

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

PERFORMANCE CERTIFICATE Hynds Lifestyle 2 On-site Domestic Wastewater Treatment System, OSET NTP Trial 11, 2015/2016

System Tested

The **Hynds Lifestyle 2 system** is a Submerged Aerated Filter Wastewater Treatment Plant using Exponet Bio-Blok 200 series submerged fixed growth filter system [A1: min thickness, 426m²/m³, A2: 1mm min thickness, 312m²/m³]. The manufacturers rated design capacity is 2,000 litres/day. Total operational liquid volume is 6,200 litres (Primary Chamber 3,160 litres; Aeration Chamber 1, 1,420 litres; Aeration Chamber 2 1,620 litres including Clarifier; Pump Chamber 270 litres; Emergency storage 2,340 litres). No tertiary treatment (such as UV disinfection) is incorporated. It comprises a single 4 chamber concrete tank. The air blower is Thomas (Garner Denver) LP-80HN, 0.1kW, 77 lpm running continuously and operating a continuous venturi airlift recirculation pump at 360 lph. There is a Taylex TFS 1.5mm effluent filter in the Primary Chamber and normally an Arkal long body 130 micron disc filter (but this was not installed on the plant tested due to access difficulties). The manufacturers stated service frequency is 6 monthly, and they recommend the homeowner to clean the effluent disc filter at 4-6 week intervals.

Test Flow Rate

The **Hynds Lifestyle 2 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 2015 to July 2016 followed by a 1 month (4 week) high load effects test involving 3 days at 1,500 litres/day followed by 2 days at 2,000 litres/day then 1,000 litres/day over the following 2 weeks.

Testing and Evaluation Procedures

A total of 37 treated effluent samples of organic matter (BOD₅) 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 (BOD₅), total suspended solids (TSS), total nitrogen (TN), ammonia nitrogen (NH₄-N), total phosphorus (TP) and faecal coliforms (FC) at generally six day intervals during weeks 23 through 35 were tested and the results 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 BOD₅ of ≤ 20 g/m³ and TSS of ≤ 30 g/m³ with no one result for BOD₅ being >30 g/m³ and no one result for TSS being >45 g/m³. The **Hynds Lifestyle 2 system** achieved a performance level of **100%** for BOD₅ 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 **Hynds Lifestyle 2 system** thus **meets** the secondary effluent quality requirements of AS/NZS 1547:2012 at the test flow rate of 1,000 L/day (ie at 50% of the plants advised design capacity).

Benchmark Ratings

The **Hynds Lifestyle 2 system** achieved the following effluent quality ratings for the sixteen benchmarking results in weeks 20 to 35.

Indicator Parameters	Median	Std Dev	Rating	Rating System				
				A+	A	B	C	D
BOD (mg/L)	2	1	A+	<5	<10	<20	<30	≥30
TSS (mg/L)	2.5	1.8	A+	<5	<10	<20	<30	≥30
Total Nitrogen (mg/L)	21.3	2.3	B	<5	<15	<25	<30	≥30
NH ₄ - Nitrogen (mg/L)	0.06	0.03	A+	<1	<5	<10	<20	≥20
Total phosphorus (mg/L)	4.1	0.4	B	<1	<2	<5	<7	≥7
Faecal Coliforms (cfu/100mL)	8,000	7,640	B	<10	<200	<10,000	<100,000	≥100,000
Energy (kWh/d) (mean)	2.18	0.08	C	0	<1	<2	<5	≥5

This Performance Certificate is specific to the **Hynds Lifestyle 2** model as specified above when operated at a flow rate of 1,000 litres/day (50% of advised plants design capacity), and is valid for 5 years from the date below. For the full OSET NTP report on the performance of the **Hynds Lifestyle 2 system** contact **Hynds Environmental**, Auckland, P: +64 9 271 9565, or E: John.Bradford@hyndsenv.co.nz.

Authorised By:



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1 February 2017