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Events

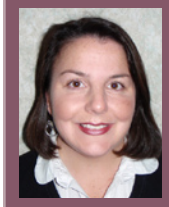
Engineering Management and Environmental & Water Resources Groups Event
11.10.10

Geo-Institute Event
11.17.10

Construction and Younger Member Groups Event
12.2.10

Geo-Institute Event
12.7.10

Further Details Inside



President's Report

Danielle H. Spicer, PE, LEED AP
Project Manager, AMEC Earth & Environmental, Inc.

Vision 2025, what is it? For those of you not familiar with ASCE's Vision 2025 for the future engineer, ASCE has prepared publications *The Vision for Civil Engineering in 2025* and *Achieving the Vision for Civil Engineering in 2025: A Roadmap for the Profession* which redefines what it will mean to be a civil engineer in the future. I recently attended the ASCE 140th Civil Engineering Conference in Las Vegas, NV where one of the main focuses was this vision and how we can realize it. The mission statement on ASCE's website defines the vision as the following:

Entrusted by society to create a sustainable world and enhance the global quality of life, civil engineers serve competently, collaboratively, and ethically as master:

- *planners, designers, constructors, and operators of society's economic and social engine — the built environment;*
- *stewards of the natural environment and its resources;*
- *innovators and integrators of ideas and technology across the public, private, and academic sectors;*
- *managers of risk and uncertainty caused by natural events, accidents, and other threats; and*
- *leaders in discussions and decisions shaping public environmental and infrastructure policy.*

Infrastructure is being talked about not only locally, but nationally. Infrastructure supports the quality of life we are used to and civil engineers are the ones who build it.

continued page 2

NOVEMBER 2010 Volume 35 Number 3

BSCES NEWS

A MONTHLY PUBLICATION OF THE BOSTON SOCIETY OF CIVIL ENGINEERS SECTION/ASCE

Structural

New Transit Hub in Rhode Island Connects Commuters to All Modes of Transportation

by Stephen Berkeley, PE, Project Manager, Jacobs Engineering Group Inc.

The October 27th Grand Opening of the InterLink Intermodal Facility at T.F. Green Airport in Warwick, Rhode Island, marked a key milestone for the South County Commuter Rail Project (SCCR). This 15-year project will extend commuter rail service 20 miles, from Providence to Wickford Junction Station in North Kingstown, RI.

Spanning arrival/departure roadways, surface parking, Boston Post Road, and the Northeast Corridor, the InterLink connects planes, trains, buses, and automobiles allowing travelers to easily access all these modes of transportation in a matter of minutes.

Highlights of the InterLink

- Terminal expansion with elevator and escalator vertical circulation core
- 1,250 ft long elevated pedestrian connection / moving walkways connecting the airport terminal to the Customer Service Operations (CSO) building
- Rental car mall/concourse
- Six-level structured parking facility providing 1.3 million square feet of commuter rail/rental car parking including consolidated rental car operations with elevated fueling platforms and related support services
- New MBTA Commuter Rail station

Coordination between Multiple Key Stakeholders

Developed in partnership between Rhode Island and Massachusetts, this project required close coordination and sign-off between the Rhode Island Department of Transportation (RIDOT), Rhode Island Airport Corporation (RIAC), Massachusetts Bay Transportation Authority

continued page 2

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BECOME THE BSCES LEGISLATIVE FELLOW

Application Submission Deadline is November 30, 2010

BSCES is looking for a member to become our 2011–2012 Legislative Fellow in the Massachusetts Legislature. The BSCES Legislative Fellows Program provides an opportunity for a BSCES member to work for 16 months on the staff of a Massachusetts legislative committee. The BSCES Legislative Fellow participates directly in the lawmaking process and learns how the state government operates. The Massachusetts Legislature benefits from the Fellow's engineering expertise. It is possible to serve in this role on a part-time basis, while doing your regular job, depending on certain restrictions. The application deadline has been extended until November 30, 2010 for the Fellowship year beginning in early February 2011 and ending on July 31, 2012.

For more information, visit the BSCES Legislative Fellows page on our website at www.bsces.org/committees/Legislative%20Fellow/ or contact BSCES Executive Director Rich Keenan at 617/305-4110 or at rkeenan@engineers.org.

President's Report

continued from page 1

Infrastructure throughout Massachusetts and the United States has aged and is inadequate. Civil engineers are tasked with needing to come up with innovative and sustainable solutions for maintaining and developing our infrastructure which means we need to learn more and know more. As noted on the ASCE website *the knowledge, skills, and attitudes required of an engineer in the 21st century far exceed those demanded of 20th century engineers, but the time available within an undergraduate engineering program to develop these attributes has substantially diminished over the last 40 years.* Engineers not only are expected to be competent in engineering and science, but they also need to be able to take into account the "triple bottom line", which consists of economic prosperity, social responsibility and environmental stewardship.

In 2009 the National Council of Examiners for Engineering and Surveying (NCEES) revised the model law for professional licensure to include education beyond a bachelor's degree beginning in 2020; however it is up to the individual states to adopt this national law. While ASCE is working with individual states to amend their licensure requirements, ASCE is also taking the message of the Vision globally. Vision 2025 has already been translated into Spanish and Chinese. Numerous engineering organizations around the world have embraced the Vision. ASCE President Kathy Caldwell stated the at the annual meeting that "The Vision embodies what each of us has the duty to strive for... champions and leaders of sustainable development of the built and natural environment, fearless integrators of innovation, managers of risk and prominence in public policy." The Vision is about elevating our profession and ASCE is looking for civil engineers to engage as "stewards of infrastructure and environment, integrators of innovation and leaders of public policy."

New Transit Hub

continued from page 1

Aerial view of the InterLink, courtesy of Don Pillsbury.

