Teddington Direct River Abstraction

Thames Water Webinar - 27 February 2023

Question and Answers

This document is a summary of key questions raised by attendees at the Teddington Direct River Abstraction (DRA) Webinar held on 27 February 2023. It is not a verbatim reporting of the questions or answers asked and extra supporting information has been included.

You can find more information about the topics covered below in our draft Water Resources Management Plan 24 at: www.thames-wrmp.co.uk/document-library and in our Gate 2 technical reports, published in November 2022, at: https://www.thameswater.co.uk/about-us/regulation/strategic-water-resource-solutions.

Where will the abstraction unit be located?

The location of the intake, or "abstraction", unit and outfall is subject to continuing appraisal and design development, but it would likely be several hundred metres from Teddington Weir on the Surrey side of the river.

The location is governed by the requirement to abstract water and put it into an existing tunnel built in the 1960s, the Thames-Lee-Tunnel, that runs across the River Thames about 400 metres upstream of Teddington Weir.

Why have you chosen a scheme at Teddington in your long-term plan, surely there are lots of other options?

We have looked at a wide range of solutions to reduce the shortfall between the amount of water we have and the amount we need, including reducing demand, creating new sources of water and improving catchment areas.

Working with Water Resources South East (WRSE), an alliance of the six water companies across the South East, we've been exploring new ways to increase water supply, including desalination plants, water recycling systems, new reservoirs, and transfers of water.

We've assessed every option for cost, water output, the time to deliver the scheme, potential impact on the environment, carbon footprint, and futureproofing.

This process has selected the Teddington Direct River Abstraction proposal, among others, as part of an overall best value plan for the period 2025-2035.

Why not just fix the leaks?

We are continuously tackling leakage on our network, with 1,000 leaks fixed per week. Thames Water's networks have over 20,000 miles (about 32,200km) of water pipes supplying water to customers in London and over to

the Cotswolds. We need to invest to reduce the amount of water that we lose through leaks, both from our pipes and also our customers' pipes.

We have committed to halve the amount of water we lose through leaks by 2050. This is a challenging and ambitious target, but tackling leakage will not solve the water challenge we face on its own. We also need to work with our customers to make sure we use our water supplies carefully and invest in new sources of water. Much of our water network is under London and it would therefore be very disruptive to the population and businesses if we were to dig up too much of it at once.

Smart metering installations will also help us to understand leakage (or wastage) at each customer's property. With nearly a quarter of leakage on customers' pipework we will continue to work with our customers to help reduce this too.

Further information about our plans to reduce leakage can be found using this link.

What will be the impacts locally during construction?

We are at an early stage in the development of the Teddington DRA proposal and the construction methodology has not yet been defined.

As we progress we will carry out further work to identify our likely local impacts of construction and, where they occur, mitigate the effects as far as possible. As more detail becomes available we will share this as part of our future public consultation activity.

We would do what we could to ensure that construction activities were carefully controlled and that disruption was kept to a minimum.

When will the scheme be used? Will water abstraction take place year-round?

The Teddington DRA scheme would provide resilience to future droughts. It would only be fully operational at certain times of the year when river flows and reservoir storage levels are low. Typically, this is likely to be from late summer through to late autumn and on average every other year.

There would be strict rules and legal thresholds guiding when and how we could use the scheme.

When not fully operational the scheme would operate in a 'stand-by' mode which keeps the treatment plant in good working order and allows the scheme to be operational quickly when required.

The stand-by mode would require a "sweetening flow" through the treatment plant of up to 25% the scheme capacity.

What is and why do you need a 'sweetening flow'?

A 'sweetening flow' is the reduced water flow that is required to keep the treatment plant at Mogden Sewage Treatment Works (SWT) in a 'stand-by' mode. It ensures the membranes in the treatment plant at Mogden SWT remain 'active' and available to be used when it is needed.

This sweetening flow could be up to 25% of the system's full capacity. We are currently investigating where the sweetening flow should be discharged but noting that wherever it is discharged, there will be improvements in the water quality of the Thames Tideway.

