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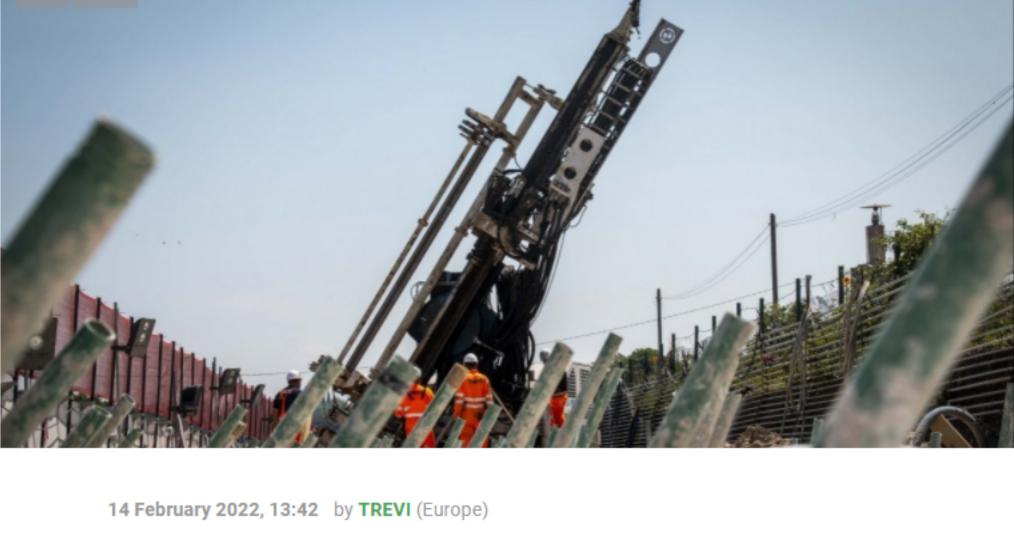
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Tunnel of Lonato

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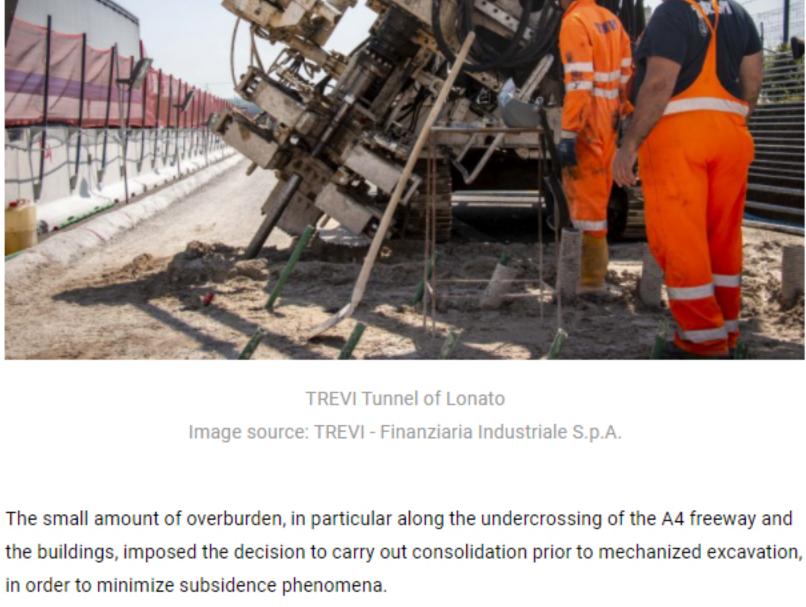


The project, whose implementation has been entrusted to the

CEPAV DUE consortium, has been commissioned by Rete Ferroviaria Italiana, while the High Supervision and Construction Works Supervision have been entrusted to ITALFERR.

