

Project Title

Guadarrama Tunnel
Madrid-Galicia HST Line, Spain

The 28.4km long Guadarrama Tunnel, costing €1.1 billion, is a key part of the strategic high speed rail link between Madrid and Valladolid. The tunnel accommodates the Madrid - Galicia high-speed line as it traverses beneath the Sierra de Guadarrama between Soto del Real and Segovia.

The tunnel is being constructed through predominantly competent igneous and metamorphic rocks (88%) though it is required to traverse numerous dykes (8%) and faults (4%).

The tunnel comprises two 9.5m Ø bores, each carrying a single track, with a 30m separation. Cross passages linking the two bores are provided every 250m.



TBM at factory prior to delivery

The project is divided into four separate lots with the Works for each lot being undertaken from one of the four separate portals. Concurrent tunnelling with TBMs on all four faces suggests that on “break-through” each pair of TBMs will be stripped and abandoned; the skin of the TBMs forming part of the tunnel lining (a cast in-situ lining is usually cast within each skin).

Tunnelling is being undertaken using four Hard Rock Telescopic Double Shield TBMs, two manufactured by Wirth-NFM and two by Herrenknecht; the TBMs are approximately 15m long and are articulated at the mid point. The tunnel lining comprise a 320mm thick by 1600mm wide ring formed of eight pre-cast concrete segments.



Erection of TBMs at Tunnel Portal

Insurance Claims Consultants are providing expert tunnel engineering services in relation to a multi-million dollar claim. The claim relates the works undertaken to prevent the total loss of the TBM when traversing a major fault zone.

Our scope of works includes a retrospective analysis of the contractors’ post-loss actions and activities, together with the submission of an expert report on causation for the purposes of assisting the loss adjusters in their final claim evaluation under the policy.