Massman, Traylor, Alberici have new bridge project on track for February 2014 completion

By ALAN J. ORTBALS

With just 12 short months to go, construction of the New Mississippi River Bridge is on schedule and on budget, according to Mark Schnoebelen, vice president of Massman Construction Co.

Construction of the bridge itself is the job of a joint venture comprised of Kansas City, Mo.-based Massman Construction, Traylor Bros. Inc. from Evansville, Ind. and Alberici Constructors Inc. of St. Louis. Massman is the project sponsor.

Over the past couple of years the team has had to deal with some challenging working conditions. Two years ago the river level was very high for an extended period of time; now it's extremely low. And of course, everyone remembers the scorching hot summer of 2012.

"The extreme hot, the extreme cold, both impact productivity," Schnoebelen said, "but we've been able to overcome that. One of the unusual aspects of the weather as it relates to this project is early on in the project when we were working on the foundations, the river stayed up for extended periods of time. We had high river stages for the better part of two years. That's when we were working on the foundations and we would have much rather had low stages. Now, when we're working on the superstructure and the towers, the river's been extremely low. We could use a little higher water when we're working on the super structure. But that's the hand that Mother Nature dealt us, so that's the hand we've got to play. We've been able to overcome it."

The towers were substantially completed last summer. Sitting firmly on bedrock over 100 feet below the water's surface, they reach 400 feet high. Each is anchored by six concrete piers that are 11.5 feet in diameter and sunk 20 feet deep into the bedrock. The footings themselves are 33.5 feet thick.

The bridge is being built using the balanced cantilever method, according to Schnoebelen. Working on both towers simultaneously, structural steel is hung by cables suspended from the tower peaks, first on one side and then the other. The process continues back and forth until the deck hung from each tower reaches 750 feet across the river. Approximately 80 feet is hung each week. Schnoebelen says he expects to be hanging the keystone piece - the one connecting the two sides - sometime in June.

At that point it becomes a bit tricky, as each of these massive structures must now meet mid-river and line up nearly perfectly. Schnoebelen likens it to the construction of the Gateway Arch in the mid-60s.

"The legs of the Arch had to be cooled with water to make the steel contract so the keystone piece would fit since the work was taking place in the heat of the summer," Schnoebelen said. "We may have a similar fit-up issue on the bridge. If we do, we have the ability to modify the width of the final gap by adjusting stress in the stay cables or jacking between the spans."

Once the link-up is made, the concrete decking should go pretty quickly, according to Schnoebelen. That's because pre-cast concrete slabs are installed as the structural steel is erected. These slabs then receive a relatively thin overlay of concrete to provide a smooth driving surface and curbs are added. The towers will be lighted along with the cables.

When complete, the main span of the New Mississippi River Bridge will contain about 15 million pounds of structural steel and 16 million pounds of concrete. There will be 132 miles of stay cable.

The last link in the New Mississippi River Bridge, connecting the two towers, is expected to be inserted this summer.

Schnoebelen says the Illinois Dept. of Transportation and the Missouri Dept. of Transportation are working closely together to coordinate all of the various approach projects so that the entire system will be complete by mid-February 2014.

"We have a fantastic relationship with IDOT and MoDOT," Schnoebelen said. "They're great partners."

Did You Know?

A total of 113 different certified minority and women-owned companies have received 229 contracts as part of this project. Those contracts total more than $108 million of the project's cost of of nearly $700 million.

Q&A with Jeff Church, Project Implementation Engineer

Illinois Department of Transportation - District 8

IBJ: Has the drought been a help or a hindrance to the New Mississippi River Bridge Project?

Church: It's impacted the main span a little bit. They had to do some of the work off the land instead of a barge because they couldn't get the barge where they needed it. But as far as all of the work on the Illinois side, obviously the dry weather is conducive to everything that we're trying to do.

Church

IBJ: How difficult is it to coordinate everything on a project of this magnitude?

Church: Very difficult. There were so many jobs that were dependent on each other in terms of moving forward. Some of the bridges over Interstate 64/55/70 had to be done in order because we couldn't cut off all of the access to the city of East St. Louis. So we had to get the 15th Street Bridge done before we could start on the 9th and 10th Street Bridges, and the same thing with the Exchange Avenue Bridge over I-55/70.

IBJ: Is the project becoming more visible to the motorist?

Church: Up until this past year, a lot of work wasn't being seen because it was work that was out in the middle of nowhere. You could see the work through the stockyards, but only if you actually went into the stockyards. But now that we've got all of the substructure work done and all the structural steel being set up over the top of Illinois Rte. 3 and over the top of I-55/70 and I-64, we've got all of those cranes up and we're setting all that structural steel. This past year you can really start seeing the actual results of all the work that we've been doing for the past three years.

IBJ: How disruptive has the project been to commuter traffic?

