Collapsible loess photovoltaic support

Is remolded loess collapsible?
Collapsibility tests and scanning electron microscopy (SEM) analysis were conducted on remolded loess to comprehensively investigate the settlement and deformation mechanisms of collapsible loess from both macro- and micro-perspectives. Furthermore, a prediction model was developed and its applicability was verified.

Is loess structural or collapsible?
As a typically structured soil,loess is characterized as porosity,structural and collapsible2,3,4,5,6,7,8. Accordingly,it is important to study collapsibility of loess for foundation design,as differential collapse deformations in loess could cause cracks in upper structures 9,10,11,12,13.

Does loess collapsibility affect upper structure?
As is known to us all,physical model testis one of the proved method to investigate the influence of loess collapsibility on upper structure,however,the physical model test need sufficient undisturbed collapsible loess as dielectric material to conducted. During the sample collection,the porosity and structure is very easily to be disturbed.

What is the prediction model of the loess collapsibility coefficient?
The prediction model of the loess collapsibility coefficient based on water content,dry density,initial porosity ratio,and pressurewas developed. The main findings are summarized as follows: As the p increased,the ?s experienced a rapid increase and then gradually stabilized,forming a hyperbolic function relationship.

Can artificial loess be used to simulate collapsibility?
It is of great significance to effectively simulate the collapsibility and structural of natural loess by preparing artificially loess. However, the existing methods of artificially preparing collapsible loess are complex, and the collapsibility of the prepared samples is difficult to control.

What is the collapsible deformation of loess?
Overall, the collapsible deformation of loess involved the gradual transformation of the internal open and sub-stabilized void structure into a mosaic-cohesive structure. Four parameters of the water content, dry density, initial porosity ratio, and pressure, were employed in this study to predict the collapsibility coefficient of loess.

The results can provide experimental support and theoretical guidance for the popularization and application of screw-squeeze piles in deep, collapsible loess areas. Soil layer division of the ...

Structure and mechanical properties of photovoltaic brackets in collapsible loess area ... The main conclusions are as follows. (1) The bracket"s ability of resisting the pull-down load is weak when the front support at the

end of the fixed PVB settled, the settlement of a support will cause large deformation of the nearby PVB structure and ...

Based on the correlation between the collapsibility of the compacted loess and the resistivity test results, a new prediction model of the collapsibility of the compacted loess is proposed, which ...

It was found that the loess collapsible deformation was attributed to the large pores and shelf-like structure within the soil, whilst the microstructural changes were in line with its macroscopic ...

loess, Malan loess, Newly stacked loess and Loess-like soil,as shown in the table1; According to whether the loess has collapsibility, it can be divided into self-weight collapsible loess, non -weight collapsible loess and non-collapsible loess, as shown in the table2. After being soaked in water, it will produce collapsibility due to its

The similar material of collapsible loess is the basis and premise of the experimental study on the surface movement and deformation law of coal seam mining in collapsible loess-covered areas.

The mechanism of collapsible loess collapsible deformation can be analyzed by capturing deformation law, and it is easy to analyze the nature and composition of land. Therefore, considering the strain distribution characteristics of high embankment, a new analysis method of collapsible loess collapsible deformation mechanism is proposed.

Uneven settlement will occur as a result of the collapsible deformation of the loess strata, and the hydraulic tunnel lining structure will also fail. In this work, laterally confined compression tests were carried out on loess and the double-line method was employed to evaluate the loess collapsibility. The deformation of the surrounding rock of a loess hydraulic ...

The vibratory system is composed of a DZ-90KS vibrator and vibratory wing, as shown in Fig. 3 a. The vibratory wing has a significantly different shape from the other probes commonly used in the world, and in order to adapt to the loess field, the previous cross-shaped vibratory wing had been further improved.

2.1 Test site location and punctuation layout method. The test site (Fig. 2) is located in the city of Xi"an (107°40?-109°49? E, 33°42?-34°45? N), China.The geomorphic unit of the site is part of the third grade terrace (engineering geological division of collapsible loess in China) of the Chan River (a river located in Xi"an, China).

