

# RCP Used On Mississippi River Flood Control Project

Northwestern Tennessee took the brunt of Mother Nature's wrath in 2002, weathering heavy rains (more than 20 inches above normal through early November), flooding and close encounters with tornadoes. Despite the harsh and often unpredictable elements, work continued on a flood control project along the Mississippi River that would help manage flood runoff and high water elevations of "The Big Muddy." In addition to controlling local floodwaters, the structures are designed to benefit area farms that grow large amounts of soybeans, corn and cotton.

The Graveyard Slough Floodgate & Culvert Replacement Project in Tiptonville, Tennessee located on the Mississippi River levee near Reelfoot Lake involved the removal of old corrugated metal culverts and replacement with four larger-sized 72-inch diameter Class IV barrels of reinforced concrete pipe (RCP). A new outlet structure with remote-controlled

sluice gates replaces the former floodgates. The project was designed by the US Army Corps of Engineers (Memphis District) and contracted to Clifco Construction of Dyersburg, Tennessee. Clifco contacted the Memphis plant of Hanson Pipe & Products for supply of the required RCP, flared ends and sluice gate.

Despite awful local weather conditions and tight construction schedules, the contractor was able to complete 2002 requirements on time. The contract stipulated that no construction activity could take place between December 1 and April 1. It was important that most of the work be completed before the end of November. Even with the weather delays, the project is expected to be completed as scheduled by late summer 2003. By the 2002 shut-down date, the contractor had installed all of the pipe and flared ends, and had backfilled the installation to grade.

Clifco had to come up with an innovative

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*The four-barrel 72-inch RCP culvert and remote-controlled sluice gates replaced the former floodgates to help manage flood runoff from "The Big Muddy."*



▲ Four-barrel 72-inch RCP culvert being installed while crews form the concrete diaphragm. The pipe and diaphragm were later backfilled to carry Highway 21 across the levee.

▲ A steel sled was used to transport the 72-inch Class IV RCP from the levee to the pipe zone.

technique to move the pipe from the point of off-load to the construction area and a method of homing the pipe. The contractor built a steel sled to transport the RCP from the top of the levee to the pipe zone. Once in the pipe zone, a backhoe equipped with a “J” hook attachment pulled the pipe from the sled, positioned the pipe, and then joined it to the line of pipe in one motion. The four lines of culvert pipe were installed while crews constructed a con-



Frequent grade alignments and close joint tolerances help produce “rifle-barrel” smooth results inside the 72-inch reinforced concrete pipe culvert.

crete diaphragm over the installation for Highway 21, which crosses the four-barrel culvert structure and runs parallel to the levee.

The contract is valued at \$2 million including movement of 100,000 cubic yards of earth and placement of 9,000 tons of protective riprap. A temporary runoff diversion structure is in-service until the new outlet structure is completed. This was part of the contract.

“The Big Muddy” and Mother Nature are forces that no man wishes to take on alone. The flood control improvement project comprised of RCP and other precast concrete products reveals the complexity of design and durability of materials necessary to curb such potentially destructive forces. The use of reinforced concrete pipe demonstrates its value as a reliable product for the health, safety, and economic prosperity of a community. ☺

<b>Project:</b>	Graveyard Slough Floodgate & Culvert Replacement Tiptonville, Tennessee
<b>Owner:</b>	US Army Corps of Engineers Memphis District
<b>Designer:</b>	US Army Corps of Engineers Memphis District
<b>Contractor:</b>	Clifco Construction. Dyersburg, Tennessee
<b>Quantities:</b>	800 feet of 72-inch diameter Class IV RCP
<b>Producer:</b>	Hanson Pipe & Products Memphis, Tennessee

Hanson's Memphis plant (formerly Choctaw) produces a comprehensive line of precast products including concrete pipe, box culverts, manholes, and precast bridges. Hanson Pipe & Products, Inc. is a sophisticated, diversified manufacturer of concrete pipe and a variety of supporting products including manholes, drainage structures, box culverts, bridge components, retaining walls and concrete block. Its plant locations throughout North America enable the company to serve the most rapidly growing parts of the U.S. and Canada. Hanson is an international building materials company. It is one of the world's largest producers of construction aggregates, and concrete gravity and pressure pipe, precast concrete, and is the leading manufacturer of facing bricks in Europe. See [www.hansonconcreteproducts.com](http://www.hansonconcreteproducts.com) for details.