

CASE STUDY

Improving wastewater
effluent quality for a
local primary school

REWATEC®

Submerged Aerated Filter (SAF)



QUICK FACTS

Application

Vernham Dean Primary School via Hampshire County Council/Environmental Engineering Team, South East England, UK

Requirements

- An efficient and effective treatment plant beyond conventional systems
- A system that could cope with intermittent operation
- A reduction in the school's overall carbon footprint

Solution

Rewatec Submerged Aerated Filter (SAF)

SITUATION

Vernham Dean – our end user customer for this project, had a requirement to treat wastewater that was being periodically produced throughout the operational hours of the school.

The premises were previously served by a traditional septic tank, however, due to a combination of poor treatment quality and the frequent maintenance of the tank itself, the school could not continue to support the operation.

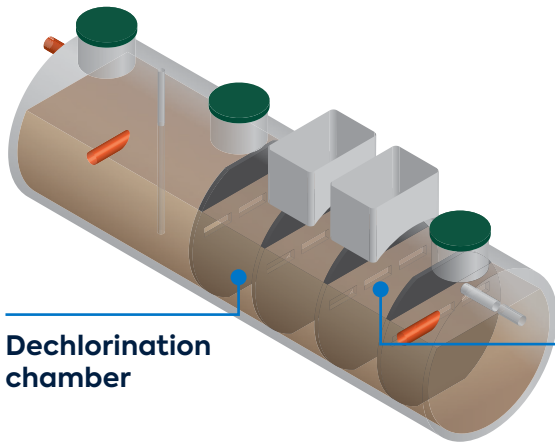
As with any school, intermittent operation meant that the power for a new treatment plant had to be optimised. Similarly, due to the intermittent operation and the unnecessary CO₂ emissions produced, a mechanism to reduce the schools overall carbon footprint was also requested.

COVID-19 and the resulting excessive use of disinfectants (often chlorine-based) is something else we had to take into consideration, as this could risk the stable operation of a conventional treatment plant that relies on bacterial communities.

SOLUTION

The School and the Engineering team at Hampshire County Council, through their delivery partner (Rocon Contractors Ltd) evaluated a new solution for the school. After discussing their needs with the experts at Premier Tech Water and Environment, the installation of a Rewatec SAF, with the following add-ons was agreed:

- Optimised, automatically adjusted aeration based on Dissolved Oxygen (D.O) levels in the plant
- Dechlorination chamber for the inactivation of residual chlorine or other harmful disinfectants
- Cost effective flow monitoring using pump logging
- Connections for i) dosing of alkali to optimise nitrification; ii) Ecoflo tertiary effluent system for further purification (if the schools population increases)



EFFICIENT WASTEWATER TREATMENT WITH A REDUCED CARBON FOOTPRINT

RESULTS

The Rewatec SAF, with the required add-ons, is now installed at Vernham Dean Primary School, and is providing optimised, eco-friendly wastewater treatment to the specified discharge consent, even under challenging conditions (inconsistent flow and presence of potential inhibitors). After 3 weeks of operation the system became acclimated, achieving an effluent quality of 14.4, 10.0 and 1.48 mg/L for BOD, TSS and NH₄-N respectively.

The optimised aeration is expected to reduce power requirements by up to 8760 kWh per year, not only reducing the operation of the plant but also delivering an annual reduction in CO₂- equivalent of up to 278kgCO₂ eq. per PE (people equivalent).

"We received excellent technical support from Dr Evangelos Petropoulos (PhD), Daniel Espley and the Premier Tech team. The design for the site was complex in that the unit needed to have a low ammonia discharge rate, cater for a potential school expansion and take into account increased cleaning / disinfectant use due to COVID-19 measures.

Premier Tech considered these issues and prepared a custom design, and took into account the site's specific requirements. We went through a few iterations of data to finalise the unit's design, and very much welcome the collaborative and helpful approach from Premier Tech when working on this scheme."

Fingal Noguera
Senior Engineer - Engineering Consultancy, Hampshire County Council



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