

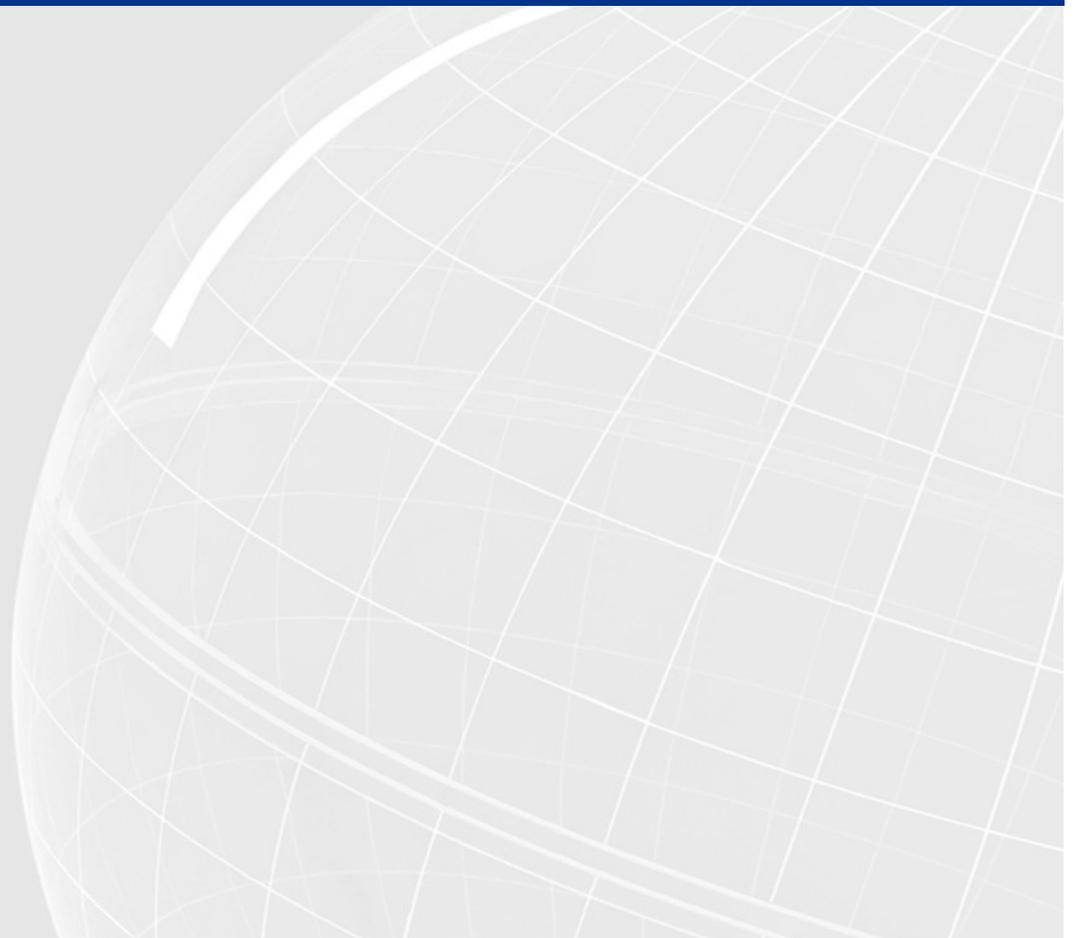
Appendix 4e: Halcrow PR19 Assurance Report and Statement

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Halcrow Management Sciences Limited

**YORKSHIRE WATER SERVICES
PR19 BUSINESS PLAN SUBMISSION
TECHNICAL ASSURANCE REPORT**

August 2018



Yorkshire Water Services

Periodic Review 2019

Assurance of 3rd September 2019 Business Plan**Technical Assurance Report****Document Control****Title:** YWS_PR19_Assurance Report and Statement**Project:** 672454/PR19

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Yorkshire Water Services

Periodic Review 2019

Assurance of 3rd September 2019 Business Plan**Technical Assurance Report****Contents**

1. Introduction	1
2. Role and Scope.....	1
3. Approach.....	4
3.1 Process	6
3.2 Assessment	6
4. Findings	7
4.1 General.....	7
4.2 Material Issues	7
4.3 Non-material Issues	7
5. Independent Technical Assurance Statement	9

1. Introduction

Halcrow Management Sciences (HMS) was appointed in January 2016 by Yorkshire Water Services (YWS) to provide external technical assurance of their regulatory submissions and public domain performance reports.

