

RAILWAY

STRATEGIES

Completing the circuit

London Overground bridges the gap

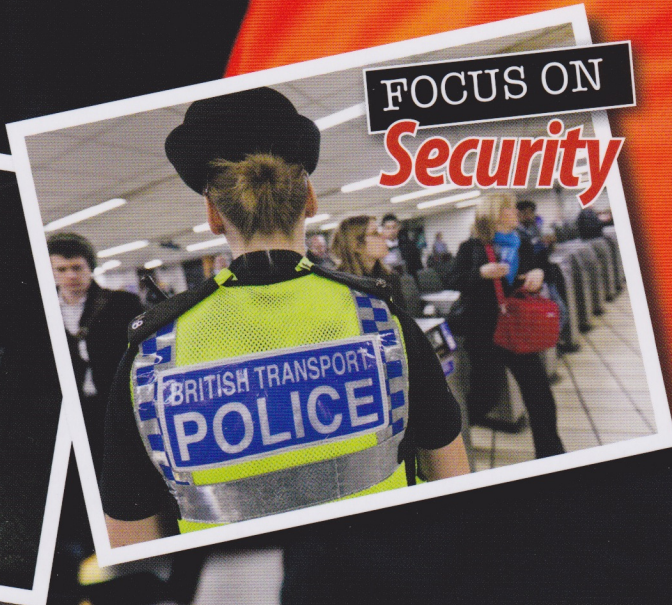
On board with innovation

Network Rail's STEVE YIANNI explains how innovative thinking is coming to the fore

FOCUS ON Engineering



FOCUS ON Security



NEWS

30-year Rail Technical Strategy launched

London Bridge redevelopment plans unveiled

Virgin continues on WCML

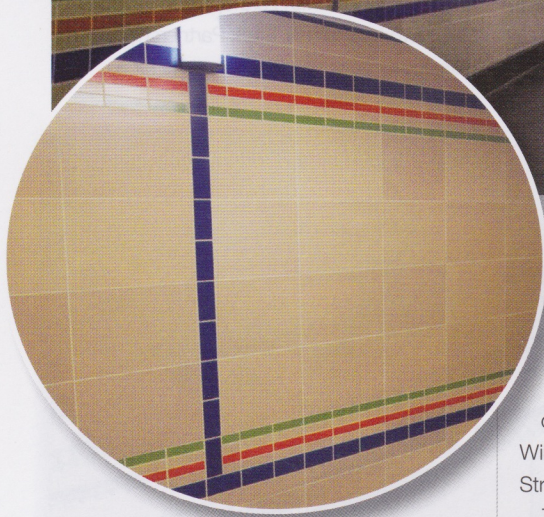
ScotRail extension announced

Southern to procure rolling stock

Borders rail line construction to start

LOROL's fifth anniversary

Heritage restoration with added strength: Monument pedestrian subways



*London delights in contrasting the old with the new, especially when it comes to rail. Refurbishment of the pedestrian subway system at **Monument Tube station**, just across the Thames from the towering glass of the Shard at London Bridge station, is the latest example of the trend as **DUNCAN MACLEAN** describes*

Monument station is the eighth busiest on the Underground network, handling 72 million passengers a year. Its pedestrian subway system also copes with shoppers and workers avoiding the congested road intersection between King William Street, Gracechurch Street, Cannon Street and Eastcheap.

Transport for London and the Corporation of London commissioned a £1.5 million refit of the subways with a keen eye on faithfully restoring its 1930s Art Deco styling. The move was also spurred by the need to strengthen the fabric of the tunnels, which had received little or no attention for over 75 years.

The Monument Underground station was built in 1884, and then linked to Bank station in 1933. The complex had survived a direct hit in the Blitz, but a direct hit from a number 141 bus in 2010 prompted urgent action. The refurbishment plan was intended to marry modern strengthening to 1930s charm.

The author's company, having won the contract, under the supervision of Term Maintenance Contractor Ringway Jacobs, researched and sourced materials to match the original décor. The glazed terracotta or faience tiles of the subway were sourced back

to their original manufacturer, Shaws of Darwen, in Lancashire, who manufactured tiles to closely match the originals. The tiles had lasted surprisingly well, though suffered from extensive cracking, probably the result of a German bomb in 1944. Additional cracking may



have been caused by movement between the bridge spanning the District line tracks and the structure on either side.

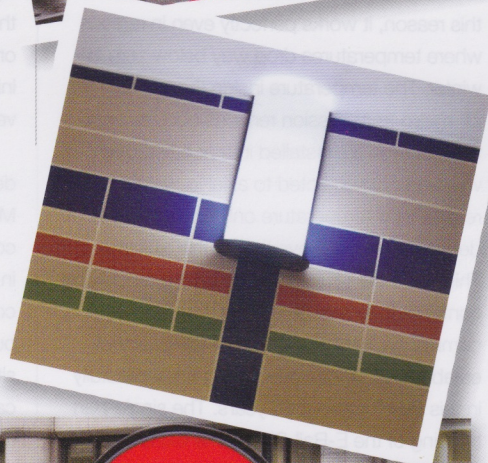
The first task was to remove the tiles and fixing mortar. The underlying walls were mostly poured concrete, in poor condition in places, but the wall suspended over the westbound platform was constructed of now fragile fletton brickwork. Approximately 20 tons of material had to be removed.

Further work included restoration of period bronze signage, carried out by local specialist Rupert Harris of Bow. Original bronze handrails were taken down and shipped to Norwich for restoration and repair by F W Hall & Sons Ltd.

Most challenging was the restoration of granite plinths supporting cast bronze parapets at street level. One of these had suffered two collisions with runaway buses.

The initial plan was to replace the granite with new stones quarried close to the original source in Scotland. This option was finally rejected on grounds of cost and strength: granite stones could easily be dislodged or damaged and cause serious injury to pedestrians in the event of another accident.

Two high strength reinforced concrete beams were cast in complex formwork resembling the ribs of a Viking longship. The finished beams were clad in a terrazzo material mixed and polished to replicate the



original granite – Duncan calls it “heritage with strength”.

New parapets were cast in spheroidal steel to provide a greater degree of impact resistance – enough to cope with the impact of another bus – while faithfully replicating the original decorative bronze castings.

Replica lights were commissioned to the original 1930s design, but powered with LEDs. Holophane diffusers were fixed to a new cable management system along the soffit to provide a high level of even lighting. All cabling now runs through the system, allowing for easy maintenance access.

To complete the period restoration two new London Underground roundels were commissioned, to the iconic 1930s design.

Whether or not the Monument now finds itself featuring in TV period dramas, it is an undoubted transformation and the ghost of Monsieur Poirot would not be out of place. ■■



Duncan Maclean is director of Rhinoceros Limited