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Strategic regional water resource solutions: Accelerated gate one draft decision for West Country North Sources

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1. Introduction

The purpose of this publication is to set out our draft decision in respect of the West Country North Sources strategic regional solution submitted for the accelerated gate one assessment by solution sponsors, Bristol Water, Wessex Water and Southern Water.

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

The solution sponsors and other interested parties can now respond to the draft decision. Representations are invited by email to rapid@ofwat.gov.uk and the representation period will close at 5 pm on 31 December 2020. All representations will be considered before our final decision is published on 28 January 2021.

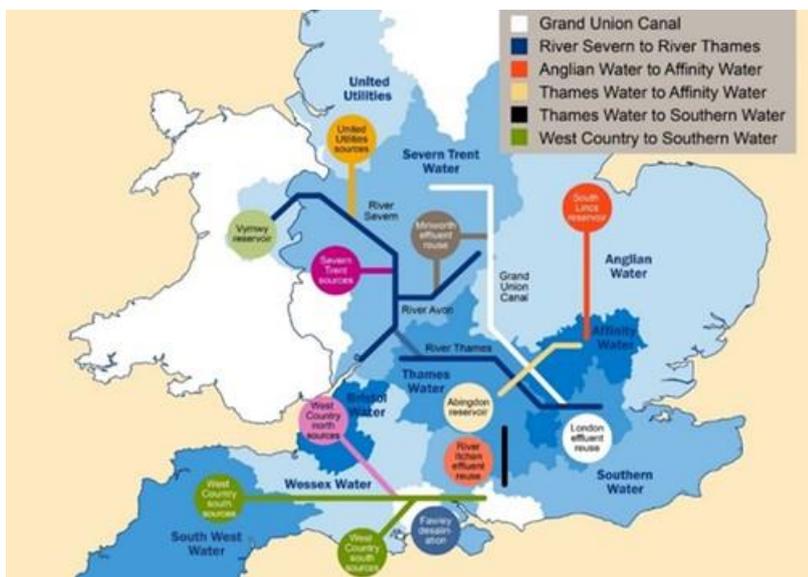
2. Background

In the final determination of its most recent price review (PR19) we intervened to allow up to £469 million for nine companies to jointly investigate and develop strategic regional water resource solutions during 2020-25¹. This funding is for accelerating investigations and feasibility enabling solutions to be ‘construction ready’ in 2025-30. Seventeen strategic solutions were identified for the initial stages of this process including eleven source development options and six water transfer options.

The strategic regional solutions pass through a gated process. The purpose of the gated process is to ensure at each gate that companies are progressing strategic water resource solutions for which funding was allocated at PR19, company costs incurred in doing so are efficient and that solutions merit continued investigation and development during the period 2020 to 2025. There are four gates in the 2020-25 period, the first two relating to design and investigations and the remaining two relating to planning activities.

Gate one activities relate to initial concept design and decision making. At this stage we recognise that solutions may be at different development points. Gate one is therefore regarded as a checkpoint in order to ensure progress is made and rectify any shortcomings prior to gate two. Gate two is a key decision point.

Figure 2.1 Potential strategic regional water resource solutions



¹ See <https://www.ofwat.gov.uk/publication/pr19-final-determinations-strategic-regional-water-resource-solutions-appendix/>

The PR19 total development allowance associated with each gate decision is split in the following proportions: gate one - 10%, gate two - 15%, gate three - 35%, gate four - 40%.

Decisions made at the gates are implemented through an end of period reconciliation mechanism, which was explained in our final determination.

Other solutions may be identified, for example during the development of regional plans, and these can enter the gated process based on RAPID’s recommendations to us. They are subject to additional assessment to determine if there is a value in accelerating the solution’s development to be ‘construction ready’ for the 2025–2030 period, whether it needs additional enhancement and regulatory support, and if it provides a similar or better cost / water resource benefit ratio compared to current solutions.

There are two tracks in the gated process:

- standard gates, where timings align with other water resource planning processes; and
- accelerated gates, for solutions that address Southern Water’s need for large scale water resources, which occurs earlier than for other companies, in December 2027.

