



Conan Terminal Tanks

Mentone, Texas

Keller's redesign of the tank foundation system resulted in project completion one week ahead of schedule and considerable cost savings for the client.



The project

Three new crude oil storage tanks, supported on ring beams, were scheduled for installation at Conan Terminal as part of Western Refining's EOG Gathering Project. Each tank was 188 ft in diameter and 48 ft tall, with a storage capacity of nine million gallons.

The challenge

The general site subsurface soil profile consisted of 3 ft of cemented sandy silt (caliche) over 30 ft of sandy silt. During the geotechnical exploration, a layer of soft sandy silt was encountered approximately 7 ft below the surface. Constructing the tanks directly on current grade would have resulted in excessive total and differential settlement due to the compressible layer.

The solution

Keller developed a vibro (aggregate) pier/load transfer platform ground improvement program that would meet the client's performance requirements. For the first two tanks, the piers were designed with a nominal 30 in. diameter and were installed to depths of up to 21 ft below working grade. The load transfer platform consisted of 36 in. of well-compacted crushed stone and a biaxial geogrid. Several hundred piers were installed at each tank location. For the third tank, Keller drew on data from the first two installations to redesign the vibro piers to 36 in. in diameter, reducing the total number of piers to 357.

Project facts

Owner(s)

Western Refining

Keller business unit(s)

Keller

Main contractor(s)

Keller

Engineer(s)

Tetra Tech Rooney
Terracon

Solutions

Ground improvement

Markets

Tanks

Techniques

Vibro (aggregate) piers®

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