

Egnatia Odos: Ladahori - Psillorachi

(Phase I)



Client: Egnatia Odos
Contractor: CIS Sarantopoulos –
Astaldi SpA JV
Engineer: Brown & Root

Scope: Design 16.5m high MSE wall; Site Supervision Precast and
Erection Provision of Proprietary Materials

In September of 1998, Alviterra-Hellas (a JV of VE Geotechnics and Mochlos S.A.) were involved in the design and construction of major reinforced soil structures on the Egnatia Odos Contract. The EU-funded project is one of the largest new build highways in Europe and links the Port of Ioannina near the North West of Greece with the Turkish border in the East. The MSE structures included the design of two major retaining walls one a 16.5m high structure directly supporting the main carriageways.

Seismic Design: A key feature of the project was the need to consider the significant probability of seismic events near to the site, while at the same time providing a cost effective solution for the Contractor. The structures were designed to accommodate an earthquake with a seismic acceleration of 0.24g.

After carrying out a detailed geotechnical analysis of potential solutions Alviterra identified that it would be possible to design the structures with a stepped (referred to as trapezoidal) cross section which minimised the strip length and excavation at the toe. Strips near the base of the structure averaged only 40% of the height as compared with 70% of height for a conventional cross section. A concrete raft was detailed at the base of the structure to enhance overall stability.

A detailed stability analysis, using both seismic and static scenarios was undertaken to demonstrate overall stability. Alviterra also calibrated the partial materials factors for static design since the design code specified BS8006 does not address seismic design directly.

Site Precasting: The Contractor decided to establish an on site precast concrete facility to cast facing panels and coping units. In addition to saving precast costs, the on site facility allowed for a quick response to site needs and substantially eliminated double handling of precast components.

Construction Support: Alviterra provided intensive technical support and training to the Contractor throughout the project. Included in our package of support services was detailed quality and control assurance tools, and wall monitoring guidelines.

VEGEO personnel also assisted in training the Engineer's site staff and the structures were successfully completed by CIS Sarantopoulos in early 1999.

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