

Tuti Suspension Bridge, Khartoum, Sudan



The Tuti Suspension Bridge forms the first fixed link between Khartoum city and Tuti island, a largely undeveloped island situated in a prime city centre location at the confluence of the Blue Nile and White Nile rivers in Sudan. The bridge carries 4 lanes of traffic and two narrow footways. The main span of 210m crosses the Blue Nile from bank to bank. Although the span is not large, a suspension bridge was chosen to provide an iconic structure for the region, to minimise the superstructure depth and consequential land take for the approaches, and to provide a structure which could be easily built with local technology.

The main cables are constructed of nineteen 70mm diameter individual spiral strand cables placed in parallel, and anchored using a splay clamp and macalloy bars. The main span is simply supported at the towers by uplift resisting pot bearings and by hangers at 10m spacing. The main deck is composite with a ladder arrangement of steel cross and main plate girders supporting concrete plank participating formwork topped by an in-situ concrete deck.

Erection analysis was complicated by the need to construct the deck entirely from one bank and to erect the concrete deck as a separate operation, necessitating large deck hinges to be built in as part of the temporary works. The final scheme adopted succeeded in limiting the criticality of the temporary erection phases on the permanent works whilst still permitting economic construction. In keeping with the available construction equipment structural section sizes were kept down to manageable sizes.



Flint & Neill Limited designed the superstructure including cable system, anchorages and main deck for Dorman Long Technology. Full erection analysis was also undertaken, and a construction specification prepared.

Construction of the Tuti Suspension Bridge is due to finish later this year.