

## Case Study

# Dundrum MBR System



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**Client:**  
NI Water

**Principal Contractor:**  
BSG

**specialist Subcontractor:**  
Colloide

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**Location:**  
Dundrum, N  
Ireland

**Project:**  
MBR

Dundrum Wastewater Treatment Works is a municipal wastewater treatment plant operated by Northern Ireland Water (NI Water) in a small coastal town in Northern Ireland.

The discharge limit for BOD and suspended solids is very strict as this site is located near a popular beach.

The plant was originally equipped with 12 Kubota ES150 modules, but satisfactory performance was becoming more difficult to maintain and the membranes were at their maximum limit regarding throughput and would not be able to deal with any increase in wastewater flow.

The main challenge was the limited space on site – the plant had to be upgraded for a larger flow rate without changing the existing tanks or adding new tanks.

# Project Deliverables

## The main components of the system

The existing wastewater treatment plant was designed as four cells operating in parallel, each housing 3no. Kubota membranes. Colloide replaced these membranes with state of the art Bio-Cel membranes from Microdyn Nadir, thereby increasing the membrane capacity by 180% without requiring any additional processing tanks. The plant had to remain operational during the exchange, so the retrofit was done one tank at a time. Colloide worked closely with the Plant Operators and Main Contractor to ensure the change out went as smoothly as possible.

### **4no. membrane tanks and each tank was upgraded to include:**

- 2no. submerged membrane modules
- Air diffusers
- Framework & pipework
- Permeate pumps and valves
- New blowers
- Pipework from low level

### **Common MBR Equipment was similarly upgraded, including;**

- New control system
- Washwater Tank
- Chemical cleaning system
- Access platforms

# Environmental Focus

## Sustainable Commitment

With the installation of the new membrane system, NI Water was able to increase the capacity of their treatment plant without extending their membrane tanks while reducing the power consumed by the plant. The system allows NI Water to reliably meet discharge limits and have adequate reserves for a future increase of flow.

This project was completed in January 2019. Colloide maintained a close working relationship with NI Water for the 12 months following completion to ensure the Client was comfortable with the operation and maintenance of the membranes.

Colloide's MBR Systems can be designed in a variety of configurations to suit the individual needs of each of our clients and their sites, including new and upgraded treatment plants. Full details on our MBR Systems can be viewed on our website.





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