

Coastal Villa Development

Cost Effective Solutions for Land Developers

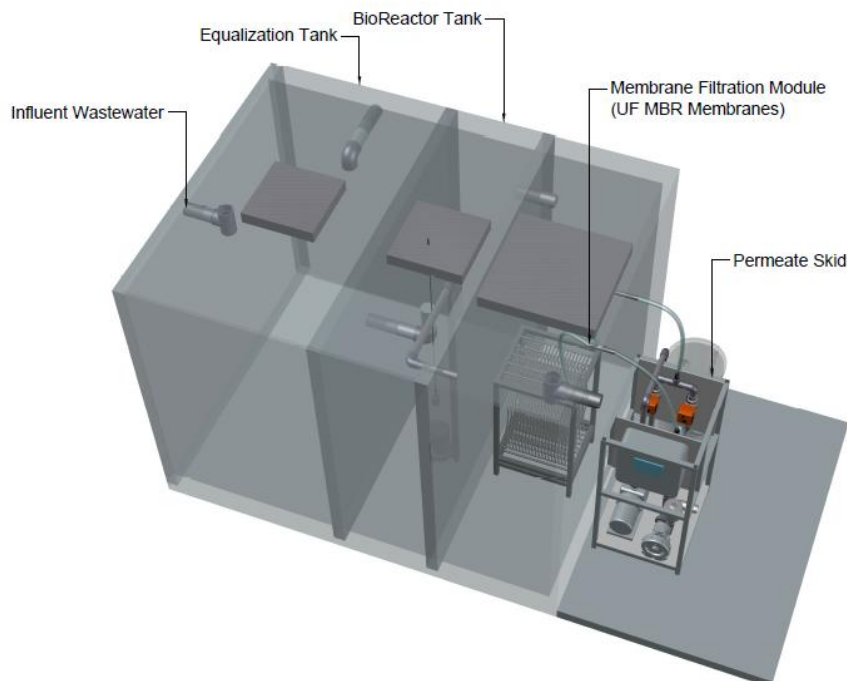
The Project:



A luxury private villa development in Antigua required a compact wastewater treatment solution that could operate independently of centralized sewer infrastructure, fit within a limited site footprint with no visible tanks or equipment, and reliably produce high-quality effluent suitable for reuse in a warm coastal island environment. The project designer was tasked with identifying a system that could be concealed within an existing below-ground concrete structure while treating both greywater and blackwater to a reuse standard. Conventional septic or extended aeration systems could not consistently achieve the effluent quality required for irrigation and cooling applications, nor meet the project's aesthetic and space constraints, making a more advanced and compact treatment approach essential for the development.

The Solution:

Enereau designed and installed a fully decentralized, below-ground membrane bioreactor (MBR) system with a treatment capacity of 3,000 gallons per day (12 m³/day). All major process equipment—including membranes, blowers, pumps, and controls—was housed within an underground control and equipment room, allowing the wastewater infrastructure to remain completely concealed from residents and guests. The MBR process combines biological treatment with membrane filtration, producing a consistently high-quality effluent suitable for reuse without the need for secondary clarification or additional tertiary filtration.



Pictured above: Underground tankage/ Control room.



The Results:

The system delivers reuse-quality effluent that is stored on site and reused for landscape irrigation and cooling applications, significantly reducing freshwater demand and long-term operating costs.

Effluent Quality:

Parameter	Limit	Result	Unit
BOD	<10	<5.0	mg/L
TSS	<5	<5.0	mg/L
Total Coliforms	<2.2	N/D	CFU

Enereau:

Enereau Systems Group Inc. is a water technology firm specializing in the design and supply of advanced, affordable and easy-to-use systems for water reuse and reclamation. Founded by industry veterans, Enereau combines best available technology with best in class know-how to lower the cost of advanced wastewater treatment

For more information visit www.enereau.com or contact us at sales@enereau.com