

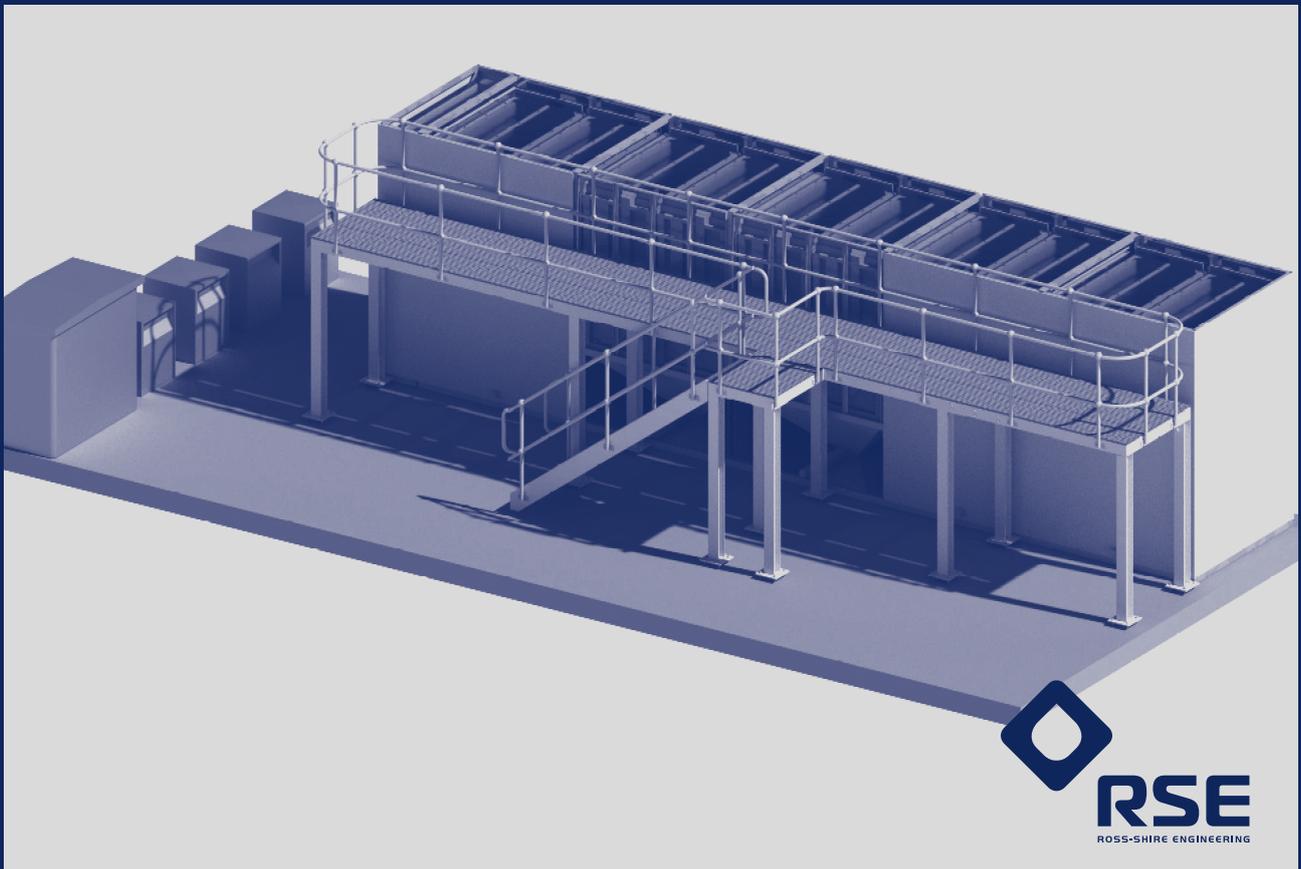


# Packaged Modular Wastewater Treatment Plant

Municipal & Industrial Treatment Range

[www.ross-eng.com](http://www.ross-eng.com)

MABR Treatment Plant



**RSE**  
ROSS-SHIRE ENGINEERING



## An Introduction

# Working with RSE



## Ross-Shire Engineering (RSE) offers its clients a complete 360-degree engineering and construction service

RSE are market leaders in the design, fabrication and delivery of award winning water treatment plants. Our specialist water and wastewater treatment division has successfully delivered multiple modular plants offering tremendous environmental, quality and health and safety benefits over traditional on-site fabrication and assembly.

The RSE modular water and wastewater treatment range offers a simple, robust solution. Our technologies include nanofiltration and ultrafiltration, reverse osmosis, MABR and other specialist processes for the supply of top quality water from poor quality raw water envelopes.

