Accelerated gate two queries process

Strategic solution(s)	Havant Thicket
Query number	HAV003
Date sent to company	10/12/2021
Response due by	14/12/2021

Query

- We note that projected capex costs for the selected option B4 for Havant Thicket are £451.3m in 17/18 prices, and the maximum capacity is 75mL/day. This implies a cost per ML/day of just over £6m. Do you agree with this calculation? If not, please provide an alternative unit cost calculation.
- We understand that Option D2 is no longer being taken forward. Is this correct?
- Please provide the value for money assessment summarised on p.341 of Annex 3: Havant Thicket Technical.
- You refer on p. 318 to the estimation of uncertainty for the project. We assume from the table on p.311 that the uncertainty allowance is £7.6m. Is this correct?
- Has any 3rd party assurance of the costs been undertaken? In particular, what if any other external benchmarking analysis have you undertaken or commissioned? Please provide the assurance and any other such reports as well as details of the benchmarking for Additional Project Costs detailed on page 306 of Annex 3: Havant Thicket Technical.
- Page 306 of Annex 3: Havant Thicket Technical states that "Construction costs have been collated using the [redacted] platform by the SW CIT to ensure a consistent approach with the supply chain. Infrastructure and tunnelling elements have been priced from first principles utilising current market data in conjunction with [redacted] and [redacted] respectively and linked back to the design information. Process and Desalination (a separate water sourcing solution type considered, refer to documents included as part of SW's Interim Update to RAPID, dated 27 September 2021) plant costs have been derived from a combination of SW and industry cost data and reviewed against market norms." Please provide the current market and industry data as well as market norms referenced, and explain how the presented solution costs measure against these.
- As discussed in previous checkpoint meetings, have you undertaken any analysis to determine when marginal costs start to rise significantly to increase the size of the solution further? In other words, how much more expensive (cheaper) a much larger (smaller) solution would be?

Solution owner response

We have addressed each of the bullet points raised in the above query below (in italics), with blue responses beneath each bullet.

- *We note that projected capex costs for the selected option B4 for Havant Thicket are £451.3m in 17/18 prices, and the maximum capacity is 75mL/day. This implies a cost per ML/day of just over £6m. Do you agree with this calculation? If not, please provide an alternative unit cost calculation.*

We confirm that £451.3m is the correct capex cost for Option B.4.

We note that the calculation includes capex cost only and not totex which does not provide a whole life view of the cost.

We confirm that your calculation is correct but we can't comment on it appropriately unless we know what is being done with it. Please note that this asset will not be producing 75 Ml/d every day as it is a drought asset.

- *We understand that Option D2 is no longer being taken forward. Is this correct?*

Option D.2. as a standalone option is no longer being taken forwards post Gate 2. We need to continue the direct pipe interoperating with the Havant Thicket Reservoir and the water resources plant which make up the Option B.4., the Selected Option.

- *Please provide the value for money assessment summarised on p.341 of Annex 3: Havant Thicket Technical.*

SW has analysed the Value for Money (VfM) of each solution through an excel-based financial model. The VfM analysis presented in the document is the result of a series of calculations built into the model. While SW's Gate 1 submission provided further details on the approach, the essential components of the analysis are as follows:

- The model takes a single cost estimate input for the solution profiled across the contract term, i.e. capex and opex costs across the construction and operation period.
- Next, the model applies a series of assumptions to the cost estimate to calculate the Net Present Value (NPV) in the factual (DPC) case and the counterfactual (In-house) case over the life of the contract. Different assumptions are applied for the factual and counterfactual cases, resulting in a set of outputs and a NPV specific to each case.
- Using the outputs generated, a 'transfer bridge' (as shown at Figure 72 in Gate 2 – Annex 3) can be produced, showing the key factors that drive the difference in NPV between the factual and counterfactual cases (e.g. financing efficiencies, capex efficiencies, and so on).
- Using a range of different sensitivities (see figure 73 in Gate 2 – Annex 3), it is also possible to analyse the impact of changes to specific assumptions on the overall NPV of each case, and so to understand which factors are the main drivers of VfM under each case.

These two key outputs (transfer bridge and sensitivity analysis) allow for the comparison of the factual and counterfactual cases and allow SW to ascertain which delivery route appears to offer better value for money for customers. SW has described the methodology of the VfM analysis in a greater level of detail in the Strategic Outline Case at section 6.4.1. (as sent to Ofwat on 20th August 2021) This section also provides an additional, graphical representation of the calculations within the VfM model.

The VfM model is basically a tool which is used to carry out the value for money assessment. It is important to note that the same model has been used to analyse each option's VfM. Furthermore, the model is considered to be a live tool that SW expects to continue to use to assess the VfM of each delivery route as it develops its understanding of the solution's costs and the relevant assumptions for each case.

To illustrate and provide additional insight into the model's calculations and operation, SW intends to provide the VfM model to Ofwat in due course.

