

## **ABSTRACT**

*The research was conducted at PT. Lahai Coal located in Batu Tuhup Raya, North Barito, Central Kalimantan. PT. Lahai Coal is a coal mining company that used the surface mine system with the strip mine method. The surface mining system is directly influenced by climate, especially rainfall. When it rains, either rainwater or runoff water flows directly into the mine openings. This causes inundation on the mine roads and mining area, resulting in damage to the mine roads and disrupting mining activities.*

*Based on the analysis of the rainfall data in 2011-2016, the planned rainfall value was 146,51 mm/day with the rainfall intensity of 50,79 mm/hour with a return period of 3 years and the hydrological risk was 86,83%. The rain catchment area (DTH) in the location of the research was divided into four, namely DTH 1 = 0.75km<sup>2</sup>; DTH 2 = 0.07 km<sup>2</sup>; DTH 3 = 0.40 km<sup>2</sup>; DTH 4 = 0.36 km<sup>2</sup>. Based on the area of each catchment area, the maximum debit runoff is obtained, namely DTH 1 = 9.51 m<sup>3</sup>/second; DTH 2 = 0.70 m<sup>3</sup>/second; DTH 3 = 5.08 m<sup>3</sup>/second; DTH 4 = 4.58 m<sup>3</sup>/second.*

*The open channels located at the mining area serves to drain mine water. After the calculation is obtained, the open channel dimensions include : B = 3,40 m; b = 1,70 m; h = 1,50 m; a = 1,70; d = 2,00 m;  $\alpha = 60^\circ$ . The pumps used to drain mine openings are Multiflo MFC 290 and Multiflo 420E with discharges 276 m<sup>3</sup> /hour and 760 m<sup>3</sup>/hour. The flowing water in the open channels is flowed into the settling pond to separate particles from mine water. Based on the volume of mine water, it is necessary to improve the dimensions of the settling pond in the forms of adding depth to each compartment of 4 m so that the capacity increases.*