BSCES NEWS

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

VOL. 44 | NO. 5 | JANUARY 2020 Engineering Management Group/Innovative Technologies

UPCOMING EVENTS

Autodesk Technology Center Tour
January 30, 2020

EWRI Winter Networking Event
February 13, 2020

Spring 2020 Professional Engineer Refresher Course
February 18, 2020 – April 14, 2020

Annual Networking & Billiards Tournament
February 19, 2020

Waterfront Facilities Assessment Workshop
March 12, 2020

Further Details Inside

EQuIS™ Implementation Case Study

by EarthSoft, Inc. and ddms, Inc.

Background

An EarthSoft client operating a large environmental remediation site faced challenges with complex sampling and data collection requirements. The site is a former mining operation that has associated soil and groundwater contamination concerns.

The Challenge

The former mine site is complex, having several data collection programs. Environmental consultants conduct quarterly sampling and inspection activities from an extensive network of groundwater monitoring wells. The existing workflow included the recording of water levels, purge data, and field measurements on paper forms, and the subsequent transcription of that information into a database.

A site weather station records meteorological parameters every 15 minutes. Under the existing workflow, data was manually downloaded and processed, leading to a significant lag in when the data was available to users.

Finally, 70 transducers are deployed in monitoring wells across the site, recording water depth and other parameters every two hours. Several of the transducers are unvented, which requires raw data values to be corrected using contemporaneous barometric pressure values. Under the existing workflow, if a transducer was found to be out of calibration (based on review of data), a repeat visit to the site was necessary to redeploy the transducer. Because the site is remote and large, repeat field visits are time-consuming.

The Solution

EarthSoft collaborated with the client and one of their consultants, ddms, to digitally transform their workflows and implement EQuIS, EarthSoft's advanced environmental data management and decision support system. Environmental monitoring data for the site is now stored in an EQuIS database, accessible to the entire project team, including client employees and consultants. The transition to using EQuIS was transformative to how consultant and client teams work, collaborate and interpret the data.

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President's Report

by Richard Maher, PE, Managing Associate, Perry Associates, LLC

Happy New Year! BSCES has started the new year with great news from ASCE.

BSCES has received the 2019 Outstanding Section and Branch Award Certificates of Commendation. This is a testament of the hard work and dedication that our member volunteers contributed during year 2019. Thank you very much!

Individually, Richard M. Vogel, PhD, professor emeritus and research professor, Tufts University, Department of Civil and Environmental Engineering, was selected by ASCE Environmental and Water Resources Institute to receive the 2020 Ven Te Chow Award for "his extensive contributions in the fields of probabilistic and stochastic methods in hydrology, environmental engineering and water resources." Congratulations Dr. Vogel!

As announced in the December 2019 *BSCESNews*, each year BSCES presents awards to deserving individuals in the Section or in the community who are nominated by their peers in recognition of their service to the civil engineering profession. The Large and Small Employer Recognition Awards are given to those organizations who exhibit exemplary support of ASCE and BSCES. The recently revamped BSCES Section Awards are given to

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Boston Society of Civil Engineers Section/ASCE

The Engineering Center, One Walnut Street , Boston, MA 02108

Phone: 617/227-5551, *Fax:* 617/227-6783

Email: bsces@engineers.org, *Website:* www.bsces.org

EQuIS™ Implementation Case Study

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Complex sampling programs are managed more efficiently using EarthSoft's Sample Planning Module (SPM), a tool to plan and manage repeat field data collection events. Field data collection activities transitioned to digital collection using the EQuIS Data Gathering Engine (EDGE). EDGE is a comprehensive and integrated environmental field tool enabling accurate and complete data collection using modern software and mobile computing technologies. Use of EDGE enables field technicians to:

- Collect field measurements and perform field checks on configurable forms (Figure 1);
- Perform and document groundwater stabilization measurements;
- Log samples with minimal data entry;
- Refer to reference photos of each sampling location;
  - Print chains of custody and generate electronic chains of custody (eCOCs);
  - Submit field data instantaneously to EQuIS using EDGE's Sign and Submit feature; and
  - Generate, attach, and view image (e.g., photos), voice, and other common file formats.

For the transducer data and weather station data, the team implemented EQuIS Live, a module that can upload digital data sources (including data loggers and live data streams) into EQuIS where the data can be monitored on web dashboards using EQuIS Enterprise (Figure 2, following page). Meteorological data can then be viewed by the project teams in real time. Previously, there was a delay of several months before this data was available.

The availability of the latest meteorological data via EQuIS Live and the Enterprise dashboards can pay dividends on a project. Project field and scientific staff identified new uses for the weather data, including monitoring the instrument performance. After connecting the (local) weather station to stream data live into EQuIS Enterprise, the team noticed something amiss with one of the sensors (Figure 3, following page). A site investigation discovered that a rodent had chewed through some cords. The cords were replaced and the instrument restored to service. Prior to having EQuIS Live setup, this problem would have gone undetected for weeks leading to lost data, and likely an extra trip to the site. Using EQuIS

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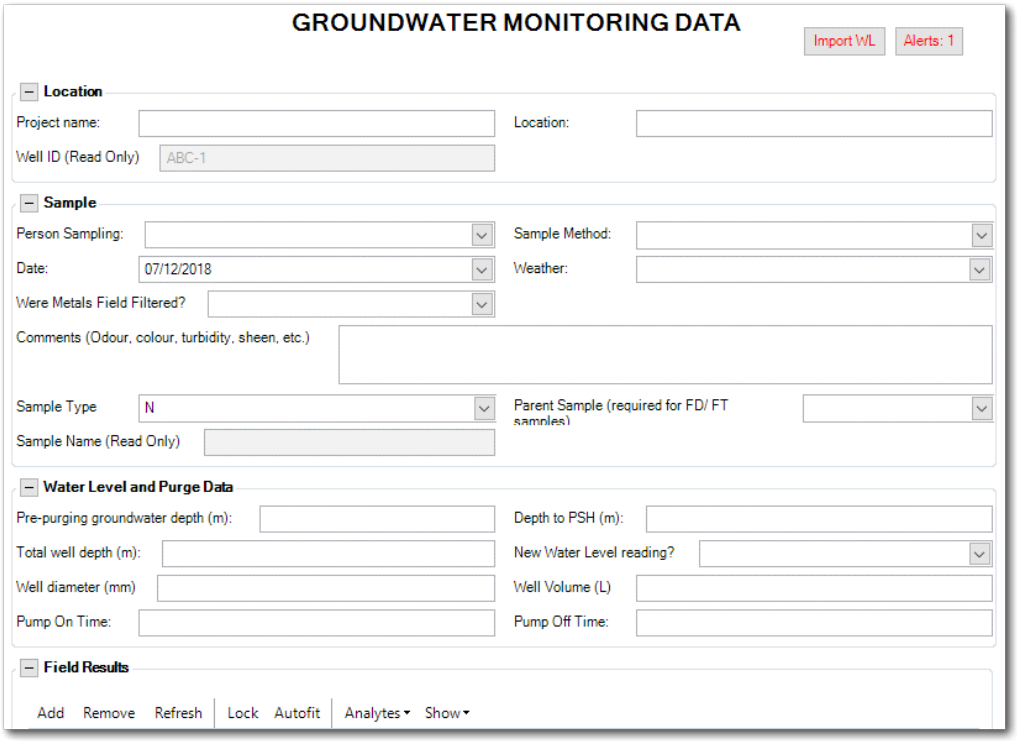

Figure 1: *EDGE Groundwater Monitoring Form*

EQuIS™ Implementation Case Study

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Live and Enterprise, field staff were able to identify the problem immediately and fix it when someone was already onsite.

