STREAM CORRIDOR RESTORATION STUDY ON JUNJUNG RIVER, PENANG

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B. Eng (Hons) (Civil)
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By

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DECLARATION

I (Jamil Bin Matarul, 2003339677) confirm that the work is my own and the appropriate credit has been given where reference has been made to the work of others.

(…….)

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ABSTRACT

Stream corridor restoration is a collective effort to return some of the damaged stream ecosystems to their approximate pre-disturbance conditions. This research will depicts a hydrologic engineering study carried out at Junjung River,Penang,Malaysia for stream corridor restoration planning. Three test cases were analysed in this study to meet the stream corridor restoration requirement specified in the urban stormwater Management Manual for Malaysia. First condition is with no restoration, second condition with cultivates shrubs and third condition cultivates with trees. HEC HMS model was used to predict design flow for ARI 50 years and ARI 100 years due to 120 minutes 360 minutes design rainfall. Before predicted design rainfall some field data will be collected to develop flow rating curve and historical hydrograph. Another hydrograph was predicted by HEC-HMS, this predicted hydrograph was adjustment until the predicted hydrograph match with historical hydrograph. This predicted hydrograph (calibrated model) was validated with selected storm event in year 2005 to ensure the validity of the model to be used in the future planning. Roughness coefficient due to vegetations (shrubs and trees) estimated using Fischenich's equation (2000). HEC-RAS model was used to predict the flood level for various design condition stated above. Restoration with trees was proposed to be adapted for stream corridor restoration planning.