Historical review of the scour protection provisions on Chilean Bridges. 20th Century cases of study

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ABSTRACT

The main pathologies that affect the Chilean bridges are the earthquake and scour, due to the subduction fault in the costal of the country and torrential rivers that cross the central valley from the Andes Mountain to Pacific Ocean. This condition produce that an important amount of funding of the maintenance and management item goes through rehabilitation program associate to this issue. Many examples of bridges that show loss of stability, differential settlement, cracking due to rock impacts among other are the triggers of Chilean bridges collapse. Moreover, the climate change are increasing this effects on the bridges, with special focus on extreme scour or debris current not specify in the design codes.

For that reason, comprehensive understanding of the structural detail and the scour protection provision on Chilean bridges are mandatory in order to prepare an adequate maintenance and rehab project. This is extremely important in old bridges, with lack available technical information.

This paper provide a historical review of the Chilean bridge design and built during the 20th century providing from the heritage and structural point view an analysis of the design and construction detail on foundation over riverbed, piers, abutments and scour protection that allow to Authority take decision about the intervention activities.

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