Working with ddms and the client, EarthSoft enhanced EDGE to streamline the transducer workflow, allowing field technicians to check transducer calibration in the field. The EDGE form connects in real time to the weather station. The barometric pressure was used to correct the transducer reading so it could be compared to the manually-measured water level. If the two readings were not in agreement, the EDGE form alerts the user that a redeployment is necessary. This vastly reduces the need to revisit the wells for transducer maintenance. In EQuIS, Live Agents automatically correct the transducer water levels with the corresponding barometric pressure readings. Transducer values are viewable in the EQuIS Enterprise dashboard, where users can annotate the transducer data with qualifiers and remarks, if needed.

The Benefits

EarthSoft assisted the client to meet the project's data gathering challenges. Implementation of the EQuIS solution to digitally transform the project workflow has significantly reduced time for data collection, transfer, and review as well as increased data quality, accessibility, and security. Additionally, the EQuIS solution provided new ways to monitor instrument function and performance and allowed for improved collaboration and decision making for the project team.

Figure 2: *EQuIS Enterprise Dashboard displaying local meteorological data*

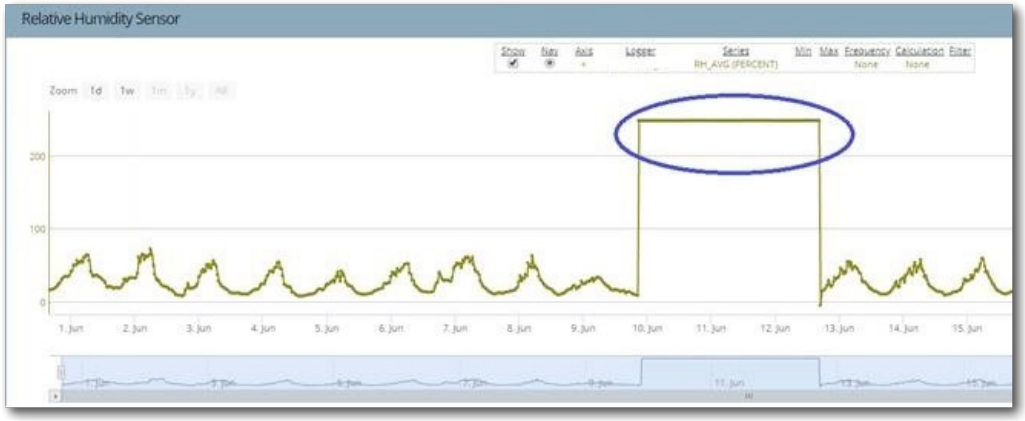

Figure 3: *Relative humidity with the data gap attributed to a faulty sensor due to rodents*

Bourne Bridge Pipeline Inspection Enablement

by Michael Tupper, PE, Director, National Grid

Performing regular inspections and assessments is an important activity in the safe and reliable operation of essentially any pipeline system. And fortunately, for pipeline operators, inspection methods and technologies continue to advance. National Grid recently undertook a project to facilitate the utilization of some of these advancing pipeline inspection techniques for the natural gas pipeline system which crosses the Cape Cod canal via the Bourne Bridge. Given the unique configuration of this pipeline being attached to the bridge structure, site-specific challenges needed to be addressed to support the enablement of both external and internal pipeline inspections. This article will focus on the implementation of several selected pipeline inspection techniques on this project along with engineering and planning considerations which were necessary to facilitate the successful execution of these inspections.

The Bourne Bridge pipeline installation presented a unique challenge from a visual inspection perspective as the pipeline is attached to the under-side of the bridge structure which spans the canal. While the pipeline can be visually inspected on a regular basis from an existing catwalk on the under-side of the bridge, it was identified that deploying an Unmanned Aerial Vehicle (UAV or 'Drone') would allow high resolution images to be captured along the entire length of the pipeline without requiring an individual to traverse the catwalk. While the use of UAV's for inspection purposes has become a more frequent occurrence in recent times, the application of this technology was still relatively new for many of the parties involved in this project. Therefore, extensive coordination and review of the flight plan and operation among internal and external stakeholders was an important element during the planning stage of the UAV inspection. Figure 1 shows a representative photo of a UAV utilized for

Figure 1: *UAV for commercial inspections*

inspection purposes. Images of nearly every inch of this pipeline were taken, reviewed, documented and logged as part of this inspection all without requiring an individual to ever step onto the catwalk.

Performing an inspection of the internal portion of the pipeline system on the Bourne bridge presented a different set of challenges from the external pipeline inspection. Internal pipeline inspection utilizing modern day "smart" pigs (shown in Figure 2) is an effective tool for gathering data of pipeline systems. A "tethered" smart pig operation, which utilizes magnetic flux leakage (MFL) technology to detect anomalies in the steel pipeline, was selected for the Bourne bridge pipeline. As the name suggests, the tethered smart pig is pulled by a tether/cable attached to the tool from the launch location to the receiving location. A temporary vehicle launcher and receiver was constructed to facilitate the installation of the pig and enable the tether to be pulled by a winch truck while monitoring speed, footage and tension of the tool. The tethered pig vehicle was successfully pulled through the pipeline from the north abutment to the south abutment. The corresponding data has been reviewed and analyzed which serves to enhance the overall pipeline assessment.

A second form of inline inspection identified as part of this work included the facilitation for the use of a robotic crawler tool. The robotic crawler technology consists of a battery-operated tool that can be launched into the pipeline utilizing a pressure control fitting and then perform an internal pipeline inspection under live gas conditions without interruption to service as outlined in Figure 3. The unique site-specific pipeline configuration at the Bourne bridge requires the robotic crawler tool to ascend a

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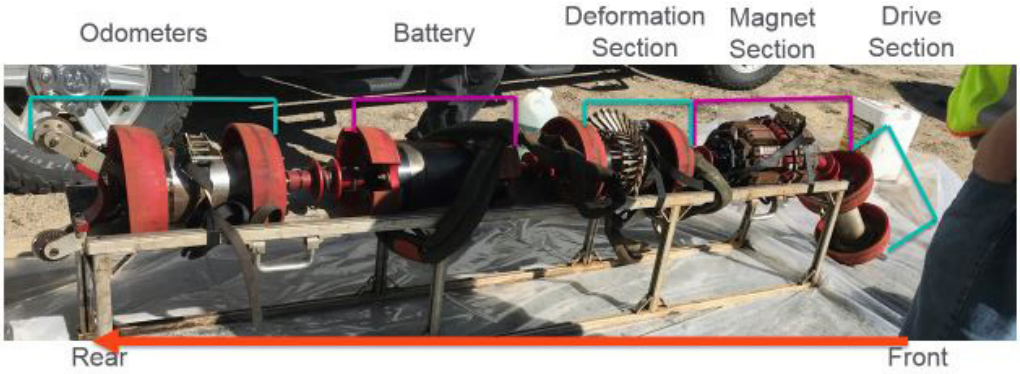

Figure 2: *Smart Pig overview*

Become a BSCESNews Contributor

Would you like to contribute to the newsletter of the oldest civil engineering society in the country? The BSCES Newsletter Editorial Board is seeking members who are willing to write articles for publication in *BSCESNews* or to join the Editorial Board.

Typically 400 to 900 words, BSCESNews featured articles are about technical topics or professional matters of interest to civil engineers. The XXX issue of the newsletter for example, will highlight the ASCE Construction Institute Boston Chapter and feature one or more articles on the theme of Construction.

