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Some Aspects Of The Design Of Martwa Wisla River Bridge In Gdansk

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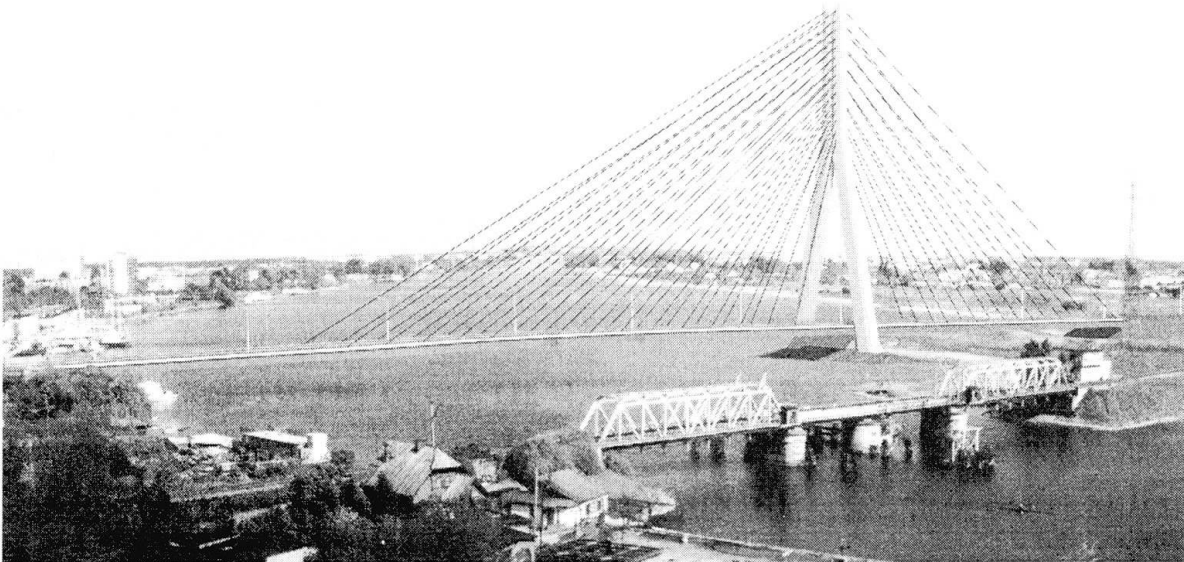
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Computer visualisation

Abstract

The new designed cable-stayed bridge in Poland is situated in Gdansk - a harbour city. It connects The Martwa Wisla River banks and it is an element of route leading to the port. The construction of the bridge as a cable-stayed one turned out to be attractive not only from the technical point of view but from the economic one as well. The investor is General Directorate of Public Roads, as the representative of Polish Government, and financing is supported with the credit from the World Bank funds.

The designed bridge is one-pylon construction (asymmetrical) whose mean span length 230 m. The total length of the superstructure is about 380 m. The bridge deck is a composite construction : two double steel beams and concrete bridge slab. The "A"-shaped pylon, about 100 m high, has reinforced concrete construction and box-section accessible from inside. Cable stays' system has been designed as semi-harp pattern, of dense type with two-sided outside stays. As stays, cables of parallel 7-wire strands, 15,5-mm diameter each strand, are used. Passive anchorage stays located in pylon and active in bridge deck. Free cantilever method has been assumed for the erection of mean span.

The intention of paper is to impart some of specific problems as regards designing cable-stayed bridge in Gdansk, and also especially with seeking own computational methods and construction details adequate to the Polish reality. We would like to pay special attention to the method of concrete pylon computation (see figure 2) and computational model of foundations as well as constructional solutions of such details as support of vertical load variable sign (pressure and anchor) with considerable horizontal displacement.

