OPERATION & MAINTENANCE MANUAL

HYNDS LIFESTYLE

WASTEWATER SYSTEM

LIFESTYLE WASTEWATER SYSTEM OPERATION MANUAL

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APPROVED WASTEWATER
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HYNDS ENVIRONMENTAL

OPERATION & MAINTENANCE MANUAL

HYNDS LIFESTYLE WASTEWATER SYSTEM

The Hynds Lifestyle Wastewater System is a technologically advanced wastewater treatment system.

Using aeration technology, the naturally occurring aerobic organisms in the tank accelerate the digestion to treating the wastewater from the household to a clear odourless liquid for irrigating the landscaped garden, bush or tree stand.

1 INTRODUCTION

This manual contains important information on how to care for the system.

Understanding and following this manual will not only ensure the system achieves a high level of treatment, it will also help the system run trouble free and achieve the longest possible life span for the electrical components in the system.

2 IMPORTANT INFORMATION

Most importance sections are five and six of this manual which explain the maintenance requirements and offer tips and advice on how to care for the Lifestyle system. If a problem does occur in the system, the first step is to clean the irrigation filter to ensure it is not blocked.

Secondly, check the electricity supply to the system (you should be able to hear the blower working in the tank). If you are unable to rectify the problem, please call Hynds Environmental on 0800-4 A Lifestyle (0800 425 433).

3 INTENDED USE

The Hynds Lifestyle treatment plant is designed to treat wastewater from a domestic dwelling with a maximum flow design of 1800 litres per day. The performance and health of the naturally occurring microbiological bacteria that live in the tank rely on the home occupiers attention to ensure no harmful products are inserted into the system...

The Lifestyle system has been designed for a maximum daily flow of 1800 litres of domestic wastewater. Any additional volume will be deemed to be contrary to the intended purpose and design of the system. The manufacturer assumes no liability for damages resulting from this.

3.1 Harmful products

Bleaches	Harsh cleaning products
Milk	Coffee grounds
Fat, grease or oil	Acids or caustics
Paints	Condoms
Sanitary products	Cigarettes
Photographic chemicals	Poisons
Blood, meat flesh or skins	Medication (such as antibiotics)
Pharmaceutical drugs	Spa or swimming pool backflush

- *Table 1: Prohibitive Products to Enter Sewer Connection.*
- *It is recommended to use products that are labelled bio-degradable such as the Eco Store range which are available in most supermarkets*

4 TECHNICAL DATA

Description: Hynds Lifestyle Domestic Treatment Plant
Maximum Flow: 1.8 m3 per day
Designer: Hynds Environmental
Manufacturer: Hynds Environmental

Expected effluent characteristics:

Treatment Option	cBOD (g/m3)	TSS (g/m3)	NH3 (g/m3)	TN (g/m3)
SAF	< 20	< 20	< 5	< 15-25

Air blower

Manufacturer: Rietschle
Type: LP80HN
Connection: 230 V, 50 Hz
Power: 0.12 kW
Number: 1 unit

Irrigation Pump

Manufacturer: Davey
Type: D42 A/B
Connection: 220-240 V, 50 Hz
Power: 0.6 kW
Number: 1 unit
Max. total head 32 m

Irrigation filter

Manufacturer: Amiad
Type: 25mm Diameter with 130 micron screen
Number: 1 unit

5 SAFETY INSTRUCTIONS

This operating manual contains basic information that should be observed when operating and servicing the plant. This manual should be read before operating, maintaining or repairing the system.

This operating manual must be kept accessible at the premises where the tank has been installed. Installation and servicing of the Hynds plant and electrical componentry is to be carried out in accordance with best practice and applicable guidelines.

5.1 Maintenance and repair work

Only the manufacturer or an approved contractor may carry out maintenance and repair work (except filter cleaning) on the system. A service contract should be in placed with an authorised service agent. Any work carried out by unauthorised organization or person may result in the warranties for the system becoming invalid.

5.2 Owner Responsibility

The plant runs automatically and requires no special knowledge on the part of the owner / user.

However an irrigation filter may require cleaning on a routine basis. (see filter cleaning instructions)

Irrigation Cleaning Instructions

- Unscrew the filter housing (placed outside the tank before the irrigation field).
- Remove the cartridge.
- Loosen the ends of the filter to loosen the disks and proceed to clean with a hosepipe.
- Replace cartridge and filter base.

