PR19 we will use actual numbers of people receiving financial assistance at any one time, rather than the total number of people we have supported in a specified period. Entries based on customers receiving affordability related assistance

		through Southern Water's 4 types of schemes tariffs including growth and then calculating this for water services connections.
D	Markets	
6	The volume of water traded	Increase as per WRMP.
F	Bill impacts	
9	Change in the average residential customer water bill over the period	* Average bills have been calculated by reference to outputs from the Ofwat financial model, and on a basis consistent with the 'Discover Water' approach. The change from our September 2018 submission reflects: • updated 2019/20 bill comparator • change to AMP7 plan in response to Ofwat IAP – the revenues are driven by our plan, so a change to the plan naturally flows through to changes to AMP7 bills (incl. 2024/25) • revised approach to rebalancing bills between Water and Waste customers. We previously targeted a similar % bill fall, but for our IAP response are allowing bill profiles between AMPs to align more closely with the underlying costs. See also response to IAP action point SRN.RR.A4 **** Updated in response to IAP query SRN-DD-CE-003 and following response to query SRN_11 from Ofwat.
G	Total expenditure (real prices ~ 2017-18 FYA CPIH deflated)	
10	Water totex including cash items and atypical expenditure	Values previously reported uplifted by CPIH
H	Customer engagement	
13	Number of residential retail customers engaged with on the business plan	

Wr1 - Wholesale water resources (explanatory variables)		
Line description		Commentary
1	Water from impounding reservoirs	

2	Water from pumped storage reservoirs	7 year average of DI proportion for each asset type applied in the DI in each year as per WRMP projection.
3	Water from river abstractions	
4	Water from boreholes, groundwater works, excluding managed aquifer recharge (MAR) water supply schemes	
5	Water from artificial recharge (AR) water supply schemes	
6	Water from aquifer storage and recovery (ASR) water supply schemes	
7	Water from saline abstractions	
8	Water from reuse schemes	
10	Number of pumped storage reservoirs	We have 2 pumped storage reservoirs in an average year (2017/18 APR reported what was in use during the reporting year).
11	Number of river abstractions	We have 6 river abstractions in an average year (2017/18 APR reported 7 including a site which during an average year would be classified as a pump storage reservoir, see line 10 description).
12	Number of groundwater works excluding managed aquifer recharge (MAR) water supply schemes.	In our 2017/18 APR we reported 83 GW due to the incorrect inclusion of one out of service works. This was identified during the PR19 data preparation process. Reduction from 82 to 74 groundwater works due to Nitrate schemes (see TA WN02) as part of Network 2030.
16	Total number of sources	Reduction from 94 to 86 sources due to Nitrate schemes (see TA WN02) as part of Network 2030.
22	Total length of raw water abstraction mains and other conveyors	Increase due to Nitrate schemes (see TA WN02) as part of Network 2030 rationalisation (additional raw water mains).

**** Wr2 - Wholesale water resources opex		
Line description		**Commentary**
A	Opex analysis	
1	Power	The 2017-18 split calculated in table 4V of the regulatory accounts was used to split between resources, with adjustment made for any changes to base cost (e.g. AFCs). **** Lines 1, 3, 4, 5, updated in response to IAP query SRN-DD-CE-003.
2	Income Treated as negative expenditure	
3	Local authority and Cumulo rates	
4	Other Direct	

5	Other Indirect	
7	Historical Cost Depreciation	This is driven by numbers in App16. **** Updated in response to IAP query SRN-DD-CE-003.
11	Standard charge	**** Updated in response to IAP query SRN-DD-CE-003.

**** Wr3 - Wholesale revenue projections for the water resources price control		
Line description		Commentary
A	Wholesale water resources revenue requirement aggregated by building blocks	
2	Pension deficit repair contributions ~ wholesale water resources	Allocation based on IN 13/17. Result copied from financial model
3	Run off on post 2020 investment ~ wholesale water resources	From Mapping Tool. **** Updated in response to IAP query SRN-DD-CE-003 and following response to query SRN_11 from Ofwat.
4	Return on post 2020 investment ~ wholesale water resources	
5	Run off on RPI inflated 2020 RCV ~ wholesale water resources	
6	Return on RPI inflated 2020 RCV ~ wholesale water resources	
7	Run off on CPIH inflated 2020 RCV ~ wholesale water resources	
8	Return on CPIH inflated 2020 RCV ~ wholesale water resources	
9	Current tax ~ wholesale water resources	
10	Re-profiling of allowed revenue ~ wholesale water resources	Note: from financial model 'revenue solving adjustment'. **** Updated in response to IAP query SRN-DD-CE-003 and following response to query SRN_11 from Ofwat.
11	PR14 reconciliation revenue adjustments ~ wholesale water resources	From Mapping Tool. **** Updated in response to IAP query SRN-DD-CE-003 and following response to query SRN_11 from Ofwat.
B	Wholesale water resources ~ other price control income	
13	Third party revenue ~ wholesale water resources	None
C	Wholesale water resources ~ non-price control income (third party services)	
14	Bulk supplies ~ contract not qualifying for water trading incentives (signed before 1 April 2020) ~ water resources	Derived from a review of our current contracts and contract term

15	Bulk supplies ~ contract qualifying for water trading incentives (to be signed on or after 1 April 2020) ~ water resources	Derived from a review of our current contracts and contract term
16	Rechargeable works ~ water resources	None
17	Other non-price control third party services ~ water resources	None
D	Wholesale water resources ~ non-price control income (principal services)	
19	Wholesale water resources non-price control income (principal services)	None
E	Wholesale water resources charges	
20	Water resources unmeasured charge ~ residential	This is the residential and business revenue split. We are using the projected split for 18/19 for all years in AMP7.
21	Water resources unmeasured charge ~ business	This is the residential and business revenue split. We are using the projected split for 18/19 for all years in AMP7.
22	Water resources measured charge ~ residential	This is the residential and business revenue split. We are using the projected split for 18/19 for all years in AMP7.
23	Water resources measured charge ~ business	This is the residential and business revenue split. We are using the projected split for 18/19 for all years in AMP7.
F	Grants & contributions	
25	Water resources operating expenditure grants and contributions (price control)	This is taken directly from APP28 Grants and Contributions and applied to the relevant price controls
26	Water resources capital expenditure grants and contributions (price control)	None
27	Water resources operating expenditure grants and contributions (non-price control)	
28	Water resources capital expenditure grants and contributions (non-price control)	

**** Wr4 - Cost recovery for water resources		
Line description		Commentary
A	RCV run off rate ~ RPI linked RCV	
1	"Natural" RCV run off rate ~ water resources	* *Based on natural run-off rate for price control (see SRN.RR.A3)*

2	Adjustments to RCV run off rate to address transition from RPI to CPI ~ water resources	None
3	Other adjustments to RCV run off rate ~ water resources	* *None.*
5	Method used to apply run off rate (straight line or reducing balance) ~ water resources RPI wedge linked	Reducing balance
B	RCV run off rate ~ CPI/CPI(H) linked RCV	
6	"Natural" RCV run off rate ~ water resources	* *Based on natural run-off rate for price control (see SRN.RR.A3)*
7	Adjustments to RCV run off rate to address transition from RPI to CPI ~ water resources	None
8	Other adjustments to RCV run off rate ~ water resources	* *None*
10	Method used to apply run off rate (straight line or reducing balance) ~ water resources CPI(H) linked	Reducing balance
C	Post 2020 investment run off rate	
11	"Natural" post 2020 investment run off rate ~ water resources	* *Based on natural run-off rate for price control (see SRN.RR.A3)*
12	Adjustments to post 2020 investment run off rate to address transition from RPI to CPI ~ water resources	None
13	Other adjustments to post 2020 investment run off rate ~ water resources	* *None*
15	Method used to apply run off rate (straight line or reducing balance) ~ water resources	Reducing balance
D	PAYG Rate ~ water resources	
16	"Natural" PAYG rate ~ water resources	* *Based on natural PAYG rate for price control (see SRN.RR.A2).* **** Updated in response to IAP query SRN-DD-CE-003 and following response to query SRN_11 from Ofwat.
17	Adjustments to PAYG rate to address transition from RPI to CPI ~ water resources	None
18	Other adjustments to PAYG rate ~ water resources	* *None*

Wr5 - Weighted average cost of capital for the water resources control		
Line description		Commentary
A	Wholesale WACC ~ based on assumed notional structure (nominal)	
1	Gearing	Final methodology WACC Consistent with App32

2	Total Market Return	
3	Risk Free Rate	
5	Debt beta	
6	Asset beta	
9	Cost of debt ~ water resources	
B	Wholesale WACC ~ based on company's actual structure (nominal)	
11	Gearing (used in WACC) ~ water resources	Final methodology WACC Consistent with App32
12	Total Market Return	
13	Risk Free Rate	
15	Debt beta	
16	Asset beta	
19	Cost of debt (used in WACC) ~ water resources	

*** Wr6 - Water resources capacity forecasts		
Line description		Commentary
A	Capacity ~ company forecasts	
1	Pre-2020 capacity (DYAA)	We have included all confirmed sustainability reductions as per WINEP. Changes in capacity reflect impact of DO write downs (including water quality) and climate change. .
2	Pre-2020 capacity (DYCP)	
3	Post-2020 incumbent capacity (DYAA)	We have included baseline water resources yield, modified by climate change, deployable output write-downs and inter-company transfers as projected through the planning period for investment modelling. We have excluded unconfirmed sustainability reductions from our assessment of capacity but have included for elements of schemes to resolve these potential reductions (which have to be accommodated by 2027). We have only included schemes which are funded through the water resource price control and therefore excluded schemes which are exclusively water networks +. We have assessed capacity based on water resource yield as defined by the utilisation factor of the source. *** *We have assumed that a 'Long-term water resources scheme' with a potential output of 75 Ml/d is implemented from 2027, this being 'Fawley desalination' or a similar large strategic scheme – however the costs for this scheme have been purposely excluded from WR7.*

4	Post-2020 incumbent capacity (DYCP)	We have included baseline water resources yield, modified by climate change, deployable output write-downs and inter-company transfers as projected through the planning period for investment modelling. We have excluded unconfirmed sustainability reductions from our assessment of capacity but have included for elements of schemes to resolve these potential reductions (which have to be accommodated by 2027). We have only included schemes which are funded through the water resource price control and therefore excluded schemes which are exclusively water networks +. We have assessed capacity based on water resource yield as defined by the utilisation factor of the We have assessed capacity based on water resource yield as defined by the utilisation factor of the source. We have assumed that a 'Long-term water resources scheme' with a potential output of 75 Ml/d is implemented from 2027, this being 'Fawley desalination' or a similar large strategic scheme – however the costs for this scheme have been purposely excluded from WR7.
5	Post-2020 third party bilateral capacity (DYAA)	We have not included bilateral capacity with other water companies as per the table guidance
6	Post-2020 third party bilateral capacity (DYCP)	We have not included bilateral capacity with other water companies as per the table guidance
B	Capacity ~ WRZ 1 forecasts	
7	WRZ name	Kent Medway West WRZ.
C	Capacity ~ WRZ 2 forecasts	
7	WRZ name	Kent Medway East WRZ.
D	Capacity ~ WRZ 3 forecasts	
7	WRZ name	Kent Thanet WRZ.
8	Pre-2020 capacity (DYAA)	

9	Pre-2020 capacity (DYCP)	Significant reduction in AMP7 due to raw water deterioration at all sites (nitrates). This will be offset by our Nitrate programme.
E	Capacity ~ WRZ 4 forecasts	
7	WRZ name	Sussex Hastings WRZ.
8	Pre-2020 capacity (DYAA)	Change in 25/26 due to export to SEW ceasing and being taken from Bewl.
9	Pre-2020 capacity (DYCP)	
10	Post-2020 incumbent capacity (DYAA)	
11	Post-2020 incumbent capacity (DYCP)	
F	Capacity ~ WRZ 5 forecasts	
7	WRZ name	Sussex North WRZ.
10	Post-2020 incumbent capacity (DYAA)	Change in 24/25 due to no longer using Hardham drought permit.
11	Post-2020 incumbent capacity (DYCP)	
G	Capacity ~ WRZ 6 forecasts	
7	WRZ name	Sussex Worthing WRZ.
8	Pre-2020 capacity (DYAA)	Significant reduction in AMP7 due to raw water deterioration (nitrates). This will be offset by our Nitrate programme.
9	Pre-2020 capacity (DYCP)	
H	Capacity ~ WRZ 7 forecasts	
7	WRZ name	Sussex Brighton WRZ.
8	Pre-2020 capacity (DYAA)	Significant reduction in AMP7 due to raw water deterioration (nitrates). This will be offset by our Nitrate programme.
9	Pre-2020 capacity (DYCP)	
I	Capacity ~ WRZ 8 forecasts	
7	WRZ name	Hampshire Andover WRZ.
J	Capacity ~ WRZ 9 forecasts	
7	WRZ name	Hampshire Kingsclere WRZ.
K	Capacity ~ WRZ 10 forecasts	
7	WRZ name	Hampshire Winchester WRZ.
8	Pre-2020 capacity (DYAA)	Significant reduction in AMP8 due to raw water deterioration (nitrates).
9	Pre-2020 capacity (DYCP)	
L	Capacity ~ WRZ 11 forecasts	
7	WRZ name	Hampshire Rural WRZ.
8	Pre-2020 capacity (DYAA)	Significant reduction in AMP7 due to raw water deterioration (nitrates). This will be offset by our Nitrate programme.
9	Pre-2020 capacity (DYCP)	

M	Capacity ~ WRZ 12 forecasts	
7	WRZ name	Hampshire Southampton East WRZ.
8	Pre-2020 capacity (DYAA)	Significant reduction in AMP7 due to raw water deterioration (nitrates). This will be offset by our Nitrate programme.
9	Pre-2020 capacity (DYCP)	
10	Post-2020 incumbent capacity (DYAA)	Change in 24/25 due to no longer using Itchen drought order. Change in 27/28 due to Candover drought order no longer available.
11	Post-2020 incumbent capacity (DYCP)	
N	Capacity ~ WRZ 13 forecasts	
7	WRZ name	Hampshire Southampton West WRZ.
10	Post-2020 incumbent capacity (DYAA)	* *Change in 27/28 due to implementation of supply side schemes (Fawley Desalination or a similar large strategic scheme) and the drought order on the river Test ceases.*
11	Post-2020 incumbent capacity (DYCP)	* *Change in 27/28 due to implementation of supply side schemes (including Fawley Desalination or a similar large strategic scheme and additional bulk supplies from South West Water).*
O	Capacity ~ WRZ 14 forecasts	
7	WRZ name	Isle of Wight WRZ.
V	Capacity ~ WRZ 21 forecasts	
13	Post-2020 third party bilateral capacity (DYCP)	Third party bilateral cumulative capacity (DYCP). None planned.

* Wr7 - New water resources capacity ~ forecast cost of options beginning in 2020-25
Commentary
Table Wr7 has been completed following the guidance set out in Ofwat (2018) “Delivering Water 2020: Our Methodology for the 2019 price review. Updated guidance for final business plan data tables”. This states that the options to be included are “planned to begin (costs will be incurred) during 2020-25” and that it will result in an increase in “water resources capacity (measured in Water resources yield)”. Our assumptions regarding the interpretation of which options should be included in the table are set out below. Please note that where there are no costs are associated with an option, cells have been left blank in order to minimise validation errors.
We have excluded all of our demand management and leakage options in line with the clarification published on 09.04.2018 (no. 60) which indicates such options should be excluded.