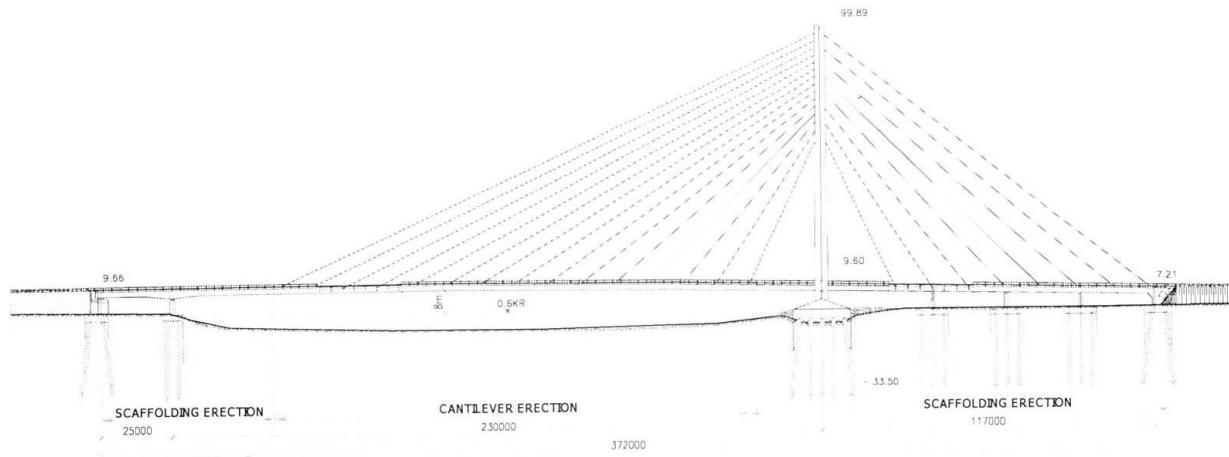


Figure 1 – Side view

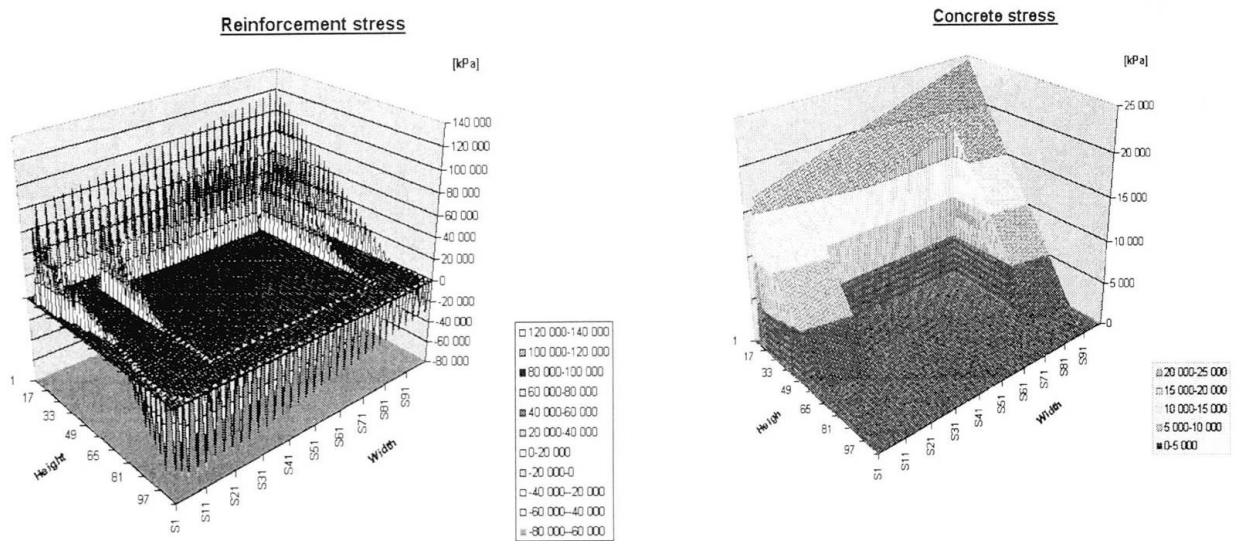


Figure 2 - Two-way eccentric compression stresses in pylon