Figure 2.2 Gated process for potential strategic regional water resource solutions



3. Submission assessment process

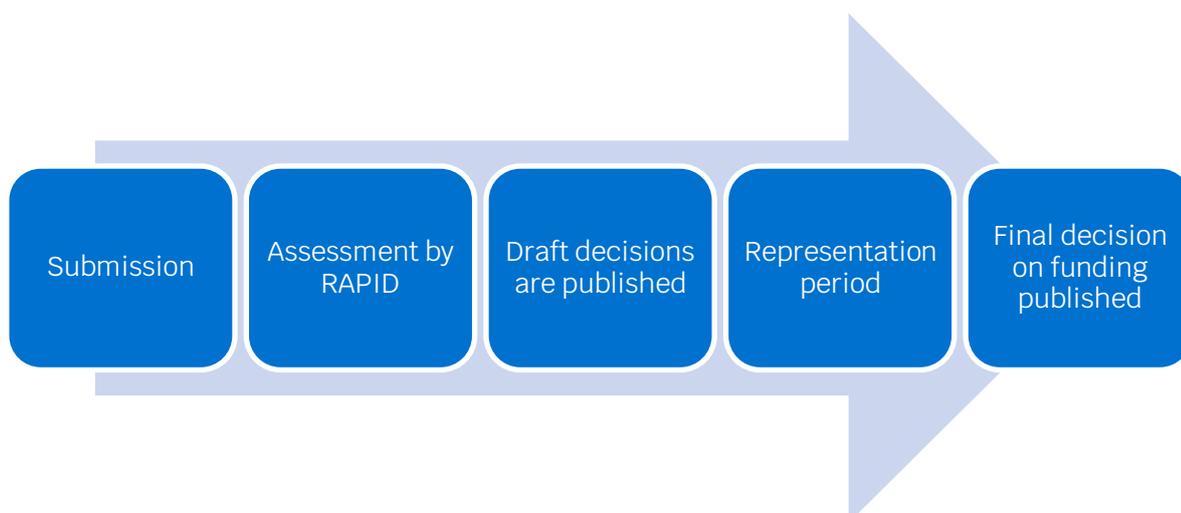
Solution sponsors are required to complete a submission template for each strategic resource option. The submission template seeks to establish the progress of potential solutions.

At gate one, we make the following decisions for each solution based on the assessment process overseen by RAPID:

- whether the solution should progress through the gated process to gate two;
- whether expenditure has been incurred efficiently and should be allowed in full and - if not - what proportion of expenditure should be allowed;
- if the solution submission is not of sufficient quality or does not demonstrate that sufficient work has been carried out, what level of delivery incentive penalty should apply and what proportion of the penalty can be mitigated through the remediation action plan;
- whether there should be any change to solution partnering arrangements (if requested);
- if new or alternative solution options should enter the gated process (if presented); and
- confirmation of gate two activities.

The assessment process takes place over a number of stages before draft and final decisions are reached, as illustrated below.

Figure 3.1 Submission assessment process



4. Solution background

4.1 Solution summary

The submission presents the following options:

- Option 1: 16Ml/d treated transfer, Cheddar Two reservoir to Testwood Water Supply Works (WSW);
- Option 2: 65Ml/d raw transfer, Cheddar Two reservoir to Testwood WSW;
- Option 3: 5Ml/d treated transfer, Newton Meadows pumping station to Andover WSW; and
- Option 4: Combined options 1 and 3; 21Ml/d treated transfer to Testwood WSW.

This solution comprises the construction of a second reservoir (9,400Ml capacity) at Cheddar in Bristol Water's area and transfer of water, via a new transmission pipeline through the Wessex Water area, to the Southern Water Testwood WSW or Andover WSW.

The sponsoring companies concluded that Options 3 and 4 are not feasible due to no available surplus water in the Bristol Water area.

The treated water options that were considered require a new water treatment works, in addition to a new 114km transmission pipeline with associated storage/balancing tanks and pumping stations along the route.

