



PRE-ASSEMBLED EARTH RETAINING SYSTEMS: THE TERRAMESH FAMILY

Date

November 17, 2022

MACCAFERRI



5' Introduction

15' The TerraMesh Family

15' Installation, design software and certified quality

10' Conclusions

Q&A Session

Speaker: Stefano Rignanese

DT Business Unit - Business Developer

When it comes to **weak soils** that need to support **high loads** or many loading and unloading cycles, the structures must be designed with great precision and constructed with quality materials.





Productivity on construction sites has always a great impact on a project's success.

Sometimes, emergencies like floods and landslides require a **rapid intervention** to contain damages.

Retaining walls and soil reinforcement solutions sometimes need to reach great heights while keeping a small ground footprint.

The **lack of space** can lead to a great challenge when designing these structures.





Often, the **scarcity of materials** and the limited access to the construction site can represent an issue in constructing soil reinforcement structures.

To reach a greater sustainability and a lower total cost of ownership, solutions need to have the longest design life.

Especially in those regions with more aggressive climates, choosing the right type of structure and materials can be crucial when it comes to **durability**.



When designing engineering solutions, the environmental impact of every structure needs to be considered.

The best solutions are the ones that combine great performance with **environmental integration**.



TerraMesh Mineral

Rise to the challenge

Why is TerraMesh the best?



The TerraMesh solutions are fabricated from a double twisted steel wire mesh: the facing is integrally manufactured with the DT soil reinforcement. As a **continuous piece of woven mesh**, **no connections** are needed and therefore there are no weak points.



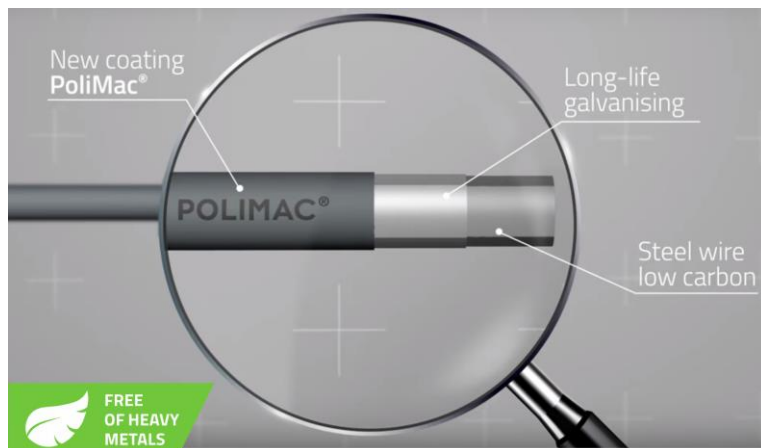
Why is TerraMesh the best?



The TerraMesh solutions are fabricated from a double twisted steel wire mesh: the facing is integrally manufactured with the DT soil reinforcement. As a **continuous piece of woven mesh**, **no connections** are needed and therefore there are no weak points.



All the TerraMesh solutions are made of **PoliMac** coated wire mesh. PoliMac is a revolutionary coating that allows a great increase in **durability**, even when the climatic conditions are particularly aggressive.



PoliMac®

WIRE PROTECTION FOR A CHANGING WORLD

10x

Better resistance to **abrasion**, including installation damages



2x

More resistance to **chemical aggressions***



4x

More performance in **cold weather**



4x

More resistance to **UV rays****



* In terms of resistance to sulphuric, nitric, formic, acetic acids

** In terms of elongation after 2500 hrs of exposure

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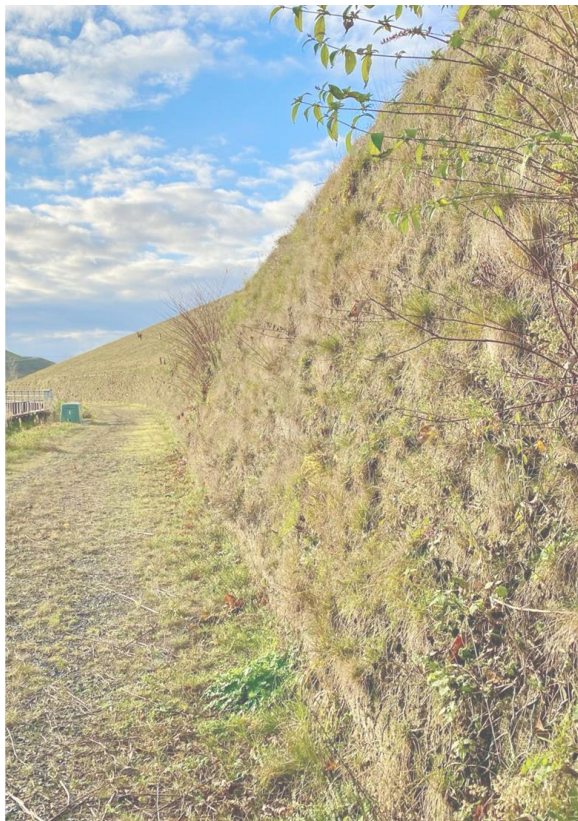
Reinforcing soils with the TerraMesh family in conjunction with our **Paraproducts** enables them to stand higher and steeper, to accommodate higher loads and to reuse on-site soils. There is no need for mechanical connections!

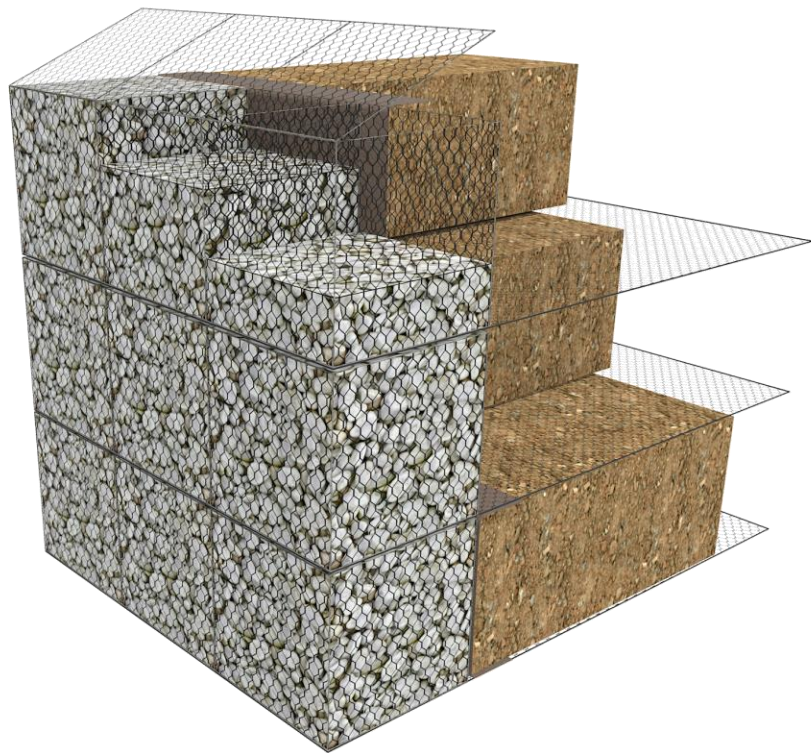




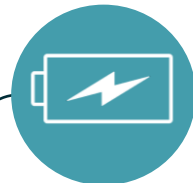


TerraMesh System
Rise to the challenge





TerraMesh System is a modular system used to form a rock-faced mechanically stabilized earth wall with vertical facing.



