

INTISARI

Bendungan Budong-Budong merupakan bendungan pertama di Sulawesi Barat yang akan dibangun oleh Balai Wilayah Sungai Sulawesi III, Kementerian Pekerjaan Umum Perumahan Rakyat. Pembangunan bendungan sudah mulai tahap konstruksi, namun belum dilakukan ekskavasi terutama di bagian terowongan pengelak. Oleh karena itu, perlu dilakukan penyelidikan geologi teknik meliputi aspek geomorfologi, aspek batuan dan tanah, dan aspek struktur geologi yang bertujuan untuk mengetahui karakteristik geologi teknik di lokasi bendungan dan menentukan metode ekskavasi untuk terowongan pengelak. Metode penelitian yaitu pemetaan geologi teknik dengan skala 1:10.000, evaluasi sampel *core*, penentuan kualitas massa batuan berdasarkan *Geological Strength Index*, pengujian sifat indeks dan keteknikan batuan dan tanah, analisis petrografi, dan penentuan metode ekskavasi terowongan pengelak berdasarkan *EXCASS System*. Hasil penelitian menunjukkan aspek geomorfologi di lokasi penelitian yaitu satuan lereng gunungapi curam, satuan dataran banjir berlereng landai, dan satuan lereng gunungapi agak curam. Aspek batuan dan tanah di lokasi penelitian yaitu tersusun atas satuan batupasir tufan sisipan batulanau tufan dengan tingkat pelapukan sedang hingga tinggi, satuan breksi tufan dengan tingkat pelapukan sedang hingga tinggi, satuan batupasir tufan dengan tingkat pelapukan sedang, dan endapan lempung-berangkal. Aspek struktur geologi yang dijumpai di lokasi penelitian yaitu kekar ekstensi dan terdapat pola kelurusan dengan arah NW-SE dan SE-NW. Karakteristik geologi teknik berdasarkan kualitas massa batuan dapat dibagi menjadi 4 yaitu sangat buruk, sedang, baik, dan sangat baik. Metode ekskavasi untuk breksi tufan kualitas sangat buruk menggunakan *digger*, batupasir tufan kualitas sedang menggunakan *hard ripper*, batupasir tufan-batulanau tufan kualitas baik menggunakan *easy hammer-hard hammer*, serta breksi tufan dan batupasir tufan-batulanau tufan kualitas sangat baik menggunakan *weak blasting*.

Kata Kunci: Bendungan Budong-Budong, terowongan pengelak, karakteristik geologi teknik, kualitas massa batuan, *Geological Strength Index*, metode ekskavasi.

ABSTRACT

The Budong-Budong Dam is the first dam in West Sulawesi to be built by the Central River Region Sulawesi III, Ministry of Public Works and Public Housing. The construction of the dam has started the construction phase, but no excavation has been carried out, especially in the diversion tunnel section. Therefore, it is necessary to carry out geological engineering investigations based on geomorphological aspects, rock soil aspects, and geological structural aspects which aim to determine the geological engineering characteristics at the dam construction site and determine the most recommended diversion tunnel excavation method. The research method is geological engineering mapping with a scale of 1:10,000, evaluating core samples, determining rock mass quality based on the Geological Strength Index, testing the index and engineering properties of soil rocks, petrographic analysis, and determining the diversion tunnel excavation method based on the EXCASS System. The results showed that the geomorphological aspects at the study site were volcanic steep slopes unit, floodplain sloping unit, and volcanic rather slopes unit. The rock and soil aspects were tuffaceous sandstone intercalated tuffaceous siltstone unit with moderate to high weathering, tuffaceous breccia unit with moderate to high weathering levels, tuffaceous sandstone unit with moderate weathering levels, and sedimentary clay deposits. Aspects of the geological structure found at the study site are extension joints and there are NW-SE and SE-NW lineaments pattern. Geological engineering characteristics based on rock mass quality can be divided into 4 namely such as very poor, fair, good, and very good. The excavation method for very poor quality tuffaceous breccia uses a digger, moderate quality tuffaceous sandstone uses a hard ripper, good quality tuffaceous sandstone-tuffaceous siltstone uses an easy hammer-hard hammer, and very good quality tuffaceous breccia and tuffaceous sandstone-tuffaceous siltstone uses weak blasting.

Keywords: *Budong-Budong Dam, diversion tunnel, geological engineering characteristics, rock mass quality, Geological Strength Index, excavation method.*