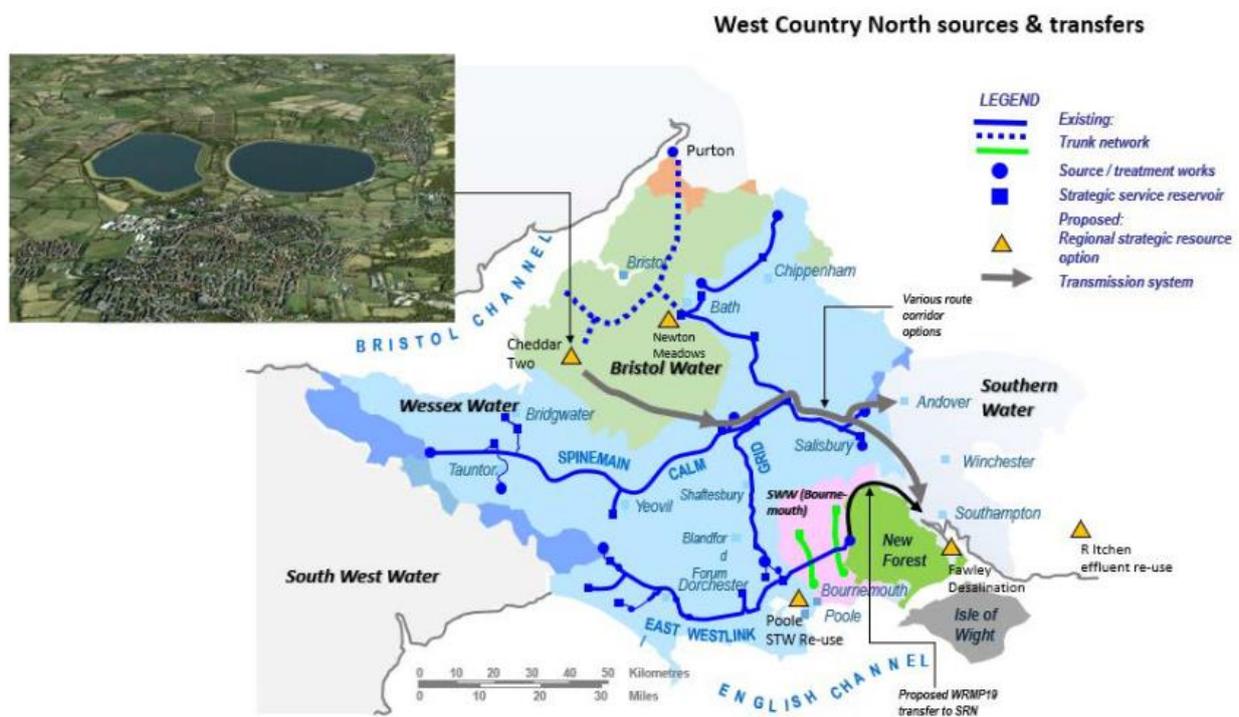
For Option 2, it has been concluded that there is no feasible way of maintaining the 65Ml/d transfer from Cheddar Two without draining the system due to the need for sweetening flows during non-drought periods. However, there is a recommendation in the technical annexes to investigate an option to use the lake at Testwood WSW to balance flows. This could make the option feasible, but it has not been fully explored.

The carbon and average incremental cost figures presented for this solution are very high (when compared to the Southern Water only solutions) due to the low utilisation of the transfers required to meet the Southern Water requirements during drought.

The earliest delivery date is forecast to be 2038. Bristol Water and Wessex Water conclude that this is not a viable solution and that it should not proceed beyond gate one, as it does not address the Southern Water supply-demand deficit within the timescales required for the Section 20 agreement.

Southern Water, however, is recommending that the solution should proceed to gate two.

Figure 4.1 West Country North Sources schematic



4.2 Solution context

The 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.

This will enable the company not to require drought orders and permits 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) after the end of 2027.

Southern Water’s WRMP19 sets out the proposals 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.