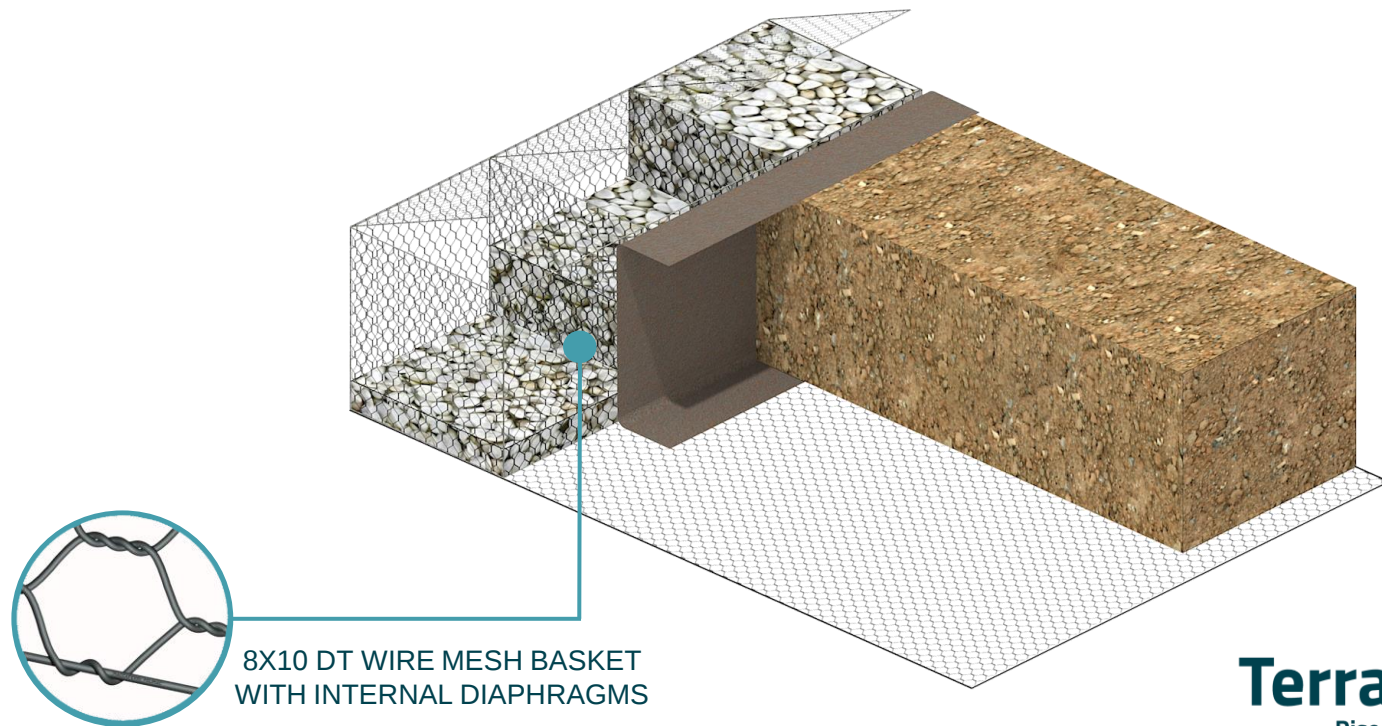
120
YEARS
DESIGN
LIFE



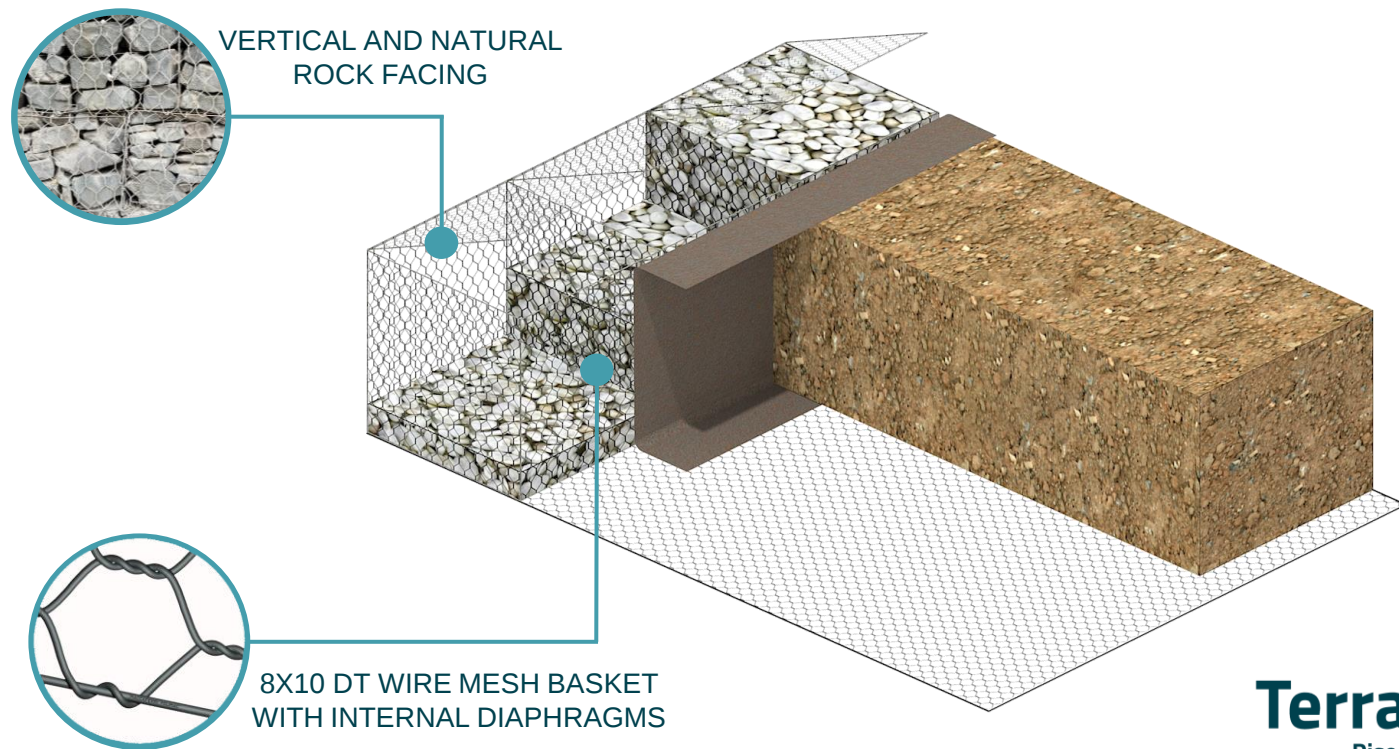
50 m²
INSTALLED
IN A SHIFT



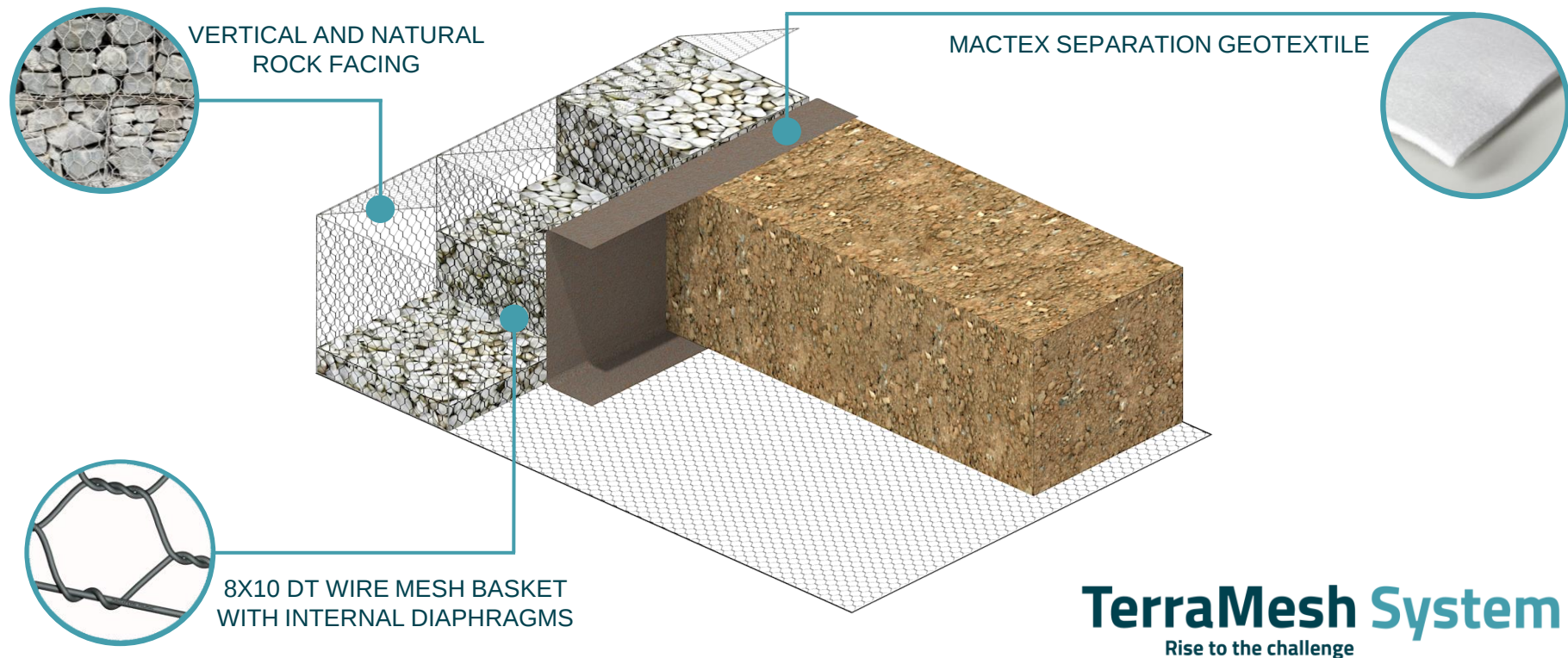
GREAT
PERFORMANCE
UNDER HIGH
LOADS



TerraMesh System
Rise to the challenge

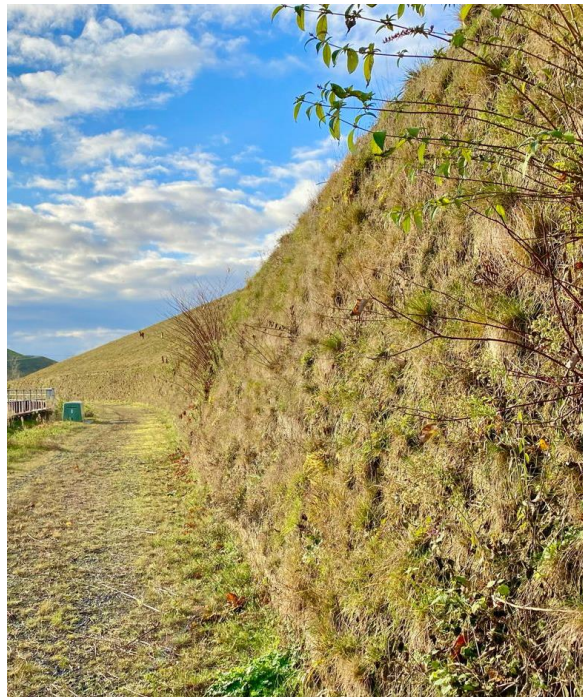


TerraMesh System
Rise to the challenge



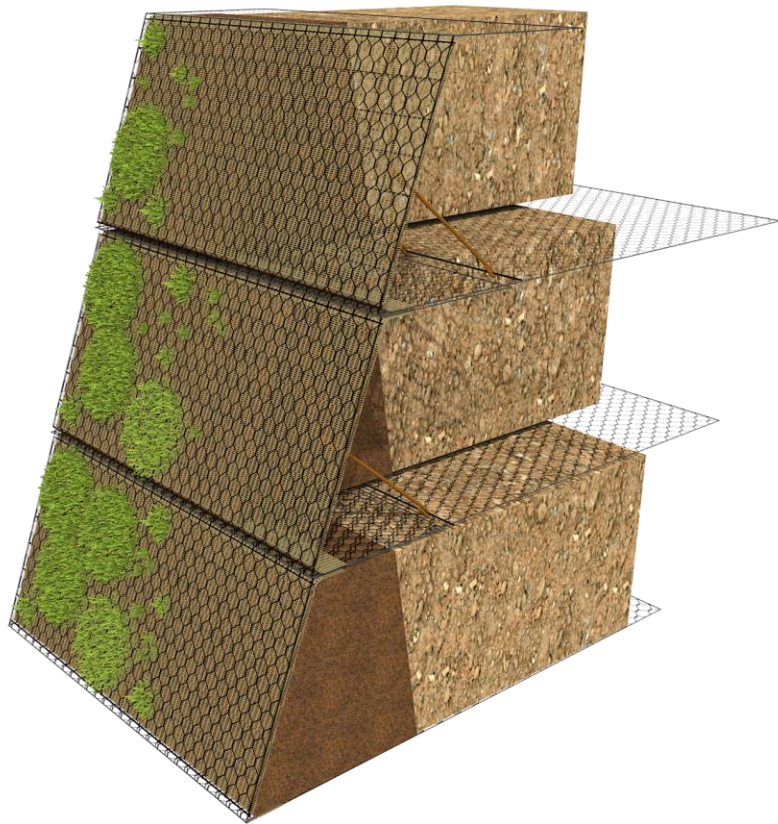
Our contribution to the reconstruction of Route 82
Caminho Perilago, Province of Mendoza, Argentina
TerraMesh System 3,965 m²



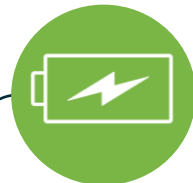


TerraMesh Green
Rise to the challenge





TerraMesh Green is an environmentally friendly modular system used to form green-faced soil reinforced slopes and embankments.



