Deadline 1 submissions – Information on alternatives Responding to the Examining Authority's request about alternative options

Hampshire Water Transfer and Water Recycling Project (WA010002)
Deadline 1, 23 November 2026

Filed by Water Matters Community, an Interested Party [redacted]

Unique PINS reference: [redacted]

Use of artificial intelligence: an AI assistant (Claude, made by Anthropic) assisted in drafting the Summary and sections 1 to 3, working from the hearing transcript, the Annex and Examination Library documents. [redacted] *wrote the Annex with no assistance from AI. We have checked this document and take responsibility for it.*

Summary

At Open Floor Hearing 1 the ExA asked [redacted] whether she was putting forward any specific alternative to the Project on behalf of her constituents. She said she did not have the expertise to do so, but that there are alternatives which should be seriously considered. This document gives the ExA more detail in answer to that question.

The Annex is a paper by [redacted] to Water Matters Community. She sent it (together with its appendices) to Southern Water in July 2026. It lists options that we say Southern Water should have assessed properly, alone or in combination, before it chose the Project. The main groups of options are:

- **Using existing sources better.** Take more from rivers in winter, when flows are high. Rest the aquifers so that their water is there in dry summers. Make abstraction licences more flexible to allow this.
- **Moving river abstractions downstream to the tidal limit**, on the Rivers Test and Itchen and elsewhere. This would leave more water in the rivers protecting the environment.
- **More from local springs**, at Havant and Bedhampton and potentially at Farlington.
- **Storing winter rain.** New reservoirs, for example in the Wallington and Hamble catchments, and development of schemes to store water underground in aquifers.
- **Water from other users.** Water now used by a large industrial site near Southampton, under-used licences, and trading with third parties.
- **Losing and using less.** More ambitious leakage targets, faster mains replacement, better links between supply zones, and action on business demand.

- **Other effluent recycling options**, and other places to put recycled effluent than Havant Thicket Reservoir, if recycling is to be used at all.
- **The Isle of Wight.** Options on the island that would reduce its call on mainland sources.

Four appendices to the paper give more detail on Farlington Springs (Appendix A), possible reservoir sites (including a heat map in Appendix B), aquifer storage schemes (Appendix C) and other effluent recycling schemes (Appendix D).

This document deals only with what some of the alternative options are. Our case on how alternatives should have been assessed, and on the failure of Southern Water's options appraisal, is in our Relevant Representation and our other Deadline 1 submissions, and in those of SOSCA and [redacted]. Section 3 gives the references.

Our other Deadline 1 submissions also comment on the observations made by Defra on options in the 13 August letter belatedly disclosed by the Applicant as part of the 2 November deadline submissions.

We also draw the ExA's attention to the Deadline 1 submission of Rowlands Castle Parish Council, which asks for a number of things in relation examining whether there was a fair comparison of risks and benefits against other options, and whether alternatives were consulted on at the earliest stage, including why the full consultation the applicant promised in 2021 never took place before choosing this option.

1. Why we are filing this document

1.1 [redacted] (RR-325) spoke for her constituents at Open Floor Hearing 1 on 11 November 2026, including raising concern that the Applicant never properly assessed alternatives to this scheme, noting that "other options were not developed to an appropriate level of detail to enable a fair comparison, or alternative package of options to be explored." When she had finished, the ExA asked her: "in terms of alternatives, is there any specific alternative that you are putting forward?" The ExA added that it meant on behalf of her constituents (EV4-002, at about 01:02:45 to 01:03:05).

1.2 [redacted] replied that she did not have the expertise to put forward an alternative. She said that there are "various alternatives which could be and should be seriously considered" by experts in the field (EV4-002, at about 01:03:05).

1.3 [redacted] is filing her own Deadline 1 submission. In answer to the ExA's question, that submission points to the alternatives that the community has identified and to our Relevant Representation (RR-354) section 1a. Consistent with that, Water Matters Community is filing this document to answer the ExA's question in more detail.

2. The Annex

2.1 The Annex is a paper on alternative options predominantly in Southern Water's area, or which could be utilised by the Company. [redacted] wrote it. [redacted] is [redacted] to Water Matters Community. She is a retired [redacted] a former [redacted]

[redacted] for both Portsmouth Water and Southern Water, and was the former Havant Thicket Reservoir [redacted] at Portsmouth Water.

2.2 [redacted] sent the paper to Southern Water ([redacted]) on 10 July 2026. This followed a request from Water Resources in the South East to share options, and a number of meetings in 2025 and 2026 between Southern Water managers and representatives of the Water Matters Community, where concerns were discussed in relation to inadequate appraisal of alternatives, and how solutions that had been 'parked' by the Company could be brought forward. [redacted] acknowledged receipt on behalf of Southern Water on 10 July 2026.

2.3 Concerns about the lack of alternatives assessment were previously raised in community consultation responses to Southern Water in 2022, 2023 and 2024. For example;

- RR-354 (Annex 3) sets out [redacted] response to revised draft WRMP24 in which information on alternatives is provided at pages 1, 3(2), 6(14), 7-10, 15(A) and 20(J), with pages 7 to 10 setting out 14 significant concerns about the Applicant's options appraisal. Page 15 refers to sustainable alternatives, with Appendix A describing a 'Better Way Forward'.
- RR-354 (Annex 4) sets out Tracey Viney's response to HWTWRP consultation July 2022, concerns about alternatives not having been properly considered are included at page 1 and sections 1e, 2g, 2h, 2i, 16a, 16g and 16p.

The summary table presented in the annex represented a collation of options previously raised with Southern Water, with supporting information.

2.4 The summary presented has two main tables of options and four appendices:

- options for Hampshire and West Sussex;
- options for the Isle of Wight, which would reduce the island's reliance on water from the River Test and Hampshire;
- Appendix A: Farlington Springs;
- Appendix B: possible sites for new winter storage reservoirs;
- Appendix C: aquifer storage and recharge schemes;
- Appendix D: other effluent recycling schemes.

2.5 We hope the paper assists the ExA with its examination. It is worth noting that the annex includes options that were rejected by the Applicant, and which the Secretary of State has now asked Southern Water to reconsider (Defra letter of 13 August 2026). The challenges raised by the SoS on reasons for rejection are on the exact same points raised by the community. For example, rejection of options because they could not be delivered in time (RR-354 Annex 3, page 3(5) and 9(26)).

3. What this document covers, and where our other points are

3.1 This document deals only with what some of the alternative options are. The paper is not a complete list, and the options in it can be used in combination. It is for Southern Water, not the community, to assess alternatives properly and fairly. The paper shows the kind of options that we say Southern Water should have properly assessed before it chose the Project. We have submitted evidence in our other representations and submissions to show that Southern Water did not make these assessments as required, at the appropriate times or at all. We refer you to those other representations and submissions.

3.2 Our Relevant Representation also deals with what the alternative options are:

- RR-354, Section 1a (i to viii): the alternatives, and the lack of proper assessment of them;
- RR-354, Section 1b: alternative environmental buffers, that is, places to put recycled effluent other than Havant Thicket Reservoir;
- RR-354, Annex 2: moving the Otterbourne abstraction downstream to the tidal limit.

3.3 Other matters about alternatives are dealt with elsewhere. These include how the law and policy require alternatives to be assessed, and the failure of Southern Water's options appraisal. The references are:

Interested Party	Relevant Representation and earlier submissions
Water Matters Community	RR-354, Sections 1a, 1b, 3 and 14b. PDA-027 (Principal Issues, including alternatives).
Save Our South Coast Alliance (SOSCA)	RR-294, section 4, key concern 1 (need and alternatives).
[redacted]	RR-018, sections 5 and 6, and the Supplement to RR-018.

3.4 Water Matters Community, SOSCA and Mr Newbery are also filing other submissions at Deadline 1 that deal with alternatives. They include our written summary of the oral submissions on need and alternatives made at the Preliminary Meeting on 11 November 2026.

Annex 09-1: Alternative options paper as sent to Southern Water in July 2026 ([redacted] for Water Matters Community)

1. Southern Water Area Options – Hampshire & West Sussex

Option	Additional Information
Stepping back and looking at things in a different way	The WRMP option selection process should not just be about planning for severe droughts, that was what a drought plan did. It should also be about selecting the best, most sustainable & carbon friendly, least environmentally damaging, cheapest options to secure water for supply in most years when there is no drought. This seems to have got lost in the focus to deliver resilience for a 1 in 500 year drought by 2040, resulting in expensive and environmentally damaging decisions that are not in the best interest of customers. New water resource options should not be rejected just because they cannot meet the demand deficit in a 1 in 500 year drought. **Southern Water need to step back and look at the advantages that climate change will provide, not just the downside.** Southern Water **should prioritise investigating and bringing forward solutions that work with climate change.** Taking advantage of wetter winters to both collect and store more water, which can then be utilised during drier summers. In the UK we only collect between 1 and 2% of rainfall, resulting in wastage of a free natural resource. We are already seeing the effects of climate change delivering wetter winters. A key focus of the company WRMP review should be to find ways to harness that resource through optimising abstraction from rivers in winter and increasing storage to provide resilience. Moving abstraction to the tidal limit provides the opportunity to use existing aquifers and storage reservoirs less across the company area, then only use them when they are needed. **Climate impacts & energy use should be more of a driving factor in option selection in both the SW & WRSE plans.**
Working with regulators to develop a more flexible and helpful approach to abstraction licencing	The government requires that any regulatory changes must be proportionate and pragmatic, otherwise they can be challenged. The proposed changes to existing abstraction licenses are a key driver for the demand deficit, especially in Hampshire. **Water companies and regulators need to come up with a more balanced approach, with more flexible licencing, that allows water companies to take more water in winter when there is excess flow, which they can capture and store for dry summers in underground aquifers, new, or modified winter storage reservoirs.** This approach should use evidence-based reductions in summer abstraction and utilise site specific river flow triggers to control what can be taken out. This will protect river flows and biodiversity, while also ensuring customers do not have to pay for extremely expensive water treatment plants that might only be needed in a severe drought, but must operate 365

	days a year to keep the plant and pipelines sweet. A more flexible system has the potential for multiple benefits including reducing flood risk by allowing abstraction in winter and by creating new wetlands (reservoirs). Developing a more flexible approach to abstraction licensing could allow more water to be taken in winter to encourage water companies to develop more storage solutions. Time limits can be placed on the licence to enable volumes abstracted to be regularly reviewed and amended based on evidence of harm. There is a need to **review & update EA environmental flow indicators to be more relevant locally.** I believe the Environment Agency environmental flow indicators are based on national criteria. There is need to develop new low flow indicators which are based on the actual local situation and functioning of the rivers to which they are being applied.
Optimising the use of existing river sources before freshwater flows out to sea	At present SW does not optimise the use of its existing licensed river sources, with water instead taken from groundwater aquifers as that water is cheaper, and instead fresh river water flows out to sea. SW should preferentially take water from its river sources within licensed limits to optimise their use, leaving water to remain in the aquifers for longer use in dry summers improving resilience. No new infrastructure would be required for this change, SW would just make better use of their existing resources. Treatment of river water is more expensive than the treatment of water from aquifers, as a result there would be a slight increase in costs to customers, but nothing like the 3-to-4-fold increase in cost related to effluent recycling treatment and the cost to pump water 40km from Havant to Otterbourne. This requires a mind-set change in operational activity to make best use of river resources <u>before</u> taking water from the aquifers. *Note: A sweetening flow for the existing borehole infrastructure would need to be maintained*.
Maximising the use of all river sources by abstracting at the tidal limit - Hampshire - Sussex - All SW areas This would restore natural flow to our freshwater catchments, provide protection against climate	Making it a priority to move abstractions from the upper catchment of rivers to the tidal limit (final weir) to provide an immediate and certain environmental improvement to the whole of the freshwater catchment, which is not then reliant on the Company making the right operational choices for the environment, **protecting the river flow and ecology all year round and in a drought**. This can be done in line with the United Kingdom Technical Advisory Group Report on Environmental Standards and Conditions (2008), which would allow up to 50% of the 95 percentile flow to be taken from the tidal limit. It cannot be sensible to allow large volumes of river water to flow out to sea in a drought, but instead construct large energy/ carbon hungry desalination or effluent recycling plants as a solution. Moving abstractions downstream as proposed would allow a substantial quantity of river water to be captured before it flows out to sea, in all likelihood without any significant adverse impact on the downstream tidal estuary (minimum flow levels can be set to ensure this), removing, or substantially reducing the pressure for abstraction reductions.

