CERAMAH TEKNIK TECHNICAL TALK

Modified-slope mass rating (M-SMR) system: Application to rock slopes underlain by ultramafic rock in Telupid, Sabah, Malaysia

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The above talk was delivered by P.Geol. Dr Ismail Abd Rahim (UMS) on 14th June, 2023 via Zoom. Some 75 members participated. An abstract of the talk is given below:

Abstract: The Modified Slope Mass Rating (M-SMR) was applied on ultramafic rock cut slopes in Telupid, Sabah, Malaysia. This system was used to characterize and propose preliminary rock cut slope stabilization, protection measures, and recommendation levels for slope re-investigation. The uniaxial compressive strength (UCS), RQD, discontinuity spacing, discontinuity condition, water flow, and discontinuity orientation parameters were assessed using the UCS test, Deere's RQD method, weighted average of discontinuity set spacing, weighted average and statistical mode, weighted average, and new approach of adjustment factor (NAAF), respectively. In this study, six ultramafic rock cut slopes were chosen. The result of the analysis shows that the M-SMR classes for all slopes in ultramafic rocks are classified as class III (moderate), class IV (poor), and class V (very poor). Therefore, it is recommended for slope re-investigation by a well-trained engineering geologist or geotechnical engineer for slopes with class III. Slope re-investigation by an experienced engineering geologist or geotechnical engineer is highly recommended for classes IV. For class V, slope re-investigation by an expert engineering geologist or geotechnical engineer is required. The proposed recommendations for slope stabilization and protection measures are local trimming, surface drainage, horizontal drains and weep holes, systematic bolting, dowels, concrete detention or buttresses, shotcrete, wire mesh or rope nets, and rock trap ditches.

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Tan Boon Kong
Chairman, Working Group on Engineering Geology
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