Summary of Decisions of the Structural Engineer
SEC 14/2013 held on 20.12.2013

(a) Case 14/2013

Issue:	Use of 40mm diameter glass fiber reinforced polymer (GFRP) bars as rock dowels for the temporary rock cut slopes
Recommendation:	To accept the use of 40mm diameter glass fiber reinforced polymer (GFRP) bars (40 mm in diameter) as rock dowels for the temporary rock cut slopes with a design life of not more than 2 years subject to the following conditions: (1) The 40mm diameter GFRP bars shall be tested to ensure that the guaranteed ultimate tensile strength and shear strength should exceed 460N/mm^2 and 115N/mm^2 respectively. The mechanical properties of the bars shall be in compliance with the relevant ACI and ASTM standards. (2) The 40mm diameter GFRP bars are to be installed as passive dowels only. The potential rock blocks identified on site on which the GFRP bars are to be installed are already having a factor of safety against sliding of greater than 1. (3) Empirical formula derived from steel bar test results shall be directly applied on the proposed GFRP bars with a factor of safety of 3.16.
Decision:	Noting the justifications provided are insufficient, members did not endorse the recommendation.