Gall Zeidler Consultants
Geotechnics | Tunnel Design | Engineering

High Speed 2 Contracts N1 & N2
HS2 Ltd.

Location: Birmingham, United Kingdom

Date: June 2021 - Present

Structure: The Bromford Tunnels in Contracts N1/N2 comprises twin bored tunnels, 13 no. SCL/SEM Cross Passages and one ventilation and intervention shaft

Length: 5.8km (3.6 mi) twin-bored tunnels with Cross Passages spaced every 500m (1,640ft)

Cross-Section: Bored tunnels are 7.5m internal diameter and Cross passages are 5.5m internal diameter

Geology: Tunnel and Cross Passages excavation will primarily be through Mercia Mudstone. The Mudstone shows varying degrees of weathering and it is classed from Grade I to III. Majority of the tunneling works is within Grade II of the Mercia Mudstone. The groundwater level is maximum 30m above the tunnels' roof.

Cost: £5b (US$ 6.8b)

Client: Balfour Beatty Vinci JV

Owner: HS2 Ltd.

Category III Design Check Services:

HS2 is a new high-speed rail line that will be the backbone of the UK's rail network. Phase One of this project will connect London to Birmingham by between 2029-2033. In April 2020 Balfour Beatty Vinci JV was awarded Contracts N1 and N2 of High Speed II project (Contract N1 and N2). Contracts N1 and N2 spans around 90km of HS2 Phase I and it consists of tunnels, bridges, viaducts, culverts and earthworks. There are two twin-bored tunnels and GZ is responsible for the independent (CAT III) checking Bromford Tunnels, associated Cross Passages and the several adits around the ventilation and intervention shaft.

Gall Zeidler Consultants (GZ) have been appointed to carry out independent checking (CAT III Check) of all structural elements of 5.8km long twin-bored Bromford Tunnels, thirteen (13 no.) cross passages, eight (8 no.) adits, TBM break through D-walls and head wall inside the portal structure. GZ's scope also includes the independent checking of the ground movement assessment, first stage concrete and walkways within the running tunnels.

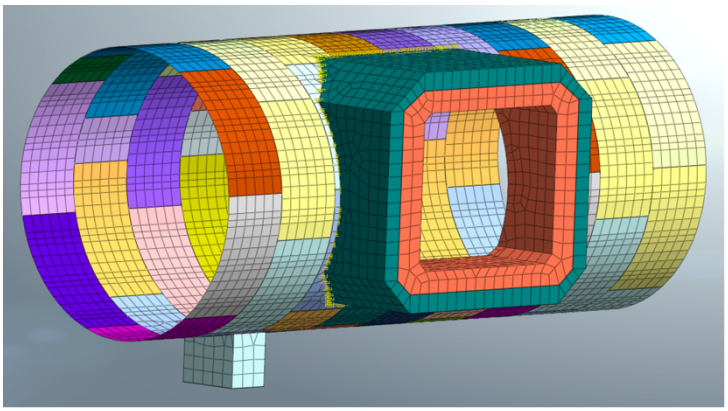

Figure 1. Cross passage opening model.