

DESIGN A PONTOON BRIDGE FOR LIGHT TRAFFIC

Prepared by: Chua Chee Gang

ABSTRACT

The main objective of the project is to design a bridge for light traffic which is supported by the pontoons (pontoon bridge or floating bridge). Light traffic in this study is defined as low traffic volume, so, only low traffic volume will use this carriageway. The pontoon bridge consists of a bridge deck, steel columns and pontoons. Concrete slabs, steel girders and floor beams will be designed for the bridge deck. Reinforce concrete pontoons will be designed.

An introduction regarding on the pontoon bridge including the definition, history background and support systems will be described in the project.

The pontoon bridge will be constructed across the Kelantan River at Tanah Merah – Machang Road ($102^{\circ}09'00''$ E, $05^{\circ}45'45''$ N) with 26m depth and 635m wide. As the bridge deck is used for light traffic, the influence lines for both forces and moment acting onto the deck will be drawn. All the reactions of the supports will also be calculated. In addition to that, layout of the pavement on the concrete slab will be given. The specifications used in this study are based on the British Code (5950, 5400 and 8110) and the arahan JKR Teknik. Also, ways of steel corrosion protection will be discussed.

The pontoons will be designed using Principle of Archimedes to calculate the up thrust force. The pontoon size will be checked with the maximum and minimum water level of the river.