

# TENSARTECH™ NATURALGREEN

EARTH RETAINING SYSTEMS FOR SLOPES



➤ Tensor® offers a broad variety of cost effective and attractive alternatives for all types of construction projects requiring retaining walls or slopes.

## Tensor Technology - proven practical solutions and the know-how to get them built

TensorTech™ systems are based on Tensor Technology and the proven performance of Tensor geogrids. Tensor Technology is widely adopted for ground stabilisation problems and reinforced soil structures, delivering real savings in cost and time. We can help you apply Tensor Technology to deliver the best value on your project.



## Building in Confidence with the TensorTech™ NaturalGreen Earth Retaining System

The result of over 30 years of evolution in construction techniques, the TensorTech™ NaturalGreen Earth Retaining System is used for building soil structures with a slope face up to 45°. The system consists of Tensor geogrids, which reinforce the soil mass providing long-term structural stability, and a high quality composite erosion protection material at the face to establish vegetation and stabilise the root system.

By specifying TensorTech NaturalGreen the engineer and client are selecting a system, which is both economical and attractive. The stability of the structure is provided by the horizontal layers of geogrid within the reinforced soil mass. There is no rigid or formal face on the structure up to the recommended maximum angle.

It is essential that a vegetative cover becomes well established and provides long-term stability to the slope face. The TensorTech NaturalGreen System incorporates an erosion protection composite in the slope face. A combination of biodegradable coir fibre and durable polypropylene mesh, this composite provides the moisture retention the vegetation needs for reliable establishment and reinforces the root system for the design life of the structure.

Typically structures such as these are considered to have a 60 year design life. However, designers may rest assured that there are Tensor geogrids available, providing the core stability, which have been independently assessed and certified for use in structures with a design life up to 120 years in the most demanding situations.





*Always keeping one eye on the local environment, TensorTech™ NaturalGreen Systems enable you to complete projects with minimal disruption and allow possible use of site-won fill.*

## TensorTech™ NaturalGreen System for proven construction of structures for highways, infrastructure or any building development

The cost effectiveness and versatility of TensorTech™ NaturalGreen offers clients, specifiers and contractors many advantages over traditional methods, such as reinforced concrete. For the construction of retaining structures, TensorTech NaturalGreen is generally considered more attractive than gabions or crib walling.

- ▶ A low cost earth retaining structure at a fraction of the cost of a reinforced concrete solution
- ▶ Rapid and economical construction procedure
- ▶ Often no specialist construction skills necessary
- ▶ Simple to build using established earth embankment construction techniques
- ▶ Allows possible use of site won fill including cohesive or contaminated materials
- ▶ Can be designed using BBA certified geogrids
- ▶ Tolerant to differential settlement
- ▶ Helps maximise land-take more economically
- ▶ High resistance to earthquake loading
- ▶ Low bearing pressure may avoid expensive foundation treatment
- ▶ Ready for immediate use upon completion



*Because TensorTech™ NaturalGreen systems minimise off-site disposal of soil and the import of fill, the project's carbon emissions can be significantly reduced.*

*Short construction times contribute to cost savings of up to 75% compared with more conventional solutions and also minimise traffic disruption.*

## Independent Assessment and Approval

Selected Tensar geogrids have been awarded British Board of Agrément (BBA) Roads and Bridges certificates allowing their design and specification in highways structures and bridge abutments with a 120 year design life and also a 120 year design life for strengthened embankments. The BBA certificates are evidence that the certified Tensar geogrids have been evaluated independently as fit for their intended use.



PRODUCT SHEET 1  
TENSAR RE AND RE500 GEOGRIDS FOR  
REINFORCED SOIL EMBANKMENTS

## Unsurpassed Experience and Reliability

Tensar International is a world leader in geogrid technology and the provision of high performance reinforced soil solutions, with over 30 years experience. Many thousands of reinforced soil structures, in many varied geotechnical and climatic conditions, have been designed and built using Tensar Technology around the world.

## Independent Assessment and Approval Offering Cost Effectiveness and Versatility

Savings of up to 75% over conventional construction methods such as reinforced concrete can be achieved by constructing with the TensarTech™ NaturalGreen System. In addition construction time may also be significantly reduced.



