

Waste Water Case Study

Food Processing Company process's vegetables including high quantities of potatoes and carrots.

A second part of the factory undertakes salad washing and preparation.

In total, the water required for these activities is approximately 600,000 litres per day.

A site survey was undertaken to assess the existing waste water treatment plant, consisting of a 5mm screen and a Flottweg centrifuge:

Before:

Solids range, 0 to 5,000 mg/l, average 649 mg/l

COD range, 0 to 12,000 mg/l average, 3970 mg/l

After:

Solids range, 0 to 5,000 mg/l, average 545 mg/l (16% reduction)

COD range, 0 to 12,000 mg/l, average 3446 mg/l (13% reduction)

**Energy consumption, 70kW, 168 hours per week @ 10p/kWh =
£1,176 per week**

A pilot installation Filtration System showed extremely promising results leading to the installation of a Model 4 Filtration System complete with 210 micron screen.



Before:

**Solids range, 0 to 5,000 mg/l, average 649 mg/l
COD range, 0 to 12,000 mg/l, average 3970 mg/l**

After:

**Solids range, 0 to 2,000 mg/l, average 189 mg/l (70% reduction)
COD range, 0 to 12,000 mg/l, average 1965 mg/l (51% reduction)**

The resultant sludge from the Filtration System is processed by the existing centrifuge to generate the same dry cake. However, the centrifuge now only needs to run for 8 hours per week

Energy consumption, 70kW, 8 hours per week and 8kW, 168 hours per week @ 10p/kWh = <£200

Energy saving = nearly £1,000 per week

Savings as per the numbers above reduced from £600,000 per annum to £320,000

Effluent saving = over £5,000 per week

Other benefits of the Filtration System:

- **Small footprint (single car parking space)**
- **No balance tank – space and CapEx removal from the project**
- **Almost zero maintenance**
- **Instant payback relating to reduced CapEx for a smaller Dissolved Air Flotation**
- **Reduced chemical consumption for Dissolved Air Flotation**
- **Minimal water usage for screen cleaning**

The next stage of the project is a Dissolved Air Flotation plant, followed by biological treatment and finally, Reverse Osmosis.