change and improve water quality	**This simple change to where we take water from the environment would be a 'game changer' for water resource planning** and would cost very little for customers as it requires minimal new infrastructure. It would **drastically reduce, or remove the need for drought permits.**
Removing or reducing the need for abstraction reduction	**The first step in the process is to move the existing river abstractions to the final weir, with no increase in abstraction**, to protect the chalk (and other) rivers and guarantee the restoration of natural flows in a drought along the full freshwater catchment, overnight removing the priority for abstraction reform, which is largely driving the need for effluent recycling. Having moved the abstraction phase 2 would be to consider using UKTAG Guidance which could allow up to 50% of the 95 percentile flow going out to sea could be taken from the tidal limit. - Water could be transferred direct to an existing or new treatment facility in summer. - Used to fill a new reservoir in winter, or whenever water is available above the minimum residual flow required by any licence condition. If necessary, bankside storage lagoons/ tanks could be included in the scheme design to collect water and ensure flows to the estuary are maintained at low tide. In 2025 SW appointed consultants to investigate moving abstractions to the tidal limit. Environmental Impact Assessment will be required. This work must be given a very high priority to enable the company to demonstrate to the regulators that net benefit of protecting the freshwater catchment outweighs any minor impact.
Using the River Itchen as an example	For example, moving the Otterbourne existing abstraction volume on the River Itchen to the tidal limit would protect more than 12km of this internationally important chalk stream, as well as the Itchen Navigation. It should be possible for the company to make a very strong case for retaining existing licensed volumes, which would make a big difference to the demand deficit in Hampshire. As proposed EA abstraction licence reductions to protect the freshwater catchment are driving much of the demand deficit in Hampshire, which is in turn being used to justify the need for effluent recycling. **Retaining the existing level of abstraction will ensure the volume of freshwater passing into the estuary is unchanged**, which means there is **no negative impact from the option only positive benefits to water quality, biodiversity and fish productivity in the freshwater section of the river.** Water abstracted from the Woodmill area (tidal limit) can be pumped to Gaters Mill WSW or Otterbourne WSW for treatment. The c.9km pipeline to Otterboune would be much shorter than the pipeline planned from the Havant Thicket Reservoir (40km+), it can be constructed within a tunnel to ensure minimal impact on the river catchment with shafts located well away from the river, ensuring an overall much smaller environmental impact. **The cost & carbon impact for this option would be low as this requires very little infrastructure.**

River Adur (Sussex)	The infrastructure required is small compared to effluent recycling making it a more sustainable and cost-effective solution. Only requiring a new abstraction, eel/ fish screens, and a pipeline to the existing Water Treatment Works. For the River Itchen this would only require an approximate 9km pipeline. Compared to the 40km pipeline needed for effluent recycling from Havant to Otterbourne, a massive saving in construction costs, operational energy costs to pump the water over the downs and in greenhouse gases. Salmon & trout already migrate upstream which suggests that maintaining the existing flow to the estuary and providing biodiversity improvements to structures & channels would be adequate to support migration. Removing abstractions from the freshwater section of rivers will help mitigate future climate change risks by ensuring cooler deeper water in the river all of the time which will help fish productivity and migration in the river. *Note; In 2020 when recreational activities were curtailed due to covid many chalk streams recorded a significant spike in salmon migration upstream. Abstraction was unchanged, which suggests that there are other key drivers impacting salmon migration which may have a bigger influence than current abstraction volumes. On the Itchen the EA have indicated that the Portswood WWTW discharge in the upper estuary is a key concern in respect to reducing the return of adult salmon to the river. These wider issues need to be considered before making decisions on abstraction reduction, as moving abstractions could provide a multi benefit cheaper and more sustainable solution, including enhancing biodiversity and improving conditions for breeding salmon in the river.* **Investigations for tidal interface abstraction for other rivers across the SW area should also be prioritised as a matter of urgency.** If abstractions are moved to the tidal limit in enables any increased winter rain received as a result of climate change to be utilised. In the future SW indicate they will work with stakeholders to look at **moving the abstraction on the River Adur to the estuary** (transitional waters) to allow more abstraction (rdraftWRMP24, Annex 20, page 30-31) but this is <u>not</u> in their current plan. Moving river abstractions to the tidal limit can have environmental benefits, restoring more natural freshwater flows in rivers to protect the ecology. - This scheme should be selected <u>now</u> and prioritised as a more sustainable solution.
Where there is currently no abstraction on any river in the SW area consider installation	Where there is no abstraction on rivers consider whether it is practical/ appropriate to install new abstractions at the tidal limit to help meet demand, especially in a drought. Most of our population centres are on the south coast, taking the water from closer to where the water is needed reduces transfer & pumping costs. Large volumes of freshwater are

of an abstraction at the tidal limit	flowing out to sea, even in a drought, we need to understand if we can take some of that water without there being a significant adverse environmental impact. Not all rivers in the SW area have an existing abstraction. SW should consider installation of an abstraction large enough to take 50% of the 95 percentile flow going out to sea at the tidal limit, in line with UKTAG guidance. Initially a high-level environmental screening could be undertaken to consider if this solution looks to be potentially feasible on each river, then proceed to a more detailed environmental impact assessment to assess. This may also be a solution to increase drought resilience. A small package treatment plant may be needed, or the water abstracted could be transferred to an existing water treatment works.
Not routinely using all aquifers for abstraction in winter so the water stored underground is available for use in summer, providing more resilience in a drought *Note: This will not be appropriate for all groundwater sources. For example, where the boreholes are the only source, or where the aquifer is unconfined and the stored water would be lost.*	Water taken from aquifers is generally cleaner and cheaper to supply to customers than river water. Traditionally water companies operate to use the cheapest water first, so aquifers get drawn down sooner than they need to. We need to change the mindset so that confined aquifers are used as an option of last resort wherever possible. Confined aquifers should be rested as much as possible, taking water from river sources in winter when flows are high to optimise the use of existing surface water abstraction licences to supply customers. This would ensure that the aquifer storage levels recover in winter and remain higher in summer when they are needed. Climate change will give us wetter winters helping to top up our aquifers for use during drier summers, but only if we minimise the use of aquifer sources in winter. If river abstractions are moved to the tidal limit this opens up further opportunities to protect our precious aquifers from abstraction. The volume of water currently abstracted from some ground water boreholes in upper catchments could instead be taken from the tidal limit, so that existing aquifer boreholes are not used so much for abstraction through the winter and spring, allowing the cone of depression in the aquifer around each borehole to naturally recover and replenish through winter infiltration (which will increase with climate change). Leaving the aquifer(s) more topped up for the summer to provide greater resilience in a drought, but this could also provide improved base flow to the rivers sourced from those aquifers. - For example, this could be a relatively quick fix if you are already proceeding with moving the surface water abstraction on the River Itchen, Test and Arun, so **this should be looked at as a conjunctive benefit of moving river abstractions to the tidal limit**, as it opens up other opportunities to use existing sources in a different way, to both protect the environment and improve resilience. - When reviewing abstraction licences group licences could be considered to allow a more flexible approach to what water is taken where and when, to allow a more seasonal approach to make better use of the water that is

	currently available in rivers but flows out to sea, and that will be available in the future as a result of climate change. This is a solution that works with climate change, as the forecast increase in winter rainfall across the area will help to top up the aquifer, which also has the potential to enhance baseflow to the rivers *Noting that a sweetening flow may be required from the aquifer boreholes to maintain the flow of water & equipment functional*.
Obtaining more water from the Havant & Bedhampton Springs Note: Infrastructure will already be in place to supply to PW or SW from this source.	Anything that overflows from the H&B springs flows out to sea. There are Minimum Residual Flow (MRF) conditions on the licence stipulating volumes of freshwater that must be maintained flowing into Langstone Harbour via the Hermitage Stream, Brockhampton Stream and Lavant (Havant) Stream. The monitoring point for each of these is within the tidal zone. Therefore, the MRF is not monitored / does not apply when the tide is in. Therefore, twice a day, every day, there is the opportunity to abstract more water from the springs for water supply. The water could be transferred direct to Farlington WTW for treatment if there is capacity at that time, or to the Havant Thicket Reservoir for storage. On completion of the Havant Thicket Reservoir project the pipeline and reservoir infrastructure will already be in place, so there are no major infrastructure costs to optimising the use of the springs. A scheme to provide a new pumping station at Farlington WTW is already underway which will allow water to be transferred to Nelson Reservoir and across to the River Itchen at Gaters Mill via the existing pipeline from Hoads Hill to Gaters Mill. This could enable the extra water to be shared with Southern Water.
Farlington Springs and spring line - potential joint project with PW	Redevelopment of the Farlington Springs set out in the Portsmouth Water options table above could allow extra water to be supplied to Southern Water. In 1897 the Portsmouth Water Company resident engineer thought the springs might be made to yield 2 or 3 million gallons daily (13.5 Ml/d) see Appendix A. There is the potential to generate additional volume by constructing shafts at intervals connected by an aqueduct along the spring line between Farlington and the A3(M) at Bedhampton. The construction of the new pumping station at Farlington WTW (already underway) could facilitate the transfer of additional water to SW via Nelson Reservoir to Gaters Mill WTW. Or more water could be released in the PW western area if additional abstraction is available from the Farlington Springs.
New reservoir River Wallington catchment - potential joint project with PW	A new reservoir should be constructed in the River Wallington catchment area (potentially neat Boarhunt) which could be filled with winter water from the River Wallington (which would also help reduce the flood risk at Wallington Village) with treatment at a Maindall WTW. Using UKTAG Guidance up to 50% of the 95 percentile flow going out to sea could be taken from the tidal limit. - Water could be transferred direct to the existing treatment facility at Maindell in summer.