For the PR19 final determinations we considered that the West Country North Sources could be delivered within the accelerated gate timings as there are clear regional benefits of considering this solution in parallel with the desalination ('base case') and water recycling ('strategic alternative') solutions.

4.3 Solution key risks and issues

The following key solution risks have been identified in the submission:

- Due to the wide ranging requirements for water in terms of drought period, volume of water and duration, the raw water main may not meet water quality and serviceability objectives.
- Uncertainty regarding the water resource availability and Cheddar Two refill characteristics.
- Uncertainty regarding water availability to commission the raw water main;
- Uncertainty associated with ground conditions in relation to pipeline construction.
- Potential planning application delays associated with the change of use of Cheddar Two and the pipeline.

5. Solution assessment summary

Table 5.1 Draft decision summary

Recommendation item	West Country North Sources
Solution Sponsors	Bristol Water, Southern Water, Wessex Water
Should further funding be allowed for the solution to progress to gate two?	Yes, but to follow the standard gates
Is there evidence all expenditure is efficient and should be allowed?	Yes
Delivery incentive penalty?	No
Is there any change to partner arrangements?	No
Is there a need for a remediation action plan?	No

Funding is allowed for the solution to remain in the programme but on the standard track. Options that should continue to be investigated are:

- Option 1: 16 Ml/d treated water, Cheddar Two to Testwood;
- Option 2: 65 Ml/d raw water, Cheddar Two to Testwood; and
- at least one “cascade” option through the existing companies’ networks with network reinforcement where necessary.

Cheddar Two reservoir should be investigated as a regional option for both West Country Water Resources and Water Resources South East. The funding can be used to investigate the feasibility of the Cheddar Two reservoir and the transfer route to Southern Water’s area. This work is likely to be helpful for the development of Cheddar Two as a regional option for both West Country Water Resources and Water Resources South East. However, the gated funding cannot be used at this stage to investigate the feasibility of transfer routes solely within the West Country region.

Remediation issues are listed in the Appendix categorised as actions and recommendations.

5.1 Solution progression and funding to gate two

The solution is a potentially valuable way of supplying water to customers, but based on the information presented it is unlikely to do this within the timescale referred to in the Section 20 agreement.

No evidence has been provided to substantiate the estimated delivery date of 2038. Our view, based on evidence from other solutions, is that the solution could provide a regional water resource by the early 2030s. Based on our assessment of the potential solution costs and benefits we have concluded that further funding should be allowed for the solution to progress through the gated process to gate two, but as part of the standard track, with the next submission expected for gate two.

Options that should continue to be investigated are:

- Option 1: 16 Ml/d treated water, Cheddar Two to Testwood;

- Option 2: 65 Ml/d raw water, Cheddar Two to Testwood;
- At least one “cascade” option through the existing companies’ networks with network reinforcement where necessary.

Cheddar Two reservoir should be investigated as a regional option for both West Country Water Resources and Water Resources South East. The funding can be used to investigate the feasibility of the Cheddar Two reservoir and the transfer route to Southern Water’s area. This work is likely to be helpful for the development of Cheddar Two as a regional option for both West Country Water Resources and Water Resources South East. However, the gated funding cannot be used at this stage to investigate the feasibility of transfer routes solely within the West Country region.

In its accompanying Submission Summary, Southern Water proposes that RAPID decides at gate two which option/solution should be progressed further. We clarify that the recommendation for which solution should progress beyond gate two is for the solution sponsors to make, based on the outcome of the assessments completed by that stage. The role of RAPID is to endorse or challenge the recommendation based on the strength of evidence presented.

5.2 Evidence of efficient expenditure

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

Actual expenditure for gate one is reported to be £0.499 million (2020–21 prices) compared to a final determination allowance to gate one of £0.492 million (2017–18 prices).

Sufficient evidence has been provided that all expenditure is appropriate and efficient, and we allow it in full.

5.3 Completeness and quality of submission – delivery incentives

The aim of the assessment was to determine whether appropriate progress has been made towards delivery of the solution. We assessed to what extent the activity has been completed (completeness) and whether the evidence provided was reliable and consistent (quality). We recognise at this stage solutions may be at different development points and the assessment takes this into account.

