



## TUNNEL WATERPROOFING FOR THE NATIONAL GRID

### Resin Injection Tunnel Waterproofing up to 63-Metres Below Ground

#### THE LONDON POWER TUNNELS

Starting in spring 2020, the [London Power Tunnels](#) is an immense seven-year and £1 billion project by the National Grid to rewire South London via deep underground tunnels.

Most of the electricity supply in South London is currently transmitted through underground cables, traditionally found just below the road surface. However, work to maintain them is carried out at street level and can be disruptive.

By housing new, high-voltage cables in deep underground tunnels, the benefits include:

- Less disruption during construction as the majority of works will take place deep underground
- Future repairs and maintenance work can be carried out without disrupting traffic, residents and businesses
- Additional cables can be installed in the tunnels to meet future demand

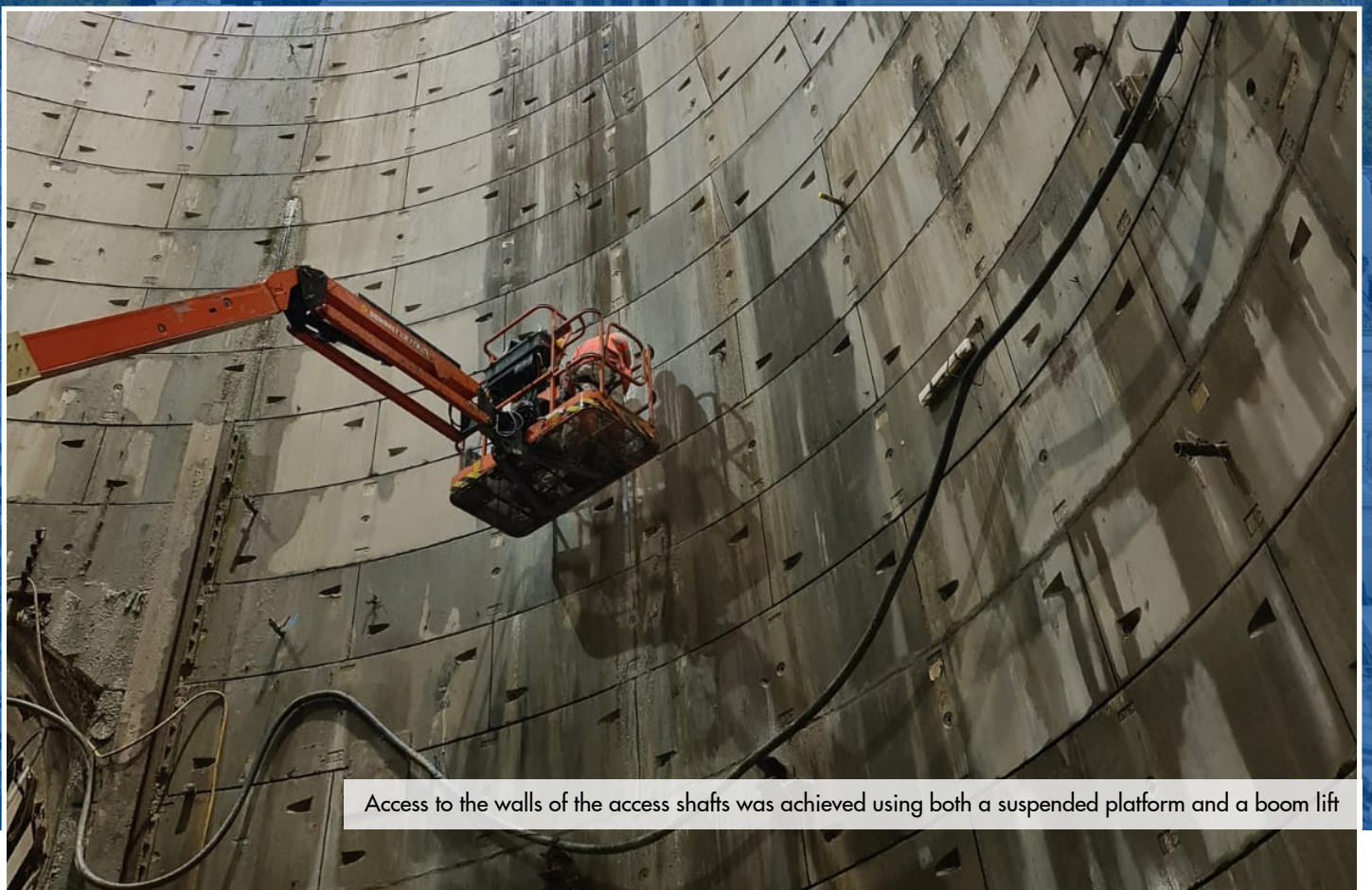
The new tunnels will upgrade the network's capability to ensure it is ready for London's future energy needs



