

May 2022

## **Strategic regional water resource solutions:**

### **Accelerated gate two final decision for Hampshire water transfer and water recycling**

# Strategic regional water resource solutions: accelerated gate two final decision for Hampshire water transfer and water recycling

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## 1. Introduction

The purpose of this publication is to set out our final decision in respect of the Hampshire Water Transfer and Water Recycling strategic regional water resource solution submitted for the accelerated gate two assessment by solution owners Southern Water and Portsmouth Water. The solution includes two options: a direct transfer, or direct transfer with a water recycling plant.

In our draft decision document and draft decision letter issued to each solution owner the solution was called Havant Thicket Raw Water Transfer. The solution owners have confirmed that the name of the solution is Hampshire Water Transfer and Water Recycling and we have used this name in this document and the final decision letters.

This publication should be read in conjunction with the final decision letter issued to each solution owner. Both this document and final decision letters have been published on our website today.

The assessment process is overseen by RAPID, with input from the partner regulators Ofwat, the Environment Agency and the Drinking Water Inspectorate. The Environment Agency together with Natural England, have reviewed the environmental sections of the submissions, and provided feedback to RAPID. CCW provided input to the assessment on customer engagement.

The solution owners and other interested parties had the opportunity to respond to the draft decision during the representation period, which followed the publication of the decisions on 1 March 2022. We have taken all relevant representations into account in making our final decision.

We would like to thank Southern Water and Portsmouth Water for the level of engagement, collaboration and innovation that they have exhibited during this stage in the gated process.

## 2. Solution Summary

### 2.1 Solution summary

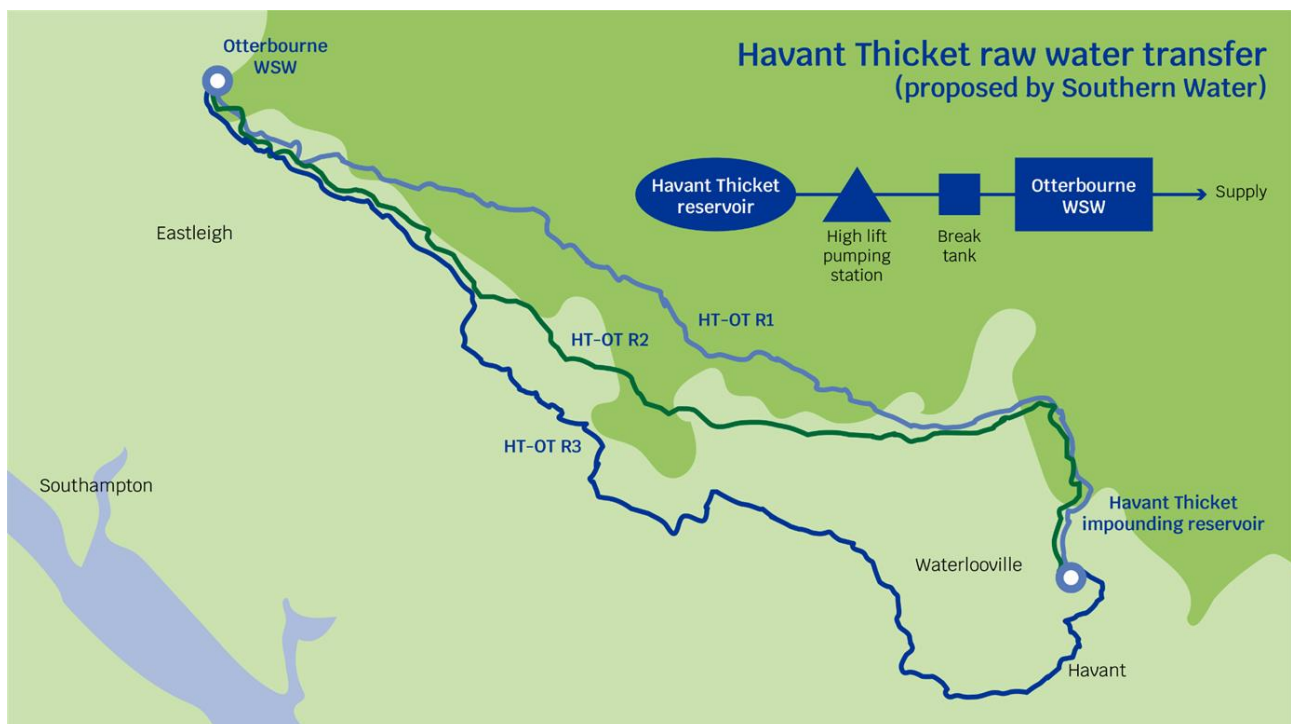
The Hampshire Water Transfer and Water Recycling solution consists of two options that make use of the storage in Portsmouth Water's proposed Havant Thicket reservoir and a transfer pipeline from the reservoir to Otterbourne Water Supply Works (WSW). The two options developed through gate two are described below:

**Option D.2:** This option consists of a direct water transfer from the Havant Thicket reservoir with a peak capacity of 61 Ml/d via a new proposed pipeline to Otterbourne WSW.

**Option B.4:** This option consists of the infrastructure for Option D.2 plus a Water Recycling Plant (WRP) producing 15 Ml/d near Budds Farm Wastewater Treatment Works (WwTW), with transfer pipelines between Budds Farm WTW, the WRP, and the Havant Thicket reservoir. This option has a maximum deployable output (DO) of 75 Ml/d. The balance of supply for Option B.4 is made up by yield from the Havant Thicket reservoir, which can be transferred to Southern Water's Otterbourne WSW to meet Southern Water's severe drought supply need.

This solution cannot deliver until the Havant Thicket reservoir has been constructed and filled. The reservoir is due to be constructed by 2027 and filled and operational between 2027 and 2029.

**Figure 1. Hampshire Water Transfer and Water Recycling Solution Schematic**



## 2.2 Solution context

A Section 20 agreement with the Environment Agency sets out how Southern Water will use “all best endeavours” to implement the long-term solution for alternative water resource in order to address deficits arising from reductions in the volume of water that can be abstracted on the River Test and River Itchen, which are reflected in changes to abstraction licences made in March 2019.

The alternative water resource will enable the company to no longer require drought orders from the River Itchen and the Candover boreholes and only to require a drought order or permit from the River Test in extreme drought events (1 in 500 year drought severity).

Southern Water’s Water Resource Management Plan 2019 (WRMP19) sets out the proposals to deliver alternative water resource to meet the section 20 agreement which include: a 75Ml/d desalination plant at Fawley; water efficiency and leakage reductions; new bulk supplies from Bournemouth Water (20Ml/d) and Portsmouth Water (9Ml/d); construction of Havant Thicket reservoir and a further 21Ml/d bulk supply from Portsmouth Water; extensions to the existing water grid; and water quality schemes.

This solution is proposed by Southern Water as another potential option for addressing deficits arising from abstraction licence reductions on the Rivers Test and Itchen.

Southern Water and Portsmouth Water have identified Option B.4 as their selected option to be taken forward for development beyond accelerated gate two. This is in place of the desalination solution, which has been removed from the gated process and RAPID programme on the basis that it is not feasible at this location at the current time.

Further information concerning the background and context of the Southern Water and Portsmouth Water Hampshire Water Transfer and Water Recycling can be found in the Havant Thicket publication document on the [Southern Water](#) website.

## 2.3 Solution key risks and issues

Southern Water and Portsmouth Water have identified the following key risks associated with this solution:

- Budgetary risks due to unexpectedly higher costs;
- Environmental and spatial constraints affecting the pipeline corridor;
- Potentially incorrect lengths and techniques in base design for the A3(M) crossing;
- Delays and cost increases if funding to construct Southern Water's recycled water assets that interface with the Havant Thicket reservoir is not in place early enough to allow alignment of Southern and Portsmouth construction schedules;
- Possibly insufficient mitigated habitat requirements;

- Risk that collaborative strategy and agreement on delivery is not secured on the emerging preferred option;
- Parallel construction by Southern Water within the Havant Thicket reservoir whilst filling is ongoing may not be achievable, leading to operational delays;
- Insufficient data generated to support water recycling assessments leading to design delays;
- Risk of public perception skewed against the water recycling component leading to planning process delays;
- Required consultation on selected option and updates to WRMP19;
- No approved reverse osmosis membranes available for the water recycling plant;
- Customers do not consider recycled water to be wholesome and acceptable.

