LIZZI SCHOLARSHIP

STATIC AND DYNAMIC PERFORMANCE OF SINGLE AND GROUP OF MICROPILES

By

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INTERNATIONAL WORKSHOP ON MICROPILES
Toronto, Canada, 2007

IN RECOGNITION OF Dr. F. LIZZI

Thank you for your great achievements

OBJECTIVES

- Performance of single micropiles under static compression and tension loading
- Performance of single micropiles under two-way axial cyclic loading.
- Performance of single micropiles under static lateral loading.
- Performance of single micropiles under cyclic lateral loading.
- Performance of micropile groups under static axial and lateral loading.
- Performance of micropiles under dynamic loading.
- Effectiveness of micropiles as wave barriers.

1. Experimental work
2. Numerical modeling

General Consideration

Micropiles:

- **Type B micropiles:** Nominal diameter 150mm
  Length 3.0m
  Grouting pressure 0.2-0.5MPa
  Reinforcement one central steel bar

Soil:

- Medium stiff clay C_u = 40 – 50kPa
- Dynamic and static soil properties (UWO laboratory)

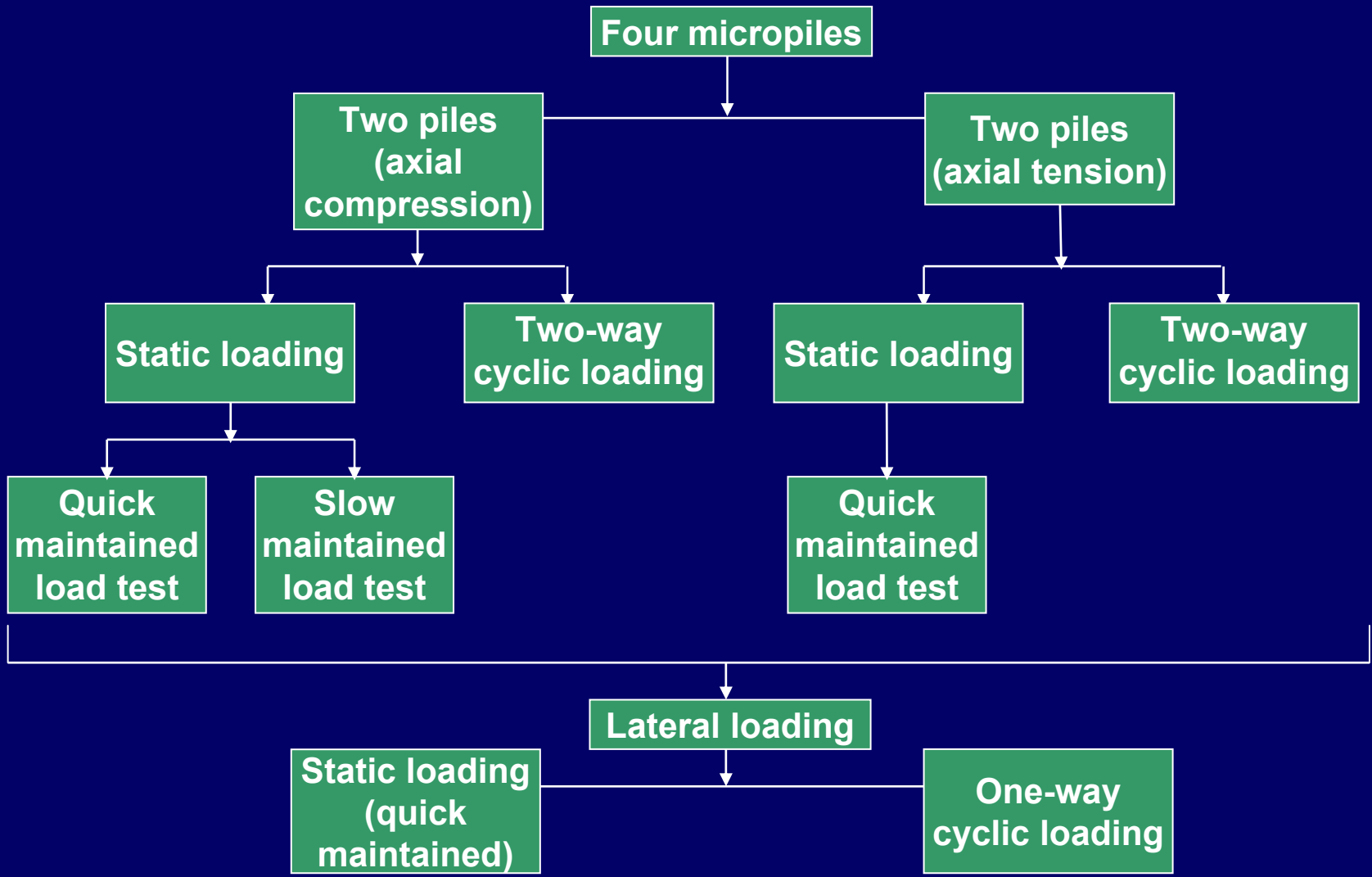
Test location:

