

eco**REEF**



The challenge

New Zealand coastlines, rivers and roads are exposed to extreme weather changes and tides which can cause erosion, loss of wildlife habitats and cause major infrastructure costs.



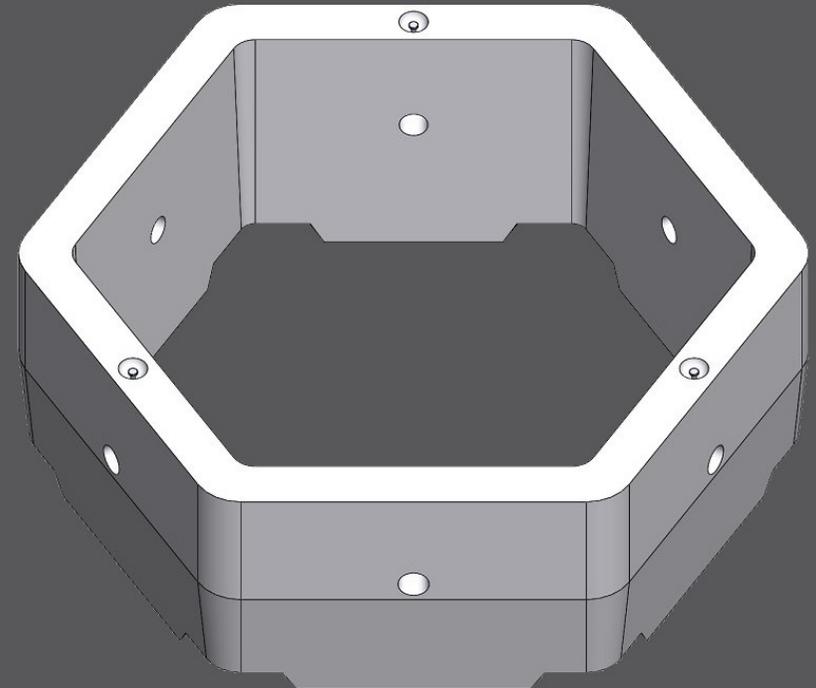
The Solution

Introducing the **ecoreef** concrete module



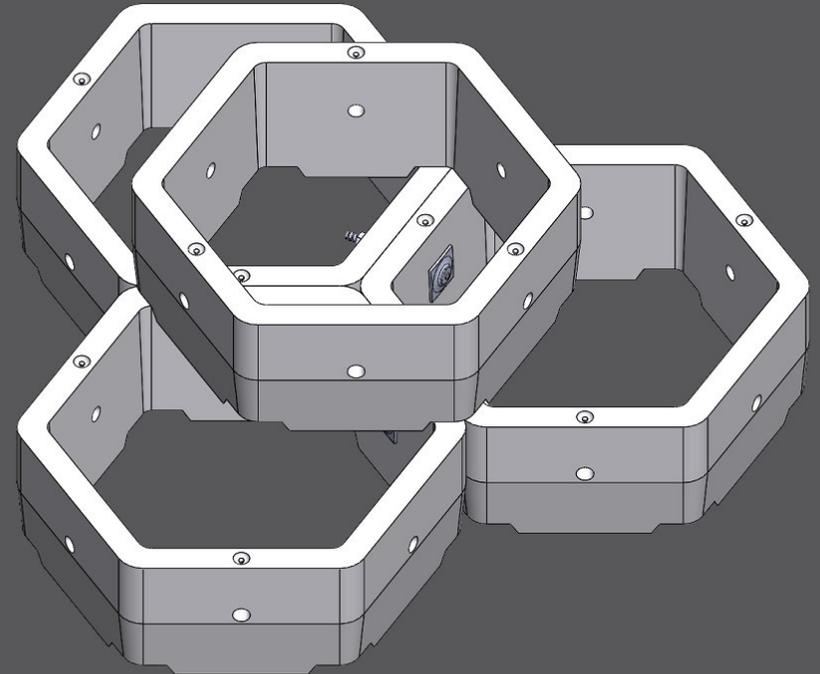
Basic fundamentals

- **Strong hexagon shape**
One of nature's own super shapes, optimized strength and ability to blend into the natural environment.
- **Durable concrete construction**
Proven quality materials designed for long service life
- **Maximum strength - lightweight**
Strength to weight ratio extremely high as used by nature for maximum integrity situations.



