

Ofwat Consultation Response

Accelerated Gate 2 Draft Decision for Havant Thicket Reservoir Raw Water Transfer

Overview of objection and concerns

I object to the Southern Water proposal to pump recycled effluent to the Havant Thicket Reservoir (Option B4) and I do not support the continued funding of this project by Ofwat. The options appraisal process has not been robust, if the environmental assessment and Habitat Regulation Screening had been done properly then the scheme should have been rejected and not proceeded through Gate 2.

I also object to and do not support the Option D2 proposal for a 35km pipeline from Havant Thicket Reservoir to Otterbourne. The operation of which will have significant adverse impacts on the environmental and community benefits to be delivered by the reservoir. More regular and prolonged drawdown events will adversely impact water quality, biodiversity net gain and recreational value. Pumping water 35km at a time of climate emergency, when energy costs are rocketing cannot represent best value for the environment, nor customers. For more information refer to Appendix A.

I commend Ofwat for highlighting the deficiencies with the Southern Water work completed to date set out on page 20 of the consultation document. These demonstrate the assessment process has not been robust. In relation to Option B4 I am very concerned that:

- The discharge of recycled effluent into the reservoir in conjunction with the change in the operating regime (turnover & water level) will have an adverse environmental impact on reservoir water quality, ecology and biodiversity net gain. This will mean that the benefits and net-gain committed to as a part of the original spring fed reservoir proposal will be lost or unacceptably diminished. It may even have an adverse impact on the recreational amenity value of the reservoir for the local community. The local community have indicated to me that they believe they have been misled and feel let down by the water companies.
- The impacts on water quality of the new filling regime and changes in turnover will have an adverse impact on the compensation discharge which flows via the Riders Lane & Hermitage Streams to Langstone Harbour (SPA, SAC & RAMSAR). This will remove or diminish the benefit to the European designated site which the original spring fed reservoir would have provided. This is an in-combination affect that when considered in the context of the Habitats Regulation Screening should have resulted in the rejection of the scheme, but Southern Water have not even considered the impact on the compensation flow or harbour.
- The energy, chemical and carbon costs associated with the daily treatment, and pumping of water more than 35km over a period of more than 70 years make this an extremely environmentally unfriendly and unsustainable solution, which does not provide best value for the customer, nor the environment, especially given spiralling energy costs. This solution uses the same energy, chemical and carbon hungry technology as desalination, it still produces a concentrated liquid effluent which must be discharged into our sensitive coastal waters, and the treated water must be pumped even further to where the water is needed in the Southampton area. Desalination is now rejected by the company as being too environmentally unfriendly and an option of last resort, so should effluent recycling.
- This is a very high-risk option. Southern Water have not undertaken sufficient work to be confident that the solution can be delivered, potential showstoppers and risks still exist. As the company do not have a clear idea of the environmental impacts or risks the construction and operational cost of this very expensive scheme can only spiral. Southern Water have already wasted 5 years of time and customers money pursuing the desalination scheme at Fawley, when it should have been obvious it was not environmentally viable, it was certainly pointed out to them by stakeholders & customers. Ofwat should not allow the company to waste more time and customers money pursuing this option which is effectively the same.
- I have spoken to many people on site from the local community who have expressed the view that they do not want to drink water containing recycled effluent and are concerned that it will taste different. Given that the water will taste different there is a significant risk that consumers will reject the water, knowing where it comes from, and turn to bottled water instead. This has wider economic and societal impacts, but also brings into question the issue of whether the water will be considered wholesome.
- There has been a complete lack of stakeholder and community consultation on this proposal. The very limited engagement undertaken has been biased by respondents first being presented with a one- sided view of the plans, with assurances provided by Southern Water on the lack of environmental impacts which they are completely unable to substantiate, as the environmental assessments and modelling has not yet been undertaken. Local stakeholders

and residents have not been given the same opportunity as other communities to object to the plans as this was not selected as a preferred option in WRMP19. There is no 'material change' in the info available that has taken place to substantiate the late selection of these options.

- Ofwat make the point on page 9 & 14 of the consultation that this is a very expensive solution, but over the medium to long-term it can be adapted to provide capacity beyond the immediate resilience requirement, to make it more cost effective, implying this is what Ofwat expect to happen to enable them to support this scheme. Increasing the capacity of the scheme will increase the adverse environmental impacts. If increasing the volume of recycled effluent is in Ofwat and Southern Water's thinking, then it is essential that the impact of the larger volumes are considered now as part of the modelled operating regimes, to ensure the impacts are fully understood and taken into account. It is not appropriate to sell this (as SW are trying to do) on the basis of the discharge into the reservoir being a small volume, when you know you want/ plan to dramatically increase the volume at a later date. The community feel they have already been misled, there must be complete honesty now as to what is envisaged in the future to inform proper modelling, assessment of the impacts and to allow genuine public and stakeholder consultation.

I do not believe that D2 & B4 are the best option for delivering more drinking water in the area. In my opinion we need to stop funding these options now before any more money and time is wasted on the schemes and instead invest in more sustainable, low carbon, environmentally friendly solutions, which work with climate change, not against it, taking advantage of higher winter rainfall. More detailed comments as to my concerns on each option are attached (Appendix A Option D2 & Appendix B B4).