*TensarTech™ NaturalGreen systems produce a face that is stable and steeper than an unreinforced slope, as well as being naturally attractive.*

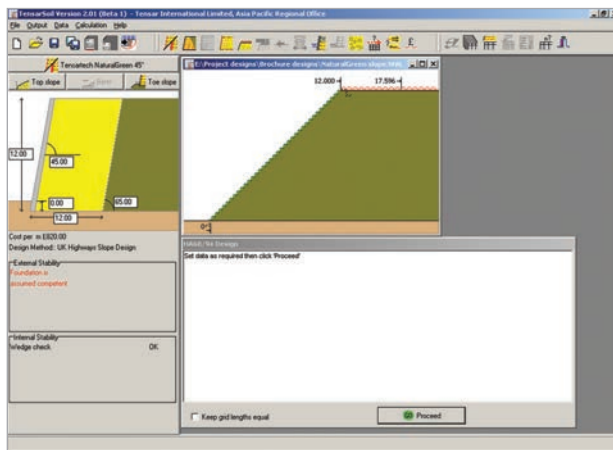
# Many TensarTech™ NaturalGreen Systems are in Service - A Proven Success



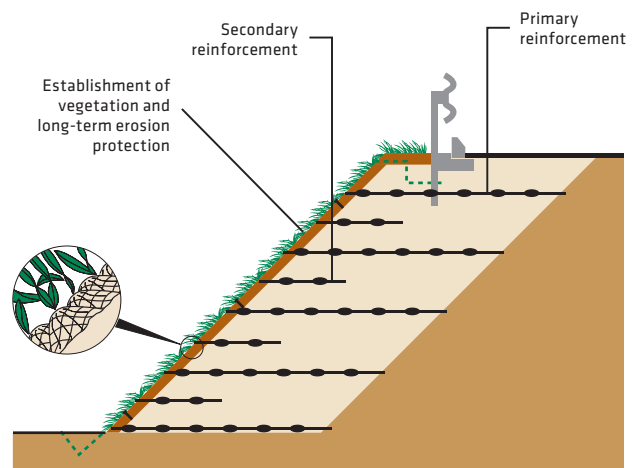
## Design Service

Tensar's Civil Engineers are available to help take your project to the next stage. They are able to provide an Application Suggestion to prove feasibility and help with planning costings. Tensar can also provide certified detailed design and

drawings for using Tensar products and systems on your project with this design work being covered by Tensar's Professional Indemnity (PI) insurance.



Tensar software delivers safe, economic design solutions.



A composite erosion control mat at the surface helps establish and maintain a vegetative cover.

## Reinforced Soil Wall Design Software

For more than twenty five years Tensar has developed some of the most sophisticated reinforced soil design software in the world. This is used to provide clients with economically

efficient, accurate and timely Application Suggestions, assisting in scheme design from feasibility right through to construction.



Heavy plant may work right up to the face.



TensarTech™ NaturalGreen rapidly blends into the surroundings.

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Contact Tensar or your local distributor to receive further literature covering Tensar products and applications.

Also available on request are product specifications, installation guides and specification notes.

The complete range of Tensar literature consists of:

- ▶ **Tensar Geosynthetics in Civil Engineering**  
A guide to products, systems and services
- ▶ **Ground Stabilisation**  
Stabilising unbound layers in roads and trafficked areas
- ▶ **TriAx<sup>®</sup>: A Revolution in Geogrid Technology**  
The properties and performance advantages of Tensar<sup>®</sup> TriAx<sup>®</sup> geogrids
- ▶ **Asphalt Pavements**  
Reinforcing asphalt layers in roads and trafficked areas
- ▶ **TensarTech<sup>™</sup> Earth Retaining Systems**  
Bridge abutments, retaining walls and steep slopes
- ▶ **Railways**  
Mechanical stabilisation of track ballast and sub-ballast
- ▶ **Foundations Over Piles**  
Constructing over weak ground without settlement
- ▶ **Basal Reinforcement**  
Using Basetex high-strength geotextiles
- ▶ **TensarTech Foundation Mattress System**
- ▶ **Erosion**  
Controlling erosion on soil and rock slopes