

Slope Stability Investigation

The site, located in southeast London, comprised a 5-storey block of flats. Significant movement had occurred on the eastern flank wall. The property overlooked sloping gardens and areas that were overgrown and vegetated with trees. Less significant movements were also noted elsewhere in the form of minor cracking of brickwork.

The site was located close to the junction of the Claygate Beds and the underlying London Clay. Slopes fell away quite abruptly at around 18-20° and presented challenges for access with ground investigation plant and equipment.

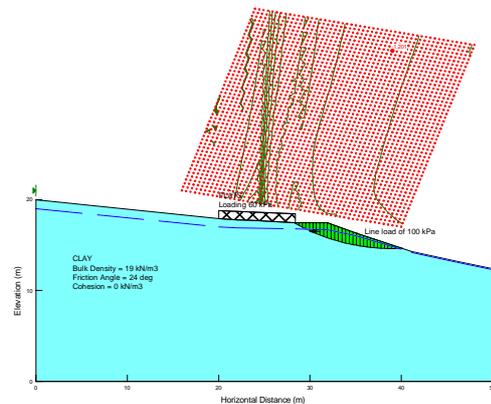


Investigation

We designed and undertook a ground investigation to assess the likely causes of the noted foundation movements and to provide recommendations for remedial measures to the building.

Boreholes were drilled in the slipped area with installation of slip indicators and inclinometers to monitor slope movement, and standpipe piezometers to monitor groundwater conditions. The soils encountered typically comprised very high strength London Clay with shear surfaces noted at depths of between 2.5-3.7m. Stability analysis was undertaken for the “original condition” assuming a first time slide condition under various assumed piezometric conditions to establish the sensitivity of the slopes to a fluctuating water table condition.

The second model analysed considered the “current condition” which assumed that residual shear strength soil conditions existed within the upper 4m. The analysis indicated highly marginal and/or unsatisfactory factors of safety for both soil models and recommendations were made for remedial measures.



Remedial Design

Various remedial options were considered and integrated into an overall structural remedial design. These included:

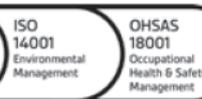
- Drainage of the slopes, together with regrading of the slopes to reduced angles.
- Soil nailing with / without slope drainage.
- Contiguous bored pile wall with or without drainage of the slope and with/without tensioned ground anchors.
- A system of spaced piles with or without ground anchors and no drainage
- Ongoing monitoring of instrumentation

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