

**DARDANELLI CABLE PROTECTION
TURKEY**

PIPELINE PROTECTION

Product: ACBM (articulated concrete block mattress), Lifting frames

Prysmian Group, a world leader in the energy and telecommunications cabling systems industry, was awarded a €67M contract by the Turkish electricity transmission utility TEIAS for the design, supply, installation and commissioning of a high voltage submarine power cable link to connect Europe and Asia across the Dardanelles strait in Turkey. Once completed, the link will be the first high-voltage submarine power cable link in the country.

The aim of the project is to satisfy the future energy demands of the Canakkale and Istanbul Provinces. Without investment, bottlenecks in the power supply are projected, leading to power-cuts. Furthermore, the project is to enable the uninterrupted supply of energy to these areas when there is a power cut from other sources, thereby minimising the affects on the local population. Finally, within the project, the new technology will reduce the power lines to properties and improve public safety.

With the implementation of the project it is anticipated that the economy of both the region and the country will benefit.

The new link comprises a double-AC 4km long power transmission circuit with a rating of 1000 MW for each circuit between the substations of Lapseki (on the Asian side) and Sütlüce (on the European side) across the Dardanelles strait. The 380 kV XLPE insulated cables were to be manufactured in Prysmian’s submarine production units based in Europe and installation carried out by the Group’s cables ship, Giulio Verne.

Solution

Deployment and installation of the new power electric cable presented as is usual in underwater projects, interference with existing pipelines and other infrastructure.

Before installing the new cables over existing pipelines, Maccaferri ACBM concrete mattresses, with high flexibility in both longitudinal and transverse directions were installed over the existing infrastructure.

Client:

TEIAS

Main contractor:

PRYSMIAN POWERLINK

Designer:

PRYSMIAN POWERLINK

Products used:

ACBM MATTRESSES - LIFTING FRAMES

Date of construction

AUTUMN 2014



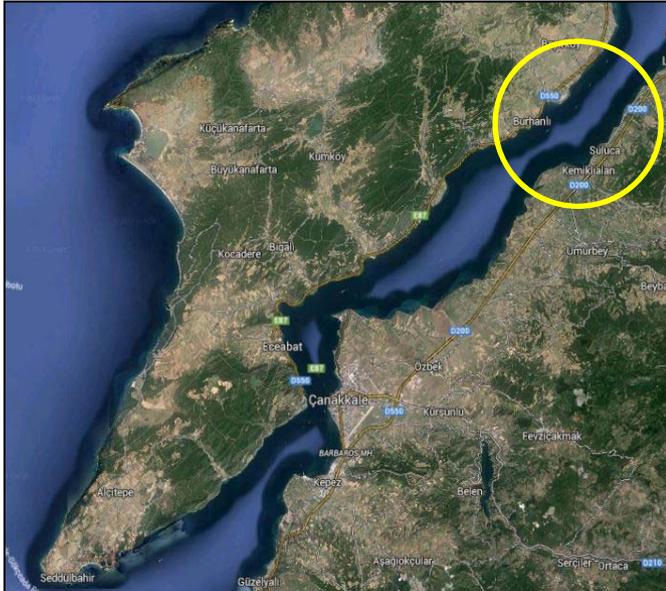
Giulio Verne Vessel



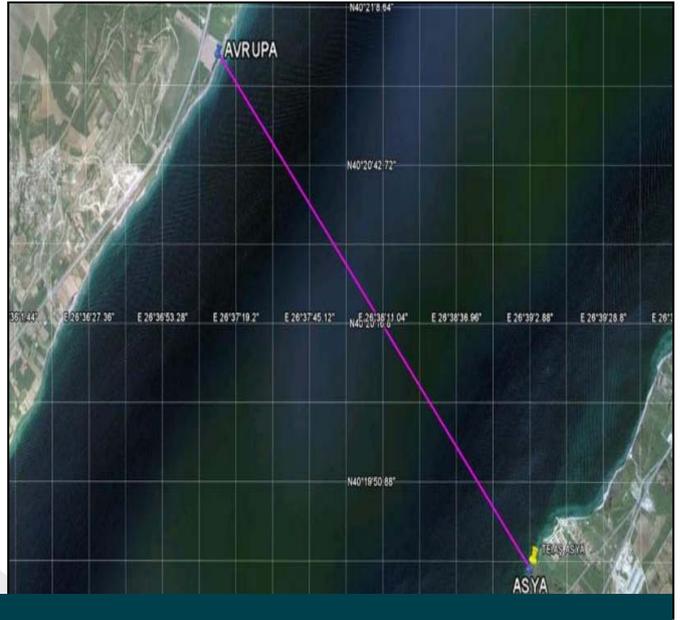
ACBM casting phase



ACBM casting phase



Project location and cable layout



After the new cable was installed, ACBM protection mattresses were installed over the crossing-point.

The design of the mattresses took into account the following requirements and conditions:

- Interaction forces exerted by the mattress on the pipelines
- Water depths
- Geo-morphological conditions
- Environmental conditions
- Mattress design life to match that of the pipeline (30 years)

The ACBM concrete mattresses have to ensure their functionality and structural integrity even in the case of accidental impacts equivalent to:

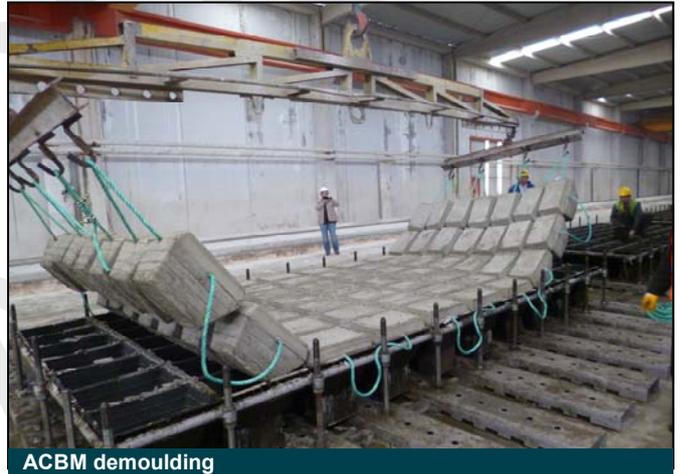
- 20kJ energy involving the impact of a 500mm diameter object
- 5kJ energy involving the impact of a 100mm diameter object

Maccaferri issued 3rd-party Bureau Veritas certification on its ACBM units to verify their impact resistance.

Installation of Maccaferri units was performed in two campaigns, one for pre laying mattress to be installed at crossing points and one for protection mattresses, by the vessel Giulio Verne.

Maccaferri supplied:

- 230 No. ACBM dimensions 5.26x2.26x0.30 m
- 1 No. manual lifting frame for on shore operations



ACBM demoulding



ACBM storage yard

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