



Elementary School



Deep Foundations – Installing Micropiles

PROJECT OVERVIEW

In 2011, the entire town of Joplin, Missouri, was left devastated as an EF5 tornado destroyed their town, including their elementary school. The land where an Elementary School was to be constructed was donated by a local hospital.

REQUIREMENTS AND CHALLENGES

The design requirements for this project were compression loads up to 314 kips, and tension loads up to 118 kips.

Based on the loads and sub-surface conditions, CNC Foundations chose an End-bearing Micropile System, comprised of both cased and uncased micropiles. Cased Micropiles were required due to lateral concerns because of known abandoned mines and voids at particular locations.

SOLUTION AND RESULTS

CNC Foundations used 8 5/8 inch casing and drove down to the bedrock approximately 28 feet below the existing elevation and the casing was socketed into the rock.

Uncased micropiles were used to support the new foundation and grade beams. The uncased micropiles were open-hole drilled, and used a down-the-hole-hammer to socket into rock. We used 3 different bar sizes due to the various loading requirements. Over 350 cubic yards of grout was used on this project.

We performed a sacrificial compression test with a total deflection of 0.200 inches and a sacrificial tension test with a total deflection of 0.644 inches to verify the loads. The project was completed on time and under budget.

Project Details

SECTOR

Elementary School
Construction, Educational
Facility

LOCATION

Joplin, MO

APPLICATION(S)

End-bearing Micropile
System, Cased Micropiles,
Uncased Micropiles