5.3 Basic information about safety

Potential risks when operating, checking or maintaining sewage treatment plants may be:

- Inflammations and infections
- Falling into the empty or filled tank chamber
- Suffocation
- Electrocution

5.4 Care

Wastewater can contain harmful bacteria such as infectious pathogens. When carrying out any maintenance, servicing of the system or filter cleaning, the following should be observed.

- Thoroughly clean your hands with soapy water and disinfect. Always wear rubber gloves,
- If eye or mouth contact occurs, flush with plenty of water and seek medical advice if any irritation occurs.

5.5 Danger of falling into the empty or full tank

To avoid falling into an empty or filled tank and/or chamber you should:

- Always have a firm foothold
- Wear safety footwear
- Cover access holes when not in use

5.6 Danger of suffocation

Do not enter the inside of the tank under any circumstances.

The production of toxic gases in sewage treatment plants can occur. If the tank is to be entered by a contractor, standard confined space procedures must be followed and the relevant safety equipment must be utilised (includes gas detector, breathing apparatus, tripod and winch).

No smoking in the vicinity of the sewage treatment plant is allowed.

5.7 Risk of electrocution

Before entering any part of the sewage treatment plant, making contact with the water or working on or near motorised equipment, ensure the power to the relevant components are switched off and safely isolated using standard isolation procedures. (see irrigation cleaning instructions)

6 TREATMENT PROCESS

The treatment process occurs through a series of treatment chambers within the system before disposal via a network of self-compensating drip irrigation.

Treatment Stages of a Hynds Lifestyle Wastewater System

1. *Wastewater enters from dwelling.*
2. *Primary treatment tank.*
3. *Biological filter.*
4. *First stage aeration chamber.*
5. *Second stage aeration chamber.*
6. *Laminer plate clarification.*
7. *Pump out / irrigation.*

6.1 Chamber Functions

For specific chamber capacities refer to Table 1.

6.2 Pretreatment Chamber (Anaerobic)

The primary (anaerobic chamber) is designed to retain wastewater where solids matter settle at the bottom of the chamber. Floating solids combine to form a thick biological layer at the top of the tank. Natural occurring anaerobic organisms work to break down the sludge.

Any suspended solids are captured in a biological filter situated at the outlet of the pretreatment chamber.

6.3 Biological Disc Filter

The biological filter on the outlet assists in surge reduction and retain any indigestible solids in the tank for potential anaerobic breakdown or eventual pump out.

Figure 3: Biological Disc Filter

6.4 Submerged Aerated Filtration Chambers (Aerobic Digestion) – Stage 1

The aerated filtration chamber is a two-stage process. Wastewater is initially infused with finely diffused oxygen bubbles from the base of the chamber. A biomass filter media is situated to allow the aerobic bacteria to rapidly multiply on this surface and roam to digest the suspended waste particles.

System Type	Pre-treatment Volumes (Litre)	Aeration Volumes (Stage 1) (Litre)	Aeration Volumes (Stage 2) (Litre)	Irrigation Volume (Litre)	Total System Working Volume (Litre)	Emergency Capacity (Litre)	Total System Capacity (Litre)	Standard System Surge Capacity	Standard System Treatment Capacity
Advanced	3,000	1530	1530	1000	7,200	1,770	8,450	600 litres per hour	2,000 litres per day
Compact	3,000	1500	1250	1500	6,500	2,300	7,500	600 litres per hour	2,000 litres per day
Elite	**Stage 1** 4,500 **Stage 2** 3000	1530	1530	1000	11,200	3,020	12,950	800 litres per hour	3,000 litres per day

Table 1: Lifestyle Wastewater Treatment Systems chamber capacities

Figure 4: *Submerged Aerated Filtration*

6.5 Submerged Aerated Filtration Chambers (Aerobic Digestion) – Stage 2

The aerated filtration process is repeated in a second chamber, to further improve the quality of the treatment.

6.6 Laminar Plate Separator and Sludge Return System

The final clarification of effluent occurs through the liquid passing through a laminar plate separator, located at the end of the stage 2 aeration chamber. The laminar plates remove any fine suspended particles remaining in the effluent. Any fine slurry falling to the base of the hopper shaped chamber is transferred by a venturi system back to the primary chamber to recycle once again through the system. This high energy activated slurry assists break down the anaerobic sludge in the primary chamber, thereby reducing the frequency that this chamber will require to be pumped out.

