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## On Site Treatment – Council Concerns

Project: **110-112 Mt Vernon Rd, Mt Vernon – Proposed Childcare Centre**

Attention: **Penrith City Council (Lauren Van Etten)**

Below I have addressed all issues and concerns raised by council regarding the onsite wastewater treatment system proposed at **110 – 112 Mt Vernon Rd, Mt Vernon**.

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### 1- Environmental Aspects

Environmental impacts on the local environment has been accounted for within the wastewater report provided by Envirotech. This consideration has taken into account the local vegetation specific to the disposal area, as well as the risk of overland flow, erodibility, required setbacks, salinity and a comprehensive soil assessment (Pages 6 – 12 of report). The finding of these assessments found any risk to be very minimal or of no consideration.

### 2 - System Controls to reduce Adverse Environmental Impacts

Adverse environmental impacts will be mitigated in a number of ways as outlined below.

- All treated wastewater will be **STRICTLY** disposed of in purposefully designed and allocated disposal area.
- Any system failures (Irrigation pump failure, blower failure or disinfection failure) will be monitored by an alarm system specifically designed to notify staff on site well prior to any risk of contaminants leaving the system. Once notified, the system will be tended to by a qualified AWTS service technician to rectify any failures.
- Facility maintenance staff will be trained in the basic operation and maintenance of the treatment system to ensure the operation of the AWTS is never impeded
- Strict guidelines will be in place to ensure the waste entering the system is not contaminated by chemicals or foreign bodies capable of causing system failure
- Diversion drains will be installed above the disposal area to mitigate the risk of stormwater encroachment.



### 3 - Ongoing Monitoring and Review Program to remain contemporary with relevant Environmental Standards

This will be an ongoing program that will be monitored through regular servicing and maintenance.

By closely monitoring system performance and with regular maintenance of the prescribed disposal area, any evolving environmental standards will be able to be appropriately addressed and adhered to as they present themselves. System water quality will be closely monitored to ensure the system is operation at its maximum potential.

This rigorous monitoring will also allow us to upgrade and replace any aerators, irrigation pumps or treatment components to remain compliant to relevant environmental standards

### 4 - System Information

Comprehensive documentation has been provided outlining system Accreditation, design and specifications, treatment capability and hydraulic capability. Treatment results can be found below under point 6.

### 5 - Detailed Assessment of Hydraulic Loading

Please refer to the table below (Page 5 of Waste water report)

<i>Design Wastewater Allowance</i>	<p><i>Proposed childcare:</i></p> <ul style="list-style-type: none"> <li>• 40 L/person/ day</li> </ul> <p><i>*AS/NZS: 1547-2012, Table B1 School (pupils plus staff) taken from Penrith DCP</i></p>
<i>Equivalent Population</i>	<p><i>Proposed Childcare</i></p> <ul style="list-style-type: none"> <li>• 96 EP (96 Children Expected)</li> </ul> <p><i>Staff:</i></p> <p>19 EP (5-19 staff)</p>
<i>Design Wastewater Flowrate</i>	<p><i>Proposed Office:</i></p> <ul style="list-style-type: none"> <li>• 3,840L/Day (Max)</li> </ul> <p><i>Visitors</i></p> <ul style="list-style-type: none"> <li>• 760L/Day (Max)</li> </ul> <p><i>Total Flowrate:</i></p> <p>4,600L/day (Max)</p>

Further Hydraulic considerations – Waste water produced from cleaning (Sanitary, arts and craft so on) is difficult to predict, to allow for this (As well as any other unpredicted hydraulic loads), the proposed commercial AWTS possesses the capacity to treat **5,700L Per day, 1,100L more** than what is required. This excess treatment capacity will account for hydraulic fluctuations.



### 6 - System Performance and Disposal Area Dosing

Please see figures below outlining performance of the proposed AWTS (Oxyfix FIXEUC90 – 5.7M<sup>3</sup>/day)

#### Assumed Influent Values

Application :	Wastewater Treatment*	
Pollutant load BOD <sub>5</sub> :	400	mg/L
Pollutant load TSS :	600	mg/L
Pollutant load N <sub>tot</sub> :	80	mg/L
Pollutant load P <sub>tot</sub> :	13	mg/L

#### Purification performance

BOD <sub>5</sub> :	20	mg/L
TSS :	30	mg/L

#### Air Diffusers

Quantity :	8	pc(s)
Type :	fine bubbles	

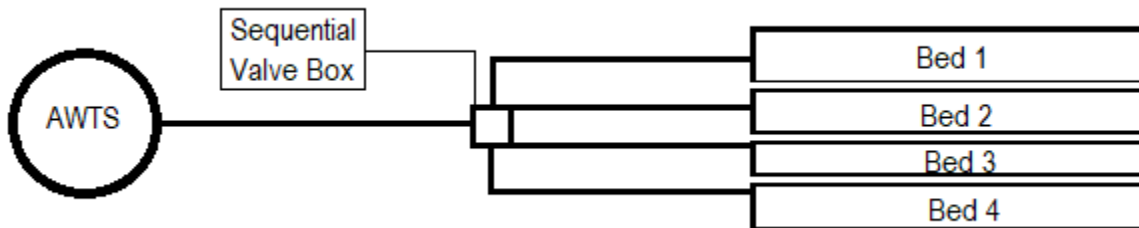
#### Blower

Quantity :	1	pc(s)
Type :	side channel air blower	
Installed power :	0.81	kW
Power consumption :	0.68	kW
SPL (Sound Performance Lab) :	68	dB(A)
On / Off :	30/30	min.
Voltage :	3x400V	

#### Sludge recirculation

Type :	submerged pump	
Installed power :	0.85	kW
Power consumption :	0.85	kW
On / Off :	5/55	min.

