



## Massman, Traylor, Alberici completes World Record Load Test in Mississippi River Bridge Construction

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ST. LOUIS — The Massman, Traylor, Alberici (MTA) joint venture has successfully completed a load test for foundations of the new Mississippi River bridge that reached 36,067 tons, a world record for load testing of a foundation pier.

MTA completed the test in June after encasing load testing technology in concrete near the bottom of an 11.5-foot-wide shaft drilled 119 feet deep beneath the river near the new bridge's planned location at St. Louis.

After the concrete hardened, specially designed pumps created hydraulic pressure on the pier that reached a peak load of 36,067 tons, according to Loadtest, Inc., the Florida company that owns the technology used to perform the test. The test reached its peak pressure without causing any significant movement of the pier, Loadtest said.

"This is a phenomenal achievement for the foundation construction industry and is a tribute to the foresight of the joint venture MTA that a test of this magnitude was even attempted," said Jack Hayes, Loadtest's president.

MTA Project Sponsor Mark Schnoebelen said the test validates MTA's approach to constructing the bridge's foundations, and clears the way for MTA to start drilling shafts and pouring concrete for the foundations.

"We are pleased our methodology has been confirmed, and we are ready to get to work on the foundations so we can complete this project on schedule and on budget," Schnoebelen said.

MTA is a joint venture of Massman Construction Co. of Kansas City, Missouri, Traylor Brothers Inc. of Evansville, Indiana, and Alberici Constructors, Inc. of St. Louis, Missouri.

In January 2010, the Missouri Department of Transportation (in conjunction with the Illinois Department of Transportation) awarded MTA a contract to build the 1,500-foot-long main span of the bridge. The bridge is scheduled to be completed in January 2014. When complete, it will be the third-longest cable-stayed bridge in the United States.

In the bidding process, state officials asked construction firms to bid on a design that called for drilling 14 shafts for each of the bridge's two main footings, the foundation structures that support the bridge from the river bottom. However, they also permitted bidders to offer an alternative technical design concept for the construction of the footings. MTA proposed a concept that provided for six drilled shafts for each footing, providing significant cost savings. MTA's bid was \$45 million lower than that of the only other bidder.

The load test performed in June confirmed MTA's alternative technical concept, according to MTA. That allowed HNTB, the engineering firm designing the bridge, to complete designs for the foundations using the concept.



The test exceeded the previous world record -- 31,350 tons established in 2005 on a bridge project in South Korea -- by 4,717 tons, according to Loadtest. The previous record in the United States, 18,400 tons, was recorded on a bridge project over the Ohio River, according to Loadtest.

Loadtest, founded in 1991, uses technology patented by Dr. Jorj Osterberg to test the load-bearing capacity of foundations. The company's objective is to help reduce construction costs by enabling construction companies to avoid unnecessary expenditures on foundations. The company's "Osterberg cells" are steel structures that act as jacks and exert pressure on a foundation.

In the test in St. Louis, MTA workers encased four "Osterberg cells" in concrete at the bottom of the shaft drilled below the river. The cells were placed into the 21-foot-deep portion of the shaft that was drilled into solid rock. Riley Illinois based in Granite City, IL, provided concrete for the test; Dan Brown and Associates provided geotechnical design; and, Geotechnology, Inc. provided testing services for the shaft.



MTA workers prepare to lower the load testing system into a shaft drilled into rock beneath the Mississippi River.

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