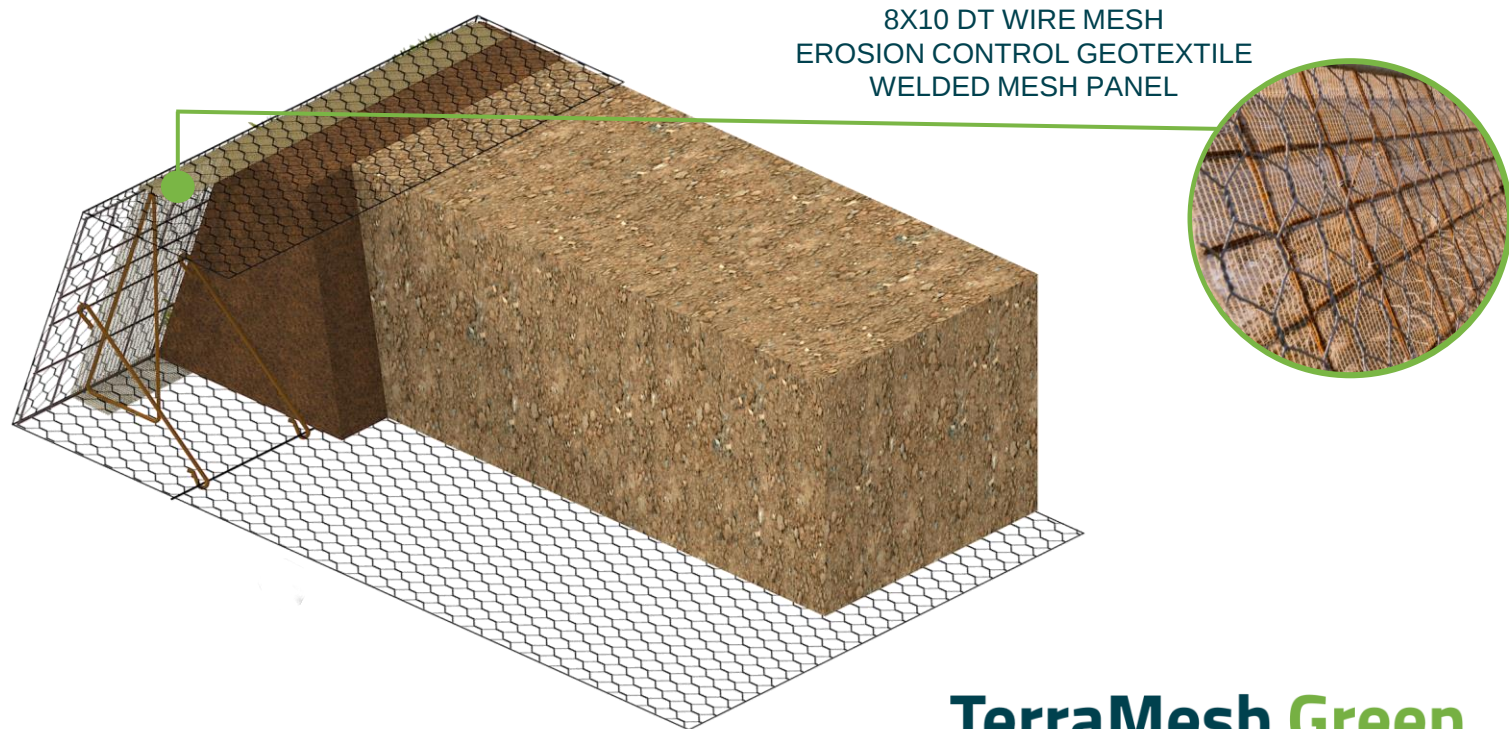
120
YEARS
DESIGN
LIFE



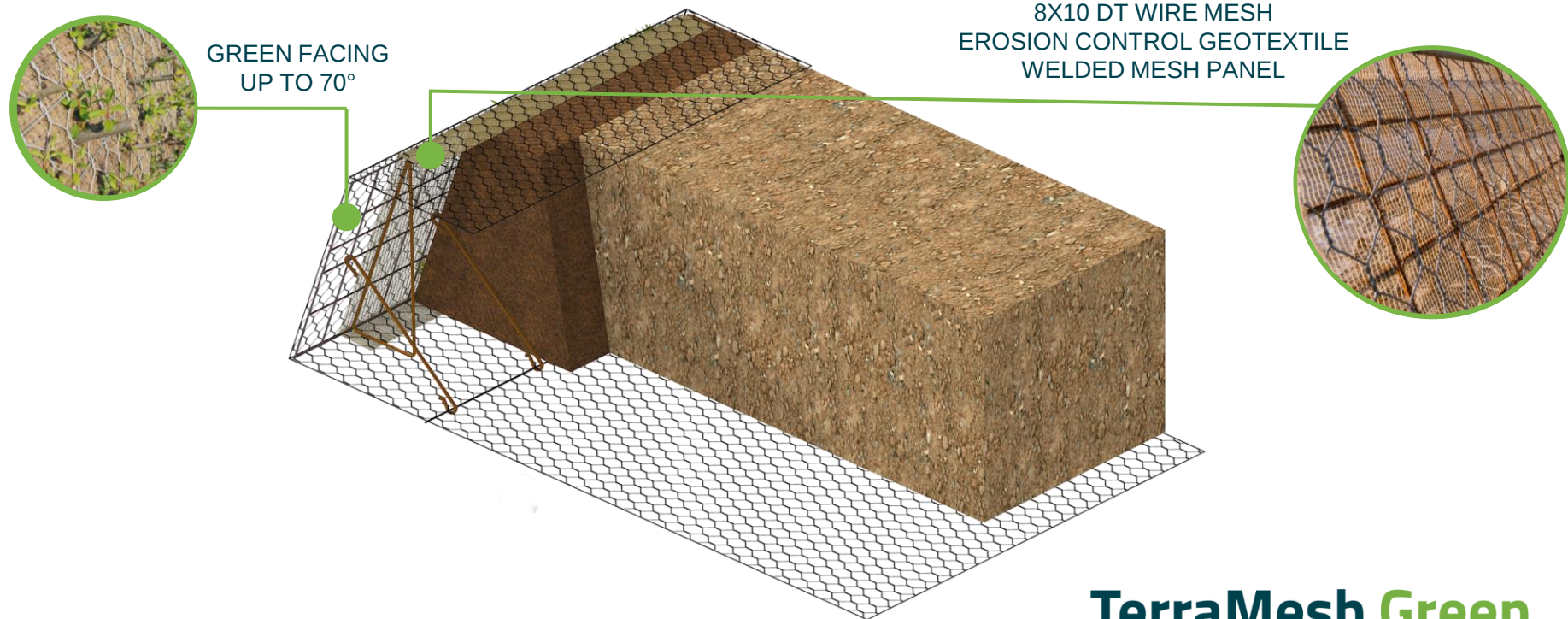
150 m²
INSTALLED
IN A SHIFT



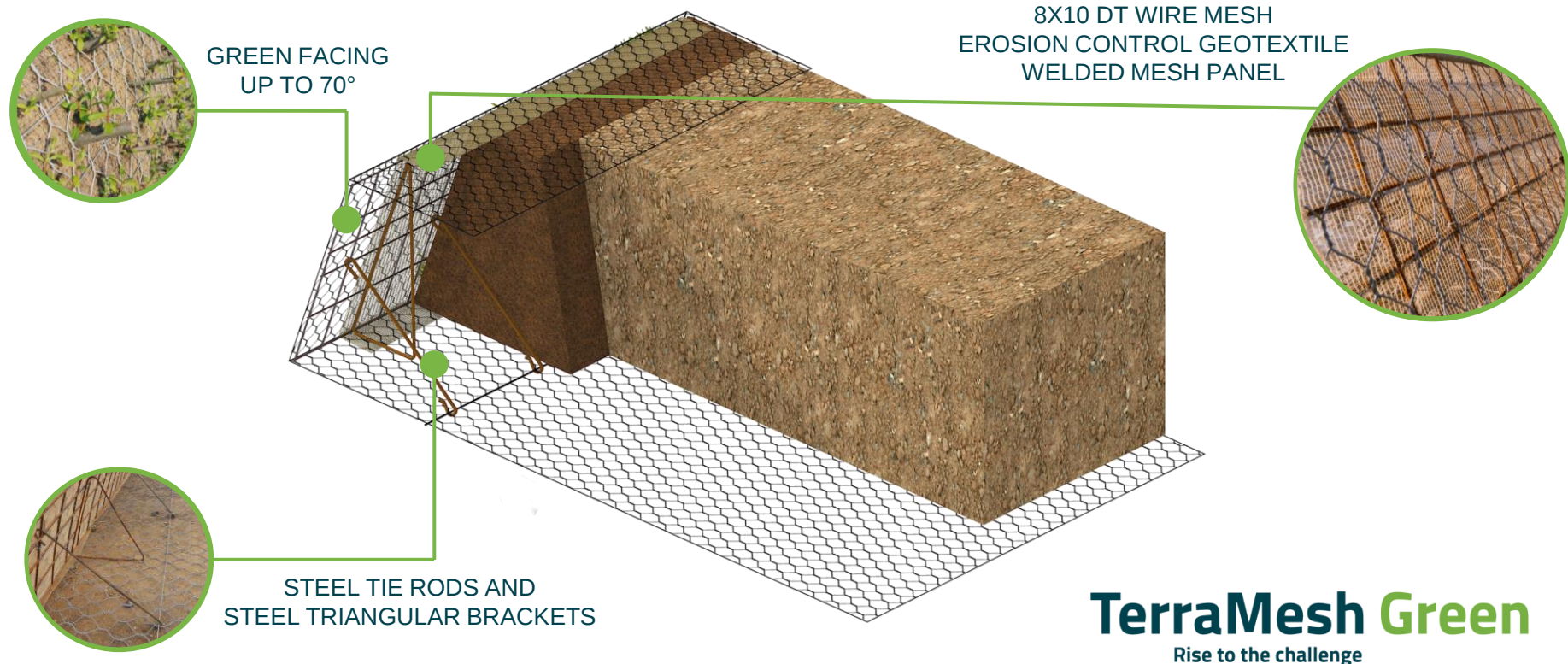
ENHANCED
ECOSYSTEM
DIVERSITY AND
CARBON
SEQUESTRATION



TerraMesh Green
Rise to the challenge

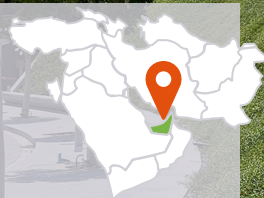


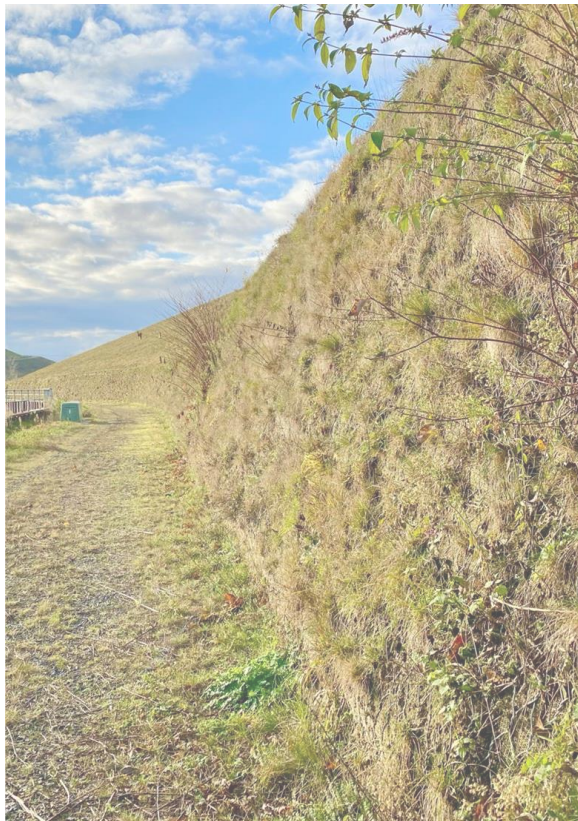
TerraMesh Green
Rise to the challenge



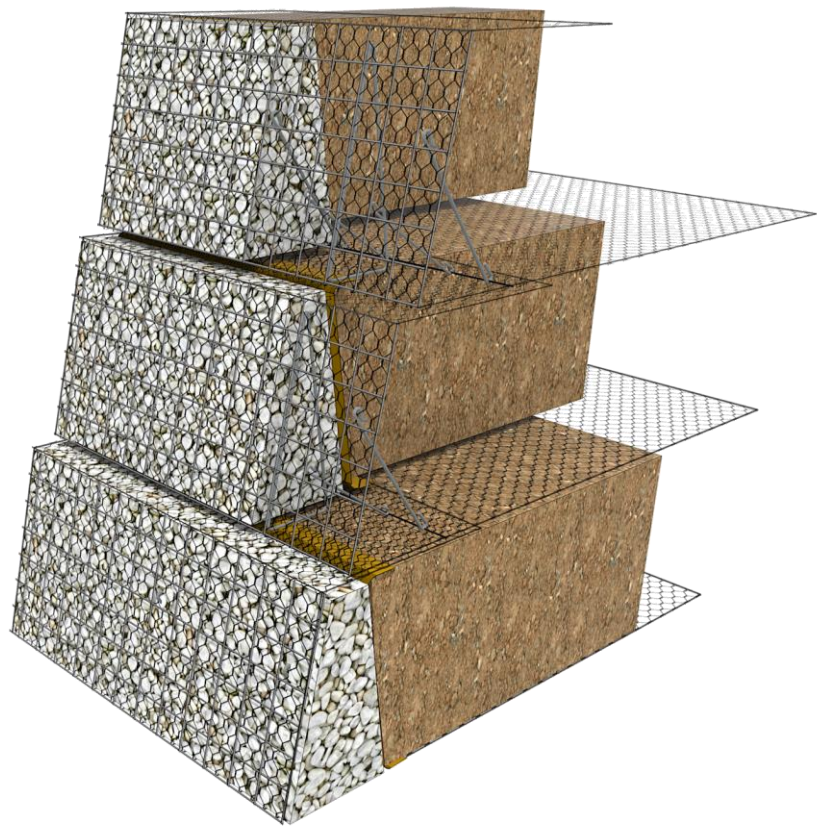


A green contribution to a piece of art
Museum of the Future, City of Dubai, U.A.E
TerraMesh Green 3,500 m²

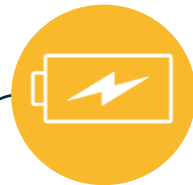




TerraMesh Mineral
Rise to the challenge



TerraMesh Mineral is a unique soil reinforcement system with a sloping rock face finish.