	- Used to fill a new reservoir in winter, or whenever water is available above the minimum residual flow required by any licence condition. This would also help to support growth in the Fareham and Wellbourne area by providing additional recreational opportunities close to the large new conurbation under construction. The Boarhunt area was previously identified in the 1960/70s as a potential site for a new reservoir with water sourced from the River Wallington. The heat map in Appendix B shows the extent of potentially suitable areas. This could supplement supplies in the Portsmouth Water area and allow more water to be shared with SW.
New reservoir River Hamble catchment	The River Hamble catchment has a lower ecological designation than the Itchen or the Test and it has previously been identified that there is potentially water available from this source in the lower catchment for abstraction. Or using UKTAG Guidance up to 50% of the 95 percentile flow going out to sea could be taken from the tidal limit. - Water could be transferred direct to an existing or new treatment facility in summer. - Used to fill a new reservoir in winter, or whenever water is available above the minimum residual flow required by any licence condition. A pipeline could be constructed from the new source and new reservoir to the existing Otterbourne WTW. This would help support growth in the Fair Oak/ Bishops Waltham area by providing recreational opportunities close to large new developments. The Curbridge area was previously identified in the 1960/70's as a potential site for a new reservoir with water sourced from the River Hamble. But if the water is to be transferred to Otterbourne then the reservoir site could alternatively be located in the Lower Upham/ Eastleigh or Otterbourne areas, where potential reservoir sites have previously been identified. Suitable areas are shown on the heat map in Appendix B.
Other reservoir sites in Hampshire & West Sussex All areas highlighted on the heat map in Appendix B should be reassessed by the water company as to their suitability for a new winter storage reservoir.	**SW have not made a genuine effort to look for new winter storage reservoir sites in Hampshire.** The geology of Hampshire with large areas of clay overlying aquifers is conducive to finding new sites where excess winter surface water flows can be pumped for storage in new reservoirs. **It is not acceptable to dismiss the search for new reservoir options on the basis that all rivers are over abstracted, since they are highly unlikely to be over-abstracted in winter.** Nor is it acceptable for water companies (as SW did) to primarily look at reservoir storage by damming up rivers as part of the unconstrained options assessment, since it is obvious in the modern era that reservoir storage by damming up/ impounding rivers will never be acceptable. **Potential sites for off-line pumped winter storage reservoirs should be investigated further**, including in Hampshire.

	The reservoir sites already identified in the SW plan, including Blackstone in West Sussex which is not scheduled for development until 2045, **should be brought forward as quickly as possible, as should raising water levels in existing reservoirs,** such as Bewl Water. *Note: SW also need to avoid abstracting from reservoirs in winter & spring, using them instead as the summer/ drought resources they were constructed to be. Using the winter period to fill them as high as practicable without abstraction.* The delivery of the River Adur reservoir project is not scheduled in the plan until 2045/46, yet the SW technical note which accompanied the draft WRMP24 confirmed at section 7.4.4 that it could be selected by 2041. This project should be brought forward and delivered asap. No other reservoir schemes are in the pipeline in Hampshire or West Sussex in the revised draft plan. This is not acceptable; development of reservoirs should be given a higher priority than effluent recycling in the plan. Given that they work with climate change to capture more winter rainfall, and customer surveys have shown a preference for more natural solutions such as reservoirs, rather than effluent recycling or desalination. It is not appropriate for SW to use a 1 in 500 year extreme drought event as an excuse not to identify and investigate more reservoir options, as they can provide a valuable asset under most scenarios and **deliver multiple benefits to society** (flood risk reduction, recreation facilities for a growing population, and biodiversity benefits by creating new wetlands), **providing better value for money for customers and a lasting legacy** which is not delivered by the SW options selected (e.g. effluent recycling). Three reservoirs the size of Havant Thicket can built for the same cost as the Hampshire effluent recycling plant. As a priority, SW should review the reservoir sites identified in the 1970/80's by the River Board which included 72 sites across south Hampshire and West Sussex. This included sites for pumped storage at Rownhams, Romsey, New Forest, Nursling, Curbridge, Lower Upham/ Eastleigh, Boarhunt, Southwick, Chichester & Arundel. All areas with forecast demand deficits. A map of the potential sites and summary tables are provided in the Site Alternatives Assessment report (April 2020) for the Havant Thicket Reservoir the reports (Appendix A & B of that report). Link to web map That report needs to be used with caution, as the consultants suggested that no river sources were likely to be viable due to WFD licence strategy restrictions, however, I think there is scope for restricted licences allowing winter abstraction for storage, especially in the Hamble and Wallington catchments, but potentially others too. Some of the sites will have been developed since the 1980's but many remain. The report included a heat map as Figure 3.2 showing areas which had both a feasible abstraction source and suitable underlying geology. **All areas highlighted on the heat map in Appendix B should be reassessed by the water company as to their suitability for a new winter storage reservoir.** Some sites previously identified were on gravel underlain by London Clay, which would enable the gravel to be extracted and sold to help fund the reservoir construction. Technology in terms of constructing cut off walls has advanced significantly since the 1970's, making techniques to seal the edges of a reservoir feasible. Bentonite cut off walls were used to achieve this at the existing Testwood Lakes reservoir site.

	Flood risk is going to increase in the future with climate change. Having the capacity to remove and capture excess winter water in the catchments of the River Test, Itchen, Hamble, Wallington and Meon etc. could provide a significant benefit to communities that will experience more regular and extreme flooding events in the future, as well as providing more drought resilience for our water supplies. Note: A list of the 9 reports utilised as source document for the Havant Thicket Report are listed in Section 3.1. Those considering sites across the wider Hampshire & Sussex area were; 1. Southampton Corporation Waterworks Department and Portsmouth Water Company, 'Potential Resources and Conservation of Water', Herbert Lapworth Partners, 1965. 2. Southern Water Authority, 'General Report on Reservoir Site Investigations, East Hampshire 1975-78, Mander, Raikes & Marshall, 1978. 3. Southern Water Authority 'Technical Report on Reservoir Site Investigations, East Hampshire 1975-78, Mander, Raikes & Marshall, 1977-78. 4. Southern Water Authority, 'Reservoir Investigation – Hampshire Report on Engineering Studies', Mander, Raikes & Marshall, 1980. *Note: PW hold all of these reports in the archive filing system created by Tracey Viney.*
Aquifer storage/ recharge schemes to collect winter rainfall	In the UK we only collect between 1 and 2% of rainfall. Customers support more natural solutions and capturing more winter rain and storing it would improve resilience and be a positive step forward. Incredibly no Managed Aquifer Storage Schemes (MARS) are selected by SW in the period 2025 to 2035 in the SW nor regional plans. Only 3 schemes are selected across the entire region from 2035 to 2075, with just one selected in the Hampshire & Sussex area. Yet the south-east has vast areas with underground aquifers, many of which occur within a folded geology creating confined aquifers which must be suitable for consideration for aquifer storage/ MARS, with more water expected to be available from storage from the predicted wetter winters. In the UK we only collect between 1 and 2% of rainfall. It is more sustainable and cost effective for customers if SW collect and store as much free rainfall as possible. Southern Water's restricted options appraisal documents for their draft WRMP24 show that they have identified potential aquifer storage schemes across Hampshire, the IOW and Sussex

	where winter rainfall could be used to top up the aquifers for use in dry summers, but under the draft WRMP24 none of them have been selected for further investigation. Storing water underground has the advantage that it will not evaporate. Drought stricken countries around the world top up confined aquifers and use them for storage. Even the Southern Water [redacted] said at an industry conference in 2025 that the industry needs to do more to make use of the natural folded geology in the SE of England for aquifer storage. Aquifer storage has been used for many years across the world, including in California and in the Thames Basin (UK). Trials in the chalk in Dorset have confirmed the feasibility of such schemes to store surplus winter water for recovery in dry summers. Southern Water have highlighted the **potential for the Ashdown & Hythe beds, Bagshot Beds, Bembridge Marls & Limestones, Chalk aquifers, Portland sandstone and Upper Greensand formations across their supply area to be used for additional storage**. Ideally the water will be held in a confined aquifer. Each scheme might only be able to generate a small volume of water (yield), but if at least 20 schemes were investigated it is reasonable to assume that 8 could be developed, where some water could be stored. Developing a number of schemes could make a real difference to providing water in a more sustainable and cheaper way that also improves local resilience in water stressed areas, such as Hampshire. For example, SW initially estimated the yield for the Test MAR scheme to be 5 to 15Ml/d (SW HRA Screening Report for draft WRMP24) Aquifer storage schemes require minimal infrastructure, and they should be quicker and cheaper to investigate and develop, than to design, build and construct a complex infrastructure heavy effluent recycling plant and associated pipeline. Aquifer storage works with the natural geology and would take advantage of free winter rain; it would have a much lower environmental impact than effluent recycling. **A list of potential aquifer storage options previously identified by Southern Water is provided in Appendix C.** There will be hydrological variability within each aquifer and that is why it is important to identify as may potential schemes as possible, prioritise them on the basis of best chance of success, and **get field trials going as quickly as possible,** as it is only with field trials that you can assess suitability, so **the longer field trials are delayed the longer we wait for a potentially more cost effective solution for customers,** that also have the ability to work with climate change to capture more free rainwater. - Otherwise without further investigation and field trials these options (which the Company have known about for decades) will keep getting kicked down the road. **Now is the time to be bold and get the trials underway**.

	- Progressing a field trial in the chalk at Testwood is welcome, but we need many more field trials commissioned urgently, **including resurrecting the scheme in the lower greensand aquifer in the Worthing area** (Sompting?), that Southern Water estimated could produce 2 to 4 Ml/d, which was only stopped when a landowner did not want to cooperate. If SW is able to force landowners to accept site investigation and development of a 40km pipeline from Havant to Otterbourne then they must be able to expediate drilling boreholes for aquifer trials. - We have previously seen the depth of aquifers being used as an argument for delaying trials in the past due to pumping costs. However, now that the economics of water supply and demand have changed so dramatically in the last 20 years, which has made the selection of pumping water 40km between Havant & Otterbourne viable, it must be viable to pump water a few hundred meters from depth when needed for resilience. Storing water in some aquifers can generate some water quality issues. For example, with iron or fluoride. However, the cost to treat groundwater to address these issues would be much less than the cost of recycling effluent. Constructing a number of smaller schemes around the region would avoid long pipelines, reduce pumping costs, as well as reducing operational energy and carbon costs in the long-term, more in line with the water industry and government targets. Given the lower cost to construct & operate, lower environmental impact, customer preference for aquifer storage, MARS options should be considered as a priority.
Groundwater borehole improvements	Bring forward more quickly borehole improvement schemes at existing sites, including Romsey and King's Somborne. Rotherfield x3 boreholes (replacement & new) – not progressed in WRMP24, should be brought forward and included in WRMP29
Move abstractions including boreholes from the upper catchment to the lower catchment to reduce their environmental impact and risk of license reductions	The further up the catchment existing borehole abstractions are the greater their potential to impact the environment and as a result the higher the chance of license restrictions being imposed by the EA. Look at all catchments and investigate sinking new boreholes in the lower catchment where they would have less environmental impact. Boreholes do not need to be moved close to the tidal zone where saline intrusion in the aquifers could be a problem. They need to be moved down catchment to where the water quality is good, but the environmental impact of abstraction on surface water (rivers/ streams) is minimised. An argument could then be made to the EA to stop abstracting in the upper catchment and instead abstract the same volume of water (or more if available) without proposed licence reductions in the lower catchment. - A win-win situation, retain existing abstraction volumes with less or no adverse impact on the environment.

