HIGH Steel News
Information from High Steel Structures Inc.
Fall 2012

Steel Erection Completed for New Batchellerville Bridge

Replacing the Batchellerville Bridge in Edinburg, New York was more than just about transportation. It was an important economic, safety and environmental issue.

High Steel Structures Inc. fabricated and erected 3,698 tons of steel for the Batchellerville Bridge, which is located on Route 98, spanning the Great Sacandaga Lake in Saratoga County, New York.

The new Batchellerville Bridge is more than 3,000 feet long, spanning Route 98 over the lake's midpoint in the town of Edinburg. The new structure replaces the previous bridge built in 1930 that was deemed to be structurally deficient.

According to the New York State Department of Transportation, the new steel haunched girder bridge has a 42-foot center span navigational vertical clearance and carries two 11-foot traffic lanes, with five-foot shoulders and a 5 1/2-foot raised sidewalk on its north side.

Working with Harrison & Burrowes Bridge Constructors, Inc., High Steel co-workers began the task of erecting 92 girders— 80 straight girders for the approaches and 12 haunch girders for the main span. The girders ranged in length from 112 feet to 156 feet. The straight girders were 8 feet in depth and the haunch girders were 10 feet deep. The girders were erected from the water, using crawler cranes on barges.

According to Greg Ball, project manager at Harrison & Burrowes, the Batchellerville Bridge project proceeded very smoothly and on schedule, thanks to close communication between Harrison & Burrowes and High Steel Structures.

"High Steel is a very professional outfit that is great to work with," said Ball. "Fabrication and erection of the steel was right on track. As always, it was a pleasure to work with High Steel."

For High Steel Structures, Robert Urban served as Manager of Field Operations, Phil Armstrong as Field Operations Superintendent and Paul Lipinsky as Project Manager.

High Steel began work on the Batchellerville project in September 2011, working through December 2011 before work had to halt due to the winter weather. Work then resumed March 2012 and was completed in April 2012.

The haunch girder design for the bridge allows more height clearance between the water level and the bottom of the bridge steel. This allows sail boats and other vessels to pass under the bridge.

Lipinsky related that there were several challenges for this

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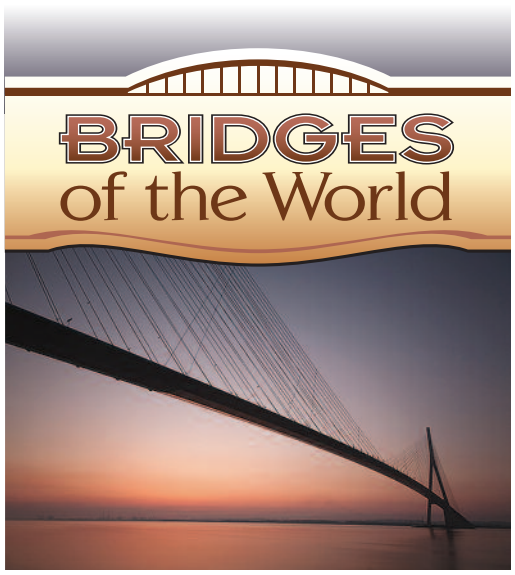

Le Ponte De Normandie

Le Havre, France

C'est magnifique! That's what people—even those who don't speak French!—say when they first set eyes on the Le Pont de Normandie bridge in Le Havre, France. Built in 1995, the breathtaking cable-stayed bridge cuts into the sky above and spans 2,808 feet across the River Seine in northern France, using 19,000 tons of steel and 184 gleaming cables.

Message from the President Jeffrey L. Sterner, P.E.

Change or Else!

A few years ago, High Steel Structures Inc. went through an exercise that we called "Scenario Planning" as part of our annual strategic planning efforts. With the aid of a facilitator, we worked to brainstorm what the major drivers were that impact our business, and then developed what could happen to each of those drivers. The various permutations that could be put together were then each looked at as a plausible "scenario." Each scenario was then given a name, and we talked about what signals there would be in the marketplace to confirm that one or another scenario was actually taking place. The point of all of this is to help see what might be coming so you can be prepared.

When we did that exercise the scenario that we saw as the most likely to develop is one in which continuing spending constraint in Washington DC would drive changes out of necessity. No longer would the industry be dominated by big state DOT programs letting bid packages as regular as the daily mail delivery. Alternative project delivery systems would finally gain more acceptance simply because they had to. And as project needs grow farther and farther in excess of gas tax revenues, projects would need to look to toll funding and creative partnerships with private financiers. When High Steel Structures created this scenario, the name we gave to it was "Change or Else."