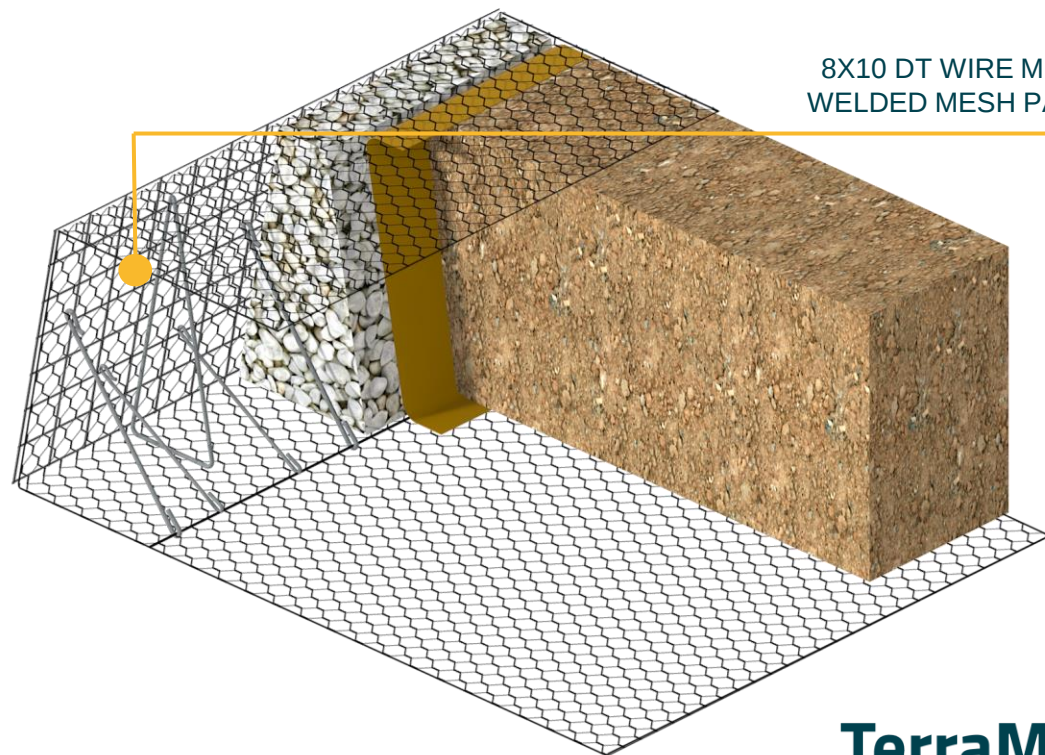
120
YEARS
DESIGN
LIFE



60 m²
INSTALLED
IN A SHIFT



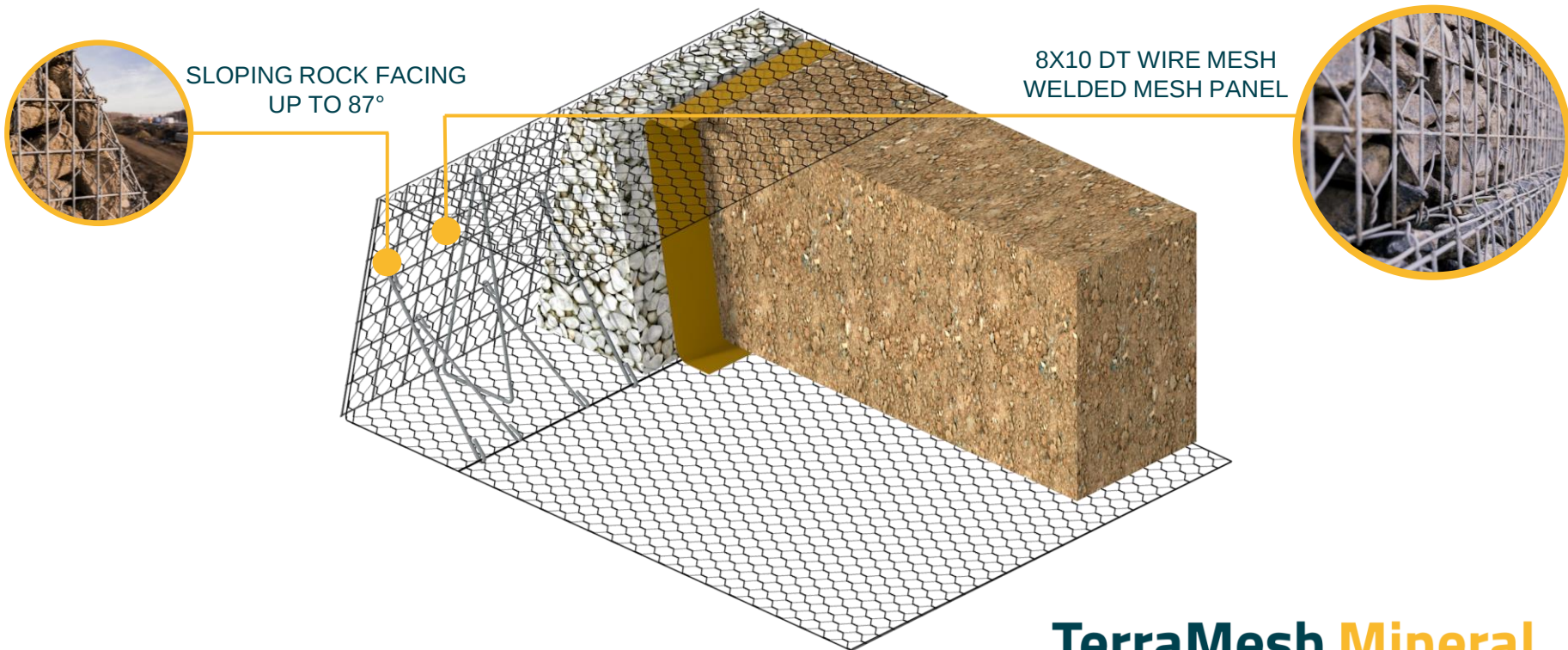
REDUCED
STONE
CONSUMPTION



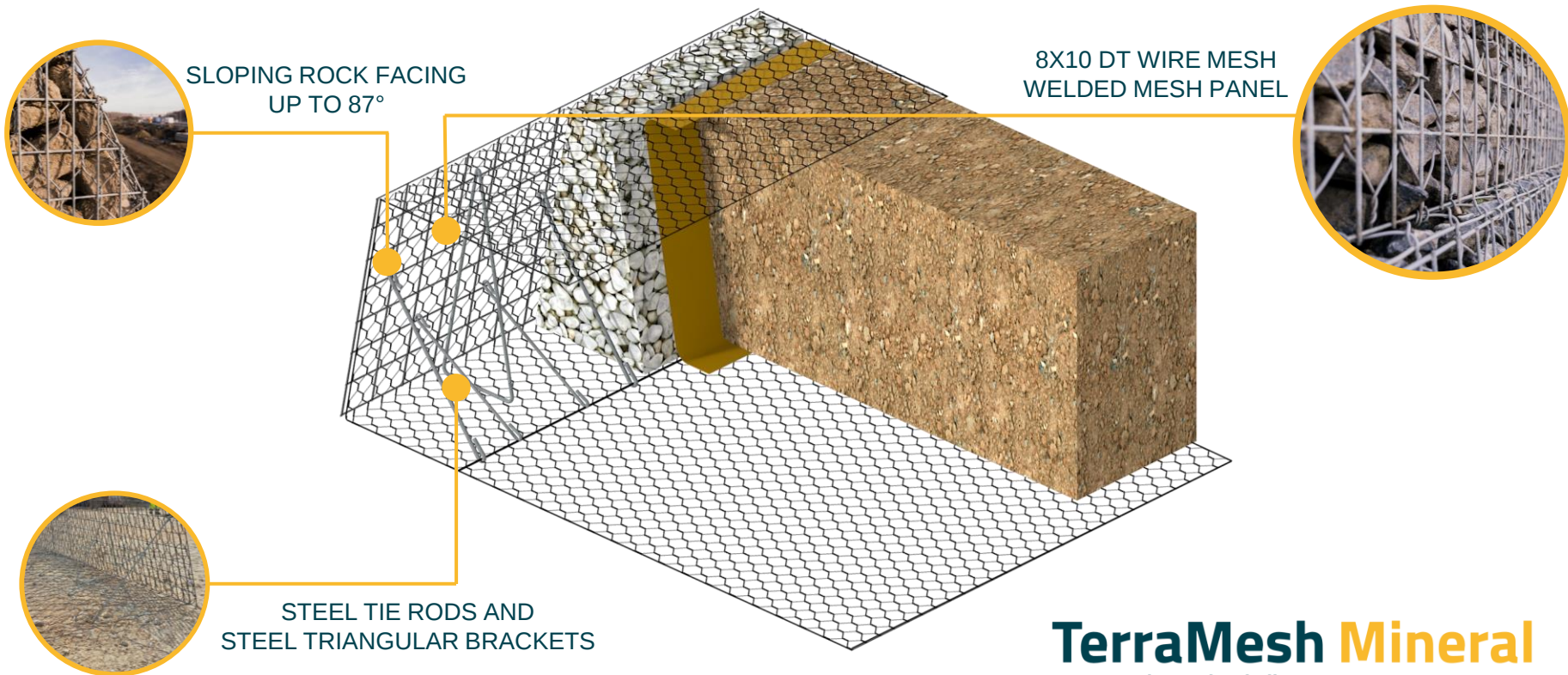
8X10 DT WIRE MESH
WELDED MESH PANEL



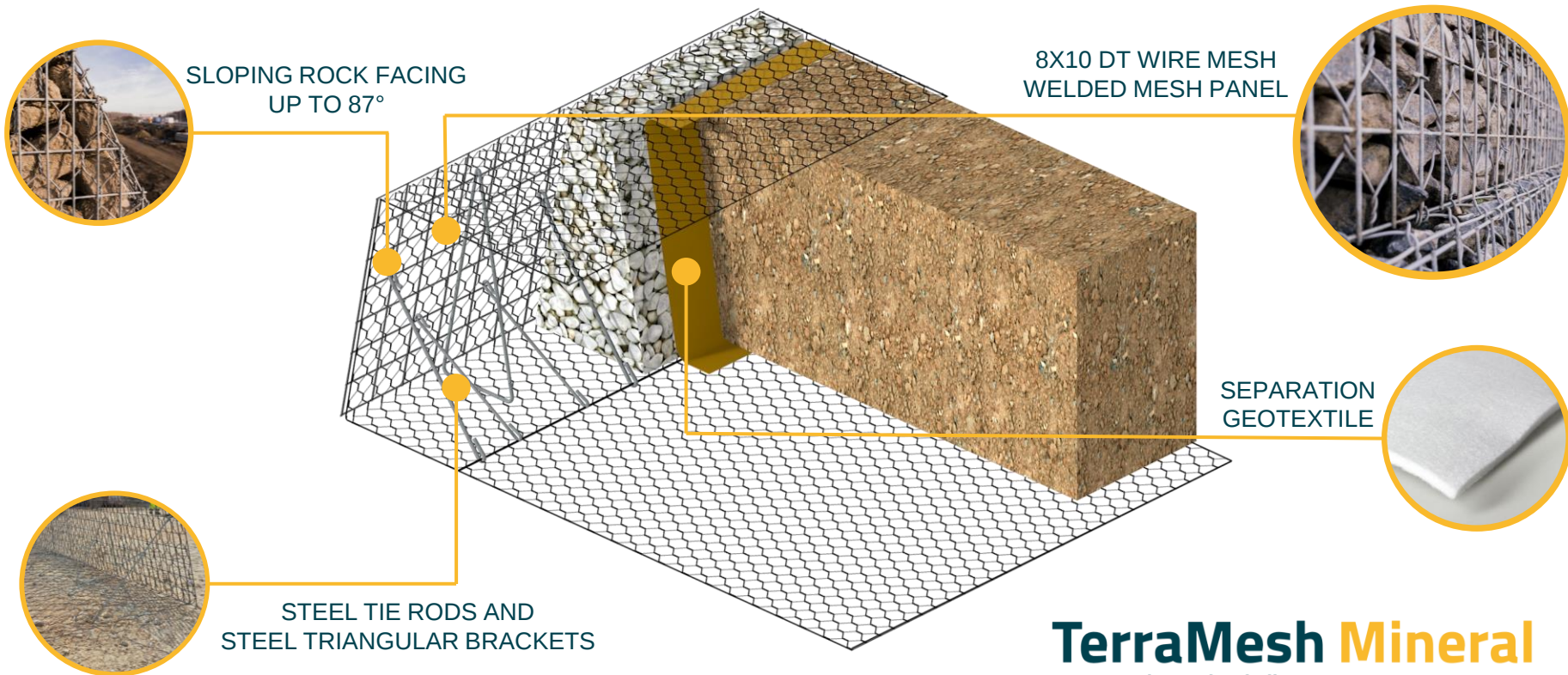
TerraMesh Mineral
Rise to the challenge



TerraMesh Mineral
Rise to the challenge



TerraMesh Mineral
Rise to the challenge



TerraMesh Mineral
Rise to the challenge

Our contribution towards a sustainable mobility
Valenciennes, France
TerraMesh Mineral 1,300 m²





We manufacture the units of TerraMesh solutions as **pre-assembled**, allowing a consistent reduction in the operations to do on-site. Less operations means a **faster installation** and a **better productivity**, but also less inaccuracies and waste of material.





