CHAPTER 3

METHODOLOGY

3.1 Introduction

This chapter explains the methodology that has been done to achieve the objectives listed. The methodology for this study was divided into several phases to facilitate more effective investigation. The first phase of this study was to obtain information about site investigation study area. The next phase will describe a method to obtain a factor of safety of three cross slope was analyzed using conventional methods and using the computer software Geo-Studio (SLOPE / W) version of the student. After the factor of safety of both methods obtained, comparison of both methods will be conducted and the results obtained. Work flow chart shown in the Figure 3.1.
Figure 3.1: Research Methodology.
3.2 Research methodology

Research methodology is divided into four phases. Each phase is divided to achieve the objectives of this study. The first phase is the collection of data for the study area. This process involves the results of tests in the laboratory and also of the cross-section of land in the study area. The second phase is the factor of safety analysis using conventional methods and also computer software, Geo-studio (SLOPE/W). While, the third phase is the comparison between the factor of safety analysis method. And the fourth phase, analysis and discussion. Each phase is described in more detail below:

3.2.1 Phase I: Data collection of area study.

In this phase methodology, site investigation report has been reviewed in order to get information required in the analysis process. All necessary information is obtained from laboratory tests and also the slope of the soil profile. From the results of Standard Penetration Test conducted, the cohesion of the soil 'c' kN / m², the effective angle of friction 'φ', the unit weight of saturated soil' γ 'kN / m, height of water table' Z_w 'meter and surface slope angle earth 'α' degrees was obtained. The data obtained will be used to calculate the factor of safety for slope studied using conventional methods and SLOPE/W.

3.2.2 Phase II: Safety Factor Analysis

This phase describes how the two methods of analysis for the factor of safety for slope studied. There are two methods that run the conventional methods and also computer software. All data required for this analysis was obtained from Phase I.

3.2.2.1 Conventional method

General calculation for infinite slope methods in sand was used to obtaining the safety factor. The calculation for factor of safety analysis of the slopes will be performed on three cross-section of slope failure. Computer software 'Microsoft Office - Excel' has been used to simplify the calculations done while reducing the risk of error.