

Antwerp – Oosterweelverbinding The "Lange Wapper" bridge

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Summary

The viaduct "Lange Wapper" located in Antwerp (Belgium) is a cable stayed bridge which spans a very dense harbour site. This curved cable stayed bridge comprises a main span of 603 m and two balancing spans of 300 m. The curved alignment of the work, with a mean radius of 1000 m, is such that the two 150 m high concrete pylons consist each of a single mast each, implanted inside the curve. These pylons are also inclined by 9° on the vertical to minimize the vertical axis bending moments in the deck. The steel deck with orthotropic and composite slabs, is a box-girder, with two levels including each 4 traffic lanes. The web of the box consists of a double V-mesh. This work probably represents the largest curved cable-stayed span studied in the world today and its realisation is suspended to politics decision.

Keywords : viaduct, curved bridge, cable-stayed bridge, double deck viaduct, outstanding structure

1. Introduction

The object of the "Oosterweelverbinding" works is to carry out the closing of the Antwerp (Belgian) motorway ring. This junction will allow firstly the international traffic to pass through from the north to the south but also the maritime port traffic to join the motorway in a direct and immediate way.

This titanic building site which extends on the two banks of the Scheldt, will have as an aim the construction and/or the installation of 5 interchanges, the dual carriaging of the existing ring over approximately 3 kilometres, the construction of a 2200 metres long tunnel under the Scheldt and of a viaduct above the right bank docks. This latter bears the symbolic name of "Lange Wapper".

2. Situation



Fig. 1: Installation of the viaduct

The Lange Wapper is built on the right bank of the Scheldt, directly on the interchange outlet side giving access to the tunnel on the one hand and the port of Antwerp on the other hand.

Over a distance of approximately 2 kilometres from the West towards the East, it crosses a large size river lock, skirts a maritime purpose dock, crosses a first time the Albert canal, Straatsburgdok, separates in two branches; each of the branches cross the Noorderlaanbridge, the southern branch crosses the Albert canal a second time and finally 4 railway tracks before meeting, towards the North like the South, the existing motorway (E19).