00:00:00



2 PRE-ASSEMBLED UNITS OF **TERRAMESH GREEN**

4.56 m² INSTALLED

21% WIDER



2 UNITS OF WRAP-AROUND SYSTEM

3.78 m² INSTALLED



2 PRE-ASSEMBLED UNITS OF **TERRAMESH GREEN**

4.56 m² INSTALLED

21% WIDER

58 min INSTALLED

40% FASTER

2 UNITS OF WRAP-AROUND SYSTEM

3.78 m² INSTALLED

1 h 20 min INSTALLED



2 PRE-ASSEMBLED UNITS OF **TERRAMESH GREEN**

4.56 m² INSTALLED

21% WIDER

58 min INSTALLED

40% FASTER

8 min FOR PLACING THE UNITS

77% FASTER

2 UNITS OF WRAP-AROUND SYSTEM

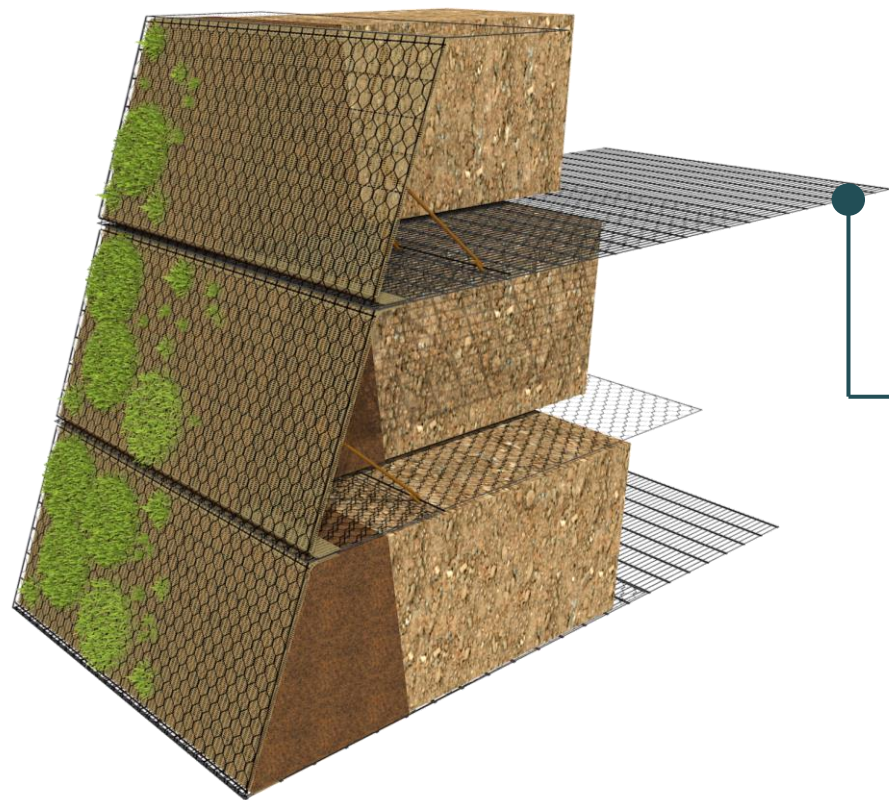
3.78 m² INSTALLED

1 h 20 min INSTALLED

30 min JUST FOR ASSEMBLING AND PLACING



When used in conjunction with our **polymeric geogrids**, the TerraMesh family enables the construction of extremely high and steep structures with an exceptional bearing capacity



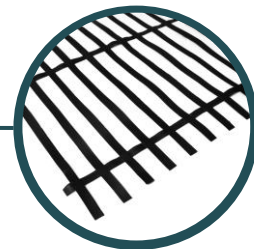
ParaLink

100 kN/m up to 1600 kN/m



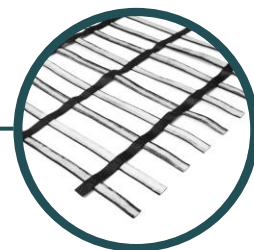
ParaGrid

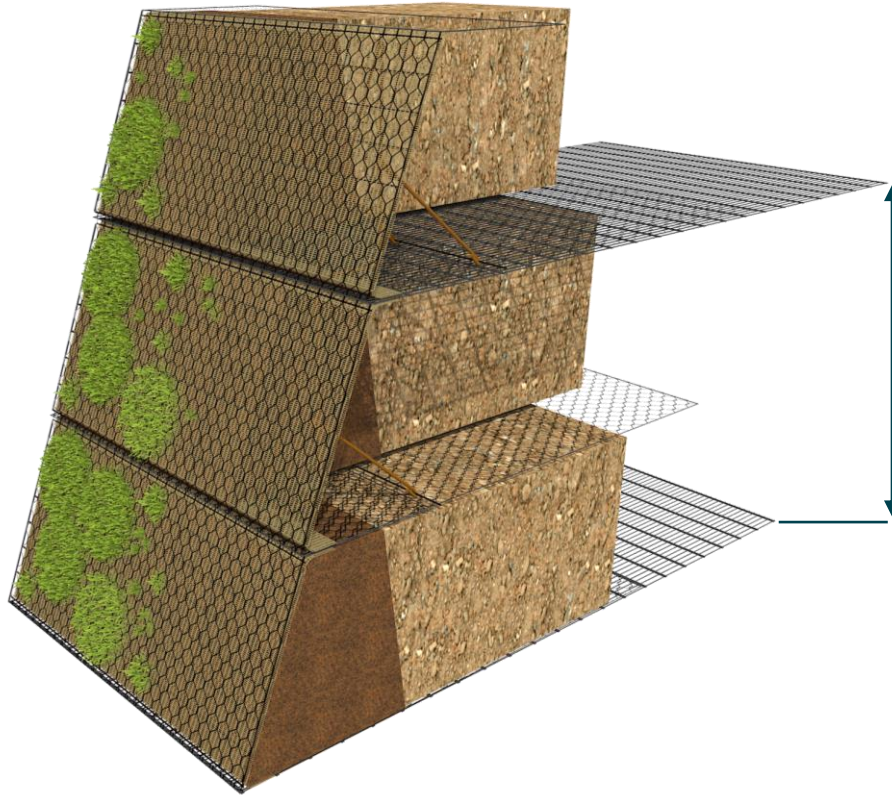
30 kN/m to 200 kN/m in the longitudinal direction



ParaDrain

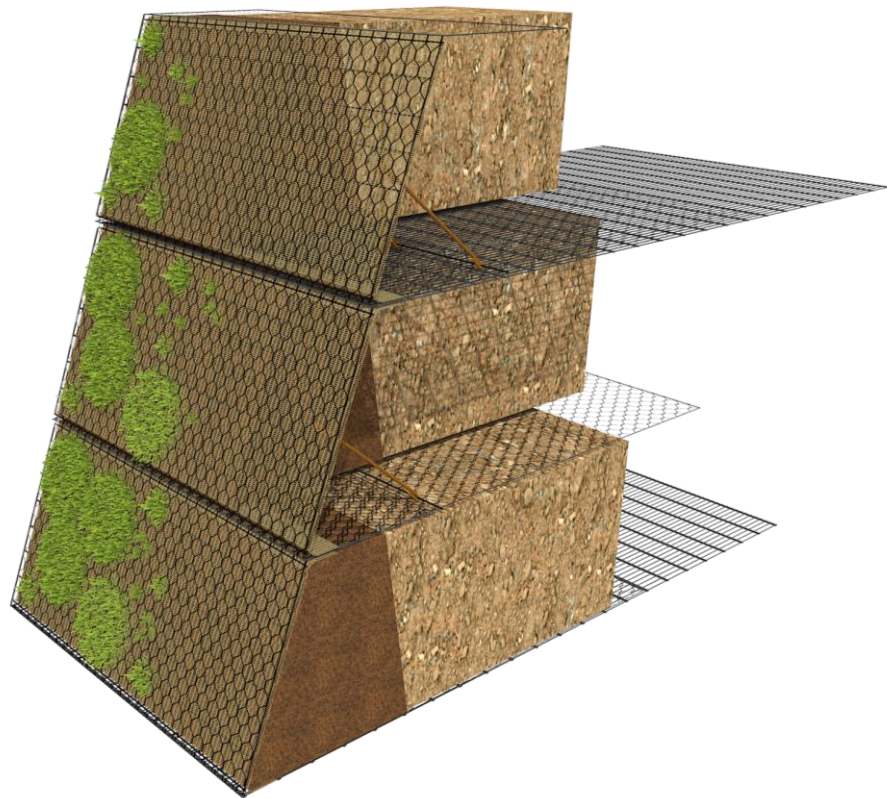
50 kN/m to 200 kN/m in the longitudinal direction





ParaLink, ParaGrid, ParaDrain:
Maccaferri has a wide range of
geogrids with a variety of polymers,
configurations and strengths.

This wide choice allow the
optimization of reinforcement
elements, which can be used only
where necessary, saving materials
and reducing the total cost of the
structure.



The geogrid reinforcement enable soil to accommodate **greater loads**, due to their high tensile strength, low strain and good interaction with the soil.



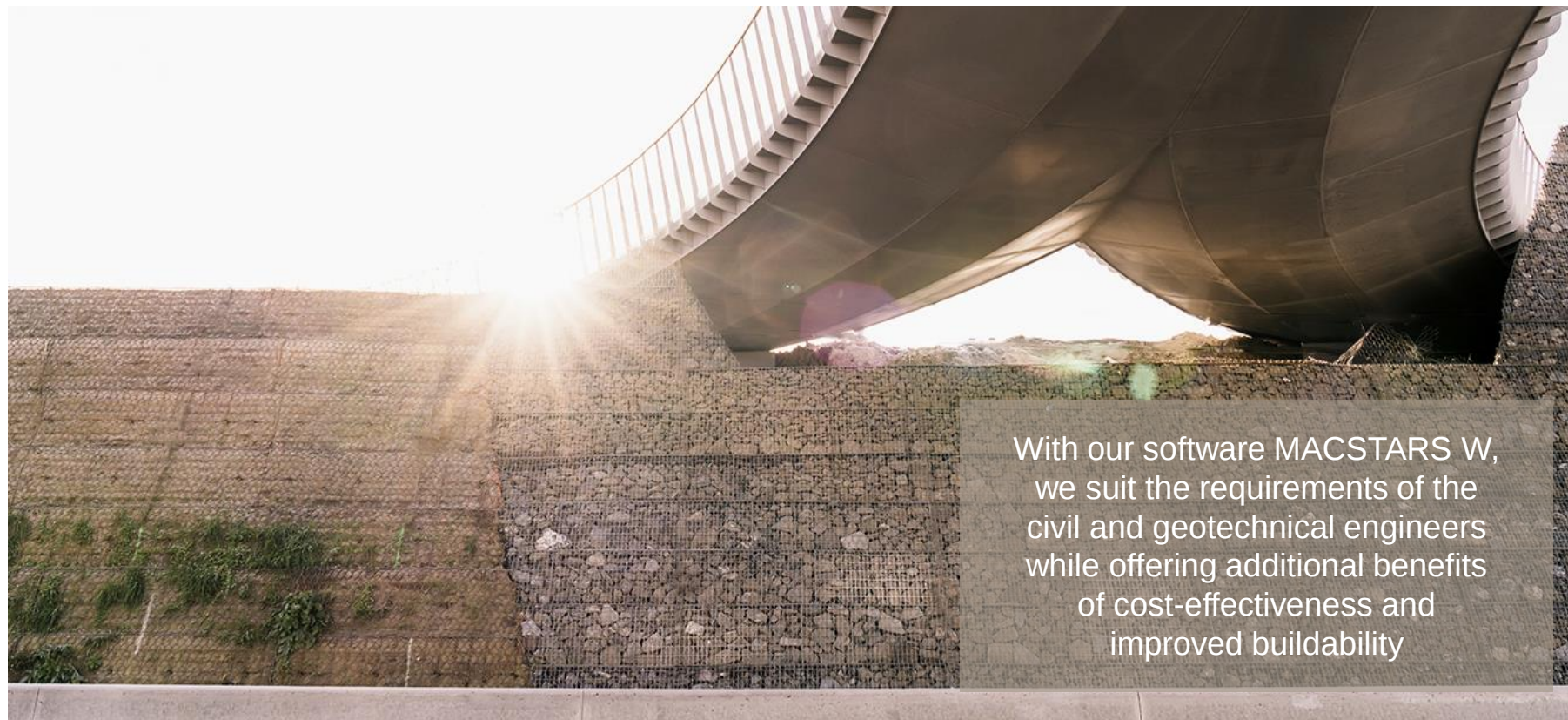
Paraproducts provide the necessary strength to guarantee the overall stability of the **highest structures** with **steep slopes**.



The combined use of Paraproducts with TerraMesh units maximises the **speed of construction**.



Paraproduct reinforcement enables the use of marginal soils making this solution feasible with any **locally available filling**.



