

Extreme Settlement – Building Lifted



With as much as 6" of settlement at the back of the building, the client was in need of some help. The floor settlement was immediately apparent and needed to be addressed. Innovative Piering was contracted with to install many different piles styles, stabilize, and even lift some of the two-story building.

Project Name: Shadeland Station

General Contractor: Cornerstone Companies, Inc.
of Indianapolis, Indiana

Engineering: CE Solutions, Inc. of Carmel, Indiana

Location: Indianapolis, IN

The engineers designed for helical piles to underpin the existing building. Then, once the building was supported, a sheet pile wall was designed to retain the earth around the foundation. Then, a lifting operation could occur. This was the plan, but significant challenges were encountered.

First off, the helical piers were successful on this project, through 75% of the locations. But, it was quickly discovered that 25% of the piers found obstructions, in the form of 24-36" diameter tree trunks. Yes, I said trees were buried under the building pad. Of course, this was the area of the most settlement. The solution for this one was to utilize push-piers, to act as casings from the foundation to the buried trees. Then, we brought in a man-portable micropile drill to drill through the trees and install micropiles to underpin the building. This had to happen in about 10 locations. With that, we were able to underpin the existing structure to arrest further settlement.



The next step was to install a sheet pile wall. Total depth for the NZ style sheets was about 24' and a variable moment, crane suspended vibrator. Again, another challenge crept in. We encountered a firm soil layer about 18' deep, causing us to reach refusal early. This unfortunately required a design change, including having some helical tiebacks reinforcing the sheets against the lateral loads.

Once the foundation was stabilized, it was time to lift the building. Structural steel columns were reinforced and a hydraulic lifting program was implemented. Lifting was performed and the client was able to finish their building out.





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