Railway Project – Subbase and Trackbed Reinforcement

Earthworks at North Portal of Kallidromo Railway Tunnel of the New Double High Speed Railway Line Tithorea - Lianokladi

Fthiotida Providence, Komnina Region

Project

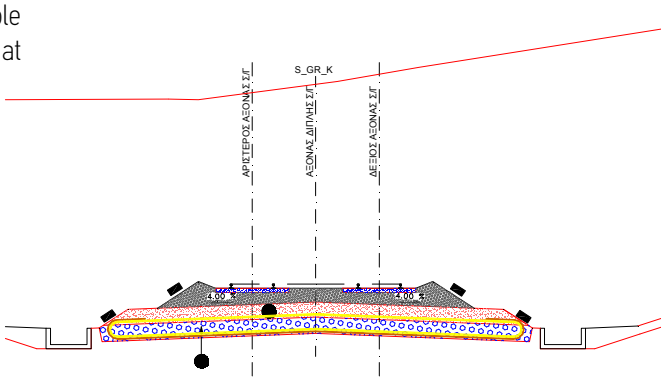
Subbbase and trackbed reinforcement of the new double track high speed railway line Tithorea-Lianokladi at section 14+300 – 19+000

Construction Cost

Total Cost:	approx. 1,2 m. €

Project Schedule

Design:	2009 - 2010
Construction:	2011 - 2018



Subbase reinforcement with geogrids typical cross section

Project Description

Determination of the subbase requirements of the new double track high speed railway line Tithorea-Lianokladi at section 14+300 – 19+000

Geomorphology – Geology

- Clayey-marl formations, with scattered intercalations of sandy-marl
- The presence of the sand layers in combination with the inclination of the layers acts as a water bank, creating confined water masses of high capacity and hydrostatic pressure
- During slope excavation, intense water flow was monitored from the sand layers of the "champagne" effect type and creation of mudflow

Our Services

- Investigation of the in-situ geotechnical conditions of the subbase
- Qualitative classification of the subbase according to UIC719R 2008
- Selection of the required subbase reinforcement according to UIC719R 2008
- Appropriate reinforcement of the subbase with geogrids and soil replacement in sections of the project where the minimum requirements of the UIC719R 2008 are not met.

Client

Construction Joint Venture AKTOR S.A. – TERNA S.A. – J&P AVAX S.A.

Special Geotechnical Applications – Landslide Rehabilitation

Earthworks at North Portal of Kallidromo Railway Tunnel

Fthiotida Providence, Komnina Region, Greece

Project

Landslide rehabilitation and slope protection in 3 areas of the project
from Ch. 15+365 up to Ch. 15+665
from Ch. 15+710 up to Ch. 15+835
from Ch. 16+651 up to Ch. 16+804

Construction Cost

Total Cost: approx. 4 m. €

Project Schedule

Design: 2009 - 2010
Construction: 2011 - 2013

Project Description

Works for the stabilization of the landslide phenomena and the final rehabilitation of the area, taking into account the in-situ conditions and minimizing any destabilization risks.
Total affected area ~ 28,000m^2

Geology

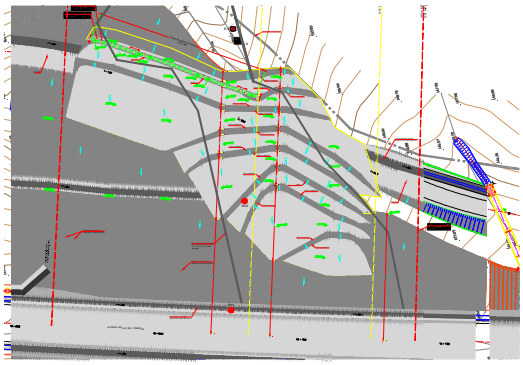
- Clayey-marl formations, with scattered intercalations of sandy-marl
- The presence of the sand layers in combination with the inclination of the layers acts as a water bank, creating confined water masses of high capacity and hydrostatic pressure
- During slope excavation, intense water flow was monitored from the sand layers of the "champagne" effect type and creation of mudflow

Our Services

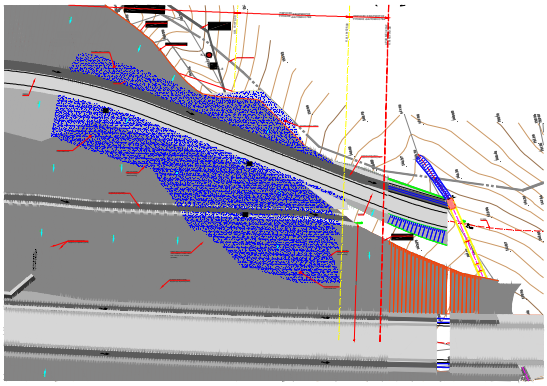
- Geotechnical investigation program and geotechnical interpretation of the landsliding mechanism
- Drainage works design
- Design of the best possible slope layout and removal of the landslide materials
- Stabilization and rehabilitation embankments
- Landslide retaining pilewalls
- Long-term anticorrosion slope protection
- Execution of back analysis and determination of the potential sliding surfaces

Design Details

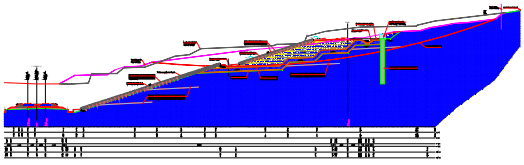
- Excavation layout for partial removal of landslide material on 1:3 slopes
- Geometrical and reinforcement calculation of the necessary pilewall systems for the protection of the excavations and strengthening of the subbase
- Application of reinforced embankment for stabilization and rehabilitation of the area with 1:3 slope
- Application of 3D geocomposite and adequate hydraulic protection of the slopes



Excavation layout for the partial removal of landslided masses



Surface final layout and rehabilitation



Slope failure rehabilitation typical cross section

Terrain slide failure signs

Client

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