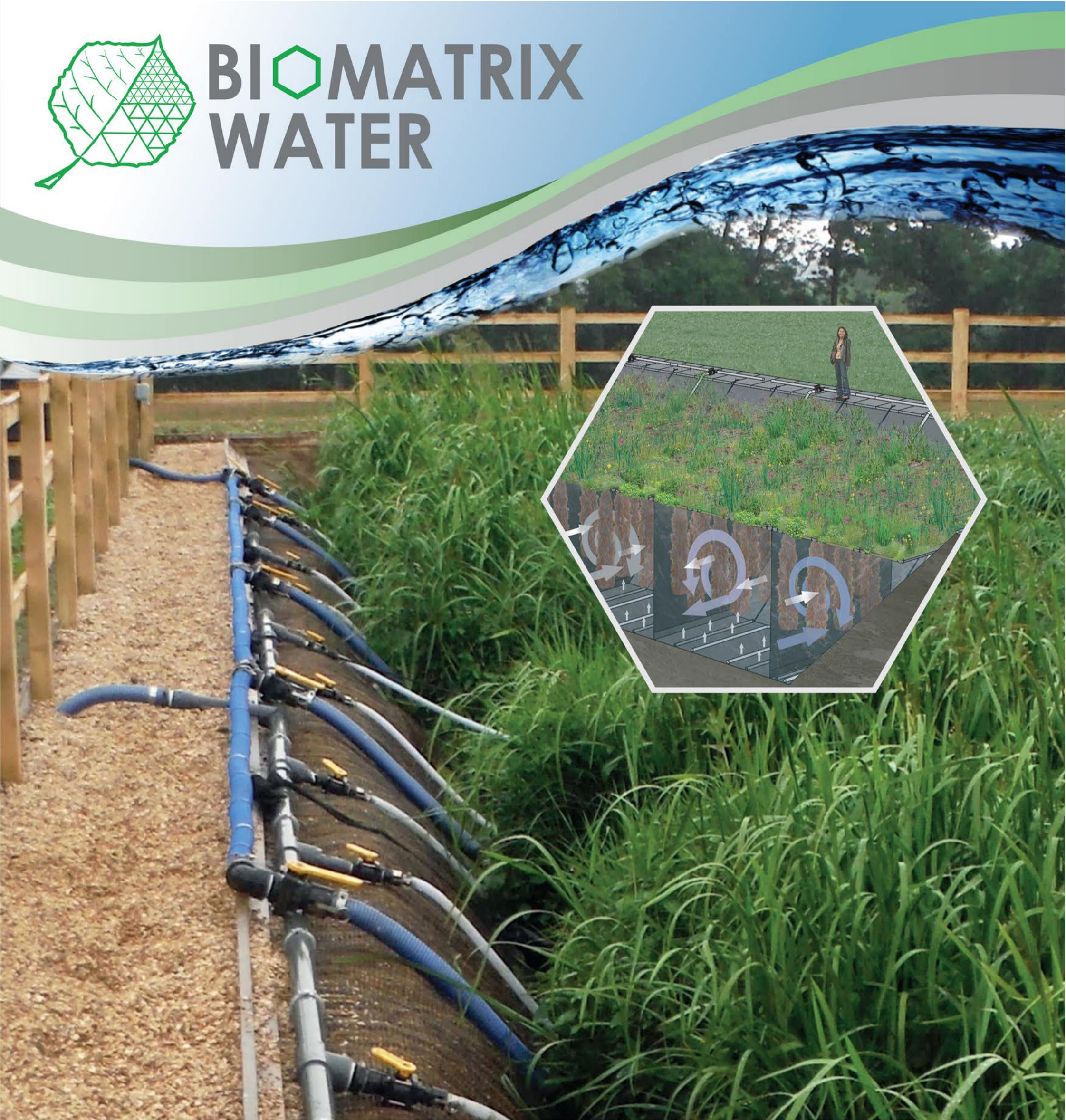




BIOMATRIX
WATER



Helix Flow Reactor

The Compact and Powerful Natural Wastewater Solution



BIOMATRIX WATER'S SOLUTION FOR LOW-COST, LOW-RISK,
ECOLOGICAL AND DE-CENTRALISED WASTEWATER TREATMENT:

Helix Flow Reactor

The *Helix Flow Reactor* has been engineered to provide a low cost, high performing modular ecological wastewater treatment system, which treats wastewater to re-use standards, improves water security, protects the environment and reduces wastewater costs for our clients and partners.

