

Your Engineered
Solutions Provider

Bedford Pumps Case Study

Bedford Pumps Fish Friendly Pumps fulfil dual purpose for Kempsey

The village of Kempsey, just South of Worcester, has hit the headlines on many an occasion over the years as a consequence of its extreme misfortune to be the casualty of repeated flooding.

The Environment Agency has just completed a Flood Risk Management Scheme at a cost of £1.7M to reduce the risk of flooding to over 150 properties in the village that have been affected by floods 23 times in the past 30 years.

A 180m long earth retention embankment has been constructed downstream of the village to stop flood water from the River Severn. A large penstock will allow the Hatfield Brook to flow freely into the river during periods of low flood risk. During high risk periods the penstock will close to prevent flows backing up the Hatfield Brook into the village. A new pumping station has been constructed by Galliford Try and Bedford Pumps was awarded the subcontract to supply the pumps which will discharge water from the brook to the other side of the embankment, thus reducing the risk of flooding to the village of Kempsey.

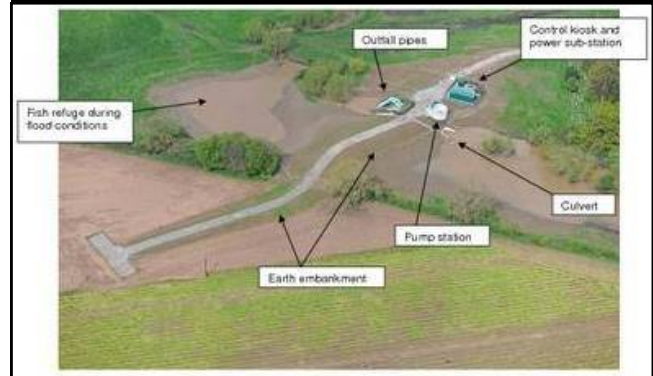
The pumps however, manufactured by Bedford Pumps Ltd, the UK's leading manufacturer of large submersible and conventional pumps to the land drainage industry, are not the typical axial flow pumpsets traditionally used in flood defence applications. Hatfield Brook is home to an eel population and under the new EU Eel Regulations the pumps must be certified as being "fish and eel friendly" in order to preserve the life of the aquatic inhabitants.

EU legislations brought into effect in 2007, "EU Eel Regulations", states that each Member State shall implement appropriate measures to reduce eel mortality. In 2009 UK legislation empowered the Environment Agency to undertake activity to satisfy the EU regulations. To this effect the Environment Agency can serve notice where the safe passage of eels is impeded and enforce a resolution to preserve the lives of eels and fish.

Bedford Pumps' new SAF Range of Fish Friendly pumps have undergone rigorous tests by VisAdvies BV, an independent research consultancy in the field of water management



Flooding in the village of Kempsey



Flood Risk Management Scheme



"EU Eel Regulations" require measures to reduce eel mortality



Test rig assembled in a dry dock in Holland

Fish Friendly Pump Range from Bedford Pumps

focusing on the environment of fish in all types of inland waterways. The tests proved conclusively that Bedford Pumps new hydraulic design will pump pass eels without mortality thereby complying with the EU legislation introduced to tackle the rapid decline in global populations of the common eel. This legislation is specific to the eel population but it is generally accepted by all concerned that protecting fish stocks is an added bonus of utilising this type of pump.

Eel and fish friendly pumping solutions will shortly become a requirement at the majority of pumping stations and water abstraction points where eel populations have been identified.

In addition to protecting the fish, the new design demonstrates a significant improvement in hydraulic efficiency resulting in an 8% reduction in power absorbed. Consequently the new range will satisfy two of the Environment Agency's objectives of eel protection and carbon reduction.

Bedford Pumps has supplied two Submersible Canister Pumps complete with fabricated steel canisters, cables, lifting chains and Pump Condition Monitors to Galliford Try, for the Environment Agency. These will operate at a duty of 2100 l/s at 4.5m head. Each pump has been fitted with Bedford Pumps' innovative Fish Friendly impeller, to enable the eels to pass through the hydraulic passages unimpeded.

Bedford Pumps' standard SAF range of Fish Friendly pumps cover from 400 to 7,000 l/s at 2 to 6m head and are ideally suited for Land Drainage, Flood Defence and Fish Farm applications. Larger capacity pumps can also be designed to meet specific requirements.



Outfall pipes at Kempsey



The pumps in operation



Bedford Pumps SAF Pump on trial



The pump being installed at Kempsey



Bedford Pumps' Fish Friendly Impeller