Sewage and Greywater Treatment

Commercial Sewage Treatment Plant 150

Case Study: Anzac Interpretative Centre 156



Allied Pumps

Commercial Sewage Treatment Plant

Packaged fixed film treatment for decentralised sewage and wastewater

The treatment plant is a packaged sewage and wastewater treatment plant using fixed film bio media to treat and disinfect effluent for dispersal or reuse. Modular construction allows systems to be expanded as demand grows, above or below ground. Low power draw suits sites with limited supply, including solar.

Treatment reduces biochemical oxygen demand, total suspended solids and total nitrogen to produce water suitable for irrigation and other approved non-potable reuse. Higher effluent quality also reduces the maintenance demand on downstream irrigation systems. Systems are designed to meet local and state government requirements for reuse.

Every system is delivered as a complete package, covering design and project management, procurement and manufacture, installation and commissioning, then ongoing servicing, consumables and spare parts supply.

KEY FEATURES

- Fixed Film Bio Media Treatment
- Modular Design With Expansion Capability
- Above or Below Ground Installation
- Low Power Consumption
- Tolerates Shock Loading and Extended Low Flow
- Media Retains Moisture During Power Loss
- Reduced Mechanical Components and Maintenance

PRODUCT APPLICATIONS

- Accommodation Camps
- Remote Communities
- Non Process Mine Infrastructure
- Hotels and Resorts
- Prisons and Detention Centres



PRODUCT OPTIONS

Item	Standard	Options
Nutrient Reduction	Refer to risk table	90 per cent phosphorus and 80 per cent nitrogen removal
Equipment Weather Protection	Pump room provided onsite by others	Compact powder coated steel enclosure, cyclone rated container, and air conditioned cyclone rated container to mining equipment requirements
Emergency Storage	Tank storage for two days of average daily flow	Additional storage volume for prolonged emergency response, such as remote locations
Irrigation Storage	Tank storage for one day of average daily flow, allowing daily volume to be irrigated during off peak	Additional storage volume where discharge is restricted, such as holiday or weekend periods
Sanitisation	Refer to risk table	Residual trim chlorine dosing pump, chlorine generator with residual trim dosing pump, and ozone generator and injection system
Pump Redundancy	Single pumps	-Duty and standby pumps throughout the system
Irrigation	No irrigation field included	Sub-surface irrigation kit
Remote Monitoring	Pump fault and high level fault outputs available for connection to a building management system	Control system upgraded with network platform, router, dynamic DNS domain and SIM for remote alarms, live data and historical trends

Commercial Sewage Treatment Plant

Model No.	Standard System for Extra Low Risk Reuse		Enhanced System for Low Risk Reuse		Premium System for Low Risk Reuse	
	Nominal Flow (kL)	Peak Flow (kL)	Nominal Flow (kL)	Peak Flow (kL)	Nominal Flow (kL)	Peak Flow (kL)
APST-3-AG	4	5	3	4	2	3
APST-6-AG	8	9	6	8	4	5
APST-15-AG	19	24	15	19	11	13
APST-30-AG	38	47	30	38	21	26
APST-45-AG	56	71	45	56	32	40
APST-60-AG	75	95	60	75	42	53
APST-75-AG	94	118	75	94	53	66
APST-90-AG	113	142	90	113	63	79
APST-3-UG	4	5	3	4	2	3
APST-6-UG	8	9	6	8	4	5
APST-15-UG	19	24	15	19	11	13
APST-30-UG	38	47	30	38	21	26
APST-45-UG	56	71	45	56	32	40
APST-60-UG	75	95	60	75	42	53
APST-75-UG	94	118	75	94	53	66
APST-90-UG	113	142	90	113	63	79

Model No.	Typical Footprint (m)	Skid Footprint (m)	Average Power Usage
APST-3-AG	7 x 6	2.5 x 1	1.78
APST-6-AG	10 x 6	2.5 x 1	1.78
APST-15-AG	17 x 9	2.5 x 1	1.78
APST-30-AG	18 x 10	2.5 x 1	1.78
APST-45-AG	24 x 10	2.5 x 1	3.01
APST-60-AG	30 x 14	2.5 x 1	3.01
APST-75-AG	36 x 14	2.5 x 1	5.23
APST-90-AG	36 x 16	2.5 x 1	5.91
APST-3-UG	7 x 6	2.5 x 1	1.78
APST-6-UG	10 x 6	2.5 x 1	1.78
APST-15-UG	17 x 9	2.5 x 1	1.78
APST-30-UG	18 x 10	2.5 x 1	1.78
APST-45-UG	24 x 10	2.5 x 1	3.01
APST-60-UG	30 x 20	2.5 x 1	3.01
APST-75-UG	36 x 20	2.5 x 1	5.23
APST-90-UG	36 x 30	2.5 x 1	5.91

