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**APPLICATION OF THE BLOCK THEORY FOR ROCK SLOPE STABILITY
ANALYSIS AT HIGHWAY SEMENYIH-SG.LONG (SSL), SELANGOR STATE IN
MALAYSIA.**

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ABSTRACT: The granitic rock mass which exists along at the highway Semenyih-Sg.Long (SSL), Selangor state in Malaysia contains a number of major discontinuities, and several sets of minor discontinuities. Therefore, the rock engineering problems of high steep rock slopes are somewhat complicated. The major discontinuities were determined and used to perform a block theory based analysis of the rock slope stability. The orientations of the major discontinuities that occur in the researched area have been considered in this analysis. The orientation of the major discontinuities were as follows (dip-direction/dip-angle): J1:36°/66°; J2:152°/60°; J3:79°/88°; J4:117°/66° and the free-face is ff5:105°/70°. The block theory analysis was used to determine: 1. The key blocks type and potential key blocks type II of the rock slope. 2. Maximum safe slope angle (MSSA) for the rock cut slope at the Highway Semenyih-Sg.Long. Based on the data analysis, the following types of key blocks were determined: type I (keyblock) is the JPs 1000 and JP1100, and type II (potential keyblock) is JPs 1110. The result showed that the maximum safe slope angle

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(MSSA) is 70° for the type I (keyblock) and MSSA is 72° for the type II (potential keyblock). The cut slope along at the highway Semenyih-Sg.Long (SSL) is not stable because cut slope angle 80° and greater than 70° and 72° within fresh granite, and contains these discontinuities; therefore there is a need for installation of a proper support system in order to maintain the long term stability of this rock slope.

Keyword: Block Theory, Rock Slope Stability, MSSA, Highway Semenyih-Sg.Long, Malaysia.