PERENCANAAN BENDUNG DAERAH IRIGASI SAWAH ARU, KABUPATEN PADANG PARIAMAN

AsepPriyadi, NazwarDjali, ZahrulUmar
Jurusan Teknik Sipil, Fakultas Teknik Sipil dan Perencanaan, Universitas Bung Hatta, Padang
Email :aseppriyadi0709@gmail.com, nazwardjali@yahoo.com, zahrulumar@yahoo.co,id

Abstrak

Kabupaten Padang Pariaman Provinsi Sumatra Barat merupakan daerah potensial untuk meningkatkan ketahanan pangan di sektor pertanian. Secara garis besar masarakat yang bermukim di perdesaan perekonomianya lebih di titik beratkan di sektor pertanian. Salah satu bentuk kepedulian pemerintah yaitu berupa layanan bendung daerah irigasi sawah aru. Bendung Sawah Aru yang sebelumnya berbentuk bronjong yang direncanakan menjadi bendung permanen pasangan batu dengan menggunakan mercu tipe bulat dan peredam energi tipe bak tenggelam. Perencanaan bendung Sawah Aru ini dilakukan perhitungan analisa hidrologi, perhitungan hidrolis bendung, dan perhitungan stabilitas bendung. Untuk data-data yang diperlukan antara lain peta topografi dan data curah hujan selama 15 tahun. Dari hasil perhitungan didapat *catchment area* seluas 20 Km^2, debit banjir rencana (Q100) 111,486 m^3/dtk, lebar total bendung 18 m, tinggi mercu bendung 1,8 m, dan tinggi energi (H1) 2,07 m. Sehingga dapat mengairi areal pertanian seluas 370 Ha. Pada perhitungan stabilitas bendung dalam keadaan air normal didapat angka keamanan terhadap guling 2,36 dan geser 2,1. Pada saat air keadaan banjir didapat angka keamanan terhadap guling 1,75 dan geser 1,8. Untuk tegangan tanah yang terjadi pada tubuh bendung tidak melebihi dari tegangan tanah yang diizinkan yaitu sebesar 32,10 ton/m^2.

Kata Kunci : bendung, tipe mercu, stabilitas.

Pembimbing I | **Pembimbing II**

Drs. Nazwar Djali, ST, Sp-1 | **Dr. Ir. Zahrul Umar., Dipl. H.E**

WEIR PLANNING OF IRRIGATION SAWAH ARU, PADANG PARIAMAN DISTRICT

AsepPriyadi, NazwarDjali, Zahrul Umar
Department of Civil Engineering, Faculty of Civil Engineering and Planning, Bung Hatta University, Padang
Email :asepprivadi0709@gmail.com, nazwardjali@yahoo.com, zahrulumar@yahoo.co,id

Abstract

Padang Pariaman Regency, West Sumatra Province is a potential area to increase food security in the agricultural sector. Broadly speaking, the people who live in rural areas have their economy focused more on the agricultural sector. One form of government concern is the service of the aru rice field irrigation weir. The Sawah Aru Dam, which was previously in the form of a gabion, was planned to be a fixed weir using a round-type lighthouse and a sink-type energy damper due to the condition of the irrigation area where the material is in the form of natural rocks. In this Sawah Aru weir planning, the calculation of hydrological analysis, hydraulic calculation of the weir, and calculation of the stability of the weir is carried out. For the required data, among others, topographic maps and rainfall data for 15 years. From the calculation, it is obtained that the catchment area is 20 km^2, the planned flood discharge (Q100) is 111,486 m3 / s, the total width of the weir is 18 m, the height of the weir is 1,8 m, and the energy level (H1) is 2,07 m. So that it can irrigate an agricultural area of 370 hectares. In calculating the stability of the weir in normal water conditions, the safety figure against rolling is 2,36 and shear is 2,1. When the water is flooded, the safety figure is obtained against rolling 1,75 and sliding 1,8. For soil stress that occurs in the weir body does not exceed the allowable ground stress, which is 32,10 tonnes/m^2.

Keywords: weir, type of lighthouse, stability.

Pembimbing I | **Pembimbing II**

Drs. Nazwar Djali, ST, Sp-1 | **Dr. Ir. Zahrul Umar., Dipl. H.E**