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 Sean Horan at Sean.Horan@gza.com or BSCES Association Manager Rich Keenan at rkeenan@engineers.org or at 617/305-4110.

Featured Group

Engineering Management Group

by Daron Kurkjian, PE, Senior Project Manager, Weston & Sampson and Engineering Management Group Chair

As we start the new year this article highlights the Engineering Management Group's (EMG's) successful programs in 2019 and exciting events planned for 2020. The EMG provides opportunities to advance engineering knowledge in management and leadership through our membership and events. We welcome new members to join the EMG.

EMG Focus Areas

The EMG has a wide range of focus areas including:

- Project and Program Management;
- Leadership;
- Business Operations;
- Best Engineering Management Practices; and
- Career Development.

Each year we reach out to engineering leaders to provide their insights and real-world case studies highlighting these topics. In alignment with the BSCES goals, the EMG events advance the professional growth of a range of engineers from recent graduates to senior executives.

Recent Events

Recent EMG events included our 2019 Lawler Lecture that provided a case study into the Massachusetts Port Authority's (Massport) Conley Container Terminal New Berth 10 in South Boston. This complex, multi-phase $215-million project modernized the Port of Boston's container handling facilities, the oldest continuously active major port in the Western Hemisphere responsible for $4.6 billion in annual economic activity. The increased container ship and bulk cargo handling capacity improved service and growth potential for the 1,600 companies using the terminal.

Massport highlighted the design, permitting, and construction of this project. Project elements included siting a new 1,275-foot long pile-supported berth, procuring three new low-profile ship-to-shore cranes, underwater rock blasting, and dredging a new berth for Post-Panamax sized container ships. Massport's speakers highlighted the project coordination that allowed for continuous operation during construction of the largest port in New England.

In December 2019, the EMG with the Younger Member Group (YMG) co-hosted an Executive Lunch Session with Brian Sullivan, PE, president of Tetra Tech Infrastructure Northeast (INE).

Mr. Brian Sullivan (third from left) with the BSCES EMG Committee and members (left to right) Daron Kurkjian, Gregory Mirliss, Michael Cunningham, Dan Scott, Dan Dwyer, Richard Matson, and Lee Koska

View of Conley Terminal (photo credit VHB).

Drawing on over 35 years of experience and his leadership of a 170-person organization, Mr. Sullivan highlighted the importance of knowing oneself and building on individual strengths. In the question and answer session, Mr. Sullivan emphasized the importance of seeking and being a mentor, becoming involved in professional organizations such as BSCES to broaden one's perspectives and networks, and defining personal success.

2020 Events

We look forward to an active year of EMG events in 2020. Following from the 2019's Lawler Lecture, we are planning a site visit to the Conley Container Terminal in the spring of 2020 to be co-hosted by the Coasts, Oceans, Ports, and Rivers Institute (COPRI) Boston Chapter. We are also excited for future Executive Lunch Sessions. Our signature event, the Lawler Lecture held annually

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Mr. Brian Sullivan, PE, President of Tetra Tech INE speaking at EMG and YMG Executive Lunch Session December 2019

President's Report

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individuals who have made significant contributions to the civil engineering profession and their communities.

Nomination forms are available now. Download, complete and submit the 2020 BSCES Employer Recognition Award and/or Section Award form by the Friday, March 06, 2020 submission deadline.

I'm sure many more awards await us in 2020. The world around us is rapidly changing and is being disrupted by many factors that will require innovative solutions. However, one thing has stayed constant, as civil engineers we are problem solvers. An old tool used to help us understand and provide great solutions has been the rubber duck. The same yellow rubber duck that was in the bathtub in our younger years. The rubber duck represents someone to talk to about a problem or solution. By explaining the issue to the rubber duck, in a step-by-step fashion, a better solution or additional problems may be revealed. Teaching the rubber duck about the issues focuses us to understand from a secondary level. The rubber duck is not a substitute for talking with a co-worker or at a BSCES meeting. BSCES is a valuable resource for problem solving. Can't wait to see you at the next BSCES event, so we may talk rubber duck!

This issue of *BSCESNews* is focused on the BSCES Engineering Management Group and Innovative Technologies. Be sure to read the page 5 featured group article written by Daron Kurkjian from Weston & Sampson, who is chairs our EMG.

I'd like to once again thank our Society Sponsors especially EarthSoft, Inc. which is sponsor of our January newsletter. I would encourage you to read EarthSoft's page 1 article entitled, "EQuIS™ Implementation Case Study."

Bourne Bridge Pipeline Inspection Enablement

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challenging 100+ foot vertical climb at the abutments. A test run of the tool was successfully performed which ensured adequate traction of the crawler to traverse the vertical climb. The availability of this leading technology coupled with the installation of the pressure control fitting and the ability of the crawler to ascend the vertical climb has enabled the future deployment of this inspection tool on a recurring basis without interruption of service on this important supply line.

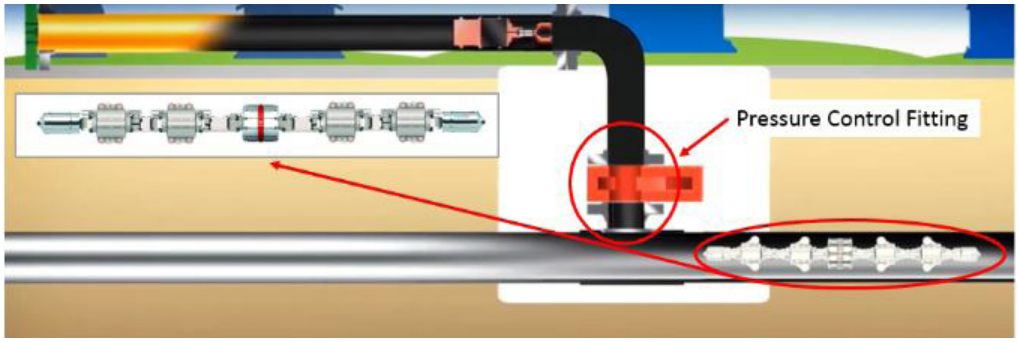

Figure 3: *Robotic crawler schematic*

Comprehensive pipeline inspections occurring on a regular basis provides valuable data for pipeline owners and operators. The recent inspection work undertaken by National Grid on the pipeline system crossing the Cape Cod canal highlights some of the existing and advancing inspection methods available. External pipeline inspection was performed utilizing a UAV which provided high resolution images of the external portions of the pipeline without requiring an individual to physically access and traverse the catwalk under the bridge deck. Inline pipeline inspections utilized sophisticated tools outfitted with instruments and sensors to gather data to support the regular assessment and safe operation of the pipeline. Pipeline inspection technology and methods continue to advance and develop providing improved safety, a wider selection of methodologies for unique situations and enhancements in data collection.

Engineering Management Group

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in honor of Joseph C. Lawler, CDM Smith's first president is planned for May/June 2020. The Lawler Lecture includes a social and networking hour followed by dinner program with prominent speakers in the engineering community. As a group, the EMG benefits from wide latitude to select topics and speakers of interest to our and BSCES membership. We plan to have dynamic speakers for the 2020 Lawler Lecture.

EMG Meetings & Events

Our individual members have high impact in the direction of the group and our programing. Opportunities for future committee leadership are available in July 2020. We could not achieve our success without our current dedicated leadership committee members and thank you to:

Vice Chair—Lee Koska, Weston & Sampson
Treasurer—Richard Matson, PE, AECOM
Secretary—Dan Scott, PE, Kleinfelder
Liaison—Michael Cunningham, PE, Kleinfelder
Past Chair—Cody Gibb, PMA Consultants

Please join our 2020 planning meetings and events. For meeting and event details, please reach out to me at emg@bsces.org, our leadership committee members, or see BSCES's event calendar.

