

The lakes by Yoo

Handling peak flows
with 50% energy reduction.

BLUE FOOT 
unbreakable membranes™

PROJECT

Customer	Coln Park Construction LLC
OEM - partner	New Forest Solutions
Location	Lechlade, UK
Sector	Municipal
Project type	Replacement (of non-backwasable flat sheet membranes)
Product	IPC® Flex Navy 1W6 (6 modules)
Start-up date	May 2022
Capacity	380 m ³ /day

CHALLENGE

The lakes by Yoo at Lechlade, United Kingdom, include 186 properties, 36 apartments, a spa, a management office and a restaurant. The environment is stunning for the residents and visitors who have their second or holiday home there. But this environment is also vulnerable and regulations on wastewater discharge are strict. The biggest challenge, however, is the variable wastewater flows of the park. Ranging from 50-70 m³/day during weekdays and up to 380 m³/day during weekends and national holidays. The previous MBR system with non-backwashable flat sheet membranes can't handle these flow variations causing system failures, downtime and higher energy- and maintenance costs.



Case Study

The lakes by Yoo



SOLUTION

In the first stage the wastewater is gathered via a fine screen into a balancing tank, before entering the first treatment step: an aerobic biological treatment followed by an anoxic zone in the same tank. After this biological treatment the wastewater is purified in the MBR tank where the existing flat sheet non-backwashable membranes are replaced by Blue Foot's backwashable IPC® membranes. These membranes perform the most critical step in the process: extracting treated water from the aerobic sludge, removing all micro-organisms and solids. The IPC® membranes perform at a lower aeration rate compared to the previous systems, in this case 1 of the 2 blowers becomes redundant. Next to that the biofilter treatment step following the MBR phase also becomes redundant because the IPC® membranes remove suspended solids completely, improving discharge quality. The MBR permeate is finally being discharged into river Coln via a vacuum drain system.

Replacement of standard flat sheet membranes with 6 IPC® Flex Navy modules.

Reduction of the MBR aeration system from 2 blowers to 1 blower.

Removal of biofilter treatment step.

RESULTS

By replacing the existing standard flat sheet membranes with 6 IPC® Flex Navy membrane modules the peak flows of 380 m³/day can be handled without any membrane clogging or system failures that caused downtimes in the past. This mainly due to the high pressure backwash and chemical cleaning properties of the IPC® membranes.

The discharge levels are compliant with environmental legislations and improved on the suspended solids parameter even with exclusion of the biofilter treatment step which was required in the previous set-up to meet these discharge levels.

The maintenance downtime is reduced with 90% and the energy consumption of the MBR aeration is reduced with 50%, creating significant cost and timesaving each year.

