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A field study on the behavior of static drill rooted nodular piles with caps under compression

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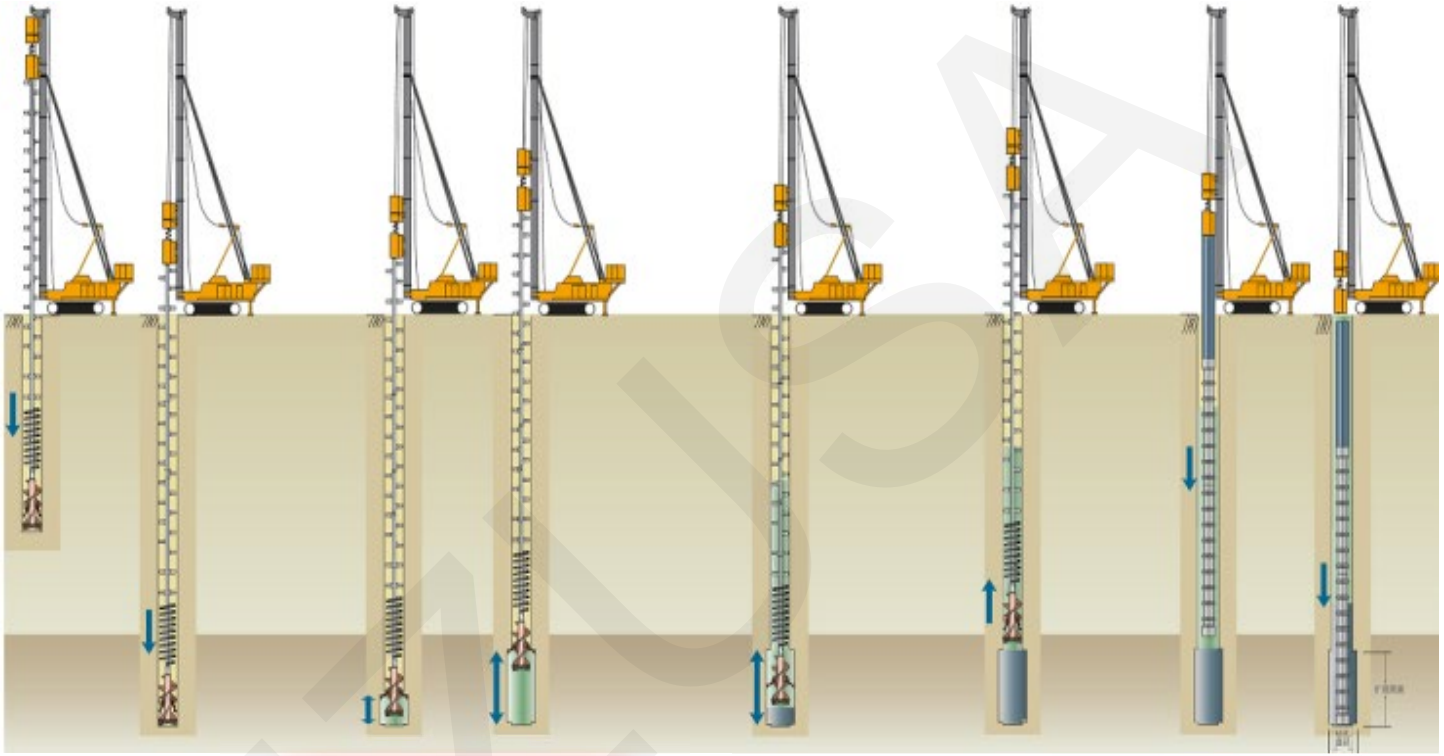
The static drill rooted method



Drilling

Enlarged base manufacture

Grouting

Pile planting

Construction process

Precast nodular pile

A node exists every 1 m along the pile shaft

Main work

A group of field tests of static drill rooted nodular piles with caps under compression

Test pile manufacture

Main work

Test pile installation

Advantages

- No compaction effect
- Discharge little slurry
- Resource conservation

Conclusions

- **Drilling and grouting into the soil beneath the pile cap can be considered as a type of ground improvement treatment, which can increase the bearing capacity of the pile cap. Setting a cap for the static drill rooted nodular pile is effective in promoting bearing capacity of the pile foundation.**

- **The frictional capacity of the concrete-cemented soil interface is much higher than the frictional capacity of the cemented soil-soil interface. The skin friction of test pile is about 1.25 times in clayey soil and 2.0 times in sandy soil respectively, compared to the bored pile.**

- **The base soil was strengthened because of the permeation of the cement paste during the enlarged pile base manufacture process, consequently, the tip bearing capacity of the static drill rooted nodular pile is considered to be better than the bored pile.**