

Renewal of the "Nantes / Saint-Gilles" railway line

Geotechnical project management and works follow-up

2014 - 2015



FRANCE - Nantes

Client

SYSTRA

Project owner
SNCF Réseau

Project manager
Setec Ferroviaire

Miscellaneous

Complete renewal of 84 km of railway tracks,
1 viaduct,
6 standard civil engineering structures



Description of the project

As part of the French railway system upgrade plan, SETEC group was mandated by RFF (French Railway Infrastructure Manager) as Project Manager for the studies and the works for the complete renewal of the railway tracks between Sainte-Pazanne and Pornic and between Sainte-Pazanne and Saint-Gilles-Croix-de-Vie, a total length of 84 km.

These works, intended to enable improvements including an increase in operating speeds, necessitated the replacement of the decks of a viaduct and six standard civil engineering structures built in the 1910s.

Key features

- Geotechnical project management studies (preliminary studies and detailed design)
- Works follow-up and control for foundations

Description of the mission

TERRASOL was involved from the preliminary design phase for the definition and design of the reinforcements to be implemented to ensure that the external stability of the abutments complies with current regulations under the future loading, which includes the new deck, the increase in operating speed and changes in train loads. Given the uncertainties on the abutment geometries, the following solutions were selected :

- Abutment reinforcement by soil nailing, enabling the checking of the geometrical assumptions and an easy adjustment of reinforcements during works,
- Vertical micropiles taking up the additional vertical loads, supplementing nailing for structures with inadequate load-bearing capacity,
- Anchoring of the fixed support of the structure by inclined micropiles, taking up the horizontal loads generated by the deck.

During the works phase, TERRASOL continued its involvement, with the checking of the detailed design and the monitoring of the works on site, including reinforced monitoring during the preparatory works in order to validate the anchors installation methods prior to the works, for which time constraints were very demanding.