We expect the solution owners to develop mitigations for risks as they are identified, including implementation of mitigation plans and assessment of residual risk. Where relevant, mitigation plans should be included in solution costs.

## 3. Summary of representations

### 3.1 Representations received

We have received the following representations relevant to the Hampshire Water Transfer and Water Recycling solution.

**Table 1. Summary of representations**

Representation from	Summary of representation
<p><b>Members of the public</b></p>	<p><b>Confidence in Southern Water</b></p> <ul style="list-style-type: none"> <li>Several members of the public have expressed concern over Southern Water’s record with discharging effluent and do not have confidence in the company’s ability to properly treat effluent</li> </ul> <p><b>Environmental and Ecological Impact</b></p> <ul style="list-style-type: none"> <li>Members of the public have expressed concern over the ecological impact of adding treated effluent to the Havant Thicket reservoir and do not think there has been enough investigation of the potential impacts.</li> <li>There is also concern that there hasn’t been enough environmental impact analysis completed thus far.</li> <li>Members of the public are also concerned about the high energy and carbon cost associated with pumping water a long distance over the pipeline (and also the cost effectiveness of this project due to rising energy costs)</li> <li>Some members of the public disagree with Southern Water's decision that the Water Recycling solution should be a back up solution rather than the preferred solution as they feel it is would have less environmental impact than the preferred option in the Hampshire Water Transfer and Water Recycling solution.</li> </ul> <p><b>Change from Original Planning Application</b></p> <ul style="list-style-type: none"> <li>The community feels misled that there was no mention of recycled effluent in the original planning application for the reservoir and feel there will no longer be any of the claimed recreational and wildlife benefits</li> </ul> <p><b>Stakeholder Engagement</b></p> <ul style="list-style-type: none"> <li>Respondents feel that there was a lack of stakeholder and community engagement and consultation</li> </ul> <p><b>Customer Acceptability</b></p> <ul style="list-style-type: none"> <li>Some customers expressed concern about the taste and stated that they do not want to drink recycled water</li> </ul>



<p><b>Salmon &amp; Trout Conservation (S&amp;TC)</b></p>	<p><b>Environmental and Ecological Impact</b></p> <ul style="list-style-type: none"> <li>• S&amp;TC are concerned that any pipeline route will impact urban spaces or protected sites and that Southern Water have provided no route corridors</li> <li>• S&amp;TC are concerned that a solution is not being pursued in a urgent manner to meet the section 20 agreement and that no mitigation is being discussed.</li> </ul> <p><b>Confidence in Southern Water</b></p> <ul style="list-style-type: none"> <li>• S&amp;TC have raised a lack of confidence in Southern Water’s planning processes due to unrealistic plans in WRMP19</li> <li>• S&amp;TC have identified two statements in the submission that are incorrect: that Southern Water and the Environment Agency have reached an agreement to amend the section 20 agreement and that Southern Water are in part unable to meet their section 20 commitments due to the Drinking Water Inspectorate's approval process.</li> </ul> <p><b>Stakeholder Engagement</b></p> <ul style="list-style-type: none"> <li>• S&amp;TC do not feel there has been sufficient stakeholder engagement and have raised that response to their written and verbal questions to Southern Water were inadequate and lacked transparency.</li> </ul> <p><b>Southern Water's Deficit</b></p> <ul style="list-style-type: none"> <li>• The organisation has concerns that preferred options do not make up all of Southern Water’s deficit and they estimate a 15 – 36 Ml/d shortfall</li> </ul>
<p><b>Friends of the Ems (FotE)</b></p>	<p><b>Environmental and Ecological Impact</b></p> <ul style="list-style-type: none"> <li>• FotE are concerned about the impact of the transfer on the River Ems and other local chalkstreams</li> <li>• FotE are concerned that the submission has not addressed the impact of the solution on water resources and chalkstreams</li> <li>• FotE request clarity on specific environmental actions and recommendations</li> </ul>
<p><b>Rowlands Castle Parish</b></p>	<p><b>Change from Original Planning Application</b></p> <ul style="list-style-type: none"> <li>• The Parish point out that the original proposal for approved Havant Thicket reservoir only mentioned storing high-quality chalk aquifer water, not recycled water.</li> </ul> <p><b>Environmental and Ecological Impact</b></p> <ul style="list-style-type: none"> <li>• The Parish is concerned that not enough work has been done on environmental impact analysis and mitigation</li> <li>• There is concern that recycling and pumping through pipeline has a very high energy, chemical, and carbon cost</li> </ul> <p><b>Water quality</b></p> <ul style="list-style-type: none"> <li>• The Parish does not believe enough work has been done on how to mitigate drinking water quality risks</li> <li>• The Parish raise the issue that the companies have failed to show equivalence at Peel and Budds Farm</li> </ul>

	<p><b>Stakeholder Engagement</b></p> <ul style="list-style-type: none"> <li>The Parish states that the companies have failed to be transparent with customers and have not engaged with local community with any detail</li> </ul> <p><b>Customer Acceptability</b></p> <ul style="list-style-type: none"> <li>They are concerned that adding treated effluent will diminish purity, taste, and smell of the drinking water</li> </ul> <p><b>Confidence in Southern Water</b></p> <ul style="list-style-type: none"> <li>They are concerned that Southern Water will try to discharge as much effluent as possible into the reservoir, especially if capacity is increased to make the solution more cost effective in the longer-term</li> </ul>
<p><b>Havant Climate Alliance (HCA)</b></p>	<p><b>Environmental Impact</b></p> <ul style="list-style-type: none"> <li>HCA is concerned about the carbon footprint of recycling and pipeline</li> <li>HCA are worried about the potential build-up of nitrates, algal blooms, and eutrophy</li> <li>They are concerned that wastewater treatment by-product will be discharged into the Solent and Coast</li> </ul> <p><b>Customer Acceptability</b></p> <ul style="list-style-type: none"> <li>They believe the taste of the water will change for the worse</li> </ul> <p><b>Water Quality</b></p> <ul style="list-style-type: none"> <li>HCA does not believe water quality monitoring is being progressed urgently</li> </ul>
<p><b>East Hampshire District Councillor, Rowlands Castle Ward</b></p>	<p><b>Confidence in Southern Water</b></p> <ul style="list-style-type: none"> <li>The Councillor has concerns about Southern Water’s record with discharging effluent and states the community does not have confidence in the company’s ability to properly treat effluent</li> </ul> <p><b>Environmental and Ecological Impact</b></p> <ul style="list-style-type: none"> <li>The Councillor raises concern that adding recycled water will pollute the water and render features such as wetland for wildlife not viable</li> </ul> <p><b>Change from Original Planning Application</b></p> <ul style="list-style-type: none"> <li>The Councillor highlights that there was no mention of recycled effluent in the original planning application and local consultation discussions for the reservoir</li> </ul>
<p><b>Southern Water and Portsmouth Water</b></p>	<p><b>Gated Allowance</b></p> <ul style="list-style-type: none"> <li>Southern Water and Portsmouth Water request £50.95m for all gates and ability to spend more at gate three. This increase in funding requested is a result of forecasted costs for those activities Southern deems strictly necessary for delivery of the solution. Without the increased funding, the companies project a total deficit of £19.8m across all gates</li> </ul>

	<p><b>Cost Challenges</b></p> <ul style="list-style-type: none"> <li>• The companies do not think that the London Reuse SRO is an appropriate benchmark for project management costs due to different stages in the project lifecycle</li> <li>• They have provided further clarity on legal costs, which were incurred reviewing the technical assessments and evidence making up the submission</li> <li>• Southern Water has reallocated common costs between solutions based on the proportion of allowed expenditure in our accelerated gate two draft decisions, which Southern believe is representative of proportion of activity undertaken for each solution.</li> </ul> <p><b>Gate three Submission Date</b></p> <ul style="list-style-type: none"> <li>• The companies have proposed a gate three submission date of 28 February 2023</li> </ul> <p><b>Board Statement and Assurance</b></p> <ul style="list-style-type: none"> <li>• Southern Water do not believe that they could have provided assurance that one or more of the solutions could be delivered by 2027</li> <li>• Portsmouth Water confirm that their signed Board letter was sent to RAPID</li> </ul> <p><b>Delivery Incentive Penalty</b></p> <ul style="list-style-type: none"> <li>• The companies do not believe the 10% delivery incentive penalty should apply as it was not technically feasible to submit information to a WRMP standard at accelerated gate two due to timing constraints.</li> <li>• In response to RAPID's decision to impose the 10% delivery incentive penalty in part due to insufficient stakeholder engagement, the companies assure RAPID that an extensive consultation and engagement programme will ramp up</li> <li>• In response to RAPID's decision to impose the 10% delivery incentive penalty in part due to insufficient consideration of pipeline routes, the companies assure RAPID that the route selection process is underway and that a pipeline route will be selected based on a robust set of sensitivity criteria. The companies state they will be working closely with the Environment Agency and Natural England on this.</li> </ul>
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## 3.2 Our response

We have taken the representations into account in our final decisions and set out below our response to the key points and issues raised.