Massive shafts provide access for the Tunnel Boring Machine



The access shafts were also constructed of concrete segments that required waterproofing



Access to the walls of the access shafts was achieved using both a suspended platform and a boom lift

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### PROJECT SCOPE

Designed by engineers [AECOM](#), the 32.5km of 3m diameter tunnels are being constructed deep below the roads, rivers, canals, and tube lines between Wimbledon and Crayford.

At a depth varying between 10m and 63m below street level, the tunnel also required the construction of multiple vertical access shafts along the route. These ranged from 9m to 15m in diameter and up to 55m deep, allowing the specialist team from [ASF Waterproofing](#) to safely access the tunnels and carry out the resin injection waterproofing.

The tunnels are constructed using a tunnel boring machine (TBM) that places precast and interlocking concrete segments against the tunnel walls. The segments are fitted with a rubber gasket to seal the joints, however this is sometimes dislodged, damaged or not seated properly, resulting in seepage of ground water under considerable hydrostatic pressure.

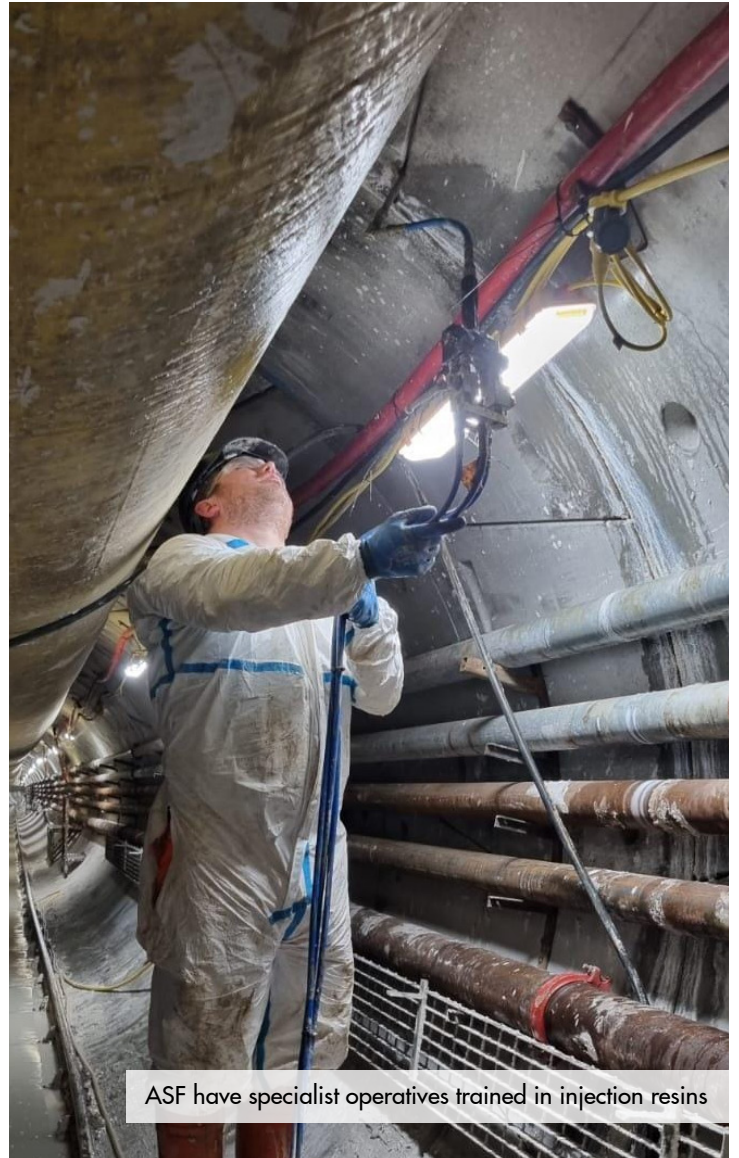
ASF Waterproofing Specialists were appointed by the [Hochtief Murphy Joint Venture](#) to undertake resin injection of these joints to seal them against water ingress.

