

Additional written evidence from Anglian Water Services Ltd

Dear Philip,

Water Quality in Rivers inquiry: further evidence to the committee

Thank you for the opportunity to give evidence to the committee on Wednesday 26th May. Toward the end of the hearing you asked for more information in two areas regarding the relative costs and benefits of nature-based solutions, and an incident that occurred in 2013 on the River Cam at Cambridge. I can also offer some evidence regarding the potential scale of the market for recycled cooking oils that you asked for from Lila Thompson.

Relative costs and benefits of nature-based solutions

We would like to deliver as much benefit as we can through nature-based rather than traditional engineered solutions because of the wider carbon, biodiversity, amenity and water quality benefits they deliver. We are embedding a 'six capitals' approach to options appraisal so that the considerable benefits of catchment and nature-based solutions are fully factored into investment decisions alongside financial considerations. In 2019 our Board took the decision to enshrine our purpose as a water company within our Articles of Association, which now explicitly require Directors to 'seek positive outcomes for the environment and society'. Pursuing nature-based solutions is one of the many ways we will achieve this.

Nature-based solutions such as treatment wetlands:

- Can have lower capital costs (capex) than traditional approaches, but often not, particularly if there is the need to purchase land for example. They do tend to have lower whole-life costs, and lower carbon footprints (see table overleaf). Our treatment wetlands on the River Ingol and River Munn were [built for substantially less](#) than an alternative chemical dosing solution, but in other cases treatment wetlands can be as much as double the cost of onsite chemical dosing.
- Raise concerns about seepage into groundwater sources that under the Environmental Permitting Regulations may require treatment wetlands to be plastic lined, adding to their cost and carbon footprint.
- Need longer lead-times for plants to mature and bed in, often beyond a single five-year period.
- Could lead to financial penalties being incurred by water companies as their performance naturally fluctuates during the seasons of the year.

Taken together, the reasons above mean that regulators have been uncertain about the benefits of nature-based solutions which has so far limited the ability for the sector to adopt them at scale. If the costs and benefits of different options are considered by Ofwat on a five-year basis, and with WINEP commitments usually needing to be delivered within a single five-year period, treatment wetlands that can take seven or more years to design, build and mature

to full performance are left at a distinct disadvantage. This currently means that each project needs active promotion by companies and regulatory sign-off on a case-by-case basis, adding to costs and complexity. We believe this needs to change for PR24, so that nature-based solutions are encouraged.

	Natural capital solutions		Conventional solutions		Difference	
	Discounted Whole Life Cost (£m)	Whole life carbon (T CO2 e)	Discounted Whole Life Cost (£m)	Whole life carbon (T CO2 e)	Discounted Whole Life Cost (£m)	Whole life carbon (T CO2 e)
P-removal schemes	23.65	5,732	26.60	16,445	-2.95	-10,713

Table: Representative whole-life costs of nature-based versus conventional solutions for phosphorus (P) removal schemes in our 2020-2025 programme

However, there is encouraging movement on these fronts:

- As part of the [early approval of the ‘amber’ schemes in our Water Industry National Environment Programme \(WINEP\)](#), Anglian will be investigating the potential for a further 34 treatment wetlands. Other companies have similar ambitions for nature-based solutions, including as part of [recently announced Green Recovery investments](#). This will give us and regulators a much better sense of their relative costs and benefits, and the regulatory support they need to compete with traditional approaches.
- Defra, EA and Ofwat are also working with Anglian and other water companies to remove the regulatory barriers to nature-based solutions, and to make sure the next WINEP for the 2025-2030 period is designed to promote catchment and nature-based approaches as far as possible. The proposed WINEP Methodology for PR24 will be published this summer, and we hope that a new regulatory framework for treatment wetlands will also be published soon.
- Ofwat has made a clear commitment to promote nature-based solutions in its 2019 strategy [Time to act, together](#). Looking to PR24, Ofwat has also recently published [PR24 and beyond: creating tomorrow, together](#). In this, Ofwat recognises that there remain incentives in favour of capital-intensive solutions (p24) that need to be addressed, and that uncertainty over maintenance allowances can be a barrier to nature-based solutions being adopted (p105).

Ammonia incident on the River Cam, Cambridge

You asked about an incident that occurred in 2013 regarding levels of ammonia in the River Cam and the impact on local wildlife. During July 2013, the ammonia levels from our effluent at Cambridge Water Recycling Centre at Milton were higher than its normal level albeit within our upper legal permit. The Environment Agency carried out its own sampling of our effluent and an investigation, and were satisfied that no further action against us was necessary.

