

Raymond Barre Bridge in Lyon - Tramway T1

Engineering Structures

2010 - 2013



FRANCE - Lyon

Client

SYTRAL

Project manager

SETEC TPI / SETEC ALS

Project owner

SYTRAL

Miscellaneous

Bridge with 3 spans in an urban site,
Works in river,
Deep foundations



Description of the project

Marking the South entrance of the city of Lyon, the Raymond Barre Bridge across the Rhone was designed in harmony with the entrance of the Confluences Museum, with a modern architecture featuring two outward-leaning arches. Working alongside the Project Manager, TERRASOL was entrusted with the study of the foundations of this structure, which is part of the project to extend tram line T1.

The 3-span bridge has a pier in the river (P1) and a pier on the edge of the bank (P2). Both piers will be founded on piles. The geotechnical context does not present any particular problems; the soil is composed of river alluvia becoming compact at depth before encountering the bedrock consisting of granite sand associated with the facies of the "Jardin des Plantes".

Key features

- Geotechnical synthesis and foundations design
- Geotechnical project management

Description of the mission

The problems of the project essentially concern :

- the complex load distribution of the structure, due in part to the asymmetry of the deck which is embedded on the piers, inducing considerable transverse forces for the foundations ;
- compliance with river traffic, which requires the area covered by the foundations to be restricted ;
- difficulties related to construction in a river with a water depth of approximately 12 meters at pier P1.

The calculations for the deep foundations of the piers were performed using the FOXTA software, its various modules making it possible to account for the behaviour of a pile group subjected simultaneously to transverse and axial loading.

The construction works were entrusted to the BOUYGUES TP /MATIÈRE/ ZWALHEN & MAYR consortium. The first stone was laid on the 24th of November 2011. SETEC ALS, with TERRASOL's assistance, carries out the works and studies Project Management for the civil engineering. The works began in April 2012 with the construction of the cofferdam for pier P2 and of the piles for abutment C3. The large cofferdam of pier P1 was completed by the end of year 2012, and was followed by the construction of the sixteen 1600 mm piles necessary to support this pier on which the steel structure was to be embedded.