



PREASSEMBLED DRAINAGE TRENCHES: GABIODRAIN, THE NEW SOLUTION FOR OPTIMIZED DESIGN

Date

March 2025

MACCAFERRI



*10' Understanding drainage trenches
& Gabiodrain solutions*

*10' Performance, testing
& comparative advantages*

10' Design & real-world applications

Q&A session

Speaker

Stefano Rignanese - DT Business Development Manager





A **drainage trench** is a simple excavated channel, designed to collect and redirect excess water, preventing issues like waterlogging, soil erosion, and poor drainage.

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Proper drainage is critical in photovoltaic parks to manage stormwater and prevent flooding. Drainage systems protect infrastructure from water damage.

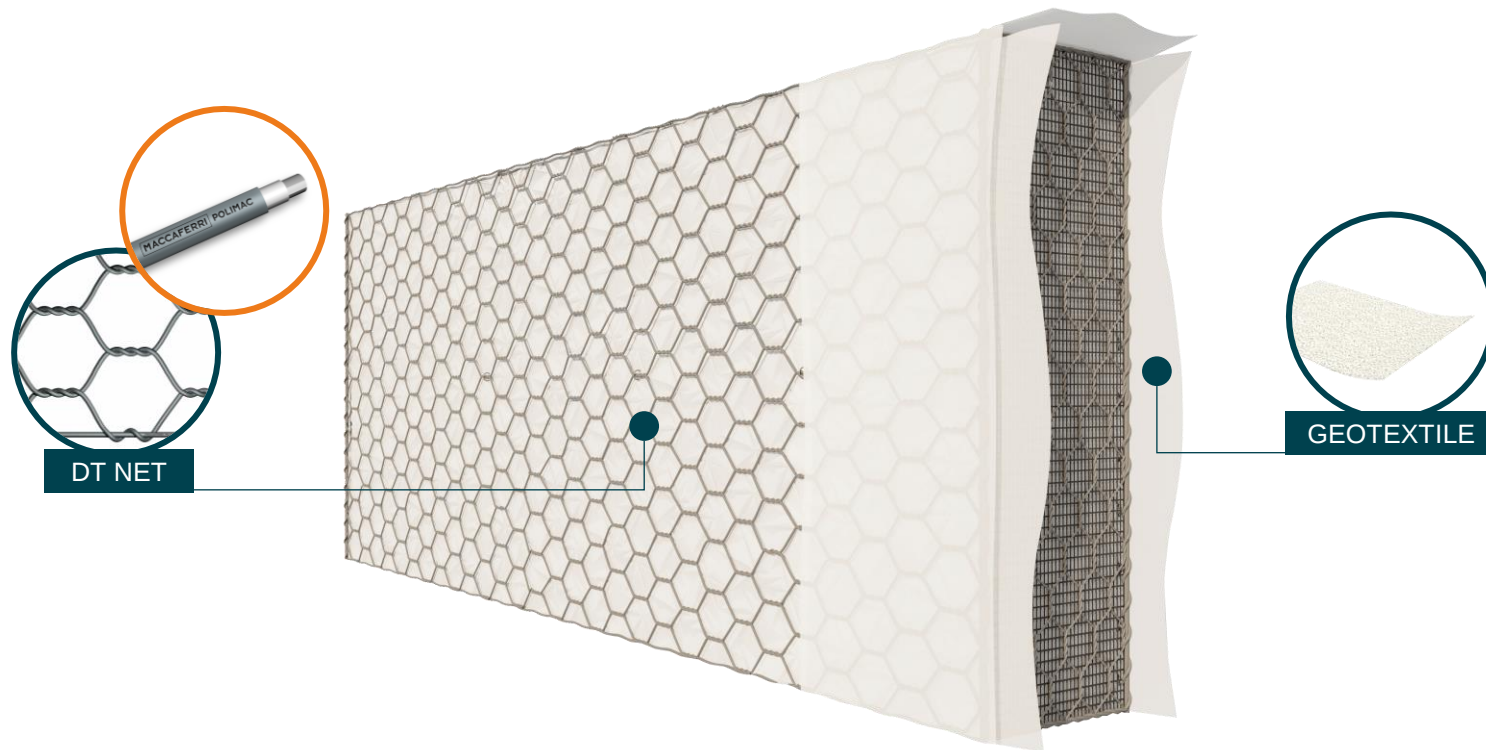




The **GabioDrain** system is designed to construct drainage trenches for capturing water in the soil, offering an alternative to traditional trenches

