ABSTRAK

Judul : Analisa Tinggi Muka Air Banjir Wilayah Normalisasi Sungai Ciliwung Menggunakan Software HEC – RAS 5.0 (Studi Kasus Cililitan – Kampung Pulo), Nama : Gilang Aditya Permana, Nim : 41113120125, Dosen Pembimbing : Ir. Hadi Susilo, MT. Tahun : 2018

Sungai Ciliwung adalah salah satu sungai yang melintasi wilayah Jakarta.Tujuan dari penelitian ini untuk mengetahui lokasi luapan permukiman sungai / banjir yang terjadi di ruas-ruas sepanjang Sungai Ciliwung berlokasi di Cililitan hingga Kampung Pulo. Metode perhitungan debit banjir menggunakan hidrograf satuan sintetik Nakayasu dan Snyder. Data curah hujan menggunakan 2 stasiun pengamatan hujan selama 3 tahun (2016 - 2018). Hasil perhitungan debit puncak banjir rancangan dengan HSS Nakayasu Q_5 = 839.83 m^3/ dt, Q_{10} = 865,32 m^3/ dt, Q_{20} = 889.74 m^3/ dt, Q_{50} = 921.38 m^3/ dt, dan Q_{100} = 945.06 m^3/ dt, debit puncak banjir rancangan dengan HSS Snyder pada periode ulang Q_5 = 448.92 m^3/ dt, Q_{10} = 462.54 m^3/ dt, Q_{20} = 475.60 m^3/ dt, Q_{50} = 492.51 m^3/ dt, dan Q_{100} = 505.16 m^3/ dt. Setelah analisis menggunakan software, sebagian besar stationing Sungai Ciliwung tidak dapat menampung debit rencana pada periode ulang yang dianalisakan, oleh karena itu perlu adanya perbaikan sungai berupa normalisasi dan peninggian tanggul.

Kata Kunci : Debit banjir, HSS Nakayasu,HSS Snyder, Analisa muka air banjir, HEC - RAS 5.0, Normalisasi Sungai

ABSTRACT

Ciliwung River is a river that crosses Jakarta City's. Ciliwung River crossing many residential areas is often associated with flood problem that occurred in Jakarta City's. The purpose of this research is to find out the location of river / flood settelment overflows that occurred in sections along the Cilliwung River located in Cillilitan to Kampung Pulo. The metohod of calculating flood discharge using Nakayasu and Snyder Synthetic Unit Hydrographs. The rainfall data using 2 rain observation stations for 3 years (2015-2017). On frequency analysis using Gumbel distribution based on the results of Chi-Square and Smirnov-Kolmogorof data compatibility probability test. The results of design with Nakayasu Q5 = 839.83 m^3/s, Q10 = 865,32 m^3/s, Q20 = 889.74 m^3/s, Q50 = 921.38 m^3/s, and Q100 = 945,06 m^3/s, flood discharge design with Snyder Q5 = 448,92 m^3/s, Q10 = 462,54 m^3/s, Q20 = 475,60 m^3/s, Q50 = 492,51 m^3/s, and Q100 = 505,16 m^3/s. After analysis using software, most of the stationing of the Cilliwung cannot accommodate the planned discharge in the return period analyzed, therefore it is necessary to repair the river from normalization and elevatin of embankments.

Keywords : Flood Discharge,Nakayasu,Snyder, Flood Routing, Analysis of Flood Water Level, HEC - RAS 5.0, Normalization River