With our software MACSTARS W,
we suit the requirements of the
civil and geotechnical engineers
while offering additional benefits
of cost-effectiveness and
improved buildability

The software that suits the requirements of civil and geotechnical engineers

MacSTARS enables the design of high-end and challenging structures in the most diverse conditions



The software that suits the requirements of civil and geotechnical engineers

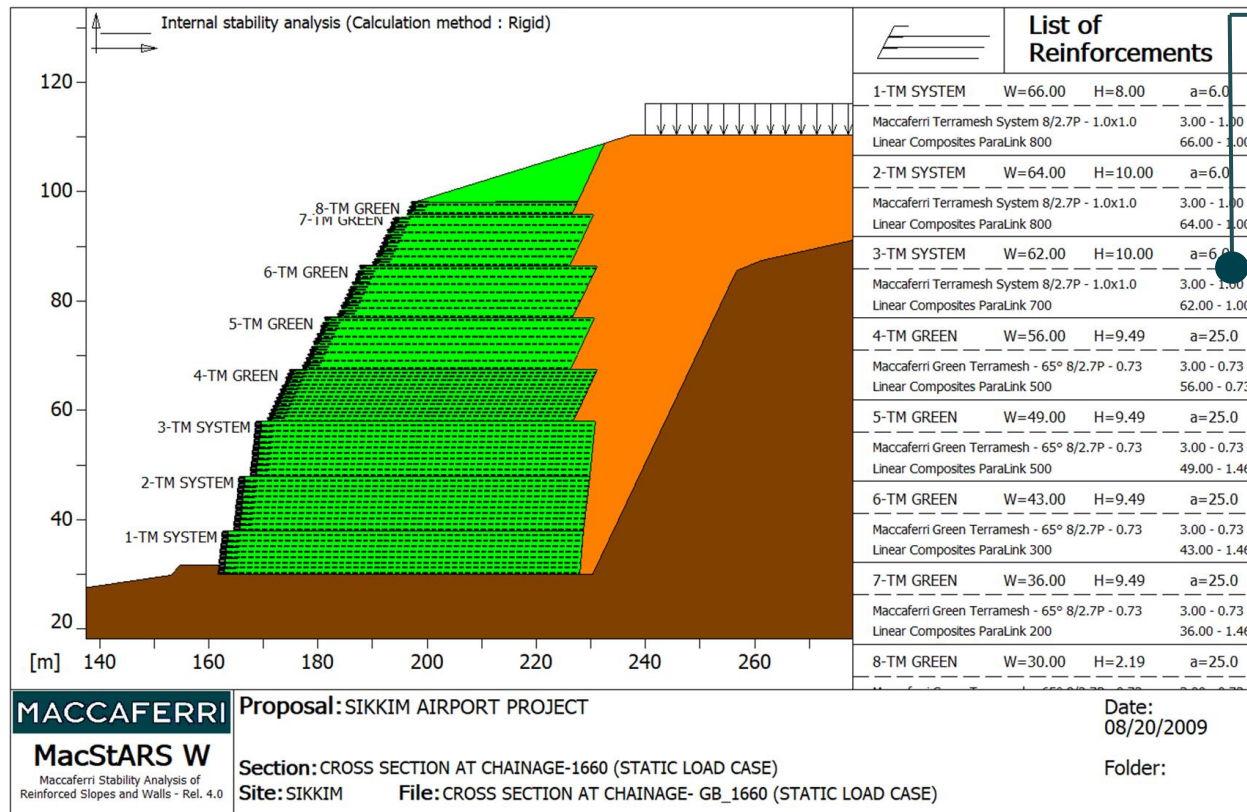
MacSTARS enables the design of high-end and challenging structures in the most diverse conditions



Would you like to download the software?
Type “**SOFTWARE**” in the chat box!

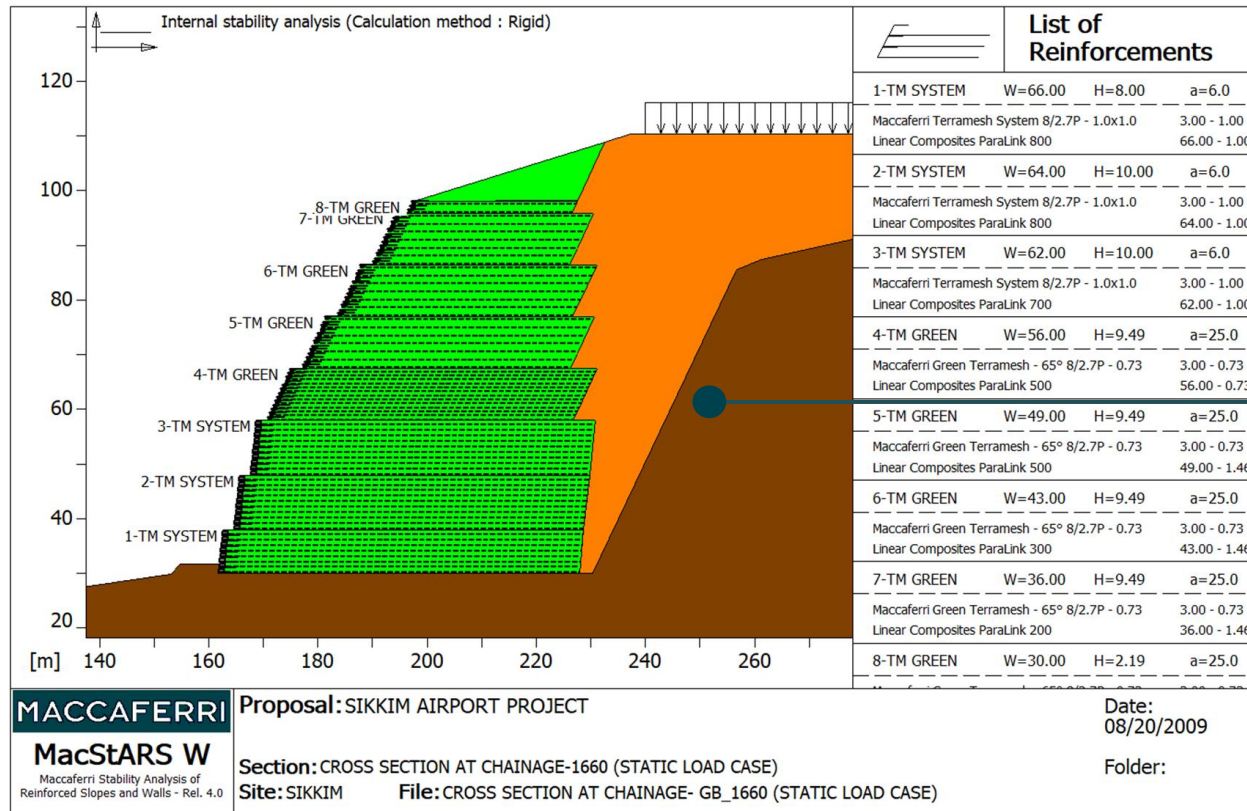


The software that suits the requirements of civil and geotechnical engineers



Within MacSTARS W, engineers can select the most up to date and certified products (e.g. BBA and CE marked) to be used within their retaining wall or reinforced soil slope/wall.

The software that suits the requirements of civil and geotechnical engineers

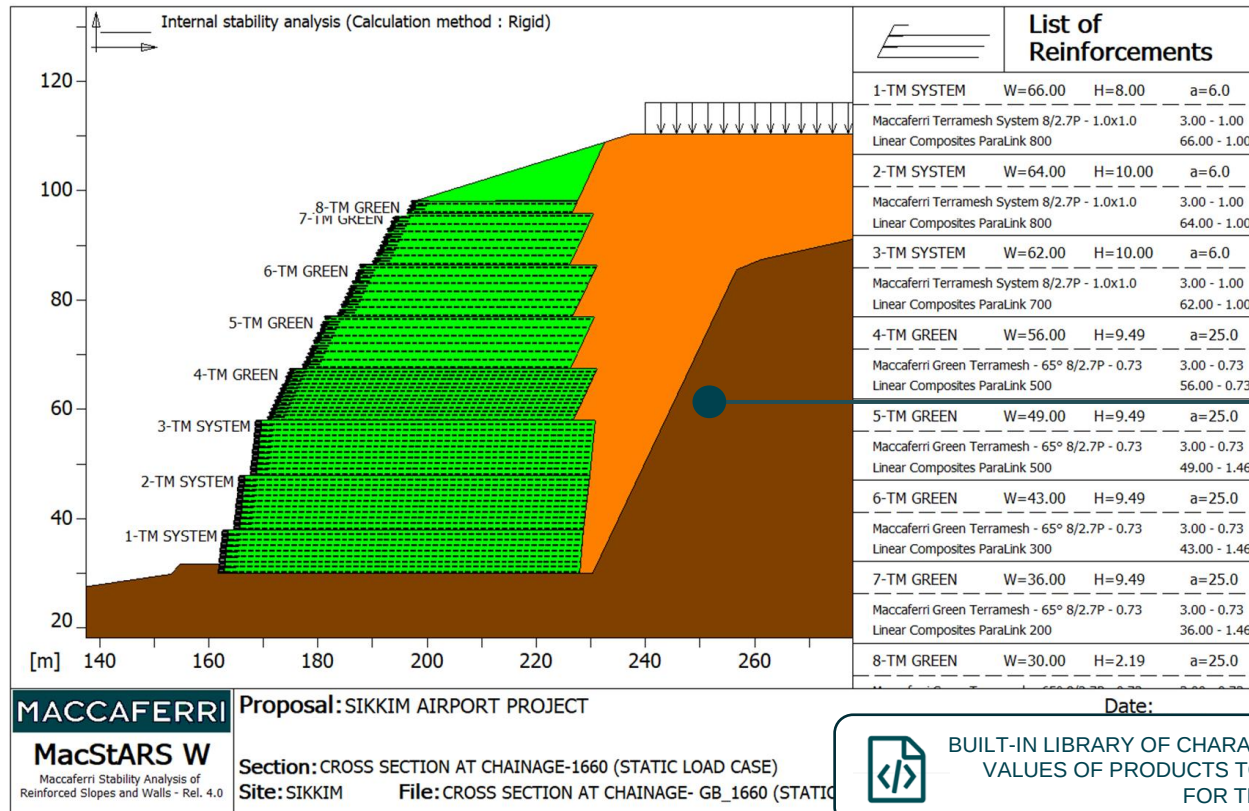


Within MacSTARS W, engineers can select the most up to date and certified products (e.g. BBA and CE marked) to be used within their retaining wall or reinforced soil slope/wall.

MacSTARS accommodates complex soil geometries and other features including:

-  pore water pressure
-  seismic conditions
-  external uniform and point load surcharges.

