



As part of a £1.3 million investment by the Environment Agency, ECS Engineering Services has completed the refurbishment of Temple Lock on the River Thames. The project included replacement of the lock gate sluice valves, and timber fenders as well as installation of two new access ladders and refurbishment of the lock doors themselves.

In all, eight locks covering a 135 mile non-tidal stretch of the Thames have benefitted from the Environment Agency upgrade programme which took place during the winter of 2015/16. Temple lock, which measures 41 meters long, 5.5 meters wide and with a fall of 1.23 meters, was originally built in 1773 and is located in Buckinghamshire.

Temple Lock benefits from Environment Agency investment

Case Study: 048 Temple Lock benefits from Environment Agency investment

A major part of the work was to install two temporary frame dams to allow work to be carried out on the lock gates. This was achieved by a professional dive team that works in partnership with ECS on projects such as this. Jamie Wesley, Commercial Manager for ECS, explains: "By installing the stoplogs on the river side of the lock gates and a temporary dam inside the lock, it was possible to drain down the section around the lock gate. This allowed ECS' engineers to refurbish the lock gate bearing system and to replace the sluice valves."

In addition, it was necessary to stabilise the lock gate main timber joints by injecting them with epoxy resin. This is a cost effective repair that enables the lock gates to remain water tight and prolongs their service life without the additional costs on manufacturing and installing new gates. While the floor of the lock was exposed it was also possible to repair an area that had been damaged. The affected section was broken out and replaced with new concrete to ensure the

continued integrity of the lock chamber.

ECS also fabricated and installed two access ladders, which had to be recessed into the lock wall, complete with handrailing and platform. In order to install the new ladders, ECS installed a limpet coffer dam, which essentially is a three-sided box that is positioned against the lock wall where the ladder will be installed. The water between the coffer dam and the lock wall is pumped out and the hydrostatic pressure of the water in the lock creates a seal, providing a safe, dry working environment in which to work.

Using this method to install the access ladders saved a considerable amount of time and expense compared to the alternative of installing stoplogs and pumping out all of the water from the lock. The installation of the new timbers and the ladders required a series of floating pontoons and a marine floating crane, all of which were supported by a rescue boat to ensure the safety of those on site.

All of the exposed brickwork in the lock was

checked and repaired as necessary, including the replacement of any grout and the filling of any cavities. Meanwhile, the epoxy path surface was replaced and work was completed to repair the head end bull nose.

Jamie Wesley, concludes: "Lock facilities such as these at Temple Lock provide a vital service, enabling boats to travel along the Thames. We have worked with the Environment Agency on a number of projects like this to improve the durability of the structures and ensure they continue to operate efficiently for years to come.

"In order to deliver this project we have coordinated all of the design and fabrication work that was completed in-house with work completed by external partners, such as the galvanising, to ensure the field engineers on site have all the required materials and equipment when they need it. In this way we minimise any disruption to the general public and deliver the project on time."

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