



Concept design and construction of a footbridge over the new bypass road in the town of Sant Pere Sacarrera (Spain)

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Summary

The paper talks about the concept design process, the description of the most important features and the construction sequence of a footbridge over the new bypass road of the town of Sant Pere Sacarrera, in Spain. The new structure is part of a Y-shaped itinerary that links the town centre with two tracks that give access to a forest area and were interrupted by the new road. The client not only wanted us to provide pedestrians pleasant walks, but also carry out an attractive design that would improve the visual experience of the drivers, avoiding, however, luxurious solutions. The aim was to get a proposal with reduced whole life cost and environmental burdens. This strongly conditioned the election of the materials and technologies of the project.

Keywords: Steel; concrete, alternative materials; bridges; aesthetics; architecture, conceptual design and realization.

1. Introduction

The BV-2136 provincial road passes through the narrow streets of Sant Pere Sacarrera—a small rural town belonging to the municipality of Mediona, in Catalonia—. The continuous escalation of heavy vehicle traffic over the last years resulted in an increase of the danger and inconveniences to the neighbours, which eventually drove the decision of the Diputació de Barcelona—government agency in charge of the road—to build a new bypass road along the south side of the town centre. Due to the special topography of the site, the alignment of the new variant forms a trench along most of the section, creating a barrier between the town centre and a forest zone that has traditionally been a recreation area for the residents. Therefore, in addition to the procurement for the construction of the new bypass road, the Diputació de Barcelona also launched the procurement for the engineering services for the construction of a new footbridge over the road, commission that was awarded to Alfa Polaris.

2. Concept design

2.1 Main criteria

Therefore, the main goal of our project was to establish a connection for pedestrians and bicycles between the town centre of Sant Pere Sacarrera and the network of footpaths and tracks of that forest area. Until that moment, the considerable slope of the existing footpaths and trails banned the access to that recreational area to people with disabilities. Consequently, our scheme could be an opportunity to provide users with limitations the chance to enjoy some walks that were hitherto not accessible to them.

In addition to offering pedestrian users pleasant walks, the client wanted us to conceive a carefully designed footbridge that also could improve the visual experience of users of the bypass, avoiding, however, ostentatious solutions. To get a proposal with a contained initial investment and low maintenance was intended. This was achieved with the design of a Corten steel truss structure—