

Thomson Line Tunnel, Contract T213 Land Transport Authority (LTA)

Location: Singapore, Singapore

Date: 2012 - 2013

Structure: Cripple Siding Tunnel (Triple Cell Running Tunnel)

Length: 380 m (1,247 ft)

Cross-Section: Typical Section: H 7.75 m x W 22.9 m (25 ft x 75 ft)
Ventilation Section: H 12.5 m x W 25.2 m (41 ft x 83 ft)

Geology: Bukit Timah Granite formation (comprised of igneous rocks varying from granite to granodiorite as well as hybrid rocks and dyke rocks)

Cost: US \$228 million

Client: HLS Infrastructure Pte. Ltd.

Owner: Land Transport Authority (LTA)

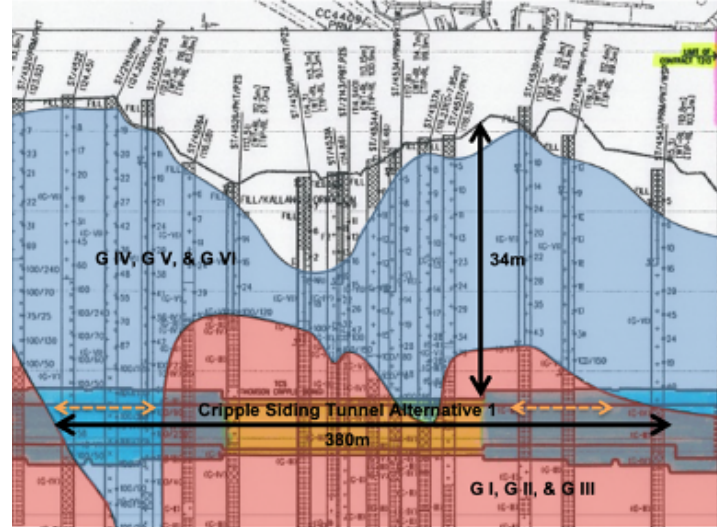


Figure 1. Longitudinal section of subsurface conditions along Southbound Cripple Siding tunnel.

Development of Construction Method for SCL Mined Tunnels:

The proposed Thomson Line (TSL) is an underground Mass Rapid Transit (MRT) system along the north-south corridor of approximately 30km. It consists of 22 MRT stations and an integrated MRT cum bus depot at Mandai. Contract T213 is a part of the TSL Package B Contract C2103, which covers a route length of about 14.5km. TSL B consists of tunnels running from Sembawang Air Base (SBAB) on the north to Whitley Road on the south and 8 stations.

Gall Zeidler Consultants (GZ) developed a conceptual tunnel construction method for the SCL mined tunnels of the Thomson Line Contract 213, Cripple Siding Structure at Caldecott Station for bidding purposes that includes the mined tunnel section as per the tender documents and an extension at both ends into the cut & cover section. In addition, GZ has been tasked with the geotechnical and structural feasibility of an alternative mined tunnel approach for the construction of the Cripple Siding structure. The study was aimed at the optimization of the support system along the tunnel alignment ensuring safety, practicality, and economy. The alternative mined tunnel study also included the design and quantity take-offs for fissure rock grouting for the Cripple Siding Structure.

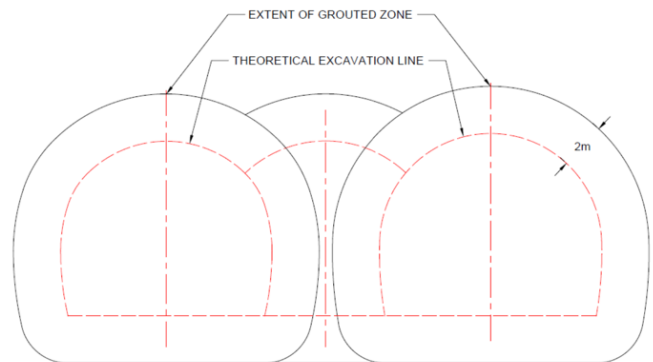


Figure 2. Extents of grouted zone for North Bound, South Bound and Center Tracks.