Connections

Three Nations Bridge

AUTUMN 2011

ONTARIO · QUÉBEC · NEW YORK

The American Bridge/Fluor Joint Venture is entering the cable erection phase of the San Francisco Oakland Bay Self Anchored Suspension Bridge. Tower work is complete, including erection of the 456mt tower saddle. The west loop saddles, including two deviation saddles each weighing 300mt and a jacking saddle weighing 96mt, have been installed and aligned. Preparation works for cable installation have also been advanced. Footwalks to support the cable installation were designed, manufactured, installed, and fitted with lights. The tower has been pulled back towards the backspan 518mm using tieback strands (tensioned to 1200kN), to compensate for the forces imposed on the tower from the heavier mainspan cable weights. A tramway system has been designed and installed. This system will pull the 137 prefabricated parallel wire strands (PPWS) from the northeast side of the bridge to the tower top and down to the west loop area on the north side, and then from the west loop area on the south side back to the tower top and back to the south east side deck anchorages. A special west loop hauling system has been designed and installed to restrain the strand while it can be transferred to a trolley system. The trolley system will then pull the strand across the west loop, through the north deviation saddle, jacking saddle, and south deviation saddle.

These preparation works will enable the installation of the 784mm diameter, 1,402m long continuous main cable with a mass of 5,200,000kg.

AMERICAN BRIDGE COMPANY is a 110 year old bridge and marine contractor dedicated to imagining, engineering, and safely executing the methods to competitively deliver the world's most complex structures.

American Bridge

www.americanbridge.net

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ABridge to SAFETY excellence

One of the primary topics of the 2011 American Bridge annual meeting (page 25) was the new company-wide safety improvement initiative:

VISION

To maintain a culture that values the safety of our employees above all else

MISSION

Working together we pledge to protect the health, safety and welfare of each other through the achievement of a zero incident workplace

VALUES

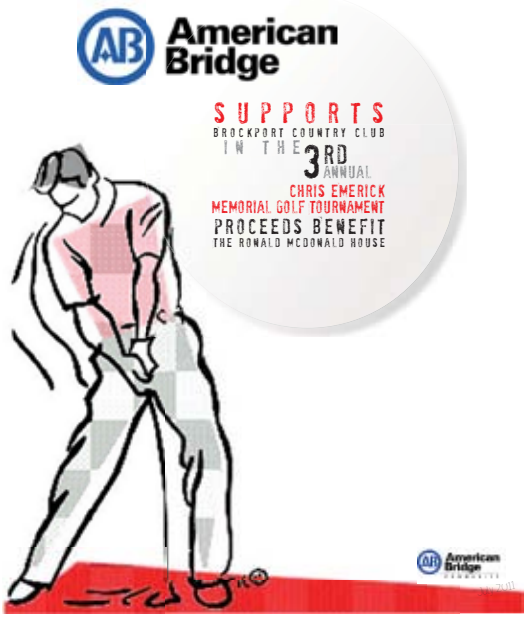
- Employees are our most valuable resource and we will never compromise their safety and health
- Every decision made and action taken will be consistent with the achievement of a zero incident workplace
- Safety, production and quality are not mutually exclusive
- Together, we will foster an environment of trust and empowerment through the concept that safety has no hierarchy
- Every employee has the right to a safe workplace and the responsibility to commit and contribute to the achievement of our mission

Committee Members:

Scott Gammon (Chair), Kansas City, vice president
Barry Bender, Pittsburgh, estimating department
Dan Bell, New York, operations manager
Bill Felker, Pittsburgh, senior project manager
Ken Farrelly, Virginia, operations manager
Jake Bidosky, ABM, senior vice president
Jack Chenneville, Tampa, operations manager
Ugo DelCostello, Special & International Projects, general superintendent
Brian Petersen, San Francisco/Oakland Bay Bridge, operations manager

Safety Support:

Henry Mykich, Pittsburgh, safety director
Jody Porterfield, Pittsburgh, safety manager
Nathan Flowers, ABM, health and safety assistant



Connections

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Three Nations Bridge

SUMMER 2011

COVER

Read about how AB's experience and innovations overcame the abundant challenges brought on by the natural landscape characteristics at Three Nations Bridge project site in Ontario, Canada. With a current of 3.6 meters per second, the St. Lawrence River demands unconventional and alternative methods when undergoing any marine works within its waters.

thank you

Much appreciation to the following individuals for their contribution to this issue:

Rob Conroy
Bill Felker
Andy Kerr
Neil Napolitano
Joe Rynn
Jon Weaver

Wellness Program Winner Takes on Wine Country

John Robison, of American Bridge Manufacturing, Coraopolis, Pennsylvania was the 2010 Wellness Program Grand Prize winner. In July, he and his wife Betty travelled to California's wine country and took some time to do some sight-seeing in San Francisco. Congratulations again to John for winning the grand prize.

AB Connections
NEWSLETTER
by Kadi Camardese

Please contact the
AB Communications & Marketing Department
with news and inquiries:
kcamardese@americanbridge.net

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CURRENT CONTRACTS

Manufacturing

Walt Whitman Bridge, Philadelphia, PA
P.J. McArdle Viaduct, Pittsburgh, PA
Bedford County Turnpike Girders, Bedford, PA
Clearfield County Plate Girder Bridge, Kylertown, PA
Shore Parkway, Queens, NY
Cochran Mills Bridge, Armstrong County, PA
Sun Valley Bridge Widening, Los Angeles, CA
LDH Energy Railroad Bridge, Shelibana, KY
4th Avenue Bridge, Johnstown, PA
Wilson Creek Bridge, Marshall, AK
George Washington Bridge, New York, NY
Dickey Prairie Road Bridge, Clackamas County, OR
I-80 Bridges, Clarion County, PA
Route 65 Bridge, Pittsburgh PA
Montour Trail Bridges, Washington County, PA

Western

ABFJV San Francisco/Oakland Bay Bridge, CA

Richmond

Chincoteague Bridge, Chincoteague, VA
Pier R3, Yorktown, VA
Pier 31, Groton, CT
Bulkhead at NOAA Marine Operations Center, Norfolk, VA
Three Nations Bridge, Cornwall Ontario, Canada

New York

Throgs Neck Bridge Structural Retrofits, New York City
Bronx Whitestone Bridge Structural Retrofits, New York City
Ogdensburg-Prescott International Bridge Main Span, Ogdensburg, NY
Walt Whitman Deck Replacement, Philadelphia, PA
George Washington Bridge Rehabilitation, New York City
Robert F. Kennedy Bridge Structural Improvements, New York City

Tampa

Platt Street Bridge Major Repairs, Tampa, FA
Port Fourchon Bulkhead, Galliano, LA
Red Bug Lake Road Pedestrian Overpass, Oviedo, FL
Arawak Cay Port Development Phase II, Nassau, Bahamas
Container Yard Shoreline Protection Works, Freeport, Bahamas
Castaway Cay Hurricane Irene Emergency Repairs, Castaway Cay, Bahamas

Pittsburgh

Kentucky Lakes Bridges, Grand Rivers, KY
Charleroi-Monessen Bridge Replacement, Charleroi, PA
I-64 Main Span Girder Repair, New Albany, IN
Pending - Columbus Road Lift Bridge, Cleveland, OH

Special and International Projects

Forth Replacement Crossing, Scotland, United Kingdom
Las Vegas High Roller Observation Wheel, NV

