



# Planning, Design and Construction of Cable Stayed Bridge on river Zuari in the State of Goa, India

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## Abstract

National Highway 66 (NH 66) runs North-South in the state of Goa and is the lifeline of the state. Around the centre of this highway, river Zuari runs East-West and needs to be bridged to connect North and South. The existing bridge is 2 lanes and under repair and rehabilitation for the last 2 decades and has severely reduced load carrying capacity thereby creating a long detour for heavy vehicles to traverse North-South. Besides, the local traffic of light vehicles has also increased substantially over the last 2 decades rendering this location critical for passage of traffic. There is therefore, a perennial traffic bottleneck at this location.

## 1 Introduction

The demand for a wide new bridge has been there for quite some time and proposals for the new bridge have been tried earlier. Since Goa is a small and eco-sensitive state, the location of the new bridge has to be such that it creates minimum damage to environment. Thus, large scale diversion for a new alignment is not considered desirable and the challenge therefore was to find a new alignment as close as possible to the existing alignment creating minimal environmental damage and minimizing land acquisition. Further, the planning, design and construction has to be such that traffic on the bridge and in the navigational channels is not to be disturbed till the new bridge is opened to traffic after which the existing bridge could be closed to traffic and used for other purposes.

## 2 Details

[1] The bridge is an 8-lane wide cable stayed structure. It has 2 independent superstructures and has a configuration of

140 m. + 360 m. + 140 m. spans giving a total length. The superstructure is composite type – steel beams with concrete deck.

- [2] Large diameter 2000 mms. pile foundations have been used and massive pile caps supporting not just the 2 superstructures but also a tower with revolving restaurants and viewing gallery is proposed.
- [3] The bridge is in an eco sensitive zone and built over a navigational channel necessitating the large span. An existing bridge parallel to the alignment is also being maintained, although, with load restrictions, allowing only light vehicles.

## 3 Conclusions

This paper discusses in details the challenges faced during the entire process from planning, design, and construction.

## 4 References

Detail project report submitted by TPF Engineering Pvt Ltd. In 2014-15.