

ESS' Komatsu 300 installs the first of three bay systems in the E&S slide rail.



## 30,000-Gallon Tank Goes in Quickly and Safely with Clear-Span Shoring

**Smaller excavation cuts labor and material costs**

*by Julie Devine*

When Emery Sapp and Sons, Inc. (ESS), based in Kansas City, Mo., installed a 30,000-gallon, underground storage tank measuring 10 feet in diameter and 52 feet in length, they could've done it the traditional way: Dig a hole to the required 18-foot depth and make it 60 feet wide to meet OSHA standards.

But when they used the E&S slide rail system from United Rentals Trench Safety in Kansas City, Mo., they just dug the hole straight down. That required 25 percent less labor, 50 percent less excavation and 40 percent less backfill, according to Dustin Levell, underground utilities superintendent for ESS, which served as a subcontractor to Clayco out of St. Louis, Mo.

### Shoring Plus

The Johnson county wastewater system hasn't quite reached the Coleman Distribution Center under construction in Gardner, Kan. "It's pretty open; all virgin soil," Levell said.

Levell's team installed 3,800 feet of eight-inch- to 15-inch-diameter pipe, supplied by Kansas City Winwater Works, for a future sewer connection. For now, though, the distribution center needed the fiberglass storage tank for its septic needs.

Facing an aggressive schedule, ESS looked for a shoring system they could install quickly with an excavator. The E&S system includes an I-beam that sits vertically in the hole, with panels that enclose all four sides while leaving a clear span at the top that accommodated the large tank.

Instead of digging the trench and then setting shoring in the hole, "The neat thing about this system is you dig down two feet and install the system," Levell said. "As you dig, you push it down. It's very secure and safe."

### Reduced Costs

Because ESS dug straight down rather than excavating all the material required for an open-cut trench, "Our granular backfill was a lot less," Levell said. "We saved time and material without risking safety."

In total, ESS used 700 cubic yards of clean, granular backfill, with the excavated dirt used at other places on-site.

The rail system also reduced labor costs. "Typically we run a four-man crew, but we used one less guy because it's so easy to install," Levell said. "We just needed an operator and a couple laborers." Chris Naylor served as ESS' crew foreman.



*Above: The strut cart unit supported the slide rail system on the inside.*



*Above: Workers raised the slide rail panels gradually as they placed backfill in the pit.*



*Above: After digging the pit with the slide rail system in place, workers lowered the 30,000-gallon storage tank through the clear-span opening.*



*The top panels of the slide rail system supported the sides of the pit until all the work was done.*

### Safe Retreat from the Hole

The shoring worked in reverse as the crew placed backfill. "We put in two feet of rock, pulled the system up two feet, then put two more feet of rock and repeated that movement until we got everything out," Levell explained. "It made it safer for the people down in the hole."

However, the safety actually caused a bit of a challenge in removing the system. "When you install it, you push it down into the soil so it's very snug and tight," Levell said. "When we removed it, we used two excavators to speed up the process."

ESS put their own Komatsu 300 to work, along with an additional 300 excavator rented from Road Builders Machinery & Supply Co. in Kansas City, Kan.

The storage tank and associated pipe took less than a week to install last August. Under the direction of project manager Bridget McPartland, ESS completed the remaining underground utility work in October. ■