Tottenham Court Road Station Upgrade  
London Underground, Ltd.

**Independent Category 3 Design Check of SCL / NATM Tunnels:**

The Tottenham Court Road Station is being upgraded to increase capacity so as to better accommodate current and future commuter needs. At the same time, the upgrade will minimize passenger journey time and improve the quality of access within the station. The upgrade will include a new concourse tunnel, escape tunnels, cross passages, interchange tunnel, and connector stub tunnels.

Gall Zeidler Consultants (GZ) performed a Category 3 Independent Design Check of the Sprayed Concrete Lining / New Austrian Tunneling Method (SCL / NATM) for the project. The check included evaluating the geotechnical conditions and design parameters, construction sequences, excavation and support details, construction details, numerical analyses, waterproofing details, monitoring proposals and a review of the designer’s hazard and risk assessments.

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**Figure 1.** Excavation and Primary Lining completed for new Central Line over-bridge. (Courtesy of London Underground Ltd.)

**Figure 2.** Interior of Tottenham Court Road Station.

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**Location:** London, United Kingdom  
**Date:** 2008 – 2011  
**Structure:** Concourse Tunnel, Cross Passages, Escape Tunnels, Stub Tunnels, Interchange Tunnel  
**Length:** Concourse Tunnel: 34.5 feet (10.5 meters) Wide, 35.5 feet (10.8 meters) High; Cross Passages: 16.5 feet (5 meters) Wide, 20 feet (6 meters) High  
**Cross-Section:** Escape Tunnels: 16.5 – 20 feet (5 – 6.5 meters) Wide, 19 – 20 feet (5.8 – 6 meters) High  
**Geology:** Fill, Terrace Gravels, London Clay, Lambeth Group  
**Cost:** Estimated US $176 Million  
**Client:** Halcrow Group Limited  
**Owner:** London Underground, Ltd. (LUL)