

Secondary grouting of photovoltaic support piles

How effective is pile-side grouting compared to tip grouting?

This study proposes a comprehensive set of test methods for constructing model piles, performing grouting at the pile tip and pile side. A series of single-pile grouting and static load tests were conducted using these test methods. The results reveal that pile-side grouting is more effective in controlling pile settlement compared to tip grouting.

Does side grouting reinforcement improve load bearing capacity of piles?

Accounting for these issues, pile side grouting reinforcement method has been widely employed to improve the load bearing capacity of existing piles. However, the mechanism of this method is still not clear. In this paper, the compressive load capacity of pile with side grouting reinforcement is investigated.

What is pile side grouting reinforcement?

Therefore, pile side grouting reinforcement of existing piles is often implemented by sleeve valve grouting reinforcement, ordinary high-pressure jet grouting reinforcement and metro jet system (MJS) method. The pile-reinforced zone interface characteristics and the friction improvement mechanism may be different among these methods.

What is Pile Post-grouting?

This process, known as pile post-grouting, effectively pressurizes the grout, thereby improving the overall performance of the piles [8,9,10]. Post-grouting methods generally encompass three forms: tip grouting, side grouting, and tip-side combined grouting.

Does grouting improve pile-bearing capacity?

Through an analysis of the load-displacement relationship at the pile top, as well as the lateral friction resistance and tip resistance, the efficiency of various grouting forms in enhancing pile-bearing capacity and the reinforcement effects under different grouting parameters are thoroughly examined.

What is post grouting?

The post-grouting technique, from the development of closed grouting to open grouting, from post-grouting at the pile tip to post-grouting at the pile side or tip-and-side, from the single pipe method to the U-shaped pipe method, has now developed into a more mature construction craftwork.

For soft ground, the traditional uniform-section circular pile generally has a relatively low uplift bearing capacity, due to its low skin friction or base resistance mainly ...

Grout provides structural support, enhances stability, and facilitates the transfer of loads from the wind turbine to the seabed. It acts as a crucial bonding agent, securing the foundation and ...

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This study introduced a novel method to test the effect of base post-grouting of three 88 m long piles. A total of three test piles were grouted at the bottom of the piles. The grouting amount of the No. 1 pile was 500 kg, the ...

Post-grouting methods generally encompass three forms: tip grouting, side grouting, and tip-side combined grouting. Tip grouting significantly enhances the mechanical properties of the weak layer at the pile bottom, ...

newly developed grouting induced base-enlarged pile. The non-uniform piles including base-enlarged piles and molded grouting screwed piles exerts the broaching resistance of the belled ...

serves as soil support between the secondary, reinforced piles. Commentary: Primary piles function as soil support between the secondary piles in both linear and circular shaft wall ...

The mechanisms of post-grouting of drilled shafts to improve the bearing capacity of pile foundation are discussed, and some properties of the grout typically used in this procedure (such as water ...

The results show that: (1) according to the general requirements of 4 rows and 5 columns fixed photovoltaic support, the typical permanent load of the PV support is 4679.4 N, the wind load being 1 ...

Grouting was performed in 2 stages, initial stage of grout plug and secondary grouting using "bottom to top" method. Actual grouting time utilised for pure grouting for 4 skirt piles and 4 ...

zone, to improve radial expansion during pile grouting and also, to prevent the mixing of the grout with the soil, which improves bonding between the grout and the pile. This idea was supported ...

A corrosion-inhibiting additive was added to the grout during mixing; Grouting was carried out from the main foundation installation vessel; Grout quality was continuously monitored during each operation; Grout pumping was completed ...

Secondary grouting can effectively control the ground settlement caused by shield construction and is widely used in urban shield tunnel construction. Therefore, it is necessary to study the ...

This study has comprehensively investigated the bearing characteristics of three types of photovoltaic support piles, serpentine piles, square piles, and circular piles, in desert gravel areas. Through numerical ...

An injection pipe is inserted, typically to maximum treatment depth, and the grout then injected as the pipe is slowly removed in lifts, creating a column of overlapping grout bulbs. The expansion of the grout bulbs displaces ...

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Abstract. To study the grouting effect of pile end and pile side combined post-grouting technology in cohesive soil, the self-balancing static load test was carried out on two ...

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