We have excluded all options which only have Network+ CAPEX and OPEX investment in line with the clarification published on 09.04.2018 (no. 60) which indicates such options should be excluded. This means that several large schemes (for water re-use and catchment management/nitrate treatment) are excluded.	
We have included a number of schemes which only have opex costs, but which do still have a water resource (yield) benefit. This relates to supply side drought permits and orders, which are treated as options within our WRMP and other instream catchment management options. We have assumed that opex expenditure meets the defining criteria of “costs will be incurred” and we have therefore included these options in Table Wr7.	
The options we have included in table Wr7 are consistent with the preferred strategy of our revised water resource management plan which will be submitted on 03.09.18.	
* *Lines 836-852 (WRZ 7 H1 Option 1 lines 5 – 17)* *Following the IAP we have removed our “Fawley Desalination” option in relation to our IAP actions (refs. SRN.CMI.A9, SRN.CE.A3 and SRN.CMI.A3). We have assumed that a ‘Long-term water resources scheme’ with a potential output of 75 Ml/d is implemented from 2027, this being ‘Fawley desalination’ or a similar large strategic scheme – however the costs for this scheme have been purposely excluded from WR7.* *In line with removal of costs for this option we have also adjusted our annualised unit cost profile for this WRZ (WR7) in line H4*	
Lines B1, C1, D1… to P1	Number of Water Resource Zones
We Have 12 water resource zones which have Water Resources Options and have been included in table Wr7: Sussex North, Sussex Brighton, Sussex Worthing, Kent Thanet, Kent Medway West, Hampshire Southampton East, Hampshire Southampton West, Hampshire Winchester, Kent Medway West, Sussex Hastings, Hampshire Rural, Hampshire Andover	
Any Water Resource zones which have no water resources options (e.g. the Isle of Wight and Hampshire Kingsclere) have been excluded, this is consistent with the clarification issued on 09.04.2018 (no. 121)	
None of our water resource zones have more than 12 water resource options and so none of these have been split across multiple water resource zones in table Wr7	
Lines B4, C4, D4… to P4	Annualised Cost Model
To calculate our annualised cost profiles the example Reckon annualised cost model has been reviewed and extended to allow for sufficient additional schemes to cover our resource zones with more than three options. The original template only allowed for three schemes per water resource zone.	
The annualised costs vary according to the benefit of new water resource schemes.	
We note that the stated units for the annualised cost profiles (e.g. in cell E28) are given as £/Ml/d but that the rest of Table Wr7 and the example Reckon annualised costs model is given as £m/Ml/d. We assume this is intended and costs we have provided in the annualised cost profile are given in units of £/Ml/d. We have modified our version of the Reckon annualised cost models to provide this output.	
Lines 27, 238 and 449	Possible Template Error

We note that there appears to be an error in the template for Wr7 on lines 27, 238 and 449. Although the resource zones have been extended to allow for up to 12 schemes, the total cost formulae have not been consistently updated, and only calculate the total cost for the first three options. As these cells are protected, we cannot and have not corrected these formulae in our submission. * *We have corrected this template error for WRZ's 1 -3 in our resubmission of data tables for line references B3, C3 and D3*	
Lines 8 to 14 and 17 for each option	CAPEX cost profiles
Our CAPEX cost profiles are based on those developed by our consultants, Atkins for our Water Resource Management Plan. These are set out as different categories by Asset Life as specified in the table guidance. * *In response to the IAP cost efficiency challenge action (ref SRN.CE.A1) we have reduced our CAPEX costs by 10% for two options; Br_Smo (Lines under Option B1 8-14) and option E1 (Lines 8-14). The same efficiency challenge also applies to our Pulborough Groundwater licence variation option (LV_Har). However as LV_Har only provides a yield benefit under extreme drought rather than our severe "design drought" baseline we have excluded the option from table WR7 as per our original submission.*	
We have cross checked these profiles against our internal cost profiles to ensure that the spend profile across AMP7 and AMP8 align.	
Line 15 of Each Option	OPEX cost profiles
Our OPEX cost profiles are based on those developed by our consultants (Atkins) for our Water Resource Management Plan. * *Opex costs for drought permit option DO_SI_Wei have been corrected following a copy-paste error in our original submission, similarly Network+ costs (which were incorrectly assigned to this option) have been removed.*	
All Drought Permit and Order Options	Levels of Service and Drought Permits and Orders
As discussed above, we have included a number of drought permit options which have a defined water resource (yield) benefit and incur costs (as OPEX) in AMP7. Our interpretation of the guidance is that such schemes meet the defining criteria for inclusion.	
Our water resource management plan is risk based and probabilistic. Our baseline planning scenario provides water resource resilience to at least a severe 1 in 200 year drought but our planned level of service allows us to maintain supplies without recourse to emergency drought orders (Rota cuts and standpipes) without recourse to emergency drought orders in a more extreme (1 in 500 year drought).	
Furthermore, our level of service for supply side drought permits and orders changes over the course of our Water Resource Management plan to reflect delivery of other options. In general we will become less reliant on supply side drought permits and orders over the duration of our plan.	

More specifically, we will only require use of drought permits and orders in severe (1 in 200 year droughts) droughts for the first five to 10 years of the planning period whilst other options (e.g. desalination and water reuse schemes) are delivered. Subsequently we will only require the use of such drought permits and orders in more severe (up to 1 in 500 year events) are delivered. However, we expect to apply for drought permits and orders more frequently as the indicators that a severe or extreme drought may occur, happen much more frequently than the drought event itself. Therefore in order to ensure sufficient time is available to prepare, submit and be issued a drought permit or order we need to apply before such a drought event fully develops. In many cases intervening rainfall and resource recovery will occur prior to the drought permit or order actually being implemented (and therefore requiring monitoring and mitigation). We have accounted for these level of service differences in our opex costs and yield benefits for drought permits and orders.	
The yield benefits assume implementation in a 1 in 200 year drought event (our baseline planning scenario) for the first 5 to 10 years of our plan. However, following this period we have specified no yield benefit in table Wr7 as no yield is available (or required) in a 1 in 200 year event, only for the 1 in 500 year drought.	
Similarly, we have several water resource options which provide no water resource benefit in a severe (1 in 200 year baseline drought) but which do provide water resource benefit in a 1 in 500 year drought. These options are not included in Table Wr7.	
However, our OPEX cost profiles for the drought permits and orders which are included in table Wr7 account for this change in level of service and the probability of drought occurrence and have been factored accordingly as to our expected frequency of application and implementation and how both vary over the planning period.	
We consider that this is consistent with the table guidance for opex which states that “The average opex should reflect the options forecast operation in the planning period reflecting variation in usage based on expected climatic conditions.” Climatic conditions in this instance being taken as equivalent to drought severity.	
Line A15	We have specified the nominal pre-tax cost of capital as 5.95% in both Wr7 and our annualised cost models. We have specified forecast CPIH cost of inflation as 2% in our annualised cost models.
Line 2 of Each Option	Critical Planning Period
The critical planning period (“Driver of post-2020 water resource capacity”) for each water resource zone has been determined by analysis of the largest supply demand balance deficits.	

Wr8 - Wholesale water resources special cost factors
Commentary
We do not have any cost adjustment claims for this price control.

Wn1 - Wholesale network plus raw water transport and water treatment (explanatory variables)	
Line description	Commentary

8	Total length of raw and pre-treated (non-potable) water transport mains for supplying customers	There is only one supply of Non-Potable Water being made by Southern Water, from Testwood WSW to the Esso Fawley Oil Refinery. There are no plans to increase or reduce the length of this pipeline.
12	Total water treated at all SW3 works	Proportions remain constant, however DI reduces in line with WRMP forecasts.
18	Total water treated at all GW2 works	Proportions remain constant until 22/23 subsequent changes are due to Nitrate schemes (see TA WN02) as part of Network 2030 (change in number and type of works).
33	Total number of GW2 works	Numbers remain constant until 22/23, subsequent changes are due to Nitrate schemes (see TA WN02) as part of Network 2030 (change in number and type of works).
38	Number of treatment works requiring remedial action because of raw water deterioration	Number aligns to DWI notices; nitrates treatment only
39	Zonal population receiving water treated with orthophosphate	2017/18 population applied to all years for forecast.
Band Disclosure		
41	WTWs in size band 1	Treatment works in each band based on peak production capacity
42	WTWs in size band 2	Treatment works in each band based on peak production capacity. Changes are due to Nitrate schemes (see TA WN02) as part of Network 2030 (change in number and type of works).
43	WTWs in size band 3	
44	WTWs in size band 4	
45	WTWs in size band 5	
46	WTWs in size band 6	Treatment works in each band based on peak production capacity
47	WTWs in size band 7	Treatment works in each band based on peak production capacity
48	WTWs in size band 8	
Band Disclosure		
50	Proportion of Total DI band 2	Proportions remain constant until 22/23 subsequent changes are due to Nitrate schemes (see TA WN02) as part of Network 2030 (change in number and type of works).
51	Proportion of Total DI band 3	
52	Proportion of Total DI band 4	
53	Proportion of Total DI band 5	

54	Proportion of Total DI band 6	
58	Water imported from 3rd parties' water treatment works	PWC at Gaters Mill to increase capacity by 9Ml/d in 2023.
60	Water exported to 3rd parties' water treatment works	SEW at Burham to increase with works capacity increase in 2023. We have used the table definition -the average daily water exported from our water treatment systems.

* Wn2 - Wholesale water network plus water distribution (explanatory variables)		
Line description		Commentary
5	Total length of potable water mains (≤320mm)	We acknowledge the slight difference in the total mains lengths reported and the total lengths reported by diameter. We use different data sources to calculate the two sets of data and are unable to identify all diameters, and are not currently able to identify the diameter for all mains lengths.
6	Total length of potable water mains > 320mm - ≤ 450mm	
7	Total length of potable water mains > 450mm - ≤ 610mm	
8	Total length of potable water mains > 610mm	
9	Total capacity of booster pumping stations	Decrease of 80 kW in 24/25 due to 2 x booster decommissioned as part of nitrate schemes / Network 2030.
10	Total capacity of service reservoirs	Decrease of 300 m3 in 24/25 due to service reservoir rationalisation as part of nitrate schemes / Network 2030.
11	Total capacity of water towers	Decrease of 1.37 Ml/d due to decommissioning of Chilbolton Tower and Rumsfield Tower in 2020-21.
12	Distribution input	As per WRMP forecast
13	Proportion of distribution input derived from impounding reservoirs	17/18 is an actual, 18/19 onwards is based on a 7 year average of DI proportion for each asset type.
14	Proportion of distribution input derived from pumped storage reservoirs	
15	Proportion of distribution input derived from river abstractions	17/18 is an actual, 18/19 onwards is based on a 7 year average of DI proportion for each asset type. Change in 22/23 is due to outage recovery at key surface water sites.
16	Proportion of distribution input derived from boreholes, groundwater works, excluding	

	managed aquifer recharge (MAR) water supply schemes	
Lines 22 to 26 are based on our WRMP tables (reference given are to WRMP tables).		
25	Total leakage	This is shown as shadow reported leakage, this will not align with water balance numbers which make up lines 22 to 24.26 and 27 (which are based on the existing water balance e.g. non shadow leakage/PCC).
31	Total number of booster pumping stations	* *On 11th March 2019, Ofwat issued a clarification which changed the definition of water booster pumping stations from being those that pump 'within' water distribution systems to being those that pump 'into and within' water distribution systems. Consequently our data in this line will now differ from the Water Booster Pumping station data submitted as part of both the 2018 APR submission and the PR19 data table submission.* * *The forecast increases by one in 2018-19 due to the completion of Martin Mill WBS. The number of pumping stations then remains constant until 2022-23 when it reduces by five. It then reduces by a further five in 2024-25.* * *The reductions between 2020 and 2025 are due to our network 2030 programme. All of the reductions in 2022-23 and three of the reductions in 2024-25 are due to the consolidation of treatment works (see technical annex TA.11.WN02 Nitrate for more information). The remaining two booster pumping stations are removed due to the construction of a new reservoir at Houndean near Lewes.*
32	Total number of service reservoirs	Decrease of 24 due to service reservoir rationalisation as part of nitrate schemes / Network 2030.
33	Total number of water towers	Decrease of 2 due to decommissioning of Chilbolton Tower and Rumsfield Tower in 2020-21.

**** Wn3 - Wholesale revenue projections for the water network plus price control		
Line description		Commentary
A	Wholesale water network plus revenue requirement aggregated by building blocks	
2	Pension deficit repair contributions ~ wholesale water network plus	Allocation based on IN 13/17. Result copied from financial model.
3	Run off on post 2020 totex additions ~ wholesale water network plus	From Mapping Tool. **** Updated in response to IAP query SRN-DD-CE-003 and following response to query SRN_11 from Ofwat.

4	Return on post 2020 totex additions to RCV ~ wholesale water network plus	
5	Run off on RPI inflated 2020 RCV ~ wholesale water network plus	
6	Return on RPI inflated 2020 RCV ~ wholesale water network plus	
7	Run off on CPIH inflated 2020 RCV ~ wholesale water network plus	
8	Return on CPIH inflated 2020 RCV ~ wholesale water network plus	
9	Current tax ~ wholesale water network plus	
10	Re-profiling of allowed revenue ~ wholesale water network plus	Note: from financial model 'revenue solving adjustment'. **** Updated in response to IAP query SRN-DD-CE-003 and following response to query SRN_11 from Ofwat.
11	PR14 reconciliation revenue adjustments ~ wholesale water network plus	**** Updated in response to IAP query SRN-DD-CE-003 and following response to query SRN_11 from Ofwat.
C	Wholesale water network plus ~ non-price control income (third party services)	
14	Bulk supplies ~ contract not qualifying for water trading incentives (signed before 1 April 2020) ~ water network plus	As a result of a review of our revenue forecasts
15	Bulk supplies ~ contract qualifying for water trading incentives (to be signed on or after 1 April 2020) ~ water network plus	
16	Rechargeable works ~ water network plus	
17	Other non-price control third party services ~ water network plus	
D	Wholesale water network plus ~ non-price control income (principal services)	
19	Wholesale water network plus non-price control income (principal services)	Income from standpipe- this is assumed to be flat in CPIH 17-18 prices
E	Wholesale water network plus charges	
20	Water network plus unmeasured charge ~ residential	This is the residential and business revenue split. We are using the projected split for 18/19 for all years in AMP7.
21	Water network plus unmeasured charge ~ business	
22	Water network plus measured charge ~ residential	

23	Water network plus measured charge ~ business	
F	Grants & contributions	
25	Water network operating expenditure grants and contributions (price control)	This is taken directly from APP28 Grants and Contributions and applied to the relevant price controls
26	Water network capital expenditure grants and contributions (price control)	None
27	Water network operating expenditure grants and contributions (non-price control)	
28	Water network capital expenditure grants and contributions (non-price control)	

**** Wn4 - Cost recovery for water network plus		
Line description		Commentary
A	RCV run off rate ~ RPI linked RCV	
1	"Natural" RCV run off rate ~ water network plus	* *Based on natural run-off rate for price control (see SRN.RR.A3)*
2	Adjustments to RCV run off rate to address transition from RPI to CPI ~ water network plus	None
3	Other adjustments to RCV run off rate ~ water network plus	* *Run-off rate reduced in order to manage affordability (see SRN RR A4).* **** Updated in response to IAP query SRN-DD-CE-003 and following response to query SRN_11 from Ofwat.
5	Method used to apply run off rate (straight line or reducing balance) ~ water network plus RPI wedge linked	Reducing balance
B	RCV run off rate ~ CPI/CPI(H) linked RCV	
6	"Natural" RCV run off rate ~ water network plus	* *Based on natural run-off rate for price control (see SRN.RR.A3)*
7	Adjustments to RCV run off rate to address transition from RPI to CPI ~ water network plus	None
8	Other adjustments to RCV run off rate ~ water network plus	* *Run-off rate reduced in order to manage affordability (see SRN.RR.A4).* **** Updated in response to IAP query SRN-DD-CE-003 and following response to query SRN_11 from Ofwat.
10	Method used to apply run off rate (straight line or reducing balance) ~ water network plus CPI(H) linked	Reducing balance
C	PAYG Rate ~ water network plus	

11	"Natural" PAYG rate ~ water network plus	* *Based on natural PAYG rate for price control (see SRN.RR.A2).* **** Updated in response to IAP query SRN-DD-CE-003 and following response to query SRN_11 from Ofwat.
12	Adjustments to PAYG rate to address transition from RPI to CPI ~ water network plus	None
13	Other adjustments to PAYG rate ~ water network plus	* *None*

Wn5 - Weighted average cost of capital for the water network plus control		
Line description		Commentary
A	Wholesale WACC ~ based on assumed notional structure (nominal)	
1	Gearing	Final methodology WACC Consistent with App32
2	Total Market Return	
3	Risk Free Rate	
5	Debt beta	
6	Asset beta	
9	Cost of debt ~ water network plus	
B	Wholesale WACC ~ based on company's actual structure (nominal)	
11	Gearing (used in WACC) ~ water network plus	Final methodology WACC Consistent with App32
12	Total Market Return	
13	Risk Free Rate	
15	Debt beta	
16	Asset beta	
19	Cost of debt (used in WACC) ~ water network plus	

Wn6 - Wholesale water network plus special cost factors
Commentary
We do not have any cost adjustment claims for this price control.