Appendix B (B8) includes some comments on the Ofwat document. If Ofwat are minded to continue funding support for Option D2 and B4 it is essential that any approval contains binding conditions to:

- a) Deliver the water quality modelling, Habitats Regulation Assessment and Environmental Impact Assessment for the reservoir, streams and coastal waters as a matter of urgency. Even if this means the assessments do not initially include the pipeline routes which will not have been finalised until after the summer public consultation. The outcome of the assessments is needed urgently now to identify potential 'showstoppers' and provide factual information for evaluation by the regulators and for the public consultation. The modelling must include the initially proposed volumes / operating regimes and all potential future volumes/ scenarios, ensuring that the worst case scenario impacts are considered.
- b) Genuine unbiased public engagement which is based on factual information, not Southern Waters unsubstantiated assumptions and biased presentation of the issues.
- c) Ensure that the alternative options are fully funded and pursued with equal vigour by Southern Water in order that a viable more environmentally alternative remains available. If effluent recycling is to be pursued then taking water from Peel Common Sewage Works (Option B5) should be fully funded as it makes more sense for the following reasons.
 - It is closer to where the water is needed, reducing the length of pipeline required, which in turn will reduce construction and operational running/ pumping costs.
 - Is less distance to pump the water reducing the operational energy and carbon costs.
 - Southern Water Gate 2 Annex 5 report confirmed on page 140 that there are benefits for the water environment associated with B5 as some flows would be diverted from the Peel Common WTW long sea outfall which is a less well mixed environment than the Eastney (Budds Farm) long sea outfall.

I would propose that Ofwat fund Portsmouth Water to complete a & b (see Appendix B, B6).

I am very concerned that Southern Water have not evaluated all of the options available with equal vigour and that the scoring unfairly biased the Havant Thicket Options, for example, by not considering all of the environmental impacts, and claiming benefits that the reservoir will already deliver without the effluent recycling scheme, which is not appropriate. The company do not have a good track record on options appraisal. I believe that they are selecting the option that is in Southern Waters best economic interest, so they only want this one option on the table, such that when the environmental impacts are known there is no other viable alternative developed sufficiently to meet the demand, or their programme commitments. They will then be able to dismiss the adverse impact on the environment because they will argue that the scheme will be in the public interest to meet demand / comply with a Section 20 commitment, and there is no viable alternative. It is essential that the regulators (including Ofwat) ensure that other alternatives remain available.

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Southern Water Customer (SO31)

Retired Havant Thicket Reservoir Env & Biodiversity Specialist (for 12 years)

Appendix A

Option D2: Proposal for a 35km pipeline from Havant Thicket Reservoir to Otterbourne

I do not support the proposed pipeline from Havant Thicket Reservoir to Otterbourne (Southern Water Option D2). It was not a part of the original plan for the reservoir which received planning consent and will have an adverse impact on the reservoir and the benefits it was to provide. I note that it was not a preferred option in Southern Waters option appraisal process and was not selected in isolation.

A1 I believe that the change in the operating regime of the Havant Thicket Reservoir to accommodate the D2 pipeline option in isolation, as a water transfer, will have significant adverse environmental impacts on the Havant Thicket Reservoir. It will result in:

- More regular and prolonged drawdown events.
- An increased risk of eutrophication. Previous modelling showed that there were significant impacts on water quality from reservoir drawdown and refilling events. As larger volumes will be taken more quickly from the reservoir, and these will take place more often with Option D2 it will significantly change the risks to water quality. The water quality modelling needs to be urgently updated to assess the impacts of the proposed operating regimes envisaged under Option D2 on the risk of eutrophication and algal blooms, including 1 in 200 and 1 in 500 drought, worst case scenarios.
- Reduced biodiversity due to the adverse impact on water quality and prolonged drying events, including adverse impacts on the retained wetland designed to provide biodiversity net gain. This will result in a reduction in the biodiversity net-gain promised to compensate for the loss of the existing landscape at the site. The wetland retaining structure will only protect the wetland during relatively short-term drawdown events. The impact of more regular and prolonged drawdown events on the reservoir wetland, habitats and species needs to be assessed urgently.
- A combined impact on the reservoir / wetland ecology from more frequent drying events, reduced water quality and increased risk of algal blooms. These combined risks to the ecology need to be considered and assessed urgently.
- Mud being exposed for prolonged periods, a loss of visual amenity, adverse impacts and limitations on recreational use, additional health and safety concerns, plus a risk of smell issues associated with exposure of mud and rotting vegetation/ algae.

A2 Other environmental risks that have not been fully considered include:

- Increased risk of compensation flow water not being available to meet impounding licence consent conditions, with knock on impacts to downstream environments.
- Increase the risk of impacts via the compensation discharge to the streams and Langstone Harbour (SPA, SAC & RAMSAR site) as a result of changes in water quality. The current Habitats Regulation screening is not robust and does not even consider this risk. Water quality modelling needs to be completed urgently to enable this risk to be assessed and considered as part of an updated Habitats Regulation Assessment and the Water Framework Directive Assessment.

