Industry

Confidential Client

UNITED STATES

Raceland, LA

Owner
Confidential Client

Engineer
Confidential Client

General contractor
Confidential Client

Dates of work
2014/03 2014/10

Main figures

Controlled Modulus Columns
2,500 EA.

Description

The confidential client's new facility located in Raceland, Louisiana is comprised of four 142-ft diameter oil tanks, one water tank, two shop and maintenance buildings, and other ancillary structures. To support the large loads and reduce settlement of the tanks and structures at this facility, Menard proposed a ground improvement solution of Controlled Modulus Column (CMC)® rigid inclusions to be installed to depths up to 135 ft.

Ground conditions

The soil profile of the Gulf Coast site contained compressible clay deposits ranging from very soft to medium stiff to depths of more than 150 feet. In some areas of the site, a sand layer was present at a depth of 110 to 120 ft.

Solution

Menard designed geogrid-reinforced crushed stone ring walls to support the perimeters of each 142-ft diameter tank. Load Transfer Platforms were placed for all four oil tanks. Due to varying loading conditions, one oil tank was placed on a perimeter concrete leveling slab while the three other tanks were supported by concrete slabs-on-grade.

The additional structures at the new facility supported by CMC rigid inclusions such as a water tank, and various buildings are founded on classic concrete mat foundations.

The CMC rigid inclusion design called for columns to reach depths up to 135 ft. In order to meet this depth requirement, Menard partnered with one of its sister companies to build two deep-reaching CMC rigid inclusion rigs. At the time of the project, these were the deepest CMC rigid inclusions ever installed. More than 2,500 CMC rigid inclusions were installed on this project to an average depth of 120 ft.

To support four large tanks and several ancillary structures on very soft soils in the Gulf Coast, Menard installed Controlled Modulus Column (CMC) rigid inclusions to extreme depths up to 135 ft.