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Construction Equipment Asia Reports

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Italian highway covers up

Foundations specialist Trevi is using Soilmec Rotograbs and a 90t capacity Soilmec crane to install diaphragm walling on the Valdastico Sud highway project.

Valdastico Sud, a section of highway between Vicenza and Rovigo, in Italy, will disappear below surface level and run in trenches and a tunnel along part of its length, leaving an unbroken field-line in this rural area, with very low noise and no road signs visible.

Italian contractor Serrenissima Costruzioni SpA has awarded a contract to Trevi SpA to construct the diaphragm walls; with Trevi opting for Soilmec grabs to undertake the excavation work.

The tunnel section is 350m long, with the covering slab supported by walls built from T-panels 1,000mm thick and 2,700mm in width, at a depth of 35m.

The trench itself is stabilised by panels

having a thickness of 1,000mm and 1,500mm, and a width of 2,500mm. The panels will be at depths of between 33.6 and 38.5m.
Trevi is digging through a layer of 7m clay, followed by a sand and gravel layer of about 27m, with another layer of clay underneath. The water table is located at only 1.5m below ground level.

As vertical alignment with no deviation is the fundamental rule of diaphragm walling, and as any consequent panel deviation would be almost impossible to correct, Trevi is using Soilmec's BH and GH grab models, which are rope suspended and hydraulically operated. The grabs are free hanging in the excavation, guided by gravity, while outside they utilise their inbuilt guiding system.

Both the BH and GH grabs are recently introduced Rotograb versions, fitted with telescopic guides and with the advantage of having the hydraulic hose coilers located on the crane boom instead of being mounted on the guide itself. This allows the Rotograb models to work directly in front of the wall, and places the coils within easy reach for maintenance.

Vertical alignment depends not just on the grab but also on the type of crane. Trevi is using a Soilmec SC90 crane, a 90t unit fitted with two free fall winches of 30t capacity each.

The diaphragm walling is being undertaken with bentonite. To ensure watertight joints, Trevi is using a breakable PVC pipe, fixed to both sides of the reinforcement cages of the primary panels. When excavating for the secondary panel, the pipes are destroyed with a special tooth fitted to the grab. The concrete of the primary panels is cleaned, presenting a refreshed surface and securing the concrete continuity when concreting the secondary panel.

Trevi is averaging the placing of 150 panels during an 11-hour working shift.

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