



ViA15 (A12/A15 | Arnhem | Netherlands): Design and structural behaviour analysis of a balanced cantilever bridge with a below suspended bicycle and pedestrian bridge

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Abstract

In order to complete the connection between the A15 and A12 highways in the Dutch region Gelderland, a bridge over the river 'Pannerdensch Kanaal' will be constructed. The main bridge is erected using the balanced cantilever construction method and designed as a continuous three-span box girder with varying height at a total length of 340 m. The superstructure consists of a longitudinally and transversally post-tensioned concrete deck with a maximum span length of 170 m and an approximate width of 28 m. Furthermore, the structure contains a bicycle and a pedestrian steel bridge, which are suspended below/beside the deck, allowing cyclists and pedestrians to cross the river and the Natura 2000 protected area. Additionally the bridge complex integrates ecological demands, such as swallow nests and bat roosts.

Keywords: ViA15; Arnhem|Netherlands; Rijkswaterstaat; GelreGroen; cantilever construction; post-tensioning; spherical bearings; material technology; architectural shape; ecological demands.

1 Introduction

There are daily traffic jams on the A12, A50, A325 and N325 (Pleijroute) motorways. The province of Gelderland and the state are therefore working together as part of the ViA15 infrastructure project on a robust solution for the traffic situation in the Arnhem-Nijmegen region (see Figure 1). The project ViA15 (DBFM) involves the extension of the

A15 from the Ressen junction to the A12 between Duiven and Zevenaar. The new section of the A15 crosses the 'Pannerdensch Kanaal' with a 2,500 m long bridge, which is deepened in Groessen / Helhoek to a length of approx. 3,500 m. There will be additional lanes on the A12 between Westervoort and the Oud-Dijk intersection and on the A15 between the Valburg and Ressen intersections. The expansion and connection of the