Note: With more regular larger volumes of abstraction the turnover rate of the water will be quicker. This will give less time for nitrates and other compounds to naturally settle and breakdown in the reservoir. Therefore, levels leaving the reservoir via the compensation discharge and reaching the harbour are likely to be higher than previously modelled. A key question would be whether the diversion of more spring water to the reservoir would offset this, or whether the residence time in the reservoir is not enough to achieve the same level of benefit as the original reservoir proposal?

- Further consideration needs to be given to the risks of transferring invasive species between river catchments e.g. associated with bursts, maintenance or flushing operations.

A3 A robust Habitats Regulation and Environmental Impact Assessment is needed to assess the viability of Option 2 both in isolation, or in combination with Option B4 (effluent recycling). This has not been done, the scheme should not proceed until that has been completed, the impacts assessed and fully considered against the commitments made for the original reservoir. Impacts which have not currently been adequately considered by Southern Water include.

- a) Inability to provide a compensation flow when required by the consent licence.
- b) Changes in water quality in the reservoir and risk of downstream impacts to Langstone Harbour (SPA). Previously a clear benefit in terms of water quality was predicted for the streams and harbour, would that be lost?
- c) Former benefit anticipated as a refuge area for over wintering waders and wildfowl as a support area to the Solent SPA would need to be reviewed. This will depend on the revised assessment of the regularity with which drawdown events could occur and extend over long periods under the proposed new operating regimes.
- d) Former benefit claimed to the SPA in terms of drawing people and dogs away from the coast. Would some of that benefit be lost if the reservoir is drawn down more regularly and is less attractive to people, especially dog walkers?
- e) All of the above would be in-combination affects on the SPA which would need to be considered within the HRA.
- f) The pipeline impacts and High Level Pumping Station (HLPS) construction and operation. Not clear in current information if SW have considered the operational impacts of the HLPS?
- g) The HRA for D2 is said to consider Bat SAC's and Bechstein's Bat Core Sustenance Zones (CSZ), but the text indicated that there were none within 3km (SW Annex 3, Page 117). This shows that SW have not considered the P.Water bat monitoring data (nor Dunsbury Hill Farm data) as there are many CSZ for Bechstein's bat within 3km of the D2 development, including the HLPS. Once again they need to consider the construction, operational and in-combination effects, but they have not done so because SW had already incorrectly screened it out of having an impact.
- h) Transfer of invasive species between catchments.

A4 Not a sustainable or cost effective solution

Water is very heavy and requires a lot of energy to pump. Energy costs are rising rapidly, making the transfer of water over 35km and running several new pumping stations, a very expensive solution. Option D2 will not provide best value for customers now or in the future, when energy costs will only get higher.

Pumping the water over 35km for more than 70 years will generate an enormous carbon footprint. This carbon will shortly have to be off-set and customers will have to pay for that too, increasing the costs further. Has this been included in the cost schedule provided to Ofwat?

The government has committed to zero carbon by 2050 and water companies to zero 'operational' carbon by 2030. Pumping water more than 35km on a daily basis for 70 years plus via a pipeline to Otterbourne is completely at odds with the stated national and water company objectives at a time of climate emergency.

Given the energy costs, adverse impacts on the reservoir, ecology and carbon impact. This is not a best value solution for the customer nor the environment.

A5 Broader impact on recreational amenity of the reservoir

More regular and prolonged reservoir drawdown events will impact;

- a) Landscape / visual amenity.
- b) Recreational amenity
 - Will people want to visit a muddy bowl? (impact on visitor numbers & community benefit).
 - If any recreational or educational water use were planned in the future the access to the water would be impacted and any solutions will have a significant cost, health and safety impacts for safe access, as well as maintenance issues.
 - Health and safety associated with more regular exposure of large areas of mud in a publicly accessible site surrounded by houses.
 - Visitor Centre income to support site running costs would be impacted if people do not want to visit a muddy bowl.
- c) Public amenity – smell from mud and rotting algae (to site users and residents)
- d) Public image; a muddy bowl, or dried out wetland, is not such a good show case for the company, images associated with dead and gasping fish as water levels drop would be negative.

It is not clear how Southern Water are taking these kinds of adverse impacts on the reservoir into account when assessing the D2 option?

A6 Pipeline route / redaction of documents

It is not possible to comment in any detail on the impacts of the infrastructure for Option D2, as all useful information including figures have been redacted by Southern Water from the Gate 2 reports on their website.

Southern Water have even failed to provide information on the potential route of pipelines (for Option D2 and B4) through land to those who have received letters regarding compulsory purchase notifications. It can only be assumed that they are withholding the information to prevent meaningful public engagement, as it cannot be for a genuine security reason since the routes will have to be published at the planning application stage.

Southern Waters overzealous approach to redacting the Gate 2 information only leads to mistrust in the local community. The proposed pipeline route, or routes being considered, should be published before the route is finalised to enable genuine public consultation to take place as soon as possible.

The proposal for a High Lift Pumping Station Site (HLPS) to the west of Bells Copse adjacent to A3(M) gives rise to additional concerns.

- SW Annex 3, Pg 106, highlights the potential for it to have a major adverse impact to biodiversity due to the proximity to Ancient Woodland, with secondary impacts such as noise, lighting, dust and sediment run-off.