### 3.2.1 Environmental and ecological impact

We agree that the investigation into environmental impacts is not as mature as would have been expected for gate two and this is an important factor in our decision to impose a 10% penalty. This leaves a residual risk that the solution could have unforeseen environmental impacts, not yet identified or mitigated. We have included priority actions and actions identified in the Appendix requiring these shortfalls to be addressed. Accelerated gate three work will need to include detailed assessment of the ecological impacts of the proposed pipeline route options and re-assessment of the habitat loss currently stated for the Biodiversity Net Gain and Natural Capital Assessments as well as a detailed carbon report. Southern Water will be expected to have completed all environmental assessments, which will look at all the environmental impacts of the solution, and to have identified any areas of concern and proposed mitigation for these in order to satisfy the requirements of the environmental regulators.

We expect the companies to engage regularly and thoroughly with environmental regulators on these issues, to consider all relevant material environmental risks, and to develop a sufficiently robust evidence base to support a solution design that will meet required environmental performance criteria.

We are disappointed that Southern Water has been unable to provide assurance that one or more solutions will be in place and operating by the end of 2027. The Board has provided assurances that a solution will be in place by 2030. We note that that Southern Water are in discussion with the Environment Agency around mitigations that will be put in place until a solution is delivered.

Some members of the public have stated a preference for the Water Recycling solution ahead of the Hampshire Water Transfer and Water Recycling solution. Both solutions will include a water recycling plant and Southern Water will be considering the environmental impact of both solutions. It is for Southern Water to decide which solution is best to meet the water deficit in Hampshire based on its water resource planning and the work carried out in developing and investigating the solutions. In terms of concerns regarding whether sufficient funding will be available to complete investigations on the Water Recycling solution, we have made funding available to continue to investigate the Water Recycling solution up to gate three. We have not reduced this funding as proposed in our draft decision, which will ensure sufficient funding is available to investigate this solution in full.

We recognise that there are concerns about the impact of the transfer on chalk streams and the River Ems, and that specific clarifications were requested around whether environmental priority actions, actions, and recommendations refer to or include the Ems catchment. Priority actions and actions around the environmental assessments (Strategic Environmental Assessment (SEA), Habitats Regulation Assessment (HRA), and Water Framework Directive (WFD)) and monitoring do include consideration of the Ems catchment. Priority actions and actions around the Natural Capital Assessment and Biodiversity Net Gain also include the Ems

catchment to the extent that Ems catchment issues are identified in an initial screening stage as needing further investigation to assess more accurately the potential for improvement or damage to the environment. In-combination effects are those effects that may arise from the proposed solution in combination with other plans and projects proposed/consented but not yet built and operational, and we have amended the relevant priority action to clarify this.

Clarification was also requested on whether our recommendation to evaluate the potential benefits of cooperating with catchment partnerships' Test & Itchen Invasive Non-native Species (INNS) assessment include the Ems partnership. As there will be no operational infrastructure present within the catchment the scheme is very unlikely to pose an INNS risk to it. It is possible that construction phase activity may introduce a potential pathway although we have no information at the moment to suggest that is likely. We will keep this under review as construction management proposals are brought forward.

### **3.2.2 Stakeholder and customer engagement**

The level of stakeholder engagement which has been conducted for this solution fell short of the requirements for a gate two submission, which was an important factor in relation to our decision to impose a 10% penalty. As stated as a priority action in the Appendix, we expect Southern Water to fully engage with stakeholders and customers to provide clear information about the solution and assurances around the recycled water treatment process and how this will be managed. This work must have commenced no later than 30 June 2022 and should be extensive, detailed and focused particularly where there may be a change in source water. Southern Water are aware that thorough engagement with customers and stakeholders on recycling is key to the success of this solution.

Prior to gate three we will require Southern Water, as a minimum, to have completed all statutory consultation required at pre-application phase for Hampshire Water Transfer, as required by the planning process. Due to the similarities between the two solutions, particularly with the recycling element and pipework to Otterbourne WSW, this work will also be relevant to the Water Recycling solution.

### **3.2.3 Drinking water quality**

We expect the companies to continue their water quality monitoring to inform the Drinking Water Safety Plan (DWSP). We also require them to demonstrate equivalence between the final effluent at Peel common WwTW and Budds Farm WwTW in order to confirm suitability of the WRP that treats final effluent from Budds Farm prior to blending with water in Havant Thicket reservoir. This blended water will be pumped to Otterbourne WSW for full potable treatment before entering the public supply network. All water entering supply must comply with the Water Supply (Water Quality) Regulations 2016 (as amended).

### **3.2.4 Customer perception and acceptability**

There are a number of concerns around public perception and customer acceptability of recycled water. In engagement with stakeholders and customers, we expect Southern Water to provide information and assurance that the potable water supplied will continue to meet the high standards required by the Water Supply (Water Quality) Regulations 2016 (as amended) as part of detailed and focussed stakeholder and customer engagement.

### **3.2.5 Confidence in Southern Water**

Members of the public and stakeholders have raised concerns regarding their lack of confidence in Southern Water to safely deliver a solution in a timely manner and its ability to manage the recycling process ensuring clean safe water. We expect Southern Water to address all these concerns in its proposed programme of customer and stakeholder engagement which RAPID has been informed is due to begin imminently. We expect clear and extensive communication between the company and all customers to provide reassurance and build confidence. The Environment Agency and Drinking Water Inspectorate are aware of the inaccuracies in the submission referred to in the representations and have engaged with the companies around these statements.

### **3.2.6 Southern Water's deficit**

The gated programme is not designed to be comprehensive - not all large solutions included in WRMP19 preferred, or alternative plans are in the RAPID programme. Companies are also funded to investigate and develop evidence to deliver WRMP19 and prepare WRMP24 through inclusion in their business plans. Southern Water must demonstrate in its WRMP24 how it will address any deficit forecast within the plan.

### **3.2.7 Change from original planning application**

As part of the required stakeholder and customer engagement, we expect the companies to engage with the local community to clarify the impact of the changes from the original planning application for the Havant Thicket reservoir, such as the impact of including a water recycling component. Companies should make clear if any previously identified environmental, community, or recreational benefits are affected with the introduction of the water recycling element.

### 3.2.8 Delivery incentive penalty

We have decided to maintain the delivery incentive penalty of 10% that applies across all Southern solutions.

Whilst we understand that there are challenges which arise from being on the accelerated track and therefore less aligned with the WRMP24 process, the accelerated track is driven by Southern's urgent need for new water supply. Failure to develop the solution along an accelerated timeline increases the risks to both customers and the environment in the case of a drought event. Therefore, it continues to be important that Southern Water develop this solution to the standards required of the gated process.

Since accelerated gate one, Ofwat has highlighted the importance of stakeholder engagement in accelerated gate one guidance and actions, and accelerated gate two guidance. Therefore, it is disappointed that the stakeholder engagement has not progressed further particularly as these solutions will involve new technology and a change in source water.

We also still have concerns about the inconsistencies and inaccuracies identified in the submissions and query responses, as well as the number of incomplete actions included in our accelerated gate one decision document.

For these reasons, we maintain the delivery incentive penalty of 10% across all Southern solutions.

