

Biolytix[®]

Innovative Decentralised Wastewater Treatment

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Benefits of Decentralised Systems

- Incremental implementation (reduced initial capital outlay)
- Reduced capital costs (sewerage is expensive)
- Close to source/application: Minimisation of energy consumption for transport of influent and effluent¹
- No mix approach²

The Biolytix Business

- Onsite wastewater treatment systems
- Decentralised commercial wastewater treatment systems
- Focus on recycling
- Nearly 7000 units installed since 2001¹
- AWTs accreditation to AS/NZS 1546.3 in all states and NZ²

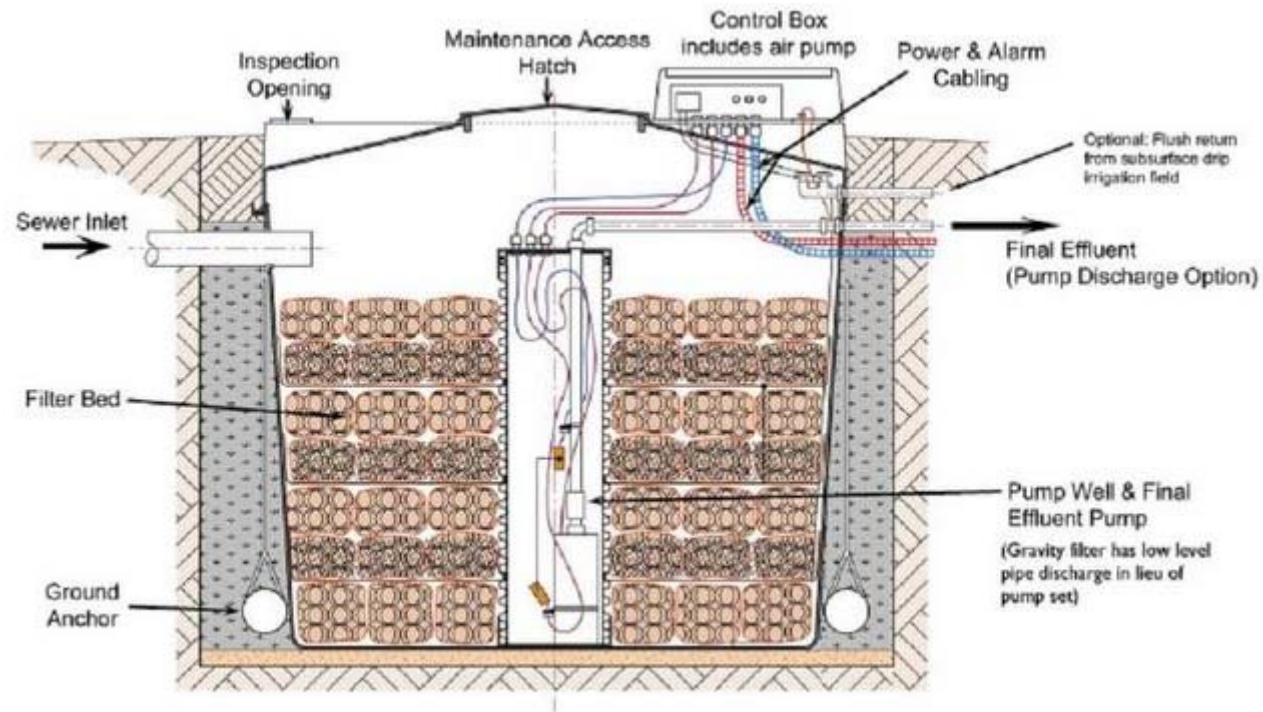
The Biolytix Technology

- Hydraulic loading $< 1600 \text{ L/d}^1$
- Organic loading $< 800 \text{ g BOD/d}^1$
- Biochemical oxygen demand $< 20 \text{ mg/L}^2$
- Suspended solids $< 30 \text{ mg/L}^2$
- Nitrification
- Suitable for subsurface drip irrigation
- Odourless
- No chemicals

Biolytic Filtration

- Patented - invented by Dean Cameron
- Layered filter bed mimics a natural soil habitat
- Uses invertebrates such as worms and beetles to aerate the filter bed
- No noisy, energy-consuming blowers
- Robust and resilient to shock loads

Inside the Filter



Composting Worms



- *Eisenia fetida* (Tiger Worm, Red Worm)
- *Eisenia andrei* (Tiger Worm)
- *Perionyx excavatus* (Indian Blue)
- *Eudrilus eugeniae* (African Night Crawler)
- *Lumbricus rubellus* (Red Worm)

Benefits of Worms

- Worms keep the filter aerobic by digging tunnels (passive aeration)
- Worms each day ingest 50% - 100% of total worm biomass
- Worm casts are much more fragmented and microbially active than what worms consume
- Worms secrete mucus and enzymes that selectively stimulate beneficial microbial species in the substrate
- Worms remove odour from putrescible organics in 1-2 days by culling anaerobic bacteria