6.7 Irrigation Pump Chamber

The final chamber (irrigation chamber) pumps the treated effluent into the irrigation lines at regular intervals during the day, set off by a float switch which operates at an activation level. The tank has an emergency capacity of 1770 litres (a full day usage)

7 MAINTENANCE

This section deals with maintenance issues only and does not include any requirements stipulated in the resource consent.

Please note: *Hynds Environmental Technicians will require foot access to your Lifestyle system every six months. The green lids on the tank will need to be removed and it is therefore essential that access is not restricted due to excess landscaping by the landowner.*

7.1 Preventative Maintenance

The Hynds Lifestyle Domestic Wastewater Treatment system operates automatically however as with any high performing product, preventative maintenance is required to ensure your system continues to perform to its peak performance. Irrigation cleaning will be required by the owner on a regular basis (minimum frequency bi-monthly). The procedure for this operation is included in Appendix B.

7.2 General Servicing

The treatment system requires specialised periodic servicing, performed by a suitably trained technician. The general servicing will include:

- Checking and cleaning all filters including blower filter
- Checking and flushing irrigation lines as per manufacturer's instructions and recording pressure in lines
- Checking all pumps and the blower as per manufacturer's instructions
- Checking controller operation
- Test all alarms
- Check aeration of Aeration Tank
- Monitor sludge build up
- General inspection of site condition
- Taking samples for testing (if applicable)
- On completion of the service, a service report is completed and sent to both the homeowner and the required council(s).

7.3 Trouble Shooting and Call Outs

The custom built controller identifies faults within the treatment system. If a fault does occur, an alarm is activated on the control panel. Once a fault occurs there will be 24 hours emergency storage before the system starts to overflow therefore it is recommended the fault is addressed immediately.

If the fault is not diagnosed and remedied by a simple irrigation service, phone your service agent and/or Hynds Environmental.

Photo 1: Cleaning of irrigation filter – refer Appendix B

8 TIPS AND ADVICE

Only domestic wastewater should be inserted into the treatment system. Below is a list of helpful points that should be observed and followed:

- Do not allow any rainwater, groundwater, swimming or spa pool backflush enter the system.
- Ensure no large objects such as toys or nappies are put down the drains.
- Food scraps and leftovers should be composted or put in the rubbish bin.
- Distribute your washing machine loads over the week. This is to prevent surge loading which affect the performance of the bacteria.
- Use biodegradable and water soluble products for cleaning and washing such as the Eco-Store range available in supermarkets or on the web.

Solid or liquid substances not to be disposed of through sink and/or toilet

Substances	What they cause	Where they belong
Wastes (also when reduced in size), e.g. ash, tins, fibres, glass, sweepings, cork, trash, cloths, sand, sludge, rubble, stones, wallpaper residues, textiles, cigarette stubs	Clog the pipes, deposit and do not decompose, Block the filter	Waste bin
Aggressive or toxic substances, e.g. acids (sulphuric acid), Dyes (caustic-soda solution) and salts, agricultural biocides, herbicides and pesticides	Intoxicate the sewage, damage the biomass and can cause concrete corrosion, foaming	Municipal collecting points
Hardening substances, e.g. cement, lime, lime wash, gypsum, mortar, carbides, synthetic resins, bitumen, tar	Clog the pipes, damage the biomass, block the filter	Waste bin, Municipal collecting points
Substances forming flammable, explosive mixtures, solvent residues, e.g. petrol, heating oil, lubes, thinners, spirit, paints, varnishes, phenols	Intoxicate the sewage, damage the biomass, destroy the filter	Municipal collecting points
Fatty or oily substances, e.g. edible fat, deep-fry fat	Deposit in the pipes, cause plugging	Put this in the waste bin when cold
Photo-chemicals, e.g. developer fluids, fixer, etc.	Intoxicate the sewage, damage the biomass	Municipal collecting points
Hygiene articles, e.g. cotton-wool balls, sanitary towels, nappies, dressings, paper towels, cotton swabs, plaster, razor blades	Clog the pipes, deposit and do not decompose, Block the filter	Waste bin
Cats' litter	Deposits in the pipes	Waste bin
Soldering fluid	Intoxicate the sewage	Municipal collecting points
Medicines and drug residues (antibiotics, etc.),	Intoxicate the sewage	Municipal collecting points, chemists
Motor oil, oil-containing wastes, e.g. cloths, oil filters, cans, etc.	Intoxicate the sewage, clog the pipes	Municipal collecting points, motor repair shops and petrol stations

Branches Nationwide *Refer to www.hynds.co.nz for further branch details*

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