To investigate the risk levels of collapse associated with different Low-Impact Development (LID) measures employed in constructing stormwater systems within collapsible loess areas, the study utilized the High-Efficiency and High-Precision Urban Stormwater Model (GAST) to analyze the risk of waterlogging. The aim was to propose a method that integrates ...

Collapsible loess is characterized by its unique soil-forming environment, mineral composition, and microstructure, resulting in poor engineering properties such as high water sensitivity, high collapsibility, high compressibility, and low strength. To improve the poor engineering properties of collapsible loess, we selected a suitable eco-friendly material--guar ...

behind the reaction between DAP solution and calcium carbonate in loess to generate HAP for reinforcing the loess. The research findings offer a novel and competitive option for stabilizing collapsible loess grounds, characterized by efficiency, energy savings, and environmental friendliness. 2. Materials and Methods 2.1. Materials

Support of Collapsible Loess Regions Yang Yang1,2*, Wanfeng Liu 1,2, Aiping Hu 1,2, Fei Li1,2 and Zhaoqian Yang1,2 1 School of Civil Engineering, Long dong University, Qing yang, Gansu, 745000,

Bored piles comprise an advanced pile foundation technology that has the advantages of high bearing capacity, fast construction speed, stable construction technology, and no noise or mud pollution. To study the applicability of bored piles to collapsible loess sites, the compaction effect and load-bearing characteristics of bored piles before and after immersion ...

collapsible loess was determined to be 64.24 kPa, the internal friction angle was 25.45°, the compression coe cient was 0.43 MPa º 1, and the compression modulus was 4.75 MPa (Ta- ble 3).

The mechanism of collapsible loess collapsible deformation can be analyzed by capturing deformation law, and it is easy to analyze the nature and composition of land. Therefore, considering the strain distribution characteristics of high embankment, a new analysis method of collapsible loess collapsible deformation mechanism is proposed. In this method, ...

In the referred loess tunnel, there was no groundwater during the preliminary investigation phase, but there were water seepage, cracks and other hazard-related problems during the construction. Based on investigation of the relationship between the tunnel and the surrounding water system, this paper developed a three-dimensional terrain model and ...

Collapsible loess undergoes significant additional deformation and obvious strength reduction after being soaked by water [1]. In the case of engineering construction on collapsible loess sites, the ... so as to provide technical support for the construction of towering structure in collapsible loess areas. 2. Project Case and foundation treatment

Collapsible and non-collapsible loess are discriminated in the Chinese context, a coefficient of collapsibility 0.015 indicating the latter condition. Experiments designed to elucidate the ...

the collapsible loess tunnels are that the technology is relatively mature, the reinforcement quality can be guaranteed, and the long-term stability is good. The disadvantages of using the jet grouting pile method in the

collapsible loess tunnels are that the working environment in the tunnel is poor, the construction

The combination of seasonal shutdowns, water conveyance, cold, and drought can easily lead to the deterioration of the anti-seepage system and loess foundation of the canal, which contributes to the destruction of the ...

Taking a deep foundation pit in a collapsible loess area as an example, this paper analyzes the application and calculation of steel sheet pile support under the complex operation conditions ...

In this paper, taking the typical collapsible loess strata in Xi"an as the research object, combined with Monte Carlo and finite element simulation, the influence of the spatial ...

a more convenient criterion, that the saturation moisture content must not exceed the liquid limit, was regressed against 0.005 mm clay content determined by the hydrometer method, and indicated that c-horizon loess containing less than 20% 0.005 mm clay is very likely to be collapsible, with 30% clay there is a 50% probability of collapse, and with over 40% clay there ...

Loess is a special scholar soil accumulated and formed in the arid and semiarid conditions of Quaternary. Its hydraulic properties are collapsibility caused by water invasion, easy to disintegrate ...

Loess collapse and other collapse-related problems, such as collapsible settlement (Peng et al. 2017; Yuan and Wang 2009), soil cracks (Liu et al. 2021), and loess landslides (Wang et al. 2022a, b, c; Xu et al. 2014), have contributed to serious damages to the infrastructures that are constructed on loess soils, especially due to deformation under force ...