BUILDING SURVEYING DEPARTMENT

FACULTY OF ARCHITECTURE, PLANNING AND SURVEYING

UNIVERSITY OF TECHNOLOGY MARA PERAK

DEFECT INSPECTION AND MAINTENANCE MANAGEMENT OF BRIDGE BY LOCAL AUTHORITY

AUTHOR : NURUL AMILIN BINTI PAUSI

SUPERVISOR : EN. MOHD ZAKI BIN SHAMSUDIN

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ABSTRACT

In Malaysia, the bridges that exceeded 50 years are having a bad condition. The bridge is a construction from several types such as timber, steel, concrete and others which are importance to society today. The bridge is a structure which links between two different places from obstacle or other structure such as roadways, railways, river and others. There are several types of bridges which exist around the world today. The bridges can be classified due to several things such as function of the bridge, the material used, design of bridges and others. Due to many factors making the bridges becomes more dangerous to use. There are many defects occurs that need a proper attentions and cares from local authority. The aim of this research is to identify the effectiveness for maintenance works of bridge at northern area. In achieving the aim, the objectives are to determine the most defects that occur on the bridge and to identify the best approach by PWD to overcome defect at bridge. There are three case studies of bridges are located at northern area that have been chosen to support both of objectives to get the finding. The finding shows that the objective is achieved and the most defects that happened at the three of bridges are at expansion joint and pier. The defects that happen on the pier are on surface defect, crack, corrosion of steel, corrosion of reinforcement and wear/abrasion. For second objective, the finding shows that the PWD also have maintenance planning of bridge which is they carry out the inspection work of bridges for once in a year. They have three types of bridge inspection namely superficial inspection, principal inspection and special inspection. These types of inspection can help the improvement in maintenance management of bridge.

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INTRODUCTION

1.1 INTRODUCTION

The bridge is a construction from several types such as timber, steel, concrete and others which are importance to society today. The bridge is a structure which links between two different places from obstacle or other structure such as roadways, railways, river and others. It becomes importance to ease the track vehicle, pedestrian, and pipes water supply, gas and power supply are placed. It also constructed not only to link between two different places from obstacles, even it also having high aesthetic value and can be attraction to tourist, for example, Penang Bridge and Second Penang Bridge.

There are several types of bridges which exist around the world today. The bridges can be classified due to several things such as function of the bridge, the material used, design of bridges and others. Generally, the materials that used for bridge is commonly are concrete, steel, masonry and timber.

Concrete is mixture of water, sand, aggregate and cement paste are bounded together. Concrete has strength compression but weak in tension. So, to add on the strength of concrete, the reinforcing bars are normally used in construction. While, the steel has more strength in both of compression and tension than concrete. However, steel will be corrosion and deterioration so it will need maintenance work. For masonry, it consists of stones or brick with sand and cements mortar in joints between them. It strength just like the concrete, has strength compression but weak in tension. While timber is only used in temporary bridge structure because the timber can be decay or the insect will attack the structure.