

J. KRISMER Handelsgesellschaft m.b.H

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Slope/ Embankment Stabilisation

Revegetation of Shotcrete Slopes with the Krismer System®

A-6 Freeway – Tunnel Portals at the As Neiras Tunnels Baralla (Lugo) / Spain



Hydraulic Engineering/ Drainage

Retaining Structures

Rockfall/ Avalanche Protection

Special Constructions

Services

Revegetation of Shotcrete Slopes with the Krismer System®

A-6 Freeway – Tunnel Portals at the As Neiras Tunnels Baralla (Lugo) / Spain

Client: MINISTERIO de FOMENTO
Demarcación Regional de Carreteras
del Estado
Concepción Arenal, 13
E – 15 006 A CORUÑA

Supervision and quality control:
NORCONTROL, S.A.
E – 15 168 SADA (A Coruña)

Contractor: DRAGADOS y Construcciones, S.A.
Delegación Galicia
E – 15 006 A CORUÑA

Installation subcontractor:
XERMOLO, S.A.
E – 36 002 PONTEVEDRA

Geology: cleft brown schist

Assignment: long lasting growth of vegetation on a shotcrete surface 10 cm to 15 cm thick

Construction method: KRISMER System®

Execution period: Summer – Autumn 1998

Project volume:

Slope inclination	58° - 72°
Slope surface	6.375 m ²
Slope height	North (Lugo) portal up to 55 m South (Madrid) portal up to 63 m

Revegetation of Shotcrete Slopes with the Krismer System®



Installation of the KRISMER System®

- Cutting the steel screen panels, when necessary
- Connecting the steel screen panels to form a web by overlapping longitudinally and laterally
- Placing the J.K.S. screen panels on the slope, diagonally to the fall line
- Inserting the distribution rods and connecting them with steel rope clamps

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KRISMER System® anchoring details

- Anchoring the steel screen panels mats with T-steel nails (drilled and mortared) in a grid of 1m x 1m
- Pre-drilling holes to install the T-steel nails
- Filling the holes with mortar
- Ramming the steel nails with a pneumatic hammer

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KRISMER System® - filling details

- Filling the steel screen with crushed gravel, size 32mm to 63mm
- Completion of filling with top soil
- Filling was done with a crane and bucket with lateral discharge chute

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Results

- Optically pleasing restoration of the shotcrete slope surface
- The secured topsoil layer offers a basis for long-lasting vegetation growth
- The vegetation covering, together with the gravel/topsoil filling offer thermal protection of the shotcrete