* WWS1 - Wholesale wastewater operating and capital expenditure by business unit		
Line description		Commentary
A	Operating expenditure	
1	Power	Internal budget for 2019-20 rolled over into 2020-21 as base opex. This was then updated for any enhancement opex, new items of expenditure and any non-inflation related power adjustments. Efficiency was then applied at a totex level, please refer to efficiency chapter. There is a validation error on line 9, due to the table not reconciling to Bio3. This is due to Bio3 including depreciation, which has not been included in operating expenditure on WWS1. * *Revisions to operating expenditure at the IAP response stage are discussed in 'Response to IAP Annex 6 – Securing Cost Efficiency PART A SRN.CE.A1'.*
2	Income treated as negative expenditure	
3	Service charges / Discharge Consents	
4	Bulk discharge	
	Other operating expenditure	
5	~ Renewals expensed in year (Infrastructure)	
6	~ Renewals expensed in year (Non-Infrastructure)	
7	~ Other operating expenditure excluding renewals	
8	Local authority and Cumulo rates	
B	Capital expenditure	
14	Other capital expenditure ~ infra	* *As per the IAP response, the fair value of sewers adopted under section 104 WIA has been excluded from this table.*
C	Totex	
20	Grants and contributions ~ operating expenditure	Nil
21	Grants and contributions ~ capital expenditure	All G&C relate to capital expenditure
D	Cash Expenditure	
23	Pension deficit recovery payments	This is driven by App22
24	Other cash items	
E	Atypical expenditure	
26	Ofwat and EA investigations including legal defence costs	No Atypicals have been forecast, so those included are 2017-18 related only

* WWS1a - Wholesale wastewater operating and capital expenditure by business unit including operating leases reclassified under IFRS16	
Line description	Commentary

A	Operating expenditure	
1	Power	This table is identical to WS1 except for the IFRS16 adjustment has been removed. This means that rental costs for two offices continue to go through opex in WS1a, whereas in WS1 £20.0m capex was added in 2019-20 when IFRS16 comes into effect. In 2024-25 there is additional capex of £5.3m when a new operating lease is expected to be signed for one of the offices. This was all added to Wastewater Network +, as this is the asset of principal use.
2	Income treated as negative expenditure	
3	Service charges / Discharge Consents	
4	Bulk discharge	
	Other operating expenditure	
5	~ Renewals expensed in year (Infrastructure)	
C	Totex	
20	Grants and contributions ~ operating expenditure	
21	Grants and contributions ~ capital expenditure	
D	Cash Expenditure	
23	Pension deficit recovery payments	This is driven by App22
24	Other cash items	
E	Atypical expenditure	
26	Ofwat and EA investigations including legal defence costs	No Atypicals have been forecast, so those included are 2017-18 related only

* WWS2 - Wholesale wastewater capital and operating expenditure by purpose		
Line description		Commentary
A	Enhancement expenditure by purpose - capital	
1	First time sewerage (s101A)	This line shows AMP6 and AMP7 capex enhancement investment for S101A schemes. £4.577m of S101A enhancement capex investment in AMP7 relates to a potential 3 sites where we believe that we may have AMP7 S101A obligations. It is not clear at this stage when these schemes will be completed. Hence, why the spend profile has been evenly allocated over AMP7. See Wholesale Wastewater TA.12.WW05 Business Case - Wastewater Growth for more information on the AMP7 investment. * *See also 'Response to IAP Annex 6 – Securing Cost Efficiency PART A SRN.CE.A1'.*
2	Sludge enhancement (quality)	No capex enhancement investment forecast for sludge quality.

3	Sludge enhancement (growth)	This line shows AMP6 and AMP7 capex enhancement investment for sludge growth. This line includes AMP7 capital costs of £4.820m for additional sludge as a result of growth drivers. See Wholesale Wastewater TA.12. BR01 Business Case - Bioresources Treatment & Growth for more information on these sludge growth requirements in AMP7. * *See also 'Response to IAP Annex 6 – Securing Cost Efficiency PART A SRN.CE.A1'.*
4	WINEP / NEP ~ Conservation drivers	This line shows AMP7 capex enhancement investment for WINEP conservation drivers. * *£14.903m of enhancement capex investment is required in AMP7 to meet the Shellfish no deterioration conservation driver at sites that do not require UV treatment to be installed.* The remaining Shellfish no deterioration driver scheme costs do include UV treatment and are included in WWS2 Line 21. See Wholesale Wastewater TA.12. WW06 Business Case - Wastewater Environmental Programme for more details on these Shellfish no deterioration schemes and solutions in AMP7. * *Investment in this area has been updated at the IAP response stage and is discussed in more detail in 'Response to IAP Annex 6 – Securing Cost Efficiency PART A SRN.CE.A1'.*
5	WINEP / NEP ~ Eels Regulations (measures at outfalls)	No capex enhancement investment forecast for eels regulation.
6	WINEP / NEP ~ Event Duration Monitoring at intermittent discharges	This line shows AMP6 and AMP7 capex enhancement investment for WINEP / NEP event duration monitoring at intermittent discharges. £4.419m enhancement capex investment has been identified in AMP7 for monitoring WINEP drivers. See Wholesale Wastewater TA.12. WW06 Business Case - Wastewater Environmental Programme for more detail on these monitoring driver requirements, sites and solutions in AMP7. * *See also 'Response to IAP Annex 6 – Securing Cost Efficiency PART A SRN.CE.A1'.*
7	WINEP / NEP ~ Flow monitoring at sewage treatment works	This line shows AMP7 capex enhancement investment for WINEP flow monitoring at sewage treatment works. £0.242m enhancement capex investment has been identified in AMP7 for delivery of WINEP flow monitoring at sewage treatment works. See Wholesale Wastewater TA.12. WW06 Business Case - Wastewater Environmental Programme for more details on this monitoring

		driver requirement, sites and solutions in AMP7. * *See also 'Response to IAP Annex 6 – Securing Cost Efficiency PART A SRN.CE.A1'.*
8	NEP ~ Monitoring of pass forward flows at CSOs	No capex enhancement investment forecast for monitoring of pass forward flows at CSOs.
9	WINEP / NEP ~ Schemes to increase flow to full treatment	This line shows AMP7 capex enhancement investment for WINEP schemes to increase flow to full treatment. * *£145.025m enhancement capex investment has been identified in AMP7 to deliver WINEP requirements to increase flow to full treatment under the U_IMP5 (DWF: FFT) driver. See Wholesale Wastewater TA.12. WW06 Business Case - Wastewater Environmental Programme for more details on this U_IMP5 (DWF: FFT) driver requirements, sites and solutions in AMP7.* * *Investment in this area has been updated at the IAP response stage and is discussed in more detail in 'Response to IAP Annex 6 – Securing Cost Efficiency PART A SRN.CE.A1'.*
10	WINEP / NEP ~ Storage schemes at STWs to increase storm tank capacity	This line shows AMP7 capex enhancement investment for storage schemes at STWs to increase storm tank capacity. * *£88.113m enhancement capex investment has been identified in AMP7 to deliver WINEP requirements to increase storm tank capacity STWs under the U_IMP6 (Storm Tanks) driver. See Wholesale Wastewater TA.12. WW06 Business Case - Wastewater Environmental Programme for more details on these storage schemes at STWs in AMP7.* * *Investment in this area has been updated at the IAP response stage and is discussed in more detail in 'Response to IAP Annex 6 – Securing Cost Efficiency PART A SRN.CE.A1'.*
11	WINEP / NEP ~ Storage schemes in the network to reduce spill frequency at CSOs, etc	This line shows AMP7 capex enhancement investment for WINEP storage schemes in the network to reduce spill frequency at CSOs, etc. £0.440m enhancement capex investment has been identified in AMP7 to deliver WINEP storage scheme requirements in the network to reduce spill frequency at CSOs etc (under the U _IMP4 driver). See Wholesale Wastewater TA.12. WW06 Business Case - Wastewater Environmental Programme for more details on these storage schemes in the network to reduce spill frequency at CSO's etc in AMP7. * *See also 'Response to IAP Annex 6 – Securing Cost Efficiency PART A SRN.CE.A1'.*
12	WINEP / NEP ~ Chemicals removal schemes	This line shows AMP7 capex enhancement investment for chemical removal schemes.

		* *£2.518m enhancement capex investment has been identified in AMP7 to deliver WINEP requirements under chemical removal scheme drivers.* See Wholesale Wastewater TA.12. WW06 Business Case - Wastewater Environmental Programme for more details on this U-IMP4 driver requirements, sites and solutions in AMP7. * *Investment in this area has been updated at the IAP response stage and is discussed in more detail in 'Response to IAP Annex 6 – Securing Cost Efficiency PART A SRN.CE.A1'.*
13	WINEP / NEP ~ Chemicals monitoring / investigations / options appraisals	No capex enhancement investment forecast for WINEP – chemicals monitoring / investigations / options appraisal.
14	NEP ~ National phosphorus removal technology investigations	No capex enhancement investment forecast for WINEP – national phosphorus removal technology investigations.
15	WINEP / NEP ~ Groundwater schemes	This line shows AMP6 and AMP7 capex enhancement investment for WINEP / NEP groundwater schemes. £32.949m capex enhancement investment is required to deliver AMP7 Phase 3 of the Thanet groundwater protection and infiltration reduction scheme. More information on this enhancement investment requirement in AMP7 is provided in the Cost Efficiency TA.14.2 CAC2 - Thanet Groundwater Protection Scheme. * *See also 'Response to IAP Annex 6 – Securing Cost Efficiency PART A SRN.CE.A1'.*
16	WINEP / NEP ~ Investigations	This line shows AMP6 capex enhancement investment for NEP investigation schemes. No AMP7 capex enhancement investment forecast for WINEP investigations. AMP7 studies and investigations are being delivered through opex as detailed in line 63.
17	WINEP / NEP ~ Nutrients (N removal)	This line shows AMP6 and AMP7 capex enhancement investment for WINEP / NEP nutrient (N removal) schemes. £2.996m enhancement capex investment has been identified in AMP7 to deliver WINEP requirements that require nutrient nitrate removal to be installed. See Wholesale Wastewater TA.12. WW06 Business Case - Wastewater Environmental Programme for more details on the sites and solutions requiring nitrate nutrient removal in AMP7. * *See also 'Response to IAP Annex 6 – Securing Cost Efficiency PART A SRN.CE.A1'.*
18	WINEP / NEP ~ Nutrients (P removal at activated sludge STWs)	This line shows AMP6 and AMP7 capex enhancement investment for WINEP / NEP nutrient (P removal at activated sludge STWs). * *£55.518m of enhancement capex investment has been identified in AMP7 to deliver WINEP requirements that require Phosphorus removal / treatment at activated sludge plant*

		sites. See Wholesale Wastewater TA.12. WW06 Business Case - Wastewater Environmental Programme for more details on the sites and solutions requiring Phosphorus nutrient removal at an activated sludge plant site in AMP7. * *Investment in this area has been updated at the IAP response stage and is discussed in more detail in 'Response to IAP Annex 6 – Securing Cost Efficiency PART A SRN.CE.A1'.*
19	WINEP / NEP ~ Nutrients (P removal at filter bed STWs)	This line shows AMP6 and AMP7 capex enhancement investment for WINEP / NEP nutrient (P removal at filter bed STWs). * *£155.675m of enhancement capex investment has been identified in AMP7 to deliver WINEP requirements that require Phosphorus removal / treatment at filter bed sites.* See Wholesale Wastewater TA.12. WW06 Business Case - Wastewater Environmental Programme for more details on the sites and solutions requiring Phosphorus nutrient removal at filter bed sites in AMP7. * *Investment in this area has been updated at the IAP response stage and is discussed in more detail in 'Response to IAP Annex 6 – Securing Cost Efficiency PART A SRN.CE.A1'.*
20	WINEP / NEP ~ Reduction of sanitary parameters	This line shows AMP6 and AMP7 capex enhancement investment for WINEP / NEP reduction of sanitary parameter schemes. * *£28.656m of enhancement capex investment has been identified in AMP7 to deliver WINEP requirements that require a reduction of other sanitary parameters (i.e. BOD and Ammonia) at our wastewater treatment work sites.* See Wholesale Wastewater TA.12. WW06 Business Case - Wastewater Environmental Programme for more details on the sites and solutions requiring Phosphorus nutrient removal at filter bed sites in AMP7. * *Investment in this area has been updated at the IAP response stage and is discussed in more detail in 'Response to IAP Annex 6 – Securing Cost Efficiency PART A SRN.CE.A1'.*
21	WINEP / NEP ~ UV disinfection (or similar)	This line shows AMP7 capex enhancement investment for UV disinfection (or similar). £13.051m of enhancement capex investment has been identified in AMP7 for WINEP driver related UV treatment schemes. These UV schemes are included to deliver under the WINEP Shellfish no deterioration driver. The remaining Shellfish no deterioration driver scheme costs that do not include UV treatment and are included in WWS2 Line 4. See Wholesale

		Wastewater TA.12. WW06 Business Case - Wastewater Environmental Programme for more details on these UV disinfection schemes requirements, sites and solutions in AMP7. * *See also 'Response to IAP Annex 6 – Securing Cost Efficiency PART A SRN.CE.A1'.*
22	NEP ~ Discharge relocation	This line shows AMP6 capex enhancement investment for NEP discharge relocation. No AMP7 capex enhancement investment forecast for discharge relocation.
23	NEP ~ Flow 1 schemes	This line shows AMP6 capex enhancement investment for NEP flow 1 schemes. No AMP7 capex enhancement investment forecast for Flow 1 schemes.
24	Odour	No capex enhancement investment forecast for odour.
25	New development and growth	This line shows AMP6 and AMP7 capex enhancement investment for new development and growth. * *£122.244m of enhancement capex investment has been identified in AMP7 for new development and growth.* See Wholesale Wastewater TA.12.WW05 Business Case - Wastewater Growth for more information on this investment in AMP7. * *Investment in this area has been updated at the IAP response stage and is discussed in more detail in 'Response to IAP Annex 6 – Securing Cost Efficiency PART A SRN.CE.A1'.*
26	Growth at sewage treatment works (excluding sludge treatment)	This line shows AMP6 and AMP7 capex enhancement investment for growth at sewage treatment works (excluding sludge treatment). * *£97.241m of enhancement capex investment has been identified in AMP7 for growth at sewage treatment works (excluding sludge treatment).* See Wholesale Wastewater TA.12.WW05 Business Case - Wastewater Growth for more information on this investment in AMP7. * *Investment in this area has been updated at the IAP response stage and is discussed in more detail in 'Response to IAP Annex 6 – Securing Cost Efficiency PART A SRN.CE.A1'.*
27	Resilience	This line shows AMP7 capex enhancement investment for resilience schemes. * *No AMP7 capex enhancement investment forecast for Resilience.* * *Investment in this area has been updated at the IAP response stage and is discussed in more detail in 'Response to IAP Annex 6 – Securing Cost Efficiency PART A SRN.CE.A1'.*