System and Risk Category

Application Risk Category	Standard	Enhanced	Premium
	Extra Low Risk Reuse	Extra Low Risk Reuse	Medium Risk Reuse
End Uses	Woodlots Sub-surface irrigation, and non-food crops	Communal and urban irrigation with restricted access, agricultural irrigation of non-edible crops	Urban irrigation with restricted access, fire fighting, water features, industrial use, dust suppression
TSS	Less than 40 mg/L	Less than 30 mg/L	Less than 30 mg/L
BOD	Less than 25 mg/L	Less than 20 mg/L	Less than 20 mg/L
TN	Not stated	80 per cent reduction	80 per cent reduction
TP	Not stated	25 per cent reduction	25 per cent reduction
E. COLI	Less than 1000 MPN or cfu/100 mL	Less than 1000 MPN or cfu/100 mL	Less than 1000 MPN or cfu/100 mL
Chlorine	0.5 to 2.0 mg/L	0.5 to 2.0 mg/L	0.5 to 2.0 mg/L
Sanitisation	Automatic gravity tablet chloriniser	Automatic gravity tablet chloriniser	Residual trim chlorine dosing pump
Monitoring Instrumentation	Not required	ORP meter for continuous chlorine and pH monitoring	ORP meter for continuous chlorine and pH monitoring, Turbidity meter



System Tier

System Tier	End Uses	Sanisitation	Monitoring Instrument	Treated Discharge
"Standard Extra Low Risk Reuse"	Woodlots, sub-surface irrigation of non-food crops	Automatic gravity tablet chloriniser	Not required	TSS less than 40 mg/L, BOD less than 25 mg/L, TN not stated, TP not stated, E. coli less than 1000 MPN or cfu/100 mL, chlorine 0.5 to 2.0 mg/L
"Enhanced Low Risk Reuse"	Communal and urban irrigation with restricted access, agricultural irrigation of non-edible crops	Automatic gravity tablet chloriniser	ORP meter for continuous chlorine and pH monitoring	TSS less than 30 mg/L, BOD less than 20 mg/L, TN 80 per cent reduction, TP 25 per cent reduction, E. coli less than 1000 MPN or cfu/100 mL, chlorine 0.5 to 2.0 mg/L
Premium Medium Risk Reuse	Urban irrigation with restricted access, fire fighting, water features, industrial use, dust suppression	Residual trim chlorine dosing pump	ORP meter for continuous chlorine and pH monitoring, turbidity meter	TSS less than 30 mg/L, BOD less than 20 mg/L, TN 80 per cent reduction, TP 25 per cent reduction, E. coli less than 1000 MPN or cfu/100 mL, chlorine 0.5 to 2.0 mg/L

THE TECHNOLOGY

It uses an open cell foam media that is highly absorbent and porous, giving a large surface area while allowing effluent and air to flow freely through it. The structure resists the clogging that affects soil, sand and peat filters, and accepts loading rates many times higher.

Air movement through the media removes the need for blowers and compressors, which reduces both operating cost and the number of components requiring maintenance.



SEWAGE AND GREYWATER TREATMENT

Case Study: Anzac Interpretive Centre

Albany, WA



The Project

The Anzac Interpretive Centre is a national facility commemorating the first departure of Australian troops in the First World War. Conceived by the City of Albany with the federal and Western Australian governments, the $10.6 million centre tells the stories of those who served through multimedia and interactive technology. It opened to coincide with a weekend of commemorative events.

The Challenge

A bespoke sewage treatment system was required to open the facility, capable of handling peak flows during high traffic events. The timeline from project initiation to delivery was tight, and the plant had to be operable before the pre-planned opening events. Treated water had to meet Department of Health requirements for discharge.

Our Approach

We were engaged through a longstanding relationship with the project consultant. Working with the consultant team, we prepared drawings and information for Department of Health approval. Treated water would discharge to a designated dripper field feeding mulched plants, a low risk application that still had to meet quality standards. We reviewed the available septic systems against the site constraints.

The Solution

The solution was a treatment plant, selected for its shock loading capability and tolerance of extended low flow periods. It was designed and built to sit inside a plant room, sized to fit through the double doors already installed. The general arrangement was revised to make better use of the available space and overflow positions. The package included a polyethylene tank, a dual diesel fire protection pumpset and a variable speed pressure system supplying potable water to the building.

The Outcome

Delivery to site was quick, with minimal downtime and little disruption on site. The system was running for the official opening, attended by the Prime Ministers of Australia and New Zealand and the Premier of Western Australia. The plant handles the variance in loading that a visitor facility produces, and the drafting team's work on the space constraints meant it fitted the plant room as built.

Why it mattered?

- ✓ The plant was sized to fit through doors already installed, avoiding any change to the building.
- ✓ Shock loading capability meant a facility with highly variable visitor numbers could be served by a single system.

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