Viewing the Real World Through Virtual Eyes

by Stephen Washburn, GISP, Senior Technical Graphics Technician, GZA

In civil engineering, we're often required to convert three-dimensional data into plans, tables, maps, and other two-dimensional forms and covey that data to clients, consultants, the public, etc. Virtual reality (VR) and augmented reality (AR) offer an opportunity to keep data in a three-dimensional form, and advances in 3D modeling allow "flat" data to be given depth, dimension, and most importantly, context.

At GZA, we've been building our 3D modeling and VR capabilities since 2013 and have found that carefully applied, it's a powerful technology in all forms of civil engineering. Here are a few lessons we've learned as our work expands with the technology.

Commit The Resources

While it's become easier to use these technologies, and they're more commonplace than even a few years ago, dedicated modeling and visualization do still require substantial computing power and resources separate from other tasks. For example, a top-end VR rig will require not just the headset and controllers, but also tracking cameras, an independent PC unit with a powerful graphics card, and the space necessary to set all of the equipment up and allow the intended audience use it.

Navigation Matters

At the beginning of GZA's 3D modeling work, still frame captures and video walkthroughs were generated to help visualize project data and components. While this original material was valuable to clients, one of the key points of feedback was a desire to change perspective, whether to zoom in on a detail or play back the video at a slower speed.

VR tools give control of the perspective to the viewer, rather than subjecting the viewer to pre-rendered images. and it does so with minimum complexity and cost relative to other methods. VR systems allow video output on a monitor as well, so one member of the client team can "get their hands dirty" in the system while others can observe the model in real-time and ask questions. Videos and still frames can be captured as the presentation unfolds and can be sent out to the participants post-activity.

Furthermore, as VR technology becomes more commonplace professionally, this will allow clients across the country to visit a site virtually and have a model to consult with as project milestones are achieved. Models can even be uploaded to a project's web presence to allow

A user experiences virtual reality health and safety training.

public stakeholders to examine it for themselves. Viewing a web model isn't restricted to virtual reality. Anyone with an internet connected device can easily view and navigate 3D models online.

Put Complex Data Into Context

One of the core values of 3D technology in general, not just relegated to the VR realm, is that it puts complex data into its intended context, especially for audiences outside the engineering field.

For example, a 3D model was recently built to aid the legal action associated with a site contamination project using data from an 800-page report that summarized the site conditions in granular detail. One of the core challenges was to put this report in an easily understood context. The data was carefully translated into a full, detailed model of the conditions at the site, which the jury was able to view using a tablet computer which they could take with them into deliberations. The model and 'hands on' approach to visualizing the wealth of data on a tablet associated with this particular site, as opposed to flipping through an 800 page report, were crucial tools that helped the target audience digest and understand the material.

VR and AR technology aids to enhance project information. Another current application with AR is system that places GIS data in the AR headset so, for example, an engineer in the field could look out at job site and see site features and geolocated data, utility rights-of-way, and other important information in the field, real-time, without having to consult a binder full of paper or pull out a pocket unit. An example of this technology is the Microsoft's Hololens which is piece of equipment worn on the head that conforms to basic impact protection requirements of ANSI Z87.1, allowing it to be integrated into PPE as protective eyewear.

Immersion Is A Powerful Tool

Virtual reality is undeniably a crowd-pleasing technology, but as it is developed for internal and external applications at any company, GZA has found that there is considerable impact for use in health and safety applications. The VR system can be integrated with health and safety courses such as the OSHA 40 hour HAZWOPER training course, so staff members can apply the training in realistic, immersive scenarios throughout the training modules. One such course module allows the user to

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Viewing the Real World Through Virtual Eyes

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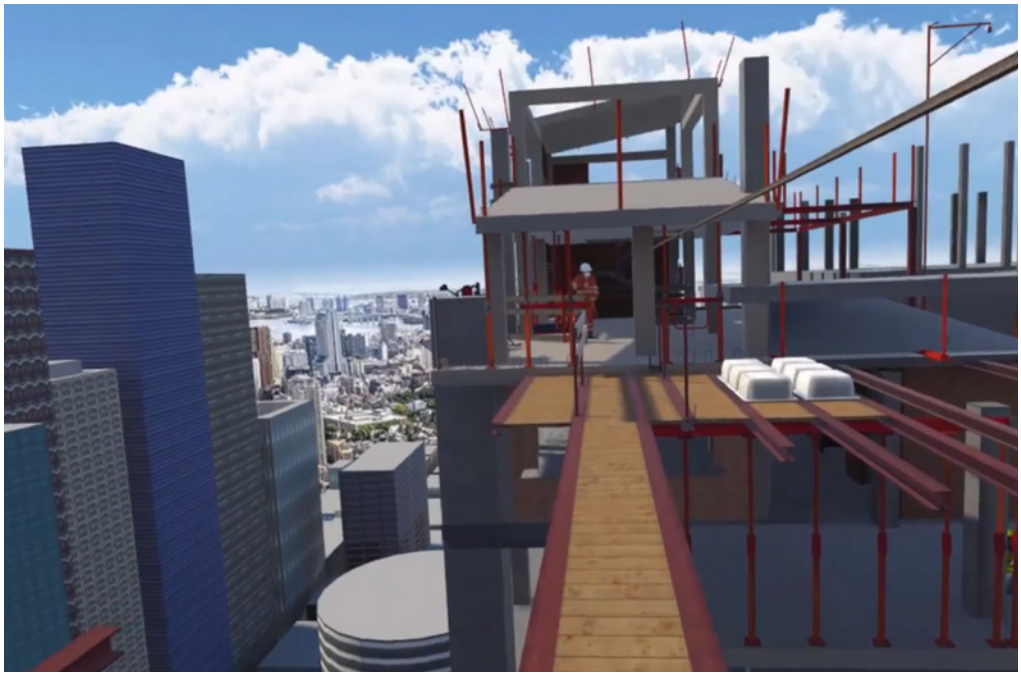
closely examine harnesses for damage and flaws, picking it up and examining it from all angles, and choose the one that meets safety standards that they just learned about. Then, the user is guided into a virtual training room with a scaffold with multiple possible anchor points for their fall arrest cables and tools. Finally, they apply their experience onto a carefully simulated job site. Seeing the practical consequences of proper safety procedure in an interactive environment during the course work can have a profound impact on retaining that information for real-life, potentially dangerous environments on a job site.

Virtual reality training programs can offer increased efficiency for employee training. In another application, insurance companies have used VR training to teach their employees how to identify water damage in homes. The rapid, repeatable nature of digital content means employees can ingest what would require hundreds of hours of real-world experience in this skill through VR sessions.

Adding to the versatility of possible applications, specific job sites, equipment, and other features can be added to the module to better simulate the exact surroundings the training will be applied in. Performance data over time can be gathered to better determine where training most needs to be applied and what course participants struggle with the most 3D modeling, VR and AR are impressive tools, and like any tool, GZA has found that thoughtful application produces beneficial results. The main issue with the technology looking forward in the future will be acceptance: In the legal case previously discussed, one of the major challenges was properly explaining the technology and its value. As these technologies continue to filter into our everyday and professional lives, they'll only become more useful.

The user's view during a VR fall protection training experience.



A view during a fall protection VR training module. Watch your step!

Suggest a Seminar Topic

Is there an engineering topic that you would like BSCES to feature in an upcoming seminar? If so, members of the BSCES Program Committee would like to hear from you.