Will the scheme damage the river environment and ecology?

Protecting and enhancing the river environment and ecology is central to this proposal.

We are working closely with the Environment Agency, Natural England, the Drinking Water Inspectorate and the Port of London Authority as we develop our proposals. This includes assessing a range of factors including water level, velocity and water quality as well as ecology and biodiversity. The assessments completed so far have shown there is a low risk of significant environmental impacts and where required we would include additional mitigation measures to protect the river, its wildlife and the people that use it.

Further surveys, modelling and assessments will take place through 2023 and 2024, including studies on wider issues including noise and air quality. This work will be scrutinised by local planning authorities and the Environment Agency and included in future scheme consultation events and an Environmental Impact Assessment (EIA) which will form part of any future planning application.

What environmental surveys have you undertaken and what further work have you got planned?

We have undertaken modelling and monitoring of the water level, velocity and water quality, as well as extensive ecology and biodiversity surveys, focusing on the river and the riverbank. We envisage that wider environmental studies on noise, air quality and landscape will be undertaken in addition to expanding our ecology survey programme through 2023 and 2024.

As the scheme progresses, we will seek a Scoping Opinion from regulators and local authorities which will inform the next phase of surveys. A Scoping Opinion sets out the range of issues that have been agreed to be assessed as part of an Environmental Impact Assessment (EIA), which is a formal document that ensures the full knowledge of likely significant effects on the environment are taken into account.

Will you publish the data you have collected over the past 36 months?

Yes. Much of the data we have collected to date is already available on the Thames Water website – you can find more information at https://www.thameswater.co.uk/about-us/regulation/strategic-water-resource-solutions.

We will continue to publish data as we develop the scheme over the next few years.

If/when the scheme is taken forward, what monitoring will be done to validate the current modelling?

Monitoring will be an important part of the future development of our proposals, helping us to challenge our assumptions and increase our understanding of the river.

Validation of modelling will be subject to the conditions set within the planning consent or Environmental Permit which we will be legally required to implement.

Why do you need to treat the water to a higher standard than is currently discharged into the Tideway and what is the additional treatment?

The Teddington DRA scheme proposes discharging recycled water into the freshwater section of the River Thames upstream of Teddington Weir. This would require a greater level of treatment than would be required if the water were to be discharged into the Tideway section of the River Thames, downstream of Teddington Weir.

The Environment Agency would determine the discharge parameters, but as a minimum we would expect the additional treatment to meet all existing and emerging environmental quality standards for freshwater. This will ensure we protect human health and the environment.

Why not go for even higher treatment which would help to improve the river quality?

The level of treatment would be defined by the discharge limits set by the Environment Agency. Our current level of treatment aims to ensure we meet the environmental quality standards to protect human health and the environment and provide best value for our customers.

The level of treatment proposed as part of the Teddington DRA scheme would improve the quality of the water in the Thames Tideway and if a higher level of treatment is required we will build this into our design as it develops.

What will be the impact on water flow and levels?

Our modelling has shown that there would be no measurable change in water level in the freshwater section of the river at times when the Teddington DRA scheme would operate.

Upstream of Teddington Weir, the water level is controlled by the weir structure operated by the Environment Agency. The work completed to date shows that there would not be a significant change in level or flow as a result of scheme operation.

Downstream of Teddington Weir, under low river flow conditions (a worst-case scenario) modelling shows changes less than 5cm at Richmond as a result of a reduction in wastewater being discharged from Isleworth Ait and no change beyond.

When the scheme is working, will it affect boats and navigation?

We have worked closely with the Port of London Authority to investigate navigation and have concluded that there would be no impact to navigation or amenity use of the River/Tideway when the scheme is operational.

If the water is needed in east London, why not just pump the treated recycled water directly to the Lee Valley reservoirs? Why not build a scheme in east London?