### What we offer

Project cost certainty – offsite build means minimal site time

Programme efficiency & certainty – weather, site & logistical dependencies removed

Treatment processes tailored to individual site conditions

Consistently high build quality

Health and safety benefits from construction in a factory environment

Environmental benefits from offsite factory construction

Proven process engineering, factory tested

Standardisation for O&M's and commonality of spares

Guaranteed whole life costs

Inbuilt redundancy / supply resilience

Fully wet tested and pre-commissioned before load-out

Base unit replaces intrusive on-site civil works

Energy efficient plant reducing opex costs

Remote supervision and support facilities

Accelerated regulatory compliance, delivering top quality potable water

Guarantees customer satisfaction

Transportable treatment units are a relocatable investment



## An Introduction

**MABR**

Traditionally the treatment of wastewater has been using bubble aeration to treat wastewater. This is a highly wasteful process as 60-70% of the energy is often lost to the atmosphere when the bubbles burst.



On a global scale, this process typically consumes 2-3% of the total national electricity production. RSE, in conjunction with Oxymem, a DuPont owned company, are the first to make packaged Membrane Aerated Biofilm Reactor (MABR) commercially available.

MABR technology significantly increases the oxygen transfer and overall aeration system efficiency resulting in up to 75% less energy consumption compared to conventional aerated biological treatment systems.



MABR system sludge age and biofilm layers help reduce the volume of waste sludge over conventional systems by up to 50%. Sludge transfer, storage, treatment and disposal costs are minimised. Fewer road tankers and less stress on our environment is a benefit to all. The increase in oxygen transfer and reduction in sludge production means that MABR offers an alternative solution the conventional plants with a reduced OPEX and reduced carbon footprint.

## An Introduction

**MABR Packaged Plants**

RSE offer a range of packaged MABR plants including steel tank with MABR modules and kiosk complete with blowers and local control panel.

**Rethinking Aeration**

Increase Biological Treatment Capacity and Effluent Quality with MABR

Unique gas permeable membrane fibres

Patented bubbleless oxygen transfer up to 95% transfer

Oxygen transfer rate 12g O<sub>2</sub> per m<sup>2</sup>



## Support Service

# BIM 360 & C360 Project Design & Paperless Solutions Approach

## Compliant BIM Models and Paperless review solutions.

RSE provides BIM Compliant 3D data including preliminary and known technical data, shared through BIM360 project specific portals, initially to BIM level 1 however, Level 2 and 3 data can be prepared upon request.

Supply of both Standard product and Site specific E-manuals on Technical documents can be either submitted separately or integrated to IFC format data for Life cycle asset management for an additional fee.

Client data will be passed over to the RSE Design team for more detailed configuration development. This data forms the primary basis of the final design ready for any feedback or amendments submitted to the project team thereby allowing for improved revision turn around times and utilisation of 3D design review. The aim is to reduce overall project delivery time from enquiry to installation reflecting design changes and as built modifications in as short a time as possible. Traditional 2D drawings can also be made available if required and shared the same way to suit clients' in house software and capabilities.

## What BIM can offer

1

**BIM Level 1** Simplified 3D data models can be supplied compatible with various 3D and 2D software to incorporate into wider systems. These include, but are not exclusive to Navisworks, AutoCAD and Solid works.

2

**Project documentation** can be submitted in EPUB, 3D PDF, and 2D PDF, along side traditional hard copies to In-house or Client document standard.

3

**BIM compliant Tendering Tools** via an online portal to Framework clients allowing them to preconfigure Half or Full span PST, HST, and FST systems up to Ø50m spans, options to both our verified structural bridge designs and/or Client specifications automatically.

4

**A variety** of peripheral equipment options and Material in line with project requirements, to suit client requirements and review proposed solutions.

5

**Finite Element Analysis** video output allows client to see the stress and strain as they are applied to the design, and visually see the potential reactions as the load or pressure builds.

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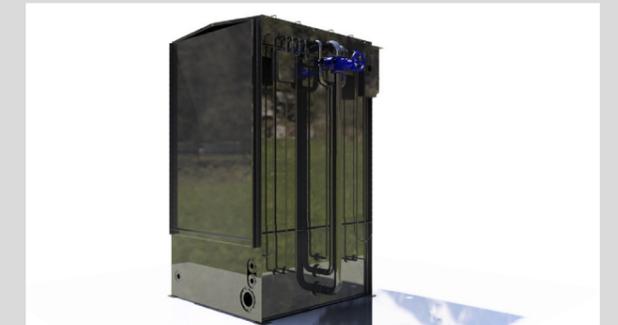
**Video studies** can be used to collaboratively discuss design solutions that evolve between concept and design.

7

and **final supply**, with key understanding as to what has changed and why, the reliability of the solution is assured.

## Along side our High quality system we also offer

1. Offsite monitoring of our equipment which enables notifications to our database and end client as an option.
2. Centre Bearing assemblies situated above the walkway to enable easier maintenance without having to drain the tank or access into the tank.
3. In-house manufacturing, load testing and Pre-site assembly, to ensure our products are fully compliant and to the highest quality before delivery and installation.
4. Full support through design, installation and commissioning, with structural design calculations and FEA Analysis with Video simulation output.





For more information please contact

**[ross-eng.com](http://ross-eng.com)**