On-site Effluent Treatment National Testing Programme (OSET NTP)

PERFORMANCE CERTIFICATE
Findlater PA 5x5 On-site Domestic Wastewater Treatment System, OSET NTP Trial 8, 2012/2013

System Tested
The **Findlater PA 5x5** on-site wastewater treatment system is a submerged aerated filter treatment unit using Bio Blok 2000 media. Rated design capacity is 1,600 litres/day. Total liquid volume is 8,160 litres (primary treatment 4,200 litres; twin chamber secondary treatment 830 and 810 litres respectively; clarification: 1,360 litres; pump chamber 960 litres). Emergency storage is 1,839 litres. No tertiary treatment (such as UV disinfection) is incorporated. It is a two tank system with primary treatment in the first tank and secondary treatment in a second twin chamber tank.

Test Flow Rate
The **Findlater PA 5x5** system was tested at 1,000 litres/day (equivalent to servicing a 3-bedroom 5 to 6 person household) over an 8 month (35 week) period November 2012 to June 2013 followed by a 1 month (4 week) high load effects test in July 2013 involving 5 days at 2,000 litres per day then 1,000 litres/day over the following 3 weeks.

Testing and Evaluation Procedures
A total of 37 treated effluent samples of organic matter (BOD_5) and suspended solids (TSS) at generally six day intervals during weeks 9 to 35 were tested and evaluated against the secondary effluent quality requirements of the joint Australia/NZ standard AS/NZS 1547:2012.

A total of 16 treated effluent samples of organic matter (BOD_5), total suspended solids (TSS), total nitrogen (TN), ammonia nitrogen (NH_4-N), total phosphorus (TP) and faecal coliforms (FC) at generally six day intervals during weeks 23 through 35 were benchmarked and rated on their median values. In addition, the energy used by the treatment system was assessed on the mean of consumption levels over the 16 sample days.

AS/NZS 1547:2012 Secondary Effluent Quality Requirements
These requirements are that 90% of all test samples must achieve a BOD_5 of $\leq$ 20 g/m^3 and TSS of $\leq$ 30 g/m^3 with no one result for BOD_5 being >30 g/m^3 and no one result for TSS being >45 g/m^3. The **Findlater PA 5x5 system achieved** a performance level of **100%** for BOD_5 and **100%** for TSS based on the full set of 37 test results in weeks 9 to 35, with no results exceeding the maximums.. The **Findlater PA 5x5 system** thus **meets** the secondary effluent quality requirements of AS/NZS 1547:2012.

Benchmark Ratings
The Findlater PA 5x5 system achieved the following effluent quality ratings for the sixteen benchmarking results in weeks 23 to 35.

Indicator Parameters	Median	Std Dev	Rating	Rating System				
				A+	*A*	*B*	*C*	*D*
BOD_5 (mg/L)	*<0.2*	*1.8*	**A+**	*<5*	*<10*	*<20*	*<30*	*≥30*
TSS (mg/L)	*2*	*1*	**A+**	*<5*	*<10*	*<20*	*<30*	*≥30*
Total Nitrogen (mg/L)	*37.7*	*4.6*	**D**	*<5*	*<15*	*<25*	*<30*	*≥30*
NH_4- Nitrogen (mg/L)	*0.6*	*1.0*	**A+**	*<1*	*<5*	*<10*	*<20*	*≥20*
Total phosphorus (mg/L)	*3.6*	*0.4*	**B**	*<1*	*<2*	*<5*	*<7*	*≥7*
Faecal Coliforms (cfu/100mL)	*5,100*	*2,500*	**B**	*<10*	*<200*	*<10,000*	*<100,000*	*≥100,000*
Energy (kWh/d) (mean)**	*2*	*0.1*	**C**	*0*	*<1*	*<2*	*<5*	*≥5*

** **Note:** Overall energy rating reflects conditions at the test facility – power consumption for effluent pumping under field conditions will be specific to the distribution system as installed.

This Performance Certificate is specific to the **Findlater PA 5x5 system** model as specified above when operated at a flow rate of 1,000 litres/day, and is valid for 5 years from the date below. For the full OSET NTP report on the performance of the **Findlater PA 5x5 system** contact **Findlater Construction Ltd** Ltd of Blenheim, Ph: (03) 5792284 Mob 021 464 232.

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