AB Connections

Second Quarter 2013

HURRICANE DECK BRIDGE

sunrise beach, missouri

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HURRICANE deck bridge

Alternative Technical Concept project remains on-schedule despite difficult winter season

Contribution by Scott Gammon, P.E., DBIA, Vice President, Midwest District

All photos: steel erection

AB project team

Lanny Miller, P.E., Project Manager
Andy Kerr, General Superintendent
Kevin Lynch, Field Engineer
Robert Yohn, Carpenter Foreman
Scott Brother, Carpenter Foreman
Bob Sisco, Erection Manager
Larry Tussey, Ironworker Superintendent

Midwest District

Performing project controls -
Rick Zimmerman, Estimating Manager

Corporate Engineering

Nick Greco, P.E., Chief Engineer
Carl Schwarz, P.E., Senior Engineer
Jody Porterfield, Safety Manager

In January 2012, the Missouri Department of Transportation (MoDOT) awarded AB the Hurricane Deck Bridge Replacement Project on the basis of an Alternative Technical Concept (ATC) proposal. The summer 2012 issue of AB Connections detailed the story of how AB's bold ATC approach saved $8.1M compared to the lowest bid on the baseline design and eliminated a week-long closure of Missouri Route 5. Furthermore, AB's ATC delivered an entirely new structure, in contrast to the baseline design's re-use of the existing foundation system.

AB's project team has been hard at work and has made significant progress. By September 2012 the Parsons Transportation Group (PTG) design team had completed all final design packages for the ATC. With strong collaboration between AB and PTG, the final design was completed on time and with no net quantity growth. Construction progress has been equally pleasing. Drilled shaft foundations were completed in October 2012, followed shortly thereafter by completion of the cast-in-place concrete substructure in December, both right on schedule.

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Erection of the long span steel plate girder superstructure commenced in early January, and is presently underway with a projected completion date of late April. The combination of long spans (up to 265'), deep girders (94" webs), heavy lifts (in excess of 100,000 pounds), deep water (up to 85') and proximity to the existing bridge (2') challenged AB's engineering staff to develop an atypical erection scheme. Ordinarily for a structure of this type, falsework bents employing pile foundations would be driven into the lakebed to provide temporary vertical support and maintain girder stability during erection. The depth of the lake and unfavorable geotechnical conditions rendered this method impractical, so the AB engineering department and project team devised a plan to erect the girders with no falsework support in the lake. The scheme has worked exactly as planned.

Even with a difficult winter season this year in Missouri and unanticipated major equipment repairs, the project team has managed to maintain the schedule. Structural steel erection is scheduled for completion in April 2013, followed immediately by construction of the cast-in-place concrete deck and parapets of the superstructure. The roadway approach earthmoving and paving are being constructed concurrently with the bridge and will be complete at the same time. Presently, the project team anticipates moving traffic to the new bridge by September 2013, nearly three months ahead of MoDOT's contract date of December 6. Once traffic is moved to the new bridge and the existing bridge is removed from service, AB will begin the tedious work of demolishing the existing 1930s era deck truss. Demolition will employ various methods including the use of linear shape charges for the explosive demolition of the superstructure. Due to the presence of a high-pressure gas main bored beneath the lake, demolition of the existing piers will be completed using specialized mechanical removal tools. The project is scheduled for final completion in May of 2014.

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Most importantly, the project team has fully embraced AB's commitment to a safe work place and commitment to a ZERO incident culture. Since activity began on the project site in January 2012, the project has worked without a recordable incident. Proof that ZERO is an achievable objective. AB