

ABSTRACT

A good drainage system should be able to drain back stagnant water into natural channels such as rivers and sea. Puddles and floods that occurred in Nawud Village in Sukoharjo Regency due to water from existing drainage channels cannot be directly discharged into the river because when the rainfall, water level in the river rises and the elevation is higher than water elevation in the drainage. It causes water cannot be discharged by gravity process. For this reason, a polder reservoir is needed. Design and capacity of the planned polder depends on the volume of the water runoff. In determining the amount of runoff discharge to design a polder conduct a hydrological analysis based on rain that occurs in the area of the study. Water runoff discharge analysis conducted using the HSS Nakayasu method obtained runoff peak discharge of 33,3662 m³/sec and using the HSS SCS method obtained runoff peak discharge of 25,0379 m³/sec. Dimension plan of polder obtained that 15593 m² is area of polder with 3,58 m pool height which is planned to accommodate 55868,58 m³ a maximum puddle volume. The planned outflow volume is carried out using flow tracking analysis and using 3 pumps with 2 m³ / sec for each capacity.

Keywords: *Drainage System, Polder pool, Flood Control. Peak of Flow.*