

The Secretary,
The Institution of Civil Engineers.

DEAR SIR,

Since the bearing capacity of foundations is influenced considerably by the method of installing the foundations, it is unfortunate that the authors of the paper "Some Tests on Bored Piles" (*Géotechnique*, IV : 1 : 32) did not describe how their piles were installed and constructed. Without that additional information, the authors' interesting findings lose much value and cannot safely be used for the general design of bored piles. The writer knows from private communication by the senior author that the procedure of installing the present piles differed significantly from that used by Meyerhof and Murdock (1953) who formed their test piles by casting concrete in unlined auger boreholes. Drs Meyerhof and Murdock clearly stated that their method of estimating the bearing capacity of bored *in-situ* piles applied only to that particular procedure of installation, which had also been widely used for house foundations in England and abroad (Ward and Green, 1952). To date, about 80 loading tests to failure have been made on such piles at six sites in the London area and the results agree closely with the method first published by the writer (1951).

While the authors' two-pile loading tests to failure on a single site are insufficient to judge the merits of different methods of estimating the bearing capacity of their present type of piles, the writer would suggest that the average reduction of the shear strength by 30 per cent, as proposed by the authors, to furnish the adhesion between concrete and clay, is unlikely to hold generally in practice. In an earlier paper (1951), the writer has shown from an analysis of driven (concrete, timber and steel) piles that the shear strength of clays is fully mobilized along the shaft, with an upper limit of adhesion of about 2,000 lb. per square foot, which was further supported by the subsequent driven pile loading tests by Meyerhof and Murdock (1953). Similarly, the writer would now suggest that in the authors' piles the shear strength of the clay is fully mobilized along the shaft in the upper portion and in this way he finds that for both piles the limiting adhesion is about 1,500 lb. per square foot for the present method of installation. If this suggestion is correct, no reduction in shear strength would be necessary for similar piles embedded in soft and firm clays. On the other hand, loading tests on auger bored *in-situ* piles has shown (1951, 1952, and 1953) that the adhesion on the shaft is limited to about 500 lb. per square foot (range of 300 to 700 lb. per square foot). The above wide limits of the adhesion clearly indicate the importance of the particular piling technique on the skin friction mobilized and the bearing capacity obtained.

In analyzing the results of the plate loading tests at the bottom of the boreholes, the authors do not appear to have made any allowance for the weight of the excavated soil before deducing the net bearing capacity of the plates. If this inference is correct, the observed bearing capacity factors K would be reduced by about 10 per cent, and thus K would be equal to about 9 for test series A and about 10 to 12 for series B. Considering the variability of the shear strength, these results confirm similar experiments made elsewhere and are in reasonable agreement with plastic theory (1951) which indicated that K is equal to 9.3 for a rough circular plate at the bottom of an unlined borehole (approached by series A) and K is equal to 9.7 for a lined borehole (approached by series B).

Yours faithfully,

G. G. MEYERHOF.

REFERENCES

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