28	SEMD	This line shows AMP6 capex enhancement investment for SEMD. No AMP7 capex enhancement investment forecast for SEMD.
29	Non-SEMD related security enhancement	No capex enhancement investment forecast for non-SEMD related security.
30	Reduce flooding risk for properties	This line shows AMP6 and AMP7 capex enhancement investment for reducing flooding risk for properties. £10.284m of enhancement capex investment has been identified in AMP7 to support reduction of flooding risk to customer properties. See Wholesale Wastewater TA.12. WW04 Business Case – Sewers and Rising Mains and TA.12. WW07 Business Case – Flooding and Pollution Strategies for more details on this improvement area of investment. * *See also 'Response to IAP Annex 6 – Securing Cost Efficiency PART A SRN.CE.A1'.*
31	Transferred private sewers and pumping stations	Costs shown are for a scheme to bring Inherited pumps up to useable standard
32	WFD Manage uncertainty Special case	This shows actual / projected capital investment for the AMP6 WFD managing uncertainty special case schemes in the remainder of AMP6. Note that these forecast costs are subject to change as we look to deliver these AMP6 NEP requirements on time.
33	AMP 6 Bathing Water enhancement	This shows actual / projected capital investment for the AMP6 Bathing Water enhancement programme in the remainder of AMP6. Note that these forecast costs are subject to change as we look to deliver these AMP6 Bathing Water Enhancement requirements as planned.
34	NEP Bathing Water	This shows actual / projected capital investment for the AMP6 NEP Bathing Water schemes in the remainder of AMP6. Note that these forecast costs are subject to change as we look to deliver these AMP6 NEP Bathing Water requirements on time as planned.
35	Woolston part 2	This shows the 2017/18 capital investment for the AMP6 Woolston Part 2 scheme i.e. the secondary driver to the UWWTD
36	Pollution Resilience	This line shows £10.325m of enhancement capex investment associated with improving pollution performance in AMP7. This improvement in pollution has significant support from customers and stakeholders. See Wholesale Wastewater TA.12. WW04 Business Case – Sewers and Rising Mains, TA.12. WW02 Business Case - Network Pumping Stations, and TA.12. WW07 Business Case – Flooding and Pollution Strategies for more details on this improvement area of investment in AMP7. * *See also 'Response to IAP Annex 6 – Securing Cost Efficiency PART A SRN.CE.A1'.*

<table>
<tr><td>37</td><td>Bathing Water Enhancement Programme</td><td>* £21.251m of enhancement capex investment in AMP7 associated with improving 5 bathing waters to 'Good' and 2 bathing waters to 'excellent' bathing water standards. More information on this investment in AMP7 is provided in the Cost Efficiency TA.14.1 Cost Adjustment Claim 1 – Bathing Water.

* Investment in this area has been updated at the IAP response stage and is discussed in more detail in 'Response to IAP Annex 6 – Securing Cost Efficiency PART A SRN.CE.A1'.</td></tr>
<tr><td>B</td><td colspan="2">Enhancement expenditure by purpose - operating</td></tr>
<tr><td>48</td><td>First time sewerage (s101A)</td><td>This line shows the AMP6 S101A delivery schemes opex arising from capex for AMP6 and AMP7.

£0.410m of AMP7 enhancement opex arises from the AMP6 capex investment in S101A schemes. No opex arising from capex has been identified for the AMP7 S101A capex detailed in line 1.

As this is opex that comes from AMP6 investment, this opex has been excluded from the investment shown in Wholesale Wastewater TA.12.WW05 Business Case - Wastewater Growth. * See also 'Response to IAP Annex 6 – Securing Cost Efficiency PART A SRN.CE.A1'.</td></tr>
<tr><td>49</td><td>Sludge enhancement (quality)</td><td>No opex enhancement investment forecast for sludge quality.</td></tr>
<tr><td>50</td><td>Sludge enhancement (growth)</td><td>This line shows AMP6 and AMP7 opex arising from capex data for delivery of sludge growth schemes.

£1.629m of AMP7 opex enhancement investment is the opex arising from the sludge growth enhancement capex investment detailed in line 3 and the opex arising from capex from AMP6 capex investments. The table below shows the opex data included in this line for AMP7:

<table>
<tr><th>Sludge enhancement (growth) opex</th><th>AMP7 Opex Investment</th></tr>
<tr><td>AMP7 Opex AFC</td><td>£0.789m</td></tr>
<tr><td>AMP6 Opex AFC</td><td>£0.840m</td></tr>
<tr><td>Total</td><td>£1.629m</td></tr>
</table>

See Wholesale Wastewater TA.12.BR01 Bioresources Treatment & Growth for more information on the AMP7 opex arising from capex. The AMP6 opex that comes from AMP6</td></tr>
</table>

		investment has been excluded from the investment shown in this technical annex. * *See also 'Response to IAP Annex 6 – Securing Cost Efficiency PART A SRN.CE.A1'.*
51	WINEP / NEP ~ Conservation drivers	This line shows AMP7 opex arising from capex for WINEP conservation drivers. £0.556m of opex enhancement investment is the opex arising from capex from the enhancement capex investment detailed in line 4 (shellfish no deterioration schemes). See Wholesale Wastewater TA.12. WW06 Business Case - Wastewater Environmental Programme for more details on the opex arising from capex for these schemes. * *See also 'Response to IAP Annex 6 – Securing Cost Efficiency PART A SRN.CE.A1'.*
52	WINEP / NEP ~ Eels Regulations (measures at outfalls)	No opex enhancement investment forecast for eels regulation.
53	WINEP / NEP ~ Event Duration Monitoring at intermittent discharges	This line shows AMP6 opex arising from capex data for NEP event duration monitoring at intermittent discharges. £1.055m of AMP7 enhancement opex is arising from AMP6 capex investment in Event Duration Monitoring schemes. No opex arising from capex has been identified for the AMP7 delivery of event duration monitoring capex detailed in line 6. As this is opex that comes from AMP6 investment, this opex has been excluded from the investment shown in Wholesale Wastewater TA.12. WW06 Business Case - Wastewater Environmental Programme. * *See also 'Response to IAP Annex 6 – Securing Cost Efficiency PART A SRN.CE.A1'.*
54	WINEP / NEP ~ Flow monitoring at sewage treatment works	No opex enhancement investment forecast for flow monitoring at sewage treatment works.
55	NEP ~ Monitoring of pass forward flows at CSOs	No opex enhancement investment forecast for monitoring of pass forward flows.
56	WINEP / NEP ~ Schemes to increase flow to full treatment	This line shows AMP7 opex arising from capex for WINEP schemes to increase flow to full treatment. £3.276m of AMP7 opex enhancement investment is the opex arising from capex from the enhancement capex investment detailed in line 9 (UWWTR - U_IMP5 (DWF:FFT) driver schemes). See Wholesale Wastewater TA.12. WW06 Business Case - Wastewater Environmental Programme for more details on the opex arising from capex for these schemes. * *See also 'Response to IAP Annex 6 – Securing Cost Efficiency PART A SRN.CE.A1'.*

57	WINEP / NEP ~ Storage schemes at STWs to increase storm tank capacity	This line shows AMP7 opex arising from capex for WINEP storage schemes at STWs to increase storm tank capacity. £1.408m of AMP7 opex enhancement investment is the opex arising from capex from the enhancement capex investment detailed in line 10 (UWWTR - U_IMP6 (Storm Tanks) driver). See Wholesale Wastewater TA.12. WW06 Business Case - Wastewater Environmental Programme for more details on the opex arising from capex for these schemes. * *See also 'Response to IAP Annex 6 – Securing Cost Efficiency PART A SRN.CE.A1'.*
58	WINEP / NEP ~ Storage schemes in the network to reduce spill frequency at CSOs, etc	This line shows AMP7 opex arising from capex for WINEP Storage schemes in the network to reduce spill frequency at CSOs, etc. £0.006m of AMP7 opex enhancement investment is the opex arising from capex from the enhancement capex investment detailed in line 11 (WINEP requirements under the U _IMP4 driver). See Wholesale Wastewater TA.12. WW06 Business Case - Wastewater Environmental Programme for more details on the opex arising from capex for these schemes. * *See also 'Response to IAP Annex 6 – Securing Cost Efficiency PART A SRN.CE.A1'.*
59	WINEP / NEP ~ Chemicals removal schemes	This line shows AMP7 opex arising from capex for WINEP chemical removal schemes. * *£0.042m of AMP7 opex enhancement investment is the opex arising from capex from the enhancement capex investment detailed in line 12.* See Wholesale Wastewater TA.12. WW06 Business Case - Wastewater Environmental Programme for more details on the opex arising from capex for these schemes. * *Investment in this area has been updated at the IAP response stage and is discussed in more detail in 'Response to IAP Annex 6 – Securing Cost Efficiency PART A SRN.CE.A1'.*
60	WINEP / NEP ~ Chemicals monitoring / investigations / options appraisals	This line shows AMP7 opex arising from capex for WINEP chemicals monitoring / investigations / options appraisals. £1.978m of AMP7 enhancement opex investment is required to deliver chemicals monitoring / investigations / appraisals in AMP7. See Wholesale Wastewater TA.12. WW06 Business Case - Wastewater Environmental Programme for more details on the opex costs included. * *See also 'Response to IAP Annex 6 – Securing Cost Efficiency PART A SRN.CE.A1'.*

<table>
<tr><td>61</td><td>NEP ~ National phosphorus removal technology investigations</td><td>No opex enhancement investment forecast for national phosphorus removal technology investigations.</td></tr>
<tr><td>62</td><td>WINEP / NEP ~ Groundwater schemes</td><td>This line shows the AMP6 groundwater schemes opex arising from capex.

* £0.235m of AMP7 enhancement opex arising from the AMP6 capex investment in groundwater schemes. No opex arising from capex has been identified for the AMP7 groundwater schemes capex detailed in line 15.

As this is opex that comes from AMP6 investment, this opex has been excluded from the investment shown in Wholesale Wastewater TA.12. WW06 Business Case - Wastewater Environmental Programme. * See also ‘Response to IAP Annex 6 – Securing Cost Efficiency PART A SRN.CE.A1’.</td></tr>
<tr><td>63</td><td>WINEP / NEP ~ Investigations</td><td>This line shows AMP7 opex arising from capex for WINEP investigations.

£21.318m of opex enhancement investment has been identified to deliver all the required WINEP studies and investigations programme in AMP7. See Wholesale Wastewater TA.12. WW06 Business Case - Wastewater Environmental Programme for more details on the opex costs included and the breakdown of these costs by driver code. * See also ‘Response to IAP Annex 6 – Securing Cost Efficiency PART A SRN.CE.A1’.</td></tr>
<tr><td>64</td><td>WINEP / NEP ~ Nutrients (N removal)</td><td>This line shows both AMP6 and AMP7 opex arising from capex investment associated with nutrient nitrate removal.

£5.877m of AMP7 enhancement opex arises from the AMP6 and AMP7 capex investments in nitrate nutrient removal schemes (see line 17 for the AMP7 capex associated with this opex). The table below shows the breakdown of the opex investment for AMP6 and the AMP7 investment:

<table>
<tr><th>WINEP – Nutrient (N removal)</th><th>Opex Investment</th></tr>
<tr><td>AMP7 Opex AFC</td><td>£0.073m</td></tr>
<tr><td>AMP6 Opex AFC</td><td>£5.804m</td></tr>
<tr><td>Total</td><td>£5.877m</td></tr>
</table>

As the AMP6 opex comes from AMP6 investment, this opex has been excluded from the investment shown in Wholesale Wastewater TA.12. WW06 Business Case - Wastewater Environmental Programme. Information on the AMP7 costs are explained in more detail in</td></tr>
</table>

<table>
<tr><td></td><td></td><td>this technical annex. * See also ‘Response to IAP Annex 6 – Securing Cost Efficiency PART A SRN.CE.A1’.</td></tr>
<tr><td>65</td><td>WINEP / NEP ~ Nutrients (P removal at activated sludge STWs)</td><td>This line shows AMP6 and AMP7 opex arising from capex and AMP7 opex investment associated with nutrient phosphorus removal at activated sludge works sites.

The AMP7 opex investment comes to £6.340m. £5.511m of this opex relates to enhancement opex arising from AMP6 and AMP7 capex investments in phosphorus removal at activated sludge sites (see line 18 for the AMP7 capex associated with this opex). The remaining £0.829m of opex is required to deliver opex catchment solutions under the WFD improvement P driver. The table below shows the breakdown of the opex investment for AMP6 and the AMP7 investment:

<table>
<tr><th>WINEP – Nutrient (P removal at activated sludge STWs)</th><th>Opex Investment</th></tr>
<tr><td>AMP7 Opex WFD_IMP_P</td><td>£0.829m</td></tr>
<tr><td>AMP7 Opex AFC</td><td>£3.540m</td></tr>
<tr><td>AMP6 Opex AFC</td><td>£1.971m</td></tr>
<tr><td>Total</td><td>£6.340m</td></tr>
</table>

As the AMP6 opex comes from AMP6 investment, this opex has been excluded from the investment shown in Wholesale Wastewater TA.12. WW06 Business Case - Wastewater Environmental Programme. Information on the AMP7 opex costs are explained in more detail in this technical annex. * See also ‘Response to IAP Annex 6 – Securing Cost Efficiency PART A SRN.CE.A1’.</td></tr>
<tr><td>66</td><td>WINEP / NEP ~ Nutrients (P removal at filter bed STWs)</td><td>This line shows AMP6 and AMP7 opex arising from capex and AMP7 opex investment associated with nutrient phosphorus removal at filter bed sites.

This line shows both AMP6 and AMP7 opex arising from capex investment associated with nutrient phosphorus removal at filter bed works sites. The AMP7 opex investment comes to £22.722m. £13.034m of this opex relates to enhancement opex arising from AMP6 and AMP7 capex investments in phosphorus removal at filter bed sites (see line 19 for the AMP7 capex associated with this opex). The remaining £9.688m of opex is required to deliver opex catchment solutions under the WFD_IMP_P driver. The table below shows the breakdown of the opex investment for AMP6 and the AMP7 investment:

<table>
<tr><th>WINEP – Nutrient (P removal at activated sludge STWs)</th><th>Opex Investment</th></tr>
</table>
</td></tr>
</table>

<table>
<tr><td></td><td></td><td>
<table>
<tr><td>AMP7 Opex WFD_IMP_P</td><td>£9.688m</td></tr>
<tr><td>AMP7 Opex AFC</td><td>£10.443m</td></tr>
<tr><td>AMP6 Opex AFC</td><td>£2.591m</td></tr>
<tr><td>Total</td><td>£22.722m</td></tr>
</table>

As the AMP6 opex comes from AMP6 investment, this opex has been excluded from the investment shown in Wholesale Wastewater TA.12. WW06 Business Case - Wastewater Environmental Programme. Information on the AMP7 opex costs are explained in more detail in this technical annex. * See also ‘Response to IAP Annex 6 – Securing Cost Efficiency PART A SRN.CE.A1’.</td></tr>
<tr><td>67</td><td>WINEP / NEP ~ Reduction of sanitary parameters</td><td>This line shows both AMP6 and AMP7 opex arising from capex investment associated with reduction of sanitary parameters at WINEP sites.

* The AMP7 opex investment equals £2.472m. This opex relates to enhancement opex arising from AMP6 and AMP7 capex investments in reduction of sanitary parameters at WINEP sites (see line 20 for the AMP7 capex associated with this opex). The table below shows the breakdown of the opex investment for AMP6 and the AMP7 investment:

<table>
<tr><th>* Drivers requiring reduction of sanitary parameter</th><th>Opex Investment</th></tr>
<tr><td>AMP7 Opex AFC</td><td>£1.032m</td></tr>
<tr><td>AMP6 Opex AFC</td><td>£1.440m</td></tr>
<tr><td>Total</td><td>£2.472m</td></tr>
</table>

As the AMP6 opex comes from AMP6 investment, this opex has been excluded from the investment shown in Wholesale Wastewater TA.12. WW06 Business Case - Wastewater Environmental Programme. Information on the AMP7 opex costs are explained in more detail in this technical annex.