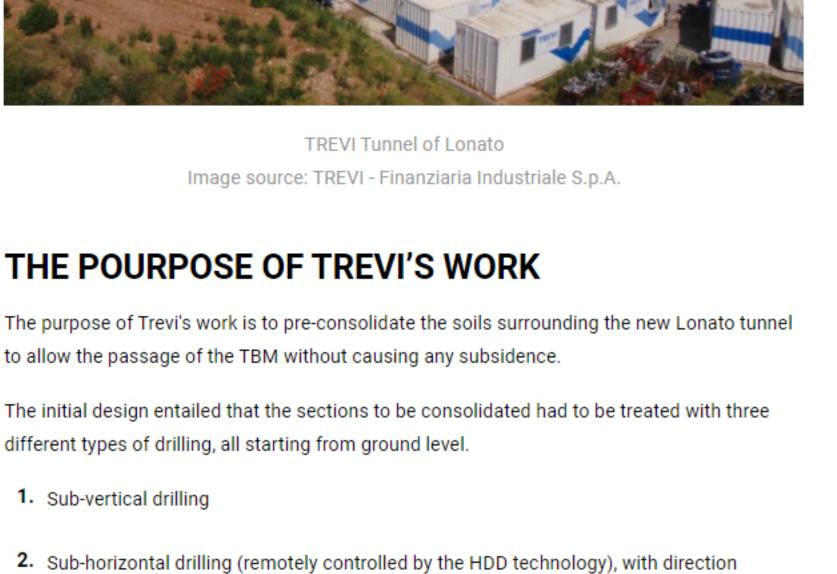
crossing two regions, 11 municipalities and mostly running alongside the A-4 freeway. The most complex and articulated project of the entire work is undoubtedly the Lonato Tunnel, entrusted to SELI OVERSEAS. It

The demanding consolidation and foundation works have been entrusted to Trevi, a leading company in the execution of special foundation works.



necessary for a project as articulated and complex as the Lonato tunnel, are taking place according to the estimated schedule. Therefore, one of the fundamental infrastructures in the development of the connections in

the region and all of Northern Italy is currently taking shape.



the project mesh and develop more performing mixtures suitable for the soil.

3. Sub-horizontal drilling consisting of a radius of curvature, also remotely controlled, with

The poor capacity of the soil to be permeated by the mixtures hypothesized by the project and

Thanks to the tests carried out in the test field that we set up on site, we were able to reshape

perpendicular to the tunnel axis.

direction longitudinal to the axis of the tunnel.

the complex drilling geometry, led us to seek new design solutions.

- TREVI Tunnel of Lonato Image source: TREVI - Finanziaria Industriale S.p.A. In particular, four fundamental observations emerged from the test field: The adoption of a combination of cement and silicate-based chemical mixtures. The use of cement mixtures with low cement content, to obtain better rheological features, that is, a better balance in the soil thus deformed. The adaptation of the project mesh by increasing the number of valves per linear meter. · And finally, the selection of sub-vertical drilling operations, carried out mainly at the head of the tunnel and no longer at floor level.

TREVITUNNEL OF LONGTO

Image source: TREVI - Finanziaria Industriale S.p.A.

interrupting the freeway traffic. Therefore, this work made it possible to refine and therefore shorten working times, thus

improving consolidation work between the tunnel and the freeway.

drilling and grouting will be carried out, using about 10 million litres of mixture.

To apply this new approach, A4 Autostrade was asked to drill from above, thus carrying out

sub-vertical drilling entirely occupying the emergency lane in both directions without

treatment tests show a clear improvement in the mechanical characteristics of the consolidated soils. Obviously, the continuation of the interventions will be subject to further post-treatment tests, which will be useful in order to evaluate the effectiveness of the grouting treatments. The new Brescia-Verona High-Speed/High-Capacity railway line is a key project of

the Milan-Verona railway link. It is part of the Turin-Trieste line which, in turn, is part of the wider system connecting Spain to the Ukrainian border.

TREVI EUROPE



will be about 8 km long (7.9 km to be precise) and will pass under the A4 freeway. The initial section of the railway line interferes with the A4 Milan-

Venice freeway, and subsequently with significant buildings, in terms of size and extension, located in the industrial area of the Lake Garda city.

The purpose of the consolidations is to improve the physical-mechanical characteristics of the soil behind the excavation section - behind the piers and the cap - for a thickness of about 3 m. Thanks to the collaboration between TREVI, SELI, CEPAV DUE and all the parties involved, the consolidations, and the inevitable technological and design implementations, that are

Hence, when the work is completed, especially from the inside of A4, 89,475 linear meters of

As of today, we are completing the intervention phase on A4, and the first results of the post-

NEW APPROACH

Source: TREVI - Finanziaria Industriale S.p.A.