



Zentrum
Geotechnik

Micropile Research
at Technical University of Munich,
Zentrum Geotechnik

reported by
Dr. Thomas Herbst Germany



2 substantial research projects are presently under way at the Zentrum Geotechnik :

1. Bearing capacity of micropiles under vertical cyclic loading in cohesive soils

Researchers: Jennifer Kleih–Baumbach and
Dr. Peter Schwarz

2. Time dependent behavior of soft soils and their influence on the lateral pile support

Researchers: Prof. Norbert Vogt and
Stefan Vogt

1st Program

Essential features of the cyclic loading tests:

- Field test at about 140 km distance from the university
- 8 micropiles (GEWI dia 50mm), 5m long in a clay pit
- Duration: more than 1 year from July 2009 on
- Long term cyclic tension loading automated
- Additional cyclic loading tests (tension and compression)
- and calibration test in the test pit of the university
- Follow-up test program of the cyclic loading test program in granular soil executed 26 years ago



Drilling at the test site Mundlfing



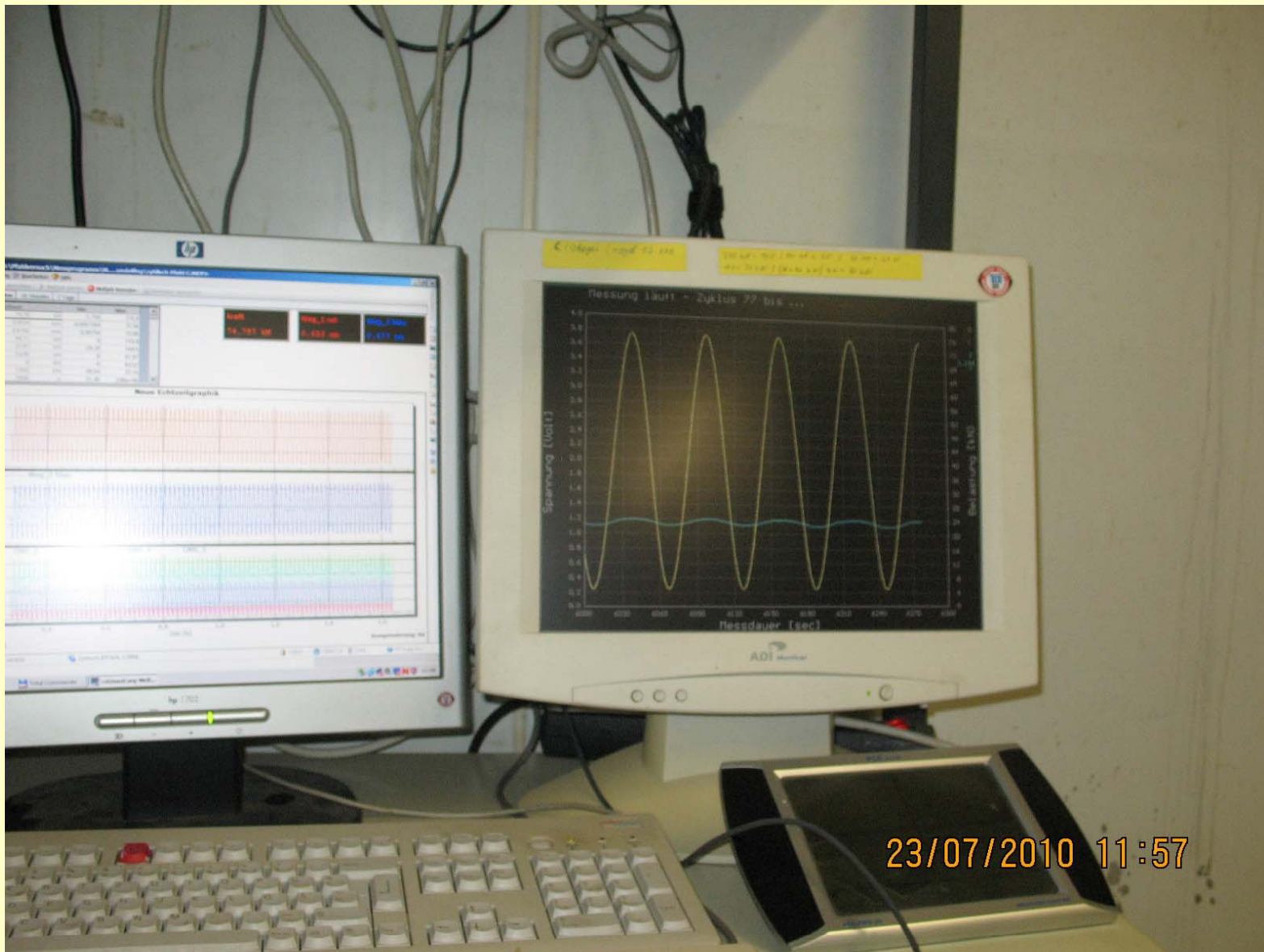
Protruding ends of 4 of the 8 test piles with cable protection tubes and gravel surface