* Investment in this area has been updated at the IAP response stage and is discussed in more detail in ‘Response to IAP Annex 6 – Securing Cost Efficiency PART A SRN.CE.A1’.</td></tr>
<tr><td>68</td><td>WINEP / NEP ~ UV disinfection (or similar)</td><td>This line shows AMP7 opex arising from capex for WINEP UV disinfection.

£0.411m of AMP7 opex enhancement investment is the opex arising from capex from the enhancement capex investment detailed in line 21 (shellfish no deterioration driver schemes</td></tr>
</table>

<table>
<tr><td></td><td></td><td>requiring UV treatment). See Wholesale Wastewater TA.12. WW06 Business Case - Wastewater Environmental Programme for more details on the opex arising from capex for these schemes. * See also ‘Response to IAP Annex 6 – Securing Cost Efficiency PART A SRN.CE.A1’.</td></tr>
<tr><td>69</td><td>NEP ~ Discharge relocation</td><td>No opex enhancement investment forecast for discharge relocation.</td></tr>
<tr><td>70</td><td>NEP ~ Flow 1 schemes</td><td>This line shows the AMP6 Flow 1 schemes opex arising from capex. There is £0.020m of AMP7 enhancement opex arising from the AMP6 capex investment in Flow 1 schemes.

As this is opex that comes from AMP6 investment, this opex has been excluded from the investment shown in Wholesale Wastewater TA.12.WW05 Business Case - Wastewater Growth. * See also ‘Response to IAP Annex 6 – Securing Cost Efficiency PART A SRN.CE.A1’.</td></tr>
<tr><td>71</td><td>Odour</td><td>No opex enhancement investment forecast for Odour.</td></tr>
<tr><td>72</td><td>New development and growth</td><td>This line shows both AMP6 and AMP7 opex arising from capex investment associated with delivery of growth schemes.

£2.230m of AMP7 enhancement opex arises from the AMP6 and AMP7 capex investments in growth schemes (see line 25 for the AMP7 capex associated with this opex). The table below shows the breakdown of the opex investment for AMP6 and the AMP7 investment:

<table>
<tr><th>New development and growth</th><th>Opex Investment</th></tr>
<tr><td>AMP7 Opex AFC</td><td>£0.040m</td></tr>
<tr><td>AMP6 Opex AFC</td><td>£2.190m</td></tr>
<tr><td>Total</td><td>£2.230m</td></tr>
</table>

As the AMP6 opex comes from AMP6 investment, this opex has been excluded from the investment shown in Wholesale Wastewater TA.12.WW05 Business Case - Wastewater Growth. Information on the AMP7 costs are explained in more detail in this business case. * See also ‘Response to IAP Annex 6 – Securing Cost Efficiency PART A SRN.CE.A1’.</td></tr>
<tr><td>73</td><td>Growth at sewage treatment works (excluding sludge treatment)</td><td>This line shows both AMP6 and AMP7 opex arising from capex investment associated with delivery of growth schemes at sewage treatment works (excluding sludge treatment).

£1.139m of AMP7 enhancement opex arises from the AMP6 and AMP7 capex investments in growth schemes at sewage treatment works (see line 26 for the AMP7 capex associated</td></tr>
</table>

<table>
<tr><td></td><td></td><td>with this opex). The table below shows the breakdown of the opex investment for AMP6 and the AMP7 investment:

<table><tr><th>Growth at sewage treatment works (exl Sludge treatment)</th><th>Opex Investment</th></tr><tr><td>AMP7 Opex AFC</td><td>£0.164m</td></tr><tr><td>AMP6 Opex AFC</td><td>£0.975m</td></tr><tr><td>Total</td><td>£1.139m</td></tr></table>
As the AMP6 opex comes from AMP6 investment, this opex has been excluded from the investment shown in Wholesale Wastewater TA.12.WW05 Business Case - Wastewater Growth. Information on the AMP7 costs are explained in more detail in this business case. * See also ‘Response to IAP Annex 6 – Securing Cost Efficiency PART A SRN.CE.A1’.</td></tr>
<tr><td>74</td><td>Resilience</td><td>No opex enhancement investment forecast for resilience.</td></tr>
<tr><td>75</td><td>SEMD</td><td>No opex enhancement investment forecast for SEMD.</td></tr>
<tr><td>76</td><td>Non-SEMD related security enhancement</td><td>No opex enhancement investment forecast for non-SEMD related security.</td></tr>
<tr><td>77</td><td>Reduce flooding risk for properties</td><td>This line shows a combination of AMP6 opex arising from capex flooding reduction schemes and AMP7 opex investment associated with improving flooding performance in AMP7 (this AMP7 investment is in required in conjunction with line 30). The table below shows the breakdown of the opex investment for AMP6 and the AMP7 investment:

<table><tr><th>Flooding Enhancement</th><th>Opex Investment</th></tr><tr><td>AMP7 Opex</td><td>£5.648m</td></tr><tr><td>AMP6 Opex AFC</td><td>£0.052m</td></tr><tr><td>Total</td><td>£5.700m</td></tr></table>
As the AMP6 opex comes from AMP6 investment, this opex has been excluded from the investment shown in the Wholesale Wastewater TA.12.WW04 Business Case - Sewers & Rising Mains and TA.12.WW07 Business Case - Flooding & Pollution Strategies. Information on the AMP7 costs are explained in more detail in these business cases. * See also ‘Response to IAP Annex 6 – Securing Cost Efficiency PART A SRN.CE.A1’.</td></tr>
<tr><td>78</td><td>Transferred private sewers and pumping stations</td><td>This line shows AMP6 and AMP7 opex arising as a result of adopting some 750 plus former private pumping stations. * See also ‘Response to IAP Annex 6 – Securing Cost Efficiency PART A SRN.CE.A1’.</td></tr>
</table>

79	WFD Manage uncertainty Special case	No opex is forecast for this AMP6 Bathing Water enhancement investment area.
80	AMP 6 Bathing Water enhancement	No opex is forecast for this AMP6 Bathing Water enhancement investment area.
81	NEP Bathing Water	No opex is forecast for this AMP6 NEP bathing water investment area.
82	Woolston part 2	Opex arising from capex figures for Woolston Part 2 AMP6 scheme are included in line 64.
83	Pollution Resilience	This line shows AMP7 opex enhancement investment associated with pollution resilience. £0.353m of enhancement opex investment associated with improving pollution performance in AMP7 (this AMP7 investment is required in conjunction with line 36). This improvement in pollution has significant support from customers and stakeholders. More detailed information on this investment is provided in the Wholesale Wastewater TA.12.WW04 Business Case - Sewers & Rising Mains and TA.12.WW07 Business Case - Flooding & Pollution Strategies. * *See also 'Response to IAP Annex 6 – Securing Cost Efficiency PART A SRN.CE.A1'.*

* WWS2a - Wholesale wastewater cumulative capital enhancement expenditure by purpose		
Line description		commentary
A	Cumulative capital enhancement expenditure by purpose	
1	First time sewerage (s101A)	Refer to commentary for line 1 of Table WWS2 re timing of scheme delivery.
6	WINEP / NEP ~ Event duration monitoring at intermittent discharges	For all but 17-18 expenditure we have reported the expenditure in this table to match that in table WWS2 reflecting that each individual scheme provides many monitors. This was not the approach taken for 17-18 reporting where costs have been included with those for 18-19
11	WINEP / NEP ~ Storage schemes in the network to reduce spill frequency at CSOs, etc.	We have planned to complete construction of schemes to provide storage as early as possible but recognise that delays are possible which are reflected in table WWn4
17	WINEP / NEP ~ Nutrients (N removal)	Our intention is to complete early to achieve early benefit
18	WINEP / NEP ~ Nutrients (P removal at activated sludge STWs)	There are some timing differences between the non-financial measure and the financial measure where benefit can be achieved ahead of full scheme completion
19	WINEP / NEP ~ Nutrients (P removal at filter bed STWs)	Included in this line is one very large scheme for completion in year 24-25. However this scheme is intended to address a number of sites (which and when, not yet decided) which will complete in different years across AMP7, hence an apparent difference to table WWn4

20	WINEP / NEP ~ Reduction of sanitary parameters	WWn4 reports the requirement but we have profiled construction to deliver earlier benefit.
21	WINEP / NEP ~ UV disinfection (or similar)	Expenditure in this line is described in more detail in table WWS2. It comprises a number of sites to be addressed but timing and completion has yet to be detailed. As a result there is a difference in this profile and that in WWn4
22	NEP ~ Discharge relocation	Costs shown in 19-20 are for completion of an older scheme and should be regarded as a timing difference when comparing to WWn4
23	NEP ~ Flow 1 schemes	This includes a scheme for Flow 4 and Flow 5 due in AMP6.

WWS3 - Wholesale wastewater properties and population		
Line description		Commentary
1	Residential properties connected during the year	2018-19 and 2019-20 growth figures are based on adopted forecast for AMP6. Forecast from 2020-21 onward is based on PR19 growth forecast by Experian (plan-based scenario). Growth in new connections is split into residential/business is based on base-year split that is retained throughout the forecast.
2	Business properties connected during the year	2018-19 and 2019-20 growth figures are based on adopted forecast for AMP6. Forecast from 2020-21 onward is based on PR19 growth forecast by Experian (plan-based scenario). Growth in new connections is split into residential/business is based on base-year split that is retained throughout the forecast.
3	Residential properties billed unmeasured sewage	The 2017/18 values differ to those submitted in the APR. The APR incorrectly reported year-end values rather than the mid-year average. Decrease in the number of properties is as a result of increase in meter penetration.
4	Residential properties billed measured sewage	The numbers post 2017-18 include the impact of new growth, switching to metered status and voids recovery.
6	Business properties billed unmeasured sewage	Unmeasured properties change up to 2024-25 in response to changes in the number of voids as a result of our voids management programme. The number is kept constant after 2024-25. All new growth in business properties is assumed to be metered.
7	Business properties billed measured sewage	Billed business properties increase over time as a result of new connections. All new connections are assumed to be metered.
9	Void properties	Reduction in voids over AMP7 is in line with our voids recovery; the number increases post AMP7 as a result of increase in total connections.
11	Resident population	Population forecast is based on PR19 growth forecast by Experian. South East Water, Portsmouth Water and Southern Water worked with Experian based on Local Authority forecasts.

12	Non-resident population	The data is supplied by Tourism South-east based on input from 5 Local Authorities within our region i.e. a 10% sample of the 49 Local Authorities in our region.

WWS4 - Wholesale wastewater other (explanatory variables)		
Line description		Commentary
1	Energy consumption ~ network plus	Energy consumption related to those assets falling under network plus. The profile recognises the increase in consumption from growth and delivery of the WINEP commitments.
2	Energy consumption ~ sludge	Energy consumption related to those assets falling under sludge. The profile recognises the increase in sludge production and treatment associated with growth and delivery of the WINEP commitments.
4	Population resident in National Parks, SSSIs and Areas of Outstanding Natural Beauty (AONBs)	The 2017/18 value reported is different to that listed in our 2017/18 APR, because the estimated population associated with commercial properties was not included in the APR value, identified after submission. The catchment area is determined by reference to GIS. The increase in the population in these areas is based upon historic growth.
5	Total sewerage catchment area	The catchment area is determined by reference to GIS. The increase in the catchment served is based upon historic growth, factored up by the predicted future population growth over historic levels.
6	Designated bathing waters	Number of designated bathing waters in the Southern Water area, has remained static for a number of years. The Environment Agency has indicated that there are no plans to increase the number of designated bathing waters in the Southern Water region.
7	Number of intermittent discharge sites with event duration monitoring	The data up to 2019/20 relate to our AMP6 NEP requirements under the following drivers rB5, S8, EDM1 and EDM2. * *The AMP7 investment relates to 12 sites under the MON 1 driver and 40 sites under the MON 3 driver. The delivery has been evenly profiled across the AMP, except 2024-25 where 8 EDM are forecast.* Note we updated this line of the table in line with our response to query "Query_SRN_IAP_CA_012".
8	Number of monitors for flow monitoring at STWs	* *The AMP7 investment relates to 4 MON5 sites drivers requiring new installs defined in WINEP with reg output date of 2025.*

		5 sites are included in WINEP3, although only 4 included in the plan/funding requested. 1 site of the 5 listed in WINEP3 is being planned as a pump away scheme separately to this obligation, and so not included here. *There are no FFT monitors included under MON4 in WINEP 3. Instead the EA have provided 'Water Company Scale' i.e. the EA will not define requirements.*
9	Number of odour related complaints	Future performance is based on long term historic performance. A gradual improvement is predicted, from improvements to operational practices.
10	Volume of storage provided at storm tanks, etc. to meet spill frequency objectives	There are no requirements under the AMP6 NEP to provide the additional storage capacity in the last 3 years of the AMP. Under the driver WINEP U_IMP6 driver an estimated total of 52,474m3 of storm storage to be delivered across 45 sites, these are evenly profiled across AMP7.
11	Volume of new or additional storage provided in the sewerage network	Whilst there are investment schemes to increase storage to be delivered during this AMP, they do not relate to NEP drivers and hence not included in this line. The WINEP Shellfish driver includes the following schemes, Blechynden Terrace Southampton, Ensign Park Hamble, Downes Park Totton, to be delivered in 2021/22 and Dittons Road, Polegate under the IMP4 driver to be delivered in 2024/25
12	Number of sewage treatment works at which new or additional storage is provided	There are no requirements under the AMP6 NEP to provide the additional storage capacity in the last 3 years of the AMP. Under the driver WINEP U_IMP6 driver an estimated total of 52,474m3 of storm storage to be delivered across 45 sites, these are evenly profiled across AMP7.
13	Number of sites in network at which new or additional storage is provided	Whilst there are investment schemes to increase storage to be delivered during this AMP, they do not relate to NEP drivers and hence not included in this line. The WINEP Shellfish driver includes the following schemes, Blechynden Terrace Southampton, Ensign Park Hamble, Downes Park Totton, to be delivered in 2021/22 and Dittons Road, Polegate under the IMP4 driver to be delivered in 2024/25
14	Total volume of network storage	Data as per GIS records. The volume of the network was calculated for the lengths with known pipe diameters. An allowance has been made for unmapped data, the majority of which is ex-private sewers, where the diameters are assumed to be 150mm. For future years it is assumed that the increase in sewer length is the same as historic and would relate to small diameter sewers. The data recognises the volumes included in Line 11.

* WWS5 - Other wholesale wastewater expenditure
See WS5 for commentary

* WWS7 - Wholesale wastewater local authority rates		
Line description		Commentary
A	Wastewater wholesale local authority rates	
1	Wastewater wholesale business rates charge for current year **before** transitional relief	Figures here are from the most recent forecasts for 18/19 and 19/20 and as a result of challenge sessions for AMP7
2	Wastewater wholesale business rates transitional relief	Transitional relief details are provided by our 3rd party surveyors
4	Adjustments to wastewater wholesale business rates charge for prior years	Details are provided by our 3rd party surveyors
5	Charges to third party services	None
B	Analysis of change in charge before transitional relief	
11	Change in wastewater wholesale business rates costs due to the impact of the 2017 revaluation	Revaluation details are provided by our 3rd party surveyors
12	Change in wastewater wholesale business rates costs due to change in asset stock	Stock changes are driven by our analysis of new/disposed investments for AMP7
13	*Inflation*	As a result of the requirement to report in outturn

WWS10 - Transitional spending in the wholesale wastewater service
Commentary
No transition investment identified. As described in the 'securing cost efficiency' chapter of the draft Ofwat methodology document (July 2017), a move to an outcome and totex based framework means that we are able to manage investments without the need for using the transitional investment mechanism. Through good longer term planning, Southern Water will manage investment to meet regulatory, statutory and legal requirements in AMP7 without the need for AMP7 transitional investment.