The software that suits the requirements of civil and geotechnical engineers

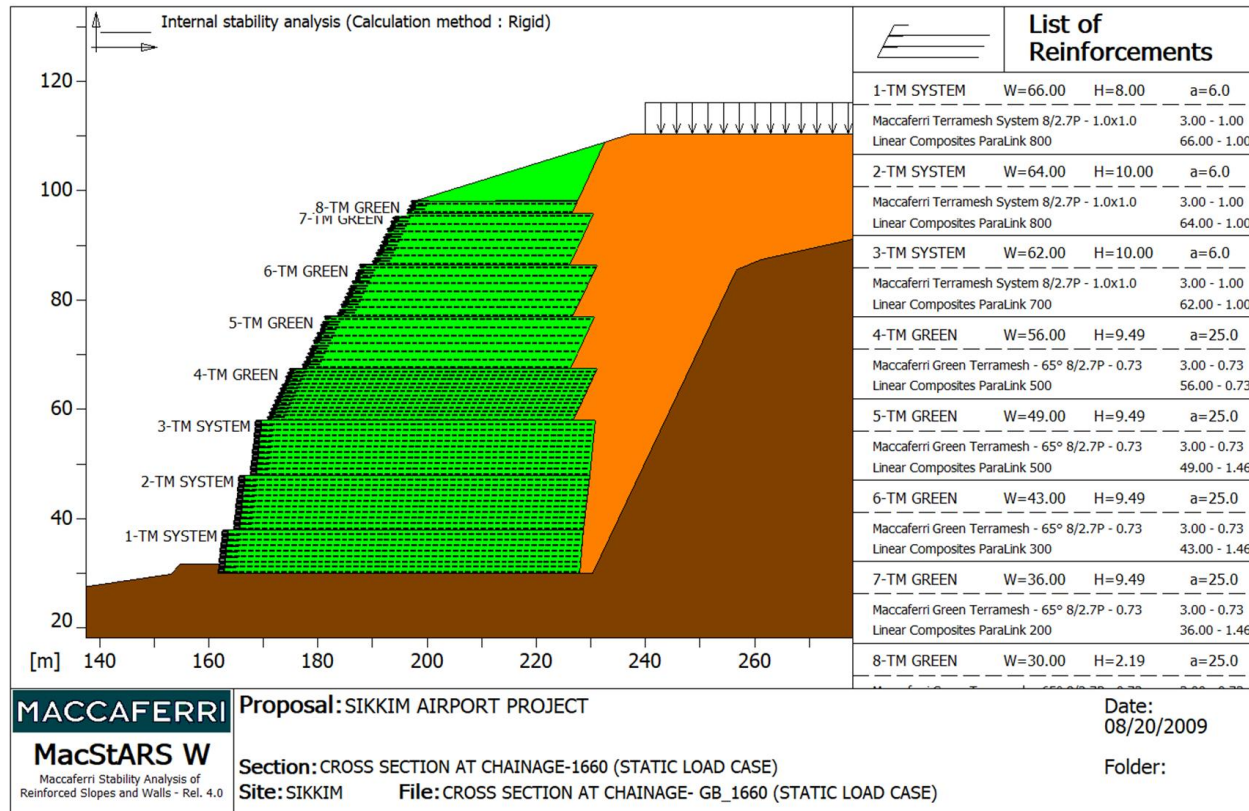


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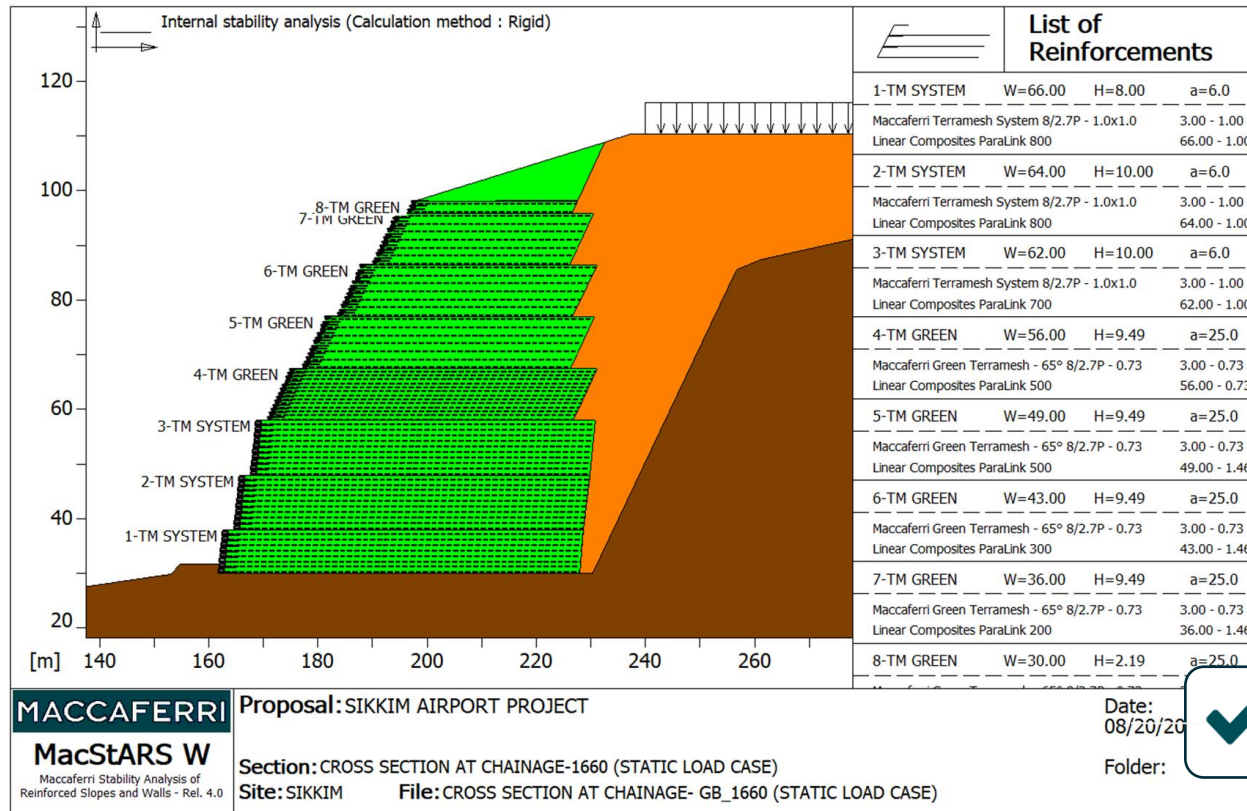
-  pore water pressure
-  seismic conditions
-  external uniform and point load surcharges

The software that suits the requirements of civil and geotechnical engineers



The current library allows the user to design following the Eurocode 7, BS8006:2016 (British), NF P94-270 and NF XP G38-064 (French), DIN 1054 (German), SANS 207 (South African), A-NZ (Australian), Russians, FHWA (American) and NTC 2017 (Italian) standards.

The software that suits the requirements of civil and geotechnical engineers

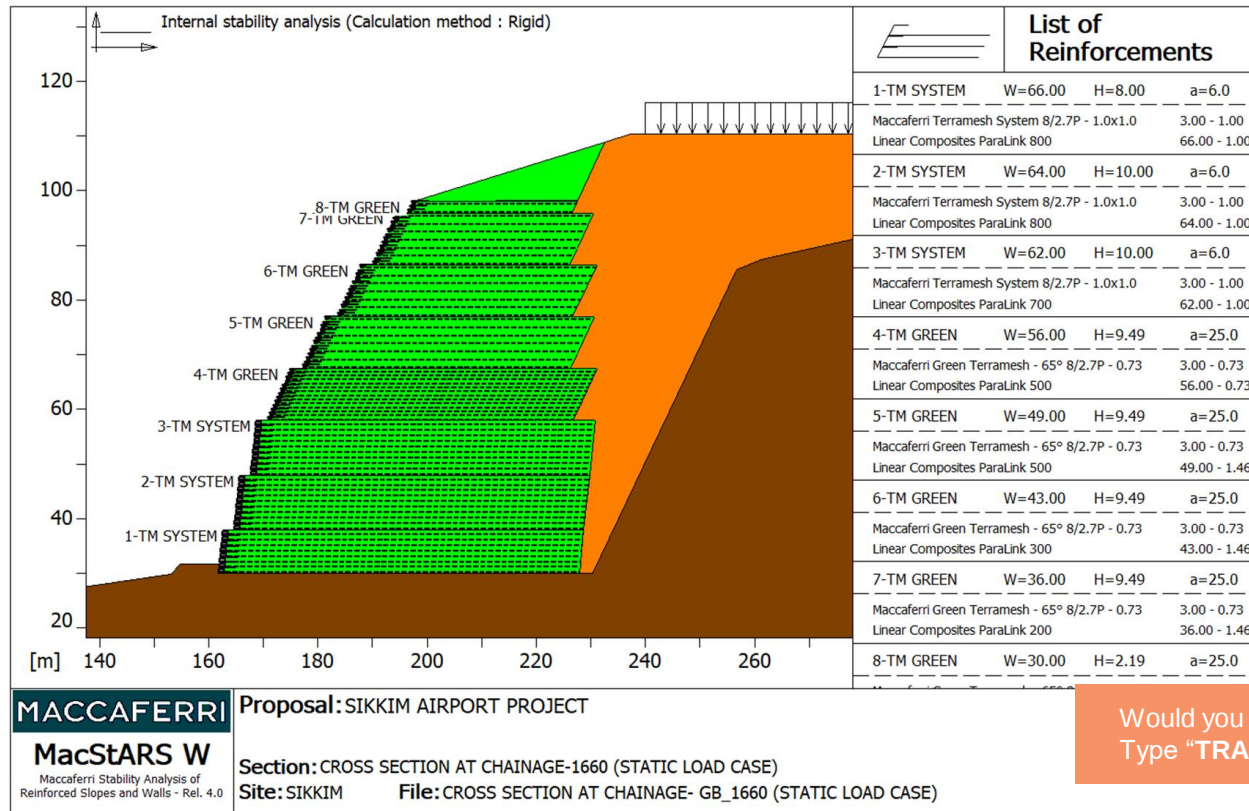


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WORLDWIDE ACCEPTANCE
& PROVEN RELIABILITY

The software that suits the requirements of civil and geotechnical engineers



WORLDWIDE ACCEPTANCE
& PROVEN RELIABILITY



USER-FRIENDLY INTERFACE



BUILT-IN LIBRARY OF
CHARACTERISTIC VALUES
OF PRODUCTS TO BE
USED FOR THE DESIGN

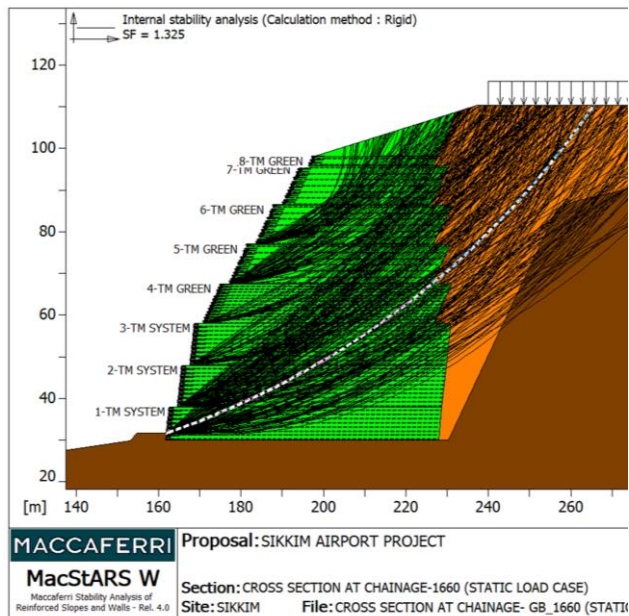
Would you like our assistance with the software?
Type "TRAINING" in the chat box!



FROM MACSTARS W TO INSTALLED PROJECT

MACCAFERRI

Sikkim Airport Project, India



10,000+
projects designed per year





We encourage a continuous improvement to put the **long term economical** and **environmental** impacts of a structure at the centre of the design activity

Why choosing a TerraMesh solution?

Our design process is focused on test campaigns and investments in performance evaluation of our solutions.



Why choosing a TerraMesh solution?

Our design process is focused on test campaigns and investments in performance evaluation of our solutions.



Approval on the product quality including testing in laboratories, onsite evaluations, quality management checks and inspections of production

Why choosing a TerraMesh solution?

Our design process is focused on test campaigns and investments in performance evaluation of our solutions.



Transparent and comparable
information about the life-cycle
environmental impact of products

Why choosing a TerraMesh solution?

Our design process is focused on test campaigns and investments in performance evaluation of our solutions.



Continuous control
of product
performance in
compliance with EU
legislation

Why choosing a TerraMesh solution?

Our design process is focused on test campaigns and investments in performance evaluation of our solutions.



Highway Innovative
Technology Evaluation
Center – an evaluation
performed by a panel of
experts - final report is
the result of an
impartial, consensus-
based approach to
evaluating the system

Why choosing a TerraMesh solution?

Our design process is focused on test campaigns and investments in performance evaluation of our solutions.



Rigorous certification procedure to ensure that the performances of commercial kits conform to predefined performances criteria

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Maccaferri

Maccaferri is a global company, with more than 70 subsidiaries operating in 5 continents, with an on-site presence in more than 100 countries, and 3,300 employees. Our engineers are highly-specialized professionals trained in designing and developing complex solutions in the civil engineering, geotechnical, hydraulics and environmental construction markets. Our worldwide network grows through innovation and diversification of its sectors of activity and through an increasing range of high quality and environmentally-friendly products and applications.

