

Discuss the various measures which are adopted while planning the construction of structure on collapsible soil fills.

Get all solution at BIHARENGINEERINGUNIVERSITY.COM

Collapsible soils are those soils that undergo significant reduction in volume and loss of strength when subjected to changes in moisture content. Such soils are found in many parts of the world, particularly in arid and semi-arid regions. If a structure is to be built on a collapsible soil fill, it is important to take certain measures to ensure that the soil does not undergo excessive settlement and instability. The following are some of the measures that can be adopted while planning the construction of structures on collapsible soil fills:

1. **Site Investigation:** A thorough site investigation should be carried out to determine the properties of the soil, including its collapsibility potential. This can involve the use of geotechnical tests such as Standard Penetration Test (SPT), Cone Penetration Test (CPT), and laboratory tests to determine the soil's index and strength properties.

2. *Moisture Control:* One of the main causes of collapsibility in soils is the loss of moisture content. To prevent this, it is important to control the moisture content of the soil fill during and after construction. This can be achieved through the use of moisture barriers, such as polyethylene sheeting, and by ensuring proper drainage around and beneath the structure.

3. *Soil Improvement Techniques:* Various soil improvement techniques can be used to stabilize the collapsible soil fill. One such technique is to mix cement or lime with the soil to improve its strength and reduce its compressibility. Other techniques include preloading, dynamic compaction, and vibro-compaction.

4. *Foundation Design:* The foundation of the structure should be designed to distribute the load evenly over the soil, and to prevent differential settlement. The foundation should be deep enough to reach below the collapsible layer and into a more stable soil layer.

Get all solution at BIHARENGINEERINGUNIVERSITY.COM

5. *Monitoring:* It is important to monitor the performance of the

5. *Monitoring:* It is important to monitor the performance of the structure during and after construction to detect any signs of settlement or instability. This can involve the use of instruments such as settlement plates, inclinometers, and piezometers to measure soil movement, slope stability, and groundwater levels.

In summary, construction on collapsible soil fills requires careful planning and execution to ensure that the structure is stable and does not undergo excessive settlement. Measures such as site investigation, moisture control, soil improvement techniques, foundation design, and monitoring can help to mitigate the risks associated with collapsible soils.

visit= biharengineeringuniversity.com