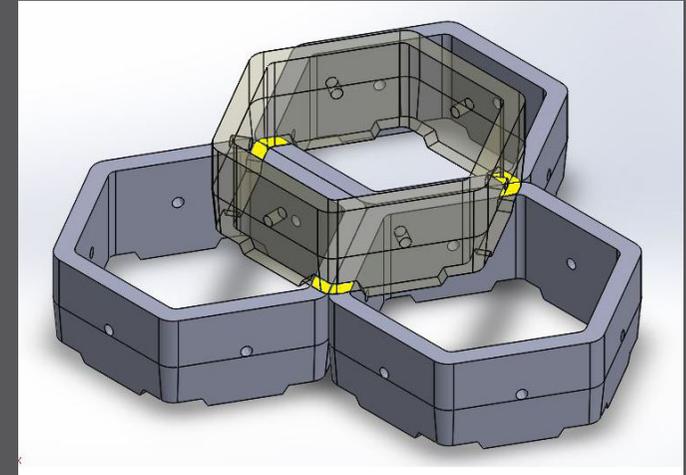
Basic fundamentals

- **Safe and easy to transport and handle**
Industry standard cone-anchor lifting system.
- **Minimal site preparation**
No complex expensive foundations are required. Structure has low ground pressure making it ideal for coastal situations where foundations are often not possible.
- **Modular and self supporting**
The structure can be built to any shape or height.
Design and placement can be optimised so it can be added to and future proofed for rising sea levels.

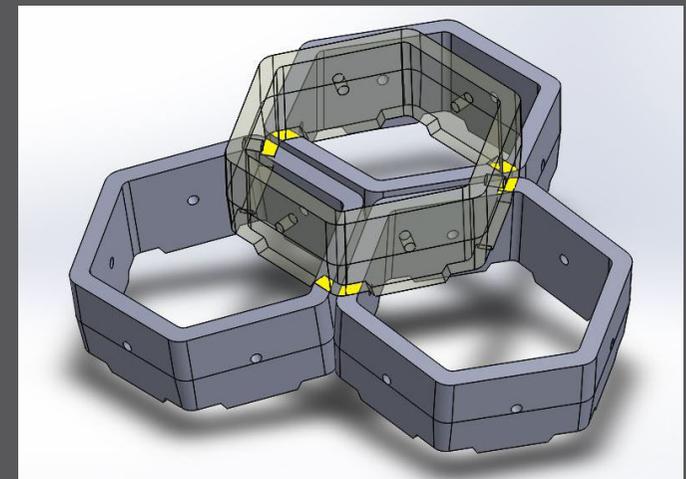


Assembly features

- The **ecoreef** module has the ability to stack and lock onto one another enabling builds of any height and numerous configurations.
- The **ecoreef** is designed to locate and nest on three points maintaining maximum stability and ease of assembly.
- Contoured ground of up to 10 degrees is no problem, the top layer will still locate and nest in the notches on the modules base, therefore still maintaining a stable three point footing.



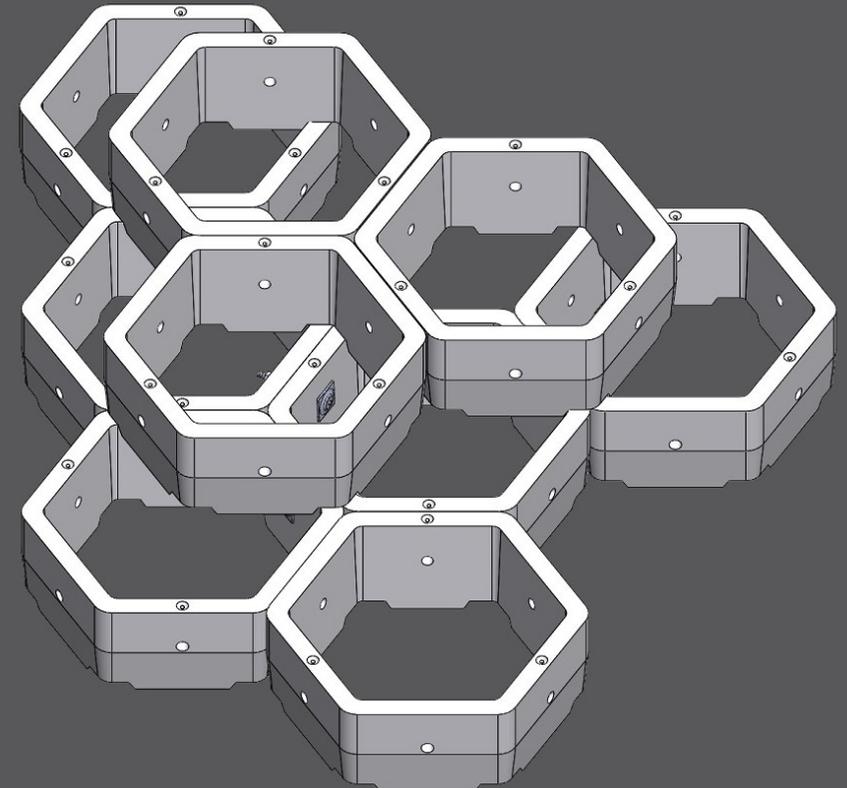
ecoreef on flat ground



ecoreef on contoured ground

Technical fundamentals

- The hexagonal modules connect together to form one body, this creates an extremely strong structure and large stable footprint.
- The intergrated horizontal integrity of the structure and angled contact zone has the ability absorb far greater forces than any other current system.
- Fully modular design allows the layout to be optimized to suit the situation. For example: gradual rise for high wave force areas, versus a steeper design for river bank applications.



