



Remote Testing Services

GRL Engineers provides remote testing services for Shaft Cleanliness and Verticality Assessments, Pile Driving Monitoring, Shaft Radius, Volume and Verticality and Standard Penetration Testing.

Drilled Shaft Cleanliness Evaluation

An important part of drilled shaft or bored pile construction is the cleaning and evaluation of the shaft base condition prior to placing the reinforcing cage and concrete. GRL Engineers perform base cleanliness checks using the SQUID (Shaft QUAntitative Inspection Device). The test provides a quantitative assessment of the drilled shaft base utilizing SQUID's three penetrometers and three displacement plates.

Benefits of SQUID

- Shaft base material can be quickly tested at multiple locations with the SQUID device attached to a Kelly bar
- Base cleanliness assessment of the soft material or "debris" thickness provided in realtime by the GRL engineer on-site or at the office via SiteLink® technology
- Resistance from conical tip penetrometers pushed into base material may be correlated to subsurface exploration, dynamic, bi-directional, or static load test results

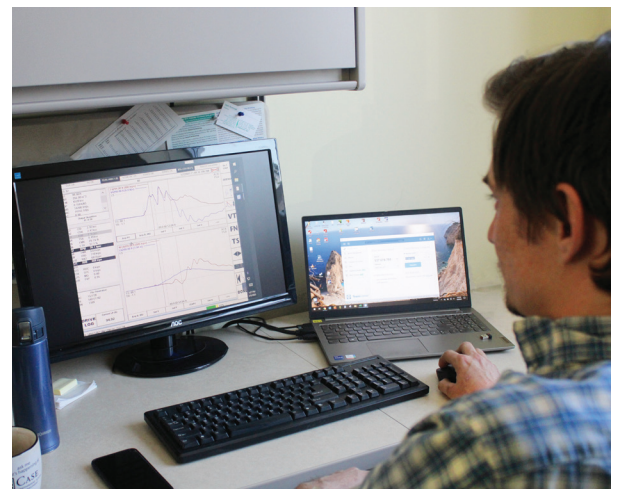


Remote High Strain Dynamic Pile Monitoring and Testing Services

GRL Engineers, Inc., offer Pile Driving Monitoring services. Piles need to be efficiently installed for their required capacity without exceeding their specified pile material stresses. In some cases, a penetration depth must also be achieved. Dynamic pile monitoring using a Pile Driving Analyzer (PDA) offers an economical way to facilitate pile installation to satisfy these objectives.

Benefits of PDA

- Remote Data Collection and Monitoring
- Assessment of Bearing Capacity
- Calculation of Driving Stresses



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.

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

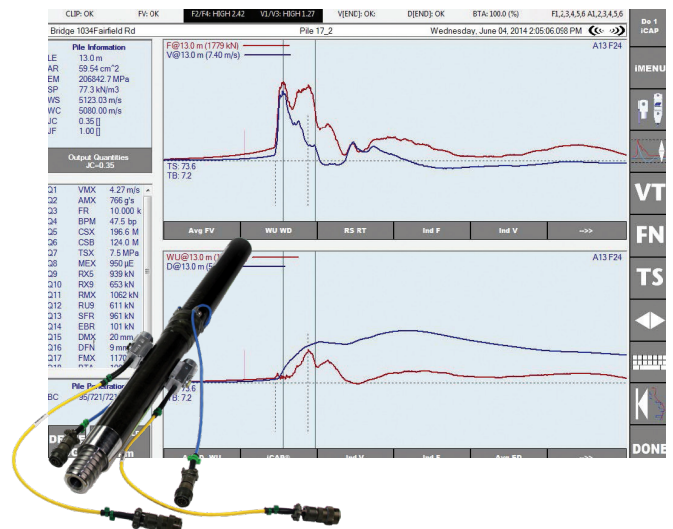


SPT Energy Calibration

SPT Energy Calibration consists of measuring the energy transferred by the Standard Penetration Test (SPT) hammer to the SPT rod.

Benefits of SLT

- Improves the reliability of the Standard Penetration Test (SPT) measured N-values
- Measures energy transferred by the SPT hammer to the SPT rod
- Establishes N60 values for foundation design



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