Only time will tell the whole story, but it is not very difficult to predict this outcome for transportation construction. In this current political and economic climate, it seems impossible to get politicians to agree to raise tax revenues for anything, even something as bipartisan and tangible as transportation construction. Yet, while the gridlock in Washington DC puts funding solutions on hold, the deterioration of our roads and bridges marches on. So we are indeed seeing more non-standard approaches to get some of these projects done. Some of the projects we anticipate working on over the next few years will make use of TIFIA financing, public-private-partnerships, tolling, or combinations of these to augment the funding that is available from the traditional sources.

So as the way to get projects done changes, we have to change with it. Most of these funding methodologies

are applied with a design-build delivery system to both allocate risk and take advantage of innovations from contractors and fabricators that know bridges best. That has always worked well for High Steel Structures because we have always taken a leadership role in the industry. Now we need to add even more resources to this effort so we can service the increasing number of projects demanding our participation when the design first begins.

We are excited about it! And we call it: "Change or Else!"

Jeffrey L. Sterner, P.E.
President
High Steel Structures Inc.

High Steel's Fall Open House Ties in with National Steel Day

by **Steve Bussanmas,** Senior Vice President of Sales & Marketing

On September 27-28 of this year, High Steel held its sixth annual Fall Open House in conjunction with the AISC's National Steel Day event. Over 250 college students and industry professionals were in attendance, including design consultants, contractors and owner's personnel. Both days' events included morning technical presentations, followed by lunch and guided tours of our fabrication facilities.

On Thursday morning, engineering students from four area universities and technical colleges joined us for educational presentations about careers in the transportation construction industry, steel bridge design and fabrication.

Friday's event for industry professionals began mid-morning with four presentations. This year's featured speaker was Peter Taylor, P.E., Principal of Buckland and Taylor, Ltd., of North Vancouver, British Columbia, Canada. Mr. Taylor spoke of his firm's design and erection engineering work on the Milton-Madison Bridge that spans the Ohio River between Milton, KY and Madison, IN.

The design team of Walsh Construction Company and Buckland and Taylor chose a

unique sliding method to erect the four-span, 2,430-foot steel truss superstructure replacement project, which will minimize bridge closure time to just 10 days. They pre-assembled the middle two spans (600 and 727 feet long), floated them into place next to the old bridge, and lifted them with the use of strand jacks 85 feet high onto temporary piers. These spans were put into place in June and September of this year. They will stick build the other two spans, and finish the process next spring by sliding the entire new superstructure onto the rehabilitated existing piers. Quite an engineering feat! For more details about the project, see the article included

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New Web-Based Steel Bridge Design Tool is Launched

Designing short span steel bridges is now easier, faster and more cost-efficient than ever, thanks to a new interactive web-based bridge design tool.

Known as eSPAN140, the tool has been launched by the Short Span Steel Bridge Alliance to assist bridge professionals in designing short span steel bridges with spans of up to 140 feet.

"For the design of short span bridges, this is an excellent tool to quickly and easily prepare an economical steel solution. I see this being an especially important tool for county and township engineers who only occasionally have to deal with bridge replacements," said Steve Bussanmas of High Steel Structures.

The eSPAN140 tool provides bridge owners and designers, as well as county, consulting and state engineers, with a single resource for customized steel solutions for their projects.

The eSPAN140 tool is free of charge to users, and provides one-stop shop time and cost efficiencies for steel fabrication and erection details. Since short span steel bridges already provide time and cost efficiencies through their ease of installation, use of local crews and lightweight construction, eSPAN140 yields even greater efficiencies because it provides standard designs and details. This helps to expedite the overall design of the structure, which ultimately reduces the overall project delivery time.

In addition, eSPAN140 provides prefabricated element solutions, available from manufacturers throughout the country. All of these solutions are customized, based on the input of the user for a specified project.

Access to eSPAN140 is available at www.ShortSpanSteelBridges.org. Users of eSPAN140 will find it easy to use, requiring just three steps:

1. Users create a free account (this allows the user to save, share, and edit all of the input designs for future use).

2. Users input information about a specific project, including span length, number of striped traffic lanes, skew angle and design speed, among other requirements.

3. eSPAN140 then provides a customized "Solutions Book" in PDF file format based on the specific input provided. The Solutions Book includes standard designs and details, plate girder recommendations, rolled beam recommendations, culvert and structural plate options, customized prefabricated manufacturer steel solutions, durability solutions, a listing of key industry contacts, and complimentary design support via the newly developed Steel Bridge Technology Center. It also includes design details such as elastomeric bearings, bearing stiffeners, intermediate and end diaphragms and connections, and modular bridge and coating systems provided by SSSBA member companies.