There was then a civil case brought against us on behalf of a local fishing club by Fish Legal. As a result of this, we agreed on the balance of probabilities that the higher than normal ammonia levels in our effluent may have been a factor in the incident (alongside the weather and river conditions at the time). We disputed the amount of compensation that the fishing club claimed for restocking the river and the Judge found that the amount of compensation to be paid was between the amount the club claimed and the amount we offered.

[Operator Self-Monitoring \(OSM\) requirements](#) set by the Environment Agency mean we are required to collect a specified number of effluent samples including a certain number taken out of hours. Our OSM testers are operationally independent to the teams looking after our water recycling centres, with testing procedures and results subject to our own audit processes as well as audits and inspections by the Environment Agency.

Since 2013, we have upgraded our Cambridge WRC to replace the trickling filters system with modern aeration lanes, without any concerns raised since. You may be aware that at the request of Cambridge City Council, South Cambridgeshire District Council and the Cambridgeshire and Peterborough Combined Authority, [we propose to decommission the current site at Cambridge](#) to allow for much-needed new homes and commercial space close to Cambridge North station to come forward, and build a new state-of-the-art WRC to the north of Cambridge.

The potential market for recycled cooking oil

A small but growing market already exists for recycling fats, oils and grease (FOG) collected from both households and food service establishments. Hundreds of household waste recycling centres and other sites in the UK already have facilities for collecting FOG, which is then filtered and used to generate electricity, be processed into biofuels, or used directly as a fuel in shipping.

We worked with a [local FOG recycling company Halo Oil](#) as part of the 'flush to treatment' cleaning and renewal of the sewers in Southend-on-Sea I mentioned during the hearing. As the cause of blockages in Southend was the typical combination of unflushables and FOG, we worked with Southend Borough Council and Halo Oil to:

- Send a mailshot to food service establishments to inform them of our work on the sewers and how they can help by taking up Halo's collection and recycling services. Halo typically pays 15-25p per litre of oil collected, depending on the quality and level of contaminants. This represents a substantial source of income to help meet the cost of new cooking oil (around £1 per litre, with a busy fish and chip shop using 200-250 litres of cooking oil a week), and to help recover the costs of installation and maintenance of FOG equipment. We will write to FSEs in Southend again as more premises reopen with Covid restrictions easing.
- Write to all 9,500 water customers served by the sewer, again to inform them about correct FOG disposal and to encourage them to recycle oils at tanks available at both of their local household waste recycling centres. The tanks were installed in December 2019, and during 2020 a total of 1,200 litres of FOG was collected. To date in 2021, a total of 2,000 litres have already been collected.

Halo Oil reports that they have recycled 13,810 litres of cooking oils from FSEs in Southend in the last 12 months, which they tentatively estimate to be around 15% of the potential market in the town with a population of around 300,000 people. It would be possible to extrapolate from these figures (with appropriate caution) the current and potential size and value of the UK market for recycled cooking oils from FSEs.

Such a figure is likely to overestimate the quantity being recycled nationally, and underestimate the potential scale of the FOG recycling market, as Halo's services in Southend were promoted via radio advertising as well as mailshots, and with FSE closures due to Covid depressing sales of oil last year. Adding in the potential for household recycling would also significantly increase any market estimate.

All of this suggests a largely untapped resource and value from this waste stream. At any one point in time, we estimate there is enough FOG in our sewers to fill eight Olympic-sized

swimming pools, which could instead be used to generate income and be turned into low carbon fuels and electricity.

We are also exploring ways in which FOG could become part of kerbside household recycling services provided by local councils. From 2023 Defra has announced that [food waste must be separated and collected](#) rather than going to landfill, for both homes and businesses. There is therefore the potential to use changes to kerbside recycling to promote the collection of FOG in separate containers to food waste. Our innovation team is looking at options in this area.

In terms of recommendations for further progress:

- **Household education:** local councils should work with water companies to promote FOG recycling at household waste recycling centres as part of the circular economy. Cooking oil producers should clearly label products as recyclable, and illegal to dispose of down sinks and sewers. Councils should develop and promote kerbside collection schemes tied to the changes in rules coming into force in 2023.
- **Food Service Establishments:** the government should change food hygiene regulations to include FOG management, so that it falls within the scope of the Food Standards Agency's five-star hygiene rating scheme inspected by local authorities. As I mentioned during the hearing, the loophole that means restaurants without a takeaway component fall outside Trade Effluent regulations should also be closed. Government should ensure that FOG capture requirements placed on FSEs are aligned with the circular economy.

I trust this is useful evidence to further your inquiry. Please let me know if there is any further help we can provide.

With every best wish,

Daniel Johns FCIWEM
Head of Public Affairs

June 2021