	It should be a priority to investigation and move existing abstraction boreholes to suitable locations down catchment where they will have less environmental impact so that there is then less pressure for abstraction reduction.
Water used by a large industrial complex near Southampton to be diverted to the public supply	**Investigate diverting water currently supplied to a large industrial complex near Southampton to the public water supply, as a minimum during a drought.** Instead work with the industrial complex owner to provide an alternative supply of water. For example, having an effluent recycling or desalination plant that is only commissioned at time of drought to supply the industrial complex. Southern Water may indicate that this is not commercially viable for the industrial complex, however, that business should not be paying the full cost for it. It is Southern Water that need the drinking water, they would be saving money by not paying for a larger scheme, plus they would not be paying for a 40km pipeline, so it would still be cost beneficial to Southern Water to fund an alternative supply to the industrial complex at time of drought. The plant could be located alongside the complex and only commissioned when a drought is forecast, reducing the environmental impact as daily throughput would not be require until there is a drought. The existing contract for SW to supply expires in 2026, negotiations as to a viable alternative supply solution should have started before the development of the draft WRMP24. (rdWRMP24, Annex 20, page 30 refers) SW could work with in partnership with industry to trial a new more sustainable desalination plant, using new lower energy technology, including developing potential uses for the hyper saline solution generated.
Purchasing under-utilised licences from industry	There **should be more proactive investigation & negotiation by SW to buy existing private abstraction licences**, this in turn would then open up the potential for a more flexible approach to the use of licences within a catchment to meet water supply needs and environmental objectives. There is little evidence to suggest any proactive work by SW has taken place to investigate buying or trading licences with private supply users across the region. In a restricted document supporting the previous draft plan it indicated buying just one licence could deliver 19.7Ml/d. Kxxxx Cxxx buy licences 19.7Ml/d – No discussions, uncertainty. SW indicated can be reconsidered for WRMP29 Lxxx buy licences (volume TBC) – No discussions, uncertainty. SW indicated can be reconsidered for WRMP29 What work has been done on this since draft WRMP 24 was developed? Or is this option also being kicked down the road each time a new draft plan is developed?

Water trading with third parties	Draft WRMP24 restricted document indicated - No discussions, uncertainty. SW indicated can be reconsidered for WRMP29
Helping to provide alternative sources for agriculture & industry	More effort needed on help and advice. Development of grant schemes to make alternative sustainable solutions more attractive.
Catchment schemes	Projects around the country are demonstrating the multiple benefits of holding up water in river catchments to slow down the flow of water to the sea. With climate change forecasts projecting wetter winters this could be a key tool in protecting catchments and storing water. Recent projects on the River Yar on the Isle of Wight demonstrate the significant biodiversity benefit that can be achieved. Holding up water in the catchment can also help reduce flood risk and improve water quality. While the volume of water storage that any scheme provides can be difficult to quantify, schemes to improve retention time of water in the catchment should be an important part of the solution.
Optimising treatment capacity by improvements at existing works	1. Proposed **schemes to recycle water currently wasted at the Otterbourne & Testwood Water Treatment Works should be prioritised** more urgently to help minimise abstraction on the Test & Itchen all the time, not only in a drought (rdWRMP24, Annex 20, page 32) 2. **In West Sussex the need for network upgrades is being used as an excuse <u>not</u> to bring forward schemes at existing works that would increase supply** (rdWRMP24, Annex 20, Appendix A). If all of the schemes rejected for this reason were brought forward, they could deliver more than 20Ml/d of water to the Central Region. 3. Across the Western & Central Area **the fact that sources 'might not be available in a drought' is being used by SW as an excuse <u>not</u> to increase capacity at existing water treatment works.** If the works were upgraded they could be used at higher capacity during normal operation, leaving other groundwater sources that would be available in a drought to rest or be used less, so that more groundwater is available in a drought. **Schemes to increase capacity at existing works could deliver 18Ml/d of water across the region and these options should be prioritised <u>now</u> in WRMP24** . There is a concern that this is being deferred because SW are less likely to find this an attractive option where the source is surface water, because it is cheaper to treat and supply groundwater every day. **SW need to plan to use their water sources in a more sustainable way that works with climate change, <u>not</u> just use the cheapest sources first.**

Transferring excess water from other areas via existing waterways and/ or pipelines	Given that existing surplus surface water already exists in other regions, and the transfers can often use existing waterways for part of the transfer, can some water transfer schemes be brought forward more quickly? Transferring surface water via existing waterways can have multiple benefits including to biodiversity and recreation. Ofwat recently indicated that the Cheddar transfer could be available again.
Embracing schemes that only result in a small additional volume of water	SW need to embrace schemes even where the volume of extra water created is small In draft WRMP24 multiple cheaper and more sustainable schemes were rejected by SW because they 'cannot be delivered in time' (presumably this meant by 2030). This included; • 17 schemes in Hampshire & IOW (Western Area) that could deliver at least 42 Ml/d. • 7 schemes in West Sussex (Central Area) that could deliver at least 18 Ml/d Yet the selected effluent recycling/transfer scheme option in Hampshire which will supply both Hampshire and West Sussex cannot be delivered until 2035 either, and that timescale will almost certainly slip further. SW are putting all of their 'eggs in one basket', when multiple smaller schemes that optimise water use could play a part in the solution to address the deficit across the Hampshire and West Sussex region.
Allowing time for innovation before selecting desalination or effluent recycling, such as selecting them later in the plan period	Allowing more time before selecting desalination for technological advances to take place. Blue sky thinking research commissioned by SW indicated that nanotechnology could be a game changer for desalination in the next 10 to 20 years. Allowing more time before selecting effluent recycling for technological advances to take place in treatment technology which could see the development of much lower energy solutions that would be more sustainable. Pressing ahead now with effluent recycling and desalination runs the risk of spending huge sums of customers money on technology that will quickly become superseded and needs to be replaced by more cost effective technology.
Retain existing level of service in relation hose pipe bans	Having restrictions, or the threat of restrictions, helps to educate consumers as to the true value of water to their families health and everyday lives. Improving the level of service to customers to avoid hose pipe bans and standpipes in extreme weather conditions sends out completely the wrong message. Customers will never change their behaviour if there is no threat of restrictions, they will assume water is plentiful. The threat of restrictions must remain. Surely, we should be educating consumers to expect to have restrictions on what water they can have available to use in a 1 in 500 year very extreme drought?
Reducing leakage by setting and delivering more ambitious targets	SW should be setting more challenging targets to achieve greater leakage reduction more quickly to avoid wasting treated water.

	In 2024 SW leaked more than 100 Ml/d of the water they took from the environment. About 19% of water is lost in the distribution network, more from trunk mains and service reservoir leakage. Planning to still have 47% of leakage in 2050 as Southern Water currently do in their plan is not acceptable. In the Netherlands they have already reduced leakage to 3 to 7% (EA Report 06/WM/08/34) and the method of measurement has been confirmed as comparable. A retired leakage expert has advised that through a more proactive programme of mains renewal and leakage control measures Southern Water should be able to achieve a faster reduction in leakage of 50% by 2040 and 70% by 2050.
Speed up mains replacement programme to reduce leakage	SW will never get leakage under control unless they replace the decaying mains infrastructure. SW mains replacement rate over the last 10 years has only been 1 in 1000 years (more recently 1 in 700 years), yet the design life of a main is only 70 to 120 years depending on the material it is made of. The programme for mains renewal set out in draft WRMP24 was very disappointing, starting at 20km a year rising to just 100km per year by 2030. Whereas Severn Trent Water plan to replace 280km/ year. Portsmouth Water plan to replace 1% of their mains. If SW were to match that target they would replace 140km/year, but to catch up given their previous poor performance requires the replacement of at least 200km of main per year starting NOW. A much more ambitious programme for mains renewal should be established by SW to replace old and more vulnerable pipes with the highest risk of bursts and leaks. Years of under investment in mains renewal by the water company needs to be addressed urgently by having a much more ambitious and speeded up programme.
Improving network connectivity to enable transfer of water between supply zones. *This can help make even small schemes more viable.*	**There is an urgent need to improve the ability to transfer water within the SW supply area** SW are lagging far behind other companies in this respect. P.Water have invested over many years to ensure that they have a well connected supply network across which water can be transferred at times of emergency and in a drought. SW have not, leaving water supplies to customers vulnerable, even in the winter. This has been demonstrated twice in the past few years (2023 to 2025) when large numbers of customers have been left without supplies in Hampshire. SW summary page 12 (rdWRMP24 consultation) refers to the need to investigate how they can improve their water transfer network in Hampshire so they can move water around more easily. Customers are paying the price for years of underinvestment in the SW network and poor planning by the Company. This needs to be

	urgently addressed to reduce the risk to customers as part of the WRMP. The Hampshire Grid project needs to be delivered as quickly as possible, but more improvements also need to be identified and prioritised. **In West Sussex the need for network upgrades is being used as an excuse <u>not</u> to bring forward schemes at existing works that would increase supply** (rdWRMP24, Annex 20, Appendix A). If all of the schemes rejected for this reason were brought forward, they could deliver more than 20Ml/d of water to the Central Region. This is more water than is to be provided by the proposed Littlehampton (Ford) effluent recycling scheme which will discharge to the Western Rother river. **The necessary network upgrades should be prioritised urgently to enable these solutions to be brought forward?**
More proactive action needed to reduce non-household demand	**Much more effort needs to be put into working with industry, agriculture, golf courses and community buildings (schools, social clubs etc.) across Hampshire and West Sussex to;** • **Reduce their use of drinking water for non-potable uses**. This can be achieved with free surveys and provision of grants to encourage the adoption of more sustainable solutions. • **Reduce leakage and save water**. SW report the use of successful trials working with businesses and in schools to deliver significant reductions in water use, with substantial savings on water bills (waste & drinking) providing multiple benefits to society. • **Provide brilliant educational opportunities** within the community using these as demonstration opportunities to show how easy it can be to save water, energy and money. Yet the SW programme for delivery of demand management benefits is woeful. For example, Table 15 in Annex 15 of draft WRMP24 showed no benefit to 2030 and hardly any to 2035. **More ambitious programmes are needed to reduce non-household demand.**
Roll out free water butt scheme to all customers	The free water butt scheme trialled on the IOW should be rolled out across the SW supply area to customers who want them as a priority, to facilitate more active engagement and education of customers with respect to water saving messages
Optioneering needs to take more account of customer feedback	Research across the water industry has shown that customers support more natural solutions such as catchment management, reservoirs and aquifer storage solutions, rather than effluent recycling and desalination. Companies and regulators should be listening and taking action to respond to this feedback. Other areas of the country are building new reservoirs in the plan period, and Southern Water should be identifying new sites in Hampshire for winter storage. The customer research is clear that customers favour reducing leakage, demand control measures, and protecting the environment as a priority, with preference for solutions which are seen as more natural like catchment management (SW Annex 6, page 17). The SW summary report page 21 confirmed that customers particularly welcome aquifer storage &

	recovery as being innovative and having a positive environmental impact. They view reservoirs as positive because of the environmental, health and community benefits they can bring. Desalination was least favoured, with effluent recycling being low in the choice of preferences, with concerns about the cost, potential environmental impact in terms of energy, chemicals used, waste production, with further assurances needed around water quality. SW Annex 6 confirmed (page 17) that customers felt strongly that reductions in risk of emergency drought measures need to be achieved via sustainable investment and protecting the environment. By selecting effluent recycling as a drought resource **SW are ignoring this feedback from their customers, as they are selecting solutions that are not sustainable,** must operate 365 days a year even when they are not needed as they were selected as a drought resource, and in Hampshire are not located close to where the water is needed.
Alternative effluent recycling options that need to be considered	Appendix D provides information on **alternative effluent recycling schemes that should be considered further <u>before</u> developing Budds Farm via Havant Thicket Reservoir.** This includes setting out information on; -Why Peel Common would be a better more sustainable and cheaper option. - Why prioritising an option that includes utilising final effluent from Portswood WWTW could provide additional benefits to SW, get the EA & NE onboard, potentially opening the door to tidal interface abstraction and retention of existing abstraction volumes on the River Itchen (or more?) - Why consideration of alternative environmental buffers could open up new and better options including, the use of the River Hamble, River Wallington, or even storage in underground aquifers. Using one of the non-chalk rivers as an environmental buffer could be undertaken in conjunction with a new tidal interface abstraction option.
Alternative environmental buffers that should be considered for the HWTWRP	Alternative options for the HWTWRP environmental buffer should be investigated including; - Discharge to the River Wallington - Discharge to the River Hamble

	- Discharge to a bespoke environmental buffer lake **The recycled water could be used to augment flow in the River Wallington or Hamble, potentially in conjunction with new tidal interface abstractions (i.e. discharge of recycled water immediately after a new tidal interface abstraction where dilution would be greater) These options should be explored as a priority.** If the recycled effluent cannot be used to augment river flow then there is still the option to build a bespoke new environmental buffer lake, or consider aquifer storage.

