Oxford Sewage Treatment Works

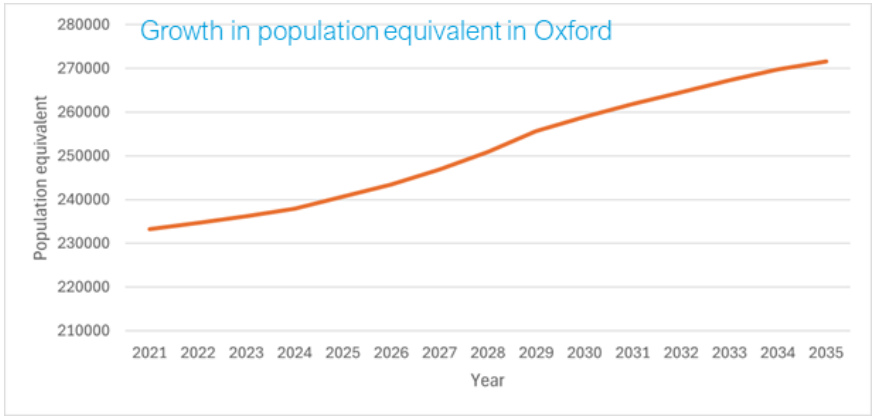
Quarterly report July 2025

Executive Summary

- A major upgrade to Oxford Sewage Treatment Works has begun.
- The upgrade consists of four phases which will accommodate growth in the area and deliver environmental commitments as part of our AMP7 and AMP8 work programmes.
- The forecast completion date of the works is 2030.
- A quarterly update on our progress for all stakeholders will be provided through this report. This report reflects work up to 30 June 2025. The next report will be published by the end of October.

Background

- Oxford Sewage Treatment Works (STW) is located south of the city near Sandford–on-Thames.
- To facilitate growth and protect the environment, we are finalising plans for a major upgrade at Oxford STW costing more than £270 million which will provide a significant increase in treatment capacity, larger storm tanks and a higher quality of treated effluent going into the river.
- The major upgrade will take time, so we'll be delivering the upgrade in phases to maximise speed of environmental improvement.



Housing, Population and Population Equivalent forecasts

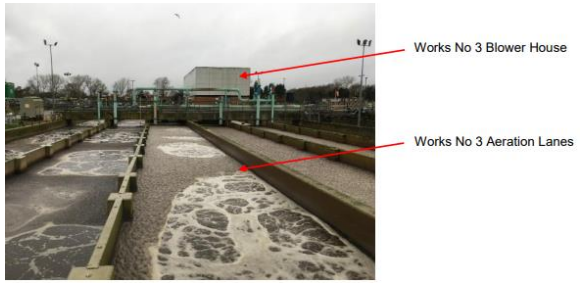
	2025 - 2031	2031 - 2041
Housing growth	9,534	20,435
Population growth	23,740	50,445
Population Equivalent forecast	272,163	293,973

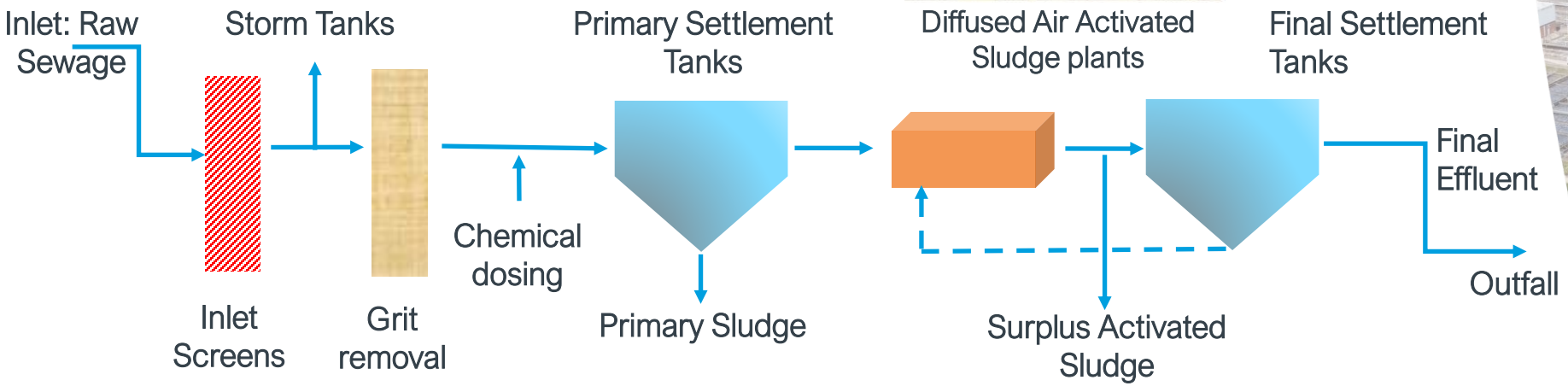
Oxford Sewage Treatment Process

The diagram below summarises the current treatment process at Oxford STW

Downstream of the inlet screens is a weir to the storm tanks which provide extra storage during a rainstorm

