

HS2 South Ruislip Ventilation Shaft (UK) Shaft Waterproofing

Country	United Kingdom
Type	Railway
Client	High Speed Two (HS2) Limited
Main Contractor	SCS JV (Skanska Costain STRABAG), Joseph Gallagher Ltd.
Execution of the work	Renesco UK Ltd.
Designer	Design House JV (Arup, Typsa, Strabag)
Construction Period	2022-2023

Project Description

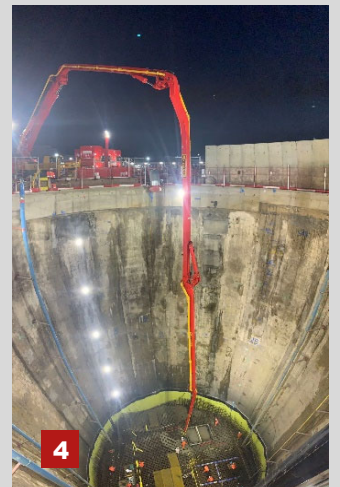
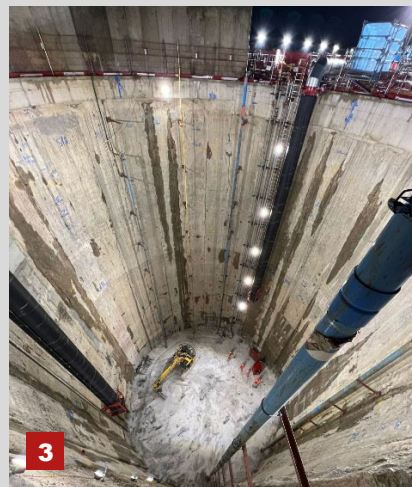
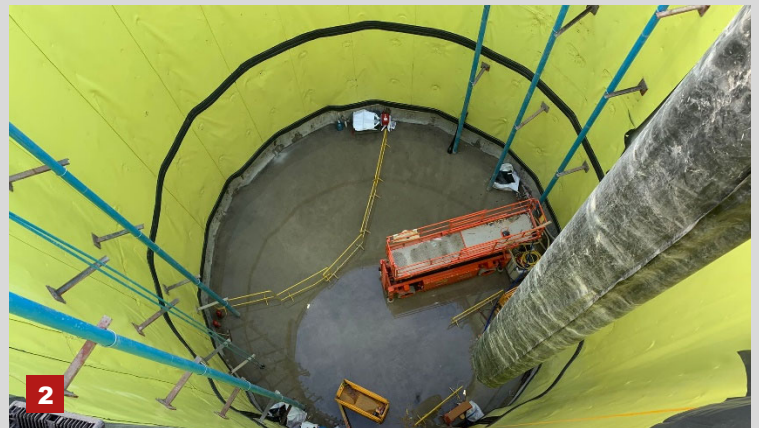
High Speed 2 (HS2) is a planned high-speed railway running between London in the South and Manchester and Leeds to the North. Phase1 involves the route between London and Birmingham with approximately 200km of new high-speed rail being laid. The two Main Works Civils lots start from Euston Station in London. S1 includes two 9 km twin bored tunnels between the new HS2 stations, Euston and Old Oak Common. S2 continues from Old Oak Common with 15 km of twin bored tunnels to West Ruislip where there is approximately 5 km of open route before transitioning into C1 lot.

The ventilation shaft at South Ruislip (35 m depth) is located on the Chiltern line embankment, one of four vent shafts in the 13.5 km section of the Northolt Tunnel between Old Oak Common station and the West Ruislip portal. Part of the project is also a satellite shaft, adits and cross-passages.

Scope of Service

An external waterproof membrane around the shaft, applied below the shaft base and between the primary and secondary lining of shafts and adits. The external membrane wraps around the ventilation basement and connects to the two shafts. Membrane to be lapped with the tunneling interfaces at satellite base and shaft passage interfaces.

- Shaft waterproofing
- Sheet membrane, PVC-P, 2mm
- 1'200g/sqm PP protection geotextile
- Protection sheet membrane, 1.5mm
- Water barriers, 400/30/6, PVC-P
- Termination at pre-cast-concrete-elements with adhesive strips/tapes
- Injection system, active control sockets, injection hoses, hydrophilic swelling profiles
- BA-Anchors
- Temporary underslab drainage



1. D-wall excavation/ Job-Site
2. Satellite Shaft
3. Main Shaft Excavation Finish
4. Base Slab Pour