

Foundation Underpinning

- Hand-Dug Pits
- Bracketed Piles
- Jet Grouting

Underpinning is the process of stabilizing and supporting structures in support of excavation or in conditions whereby settlement has occurred. Earthcore has the equipment and experience to safely perform foundation underpinning utilizing many different methods such as hand dug shored pits, drilled micropiles with brackets, and jet grouting/soil mixing.

Foundation underpinning is often mistakenly performed “open cut,” resulting in structural settlement and failure. The basic process of installing standard hand dug underpinning pits is low tech, but the engineered design and sequencing must be followed precisely to avoid potential problems. The hand dug pit proves to be the most common method used and is able to be performed in tight locations without the need of large equipment.

Bracketed micropiles, tieback anchors, and wood lagging are often utilized to ensure the structural integrity of the building and to make the project economical to construct. Many factors affect the decision on which method suits a particular project, and the design of these systems is best left to the few professionals that have many years experience designing and installing underpinning systems.



Drilled Pile Foundations

- Small to Large Diameter Piles
- Extreme Depths
- Pile Load Testing

Micropiles are small diameter drilled foundation elements typically more economical to install than caissons. They are often constructible in extreme limited access conditions where a caisson rig could not gain access. Augercast piles are another economic alternative to caissons that utilize a continuous flight auger to drill and inject grout or concrete to form a column as the soil is displaced.

Micropiles often utilize a steel casing in upper soil zones to keep the hole open, can be designed as friction or end bearing piles, and can terminate in soil or rock. When designed as friction piles, micropiles are often load tested in tension, at large cost savings as compared to caissons. Augercast piles are limited to installation in soil or weathered rock only. Both micropiles and augercast piles typically utilize continuous steel reinforcing grouted within the section of the pile.

Earthcore has many years of experience installing micropiles as deep foundation building elements. These smaller diameter piles are well-suited to drill in difficult fill/rock formations, provide underpinning support, to increase the bearing capacity of existing foundations, and are routinely installed in extremely restricted and low overhead/indoor conditions. Small diameter micropiles are routinely designed to carry large loads as an economic alternative to other deep foundation elements.



Caisson Foundations

- Crawler and Truck-Mounted Foundation Rigs
- Up to 72" Diameter – Auger and Casing
- Low Headroom/Indoor Rigs
- Load Testing

Drilled shaft foundations, or caissons, are larger diameter (typically >24") reinforced concrete deep foundations used to transfer structural loads below grade to suitable soil and or rock formation elevations. These foundations can be designed as end bearing, friction, or a combination of both and typically are designed to support higher loads than micropiles.

Earthcore has the capability to drill and install caissons in a variety of subsurface conditions and in limited access/low headroom conditions. Often caissons are drilled with steel casing as the shaft is advanced to ensure the hole stays open for inspection and proper placement of reinforcing and concrete. Additional loading capacities can be designed by the use of drilling tie-downs/rock anchors below the elevation of the bottom of caisson. Earthcore has perfected the use of custom equipment to effect this option on any project designed.

Caissons are often not considered to be cost-effective building elements, but Earthcore has the capability to mobilize smaller equipment units in combination to economically construct projects of smaller magnitude or quantity. Our team has extensive experience in assisting the design engineer with determining the feasibility and constructibility of all foundation elements.