- How does the pipeline get from the reservoir site to HLPS without impacting Ancient Woodland (Cabbagefield Row or Bells Copse)?

- Need to consider the cumulative effect on bats and wider ecology of the pipeline/HLPS, in combination with the existing reservoir proposal, the ongoing expansion of Dunsbury Park, Land East of Horndean and other development sites. SW information does not currently flag any cumulative risks to the environment such as impacts on Ancient Woodland, wildlife corridors etc.

- Mitigation for the HLPS would need to include careful design of lighting, with no lighting at night to minimise the impact on protected bat species. This has not been mentioned by Southern Water.

A7 Option D2 not selected in Southern Waters options appraisal process

I note that Option D2 was not selected by Southern Water as a preferred option in isolation. In the Southern Water Gate 2 Summary Report, Pg 9, Table 2, for the 1 in 500 year scenario, which SW indicate they are now planning for. Infact the HTR D2 option drops to being the **5th ranked option, so is not a preferred option**. Page 10 confirms that HTR is not a preferred option due to Option D.2; "being unable to mitigate for the extent of DO shortfall on account of finite water being available in Havant Thicket and the expected duration and severity of a severe drought. With B4 or B5 becoming the Emerging Preferred Option".

"Through the development of the options in the lead up to Gate 2, it was concluded that for Options D.2 and B.2, the natural evolution would be into B.4 and B.5 respectively and as such, were removed from consideration in the Options Appraisal due to their inability to meet the increased requirements alone". **Given this conclusion Option D2 should not be pursued and funded as a scheme in isolation.**

If Southern Water did not select Option D2 as a preferred solution, then logically option B4 should not be a preferred option either, as the 35km pipeline to Otterbourne can no longer be assumed to be in place for Option B4.

If the D2 pipeline is not in place, as it was not selected, then the Option B4 costs and adverse impacts have to be considered in-combination with the Option D2 impacts, making it even more costly and environmentally unfriendly. **The current environmental assessment for both option D2 and B4 are not robust.**

I would also challenge the need for the new Option D2 35km pipeline when treated water can already be transferred to Southampton from the Havant Thicket Reservoir through the Portsmouth Water distribution network which is currently being upgraded. There must be a more sustainable and cost-effective water transfer solution than a completely new 35km pipeline, even if it involves building more storage into the system and transferring more water at night, when energy costs are lower.

Appendix B

Option B4: Proposal for effluent recycling via Havant Thicket Reservoir

I do not support the proposal for effluent recycling from Havant Thicket Reservoir to Otterbourne (Southern Water Option B4). It was not a part of the original plan for the reservoir which received planning consent and will have an adverse impact on the reservoir and the benefits it was to provide. My objections and concerns are set out below.

B1 Not a cost effective solution

This is not a cost effective, or best value solution. I am concerned that Ofwat are supporting funding for a solution that does not represent best value for customers or the environment.

- This is already a very expensive scheme and the costs will only spiral upwards. This is not an established treatment technology for effluent recycling in the UK. It is clear that Southern Water do not have adequate background data, nor do they understand the issues/ impacts the scheme will have. As a result, the cost of construction and operation of the scheme can be expected to increase significantly, making it even less cost effective.
- It has very high energy and chemical use/ costs. I am concerned about the huge amount of energy and chemicals needed to operate the treatment plant, in reservoir mixing system, pumping stations and to pump the water more than 35km to Otterbourne. This will have a huge environmental footprint/ impact. With energy and chemical prices souring this will be a burden to customers for the next 70 years(+). Ofwat should recognise this and not support the scheme as it does not represent best value for customers.
- It has a very high carbon cost. I am concerned about the huge carbon footprint of the construction of the plant and pipelines, plus the ongoing very large carbon use associated with operating the plant, pumping stations and pumping the water more than 35km. This cannot be the right solution at a time of climate emergency, when the industry has committed to net zero operational carbon by 2030, and the government to net zero by 2050. This means that customers will also be burdened with future offsetting costs which are not necessary if a more appropriate sustainable solution was selected now. Have the offsetting costs been built into the cost profile? Surely the nation/ region should be planning now for solutions that work with climate change not against it and Ofwat should be ensuring this is the case through their funding strategy.
- Ofwat report page 9, row 5 makes it clear that this option is only cost effective if the capacity of the scheme is significantly increased to release more recycled effluent into the reservoir, indicating that; *“over the medium- to long-term the solution can be adapted to provide capacity beyond the immediate resilience requirement”*. Increasing the volume of effluent discharged into the reservoir will make the adverse environmental and amenity impacts even worse and is definitely not acceptable, making it even less viable as an option. If Ofwat are relying on the scheme having a larger capacity in the future to make this option cost effective, the scheme should be rejected now.
- Ofwat report, page 9, row 5; makes it clear this effluent recycling option is expensive as a drought solution. Why should customers pay over the odds for Southern Water’s failure to complete a robust options appraisal process over the last 10 years? Such that they are now required to fund an inappropriate and expensive solution to a regulatory requirement which the Company had adequate time to address in a more cost effective and sustainable way, if they had not wasted their time looking at desalination and effluent reuse schemes that are expensive to construct and operate (energy, carbon & chemicals) and can in no way be considered sustainable or environmentally friendly.
- The WRSE draft Regional Plan consultation report indicated that; *“if costs go up that could make some options less viable, they may not be included in the next stage of the Regional Plan”*. As Southern Water do not understand the risks of this option, they cannot possibly understand the real costs. Given the very rapid increases in energy prices and the huge energy footprint for effluent recycling, and pumping the water more than 35km, the cost on customers of this environmentally unfriendly technology should be reviewed. Energy costs are highly unlikely to go down in the medium to long-term placing an unnecessary burden of extra costs on customers if this option is selected. It is hard to see how a solution with such a large energy footprint could ever represent best value for customers, especially when it must operate daily, even though it is only a drought resource.

