

PERMEATION GROUTING

13th Street Vent Shaft Rehabilitation Structural Settlement Protection New York, New York

When the New York City Metropolitan Transit Authority (NYCMTA) needed to upgrade the 13th Street vent shaft, installing the sheetpile earth retention system and accomplishing the deep excavation required to access the shaft within the confines of a congested urban environment were not the only challenges. The project was further complicated by the presence of an aged single story structure with a rubble wall foundation along the excavation alignment. Permeation grouting was specified to be performed in advance of sheetpile installation to provide settlement protection for the building.

Prior to grouting, Moretrench performed exploratory borings to identify soil conditions and evaluate their groutability. Cased hole duplex drilling techniques were then used to advance primary and secondary rows of tube à manchette (TAM) grout pipes through the miscellaneous fill and natural silty sand soils to design depth at approximately 10 feet below proposed excavation subgrade. Sodium silicate grouting was performed through TAM ports spaced at 15 inches on center to stabilize the target soils adjacent to and beneath the rubble foundations. Post-grout borings performed by Moretrench confirmed the effectiveness of the program. Neither settlement nor damage to the rubble foundations occurred during the subsequent excavation and vent shaft rehabilitation.



Top Right: The drill rig is installing grout pipes alongside the sensitive structures. Specialized grouting equipment is built into the blue shipping containers.

Bottom Right: Grouted soil.

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