There is also a short video demonstrating the eSPAN140 process at www.eSPAN140.com.

"This new tool simplifies the sizes of steel beams and girders needed, eliminating guesswork for the bridge designer," said Dan Snyder, manager of new business development for the Steel Market Development Institute (SMDI).

Snyder added that, "It was developed by a team of experts from SSSBA, the steel industry, and SMDI who reviewed more than 3,000 potential designs over several years. It is a significant technical advancement for both the steel and bridge industries that is now available to help meet the critical need to improve the nation's infrastructure."

According to Snyder, users can get additional free technical design support from the Steel Bridge Technology Center, which is based at West Virginia University.

The Steel Bridge Technology Center also coordinates half-day workshops on standard short span steel bridge designs for engineers at state Departments of Transportation and local transportation assistance programs, county and state engineer associations, and other interested engineering groups.

The Short Span Steel Bridge Alliance was founded in 2007 and serves as an resource for information related to short span steel bridges in North America. The SSSBA's objective is to provide essential information to bridge owners and designers on the unique benefits, innovative designs, cost competitiveness, and performance related to using steel in short span installations up to 140 feet in length.

The website offers several design aids, including a catalog of steel bridge solutions, expert testimonies on video covering a variety of topics, case studies, research reports and Blogs.

Inquiries can be submitted to the Center at the Short Span Steel Bridge Alliance website at www.ShortSpanSteelBridges.org.

High Steel's Fall Open House Ties in with National Steel Day

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in this newsletter.

The other presentations were made by Bill McEleney, Director of the National Steel Bridge Alliance who spoke about Accelerated Bridge Design, Brad Dillman, P.E., Production Engineering Manager at High Steel, who spoke on fabrication insight from a design perspective and Tom Wandzilak, Business Development Manager at High Steel, who focused on the steel fabrication process the attendees would see later that day while touring the High Steel plants.

Following the presentations on both days, guests were treated to a barbecue luncheon catered by Hess's Barbecue. Locally known for their barbeque ribs and brisket, Hess's has won numerous awards at the Kansas City Barbecue Society competition.

Finally, guests toured High Steel's three Lancaster fabrication facilities where they saw first-hand how bridge steel superstructures are fabricated. Throughout the afternoon both days, Lincoln Electric sponsored a fun Virtual Welding Competition featuring their VRTEX virtual welding machine.

If you have not attended one of our Open Houses through the years, plan on attending next year's event, which is scheduled for October 4, 2013. I'm certain you will find it to be an enlightening and enjoyable experience. To sign up for the invitation mailing list, please send an email including your postal address to our Marketing Specialist, Lisa Fulginiti at LFulginiti@high.net.

New Milton-Madison Bridge in Kentucky "Slides" Over Old Bridge

What happens when you want to replace an old bridge with a new bridge— without removing the old bridge first?

In a highly innovative technique, the newly assembled Milton-Madison Bridge in Milton, Kentucky, will be "slid" onto the existing piers of the old bridge. That will be the final step as the new $103 million Milton-Madison Bridge replaces the bridge that was originally built in 1929.

High Steel Structures Inc. is providing 7,900 tons of steel for the unique truss bridge replacement project, fabricating the steel at its Lancaster, Pennsylvania plant, and transporting it to Kentucky.

"This is a very unusual design build project, in that the design of each joint varied in an effort to lighten the weight of the structure. This was coupled with a very aggressive delivery schedule," commented John Flaud, High Steel project manager, noting that the fabrication and delivery schedule was closely coordinated with contractor Walsh Construction and the rest of the project team throughout the project execution.

Most of the steel for the new truss bridge is HPS70W (High Performance Steel). High Steel is shop applying a 3-coat paint system for protection from the elements.

As the old bridge becomes the new bridge, there is an in-between phase, when there are two bridges sitting side by side. Traffic is then moved from the old bridge to the new bridge on the temporary piers. Eventually, the old superstructure, which includes the upper steel truss section and road deck, will be removed from the existing piers.

The final step comes in 2013 when Walsh Construction Company 'slides' the new bridge from the temporary piers onto the existing piers, which have been strengthened.

The goal of the bridge switch-over is to keep the vital means of transportation between Milton, Kentucky and Madison, Indiana open over the Ohio River. Many people rely on the bridge to get from home to work, and vice versa. To close the bridge for any length of time would be an economic hardship for the community.