In line with the guidance published to companies on 1 June 2020 (and updated on 7 September 2020) we made this assessment against the criteria of:

- solution design;
- costs and benefits;
- risk and programme management;
- consistency and context; and
- assurance & board engagement.

For each criterion we assessed whether or not the submission ‘Meets expectations’, ‘Falls short of meeting expectations in some areas’, ‘Falls short of meeting expectations in many areas’ or is ‘Unacceptable’ before concluding on an overall assessment as part of the gate one decision.

Figure 5.1 Assessment of completeness and quality

Overall:	Falls short in some areas
Completeness:	Falls short in some areas
Solution design:	Falls short in some areas
Costs and benefits:	Falls short in some areas
Risk & Prog. management:	Falls short in some areas
Consistency & context:	Falls short in some areas
Assurance & board engagement:	Falls short in some areas

The overall assessment for the solution submission is that it “Falls short in some areas”, as illustrated in Figure 5.1. We do not believe that the areas of shortfall are such as to raise concerns regarding the progress that has been made on this solution at gate one. We therefore do not impose a penalty.

The solution will be following the standard gated track and any areas of shortfall can be adequately addressed by gate two.

We identify a number of issues for remediation. These include:

- actions, which we expect to be addressed in gate two submission; and
- recommendations, which could improve future submissions.

All issues for remediation are listed in the Appendix and further details of our assessment are provided below.

Completeness

Some elements of the submission are missing or are partially complete; for example, the information in relation to alternative procurement approaches is not underpinned by sufficiently detailed analysis; the environmental and drinking water quality considerations are partially addressed; and the consideration of the solution delay impacts is not covered.

Solution design

We have included in our assessment of solution design the solution description and technical information about the solution and its water resource benefits.

The options that have been presented as part of this solution are limited to a 16Ml/d potable supply from Cheddar Two including a new water treatment works, or a 65Ml/d raw water transfer from Cheddar Two to Testwood WSW. An option to use a potential 5Ml/d surplus from the Wessex Water Newton Meadows pumping station was discounted because the surplus (as modelled in WRMP) is no longer available. The level of detail provided on the pipeline route and water treatment configuration is appropriate for gate one.

However, the “cascade” option (to maximise a supply from Bristol Water, reinforce the Wessex Water network to support a transfer, and ultimately link to Southern Water’s network) has not been investigated in detail because it was excluded from further consideration on the basis of high-level assumptions. We expect opportunities to maximise internal transfers using existing trunk mains to be investigated and described in gate two submission.

We also expect further investigation of the option to use the discharge lake at Testwood WSW as a buffer tank to manage peak supply requirements during drought. The initial modelling results indicate that this option would reduce the peak flow requirements from Cheddar Two to 37Ml/d which would require a lower sweetening flow, such that the reservoir capacity may be sufficient to meet Southern Water’s requirements during drought.

Evaluation of costs and benefits

Our assessment of the evaluation of costs and benefits considered information provided about the costs of the solution, the social, environmental and economic assessments and how the solution takes into account the carbon challenge.

The estimated maximum development and capital costs for the options are £363 million (16Ml/d treated) and £537 million (65Ml/d raw). The operating costs over the 60-year design period have been calculated as £42 million and £48 million, respectively.

There is evidence that the approach to estimating optimism bias (for capex) has followed HM Treasury Green Book guidance. The approach to benchmarking, including selection of historic cost data for similar projects, is considered appropriate for a project of this type. Benchmarking data are presented for treatment and pipeline capex but not for the Cheddar Two reservoir. Overall, the cost estimating approach described in the submission uses cost data and analysis methods that are appropriate for this stage of the project development.

Carbon emissions estimates (embodied, operational and whole life carbon estimates) have been evaluated using appropriate approaches at this stage.

