

Project to replace the prestressed concrete independent-span viaducts of the Reyran and the Siagne

A8 Motorway



Client:
ESCOTA

Project manager:
DIADES

Contractors:
Not applicable

Years:
Planning: 2010 - 2011

Principal features:
Hyperstatic mixed-material bi-beam with 3 spans of 32m, 40m and 32m.

Background

The viaducts of the Reyran and the Siagne are post-tensioned prestressed concrete independent-span viaducts (*VIPP*). Due to their design and age (1960), they are sensitive and susceptible to brittle fractures (isostatic structure) in the event of structural problems relating to load-bearing capacity; what is more, it is difficult to estimate the condition and integrity of the prestressed concrete.

These structures are quite unique in that their position within the ESCOTA network does not lend itself to providing an alternative route that is easy to implement.

The client therefore wished to be ready to start works in record time immediately on discovering a potentially serious pathology in the beams, in order to minimise the inconvenience to its customers and the economic loss to the region as a result of the reduction in European transit capacity (trade with Italy).

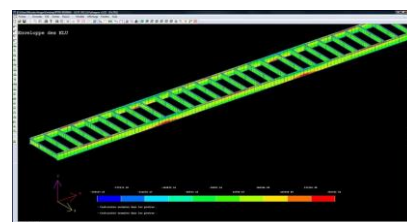
Studies into the replacement of these viaducts were therefore carried out with a view to ensuring the continuity of the motorway network in case the structures threaten to fall into ruin.

DIADES' task

DIADES was tasked with carrying out a project study into the replacement of the two *VIPP* viaducts in the event of a problem with the load-bearing capacity of the deck. The projects related to mixed steel/concrete bi-beam cross-beam structures.

The projects therefore included:

- The design and dimensioning of the mixed steel/concrete bi-beam type decks,
- The recalculation of an existing *VIPP* type deck as a 2x2 lane highway provisionally,
- Methodology for temporary works,
- An action flow chart in case of discovery of serious pathologies.



Replacement of a *VIPP* viaduct with mixed material bi-beam in event of problems with the load-bearing capacity of the deck

Calculation of a temporary deck, phasing of works, design and dimensioning of two mixed steel/concrete bi-beam type decks including a multi-span deck.

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