

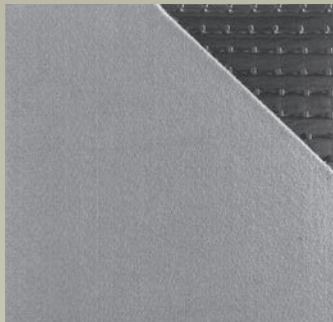


TUNNEL CEILING DRAINAGE LINING OF PALMENTELLO TUNNEL

Location:	Guardia Piemontese (CS) - Italy
Date:	January, 2006
Application:	Drainage lining to the tunnel ceiling
Product Type:	TENAX Drainage Geocomposites
Concessionaire:	Italian national road authority ANAS
Design Engineer:	Italian national road authority ANAS
General Contractor:	COGEMA SRL

PROJECT DESCRIPTION

The tunnel vault was suffering from heavy leaks of water with high calcareous content, resulting in the formation of stalactites on the roof of the tunnel. The stalactites were an obvious hazard with the potential of causing damage to passing vehicles traveling along the tunnel. As it was not possible to destroy the concrete vault and install a new waterproofing layer, the proposed solution involved a simpler, more cost effective solution for dealing with the excess drainage. It consisted of fixing the Tenax Drainage Geocomposite to the roof and part walls of tunnel so that the water could be collected and diverted in a safe and controlled manner towards the sides and base of the tunnel. The installation was found to be successful as the lining removed the possibility of stalactites forming and vehicles could enter the tunnel at no risk.



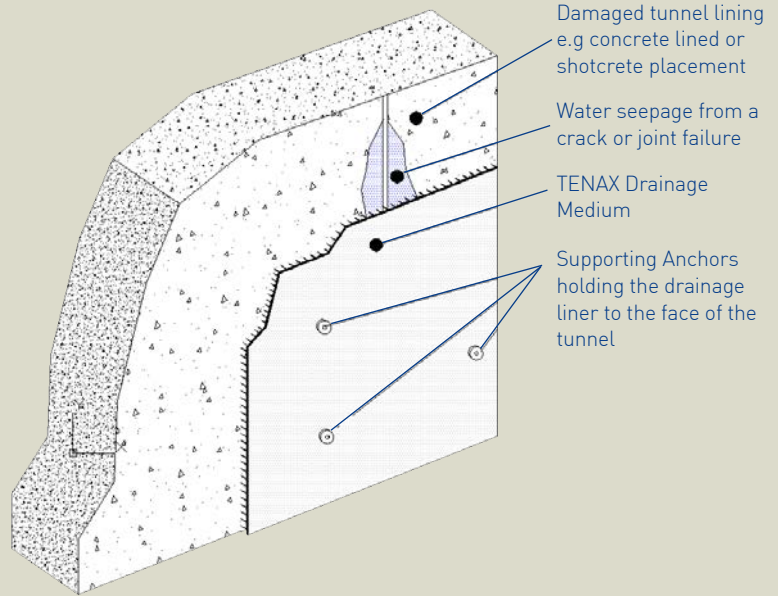
TENAX Drainage Geocomposite



Installed Tenax Drainage Lining system at Palmentello tunnel, Italy.



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Common drainage problems in tunnels.



Photograph showing the supporting anchors holding the drainage liner.



TENAX SpA Geosynthetics Division
 Via dell'Industria, 3 23897 Viganò (LC) Italy
 Tel. +39 039.9219307 - Fax +39 039.9219200
 geo@tenax.net - www.tenax.net