B2 Will customers want to drink the water?

I am a customer of Southern Water and I do not want to drink recycled effluent. The source of the water and the treatment process will result in water that tastes different, and this may put people (including me) off from drinking tap water. If customers reject the water and turn to bottled water this brings into question the issue of whether the water will be considered wholesome.

Note: This is highlighted by Ofwat as a risk for effluent recycling Option B5, but not for Option B4? Southern Water highlight this risk in Gate 2, Annex 3, page 260 (see Appendix D, item 20)

The rejection of tap water has wider economic and societal impacts. For example, on health through lack of hydration, or if people turn to sugary drinks instead there are other concerns. If people stop drinking tap water and turn to bottled water, there are financial impacts for those least able to afford it in society.

B3 Loss of best value benefits associated with the original spring fed reservoir

The original reservoir only got local support and planning permission on the basis that a number of key wider environmental and societal benefits would be provided, and these also contributed to making it a best value scheme. Those benefits will be significantly reduced as follows.

- Loss in biodiversity net gain due to the water quality impacts, likely increase in algal blooms, and the change in the operating regime to keep the reservoir topped up.
- Loss of benefit to the coastal SPA, SAC and RAMSAR site from the reduced nitrates levels which would have discharged to Langstone Harbour when the reservoir was to be filled with just spring water.
- Diminishing the reservoir sites value as a support site for the nearby coastal Special Protection Area (SPA).
- There will be a loss of landscape & recreational amenity associated with more frequent algal blooms, making it a less attractive place to visit and enjoy, especially as the algae rot down producing smell issues for visitors and local residents.

The local community who are losing a well-loved and walked landscape feel betrayed and let down by the new proposal to store recycled effluent in the reservoir. A proposal that brings no benefits to the reservoir or the local community, only adverse impacts.

This is a very high-risk option that should not be pursued. Southern Water (SW) have not done sufficient baseline work to show that this is a viable option. Their own Gate 2 reports highlight that the decision to select Option B4 brings with it additional risks listed below:

- Reverse Osmosis is not an established treatment process for effluent recycling at this scale in the UK (recognised in SW HT report, page 29). This means that;
 - The market may not have confidence in the validity of such an option, and
 - The public may not accept drinking water that is created from effluent recycling, it will certainly taste different to the water they are used to, and this may give rise to concerns and complaints.
- The risk of customer acceptance associated with the change in taste of the water has not been determined (SW Annex 3, Page 53)
- Risk of reputational damage to SW and PW (recognised in SW HT report, page 27, table row 5)
- SW state that **agreement for using up to 75MI/d from Havant Thicket requires significant re-design not currently part of PW's planning application**, therefore this is a major risk (SW Annex 5, page 284).
- Peel Common / Portswood Water Recycling Plant could be seen as a standalone scheme to support Gaters Mill WSW (SW Annex 5, page 284). There clearly are other options to the use of the Havant Thicket Reservoir.

Further risks that could impact the cost are included in Appendix D.

B4 Lack of stakeholder, community and customer engagement

I am very concerned that local stakeholders, consumers and residents have not been given an appropriate opportunity to comment on the proposals as the scheme was not selected by Southern Water in the WRMP19, as a result most of the previous consultation was focused on desalination at Fawley which is now rejected. The stakeholder and community engagement to date is not robust. See also Appendix C (2.4 & 2.5)

Many of the people who supported the Havant Thicket Reservoir do not support the effluent recycling scheme, as they believe it will have an adverse impact on the reservoir and detract from the benefits

that will be provided. The feedback I have received is that they feel let down and misled by the water companies. The negative impact the Southern Water Option B4 proposal is having on public perception is increasing the risk that there will be more resistance to and delays getting planning consent for reserved matters required to complete the original reservoir construction, impacting the critical delivery timescales. This is highlighted by Southern Water in Annex 3, page 258 (Appendix D, issue 20)

The Ofwat report page 13 highlighted that the Southern Waters submission and associated annexes were difficult to navigate with a number of inconsistencies and inaccuracies identified throughout. I would encourage Ofwat to have a look at the redacted versions of the Gate 2 report and annexes on the Southern Water website, which are virtually impossible to follow, as all useful information and figures have been redacted, rendering them meaningless to a member of the public, stifling the opportunity for genuine public engagement. This shows that Southern Water are not genuine in their efforts to engage with the public. For example, what justification can there be for redacting information on the preferred pipeline route options and biodiversity net gain information? Further information is presented in Appendix D (issue 10,13,14,18 & 20)

If the B4 option is to be pursued further Portsmouth Water should be funded to do robust and meaningful engagement with their customers as to whether they would be prepared to accept recycled sewage in their drinking water, plus assess their views on the impacts on the reservoir.