Southern Water - Isle of Wight Area Options – which would help to reduce reliance on River Test/ Hampshire water resources

Option	Additional Information
More effective use of existing assets/ licences *(+ 2 to 3 Ml/d, potentially more)*	Abstraction data provided by Southern Water for both the River Yar and Medina show that the Company are not optimising their use of the river sources on the IOW when water is available. Instead, the freshwater is just flowing out to sea. For example, the company licence permits them to abstract up to 18Ml/d at the Sandown WTW intake, yet the maximum taken from 2016 to 2024 was 13.85 Ml/d, with an average of just 8 Ml/d. The licenced transfer from the Medina was hardly used until 2018 and even in recent years its use has been surprisingly limited. This suggests that Southern Water are 'choosing' to transfer more water abstracted from the River Test via the cross Solent pipeline to meet demand, instead of using river resources available to them on the island. This is very surprising given their stated commitment to reducing abstraction on the Test. This brings into question whether the effluent recycling plant is needed, or if there is a better way to meet the need. The underutilisation of existing resources opens the opportunity to use the water resources on the island in a different way. The use of borehole sources in aquifers could be minimised in the winter and spring when there is plenty of rain in the catchments, instead taking the water from underutilised river sources before it flows out to sea. This would allow the aquifers to rest and naturally recover, while being topped up by winter rain which is forecast to increase with climate change. This would leave more water stored in aquifers for use in drier summers. Recycling final effluent will be 3 to 4 times more expensive than optimising the use of existing river water resources, with much greater greenhouse gas emissions than traditional river source treatment. Climate change forecasts make it clear that we can expect wetter winters. Southern Water need to adapt their abstraction practices to collect more water from the island's river catchments in winter and spring, helping to reduce flood risk, while minimising the use of aquifers on the island so that their water is available in dry summers.
Moving river abstractions on the island to the tidal limit *(+ 7 to 8 Ml/d)*	The volume of water that can be gained from prioritising river abstraction can potentially be increased significantly if Southern Water were to move or provide additional abstraction points at the tidal limit. The EA have confirmed that the guidance provided by UKTAG is the appropriate guidance when considering abstraction from transitional waters, where up to 50% of the Q95 percentlie (low) flow can be abstracted. An initial assessment of data from the National River Flow Archive and Southern Water abstraction data suggests that could make available a significant additional volume of water for abstraction, while also potentially providing an opportunity to naturalise the flow in summer through the wetlands downstream in the Lower Yar. There is no evidence that the applicant has considered such options. For example; - Moving the Medina abstraction to the tidal limit, and transfer water to the upper catchment of the River Yar (as existing), or transferring the water directly to the Sandown WTW for treatment. - Moving the Medina abstraction to the tidal limit and constructing a new traditional water treatment plant along the Medina with a capacity of 8 to 10 Ml/d.

	- Construct a new abstraction point at the tidal limit of the River Yar and use that abstraction to feed the Sandown WTW in summer. In winter water would still be taken from the existing abstraction point on the river to continue to help to reduce the flood risk downstream at Morton Common, Brading. These and variations on these options should be considered before effluent recycling is intriduced. To do this the Company need to use the Wallingford model to assess the Qn flows at the tidal interface under a range of conditions, including during a drought. Developing such an option(s) would reduce the amount of precious freshwater lost to sea, as well as reducing greenhouse gas emissions and water quality impacts, when compared to the selected effluent recycling option.
Moving the river abstraction on the River Itchen (& Test) to the tidal limit *(potential to retain 10 Ml/d transfer from the mainland)*	The need for an additional 8.5 Ml/d water source (effluent recycling plant) on the IOW is being driven by proposed reductions in the abstraction licenses on the mainland for the River Itchen and River Test. If these existing abstractions were moved to the tidal limit the full freshwater length of both rivers would be protected from public water supply abstraction. A strong argument could then be made to the EA to retain the existing volume of abstraction, or for a much smaller reduction in the volume licensed. The existing freshwater flow to the estuary would still be the same, which subject to an EIA should enable a determination of no significant impact. Or a precautionary approach could be taken by constructing bankside storage to guarantee a minimum residual flow into the estuary at low tide. If the abstractions (or even one abstraction) were moved to the tidal limit on the mainland then the provision of a significant volume of the existing drinking water supply from the mainland could potentially be retained to provide resilience. While Southern Water did not consider these options when developing the draft WRMP24, from which effluent recycling on the IOW was selected, the Company have now been encouraged to look at these options by RAPID (Regulators Alliance). Investigation is underway.
Aquifer storage to collect winter rainfall *(+ 4 to 5 Ml/d assuming 2 schemes)*	In the UK we only collect between 1 and 2% of rainfall. On an island it is especially important to collect as much free rainfall as possible. Southern Water's restricted options appraisal documents for their draft WRMP24 show that they have identified potential aquifer storage schemes on the IOW, where winter rainfall could be used to top up the aquifers for use in dry summers, but under the draft WRMP24 none of them have been selected for further investigation. Drought stricken countries around the world top up confined aquifers and use them for storage. Even the Southern Water [redacted] said at a recent industry conference the industry needs to do more to make use of the natural folded geology in the SE of England for aquifer storage, so why not the folded sedimentary geology of the island? Southern Water have highlighted the **potential for the Bembridge Marls & Limestones, Bagshot Beds, Upper Greensand and Chalk aquifers on the island to be used for additional storage** (Appendix C). Each would only be able

	to generate a small volume of water, but if at least 5 schemes were investigated it is reasonable to assume that 2 could be developed, where water could be stored. Aquifer storage schemes require minimal infrastructure, and they should be quicker and cheaper to investigate and develop, than to design, build and construct a complex infrastructure heavy effluent recycling plant and associated pipeline. Aquifer storage works with the natural geology and would take advantage of free winter rain; it would have a much lower environmental impact than effluent recycling.
Storage of winter rainfall in a new reservoir *(+ 5 to 10 Ml/d, but could be more)*	The island has no large-scale storage reservoir to provide resilience for the public water supply. This puts it at a significant disadvantage in terms of resilience to pollution incidents and drought. Southern Water's draft water resource plan makes no provision for development of a reservoir on the island in the next 25 to 50 years. Yet in 1970/80's the Company were actively investigating the development of a new reservoir near Gatcombe to provide resilience to water supplies on the island. It is likely that this project got mothballed due the development of the cross Solent pipeline which provided resilience from the mainland instead. Now that resilience from the mainland is at threat due to abstraction licence reform on the existing chalk river sources, collecting and storing more water on the island is even more important, and it is essential that the investigation and development of at least one site for an off-line winter storage reservoir on the island is resumed. Providing winter storage works with climate change to collect the forecast increase in rainfall. Thames experience with operating a Reverse Osmosis desalination plant on the Thames is that such advanced treatment plants are not always available when you need them for resilience and they are very expensive to run and maintain. As well as providing water resource resilience for the island a reservoir could help reduce flood risk and provide leisure, tourism, biodiversity (new wetland) and health benefits to the island. A reservoir is being built in Hampshire for one third of the cost of the proposed Havant effluent recycling scheme, while providing multiple benefits to society. The longer term environmental impact, including greenhouse gas emissions during operation for a reservoir would be much less than effluent recycling. The heat map in Appendix B does not cover the IOW, but a similar map could easily be created for the IOW to identify potential areas for a new reservoir. It is highly likely that there will be other potential sites for winter storage reservoirs that can be evaluated in addition to the site previously considered in the Gatcombe area.
Other options that could be developed first on the island *(+ 4.9 Ml//d)*	Options identified in Annex 13 to the Southern Water rdWRMP (restricted document) - New borehole on the Eastern Yar to replace existing borehole (yield 1.5 Ml/d) - New borehole at New Church (yield 1.9 Ml/d) - Drought option reducing the MRF in the Caul Bourne (yield 1.5 Ml/d)

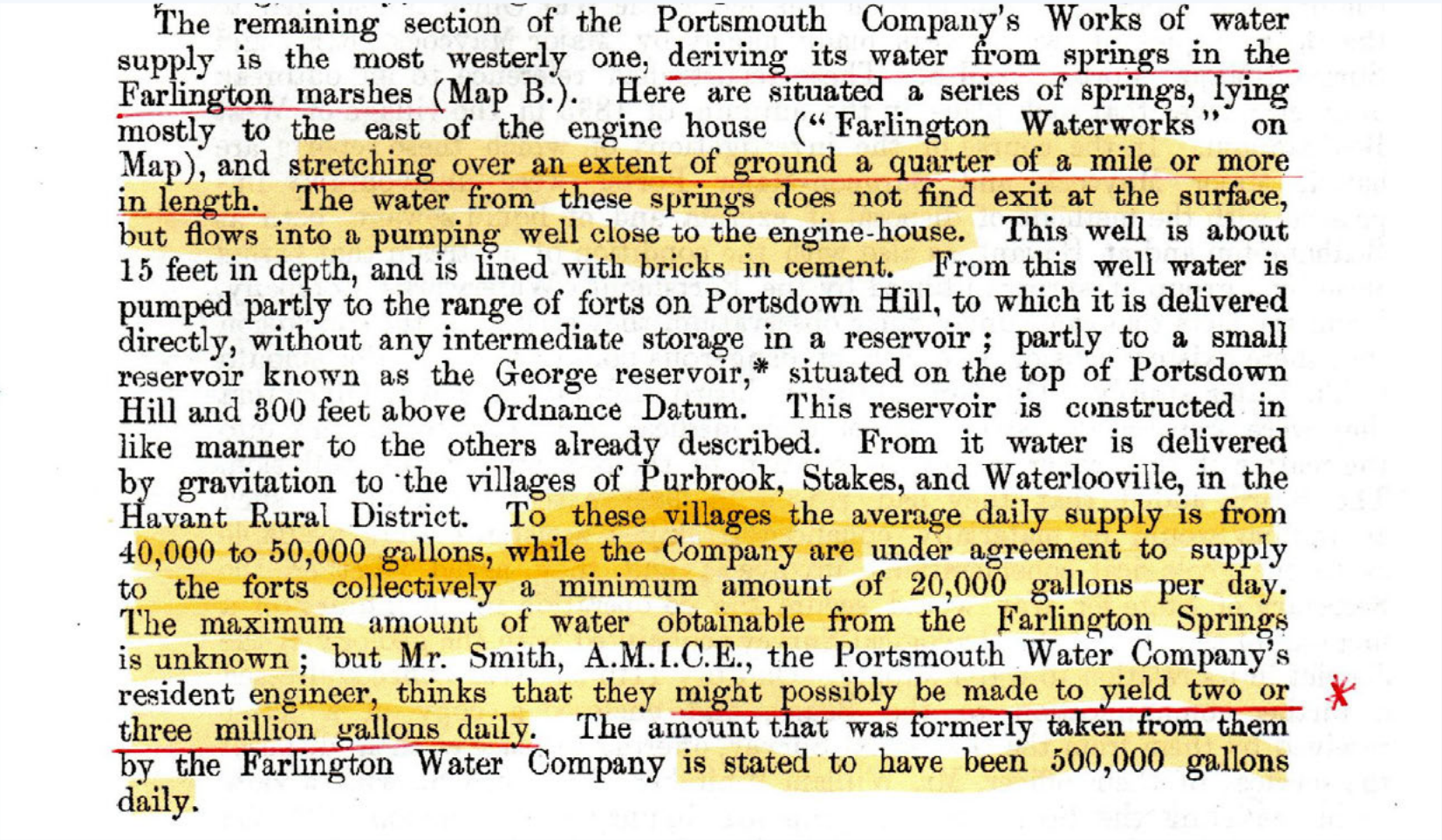
	If these options were developed in conjunction with 2 or 3 aquifer storage schemes that could meet the need of 8.5 Ml/d delaying the need for effluent recycling while other options are developed, or giving additional time for the technology of effluent recycling (or desalination) to advance to make the option more sustainable and efficient. Groundwater schemes on the Isle of Wight (IOW) were not brought forward by SW. The reason given is that the water gained cannot be transferred to the mainland to help the rivers Test & Itchen in a drought (rdWRMP24, Annex 20, page 5-6). However, if implemented now they would reduce the amount of water that needs to be transferred from Southampton to the IOW providing a significant benefit that is worthwhile.
Holding up water in catchments	Projects around the country are demonstrating the multiple benefits of holding up water in river catchments to slow down the flow of water to the sea. With climate change forecasts projecting wetter winters this could be a key tool in protecting catchments and storing water. Recent projects on the River Yar demonstrate the significant biodiversity benefit that can be achieved. Holding up water in the catchment can also help reduce flood risk and improve water quality. While the volume of water storage that any scheme provides can be difficult to quantify, schemes to improve retention time of water in the catchment should be an important part of the solution.
Provision of a bi-directional link between the IOW and the mainland	Provision of a bi-directional link between the IOW and the mainland could improve flexibility and resilience. The timescale for delivery of 10 years for provision of a bi-directional link between the IOW and the mainland should not be seen as a valid reason to reject it, especially as it could allow water to be used more flexibly in a drought, including use of future spare water from Sandown.
Improved leakage targets/ action for the IOW	Information from Southern Water indicates that **at least 12% of the water supplied on the IOW is leaked just from the distribution system**. There will be further leakage from raw water transfer mains, trunk mains and service reservoirs etc. The company target is to reduce leakage by 53% (i.e. to about 6%) by 2050. In the Netherlands they have already reduced leakage to 3 to 7% (EA Report 06/WM/08/34) and the method of measurement has been confirmed as comparable. A retired leakage expert has advised that through a more proactive programme of mains renewal and leakage control measures Southern Water should be able to achieve a faster reduction in leakage of 50% by 2040 and 70% by 2050.
Leakage monitoring on below Solent transfer pipeline - Undertake a risk assessment for leakage - Put in place real time flow monitors at either end of the pipeline	In response to an EIR SW have indicated that they cannot provide figures for leakage of treated drinking water from the Hampshire to the IOW transfer pipeline, which can carry up to one third of the IOW's water supply, because there was no monitoring in place.