HMS is a Jacobs Company but operates independently to ensure confidentiality and to avoid conflicts of interest. Neither HMS nor Jacobs has other material interests or contracts with YWS or the Kelda Group which would impede an impartial opinion.

This Statement covers our work in providing independent technical assurance on aspects of YWS' PR19 Business Plan Submission of 3rd September 2019.

Appointed water and wastewater companies in England and Wales are monopoly providers of water and wastewater services. Ofwat uses price controls to regulate the price and service package that these companies offer to ensure that customers are protected.

Each company's Board is accountable for the quality and transparency of the information they provide To Ofwat and for implementing assurance procedures to make sure they meet all their legal and regulatory obligations.

Ofwat has provided the methodology for the 2019 price review (PR19) which they will use to set price controls for the period from 2020 to 2025. Companies must compile their Business Plans to meet their obligations in accordance with Ofwat's methodology and submit them by 3rd September 2019. The methodology sets out how companies should address each aspect of their submission and provides a series of standard tables with guidance for companies to complete.

2. Role and Scope

HMS was appointed to provide independent technical assurance of YWS' 3rd September 2019 Business Plan submission to Ofwat. The objective of our activity is to provide the Company's Board with an independent opinion on the robustness of the technical information so as to assist the YWS Board in signing the Board Assurance Statement for the PR19 Business Plan.

The scope of our work has been agreed with YWS and has included:

- 1 A review of the key processes used to develop the scope and cost of the proposed investment plans:
 - YWS' Unit Cost Database and related cost estimating processes
 - Capital maintenance activity/cost forecasting models
 - Whole-life costing processes for scheme selection
 - Cost-benefit assumptions and analysis
 - Project and programme prioritisation approachesWhilst we have checked their application, we have not reviewed:
 - The derivation of the efficiency assumptions
 - The derivation of the Real Price Effects assumptions

- 2 A review of key areas of investment:
 - Water Infrastructure maintenance
 - Water non-infrastructure maintenance model
 - Water Resources
 - Water Networks
 - Water Production
 - Plans to achieve Upper Quartile Performance:
 - Leakage
 - Interruptions to Supply
 - Water Quality

 - Wastewater infrastructure maintenance
 - Wastewater non-infrastructure maintenance model
 - Wastewater Networks
 - STW Serviceability
 - STW Growth
 - Waste Production
 - Plans to achieve Upper Quartile Performance:
 - Internal Sewer Flooding
 - Pollution

 - WINEP (Clean Water)
 - WINEP (Wastewater)

 - Health and Safety

 - M&G: Customer Relationship Management
 - M&G: IT Telemetry
 - M&G: IT Incrementals