Test field with measuring container lifted onto each test pile

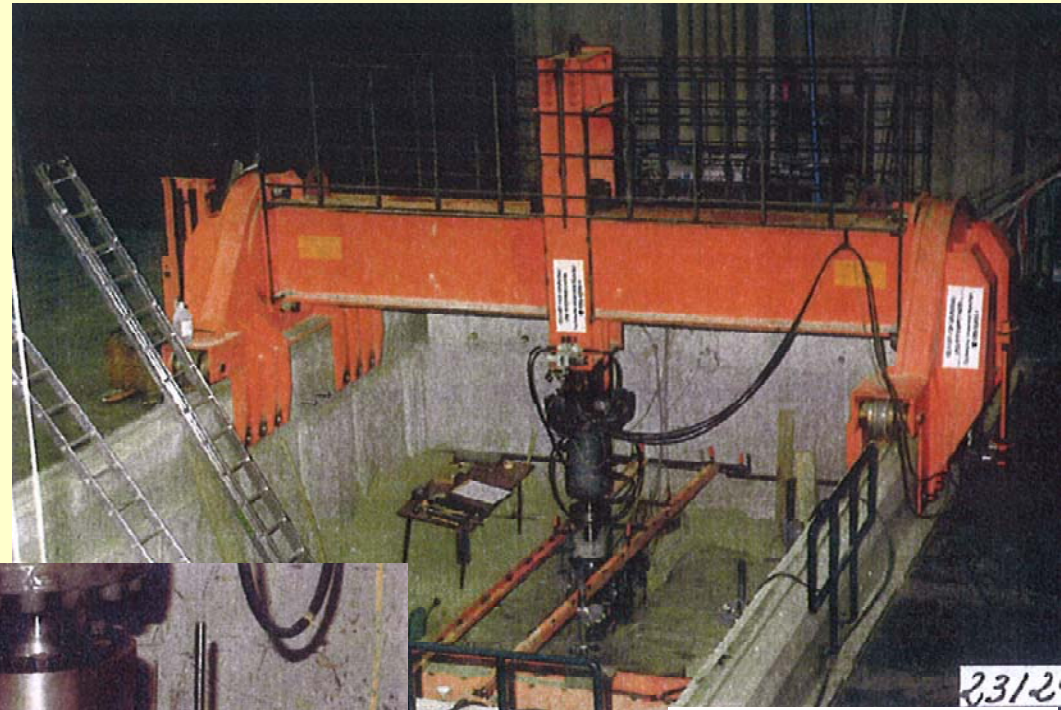


Testing set-up with load and datum beams

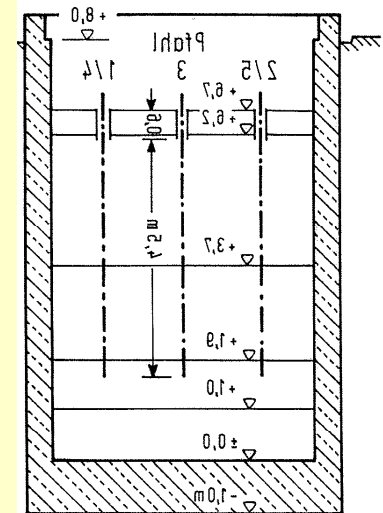
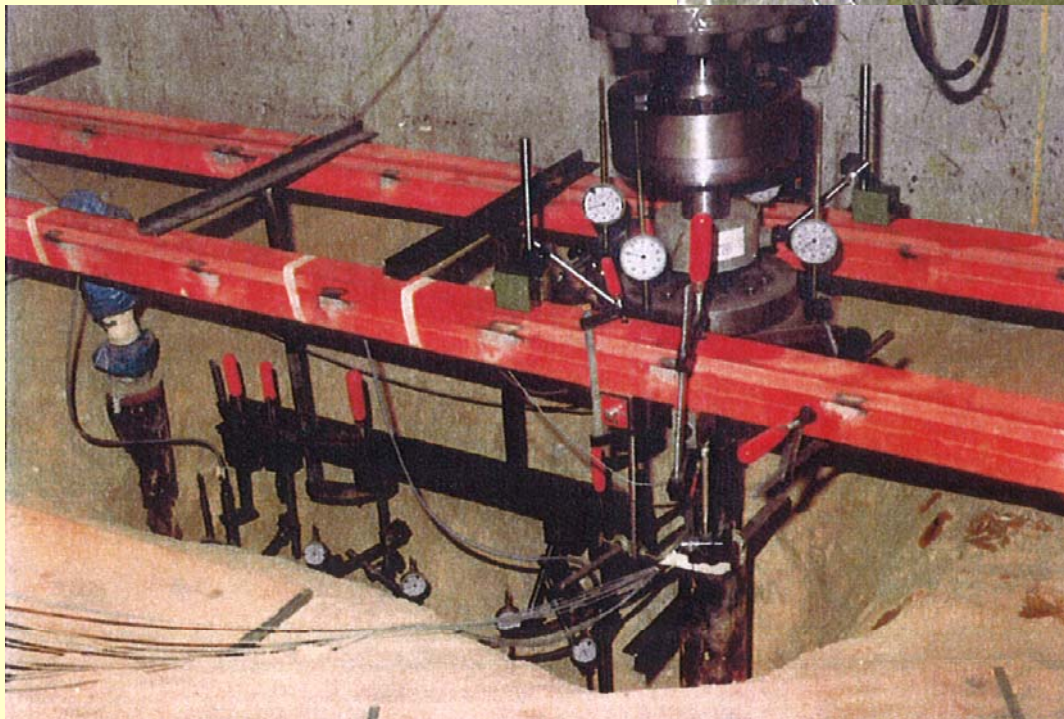