There is an existing RAW water main, called the Thames Lee Tunnel, which is currently used to move water from the River Thames in west London to the reservoirs in north east London. The water is then treated and provided as high-quality drinking water to our customers. It would be possible to take treated wastewater from Mogden Sewage Treatment Works and put it directly into the Thames Lee Tunnel however there are several issues which make the scheme less favourable than other schemes.

These are:
1) Existing water supply systems that are managed under a Drinking Water Safety Plan (DWSP) and are considered safe, should not be impacted by additional planned discharges in the catchment. Therefore, indirect options for change to recycling (reintegration into the natural water system) are considered to be a lower risk to drinking water safety, as compared to the option of direct discharge to the TLT.

2)The treated wastewater from Modgen would require additional treatment before the water is put into supply for our customers as drinking water and we are required to minimise risk to public health. The advanced treatment would include reverse osmosis and ultraviolet oxidation, both complex and energy intensive processes. There is insufficient space at the Mogden Sewage Treatment Works site to house the additional treatment plant and therefore land would need to be bought.

3) The advanced treatment would have higher environmental and carbon impacts; and

4) The scheme would be more expensive than the Teddington Direct River Abstraction scheme and other water recycling schemes in London. Overall, these issues mean that this scheme is not currently considered favourable compared to alternative schemes.

If the additional treatment is to be located at the storm water tanks at Mogden Sewage Treatment Works will this not reduce the already insufficient storm capacity?

No. The early design work that we have carried out has concluded that the additional treatment equipment could be installed without any reduction in the capacity of the storm tanks at Mogden SWT.

We could, for example, install the new treatment plant above the existing storm tanks without impacting their capacity.

The riverbank is beautiful, and the river is well used. Will there be structures on the riverbank? Where will they be and how big will they be?

There would be two structures on the riverbank:

- The discharge, or outflow, would be a discreet and submerged pipe marked by a small timber wharf on the river bank.

- The abstraction facility, or intake, would be upstream of the discharge and would need to include fish and eel screens, pumps and control units. The design would be similar to the intakes already in safe operation on the River Thames and elsewhere. There would be opportunities to screen and landscape the facility and design it in consultation with regulators, local communities and other stakeholders.

Will the new abstraction structure present any physical danger to water users or swimmers?

No, it would be designed to be safe for swimmers and other water users.

Will the scheme make algae blooms more common in this stretch of the river?

We are aware of the algae bloom issues in the lower Thames and have commissioned a specialist company to undertake monitoring and investigations. The monitoring started in 2021 and needs to continue for a minimum of three years to enable trends to be assessed. We will publish our findings and assessments once the investigations are complete.

If you hadn't sold off reservoirs for property development, you wouldn't need to develop new schemes

We have not sold off any large storage reservoirs.

Your Chief Executive committed to invest £1.6 billion to upgrade sewage treatment works and the waste network. How much of this will improve this stretch of the river?

The discharge of untreated sewage is unacceptable, and we are committed to tackling this problem. Upgrading the Mogden Sewage Treatment Works site will reduce the number of storm discharges which will have a significant beneficial impact on the river. Our overall aim is to reduce the total annual duration of discharges by 50% by 2030 compared to a 2020 baseline, with an 80% reduction in discharges in particularly sensitive catchments.

What route are you taking towards planning and who will have the final say?

A decision on the proposed consenting route will be taken later this year. In all scenarios, our proposal will be subject to further public consultation with, and scrutiny by, local planning authorities, statutory bodies and other interested parties.

What will be the expected noise levels at the abstraction point while in use? Will there be additional odour?

We intend to undertake noise and air quality modelling and assessment later this year as we develop the scheme design. We will publish our findings and assessments once we have completed the work.

There would be no odour from the discharge of treated water into the river.

If intake and outtake are close by, how can you be confident that the outfall will not flow into the intake?

We have developed a 3D hydrodynamic model to test this and inform our designs, helping to ensure that we establish the optimum distance between the intake and outfall.

How will the scheme interface with the River Thames scheme?

We are engaging with the Environment Agency on its River Thames Scheme to jointly explore the interrelationship between the proposals.

