



CASE STUDY:

SOLID WASTE REMOVAL

**QUEENSLAND
AUGUST 2018**

CONTRACTOR: BIOTECH WATER

GEOTUBE®

Geotube dewatering tubes are used for sludge dewatering projects of all sizes and there is good reason - simplicity and low cost.

There are no belts, gears, or complicated mechanics. Geotube containers use an engineered textile that is designed for dewatering of high moisture content sludge and sediment. They are available in many sizes, depending on your volume and space requirements.

Geotube dewatering containers are supplied to site and placed into position. Sludge, which is treated with specialist polymers is then pumped into the containers and the clear effluent water is then drained leaving the solid remains within the container. When full, the containers can be disposed at a landfill or the solids removed and land-applied.

Biotech Water is contracted to manage the wastewater emanating from a rural chicken processing plant in Queensland.

Geofabrics was initially contacted to investigate the use of Geotube dewatering units for the relatively minor portion of the sludge waste stream. Small units with a footprint of 2.2 m x 7.6 m were used successfully to capture the solids in this waste stream.

With the successful use of Geotube units for the biological waste stream, an even larger opportunity to reduce cost at the plant was identified.

Historically, the largest portion of slurry waste produced at the site was removed in liquid form by a vacuum truck at a cost of approximately \$70,000 per week. With the waste sludge comprised of approximately 95% water, tanker truck removal is very inefficient. Disposal required multiple visits per week to transport liquid slurry waste to a disposal facility. It was determined that it would take at least 50 trips from a 40 m³ tanker truck to match the equivalent capacity of a single large Geotube. An additional benefit is the Geotube actively dewateres the biosolid waste thus turning the waste into a stable solid mass.

A sample of the waste slurry was sent to the Geosynthetic Research, Innovation & Development (GRID) Centre for analysis. Because the slurry is already flocculated in the plant, when put in contact with GT500 geotextile, it dewatered very easily.

> Solid Waste Removal



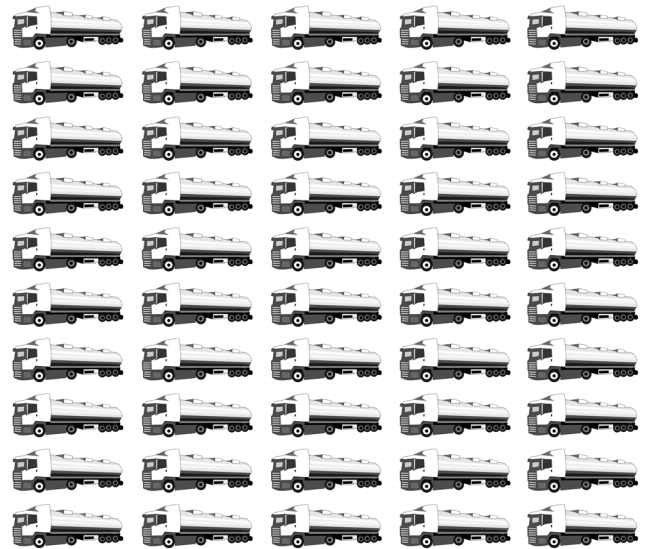
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The 18.3 m x 30.6 m Geotube full in December 2018.



The Dewatering Cells were lined with Elcoseal X1000 Geosynthetic Clay Liner.



50 TANKER TRUCKS

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1 GEOTUBE

It was observed that approximately half the water could be removed immediately, and further dewatering could be expected from evaporation and weeping over time.

A dewatering pad was constructed upstream of the wastewater ponds in place. The wastewater ponds make use of a compacted clay barrier layer. It was determined that the dewatering pad could be lined with Elcoseal X1000 Geosynthetic Clay Liner (GCL) to get the equivalent hydraulic barrier performance of the compacted clay in the pond.

A layer of drainage aggregate was placed over the GCL to give confinement to the GCL and drainage capacity beneath the Geotube.

Due to space requirements, two separate pads were constructed. On each pad, a Geotube with 18.3 m x 30.6 m footprint will dewater. Once the Geotube reaches a spandable solids concentration, the solids will be dug out and further processed as a dry solid.

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