



Slope Stabilization

Reference Details:

Owner SFTRF +++
 Design Consultant
 SETEC +++ General
 Contractor JV GTM-
 Locatelli +++
**Geotechnical
 Subcontractor for
 Foundation** JV STIPS-
 SIMECO-TEMSOL

DSI Services
 Fabrication and supply
 of 78 pieces of
 DYWIDAG Permanent
 Multistrand Anchors 4-,
 12-0.62", St 1670/1860
 (grade 270); Anchor test
 and stressing operation,
 protection of anchor
 heads with heat liquified
 corrosion protective
 compound.

**DYWIDAG Strand Anchors secure one of the largest French geotechnical construction sites****Slope stabilization for the interstate A43 portal to Fréjus tunnel, France**

Interstate A43 runs through the Fréjus tunnel which represents one of the most important links between France and Italy. Construction of this segment in the Province of Haute Maurienne proved to be extremely demanding. Geological and local climate conditions did not favor the construction of a large highway. The pile retaining wall for Lap HI - 4 was tied back with DYWIDAG Multistrand Anchors 0.6211 St 1670/1860 (grade 270).

The following requirements had to be considered for the tie back anchor design and installation:

- The depth of rock layers suitable for bond could not be determined before drilling. With the specific bond lengths of the anchors unknown until after the drilling operation, the time available for fabrication and installation was limited to 3 days.
- Handling and storage of the up to 70 m long DYWIDAG Strand Anchors required special planning.
- Due to significant ground movement the anchors had to be stressed in phases. Furthermore, the anchor heads were not readily accessible, complicating the stressing activities.
- Anchor installation was on the critical path for the overall project which further increased the time pressure.
- Winter weather conditions put other constraints on job-site logistics.

Prefabrication of the anchors

All anchors were prefabricated in a shop facility close to the jobsite. After completion of the drilling the geotechnical subcontractor reported the lengths of the anchors to be fabricated. The sheathed strand anchors were coiled on a specially designed cable drum so they could be transported directly to the installation site.

The fabrication shop included weather protected storage areas for the strand coils, a machine for greasing and sheathing the strand bundle in the free length, an assembly table and a lifting device for coiling the completed strand anchors on a large cable drum. Using these technical devices made it possible to prefabricate the anchors in a protected environment to the exact specifications of job.

The construction site

The difficult site conditions made it necessary to design a hanging work platform for access to the anchor heads. The platform facilitated the anchor installation works including the corrosion proofing of the anchor heads.

DSI France was in charge for the strand anchor production and installation between May 1998 and December 1999.