HIGH Steel News

Information from High Steel Structures Inc.

Spring / Summer 2009

High Steel Tub Girders Form Approach Spans to New Brightman Street Bridge

In a New England town historically known for textile manufacturing and shipping, Fall River, Massachusetts has a few other claims to fame, such as the USS Massachusetts Memorial, the Marine Museum, the Railroad Museum and burial place of the notorious Lizzie Bordon.

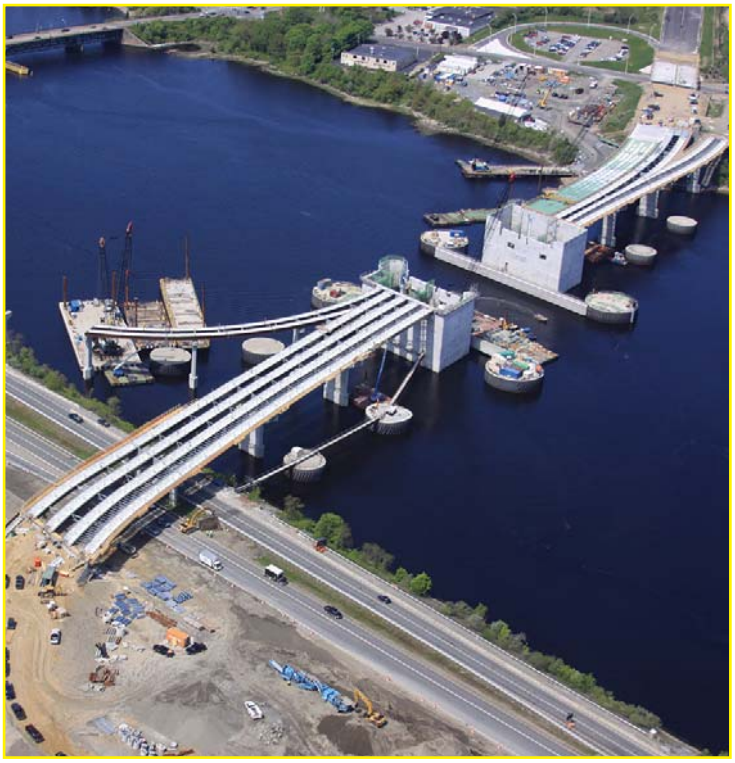
The name of Fall River comes from the city's location as the point where the Taunton River "falls" into the Mount Hope Bay. The Quequechan River flows through the city, its Native American name meaning, "Falling Water."

Still a leading shipping port on the East Coast, Fall River's Brightman Street Bridge was desperately in need of replacement to facilitate the use of a shipping channel. The Brightman Street Bridge Replacement Project is a two-leaf bascule design on two main piers with a drawbridge that creates a 200-foot shipping channel for the massive ships that use it.

The project's final phase is a $186 million contract which includes construction of the approach spans superstructure, bascule span superstructure, concrete bridge piers, control house, bridge abutment and retaining walls and electrical and mechanical equipment for the operation and control of the bascule spans. The project is currently underway and scheduled for completion in 2012.

High Steel was subcontracted to a joint venture between the Cianbro and Middlesex Companies to supply the structural steel for the project's approach spans. The scope of the contract included fabrication and delivery of 131 trapezoidal "tub" girders, which range in weight from 22,000 to 142,000 pounds each.

Several interesting features of the project's design called for highly complex detail drawings and fabrication procedures. The first is the fabrication of a massive bifurcated tub girder segment where the bridge's off-ramp joins the main approach



(photo courtesy of Cianbro)

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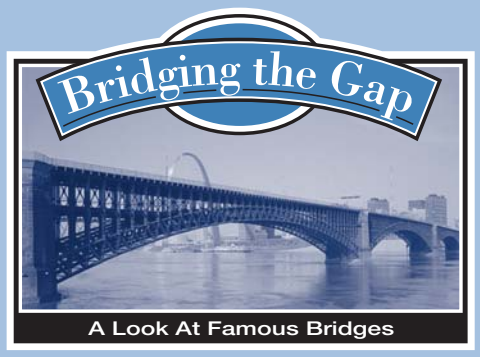