(MBTA), National Railroad Passenger Corporation (Amtrak), and the Federal Highway Administration (FHWA).

Jacobs Engineering Group Inc. (Jacobs) served as the Designer of Record on this project, working with RIDOT/RIAC, Amtrak, and Construction Manager (CM) Gilbane Building Company, Inc. to address a multitude of design and construction tasks for this facility. This included participation in FHWA value engineering workshops, preparation of Guaranteed Maximum Price (GMP) documents for use in developing the CM at Risk agreement and development of early procurement documents for long-lead items. Each of these early steps required extensive coordination with the various stakeholders involved in the intermodal facility. Significant portions of the work required innovative design and construction solutions to maintain operations of T.F. Green Airport, Amtrak service on the Northeast Corridor (NEC), and daily traffic on adjacent roadways.

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New Transit Hub

continued from page 2

Maintaining Operations During Construction

Construction of the terminal expansion providing the vertical circulation core from the arrival and departure levels of the terminal was completed while maintaining existing terminal operations. Select spans of the elevated pedestrian walkway system were fabricated, assembled, and erected as a prefabricated unit during off-peak hours to maintain airport access via arrival/departure roadways. Similar considerations were made for the walkways over U.S. Route 1, Boston Post Road. The structured parking facility required close coordination with Amtrak during design (foundation placement and construction within the right-of-way) and the parking facility erection over the NEC. These issues were successfully accomplished without rail service disruption.

Pedestrian Walkway at Terminal Expansion

Multi-Use Parking Facility

The pedestrian gateway to the structured parking facility is provided by a customer service operation building (CSO). The CSO provides a mall for the various rental car agencies, plus a key link between the terminal and structured parking facility. The parking facility, in addition to approximately 2,500 parking spaces for commuter rail and rental cars, provides an 850' high-level station platform to provide access to MBTA Commuter Rail service, and several features in support of rental car operations. These operations include "quick turn around" (QTA) facilities and elevated fueling platforms at Parking Levels 3 through 5. These above grade fueling platforms required extensive design coordination with safety officials. The QTA areas included a three-bay car wash facility and supporting office space for the various rental car companies at each level.

Dedication to Sustainability

Rhode Island embraced and incorporated numerous sustainable design and construction elements on this project. These elements included Brownfield Redevelopment, construction activity pollution prevention, mitigation of solar gain through glazing and roofing material selection, energy efficient electrical components/controls for elevators, escalators/moving sidewalks, high-efficiency boilers, and use of recycled and regionally manufactured materials. Each of these sustainable design considerations provides environmental benefits to both the State of Rhode Island and the region.

Lessons Learned from CM at Risk Approach

- Early selection of the construction manager allowed for a collaborative effort between RIDOT/RIAC, Jacobs, and Gilbane in addressing schedule, cost, and constructability of various design and construction alternatives.
- This procurement approach allowed all key stakeholders and entire project team to be included during the FHWA value engineering process. Multiple value engineering recommendations were incorporated simultaneously, providing value and reducing construction cost and schedule
- Improvements to the schedule through early procurement of multiple subcontracts prior to completion of final design documents.
- CM at Risk process provided for the development of an early GMP and associated cost certainty, allowing the InterLink to proceed to construction.

With the opening of this new and innovative transportation hub, Rhode Island is taking a significant step in reducing congestion, improving mobility, and providing economic benefits to the region.

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The New Mike O'Callaghan Pat Tillman Memorial Bridge at Hoover Dam

by David Goodyear, PE SE, Chief Bridge Engineer, T. Y. Lin International, Olympia, Washington, USA

A dramatic new concrete arch joins the setting of the historic Hoover Dam, spanning the Black Canyon between the States of Arizona and Nevada, USA. This 1060 foot long arch span is the 4th longest concrete arch in the world, and the longest in the United States. The superstructure is a composite deck system using steel box girders and a conventionally reinforced concrete deck, integral with pier caps, which serves as the lateral bracing system for the bridge. The scale of concrete construction for the bridge was impressive. Four form travelers advanced to the crown of the cast-in-place arch supported by 88 carefully tuned stay cables, while precast segmental construction was used for the tallest precast columns erected to date.

A project team of five US government agencies, lead by the Central Federal Lands office of the Federal Highway Administration (CFL-FHWA) collaborated to develop a highway bypass to the existing US93 roadway over Hoover Dam, shown in Figure 1. The new bridge is the center-piece of the Bypass, spanning the Colorado River 1500 feet downstream of the Dam.

A consortium of firms working under the moniker of HST (HDR, Sverdrup, and TY Lin International) teamed with CFL to deliver the final design for a mile of roadway in Arizona, 2.5 miles of roadway in Nevada, and the 1900 foot long Colorado River crossing. A bridge design group of TY Lin International and HDR was directed by the Olympia, Washington office of TY Lin International for development of the bridge type study and final bridge design.

The new bridge will be a prominent feature within the Hoover Dam Historic District, sharing the view-shed with one of the most famous engineering landmarks in the US. The State Historic Preservation Officers for both Nevada and Arizona—both members of the Design Advisory Panel—emphasized the need to complement and not compete with the architecture of the Dam.

Figure 1: Historic Hoover Dam Site

Major Design Features

The final design went through an evolution of form dictated by the engineering demands on the structure to arrive at the twin rib framed structure shown in Figure 2. At the outset of design it was assumed that earthquake could control the lateral design of the bridge. A project specific probabilistic seismic hazards analysis was conducted in order to assess the range of ground motion associated with return periods appropriate for design. A 1000 year return period was selected, resulting in a design basis PGA of .2g.

