

# Trackbed Monitoring - Kidbrooke

CLIENT: NETWORK RAIL/COSTAIN

## Safeguarding South East London railway track during piling works at adjacent construction site

### Challenge

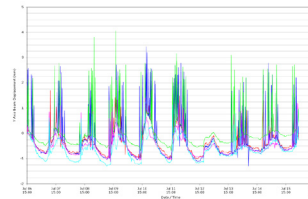
A large property development next to Kidbrooke Station in South-East London involved an extended programme of piling within close proximity to the railway. In order to be kept informed of any impact on the track Network Rail/Costain commissioned a monitoring exercise.

It was decided that both tracks would be monitored for cant and twist along a 225 m length of track. Costain opted for a wireless monitoring solution rather than an optical survey one because more site visits would have been needed, for example to check and clean prisms. They used Senceive's standard dual axis high precision tilt sensors because of their robustness and suitability for tough conditions at sites where contraction and maintenance activity is taking place.

### Solution

The sensors were placed at standard 3 m centres on the track closest to the area of potential movement and at 6 m centres on the zone farther away. A monitoring duration of approximately 16 months was planned.

A total of 113 nodes with two solar powered 3G gateways were installed in a single shift to provide a wire and mains-power free solution. Sensors were fitted with protective aerial caps to ensure resilience to passing traffic and other activity. They provided high precision monitoring at 0.053 mm/m on a nominal 1.435 track gauge, with extremely high repeatability.



Cyclic pattern in data due to deformation when train at platform



### Outcome

Multiple alert levels were set up for the Network Rail and Costain engineers on email and SMS/text. Data were made available in real time for authorised users on Senceive's easy to use and remotely accessible WebMonitor software.

Data showed an interesting periodic pattern of deformation/settlement of up to 4 mm at certain times of the day. Once analysed, it was concluded that this deformation corresponded to trains being at standstill when waiting at the platform. This demonstrated the sensitivity and reliability of the Senceive system.