

Project Spotlight



Coney Island Subway Station: Micropiles with Aerlite Void Fill



Background Information

All New York City subway repairs take place at the main repair facility in Coney Island. Constructed in 1927 on loose fill material over the former Coney Swamp, the floor of the repair facility was plagued by settlement issues within two years of completion.

After more than 50 years of implementing “band-aid” repairs, the floor slab in the maintenance building settled 18 inches. In 1984 the New York Transit Authority dedicated \$100 million to a major stabilization.

Project Details

The repair plan included the installation of micropiles to stabilize the the maintenance building, low-density cellular concrete to fill existing voids under the floor slab and several new structures and equipment.

The micropiles, small diameter piles made with high-strength steel casing and/or threaded bar, are designed to resist compressive, tension, and lateral loads. 6-7 inch diameter piles, installed to depths of 35 feet were designed to support loads up to 30 tons. The piles were successfully installed without disrupting shop operations during construction.

Existing voids under the floor slab were filled with low-density cellular concrete produced using Aerix™ AERLITE foaming agent. The 30-36pcf material was pumped into the voids without removal of the floor slab.

Aerix Added Value

In addition to not having to remove the floor slab to place the low-density cellular concrete, its low density inhibits additional settlement and corresponding down drag forces to the micropiles. The lightweight fill produced with Aerix™ foaming agents will also protect against erosion by reducing the ability of water to seep under the floor slab, creating new voids.