Church: That was one of the main concerns we had going in. For the first several years of the project, we didn't have a whole lot of impact to traffic. A couple of years ago we did do the weekend closure when we took down the old Exchange Avenue Bridge. We had another weekend closure when we took down the 15th Street Bridge, and then also when we took down the 9th and 10th Street Bridges. We've had some of those weekend closures of the various interstates over the past couple of years, which obviously impacts traffic, but not that much. Now this year, when we start doing some of the main work on I-55/70 and I-64, you're going to see some more impact to traffic. That's unavoidable. Most of it will once again be over the weekends, where we'll allow some weekend closures of the interstates in both directions on I-64 and on I-55/70. And then we also have one ramp that goes from eastbound Interstate I-55-70/64 to eastbound I-64 that's going to be closed for nine days. For Illinois, that's actually the biggest impact that we'll have in the entire length of the Mississippi River Bridge project. That's pretty significant when we close that one ramp for nine days, but that's the only way that we could actually get it totally reconstructed.

IBJ: And what ramp is that?

Church: That's the ramp as you're coming eastbound on I-55/70/64. You come to where I-64 splits off, right there at St. Clair Avenue. That ramp that takes you from eastbound I-55/70/64 to eastbound I-64 will be closed for nine days so that we can reconstruct it. If you're a commuter from the Caseyville, Washington Park, Swansea or Belleville areas who works in downtown St. Louis, that will impact you. The good news is that the detour that just takes you off I-55/70 to I-255 only adds about five minutes to your trip. If you're the one that it adds the five minutes to, it's a big impact - but it's not horrible because you know the detour still is all on interstates. And the nine days is over two weekends with the one week in between.

IBJ: Is everything proceeding according to plan on the Missouri side?

Church: Everything's going really well. The Missouri approach project is done. It's been done for over a year. Their interchange project which will take you into downtown St. Louis and connect you to I-70 on their side of the river, and it's well underway - actually maybe a little bit ahead of schedule. The main span contract will be the controlling item as far as when we're actually able to complete the entire overall project. As you drive across the Martin Luther King Bridge, you can get a good view. It's coming along really well. On our side, my job is to make sure that all of the other projects get done before the main span does. So that's the race. We prefer to have all of ours done and be waiting on the main span, as opposed to the reverse of that. We don't want them to be waiting for us to finish up something.

Did You Know?

An enormous crane weighing nearly 900 tons with a boom able to reach more than 400 feet was transported from Kansas City, Mo. here to help construct the two 400-foot-tall towers for the New Mississippi River Bridge.

Kaskaskia Engineering engineers Illinois side roundabouts, utility relocations in prep for new bridge

By KERRY L. SMITH

With a transportation infrastructure project the magnitude of the New Mississippi River Bridge, engineering works extend far beyond the main span.

Belleville-based Kaskaskia Engineering Group LLC has been involved with the $660 million-plus project, working for owners IDOT and MoDOT, for years via multiple contracts which include three roundabouts and massive relocation and design of utilities for property dissected by the new bridge's I-70 Connector.

KEG project manager Lance Chrisman says many local streets within proximity to the Illinois-side approach to the new bridge have had to be improved to accommodate the separation of Interstate 70 from Interstates 55 and 64. KEG's role, he adds, has been as a subconsultant to AECOM on IDOT highway projects specific to the new bridge project.

As such, in late 2010 KEG completed its portion of engineering work on the 18th Street Reconstruction and Roundabout Construction project in East St. Louis ($1 million total construction cost).

According to Chrisman, 18th Street crosses I-64 and serves as an entrance to Emerson Park, a high-quality housing development in the community. KEG engineering work on IDOT contracts specific to improvements in the vicinity of 18th Street included prep of plans for a modern roundabout at the intersection of Baugh Avenue and 18th Street; plans for reconstruction of Ramp D and Baugh Avenue, plans for improvements to the existing combined sewer system and plans for the widening, milling and resurfacing of St. Clair Avenue.

The engineering firm also participated in the preparation of engineering plans for two more IDOT contracts involving roundabouts associated with the New Mississippi River Bridge Project, both of which are located in the vicinity of 9th Street in East St. Louis (total project cost of both $10 million). Chrisman says the IDOT improvements in the vicinity of 9th Street, which will be completed this year, include the construction of one roundabout at the intersection of 9th Street and St. Clair Avenue and the other at the intersection of 9th Street and Baugh Avenue. KEG contributed engineering expertise via preparation of construction contract documents and related planning. The IDOT contract, he adds, also includes the reconstruction of Baugh Avenue and portions of 9th Street, construction of new interstate ramps (Ramp J, Ramp P), milling and resurfacing of St. Clair Avenue and construction of a new bicycle/pedestrian shared-use path.

KEG also participated in the preparation of the construction contract documents for improvements to the I-55/I-70 Ramp P, I-64/I-55/I-70 Ramps I & J, I-64 Ramp D, St. Clair Avenue, Baugh Avenue, Illinois Rte. 3, 9th Street and 18th Street. All of these transportation infrastructure projects for client IDOT were located within the city of East St. Louis, according to Chrisman.

A formidable challenge that KEG overcame during the height of these projects, says Chrisman, was compiling, coordinating and delivering plans between as many as four different engineering firms at any given time. As the engineering subconsultant charged with delivering the final set of plans to the client IDOT, KEG's responsibility was to take the deliverables coming from Chicago, Springfield, St. Louis, Belleville and elsewhere, incorporate it and disseminate it to IDOT.

