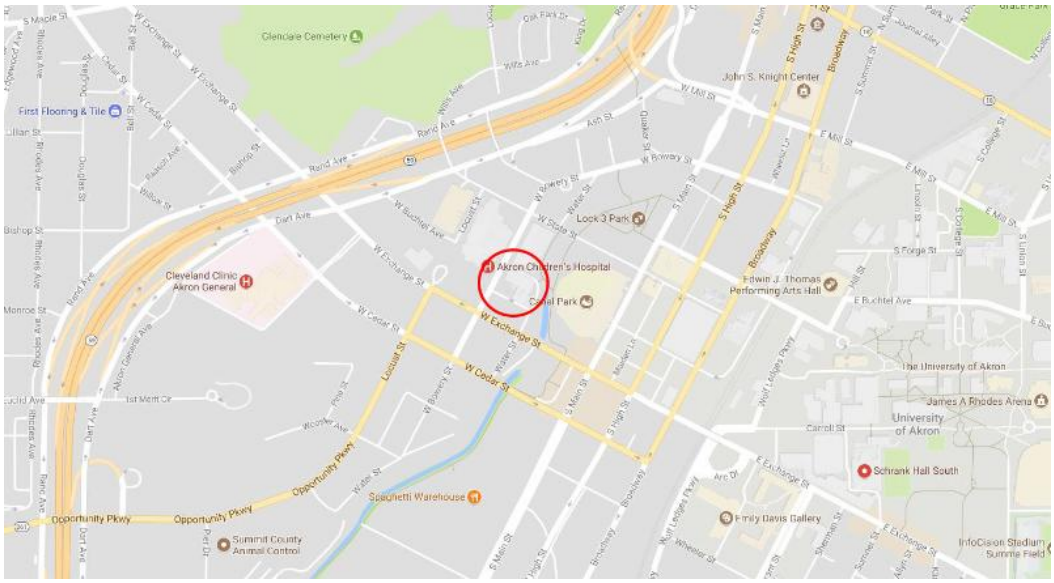
BUILDINGS

AKRON CHILDREN'S HOSPITAL

Akron, OH

UNITED STATES



Owner
Akron Children's at Cleveland Clinic - Akron General

Engineer
Timmerman Geotechnical Group, Inc.

General contractor
Welty Building Company

Period of works
April 2017-May 2017

Main figures

Controlled Modulus Columns
256 u

Displacement piles
27 u

Project description

To meet the growing demand of behavioral health services for children and teens, Akron Children's Hospital wanted to construct a new seven-story addition to its Considine Professional Building. The new addition, located in Akron, OH, is the future home of the hospital's mental health programs and will consolidate outpatient laboratories spread across downtown Akron. Before construction could begin, a geotechnical investigation determined that the site soils were too soft to support the new structure's anticipated loads. To support the footings of the new 26,000 square-foot facility, Menard designed and installed a dual solution of augercast piles and Controlled Modulus Column (CMC) Rigid Inclusions.

Ground conditions

The site soils are characterized by medium dense sand/silty sand reaching depths up to approximately 25 feet. This is underlain by a layer of loose silt at 25 to 40 feet, underlain by medium dense to dense sand/silt at 40 to 60 feet.

Solution

To help coordinate with other contractors on site, Menard crews installed the augercast piles first, followed by the CMC Rigid Inclusions. During the CMC Rigid Inclusion installation, a shallow refusal of the columns prompted Menard crews to adjust the type of CMC auger being used. The tooling was switched to a Continuous Flight Auger (CFA), which has the ability to drill through stiffer soils, thus avoiding shallow refusal.

Since CFAs create larger holes than the traditional CMC augers, Menard crews also had to reevaluate overbreak. Overbreak refers to the theoretical volume of grout expected to be used based on the length and diameter of the column vs. how much grout is actually used to fill the column. Menard crews now needed to determine the correct overbreak to use for the columns created with the CFA tooling.

The addition to the Considine Professional building will allow the hospital to treat an additional 500 patients in 2017, increasing to 750 patients by 2020 for a total of 1,750 annually (https://mcdmag.com). A total of 256 CMC Rigid Inclusions and 27 augercast piles were installed to maximum depths of 50 feet. The client was happy with Menard's coordination with the other contractors on site and the company's commitment to safety.