

ABSTRACT

Analysis of the Improvement of the River as an Alternative for Flood Control (Case Study on Mahkota Simprug Housing South Tangerang)

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Flooding in residential areas can significantly disrupt the activities of the affected communities. One example is the flooding in the Mahkota Simprug residential area in South Tangerang City, which occurs due to the overflow of the Cantiga River, unable to accommodate the water discharge during heavy rainfall. Therefore, efforts to prevent flooding are essential. An initial step involves designing retaining walls to increase the cross-sectional capacity of the Cantiga River. A hydraulic simulation is necessary to support this design, facilitated by the Hydrologic Engineering Center-River Analysis System (HEC-RAS) application. HEC-RAS can model river cross-sections under existing conditions and with the addition of retaining walls with freeboard height, utilizing steady flow options and input data in the form of maximum planned discharge. The output of the simulation includes graphical and tabular representations of the river's cross-sectional characteristics. The Cantiga River section analyzed is 0.87 km long, with a watershed area of 13.6 km². The planned flood discharge used for this study corresponds to a 50-year return period (Q₅₀), with a value of 46.434 m³/second.

Keyword : *Flood, River, HEC-RAS 4.0, River Retaining Wall.*

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