NEW HIRES

Melissa Soranno, project administrator, Red Bug Lake Pedestrian Overpass, Oviedo, FL
Dan Schwarz, project engineer, Headquarters, Pittsburgh, PA
Matthew Cameron, regional sales manager, American Bridge Manufacturing, Reedsport, OR

2011 CORNHOLE LEAGUE PARTICIPANTS:

PANTS ON FIRE	***TIGERS HATE CINNAMON***
ANDY GRAFF, JANET CORDERO	ERIC LANSBERY, KADI CAMARDESE
THE RIVER CROWS	***W. TEAM 2***
BRIAN SILVERS, TODD YUHAS	ANDY KALAS, DANIELLE DAVISON
THE SHEENS	***CLUELESS***
ASHLEY ROBERTS, BRENT VANARSDALE	LARRY SMITH, PAT SKINGER
THE CORN DAWGS	***CORNHOOLIGANS***
JARED CARLSON, SIMON LAMING	AMR EL NOKALI, DAVE PARTAZANA
CORN STALKERS	***THE ROMAN GLADIATORS***
MAUDEE PARKINSON, RICHEY PEFFERMAN	DAN EDWARDS, KAREN BOZZA
THE BAG BOYS	***BLEEP MISSED AGAIN***
BRAD SAVER, DICKIE FOSTER	CARL SCHWARZ, JAMES DIPASQUALE
THE EERPLUGS	***TEAM HARLEY***
HENRY MYKICH, TERRI URICK	JEFF GREENE, MATT MURPHEY
SAND BAGGERS	***E. TEAM 5***
DEBBIE EASTON, RALPH WHITNEY	JEN PELLIGRENE, KEITH BASSANO
THE CORN FRITTERS	***CORNFLAKES***
BEN CROWDER, JODY PORTERFIELD	DAVE KOSAR, KATHY BONETTI

With a current of seven knots (3.6 meters per second), the St. Lawrence demands construction innovations and alternative methods when undergoing any marine works within its waters. A highly experienced contractor specializing in unconventional methods and equipment designs is an absolute must for a project of this type.

There are a few factors causing the strong current specifically in the location of the bridge, one of which is the Moses Saunders Power Dam to the west. Additionally, two natural landscape characteristics at the jobsite cause stronger currents through the North Channel: deeper water to the east and west as well as narrower passage due to the way Cornwall Island separates the channel. The extreme current adds further complexity related to the design of the new foundations, since the riverbed contains essentially no mud, soil or other materials to reliably hold an anchor or seat a spud pile. In fact, in some areas the river's bottom is simply a sheet of limestone. In others, there are rocks and boulders mixed in with glacial till which can also be unpredictable. This creates abundant challenges for this bridge foundation contract.

In this first of four phases for the construction of a new four-span, two-lane tub girder bridge, AB has developed innovative methods to save time and drive down cost for owner, Federal Bridge Corporation, Ltd. Once complete in September 2013, the new North Channel Bridge will span 342m (1,122') connecting the city of Cornwall with Cornwall Island.

The scope of AB's contract includes the construction of three new in-river piers, founded on large diameter caissons and topped off with a conventional pier cap with two bridge seats in each. The bridge substructure consists of 2.4m (8') diameter drilled shaft caissons socketed 6m (20') into bedrock. There are two caissons and two 1.8m (6') diameter columns per pier. Pier 1 columns are approximately 11.5m (38') in height, Pier 2 columns are approximately 9.6m (31') in height, and Pier 3 columns are approximately 9.7m (31') in height. The pier caps are 12.2m (40') long by 2.4m (8') wide by 1.6m (5') tall with rounded ends on a 1.2m (4') radius. The top surfaces of the caps are sloped at a two percent grade from the edges towards the center of the pier.

New North Channel Bridge
Once complete in September 2013, the bridge will span 342m connecting the city of Cornwall with Cornwall Island

Existing North Channel Bridge
Completed in 1962, designed at a height tall enough to accommodate large shipping traffic

Moses-Saunders Hydroelectric Dam
One of many factors strengthening the river's current

Cornwall Harbor
AB's equipment storage location about 2.4km south of the project

Cornwall Island
Separates the river making this area narrow; water to the east and west are deeper causing the quickened river flow

Existing Piers
Set of old stone bridge piers from a railroad bridge built in 1900 filled with concrete 762m west of the AB's current job site; the Ottawa and New York Railroad Company bought this land in 1898 from the Akwesasne Indians

South Channel Bridge
AB fabricated and erected all of superstructure and approaches, including towers, cables (fabricated from 5.8 x 0.7m galvanized helical strands; erected by cableway), suspended decks and concrete roadway surface of this three-span, 1,060m suspension bridge, crossing the south navigational channel between Cornwall Island and Rooseveltown, New York. Completion date: 1959, AB order no.: V-106676

Rare challenges on the St. Lawrence require unconventional solutions:

High current speeds, narrow channels, exposed bedrock, shallow waters and seasonal constraints – there are conventional ways to handle each of these challenges individually; however, the combination of them is rare and present on the St. Lawrence River posing significant challenges for the project.

Railroad bridge built in 1900 - the piers used by AB for the anchoring system that are about 2.4km upstream

The St. Lawrence Seaway comprises navigable channels traversing ships between the North Atlantic Ocean and the Great Lakes. The Seaway bypasses the un-navigable portions of the St. Lawrence River, and includes locks and canals.

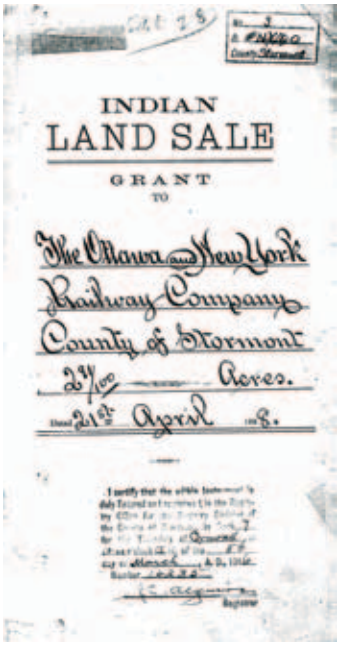
American Bridge finished the South Channel Bridge (AB order no.: V-1066-76) in 1959, the same year the Montreal/Lake Ontario section of the St. Lawrence Seaway opened to navigation. This area of the seaway is 189 miles long and contains seven locks, five Canadian and two U.S., in order to lift vessels to 75m (246') above sea level. The original South Channel Bridge project included the fabrication and erection of the entire superstructure and all approaches, including towers, cables, suspended decks and concrete roadway surface of this three-span, 1,060m (3,479') suspension bridge, crossing the main navigational channel (South Channel) between Cornwall Island, Ontario, Canada and Rooseveltown, New York. The cables were fabricated from 0.7m (2⅛") galvanized helical structural strands and erected by cableway.

The north crossing is also referred to as the 'Three Nations Bridge' due to the St. Regis Akwesasne Indian Reserve that spans portions of the Canadian Provinces of Ontario and Quebec, and New York State in the USA.


localnews

The old North Channel (Three Nations) Bridge that was demolished in 1962 and replaced by the existing high level bridge

The North Channel Bridge was open to traffic in 1962, 1,625m (5,331') long and 8.2m (27') wide it was designed at a height tall enough 35m (115') to accommodate large shipping traffic through a parallel canal on the Cornwall, ON waterfront; however, alternate areas on the Seaway were used for this purpose instead. The existing bridge has a high level of deterioration and does not meet current safety standards, making rehabilitation non-economical in this case. As the new bridge will have a much lower 9m (30') clearance, Cornwall residents will see quite a change in landscape once the new bridge is complete.