### 3.2.9 Gated allowance

We are changing the funding of this solution to reflect the change in solution design from accelerated gate one. As the solution design has evolved to become substantially different from the solution proposed at accelerated gate one and there is substantial overlap with the Water Recycling solution, we have decided to combine the allowances for the Hampshire Water Transfer and Water Recycling solution proposed in our draft decision with the allowance for the Water Recycling solution. This will ensure that both solutions can be progressed pending the outcome of WRMP24, which will confirm which of this solution and the Water Recycling solution is preferred. This results in a combined allowance of £57.2m, summarised in the Table 4 below.

We expect separate accounting and expenditure reporting for each solution and request this to be provided in an interim update by 14 November 2022. We also expect Southern Water's interim update to propose how solution funding should be split between this solution and the Water Recycling solution for the remainder of gate three. We will review the funding of the two solutions for the remainder of gate three at that point.



### **3.2.10 Cost Challenges**

We accept Southern Water's proposal that common costs should be reallocated based on the proportion of allowed expenditure in our accelerated gate two draft decisions. After reallocating common costs for Southern Water's accelerated gate two solutions with the proportions outlined in Table 6 of Southern Water and Portsmouth Water's representation (5.7% for the Hampshire Water Transfer and Water Recycling solution), the Programme & Project Management and Legal costs challenged in our draft decision that were allocated to this solution fell either below our benchmark allowance for the category or sufficiently low as to warrant removal of the challenge.

### **3.2.11 Gated three submission date**

We accept the companies' proposed gate three submission date of 28 February 2023.

### **3.2.12 Board Statement and Assurance**

We allowed funding on our final determination at PR19 to allow Southern Water to investigate and develop solutions to be operational by the end of 2027. This date remains the basis on which funding was made available at PR19, irrespective of any amendment to the section 20 agreement. While the funding was made available for the purpose of supporting Southern Water in achieving its environmental obligations under the section 20 agreement, the basis of funding is independent of the provisions of that agreement and is as stated in our final determination at PR19.

In its gate one representations, Southern Water indicated that it would continue to take every opportunity to bring forward the delivery date to meet the 2027 timetable although it considered the timeline to be challenging. We therefore do not agree that it was the case that Southern Water made it clear that it viewed a 2027 delivery date as unachievable as early as gate one. We welcome the commitment of Southern Water's Board to ensuring that there is no delay beyond 2030 at future gates.

The assessment of this area as poor also took into account that Southern Water did not provide confirmation that material issues with its submissions identified in its external assurance had been addressed, and there was evidence within the submissions to suggest that they had not. It also considered that the quality of work on progressing environmental assessments and mitigations was poor.

For these reasons, we have not changed our assessment of this area. We welcome the commitment of Southern Water's Board to providing assurance at future gates that the solution will be delivered at the earliest possible date and that there is no delay beyond 2030 at future gates.



We confirm that a signed assurance statement from the Board of Portsmouth Water was received on 6 December 2021, sent by e-mail separately to the main submission. We have therefore removed this priority action from our final decision.

### **3.3 Other changes to our draft decision**

#### **3.3.1 Gate Three Incentives**

Our draft decision stated that we would confirm the gate three incentives for all solutions in gate three guidance or final decisions, whichever is the earlier. We are still considering these incentives and they will therefore be confirmed in gate three guidance.

#### **3.3.2 Gate Three Activities**

Southern Water should continue with gate three activities for this solution pending the outcome of WRMP24, which will confirm which of Water Recycling or this Hampshire Transfer and Water Recycling solution is the preferred solution.

If this Hampshire Transfer and Water Recycling solution is not confirmed as the preferred solution in WRMP24, then Southern Water should propose by 14 November 2022, which gate three activities it will need to continue with in order to ensure that this solution continues to be an effective back-up solution and which it will discontinue.

## 4. Solution assessment summary

At accelerated gate two, the solution should have been of a suitable standard for inclusion in a final WRMP. We are concerned that areas of the work are not yet at that standard, particularly in relation to identifying and mitigating environmental and drinking water quality risks. This therefore means that showstoppers could yet be identified, bringing potential delay or issues with consenting and permitting. There were also considerable quality issues throughout the submissions and areas of inconsistency between annexes. The issues with the quality of the work completed to progress the solution and with the evidence presented in the submissions, raises concerns regarding the assurance that has been provided by the Boards of the solution owners.

**Table 2. Final decision summary**

Recommendation item	Hampshire Water Transfer and Water Recycling
Solution owners	Southern Water and Portsmouth Water
Should further funding be allowed for the solution to progress to accelerated gate three?	Yes
Is there evidence all expenditure is efficient and should be allowed?	No, see section 3.2
Delivery incentive penalty?	Yes, 10% applied to Southern Water's total gate two allowed efficient expenditure
Is there any change to partner arrangements?	No
Are there priority actions for urgent completion?	Yes

### 4.1 Solution progression and funding to accelerated gate three

The evidence suggests that the solution is aligned to any available strategic plans for water resources management (including plans in draft) and continues to need accelerated development and regulatory oversight and support. Based on our assessment of the potential solution costs and benefits we have concluded that the solution should progress through the gated process to accelerated gate three, and that further funding be allowed. The reasons for this assessment are set out in the table below.

**Table 3. Final decision progression criteria**

Progression criteria	Hampshire Water Transfer and Water Recycling
Solution owners	Southern Water and Portsmouth Water
Is the solution in a preferred or alternative programme in relevant regional plan or WRMP (where applicable) to be operable by end 2027?	Yes, the solution is chosen in <a href="#">Southern Water's annual review</a> of its Water Resource Management Plan 19 as the preferred solution, which is the relevant plan for the accelerated track. The solution is also in the draft emerging regional plan. The solution will not be operable by end 2027 but is the best candidate for completion as soon as possible.
Do regulators have any significant concerns with the solution's inclusion or non-inclusion in a WRMP or regional plan with any aspects that may impact its selection, to a level that they have (or intend to) represent on it when consulted?	On the evidence provided in the submission, the regulators do not have significant concerns. However, the solution owners have not developed the solution to the standard required for a final water resource management plan. Concerns may therefore emerge as the evidence is developed. For example, further evidence is required to demonstrate that water resource benefits input to regional modelling are robust, and that scalability has been considered. There is also uncertainty about the companies' future needs and associated regional benefits from this solution.
Is there value in accelerating the solution's development to meet Southern Water's urgent requirement to address the supply deficit in its Hampshire area?	Yes. A solution needs to be delivered for 2027 or as soon as is practicable to negate the current deficit
Does the solution need continued enhancement funding for investigations and development to progress?	Yes. Continued funding is required to develop a solution to be delivered for 2027 or as soon as is practicable.
Does the solution need the continued regulatory support and oversight provided by the Ofwat gated process and RAPID?	Yes. The solution will continue to benefit from the regulatory support and oversight provided by being included in the RAPID programme.
Does the solution provide a similar or better cost / water resource benefit ratio compared to other solutions?	Yes. This solution is expensive if considered on the basis of cost per projected utilisation as it is a drought resilience asset. However, when considered on a capacity basis, solution costs are not unreasonable and over the medium to long-term the solution can be adapted to provide capacity beyond the immediate resilience requirement.
Does the solution have the potential to provide similar or better value (environmental, social and economic value – aligned with the Water Resources Planning Guideline) compared to other solutions?	Yes, although there are some concerns that the submission shows potential permanent habitat loss, agricultural value loss, and welfare value and tourism/recreation value loss from initial environmental assessments.
Does a regulator or regulators have “showstopper” type concerns that have not been addressed through the strategic planning processes taking into account proposed mitigation?	No showstoppers have been identified at this stage; however, they may emerge during gate three pending further environmental and other assessments and evidence.

Southern Water and Portsmouth Water are taking forward Option B.4, the direct pipe for raw water transfer plus a water recycling plant, as it is capable of being adapted to meet the needs of both Southern Water's and Portsmouth Water's customers. Both company Boards support this conclusion, and we support the progression of this option.

As described in Section 3.2.9 above, we are changing the funding of this solution and combining the allowances for the Hampshire Water Transfer and Water Recycling solution proposed in our draft decision with the allowance for the Water Recycling solution to ensure that both solutions can be progressed. This change is summarised in the table below.

