

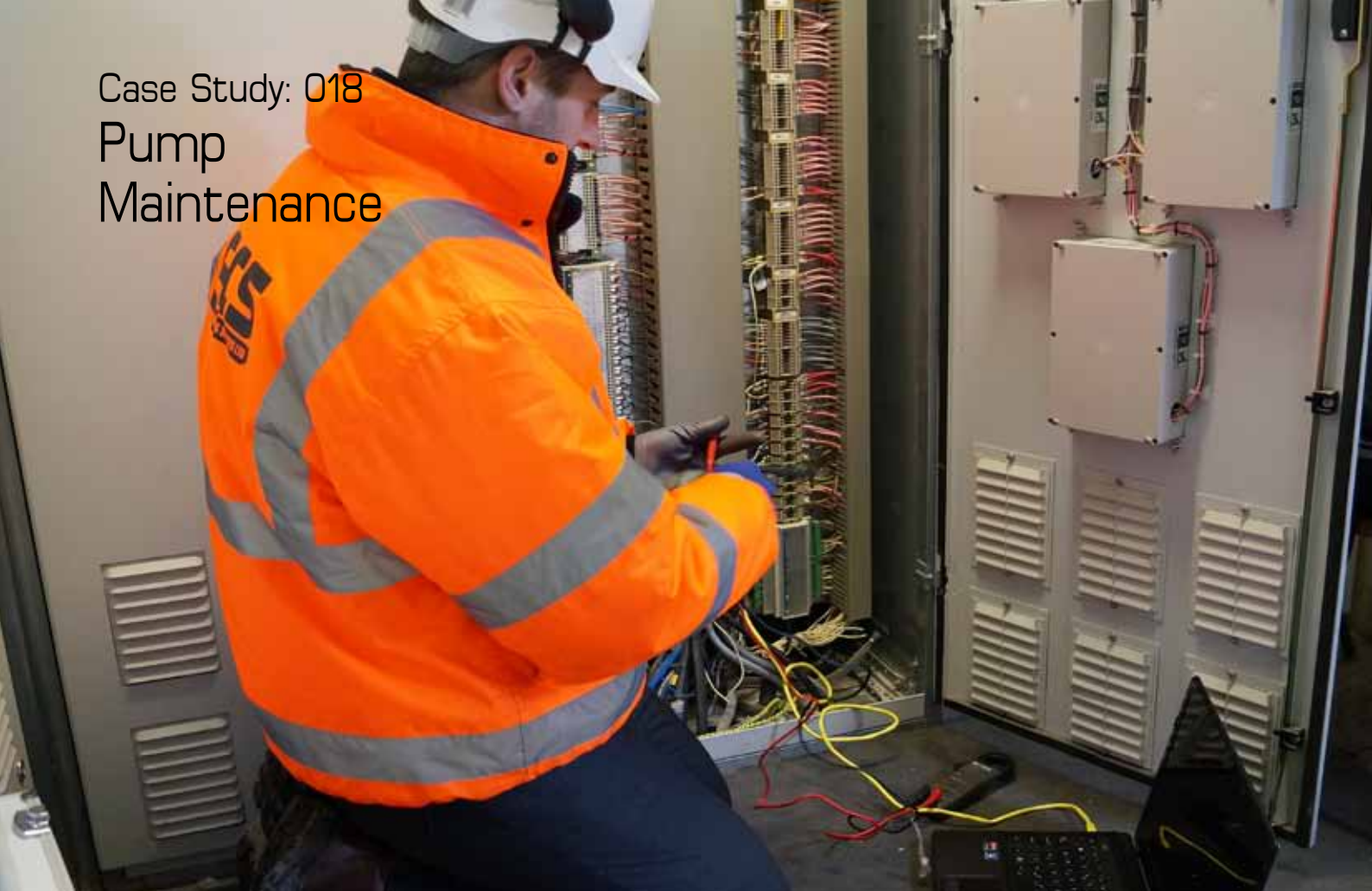


**Managing and maintaining water control facilities are important roles for the Environment Agency (EA) and its framework contractors such as ECS Engineering Services. When the pumps at a site in Matlock, Derbyshire, needed to be replaced the project also required some major building modifications and additional electrical work, something ECS Site Services Division was able to provide.**

The pumping station is designed to protect areas of Matlock in the event of high water levels. If the River Derwent rises beyond a certain level, the gates are shut to prevent the water increasing the levels in the adjoining Bentley Brook. The water in the brook is diverted through a set of trash screens to pumps which transfer the water back into the Derwent. This system allows the brook water to continue flowing instead of backing up and flooding.

# Pump Maintenance

# Case Study: 018 Pump Maintenance



The three original pumps had reached the end of their service life, having been in place for over 25 years and have now been replaced with new submersible canister pumps. The pumps used to be housed inside the pump building, but this made for difficult access for maintenance, so the EA decided to have the roof removed and all of the original services re-routed. This change in design would make it possible to use a mobile crane to lift the pumps when required for maintenance.

In order to install the new pumps, the first step was to complete the removal of the roof of the pump room and make the remainder of the building safe and secure. This required both electrical and mechanical engineers to work together to produce a safe environment for the pump engineers tasked with the process of exchanging the pumps.

ECS also installed the new pump controls and associated wiring in the motor control centre (MCC) and assisted in the commissioning of the new pumps. The new pump controls included new starter circuits as well as a new change-over system for the generator supply, which ensures that the pumps will continue to operate, even in the event of a power failure.

Once the pump installation had been completed, ECS installed a new, raised GRP grating floor above the pump locations along with access steps and hand railing. The new flooring is designed to allow safe and easy access to the pump locations while also protecting the supply cables from damage.

During normal river flow conditions, the main pumps are not required, however occasional rainfall starts to fill the wet well and they had to

be used to remove this water and pump it into the main river stream. In order to reduce the energy consumption of this task, ECS installed a new, much smaller, submersible pump in the wet well with permanent cast iron pipework. Using a set of conductivity probes, this smaller pump now automatically controls the water level in the wet well during periods of normal river levels, saving energy and unnecessary wear on the larger pumps.

ECS continues to deliver the on-going maintenance contract for the EA on this and many other sites, ensuring that the assets are properly maintained and operating efficiently.



Engineering Services ■■

Water Control ■■ Site Services ■■  
Environmental ■■ Fabrications ■■