The primary stage separates solids from liquids where gravity encourages solids to settle at the bottom





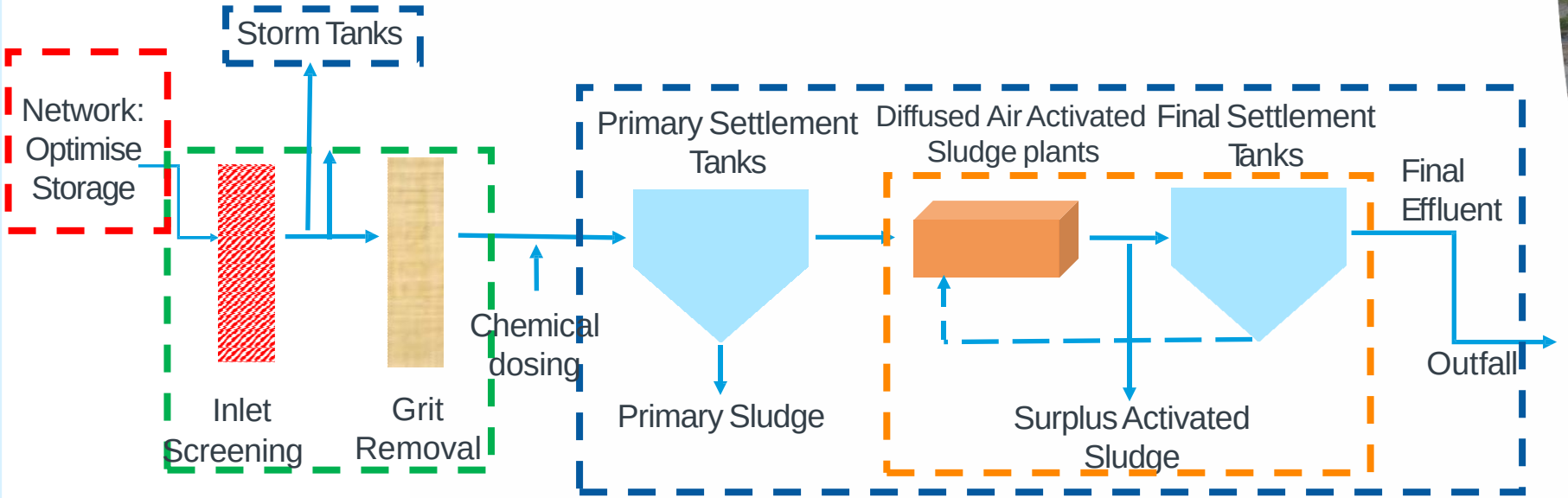
Sewage entering the plant is passed through fine screens to remove large solids for disposal

A Detritor and rake removes grit for disposal

Sludge is further treated by Thermal Hydrolysis and Digestion for green energy recovery & volume reduction and then dewatered prior to disposal / reuse

Scope of the Works

Processed based view of the scope



Phase 1

Phase 2

Phase 3

Phase 4

Environmental Obligations

In addition to planning for population growth Thames Water has an obligation to comply with its environmental permits. The Environment Agency sets the standards we are required to meet. This is delivered through the Water Industry National Environment Programme (WINEP). These obligations are set out below.

WINEP Drivers

- There is a requirement to increase Flow to Full Treatment (FtFT) to 1,434 l/s (from 1,040 l/s) by 31 March 2025. Increasing FtFT will reduce the frequency and volume of spills to the environment.
- There is a requirement to reduce Ammonia in the final effluent from 3mg/l to 1mg/l by 31 March 2025 to maintain water quality and protect aquatic life.
- There is a requirement to reduce Phosphorus from 1mg/l to 0.25mg/l (stretch target 0.15mg/l) by 31 March 2030 to improve water quality and minimise algal blooms.
- There is a requirement to increase Dissolved Oxygen (DO) in the final effluent by 31 March 2027. DO is required for the survival of fish and other aquatic life.

