



# SUBSURFACE CONSTRUCTORS INCORPORATED



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WE TAKE THE NEWEST  
TECHNOLOGY  
AND RUN IT INTO THE GROUND.

GROUND IMPROVEMENT    AGGREGATE PIERS    VIBRO COMPACTION    DRILLED SHAFTS    EARTH RETENTION    DRIVEN PILE    AUGERCAST PILE    MICROPILE

## Vibrocompaction for Liquefaction Mitigation

### PROJECT DESCRIPTION

#### Subsurface Uses Ground Improvement To Densify Loose Sands and Silty Sands in the New Madrid Region

The New Madrid Fault Zone is considered the area of highest earthquake risk of any region of the US outside the West Coast. Much of the New Madrid Region consists of the alluvial soils of the Mississippi River floodplain. The alluvial soils are comprised of loose silty sands and sands in the upper 40 to 50 feet that can be susceptible to liquefaction in a seismic event.

There are two projects in the New Madrid Region for which Subsurface Constructors was hired to perform the design and construction of a ground improvement system in these soils: the Kennett, MO Community Supervision Center, and an addition to the AECI Power Plant in Dell, Arkansas.

Subsurface' work consisted of using vibro-replacement stone columns and vibrocompaction to increase bearing pressure and mitigate liquefiable soils, respectively. The stone columns are installed in the upper silts and silty sand, and vibrocompaction is used to compact the deeper, relatively clean, loose sand. SPT and CPT testing programs were performed at both sites to verify post-treatment soil strengths.

### PROJECT SUMMARY

#### Project Names:

Community Supervision Center-  
Kennett, MO  
AECI Power Plant Addition-  
Dell, AR

#### Soil Description:

Silt, Silty Sand 0 to 15ft  
Loose to M. Dense Sand 15ft to 50ft

#### Objectives:

Provide structural support in soft upper soils. Densify loose sand with depth for liquefaction mitigation.

#### Ground Improvement Design/Builder:

Subsurface Constructors, Inc.



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