KEG also provided the plan preparation for two construction contracts that were part of the I-70 Tri-Level Connection construction project; the Tri-Level is the reconfiguration of the I-64/55/70 interchange and adjacent local roads to accommodate the new bridge between Illinois and Missouri.

Perhaps the greatest project KEG completed - specific to the New Mississippi River Bridge - was the surveying, excavating, relocating and in many cases redesigning the utilities at the St. Louis National Stockards property in Fairmont City (a total project cost of $2.3 million). KEG project manager Kelly Simpson says because the new I-70 Connector's trajectory cut the stockyards (and the live utilities buried beneath them) right down the middle, it was necessary for the engineering firm to design new connections for water, storm sewer, sanitary sewer, gas and electric power so that both sides of the newly reconstructed portion of the interstate would be served.

On a 256-acre parcel, that's a task that might prove arduous based upon size alone. But the real obstacle, says Simpson, was age: many of the original utilities dated back to the 1920s. Records of what was located where had been recorded on paper; by now, it was either extremely hard to read or unavailable altogether.

After two years of diligent persistence that included a KEG team of three civil engineers, one field technician, one geographic information systems technician and lots of support from utilities companies, the firm had the information it needed to create the design documents for where the new rights of way would be and where the utilities should go.

Demolition of the existing privately owned utilities and installation of new utilities was completed in 2010, says Simpson. As a result, the remaining St. Louis National Stockyards property and buildings are serviced by public utilities, and commercial or industrial redevelopment is now ready to begin.

KEG is a 100 percent woman-owned and managed engineering and contracting firm founded in 2006. It is a certified Disadvantaged Business Enterprise through the Illinois Unified Certification Program and the Missouri Regional Certification Committee, with offices in downtown Belleville, Champaign, Peoria and Glen Carbon as well as Ste. Genevieve, Mo.

Did You Know?

By Sept. 30, 2012, crews had completed 1,012,576 hours of work on construction projects in Illinois and Missouri, including the main span of the new bridge between St. Clair County, Ill. and St. Louis.

New Mississippi River Bridge Construction Projects Roundup

Project	Contractor	Complete
Bridge	Massman Traylor Alberici (joint venture)	☐
Illinois Approach		
Demolition & Clearing from Packers Ave. to Cahokia Canal	Petroff Trucking	☑
Demolition & Clearing from Cahokia Canal to IL Approach	Moniger Excavating	☑
Demolition & Clearing from CSX Railroad to KCS Railroad	Keeley & Sons	☑
Pedestrian Bridge over Interstate 64 near 15th Street	Halverson Construction	☑
Storm Sewer Repair along Baugh Ave. & St. Clair Ave.	Insituform Technologies	☑
18th St. Reconstruction & Baugh Ave. Roundabout	Keeley & Sons	☑
Exchange Ave. Bridge Reconstruction	Halverson Construction	☑
Demolition & Clearing from 1st St. to Packers Ave.	Hanks Excavation	☑
Exchange Ave. Extension from 1st St. to Packers Ave.	Baxmeyer Construction	☑
Demolition of RR Piers	Mason's Landscaping	☑
15th St. Bridge Reconstruction	Keeley & Sons	☑
Curved Bridge from Industrial Dr. to IL Approach	Fred Weber Inc.	☑
Demolition of 9 Structures along Relocated I-70 Corridor	Hayden Wrecking	☑
Grading on Relocated I-70 from 1st St. to Industrial Dr.	Baxmeyer Construction	☑
Demolition of Structure at 9th St. and Baugh Ave.	Haye's Excavating	☑
Field Office Complex	Keeley & Sons	☐
Bridges on Relocated IL Rte 3 over Relocated I-70	Kilian Corp.	☐
Paving on Relocated I-70 from 1st St. to Industrial Dr.	Baxmeyer Construction	☐
WB Bridges on Relocated I-70 from 2nd St. to Collinsville Ave.	Fred Weber Inc.	☐
Eastbound Bridges on Relocated I-70 from 2nd St. to Collinsville Ave.	Keeley & Sons	☐
Bridge Reconstruction at 9th and 10th St.	Keeley & Sons	☐
Overall Project Lighting	J.F. Edwards	☐
Bridge on Relocated I-70 over 1st. St.	Keeley & Sons	☐
Illinois Approach Bridge Construction	Keeley & Sons-Keller Construction	☐
Overall Project Signing	Collins and Hermann	☐
Widening and Resurfacing of I-55/70 and I-64	Keeley & Sons	☐
Grading and Paving for Relocated IL Rte. 3 Interchange	Baxmeyer Construction	☐
Missouri Approach		
Missouri Approach	Fred Weber Inc.	☑
St. Louis Ave./Madison Ave. Bridge Replacement Project	Fred Weber Inc.	☑
Cass Ave. Bridge Replacement Project	Millstone Bangert	☑
Missouri Interchange	Millstone Bangert	☐