INDIAN
LAND SALE
GRANT
TO
The Ottawa and New York
Railway Company
County of Stormont
Acres.
21st April

Akwesasne Indian deed of sale April 21, 1898 for land bought by Ottawa and New York Railroad Company

The north crossing is also referred to as the 'Three Nations Bridge' due to the St. Regis Akwesasne Indian Reserve that spans portions of the Canadian Provinces of Ontario and Quebec, and New York State in the USA. It also straddles Cornwall Island. Large portions of the workforce for the Three Nations Bridge foundation contract are members of this Nation.

The Roosevelt International Bridge was a truss bridge about 0.8 kilometers (km) (0.5 miles) upstream of the Three Nations Bridge, which was demolished after the North Channel Bridge opened to traffic. However, AB is using its existing piers as part of a marine anchoring system.

The sequence of work for Piers 1 - 3:

1. Install temporary works and pile templates
2. Install the permanent casing for the caissons, drill and tremie pour the caisson, then test to ensure compliance with specifications
3. Clean tremie pour, install a splice cage and pour the rest of the caisson to complete
4. Install column cages, column forms, and pour the columns
5. Strip the columns, install the pier cap forms and rebar, pour the pier caps
6. Cut off the caisson casing to grade and install a caisson cap to protect the opening between caisson and column
7. Remove falsework and perform any necessary punch list items

High currents, narrow channels, exposed bedrock, shallow waters and seasonal constraints – there are conventional ways to handle each of these challenges individually; however, the combination of them is rare and present on the St. Lawrence River, posing significant challenges for work in the water.

Rare challenges on the St. Lawrence require unconventional solutions

Alternate work methods required when compared to other rivers

Flowing at an average rate of 12 cubic feet per second (0.34 cubic meters per second), the strength of the St. Lawrence changes the way all marine work and procedures are carried out on this job - requiring unconventional marine construction means and methods.

Cables holding barges in place are anchored piers from a railroad bridge demolished in 1962

Natural landscape causes high current

Ninety percent of the river freezes during the harsh winter months. As the snow and ice starts to melt in early spring, the water elevation raises at a quick rate dramatically increasing the current speed. Another factor adding to the river speed is that the bridge is located on a narrow channel of the river where the water is relatively shallow (depth ranges from 4' to 25' [1.2m to 7.6m]).

Work from Piers 1, 2 and 3, early September; on this day all cassions were installed and Pier 2 columns completed; in the afternoon the cap form was set on Pier 2 and the rebar cages on Pier 1

Bedrock and falsework piles

The current strips the St. Lawrence of typical overburden including silt, sand, and glacial till materials that are normally used to hold an anchor or seat a spud pile. Therefore American Bridge needed to devise an alternate plan to maintain budget and schedule.

Cap form sits on the column seats; after all reinforcements were installed the concrete was poured, early September

n the absence of normal anchoring material, AB needed to find a way to adapt to the large loads the current inflicts on the barges and any structure to which they are moored. After considering a variety of options to anchor and move the barges on site, AB Superintendent Andy Kerr and General Superintendent Ugo DelCostello, established that the most reliable solution was to anchor to an existing set of old stone bridge piers filled with concrete 762m (2500') west of the site (piers are from a railroad bridge built in 1900). The system was designed to transfer the current load back into the same piers and proved less risky than building and installing new anchors of any type.

The anchor system was designed around a single 38mm (1.25") cable holding the two crane barges to which all other material barges would be moored. The cables were carried by Conmaco 385 double drum deck winches. Only one drum was necessary, but as an insurance policy AB used double drums in case there was ever a need for another cable. The deck winches pulled the barges upstream and lowered down into position as the tugboat provided lateral movement. A sling, made of three wraps of 19mm (0.75') cable, was draped over the old stone bridge piers and connected to the 38mm (1.25") cable with a shackle. The sequence of work was set up to maintain a navigation channel.

"In the case of the St. Lawrence, our unconventional anchoring system saved time and money when compared to building and placing anchors in the river, plus anchoring to the existing piers 2500' upstream allowed for better maneuverability."

Andy Kerr
General Superintendent

Andy explains, "In the case of the St. Lawrence, our unconventional anchoring system saved time and money when compared to building and placing anchors in the river, plus anchoring to the existing piers 2500' upstream allowed for better maneuverability."

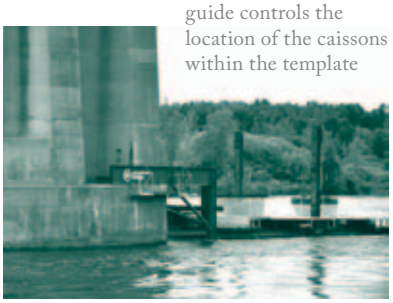
Budget and innovation

AD&T (American Dock & Transfer, one of AB's sister companies) fabricated the falsework collars that held up the F1 falsework (used as the caisson template) and transferred the current load into the existing bridge piers. Utilization of this company owned equipment coupled with anchoring to the existing piers drove down cost and enabled AB to be the competitive bidder for the project.

The project schedule revolved around fish window restrictions at Piers 1 and 2 from March 15 through May 1, and at Pier 3 from March 15 through July 15. The scope of the Pier 3 work combined with the fish window

Pier one, all caissons were installed mid-August

Columns at Pier 2, cap poured mid-September



Current loads are transferred to the collar then into the concrete piers; the steel frame guide controls the location of the caissons within the template

restriction resulted in the critical path traveling through the work at that pier. The key was to finish the caissons at Piers 1 and 2 to enable sequential movement to Pier 3. However, completing too early would put our equipment on standby which would have been costly. The AB team was able to stay exactly on schedule avoiding any such case.

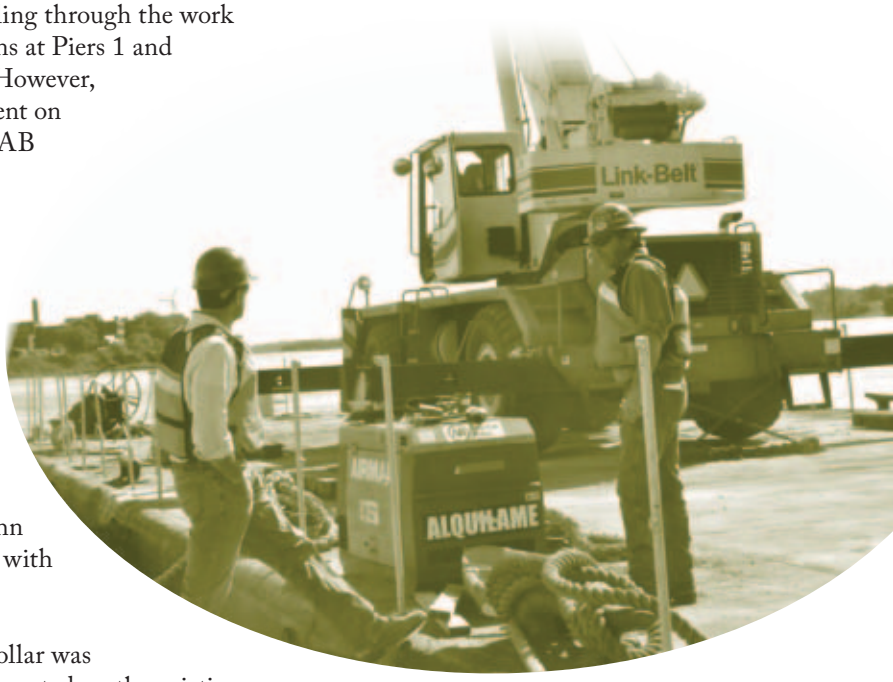
Falsework

Unlike other water bodies on which a floating template can be utilized, the St. Lawrence requires a fixed template due to the strong load on anything that touches the current. AB's Andy Kerr, along with AD&T personnel Mike McCoy, Mike Wade, Jimmy Hall and John Gerace, came up with a solution.