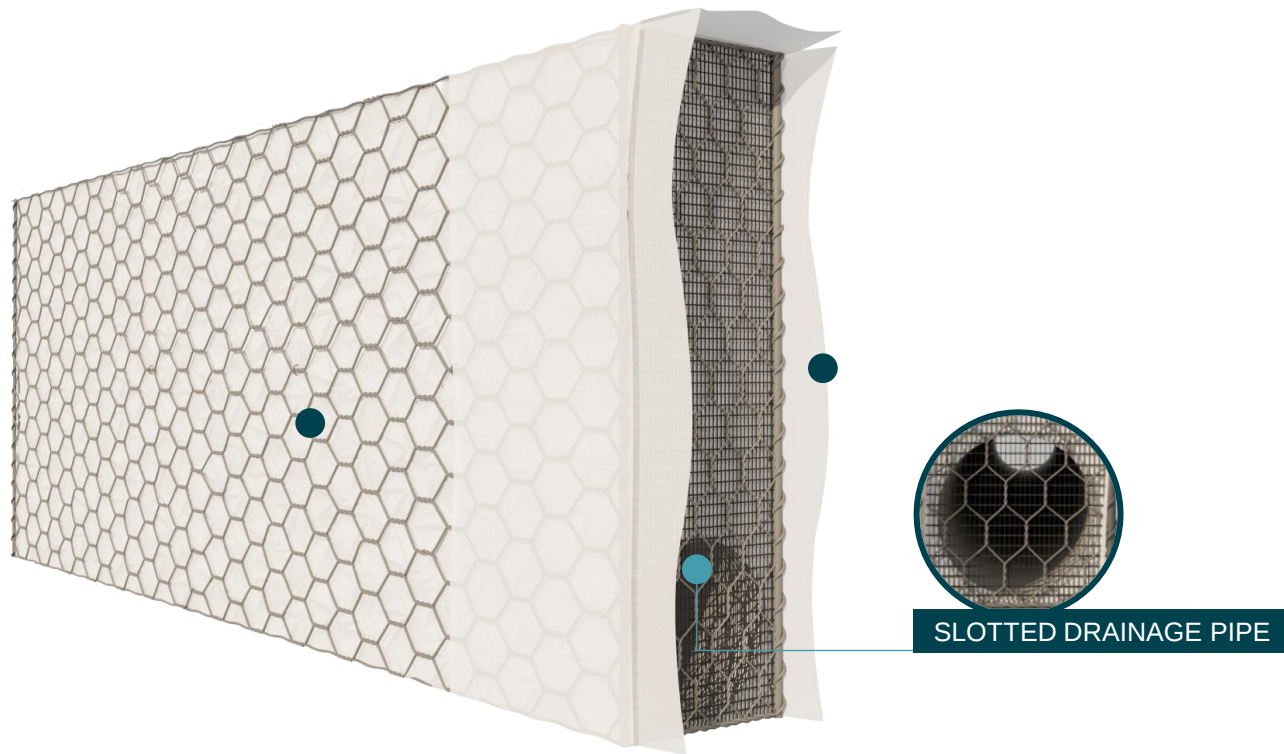
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GABIODRAIN



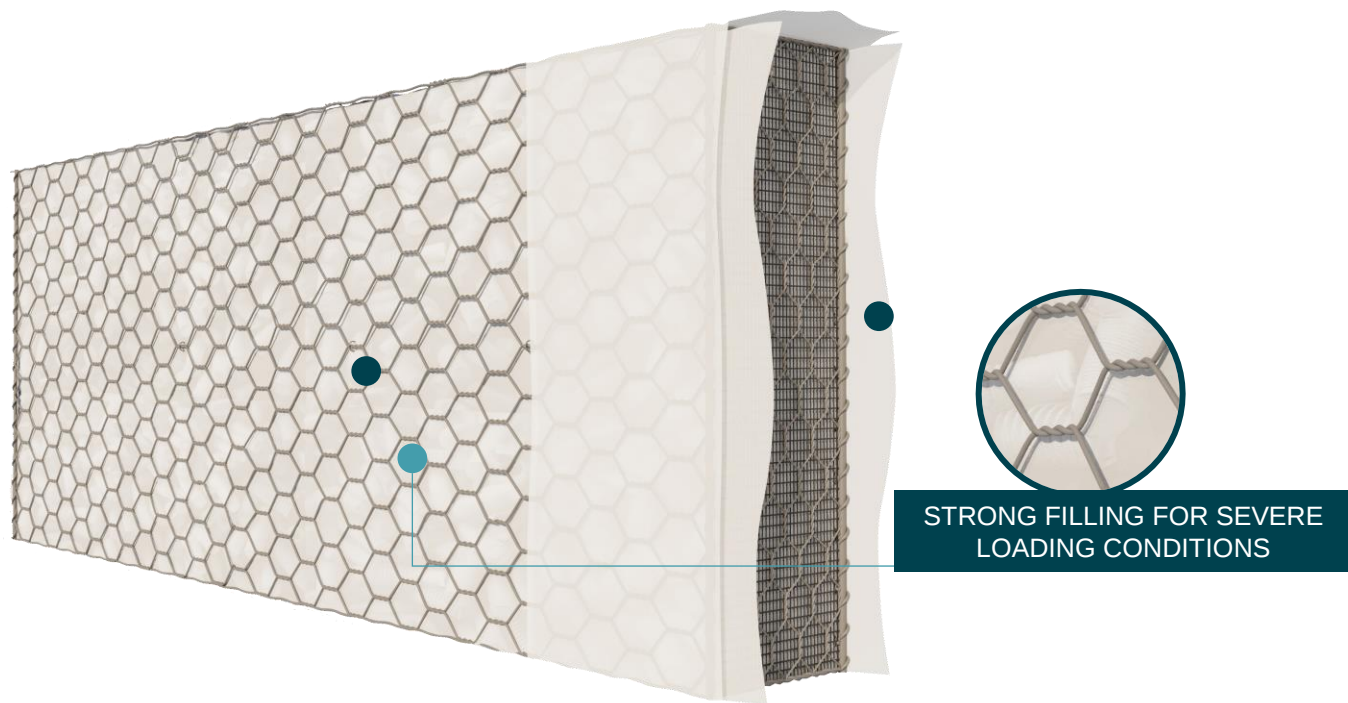
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GABIODRAIN FLOW