- M&G: Innovation
 - M&G: Vehicles and Fleet
 - M&G: Land and Property
 - M&G: Accommodation/Facilities
 - M&G: OPEX Increases
 - M&G: Physical and Electronic Security
 - M&G: PR24
 - M&G: IT Hardware
- 3 Assurance of the Proposed/Potential Special Cost Factors:
- Drinking Water Quality
 - Leakage
 - Cellared Properties
 - Wastewater Growth
 - Hull and Haltemprice flood protection
 - Bioresources
- 4 Assurance of the Definitions, Historic data and Target-setting assumptions for a series of Performance Commitments (selected by YWS):
- AP_01 River Length Improved
 - AP_03 Amount of Land Conserved and Enhanced
 - AP_06 Operational Carbon Emissions
 - AP_09 Education
 - AP_11 Creating Value from Underused Resources
 - AP_12 Water Recycling
 - AP_14 Charity Volunteering
 - BR_01 Agricultural Products
 - BR_02 Bio-Resources Energy Generation
 - BR_03 Bio-Resources Treatment Capacity
 - CW_01 Compliance Risk Index (Drinking Water)
 - CW_02 Water Supply Interruptions (Customer Minutes Lost)
 - CW_03 Leakage
 - CW_04 Asset Health (Unplanned Outages)
 - CW_05 Asset Health (Mains Repairs)
 - CW_07 Drinking Water Contacts (Aesthetics)
 - CW_08 Water Supply Interruptions (Greater than 12 hours)
 - CW_10 Continuous Supplies
 - CW_11 Repairing or Replacing Customer Owned Pipes
 - CW_13 Time Taken to Repair Customer Reported Leaks
 - R_01 Affordability (Bill Affordability)
 - R_02 Affordability (Direct Support given to Customers)
 - R_03 Affordability (Cost of Bad Debt)
 - R_04 Vulnerability - Awareness of PSR and special services
 - R_05 Vulnerability - Meeting vulnerable customer needs
 - R_07 Voids (Voids Verification)
 - R_09 Digital Improvement
 - R_10 Gaps
 - WW_01 Wastewater Pollution Incidents (Category 3)

- WW_02 Internal Sewer Flooding
- WW_03 Asset Health (Discharge Permit Compliance)
- WW_04 Asset Health (Sewer Collapses)
- WW_05 Resilience (Wastewater Flooding Risk)
- WW_06 External Sewer flooding
- WW_08 Surface Water Removed

We have not reviewed the allocation of costs to these Performance Commitments, Customer Engagement, the derivation of the Rewards or Penalties.

5 Assurance of the information supporting and the population of Data Tables:

Table	Description
App1	Performance commitments (PCs) and outcome delivery incentives (ODIs)
App2	Leakage additional information and old definition reporting
App3	Abstraction Incentive Mechanism - surface and ground water abstractions under the AIM threshold
App5	PR14 reconciliation ~ performance commitments
App6	PR14 reconciliation ~ sub-measures
App28	Developer services (wholesale)
App30	Void properties
App31	Past performance
WS1 (AMP6)	Wholesale water - capital expenditure by business unit only
WS1 (AMP7)	Wholesale water - capital expenditure by business unit only
WS2 (AMP6)	Wholesale water capital and operating enhancement expenditure by purpose
WS2 (AMP7)	Wholesale water capital and operating enhancement expenditure by purpose
WS2 (OPEX)	Wholesale water capital and operating enhancement expenditure by purpose
WS2a (AMP6)	Wholesale water cumulative capital enhancement expenditure by purpose
WS2a (AMP7)	Wholesale water cumulative capital enhancement expenditure by purpose
WS3	Wholesale water properties and population
WS4	Wholesale water other (explanatory variables)
WS10	Transitional spending in the wholesale water service
WS12	RCV allocation in the wholesale water service
WS17	PR14 water trading incentive reconciliation
WS18	Explaining the 2019 Final Determination for the water service
Wr1	Wholesale water resources (explanatory variables)
Wr6	Water resources capacity forecasts
Wr7	New water resources capacity ~ forecast cost of options beginning in 2020-25
Wn1	Wholesale water treatment (explanatory variables)
Wn2	Wholesale water distribution (explanatory variables)
WWS1 (AMP6)	Wholesale wastewater - capital expenditure by business unit only
WWS1 (AMP7)	Wholesale wastewater - capital expenditure by business unit only
WWS2 (AMP6)	Wholesale wastewater capital and operating expenditure by purpose
WWS2 (AMP7)	Wholesale wastewater capital and operating expenditure by purpose
WWS2 (OPEX)	Wholesale wastewater capital and operating expenditure by purpose
WWS2a (AMP6)	Wholesale wastewater cumulative capital enhancement expenditure by purpose

