Barhale

# Battersea to Barrow Hill

| | |
|---|---|
| **Client:** | Thames Water |
| **Location:** | London |
| **Value:** | £591,291 |
| **Duration:** | 12.5 weeks |

## In Brief...

As part of the AMP7 Tunnels and Aqueducts Programme, Barhale inspected and repaired the 6.8km long Thames Water Ring Main (TWRM) section between Battersea and Barrow Hill. The team replaced or removed pressurised assets on the main, and successfully repaired leaks at over 73 locations, during an outage closely coordinated with Thames Water. The works were completed within budget and programme, and with zero lost time injuries over 3081 man-hours despite the high risk nature of the works.

*High integrity gate valves in the basement of Barrow Hill shaft*

*Installation of new air release pipework in Park Lane*

## Technical Features...

The 2.65m diameter wedge block tunnel was 6.8km in length. As part of the scope of works, Barhale were contracted to replace or remove the following pressurised assets:

**Battersea:**

- Replacement of corroded bolts on Air Release Pipework
- Replacement of Air Release Valve
- Replacement of Dosing & Sampling Lines
- Removal of Communications Cables
- Replacement of Air Release Pipework on Tunnel Access Cover
- NDT on Sump Canister

**Park Lane:**

- Replacement of Flange Adaptors in two locations
- Replacement of Dosing & Sampling Lines
- Removal of Communications Cables
- Repair of Leaking Valve on Bypass Pipework
- NDT on Sump Canister
- Replacement of HIGV Drain Valves in Park Lane Shaft.
- Replacement of the existing Air Release Pipework in Park Lane Shaft
- Replacement of 2 x Gate Valves on the Air Release Pipework in Park Lane Shaft.
- Replacement of 2 x Air Release Valves on the Air Release Pipework in Park Lane Shaft.

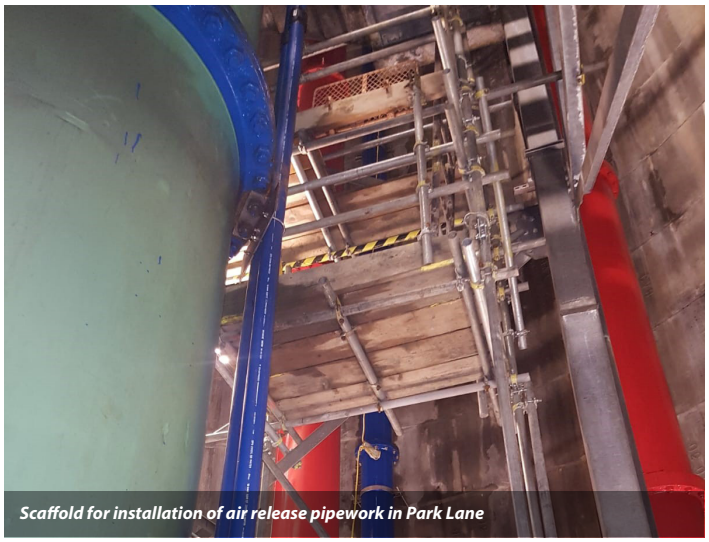
**Barrow Hill:**

- Replacement of Dosing & Sampling Lines
- Removal of Communications Cables
- NDT on Sump Canister

In addition, Barhale also carried out repairs at 73 locations, for leaks identified during a walkthrough visual inspection with the Thames Water Reservoir Engineer. These ranged from minor drips, running leaks, sections of spurting ingress, and a number of significant leaks. The leaks were repaired by injecting resin Tampur 125 Parts A & B. The injection holes drilled in the wedge block tunnel were then filled with Sika Cement.

## Client benefits...

The team delivered time and cost efficiencies by working closely with Thames Water to arrange the outage. This was the first time since the construction of the Thames Water Ring Main that these two sections were isolated together. Thames Water managed the outage shortfall by utilising other areas in the network, while Barhale assisted with the valving. This dual section outage reduced the required mobilising and demobilising times, with a positive impact on time and cost-savings.



*Scaffold for installation of air release pipework in Park Lane*

*Dosing ring inside TWRM*

## Client Benefits Cont...

The team also innovated to reduce project costs and increase safety. Temporary works designs were required for the Battersea, Park Lane & Barrow Hill lifting beams to prevent the need for a crane on site. To enable the removal of the tunnel access covers, a section of the landing directly above the cover was removed. Timber pads measuring 1m x 600mm were installed on either side of the opening and a 3-Tonne lifting beam was secured to the pads. The concrete beams supporting the landings were calculated to be suitable for lifting the 800kg tunnel access covers. A 3T chain & block was used to lift the tunnel access cover.

The team achieved an excellent HSEQ performance despite the confined space and high risk nature of the works. These entailed, among others: using a crane to lower equipment into Park Lane Shaft; using a crane to lift and remove the existing Air Release Pipework and lower the new pipework into Park Lane Shaft; and working at height within the Battersea/Park Lane & Barrow Hill Shafts. Yet, the team achieved 0 lost time injuries over 3081 man-hours.