Eads Bridge

Mississippi River

St. Louis, MO and East St. Louis, IL

How do you make sure the first steel bridge in the U.S. is safe? Send an elephant across to test it out! When designer and builder James B. Eads completed the 6,442-foot ribbed steel arch bridge spanning the Mississippi River at St. Louis in 1874, people were skeptical. So, Eads had a circus elephant cross the bridge, since it was believed elephants had a sixth sense and would refuse to cross an unsafe structure. To further test the strength of his history-making bridge, Eads then sent 14 locomotives back and forth at the same time. The bridge held up, and still stands today, a testament to the strength of steel.

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

Steel Prices Fall to 2006 Levels

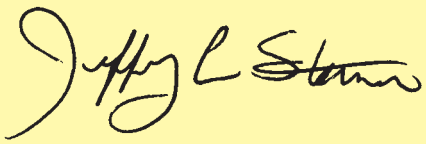
The year 2008 was certainly a roller coaster ride for commodity pricing. Whether you were watching oil, steel, corn or rice, the story was much the same. Hyperactive global demand in the beginning of 2008 drove prices sharply higher to unprecedented levels that could not be supported in the long run. Those price increases, combined with a perfect storm in the credit market, brought demand crashing back to earth and the prices with it.

At its peak in 2008, the price of steel rose almost 70%. We felt that it was important at that time to remind our customers that a 70% increase in a raw material price does not equate to the same increase in our sales price. The cost of our skilled labor and other expenses did not rise at that same pace. In fact, we work every day to reduce the cost to produce our products. Taking a typical project for High Steel Structures, we calculated that a 70% increase in the price of steel translated into a 28% increase in price for which we are able to sell fabricated girders.

Today, the price of steel plate has fallen below any levels seen for several years. The price of steel plate today is about the same as it was in 2006. That makes it a good time for the DOTs to maximize the purchasing power of their new-found stimulus dollars. I know that the steel producers are also optimistic that states will take advantage of the stimulus dollars to address this nation's ailing bridge inventory, because the global demand for plate products outside of infrastructure projects is very weak.

High Steel Structures remains ready and able to step up production as well. Whether the states are investing heavily in bridges, or cutting back to save funds, we maintain our constant drive to continuously improve our processes to produce fabricated steel more efficiently. The same process improvement that reduces the cost of our production generally creates additional fabrication capacity at the same time.

We are continuing to invest in our business to be the best at what we do so as our nation invests in its infrastructure, we can provide real value along with the finest quality available.



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

Reading the Leaves of TEA Reauthorization

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

Well, here we are again, trying to read the TEA leaves on the reauthorization of the Federal Transportation Bill. And just like in previous reauthorization years, we really don't have a clue.

Let's start with some past history. The last TEA bill, TEA-LU was passed with heightened spending from its predecessor, TEA-21, but it did not have accompanying increased revenue generation. The Highway Trust Fund had a strong positive balance at the time, so rather than enact a Federal Gas Tax increase, Congress chose to draw down the Trust Fund.

Fast forward to today, the Trust Fund has no money and we are dipping into the General Fund to cover the authorized funding levels.

We are also in the middle of a recession, a stimulus bill has been enacted to jump start the economy and the TEA bill runs out on September 30, 2009. The Obama administration has stated that if Trust Fund revenues are not increased, the Federal spending levels will fall from a 2009 level of approximately $50 Billion to as low as $10 Billion. I don't need to tell any of you that that level of spending would devastate the transportation industry. Dave Bauer of the American Road and Transportation Industry estimates that 400,000 jobs would be lost under that scenario.

This is leaving the Congress with one of three options: cut the program back to the reduced levels, raise revenues with increased taxes or utilize massive deficit spending. None of these are good options.

