RAMMED PIERS SYSTEM IS SITE'S INDUSTRIAL-STRENGTH SOLUTION

Clarence L. Jean Jr., vice president of Houston Fuel Oil Terminal Co., knew that building foundations for ten 80,000-barrel fuel storage tanks on 12 unstable acres near the Houston Ship Channel wouldn't be easy. But the first industrial use in Texas of a patented soil reinforcement system not only did the job, but shaved four weeks and $700,000 doing it.

The site, a former bayou since rerouted, is composed of clay and sandy soils down to about 13 ft, and then is granular sprinkled with organics. Houston Fuel looked at excavating and refilling and at several deep foundation solutions. "I looked at auger-cast piles, vibrated concrete columns and conventional pile systems," says Jean. "I was not happy with any of them because of the expense."

DRIVING Rammed piers system cut costs and time.

Enter Scottsdale, Ariz.-based Geopier Foundation Co. Inc. Using an excavator-mounted low-drill and hydraulic hammer, it installed more than 3,000 of its Rammed Aggregate Piers, drilling 30-in. shafts about 10 to 20 ft deep and filling the cavity with rammed aggregate to form a "bottom bulb." Layers of rammed stone, usually 12-in. deep, are then compacted on top of each other to create a dense, stiff shaft that prestrains and prestresses the soils laterally around the shaft. "It creates a very stiff element that acts like a spring in the way it supports a load," says Nathaniel S. Fox, Geopier president and inventor. "The soil also acts like a soft spring, and when you combine the two, you have a composite mass that acts as a synergistic spring."

Work on the oil site project finished so quickly that "we are doing some supplemental pipe rack foundation work to finish the job," says Fox.

The Geopile system was used last year in construction of a headquarters site for U-Haul Corp. in Texas. "It was a difficult site because of construction debris," says Fox. The firm also built what he calls "Geotrenches" using a backhoe. "The entire project was done in six days, saving the owner $250,000," says Fox. A Geotrench is an 8-ft-long, 30-in.-wide linear Geopier. Each trench was the equivalent of two Geopiers on the U-Haul site. "Geotrenches are more practical where you have low overhead or debris fill," says Fox.

By William J. Angelo

SALTON SEA AGENCY TESTS HIGH-SPEED TURBO-MIST DEWATERING EQUIPMENT IN CALIFORNIA

Scientists and government agencies are counting on specialized devices to drastically reduce the high salinity of southern California's Salton Sea that now impairs this important wildlife habitat and popular recreational site.

Because the 35-mile-long, 17-mile-wide lake lacks a water source to dilute its natural salt deposits, salinity levels attain levels that are blamed for frequent, large-scale wildlife die-offs. Studies estimate that 9.4 million tons of salt will have to be removed from the lake annually for 30 years. Capital costs for the restoration are estimated at $200 million to $300 million, plus $5 million to $15 million annually for operations and maintenance.

DESALTING SALTON Machine is accelerating salt evaporation at high-salinity Salton Sea.

As part of the search for solutions, Slimline Manufacturing Ltd. mounted an on-site demonstration of its Turbo-mist evaporator March 1 and 2. "We want to show people that are out there searching [that there are commercially available solutions]," according to Kim Blaghorne, president of the Penticton, British Columbia-based firm.

Slimline's Turbo-mist is typically used for dewatering at heavy industrial sites, such as food processing and tailings ponds, says Blaghorne. The stainless steel unit accelerates evaporation by spraying water through a diffuser nozzle. Each unit can expose 22 tons of sodium chloride daily, which could be removed from the site.

The Turbo-mist will be included in one of three pilot projects, which could start by late 2000, says Tom Kirk, executive director of the Salton Sea Authority in La Quinta, Calif. The agency will probably request design-build proposals for the projects, Kirk says. Draft environmental documents being prepared by Pasadena, Calif.-based Tetra Tech Inc. are in the public comment phase and scheduled for completion this summer.

By Paul Rosta