



MATUA VALLEY WINERY WASTEWATER TREATMENT PLANT



Client
Treasury Wine Estates

Address
Wairau, NZ

Completion Date
October 2012

Factor UTB provided consultancy to advise about wastewater treatment solutions for a failing treatment system, including advice on recovery of an overloaded irrigation area adjacent the existing wastewater treatment system. Factor UTB recommended a wastewater treatment system capable of carrying the average wastewater pollutant load the winery and bottling facility, with the use of an existing wastewater storage pond to allow averaging of the load. This allowed construction of a smaller, aerobic wastewater treatment plant than otherwise would have been needed.

The plant provided is designed to remove 90% of incoming load up to 260 kg of BOD5 and up to 100 kL per day. Load beyond the plant capacity is bypassed and delivered to the pond where it is cocktailed with treated wastewater. The stored water from the pond is recycled through the plant when the plant is more lightly loaded. It can recycle up to 150 kL per day when lightly loaded.

By timing the irrigation of the treated wastewater onto pasture the winery has achieved a condition whereby the only limiting factor for wastewater discharge is the water uptake capacity of the plants and soil. Discharge limits as low as 30 mg/LBOD5 down from 5000 mg/L average can be achieved.

DESIGN PARAMETERS

Average Design Dry Weather Flow	50 kL / day
Peak Day Flow	100 kL / day
Max Instantaneous Flow	7.5 L / sec
Peak BOD Removal Capacity in conjunction with Nitrogen Removal	260kg / day 6 kg / day



MATUA VALLEY

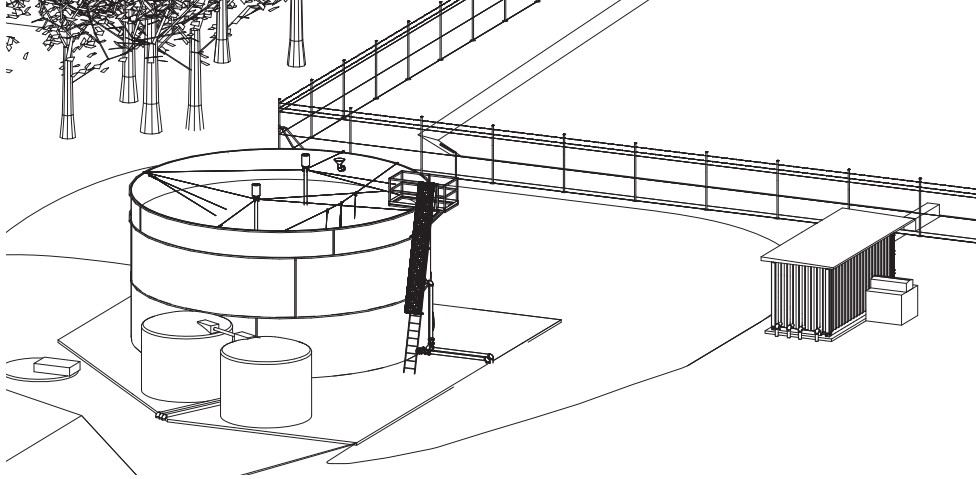


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Wastewater plant can be monitored remotely, and is designed for fully unattended operation. That does not mean it shouldn't be checked regularly during heavily loaded periods. Sludge production and management of sludge production by the winery operator is the major factor that determines the success of the plant's operation.

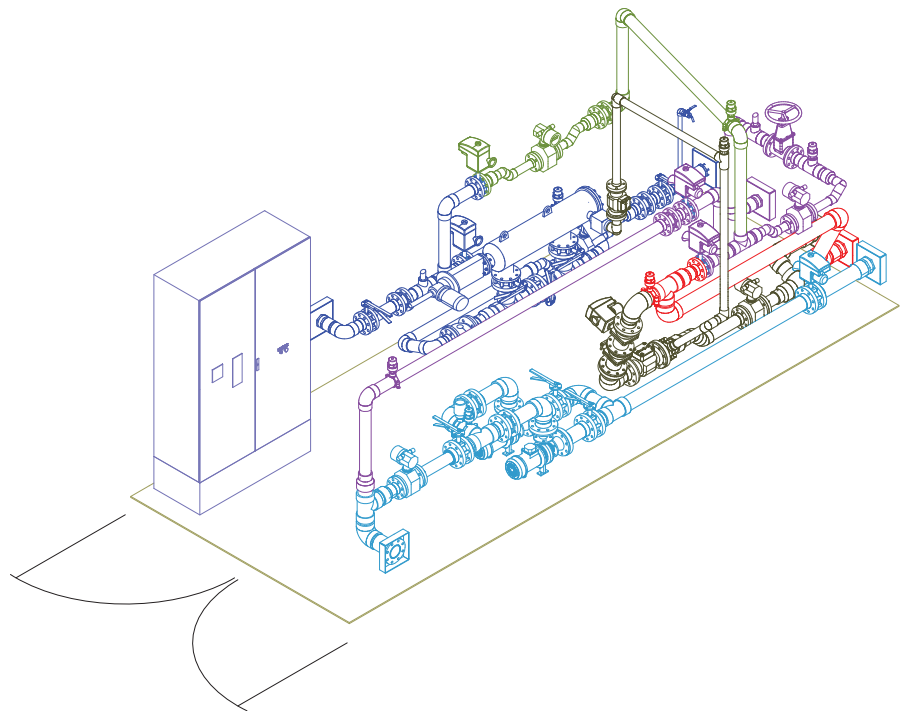
Treasury Wine Estates have installed a number of Factor UTB plants. Each one

is different because each winery has a different mix of grape crush, fermenters, tankage and barrel washing regimes, bottling or bulk deliveries. The disposal path for the recycled water also has different constraints.

Factor UTB's bio reactor technology has over 40 installations with flow capacities of 50kL up to 5 ML per day, treating strengths up to 15,000mg/L COD. It has a unique set of characteristics that make it more flexible and therefore more effective and efficient than most competing systems in most circumstances.

One of the characteristics of winery waste is that there are sudden changes in wastewater characteristics as the winery moves from grape crush and juice transfer with short chain organics to fermentation and then barrel ageing the associated complex long chain molecules appear in the waste stream demanding quite different microbiological populations.

The biggest advantage over competing systems such as Anaerobic reactors of various sorts and MBBR systems is capacity to deal with widely varying loads and 'starvation' for long periods. It is simpler to operate and does not need media replacement at regular intervals. Factor UTB system is a high rate activated sludge system that uses intermittent aeration which allows input energy to be absolutely matched to incoming load. It tolerates sudden changes of wastewater characteristic better than any other system. The Factor UTB plant is able to respond almost hourly to the sudden changes.



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