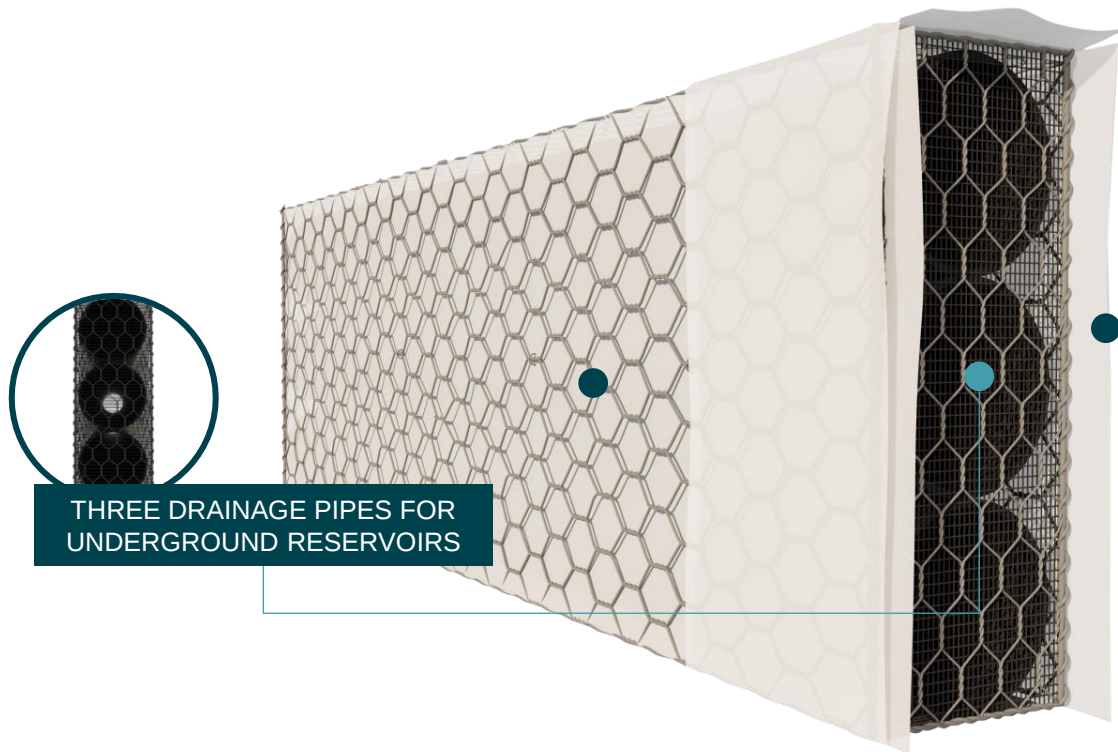
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GABIODRAIN STRONG



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GABIODRAIN CATCH





DRAINAGE SOLUTIONS TESTED TO PERFORM

[WATCH THE VIDEO!](#)



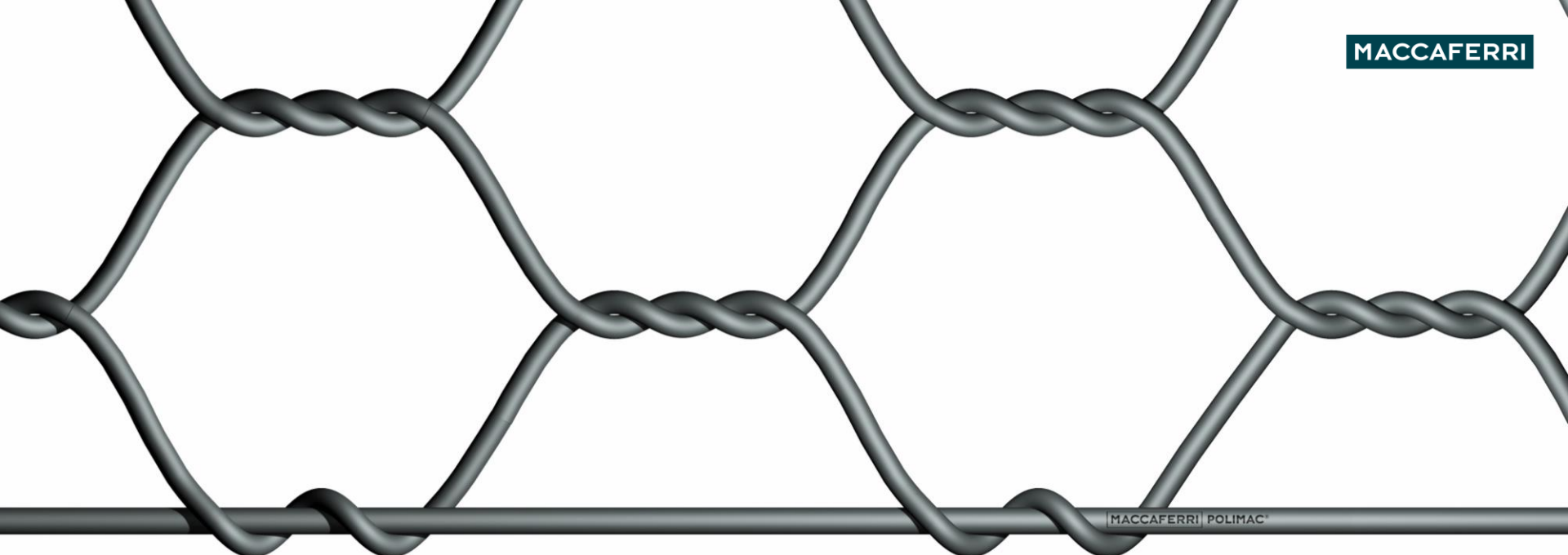
HYDRAULIC TRANSMISSIVITY

Measured according to EN ISO 12958-2, it represents the volumetric flow rate of water per unit width under specific conditions of compressive stress and hydraulic gradient.