**Table 4. Hampshire Water Transfer and Water Recycling funding allowances**

	Gate one	Gate two	Gate three	Gate four	Total
<b>Hampshire Water Transfer and Water Recycling</b>					
<b>Previous Allowance</b>	N/A	£1.13m	£1.86m	£2.12m	£5.11
<b>New Allowance Proposed in Draft Decision</b>	£0.00	£1.13m	£9.48m	£10.83m	£21.44m
<b>Comment on New Allowance Proposed in Draft Decision</b>	N/A	Gate two allowance proposed by solution owners at gate one	35% of development allowance calculated as 6% of total solution costs	40% of development allowance calculated as 6% of total solution costs	75% of development allowance calculated as 6% of total solution costs plus gate two allowance proposed by solution owners at gate one
<b>Water Recycling</b>					
<b>Previous Allowance</b>	£3.58m	£5.36m	£12.52m	£14.30m	£35.76m
<b>Combined Allowance</b>					
<b>New Allowance (Hampshire Water Transfer and Water Recycling and Water Recycling)</b>	N/A	N/A	£21.99m	N/A	N/A

While we have merged the allowances for the two solutions pending the outcome of WRMP24, which will confirm which of Hampshire Water Transfer and Water Recycling or Water Recycling is preferred, we do expect separate accounting and expenditure reporting for each solution and request this to be provided in an interim update by 14 November 2022 following the draft WRMPs. We also expect Southern Water's interim update to propose how solution funding should be split between this solution and the Water Recycling solution for the remainder of gate three. We will review the funding of the two solutions for the remainder of gate three at that point.

As at accelerated gate one, we allocate funding in its entirety to Southern Water through gates three and four.

We understand that Southern Water and Portsmouth Water are reviewing financial arrangements. We accept the companies' proposal to report to RAPID any agreed amendment to the financial arrangements in an interim update by 14 November 2022. Whether the cost

sharing proportions remain the same or to change, we expect a thorough rationale for the proposed financial arrangements.

This funding is allowed in accordance with the conditions and requirements as outlined in the [PR19 final determinations: Strategic regional water resources solution appendix](#).

## 4.2 Evidence of efficient expenditure

The PR19 final determination specified that any expenditure on activities outside the gate activities for the identified solutions (or solutions that transfer in) will be considered as inefficient and be returned to customers. We will consider whether gate activity is efficient by considering the relevance, timeliness, completeness, and quality of the submission which should be supported by benchmarking and assurance.

Our assessment of the efficient costs as spent on accelerated gate two activities results in an allowance for this solution of £1.13m (of £2.29m claimed). The amount claimed is £1.16m in excess of the accelerated gate two allowance for this solution of £1.13m. We consider the entirety of the overspend to be the responsibility of Southern Water and do not allow the excess of £1.16m. We also note that while Southern Water and Portsmouth Water have claimed costs for gate three activities, we will not be assessing these costs at this time and will only be assessing the costs claimed against accelerated gate two activities.

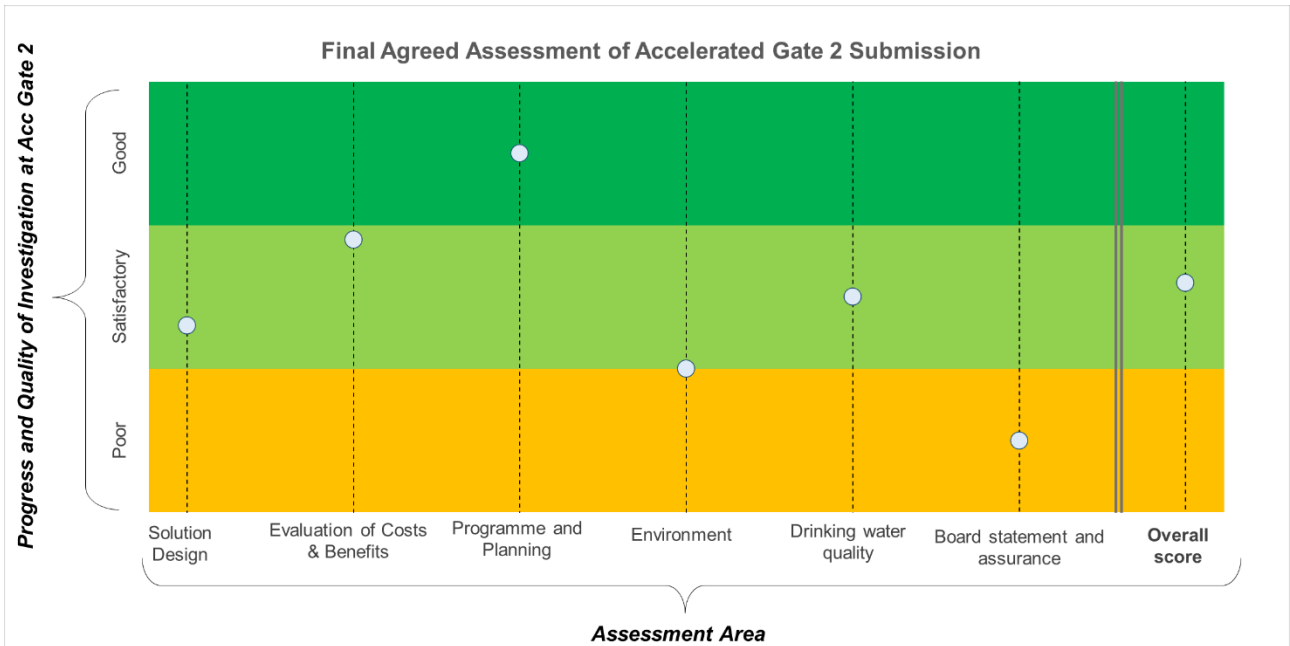
We remove the cost challenges included in the draft decision.

## 4.3 Quality of solution development and investigation

The aim of the assessment was to determine whether appropriate progress has been made towards delivery of the solution.

Figure 2 shows our assessment of the work completed on the solution, which was presented in the submission. Our assessment was made against the criteria of robustness, consistency, and uncertainty to grade each area of the submission as good, satisfactory, or poor in accordance with the [accelerated gate two guidance](#) published on 22 February 2021 and updated in June 2021. We also assessed the Board assurance provided.

**Figure 2. Assessment of progress and quality of investigation**



Our overall assessment of the work completed on the solution as at accelerated gate two is that it is satisfactory overall, but it falls significantly short in some important areas and is not as developed as would be expected at this stage. We explain where we have found shortfalls in the progress made and work completed on investigating and developing the solution below.

Additionally, the submission and associated annexes were difficult to navigate with a number of inconsistencies and inaccuracies identified throughout, with further inconsistencies identified through the query process. We expect these issues to be resolved for accelerated gate three.

### 4.3.1 Solution Design

Our assessment of the solution design considered the quality of the evidence provided on the solution and options; the anticipated operational utilisation of solutions; the interaction of the solution with other proposed water resource solutions and stakeholder and customer engagement. The assessment also considered whether information was provided on the context of the solution's place within company, regional and national plans, including plans in draft.

We consider that the progress and quality of the investigation completed by Portsmouth Water and Southern Water in developing the solution design at accelerated gate two has been satisfactory (falls short of meeting expectations in some areas). There are some important areas where there are significant shortfalls.

The assessment of operability and solution design was insufficient. It lacked information regarding utilisation triggers and solution scalability. There was also a lack of clarity on the solution operating strategy and how it will ensure sufficient resilience.

In terms of stakeholder and customer engagement, there was an action for accelerated gate two on the company to undertake further engagement, which we do not believe Southern has completed. Engagement to date has been focused on desalination, which is no longer being progressed. There is an urgent need to focus on engaging those customers who will receive source change or recycled water as a component of their future supply, and to further engage with stakeholders. We acknowledge that there are plans in place, it is important that these are now swiftly implemented and the outputs from this work made publicly available.

### **4.3.2 Solution costs**

Our assessment of the initial solution costs of delivering the Hampshire Water Transfer and Water Recycling solution is that they are reasonable at this stage and cost changes from gate one to gate two have been sufficiently explained and justified. This solution is expensive if considered on the basis of cost per projected utilisation as it is a drought resilience asset. However, when considered on a capacity basis, solution costs are not unreasonable relative to internal benchmarks and over the medium- to long-term the solution can be adapted to provide capacity beyond the immediate resilience requirement. We will continue to scrutinise cost estimate changes from gate two to gate three.

