



The King's Cross Light House

Client: Balfour Beatty

About the Project

The Light House building is an iconic grade II listed Victorian structure located in the heart of the King's Cross Central redevelopment zone. Refurbishment work has created over 16,303 square foot of high quality office space. The structure was built above both Network Rail and London Underground tunnels, introducing engineering complexity to the project.

Approach

The close proximity of the structure to the NR and LU tunnels demanded a complex engineering solution, involving the careful management of the structural loading around the delicate cut and cover brick arch structures. To monitor progress during these operations Plowman Craven's specialist engineering team was commissioned to monitor the structure for vibrations and structural movement.

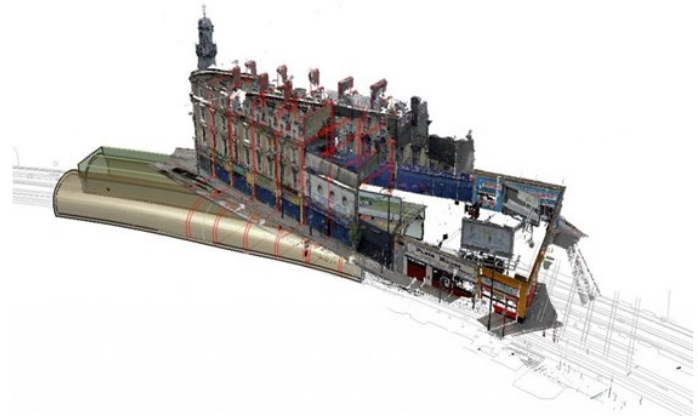
To meet the vibration monitoring requirement, nine Vibration Monitors were permanently installed on the basement slab of the building. These monitors were used to detect the vibrations caused by piling and demolition work, and were also able to record the vibrations caused by train movement below being transmitted into the building.

The data from the system was processed on a real-time basis, and an automated alarm warning system was established to control the potentially damaging vibrations caused by site operations.

Structural movement of the building facade was monitored using high accuracy Total Stations, recording data from prisms mounted externally. Precise levelling techniques were used to monitor the deflection of the critical support beams spanning the tunnel.

Instrumentation and Services:

- 3D Monitoring
- 9 Automated Vibration Monitors
- Correlation Survey
- Precise Levels
- Setting Out
- Tunnel Laser Scan



About PC Monitoring

PC Monitoring provides manual and automated monitoring to the construction industry. With a forward-thinking and progressive approach, we deliver expert advice and practical benefits to clients requiring complete and seamless monitoring solutions.

Our construction monitoring services are also fully integrated with PC Enviro, Plowman Craven's environmental monitoring division for centralised installation, management and delivery of a complete package.

PC Monitoring

115 Southwark Bridge Road, London SE1 0AX
Tel: (0) 20 7490 7700

Plowman Craven

2 Lea Business Park, Lower Luton Road, Harpenden, Herts. AL5 5EQ
Tel: +44 (0)1582 765566 www.plowmancraven.co.uk