Transport and construction

- Three point lifting for safe loading/unloading and stable easy placement.
- Modules can be stacked safely and securely during transportation utilizing the base locking feature. Can fit up to 40 units per truck load.
- Rapid build time. Modules can be lifted directly from the truck to the final resting position.
- Structure can be filled with local aggregate and soil, therefore reducing transport costs.
- Modules can be also be filled with concrete to create a solid surface if required i.e. For vehicle access.



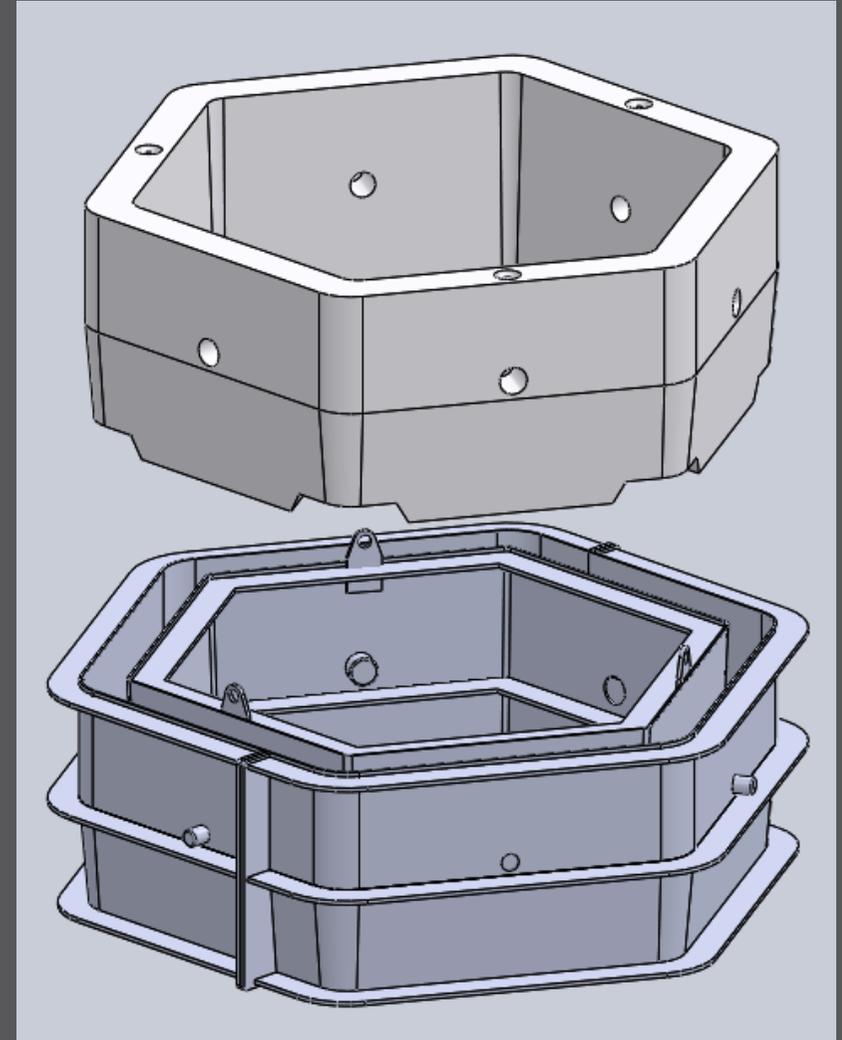
Aesthetics and ecology:

- As one of nature's own super shapes, it blends into the natural environment.
- Natural flora can be planted inside the modules to restore the coastal environment.
- Lower blocks in the tidal zone can create an environment similar to that of a reef or rock pool, where marine ecosystems can colonize, and public can still have access to.
- Access to areas such as beaches and riverbeds can be retained or improved.