- Geotechnical Test Pit (UWO, structural lab.)

Geotechnical Pit

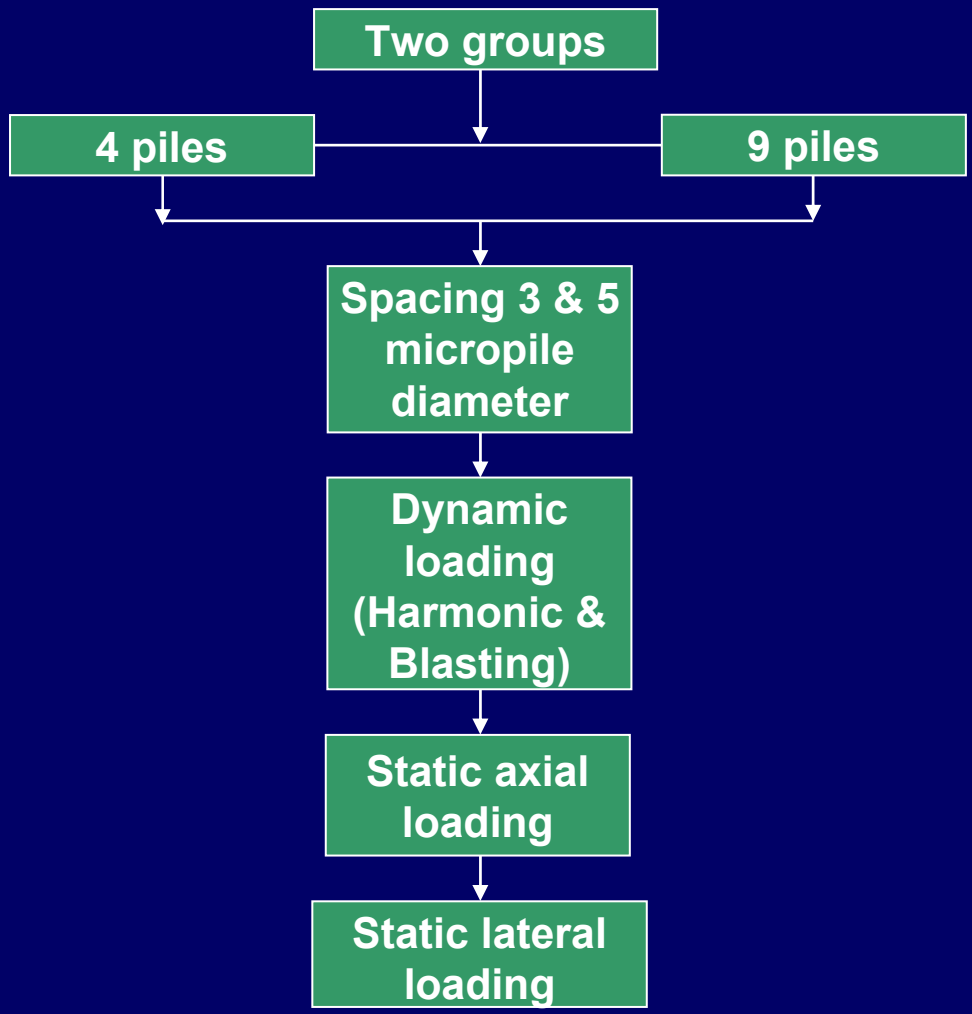
Geotechnical Pit