UP TO
74.5 l/(m/s)

Value refers to the GabioDrain
Strong version under tested
conditions $\sigma = 20$ kPa and $i = 0.4$



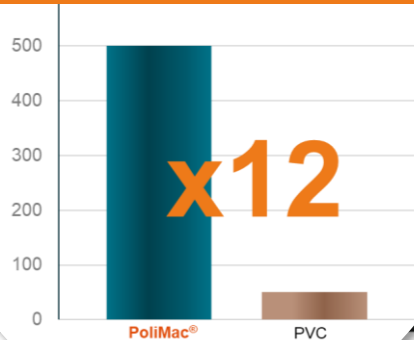


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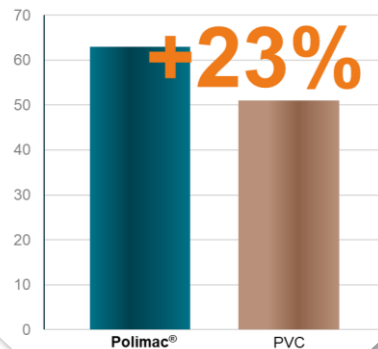
MACCAFERRI POLIMAC®

GabioDrain features a steel wire double-twisted mesh coated with our innovative **PoliMac®**. Extensively tested, **PoliMac®** ensures superior performance under extreme conditions, enhancing the reliability and sustainability of GabioDrain solutions.

ABRASION TEST ASTM A975



HARDNESS TEST ASTM D 2240



LEACHATE TEST - EPA 1312

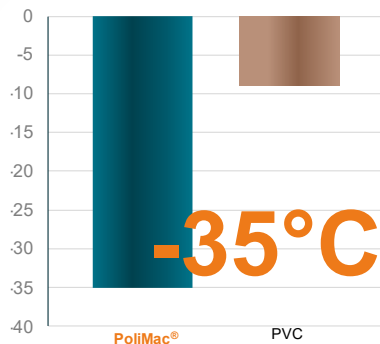
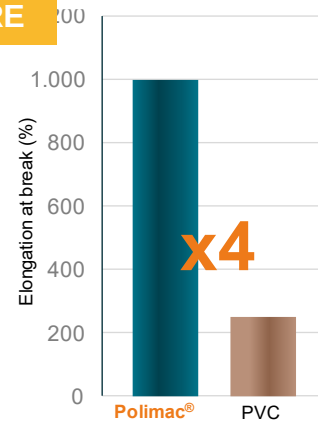
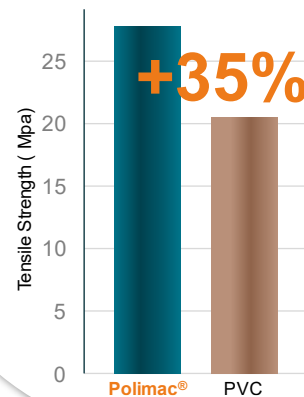
FREE OF heavy metals and PFAS

ELUATE TEST – M GeoK E:2016

FREE OF chlorinated hydrocarbon, pesticides, polychlorinated biphenyl, polycyclic aromatic hydrocarbons