WWS12 - RCV allocation in the wholesale wastewater service		
Line description		Commentary
B	Changes to proposed final net MEAV	
4	Inflation from March 2017 to March 2018 prices	RPI inflation applied to September 2017 submission valuation

5	Changes to the allocation of assets between business units	No change
6	Changes to sludge assets in existence	This change is due to the capacities being valued now being equivalent to our full hypothetical capacity
7	Changes to the gross cost of hypothetical new assets (excluding land)	This change results from a reduction in our unit costs. We reviewed our unit costs as we were an outlier in the industry, therefore these have come down quite significantly. The review was undertaken by Mott MacDonald and assured by Jacobs (see Wholesale Wastewater chapter)
8	Changes to differences in revenue and costs between hypothetical and actual assets	No change
9	Changes to the adjustment for the remaining economic life of existing processes	No change
10	Changes to land valuation	No change
11	Adjustment to the PV rate to 3.3%	This is the impact of adjusting the PV rate from 3.6% to 3.3%
C	RCV split 31 March 2020	
19	RCV (prior to midnight adjustments)	This is the total RCV split
D	Net MEAV at 31 March 2020 by asset type	
21	Sludge transport plant	This split of the Net MEAV by asset type reflects the updated costing work undertaken by Mott MacDonald (see Wholesale Wastewater chapter).
22	Sludge transport management and general	
23	Intermediate sludge thickening plant	
24	Thickened sludge transport plant	
25	Sludge treatment plant	
26	Sludge treatment management and general	
27	Sludge disposal plant	
28	Sludge disposal management and general	
E	Movement from Gross MEAV to Net MEAV at 31 March 2020	
30	Gross MEAV of assets at 31 March 2020 excluding shared assets	This is our gross costs, following the review of our unit costs by Mott MacDonald (see Wholesale Wastewater chapter).
31	Adjustment for remaining economic life	This is the total adjustment for the remaining life of all of our assets.
32	Adjustment for gross operating costs on bioresource treatment sites	This is the total NPV of estimated differences in future O&M costs.
33	Adjustment for capital maintenance costs on bioresource treatment sites	This is our total NPV of estimated differences in future revenues/costs from energy generation.

WWS13 - PR14 wholesale revenue forecast incentive mechanism for the wastewater service		
Line description		Commentary
A	Company details for WRFIM model	
3	Company has accepted WRFIM licence modification	As confirmed by 'Modification of the Conditions of Appointment of Southern Water Services Limited', made on November 2016 and coming into effect on 15 December 2016. https://www.ofwat.gov.uk/wp-content/uploads/2016/11/Southern-Water-Services-Limited.pdf
E	Revenue recovered	
15	Wastewater: Unmeasured ~ household	Pre-populated data for 2015-16 and 2016-17 has been updated to reflect a historic mis-allocation of revenues between wholesale and retail in our regulatory accounts. Details of the mis-allocation and required corrections were provided with our legacy submission on 27 July 2018. 2017-18 is actual data taken from Table 2I of the APR. 2018-19 and 2019-20 is forecast data based on the assumption that the total actual revenue for each of these years will align with the total allowed revenue for each of these years. The apportionment of the total revenue over the various revenue streams is based on the allocation of 2017-18 actual revenue.
16	Wastewater: Unmeasured ~ non-household	
17	Wastewater: Measured ~ household	
18	Wastewater: Measured ~ non-household	
19	Wastewater: Third party revenue ~ household	
20	Wastewater: Third party revenue ~ non-household	
21	Wastewater: Revenue collected from household and non-household	
22	Wastewater: Grants and contributions	
23	Wastewater: Revenue recovered	
G	Penalties	
27	Main revenue adjustment as incurred ~ Wastewater	Taken from row 41 of our working version of the WRFIM model.
28	Penalty adjustment as incurred ~ Wastewater	Taken from row 51 of our working version of the WRFIM model.
29	WRFIM adjustment as incurred ~ Wastewater	Taken from row 56 of our working version of the WRFIM model.
30	WRFIM Total reward / (penalty) at the end of AMP6 ~ Wastewater	Taken from row 73 of our working version of the WRFIM model.
31	WRFIM Total reward / (penalty) at the end of AMP6 ~ Wastewater network plus	This is an output item from the revenue adjustments feeder model.

**** WWS15 - PR14 wholesale total expenditure outperformance sharing for the wastewater service

Line description		Commentary
C	TOTEX	
9	Sewerage: Actual Totex	Pre-populated data for 2015-16 amended because our cost assessment records show this should be 321.406. Amended as Ofwat email 02.07.18. Note also that inputs for 2019-20 do not account for IFRS16 changes. 2019-20 Actual totex updated from July submission to reflect IFRS16 incorporation. * *18-19 and 19-20 Totex updated for latest forecasts as per IAP action SRN.PD.A4*
D	Adjustments to TOTEX	
11	Sewerage: Third party services (capex)	This row should align with table 4B in the APR – the figures should be 0.000 for 2015–16 and 0.000 for 2016–17. We believe total grants and contributions figures have been used, some of which are already excluded from the totex figure. Amended as per Ofwat email 02.07.18. * *18-19 and 19-20 updated for latest forecasts of third party services capex as per IAP action SRN.PD.A4, these are presented net of grants and contributions.*
15	WasteWater: Transition expenditure	**** Updated to reflect the correct transition values as per SW query to Ofwat SRN11
17	Sewage: Transition expenditure	**** Updated in response to query to Ofwat SRN_11.
G	Totex menu adjustments	
19	Wastewater: revenue adjustment from totex menu model	* *Updates reflect input changes in the totex, revenue and RCV models. These models have been provided separately.* **** Updated in response to query to Ofwat SRN_11.
20	Wastewater: RCV adjustment from totex menu model	**** Updated in response to query to Ofwat SRN_11.
21	Wastewater: Totex menu revenue adjustment at 2017-18 FYA CPIH deflated price base	
22	Wastewater: Totex menu RCV adjustment at 2017-18 FYA CPIH deflated price base	

**** WWS18 - Explaining the 2019 Final Determination for the wastewater service

Line description		Commentary
A	Customer service	
1	Number of external sewer flooding incidents	Data represents curtilage only including severe weather flooding incidents. Targeted investment, improved operational practices and mitigation interventions will improve

		performance to industry average. This is in line with customer expectations as they perceive this as a medium priority for improvement.
2	Number of category 1 & 2 serious pollution incidents	We will continue to reduce the number of incidents during the remainder of AMP6 and target zero incidents throughout AMP7. This will be achieved by such measures as investment to increase the resilience of pumping stations and wastewater treatment works, blockage reduction via our customer education programme, standard proactive maintenance activities and where possible surface water removal. * *Figures for 2018/19 have not been finalised with the Environment Agency at this point.*
3	Number of category 3 pollution incidents	Our improvements in operational practices and our targeted investment will allow the continuation of a year on year reduction in incidents. Our end of AMP7 target allows the achievement of an upper quartile performance and meets the aspirations of WISER. This will be achieved by such measures as investment to increase the resilience of pumping stations and wastewater treatment works, blockage reduction via our customer education programme, standard proactive maintenance activities and where possible, surface water removal. ** *Note, total updated post IAP following receipt of industry wide target from Ofwat – Action: SRN.OC.A20. Figures for 2018/19 have not been finalised with the Environment agency at this point.*
B	Resilience	
4	Asset Health ~ total number of sewer blockages	Continuation of and enhancement of current practices will allow us to deliver a year on year improvement. The forecast performance is based on a constant reduction in blockages. Re-stated 2015/16 and 2016/17 data compared to 2017 cost assessment submission. This is due to a late amendment to the year-end data that was not manually amended in the cost assessment tables. The difference is 0.36% and 0.44% respectively so will not impact our customers.
C	Affordability	
5	Number of people receiving help paying their wastewater bill	Please note that the methodology used to measure the number of customers receiving financial assistance in PR19 is different to that being used to calculate performance against the AMP6 cumulative Performance Commitment. For PR19 we will use actual numbers of people receiving financial assistance at any one time, rather than the total number of people we have supported in a specified period. Entries based on customers receiving affordability related assistance through SW's 4 types of schemes tariffs including PR19 growth and then calculating this for water services connections. "
D	Markets	

6	Number of direct procurement wastewater service schemes	There are no future proposed wastewater investment schemes that fall into the requirements of direct procurement.
E	Environmental	
7	Length of rivers improved as a result of WINEP Water Quality schemes	The reported length are as defined in WINEP and aligned with anticipated delivery dates. Where multiple drivers exist for a single site, the length of river improved are only accounted for once. These figures are shown as the total kilometres of river improved per year. Cumulative figures are shown in APP1
8	Greenhouse gas emissions from wastewater operations	Data represents Southern Water's baseline scenario together with the forecasted energy impacts from the PR19 investment programme. The UKWIR carbon accounting workbook has been used as the template to forecast emissions, using the latest 2018 Defra grid emission factor for the period 2018-19 to 2024-25. Location based GHG accounting has been undertaken. GHG's are forecast to reduce, as additional renewable power is installed, with the exception of the last year of AMP7 where population growth and increased power imported from the national grid causes an elevation.
9	Number of designated coastal bathing waters passing EU standards	There are a total of 83 bathing waters in the Southern Water region, recent performance saw the number at Sufficient or a higher standard at 82 in 2016 and 83 in 2017. The predicted future performance is 82 bathing waters meeting EU standard; we will maintain all bathing waters to pass EU standards and don't expect any other beaches to be designated as BW. One bathing water is not impacted by our assets, and as such cannot be influenced by any of our activities. It is therefore predicted to remain in the Poor classification.
10	Percentage discharge permit compliance (STW and WTW discharges compliant with numeric permits)	The company is revisiting the reporting of the Wastewater Treatment Works number of failed works and population equivalent performance measures provided in previous years. ** Please see more detailed commentary in this regard at pages 5-6 of this document under the heading "Wastewater Treatment Works Performance Reporting". Future performance is based on a gradual improvement related to investment and changes to operational practices.
F	Bill impacts	
11	Change in average residential customer water bill over the period	* *Average bills have been calculated by reference to outputs from the Ofwat financial model, and on a basis consistent with the 'Discover Water' approach.* *The change from our September 2018 submission reflects:* • *updated 2019/20 bill comparator*

		• *change to AMP7 plan in response to Ofwat IAP – the revenues are driven by our plan, so a change to the plan naturally flows through to changes to AMP7 bills (incl. 2024/25)* • *revised approach to rebalancing bills between Water and Waste customers. We previously targeted a similar % bill fall, but for our IAP response are allowing bill profiles between AMPs to align more closely with the underlying costs.* See also response to IAP action point SRN.RR.A4 **** Updated in response to IAP query SRN-DD-CE-003 and following response to query SRN_11 from Ofwat.
G	Total expenditure (real prices ~ 2017-18 FYA CPIH deflated)	
12	Wastewater totex including cash items and atypical expenditure	Cost Assessment Data submission 2017. Figure for 2015-16 differs from that published Annual Performance Report due to a change in the treatment and reporting of grants and contributions made by Ofwat in 2016-17.
13	Total number of residential and business customers who receive a wastewater bill	The data represents residential and commercial properties and is the summation of Lines 5 and 8 in Table WWS3. The increase is based on predictions of new development (domestic) and commercial growth.

* WWn1 - Wholesale wastewater sewage treatment operating expenditure		
Line description		Commentary
1	Direct costs of STWs in size band 1	This table has been updated so that liquor treatment is included, and rates not included, in line with a query received from Ofwat mid-August.
2	Direct costs of STWs in size band 2	
3	Direct costs of STWs in size band 3	
4	Direct costs of STWs in size band 4	
5	Direct costs of STWs in size band 5	
6	General & support costs of STWs in size bands 1 to 5	
7	Direct costs of STWs in size band 6	

8	General & support costs of STWs in size band 6	
9	Service charges for STWs in size band 6	
10	Estimated terminal pumping costs size band 6 works	

* WWn2 - Wholesale wastewater large sewage treatment works explanatory variables and operating expenditure		
Line description		Commentary
A	Sewage treatment works ~ Explanatory variables	
1	Works name	Includes those large works sites serving a population equivalent of 25,000 or more
2	Classification of treatment works	Identified in line with Table guidance and that applied to WWn4
3	Population equivalent of total load received	Includes population served (resident and non-resident) and equivalent for trade effluent and any cess imports
4	Suspended solids consent	As per permit condition
5	BOD_5 consent	As per permit condition (summer limit if seasonal permit)
6	Ammonia consent	As permit condition (summer limit if seasonal permit)
7	Phosphorus consent	As per permit condition
8	UV consent	This data shows the minimum dosing limit for Ultra Violet light intensity in mW/s/cm2 to remain compliant with the site Water Discharge Activity Environmental Permit. Only sites that require UV disinfection have this limit.
10	Flow passed to full treatment	Measured flows from MCerts installations
B	Sewage treatment works ~ Operating expenditure	
11	Direct expenditure	This table has been updated so that liquor treatment is included, and rates not included, in line with a query received from Ofwat mid-August.
12	General and support expenditure	
13	Functional expenditure	

* WWn3 - Wholesale wastewater network (explanatory variables)		
Line description		Commentary
1	Connectable properties served by s101A schemes completed in the report year	AMP6 outputs relate to schemes for Mountfield and Three Oaks which will be completed in the year 2018/19 and a scheme for Snowdown Colliery to be completed in 2019/20. In AMP7 we have included 3 locations where we are aware of the likelihood of future s.101a obligations. We have not made any allowance for obligations that may become apparent in the future.
2	Number of s101A schemes completed in the report year	
3	Total pumping station capacity	Data sourced from our asset register. Data for 2018/19 is based on year to date, increase beyond current year is based on predicted development growth, i.e. adoption of pumping stations, with an assumed kW rating to those currently adopted.
4	Number of network pumping stations	Projected increase associated with sites adopted on new developments and is based on historic growth levels
5	Total number of sewer blockages	Continuation of and enhancement of current practices will allow us to deliver a year on year improvement. The forecast performance is based on a constant reduction in blockages. Re-stated 2015/16 and 2016/17 data compared to 2017 cost assessment submission. This is due to a late amendment to the year-end data that was not manually amended in the cost assessment tables. The difference is 0.36% and 0.44% respectively so will not impact our customers.
6	Total number of gravity sewer collapses	Projection based on current performance with a gradual improvement associated with improved proactive maintenance. Performance in the area is above industry average.
7	Total number of sewer rising main bursts / collapses	Projection based on current performance with a gradual improvement associated with improved proactive maintenance. Performance in the area is above industry average.
8	Number of combined sewer overflows	Current value remains static, not envisaged any current CSO's will be abandoned or any new ones constructed.
9	Number of emergency overflows	Current value remains static, not envisaged any current EO's will be abandoned or any new ones constructed.
10	Number of settled storm overflows	Current value remains static, not envisaged any current SSO's will be abandoned or any new ones constructed.
11	Sewer age profile (constructed post 2001)	Future length based upon average annual increase, majority associated with growth. * *This line has been amended in line with the response to the query "SRN-IAP-CA-011".*
12	Volume of trade effluent	Future volume based upon current (2018/19), although recognise that individual trade effluent discharges may vary. Reported as Ml/d. This is to two decimal places to show great level of accuracy

13	Volume of wastewater receiving treatment at sewage treatment works	Based on current data, with a year on year increase based upon future population increase. No allowance has been made against climate change, hence the application of a lower confidence grade.
14	Length of gravity sewers rehabilitated	The forecast is based on 1) planned rehab 2) reactive i.e. unplanned rehab & 3) bathing waters schemes. It is intended that the majority of the improvements occur in the first half of the AMP
15	Length of rising mains replaced or structurally refurbished	Relatively uniform activity over AMP7. Utilising service modelling to determine proactive replacement.
16	Length of foul (only) public sewers	Predicted increase based upon historical growth since 2011/12. * *These lines have been amended in line with the response to the query "SRN-IAP-CA-011".*
17	Length of surface water (only) public sewers	
18	Length of combined public sewers	
19	Length of rising mains	
20	Length of other wastewater network pipework	Based on sludge and effluent pipework only. Future static value as no increase predicted.
22	Length of formerly private sewers and lateral drains (s105A sewers)	An estimate as determined pre- transfer review by an independent specialist. No further updating undertaken

