



Enhanced Abutment Scour Studies for Compound Channels

By U S Department of Transportation, Federal Highway Administration

Createspace, United States, 2015. Paperback. Book Condition: New. 279 x 216 mm. Language: English . Brand New Book ***** Print on Demand *****.Experimental results and analyses are given in this report on bridge abutment scour in compound channels. Experiments were conducted in a laboratory flume with a cross section consisting of a wide floodplain adjacent to a main channel. The embankment length, discharge, sediment size, and abutment shape were varied, and the resulting equilibrium scour depths were measured. Water-surface profiles, velocities, and scour-hole contours were also measured. In the report, a methodology is developed for estimating abutment scour that takes into account the redistribution of discharge in the bridge contraction, abutment shape, sediment size, and tailwater depth. The independent variables in the proposed scour formula are evaluated at the approach-channel cross section and can be obtained from a one-dimensional water-surface profile computer program such as the Water-Surface Profile Program (WSPRO). The proposed scour evaluation procedure is outlined and illustrated, including consideration of the time required to reach equilibrium scour. The proposed methodology is applied to two cases of measured scour in the field. Research objectives include: Investigate the effects of flow distribution, as affected by abutment length, on clear-water abutment...



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