

Grouted Injection Underpinning

The Grouted Injection Pier System is based on the basic principal that sinkhole activity can be remediated by directly targeting the problematic rock and soil zones without the need for excessive grout material while simultaneously providing permanent structural support through the transfer of the building's weight to competent load bearing strata.

Secure Foundation Systems, Inc. utilizes a variety of “grout ready” underpins, helical piers and auger piers that can be custom tailored to your site specific plan.

For years our industry has required a two step process to properly remediate a “sinkhole” affected property. First by pressure grouting and consolidating soils, and second by underpinning the structure and returning it to it's original elevation.



Grouted Pressure Underpins

Grouted Pressure Underpins (shown left) are essentially steel pressure underpins with grout holes or perforations cored out in a variety of shapes and sizes according to the application or engineers specifications. Grouted Pressure Underpins are generally installed at the bottom 8 to 16 feet of a pin location just above the top of competent rock layer to allow grout material to seal off the limestone bedrock. This process ensures that further rock erosion at the source of the ravel zone is halted and effectively remediated.

A custom bracket assembly system (shown right) attaches to the top of the Grouted Pressure Underpin securely fastening it to the buildings foundation.



Bracket securing the injection underpin to the foundation of the structure.

All brackets installed by **Secure Foundation Systems, Inc.** are fully adjustable. Any vertical adjustment later required can be easily accomplished with no adverse impact on the property.

Grouted Injection Underpinning (Continued.)



Grouted Helical Piers

Grouted Helical Piers (shown left) consist of a round steel shaft with a series of welded plates that create a screw-like anchor. The shaft extensions are bolted together to allow sufficient torque drive for installation at pre-determined depth. Grouted Helical Piers are custom manufactured to achieve a compression capacity rated according to your Engineers' design.

Grouted Helical Piers can be fabricated with single, double, triple and even quadruple helical plates to allow personalized customization of the site's specific demands.

Grouted Helical Piers are screwed down until certain soil bearing capacity is achieved, resistance lock is reached or required torque is attained. During installation torque resistance is monitored by the Geological Engineer and provides visual verification of when the helical anchor capacity is achieved. After installation is complete each helical pier is pressure grouted to consolidate the soils below the pier and strengthen the end bearing capacity.

All underpins and bracket systems installed by Secure Foundation Systems, Inc. are custom manufactured specifically for your unique project. Our systems are **GUARANTEED** to achieve a compression (load bearing) capacity that **EXCEEDS** your Engineer's specifications.

Grouted Auger Piers

Grouted Auger Piers (fig 3) are utilized when drilling is required to penetrate areas of dense and/or non-porous soils such as clay or "high blow count" layers. Grouted Auger Piers are always drilled or augered down to the top of the limestone or load bearing strata to ensure grout application at those depths. This process ensures that further rock erosion at the source of the ravel zone is halted and effectively remediated.

The grout holes in the Grouted Auger Piers are cored in a variety of shapes and sizes and can be custom designed according to the application or engineers requirements.

Grouted Auger Piers are utilized for compression (load bearing) applications. A custom bracket assembly system attaches to the top of the Grouted Auger Pier securely fastening it to the buildings foundation.

