

HOLD BACK

Spray liner helps contain environmental brownfield near botanical garden

By John Heap

The area located over the western edge of the Fort Worth Botanical Garden property, in Fort Worth, Texas, once was a visible 20-ft-high wall stacked with 55-gal waste drums. Each drum contained material byproducts from the Trinity Valley Iron and Steel Co., which dumped foundry slag and sand into the drums for decades. The garden's plans to develop a children's garden near the site prompted years of debate and concern about the environmental safety of the pile, and although the waste inside the barrels was tested and found to be

fairly stable and environmentally harmless, the need for a thoughtful retaining wall still was required.

The environmental concern about the materials inside the barrels was low, which meant that they really did not need to be removed, but the physical stacking of the barrels with no other restraint posed other issues. A few had even fallen onto the garden property over the years.

Durable Containment

In the spring of 2012, Austin Bridge & Road LP subcontracted Colorado Lining

Intl. Inc. (CLI) to coordinate geomembrane and coating containment for the recently built concrete retaining wall. The design called for building the wall and using an all-natural spray coating called Ecodur on 20,000 sq ft of the wall surface, and then capping the upper section with an asphalt parking lot. This effectively entombed the waste and kept any possibly contaminated storm water from entering the adjoining property. A shotcrete wall can crack and leak over time, but the toughness and durability of the spray coating ensures that the wall



The shotcrete wall was 25 ft high and required the use of an aerial lift to spray the upper portions from a man basket.

will remain sealed and be unaffected by the elements.

How It Works

Ecodur is a green coating created from abundant gypsum and renewable castor oil and is VOC and solvent free. It has excellent adhesion to concrete and is resistant to a wide variety of chemicals. Ecodur often is used for coatings in oil and gas tanks holding produced water. It has the advantage of not requiring a primer on concrete prior to application, which saved five days on the project and helped keep the crews on schedule and within budget.

CLI also used 30-mil PVC to provide 80,000 sq ft of membrane containment along the wall sections to control infiltration and drainage. The company offered custom-fabricated panels sized for the areas requiring containment. With the addition of a new coating division, the company was able to offer a solution that included both membrane and coatings.

The project required careful coordination between Austin Bridge & Road and CLI to facilitate construction of the wall footings while still allowing CLI access to spray the wall sections, so it was useful that one company could do both the membrane and coating installation. The site's access was tight to start, and construction of the wall began prior to the coating of the shotcrete, creating even tighter access to some sections. It was necessary to use an aerial lift to get behind the caissons and access the face of the shotcrete.

CLI's Coating Division crew consisted of four men working for 11 full days to get the project completed. The project was originally delayed three days at the start due to heavy rains and tornados, but because Ecodur eliminates the need for primer, the delay was not much of an issue. Because of other construction occurring, the PVC installation was phased and crews were dispatched from CLI's Houston and Colorado offices as needed for sections of installation as the sections became ready.

The spray rig is fully self-contained and has its own generator air compressor. It has 400 ft of hose to access tough areas, which helped crews access and maneuver

on this project in particular. The Coating Division crew was trained and certified by Castagra, the creators of Ecodur, for spraying and maintaining the equipment.

The Ecodur provided a watertight seal on the shotcrete. Because it is a completely natural product, the site owners and the neighboring Fort Worth Botanical Garden can be certain that the area is both structurally and environmentally

safe for years to come. **SWS**

John Heap is president of Colorado Lining Intl. Inc. Heap can be reached at jheap@coloradolining.com or 303.841.2022.

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