* WWn4 - Wholesale wastewater sewage treatment (potential explanatory variables)		
Line description		Commentary
A	Load received at sewage treatment works in 2024-25	
1	Load received by STWs in size band 1	There are a number of planned small works closures with, flow transferred to an adjacent wastewater treatment works. Those planned are; Blackstone transfers to Henfield WTW Stonegate transfers to Burwash Village WTW Kilndown transfers to Lamberhurst WTW Westwell transfers to Ashford WTW Anticipated completion in 2024/25 * *Line 5, amended to reflect withdrawal of Whitfield CAC following IAP, action reference: SRN.CE.A1.*
2	Load received by STWs in size band 2	
3	Load received by STWs in size band 3	
4	Load received by STWs in size band 4	
5	Load received by STWs in size band 5	
6	Load received by STWs above size band 5	
A1	Number of Sewage Treatment Works at 31st March 2025	

13	STWs in size band 5	* *Line 13, amended to reflect withdrawal of Whitfield CAC following IAP, action reference: SRN.CE.A1.*
F	Load received at sewage treatment works in 2019-20	
1	Load received by STWs in size band 1	There are a number of planned small works closures, this AMP with flow transferred to an adjacent wastewater treatment works. These are; Dragons Green and Coolham which will both divert to Horsham in 2019/20
2	Load received by STWs in size band 2	
3	Load received by STWs in size band 3	
4	Load received by STWs in size band 4	
5	Load received by STWs in size band 5	
I	Population equivalent	
Data based on schemes in progress and reported in the year the benefit is seen i.e. at the end of the scheme. Costs may therefore be reflected in WWS2 before pe is reported.		
16	Current population equivalent served by STWs	Mountfield and Three Oaks new works planned for 2019/20, Whitfield new works planned for 2024/25
17	Current population equivalent served by discharge relocation schemes	Table WWS2 refers to schemes listed in the NEP for AMP5 or AMP6 where the objective of the primary cost driver is to meet the requirements of the Habitats Directive or the CRoW Act (2000) by relocating the discharge to controlled waters. There are 0 schemes that meet that definition in AMP6 or AMP7
18	Current population equivalent served by filter bed STWs with tightened/new P consents	2020 +: 72 P schemes on filter works - deliverable to 2025 under WINEP3 drivers WFD_ND_P, WFD_IMP_P, SSSI, HD, U_IMP1
19	Current population equivalent served by activated sludge STWs with tightened/new P consents	2020 +: 26 P schemes on ASP works - deliverable to 2025 under WINEP3 drivers WFD_ND_P, WFD_IMP_P, SSSI, HD, U_IMP1
20	Current population equivalent served by groundwater protection schemes	Shipton Bellinger GW delivered 2017/18. Thanet outputs updated to 22/12/2024 in WINEP3
21	Current population equivalent served by STWs with a Flow1 driver scheme	There are no AMP6/ or AMP7 schemes under a Flow1 driver code
22	Current population equivalent served by STWs with tightened/new N consents	Shipton Bellinger 2017, Woolston 2020 - defined in NEP5. Sidlesham 2025 - defined in WINEP3
23	Current population equivalent served by STWs with tightened/new sanitary parameter consents	To 2020: BOD, AMM schemes completing 2017 - 2020 as defined in NEP5. 2020 +: 19 schemes in total. 10 * ND_AMM, 1 * ND_BOD, 1 * WFD_IMP_AMM, 1 * WFD_IMP_BOD, 6 * U_IMP1 Completion date of 2025.
24	Current population equivalent served by STWs with tightened/new UV consents	Millbrook and Slowhill Copse SW_ND UV schemes deliverable in 2021-22 as defined in WINEP3

25	Population equivalent treatment capacity enhancement	Population equivalent capacity enhancements. Analysis reflects: • AMP6 Yrs4/5, 2021 p schemes, and AMP6 deferrals profiled according to BAU delivery plan, • schemes under AMP7 quality drivers profiled according to Regulatory output date defined in WINEP3, • AMP7 growth, base, and resilience schemes equally profiled based on phased delivery across AMP7 years 3-5 * *Amended to reflect withdrawal of Whitfield CAC following IAP, action reference: SRN.CA.A6.*

**** WWn5 - Wholesale revenue projections for the wastewater network plus price control		
Line description		Commentary
A	Wholesale wastewater network plus revenue requirement aggregated by building blocks	
2	Pension deficit repair contributions ~ wastewater network plus	Allocation based on IN 13/17. Result copied from financial model
3	Run off on post 2020 totex additions ~ wastewater network plus	From Mapping Tool. **** Updated in response to IAP query SRN-DD-CE-003 and following response to query SRN_11 from Ofwat.
4	Return on post 2020 totex additions to RCV ~ wastewater network plus	
5	Run off on RPI inflated 2020 RCV ~ wastewater network plus	
6	Return on RPI inflated 2020 RCV ~ wastewater network plus	
7	Run off on CPIH inflated 2020 RCV ~ wastewater network plus	
8	Return on CPIH inflated 2020 RCV ~ wastewater network plus	
9	Current tax ~ wholesale wastewater network plus	
10	Re-profiling of allowed revenue ~ wastewater network plus	Note: from financial model 'revenue solving adjustment'. ***** Updated in response to IAP query SRN-DD-CE-003 and following response to query SRN_11 from Ofwat.
11	PR14 reconciliation revenue adjustments ~ wastewater network plus	From Mapping Tool. **** Updated in response to IAP query SRN-DD-CE-003 and following response to query SRN_11 from Ofwat.
B	Wholesale wastewater network plus ~ other price control income	

13	Third party revenue ~ wastewater network plus	None
C	Wholesale wastewater network plus ~ non-price control income (third party services)	
14	Bulk supplies ~ wastewater network plus	Taken from Revenue Forecasts for Bulk Supply and NAV Bulk supply which is expected to grow as the market widens.
16	Rechargeable works ~ wastewater network plus	none
17	Other non-price control third party services ~ wastewater network plus	none
D	Wholesale wastewater network plus ~ non-price control income (principal services)	
19	Wholesale wastewater network plus non-price control income (principal services)	None
E	Wholesale wastewater network plus charges	
20	Wastewater network plus unmeasured charge ~ residential	This is the residential and business revenue split. We are using the projected split for 18/19 for all years in AMP7
21	Wastewater network plus unmeasured charge ~ business	
22	Wastewater network plus measured charge ~ residential	
23	Wastewater network plus measured charge ~ business	
F	Grants & contributions	
25	Wastewater network operating expenditure grants and contributions (price control)	This is taken directly from APP28 Grants and Contributions and applied to the relevant price controls
26	Wastewater network capital expenditure grants and contributions (price control)	none
27	Wastewater network operating expenditure grants and contributions (non-price control)	
28	Wastewater network capital expenditure grants and contributions (non-price control)	

**** WWn6 - Cost recovery for wastewater network plus	
Line description	Commentary
A	RCV run off rate ~ RPI linked RCV

1	"Natural" RCV run off rate ~ wastewater network plus	* *Based on natural run-off rate for price control (see SRN.RR.A3)*
2	Adjustments to RCV run off rate to address transition from RPI to CPI ~ wastewater network plus	None
3	Other adjustments to RCV run off rate ~ wastewater network plus	* *Run-off rate increased to manage overall affordability. RCV run-off rate for wastewater has been increased, and RCV run-off rate for water has been decreased, so that there is no overall revenue being transferred between price review periods (see SRN.RR.A4).* **** Updated in response to IAP query SRN-DD-CE-003 and following response to query SRN_11 from Ofwat.
5	Method used to apply run off rate (straight line or reducing balance) ~ wastewater network plus RPI wedge linked	Reducing balance
B	RCV run off rate ~ CPI/CPI(H) linked RCV	
6	"Natural" RCV run off rate ~ wastewater network plus	* *Based on natural run-off rate for price control (see SRN.RR.A3)*
7	Adjustments to RCV run off rate to address transition from RPI to CPI ~ wastewater network plus	None
8	Other adjustments to RCV run off rate ~ wastewater network plus	* *Run-off rate increased to manage overall affordability. RCV run-off rate for wastewater has been increased, and RCV run-off rate for water has been decreased, so that there is no overall revenue being transferred between price review periods (see SRN.RR.A4).*
10	Method used to apply run off rate (straight line or reducing balance) ~ wastewater network plus CPI(H) linked	Reducing balance
C	PAYG Rate ~ wastewater network plus	
11	"Natural" PAYG rate ~ wastewater network plus	* *Based on natural PAYG rate for price control (see SRN.RR.A2)*
12	Adjustments to PAYG rate to address transition from RPI to CPI ~ wastewater network plus	None
13	Other adjustments to PAYG rate ~ wastewater network plus	* *None*

WWn7 - Weighted average cost of capital for the wastewater network plus control

Line description		Commentary
A	Wholesale WACC ~ based on assumed notional structure (nominal)	
1	Gearing	Final methodology WACC Consistent with App32
2	Total Market Return	
3	Risk Free Rate	
5	Debt beta	
6	Asset beta	
9	Cost of debt ~ wastewater network plus	
B	Wholesale WACC ~ based on company's actual structure (nominal)	
11	Gearing (used in WACC) ~ wastewater network plus	Final methodology WACC Consistent with App32
12	Total Market Return	
13	Risk Free Rate	
15	Debt beta	
16	Asset beta	
19	Cost of debt (used in WACC) ~ wastewater network plus	

* WWn8 - Wholesale wastewater network plus special cost factors

Line description		Commentary
A	Special cost claim 1	
1	Description of special cost claim	Details of the claim are set out in Chapter 14 – Wholesale cost efficiency
3	Total expenditure used for the purpose of business plan	2018 - 2020: the data including corporate overheads was pulled from our capex database for the relevant project
4	Historic total expenditure	2015 - 2018: the data including corporate overheads was pulled from our capex database for the relevant project
B	Special cost claim 2	
5	Description of special cost claim	Details of the claim are set out in Chapter 14 – Wholesale cost efficiency
7	Total expenditure used for the purpose of business plan	2018 - 2020: the data, including corporate overheads, was pulled from our capex database for the relevant project

8	Historic total expenditure	2010 - 2018:the data, including corporate overheads, was pulled from our capex database for the relevant project
C	Special cost claim 3	
9	Description of special cost claim	Details of the claim are set out in Chapter 14 – Wholesale cost efficiency The submitted cost figures (£26.398m) account for projected funding allowances based on PR14 modelling. The full cost of the Whitfield site is £31.422m. We have not submitted any historical information as this is a new site. * *Since our submission in September we have continued to review the actual build rate, which is at the lower end of the forecast growth rate. As part of the IAP review we have reviewed whether the 'need' for our proposed investments have changed. The lower build rate means that the full scheme is less likely to be required during AMP7, although some interim measures may be required until a larger scheme is progressed. With this in mind we have removed the cost adjustment claim of £26.4m from the plan, any interim actions should be covered by the Ofwat growth models. For further information in relation to wastewater growth investment please see our response to Action SRN.CE.A1.*
10	Type of special cost claim	
11	Total expenditure used for the purpose of business plan	
12	Historic total expenditure	

Bio1 - Wholesale wastewater sludge (explanatory variables)		
Line description		Commentary
1	Total sewage sludge produced, treated by incumbents	The forecast is based on increased volumes associated with population growth and additional sludge production associated with the delivery of WINEP.
2	Total sewage sludge produced, treated by 3rd party sludge service provider	Assumed no immediate change to current practice
4	Total sewage sludge produced from non-appointed liquid waste treatment	Based upon cess imports and commercial tankered waste received. No change over current is forecast.
5	Percentage of sludge produced and treated at a site of STW and STC co-location	The data includes those sites where treatment occurs via conventional AD and those sites where sludge is dewatered prior to export for treatment at one of the 16 sludge treatment centres. The forecast is based on increased volumes associated with population growth and additional sludge production associated with the delivery of WINEP.
6	Total sewage sludge disposed by incumbents	Increase is proportional to sludge produced, recognising the destruction rates achieved in the AD process.

7	Total sewage sludge disposed by 3rd party sludge service provider	Assumed no immediate change to current practice
9	Total measure of intersiting 'work' done by pipeline	This measure relates to the Slowhill Copse to Millbrook pipeline. The reduction from 2019/20 onwards is associated with changes in operational practices where sludge from Woolston & Portswood WTW's will no longer be imported to the Slowhill Copse site
10	Total measure of intersiting 'work' done by tanker	Assumption that current sludge movement logistics remains as current. Increase is associated with greater volume of sludge produced. The values for 2017/18 and 2018/19 include sludge movement by barge (Woolston and Portswood WTW's) which will cease in 2019. Future transport of this sludge will be truck and hence included in the line below from 2019/20 onwards.
11	Total measure of intersiting 'work' done by truck	Assumption that current sludge movement logistics remains as current. Increase is associated with greater volume of sludge produced. From 2019/20 includes ex-barged sludge.
13	Total measure of intersiting 'work' done by tanker (by volume transported)	The forecast is based on increased volumes associated with population growth and additional sludge production associated with the delivery of WINEP.
14	Total measure of 'work' done in sludge disposal operations by pipeline	No sludge disposed via pipeline
15	Total measure of 'work' done in sludge disposal operations by tanker	No sludge disposed via tanker
16	Total measure of 'work' done in sludge disposal operations by truck	All SW biosolids disposed via truck (25% DS). Increased volumes associated with population growth and additional sludge production associated with the delivery of WINEP. Assumes travel distance remains static.
18	Total measure of 'work' done by tanker in sludge disposal operations (by volume transported)	No sludge disposed via tanker
19	Chemical P sludge as percentage of sludge produced at STWs	Includes the total sludge produced at those sites with a P permit condition. Increase is associated with both population growth and sites with new P permit conditions applied during AMP7.