- If leakage confirmed put in place an action plan (e.g reduce pressure, line the pipe)	
Speed up mains replacement programme to reduce leakage	SW will never get leakage under control unless they replace the decaying mains infrastructure. SW mains replacement rate over the last 10 years has only been 1 in 1000 years (more recently 1 in 700 years), yet the design life of a main is only 70 to 120 years depending on the material it is made of. SW will never get leakage under control until they address their decaying water main infrastructure.
Install more Pressure Reduction Valves to allow lower pressure operation of the mains across smaller areas. Investigate the use of new innovative 24 hour real time responsive PRV's (e.g. Preventor)	Create a network where pressure can be controlled over smaller geographic areas, instead of over much larger DMA's. Areas could be as small as housing estates or industrial estates etc. - Targeted pressure reduction could make a real difference in leakage hotspot areas. Real time 24 hour responsive PRV's could be a game changer in reducing leakage, by helping to control pressure in the mains which makes a real difference to the amount of water leaked through holes and splits in pipes. These new devices control/ adjust the pressure in a different way to traditional PRV's which also helps to reduce leakage by improving the longevity of pipes by reducing hammer problems, which can also reduce the propagation of existing leak points. They can be retrofitted to existing mains infrastructure.
Reducing community wastage A much bigger resource needs to be allocated for targeted audits of large water users including schools, community buildings, recreational/ tourism facilities, golf courses industrial & commercial premises.	The company can speed up progress on leakage by proactively working with large water users such as schools, community buildings and industry on the island to reduce their leakage and install fittings that use less water. This would also provide an excellent education opportunity for the company to engage on water saving messages with the community. Research already undertaken by Southern Water has shown this not only saves water but it also saves money for the community on drinking water, wastewater and energy bills, which is a win-win situation for society providing excellent value for money.

In conjunction with provision of advice on reducing leakage & saving water, including provision of grants to support action.	

Appendix A

Key Facts & Information on Farlington Springs



The remaining section of the Portsmouth Company's Works of water supply is the most westerly one, deriving its water from springs in the Farlington marshes (Map B.). Here are situated a series of springs, lying mostly to the east of the engine house ("Farlington Waterworks" on Map), and stretching over an extent of ground a quarter of a mile or more in length. The water from these springs does not find exit at the surface, but flows into a pumping well close to the engine-house. This well is about 15 feet in depth, and is lined with bricks in cement. From this well water is pumped partly to the range of forts on Portsdown Hill, to which it is delivered directly, without any intermediate storage in a reservoir; partly to a small reservoir known as the George reservoir,* situated on the top of Portsdown Hill and 300 feet above Ordnance Datum. This reservoir is constructed in like manner to the others already described. From it water is delivered by gravitation to the villages of Purbrook, Stakes, and Waterlooville, in the Havant Rural District. To these villages the average daily supply is from 40,000 to 50,000 gallons, while the Company are under agreement to supply to the forts collectively a minimum amount of 20,000 gallons per day. The maximum amount of water obtainable from the Farlington Springs is unknown; but Mr. Smith, A.M.I.C.E., the Portsmouth Water Company's resident engineer, thinks that they might possibly be made to yield two or three million gallons daily. The amount that was formerly taken from them by the Farlington Water Company is stated to have been 500,000 gallons daily.

Extract of page 5: **Confirms that the Farlington Springs might yield 2 or 3 million gallons of water daily**

[redacted] Report to the Local Governement Board on the Conditions Topographical, Geological, and Sanitary, of the Havant Districts (Urban & Rural) in their Relations with the Sources of the Borough of Portsmouth Company's Water Supply

[redacted] August 5th, 1897

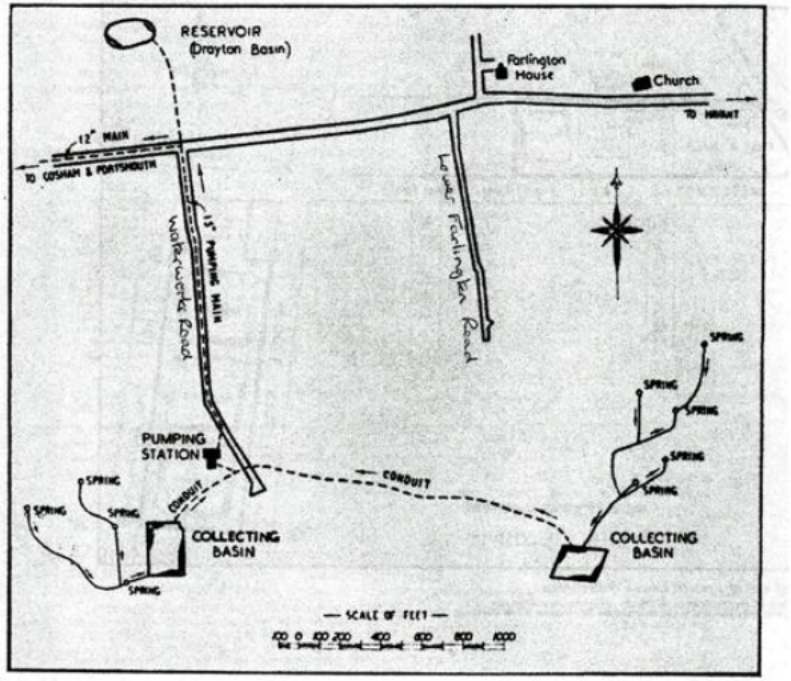


Diagram of site of Farlington Waterworks.
Reproduced from D. Halton Thompson, *History of Portsmouth and Gosport Water Supply*, with permission of the Directors of the Portsmouth Water Company.

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Note: The rising main is still present and used as drain for Farlington WTW & by S.Water as a surface water sewer.

SUMMARY OF KEY FACTS RE- FARLINGTON SPRINGS.

Farlington Spring Supply - Opened 1811
— Disused 1905
Pumping Station @ Farlington - Demolished 1928.

Map showing supply arrangement shows @ Farlington
- West springs x 4 with channels connecting to a collection basin. (Basin 1)
- East springs x 5 with channels connecting to a collection basin (Basin 2).
- Collection basins x 2.
- Conduit connecting collecting basins to Pumping Station
- Pumping Station
- 15 inch pumping main connection to Drayton Basin
- Reservoir (Drayton Basin) part way up Portsdown Hill.

Gallons → Litres x 4.546.
2500,3496 550,000 gallons/day supplied in 1850's from Farlington Springs.
2727,6541 600,000 gallon/day supplied in 1856 from Farlington Springs
P. Paper By 24 suggests there was a 3fold increase in output per pumping day between 1850 & 1856
P. Paper By 10 said maximum daily pump output was one million gallons.
Good quality wate - Farlington & Havant comparable.
[Note: N.R referred to 3 million gallons (14 ML/d) from Farlington Springs - To not found that]
1840 Tidal inundation due to a breach in sea wall, followed by subsequent breaches. Sea wall repaired

1856 Proposal to try and increase productivity that could be achieved from springs. Recommendation to sink additional shafts & borings 20 & 30ft into chalk, and existing collection basins be deepened. If not successful develop Havant Springs.
1859 Trials had not been successful to improve yield from Farlington Springs. Proposed abandoning - at least for time being once Havant established as new source

- 1860 Havant Pumping Station Opened.
- 1871 Farlington Springs brought back into use to pump to Fort Southwick Reservoir to supply Forts.
- 1872 Order obtained to extend supply to parishes of Wymering (inc. Cosham & Hilsea)
- 1884 George Reservoir built to supply Purbrook & Waterlooville, at first the reservoir was supplied from Farlington Springs. using in part the same pumping main as the Forts.
- 1905 Disused.

Conclusion

Farlington Springs successfully supplied Portsmouth and other areas from 1811 to 1905.

The supply capacity was upto 600,000/day. (gallons)

The main reason for stopping their use was because they could not meet the demand of the growing population of Portsmouth.

There was also a concern about tidal inundation if the sea wall breached. The sea wall seriously breached in 1840 but was subsequently repaired.

Note: This would no longer be a concern as the area is now protected from the risk of tidal inundation by the A27/M27 motorway embankment.

