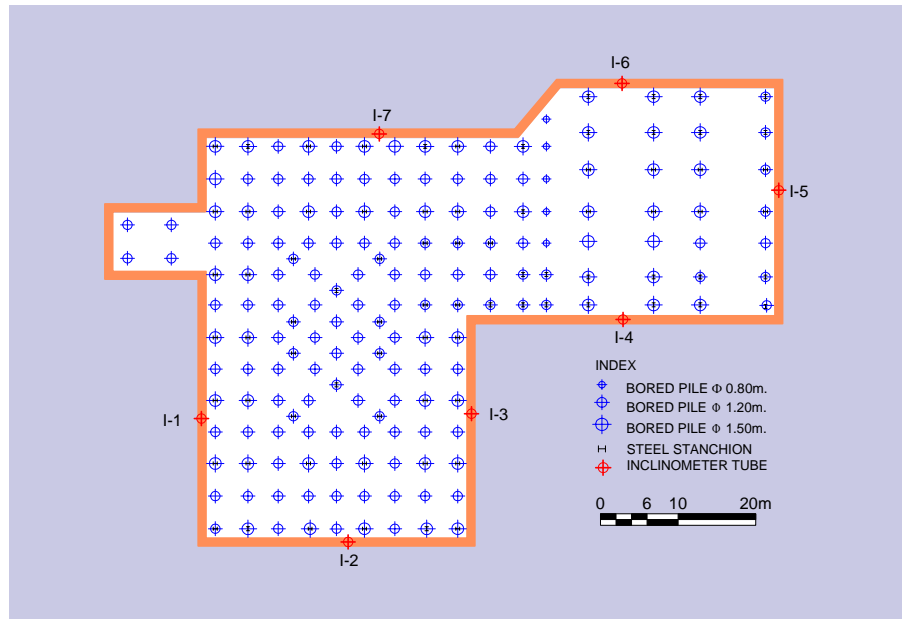


### GENERAL

The Rajavej Hospital is located on Phayathai Road, Rajatheewi, Bangkok. It has five basement levels constructed with top-down method for car parking and rooms for utilities. Foundation bored piles of 0.8m, 1.2m and 1.5m in diameter founded in sand layer at depths of 58m, support the building. A 1.0m thick cast in-situ diaphragm wall (toe depth 21.0m below ground level) was used for basement excavation and construction. The maximum excavation depth was about 14.5m. 80 steel stanchions pre-founded in bored piles were used for supporting the basement slabs and parts of superstructure during simultaneous construction of basements and the super structure. Two basement slabs, B1 and B3 with openings were used as lateral supports for the diaphragm wall to allow excavation to the required depths.



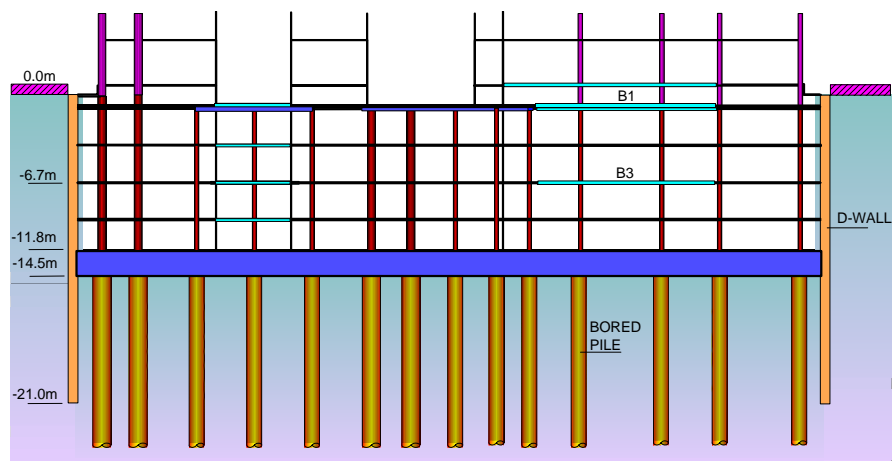
Diaphragm wall and foundation layout.

### WORK UNDERTAKEN

BORED PILES:	Dia. 1.0mx58.0m	5 nos.
	Dia. 1.2mx58.0m	114 nos.
	Dia. 1.5mx58.0m	56 nos.
STEEL STANCHIONS:	414x405-498x432mm	80 nos.
DIAPHRAGM WALL:	6,058 sq.m. (1.0m Thick)	
INSTRUMENTATION:	7 Inclinometer Tubes in the wall.	



Lowering a steel stanchion into borehole before casting the pile.



Basement section.

<b>TYPE OF WORK:</b>	Foundation Piles and Diaphragm Wall
<b>OWNER:</b>	Rajavej Hospital Co., Ltd.
<b>SUPERSTRUCTURE</b>	
<b>CONTRACTOR:</b>	SAE Thailand Co., Ltd.
<b>DESIGNER:</b>	P & CYGNA Consultants Co., Ltd.
<b>PERIOD:</b>	1994-1995

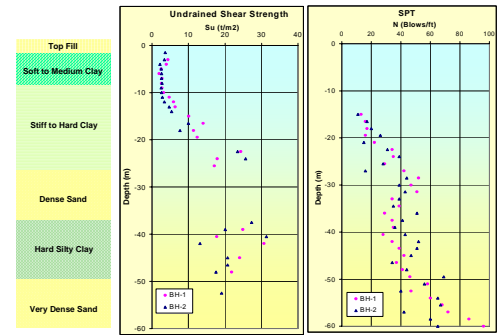




Diaphragm wall panel excavation.

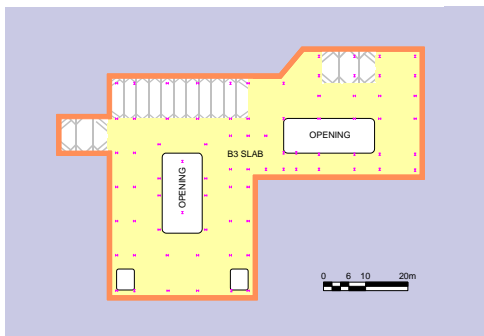


21m-long reinforcement cage with box-outs for basement slab connections.



Subsoil conditions.

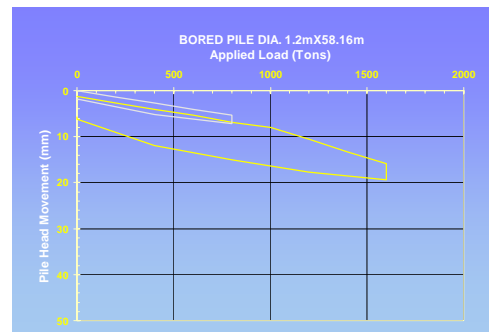
All rights reserved. No part of this publication may be reproduced in any form or by any means, without the prior written permission of SEAFCO PUBLIC CO., LTD.



Basement slab with temporary openings for excavation work.



Installing a 18.0m-long steel stanchion in the borehole.



Pile load test result.



Excavation below the basement slab.



Excavation at final depth of 14.5m below ground level.

#### References:

- Thasnanipan, N. and Singtogaw, K. (1996), "Bored Piling and Diaphragm Wall Work for Excavation of Five-level Basement of Rajavej Hospital (in Thai)", Technical Seminar and Site Visit on Experience in Construction of Deep Basements in Bangkok Soft Clay, organized by Engineering Institute of Thailand. Bangkok, 26 March 1996. Pp. 104-140.
- Teparaksa, 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.

