



Treng-Treng Kay-Kay Cable-Stayed Bridge

Oscar Ramón RAMOS
Head of Structures Division
APIA XXI-Louis Berger DCE
Santander, Spain
oramos@apiaxxi.es

Ricardo SOUSA
MSc. Civil Engineer
APIA XXI-Louis Berger DCE
Santander, Spain
rpereira@apiaxxi.es

Guillermo ORTEGA
MSc. Civil Engineer
APIA XXI-Louis Berger DCE
Santander, Spain
gortega@apiaxxi.es

Frank SCHANACK
PhD. Civil Engineer
Austral University of Chile
Valdivia, Chile
frank.schanack@uach.cl

Marcos J. PANTALEÓN
President
APIA XXI-Louis Berger DCE
Santander, Spain
mjpanta@apiaxxi.es

Summary

The TrengTreng - KayKay Bridge is a cable-stayed bridge that crosses over the River Cautín and it is located on the outskirts of Temuco, Chile. The design of the pylon's shape is based on a local legend and it represents two snakes, corresponding to good and evil, biting each other. The structure, with a total length of 240 m, is composed of four minor spans and the main one, 140 m long, is cable-stayed. The deck is 27 m wide and bears two traffic lanes, and its corresponding sidewalks, in each direction and a bike lane. Both the deck and the pylon are designed as prestressed concrete structures. The main staying system is composed of two planes of 12 cables each one, arranged creating a fan disposition. The back staying system is formed by two pairs of four parallel cables that are anchored two the retaining abutment. Once the erection is finished, TrengTreng - KayKay will be the first modern cable-stayed bridge in Chile.

Keywords: Cable-stayed bridge, Seismic design, Broken-line pylon, Prestressed concrete, By-cellular cross section.

1. Introduction

The TrengTreng - KayKay is an asymmetric cable-stayed bridge, which symbolizes the ancient Mapuche legend about Earth creation. This new bridge over the River Cautín establishes a wide and renewed connection between the city of Temuco and Padre las Casas commune.

The bridge is 240 m long, and it is divided in 5 spans of lengths: 23, 27, 140 (cable-stayed one), 27 and 23 m respectively.

The bridge deck is designed to be made of prestressed concrete, having a total width of 27 m, allowing to bear two traffic lanes in each direction, widespread lateral pathways and a bike lane.

The pylon, as well, is projected to be made of prestressed concrete; prevailing on its design the sculptural and figurative criteria, turning it, for sure, into a new iconic element of the city.

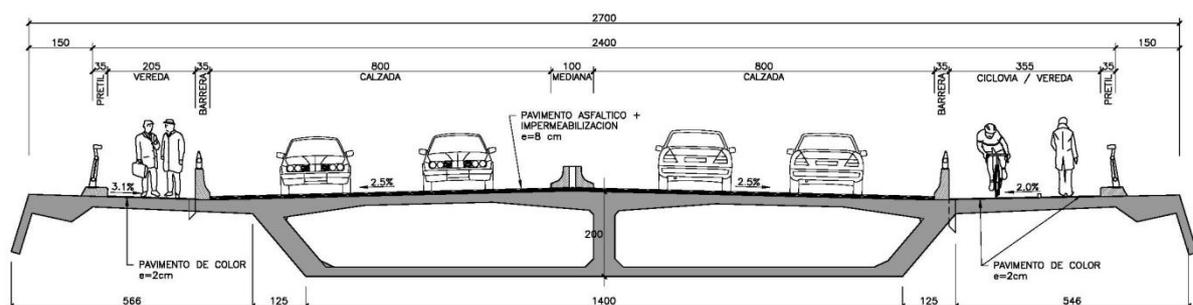


Fig. 1: Deck cross section