### **4.3.3 Evaluation of Costs & Benefits**

Our assessment of the evaluation of costs and benefits considered the quality of the information provided on the societal, environmental and economic cost and benefits, water resource benefits and wider resilience benefits. The assessment also considered whether evidence was provided on how the solution delivers a best value outcome for customers and the environment.

We consider that Portsmouth Water and Southern Water's evaluation of the costs and benefits of the solution for accelerated gate two has been satisfactory. The submission fell short of expectations in some areas. It did not include sufficient evidence on water resources benefits as the peak DO was presented inconsistently between the submission and company query responses. It also lacked information regarding consideration of wider resilience benefits, it does not clearly demonstrate how the solution meets the 1 in 500 drought resilience standard or provide a clear justification of the boundary date of 2040 for modelling future water resources requirements. The 1 in 500 resilience standard was raised as an action at accelerated gate one for completion by gate two but has not been presented.

Areas requiring urgent remediation are to provide clear evidence of the water resource benefit, confirm resilience benefits for consumers, and demonstrate that the best value option is being taken forward by undertaking sensitivity testing.

### **4.3.4 Programme and Planning**

Our assessment of the programme and planning considered whether Southern Water and Portsmouth Water presented a programme with key milestones and whether its delivery is on track. The assessment also considered the quality of the information provided on risks and issues to solution progression, the procurement and planning route strategy and subsequent gate activities with outcomes, penalty assessment criteria and incentives.

We consider the progress and quality of the accelerated gate two investigation completed by Portsmouth Water and Southern Water regarding the programme and planning, risks and issues and the procurement and planning route strategy for Hampshire Water Transfer and Water Recycling has been good, with a few items requiring remediation or improvement.

Key themes for accelerated gate three work are to provide a detailed assessment of the relative ratios of spring water and recycled water of the output, and to assess the risk of constraints on timing of construction activities. Solution owners should engage with regulators throughout and should adopt the expected "no surprises" approach, which was not always evident at accelerated gate two.

### **4.3.5 Environment**

Our assessment of environment considered the environmental assessment; the identification of environmental risks and an outline of potential mitigation measures; the detailed programme of work used to address environmental assessment requirements and the initial outline of how the solution will take into account the carbon commitments.

We consider that the progress and quality of the work presented in the accelerated gate two submission provided by Portsmouth Water and Southern Water in this area was poor, and the submission fell considerably short of meeting expectations in many areas.

At gate one an action was raised to further develop Strategic Environmental Assessment, Habitats Regulations Assessment, Water Framework Directive assessment, Natural Capital Assessment, Environmental Social and Economic Valuation and Environmental Net Gain by gate two. The work completed by the solution owners is generally not developed to the stage that would be expected at accelerated gate two and largely consists of desk studies. There has been insufficient environmental monitoring to allow for baselining and ground-truthing of data. As a result, it is not possible to draw conclusions in these assessments. It is



important that future planned assessments include proper consideration of potential in-combination effects.

Portsmouth Water and Southern Water have failed to sufficiently characterise the impacts of the eventual discharge of water, including in chalk catchments, or to consider the risk that the final effluent from the WwTW may be more concentrated than anticipated. They also have not provided supporting evidence for the conclusion reached in their assessment of Likely Significant Effects on Marine Conservation Zones from proposed routes. There needs to be justification for the shortlisting of the chosen potential pipeline routes. Furthermore, proposed pipeline routes need to be reviewed to identify the potential for impacts on Sites of Importance for Nature Conservation (SINCs), to avoid conflict with the agreed Article 4.7 compensation package for Havant Thicket Reservoir, to demonstrate that they will not prevent delivery of mitigation measures, and to assess their impact on floodplain hydrology.

### **4.3.6 Drinking water quality**

Our assessment of drinking water quality considered drinking water quality and risk assessments; evidence that the solution has been discussed with the drinking water quality team and a plan for future work to develop Drinking Water Safety Plans (DWSPs).

We consider that the information provided in this submission on drinking water quality risks, stakeholder engagement and DWSPs for accelerated gate two was satisfactory. The submission fell short of expectations in not including appropriate sampling and sufficient evidence on drinking water quality considerations and risks.

Sampling fell significantly short of expectation as it was not seasonally representative. It was therefore not possible to understand the seasonal variability of the effluent throughout the year. The solution owners have also failed to show equivalence between the final effluent at Peel common WwTW and Budds Farm WwTW. This information is required to confirm suitability of the WRP which treats final effluent from Budds Farm.

### **4.3.7 Board Statement and assurance**

The evidence provided relating to assurance has been assessed as poor.

Southern Water has provided assurance that:

- it supports the recommendation for a selected option, B4 (the Hampshire Water Transfer and Water Recycling solution with recycling solution) and the back-up option, B5 (water recycling from Budds Farm and Peel Common);

- it is satisfied that progress on the solution is commensurate with the solution being operable by 2030 in line with delivery schedule as shared with RAPID and the Environment Agency;
- it is satisfied that the activity carried out to date is of sufficient scope, detail and quality as would be expected of a large infrastructure programme of this nature at this stage in the project development lifecycle;
- it is satisfied that expenditure has been incurred on activities that are appropriate for accelerated gate two and are efficient; and
- it is satisfied that any expenditure incurred for accelerated gate three activities have been clearly flagged and discussed with RAPID prior to submission. Expenditure is relevant to the "all best endeavours" requirement for section 20 and is efficient.

Southern Water has provided information regarding its governance structure and its board oversight of its obligations under the section 20 agreement, which was a requirement in our gate one final decision. It indicates that its full Board was accountable for this and that this was also considered by a sub-group of its Board to provide deeper oversight and challenge.

It is very disappointing, that Southern Water has been unable to provide assurance that one or more solutions will be in place and operating by the end of 2027. We allowed funding in our final determination at PR19 for solutions likely to provide Southern Water with supplies by the end of 2027 in order to support Southern meeting its environmental obligations under its section 20 agreement. The provision of this assurance was included as an action to be addressed in the gate two submission and we have taken its omission into account in our assessment of the assurance provided by Southern Water at gate two.

We expect the Board of Southern Water to ensure that the solution is delivered at the earliest possible date and that there is no delay beyond 2030. At future gates, we will expect the Board of Southern Water to provide assurance that progress on the solution is such that it will be delivered by the revised delivery date of 2030. We further expect the Board of Southern Water to continue to provide oversight of its obligations under its section 20 agreement.

Southern Water has put in place external technical assurance of its gate two submission documentation. The external assurance identified material issues with Southern Water's submissions in a number of areas, including in relation to its gate two expenditure, and there is no confirmation that the issues identified in external assurance have been addressed. We have also seen evidence within the submissions to suggest these issues were not resolved prior to submission. For example, gate expenditure amounts for the three solutions in Annex 6: Efficiency of Expenditure are inconsistent across different tables in the document and also differ from those provided in query responses.

We are also disappointed with the quality of some of the aspects of the work done to gate two, in particular in relation to progressing environmental assessments and mitigations for gate two. Consideration should be given as to what changes should be made to the assurance process to ensure that shortfalls in the quality of the work are avoided at gate three.

We have not assessed expenditure at gate three; we will do this at the point of the gate three submission. We are, however, concerned that the statement includes reference here to all expenditure being relevant to the All Best Endeavours (ABE) requirement for section 20 and is efficient. All expenditure must be directly related to the investigation and development of a solution, expenditure on Southern Water's obligations under section 20 and/or expenditure on issues relating to Southern Water's WRMP is not appropriate expenditure of the gated allowance.

We do not agree that expenditure incurred for accelerated gate three activities have been clearly flagged and discussed with RAPID prior to submission. The gate three expenditure as a total across the solutions was discussed at an early stage, however the expenditure split out for each solution was only shared with RAPID on 26 November 2021, a few days before the accelerated gate two submission on 6 December 2021, despite an earlier request for this information during solution checkpoint meetings.

