



Flint & Neill were appointed, together with Ammann & Whitney of New York, as the Independent Engineer for this project which involves the design and construction of a large \$625million three tower suspension bridge in Chile. The client is the main contractor, Consorcio Puente Chiloé (CPC), which is a joint venture of Hochtief, Vinci, American Bridge together with local firms Empresa Constructora Tecsa and Besalco. The owner of the bridge is the Ministry of Public Works in Chile.

The Bridge carries Highway 5 over the Chacao Channel north of Chiloé Island where the environmental conditions are extremely severe. Very strong water currents present a significant challenge for construction at this remote site where high intensity earthquakes are relatively common. The bridge consists of a continuous suspended steel box girder structure with a total length of 2635 metres, and two main spans of 1100m to the north and 1055m to the south.

A key feature of the bridge is the central pylon, which is A-shaped in elevation to provide sufficient longitudinal restraint to the main cables and is founded on piles bored into a submerged rock known as the Roca Remolinos. The geology of this rock and the strong currents around it present particular challenges for the design and construction. The North Pylon is founded on piled foundations in shallow water and the South Pylon is directly founded on a low plateau at the shoreline.

The steel box girder is suspended from two 580mm diameter main cables by hangers at 20m centres, and carries two 7 metre wide carriageways in each direction.

Flint & Neill's role with Ammann & Whitney involved providing independent analysis, design checking and expert advice during the engineering phase of development and design in three sub-phases covering the gathering and analysis of data to verify the information on which the design is based, defining the design and construction criteria, and the detailed design checking and certification. In all of this work, Flint & Neill's expertise and experience in aspects such as long span bridge loading, aerodynamics, steel box girder behaviour, cable and hanger technology and other aspects was applied to support the design work carried out by consulting engineers COWI from Denmark.

Client:
Hochtief

Location:
Chacao Channel, Chile

Service Dates:
2005-2006

Services:
Independent design check
Specialist advice

