



A1 Milan - Naples Motorway The Variante di Valico project

Guido Furlanetto

Chief Engineer

SPEA Ingegneria Europea S.p.A.
via Vida, 11 -20127 Milan, ITALY
guido.furlanetto@spea.autostrade.it

Orlando Mazza

Project Manager

SPEA Ingegneria Europea S.p.A.
via Vida, 11 -20127 Milan, ITALY
orlando.mazza@spea.autostrade.it

Lucio Ferretti Torricelli

Civil Engineer

SPEA Ingegneria Europea S.p.A.
via Vida, 11 -20127 Milan, ITALY
lucio.ferretti@spea.autostrade.it

Alessandra Marchiondelli

Civil Engineer

SPEA Ingegneria Europea S.p.A.
via Vida, 11 -20127 Milan, ITALY
alessandra.marchiondelli@spea.autostrade.it

Summary

This paper will show some aspects of the improvement of the Appenninic crossing of the A1 Milan-Naples Motorway called "Variante di Valico" project, focusing mainly on some features characterizing the bridge structures. After a general description of the peculiar characteristics of the project, three bridge structures belonging to the main typologies used in this project will be briefly described.

Keywords: box girder; prestressed concrete; incremental launching; composite section; self compacting concrete.

1. Introduction

Autostrade per l'italia, the manager of the main part of the Italian motorway network, has recently started a process of modernization of the portion within its competence, which amounts to a total of about 3400 km. One of the most important projects, currently in the phase of realization, is the "Variante di Valico" project, the modernization of the Appenninic segment of the A1 Milan Naples motorway. SPEA Ingegneria Europea, the consulting company of Autostrade per l'Italia, has been commissioned for the design and supervision of construction.

The existing motorway, one of the oldest in Italy, was opened to traffic in 1960, with the aim of connecting North and South Italy, answering to the rapidly increasing demand for mobility that started after the end of the 2nd World War. The segment which crosses the Appennine chain, located between Bologna and Florence, shows the common features of mountain motorways. The difficulties due to the morphological conditions, characterized by the sudden alternation of hills and valleys and by the presence of gas which made the realization of tunnels very complicate, made it necessary to plan a winding and steep alignment, needed to cross the pass, located at 790 m above the sea level.

In actual fact, for that time, the A1 motorway showed extremely modern features with a high concentration of outstanding structures.

In order to meet with the demands of continuously increasing volumes of traffic, which have nowadays doubled respect to the originally planned amounts, local widening of the most jammed segments was provided, inserting a third "slow" lane, called "climbing" lane, dedicated to heavy vehicles and located in the place of the emergency lane. However the solution was far from being decisive because this lane was broken up in correspondence with tunnels, causing in certain cases a significant jamming effect.