Portsmouth's Water Board has provided a statement indicating that:

- it supports the recommendations for progress of the solution;
- it is satisfied that progress on the solution is commensurate with the solution in place and operating by the end of 2030;
- it is satisfied that the work carried out to date is of sufficient scope, detail and quality (as would be expected of a large infrastructure scheme of this nature at this stage in its development) to support delivery of the solution by the end of 2030; and
- it is satisfied that the expenditure incurred by the Portsmouth Water team on activities that are appropriate for gate two is efficient.

Its statement is accompanied by a description of the evidence and information that the Board has relied on in giving its statement.

The Board of Portsmouth Water has not been able to confirm that the solution will be in place and operating by the end of 2027. It has instead provided assurance that progress on the solution and the work carried out to date are commensurate with it being in place and operating by the end of 2030. We note in this respect that although Portsmouth Water has primary responsibility for delivery of the Havant Thicket Reservoir on which this solution depends, the Havant Thicket reservoir itself falls outside of the RAPID programme.

Portsmouth Water did not have an obligation to deliver this RAPID solution or any other solution in the RAPID programme by 2027 at PR19; this is an obligation on Southern Water. At future gates, we will expect the Board of Portsmouth Water to provide assurance that progress on the solution is such that it will be delivered by the revised delivery date of 2030.

We also note that the allowance for this solution has been allocated in its entirety to Southern Water up to gate two. Taking this into account, we consider it reasonable that Portsmouth Water has restricted its Board statement relating to expenditure to the expenditure incurred by its own team.

We consider the form of assurance statement provided by the Board of Portsmouth Water to be satisfactory overall notwithstanding that its Board statement does not meet in full the requirements set out in our guidance because we consider its departures to be reasonable for the reasons we have outlined above.

## 5. Delivery Incentive Penalty

We have decided to impose a delivery incentive penalty on this solution of 10%.

Our overall assessment for the solution submission at accelerated gate two is that it is satisfactory overall, but it falls significantly short in some important areas and is not as developed as would be expected at this stage. At accelerated gate two, the solution should have been of a standard suitable for inclusion in a final WRMP. We are concerned that areas of the work are not yet at that standard, particularly in relation to identifying and mitigating environmental and drinking water quality risks.

We are particularly concerned that:

- there has been insufficient stakeholder engagement, particularly with customers who will receive source or recycled water.
- there has been insufficient progress made in the work to carry out key environmental assessments including Strategic Environmental Assessment, Habitats Regulations Assessment and Water Framework Directive assessment.
- there is insufficient environmental monitoring data to understand environmental impacts and risks.
- there has been insufficient consideration of impacts of potential pipeline routes
- there is insufficient evidence on the impacts of the WRP on chalk catchments
- there has been insufficient sampling to provide seasonally representative characterisation to inform Drinking Water Safety Plans (DWSPs).

We are also very concerned at the number of inconsistencies and inaccuracies identified in the submissions, with further inconsistencies identified through the query process. We note that the external technical assurance put in place identified material issues, which do not appear to have been resolved prior to submission.

In reaching our decision to impose a delivery incentive penalty, we have taken into account the extent to which solution owners have addressed priority actions and actions included in our gate one decision document. A number of these are incomplete as detailed in the table below. We have also taken into account the number of priority actions included in this document that relate to work that should have been completed at accelerated gate two; these are explained in section 6.

**Table 5: Gate one actions incomplete at gate two**

Action	Comment
<b>Undertake site selection process for the preferred pipeline configuration as detailed in Annex 9.1 and 9.2 in consultation with the Environment Agency and Natural England, to meet gate two requirements and timescales.</b>	Partially complete – Site selection process fell short of collaborative and "no surprise" commitment expected of solution owners.
<b>Agree the results of collaborative water resources modelling that indicates the alternative raw water proposal for Havant Thicket will be able to support the 61Ml/d drought requirements in addition to the 21Ml/d supply currently included in WRMP19 with the Environment Agency. This should include consideration of a 1 in 200 and 500 year drought. Confirm how this option will operate during different drought scenarios, alongside the 21 Ml/d WRMP19 solution and any operational requirements.</b>	Not complete - deployable output of the solution or the interaction of the solution with the 21Ml/d WRMP19 solution is not clearly presented in the solution Deployable Output of the solution up to 1 in 500 drought resilience should be confirmed.
<b>Provide summaries of the further development of Strategic Environmental Assessment, Habitats Regulations Assessment, Water Framework Directive assessment, Natural Capital Assessment, Environmental Social and Economic Valuation and Environmental Net Gain, that have been discussed and agreed with the Environment Agency and Natural England, to meet gate two requirements and timescales.</b>	Not complete – Assessments have not progressed past desk studies in most cases. Therefore, do not meet gate two requirements.
<b>Provide more information about stakeholder engagement and the understanding of customer acceptability including:</b> <ul style="list-style-type: none"> <li>- for individual solutions and options;</li> <li>- on issues that could cause delay; and</li> <li>- how the views of vulnerable or harder to reach stakeholders and customers will be sought.</li> </ul>	Partially complete – The solution has developed the plan for engagement. However, implementation is not sufficient to meet gate two standards.

As explained in our final determination, the largest penalty across a company's suite of solutions will be applied to the company's total gate two allowed efficient expenditure.

## 6. Proposed changes to partner arrangements

We understand that Southern Water and Portsmouth Water are reviewing financial arrangements. We accept the companies' proposal to report to RAPID any agreed amendment to the financial arrangements in an interim update by 14 November 2022. Whether the cost sharing proportions remain the same or to change, we expect a thorough rationale for the proposed financial arrangements.

## 7. Actions and recommendations

Where the submission has not been assessed as ‘meeting expectations’ we have provided feedback on where we will seek remediation of the issues. We have also identified specific steps that solution owners should take in preparing for accelerated gate three.

We have categorised these remediation issues and steps into priority actions, actions and recommendations.

Priority actions are those that should have been completed at accelerated gate two and must now be addressed on a short timescale in order to make sure the solutions stay on track. They require urgent remediation in full and for this reason directly relate to the assessment of delivery incentives set out in this publication

We have also identified actions that should be addressed in full in the accelerated gate three submission. The response to these actions will influence the assessment of the accelerated gate three submission.

Recommendations are issues where additional information or clarification could improve the quality of future submissions.

Sixteen priority actions have been identified for Hampshire Water Transfer and Water Recycling, which should be delivered no later than 30 June 2022. The full list of priority actions, actions and recommendations can be found in the Appendix.



## 8. Gate three activities

Southern Water should continue with gate three activities for this solution pending the outcome of WRMP24, which will confirm which of Hampshire Water Transfer and Water Recycling or this Water Recycling solution is preferred. Gate three activities include the activities listed in [PR19 final determinations: strategic regional water resources solutions appendix](#) as expanded on in Section 9 of its accelerated gate two submission and the actions listed in the appendix.

If this Hampshire Transfer and Water Recycling solution is not confirmed as the preferred solution in WRMP24, then Southern Water should propose by 14 November 2022, which gate three activities it will need to continue with in order to ensure that the solution continues to be an effective back-up solution and which it will discontinue.

Southern Water had originally proposed a date for gate three of November 2022. Following discussion with RAPID, Southern Water have proposed a gate three submission date of 28 February 2023. We accept this date.

RAPID have provided the solution owners with a proposal for gate three incentives which takes account of Southern Water's suggestions in their submission. We will confirm the gate three incentives for all solutions in the gate three guidance.

