

Using Down-hole Electrical Resistivity Tomography for Detecting the Growing of Jet Grouting

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Jumbo-jet Special Grouting, called JSJG, is one method of ground improvement. For sites with soft soils, the JSJG method is mostly effective and quick to provide soils reinforcement. It forms as a column, so that it can be serve as a pile. Arranged JSJG piles also can be taken as a diaphragm wall. Traditional quality inspecting method for those underground construction often adopt taking cores in the edges of improved material and compress it. According to actual experience, the drilled core sometimes takes uncomplete samples or non-representative. It's also difficult to determine the outer edge of the grouted column by core-drilling. Therefore a subsurface geophysical method should be adopted herein. Electrical resistivity tomography method is widely used for detecting the interlayers, groundwater levels, or cavities in underground layers. Requiring long-length span for deeper detecting is an in-situ issue for earning straight and horizontal space to operate. Down-hole electrical resistivity tomography method is first proposed in this study in Taiwan. The result shows that this vertical arrangement can acquire more clear images due to be close and parallel to the grouted pile more than previously mentioned horizontal one. The form and growing of the grouting taken from this method can provide more credible parameter for future usage.

Keywords: JSJG, Soft soils, Electrical resistivity tomography, subsurface geophysical method