Wind was also a major environmental loading condition from the outset of design. It played a somewhat qualitative role in the type selection, and a key role in design. The unique topography was recognized as a feature requiring special studies. During the preliminary design phase, a site wind study was conducted to correlate the wind speeds at the bridge site with those at the Las Vegas Airport NOAA station in the valley. With this correlation, the long term statistics from the Airport were used to develop site wind speeds for design. As a result of this study, the 3 second wind speed was raised to 56 m/sec, up from the ASCE-7 standard of 40 m/sec. Dynamic studies resulted in a gust loading factor of 2.4, which collectively resulted in wind controlling the lateral forces design. Wind recordings continued throughout construction, establishing a more complete on-site record. The forecast produced by West Wind Laboratories based on the NOAA correlation and the local terrain studies (Figure 3) were tested according to the methods of Scanlon based on 4 years of continuous on site record. These records confirmed the accuracy of the initial wind studies conducted with only 6 months of site data.

Figure 2: Selected Concrete Arch Option

Figure 3: Wind Tunnel Terrain Model

continued on page 5

The New Bridge at Hoover Dam

continued from page 4

Structural Framing

Arch Framing

A twin rib arch framing system was selected. The arch ribs have a prismatic form instead of the more classical variable depth to the springing. This too was decided based on lateral force demands. Early evaluation for longitudinal seismic loads showed that springing moments increased considerably for a tapered arch rib, so much that the demands on the arch rib and foundation were disadvantaged by the increase in rib section.

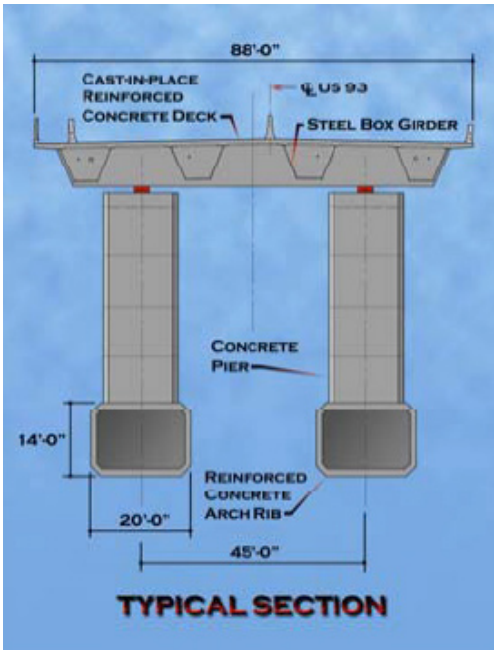

Figure 4: Arch Framing System

Spandrel Framing

The composite superstructure was selected for girder erection and to lower weight on the arch. The spacing of spandrels was an extension of the erection concept to erect the bridge using a highline (tramway) crane system. The span was set in the range that a highline crane could deliver the steel box sections, which resulted in a nominal 120 ft span. This same span also allows steel girders to be set within the range of most conventional cranes, should an alternative erection system be selected. The statical system includes sliding bearings (Figure 4) for the short, stiff piers over the arch crown and similar piers near the abutments. This was necessary due to the large secondary moments developed in these piers from creep deflections of the arch, and also produced a more even distribution of longitudinal seismic forces among the piers.

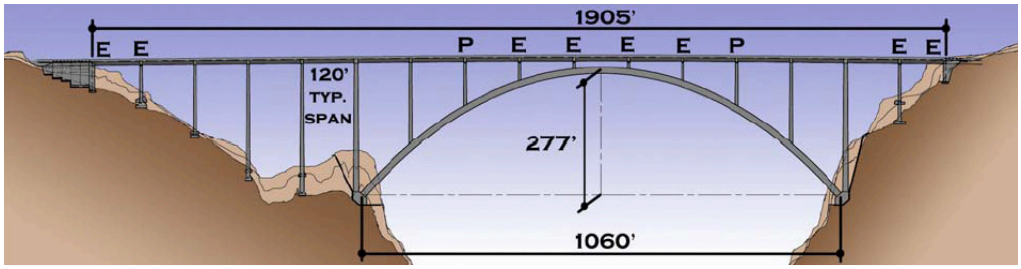

Figure 5: Layout and Articulation

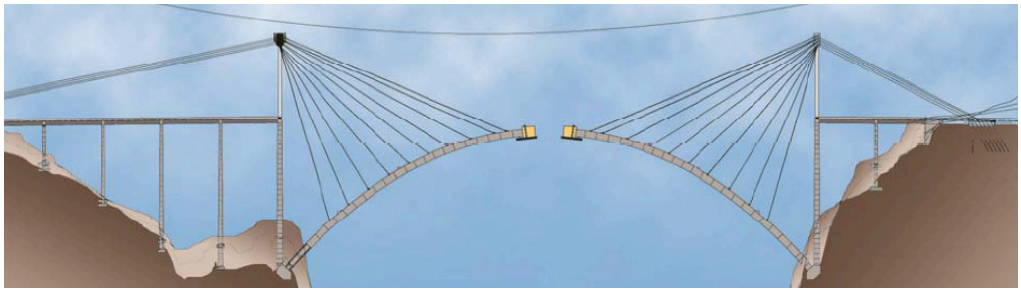

Figure 6: Stayed Erection Scheme

Construction

The dead load design is dominated by the assumptions of a construction scheme. The management team believed that more informed bids could be developed if there was a complete erection scheme shown with the plans, even if the contractors elected to use alternative methods. Therefore, the decision was made to show a complete erection scheme for dead load on the plans and allow the contractor to use that scheme or his own. The contractor did decide to use an alternative system, but one similar in concept to that shown on the plans.

The construction contract was awarded in September of 2004 to Obayashi-PSM, JV, with full field work beginning in 2005. The first challenge for the construction team was creating a foothold for foundation construction. The subcontractor who performed this work was Ladd Construction from Redding, CA. They not only met the tight schedule for this work, but completed the excavation allowing about half of the rockfall into the river that was permitted.