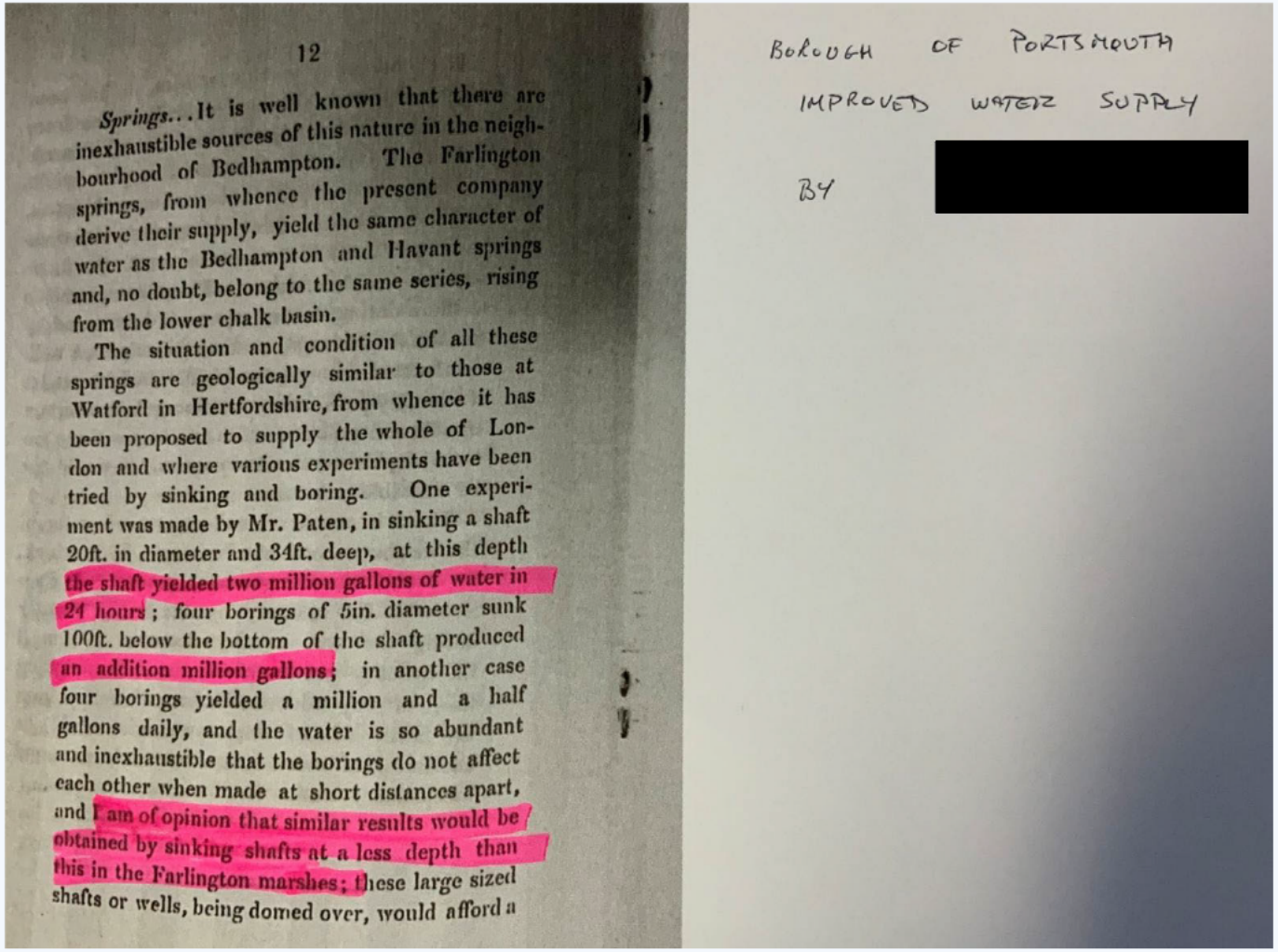
PROPOSAL: Investigate the use of Farlington Springs, or shallow boreholes north of the M27.

RISKS TO CONSIDER: Does spring water flow into Farlington Nature Reserve? If so, could this be addressed by maintaining a minimum residual flow to any watercourse, as has been applied to the licence at the Havant + Bedhampton Springs. (Potential for joint project to offset impacts of managed retreat.)



Aerial showing the spring ponds are still present and they are north of the A27, so are now protected from the risk of tidal inundation.

Source documents sent Portsmouth Water ([redacted]) 6/8/23



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Springs... It is well known that there are inexhaustible sources of this nature in the neighbourhood of Bedhampton. The Farlington springs, from whence the present company derive their supply, yield the same character of water as the Bedhampton and Havant springs and, no doubt, belong to the same series, rising from the lower chalk basin.

The situation and condition of all these springs are geologically similar to those at Watford in Hertfordshire, from whence it has been proposed to supply the whole of London and where various experiments have been tried by sinking and boring. One experiment was made by Mr. Paten, in sinking a shaft 20ft. in diameter and 34ft. deep, at this depth the shaft yielded two million gallons of water in 24 hours; four borings of 5in. diameter sunk 100ft. below the bottom of the shaft produced an addition million gallons; in another case four borings yielded a million and a half gallons daily, and the water is so abundant and inexhaustible that the borings do not affect each other when made at short distances apart, and I am of opinion that similar results would be obtained by sinking shafts at a less depth than this in the Farlington marshes; these large sized shafts or wells, being domed over, would afford a

BOROUGH OF PORTSMOUTH

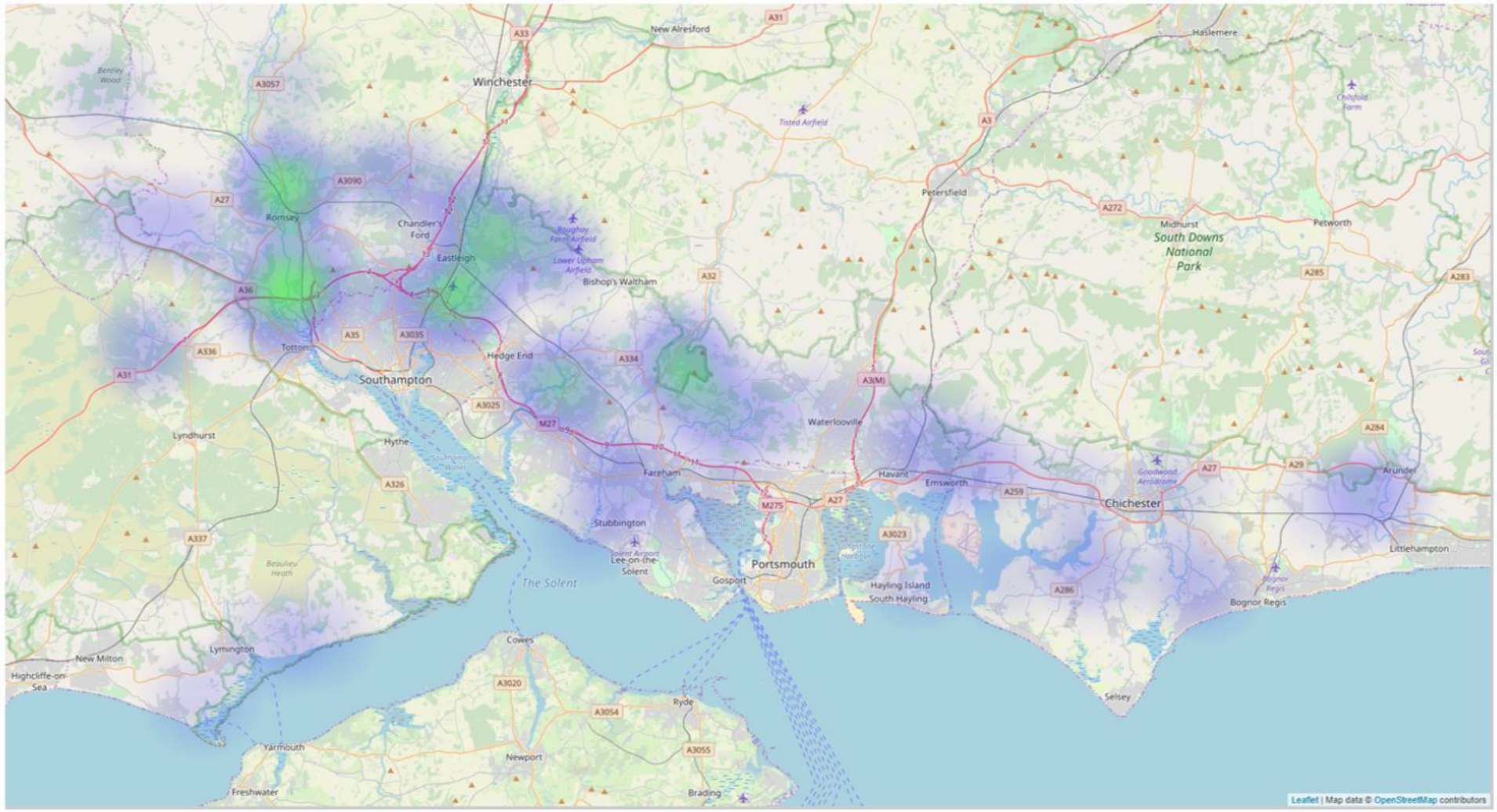
IMPROVED WATER SUPPLY

BY [redacted]

Additional information in email sent to Portsmouth Water ([redacted]) 7/1/24 suggesting extra capacity could be achieved by sinking shafts at at Farlington Springs (Source document : Borough of Portsmouth Improved Water Supply, 1856, [redacted])

Appendix B – Identifying Potential New Winter Storage Reservoir Sites

Heat map showing areas which have both a potentially feasible abstraction source and suitable underling geology for development of a reservoir



Source: Figure 3.2 - Site Alternatives Assessment report (April 2020) for the Havant Thicket Reservoir (Agillia Transformation Ltd.)

Note: Heat map does not assess suitability on the Isle of Wight.

Appendix C

Examples of Managed Aquifer recharge Schemes not adequately investigated by SW and deferred to 2029

Aquifer Storage/ Recharge Scheme Options	Southern Water Comment
Hampshire Bagshot Beds - Aquifer Storage/ Recharge Schemes	Not progressed enough for WRMP24, should be progressed in WRMP29
Hampshire Chalk Aquifer Storage/ Recharge Schemes	Not progressed enough for WRMP24, should be progressed in WRMP29
Ashdown Beds (TBC) & Hythe Beds (5 Ml/d) (Southampton NZ) – Aquifer Storage/ Recharge (TBC)	Not progressed in WRMP24, should include in WRMP29
Sussex Coast Aquifer Storage/ Recharge Schemes	Not progressed enough for WRMP24, should be progressed in WRMP29
Deep groundwater abstraction, multiple locations	Not progressed enough for WRMP24, should be progressed in WRMP29
IOW Bembridge Marls & Limestone - Aquifer Storage/ Recharge Schemes	As above should be progressed & included in WRMP29
SNZ Portland Sandstone Aquifer Storage/ Recharge Schemes	Not progressed enough for WRMP24, should be progressed in WRMP29
IOW x2 Aquifer Storage/ Recharge Schemes	Not progressed enough for WRMP24, should be progressed in WRMP29
Sussex Coast Upper Green sand - Aquifer Storage/ Recharge Schemes	As above, should be progressed & included in WRMP29

Source: Southern Water Options Appraisal Report to support draft WRMP 2024 (restricted document)

Appendix D: Alternative effluent recycling schemes that should be considered further before developing Budds Farm via Havant Thicket Reservoir