MACCAFERRI POLIMAC®

RESISTANCE AFTER UV EXPOSURE

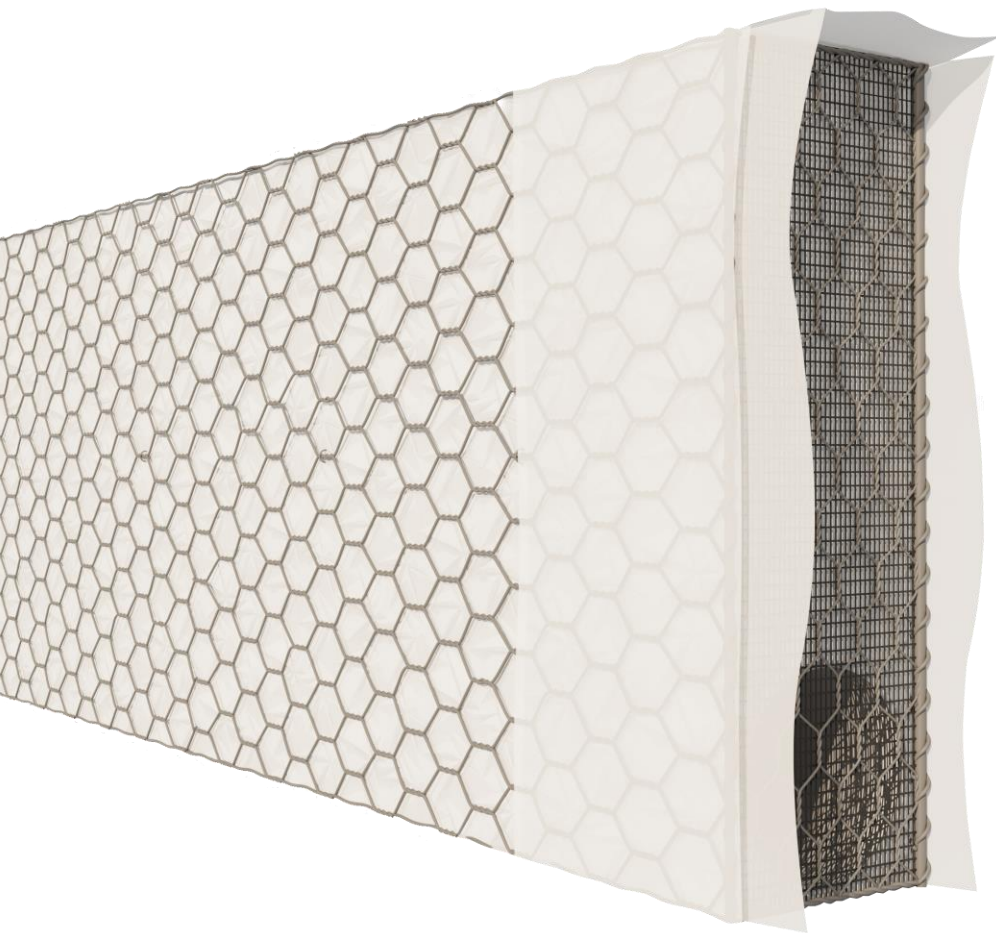


LOW TEMPERATURE
BRITTLINESS ASTM D 746

CORROSION SPREAD RESISTANCE



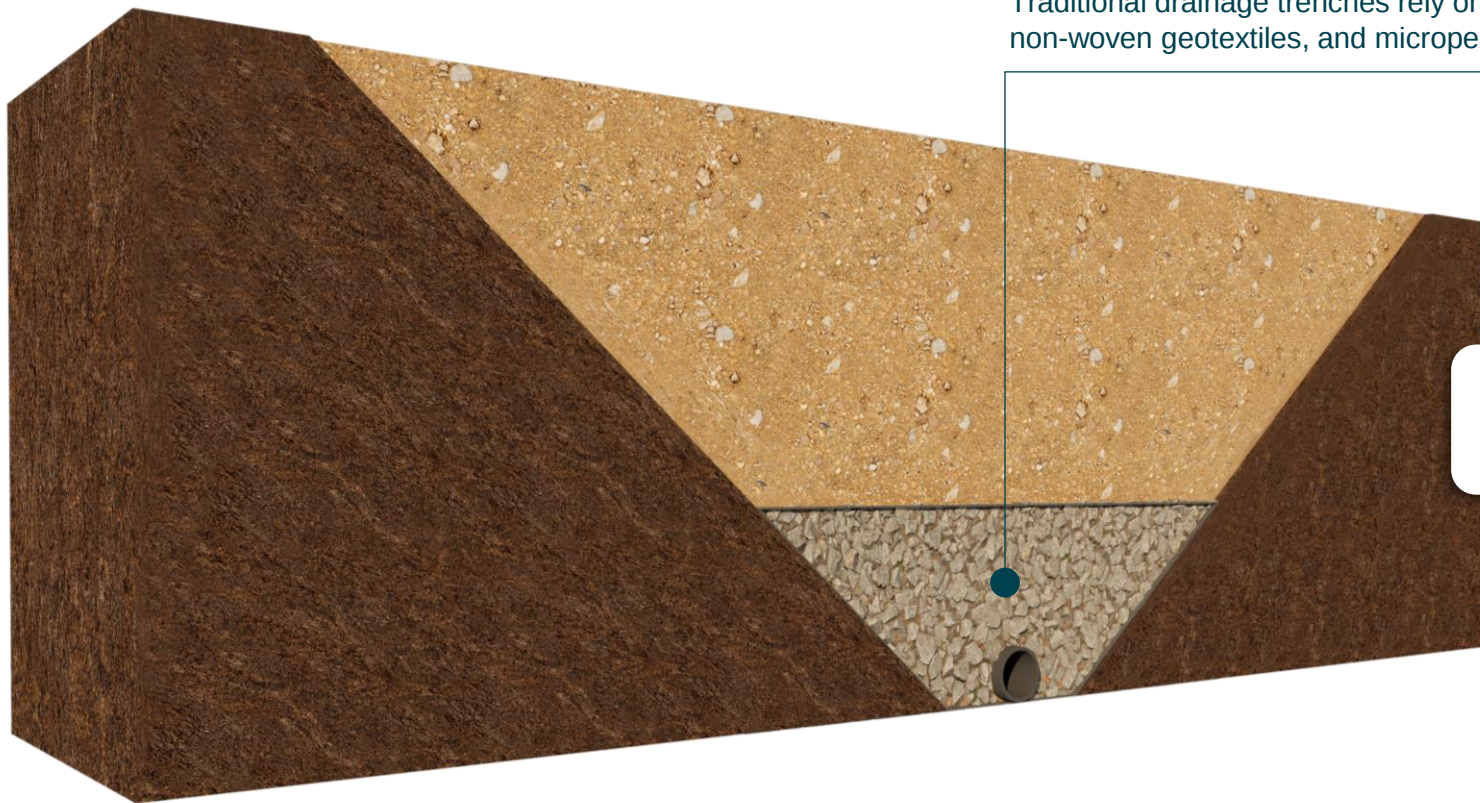
LESS THAN
30%
OF THE MESH
OPENING



RESOURCES OPTIMIZED AND EMISSIONS CUT

Traditional drainage trenches rely on inert materials, non-woven geotextiles, and microperforated pipes.

