

## ABSTRACT

Limestone mining in PT Indocement Tbk. Palimanan using system quarry. The location of the factory is located 20 km west of the town of Cirebon that in Village palimanan West, District palimanan Gempol, Cirebon. In the mining area, especially on quarry C and D, open channel experiencing silting due to the channel walls collapsed. On A quarry is needed open channel design, pitting, and also pump to drain the water towards the settling ponds

Based on the analysis of rainfall data of 2006 -2015, obtained precipitation plan is 174.80 mm/day, the intensity of the rainfall of 60.69 mm/hour with 5 years return period rainfall and hydrology risk by 89.26%.

The need for improvement in open channel 1, 2, and 3 functioning to prevent water runoff so as not to overflow. Dimensions of the open channel 1 is based on the flow of water runoff on DTH I, so that the open channel 2 has a dimension of depth = 1.30 m; bottom width = 1.30 m; wide at the top = 2.60 m. Dimensions of the open channel 2 is based on the flow of water runoff on DTH III, so that the open channel 2 has a dimension of depth = 2.0 m; dimension bottom width = 2.0 m; wide at the top = 4.0 m. Dimensions of open channel 3 is based on the flow of water runoff in the settling ponds Goa Dalem, so that the open channel 3 has a dimension of depth = 2.20 m; bottom width = 2.20 m; wide at the top = 4.40 m. Also required is the addition of culverts at 6 culverts with a diameter of 1.1 m connecting channel is open towards the settling ponds Citotok VI 1 and culverts 7 with a diameter of 1.0 m comes from the pump to the open channel VI.

To drain the water at a quarry required the addition of two open channel to drain the water in the quarry A is an open channel 6 and 7. Thus, open channel 6 has a dimension of depth = 0.90 m; bottom width = 1.10 m; with wide at the top 2.20 m, the dimensions of open channel 6 is based on discharge pump and DTH V. In the open channel 7 has a dimension of depth = 1.50 m; with bottom width = 1.80 m; wide at the top = 3.60 m, the dimensions of open channel 7 is based on DTH VII. It takes Multiflo 120 pump to drainage the water in the quarry A with pump discharge 0.25 m<sup>3</sup>/sec. The pump is used to drainage water from the channel VII with a debit of 5.40 m<sup>3</sup>/sec, so that the necessary sump with size 133,818 m<sup>3</sup>.

The maintenance time of Goa Dalem Pond is 1,153 days, the settling ponds 1 is 1,762 days, settling ponds 2 is 3,059 days, settling ponds Citotok 1 is 3,173 days, the settling ponds Citotok 2 performed every 2,840 days and the settling ponds 3 do every 2,649 days. The duration of the treatment time due to sedimentation pond area is so large and solid small percent lead time of treatment so long.