Load and elongation vs time recording

Test pit at the university with measuring details

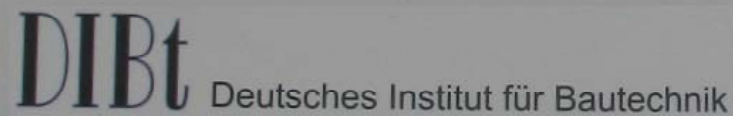


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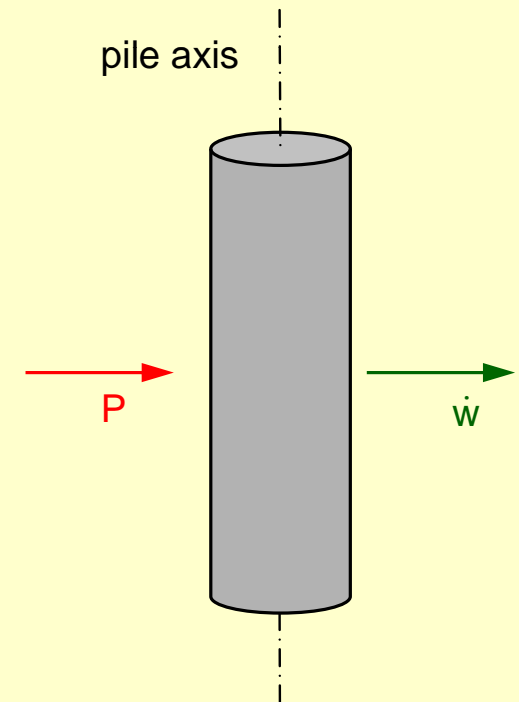
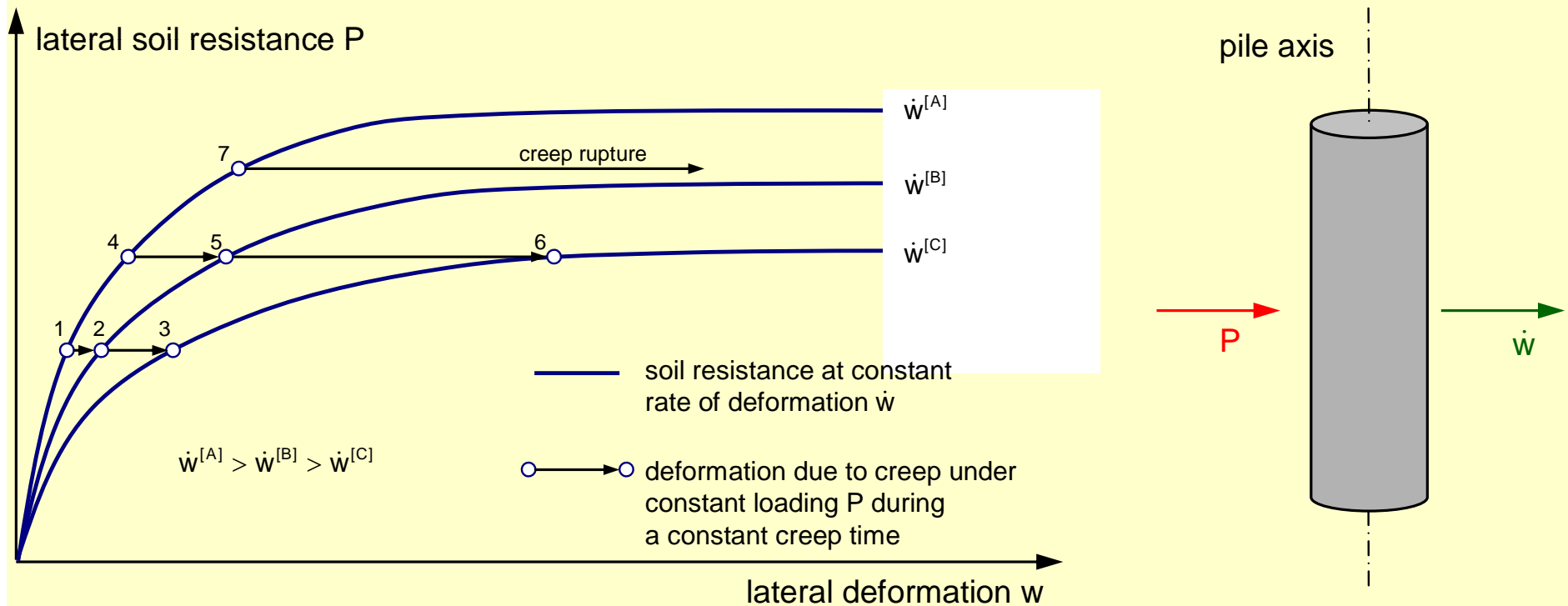