As a result, the bridge has only been closed for brief periods, timed to have minimal effect on the community. The first brief bridge closure took place on April 25, 2012. During the several-day closure, crews demolished the existing approach spans and connected the temporary ramps to the existing bridge.

To complete the Milton-Madison Bridge transformation, project contractor Walsh Construction Company of La Porte, Ind., teamed up with design firms Burgess & Niple Engineers of Columbus, Ohio, and Buckland and Taylor Ltd. of North Vancouver, BC.

A 600-foot, 1,700-ton section of the new Milton-Madison Bridge was preassembled on barges in Milton, Ky. In June 2012, the span was floated a short distance upstream. Special jacks lifted the entire section into place onto temporary piers, which were built just downstream of the existing bridge. A second 727-foot section of span was built and "lifted" in a similar manner. The remainder of the truss will be erected using cranes.

The shift in traffic from the old to the new is targeted for late December 2012, with demolition of the existing truss planned for early 2013. The next significant bridge closure is expected to take place with the final truss "sliding" in early 2013. After that, the new Milton-Madison Bridge will be open for good, replacing a deteriorating early 20th century bridge with a new bridge intended to last well into the 21st century.

Interestingly, the original construction costs were $131 million. Walsh Construction Company came in with an estimate that was 20 percent lower at $103 million. As part of the American Reinvestment and Recovery Act, the projected was awarded $20 million in February 2010. The remaining costs will be evenly split between Indiana and Kentucky through state and federal funding.

The "big lift" operation for the Milton-Madison Bridge Project successfully placed the first span of the new bridge onto temporary piers. It was one of the more intricate parts of the lift, which involved the placement of two "sliding girders."

The 125-ton beams were positioned under the truss, supported by the temporary pier and specially designed concrete pedestals on the existing piers. The sliding girder beams will be used in 2013 when the new 2,400-foot have been rehabilitated and strengthened.

At a rate of about 12 feet per hour, the span lift took a total of seven hours to complete, as the huge 600-foot segment was hoisted into place using special hydraulic "strand jacks" and bundled strands of steel cable. The span is approximately the size of two football fields, and weighs 1,776 tons. Amazingly, the existing bridge remained open throughout the span lift operation.

"Because of the massive size and weight of bridge spans, lifts like this are pretty rare," said Jason Bunselmeier, construction area engineer for the Indiana Department of Transportation (INDOT).

According to the project website, the original Milton-Madison bridge was dedicated on a cold December day in 1929, replacing the ferry service and anticipating the motor vehicle age. After eight decades and many rehabilitations, the deteriorating bridge was deemed to be too dangerous and too narrow for traffic.

Through new federal stimulus funding available for infrastructure projects, the $20 million grant went toward replacing a bridge that had begun its life in the Great Depression.

JUST THE FACTS:

Bridge:	Milton-Madison Bridge
Location:	Ohio River at Milton, Kentucky, and Madison, Indiana
Bridge Type:	Truss Bridge
Steel Tonnage:	7900 tons
Steel Type:	HPS70W and GR50W
Coating:	3-coat paint system
Project Owners:	Kentucky Transportations Cabinet (KYTC) and Indiana Department of Transportation (INDOT)
Designers:	Burgess & Niple Engineers of Columbus, Ohio, and Buckland and Taylor Ltd. of North Vancouver, BC.
Contractor:	Walsh Construction Company of La Porte, Ind.
Steel Fabricator:	High Steel Structures Inc.

Steel Erection Completed for New Batchellerville Bridge *continued from page 1*

project, mostly related to weather. Known for its harsh winters, the area in New York State faces wintry lake winds that impacted the ability to erect steel.

"We could not erect steel when the wind speed was greater than 25 miles per hour. This happened many times. We also had to deal with the water levels on the lake. At times the water level was too high and at times the water level was too low," said Lipinsky. "These levels had an impact on the barges and dictated when we could start and complete the job."

While transportation was a key reason for rebuilding the Batchellerville Bridge, even more critical was safety. In fact, according to the NYSDOT, the primary goal of the project is to provide a bridge that is safe, efficient, balanced and environmentally sound. The primary objective of the estimated $56-million project is to eliminate the structural deficiencies of the existing bridge using a cost effective treatment to restore the general bridge condition rating of 5 or greater for at least 50 years.

The new bridge was located adjacent to the existing bridge on the south side, with several built-in safety design improvements. Enhancements to lighting on the bridge and the approach roadways were also included in the design. In addition, intersection safety improvements for County Route 7, South Shore Road, where it intersects with County Route 98, realign the existing intersection from a Y configuration to a safer T intersection.

