

CHAPTER I

INTRODUCTION

1.1 Background

Road is one of important infrastructure of land transportation which for life development of the nation and state, ,in the unity of the nation, territory of the country, and community functions and in advancing the general welfare as referred in 1945 Constitution of the Republic of Indonesia : Road is part of the national transportation system have an important role especially in supporting economic, social, cultural and environmental fields which are developed region through regional development approaches to achieve balance and equitable development between regions, forming and strengthening national unity to strengthen defense and nation security, and make space structure to realize national development goals.

1.2 History of road network in Indonesia

Road network in Indonesia began in 1808 with the construction of roads between Anyer - Banyuwangi along approximately 1500 km known as Daendles. Daendles's road can be seen in Figure 1.1. [1]

When Indonesia independence in 1945 the length of roads in Indonesia proximately 150,000 km. From the time of independence until 2019 the length of roads in Indonesia has reached 523,974 km, which includes 16,945.15 km of national roads, 28,731 km of provincial roads, and 478,297.85 km of regency / city roads. [1]



Figure 1.1. Maps of north route road in java island

With increasingly rapid economic growth, both goods and passenger traffic continues to grow. In order for transportation to run smoothly and quickly, toll roads have been built since 1973. Indonesia's first toll road is Jagorawi toll road, which stands for Jakarta - Bogor - Ciawi, which began operations in 1978. After that, many toll roads were built and until 2018 in Indonesia there were 897.07 km of toll roads. And in 2019 it is targeted that the length of toll roads in Indonesia will reach 1,854.5 km. Typical existing toll road in Indonesia can be seen in Figure 1.2, where 0.8 m - 1.00 m width of concrete parapet is used to separate the line direction. [1]



Figure 1.2. Typical existing toll road in Indonesia

The construction of toll road in Figure 1.2 is not fulfill the standard of safety of toll road. Toll roads may not have massive and hard separation or parapet in the middle, and must fulfill special technical and geometric requirements which are different from non-toll roads.

1.3. Problem limitation

In this final assignment, some limitation are taken:

1. Type of soil used are all typical of soil according to ASHTOO and Unified System Classification.
2. The traffic volume to calculate the pavement structure, is taken from the traffic volume of North route road of Java (Jalan Pantura Pulau Jawa).

1.4. Objectives of the Study

The objective of the study is to design standard toll road using any type of subgrade soil, and fulfilling the international standard of toll road geometry.

1.5. Scope of the study

To achieve the goal, this study began with a review of the literature on information relating to traffic road on the North route road in Java with a high density. Then determine the value of CBR soil with different values, to determine differences in the resulting pavement design. In this study only counts pavement thickness, not design the drainage pavement, not design roadside only main road, not calculating budget and implementation time, not doing test in the laboratory because data obtained from the relevant agencies.