CASE STUDY

BECKTON
WASTEWATER TREATMENT WORKS

Project Overview

Glenfield Invicta is supporting Thames Water with the upgrade of screening infrastructure at Beckton Wastewater Treatment Works in East London, one of the UK's largest wastewater treatment facilities.

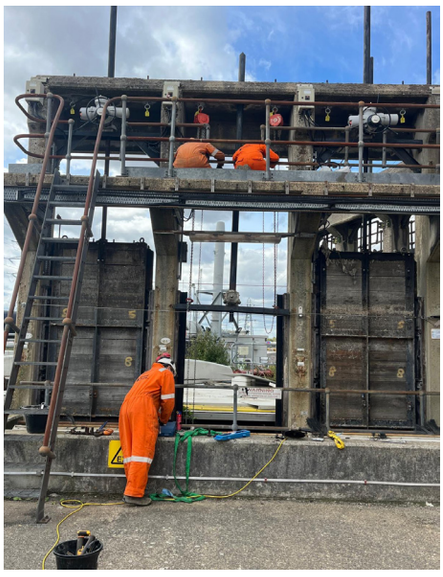
The project, which commenced in September 2025 and remains ongoing, involves replacing ageing penstocks serving the site's coarse screening network. The existing installations relied on timber doors that no longer provided effective sealing and limited Thames Water's ability to safely carry out maintenance activities.

Working alongside Thames Water, Glenfield Invicta has completed the first phase of the programme, replacing two large penstocks and establishing the installation approach for a further five lanes comprising ten additional penstocks.

The Challenge

The existing penstocks had deteriorated over time, resulting in poor sealing performance and inadequate isolation for maintenance activities. This created operational limitations and increased risk when carrying out work on the screening system.

The replacement works were made more complex by the existing site conditions. The original penstocks were embedded within substantial concrete structures, requiring breakout works and concrete repairs before installation of the new equipment could begin.



Access to the work area was restricted by confined-space conditions and structural elements above the installation location. Combined with the size of the penstocks, measuring 1200mm x 4000mm, this created significant lifting and installation challenges.

As only limited access to the wider asset was available, the first lane also served as a pilot installation. It was essential that dimensions and installation methodology were validated before progressing with the remaining programme.

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The Solution

Glenfield Invicta supplied and installed two Orbinox penstocks designed specifically to suit the existing civil structure. To overcome site access restrictions, the penstocks were manufactured with a split-frame design, allowing installation within the confined working area while maintaining the required structural performance and sealing capability.

To support the replacement works, Glenfield Invicta also supplied CAT III-certified dam boards. These provided temporary isolation, enabling the existing penstocks to be safely removed and replaced under controlled conditions.

A dedicated project manager coordinated all stages of the work, working closely with Thames Water, site teams and supply chain partners to manage progress, address challenges and maintain programme delivery.

Engineering Excellence in Practice

The successful completion of the first lane confirmed the accuracy of site dimensions and validated the installation methodology for the remaining phases of the project.

Following installation, the new penstocks successfully passed site acceptance testing and achieved zero leakage, delivering a significant improvement over the previous assets and providing confidence for the wider rollout.

Safety at the Forefront

Despite the challenges associated with confined-space working, heavy lifting operations and civil modifications, all works completed to date have been carried out safely and in accordance with agreed procedures.

The project has maintained an excellent safety record, achieving zero accidents and no lost-time incidents throughout the first phase of works.

Ongoing Delivery

Following the successful completion of the first phase, Thames Water has placed orders for a further ten penstocks as part of the ongoing refurbishment programme.

Glenfield Invicta continues to work closely with Thames Water to deliver the remaining phases of the project in line with planned upgrade works at Beckton.

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