TRADITIONAL
DRAINAGE
TRENCHES





TRADITIONAL
DRAINAGE
TRENCHES

V/S



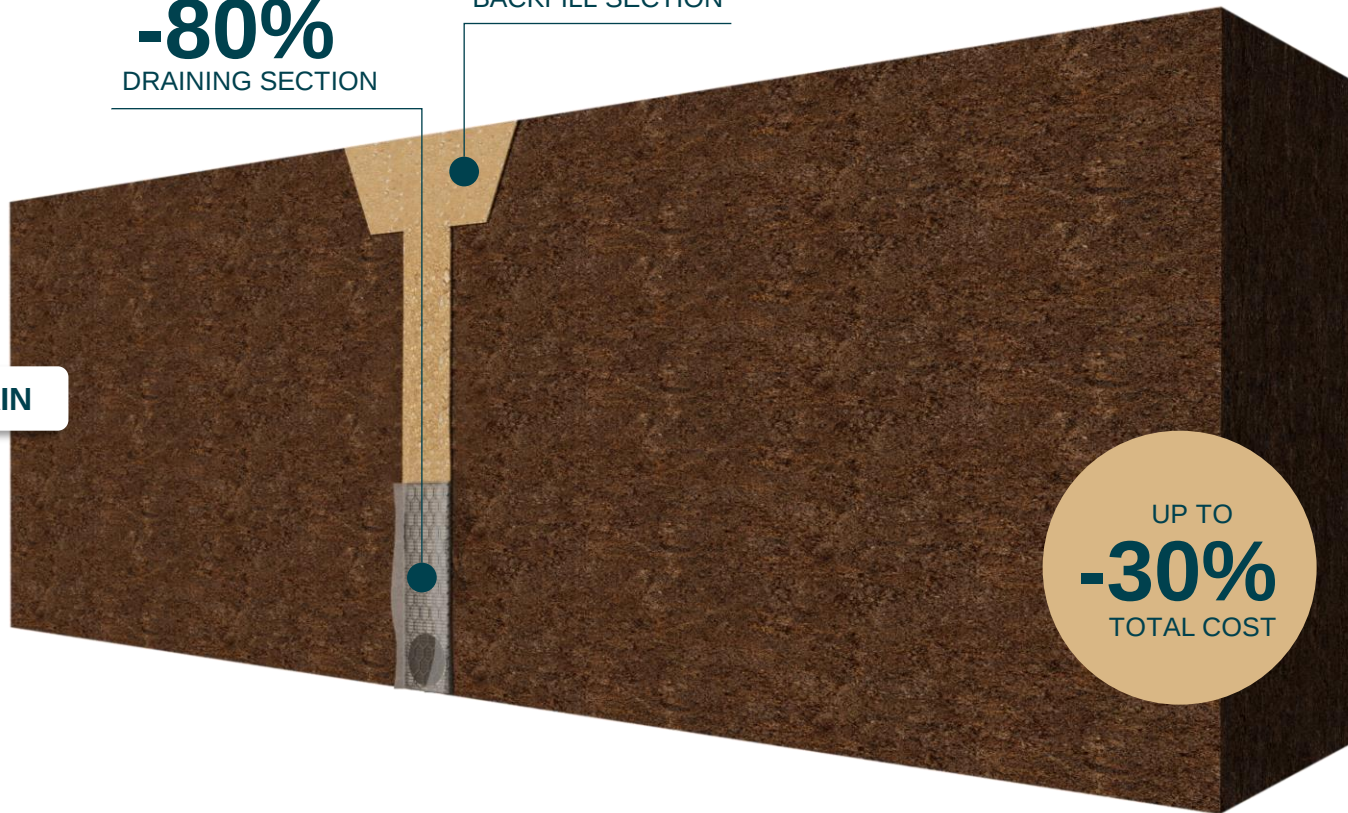
GABIODRAIN

UP TO
-80%
DRAINING SECTION

UP TO
-85%
BACKFILL SECTION

GABIODRAIN

UP TO
-30%
TOTAL COST



EXPERIMENTAL COMPARISON

Between 2009 and 2014, a study conducted in Italy with the University and regional authorities demonstrated that GabioDrain, despite using less draining material (0.30 m² vs. 0.95 m² cross-section), delivered comparable or superior hydraulic performance to traditional trenches





+15%
DRAINED
VOLUMES



LESS TRANSPORT, LESS IMPACT

GabioDrain drastically reduces transportation needs, with a single truckload covering up to 200 linear meters of trench, compared to just 8-9 meters with traditional stone-filled trenches

GabioDrain embodies our commitment to combining **innovation** with **sustainability**.



CERTIFIED RELIABILITY

Maccaferri is committed to communicate reliable and comparable information about the life cycle environmental impacts of products.

