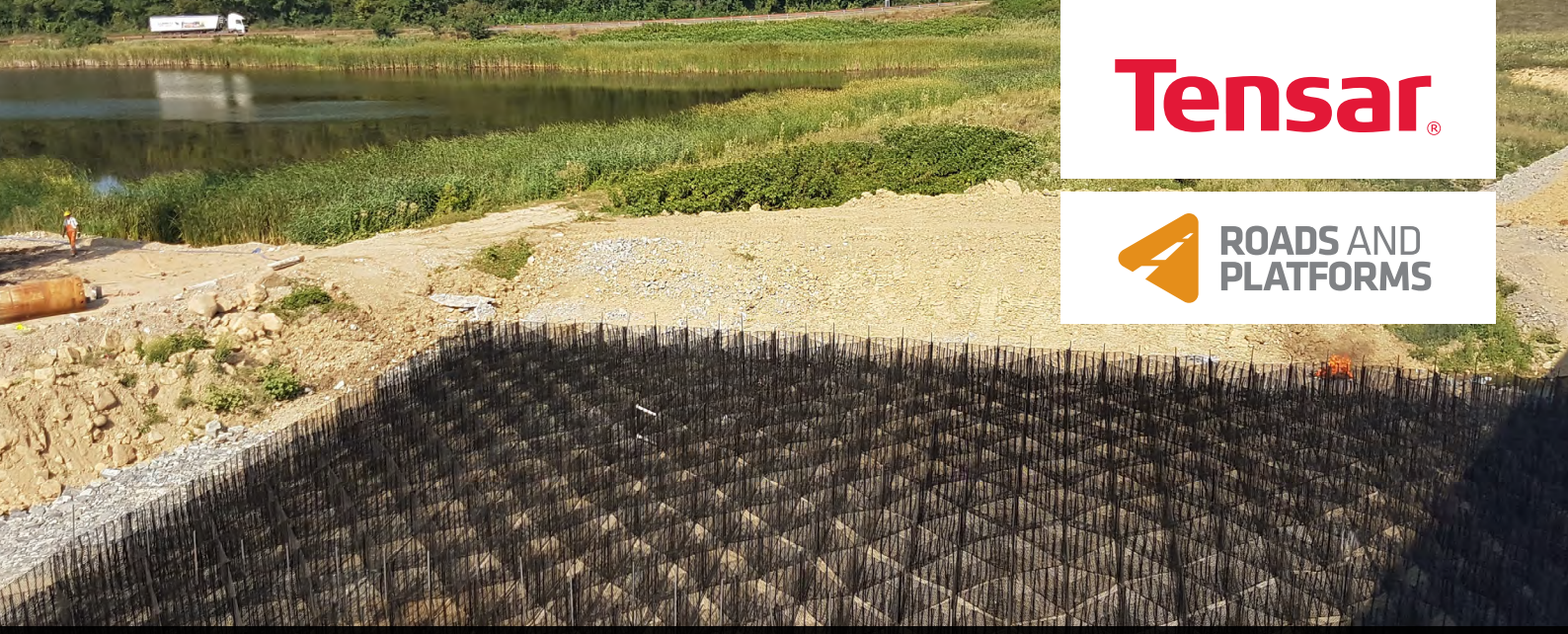

The TensarTech Stratum Cellular Foundation Mattress System formed a stiff foundation for the 300m long embankment carrying the A10 motorway over weak and saturated ground.

Tensar®

ROADS AND PLATFORMS

# Stratum delivers a stable foundation at Lake Stejeris

Tensar's TensarTech® Stratum™ Cellular Foundation Mattress System enabled fast and economical construction of a major highway embankment over weak soils.

## A10 Sebes-Turda Lot 4 Highway

Ground stabilisation and subgrade improvement

Cluj County, Romania

## CLIENT'S CHALLENGE

Romania's new A10 Highway will run on a 300m long embankment as it crosses over part of Lake Stejeris near the town of Turda. Main contractor PORR needed an economical alternative to excavating and replacing the underlying weak and saturated soils, one that ensured safe construction and long term performance of the road.

## TENSAR SOLUTION

Tensar's TensarTech Stratum Cellular Foundation Mattress System created a 1m thick stiff foundation for the embankment. This mitigated differential settlement and lateral spread, as well as increasing the ground's bearing capacity, enabling construction of the embankment, without the need for costly ground improvement.

## BENEFITS

**Mitigating**
differential settlement on weak, saturated ground

**Minimising**
material imports to replace weak soils

**Saving**
time and money on construction

The cellular mattress comprised a Tensar TriAx TX150 geogrid base with Tensar Stratum geogrid cell walls, filled with granular fill to improve bearing capacity and to act as a drainage layer for the embankment.

## PROJECT BACKGROUND

Romania's A10 highway will link the towns of Sebes and Turda, connecting the A1 and A3 highways. The 70km road is due to open in November 2018.

Near Turda, at the route's northern end, the road runs close to Lake Stejeris. The area around the lake is underlain by highly variable and weak soils (with bearing capacities of between 8kPa and 20kPa), and the groundwater table is very high, presenting a significant construction challenge to main contractor PORR.

PORR chose Tensar's TensarTech Stratum Cellular Foundation Mattress System to form a stiff foundation layer across the embankment's footprint. The 1m thick cellular mattress was placed directly on the weak ground, without the need for any excavation.

The cellular mattress, designed to BS8006-1:2010, comprised a Tensar TriAx TX150 geogrid base with Tensar Stratum geogrid cell walls. The cells were filled with granular fill, to create a raft foundation providing improved stability. The mattress mitigated any differential settlement of the embankment and increased the ground's bearing capacity. Additionally, the granular fill acted as a drainage layer.

The mattress was assembled on site by hand, which meant it could be built quickly and easily on the soft ground, regardless of weather conditions. The embankment fill could be placed immediately, speeding up construction, with a surcharge of 26kPa applied over the width of the road.

Main contractor:
**PORR**

Client:
**CNAIR**

Consultant:
**Technic Consulting**

Distributor:
**Iridex Group Plastic**

*"The cellular mattress created a stiff foundation layer, enabling the embankment to be built quickly, safely and economically and ensuring its long term performance."*

**Ionel Davidescu**
Technical Manager
Iridex Group Plastic

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