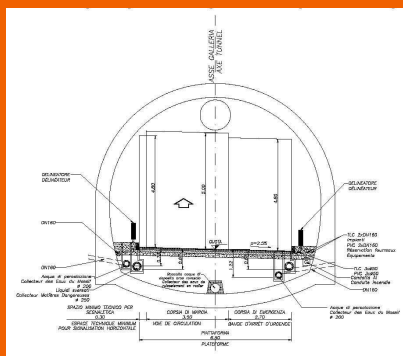


# In Progress



<b>Contractor:</b>	GLF Grandi Lavori Fincosit SpA - Toto Construction Generali SpA
<b>Beneficiary:</b>	ANAS - Central Planning Management
<b>Works:</b>	S.S. 20 Construction of the new Colle di Tenda tunnel and additional works including the construction of the intake of the S. Macario river source.
<b>Services awarded:</b>	Executive Project - Safety and Coordination Plan
<b>Contractor:</b>	Progin SpA
<b>Period:</b>	2011 - Executive Project improvement variations 2012 - Executive Project
<b>Works Value:</b>	€ 173,758,807.00
<b>Classes and categories:</b>	Ig, IIc, VIb, VIII, IXc
<b>Works Status:</b>	Executive Project in progress

From the time of its construction between 1873-1882, the tunnel of the Tenda pass has represented one of the main passes of the Alps; the maximum dimensions of the carriageway that may currently be used are however only 4.90 meters with free vertical height of just 4.30 meters. The works are part of the north-south route that directly connects the Po valley (provinces of Cuneo and Turin) to the French Riviera and the Liguria coast through the western offshoots of the Maritime Alps along the Vermentina valley (in Italy) and the Roya valley (in France).

In particular thanks to the SS20, the city of Cuneo reaches the Colle di Tenda southwards and then continues in France along the RN204 after the pass tunnel (1,320 m. a.s.l. ) and the border; the link is part of the European E74 route and ensures an easy link of the Piedmont capital to Ventimiglia and the French Riviera. In France, the RN204 was known as the Great Territory Redefinition Link (GLAT) until 2005 when, as a result of the decision to decentralize, it became necessary to integrate the departmental network.

The project was developed from the guidelines given by the Inter-Government Commission for the Improvement of French-Italian Links in the Southern Alps (IGC), created on 26 November 1993, for which "the safety of Tenda road tunnel represents an absolute priority...." and involves the construction of a new tunnel parallel to the existing tunnel towards France and the simultaneous enlargement of the existing tunnel according to the project cross-section specifications, towards Italy. Both tunnels will have one lane as described by the paragraph on the transverse cross-section. From an operational point of view, in order to minimize interference with traffic, it will be necessary to subdivide works by first constructing the new tunnel and once this has been completed, traffic will be deviated to the same and the existing tunnel will be enlarged according to the project cross-section specifications.

The studies carried out have made it possible to reconstruct the geological situation along the tunnel with sufficient accuracy with respect to the level of knowledge required for the project level and the required choices; consequently, it was possible to identify the best project solutions to resolve the problems relating to excavation of the tunnels and the design solutions adopted; particular attention was dedicated to the dimensioning of the bore of the existing tunnel. In fact, in order to enlarge the existing tunnel (built in 1882) it will be necessary to carry out preliminary reclamation works on the piles of debris outside the existing covering, and undoubtedly large areas of irregular terrain with holes will be found outside the existing tunnel. If no works are carried out, these conditions may lead to problems of instability on the front and the enlarged cavity when excavations are carried out. The holes on the outside of the tunnel will therefore be filled in and the characteristics of the irregular terrain land will be improved by installing radial tubes fitted with valves previously constructed in the existing tunnel, which will be used to feed the cement mortar.

As far as the road works are concerned, the Italian side does not involve significant outdoor works, while on the French side the entrance of the new tunnel is located at an altitude similar to that of the existing tunnel and renovation of the road, from the north-east shoulder of the Romanin viaduct to the entrances of new tubes entails the construction of a new road layout complying with current geometrical standards, including two new hairpin bends with better planimetric geometric characteristics, to replace the four hairpin bends, having a smaller radius of curvature.

Particular attention has been dedicated to the landscape which has entailed the remodelling of a section of the landscape, between the Romanin and Ca valleys, in a concave area, which has less inclined slopes than the neighbouring mountainsides. The "sculptural" works on the landscape will respect the overall landscape, as naturally as possible from a geomorphological point of view and provides a model which will blend in with the surrounding topography.

The landscaping principles are based on the following three elements: reconstitution of a natural landscape on the terraces of the new walls, to create a visual link with the surrounding landscape. The gentle escarpments will be covered in order to create a natural landscape which blends on with the environment over the entire hillside, with indigenous plants; planting of extensive woodlands for the works carried out on the fringes, restoration of all the areas, embankments and platforms, with Alpine type grassland; integration of tunnel entrances on the French side.