Charged with developing technical training programs that address members' professional development needs, the Program Committee oversees the Society's National Highway Institute training, spring and fall Professional Engineer Refresher Courses and other topical workshops. If you have a technical topic that you would the like the Program Committee to consider, send your suggestion to BSCES Program Committee Chair Jeff Lewis at jlewis@garofaloassociates.com or BSCES Association Manager Rich Keenan at rkeenan@engineers.org.

Recent News and Updates

BSCES Awards Nominations Deadline is March 6

Do you know a worthy award recipient? If so, then download, complete and submit the 2020 BSCES Employer Recognition and/or Section Awards form contained in this newsletter by the Friday, March 6, 2020 submission deadline. The Large and Small Employer Recognition Awards are given to those organizations who exhibit exemplary support of ASCE and BSCES. The BSCES Section Awards are given to individuals who have made significant contributions to the civil engineering profession and their communities. Please see the awards nomination forms at the end of this month's newsletter for further details.

BSCES Welcomes New Members

The BSCES Board of Government is pleased to welcome the following new members who joined BSCES during the months of November and December 2019:

Affiliate Member:
Jonathan Moreno

Associate Members:
Adam Francis Murphy, EIT, Simpson Gumpertz & Heger
Meng Xiao, Gannett Fleming

Member:
Timothy Letton, PE, Greenman-Pedersen, Inc.

Student Members:
Samantha Aufiero, University of Massachusetts Lowell
Meghan Brigham, University of Massachusetts Lowell
Evan Consolati, University of Massachusetts Amherst
Ahmad Faraz, University of Massachusetts Lowell
Mynor Gamez, University of Massachusetts Lowell
Brandon Michael Jenkins, Wentworth Institute of Technology
Isha Kadam, Northeastern University
Vincent Keras, Northeastern University
Dogbe Kossi, University of Massachusetts Lowell
Everett B Lawrence, Syracuse University
Scott Stevens, Old Dominion University
Rhyan Sullivan, University of Massachusetts Amherst
Olumide Waheed Oseni, V, R.Eng, Worcester Polytechnic Institute

Are You Getting the Most from Your ASCE Membership?

You may be surprised to discover how much ASCE has to offer that will help your career grow and make you more technically proficient. When you joined ASCE, you became part of the largest professional civil engineering network in the world. As a part of this community, you have access to our industry's most comprehensive communication, networking, and learning resources. Most of these resources are either absolutely free or significantly discounted. During 2019, ASCE launched some new member benefits. If you haven't already checked them out, you can do so by clicking here.

New Code of Ethics Nearing Completion

ASCE is pleased to announce the Society's Task Committee on the Code of Ethics is close to presenting a new Code of Ethics for the Society and for the civil engineering profession to the Board of Direction for approval. Last July, the Board authorized the task committee to move forward with a planned update. The revised code has now been published in draft form, ready for you to review and give your feedback.

January is National Mentoring Month!

Pass on your passion as a civil engineer by serving as a mentor. ASCE Mentor Match connects members virtually, based on common specialties and experience. Click here if you would like to learn more about becoming a mentor.

New Year, New Appointment Opportunities

Serving on a state board or commission is a volunteer opportunity; it's a great way to contribute your professional expertise to improving how public projects are delivered and also a way to build your understanding about how public officials evaluate proposals and ideas from design professionals. The Massachusetts Designer Selection Board (DSB) and the Massachusetts School Building Authority (MSBA) are both seeking resumes from diverse candidates who are nonconflicted professional engineers licensed in and residing in Massachusetts to fill one board opening. Click here for more information about these board positions. Interested applicants should forward their resume, with full home and work contact information on it, to Abbie Goodman (agoodman@engineers.org) by February 3.

Glenn Bell Honored by Engineering News Record as a Top 25 Newsmakers for 2019

The BSCES Board of Government would like to congratulate Glenn Bell for being named an ENR Top 25 Newsmaker for 2019. Glenn, who is a senior principal at Simpson Gumpertz & Heger Inc. and a BSCES Honorary Member, was recognized for working with ASCE Structural Engineering Institute to establish Confidential Reporting on Structural Safety-United States (CROSS-US), an initiative allowing structural engineers to report anonymously on problems they see.

Tighe & Bond Acquires Halvorson Design

On January 2, Tighe & Bond announced the acquisition of Boston-based Halvorson Design, a firm specializing in landscape architecture, planning and urban design. The acquisition expands the geographic footprint, capabilities and sector expertise of both firms, and offers clients a single-source, comprehensive solution to meet all their design and engineering needs. Halvorson will continue to operate under its existing brand name, and the firm's leadership and staff will remain at the current location on Kingston Street in Boston. Tighe & Bond employees will also be joining the Halvorson office.

SEND US YOUR NEWS! Looking to strengthen the community that is BSCES, the BSCES Executive Committee and Newsletter Editorial Board has decided to expand the content of this *BSCESNews* Recent News and Updates column by including more member news. Have you recently been recognized for a professional accomplishment, passed the Professional Engineer Exam, received a promotion, or changed employers? If so, send your news items to BSCES Association Manager, Rich Keenan, rkeenan@bsces.org.

Upcoming Events

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, call 617/227-5551.

Autodesk Technology Center Tour

Sponsored by the Construction Institute Boston Chapter

Thursday, January 30, 2020
Autodesk Boston, Boston, MA

3:00 PM with Social to Follow

Sophia Zelov, AIA, Industry Engagement Manager, Autodesk Technology Centers

The Autodesk Technology Center at the BUILD Space in Boston is a research and development workspace where Autodesk invites startups, colleges and universities, and industry experts to explore ways to advance the building industry. The center focuses on industrialized construction, digital fabrication, automation and robotics in construction, and other ideas that are transforming the built world including architecture and engineering. This tour will not only give attendees the chance to see the space, but learn about the projects of the current residents. Some of those projects include topics such as 3d printed concrete, robotic integration & automation, laser scanning, logistics/supply chain, and IoT systems on construction sites.

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

Winter Networking Night

Sponsored by the Environmental and Water Resources Institute Boston Chapter

Thursday, February 13, 2020
Dorchester Brewing Company, Boston, MA

6:00 PM – 9:00 PM

Come join the EWRI Boston Chapter to kick off 2020 with a casual social event hosted at Dorchester Brewing Company. Enjoy appetizers and refreshments in a reserved space with fellow colleagues in the environmental and water resources industries. This event is open to anyone and everyone who is interested in learning about the EWRI Boston Chapter, how to become more involved, or just want to socialize!

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

Spring 2020 Professional Engineer Refresher Course

Sponsored by the BSCES Program Committee

Tuesday, February 18, 2020 – Thursday, April 14, 2020
Northeastern University, Boston, MA

7:30 PM – 9:30 PM

The BSCES Professional Engineer Refresher Course consists of twelve classes covering both the breadth and depth portions of the five Civil Professional Engineer Exams. Plans are underway for course lectures to be held at Northeastern University, Boston, MA. All lectures are scheduled for Tuesday and Thursday evenings from 7:30 - 9:30 PM except for the initial session which runs from 7:30 – 10:00 PM.

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

Annual Networking & Billiards Tournament

Sponsored by the Younger Member Group

Wednesday, February 19, 2020
Scholars Boston Bistro, Boston, MA

6:00 PM – 9:00 PM

Join the Younger Member Group for the annual billiards tournament and networking event at Scholars! Participants will compete in teams and prizes will be awarded to 1st, 2nd, and 3rd place winners.

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

continued on page 11

Upcoming ASCE and Technical Institute Conferences

Register for one of these upcoming ASCE and Technical Institute Conferences today!