WWS2a (AMP7)	Wholesale wastewater cumulative capital enhancement expenditure by purpose
WWS3	Wholesale wastewater properties and population
WWS10	Transitional spending in the wholesale wastewater service
WWS12	RCV allocation in the wholesale wastewater service
WWS12a	Wholesale wastewater charges impact assessment
WWS18	Explaining the 2019 Final Determination for the wastewater service
WWn3	Wholesale wastewater network (explanatory variables)
WWS4	Wholesale wastewater other (explanatory variables)
WWn2	Wholesale wastewater large STW explanatory variables excluding opex
WWn4	Wholesale wastewater sewage treatment (potential explanatory variables)
WWn8	Wastewater N+ Special Cost Factors - Wastewater Growth
Bio1	Wholesale wastewater sludge (explanatory variables)
Bio2	Wholesale wastewater sludge treatment process and disposal routes
Bio7	Wholesale wastewater bioresources special cost factors
R2	Residential retail special cost factors
R10	PR14 Service incentive mechanism

3. Approach

3.1 Process

The development of the Investment elements of the Business Plan has been an iterative process and in some cases, has required interim submissions to Ofwat. This in turn, has required an iterative approach to the audit process in the following areas:

Investment planning – where the initial scale, scope and costs of work programmes and projects have been challenged at various stages of YWS’ plan-building process: solution selection; cost-benefit appraisal; prioritisation through the decision-making framework; further top-down challenges on deliverability, affordability and financeability grounds; and a further challenge following release of the obligatory WINEP requirements which required YWS to revisit some of their non-mandatory proposals to maintain the overall plan within the affordability envelope.

Performance Commitments – where an early (3rd May 2019) indication of these was required covering the draft definitions and historic data, and in some cases the form of the PCs has subsequently changed.

Cost Adjustment Claims – which again required an interim (3rd May 2019) submission which precipitated feedback to the industry from Ofwat and led to a reconsideration by the Company of those deemed appropriate for submission.

Our general approach is summarised in the following steps:

1. Agree Scope – generally seeking evidence of compliance with the guidance provided with the tables or with the assessment tests set out in the Ofwat methodology
2. Produce assessment templates appropriate for the type of information being assessed/assured
3. Undertake preliminary reviews of the processes proposed by YWS to: identify, capture, correct/convert/adjust, check and accept, and report information against the requirements; providing advice/recommendations/suggestions where necessary to improve compliance
4. Review draft information, checking that appropriate and compliant processes have been used
5. Provide feedback and Summaries of Audit Findings where an Issues Log identifies areas of concern on a colour-coded basis (RABG-Assessment basis, see below)
6. Resolve material issues through the supply of additional or revised information, or through the inclusion of additional statements which provide improved transparency
7. Obtain confirmation from YWS which acknowledges that key remaining risks we have identified are known to and accepted by the Board and that other non-material issues remaining have been recognised and are being managed
8. Update Audit Findings to reflect the revised Issue statuses.
9. Presentations and preparation of Summary Reports and Assurance Statements.

3.2 Assessment

Although each type of information has a different set of criteria that we test for, we consistently use the following ‘RABG’ coding to simply highlight the areas of concern. The detailed Findings Reports provide more definition of these criteria.

Figure 1 - Criteria used in HMS Assessments for reporting compliance against the requirements

Key to Audit RAG status	
R	Material concerns over the validity of the reported information
A	Potential material concerns over reported information
B	Non-material - Content with reported information but supporting data needs completion/ noting/or future improvements are recommended
G	No material exceptions and deemed compliant with the requirements

4. Findings

4.1 General

We would like to thank YWS staff, who have been highly accommodating and helpful in assisting us with our assurance work.

There are 728 GREEN audit tests where no observations remain. It is important to note that each audit generally covers several information sets/lines which, if all are deemed to pass the audit test, are scored together as a single GREEN whereas any non-GREEN issues found are each counted separately. The number of Issues is therefore not proportionate. Only the non-GREEN Issues are reported on further.