Volume	Option Name	Description / commentary
30 Ml/d Option to expand If use Peel C & B.Farm effluent 75Ml/d	**Peel Common Water Recycling Plant** in conjunction with either; • Discharge into a non-chalk stream river (Hamble or Wallington) to augment flows, potentially in conjunction with a new tidal interface abstraction *Note: No indication the River Hamble or Wallington has been considered previously as the environmental buffer.* • Storage in a bespoke new environmental buffer lake • Discharge at Gaters Mill/ Woodmill area, to augment flow to allow ongoing summer abstraction at PW Itchen WTW • Aquifer storage (may need more than one aquifer) A Peel Common Option could be delivered in the same time frame as B. Farm effluent recycling option Note: SW confirmed in May 2023 that Peel Common can generate 30 Ml/day of recycled water.	Peel Common does not have the saline intrusion problem which Budds Farm has making it more suitable for release into an environmental buffer, it takes sewage from a less industrial catchment (lower risk), it is where the effluent recycling trial plant was originally sighted so data is already available, it is closer to Southampton where the water resource is actually needed, reducing the pipeline construction cost, as well as the carbon and energy footprint of this option during operation, as pumping distances will be less. The water does not have to be pumped over Portsdown Hill and the pipeline route looks easier. Given all these factors it must be cheaper to build and operate this option. SW's own Gate 2 Report (Annex 5,p139/140) also confirmed that there would be environmental benefits to the coastal waters of the Solent of selecting Peel Common rather than Budds Farm WWTW. The lower salinity of the recycled water from Peel Common should mean that discharge to a river is a more viable option which is acceptable to the EA. **The recycled water could be used to augment flow in the River Wallington or Hamble, potentially in conjunction with new tidal interface abstractions (i.e. discharge of recycled water immediately after a new tidal interface abstraction where dilution would be greater) These options should be explored as a priority.** If the recycled effluent cannot be used to augment river flow then there is still the option to build a bespoke new environmental buffer lake, or consider aquifer storage. SW Gate 2, Annex 5, pg. 139/140 indicated the Peel Common option was assessed as having fewer consenting risks. This option can meet the medium term need, but still has the potential for future expansion utilising effluent from Budds Farm (or an alternative STW), if demand were to rise enough for that to be needed. A Peel Common option has already received funding support from Ofwat, but SW are not actively investigating it, despite the environmental benefits over the Budds Farm option. Delaying the development work on option B5 will unnecessarily push back the timescale for delivery, so **further**

		development of this option with review of alternative environmental buffer options should commence immediately. SW draft WRMP24 Technical Report confirmed at 7.4.4 this is a viable option to replace Budds Farm via HTR effluent recycling scheme. It makes no sense to pump water from Peel Common WWTW miles to a WRP in the east to be make use of the Havant Thicket Reservoir, when the water is actually needed to the west in the Southampton and Winchester area. Surely it makes more sense to locate the plant close to Peel Common WWTW where there is plenty of land available and explore alternative solutions for the environmental buffer, as suggested above. If effluent recycling must go ahead (which is not accepted) a better option would be to build the Water Recycling Plant in the Fareham area to initially treat effluent from the Peel Common STW to meet the 1 in 200 demand, while more environmentally friendly water sources are investigated and developed. This would have the benefit of having a shorter pipeline than option B4 to the Lower Itchen, Otterboune, or alternative options (River Hamble or Wallington). This would deliver lower construction and operating costs, as well as having a lower carbon footprint, and less impact on the marine environment, as benefits have already been identified in discharging from the Peel Common long sea outfall compared to the Budds Farm Option. If more effluent needs to be recycled at a later date the water recycling plant can be expanded in modules, as required, to initially use up the Peel Common STW capacity before needing to build a pipeline from Budds Farm STW to the new plant, or from another STW (e.g. Portswood STW see option below). As effluent recycled from Peel Common is of sufficient quality to be discharged to a river, the option to put the recycled water into the River Wallington as the environmental buffer should be considered, with the potential for treatment at the Maindell WTW. That PW works is located in a quarry so the construction of any additional drinking water treatment needed would have minimal environmental impact. Waste brine from effluent recycling would be discharged via the Peel Common long sea outfall and Southern Water have already confirmed this could have environmental benefits over the Budds Farm option. Benefit to Portsmouth Water; If Southern Water build the water recycling plant at Fareham to take Peel Common (and Budds Farm Water if needed in future for a more extreme drought), then PW could at a later date negotiate to keep and utilise more of the water from the Havant Thicket Reservoir to

		meet their long-term need as it is right in the middle of their area and would be the most cost effective water supply solution, with least pumping. At that time SW could then recycle more effluent and transfer the recycled effluent to the new Environmental Buffer Lake near Otterbourne to meet its needs (or River Hamble/ Wallington if those options prove viable), as the B5 infrastructure would be in place by then.
? Ml/d	Peel Common / Portswood WRP No reason to believe it could not be delivered in the same timeframe as Budds Farm Multiple benefits with the potential to improve Atlantic salmon migration	SW Gate 2, Annex 5, pg 284 states Peel Common / Portswood WRP could be seen as a standalone scheme to support P. Water works at Gaters Mill. This could provide the water closer to where it is actually required, reducing the environmental impact, energy and carbon footprint. The EA have identified that the Portswood STW discharge into the upper estuary of the River Itchen is likely to be a key factor impacting return of Atlantic salmon to the river to spawn, due to water quality concerns associated with the discharge. **Taking the final effluent from Portswood and treating it elsewhere in conjunction with a Water Recycling scheme could be a solution that provides multiple benefits, immediately improving the water quality in the upper Itchen estuary and removing a barrier to fish migration**. If one of the EA's key the concerns about fish migration on the Itchen can be addressed by SW developing this option, then the EA may be more receptive to a scheme running in parallel to move the Otterbourne abstraction to the tidal limit, to allow as a minimum retention of the existing abstraction volumes on the Itchen. A scheme that also provides multiple benefits in terms of restoring natural freshwater flows to more than 12km of the river, creating cooler deeper water that protects the river against climate change, enhances biodiversity and reduces agricultural pollution. If fish migration is improved by removal of the Portswood sewage effluent discharge SW could then look at making a case for increased abstraction at the tidal limit in line with the UKTAG guidelines (50% of the 95 percentile flow) as phase 2.
13.5	Combined Portswood & Woolston WRP	Described in SW draft WRMP SEA (Appendix I) as additional effluent to Otterbourne to allow additional abstraction from Gaters Mill.

		Limited information available. Why has it not been investigated further & included? Not included in SW HRA Appendix D? This scheme is exactly in the area where the additional water is needed, providing a potentially more sustainable solution. Refer to the text in the row above regarding the additional benefits of utilising final sewage effluent from the Portswood STW.
7.1	Woolston Water Recycling Plant (WRP) SW indicate selected from 2059 Why can't this scheme be brought forward sooner instead of Budds Farm? Note: SW Tech Note @7.4.4 selects by 2042	This scheme is exactly in the area where the additional water is needed. Additional treatment of Woolston effluent. Discharge of recycled water would be close to the tidal limit of the River Itchen. Not clear why the proposal summarised in HRA is to transfer water up to Otterbourne, then back down to the Lower Itchen? HRA screening indicated that additional investigation is required to assess any impacts during Appropriate Assessment. The EA have indicated in their consultation response that they don't support this option as it involves augmentation of the R.Itchen, even though the env/ecology impact assessments have not been done. As it is the R.Itchen that has the problem with low flow which is driving abstraction reductions it is not clear why augmentation close to the tidal limit to offset abstraction close to the tidal limit would be considered unacceptable. If the EA will not support discharge of recycled water into a free-flowing river, then why would they support discharge into a confined chalk spring fed reservoir?
	Investigate using confined aquifers for storage of recycled water as an alternative	No indication that aquifer storage has been considered by SW for effluent recycling. This storage method is commonly used in countries already using effluent recycling (e.g. Australia & California, USA). Retention in an aquifer is seen in these countries as reducing risks, it increases storage time, has the benefit that the water cannot evaporate, and the water is always available in a drought.

		If effluent recycling is to remain in the SW/WRSE plan as a selected option then underground storage should be looked at more seriously as an alternative to an environmental buffer lakes. Storage could take place in more than one aquifer to achieve the capacity required.
30 Ml/d 61Ml/d	Investigate using recycled water to augment river flows as an alternative See also Row 1 – Peel Common WRP for more information Lower Itchen discharge of recycled water	SW technical expert indicated that this would be their first choice for use as an environmental buffer. Advantage is that it can augment dry weather flows and thus have biodiversity benefits. Water in the river is flowing so should be less risk of environmental impacts than discharging the recycled effluent into a reservoir where there is minimal flow. If the EA will not permit discharge of remineralised recycled water into our main chalk streams, could it be considered for augmenting flow in the lower part of the River Hamble or River Wallington? (options have been set above in row 1 for a Peel Common WRP). Discharge of recycled water to the lower River Itchen was SW's previously preferred option in relation to water recycling (WRMP19 -Option B1). It is not clear why the EA & NE objected to this and whether their concerns can be overcome. For example, by not using Budds Farm effluent which has a salinity issue, or by using Portswood final effluent as part of a preferred option to address other EA concerns regarding barriers to salmon migration on the River Itchen (see above). If discharge of recycled water can be agreed with the Environment Agency to the Lower Itchen, then rather than building a new abstraction and treatment works SW should instead look at how the existing capacity at Gaters Mill WTW can be protected during a drought or increased. During a drought the volume of water that can be abstracted from Gaters Mill is reduced by licence conditions to protect dry weather flows in the river. If recycled water is discharged into the river immediately downstream of the Gaters Mill intake there would be no need to reduce the abstraction and additional drought capacity would be available. If the capacity at Gaters Mill is not enough to meet the 1 in 200 deficit then expansion of the Itchen WTW should be investigated, as a better solution than SW developing a completely new abstraction and treatment works. The Gaters Mill abstraction is already located close to the tidal limit, which helps to minimise the impact on the freshwater chalk river. Alternatively, this could be considered in conjunction with a scheme to move the Otterbourne abstraction to the tidal limit (i.e. discharge the recycled water below a new tidal interface abstraction to deliver the minimum residual flow in to the estuary required by EA/ NE) Under this option people would still be drinking the water they are used to getting from the river (giving less chance of tap water rejection). Recycled water would be much cleaner than the water already being discharged by SW into the River Itchen at Chickenhall Sewage Treatment Works.

TBC	Agricultural – treated effluent recycled for farmers and horticulture	SW Options appraisal (Annex 12) indicated there were **multiple locations**, but these were not progressed in WRMP24, instead SW proposed to include them in WRMP29. These need further consideration. In drought stricken countries including Australia recycled effluent is used often used for agricultural purposes, rather than being used for public water supply.

The table above illustrates that there are a number of effluent recycling options and variations on options that should be investigated and appraised more robustly before selecting Budds Farm effluent recycling via Havant Thicket Reservoir with the 40km+ pipeline to Otterbourne. In the SEA screening report (SW Appendix I) the Budds Farm option had the highest negative impact scores found. The HRA section for the Budds Farm option was blank, cross referencing to a 2021 report, early assessments did not consider all of the potential impacts and in-combination effects on the reservoir or the harbours (SPA, SAC, Ramsar). The EA & NE were very critical of the early HRA assessment.

There is a need for SW to take extra time to explore the options for effluent recycling more fully, this can be achieved by selecting smaller, more environmentally friendly alternative options that work with climate change first, as an interim step. Then at the next critical decision point in 2030 there will be more certainty about population growth, the feasibility of more of the options, including more aquifer storage, moving abstractions to close to the tidal limit, regional transfers, as well as the environmental impacts (or benefits in the case of Portswood options) associated with effluent recycling options. It also provides time for more technological advances in water treatment with less carbon impact to come forward for both effluent recycling and desalination.

[redacted]

Version: 10 July 2027

[Note: Error in year – 10 July 2026]