"The best boat we found was a 1000 horse power tug that drafts about 6' so it operates safely in about 7'-8' of water. Even then, it could not operate in about 15 percent of the work zone."

Neil Napolitano
Project Manager

A falsework collar was designed and erected on the existing bridge piers by crane to serve as a connection between the existing piers and the caisson template. The current load from the river was transferred through the collar to the concrete piers. A steel frame guide was utilized to control the location of the caissons within the template.



Project Manager Neil Napolitano and General Superintendent Andy Kerr as the team loads equipment at Cornwall Harbor site

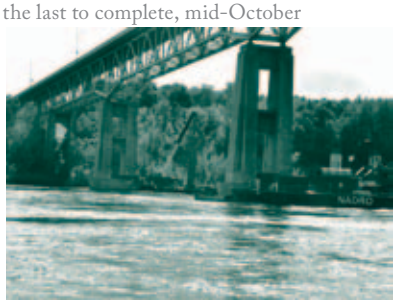
Maneuvering in shallow waters

The shallow waters present in much of the work area greatly limit equipment maneuverability. Large tugboats are necessary to move equipment in the fast current, yet draft too much water to be used in shallow areas. AB hired a unique 1000hp tug that drafts about 1.8m (6') and operates safely in as little as 2.1m (7') of water, providing more flexibility compared to other tugs.

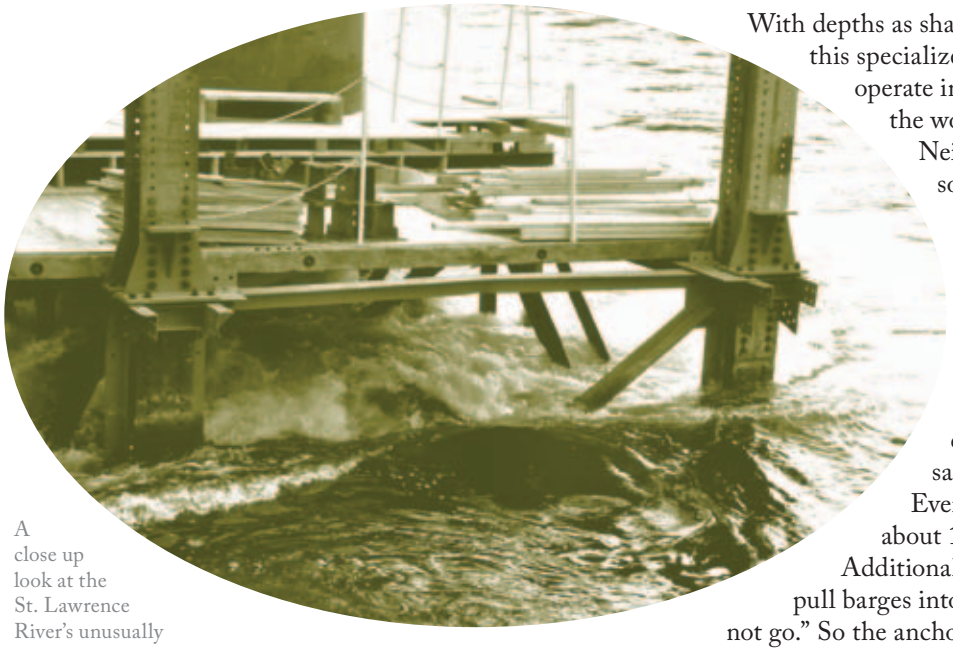
Setting the cap form at Pier 2, August 31

First rebar cage set at Pier 1

Pier 1 left and Pier 2 on right; Pier 3 was the last to complete, mid-October



The main challenge was the marine equipment and anchoring system. Canadian marine equipment on the St. Lawrence is very expensive because the industry operates seasonally; about 90 percent of the river is frozen by Christmas and not navigateable again until mid-March.



A close up look at the St. Lawrence River's unusually strong current - seven knots (3.6 meters per second)

With depths as shallow as 1.2m (4'), even with this specialized equipment AB could operate in only about 85 percent of the work zone. Project Manager Neil Napolitano explains the solution to this problem, "Large tugboats are needed to move equipment in the current, but they can't draft too much water or they will not be useful in the shallower areas. The best boat we found was a 1000 horse power tug that drafts about 6' so it operates safely in about 7'-8' of water. Even then, it could not operate in about 15 percent of the work zone. Additional winches were relied upon to pull barges into areas where the tug could not go." So the anchor system was relied upon to move the barges.

AB mobilizes all equipment and delivers all material from Cornwall Harbor, a five minute taxi by crew boat and 20 minutes by barge.

When completed in early 2013, the replacement bridge will be 26m (115') lower than the existing, creating a more aesthetically pleasing landscape for Cornwall residents. Despite the challenging St. Lawrence conditions, American Bridge completed the foundation project in mid-November, 2011, ahead of its contractual completion date of December 16. Project Manager Neil Napolitano explains, "Of the many challenges within this project's scope the greatest was installation of the caissons. However, our long history with challenging marine construction environments, the use of company-designed erection equipment, and the skills of our long-term employees are enabling us to profitably complete this project ahead of schedule."

AB employees:

Operations Manager Wes Grandmont
Project Manager Neil Napolitano
Superintendent Andy Kerr
Project Engineer Jonathan Weaver
Field Engineer Joe Rynn

Equipment list:

30' by 50' pontoons (2)
Pier column forms
Pier cap forms
22T boom truck
40T hydraulic crane on barge
1,000HP tugboat
Manitowoc 3900 WS2 on barge
600T jack-up barge

Kentucky Lakes Bridges

Six Year Project Comes to an End with $14.2M in Additional Work

2009 traffic on new alignment

AB's six-year-long Kentucky Lakes Bridges project, Grand Rivers, Kentucky is coming to an end with an expected, on-time final completion date at the end of 2011. The Nashville District of the Army Corps of Engineers awarded American Bridge this contract in September 2005 with an original amount of $88.6M. The allocation dependent contract is currently valued at $102.8M to account for delays in annual funding.

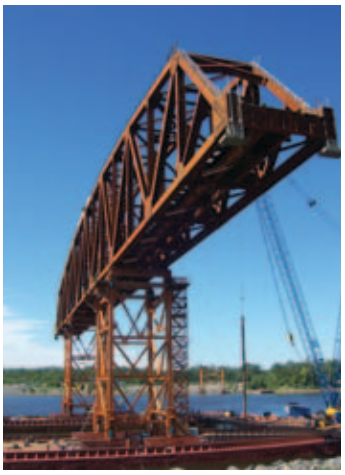
This diverse and challenging project afforded American Bridge the opportunity to showcase many varied talents and innovations. The scope included the construction of a 3,100LF railroad bridge with girder spans and a 500' long by 27' wide 2,200 ton truss which was floated into position; weekend replacement of a 120' railroad overpass and nearly 11,000LF of new track for the P&L Railroad; a highway bridge with 3,100LF of girder spans for the Kentucky Transportation Cabinet; rehabilitation and retrofitting of the existing structures across the TVA's (Tennessee Valley Authority) Kentucky Lakes Dam as well as construction of a concrete access bridge and two precast, cast-in-place concrete fishing piers for the TVA. American Bridge self-performed the steel erection, forming and placing of the concrete and the rehabilitation and retrofitting of the existing structures utilizing forces from Ironworkers Local 782, Laborers Local 1214 and Operating Engineers Local 181.

