

Experimental study on local scouring at pile-supported piers

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Abstract

In spite of the increasing importance of complex piers for bridges, the number of studies on these piers is comparatively small and the predictors of scour depth at complex piers are only a few, derived from limited experimental evidence. The main purpose of this paper is to share with the hydraulics community the results of 67 tests on scouring at pile-supported piers (including complex piers) aligned with the flow, under clear-water conditions close to the threshold of beginning of sediment motion, while contributing to shade some more light on the influence of the pile-cap thickness on the equilibrium scour depth, the reliability of the superposition approach, the contribution of each one of the complex pier components to the equilibrium scour depth of the ensemble, and the performance of existing predictors of local scour at complex piers.

Key words: bridge piers, pier scour, laboratory studies, moveable bed, clear water.

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