Timeline – Phased solution

The work at Oxford STW has been split into four phases. Phases 1, 2 and 3 will reduce spills and improve effluent quality in the Northfield Brook. Completion of phase 4 (The main scheme) will further increase treatment capacity and deliver our environmental obligations for flow and quality required by WINEP.

Phase 1 – Inlet Works (Target Date 2027)
Inlet Works to accommodate FtFT of 1,283 l/s (currently 1,040 l/s).

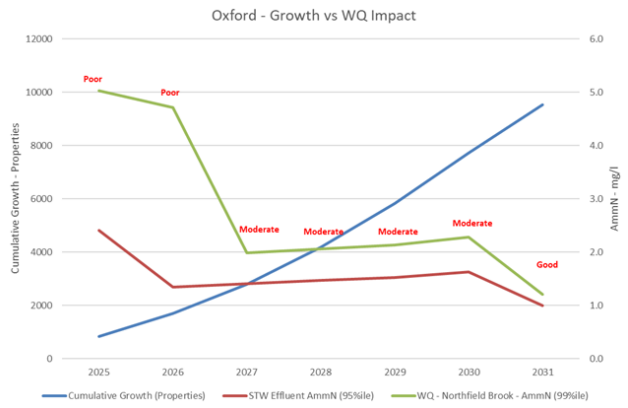
Phase 2 – Process Optimisation (Target Date 2027)
Optimisation of existing works to maximise process performance at 1,283 l/s with increased DO in the final effluent.

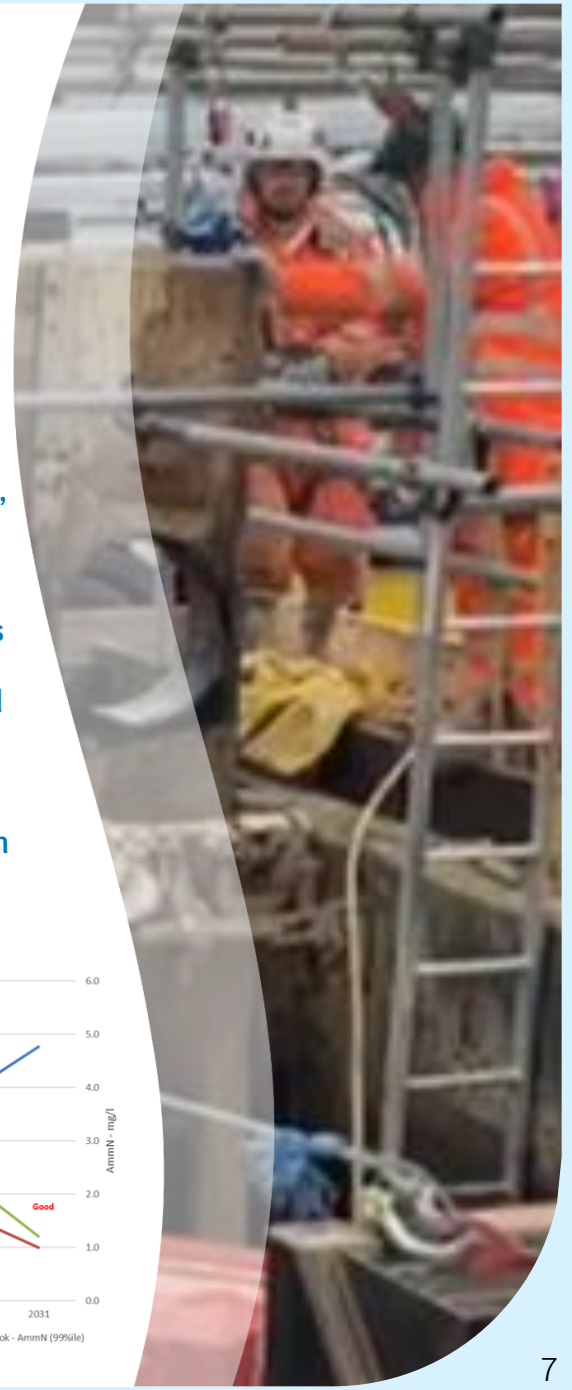
Phase 3 – Network Storage Optimisation (Target Date 2027)
Cleaning and control system established on **Oxford Sewer Tunnels** to maximise benefit of latent storage in the local sewer network.

Phase 4 – Main STW Upgrade (Target Date 2030)
Main Scheme to accommodate FtFT of 1,434 l/s and reduce Ammonia to 1.0mg/l and Phosphorous to 0.25 mg/l in the final effluent.

All four phases are on track to be complete by their respective Target Date.