The researchers
(right) and the
sponsors (below)

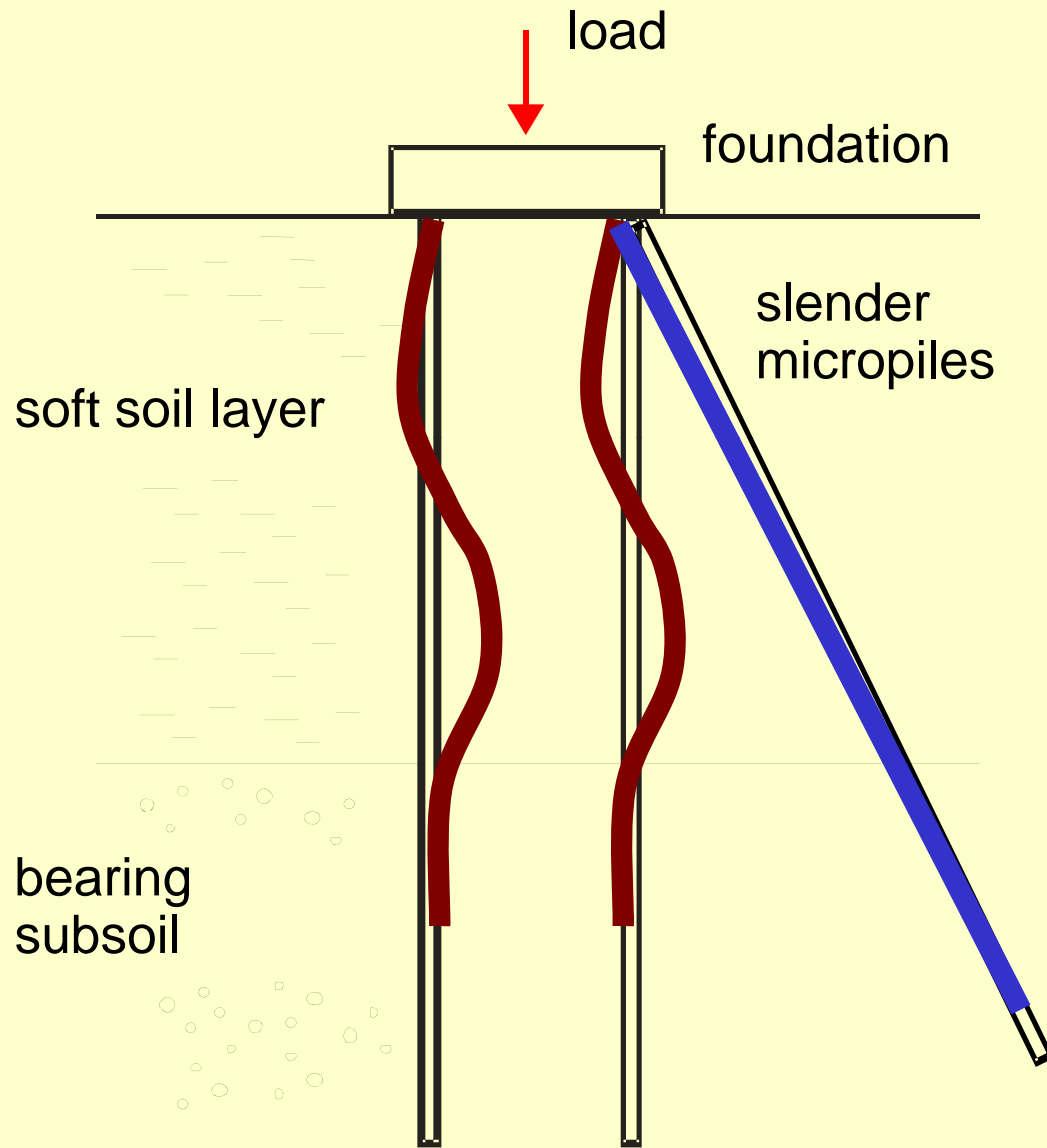


2nd Program