FREE OF HEAVY METALS, PFAS AND
OTHER HARMFUL SUBSTANCES



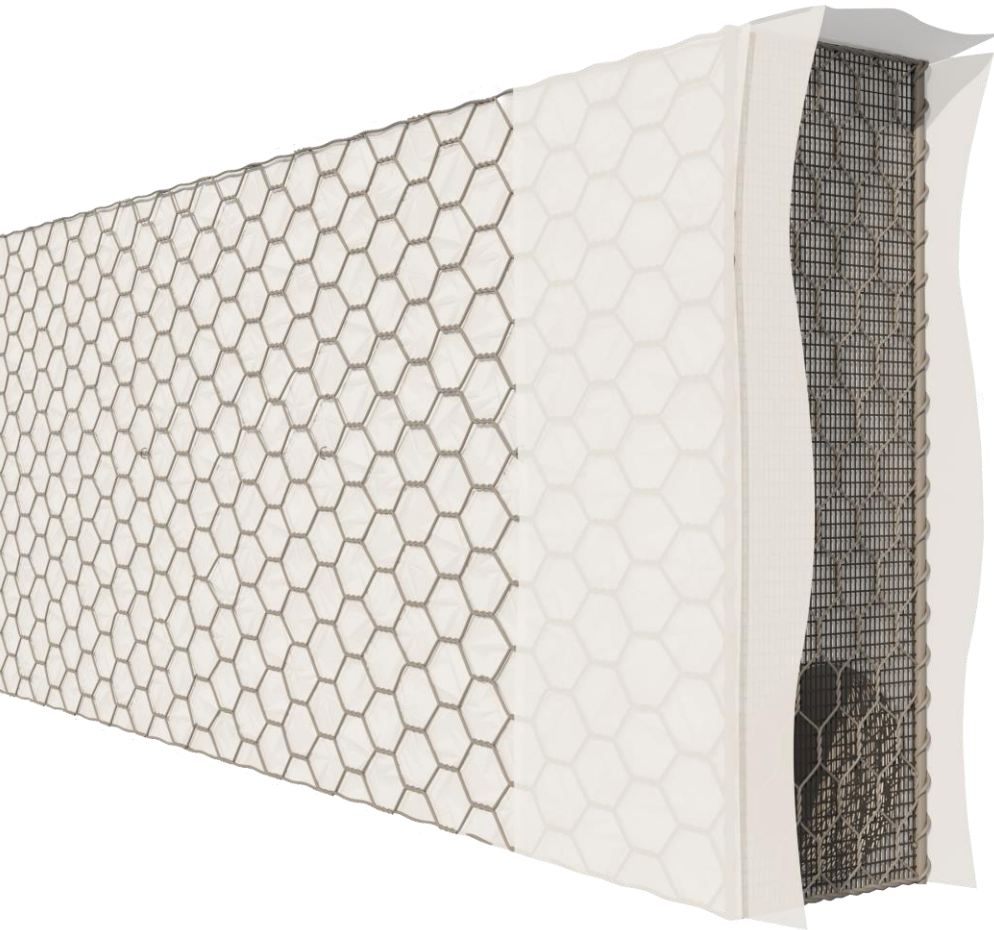
DURABILITY MEETS SUSTAINABILITY

PoliMac® guarantees a long design life to all double-twisted wire mesh solutions, reducing maintenance, waste and environmental impact



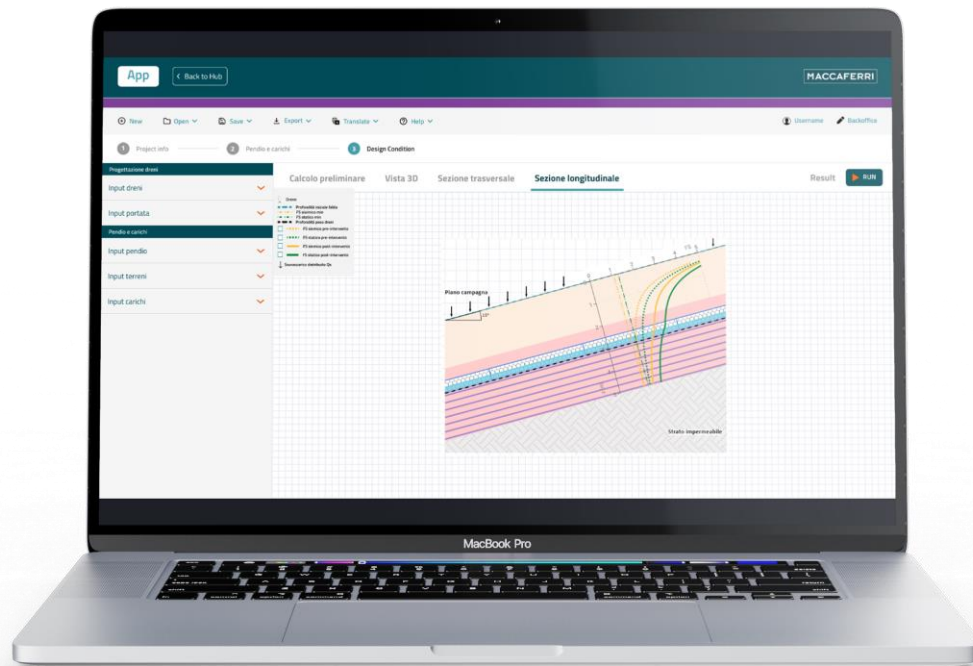
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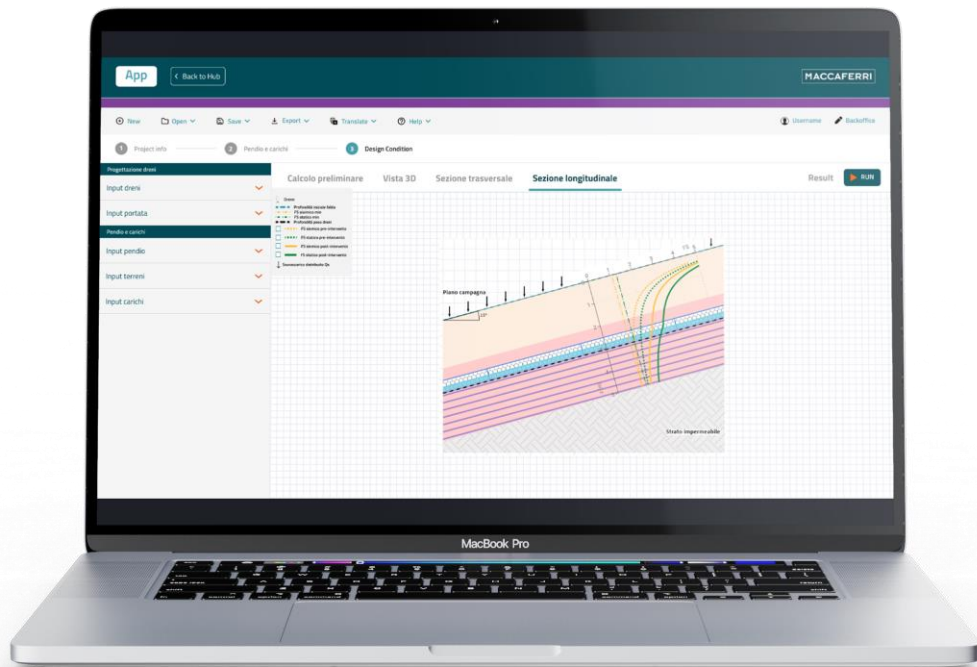
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ADVANCED TOOL TO DESIGN DRAINAGE TRENCHES

