Summary of Decisions of the Structural Engineer
SEC 09/2013 held on 08.10.2013

(a) Case 09/2013

Issue: Two Trial Piles (TP1 and TP2) of Steel H-pile grouted in pre-bored holes with post-pressurized grout to take vertical load and lateral load

Recommendation: To accept the design principle of steel H-pile (Grade S450 J0, 305x305x223 kg/m) grouted in pre-bored holes (610mm diameter) with post pressurized grout in CDG to enhance shaft friction for resisting vertical load, subject to satisfactory verification by static loading tests on the two trial piles (TP1 and TP2) complying with the acceptance criteria and the following criteria/ conditions:

1.1 The ultimate shaft grout friction resistance in Completely Decomposed Granite (CDG) shall not exceed 4.8 x SPT "N" with a maximum value of 192kPa (i.e. limit of SPT "N" value of 40).

1.2 A factor of safety (FOS) of 3 will be adopted for calculating the allowable shaft friction resistance.

1.3 A detailed quality assurance proposal on grouting works shall be submitted. It shall specify the measures adopted in controlling grout pressure, volume and time.

1.4 For each grout mix one sample of grout shall be provided from each 10 batches of grout, or every $10m^3$ from the amount of grout produced in a day, whichever is the smaller, to determine the crushing strength of the grout. Sample shall be provided not more than 1 hour after the grout has been mixed.

1.5 Two trial piles, namely TP1 and TP2, will be load-tested. The first trial pile (TP1) with full length welded stiffeners will be tested to 3 times of the pile working load capacity to verify the empirical formula for the soil parameters. The second trial pile (TP2) with an identical working pile details will be tested to 2 times of the working pile capacity for performance test.

1.6 A performance review report of trial pile tests shall be submitted to the satisfaction of the Building Authority upon completion of the static load tests.

Decision: Subject to sufficient quality supervision provided by both the RSE and RSC team of supervisors, members endorsed the recommendation.