Initial bridge construction began on site with footing and abutment work and in the precast yard outside of Boulder City where the contractor set up their own precasting facility. Column sections were trucked to the site as needed for erection and set into place using both the high-line crane and conventional cranes located at the hairpin in Nevada.

Arch construction proceeded from each canyon rim with a form traveler for each arch rib (four total). Most of the concrete work was performed at night due to the extreme heat during the day. Arch concrete was cooled using liquid nitrogen during the summer months.

The arch was closed in August of 2009 within an impressive ¾ inch tolerance at closure. The bridge was opened for traffic on October 20, 2010.

Credits

Program Manager: *Central Federal Lands Highway Division; US Federal Highway Administration. David Zanetell, Program Manager; Bonnie Klamerus, Structures Manager*

Project Management Team: *Nevada Department of Transportation, Arizona Department of Transportation, US Bureau of Reclamation, US National Parks Service, US Federal Highway Administration*

Bridge Design: *David Goodyear, PE SE, T.Y. Lin International in collaboration with HDR Engineering*

Bridge Construction: *Obayashi-PSM, Joint Venture*

BSCES Younger Member Group 3rd Annual Bocce Tournament

by Christopher S. Broyles, EIT, Engineer, Fay, Spofford & Thorndike

If you can dodge a bocce ball...

Where were you on October 7th? I was losing a game of Bocce at the Younger Member Group's Third Annual Networking and Bocce Tournament. The last two years the Younger Member Group has seen a huge turnout of students, and about half as many professionals for this event. This most likely had to do with the event being held on the Northeastern University campus the last two years. This year the YMG decided to change the tournament location in an effort to get more professionals as well as other schools to participate. This year the tournament was scheduled to be held on the bocce courts at Langone Park in the North End. Unfortunately, it rained the whole week prior to the event and therefore the bocce courts were flooded! Luckily the courts are right next to a baseball field, which ended up as a perfect setting for our tournament.

The tournament was off to a quick start, so quick that I was only there for fifteen minutes before I had been disqualified! Single elimination will do that. On the plus side, I was able to help myself to some great company, as well as free pizza and drinks, provided with my entrance money to the event. Since the location of the tournament had been shifted from the previous years, not as many students showed up, but a lot more professionals were in attendance. Fifteen teams went head to head this year in a grueling and intense three-hour tournament. Three games were played at once, which forced the tournament to quickly move along. In an effort to help those eliminated socialize more, a loser's bracket was created. This in turn offered more competition to the official game. The winner of this bracket was reinserted back into the official bracket so we could have a full 32-person game. Sadly this engineer lost that bracket as well.

A team views the field at the 3rd Annual YMG Bocce Tournament.

As the night came, so did the lack of lights over the grassy baseball field. Coincidentally the lights from the bocce court shined enough light onto the infield of the baseball diamond where the final rounds were being played. Competition was fierce, more than once a belt was removed in order to measure the distance between balls.

At the end of the night, the first place winners were known as "Boccelism". This two-man team was awarded two Red Sox tickets each for a 2011 season game. The second place winners, or shall I say first place losers, was the same team to receive this honor last year, "The Professionals". They each received a $10 gift card to CVS.

Thanks to everyone who supported the event and came out to play, and we hope to see you next year. In the meantime, get out and play some Bocce!

Hidden Infrastructure

by David M. Manugian, PE, Town Planner/Engineer, Town of Ashland

The hidden infrastructure question in September may have looked like many other highways, as it is the Veterans of Foreign Wars Highway between Aiken Street and Bridge Street in Lowell. However it is sitting on a levee for the Merrimack River that protects the Centerville neighborhood and is part of the Lowell Local Protection Project.

The Lowell Local Protection Project, located on the north bank of the Merrimack River in Lowell, is owned by the City of Lowell. The Lakeview section of the Project was built between 1941 and 1944 and consists of 2,700 feet of dike and 900 feet of floodwall along the Merrimack River. The other section of the Project, the Rosemont section, consists of 650 feet of earthen dike and 850 feet of concrete wall. The project protects 120 acres of urban land in the Lakeview Avenue and Rosemont Street sections of the City.

The project was built in response to the record 1936 flood. Those familiar with the Mother's Day flooding of 2006 may be surprised to learn that the 1936 flood peaked ten feet higher than the flood of 2006. At that time the flooding ranged from Maine to Virginia and was a contributing factor to Congress passing the Flood Control Act of 1936. This Act, the third of its kind, was one of the most far-reaching; it authorized $310 million for flood control projects on more than 200 watersheds affecting approximately 100 million acres in the United States. It authorized many civil engineering projects related to dams, levees, dikes, and other flood control measures around the country, including this one in Lowell.

The road shown here spans beyond the history of civil engineering and encompasses the entire history of road building in the United States. It is also the longest road in the country. Anyone who can identify the location of this infrastructure and one additional fact about it will be recognized in a future issue of *BSCESNews*. Please email your answer to David Manugian at dmanugian@yahoo.com. *BSCESNews* also welcomes input from members on other hidden infrastructure in our communities.

