Oakley Liquefaction

Ground Improvement – Installing Aggregate Piers/Vibratory Stone Columns

PROJECT OVERVIEW

We performed ground improvement on site for a new logistics center in Oakley, CA. The project was built on a site where the soils consist of a mix of loose sands and soft clays extending to a depth of approximately 20 feet, with relatively dense soils below. Due to the high risk of seismic activity, the site's sandy soils were very susceptible to liquefaction.

Liquefaction is a term used to describe the loss of strength of a granular soil with vibrations typically associated with earthquakes. It can cause large settlements and building failures, unless the proper ground improvement measures are taken before construction.

REQUIREMENTS AND CHALLENGES

We installed Aggregate Piers/Vibratory Stone Columns (VSCs) to densify the loose soils, reduce the risk of liquefaction, and limit the extent of the damage that an earthquake could cause to the eventual structure. VSCs are compacted columns of aggregate that are installed through existing soils to improve the geotechnical properties of the soil matrix. The aggregate Piers consist of a series of vertical lifts of compacted #57 Stone from a predetermined design depth up to the ground surface.

We chose VSCs for their quick and efficient installation along with their flexibility to meet a variety of different needs. Their installation offers reduced spoils for your project, cutting the cost of handling and hauling away spoils. Aggregate Piers like this also accelerate the rate of settlement which reduces the chance of delays in your project timeline.

SOLUTION AND RESULTS

A portion of the site required minimal predrilling of the Aggregate Piers/Vibratory Stone Column locations, as well as utilizing both bottom feed and top feed installation methods throughout the site. In addition to the liquefaction concerns, we provided an increased bearing capacity allowing for a more economical shallow foundation system to be used.

Project Details

SECTOR
Logistics Center

LOCATION
Oakley, California

APPLICATION(S)
Aggregate Piers/Vibratory Stone Columns (VSC)

1ST CHOICE