

PROCEEDINGS OF THE 4TH INTERNATIONAL GEOTECHNICAL SEMINAR ON DEEP
FOUNDATIONS ON BORED AND AUGER PILES, GHENT, BELGIUM, 2-4 JUNE 2003

DEEP FOUNDATIONS ON BORED AND AUGER PILES

Edited by

W.F. Van Impe

Laboratory of Soil Mechanics, Ghent University, Belgium

President ISSMGE



Millpress

MILLPRESS ROTTERDAM NETHERLANDS 2003

Table of contents

Preface	IX
 <i>Introductory lecture</i>	
Screw piling: Still a challenging discussion topic? Van Impe, W.F.	3
 <i>Theme lecture 1: Mexican experiences with bored piles</i>	
Enduring subsoil changes with large bored piles in Mexico City Springall, G.	11
 <i>Theme lecture 2: Auger and bored pile monitoring and testing</i>	
Auger and bored pile construction monitoring and testing Bustamante, M.	27
 <i>Theme lecture 3: Research needs and professional practice in bored and auger piles</i>	
Deep foundations - Can further research assist practice? Poulos, H.G.	45
 <i>Theme lecture 4: Design practice of bored piles in group and in piled raft concepts</i>	
Design of piled raft foundations: Practice and development Mandolini, A.	59
 <i>Theme lecture 5: Soil parameters relevant to bored pile design from laboratory and in situ tests</i>	
Soil parameters relevant to bored pile design from laboratory and in situ tests Jamiolkowski, M.	83
 <i>Theme lecture 6: Experiences with bored piles under seismic loading</i>	
Performance and practice on bored piles subjected to earthquake Matsui, T., Oda, K., Tokida, K. & Yasuda, F.	103

Discussion session 1:

Installation parameter influence; international standards and Eurocode 7 for bored and screw piles

Assessment of model factors and reliability index for ULS design of pile foundations <i>Bauduin, C.</i>	119
Comparative performances of Continuous Flight Auger and Driven Cast in Place piles in sands <i>Evers, G., Hass, G., Frossard, A., Bustamante, M., Borel, S. & Skinner, H.</i>	137
Influence of residual stresses for non displacement cast in situ piles <i>Falconio, G. & Mandolini, A.</i>	145
Analysis of bearing capacity and settlement of CFA piles <i>Kłosiński, B. & Rychlewski, P.</i>	153
The bearing capacity of piles <i>Mets, M.</i>	157
Contact behaviour at the interface between bored piles and subsoil <i>Moormann, Ch.</i>	163
Development of the screw steel pipe pile with toe wing, "Tsubasa Pile" <i>Mori, G.</i>	171
Installation effort as an indicator of displacement screw pile capacity <i>NeSmith, W.M.</i>	177

Discussion session 2:

Screw and bored piles under axial, lateral and earthquake loading; design versus performance

Investigation of the large lateral displacements behaviour of tubular piles in sand - Full scale and centrifuge modelling <i>Bouafia, A. & Lachenani, A.</i>	185
Calculation of load-settlement curve based on CPT test results <i>Gwizdala, K. & Steczniewski, M.</i>	191
Compacted grout bored micropiles in clay <i>Lutenegger, A.J.</i>	197
Design of axially loaded bored single piles <i>Masopust, J.</i>	203
Investigation of lateral load resistance of laterally loaded pile in sandy soil <i>Rahman, M., Alim, A. & Chowdhury, A.S.</i>	209
Particle based modeling of CFA and soil displacement piles <i>Schmitt, A. & Katzenbach, R.</i>	217

Discussion session 3:

Professional practice and quality control in bored and auger piling; design philosophy

Bored precast piles equipped with grouted bulb in the toe region <i>Karkee, M.B. & Yamato, S.</i>	227
Bored sockets in weathered basalt <i>Maertens, L.</i>	235
Structural design issues for bored piles <i>O'Neill, M.W., Tabsh, S.W., Sarhan, H.A. & Nam, M.S.</i>	243

Recent developments on Continuous Flight Auger (CFA) pile: Technology, equipment and applications <i>Pagliacci, F., Bertero, A., Siepi, M. & Zuffi, P.</i>	251
A study of the screwed pile - The results of installation and loading tests and analysis of penetration mechanisms <i>Saeki, E. & Ohki, H.</i>	259
Behaviour of polymer-based slurry for deep-seated bored piles in multi-layered soil of Bangkok <i>Thasnanipan, N., Aye, Z.Z. & Boonyarak, T.</i>	267
Bearing capacity of bored pile packed with iron and steel slag using precast concrete pile <i>Yabuuchi, S., Nishiwaki, A., Kobayashi, K., Hirao, K. & Yoshikawa, N.</i>	275
 <i>Discussion session 4:</i>	
<i>Bored and auger pile testing</i>	
Influence of pile installation and of pile test procedure on the test load results of Atlas pile - A case study <i>Ayfan, E.F., Van Impe, W.F. & Imbo, R.</i>	287
Experimental evidence for the validation of load-settlement predictions <i>Caputo, V.</i>	295
Behaviour of a CFA pile in a lateric clay <i>Décourt, L.</i>	301
Bi-directional static load testing - State of the art <i>England, M.</i>	309
Static and cyclic tests on bored piles for the foundation of a tunnel and slab tracks <i>Kempfert, H.-G., Raithel, M. & Quick, H.</i>	315
A full-scale test on large diameter bored piles for the construction of the HST-tunnel in Antwerp (Belgium) <i>Maertens, J., Theys, F. & Maekelberg, W.</i>	323
A contribution to the analysis of Osterberg's cell load test <i>Russo, G., Recinto, B., Viggiani, C. & de Sanctis, L.</i>	331
Case history of a designed, installed, load and integrity tested ACIP piles project <i>Stephan, G.A. & Saxena, D.S.</i>	339
 <i>Discussion session 5:</i>	
<i>Case studies including also piled raft design</i>	
Box-shaped foundations of bored and auger piles (or diaphragm walls) <i>Brandl, H.</i>	349
Centrifuge modelling to investigate the performance of piled rafts <i>Conte, G., Mandolini, A. & Randolph, M.F.</i>	359
Evaluation of deep bored foundation behavior on a tropical residual soil via instrumented loading tests <i>Cunha, R.P., Pereira, J.H.F. & Camapum de Carvalho, J.</i>	367
A case study of rock socketed piles: Design, control and construction of bored piles for a bridge foundation in southeast Brazil <i>de Mello, L.G., Bilfinger, W., Mendes, A.S. & Sá Fontes, R.</i>	373
On the ultimate vertical load of piled rafts on soft clay soils <i>de Sanctis, L. & Mandolini, A.</i>	379
Piled raft foundation of a railway bridge in tertiary clay <i>El-Mossallamy, Y., Schmidt, H., Gündling, E. & Löschner, J.</i>	387

Comparative behavior of ACIP and driven piles in Gulf coastal clays <i>Kim, M-G., O'Neill, M.W., Roberts, T. & Yin, S.</i>	395
Effect of groundwater-drawdown on deep foundations <i>Moormann, Ch. & Katzenbach, R.</i>	401
Small-scale model tests with Combined Pile-Raft Foundations <i>Turek, J. & Katzenbach, R.</i>	409

Indices

Keyword index	417
Author index	419