

Essex & Suffolk Water, Hanningfield

Sludge Treatment Reed Beds (STRB)

WATER WORKS CLARIFIER SLUDGE



Project

Hanningfield Sludge Treatment
Reed Beds (STRB)

Location

Hanningfield Water Works,
Essex, UK

Project type

Design and Construction

Wastewater type

Drinking water production
pulsator clarifier sludge

Treatment process

Sludge Treatment Reed
Beds (STRB)

Need

Hanningfield Water Treatment Works (WTW) in Essex treats up to 240,000m³/d of reservoir water, producing and supplying 150,000m³/d of drinking water to a large part of Essex and East London.

The water treatment process and pulsating clarifiers generate up to 4,000m³/d of ferric based liquid sludge, that must be treated and dewatered, prior to liquors discharging back in to Hanningfield Reservoir for future use. The former sludge management strategy, was to divert sludge in to Whitelilies Lagoon, a bay within the reservoir. This lagoon was approaching the end of its operational life and Wessex and Suffolk water required a new sustainable and environmentally friendly sludge management strategy.

Solution

Following a successful trial and feasibility study by ARM and its Danish partner Orbicon in 2009/2010, it was agreed unanimously to proceed with the **STRB** option. Construction of sixteen **STRB** basins, totalling 4.3 hectares commenced in June 2011 and was completed in September 2012.

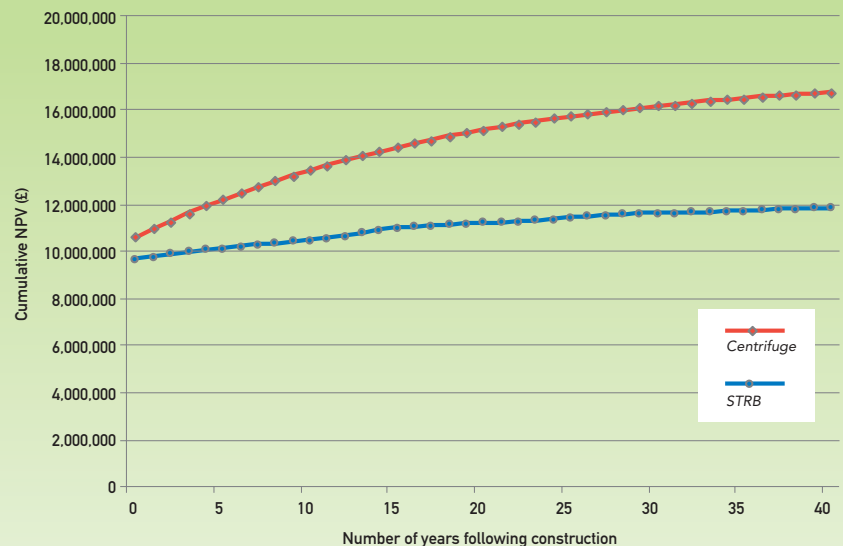
The innovative solution, designed by ARM and Orbicon, is a world's first, using natural reed bed technology within the drinking water production process. The **STRB** solution provides a sustainable and economical alternative solution to conventional methods such as centrifuge and belt press as it has much lower energy requirements, operational costs and ultimately lower whole life costs.

The ground breaking natural wastewater treatment system is the most environmentally efficient method of treating ferric sludge and was awarded the prestigious *Green Apple Award* in 2013 "in recognition of the UK's greenest companies, councils and communities".





Comparative whole life costs of proposed treatment technologies



Benefits

The **STRB** solution at Hanningfield has several strategic benefits for the operator Essex and Suffolk Water including;

- Environmentally friendly and sustainable
- Saves up to 70 tonnes of CO₂ emissions annually
- No routine sludge handling requirement
- Reduced sludge volume by mineralisation and composting
- No chemical dosing required
- Low CAPEX, OPEX and ultimately whole life cost
- Treated water can be recycled for future use
- Creation of habitat and a high biodiversity value

Click [here](#) for a video of the Hanningfield **STRB** filmed by the BBC in May 2013 during commissioning where Wessex and Suffolk Water and the UK Environment Secretary explain the basic operation and strategic benefits of the technology.

