

Plate Bearing Tests, Sutton

BACKGROUND

Southern Testing were contracted to carry out a ground investigation and advise on foundation design for 16 storey tower blocks on chalk. Due to the high column loads, the designer initially assumed that piled foundations would be required. However, the results from boreholes indicated that good quality chalk was present from near ground level and that raft foundations might be feasible.

The advice of CIRIA C574, 'Engineering in Chalk' is that consideration should be given to shallow foundations on chalk, in preference to piled foundations. However, with maximum bearing stresses exceeding 500kN/m², detailed assessments of the quality of the chalk and settlement characteristics were vital.



INVESTIGATION

Large trial pits up to 4.5m deep were excavated in which 500mm diameter plate bearing tests were carried out in accordance with the detailed procedures advised by CIRIA C574.

The chalk was loaded to pressures of up to 1000kN/m². Specialist stratigraphic chalk logging to, carry out detailed stratigraphy, scanlines of fractures and assess the CIRIA chalk grade was carried out.

RECOMMENDATIONS

The results determined that the chalk at raft founding levels was Grade A2/B2 and settlements were very low. This enabled the adoption of a raft solution resulting in a substantial cost saving to the Client and enabling an acceleration of the construction programme.

