Soil and rock description for civil engineering purposes: overview on current practice in Malaysia and the need for geological institutions involvement

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Abstrack Panjang (Extended Abstract)

Introduction

The engineering usage of 'rock' and 'soil' differs from geological usage of 'rock' and 'soil'. The value of an engineering rock or soil description is often increased if the materials encountered are placed in the context of the geological structure of the area around the site and for big scale projects. Rock and soil descriptions for civil engineering applications are typically carried out in three main locations:

i. in the field, at a natural or man-made exposure.
ii. in the field, on core or sample obtained from a ground investigation drilling rig.
iii. in the laboratory, on pieces of core or samples before or after the testing were carried out.

The main purpose of soil and rock description for civil engineering purposes is to give an indication of the likely engineering properties of the material. A complete description should comprise a simple soil or rock name, qualified discontinuities and other characteristics as appropriate.

The philosophy of description

Soil and rock description is to a certain degree subjective. In order to minimise the subjective element a systematic examination should be carried out using a standard terminology, whether the material be in natural exposure, trial pit face or samples recovered from a borehole. The use of a standardised scheme of description ensures that:

i. all factors are considered and examined in a logical sequence.
ii. no essential information is omitted.
iii. no matter who describes the sample, the same basic description is given using all terms in an identical way.
iv. the description conveys an accurate mental image to the reader.
v. any potential user can quickly extract the relevant information.

The description of individual samples from a borehole, each sample being described in isolation and in completely factual terms, noting any disturbance or obvious loss of material caused by sampling. Any two geologists of sufficient and comparable experience should produce almost identical descriptions of each sample with only minor differences resulting from, for example, judgement of the proportion of secondary constituents.

Conclusions and recommendations

Guide for soil and rock description in Malaysian practice was not seriously look into by any engineering, geoscience or government organisations. Therefore, there is an urgency need for any geological institutions such as IGM, GSM etc. involvement as they are the right and capable organisation. This task can be carry out based on the following steps:

- IGM/GSM shall set up a steering committee on soil and rock description consists of practitioners, researchers and academicians.
- Upon completion, IGM/GSM shall publish "Guide to Soil and Rock Description in Malaysian Practice" and submit to relevant authority such as SIRIM, CIDB, BEM, IEM, MSIA etc.
- The guide has to be included in Engineering Geology or Soil Mechanics courses in university.

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