

Bridge project overcomes multiple challenges to win awards

by Brenda Lange



Concrete piers are in place awaiting the steel decking material.

Raising a railroad trestle by two feet to allow emergency vehicles to pass underneath, was just one of several challenges that faced Nyleve Bridge Corp., of Emmaus, PA. Nyleve was the contractor on an award winning project to replace an aging bridge in eastern Pennsylvania.

After 84 years, the Gay St./Rte. 113 Bridge in Phoenixville was crumbling and in poor shape. This reliable structure crossed French Creek, several local streets, railroad tracks and the former Phoenix Steel site as well. Designers were looking to replace the 12 span bridge with a new nine span structure at a cost of more than \$17.5 million.

"This was a unique design because they were trying to match the architecture of the previous bridge," explains Mick Girando, vice president of Nyleve. "We were looking to use steel to more or less simulate the appearance of the concrete arch. You don't see too many built like this."

Spanning 972-feet with a width of 50-feet, the new Veterans Memorial Gay St. Bridge is supported by steel beams on the three southern and two northern approach spans and by steel arches on the four central spans. Two reinforced concrete abutments are located at each end with eight reinforced concrete piers between them.

Girando says that Nyleve's crews needed to pay

special attention to the form base work for the steel arches. "All the bearing areas of the arches were buried on the form work," he says. "Normally they're on top and you can finish them and put them at exactly the right grade. But you couldn't see these. They were slanted bearings buried in the formwork. We knew what we were doing, we just had to be very careful in that spot."

"A lot of planning went into this project," agrees Gene Blaum, spokesman for the Pennsylvania Dept. of Transportation (PennDOT). "We did a lot of work with the community in the planning stages for the aesthetics and traffic rerouting during construction." The bridge connects Phoenixville's business district with the residential north side.

Crews used a 100 ton Manitowoc crane to pile drive the large pier caps because that work required a crane with significant reach. "They also used a 90 ton P&H crane and a John Deere 270 excavator because those machines were able to handle the heavy work," Girando adds.

The fabrication of the steel arches was difficult because each of the arches were constructed in three load bearing sections. "Each one had a lot of dimensions that had to be accurate for the deck to end up in the right place," said Girando. "Two hundred ton hydraulic cranes helped High Steel Structures of Lancaster get them up perfectly — an even dozen of them."

Early in the project, Neumeier Environmental Services from the Pittsburgh area did the environmental plans and the remediation. Because the soil in most of the excavation area had elevated levels of cobalt, the project required special crews wearing protective gear with respirators to do the remediation work.

In spite of all of the challenges that the crews faced along the way, the bridge opened nearly three months ahead of schedule.

Today, most of the people in the community agree that the finished product is aesthetically pleasing. With its two 12-foot wide travel lanes, two 6-foot wide shoulders, two 6-foot wide sidewalks and ornamental street lights, the finished product is a benefit to the 6,700 vehicles that use this bridge every day.

PennDOT recently received a Diamond Award

Certificate for Engineering from the American Council of Engineering Companies of Pennsylvania (ACEC/PA) for this bridge design. Johnson, Mirmiran and Thompson of York, PA, was the engineering firm.

According to ACEC, this award recognizes an outstanding contribution that enhances the social and economic welfare of the Commonwealth of Pennsylvania.

PennDOT also received three additional awards from two engineering organizations for the bridge's design and construction as well. The Delaware Valley Chapter of the American Society of Highway Engineers awarded them with its 2009 Project of the Year Award. The Susquehanna Chapter of the Association for Bridge Construction and Design gave it two awards: the 2009-2010 Outstanding New Multi-Span Bridge Award and the 2009-10 award for Outstanding Context Sensitive Solutions Bridge Design.

"These awards are a testament to the tremendous collaborative effort that was expended to design and build an impressive, modern bridge that incorporates historic aspects of the borough and its steel heritage," said PennDOT district executive Lester C. Toaso in a press release announcing the honors.



Workers put steel beams in place.



The approach to the Gay Street Bridge is lighted with rustic street lamps.