



Project: Lustrum Beck

Location: Stockton-on-Tees

Flapvalves

Client: Environment Agency



The existing 2000mm diameter outfall flaps and a 600mm dia flap were installed in 1998, to prevent the River Tees backing up the Lustrum beck and provided a maximum discharge capacity of 45m³/sec and a standard of protection of between 50-100 years. The original flaps were becoming increasingly corroded in the marine environment and allowing back seepage.

ACE were contacted to carry out the replacement of the original equipment, with lightweight yet durable HDPE and Stainless Steel 316 KRK flapvalves, and the opportunity was taken to improve upstream fish and eel passage by fitting the equipment with fish passage portals.



The new flapvalves were chosen due to their proven longevity when used in saltwater, vastly reduced maintenance requirements, and also the ability to maintain flood defence whilst still allowing fish migration. The flaps were fitted with a combination of ACE fish friendly options, namely the Reset and Pet flap systems.

The pet flap is ideal for smaller flapvalves, and incorporates a bottom hung flap, with a float arm that pulls it closed as the tide advances, allowing fish to swim through as the tide turns. The reset valve also allows fish to pass the flap as tide advances, using a float with a Wastop® non return valve to ensure closure. The float remains buoyant until it fills with water at a desired level, closing the valve. The float then empties, to “reset” the float at low tide.



The invert of the headwall is set at a level of approximately -0.7maOD, so the installation (carried out by Amco) involved working at low tides up to 2 hours either side of low tide when dry access was available. As the flaps did not require grouting, this was achievable using the standard installation method, allowing a very quick and simple operation, with the complete time on site totalling no more than a week.

ACE would like to thank the Environment Agency and AMCO for their assistance with the project.

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