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Investigation of Several Parameters on Local Scour around Inclined Dual Bridge Piers

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Abstract : For a bridge engineer to ensure a safe footing design, it is very important to estimate the maximum scour depth around the piers as accurately as possible. Many experimental studies have been performed by several investigators to obtain information about scouring mechanism. In order to examine the effect of inclination of dual bridge piers on scour depth under clear-water conditions for various uniform flow depths, an experimental research on scaled dual bridge piers has been carried over in METU Hydromechanics Lab. Dimensional and non-dimensional curves were developed and presented to show the variation of scour depth with respect to various parameters such as footing angle with the vertical, flow depth and footing dimensions. Results of the study were compared to those obtained from a similar study performed with single inclined piers to see the effect of the second pier on scour depths. Useful equations for the design engineers were developed based on multiple regression analyses to be used for predicting local scour depths around inclined piers in uniform and non-uniform sediments.

Keywords : experimental research, inclined dual bridge piers, footing safety, scour depth, clear water condition
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