BSCES Buzz: 2010 Section Award Winners and Life Members

At the 162nd BSCES Annual Awards Dinner on September 16, 2010, the BSCES Board of Government honored the following Section Award Winners and Life Members:

2010 SECTION AWARD WINNERS

Citizen Engineer Award
Sara E. Campbell, PE, Consultant, for her commitment to pre-college education and support of BSCES public awareness and outreach activities

Lester Gaynor Award
David A. Reckhow, PhD, University of Massachusetts Amherst, for his distinguished service as a member of the Northampton Board of Public Works

Government Civil Engineer Award
Richard R. Zingarelli, Massachusetts Department of Conservation and Recreation, for his distinguished service as Program Manager for the Massachusetts DCR Flood Hazard Management Program

Clemens Herschel Award
Neal S. Berke, PhD, Grace Construction Products, for his paper titled "Concrete Deterioration"

Ralph Horne Award
Craig R. Miller, PE, The Waterfield Design Group Inc., for his extensive relief work and numerous missions to Haiti

Journalism Award
Neil Swidey, *The Boston Globe,* for his article titled "Trapped Under the Sea"

Pre-College Educator Award
Margaret Greaves, Boston Latin School, for her passion and commitment to exposing students to the wonders of engineering

Technical Group Award
"Shield Mining Proves Best Solution to Replacing Sewer under Busy Transportation Corridor" written by Henry A. Russell, PE, John F. Burckardt, PE, and Lisa A. Valerio, EIT, PB Americas, Inc.; and Edward W. Duggan, PE, Boston Water and Sewer Commission

Younger Member Award
Deborah M. Katzman, PE, LEED AP, Nitsch Engineering, for her dedication to the success of the BSCES Younger Member Group

Small Employer Recognition Award
Purcell Associates, for encouraging its engineers to actively participate in ASCE and BSCES. This award was accepted by Matt A. Card, PE, Principal Engineer

Large Employer Recognition Award
Stantec Consulting Services Inc., for encouraging its engineers to actively participate in ASCE and BSCES. This award was accepted by Frank Holmes, Senior Associate

2010 President's Awards
Terese M. Kwiatkowski, PE, ZA GeoEnvironmental, Inc., for her dedicated and tireless service to BSCES

William F. Lyons, Jr., PE, Esq., Fort Hill Infrastructure Services, for his exemplary service as 2009–2010 BSCES Legislative Fellow

Peter A. Richardson, PE, LEED AP, Green International Affiliates, Inc., for his exemplary service as chair of the BSCES Government Affairs & Professional Practice Committee

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BSCES Structural Group

by Ali Tali, PE, Assistant Director, Structural Engineering , The Louis Berger Group, BSCES Structural Group Chair

During the 2010/2011 season, the Structural Group will be busy with several dinner meetings and preparing for next year's Fall Lecture Series.

In October, Brian Brenner of FST, Masoud Sanayei of Tufts University and Erin Bell of UNH were speakers on "Structural Health Monitoring". The presentation focused on the techniques used in modeling and instrumentation of bridge structures to help address long term maintenance goals during the design phase.

In January 2011, Mauro Scali of SGH will speak about the "World of Petrography". The presentation will include a discussion of techniques and goals of the petrographic analysis of concrete materials to help engineers assess the condition of existing structures.

In May 2011, we are planning a presentation of a rapid bridge construction project that will be under construction. The presentation will focus on the design details and construction challenges as well as the DOT's goals for the future of rapid construction projects. Stay tuned to BSCES news for information on the speakers and the project details.

Next year's Fall Lecture Series will be "Engineering in Extreme Environments" and will include lectures on blast engineering, progressive collapse, seismic design for both vertical and horizontal structures, and mitigation of wind loads. Cold climate and marine or offshore engineering will also be potential lecture topics. I would like to thank Wentworth Institute of Technology for graciously agreeing to host the lectures again. As you may know, the lecture series is a well attended event with attendees from around the region. The lectures will provide a wealth of important technical information and will be a great place to meet your colleagues in the industry. Mark your calendars and we hope to see you there.

We're also looking ahead to one more presentation in Spring 2011, details of which have not been finalized yet. We encourage you all to stay tuned to *BSCESNews* for the announcement.

I look forward to seeing many of you at this year's events sponsored by the Structural Group. If you have any interest in Structural Engineering, we encourage you to become involved with the Structural Group. Our committee is very active and eager to engage new active participants in our planning efforts!

BSCES Western Massachusetts Branch Sponsors Roundabout Design Presentation

by George L. Costa, PE, Geotechnical Engineer, Costa Consulting Engineers, Inc., BSCES Western Massachusetts Branch President

On October 20 the Western Massachusetts Branch held a dinner meeting at the Garden House at Look Park in Northampton, Massachusetts. The event drew over 50 people from Connecticut, Massachusetts and Vermont and included ASCE members, students, and municipal governments. The presentation regarding design and construction of Northampton's first roundabout was given by William Paille, PE from Weston & Sampson Engineers, Inc. and Richard Schell, PE from Traffic Design Solutions. A site tour was led by the speakers, followed by a video presentation of roundabout design and construction. The roundabout design was selected as the best alternative to improve traffic flow at one of the most dangerous intersections in Northampton. Construction is scheduled to finish by spring 2011.

Left to right: George Costa, President of WMB, William Paille, Richard Schell, and Shawn Kelley, ASCE Region 1 Governor (photo by David Partridge)

Left to right: Kim and Jim Hyslip of HyGround Engineering and Shawn Kelly, ASCE Region 1 Governor (photo by George Costa)

BECOME A *BSCESNEWS* CONTRIBUTOR

Would you like to contribute to an award winning ASCE section newsletter? The BSCES Newsletter Editorial Board is seeking members who are willing to write articles for publication in *BSCESNews* or join the Editorial Board.

Typically 300 to 700 words, *BSCESNews* feature articles are about technical topics or professional matters of interest to civil engineers. The January 2011 issue of the newsletter for example, will feature one or more articles related to engineering management and continuing education.

Editorial Board members meet monthly via conference call to plan upcoming issues of the newsletter. They also solicit, write and/or review newsletter articles.

For more information on how you can become a *BSCESNews* contributor contact BSCES Newsletter Editorial Board Chair Dave Manugian at dmanugian@ashlandmass.com or BSCES Executive Director Rich Keenan at rkeenan@engineers.org.