Single Micropiles

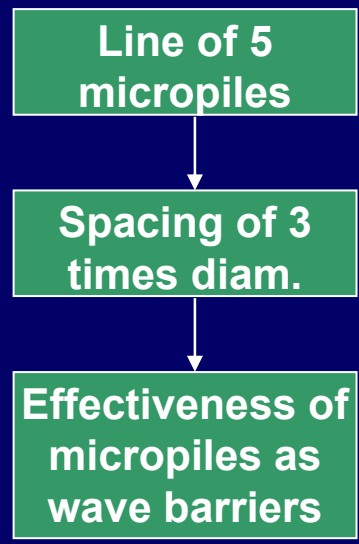


Micropile Groups

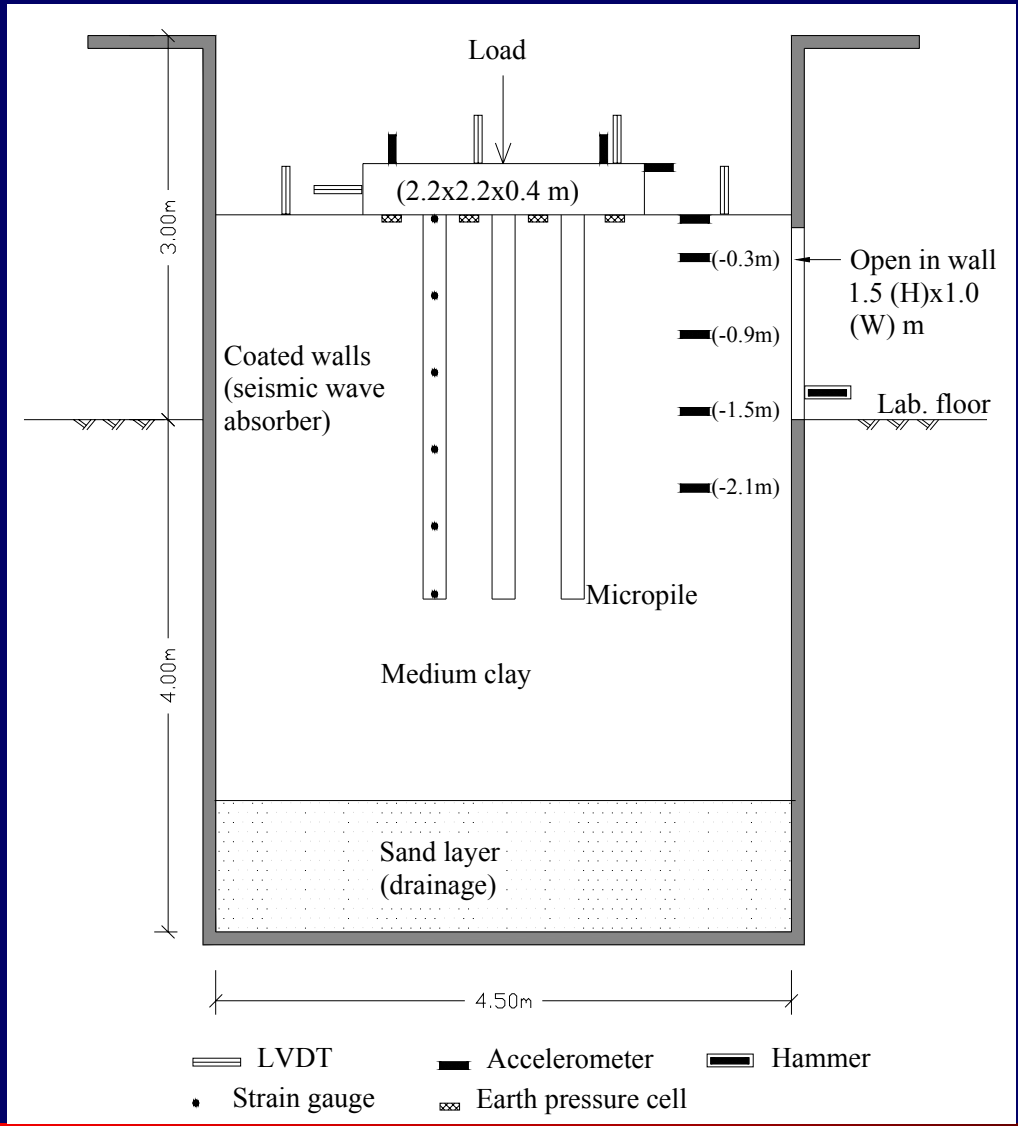
a)



