Fiber Optic Cable Construction in Frozen Soil

Fiber optic cables were pulled out of frozen soil for studying interfacial behavior. Progressive failure of cable-soil interface during pullout was modeled. Freezing process was characterized via shear ...

In this paper, to investigate the cable-soil interfacial behaviors under different initial water contents and freezing durations, a series of laboratory cable pullout tests were conducted in frozen ...

Water pipelines in water diversion projects can leak, leading to soil deformation and ground subsidence, necessitating research into soil deformation monitoring technology.

In this paper, a series of pullout tests were conducted on fiber optic (FO) cables embedded in the frozen soil to investigate the cable-soil interface behavior.

During the freezing process, the liquid water in the soil becomes ice, causing the movement of the freezing front and water migration, and resulting in significant differences in the mechanical ...

The deformation of foundation soil caused by freeze-thaw cycles is a typical geological disaster in engineering construction in permafrost areas. Fiber optic sensing technology provides an ...

This study presents an experimental investigation of cable-soil interfacial behaviors with different initial water contents and freezing durations. The results from the cable pullout test show that interfacial ...

This study not only provides improved insight into the interpretation of fiber optic strain measurements but also sheds light on soil-inclusion interaction mechanisms in geotechnical analyses.

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