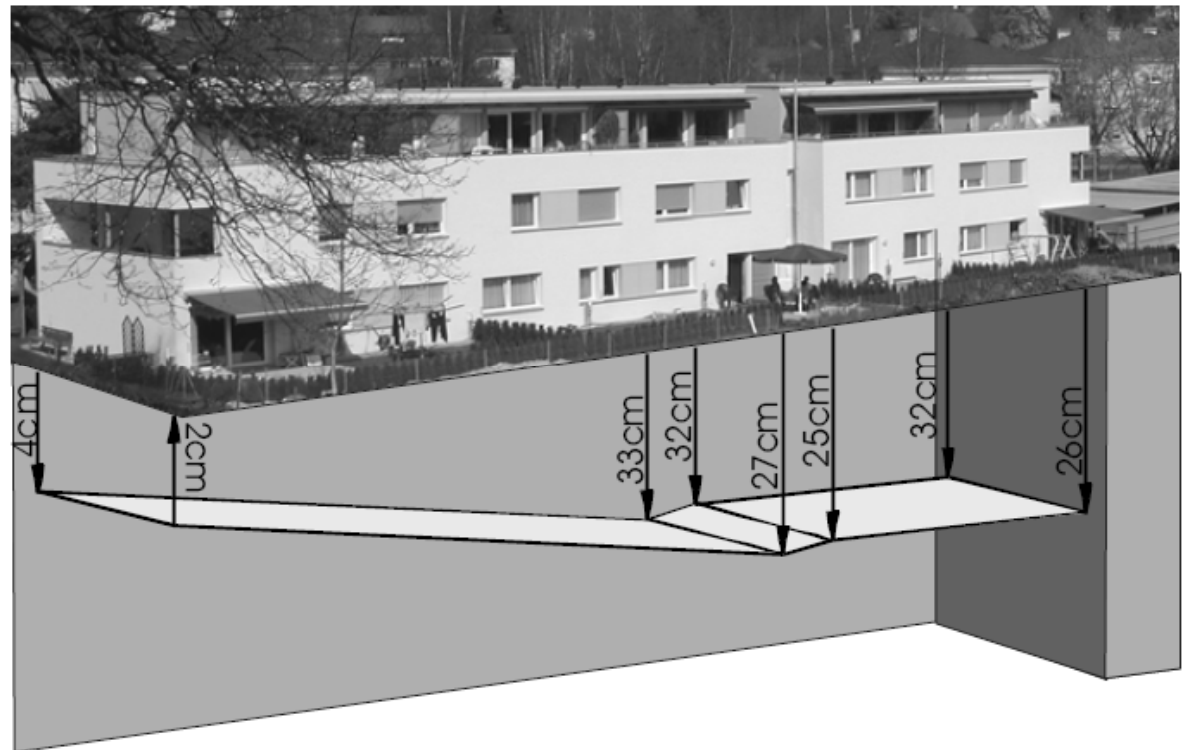
Time dependent behavior of soft soils and their influence on the lateral support of a micropile