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For more information and to register for events, please visit www.bsces.org

To register online for an event at the BSCES member rate you must login using your BSCES assigned username and password. If you do not know your BSCES member login information, contact Rich Keenan at 617/305-4110.

Engineering Management and Environmental & Water Resources Groups Event

Wednesday, November 10, 2010
Radisson Hotel, 200 Stuart Street, Boston

5:30 PM Social/Registration
6:30 PM Dinner
7:30 PM Presentation

Nitrogen Loading in Estuaries on Cape Cod
Professor Brian Howes, PhD
University of Massachusetts, Dartmouth

Nitrogen levels in the estuaries on Cape Cod are increasing. Increasing nitrogen levels lead to accelerated growth of algae and invasive species. This imbalance depletes the water of oxygen and frequently chokes out marine life and native vegetation. This process threatens several of Cape Cod's most treasured natural resources. The cause of the nutrient loading is the Cape's continued reliance on on-site septic systems to treat wastewater. Dr. Howes will discuss the problem surrounding nitrogen and nutrient loading of the Cape's estuaries and ponds and discuss solutions that can be initiated to manage the nitrogen loading to the most sensitive water bodies.

Please see the Insert at the end of this month's newsletter for further details.

PLAN TO ATTEND

Northeastern University Department of Civil and Environmental Engineering and the American Society of Civil Engineers Student Chapter (NUASCE)

present a special seminar open to all civil engineering practitioners interested in state-of-the-art green design:

Greening a Greenhouse: Challenging and Questioning Traditional Design

Richard V. Piacentini, Executive Director
Phipps Conservatory and Botanical Gardens
Pittsburgh, Pennsylvania

Wednesday, November 10, 12:00–1:00 PM
108 Snell Engineering Center

Please attend! Free and Open to the Public. Reception to Follow. For more information, see: **www.civ.neu.edu**

ASCE FALL/WINTER SEMINAR SCHEDULE

ASCE is pleased to announce the following seminars scheduled in Boston from November 2010 through March 2011:

NOVEMBER 18–19, 2010
Stormwater BMPs That Work: Effective Analysis, Design and Maintenance
(Environmental)

March 17–18, 2011
Deep Foundations: Design, Construction and Quality Control
(Geotechnical)

March 24–25, 2011
Seismic Design and Performance of Building Structures
(Structural)

These in-depth, practice-oriented programs are produced by ASCE's Continuing Education Department.

Geo-Institute Group Event

Wednesday, November 17, 2010
Radisson Hotel, 200 Stuart Street, Boston

5:30 PM Registration; 6:30 PM Dinner
7:15 PM Presentation

History of Geotechnical Consulting in Boston
Harl P. Aldrich
Co-Founder of Haley & Aldrich, Inc.
Steve Poulos
Co-Founder of GEI Consultants, Inc.
Donald T. Goldberg
Co-Founder of GZA GeoEnvironmental, Inc.

This event will summarize and celebrate Boston's prominent and unique role in the history and evolution of the practice of geotechnical engineering in the United States. The founders of three major geotechnical consulting firms from the Boston area will discuss the genesis of the "new science" of soil mechanics, the strong foundation and interaction with academia, and selected topics and illustrative stories from the "early years" of geotechnical consulting.

Please see the Insert at the end of this month's newsletter for further details.

Construction and Younger Member Groups Event

Thursday, December 2, 2010
Radisson Hotel, 200 Stuart Street, Boston

5:30 PM Social/Registration; 6:30 PM Dinner
7:30 PM Presentation

Nuclear Power: Past, Present and Future
James M. Nicholson, Vice President - Senior Director Nuclear Services, The Shaw Group

The US commercial nuclear power generation industry was born with the startup of the Shippingport Atomic Power Station in 1957. Since that time, the US nuclear fleet has grown to 104 units providing about 20 percent of the nation's electrical power. Beginning in 1997, the first new wave of reactor design certifications were issued by the Nuclear Regulatory Commission. In 2009, construction began on the first new-build, Vogtle Units 3 and 4, near Augusta, GA. Mr. Nicholson will discuss how the emergence of authorized new-build domestic units and has provided engineers with a platform for innovative design and construction methods. He will also examine how the future of the nuclear fleet will rely on the passage of knowledge between seasoned engineers to new engineers.

Please see the Insert at the end of this month's newsletter for further details.

continued on page 10

REGISTER TODAY

COPRI Congress

November 14–17, 2010
Memphis, Tennessee

Join the Coasts, Oceans, Ports Rivers Institute (COPRI) in Memphis, Tennessee for its inaugural Congress. *A Decade of Progress, A Future of Opportunities* will feature sessions planned by all of COPRI's technical committees, as well as plenary speakers, an awards luncheon, a founder's gala, student and young professional job fair, short courses general membership meeting and an opportunity for committee meetings. The Congress Steering Committee is putting together a program that is intellectually and professionally stimulating as well as FUN.

For more information visit:
http://content.asce.org/conferences/copri2010/index.html

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Geo-Institute Event

Tuesday, December 7, 2010
Radisson Hotel, 200 Stuart Street, Boston

5:30 PM Registration; 6:30 PM Dinner
7:15 PM Presentation

Recent Trends in Geotechnical Instrumentation
Douglas S. Roy, PE, Associate Principal
GZA GeoEnvironmental of New York

Technological advances in microelectronics have led to advances in the geotechnical instrumentation market. These advances have produced instruments with more frequent reading cycles, arguably higher quality data, and systems allowing for almost real-time, internet-friendly viewing and analysis of the data. This meeting features a general discussion of these trends and innovations will be presented, along with descriptions of newer, more advanced instrumentation systems currently being used on a wider scale for geotechnical monitoring and quality control.

Please see the Insert at the end of this month's newsletter for further details.