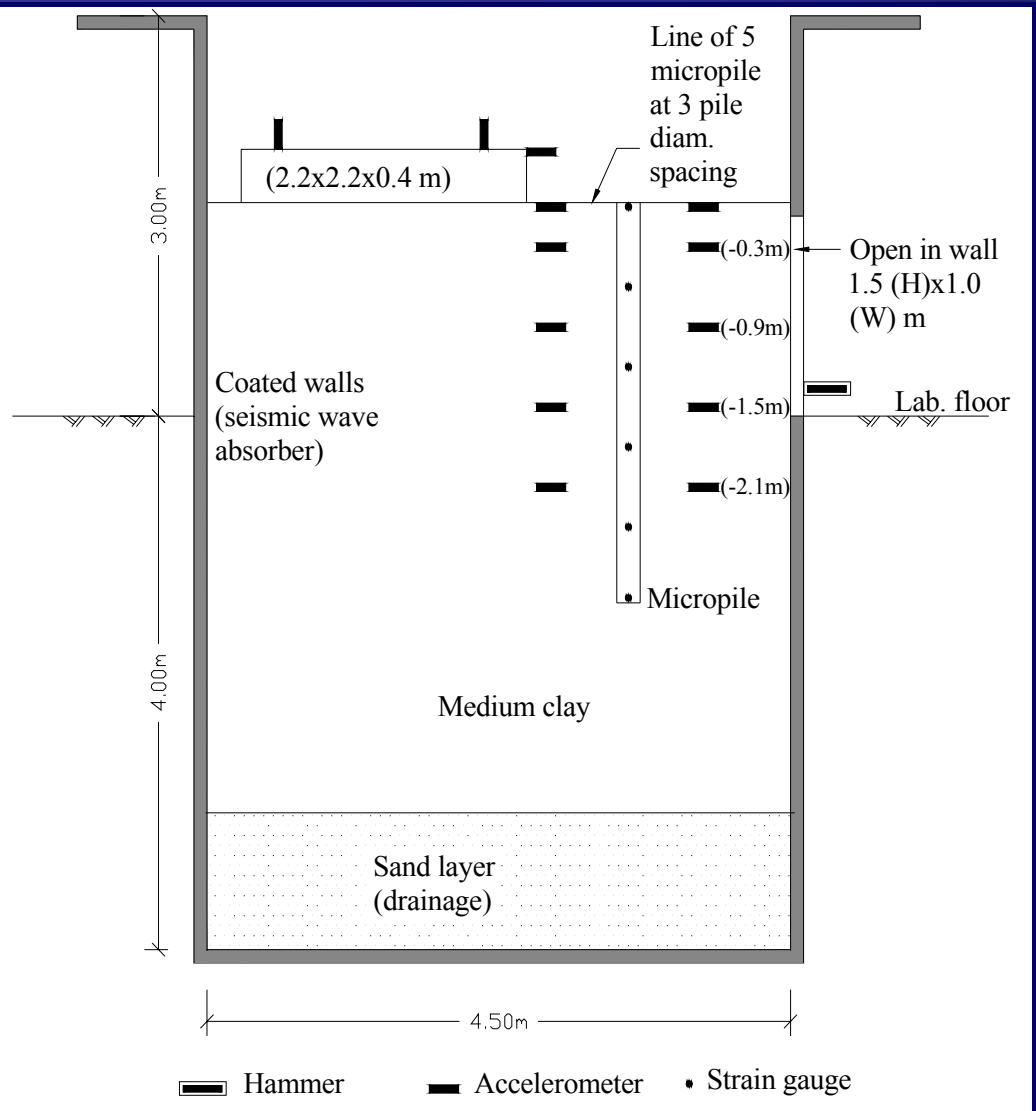
b)