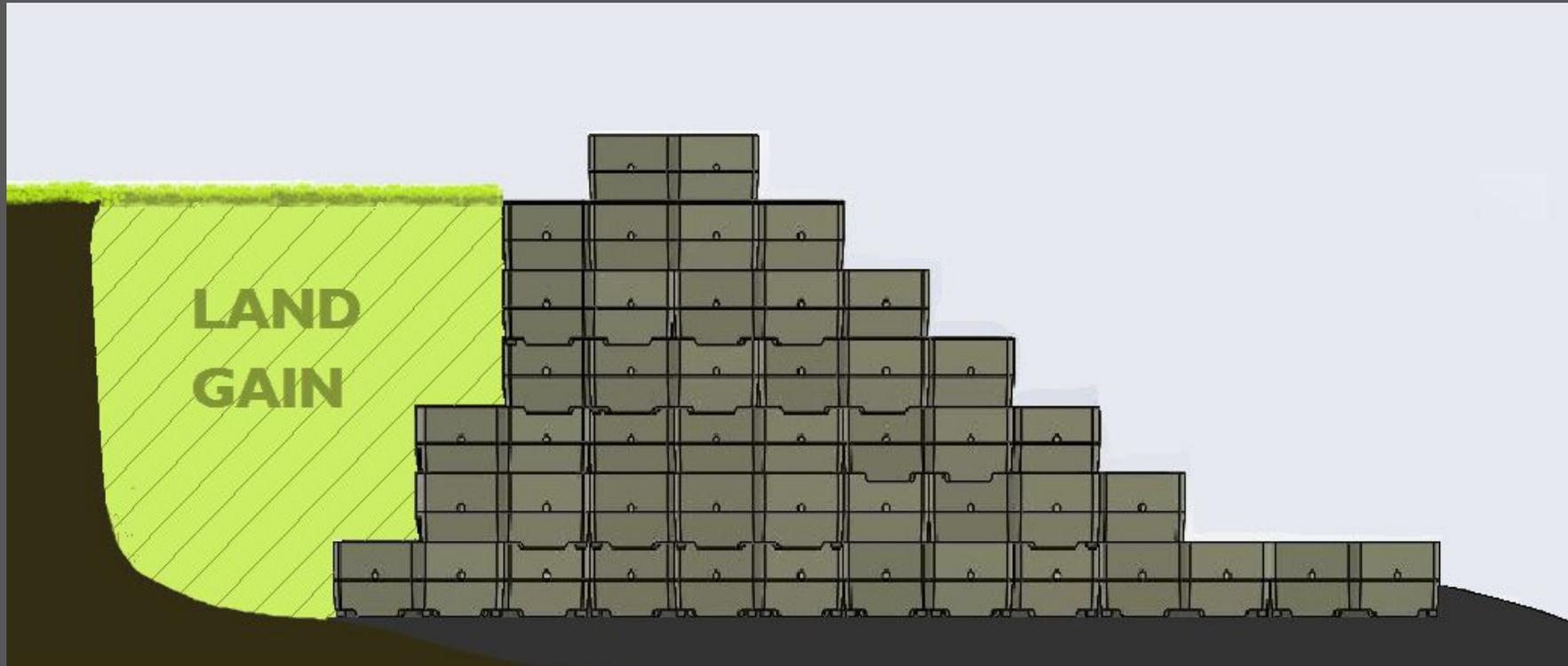
Benefits to the local community:

- Heavy duty transport and infrastructure costs reduced. The **ecoreef** modules can be made locally using local aggregate and create jobs within the district.
- Boulders currently being used for this type of work can be left in their natural environment and ecosystems.
- Public access can be restored and recreated to allow safe interaction with beaches and rivers without danger of loose or unstable boulders.



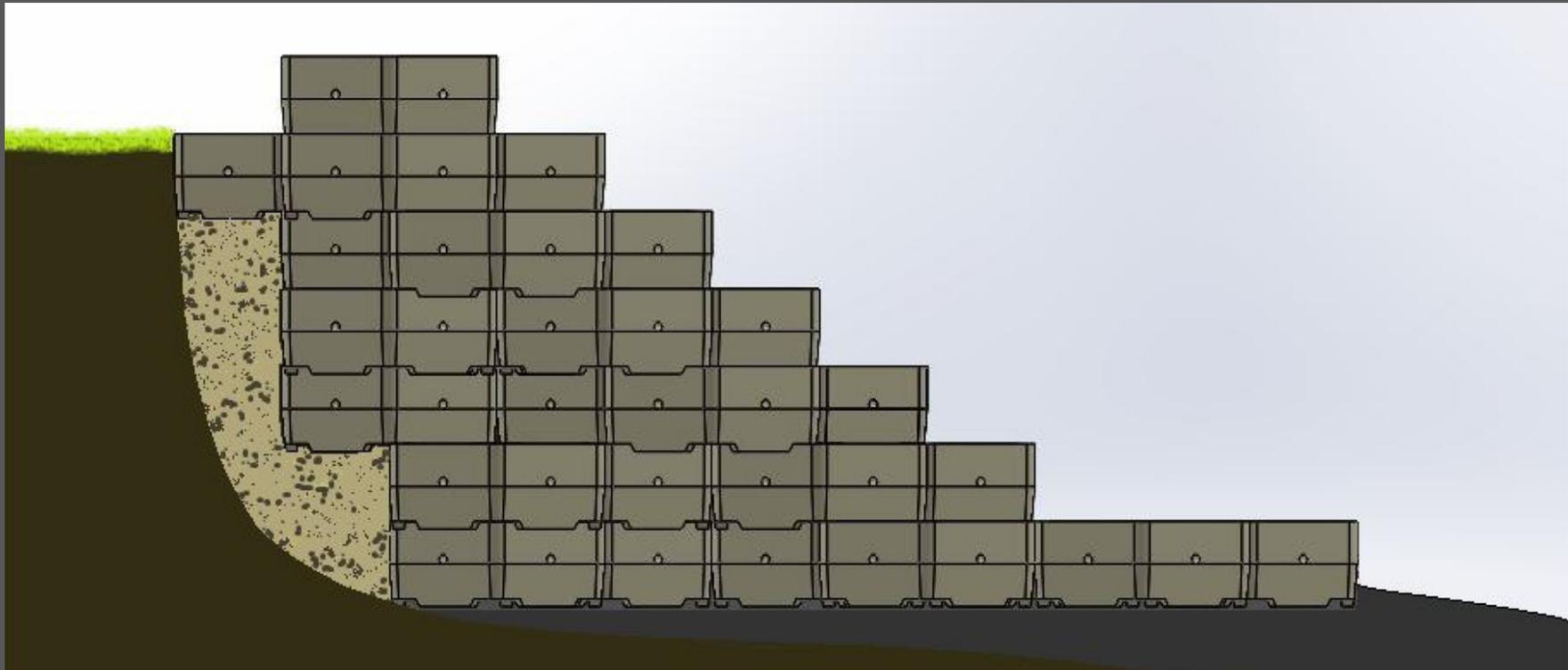
Cross section example of land gained:

