



Drilled Shaft Radius, Volume and Verticality Services

GRL Engineers, Inc., offer drilled shaft radius, volume and verticality services to measure and report the characteristics of a wet pour, drilled shaft excavation. A SHaft Area Profile Evaluator (SHAPE) device with eight ultra-sonic signals to scan the sides of an excavation is used to provide a quick scan of the drilled shaft verticality, radius, shape, and drilled hole volume. During a test, data is collected and stored within the SHAPE device's internal memory, allowing for cable free data collection.

Test Procedure

The SHAPE device is quickly connected to a drill rig's Kelly bar and is positioned over the center of the drill hole. The SHAPE device is then lowered into a water or slurry filled hole, while simultaneously collecting data from all sensors as it is lowered or raised, at a rate of up to one foot per second. Following removal of the SHAPE device from the drilled shaft excavation, the device is connected via ethernet cable to the SHAPE Tablet where the collected test data is downloaded, processed, and displayed. This can be done in real time with a GRL engineer on-site, or remotely with the engineer connected to the SHAPE Tablet via the internet.

Data Analysis and Reporting

Drilled hole profiles of radius vs depth are checked and presented for each diametrically opposite pair of sensors. From the diameters calculated at the top and bottom of the drilled hole the verticality, as well as the offset in a x and y direction, can be determined. The theoretical and measured volume of the excavated shaft can also be compared as a function of depth.

Benefits of SHAPE

- Quickly determines the shaft verticality, radius, shape, and drilled hole volume in water, polymer, and mineral slurries using the SHAPE device
- Provides 3-Dimensional, 360° view of the drilled excavation
- Timely analysis and reporting provided on-site or via a remotely connected GRL engineer

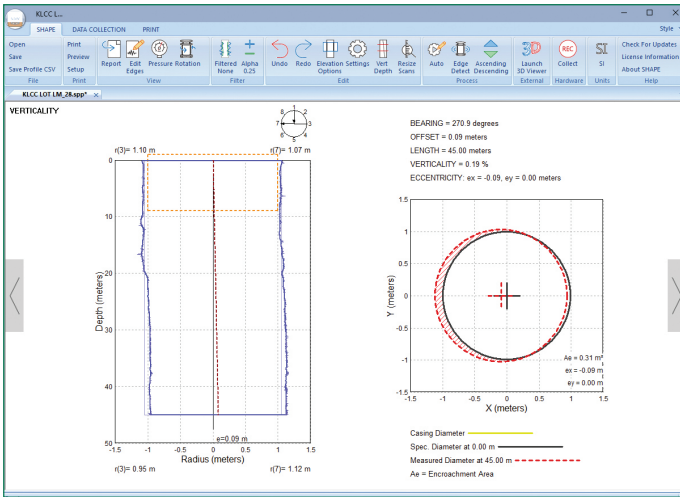
GRL Engineers, Inc.

Corporate Office
Ohio

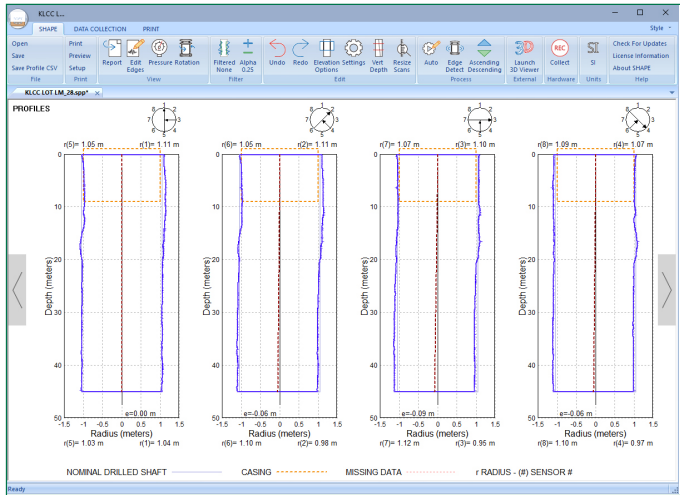
Office Locations

California	Hawaii	North Carolina	Washington
Colorado	Illinois	Pennsylvania	
Florida	Louisiana	Texas	

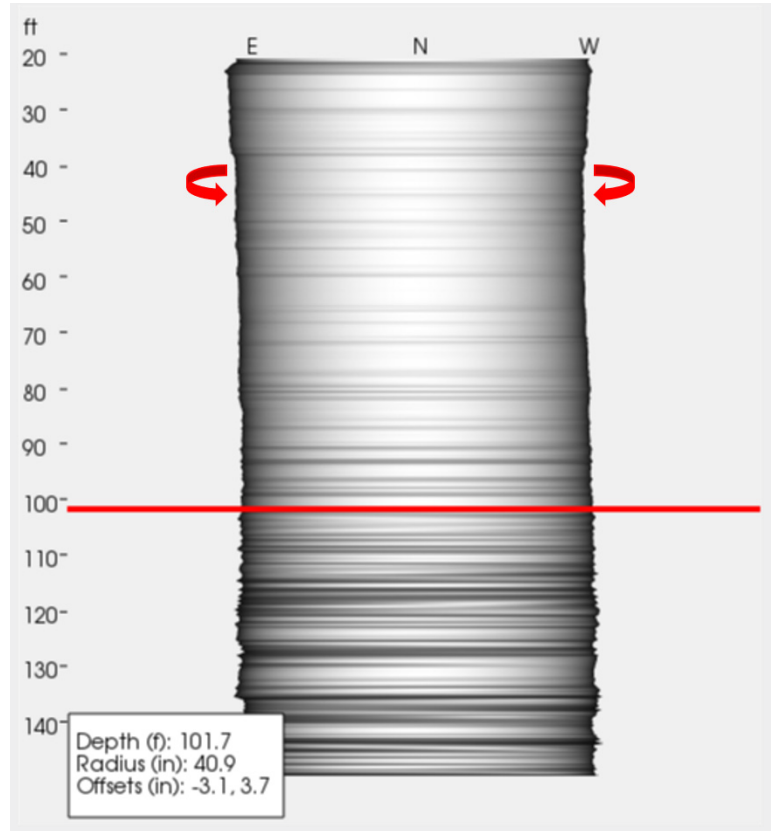




Drilled hole profiles corresponding to each sensor pair



Maximum verticality and offset value in x and y directions



360° view of drilled hole

3-D Plot

The drilled hole can also be visualized in a 3-Dimensional plot that rotates to provide a 360° view of the drilled hole. This 3-D plot can be used to assess the verticality and change in radius along the drilled hole depth. At any selected depth (indicated by the red horizontal line), the radius and the offset (eccentricity) can be calculated and reported with reference to the top of the drilled hole.

For additional information on Drilled Shaft Radius, Volume and Verticality or any other GRL Engineers service please contact info@GRLengineers.com or visit us at www.GRLengineers.com.

