

# LOADTEST O-cell® Technology in Abidjan – Ivory Coast



Project: **PONT RIVIERA – MARCORY bridge**  
Location: **Abidjan - Côte d'Ivoire**  
Main Contractor: Bouygues Travaux Publics  
Foundation contractor: Trevi S.p.A.

Project Description: The State of Ivory Coast has undertaken a construction project of national importance with the building of the Riviera to Marcory Bridge and associated access roads, in order to resolve the problem of traffic congestion in the urban area of the city of Abidjan, also known locally as the 3rd bridge of Abidjan project.



Map showing the proposed bridge location

This 1.5 km toll bridge, named officially as the Henri Konan Bédié Bridge, will complete a fast urban road system connecting the municipalities of Cocody and Marcory by means of a North to South bridge over the lagoon of Ebrié.

This, the first O-cell bi-directional load test carried out in the state of Ivory Coast, was undertaken on a rotary bored test pile of 1400 mm diameter and of a total length of 81.5 m installed using a Soilmec SC120 piling rig.

This prestigious project required an extremely tight piling works program. The soils were soft and unstable making a top down pile load test difficult to perform. A permanent 12 metre long casing was installed to assist with the stability of the ground in the upper regions of the test pile.

The preferred method of testing was with the O-cell bi-directional load testing technique. The test pile was installed from a man-made platform 4 m above water level, with two 510 mm diameter O-cells, located 1 m above the pile toe and capable of mobilising a total of 40 MN (20 MN in each direction).

Base grouting was performed on the pile prior to testing to improve the load/settlement characteristics.

Vibrating wire strain gauges were installed at several levels along the pile shaft in order to ascertain the load distribution.



Installation of the O-cell cage



Pile Load Testing in progress

