



Viaduct over River Almonte. Site Control and Supervision

Guillermo Capellán, Javier Martínez-Aparicio, Emilio Merino

Arenas & Asociados, Santander, SPAIN

Pascual García-Arias

Idom, Madrid, SPAIN

David Arribas

FCC Construcción, Madrid, SPAIN

Pablo Jiménez

Adif (Spanish Rail Administrator), Madrid, SPAIN

Contact: gcapellan@arenasing.com

Abstract

With a 384 m long main span, this arch bridge sets a new world record as the longest span on a single concrete arch bridge used for high speed trains. Almonte's span is considerable even when compared with non-railway concrete arch bridges.

The arch has been erected by cantilever method construction with the aid of temporary cable-stays from two temporary steel towers (using form travellers specially designed for this bridge). The deck is constructed using an overhead movable scaffolding system. This article summarizes the site control activities and special operations undertaken during the structure erection, as the monitoring system, the geometrical control and some aspects of calculation related to its construction.

Keywords: arch bridge, high speed railway, world record, cantilever construction method, site control.

1 Introduction

The Viaduct over River Almonte at the Reservoir of Alcántara is an arch bridge with a main span of 384 m and a total length of 996 m. It will become, once completed the last stages of the deck, the

longest span in a high-speed railway and the third longest concrete arch in the world.

The construction includes many special features and demands unusual operations for the erection of its elements. According to this complex erection, extensive control activities have been