The resulting solution, which we refer to as a *Helix Flow Reactor* integrates the latest developments in ecological engineering, with traditional wastewater treatment processes to offer a **more flexible, powerful and long lasting** version of the tried and tested reed bed technology we are familiar with, however it is **less than a tenth of the size** per person equivalent, will **never become clogged**, and delivers **increased nitrogen removal rate** and **better quality effluent**.

Expanding on years of experience, success and proven results with ecologically integrated reedbeds, lagoons, Living Machines and wetland water treatment systems, **Biomatrix Water** have developed several simple but innovative new components from our premises in Forres, Scotland.

They allow for increased integration of the best features of each of these well-proven ecological treatment systems, while **overcoming previous systems constraints**, such as large footprint size.

The system components, manufactured off-site and delivered by truck in easy to assemble modular sections, minimize construction time and allow a highly cost competitive and treatment solution suitable for applications ranging from under 10m³/day to over 5000m³/day.

LOW CAPITAL COST

Helix Flow Reactor tanks are integrated in lined excavation, with baffle partitions, avoiding the need for costly structures and associated civil works. The HFR is a more affordable option for industrial and residential developers, as well as end users.

RAPID IMPLEMENTATION

Biomatrix provides fast & cost competitive implementation. As the system does not require time-consuming concrete works.

MODULAR & SCALEABLE

The HFR is highly flexible; an attractive option for applications with phased loading or extended project timescales.

ROBUST WATER TREATMENT

The HFR provides a more stable and consistent treatment, despite variable influent volumes and concentrations.

HIGH QUALITY EFFLUENT

Longer retention times and higher biodiversity levels allow for more complete biological treatment, typically suitable for re-use and reclamation.

LOW EMBODIED CARBON

Embodied energy & associated embodied CO₂ emissions required is less than half of a conventional water treatment system. Significant decrease in use of materials such as steel and poured concrete also reduce the embodied carbon in the Helix Flow Reactor design.

INTEGRATED FIXED FILM SLUDGE ACTIVATED TECHNOLOGY (IFAS)

Biomatrix's Floating Biomodules promote plant root growth into the water, where they develop biofilms alongside our biomimicry inspired Dynamic Media Columns.

BAFFLE PARTITIONS

Separated process zones provide cascading spiral flow pattern to process flow, increasing treatment proficiency.

DE-CENTRALISED SOLUTION

Helping to address the requirements of sustainable development & water reclamation, particularly in remote locations.

COMPACT FOOTPRINT ECOLOGICAL TREATMENT

One tenth of the size of a reedbed with equivalent treatment capacity.