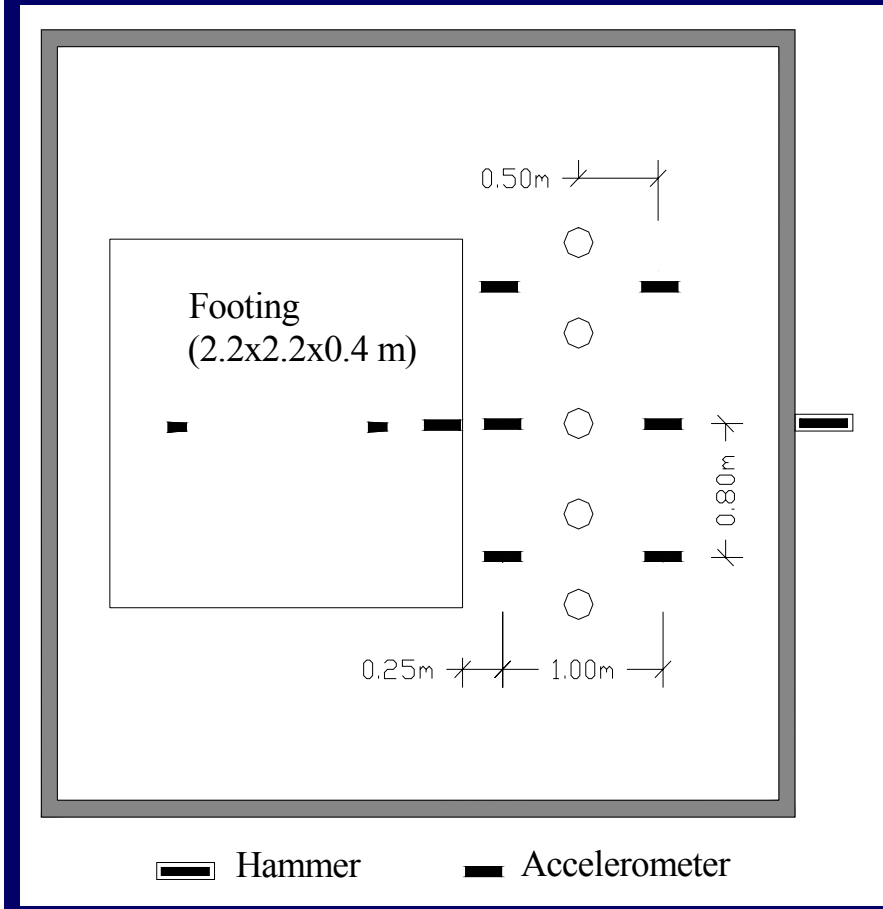


Instrumentations



Instrumentations





Numerical modeling

- PLAXIS 2D and 3D:

Finite element analysis for the static performance of micropiles.

- FLAC 3D:

Finite difference analysis for the dynamic performance of micropiles.

- Better understanding of the cap-soil-micropile interaction.
- The dynamic characteristics of micropiles in clayey soils (design charts and equations for dynamic design).
- Micropiles may be used as wave barriers.

THANK YOU..

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