

## Case Study

# Carstairs Wastewater Treatment Works



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**Client:**  
Scottish Water

**Principal Contractor:**  
ESD

**M&E sub-contractor:**  
Colloide

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**Location:**  
South Lanarkshire,  
Scotland

**Project:**  
Bridge Scraper

Colloide was contracted by Scottish Water to undertake the project of Carstairs in South Lanarkshire, Scotland. The task at hand was to install and commission 2 Rotating Half Bridge Scrapers for 6000mm diameter PSTs, along with 2 de-sludge pumps within each existing humus tank.

Bridge Scrapers allow for clearing sediment into a sludge collector pit or alternatively for depositing floating substances into a scum removal container efficient treatment for environmental sustainability.

The bridge scraper will rotate at a fixed speed aiding the collection of settled sludge at the central hopper of the tank. This sludge will be removed under gravity by opening the associated valve which will allow sludge to flow from the tank to the collection chamber. Scum is also drawn from the surface of the tank by the scum blade and a beach and blade scum removal system.

# Technical information

## The main components of the system

The bridge will be fitted with a heating element to prevent ice build-up on the tank wall. The heating element will be running while the bridge is running.

Included in the system is also:

- **Bridge Rotation:**

The bridge rotates consistently to gather settled sludge at the tank's central hopper.

- **Diffusion Drum:**

This component evenly distributes and diffuses wastewater, optimising its treatment.

- **Scraper Blades, Scum Baffle, and Weir Plates:**

Premium scraper blades, scum baffle, and weir plates enhance sludge and scum removal efficiency for effective wastewater treatment.

### Operation and Safety Features

The Humus tank's full bridge scraper operates meticulously for optimal performance.

Key functions include:

1. **Sludge Removal:** Collected sludge at the tank's center is discharged via gravity by opening a valve, allowing smooth flow into the collection chamber.
2. **Scum Disposal:** Scum is efficiently drawn from the tank's surface using a scum blade and a specialized removal system.
3. **Emergency Stops and Safety:** The bridge scraper features a STOP function on the control panel, along with two strategic emergency stops on the bridge for swift responses. The bridge remains inactive until emergencies are cleared.