Treated effluent from Oxford STW discharges into the Northfield Brook, a tributary of the River Thames. The quality of the Northfield Brook is currently classified as 'Poor' under the Water Framework Directive. This will improve to moderate once the Phase 1 & 2 works are commissioned in 2027. This improvement is driven primarily by reduced storm spills. This improves further to "Good" when the main project is delivered in 2030.





Stakeholder Engagement

We have and will continue to engage fully with all our stakeholders during the phased upgrade to Oxford STW

Stakeholder engagement meetings

- A number of meetings held with Stakeholders including Local Planning Authorities, the Environment Agency, Defra, Ofwat and developers giving progress updates and assurance on the upgrade scheme. Update meetings will be held quarterly going forward.

Environment Agency

- The Environment Agency undertook a site visit where the project scope, delivery processes, timeframes and risks were explained.

Stakeholder Assurance and Engagement plan

- We will provide quarterly updates to Ofwat. This will identify main risks to delivery and any actions being undertaken or proposed to mitigate them. We will explain any changes to the programme and explain how they might impact the upgrade.

Developers meeting

- We held a meeting with developers and other stakeholders in June 2025 to update them on progress made against the four project phases. Future meetings will be held quarterly forward to provide assurance that we will deliver an interim solution in 2027 and a permanent solution by 2030.

Oxford STW Progress

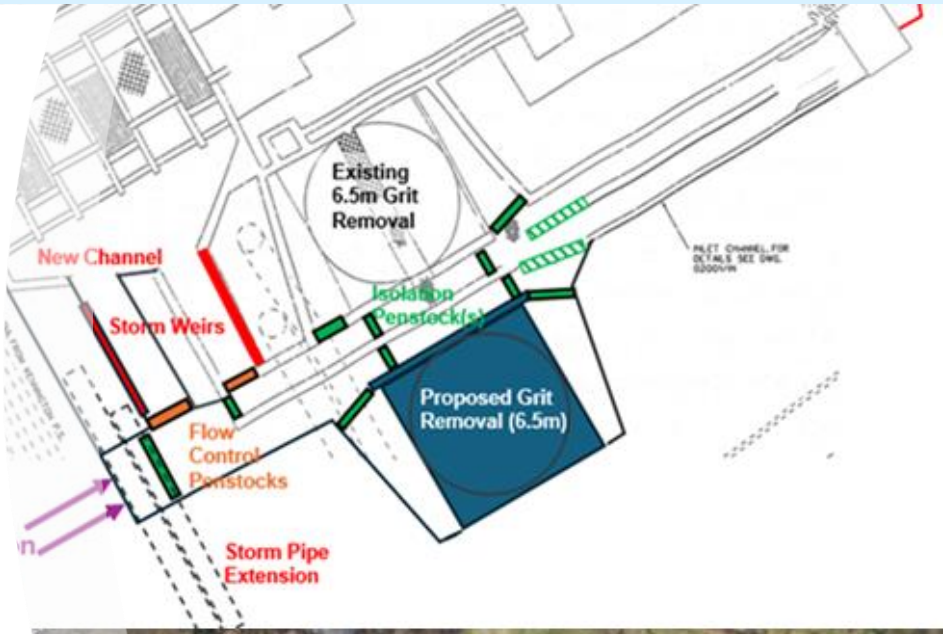
Update April to June 2025

Phase 1 & 2 – Inlet Works and Process Optimisation

- Installed 2 x 600mm pipework from inlet to new distribution chamber to pass 1434l/s.
- Hydraulic pinch points identified through site and removed.
- Physical modelling of inlet works extension completed, now in detail design.
- Activated Sludge Plant 2 (ASP2) process intensification (MOB) design completed and issued to contractor for construction, MOB media on site.
- Ground investigation commenced for inlet works extension and ASP2 optimisation.
- Permitted development confirmed for Inlet works extension and THP Belt Thickener.

Phase 4 – Main STW Upgrade

- Scope of work to meet the EA agreed 1,434l/s FtFT defined, and cost estimate finalised.
- Contractor tenders submitted, evaluated with contract negotiations ongoing.



