

Thames Water

Seacourt Stream, Natural Fish Bypass

A bypass channel to improve fish passage and habitat along the main River Thames

Services

- Optioneering
- Landowner Support
- Detailed Design
- Flood Risk Analysis
- Environmental / Ecology Review
- Geotechnical Analysis
- Permit and consenting services
- Planning & Approval in Principle Support
- Natural Fish Pass Design
- Fish Pass Panel Approval

Background

Fish passage through Oxford is impeded by the presence of a number of structures and locks through the town.

The Seacourt Stream is a tributary and runs in parallel to the River Thames to the north and west of Oxford. This means that it bypasses four of the Thames locks; Iffley, Osney, Godstow and Kings. However, the Seacourt Stream offtake from the Thames, shown to the right, still presents a barrier to fish movement.

This project will remove the barrier to fish movement by the creation of a natural bypass channel. Subsequently, this will create the first unobstructed channel past Oxford for over 400 years.



In addition to the provision of passage for all species of coarse fish the project will provide suitable spawning habitat for rheophilic species in the form of locally sourced gravels.

The Project

Stantec was commissioned by the Environment Agency (EA), together with APEM, to investigate the potential for the provision of fish passage between the Seacourt Stream and the River Thames.

Following the exploration of a number of options, including the removal of the offtake structure and the provision of a formalised fish pass, a natural fish pass channel was identified as the preferred solution.

The complete removal of the structure was considered, but due to the requirements to maintain and control water levels on the River Thames for navigation, it was discounted by the project team.

Stantec developed a natural bypass channel design that would meet the requirements for fish passage, delivering the required velocities and flows whilst also maintaining the ability for the EA to manage the water levels in the River Thames.

Originally the proposal was located on the left bank of the Seacourt Stream structure within a relatively small parcel of land. Due to the limited extent of the area, this required a highly sinuous channel design to meet the space constraints whilst still maintaining the fish passage requirements.

Following Stantec's completion of the design the EA were unable to agree the landownership negotiations to the satisfaction of each party and the project was put on hold.

In 2017, Thames Water approached Stantec as the project delivery had been passed to them from the EA to deliver the works under their AMP cycle responsibilities. In addition, further landowner discussions had made land available on the right bank of the Seacourt Stream structure.

Once re-engaged, Stantec reviewed the design concepts and assumptions from the original submission and identified whether these were appropriate. We identified that the repositioned channel allowed a number of improvements to be incorporated within the design.

Stantec and Thames Water held discussions with the tenant farmer and the landowner, Oxford University. This allowed a route to be agreed that maximised the channel design, length and environmental potential, whilst maintaining the ability of the tenant farmer to use the land on both sides of the bypass.

The additional space provided the creation of a more natural channel and allowed a more considered placement of riffles, pools and planting.

Due to the site constraints such as the Thames Path and the farmer's access requirements Stantec developed a design for the River Thames offtake structure that would incorporate both water level control and access requirements.

The new channel has been designed to offer a maximum velocity through the channel of no more than 0.75m/s, but through the provision of a fixed crest is able to maintain the water levels in the River Thames. Through modification of the existing off-take structure and the ability to adjust the level for the bypass channel inlet we have incorporated the ability to modify flows through the new channel once the performance of the channel has been monitored.

This has also been necessary as the scheme has needed to consider future Oxford Flood Alleviation (FAS) scheme which is planned to be constructed to the south of the Seacourt Stream at the west of Oxford.

The bypass channel will maintain the same flows from the River Thames to the Seacourt Stream during flood conditions as existing, allowing the Oxford FAS to operate as expected and not increase flood risk to downstream properties.

Throughout the scheme Stantec have provided the services from inception to tendering and appointment of the Principal Contractor. Our activities have included optioneering and detailed design; stakeholder liaison; hydraulic modelling and delivering the planning and permitting requirements. Stantec are also acting as Principal Designer under the CDM Regulations.

The scheme delivers a sympathetic design that takes account the local SSSI, archaeological and geotechnical constraints and the route of the Thames Path.

The final design will create a new channel that fits into the local environment and delivers ecological enhancement to the area.

Construction will commence in spring 2021 with Stantec providing continued support to Thames Water during the construction phase.

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