MEASUREMENT OF CONCRETE LAYER THICKNESS BY USING AN ULTRASONIC TECHNIQUE

by

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ABSTRACT

The objective of this project is to introduce a new technique in measuring concrete layer thickness. Ultrasonic testing is used as an alternative method to the ordinary method such as Boring technique. The effectiveness of the application of the surface wave method is also being studied. The ultrasonic testing will be use on concretes sample at frequency of 50 kHz by using PUNDIT and FLUKE 99 Scopemeter Series II. The use of this concept of multiple correlations for measuring the thickness of concrete is evident both directly for the assessment and control of the concrete quality. Results obtained from measurement by using an ultrasonic method show good relationship with actual thickness of concrete.

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CHAPTER 1

INTRODUCTION

A detailed account of concrete stabilised materials would be incomplete without making brief reference to recent developments in the technology of concrete since there are useful parallels to be drawn. This is especially so in connection with the rigid nature of the lean concrete road bases that are widely used now days, especially in highway.

Any roads on construction must be obeying the standard and quality of roads, especially the rigidity, strength, and thickness of concrete and asphalt layer. Now days a technique was introduced to measure the concrete thickness called "Boring test". In boring test, the concrete will be dredged or excavated by using "Boring" equipment. The thickness of concrete will be measured from the concrete taken out from the Boring equipment. But this technique will destruct the concrete, and it will not be practical to use on the highway.

Method of excavation to enable sampling and testing of the soil include trial pits, hand or mechanical auger boring, percussive boring, wash boring, and rotary drilling. Excavated by hand or mechanically is rapid and economic means obtaining detailed information for depths of up 6 m. They are suitable for exploration areas of shallow cut and fill and for tracing the thickness and lateral extent of superficial deposits of soft soils or fill.