We found shortfalls in some areas including:

- No benchmarking analysis has been presented for the Cheddar Two reservoir capex to provide further evidence of efficient costs.
- It is not clear which factors are included in the final out-turn cost adjustment and whether there is any double counting of allowance for cost uncertainty.
- No environmental or social benefits have been identified in the submission other than 'the provision of a secure water source'. Further environmental assessments are required to develop mitigation strategies.
- The proposed route is based on all new infrastructure rather than using existing Wessex trunk main system. It is possible that the overall cost and carbon impacts would have been reduced if this had been considered.

Risk and programme management

Our assessment of risk and programme management has considered information relating to the outline project plan, planning considerations, key risks and mitigation measures, drinking water quality considerations and proposed gate two activities and outcomes.

Our assessment is that risk and programme management falls short in some areas.

It is stated that the delivery of the solution will not will not be by the end of 2027 (which is the date referenced in the section 20 agreement) and the completion date is not until 2038 (including 2.5 years of programme optimism bias). It was unclear why the development of the solution and its progress through planning requires much more time than the other solutions in the accelerated gate one and similar solutions such as Havant Thicket reservoir. There are no measures proposed to bring the WCNS solutions forward.

From the assessment provided, the key activities with the greatest impact on programme are predominantly pre-construction activities including design, Direct Procurement for Customers (DPC) procurement and Development Consent Order (DCO) planning submission which together have a duration of nearly 5 years.

We consider that the analysis has the following deficiencies:

- An assessment is required of the potential to accelerate the project plan to achieve an earlier completion including an assessment of the implication of undertaking specific pre-construction activities earlier and/or in parallel.
- There is no explanation about which assumptions result in the longer programme for delivery of Cheddar Two reservoir compared to the Havant Thicket reservoir (which is scheduled to be completed by 2028).
- Clarity is lacking on plans for the regulation 15 assessment of raw water quality, and therefore appropriate treatment processes for this water.

Consistency and context

Our assessment of consistency and context has considered information relating to the interaction of the solution with other solutions, an explanation of how this solution will meet the requirements set out in the National Framework and regional plans, and a comparison of the costs and benefits of this solution with those of other solutions. Information regarding stakeholder engagement has also been taken into account in our assessment.

The flow utilisation estimates used in cost and carbon estimates and scenario modelling are not consistent across the solutions that have been presented alongside the West Country North Sources solutions, and this inconsistency has been confirmed by Southern Water in its response to queries raised by the assessment team.

The quality of stakeholder and customer engagement should be improved. More work is required to understand better customer acceptability and improve stakeholder engagement. The extent of collaboration between the three companies on this solution is unclear, illustrated, for example, by different approaches to carbon assessment.

Assurance and Board engagement

The external assurance conducted appears reasonable for this stage of the submissions. However, not all documents were externally assured which raises questions about what timescales and scope external assurers were given. It is also unclear what further actions have been taken as a result of the material concerns regarding projected Cheddar Two reservoir costs that were flagged during the assurance process.

The submission contains sufficient information on how the board was involved, including assurance statements and signed endorsements. However, there is discrepancy between the solution partners, with the Bristol Water Board and Wessex Water Board both recommending that the solution should not progress to gate two; while the Southern Water Board believe it should progress as a regional solution.

5.4 Proposed changes to partner arrangements

There are no proposed changes to partner arrangements.

5.5 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 categorised the remediation issues into actions and recommendations.

Actions relating to this solution require remediation in full in the gate two submission. The response to the actions will influence the assessment of the gate two submission.

Recommendations are issues where additional information or clarification could improve the quality of future submissions. The full list of actions and recommendations can be found in the Appendix.

6. Gate two activities

The solution will continue to be funded to gate two as part of the standard gate track, with the next submission expected for gate two. Options that should continue to be investigated are:

- Option 1: 16 Ml/d treated water, Cheddar Two to Testwood;
- Option 2: 65 Ml/d raw water, Cheddar Two to Testwood; and
- at least one “cascade” option through the existing companies’ networks with network reinforcement where necessary.

Cheddar Two reservoir should be investigated as a regional solution for both West Country Water Resources and Water Resources South East. The funding can be used to investigate the feasibility of the Cheddar Two reservoir and the transfer route to Southern Water’s area. This work is likely to be helpful for the development of Cheddar Two as a regional solution for both West Country Water Resources and Water Resources South East. However, the gated funding cannot be used at this stage to investigate the feasibility of transfer routes solely within the West Country region.