At press time, work is ongoing for the two concrete fishing piers and a punch list is being developed by the Corps for American Bridge to apply the finishing touches to the job as the end of this project approaches.

American Bridge staff remaining on site includes:
Project Manager Peter Balwant
General Superintendent Tom Melvin
Quality Control Manager Joe Tumas
Safety Manager Steve Rogers
Ironworker Superintendent Ken Edleblute
Carpenter Superintendent Scott Brother
Field Engineer Kevin Lynch
Office Administrator Debbie Crockett

2005 to 2006 steel erection underway

2007 to 2008 girder erection



2009 float-in

2010 to 2011 fence rehabilitation on existing dam/spillway

2011 powerhouse island access bridge

2011 setting precast for fishing piers

Platt Street Bridge

AB Refurbishes 86-Year-Old Landmark Bascule Bridge

Rob Conroy, AB project manager

Platt Street Bridge, a gateway to the Tampa, FL area

The Platt Street Bridge is a double leaf bascule bridge with a Strauss design and unique swinging counterweight that spans the Hillsboro River in Tampa. Considered the gateway to this Florida downtown area, its 86-year existence has seen many changes to the city and is currently a part of the city-wide revitalization to beautify the river sections and adjacent properties. The bridge is considered one of Tampa's landmarks, and will undoubtedly share the world stage as reports from Tampa covering the Republican National Convention 2012 will most likely be shot from the base of the bridge.

As part of its refurbishment, the Platt Street Bridge will undergo a major face-lift. Each of its cantilevered 8' wide concrete sidewalks will be completely demolished and re-cast to the original dimensions but upgraded for current FL DOT (Florida Department of Transportation) loading requirements.

This entails additional structural upgrades in the reinforcing design and the use of 5,500psi (pounds per square inch) of concrete. One of the engineer's requirements was that the sidewalk and its cantilever supports be placed monolithically. This made a much more complex form design since each of the 22 spans, measuring 36' long, had to be fully supported by it's adjacent span supports. The end result was a substantial hanging form system that had to be stout enough to resist deflection, but also be mobile enough to be stripped and set up again within the very close confines of an active bridge. Concrete demolition of the sidewalks started in January 2011 and September marked the completion of the last span placement.

Looking east while the westspan is in the air having the machinery removed and the counter weight trunnions replaced

In addition to the sidewalk, the designer had to appease the preservationists and the concrete handrail had to be replicated. The main concern was to mimic the current aged look, which over the 86 years gave it an exposed aggregate patina. To accomplish this, river rock was used as the aggregate and later sand blasted to expose it. Ornate 3' by 3' concrete panels run along the center of the railing. These were pre-set into place and the bottom curb, posts and top railing were cast around the architectural panels. Like the sidewalk, these railings were upgraded for impact loading. You can imagine in 1926, impact loadings were not as big a concern. Currently over half of the bridge railing is complete and the remainder completed in mid-November.

Each span had to be fully supported by its adjacent span supports resulting in a complex form design

Although the bridge's original machinery still functioned, it was tired and needed to be upgraded to current standards. The original movement mechanism was an open gearing driven by a centralized motor. Its replacement is similar in concept, but the reduction is covered in a gearbox for the final drive. With limited room to demolish and install the machinery, it is being accessed through the roadway deck. At this point the machinery has been removed on one side and the AB team has begun to jack up the other side of the bridge to remove the main trunnion bearings. To comply with USCG (United States Coast Guard) requirements to maintain boat traffic, as each leaf is refurbished in the flat position, the other leaf will be raised. As of mid-October the bridge was closed to vehicular traffic and the machinery replacement began. The machinery started to arrive on the job site on November 1, to begin installation. The bridge must be mechanically operational within a 105-day window once it is closed to traffic.

Looking east at the east span while the structural steel substructure and grid deck are being replaced and the main trunnions are being refurbished

Other work on the project includes complete replacement of the sub-cable and electrical components, cathodic protection for the foundation, rebuilding of the control house and storage structure and the installation of the bridge lighting to give it an original look with replicated fixtures.

Training

Five Year Training Program Completes for the First Group of Field Engineers

From left to right: Katherine Quillin, Kevin Lynch, Robert Yahng, James DiPasquale, Ben Reeve, Levi Gastos

Everyone at American Bridge would like to congratulate the following professionals on their accomplishment:

Forth Replacement Crossing, Scotland, UK
Ben Reeve
Three Nations Bridge, Cornwall, Ontario
Joseph Rynn
Jonathon Weaver
SF/Oakland Bay Bridge, CA
Katherine Quillin
Adam Roebuck
Levi Gatsos
Andre Markarian
Daniel Hester
Kelvin Chen
Daniel McNichol
Adam Reeve

George Washington Bridge, Fort Lee, NJ
Chad Ford
Bruce Phillips
Walt Whitman Bridge, Gloucester City, NJ
Michael Hartranft
NOAA Marine Operations, Norfolk, VA
Brian Binder
Walt Whitman Bridge, Gloucester City, NJ
Drew Merritts
Zach Rosswog
Kentucky Lock Addition-Bridges Superstructure, Grand Rivers, KY
Kevin Lynch
Las Vegas High Roller, NV
James DiPasquale
Simon Laming

Round table discussion at the SAS office

Training Session 8 was held at the SAS jobsite on August 1, and adjourned on August 3 after a tour of the San Francisco/ Oakland Bay Bridge. For many, this session represented the completion of the five year field engineer training program.

This session was very exciting and served as a commencement for these young engineers after years of hard work and dedication in the AB program. On August 1, the engineers were asked to prepare a presentation explaining the unique details and highlights of their current project. Some worked in groups and others alone, but each project was equally beneficial to the other engineers. Tuesday morning's session began with a round-table discussion involving some of American Bridge's core leaders. The presenters were as follows:

Brian Petersen, vice president
Kwadwo Osei-Akoto, vice president
Henry Mykich, safety director
Scott Gammon, vice president

Each of the presenters had a unique story about their personal experiences as an engineer as well as their American Bridge story. Tuesday afternoon consisted of President and CEO Mike Flowers and Chairman Robert Yahng giving their background stories and insight to their timeline of success. The engineers found this session extremely intriguing and motivating.

On Wednesday, the engineers were given the option to join the group on a tour of the bridge.

Training Session 7 was held in conjunction with the annual meeting. On September 29, field engineers utilized the training facility at the American Bridge headquarters where they reviewed a variety of topics. The material and presenters are as follows:

Use of crane capacity charts/rigging - John Schober
OSHA crane standards- John Schober and Henry Mykich
Site work and excavation - Joe Hoepp, estimating manager
Construction environmental presentation - Zurich Insurance

Continued next page

On September 30, the field engineers in this session joined the rest of the AB family at Nemacolin Woodlands for the annual meeting. After the meeting on October 1, Mike Flowers gathered the field engineers around the fireplace at the AB pavilion. During this roundtable discussion, he gave insight to his career from conception and answered questions the group had for him.

