



Design and Construction of Logroño Railway Station Long Span Roof

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Summary

Sacyr is carrying out the works to bury part of the railroad through the city of Logroño while the line is still on. An important part of the project is the construction of a new railway station below grade covered with a long span roof.

The 8.000m² roof is bounded by its upper and lower surfaces which are of very different natures. The upper side is a smooth surface that serves as hill within an urban park that covers the former railroad. The gravity loads are very high in order to bear the ground cover and the live load required by a public space. The lower surface is an organic shape interpolated by large triangles that serve as a ceiling that protects travelers. The triangles stretch and converge to embody the supports.

This paper describes the design of the roof and the up-down construction techniques carried out to minimize impact on the city activity.

Keywords: railway station; up-down construction; long span roof; 3D design; 3D modelling.

1. Introduction

Historically Logroño was bounded on the north side by Ebro river and, since it was constructed, by the railway that connects Bilbao and Zaragoza on the south side.

In the mid 20th century the railway was already pushed forward to its current position because of the urban pressure at the time. By the end of the century the railroad was definitely surpassed by the city due to the urban growth, then becoming the important barrier that it is today from the social point of view but also with a number of grade crossings that are unacceptable nowadays and a few road crossings which are critical points for the normal functioning of the city.

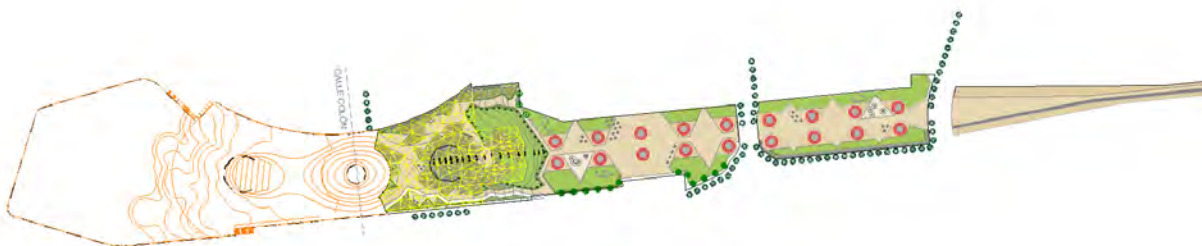


Fig.1: Overall view of the city planning