Energy Consumption

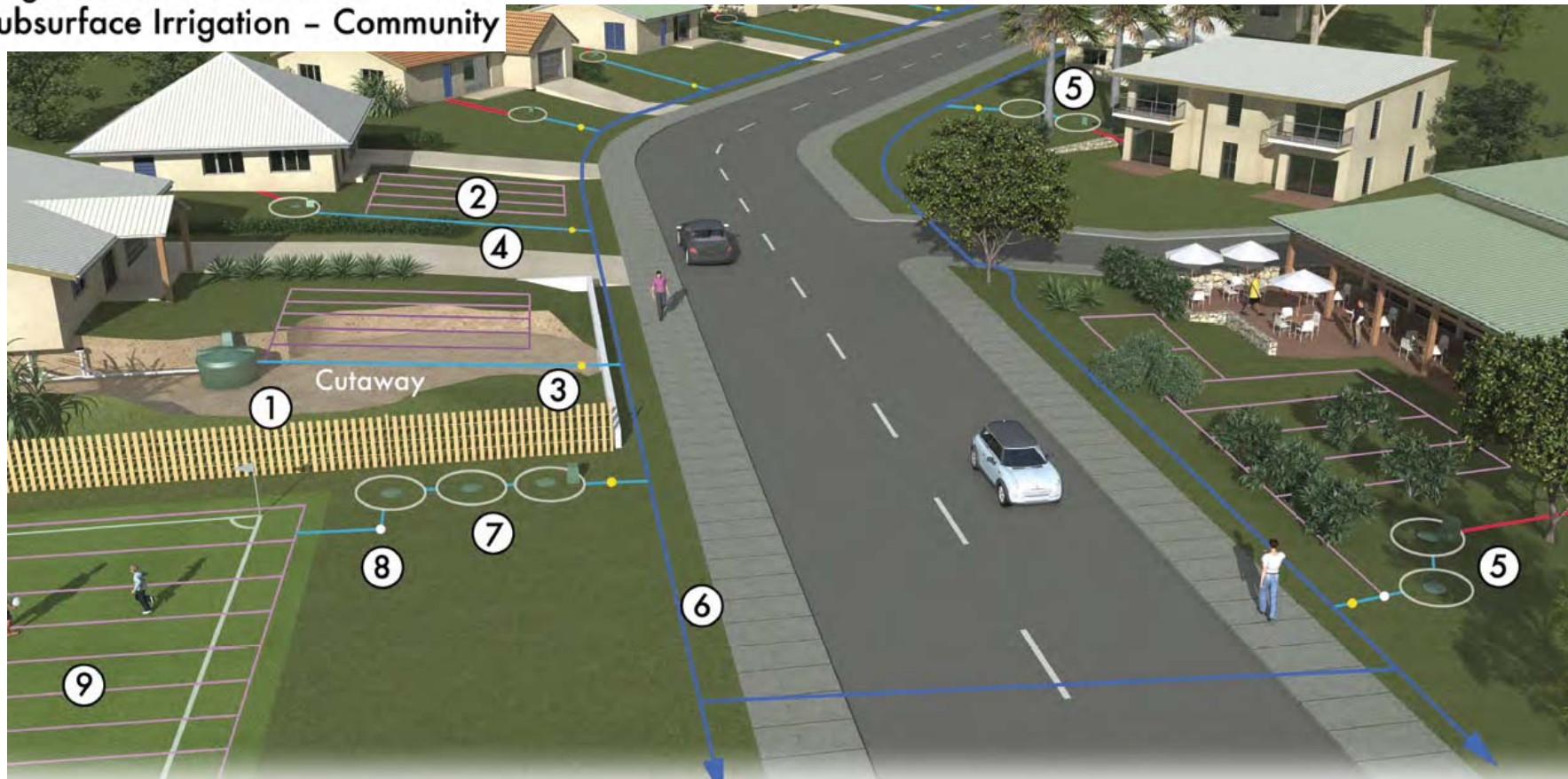
- Biolytix aerobic filtration: 0.12 kWh/d (for sump aeration only)
- Conventional onsite AWTs: 2.5-10 kWh/d (for blowers)¹
- A household saves ~1000 kWh/year, equal to a reduced carbon footprint of about 1 ton of carbon dioxide²

Products

- Biopod Basic (primary treatment, replaces septic tanks)
- Biopod (secondary treatment)
- Biowater Web/Multipod (neighbourhood-scale and commercial schemes)

1. Biolytix® Filter – Household
2. Subsurface Irrigation – Onlot
3. Boundary Valve Box
4. Biowater® Lot Connection Pipe
5. Biolytix® STP - Commercial
6. Biowater® Main
7. Treated Effluent Storage
8. Irrigation Control Valve
9. Subsurface Irrigation – Community

Biowater



Macleay Island



Before Biowater®



Macleay Is golf Course

After



Point Boston

- 250 houses being built
- Rainwater harvesting (tanks at each house)
- Advanced neighbourhood-scale water recycling plant (likely using membranes)
- In-house recycling (toilet flushing, laundry, yard tap)

Awards

- Asian Innovation Award 2007 for its “potential to solve world problems”
- Australian and New Zealand Innovation Awards (2x)
- Clunies Ross Award¹
- EPA Queensland's Sustainable Industries Award for Innovative Technology
- Global Eco-Tech Award at the World Expo in Japan for "contributing significantly to the resolution of global environmental problems“
- National Green Plumber’s Award
- National Innovation Hero Award for “outstanding Innovation in Engineering Technology”
- Premier of Qld's Smart Business Award

www.biolytix.com.au