REDUCED OPERATION COSTS

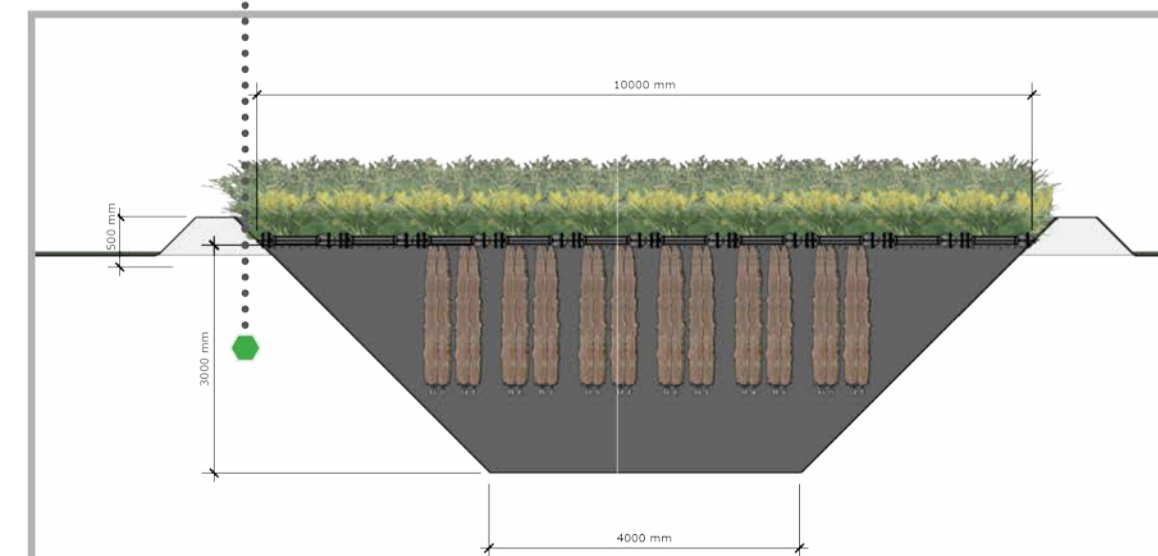
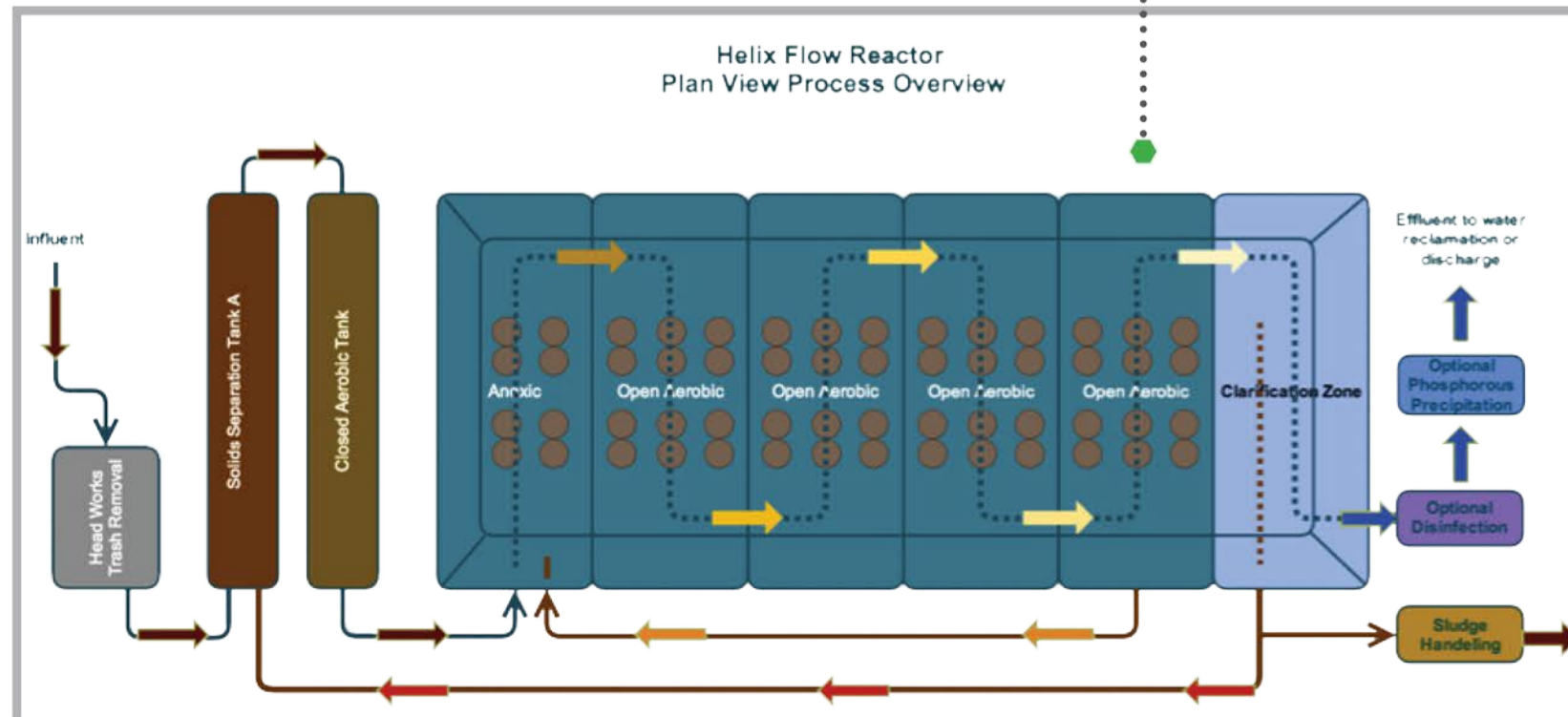
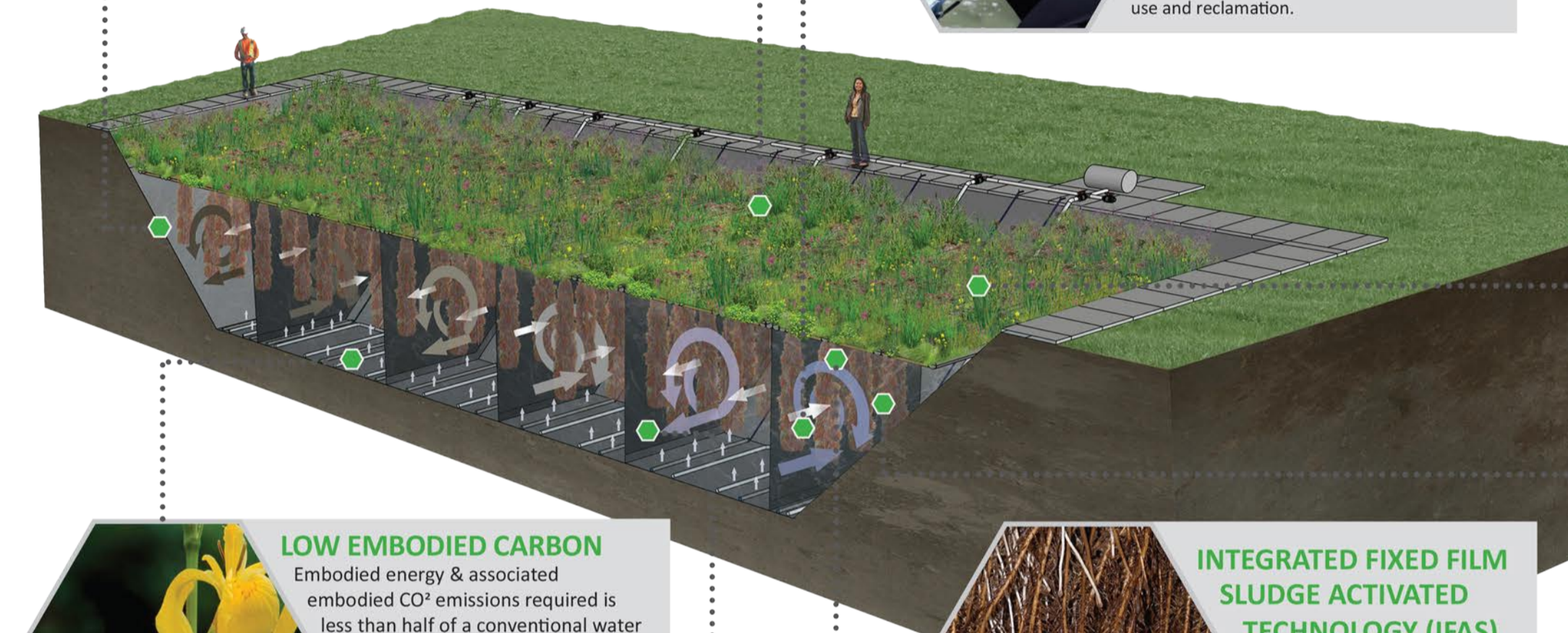
Low energy water treatment solution and advanced process controls, are engineered to allow natural biological processes to do more of the work. Also reducing carbon emissions.