Log On to the TEC Website!

www.engineers.org

- Employment
- Free resume search
- Event calendar
- Online registration

DISASTER ASSISTANCE SYMPOSIUM

Build Boston 2010

November 17–19, Boston, MA

Don't miss this opportunity to participate in the Disaster Assistance Symposium at Build Boston, sponsored by the Boston Society of Architects (BSA) this year. Entitled The Role of Designers in Disasters, no prior training or experience is necessary to attend this symposium which will highlight the approach of US federal and state government to disasters. It will also address issues of cultural sensitivity while assisting with disasters abroad. An intensive "Train the Trainer" program will certify design professionals in post-disaster damage assessment, including evaluating building safety and providing safe shelter for both natural and man-made disaster. Participants will become familiar with criteria used for determining building safety after an earthquake, flood, or high-wind damage.

Click here for registration information.

BSCESNEWS—Classifieds

Engineering Library Available

Over 2000 structural engineering journals dating back to 1950s—Books, codes, manuals on earthquake engineering, forensic engineering, geotechnical engineering, wind, dynamic analysis, steel, concrete, prestressed concrete, masonry, wood. Collections of old building codes and old steel manuals.

Zallen Engineering. 508-875-1360. rmzallen@zallenengineering.com.

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Tighe & Bond is seeking a versatile and licensed **Project Engineer** with 7-10 years of experience in municipal water and wastewater services to work at our **Worcester, MA office**. This position involves client contact and work related to technical advice, planning, design, permitting and construction phase services for the water and/or wastewater engineering practice. Candidates must possess a BS degree in Civil or Environmental Engineering (MS preferred) with a minimum of 7 years of relevant experience.

Project experience should include public water and/or wastewater projects from concept planning through design and construction. There is a strong preference for local candidates (central MA). If interested, please forward your cover letter and resume referencing position "1410-WWW-PE" using our firm's career opportunity mailbox: **Careers@TigheBond.com.**

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BSCES
Boston Society of Civil Engineers Section

Engineering Management and Environmental & Water Resources Groups

Wednesday, November 10, 2010

Nitrogen Loading in Estuaries on Cape Cod

Professor Brian Howes, PhD
University of Massachusetts, Dartmouth

Radisson Hotel, 200 Stuart Street, Boston, MA
5:30 PM Social/Registration; 6:30 PM Dinner; 7:30 PM Presentation

$50 Members, $60 Non-Members
$40 Public Sector Members, $45 Public Sector Non-Members
$35 Student Members and Senior Members (65+)

Nitrogen levels in the estuaries on Cape Cod are increasing. Increasing nitrogen levels lead to accelerated growth of algae and invasive species. This imbalance depletes the water of oxygen and frequently chokes out marine life and native vegetation. This process threatens several of Cape Cod's most treasured natural resources.

The cause of the nutrient loading is the Cape's continued reliance on on-site septic systems to treat wastewater. Nitrogen rich wastewater flows through the septic systems and into Cape Cod's native sandy soils where it travels quickly into the watershed eventually reaching estuaries and ponds. Dr. Howes will discuss the problem surrounding nitrogen and nutrient loading of the Cape's estuaries and ponds and discuss solutions that can be initiated to manage the nitrogen loading to the most sensitive water bodies. Solutions may include centralized sewers and wastewater treatment facilities, innovative/alternative septic systems, and other nitrogen control measures as dictated by local nitrogen removal requirements.

Registration Deadline: Friday, November 5, 2010

Information/Registration: Register to attend this meeting and pay by credit card online at www.bsces.org. Search for this program under Events. Click on **Events** then **BSCES Events**; click on the link for a complete listing of BSCES Events; select **BSCES** from the drop-down list below Association, enter From and To dates below Date Range and click on **search**; locate and click on the **event name** and detailed event information will appear. To register online for an event at the BSCES member rate you must login using your BSCES assigned username and password. If you do not know your BSCES member login information, contact Rich Keenan at 617/305-4110. To process your online payment the billing name and address must match the name and address of the credit card you are using. If you have difficulties registering online contact Faye Nelson at 617/305-4104 or fnelson@engineers.org. You can also register by contacting Chris Koehler at KoehlerCM@CDM.com. Cancellations received after November 5, 2010 and no-shows will be billed.

ASCE American Society of Civil Engineers

This presentation provides 1.0 Professional Development Contact Hours (PDH)

BSCES
Boston Society of Civil Engineers Section

Geo-Institute

Wednesday, November 17, 2010

History of Geotechnical Consulting in Boston

Harl P. Aldrich, Founding Principal, Haley & Aldrich, Inc.
Donald T. Goldberg, Founding Principal, GZA GeoEnvironmental, Inc.
Steve J. Poulos, Founding Principal, GEI Consultants, Inc.

Radisson Hotel, 200 Stuart Street, Boston
5:30 PM Registration; 6:30 PM Dinner; 7:15 PM Presentation & Panel Discussion

$55 Members, $65 Non-Members
$45 Public Sector Members, $55 Public Sector Non-Members
$40 Senior Members (65+), $25 Student Members

These three founding Principals will describe from their perspectives the evolution of geotechnical engineering as we know it today from its beginnings as small technically specialized practices in the 1950's and 1960's. Join us in this celebration of Boston's prominent and unique role in the history and evolution of the practice of geotechnical engineering in the United States.

The founders of three major geotechnical consulting firms from the Boston area will discuss the genesis of the "new science" of soil mechanics and foundation engineering and its close interaction with academia. Selected topics and illustrative stories from the "early years" of geotechnical consulting in Boston will be described. Time will be provided after the presentations for questions and discussion from the attendees.