2020 Construction Institute Summit
February 19–22, 2020, Los Angeles, CA

G-I Geo-Congress 2020
February 25–29, 2020, Minneapolis, MN

ASCE Week Orlando 2020
March 22–27, 2020, Orlando, FL

Structures Congress 2020
April 5–8, 2020, St. Louis, MO

World Environmental & Water Resources Congress 2020
May 17–21, 2020, Henderson, NV

ASCE Webinars

Are you planning to take an ASCE webinar? Sign up with the code WEBBOSSEC and 20% of your registration fee will be donated to the Boston Society of Civil Engineers Section/ASCE.

For a full listing of ASCE Webinars, click here.

Upcoming Events (continued from page 10)

Waterfront Facilities Assessment Workshop

Sponsored by the Coasts, Oceans, Ports, and Rivers Institute Boston Chapter

Thursday, March 12, 2020
GZA Corporate Headquarters, Norwood, MA
7:30 AM – 1:30 PM

Noah J. Elwood, PE, President, Appledore Marine Engineering, LLC
Bryan N. Jones, PE, DPE, NE Ports & Maritime Lead, HDR Engineering, Inc.
Matthew J. Page, PE, Senior Project Manager, GZA
Charlie M. Roberts, PE, DPE, President, Childs Engineering Corporation

The goal of the workshop will be to provide best-of-industry guidance on the inspection and rehabilitation of waterfront infrastructure with a focus on understanding the basic modes of degradation of various materials in the marine environment and the methods to assess, mitigate and rehabilitate waterfront infrastructure.

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

An Invitation to Attend

2020 TECET Career Fair

Thursday, February 13, 2020
3:00 – 6:00 PM
Wyndham Boston Beacon Hill
Boston, MA

Juniors and seniors who are majoring in engineering or land surveying are invited to attend The Engineering Center Education Trust (TECET) Career Fair. This event will attract over 20 employers offering engineering and land surveying related jobs and internships as well as colleges and universities offering graduate programs.

The Career Fair is free for all students! Light refreshments will be provided. There will be a drawing every half hour for gift cards and one for a pair of tickets to that night's Celtics game.

Click here for more information including how to register for the Career Fair.

Plan to Attend

Anticipating the Future Built Environment

Thursday, February 20, 2020
3:00 – 4:00 PM
Northeastern University, Boston, MA

Gerald E, Buckwalter, Chief Operating and Strategy Officer, American Society of Civil Engineers

BSCES is sponsoring Northeastern University Department of Civil and Environmental Engineering's Distinguished Seminar featuring ASCE Chief Operating and Strategy Officer Jerry Buckwalter's examination of ASCE's Future World Vision platform. This immersive computer model, uses gaming engines that will create virtual future worlds and enable engineers to ask the right questions about a future built environment, contemplate solutions, and postulate the resulting benefit to society.

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

Classifieds

BSCES
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American Society of Civil Engineers

2020 Employer Recognition Awards

The Boston Society of Civil Engineers Section of the American Society of Civil Engineers Awards Committee invites you to nominate an organization to receive the Small Employer Recognition Award or the Large Employer Recognition Award. Please see the following awards description for nomination instructions. To be eligible to receive this award your award nomination must be received by the BSCES Awards Committee no later than Friday, March 6, 2020.

As a means of fostering the members of the civil engineering profession, the Boston Society of Civil Engineers Section/ASCE has established an award to recognize those employers who commit to providing exceptional opportunities to their engineers. Special recognition will go to those organizations who exhibit exemplary support as evidenced by:

1. Encouraging technical and professional growth through continuing education, training, mentoring, project experience, participation in development of technical papers or presentations, and other means.
2. Tackling staff quality-of-life issues in the modern workplace.
3. Contributing to the community to make a positive impact.
4. Encouraging active participation in professional societies such as ASCE/BSCES.

Members who want an organization to be considered for recognition should provide a letter demonstrating the firm's commitment to its engineers. Firms nominated shall be actively participating in BSCES via sponsorship, employee membership, contributions to the newsletter, etc. Letters shall include the total number of employees in the firm, number of BSCES members, and cite specific examples of its employees being actively involved in BSCES.

The awards committee will review the nominations and select an exemplary small employer and a large employer in the Section. Organizations with less than 50 employees are eligible for the Small Employer Award. Awards will be presented at the 171st BSCES Annual Awards Dinner in June. Successful recipients will be considered for endorsement as potential (future) applicants for the ASCE Employer Recognition Award. No organization will be eligible to receive the award in consecutive years.

Complete and return this nomination form and attachment to the BSCES Awards Committee no later than Monday, March 6, 2020 to be eligible for the award.

Name of Organization: _____

Nominator/Title: _____
Address: _____
Telephone: _____ Email: _____
Signature: _____ Date: _____

Organization: _____
Contact Person: _____
Title: _____
Office Address: _____ Website: _____
Telephone: _____ Email: _____

Please attach a brief (no more than two pages) narrative describing why the organization meets the criteria described in this nomination form.

Please complete this form and the additional pages and return it via email, fax, or mail to bsces@engineers.org, 617/227-6783, or BSCES Awards Committee, Boston Society of Civil Engineers Section/ASCE, The Engineering Center, One Walnut Street, Boston, MA 02108-3616, respectively. For questions, contact BSCES Awards Committee Chair Christopher Hersey at 617/590-5546 or Vice.President2@BSCES.org.

Thank you for your continued support of ASCE and BSCES.

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2020 Individual Section Awards

Each year, BSCES presents awards to deserving individuals in the Section or in the community who are nominated by their peers in recognition of their service. Here is your opportunity to nominate a co-worker, friend, or someone who you think deserves special recognition. Please see the following awards descriptions and nomination instructions.

The Nominations Deadline is Friday, March 6, 2020. The Awards Committee will review all nominations and present a list of candidates for selection by the Board of Government. Awards will be presented at the 171st BSCES Annual Awards Dinner in June.

I would like to nominate _____ For the:

_____ CITIZEN ENGINEER AWARD: This award is presented to a BSCES member or registered professional engineer for outstanding public involvement in local or national legislation, education (at any level), non-profit volunteer organizations, community activities, or similar activities improving the image of ASCE, BSCES and the civil engineering profession.

_____ HORNE/GAYNOR PUBLIC SERVICE AWARD: This award is presented to a BSCES member or registered professional engineer for unpaid public service in a municipal, state or federal-elected or appointed post for philanthropic activities in the public interest.

_____ GOVERNMENT CIVIL ENGINEER AWARD: This award is presented to a BSCES member who is serving as a paid public sector engineer at a federal, state, or municipal agency, department, or authority in Massachusetts.

_____ CLEMENS HERSCHEL AWARD: This award recognizes an individual who has published a paper, not necessarily published in the BSCES Journal, that has been useful, commendable, and worthy of grateful acknowledgment. If nominating for the Clemens Herschel Award, please attach the name of the paper and names of all authors, if co-authored.

_____ JOURNALISM AWARD: This award is presented to a journalist or other author who has published one or more articles, papers, books, social media blogs, or film for a non-technical audience that raises awareness of the contributions of the civil engineering profession.

_____ PRE-COLLEGE EDUCATOR AWARD: This award is presented to a member of the K-12 educational community who integrates engineering topics, particularly civil engineering, in a manner that benefits the profession and may promote students to pursue an engineering career. The Public Awareness & Outreach Committee reviews these nominations and recommends the recipient to the Board.

