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E-Mail: Jamie.Harthoorn@terex.com**A MUCH NEEDED LIFT****TOEBE CONSTRUCTION USES MULTIPLE TEREX CRANES TO UPGRADE BRIDGES IN MICHIGAN**

ZWEIBRUECKEN, Germany, August 11, 2016 – The Michigan Department of Transportation (MDOT) is in the midst of a two-year, \$77 million project to address deteriorated bridge conditions and increased congestion along Interstate 96 at the U.S. Highway 23 interchange in Livingston County. More than 96,000 vehicles per day travel this stretch of I-96, and the 52-year-old bridges are in poor condition and in need of critical structural and design updates.

In an effort to minimize disruptions to commuter traffic during reconstruction, MDOT chose to add two new travel sections down the center of the current I-96 eastbound/westbound route without demolishing the existing roadway ingress/egress ramps and bridge work. The new lanes will create a direct expressway over US-23 and Old US-23. After construction of the new interstate section, the existing I-96 roadway will be turned into collector-distributor lanes for easier and safer lane changes for ramp traffic, and the existing bridges will receive a much needed structural facelift.

This method for addressing the necessary upgrades at the interchanges requires new bridges over both highways. “We are constructing 6 new bridges first and then reconstructing 7 existing bridges to repair damage and bring them up to current standards,” says Josh Goldsworthy, Project Manager for Toebe Construction LLC.

To construct the new I-96 eastbound and westbound interstate bridges and roadways and have all project work completed by the fall of 2016, Toebe, along with joint venture partner, Kamminga & Roodvoets Inc., are bringing in a lot of lifting power. Nine Terex® HC series crawler cranes are being used for various projects ranging from beam placement to pile driving.

“Terex HC crawler cranes are perfect for road and bridge construction projects,” mentions Vince Voetberg, Michigan sales representative for Jeffers Crane Service Inc., a member of the ALL Family of Companies, a Terex Cranes equipment distributor. “They have the rugged design necessary to

stand up to demanding jobs, and they offer high lift capacities for beam placement.” Goldsworthy adds, “Plus, we are able to get them to the jobsite quickly and have them set up and ready for work in about a day.”

The Longest Beam

To place the massive I-96 concrete bridge beams spanning SB US-23, Toebe brought in the heavy lifting power delivered by the 230-ton (208-tonne) class Terex® HC 230 and 275-ton (250-tonne) class Terex® HC 275 lattice boom crawler cranes. With some of the beams measuring up to 181-ft (55.2-m) long and 7.5-ft (2.3-m) deep, the 123-ton (111.6-tonne) bridge beams were unlike anything that Toebe’s crews had encountered before when working with MDOT. “They were the longest concrete beams ever set in the state of Michigan,” explains Goldsworthy.

To safely place the beams, every lift detail had to be meticulously planned, not only because of the beam’s size and weight but also because of time restrictions. “MDOT shut down the highways during beam placement, so the lifts took place at night and crews had a limited number of hours for which to work,” explains Kevin Boyd, sales representative for Jeffers Crane Service Inc.

The plan required a tandem lift with the two Terex cranes. Each crane was equipped with 90 ft (27.4 m) of main boom and a six-part line. The cranes worked within a 50-ft (15.2-m) maximum radius while positioning the massive beams. Maximum 150,800-lb (68.4-tonne) upper and 32,000-lb (14.5-tonne) lower counterweight for the HC 230 crane and 207,000-lb (93.9-tonne) upper and 58,000-lb (26.3-tonne) lower counterweight for the HC 275 crane were required for the lifts.

Given the beams’ size and weight, coupled with the lift’s complexity, Toebe consulted both Jeffers and Terex for capacity verification throughout the lift. “We provided Toebe with customized, 1-ft (0.30-m) increment load charts specifically for this pick and crane configuration,” mentions Dave Kuhlman, National Accounts Manager for Terex. Goldsworthy adds, “Terex and Jeffers have been very responsive to support our needs, both on this lift project and when we encounter unique lift situations like this, where we need additional information.”

With all the details in place and preparations completed, Toebe’s crew was ready for beam placement. With the highway lanes closed, the crew members, using the HC 230 and HC 275 cranes, proceeded with the tandem lifts to place the beams on the piers. “The erection went as smooth as silk, and everything went off without a hitch,” says Goldsworthy.

The Right Equipment for the Job

Having three 165-ton (150-tonne) class Terex® HC 165 lattice boom crawler cranes on the I-96/US-23 project helped Toebe more efficiently handle the mix of concrete beam placements combined with day-to-day lifting needs and their bridge pier pile driving needs. The HC 165 cranes were



dedicated to driving piles, freeing up the larger HC 275 cranes for concrete beam placement and smaller 110-ton (100-tonne) capacity class HC 110 crawler cranes for miscellaneous load lifting. Toebe worked directly with Terex for instructions and guidance on safe and proper usage of the HC 165 model cranes during all pile driving applications.

Toebe equipped the Terex HC 165 cranes with 180 ft (54.9 m) of main boom and the full 108,400 lb (49.2 tonnes) of counterweight and 8000 lb (3.6 tonnes) of car body counterweight. "Even with full counterweight and the system's maximum 270-ft (82.3-m) boom," explains Kuhlman, "the HC 165 can be moved in just eight truckloads." To shorten on-site set up, the crane self-rigs and can lift its entire counterweight stack into position in a single operation.

Having the right equipment, coupled with the continued support from Jeffers and Terex, is helping to keep Toebe on schedule for the I-96/US-23 interchange project. If everything continues to go as planned, the 96,000-plus commuters traveling along I-96 will have a much more modern, less congested and safer roadway in which to drive starting this fall.

For more information on HC crawler cranes please follow the link: [Terex Crawler Cranes](#).

About Toebe Construction LLC.

Toebe Construction LLC is a Michigan-based heavy civil contractor specializing in Bridgework, Concrete Paving, and Sitework/Excavation. Toebe has a 90+ year history of stable, safe, and profitable work, building some of the largest heavy highway construction projects in Michigan and the surrounding states. Continuing the traditions instilled by Walter Toebe in 1922, and carried out today as a third generation family-owned business, Toebe's mission is to deliver exceptional value and quality to the project owner, while maintaining a safe and positive environment for its employees, the motoring public, and the residents of the communities in which they work. For more information on Toebe Construction, visit: <http://www.toebe-construction.com/>

About the ALL Family of Companies

The ALL Family of Companies is the largest privately held crane rental and sales enterprises in North America, with 38 branches operating under the ALL, Central, Dawes, and Jeffers names. ALL is an authorized dealer of Terex in five states. For more information, contact the ALL Family headquarters, ALL Erection & Crane Rental Corp., 4700 Acorn Drive, Independence, OH 44131. Phone: 216-524-6550. Toll free: 800-232-4100. Fax: 216-642-7633. On the Web: www.allcrane.com.

About Terex

Terex Corporation is a lifting and material handling solutions company reporting in five business segments: Aerial Work Platforms, Construction, Cranes, Material Handling & Port Solutions and Materials Processing. Terex manufactures a broad range of equipment serving customers in various industries, including the construction, infrastructure, manufacturing, shipping, transportation, refining, energy, utility, quarrying and mining industries. Terex offers financial products and services to assist in the acquisition of Terex equipment through Terex Financial Services. Terex uses its website (www.terex.com) and Facebook page (www.facebook.com/TerexCorporation) to make information available to its investors and the market.



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