Disposal area will be dosed using an **automatic** sequential valve system as per diagram below.



### 7 - Monitoring and Testing

Onsite maintenance staff will be provided a weekly check list that will assess the ongoing operation and monitoring of the treatment system. This list will ensure the disposal area is not leaking, blocked or damaged, all aeration pumps are active, all irrigation pumps are active as well as check for any damage to components of the treatment system and disposal area.

Combined with regular maintenance from Envirocycle technicians, the treatment system will be kept it optimal operation.

### 8 - Kitchen waste

All waste for the kitchen will first pass through a grease trap, Envirocycle recommends a trap with the capacity of at least 3000L prior to any of the waste entering the treatment system.



## 9 - Maintenance and Servicing Program

12 Months of regular servicing (3 monthly intervals) is included with the installation of this system. Servicing will then continue on a 3 monthly basis unless otherwise instructed by client. Servicing will commence from day of commissioning and consist of the following

- Water quality test
- Irrigation pump check and test
- Aeration Pump check and test
- Aeration adjustment (If required)
- Sludge return adjustment (If required)
- Sludge level check (All chambers)
- PH Test
- Filter check and clean (All filters)
- Inspection and testing of disposal area(s)
- Sterilization component check and test (UV System/ Replace depleted chlorine)
- Rectification of any found issues
- Alarm test
- Report results to council and client

## 10 - System Failure Contingency

The treatment system will operate with two irrigation pumps, one will sit idle in the case of the primary irrigation pump failing. In the event the primary irrigation pump does fail an alarm will signal in the main complex and secondary pump will activate until technicians attend the site to repair/ replace the primary irrigation pump.

All aeration pumps will also be connected to an alarm system that too will notify employees in the main complex that there is an issue with the aeration system.

In the event of the above-mentioned failure or any others for that matter, staff at the complex will notify Envirocycle and a service technician will be dispatched to rectify the issues promptly.

## 11 - Wet Weather Storage

Envirocycle will propose the installation of a 20,000L wet weather storage tank. This tank will be used to store treated effluent during severe rain events. Once the event has passed the treated effluent will then be dosed to the disposal area using the automatic sequential valve. (Final holding tank size will need to be approved by council)

This storage tank will be installed next to the treatment system and manually activated when required.



## 12 - Odor Management

Measures will be taken to ensure that no offensive odors are emitted from the on-site treatment system. To combat odor, we will install a carbon air-filter to capture any escaping gases from the system. This filter will be fitted to the top of the treatment system over a dedicated port and all other ports, manholes and entry points will be appropriately sealed to ensure all escaping gasses pass through the carbon filter.

## 13 - Landscape and Disposal Area Management

To ensure that the disposal area performs at its best, Envirocycle recommends that the beds be strip turfed to reduce erosion and encourage vegetation growth.

Whilst some consultants may recommend the disposal area to be planted, we strongly advise against this as this can lead to root intrusion of the disposal area eventually leading to system failure.

Vegetation on top of the beds should be strictly limited to **turf only**. The turf should be kept short through regular maintenance.

## 14 - Health and Safety

Exposure to untreated effluent will be very limited as treatment system will be sealed and located away from the main complex. This is the same for the treated effluent as all treated water will be dispersed underground in the prescribed pressure dosed beds.

Envirocycle recommends that the disposal area be clearly marked to avoid contact, the site will also have a number on warning signs that indicate the treatment and onsite disposal of effluent at the premises.

## 15 - Capacity to treat Special Event Hydraulic load fluctuations

The proposed treatment system has a larger than recommended treatment capacity to cope with excess hydraulic load events they may be expected, although rare.

The proposed system will possess the capacity to treat **5700L per day, 1100L per day** more than is suggested within the wastewater report, highlighting a system that has the capacity to treat 4,600L per day.



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## **16 - Stormwater Flows and Mitigation**

As highlighted within the wastewater report, the risk of stormwater on flow is low. However, to mitigate any risk of stormwater flowing across the disposal area causing contamination or damage, a dish drain will be constructed directly above the disposal area to redirect storm water away from the disposal area

## **17 – Staff Education**

All staff working on site will be educated in what can and cannot enter the treatment system. This will include explaining the importance of using the correct cleaning chemicals, ensure only wastewater enters the system free of foreign objects such as sanitary items.

Being a childcare center, it is likely that paints will be used for craft purposes. The use of water-based paints will be recommended as the only acceptable paint type. Cleaning products must also meet the required parameters to ensure the system operates correctly (Products used by both kitchen and janitorial duties), this will be expressed and strictly enforced, as improper chemicals will be evident in the quality of the treated water.

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**For any further questions or concerns, please contact my self on 0413174710**

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***Sales and Operations Manager NSW***