_____ COLLEGE EDUCATOR AWARD: This award is presented to a member of the academic community who inspires and encourages civil engineering students through exceptional teaching and mentorship. Educators empower students to realize full potential and exemplify the profession in their classroom. Candidates shall be actively teaching in a classroom setting at a college or university in New England.

_____ YOUNGER MEMBER AWARD: This award is intended to recognize a BSCES member, 35 years of age or younger on February 1 in the year of the award, who has made an outstanding contribution to BSCES and/or the civil engineering profession.

_____ ENGINEER OF THE YEAR AWARD: This award is presented to a BSCES member, with 15 years or more professional experience, who has exhibited extraordinary leadership in the form of managerial leadership, technical excellence, professional integrity, and mentorship of other engineers.

_____ PROJECT OF THE YEAR AWARD: This award is presented to a BSCES member and her/his project team who has served in a major role on an innovative, challenging, unique, and/or complex project located in the Commonwealth of Massachusetts. The majority of the work should have been completed by engineers located within Massachusetts.

To submit a nomination, complete this form and return it by the nomination deadline via email, fax, or mail to bsces@engineers.org, 617/227-6783, or BSCES Awards Committee, Boston Society of Civil Engineers Section/ASCE, The Engineering Center, One Walnut Street, Boston, MA 02108-3616, respectively.

Name and Company Address of Nominee(s)*:

_____

_____

_____

Is this a re-nomination? Yes _____ No _____

**Please attach a brief (no more than one page) explanation of the candidate's qualifications for nomination.*

Your Name: _____ Daytime Telephone: _____ Email: _____

NOTE: *If you nominated someone last year who was not selected, you may re-nominate the individual(s).*

QUESTIONS: *Contact BSCES Awards Committee Chair Christopher Hersey at 617/590-5546 or Vice.President2@BSCES.org.*

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Autodesk Technology Center Tour

Sophia Zelov, AIA

Industry Engagement Manager, Autodesk Technology Centers

Thursday, January 30, 2020

Autodesk Boston
23 Drydock Ave
Boston, MA 02210
3:00pm Tour with Social to follow

The Autodesk Technology Center at the BUILD Space in Boston is a research and development workspace where Autodesk invites startups, colleges and universities, and industry experts to explore ways to advance the building industry. The center focuses on industrialized construction, digital fabrication, automation and robotics in construction, and other ideas that are transforming the built world including architecture and engineering.

Located in Boston's Seaport Innovation District, the workspace offers teams access to large format fabrication equipment and project space, as well as training and expertise from Autodesk personnel. Resident teams test and develop solutions that will improve how we build the places where we live and work and the infrastructure we rely upon. More than just a workspace, the center fosters an open community where industry thought leaders can collaborate on a shared vision of the future of construction.

This tour will not only give us chance to see the space, but learn about the projects of the current residents. Some of those projects include topics such as 3d printed concrete, robotic integration & automation, laser scanning, logistics/supply chain, and IoT systems on construction sites.

Registration: Space is limited and will be first come first serve.
Registration Fee: $25 BSCES Members and $30 Non-Members
Please see BSCES website for additional information on attire and parking.

Register to attend this meeting and pay by credit card online at http://bit.ly/BSCESAutodeskTour. 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 call 617/227-5551. You can also register for this event by mail or email. To do so, download and complete a BSCES Event Registration Form and follow the submission instructions. Cancellations received after Thursday, January 23, 2019 and no-shows will be billed.

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VHB
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Weston & Sampson
WSP USA

Winter Networking Night

Thursday, February 13, 2020

Dorchester Brewing Company
1250 Massachusetts Ave
Boston, MA 02125
6 PM – 8 PM

DBCO DORCHESTER BREWING

Come join EWRI Boston Chapter to kick off 2020 with a casual social event hosted at Dorchester Brewing Company. Enjoy appetizers and refreshments in a reserved space with fellow colleagues in the environmental and water resources industries.

This event is open to anyone and everyone who is interested in learning about EWRI, how to become more involved, or just want to socialize!

Registration Deadline: Monday, February 10, 2020

$20 Members, $25 Non-Members
$15 Public Sector Members, $20 Public Sector Non-Members
$5 Senior Members (65+), $5 Students (21+ only)

Registration includes appetizers and one drink ticket.

Information/Registration:

Register to attend this meeting and pay by credit card online at bit.ly/BSCESWinterNetworking. 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 call 617/227-5551. You can also register for this event by mail or email. To do so, download and complete a BSCES Event Registration Form and follow the submission instructions. Cancellations received after February 10, 2020 and no-shows will be billed.

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This presentation provides 0 Professional Development Hours (PDH)

Supported by the staff of The Engineering Center Education Trust

Please join us!

Annual Networking & Billiards Tournament

Wednesday, February 19th, 2020
6:00 PM – 9:00 PM
(Registration: 5:30pm-6:00pm)

Join the Younger Member Group for the annual billiards tournament and networking event at Scholars! Participants will compete in teams and prizes will be awarded to 1st, 2nd, and 3rd place winners.

Cost:

Students $25, Members $30, Non-Members $35

*Registration includes tournament entry and appetizers.

Online Registration Deadline:

February 12, 2020

Scholars Boston Bistro

25 School Street, Boston, MA 02108

Register online: http://bit.ly/YMGBilliards2020

Information/Registration:

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 call 617-227-5551. You can also register for this event by mail or email. To do so, download and complete a BSCES Event Registration Form and follow the submission instructions. Cancellations received after Wednesday, February 12, 2020 and no-shows will be billed.

For more information, please contact YMG@BSCES.ORG

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Spring 2020
Professional Engineer Refresher Course

The BSCES Professional Engineer Refresher Course consists of twelve classes covering both the breadth and depth portions of the five Civil Professional Engineer Exams. Plans are underway for course lectures will be held at Northeastern University, Boston, MA. All lectures are scheduled for Tuesday and Thursday evenings from 7:30-9:30 PM except for the initial session which runs from 7:30-10:00 PM. Due to changes in instructor availability and weather, it may be necessary to schedule make-up sessions on prearranged "Open" dates, which include Tuesday, 3/10, 3/24 & 4/14, and Thursday,3/5 4/9 and 4/16.

Class	Day	Date	Time	Subject	Instructor	Email
1	Tuesday	02-18	7:30 - 9:30 PM	Geotechnical & Exam Review	Jim Lambrechts	lambrechtsj@wit.edu
2	Thursday	02-20	7:30 - 9:30 PM	Geotechnical	Jim Lambrechts	lambrechtsj@wit.edu
3	Tuesday	02-25	7:30 - 9:30 PM	Water Supply	Annalisa Onnis-Hayden	a.onnis-hayden@northeastern.edu
4	Thursday	02-27	7:30 - 9:30 PM	Engineering Economics	Christina Cosma	cosmac@wit.edu
5	Tuesday	03-03	7:30 - 9:30 PM	Construction Management	Christina Cosma	cosmac@wit.edu
6	Thursday	03-05	7:30 - 9:30 PM	Open		
7	Tuesday	03-10	7:30 – 9:30 PM	Open		
8	Thursday	03-12	7:30 - 9:30 PM	Structures	Andrea Mercado	andrea.mercado@mottmac.com
9	Tuesday	03-17	7:30 - 9:30 PM	Structures	Andrea Mercado	andrea.mercado@mottmac.com
10	Thursday	03-19	7:30 - 9:30 PM	Wastewater	Annalisa Onnis-Hayden	a.onnis-hayden@northeastern.edu
11	Tuesday	03-24	7:30 - 9:30 PM	Open		
12	Thursday	03-26	7:30 - 9:30 PM	Hydraulics	R. Edward Beighley	r.beighly@neu.edu
13	Tuesday	03-31	7:30 - 9:30 PM	Hydrology	R. Edward Beighley	r.beighly@neu.edu
14	Thursday	04-02	7:30 - 9:30 PM	Highway Design	Peter Reed	preed@bscgroup.com
15	Tuesday	04-07	7:30 - 9:30 PM	Transportation	Jack Martin	jack.martin@stantec.com
16	Thursday	04-09	7:30 – 9:30 PM	Open		
19 17	Tuesday	04-14	7:30 - 9:30 PM	Open		
18	Thursday	04-16	7:30 – 9:30 PM	Open		
19	**Friday**	**04-17**	**8:30 AM - 5:00 PM**	**State Exam**		

