PILING TECHNIQUES

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INTRODUCTION

(PILING)

INTRODUCTION

Piling is a technique used in construction to support structures on soil that cannot bear the weight of the structure alone. It involves driving piles into the ground to provide a stable foundation for buildings, bridges, and other structures.

There are various types of piling techniques available, including driven piling, bored piling, and CFA piling. Each technique has its own unique advantages and disadvantages depending on the soil conditions and the desired outcome.

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PILING TECHNIQUES

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Rotary Bored Piling

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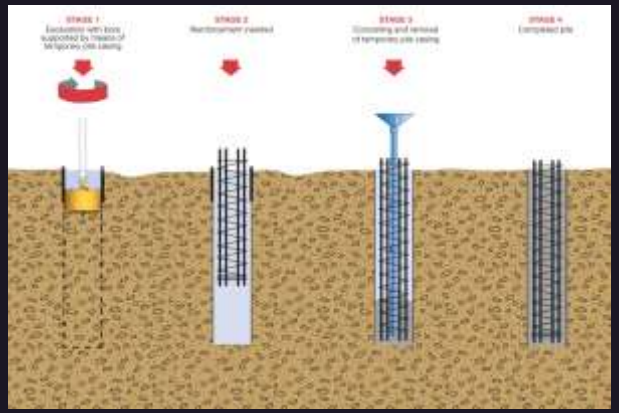
Driven Piling

1. ROTARY BORED PILING

Rotary Bore Piling is carried out by Large Diameter Piling (LDP) rigs which offer higher power (torque) than CFA rigs so they are more agile and able to overcome underground obstructions. Amenable to almost all ground conditions including rock drilling Depths achievable up to 60m with casing and tool diameters up to 1.8m means that very high capacity loads can be achieved Minimal ground disturbance and vibration-resulting risk to adjacent structures and property is limited.



Advantages:-

- Fast, Simple and efficient installation process
- Cost Effective
- On-site relocation

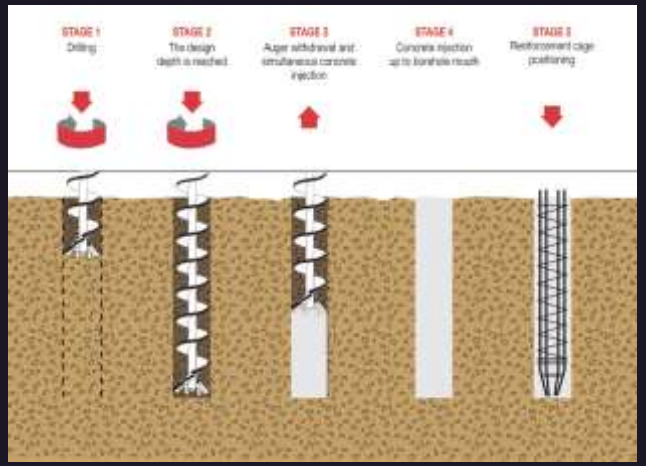
Applications:-

- Continuous bored pile walls.
- Piling into rock or banded rock strata.
- Piling adjacent to roads and railways. Ins
  permanent liners and Kingpost walls.

https://www.youtube.com/shorts/IG1U9_e5KEg

2. CONTINUOUS FLIGHT AUGER

CFA (Continuous Flight Auger) piles are quick to install and they offer an efficient solution for more lightly-loaded structures. High production rates mean that plies are commercially attractive Broad range of auger sizes (Common 300 450, 600, 750, 900 diameter) means that the most economical use of construction materials is possible. Depths of up to 25m means that CFA piling in effective for high loading thus suitable for most commercial and residential projects.