LANDSCAPE INTEGRATED

Designed specifically to be able to be integrated with open green space and provide a natural landscape feature rather than a hard engineering structure.

INCREASED AESTHETIC

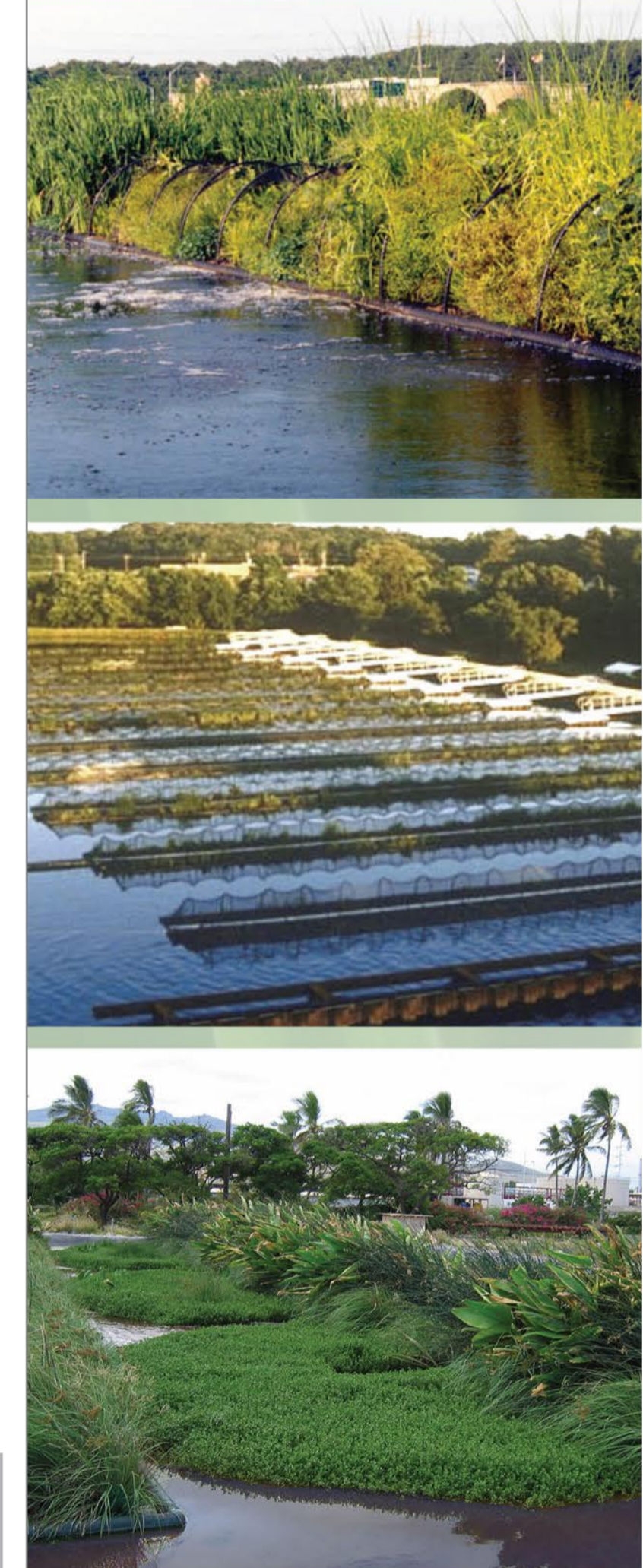
HFR reactor cells can be configured in a variety of shapes, allowing the systems to work with the natural topography and site features.



Helix Flow Reactor © Biomatrix Water Solutions Ltd. 2014 - Multiple patents pending

The **Helix Flow Reactor** system is currently being deployed both in the UK and Internationally to provide a natural water treatment solution.

HFR REFERENCE PROJECTS:



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WATER**

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Biomatrix Water is an ecological technology company working primarily in the water sector.

Based in Moray, Scotland, we have worked throughout the world providing products and services to meet the growing demand for ecological water technology that is both functional, attractive and sustainable.

At Biomatrix we believe that by combining the wise use of durable modern materials with biomimicry processes, we can use our engineering & design innovation expertise to provide effective solutions to the problems of water pollution and habitat degradation that many urban places are faced with today.

Our services have been used internationally by; city councils, water agencies, river basin managers, restoration organisations, landscape architects, ecologists, property developers, conservationists, private clients and environmental engineers. We have installed projects in the UK, China, The Philippines, India, Brazil, and the USA.

The team at Biomatrix Water enjoy engaging with diverse challenges, and are passionate about providing solutions that bring water to life. We look forward to hearing from you, about your vision for your local river, lake, canal or water treatment system.



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