### THE SOLUTION

As experts in below-ground injection resin waterproofing, ASF Waterproofing were able to bring their considerable experience to bear on this project too. Utilising a variety of products, such as our exclusive range of advanced [acrylic injection resins](#) from TRADECC, ASF were able to waterproof the joints, providing a Type B solution in line with Section 11 of [British Standard 8102:2022](#) for waterproofing.

### THE RESULT

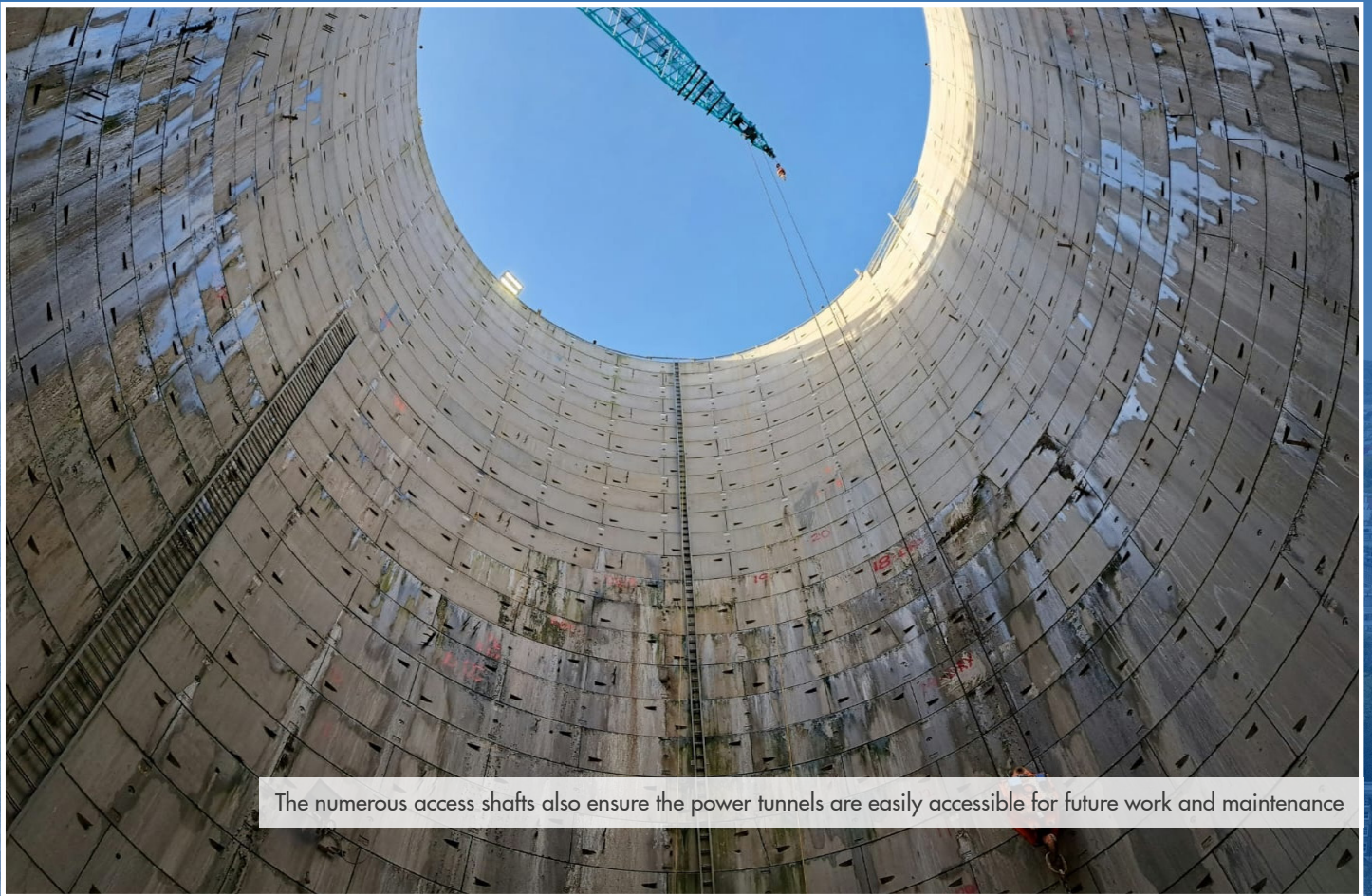
ASF Waterproofing were engaged in Phase 2 of the London Power Tunnels project for 3 years, ensuring that all joints in the tunnel and access shafts were fully sealed against water.



