ABSTRACT

EVALUATION OF THE CONCRETE THICKNESS OF THE BASEMENT FLOOR AND IDENTIFICATION OF THE SURFACE ROCK LAYER OF LAMPUNG UNIVERSITY EDUCATIONAL HOSPITAL (RSP UNILA) BASED ON GROUND-PENETRATING RADAR (GPR) DATA

By

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In construction, the thing that must be considered is the reliability of the building, which includes safety, health, comfort, and convenience. Preliminary analysis of the building's ability to support loads is important in the construction of the Unila Teaching Hospital (RSP). In this study, the GPR method was applied to determine and analyze the concrete thickness of the basement floor of RSP Unila and analyze rock layers at RSP Unila. Data processing includes several filters, namely static correction, subtract mean (dewow), AGC Gain, background removal, bandpass frequency, FK-filter, FK-migration, and time-depth conversion which then produces 2D cross-sectional data. Analysis of the GPR profile that has been processed shows that the average thickness of the basement floor concrete layer is about 2 meters. Under the concrete layer, there is a compact layer with an average thickness of 8 meters. The complex layer is found at a depth of 10-32 meters with an average thickness of about 22 meters. The dominant lithology in the rock layers at RSP Unila is clay and there is a mixture of clay-sand, rock boulders, and water fractures.

Keywords: GPR, concrete, rock layers, RSP Unila

ABSTRAK

EVALUASI KETEBALAN *CONCRETE* LANTAI *BASEMENT* DAN IDENTIFIKASI LAPISAN BATUAN BAWAH PERMUKAAN RUMAH SAKIT PENDIDIKAN UNIVERSITAS LAMPUNG (RSP UNILA) BERDASARKAN DATA *GROUND PENETRATING RADAR* (GPR)

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Dalam pembangunan, hal yang harus diperhatikan yaitu keandalan bangunan gedung, yang meliputi keselamatan, kesehatan, kenyamanan, dan kemudahan. Analisis awal kemampuan bangunan Gedung untuk mendukung beban muatan merupakan hal yang penting dalam pembangunan Rumah Sakit Pendidikan (RSP) Unila. Pada penelitian ini metode GPR diaplikasikan untuk menentukan dan menganalisis ketebalan *concrete* lantai basement RSP Unila dan menganalasis lapisan batuan di RSP Unila. Pengolahan data meliputi beberapa *filter*, yaitu *static correction, subtract mean (dewow), AGC Gain, background removal, bandpass frequency, FK-filter, FK-migration dan time depth convertion* yang kemudian menghasilkan data penampang 2D. Analisis terhadap profil GPR yang telah dilakukan pengolahan menunjukkan bahwa rata-rata tebal lapisan *concrete* lantai *basement* adalah sekitar 2 meter. Di bawah lapisan *concrete* terdapat lapisan kompak dengan tebal rata-rata 8 meter. Lapisan kompleks terdapat pada kedalaman 10-32 meter dengan tebal rata-rata sekitar 22 meter. Litologi dominan pada lapisan batuan di RSP unila adalah *clay* dan terdapat percampuran *clay-sand*, *bolder-bolder* batuan dan rekahan air.

Kata kunci: GPR, *concrete*, lapisan batuan, RSP Unila