Contact Details

www.maccaferri.com

+44 (0) 1865 770555

Building 168 Harwell Campus,
Maxwell Ave, Harwell, Didcot, OX11
0QT, United Kingdom



UK

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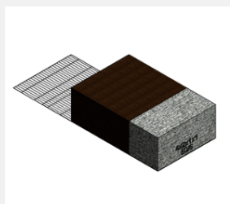
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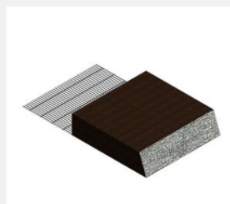


Terramesh System
By Maccaferri

7.1k 0 5 / 5



Select

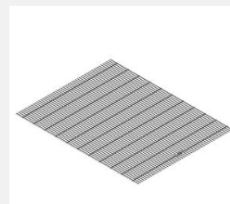


Green Terramesh
By Maccaferri

9.1k 0 5 / 5



Select

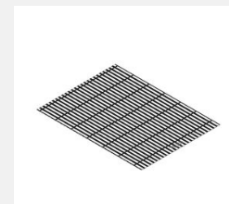


Paragrid Geogrids
By Maccaferri

7.8k 0 5 / 5



Select

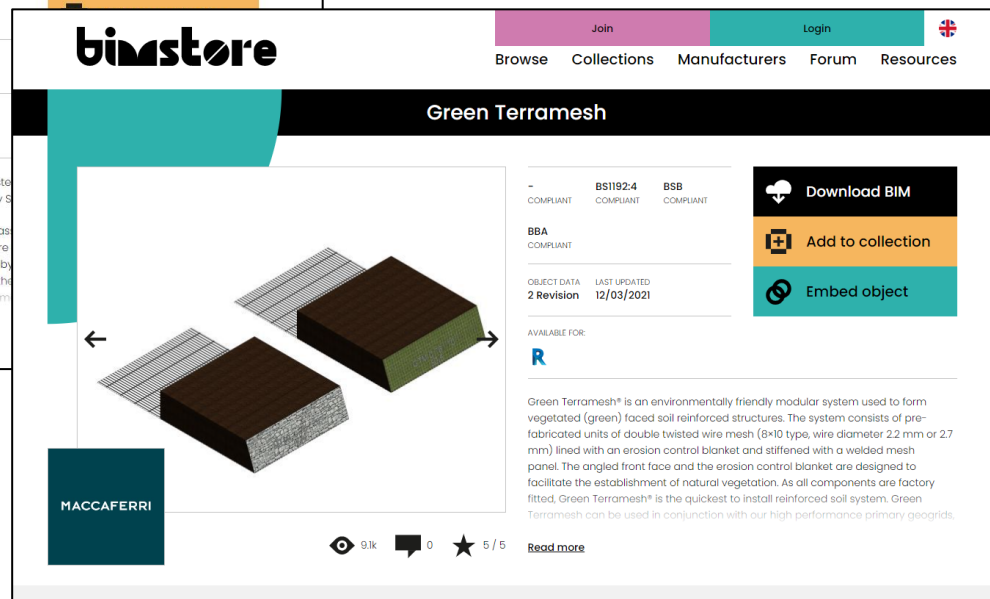
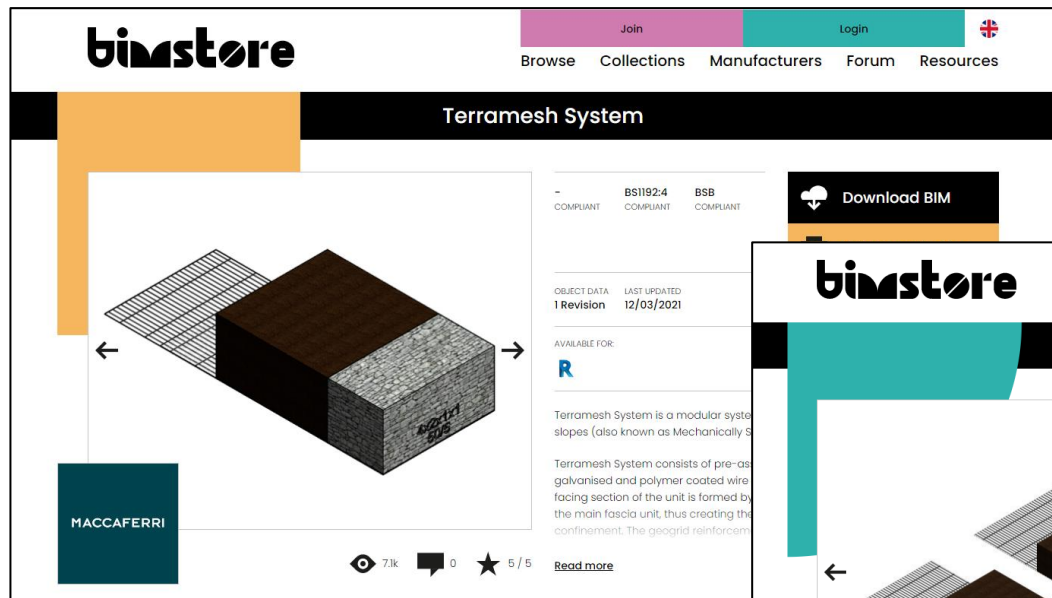


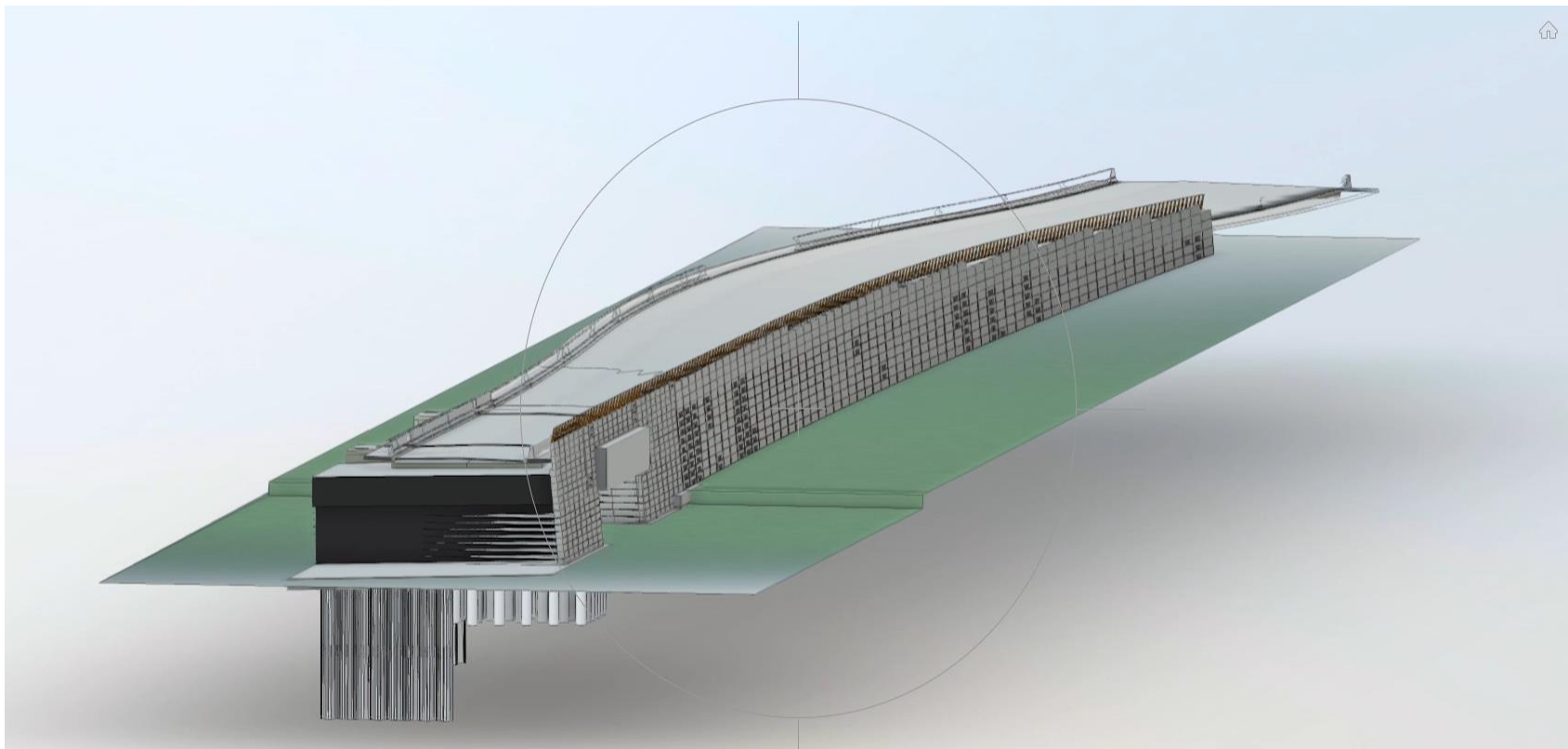
Paralink Geogrids
By Maccaferri

7k 0 5 / 5



Select





ENVIRONMENTAL SUSTAINABILITY

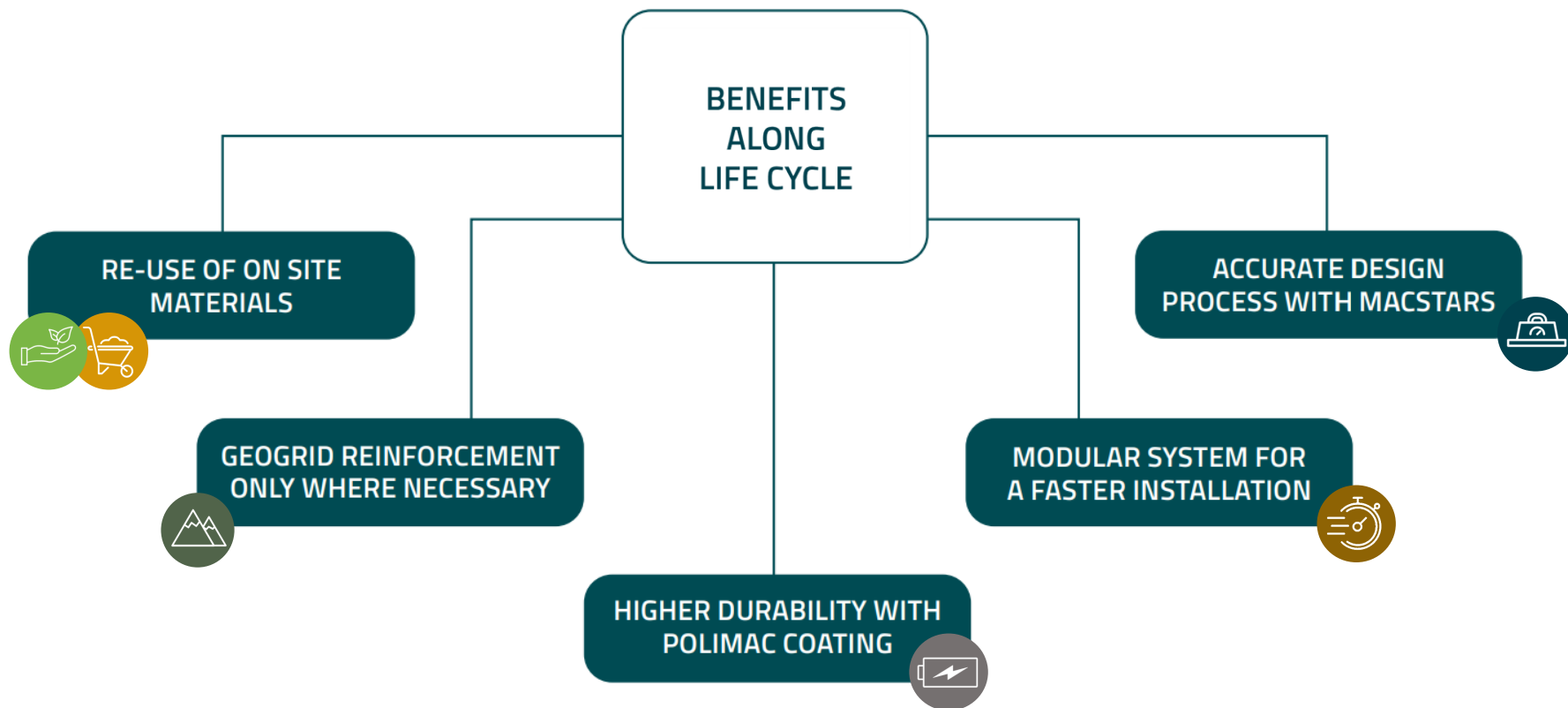
All our efforts are aimed at delivering the most environmentally sustainable solutions



We endeavour to reduce the environmental impact of our solutions and to achieve a balance between the technical performance and the natural integration.

The TerraMesh family has a low environmental impact (GWP 1,04 kgCO₂eq)





DESIGN THE CHANGE



*United Arab Emirates,
32-m high Terramesh System Wall*



TerraMesh Q&A

Rise to the challenge

Any questions? Type them in the chat box!



Thank you!

We look forward to seeing you
at our next webinar!