I am also concerned that local people have not had the same opportunity to comment as other communities impacted by SW options appraisal process, as option B4 has not been selected until the end of Gate 2, with development progressing in Gate 3. The community to be impacted by the desalination plant at Fawley have had years to make representations and raise concerns, such that SW have now withdrawn the proposal. That opportunity has not been afforded to those in the vicinity of the reservoir and B4 infrastructure. SW highlight this in their documents and acknowledge that it is a concern that could give rise to risks which could impact the programme, including the risk of a public enquiry (SW Annex 3 pages 226 & 251, Annex 5 page 268). Extracts included in Appendix C (2.10)

B5 Environmental impacts

The environmental impact on the reservoir is not acceptable and has not been adequately considered by Southern Water, especially the impact of the deterioration in water quality. Southern Water's own report has indicated that the treatment process only achieves 82% recovery. That leaves a very significant 18% of material in the sewage to get through and be pumped into the reservoir daily. Even small volumes input daily will quickly accumulate to a large volume over a period of time. During a drought the recycled effluent would not be diluted with spring water at all. Specific concerns about the environmental impacts are set out below.

- a) The spring fed reservoir provided a unique opportunity to create a very special reservoir, without the risk of agricultural and sewage pollution faced by other river fed reservoirs in the UK. The chalk spring water would have provided a unique reservoir environment in which wildlife could thrive creating something really special, this opportunity is being lost.
- b) The biodiversity net gain that the reservoir would have produced will be significantly reduced. For example, the seasonal variations in water level at the reservoir, which was essential to maximising the biodiversity net gain to compensate for other losses (loss of ancient woodland and priority grassland habitat), will be lost as the proposal is for recycled effluent to be pumped in daily to keep the reservoir topped up.
- c) I am concerned that the cumulative effect of the continuous input at low volumes through the year (or as large volumes when demand is high), in conjunction with the changes in the operating regime (turnover) will create a tipping point to eutrophication, adversely impact water quality in the reservoir, and significantly increase the risk of algal blooms. This will in turn have an adverse impact on the ecology and site users. Local residents on both sides of the reservoir are very concerned about the risk of rotting algae causing smell issues at the site.
- d) Water quality modelling for effluent recycling in the reservoir has not been undertaken. This modelling needs to be completed urgently to understand the tipping point to eutrophication under different operating regimes. The model outputs can then be used to assess the impact on the reservoir ecology, risk of algal blooms, treatment processes for drinking water, and the likely impacts on the taste of drinking water (including associated with any treatment byproducts) that could lead to rejection by customers. Stakeholders and the public are concerned that Southern Water cannot be relied upon to do this critical work robustly. The

reservoir will be owned and operated by Portsmouth Water, whose customers will also have to drink the water, therefore any funding should go to them to do this important work. Portsmouth Water consultants already have experience of modelling the impacts on water quality in the reservoir under different scenarios for the spring fed reservoir proposal, it will therefore be more cost effective and robust for them to commission and oversee the modelling.

Note i: The modelling must consider the currently proposed volumes of effluent to be treated and discharged to the reservoir as well as the much larger medium and long-term projected volumes. The modelling must also consider the multiple different operating regimes which create different turnover scenarios. This is very important as the previous Portsmouth Water modelling demonstrated that the filling regime for the reservoir had a very significant impact on water quality and the risk of eutrophication as well as algal blooms.

Note ii: Ofwat report page 15 confirmed that Southern Water “need 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.” The modelling is the first part in this process and is needed urgently.

- e) I am concerned that there will be a significant adverse impact on downstream water quality in the streams and coastal European Protected sites. For example, if the continuous input of certain compounds/ chemicals exceeds the rate at which they can naturally breakdown, with a shorter reservoir turnover time, this is a concern, and a key benefit of the reservoir to reduce nitrate concentrations discharged into Langstone Harbour could be lost. The reservoir discharges a compensation flow via streams to Langstone Harbour, but this has not yet been considered and as a result the Habitats Regulation Assessment (HRA) screening assessment completed to date cannot be relied upon. If Southern Water did a robust HRA the scheme is likely to fail the test as it would be expected to show (alone or in-combination) a significant adverse impact on Langstone Harbour SPA, SAC and RAMSAR site, making the scheme unviable as there are other alternatives available. The impacts from the changed water quality in the compensation flow to Langstone Harbour need to be considered more fully in-combination with the original reservoir proposal, in addition to the discharge of the more concentrated biproducts of effluent treatment which will happen via the long sea outfall into the Solent European Protected Sites.

Note: Ofwat report page 16 recognises the deficiencies in the current HRA screening in relation to the long sea outfall assessment, but not the fact that the impact associated with the compensation flow to Langstone Harbour has been completely missed out.