If you are an optimist, you could say that the Congress has a heightened awareness that our infrastructure is crumbling and the days of ignoring it have to come to an end. Congressman Oberstar plans to trot out a bill in June that will be in the $400-500 Billion range and thus may make the September 30, 2009 deadline. And it must be a robust bill that will help sustain the jobs created with stimulus money.

The pessimists argue that deficit spending at these levels is unsustainable and Congress doesn't have the will to pass any type of tax increase. They predict that we will go through another round of painful continuing resolutions and a final bill will come long after the September 30 expiration of TEA-LU.

Who's right? We'll just have to wait and see. But this much is for sure, Congress faces a tough choice, to either pass a revenue enhancement or face massive unemployment. There's not much middle ground.

BEYOND BRIDGES

National Museum of American Jewish History Is Philadelphia Landmark

When the new National Museum of American Jewish History comes to Philadelphia, it will be residing in a prestigious Old City neighborhood.

The 100,000-square-foot, five-story building will have iconic neighbors on Independence Mall in Philadelphia, standing directly across from the Liberty Bell, two blocks south of the National Constitution Center, and one block north of the birthplace of American liberty, Independence Hall.

A rendering of the new National Museum of American Jewish History *(image © Polshek Partnership Architects)*

While the magnificent $150 million museum is certainly not a bridge, the only National Museum in America devoted to chronicling the American Jewish experience will serve as a "bridge" between all Americans, Jewish and non-Jewish.

The new museum, which will serve as a cornerstone of the modern-day American Jewish community, will welcome all people, inviting them to discover what they have in common with the Jewish experience in America, and to explore the features that make this history distinctive. The new building will house the museum's exhibitions and programs and serve a diverse audience of more than 250,000 visitors each year.

As the project unfolds in Philadelphia, in the site of the former KYW Building at 5th and Market Streets, High Steel Structures has played an integral role in the landmark building. High Steel has been working with Berlin Steel of Malvern, Pa., which was awarded the steel package for this project and put together a team to handle the fabrication and erection.

In addition to the beam and column requirements, there were 17 complex plate girders. High Steel Structures worked closely with Berlin Steel throughout the budgeting and bidding stage of the project, and was selected to fabricate and deliver the plate girders.

Due to job site restrictions and the lack of lay down space, it is High Steel's ability to coordinate shipments directly from its shop to "under the hook" that has been essential to the success of the project. The contractor is Intech Construction of Philadelphia.

The building was designed by architect James S. Polshek of the internationally acclaimed architectural firm Polshek Partnership Architects, LLP. His recent projects include the Rose Center for Earth and Space at the American Museum of Natural History in New York City, the William J. Clinton Presidential Center in Little Rock, Ark., and the Cultural Resource Center of the National Museum of the American Indian, Smithsonian Institution, in Suitland, Md.

Patrick Gallagher of Gallagher & Associates, one of the leading exhibition design firms in the country, is designing the core exhibition for the museum, working with historian and Brandeis professor Jonathan D. Sarna, who is chairing a committee of nationally noted historians.

In January the steel frame of the structure was topped off, when the final 31-foot beam was placed on the northwest corner of the 121-foot building. High Steel provided 250 tons of primer coated Grade 50 steel for the project.

Completion of the new National Museum of American Jewish History is projected for Fall 2010.

Tech Talk - Truss Replacement over the Erie Barge Canal (or "The Big Truss that Could!") *continued from page 5*

rose and the barge, which had been stuck fast, floated free just as the winch-dozer forces actuated, gliding noiselessly and without so much as a ripple, or even the slightest tautening of the stay cables.

The bridge, resembling some immense yet graceful train pulling from its station berth, slowly gained speed and settled into wedding-march pace as the combination float-launch operation progressed. With the trailing tandem rollers steadily progressing upon the south falsework track and the leading edge buoyed by the mirror-smooth water, it took less than fifteen minutes to traverse the channel.

Summary & Conclusion

This project illustrates the advantages of FHWA's Accelerated Bridge Construction (ABC) initiative. Of course, this procedure required much pre-planning, coordination and communication among the launch team members. This teamwork was key to the success of the project as the launch commenced and weather and settlement-induced complications were overcome.