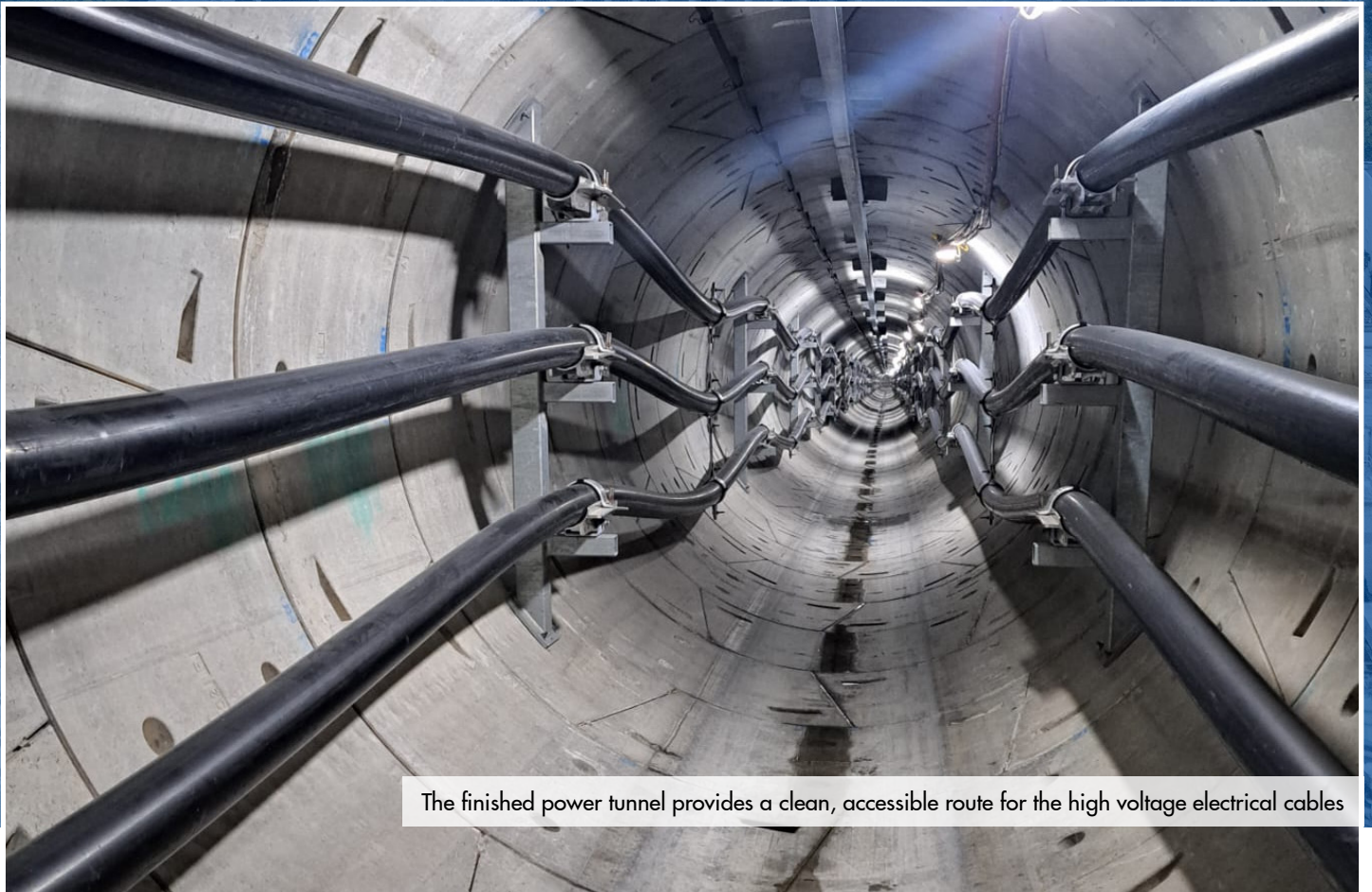
ASF have specialist operatives trained in injection resins



