RESEARCH REPORT

A PRELIMINARY INVESTIGATION ON STRUCTURAL BEHAVIOUR OF CONCRETE SLEEPERS

A report submitted to the Bureau of Research & Consultancy
for the requirement of completing the research program

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December 1995

DECLARATION

No portion of the work referred to in the report has been submitted in support of an application for another grant of this or any other agencies.

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ACKNOWLEDGEMENT

The researchers wish to express their thanks to the Bureau of Research and Consultancy, Institut Teknologi MARA, Shah Alam, Selangor for providing a research grant for this project (File No : 600-BRC(5/3/178), Project Code : 10093) ; Keretapi Tanah Melayu Berhad for providing valuable informations towards the success of this preliminary investigation ; and the Departments of Civil Engineering, Institut Teknologi MARA, Shah Alam, Selangor and Universiti Malaya, Kuala Lumpur, for providing facilities to do the experimental work with dynamic loading.

This project will not be possible without the contributions of Mohd Yusoff Sulaiman and Ariffin Ngah. They put a lot of efforts in carrying out the experimental studies.

ABSTRACT

The track is the infrastructure of the railway system. The development of concrete sleeper becomes very important due to increase in train speed and development of long welded rails. Due to this, it is necessary to increase the weight and the strength of the concrete sleepers to resist track buckling and reduce vibration.

The Light Rail Transit (LRT) and Double Tracking Systems for Keretapi Tanah Melayu Berhad (KTMB) taking full turn in easing traffic congestion is a challenge. These systems imparts modern high speed trains producing considerable amount of impact energy to the track and high frequency vibrations in the rails. Concrete sleepers, presently being widely used should absorb these forces that lead to high tensile stresses which develop cracking in these sleepers.

Dynamic behaviour of these sleepers is not much known in Malaysia. It is intended to study the structural behaviour with context of Malaysian system. This preliminary investigation under the positive bending moment test, experimented for structural behaviour of the Prestressed Concrete Sleeper (PCS) under static load and dynamic loads of 1 million, 3 million and 5 million cycles.

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