SARI

Bendungan Semantok terletak di Desa Sambikerep dan Desa Tritik, Kecamatan Rejoso, Kabupaten Nganjuk, Provinsi Jawa Timur, bendungan ini mempunyai tipe bendungan urugan dengan dimensi panjang 3.100 meter dan tinggi 40,25 meter. Bendungan Semantok ditargetkan mampu menampung air sebesar 22,4 juta m^3, menjadi pengendali banjir sebesar 30%, penyedia air irigasi seluas 1900 hektar, air baku 312 liter/detik, dan energi listrik 1,01 MW. Dalam proses pembangunan bendungan ini, perlu dilakukan penyelidikan kondisi geologi teknik meliputi aspek geomorfologi, tanah dan batuan, struktur geologi serta hidrogeologi untuk menghindari terjadinya kegagalan konstruksi. Penelitian ini dilakukan dengan melakukan pemetaan geologi teknik dengan skala 1:5000.

Karakteristik geologi teknik daerah penelitian terdiri atas 4 satuan yaitu satuan batupasir karbonatan lapuk sedang, batupasir karbonatan lapuk tinggi, batupasir lanauan lapuk sedang dan batupasir lanauan lapuk tinggi. Kualitas massa batuan daerah penelitian terdiri dari kelas *very poor rock* (RMR <25) dan *poor rock* (RMR 26 – 40). Zona dengan kualitas massa batuan RMR *poor rock* memiliki nilai *safe cut slope* 45^o dan *allowable bearing pressure* 135 – 45 T/m^2, sedangkan zona dengan kualitas massa batuan RMR *very poor rock* memiliki nilai *safe cut slope* <40^o dan *allowable bearing pressure* 45 – 30 T/m^2.

Kata kunci: Bendungan semantok, geologi teknik, kualitas massa batuan, *safe cut slope, allowable bearing pressure.*

ABSTRACT

Semantok Dam is located in Sambikerep Village and Tritik Village, Kecamatan Rejoso, Kabupaten Nganjuk, East Java Province, this dam has an embankment dam type with dimensions of 3,100 meters long and 40.25 meters high. The Semantok Dam is targeted to be able to accommodate 22.4 million m^3 of water, to control 30% of floods, to provide irrigation water to an area of 1900 hectares, raw water to 312 liters/second, and electrical energy of 1.01 MW. In the process of building this dam, it is necessary to investigate the engineering geological conditions covering aspects of geomorphology, soil and rock, geological structure, and hydrogeology to avoid construction failures. This research was conducted by mapping engineering geology with a scale of 1: 5000.

The characteristics of the engineering geology of the research area consist of 4 units, namely units of moderately weathered carbonaceous sandstone, highly weathered carbonaceous sandstone, moderately weathered silty sandstone, and highly weathered silty sandstone. The rock mass quality in the study area consists of very poor rock (RMR <25) and poor rock (RMR 26 – 40) classes. Zone with rock mass quality RMR poor rock has a safe cut slope value of 45^o and an allowable bearing pressure of 135 – 45 T/m^2, while a zone with rock mass quality RMR very poor rock has a safe cut slope value of $<40^o$ and an allowable bearing pressure of 45 – 30 T/m^2.

Keyword: *Semantok dam, engineering geology, rock mass quality, safe cut slope, allowable bearing pressure.*