Injecting the walls of the access shafts also presented a logistical challenge for transporting the materials



The numerous access shafts also ensure the power tunnels are easily accessible for future work and maintenance



The finished power tunnel provides a clean, accessible route for the high voltage electrical cables

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### TESTIMONIAL

"ASF have been engaged in the London Power Tunnels project by the Hochtief Murphy Joint Venture for almost 3 years, providing:

- Leak Injection
- Waterproofing
- Labour Supply
- Specialist Material Supply

ASF have consistently delivered their services to a high standard, always reacting well to short timeframes and always willing to help out wherever they can.

I can recommend ASF for any project, they always give their all to find the most suitable solutions."

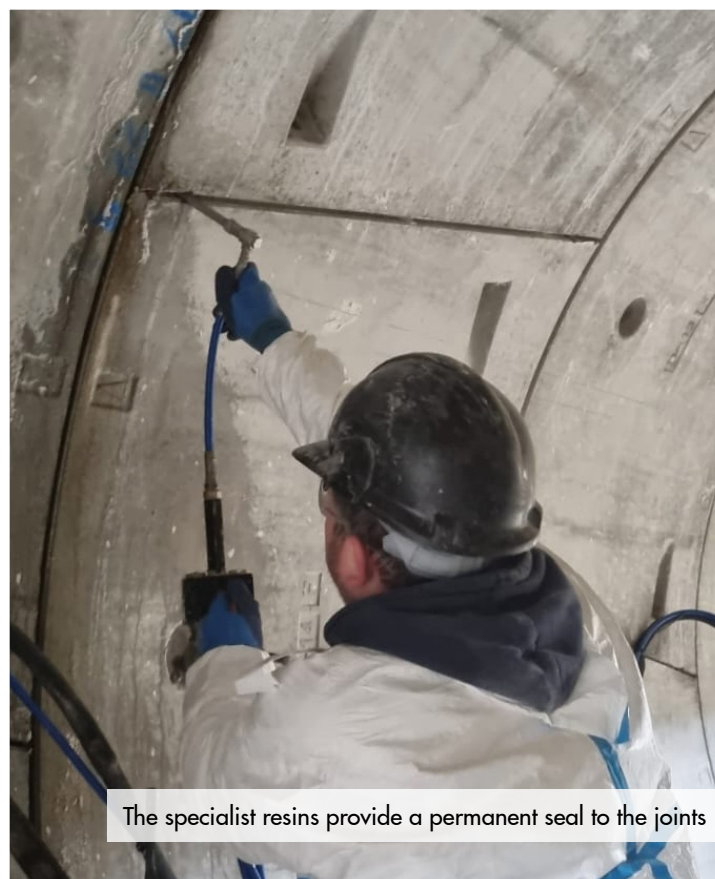
Chris Ashton, LPT2

### PRODUCTS

- [PC 509 Z Acryl](#) - Four-component, elastic acrylic resin with low viscosity.

### NEWTON CONTRACTOR

ASF Waterproofing Specialists



The specialist resins provide a permanent seal to the joints



Final checks and injections after the tunnel was completed

## Newton Specialist Contractors

We recommend that our systems are installed by one of our nationwide network of Specialist Basement Contractors (NSBCs). Trained by us, NSBCs offer a full guarantee on the design and installation, and can act as Waterproofing Design Specialists.

