

## BACKGROUND

The National Theatre represents one of the South Bank's iconic engineering structures.

Southern Testing were appointed to undertake the ground investigation for a proposed basement and two to three storey extensions to the rear of the existing structure.

## GROUND INVESTIGATION

The Ground Investigation comprised a series of cable percussive boreholes to depths of up to 25m bgl, with installation of monitoring wells and equipment to establish the ground and groundwater conditions within the proposed construction area.

Soils encountered comprised Made Ground overlying Alluvial soils, River Terrace Deposits and London Clay. As the proposed basement construction level was approximately 5 metres below ground level, groundwater ingress into deep excavations was identified as a potential problem.

Groundwater monitoring was undertaken over a long-term period using data loggers installed within standpipes in the River Terrace Deposits and piezometers within the London Clay.

Tidal variations within the River Terrace Deposits were also observed, indicating that a hydraulic continuity existed between these materials and the River Thames.

## ANALYSIS

An interpretative report, based on the results of a Desk Study, Ground Investigation, Geotechnical Testing and Groundwater Monitoring programme was provided with detailed information relating to:

- Foundation and Retaining Wall design.
- Settlement Analysis.
- Dewatering of basement excavations.
- Disposal criteria for excavated soils and groundwater.