Even with the work needed to assemble tracks and falseworks on both shores and the barge, the effort permitted superstructure erection to proceed concurrent with (instead of subsequent to) abutment substructure construction. Rather than waiting for several weeks of in-place truss erection upon completion of the substructures, the contractor was able to commence deck slab operations. Even sidewalk SIP forms were added prior to launch, serving both as a lightweight inspection platform during launch and as a timesaver for subsequent forming/decking operations.

Employee Spotlight: **Jamie Cutler, Contracts Manager**

Jamie Cutler joined High Steel on April 7, 2007, taking the reins as Contracts Manager from Clayton Showalter upon his retirement. Before joining High Steel, Jamie had most recently worked in the Philadelphia area as Contracts Manager for Oracle Corporation and Corporate Attorney for TeleSpectrum Worldwide.

Jamie explains her top responsibility at High Steel as, "protecting the company's interests by reducing risk to revenue and liability risk in its contracts." She enjoys working at High, commenting that the people are, "genuine, hard working and really caring."

"I couldn't believe the number of co-workers with 10, 20, 30+ years of tenure, as this is almost unheard of in the corporate world," notes Jamie.

Jamie holds a B.A. degree from Colgate University and a J.D. from Loyola University College of Law. She has lived in the South, as well as New York and Ohio, and now lives in Chadds Ford. Her son, Sam, 24, is a graduate of Fordham University and works as an Assistant Publicist in New York City, and her daughter Molly, 19, just finished her freshman year at Loyola, as a Public Relations major.

"Both kids occasionally talk about going to law school. I tell them to read the Uniform Commercial Code, annotated, cover to cover, and then think again. Or I could just show them one of my contracts, making them sign a Non-Disclosure Agreement first!" jokes Jamie.

Jamie's hobbies include reading and gardening, and spending time with her pets, including Watson, a sweet 10-year-old Shih-tsu; Henry, a crazy two-year-old Pug; and Emily, a chubby tabby cat.

Tech Talk The High Tech Corner

Truss Replacement over the Erie Barge Canal (or "The Big Truss that Could!")

By Robert Cisneros, High Steel Structures Inc.

This combination launch and float-in erection procedure for the Rte 270 Truss Replacement over Erie Barge Canal, prepared by High Steel under contract to Oakgrove Construction, is an example of accelerated bridge construction for a prefabricated steel bridge superstructure. Pre-assembling the truss permitted the commencement of deck placement activities earlier in the construction season. This article describes the method used and lessons learned.

During fall of 2008, the three hundred foot long, seven hundred ton Warren truss was assembled by erector Hohl Industrial Services on the south approach to the Erie Canal crossing (blocked to no-load profile). On this particular project, falsework placements within the navigation channel were prohibited. Upon assembly and after install-ing temporary struts at key locations to provide structural stability, load was transferred from full support at all panel points to four roller assemblies placed beneath reinforced primary connections. The truss was in a state of dead load stress reversal at this point for moving operations (supported at panel points L4 and L6, see Figure 1).

The structure was basically launched across the Erie Canal channel in four phases:

1. The truss assembly was rolled sixty feet along track beams mounted on south shore falsework.
2. Barge-mounted falsework was positioned beneath the 120 ft cantilever, (L8) then de-ballasted to support the truss at reduced forward overhang.
3. With approximately 70 percent of the truss weight remaining on rear rollers, (L4) the truss was then "float-rolled" across the channel.
4. Once the truss leading edge bearing points reached the north shore falsework, load was then transferred to final bearing points L0 and L10 on the north and south falseworks; the structure was then rolled the remaining sixty feet into final position.

In total, the structure was moved approximately 230 feet total during four separate days in April 2009. The following describes the challenges encountered throughout the process and the corrections taken which ultimately resulted in a successful launch.

Weather and soil compression

Weather forced a project standstill for several days as 50 mph winds, heavy rain and flooding caused the water level in the canal to rise over three feet. As a result, the crew was forced to carefully de-mobilize the barge from beneath the truss cantilever to avoid damaging the bridge.