George Washington Bridge, Fort Lee, NJ	Bronx-Whitestone Bridge Structural Improvements, NY
Scott Swamback	Joe Stilson
Triborough Bridge Rehabilitation, Manhattan, NY	Dan Sheehan
	Zach Osei
Mike Comstock	Bill Batzel
San Francisco Oakland Bay Bridge, CA	Kara Mullin
	Ogdensburg-Prescott International Bridge, NY
Zach Lauria	
Paul Fikse	Chris Deklewa
Ben Jones	Forth Replacement Crossing, Scotland, UK
	Ben Reeve

Clockwise from fire: Mike Flowers, Bill Batzel, Dan Sheehan, Zach Lauria, Paul Fikse, Scott Swamback, Kara Mullin, Zach Osei

WELLNESS PROGRAM

The Wellness Program for 2011 is coming close to the end. So far we have two individuals that have met or exceeded the 250 goal to be placed in the grand prize raffle. Please have all 2011 wellness goal completion certificates turned into the HR Department no later than January 10, 2012. The grand prize raffle will be held on Friday, January 13, 2012.

Not sure how many wellness points you have? Call HR! There are still a couple of months left to get into the grand prize raffle and win a $2,500 vacation!

Congratulations to Debbie Crockett of the Kentucky Lock project. She was the winner of the $50.00 Target gift card for participating in the *Maintain Your Mind Newsletter Campaign*. Her name was randomly drawn from all that participated in the campaign.

Here is what you can look forward to over the next couple of months with the Wellness Program:

October – In addition to the *Daily Steps to Less Stress Newsletter Campaign*, flu shots were an initiative for October. We all need to stay healthy. American Bridge will reimburse the employee for receiving a flu shot. You must get your wellness certificate signed and turned in the HR Department in order to receive points. We will also need a copy of the receipt for reimbursement.

November – The initiative for November is hunting/gun safety. To receive points for gun safety, you can submit a copy of one of the following items along with a completed wellness goal certificate:

Valid hunting license, regular military, national guard, or reserves photo ID, valid license to carry firearms, military discharge papers (DD-214), certificate of completion from accredited gun safety course, or certificate of completion from accredited hunter safety course.

Also in November, the *Smoking Cessation Program* began. The program began November 1 and will run through January 31, 2012. Any employee with at least one year of consecutive service is eligible to participate in the program as well as spouses of the qualifying employees. You can be reimbursed up to a total of $120 per person (typical cost for three months of cessation products) by simply sending your name, original receipt and UPC symbol from your smoking/tobacco cessation product to the HR Department. Upon receipt, we will reimburse you for your cost up to $120 per person. The employee will also receive 15 wellness points.

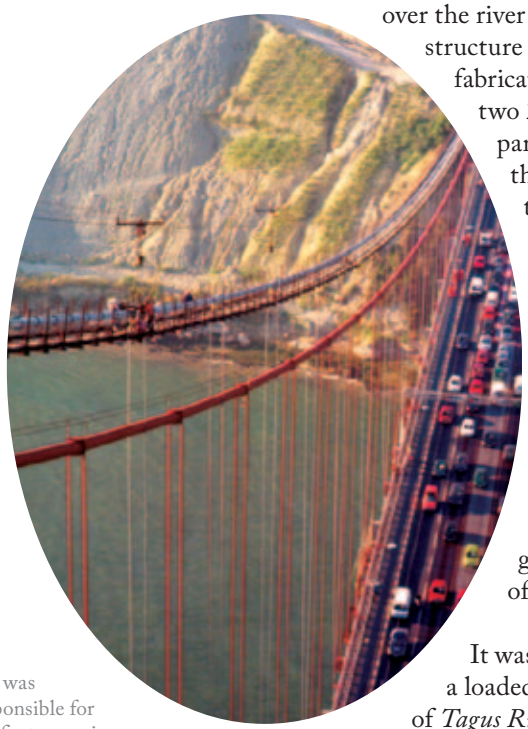
December – In December you can receive points when you reach out to a local organization and volunteer your time over the holiday season. Make sure to take your wellness certificate to be signed.

You can also get points in December by completing a *Home Safety Inspection Checklist*. Once you have completed the items on the list, sign it, and send it to the HR Department. We will be sending out the checklist in the beginning of December.

AB Published

AB's Long History of the Tagus River Bridge Captured by Author

In 1966, American Bridge completed the contract for the original construction of the Tagus River Bridge (AB order no.: V-7600-79) that included the financing, design and construction of this 10,573' (3,223m) crossing of the Tagus River located about 7.5 miles (12km) from its mouth at the Atlantic Ocean. The work included a 14-span, 3,100' (945m) segmentally cast in place concrete viaduct over the Alcantara District of Lisbon and a six-span, 7,474' (2,278m) steel truss bridge over the river - one of the longest in the world. This includes a three-span suspended structure of 6,495' (1,980m), with a mainspan of 3,323' (1,013m). The two fabricated structural steel suspension bridge towers were 588' (179m) tall. The two 23¼" (590mm) diameter main cables are made from 37 strands of airspun parallel wires. There is 230' (70m) of vertical navigational clearance below the bridge. The total weight of structural steel for the project was 52,422 tons (47,556mt). The structural steel was fabricated both in the United States and in Portugal, and was erected on site by American Bridge. The total schedule for the project from notice to proceed to bridge opening was 65½ months including 45 months of field construction.



AB was responsible for the first ever air spinning on a loaded, fully operational bridge

Thirty years later, from 1996 to 1998, American Bridge was a member of the consortium that held the $263M main contract for the addition of a rail deck and the widening of the roadway deck of the existing suspension bridge. The work included the addition of new main and suspender cables, the increase of the tower height, the reinforcement of the towers and cable bents, new anchorages, the launching of the steel girder railroad structure through the approach structure, the modification of the truss to accommodate the rail track, and the installation of the track.

It was on this project that AB was responsible for the first ever air spinning on a loaded, fully operational bridge. Carlos M. Lemos, photographer and author of *Tagus River Bridge 1997-1999: Records of a Change*, wanted to capture it. Lemos explains, "It took months of patient efforts for the great dream to come alive: obtaining permission to photograph the work on the platforms."

Some of the most interesting excerpts from the book are of AB's cable spinning performance:

'On April 10, 1997, the first ascent was made to the top of the south tower platform three of the American Bridge Company, responsible for the cable works. The two catwalks and the spinning engine were ready for starting the construction of the two secondary cables, which would support the additional loads due to the railway deck.

During the two months that followed, the spinning of the secondary cables proceeded at a great pace, in a kind of race against time. The catwalks then turned into ways of intense human traffic. The center of the operations was located behind the anchorage of the main cables in the north bank, where the sheave tower, the driving engine for the spinning wheels, and the control station of the spinning equipment were mounted. On the sheave tower, a working team exchanged the empty reels with full reels, and put splices on the ends of the wire, to maintain continuity of the wire supply during the spinning. Inside the new anchorages, other working teams fixed the wires carried by the spinning wheels on their respective strand shoes of the anchor blocks, after which the spinning wheels were sent back to the other bank. Along the catwalks, near the cable former supports for the cables being spun, other workers maintained a sharp lookout for the approaching wheels. As the wheels passed overhead, the workers quickly guided the placement of the wires into their correct positions on the cable formers. Near the saddles on the towers and on the cable bents, the working teams performed several operations, to guarantee the correct placement of the wires at the upper geometry of the strands after each passage of the wheels.