We designed an advanced tool to streamline the planning and analysis of drainage trenches.

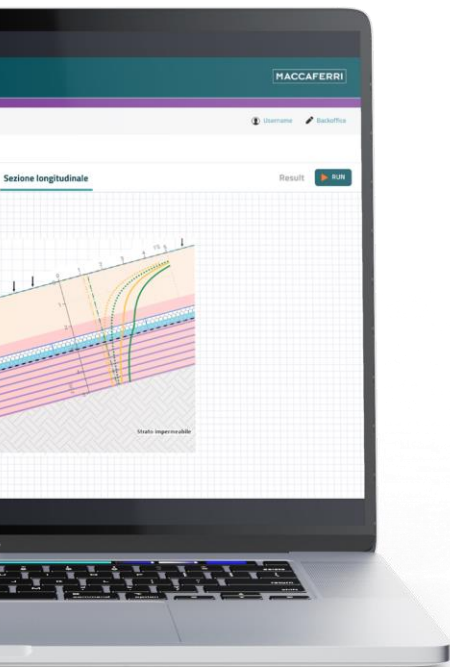




GabioDrain Design

PREASSEMBLED DRAINAGE TRENCHES

Try our software at edesign.maccaferri.com



GabioDrain Design

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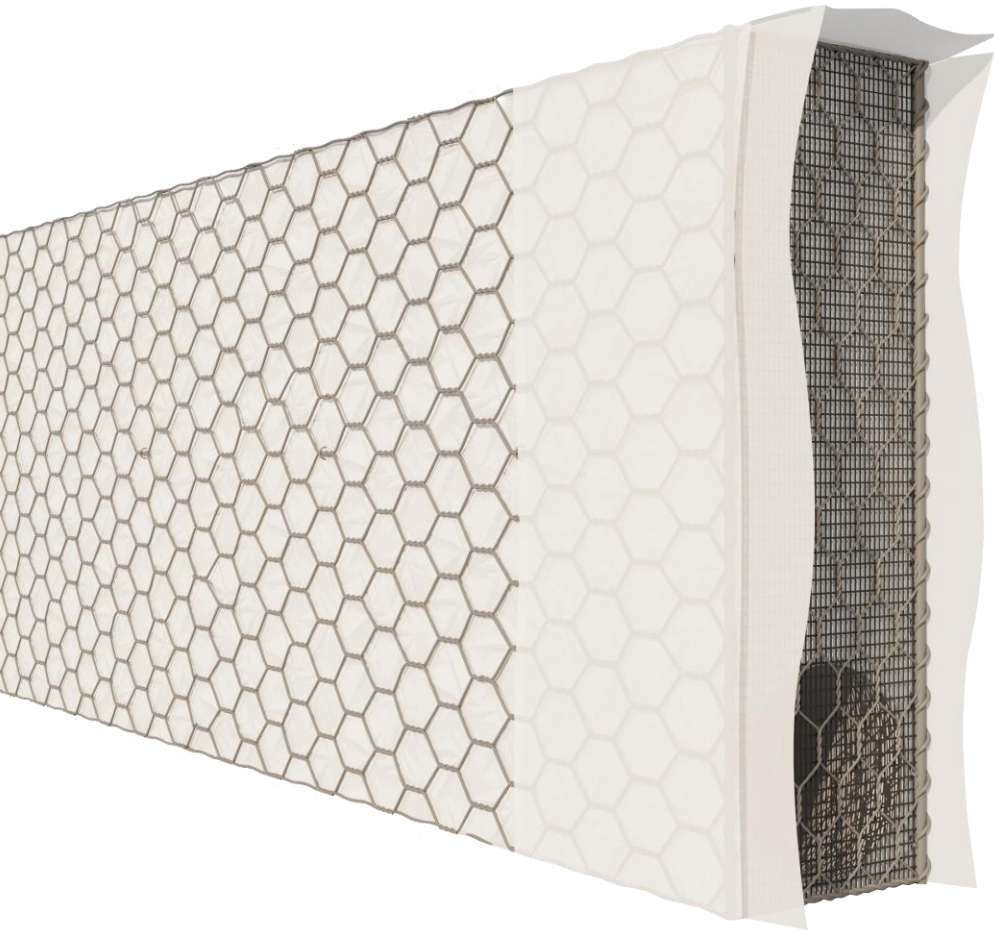
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Site-specific data,
including soil
characteristics,
rainfall,
morphology, and
seismic conditions

Comprehensive
database of full-
scale tested and
certified
GabioDrain panels

Online and
free to use

Detailed
calculation
reports and
actionable
insights



REAL-WORLD PROJECTS PROVING EFFECTIVENESS



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O & A