



UNITED STATES

Frederick News Post Frederick, MD



Owner
ACE Printing, LLC

Engineer
Specialized Engineering

General contractor
CDT Design Consultants, LLP

Dates of work
2006/06 2006/08

Main figures

Controlled Modulus Columns (CMC)TM
2200 EA.



Description

When the Frederick News Post, located in Frederick, MD, built a new three-story office building and newspaper production facility, a site analysis concluded that the soil conditions were not adequate to support the weight and size of the 100,000 sq ft printing and distribution facility, while maintaining the settlement design tolerance.

To support the foundation, Menard provided an innovative design-build solution for Controlled Modulus Column (CMC)TM rigid inclusions as an alternative to compaction grouting and piles for foundation support.

Ground conditions

The site analysis showed poor soil conditions with very soft layers of compressible fill and soils on top of karstic limestone commonly found in the area and characterized by sinkholes.

Solution

Menard proposed an innovative CMC rigid inclusions solution to support the building columns and the slab-on-grade floors, as well as cap grout at the top of the karstic limestone.

Menard designed a ground improvement program utilizing on-board monitoring to cap grout the fractured layers on top of the limestone while simultaneously creating 12.5-in diameter CMC rigid inclusions. The automated system — installed on the pump and inside the rig — guaranteed the constant monitoring of the grout pressure and volume, ensuring the filling of any voids and openings in the upper rock surface and reducing the risk of sinkholes.

More than 2,200 CMC rigid inclusions were installed at a maximum depth of 40 ft for a total of over 30,000 LF. Menard completed the installation in a 38-day production schedule.

In summary, to support the foundation of a large printing facility, Menard designed an innovative CMC rigid inclusions solution to support the building and cap grout the top of karstic limestone to reduce the risk of further sinkhole development.