Registration Deadline: Friday, November 12, 2010

Information/Registration: Register to attend this meeting and pay by credit card online at www.bsces.org. Search for this program under Events. Click on **Events** then **BSCES Events**; click on the link for a complete listing of BSCES Events; select **BSCES** from the drop-down list below Association, enter From and To dates below Date Range and click on **search**; locate and click on the **event name** and detailed event information will appear. To register online for an event at the BSCES member rate you must login using your BSCES assigned username and password. If you do not know your BSCES member login information, contact Rich Keenan at 617/305-4110. To process your online payment the billing name and address must match the name and address of the credit card you are using. If you have difficulties registering online contact Faye Nelson at 617/305-4104 or fnelson@engineers.org. You can also register by contacting Kristinn Gerra of GZA at kristinn.gerra@gza.com. Cancellations received after November 12 and no-shows will be billed.

ASCE American Society of Civil Engineers

This presentation provides 1.0 Professional Development Contact Hours (PDH)

BSCES
Boston Society of Civil Engineers Section

Construction & Younger Member Groups

Thursday, December 2, 2010

Nuclear Power: Past, Present and Future

James M. Nicholson
Vice President - Senior Director Nuclear Services
The Shaw Group

Radisson Hotel, 200 Stuart Street, Boston, MA
5:30 PM Social/Registration; 6:30 PM Dinner; 7:30 PM Presentation

$55 Members, $65 Non-Members
$50 Public Sector Members, $60 Public Sector Non-Members
$25 Student Members and Senior Members (65+)

The US commercial nuclear power generation industry was born out of the Atomic Energy Act of 1954 with the startup of the Shippingport Atomic Power Station in 1957. Since that time, the US nuclear fleet has grown to 104 units in 31 States providing about 20 percent of the nation's electrical power. Beginning in 1997, the first new wave of reactor design certifications were issued by the Nuclear Regulatory Commission. Early site permit applications have been submitted beginning 2003 and combined license applications have been submitted since 2007. In 2009, construction began on the first new-build, Vogtle Units 3 and 4, near Augusta, GA, the first new construction in some 20 years.

Presently, the existing nuclear fleet requires ongoing engineering, maintenance and modification services to support daily operations, refueling outages, life/license extensions, materials upgrades, capacity uprates and performance improvements. In 1977 Calvert Cliffs Unit 1 took the first step in modernization by increasing its capacity by 5.5%. Since then, the fleet has gained approval of 130 programs to increase operating capacity. The programs can increase an individual unit's capacity by as much as 20% by measurement uncertainty recapture, stretch and extended power uprates.

The revised regulatory process has facilitated the emergence of authorized new-build domestic units and has provided engineers with a platform for innovative design and construction methods. The future of the nuclear fleet will rely on the passage of knowledge between seasoned engineers to new engineers in order to maintain the existing fleet and the innovation of new engineers to design safer, cheaper, and faster construction methods for new-build units.

Registration Deadline: Wednesday, November 26, 2010

Information/Registration: Register to attend this meeting and pay by credit card online at www.bsces.org. Search for this program under **Events**. Click on **Events** then **BSCES Events**; click on the link for a complete listing of **BSCES Events**; select **BSCES** from the drop-down list below Association, enter From and To dates below Date Range and click on **search**; locate and click on the event name and detailed event information will appear. To register online for an event at the BSCES member rate you must login using your BSCES assigned username and password. If you do not know your BSCES member login information, contact Rich Keenan at 617/305-4110. To process your online payment the billing name and address must match the name and address of the credit card you are using. If you have difficulties registering online contact Faye Nelson at 617/305-4104 or fnelson@engineers.org. You can also register by contacting Eoin Walsh at ewalsh@tcco.com. Cancellations received after November 24, 2010 and no-shows will be billed.

ASCE American Society of Civil Engineers

This presentation provides 1.0 Professional Development Contact Hours (PDH)

BSCES
Boston Society of Civil Engineers Section

Geo-Institute

Tuesday, December 7, 2010

Recent Trends in Geotechnical Instrumentation

Douglas S. Roy, PE

Associate Principal
GZA GeoEnvironmental of New York
New York, NY

Radisson Hotel, 200 Stuart Street, Boston
5:30 PM Registration; 6:30 PM Dinner; 7:15 PM Presentation

$55 Members, $65 Non-Members
$45 Public Sector Members, $55 Public Sector Non-Members
$40 Senior Members (65+), $25 Student Members

Technological advances in microelectronics have led to advances in the geotechnical instrumentation market. These advances have produced instruments with more frequent reading cycles, arguably higher quality data, and systems allowing for almost real-time, internet-friendly viewing and analysis of the data by engineers, clients, and project stakeholders. Given the availability of this technology and the level of risk associated with underground construction in the built environment, the number and types of instrumentation continues to increase on these projects.

A general discussion of these trends and innovations will be presented, along with descriptions of newer, more advanced instrumentation systems currently being used on a wider scale for geotechnical monitoring and quality control. Time will be provided at the end of the presentation for questions and further discussion.

Registration Deadline: Thursday, December 2, 2010

Information/Registration: Register to attend this meeting and pay by credit card online at www.bsces.org. Search for this program under **Events**. Click on **Events** then **BSCES Events**; click on the link for a complete listing of **BSCES Events**; select **BSCES** from the drop-down list below Association, enter From and To dates below Date Range and click on **search**; locate and click on the event name and detailed event information will appear. To register online for an event at the BSCES member rate you must login using your BSCES assigned username and password. If you do not know your BSCES member login information, contact Rich Keenan at 617/305-4110. To process your online payment the billing name and address must match the name and address of the credit card you are using. If you have difficulties registering online contact Faye Nelson at 617/305-4104 or fnelson@engineers.org. You can also register by contacting Kristinn Gerra of GZA at kristinn.gerra@gza.com. Cancellations received after December 2, 2010 and no-shows will be billed.

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This presentation provides 1.0 Professional Development Contact Hours (PDH)