As the barge was re-positioned and de-ballasting preparations were getting underway, post-flood water levels fell several inches below the ideal pool elevation for launch. Furthermore, scour readings indicated that large debris had accumulated among rocks directly beneath one corner of the barge. There was a possibility that the barge would run aground and be unable to proceed across the channel.

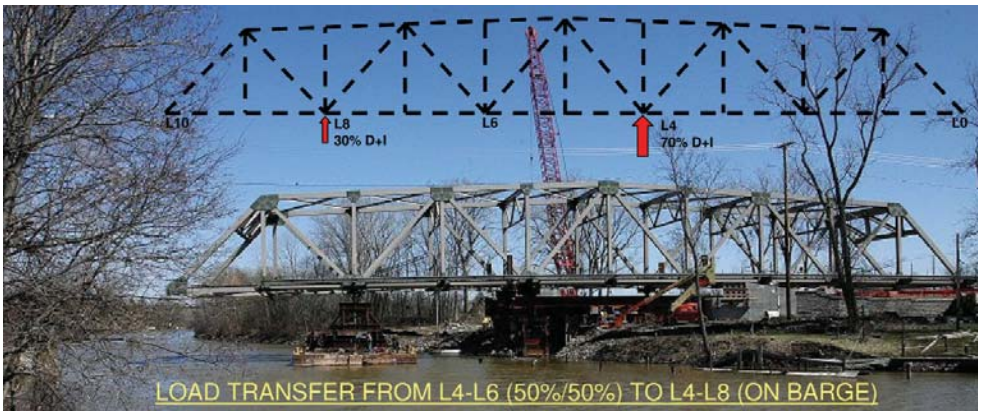


Figure 1: Truss Elevation and main load configurations

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Brightman Street Bridge Is Replaced in Fall River, Mass.

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span of the superstructure on the west side of the bridge. These special tub girders had to be fabricated in pieces and assembled at elevation at High Steel's yard, then disassembled and shipped to Massachusetts in two pieces. Additionally, the east approach of the bridge includes an off-ramp with "merging" tubs. This merge area was also pre-assembled at High Steel's yard prior to delivery to the job site.

JUST THE FACTS:

Bridge Type:	Tub Girder
Steel Tonnage:	5,038 Tons (approach spans)
Steel Type:	Grade 50
Coating:	Painted (Three Coats)
Project Owner:	Massachusetts Highway Department
Contractor:	Cianbro-Middlesex, A Joint Venture
Designer:	HNTB Corporation, Boston
Detailer:	Tensor Engineering Company
Steel Fabricator:	High Steel Structures Inc. (approach spans)
Steel Erector:	Cianbro-Middlesex, A Joint Venture

Tech Talk - Truss Replacement over the Erie Barge Canal (or "The Big Truss that Could!")

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Additionally, the large amount of rain and snow melt had settled the ground slightly beneath the three-inch thick, two-tiered track plate, which was supported in turn by 12" thick hardwood crane mats and a layer of compacted crushed stone where approximately two-thirds of the truss had been pre-assembled.

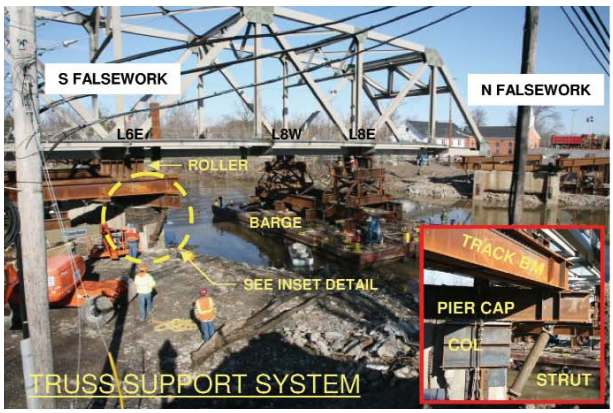

Figure 2: Falsework primary components

This region had settled slightly under the assembled truss, with supports beneath each panel point. However, as load was transferred to the four roller points, settlements of four to six inches were observed. This settlement created a highly localized curvature in the track plates which tended to bind up the roller assemblies, hindering progress and ultimately fracturing one assembly in transit. The remedy to this situation had been to jack the L6 structure load points and install a second set of rollers in tandem. This supplementary roller served as a launching nose, reducing the effects of the settlement-induced vertical curvature.

