Danube Bridge II. Vidin-Calafat. Construction Methodology

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Summary

The new Bridge over the Danube is part of the Paneuropean Corridor IV that joins Turkey with Germany. The main feature of this new bridge is that both traffics, railway and highway, cross the Danube River between Vidin (Bulgaria) and Calafat (Rumania), throughout one single bridge.

It is a precast segmental bridge. The Main Bridge can be divided in two parts: there is a continuous extradosed structure in the navigable channel, with maximum span 180 m long and, in the non navigable channel, there is a continuous bridge with 80 m spans long.

The Main Bridge is 31.35 m wide. The cross section is a single box girder 4.50 m deep.

The segmental balanced cantilever construction method has been chosen. The precast segments were assembled with a launching girder in the non navigable channel and with a trolley crane in the navigable channel.

Keywords: extradosed, precast segment, balanced cantilever, saddle.

1. Introduction

FCC was awarded in the year 2007 with the Design and Build Contract of the Danube Bridge II: Vidin – Calafat. The structure is an extradosed cable stayed bridge with precast segment, assembled in balanced cantilever. It has a total length of 1.791 m, including the approach spans of the Railway Bridge (see Figure 1).

2. Description

Fig. 1: General view of the bridge

The Main Bridge over the Danube River is 1.391 m long. The river is divided in this section in two different zones: the non navigable and the navigable channels. The non navigable channel is the closest to Bulgaria, with 5 m river depth, going from the Bulgarian abutment to the eighth pier; the Bridge crosses this area with 80 m standard spans length. From this pier to the Romanian abutment, the river in the navigable channel is 14 m deep; the Bridge crosses this section by a standard span length of 180 m. The river level runs, from the lowest to the highest possible, up to 10 m depending on the season of the year. These conditions have been challenging during the construction process.

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