How does the scheme sync with the Thames Tideway Tunnel?

The Teddington DRA proposal is independent of the Thames Tideway Tunnel.

Is there a clear map of the tunnel shafts?

No not yet. Once further development work has been done, we will engage and consult on all scheme options including route corridors and shaft location sites. This is likely to be later this year.

What is tertiary treatment and how does this relate to micro plastics and other contaminants?

The proposed tertiary treatment is an additional stage of treatment that removes nutrients, suspended solids, organic material and microbiological contaminants from the water. The process will also lower the biological oxygen demand, balance the pH and allow for the safe discharge of water to the River Thames.

Additional treatment processes will be added as required and will target particular determinants to meet necessary Environment Agency discharge limits.

Why have you gone to consultation without human health data?

At this stage we have been consulting on the wider draft Water Resources Management Plan 24. Further consultation and therefore detail will be consulted upon relating to the individual schemes within the wider plan.

The development of the design and understanding of the potential impacts has followed a regulatory process set up by Ofwat. The dataset is still being captured through a water quality monitoring programme. Once this is completed, it will include an assessment of the risk to human health.

As the scheme progresses, we will continue to follow the regulatory process on health assessments and will share the initial findings through scheme engagement and consultation later in 2023.

How will the quality of the discharge impact the health of swimmers?

The quality of water discharged will not increase health risks for water users. Our current level of treatment aims to ensure we meet the environmental quality standards set to protect human health and the environment.

Where if anywhere has this been done before on this scale and what was the outcome?

The treatment of sewage and discharge of treated wastewater back into rivers occurs throughout the country.

Upstream of Teddington Weir, numerous sewage treatment works discharge treated wastewater into the River Thames and its tributaries. This process is vital in ensuring rivers and tributaries keep flowing and wildlife thriving.

Will this project result in an increase to my utility bill?

Each option in our plan requires funding, with an expectation that our current draft Water Resources Management Plan 24 increases the water utility bill by £14 in 2030 and £100 by 2050.

The Teddington DRA project is estimated to require an annual increase of between £2 to £3 by 2030.

What compensation will you give to local people for disturbing the environment?

As the scheme develops, we will engage with any landowners and businesses that we think might be impacted during the construction or operation of the scheme and agree appropriate measures.

The design of the scheme will also include local biodiversity and environmental net gain creating a beneficial legacy for local communities.

Climate change is expected to increase storm intensities and to raise temperatures. How does the scheme address these factors?

The environmental conditions that the scheme would operate in, in 2031, would be different to current conditions. Therefore, our design and assessment of the scheme has considered likely future climate scenarios (as set out in the UK Climate Projections 2018). Of our current high-level work undertaken to date, our hydrodynamic and water

quality modelling of the River Thames and Thames Tideway has included future scenarios reflective of 2050s conditions. This has enabled the impact of the scheme to be assessed when operating under those future climate projections conditions.

Specifically, the scheme would cease operating when river flows exceeded 700 Ml/d preventing an interaction with high-intensity storm events.

Why are there no independent environmentalists on the panel?

We have employed a number of different consultancies to lead on developing the design and undertaking the environmental appraisal for the scheme and this will continue.

If environmental standards are relaxed if we move from EU standards, what guarantees are there that you don't bump up the size of the scheme? Some newspapers are already reporting 150Ml a day.

The design of the scheme will be for a set size that we consult on and that we gain planning consent for.

The conditions of a planning permission would not allow a scheme to be increased over time unless we sought a new planning application and built an additional treatment plant and intake.

Thames Water has stated in its Gate 2 reports that the maximum size scheme would be 100 Ml/d and that schemes at 150 Ml/d are likely to have some significant environmental impacts. Schemes over 100 Ml/d have therefore been discounted by Thames Water.

There is no expectation that adopting more UK standards in place of EU standards in the future will mean less environmental protection. Many of the standards we have today are based on robust scientific evidence and that will continue to be the foundation of standards in the future.