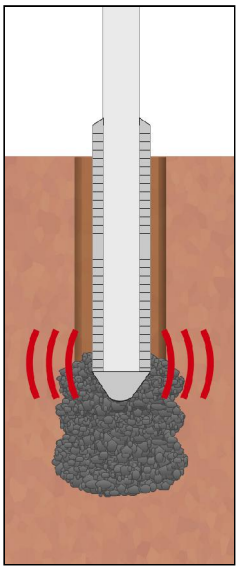
Vibro Terrapier®

Terra Technologies
Engineered Ground Improvement by TerraSystems

I95 Interchange MSE Walls – Alexandria, VA

DID YOU KNOW ?

TerraSystems utilizes various techniques for installing aggregate piers, including our DHT Terrapier® using down-hole tampers, our Vibro Terrapier® using powerful vibrators, and our IDP Terrapier® using high-energy deep impacts.



Vibro Terrapier®

The Vibro Terrapier® Difference

Vibro Terrapiers® are vertical columns of densely-compacted aggregate, installed using powerful down-hole vibrators. The technique is used primarily to increase the bearing capacity and reduce settlement of building foundations, support floor slabs, and increase the stability of retaining walls and slopes. Vibro Terrapiers® provide a cost-effective alternative to typical deep foundation support. Vibro Terrapiers® can be constructed above and below the groundwater table and in any soil type. The technique is applicable for light to heavy foundation loads, for small to large projects, and for treatment depths of 5 to over 30 feet.

The Vibro Terrapier® technique results in aggregate piers with very high modulus values in the compacted aggregate, often in the range of 2,000 to 4,000 TSF. Significant lateral prestraining of the surrounding soil matrix occurs due to the large lateral forces generated by powerful horizontal mode vibrators.

TERRASYSTEMS
GROUND IMPROVEMENT

Vibro Terrapier®

The Vibro Terrapier® Technique

Terrapiers® are constructed by removing or displacing soil to create a cavity in the ground, penetrating soft zones, and then backfilling with aggregate from the bottom up using vibratory and displacement techniques. Very high lateral stresses are generated by the compaction action in the aggregate, resulting in a high-modulus aggregate pier surrounded by pre-strained soil.

The primary technique uses a special rig with a down-hole vibrator. Our smallest vibrator is capable of 45,000 pounds of lateral force and nearly 50,000 pounds of vertical force, insuring a tightly compacted layer of aggregate.

The typical installation of a Vibro Terrapier® begins with pre-drilling a hole to the design depth. After the cavity has been created, a layer of aggregate is placed at the bottom and compacted with the vibrator. After this layer has been sufficiently compacted, more aggregate is added in roughly one foot layers. The compaction and filling process continues to the required height of the pier. In situations where the water table is too shallow to allow drilling, a bottom-feed technique can be used to place stone to the tip of the vibrator.

Johnston Memorial Hospital – Abingdon, VA

Sentara Hospital Parking Structure, Norfolk, VA

Vibro Terrapier® Advantages

- High Bearing Pressure
- Superior Settlement Control
- Low Cost
- Rapid Installation
- Environmentally Friendly
- Proven Experience

George Mason University Performing Arts Building, Fairfax, VA

Typical Applications

- Building Foundations
- Tank Support
- Slab Support
- Liquefaction Mitigation
- Landslide Prevention
- MSE Wall Support

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SCAN HERE

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