It was decided to cautiously advance the truss approximately three feet beyond the nominal stopping point on the south shore falsework. This would allow load transfer onto the barge in deeper water, but necessitated:

a) the removal of stopper blocks welded to the end of the track work, which had been intended to keep the truss from rolling beyond the limit of the falsework track and into the canal

b) double-checking of shear pins mounted to the lead bulldozer blade to hold truss back if needed

c) observers stationed at inclined struts extending from existing pier columns as props for the ten foot cantilevered track, which would need to support 275 tons of load (see figure 2).

Roller Failure and a Grounded Barge

The team then carefully rolled the truss forward to this re-engineered stopping limit. All proceeded well until six inches short of the new travel limit, a screech of metal was heard, accompanied by a shuddering through the track and falsework assembly. The falsework oscillated once longitudinally, but held.

Inspection found that the noise had been the failure of three rollers within the lead nest beneath the west truss. This support point was jacked directly from the falsework track, and the shattered roller was carefully removed. Since without the roller it was now impossible to push the truss further, the barge was brought into position. Upon pre-load ballasting the barge was found, despite its deeper position, to still run aground, resting upon debris at its southeast corner. This debris held fast without deflection, forcing a list into the barge as the erection crew shimmed the opposite end to keep the truss from twisting.

Available options were evaluated, and corrective actions were taken:

1. The barge's trim was adjusted, a slow and balanced operation wherein additional water was removed from the chamber at the non-grounded side.
2. Barge falsework jack points were concurrently and differentially shimmed to maintain the truss in level (untwisted) position as the barge's list was corrected.
3. All remaining water was then removed from fore and aft tanks and, thus lightened, it was hoped that the barge could scrape free from the unexpected shoal without hull damage.
4. Fore-and-aft stay cables were re-snugged, being tied from the truss to the sides of the barge, thereby keeping the transversely oriented vessel from listing to port or starboard.

The Channel Crossing

Two bull-dozers coupled to the truss pushed in tandem, their effort supplemented by a pair of winches anchored to ten-wheel dump trucks on the far (north) shore. At this point, the water level providentially

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HIGH STEEL STRUCTURES INC.
An Affiliate of High Industries Inc.

1915 Old Philadelphia Pike ■ P.O. Box 10008 ■ Lancaster, PA 17605-0008
(717) 299-5211 ■ Fax (717) 399-4102 ■ www.highsteel.com
Additional plant location: Williamsport, PA

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In This Issue

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Fast Answers to Your STEEL Questions

Please address comments to editor,
Lisa Fulginiti, at LFulginiti@high.net

Recent Contracts Awarded

Intercounty Connector Contract B
Montgomery County, MD
MD 200 Constructors
5,834 Tons

D260974, Rte 17
Sullivan County, NY
Delaney Construction Corporation
4,642 Tons

Interstate 695 Interchange at Charles Street
Baltimore County, MD
Six M Company
1,017 Tons

Harmony Junction Bridge
Butler County, PA
Mekis Construction
396 Tons

Garden State Parkway Widening
Interchange 63 to 80, MP 75 to 80
Ocean County, NJ
Midlantic Construction
391 Tons

NY Route 10 Reconstruction
Suffolk County, NY
Posillico Civil, Inc.
268 Tons

World Trade Center
Misc. Girders
New York, NY
Cives Steel Company
188 Tons

"Lay down a good weld and give good measure"

Sanford High 1931

STEEL DAY 2009

High Steel's Fall Open House for Bridge Designers / Project Owners

September 18, 2009

interact. learn. build.

Contact Lisa Fulginiti (717.209.4609 or LFulginiti@high.net) for information

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