

Chairman's Lecture No. 19

Engineering geology of the Ipoh-Simpang Pulai-Gopeng segments of the North-South Highway, Peninsular Malaysia

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Chairman's Lecture No. 19 entitled "Engineering Geology of the Ipoh-Simpang Pulai-Gopeng Segments of the North-South Highway, Peninsular Malaysia" was delivered by Sdr Tan Boon Kong on 5th March, 2014 at the Department of Geology, University of Malaya, Kuala Lumpur.

The Lecture covers the various rock slope problems associated with different lithologies encountered along the highway, namely limestone, granite and schist (Kinta Geology); and how these rock slope problems were overcome. Some post-construction incidents/failures were also discussed, and these include a major debris flow and the failure of an anchored cut-slope. Problematic colluvium was also addressed.

The abstract for the Lecture is attached below.

As usual, there was a lively Q&A session after the Lecture.

Tan Boon Kong,

Chairman, W/G on Engineering Geology, Hydrogeology & Environmental Geology

Abstract: The Ipoh-Simpang Pulai-Gopeng segments of the North-South Highway in Peninsular Malaysia traverse various interesting geologic/rock formations, namely: limestone, granite, schist and colluvial deposits – basically Kinta Valley geology with its famous, picturesque limestone hills. The construction of the North-South Highway in this region encountered a slew of problems which are directly related to the nature of these rock formations and soil deposits. This paper discusses the engineering geologic problems encountered during the construction of the Highway, which, among others, include the following:

- a) Granite rock slope stability,
- b) Limestone hill slope stability,
- c) Stability of cut-slope in schist intruded by aplite dykes,
- d) The problematic colluvial deposits.

Various techniques were used to overcome these problems, and they were by-and-large successful. However, there were also some post-construction failures and incidents, including a major debris flow which damaged part of the Highway. Figure 1 shows a view of the Highway under construction, depicting contrasting geologic formations.



Figure1: North-South Highway under construction, looking north. G. Tempurung (limestone) on the left, schist in cut-slope on the right, and granite further right (Main Range). Colluvium occurs along the Highway mainly as valley fills.

