The challenges of deep excavation, dewatering and semicircular pile in gravel formation of Taichung green line rapid transit system joint development

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In order to exert the advantage and crowds brought by the MRT more efficiently, in general, a large-scale development plan will be implemented at the base of the MRT station. There are six jointed-development plans, G5, G6, G8a, G9-1, G9-2 and G11 respectively, in Taichung green line rapid transit. The basement scale is 5 to 7 floors and excavation depth from 23 to 36.75m. The deepest excavation is 36.75 m in G9-1, and it is the deepest excavation project in Taichung so far. Furthermore, in order to implement more efficient space in G5, G6, G8a, G9-2 and G11 basement, not only deep excavate, but also the whole new construction method was adopted, the semicircular pile, which required higher construction technology and accuracy, and it is the first time used in Taiwan.

The geology in Taichung is gravel formation, which composite of sand and cobble, the shear strength and permeability are high, the deal with surface water, underground water or other leakage water are the key points during the deep excavation construction.

The subject today will discuss the significant issues of construction in deep excavation and dewatering, the challenges and countermeasures in the semicircular pile. We hope the construction safety, technology of deep excavation and semicircular pile in gravel formation could be improved and better