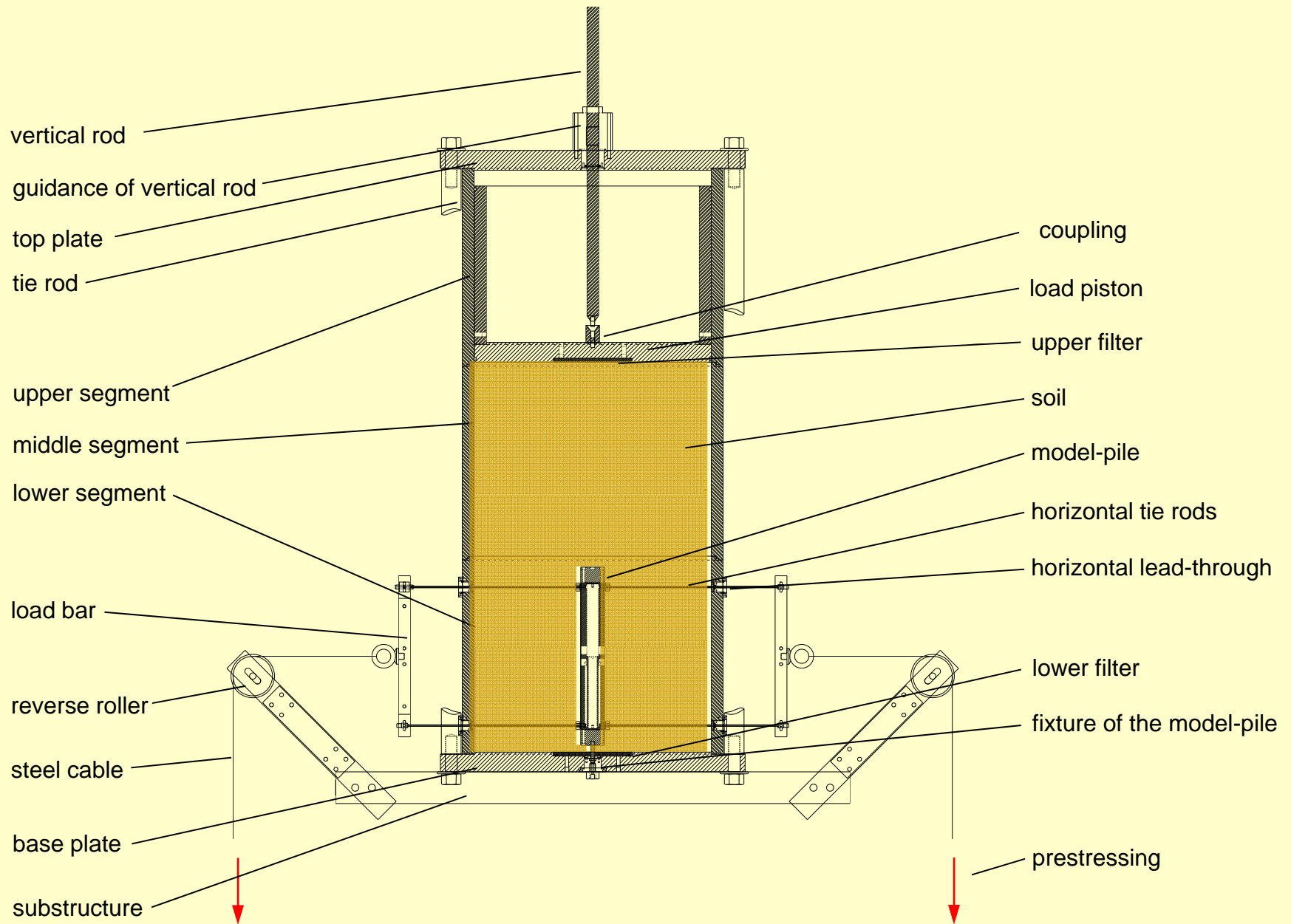
Can very soft soil support a pile that is in danger of buckling?



Documented case of damage



Experimental set-up



Testing apparatus



Test phases

1 „slow test“:

- incremental loading
- each 11 to 20 days long phases of creep

1 „fast test“:

- incremental loading
- each 2,5 hours of creep

First test results