Flag of United States and Portugal on the cable spinning wheel in celebration of the last cable spinning trip; the set-up and dismantling of tower-top cranes and of the spinning equipment were by themselves challenging engineering works

Controlled tension airspinning; still holds the efficiency record of 73 percent

In the long run, the presence of the photographer was so frequent among the workers that it passed almost unnoticed. The adventure usually started at dawn, sliding the 'Eagle Eye' on the surface of the river and climbing to the platforms and catwalks with the Bridgemen. After the end of the spinning, other operations followed: the compacting of the cables, the erection of the cable bands which would take the suspender ropes, the erection of the suspender ropes, the load transfer to the new cables and finally the cable wrapping."

HUMAN RESOURCES

Annual Open Enrollment

The time to make any changes to your benefits without a qualifying event is during annual open enrollment. This year's open enrollment period will begin mid November and end mid-December. Changes during open enrollment will go into effect for January 1, 2012. Look for notices from HR over the next month for more details.

Employee Assistance Program

The Employee Assistance Program (EAP) is provided to the employees at no cost. It is affiliated with the life insurance policy. The EAP program can assist employees in many different areas such as, stress and anxiety management, depression, financial and legal concerns, identify theft, and fraud resolution among other items. EAP also has a WorkLife Services Program where Horizon Health can perform research and provide referrals for such areas as locating a reputable child care or elder care service, education, adoption, travel, daily living, etc. To utilize the services you can contact Horizon Health at 888-293-6948. The phone answers 24 hours a day, 365 days a year. You can also visit their website at www.horizoncarelink.com. Enter "standard" as the login ID, then enter "eap4u" as the password. Please contact the Human Resources Department with any questions regarding the EAP service.

Updates

ABM
Recycles Bridge Parts to Benefit Students

Truss fabrication at ABM's Coraopolis, PA shop

Field erection; ABM supplied the fabrication at cost, as did most of the suppliers

There were so many volunteers that the truss was erected on-site in two days

The new ABM-donated bike rack in use; the students locked their bikes to the fence behind it in the past

In November 2010, American Bridge Manufacturing (ABM) began the J.R. Memorial Bridge project, which involved preparation of detail drawings and supply of materials and labor to fabricate a new 200' long by 14' wide pedestrian truss bridge and its components for the Montour Trail, Bethel Park, Pennsylvania.

Plate steel leftover from the bridge has been used for a good cause – to construct a 16-spot, 700-pound bike rack for George Washington Elementary student's commuting to school. There were many contributors from ABM's welding and paint shops in Coraopolis, PA including Plant Superintendent Phil Gerace who coordinated the project and Supervisor Chuck Weber who provided the end design.

ABM has made many similar community donations. In this particular area, the company has given steel to schools training future welders and has provided the steel fabrication of the J.R. Memorial Bridge at cost.

ABM completed work on the J.R. Memorial Bridge in June of this year and a ribbon cutting ceremony celebrating the new span over the Montour Trail was held in September.

SAS
Cable Works

On August 29, 2011 florescent necklace lights strung on the Bay Bridge's self-anchored-suspension span (SAS) catwalks were illuminated. To be used in heavy fog and at night, the lights signify the initiation of the cable work phase on the signature span. The self-anchored bridge will be suspended from a single 784mm diameter, 1,402m long continuous main cable, running continuously from the north east deck anchorage to tower top saddle around the west loop deviation and jacking saddles, back to tower top and terminating at the south east deck anchorage. The cable will be built up from 137 prefabricated parallel wire strands (PPWS) with 127 wires per strand. The strands have already been delivered to the site and are stored in a warehouse. A variety of winching and transfer systems have been designed by AB site engineers and are currently being erected to enable the PPWS erection procedure. The cable has a weight of 5,200,000kg (5,720 tons), and the hanger ropes weigh an additional 650,000kg (715 tons).

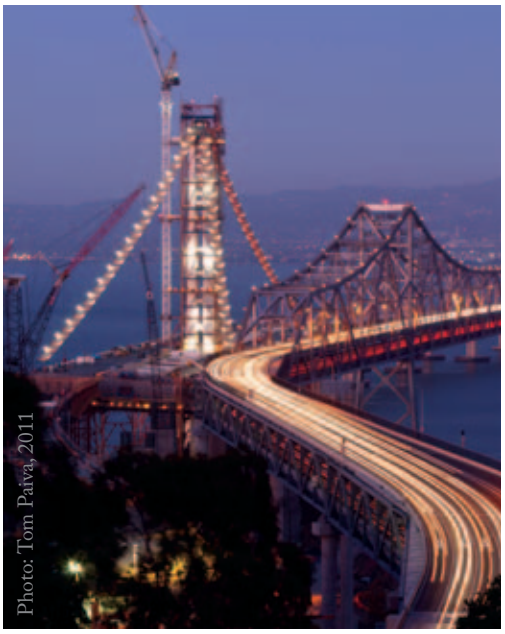


Photo: Tom Paiva, 2011

Flashbacks

Lakeshore Drive Bascule Bridge Reconstruction

This project included the complete reconstruction of this iconic double-leaf, double deck trunnion roadway bascule bridge. The overall length of main span is 262'-6" (center-to-center of trunnions). The work included the replacement of structural members and entire floor system, and repair and replacement of operating machinery.

Location: Chicago, IL
Completion date: 1985
AB order no.: T-3114-28
AB employees: Superintendent Jack Kingsbury, Field Engineers Glen Steffen and Ralph Eppehimer, Timekeepers Bill Little and David Brabson

26 years ago

Ogdensburg-Prescott International Bridge

51 years ago

Location: Ogdensburg, NY
Completion date: 1960
AB order no.: V-2200-11

American Bridge was general contractor for the superstructure of this two-lane suspension bridge over the St. Lawrence River between New York and Canada. The bridge has a 2,150' suspended span and a 1,150' mainspan, two 243' steel towers, and two 106' steel cable bents. The superstructure is a steel truss 15' deep by 36' wide. The suspension system consists of two 11 3/4" cables made from 37 prefabricated bridge rope strands - 31 of 1 3/4" and six of 1 1/4". There were also three backstay ropes of 1 3/4". The cables were made round with aluminum filler and wrapped with number nine wire.

AB is currently replacing about 70,000SF of open steel grid deck with new steel grid deck, plus replacement of all bridge handrails, roadway lights, and other miscellaneous repairs on the Ogdensburg-Prescott International Bridge during one-lane closures (AB order no.: 405110).

Suisun Bay Railroad Bridge

81 years ago

This bridge was erected in 1929-30 for the Southern pacific Railway Company, crossing San Francisco Bay about 35 miles upstream from San Francisco. The main structure, beginning at the west end, consists of one 264' deck truss span, one 560' through truss span, one 320' through truss vertical life span, six 560' through truss spans and one 504' deck truss span.

All steel work for these spans was yarded at the west end and the spans erected consecutively from this end by locomotive cranes, except that the lift span towers were erected with 30 ton stiffleg derricks mounted on top cords of the tower spans and the 504' deck truss span was floated into place.

The depth of water and soft silt bottom made the use of falsework uneconomical; therefore, the 504'deck span placed between the piers on steel bents was utilized as falsework for erection of the through truss spans. The bottom chord of the bridge structure was about 80' above water; the spans were temporarily erected 2' higher to provide additional maneuvering space for the falsework spans.