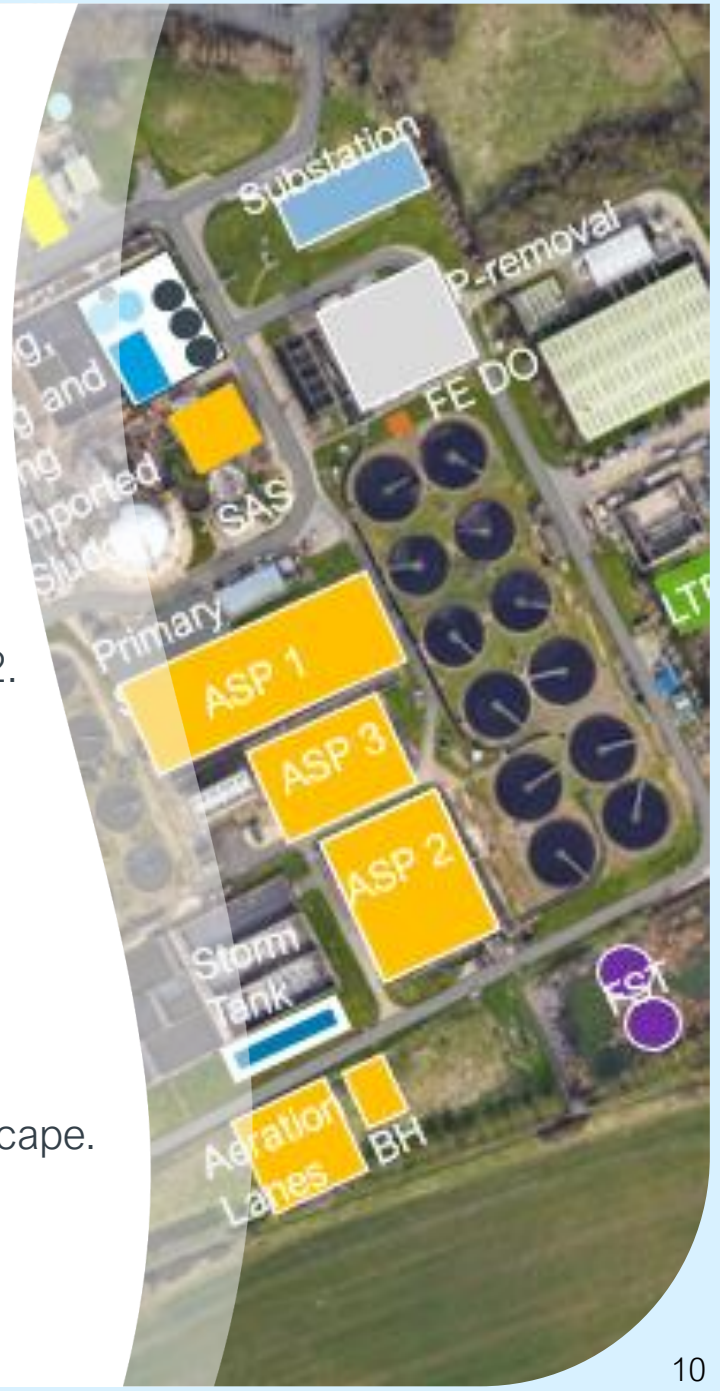
Oxford STW the next 6 months

Phase 1 & 2 – Inlet Works and Process Optimisation

- Installation of new inlet valve actuator to actively control flow to site.
- Completion of PST distribution chamber.
- Construction of new media screens and pump stations for ASP2 Process Intensification.
- Installation of new process media to ASP2 to provide Process Intensification.
- Commence install of new baffles and aeration pipework in ASP2.
- Upgraded aeration Real Time Control (RTC) system to improve process performance of ASP2.
- Completion of inlet works extension detail design and commencement of construction phase.

Phase 4 – Main STW Upgrade

- Main contract award and commencement of Design Stage 1.
- Commencement of critical enabling works.
- Permitted development submission for main upgrade project.
- Planning application submission for electricity upgrade, temporary highway access and landscape.



Oxford STW

Risks

Phase 1 & 2	Mitigation
Power supply to site is insufficient to support required infrastructure.	Engagement with SSE to see what additional power can be supplied ahead of the main power upgrade works being delivered.
Ammonia reduction performance of works.	Trial of MOB in ASP2 to address. Results known late Spring of 2026.
Site SCADA does not have capacity to support the operation and control of the proposed work.	Deliver the Phase 4 SCADA work under Phase 2. Key areas to be added to the SCADA are to be identified and progressed.

Phase 3	Mitigation
Construction conflict with Littlemore SPS / RM project.	Proposal to synergise Oxford RTC project with Littlemore SPS / rising main project.
Lead-in for power supply.	Early engagement, however, not critical path activity yet at this stage.

Phase 4	Mitigation
Delays in getting planning consent.	Continued early engagement with OCC to confirm which works can be delivered using TWUL's Permitted Development rights.
Late delivery of additional power needed at site by SSE.	Continue engagement with SSE and National Grid to ensure power is available on the network (upgrade needed to SSE infrastructure for this project).

It's everyone's water