

The Design and Construction of Nak-Dong River Bridge

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Summary

Nak-Dong River Bridge is the first concrete cable stayed bridge with four pylons in Republic of Korea. It is 595m long with three 150m main spans. This bridge is designed as a Rahmen structure for structural effectiveness and easier maintenance. Two-cell box girders with FRP Struts are constructed by Form Traveller. 128 fan type stay cables are anchored at center web and erected by Multi-Strand method using light weight equipments. This bridge is under construction and is scheduled to be completed by 2012.

Keywords: cable stayed bridge; multi-span; four pylons; Rahmen structure, Multi-Strand method; form traveller; concrete box girder; FRP strut

1. Introduction

Nak-Dong River Bridge is the main bridge of Gyori-Soosang Road Project which circulates Andong-si, Republic of Korea.



Fig. 1: Nak-Dong River Bridge (CG)

It is the first concrete cable stayed bridge with four pylons in Republic of Korea. It is 595m long with three 150m main spans. This bridge is designed as a Rahmen structure for structural effectiveness and easier maintenance.

The height of pylons is 39m from top of box girder and 85.5m ~ 90.9m from foundations. Pylons are divided into two parts with constant and variable section. Upper part of pylons with variable section has anchorages of stay cables and reinforced by 65mm PT bars to compensate tensile forces from stay cables.

A two-cell box girder with FRP strut has dimensions of 23.5m in transversal direction, 4m in longitudinal direction and 3m in vertical direction. It is constructed by Free Cantilever Method (Balanced Cantilever Method) using Form Traveller. There are prestressed reinforcements such as tendons and PT bars inside box girder.

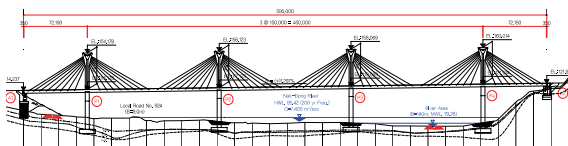


Fig. 2: Side View

128 fan type stay cables are anchored at center web and erected by Multi-Strand method using light weight equipments. Center webs are reinforced by 36mm PT bars to compensate vertical forces from stay cables.

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