Bio2 - Wholesale wastewater sludge treatment process and disposal routes		
Line description		Commentary
A	Sludge treatment process	

1	% Sludge - untreated	All sludge is treated via a conventional AD digestion process. Our strategy going forward will follow the existing treatment process type.
2	% Sludge treatment process - raw sludge liming	
3	% Sludge treatment process - conventional AD	
4	% Sludge treatment process- advanced AD	
5	% Sludge treatment process - incineration of raw sludge	
6	% Sludge treatment process - phyto-conditioning/composting	
7	% Sludge treatment process - other (specify)	
B	(Un-incinerated) sludge disposal route	
9	% Sludge disposal route - landfill, raw	All current bioresource is recycled to agricultural land. It is not envisaged that this will change in the future. Work undertaken has identified that this remains a viable and sustainable approach
10	% Sludge disposal route - landfill, partly treated	
11	% Sludge disposal route - land restoration / reclamation	
12	% Sludge disposal route - sludge recycled to farmland	
13	% Sludge disposal route - other (specify)	

* Bio3 - Wholesale wastewater sludge opex		
Line description		Commentary
A	Sludge treatment type	
7	Historical cost depreciation	This is driven by App16
B	Sludge disposal route	
9	Power	Note we have updated this line of the table in line with our response to query “Query_SRN_IAP_CA_004.
10	Income treated as negative expenditure	
11	Local Authority and Cumulo Rates	
12	Other Direct Costs	
15	Historical cost depreciation	This is driven by App16

**** Bio4 - Wholesale revenue projections for the wastewater bioresources price control		
Line description		Commentary
A	Wholesale wastewater bioresources revenue requirement aggregated by building blocks	
2	Pension deficit repair contributions - bioresources	Allocation based on IN 13/17. Result copied from financial model
3	Run off on post 2020 investment - bioresources	From Mapping Tool **** Lines 9/10 updated in response to IAP query SRN-DD-CE-003 and following response to query SRN_11 from Ofwat.
4	Return on post 2020 investment - bioresources	
5	Run off on RPI inflated 2020 RCV - bioresources	
6	Return on RPI inflated 2020 RCV - bioresources	
7	Run off on CPIH inflated 2020 RCV - bioresources	
8	Return on CPIH inflated 2020 RCV - bioresources	
9	Current tax ~ wholesale wastewater bioresources	
10	Re-profiling of allowed revenue ~ wholesale wastewater bioresources	Note: from financial model 'revenue solving adjustment'
11	PR14 reconciliation adjustments ~ revenue	From Mapping Tool
B	Wholesale wastewater bioresources ~ other price control income	
13	Third party revenue ~ wholesale bioresources	none
C	Wholesale wastewater bioresources ~ non-price control income (third party services)	
14	Bulk supplies ~bioresources	none
16	Rechargeable works ~ bioresources	
17	Other non-price control third party services ~ bioresources	
D	Wholesale wastewater bioresources ~ non-price control income (principal services)	
19	Wholesale wastewater bioresources non-price control income (principal services)	None
E	Wholesale wastewater bioresources charges	
20	Bioresources unmeasured charge ~ residential	This is the residential and business revenue split. We are using the projected split for 18/19 for all years in AMP7.
21	Bioresources unmeasured charge ~ business	
22	Bioresources measured charge ~ residential	
23	Bioresources measured charge ~ business	
H	Wholesale wastewater bioresources ~ revenue to cover bioresources costs	
30	Wholesale wastewater bioresources revenue to cover fixed costs	** Please see response to action (SRN.CMI.A1)*

* Bio5 - Cost recovery for bioresources		
Line description		Commentary
A	RCV run off rate ~ RPI linked RCV	
1	"Natural" RCV run off rate ~ bioresources	* *Based on natural run-off rate for price control (see SRN.RR.A3)*
2	Adjustments to RCV run off rate to address transition from RPI to CPI ~ bioresources	None
3	Other adjustments to RCV run off rate ~ bioresources	
5	Method used to apply run off rate (straight line or reducing balance) ~ bioresources RPI wedge linked	Reducing balance
B	RCV run off rate ~ CPI/CPI(H) linked RCV	
6	"Natural" RCV run off rate ~ bioresources	* *Based on natural run-off rate for price control (see SRN.RR.A3)*
7	Adjustments to RCV run off rate to address transition from RPI to CPI ~ bioresources	None
8	Other adjustments to RCV run off rate ~ bioresources	
10	Method used to apply run off rate (straight line or reducing balance) ~ bioresources CPI(H) linked	Reducing balance
C	Post 2020 investment run off rate	
11	"Natural" post 2020 investment run off rate ~ bioresources	* *Based on natural run-off rate for price control (see SRN.RR.A3)*
12	Adjustments to post 2020 investment run off rate to address transition from RPI to CPI ~ bioresources	None
13	Other adjustments to post 2020 investment run off rate ~ bioresources	
15	Method used to apply run off rate (straight line or reducing balance) ~ bioresources	Reducing balance
D	PAYG Rate ~ bioresources	
16	"Natural" PAYG rate ~ bioresources	* *Based on natural PAYG rate for price control (see SRN.RR.A2)*
17	Adjustments to PAYG rate to address transition from RPI to CPI ~ bioresources	None
18	Other adjustments to PAYG rate ~ bioresources	* *None*

Bio6 - Weighted average cost of capital for the bioresources control		
Line description		Commentary
A	Wholesale WACC ~ based on assumed notional structure (nominal)	
1	Gearing	Final methodology WACC Consistent with App32
2	Total Market Return	
3	Risk Free Rate	
5	Debt beta	
6	Asset beta	
9	Cost of debt ~ bioresources	
B	Wholesale WACC ~ based on company's actual structure (nominal)	
11	Gearing (used in WACC) ~ bioresources	Final methodology WACC Consistent with App32
12	Total Market Return	
13	Risk Free Rate	
15	Debt beta	
16	Asset beta	
19	Cost of debt (used in WACC) ~ bioresources	

Bio7 - Wholesale wastewater bioresources special cost factors
Commentary
We do not have any cost adjustment claims for this price control.

* R1 - Residential retail		
Line description		Commentary
A	Expenditure	
1	Customer services	Customer services costs include billing, payment handling, customer contact and vulnerable customer scheme. They have been forecast for AMP7 using the Retail Model, a budget model for Retail costs. They originate from the 18/19 and 19/20 budget and are forecast using assumptions appropriate of the year.
2	Debt management	Debt management costs have also been forecast using the Retail Model. Again these are derived from 18/19 and 19/20 budget figures and updated with AMP7 strategic assumptions
3	Doubtful debts	Doubtful debt charge has been calculated in the Retail model as a top down calculation as a percentage of HH revenues. The % is based on industry leading companies. This charge will need to be adjusted when revenues are finalised
4	Meter reading	Meter reading costs have also been forecast using the Retail Model. Again these are derived from 18/19 and 19/20 budget figures and updated with AMP7 strategic assumptions
5	Other operating expenditure	Other operating expenditure is the retail allocation of head office support costs. These are forecast using the 19/20 budget as a baseline with efficiencies applied.
6	Local authority and Cumulo rates	Forecast from 19/20 budget process
7	Pension deficit repair costs	This is derived from App22.
9	Third party services operating expenditure	Not applicable
11	Total depreciation on legacy assets existing at 31 March 2015	Forecast from fixed asset register, aligned with App 16
12	Total depreciation on assets acquired between 1 April 2015 and 31 March 2020	Forecast from fixed asset register aligned with App 16
13	Total depreciation on assets acquired after 1 April 2020	Forecast from fixed asset register aligned with App 16
15	Capital expenditure on assets principally used by retail	High level assumed expenditure on IT improvement
B	Customer numbers	
16	Household connected	2013 to 2018 data as previously reported. 2019 to 2020 aligned to R9. 2021 to 2025 aligned to WS3 and WWS3.
C	Operating expenditure ~ part funded through wholesale	
17	Demand-side water efficiency ~ gross retail expenditure	An element of Other operating expenditure so same method as described above
18	Demand-side water efficiency ~ expenditure funded by wholesale	n/a
20	Customer-side leak repairs ~ gross retail expenditure	A wholesale cost so n/a

21	Customer-side leak repairs ~ expenditure funded by wholesale	n/a
D	Recharges for assets shared by retail and wholesale	
24	Recharge from wholesale for legacy assets principally used by wholesale (assets existing at 31 March 2015)	Recharges from wastewater network plus. Note figures for 2015-16 have been amended from APR for that year following subsequent refinement of allocation of assets to business units. Recharges pre 2016-17 have been based on 2016-17 asset list, as a historical cost fixed asset register by business unit was not in place before 2015 assets that had fully depreciated before this have been excluded.
25	Income from wholesale for legacy assets principally used by retail (assets existing at 31 March 2015)	No income from wholesale.
26	Recharge from wholesale assets acquired after 1 April 2015 principally used by wholesale	Recharges from wastewater network plus.
27	Income from wholesale assets acquired after 1 April 2015 principally used by retail	No income from wholesale.

R2 - Residential retail special cost factors

Commentary
We are not submitting any special cost factors for retail costs. We propose to accept an unchanged net retail margin of 1%.

* R3 - Residential retail ~ further information on bad debt and customer services

Line description		Commentary
A	Bad debt information	
2	Debt written off ~ residential	The write offs have been aligned to the model that was used to calculate the forecasted retail trade receivables on App13
3	Total residential revenue outstanding	The forecasted revenue outstanding has been derived from a model that was used to calculate the forecasted retail trade receivables on App13. This model uses revenue, billing, cash collection and other influencing factors to calculate a balance sheet position for trade receivables and payables. This same model has been used to derive fields on App14. The view of household debt from 2012/13 to 2016/17 is based on the definition of a household customer prior to market reform. In 2017/18 this definition changed due to market reform and the

		new definition of household customers has been used from 2017/18 onwards. It is not possible to restate 2012/13 to 2016/17 as the data used to assess household versus non-household properties is not available.
4	Revenue outstanding <3 months (measured residential)	In recent years the proportion of Household revenue outstanding in each age band has not significantly changed. As such, the forecast has been derived based on the 2017/18 apportionment of revenue outstanding.
5	Revenue outstanding 3-12 months (measured residential)	
6	Revenue outstanding 12-24 months (measured residential)	
B	Forecast assumption	
16	Percentage of revenue collected each year	The forecasted percentage of revenue collected each year has been derived from a model that was used to calculate the forecasted retail trade receivables on App13. This model uses revenue, billing, cash collection and other influencing factors to calculate a balance sheet position for trade receivables and payables. This same model has been used to derive fields on App14.
C	Customer service metrics	
17	Cost per call	The 17/18 and 18/19 figures come from the cost per call with our outsourced Customer services provider. From 19/20 customer services will be outsourced to a single provider and the rate charged will be a bundled cost, so this element cannot be determined at present.
18	Cost per email	
19	Cost per webchat	Webchat volumes are low and the cost per unit cannot be reasonably estimated at present
20	Cost per other - whitemail	The 17/18 and 18/19 figures come from the cost per letter charged by our outsourced supplier. From 19/20 customer services will be outsourced to a single provider and the rate charged will be a bundled cost, so this element cannot be determined at present.
22	Percentage of contacts by phone	Using actual contact data from April 2016 to Sept 17 we have forecast contact volumes by channel through to Dec 2022 taking into account expected channel shift through IT developments and changing customer behaviour. 2022 volumes are expected to remain static through to 2025.
23	Percentage of contacts by email	
24	Percentage of contacts by webchat	
25	Percentage of contacts by other – white mail	
28	Contact centre costs	This includes the direct cost of the network and non-network contact centres, plus shared retail costs and head office overheads (Facilities, IT, Finance, HR etc). Indirect and head office overheads are allocated to the contact centres pro-rate

		the proportion of these direct costs in total direct retail costs (other direct costs include debt management and meter reading costs).

**** R7 - Revenue and cost recovery for retail		
Line description		Commentary
A	Residential retail costs ~ England and Wales	
1	Total cost to serve	* *The total cost to serve reflects the Efficient Cost to Serve allowance granted at the IAP, per cost model FM_RR4.*
2	Net margin (excl tax and interest)	This entry includes the forecast revenue adjustments arising from the residential retail revenue adjustment and the forecast SIM penalty. This results in a negative retail margin. * *Extracted from Ofwat financial model.* **** Updated in response to IAP query SRN-DD-CE-003 and following response to query SRN_11 from Ofwat.
3	Current tax ~ residential retail	* *Extracted from Ofwat financial model.* **** Line 4 updated in response to IAP query SRN-DD-CE-003 and following response to query SRN_11 from Ofwat.
4	Interest	
B	Business retail costs ~ Wales	
7	Total cost to serve	Validation errors in R7 submission are due to the model requiring a value when there is none to input. This table is not applicable to SRN
8	Net margin (excl tax and interest)	
9	Current tax ~ business retail	
10	Interest	
C	Retail revenues	
13-18	Retail revenues ~ residential (by customer type)	* *For financial modelling the Efficient Cost to Serve allowance was apportioned across customer types by reference to our forecast Cost to Serve as shown in data table R1.* *The analysis of revenues by customer type is an output from the Ofwat financial model.* *The sum of these revenues, reported in line 19 is consistent with the entry in line 5.* **** Updated in response to IAP query SRN-DD-CE-003 and following response to query SRN_11 from Ofwat.

20	Revenue ~ business retail measured	Validation errors in R7 submission are due to the model requiring a value when there is none to input. These rows are not applicable to SRN
21	Revenue ~ business retail unmeasured	

R8 - Net retail margins		
Line description		Commentary
A	Retail margin	
1	Required retail margin ~ residential customers	We propose to accept an unchanged net retail margin of 1%.

**** R9 - PR14 reconciliation of household retail revenue		
Line Description		Commentary
B	Reforecast customer numbers	
7	Unmetered water-only customer	2015-16 to 2018-19 customer numbers are the forecast charge multipliers we used in each respective year to set retail household charges. Our total re-forecast customer numbers for 2019-20 are around 40,000 higher than our PR14 forecast. This is primarily due to our on-going 'voids recovery programme'. Differences in the two forecasts for 2019-20 at customer class level reflect that meter penetration from metering programmes has been lower than originally forecast. * *We have changed the 18/19 and 19/20 forecasts to be consistent with our answer to SRN.PD.A3.*
8	Unmetered wastewater-only customer	
9	Unmetered water and wastewater customer	
10	Metered water-only customer	
11	Metered wastewater-only customer	
12	Metered water and wastewater customer	
C	Actual customer numbers	
13	Unmetered water-only customer	2015-16 and 2016-17 pre-populated. 2017-18 taken from our 2017-18 APR. 2018-19 and 2019-20 are our latest forecasts. * *Changes made in line with action reference SRN.PD.A3. Volumes slightly changed in line with latest forecast figures.*
14	Unmetered wastewater-only customer	
15	Unmetered water and wastewater customer	
16	Metered water-only customer	
17	Metered wastewater-only customer	
18	Metered water and wastewater customer	
D	Actual revenue collected	
19	Unmetered water-only customer	Pre-populated data for 2015-16 and 2016-17 has been updated to reflect a historic mis-allocation of revenues between wholesale and retail in our regulatory accounts. Details of the mis-allocation and required corrections were provided with our legacy submission on 27 July 2018. 2017-18 taken from our 2017-18 APR. 2018-19 and 2019-20 forecasts
20	Unmetered wastewater-only customer	
21	Unmetered water and wastewater customer	
22	Metered water-only customer	
23	Metered wastewater-only customer	

24	Metered water and wastewater customer	calculated by multiplying re-forecast customer numbers by the appropriate modification factor. Note, this where we previously did not submit the data with 3 decimal places but rounded it up in the July submission. * *2019-20 forecasts have changed as a result of the changes made to Block B.*
E	Revenue sacrifice	
25	Unmetered water-only customer	Not applicable – a revenue sacrifice tariff is under consideration, but it is not sufficiently advanced to include in the plan.
26	Unmetered wastewater-only customer	
27	Unmetered water and wastewater customer	
28	Metered water-only customer	
29	Metered wastewater-only customer	
30	Metered water and wastewater customer	
H	Materiality threshold for financing adjustment	
44	Discount Rate	In the absence of a definitive figure we have over-written the figure of 100% pre-populated by Ofwat with a discount rate of 3.6% as per the WRFIM model. We believe that this rate will not be used given that the materiality test in the "Calcs" Worksheet results in no adjustment being required.
I	Total reward / (penalty) at the end of AMP6	
45	Residential retail revenue adjustment at the end of AMP6	This is an output item from the household retail revenue reconciliation model Calc sheet row 94 based the same inputs as Table R9. * *This output has changed as a result of the changes to the inputs in Blocks B, C, and D.* **** Updated in response to IAP query SRN-DD-PD-001.
46	Residential retail revenue adjustment at 2017-18 FYA CPIH deflated price base	* *This is an output from the revenue adjustments feeder model, reflecting updates from cell I45.* **** Updated in response to IAP query SRN-DD-PD-001.

* R10 - PR14 Service incentive mechanism		
Line Description		Commentary
A	Qualitative performance	
1	1st survey score	Our SIM score has been less than our target for the whole of AMP6. While we are targeting significant improvements for 2018-19 and 2019-20, for the purposes of this submission we have been deliberately conservative in our forecast and assumed no improvement in these years, compared with 2017-18.
2	2nd survey score	
3	3rd survey score	
4	4th survey score	

5	Qualitative SIM score (out of 75)	
B	Quantitative performance	
6	Quantitative composite score	Our SIM score has been less than our target for the whole of AMP6. While we are targeting significant improvements for 2018-19 and 2019-20, for the purposes of this submission we have been deliberately conservative in our forecast and assumed no improvement in these years, compared with 2017-18.
7	Quantitative SIM score (out of 25)	
D	Revenue adjustment for SIM performance	
9	SIM forecast revenue adjustment at 2017-18 FYA CPIH deflated price base	For the purposes of calculating the SIM forecast penalty we have made the following assumptions: • The industry improvement in SIM score for 2017/2018 and 2018/2019 is half that of the growth rate between 2015/16 and 2016/17 • Southern Water's SIM score for 2018/2019 is equal to the 2017/2018 SIM score Penalty has been updated from July submission to reflect the availability of actual data for other companies' actual Sim scores for 2017-18 * *Since the September submission, we have changed this cell to reflect our updated inflation forecast (App23).*