Advantages:-

- Low noise emissions
- Vibration free

Capabilities:-

- Low vibration.
- Bored depth up to 25 m.
- Diameters all sizes up to 900 mm

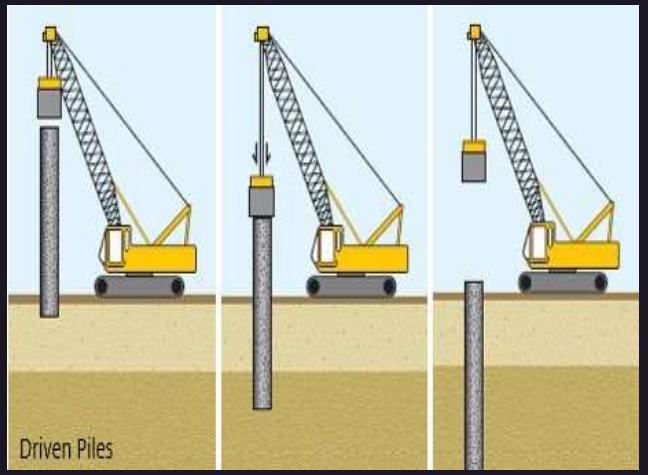
Applications:-

- Access sites noise and vibration sensitive work.
- Inter-bedded sequences of clays and sands.

https://youtu.be/aAZoTG0EY3U

3. DRIVEN PILING

The driven piling technique involves using a hydraulic hammer to drive piles into the ground. The piles are typically made of steel or concrete and are precast off- site before being transported to the construction site. This technique is ideal for sites with hard soil or rock formations .The pile is hammered into the ground until it reaches the desired depth. The process is repeated until all the piles have been installed.



Advantages:-

- It is a quick and efficient method for creating a strong foundation.
- Improved soil strength, pile capacity and load transfer to surrounding ground.

Disadvantages:-

- However, it can be noisy and disruptive to nearby residents, and may not be suitable for softer soils or areas with high ground water level.

https://youtu.be/QR0gxbKonkM

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CHOOSING THE RIGHT PILING TECHNEQUE

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Choosing the right piling technique depends on a variety of factors, including :

- ✓ soil conditions,
- ✓ the size and weight of the structure,
- ✓ and the local environment.

A geotechnical engineer will typically assess the site and recommend the most appropriate method for the project. It is important to consider not only the technical aspects of each method, but also the environmental impact, cost, and timeline. By selecting the right piling technique, construction projects can ensure a safe, stable, and sustainable foundation for their structures.

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ADVANTAGES OF PILING TECHNIQUES

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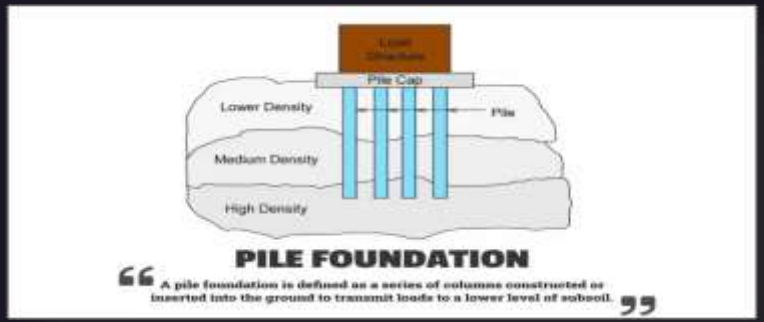
Piling techniques offer several advantages over other foundation techniques:-

- They allow for deeper foundations to be created, which is necessary for tall or heavy structures.
- They also provide better stability and can withstand lateral forces such as wind and earthquakes.
- Piling techniques are also faster and more efficient than other techniques, as they require less excavation and backfilling.
- They also produce less noise and vibration, making them ideal for urban areas.



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CONCLUSION

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Piling techniques are an essential part of modern construction, providing a reliable and stable foundation for buildings, bridges, and other structures. By understanding the different methods available and choosing the right one for the project, construction teams can ensure a successful and sustainable outcome. Whether using driven piling, bored piling, or CFA piling, it is important to work with experienced professionals who can assess the site and recommend the most appropriate method for the job. With the right approach, piling can help lay the groundwork for a brighter future.

QUESTIONS

Q1:- Name the types of piling techniques? Discuss one in brief.

Q2:- Discuss the disadvantages of the driven piling?

Thank you!

Submitted to:- Prof. Yuvraj Singh