- The **ecoreef** can not only be used as a barrier, it can also be built out and in-filled to reclaim lost land or create new headlands.



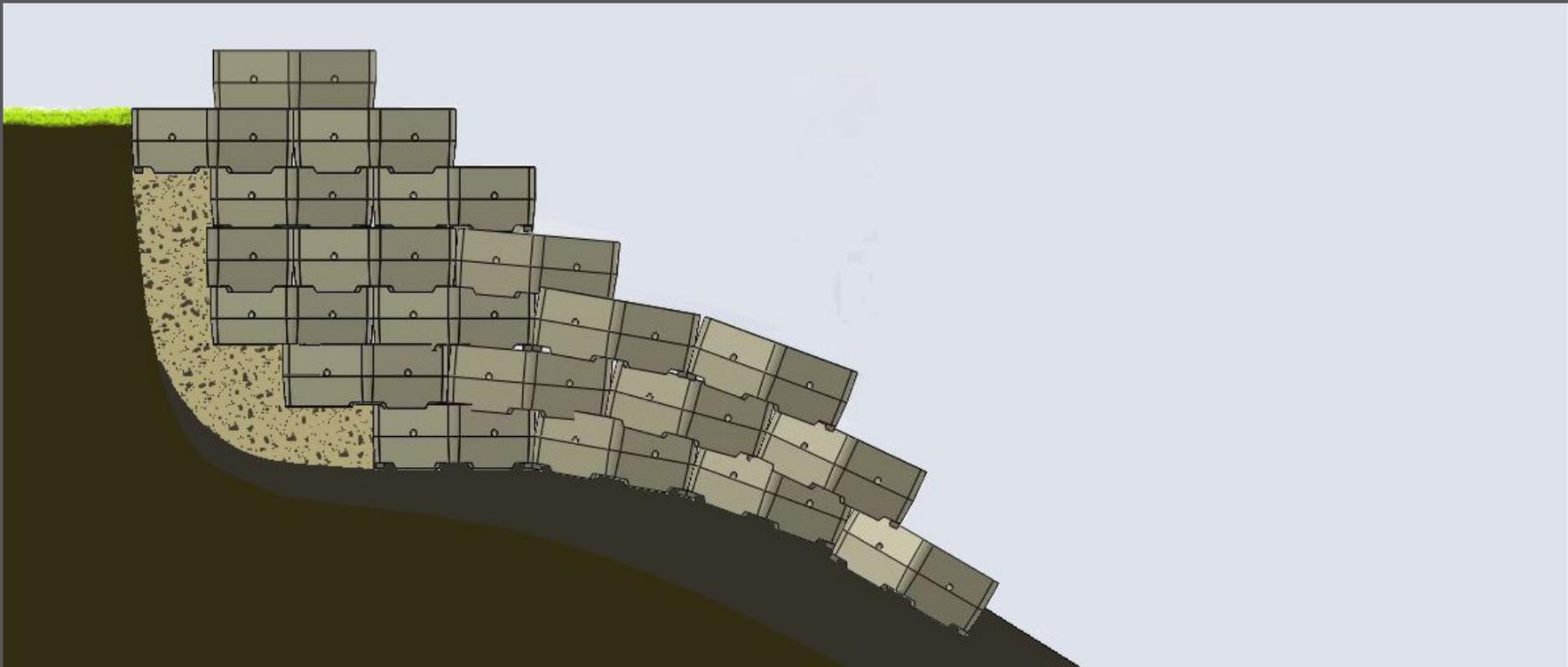
Cross section example of standard construction:

- The **ecoreef** used as an embankment creating a shallow ramp to dissipate wave force.