Registration deadline is Friday, February 7, 2020. Click here to register for this program and pay by credit card online. To register online at the BSCES member rate you must use your BSCES-assigned username and password. Call 617/227-5551 if you do not know your username or password. You may also register by completing and returning this registration form and including payment by check (made payable to BSCES) or credit card. Mail your completed registration and payment to: BSCES, One Walnut Street, Boston, MA 02108-3616. Email or fax your registration to bscesreg@engineers.org or 617/227-6783, respectively. If you register in this manner and are paying by check, you must also mail a copy of this form with your payment. No phone reservations will be accepted. Registrations canceled after Friday, February 7, 2020 will be charged the full program registration fee. For more information, call 617/227-5551.

Registration Fees: (Please check the box to the left of the appropriate per person registration fee below):

☐ $525 BSCES Member Rate ☐ $610 Non-Member Rate ☐ $525 Quantity Discount Rate*

Name: _____ Day Phone/Fax: _____

Organization: _____ Address: _____

City: _____ State: _____ Zip Code: _____

Email Address: _____

Please bill my: (Check one) ☐ Visa ☐ MasterCard ☐ American Express

Name on Credit Card: _____

Credit Card Number: _____ Expiration Date: _____

Credit Card Billing Address: _____

_____

Signature: _____

* Individuals are eligible to register at the Quantity Discount Rate when five or more individuals from the same organization are paid registrants for this Professional Engineer Refresher Course. If this is the case, please include the names and email addresses of the other individuals from that organization who are attending this course. Complete and attach an additional registration form if more than five individuals from the same organization are registering.

Attendees may visit The Power to Pass website to order copies of *Civil Engineering Reference Manual for the PE Exam* and *Practice Problems for the Civil Engineering PE Exam: A Companion to the Civil Engineering Reference Manual*. Send an email requesting the BSCES promotional code to bsces@engineers.org, which will enable you to receive a 15% discount on the cost of these and other PPI-published materials.

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Waterfront Facilities Assessment Workshop

Instructors: Noah J. Elwood, P.E. *(President, Appledore Marine Engineering, LLC),* **Bryan N. Jones, P.E., D.PE** *(NE Ports & Maritime Lead, HDR Engineering, Inc.),* **Matthew J. Page, P.E.** *(Senior Project Manager, GZA), and* **Charlie M. Roberts, P.E., D.PE** *(President, Childs Engineering Corp.)*

Thursday, March 12, 2020

GZA Corporate Headquarters – Main Conference Room
249 Vanderbilt Avenue, Norwood, MA 02062
7:30 am - 8:00 am Registration
8:00 am - 1:30 pm Workshop (Breakfast / Box Lunch Provided)

Based on the efforts of the COPRI Ports & Harbors Committee's work in publishing the ASCE-COPRI Manual of Practice for Waterfront Facilities Inspection and Assessment and its soon-to-be-published companion manual on waterfront facility rehabilitation, this half-day workshop is a condensed version of the full-day course recently presented at the Ports 2019 Conference in Pittsburgh, PA. The goal of the workshop will be to provide best-of-industry guidance on the inspection and rehabilitation of waterfront infrastructure with a focus on understanding the basic modes of degradation of various materials in the marine environment and the methods to assess, mitigate and rehabilitate waterfront infrastructure..

The four-hour workshop is designed to help facility operators, owners, and engineers:

- Identify material properties and modes of degradation in the marine environment
- Apply recommended inspection and assessment practices
- Identify appropriate specialized techniques for evaluation
- Examine approaches for analysis, preservation, and repair
- Use waterfront industry "lessons learned" to avoid pitfalls

Registration Deadline: Friday, March 6, 2020

$90 Members, $115 Non-Members
$75 Public Sector Members, $90 Public Sector Non-Members
$30 Senior Members (65+), Students

Information/Registration:

Register to attend this meeting and pay by credit card online at http://bit.ly/COPRIWorkshop. 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 call 617/227-5551. You can also register for this event by mail or email. To do so, download and complete a BSCES Event Registration Form and follow the submission instructions. Cancellations received after Friday, March 6, 2020 and no-shows will be billed.

ASCE
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This presentation provides (4.5 PDHs) Professional Development Hours (PDH)

Supported by the staff of The Engineering Center Education Trust

The 2020 Northeastern University Engineers Week

DISTINGUISHED SEMINAR

Hosted by the Department of Civil and Environmental Engineering

Anticipating The Future Built Environment

Gerald E. Buckwalter

Chief Operating and Strategy Officer,
American Society of Civil Engineers (ASCE)

Thursday February 20, 2020

102 ISEC
3PM - 4PM

A reception will follow this event from 4pm-5pm in 655 ISEC

Brought to you in partnership with BASE, BSCES, and SEAMass

ABSTRACT: From climate change to autonomous vehicles, engineers are confronting a variety of environmental challenges, demographic shifts and technological changes that will require a drastic rethinking of how we build, operate, and maintain our infrastructure systems. Planning for the future is difficult for nearly every organization. ASCE decided to launch the Future World Vision project to help meet this challenge. We compiled and winnowed more than 100 global macrotrends to examine six important sociopolitical, economic, environmental, and technological trends as key drivers of change for future built infrastructure. Our desire is that the Future World Vision project will establish ASCE and civil engineers as bold thought leaders, provide a platform to envision the future built environment and ultimately optimize future system performance and the benefit to society, and be a next-generation tool that interacts and resonates with those who will create the future built environment—the next generation of civil engineers. The Future World Vision platform is an immersive computer model, using gaming engines, that will create virtual future worlds with evocative visuals, multiple characters and rich narratives that explore holistic city, community and neighborhood systems, including the cultural, social, economic, political, ethical and environmental aspects at different scales. This platform will enable engineers to ask the right questions about a future built environment that doesn't exist yet, contemplate solutions, postulate the resulting benefit to society – well in advance of starting to design those solutions. This will enable us to better prepare engineers today for possible future needs and challenges.

BIO: Gerald (Jerry) E. Buckwalter has more than 35 years of varied executive leadership in general management, business development, strategy and innovation, program operations and policy development spanning military, government, international, and commercial domains. He is the Chief Operating and Strategy Officer of ASCE, overseeing all aspects of internal operations including Finance, Administration, Engineering, Lifelong Learning and Human Resources. Prior to joining ASCE, Mr. Buckwalter was a Northrop Grumman Corporate Director of Strategy. His responsibilities included reshaping the company's business portfolio, mergers and acquisitions, long-term strategies, innovation initiatives and professional development. Among many distinguished service positions, Mr. Buckwalter was a member for the National Infrastructure Advisory Council reporting to the White House from 2008 to 2012. Mr. Buckwalter earned a degree in Physics from Monmouth University and has extensive continuing education at George Washington University and the Massachusetts Institute of Technology.

Northeastern University
Civil and Environmental Engineering

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805 Columbus Avenue
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