



## King's Cross Station Redevelopment London Underground Ltd.

<b>Location:</b>	London, United Kingdom
<b>Date:</b>	2002 – 2008
<b>Structure:</b>	Station Upgrade, Escalators, and Concourse Tunnels
<b>Length:</b>	1,500 feet (457 meters)
<b>Cross-Section:</b>	Up to 880 square feet (82 square meters)
<b>Geology:</b>	Fill, London Clay, Lambeth Group (Clay); Groundwater Table Above Tunnel Roof Level
<b>Cost:</b>	Approximately US \$130 Million
<b>Client:</b>	Metronet Rail SSL
<b>Owner:</b>	London Underground Ltd.



Figure 1. Historic train shed of the King's Cross Railway Station above new and existing underground station tunnels.

### Excavation and Tunnel Support System – Consulting Services, Site Support:

Plans for the upgrade and improvement of three historic London Underground stations called for new pedestrian link, escalator and concourse tunnels above and between the station tunnels. There are historic buildings, an active railway terminal station, and shallow cover above the construction area.

Sprayed Concrete Lining / New Austrian Tunneling Method (SCL/NATM) techniques were employed for the tunnel construction. For settlement mitigation, compensation grouting was used beneath historic buildings.

Gall Zeidler Consultants (GZ) provided an independent review of excavation and support systems for the new structures, and further advised on the waterproofing and permanent lining. GZ provided support for contractual and technical decisions and formed part of the site assurance and inspection team.



Figure 2. Temporary spur tunnel with shotcrete single pass lining.