**GENERAL**

The Cut and Cover Tunnel of North Section, Metropolitan Rapid Transit Authority (MRTA) Initial System Project, is a connecting tunnel between Thiam Ruam Mit (Thailand Cultural Center) Station and the Depot. The approximately 200.0m long tunnel is made of cast in-situ concrete diaphragm walls 0.8m and 1.0m in thickness. On the west end of the tunnel is a TBM retrieval shaft where a 1.0m thick diaphragm wall is used for the tunnel opening. Glass Fibre Polymer Reinforcement was used in diaphragm wall panels at the tunnel opening location to allow direct break through for TBM. Diaphragm walls are embedded up to 25.5m deep for excavation works down to 16.0m below ground level.

Beyond the diaphragm wall section, the tunnel and approach sections to the depot is made of normal reinforced concrete box and walls being supported by 0.6m diameter bored piles.

**WORK UNDERTAKEN**

**BORED PILES:** Dia. 0.6mx19.0m – 36.0m 207 nos.

**DIAPHRAGM WALLS:**
- 9,507.0 sq.m. (0.8m Thick)
- 270.0 sq.m. (1.0m Thick)

**TYPE OF WORK:** Diaphragm Walls and Bored Piles

**OWNER:** The Metropolitan Rapid Transit Authority

**MAIN CONTRACTOR:** Nishimatsu Construction Co., Ltd. (ION Joint Venture)

**DESIGNER:** Ove Arup and Partners International Limited

**PERIOD:** 1999

Location of Cut & Cover Tunnel.

Layout of TBM retrieval shaft.

Layout of Cut & Cover Tunnel section.
Cross section of Cut & Cover Tunnel.

Guide wall construction.

Subsoil conditions at the site.

Concrete pouring using double tremie sets for a 4.5m long panel.

Cut and cover tunnel.

TBM retrieval shaft and cut & cover tunnel.

Panel excavation with grab.

Bored piling in progress.

Lowering a 25.5m long reinforcement cage into the excavated trench.

Koden drilling monitoring equipment in position for checking trench verticality.

References