- *You refer on p. 318 to the estimation of uncertainty for the project. We assume from the table on p.311 that the uncertainty allowance is £7.6m. Is this correct?*

The estimating uncertainty allowance for B.4. (no CeraMac) is £7,475,315.18.

The calculation of estimating uncertainty for option B.4. can be reached by deducting the "infra" cost (£100,176,334.17) and the "non infra" cost (£49,329,969.46) from the Net Direct Cost total (£156,981,618.81) which provides an estimating uncertainty allowance of £7,475,315.18.

- *Has any 3rd party assurance of the costs been undertaken? In particular, what if any other external benchmarking analysis have you undertaken or commissioned? Please provide the assurance and any other such reports as well as details of the benchmarking for Additional Project Costs detailed on page 306 of Annex 3: Havant Thicket Technical.*

No third party benchmarking analysis was commissioned however, internal benchmarking was undertaken by SW and its SME supply chain. Third party assurance of the costs was completed by Jacobs prior to submission with the assurance process being described in Annex 7, Assurance process.

We have included below the detailed scores from Jacobs, our external Gate 2 Assurer, for the Cost Modelling and Procurement sections of Annexes 2 and 3 (which supports the areas being queried in HAV003).

New Gate 2 Assurance Statement — Jacobs

Annex		Is the work complete?	Is the evidence sufficient?	Is the work consistent?	Are the risks considered?	Is the document aligned with the RAPID template and Gate 1 determination?
Cost Modelling	Water Recycling	B	A	B	A	B
	Havant Thicket	B	A	B	A	A
Commercial & Procurement	Water Recycling	A	B	B	A	A
	Havant Thicket	A	B	B	A	A

The following Additional Project Costs have been reviewed and updated with the Southern Water project team, and their suitability verbally agreed following review by Contract Manager during the procurement process (note, all frameworks have been competitively tendered):

- Pilot Project Costs
- Planning
- Public Consultation
- Legal

Additional Project Costs for Environment have been reviewed with SW environment team and subject experts [redacted]. The review was not an official benchmarking exercise. Instead it was professional input from review of known environmental costs on specific projects and how they compare to the options proposed, by a knowledgeable

subject expert to ensure that costs were an appropriate order of magnitude for the project.

Additional Project Costs for Land purchase have been included with independent cost benchmarking by [redacted].

Additional Project Costs for Power use desktop quotations provided by [redacted]. An engineering specification was provided to [redacted] and the costs returned were agreed within the Southern Water electrical engineering team to ensure that adequate budget was available for the safe installation of the required power supplies. These were used as a basis for the Gate 2 submission.

- *Page 306 of Annex 3: Havant Thicket Technical states that "Construction costs have been collated using the [redacted] platform by the SW CIT to ensure a consistent approach with the supply chain. Infrastructure and tunnelling elements have been priced from first principles utilising current market data in conjunction with [redacted] and [redacted] respectively and linked back to the design information. Process and Desalination (a separate water sourcing solution type considered, refer to documents included as part of SW's Interim Update to RAPID, dated 27 September 2021) plant costs have been derived from a combination of SW and industry cost data and reviewed against market norms." Please provide the current market and industry data as well as market norms referenced, and explain how the presented solution costs measure against these.*

We are unable to share industry and market data as it is the Intellectual Property of our framework cost estimating consultant ([redacted]).

We are unable to share SW cost data as it would compromise our commercial position in respect of current and future procurement. This is due to the potential for this information to become publicly available (RAPID have made it clear that all queries will be published). We would be happy to discuss this with you.

The costs and costing methodology used for the pipeline elements was tested and refined with estimating expertise in our partners [redacted]. The final costs were agreed collectively. The same approach was adopted for the tunnelling elements with [redacted].

Southern Water engaged the services of [redacted] (tunnelling) and Southern Water's delivery partner [redacted] (infrastructure) to provide assistance in terms of constructability for the engineering solutions currently proposed at Gate 2. While this was not a stand-alone external benchmarking exercise, the benefit of this in terms of cost, was that the tunnelling team at [redacted] and the estimating team at [redacted] were able, as part of the collaborative team, to provide assurance that costs collectively produced, were appropriate for market conditions at the time and the complexities of the solutions.

- *As discussed in previous checkpoint meetings, have you undertaken any analysis to determine when marginal costs start to rise significantly to increase the size of the solution further? In other words, how much more expensive (cheaper) a much larger (smaller) solution would be?*

We have completed some high level sensitivity analysis to understand how costs increase or decrease when different future scenarios of the solution are considered.

Value costing work on the variation of key elements is being undertaken for Gate 3. This work is at an immature stage of development and we propose to share with RAPID at Checkpoint meetings between Gate 2 and 3.

Date of response to RAPID	14/12/21
Strategic solution contact / responsible person	[redacted]