We expect the solution sponsors to complete the activities listed in [PR19 final determinations: strategic regional water resources solutions appendix](#). Activities we consider to be of particular importance are listed as actions in the Appendix.

7. Next steps

Following publication of this gate one draft decision solution sponsors and other interested parties are invited to respond to the draft decision. Representations can be made by email to rapid@ofwat.gov.uk. The representation period will close at 5pm on 31 December 2020. All representations will be considered before our final decision is published on 28 January 2021.

Appendix: Remediation issues

Actions – to be addressed in gate two submission		
Number	Section	Detail
1	2.1, 2.2, 2.5, 2.8, 2.9, 4.3	Provide a 'conceptual design report' developed in consultation with all regulators, to meet gate two requirements and timescales. Include a recommendation for which solution should progress beyond gate two, based on the outcome of the assessments completed by that stage.
2	2.2	Continue to develop the two options remaining (Option 1, 16 Ml/d treated, Option 2, 65 Ml/d raw, plus the smaller transfer from Cheddar Two to Testwood discharge lake) and investigate "cascade" options through the existing companies' networks with network reinforcement where necessary.
3	2.3 (and relates to many other sections)	Undertake route corridor optioneering in consultation with the Environment Agency and Natural England, to meet gate two requirements and timescales.
4	2.5	Provide a clear summary of the water resource benefit deployable output (DO) of each option including the conjunctive use benefits. The operational and utilisation assumptions for each benefit should be clear.
5	2.6, 5.1, 5.3, 5.4	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.
6	3.7	Provide more detail on the solution's delivery timescales, and how the assumptions are consistent across the accelerated programme and other relevant projects, such as Havant Thicket reservoir and the additional raw water solution proposal. Undertake an assessment of the potential to accelerate the project plan to achieve an earlier completion including an assessment of the implications of undertaking specific pre-construction activities earlier and/or in parallel.
7	4.2	Provide cost methodology and benchmarking evidence for solutions including the Cheddar Two reservoir capex. All option costs should include any treatment upgrades at Testwood so that the costs represent the total for delivering the water resources (DO) benefit.
8	4.3	Provide a summary of the potential impact that the solution could have on Southern Water, Wessex Water, and Bristol Water's supply-demand balances. This should also include the impact on any current options or programmes within the WRMP19 or AMP7.
9	6	Undertake a procurement strategy assessment including DPC eligibility assessment and value for money analysis. Include in this assumptions with

		respect to who would operate the solution under both the DPC and traditional delivery model.
10	8.4	<p>Provide more information about stakeholder engagement and the understanding of customer acceptability including:</p> <ul style="list-style-type: none"> • for individual solutions and options; • on issues that could cause delay; and • how the views of vulnerable or harder to reach stakeholders and customers will be sought.
11	9.1	<p>Develop a fuller risk assessment that explores the areas of uncertainty associated with this solution. This should include:</p> <ul style="list-style-type: none"> • a clearer relationship between mitigation measures and residual risks; • greater clarity on the scoring criteria applied; and • more direct read-across to the dashboard risks.
12	14	Provide total gate expenditure and activity breakdown costs in a common cost base. These costs should be presented in 2017-18 prices.
Recommendations		
Number	Section	Detail
1	4.2	To aid comparison with other WRMP options provide the Average Incremental Costs (AIC).
2	4.2	Please clarify what factors are included in the final out-turn cost adjustment included in the indirect capex estimates and whether there is any double counting of allowance for cost uncertainty included under the risk assessment and optimism bias assessment.
3	12.1	Provide information on future plans for board engagement and a compiled summary/log of assurance findings with actions taken.
4	12.1	Not all documents were externally assured which raises questions about the timescales and scope external assurers were provided. It is also unclear what further actions have been taken as a result of the material concerns regarding costs that were flagged during the assurance process. Clarification would improve further submissions.

**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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