## Appendix: Actions and Recommendations

Priority Actions – to be addressed by 30 June 2022		
Number	Section	Detail
1	Solution Design	Provide a well-developed plan for detailed and focused customer engagement. This should include all demographics, well vs less informed consumers and types of engagement etc. Commence more focused consumer engagement particularly around recycling and customer acceptability – distinct from environmental benefit/impact.
2	Solution Design, Programme & Planning	Engage regularly with environmental regulators to deliver a "no surprises" approach and to access their site specific knowledge of constraints, risks, avoidance and mitigation measures and opportunities for delivery of net gain to help identify deliverable options. As part of this regular engagement, progress Method Statements for environmental assessments rapidly to include specific detail needed to undertake site specific work and detailed assessment to provide a sufficiently robust evidence base.
3	Evaluation of Costs & Benefits	Provide the water resource benefit (peak and average deployable output) available from the solution under 1 in 500 drought resilience and clear evidence of this. Provide the water resource benefit which has been included within initial regional model runs. Explain how the non-SRO 21Ml/d transfer from Portsmouth Water has been accounted for within the supply demand balance and that this has not been double counted as supporting the SRO water resources benefit to meet the need.
4	Evaluation of Costs & Benefits	Confirm resilience benefits for consumers able to be supplied by the options in 1 in 500 year scenario to help inform the viability of options.
5	Evaluation of Costs & Benefits	Undertake sensitivity testing around selected future needs horizon of 2040 to demonstrate best value option is being taken forward.
6	Environment	Provide further justification for the shortlisting of pipeline routes 3 & 4 from Annex 3 Sections 2.4 and 2.5.
7	Environment	Clearly consider and set out what is considered standard best practice in construction vs. mitigation of environmental impacts from the environmental assessments described in Annex 3 Section 2.5.
8	Environment	Detail the metrics used to monetise the ecosystem services assessed in the Natural Capital Assessment.
9	Environment	Characterise the impacts of the eventual discharge of water derived from Water Recycling Plant and spring sources mixed within Havant Thicket Reservoir post supply and use on the highly designated chalk catchments and their ecology where they may be the receiving water.
10	Environment	Include Sites of Importance for Nature Conservation (SINCs) in the data sources for review of pipeline watercourse crossings.

11	Environment	Proposed pipeline routes 1 & 2 need to be reviewed to avoid conflict with the agreed Article 4.7 compensation package for Havant Thicket Reservoir.
12	Environment	Present stronger evidence to demonstrate that pipelines won't prevent delivery of mitigation measures - in particular, at the channel crossing locations or where the pipeline is close to the river corridor.
13	Environment	Assess the impact of proposed pipelines on floodplain hydrology and any associated potential adverse impact on ecology.
14	Environment	Provide an appropriate level of supporting evidence for the conclusion that Likely Significant Effects on Marine Conservation Zones can be scoped out at this stage.
15	Environment	Review with environmental regulators whether the current environmental monitoring programme proposals adequately address the needs to capture seasonal variability, spatial variation etc. to provide a sufficient database to support the required SEA, HRA and WFD.
16	Environment	Review with environmental regulators whether currently planned assessments adequately cover potential in-combination effects. In-combination effects are those effects that may arise from the proposed solution in combination with other plans and projects proposed/consented but not yet built and operational.
<b>Actions – to be addressed in accelerated gate three submission</b>		
<b>Number</b>	<b>Section</b>	<b>Detail</b>
1	Solution Design	Confirm operability and the (required) design of the inlet/outlet pipework for Hampshire Water Transfer and Water Recycling at gate three to inform and confirm the overall design of the storage reservoir. This should be evidenced by a suitable methodology (e.g., CFD modelling or equivalent)
2	Solution Design	Provide a clear explanation and rationale for the triggers to utilisation of the solution. Assess the impact on Havant Thicket reservoir storage levels in a 1 in 200 year drought of potential abstraction changes in PW's Farlington demand zone.
3	Solution Design	Explain how solution scalability to meet a needs envelope of 75 to 95Ml/d (Annex 13 section 3.1.2) has been accounted for within initial regional modelling.
4	Solution Design	Further clarification around the interactions with Portsmouth Water's operating strategy and their water needs to ensure that the proposed operation of Havant Thicket will provide the sufficiency and 1:500 resilience required by the solution.
5	Solution Design	Confirm consumer opinions of the options, in particular confirmation of consumer acceptability, should there be a need to use a recycling component in the receiving supply. The outputs of which need to be included in decisions as to which option will be taken forward.
6	Evaluation of Costs & Benefits	Provide costs in the All Company Working Group template.

7	Evaluation of Costs & Benefits	Confirm how the solution will be able to meet the 1 in 500 year drought resilience and which upstream inputs will be used.
8	Programme and Planning	Provide a detailed assessment of the relative ratios of spring water and recycled water of the output from Havant Thicket Reservoir under a range of scenarios eg two successive dry winters.
9	Programme and Planning	Assess the risk of constraints on timing of construction activities to protect fisheries and ornithological interests extend the timescale for delivery of the solution.
10	Environment	Undertake monitoring and data collection to further support the conclusions drawn in the HRA and SEA process as to date many conclusions are not supported with relevant data and evidence.
11	Environment	Assess the risk that during operation of WRP substances usually present with the WwTW final effluent may become more concentrated and exceed EQS for Eastney discharge.
12	Environment	Provide more detailed assessment of potential ecological impacts of proposed pipeline route options.
13	Environment	Re-assess the temporary and permanent habitat loss currently stated for Biodiversity Net Gain and Natural Capital Assessments.
14	Drinking Water Quality	Complete effluent sampling to understand nature of the effluent throughout the year to confirm suitability of WRP which takes effluent from Budds Farm. Include details of chosen pre-disinfection design for Otterbourne as required by the DWI Notice. Note this is a statutory requirement as opposed to a 'target date' as referenced in 2.2.6 Page 43 of Technical Document.
15	Board Statement & Assurance	Southern Water must ensure that its Board provides effective oversight of its obligations under the section 20 agreement and that one or more solutions are in place and operating by the end of 2030. We expect Board assurance for gate three to include a statement that the Board is satisfied that progress on solutions is commensurate with solutions being in place and operating by the end of 2030.
16	Board Statement & Assurance	Consider changes to assurance processes to ensure that shortfalls in the quality of the work are avoided at gate three.
17	Board Statement & Assurance	Ensure that where external assurance identifies issues with the work it has undertaken that it addresses these issues and/or provides a response to these issues.

<b>Recommendations</b>		
<b>Number</b>	<b>Section</b>	<b>Detail</b>

1	Solution Design	Southern Water should work with Portsmouth Water to understand and update any changes to need and possible deficits following the modelling and revision to Portsmouth's WRMP19 planning tables.
2	Solution Design	Reassess and refine utilisation assumptions up to 1 in 500 drought resilience for gate three using regional modelling outputs.
3	Solution Design	Provide further information on how the solution represents the best option from a regional perspective and benefits it delivers for the region. Detail the degree of alignment between Southern Water, Portsmouth Water and WRSE decision making.
4	Solution Design	Reassess and refine conjunctive use assumptions for gate three using regional modelling outputs.
5	Evaluation of Costs & Benefits	Provide sensitivity analysis to understand how costs increase or decrease when different future scenarios of the solution are considered.
6	Evaluation of Costs & Benefits	The use of mapping linked to the Local Nature Recovery Strategy and Biodiversity Opportunity Area's (BOA's) should be used to identify opportunities for net gain.
7	Evaluation of Costs & Benefits	Southern Water should confirm with EA all mitigation measures already identified for WFD water bodies in order to consider mitigation for the solution.
8	Evaluation of Costs & Benefits	Reassess and refine deployable output calculation for gate two up to 1 in 500 drought resilience using regional model outputs.
9	Programme and Planning	Address the inconsistencies in plans within the submission for the gate three (e.g., the procurement plan does not align to the programme plan as well as other minor inconsistencies in milestones in appendices).
10	Programme and Planning	Provide more information on your land and planning strategy, including the land lifecycle and your strategy for effectively delivery and an explanation of how your approach will support the effective and efficient delivery of achieving planning consent, land acquisition and delivery of the solution. Within this we would also expect to see consideration given to the necessary systems, resources, processes and governance required to the deliver this key area of work as well as how you will ensure a good customer journey for all those effected by the delivery of the solution.
11	Environment	Assess the vulnerability of the solution to disruption of supply from incidents that may affect groundwater quality.
12	Environment	Extend factoring in trenchless construction at watercourse crossings beyond the Main River to include ordinary watercourses and other environmentally-sensitive areas.
13	Environment	Evaluate the potential benefits of cooperating with the catchment partnership's Test & Itchen INNS assessment.

14	Environment	Provide further details on the benefits that will be delivered from the renewable energy opportunities identified in respect of emission reductions, timings and costs. Provide further details of how you will seek to influence decarbonisation of supply chain emissions.
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**Ofwat (The Water Services Regulation Authority)  
is a non-ministerial government department.  
We regulate the water sector in England and Wales.**

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