Cross section example of construction on a sloping base:

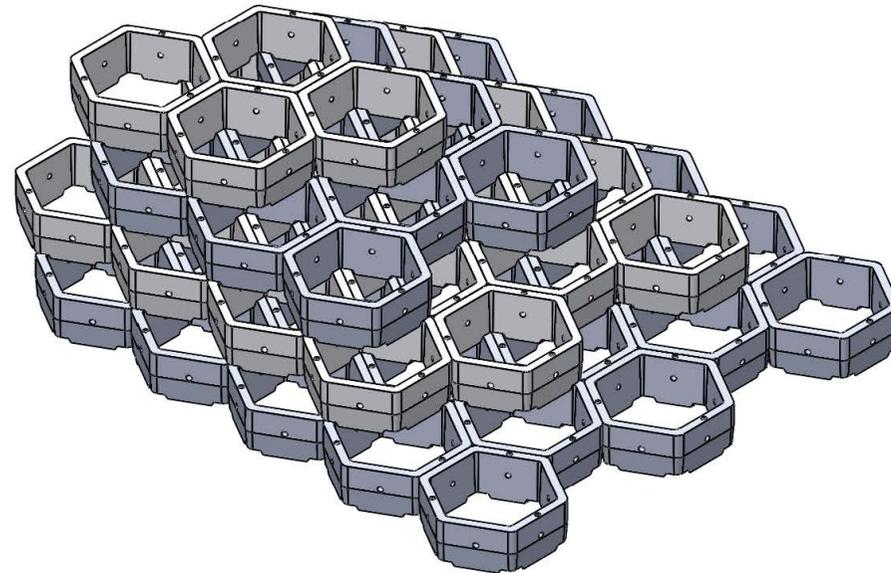
- The **ecoreef** can accommodate land contours up to 10 degrees, so no need for extensive foundation work.