- f) The in-combination effects of the proposed scheme with the existing reservoir development and other local developments have not been fully considered, even though this is a key HRA requirement. In addition, to the water quality impacts on European protected sites they should also consider the impacts on the reservoir which will reduce its value as a support site for the nearby coastal Special Protection Area (SPA).
- g) The introduction of recycled effluent will require the full-time operation of a mixing system in the reservoir. This will add significantly to the energy and carbon footprint of the scheme and the long-term operating costs, adding additional costs for customers.
- h) Southern Water indicate that there will be wider environmental and societal benefits with option B4. However, all of the benefits actually come with the original reservoir which will be provided anyway. There are no wider benefits at the reservoir site from implementation of option D2 or B4, only negative issues that will detract from the original benefits, this negative impact is not reflected in the Southern Water assessment.

Note: Ofwat report Page 9, row 5; indicated that the scheme will provide better value through environmental, social & economic value, but there is no indication as to what this is, nor that the negative impact on the reservoir benefits has been considered? It is disappointing that Ofwat are not challenging the environmental and social benefit being claimed by Southern Water.

B6 Partner arrangements and Ofwat funding – alternative arrangement proposed

Ofwat have indicated that they propose to support the continued funding of the reservoir but have not proposed any changes to the partner arrangements (page 22), despite making it clear that Southern Water have failed to meet objectives that were previously set, nor deliver the necessary information to the standard required for the Gate 2 submission. Page 8 acknowledges “that show stoppers could yet be identified.”

On page 16: Ofwat are very critical of the environmental assessment work completed to date noting: “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.**

Page 15 usefully identified: "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."

As the owner and operator of the Havant Thicket Reservoir I would propose that Portsmouth Water should be funded by Ofwat (instead of Southern Water) to urgently carry out work on key aspects which impact the reservoir, discharges, downstream environment, and customers, in relation to Option D2 and B4 including:

- The detailed water quality modelling required covering all proposed and potential future operating scenarios, to assess the impact on water quality from a drinking water and environmental perspective.
- The environmental impact assessment and ecological impact assessment on the reservoir, streams & harbour. This will then inform the Strategic Environmental Assessment.
- The Habitats Regulation Assessment, including in-combination effects.
- The benefits assessment, so that benefits are not claimed for the new options that are already provided by the original reservoir proposal. This should also consider the adverse in-combination impacts on the benefits the reservoir would have provided.
- Customer acceptability surveys in relation to drinking recycled effluent.

Portsmouth Water and their consultants (Atkins) have already completed the water quality modelling, Environmental Impact Assessment and Habitats Regulation Assessment for the original spring fed reservoir scheme. As a result, they will already have a better understanding of the issues and potential impacts than Southern Water. The knowledge they have already gained undertaking these previous assessments means that they can more cost effectively and robustly assess the impacts of the Southern Water proposals (B4 and D2). I believe that stakeholders and the local community would have more confidence in the outcome of this work if it were to be completed / led by Portsmouth Water. If funding for the scheme is to proceed, I would urge Ofwat to fund Portsmouth Water to complete these key assessments as a matter of urgency.

B7 Options appraisal and the need to search for a more sustainable solution

Southern Water have not undertaken a robust options appraisal process. If they had, I am confident that this scheme would not have been selected. I am very concerned that the significant adverse impacts of this proposal have not been fully considered.

- a) This is not a sustainable solution. Southern Water need to look at more sustainable solutions which are environmentally friendly and provide wider societal benefits to give better overall value.
- b) There is significant concern that Southern Water are looking for large infrastructure solutions that require huge investment in pipelines, pumping stations and treatment plant, as that puts assets on their own balance sheet, which they then get guaranteed funding for now and in the future for the life of the asset, so why would they look for more sustainable solutions which don't do that? The incentives and penalties on companies need to be changed to ensure they select sustainable solutions which work with climate change, minimise environmental impacts and provide wider societal benefits. This is how you deliver best value for society and customers paying for the changes.
- c) Desalination at Fawley has now been rejected on the basis that it is not environmentally friendly and cannot be delivered. That should have been the obvious conclusion from the start, it was certainly pointed out by stakeholders and the public. Will Southern Water now have to refund to customers all the money that they wasted pursuing that option?
- d) Southern Water are now repeating exactly the same mistakes in their options appraisal process, selecting effluent recycling which uses exactly the same reverse osmosis treatment process as desalination. It is therefore just as environmentally unfriendly in terms of energy and carbon. It will use even more chemicals for treatment, and still produces a concentrated

