



UNITED STATES

Consumers Employee Development Center Grand Rapids, MI



Owner

Consumers Energy

Engineer

SME

General contractor

Rockford Construction Company, Inc.

Dates of work

January 2016 January 2016

Description

Consumers Employee Development Center is an approximately 12,000 sq-ft, multi-level training facility for Consumers Energy located in Grand Rapids, Michigan. A geotechnical report uncovered voids in the bedrock and concluded that the site soils were unsuitable to support the weight of the slabs and footings of the new facility. Menard and Nicholson Construction Company worked together using their specific techniques to provide a more economical design than traditional augercast piles or micropiles.

Menard installed Controlled Modulus Column (CMC)® rigid inclusions to support the building loads, and Nicholson utilized its Low-Mobility Grouting (LMG) technique to fill bedrock voids.

Main figures

Controlled Modulus Columns
278 EA.

Ground conditions

The site soils consist of a sand, sandy silt, and silty sand fill to a depth of approximately 13 ft, and is underlain by gravel and sandy soils to depths up to approximately 30 to 40 ft. Shale with gypsum and limestone underlies the natural soils. The gypsum and limestone are prone to develop karstic weathering features such as fractures and large voids.

Solution

Installing CMC rigid inclusions into a solid bearing soil layer, rather than bedrock, coupled with Nicholson's LMG technique to fill bedrock voids is a proven system in the Grand Rapids area for preventing future settlement. Additionally, it is typically more economical than traditional deep foundations.

Menard and Nicholson previously teamed up to provide a similar ground improvement solution on a facility at nearby Grand Valley State University. A total of 278 CMC rigid inclusions were installed to an average depth of 20 ft.