

Module 8 : Foundations in difficult ground

Lecture 36 : Improvement methods [Section 36.1 : Ground Improvement Techniques]

Objectives

In this section you will learn the following

- Ground Improvement Techniques

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Ground Improvement Technique

The following methodologies are used for the stabilization of soil:

1. Mechanical stabilization:

- Method of compaction, both static and dynamic, based on soil and structure built on it.
- Preloading: To reduce future settlements, consolidation is increased by this method thereby leading to improved shear strength of soil.
- Facilitate the drainage properties: To drain out water, which reduces shear strength by building stone columns or sand columns.
- Add cohesionless soils to cohesive soils, thereby making soil well graded leading to increased strength.

2. Chemical stabilization:

- For cohesionless soils we use cement as stabilizing agent and for cohesive soils we use lime stabilization.
- Grouting: formation of slurry by adding different chemicals or additives. Eg. Water + cement + lime + additives.
- Use of Geotextiles, Geosynthetics, etc.

3. Thermal stabilization:

In this method, the soil is stabilized by heating or cooling (freezing).

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Recap

In this section you have learnt the following.

- Ground Improvement Techniques