- liquor that must be discharged into our sensitive coastal waters. Effluent recycling should be rejected and only be considered as an option of last resort, as desalination is now.
- e) If effluent recycling is to be selected Ofwat must continue to fund the assessment of the alternative Option B5 of Peel Common Sewage Treatment Works (STW) to Otterbourne be funded? As this option is indicated by Southern Water to still being investigated as a viable option. Option B5 is mentioned as a back-up option on page 17, funding for this alternative scheme is not mentioned in the Ofwat consultation document, even though it provides better value, as it requires a shorter pipeline and thus less construction and operational pumping costs. In addition, it is worth noting that Southern Water's own report (Gate 2, Annex 5, page 140) confirmed that there would be more environmental benefit to the sensitive coastal waters in removing sewage for effluent re-use at Peel Common STW rather than Budds Farm STW. Therefore, under any robust assessment criteria when scoring construction and operational costs, environmental benefit, carbon etc. Peel Common STW effluent recycling scheme should come out as a better option than the Budds Farm STW to Havant Thicket Reservoir Option. The trial effluent treatment plant was even located at Peel Common STW, suggesting it was the preferred site.
- f) The WRSE draft Regional Plan consultation indicated that; "*The net zero carbon commitment could affect what options are selected in the plan going forward*". We already know that we are in a climate emergency and that commitments have been made to net zero carbon, so **it makes no sense to select options that are very carbon hungry, as this means customers will be burdened with the energy costs and the future carbon off-setting costs for the life of the scheme.** Effluent recycling options could easily become a white elephant, with customers having to pay to build and run them daily, only to find it being too expensive for the company to operate them in practice. As has happened for the existing desalination plant on the River Thames which Thames Water wanted to moth ball. This uses the same technology as effluent recycling, we need to learn from this past mistake.

I have attached as Appendix C comments sent to Portsmouth Water (shared with Southern Water) on the options appraisal process in February 2022, which provide additional information on the deficiencies in the process completed by Southern Water. It also explains in Appendix C (2.9) why this delivers a lose – lose situation for Portsmouth Water customers.

B8 Specific comments on the Ofwat draft determination consultation document

Ofwat are to be commended for reviewing the submission in sufficient detail to pick up on the deficiencies highlighted in the Southern Water submission and summarised on page 20, but there are additional key concerns that I have highlighted in my response.

Page 6, Risks (2.3); While I welcome the risks highlighted, I am concerned that there is no recognition of the risk to the reservoir environment, streams, nor Langstone Harbour, or that the scheme could fail the Habitats Regulation Assessment. Unfortunately, Ofwat have only highlighted the environmental risk to the pipeline corridor. Nor is there any recognition that there is significant public objection which could impact delivery and timescales of both Option B4 and the original reservoir plans. Risks highlighted for the Option B5 effluent recycling consultation are not highlighted even though they also apply to Option B4 including; no approved reverse osmosis membranes, customer perception of recycled water leading to delays, customers do not consider recycled water to be wholesome and acceptable.

Page 8/9, Table 2,

- Row 1; I am concerned that Ofwat are already using the fact that the scheme is in the draft emerging Regional Plan as a reason for supporting the scheme, when the options appraisal process and environmental assessments are not robust enough to confirm that this is even a viable option.
- Clear that funding support is all being driven by Southern Water's failure to come up with a better more sustainable solution to deliver the abstraction reductions on the River Itchen by 2027. With this being the best candidate for completion as soon as possible! (*all because SW have not progressed other more sustainable options in good time*)
- Page 9, row 5; makes it clear that this option is only cost effective if the capacity of the scheme is significantly increased to release more recycled effluent into the reservoir, indicating that; "*over the medium- to long-term the solution can be adapted to provide capacity beyond the immediate resilience requirement*". Increasing the volume of effluent discharged into the reservoir will make the adverse environmental impacts worse, making it even less viable as an option.

- Page 9, row 5; indicated that the scheme will provide better value through environmental, social and economic value, but there is no indication as to what this is? Nor is there any indication that Southern Water/ Ofwat have taken the negative impacts on the existing reservoir proposal into account.
- Page 17, last para: Stated that; *“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.”* The financial and environmental regulators putting pressure on Southern Water to guarantee delivery of a solution to meet their Section 20 obligations on the River Itchen & Test is more likely to drive the company to proceed with effluent recycling via the Havant Thicket Reservoir, regardless of whether it represents the best value, rather than to re-evaluate and find a more sustainable and environmentally friendly solution. I am concerned that this is playing into Southern Waters hands as they want an expensive infrastructure led solution that is more financially beneficial to them.
- Page 27, Action 14 refers to assessing Likely Significant Effects on the Marine Conservation Zones. This must give robust consideration following modelling to the impacts on our sensitive coastal waters associated with the brine discharge from the recycling plant, construction of a pipeline in Langstone Harbour to connect to the existing long sea outfall pipe, and the water quality of the compensation discharge from the reservoir via the stream to Langstone Harbour. To date the focus has been on the impacts of the pipelines.
Note: Ofwat consultation document, Page 28, Action 11 is also relevant to this assessment.
- Page 28, Action 12; the assessment of ecological impacts should not just relate to the pipeline, it should also assess the impacts on the reservoir, stream and Langstone Harbour.

Appendix C & D

Additional information on my concerns in relation to the options appraisal process, plus the impacts and risks associated with Option B4 are set out in Appendix C & D, which are attached in a separate document.

The appendices were sent attached to a letter to Portsmouth Water (copied to Southern Water) in February 2022, to share my significant concerns about Southern Waters proposals. A few minor updates were made before attaching them in the separate document for Ofwat, to help clarify some of the issues.

Appendix C – Feedback on proposed planning route, options appraisal & public consultation to date

Appendix D – Feedback and concerns on other matters related to the Southern Water proposal

11 April 2022