There is a plate girder viaduct approach at each end of the bridge. After the west viaduct approach had been erected, a temporary turnout was built and temporary bents to support the falsework span were installed south of the permanent position of the 264' span and rolled sideways into its final position.

The falsework span was next floated into place between the piers of the first 560' span, using two 40' x 130' barges. The steel bents for supporting the falsework span rested on the pier ledges at the junction of the footing with the pier shaft. These pier ledges were about 20' under water and as there were no assurances that they were level, the bent shoes were joined to the bent columns with ball and socket joints to avoid possible eccentric stresses in the columns.

After the first 560' span had been erected and swung by jacking it up at the ends, the falsework span was then floated into position to serve as support for the erection of the 320' span. Following this it was utilized for the remaining six 560' spans.

Owing to the towers being remotely located, it was necessary to haul men to and from the work, a distance of about ten miles.

New York Radio Central Station
Location: Rocky Point, NY
Completion date: 1922
AB order no.: E-3519-20
AB employee: Foreman J. Kennedy

AB constructed eight light and four heavy radio towers 410' high with crossbeams for the Radio Corporation of America in 1922. The lower 250' of each tower was riveted and painted with Detroit Graphite 501 paint and the upper 160' was galvanized and bolted. Total structural steel on the project was 1,625 tons.

Remote at the time of construction, the Rocky Point area of Long Island has changed drastically to the populous area we know today.

89 years ago

The falsework span, as floated, weighed approximately 1600 tons. The distributing girders, equipment, etc. amounted to about 200 tons and the load per barge was about 900 tons. The bottom chord of the falsework span was about 18' above water when it was floated.

The current was about five knots per hour and the tidal amplitude was about 10'. The blocking and jacking equipment on the barges was so arranged that the falsework span could be landed on or removed from the steel bents between the piers at any tide stage. The barge draft varied from 2'9" without the span to 8'6" under full load, and a maximum of 8'6" of blocking was provided. The amount of jacking necessary to transfer the span on and off the steel bents was somewhat reduced by pumping water into and out of the barges to the extent of about 2' variation of barge draft.

All floating movements of the falsework spans were controlled by two parts of ¾" wire rope from ship anchors to two hoisting engines on each barge. These lines were supplemented by additional lines to the piers. Close adjustment for entering the falsework span between the piers and centering it over the steel bents was controlled by two parts of ¾" wire rope running from hand crabs on the bottom chords of the falsework span diagonally to the ends of the piers. The movement of the span was timed so that the tidal current would hold the span away from the pier, making it necessary to pull it into place with the hoisting engines. Tugs were used only to place and remove the barges from under the span, run out anchor lines, etc., but were not used to tow the falsework span itself.

All of the 21,000 tons of structural steelwork for the bridge were fabricated at AB's Ambridge plant in Pennsylvania, which was capable of handling more tonnage than this in one month and was equipped to handle any kind of large and difficult structural steelwork. Shop work on the various spans was carried out on a carefully prearranged schedule requiring considerable forethought and study due to the fact that American Bridge was simultaneously at work on other large and important structures such as the Empire State Building in New York, the Department of Commerce Building in Washington and the Kill van Kull Arch Bridge from Bayonne, New Jersey, to Staten Island, New York.

Location: Suisun Bay, CA
Completion date: 1930
AB order no.: F-5820 through F-5834
AB employees: Foreman W.A. Glencross, Chief Consulting Engineer C. G. E. Larsson

10 years ago

New Lots Line Elevated Transit Line

Location: Brooklyn, NY
Completion date: 10-11-2001
AB order no.: 481010
AB employees: Superintendent Project Manager Kwadwo Osei-Akoto, Angus Adams, Field Engineers Jonathon Hart and Daniel Murphy, General Foreman George Terrance

This project consisted of the structural rehabilitation of 12,672LF of elevated transit line in Brooklyn. The work required daily coordination and meeting with hundreds of affected businesses, utility owners, train operations, traffic signalization departments, and NYPD for traffic control. There are seven stations on the line, with the station mezzanines suspended below the track girders. The line terminates in an elevated yard, which is supported on a steel structure similar to the main line. Trains running on the line are powered by a 600V DC third rail. Major types of work in the contract included: inspection and replacement of girder flange angles, diagonal bracing, and other steel; rehabilitation of rocker-pin expansion joints and replacement of seat brackets; strengthening of steel columns; replacement of track and concrete roadbed in station thru-spans; replacement of stairs and windows in stations; demolition and re-construction of concrete column fenders; containment and removal of lead-based paint; and miscellaneous station and electrical work. American Bridge won the 2001 NEA Craftsman Award for Ingenuity and Innovation in Construction and the Allied Building Metal Industries, Inc., 2001 Safety Award for this project. The work followed on a previous contract completed in 1989, when AB replaced the track girder top flange angles on this transit line (AB order no.: P905BR).

Annual Meeting

Dana Helman Recognized for Service and New Company Safety Initiative

American Bridge employees from project sites and office locations worldwide traveled for company's annual meeting, held September 30 through October 1. A tradition for over 20 years, participants met at the AB owned pavilion/bunk/catering facility near the Nemacolin Woodlands Resort, Farmington, PA for lunch and then broke into groups participating in activities such as golfing, skeet shooting, bowling, pheasant hunting, or the spa. Later Friday evening attendees reunited at the pavilion for dinner.

Saturday morning after breakfast, Mike Flowers greeted the 170 in attendance and welcomed Chairman Robert Yahng as he offered encouraging words and reflections of 2011. Employees also heard updates from district vice presidents and departmental leaders regarding financial, legal, safety, training and current projects. Another informative annual meeting ended over lunch at the facility.

The primary topics of the 2011 meeting were the new company-wide safety improvement initiative (see page three) and the Honorable Dana Helman's (American Dock & Transfer Machine Operator) contribution to American Bridge.

After the following speech given by President and CEO, Mike Flowers there was a standing ovation for Dana for his service in the military and to American Bridge:

On November 11, 1998, nearly thirteen years ago, a young man started to work for us at the Coraopolis storehouse. This November will mark his 13th year of service to American Bridge Company, but far more noteworthy it will also mark his 25th year of combined active duty and reserve service to our country. While employed at AB, he has been mobilized twice and completed four foreign deployments.

In June of 2006, he was mobilized with the 26th Naval Mobile Construction Battalion to Kuwait for seven months after two months of training in Gulfport, Mississippi. In March of 2007 he was deployed to Iraq with the 28th Naval Construction Battalion for four months. In June of 2009, he was once again mobilized with the 22nd Naval Mobile Construction Battalion, this time to Afghanistan for seven and a half months after three months of training in Gulfport, Mississippi. And finally in April of 2010, he was deployed to Kuwait with the 25th Naval Construction Regiment for 12 months.

Please join me in recognizing Dana Helman for his service to us and our country and in thanking his wife, Mandy, for her sacrifices.

American Bridge
1000 American Bridge Way
Coraopolis, PA 15108
United States of America

PRSRT STD
US POSTAGE PAID
CORAOPOLIS, PA
PERMIT NO. 7

Connections NEWSLETTER

by Kadi Camardese

Please contact the
AB Communications & Marketing Department
with news and inquiries:
kcamardese@americanbridge.net

American Bridge Company's Special and International Projects District (SIP) is currently working on what will be the world's largest observation wheel when the project completes in late 2013.