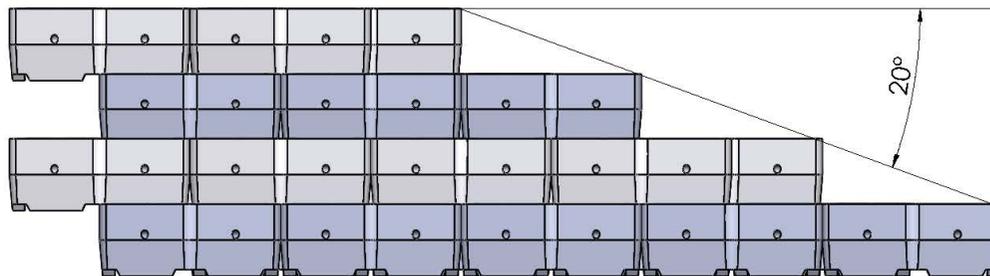
Specifications: Standard Module



Configuration - Typical Flat face



Ecoreef projection Flat face



Configuration offers optimum wave disipation and public access



DWG NO: **Typical flat face outline**

A3

DO NOT SCALE DRAWING

THIRD ANGLE PROJECTION

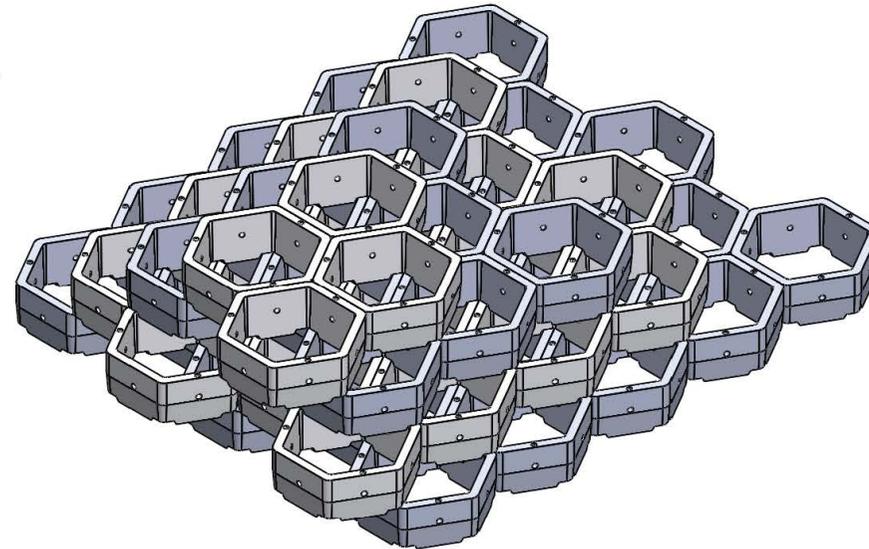
ALL DIMENSIONS ARE IN MILLIMETERS

SHEET 1 OF 1

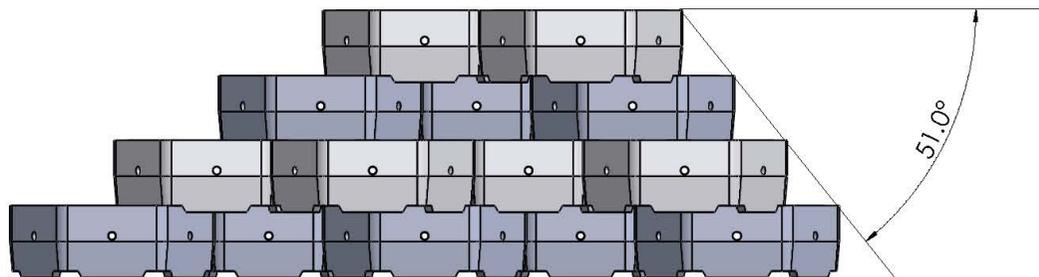
Specifications: Standard Module



Configuration - Typical Point face



Ecoreef projection Point face orientation



Configuration offers smallest footprint in extreme and tight scenarios



DWG NO: **Typical point face outline** A3

TITLE:

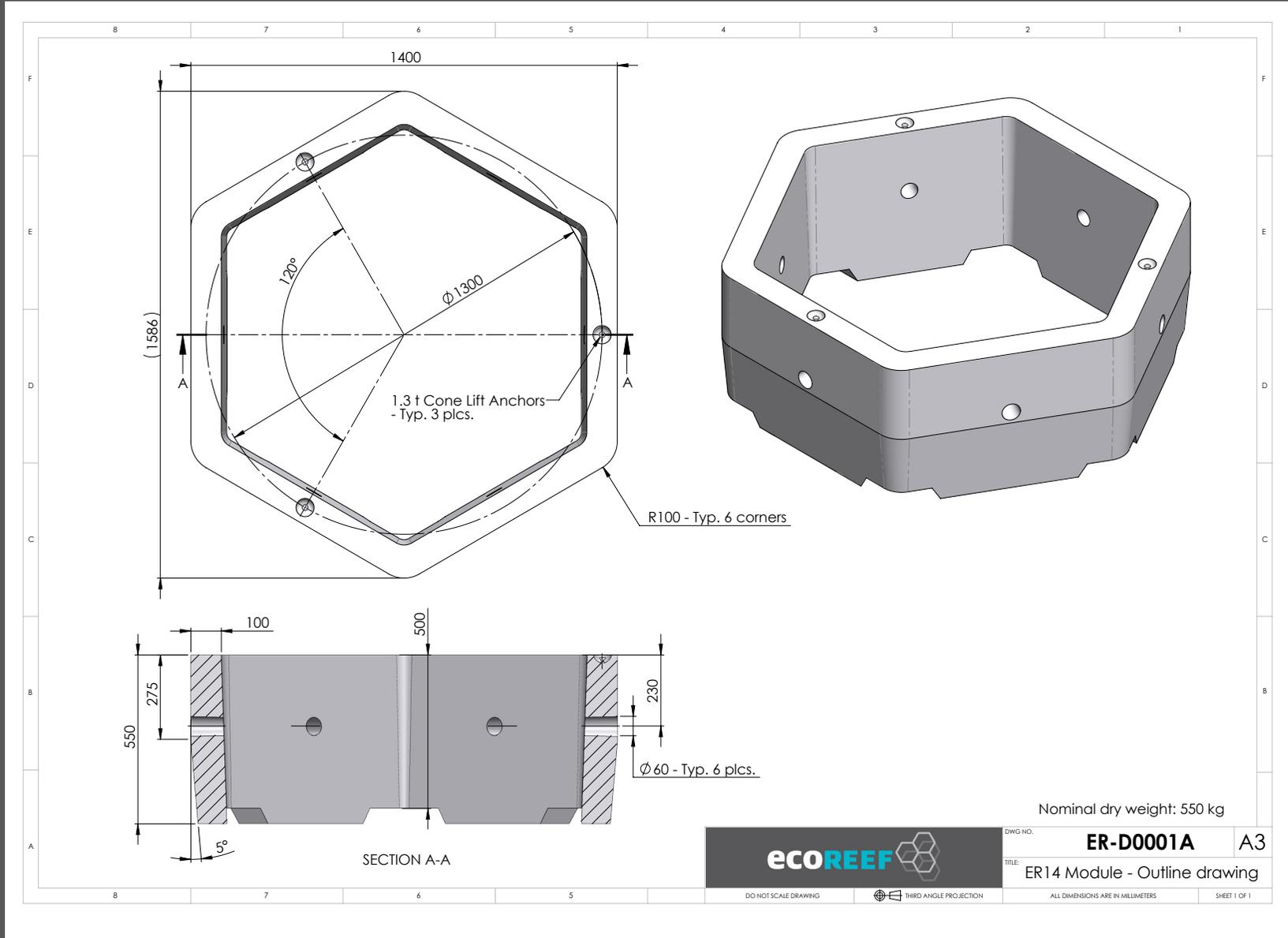
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THIRD ANGLE PROJECTION

