

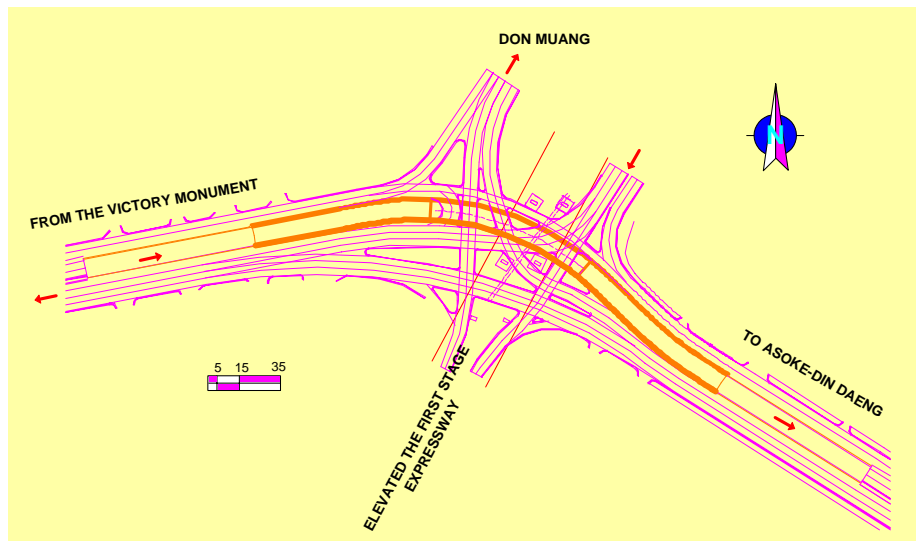
DIN DAENG UNDERPASS

Cast In-situ Concrete Diaphragm Wall

Technical Reference No. 03/99

GENERAL

The Din Daeng Underpass is the first of its kind in Bangkok Metropolis to ease the traffic congestion. It is an alternative to flyovers and overpasses. The underpass route extends for 415m with two lanes with one way traffic from the Victory monument. It runs along the middle of the Asoke-Din Daeng Road, and passes under the elevated First Stage Expressway as a cut and cover tunnel. 82m long approach sections at both ends of the underpass were constructed with 0.45m thick reinforced concrete walls. The 252m long middle section of the underpass, which includes portals and cut and cover tunnel, is constructed with 1.0m thick diaphragm walls having toe level -21.0m deep. Cantilever walls and reinforced concrete strut-supported walls are used in the portal sections. Excavation depths for base slab construction varied from 4.9m to 6.5m below the pavement level.



Layout of Din Daeng Underpass.

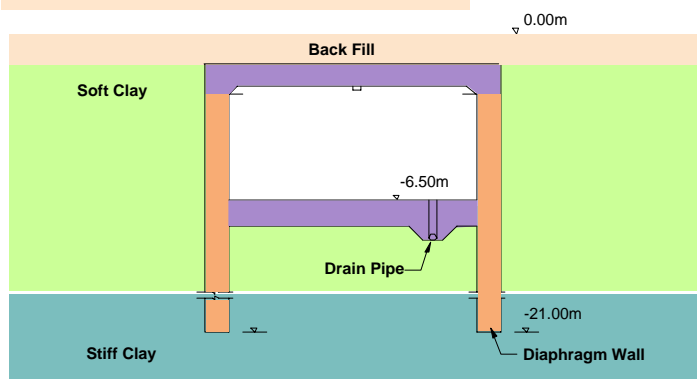
WORK UNDERTAKEN

DIAPHRAGM WALL:

Thickness 1.0m
Toe Depth -21.0m
10,545sq.m.

INSTRUMENTATION:

8 Inclinomometer Tubes in the wall
2 Inclinomometer Tubes in the ground behind the wall, 8 Sets of VWSG. and 2 Vibrating Wire Piezometers



Schematic section of cut and cover tunnel.



Diaphragm wall panel excavation in progress.

TYPE OF WORK:

Diaphragm Wall

OWNER:

Bangkok Metropolitan Administration.

MAIN CONTRACTOR:

Unique Engineering and Construction Co., Ltd.

DESIGNER:

Epsilon Co., Ltd.

PERIOD:

1996



D02/99

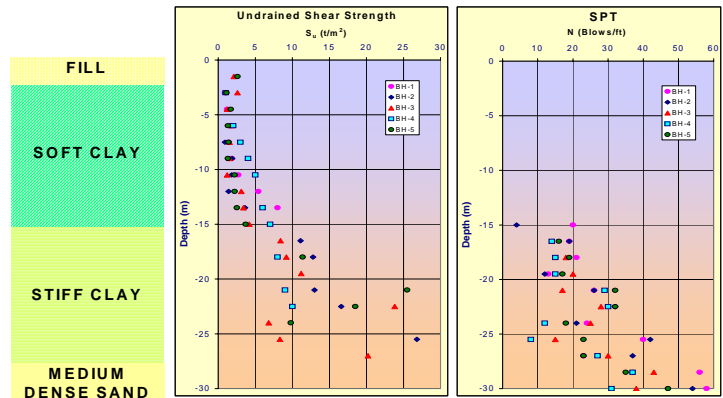
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Diaphragm wall panel excavation in the middle of traffics.



Subsoil conditions at the Site.



Diaphragm wall panel excavation with modified grab crane under the existing expressway.

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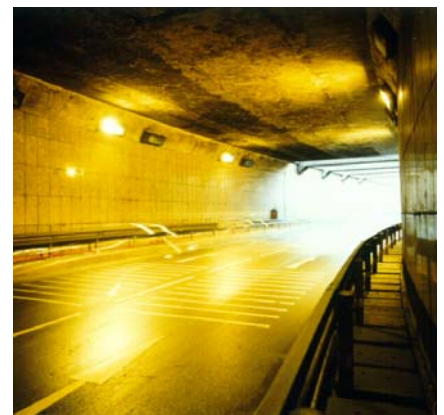
Lowering a rebar cage section.



General view of Din Daeng Underpass.



Portal section.



Tunnel section.

References:

- Thasnanipan, N., Maung, A. W. and Singtogaw, K. (1996). "Experience in Construction of an Underpass Tunnel using Diaphragm Wall – Bangkok (in Thai)", Technical Seminar on Construction of Basements 1996 organized by Engineering Institute of Thailand, Bangkok, 18 September 1996. Pp. 55-70.
- Tepraksa, W., Thasnanipan, N. and Tanseng, P. (1999), "Analysis of Lateral Wall Movement for Deep Braced Excavation in Bangkok Subsoils", Civil and Environmental Engineering Conference – New Frontiers & Challenges, AIT, Bangkok, November 8-12, 1999.

