Construction technology of photovoltaic support cast-in-place piles

What are the different types of photovoltaic support foundations?
The common forms of photovoltaic support foundations include concrete independent foundations, concrete strip foundations, concrete cast-in-place piles, prestressed high-strength concrete (PHC piles), steel piles and steel pipe screw piles. The first three are cast-in situ piles, and the last three are precast piles.

Can photovoltaic support steel pipe screw piles survive frost jacking?
To study the frost jacking performance of photovoltaic support steel pipe screw pile foundations in seasonally frozen soil areas at high latitudes and low altitudes and prevent excessive frost jacking displacement, this study determines the best geometric parameters of screw piles through in situ tests and simulation methods.

What is a photovoltaic support foundation?
Photovoltaic support foundations are important components of photovoltaic generation systems,which bear the self-weight of support and photovoltaic modules,wind,snow,earthquakes and other loads.

Are driven piles suitable for ground mount solar panels?
The design for uplift behavior of shallow footings has been discussed extensively by Kulhawy (1985) and Trautmann &Kulhawy (1988). Driven piles are an attractive foundation alternative for ground mount solar panel systemssince the materials are readily available and Contractors are familiar with the technology.

What is the Frost jacking of the photovoltaic pile?
Considering the thawing settlement of the pile body,within the 25-year service period of the photovoltaic power project,the frost jacking of the pile is approximately 144.68 mm. anti-frost jacking measures are recommended to reduce the impact of frost heaving.

What are steel pipe screw piles?
Among them,steel pipe screw piles are widely used in photovoltaic support foundation projectsin various countries and Western China (Zarrabi and Eslami,2016,Chen et al.,2018) because they have simple and fast construction,less noise and vibration and can be reused (Livneh and El Naggar,2008,Aydin et al.,2011,Mohajerani et al.,2016).

The first method of cast-in-place piles is with steel cores. The method was developed by the Washington State Highway department because of hairline cracks that were appearing in the area in which the contractor was proceeding to excavate.

The cast-in-place pile foundation of the solar cell panel support resolves the problems that in the prior art, the environment is not protected and construction cost is high, and provides a ...

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<sec> Introduction In order to obtain the optimal structural layout scheme for photovoltaic supports in the road domain of the transportation and energy integration project, ...

Cast-in-situ piles cannot be used in areas with strong groundwater flow or high artesian pressure. Application of Cast in Situ Pile. In the construction process, cast-in-situ piles play a decisive role and can be used in various circumstances, as follows: Foundations for new residential and commercial buildings; Infrastructure projects and ...

Construction personnel should strictly follow the requirements and process of construction of underwater concrete pouring pile technology to ensure the orderly progress of actual work, so as to ...

To construct surface structures, the fundation by installing the piles into the ground is provided to support surface structures. Cast-in-place pile construction is the method to complete the piles by placing the concrete after installing the reinforced cage to be arranged on site into bore hole.

By strengthening the detection of pile foundation in the construction stage, it can effectively avoid quality accidents, take remedial measures in time and reduce economic losses. Therefore, it is of great significance to carry out the research on quality control technology in the construction process of super long bored cast-in-place pile.

Pile foundations are widely used all over the world. The thermal characteristics of some pile foundations have been of concern, including those of energy piles (Rotta Loria and Laloui, 2017, Faizal et al., 2019) and pile foundations in permafrost (Shang et al., 2018).The strength of frozen soil is closely related to its temperature (Cheng and Ma, 2006).

The first three are cast-in situ piles, and the last three are precast piles. Among them, steel pipe screw piles are widely used in photovoltaic support foundation projects in various countries and Western China (Zarrabi and Eslami, 2016, Chen et al., 2018) because they have simple and fast construction, less noise and vibration and can be ...

Slurry ratio is a crucial link in the construction of bored pile, which directly determines the quality of bored pile. In order to determine the key performance parameters of the slurry required ...

During the construction of cast-in-place piles in warm permafrost, the heat carried by concrete and the cement hydration reaction can cause strong thermal disturbance to the surrounding permafrost. Since the bearing capacity of the pile is quite small before the full freeze-back, the quick refreezing of the native soils surrounding the cast-in-place pile has ...

Through the simulation analysis of excavation support and subsequent pipe-jacking construction with concrete cast-in-place pile, the results can provide a reference for the design of supporting ...

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Cast-in-place footings are a variation of overdrilled and cast-in-place piers but are constructed as a typical shallow foundation with a stem extending to the ground surface to support...

Driven cast in-situ (DCIS) piles are constructed by driving a closed-ended hollow steel or concrete casing into the ground and then filling it with concrete. ... Excavation support; Stabilisation. Mine stabilisation / void filling; Sinkhole / Karst stabilisation ... Driven cast in-situ piles are instrumented during the installation process to ...

"Auger cast-in-place (ACIP} piles and drilled displacement piles are being increasingly used as foundation elements for structures, particularly in projects requiring accelerated construction or involving the rehabilitation of foundations of existing, overstressed structures. Auger cast-in-place piles (also referred to as continuous-flight-auger piles) are ...

In this study, various techniques for connecting reinforcement cages in cast-in-place concrete piles are being investigated with the aim of enhancing their overall structural integrity and performance. The traditional method used for connecting steel bars in construction is through overlap.

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