"This project was successful, not only because of the dedicated work of the High Steel Structures co-workers, but also because of the working relationship we have with the contractor Harrison & Burrowes," said Lipinsky. "Harrison & Burrowes was great to work with. We supported each other throughout the project."

The original Batchellerville Bridge was constructed in 1930 when the Hudson River Regulation District built the Conklingville Dam and the area was flooded to form the Great Sacandaga Lake, a 42-square-mile reservoir and one of the largest in the state. When the dam and its reservoir were first constructed, the $12 million cost was apportioned among its downstream beneficiaries. The bridge cost was approximately $490,000 back then.

The original bridge proved to be a workhorse. For more than 50 years, there were no major repairs required for the bridge. Then in 1982, a New York State Department of Transportation rehabilitation contract was approved, with replacement of the deck, installation of new bridge rails and the addition of utilities.

Even after renovation of the bridge, the 15-ton load posting was retained for safety reasons. The bridge held up for another 10 years or so, until 1990 when bridge inspectors discovered that several gusset plates had buckled as a result of vehicle weight overload. Further repairs were required in 2001 and then in 2002, when the annual inspection pinpointed 11 areas of serious steel truss deterioration.

In March 2003 concrete fell from the bridge and an inspection showed that 276 locations had cracked or loose concrete. Later inspections showed problems that included leaking deck joints, brittle paint surfaces, shallow potholes on the bridge surface, cracks in some base castings of light standards, missing anchor bolts, spalling of the abutments and piers, and frozen pin and hanger connections.

By 2010, funding was secured via the Capital District Transportation Committee, a Metropolitan Planning Organization (MPO), and the Statewide Transportation Improvement Program (STIP) to budget for the much-needed rebuild of the rapidly declining Batchellerville Bridge. Bids were opened in May 2010, awarding the project to contractor Harrison & Burrowes Bridge Constructors, Inc.

The estimated completion date for the new Batchellerville Bridge is 2013.

Long valued as a fishing lake, removal of the old bridge concrete structure will be used to create fish habitat on the bed of the Great Sacandaga Lake. It also reduces the cost of hauling the old bridge away from the site. At the same time, fish populations are being monitored near the bridge to determine the effects on the habitat.

JUST THE FACTS:

Bridge:	Batchellerville Bridge
Location:	Town of Edinburg, Saratoga County, NY
Bridge Type:	Haunched Steel Girder Bridge
Steel Tonnage:	3,698 tons
Type:	28 straight girders for the approaches and haunched girders for the main span
Project Owner and Designer:	NYSDOT
Contractor:	Harrison & Burrowes Bridge Constructors, Inc.
Steel Fabricator and Erector:	High Steel Structures Inc.

Recent Contracts Awarded

NB Van Wyck Expressway / Grand Central Parkway, Contract 2A Kew Gardens Interchange
Queens, NY
DeFoe Corporation
3,349 Tons

Rte 7 Hackensack River (Wittpenn BR) Contract 2
Hackensack, NJ
Union Paving & Construction Co., Inc.
2,790 Tons

D261946, PIN 6008.22, Route 15 Bridges (Six)
Steuben County, NY
Cold Spring Construction Co., Inc.
2,457 Tons

11th Street Bridges - Phase II, Design/Build
Washington, DC
Amelie Construction & Supply, LLC
1,913 Tons

Brookfield Properties
New York, NY
Stonebridge Steel Erection
1,356 Tons

Garden State Parkway P200.200, MP 90.5 to 93.5
Ocean County, NJ
Midlantic Construction, LLC
1,334 Tons

Garden State Parkway Shoulder Restoration & Improvements, MP 93.5 to 99.5
Monmouth County, NJ
Northeast Remsco Construction, Inc.
1,326 Tons

Garden State Parkway Interchange 88, MP 88.5 to 90.5 over NJ Route 70
Ocean County, NJ
Earle Asphalt Company
1,201 Tons

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"Lay down a good weld and give good measure"

Sanford High 1931

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Fast Answers to Your STEEL Questions

Please address comments or requests for additional subscriptions to editor, Lisa Fulginiti, at LFulginiti@high.net

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Certified System ISO 9001

NSBA National Steel Bridge Alliance Founded 1995

AISC American Institute of Steel Construction Founded 1921 — CERTIFIED FABRICATOR AND ERECTOR

High Steel Erects 3,698 Tons of Steel for Batchellerville Bridge Replacement Project

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