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SHEET 1 OF 1

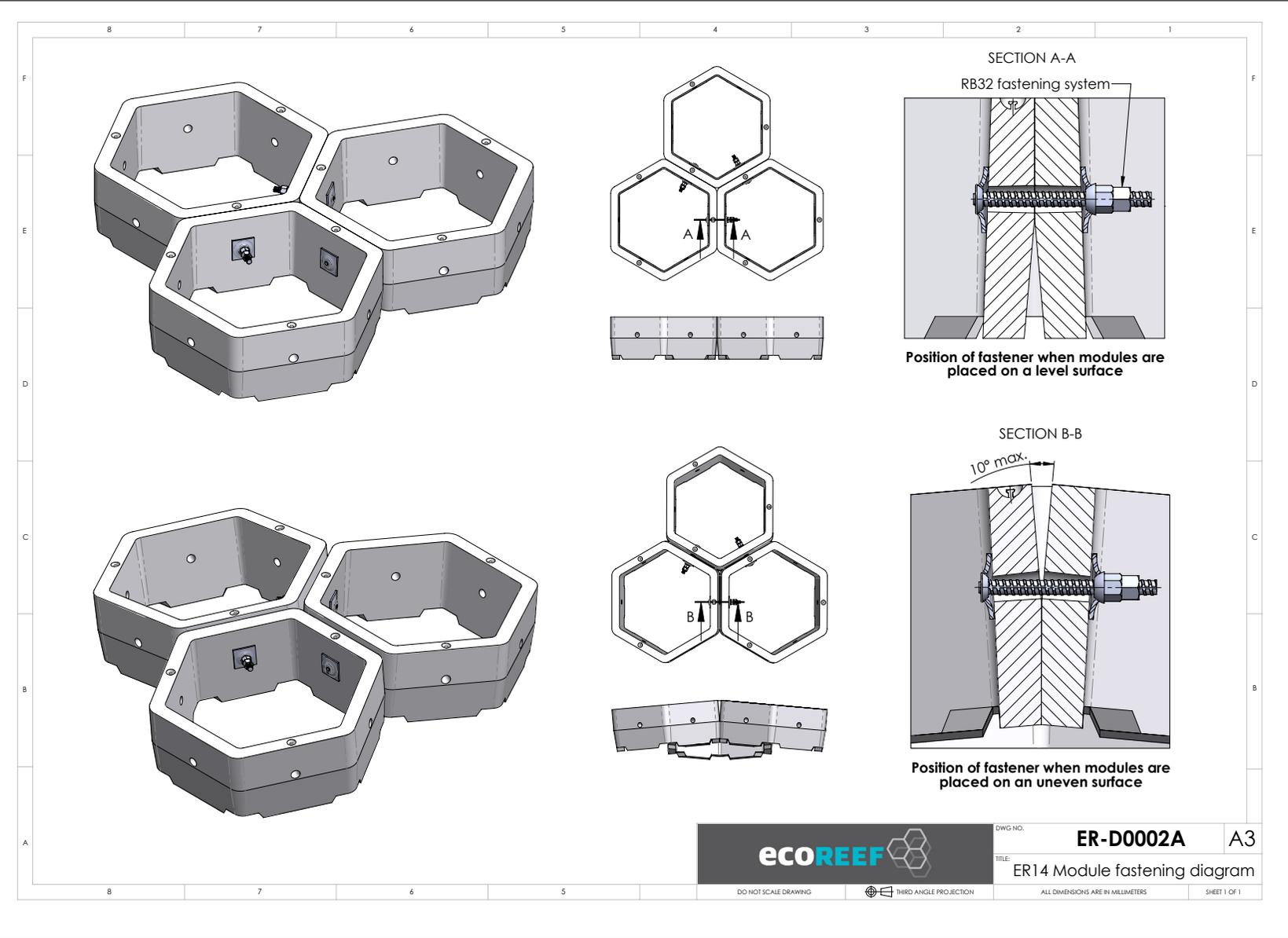
Specifications: Standard Module



Nominal dry weight: 550 kg

	DWG NO.	ER-D0001A	A3
	TITLE	ER14 Module - Outline drawing	
DO NOT SCALE DRAWING	THIRD ANGLE PROJECTION	ALL DIMENSIONS ARE IN MILLIMETERS	SHEET 1 OF 1

Specifications: Module fastening









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