

SUMMARY

PT. Surya Karya Setiabudi located in Desa Kemiren, Kecamatan Srumbung, Kabupaten Magelang, Central Java. PT. Surya Karya Setiabudi is a company that works in an sand and stones mining and applying surface mining system with a quarry method.

Quarry mining is likely affected by weather condition, especially during raining condition. During heavy rainfall, the run off could potentially enter the working area. It may cause several harm like damaged on mine road and stagnant water on the mine working area if not properly handled.

Based on the analysis of rainfall data from 2008 – 2017, the scheduled precipitation value is 123,69 mm/day, with rainfall intensity 42,79 mm/hour during 5 – year rainfall period and hidrology risk 86,80%. There is one rain catchment area each year, Catchment Area in 1-2 years is = 2,39 km², Catchment Area in 3-5 years is = 1,82 km²,

It is necessary to develop open channel around the perimeter mine site to restrain rainwater from entering the mining area and canalize the run off from disturbing the mine roads. There are four (4) dimension open channels :

1. For 1-2 years :

a. Open Channel I : B = 2,40m; b = 4,00m; h = 1,40m; a = 2,00m; d = 1,70m; L = 2.159m; $\alpha = 40^\circ$.

b. Open Channel II : B = 2,20m; b = 3,60m; h = 1,30m; a = 2,20m; d = 1,50m; L = 12.132m; $\alpha = 40^\circ$.

2. For 3-5 years :

a. Open Channel I : B = 2,70m; b = 4,50m; h = 1,60m; a = 2,40m; d = 1,90m; L = 762m; $\alpha = 40^\circ$.

b. Open Channel II : B = 5,10m; b = 5,90m; h = 3,00m; a = 4,50m; d = 4,00m; L = 2.181m; $\alpha = 40^\circ$.

Culverts are made to drain water from the mine which cut the haul roads. Vertical section of the culvert made from concrete with diameter each culvert is 1,50 meter.