THE SEPERATION OF SKIN FRICTION AND END BEARING RESISTANCE OF A DRIVEN CAST-INSITU DETERMINED BY A TELL-TALE SYSTEM

N. Balgunan
National Building Research Organisation, Colombo 5.

The skin friction component and the end bearing resistance of a driven cast-in-situ pile can be predicted based on dynamic formula of soil parameters. Although the pile capacity is predicted from these parameters, one has to confirm the design load after conducting initial and routine pile load tests at site. Sometimes the carrying capacity of a pile can be misleading due to the settlement of the piling material itself. In order to check the quality of the concrete at the tip level to withstand the design load, tell-tale systems are installed at the time of casting the piles.

The tell-tale system used at Paradeep site in India, proved to be simple, economical and accurate enough for all practical purposes. Tests on tell-tale pile was performed using a slow maintained load (ML) incremental procedure with load-unload cycles. Load vs settlements curves were analysed using German DIN 1054 Code. It was interesting to find that the measured ultimate skin friction of 62.5 T is in good agreement with predicted value of 65.2 T. Tip settlement for a maximum load of 85 T was 1.94 mm which was 55% of the gross settlement. The tell-tale system further revealed that the degree of uncertainty whether the routine pile can take the design load of 55 T was within 20%.