Summary of Issues remaining at audit closure		RAG Status			
	Information category	Nr Audits	R	A	B
1	Key Investment Processes	7	0	0	11
2	Key Areas of Investment	18	0	0	37
3	Special Cost Factors	6	0	0	15
4	Performance Commitments (Definitions, Historic data, Targets)	35	0	0	63
5	PR19 Data Tables	27	0	0	17
	Totals	93	0	0	143

We believe that all relevant information, material to this submission, has been made available to our auditors to enable a suitably robust opinion.

4.2 Material issues

We confirm that all the material issues or risks we have identified during our audit work on PR19 have either been satisfactorily resolved or we have received confirmation from YWS that they have been recognised and accepted by the Board and are being managed.

4.3 Non-material issues

Throughout our final detailed audit reports, there remains a substantial number of non-material issues.

To a large extent, the non-material issues remaining in our audits of earlier phases have been superseded as YWS has moved on into the later phases of Plan development, but information provided for our audits of the later phases has confirmed that they have been or will be addressed. This is particularly the case for the Key Investment Process audits and Key Areas of Investment audits.

There are also other avenues of audit undertaken during the development of the Plan which are no longer relevant due to YWS deciding not to continue with the proposals, eg some Special Factor Claims, some Performance Commitments and some Areas of Investment.

Additionally, where we have identified issues or risks relating to:

- the 'efficiency of the Plan' - we have seen that these have been addressed at a top-down level with substantive reductions to some of the key investment areas. We consider that this, 'in the round', addresses the issues raised in specific audits
- the 'deliverability of the proposals' - YWS has confirmed that, through their corporate risk processes, the Board is aware and considers these risks to be within the company's capacity to manage them

- ‘acceptability to customers’ – YWS has confirmed that customers have been engaged and are supportive of the package of measures proposed and that the overall need for investment at these levels has been secured from the Yorkshire Forum for Water Customers.

Many other non-material issues were raised in relation to demonstrating that the Plan was supported by high quality internal assurance processes. We acknowledge that much of this was due to audit timing, which was often concurrent with the development of the information. As the Plan approaches completion, we have noted that many of these issues are addressed by the final checks or are evidenced in the final documentation.

5. Independent Technical Assurance Statement

Halcrow Management Sciences (HMS) was appointed in January 2016 by Yorkshire Water (YWS) to provide external independent technical assurance of their regulatory submissions. Our work on the PR19 Business Plan Submission of 3rd September 2019 has included assurance on:

- Key Investment Processes
- Key Areas of Investment
- Special Cost Factors
- Performance Commitments (Definitions, Historic data, Targets)
- Data Tables

In each of these areas, we have applied tests to examine and assess the company's likelihood of achieving a 'fast-track' assessment by Ofwat and for achieving a Plan which YWS is able to 'deliver'.

Our assurance activities have not included the assimilation and presentation of the data tables and table commentaries in the Business Plan document.

We confirm that all the issues we had considered to be material to the Plan have now been resolved.

As agreed with YWS, the phasing of our audits has provided the opportunity for timely comment at suitable stages on the quality of information being used to develop the Plan. As YWS has moved to subsequent phases, it became inappropriate to pursue and resolve many of the non-material issues that had been raised. However, we are satisfied that the vast majority of these recommendations and observations have now been satisfactorily addressed.

We therefore consider that:

- Procedures have been developed and implemented which will produce a highly compliant submission
- The information presented is based on appropriate supporting data and assumptions and has been subjected to reasonable levels of scrutiny and challenge
- The PR19 data tables and supporting table commentaries provide a clear and fair representation of YWS' circumstances and proposals
- Overall, the proposals are stretching in terms of both performance expectations and cost-efficiency
- The material areas of uncertainty, which could impact on the 'deliverability' and/or 'financeability' of the Plan, have been identified: the Board is aware and considers these risks to be within the company's capacity to manage them. Otherwise, we consider that the proposals in the Plan are resilient and sustainable.

CWJ Turner

Director

Halcrow Management Sciences Limited

August 2018

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